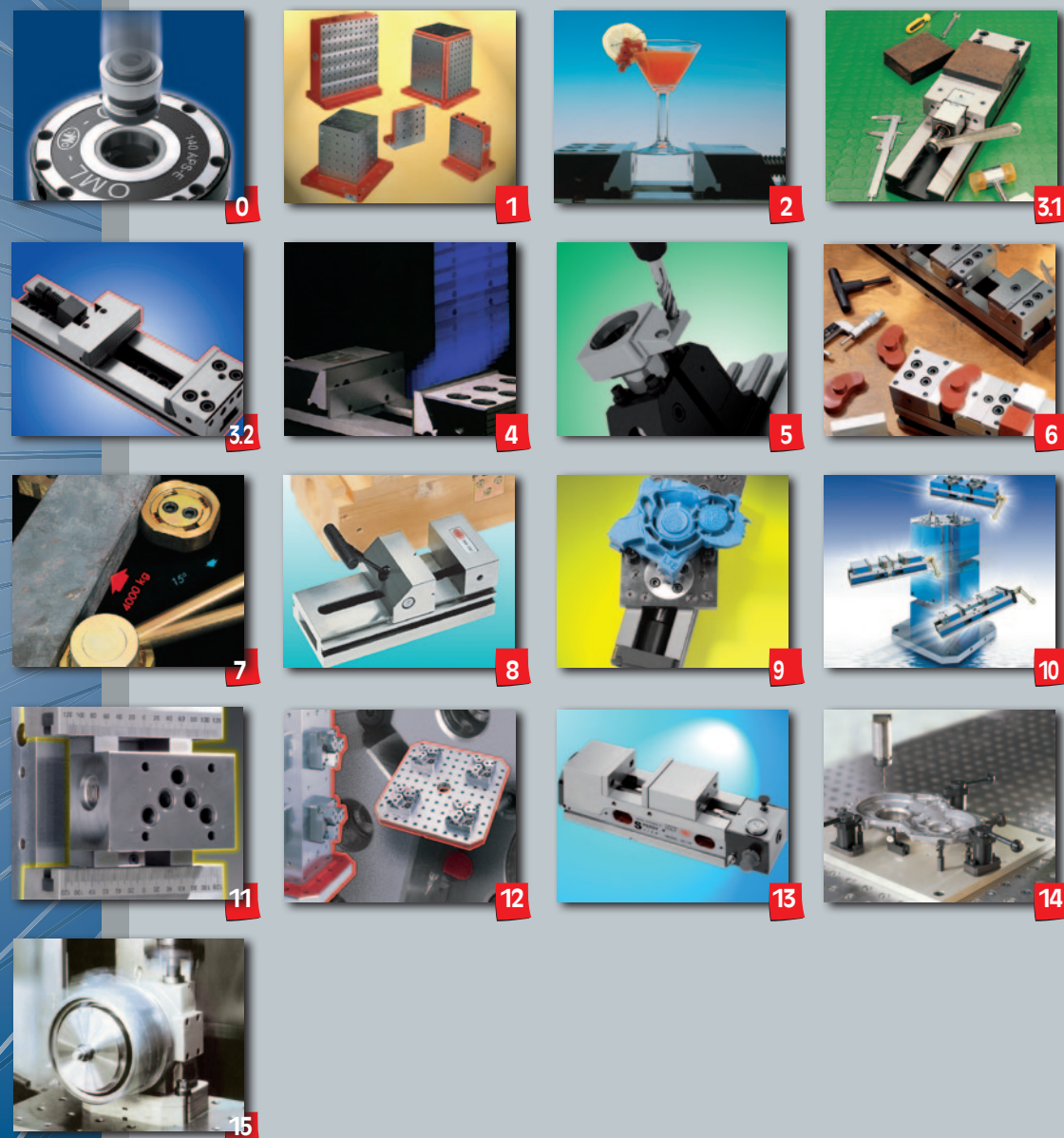




SISTEMI MODULARI DI BLOCCAGGIO
MODULAR CLAMPING SYSTEMS



COMPANY WITH QUALITY MANAGEMENT
SYSTEM CERTIFIED BY DNV
= ISO 9001:2008 =

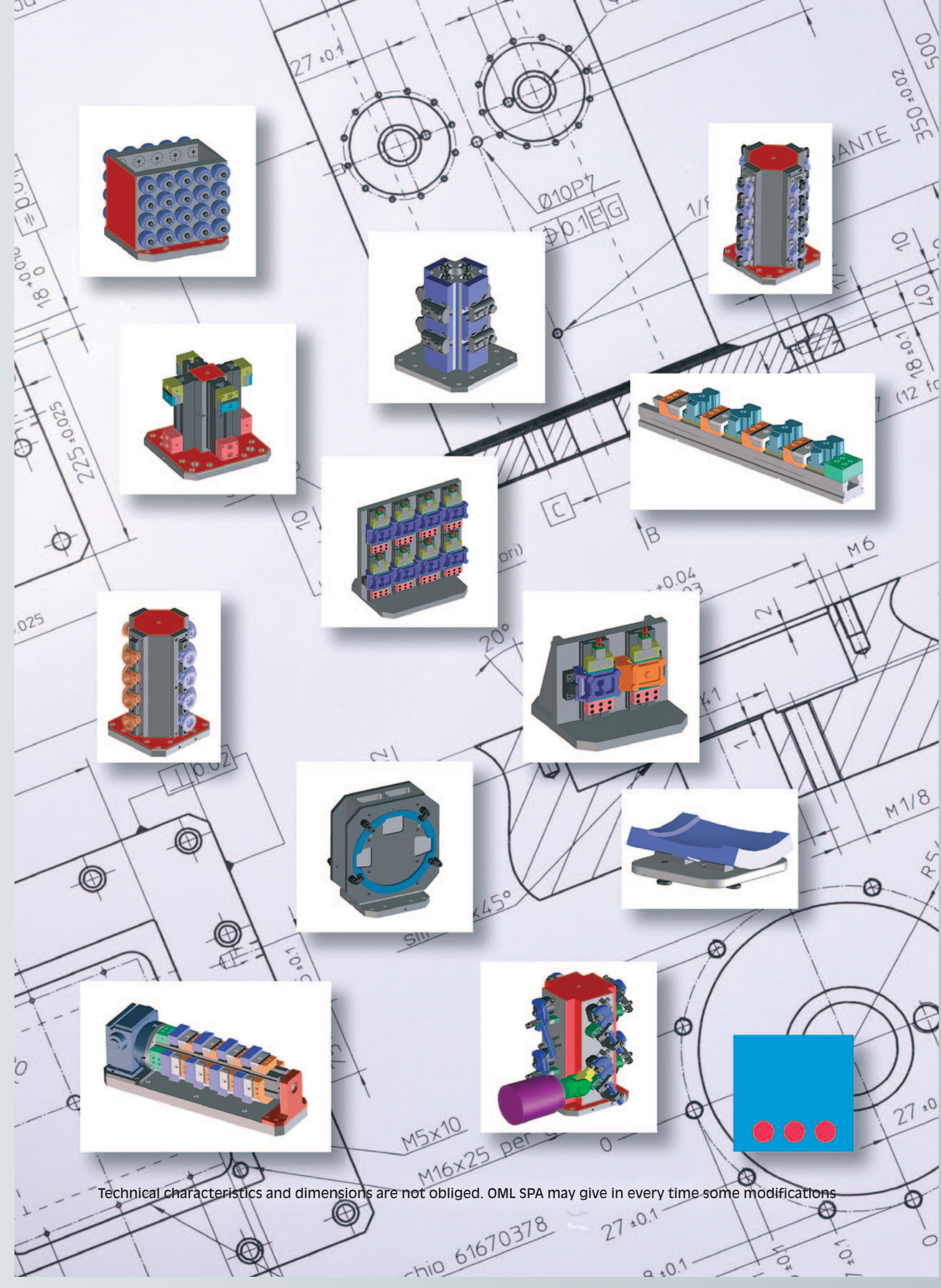


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EN A3 CODE 10 70 61 30 printed 10 September 2012

GENERAL CATALOGUE EN A3







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WE INCREASE
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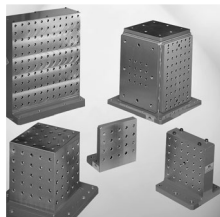


ZERO POINT System "APS" (Automatic Positioning System)



0

Tombstones, crankwebs, subplates



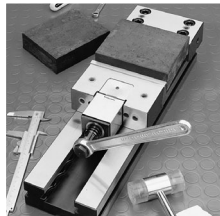
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Modular clamping equipment range "Tct" and "TCg" and accessories



2

Modular clamping equipment range "MC" and accessories



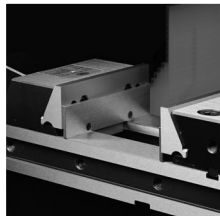
3.1

Modular clamping equipment range "LC" and accessories



3.2

Modular parallels and soft jaws quick change "CLAK"



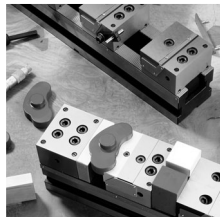
4

Hight precision vise for 5 axis machine tools "GENIUS"



5

Multiple clamping systems "CIVI 2000" and "TETRABLOK" and accessories



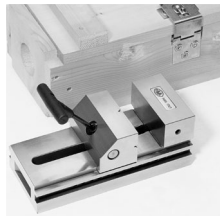
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Eccentric self-locking clamping device "CAM SYSTEM"



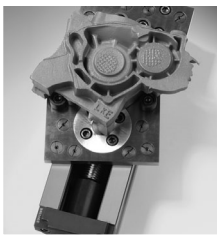
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Grinding clamping equipment "MR" and accessories



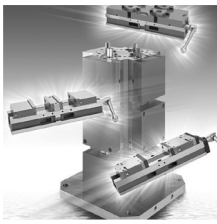
8

Clamping equipments **"Vise POWER"** and **"Vari CLAMP"**



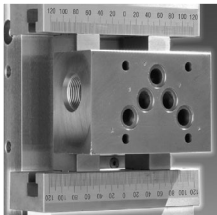
9

Clamping equipment **"DUO-LOCK HD"**



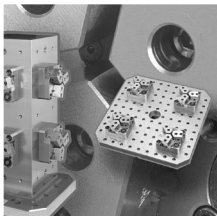
10

Special jaws and accessories



11

Square chucks, **"Y-CHUCK"**; manual, pneumatic, hydraulic static chucks



12

Pneumatic clamping equipments



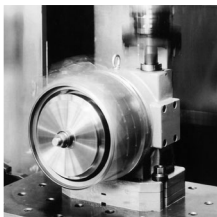
13

"FAST-CLAMPS"



14

"TOUCHDEX"
Automatic mechanical indexing tables



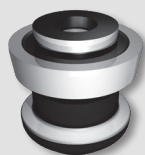
15





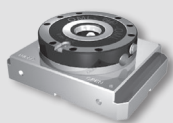
MR 75 - 100

pag. 0. 4



CLAMPING PINS

pag. 0. 7 / 0. 11



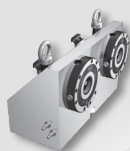
PLATES

pag. 0. 14



PLATES FOR 5 AXIS

pag. 0. 18



ANGLE PLATE

pag. 0. 31



TOMBSTONES

pag. 0. 36



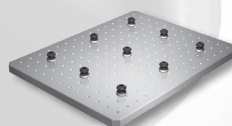
CRANKWEBS

pag. 0. 42



STEEL SMOOTH PLATES

pag. 0. 44



STEEL PLATES WITH GRID

pag. 0. 45



FLANGES FOR INDEXING TABLES "TOUCHDEX"

pag. 0. 46



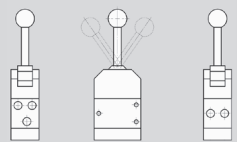
COMBIDEX APS

pag. 0.47



INTERFACE PLATES

pag. 0. 48



ACCESSORIES

pag. 0.49



AUTOMATIC POSITIONING SYSTEM

What is aps?

APS (Automatic Positioning System) is a universal connection between the machine tool, the clamping device and/or the workpiece. The flexibility of APS allows both positioning and clamping in one operation.

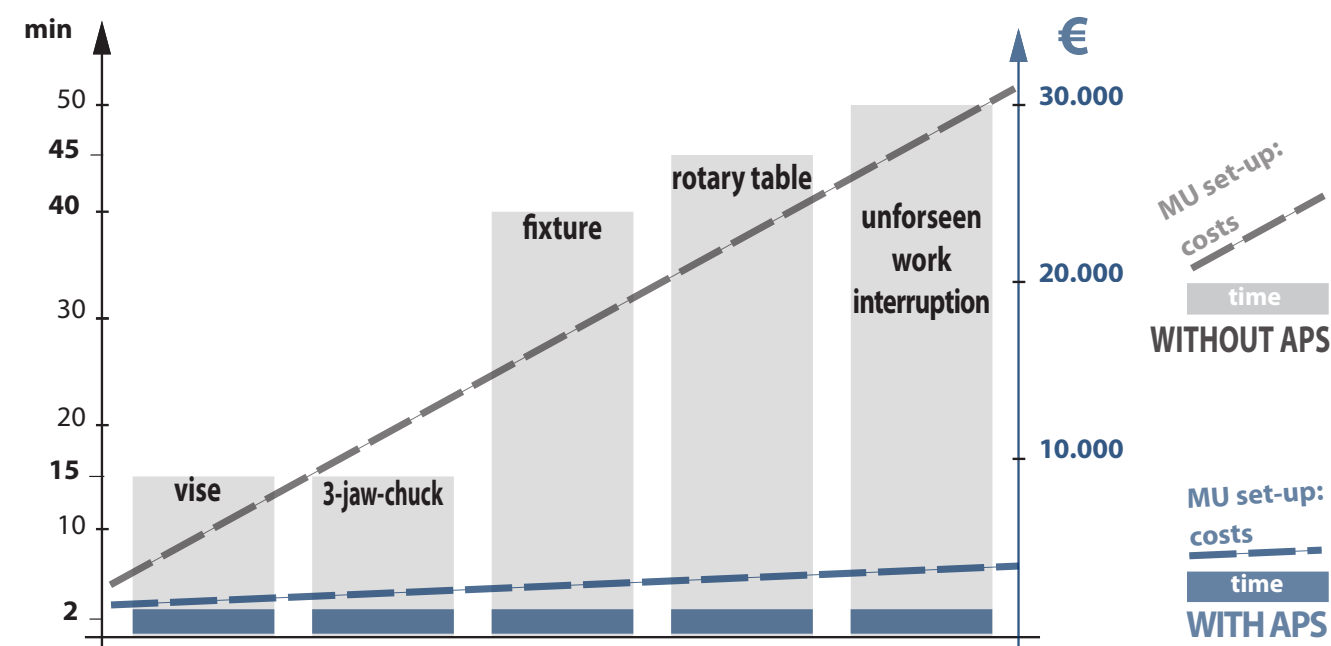
How does it work?

APS uses oiled compressed air (6 BAR-85 psi) for unlocking, it uses spring force for clamping. No compressed air is required in the locked condition. Attach the clamping pins (A;B;C) on the clamping devices or on the workpiece and "it's done"!!! Positioning and clamping in one operation with repeatability accuracy < 0,005 mm (0.0002").

What are the advantages for your company?

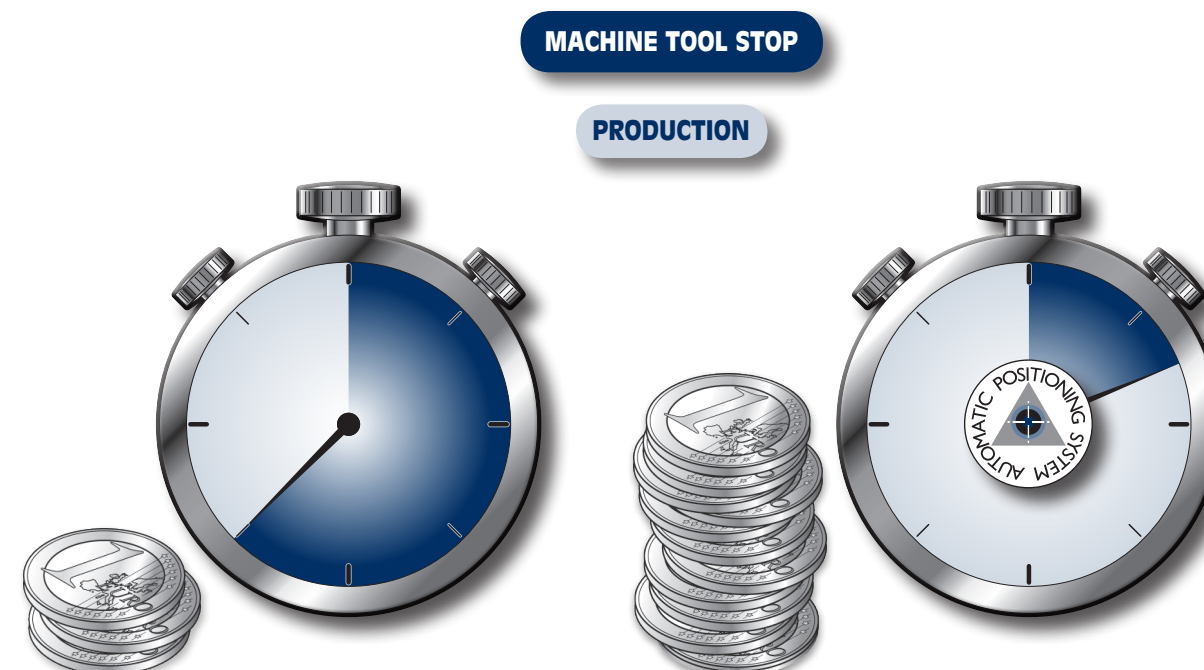
Your set-up times will be reduced by 90 %.
APS offers you greater flexibility in set-up and an increase in productivity resulting in a short pay-back time.

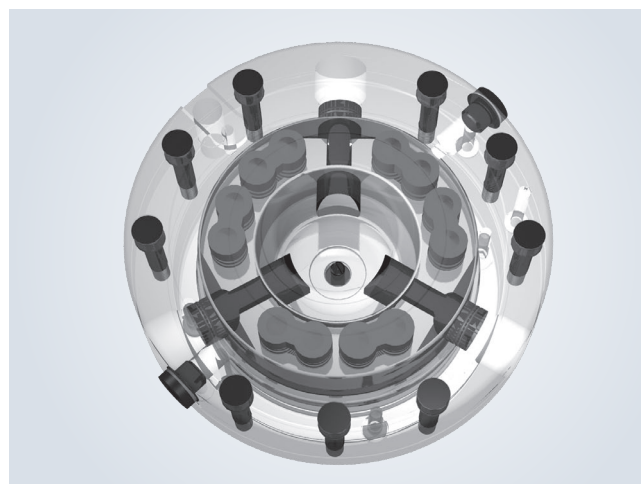
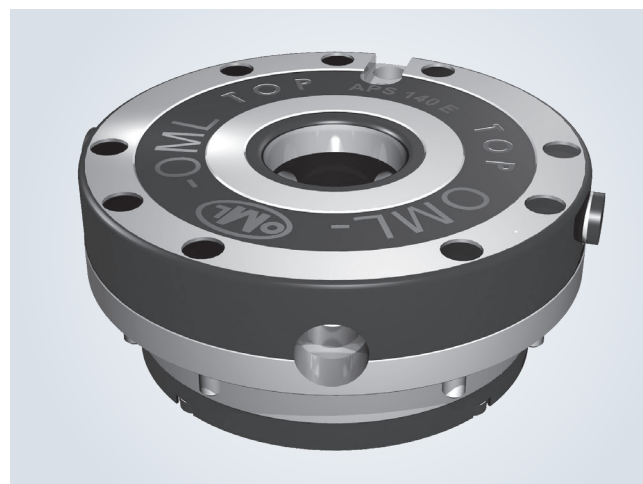
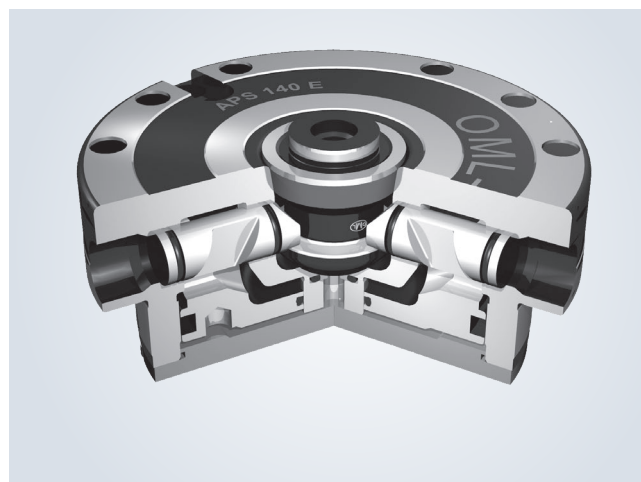
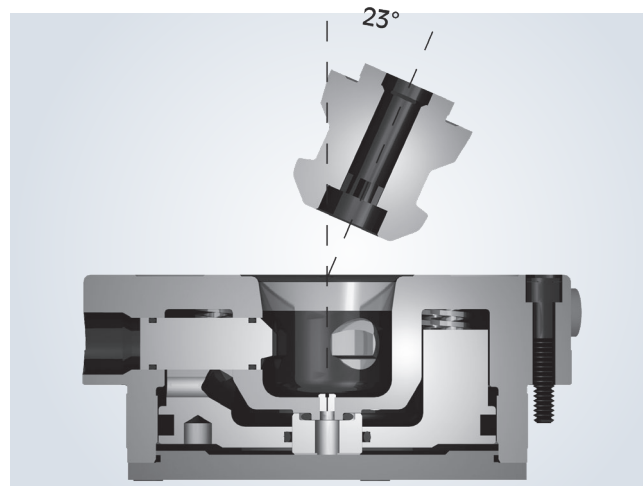
AUTOMATIC POSITIONING SYSTEM



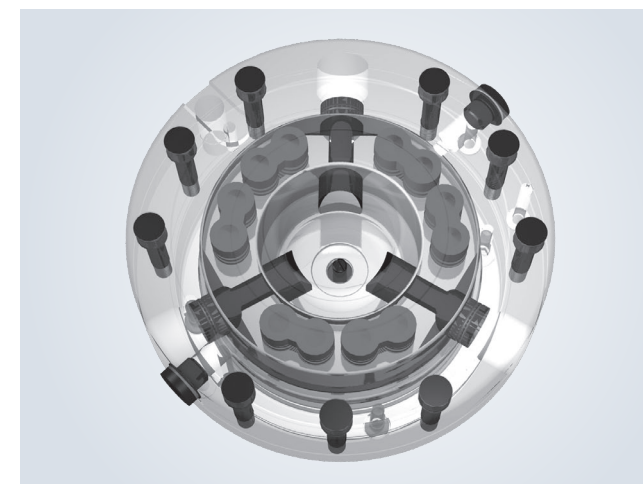
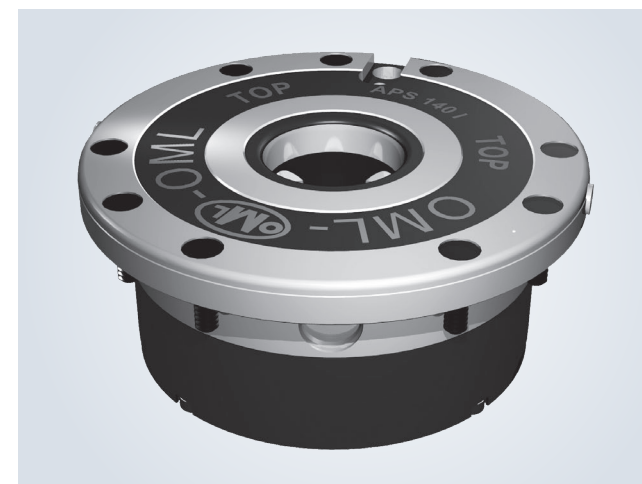
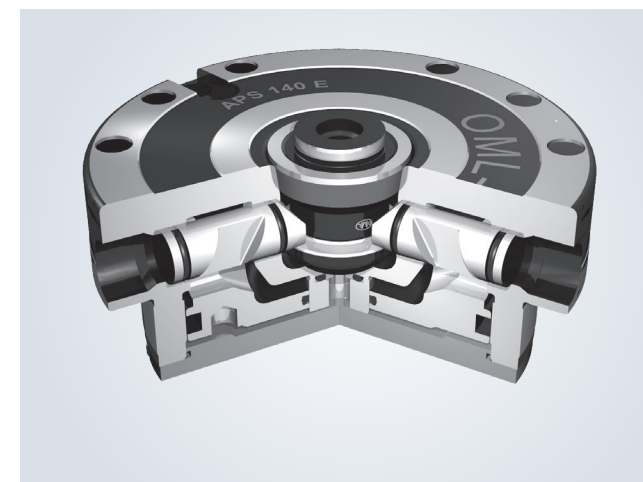
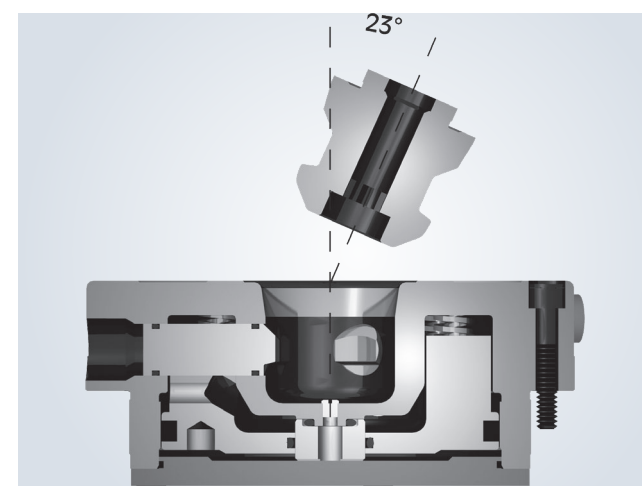
WITHOUT APS

WITH APS

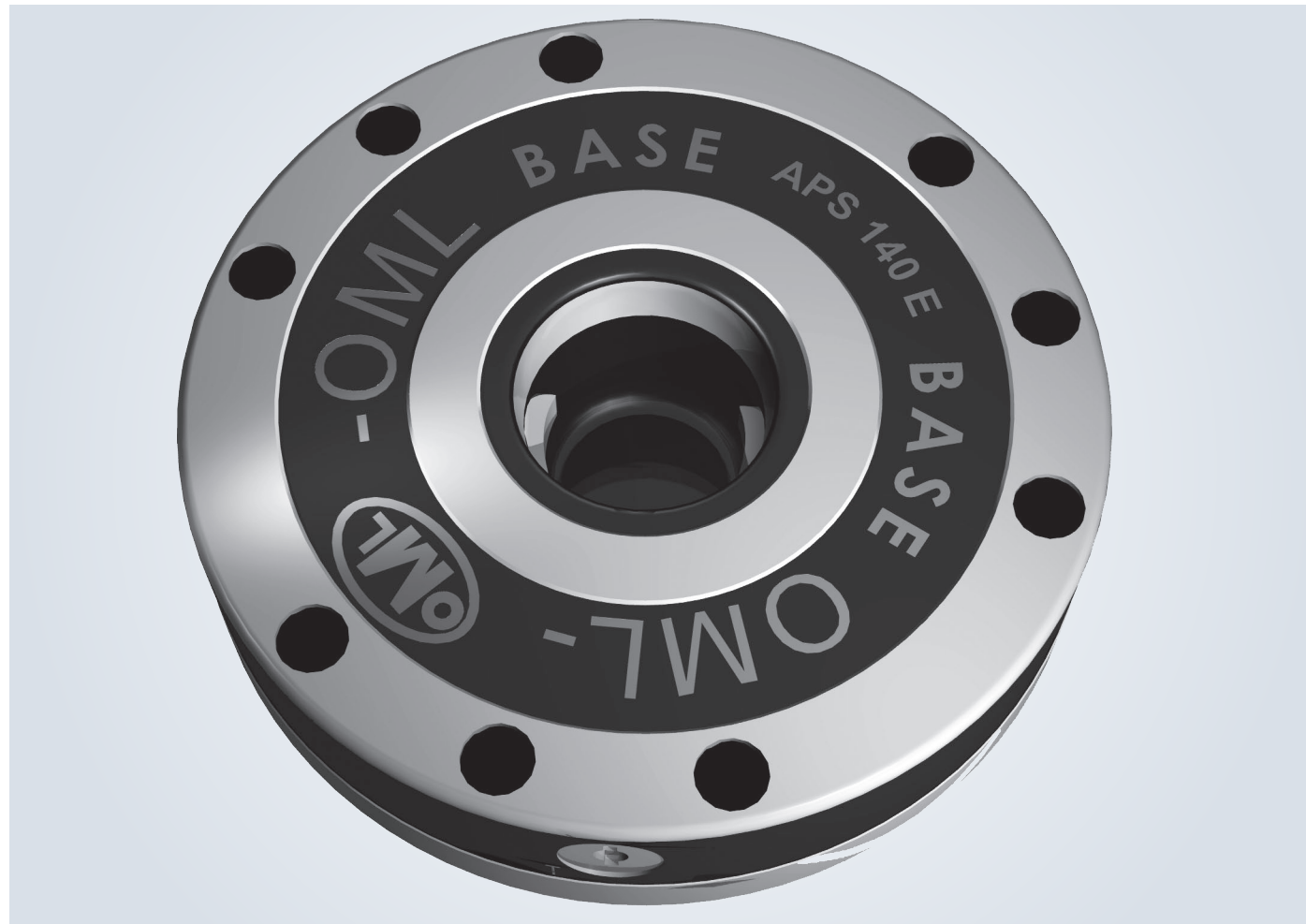




- "Turbo" function always integrated
- 3 jaws for the clamping of the pins
- Mechanical positive locking of the clamping pin by double irreversible wedge
- Hole for workpiece presence (APC) integrated (for automatic pallet change)
- Automatic pneumatic cleaning function through the central hole
- Key-way 12 h7 for single use
- Pull down force 12.000 N
- Pull down force with "Turbo" function 30.000 N
- Repeatability accuracy < 0,005 mm



- "Turbo" function always integrated
- 3 Jaws for the clamping of the pins
- Mechanical positive locking of the clamping pin by double irreversible wedge
- Hole for workpiece presence (APC) integrated (for automatic pallet change)
- Automatic pneumatic cleaning function through the central hole
- Key-way 12 h7 for single use
- Pull down force 12.000 N
- Pull down force with "Turbo" function 30.000 N
- Repeatability accuracy < 0,005 mm



- ▶ "Turbo" function ONLY on request
- ▶ 2 Jaws for the clamping of the pins
- ▶ Mechanical positive locking of the clamping pin by double irreversible wedge
- ▶ Hole for workpiece presence (APC) not available
- ▶ Automatic Pneumatic Cleaning function not available
- ▶ Key-way 12 H7 not available. The single use is not available
- ▶ Pull down force 12.000 N
- ▶ Pull down force with "Turbo" function 30.000 N
- ▶ Repeatability accuracy < 0,005 mm

A

CENTERING PIN



B

REFERENCE PIN



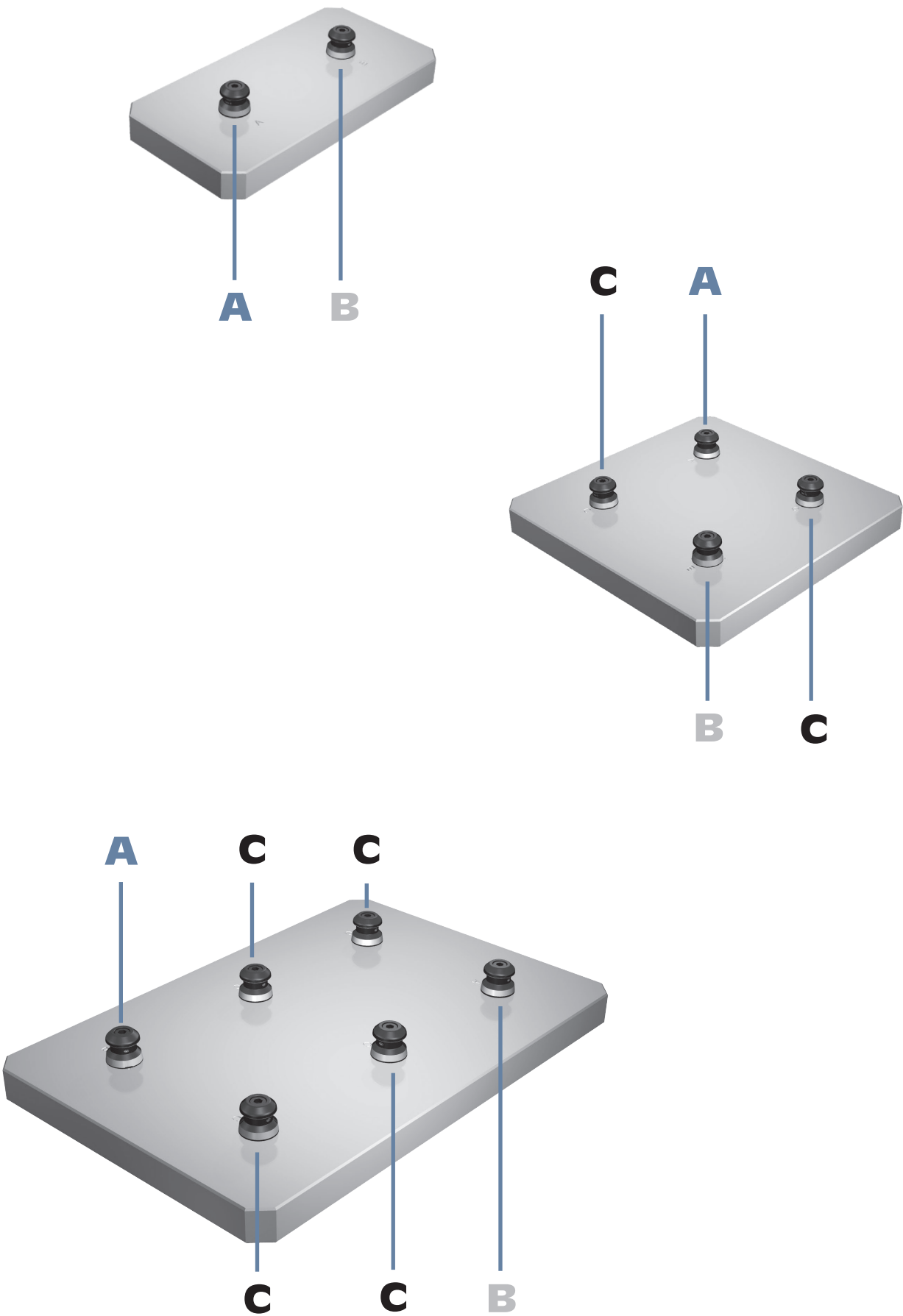
C

PULL-DOWN PIN $\pm 0,05$ mm



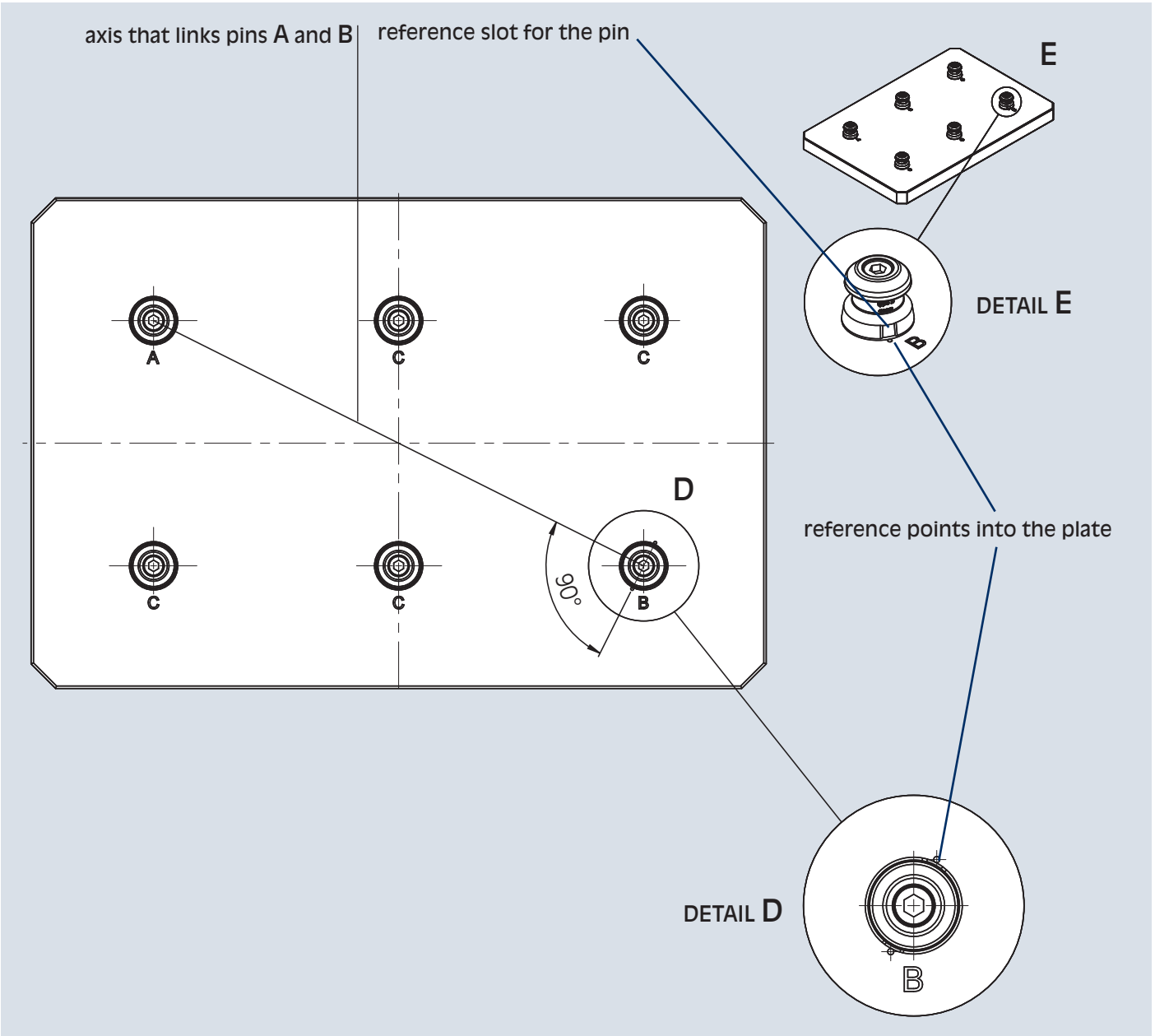
Positioning and clamping of the devices and/or of the workpiece are achieved through the clamping pins.

Type **A** is used for centering and clamping, type **B** is used for reference and clamping, type **C** only for clamping.



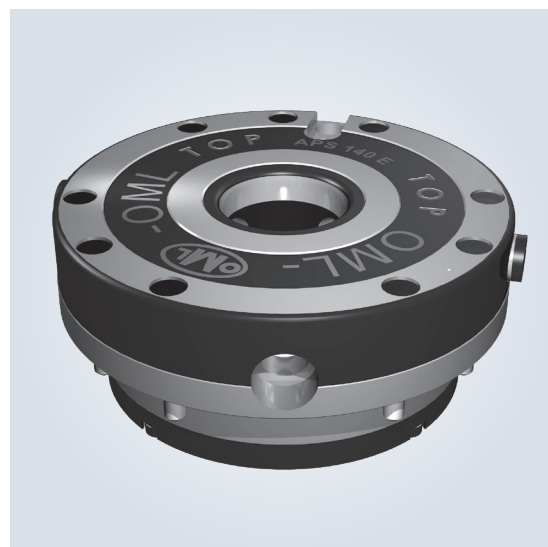
ORIENTATION PIN TYPE B

The reference slot of the pin type B must be oriented at 90° compared to the axis that links pins A and B (detail D = reference slot for the pin aligned with the reference points into the plate)



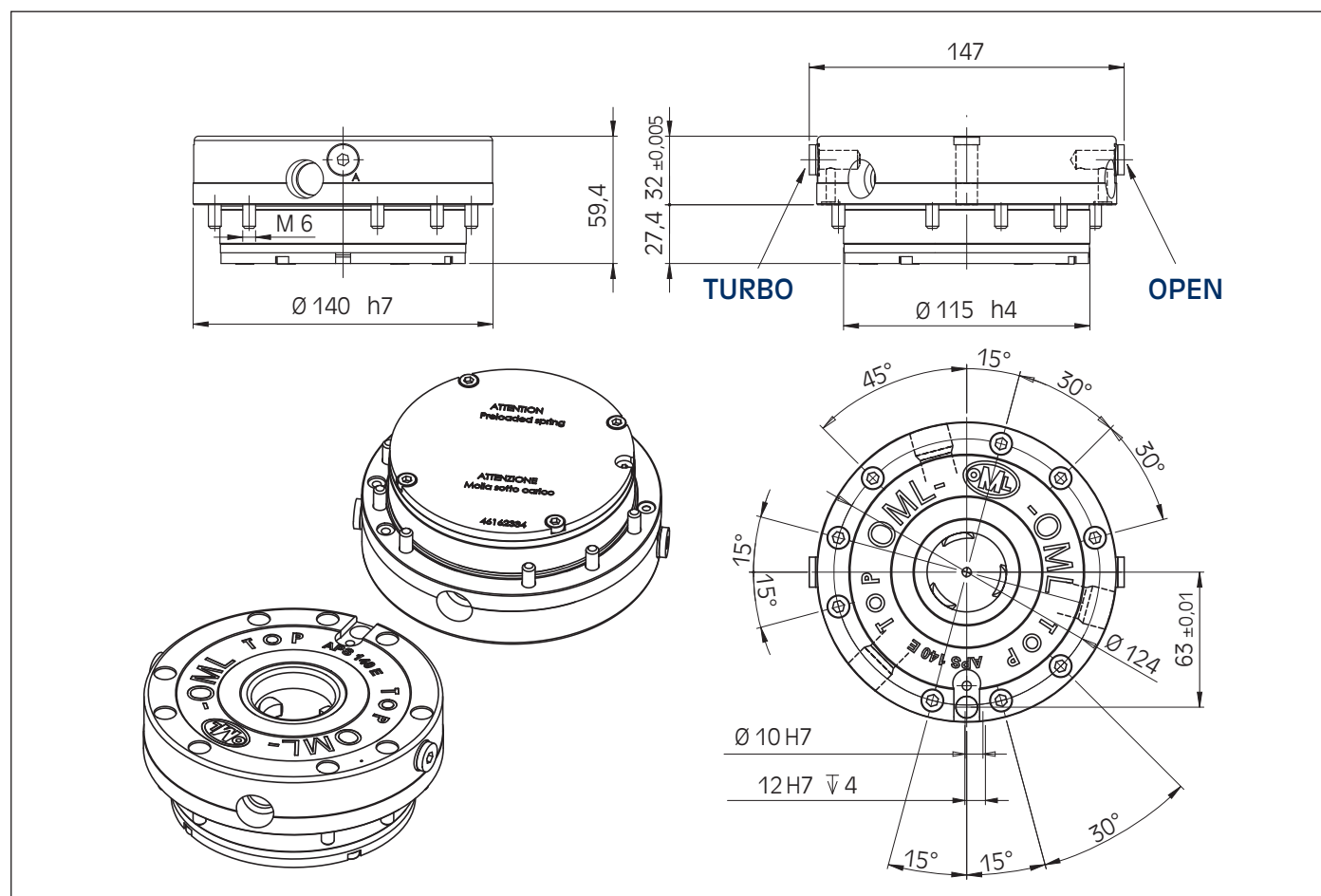
APS-140 E "TOP"

“Top” mounting module



Top mounting module APS 140-E

with turbo effect

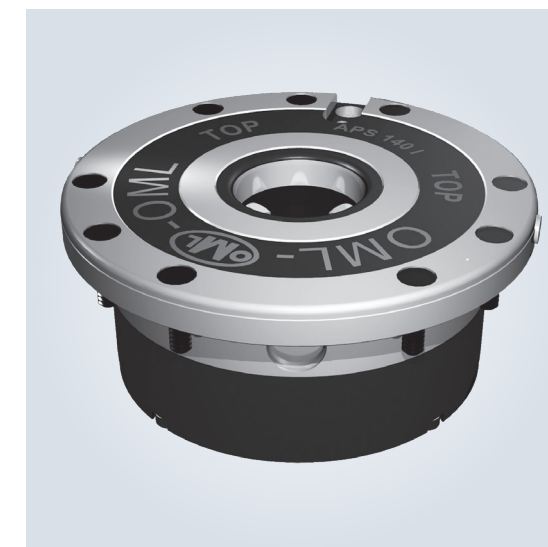


code	pull down force N	unlocking pressure bar	repeatability mm	weight kg
46 16 23 00	30.000	6	< 0,005	4,5

0.10

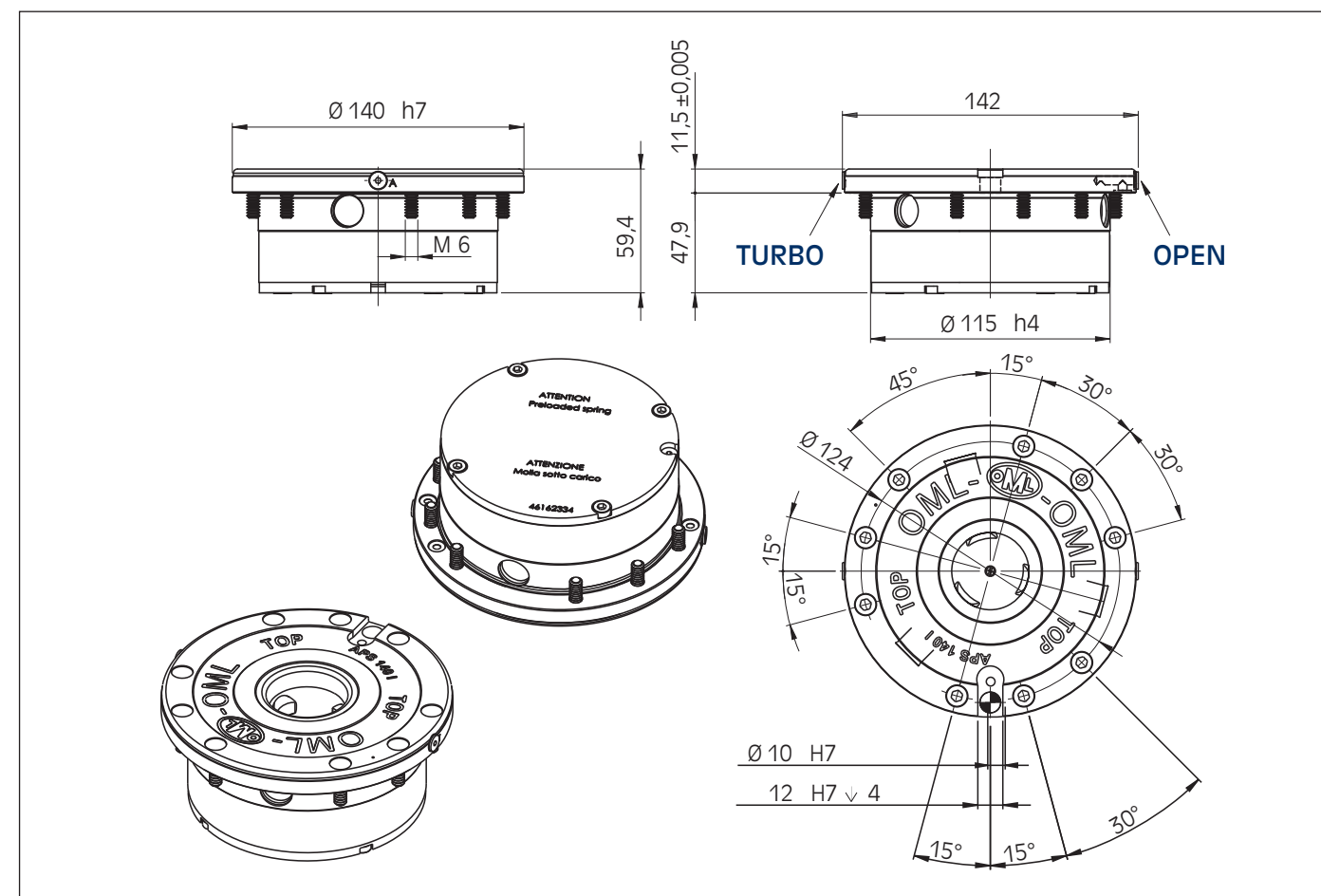
"Top" flange mounting module

APS-140 I "TOP"



Flange mounting module APS 140-I

with turbo effect



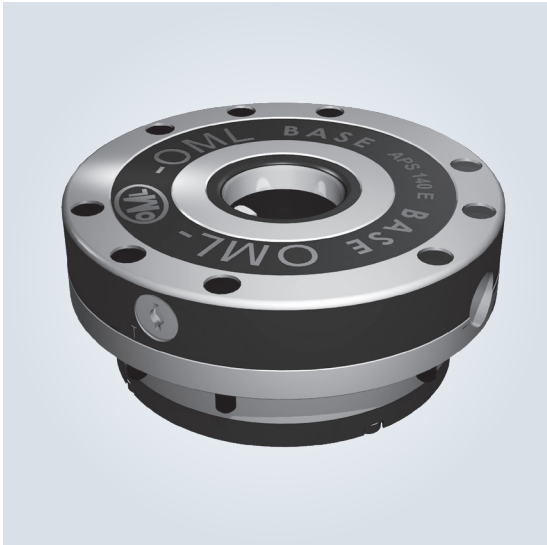
code	pull down force N	unlocking pressure bar	repeatability mm	weight kg
46 16 24 00	30.000	6	< 0,005	4,5

0.11

APS-140 E

"BASE" mounting module

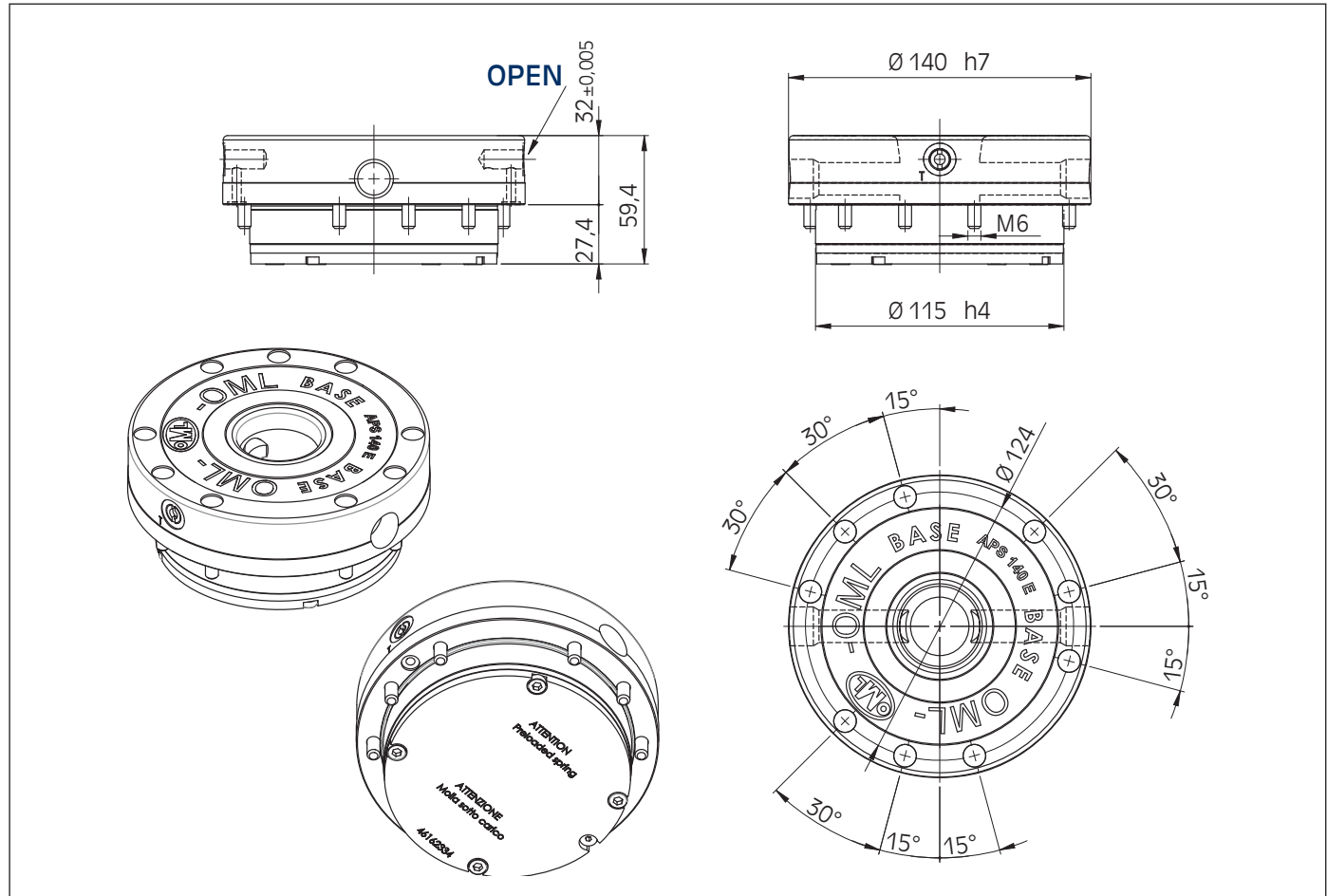
"BASE"



"BASE" mounting module APS 140-E

with turbo effect

only on request



code	pull down force N	unlocking pressure bar	repeatability mm	weight kg
46 16 25 00	12.000 / 30.000	6	< 0,005	4

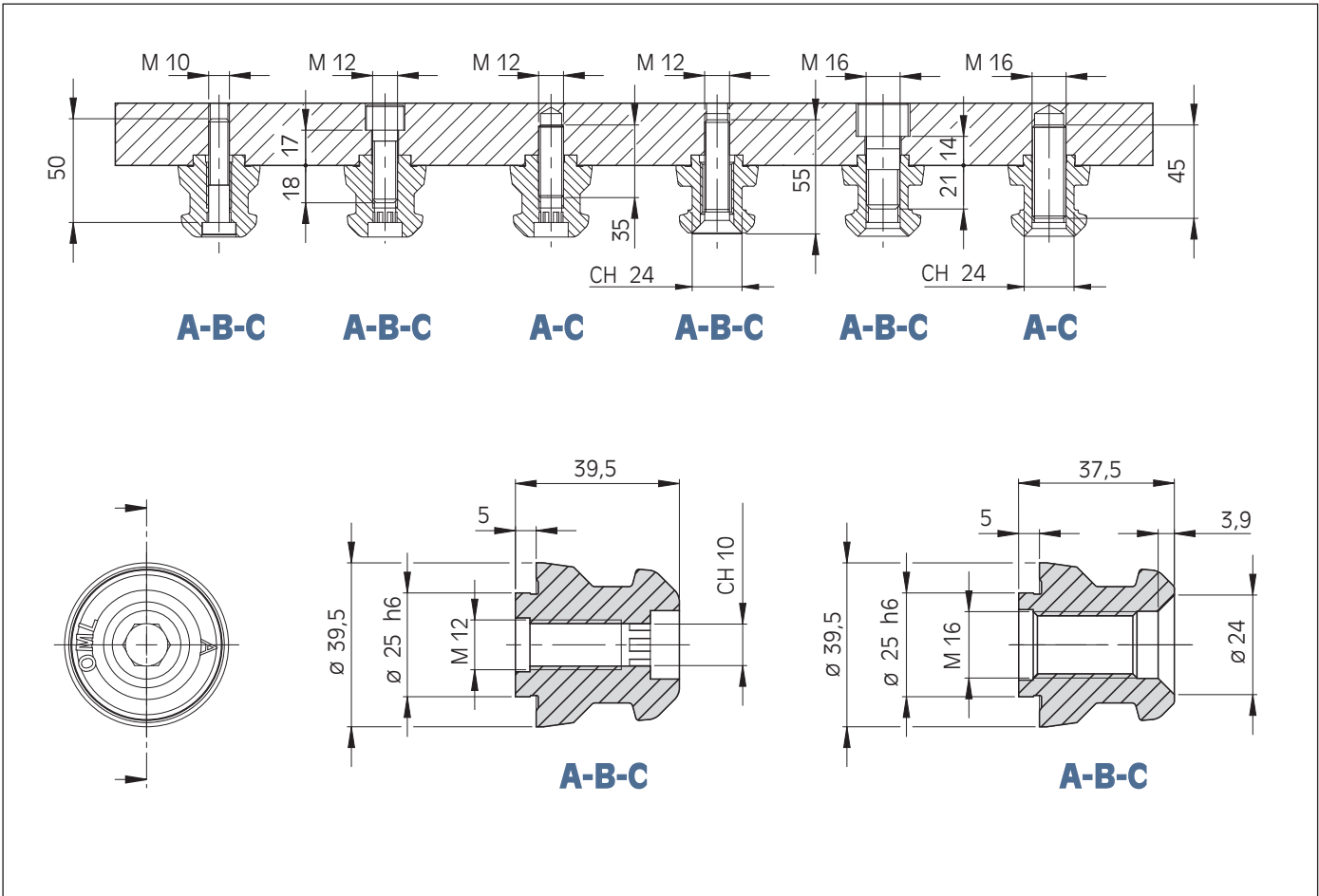
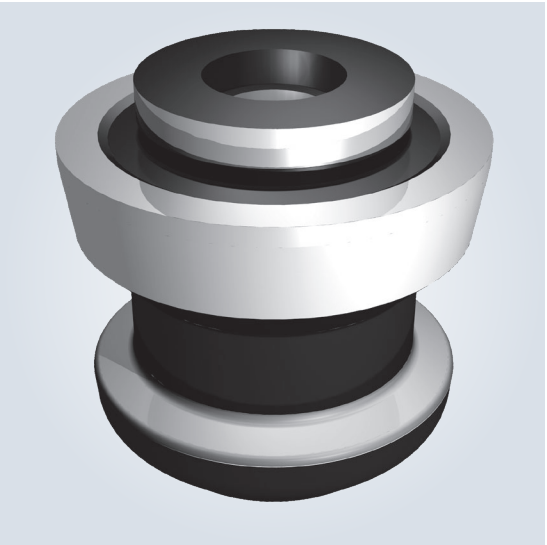
Clamping pins

APS-140

Clamping Pins APS (A-B-C)

Can be used with unlock system

(see pages 0.7/8/9 for operating instructions)



		A	B	C	weight kg
codice Nr.	M 12	46 16 23 05	46 16 23 06	46 16 23 07	0,3
	M 16	46 16 24 05	46 16 24 06	46 16 24 07	0,3

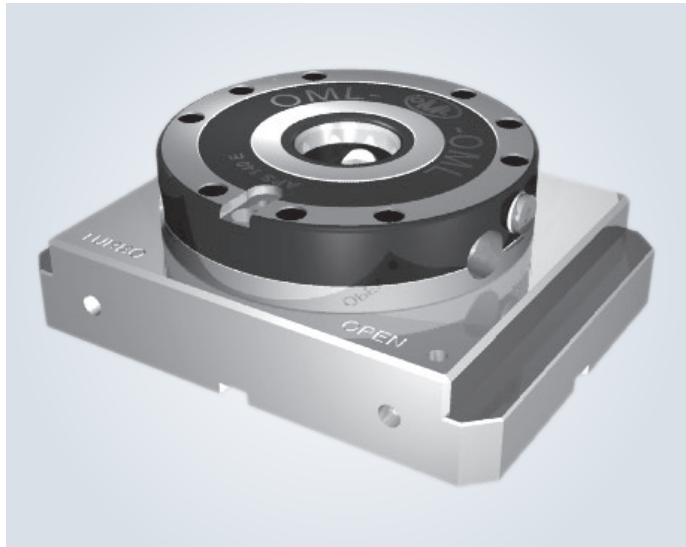
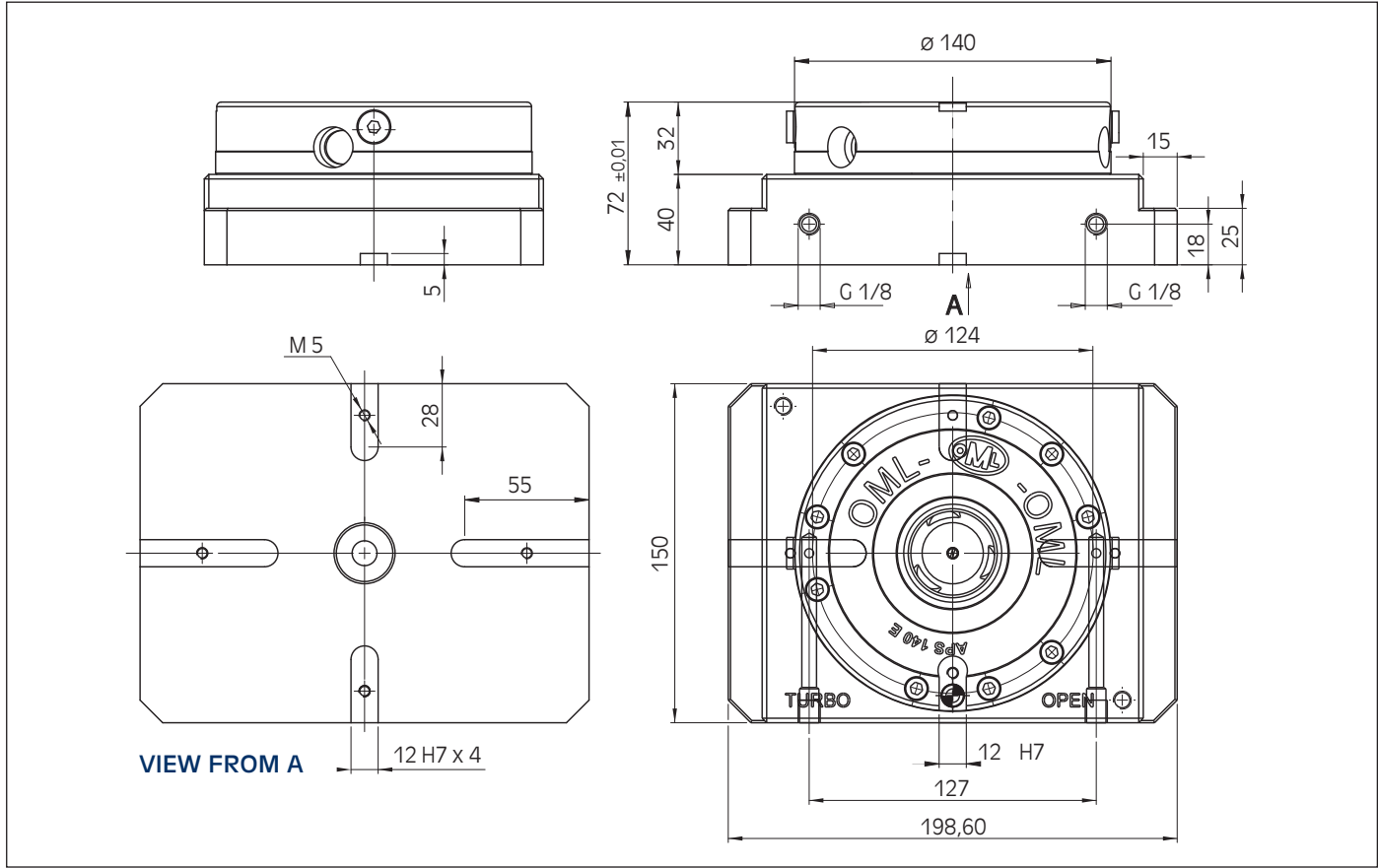


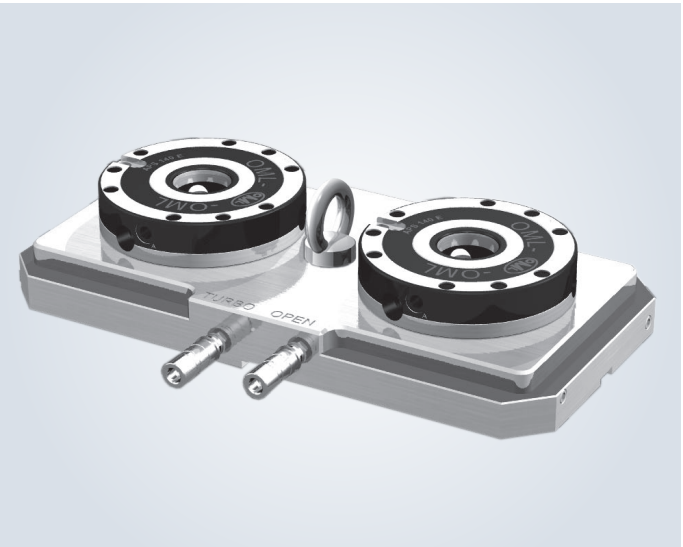
Plate with 1 module APS 140-E

with turbo effect

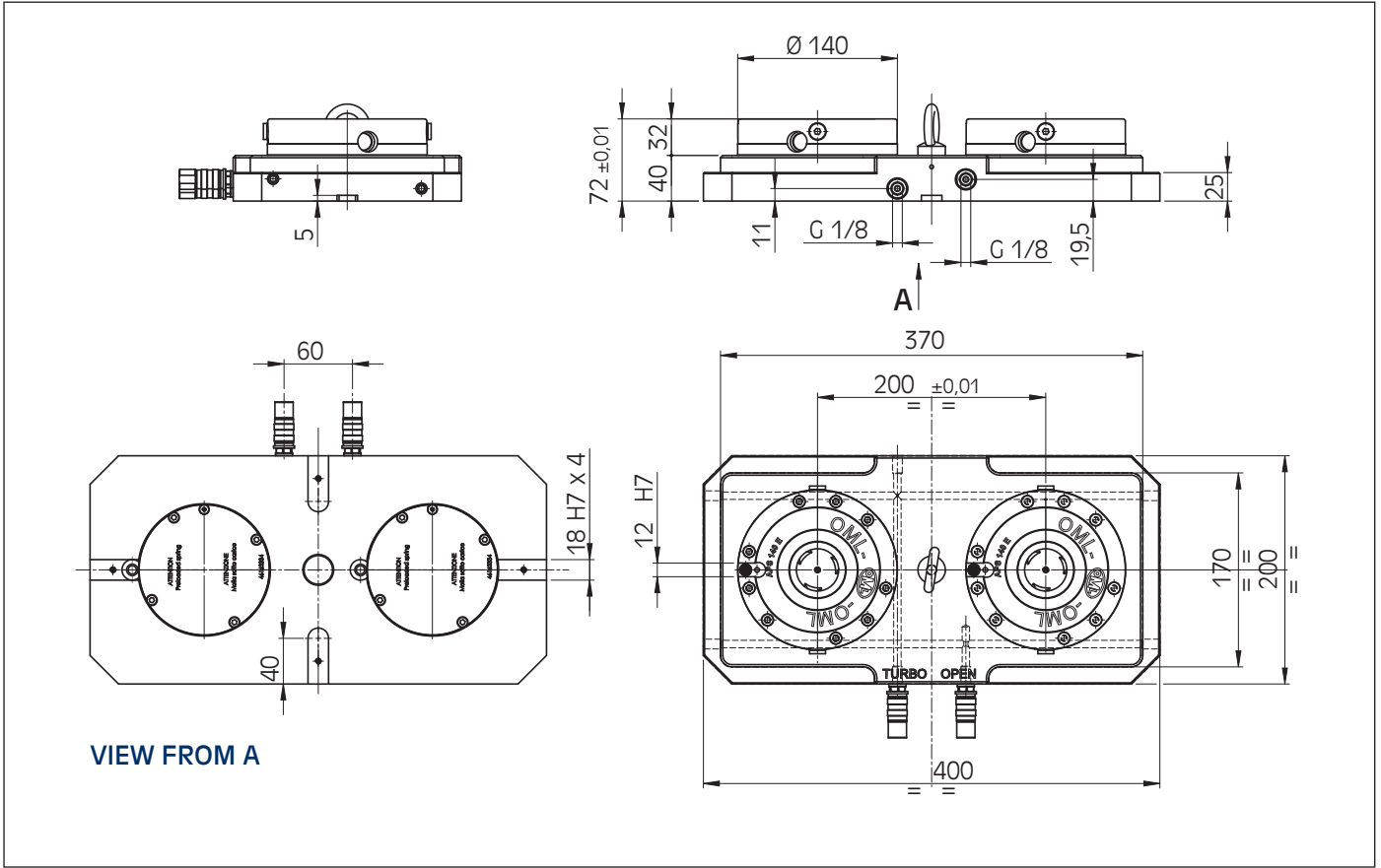


	code	pull down force N (lbs)	unlocking pressure bar	repeatability mm	weight kg
top	46 16 70 10	30.000 (6.745)	6	< 0,005	11

Plate "DUO" APS 140-E



with turbo effect



	code	pull down force N (lbs)	unlocking pressure bar	repeatability mm	weight kg
top	46 16 70 20	30.000 (6.745)	6	< 0,005	28
base	46 16 70 25	12.000 / 30.000	6	< 0,005	28

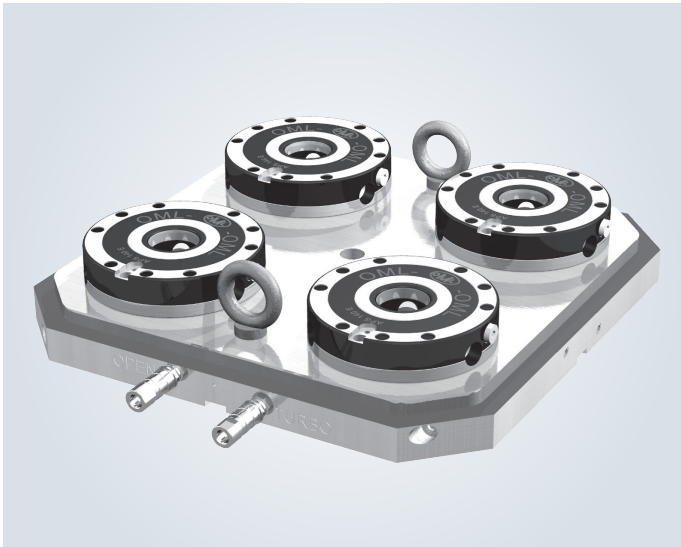
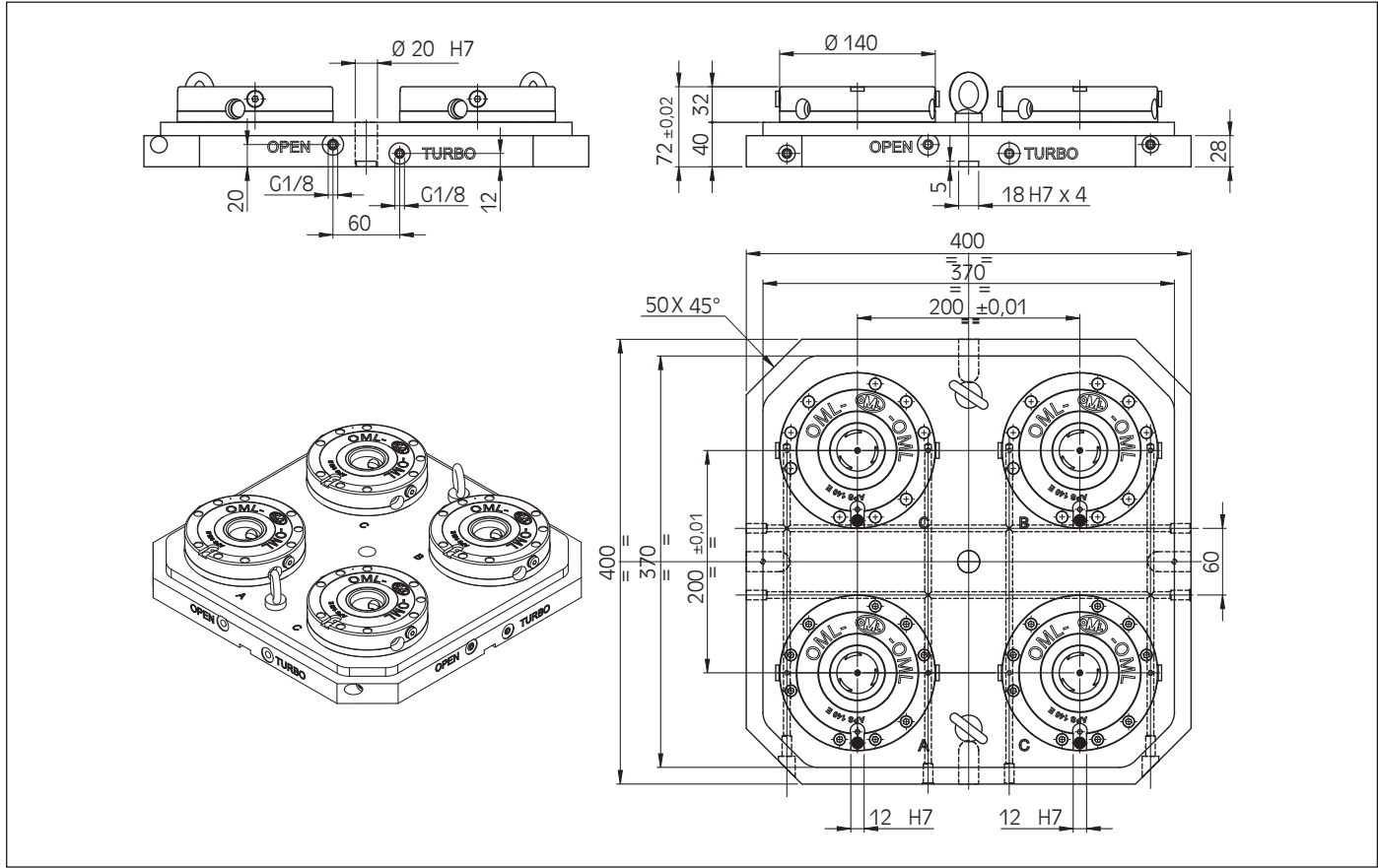


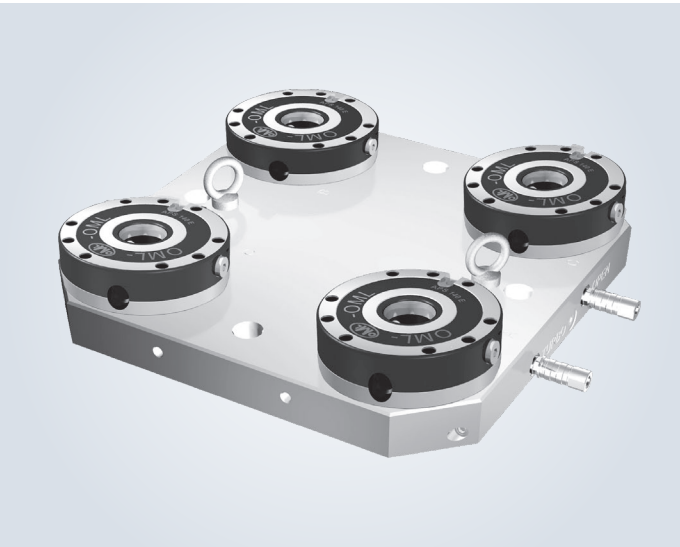
Plate with 4 modules APS 140-E
for vertical machining centers

with turbo effect

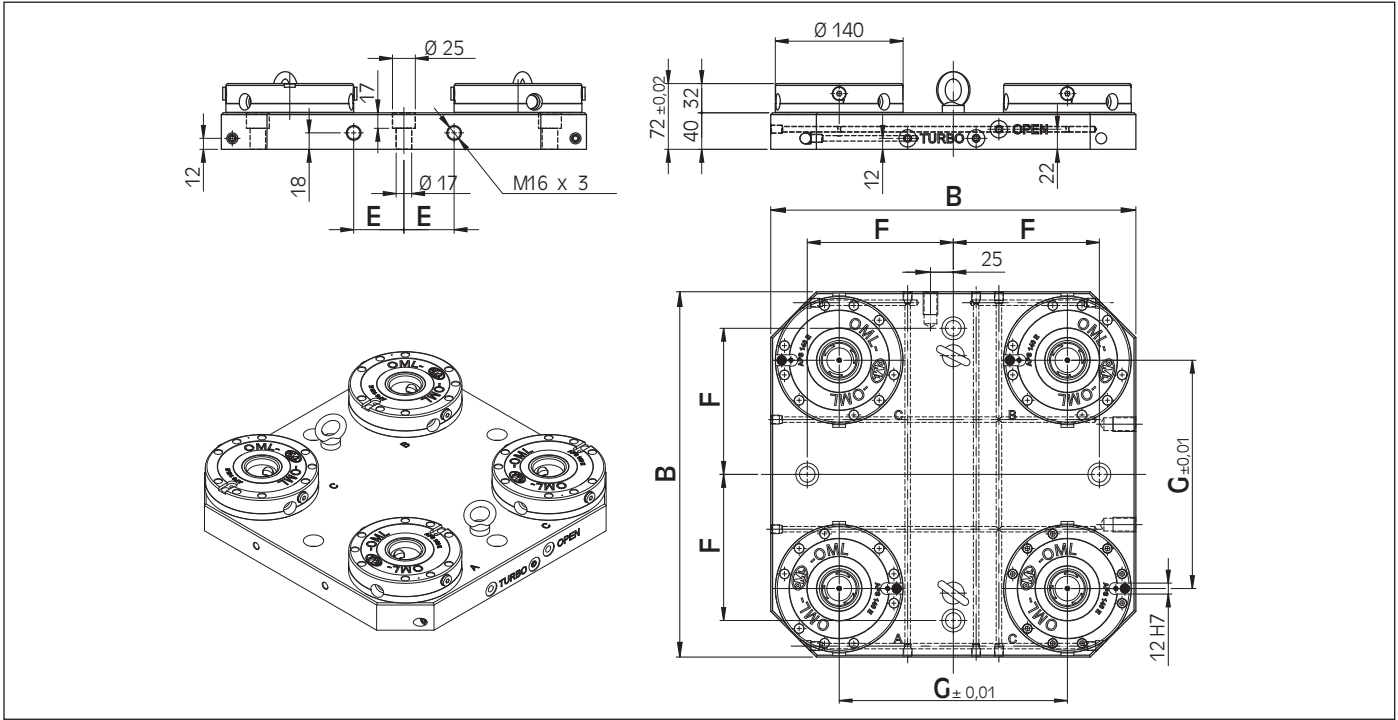


	code	pull down force N (lbs)	unlocking pressure bar	repeatability mm	weight kg
top	46 16 70 30	30.000 (6.745)	6	< 0,005	56
base	46 16 70 35	12.000 / 30.000	6	< 0,005	56

Plate with 4 modules APS 140-E
for horizontal machining centers



with turbo effect



	code	B mm	E mm	F mm	G mm	pull down force N (lbs)	unlocking press. bar	repeatability mm	weight kg
top	46 16 70 40	400	55	160	250	30.000 (6.745)	6	< 0,005	57
base	46 16 70 45	400	55	160	250	12.000 / 30.000	6	< 0,005	57
top	46 16 70 50	500	75	200	300	30.000 (6.745)	6	< 0,005	85
base	46 16 70 55	500	75	200	300	12.000 / 30.000	6	< 0,005	85
top	46 16 70 60	630	100	250	420	30.000 (6.745)	6	< 0,005	130
base	46 16 70 65	630	100	250	420	12.000 / 30.000	6	< 0,005	130

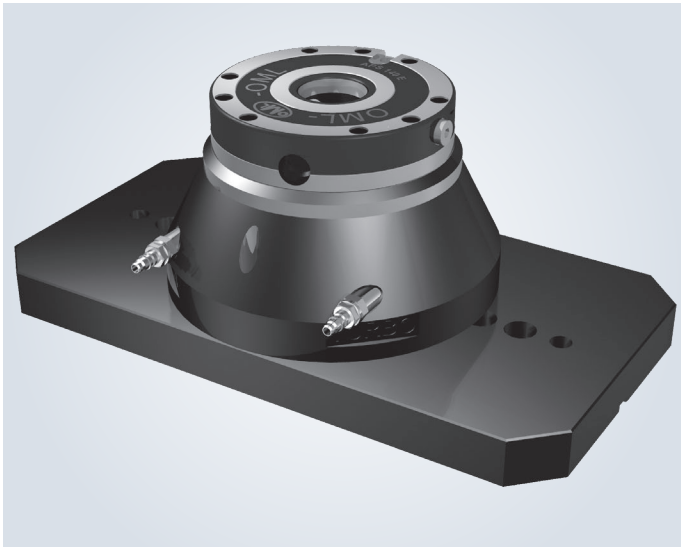
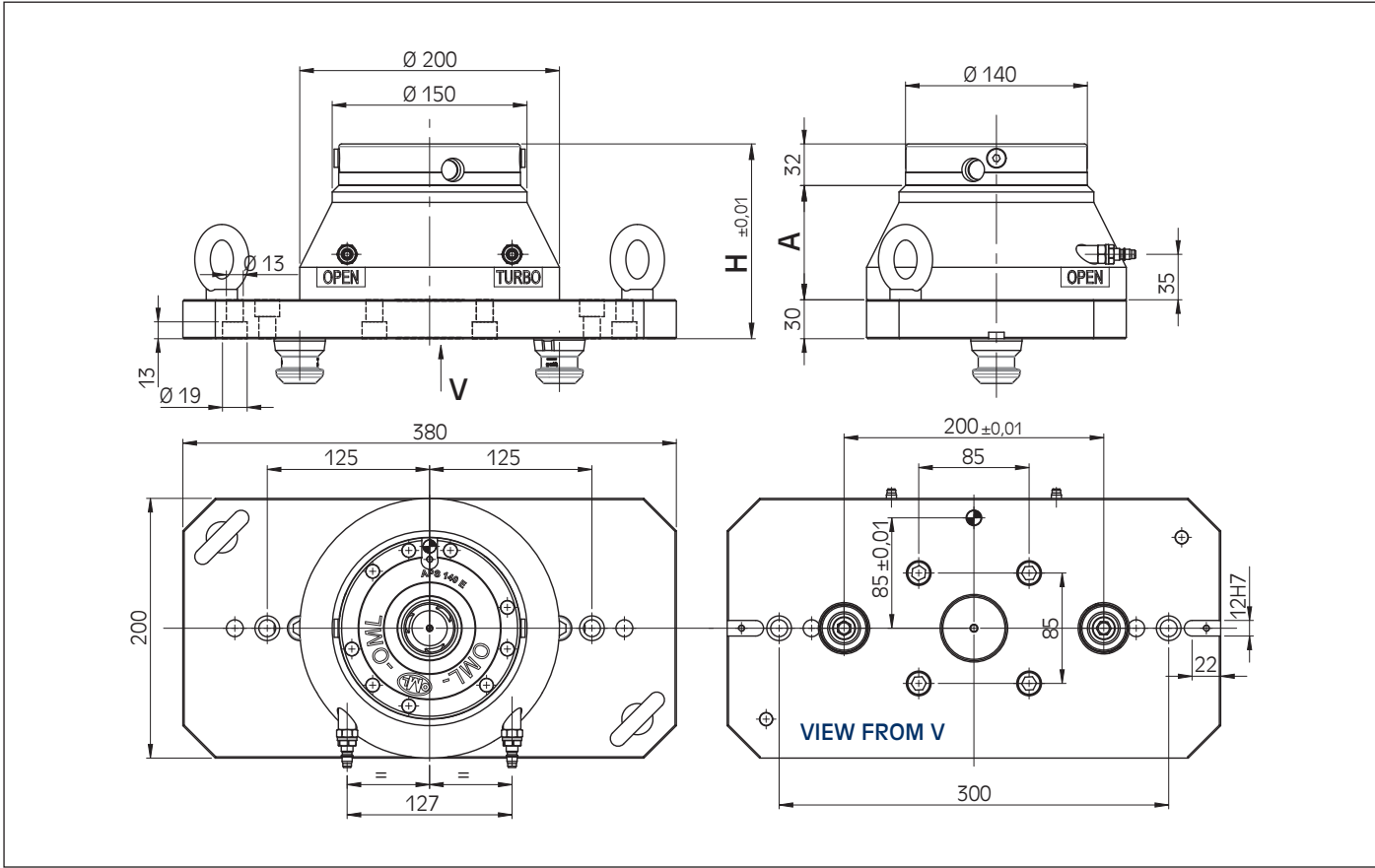


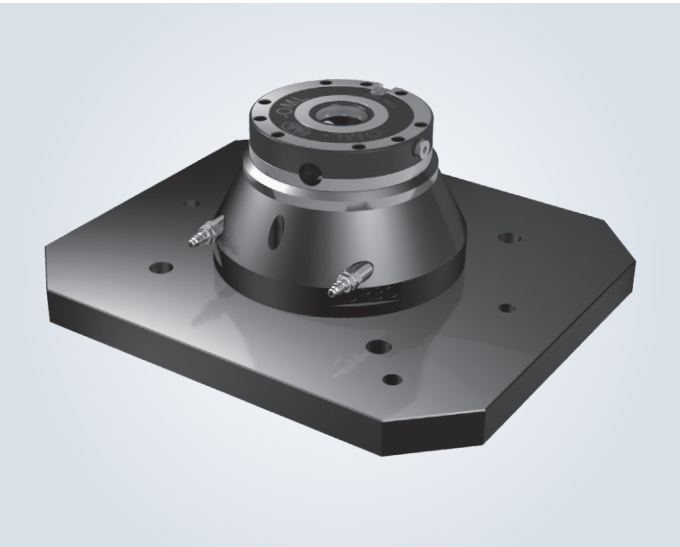
Plate with 1 module APS 140 E for 5 axis M.T.
(adaptation for "DUO" APS)

with turbo effect

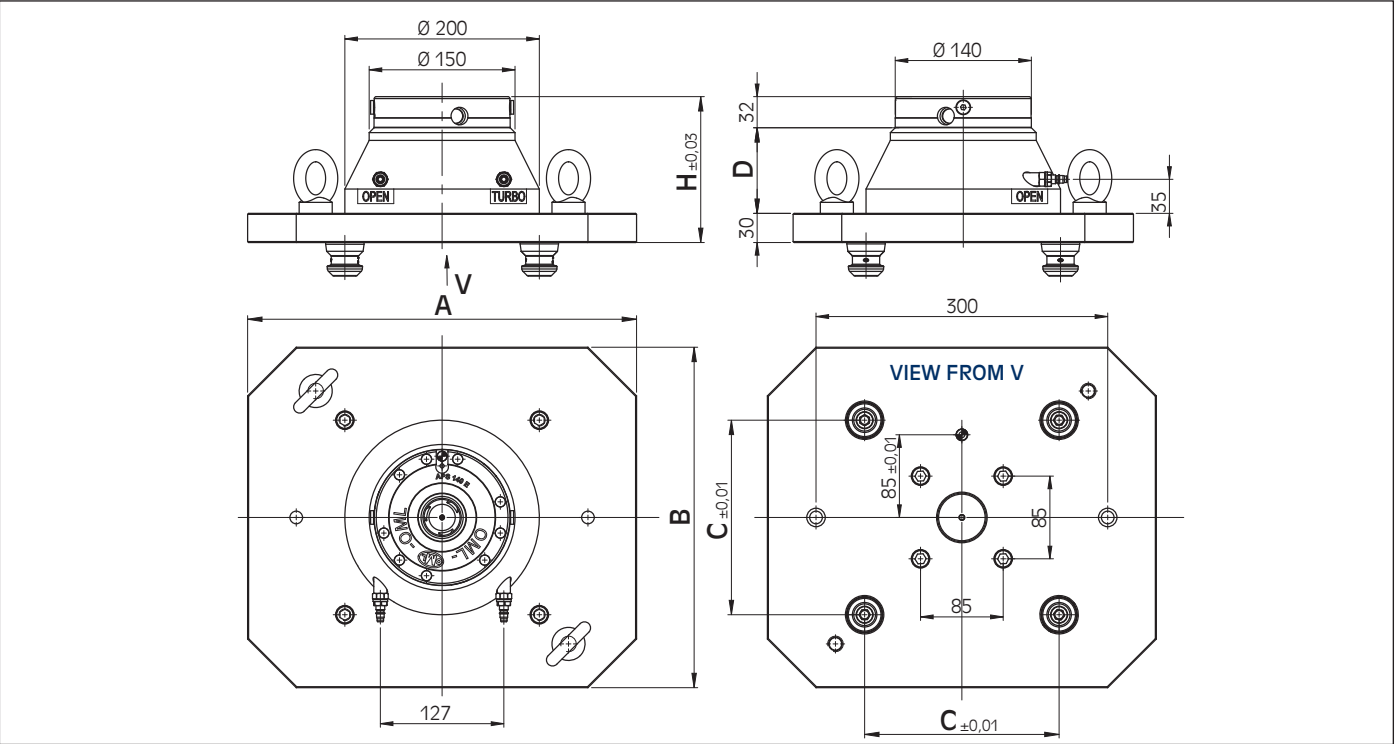


	code	A mm	H mm	weight kg
top	46 16 78 10	88	150	38
top	46 16 78 20	178	240	49

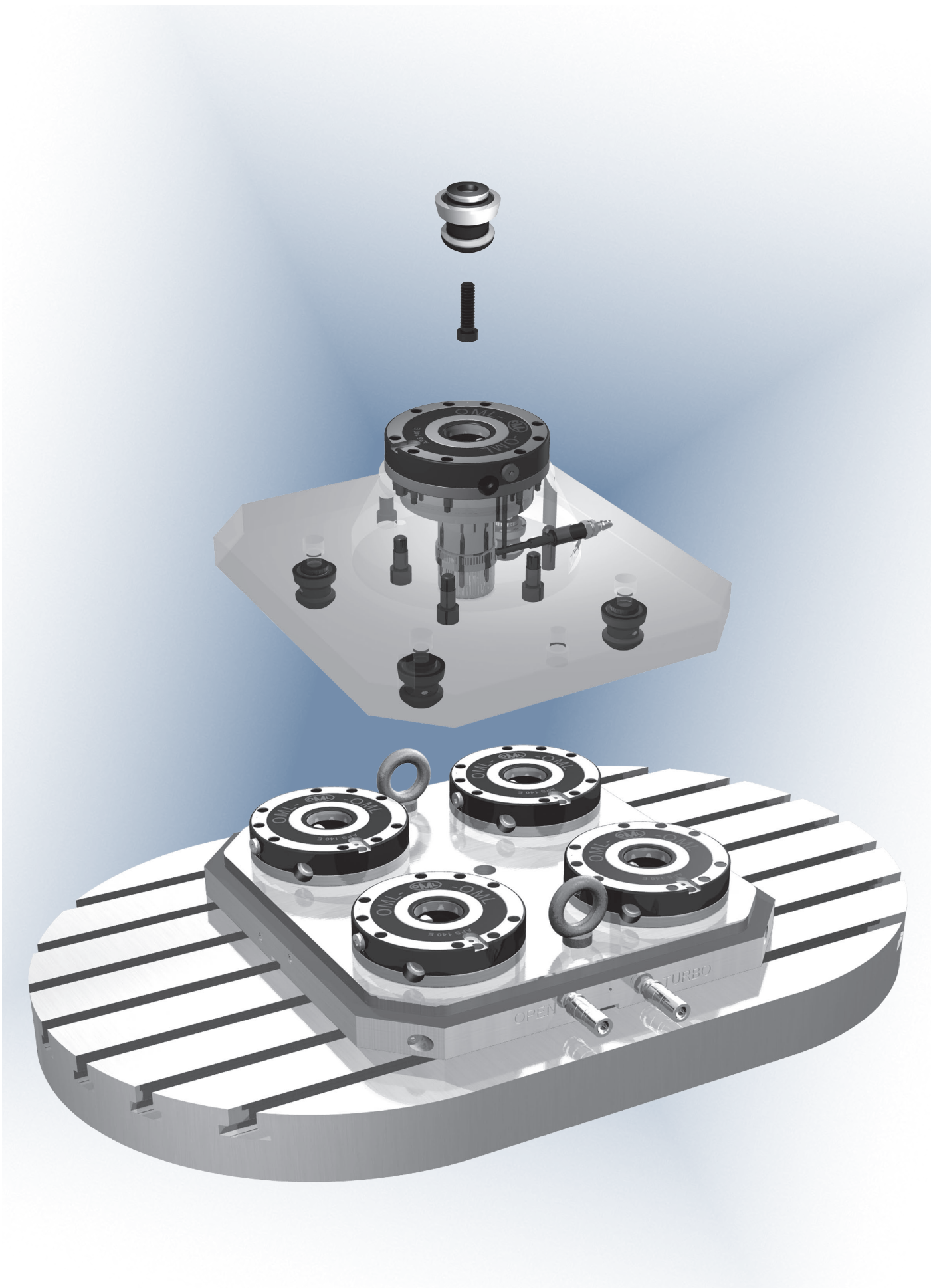
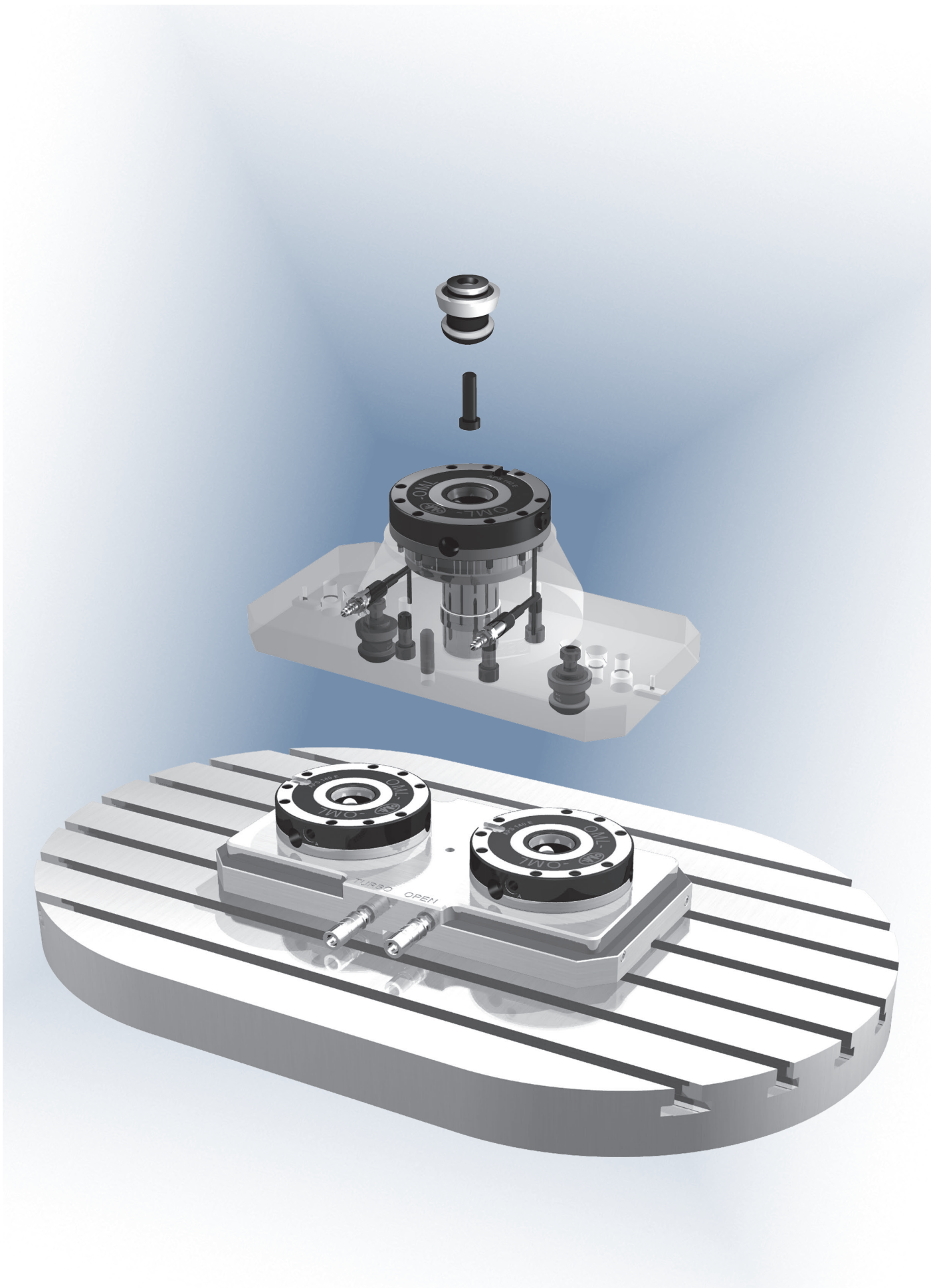
Plate with 1 module APS 140 E for 5 axis M.T.
(adaptation for plates at 4 modules)



with turbo effect



	code	A mm	B mm	C mm	D mm	H mm	weight kg
top	46 16 78 30	400	350	200	88	150	56
top	46 16 78 40	400	350	200	178	240	67,1
top	46 16 78 50	500	450	300	88	150	76,6
top	46 16 78 60	500	450	300	178	240	87,7



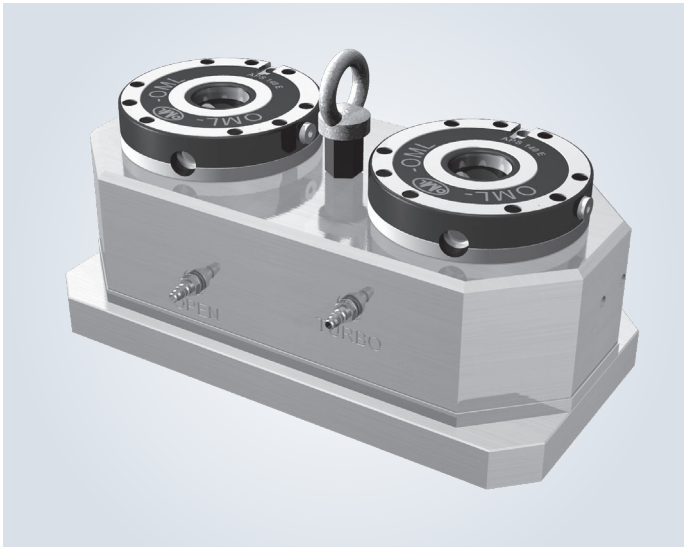
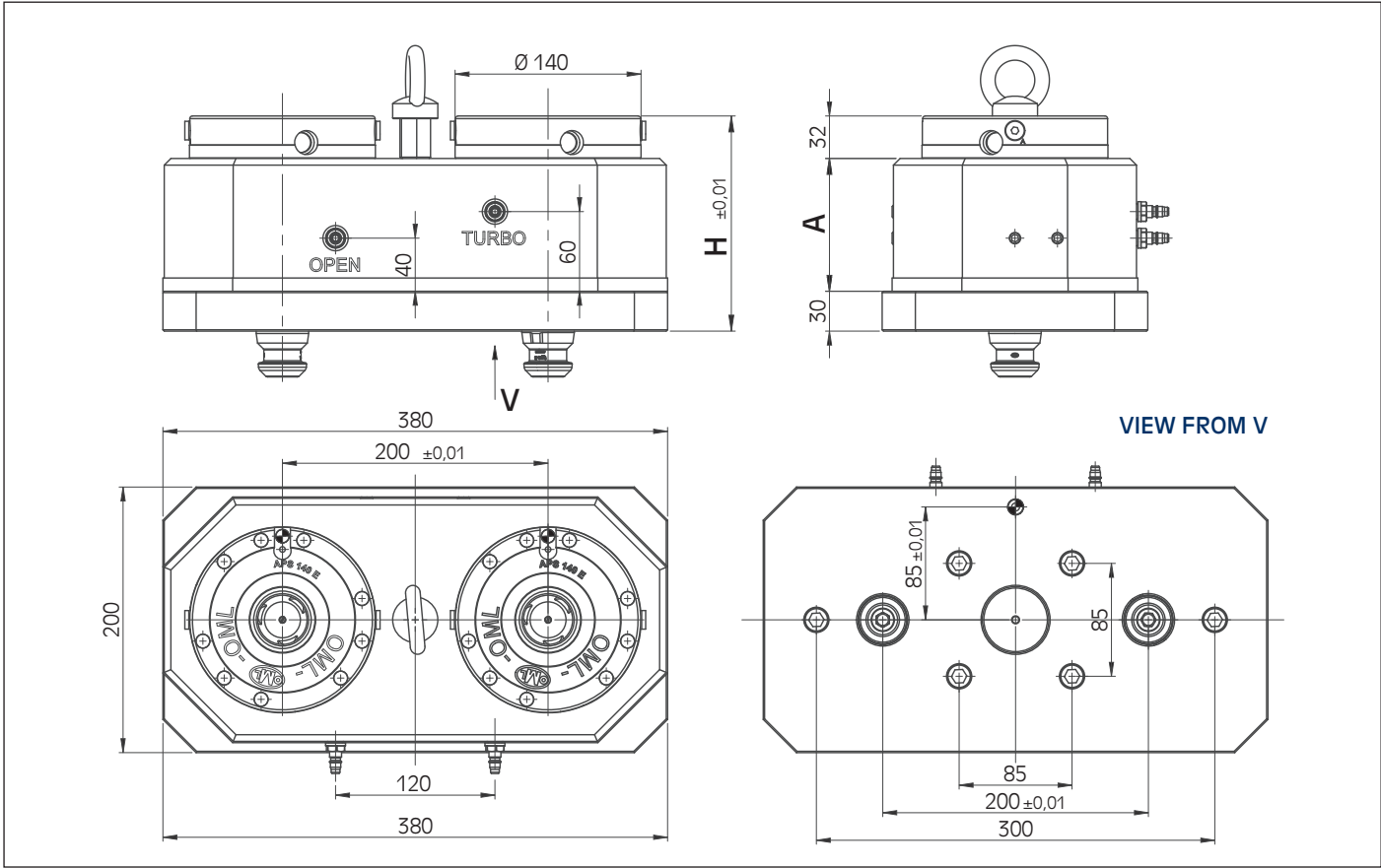


Plate with 2 modules APS 140 E for 5 axis M.T.
(adaptation for "DUO" APS)

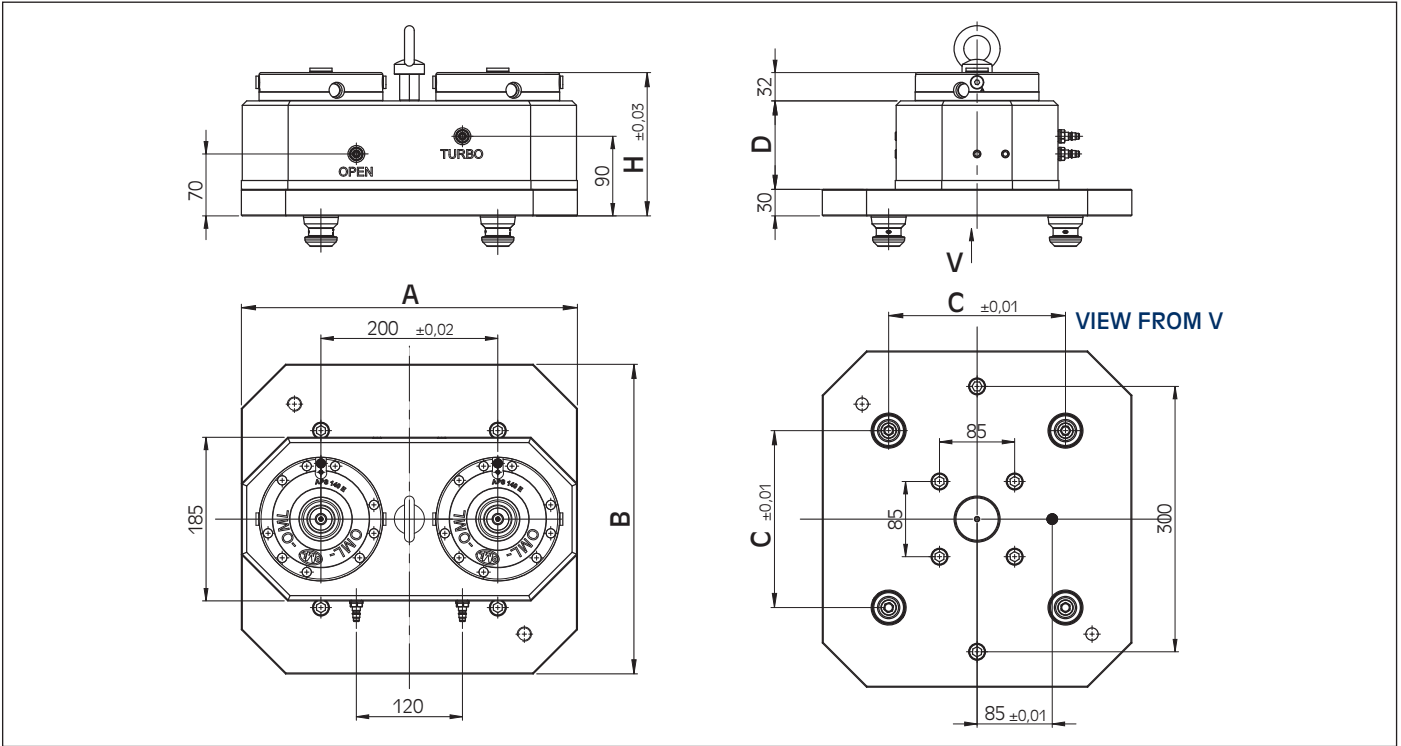
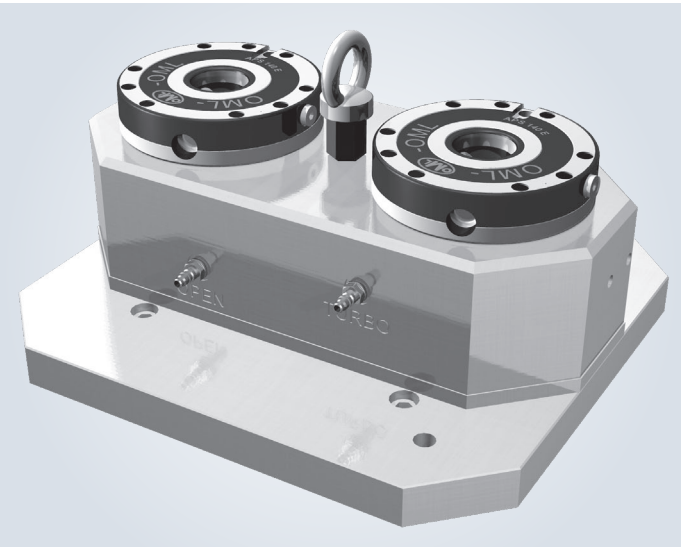
with turbo effect



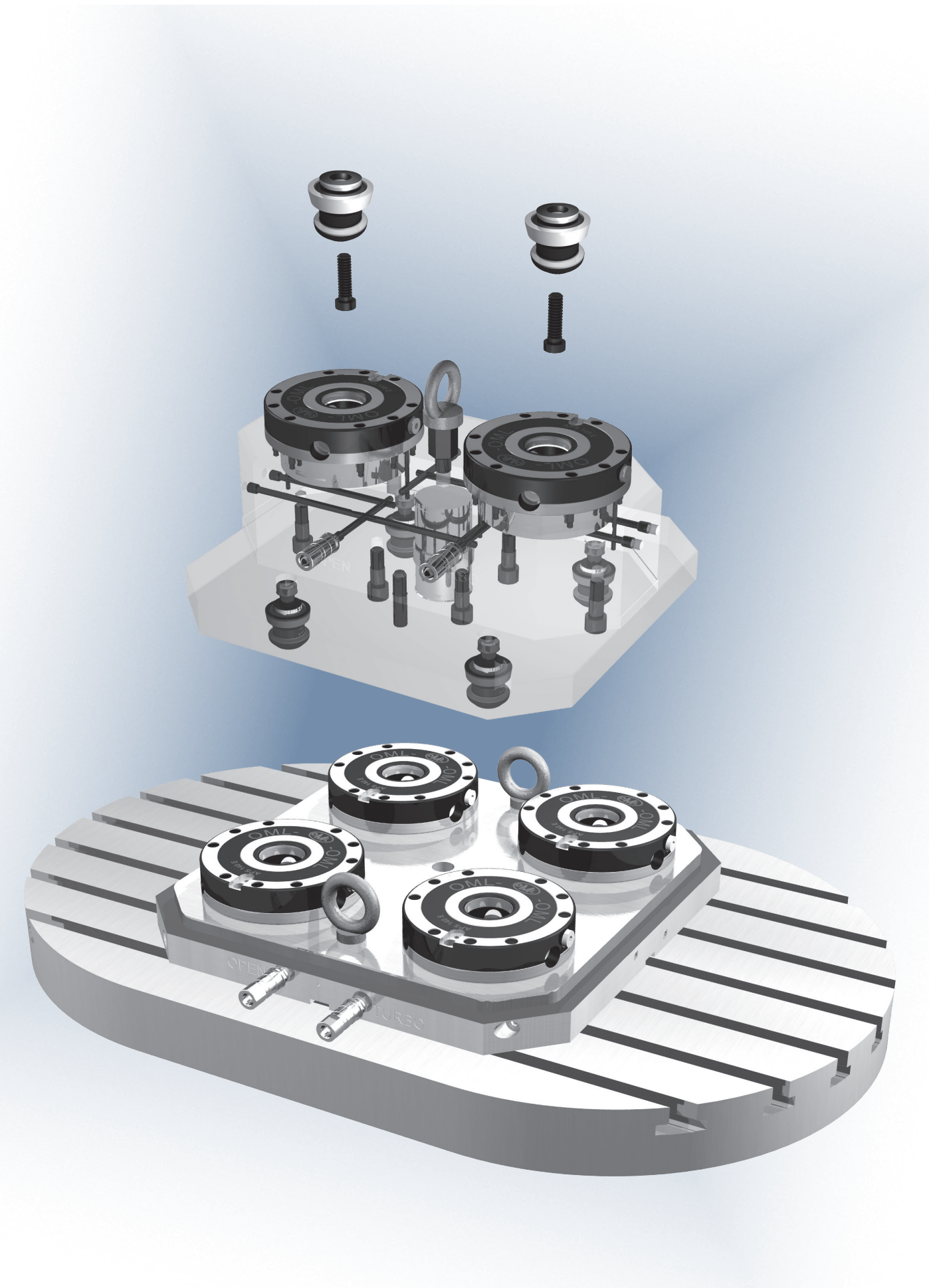
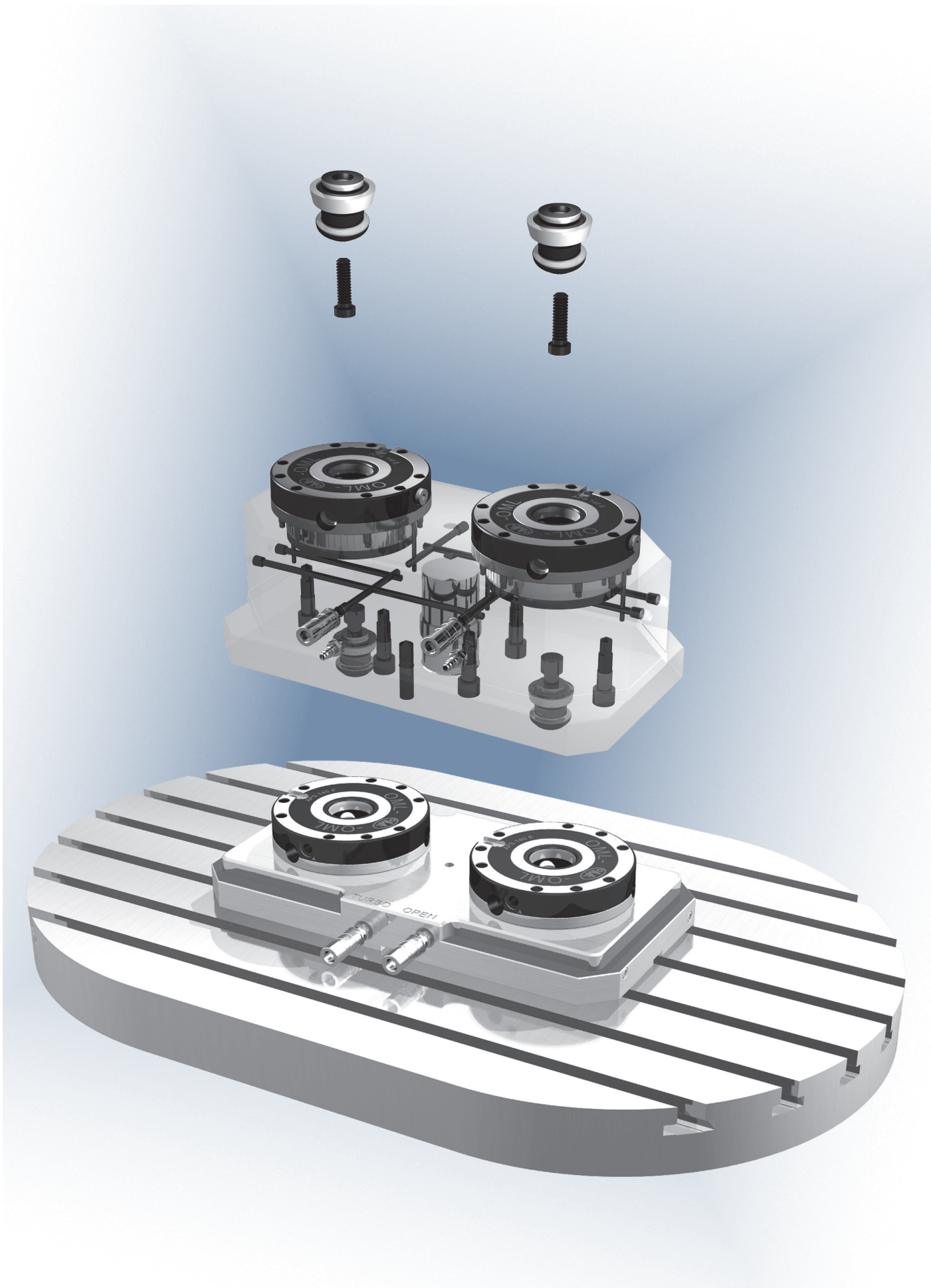
	code	A mm	H mm	weight kg
top	46 16 79 10	100	162	70,0
base	46 16 79 15	100	162	71
top	46 16 79 20	200	262	118
base	46 16 79 25	200	262	119

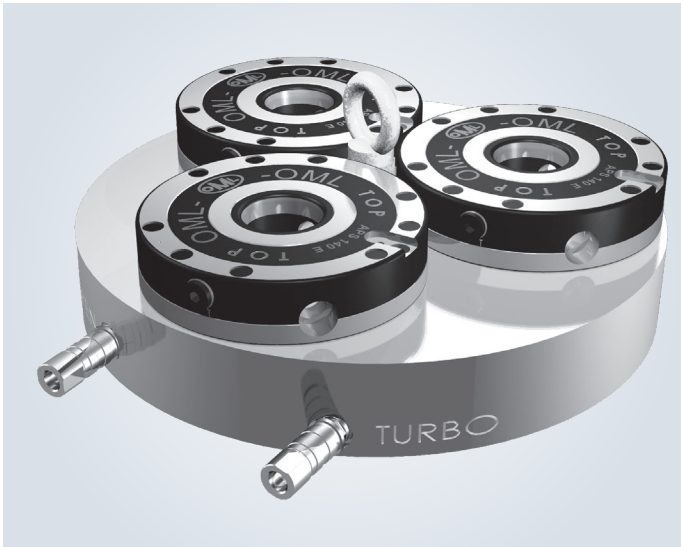
Plate with 2 modules APS 140 E for 5 axis M.T.
(adaptation for plates at 4 modules)

with turbo effect



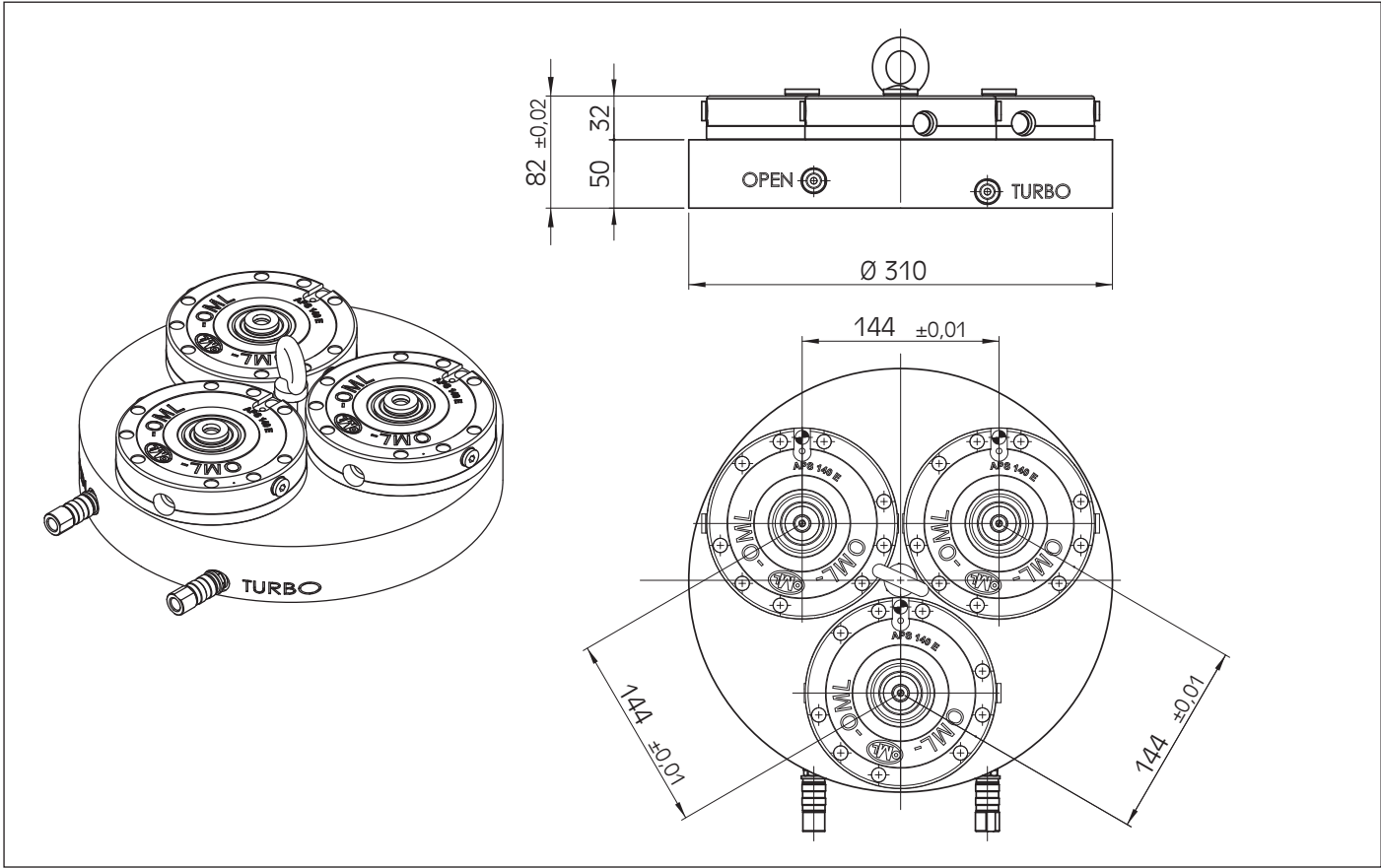
	code	A mm	B mm	C mm	D mm	H mm	weight kg
top	46 16 79 30	400	350	200	100	162	89
base	46 16 79 35	400	350	200	100	162	89
top	46 16 79 40	400	350	200	200	262	137
base	46 16 79 45	400	350	200	200	262	137
top	46 16 79 50	500	450	300	100	162	109
base	46 16 79 55	500	450	300	100	162	109
top	46 16 79 60	500	450	300	200	262	157
base	46 16 79 65	500	450	300	200	262	157





Round plate with 3 modules APS 140-E

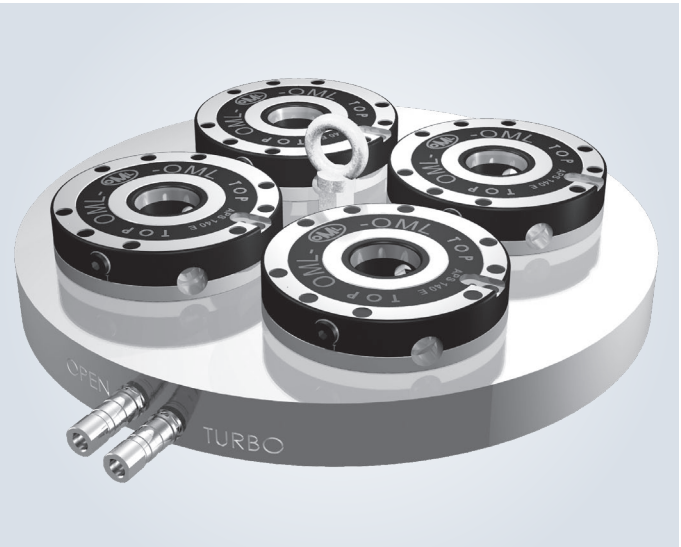
with turbo effect



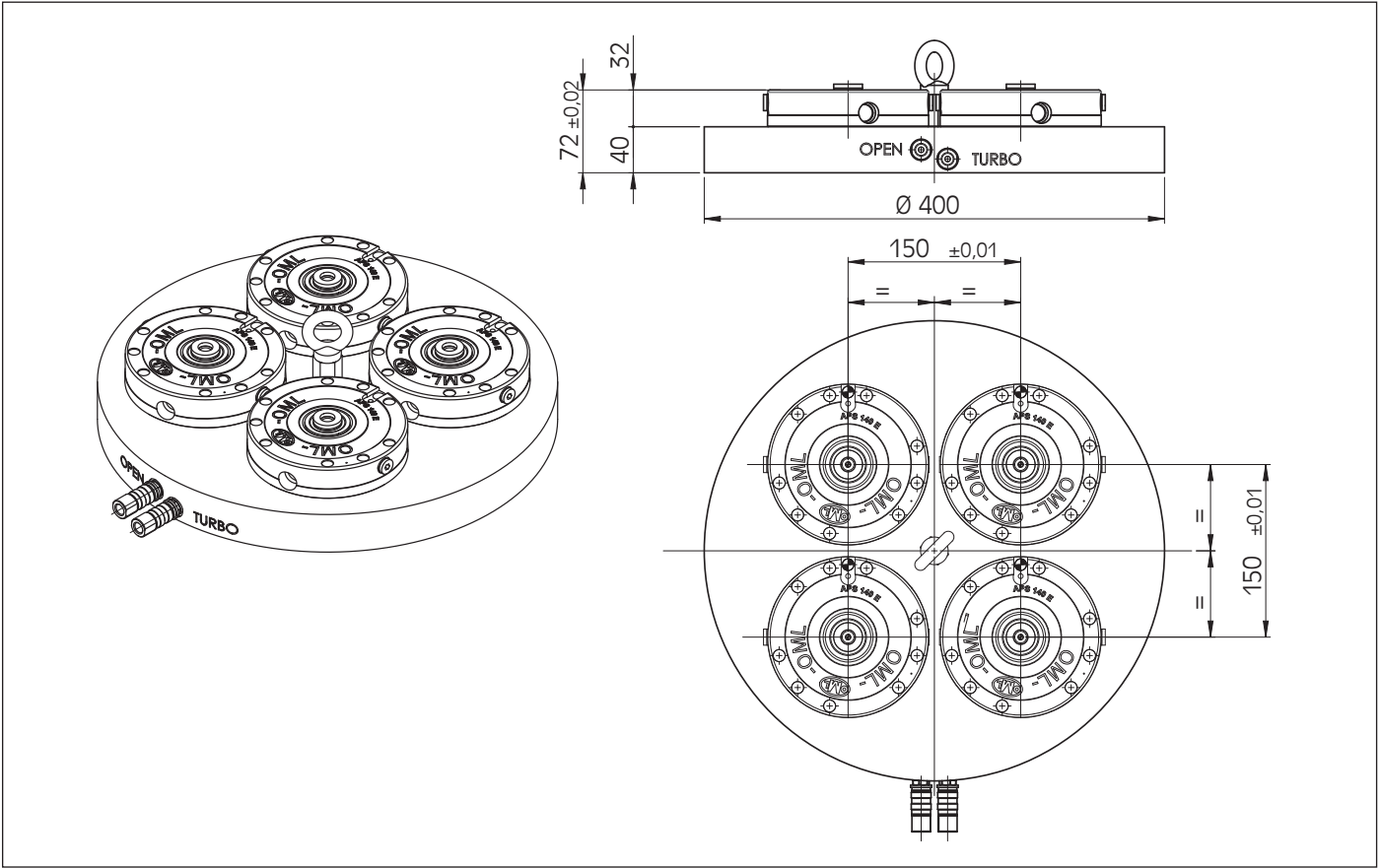
code top	weight kg
46 16 80 10	36

code base	weight kg
46 16 80 15	37

Round plate with 4 modules APS 140-E

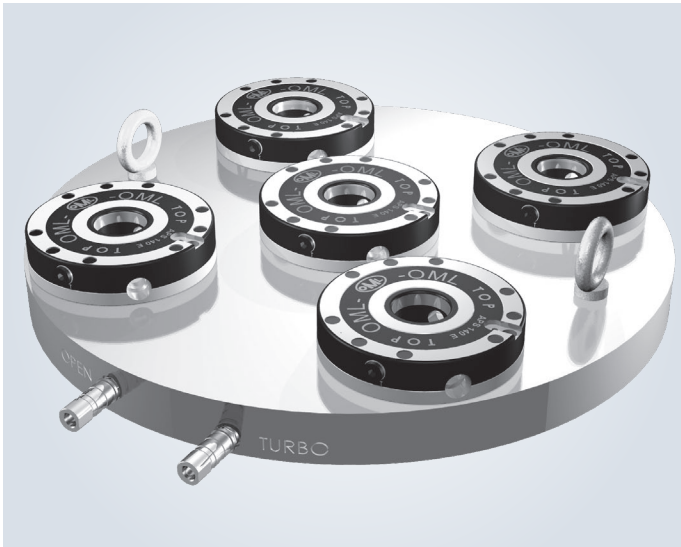


with turbo effect



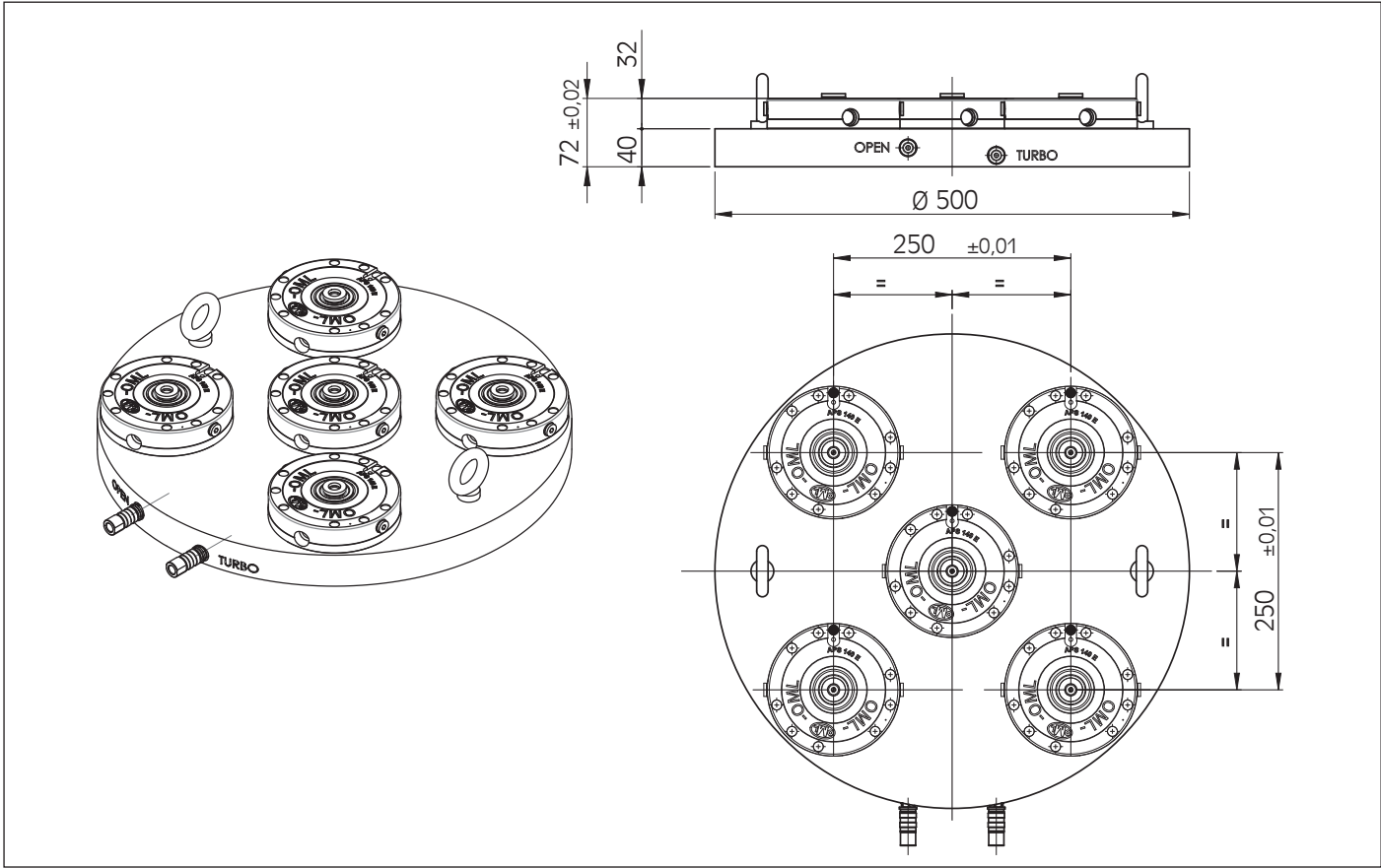
code top	weight kg
46 16 80 20	44

code base	weight kg
46 16 80 25	45



Round plate with 5 modules APS 140-E

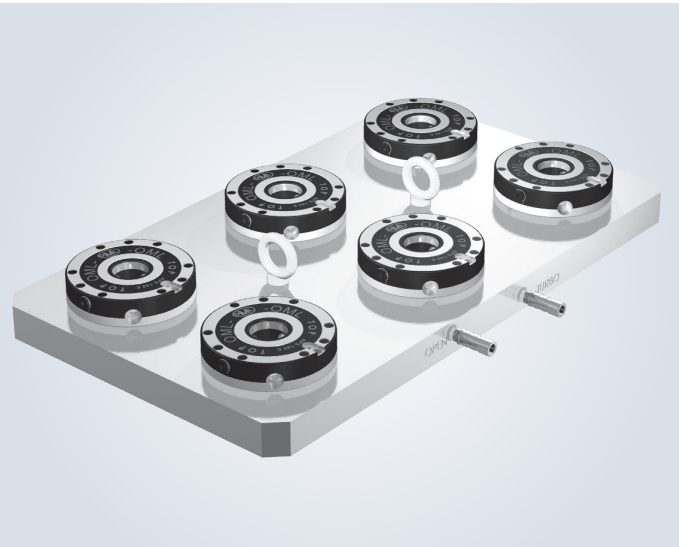
with turbo effect



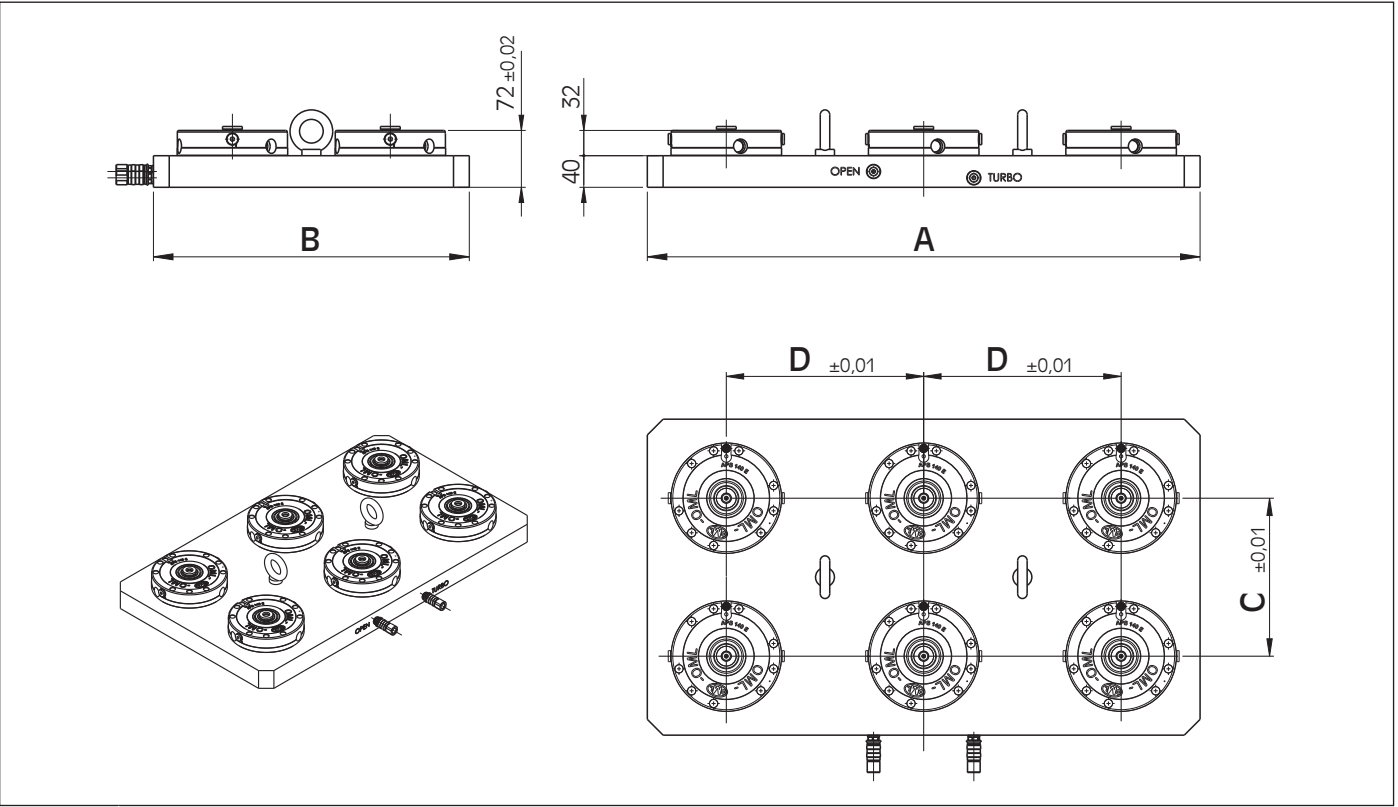
code top	weight kg
46 16 80 30	67

code base	weight kg
46 16 80 35	68

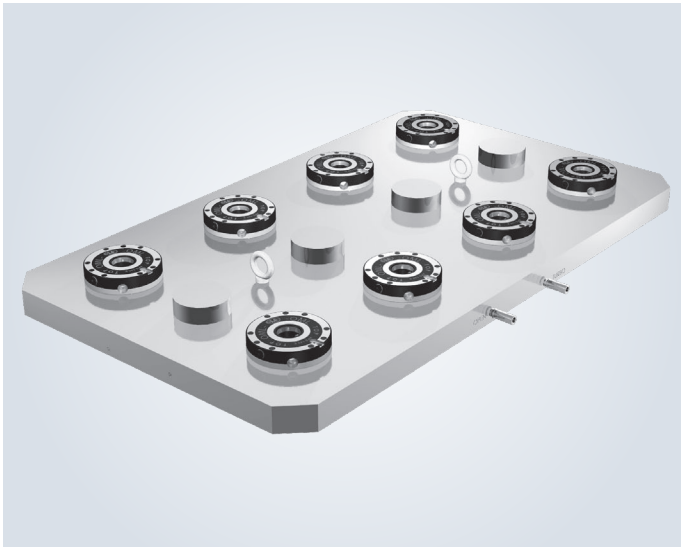
Rectangular plate with 6 modules APS 140-E



with turbo effect

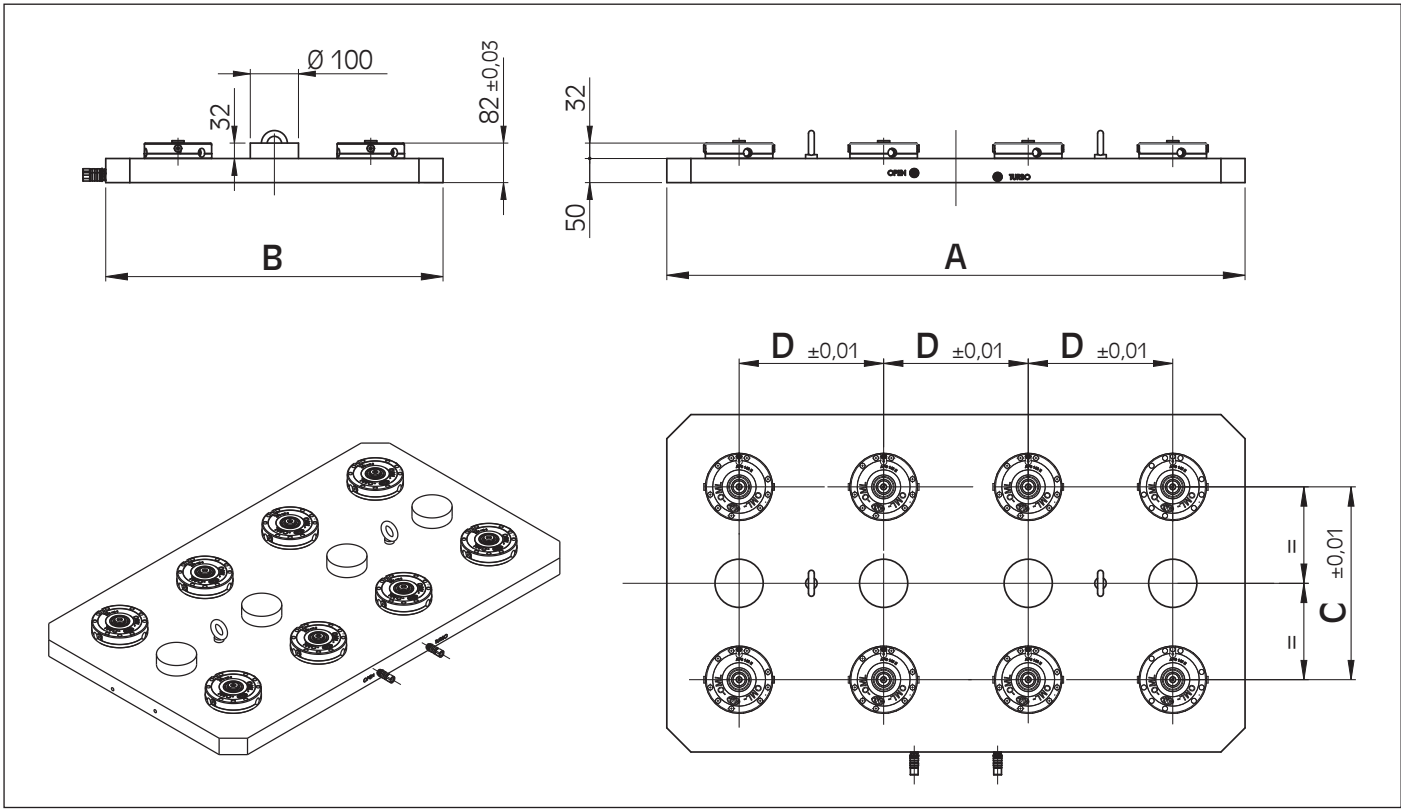


	code	A mm	B mm	C mm	D mm	weight kg
top	46 16 81 10	600	400	200	200	83
base	46 16 81 15	600	400	200	200	84
top	46 16 81 20	700	400	200	250	94
base	46 16 81 25	700	400	200	250	96
top	46 16 81 30	800	400	300	300	108
base	46 16 81 35	800	400	300	300	109



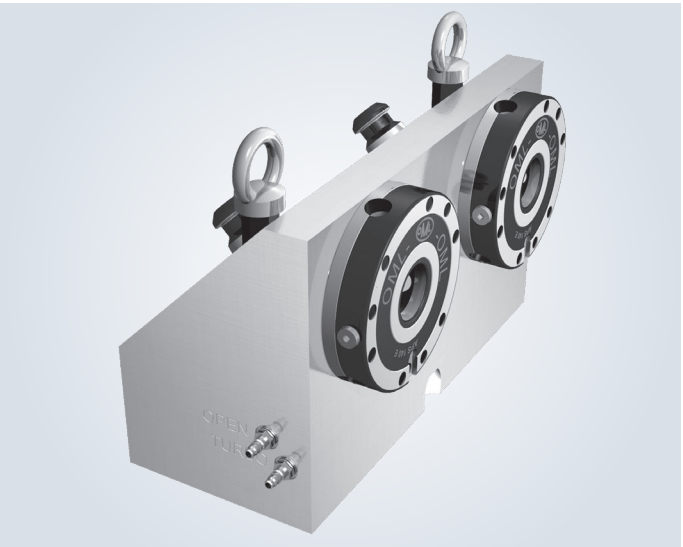
Rectangular plate with 8/10 modules
APS 140-E

with turbo effect

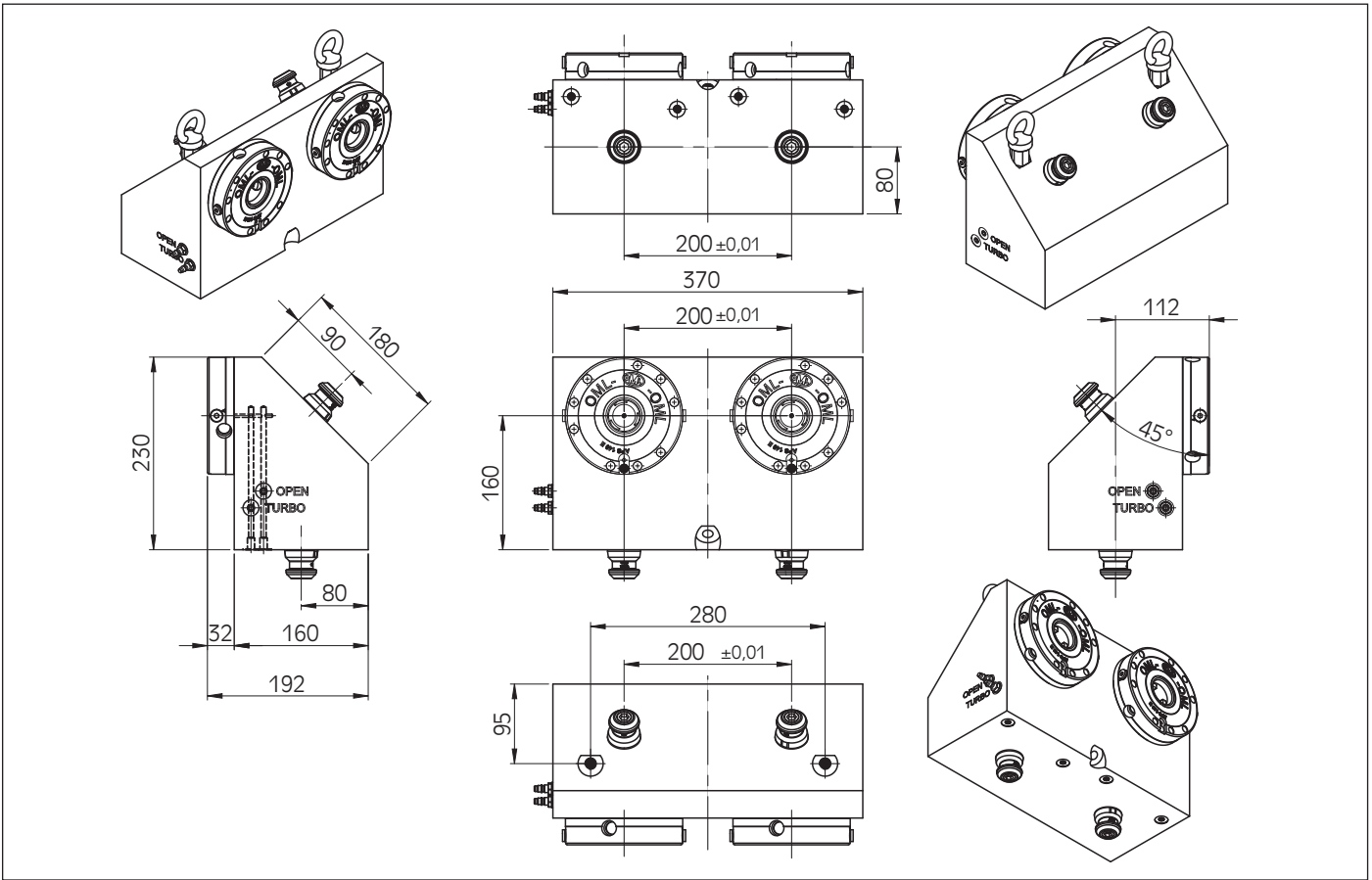


	code	A mm	B mm	C mm	D mm	N° of modules	weight kg
top	46 16 81 40	1.000	500	250	250	8	288
base	46 16 81 45	1.000	500	250	250	8	289
top	46 16 81 50	1.200	700	400	300	8	300
base	46 16 81 55	1.200	700	400	300	8	302
top	46 16 81 60	1.400	700	400	300	10	344
base	46 16 81 65	1.400	700	400	300	10	345

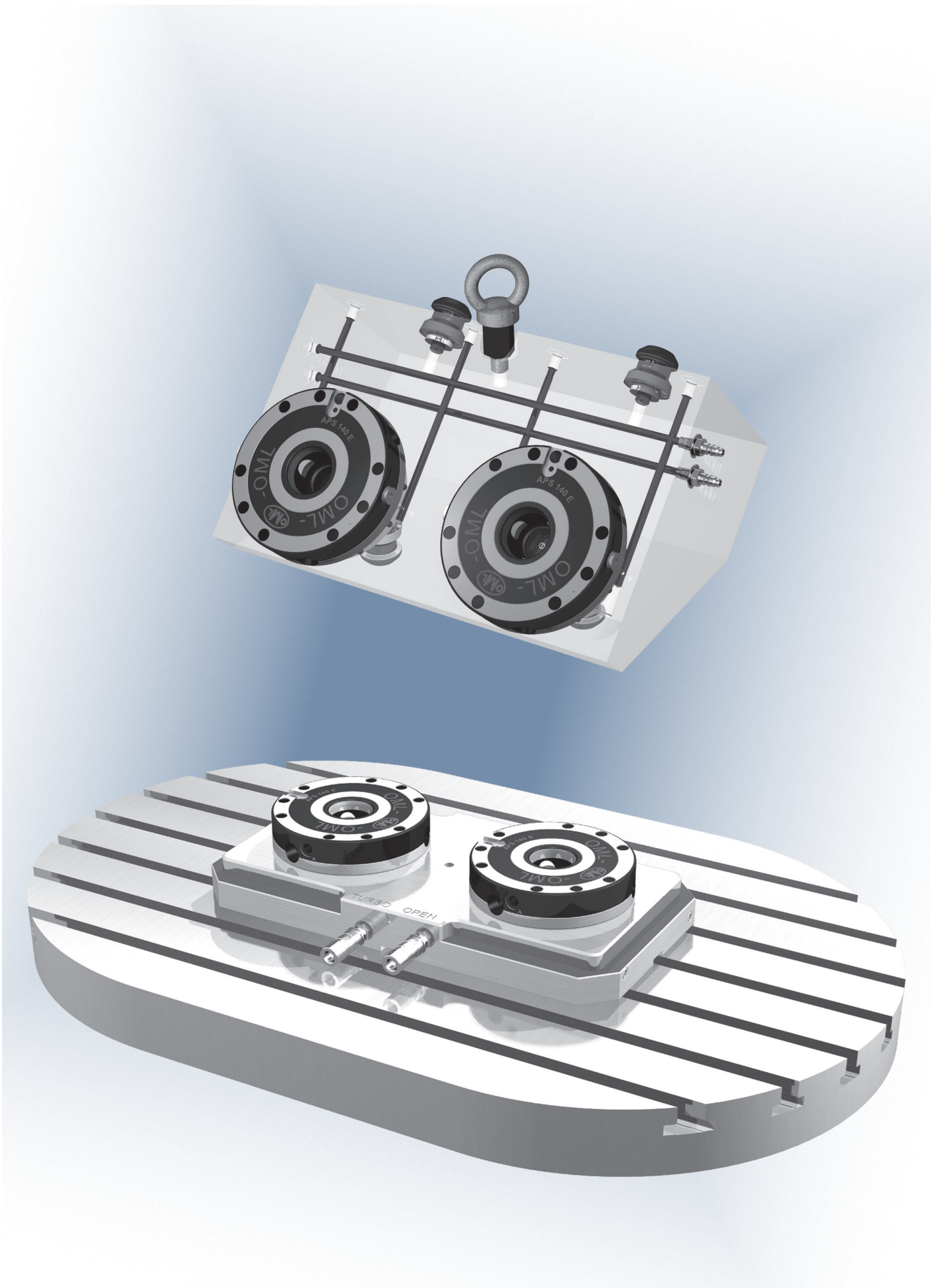
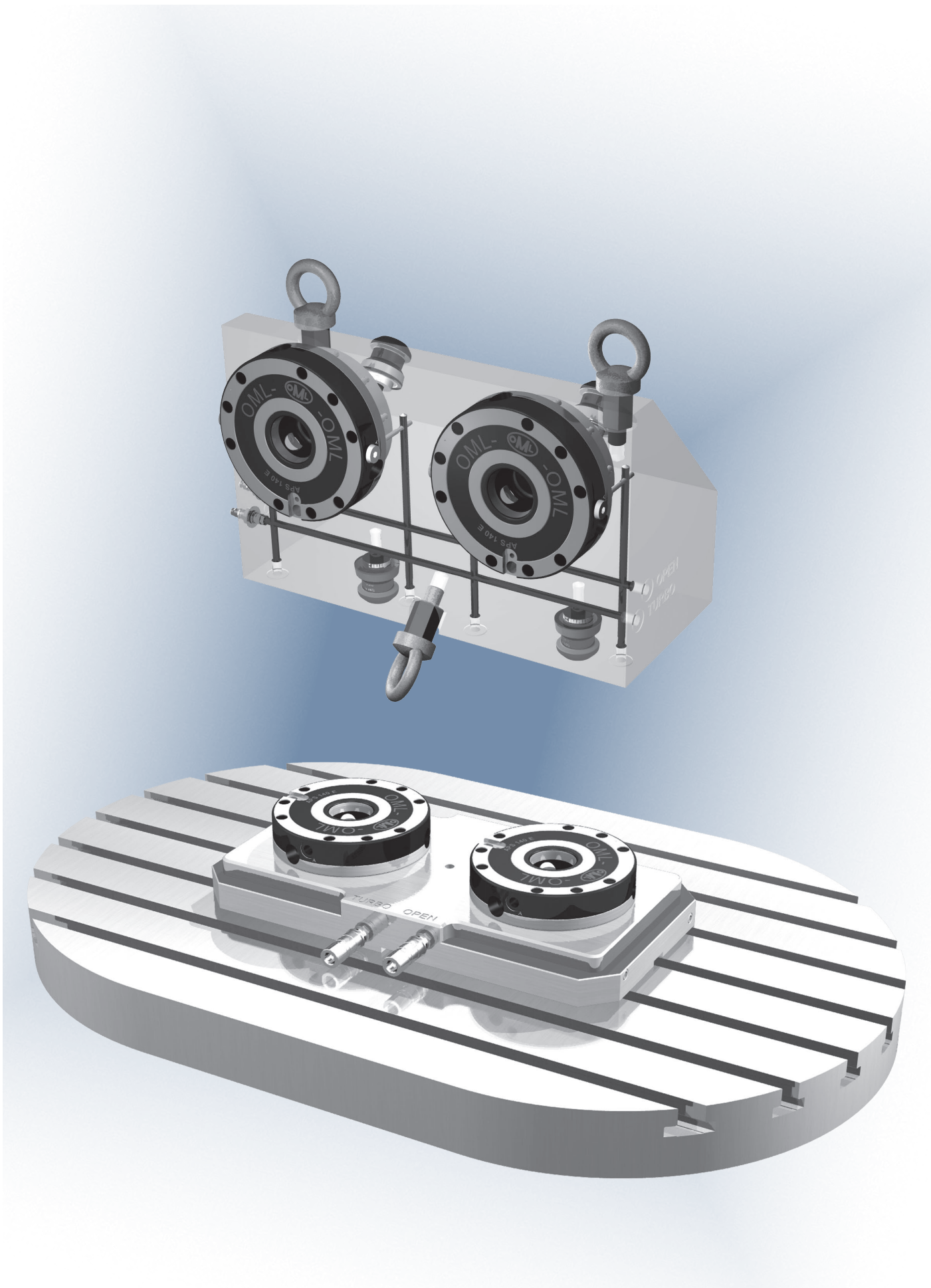
Angle plate with 2 modules APS 140 E

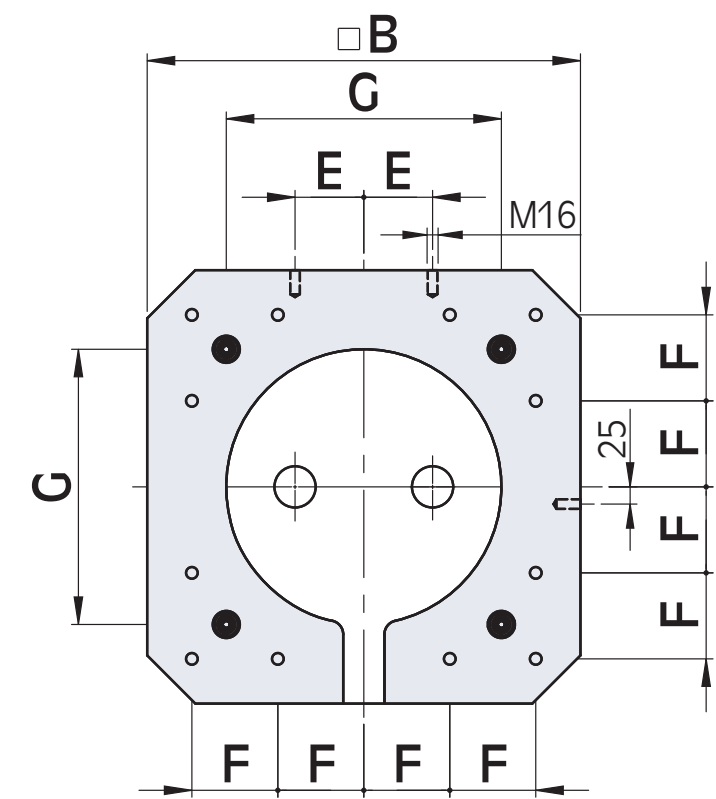
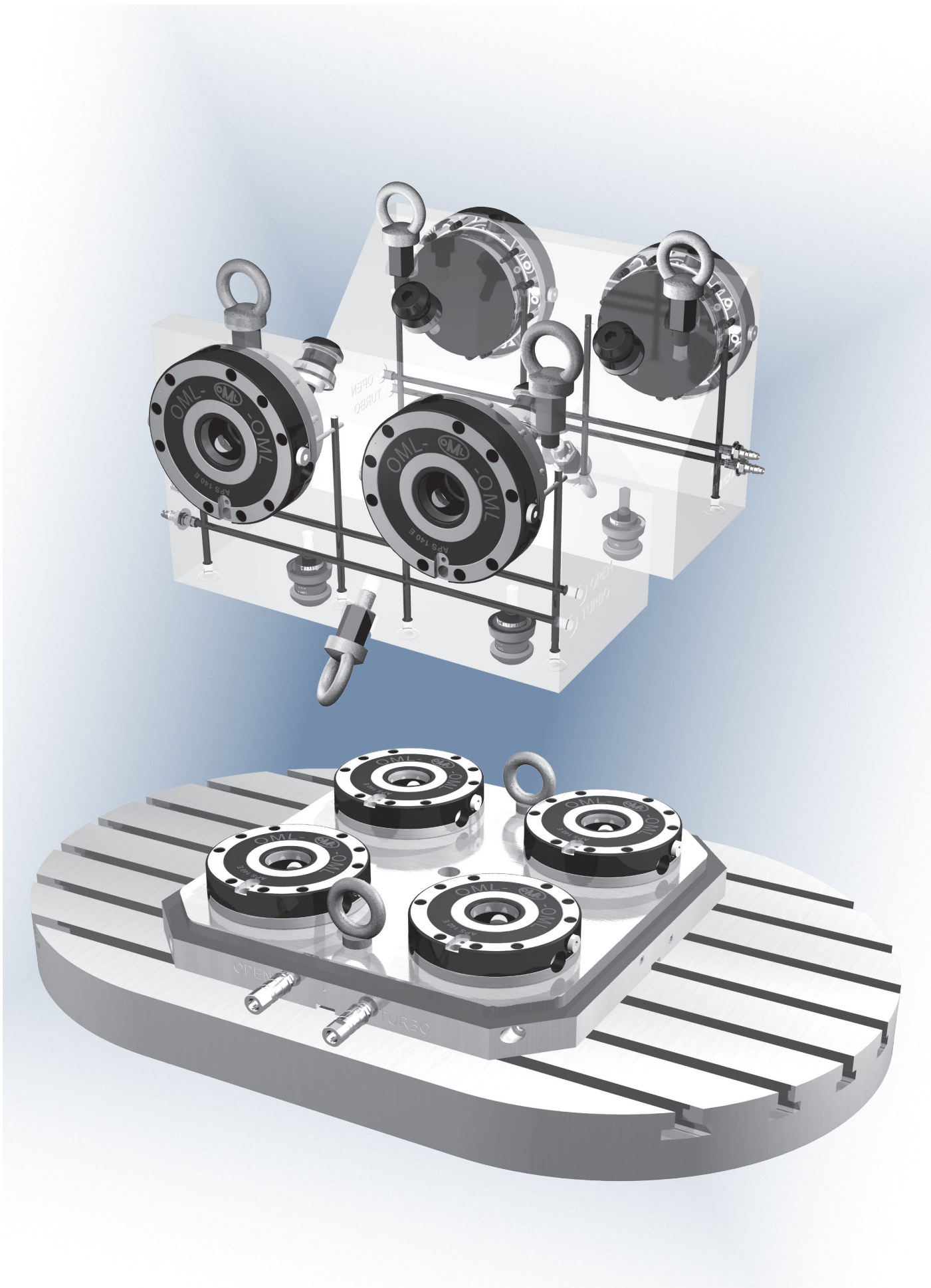


with turbo effect



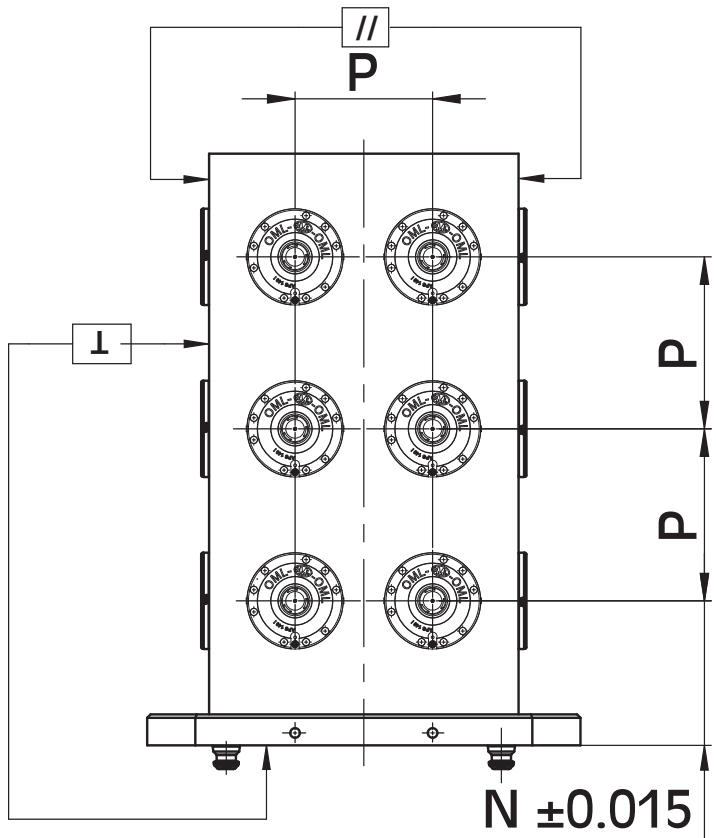
	code	pull down force N (lbs)	unlocking pressure bar	repeatability mm	weight kg
top	46 16 77 50	30.000 (6.745)	6	< 0,005	88
base	46 16 77 55	12.000 /30.000	6	< 0,005	88





Manufacturing tolerances

L	0,02 0,035	500 1000
//	0,03 0,05	500 1000
P	± 0,01 ± 0,02	200 300

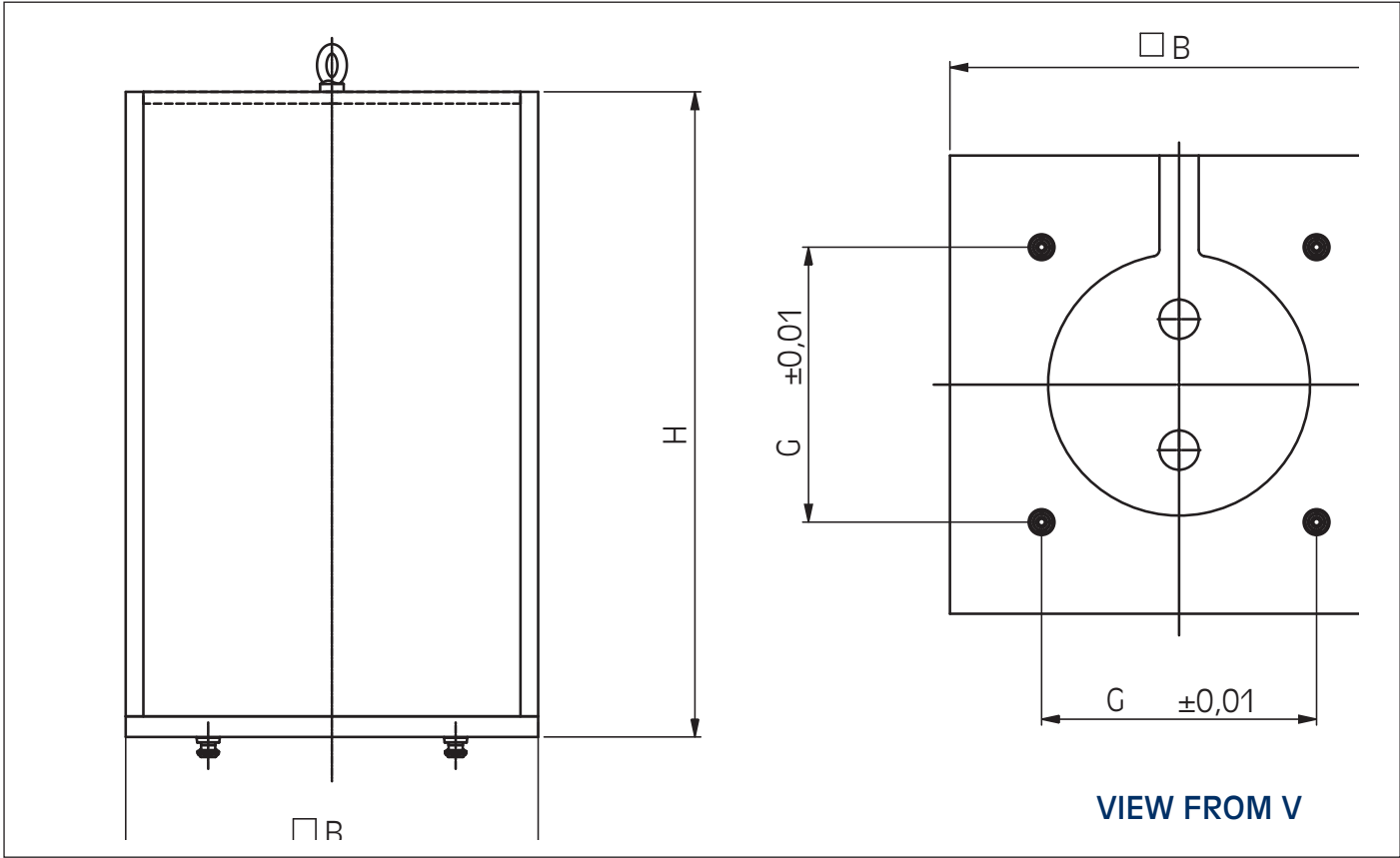


Standard interface
for machine tools pallet

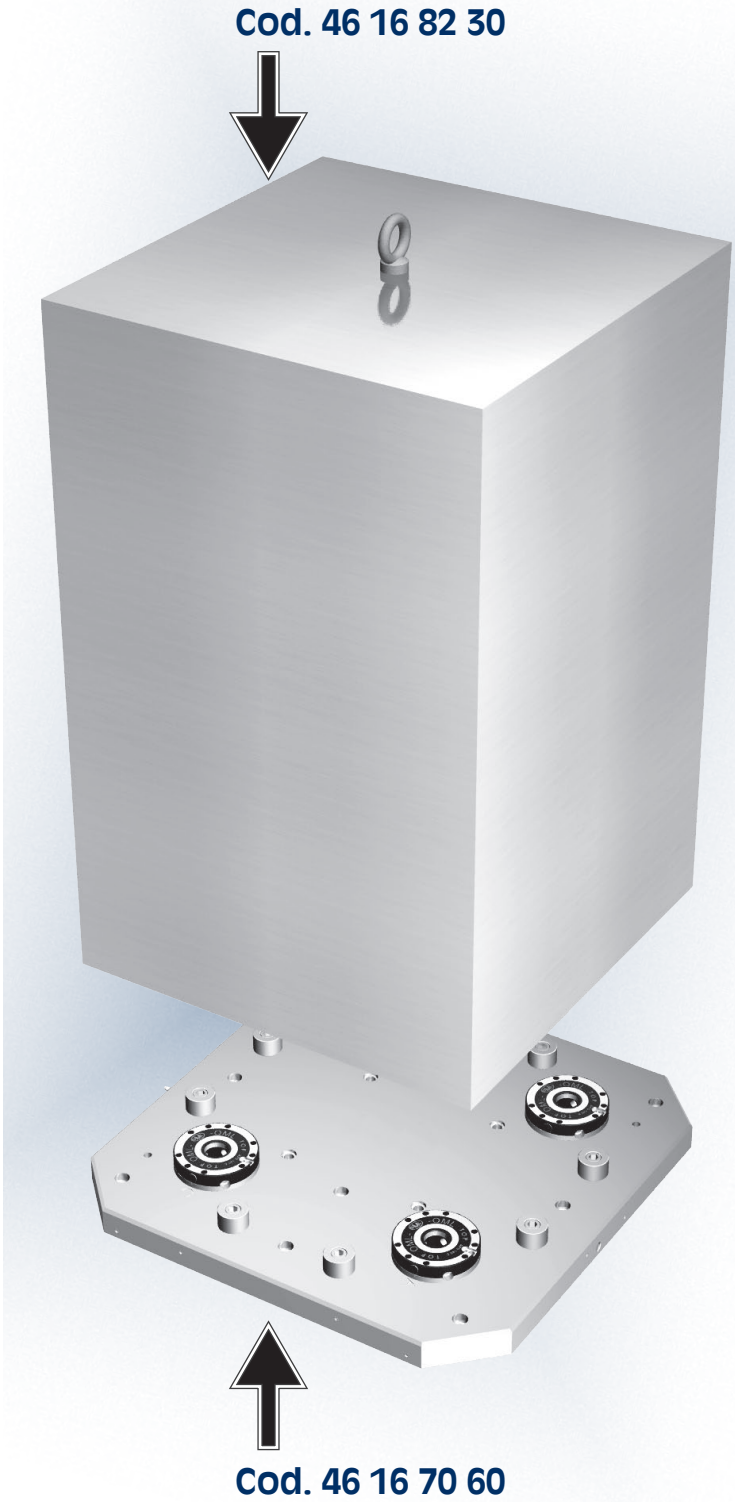
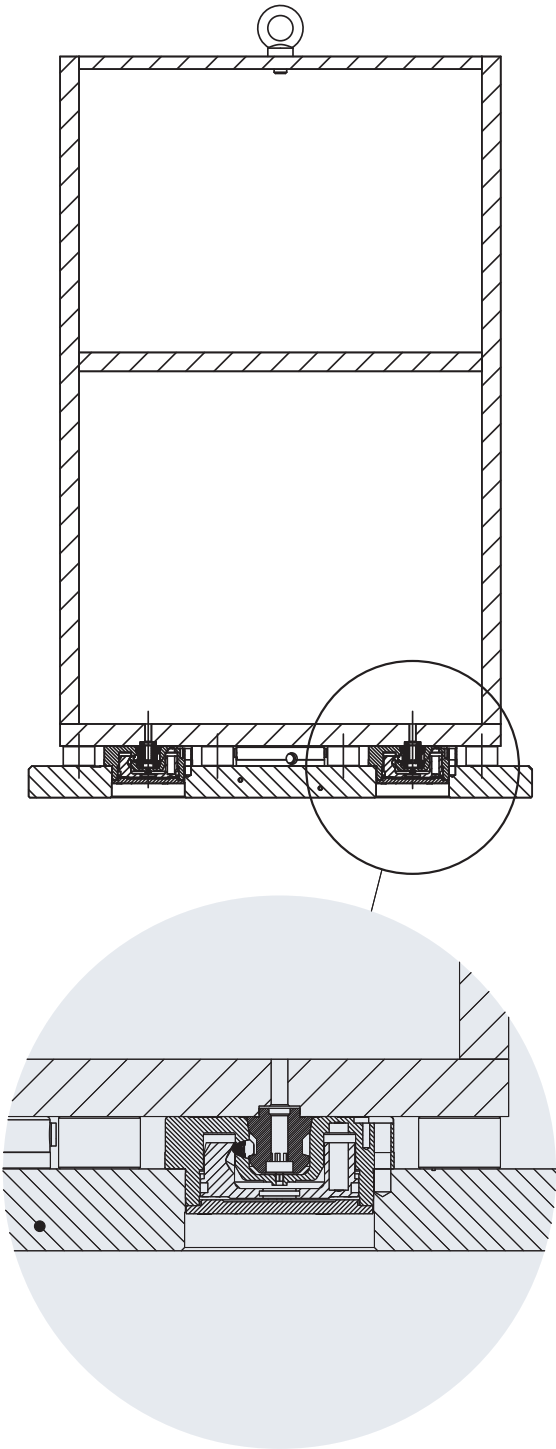
B mm	E mm	F mm	G mm
400	55	80	250
500	75	100	300
630	100	125	420

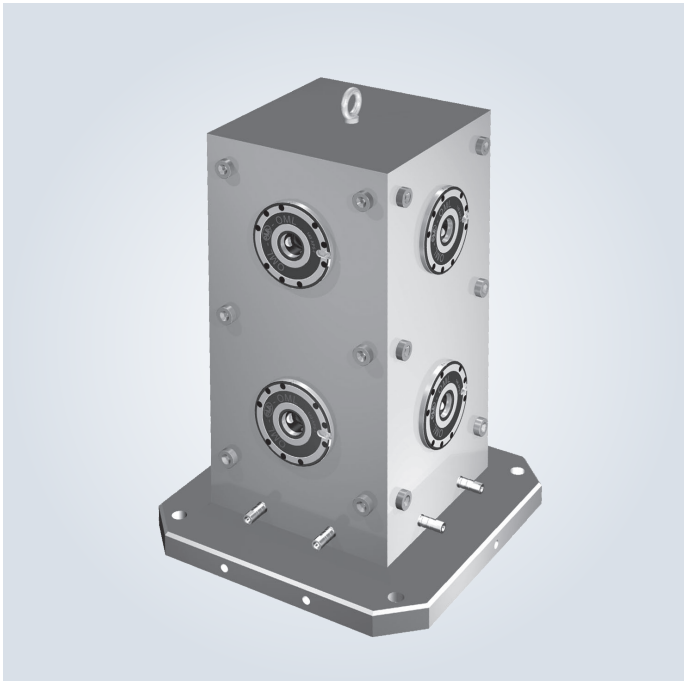


Special rough milled tombstone



code	B mm	G mm	H mm	weight kg
46 16 82 10	404	250	600	280
46 16 82 20	504	250	700	430
46 16 82 30	634	420	800	650



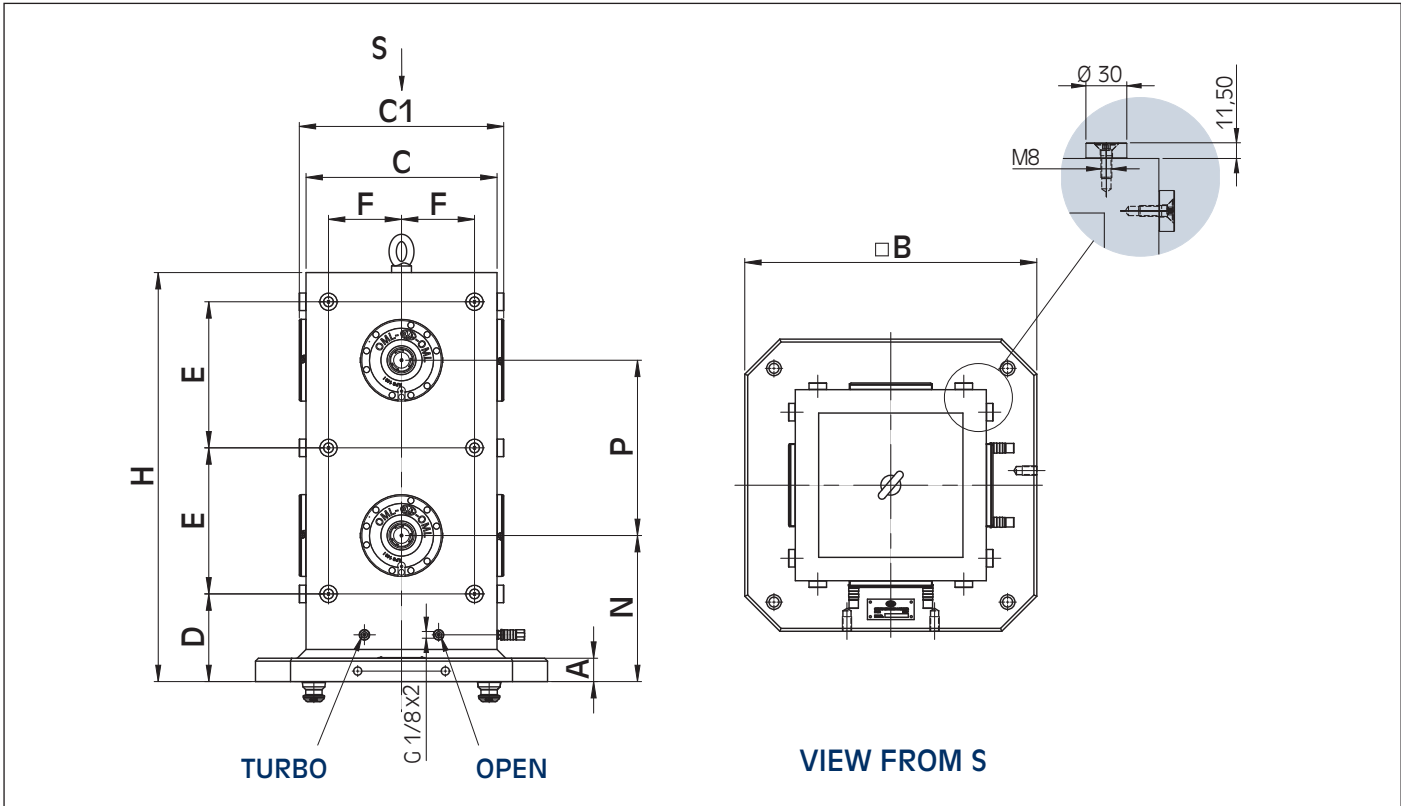


Tombstone with 8 modules APS 140-I

Clamping / unclamping the modules on the same face is simultaneous



with turbo effect



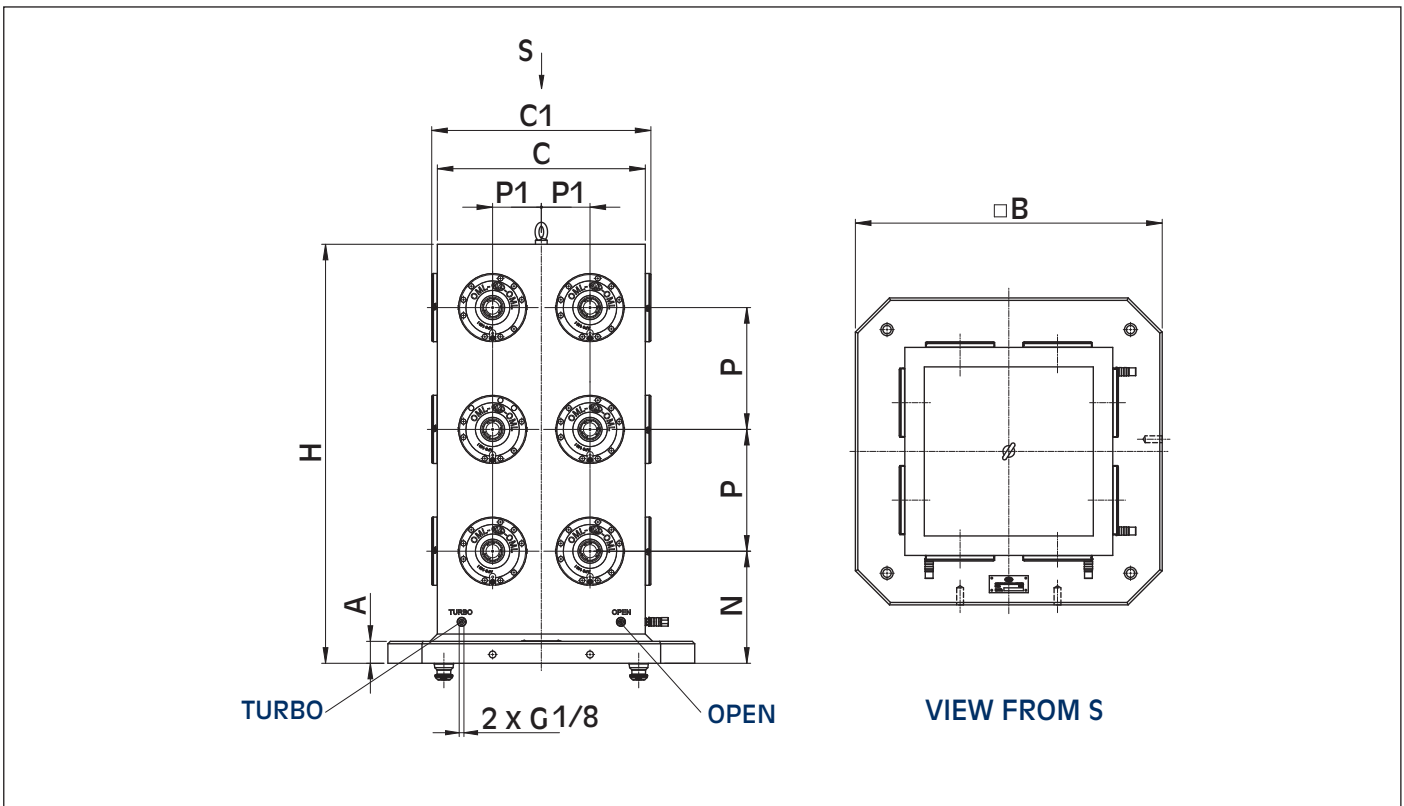
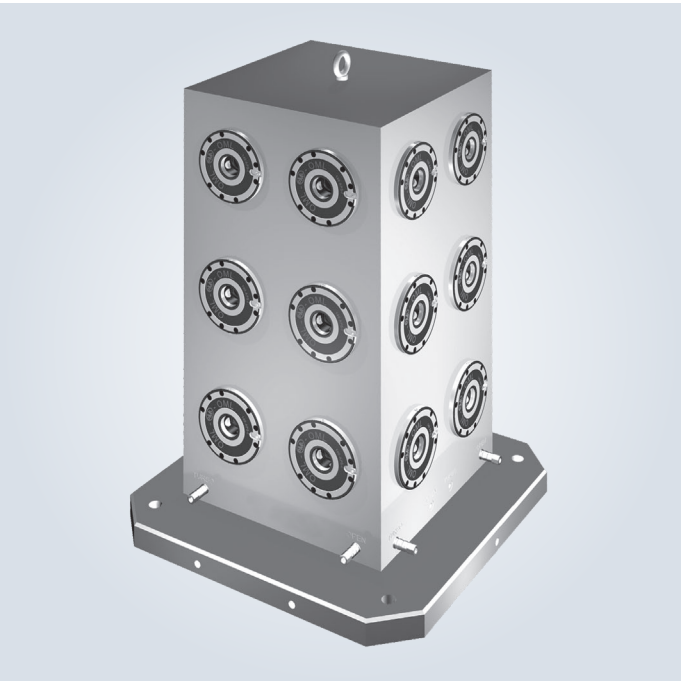
	code	A mm	B mm	C mm	H mm	P mm	N mm	C1 mm	D mm	E mm	F mm	weight kg
STEEL	46 16 71 10	40	400	250	600	250	225	273	125	225	100	195
	46 16 71 20	40	500	350	700	300	250	373	150	250	125	328
ALUMINIUM	46 16 71 40	40	400	250	600	250	225	273	125	225	100	90
	46 16 71 50	40	500	350	700	300	300	373	150	250	125	137
CAST IRON	46 16 71 70	40	400	250	600	250	225	273	125	225	100	190
	46 16 71 80	40	500	350	700	300	300	373	150	250	125	315

Tombstone with 24 modules APS 140-I

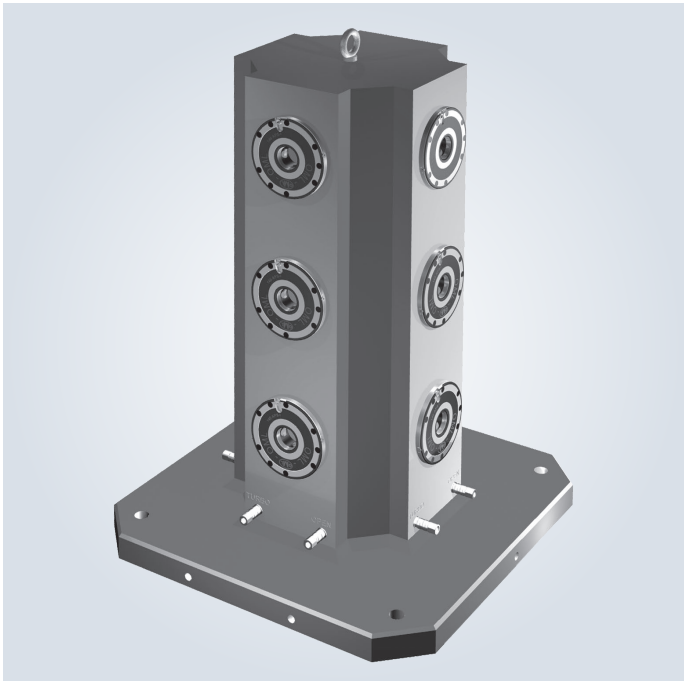
Clamping / unclamping the modules on the same face is simultaneous



with turbo effect



	code	A mm	B mm	P1 mm	C mm	C1 mm	H mm	P mm	N mm	weight kg
STEEL	46 16 71 30	45	630	100	450	473	860	250	230	565
ALUMINIUM	46 16 71 60	45	630	100	450	473	860	250	230	280
CAST IRON	46 16 71 90	45	630	100	450	473	860	250	230	550

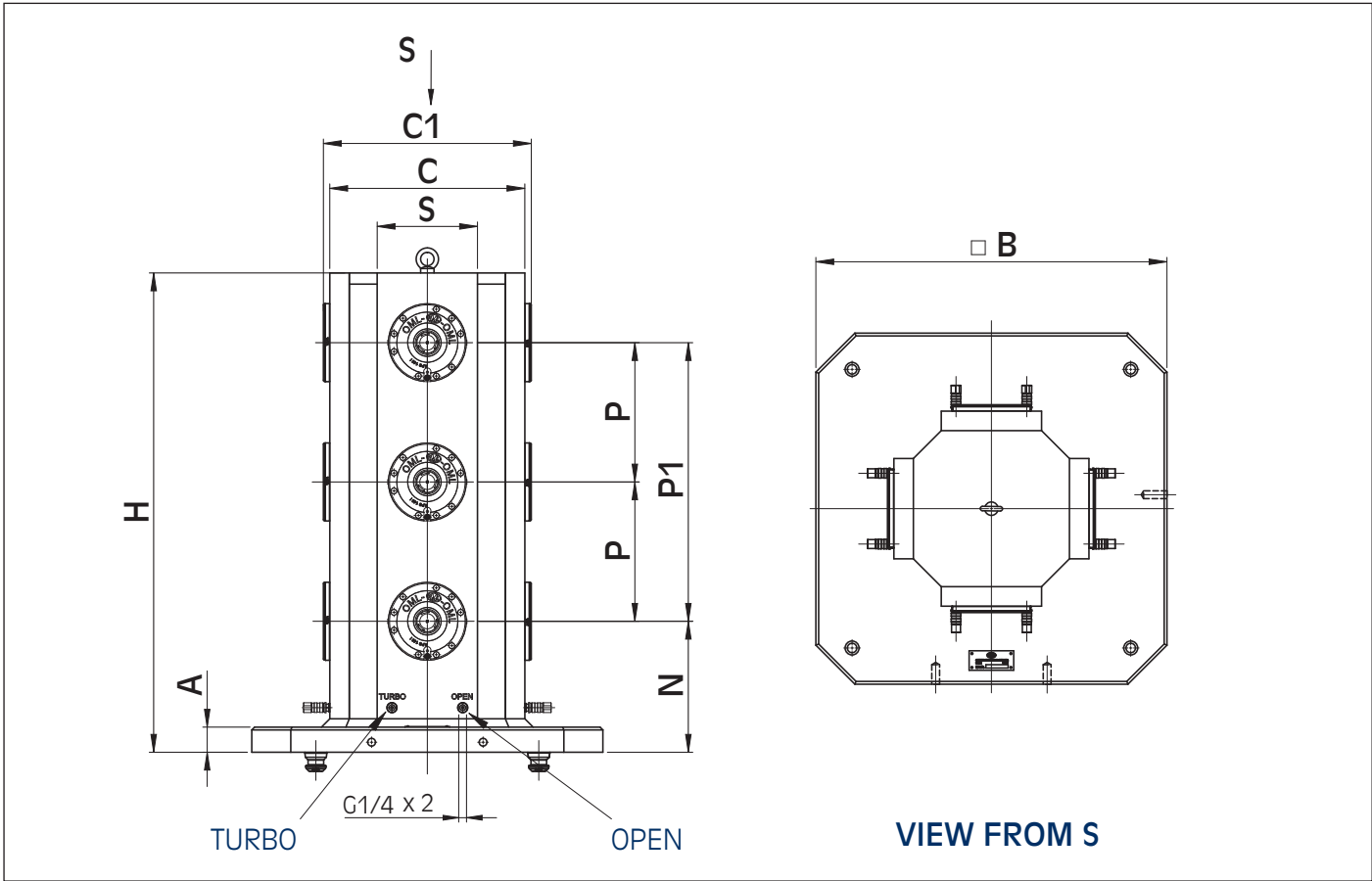


Tombstone with 12 modules APS 140-I

Clamping / unclamping the modules on the same face is simultaneous



with turbo effect



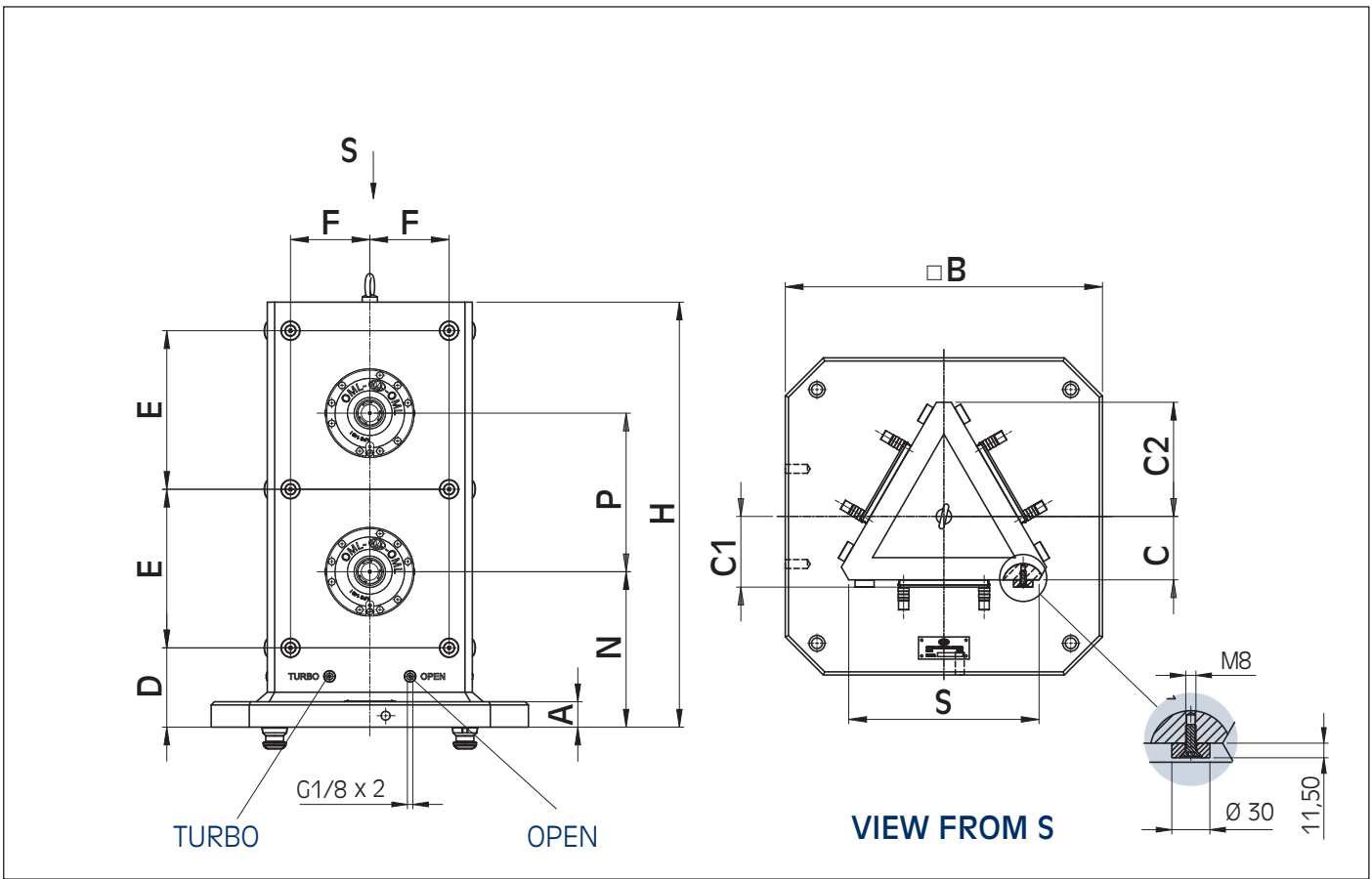
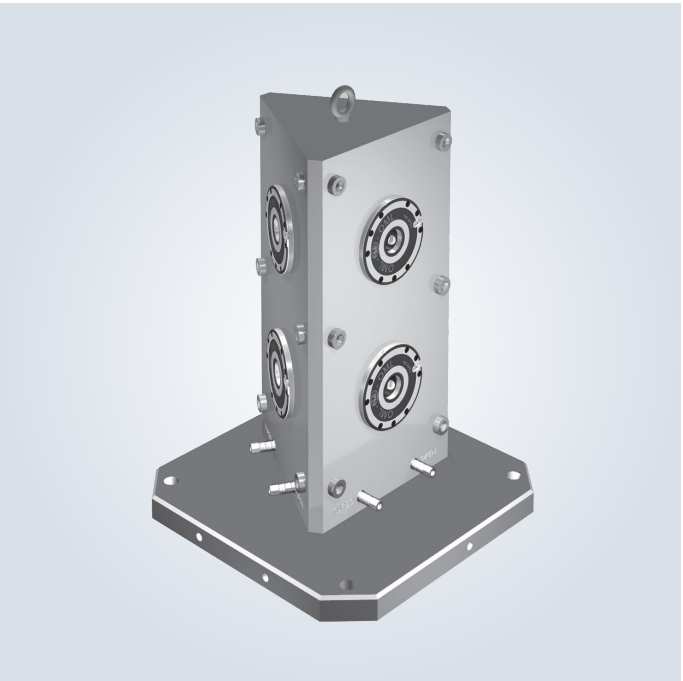
	code	A mm	B mm	C mm	H mm	P mm	P1 mm	C1 mm	N mm	S mm	weight kg
STEEL	46 16 72 10	40	400	280	600	-	250	303	225	150	188
	46 16 72 20	40	500	300	690	-	250	323	235	150	222
	46 16 72 30	45	630	350	860	250	500	373	235	180	365

Tombstone with 6 modules APS 140-I

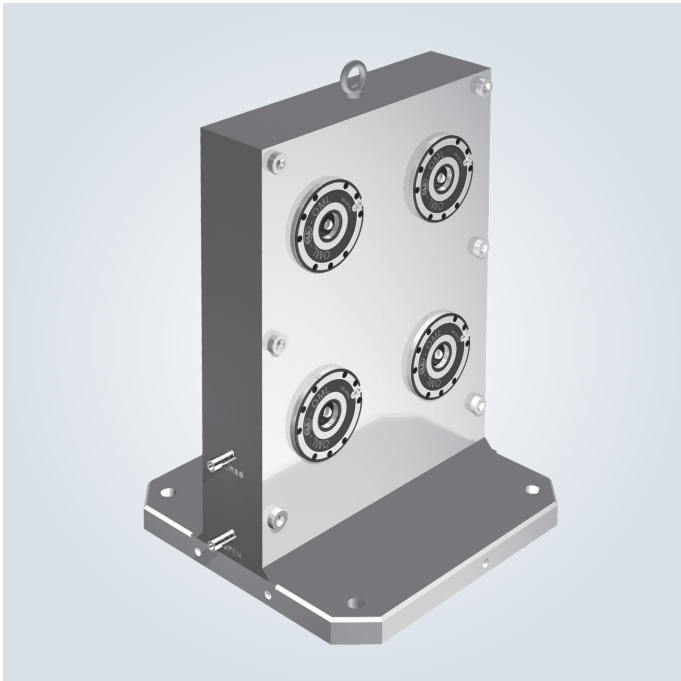
Clamping / unclamping the modules on the same face is simultaneous



with turbo effect



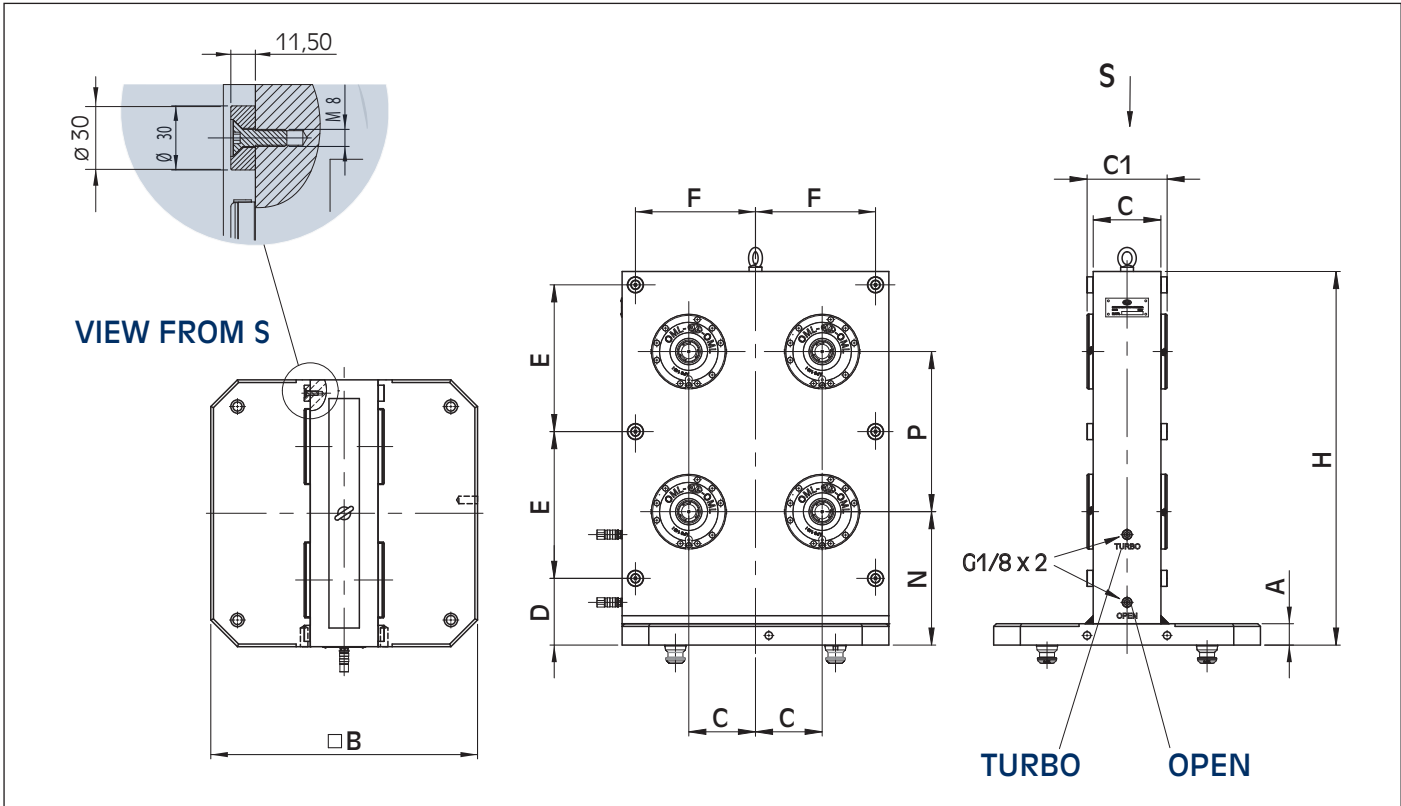
	code	A mm	B mm	H mm	P mm	N mm	C mm	E mm	F mm	D mm	C1 mm	C2 mm	S mm	weight kg
STEEL	46 16 72 40	40	400	600	250	225	100	225	125	125	111,5	180	300	200
	46 16 72 50	40	500	660	250	245	100	250	125	125	111,5	180	300	227



Crankweb with 8 modules APS 140-I

Clamping / unclamping the modules on the same face is simultaneous

with turbo effect

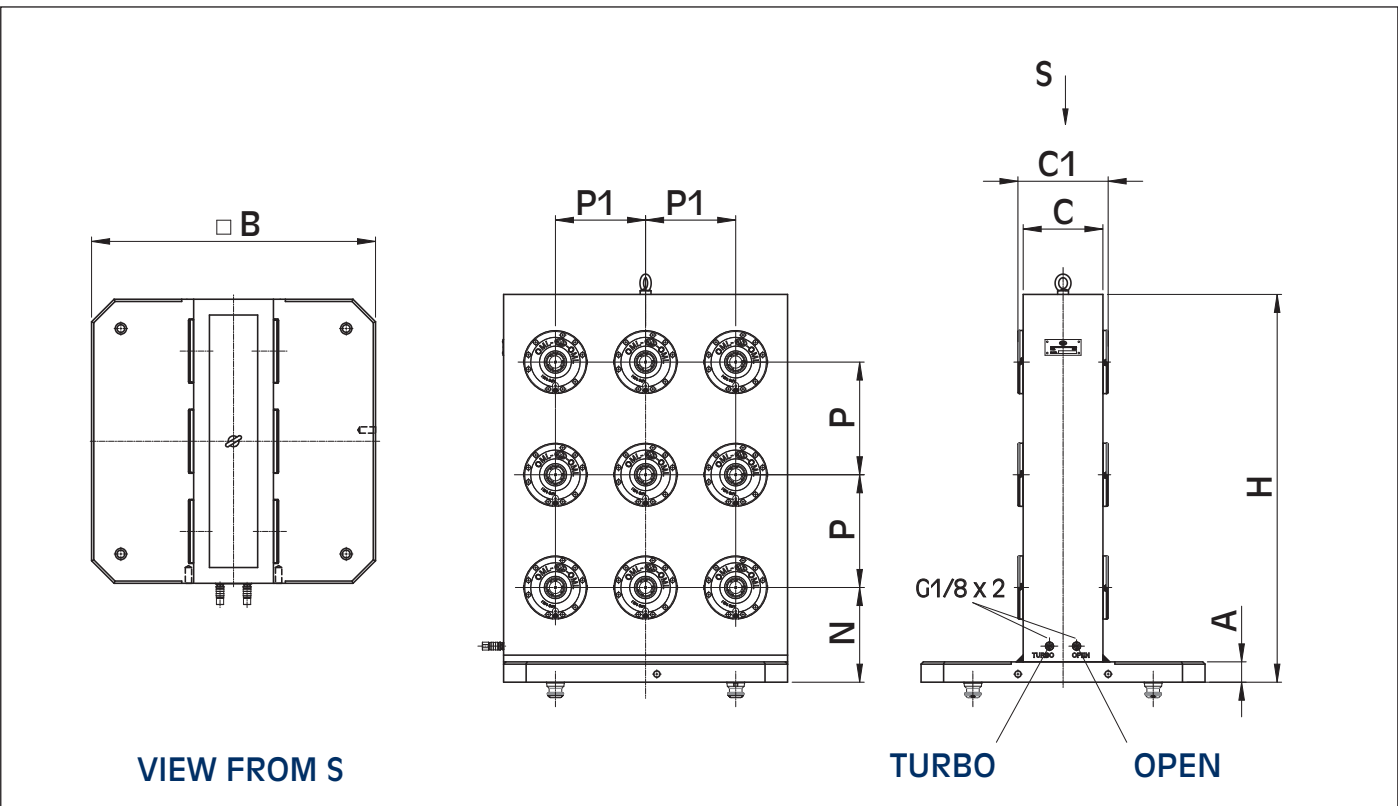
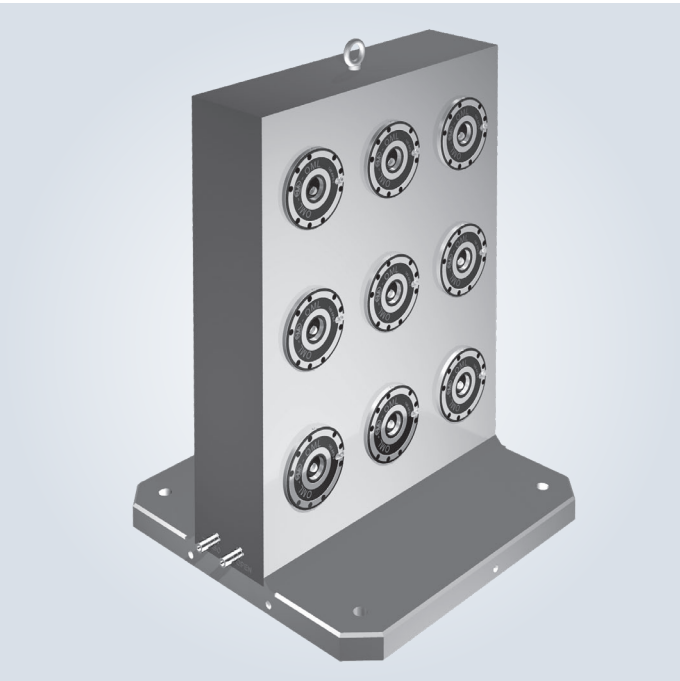


	code	A mm	B mm	C mm	H mm	P mm	N mm	C1 mm	D mm	E mm	F mm	weight kg
STEEL	46 16 73 10	40	400	150	600	250	225	173	125	215	175	200
	46 16 73 20	40	500	150	700	300	250	173	150	275	225	290
ALUMINIUM	46 16 73 40	40	400	150	600	250	225	173	125	215	175	90
	46 16 73 50	40	500	150	700	300	250	173	150	275	225	120
CAST IRON	46 16 73 70	40	400	150	600	250	225	173	125	215	175	185
	46 16 73 80	40	500	150	700	300	250	173	150	275	225	270

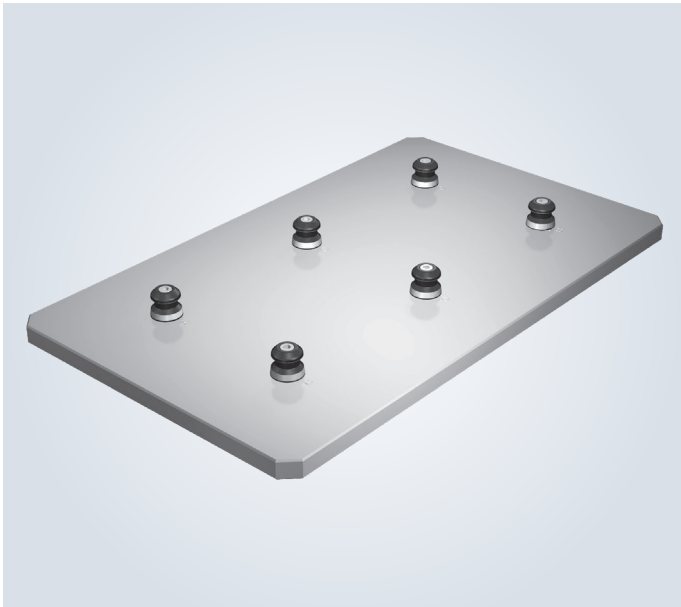
Crankweb with 18 modules APS 140-I

Clamping / unclamping the modules on the same face is simultaneous

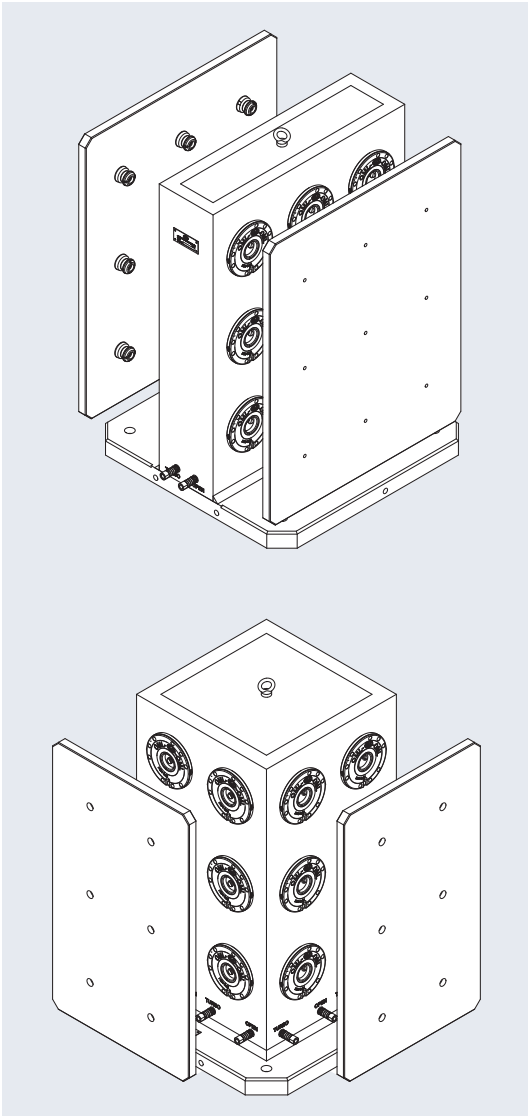
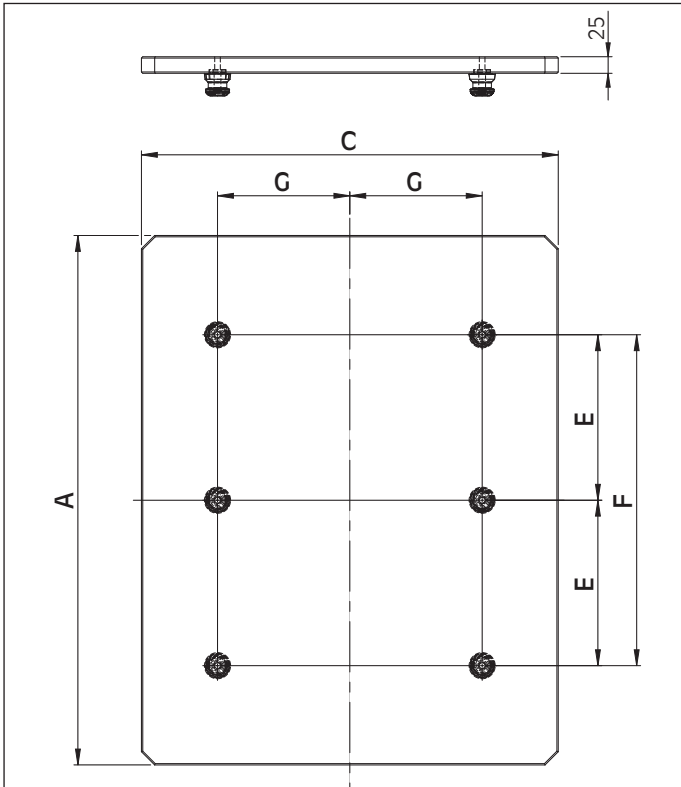
with turbo effect



	code	A mm	B mm	P1 mm	C mm	C1 mm	H mm	P mm	N mm	weight kg
STEEL	46 16 73 30	45	630	200	200	223	860	250	230	495
ALUMINIUM	46 16 73 60	45	630	200	200	223	860	250	230	230
CAST IRON	46 16 73 90	45	630	200	200	223	860	250	230	480

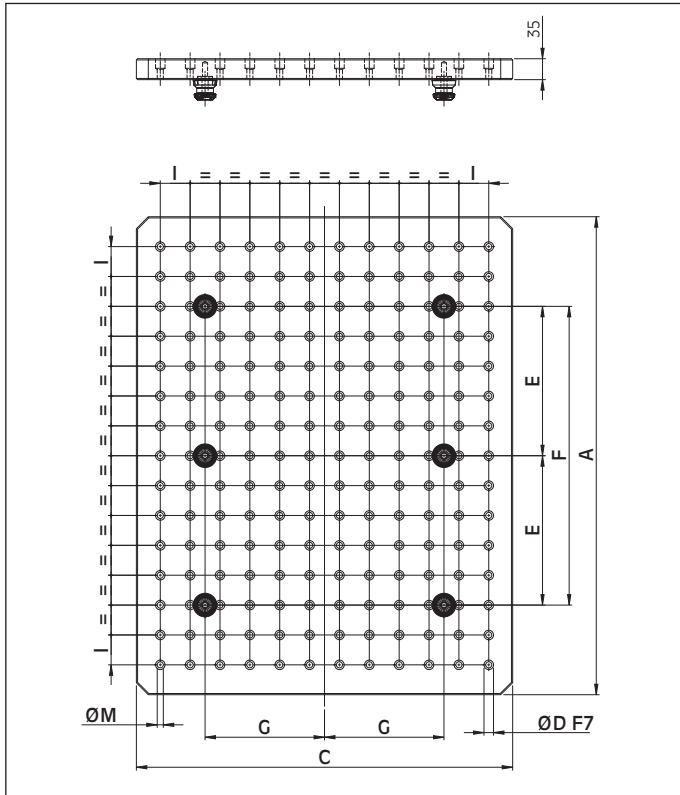
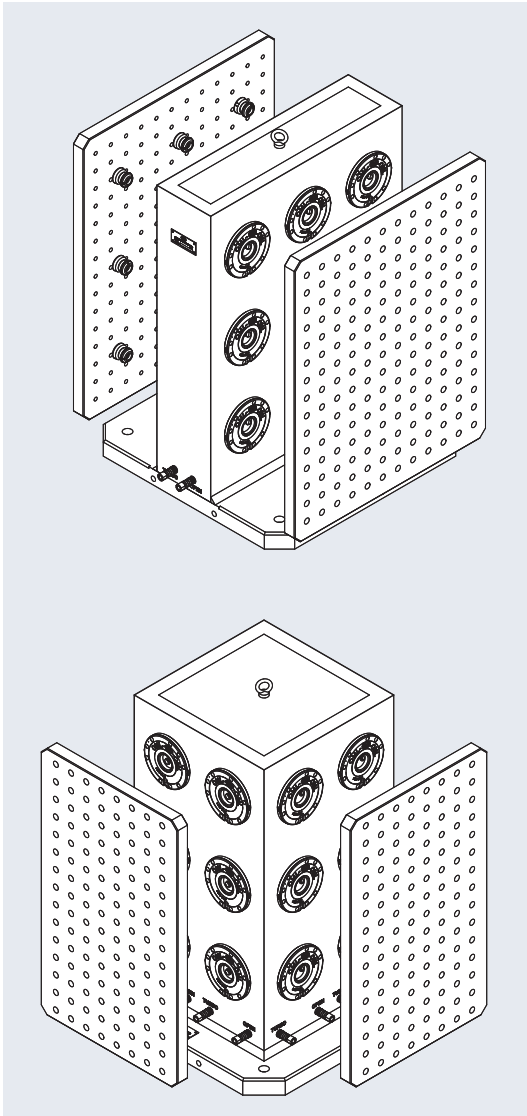
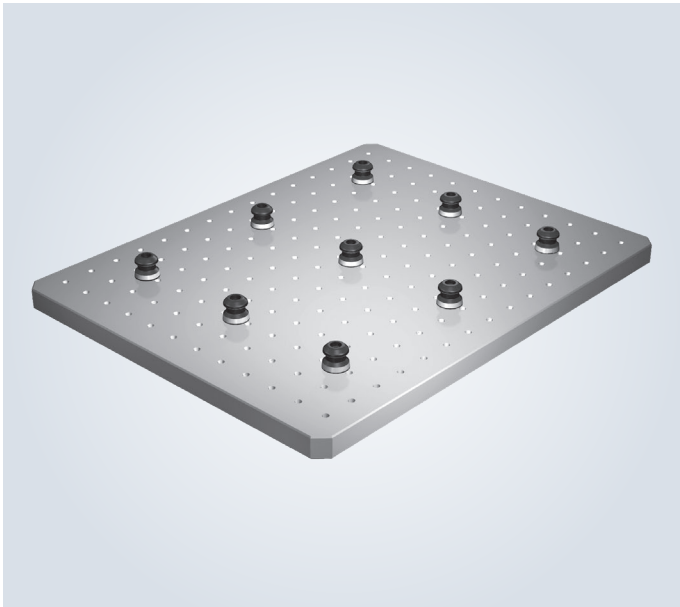


Smooth plate for APS 140

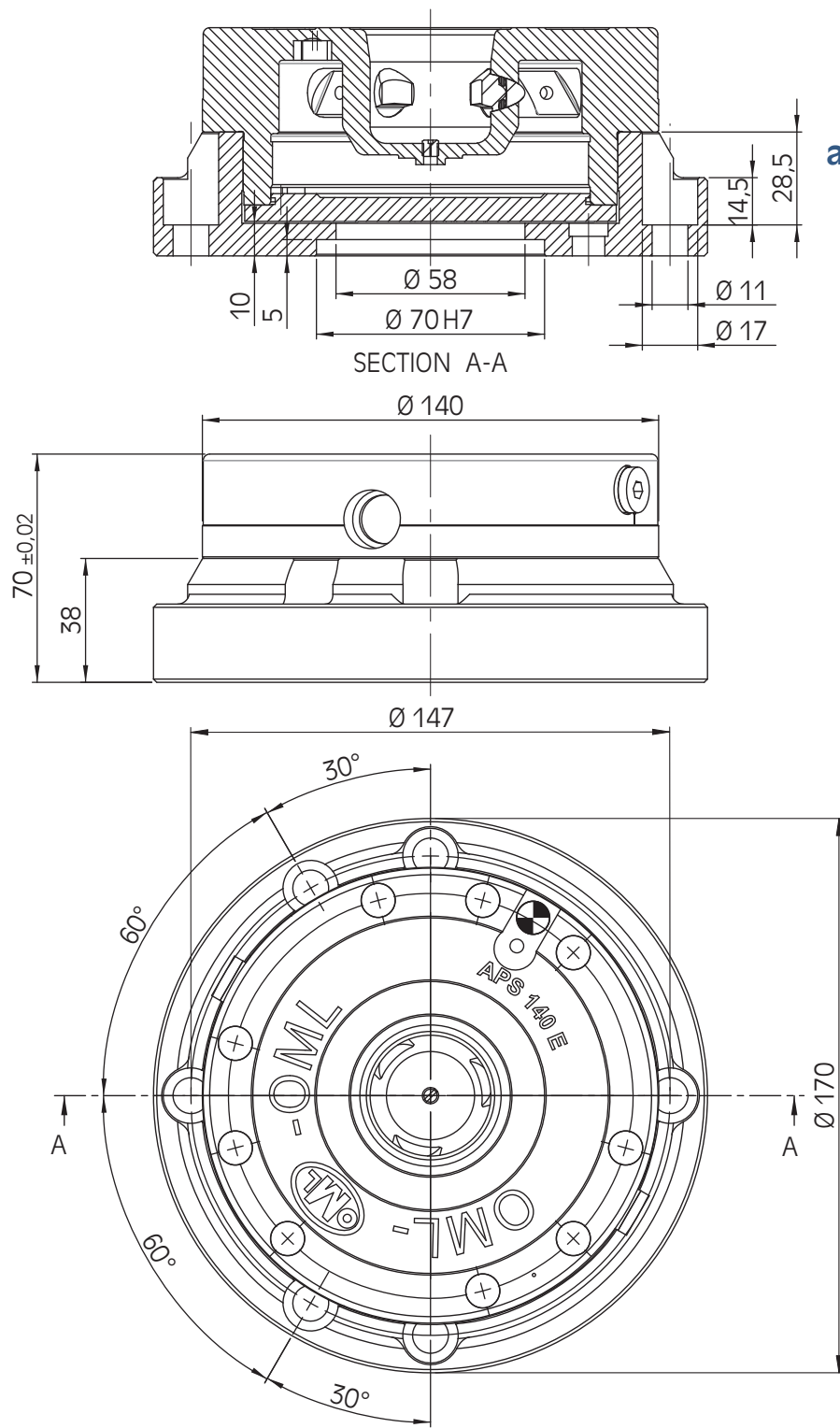


	code	A mm	C mm	E mm	F mm	G mm	weight kg
FOR TOMBSTONES	46 16 74 10	500	250	-	250	-	25
	46 16 74 20	600	350	-	300	-	42
	46 16 74 30	760	450	250	500	100	67
FOR CRANKWEBS	46 16 74 40	500	400	-	250	100	48
	46 16 74 50	600	500	-	300	125	60
	46 16 74 60	800	630	250	500	200	98

Plate with grid for APS 140

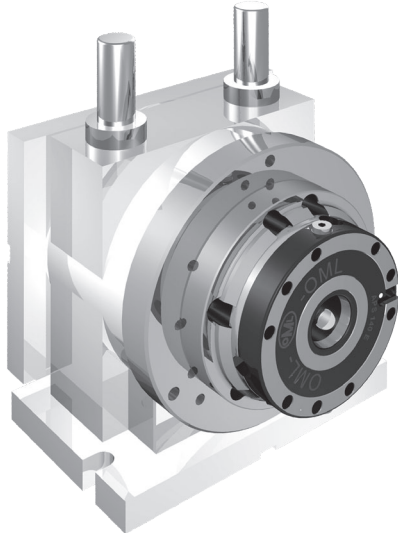


	code	A mm	C mm	E mm	F mm	G mm	I mm	ØM mm	ØD mm	weight kg
FOR TOMBSTONES	46 16 75 10	500	250	-	250	-	50	12	16	32
	46 16 75 20	600	350	-	300	-	50	12	16	55
	46 16 75 30	760	450	250	500	100	50	12	16	96
FOR CRANKWEBS	46 16 75 40	500	400	-	250	100	50	12	16	64
	46 16 75 50	600	500	-	300	125	50	12	16	79
	46 16 75 60	800	630	250	500	200	50	12	16	132



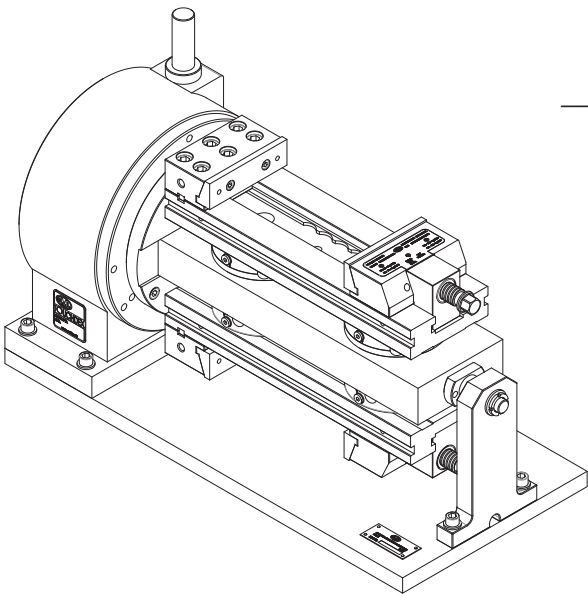
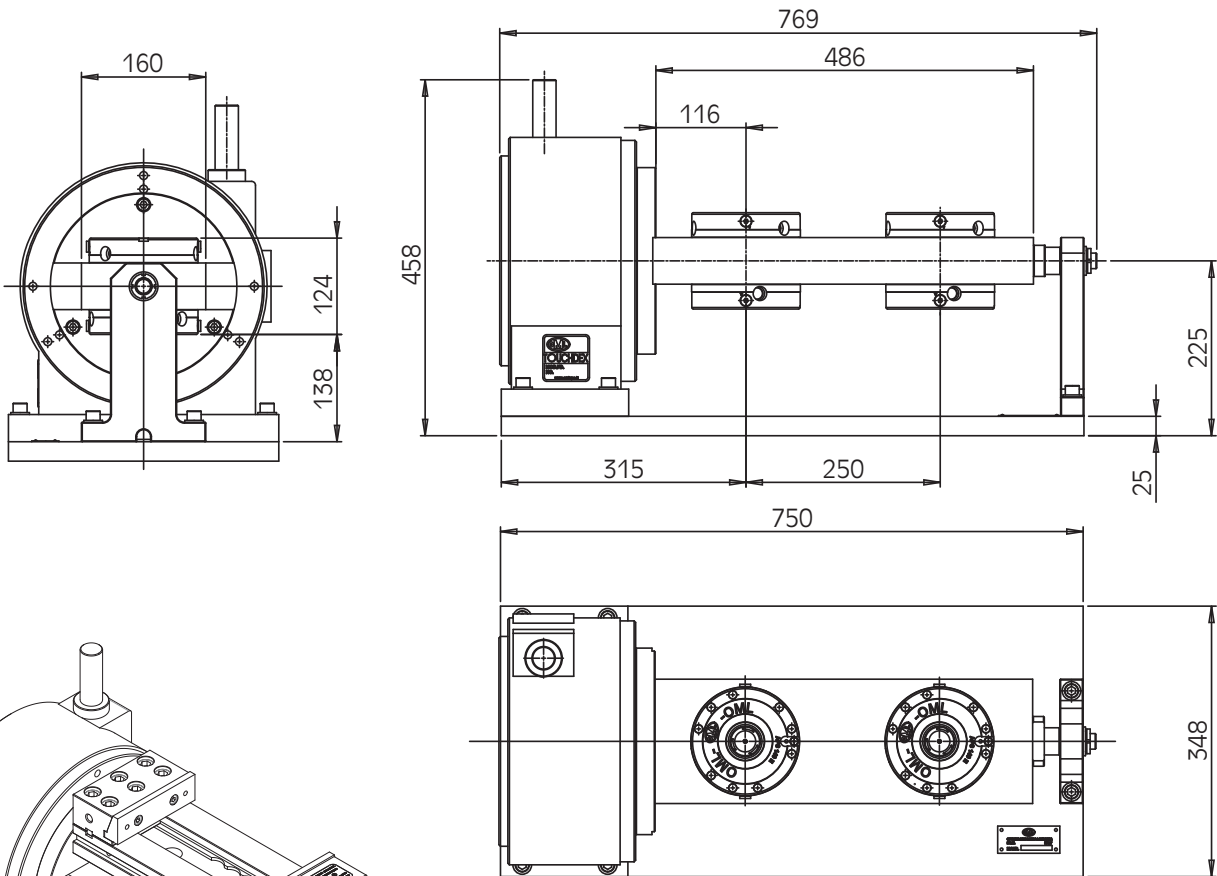
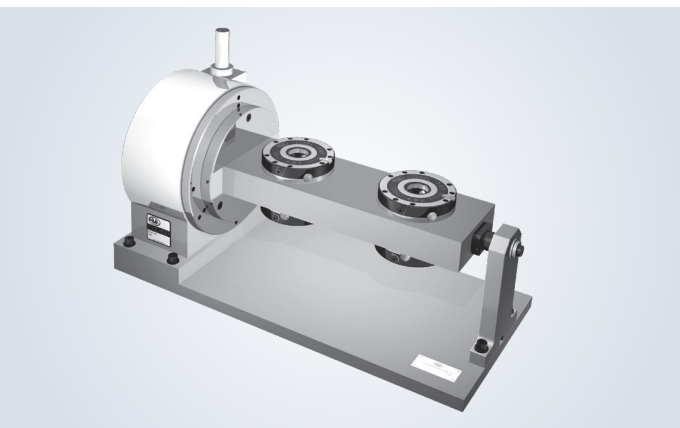
Flange with 1 module APS 140-E
for indexing tables "TOUCHDEX"
FDM-150 and FD-200-04
and FD-200-360, FDM-230,
FDR-230, FDM-230-360,
FDR-230-360
and for orientation on indexing
tables with T slots.
(See key ways on page 0.53)

Example with FDR-230



code	weight kg
46 16 76 20	17

COMBIDEX with 4 modules APS 140-E

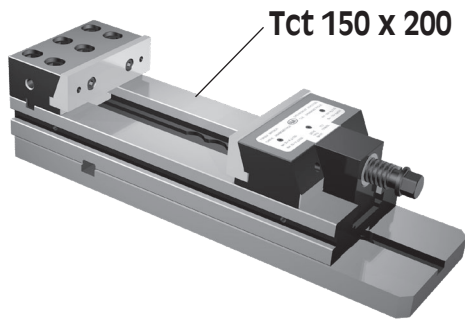
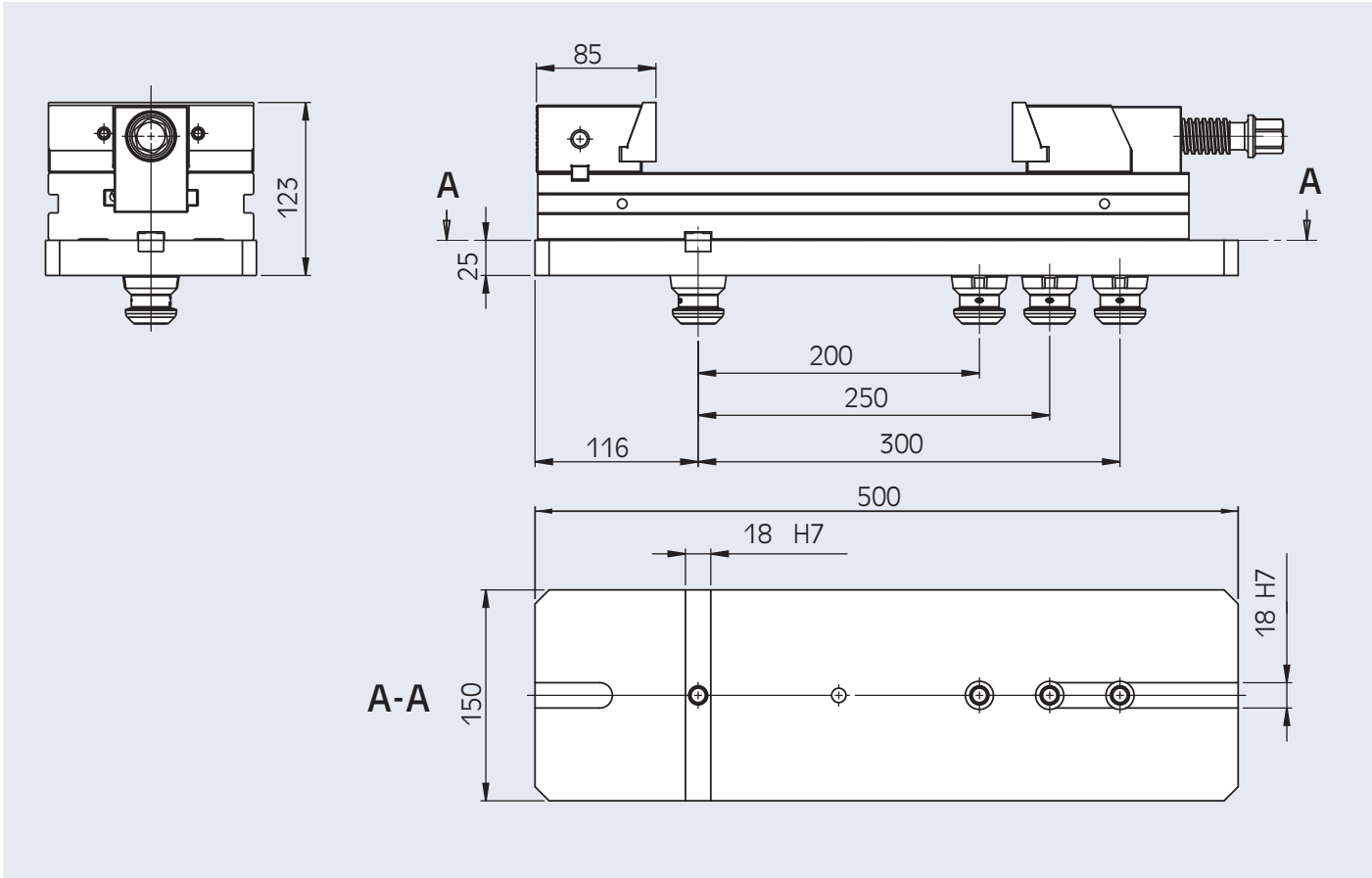


Working examples

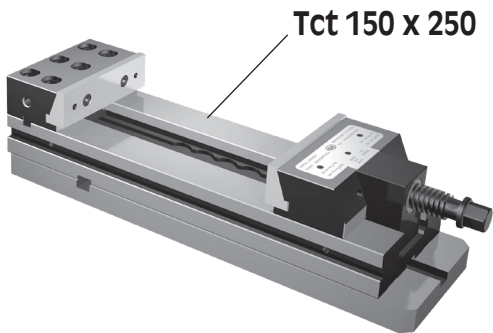
code	for type	indexing angles		pushbar Stroke mm	weight kg
		min.	max°		
46 16 76 10	FDV-301	5°	45°	75	126

Interface plate for APS 140 with Tct 150

code	weight kg
46 16 77 10	14

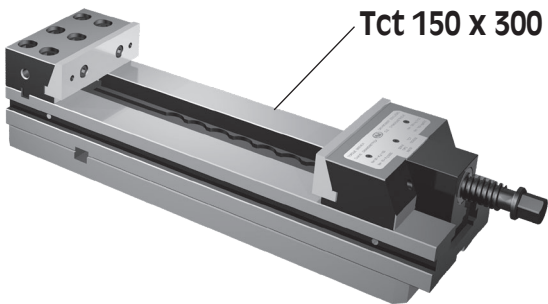


Tct 150 x 200



Tct 150 x 250

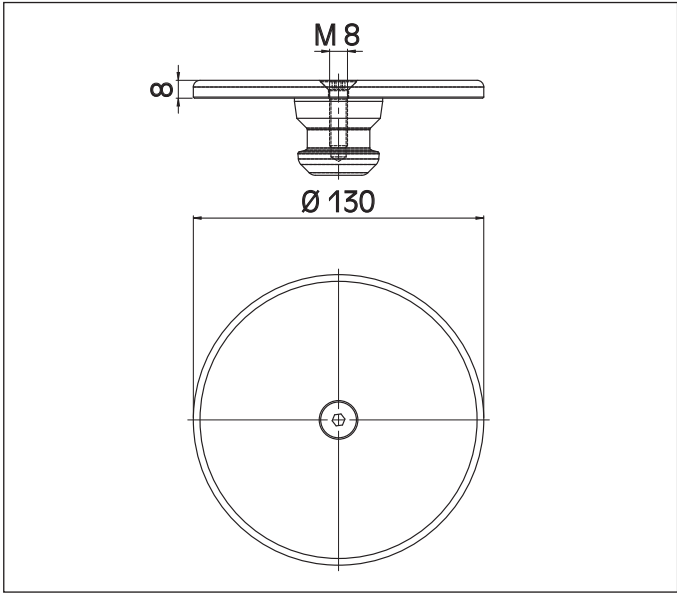
Working examples



Tct 150 x 300

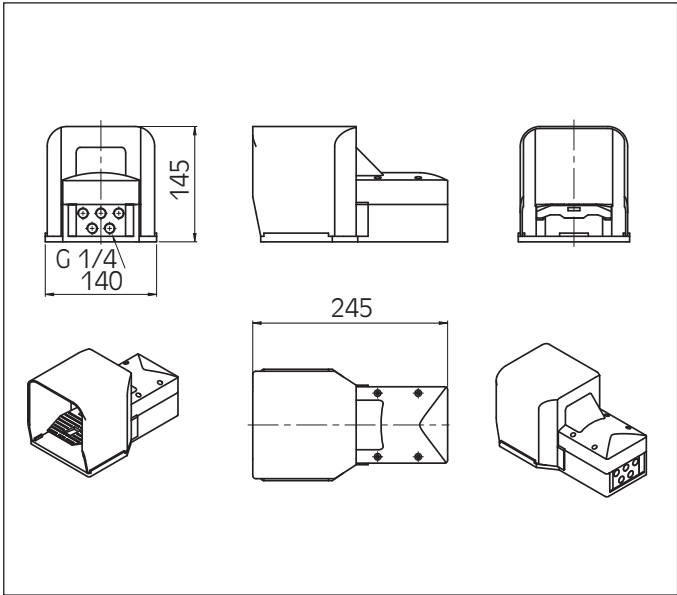
● Special interfaces plates for any other vises on request

Protection cover



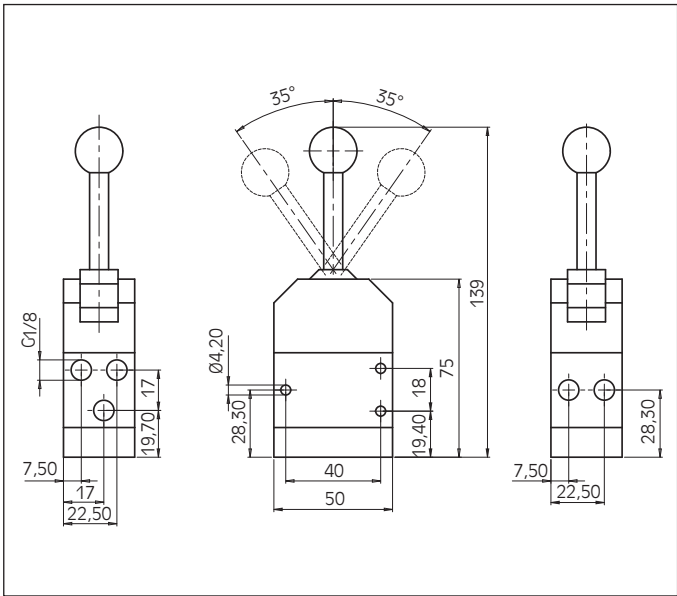
code	weight kg
46 16 23 25	0,12

5/2 1/4" way foot valve with guarded pedal

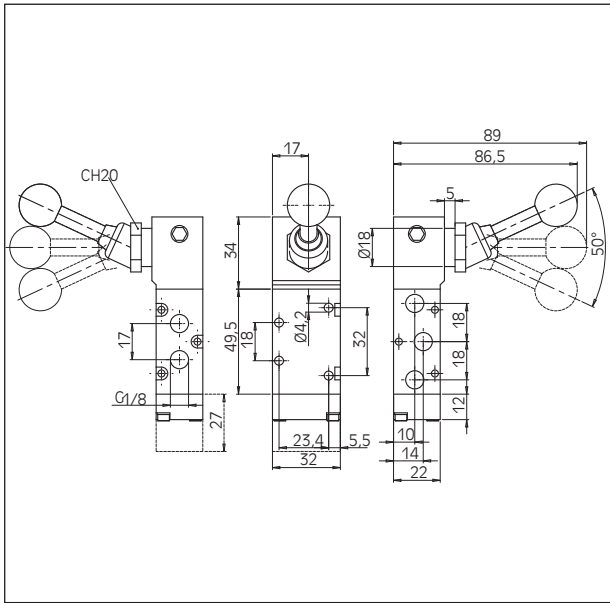


code	weight kg	symbol
71 64 22 14	1,035	

Hand-operated valve front lever 5/3 1/8"

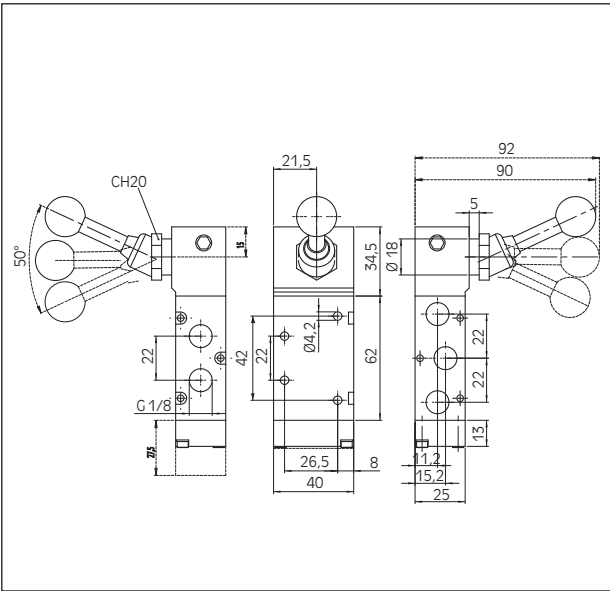


code	weight kg	symbol
71 64 21 04	0,316	



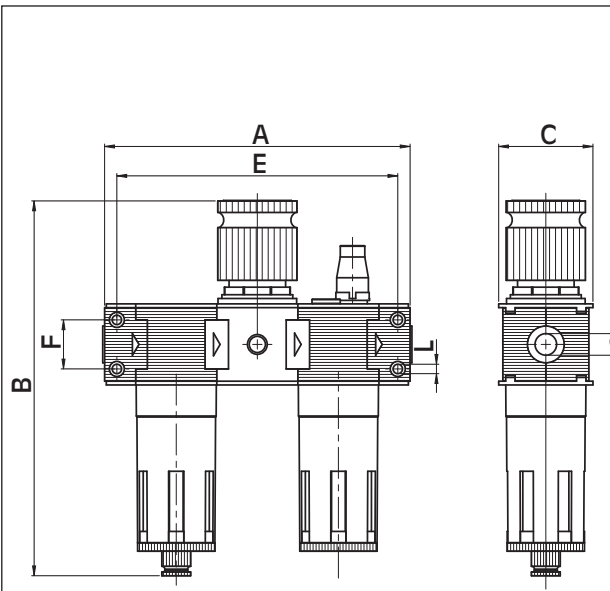
Hand-operated valve angular lever 90° 5/3 1/8"

code	weight kg	symbol
71 64 21 05	0,194	



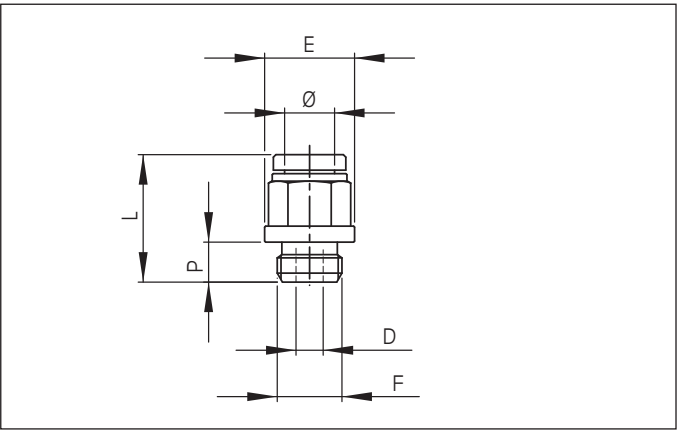
Hand-operated valve angular lever 90° 5/3 1/4"

code	weight kg	symbol
71 64 21 14	0,288	



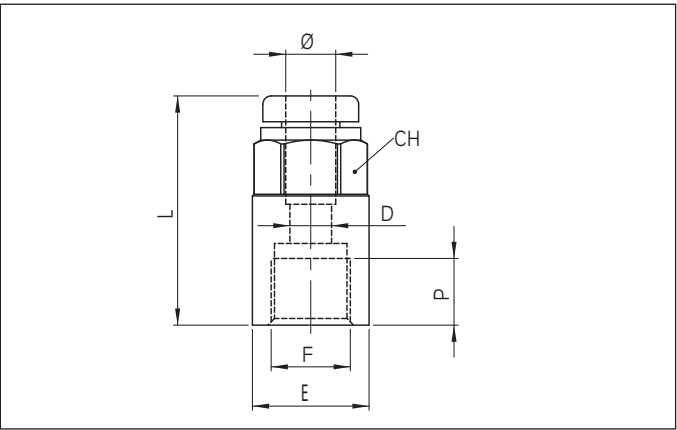
FRL filter

code	weight kg
71 64 21 15	0,803



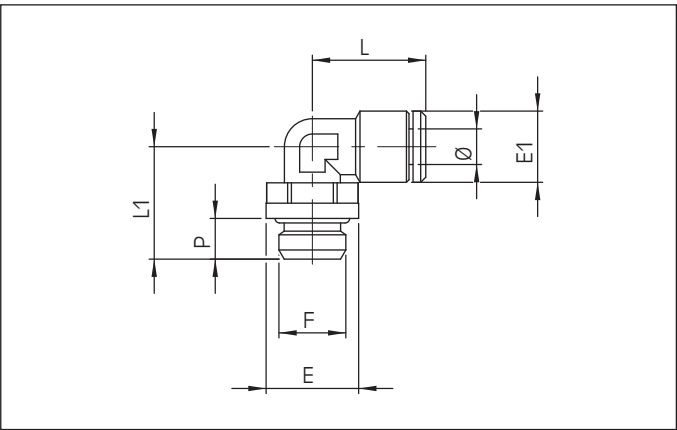
Straight, cylindrical, male fitting

code	Ø	G	Ch	Ch1	P	L	D	E
71 61 20 01	6	1/8	13	4	6.0	24.0	4.2	15.0
71 61 20 02	6	1/4	13	4	8.0	24.0	4.2	18.0
71 61 20 03	8	1/8	15	5	6.0	27.5	5.2	16.5
71 61 20 04	8	1/4	15	6	8.0	25.5	6.2	18.0



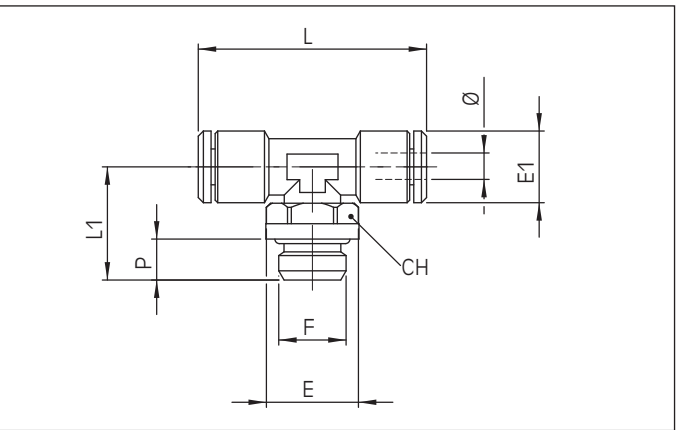
Straight, female fitting

code	Ø	F	Ch	P	L	D	E
71 61 20 05	6	1/8	13	4	6.0	24.0	4.2
71 61 20 06	6	1/4	13	4	8.0	24.0	4.2
71 61 20 07	8	1/8	15	5	6.0	27.5	5.2
71 61 20 08	8	1/4	15	6	8.0	25.5	6.2



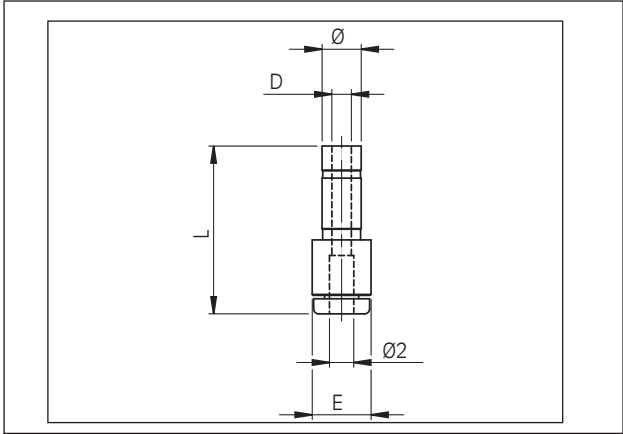
Rotary elbow male cylindrical

code	Ø	F	Ch	E	E1	L	L1	P
71 61 20 09	6	1/8	13	15	12.5	24.5	21	6
71 61 20 10	6	1/4	16	18	12.5	26	24.5	8
71 61 20 11	8	1/8	13	15	14.5	27.5	22.5	6
71 61 20 12	8	1/4	16	18	14.5	27.5	24.5	8



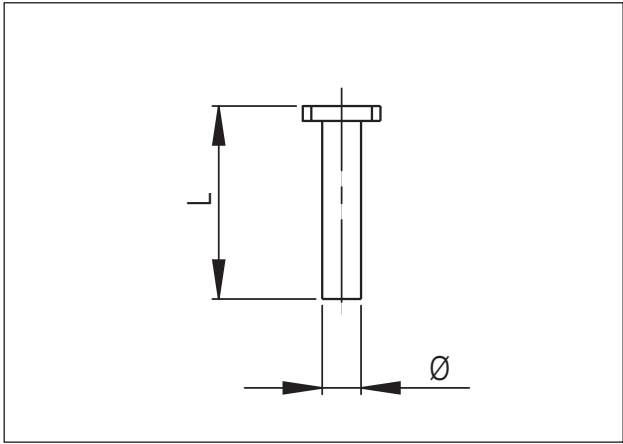
Central tee male cylindrical rotary

code	Ø	F	Ch	E	E1	L	L1	P
71 61 20 13	6	1/8	13	15	12.5	49	21	6
71 61 20 14	6	1/4	16	18	12.5	52	24.5	8
71 61 20 15	8	1/8	13	15	14.5	55	22.5	6
71 61 20 16	8	1/4	16	18	14.5	55	24.5	8



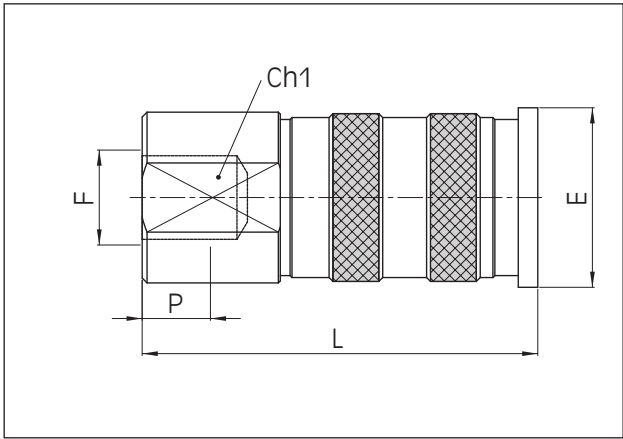
Reducer

code	Ø1	Ø2	L	D	E
71 61 20 17	6	1/8	13	4	6.0



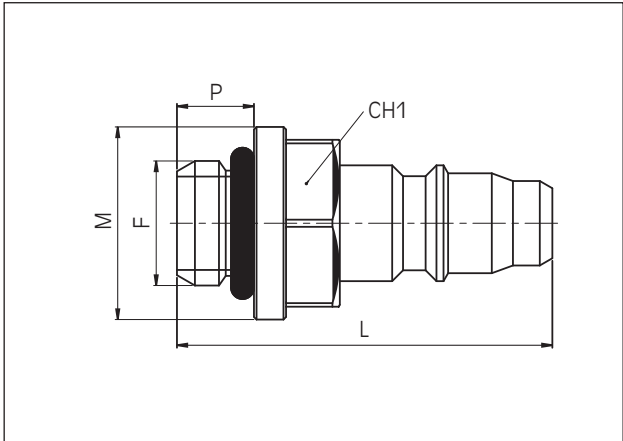
Plug

code	Ø	L
71 61 20 18	6	29.8
71 61 20 19	8	33.6



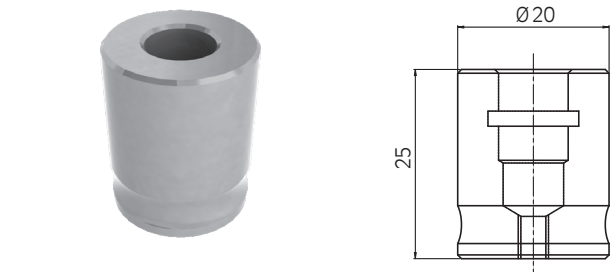
Quick fitting 1/8 female

code	Ø E	F	L	P
71 61 28 01	18.8	G 1/8	42	7



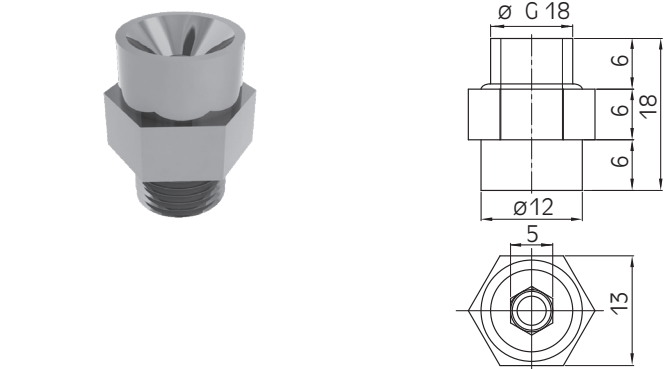
Quick fitting 1/8 male

code	F	L	Ø M	P
71 61 28 02	G 1/8	29.3	15	6



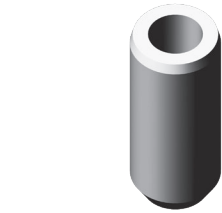
Cover plug for APS

code
71 29 02 08



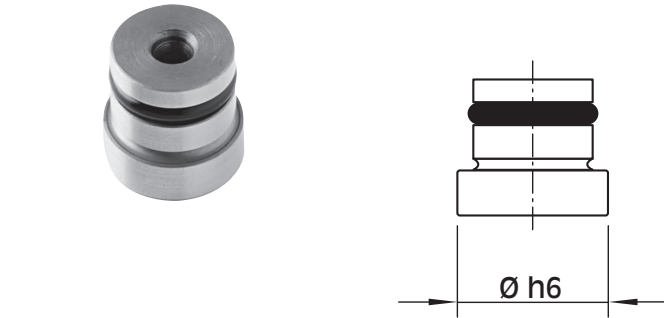
Valve for air compressed gun

code
46 16 78 00



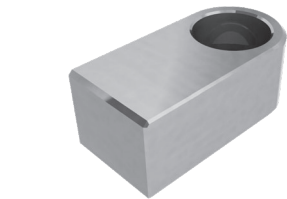
Pin for orientation (single use)

code
71 20 08 16



Positioning round key for T slots indexing tables

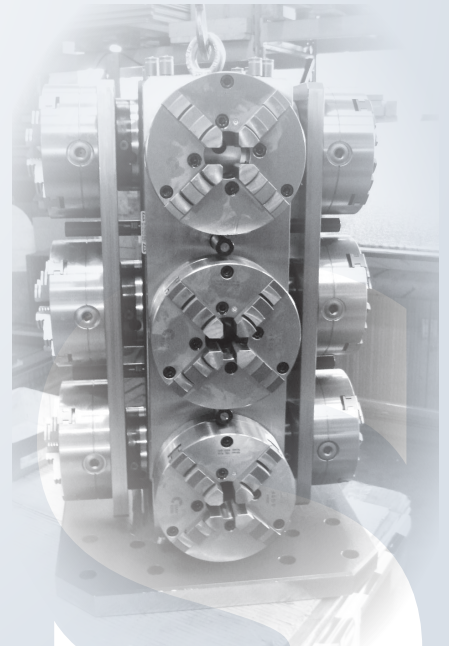
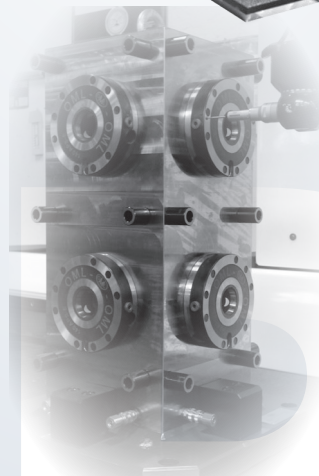
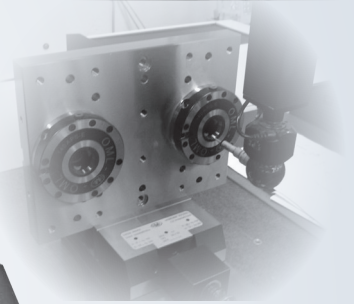
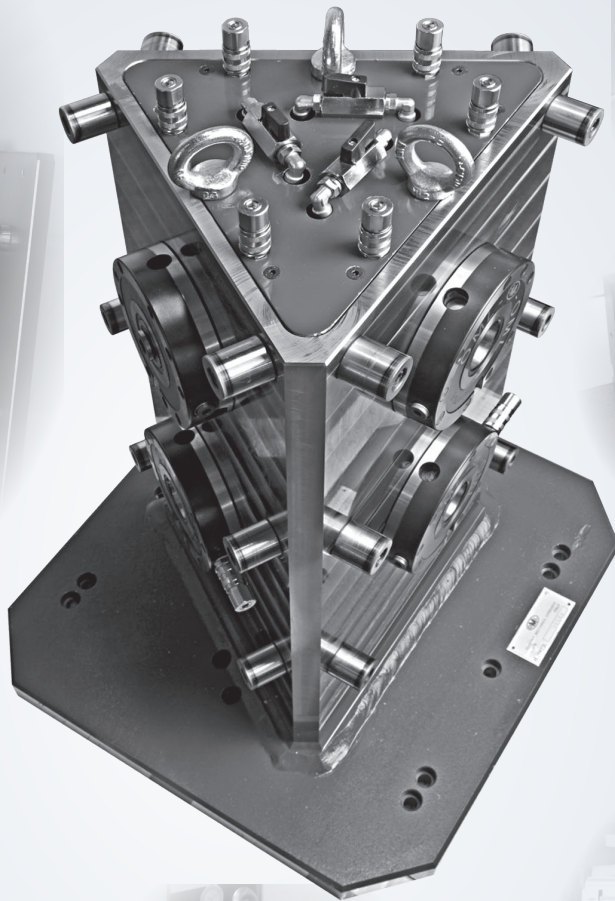
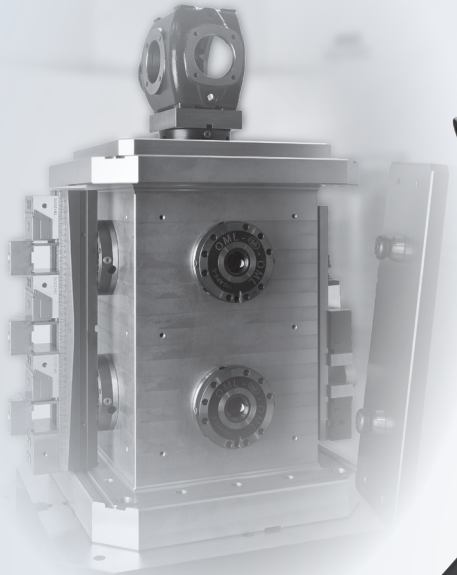
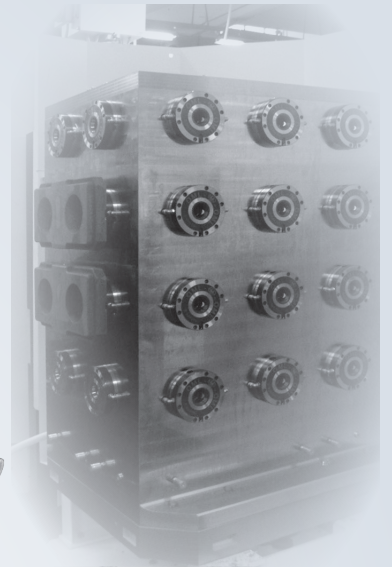
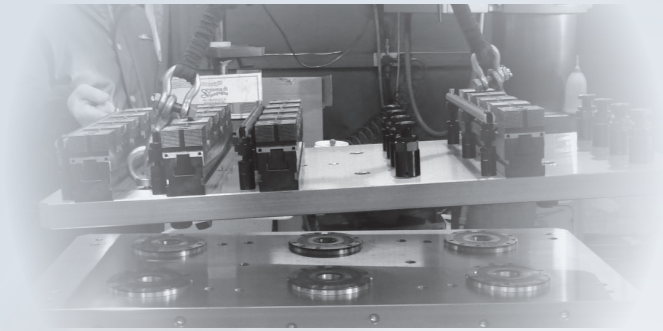
code			
Ø mm 12	Ø mm 14	Ø mm 16	Ø mm 18
46 16 76 92	46 16 76 93	46 16 76 94	46 16 76 95

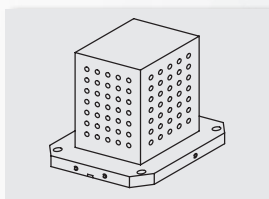


Key for single use

F 7
code
46 16 23 28

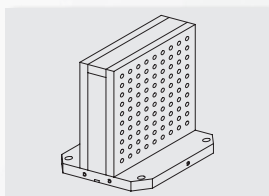
H 7
code
46 16 23 29





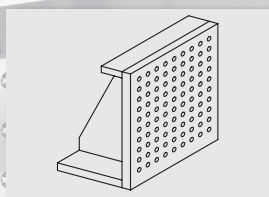
TOMBSTONES

pag. 1. 6



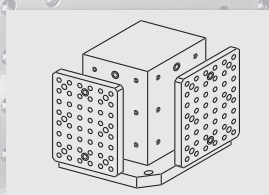
CRANKWEBS

pag. 1. 19



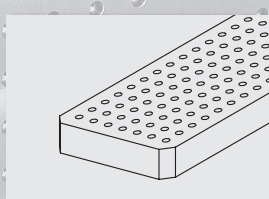
ANGLE PLATES

pag. 1. 25



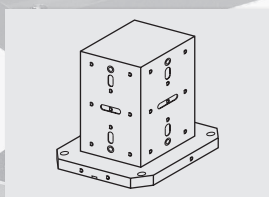
PLATES

pag. 1. 29



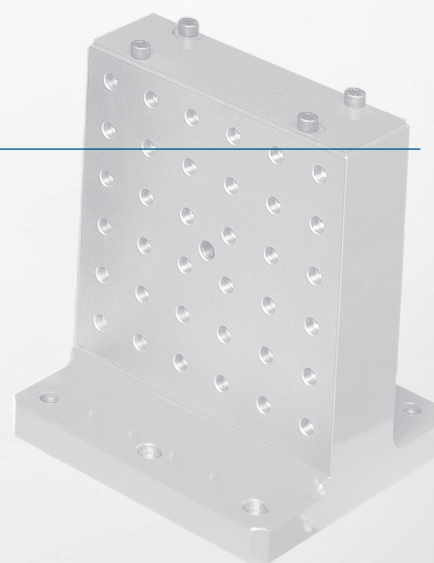
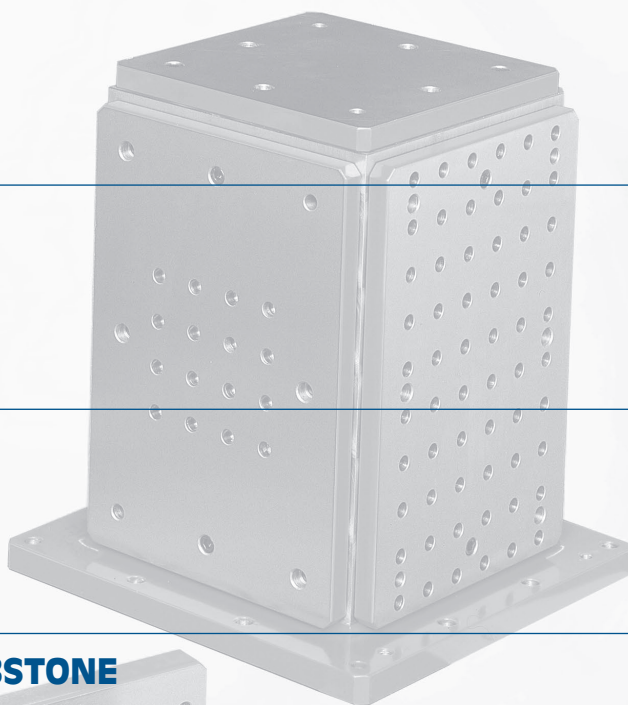
SUBPLATES

pag. 1. 31

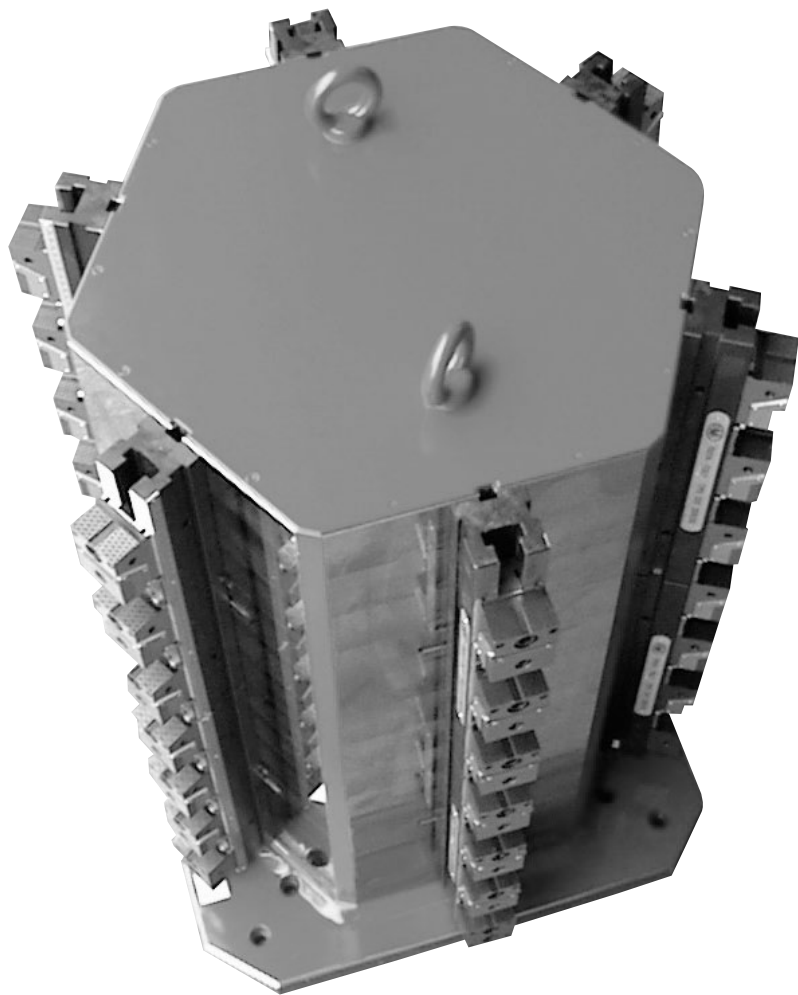


UNIVERSAL TOMBSTONE

pag. 1. 35



The tombstones are...



Milling and finish machining of the steel and aluminium tombstones are completed with high precision machines using the highest quality tools available. This assure the highest accuracy possible and outstanding dimensional repeatability. All tombstones are quality controlled using a coordinate measuring machine.

STEEL

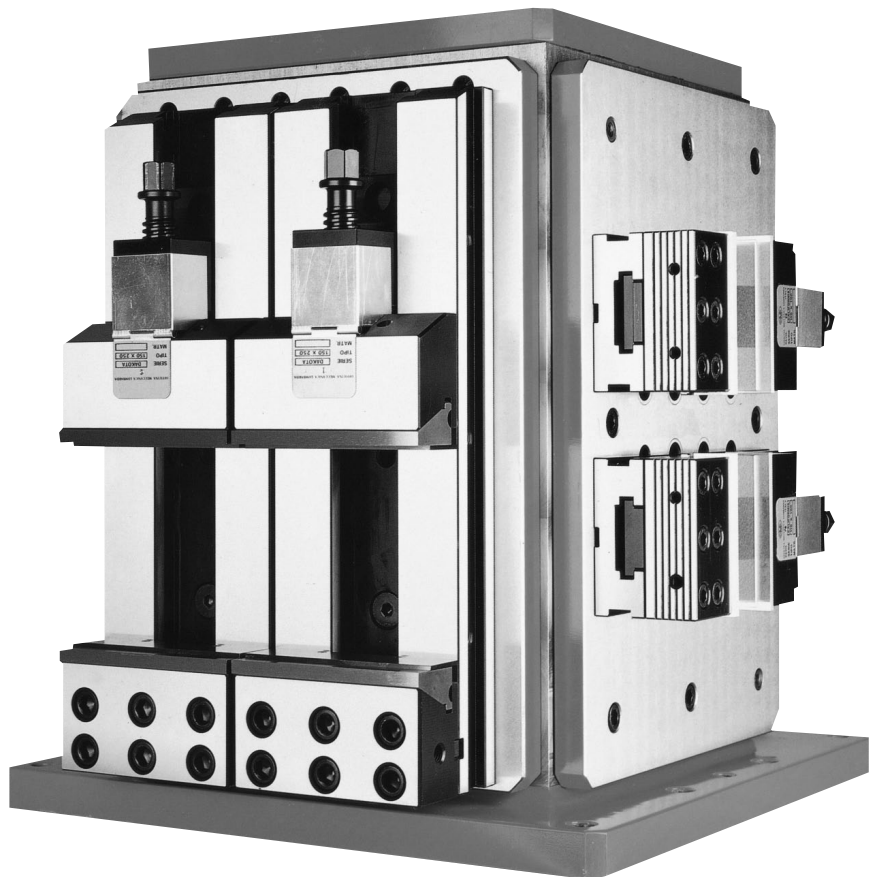
The steel tombstones are manufactured from high resistance steel plate (50/55,5 kg.mm2). After welding, the steel is allowed a normalization period (800 degrees) in order to eliminate the inner stress. After the milling and finish machining, the tombstones are painted and dried in an oven at 60 degrees

ALUMINIUM

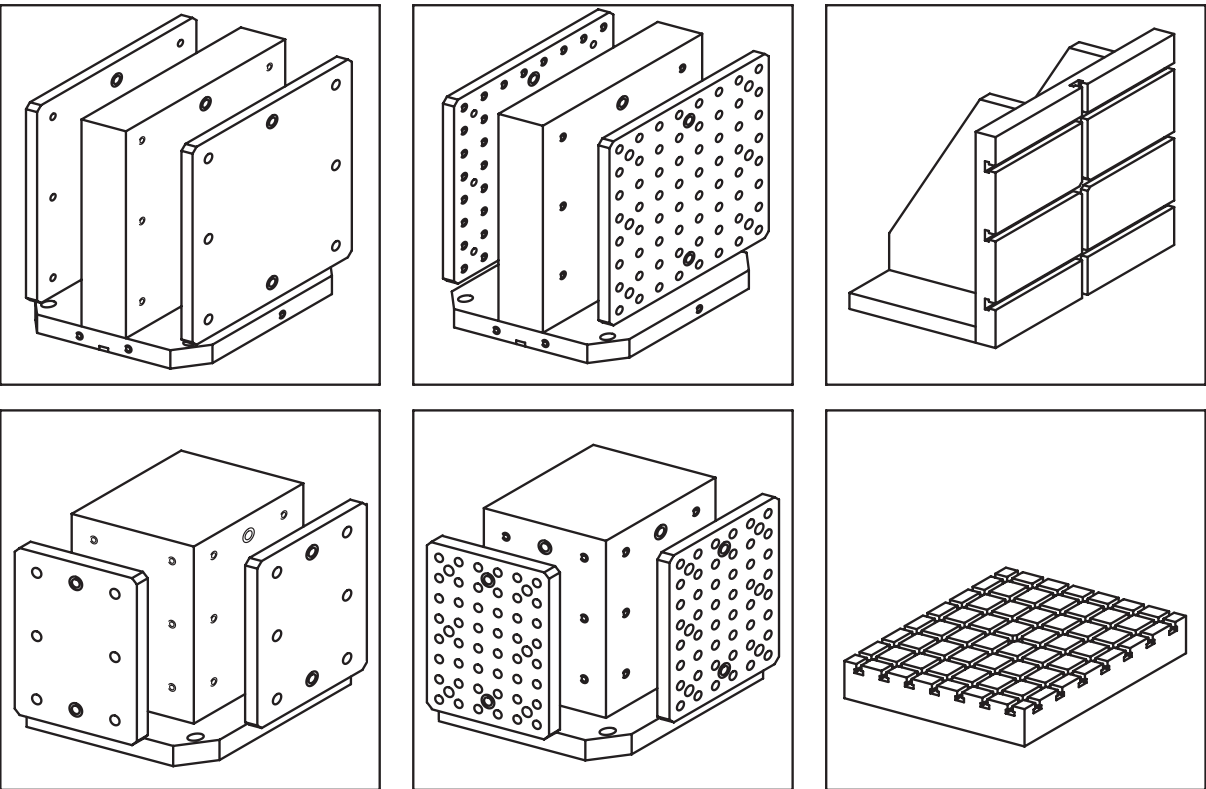
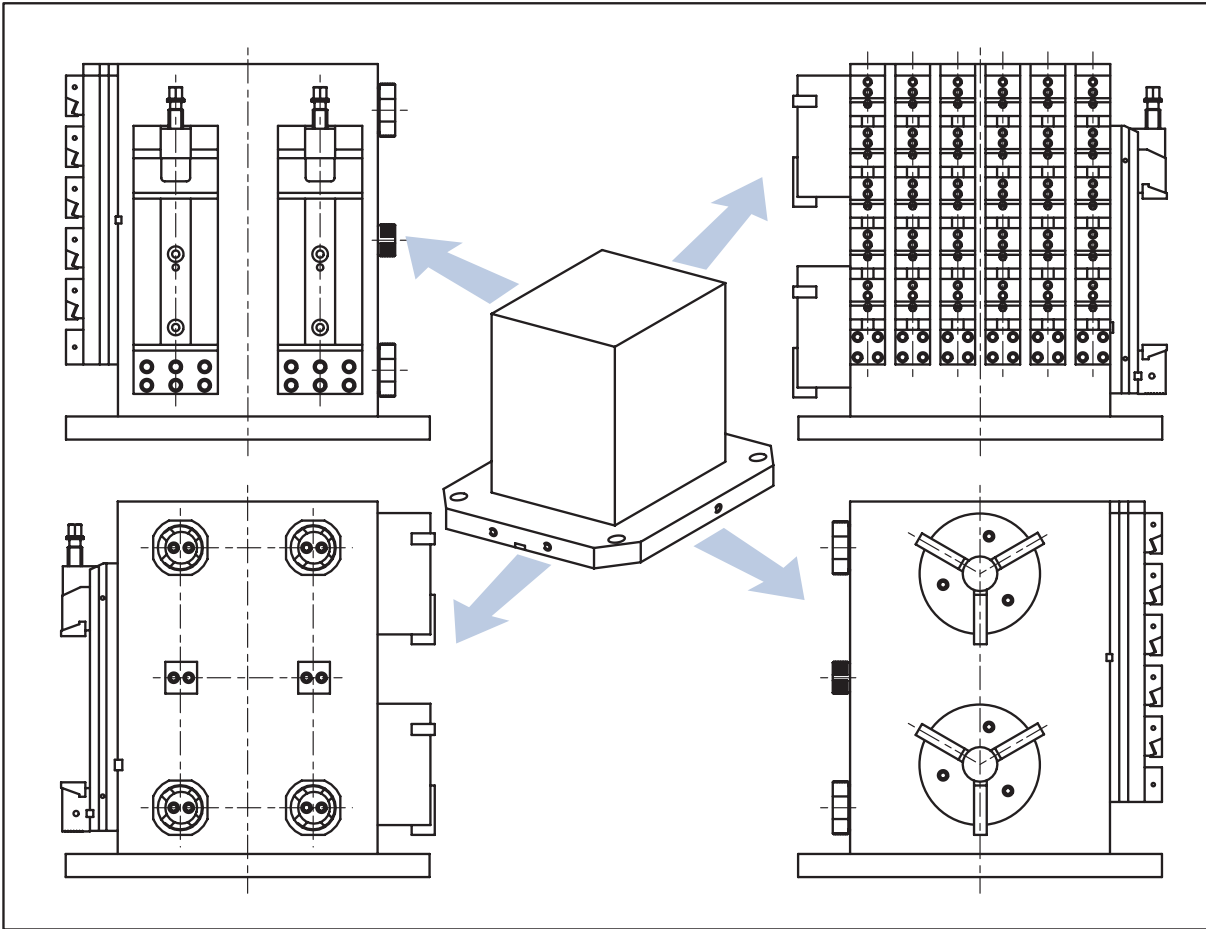
The aluminium version tombstones are casted using the latest generation materials (AlCu4TiMGka) maintaining a high resistance (HB 90-115). After the milling and finish machining, the tombstones are anodized (type EN 12373/1 ex UNI 4522-66) in order to avoid the wear and tear of the surfaces.

CAST IRON

Type UNI EN 1561 GJL
normalized at 500/550° C
High resistance HB 180-220

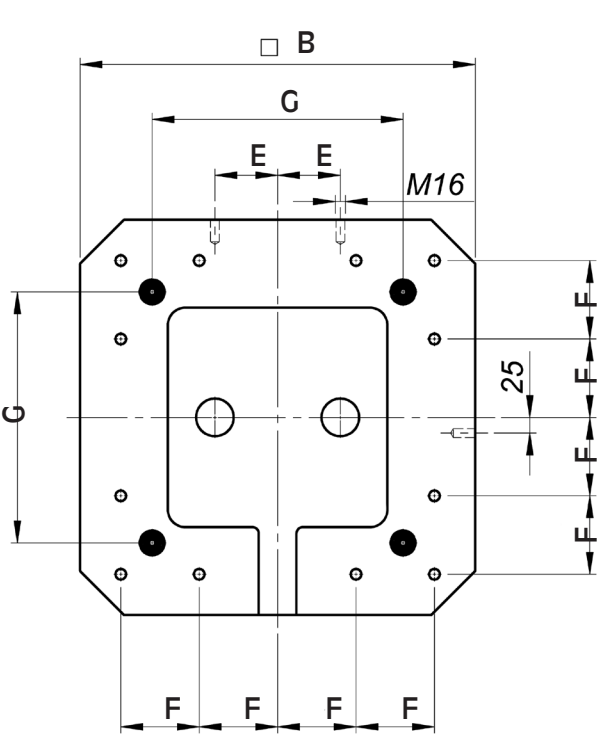


The advantages of modularity



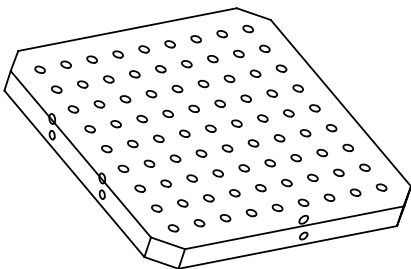
Standard adaptation for machine tools pallet

Our products (tombstones, crankwebs) are supplied standard with the base machined to the table of the machine tool as follows.

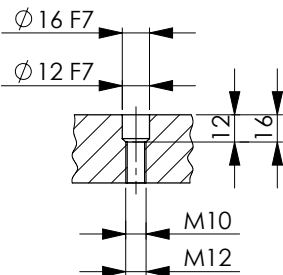


B mm	E mm	F mm	G mm
400	55	80	250
500	75	100	250
630	100	125	420
800	125	160	420

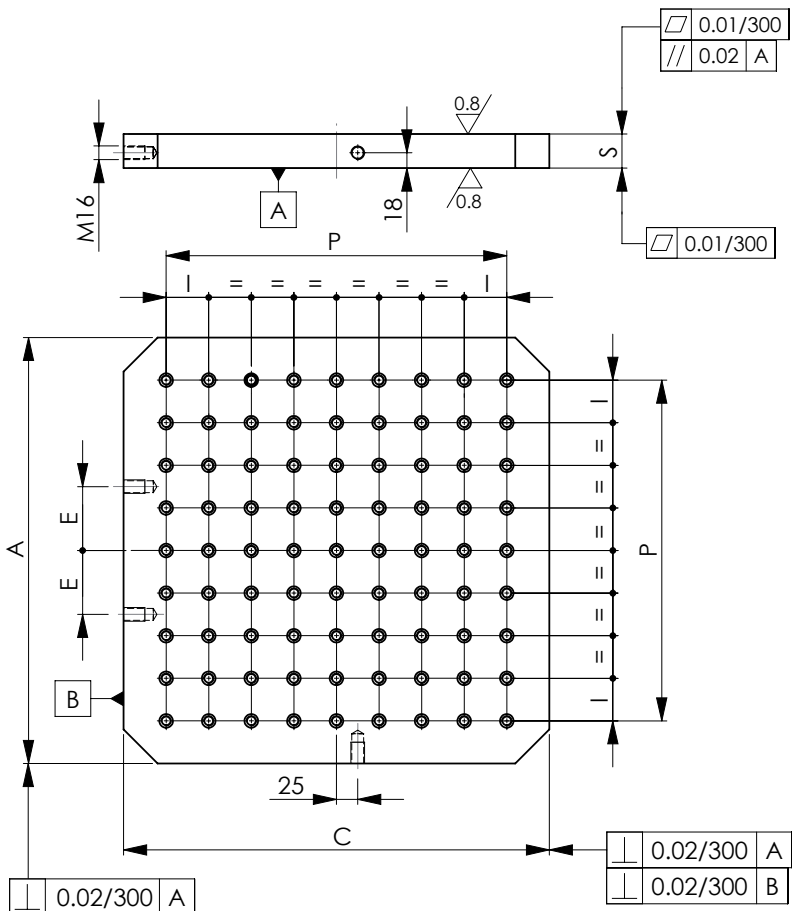
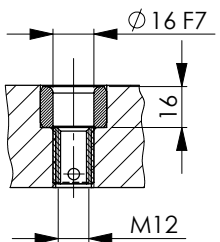
• Special features upon request



standard

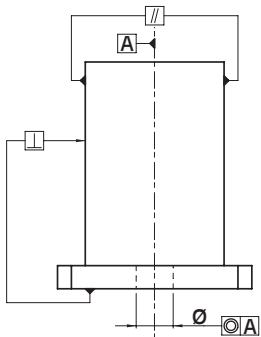


upon request



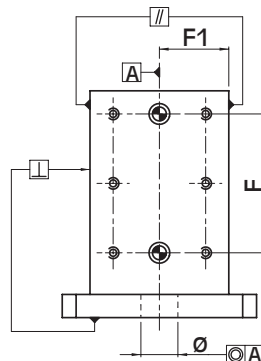
Manufacturing tolerances

Tombstones only milled finished



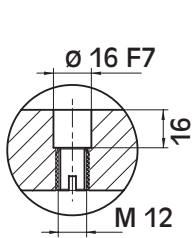
⊥ 0,02 / 500 mm 0,035 / 1000 mm
// 0,03 / 500 mm 0,05 / 1000 mm
⊙ 0,02 / 500 mm 0,035 / 1000 mm

Tombstones for plates

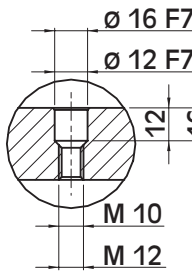


⊥ 0,02 / 500 mm 0,035 / 1000 mm
// 0,03 / 500 mm 0,05 / 1000 mm
⊙ 0,02 / 500 mm 0,035 / 1000 mm
F= 0 : 300 mm ± 0.02 0 : 500 mm ± 0.03 0 : 700 mm ± 0.04
F1= 0 : 500 mm ± 0.015 0 : 1000 mm ± 0.025

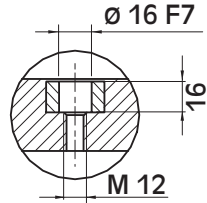
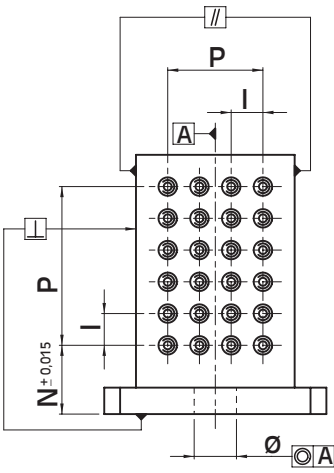
Tombstones with grid



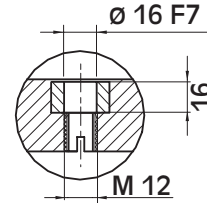
Standard for CAST IRON



Standard for STEEL and ALUMINIUM



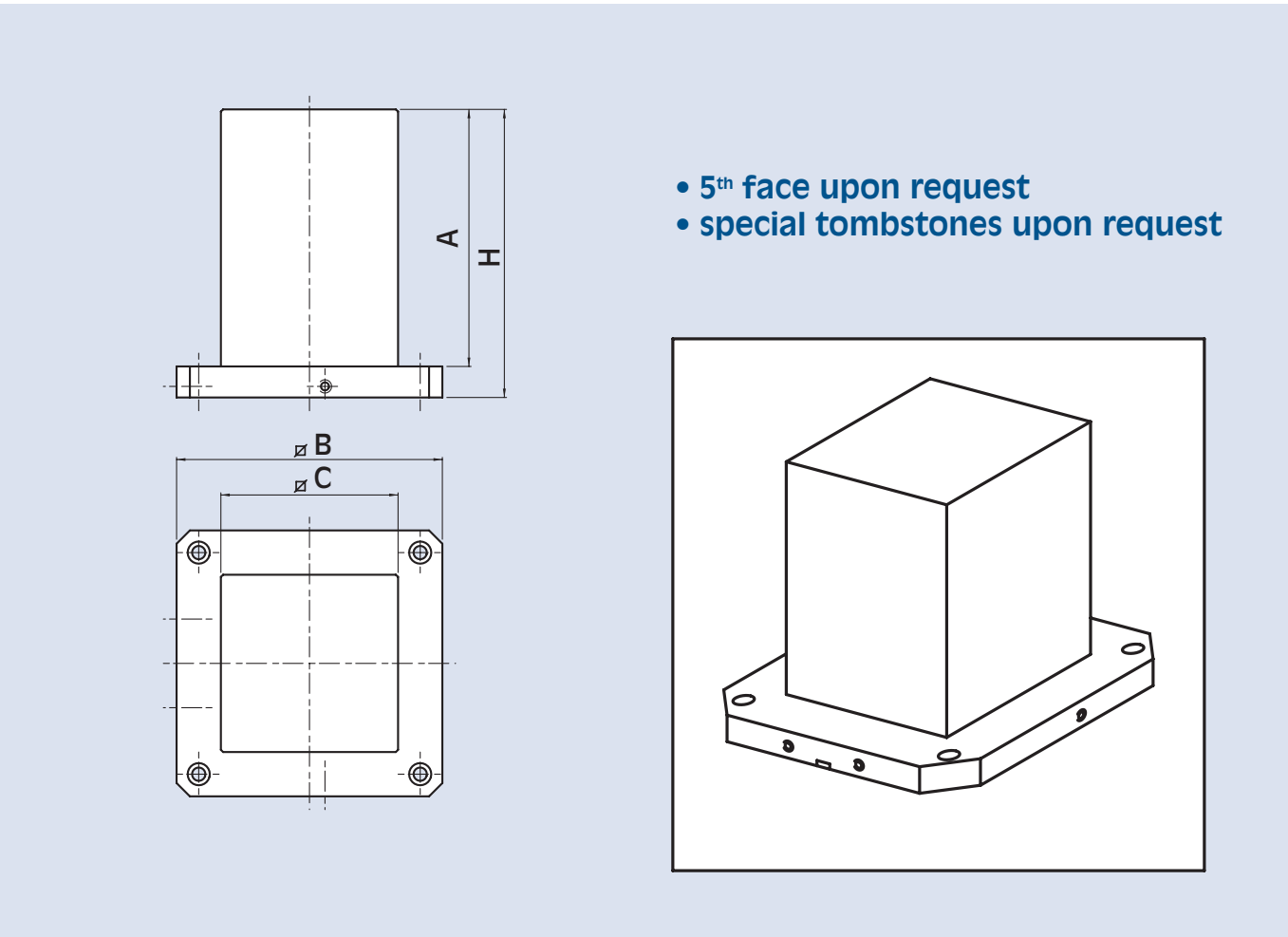
Special upon request only for ALUMINIUM



Special upon request only for CAST IRON

⊥ 0,02 / 500 mm 0,035 / 1000 mm
// 0,03 / 500 mm 0,05 / 1000 mm
⊙ 0,02 / 500 mm 0,035 / 1000 mm
i= 40 - 50 mm ± 0.01
P= 0 : 300 mm ± 0.02 0 : 500 mm ± 0.03 0 : 700 mm ± 0.04 0 : 1000 mm ± 0.05

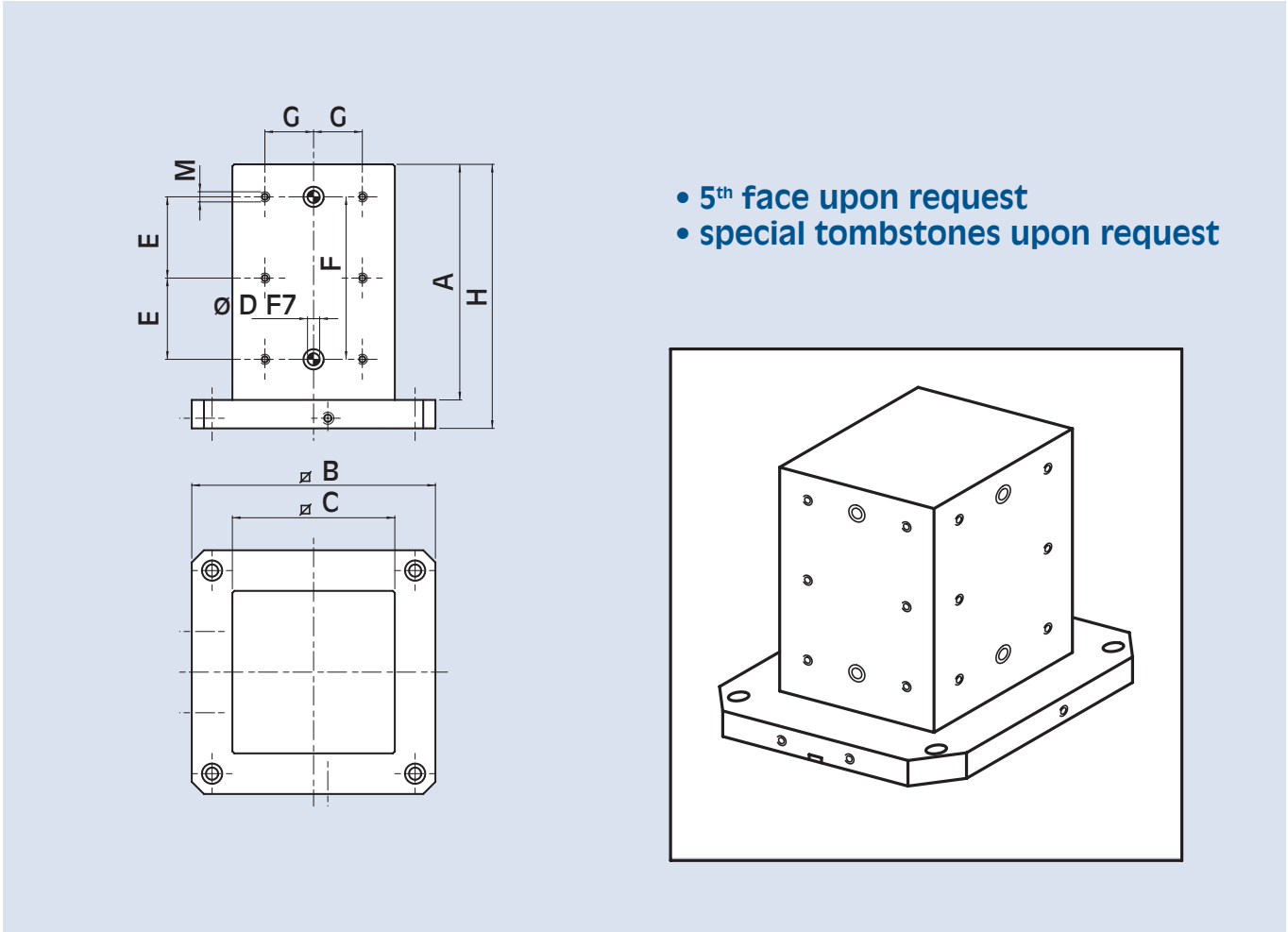
• the following tolerances are the same for all the products



STEEL	ROUGH Cod.	FINISHED Cod.	A mm	B mm	C mm	H mm	Weight kg
	57 00 60 06	57 00 60 05	415	300	160	455	81
	57 00 60 16	57 00 60 15	415	320	200	455	103
	57 00 60 31	57 00 60 30	415	400	250	455	156
	57 00 60 36	57 00 60 35	620	400	250	660	205
	57 00 60 51	57 00 60 50	515	500	350	555	267
	57 00 60 56	57 00 60 55	660	500	350	700	318
	57 00 60 61	57 00 60 60	515	630	450	560	385
	57 00 60 71	57 00 60 70	615	630	450	660	430
	57 00 60 91	57 00 60 90	815	630	450	860	524
ALUM.	57 00 61 11	57 00 61 10	845	800	550	900	730
	57 00 61 21	57 00 61 20	945	800	550	1000	795

ALUM.	Cod.	A mm	B mm	C mm	H mm	Weight kg
	57 30 60 35	620	400	250	660	80
	57 30 60 55	660	500	350	700	137
	57 30 60 70	615	630	450	660	198
	57 30 60 90	815	630	450	860	253

CAST IRON	ROUGH Cod.	FINISHED Cod.	A mm	B mm	C mm	H mm	Weight kg
	57 40 60 36	57 40 60 35	615	400	250	660	208
	57 40 60 56	57 40 60 55	655	500	350	700	329
	57 40 60 91	57 40 60 90	810	630	450	860	607
	57 40 61 21	57 40 61 20	945	800	550	1000	808



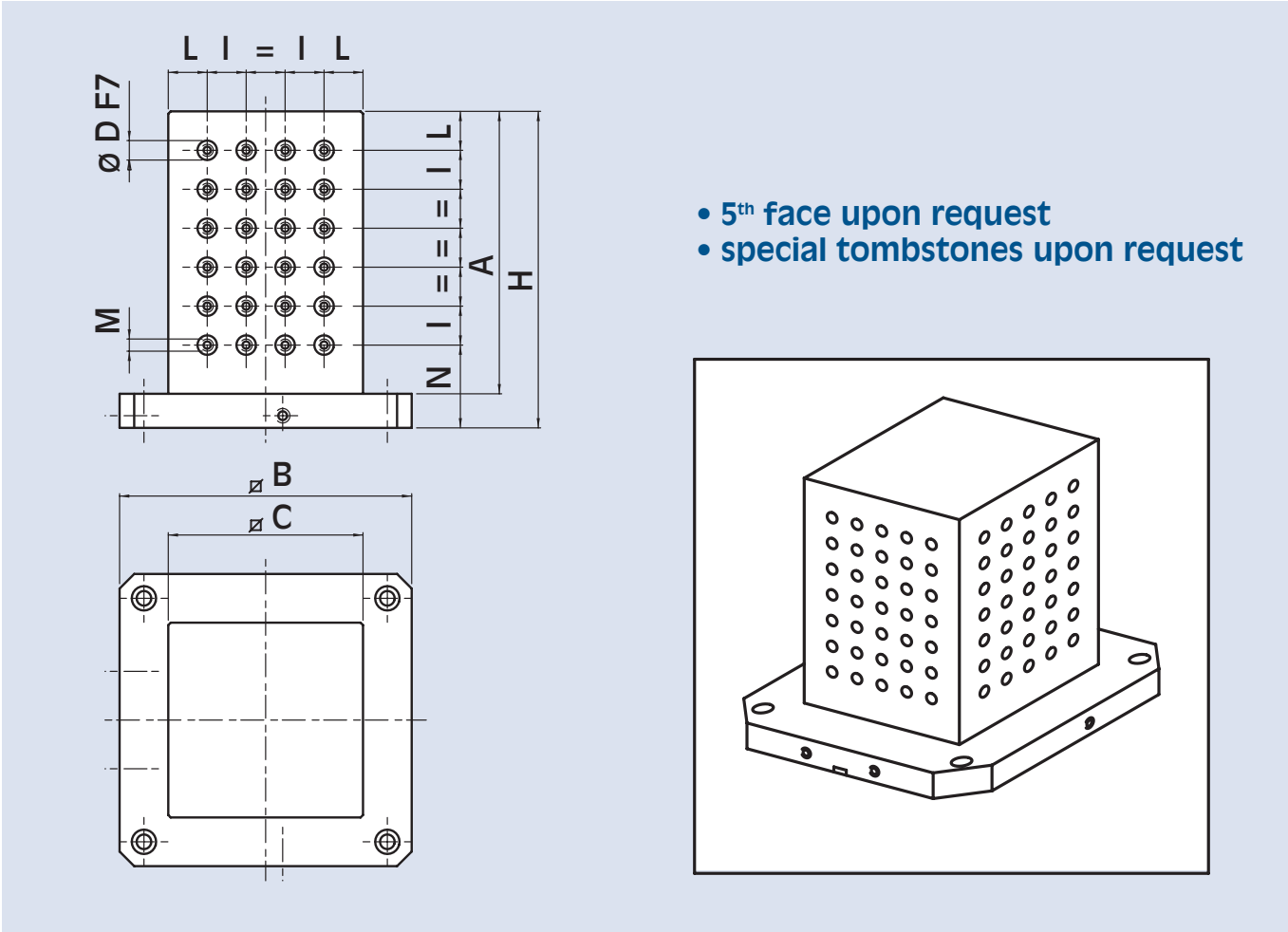
STEEL	Cod.	A mm	B mm	C mm	H mm	Ø D mm	M mm	E mm	F mm	G mm	Weight kg
	57 02 00 15	415	300	160	455	12	M 10	150	300	40	81
	57 02 00 25	415	320	200	455	12	M 10	150	300	60	103
	57 02 00 40	415	400	250	455	16	M 12	150	300	75	156
	57 02 00 45	620	400	250	660	16	M 12	250	500	75	205
	57 02 00 60	515	500	350	555	16	M 12	200	400	125	267
	57 02 00 65	660	500	350	700	16	M 12	250	500	125	318
	57 02 00 70	515	630	450	560	16	M 12	200	400	175	385
	57 02 00 80	615	630	450	660	16	M 12	250	500	175	430
	57 02 01 00	815	630	450	860	16	M 12	350	700	175	524
	57 02 01 20	845	800	550	900	16	M 12	350	700	225	730
	57 02 01 30	945	800	550	1000	16	M 12	400	800	225	795

ALUM.	Cod.	A mm	B mm	C mm	H mm	Ø D mm	M mm	E mm	F mm	G mm	Weight kg
	57 31 20 45	620	400	250	660	16	M 12	250	500	75	80
	57 31 20 65	660	500	350	700	16	M 12	250	500	125	137
	57 31 20 80	615	630	450	660	16	M 12	250	500	175	198
	57 31 21 00	815	630	450	860	16	M 12	350	700	175	253

CAST IRON	Cod.	A mm	B mm	C mm	H mm	Ø D mm	M mm	E mm	F mm	G mm	Weight kg
	57 41 20 45	615	400	250	660	16	M 12	250	500	75	208
	57 41 20 65	655	500	350	700	16	M 12	250	500	125	329
	57 41 21 00	810	630	450	860	16	M 12	350	700	175	607
	57 41 21 30	945	800	550	1000	16	M 12	400	800	225	808

TOMBSTONES

tombstones with grid



STEEL	Cod.	A mm	B mm	C mm	H mm	ø D mm	M mm	I mm	L mm	N mm	Weight kg
	57 03 00 15	415	300	160	455	12	M 10	40	40	95	79
	57 03 00 25	415	320	200	455	12	M 10	40	40	95	100
	57 03 00 40	415	400	250	455	16	M 12	50	50	105	152
	57 03 00 45	620	400	250	660	16	M 12	50	50	110	198
	57 03 00 60	515	500	350	555	16	M 12	50	50	105	259
	57 03 00 65	660	500	350	700	16	M 12	50	50	100	307
	57 03 00 70	515	630	450	560	16	M 12	50	50	110	374
	57 03 00 80	615	630	450	660	16	M 12	50	50	110	417
	57 03 01 00	815	630	450	860	16	M 12	50	50	110	506
	57 03 01 20	845	800	550	900	16	M 12	50	50	100	706
	57 03 01 30	945	800	550	1000	16	M 12	50	50	100	768

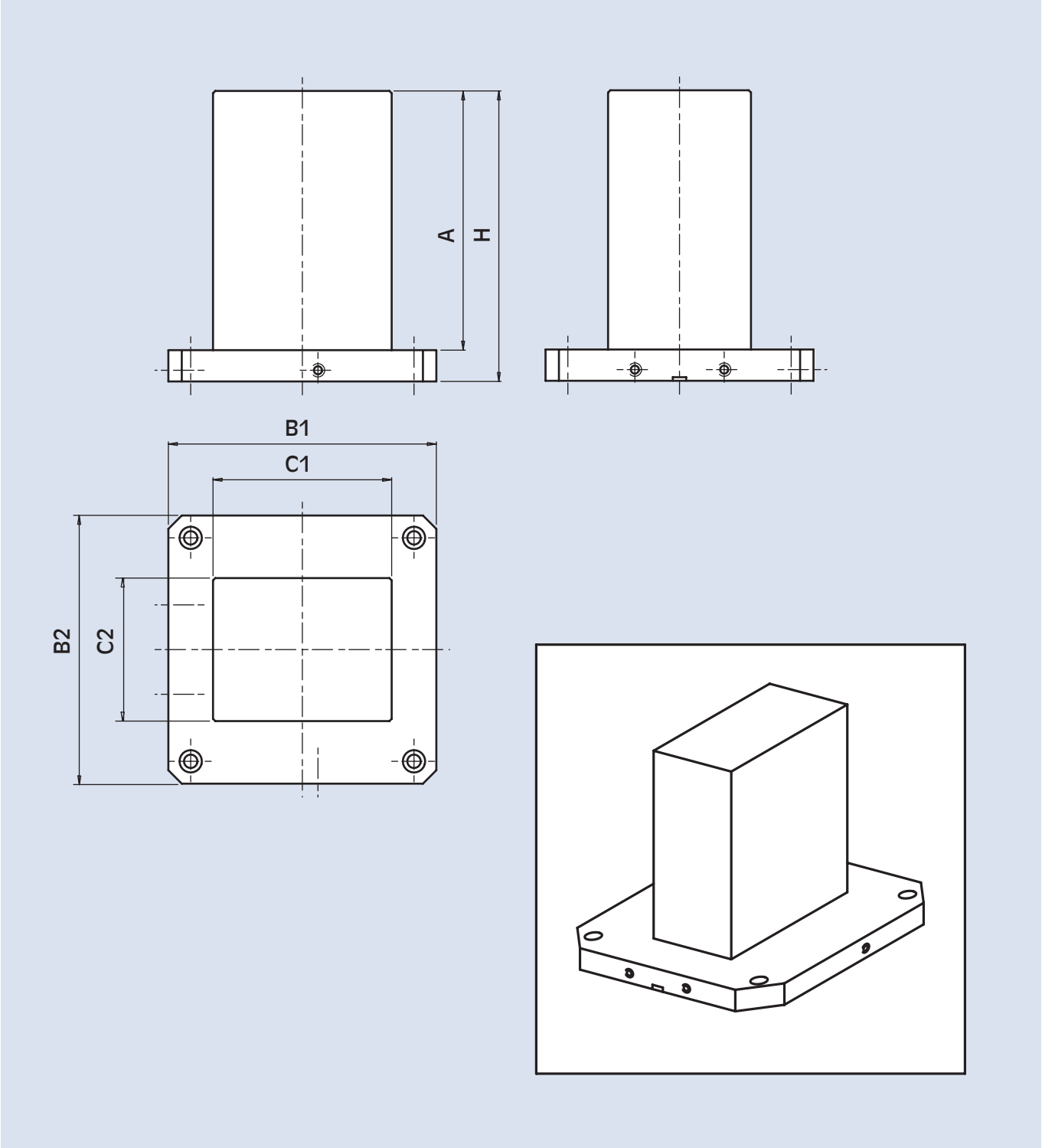
ALUM.	Cod.	A mm	B mm	C mm	H mm	ø D mm	M mm	I mm	L mm	N mm	Weight kg
	57 31 30 45	620	400	250	660	16	M 12	50	50	110	78
	57 31 30 65	660	500	350	700	16	M 12	50	50	100	133
	57 31 30 80	615	630	450	660	16	M 12	50	50	110	193
	57 31 31 00	815	630	450	860	16	M 12	50	50	110	246

CAST IRON	Cod.	A mm	B mm	C mm	H mm	ø D mm	M mm	I mm	L mm	N mm	Weight kg
	57 41 30 45	615	400	250	660	16	M 12	50	50	110	208
	57 41 30 65	655	500	350	700	16	M 12	50	50	100	329
	57 41 31 00	810	630	450	860	16	M 12	50	50	110	522
	57 41 31 30	945	800	550	1000	16	M 12	50	50	100	808

rectangular tombstones
only milled

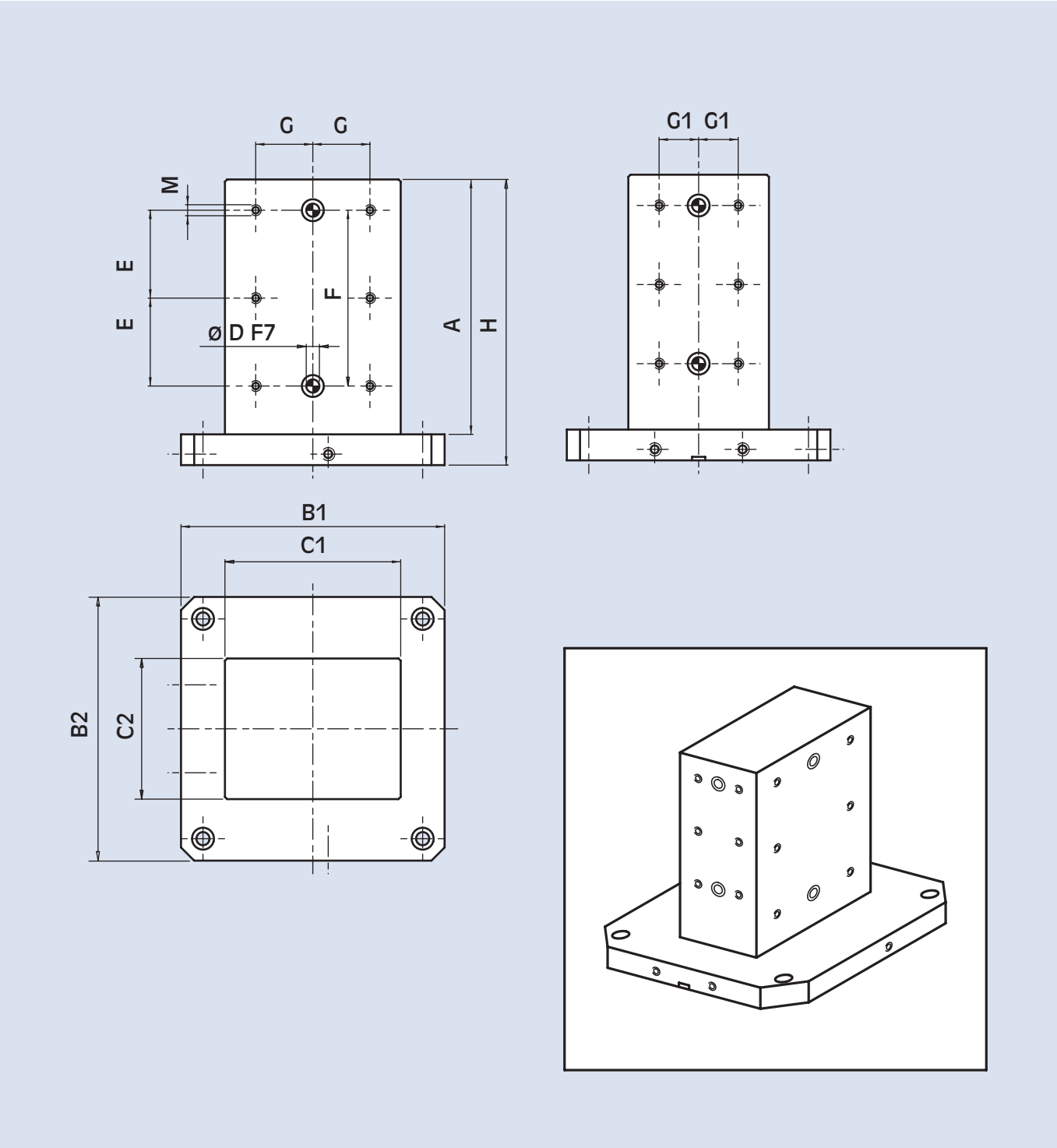
TOMBSTONES

1



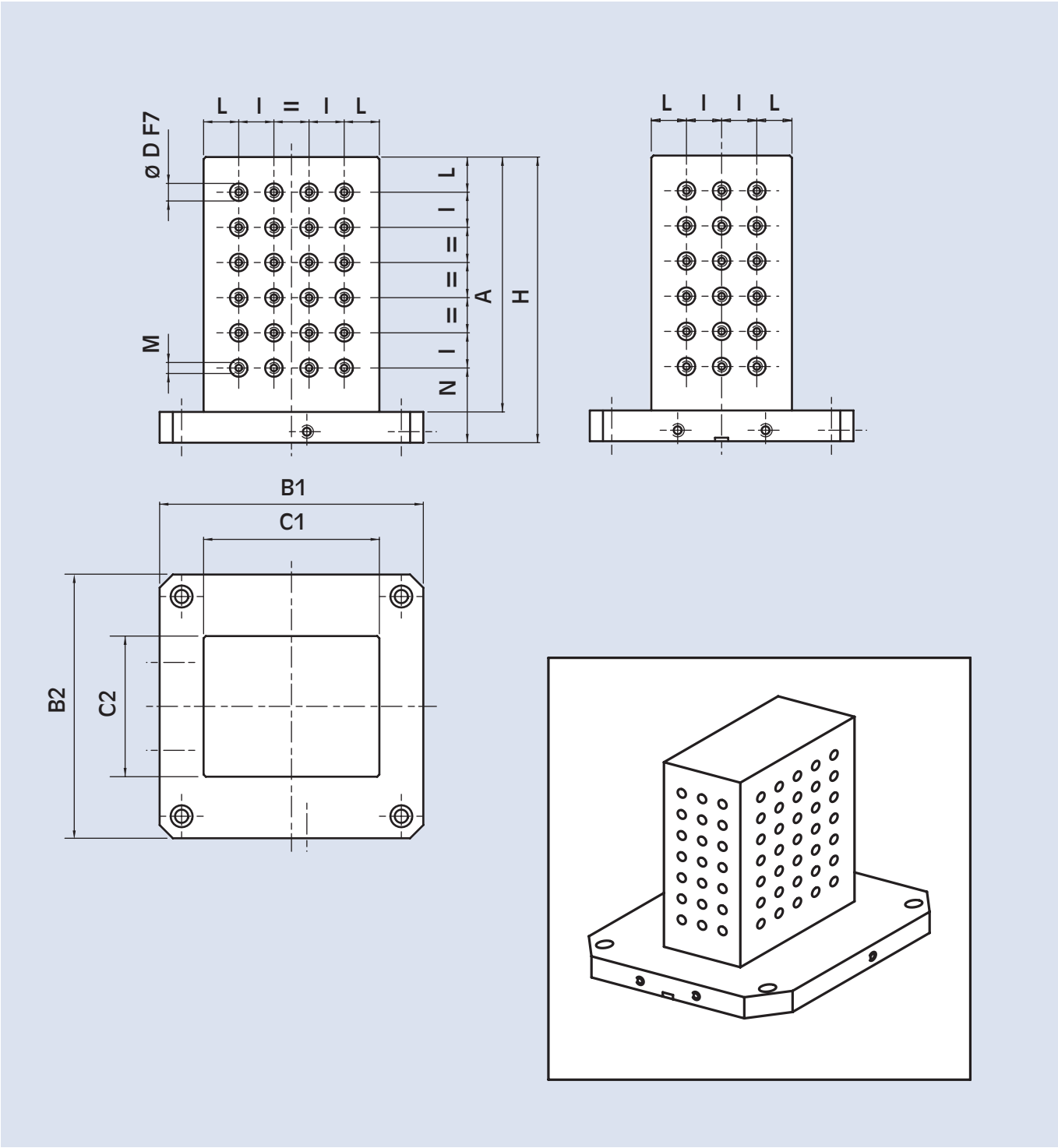
STEEL	Cod.	A mm	B1 mm	B2 mm	C1 mm	C2 mm	H mm	Weight kg
	57 00 70 05	615	500	400	350	250	655	250
	57 00 70 10	615	500	500	350	250	655	265
	57 00 70 25	615	630	500	450	350	660	367
	57 00 70 30	615	630	630	450	350	660	395

• 5th face upon request • special tombstones upon request



STEEL	Cod.	A mm	B1 mm	B2 mm	C1 mm	C2 mm	H mm	Ø D mm	M	E mm	F mm	G mm	G1 mm	Weight kg
	57 07 00 15	615	500	400	350	250	655	16	M 12	250	500	125	75	250
	57 07 00 20	615	500	500	350	250	655	16	M 12	250	500	125	75	265
	57 07 00 35	615	630	500	450	350	660	16	M 12	250	500	175	125	367
	57 07 00 40	615	630	630	450	350	660	16	M 12	250	500	175	125	395

• 5th face upon request • special tombstones upon request

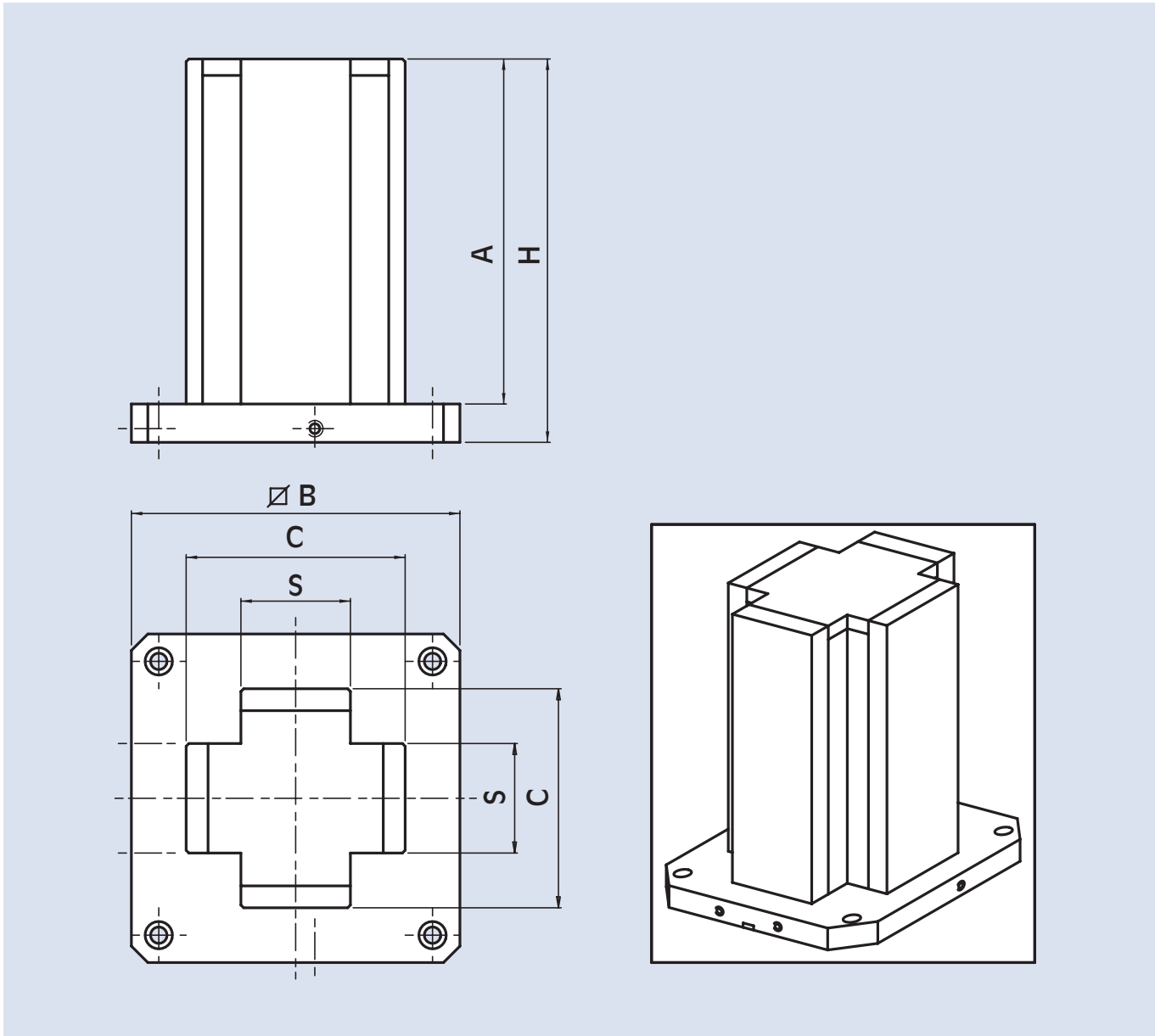


STEEL	Cod.	A mm	B1 mm	B2 mm	C1 mm	C2 mm	H mm	Ø D mm	M	I mm	L mm	N mm	Weight kg
	57 08 00 15	615	500	400	350	250	655	16	M 12	50	50	105	242
	57 08 00 20	615	500	500	350	250	655	16	M 12	50	50	105	257
	57 08 00 35	615	630	500	450	350	660	16	M 12	50	50	110	355
	57 08 00 40	615	630	630	450	350	660	16	M 12	50	50	110	383

• 5th face upon request • special tombstones upon request

TOMBSTONES

cross tombstones
only milled



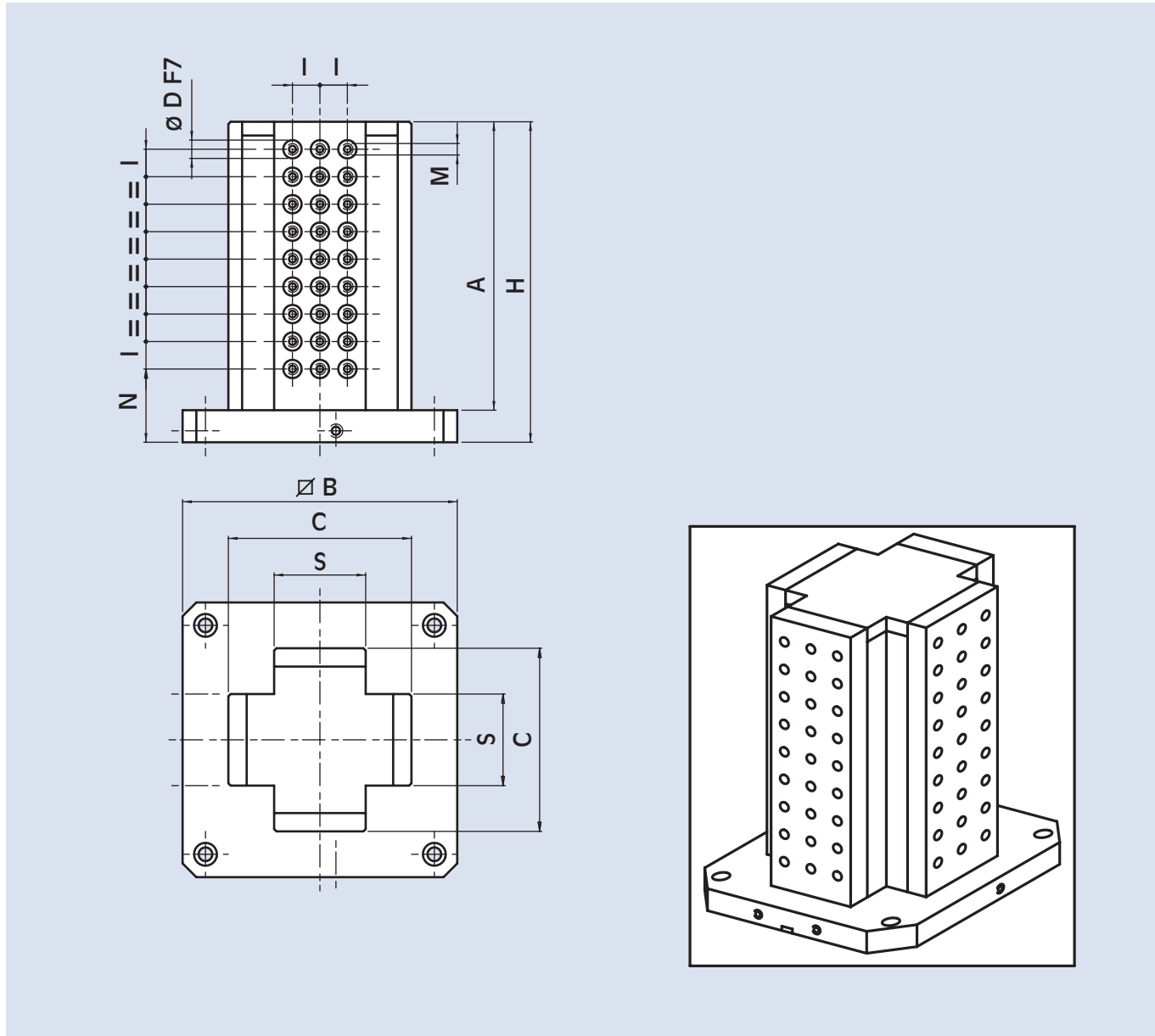
STEEL	Cod.	A mm	B mm	C mm	H mm	S mm	Weight kg
	57 06 10 10	540	400	300	580	150	208
	57 06 10 15	540	500	300	580	150	236
	57 06 10 20	795	630	550	840	150	451
	57 06 10 25	625	500	350	670	200	296
	57 06 10 30	625	630	350	670	200	356
	57 06 10 35	650	400	250	690	100	142
	57 06 10 40	650	500	300	690	100	187

ALUMINIUM	Cod.	A mm	B mm	C mm	H mm	S mm	Weight kg
	57 31 61 10	540	400	300	580	150	82
	57 31 61 15	540	500	300	580	150	92
	57 31 61 35	650	400	250	690	100	79
	57 31 61 40	650	500	250	690	100	88

cross tombstones
with grid

TOMBSTONES

1



STEEL	Cod.	A mm	B mm	C mm	H mm	Ø D mm	M mm	I mm	N mm	S mm	Weight kg
	57 06 00 10	540	400	300	580	16	M 12	50	85	150	208
	57 06 00 15	540	500	300	580	16	M 12	50	85	150	236
	57 06 00 20	795	630	550	840	16	M 12	50	100	150	451
	57 06 00 25	625	500	350	670	16	M 12	50	120	200	296
	57 06 00 30	625	630	350	670	16	M 12	50	120	200	356

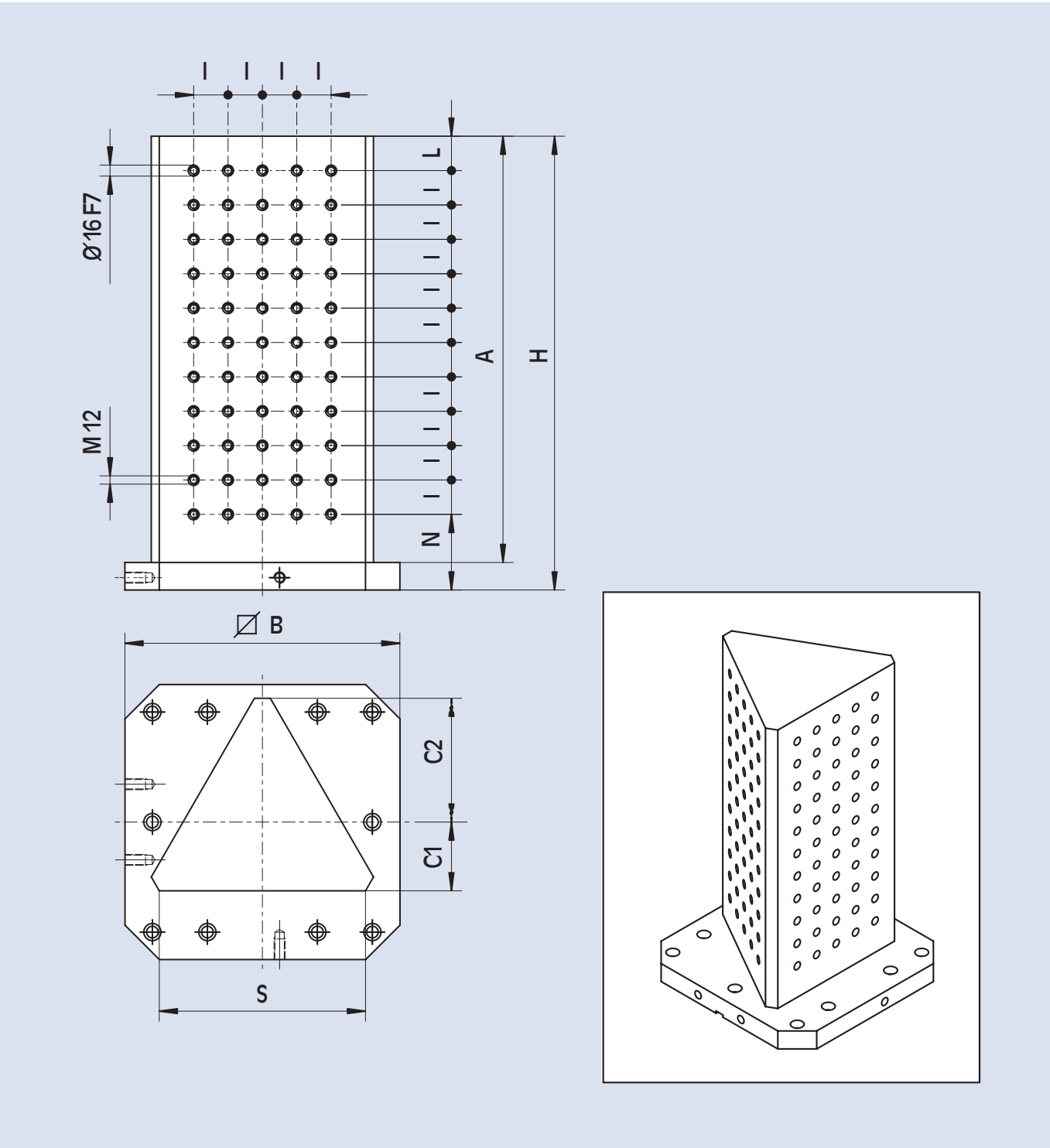
ALUMINIUM	Cod.	A mm	B mm	C mm	H mm	Ø D mm	M mm	I mm	N mm	S mm	Weight kg
	57 31 60 10	540	400	300	580	16	M 12	50	85	150	82
	57 31 60 15	540	500	300	580	16	M 12	50	85	150	92

• special tombstones upon request

• special tombstones upon request

TOMBSTONES

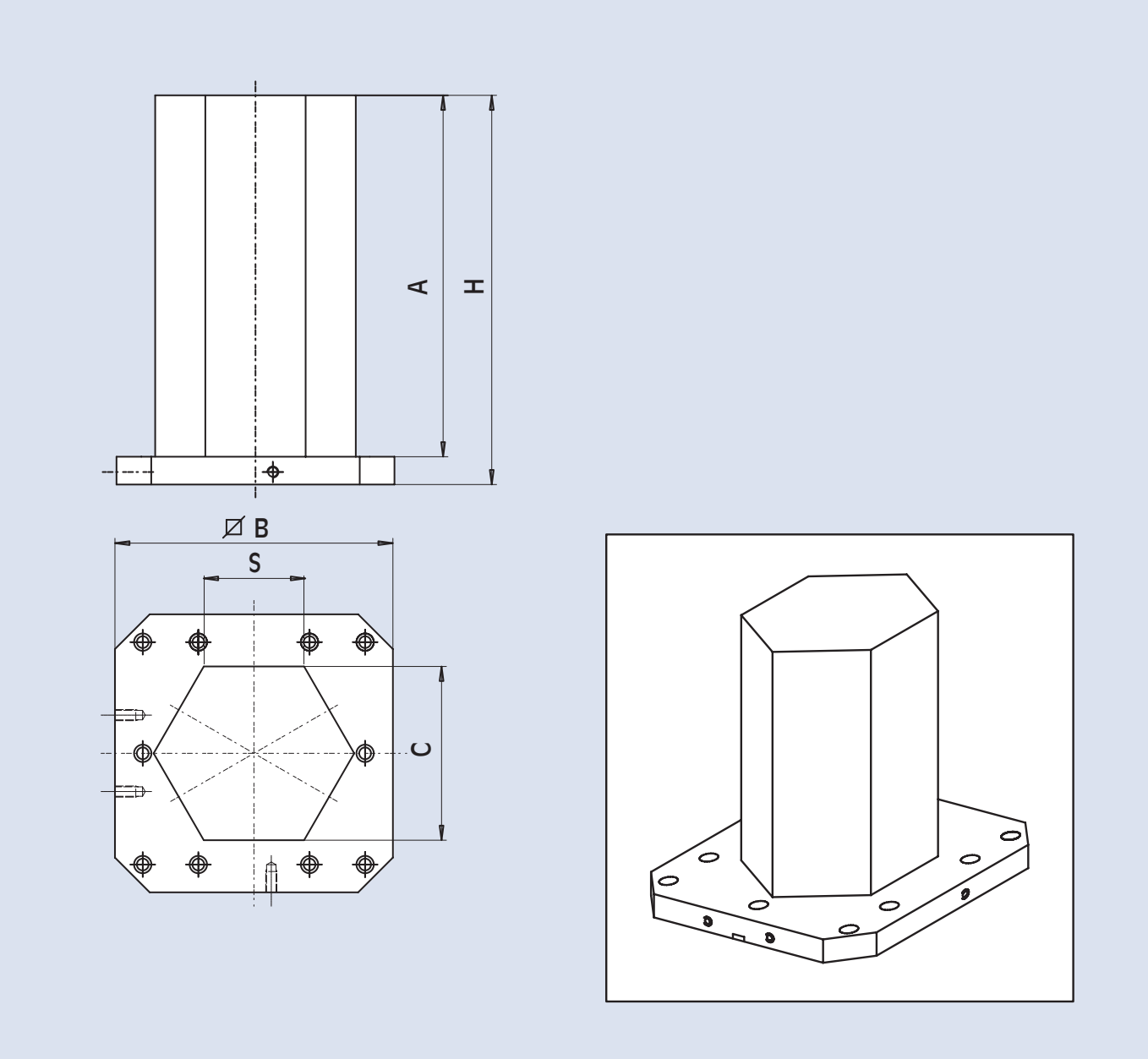
triangular tombstones with grid



STEEL	Cod.	A mm	B mm	C1 mm	C2 mm	H mm	I mm	L mm	N mm	S mm	Weight kg
	57 17 10 10	620	400	100	180	660	50	50	110	300	200
	57 17 10 20	620	500	100	180	660	50	50	110	300	227

• special tombstones upon request

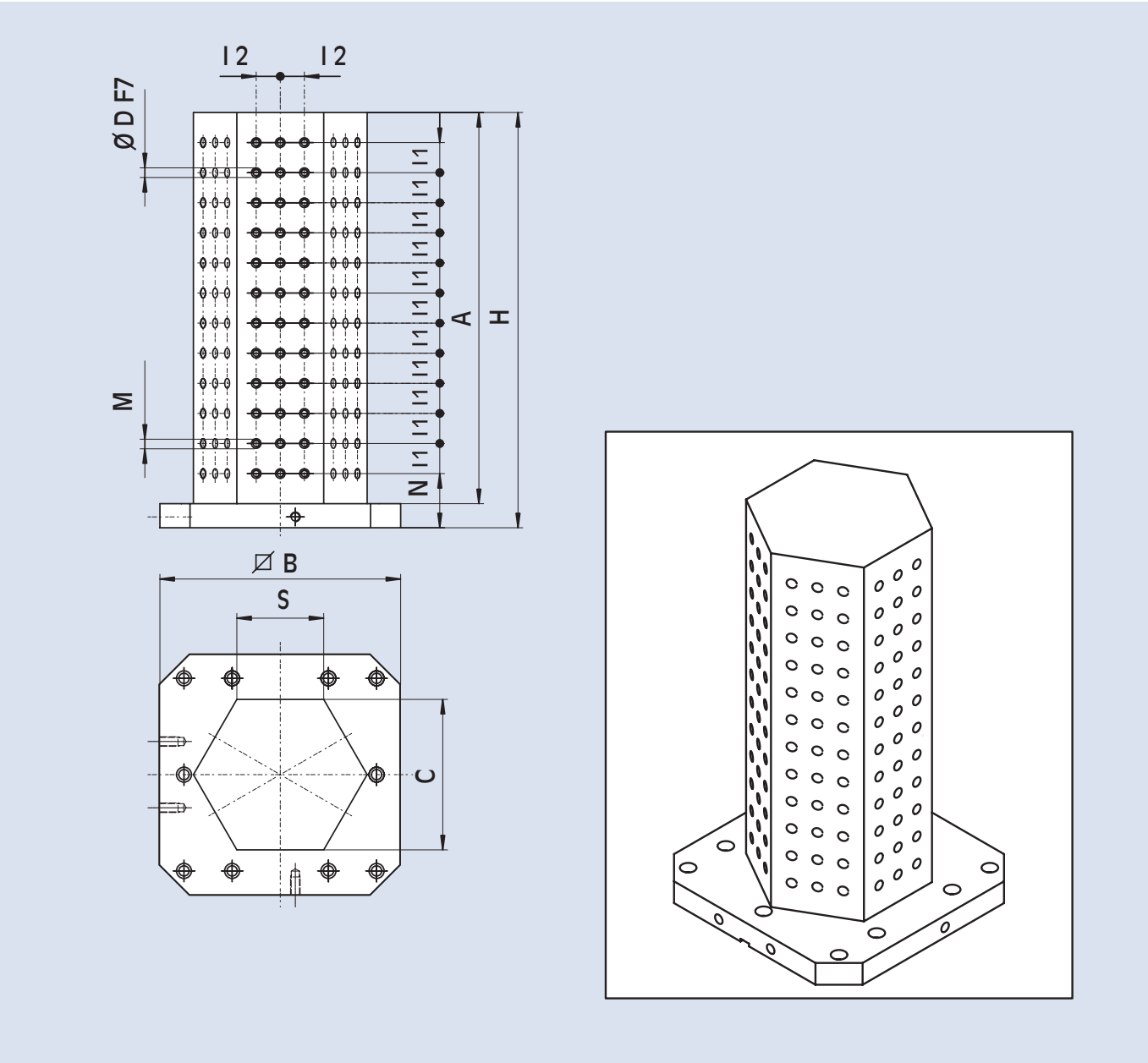
hexagonal tombstones only milled



STEEL	Cod.	A mm	B mm	C mm	H mm	S mm	Weight kg
	57 00 30 00	650	400	250	690	140	191
	57 00 30 10	650	500	250	690	140	220
	57 00 30 20	650	630	380	690	215	361

ALUMINIUM	Cod.	A mm	B mm	C mm	H mm	S mm	Weight kg
	57 30 30 00	650	400	250	690	140	78
	57 30 30 10	650	500	250	690	140	87
	57 30 30 20	650	630	380	690	215	140

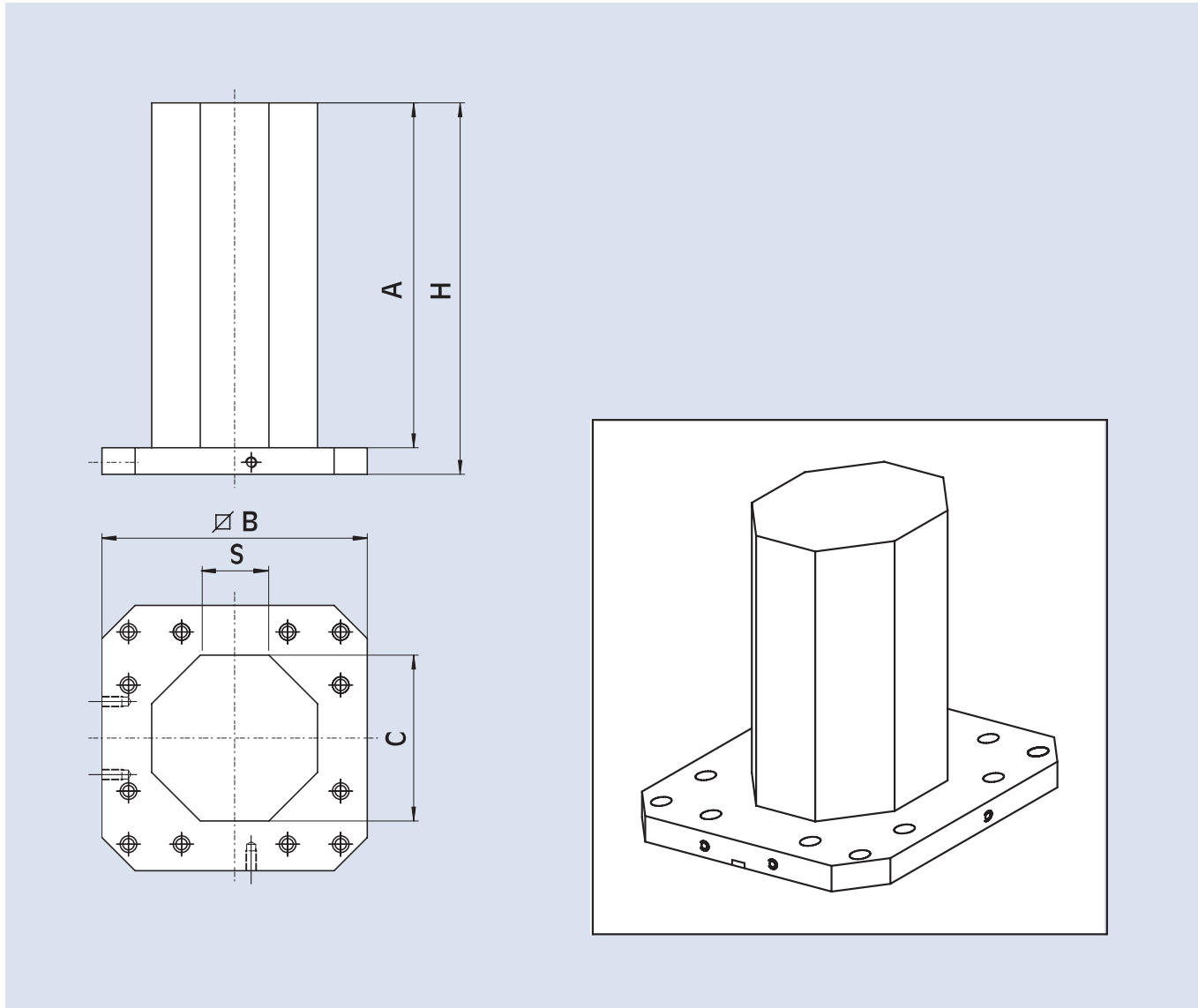
• special tombstones upon request



STEEL	Cod.	A mm	B mm	C mm	H mm	Ø D mm	M mm	I 1 mm	I 2 mm	N mm	S mm	Weight kg
	57 17 20 10	650	400	250	690	16	M 12	50	40	90	140	182
	57 17 20 20	650	500	250	690	16	M 12	50	40	90	140	211
	57 17 20 30	650	630	380	690	16	M 12	50	50	90	215	352

ALUMINIUM	Cod.	A mm	B mm	C mm	H mm	Ø D mm	M mm	I 1 mm	I 2 mm	N mm	S mm	Weight kg
	57 33 50 10	650	400	250	690	16	M 12	50	40	90	140	75
	57 33 50 20	650	500	250	690	16	M 12	50	40	90	140	84
	57 33 50 30	650	630	380	690	16	M 12	50	50	90	215	136

• special tombstones upon request



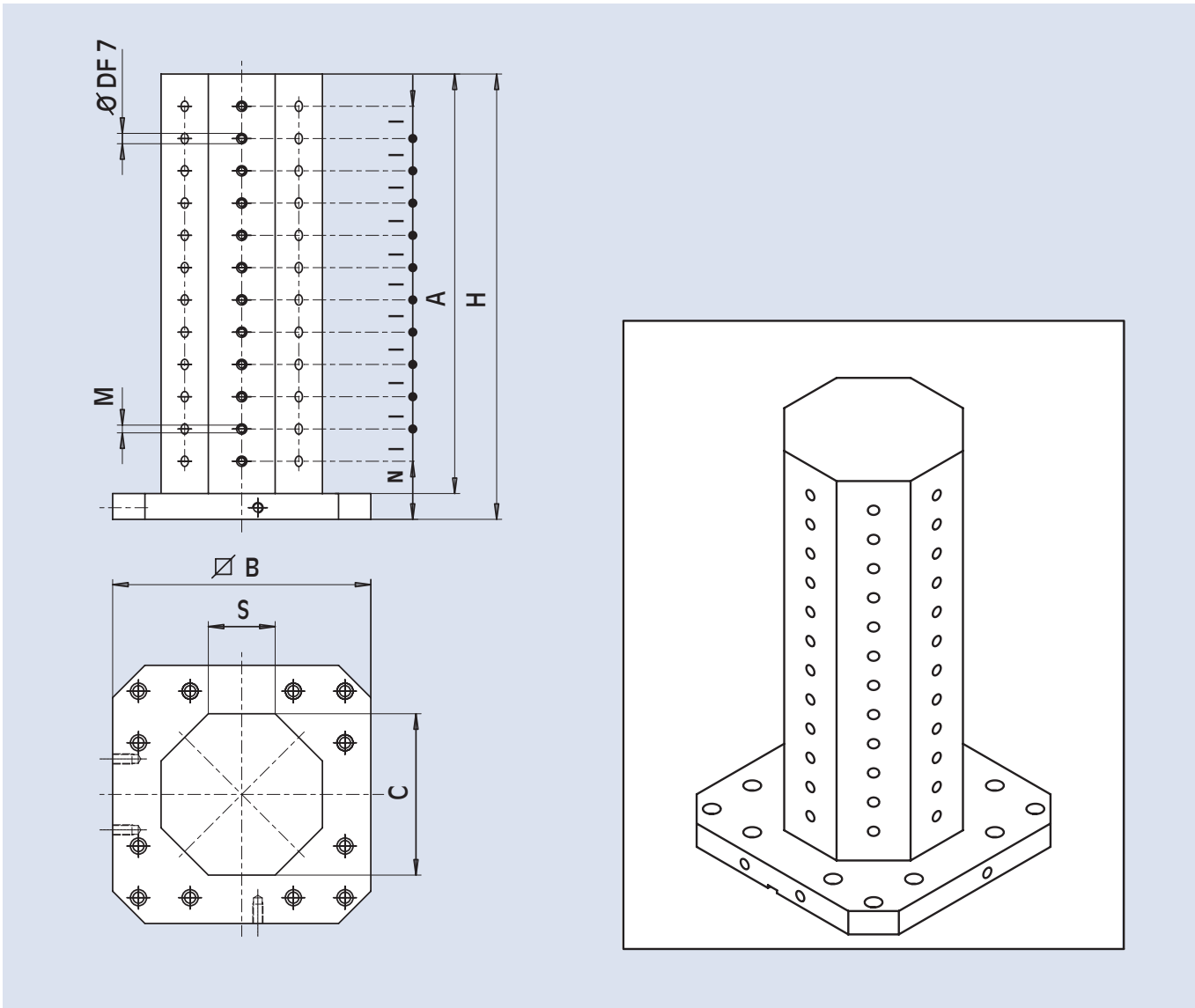
STEEL	Cod..	A mm	B mm	C mm	H mm	S mm	Weight kg
	57 00 40 00	650	400	250	690	100	185
	57 00 40 10	650	500	250	690	100	213
	57 00 40 20	650	630	380	690	155	351

ALUMINIUM	Cod.	A mm	B mm	C mm	H mm	S mm	Weight kg
	57 30 40 00	650	400	250	690	100	79
	57 30 40 10	650	500	250	690	100	88
	57 30 40 20	650	630	380	690	155	138

• special tombstones upon request

TOMBSTONES

octagonal tombstones
with grid



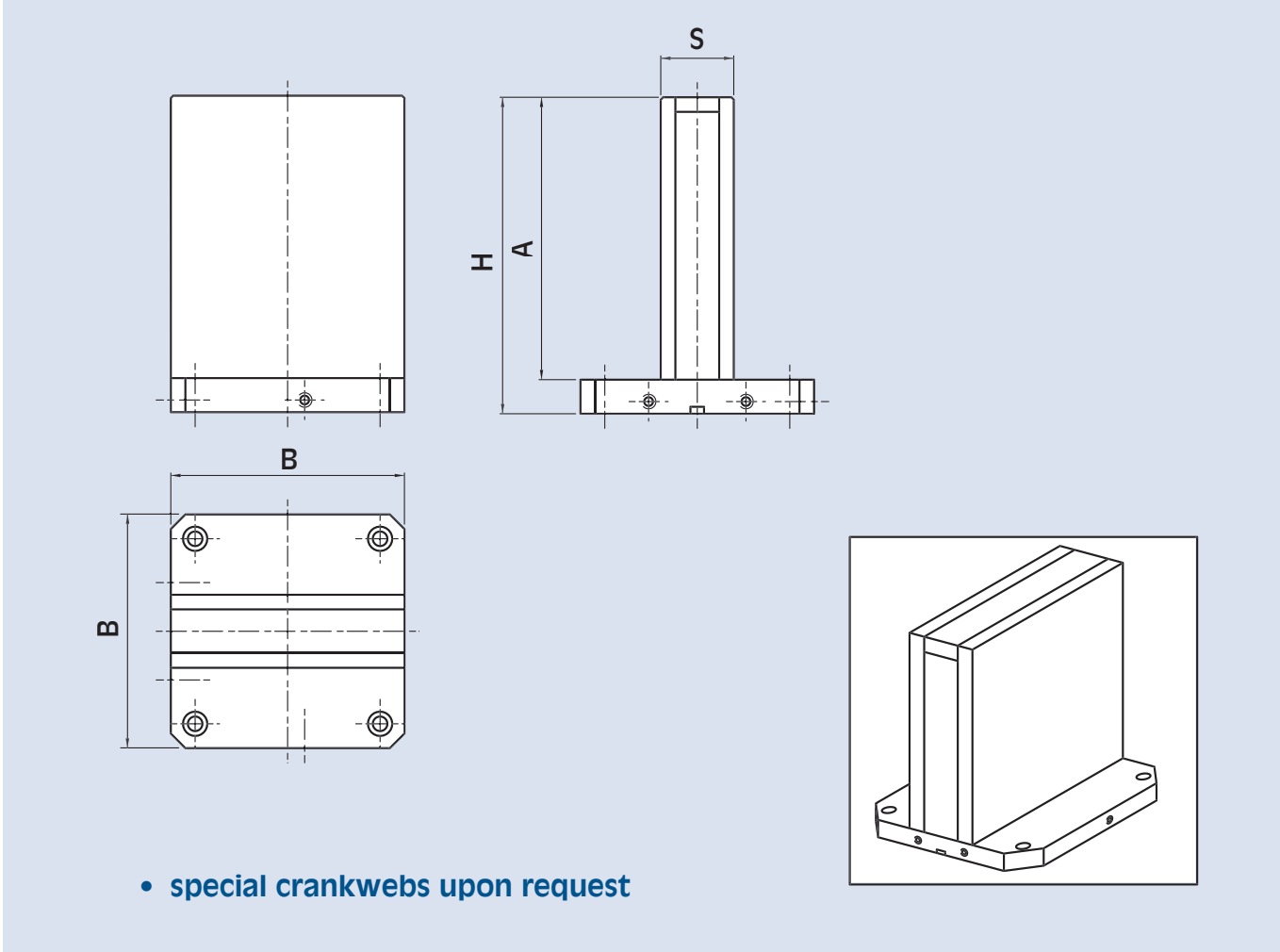
STEEL	Cod.	A mm	B mm	C mm	H mm	Ø D mm	M mm	I mm	N mm	S mm	Weight kg
	57 17 30 10	650	400	250	690	16	M 12	50	90	100	181
	57 17 30 20	650	500	250	690	16	M 12	50	90	100	209
	57 17 30 30	650	630	380	690	16	M 12	50	90	155	339

ALUMINIUM	Cod.	A mm	B mm	C mm	H mm	Ø D mm	M mm	I mm	N mm	S mm	Weight kg
	57 33 60 10	650	400	250	690	16	M 12	50	90	100	78
	57 33 60 20	650	500	250	690	16	M 12	50	90	100	87
	57 33 60 30	650	630	380	690	16	M 12	50	90	155	136

• special tombstones upon request

crankwebs milled

CRANKWEBS



• special crankwebs upon request

STEEL	ROUGH Cod.	FINISHED Cod.	A mm	B mm	H mm	S mm	Weight kg
	57 00 90 01	57 00 90 00	370	320	410	120	106
	57 00 90 21	57 00 90 20	520	400	560	150	186
	57 00 90 26	57 00 90 25	620	400	660	150	212
	57 00 90 41	57 00 90 40	570	500	610	150	259
	57 00 90 46	57 00 90 45	660	500	700	150	287
	57 00 90 61	57 00 90 60	675	630	720	200	422
	57 00 90 66	57 00 90 65	815	630	860	200	482
	57 00 90 81	57 00 90 80	845	800	900	260	751
	57 00 90 91	57 00 90 90	945	800	1000	260	810

ALUM.	Cod.	A mm	B mm	H mm	S mm	Weight kg
	57 30 90 25	620	400	660	150	77
	57 30 90 45	660	500	700	150	103
	57 30 90 60	675	630	720	200	150
	57 30 90 65	815	630	860	200	172

CAST IRON	ROUGH Cod.	FINISHED Cod.	A mm	B mm	H mm	S mm	Weight kg
	57 40 90 26	57 40 90 25	615	400	660	150	185
	57 40 90 46	57 40 90 45	655	500	700	150	247
	57 40 90 66	57 40 90 65	810	630	860	200	448
	57 40 90 91	57 40 90 90	945	800	1000	300	810

• special crankwebs upon request

STEEL	Cod.	A mm	B mm	H mm	Ø D mm	M mm	E mm	F mm	G mm	S mm	Weight kg
	57 04 10 10	370	320	410	16	M 12	125	250	100	120	106
	57 04 10 30	520	400	560	16	M 12	200	400	150	150	186
	57 04 10 35	620	400	660	16	M 12	250	500	150	150	212
	57 04 10 50	570	500	610	16	M 12	225	450	200	150	259
	57 04 10 55	660	500	700	16	M 12	250	500	200	150	287
	57 04 10 70	675	630	720	16	M 12	275	550	250	200	422
	57 04 10 75	815	630	860	16	M 12	350	700	250	200	482
	57 04 10 90	845	800	900	16	M 12	350	700	350	260	751
	57 04 11 00	945	800	1000	16	M 12	100	800	350	260	810

ALUM.	Cod.	A mm	B mm	H mm	Ø D mm	M mm	E mm	F mm	G mm	S mm	Weight kg
	57 32 80 35	620	400	660	16	M 12	250	500	150	150	77
	57 32 80 55	660	500	700	16	M 12	250	500	200	150	103
	57 32 80 70	675	630	720	16	M 12	275	550	250	200	150
	57 32 80 75	815	630	860	16	M 12	350	700	250	200	180

CAST IRON	Cod.	A mm	B mm	H mm	Ø D mm	M mm	E mm	F mm	G mm	S mm	Weight kg
	57 42 80 35	615	400	660	16	M 12	250	500	150	150	185
	57 42 80 55	655	500	700	16	M 12	250	500	200	150	247
	57 42 80 75	810	630	860	16	M 12	350	700	250	200	448
	57 42 81 00	945	800	1000	16	M 12	400	800	350	300	810

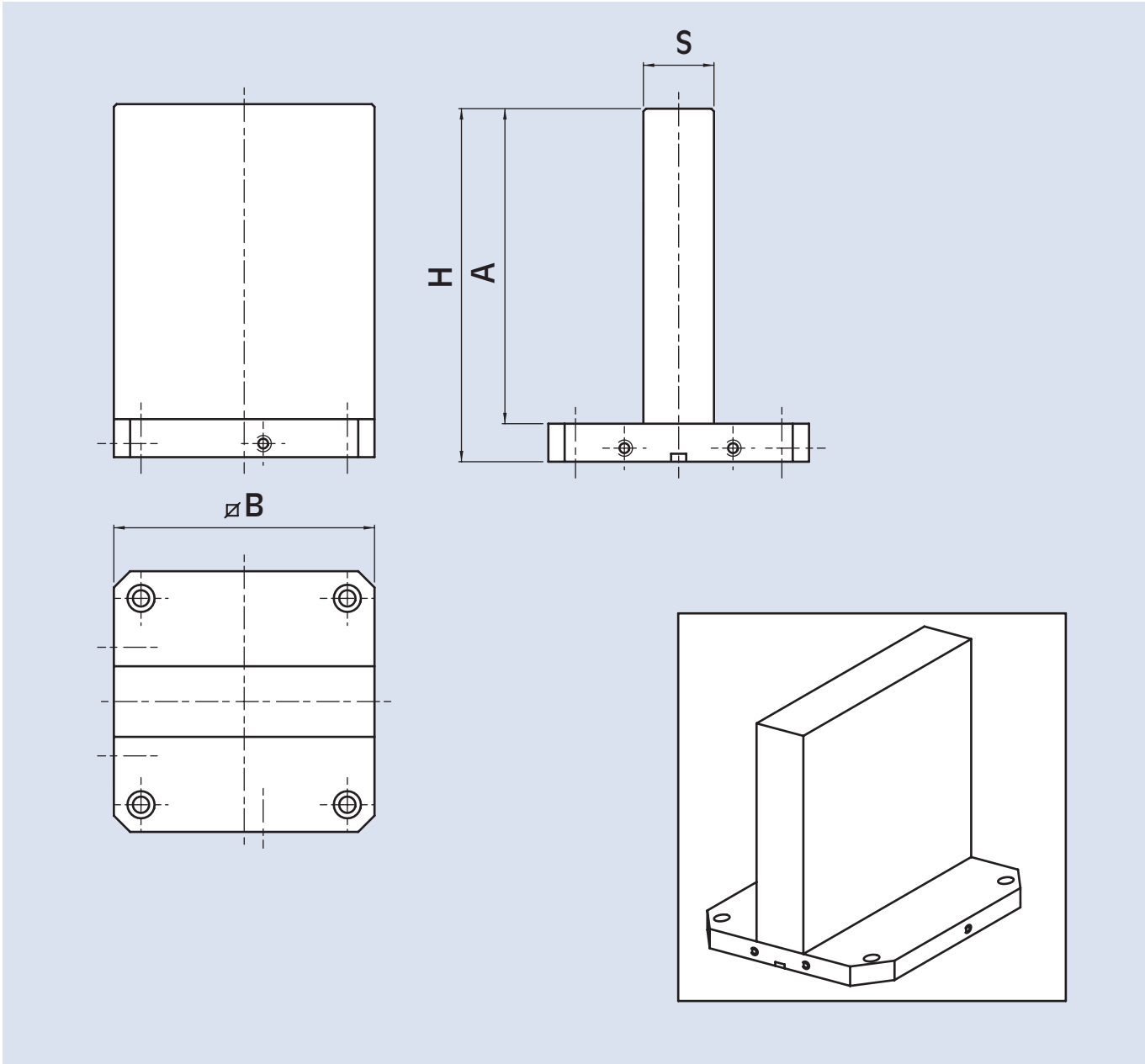
• special crankwebs upon request

STEEL	Cod.	A mm	B mm	H mm	Ø D mm	M mm	I mm	L mm	N mm	S mm	Weight kg
	57 04 00 10	370	320	410	16	M 12	50	35	110	120	103
	57 04 00 30	520	400	560	16	M 12	50	50	110	150	181
	57 04 00 35	620	400	660	16	M 12	50	50	110	150	206
	57 04 00 50	570	500	610	16	M 12	50	50	110	150	252
	57 04 00 55	660	500	700	16	M 12	50	50	100	150	279
	57 04 00 70	675	630	720	16	M 12	50	40	120	200	411
	57 04 00 75	815	630	860	16	M 12	50	40	110	200	468
	57 04 00 90	845	800	900	16	M 12	50	50	100	260	733
	57 04 01 00	945	800	1000	16	M 12	50	50	100	260	787

ALUM.	Cod.	A mm	B mm	H mm	Ø D mm	M mm	I mm	L mm	N mm	S mm	Weight kg
	57 31 40 35	620	400	660	16	M 12	50	50	110	150	74
	57 31 40 55	660	500	700	16	M 12	50	50	100	150	100
	57 31 40 70	675	630	720	16	M 12	50	40	120	200	142
	57 31 40 75	815	630	860	16	M 12	50	40	110	200	170

CAST IRON	Cod.	A mm	B mm	H mm	Ø D mm	M mm	I mm	L mm	N mm	S mm	Weight kg
	57 41 40 35	615	400	660	16	M 12	50	50	110	150	180
	57 41 40 55	655	500	700	16	M 12	50	50	100	150	240
	57 41 40 75	810	630	860	16	M 12	50	40	110	200	440
	57 41 41 00	945	800	1000	16	M 12	50	50	100	300	790

CRANKWEBS full crankwebs only milled

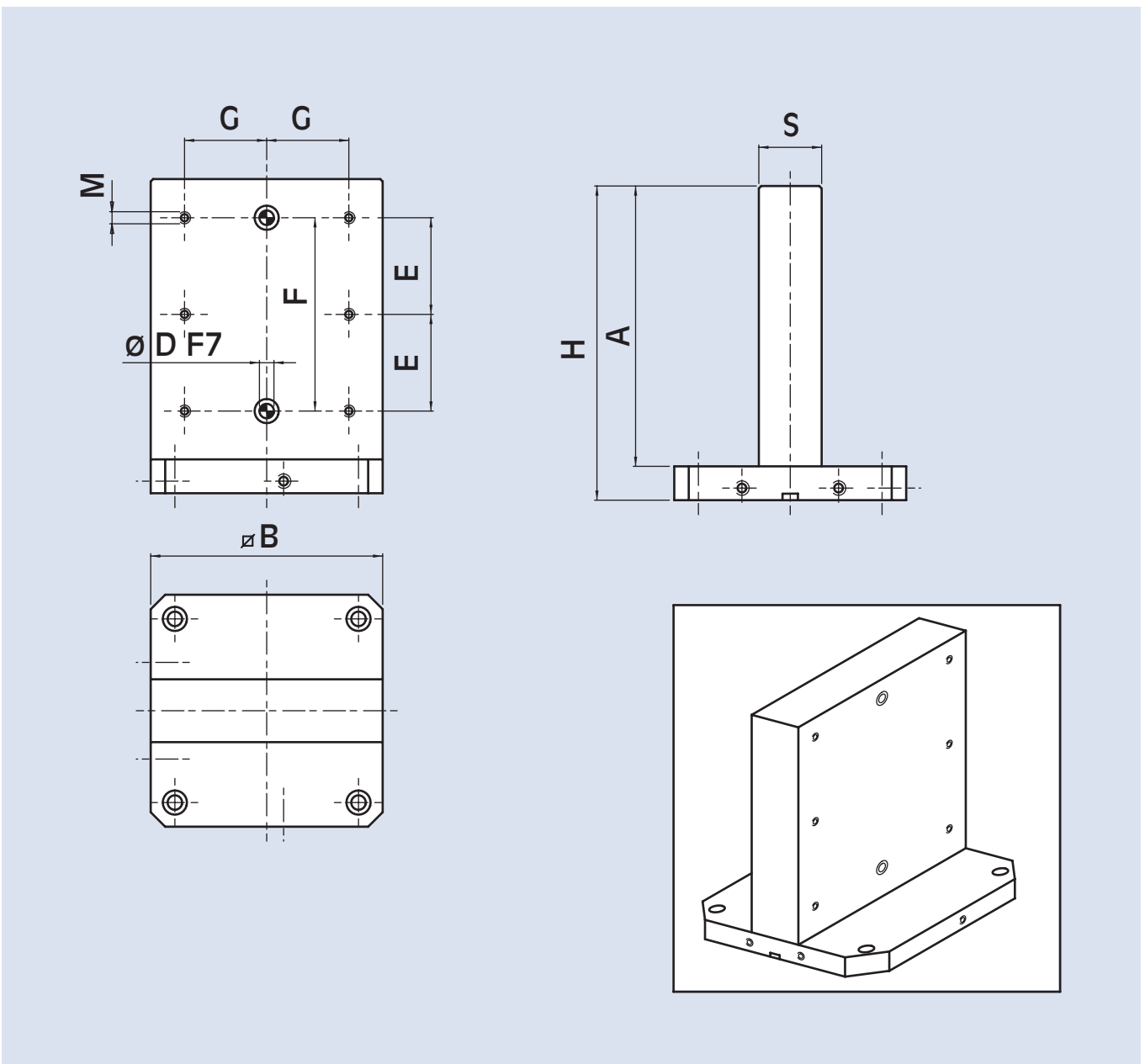


STEEL	Cod.	A mm	B mm	H mm	S mm	Weight kg
	57 00 80 30	370	320	410	80	107
	57 00 80 40	480	400	520	100	201
	57 00 80 50	580	500	620	100	306

ALUM.	Cod.	A mm	B mm	H mm	S mm	Weight kg
	57 30 80 20	270	250	310	80	23

• special crankwebs upon request

full crankwebs for plates CRANKWEBS



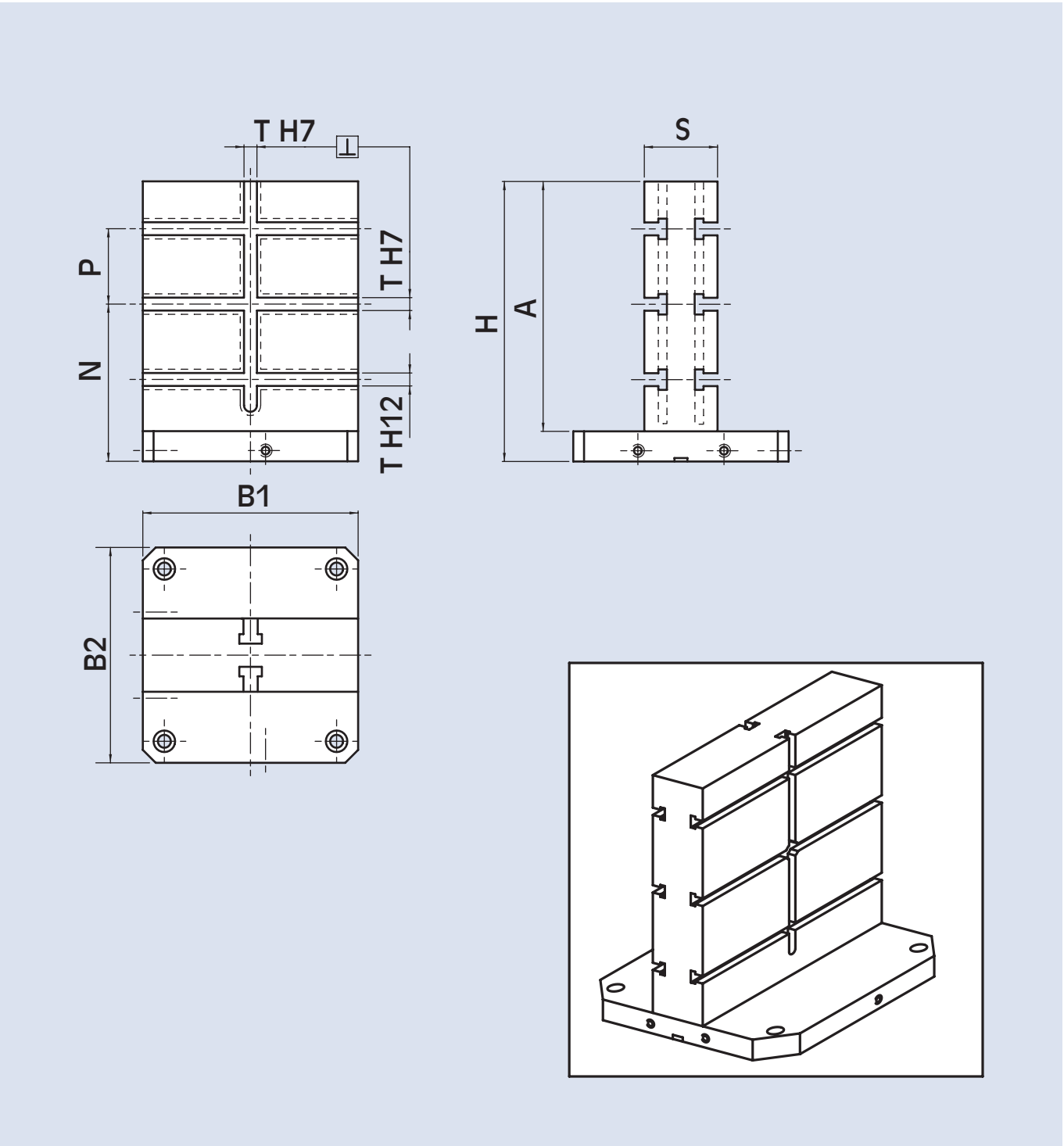
STEEL	Cod.	A mm	B mm	Ø D mm	M mm	E mm	F mm	G mm	H mm	S mm	Weight kg
	57 09 00 40	370	320	16	M 12	125	250	110	410	80	107
	57 09 00 50	480	400	16	M 12	175	350	150	520	100	201
	57 09 00 60	580	500	16	M 12	225	450	200	620	100	306

ALUMINIUM	Cod.	A mm	B mm	D mm	M mm	E mm	F mm	G mm	H mm	S mm	Weight kg
	57 31 90 30	270	250	16	M 12	75	150	75	310	80	23

• special crankwebs upon request

CRANKWEBS

full crankwebs with T-slots

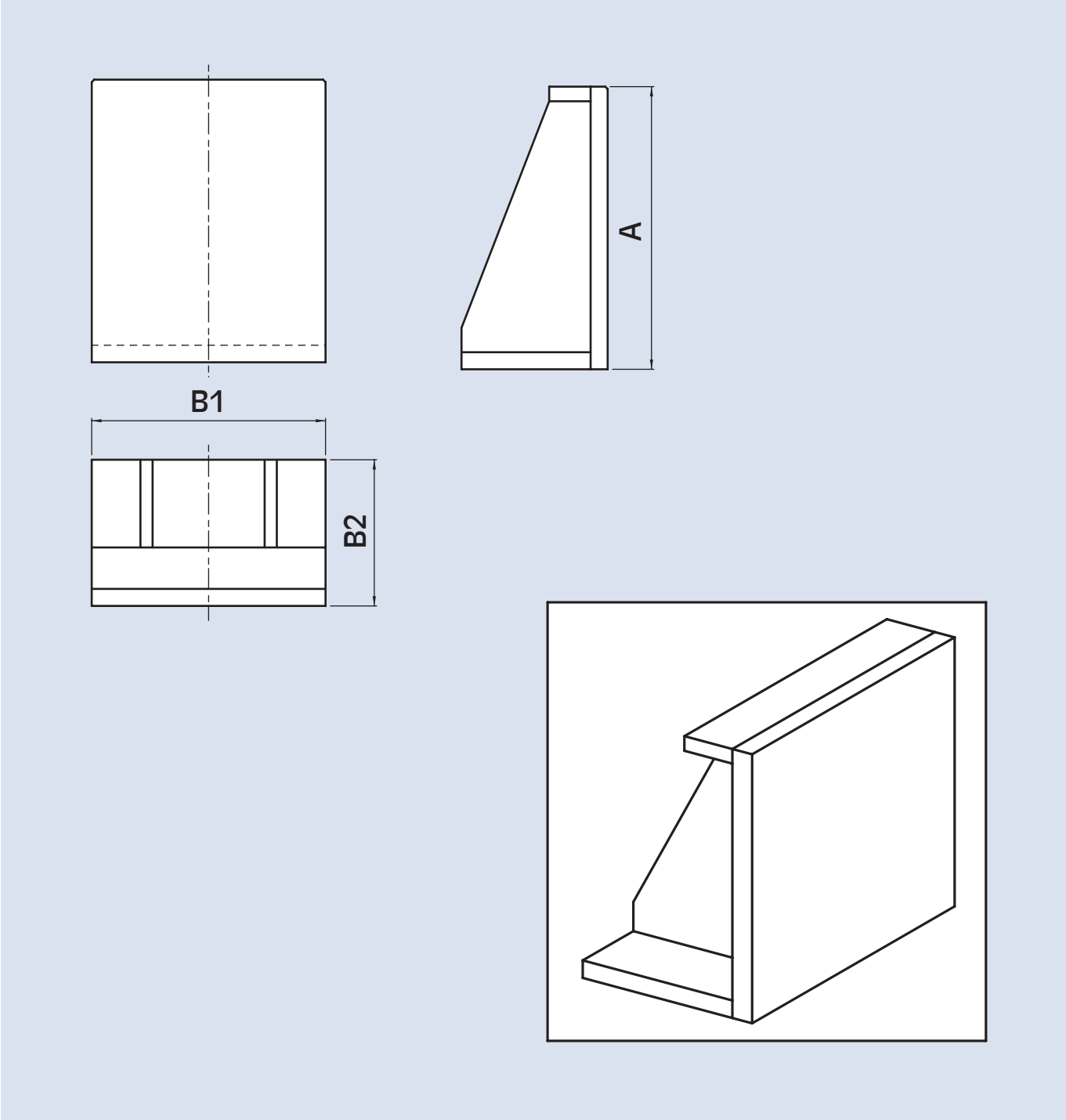


STEEL	Cod.	A mm	B1 mm	B2 mm	H mm	N mm	P mm	S mm	T mm	I mm	Weight kg
	57 33 00 40	370	320	320	415	230	125	85	12	0,015	111
	57 33 00 50	455	400	400	500	280	150	100	14	0,015	187
	57 33 00 60	555	500	500	600	330	180	100	14	0,02	291
	57 33 00 70	570	630	550	620	340	200	120	14	0,02	457

• special crankwebs upon request

angle plates only milled

ANGLE PLATES



STEEL	Cod.	A mm	B1 mm	B2 mm	Weight kg
	57 00 50 30	360	320	230	66
	57 00 50 40	460	400	330	130
	57 00 50 50	510	400	330	139
	57 00 50 60	510	500	330	182
	57 00 50 70	560	500	330	196
	57 00 50 80	560	630	430	305
	57 00 50 90	660	630	430	343

• special angle plates upon request

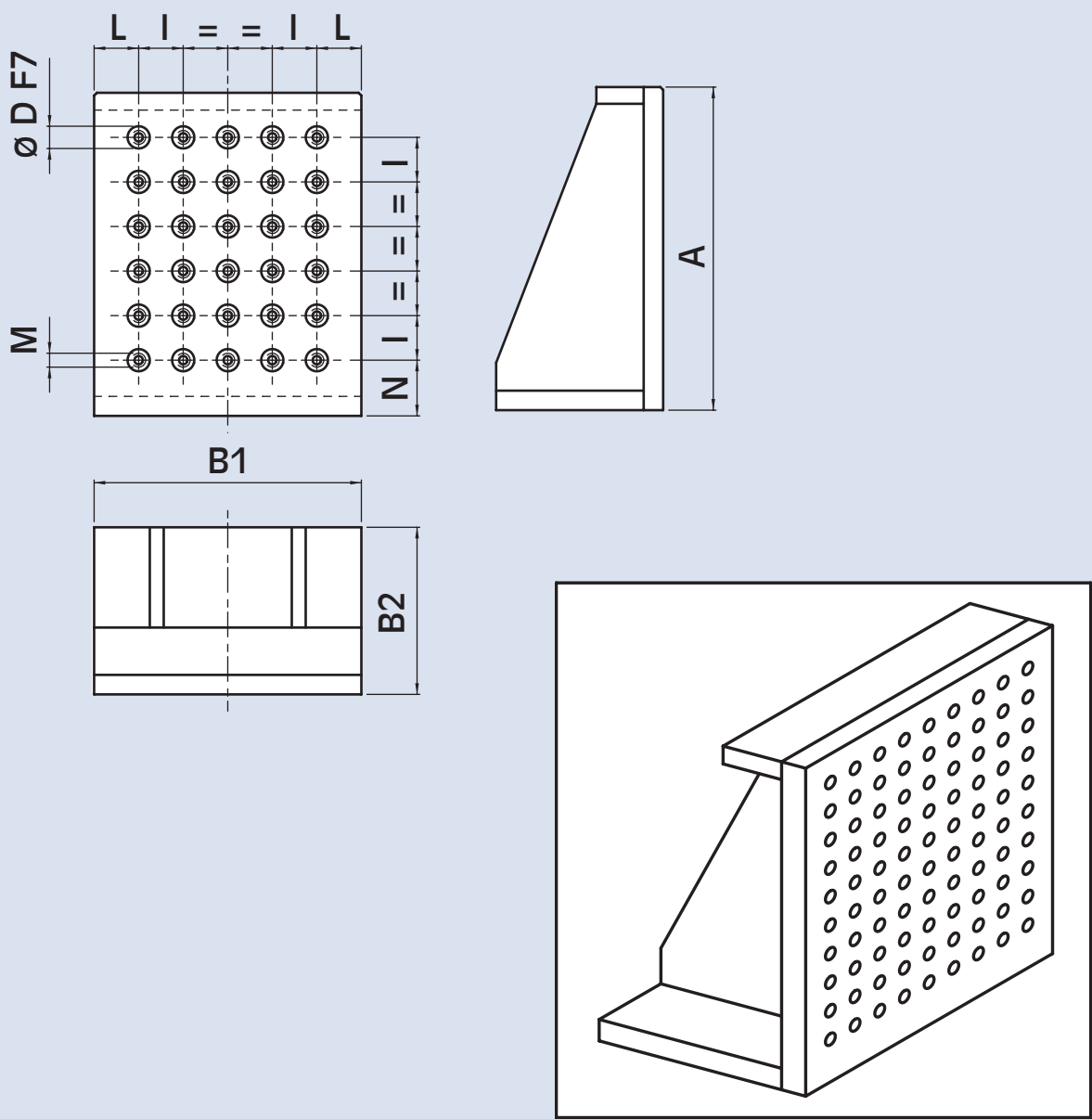
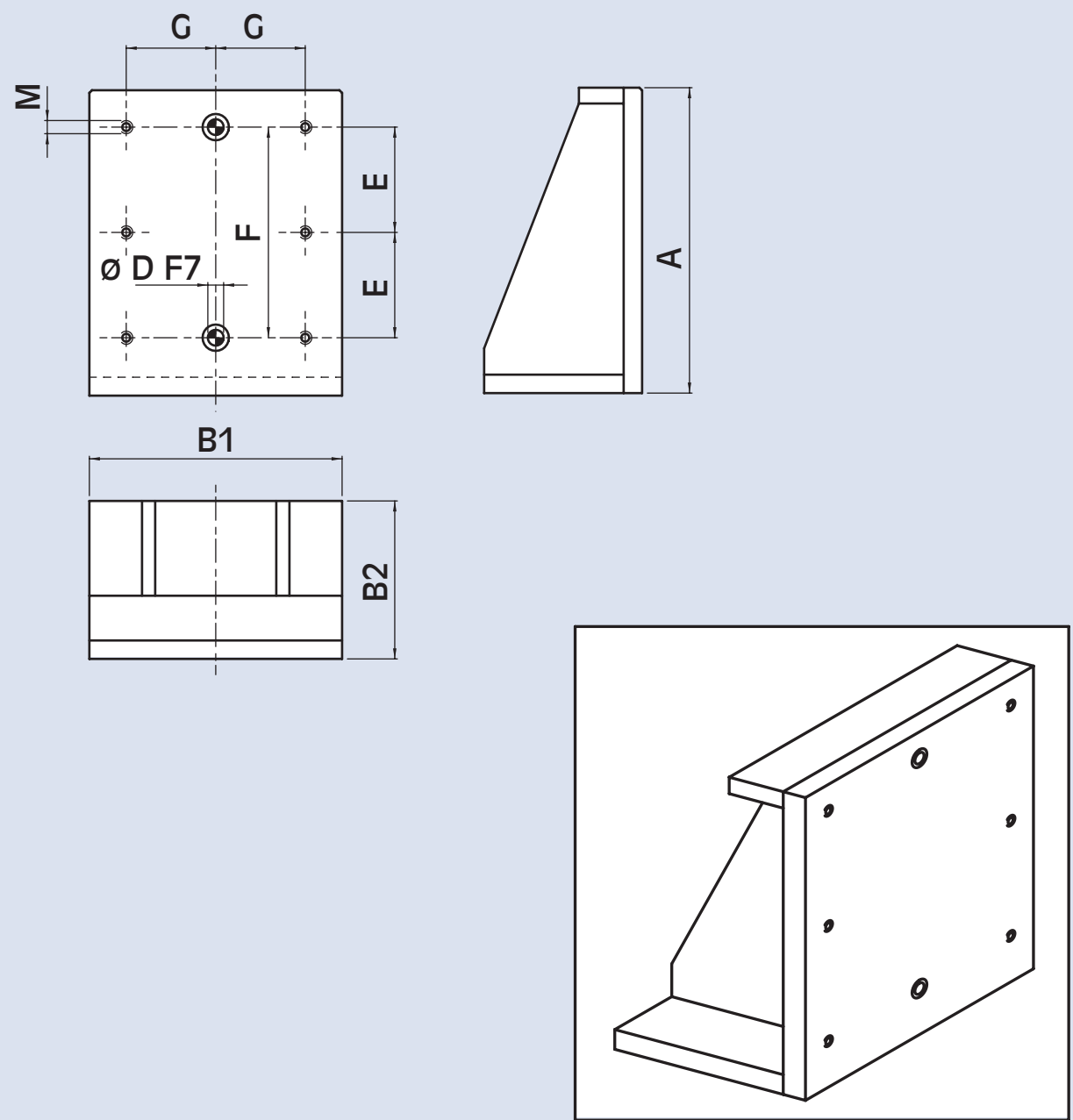
ANGLE PLATES

angle plates
for plates

angle plates
with grid

ANGLE PLATES

1



STEEL

Cod.	A mm	B1 mm	B2 mm	Ø D mm	M mm	E mm	F mm	G mm	Weight kg
57 10 00 40	360	320	230	16	M 12	125	250	100	66
57 10 00 50	460	400	330	16	M 12	175	350	150	130
57 10 00 60	510	400	330	16	M 12	200	400	150	139
57 10 00 70	510	500	330	16	M 12	200	400	200	182
57 10 00 80	560	500	330	16	M 12	225	450	200	196
57 10 00 90	560	630	430	16	M 12	225	450	250	305
57 10 01 00	660	630	430	16	M 12	275	550	250	343

STEEL

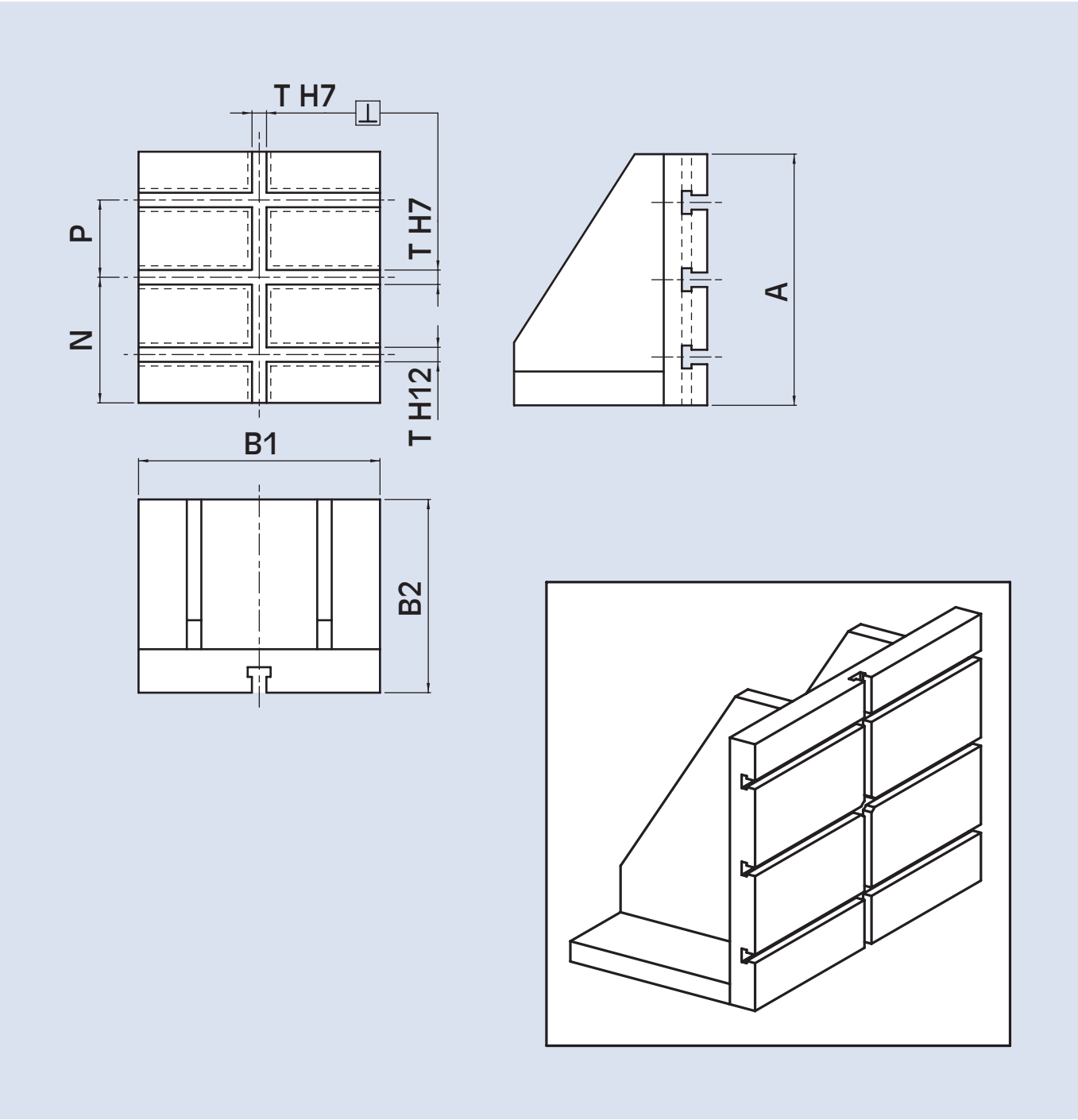
Cod.	A mm	B1 mm	B2 mm	Ø D mm	M mm	I mm	L mm	N mm	Weight kg
57 11 00 40	360	320	230	16	M 12	50	35	60	65
57 11 00 50	460	400	330	16	M 12	50	50	60	129
57 11 00 60	510	400	330	16	M 12	50	50	60	137
57 11 00 70	510	500	330	16	M 12	50	50	60	180
57 11 00 80	560	500	330	16	M 12	50	50	60	193
57 11 00 90	560	630	430	16	M 12	50	40	60	302
57 11 01 00	660	630	430	16	M 12	50	40	60	339

• special angle plates upon request

• special angle plates upon request

ANGLE PLATES

angle plates
with T-slots



STEEL

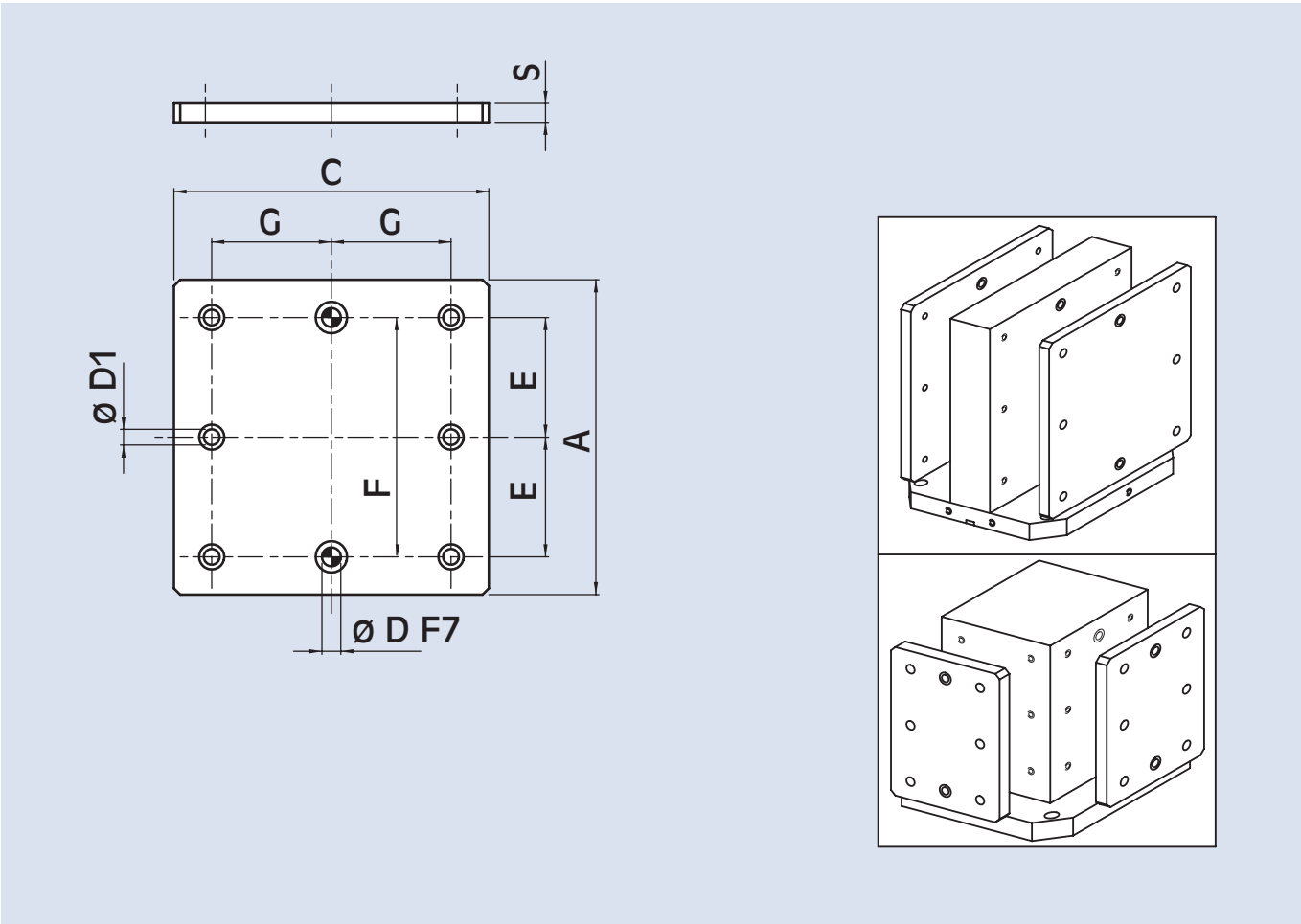
Cod.	A mm	B1 mm	B2 mm	N mm	P mm	T mm	L mm	Weight kg
57 27 00 10	360	350	230	180	120	12	0,01	76
57 27 00 20	500	350	330	250	160	12	0,02	125
57 27 00 30	460	450	330	230	150	12	0,02	145
57 27 00 40	600	450	330	300	190	14	0,025	176
57 27 00 50	350	500	230	175	100	14	0,02	102
57 27 00 60	500	550	330	250	160	14	0,02	197
57 27 00 70	800	550	400	400	260	14	0,025	318
57 27 00 80	450	600	330	225	130	16	0,02	193

• special angle plates upon request

plates

PLATES

1



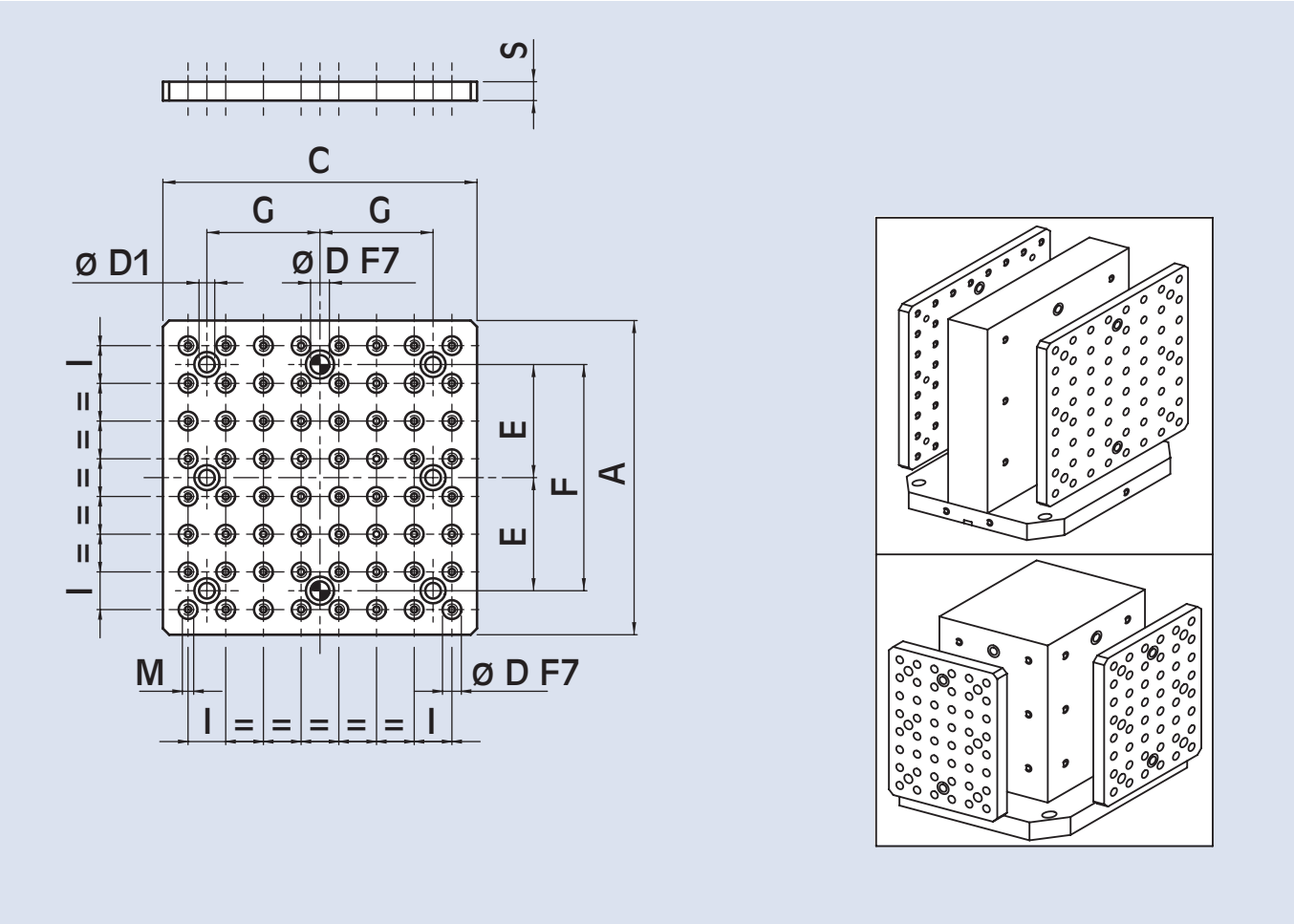
STEEL

Cod.	C mm	A mm	Ø D mm	Ø D1 mm	E mm	F mm	G mm	S mm	weight kg
57 12 00 25	160	400	12	11	150	300	40	20	10
57 12 00 45	200	400	12	11	150	300	60	20	12,5
57 12 00 50	250	250	16	13	75	150	75	25	12
57 12 00 70	250	400	16	13	150	300	75	25	19
57 12 00 90	250	600	16	13	250	500	75	25	29
57 12 01 00	320	350	16	13	125	250	100	25	22
57 12 01 20	350	500	16	13	200	400	125	25	34
57 12 01 30	350	600	16	13	250	500	125	25	41
57 12 01 40	400	450	16	13	175	350	150	25	35
57 12 01 50	400	500	16	13	200	400	150	25	39
57 12 01 55	400	600	16	13	250	500	150	25	47
57 12 01 60	450	500	16	13	200	400	175	25	44
57 12 01 70	450	600	16	13	250	500	175	25	53
57 12 01 75	450	800	16	13	350	700	175	25	70,5
57 12 01 80	500	500	16	13	200	400	200	25	49
57 12 01 90	500	550	16	13	225	450	200	25	54
57 12 01 95	500	600	16	13	250	500	200	25	58,5
57 12 02 00	550	600	16	13	250	500	225	25	64
57 12 02 10	550	800	16	13	350	700	225	25	86
57 12 02 20	630	550	16	13	225	450	250	25	68
57 12 02 30	630	650	16	13	275	550	250	25	80
57 12 02 35	630	800	16	13	350	700	250	25	98,5
57 12 02 40	800	600	16	13	250	500	350	30	112
57 12 02 50	800	800	16	13	350	700	350	30	149

• special plates upon request

PLATES

plates with grid

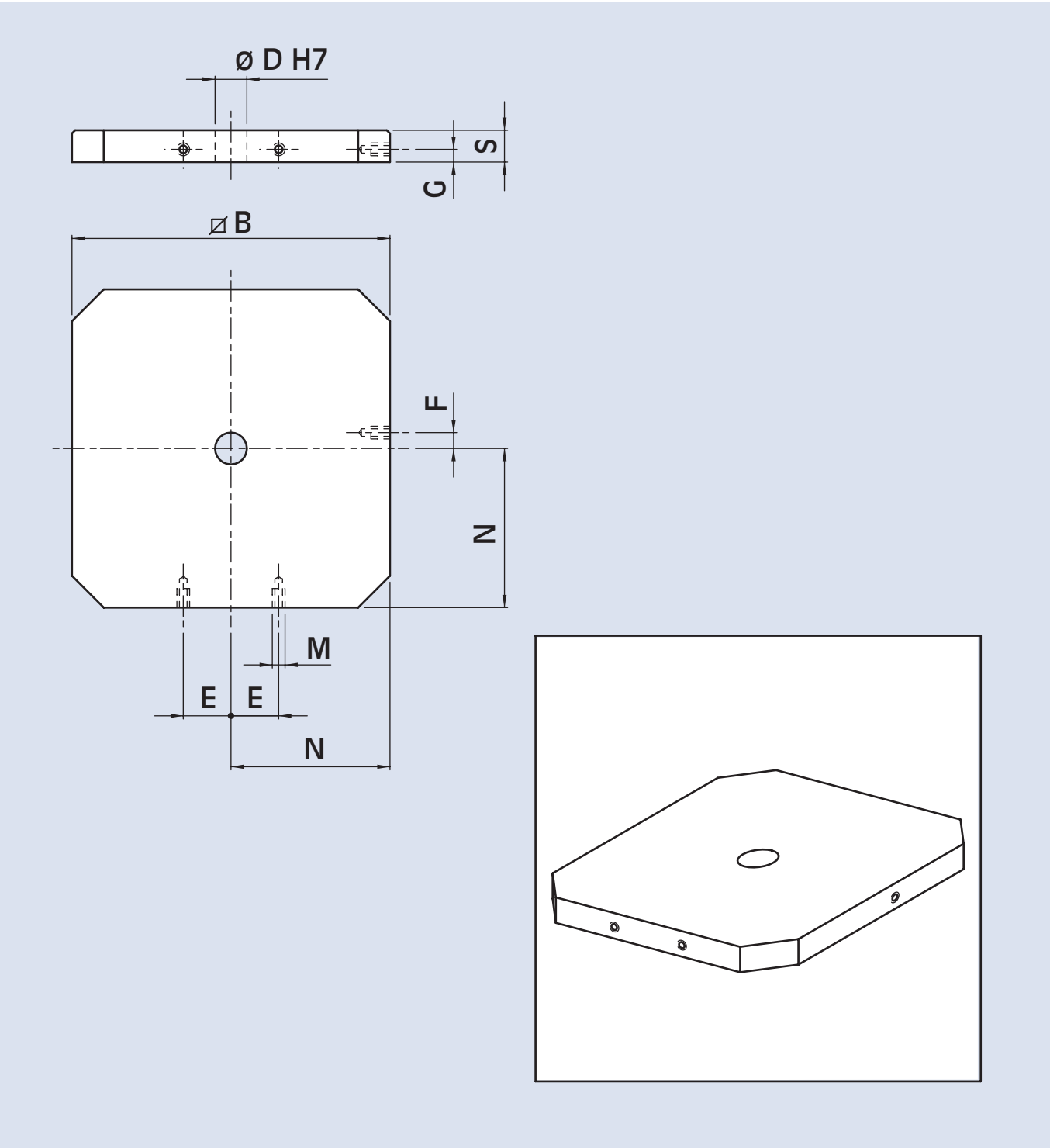


Cod.	C mm	A mm	Ø D mm	Ø D1 mm	M mm	E mm	F mm	G mm	I mm	S mm	Weight kg
57 05 00 25	160	400	12	11	M 10	150	300	40	40	30	15
57 05 00 45	200	400	12	11	M 10	150	300	60	40	30	17
57 05 00 50	250	250	16	13	M 12	75	150	75	50	35	16
57 05 00 70	250	400	16	13	M 12	150	300	75	50	35	26
57 05 00 90	250	600	16	13	M 12	250	500	75	50	35	39
57 05 01 00	320	350	16	13	M 12	125	250	100	50	35	29
57 05 01 20	350	500	16	13	M 12	200	400	125	50	35	46
57 05 01 30	350	600	16	13	M 12	250	500	125	50	35	55
57 05 01 40	400	450	16	13	M 12	175	350	150	50	35	47
57 05 01 50	400	500	16	13	M 12	200	400	150	50	35	52
57 05 01 55	400	600	16	13	M 12	250	500	150	50	35	63
57 05 01 60	450	500	16	13	M 12	200	400	175	50	35	58
57 05 01 70	450	600	16	13	M 12	250	500	175	50	35	70
57 05 01 75	450	800	16	13	M 12	350	700	175	50	35	95
57 05 01 80	500	500	16	13	M 12	200	400	200	50	35	65
57 05 01 90	500	550	16	13	M 12	225	450	200	50	35	71
57 05 01 95	500	600	16	13	M 12	250	500	200	50	35	78
57 05 02 00	550	600	16	13	M 12	250	500	225	50	35	85
57 05 02 10	550	800	16	13	M 12	350	700	225	50	35	114
57 05 02 20	630	550	16	13	M 12	225	450	250	50	35	90
57 05 02 30	630	650	16	13	M 12	275	550	250	50	35	106
57 05 02 35	630	800	16	13	M 12	350	700	250	50	35	131
57 05 02 40	800	600	16	13	M 12	250	500	350	50	35	125
57 05 02 50	800	800	16	13	M 12	350	700	350	50	35	166

• special plates upon request

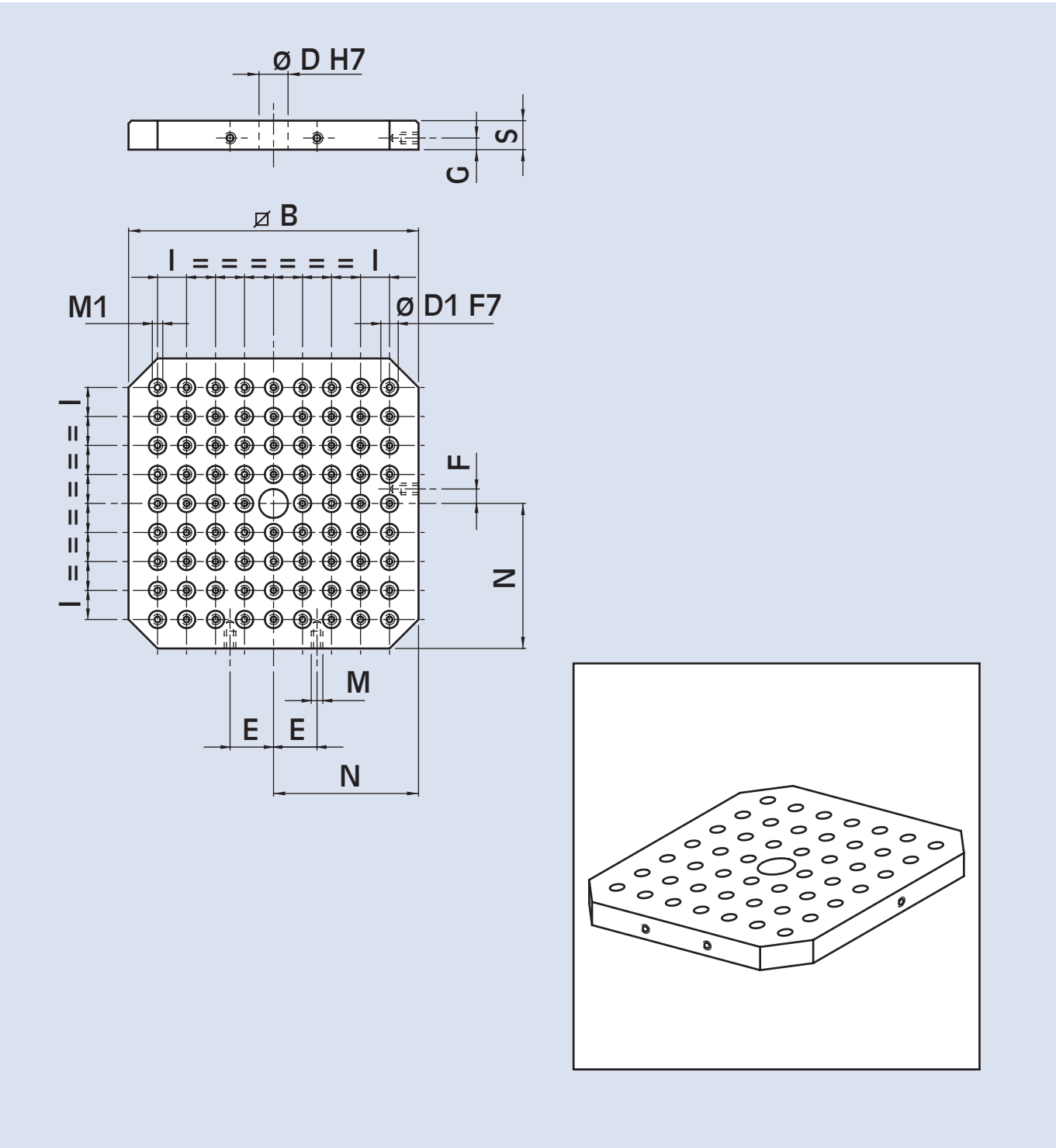
subplates

SUBPLATES



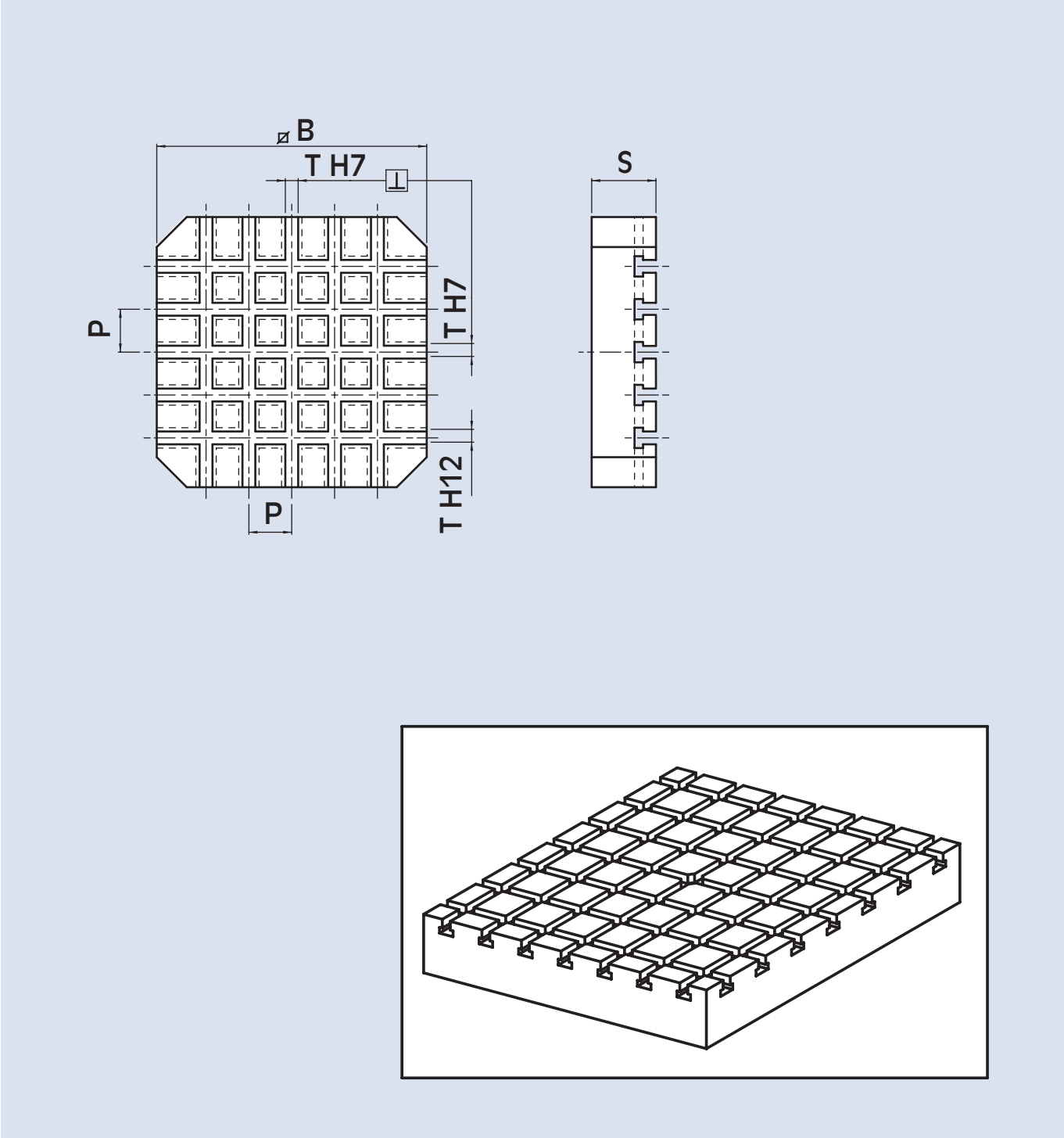
Cod.	B mm	Ø D mm	M mm	N mm	E mm	F mm	G mm	S mm	Weight kg
57 13 00 10	320	30	-	160	-	-	-	40	30
57 13 00 20	400	50	M 16	200	55	25	18	40	48
57 13 00 30	450	50	-	225	-	-	-	40	61
57 13 00 40	500	50	M 16	250	75	25	18	40	76
57 13 00 50	550	50	-	275	-	-	-	40	93
57 13 00 60	630	50	M 16	315	100	25	18	40	121

• special subplates upon request



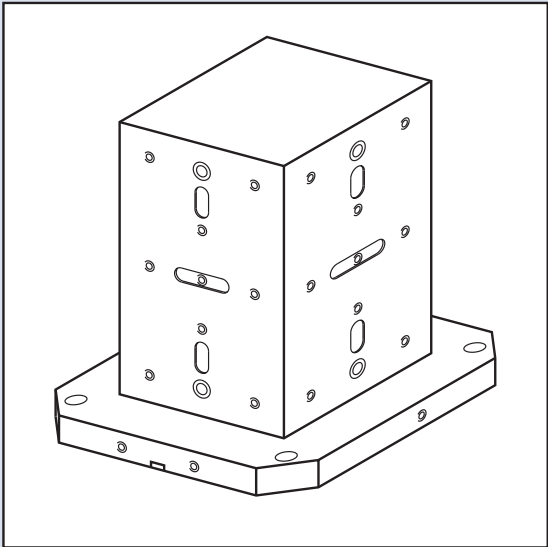
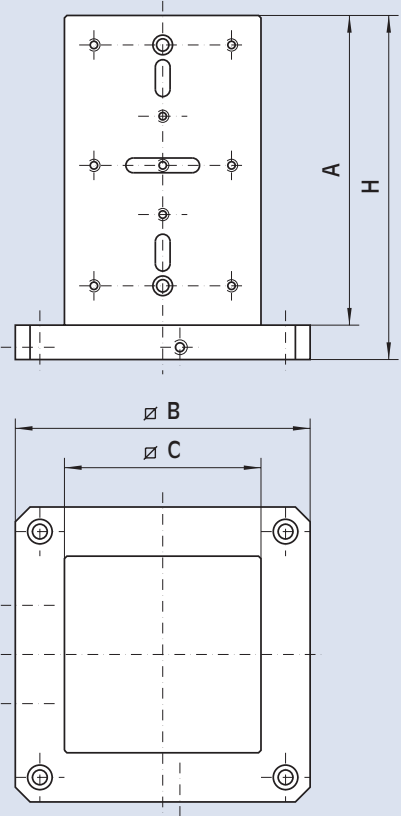
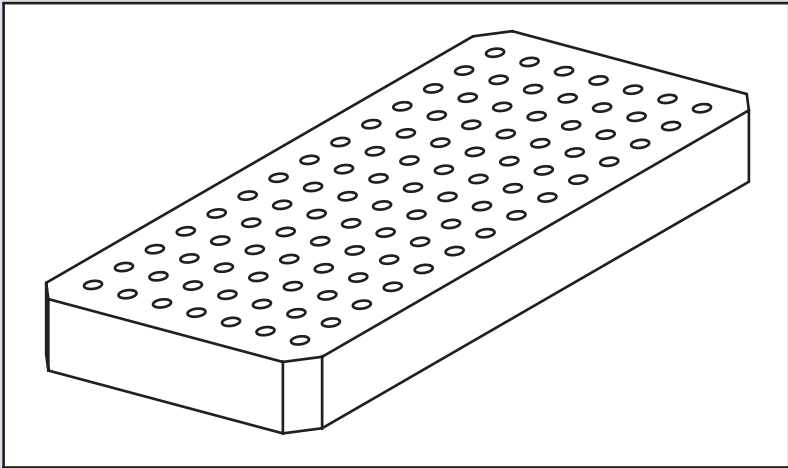
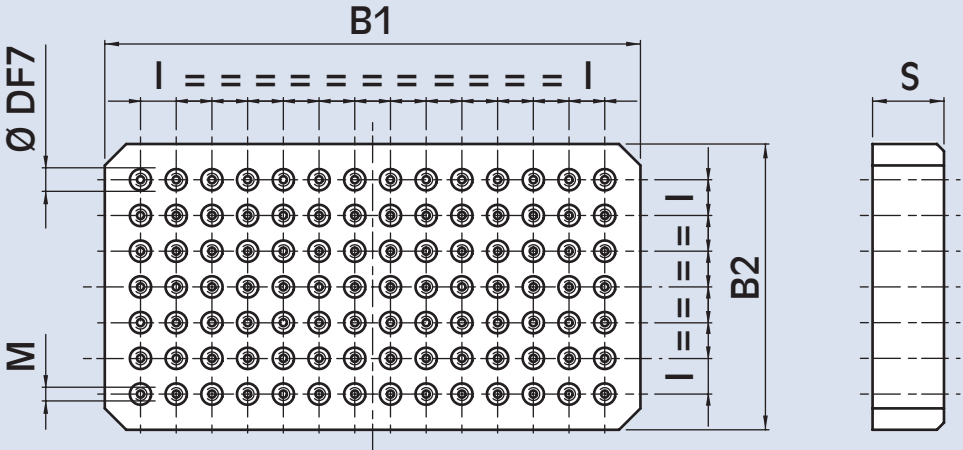
STEEL	Cod.	B mm	Ø D mm	M mm	E mm	F mm	G mm	Ø D1 mm	M1 mm	I mm	N mm	S mm	Weight kg
	57 14 00 10	320	30	-	-	-	-	16	M 12	50	160	40	29
	57 14 00 20	400	50	M 16	55	25	18	16	M 12	50	200	40	47
	57 14 00 30	450	50	-	-	-	-	16	M 12	50	225	40	59
	57 14 00 40	500	50	M 16	75	25	18	16	M 12	50	250	40	74
	57 14 00 50	550	50	-	-	-	-	16	M 12	50	275	40	90
	57 14 00 60	630	50	M 16	100	25	18	16	M 12	50	315	40	117

• special subplates upon request

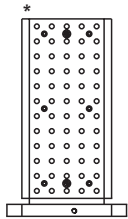


STEEL	Cod.	B mm	P mm	S mm	T mm	L mm	Weight kg
	57 34 00 10	400	56	80	12	0,015	85
	57 34 00 20	450	65	100	14	0,015	137
	57 34 00 30	500	70	100	14	0,02	171
	57 34 00 40	550	80	100	14	0,02	210
	57 34 00 50	630	100	100	14	0,025	284

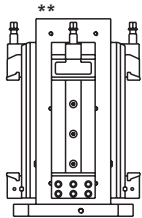
• special subplates upon request



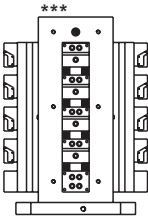
STEEL	Cod.	A mm	B mm	C mm	H mm	Weight kg
	57 22 00 10	* 620	400	250	660	205
	57 22 00 20	** 660	500	350	700	318
	57 22 00 30	*** 815	630	450	860	524



for plates; for vices TC 150x300 for CIVI 2000
38 mm/60 mm/90 mm, lenght: L. 500 mm



for plates; for vices TC 150x300 for CIVI 2000
38 mm/60 mm/90 mm, lenght: L. 630 mm



for plates; for vices TC 150x545 for CIVI 2000
38 mm/60 mm/90 mm, lenght: L. 630 mm

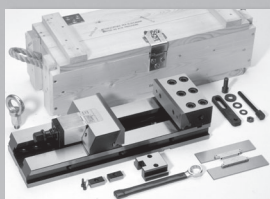
STEEL

Cod.	B1 mm	B2 mm	Ø D mm	M mm	I mm	S mm	Weight kg
57 01 00 10	550	300	16	M 12	50	100	127
57 01 00 20	750	400	16	M 12	50	100	230
57 01 00 30	1000	500	16	M 12	50	100	384

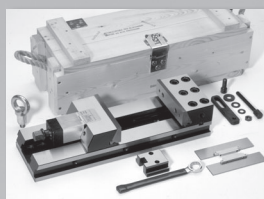
• special subplates upon request

Modular clamping equipment **"TC"** range and accessories

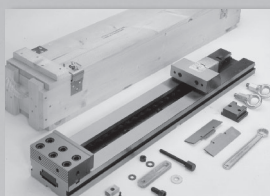
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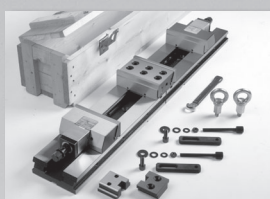
Tct
pag. 2. 6



TCg
pag. 2. 7



Tct-XL
pag. 2. 8



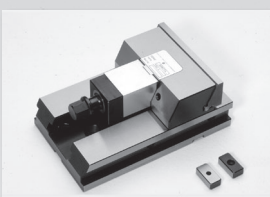
DCS-Tct
pag. 2. 9



**Extension
element Tct**
pag. 2. 12



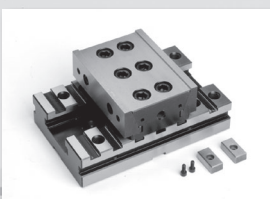
**Double support
with jaws TC**
pag. 2. 13



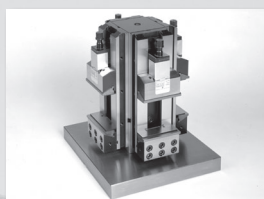
**Complete
extension
element Tct**
pag. 2. 13



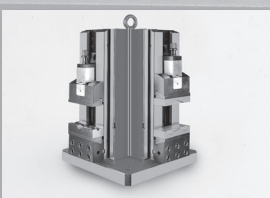
**Base with fixed
support Tct**
pag. 2. 14



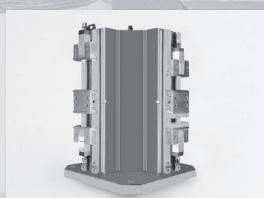
**Base with
double support
whit jaws**
pag. 2. 14



MVS-Tct
pag. 2. 16



VCS-Tct
pag. 2. 18



DVCS-Tct
pag. 2. 19



Accessories TC
pag. 2. 21



Spare parts TC
pag. 2. 25

Modular

We use the true definition of the term modular; product which is composed of separate or separable elements. With these separate or separable elements we can achieve many different clamping solutions. The only different component of these clamping solutions is the base. The base length determines the clamping capacity while all other components remain the same. Fixed and movable vise jaws can be used with any base configuration, offering the most flexible workholding solutions available. This modular system allows the user to realize the maximum number of workholding combinations with the minimum investment in equipment.

Precision

All sliding and joining surfaces are precision ground. Each item is thoroughly inspected and tested both before and after assembly. This rigid quality control allows us to offer the high tolerance levels shown on page 47. Alignment of the clamping equipment is ensured by using high tolerance ground keys. Other key dimensions are available upon request. The clamping jaws pull the workpiece down 0.2 mm. (0.008") against the ground base for unmatched accuracy.

Durability

All components are constructed from oversize steel profiles ensuring the equipment is exceptionally sturdy and can provide the user with optimal performance. Wear parts are special treated to achieve a surface hardness of 50/60 HRC. All non-ground surfaces are burnished to protect against corrosion.

Quick-change

A patented system allows quick repositioning of the clamping jaws. The clamping jaw is lifted slightly from the base and shuttled to the next clamping position then lowered into place. Part changeovers and size changes can be made quickly and easily.

Reliable

The six bolts mounting the fixed jaw to the base provide the most rigid platform possible to support the clamped workpiece.

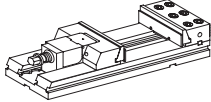
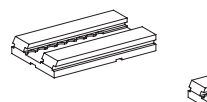
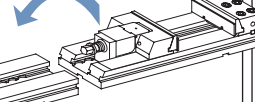
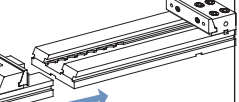
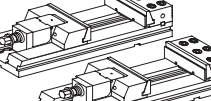
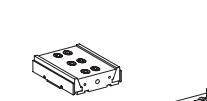
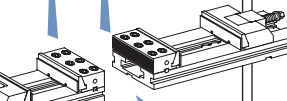
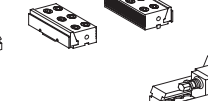
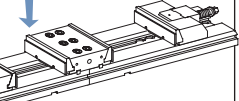
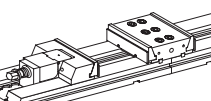
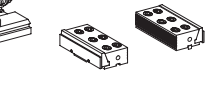
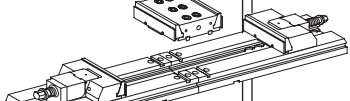
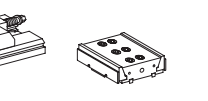
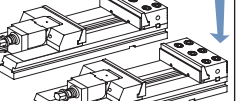
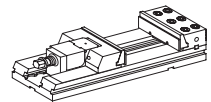
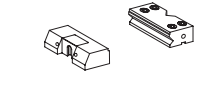
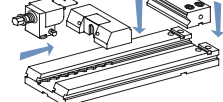
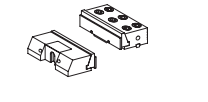
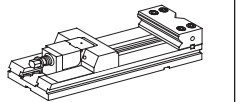
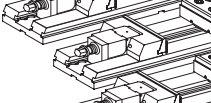
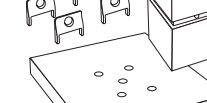
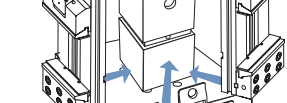
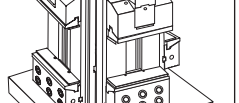
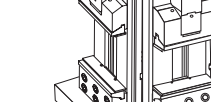
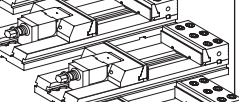
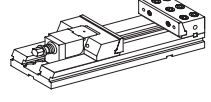
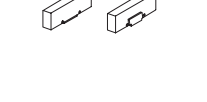
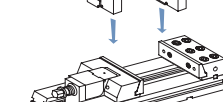
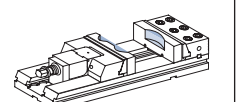
Versatility

The fixed jaw has serrations on the rare face so that by reversing it, unmachined workpieces can be clamped. The movable jaw can be rigid or floating (for clamping on uneven surfaces). The interchangeability of the rigid slide-way with the floating slide-way (both included as standard equipment) allows the user to clamp finished or raw workpieces. The standard CLAK system allows the quick-change of parallels, angular parallels, soft jaws and "V "jaws in order to machine any workpiece.

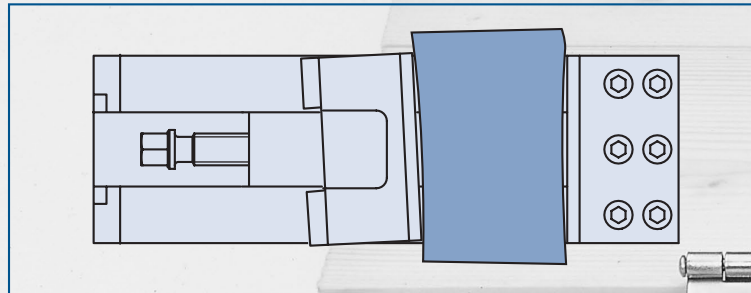
Manageable

The weight of 27 kg (59 lb.) for the 150 mm. x 200 mm. (6"x 8") vise and simple clamping system allow for easy movement from one machine tool to another.

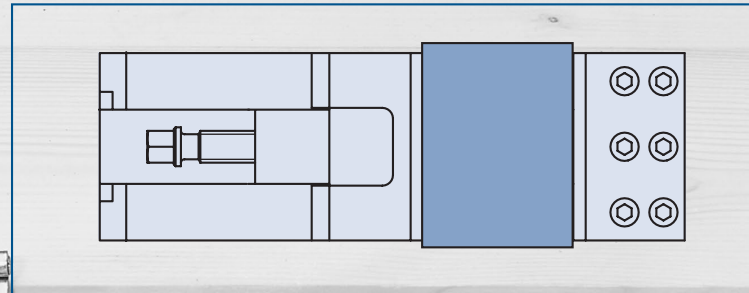
The advantages of modularity

  Pag. 2.6	  Pag. 2.12	  Pag. 2.6	  Pag. 2.12	  Pag. 2.6
  Pag. 2.6	  Pag. 2.13	  Pag. 2.6	  Pag. 2.13	  Pag. 2.6
  Pag. 2.9	  Pag. 2.26	  Pag. 2.9	  Pag. 2.26	  Pag. 2.9
  Pag. 2.6	  Pag. 2.21	  Pag. 2.6	  Pag. 2.21	  Pag. 2.6
  Pag. 2.6	  Pag. 2.17	  Pag. 2.6	  Pag. 2.17	  Pag. 2.6
  Pag. 2.16	  Pag. 2.17	  Pag. 2.16	  Pag. 2.17	  Pag. 2.16
  Pag. 2.6	  Pag. 4.6	  Pag. 2.6	  Pag. 4.6	  Pag. 2.6
 Start	 Add	 Combine	 Remove	 Result

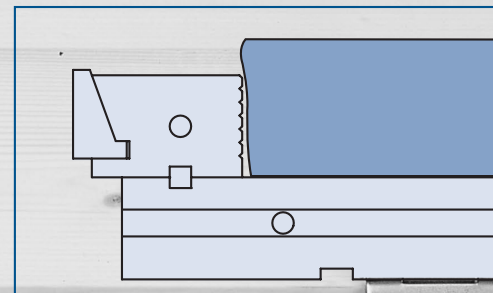
Floating slide - way raw workpieces



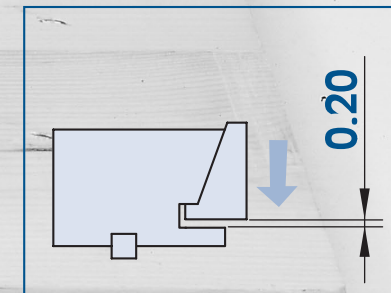
Rigid skide-way for finished workpieces



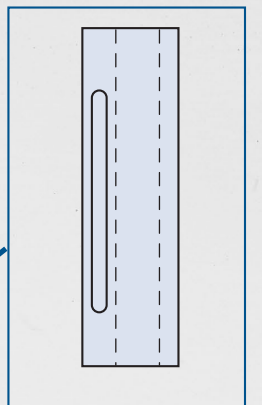
Fixed support turned of 180° (grooved part)



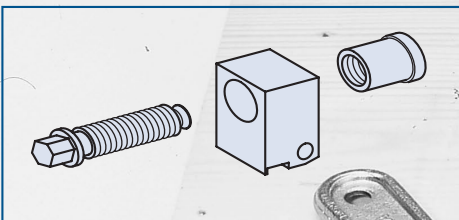
Pull down jaws 0,02 mm



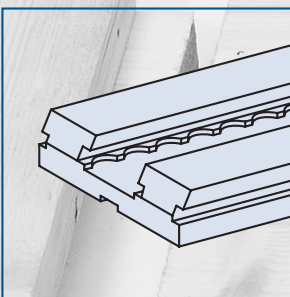
CLAK fitting



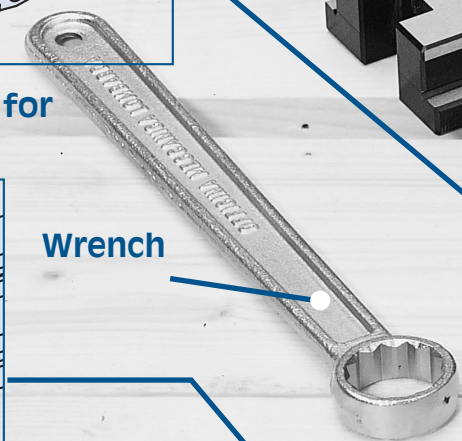
Block for clamping screw with threaded anti-friction bronze bushing



Patented system for quick positioning

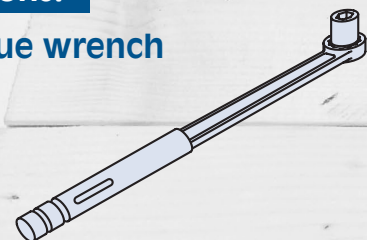


Wrench

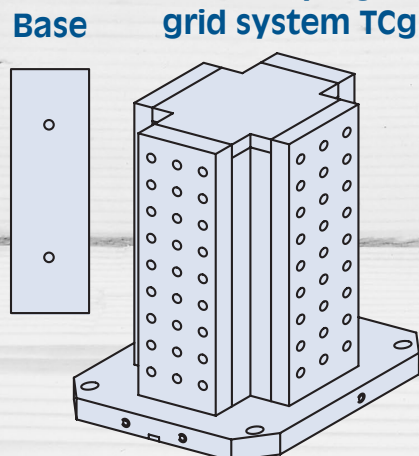


Options:

Torque wrench

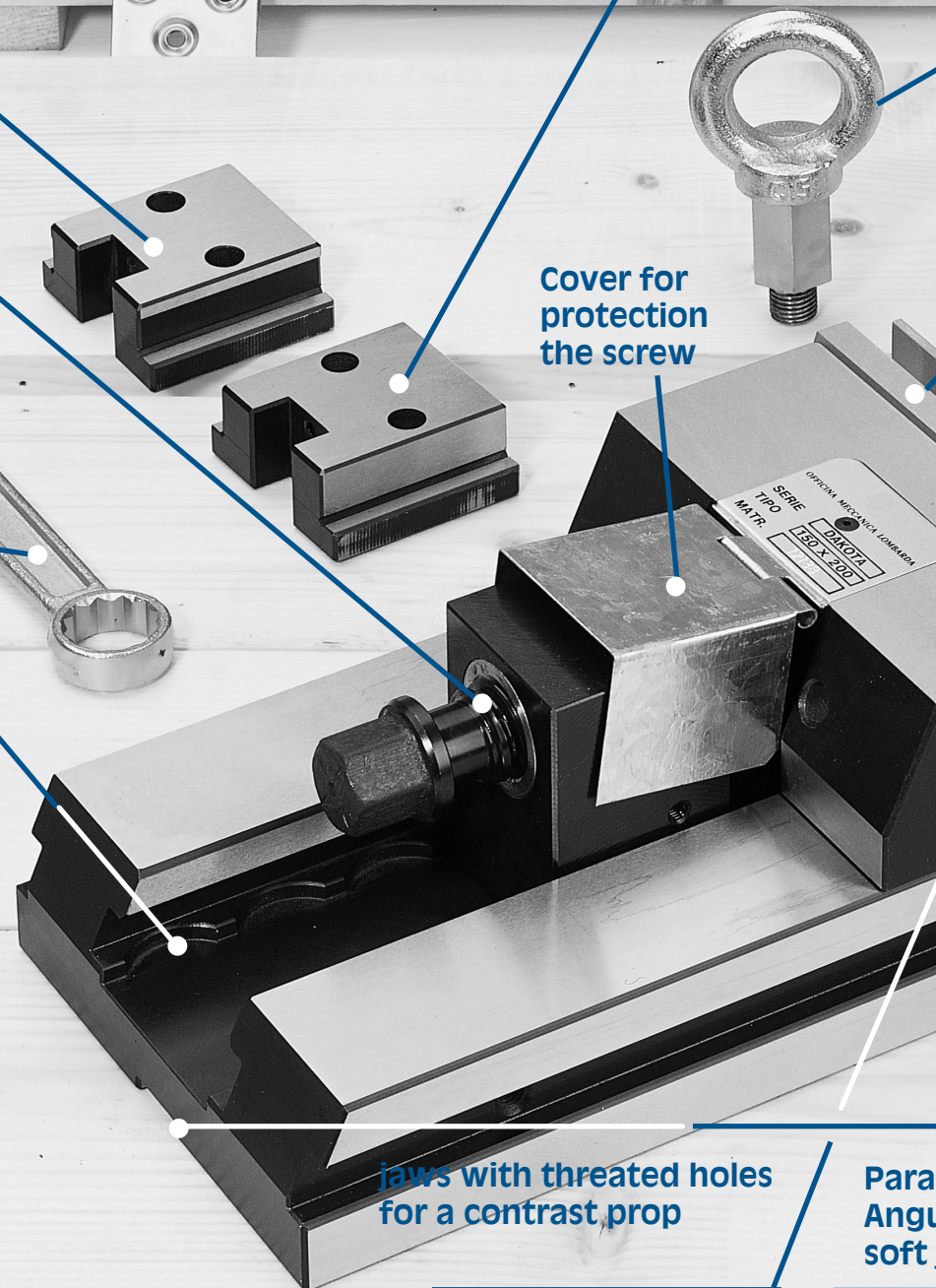


Grinding holes for the clamping on a grid system TCg



Base

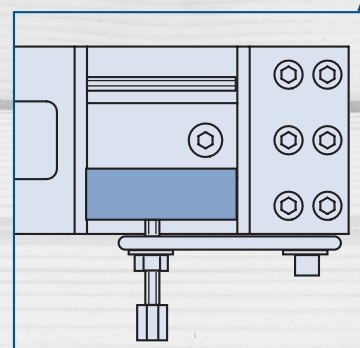
Cover for protection the screw



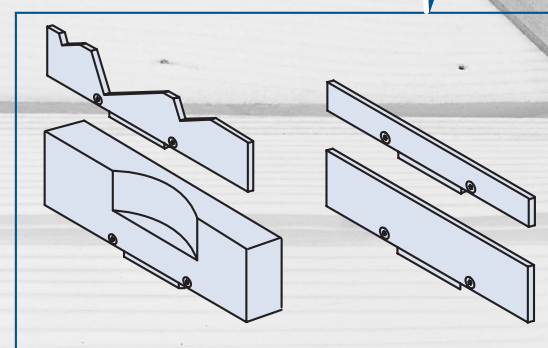
Eye bolt for lifting



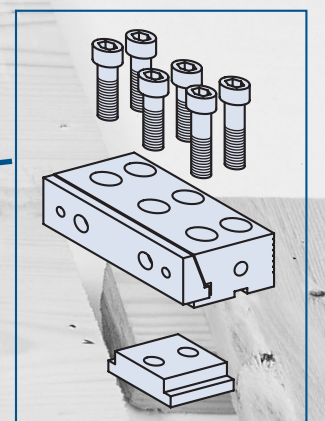
jaws with threaded holes for a contrast prop



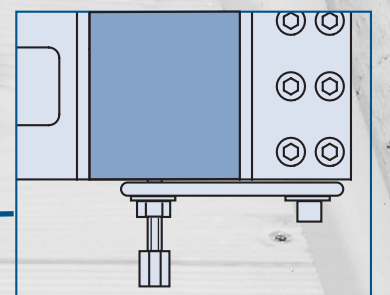
Parallels, Angulars parallels, soft jaws quick change



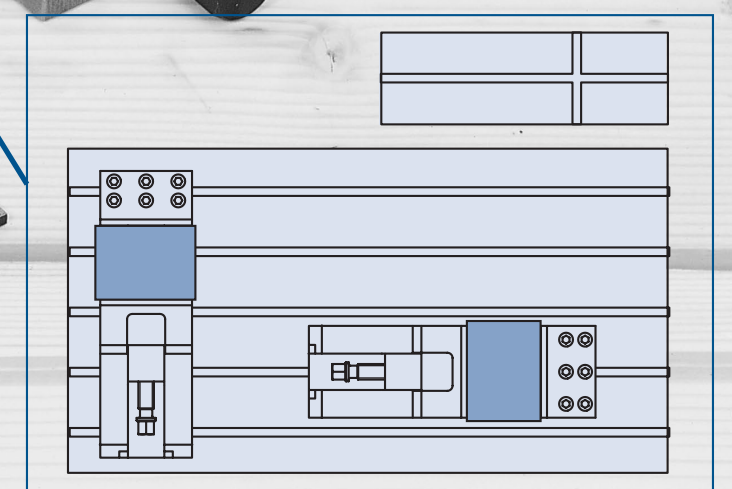
6 bolts for the fixed support

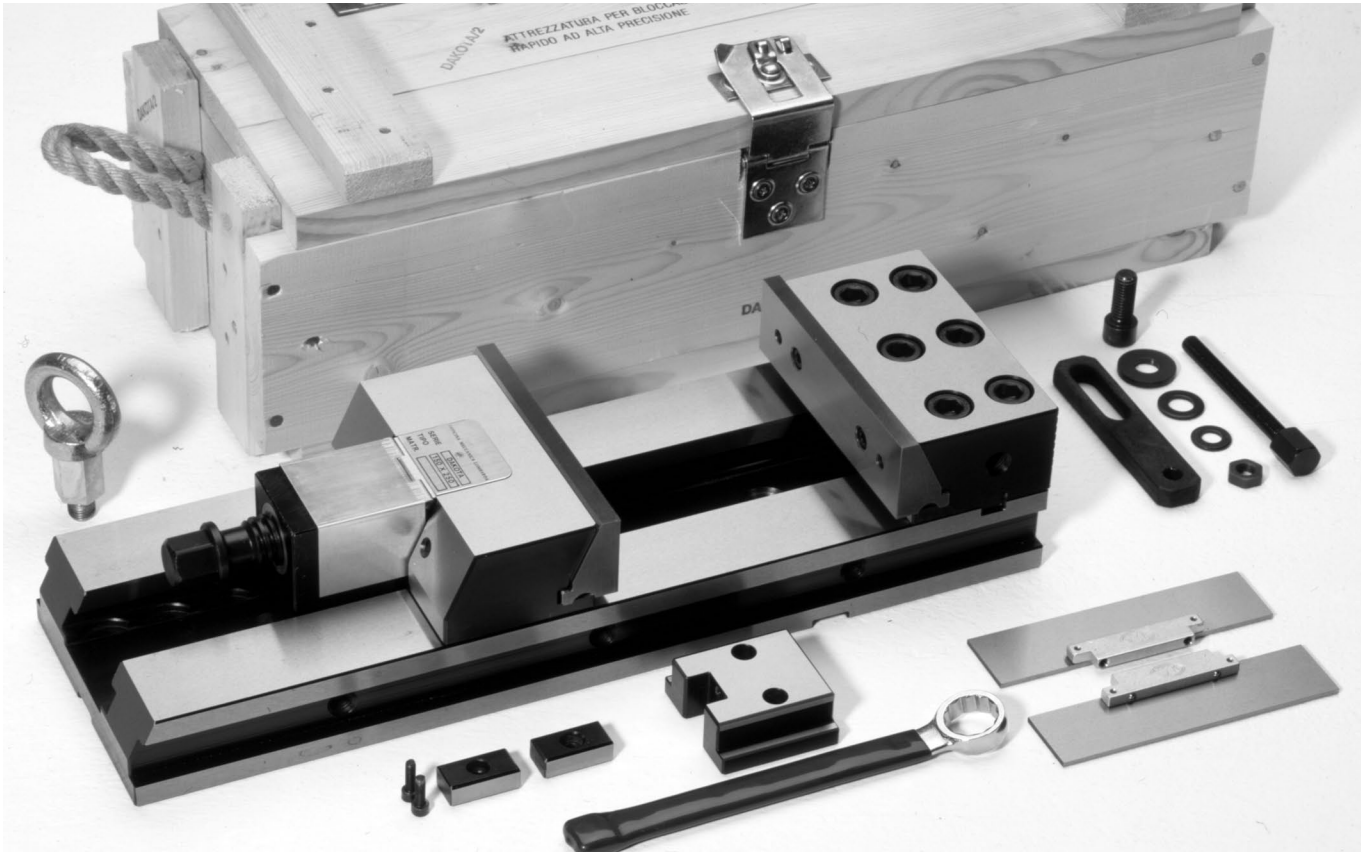


Work stop

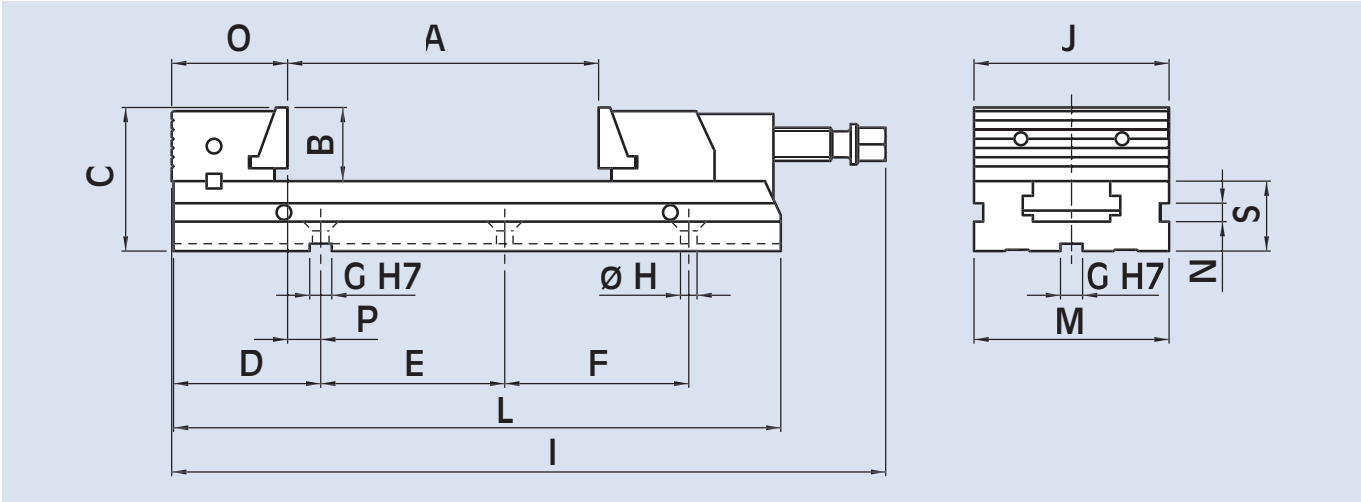


Cross key for T-slots M.T.

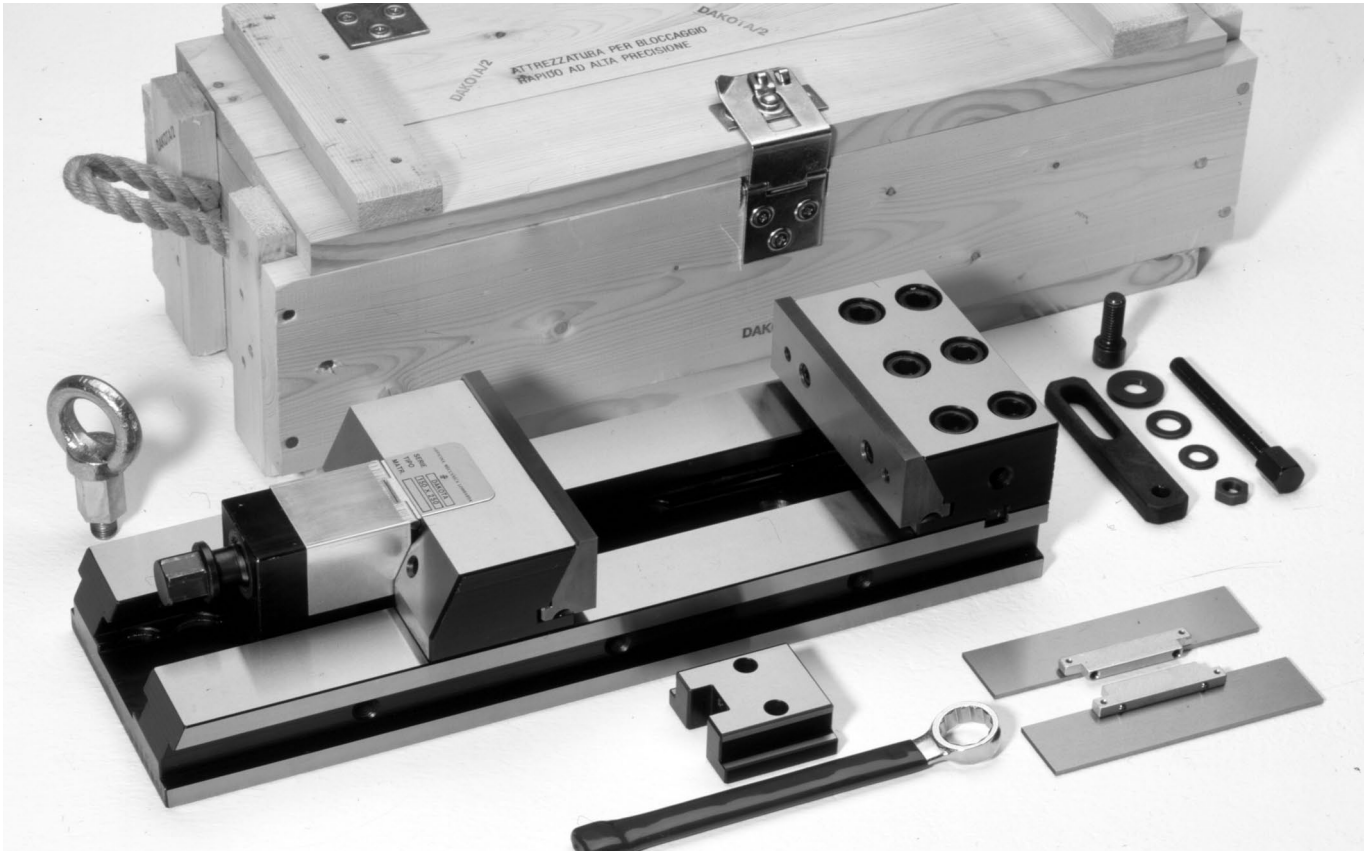




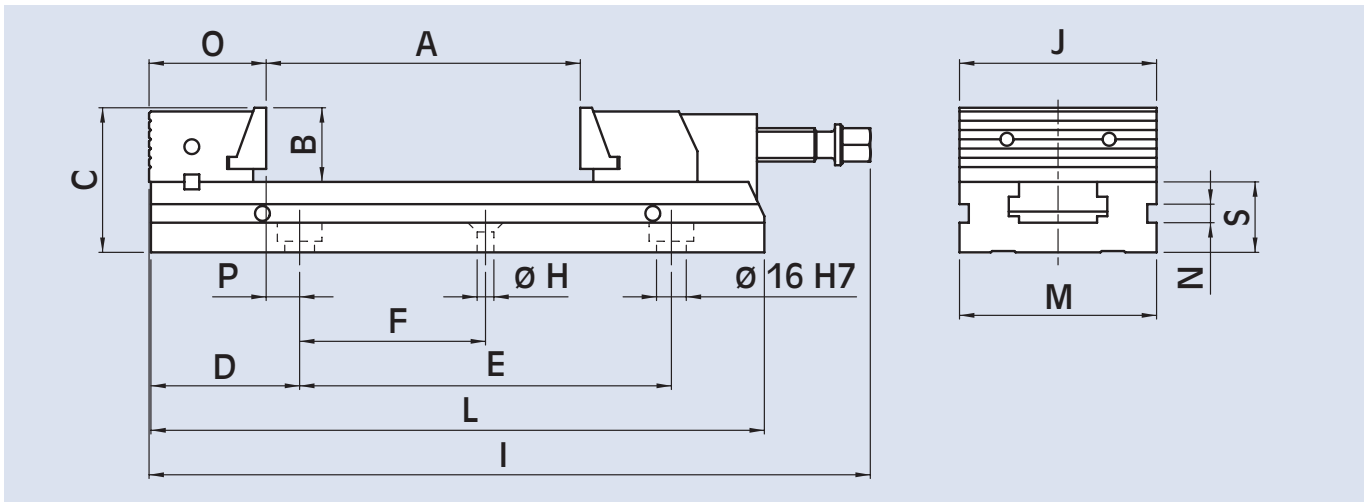
Clamping equipment Tct complete with wrench, work stop, rigid slide way, floating slide-way (for raw work-piece), pair of positioning keys, pair of CLAK parallels, cover for the protection of the screw, eye bolt for lifting, wooden packing case.



Cod.	type	A	B	C	D	E	F	G	H	I	J	L	M	N	O	P	S	Weight
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
77 58 01 01	Tct 110 x 100	100	40	78	80	150	-	12	9	338	110	280	110	10	63	18	38	11,5
77 58 01 02	Tct 110 x 150	150	40	78	80	100	100	12	9	388	110	330	110	10	63	18	38	12,5
77 58 02 01	Tct 150 x 200	200	50	98	114	200	-	18	12,5	481	150	413	150	13	85	30	48	27
77 58 02 02	Tct 150 x 250	250	50	98	114	100	150	18	12,5	531	150	463	150	13	85	30	48	29
77 58 02 03	Tct 150 x 300	300	50	98	114	100	100	18	12,5	588	150	520	150	13	85	30	48	31,5
77 58 03 01	Tct 200 x 250	250	70	138	149	150	150	18	12,5	647	200	560	200	15,5	123	27	68	74
77 58 03 02	Tct 200 x 300	300	70	138	149	200	200	18	12,5	697	200	610	200	15,5	123	27	68	78
77 58 03 03	Tct 200 x 400	400	70	138	149	150	150	18	12,5	797	200	710	200	15,5	123	27	68	86



Clamping equipment TCg complete with wrench, work stop, rigid slide way, floating slide-way (for raw workpiece), pair of CLAK parallels, cover for the protection of the screw, eye bolt for lifting, wooden packing case.



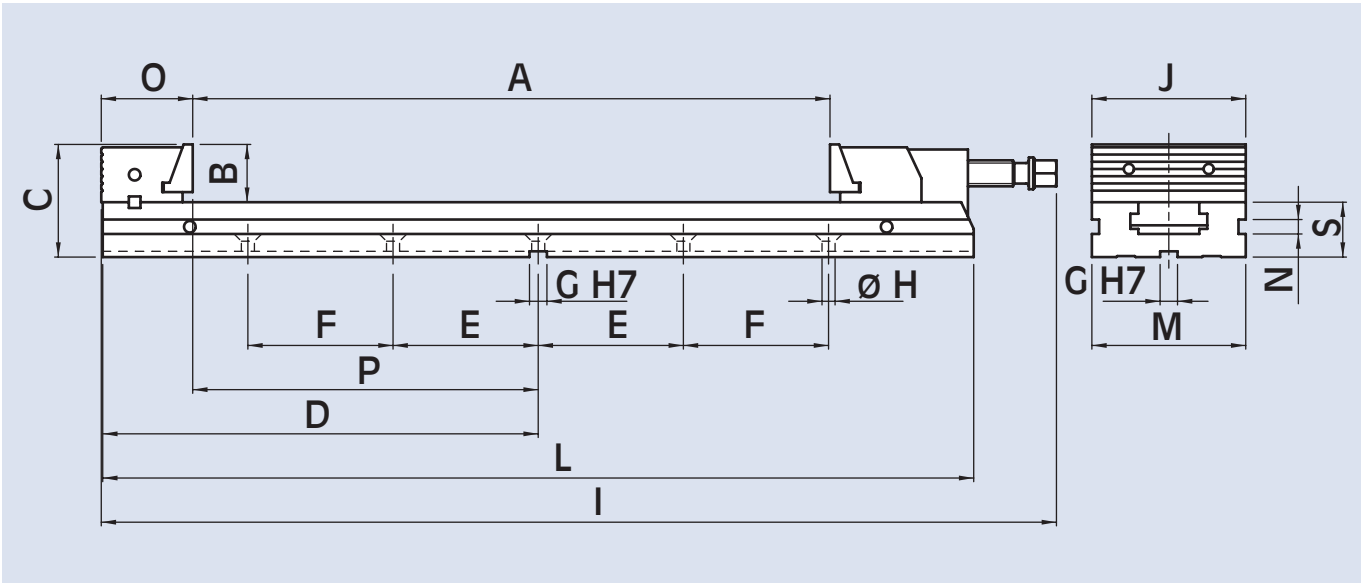
Cod.	type	A	B	C	D	E	F	H	I	J	L	M	N	O	P	S	Weight
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
77 58 01 07	TCg 110 x 100	100	40	78	80	150	-	9	338	110	280	110	10	63	18	38	11,5
77 58 01 08	TCg 110 x 150	150	40	78	80	200	-	9	388	110	330	110	10	63	18	38	12,5
77 58 02 07	TCg 150 x 200	200	50	98	114	200	-	12,5	481	150	413	150	13	85	30	48	27
77 58 02 08	TCg 150 x 250	250	50	98	114	200	-	12,5	531	150	463	150	13	85	30	48	29
77 58 03 07	TCg 200 x 250	250	70	138	149	300	150	12,5	647	200	560	200	15,5	123	27	68	74
77 58 03 08	TCg 200 x 300	300	70	138	149	400	200	12,5	697	200	610	200	15,5	123	27	68	78

* Other fixing and positioning holes dimensions upon request

Tct - XL clamping equipment (for T slots)

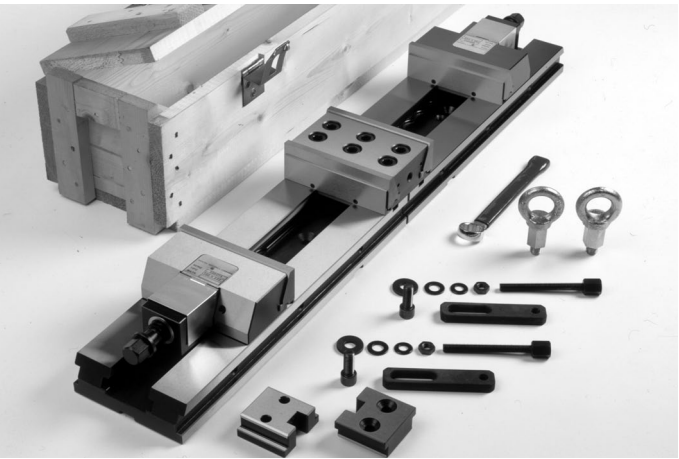


Clamping equipment **Tct-XL**, complete with wrench, work stop, rigid slide-way, floating slide-way (for raw workpiece), pair of positioning keys, pair of **CLAK** parallels, cover for the protection of the screw, eye bolt for lifting, wooden packing case.

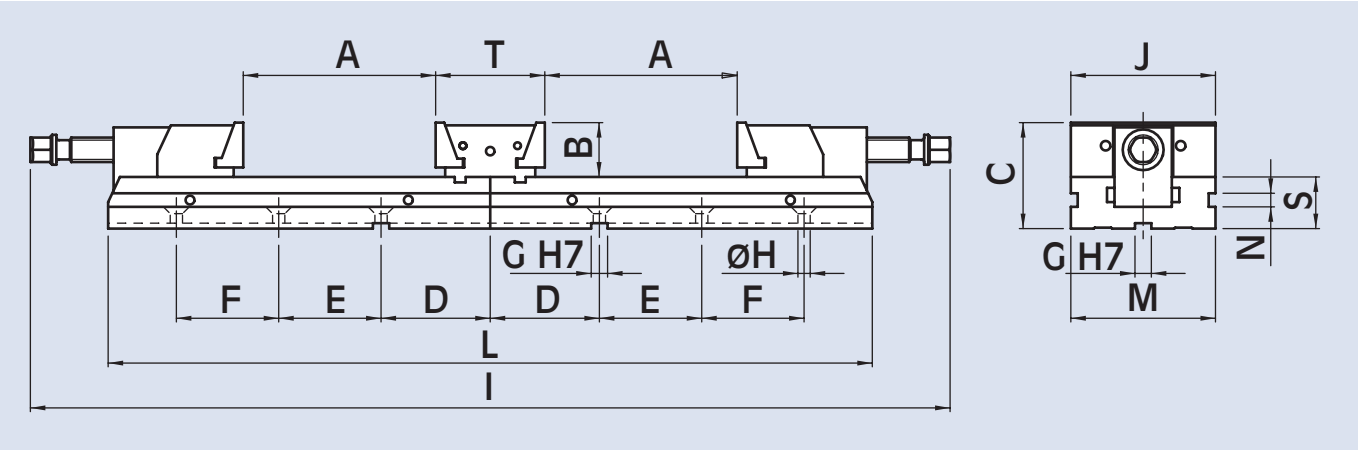


Cod.	type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	L mm	M mm	N mm	O mm	P mm	S mm	Weight kg
77 58 01 04	Tct-XL 110 x 425	425	40	78	300	100	100	12	9	658	110	600	110	10	63	238	38	18,2
77 58 02 04	Tct-XL 150 x 545	545	50	98	379	100	150	18	12,5	825	150	758	150	13	85	295	48	40
77 58 02 05	Tct-XL 150 x 665	665	50	98	439	100	200	18	12,5	946	150	878	150	13	85	355	48	44,7

Double clamping equipment DCS-Tct

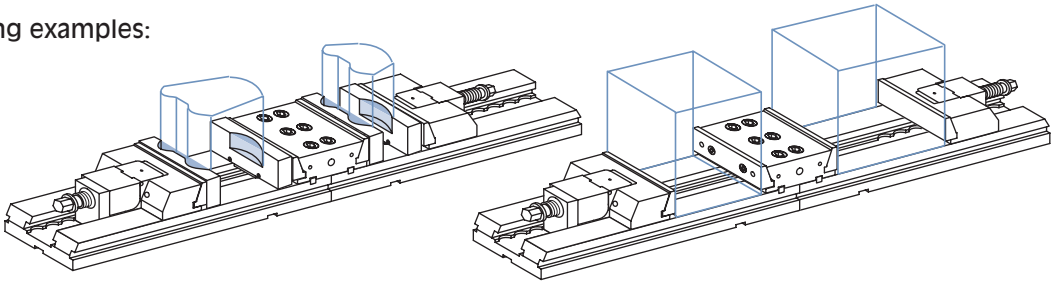


Double clamping equipment **DCS-Tct** complete with:
1 wrench,
2 work stops,
2 rigid slide-ways,
2 floating slide-ways (for raw workpiece),
1 pair of positioning keys,
2 pair of **CLAK** parallels,
2 covers for the protection of the screw,
2 eye bolts for lifting,
wooden packing case.

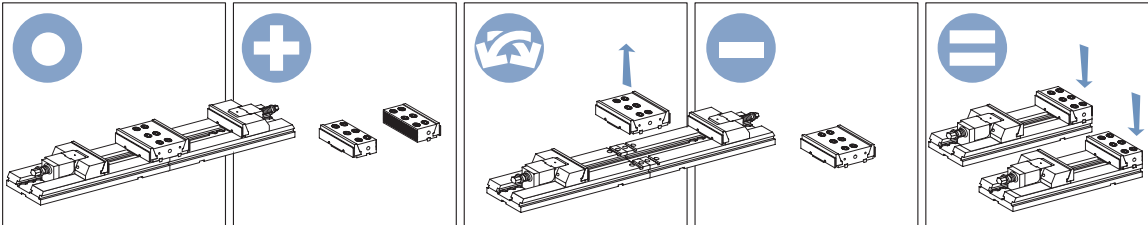


Cod.	for type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	L mm	M mm	N mm	S mm	T mm	Weight kg
77 58 11 01	DCS-Tct 110 x 130	130	40	78	80	150	-	12	9	676	110	560	110	10	38	80	22
77 58 11 02	DCS-Tct 110 x 180	180	40	78	80	100	100	12	9	776	110	660	110	10	38	80	24
77 58 12 01	DCS-Tct 150 x 230	230	50	98	116	200	-	18	12,5	966	150	830	150	13	48	108	52
77 58 12 02	DCS-Tct 150 x 280	280	50	98	116	100	150	18	12,5	1066	150	930	150	13	48	108	56
77 58 13 01	DCS-Tct 200 x 280	280	70	138	150	150	150	18	12,5	1294	200	1122	200	15,5	68	194	136
77 58 13 02	DCS-Tct 200 x 330	330	70	138	150	200	200	18	12,5	1394	200	1222	200	15,5	68	194	144

Working examples:



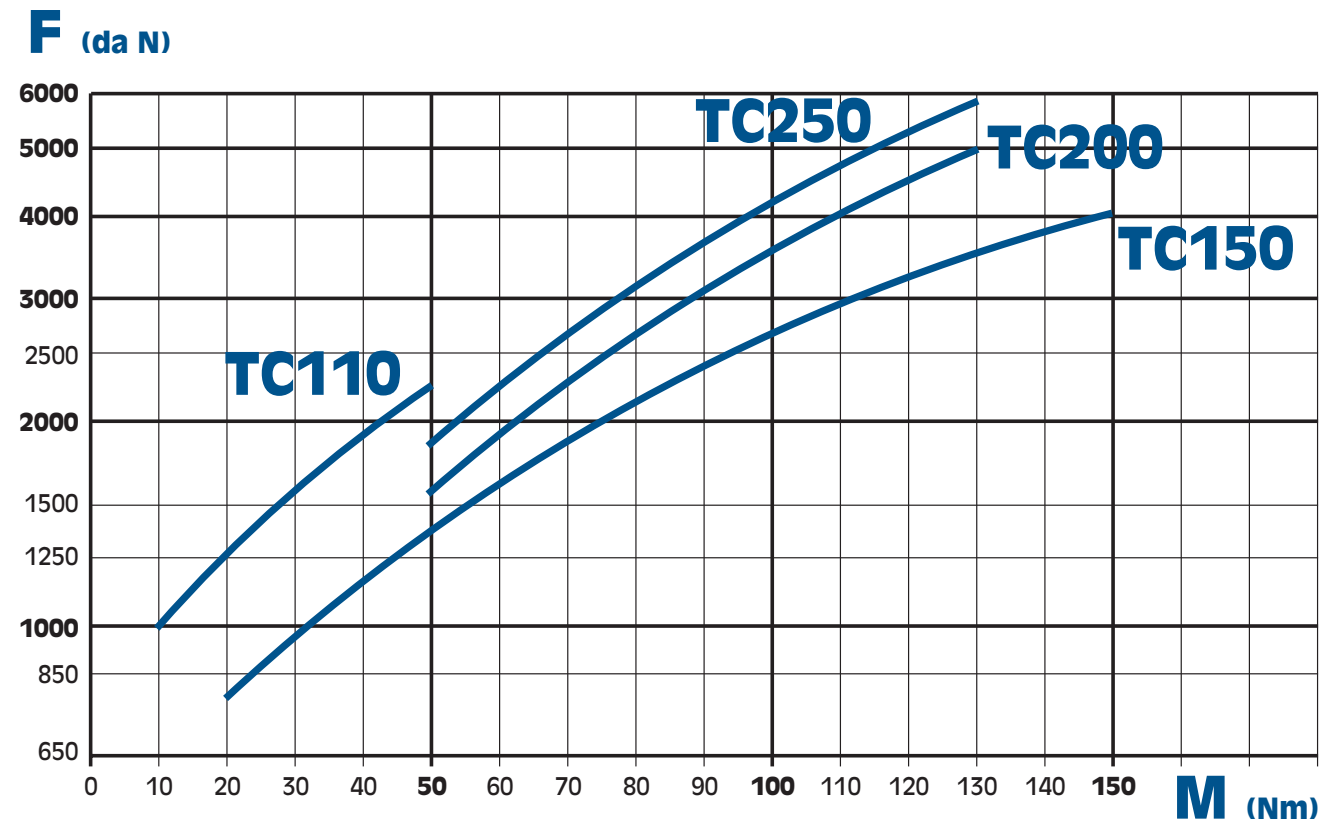
The modularity of the system combined with some other components offers many additional clamping solutions.



Clamping the workpiece

For controlled clamping and the best repetibility use of a torque wrench is recommended:

- 1 clamp the workpiece with the torque wrench at the necessary clamping force in accordance with the following diagram
- 2 Zero set on the workpiece
- 3 Machine the first workpiece
- 4 Clamp the other workpieces at the same clamping force

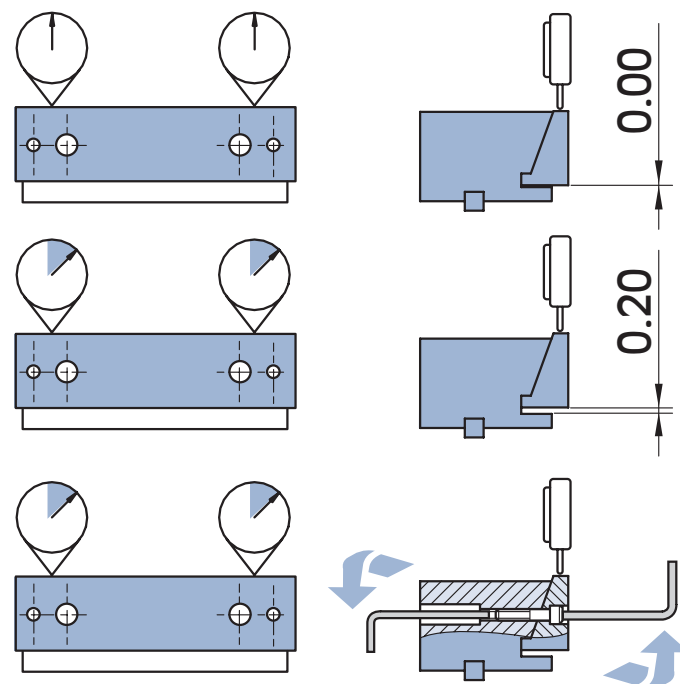


Jaw alignment

When it is necessary to replace the jaws in order to ensure the best part pull-down, we recommended the following steps:

1) make sure the jaws are properly secured to the support.

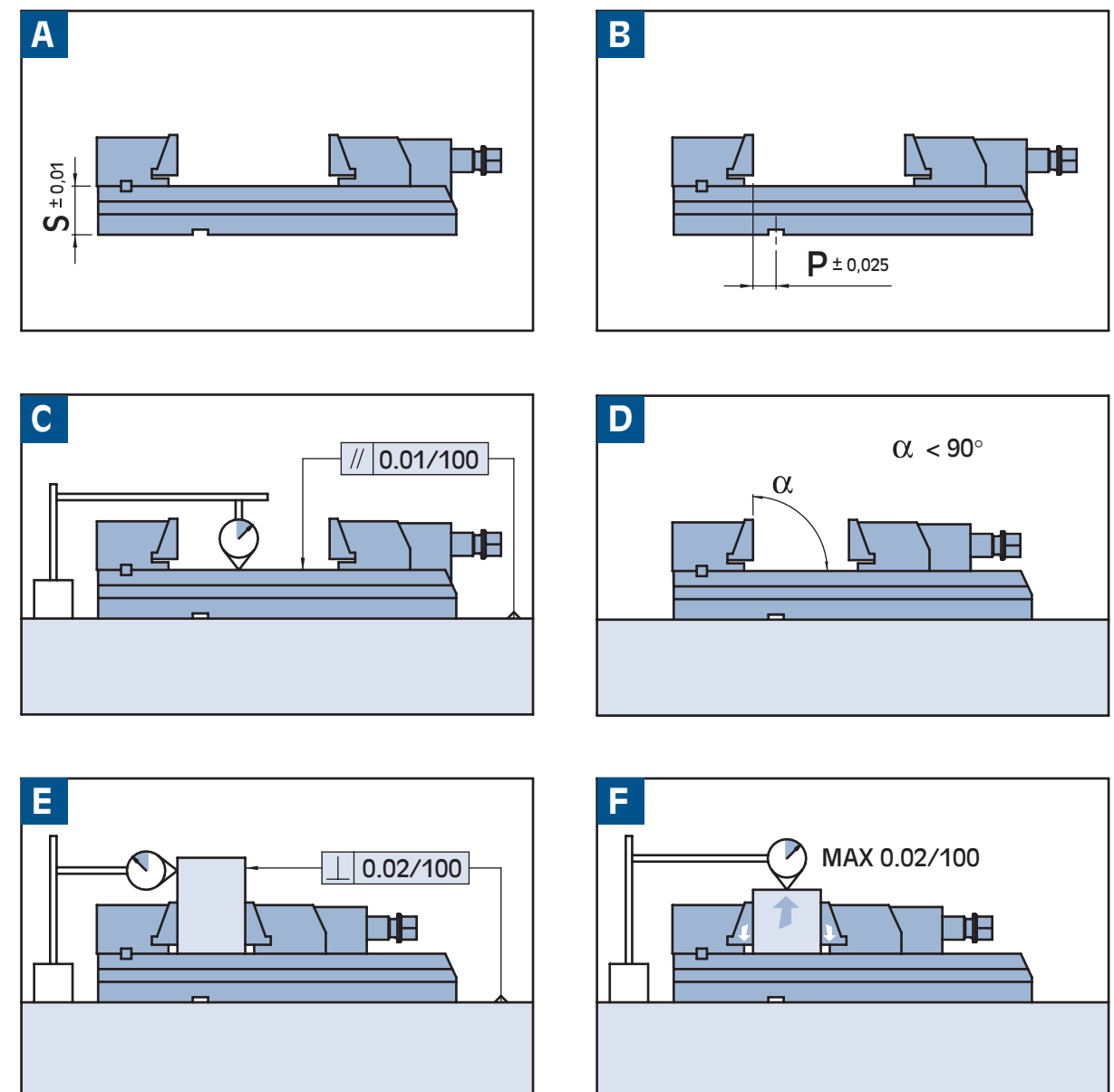
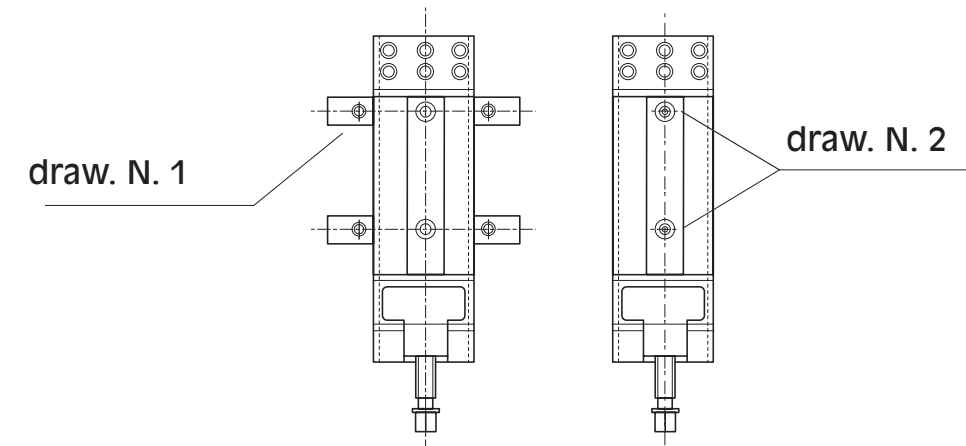
2) loosen the adjustment screws until the jaws are backed off about 0.2 mm. (0.008") tighten the lock nuts located on the back side of the support in the opposite direction of the adjustment screws



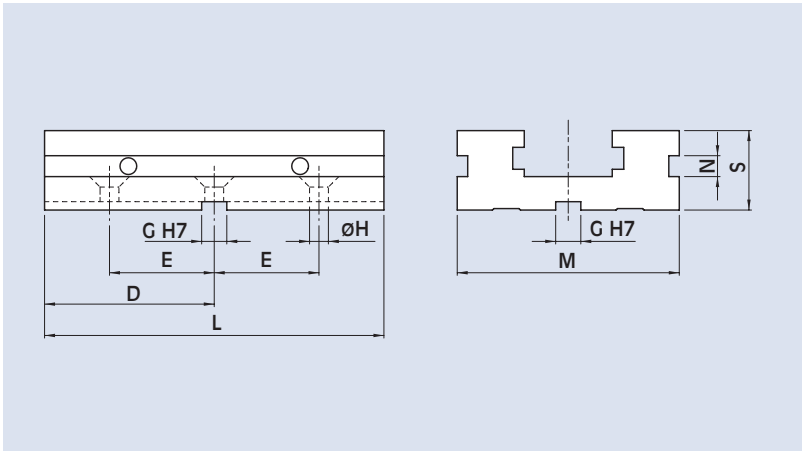
How to clamp the vises at the table of the machine tool.

In order to obtain a perfect clamping of the workpiece and in order to obtain the tolerances of which point " E " is necessary to clamp the vise on the table of the machine tool by means of the ORIGINAL OML'S CLAMPS (Ex cod. 58022795 see drawing n. 1).

Or by means of the T-nuts (58022595 see drawing n. 2)

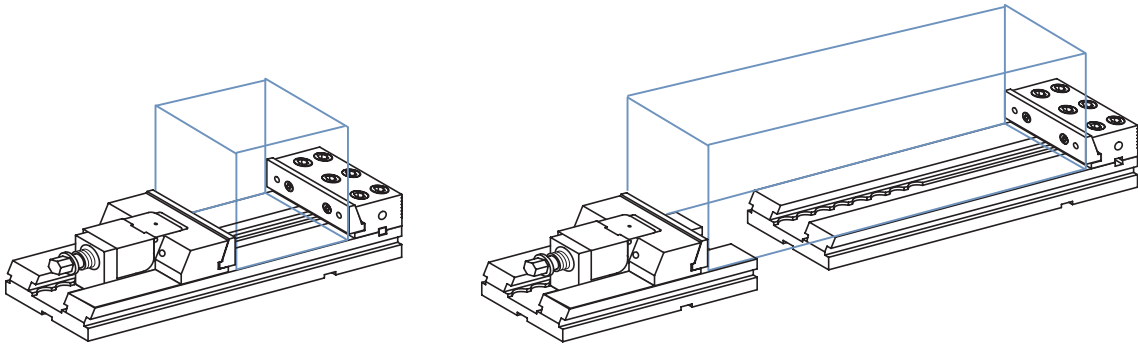


TCT extension element with pair of positioning keys

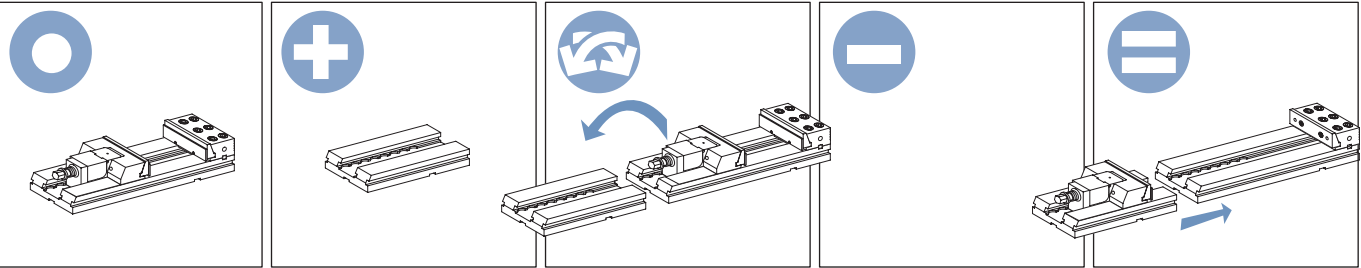


Cod.	for type	D mm	E mm	G mm	H mm	L mm	M mm	N mm	S mm	Weight kg
58 01 17 00	TCT 110 x ...	81	50	12	9	162	110	10	38	3,5
58 02 17 00	TCT 150 x ...	114	75	18	12,5	228	150	13	48	9
58 03 17 00	TCT 200 x ...	150	100	18	12,5	300	200	15,5	68	22

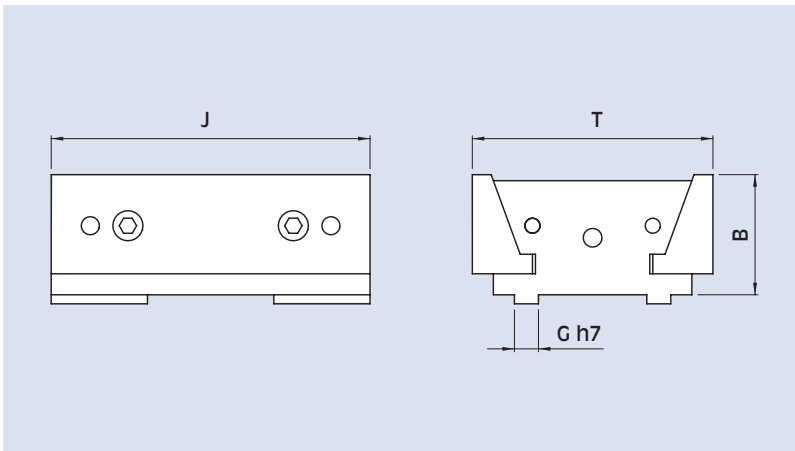
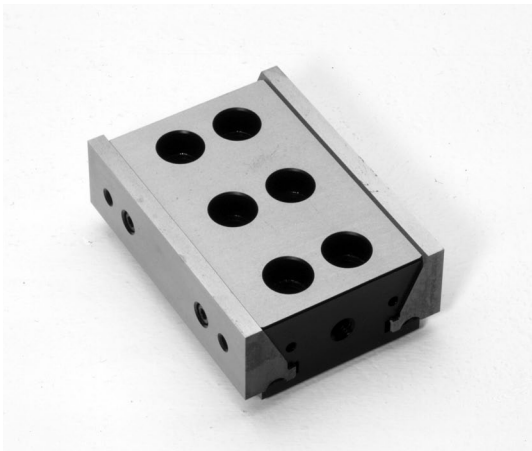
Working examples:



The modularity of the system combined with some other components offers many additional clamping solutions.

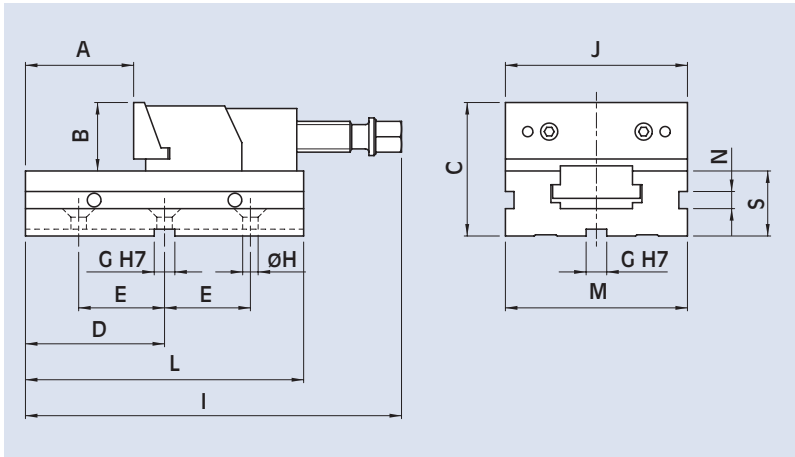
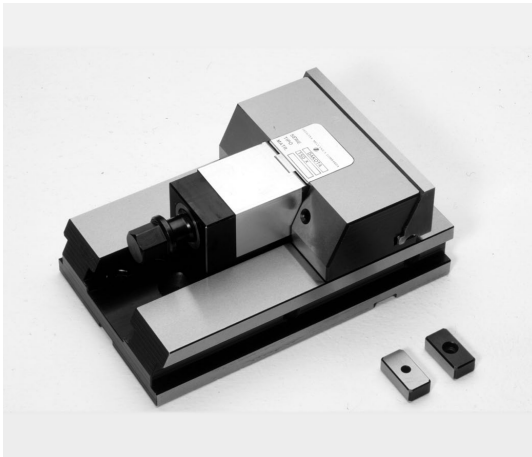


TC double fixed support with jaw



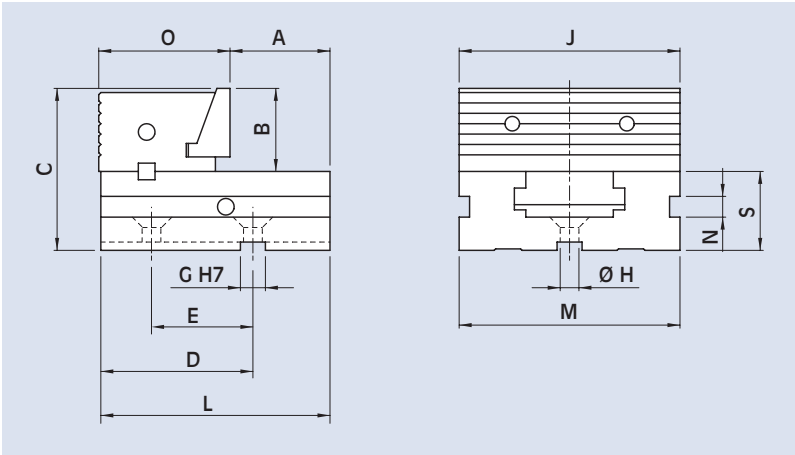
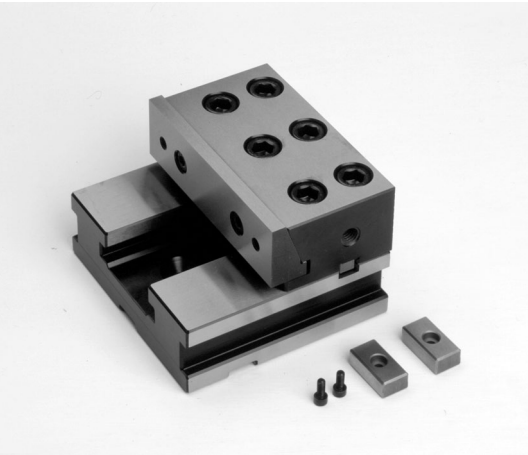
Cod.	for type	B mm	G mm	J mm	T mm	Weight kg
58 11 72 10	TC 110 x ...	40	8	110	80	2,2
58 12 72 10	TC 150 x ...	50	12	150	108	5
58 13 72 10	TC 200 x ...	70	14	200	194	11,6

TCT complete extension element with pair of positioning keys h6 (by choice)



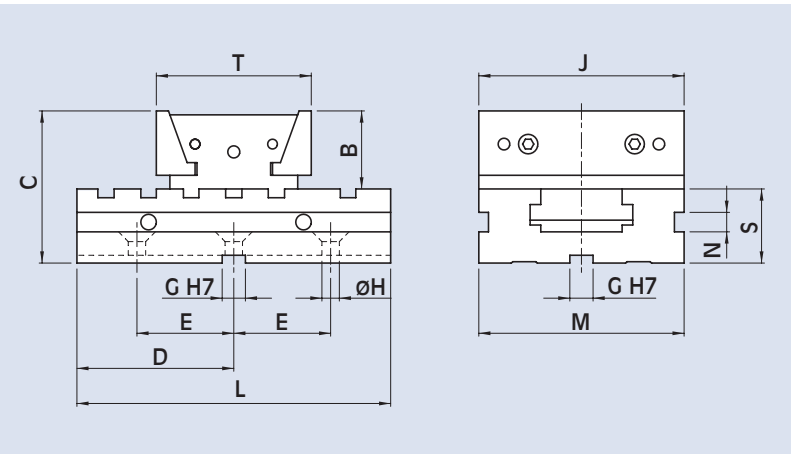
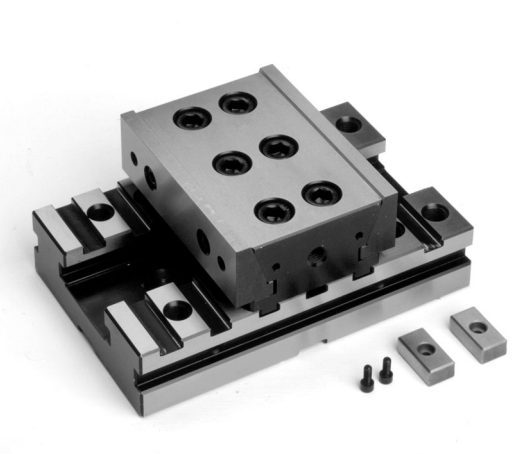
Cod.	for type	A mm	B mm	C mm	D mm	E mm	G mm	H mm	I mm	J mm	L mm	M mm	N mm	S mm	Weight kg
58 01 71 10	TCT 110 x ...	60	40	78	81	50	12	9	220	110	162	110	10	38	6,2
58 02 71 10	TCT 150 x ...	100	50	98	114	75	18	12,5	295	150	228	150	13	48	15,1
58 03 71 10	TCT 200 x ...	120	70	138	150	100	18	12,5	390	200	300	200	15,5	68	39,2

TC base with fixed support with jaw
complete with pair of positioning keys h6 (by choice)



Cod.	for type	A mm	B mm	C mm	D mm	E mm	G mm	H mm	J mm	L mm	M mm	N mm	O mm	S mm	Weight kg
58 01 70 10	TCt 110	58	40	78	80	50	12	9	110	120	110	10	63	38	4
58 02 70 10	TCt 150	81	50	98	114	75	18	12,5	150	165	150	13	85	48	9
58 03 70 10	TCt 200	82	70	138	149	100	18	12,5	200	205	200	15,5	123	68	28

TC base with double fixed support with jaw
complete with pair of positioning keys h6 (by choice)



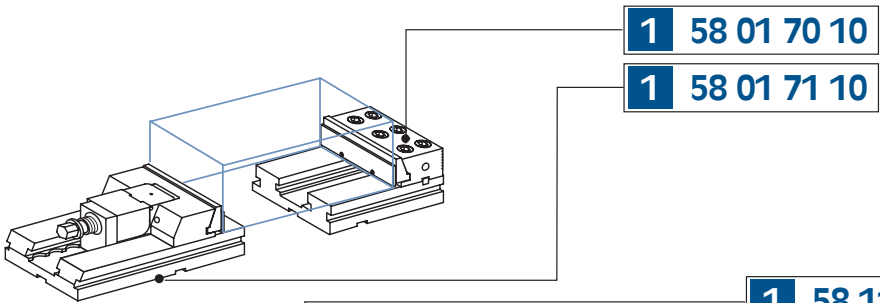
Cod.	for type	B mm	C mm	D mm	E mm	G mm	H mm	J mm	L mm	M mm	N mm	S mm	T mm	Weight kg
58 11 70 10	TCt 110 x ...	40	78	81	50	12	9	110	162	110	10	38	80	5,6
58 12 70 10	TCt 150 x ...	50	98	114	75	18	12,5	150	228	150	13	48	108	13,5
58 13 70 10	TCt 200 x ...	70	138	150	100	18	12,5	150	300	200	15,5	68	194	34,7

Working examples

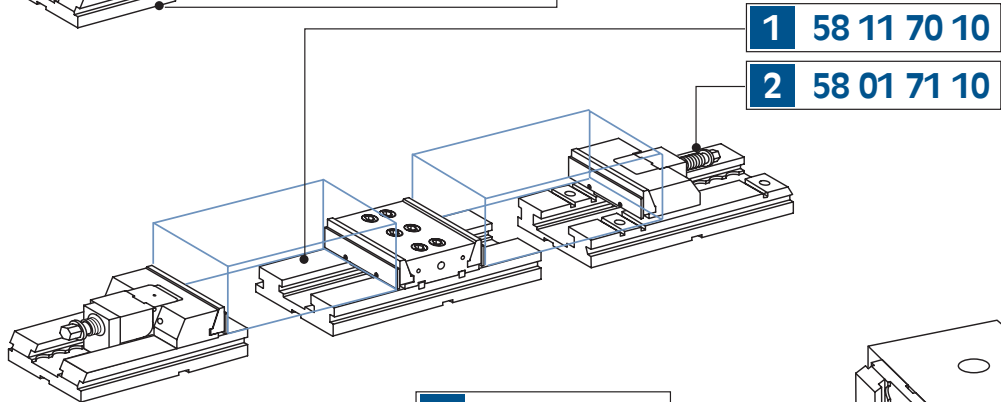
Examples:

Number of pieces
Code number

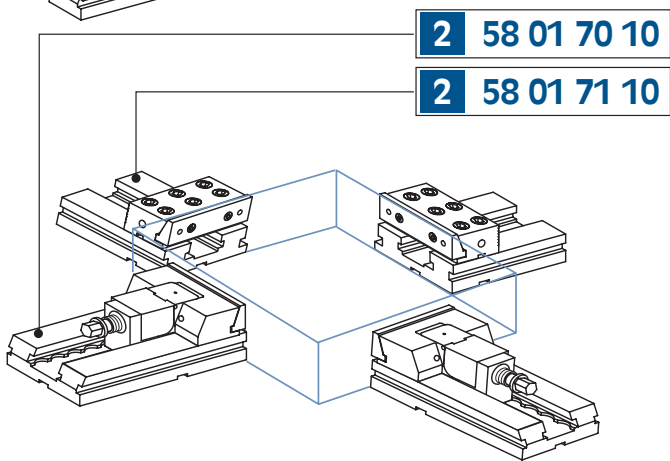
1 58 01 70 10



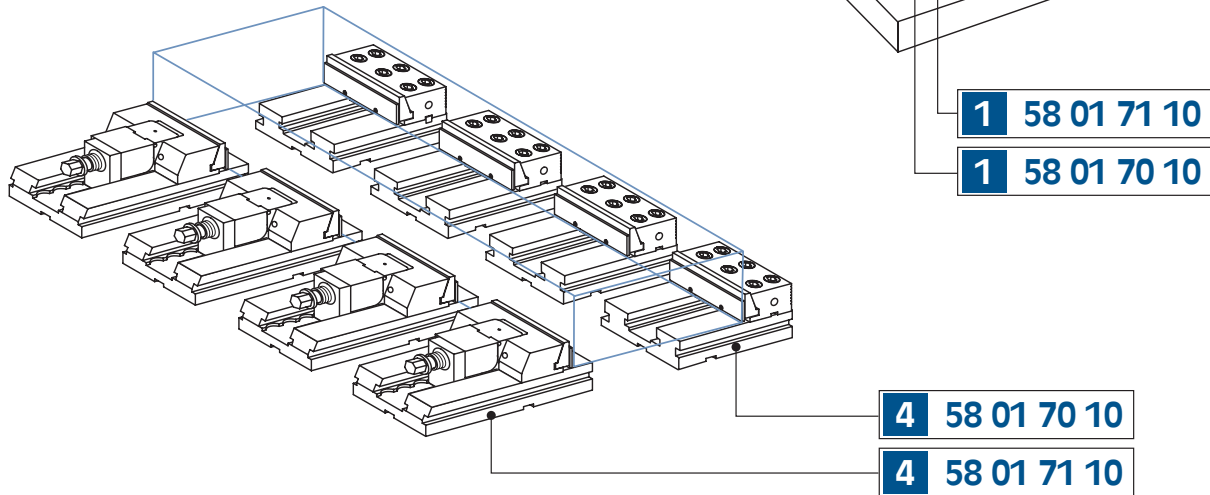
- 1 58 01 70 10
- 1 58 01 71 10



- 1 58 11 70 10
- 2 58 01 71 10



- 2 58 01 70 10
- 2 58 01 71 10



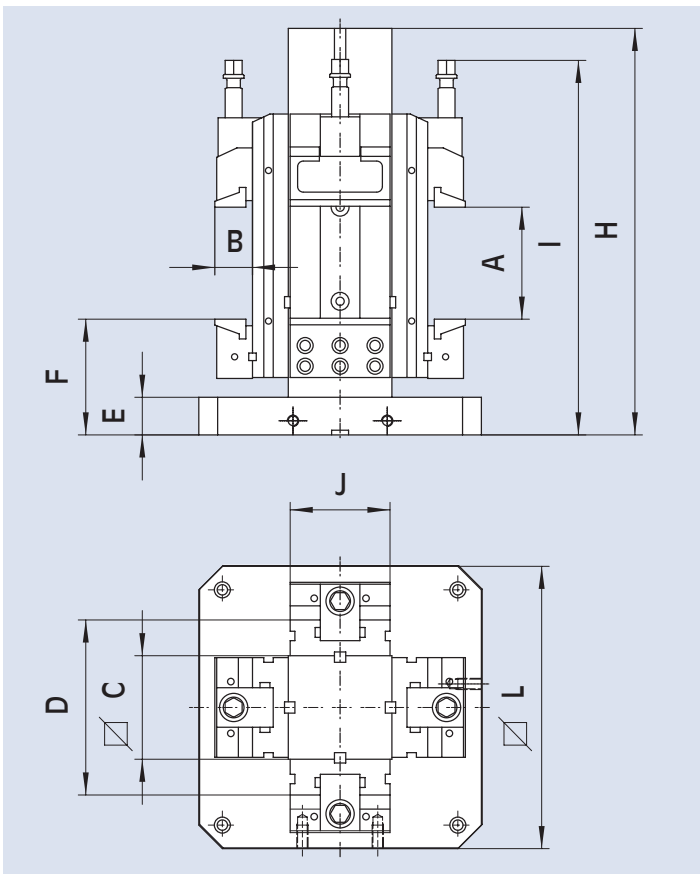
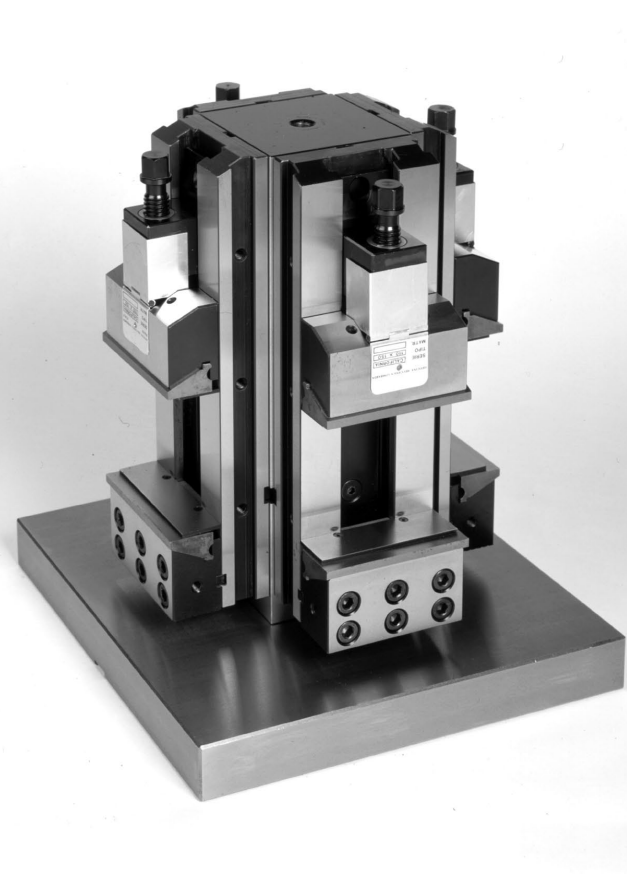
- 1 58 01 71 10
- 1 58 01 70 10

- 4 58 01 70 10
- 4 58 01 71 10

MVS-TCt modular vertical clamping systems

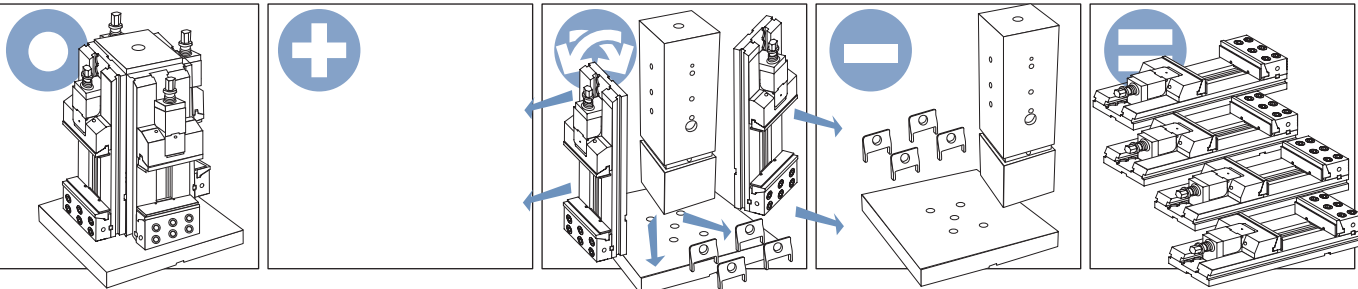
Vertical clamping system complete with:
4 clamping equipment TCt
1 column
1 base for vertical system TCt
4 pair of CLAK parallels
4 covers for protection of the screws
4 rigid slide-ways

4 floating slide-ways (for raw workpieces)
4 work stops
4 wrenches
eye bolt for lifting,
wooden packing case



Cod.	for type	A mm	B mm	C mm	D mm	E mm	F mm	H mm	I mm	J mm	L mm	Weight kg
77 58 21 11	TCt 110 x 100	100	40	110	186	40	123	391	400	110	300	108
77 58 21 12	TCt 110 x 150	150	40	110	186	40	123	391	450	110	300	112
77 58 22 21	TCt 150 x 200	200	50	150	246	40	151	580	550	150	400	255
77 58 22 22	TCt 150 x 250	250	50	150	246	40	151	580	600	150	400	263
77 58 22 23	TCt 150 x 300	300	50	150	246	40	151	580	655	150	400	273
77 58 22 31	TCt 150 x 200	200	50	150	246	40	151	580	550	150	500	282
77 58 22 32	TCt 150 x 250	250	50	150	246	40	151	580	600	150	500	290
77 58 22 33	TCt 150 x 300	300	50	150	246	40	151	580	655	150	500	300
77 58 23 31	TCt 200 x 250	250	70	200	336	40	173	661	700	200	500	565
77 58 23 32	TCt 200 x 300	300	70	200	336	40	173	661	750	200	500	580

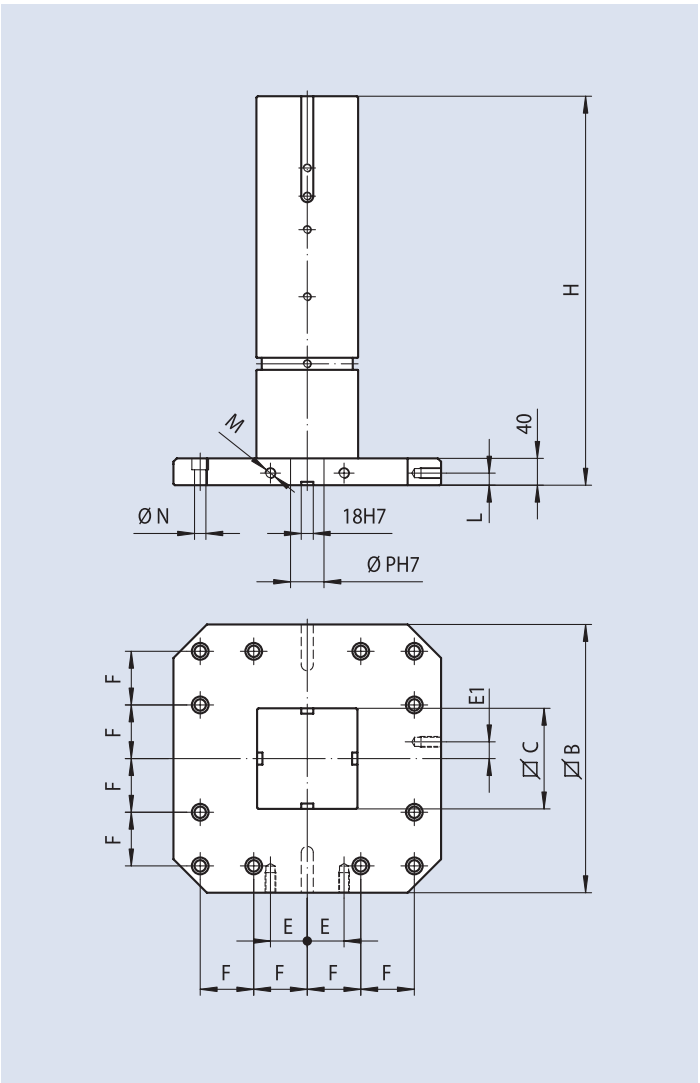
The modularity of the system combined with same other components offers many additional clamping solutions.



modular vertical clamping systems

MVS-TC

2



Cod.	type	B mm	C mm	E mm	E1 mm	F mm	H mm	L mm	M mm	N mm	P mm	Weight kg
58 21 80 10	TC 110	300	110	40	0	125	391	15	12	13	25	57
58 22 80 20	TC 150	400	150	55	25	80	580	18	16	17	50	142
58 22 80 30	TC 150	500	150	75	25	100	580	18	16	17	50	169
58 23 80 30	TC 200	500	200	75	25	100	661	18	16	17	50	266

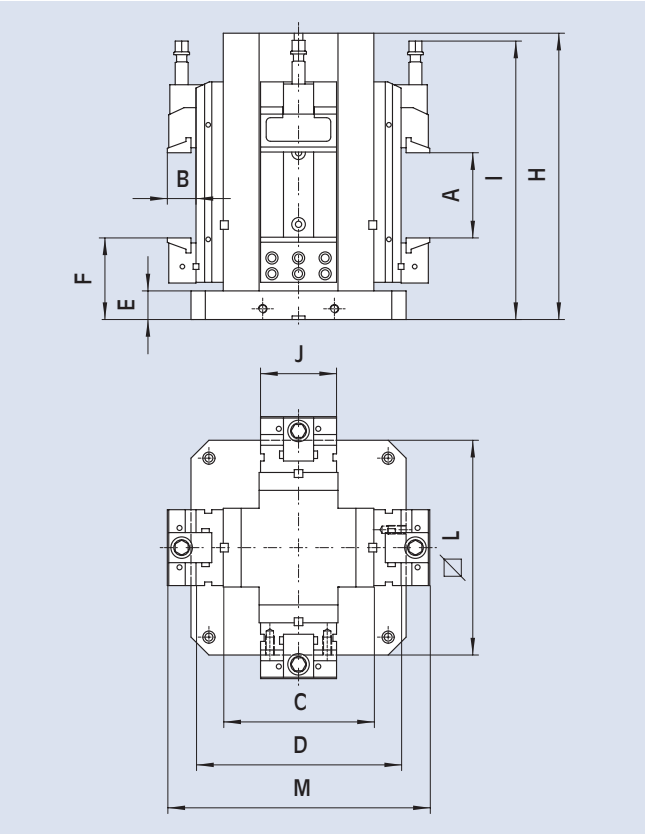
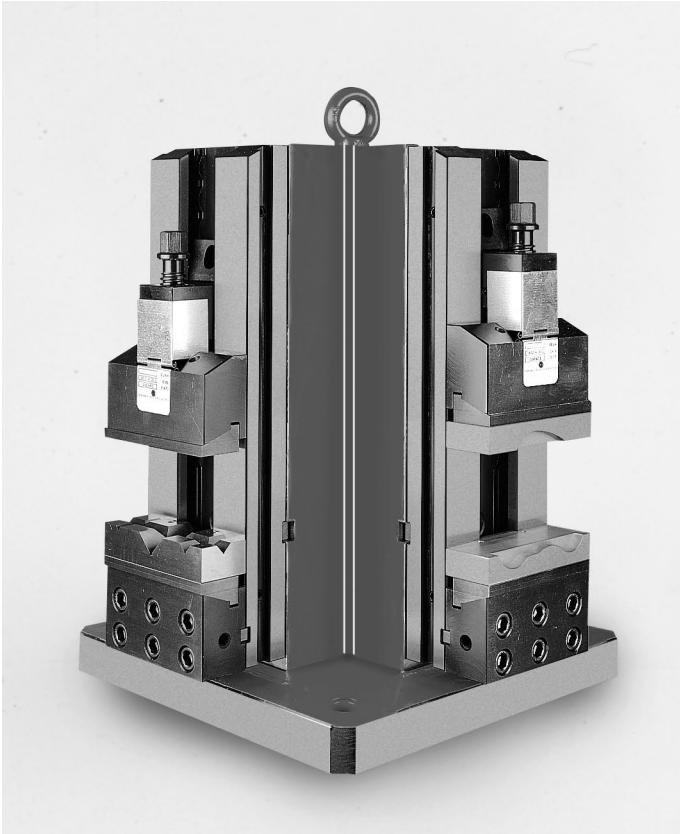
Insert for vertical use



Cod.	for type
58 21 33 00	TC 110 x ...
58 22 33 00	TC 150 x ...
58 23 33 00	TC 200 x ...

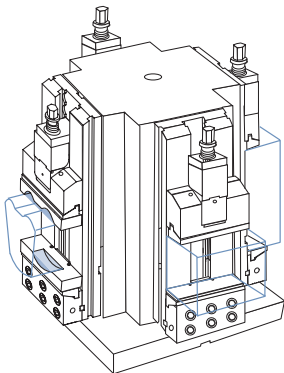
Vertical clamping system complete with:
4 clamping equipment TCt
1 cross cube
4 pair of CLAK parallels
4 covers for protection of the screws
4 rigid slide-ways

4 floating slide-ways (for raw workpieces)
4 work stops
4 wrenches
eye bolt for lifting
wooden packing case



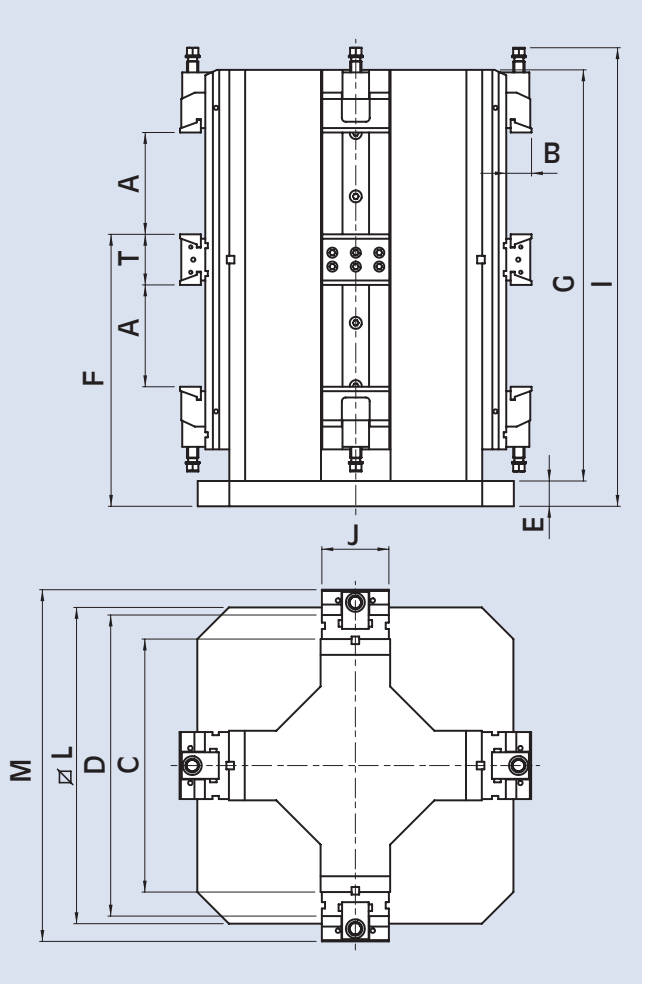
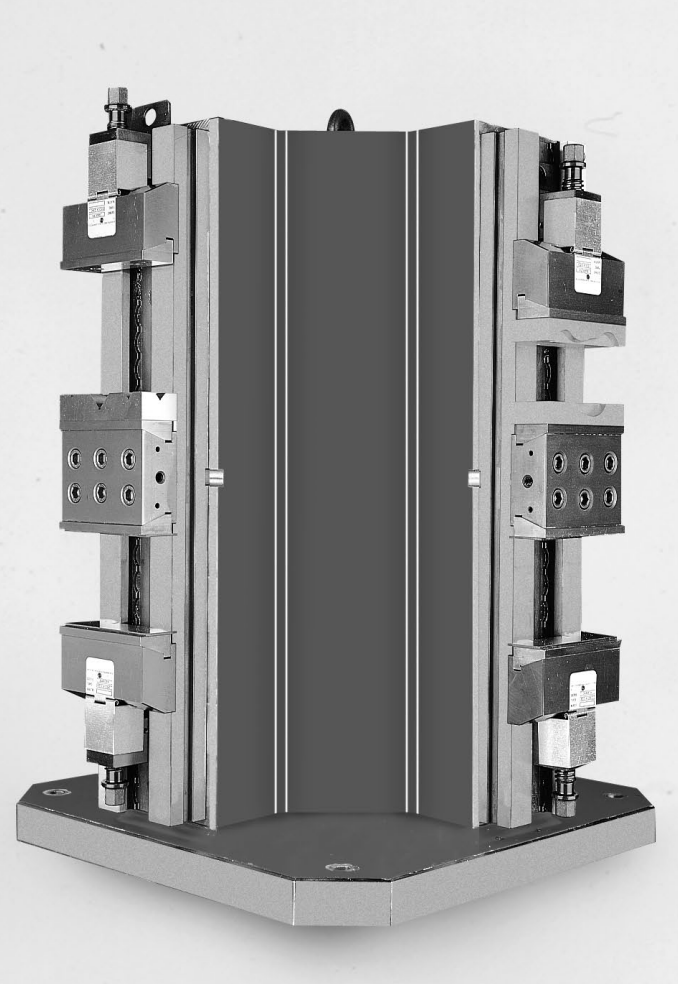
Cod.	for type	A mm	B mm	C mm	D mm	E mm	F mm	H mm	I mm	J mm	L mm	M mm	Weight kg
77 58 51 11	TCt 110 x 100	100	40	210	286	40	114	382	390	110	300	366	121
77 58 51 12	TCt 110 x 150	150	40	210	286	40	114	382	440	110	300	366	125
77 58 52 21	TCt 150 x 200	200	50	300	396	40	145	580	545	150	400	496	320
77 58 52 22	TCt 150 x 250	250	50	300	396	40	145	580	595	150	400	496	328
77 58 52 23	TCt 150 x 300	300	50	300	396	40	145	580	652	150	400	496	338
77 58 52 31	TCt 150 x 200	200	50	300	396	40	145	580	545	150	500	496	348
77 58 52 32	TCt 150 x 250	250	50	300	396	40	145	580	595	150	500	496	356
77 58 52 33	TCt 150 x 300	300	50	300	396	40	145	580	652	150	500	496	366
77 58 53 31	TCt 200 x 250	250	70	350	486	40	182	670	710	200	630	626	601
77 58 53 42	TCt 200 x 300	300	70	350	486	45	182	670	760	200	630	626	675

Working examples:

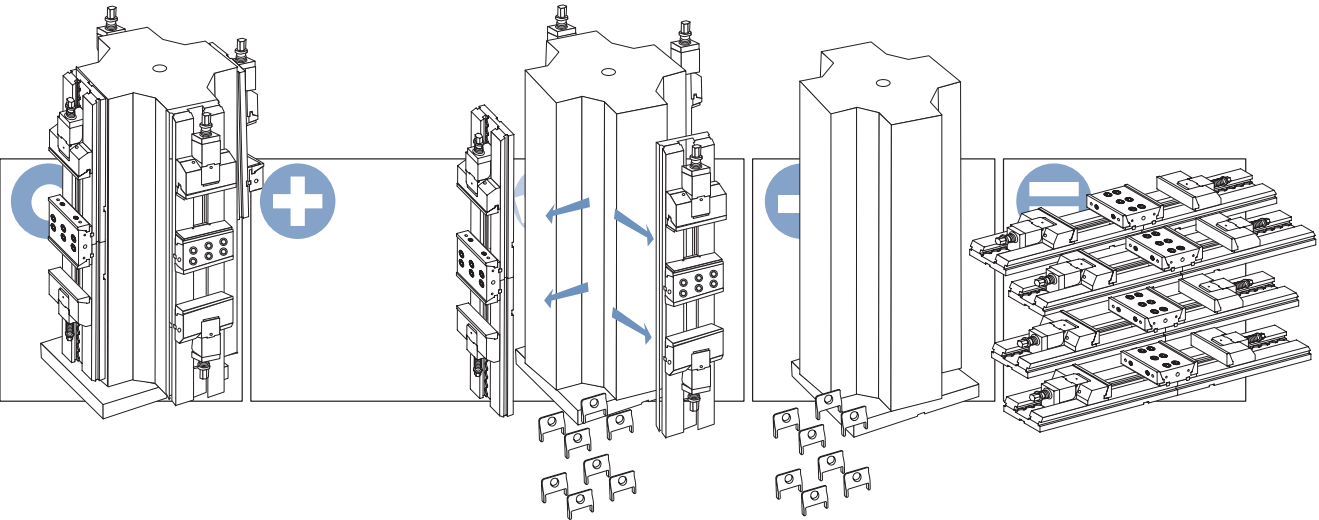


Vertical clamping system complete with:
4 double clamping equipment TCt
1 cross cube XL
8 pair of CLAK parallels
8 covers for protection of the screws
8 rigid slide-ways

8 floating slide-ways (for raw workpieces)
8 work stops
8 wrenches
8 inserts for vertical use
eye bolt for lifting
wooden packing case

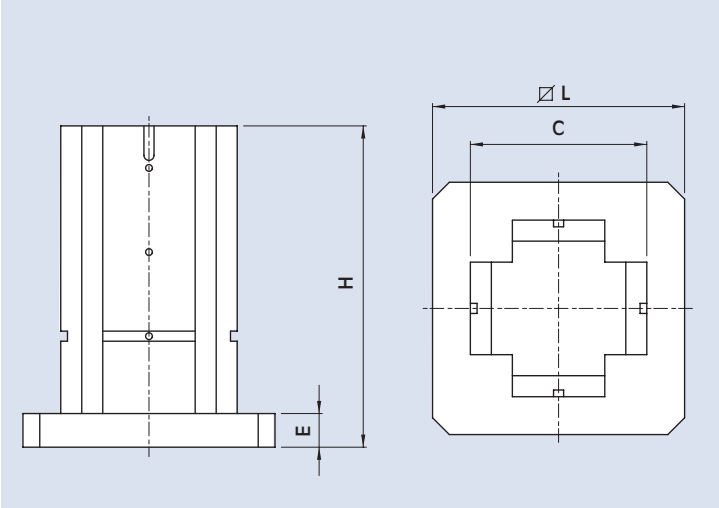


Cod.	for type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	I mm	J mm	L mm	M mm	T mm	Weight kg
77 58 61 01	DVCS-TCt 110 x 155	155	40	400	476	40	430	650	725	110	500	556	80	352
77 58 62 01	DVCS-TCt 150 x 195	195	50	550	646	45	515	795	890	150	630	746	108	647





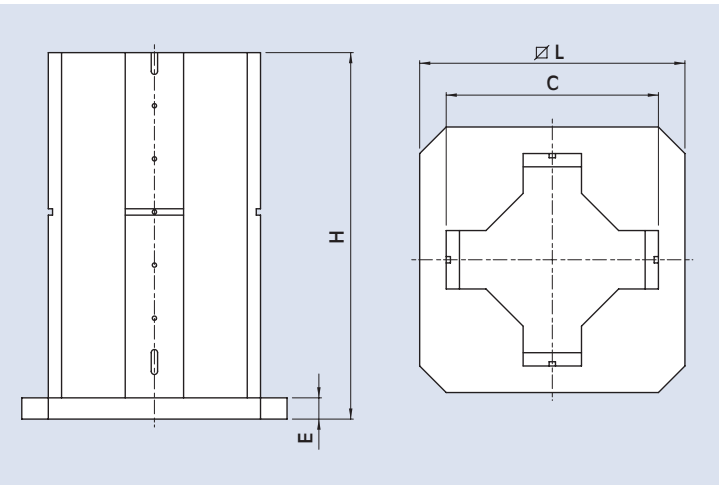
Cross cube for VCS-Tct



Cod.	for type	C mm	E mm	H mm	L mm	Weight kg
58 51 80 10	Tct 110	210	40	382	300	75
58 52 80 20	Tct 150	300	40	580	400	212
58 52 80 30	Tct 150	300	40	580	500	240
58 53 80 30	Tct 200	350	40	670	500	305
58 53 80 40	Tct 200	350	45	670	630	363



Cross cube for DVCS-Tct



Cod.	for type	C mm	E mm	H mm	L mm	Weight kg
58 61 80 00	DVCS-Tct 110 x ...	400	40	690	500	266
58 62 80 00	DVCS-Tct 150 x ...	550	45	840	630	458



Insert for vertical use

cod.	for type
58 21 33 00	VCS-Tct 110 x ...
58 22 33 00	VCS-Tct 150 x ...
58 23 33 00	VCS-Tct 200 x ...



Pair of grooved jaws

Cod.	type
58 01 44 09	TC 110 x ...
58 02 44 09	TC 150 x ...
58 03 44 09	TC 200 x ...



Insert for vertical use

(MVS,VCS,DVCS)

Cod.	for type
58 21 33 00	TC 110 x ...
58 22 33 00	TC 150 x ...
58 23 33 00	TC 200 x ...



Torque wrench

cod.	type
51 50 10 01	TC 110 x ...
51 50 10 02	TC 150 x ...
51 50 10 03	TC 200 x ...



Air/oil block
complete with cylinder and tang

Cod.	for type	
58 01 75 00	TC 110 x ...	
58 02 75 00	TC 150 x ...	
58 03 75 00	TC 200 x ...	



Air/oil foot pump
with joining pipe cm 180 (71") and complete block for air/oil application.

Cod.	for type	
77 58 01 51	TC 110 x ...	
77 58 02 51	TC 150 x ...	
77 58 03 51	TC 200 x ...	



Air/oil foot pump

Cod.	for type	
71 66 03 05	TC 110 x ...	
71 66 03 05	TC 150 x ...	
71 66 03 05	TC 200 x ...	



Air/oil manual pump

Cod.	for type	
71 66 03 15	TC 110 x ...	
71 66 03 15	TC 150 x ...	
71 66 03 15	TC 200 x ...	



Pressure-gauge

Codice-Nr.	Modello	
51 43 12 51	TC 110 x ...	
51 43 12 51	TC 150 x ...	
51 43 12 51	TC 200 x ...	



Joining pipe M. 1,80 (71")

Cod.	type	
71 70 87 13	TC 110 x ...	
71 70 87 13	TC 150 x ...	
71 70 87 13	TC 200 x ...	



Joining pipe M. 3 (118")

cod.	for type	
71 70 87 14	TC - 110	
71 70 87 14	TC - 150	
71 70 87 14	TC - 200	

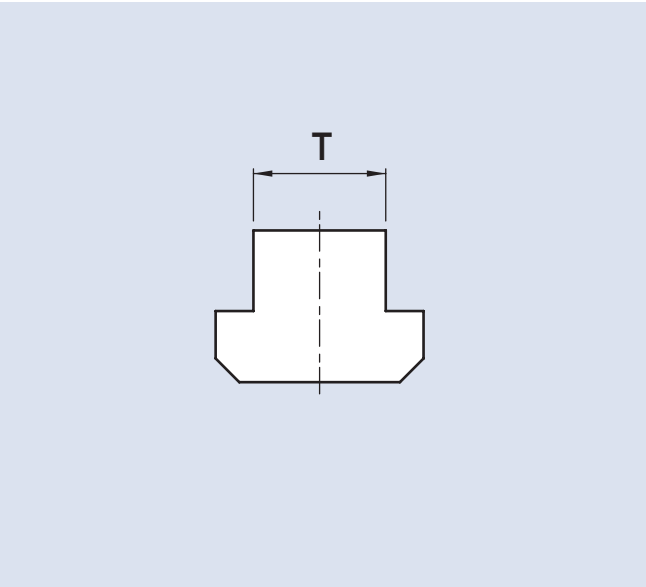


Joining pipe M. 6 (236")

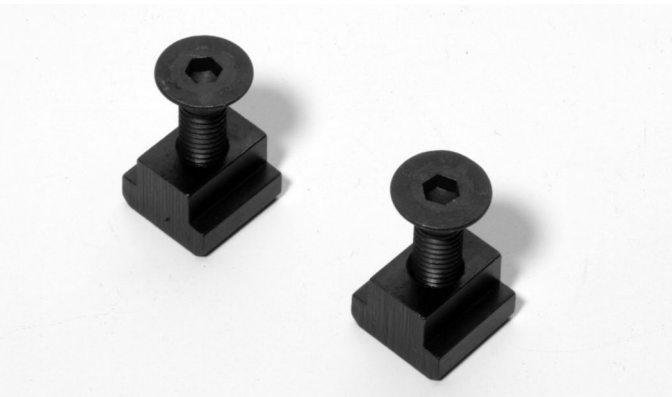
Cod.	type	
71 70 87 15	TC 110 x ...	
71 70 87 15	TC 150 x ...	
71 70 87 15	TC 200 x ...	



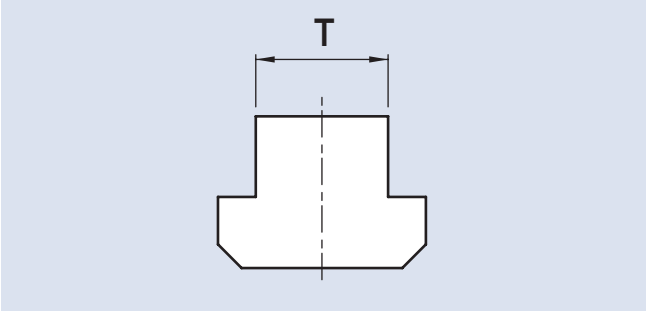
Pair of clamps
complete with screws and T nuts



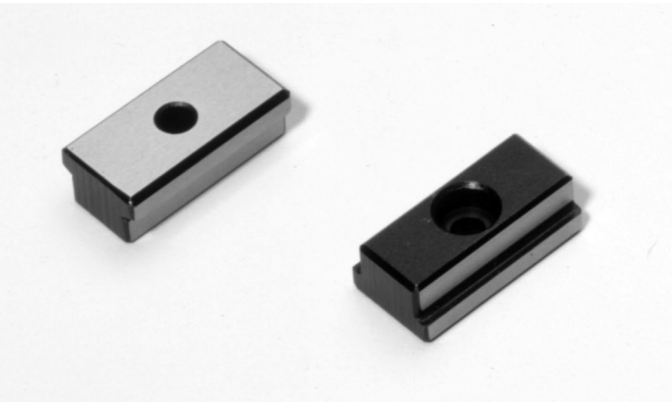
Code for T-slots						for type
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22	
58 01 27 92	58 01 27 93	58 01 27 94	58 01 27 95	58 01 27 96	58 01 27 97	TCt 110 x ...
58 02 27 92	58 02 27 93	58 02 27 94	58 02 27 95	58 02 27 96	58 02 27 97	TCt 150 x ...
58 03 27 92	58 03 27 93	58 03 27 94	58 03 27 95	58 03 27 96	58 03 27 97	TCt 200 x ...



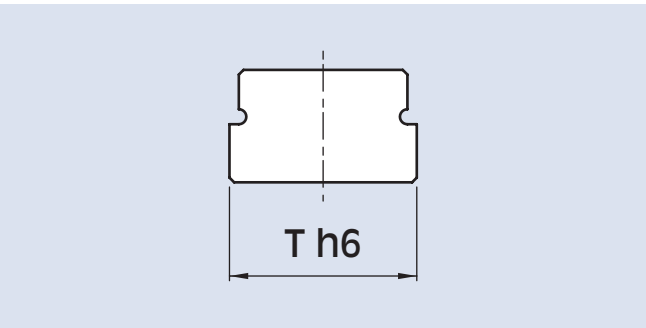
Pair of T nuts
Complete with screws at 45°



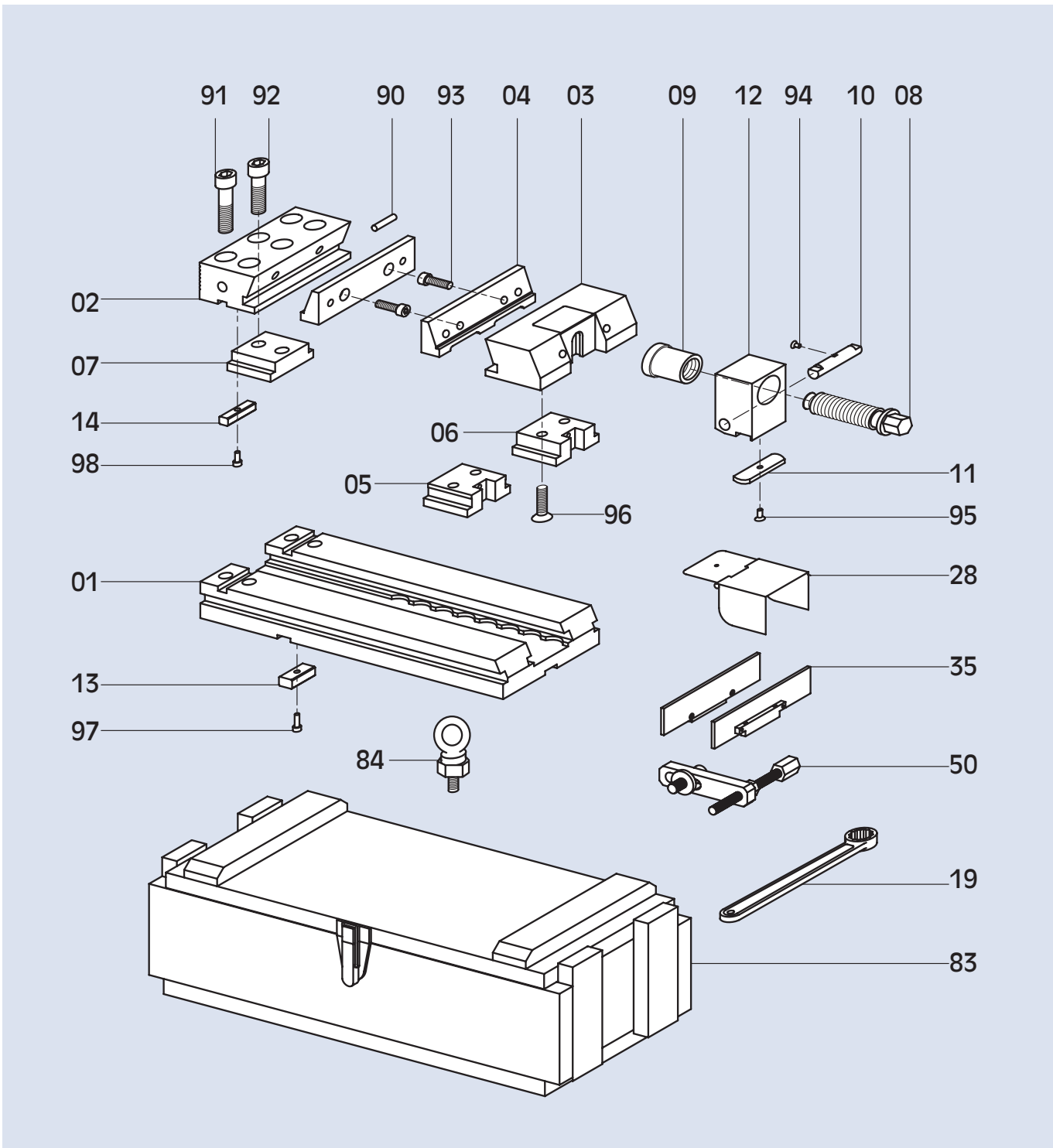
Code for T-slots						for type
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22	
58 01 25 92	58 01 25 93	58 01 25 94	58 01 25 95	58 01 25 96	58 01 25 97	TCt 110 x ...
58 02 25 92	58 02 25 93	58 02 25 94	58 02 25 95	58 02 25 96	58 02 25 97	TCt 150 x ...
58 03 25 92	58 03 25 93	58 03 25 94	58 03 25 95	58 03 25 96	58 03 25 97	TCt 200 x ...



Pair of positioning keys
with special dimensions



Code for T-slots						for type
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22	
-	58 01 13 93	58 01 13 94	58 01 13 95	58 01 13 96	58 01 13 97	TCt 110 x ...
58 02 13 92	58 02 13 93	58 02 13 94	-	58 02 13 96	58 02 13 97	TCt 150 x ...
58 02 13 92	58 02 13 93	58 02 13 94	-	58 02 13 96	58 02 13 97	TCt 200 x ...



Description		
01.....Base	12.....Block for clamping screw	91.....Screw TCEI
02.....Fixed support	13.....Positioning key	92.....Screw TCEI
03.....Moveable support	14.....Key for support	93.....Screw TCEI
04.....Jaw	19.....Wrench	94.....Screw TPS
05.....Floating slide-way	28.....Cover for protection	95.....Screw TPS
06.....Rigid slide-way	of the screw	96.....Screw TPS
07.....Fixed slide-way	35.....Pair of CLAK parallels	97.....Screw TCEI
08.....Clamping screws	50.....Work stop	98.....Screw TCEI
09.....Bronze bushing	83.....Wooden packing case	
10.....Contrast pin	84.....Eye bolt	
11.....Positioning plate	90.....Rubber pad	



Pair of smooth jaws

Cod.	for type
58 01 04 09	TC 110 x ...
58 02 04 09	TC 150 x ...
58 03 04 09	TC 200 x ...



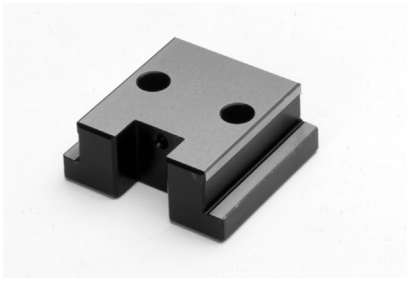
Fixed support with jaw

Cod.	for type
58 01 72 10	TC 110 x ...
58 02 72 10	TC 150 x ...
58 03 72 10	TC 200 x ...



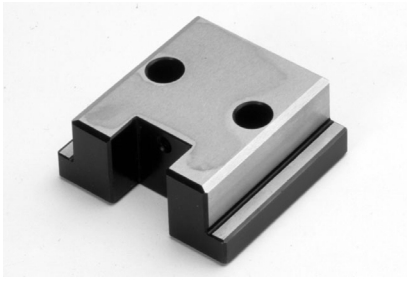
Moveable support with jaw

Cod.	for type
58 01 73 10	TC 110 x ...
58 02 73 10	TC 150 x ...
58 03 73 10	TC 200 x ...



Floating slide-way

Cod.	for type
58 01 05 00	TC 110 x ...
58 02 05 00	TC 150 x ...
58 03 05 00	TC 200 x ...



Rigid slide-way

Cod.	for type
58 01 06 00	TC 110 x ...
58 02 06 00	TC 150 x ...
58 03 06 00	TC 200 x ...



Fixed slide-way

Cod.	for type
58 01 07 00	TC 110 x ...
58 02 07 00	TC 150 x ...



Pair of keys for fixed support

Cod.	for type
58 01 14 09	TC 110 x ...
58 02 14 09	TC 150 x ...
58 03 14 09	TC 200 x ...



Wrench

Cod.	for type
58 01 19 00	TC 110 x ...
58 02 19 00	TC 150 x ...
58 03 19 00	TC 200 x ...



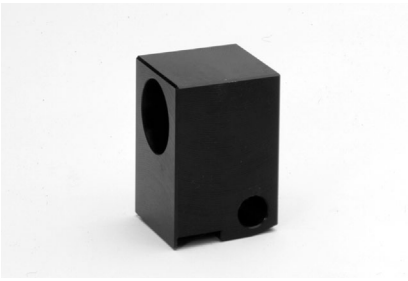
Complete clamping block (old type)

Cod.	for type
58 01 74 10	TC 110 x ...
58 02 74 10	TC 150 x ...
58 03 74 10	TC 200 x ...



Complete clamping block (new type)

Cod.	for type
58 01 74 11	TC 110 x ...
58 02 74 11	TC 150 x ...
58 03 74 11	TC 200 x ...



Block for clamping screw (old type)

Cod.	for type
58 01 12 10	TC 110 x ...
58 02 12 10	TC 150 x ...
58 03 12 10	TC 200 x ...



Block for clamping screw (new type)

Cod.	for type
58 01 12 12	TC 110 x ...
58 02 12 12	TC 150 x ...
58 03 12 12	TC 200 x ...



Clamping screw (old type)

Cod.	for type	
58 01 08 10	TC 110 x ...	
58 02 08 10	TC 150 x ...	
58 03 08 10	TC 200 x ...	



Clamping screw (new type)

Cod.	for type	
58 01 08 12	TC 110 x ...	
58 02 08 12	TC 150 x ...	
58 03 08 12	TC 200 x ...	



Bronze bushing (old type)

Cod.	for type	
58 01 09 00	TC 110 x ...	
58 02 09 00	TC 150 x ...	
58 03 09 00	TC 200 x ...	



Contrast pin (old type)

Cod.	for type	
58 01 10 00	TC 110 x ...	
58 02 10 00	TC 150 x ...	
58 03 10 00	TC 200 x ...	



Contrast pin (new type)

Cod.	for type	
58 01 10 01	TC 110 x ...	
58 02 10 01	TC 150 x ...	
58 03 10 01	TC 200 x ...	



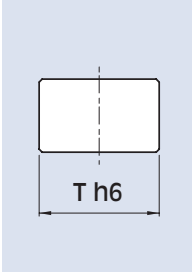
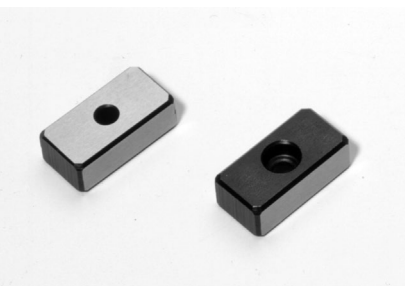
Positioning plate (old type)

Cod.	for type	
58 01 11 10	TC 110 x ...	
58 02 11 10	TC 150 x ...	
58 03 11 10	TC 200 x ...	



Positioning plate (new type)

Cod.	for type	
58 01 11 11	TC 110 x ...	
58 02 11 11	TC 150 x ...	
58 03 11 11	TC 200 x ...	



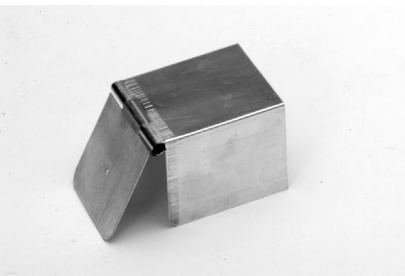
Pair of standard positioning keys

Cod.	for type	T h6 mm
58 01 13 92	TCt - 110	12
58 02 13 95	TCt - 150	18
58 02 13 95	TCt - 200	18



Work stop

Cod.	for type	
58 01 50 00	TC 110 x ...	
58 02 50 00	TC 150 x ...	
58 03 50 00	TC 200 x ...	



Cover for protection of the screw

Cod.	for type	
58 01 28 10	TC 110 x ...	
58 02 28 10	TC 150 x ...	
58 03 28 10	TC 200 x ...	



Block for cylinder

Cod.	for type	
58 01 12 20	TC 110 x ...	
58 02 12 20	TC 150 x ...	
58 03 12 20	TC 200 x ...	



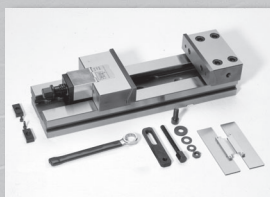
Tang for cylinder

Cod.	for type	
58 01 16 00	TC 110 x ...	
58 02 16 00	TC 150 x ...	
58 03 16 00	TC 200 x ...	

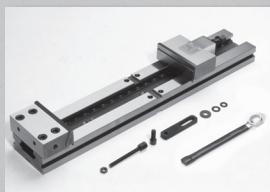


Can of oil

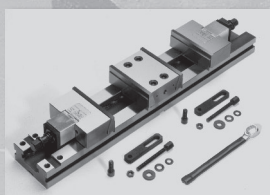
Cod.	for type	
10 72 99 40	TC 110 x ...	
10 72 99 40	TC 150 x ...	
10 72 99 40	TC 200 x ...	



MC
pag. 3.1. 3



MC-XL
pag. 3.1. 4



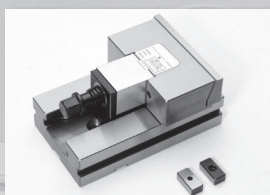
DCS-MC
pag. 3.1. 5



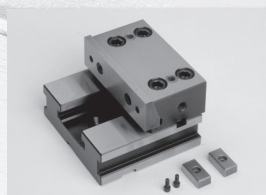
Extension element MC
pag. .1. 6



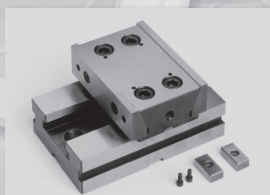
Double support with jaws MC
pag. 3.1. 6



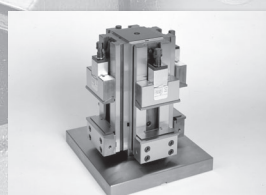
Complete extension element MC
pag. 3.1. 6



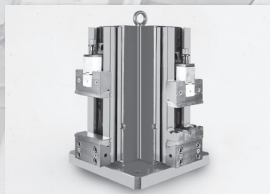
Base with fixed support with jaws MC
pag. 3.1. 7



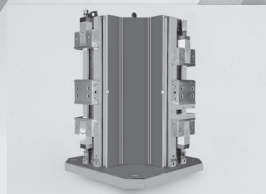
Base with double support with jaws MC
pag. 3.1. 7



MVS-MC
pag. 3.1. 8



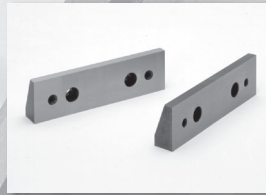
VCS-MC
pag. 3.1. 10



DVCS-MC
pag. 3.1.11



Accessories MC
pag. 3.1. 13



Spare parts MC
pag. 3.1. 17

Modular

We use the true definition of the term modular; product which is composed of separate or separable elements. With these separate or separable elements we can achieve many different clamping solutions. The only different component of these clamping solutions is the base. The base length determines the clamping capacity while all other components remain the same. Fixed and movable vise jaws can be used with any base configuration, offering the most flexible workholding solutions available. This modular system allows the user to realize the maximum number of workholding combinations with the minimum investment in equipment.

Durability

All components are constructed from oversize steel profiles ensuring the equipment is exceptionally sturdy and can provide the user with optimal performance. Wear parts are special treated to achieve a surface hardness of 50/60 HRC. All non-ground surfaces are burnished to protect against corrosion.

Quick-change

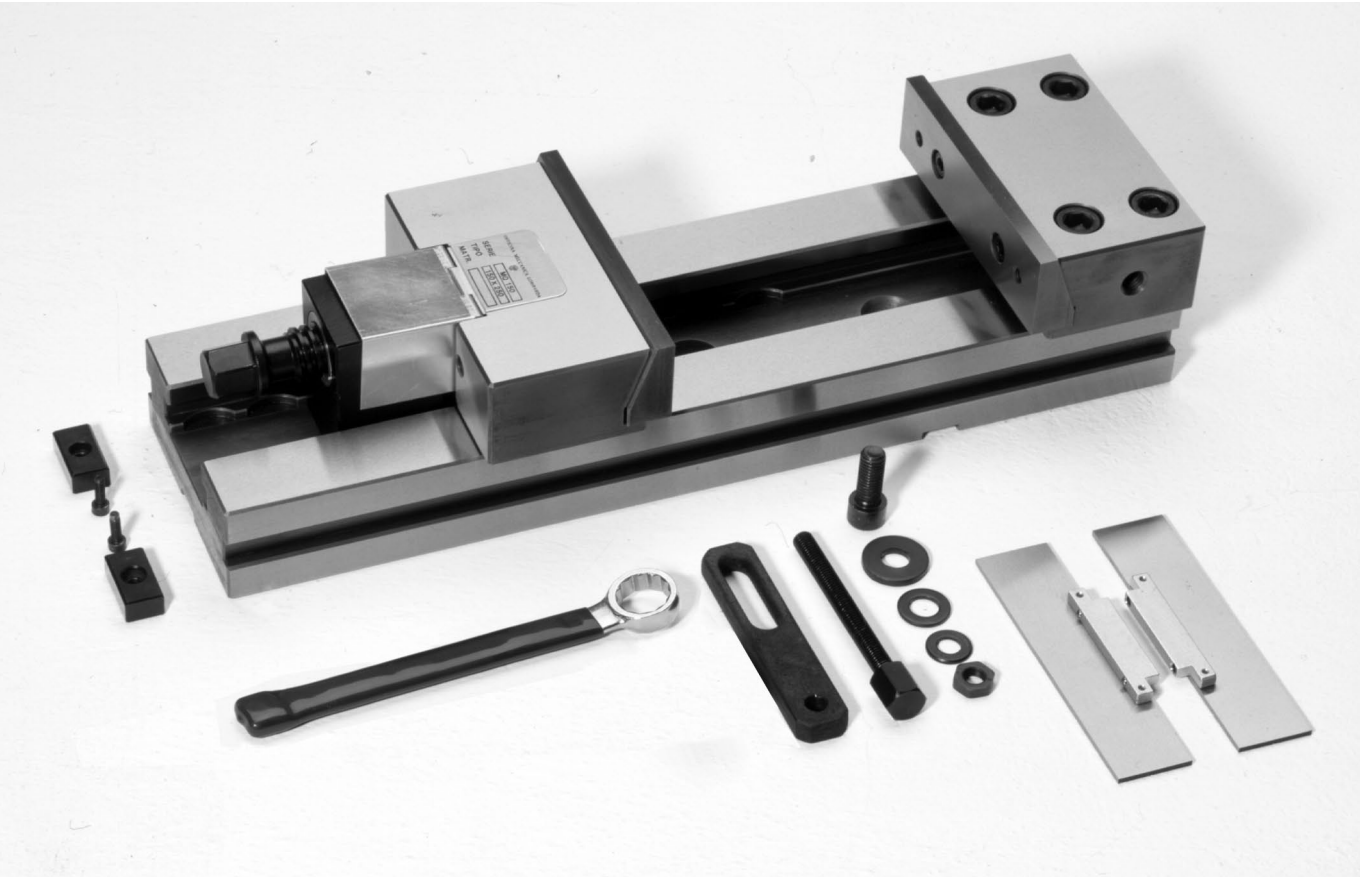
A patented system allows quick repositioning of the clamping jaws . The clamping jaw is lifted slightly from the base and shuttled to the next clamping position then lowered into place. Part changeovers and size changes can be made quickly and easily.

Versatility

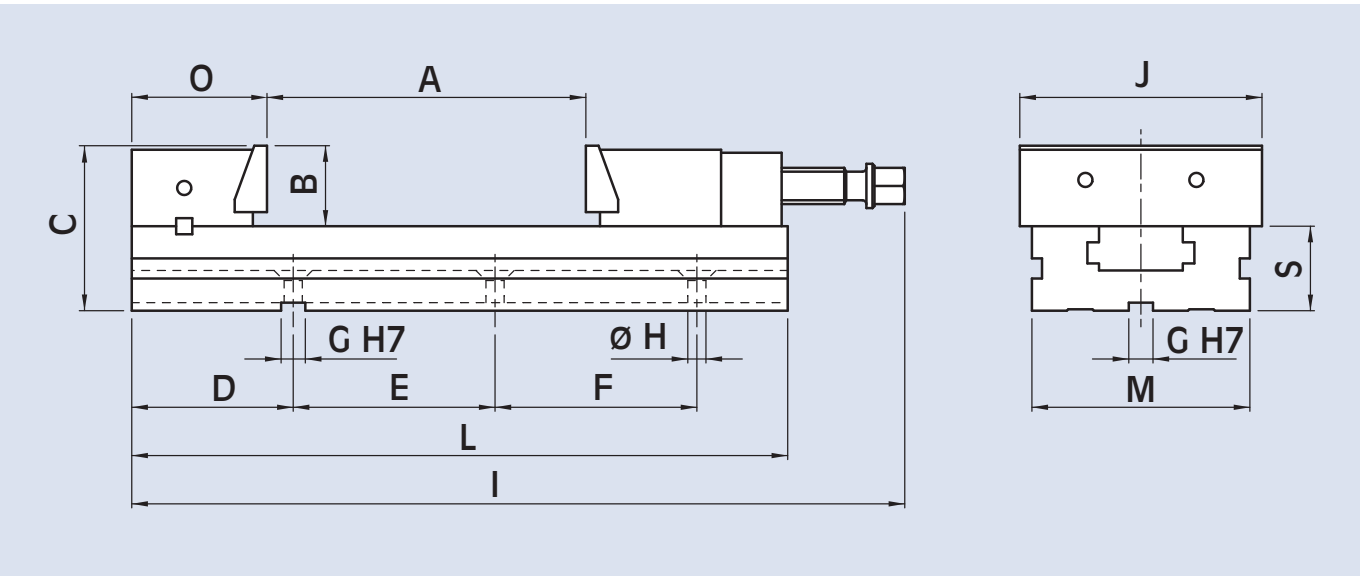
The standard CLAK system allows the quick-change of parallels, angular parallels, soft jaws and "V "jaws in order to machine any workpiece.

Manageable

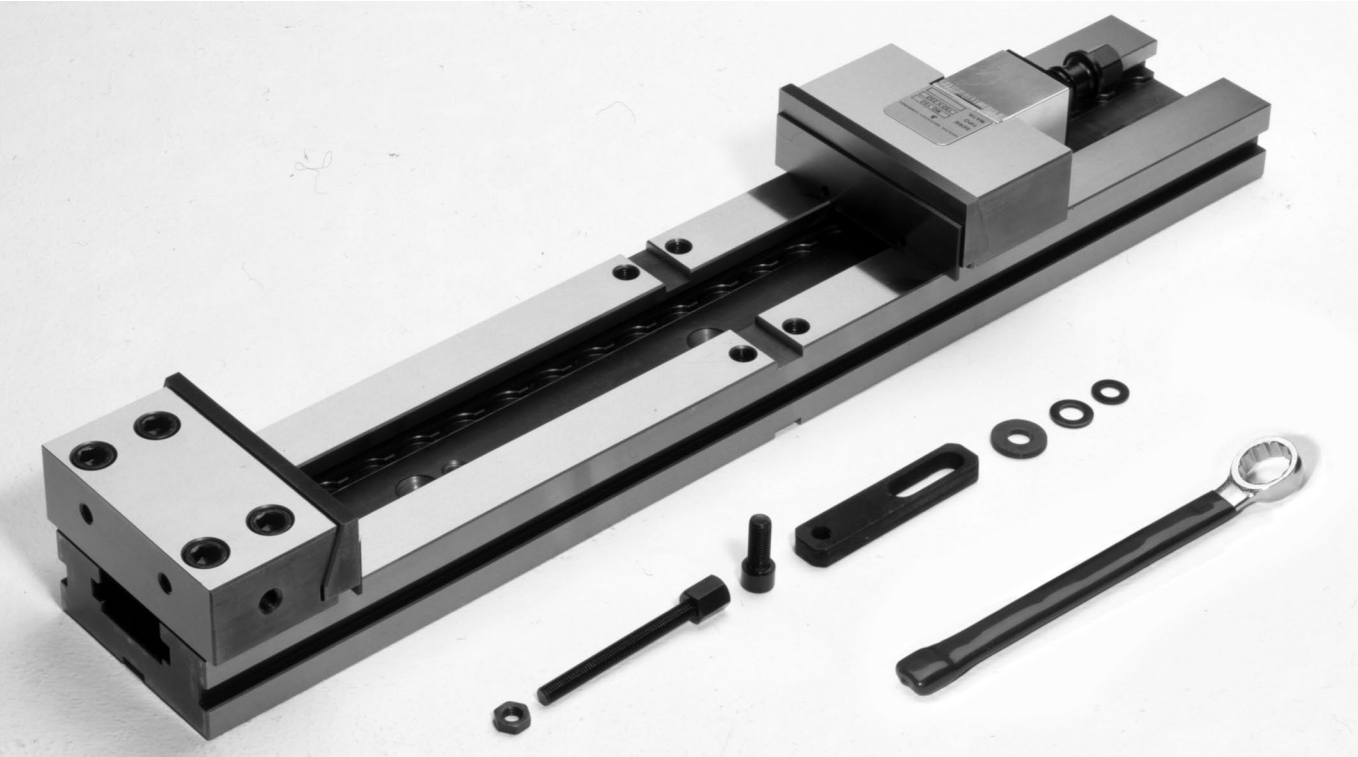
The weight of 25 kg (55 lb.) for the 150 mm. x 200 mm. (6"x 8") vise and simple clamping system allow for easy movement from one machine tool to another.



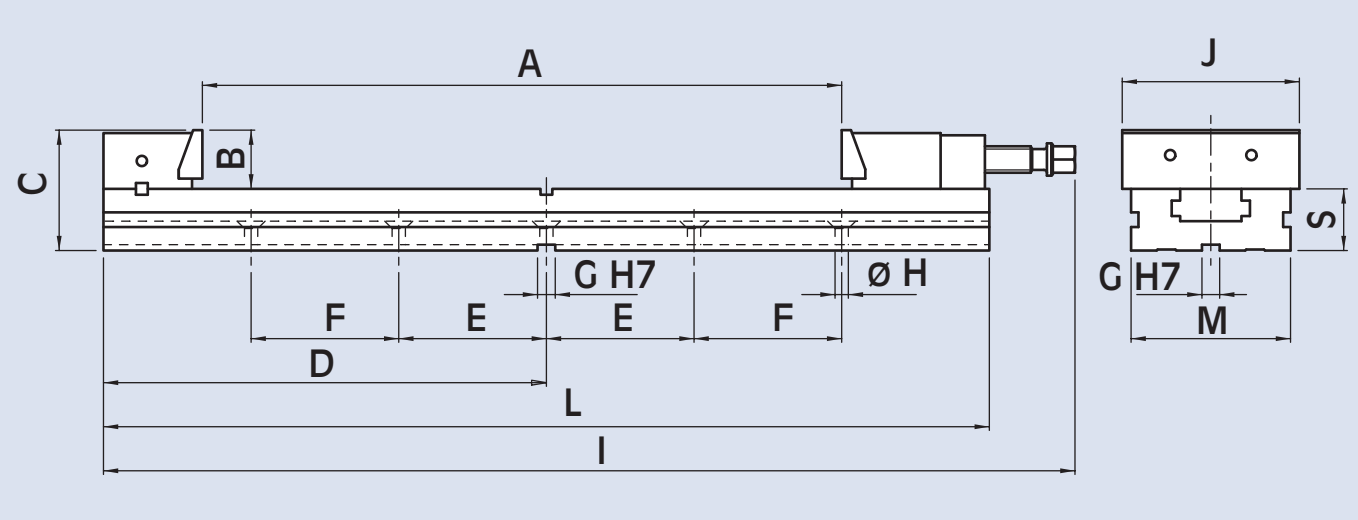
Clamping equipment MC complete with wrench , work stop, rigid slide way (floating slide-way at request for raw workpiece), pair of positioning keys, pair of CLAK parallels, cover for protection of the screw, cardboard box.



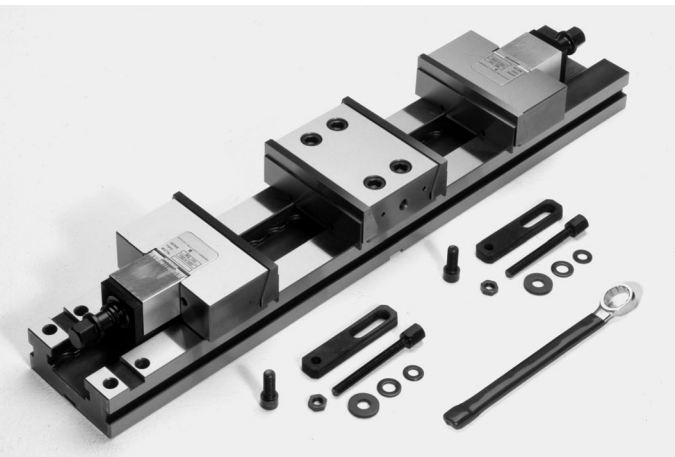
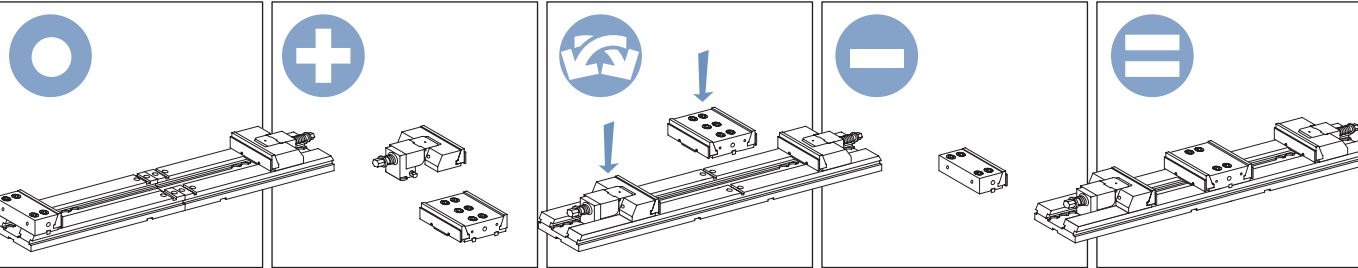
Cod.	type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	L mm	M mm	O mm	S mm	weight kg
77 58 06 01	MC 150 x 200	200	50	102	120	200	-	18	12,5	482	150	415	128	85	52	25,5
77 58 06 02	MC 150 x 250	250	50	102	120	100	100	18	12,5	532	150	465	128	85	52	27,5
77 58 06 03	MC 150 x 300	300	50	102	120	100	100	18	12,5	587	150	520	128	85	52	30,4
77 58 07 01	MC 200 x 300	300	70	136	150	150	150	18	12,5	656	200	570	168	109	66	66
77 58 07 02	MC 200 x 400	400	70	136	150	200	200	18	12,5	756	200	670	168	109	66	68



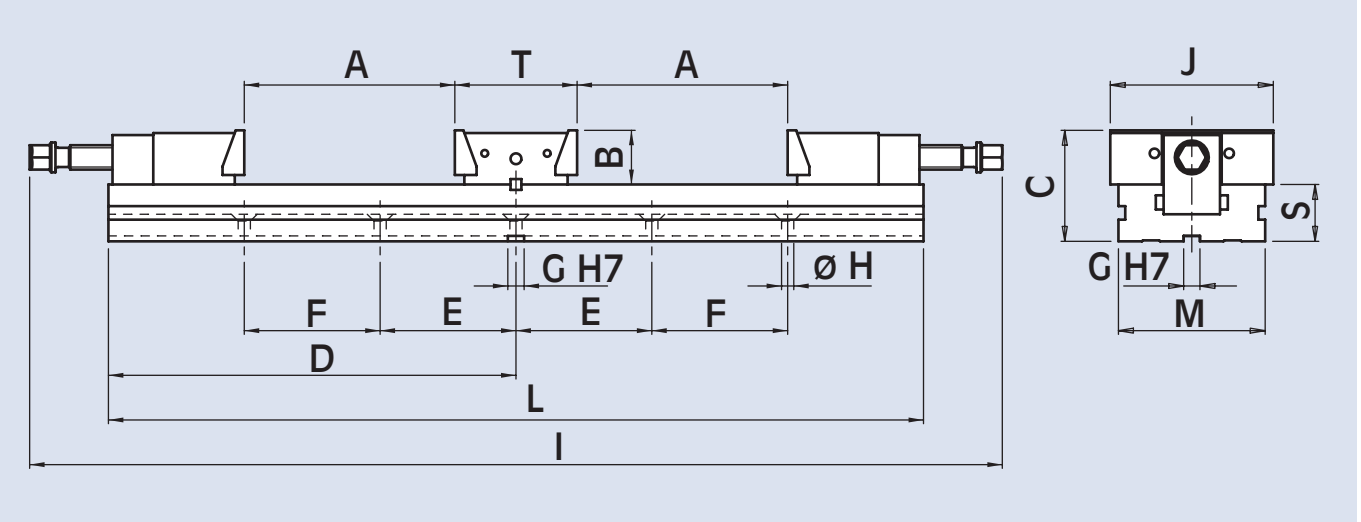
Clamping equipment MC-XL complete with wrench, work stop, rigid slide-way, (floating slide-way at request for raw workpiece), pair of positioning keys, pair of CLAK parallels, cover for protection of the screw, cardboard box.



Cod.	for type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	L mm	M mm	S mm	Weight kg
77 58 06 04	MC 150 x 545	545	50	102	379	100	150	18	12,5	828	150	758	128	52	37
77 58 06 05	MC 150 x 655	655	50	102	439	100	200	18	12,5	938	150	878	128	52	41

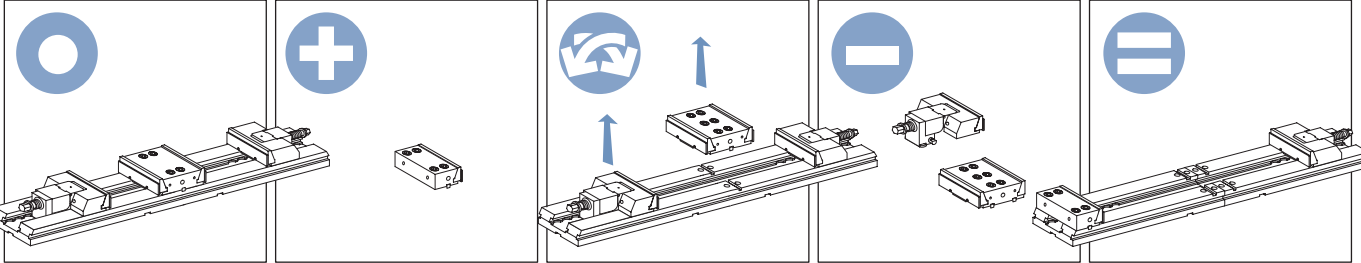


Double clamping equipment DCS-MC complete with:
1 wrench,
2 work stops,
2 rigid slide-ways, (floating slide-way at request for raw workpiece),
1 pair of positioning keys,
2 pair of CLAK parallels,
2 covers for protection of the screw,
cardboard box.

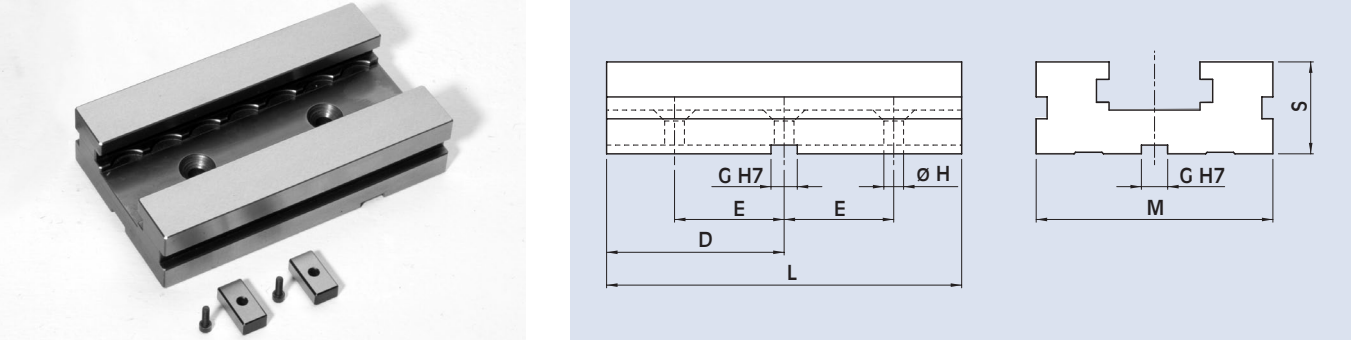


Cod.	for type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	L mm	M mm	S mm	T mm	Weight kg
77 58 16 01	MC 150 x 200	200	50	102	379	100	150	18	12,5	897	150	758	128	52	103	44
77 58 16 02	MC 150 x 250	250	50	102	439	100	200	18	12,5	997	150	878	128	52	103	48

The modularity of the system combined some other component offers many additional clamping solutions.

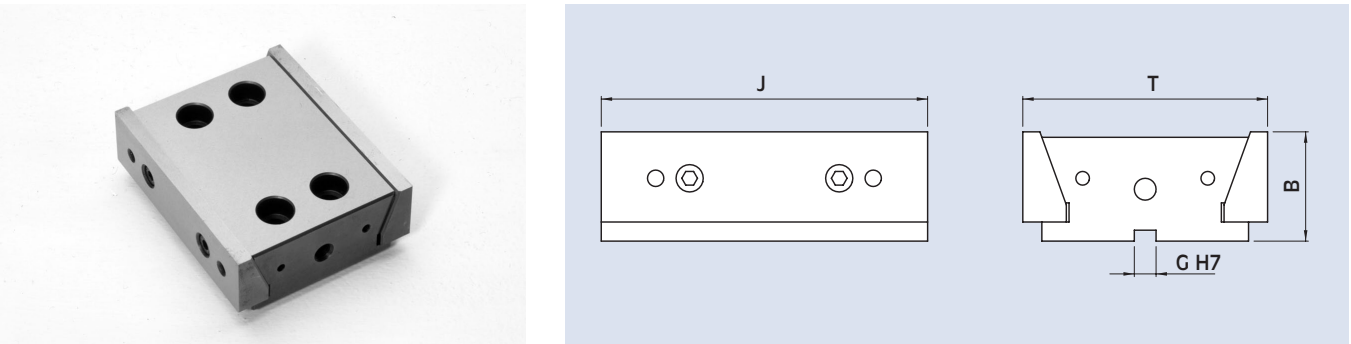


MC extension element with pair of positioning keys



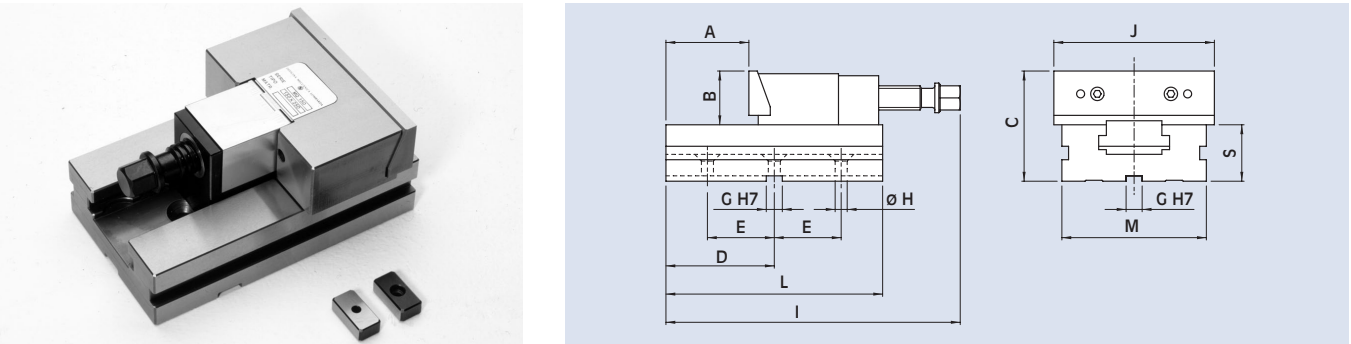
Cod.	for type	D mm	E mm	G mm	H mm	L mm	M mm	S mm	weight kg
58 06 17 00	MC 150 x ...	114	75	18	12,5	228	128	52	8
58 07 17 00	MC 200 x ...	140	100	18	12,5	280	168	66	18

MC double fixed support with jaw



Cod.	for type	B mm	G mm	J mm	T mm	weight kg
58 16 72 10	MC 150 x ...	50	12	150	103	5
58 17 72 10	MC 200 x ...	70	18	200	140	15

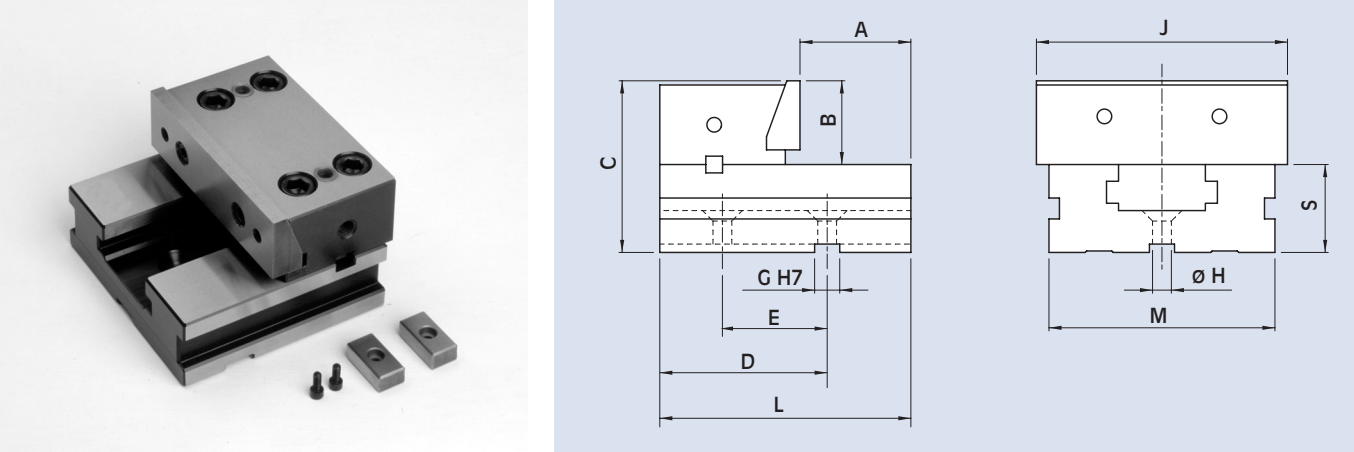
MC complete extension element with pair of positioning keys



Cod.	for type	A mm	B mm	C mm	D mm	E mm	G mm	H mm	I mm	J mm	L mm	M mm	S mm	weight kg
58 06 71 10	MC 150	100	50	102	114	75	18	12,5	295	150	228	128	52	14,5
58 07 71 10	MC 200	120	70	136	140	100	18	12,5	370	200	280	168	66	34,5

MC base with fixed support with jaw

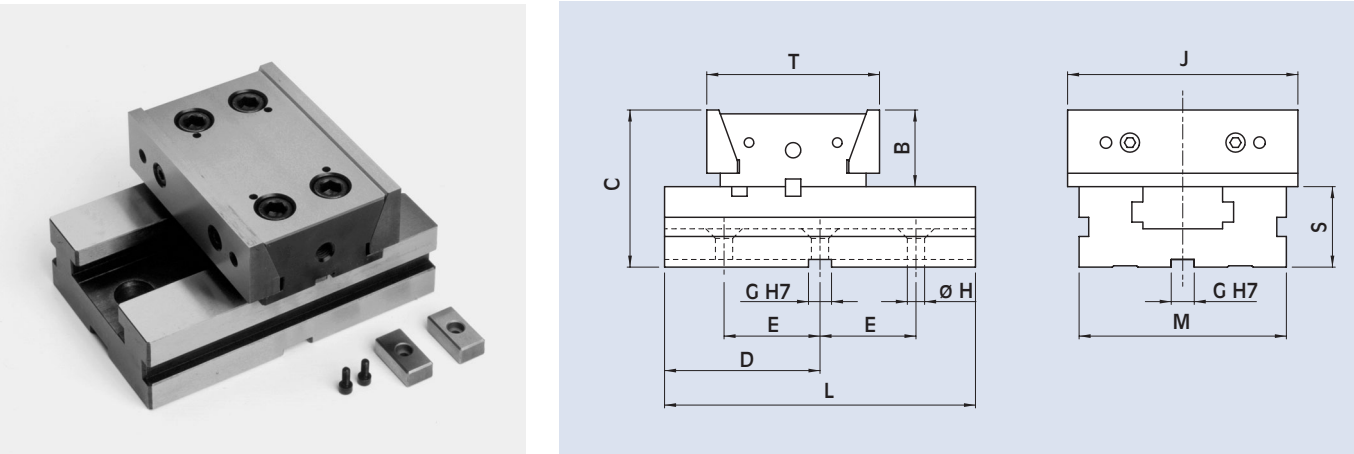
complete with pair of positioning keys



Cod.	for type	A mm	B mm	C mm	D mm	E mm	G mm	H mm	J mm	L mm	M mm	S mm	weight kg
58 06 70 10	MC 150	85	50	102	120	75	18	12,5	150	170	128	52	9,5
58 07 70 10	MC 200	96	70	136	150	100	18	12,5	200	205	168	66	22

MC base with double fixed support with jaw

complete with pair of positioning keys

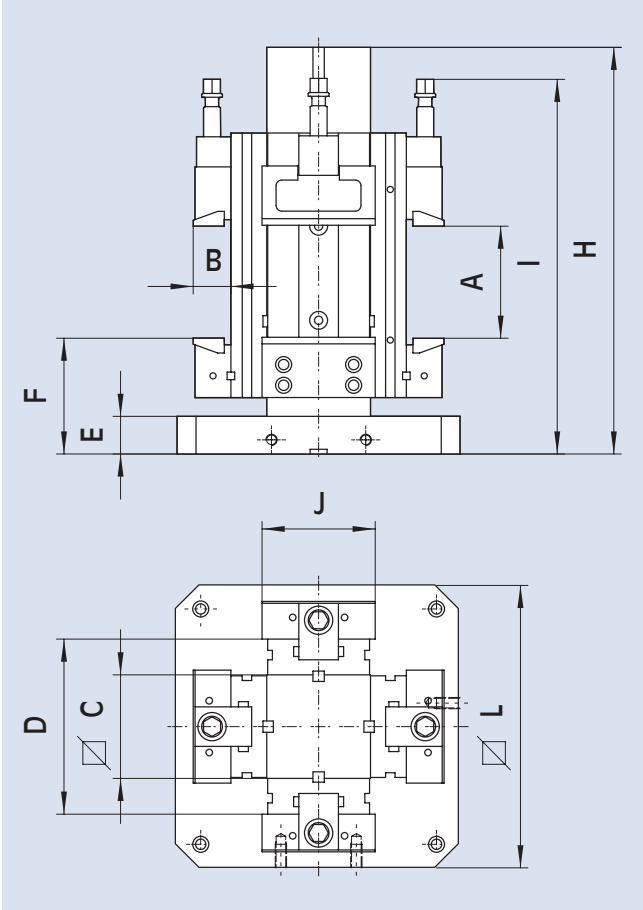
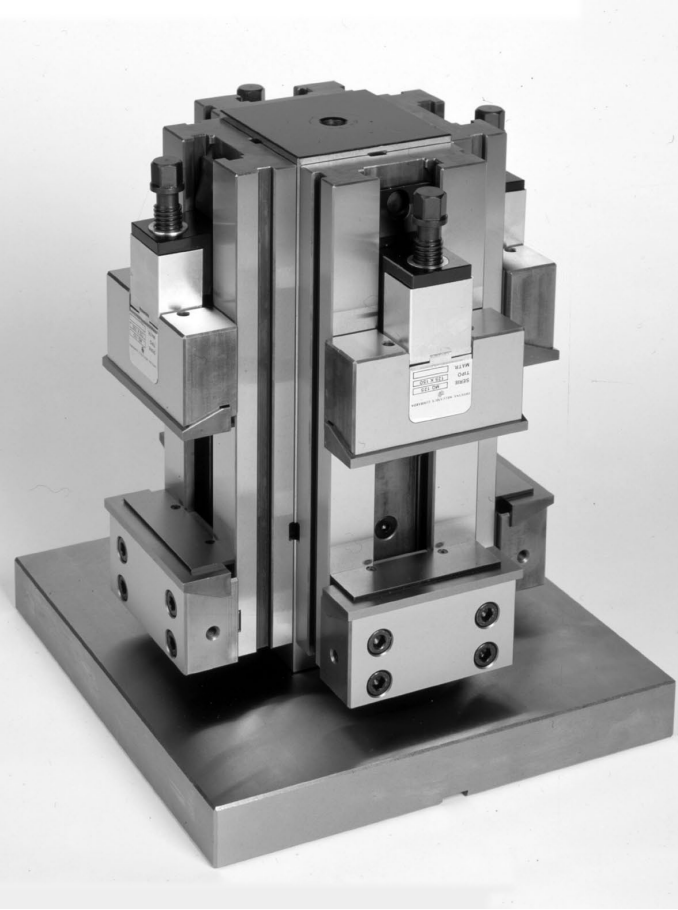


Cod.	for type	B mm	C mm	D mm	E mm	G mm	H mm	J mm	L mm	M mm	S mm	T mm	weight kg
58 16 70 10	MC 150	50	102	100	75	18	12,5	150	200	128	52	103	13
58 17 70 10	MC 200	70	136	125	100	18	12,5	200	250	168	66	140	40

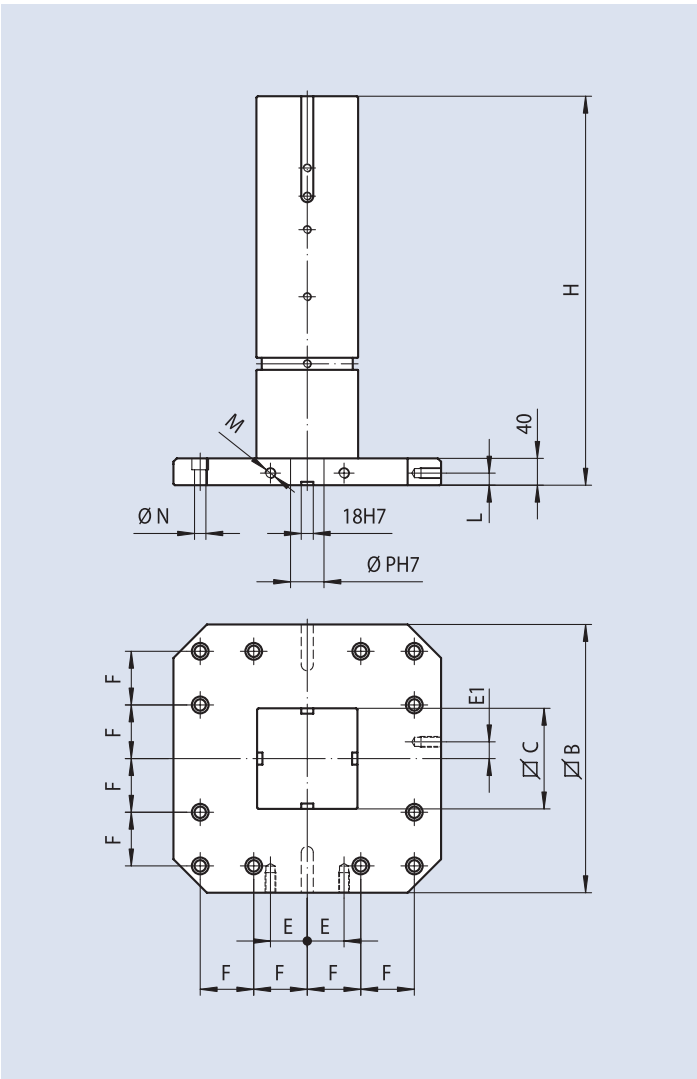
Working examples see pag. 2.15

Vertical clamping system complete with:
4 clamping equipment MC
1 column
1 base for vertical system MC
4 pair of CLAK parallels
4 covers for protection for the screws

4 rigid slide-ways (floating slide-ways on request for raw work pieces)
4 work stops
4 wrenches
eye bolt for lifting,
wooden packing case



Cod.	for type	A mm	B mm	C mm	D mm	E mm	F mm	H mm	I mm	J mm	L mm	weight kg
77 58 26 21	MC 150 x 200	200	50	150	254	40	146	580	545	150	400	249
77 58 26 22	MC 150 x 250	250	50	150	254	40	146	580	595	150	400	257
77 58 26 23	MC 150 x 300	300	50	150	254	40	146	580	650	150	400	267
77 58 26 31	MC 150 x 200	200	50	150	254	40	146	580	545	150	500	276
77 58 26 32	MC 150 x 250	250	50	150	254	40	146	580	595	150	500	284
77 58 26 33	MC 150 x 300		50	150	254	40	146	580	650	150	500	294
77 58 27 31	MC 200 x 300	300	70	200	332	40	159	661	711	200	500	535



Cod.	for type	B mm	C mm	E mm	E1 mm	F mm	H mm	L mm	M mm	N mm	P mm	weight kg
58 22 80 20	MC 150	400	150	55	25	80	580	18	16	17	50	142
58 22 80 30	MC 150	500	150	75	25	100	580	18	16	17	50	169
58 23 80 30	MC 200	500	200	75	25	100	661	18	16	17	50	266



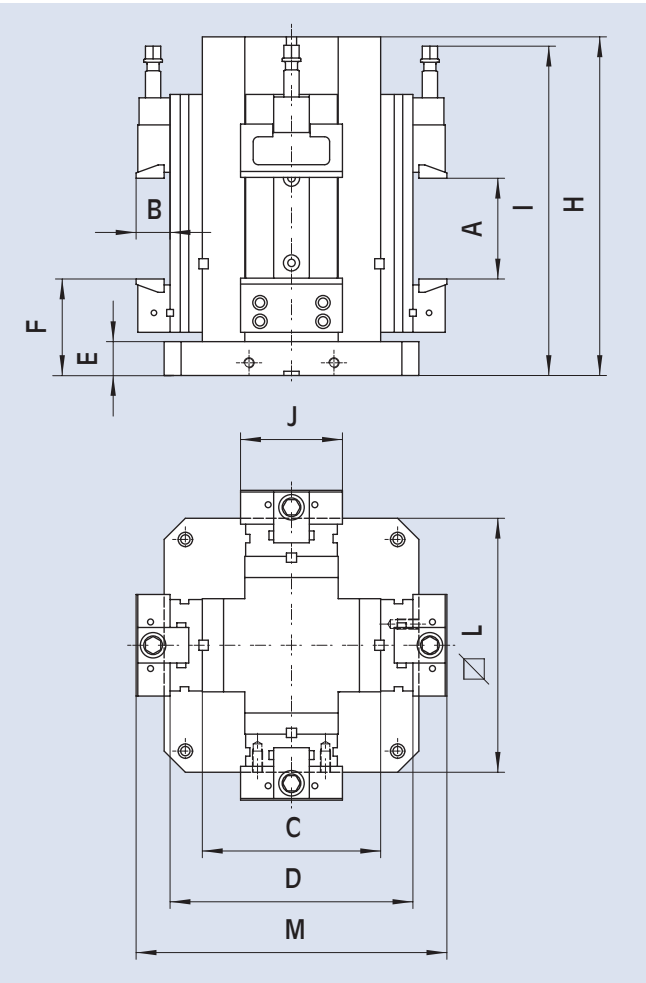
Insert for vertical use

Cod.	for type
58 22 33 00	MC 150
58 23 33 00	MC 200

Working examples see pag. 2.16

Cross Vertical clamping system complete with:
4 clamping equipment MC
1 cross cube
4 pair of CLAK parallels
4 covers for protection for the screws

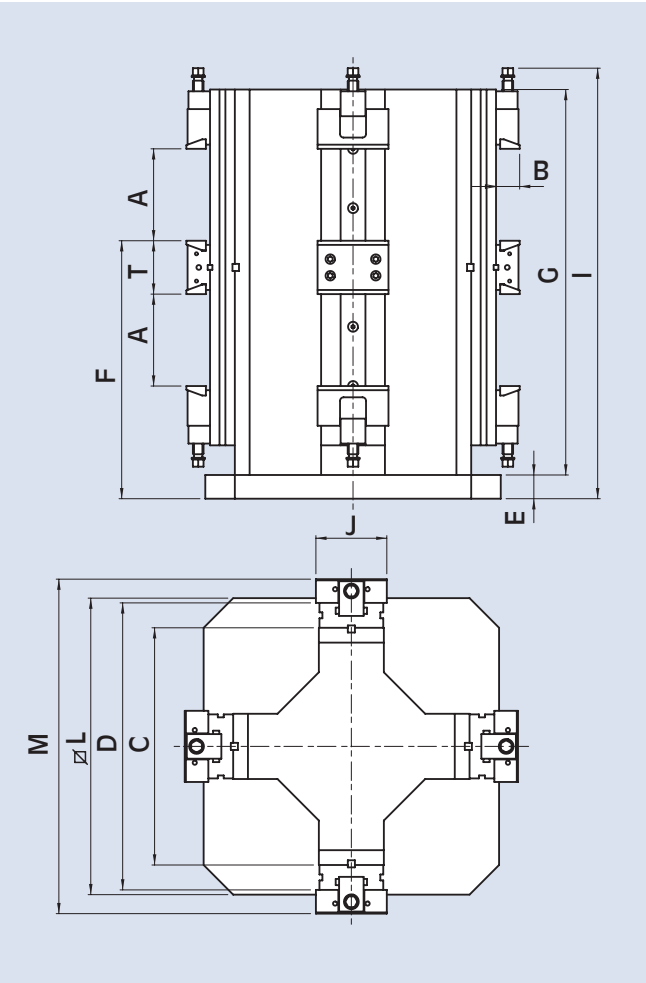
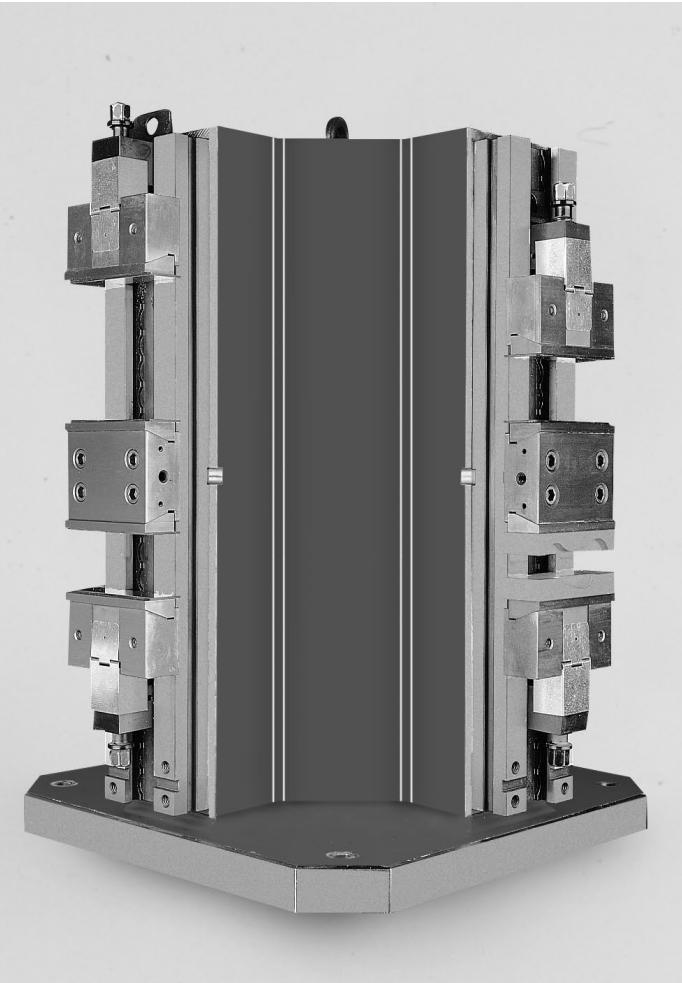
4 guided slide-ways (floating slide-ways on request
for raw workpieces)
4 work stops
4 wrenches
eye bolt for lifting
wooden packing case



Cod.	for type	A mm	B mm	C mm	D mm	E mm	F mm	H mm	I mm	J mm	L mm	M mm	weight kg
77 58 56 21	MC 150 x 200	200	50	300	404	40	140	580	540	150	400	504	314
77 58 56 22	MC 150 x 250	250	50	300	404	40	140	580	590	150	400	504	322
77 58 56 23	MC 150 x 300	300	50	300	404	40	140	580	647	150	400	504	332
77 58 56 31	MC 150 x 200	200	50	300	404	40	140	580	540	150	500	504	342
77 58 56 32	MC 150 x 250	250	50	300	404	40	140	580	590	150	500	504	350
77 58 56 33	MC 150 x 300	300	50	300	404	40	140	580	547	150	500	504	360
77 58 57 41	MC 200 x 300	300	70	350	482	45	168	670	720	200	630	622	627

Vertical clamping system complete with:
4 double clamping equipment MC
1 cross cube XL
8 pair of CLAK parallels
8 covers for protection for the screws

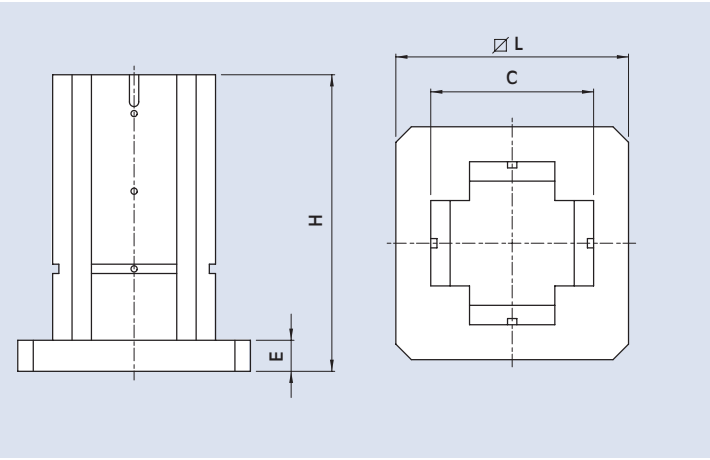
8 guided slide-ways (floating slide-ways on request
for raw workpieces)
8 work stops
8 wrenches
eye bolt for lifting
wooden packing case



Cod.	for type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	I mm	J mm	L mm	M mm	T mm	Weight kg
77 58 66 01	DVCS -MC 150 x 200	200	50	550	654	45	515	795	890	150	630	754	103	680



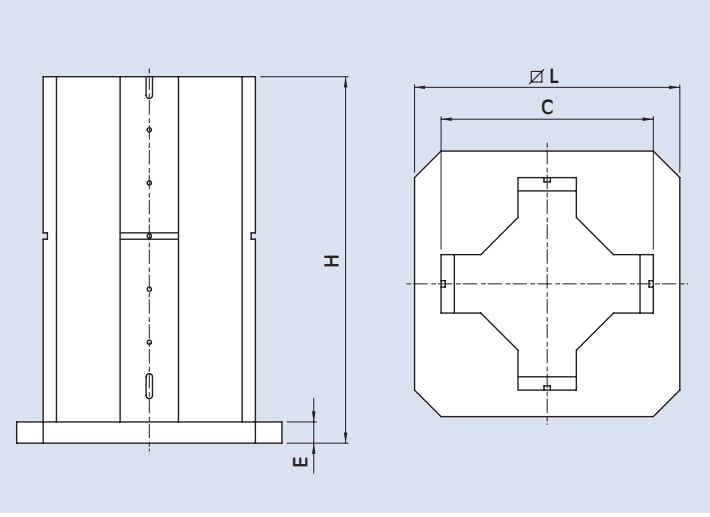
Cross cube for VCS-MC



Cod.	for type	C mm	E mm	H mm	L mm	weight kg
58 52 80 20	MC 150	300	40	580	400	212
58 52 80 30	MC 150	300	40	580	500	240
58 53 80 40	MC 200	350	45	670	630	363



Cross cube for DVCS-MC



Cod.	for type	C mm	E mm	H mm	L mm	weight kg
58 62 80 00	DVCS-MC 150 x ...	550	45	840	630	475



Insert for vertical use

Cod.	for type	
58 22 33 00	VCS - MC 150	
58 23 33 00	VCS - MC 200	



Pair of grooved jaws

Cod.	for type	
58 06 44 09	MC 150 x ...	
58 07 44 09	MC 200 x ...	



Insert for vertical use
(MVS, VCS, DVCS)

Cod.	for type	
58 22 33 00	MC 150	
58 23 33 00	MC 200	



Torque wrench

Cod.	for type	
51 50 10 02	MC 150 x ...	
51 50 10 03	MC 200 x ...	



Air/oil block complete
with cylinder and tang

Cod.	for type	
58 02 75 00	MC 150 x ...	
58 03 75 00	MC 200 x ...	



Air/oil foot pump
with joining pipe cm. 180 (71") and complete block
for air/oil application

Cod.	for type	
77 58 02 51	MC 150 x ...	
77 58 03 51	MC 200 x ...	



Air/oil foot pump

Cod.	for type	
71 66 03 05	MC 150 x ...	
71 66 03 05	MC 200 x ...	



Air/oil manual pump

Cod.	for type	
71 66 03 15	MC 150 x ...	
71 66 03 15	MC 200 x ...	



Pressure - gauge
with graduated scale in Kg

Cod.	for type	
51 43 12 51	MC 150 x ...	
51 43 12 51	MC 200 x ...	



Joining pipe M. 1,80 (71')

cod.	for type	
71 70 87 13	MC 150 x ...	
71 70 87 13	MC 200 x ...	



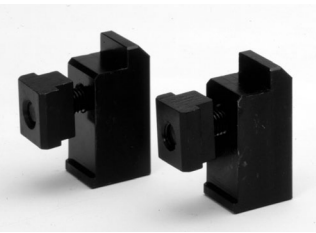
Joining pipe M. 3 (118'')

Cod.	for type	
71 70 87 14	MC 150 x ...	
71 70 87 14	MC 200 x ...	

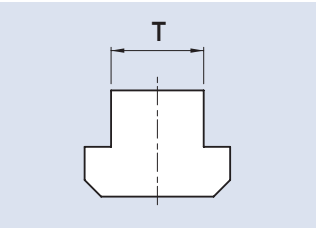


Joining pipe M. 6 (236'')

Cod.	for type	
71 70 87 15	MC 150 x ...	
71 70 87 15	MC 200 x ...	



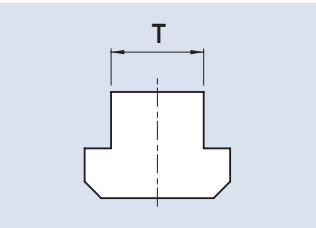
Pair of clamps complete
with screw and T nuts



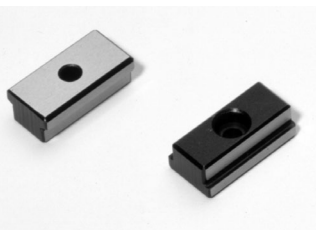
Cod. for T						for type
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22	
58 02 27 92	58 02 27 93	58 02 27 94	58 02 27 95	58 02 27 96	58 02 27 97	MC 150 x ...
58 03 27 92	58 03 27 93	58 03 27 94	58 03 27 95	58 03 27 96	58 03 27 97	MC 200 x ...



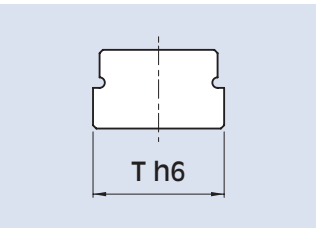
Pair of nuts complete
with screws at 45°



cod. for T						for type
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22	
58 02 25 92	58 02 25 93	58 02 25 94	58 02 25 95	58 02 25 96	58 02 25 97	MC 150 x ...
58 03 25 92	58 03 25 93	58 03 25 94	58 03 25 95	58 03 25 96	58 03 25 97	MC 200 x ...

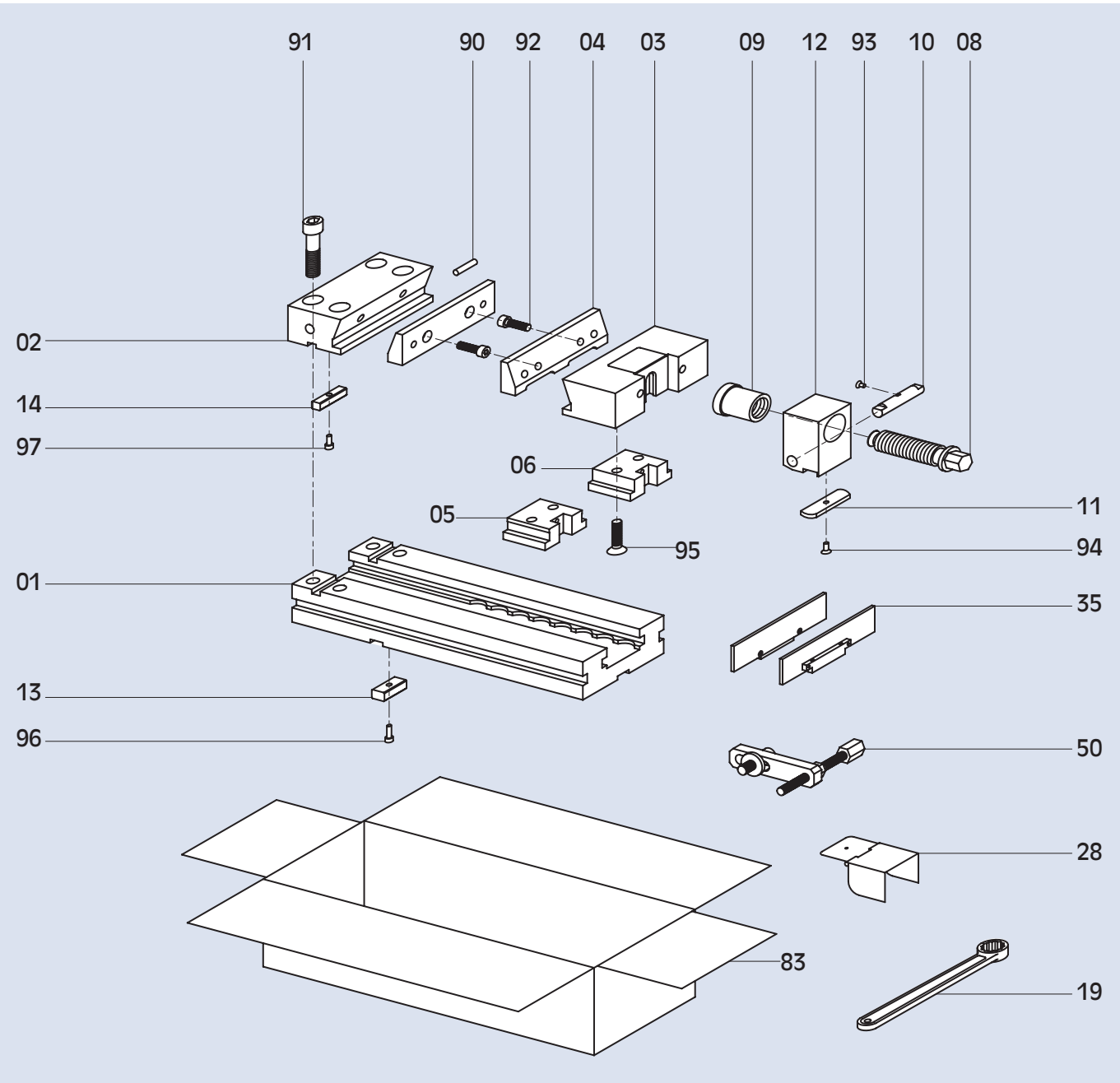


Pair of positioning key
with special dimensions



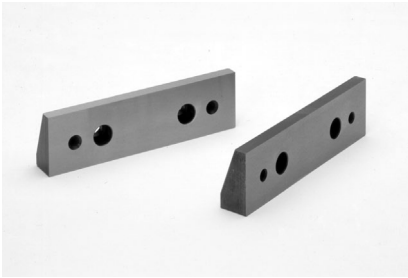
Cod for T						for type
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22	
58 02 13 92	58 02 13 93	58 02 13 94	-	58 02 13 96	58 02 13 97	MC 150 x ...
58 02 13 92	58 02 13 93	58 02 13 94	-	58 02 13 96	58 02 13 97	MC 200 x ...

accessories for clamping equipment



Description					
01.....	Base	12.....	Block for clamping screw	91.....	Screw TCEI
02.....	Fixed support	13.....	Positioning key	92.....	Screw TCEI
03.....	Movable support	14.....	Key for support	93.....	Screw TPS
04.....	Jaw	19.....	Wrench	94.....	Screw TPS
05.....	Floating slide-way	28.....	Cover for protection of the screw	95.....	Screw TPS
06.....	Rigid slide-way	38.....	Pair of CLAK parallels	96.....	Screw TCEI
08.....	Clamping screw	50.....	Work stop	97.....	Screw TCEI
09.....	Bronze bushing	83.....	Cardboard box		
10.....	Contrast pin	90.....	Rubber pad		
11.....	Positioning plate				

spare parts for clamping equipment



Pair of smooth jaws

Cod.	for type
58 06 04 09	MC 150 x ...
58 07 04 09	MC 200 x ...



Fixed support with jaw

Cod.	for type
58 06 72 10	MC 150 x ...
58 07 72 10	MC 200 x ...



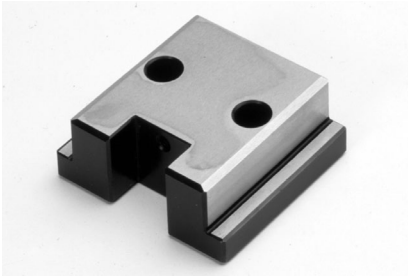
Movable support with jaw

Cod.	for type
58 06 73 10	MC 150 x ...
58 07 73 10	MC 200 x ...



Floating slide-way

Cod.	for type
58 02 05 00	MC 150 x ...
58 07 05 00	MC 200 x ...



Rigid slide-way

Cod.	for type
58 02 06 00	MC 150 x ...
58 07 06 00	MC 200 x ...



Pair of keys for fixed suport

Cod.	for type	
58 02 14 09	MC 150 x ...	
58 02 13 95	MC 200 x ...	



Wrench

Cod.	for type	
58 02 19 00	MC 150 x ...	
58 03 19 00	MC 200 x ...	



Complete clamping block (old type)

Cod.	for type	
58 02 74 10	MC 150 x ...	
58 03 74 10	MC 200 x ...	



Complete clamping block (new type)

Cod.	for type	
58 02 74 11	MC 150 x ...	
58 03 74 11	MC 200 x ...	



Block for clamping screw (old type)

Cod.	for type	
58 02 12 10	MC 150 x ...	
58 03 12 10	MC 200 x ...	



Block for clamping screw (new type)

Cod.	for type	
58 02 12 12	MC 150 x ...	
58 03 12 12	MC 200 x ...	



Clamping screw (old type)

Cod.	for type	
58 02 08 10	MC 150 x ...	
58 03 08 10	MC 200 x ...	



Clamping screw (new type)

Cod.	for type	
58 02 08 12	MC 150 x ...	
58 03 08 12	MC 200 x ...	



Bronze bushing (old type)

Cod.	for type	
58 02 09 00	MC 150 x ...	
58 03 09 00	MC 200 x ...	



Contrast pin (old type)

Cod.	for type	
58 02 10 00	MC 150 x ...	
58 03 10 00	MC 200 x ...	



Contrast pin (new type)

Cod.	for type	
58 02 10 01	MC 150 x ...	
58 03 10 01	MC 200 x ...	



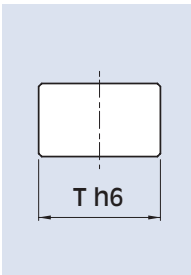
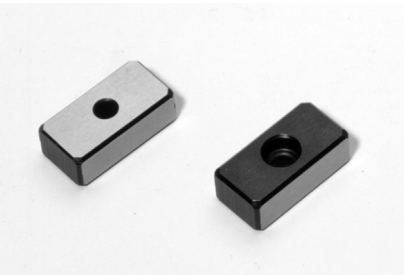
Positioning plate (old type)

Cod.	for type	
58 02 11 10	MC 150 x ...	
58 03 11 10	MC 200 x ...	



Positioning plate (new type)

Cod.	for type	
58 02 11 11	MC 150 x ...	
58 03 11 11	MC 200 x ...	



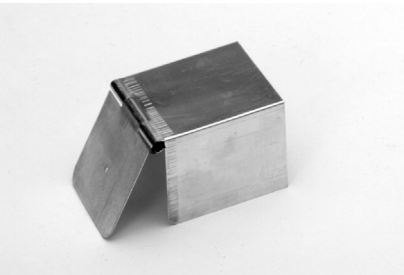
Pair of standard positioning keys

Cod.	for type	T h6 mm
58 02 13 95	MC 150 x ...	18
58 02 13 95	MC 200 x ...	18



Work stop

Cod.	for type	
58 02 50 00	MC 150 x ...	
58 03 50 00	MC 200 x ...	



Cover for protection of the screw

Cod.	for type	
58 02 28 10	MC 150 x ...	
58 03 28 10	MC 200 x ...	



Block for cylinder

Cod.	for type	
58 02 12 20	MC 150 x ...	
58 03 12 20	MC 200 x ...	



Tang for cylinder

Cod.	for type	
58 02 16 00	MC 150 x ...	
58 03 16 00	MC 200 x ...	

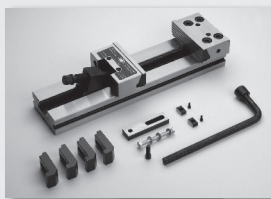


Can of oil

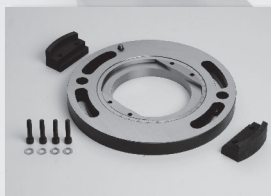
Cod.	for type	
10 72 99 40	MC 150 x ...	
10 72 99 40	MC 200 x ...	

Modular clamping equipment "LC"

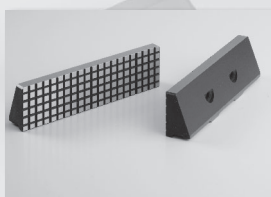
3.2



LC
pag. 3.2. 3



Accessories LC
pag. 3.2. 4



Spare parts LC
pag. 3.2. 7

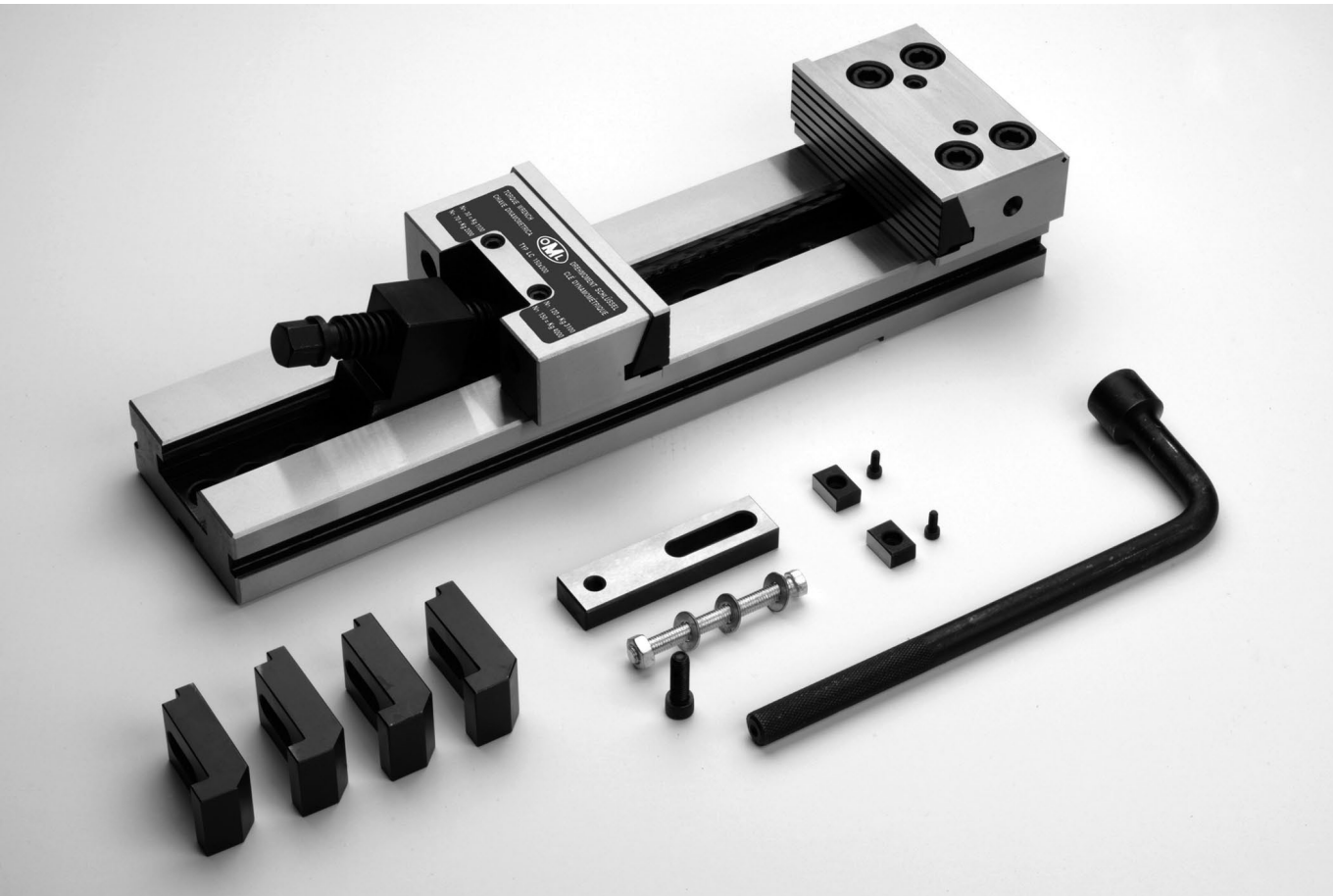


LC is...

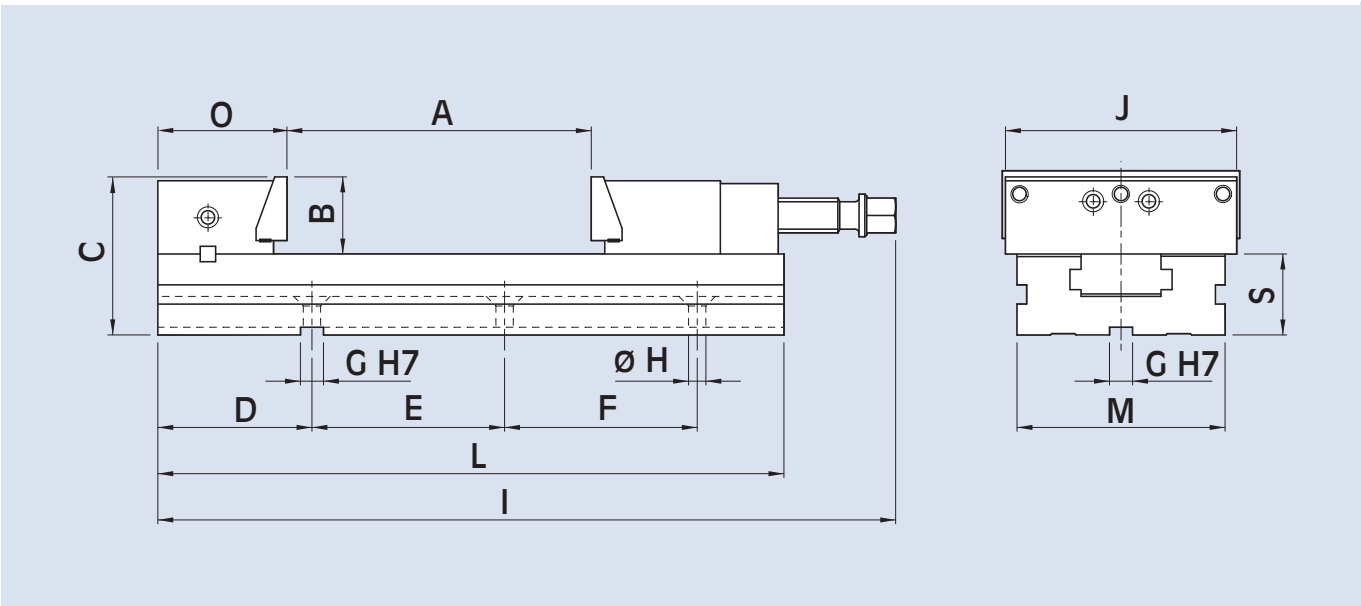
LOW
COST

The new LC VISE joins the original OML TC and MC VISES as “low cost” solution.

clamping equipment

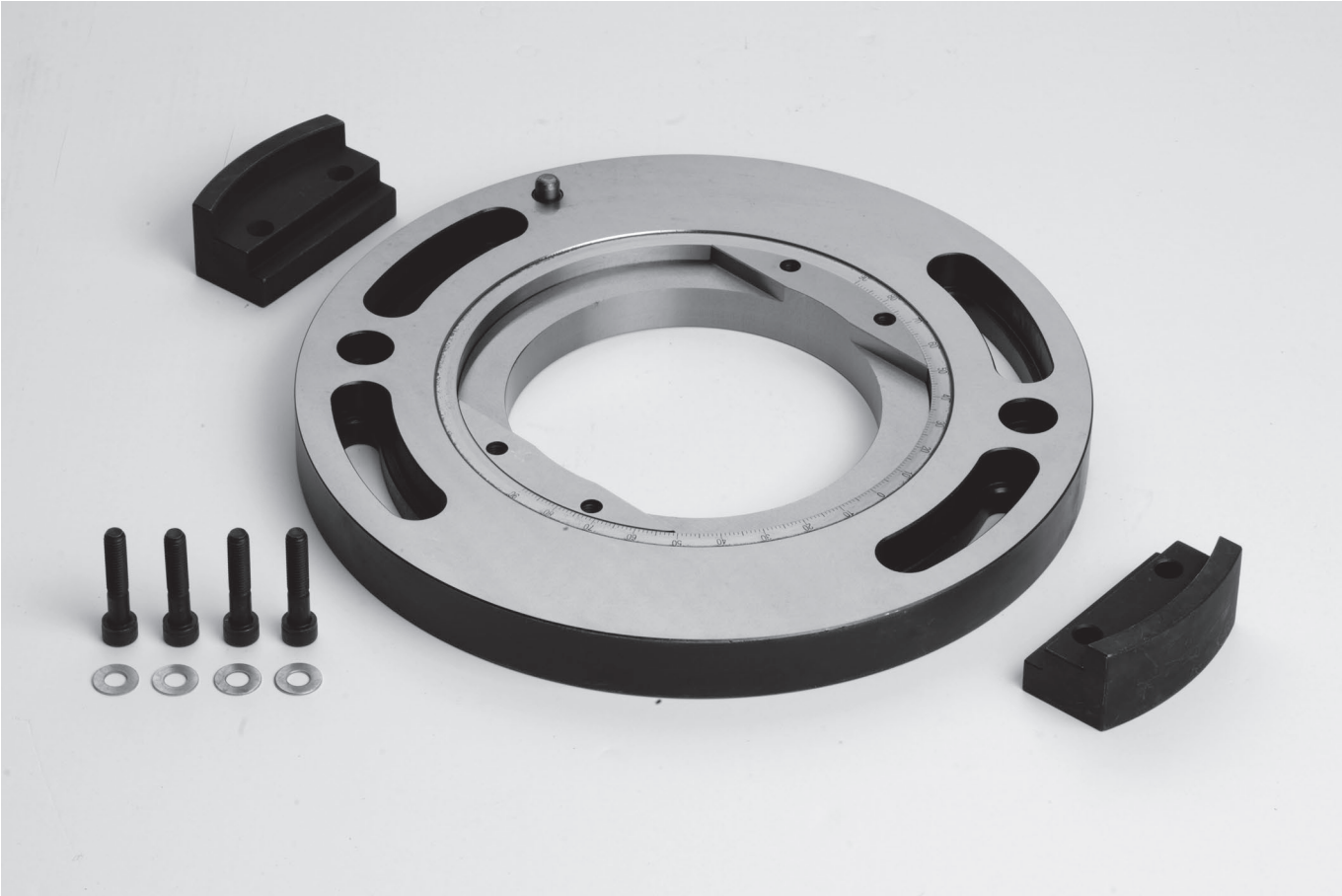


Clamping equipment LC complete with: wrench, rigid slide way (floating slide-way at request for raw workpiece), work stop, pair of positioning keys h6, cover for protection of the screw, 4 clamps, cardboard box.



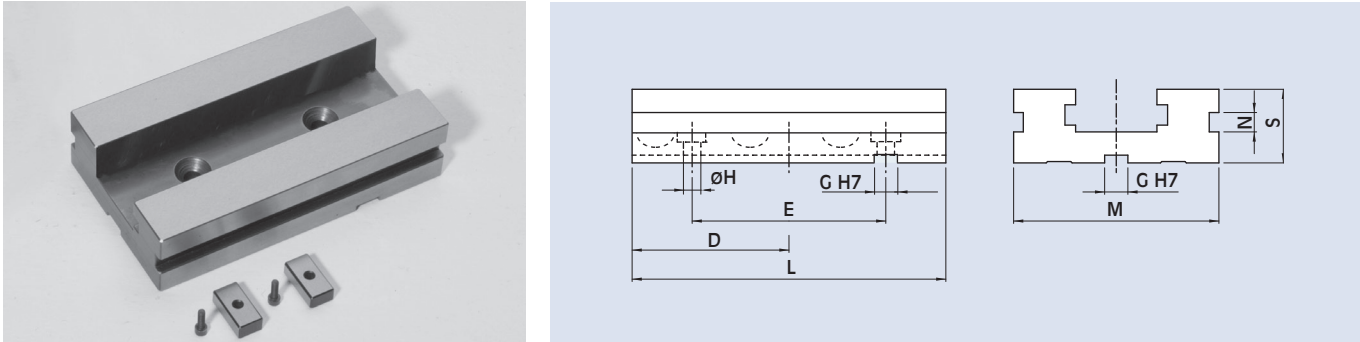
Cod.	type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	L mm	M mm	O mm	S mm	weight kg
77 58 95 01	LC 125 x 150	150	40	80	111	100	100	16	8,5	410	125	345	95	77,9	40	13
77 58 96 01	LC 150 x 200	200	50	100	122,5	100	100	16	12,5	500	150	420	125	89,4	50	26
77 58 96 02	LC 150 x 300	300	50	100	122,5	100	100	16	12,5	600	150	520	125	89,4	50	29
77 58 97 01	LC 200 x 300	300	65	135	145	100	100	16	12,5	680	200	595	170	113	70	69
77 58 97 02	LC 200 x 400	400	65	135	145	100	100	16	12,5	780	200	695	170	113	70	74

Swivel base for clamping equipment LC



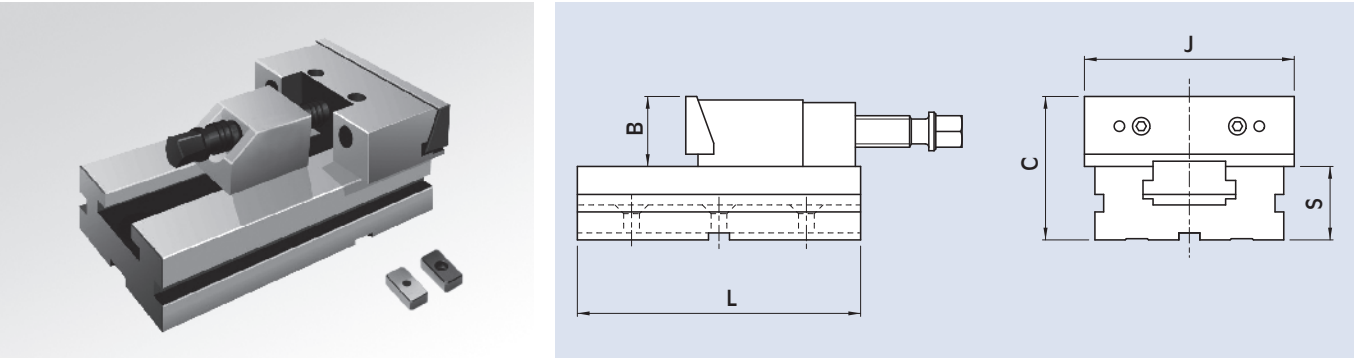
Cod.	for type
77 58 95 50	LC 125
77 58 96 50	LC 150
77 58 97 50	LC 200

LC extension element
with pair of positioning keys (at customer's choice)



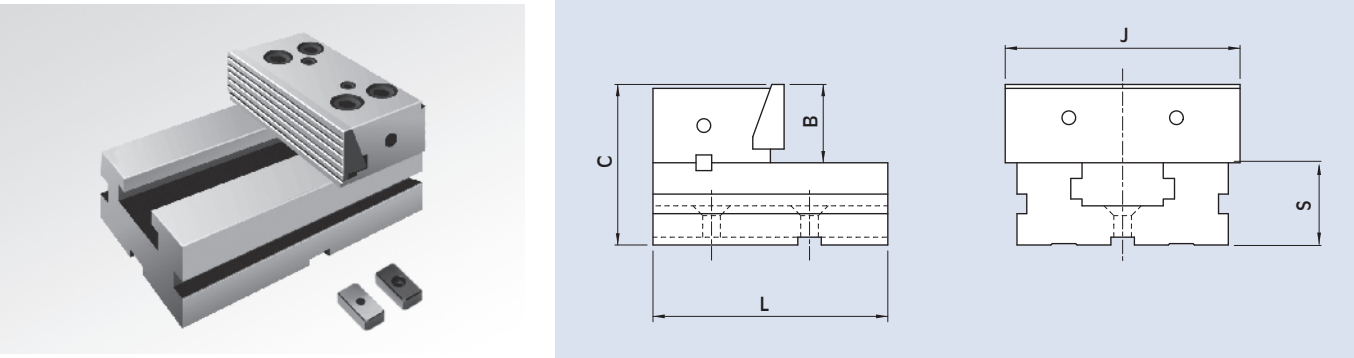
Cod.	for type	D mm	E mm	G mm	H mm	L mm	M mm	S mm
58 95 17 00	LC 125	40	40	16	8,5	160	95	40
58 96 17 00	LC 150	40	50	16	13	230	125	50
58 97 17 00	LC 200	50	100	16	17	300	170	70

Complete extension element LC
with pair of positioning keys (at customer's choice)



Cod.	for type	B mm	C mm	J mm	L mm	S mm	Weight kg
58 95 71 20	LC 125	40	80	125	160	40	6,3
58 96 71 20	LC 150	50	100	150	230	50	14,2
58 97 71 20	LC 200	65	135	200	300	70	35,0

Base with fixed support LC
with pair of positioning keys (at customer's choice)



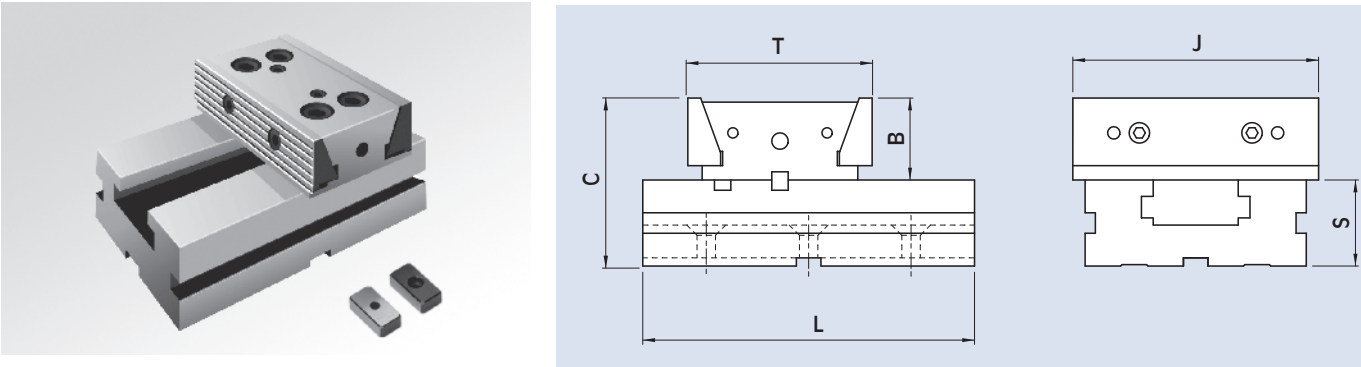
Cod.	for type	B mm	C mm	J mm	L mm	S mm	Weight kg
58 95 70 20	LC 125	40	80	125	160	40	5,8
58 96 70 20	LC 150	50	100	150	230	50	12,6
58 97 70 20	LC 200	65	135	200	300	70	29,8

LC

accessories for clamping equipment

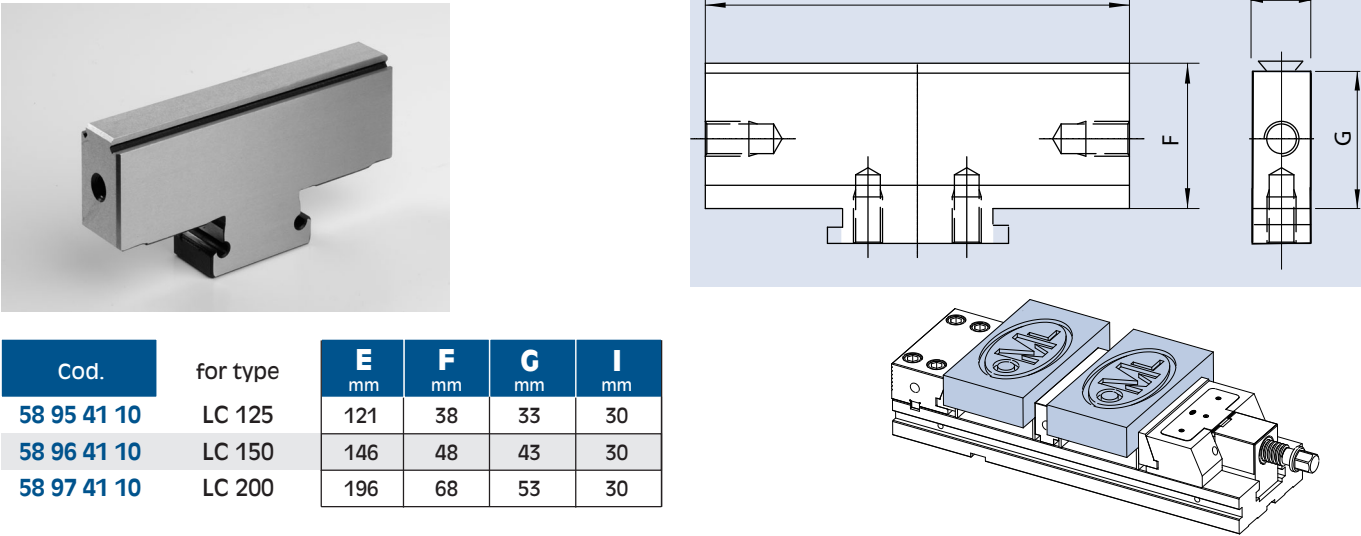
Base with double fixed support - LC

with pair of positioning keys (at customer's choice)



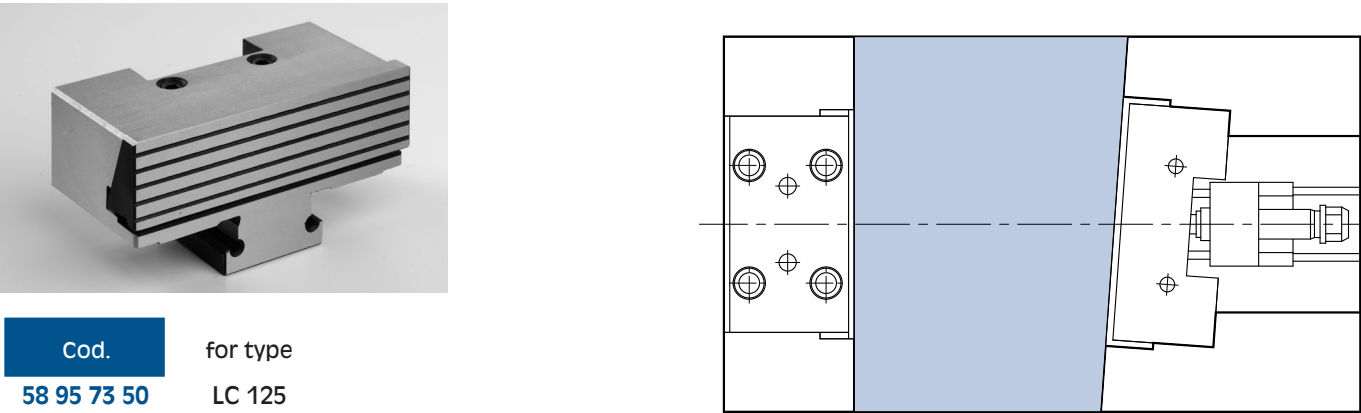
Cod.	for type	B mm	C mm	J mm	L mm	S mm	T mm	Weight kg
58 95 70 60	LC 125	40	80	125	160	40	84,8	6,0
58 96 70 60	LC 150	50	100	150	230	50	101,8	13,3
58 97 70 60	LC 200	65	135	200	300	70	132,8	30,0

Middle jaw LC



Cod.	for type	E mm	F mm	G mm	I mm
58 95 41 10	LC 125	121	38	33	30
58 96 41 10	LC 150	146	48	43	30
58 97 41 10	LC 200	196	68	53	30

Floating movable support with jaw LC



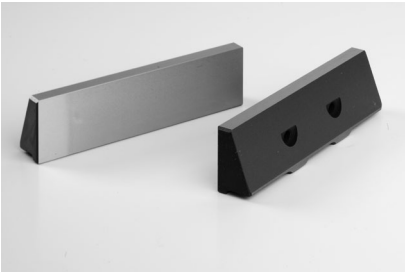
Cod.	for type
58 95 73 50	LC 125
58 96 73 50	LC 150
58 97 73 50	LC 200

LC

accessories for clamping equipment

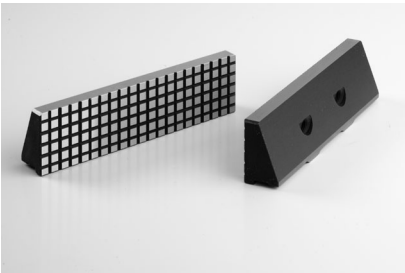
3.2

Pair of smooth jaws LC



Cod.	for type
58 95 04 09	LC 125
58 96 04 09	LC 150
58 97 04 09	LC 200

Pair of serrated jaws LC



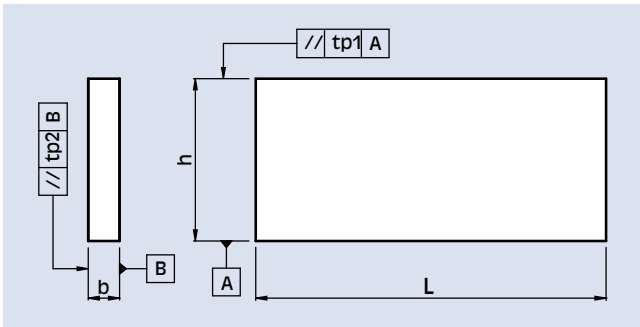
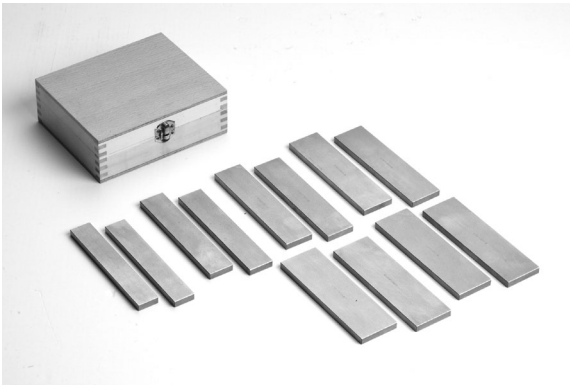
Cod.	for type
58 95 44 29	LC 125
58 96 44 29	LC 150
58 97 44 29	LC 200

Insert for vertical use

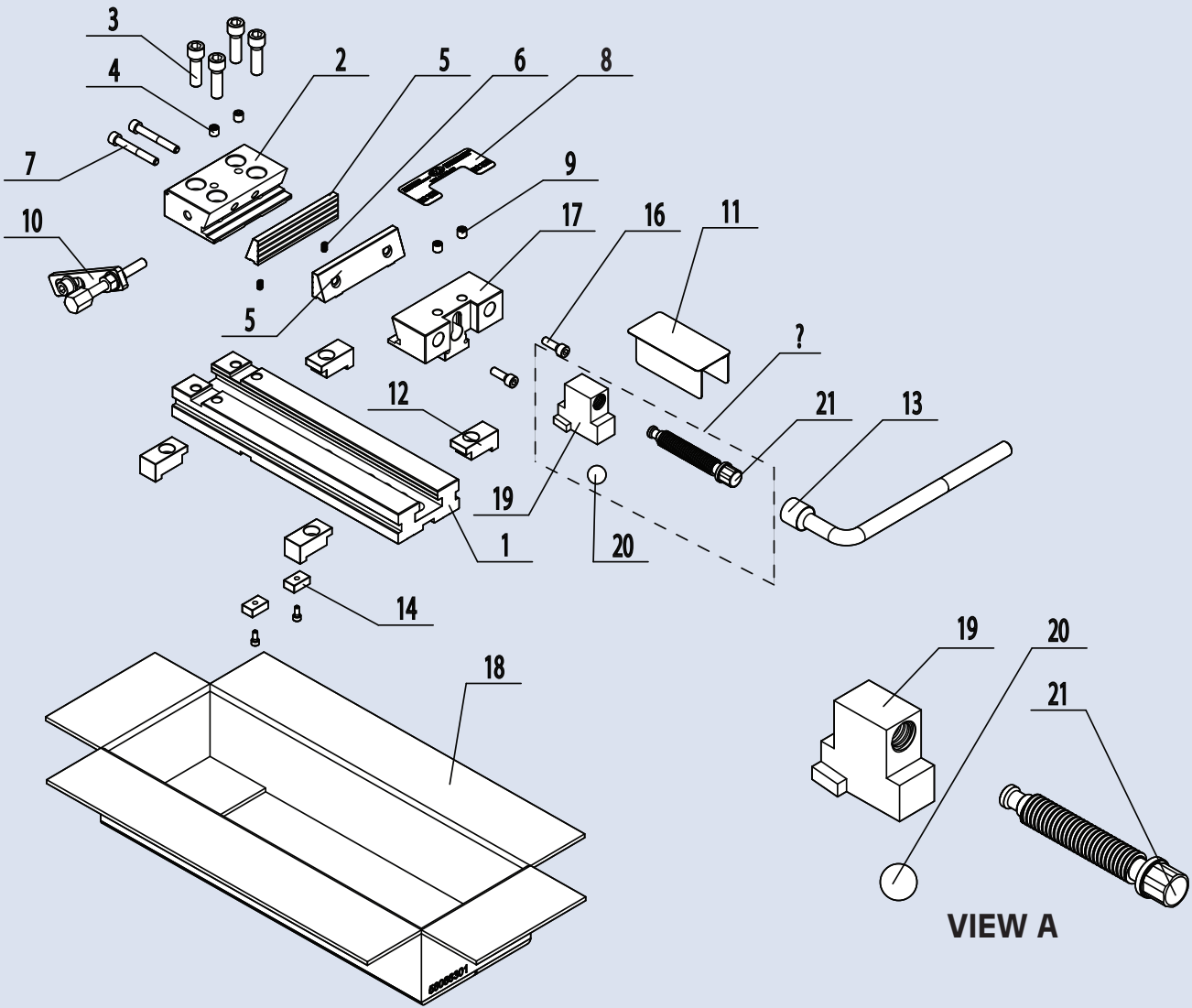


cod.	for type
58 95 33 00	LC 125
58 96 33 00	LC 150
58 97 33 00	LC 200

Set of 6 pairs of parallels (no clak) LC



cod.	for type	h mm	L mm	B mm	tolerance A B
58 96 92 06	LC 150	25 - 30 - 35 - 40 - 45 - 47	150	8	0,009 0,005
58 97 92 06	LC 200	40 - 45 - 50 - 55 - 60 - 62	200	8	0,009 0,005

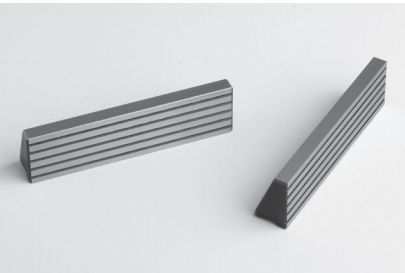


21	Clamping screw	1
20	Positioning ball	1
19	Block for clamping screw	1
18	Cardboard box	1
17	Guided movable support	1
16	Screw TCEI	2
15	Screw TCEI	2
14	Positioning key	2
13	Wrench	1
12	Set 4 clamps	4
11	Cover for protection of the screw	1
10	Workstop	1
9	Screw STEI	2
8	Label	1
7	Screw TCEI	2
6	Spring	4
5	Grooved jaw	2
4	Screw STEI	2
3	Screw TCEI	4
2	Fixed support	1
1	Base	1

Pos.

Description

Quantity



Cod.

for type

58 95 44 19

LC 125

58 96 44 19

LC 150

58 97 44 19

LC 200



Cod.

for type

58 95 72 10

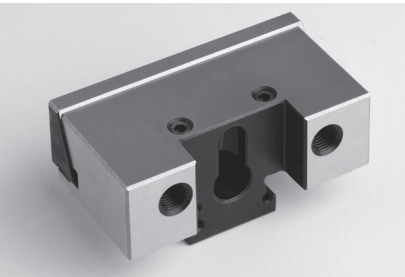
LC 125

58 96 72 10

LC 150

58 97 72 10

LC 200



Cod.

for type

58 95 73 60

LC 125

58 96 73 60

LC 150

58 97 73 60

LC 200



Cod.

for type

58 95 19 00

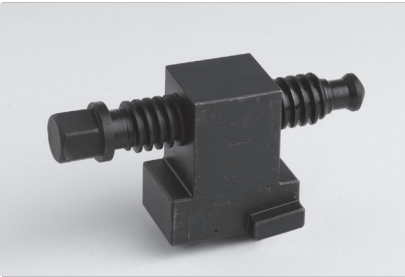
LC 125

58 96 19 00

LC 150

58 97 19 00

LC 200



Cod.

for type

58 95 74 10

LC 125

58 96 74 10

LC 150

58 97 74 10

LC 200



Cod.

for type

58 95 12 10

LC 125

58 96 12 10

LC 150

58 97 12 10

LC 200



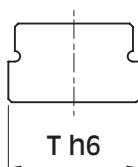
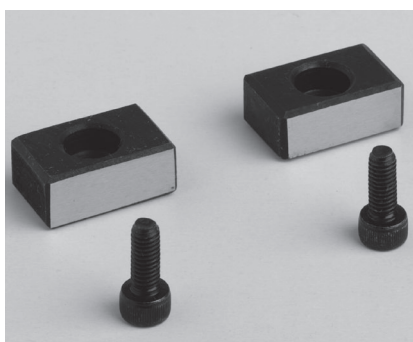
Clamping screw

Cod.	for type	
58 95 08 10	LC 125	
58 96 08 10	LC 150	
58 97 08 10	LC 200	



Positioning ball

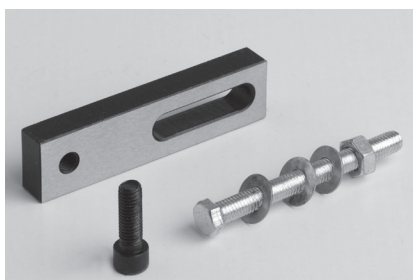
Cod.	for type	
58 95 10 00	LC 125	
58 96 10 00	LC 150	
58 97 10 00	LC 200	



Pair of positioning keys

Cod.	T h6	for type
58 96 13 92	16/12	
58 96 13 93	16/14	
58 96 13 94	16/16	
58 96 13 95	16/18	
58 96 13 96	16/20	
58 96 13 97	16/22	

LC 125 - LC 150 - LC 200



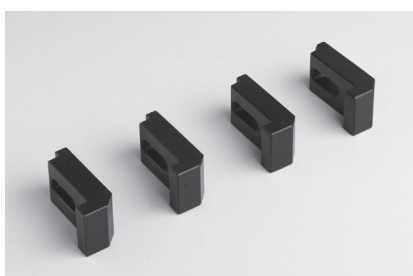
Work stop

Cod.	for type	
58 95 50 00	LC 125	
58 96 50 00	LC 150	
58 97 50 00	LC 200	



Cover for protection of the screw

Cod.	for type	
58 95 28 10	LC 125	
58 96 28 10	LC 150	
58 97 28 10	LC 200	



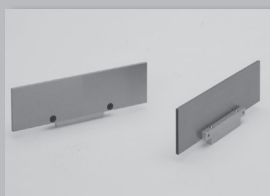
Set of 2 pairs of clamps

Cod.	for type	
58 95 27 09	LC 125	
58 96 27 09	LC 150	
58 97 27 09	LC 200	



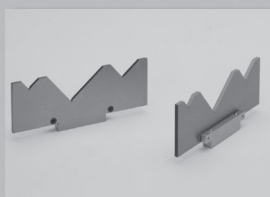
Set of parallels (quick change)

pag. 4. 3



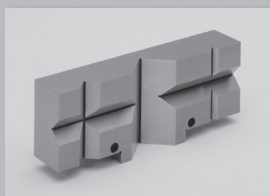
Parallels (quick change)

pag. 4. 4



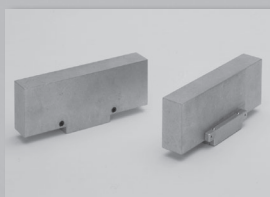
Angular parallels (quick change)

pag. 4. 5



V jaw (quick change)

pag. 4. 5



Soft jaws (quick change)

Steel
Aluminium

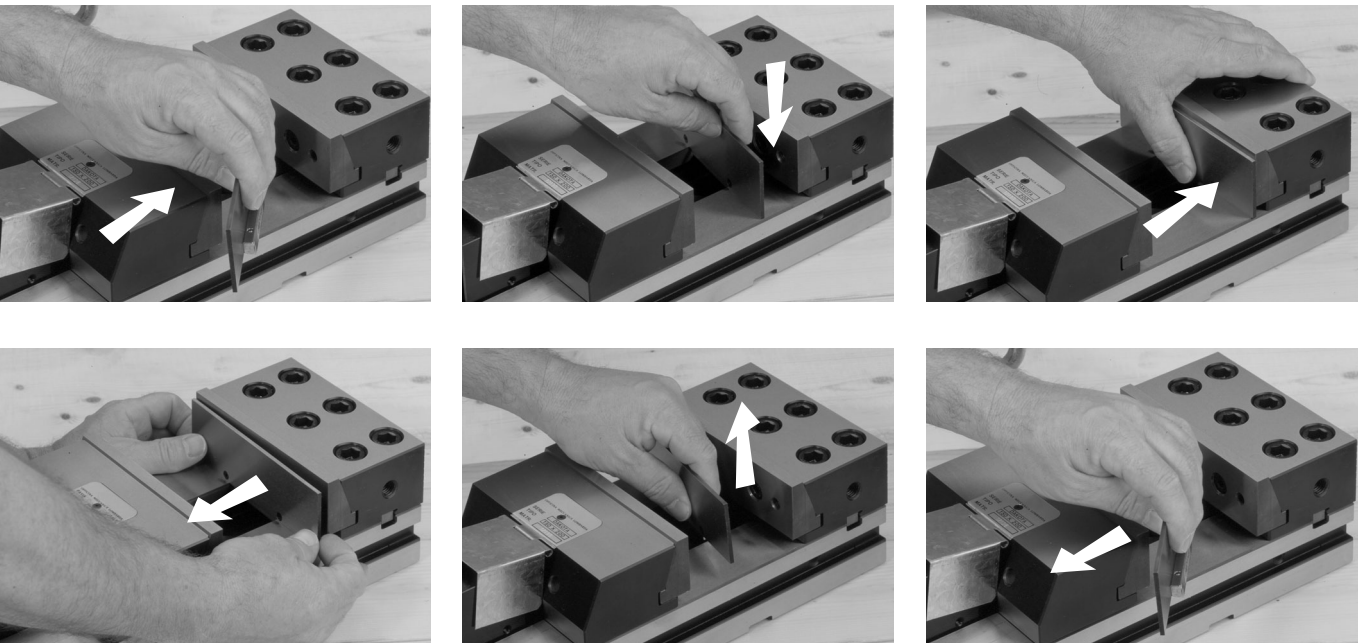
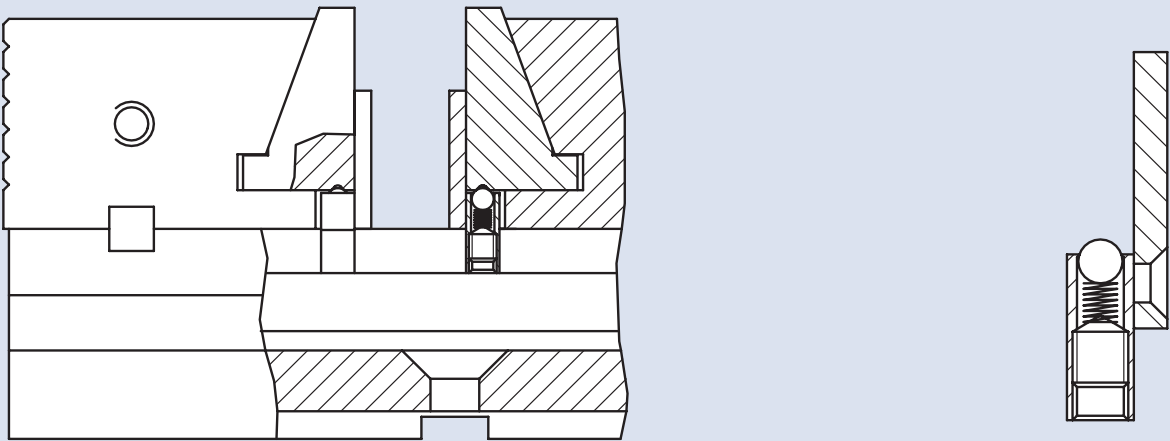
pag. 4. 6

This new patented system allows the quick change of parallels, angular parallels, V-jaws, soft jaws for any type of workpieces.

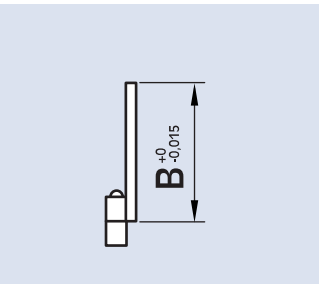
- Benefits:
- Reduce downtime and set- up time
 - Elimination of clamps and locks thanks to the patented self locking system
 - Increase the accuracy of finished parts and reduce scrap

All components are case hardened and precision ground.

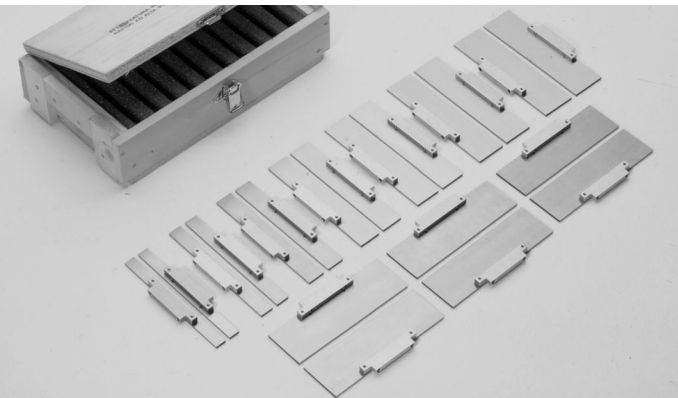
The CLAK system can be used for either the TC range or the MC range.



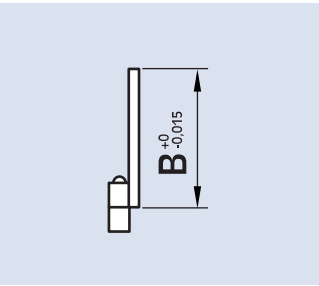
Set of 6 pairs of parallels



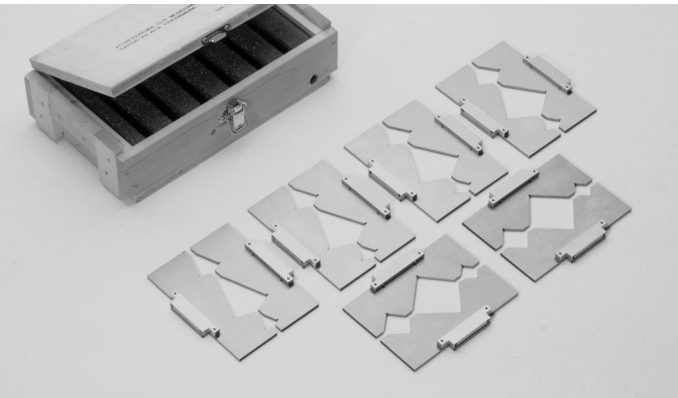
Cod.	for type	B mm					
		10	15	20	25	30	35
58 01 92 06	TC 110 x .../MC 125 x ...	10	15	20	25	30	35
58 02 92 06	TC 150 x .../MC 150 x ...	20	25	30	35	40	45
58 03 92 06	TC 200 x .../MC 200 x ...	20	30	40	50	60	65
58 04 92 06	TC 250 x ...	20	30	40	50	60	70



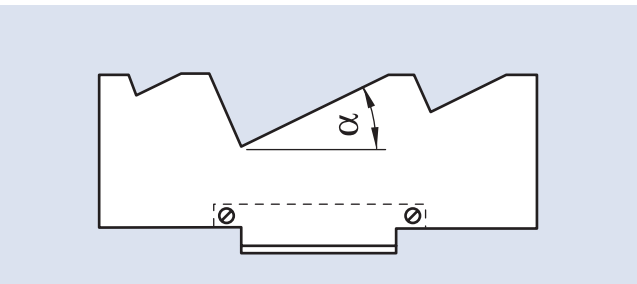
Set of 10 pairs of parallels



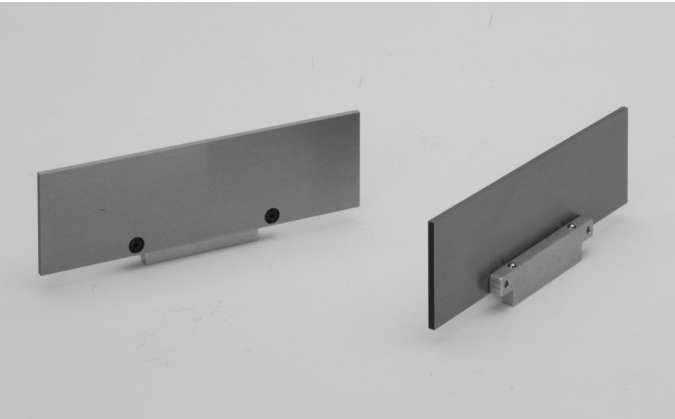
Cod.	for type	B mm									
		10	12	15	20	25	28	30	33	35	37
58 01 92 10	TC 110 x .../MC 125 x ...	10	12	15	20	25	28	30	33	35	37
58 02 92 10	TC 150 x .../MC 150 x ...	12	15	20	25	30	35	40	43	45	47
58 03 92 10	TC 200 x .../MC 200 x ...	20	25	30	35	40	45	50	55	60	65
58 04 92 10	TC 250 x ...	20	30	40	45	50	55	60	65	70	75



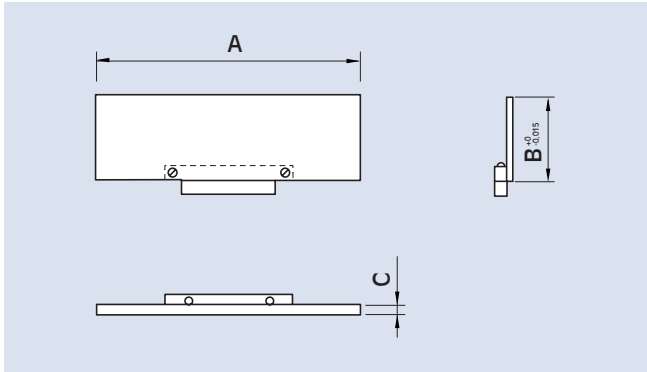
Set of 6 pairs of angular parallels



Cod.	for type	α mm					
		20°	25°	30°	35°	40°	45°
58 01 93 06	TC 110 x .../MC 125 x ...	20°	25°	30°	35°	40°	45°
58 02 93 06	TC 150 x .../MC 150 x ...	20°	25°	30°	35°	40°	45°
58 03 93 06	TC 200 x .../MC 200 x ...	20°	25°	30°	35°	40°	45°
58 04 93 06	TC 250 x ...	20°	25°	30°	35°	40°	45°



Pair of parallels



Cod.	B mm	A mm	C mm
58 01 35 10	10	106	3
58 01 35 12	12		
58 01 35 15	15		
58 01 35 20	20		
58 01 35 25	25		
58 01 35 28	28		
58 01 35 30	30		
58 01 35 33	33		
58 01 35 35	35		
58 01 35 37	37		

for type

TC 110 x .../MC 125 x ...

Cod.	B mm	A mm	C mm
58 02 35 12	12	146	3
58 02 35 15	15		
58 02 35 20	20		
58 02 35 25	25		
58 02 35 30	30		
58 02 35 35	35		
58 02 35 40	40		
58 02 35 43	43		
58 02 35 45	45		
58 02 35 47	47		

for type

TC 150 x .../MC 150 x ...

Cod.	B mm	A mm	C mm
58 03 35 20	20	196	4
58 03 35 25	25		
58 03 35 30	30		
58 03 35 35	35		
58 03 35 40	40		
58 03 35 45	45		
58 03 35 50	50		
58 03 35 55	55		
58 03 35 60	60		
58 03 35 65	65		

for type

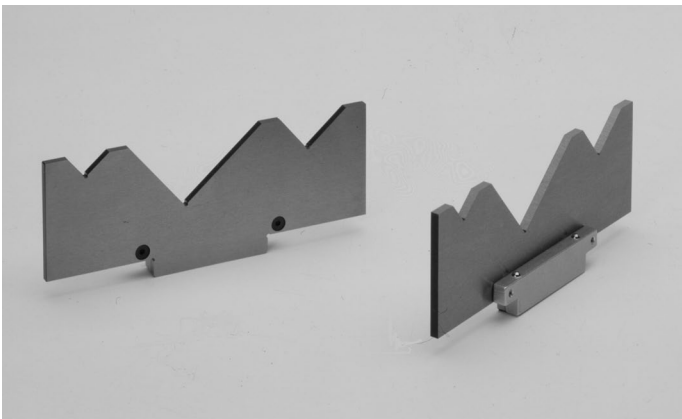
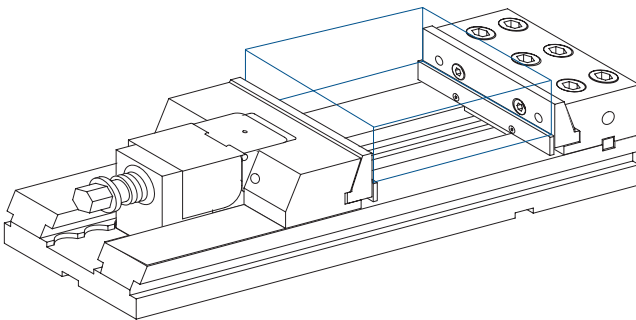
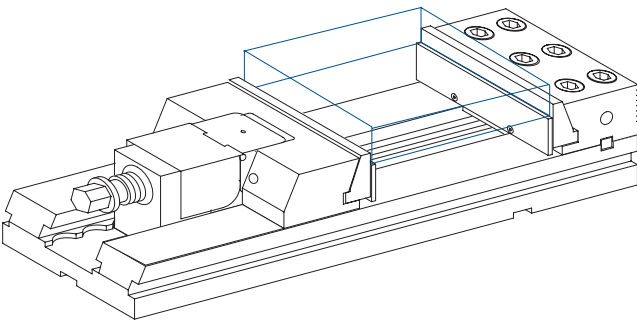
TC 200 x .../MC 200 x ...

Cod.	B mm	A mm	C mm
58 04 35 20	20	246	4
58 04 35 30	30		
58 04 35 40	40		
58 04 35 45	45		
58 04 35 50	50		
58 04 35 55	55		
58 04 35 60	60		
58 04 35 65	65		
58 04 35 70	70		
58 04 35 75	75		

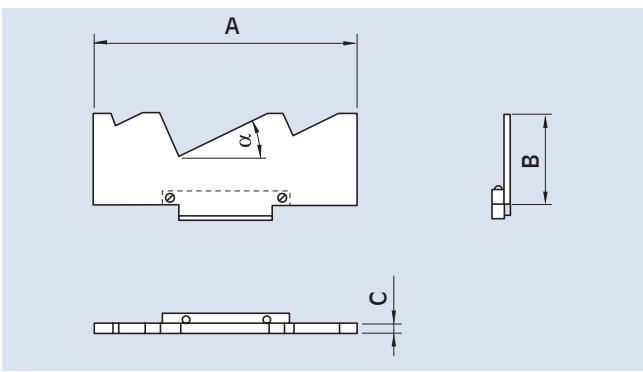
for type

TC 250 x ...

Working examples:



Pair of angular parallels



Cod.	α mm	A mm	B mm	C mm
58 01 36 20	20	106	40	4
58 01 36 25	25			
58 01 36 30	30			
58 01 36 35	35			
58 01 36 40	40			
58 01 36 45	45			
58 02 36 20	20	146	50	4
58 02 36 25	25			
58 02 36 30	30			
58 02 36 35	35			
58 02 36 40	40			
58 02 36 45	45			

for type

TC 110 x .../MC 125 x ...

TC 150 x .../MC 150 x ...

Cod.	α mm	A mm	B mm	C mm
58 03 36 20	20	196	70	4
58 03 36 25	25			
58 03 36 30	30			
58 03 36 35	35			
58 03 36 40	40			
58 03 36 45	45			
58 04 36 20	20	246	80	4
58 04 36 25	25			
58 04 36 30	30			
58 04 36 35	35			
58 04 36 40	40			
58 04 36 45	45			

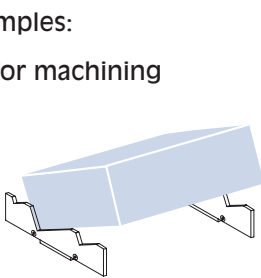
for type

TC 200 x .../MC 200 x ...

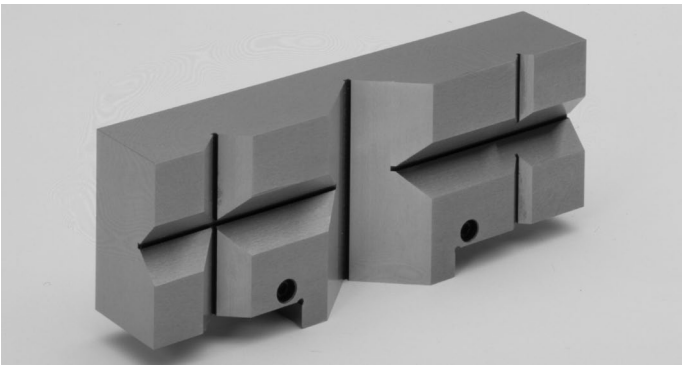
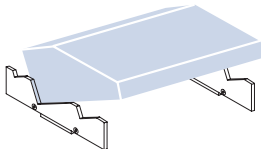
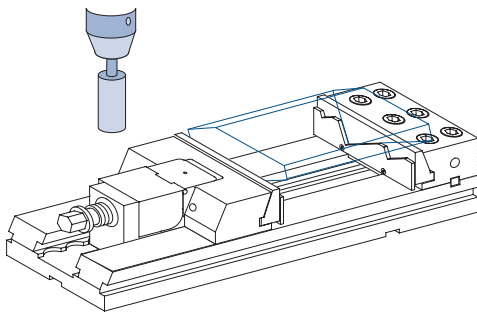
TC 250 x ...

Working examples:

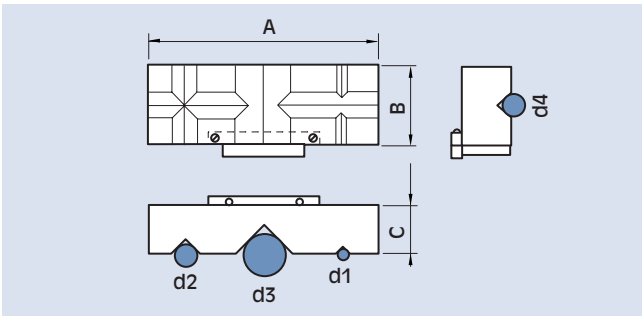
for machining



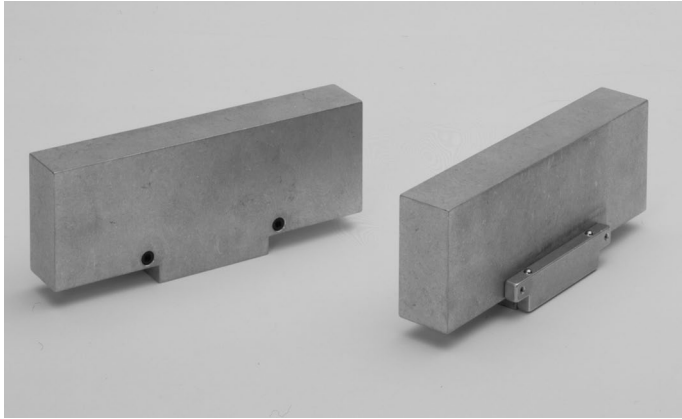
machined



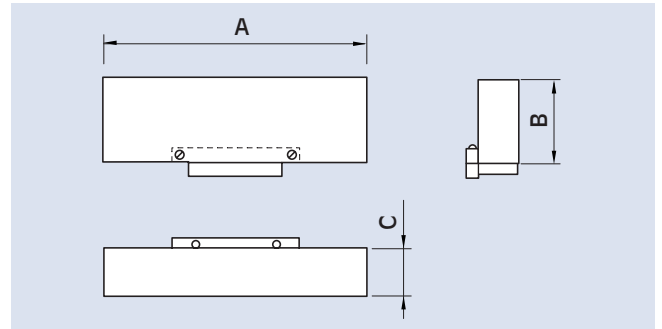
V jaw



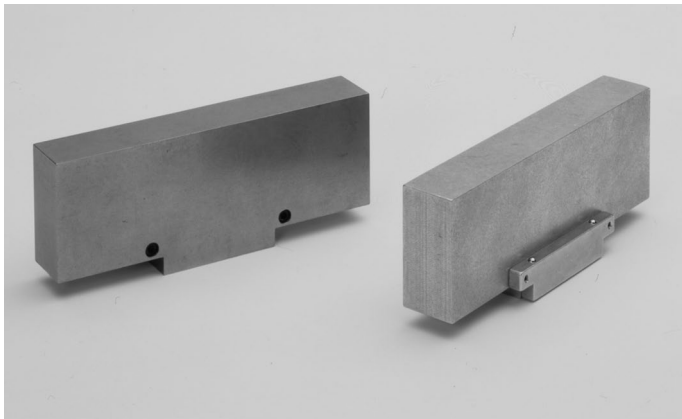
Cod.	for type	A mm	B mm	C mm	D1		D2		D3		D4	
					MIN-mm	MAX-mm	MIN-mm	MAX-mm	MIN-mm	MAX-mm	MIN-mm	MAX-mm
58 01 94 09	TC 110 x .../MC 125 x ...	106	40	30	3	6,5	6,5	15	15	35	7	16
58 02 94 09	TC 150 x .../MC 150 x ...	146	50	30	3	6,5	6,5	15	15	35	7	16
58 03 94 09	TC 200 x .../MC 200 x ...	196	70	50	6	13	13	30	30	70	15	35
58 04 94 09	TC 250 x ...	246	80	50	6	13	13	30	30	70	15	35



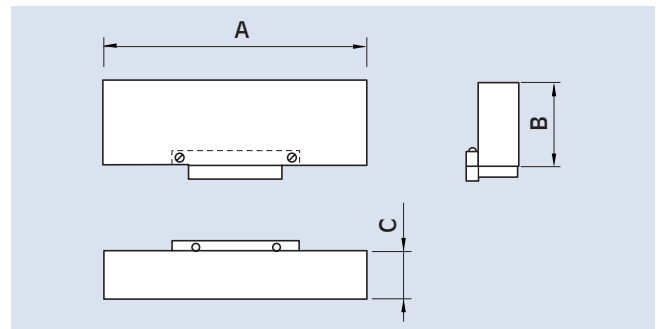
Pair of aluminium jaws



Cod.	for type	A mm	B mm	C mm
58 01 95 09	TC 110 /MC 125	106	40	19
58 02 95 09	TC 150 /MC 150	146	50	24
58 03 95 09	TC 200/MC 200	196	70	34
58 04 95 09	TC 250	246	80	39

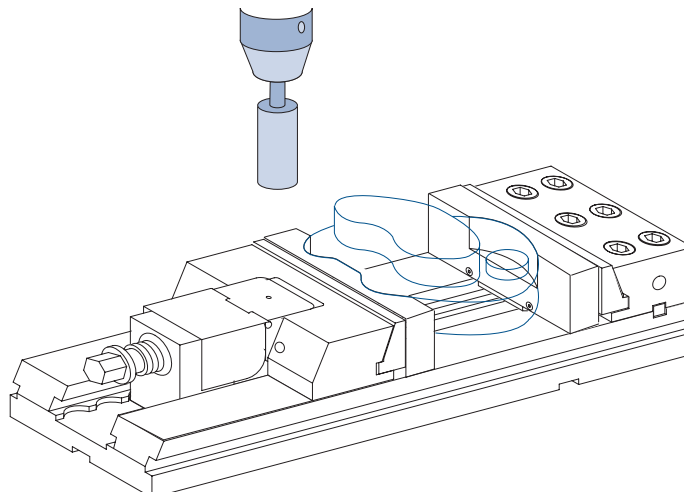


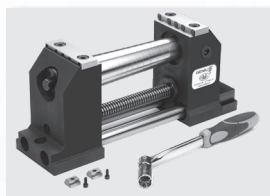
Pair of steel soft jaws



Cod.	for type	A mm	B mm	C mm
58 01 96 09	TC 110/MC 125	106	40	19
58 02 96 09	TC 150 /MC 150	146	50	24
58 03 96 09	TC 200/MC 200	196	70	34
58 04 96 09	TC 250 x	246	80	39

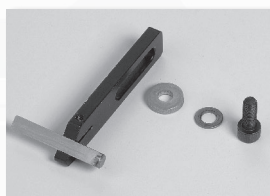
Working examples:





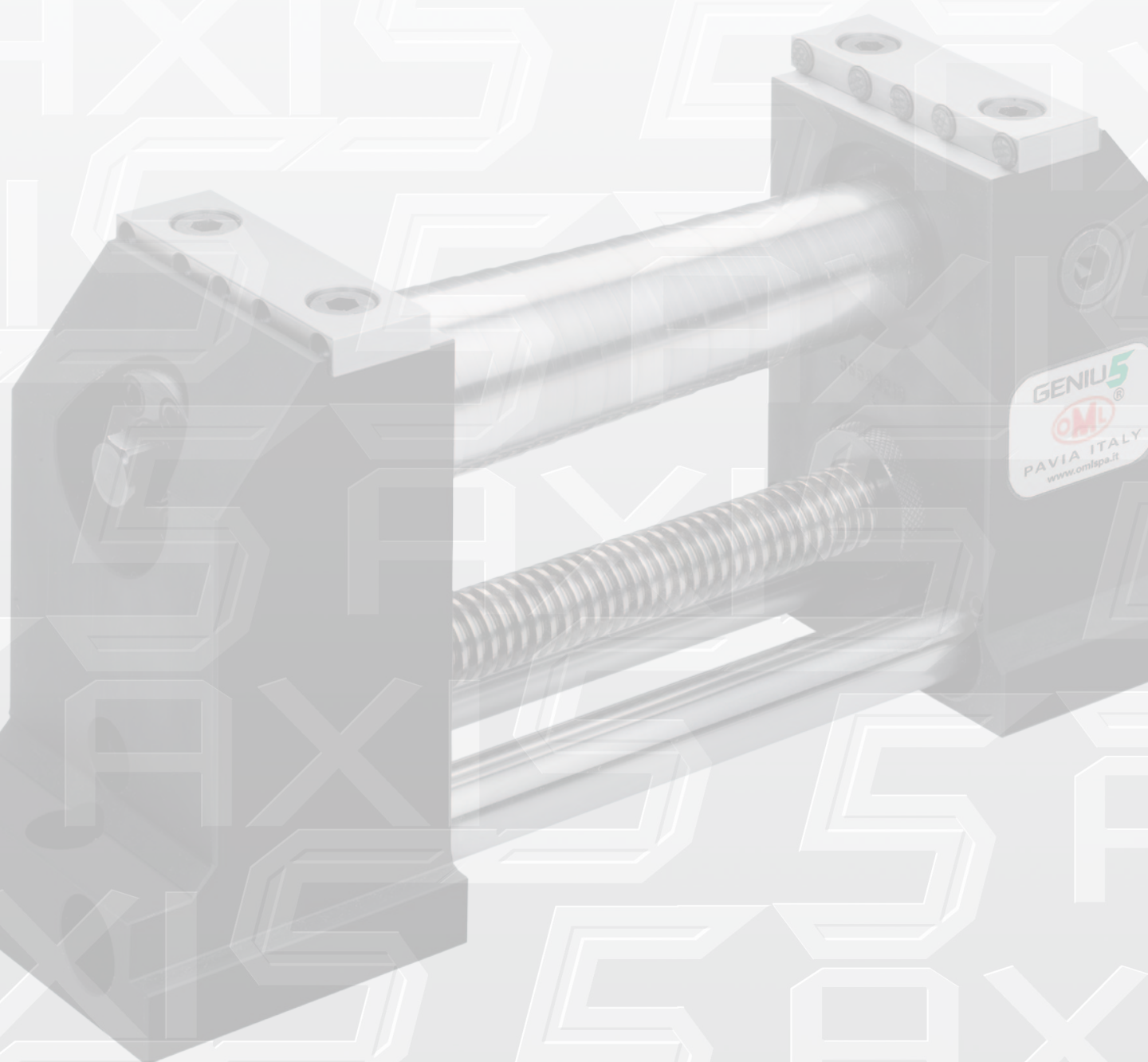
GENIUS VISE

pag. 5. 4



ACCESSORIES

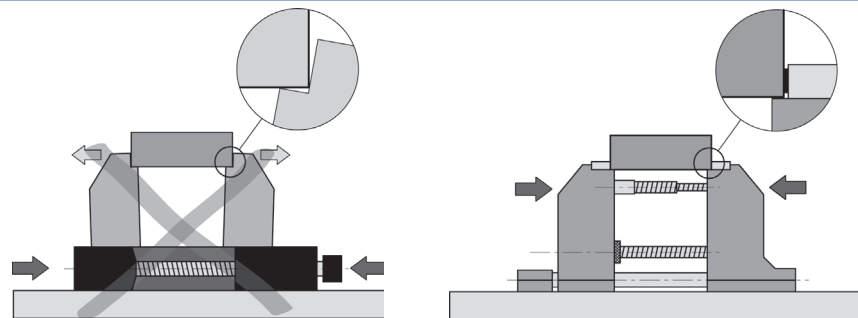
pag. 5. 5



5 ARE ITS MAIN FEATURES

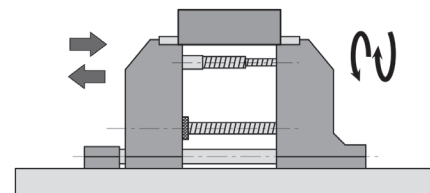
1

The clamping force (up to 40 kN) is generated right where it is needed: at the part.



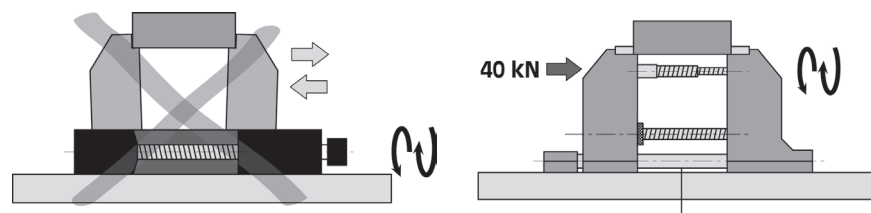
2

Thanks to its own expanding screw, GENIUS can clamp workpieces up to 200 mm with just one set-up.



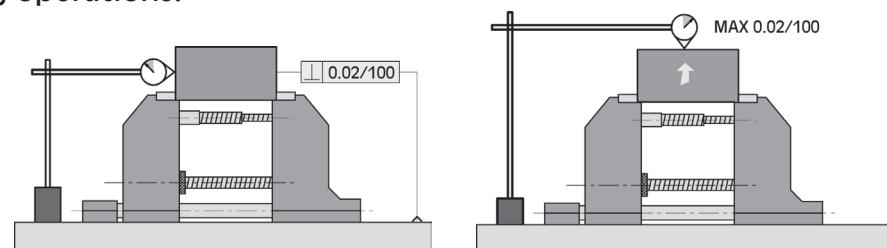
3

Unlike traditional vises, GENIUS clamps the workpieces by means of traction clamping.



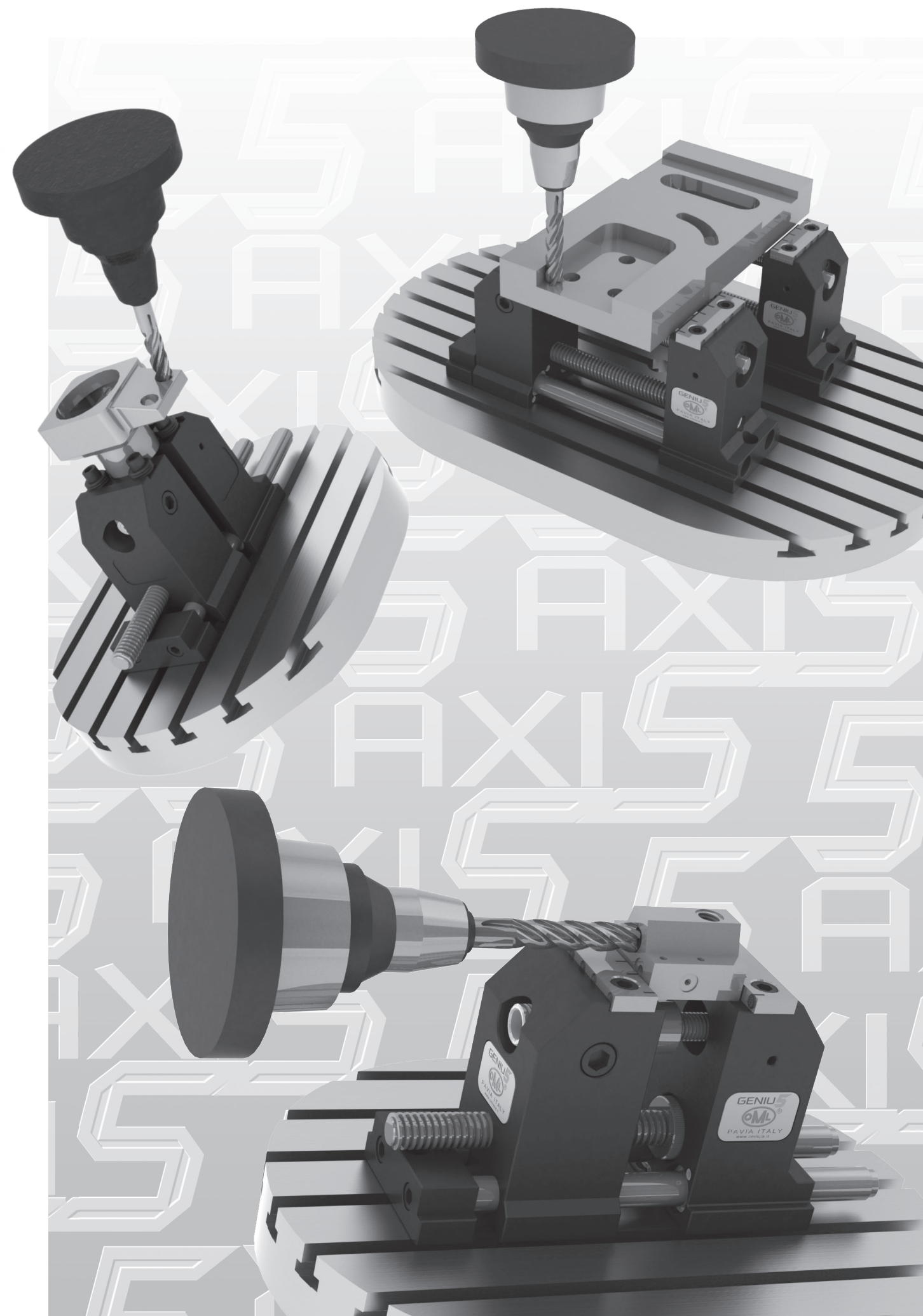
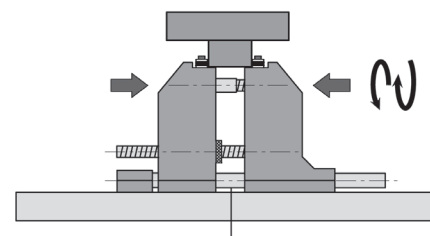
4

GENIUS is the first vise designed for 5 axis-machine tools that can be used for high precision milling operations.

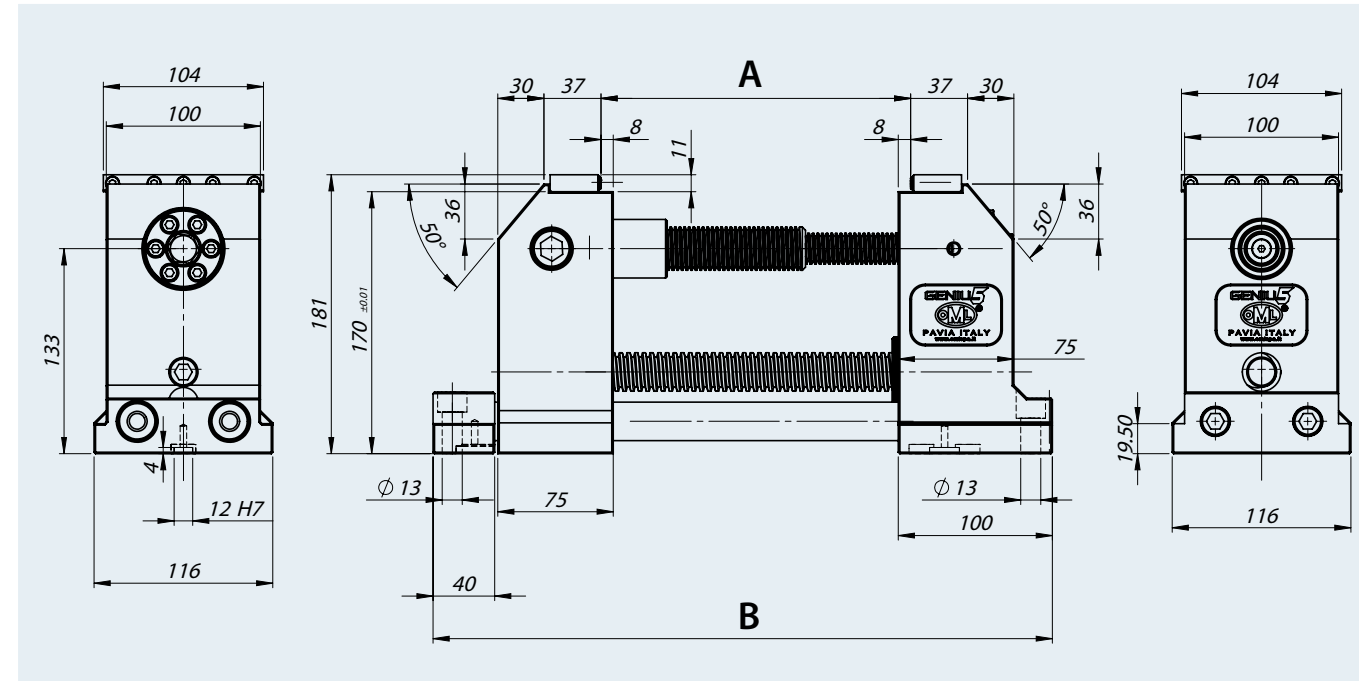
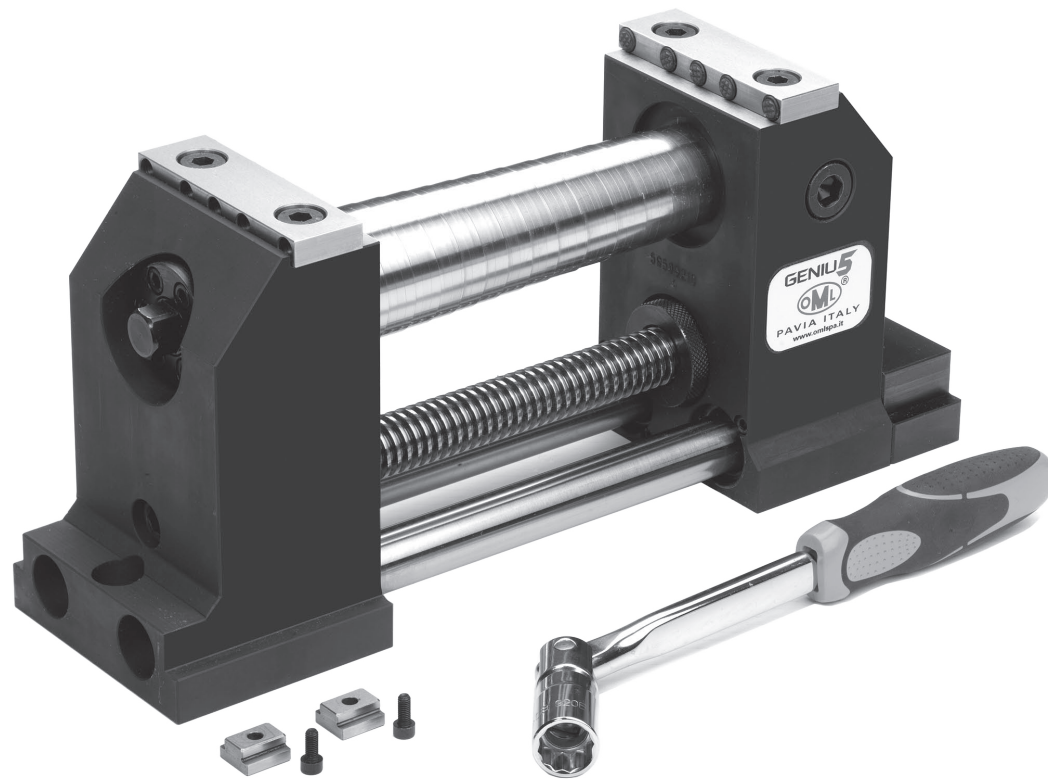


5

The movement of the jaws is not on a base, but on hardened and ground shafts. This allows for quicker and more accurate positioning of both the same axis with the centre of the machine tool pallet.



GENIUS vise, complete with wrench and pair of positioning keys

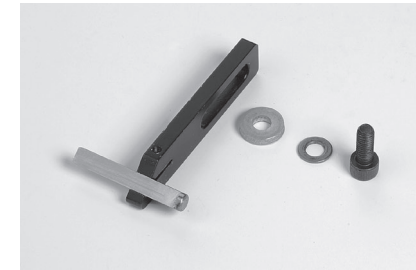


code	type	A*	B	weight kg
77 58 50 01	GENIUS 100	100	312	23
77 58 50 02	GENIUS 200	200	412	25

Special opening “A” upon request

Special applications upon request

accessories



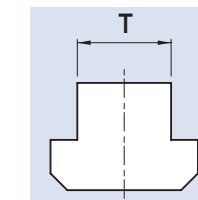
58 50 50 00

work stop



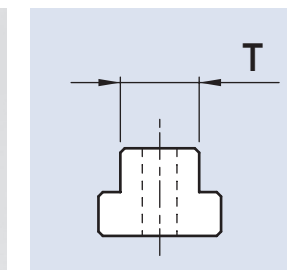
58 50 41 19

pair of smooth/grooved jaws



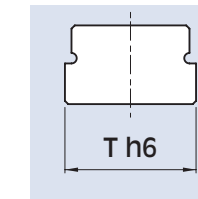
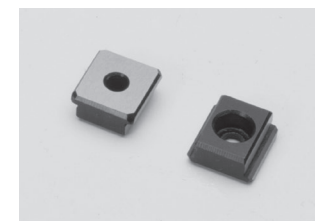
pair of clamps, complete with screw and T-nuts

code					
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22
58 02 27 92	58 02 27 93	58 02 27 94	58 02 27 95	58 02 27 96	58 02 27 97



pair of nuts complete
with screws M12

codice	T mm
58 50 25 93	14
58 50 25 94	16
58 50 25 95	18
58 50 25 96	20
58 50 25 97	22



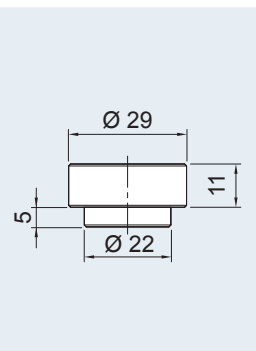
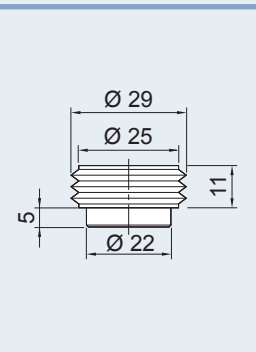
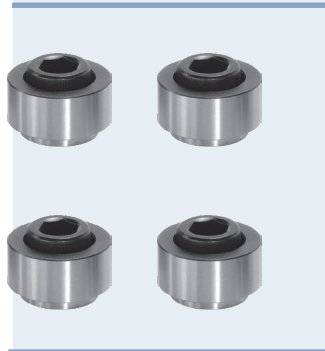
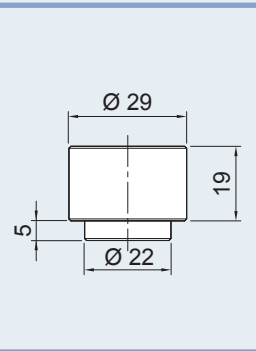
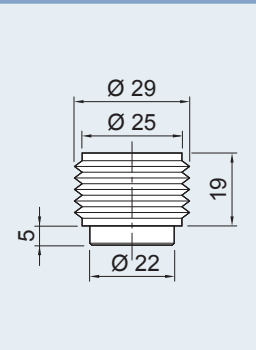
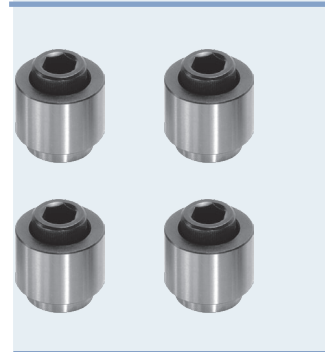
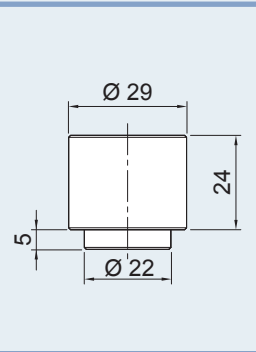
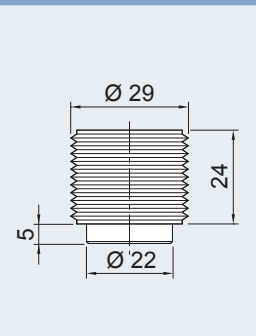
pair of positioning key

code					
mm 12 h6	mm 14 h6	mm 16 h6	mm 18 h6	mm 20 h6	mm 22 h6
58 01 15 92	58 01 15 93	58 01 15 94	58 01 15 95	58 01 15 96	58 01 15 97

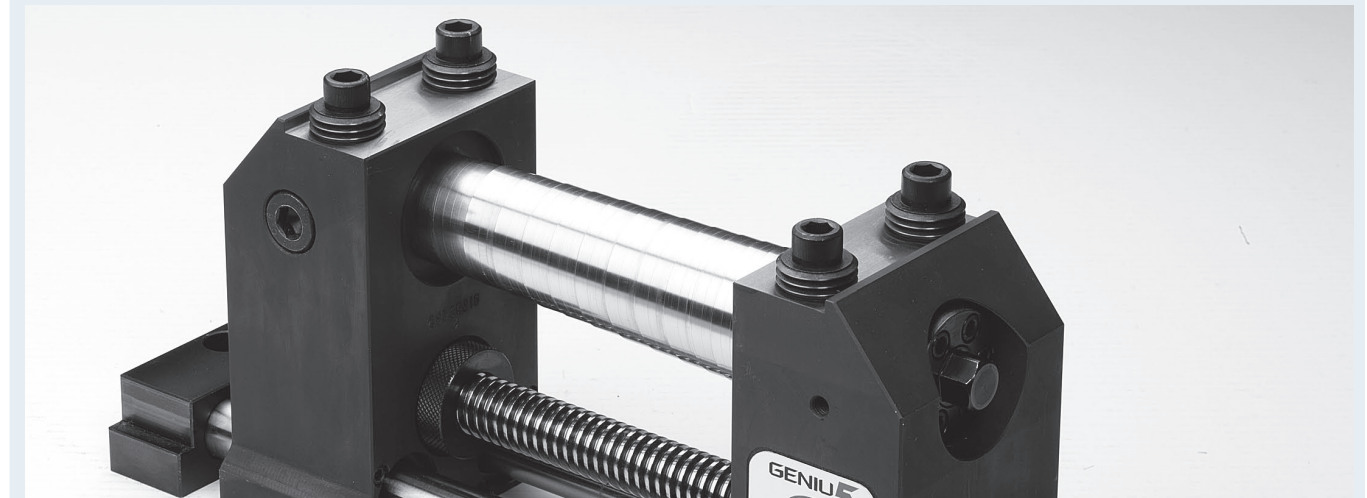
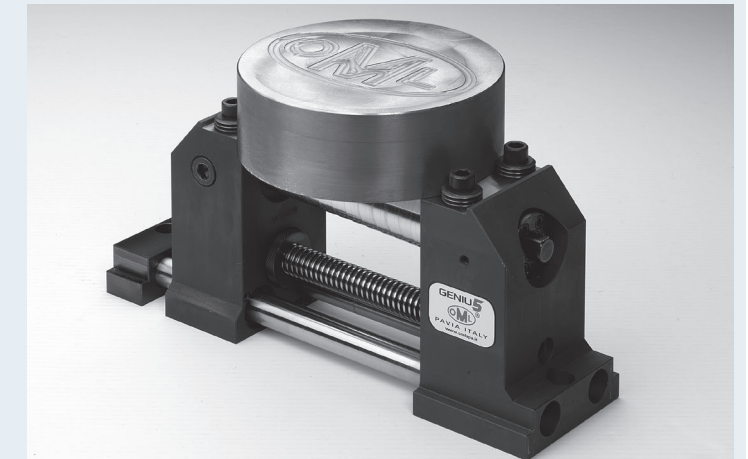


51 50 10 06

torque wrench

		code 58 90 61 14 set of 4 "grippers" h11 smooth
		code 58 90 61 24 set of 4 "grippers" h11 serrated
		code 58 90 62 14 set of 4 "grippers" h19 smooth
		code 58 90 62 24 set of 4 "grippers" h19 serrated
		code 58 90 63 14 set of 4 "grippers" h24 smooth
		code 58 90 63 24 set of 4 "grippers" h24 serrated

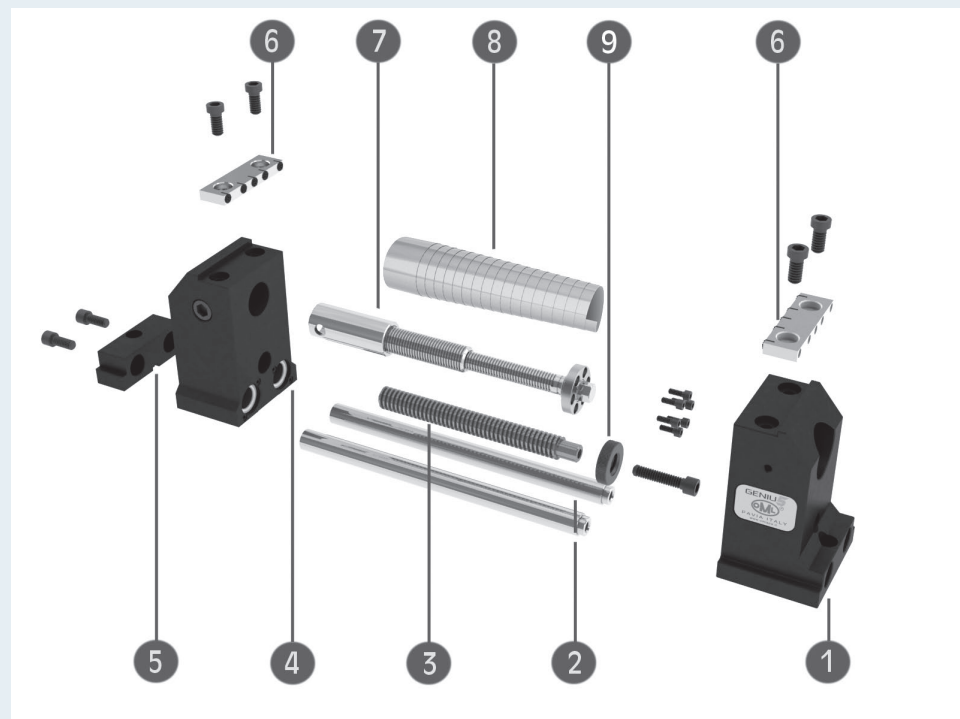
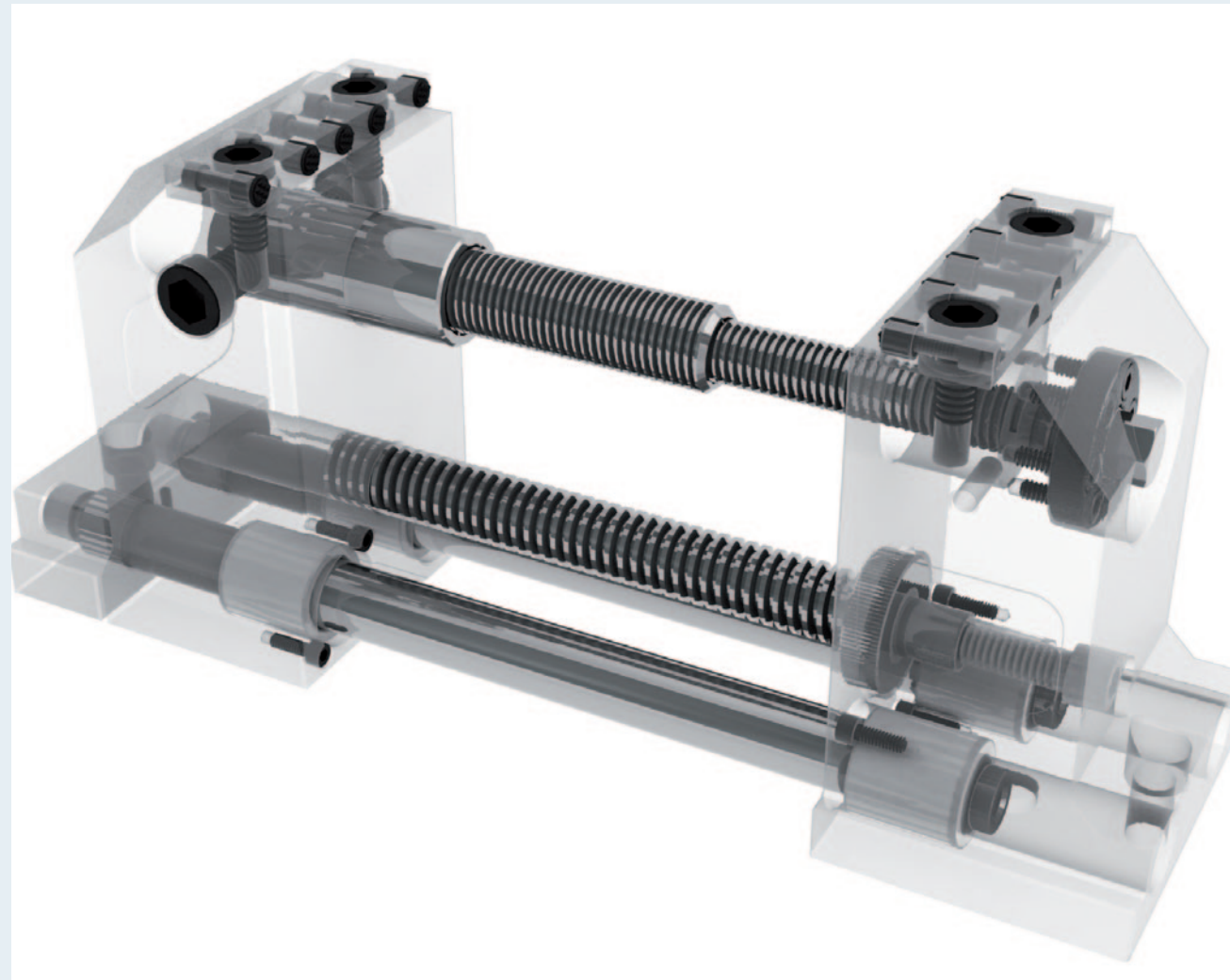
working example with
"grippers"



working example with work stop



GENIU5



spare parts

"GENIUS"



58 50 42 19

pair of jaws with grippers



51 99 20 08

round gripper



51 50 29 10

clamping key



71 29 02 18

telescopic stainless steel carter

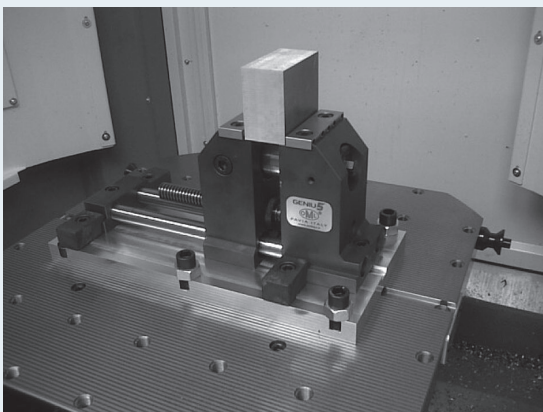
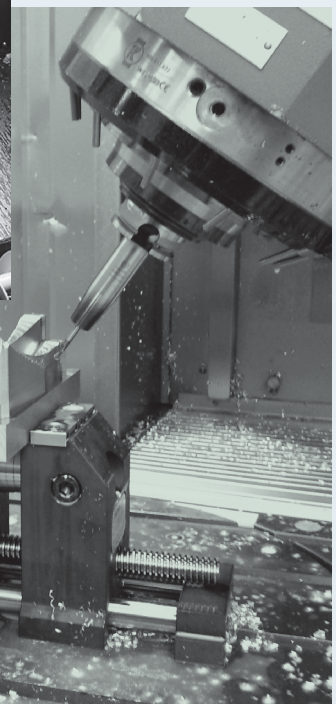
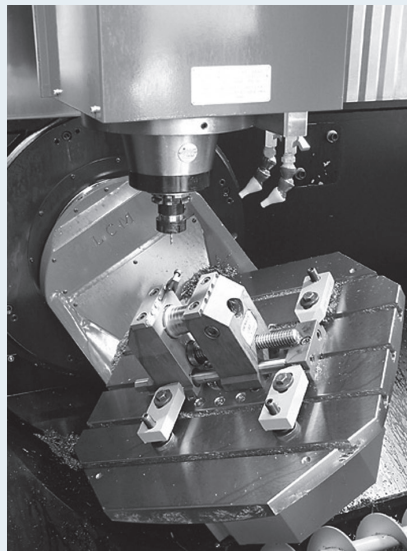
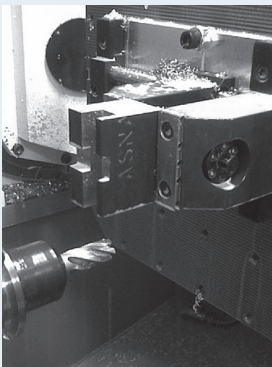
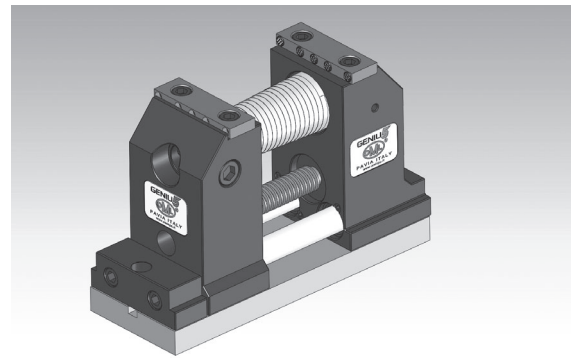
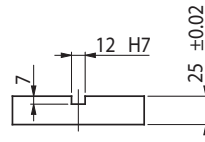
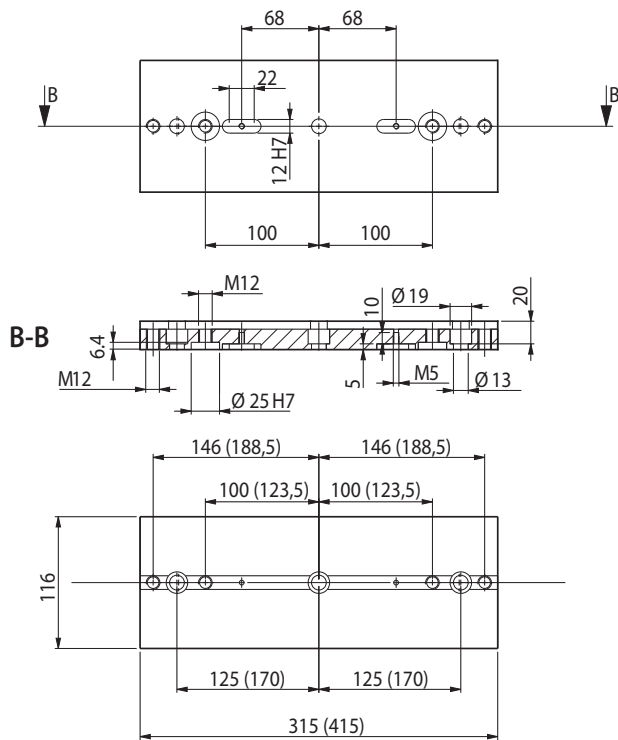


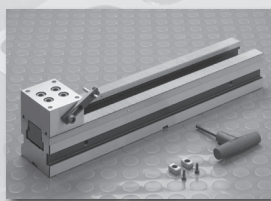
77 58 50 10

spindle group

Plate for vise GENIUS	cod.	type	weight kg
-----------------------	------	------	--------------

58 50 20 10	GENIUS 100	7
(58 50 20 20)	GENIUS 200	9





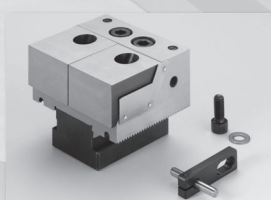
CIVI 2000 base set

pag. 6. 3



CIVI 2000 movable jaw set

pag. 6. 4



Movable set with double jaws

pag. 6. 4



Movable jaw set with aluminium jaws

pag. 6. 5



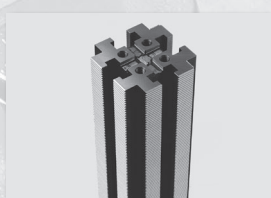
CIVI 2000 accessories

pag. 6. 7



VCS CIVI 2000

pag. 6. 9



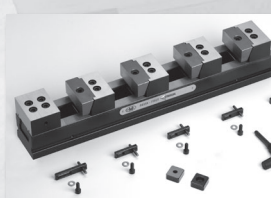
Column CIVI 2000

pag. 6. 12



CIVI 2000 spare parts

pag. 6. 13



TETRABLOK, 4 positions clamping equipment

pag. 6. 17

SERRATION COMPARISON CIVI 2000-TETRABLOK AND COMPETITION
(wedge with normal reaction to the axis without friction)

OML

$Q = R \cdot \text{tg } \alpha$

CIVI 2000

pitch 2,5

TETRABLOK

pitch 2,0

COMPETITION

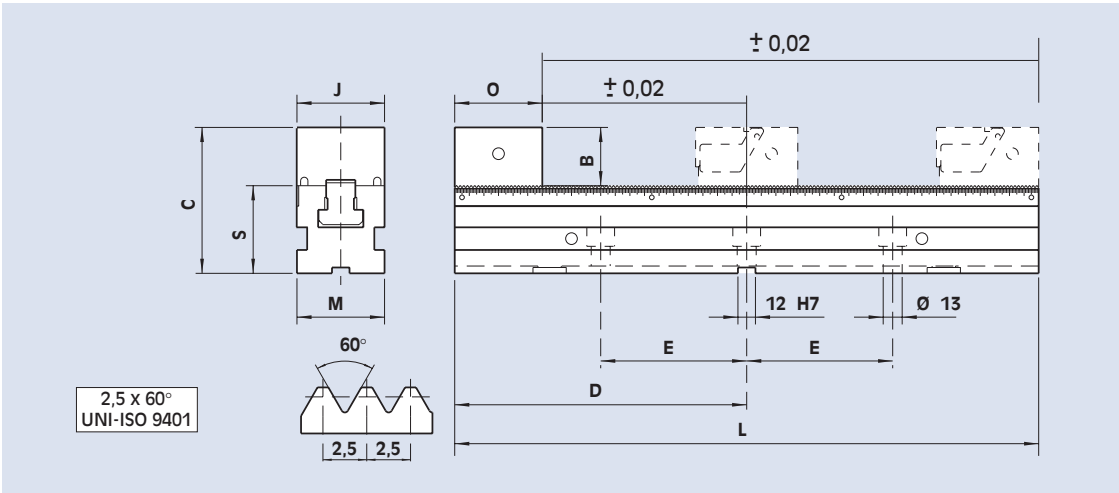
pitch 1,5

pitch 2,0

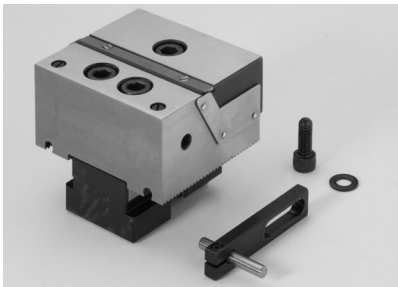
pitch 2,0

CIVI 2000 is a new interesting modular Multi-Clamping system that reduces downtime and maximizes machine tool productivity

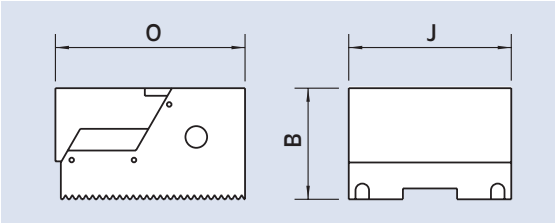
Complete base set with:
1 base (length optional), 1 fixed support, 1 pair of positioning keys, 1 t-wrench



Cod.	for type	B mm	C mm	D mm	E mm	J mm	L mm	M mm	O mm	S ±0,01 mm	Weight kg
77 58 40 04	CIVI 2000/38 x 250			125	100		250				6
77 58 40 01	CIVI 2000/38 x 400	40	100	200	100		400	60	60	60	9
77 58 40 02	CIVI 2000/38 x 500			250	150	38	500				11
77 58 40 03	CIVI 2000/38 x 630			315	200		630				13
77 58 41 04	CIVI 2000/60 x 250			125	100		250				6,5
77 58 41 01	CIVI 2000/60 x 400	40	100	200	100		400	60	60	60	9,5
77 58 41 02	CIVI 2000/60 x 500			250	150	60	500				11,5
77 58 41 03	CIVI 2000/60 x 630			315	200		630				13,5
77 58 42 04	CIVI 2000/90 x 250			125	100		250				11
77 58 42 01	CIVI 2000/90 x 400	45	115	200	100		400	90	70	70	16
77 58 42 02	CIVI 2000/90 x 500			250	150		500				19,5
77 58 42 03	CIVI 2000/90 x 630			315	200		630				23,5



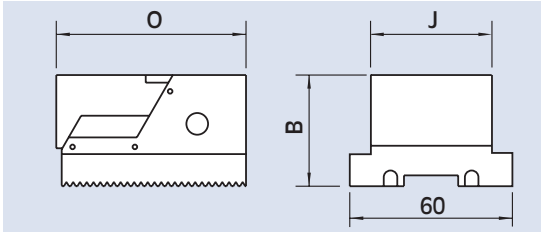
Movable jaw set J60-J90 smooth complete with:
1 movable slide-way,
1 work stop



Cod.	for type	B mm	J mm	O mm	Weight kg
77 58 41 23	CIVI 2000/60 x ...	40	60	70	1,4
77 58 42 23	CIVI 2000/90 x ...	45	90	80	2,9



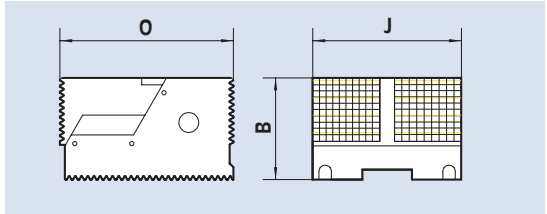
Movable jaw set J38 smooth complete with:
1 movable slide-way,
1 work stop



Cod.	for type	B mm	J mm	O mm	Weight kg
77 58 40 23	CIVI 2000/38 x ...	40	38	70	1



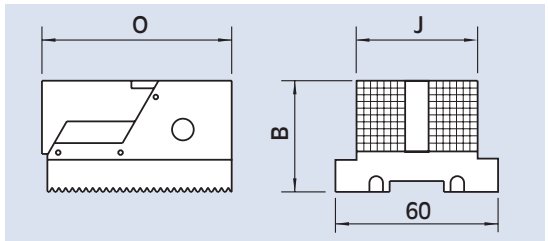
Movable jaw set J60-J90 with grooved jaws
(for raw workpieces)



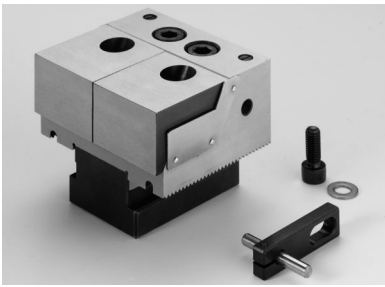
Cod.	for type	B mm	J mm	O mm	Weight kg
77 58 41 28	CIVI 2000/60	40	60	70	1.4
77 58 42 28	CIVI 2000/90	45	90	80	2.9



Movable jaw set J38 with grooved jaws
(for raw workpieces)

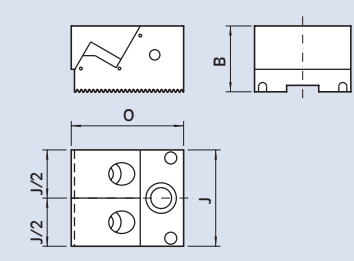
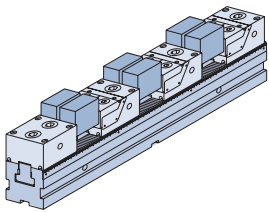


Cod.	for type	B mm	J mm	O mm	Weight kg
77 58 40 28	CIVI 2000/38 x ...	40	38	70	1

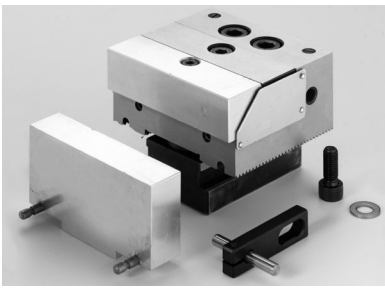


Movable set with double jaws

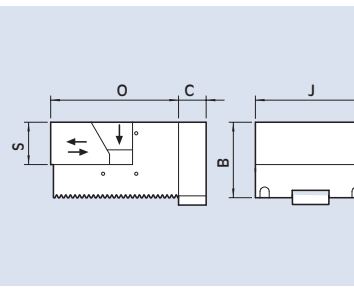
Working example



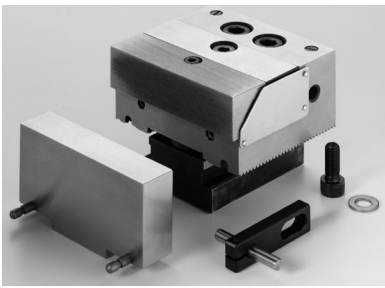
Cod.	for type	B mm	J mm	O mm	Weight kg
77 58 41 24	CIVI 2000/60 x ...	40	60	70	1,5
77 58 42 24	CIVI 2000/90 x ...	45	90	80	3



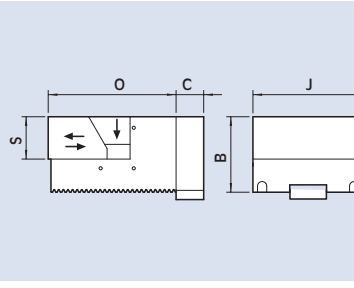
Movable jaw set with
aluminium jaws



Cod.	for type	B mm	C mm	J mm	O mm	S mm	Weight kg
77 58 41 25	CIVI 2000/60 x ...	40	15	60	69,5	23	1,2
77 58 42 25	CIVI 2000/90 x ...	45	20	90	80	25	2,7



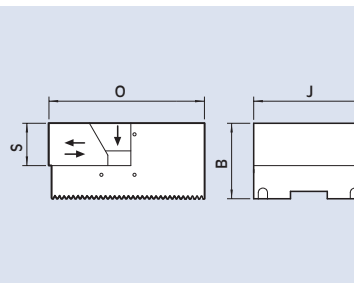
Movable jaw set with
steel soft jaws



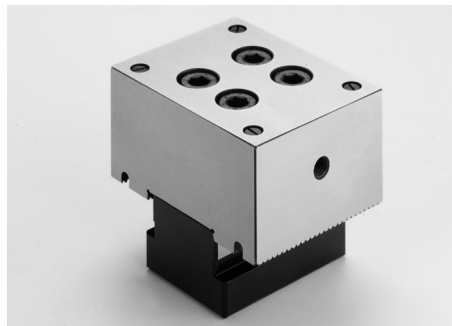
Cod.	for type	B mm	C mm	J mm	O mm	S mm	Weight kg
77 58 41 26	CIVI 2000/60 x ...	40	15	60	69,5	23	1,4
77 58 42 26	CIVI 2000/90 x ...	45	20	90	80	25	3



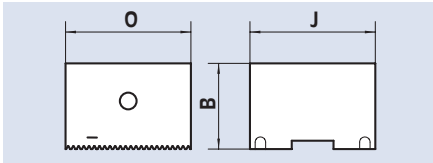
Movable jaw set with steel
hardened jaw



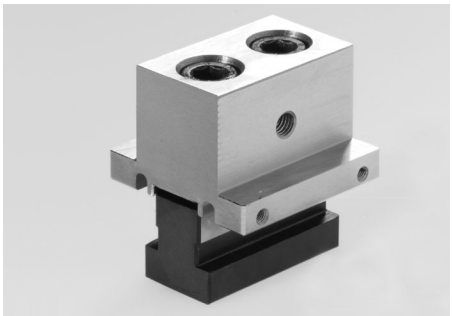
Cod.	for type	B mm	J mm	O mm	S mm	Weight kg
77 58 41 27	CIVI 2000/60	40	60	69,5	23	1,4
77 58 42 27	CIVI 2000/90	45	90	80	25	3



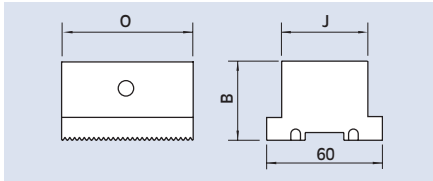
Fixed support with fixed slide way J60-J90



Cod.	for type	B mm	J mm	O mm	Weight kg
58 41 72 00	CIVI 2000/60	40	60	60	1,4
58 42 72 00	CIVI 2000/90	45	90	70	2,9



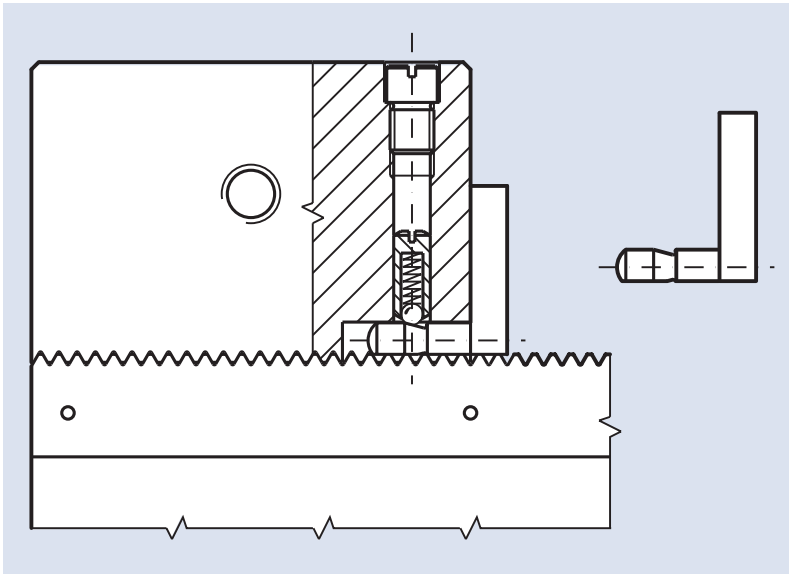
Fixed support with fixed slide way J38



Cod.	for type	B mm	J mm	O mm	Weight kg
58 40 72 00	CIVI 2000/38	40	38	60	0,87

CLAK-SYSTEM

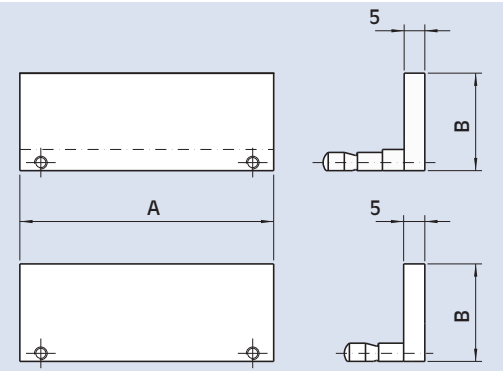
parallels for CIVI 2000



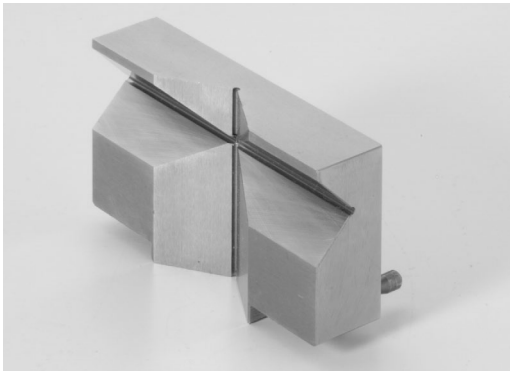
The exclusive and proven CLAK SYSTEM, for the quick replacement of parallels and jaws has been applied for use with the CIVI 2000 equipment with a new patent. This equipment offers:
a) The quick replacement of parallels and jaws
b) The elimination of clamps and locks thanks to the patented selflocking system
c) The increase in accuracy
All components are heat treated and precision ground.



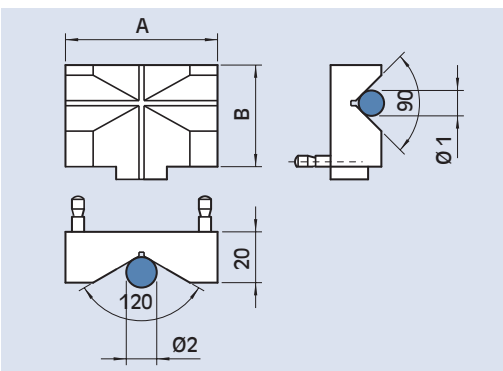
Set of 4 pair of parallels "Clak System"



Cod.	for type	A mm	B mm				Weight kg
58 40 92 04	CIVI 2000/38 x ...	38	18	23	28	37	0,4
58 41 92 04	CIVI 2000/60 x ...	60	18	23	28	37	0,49
58 42 92 04	CIVI 2000/90 x ...	90	18	23	33	42	0,77

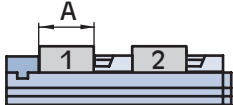
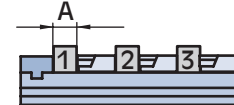
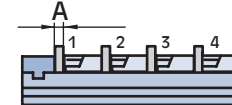


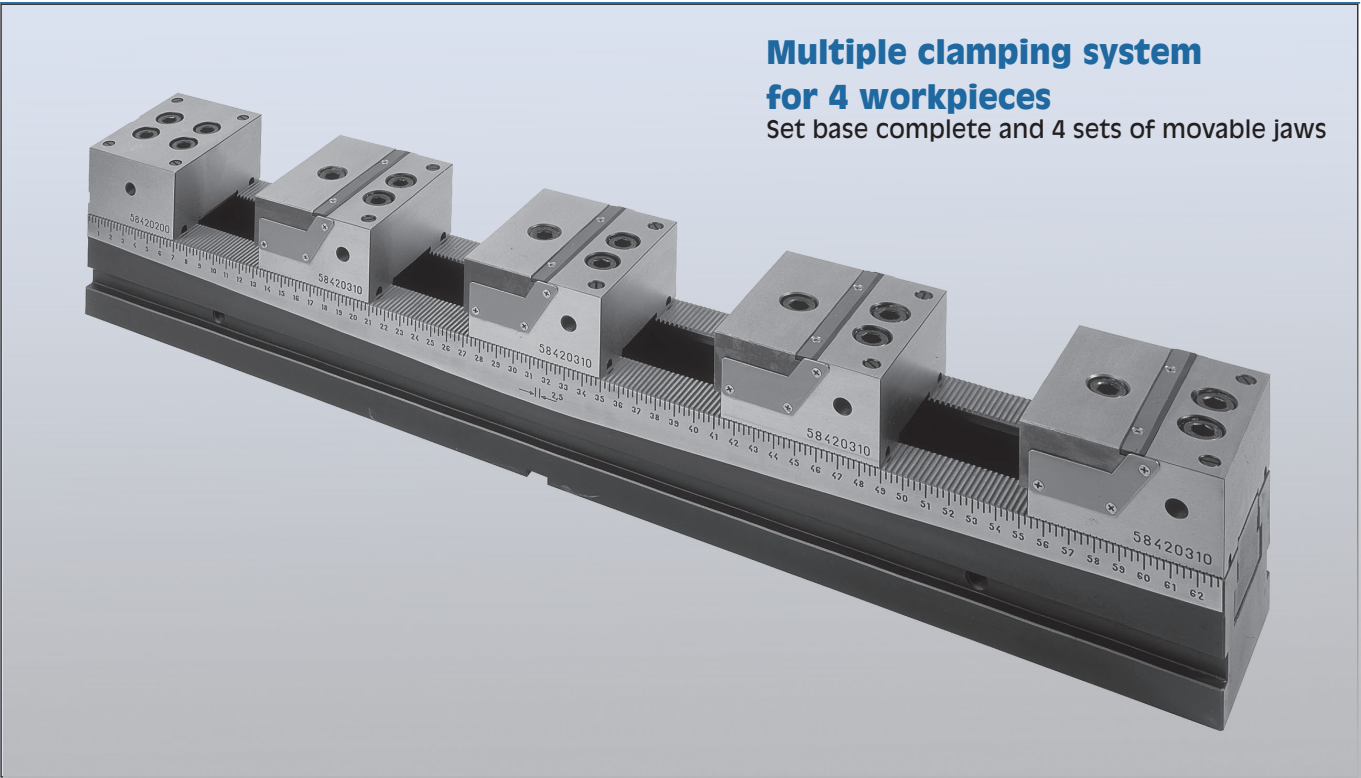
V jaw "Clak System"



Cod.	for type	A mm	B mm	Ø 1		Ø 2	
				MIN mm	MAX mm	MIN mm	MAX mm
58 40 94 00	CIVI 2000/38 x ...	38	40	10	24	9	45
58 41 94 00	CIVI 2000/60 x ...	60	40	10	28	11	70
58 42 94 00	CIVI 2000/90 x ...	90	45	10	28	11	70

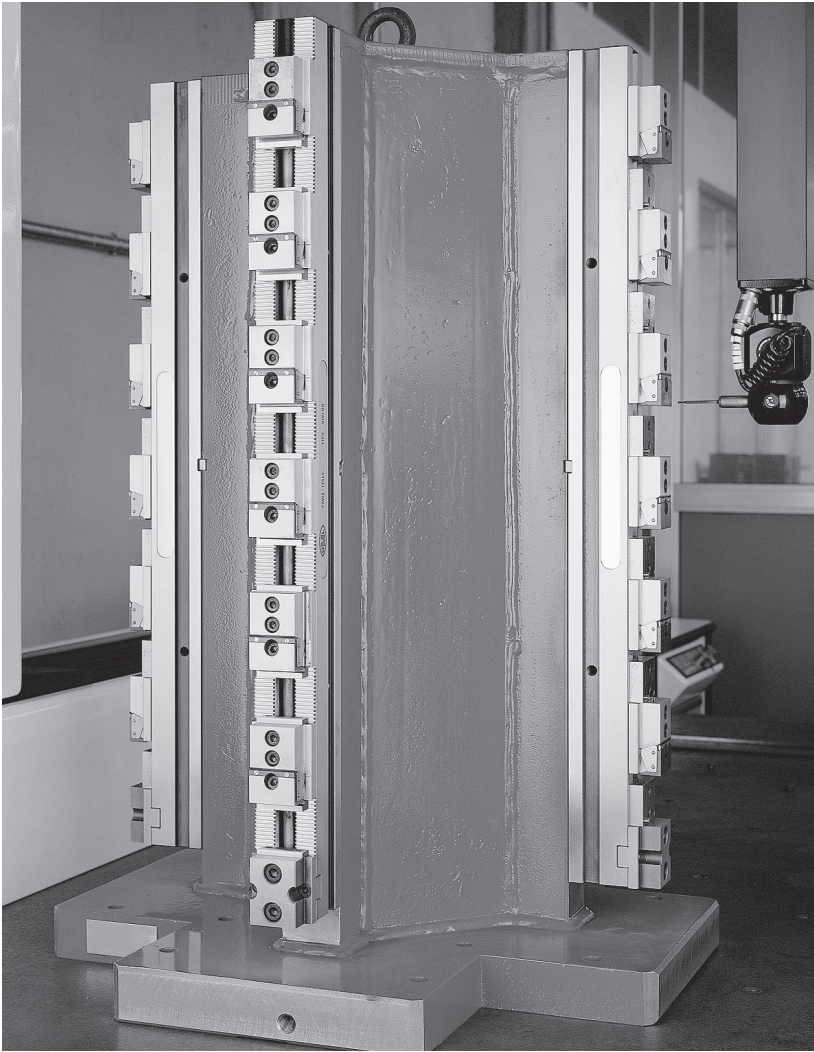
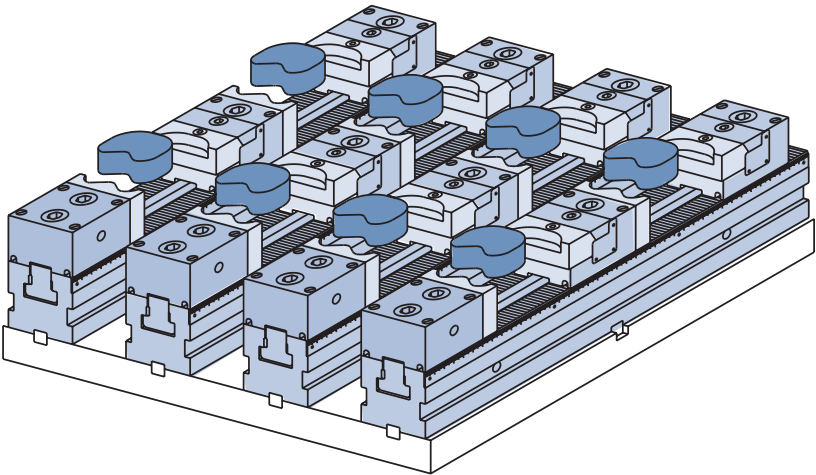
Clamping capacity

				
	A max mm			
CIVI2000/38/60-250	120	25	-	-
CIVI2000/38/60-400	270	100	43	15
CIVI2000/38/60-500	370	150	76	40
CIVI2000/38/60-630	500	215	120	73
CIVI 2000/90-250	99	-	-	-
CIVI 2000/90-400	249	84	29	-
CIVI 2000/90-500	349	134	62	26
CIVI 2000/90-630	479	199	106	59

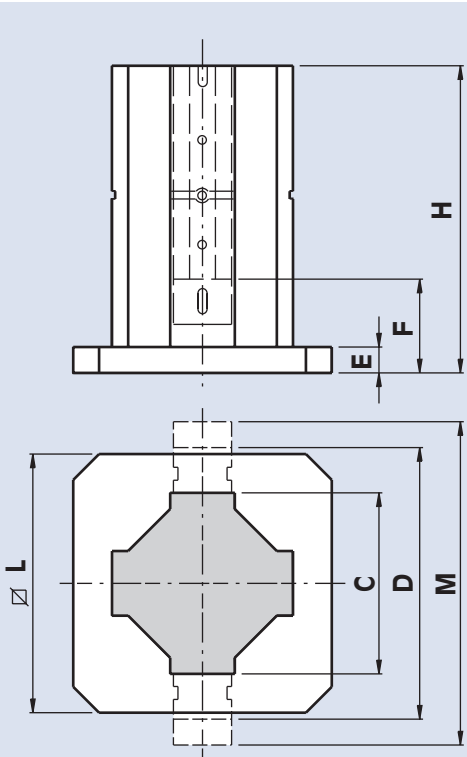


Multiple clamping system
for 4 workpieces
Set base complete and 4 sets of movable jaws

Example of assembling with soft jaws



V.C.S. CIVI 2000/4
Illustration shows one possible configuration.

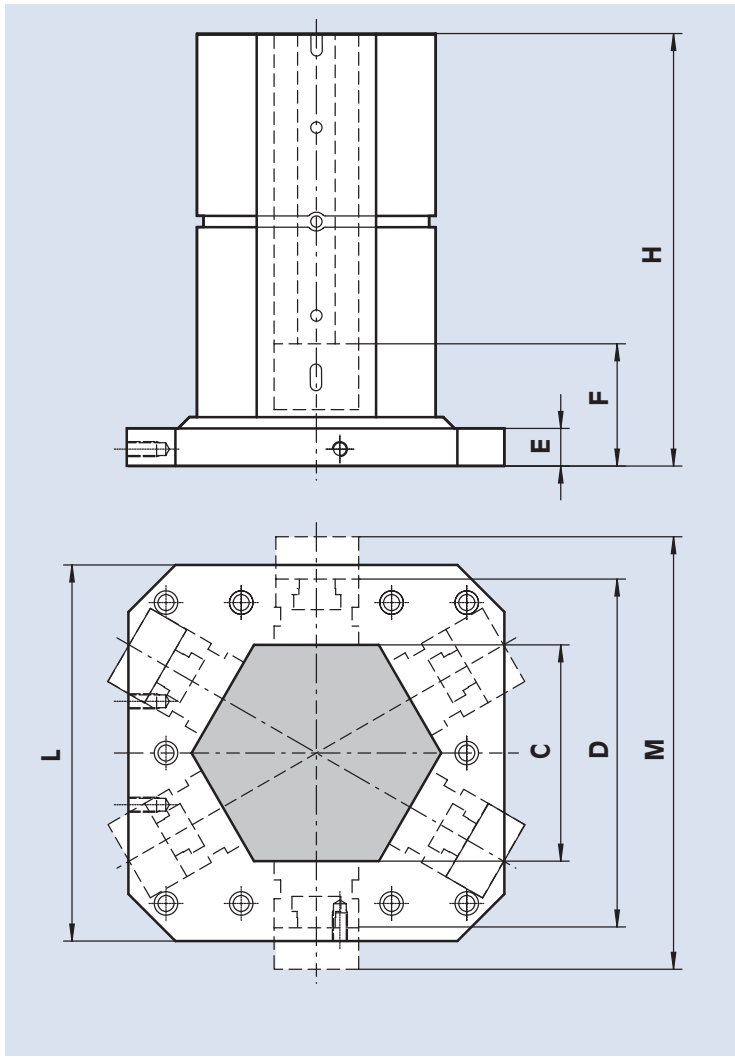
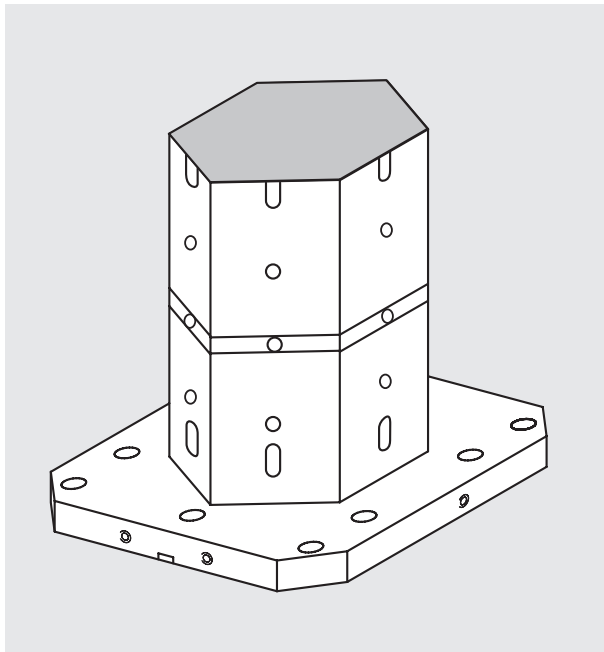


STEEL	Cod.	for type	C mm	D mm	E mm	F mm	H mm	L mm	M mm	Weight kg
	58 41 80 11	CIVI 2000/38/60-400	250	370	40	120	460	400	450	110
	58 41 80 21	CIVI 2000/38/60-500	250	370	40	120	560	400	450	123
	58 41 80 22	CIVI 2000/38/60-500	300	420	40	120	560	500	500	165
	58 41 80 31	CIVI 2000/38/60-630	250	370	40	120	690	400	450	142
	58 41 80 32	CIVI 2000/38/60-630	300	420	40	120	690	500	500	187
	58 41 80 33	CIVI 2000/38/60-630	380	500	40	120	690	630	580	261
	58 42 80 11	CIVI 2000/90-400	250	390	40	130	460	400	480	110
	58 42 80 21	CIVI 2000/90-500	250	390	40	130	560	400	480	123
	58 42 80 22	CIVI 2000/90-500	300	440	40	130	560	500	530	165

* Weight only for V.C.S. without CIVI

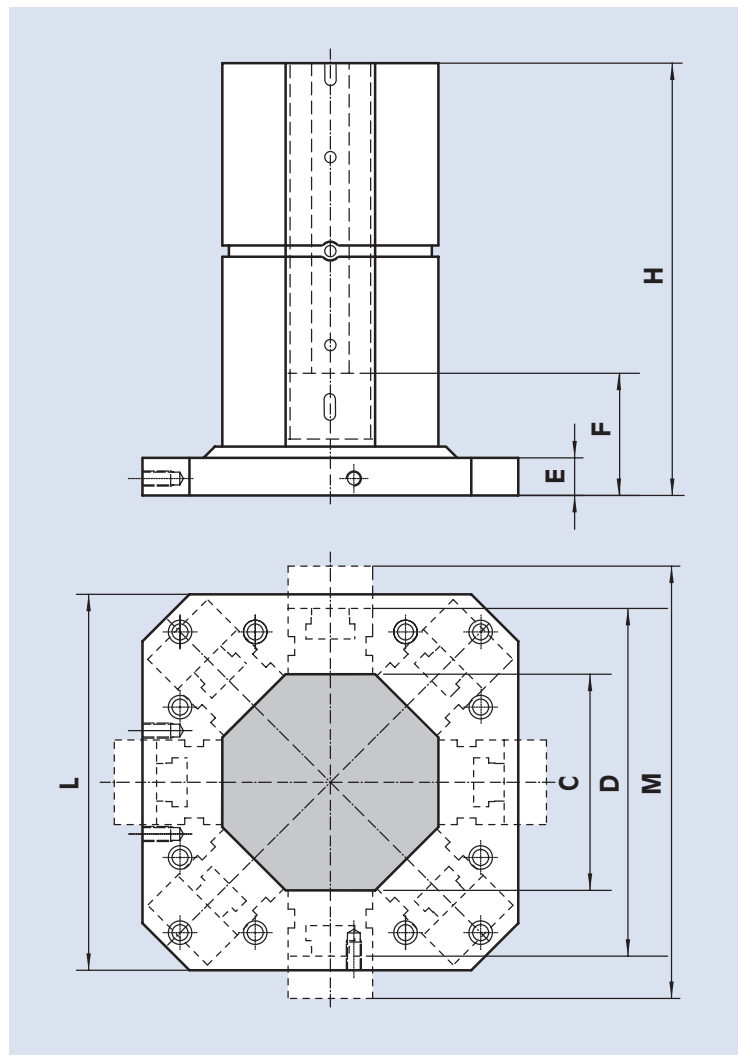
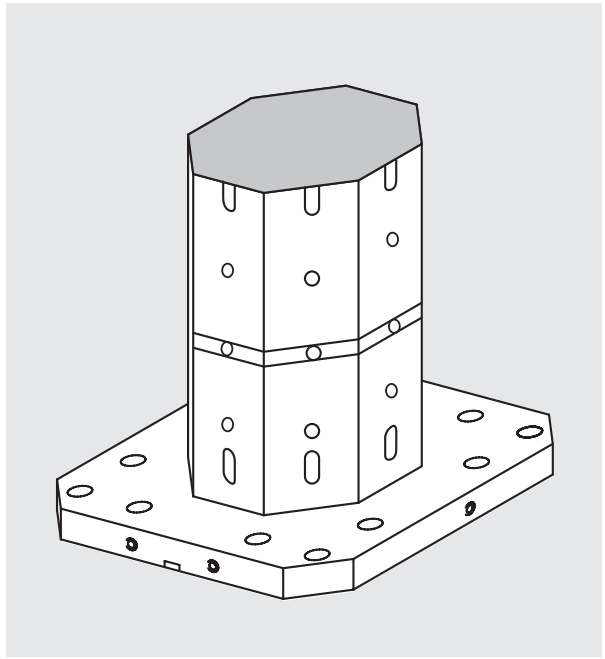
ALUMINIUM	Cod.	for type	C mm	D mm	E mm	F mm	H mm	L mm	M mm	Weight kg
	58 42 79 31	CIVI 2000/38/60-630	250	370	40	120	690	400	450	66
	58 42 79 32	CIVI 2000/38/60-630	250	370	40	120	690	400	450	76
	58 42 79 33	CIVI 2000/38/60-630	250	500	40	120	690	630	580	122
	58 42 79 31	CIVI 2000/90-630	250	390	40	130	690	400	480	66
	58 42 79 32	CIVI 2000/90-630	250	390	40	130	690	500	480	76

* Weight only for V.C.S. without CIVI



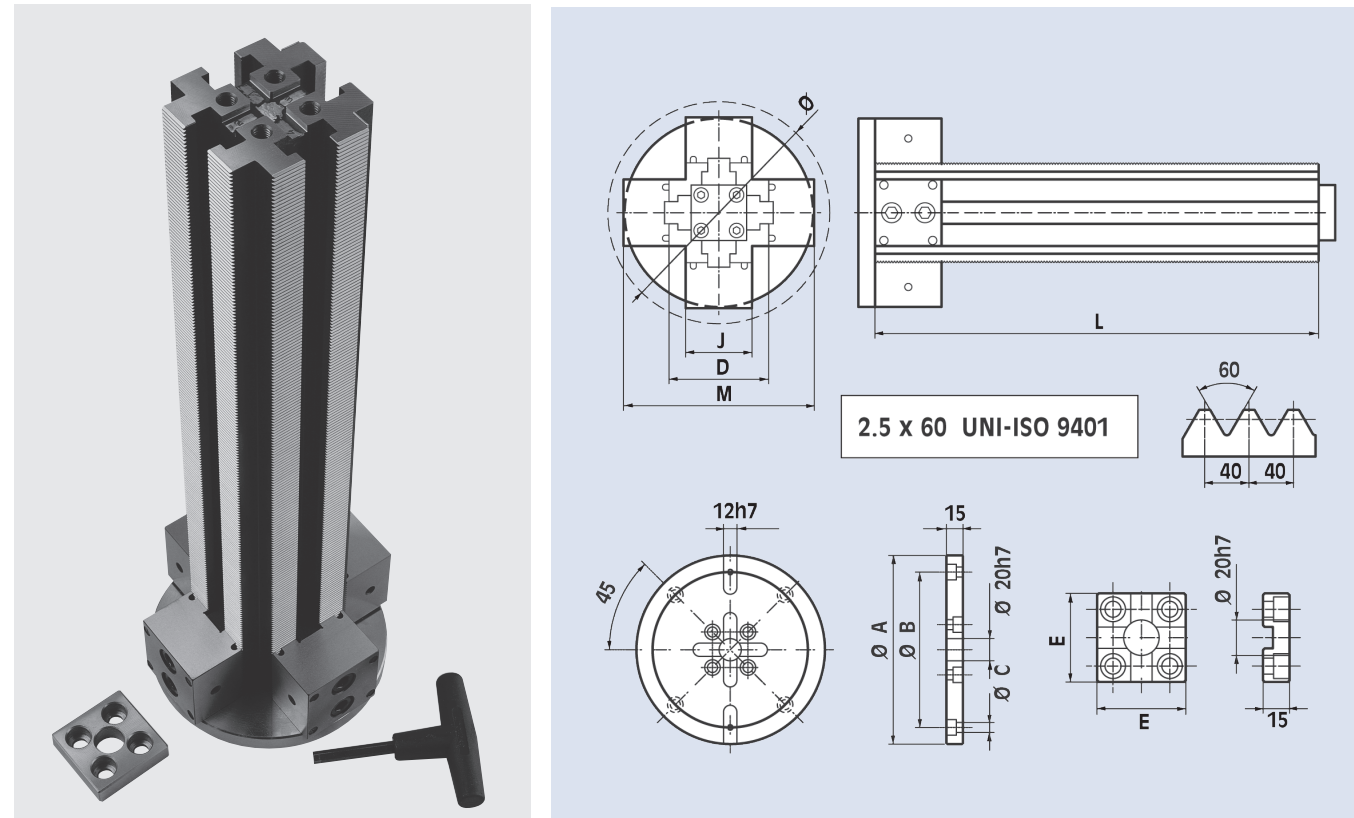
STEEL	Cod.	for type	C mm	D mm	E mm	F mm	H mm	L mm	M mm	Weight kg
	58 42 85 11	CIVI 2000/38/60-400	250	370	40	120	460	400	450	119
	58 42 85 21	CIVI 2000/38/60-500	250	370	40	120	560	400	450	138
	58 42 85 22	CIVI 2000/38/60-500	250	370	40	120	560	500	450	165
	58 42 85 31	CIVI 2000/38/60-630	250	370	40	120	690	400	450	160
	58 42 85 32	CIVI 2000/38/60-630	250	370	40	120	690	500	450	188
	58 42 85 33	CIVI 2000/38/60-630	380	500	40	120	690	630	580	308
	58 42 85 11	CIVI 2000/90-400	250	390	40	130	460	400	480	119
	58 42 85 21	CIVI 2000/90-500	250	390	40	130	560	400	480	138
	58 42 85 22	CIVI 2000/90-500	250	390	40	130	560	500	480	165

ALUMINIUM	Cod.	for type	C mm	D mm	E mm	F mm	H mm	L mm	M mm	Weight kg
	58 42 75 31	CIVI 2000/38/60-630	250	370	40	120	690	400	450	68
	58 42 75 32	CIVI 2000/38/60-630	250	370	40	120	690	500	450	79
	58 42 75 33	CIVI 2000/38/60-630	380	500	40	120	690	630	580	126
	58 42 75 31	CIVI 2000/90-630	250	390	40	130	690	400	480	68
	58 42 75 32	CIVI 2000/90-630	250	390	40	130	690	500	480	79
	58 42 75 33	CIVI 2000/90-630	380	520	40	130	690	630	610	126

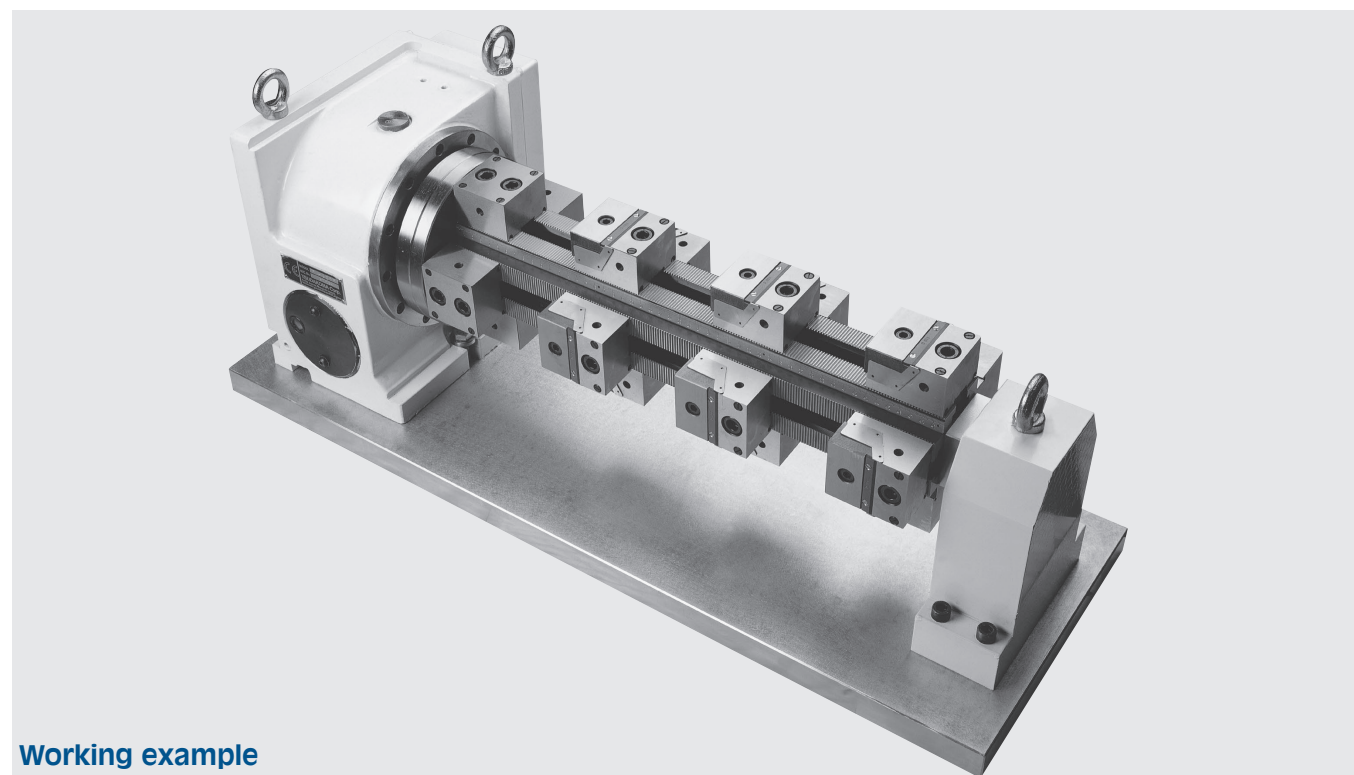


STEEL	Cod.	for type	C mm	D mm	E mm	F mm	H mm	L mm	M mm	Weight kg
	58 42 86 11	CIVI 2000/38/60-400	250	370	40	120	460	400	450	116
	58 42 86 21	CIVI 2000/38/60-500	250	370	40	120	560	400	450	133
	58 42 86 22	CIVI 2000/38/60-500	250	370	40	120	560	500	450	162
	58 42 86 31	CIVI 2000/38/60-630	250	370	40	120	690	400	450	155
	58 42 86 32	CIVI 2000/38/60-630	250	370	40	120	690	500	450	183
	58 42 86 33	CIVI 2000/38/60-630	380	500	40	120	690	630	580	300
	58 42 86 11	CIVI 2000/90-400	250	390	40	130	460	400	480	116
	58 42 86 21	CIVI 2000/90-500	250	390	40	130	560	400	480	133
	58 42 86 22	CIVI 2000/90-500	250	390	40	130	560	500	480	162

ALUMINIUM	Cod.	for type	C mm	D mm	E mm	F mm	H mm	L mm	M mm	Weight kg
	58 42 76 31	CIVI 2000/38/60-630	250	370	40	120	690	400	450	66
	58 42 76 32	CIVI 2000/38/60-630	250	370	40	120	690	500	450	76
	58 42 76 33	CIVI 2000/38/60-630	380	500	40	120	690	630	580	122
	58 42 76 31	CIVI 2000/90-630	250	390	40	130	690	400	480	66
	58 42 76 32	CIVI 2000/90-630	250	390	40	130	690	500	480	76
	58 42 76 33	CIVI 2000/90-630	380	520	40	130	690	630	610	122



Cod.	for type	J mm	D mm	M mm	L mm	Ø rot. mm	Ø A mm	Ø B mm	Ø C mm	E mm	Weight kg
77 58 41 11	CIVI 2000/60-400				400						19
77 58 41 12	CIVI 2000/60-500	60	90	170	500	200	170	140	9	50	23
77 58 41 13	CIVI 2000/60-630				630						29
77 58 42 11	CIVI 2000/90-400				400						34
77 58 42 12	CIVI 2000/90-500	90	115	205	500	230	210	180	11	70	41
77 58 42 13	CIVI 2000/90-630				630						50

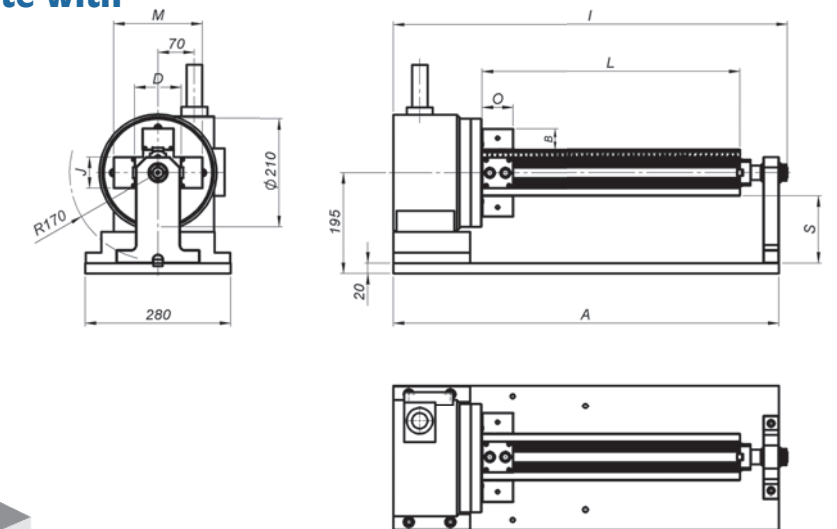
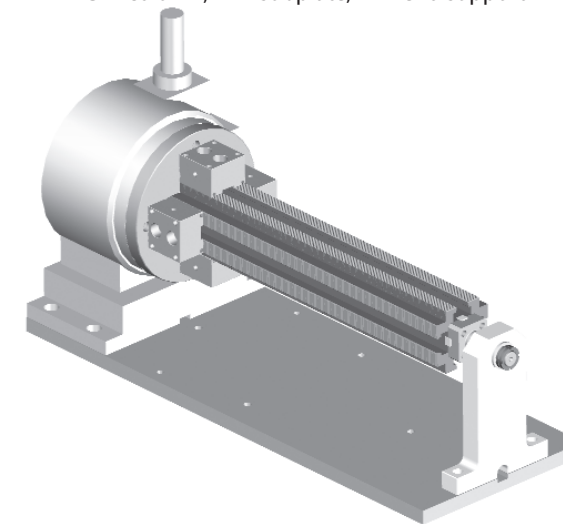


Working example

COMBIDEX

Multicombidex CIVI 2000 complete with

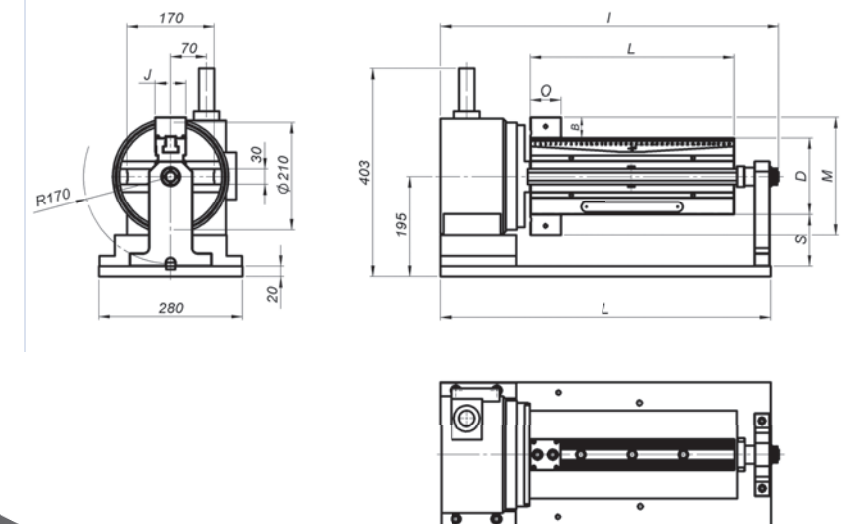
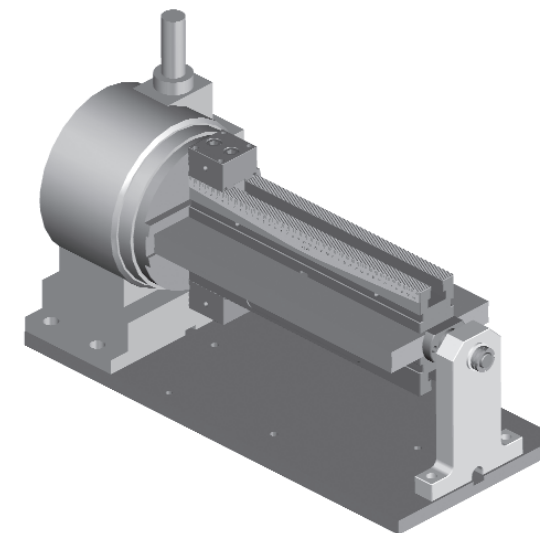
N° 1 indexing table FD 200-04 (5°/ 90°)
N° 1 CIVI column; N° 1 subplate; N° 1 end support



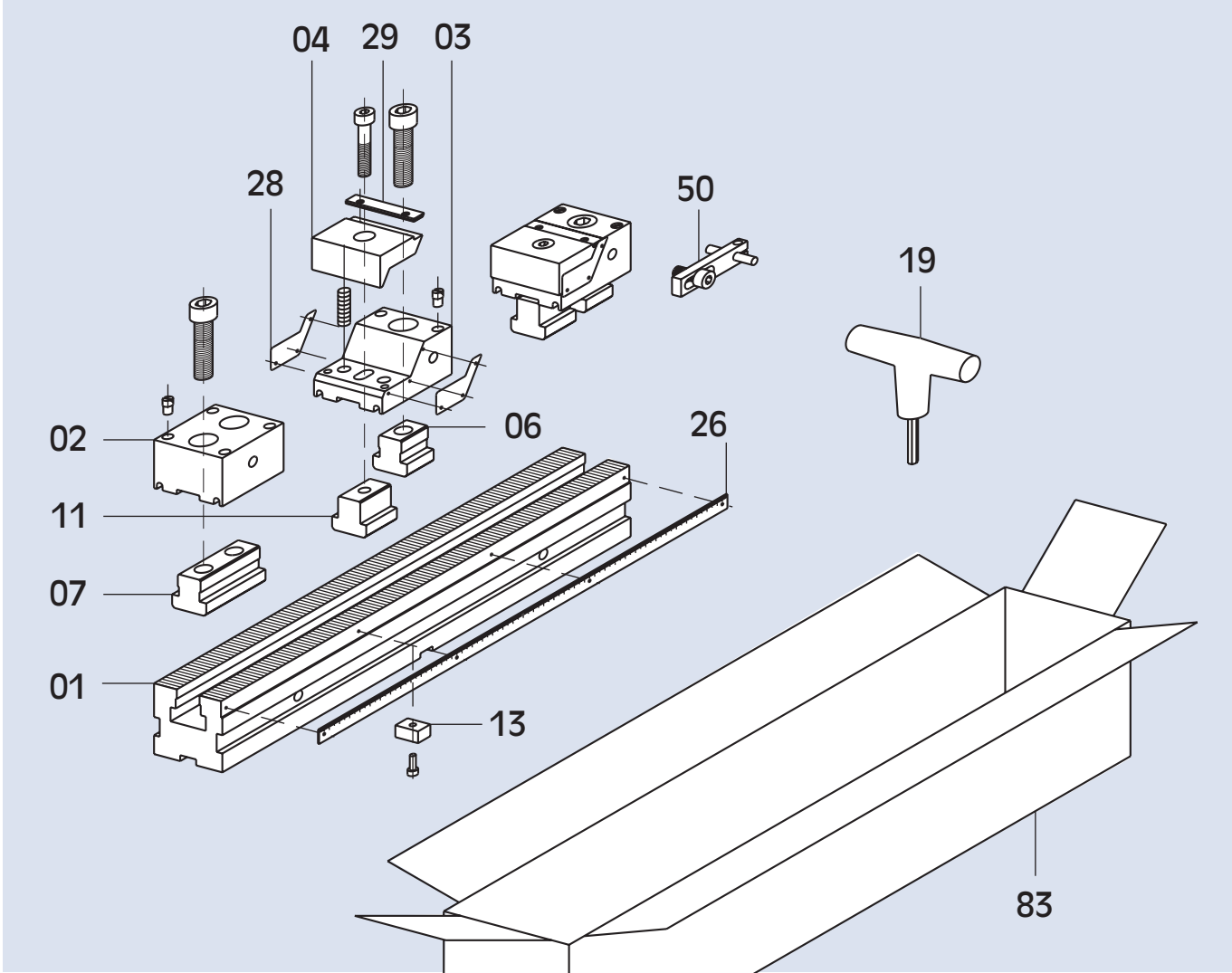
Cod.	for type	A mm	B mm	D mm	J mm	I mm	L mm	M mm	O mm	S mm	weight kg
33 58 41 11	CV60/400	646				663	400				112
33 58 41 12	CV60/500	746	40	90	60	763	500	170	60	130	120
33 58 41 13	CV60/630	876				893	630				132
33 58 42 11	CV90/400	646				663	400				119
33 58 42 12	CV90/500	746	45	115	90	763	500	205	70	117,5	137
33 58 42 13	CV90/630	876				893	630				157

CIVI 2000 combidex CIVI 2000 complete with

N° 1 indexing table FD 200-04 (5°/ 90°)
N° 2 set base CIVI L=400 mm
N° 1 subplate; N° 1 end support



Cod.	for type	A mm	B mm	D mm	J mm	I mm	L mm	M mm	O mm	S mm	weight kg
33 58 41 01	60/400	646	40	150	60	663	400	230	60	100	120
33 58 42 02	90/400	646	45	170	90	663	400	290	70	110	135

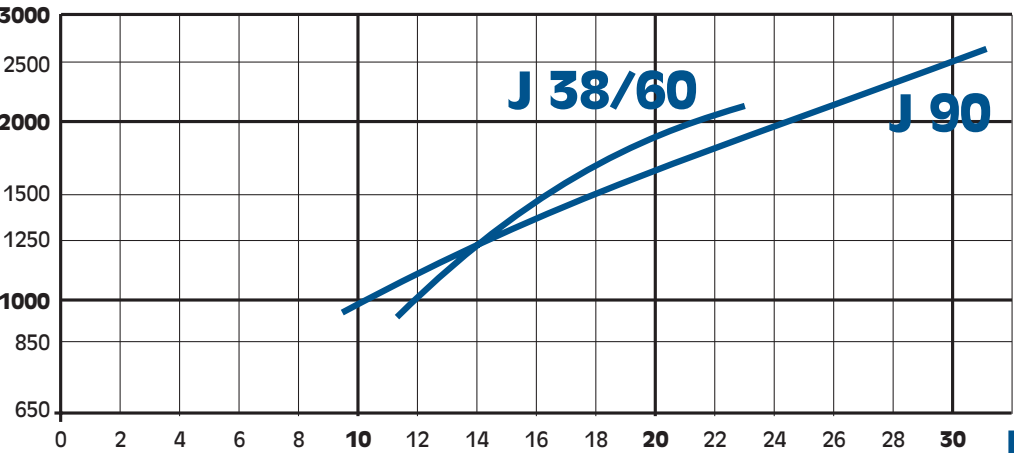


Description

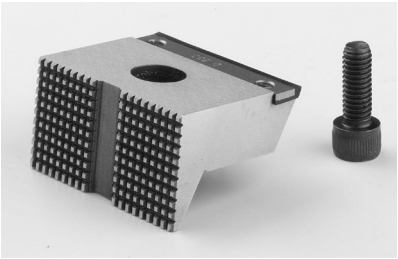
01.....	Base	07.....	Nuts	28.....	Casing for protection
02.....	Fixed support	11.....	Nuts	29.....	Guard
03.....	Movable support	13.....	Positioning keys	50.....	Work stop
04.....	Jaw	19.....	T-wrench	83.....	Cardboard box
06.....	Nuts	26.....	Steel rule		

Clamping forces curves

F (da N)

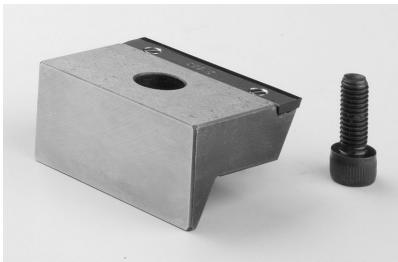


M (Nm)



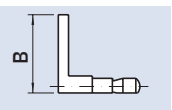
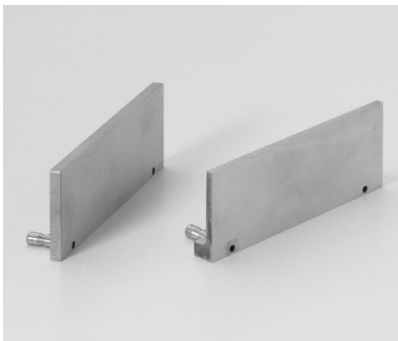
Grooved jaw

Cod.	for type
58 40 44 19	CIVI 2000/38 x ...
58 41 44 19	CIVI 2000/60 x ...
58 42 44 19	CIVI 2000/90 x ...



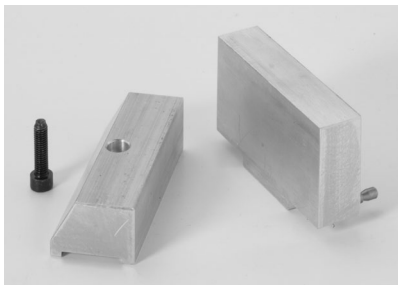
Smooth jaw with guard

Cod.	for type
58 40 04 09	CIVI 2000/38 x ...
58 41 04 09	CIVI 2000/60 x ...
58 42 04 09	CIVI 2000/90 x ...

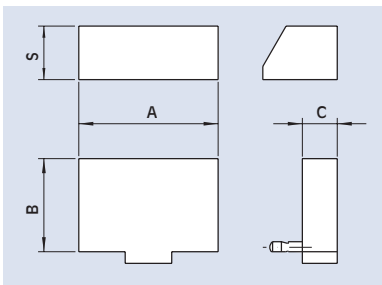


Pair of parallels "Clak System"

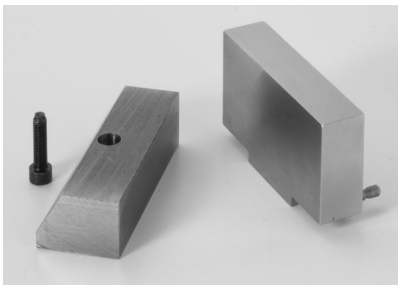
Cod.	for type	B mm	Cod.	for type	B mm	Cod.	for type	B mm
58 40 35 18	CIVI 2000/38 x ...	18	58 41 35 18	CIVI 2000/60 x ...	18	58 42 35 18	CIVI 2000/90 x ...	18
58 40 35 23	CIVI 2000/38 x ...	23	58 41 35 23	CIVI 2000/60 x ...	23	58 42 35 23	CIVI 2000/90 x ...	23
58 40 35 28	CIVI 2000/38 x ...	28	58 41 35 28	CIVI 2000/60 x ...	28	58 42 35 33	CIVI 2000/90 x ...	33
58 40 35 37	CIVI 2000/38 x ...	37	58 41 35 37	CIVI 2000/60 x ...	37	58 42 35 42	CIVI 2000/90 x ...	42



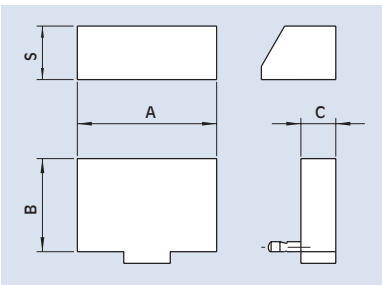
Pair of aluminium jaws "Clak System"



Cod.	for type	A mm	B mm	C mm	S mm	Weight kg
58 41 95 09	CIVI 2000/60 x ...	60	40	15	23	0,19
58 42 95 09	CIVI 2000/90 x ...	90	45	20	25	0,4



Pair of soft steel jaws "Clak System"

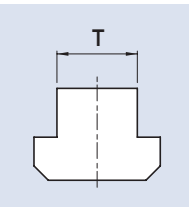
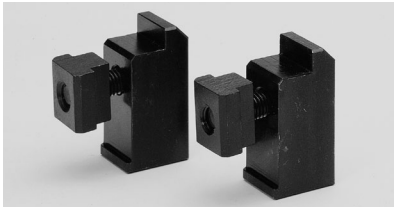


Cod.	for type	A mm	B mm	C mm	S mm	Weight kg
58 41 96 09	CIVI 2000/60 x ...	60	40	15	23	0,58
58 42 96 09	CIVI 2000/90 x ...	90	45	20	25	1,2



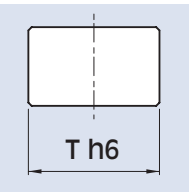
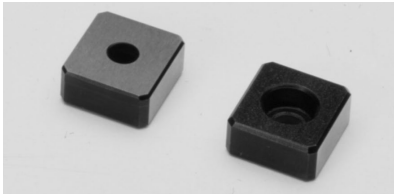
Workstop

Cod.	for type
58 31 50 10	CIVI 2000/38/60 x ... for fixed support
58 32 50 10	CIVI 2000/90 x ... for fixed support
58 31 50 20	CIVI 2000/38/60/90 x ... for movable support



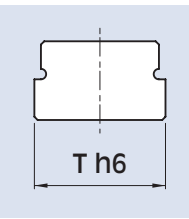
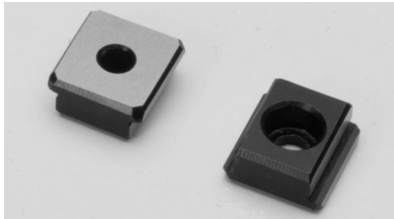
Pair of clamps
complete with screw and T-nut

Cod.						for type
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22	
58 01 27 92	58 01 27 93	58 01 27 94	58 01 27 95	58 01 27 96	58 01 27 97	CIVI 2000 38/60 x ...
58 02 27 92	58 02 27 93	58 02 27 94	58 02 27 95	58 02 27 96	58 02 27 97	CIVI 2000 90 x ...



Pair of standard positioning keys

Cod.	for type	T h6 mm
58 01 15 92	TETRABLOK 60	12
58 01 15 92	TETRABLOK 90	12



Pair of special positioning keys
With special dimensions

Cod.						for type
mm 12 - h 6	mm 14 - h 6	mm 16 - h 6	mm 18 - h 6	mm 20 - h 6	mm 22 - h 6	
-	58 01 15 93	58 01 15 94	58 01 15 95	58 01 15 96	58 01 15 97	TETRABLOK 60
-	58 01 15 93	58 01 15 94	58 01 15 95	58 01 15 96	58 01 15 97	TETRABLOK 90

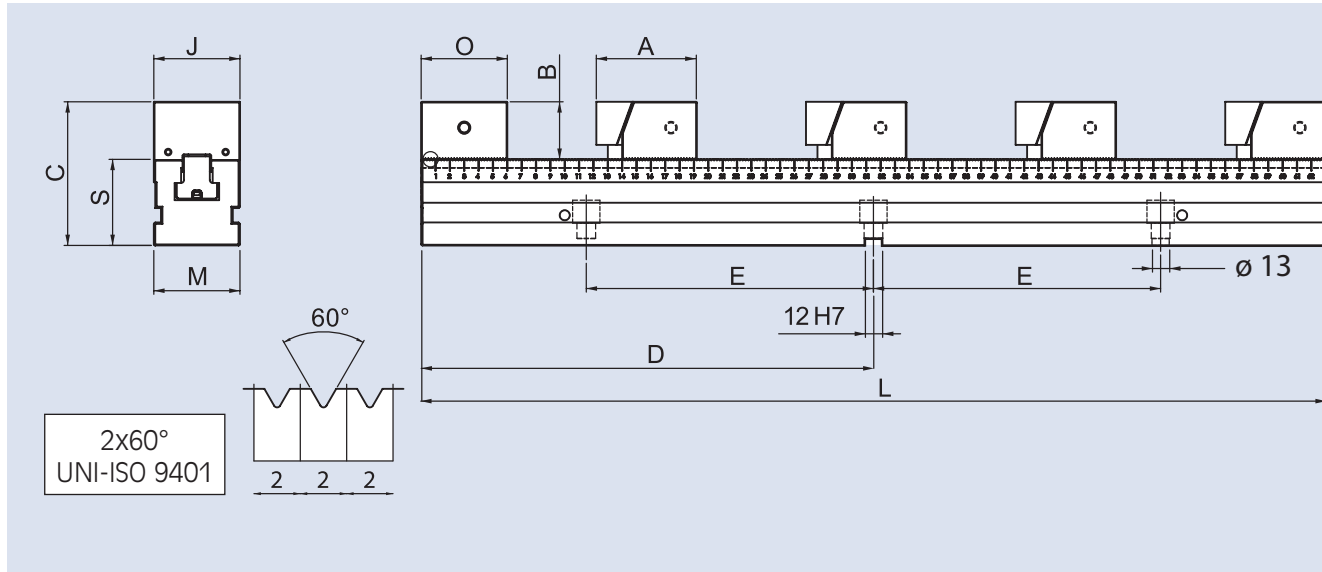
4 positions clamping
equipment

TETRABLOK

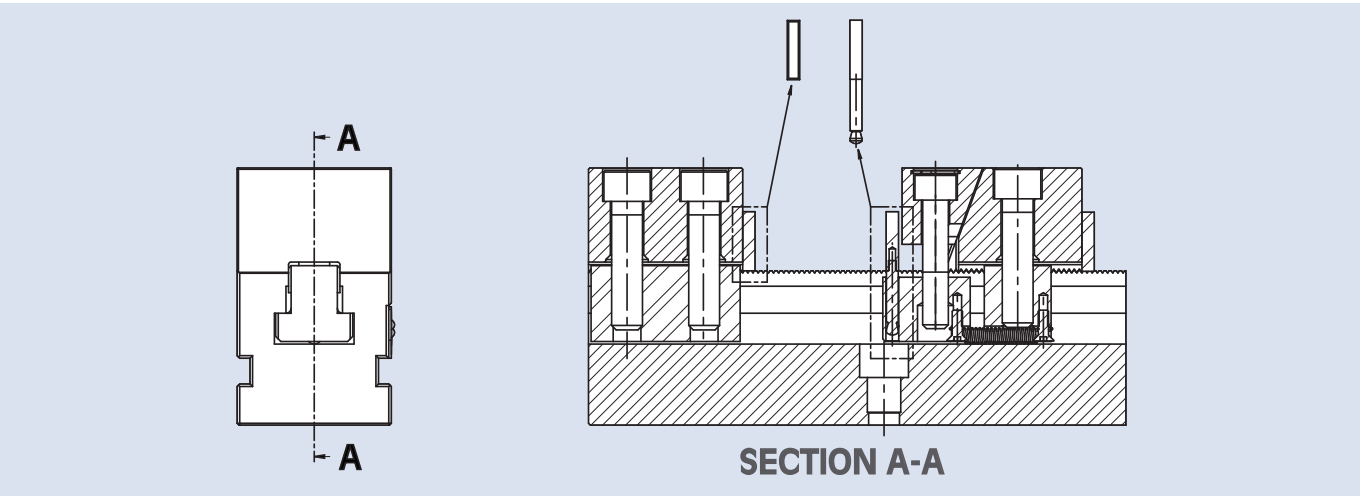
4 positions clamping equipment "TETRABLOK" joins CIVI 2000 with a good price/quality ratio



Tetrablok, 4 positions clamping equipment, complete with: 1 base(lenght optional), 1 fixed support, 4 sets of movable jaws, 4 workstops, 1 t-wrench.

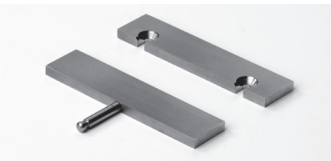


Cod.	for type	A mm	B mm	C mm	D mm	E mm	J mm	L mm	M mm	O mm	S _{±0,01} mm	weight kg
77 58 81 01	TETRABLOK 60	70	40	100	200	100	60	400	60	60	60	16,9
77 58 81 02					250	150		500				18,9
77 58 81 03					315	200		630				22,0
77 58 82 01	TETRABLOK 90	80	45	115	200	100	90	400	90	70	70	27,6
77 58 82 02					250	150		500				32,8
77 58 82 03					315	200		630				36,7

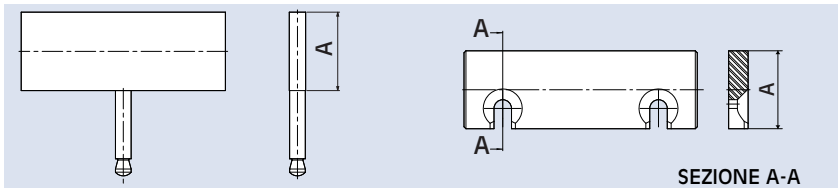


Set of n. 4 pair of parallels for TETRABLOK

Cod.	type	weight kg
58 81 92 04	TETRABLOK 60	0,4
58 82 92 04	TETRABLOK 90	0,7

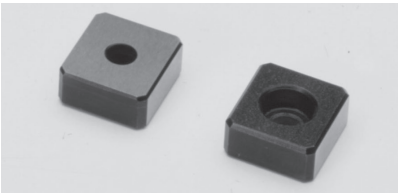


Pair of parallels for TETRABLOK



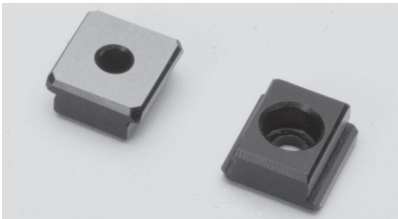
Cod.	for type	
58 81 35 18	TETRABLOK 60	18
58 81 35 23		23
58 81 35 28		28
58 81 35 37		37

Cod.	for type	A mm
58 82 35 18	TETRABLOK 90	18
58 82 35 23		23
58 82 35 33		33
58 82 35 42		42



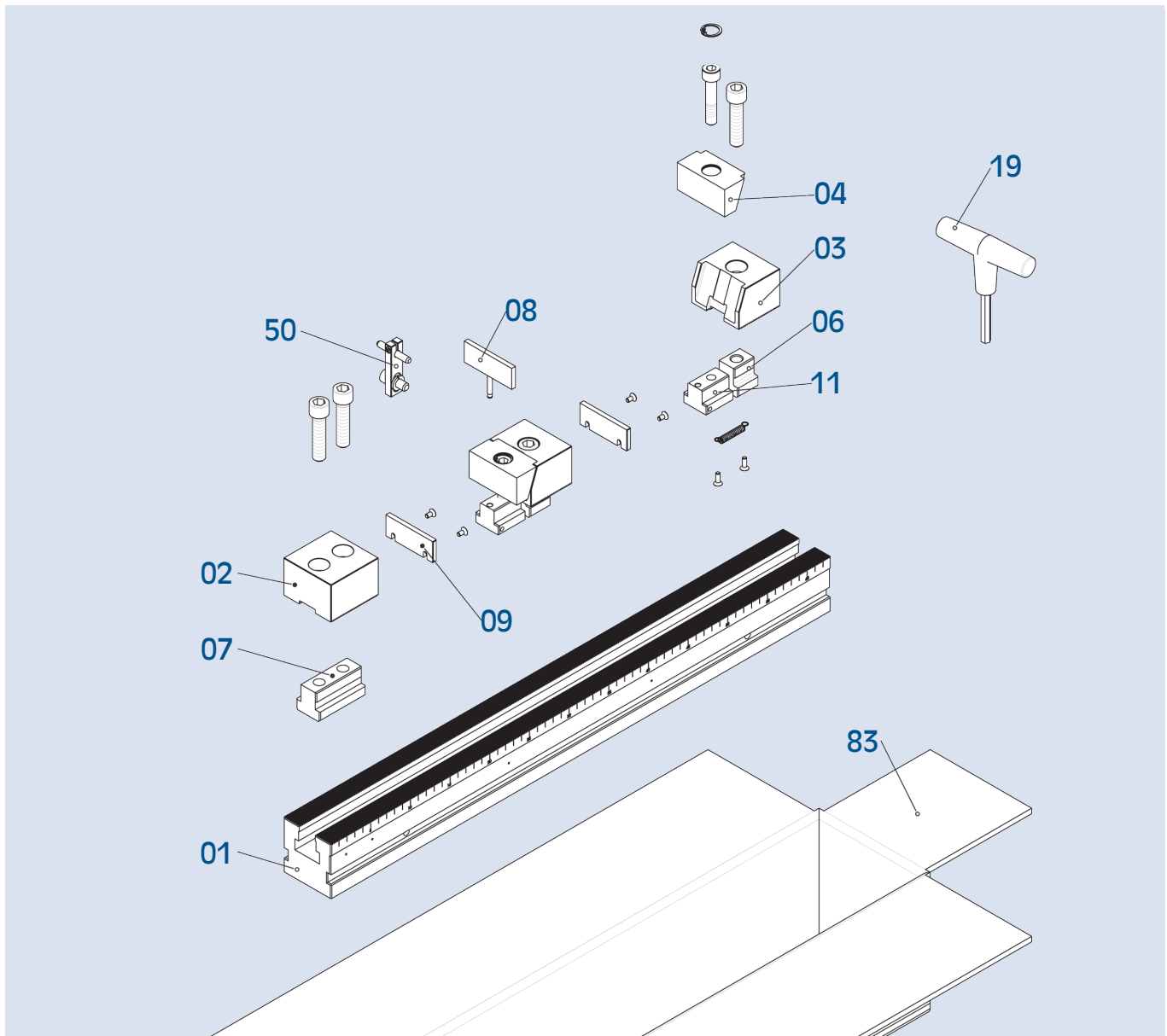
Pair of standard positioning keys

Cod.	for type	T h6 mm
58 01 15 92	TETRABLOK 60	12
58 01 15 92	TETRABLOK 90	12



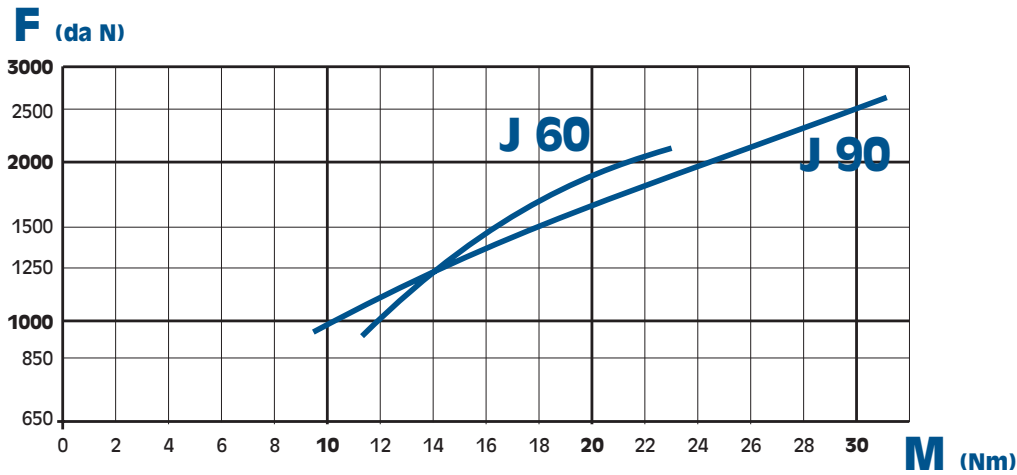
Pair of special positioning keys

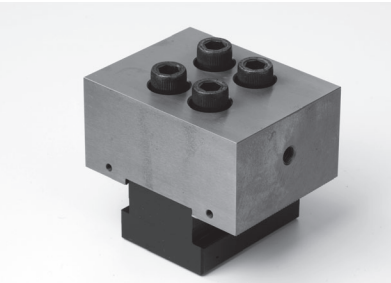
Cod.	for type
mm 12 - h 6	58 01 15 93
mm 14 - h 6	58 01 15 94
mm 16 - h 6	58 01 15 95
mm 18 - h 6	58 01 15 96
mm 20 - h 6	58 01 15 97
mm 22 - h 6	58 01 15 98



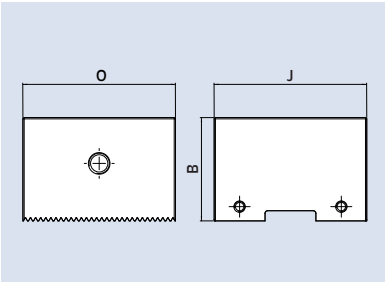
Descrizione			
01	Base	06	Nuts
02	Fixed support	07	Nuts
03	Movable support	08	Parallel
04	Jaw	09	Parallel
11	Nuts	19	T-wrench
50	Work stop	83	Cardboard box

Clamping forces curves

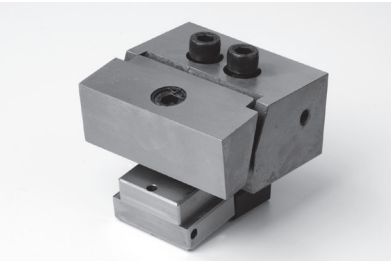




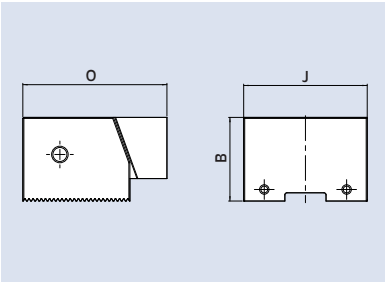
Complete fixed support



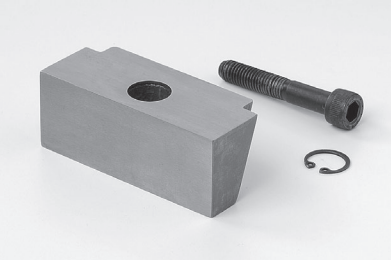
Cod.	for type	B mm	J mm	O mm	weight kg
58 81 72 20	TETRABLOK 60	40	60	70	1,3
58 82 72 20	TETRABLOK 90	45	90	80	2,8



Movable support with jaw

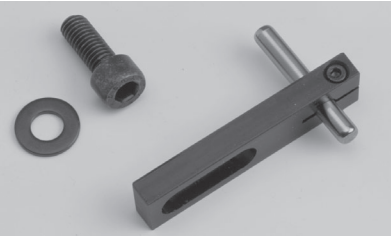


Cod.	for type	B mm	J mm	O mm	weight kg
77 58 81 23	TETRABLOK 60	40	60	70	1,4
77 58 82 23	TETRABLOK 90	45	90	80	3



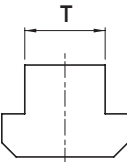
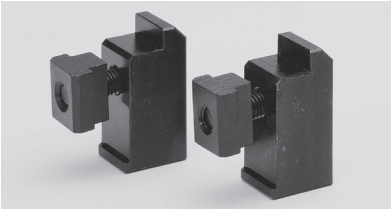
Smoot jaw

Cod.	for type
58 81 04 09	TETRABLOK 60
58 82 04 09	TETRABLOK 90



Work stop

Cod.	for type	for support
58 31 50 10	TETRABLOK 60	fixed
58 32 50 10	TETRABLOK 90	fixed
58 31 50 20	TETRABLOK 60-90	movable



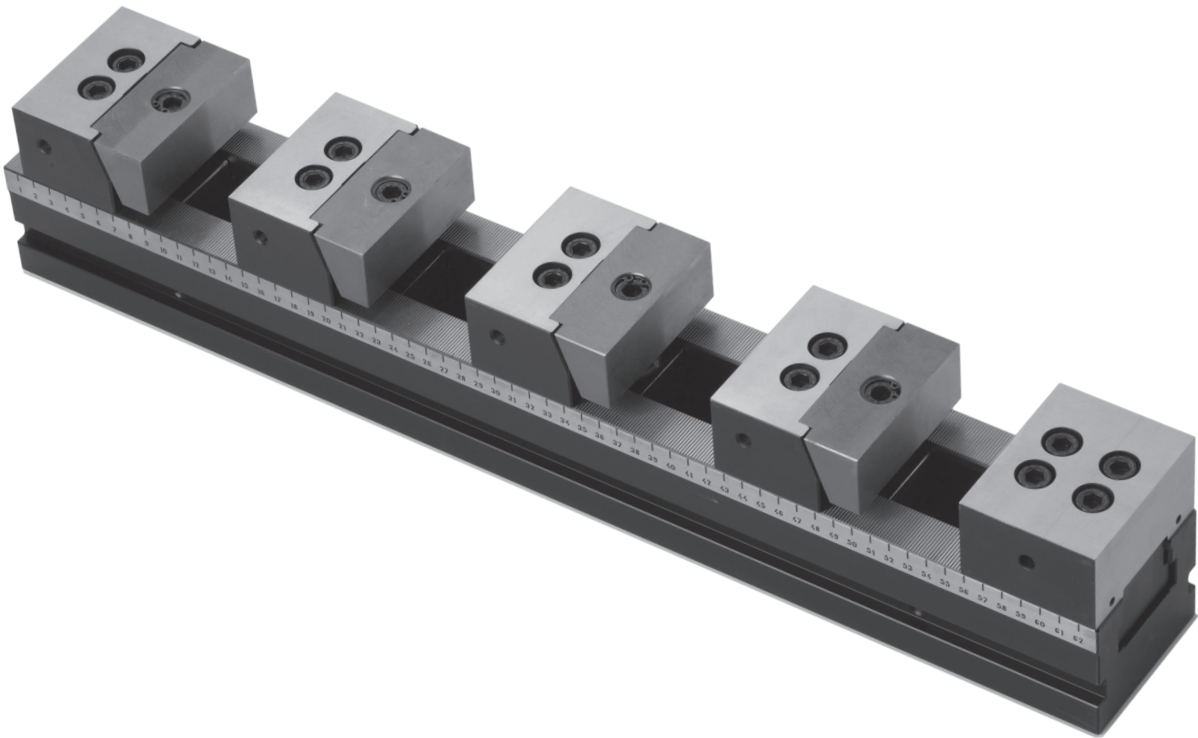
Pair of clamps

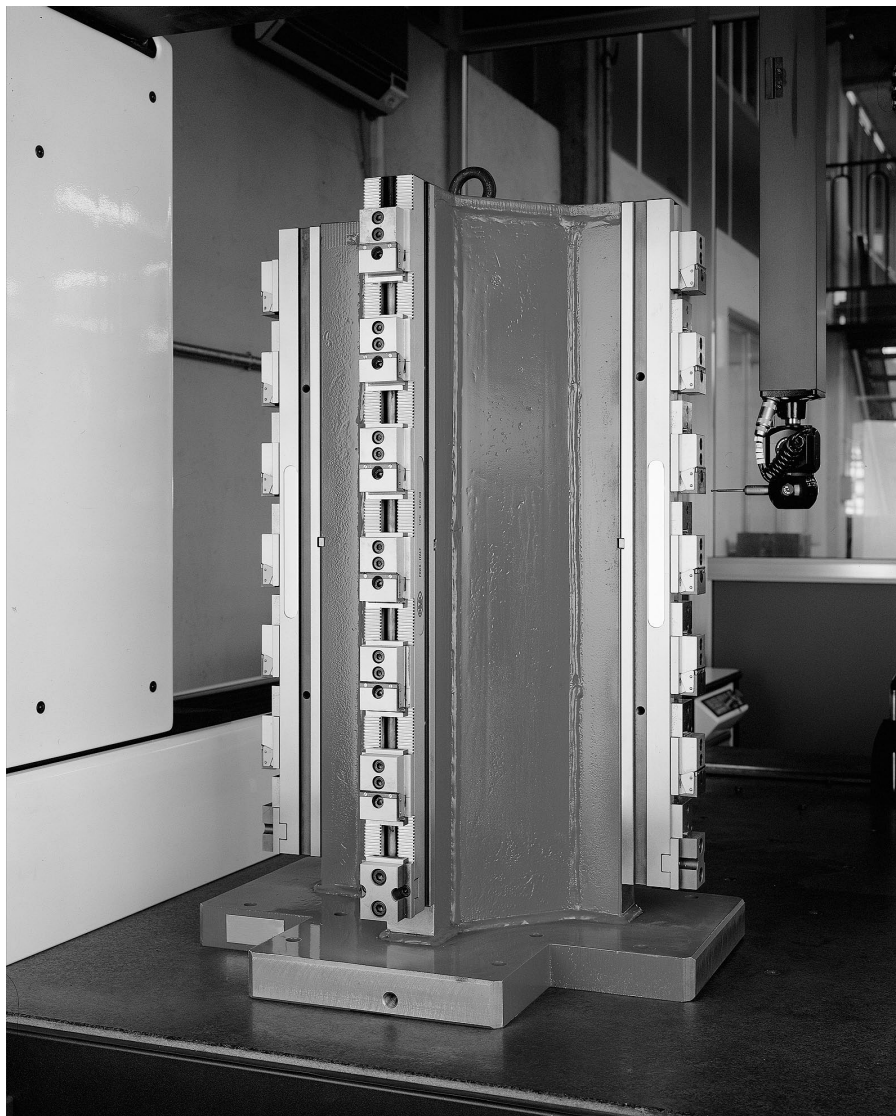
complete with screw and T-nut

Cod.						for type
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22	
58 01 27 92	58 01 27 93	58 01 27 94	58 01 27 95	58 01 27 96	58 01 27 97	TETRABLOK 60
58 02 27 92	58 02 27 93	58 02 27 94	58 02 27 95	58 02 27 96	58 02 27 97	TETRABLOK 90

Clamping capacity

	A max mm			
TETRABLOK 60x400	270	100	43	15
TETRABLOK 60x500	370	150	76	40
TETRABLOK 60x630	500	215	120	73
TETRABLOK 90x400	249	84	29	-
TETRABLOK 90x500	349	134	62	26
TETRABLOK 90x630	479	199	106	59

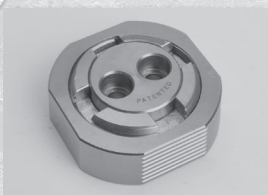




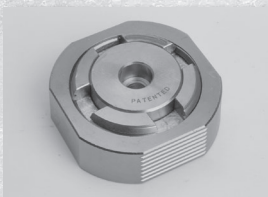
**ALL THE TOMBSTONES FOR CIVI
CAN BE USED FOR TETRABLOK**



**Set
CAM SYSTEM "t"**
pag. 7.3



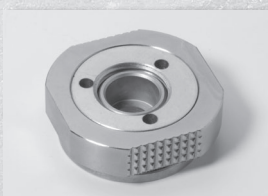
CAM SYSTEM "t"
pag. 7.4



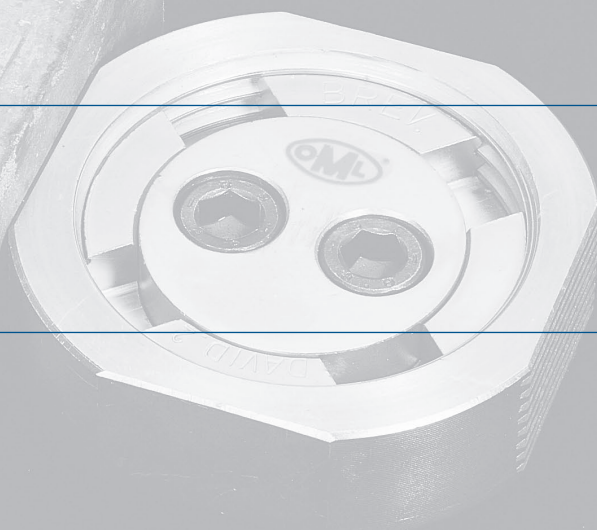
CAM SYSTEM "g"
pag. 7.5



**Set
CAM SYSTEM "s"**
pag. 7.6

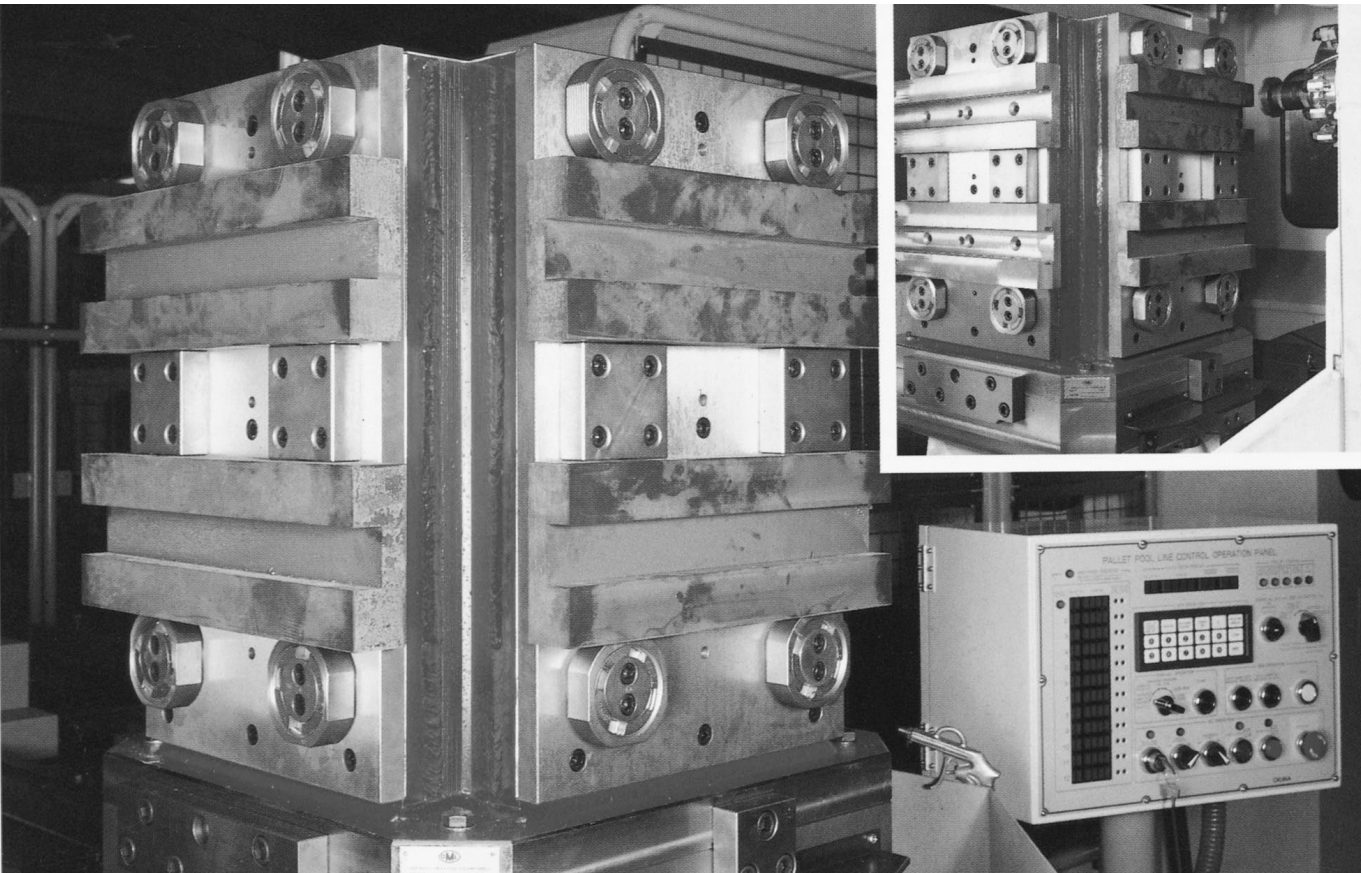


CAM SYSTEM "s"
pag. 7.7

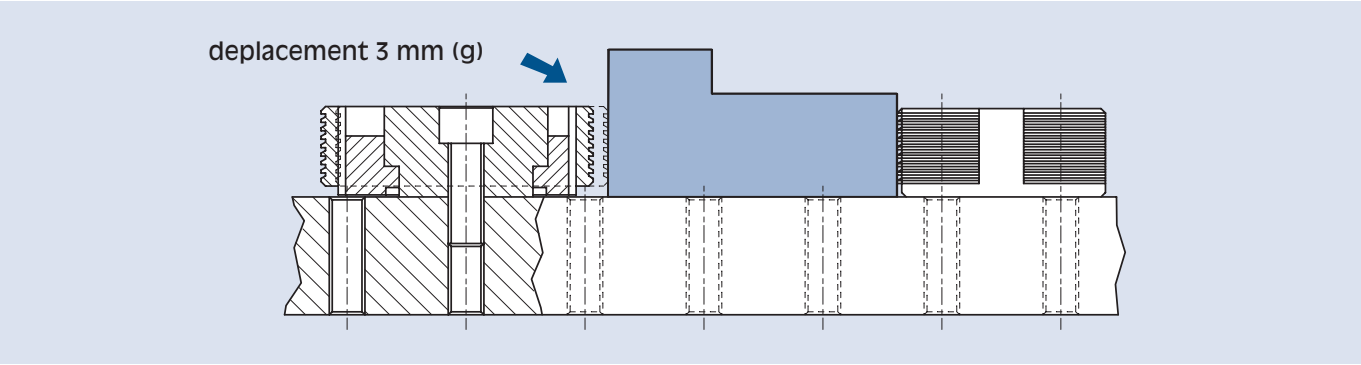
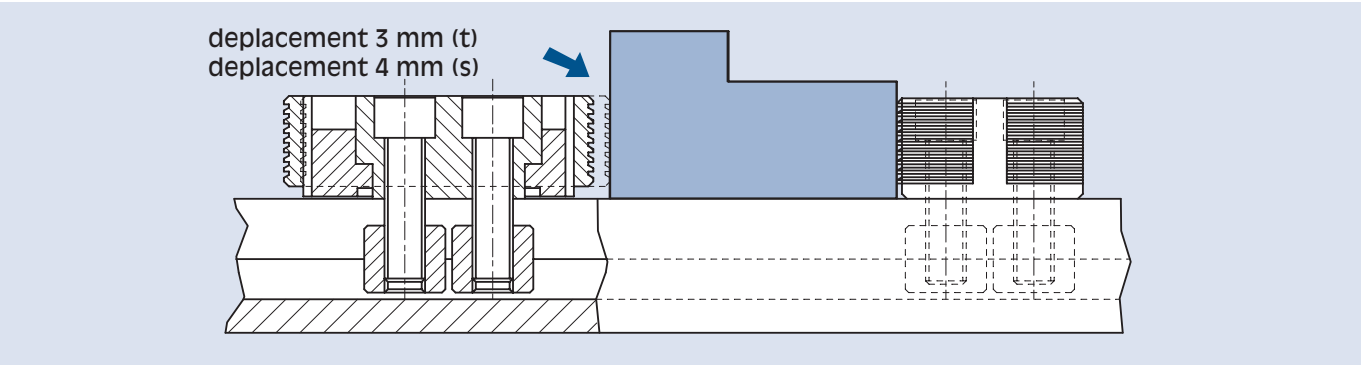


CAM SYSTEM

eccentric self-locking
clamping devices



The **CAM SYSTEM** has been developed and patented to easily clamp workpieces with varied forms. This compact product enables double locking (Axial and Radial) using the eccentric and propeller principle. With a rotation of approximately 15°, contact is made with the workpiece with the complete clamping face of the CAM. The **CAM SYSTEM** clamps the workpiece with a clamping force of 4,000 kg (t) and 2,000 kg (s). **CAM SYSTEM** is supplied with both cap heads bolts and T-nuts to suit the particular machine tool cross slots. **CAM SYSTEM "g"** is supplied singly, to the customer detailed grid specification.

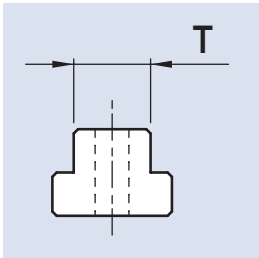


eccentric self locking
clamping devices

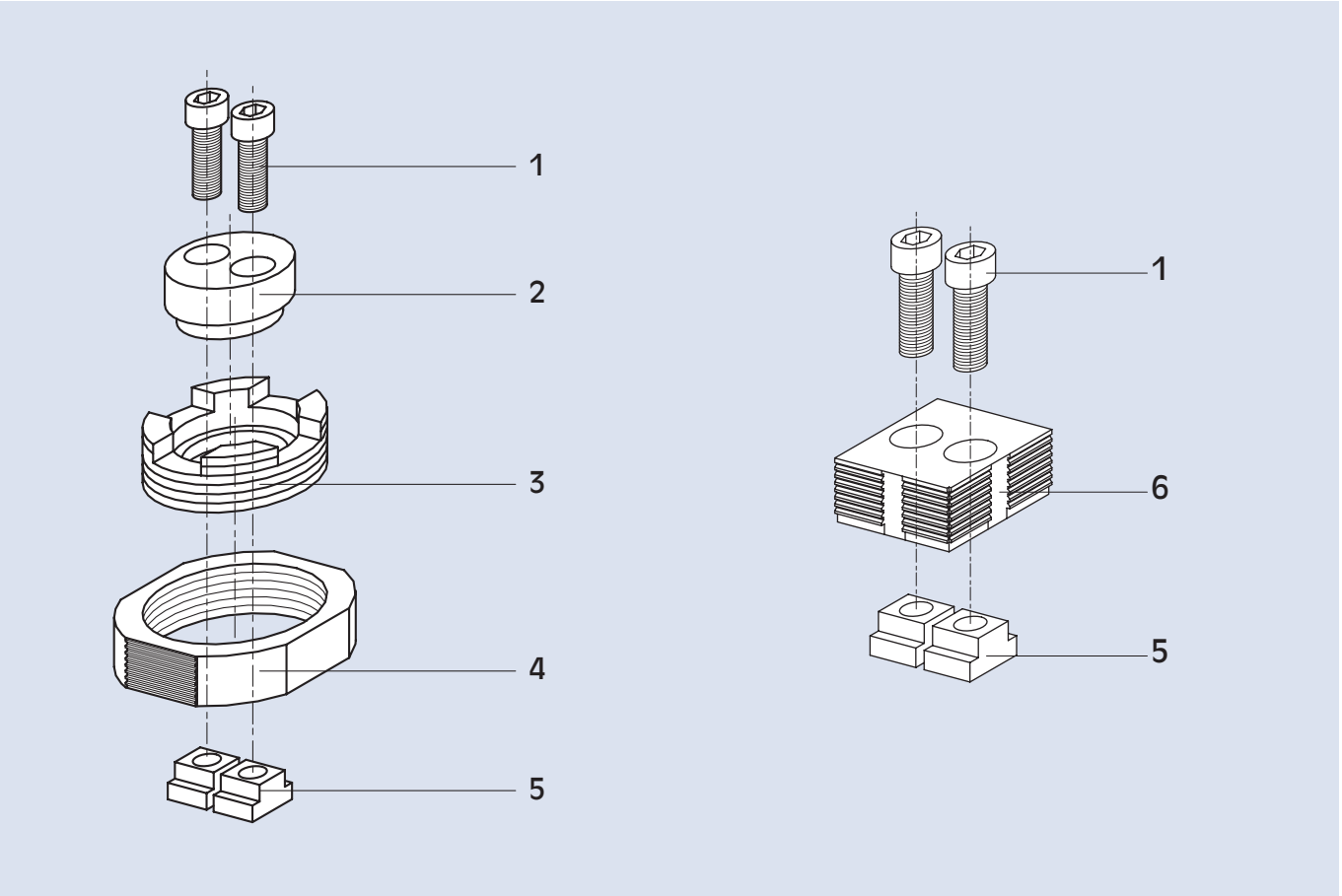
CAM SYSTEM "t"



Set CAM SYSTEM "t" complete with:
N. 4 CAM SYSTEM "t"
N. 4 fixed block CAM SYSTEM 't'
N. 8 pair of T-nuts with screw
N. 1 key for CAM SYSTEM 't'
wooden packing case



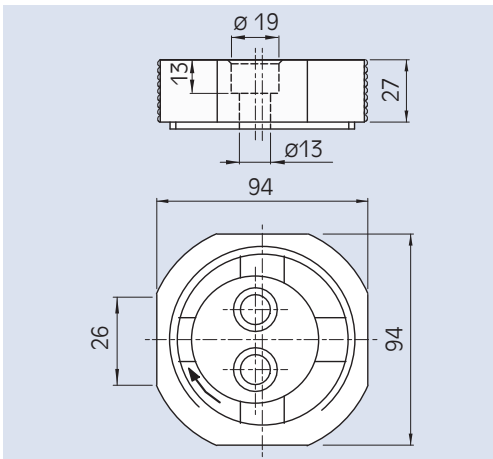
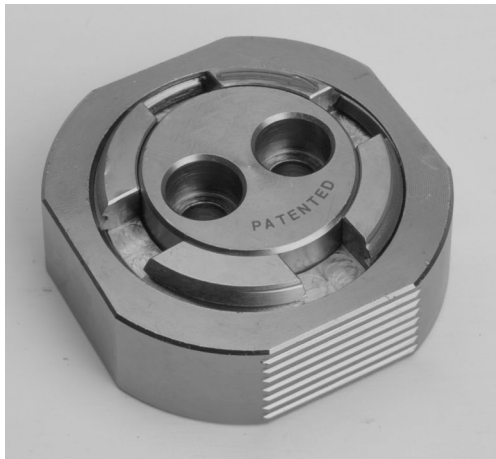
Cod.	T mm
77 58 44 14	14
77 58 44 16	16
77 58 44 18	18
77 58 44 20	20
77 58 44 22	22



Description					
01.....	Screw	03.....	Eccentric element	05.....	T-nuts
02.....	Cental element	04.....	Clamping element	06.....	Fixed block

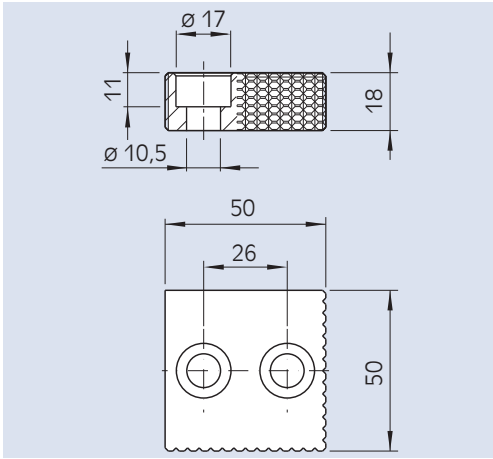
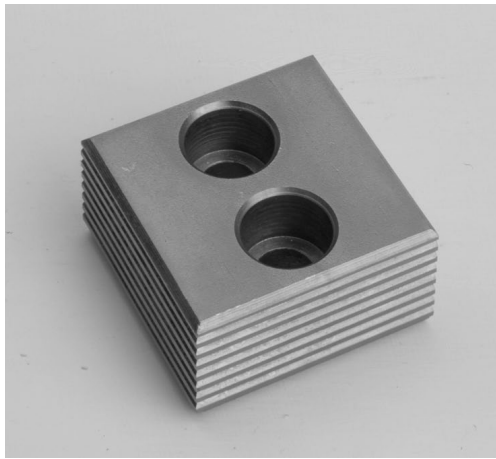
CAM SYSTEM "t"

eccentric self-locking
clamping devices



CAM SYSTEM "t"
single

Cod.
58 44 50 10



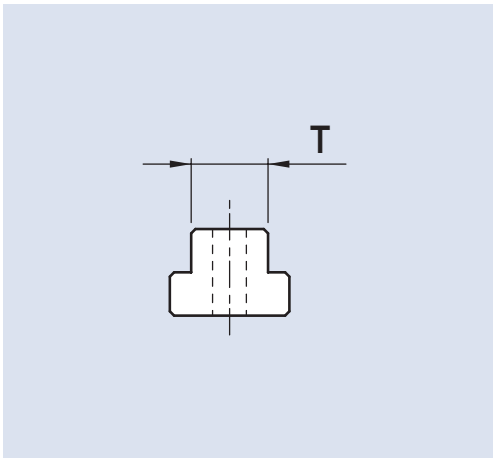
Fixed block
CAM SYSTEM "t"

Cod.
58 44 04 00



Key for
CAM SYSTEM "t"

Cod.
58 44 08 00



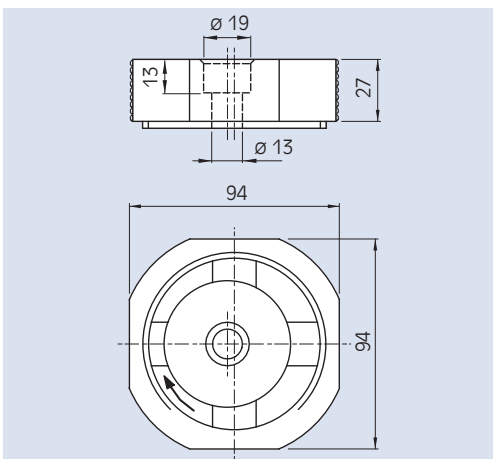
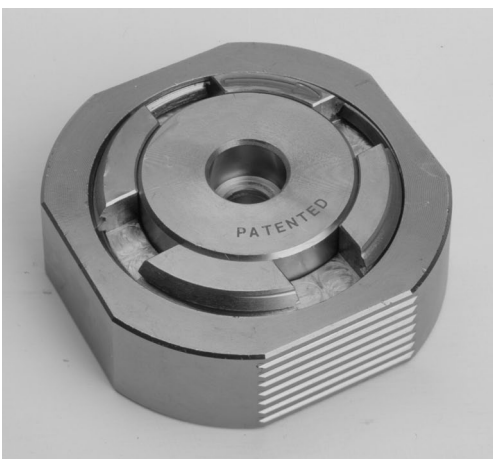
Pair of T-nuts
with screw
CAM SYSTEM "t"

Cod.	T mm
58 44 25 93	14
58 44 25 94	16
58 44 25 95	18
58 44 25 96	20
58 44 25 97	22

eccentric self locking
clamping devices

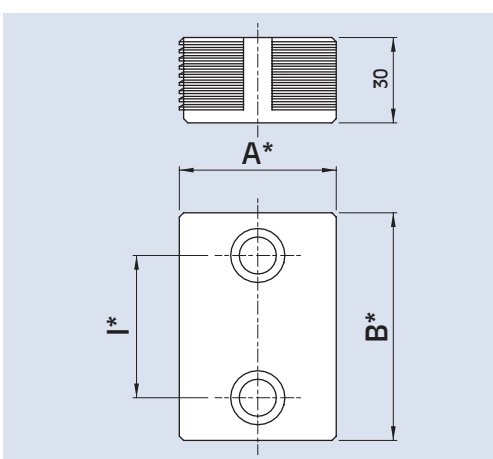
CAM SYSTEM "g"

7



CAM SYSTEM "g"
single

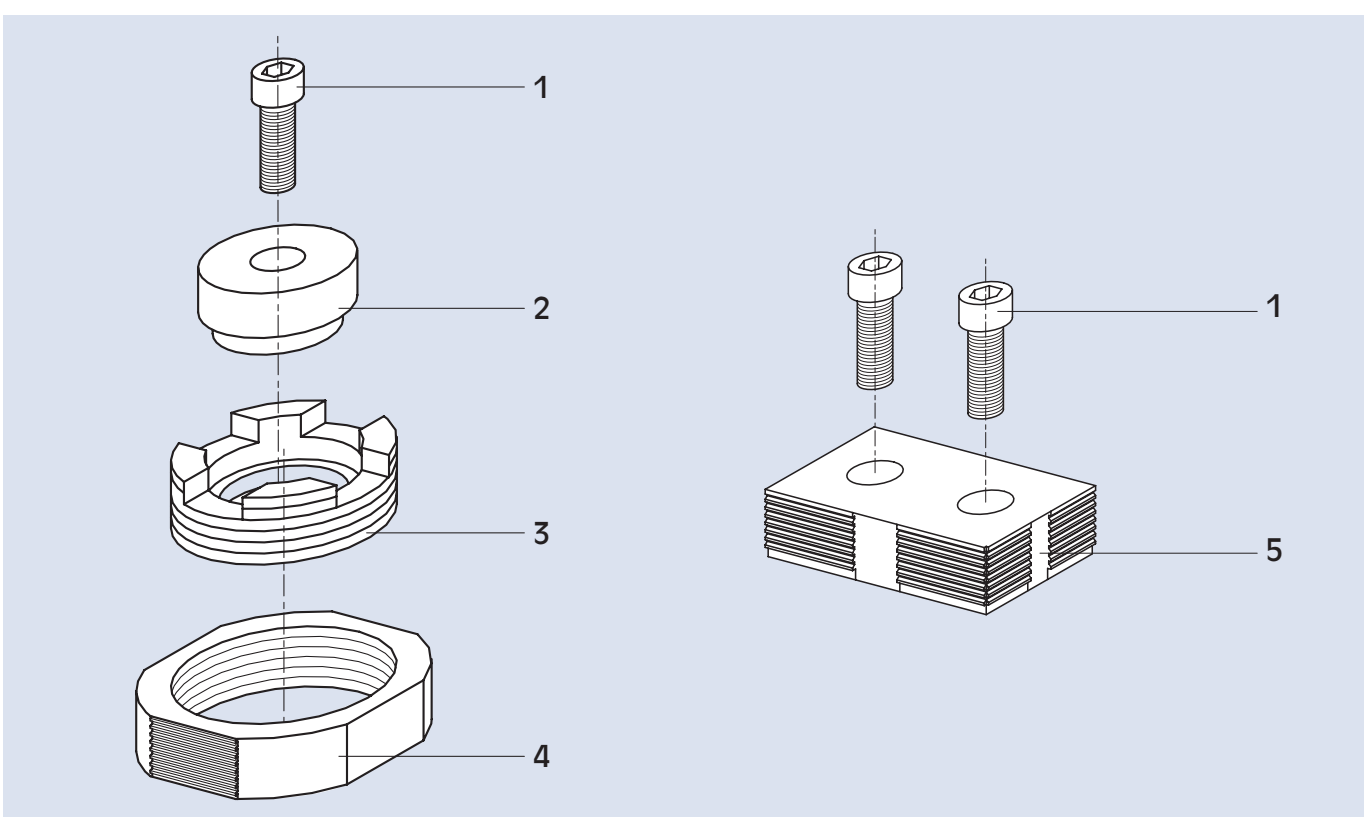
Cod.
58 44 50 20



Fixed block
CAM SYSTEM "g"

dimensions A,B,I
must be
specified when
ordering

Cod.
58 44 14 00



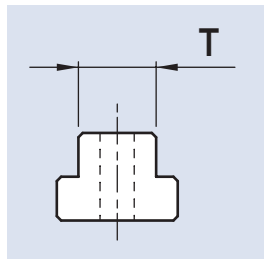
Description

01.....Screw	03.....Eccentric element	05.....Fixed block
02.....central element	04.....Clamping element	

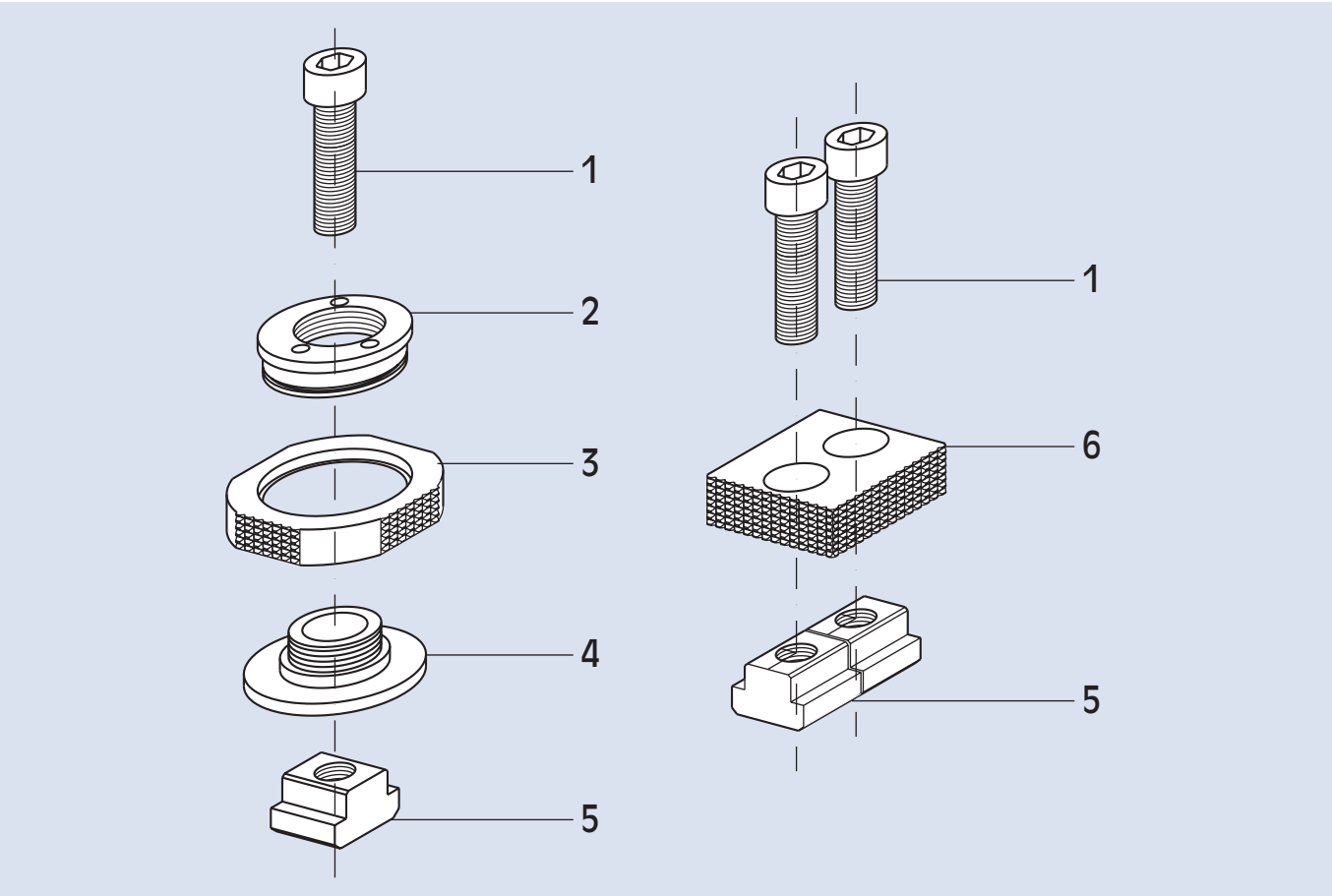
CAM SYSTEM "s" eccentric self-locking clamping devices



Set Cam SYSTEM "s" complete with:
N. 4 CAM SYSTEM "s"
N. 4 fixed block CAM SYSTEM "s"
N. 6 pair of T-nuts with screw
N. 1 Key for CAM SYSTEM "s"
wooden packing case

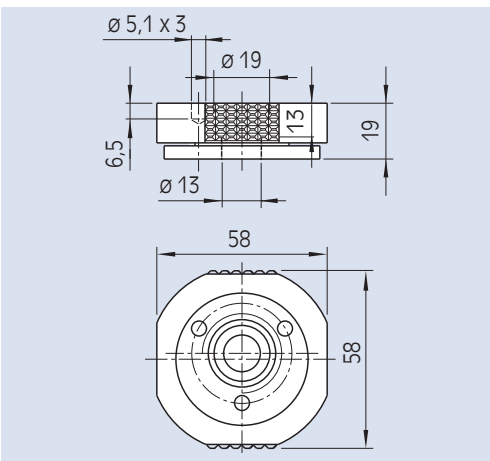


Cod.	T mm
77 58 43 14	14
77 58 43 16	16
77 58 43 18	18
77 58 43 20	20
77 58 43 22	22



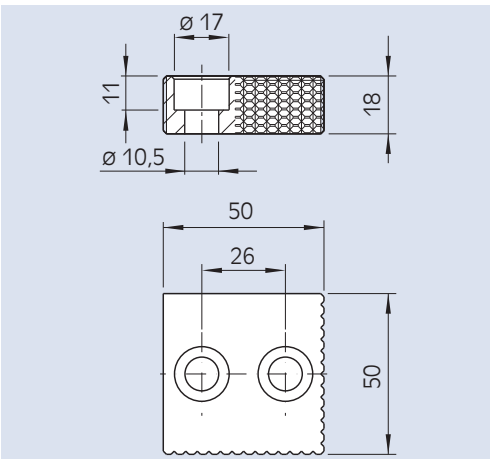
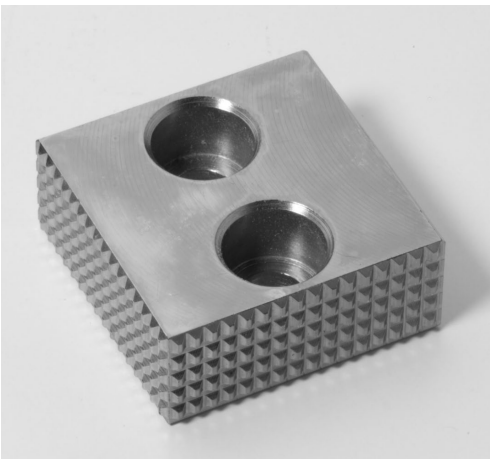
Description					
01.....Screw	03.....Clamping element	05.....TT-nuts			
02.....Eccentric element	04.....Central element	06.....Fixed block			

eccentric self locking clamping devices



CAM SYSTEM "s" single

Cod.
58 43 50 00



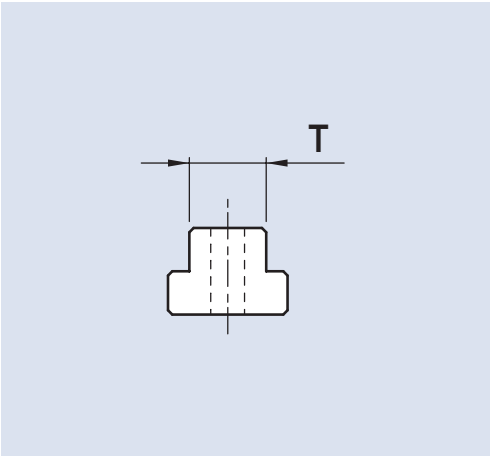
Fixed block CAM SYSTEM "s"

Cod.
58 43 04 00



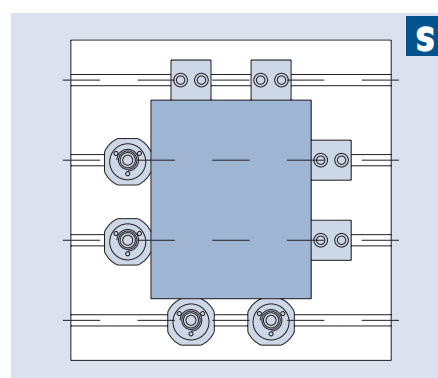
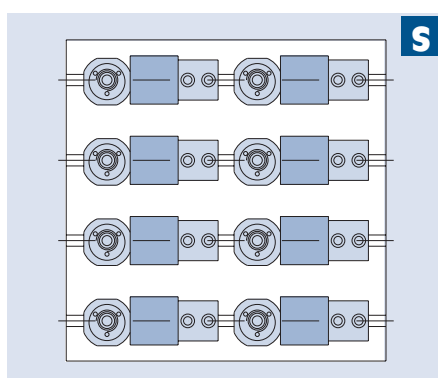
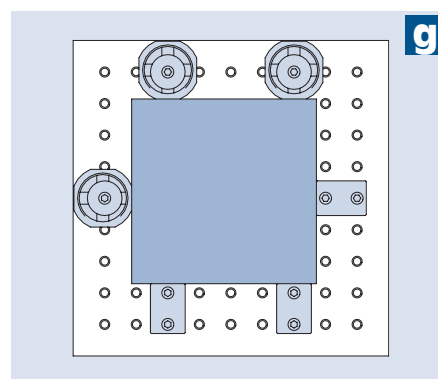
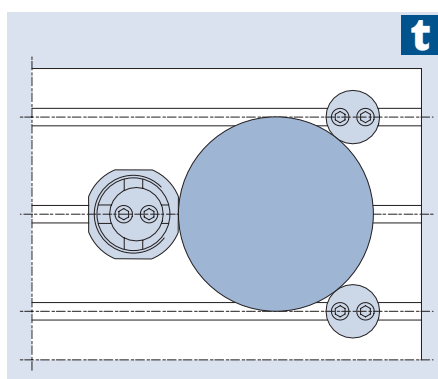
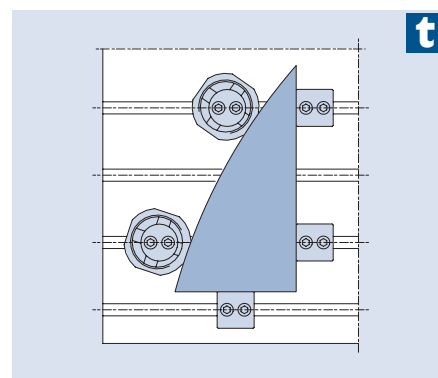
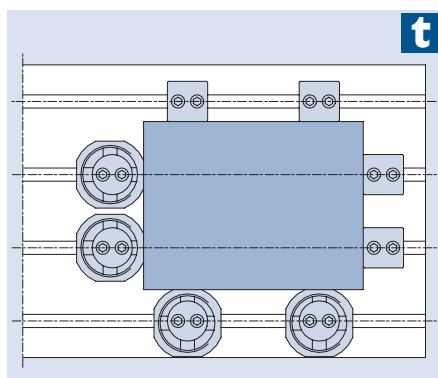
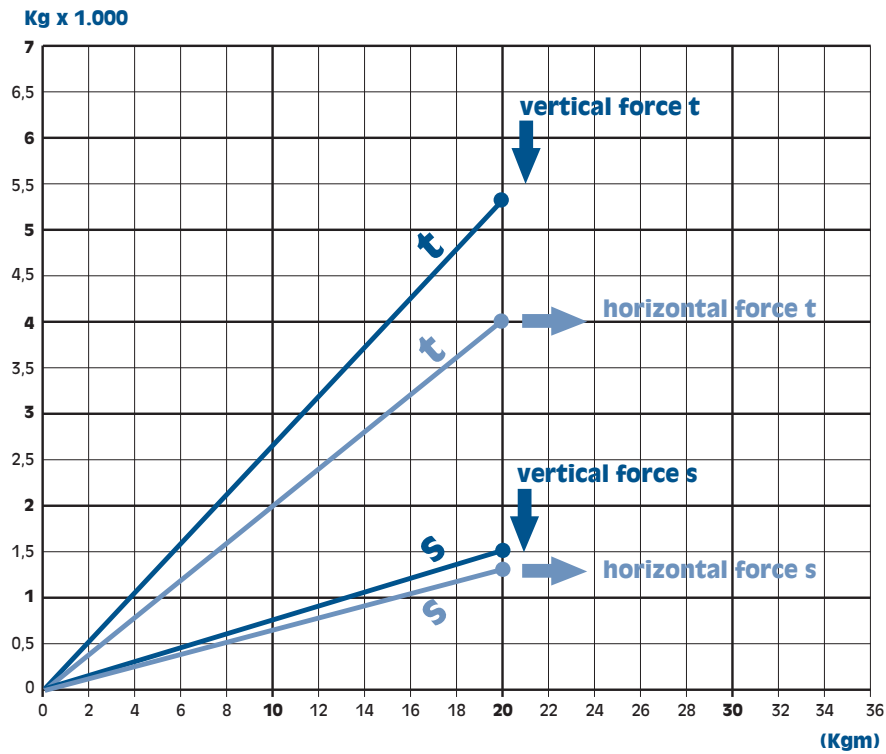
Key for CAM SYSTEM "s"

Cod.
58 43 08 00



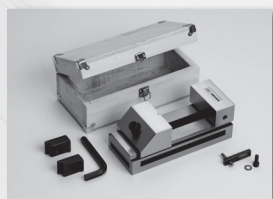
Pair of T-nuts with screw CAM SYSTEM "s"

Cod.	T mm
58 43 25 93	14
58 43 25 94	16
58 43 25 95	18
58 43 25 96	20
58 43 25 97	22



Grinding clamping equipment **"MR 75 - 100"**

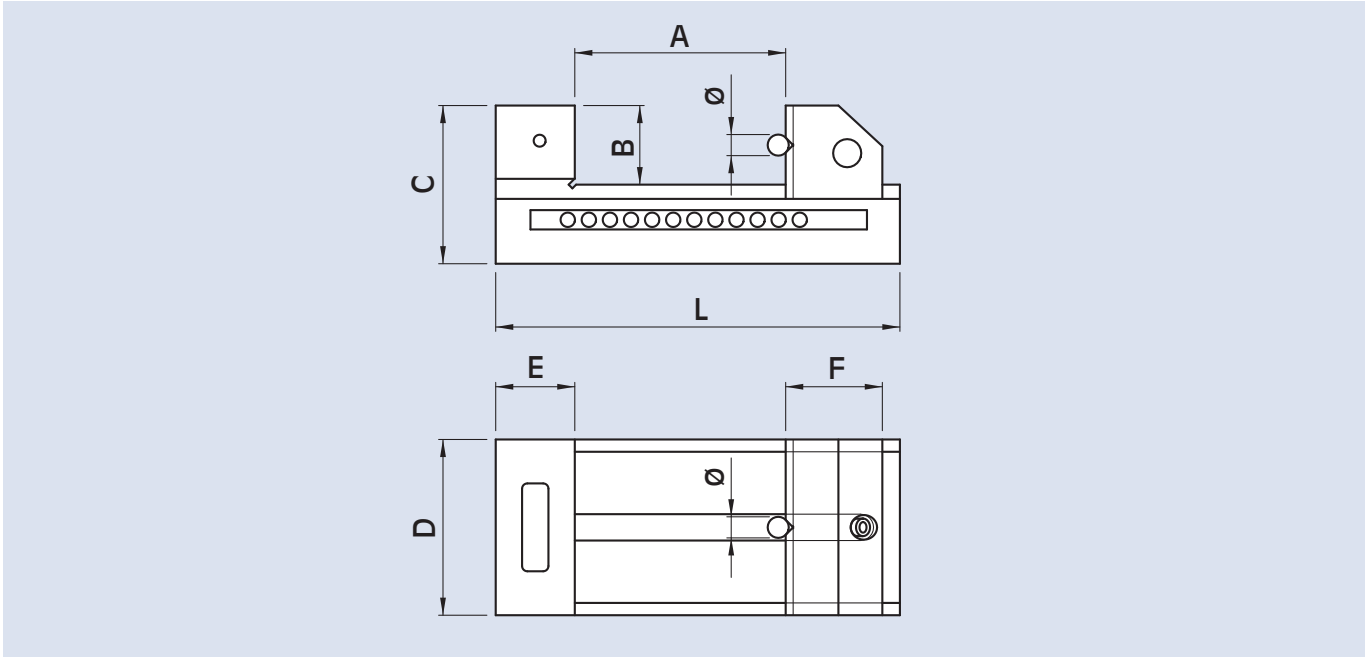
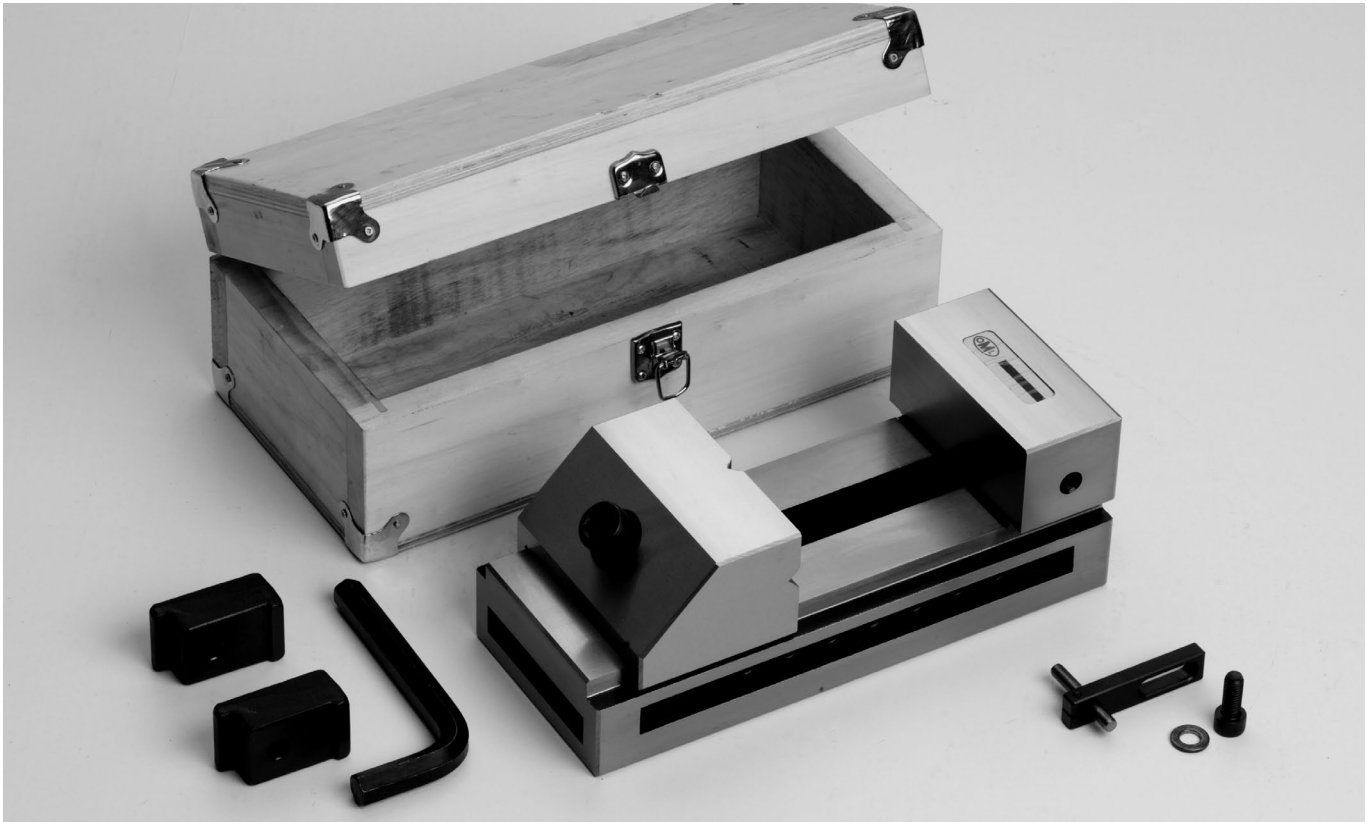
8



MR 75 - 100

pag. 8 . 2





Clamping equipment producted completely in hardened steel 60 HRC and precision ground suitable for any type of working of grinding, EDM, milling.
The standard outfit includes: pair of clamps, clamping plate, wrench, wooden packing case.

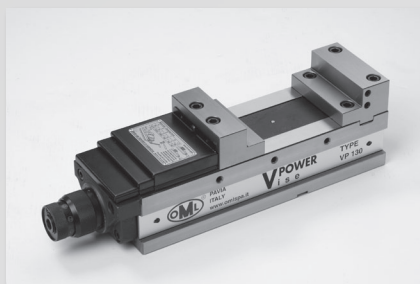
Cod.	Type	A mm	B mm	C mm	D mm	E mm	F mm	L mm	Ø		Weigt kg
									MIN mm	MAX mm	
77 58 38 01	MR 75	94	35	70	75	35	55	190	2,5	5,2	4,5
77 58 39 01	MR 100	120	45	90	100	47	72,8	245	4	8,2	9

Type	Parallelism / 100 mm	Angular accuracy
MR 75	0,004	± 0,004
MR 100	0,005	± 0,005

Clamping vise with mechanical/mechanical clamping force multiplier

Vise **ari** **POWER CLAMP**

9



Vise POWER

pag. 9. 4

Clamping Vise POWER



Vari CLAMP

pag. 9. 5

Clamping vise Vari CLAMP



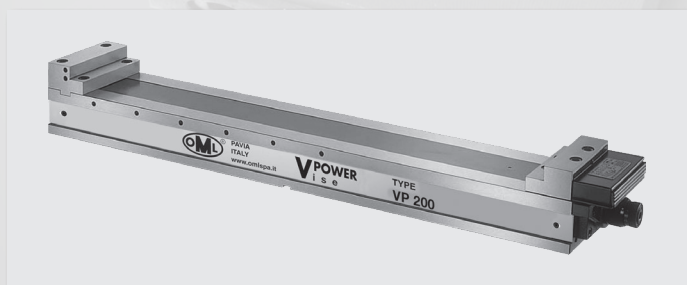
Accessories Vise POWER - Vari CLAMP

pag. 9. 10



Spare parts Vise POWER - Vari CLAMP

pag. 9. 14



Vise POWER XL - XXL

pag. 9. 26

VARI CLAMP

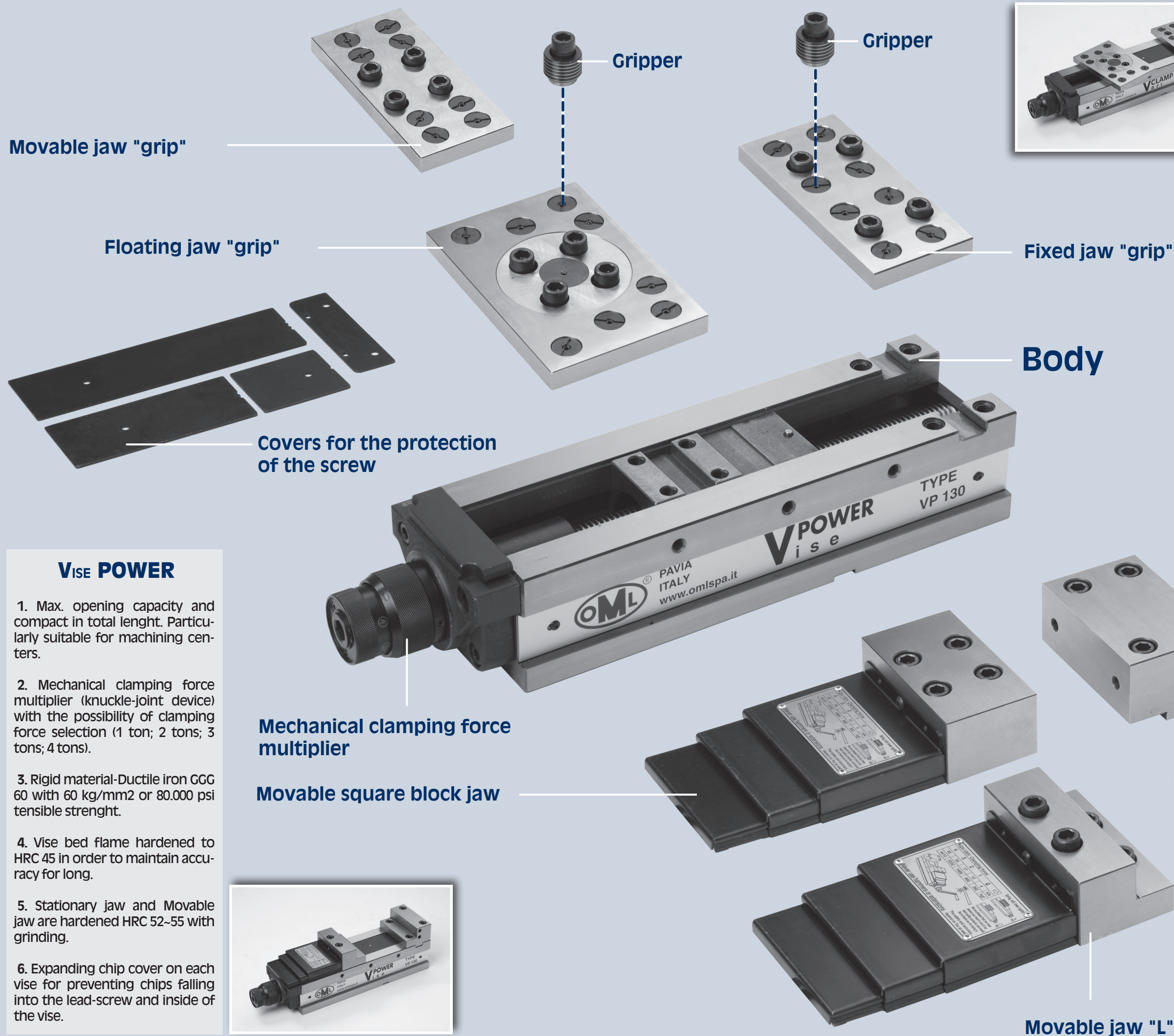
All the features of the vise V-Power are further increased in the version Vari-Clamp.

1. Super-low design both of stationary jaw and movable jaw is suitable for clamping thinner workpieces to increase heavy duty cutting capacity and precision of processing.

2. Movable jaw is designed by balance mechanism, and there are many kinds of gripper onto the jaw in order to suit the requirement for various workpieces and difficult clamping shapes.

3. Balance jaw is designed by balance mechanism, its function is able to clamp easily slanting or not smooth surface for rough material, casting material and slanting rough surface after processed by sawing machine.

4. Vari-Clamp allows clamping of irregular, round, elliptic, rectangular, irregular-curviform, step workpieces and slanting workpieces of difficult clamping using the balance mechanism of movable jaws and the different shapes of gripper to perform well-done the clamping.



VISE POWER

1. Max. opening capacity and compact in total length. Particularly suitable for machining centers.

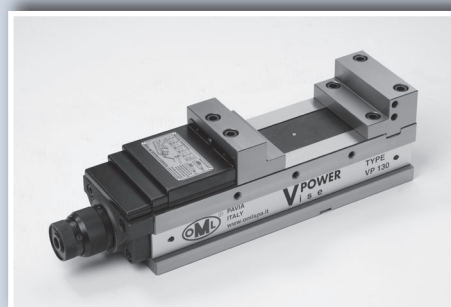
2. Mechanical clamping force multiplier (knuckle-joint device) with the possibility of clamping force selection (1 ton; 2 tons; 3 tons; 4 tons).

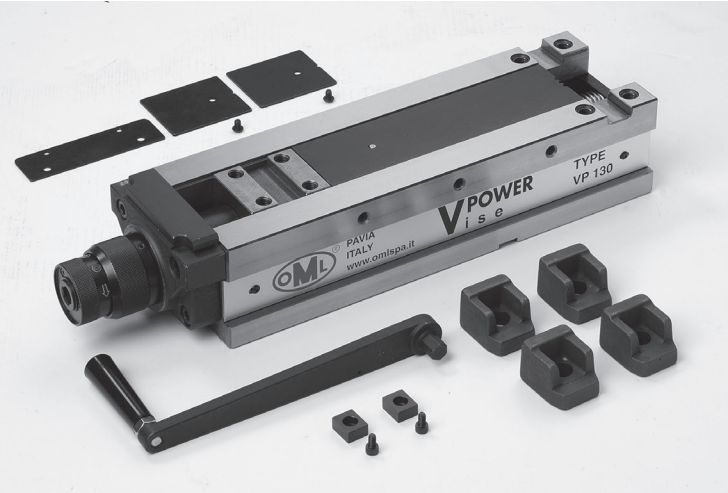
3. Rigid material-Ductile iron GGG 60 with 60 kg/mm² or 80.000 psi tensile strength.

4. Vise bed flame hardened to HRC 45 in order to maintain accuracy for long.

5. Stationary jaw and Movable jaw are hardened HRC 52~55 with grinding.

6. Expanding chip cover on each vise for preventing chips falling into the lead-screw and inside of the vise.



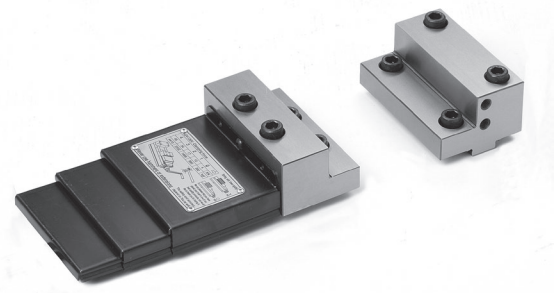


Set base Vise Power
Set base Vise Power complete with:
wrench
cover for the protection of the screw
2 positioning keys with screw
4 clamps

Cod.	for type
77 58 90 00	VP 100-VCP 100
77 58 91 00	VP 130-VCP 130
77 58 92 00	VP 160-VCP 160

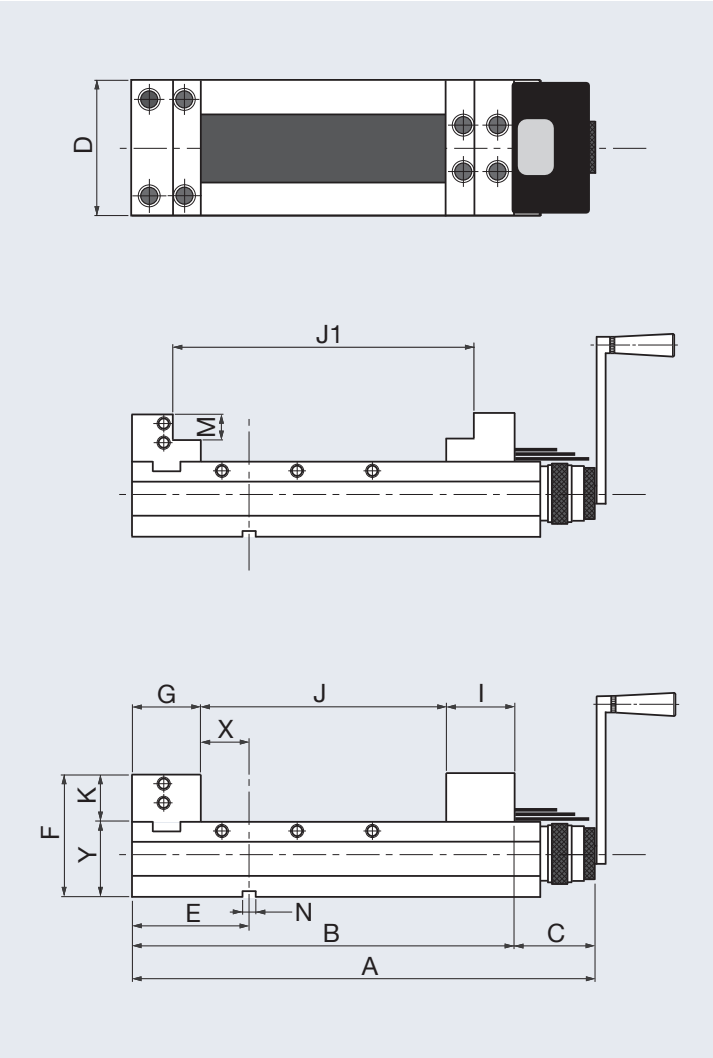
"L" jaw kit

Cod.	for type
58 90 71 10	100
58 91 71 10	130
58 92 71 10	160



Square block jaw kit

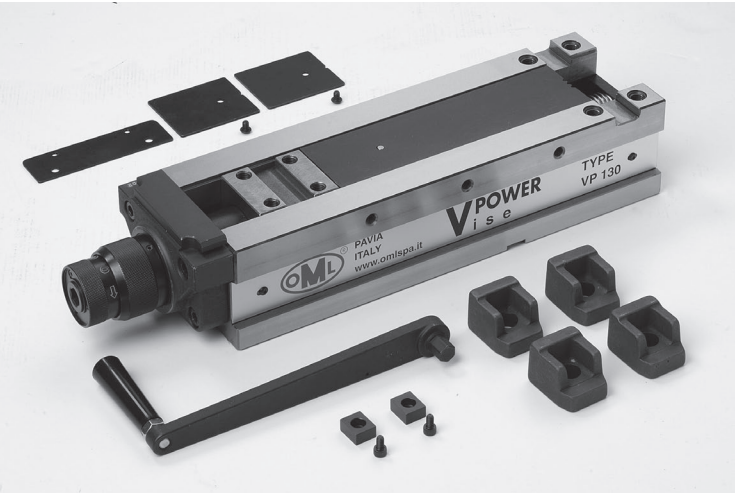
Cod.	for type
58 90 72 10	100
58 91 72 10	130
58 92 72 10	160



type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	J mm	J1 mm	I mm	K mm	M mm	N mm	X mm	Y mm	max clamping force KN (kgf)	weight kg
VP 100	406	300		101	124	130	78	155	213	64	45	25		45	85	41 (4.018)	22
VP 130	516	410	106	131	149	147	83	250	315	74	52	30	18	65	95	45 (4.410)	40
VP 160	581	475		161	152	160	86	300	370	86	55	30		65	105	54 (5.296)	62

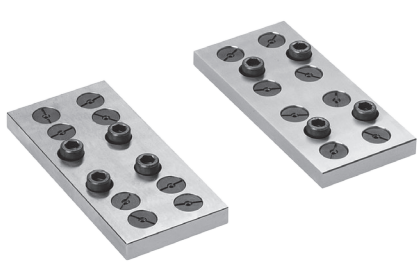
Set base Vise Power
Set base Vise Power complete with:
wrench
cover for the protection of the screw
2 positioning keys with screw
4 clamps

Cod.	for type
77 58 90 00	VP 100-VCP 100
77 58 91 00	VP 130-VCP 130
77 58 92 00	VP 160-VCP 160



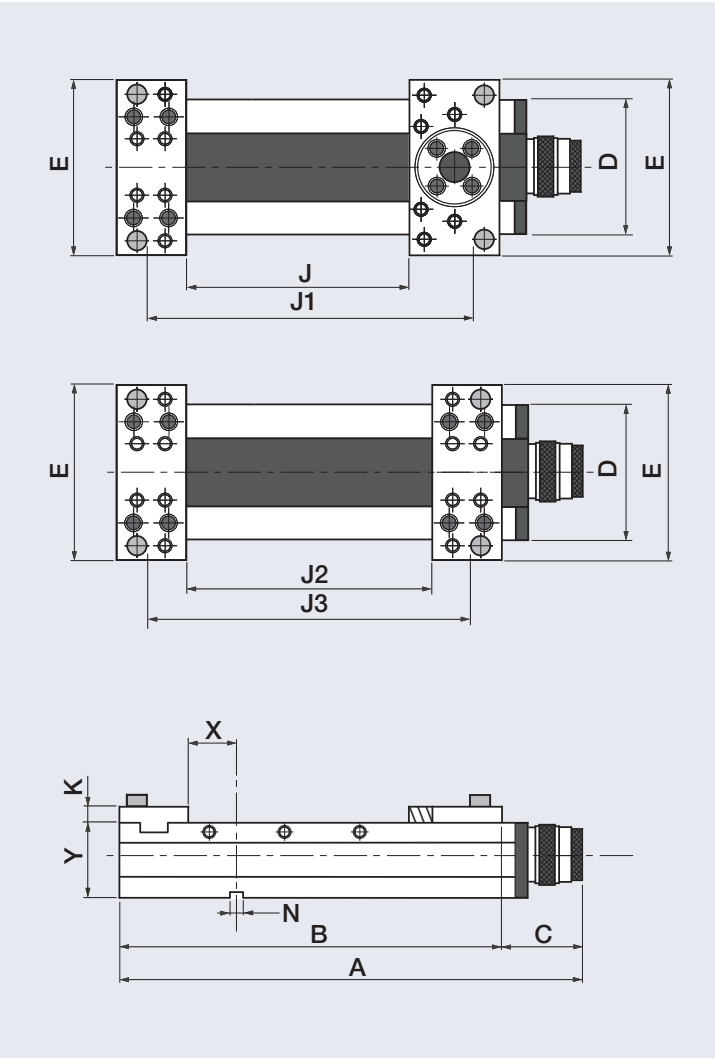
Gripper jaw kit

Cod.	for type
58 90 73 10	100
58 91 73 10	130
58 92 73 10	160

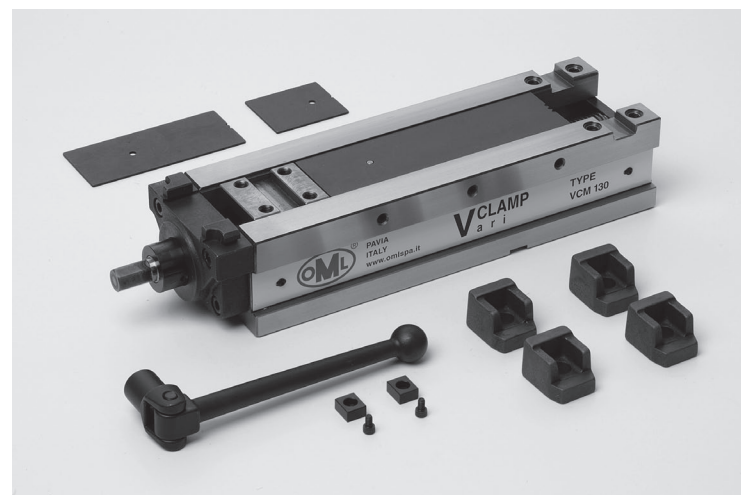


Floating gripper jaw kit

Cod.	for type
58 90 73 20	100
58 91 73 20	130
58 92 73 20	160



type	A mm	B mm	C mm	D mm	E mm	J mm	J1 mm	J2 mm	J3 mm	K mm	N mm	X mm	Y mm	Limite pressione KN (kgf)	Peso kg
VCP 100	406	300		101	160	100	220	150	220	17		51	85	41 (4.018)	18,5
VCP 130	516	410	106	131	190	180	320	210	320	17	18	60	95	45 (4.410)	33,5
VCP 160	581	475		161	220	220	380	280	380	22		64	105	54 (5.296)	51,5

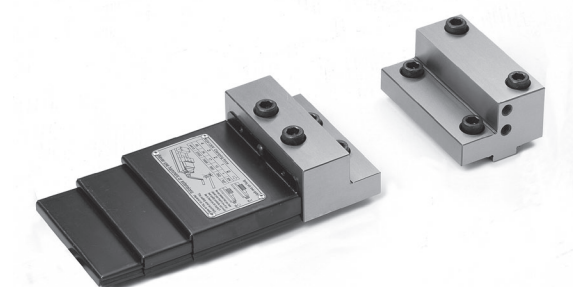


Mechanical set base VCM
Set base Vise Power complete with:
wrench
cover for the protection of the screw
2 positioning keys with screw
4 clamps

Cod.	for type
77 58 90 60	VCM 100
77 58 91 60	VCM 130
77 58 92 60	VCM 160

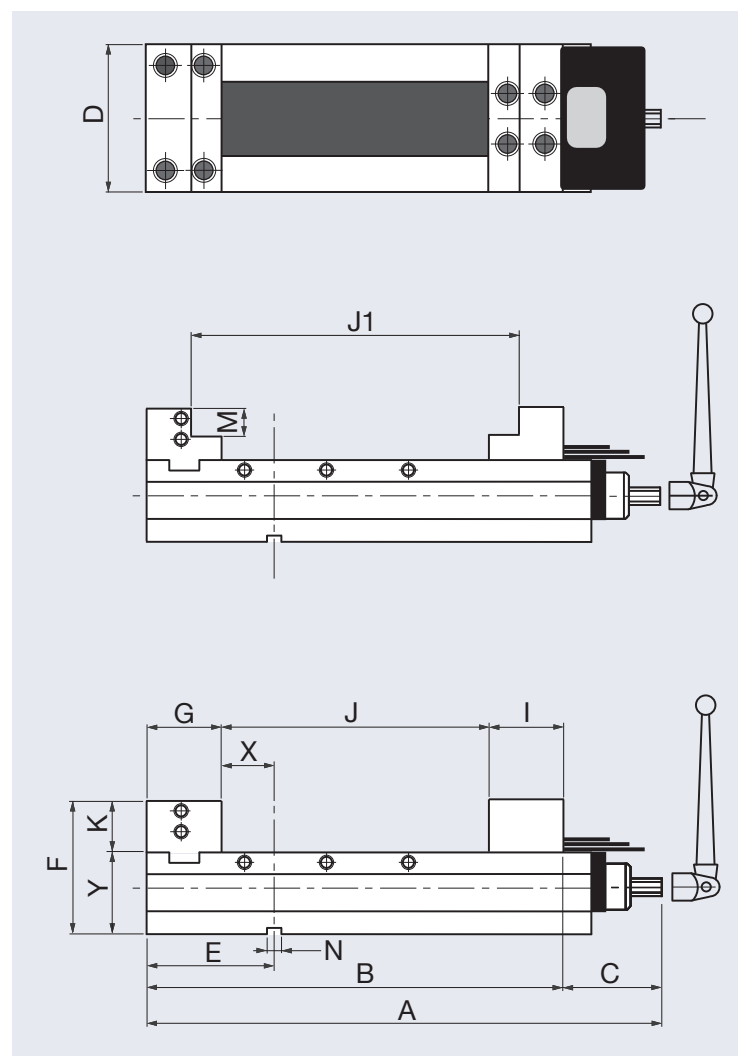
"L" jaw kit

Cod.	for type
58 90 71 10	100
58 91 71 10	130
58 92 71 10	160



Square block jaw kit

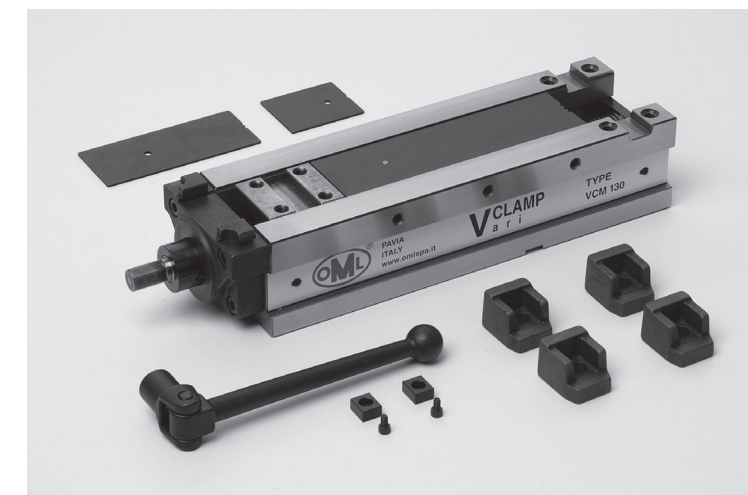
Cod.	for type
58 90 72 10	100
58 91 72 10	130
58 92 72 10	160



type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	J mm	J1 mm	I mm	K mm	M mm	N mm	X mm	Y mm	max clamping force KN (kgf)	weight kg
VCM 100	398	300		101	124	130	78	155	213	64	45	25		45	85	20 (2.000)	22
VCM 130	508	410	98	131	149	147	83	250	315	74	52	30	18	65	95	40 (4.000)	40
VCM 160	573	475		161	152	160	86	300	370	86	55	30		65	105	50 (5.000)	62

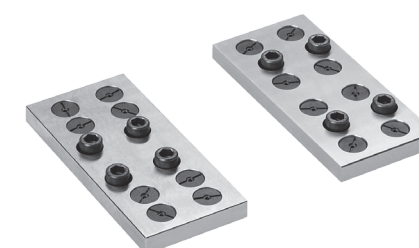
Mechanical set base VCM
Set base Vise Power complete with:
wrench
cover for the protection of the screw
2 positioning keys with screw
4 clamps

Cod.	for type
77 58 90 60	VCM 100
77 58 91 60	VCM 130
77 58 92 60	VCM 160



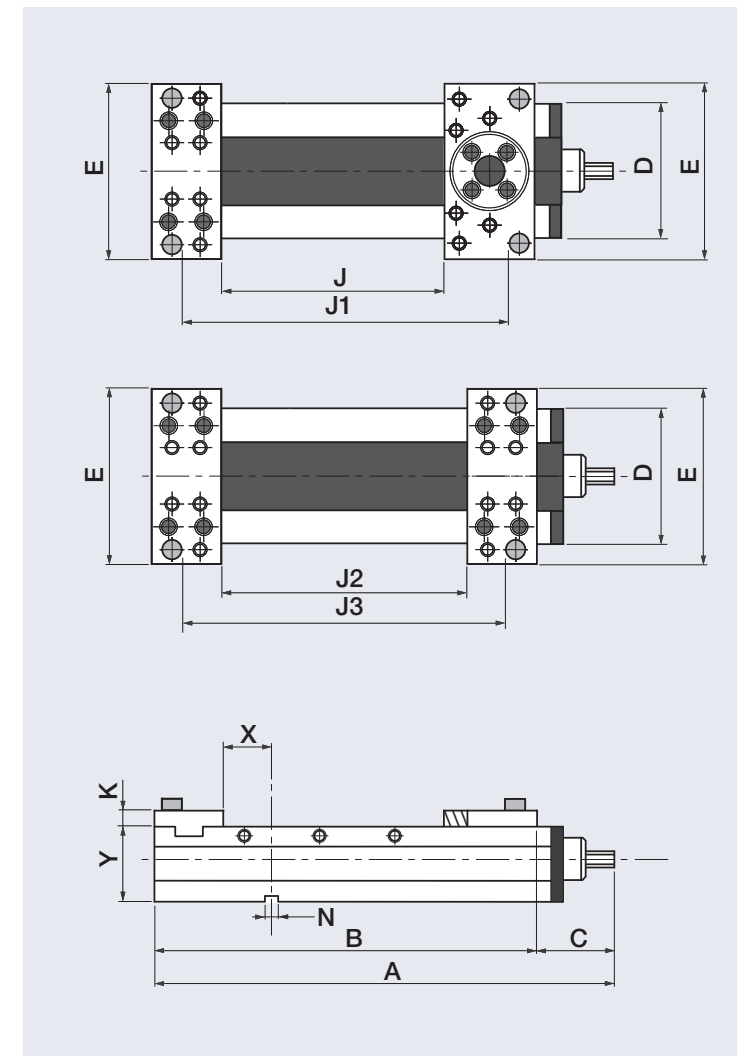
Gripper jaw kit

Cod.	for type
58 90 73 10	100
58 91 73 10	130
58 92 73 10	160

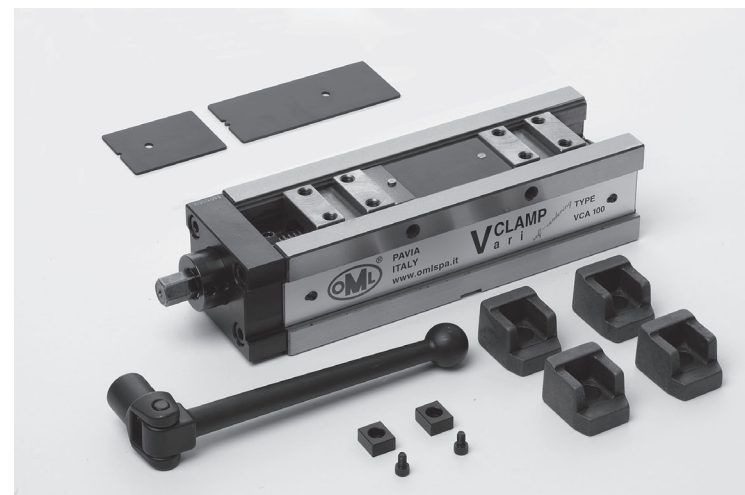


Floating gripper jaw kit

Cod.	for type
58 90 73 20	100
58 91 73 20	130
58 92 73 20	160



type	A mm	B mm	C mm	D mm	E mm	J mm	J1 mm	J2 mm	J3 mm	K mm	N mm	X mm	Y mm	max clamping force KN (kgf)	weight kg
VCM 100	398	300		101	160	100	220	150	220	17		51	85	20 (2.000)	18,5
VCM 130	508	410	98	131	190	180	320	210	320	17	18	60	95	40 (4.000)	33,5
VCM 160	573	475		161	220	220	380	280	380	22		64	105	50 (5.000)	51,5



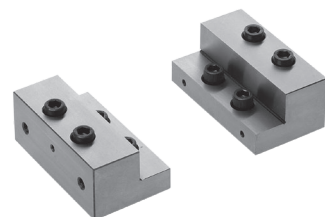
Self-centering set base VCA

Set base Vise Power complete with:
wrench
cover for the protection of the screw
2 positioning keys with screw
4 clamps

Cod.	for type
77 58 90 70	VCA 100
77 58 91 70	VCA 130
77 58 92 70	VCA 160

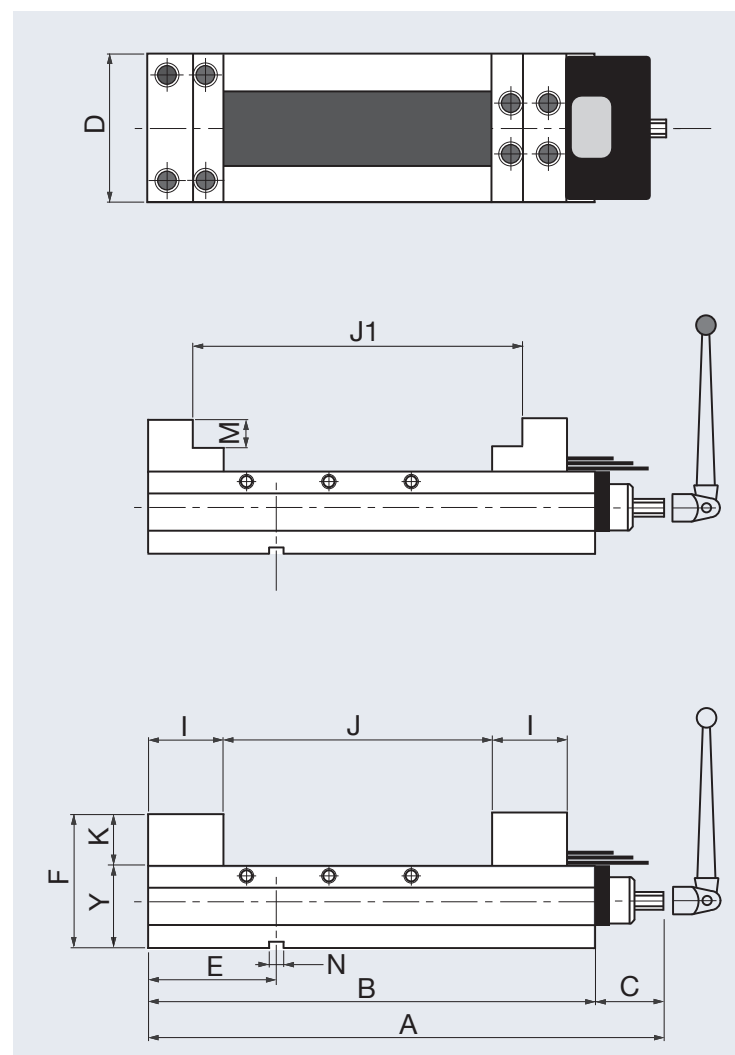
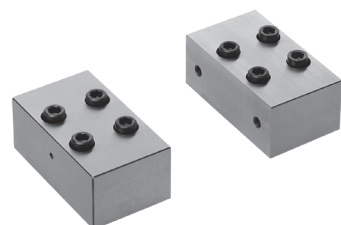
"L" jaw kit

Cod.	for type
58 90 71 20	VCA 100
58 91 71 20	VCA 130
58 92 71 20	VCA 160



Square block jaw kit

Cod.	for type
58 90 72 20	VCA 100
58 91 72 20	VCA 130
58 92 72 20	VCA 160

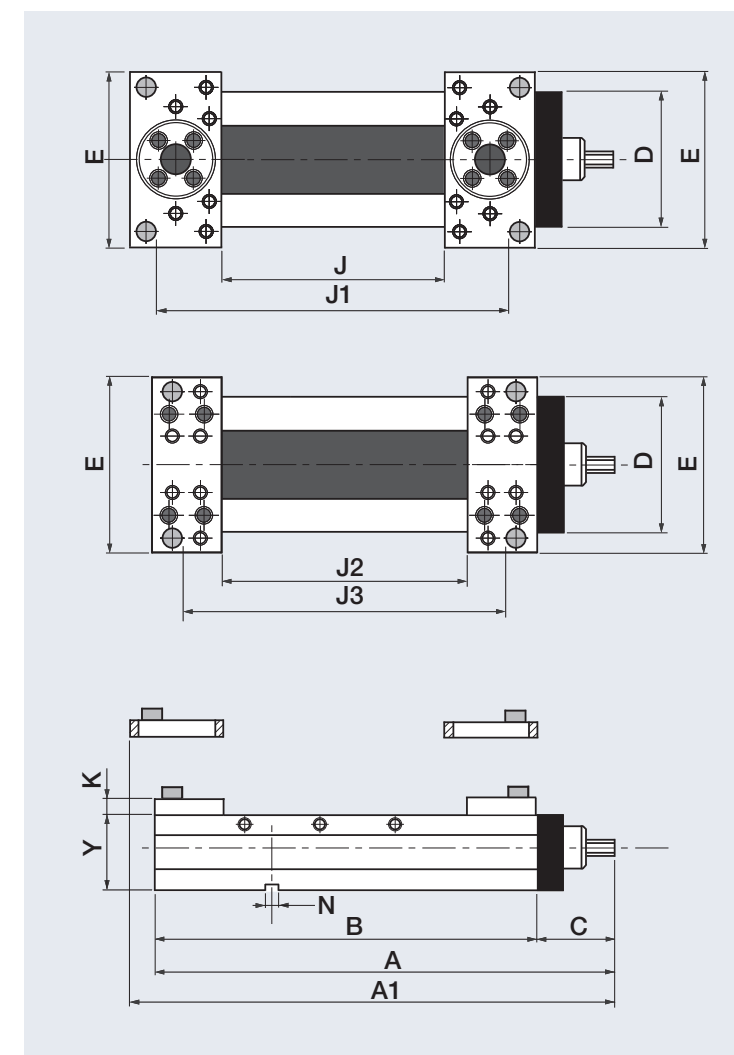
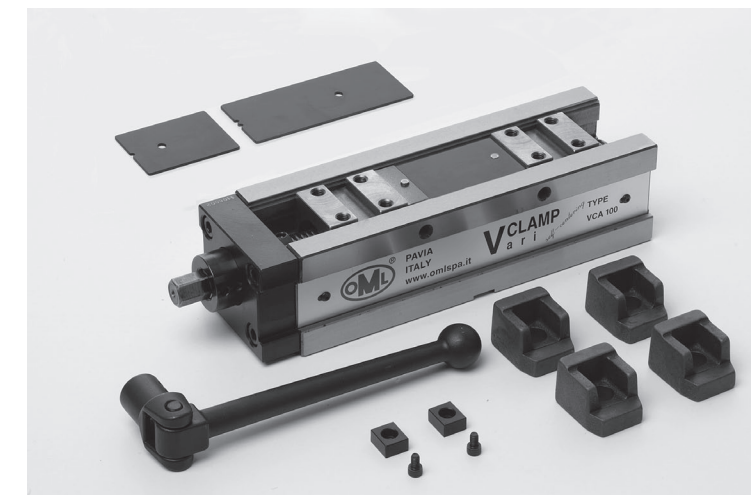


type	A mm	B mm	C mm	D mm	E mm	F mm	J mm min max	J1 mm min max	I mm	K mm	M mm	N mm	X mm	Y mm	max clamping force KN (kgf)	weight kg
VCA 100	378	300		101	150	130	40 165	40 220	64	45	25		45	85	20 (2.000)	22
VCA 130	488	410	78	131	205	147	40 250	40 320	74	52	30	18	65	95	23 (2.300)	40
VCA 160	553	475		161	237,5	160	40 290	40 370	86	55	30		65	105	24 (2.400)	60

Self-centering set base VCA

Set base Vise Power complete with:
wrench
cover for the protection of the screw
2 positioning keys with screw
4 clamps

Cod.	for type
77 58 90 70	VCA 100
77 58 91 70	VCA 130
77 58 92 70	VCA 160



type	A mm	A1 mm	B mm	C mm	D mm	E mm	J mm min max	J1 mm	J2 mm min max	J3 mm	K mm	N mm	Y mm	max clamping force KN (kgf)	weight kg
VCA 100	378	397	300		101	160	5 122	270	40 170	230			85	20 (2.000)	19
VCA 130	488	513	410	78	131	190	5 205	377	30 255	340	22	18	95	23 (2.300)	34
VCA 160	553	584	475		161	220	11 230	450	40 295	390			105	24 (2.400)	53

Gripper jaw kit

Cod.	for type
58 90 73 30	VCA 100
58 91 73 30	VCA 130
58 92 73 30	VCA 160

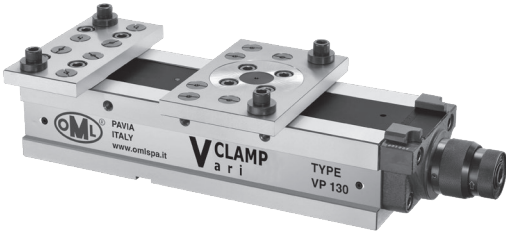


Floating gripper jaw kit

Cod.	for type
58 90 73 40	VCA 100
58 91 73 40	VCA 130
58 92 73 40	VCA 160



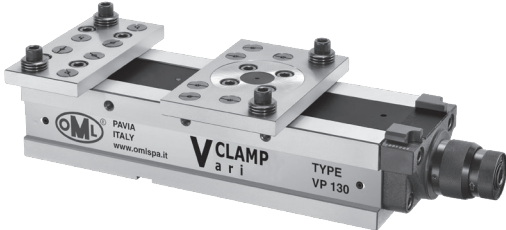
Set of 4 grippers h11 smooth



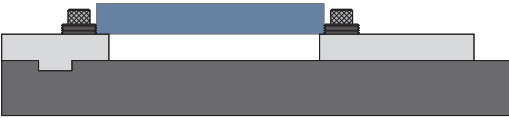
Cod. 58 90 61 14



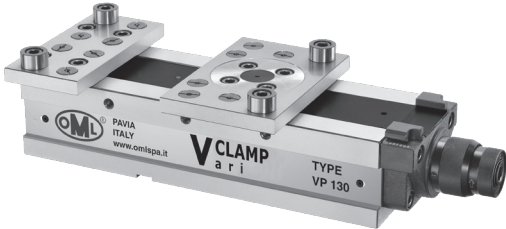
Set of 4 grippers h11 serrated



Cod. 58 90 61 24



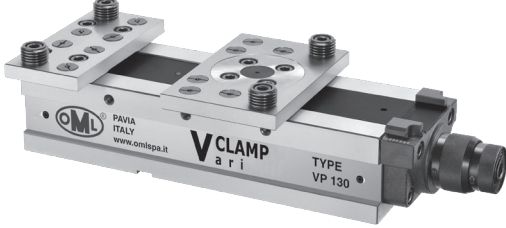
Set of 4 grippers h19 smooth



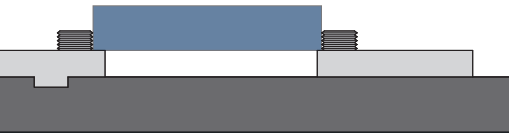
Cod. 58 90 62 14



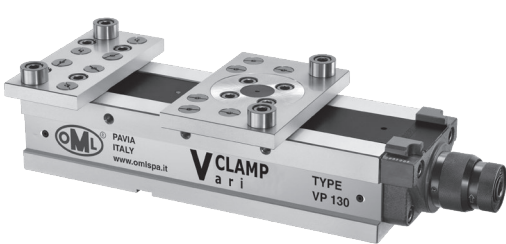
Set of 4 grippers h19 serrated



Cod. 58 90 62 24



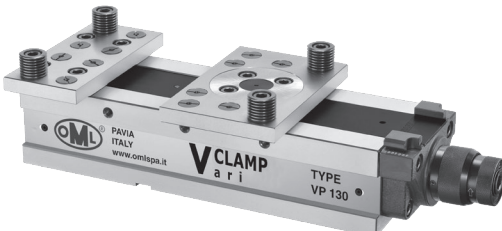
Set of 4 grippers h24 smooth



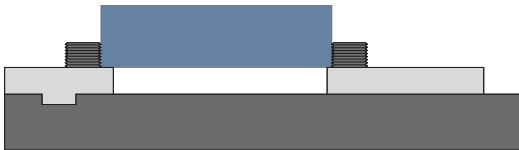
Cod. 58 90 63 14



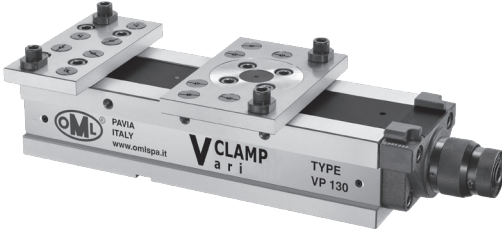
Set of 4 grippers h24 serrated



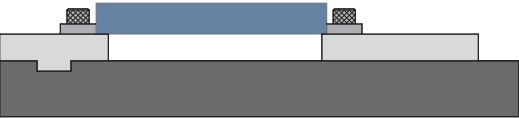
Cod. 58 90 63 24



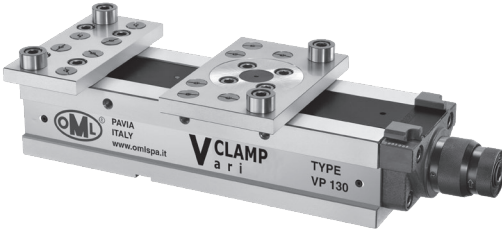
Set of 4 grippers h11 smooth-serrated



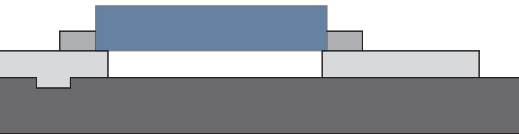
Cod. 58 90 64 14



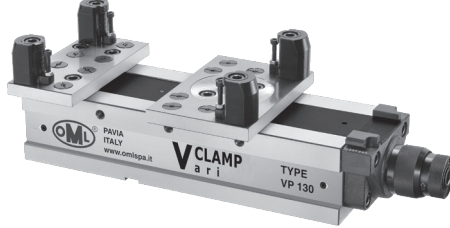
Set of 4 soft grippers h25 smooth



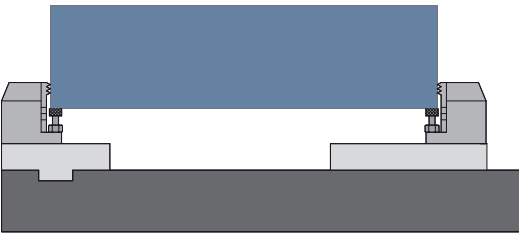
Cod. 58 90 65 14



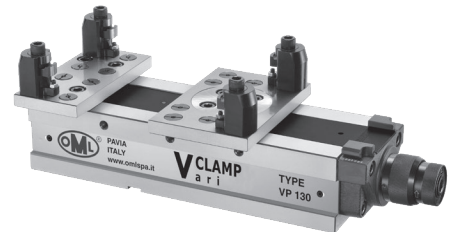
Set of 4 grippers h50 serrated with adjustable screw



Cod. 58 90 67 24



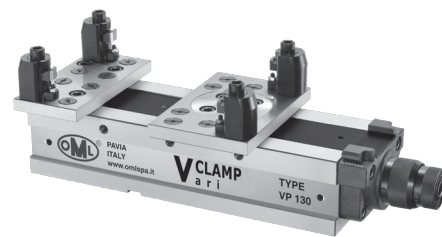
Set of 4 grippers h50 smooth with step



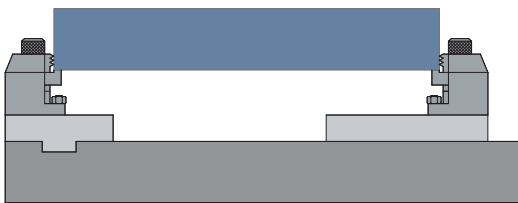
Cod. 58 90 68 14



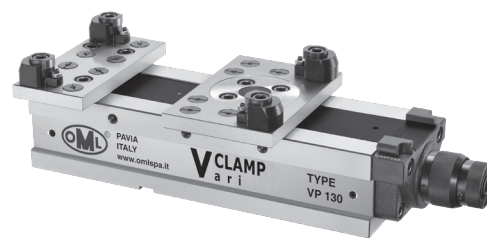
Set of 4 grippers h50 serrated with step



Cod. 58 90 68 24



Set of 4 grippers h25 smooth with adjustable screw



Cod. 58 90 66 14



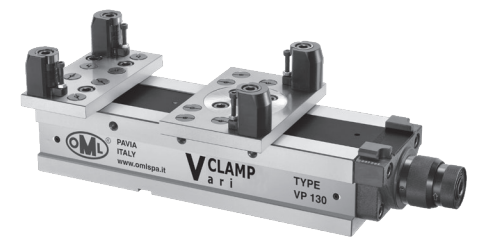
Set of 4 grippers h25 serrated with adjustable screw



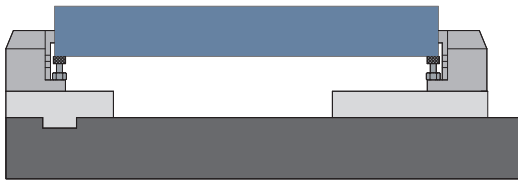
Cod. 58 90 66 24



Set of 4 grippers h50 smooth with adjustable screw



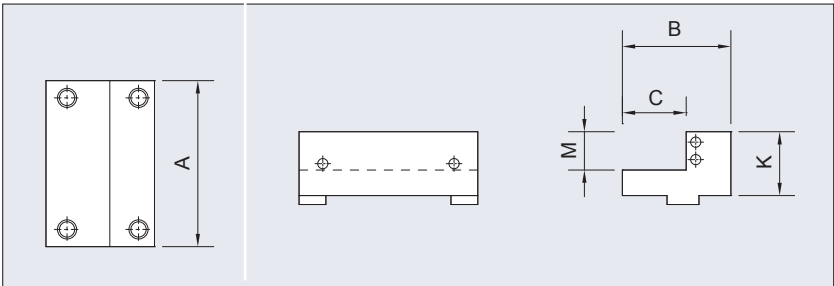
Cod. 58 90 67 14



Kit of 14 sets of 4 grippers

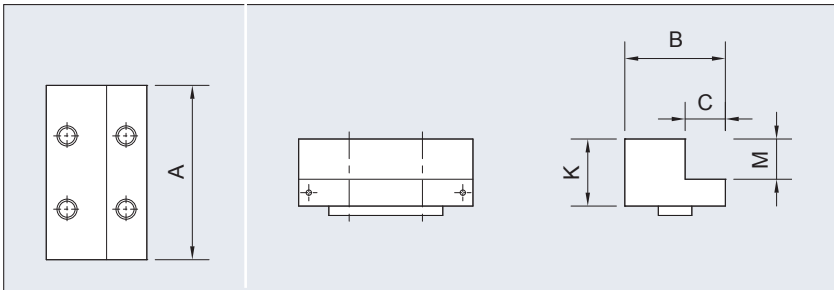
Cod.	58 90 60 09	for type	VCP 100 - VCP 130 -VCP 160	

Fixed jaw "L" type



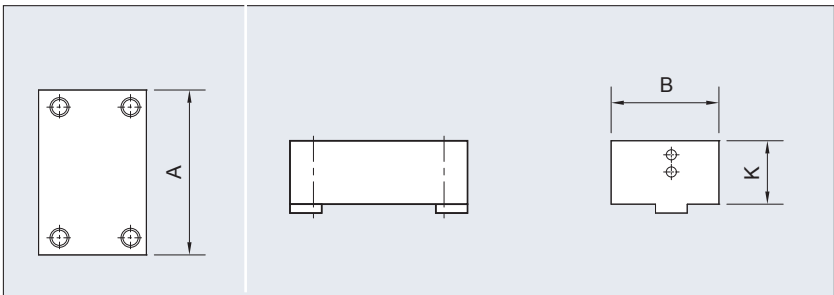
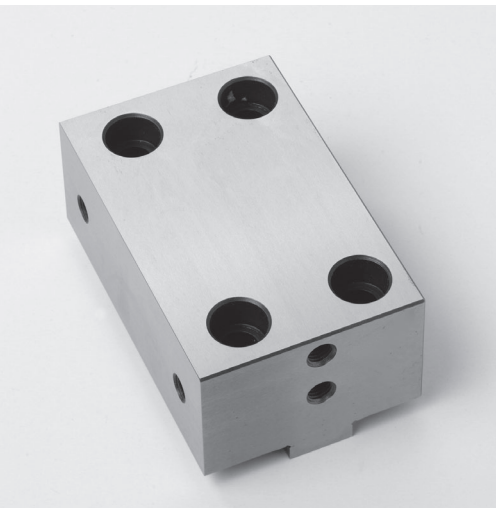
Cod.	type	A mm	B mm	C mm	K mm	M mm	weight kg
58 90 02 10	100	100	78	32,5	45	25	2
58 91 02 10	130	130	83	35	52	30	3
58 92 02 10	160	160	86	35	95	30	4,2

Moveable jaw "L" type (with expanding chip cover)



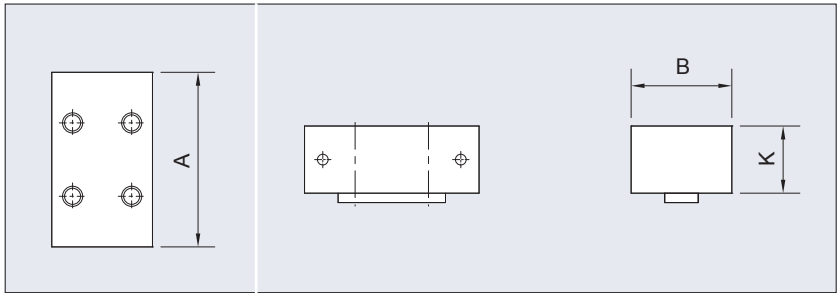
Cod.	type	A mm	B mm	C mm	K mm	M mm	weight kg
58 90 03 10	100	100	64	26	45	25	1,5
58 91 03 10	130	130	74	30	52	30	2,8
58 92 03 10	160	160	86	35	55	30	4,2

Fixed square block jaw



Cod.	type	A mm	B mm	K mm	weight kg
58 90 02 20	100	100	78	45	3
58 91 02 20	130	130	83	52	4
58 92 02 20	160	160	86	55	6

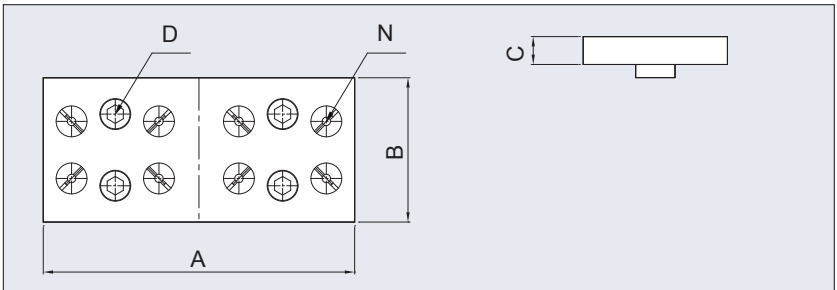
Moveable square block jaw (with expanding chip cover)



Cod.	type	A mm	B mm	K mm	weight kg
58 90 03 20	100	100	64	45	2,5
58 91 03 20	130	130	74	52	4,5
58 92 03 20	160	160	86	55	6



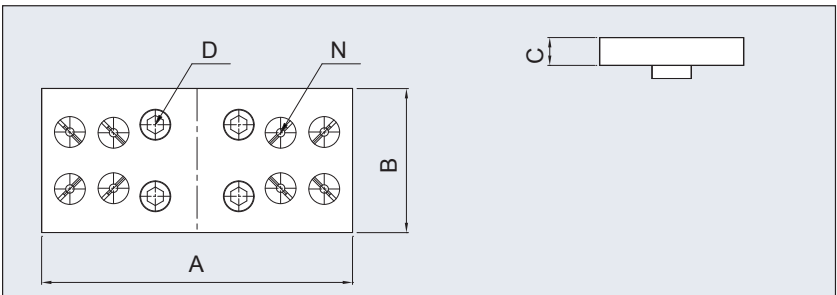
Fixed square block jaw gripper



Cod.	type	A mm	B mm	C mm	D mm	N	weight kg
58 90 02 30	100	160	73	22	M10x25L	6	1,3
58 91 02 30	130	190	88	22	M12x30L	8	2,2
58 92 02 30	160	220	88	22	M14x30L	8	3,0



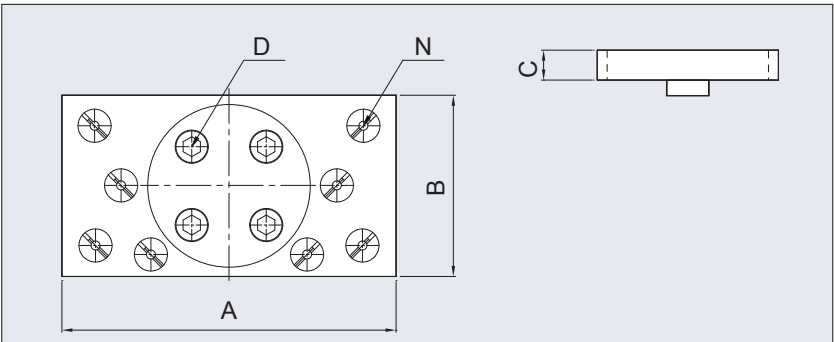
Moveable jaw gripper



Cod.	type	A mm	B mm	C mm	D mm	N	weight kg
58 90 03 30	100	160	64	22	M10x25L	6	1,4
58 91 03 30	130	190	88	22	M12x30L	8	2,2
58 92 03 30	160	220	88	22	M14x30L	8	3,3

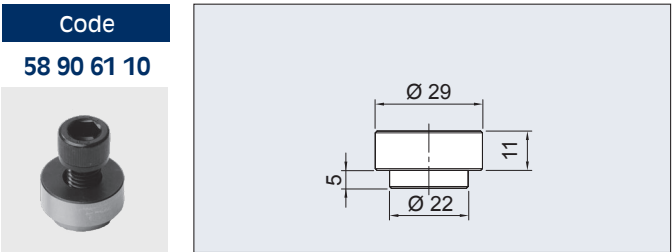


Floating jaw gripper

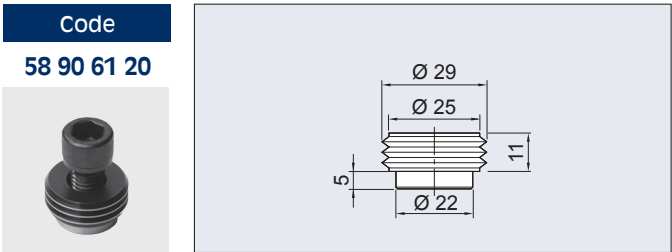


Code	type	A mm	B mm	C mm	D mm	N	weight kg
58 90 03 40	VCP 100	160	88	22	M10x25L	6	2,2
58 91 03 40	VCP 130	190	103	22	M12x30 L	8	3,2
58 92 03 40	VCP 160	220	128	22	M14x30L	8	5,7

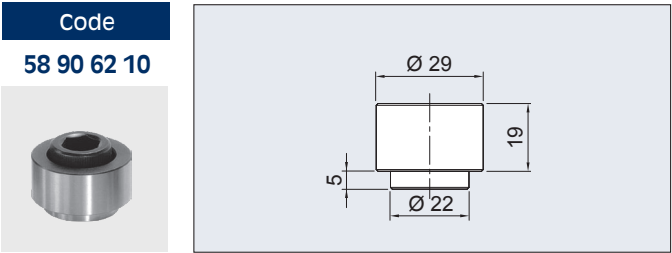
Gripper h11 smooth



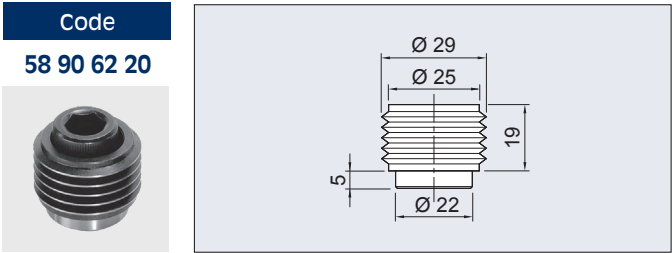
Gripper h11 serrated



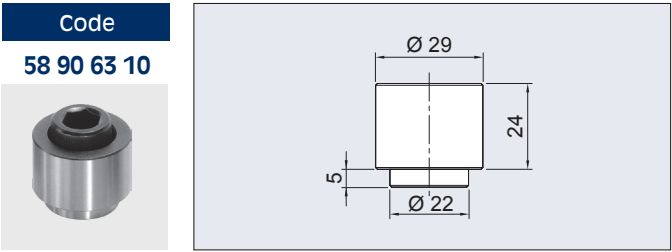
Gripper h19 smooth



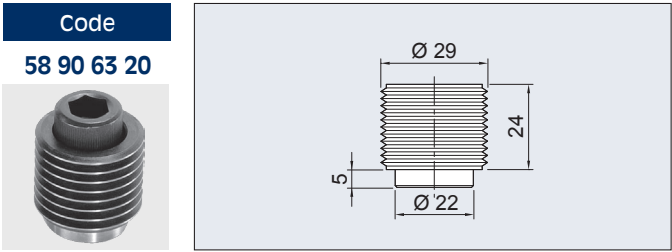
Gripper h19 serrated



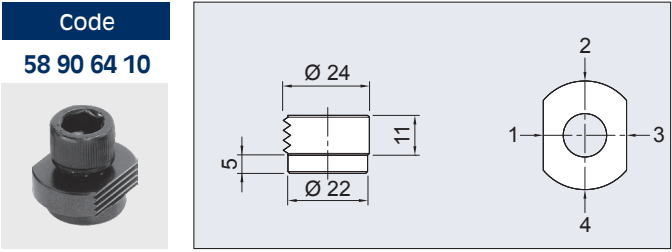
Gripper h24 smooth



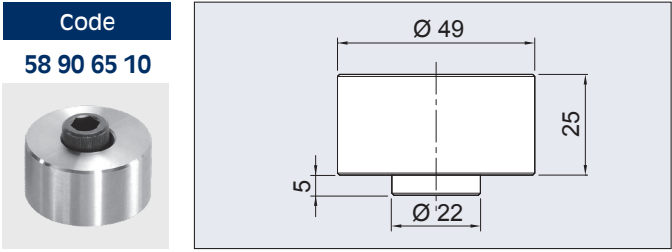
Gripper h24 serrated



Gripper h11 smooth-serrated



Soft gripper h25 smooth



Gripper h50 serrated with adjustable screw

Code
58 90 67 20

Pos.	Code	Description
1	58 90 51 20	Body
2	58 90 52 20	Serrated gripper
3	71 11 31 09	Screw TCEI M12x60 12.9
4	71 11 30 47	Screw TCEI M6x30 12.9
5	71 15 02 06	Nut M6
6	58 90 54 10	Washer (5 mm)
7	58 90 54 20	Washer (10 mm)

Gripper h50 smooth with step

Code
58 90 68 10

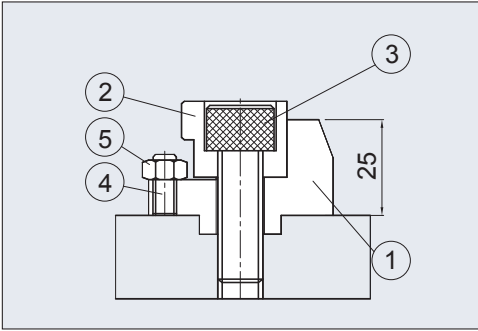
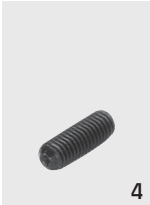
Pos.	Code	Description
1	58 90 51 20	Body
2	58 90 53 10	Smooth gripper
3	71 11 31 10	Screw TCEI M12x70 12.9
4	71 11 21 24	Grub screw M6x16
5	71 15 02 06	Nut M6
6	58 90 54 10	Washer (5 mm)
7	58 90 54 20	Washer (10 mm)
8	58 90 55 10	Step washer

Gripper h50 serrated with step

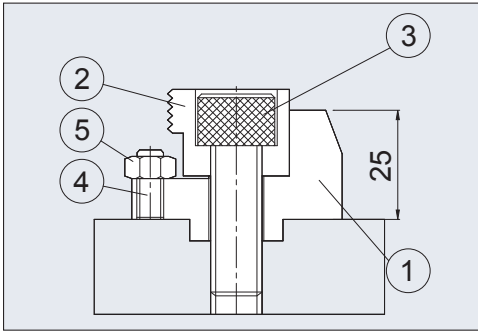
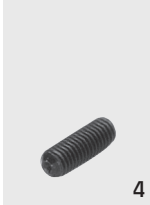
Code
58 90 68 20

Pos.	Code	Description
1	58 90 51 20	Body
2	58 90 53 20	Serrated gripper
3	71 11 31 10	Screw TCEI M12x70 12.9
4	71 11 21 24	Grub screw M6x16
5	71 15 02 06	Nut M6
6	58 90 54 10	Washer (5 mm)
7	58 90 54 20	Washer (10 mm)
8	58 90 55 10	Step washer

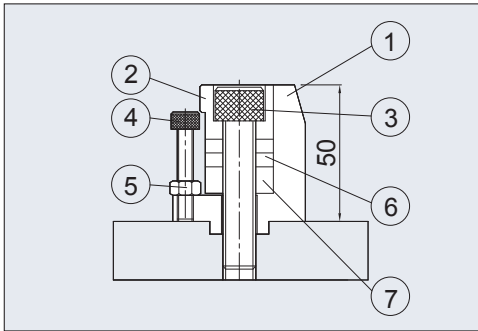
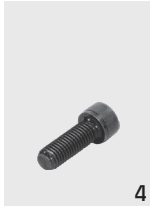
Gripper h25 smooth with adjustable screw

Code		Pos.	Code	Description
58 90 66 10		1	58 90 51 10	Body
		2	58 90 52 10	Smooth gripper
		3	71 11 31 05	Screw TCEI M12x3512.9
		4	71 11 21 24	Grub screw M6x16
		5	71 15 02 06	Nut M6
				
				
				
				
				

Gripper h25 serrated with adjustable screw

Code		Pos.	Code	Description
58 90 66 20		1	58 90 51 10	Body
		2	58 90 52 20	Serrated gripper
		3	71 11 31 05	Screw TCEI M12x35 12.9
		4	71 11 21 24	Grub screw M6x16
		5	71 15 02 06	Nut M6
				
				
				
				
				

Gripper h50 smooth with adjustable screw

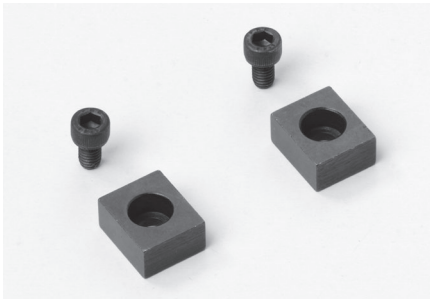
Code		Pos.	Code	Description
58 90 67 10		1	58 90 51 20	Body
		2	58 90 52 10	Smooth gripper
		3	71 11 31 09	Screw TCEI M12x60 12.9
		4	71 11 30 47	Screw TCEI M6x16
		5	71 15 02 06	Nut M6
		6	58 90 54 10	Washer (5 mm)
		7	58 90 54 20	Washer (10 mm)
				
				
				
				
				
				
				

Angle drive



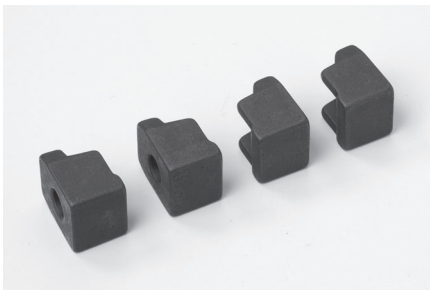
Cod.	for type
58 91 86 10	VCP 130 - VP 130
58 92 86 10	VCP 160 - VP 160

Pair of positioning keys



Cod.	mm	Cod.	mm
58 90 13 92	18 x 12	58 90 13 95	18 x 18
58 90 13 93	18 x 14	58 90 13 96	18 x 20
58 90 13 94	18 x 16	58 90 13 97	18 x 22

Kit of 4 clamps



Cod.	for type
58 90 27 09	VCP 100 - VP 100
	VCP 130 - VP 130
	VCP 160 - VP 160

Wrench VCP/VP



Cod.	for type
58 90 19 00	VCP 100 - VP 100
	VCP 130 - VP 130
	VCP 160 - VP 160

Wrench VCM/VCA



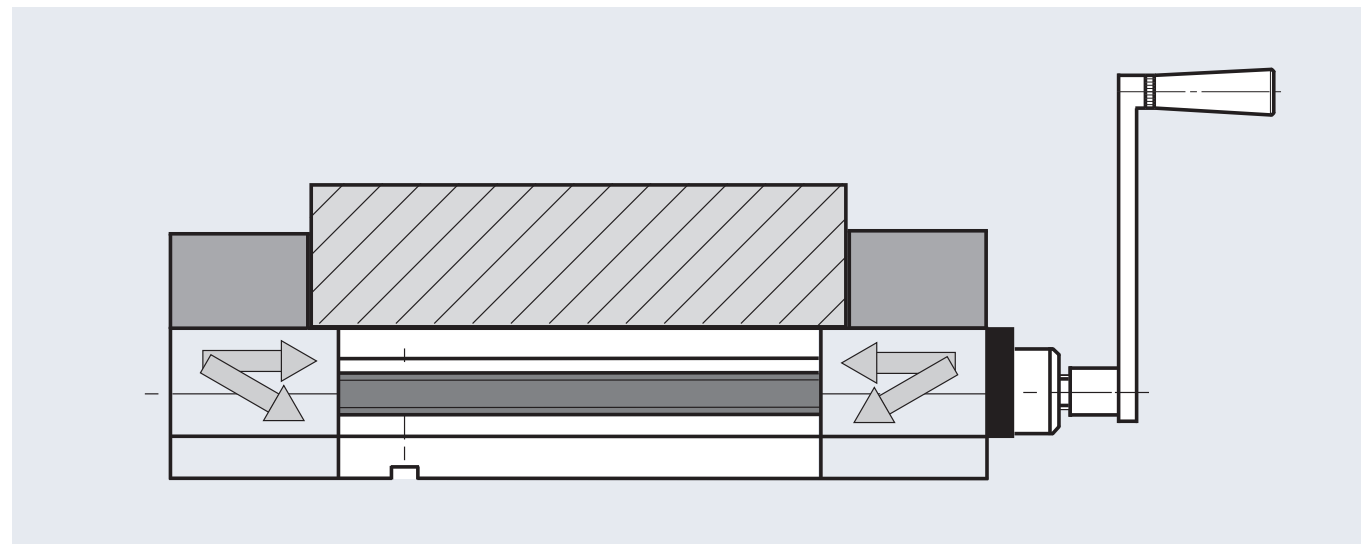
Cod.	for type
58 90 19 10	VCM 100 - VCA 100
	VCM 130 - VCA 130
	VCM 160 - VCA 160

Torque wrench

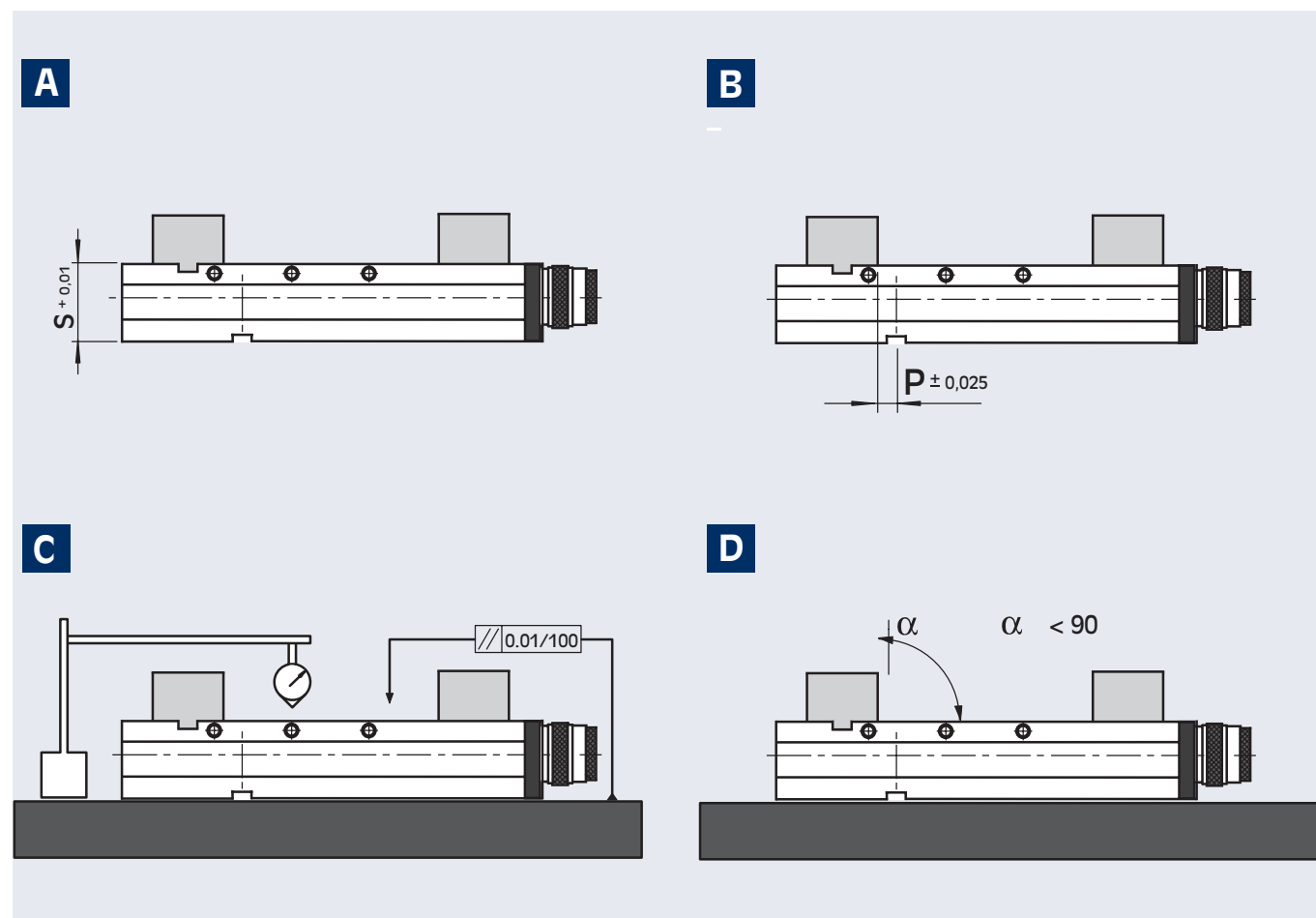


Cod.	for type
51 50 10 01	VCM 100 - VCA 100
	VCM 130 - VCA 130
	VCM 160 - VCA 160

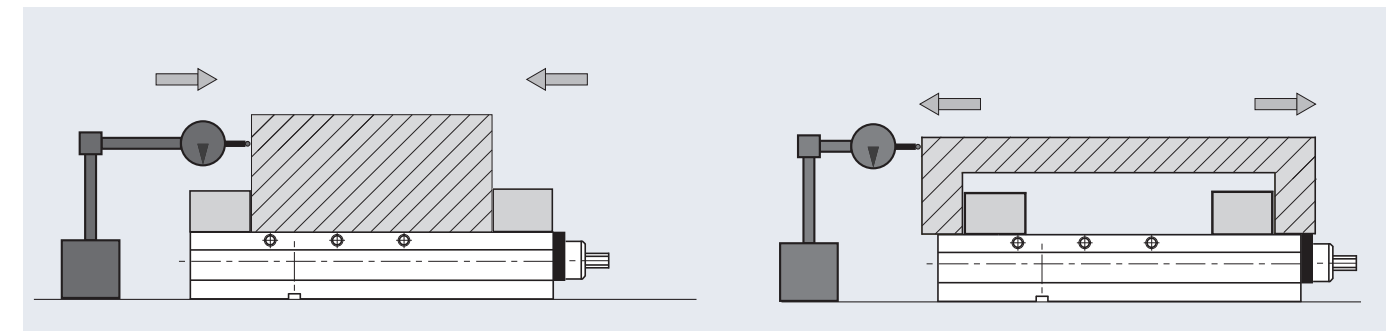
"PULL-DOWN" system for all type of vises



Manufacturing tolerances for all type of vises

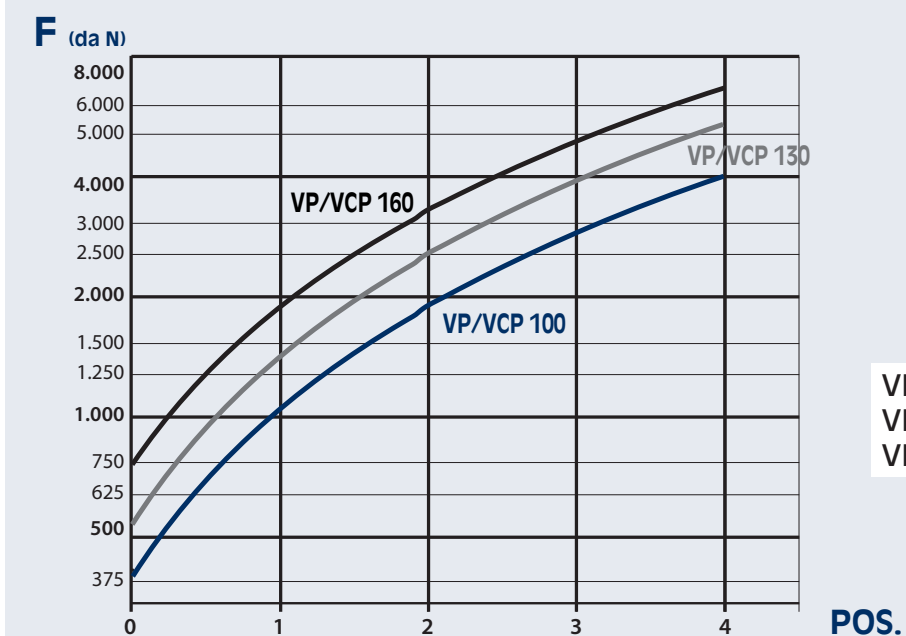


Repeatability accuracy for the clamping of model VCA +/- 0,01

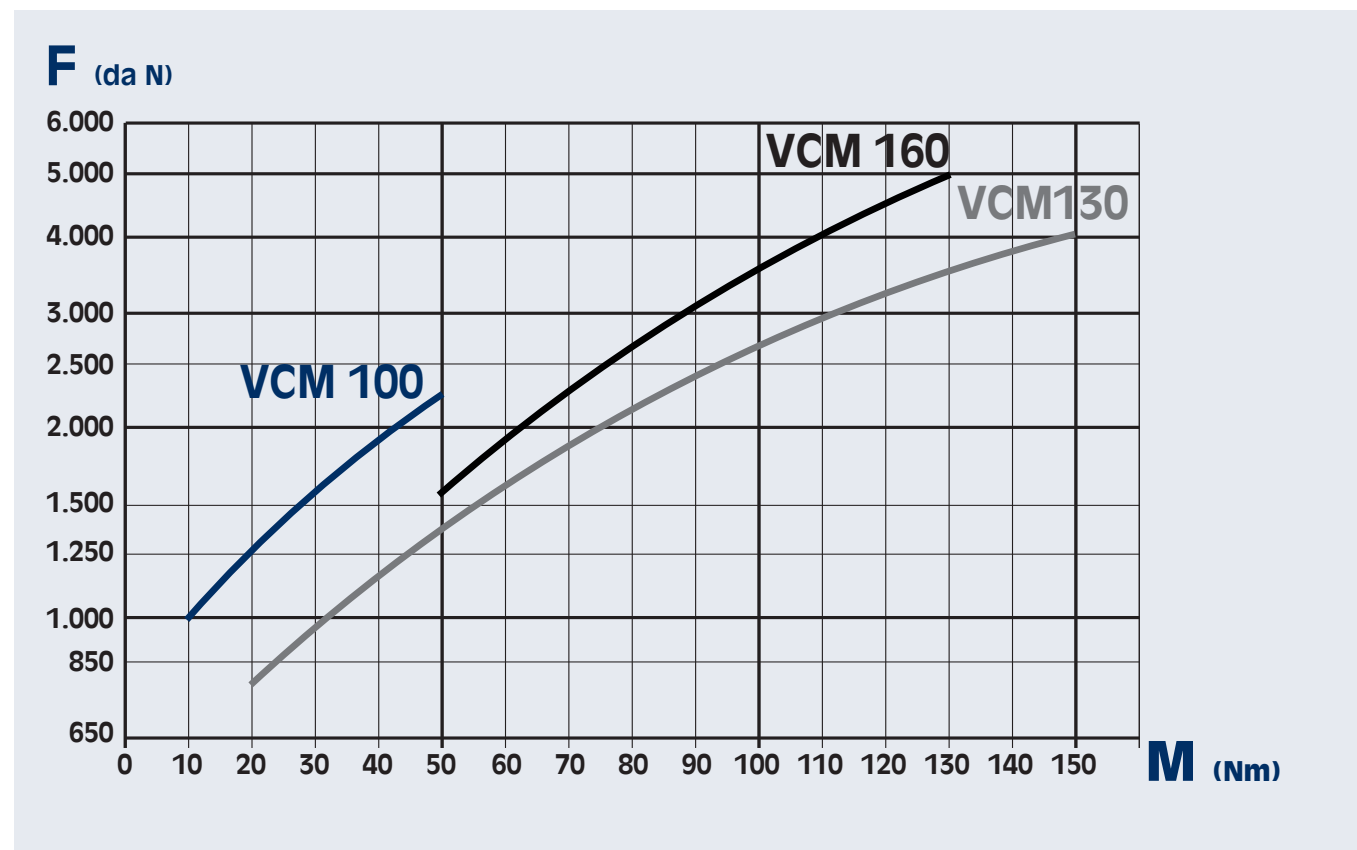


Clamping force diagrams VP/VCP with clamping force multiplier

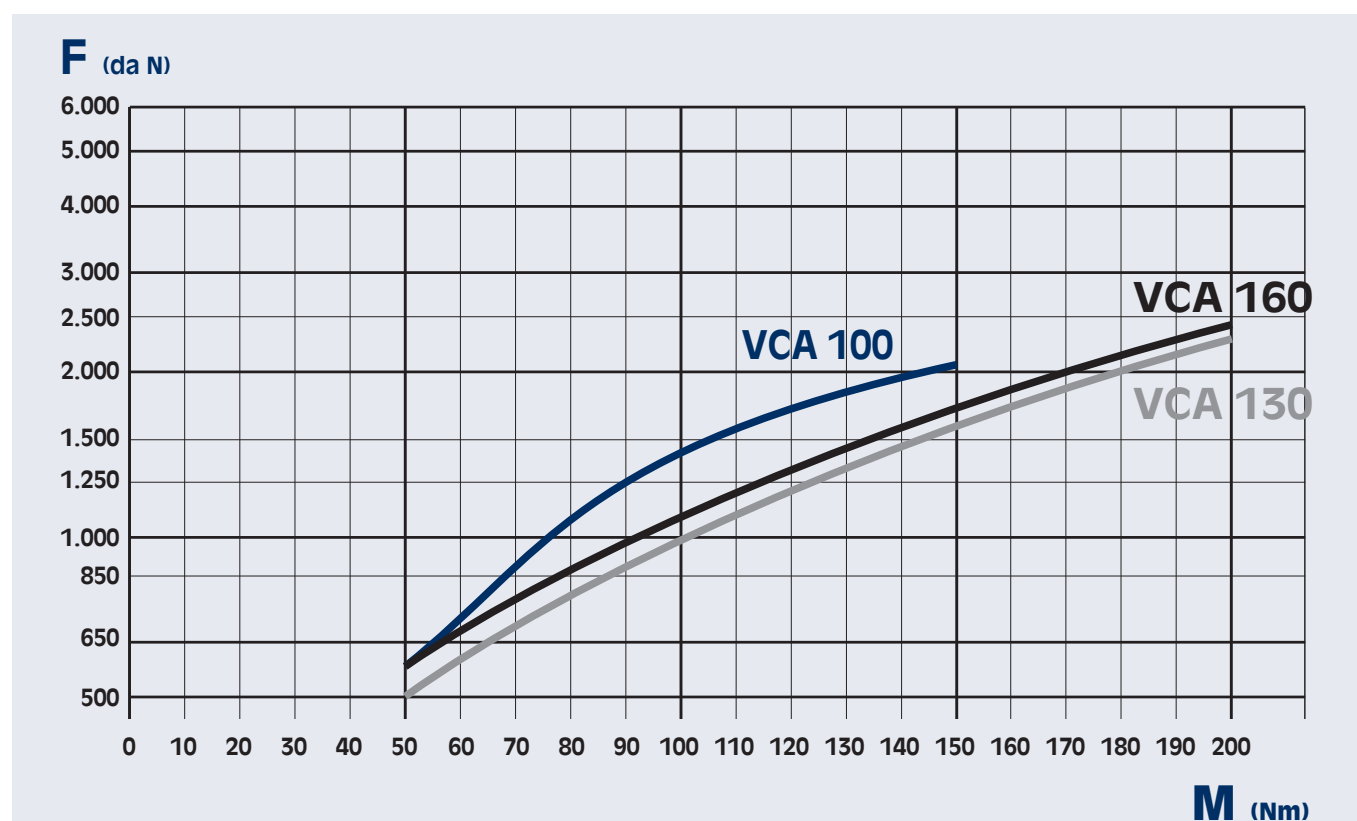
Our innovative **"TWO FINGERS INTENSIFIER"** allows the clamping force multiplier to achieve a large clamping force with a minimum effort from the operator.



Clamping force diagrams VCM without clamping force multiplier



Clamping force diagrams VCA without clamping force multiplier



Possible configurations of vices "SELF CENTERING"

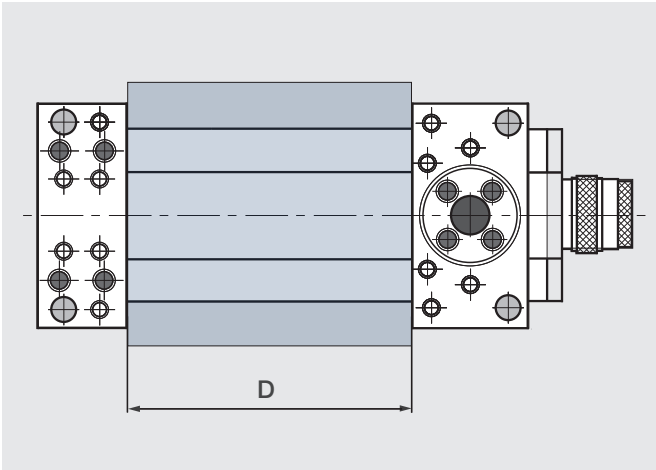
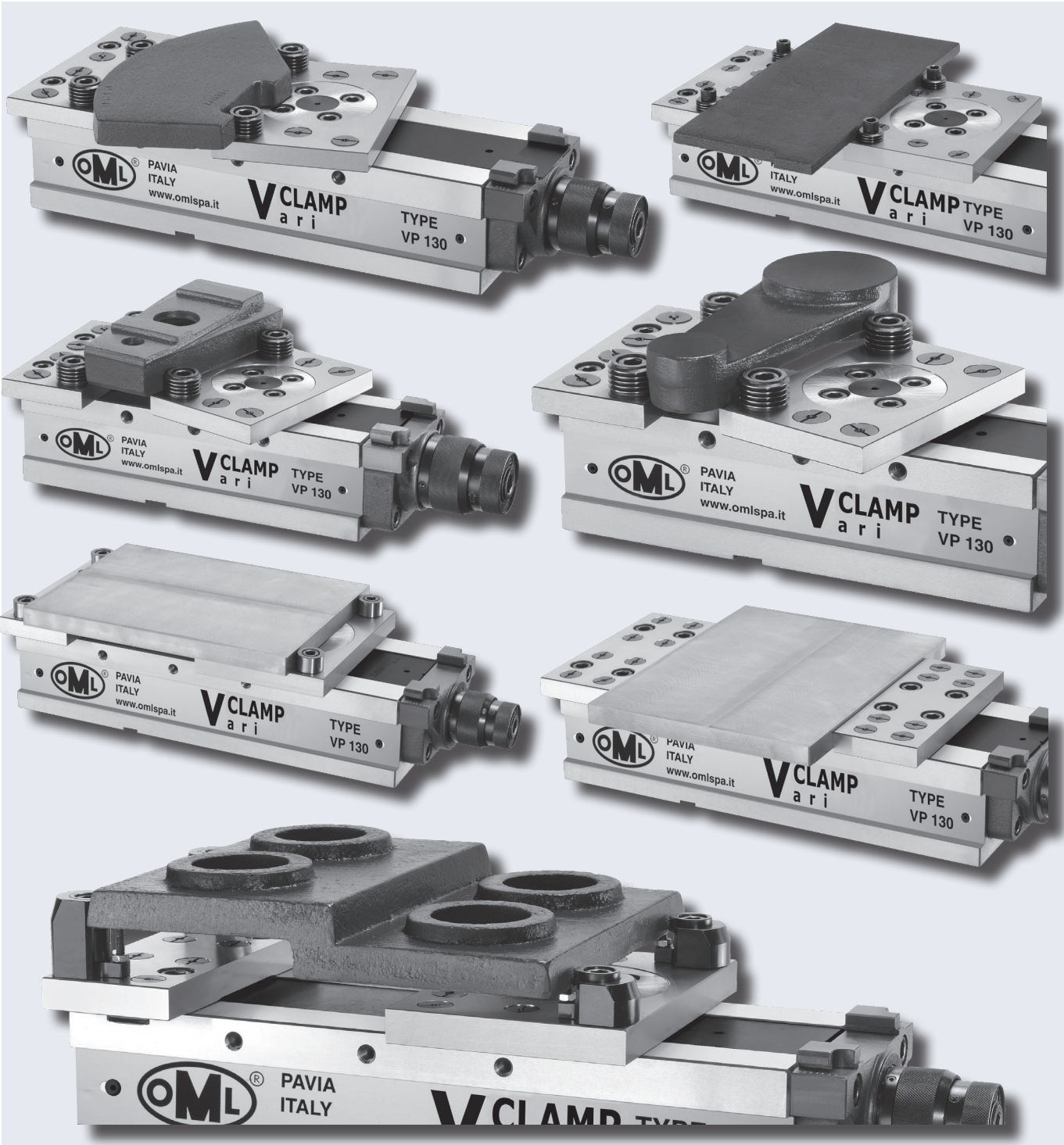
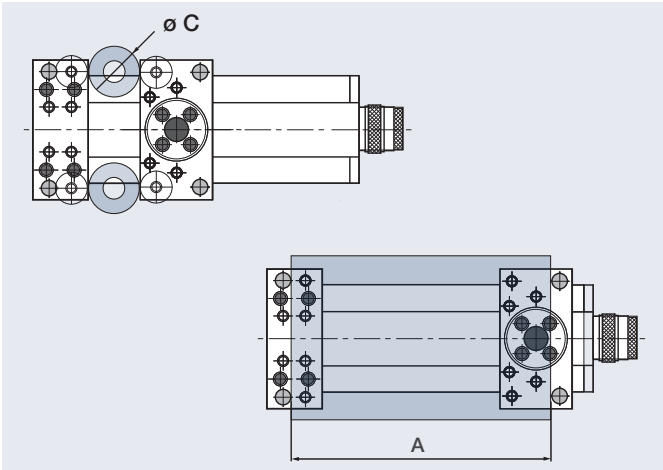
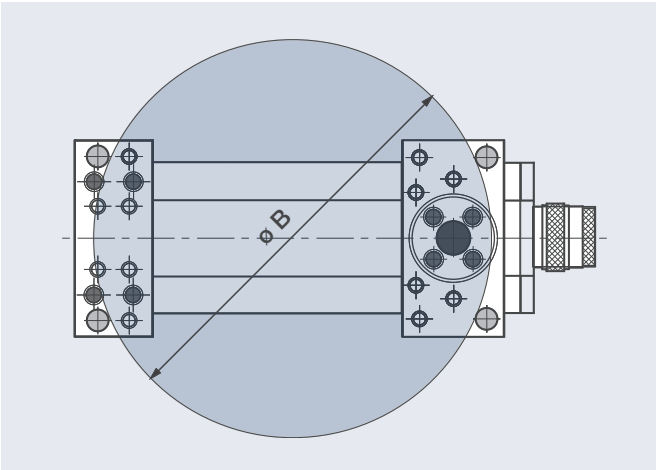


With block jaws

With L jaws

With gripper jaws

With floating gripper jaws

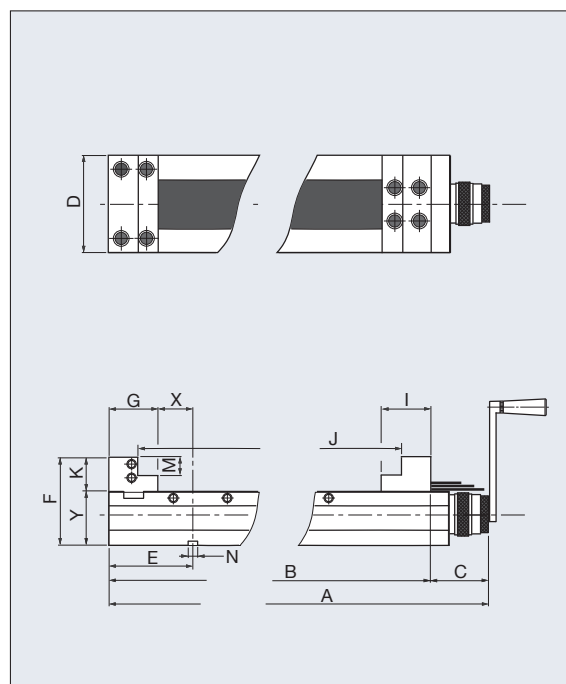
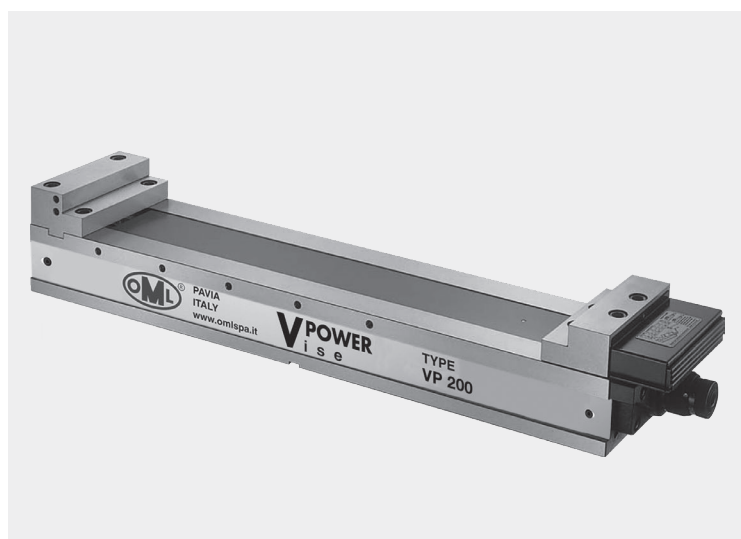


type	A	$\varnothing B$	$\varnothing C$	D
VCP 100	0-220	80-250		0-150
VCP 130	0-320	90-350	0-90	0-210
VCP 160	0-380	90-420	0-90	0-280

Vise POWER .XL Clamping vise with mechanical/mechanical clamping force multiplier

Vise Power XL

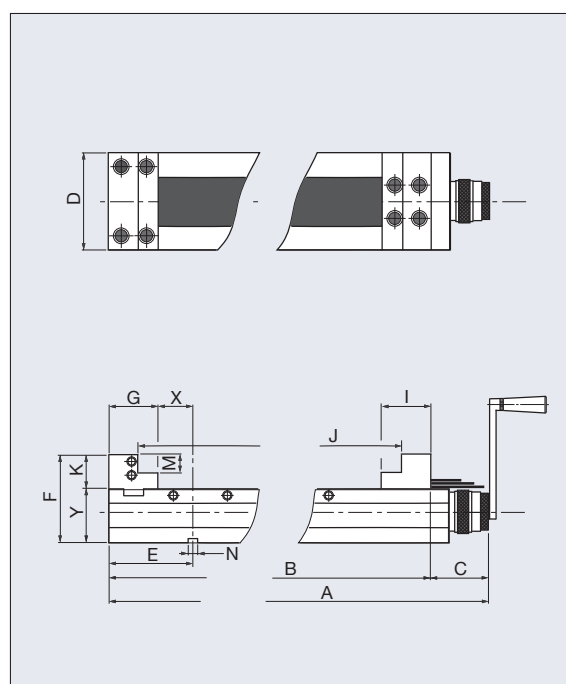
Clamping equipment complete with "L" fixed and movable jaws, wrench, carter for the protection of the screw, 2 positioning keys with screw, 4 clamps.



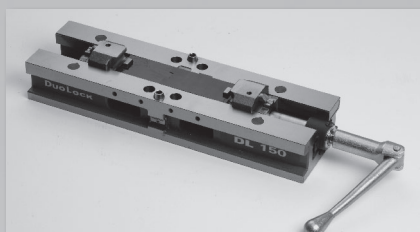
Cod.	type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	J mm	I mm	K mm	M mm	N mm	X mm	Y mm	weight kg
77 58 93 11	VP 200 XL	1.086	980	106	201	490	170	100	856	97	60	30	18	388	110	127

Vise Power XXL

Clamping equipment complete with "L" fixed and movable jaws, wrench, carter for the protection of the screw, 2 positioning keys with screw, 4 clamps.



Cod.	type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	J mm	I mm	K mm	M mm	N mm	X mm	Y mm	weight kg
77 58 93 16	VP 200 XXL	1.406	1.300	106	201	650	170	102	1.176	97	60	30	18	548	110	159



DUO-LOCK HD

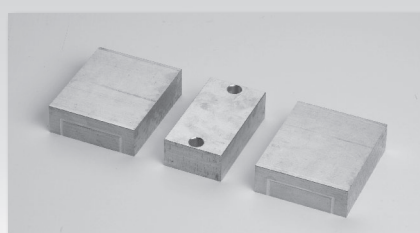
Pag. 10 .3

base equipment DUO-LOCK HD
with wrench



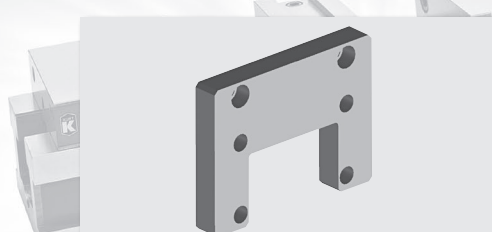
Set of hard jaws

Pag. 10 .3



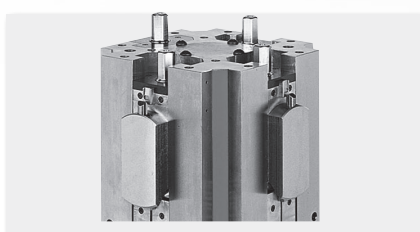
Set of soft jaws

Pag. 10 .3



Conversion kit for single clamping

Pag. 10 .9



THD tower DUO-LOCK HD

Pag. 10 .6



CLAK DUO-LOCK

Pag. 10 .10

Modular parallels and soft jaws/
QUICK CHANGE



Accessories and spare parts

Pag. 10 .12

The most important features of the vises DUO-LOCK and MDC merge into the new DUO-LOCK HD with interchangeable quickjaws change

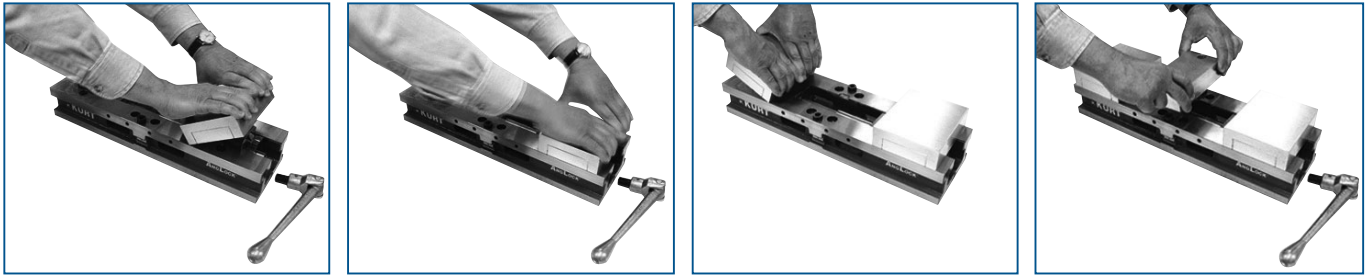
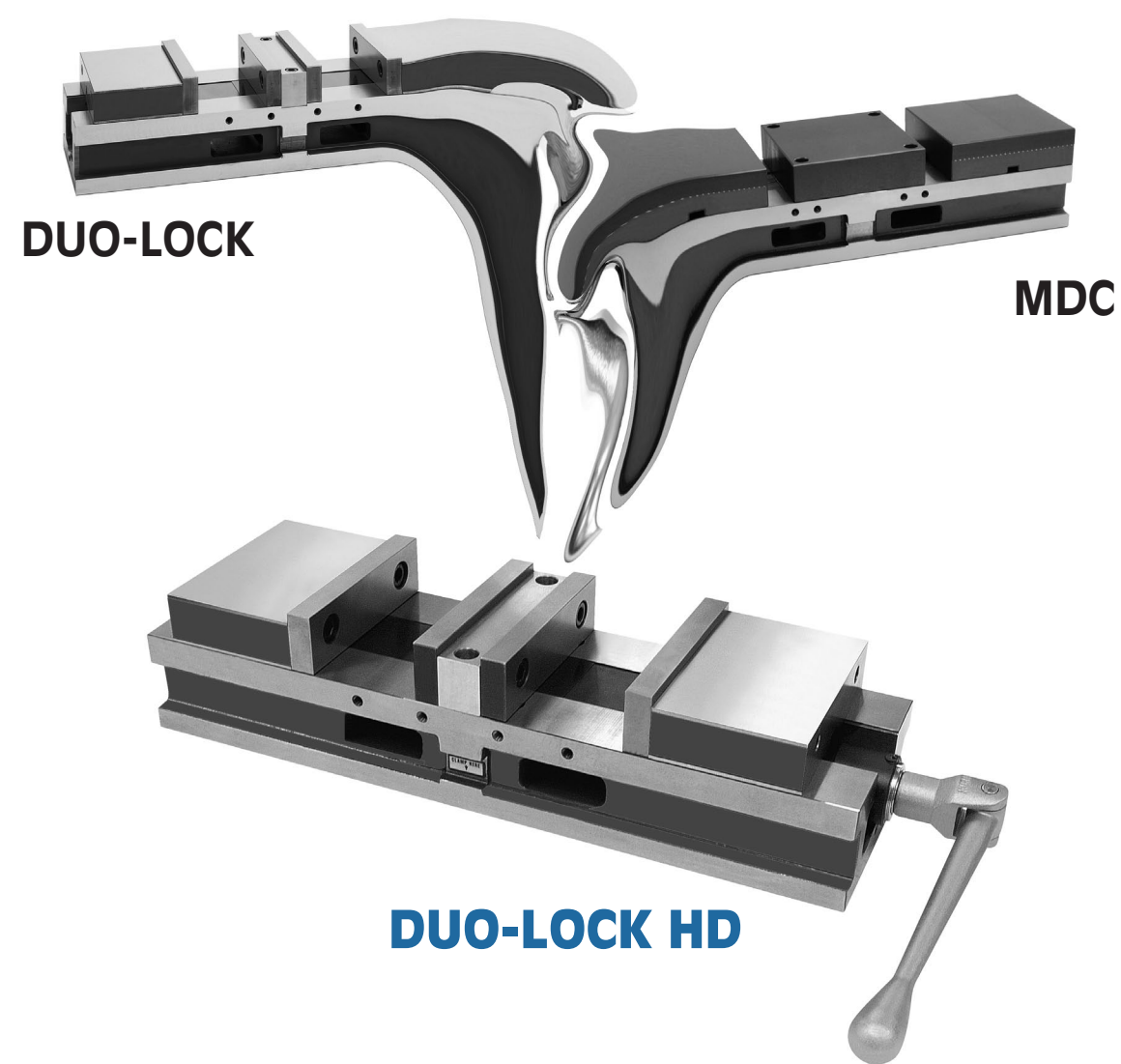
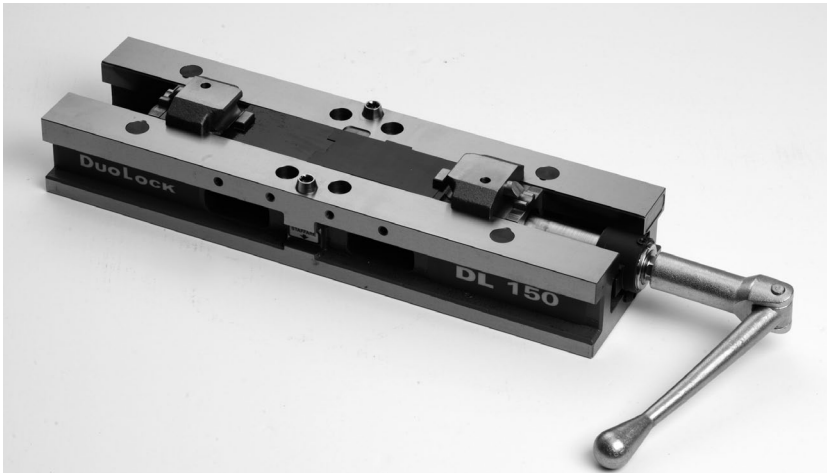


Fig. 1 Fig. 2 Fig. 3

DUO-LOCK HD is NOT a self-centering vise therefore with DUO-LOCK HD it is possible to clamp 2 workpieces of the **same** dimension (picture n° 1), 2 workpieces of **different** dimensions (picture n° 2), 1 workpiece of **large** dimension by means of the conversion kit (picture n° 3)

Base equipment DUO-LOCK HD with wrench



Code	for type
77 58 78 00	DL - HD 100
77 58 79 00	DL - HD 150



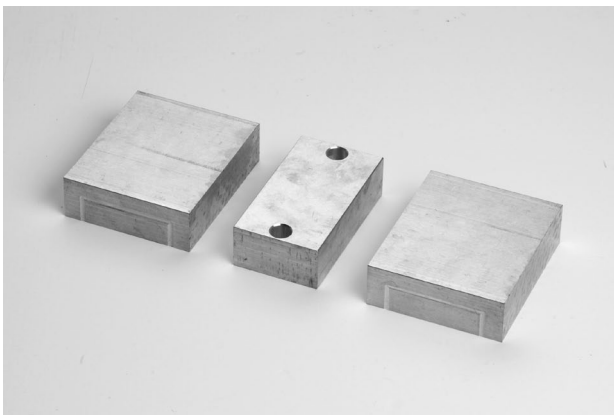
Set of hard jaws

Code	for type
58 78 84 10	DL - HD 100
58 79 84 10	DL - HD 150



Set of soft steel jaws

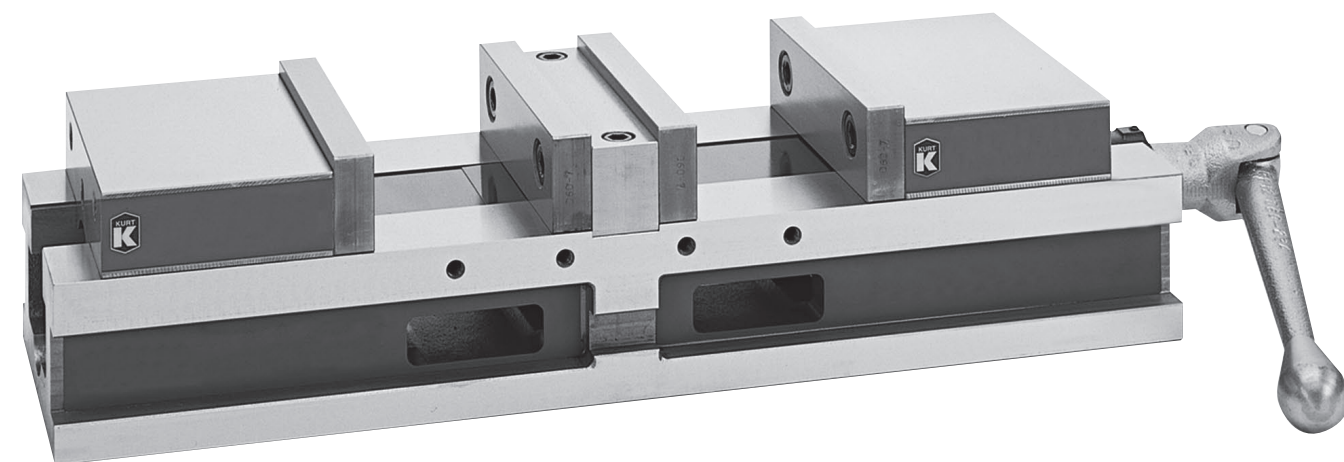
Code	for type
58 78 86 10	DL-HD 100
58 79 86 10	DL-HD 150



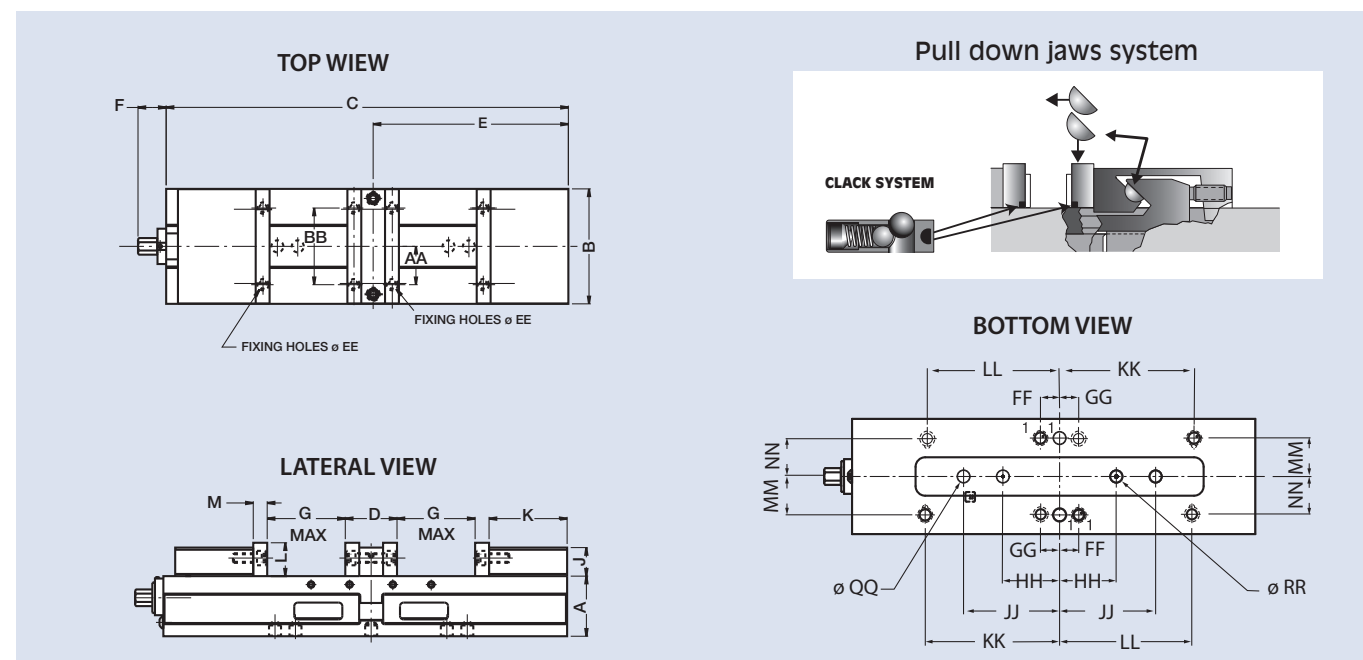
Set of soft alu jaws

Code	for type
58 78 85 10	DL-HD 100
58 79 85 10	DL-HD 150

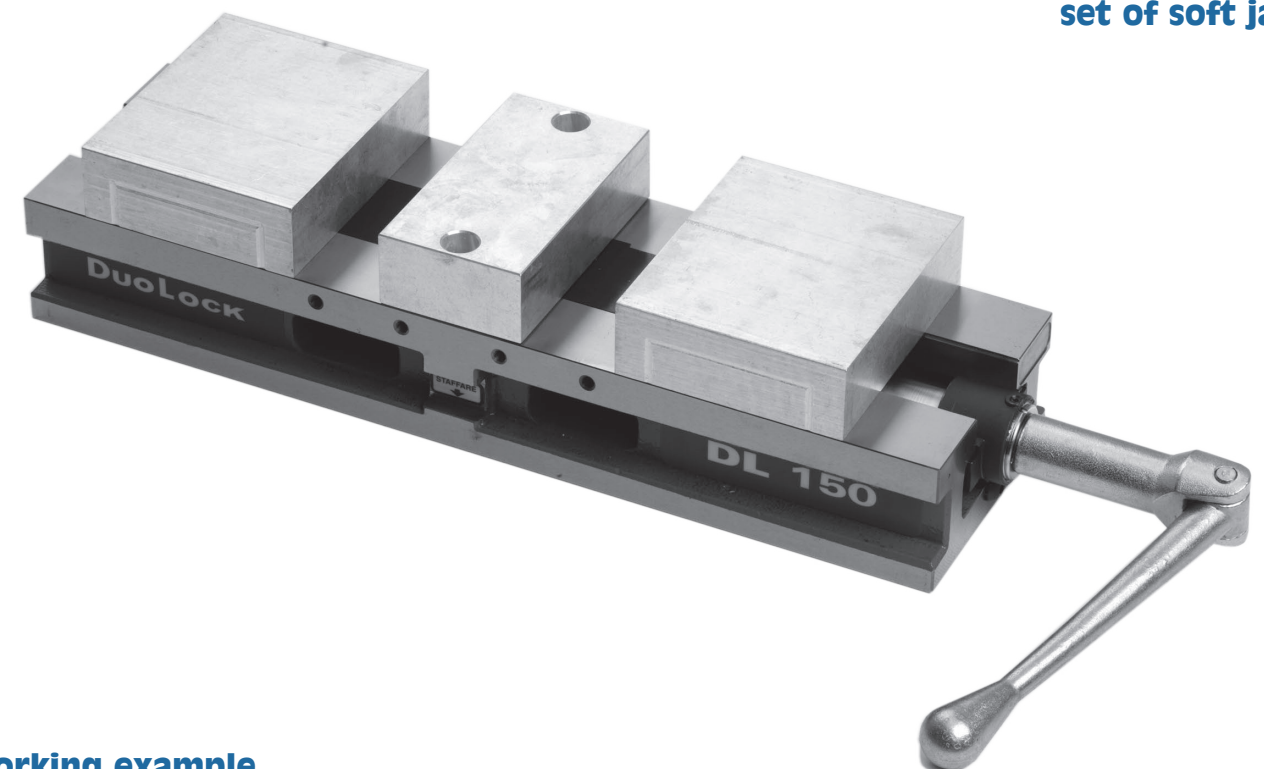
Double clamping equipment with set of hard jaws



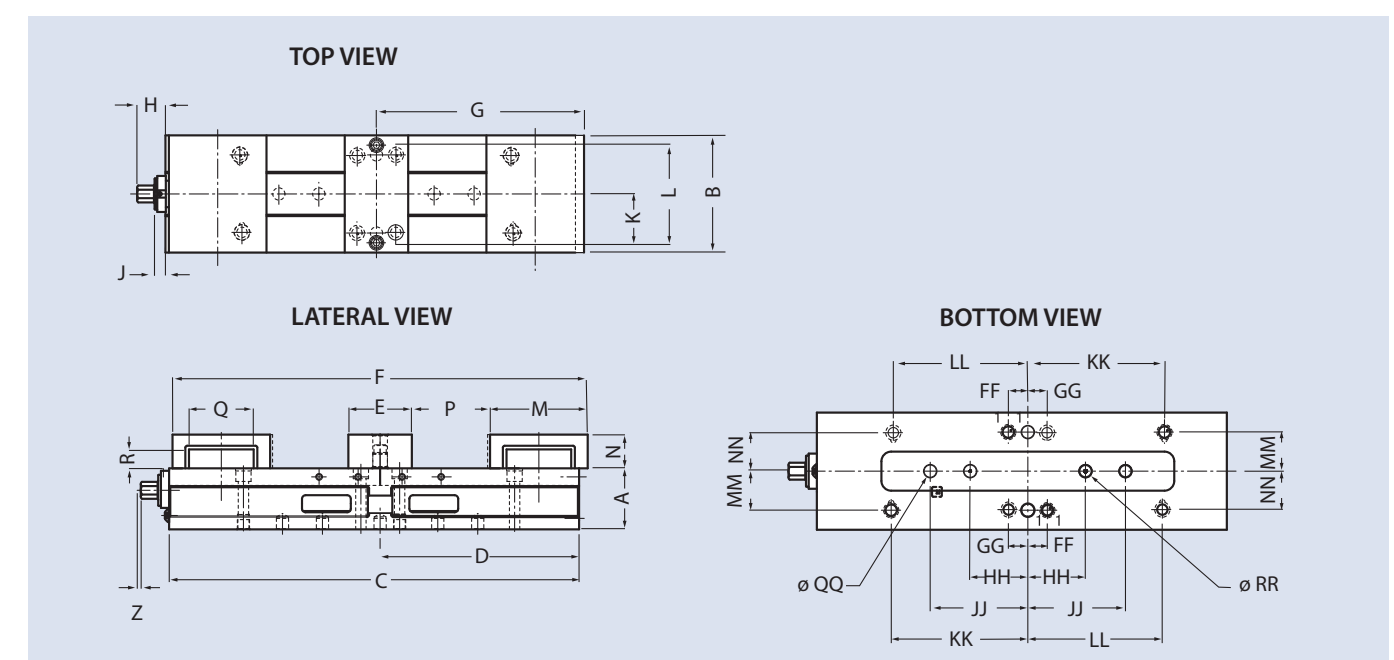
Working example

[illegible]

Double clamping equipment with set of soft jaws

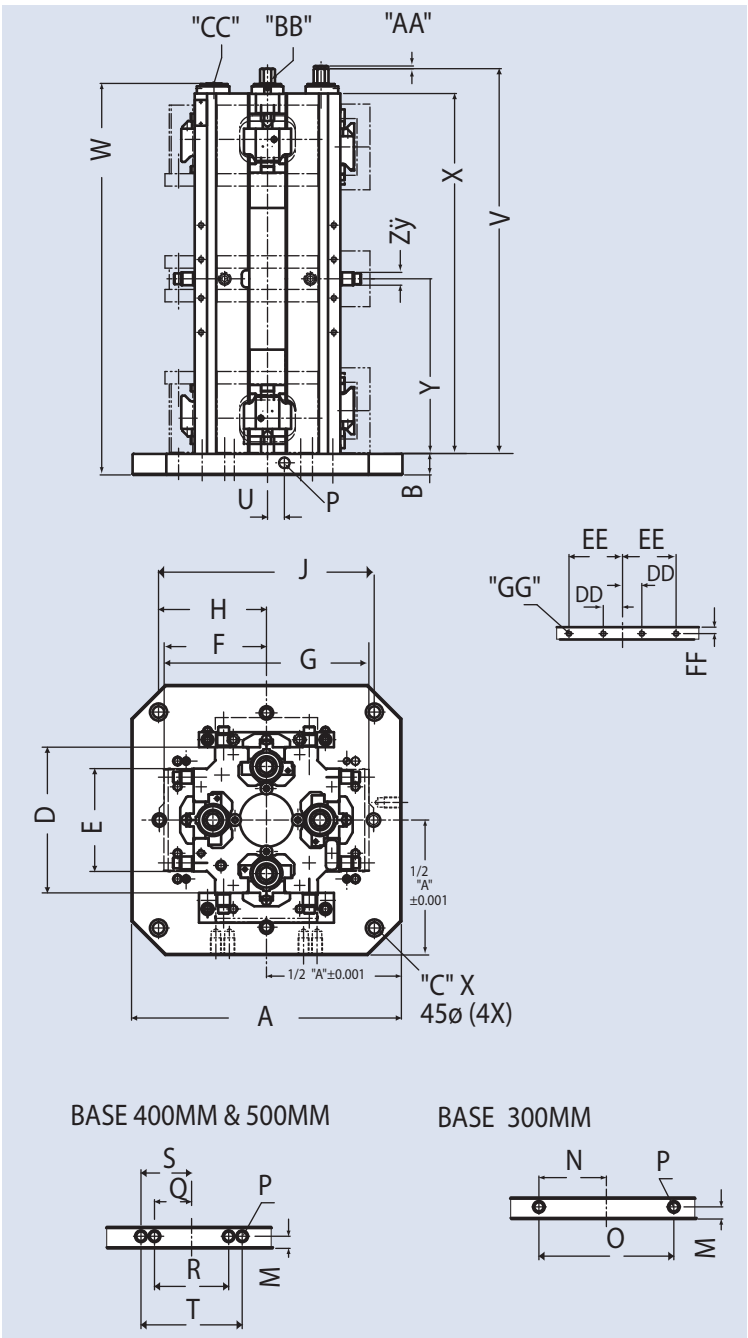


Working example



type	DL-HD 100	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm
		60,325	101,6	415,925	200,025	63,5	418,287	209,144	33,68	9,855	41,275	82,55	101,6	35,56	75,794	65,075
type	DL-HD 100	R mm	Z mm	FF mm	GG mm	HH mm	JJ mm	KK mm	LL mm	MM mm	NN mm	OO mm	RR mm	weight kg		
		20,625	3,048	19,05	20	100	133,35	133,35	100	38,1	40	15,875	16	15,42		
type	DL-HD 150	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	P mm	Q mm
		79,375	152,4	533,4	258,877	82,55	539,75	269,875		21,844		127	127	43,891	101,6	84,125
type	DL-HD 150	R mm	Z mm	FF mm	GG mm	HH mm	JJ mm	KK mm	LL mm	MM mm	NN mm	OO mm	RR mm	weight kg		
		24,613	3,962	25,4	25	75	127	177,8	175	50,8	50	15,875	16	32,21		

Tower DUO-LOCK HD



type	weight kg
THD 100/300	159,2
THD 150/400	208,7
THD 150/500	229,1

Code	type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	K mm	L mm	M mm	N mm	O mm	P mm
77 58 78 11	THD 100/300	300	25,4	20	158,75	101,6	-	-	127	254	M12	-	15	40	80	M12x1,75
		Q mm	R mm	U mm	V mm	W mm	X mm	Y mm	Z mm	AA mm	BB mm	CC mm	DD mm	EE mm	FF mm	GG mm
		-	-	-	449,6	451,18	415,92	20,03	15	3,05	14,28	11,1	34,92	65,1	9,53	M8x1,25
77 58 79 12	THD 150/400	400	31,75	50	215,9	152,4	158,75	317,5	160	320	M 16	-	18	M 16x2	55	110
		S mm	T mm	U mm	V mm	W mm	X mm	Y mm	Z mm	AA mm	BB mm	CC mm	DD mm	EE mm	FF mm	GG mm
		75	150	25	570,23	548,38	533,4	258,88	19,05	3,96	19,05	15,875	28,58	79,38	9,53	M 8x1,25
77 58 79 13	THD 150/500	500	31,75	60	215,9	152,4	203,2	406,4	200	400	M16	M 12	18	M 16x2	55	110
		S mm	T mm	U mm	V mm	W mm	X mm	Y mm	Z mm	AA mm	BB mm	CC mm	DD mm	EE mm	FF mm	GG mm
		75	150	25	570,23	548,38	533,4	258,88	19,05	3,96	19,05	15,875	28,58	79,38	9,53	M 8x1,25

Working example for DUO-LOCK HD



optional conversion kit available for wider
single part clamping (see page 10 .9)



Quick jaws
change

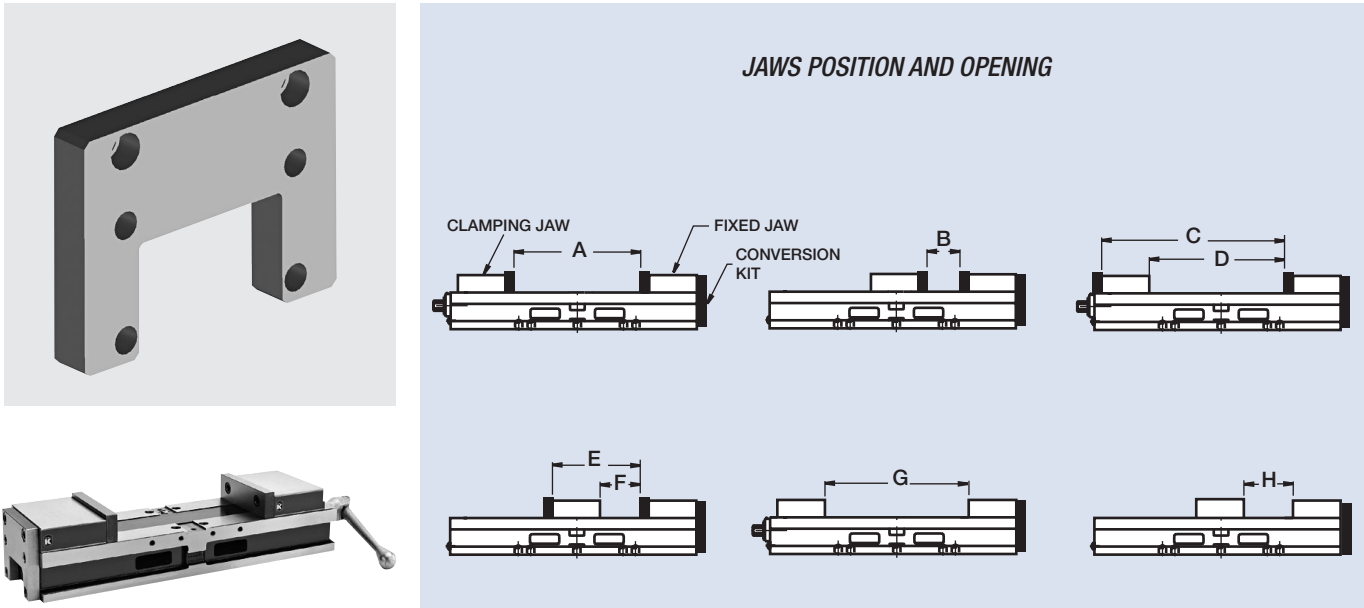




Working example on a FMS system

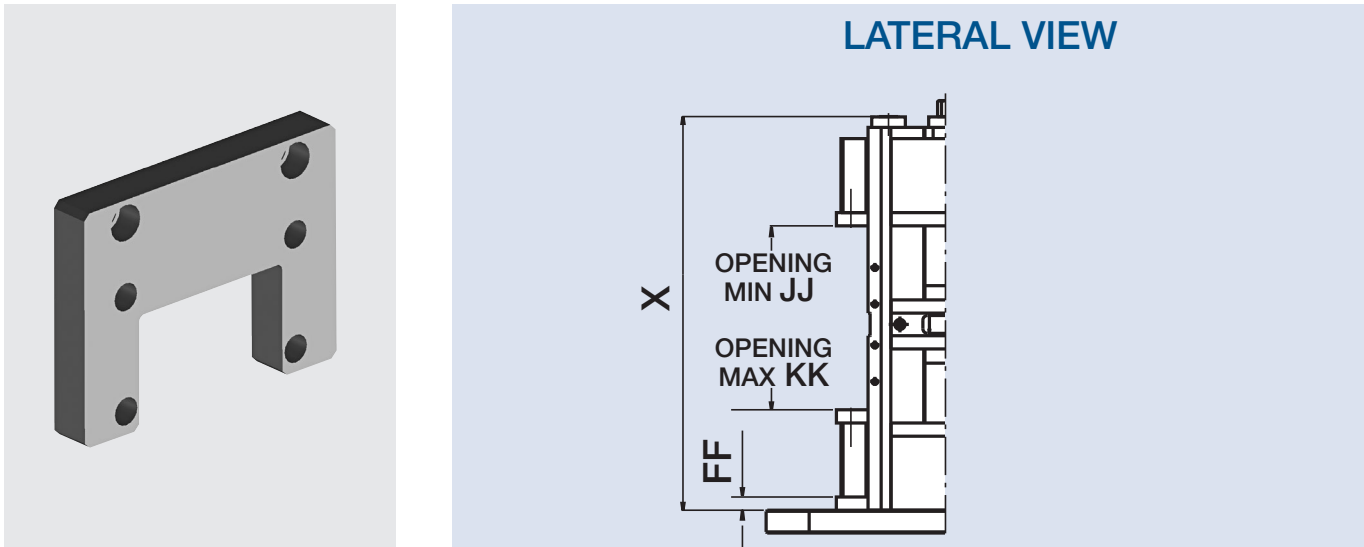


Conversion kit for DUO-LOCK HD



Code	for type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Peso kg
58 78 80 10	DL-HD 100	205,6	53,2	297,9	219,5	145,6	67,1	233,4	81,0	1,8
58 79 80 10	DL-HD 150	271,5	68,3	393,1	289,9	189,9	86,7	308,4	105,2	4,5

Conversion kit for TOWER DUO-LOCK HD



Code	for type	FF mm	HH mm	JJ mm	KK mm
58 78 81 10	DL-HD 100	13,9	106,3	53,1	191,8
58 79 81 10	DL-HD 150	18,4	140	68,3	253

CLAK DUO-LOCK

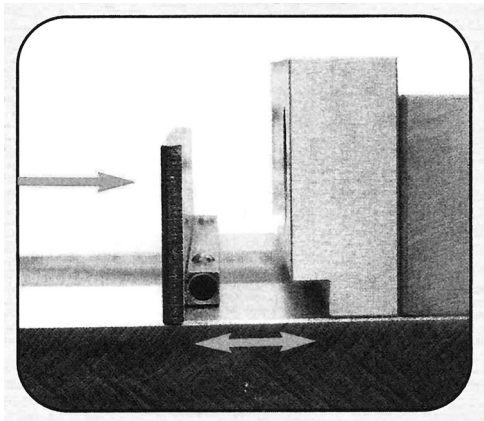
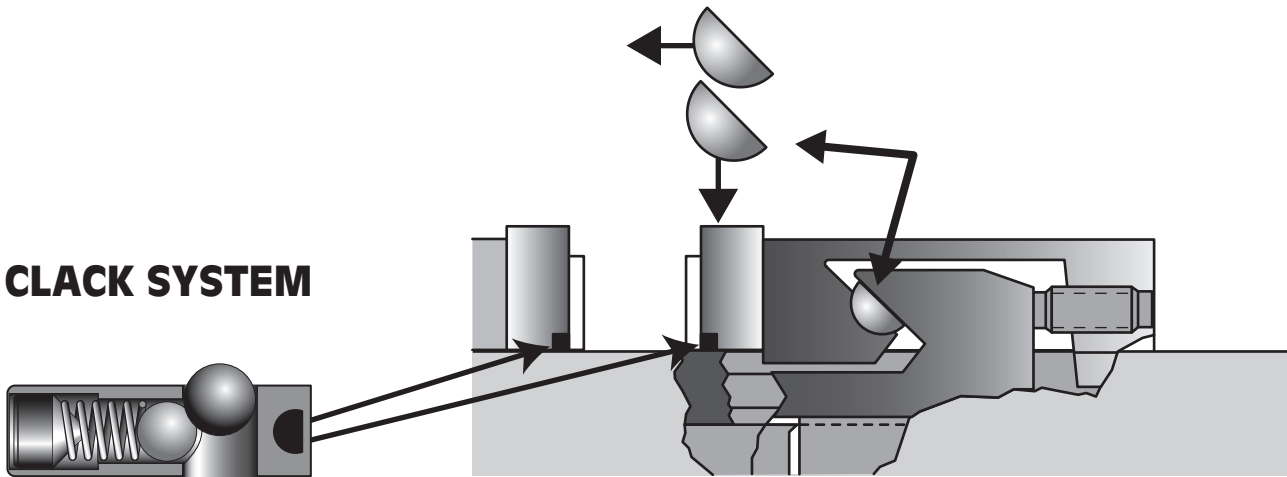
modular parallels
and soft jaws / QUICK CHANGE

This new patented system allow the quick change of parallels, Vjaws, soft jaws for any type of workpieces.

- Benefits:
- Reduce downtime and set-up time
 - Elimination of clamps and locks thanks to the patented self locking system
 - Increase the accuracy of finished parts and reduce scrap

All components are case hardened and precision ground.

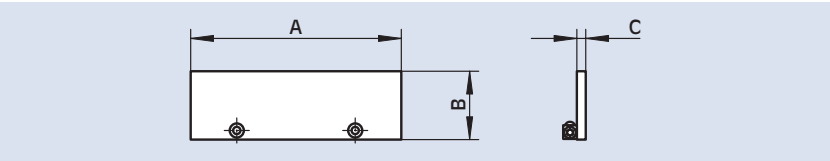
The CLAK system can be used for all DUO-LOCK series clamping equipment.



modular parallels
and soft jaws / QUICK CHANGE

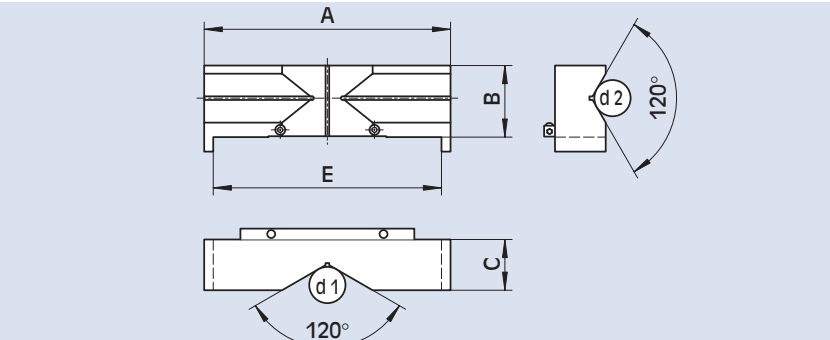
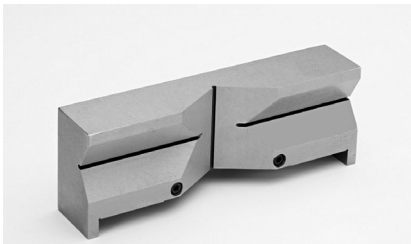
CLAK DUO-LOCK

Set of 6 pair of parallels



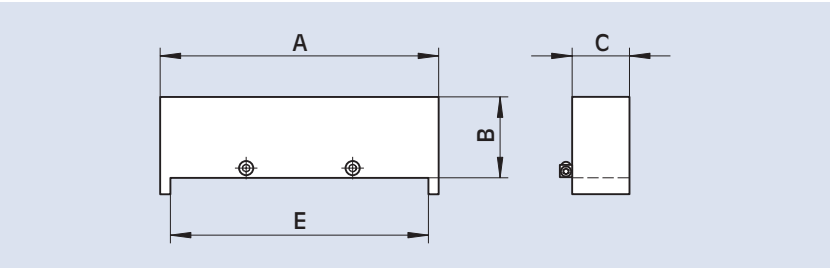
Code	for type	A mm	B mm	C mm
58 71 92 06	DL-HD 100	101	10-12-15-20-25-28	4
58 72 92 06	DL-HD 150	152	15-20-25-30-35-40	4

V jaws



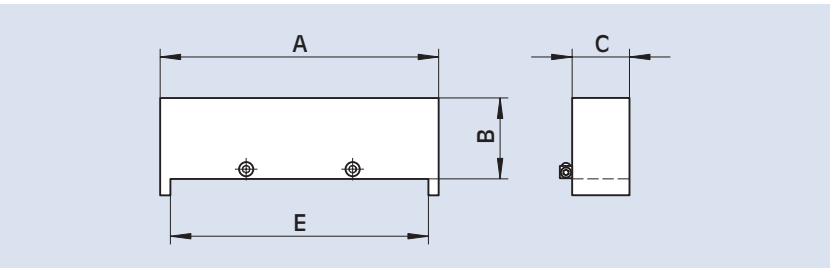
Code	for type	A mm	B mm	C mm	E mm	d 1 mm	d 2 mm
58 71 94 09	DL-HD 100	110	31,4	28	101,6	15-90	10-30
58 72 94 09	DL-HD 150	161	44,1	33	152,4	20-110	15-40

Pair of aluminium jaws



Code	for type	A mm	B mm	C mm	E mm
58 71 95 09	DL-HD 100	110	31,4	28	101,6
58 72 95 09	DL-HD 150	161	44,1	33	152,4

Pair of soft steel jaws



Code	for type	A mm	B mm	C mm	E mm
58 71 96 09	DL-HD 100	110	31,4	28	101,6
58 72 96 09	DL-HD 150	161	44,1	33	152,4



Adjustable lever

Code	for type
58 71 60 10	DL-HD 100
58 72 60 10	DL-HD 150



Speed handle

Code	for type
58 71 61 10	DL-HD 100
58 72 61 10	DL-HD 150



Torque handle

Code	for type
58 71 62 10	DL-HD 100
58 72 62 10	DL-HD 150



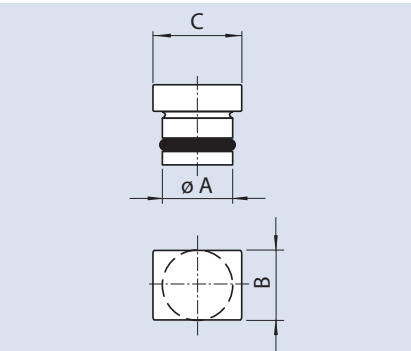
Work-stop DUO-LOCK

Code	for type
	DL-HD 100
58 78 50 10	DL-HD 150



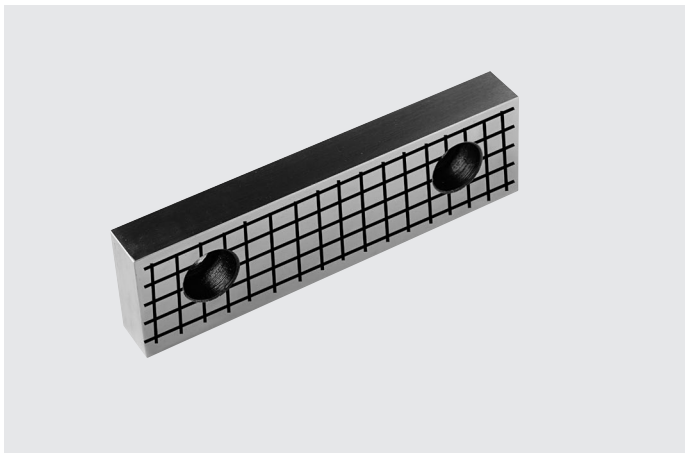
Key

Code	A inch	B mm	C mm
58 78 13 03		14	16
58 78 13 05	0,625	18	20
58 78 13 06		20	22



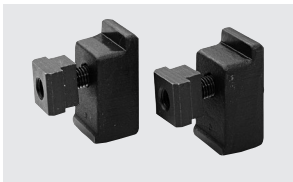
Ganascia liscia

Code	for type
58 71 04 10	DL-HD 100
58 72 04 10	DL-HD 150

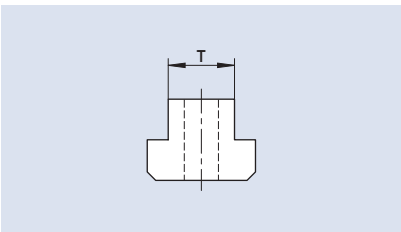


Grooved jaws

Code	for type
58 71 44 10	DL-HD 100
58 72 44 10	DL-HD 150



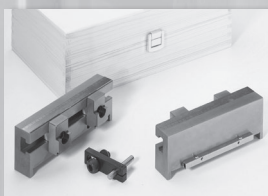
Pair of clamps with screws and T-nuts



T-nuts code						for type
mm 12	mm 14	mm 16	mm 18	mm 20	mm 22	
58 71 27 92	58 71 27 93	58 71 27 94	58 71 27 95	58 71 27 96	58 71 27 97	DL-HD 100
58 72 27 92	58 72 27 93	58 72 27 94	58 72 27 95	58 72 27 96	58 72 27 97	DL-HD 150

Special jaws and accessories

11



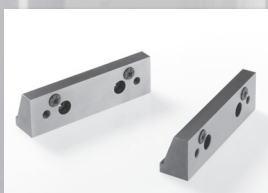
Plus 3D for TC, NCN and DUO LOCK
pag. 11. 2



Middle jaw CLAK SYSTEM
pag. 11. 4



Jaw with rolls
pag. 11. 4



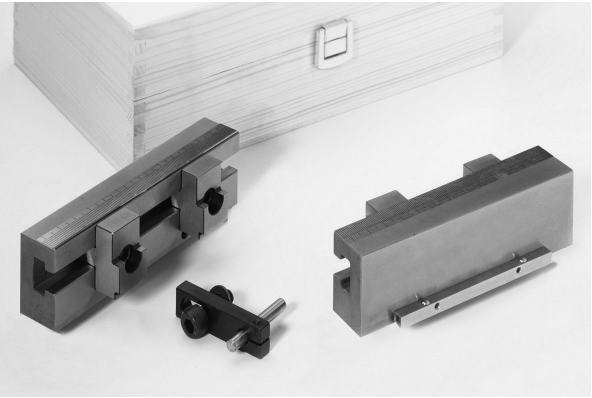
Pair of jaws with grippers UGE
pag. 11. 4



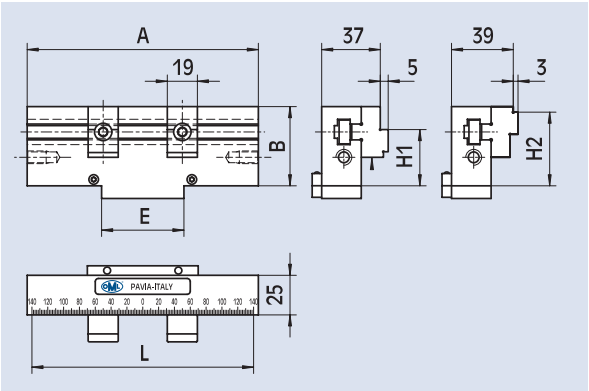
Pair of jaws "GRIP"
pag. 11. 5

Special jaws and accessories

Plus 3D for TC

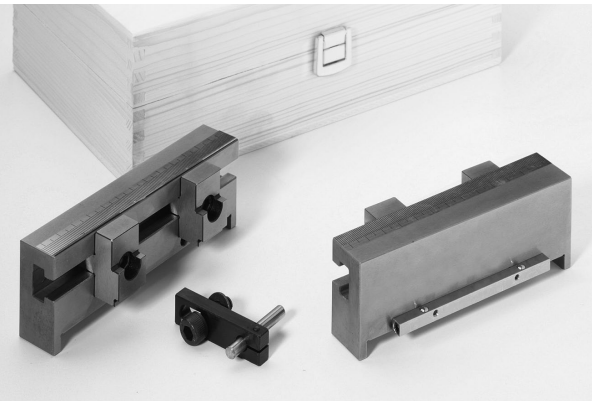


Cod.	for type	A mm	B mm	E mm	H1 mm	H2 mm	L mm
58 02 91 09	TC/MC 150	146	50	52	35.5	46.5	140

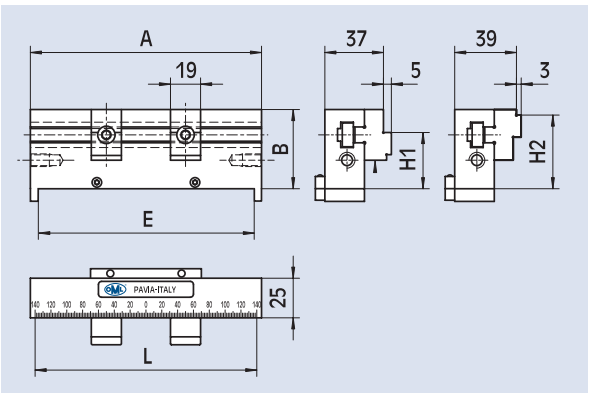


PLUS-3D jaws are indicated for the machining of the workpieces on 3 sides

Plus 3D for NCN

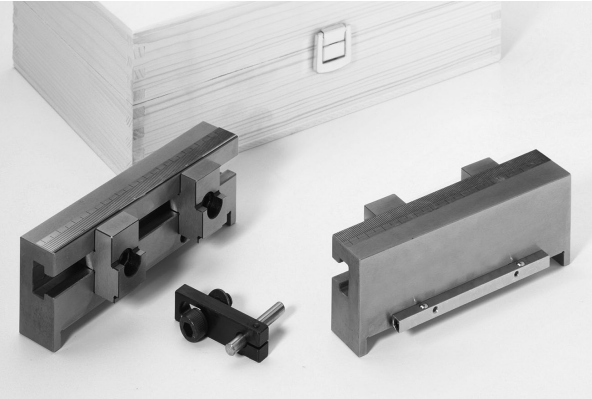


Cod.	for type	A mm	B mm	E mm	H1 mm	H2 mm	L mm
58 47 91 09	NCN 125	136	39.5	126	25	36	120
58 48 91 09	NCN 160	174	49.8	164	35.3	46.3	160

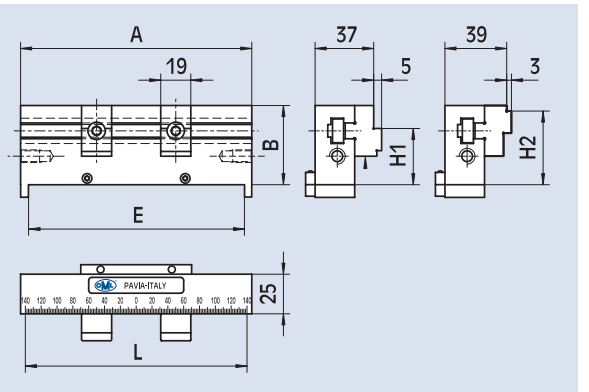


PLUS-3D jaws are indicated for the machining of the workpieces on 3 sides

Plus 3D for DUO LOCK



Cod.	for type	A mm	B mm	E mm	H1 mm	H2 mm	L mm
58 71 91 09	DL 100	110	31,4	101,6	21	28	100
58 72 91 09	DL 150	161	44,1	152,4	29,5	40,5	140

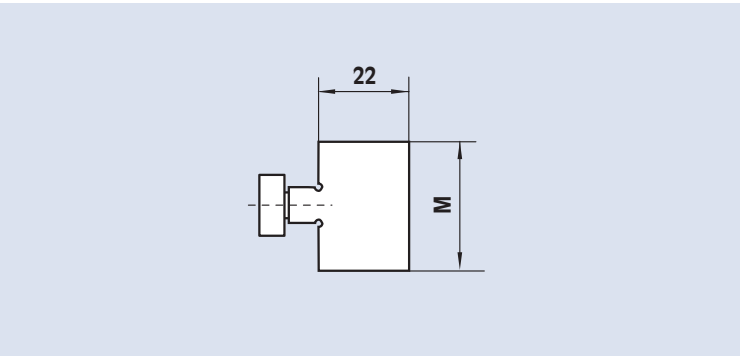


PLUS-3D jaws are indicated for the machining of the workpieces on 3 sides

Special jaws and accessories

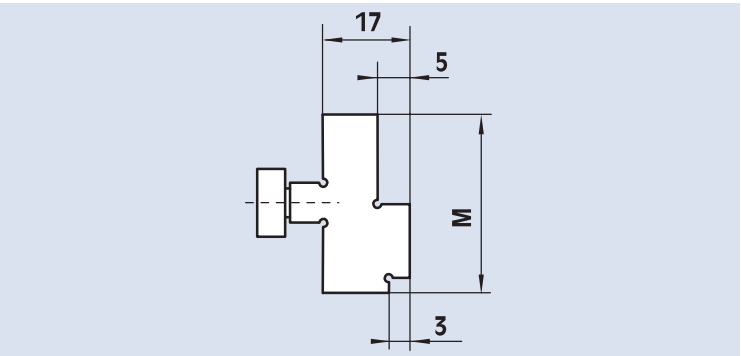
Soft steel jaw

Cod.	for type	M mm
58 47 79 09	TC 150/NCN/ DL 150	32
58 71 79 09	DL 100	24,8

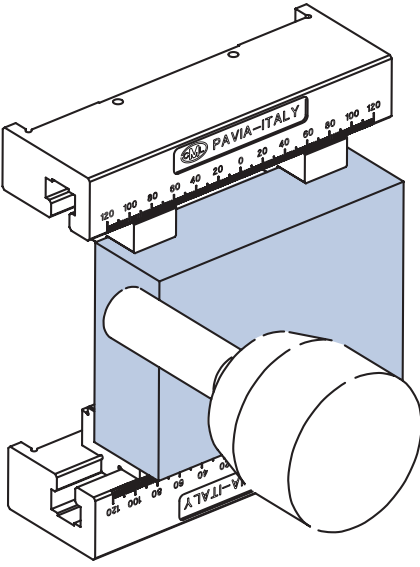
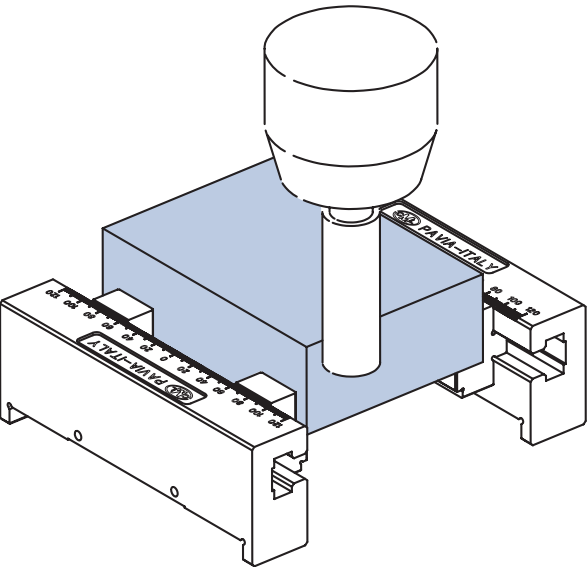
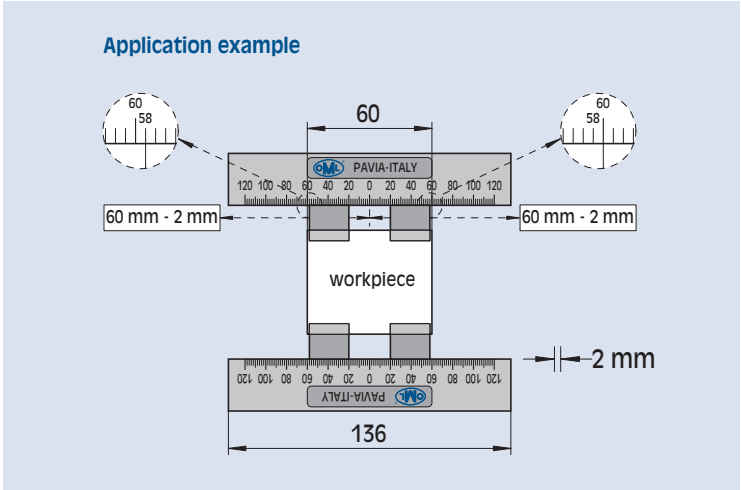


Formed steel jaw

Cod.	for type	M mm
58 47 78 09	TC 150/NCN/ DL 150	32
58 71 78 09	DL 100	24,8

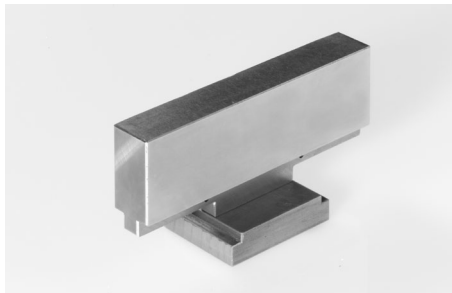


Plus 3D

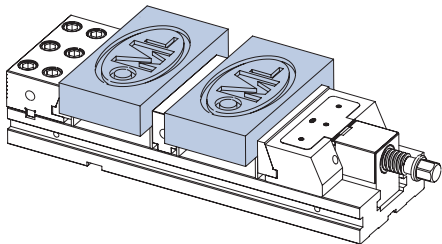
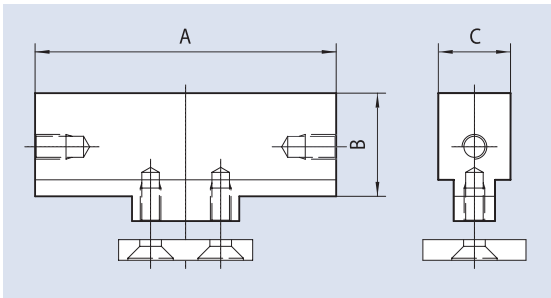


Special jaws and accessories

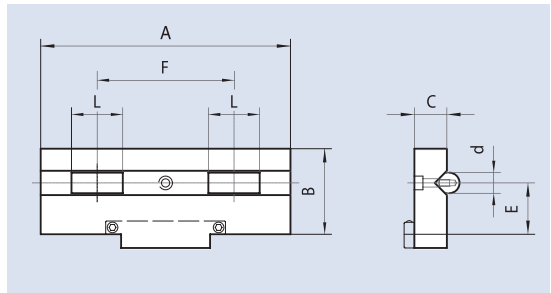
Middle jaw CLAK SYSTEM



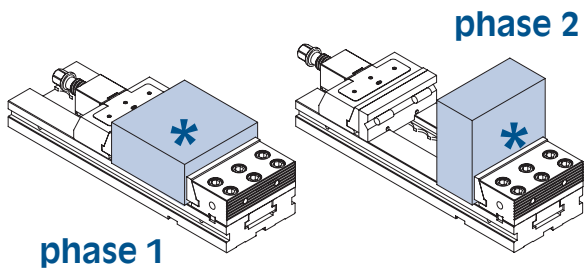
Cod.	for type	A mm	B mm	C mm
58 01 41 09	TC110/MC 125	106	40	32
58 02 41 09	TC/MC 150	146	50	32
58 03 41 09	TC/MC 200	196	70	48
58 04 41 09	TC 250	246	80	48



Jaw with rolls

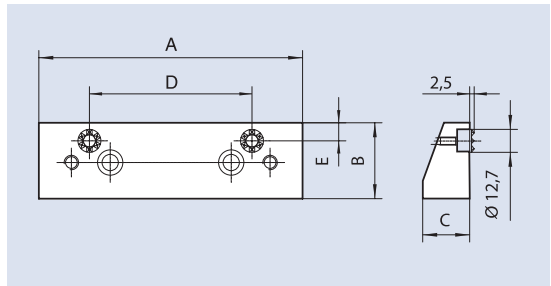


Cod.	for type	A mm	B mm	C mm	d mm	E mm	F mm	L mm
58 01 97 09	TC 110/MC 125	106	40	19	12	25	60	30
58 02 97 09	TC/MC 150	146	50	19	12	30	80	30
58 03 97 09	TC/MC 200	196	70	28	16	40	110	40
58 04 97 09	TC 250	246	80	28	16	45	140	40

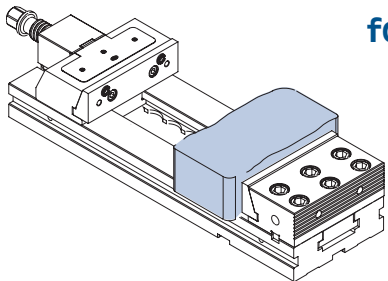


* machined surface

Pair of jaws with grippers UGE



Cod.	for type	A mm	B mm	C mm	D mm	E mm
58 02 45 09	TC/MC 150	146	42	26	90	10
58 03 45 09	TC/MC 200	196	60	31	160	12
58 04 45 09	TC 250	246	68	43	200	12



for raw workpieces

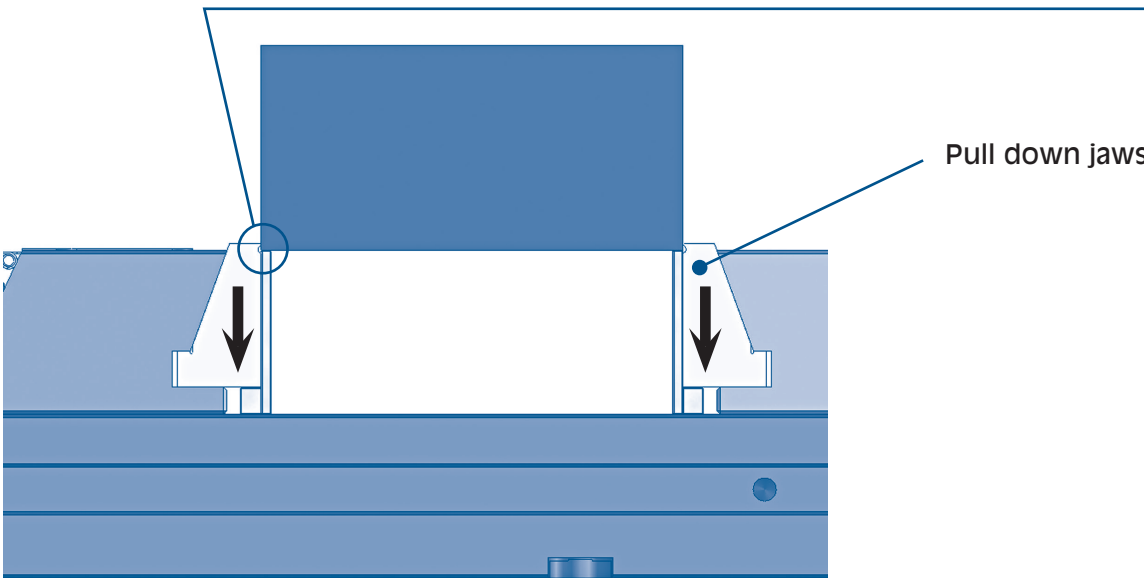
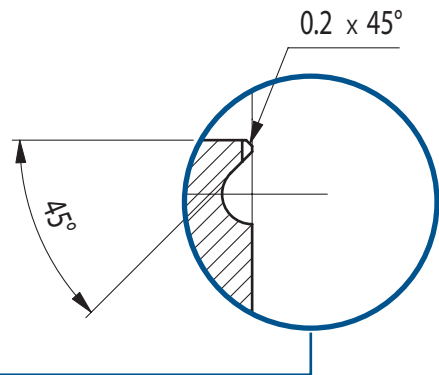
Special jaws and accessories

Pair of jaws "GRIP" with included 1 pair of parallels CLAK



Cod.	for type	H PARALLELS mm
58 01 51 09	TC 110	38
58 02 51 09	TC 150	48
58 06 51 09	MC 150	48
58 03 51 09	TC 200	68
58 04 51 09	TC 250	78

These jaws allows to blank the workpiece.
This is possible because the workpiece
can be clamped for only 2mm



Square chucks; manual, pneumatic, hydraulic static chucks

12



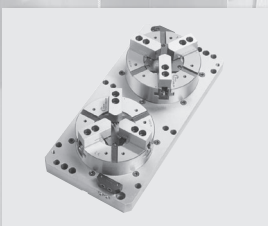
Y CHUCK
pag. 12. 2



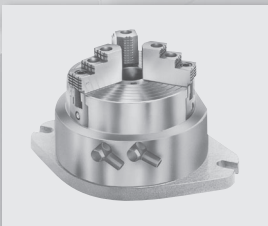
US-CL US-A
pag. 12. 4



PBI-D PBI-C
pag. 12. 6



M2-PB M4-PB
pag. 12. 7



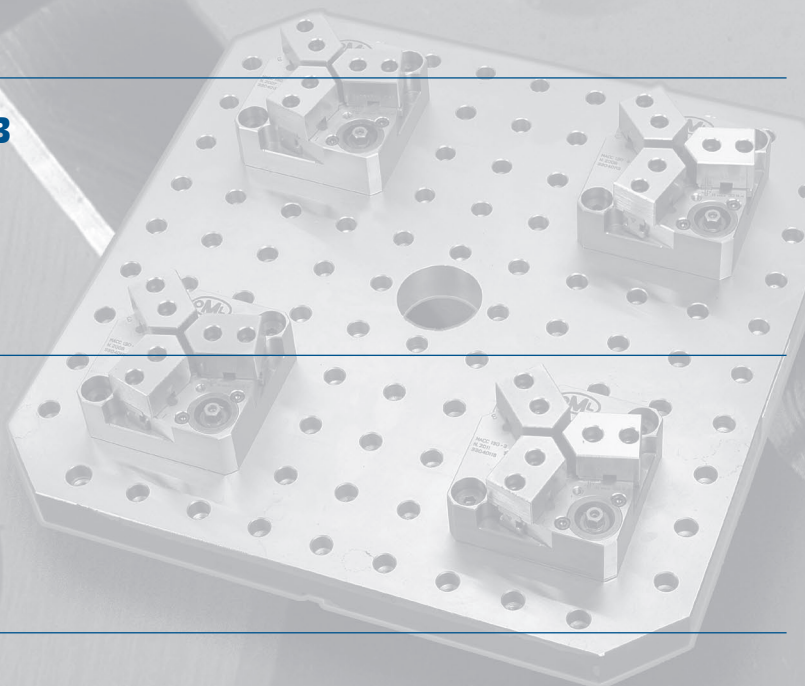
STP
pag. 12. 10



PB-D PB-C
pag. 12. 12



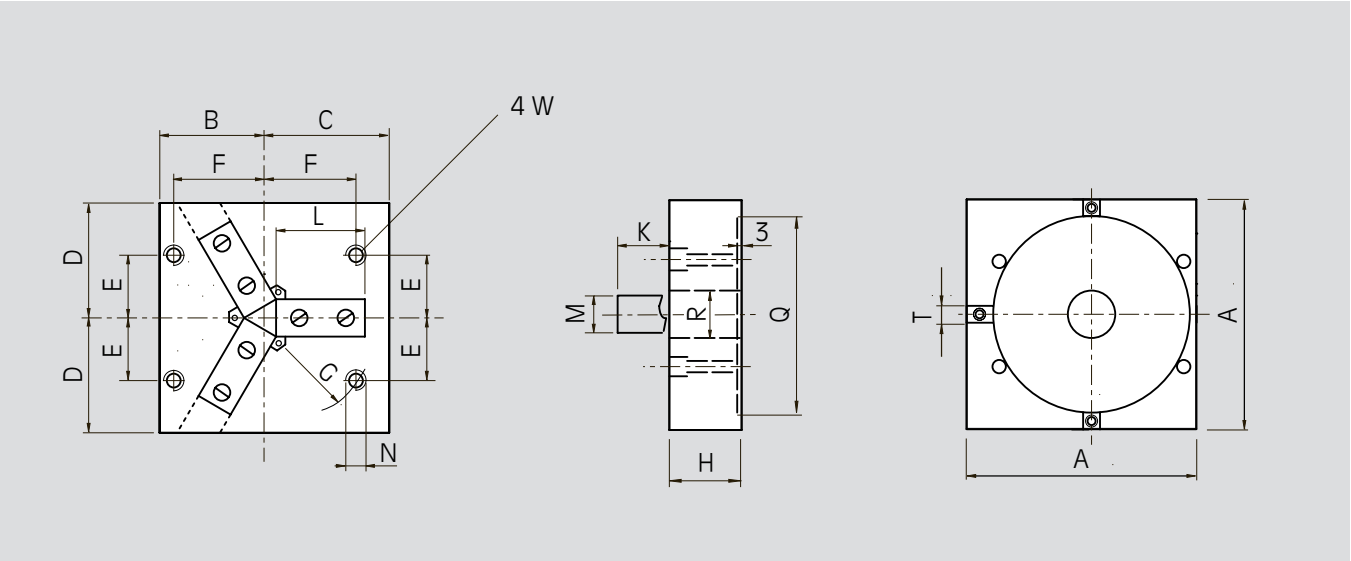
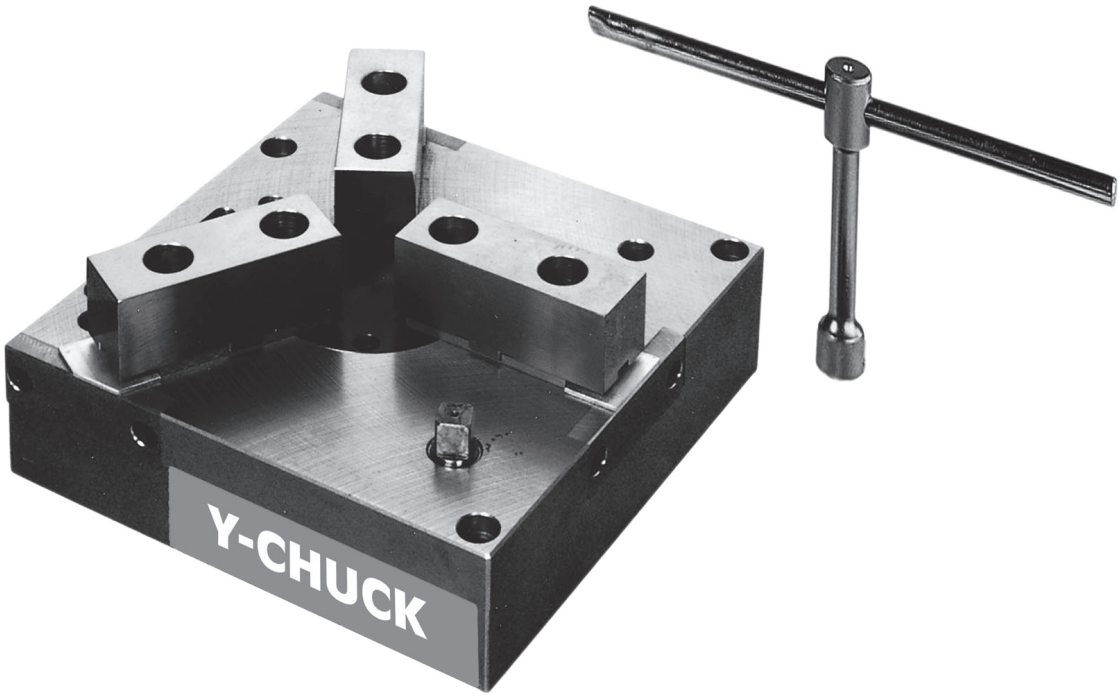
HB-D HB-C
pag. 12. 14



Y CHUCK

static chuck

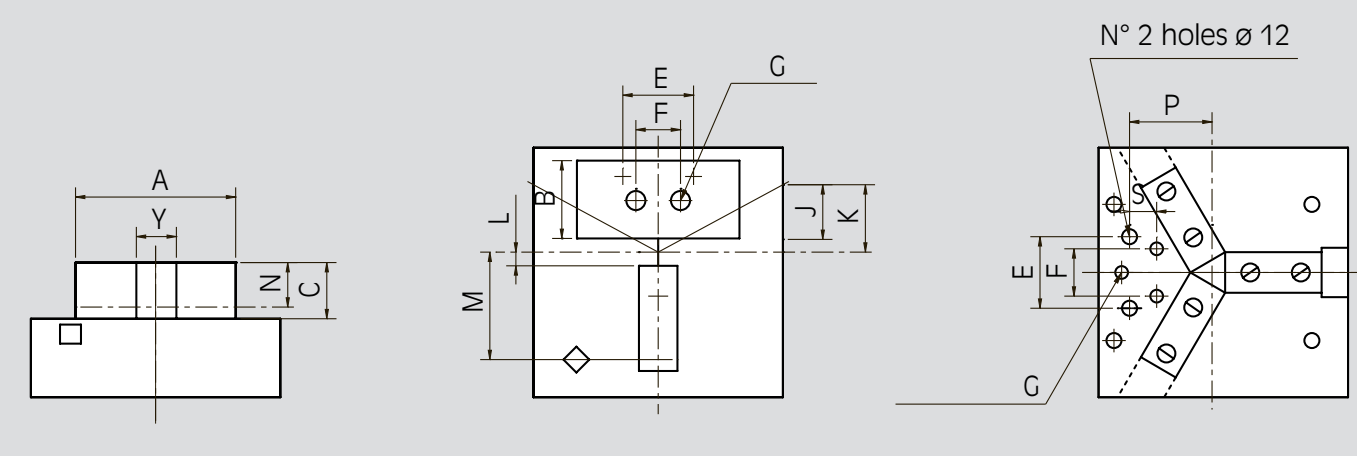
The static chuck YC joins SC range with a new feature to change in an extremely compact and strong vise.



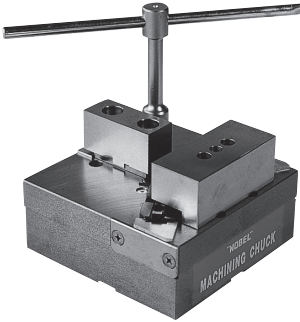
cod.	type	A mm	B mm	C mm	D mm	H mm	R mm	Q mm	N mm	G mm	T mm	E mm	F mm	W mm	weight kg
51 99 13 33	Y - 120	120	55	65	60	43	∅ 25	--	10	55	12	18	49	M 5	4,5
51 99 13 34	Y - 160	160	70	90	80	65	∅ 34	∅ 119	12	73,5	18	21	63	M 6	14
51 99 13 35	Y - 200	200	90	110	100	65	∅ 44	∅ 170	12	99	18	45	80	M 8	19
51 99 13 36	Y - 300	300	140	160	150	65	∅ 104	∅ 270	12	147	18	80	120	M 10	45

static chuck

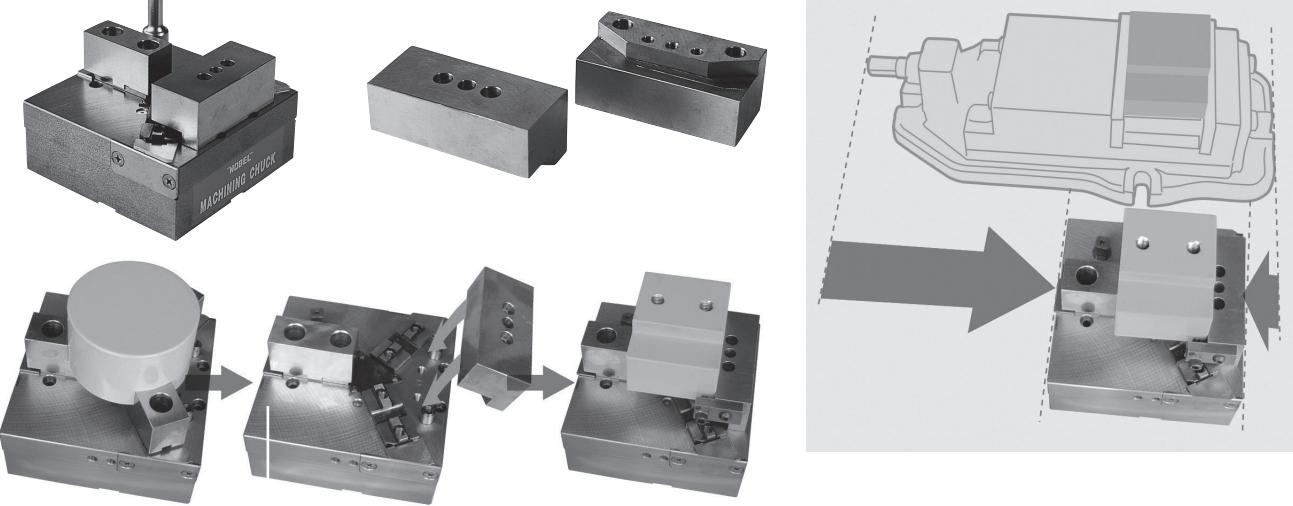
Soft jaw



cod.	type	A mm	B mm	C mm	E mm	F mm	G mm	N mm	Y mm	S mm	P mm	min J mm	max K mm	min L mm	max M mm
51 99 13 37	Y - 120	80	45	30	60	30	2-M6	16	18	10	45	12	45	6	55
51 99 13 38	Y - 160	100	45	41	70	30	2-M8	18	30	10	53	20	40	10	65
51 99 13 39	Y - 200	130	62	43	60	40	2-M10	20	30	20	65	15	50	10	70
51 99 13 40	Y - 300	160	115	54	60	120	3-M12	35	45	20	105	15	100	13	120



Working examples



- static cylinder + chuck units
- closed center chucks type CL/AN/AL

Application/customer's benefit

Gripping units designed to suit special purpose machines and transfer lines
Also used as loading chucks to handle workpieces

Technical features

Fully independent static hydraulic gripping unit with the possibility to equip the actuating cylinder with different kinds of chucks, 2 or 3 jaws, long or short stroke, serrated or tongue & groove master jaws
Aluminium cylinder housing connected to the closed center power chuck with a steel flange
The cylinder needs a constant oil feed during clamping operation

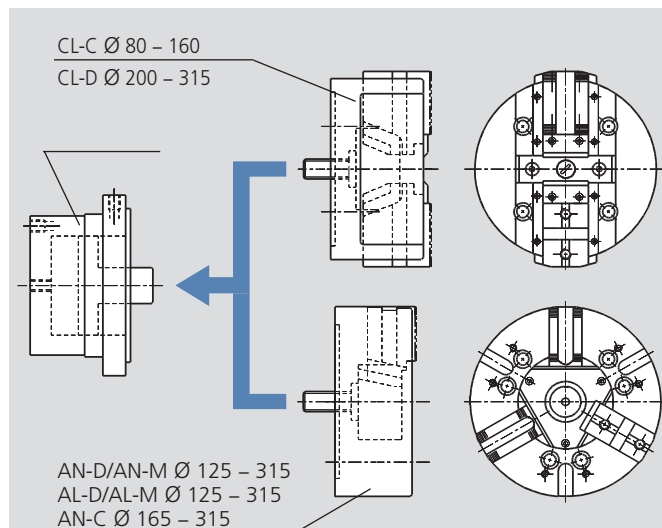
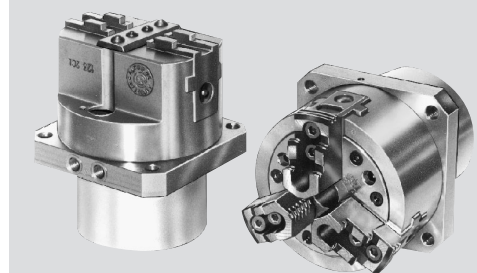
Remark: when ordering please specify the position of the oil connectors (on the side or on the back)
For chuck details please see technical details of the selected chuck

Standard equipment

Standard chuck with cylinder and connecting parts

Ordering example

US 125-CLC with rear oil connection
or
US 250-AND with side oil connection and chuck 90° revolved



■ **US-CL-C** = cylinder equipped with a 2 jaw chuck type CL-C (long stroke/tongue & groove). Chuck Ø 80 to 160 mm

■ **US-CL-D** = cylinder equipped with a 2 jaw chuck type CL-D (long stroke/inch serration). Chuck Ø 200 to 315 mm

■ **US-AN-D** = cylinder equipped with a 3 jaw chuck type AN-D (normal stroke/inch serration). Chuck Ø 125 to 315 mm

■ **US-AN-M** = cylinder equipped with a 3 jaw chuck type AN-M (normal stroke/metric serration). Chuck Ø 125 to 315 mm

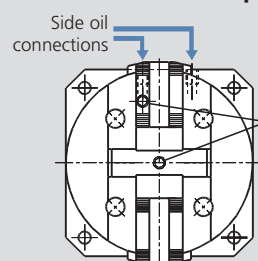
■ **US-AL-D** = cylinder equipped with a 3 jaw chuck type AL-D (long stroke/inch serration). Chuck Ø 125 to 315 mm

■ **US-AL-M** = cylinder equipped with a 3 jaw chuck type AL-M (long stroke/metric serration). Chuck Ø 125 to 315 mm

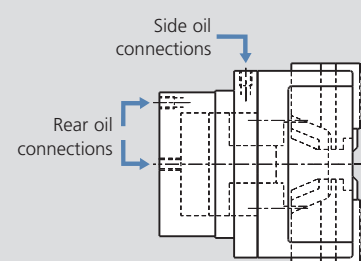
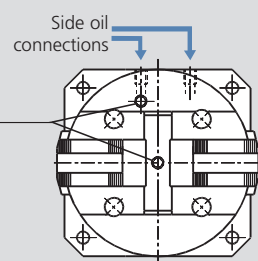
■ **US-AN-C** = cylinder equipped with a 3 jaw chuck type AN-C (normal stroke/tongue & groove). Chuck Ø 165 to 315 mm

■ **Special units** = on request the US cylinder can be equipped with other chucks, for example with a quick jaw change chuck type AN-RM with stationary cylinder available

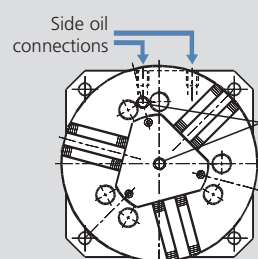
CL chuck in standard position



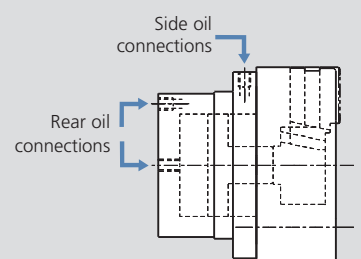
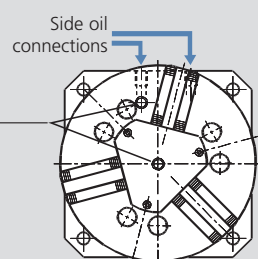
CL chuck 90° revolved



AN/AL chuck in standard position



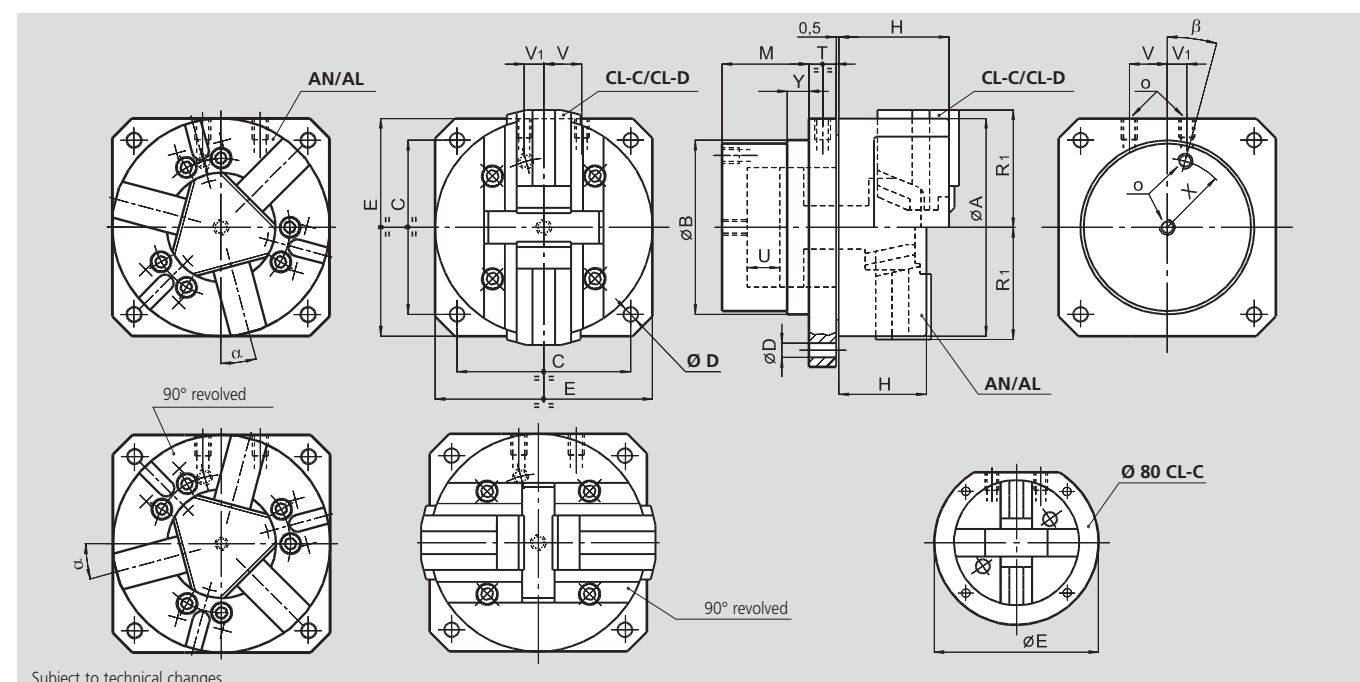
AN/AL chuck 90° revolved



■ The chuck can be mounted on the cylinder 90° revolved if the standard position creates interferences with the working cycle.
Please specify in the order, if a revolved position is needed.

■ The oil connections can be on the side or on the back of the cylinder in order to ease the installation of the gripping unit.
Please specify in the order, which version is preferred.

- static cylinder + chuck units
- closed center chucks type CL/AN/AL



Subject to technical changes

US actuating cylinder dimensions

SMW-AUTOBLOK cylinder		US 80	US 100	US 125	US 160 US 165	US 200	US 250	US 315
Id. No.		77755008	77755010	77755013	77755016	77755120	77755025	77755031
B h7	mm	70	84	106	128	158	185	185
C	mm	66	84	104	130	160	200	250
D	mm	7	9	11	11	13.5	17	17
E	mm	105	100	130	160	200	250	315
M	mm	45	52	60	70	80	90	90
O	oil connections	inch	1/8 BSP	1/8 BSP	1/4 BSP	3/8 BSP	3/8 BSP	3/8 BSP
T	mm	16	16	20	20	25	25	25
U	mm	11	14	20	25	30	35	35
V	mm	15	18	12	28	35	41	41
V1	mm	15	18	12	15	18	15	15
X	mm	27	33	43	52	63	75	75
Y	mm	10	10	10	20	20	20	20
β	deg.	30°	30°	15°	15°	0°	0°	0°
Piston area	cm ²	16	25	42	68	112	166	166

Units with CL-C and CL-D chucks

SMW-AUTOBLOK Type		US 80-CL-C	US 100-CL-C	US 125-CL-C	US 160-CL-C	US 200-CL-D	US 250-CL-D	US 315-CL-D
A	mm	80	100	125	160	200	250	315
H	mm	45	54	76	92	103	109	114
R1	mm	40	50	68	87	108	132	166
Chuck open								
Max. pressure	bar	38	36	36	37	32	30	36
Max. gripping force	kN	9	14	24	40	55	78	95

Units with AN-D/AN-M/AN-C chucks

SMW-AUTOBLOK Type		US 125-AN-D US 125-AN-M	US 165-AN-D US 165-AN-M US 165-AN-C	US 210-AN-D US 210-AN-M US 210-AN-C	US 250-AN-D US 250-AN-M US 250-AN-C	US 315-AN-D US 315-AN-M US 315-AN-C
A	mm	127	165	210	254	315
H	mm	57	71	85	95	105
Chuck open						
R1	mm	64	83	105	128	158
α	deg.	0°	15°	15°	15°	15°
Max. pressure	bar	47	36	31	28	36
Max. gripping force	kN	56	70	105	140	180

Units with AL-D/AL-M chucks

SMW-AUTOBLOK Type		US 125-AL-D US 125-AL-M	US 165-AL-D US 165-AL-M	US 210-AL-D US 210-AL-M	US 250-AL-D US 250-AL-M	US 315-AL-D US 315-AL-M
A	mm	127	165	210	254	315
H	mm	57	71	85	95	105
Chuck open						
R1	mm	67	86	109	133	164
α	deg.	0°	15°	15°	15°	15°
Max. pressure	bar	60	44	45	39	45
Max. gripping force	kN	45	54	90	120	135

Rotating pneumatic chuck fixtures for indexing tables

- Ø 165 - 315 mm
- 2 and 3 jaws

Application/customer's benefit

Self centering rotating chuck fixtures with a pneumatic manifold used on indexing tables, not designed for constant rotation on turning machines

PBI-D: inch serrated master jaws (1/16" x 90°)

PBI-C: tongue & groove master jaws

PBI-M: metric serrated master jaws (1.5 mm x 60°) **on request**

Technical features

Independent units consisting of a 2/3 jaw chuck with a built in pneumatic cylinder
Reduced dimensions on the machine, high gripping force and very high precision
Case hardened body to assure highest precision and long chuck life

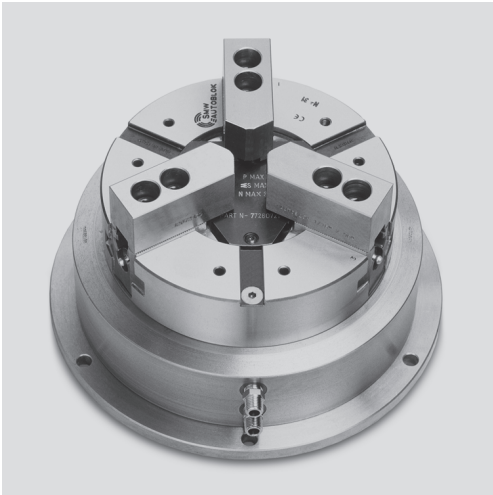
Important! Due to the friction between fixed manifold and rotating central body, the indexing table must provide a higher rotation torque than the one shown in the schedule below

Standard equipment

Clamping unit
1 set of soft blank top jaws (PBI-C excluded)
1 set T-nuts with bolts (PBI-C excluded)
Grease gun

Ordering example

3 jaw chuck fixture PBI-C 250
or
2 jaw chuck fixture PBI-D 165



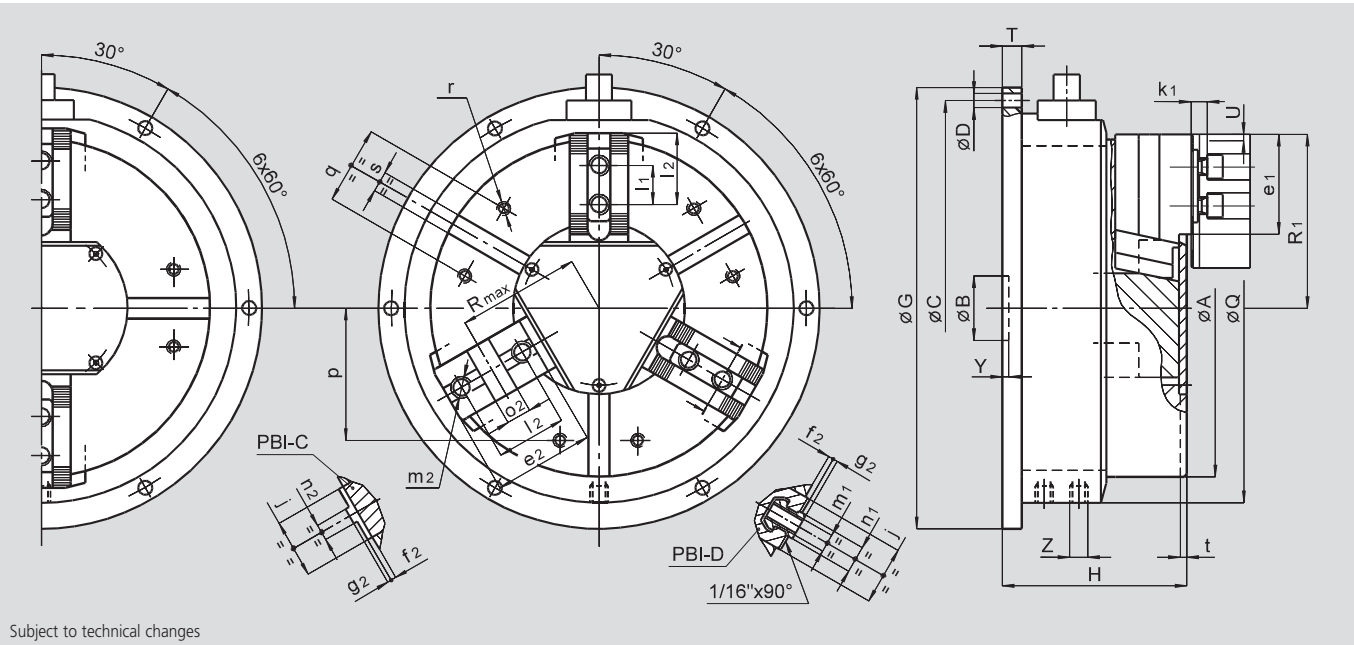
Technical data

SMW-AUTOBLOK Type Code		PBI-D 3 (3 jaws) 165 77260716	PBI-D 3 (3 jaws) 210 77260721	PBI-D 3 (3 jaws) 250 77260725	PBI-D 3 (3 jaws) 315 77260731
SMW-AUTOBLOK Type Code		PBLI-D 2 (2 jaws) 165 77261316	PBLI-D 2 (2 jaws) 210 77261321	PBLI-D 2 (2 jaws) 250 77261325	PBLI-D 2 (2 jaws) 315 77261331
SMW-AUTOBLOK Type Code		PBI-C 3 (3 jaws) 165 77266816	PBI-C 3 (3 jaws) 210 77266821	PBI-C 3 (3 jaws) 250 77266825	PBI-C 3 (3 jaws) 315 77266831
Radial jaw stroke	mm	3.6	4.4	5	6.3
Radial jaw stroke PBLI-D2 (2 jaws)*	mm	6.8	8.4	9.7	12
Piston area	cm²	143	236	358	548
Max. operating pressure	bar	7	7	7	7
Gripping force at 6 bar	kN	24	42	64	98
Gripping force at 6 bar PBLI-D2 (2 jaws)*	kN	16	26	39	60
Torque Md	Nm	40	60	85	120
Mass (without top jaws)	kg	23	38	56	82

* The 2 jaw fixture is available with serrated master jaws (inch or metric) and long stroke only.

Rotating pneumatic chuck fixtures for indexing tables

- Ø 165 - 315 mm
- 2 and 3 jaws



Common dimensions

SMW-AUTOBLOK Type		PBI-D 165 PBI-C 165	PBI-D 210 PBI-C 210	PBI-D 250 PBI-C 250	PBI-D 315 PBI-C 315
	A	mm	170	215	315
	B	mm	30	35	50
Fixing holes circle	C	mm	225	280	390
Fixing holes diameter	D	mm	9	11	13
	G	mm	240	300	415
	H	mm	114	132	140
	Q	mm	210	260	300
	T	mm	10	12	14
Radial jaw stroke (3 jaws)	U	mm	3.6	4.4	5
Radial jaw stroke PBLI-D2 (2 jaws)	U	mm	6.8	8.4	9.7
	Y	mm	5	5	5
Pneumatic connections	Z	inch	R1/4"	R1/4"	R1/4"
	j	mm	30	36	45
	k1	mm	10	11	12
	p	mm	65	80	102
	q	mm	36	45	60
	r	mm	M8	M8	M10
	s H12	mm	16	16	16
	t	mm	5	5	5

PBI-D and PBLI-D2 fixture dimensions

SMW-AUTOBLOK Type		PBI-D 165	PBI-D 210	PBI-D 250	PBI-D 315
	e1	mm	48	60	77
	f1	mm	4	3	4
	g1	mm	2.5	2.5	3.5
	l1	mm	16.5	23	30
T-nut position min./max.	l3	mm	24/40	33/50	43/62
	m1	mm	M10	M12	M16
	n1 h8	mm	14	17	21
Chuck open (3 jaws)	R1	mm	89	110	134
Chuck open PBLI-D2 (2 jaws)	R1	mm	92	114	138.5

PBI-C fixture dimensions (available only in 3 jaw chuck version)

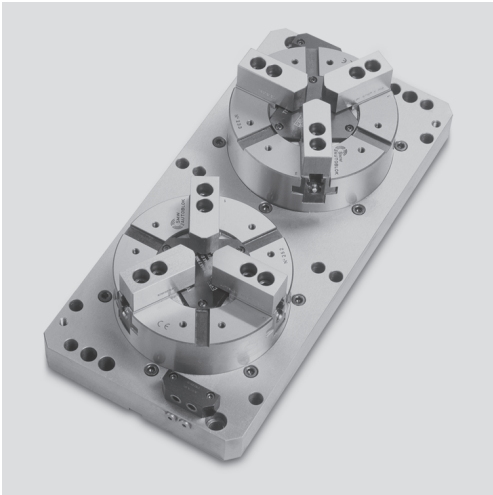
SMW-AUTOBLOK Type		PBI-C 165	PBI-C 210	PBI-C 250	PBI-C 315
	e2	mm	54	71	99
	f2	mm	4	4	4
	g2	mm	3	3	3
	l2	mm	38	44.4	54
	m2	mm	M10	M12	M16
	n2 h8	mm	7.94	7.94	12.70
	o2 H7	mm	12.68	12.68	19.03
Chuck open	R1	mm	89	110	134
Chuck open	Rmax	mm	62	77	94

M2-PB M4-PB

Multiple fixture with 2 chucks
Multiple fixture with 4 chucks

Pneumatic multiple fixtures for machining centers

- Ø 130 - 315 mm
- 2 or 3 jaws (PB-D/PB-M) 3 jaws (PB-C)



Application/customer's benefit
Multiple self centering chuck fixtures used on milling machines or machining centers to clamp and machine multiple pieces in one set-up

M2-PB: Multiple fixture with 2 chucks type PB-D, PB-C or PB-M
M4-PB: Multiple fixture with 4 chucks type PB-D, PB-C or PB-M

Technical features (more features on chucks see pag. 9.2.20)
The basic model needs separate circuits to operate the chucks singularly

1st option: SAB safety unit with non-return valve for every chuck
2nd option: single non-return valve to operate all chucks simultaneously, with coupling unit to repressurize the fixtures after the storage of the pallets
3rd option: every chuck can be equipped with a spring loaded clamping unit (internal or external clamping), to hold the workpieces during the pallet transfer

Standard equipment
Multiple chuck fixture
1 set of soft blank top jaws per chuck (PB-C excluded)
Grease gun

Ordering example
Multiple chuck fixture
M2-PBC 250 (3 jaws)
or
Multiple chuck fixture
M4-PBD 165 (2 jaws)

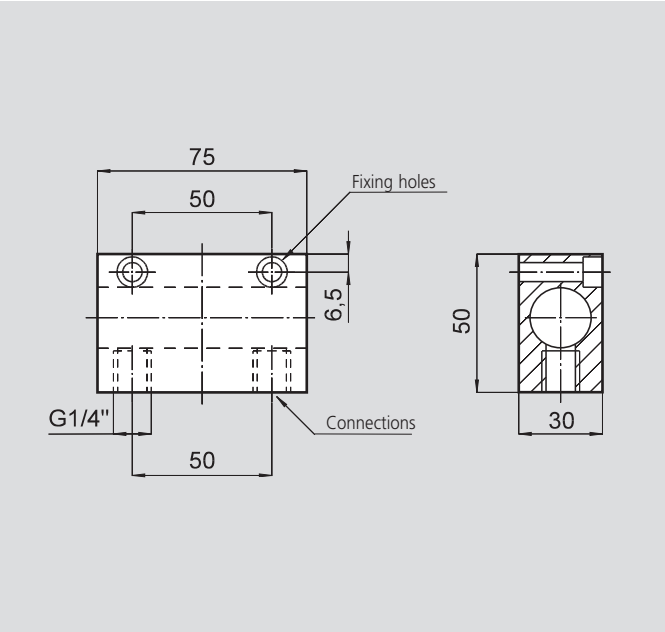
Technical features

SMW-AUTOBLOK Type Code		M2-PBD 3 (3 jaws) 130 77272513	M2-PBD 3 (3 jaws) 165 77272516	M2-PBD 3 (3 jaws) 210 77272521	M2-PBD 3 (3 jaws) 250 77272525	M2-PBD 3 (3 jaws) 315 77272531
SMW-AUTOBLOK Type Code		M2-PBLD 2 (2 jaws) 130 77272713	M2-PBLD 2 (2 jaws) 165 77272716	M2-PBLD 2 (2 jaws) 210 77272721	M2-PBLD 2 (2 jaws) 250 77272725	M2-PBLD 2 (2 jaws) 315 77272731
SMW-AUTOBLOK Type Code		N.D.	M2-PBC 3 (3 jaws) 165 77277916	M2-PBC 3 (3 jaws) 210 77277921	M2-PBC 3 (3 jaws) 250 77277925	M2-PBC 3 (3 jaws) 315 77277931
Chucks radial jaw stroke	mm	3.2	3.6	4.4	5	6.3
Chucks radial jaw stroke PBL-D2 (2 jaws)*	mm	6	6.8	8.4	9.7	12
Actuating cylinder piston area	cm²	82	143	236	358	548
Max. operating pressure	bar	7	7	7	7	7
Chucks gripping force at 6 bar	kN	14	24	42	64	98
Chucks gripping force at 6 bar PBL-D2 (2 jaws)*	kN	9	16	26	39	60
M2-PB. mass (without top jaws)	kg	29.5	49	83	121	172

*The 2 jaw fixture is available with serrated master jaws (inch or metric) and long stroke only.

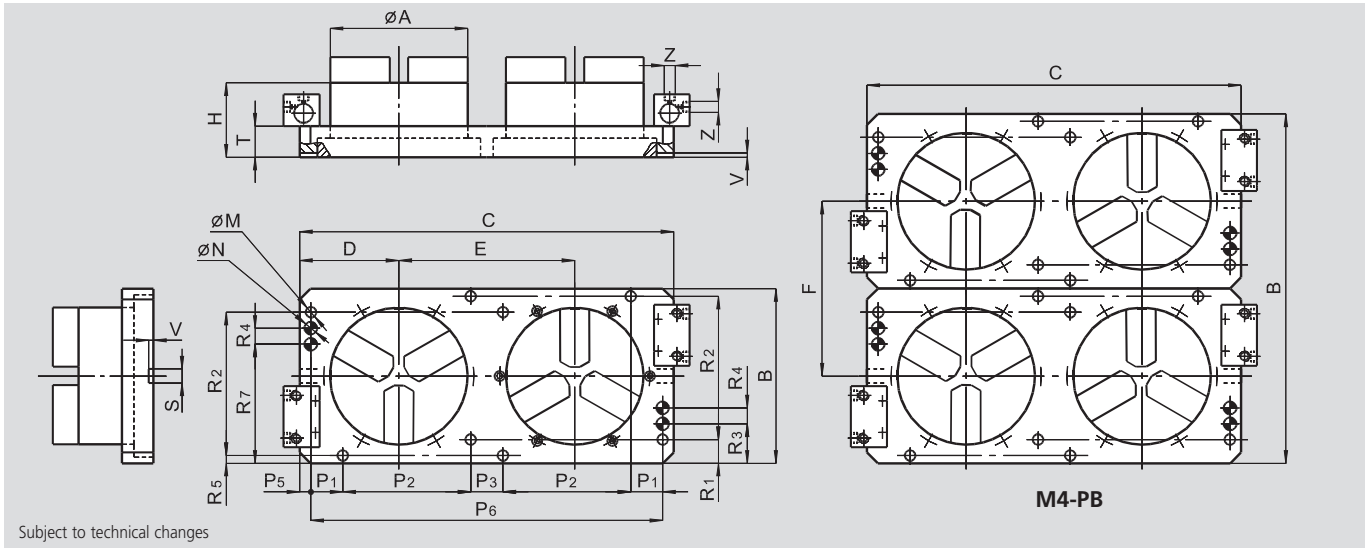
Option for the M2-PB and M4-PB fixtures
Safety unit that maintains a constant pressure inside the cylinder which maintains a steady clamping force even in case of a drop or lack of line pressure

SAB Safety unit with double non-return valve
- Code 27581620.



Pneumatic multiple fixtures for machining centers

- Ø 130 - 315 mm
- 2 or 3 jaws (PB-D/PB-M) 3 jaws (PB-C)



M2-PB dimensions

SMW-AUTOBLOK Type			M2-PB 130	M2-PB 165	M2-PB 210	M2-PB 250	M2-PB 315
Chuck diameter	A	mm	135	170	215	260	315
	B	mm	198	224	274	324	374
	C	mm	400	460	585	660	780
	D	mm	107.5	131	155	175	205
	E	mm	185	223	275	310	370
	H	mm	89	100	117	127	141
Fixing holes diameter	M	mm	17	17	17	17	17
Reference pin holes	N H8	mm	20	20	20	20	20
	P1	mm	-	50	50	50	50
	P2	mm	150	150	200	250	300
	P3	mm	50	50	50	-	-
	P5	mm	25	17.5	17.5	30	40
	P6	mm	350	460	550	600	700
	R1	mm	24	37	37	37	37
	R2	mm	150	175	225	275	325
	R3	mm	24	62	62	62	62
	R4	mm	-	25	25	25	25
	R5	mm	24	12	12	12	12
	R7	mm	174	137	187	237	287
	S	mm	14	18	18	18	18
	T	mm	39	44	49	54	54
	V	mm	6	6	6	6	6
Pneumatic connections	Z	inch	R1/4"	R1/4"	R1/4"	R1/4"	R1/4"

M4-PB dimensions

SMW-AUTOBLOK Type			M4-PB 130	M4-PB 165	M4-PB 210	M4-PB 250	M4-PB 315
Chuck diameter	A	mm	135	170	215	260	315
	B	mm	398	449	549	649	749
	C	mm	400	460	585	660	780
	D	mm	107.5	131	155	175	205
	E	mm	185	223	275	310	370
	F	mm	200	225	275	325	375
	H	mm	89	100	117	127	141
Fixing holes diameter	M	mm	17	17	17	17	17
Reference pin holes	N H8	mm	20	20	20	20	20
	P1	mm	-	50	50	50	50
	P2	mm	150	150	200	250	300
	P3	mm	50	50	50	-	-
	P5	mm	25	17.5	17.5	30	40
	P6	mm	350	460	550	600	700
	R1	mm	24	37	37	37	37
	R2	mm	150	175	225	275	325
	R3	mm	24	62	62	62	62
	R4	mm	-	25	25	25	25
	R5	mm	24	12	12	12	12
	R7	mm	174	137	187	237	287
	S	mm	14	18	18	18	18
	T	mm	39	44	49	54	54
	V	mm	6	6	6	6	6
Pneumatic connections	Z	inch	R1/4"	R1/4"	R1/4"	R1/4"	R1/4"

Pneumatic chuck fixtures with built-in cylinder

- Ø 125 - 280 mm
- with THROUGH-HOLE



Application/customer's benefit

Self centering chuck fixtures used on milling machines, machining centers or special machines. Low profile – large open center
Easy installation on the machine

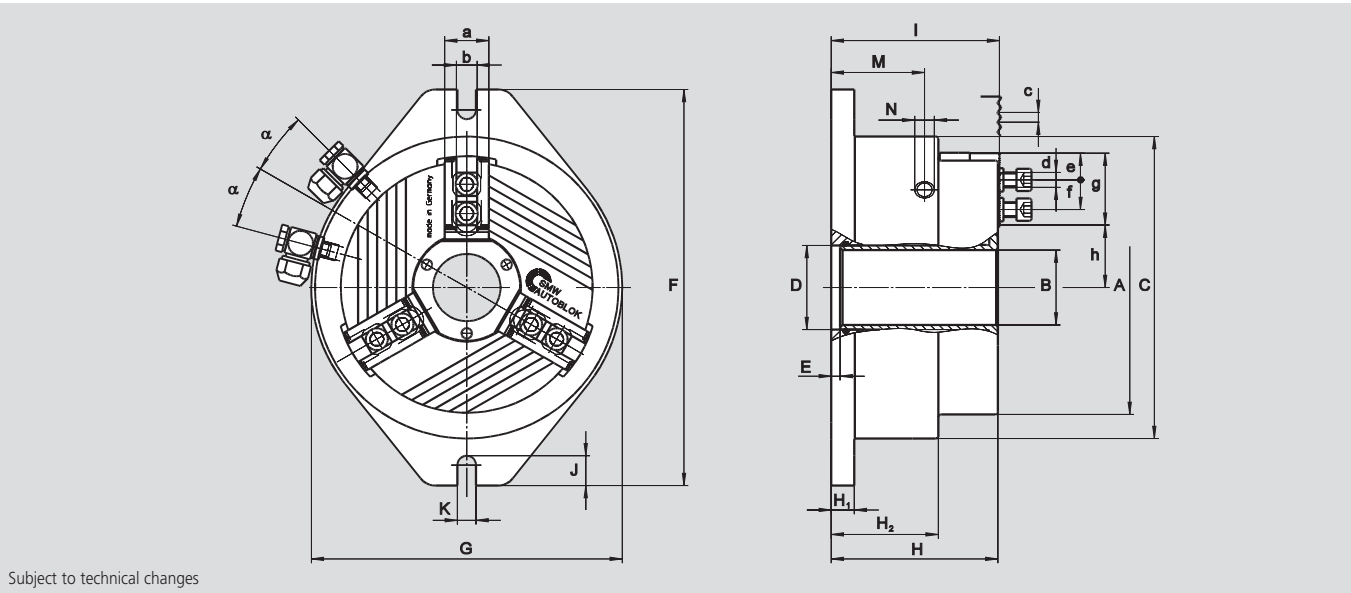
Technical features
Independent units consisting of a 3 jaw chuck with a built in pneumatic cylinder
Relevant gripping force and very high precision
Operating pressure from 2 to 10 bar
Caution! Operating air must be filtered and oiled, to prevent any damage to the seals

Standard equipment

- 3 jaw chuck
- 1 set T-nuts with bolts
- 1 set of soft blank top jaws
- 2 elbow fittings G1/4"

Ordering example

- 3 jaw chuck fixture STP 280 or
- 3 jaw chuck fixture STP 160

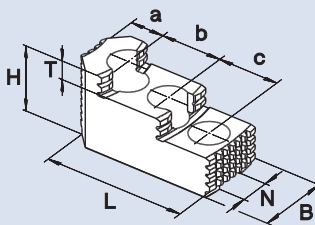


Subject to technical changes

SMW-AUTOBLOK Type			STP 125	STP 160	STP 200	STP 280
Id. No.			013904	013905	013906	052810
	A	mm	136	171	240	284
	B	mm	26	38	78	92
	C	mm	156	201	250	316
	D H6	mm	34	46	86	102
	E	mm	8	7.5	7	6
	F	mm	220	275	320	400
	G	mm	160	206	250	316
	H	mm	102.5	130	134	155.5
	H1	mm	14.5	19	18.5	23.5
	H2	mm	66	83	86	97.5
	I	mm	104	132	135.5	157
	J	mm	22	24	24	30
	K	mm	13	15	15	18
	M	mm	57	72	75	86
Pneumatic connections	N	inch	G 1/8"	G 1/4"	G 1/4"	G 1/4"
	a	mm	25	30	36	44
	b f7	mm	12	14	17	21
Serration	c	inch	1/16" x 90°	1/16" x 90°	1/16" x 90°	1/16" x 90°
Bolt DIN 912 12.9	d	mm	M8 x 30	M10 x 35	M12 x 35	M16 x 40
	e	mm	4	6	8	12
T-nuts distance	f	mm	17/25	17/31	22/41.5	25/51
Serration length	g	mm	40	50	59	75
	h	mm	25.9/28.9	24.9/37	57.7/61.9	70/65
	α		15	15	15	7.5
Radial jaw stroke		mm	3	4.1	4.2	5
Operating pressure	min./max.	bar	2/10	2/10	2/10	2/10
Piston area		cm ²	129	206	290	532
Air consumption at 6 bar		l	1	2.4	5.5	6.6
Mass (without top jaws)		kg	19	21	40	56

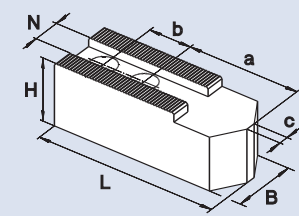
TOP JAWS and T-NUTS

MHB-D
Hard reversible top jaws



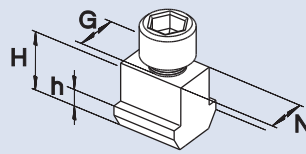
Chuck type	STP 125	STP 160	STP 200	STP 280
Jaw type	MHB-D 125	MHB-D 160	MHB-D 200	MHB-D 251
Jaw Id. No. (set)	12081306	12081636	12082036	12083036
B	30	34	40	5
H	34	39	45	56
L	58	65	82	105
T	8.5	10	10.5	13.5
N	12	14	17	21
Serration	1/16" x 90°	1/16" x 90°	1/16" x 90°	1/16" x 90°
a	13	18	19	26
b	16	16	23	30
c	16	16	23	30
kg/set	0.6	0.9	1.7	2.85

AWB-D
Soft top jaws



Chuck type	STP 125	STP 160	STP 200	STP 280
Jaw type	AWB-D 125	AWB-D 165	AWB-D 200	AWB-D 250
Jaw Id. No. (set)	12071300	035954	081616	081618
B	30	40	40	50
H	30	40	40	50
L	60	80	90	120
N	12	14	17	21
Serration	1/16" x 90°	1/16" x 90°	1/16" x 90°	1/16" x 90°
a	29	43	53	70
b	16	22	22	28
kg/set	0.9	2.0	2.7	5.1

NST T-nuts



Chuck type	STP 125	STP 160	STP 200	STP 280
T-nut type	NST 12	NST 14	NST 17-4	NST 21-5
T-nut Id. No.	089810	013863	013864	033429
N	12	14	17	21
H	21.5	26.5	26.5	30
h	7.5	9.5	9.5	11
G	M8	M10	M12	M16
Bolt DIN 912 12.9	M8 x 30	M10 x 35	M12 x 35	M16 x 40
Tighten torque	30	50	70	150

Pneumatic chuck fixtures with built-in cylinder

- Ø 130 - 315 mm
- 2 and 3 jaws



Application/customer's benefit

Self centering chuck fixtures used on milling machines, machining centers or special machines

PB-D: inch serrated master jaws (1/16" x 90°)

PB-C: tongue & groove master jaws (American standard)

PB-M: metric serrated master jaws (1.5 mm x 60°) **on request**

Technical features

Independent units consisting of a 2/3 jaw chuck with a built in pneumatic cylinder

Reduced overall dimensions on the machine

High gripping force and very high precision

Case hardened body to assure highest precision and long chuck life

Caution! Operating air must be filtered and oiled, to prevent any damage to the seals

Standard equipment

Clamping unit

1 set of soft blank top jaws (PB-C excluded)

Grease gun

Ordering example

3 jaw chuck fixture PB-C 250

or

2 jaw chuck fixture PBL-D2 165

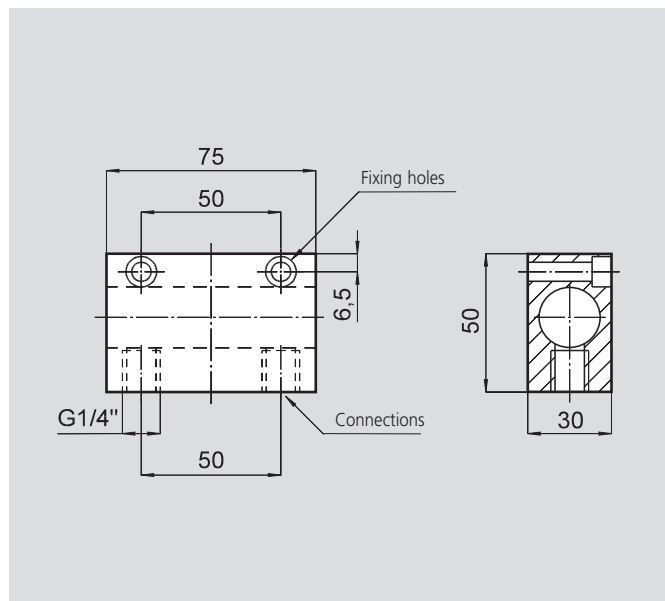
Technical data

SMW-AUTOBLOK Type Code		PB-D 3 (3 jaws) 130 77270713	PB-D 3 (3 jaws) 165 77270716	PB-D 3 (3 jaws) 210 77270721	PB-D 3 (3 jaws) 250 77270725	PB-D 3 (3 jaws) 315 77270731
SMW-AUTOBLOK Type Code		PBLD 2 (2 jaws) 130 77271313	PBLD 2 (2 jaws) 165 77271316	PBLD 2 (2 jaws) 210 77271321	PBLD 2 (2 jaws) 250 77271325	PBLD 2 (2 jaws) 315 77271331
SMW-AUTOBLOK Type Code		PB-C 3 (3 jaws) 130 N.D.	PB-C 3 (3 jaws) 165 77276816	PB-C 3 (3 jaws) 210 77276821	PB-C 3 (3 jaws) 250 77276825	PB-C 3 (3 jaws) 315 77276831
Radial jaw stroke	mm	3.2	3.6	4.4	5	6.3
Radial jaw stroke PBL-D2 (2 jaws)*	mm	6	6.8	8.4	9.7	12
Piston area	cm ²	82	143	236	358	548
Max. operating pressure	bar	7	7	7	7	7
Gripping force at 6 bar	kN	14	24	42	64	98
Gripping force at 6 bar PBL-D2 (2 jaws)*	kN	9	16	26	39	60
Mass (without top jaws)	kg	9	17	28	42	63

*The 2 jaw fixture is available with serrated master jaws (inch or metric) and long stroke only.

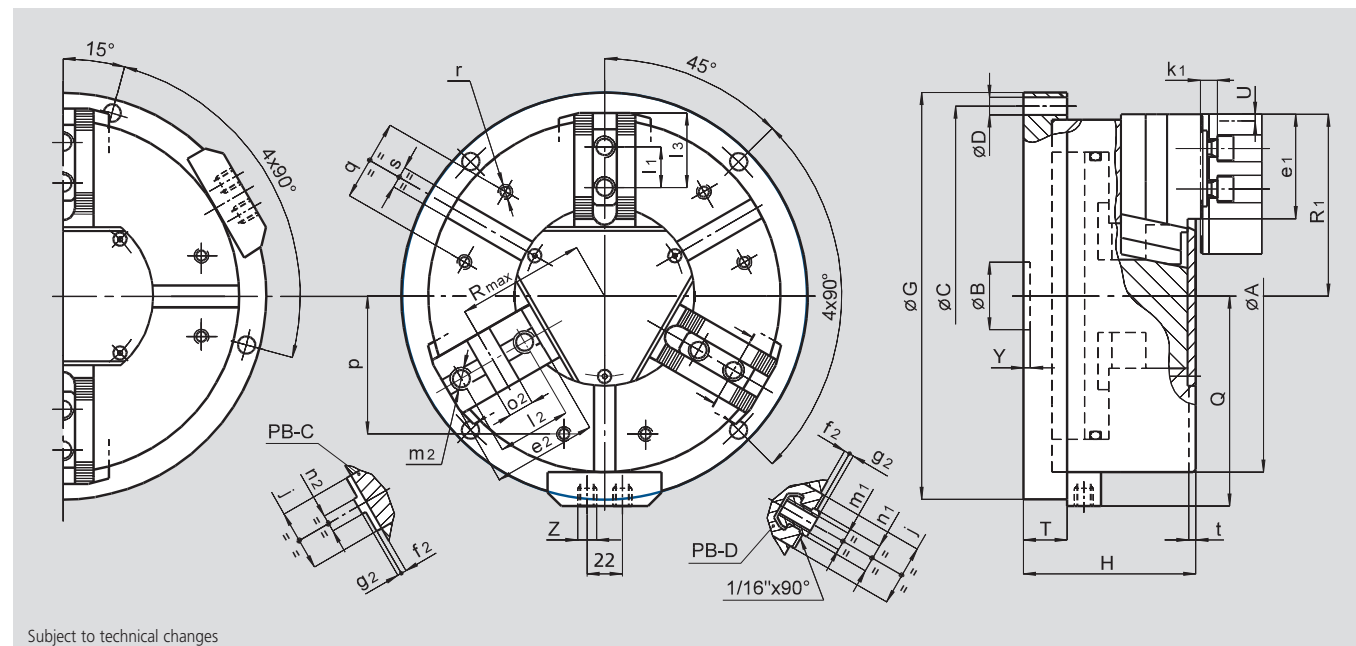
Option for the PB-D and PB-C chuck
Safety unit that maintains a constant pressure inside the cylinder which maintains a steady clamping force even in case of a drop or lack of line pressure

SAB Safety unit with double non-return valve



Pneumatic chuck fixtures with built-in cylinder

- Ø 130 - 315 mm
- 2 and 3 jaws



Subject to technical changes

Common dimensions

SMW-AUTOBLOK Type		PB-D 130 PB-C 130	PB-D 165 PB-C 165	PB-D 210 PB-C 210	PB-D 250 PB-C 250	PB-D 315 PB-C 315
	A	mm	135	170	215	315
	B	mm	30	30	35	50
Fixing holes circle	C	mm	155	190	235	340
Fixing holes diameter	D	mm	9	11	11	13
	G	mm	175	210	255	300
	H	mm	89	100	117	127
	Q	mm	93	110	133	155
	T	mm	25	27	30	32
Radial jaw stroke (3 jaws)	U	mm	3.2	3.6	4.4	5
Radial jaw stroke PBL-D2 (2 jaws)	U	mm	6	6.8	8.4	9.7
	Y	mm	5	5	5	5
Pneumatic connections	Z	inch	R1/4"	R1/4"	R1/4"	R1/4"
	j	mm	26	30	36	45
	k1	mm	10	10	11	12
	p	mm	52	65	80	102
	q	mm	30	36	45	60
	r	mm	M6	M8	M8	M10
	s H12	mm	12	16	16	16
	t	mm	5	5	5	5

PB-D and PBL-D2 fixtures dimensions

SMW-AUTOBLOK Type		PB-D 130	PB-D 165	PB-D 210	PB-D 250	PB-D 315
	e1	mm	37	48	60	77
	f1	mm	3	4	4	4
	g1	mm	2.5	2.5	2.5	3.5
	l1	mm	16	16.5	23	30
T-nut position min./max.	l3	mm	23/30	24/40	33/50	43/62
	m1	mm	M8	M10	M12	M16
	n1 h8	mm	12	14	17	21
Chuck open (3 jaw)	R1	mm	71	89	110	134
Chuck open PBL-D2 (2 jaws)	R1	mm	74	92	114	138.5

PB-C fixtures dimensions (available only in 3 jaw chuck version)

SMW-AUTOBLOK Type		PB-C 130	PB-C 165	PB-C 210	PB-C 250	PB-C 315
	e2	mm	-	54	71	99
	f2	mm	-	4	4	4
	g2	mm	-	3	3	3
	l2	mm	-	38	44.4	54
	m2	mm	-	M10	M12	M16
	n2 h8	mm	-	7.94	7.94	12.70
	o2 H7	mm	-	12.68	12.68	19.03
Chuck open	R1	mm	-	89	110	134
Chuck open	Rmax	mm	-	62	77	94

- Ø 130 - 315 mm
- 2 and 3 jaws



Application/customer's benefit
Self centering chuck fixtures used on milling machines, machining centers or special machines

HB-D: inch serrated master jaws (1/16" x 90°)
HB-C: tongue & groove master jaws (American standard)
HB-M: metric serrated master jaws (1.5 mm x 60°) **on request**

Technical features
Independent units consisting of a 2/3 jaw chuck with an built in hydraulic cylinder
Reduced overall dimensions on the machine
High gripping force and very high precision
Case hardened body to assure highest precision and long chuck life

Standard equipment
Clamping unit
1 set T-nuts with bolts (HB-C excluded)
Grease gun

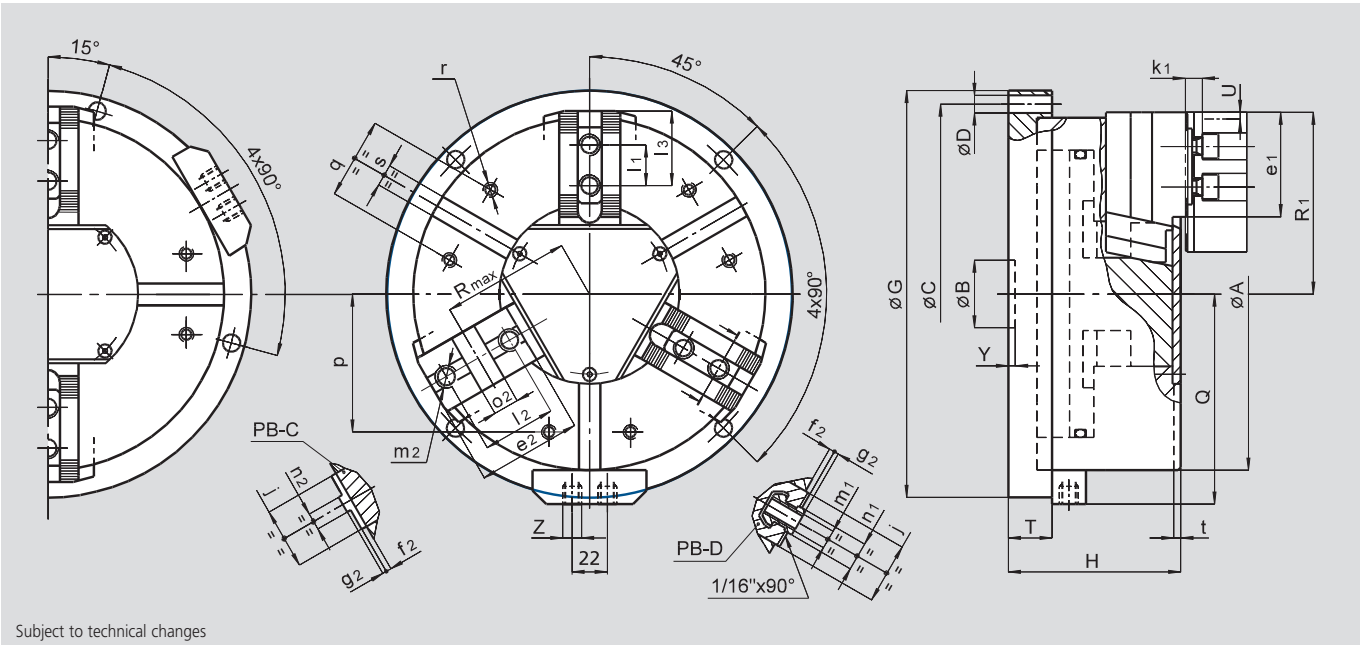
Ordering example
3 jaw chuck fixture HB-C 250
or
2 jaw chuck fixture HBL-D2 165

Technical data

SMW-AUTOBLOK Type Code		HB-D 3 (3 jaws) 130 77271113	HB-D 3 (3 jaws) 165 77271116	HB-D 3 (3 jaws) 210 77271121	HB-D 3 (3 jaws) 250 77271125	HB-D 3 (3 jaws) 315 77271131
SMW-AUTOBLOK Type Code		HBL-D 2 (2 jaws) 130 77271713	HBL-D 2 (2 jaws) 165 77271716	HBL-D 2 (2 jaws) 210 77271721	HBL-D 2 (2 jaws) 250 77271725	HBL-D 2 (2 jaws) 315 77271731
SMW-AUTOBLOK Type Code		HB-C 3 (3 jaws) 130 N.D.	HB-C 3 (3 jaws) 165 77277516	HB-C 3 (3 jaws) 210 77277521	HB-C 3 (3 jaws) 250 77277525	HB-C 3 (3 jaws) 315 77277531
Radial jaw stroke	mm	2.8	3.2	4	4.6	5.5
Radial jaw stroke HBL-D2 (2 jaws)*	mm	5.2	6	7.5	8.8	10.5
Piston area	cm²	59	79	114	167	203
Max. operating pressure	bar	30	30	30	30	30
Gripping force at 25 bar	kN	42	55	85	125	150
Gripping force at 25 bar HBL-D2 (2 jaws)*	kN	26	35	52	75	90
Mass (without top jaws)	kg	10	18	30	44	69

*The 2 jaw fixture is available with serrated master jaws (inch or metric) and long stroke only.

- Ø 130 - 315 mm
- 2 and 3 jaws



Common dimensions

SMW-AUTOBLOK Type		HB-D 130 HB-C 130	HB-D 165 HB-C 165	HB-D 210 HB-C 210	HB-D 250 HB-C 250	HB-D 315 HB-C 315
	A	mm	135	170	215	260
	B	mm	30	30	35	50
Fixing holes circle	C	mm	155	190	235	280
Fixing holes diameter	D	mm	9	11	11	13
	G	mm	175	210	255	300
	H	mm	89	100	117	127
	Q	mm	93	110	133	155
	T	mm	25	27	30	32
Radial jaw stroke (3 jaws)	U	mm	2.8	3.2	4	4.6
Radial jaw stroke HBL-D2 (2 jaws)	U	mm	5.2	6	7.5	8.8
	Y	mm	5	5	5	5
Hydraulic connections	Z	inch	R1/4"	R1/4"	R1/4"	R1/4"
	j	mm	26	30	36	45
	k1	mm	10	10	11	12
	p	mm	52	65	80	102
	q	mm	30	36	45	60
	r	mm	M6	M8	M8	M10
	s H12	mm	12	16	16	16
	t	mm	5	5	5	5

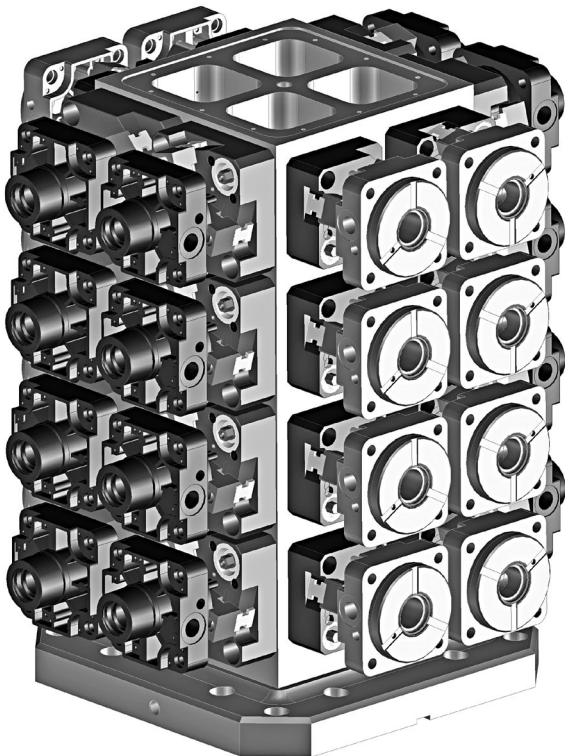
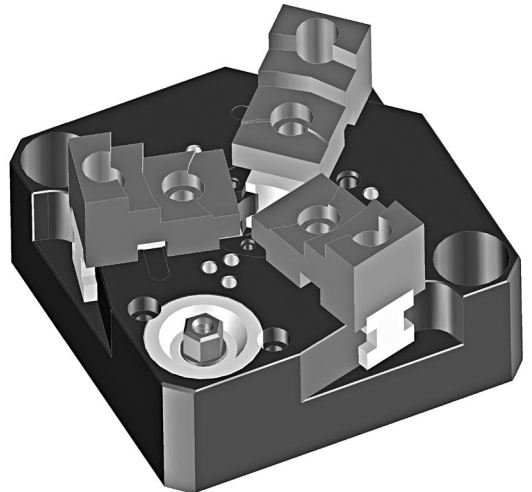
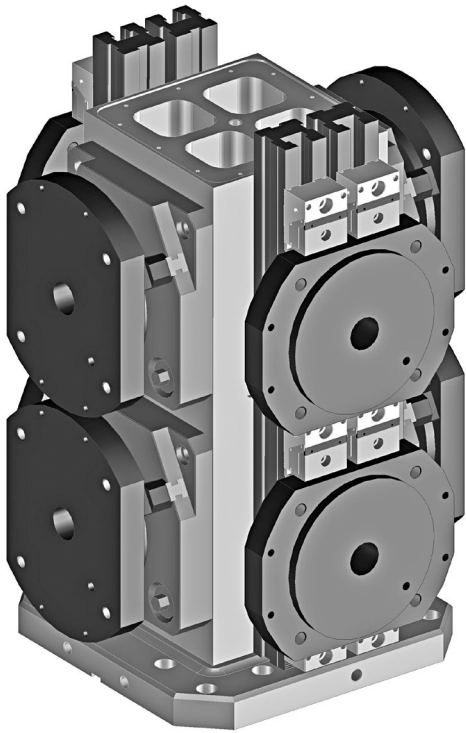
HB-D and HBL-D2 fixtures dimensions

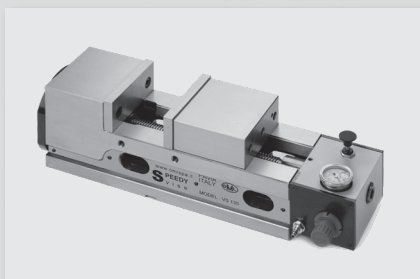
SMW-AUTOBLOK Type		HB-D 130	HB-D 165	HB-D 210	HB-D 250	HB-D 315
	e1	mm	37	48	60	77
	f1	mm	3	4	3	4
	g1	mm	2.5	2.5	2.5	3.5
	l1	mm	16	16.5	23	30
T-nut position	min./max.	mm	23/30	24/40	33/50	43/62
	l3	mm	23/30	24/40	33/50	43/62
	m1	mm	M8	M10	M12	M16
	n1 h8	mm	12	14	17	21
Chuck open (3 jaws)	R1	mm	71	89	110	134
Chuck open HBL-D2 (2 jaws)	R1	mm	74	92	114	138.5

HB-C fixtures dimensions (available only in 3 jaw chuck version)

SMW-AUTOBLOK Type		HB-C 130	HB-C 165	HB-C 210	HB-C 250	HB-C 315
	e2	mm	-	54	71	99
	f2	mm	-	4	4	4
	g2	mm	-	3	3	3
	l2	mm	-	38	44,4	54
	m2	mm	-	M10	M12	M16
	n2 h8	mm	-	7.94	7.94	12.70
	o2 H7	mm	-	12.68	12.68	19.03
Chuck open	R1	mm	-	89	110	134
Chuck open	Rmax	mm	-	62	77	94

Examples

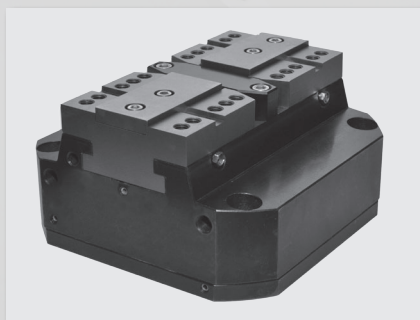




SPEEDY VISE

pag. 13. 2

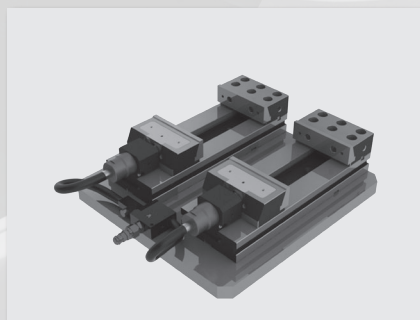
Pneumatic quick clamping equipment



SCV

pag. 13. 5

Pneumatic/hydraulic
self centering vises



TC HYDRO SET

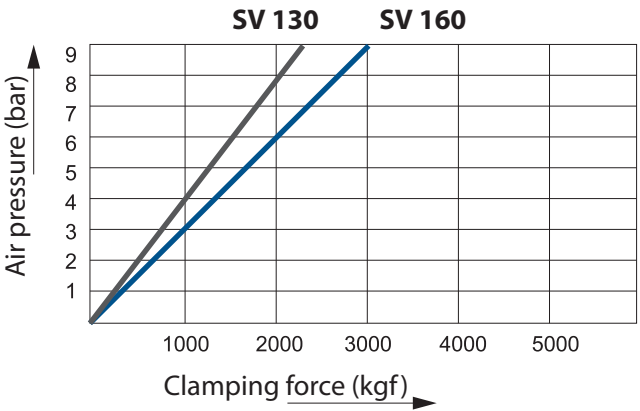
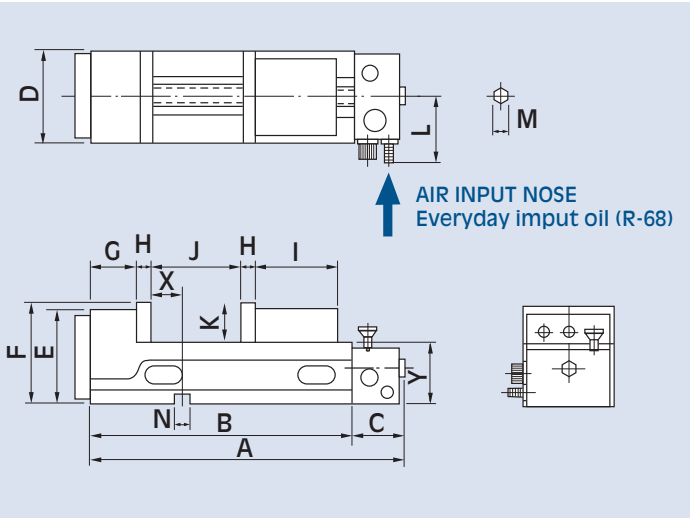
pag. 13. 12

Set of modular clamping equipment
with hydraulic clamping unit

most suitable for mass production on machine centre

FEATURES

- 1. Robust contruction of one piece casting of fixed jaw and vise bed.
- 2. Rigid and high tensile casting of ductile iron FCD60JIS (equal to GGG60) with 60 kg/mm² or 80.000 psi tensile strength.
- 3. Most suitable for mass production and to be used on machine centres, milling machines, drilling machines and special purpose machines.
- 4. Most compact pneumatic mechanism design. No oil, just joint the air supply will do.
- 5. Most compact in total length of vise with max clamping capacity.
- 6. Safety locking mechanism for unexpected termination of air supply. After pneumatic clamping, the workpiece will be clamped firmly even without the air supply.
- 7. Easy and simple ON-OFF switch control for pneumatic operation. The optional electric control for automatic and FMS system is available.
- 8. Safety protection max. pneumatic clamping stroke is 4 mm.
(Adjust the stroke at 2 mm for a better power capacity)
- 9. Rapid ON-OFF only 1,5 sec.
- 10. Multiply pneumatic Quick Vise set up available with only one source of air supply (optional).
- 11. Free adjusting of max. pneumatic clamping pressure (see graphs) using the air regulator placed nearby the pressure control gauge
- 12. Vise bed flame hardened to HRC 45°.
- 13. Down trust "semi-spherical segment" mechanism eliminates jaw lifting and workpiece.

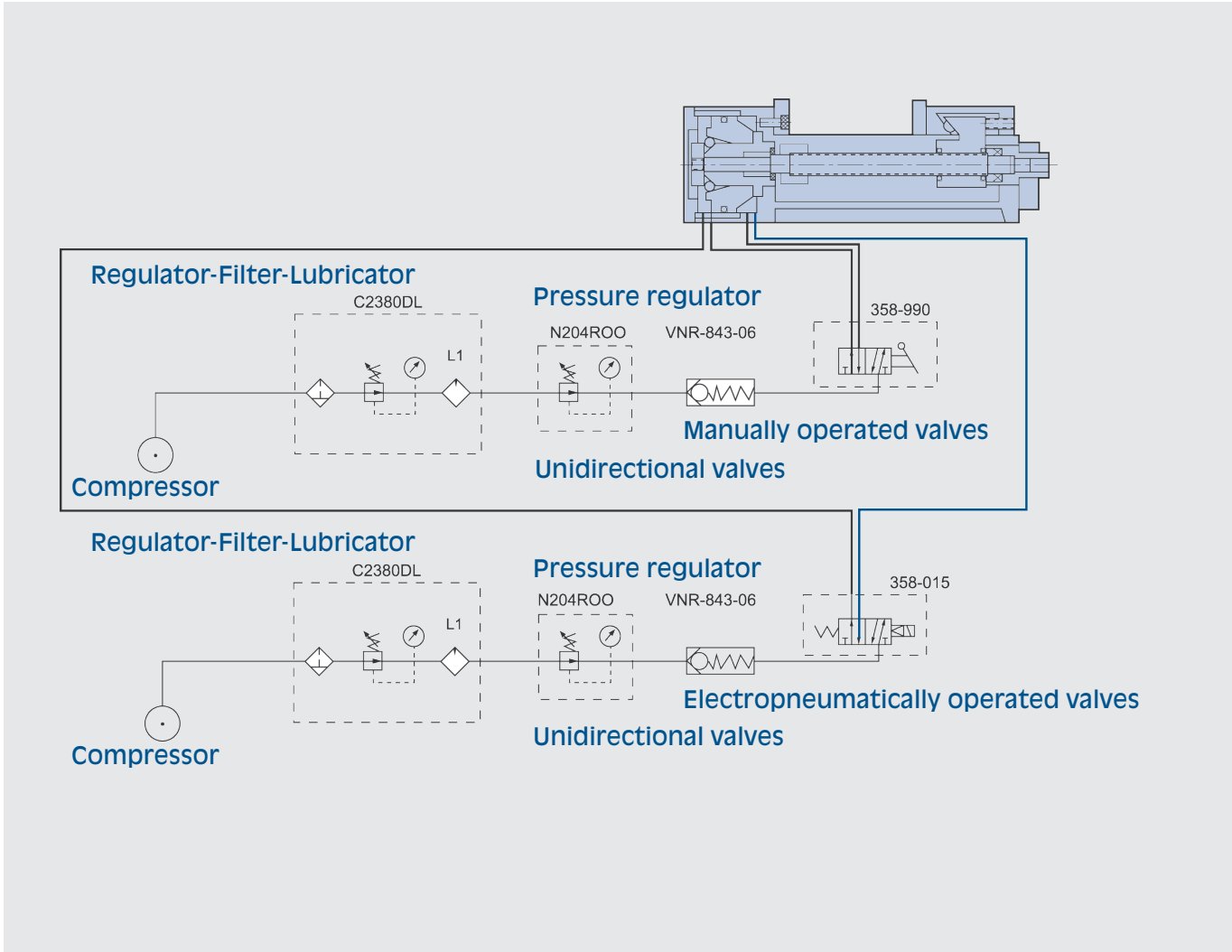


Code	type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	L mm	M mm	N mm	X mm	Y mm
77 58 91 21	SV 130	507	405	102	131	152	155	100	15	115	0-140	55	95	14	18	65	100
77 58 92 21	SV 160	534	432	102	161	160	163	115	15	130	0-150	58	105	14	18	65	105

most suitable for mass production on machine centre

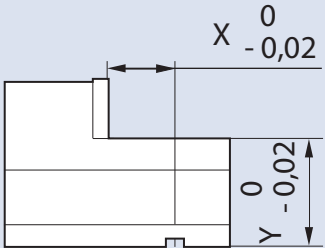


ALWAYS USE FILTERED COMPRESSED AIR. FOR FILTER-LUBRICATOR SEE PAG. 0.38



Code	type	power kN	air pressure bar	stroke mm	net weight kg	weight kg
77 58 91 21	SV 130	16	1,5 - 7	0 - 3	40	42
77 58 92 21	SV 160	21	1,5 - 7	0 - 4	52	55

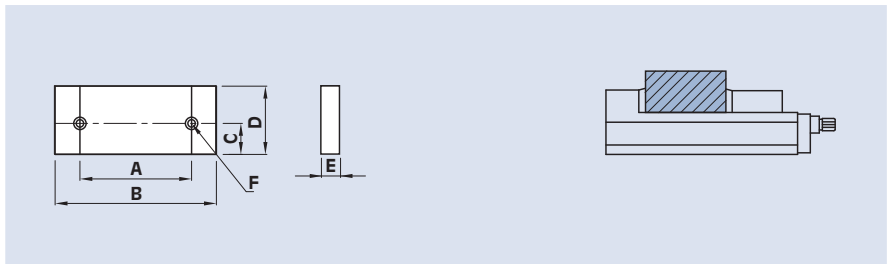
Tolerances



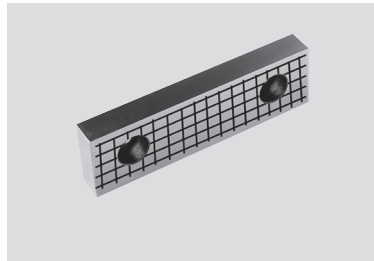
accessories



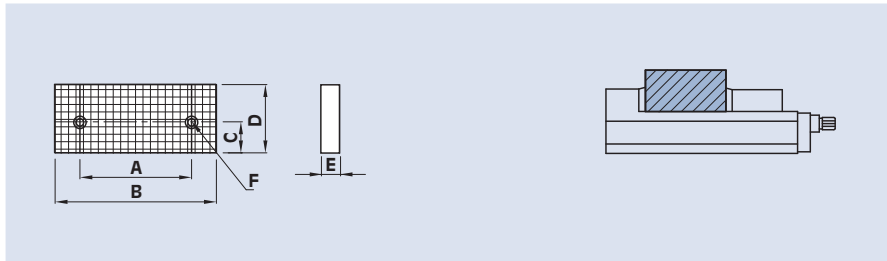
Pair of smooth jaws
(HRC 55°-58°)



Code	for type		A mm	B mm	C mm	D mm	E mm	F mm
58 91 41 19	SV 130			130	25	55	15	M10x20L
58 92 41 19	SV 160			160	25	58	15	M10x20L



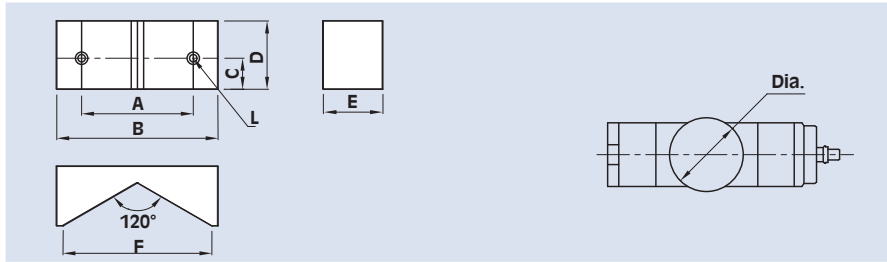
Pair of grooved jaws
(HRC 55°-58°)



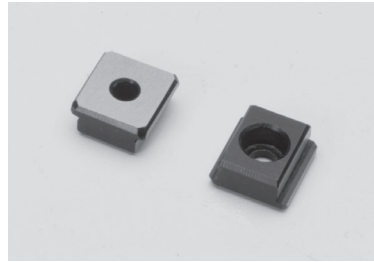
Code	for type		A mm	B mm	C mm	D mm	E mm	F mm
58 91 42 19	SV 130		90	130	25	55	15	M10x20L
58 92 42 19	SV 160		90	160	25	58	15	M10x20L



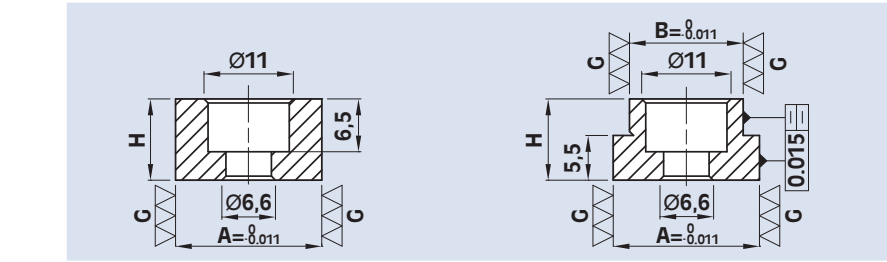
Pair of V jaws
(HRC 55°-58°)



Code	for type	A mm	B mm	C mm	D mm	E mm	F mm	L mm	dia. mm
58 91 44 19	SV 130	90	130	25	55	48	120	M10x16L	100-230
58 92 44 19	SV 160	90	160	25	58	48	120	M10x16L	100-230

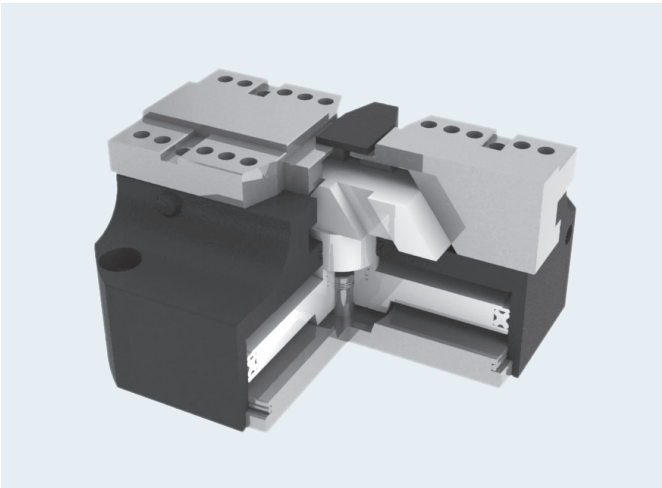
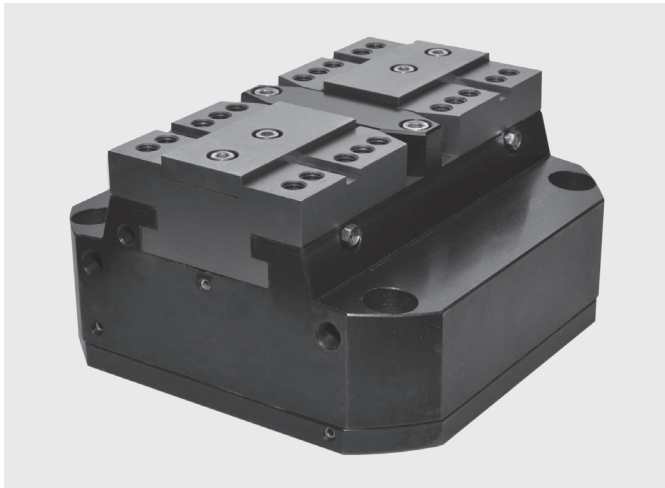


Pair of positioning keys



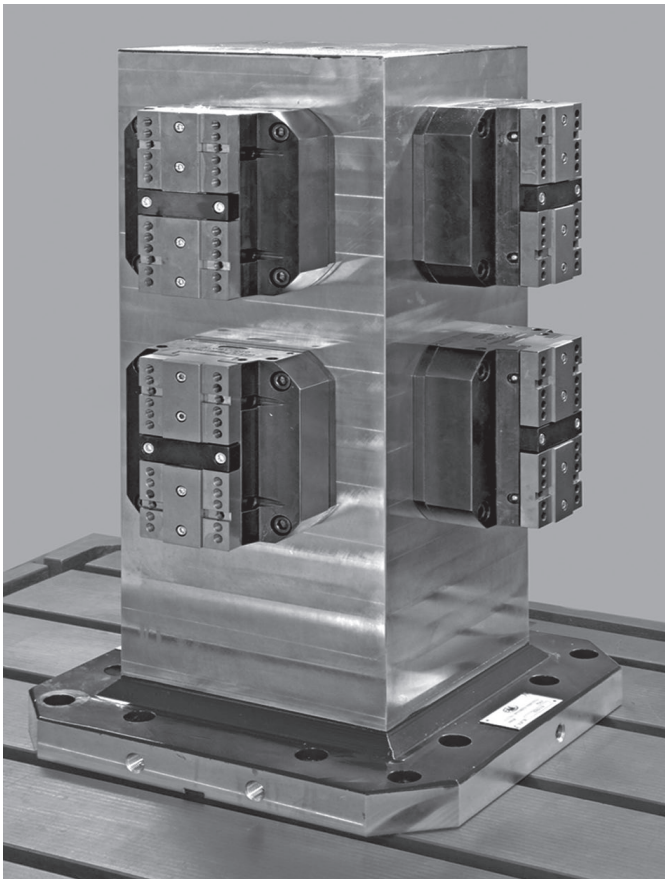
Code	for type	A mm	B mm	H mm	L mm
58 90 13 92	SV 130	18	12	10	25
58 90 13 93		18	14	10	25
58 90 13 94		18	16	10	25
58 90 13 96		18	20	10	25
58 90 13 97	SV 160	18	22	10	25
58 90 13 95		18	18	10	22

Self centering vise pneumatic-hydraulic, SCV P/H

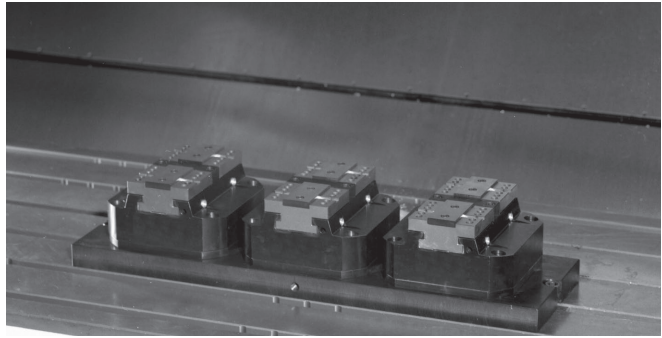


TECHNICAL DATA

- Operating pressure range: 6 bar with air / max 60 bar with oil
- Repeatability accuracy: SCV 100 = 0,01 mm / 100
SCV 160-250 = 0,02 mm / 100
- Operating temperature range: from 5 °C to 60 °C
- Operating principle: wedge and piston design with mechanically restricted guidance
- Stroke range: from 8,4 to 20 mm
- Mounting: by means of bores for H7 pins
- Housing material: hardened steel
- Material for functional parts: hardened steel
- Actuation: filtered hydraulic oil (10 mm) , viscosity 46 mm²/s a 40 °C
ISO VG max 60 °C; compressed air (10 mm), dry or lubricated



- Connections: sides-bases
- Maintenance: relubrified via lubrication-nipples
every 5.000 cycles for tool clamping,
every 100.000 in handling
- Options: proxy switch adjustment
serrated fingers



Working example

SCV P/H (Pneumatic/Hydraulic)

	Type	A	B	C	D	E	G	H	L	M	N	P	R	S	T	U	V	Z	X	Y	W	J
	SCV 100 P/H	102	52	68	2.5	2.5	7x4	41	20	52	6	41.5	92	66	40.5	60	34	M5	30	33	11	12
	SCV 160 P/H	162	82	88	3	3	10x5	69	24	94	8	53	148	108	51	102	44	1/8	51	42	16	15
	SCV 200 P/H	200	100	91	3	3.5	10x7	88	24	92	8	54.5	186	130	52	124	45	1/8	62	55	16	14
	SCV 250 P/H	254	128	100	3	4	12x7	112	30	116	10	61	232	156	58	154	51	1/8	77	66	18	16

	Type	K	a	b	d	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	d ₇	e	f	h	l	m	n	stroke for jaws	
	SCV 100 P/H	8	M6	8	8	36	82	6.5	13.5	22	M5	5	6	8.5	33	19	45.5	56	6	2.3
	SCV 160 P/H	10	M8	11	10	62	128	8.5	17	34	M8	9	8	11	41	30	58	90	8	3.1
	SCV 200 P/H	11	M8	11	10	74	160	8.5	19	40	M8	9	8	13	42	38	60	110	9	3.5
	SCV 250 P/H	12	M10	14	16	92	202	11	19	48	M8	9	10	13	47	45	66.5	140	10	3.9

SCV-P (Pneumatic)

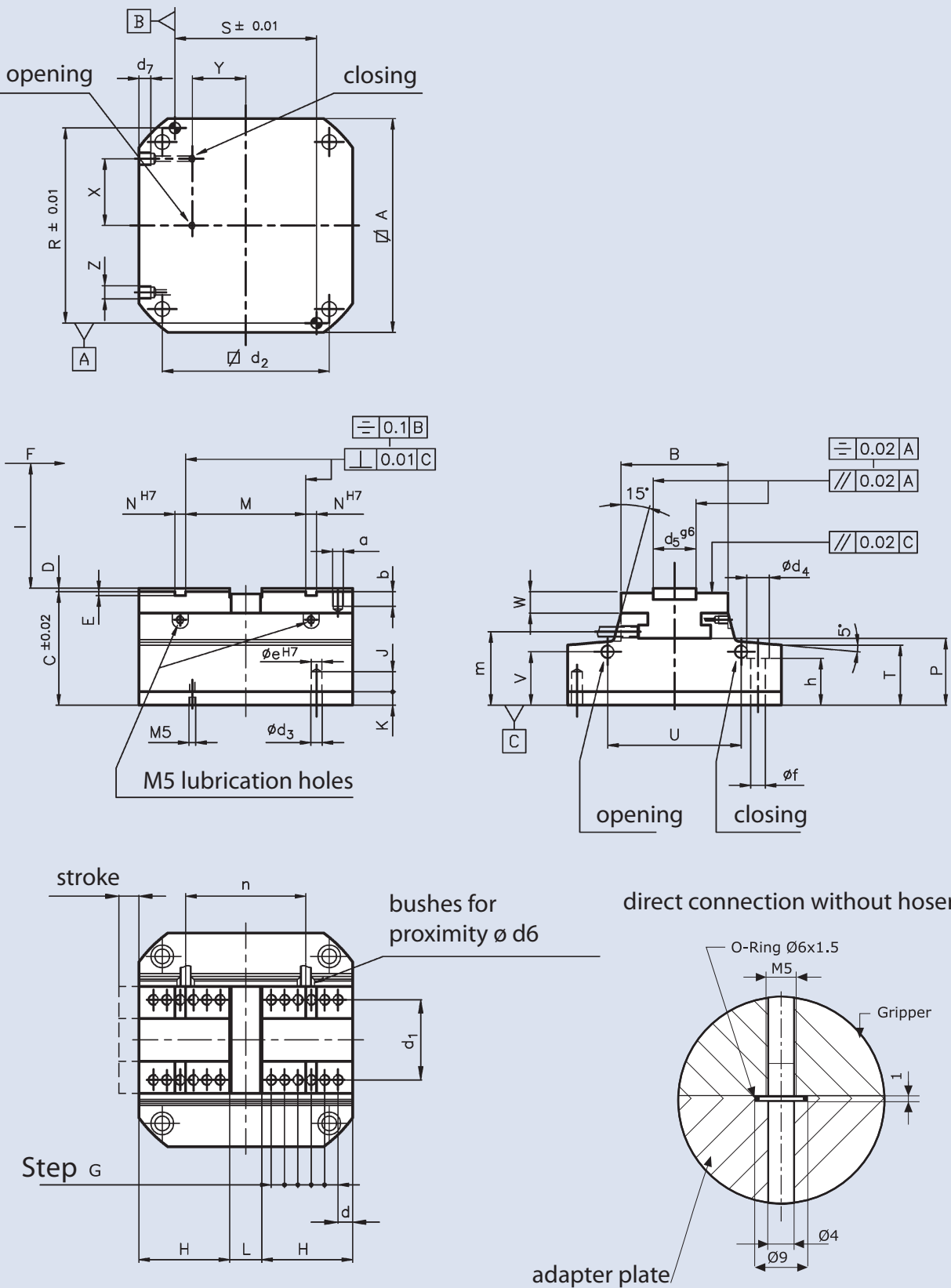
Code	Type	stroke for jaw		gripping force at 6 bar		approx. time (sec)		air consumption for double stroke (cm³)	max. suggested workpiece mass (Kg)		mass vise (kg)	max. jaws length (mm)
		C1	C2	cod. 1 (N)	cod. 2	opening	closing		cod. 1	cod. 2		
30 50 10 05	SCV 100 P	6		3800		0.2	0.2	120	28		3.0	75
30 50 10 06	SCV 160 P	8		9000		0.4	0.4	405	67		8.9	70
30 50 10 07	SCV 200 P	9		13000		0.85	0.85	700	100		15.6	80
30 50 10 08	SCV 250 P	10		19000		1.2	1.2	1300	150		27.0	140
30 50 30 05	SCV 100 P		2,3	8800		0.2	0.2	120		66	3.0	75
30 50 30 06	SCV 160 P		3,1	21000		0.4	0.4	405		160	8.9	70
30 50 30 07	SCV 200 P		3,5	32000		0.85	0.85	700		240	15.6	80
30 50 30 08	SCV 250 P		3,9	51000		1.2	1.2	1300		255	27.0	140

Transportable weight calculated with $\mu = 0.1$ and $f_s = 2$. With form-fit gripping the mass may be greater.
The gripping force is the arithmetic sum of the individual forces created at the fingers at "I" mm distance at 0.6 MPa

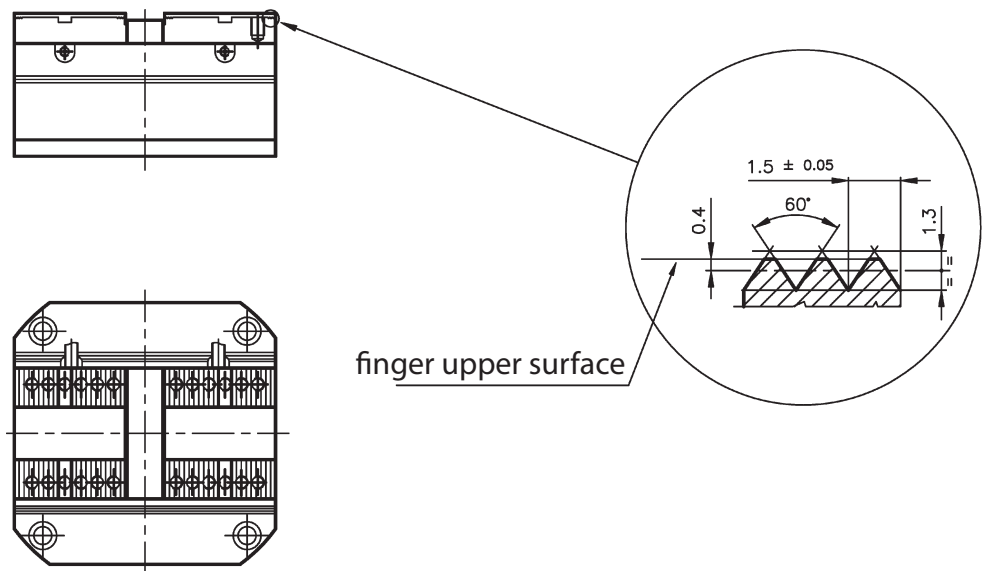
SCV-H (Hydraulic)

Code	Type	stroke for jaw (mm)		gripping force at 60 bar (N)		approx. time (sec)		oil consumption for double stroke (cm³)	max. suggested workpiece mass (Kg)		mass vise (kg)	max. jaws length (mm)
		C1	C2	cod. 1	cod. 2	opening	closing		cod. 1	cod. 2		
30 50 20 05	SCV-H 100	6		5500		0.8	0.8	20	28		3.0	60
30 50 20 06	SCV-H 160	8		13000		1.3	1,3	60	65		8.9	55
30 50 20 07	SCV-H 200	9		20000		1,8	1,8	115	100		15.6	70
30 50 20 08	SCV-H 250	10		31000		2,1	2,1	135	150		27.0	120
30 50 40 05	SCV-H 100		2,3	13000		0,8	0,8	20		65	3.0	60
30 50 40 06	SCV-H 160		3,1	34000		1,3	1,3	60		170	8.9	55
30 50 40 07	SCV-H 200		3,5	47000		1,8	1,8	115		235	15.6	70

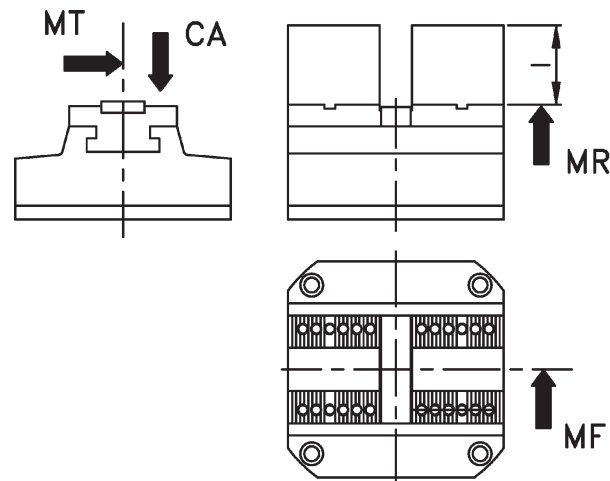
Transportable weight calculated with $\mu = 0.1$ and $f_s = 2$. With form-fit gripping the mass may be greater.
The gripping force is the arithmetic sum of the individual forces created at the fingers at "I" mm distance at 6 MPa



VERSION WITH SERRATION ON REQUEST

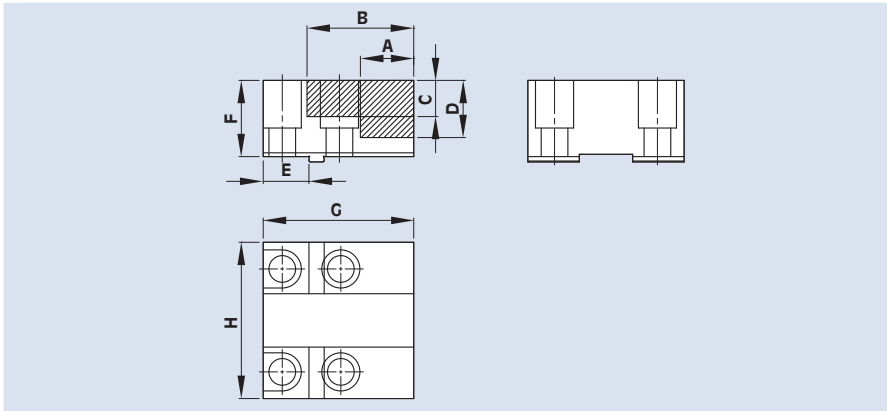


ALLOWED LOAD DATA



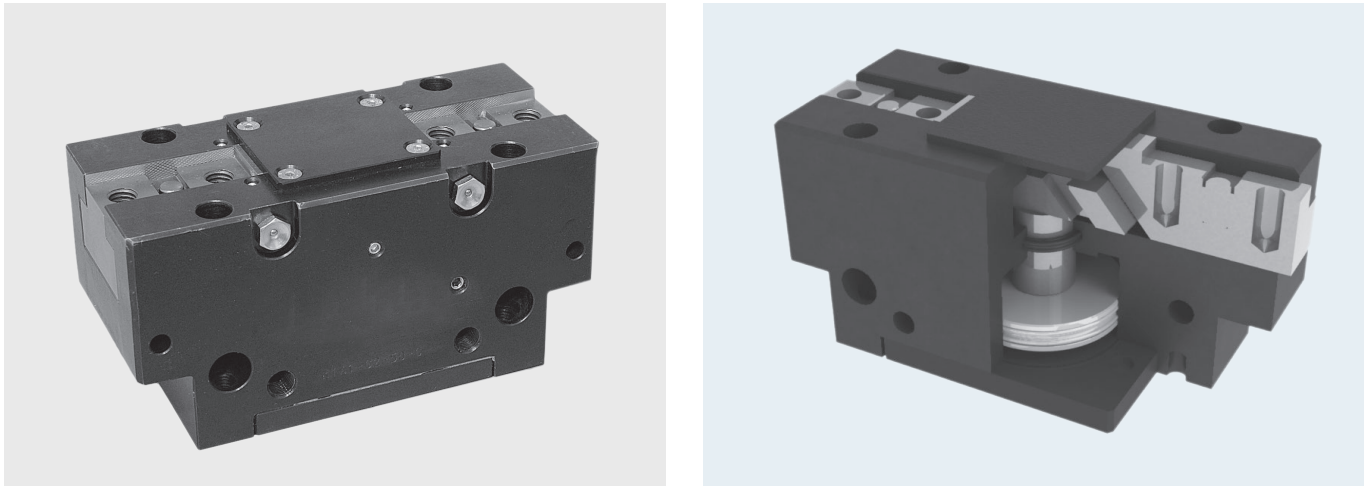
Type	CA (N)	MR (Nm)	MF (Nm)	MT (Nm)
SCV 100	2500	70	120	140
SCV 160	18000	100	250	200
SCV 200	22000	120	250	240
SCV 250	24500	140	250	270

SCV SOFT JAWS



Code	for type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm
70 55 40 01	SCV 100	14	35	9	18	18	25	50	52
70 55 40 02	SCV 160	28	56	19	30	24	40	79	82
70 55 40 03	SCV 200	30	65	21	32	44	45	98	100
70 55 40 04	SCV 250	36	80	21	35	57	50	125	128

Self centering vise hydraulic "Long stroke" SCV LSH



TECHNICAL DATA

- Operating pressure range: max 45 bar with oil
- Repeatability accuracy: from cod. 30 10 10 37 to 30 10 10 39 = 0,02 mm with 100 cycles
from cod. 30 10 10 40 to 30 10 10 42 = 0,03 mm with 100 cycles
- Operating temperature range: da 5 °C a 60 °C
- Operating principle: wedge and piston design with mechanically restricted guidance
- Stroke range: from 6 to 72 mm
- Mounting: by means of bores for H7 pins
- Housing material: hardened steel
- Material for functional parts: hardened steel
- Actuation: filtered hydraulic oil (10 mm) , viscosity 46 mm²/s a 40 °C
ISO VG max 60 °C; compressed air (10 mm), dry or lubricated
- Connections: sides-bases
- Maintenance: relubrified via lubrification-nipples every 5.000 cycles for tool clamping, every 100.000 in handling
- Options: proxy switch adjustment
serrated fingers
spring-packaged pressure plate

SCV LSH (Hydraulic)

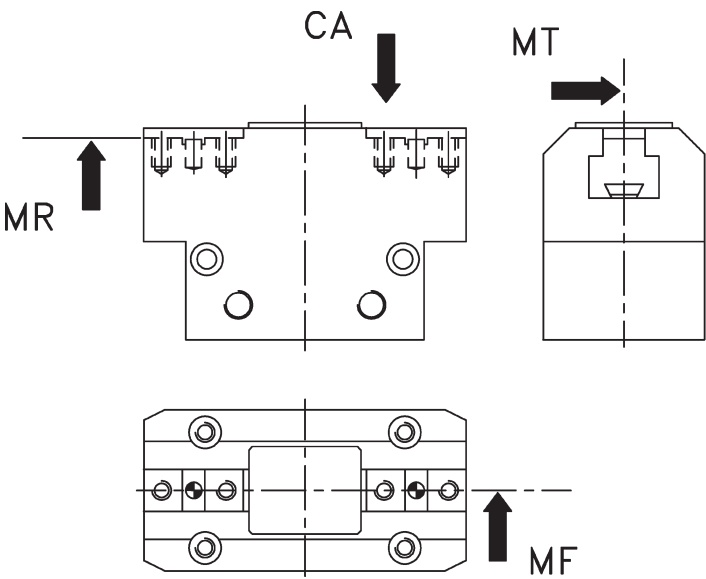
Code	A	B	C	D	E	G	H	L	M	N	P	R	S	T	U	V	Z	Y	X	W	J
30 10 10 37	100	66	44	38	13	6	32	16	20	6	M6	9.5	11	19	5	M6	6	15	6.5	10	10
30 10 10 38	125	82	56	45	14	8.5	40	20.5	24	6	M8	11	14	25	6	M8	8	15	9	12	12.5
30 10 10 39	160	100	70	56	12	9	50	25	32	8	M10	11	14	31	6	M8	10	19	9	15	17.5
30 10 10 40	180	120	76	60	14	9.5	55	27.5	36	10	M10	14	17	45	8	M10	10	20	11	16	20
30 10 10 41	200	130	80	68	18	11	62	31	40	12	M12	17	19	50	10	M12	12	24	13	20	22.5
30 10 10 42	250	164	112	90	28	17	80	41	48	12	M12	19	25	56	12	M16	16	30	17	22	25

Code	K	a	b	d	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	d ₇	d ₈	d ₉	e	f	f ₁	f ₂	h	m	n	Max fing. leng.
30 10 10 37	21	40	48	24	50	8	34	39	89	80	12	30	25	57	60	M3	1/8	15	1/8	15	60
30 10 10 38	24	52	62	27	60	8	43	44	112	100	16.5	38	30	64	68	M3	1/8	15	1/8	18	75
30 10 10 39	29	66	76	32	72	10	56	51	144	125	20	50	38	77	81	M3	1/8	18	1/8	22	80
30 10 10 40	32	72	94	38	80	12	66	62	162	140	21.5	56.5	40	94	98	M4	1/8	20	1/8	26	80
30 10 10 41	34	76	100	42	90	14	74	70	180	155	24	62	46	108	112	M5	1/8	22	1/8	30	90
30 10 10 42	50	104	124	56	120	16	88	88	224	200	33	76	55	128	136	M6	1/4	30	1/4	36	90

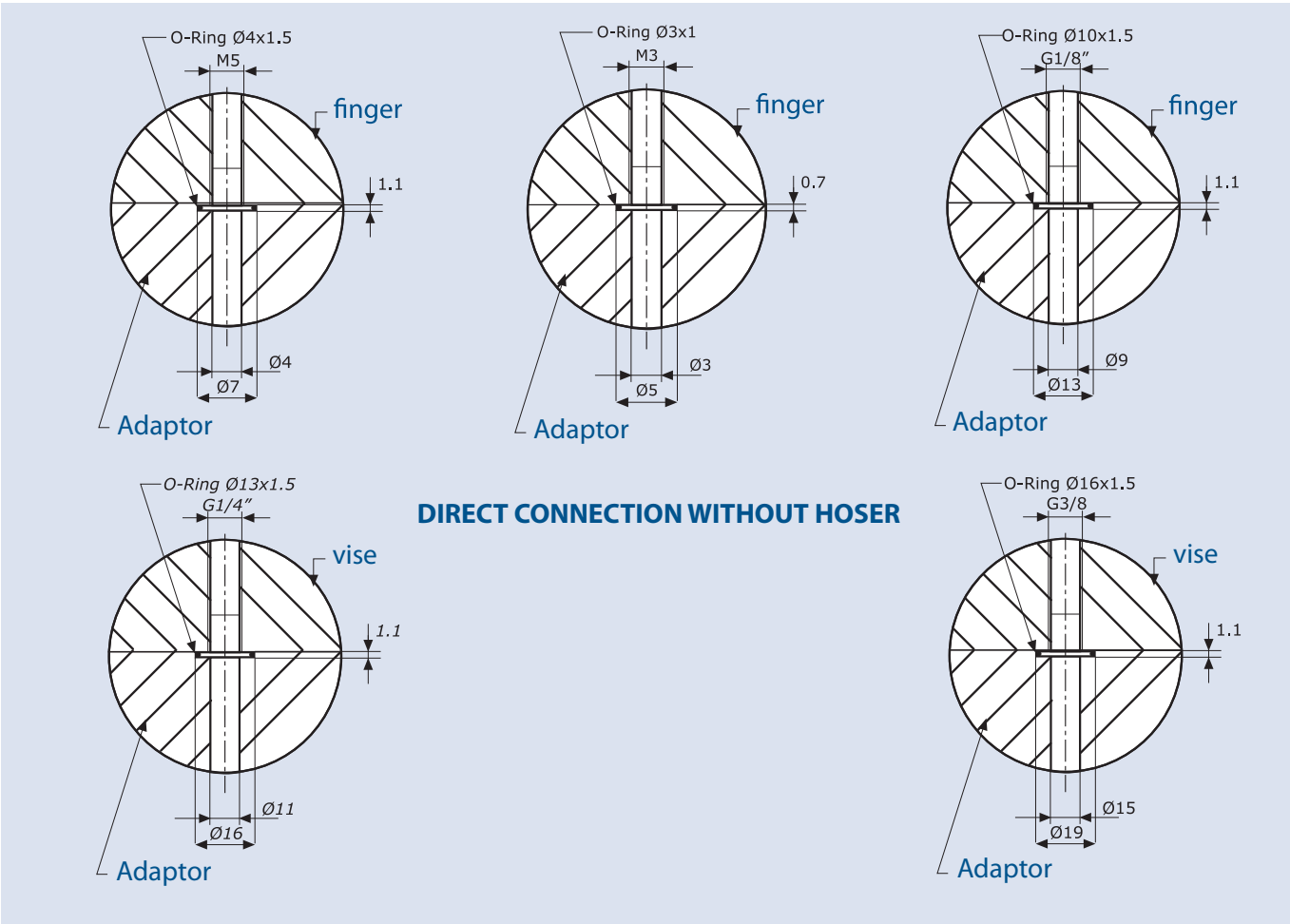
Code	r	q	AA	Stroke for jaw (mm)	Gripping force at 45 bar (N)	work piece mass (kg)	Approx time (sec) open.	Approx time (sec) clos.	Oil consumption for double stroke (cm³)	Mass vice kg
30 10 10 37	20	8.5	Ø6.5 M8	10	3010	12.2	0.3	0.35	26	1.8
30 10 10 38	25	8.5	Ø6.5 M8	13	4360	21.3	0.35	0.4	57	2.9
30 10 10 39	27	8.5	Ø6.5 M8	16	8470	33.6	0.4	0.45	101	5.4
30 10 10 40	28	8.5	M8 M12	20	10660	42.6	0.5	0.55	146	8.5
30 10 10 41	32	8.5	M8 M12	25	25410	51.4	0.65	0.75	237	11.5
30 10 10 42	48	12.5	M8 M12	30	25820	82.5	1.1	1.35	411	24.5

- Workpiece weight value at $\mu = 0.1$ e $f_s = 2$. In case of form fit clamping these values may be higher. Gripping force is an arithmetic sum of the individual forces occurring at fingers, distance 15mm at 6MPa.

MAX. ADM. FORCES AND MOMENTS OF FINGERS

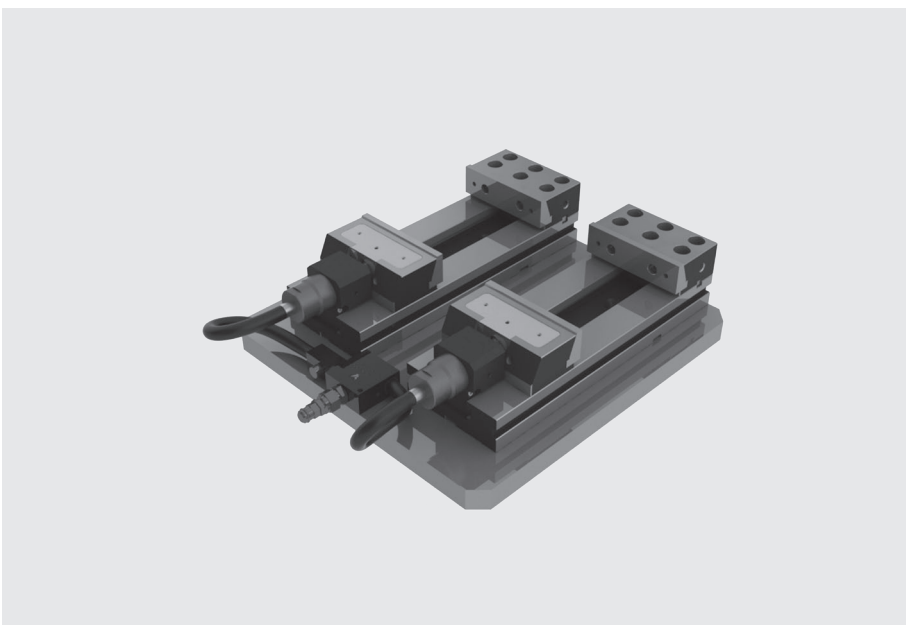


Code	CA (N)	M (Nm)	MF (Nm)	MT (Nm)
30 10 10 37	2200	100	55	55
30 10 10 38	6000	105	80	70
30 10 10 39	10000	110	90	90
30 10 10 40	12000	125	110	110
30 10 10 41	15000	160	150	150
30 10 10 42	20000	300	220	220



SET TC HYDRO - DUO

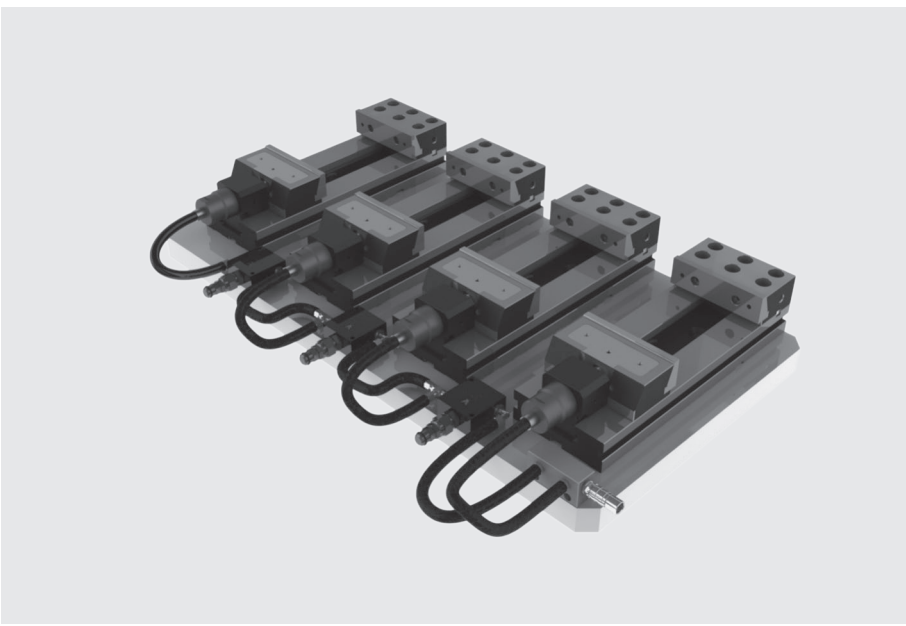
Modular clamping equipment with hydraulic clamping unit with: SUBPLATE, 2 TC VISES, SEQUENCE VALVES, CONNECTING PIPES and MANIFOLD.



Code	Type
33 58 02 27	TC H DUO 150x200
33 58 02 28	TC H DUO 150x250
33 58 02 29	TC H DUO 150x300

SET TC HYDRO - TETRA

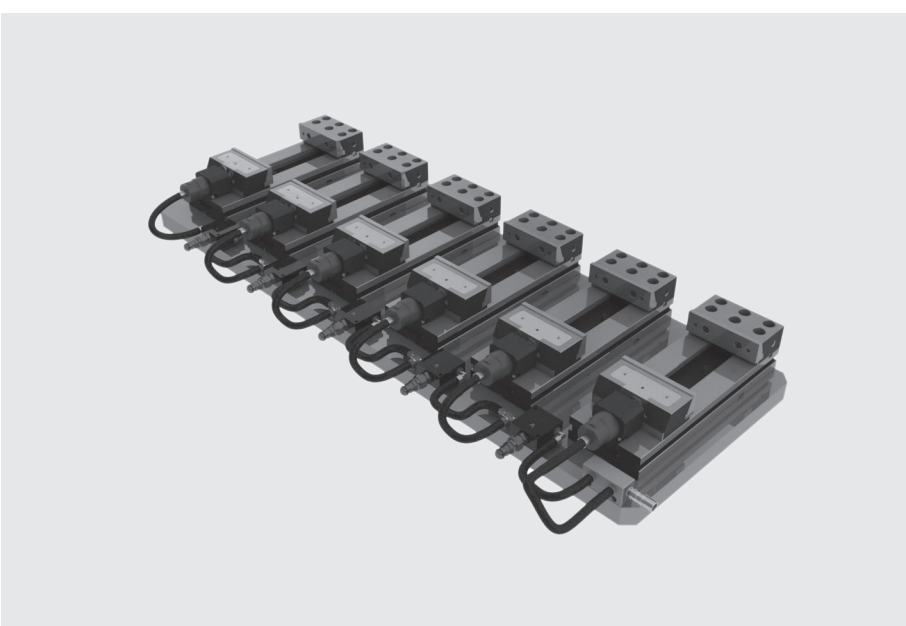
Modular clamping equipment with hydraulic clamping unit with: SUBPLATE, 4 TC VISES, SEQUENCE VALVES, CONNECTING PIPES and MANIFOLD.



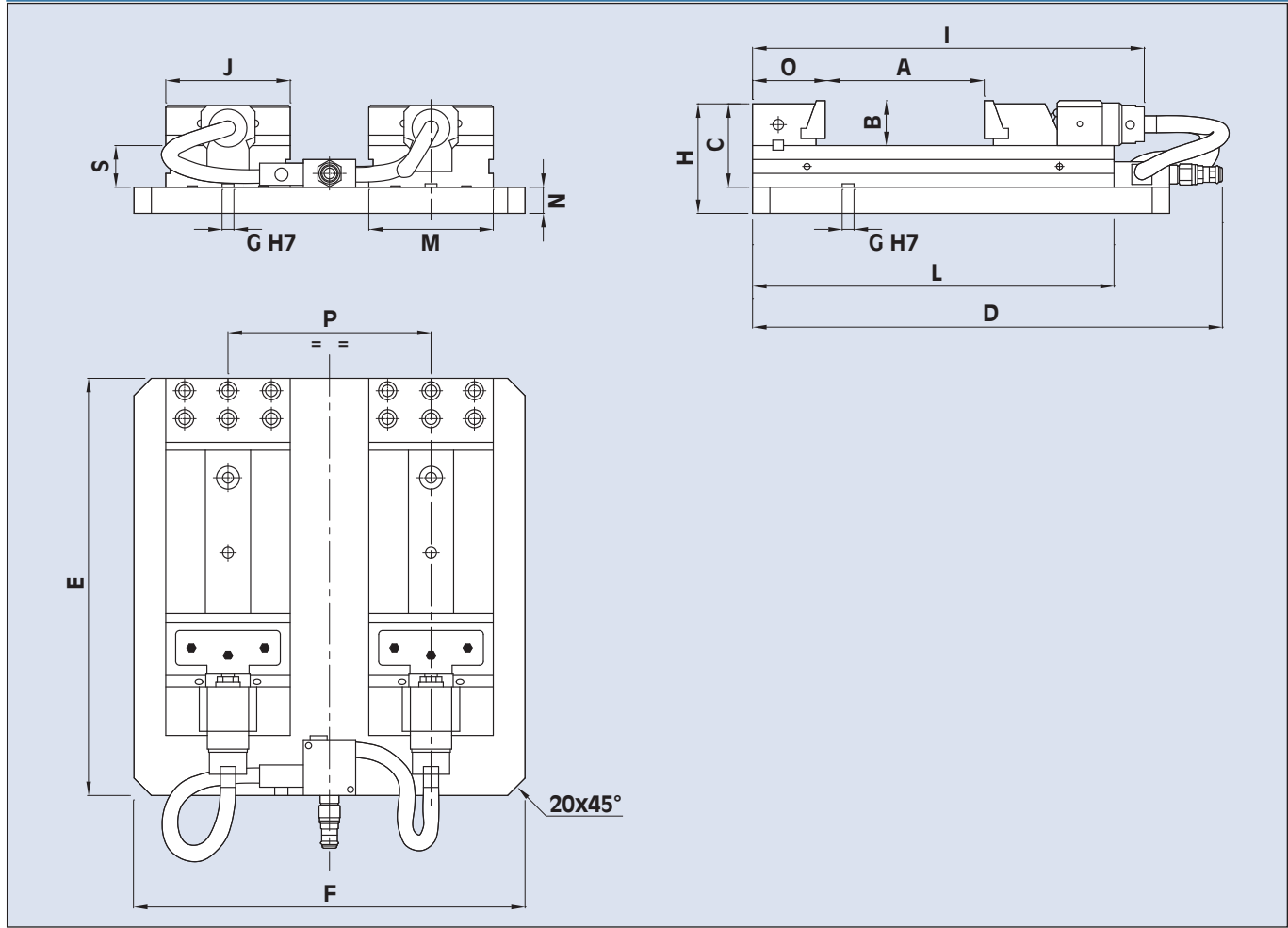
Code	type
33 58 02 47	TC H TETRA 150x200
33 58 02 48	TC H TETRA 150x250
33 58 02 49	TC H TETRA 150x300

SET TC HYDRO - ESA

Modular clamping equipment with hydraulic clamping unit with: SUBPLATE, 6 TC VISES, SEQUENCE VALVES, CONNECTING PIPES and MANIFOLD.



Code	Type
33 58 02 67	TC H ESA 150x200
33 58 02 68	TC H ESA 150x250
33 58 02 69	TC H ESA 150x300



Code	type	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	L mm	M mm	N mm	O mm	P mm	S mm	weight kg
33 58 02 27	TC H DUO 150x200	200	50	98	550	480	450	18	128	481	150	413	150	30	85	230	48	108
33 58 02 28	TC H DUO 150x250	250	50	98	600	530	450	18	128	531	150	463	150	30	85	230	48	118
33 58 02 29	TC H DUO 150x300	300	50	98	650	580	450	18	128	588	150	520	150	30	85	230	48	128
33 58 02 47	TC H TETRA 150x200	200	50	98	550	480	900	18	138	481	150	413	150	40	85	230	48	249
33 58 02 48	TC H TETRA 150x250	250	50	98	600	530	900	18	138	531	150	463	150	40	85	230	48	271
33 58 02 49	TC H TETRA 150x300	300	50	98	650	580	900	18	138	588	150	520	150	40	85	230	48	295
33 58 02 67	TC H ESA 150x200	200	50	98	550	480	1370	18	138	481	150	413	150	40	85	230	48	378
33 58 02 68	TC H ESA 150x250	250	50	98	600	530	1370	18	138	531	150	463	150	40	85	230	48	411
33 58 02 69	TC H ESA 150x300	300	50	98	650	580	1370	18	138	588	150	520	150	40	85	230	48	448



Air/oil foot pump

Code

71 66 03 05



Air/oil manual pump

Code

71 66 03 15

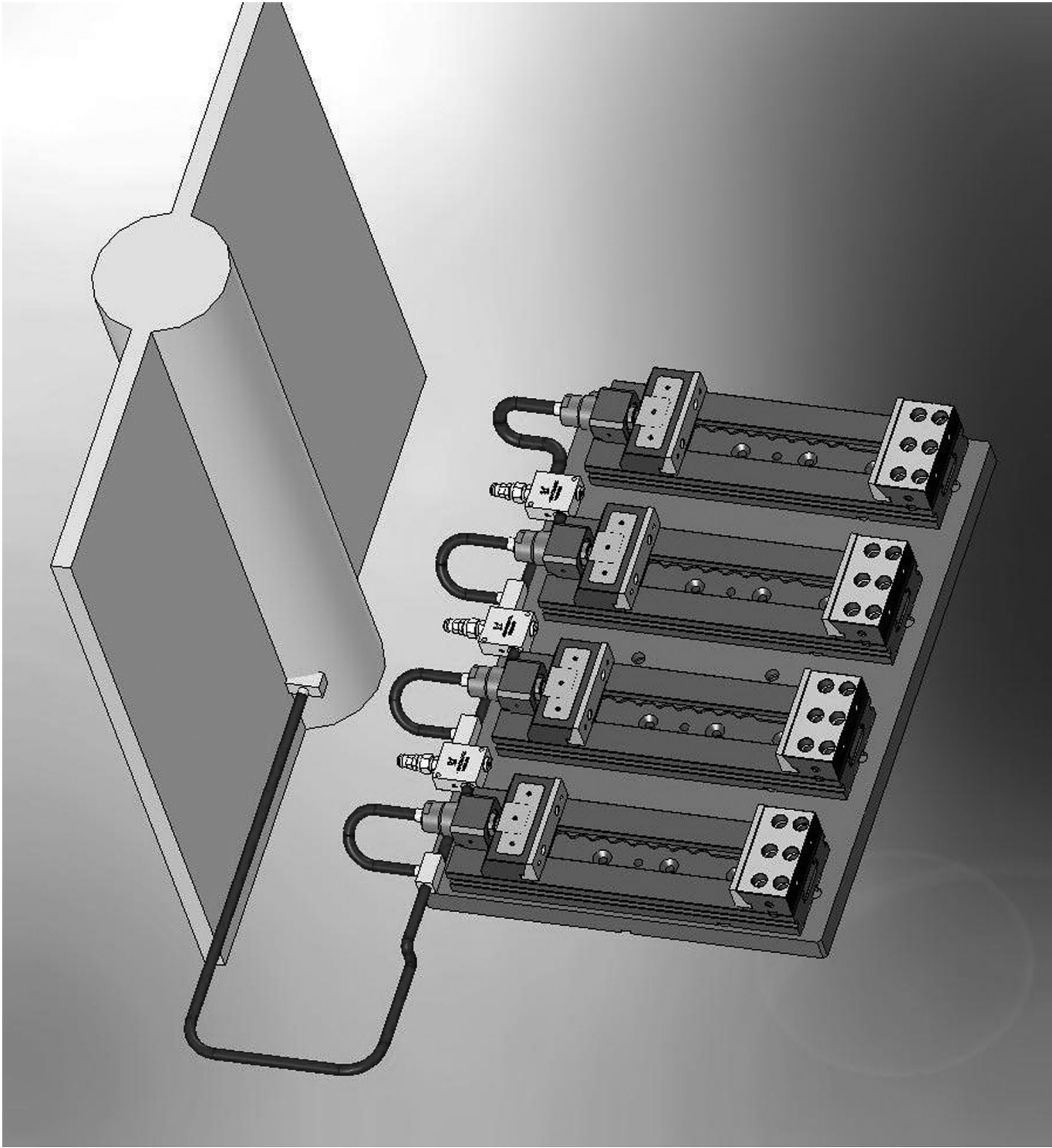


Pressure - gauge

Code

51 43 12 51

Working example





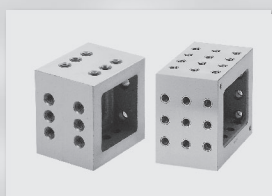
FAST-CLAMPS

pag. 14. 4



Work locators

pag. 14. 36



Risers + V blocks

pag. 14. 40



Centering pin

pag. 14. 47



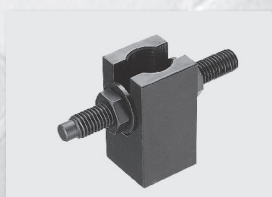
Side Clamps

pag. 14. 48



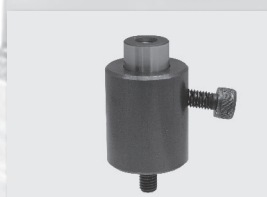
Hook Clamps

pag. 14. 67



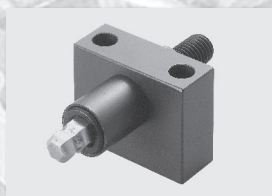
Adjustable stops

pag. 14. 71



Work supports

pag. 14. 75



Remote control units

pag. 14. 82



Contact bolts

pag. 14. 84



Clamp screws

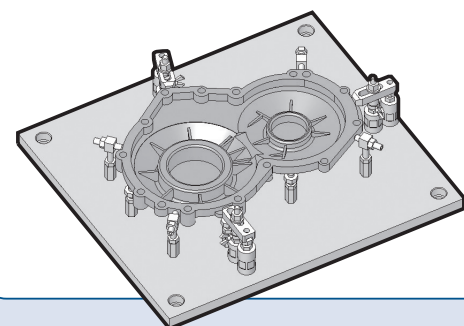
pag. 14. 86

On our website: www.omlspa.it
are available the drawings (format: dxf; dwg; igs; step; solid works)
of these products.

Fast Clamps

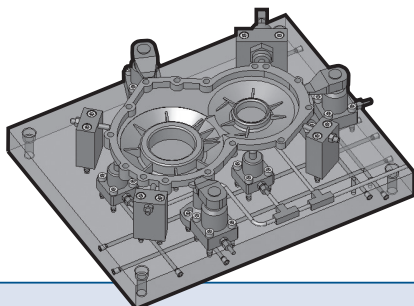
Speedier In Setup
Than Conventional
Manual Clamping

No tools needed

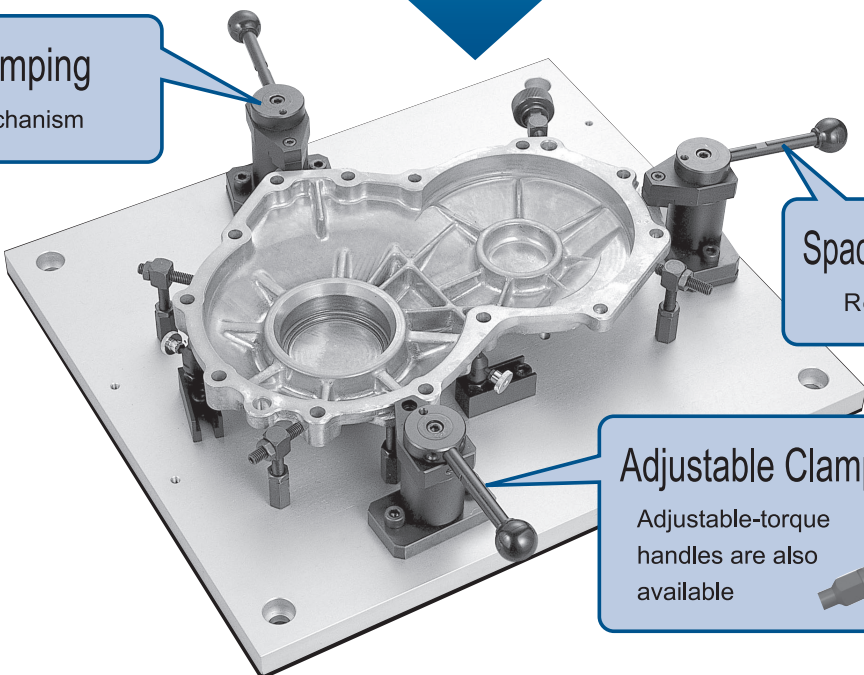


More Economical
Than Hydraulic
Clamping

Much lower fixture costs
Maintenance free



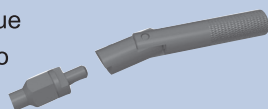
Positive Clamping
Spiral cam mechanism



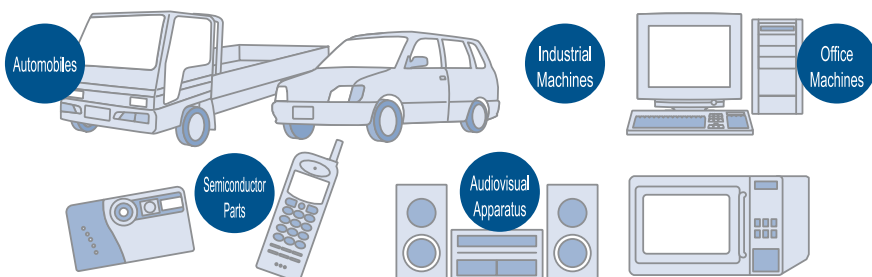
Space-Saving Design
Removable handle

Adjustable Clamping Force

Adjustable-torque
handles are also
available



Fast Clamps serve for varied applications in machining
and assembly jobs in different industries.



Added Product Items Offer
A Wider Range Of Applications

Stronger Clamping Force
Clamping-Height Adjustment
Greater Performance

Clamping Force



Pull Clamps
Heavy

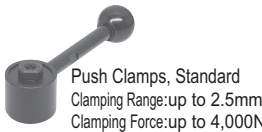
Clamping Range: up to 2.5mm
Clamping Force: up to 8,000N

Swing Clamps
Heavy

Clamping Range: up to 1.6mm
Clamping Force: up to 6,000N



Side Clamps, Standard
Clamping Range: 2mm
Clamping Force: up to 4,000N



Push Clamps, Standard
Clamping Range: up to 2.5mm
Clamping Force: up to 4,000N

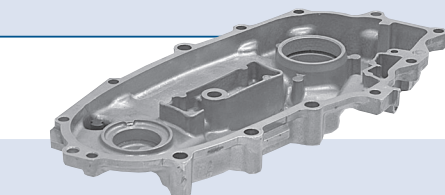


Pull Clamps, Standard
Clamping Range: up to 2mm
Clamping Force: up to 2,500N

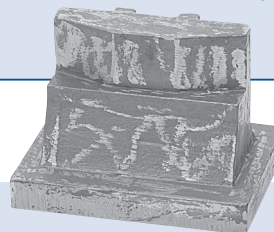


Swing Clamps, Standard
Clamping Range: up to 1.8mm
Clamping Force: up to 1,200N

Clamping-Height Adjustment



Die-Cast Parts



Cast-Iron Parts

This extended line of Fast Clamps allows clamping parts made
from materials ranging from non-ferrous metals like aluminum, zinc, etc.
to cast iron and steel.

Setting a clamping force is important when
clamping a part that can easily get strained.

To compensate for variations between castings, a long clamping height
range is needed. Clamping force is also an important factor for castings
that receive a comparatively heavy load when being machined.



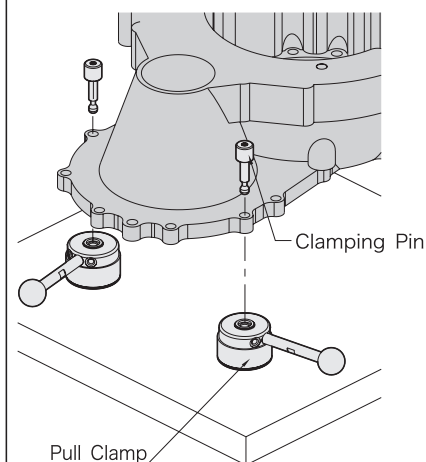
With Handle Without Handle
Note) Clamping Pins or Screws must be ordered separately.

[Body & Cam]
Material: SCM440 steel
Finish : Black oxide
Heat Treat: Quenched
and tempered

[Handle]
Material: S45C steel
Finish : Black oxide

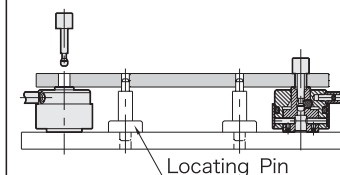
[Ball Knob]
Material: ABS resin
Color : Black

How To Use

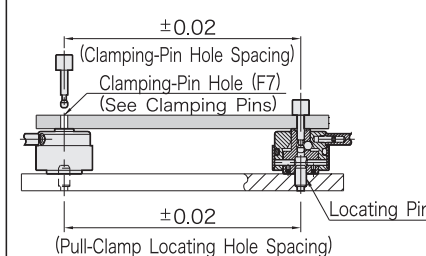


How To Locate Workpiece

1. Basic Method

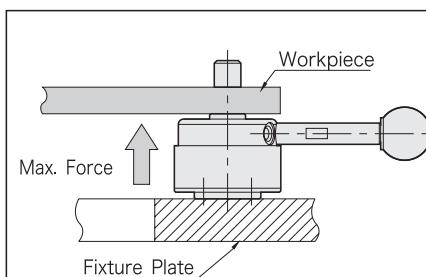


2. Method for clamping and locating a workpiece at a time
Give an accuracy shown below to the hole spacing to generate a locating accuracy of ± 0.08 .



Technical Information

Allowable Loads in Machining of Workpiece Bottom
Ensure that a force more than indicated below is not applied to the workpiece bottom.



Note : See page 151 and 154 for performance curves.

Series	A (± 0.01)	B	C	D (P.C.D)	E	F	G	H	K	M (F7)
QLPD150	32	40	13.5	18	24.5	M4x0.7 8 deep	M5x0.8	90°	1.5	5
QLPD200	40	50	18	25	30.7	M6x1 9 deep	M6x1	110°	2	8

Series	N (G6)	P	Clamping Force (N)	Clamping Mechanism	Recommended Workpiece Thickness Tolerance **)
QLPD150	8	10	900	Spiral Cam	± 0.3
QLPD200	12	13	2500	Cam Angle: 4°	± 0.5

With Handle

Part Number	J	L	Allowable Operating Load (N) ***)	Weight (g)
51991101	76.5	20	150	245
51991102	111.5	25	200	470

Without Handle

Part Number	Weight (g)
51991103	220
51991104	420

*) Grip length of Clamping Pin(workpiece thickness)

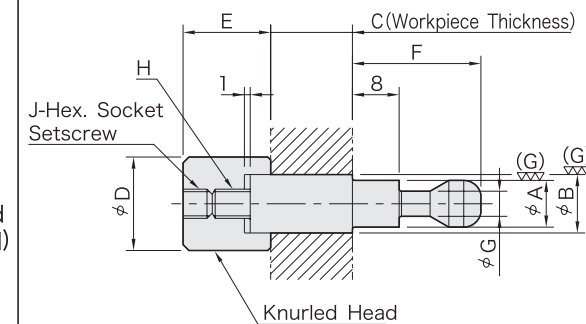
**) Maintaining these recommended tolerances allows minimizing the variation of handle position in the clamping mode in clamping with the use of the Clamping Pin.

***)) Allowable load to operate the handle.



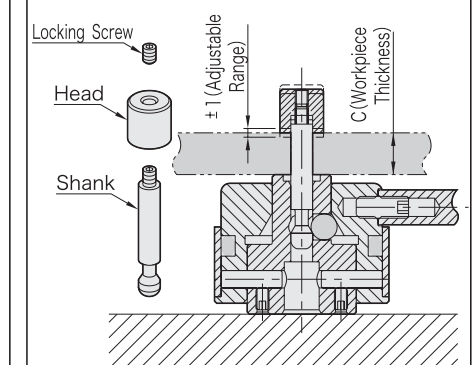
[Shank]
Material: SCM435 steel
Finish : Precision ground
Heat Treated(shank end)

[Head]
Material: S45C steel
Finish : Black oxide
Heat Treat: Quenched
and tempered



C dimension is adjustable by ± 1 mm to fit actual workpiece thickness.

How To Use



Ordering Example

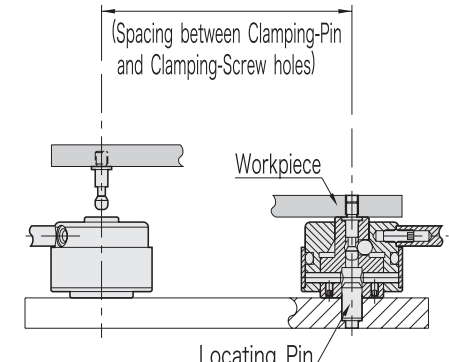
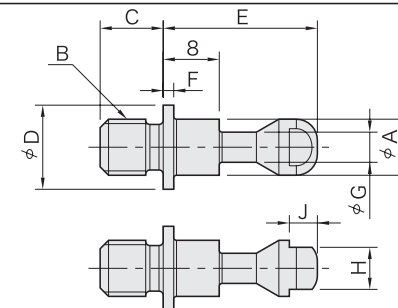
QLPD150-5x5-10.5

Shank Size C Dim.

• Custom Clamping Pins(different B dimensions) are available on request.



Material: SCM435 steel
Finish : Black oxide
Heat Treat: Quenched
and tempered



Part Number	A	B	C	D	E	F	G	H	J	Pull Clamps	Weight (g)
51991109	5	M 5x0.8	6	8	17	1.2	3	4	2.5	QLPD150 Series	3
51991110		M 6x1	7								4
51991111	8	M 8x1.25	9	12	22	1.5	4.3	6	4	QLPD200 Series	10
51991112		M10x1.5	11								13

Recommended Spacing Tolerance in Use of Clamping Screws

Custom Clamping Screws (different screw thread sizes) are available on request.

NEW

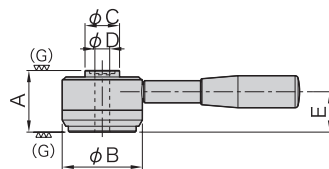
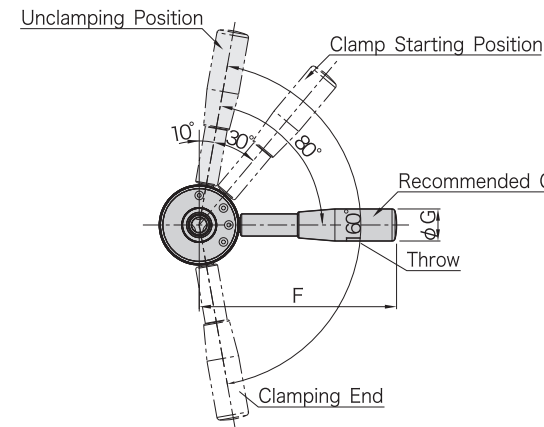


[Body & Clamp Ring]
Material:SCM440 steel
Finish :Black oxide
Heat Treat:Quenched and tempered

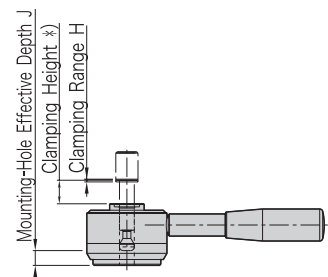
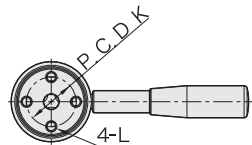
[Handle Shank]
Material:S45C steel
Finish :Black oxide
Heat Treat:Quenched and tempered

[Handle]
Material:Plastic
Color :Black

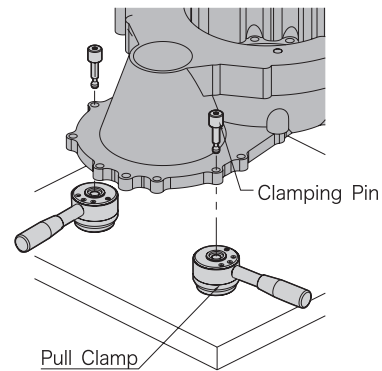
Note) Clamping Pins or Screws must be ordered separately.



The handle can be removed by loosening the locking screw.
To keep the handle mounted permanently, make sure that the locking screw is fully tightened.
3 options of handle mounting position.

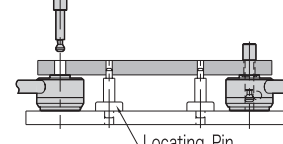


How To Use



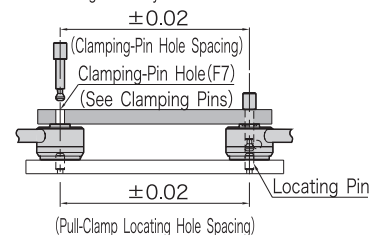
How To Locate Workpiece

1. Basic method



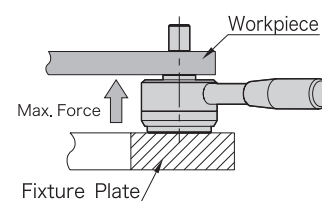
2. Method for clamping and locating a workpiece at a time.

Give an accuracy shown below to the hole spacing to generate a locating accuracy of ± 0.08 .

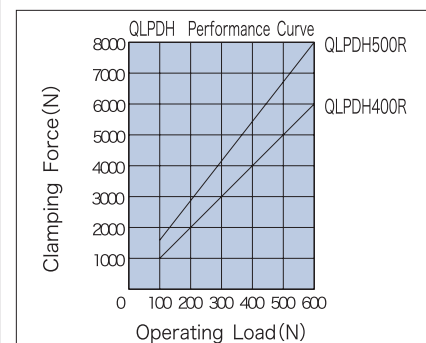


Technical Information

Allowable Loads in Machining of Workpiece Bottom



Part Number	Allowable Force To Workpiece Bottom (Per Clamp)
51991501	max. 8000N
51991502	max. 14000N



Part number	Series	A (±0.01)	B	C	D (F7)	E	F	G	H	J	K (P, C, D)
51991501	QLPDH 400 R	50	65	28	12	36	160	26	2	10	40
51991502	QLPDH 500 R	63	80	34	16	45	180	28	2.5	12	50

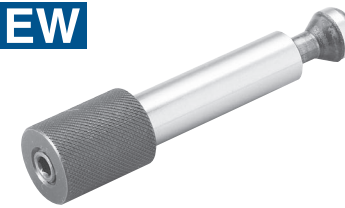
Part number	Series	L	Allowable Operating Load (N) **)	Clamping Force (N)	Clamping Mechanism	Recommended Workpiece Thickness Tolerance ***)	Weight (kg)
51991501	QLPDH 400 R	M 8x1.25 14 deep	600	6,000	Spiral Cam	±0.5	1.2
51991502	QLPDH 500 R	M 10x1.5 18 deep	600	8,000	Cam Angle : 4°	±0.8	2.2

*) Grip length of Clamping Pin (workpiece thickness)

**) Allowable load to operate the handle

***) Maintaining these recommended tolerances allows minimizing the variation of handle position in the clamping mode in clamping with the use of the Clamping Pin.

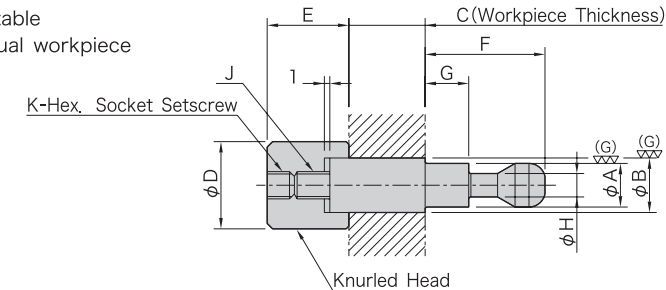
NEW



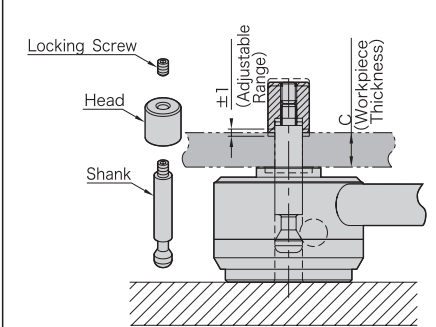
[Shank]
Material:SCM435 steel
Finish :Precision ground, heat treated (shank end)

[Head]
Material:S45C steel
Finish :Black oxide
Heat Treat:Quenched and tempered

C dimension is adjustable by ± 1 mm to fit actual workpiece thickness.



How To Use



Ordering Example

QLPDH400-12-20.5
Part Number C.Dim.

*Custom Clamping Pins (different B dimensions) are available on request.

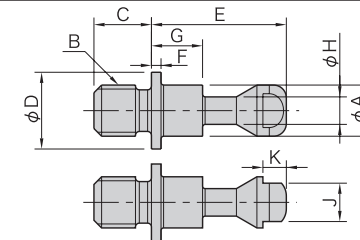
Part Number	A (F7)	B (F7)	C *) (By 0.1mm)	D	E	F	G	H	J	K	Pull Clamps	Weight (g)
51991503-C Dim. In mm)	12	12	0 < C ≤ 100	18	23	38	21.5	6.5	M 8x1.25	M 8x1.25-8L	QLPDH400R	70 to 160
51991504-C Dim. In mm)	16	16	0 < C ≤ 120	24	29	48	28	9.5	M 10x1.5	M 10x1.5-10L	QLPDH500R	175 to 265
51991505-C Dim. In mm)	16	16	0 < C ≤ 120	24	29	48	28	9.5	M 10x1.5	M 10x1.5-10L	QLPDH500R	160 to 350
51991506-C Dim. In mm)	20	20	0 < C ≤ 120	30	35	58	35	11.5	M 12x1.5	M 12x1.5-12L	QLPDH500R	325 to 515

*) For ordering, specify workpiece thickness.

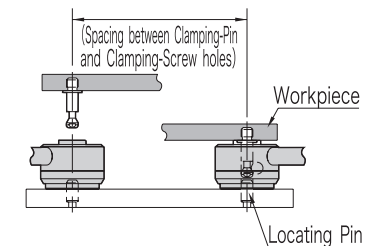
NEW



Material:SCM435
Finish :Black oxide
Heat Treat:Quenched and tempered



Recommended Spacing Tolerance in Use of Clamping Screws



Custom Clamping Screws (different screw thread sizes) are available on request.

Part Number	A	B	C	D	E	F	G	H	J	K	Pull Clamps	Weight (g)
51991507	12	M12x1.75	13	20	38	2	21.5	6.5	10	4	QLPDH400R	40
51991508	12	M16x2	17	20	38	2	21.5	6.5	10	4	QLPDH400R	55
51991509	16	M16x2	17	25	48	2.5	28	9.5	13	5	QLPDH500R	90
51991510	16	M20x2.5	21	25	48	2.5	28	9.5	13	5	QLPDH500R	110



With Handle

Without Handle

[Body & Shaft]
Material: SCM440 steel
Finish : Black oxide
Heat Treat: Quenched and tempered

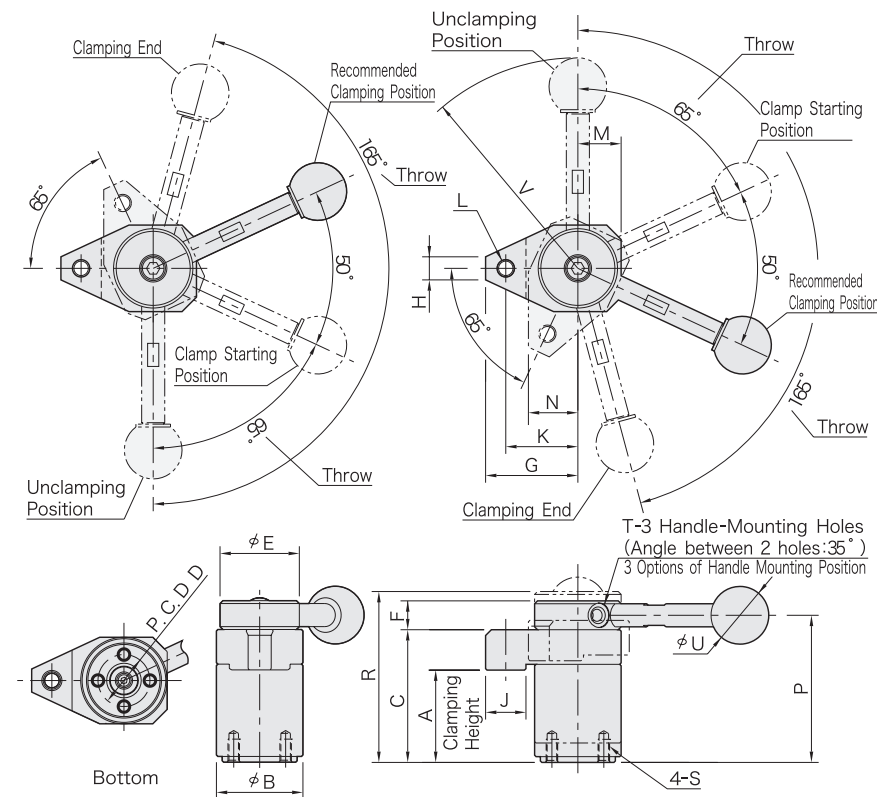
[Clamp Arm & Adaptor Head]
Material: S45C steel
Finish : Black oxide
Heat Treat: Quenched and tempered

[Handle]
Material: S45C steel
Finish : Black oxide

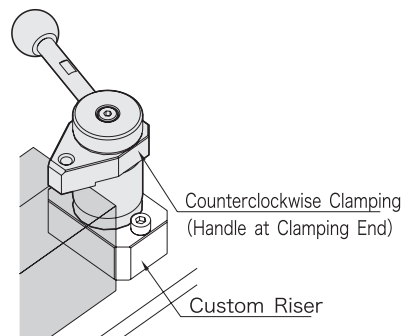
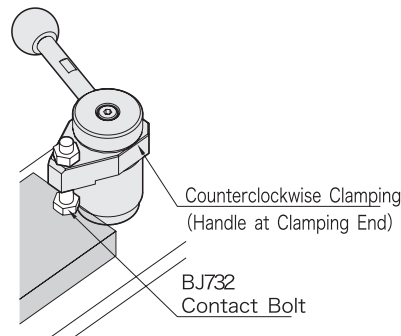
[Ball Knob]
Material: ABS resin
Color : Black

Counterclockwise Clamping

Clockwise Clamping

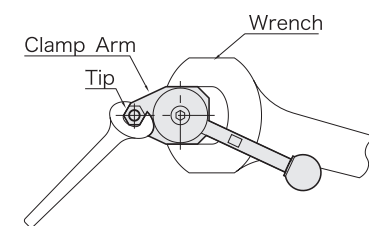


How To Use



Tip Installation

When installing a tip on the clamp arm, lock the clamp arm using a wrench to prevent the clamp from receiving any torque.



Size/Type	Clamping Direction	A	B	C	D (P, C, D)	E	F	G	H	J	K	L
QLSW150R	Clockwise	32*)	30	46	18	30	10	32	8	14	25	M6x1
QLSW150L	Counterclockwise											
QLSW200R	Clockwise	45**)	40	63	25	38	13	40	12	16	32	M8x1.25
QLSW200L	Counterclockwise											

*) Actual clamping height : 31.4 to 32.6 (clamping range :1,2)

**) Actual clamping height : 44.1 to 45.9 (clamping range :1,8)

Size/Type	M	N	P	R	S	T	Clamping Force (N)	Clamping Mechanism
QLSW150R	15	17	51	57.5	M4x0.7 8 deep	M5x0.8	800	Spiral Cam Cam Angle:4°
QLSW150L								
QLSW200R	20	22.5	69.5	78.1	M6x1 12 deep	M6x1	1200	
QLSW200L								

With Handle

Part Number	U	V	Allowable Operating Load (N) ***)	Weight (g)
51991115	20	73	150	320
51991117				
51991116				
51991118	25	107	200	710

*** Allowable load to operate the handle

Without Handle

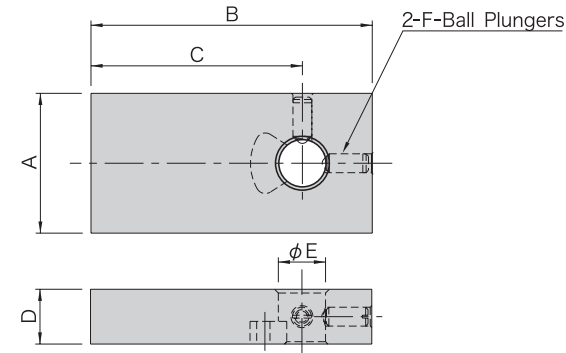
Part Number	Weight (g)
51991119	295
51991121	
51991120	660
51991122	

Note : The handle must be ordered separately.

NEW

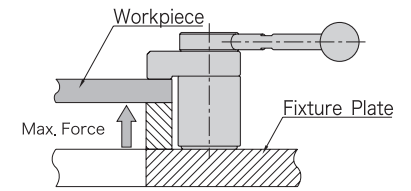


Material: S45C steel
Finish : Black oxide



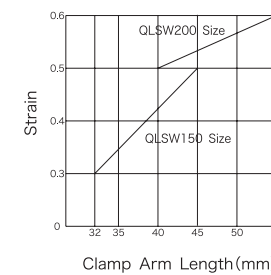
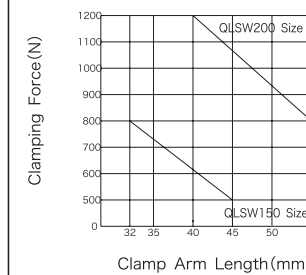
Technical Information

Allowable Loads in Machining of Workpiece Bottom



Series	Allowable Force To Workpiece Bottom (Per Clamp)
QLSW150	max.2100N
QLSW200	max.2700N

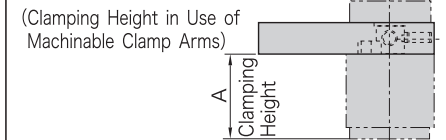
Clamp Arm Length Vs. Clamping Force Clamp Arm Length Vs. Strain During Clamping



Notes :
• Clamp arm length denotes C dimensions below.
• Clamping force and strain during clamping denote values gained when the max. allowable load is applied to the handle.

How To Use

- Use for clamp arm customization
- Machine to your clamping requirements



Part Number	A	B	C	D	E (F8)	F	Allowable Weight of Clamping Tip*) (g)	Swing Clamps	Weight (g)
51991513	30	60	45	12	10	M4	100	QLSW150Series	150
51991514	40	75	55	16	16	M5		QLSW200Series	330

*) A clamping tip to mount on the end of the clamp arm must not weigh over 100g.

Part Number	A
51991113	34**)
51991114	47***)

**) Actual clamping height:33,4 to 34,6 (clamping range:1,2)

*** Actual clamping height:46,1 to 47,9 (clamping range:1,8)

NEW



[Body/Cam/Handle]
Material: SCM440 steel
Finish :Black oxide
Heat Treat: Quenched and tempered

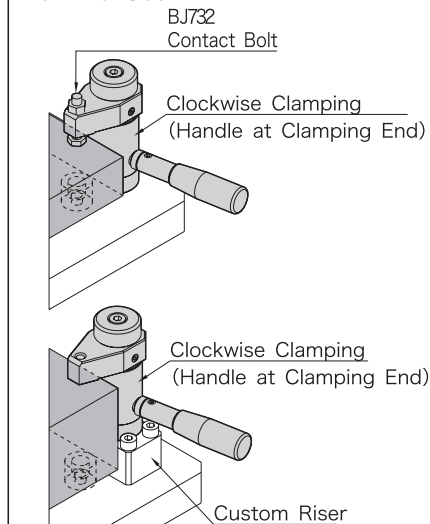
[Bolt]
Material: SCM435 steel
Finish :Black oxide
Heat Treat: Quenched and tempered

[Clamp Arm/Holder/Handle Shank]
Material: S45C steel
Finish :Black oxide
Heat Treat: Quenched and tempered

[Adjustment Knob]
Material: S45C steel
Finish :Black oxide

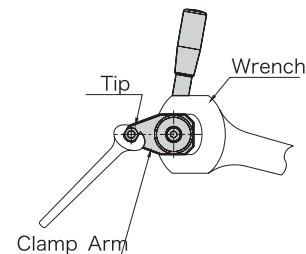
[Handle]
Material: Plastic
Color :Black

How To Use



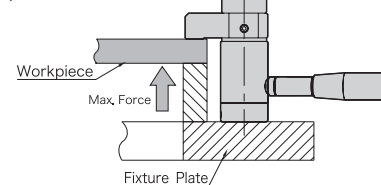
Tip Installation

When installing a tip on the clamp arm, lock the clamp arm using a wrench to prevent the clamp from receiving any torque.

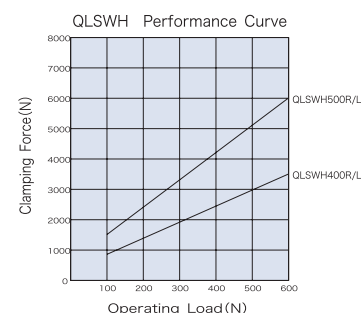


Technical Information

Allowable Loads in Machining of Workpiece Bottom

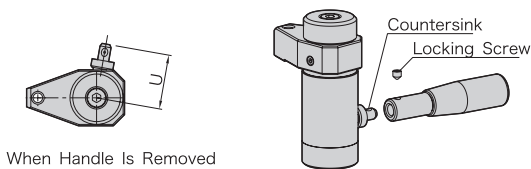
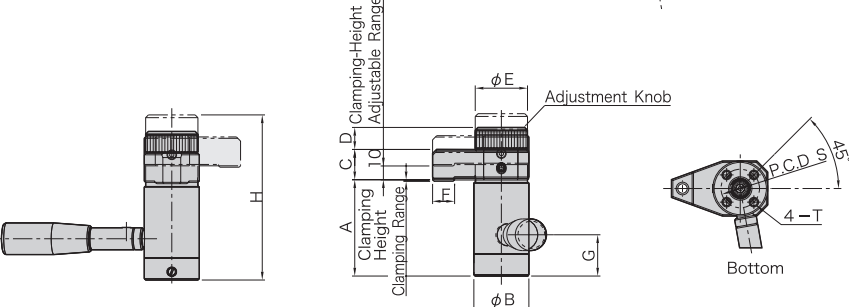
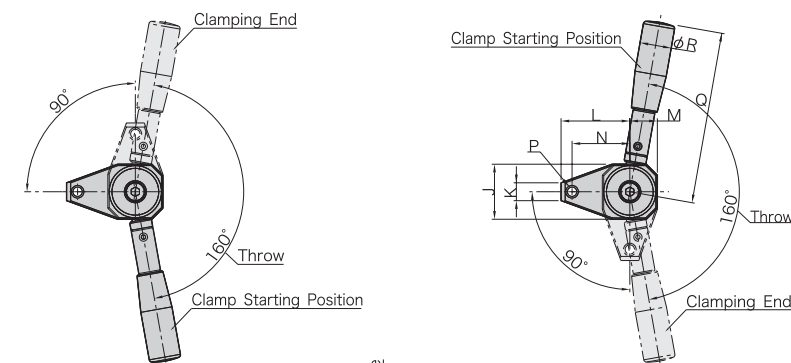


Series	Allowable Force To Workpiece Bottom (Per Clamp)
QLSWH400	max. 8000N
QLSWH500	max.14000N



Counterclockwise Clamping

Clockwise Clamping

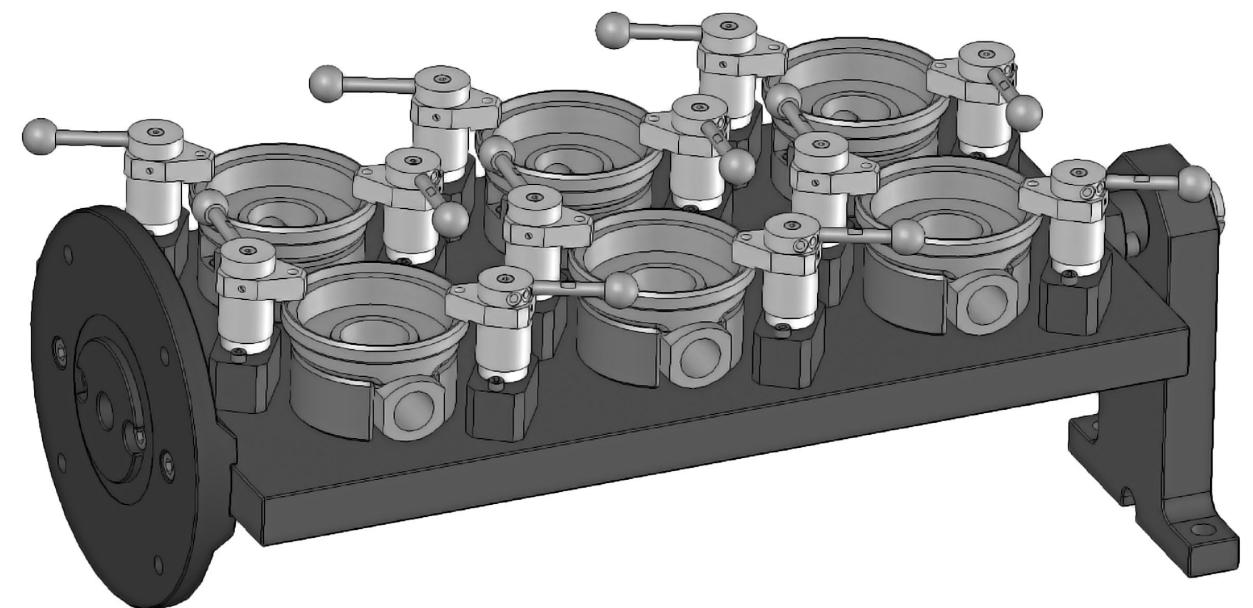
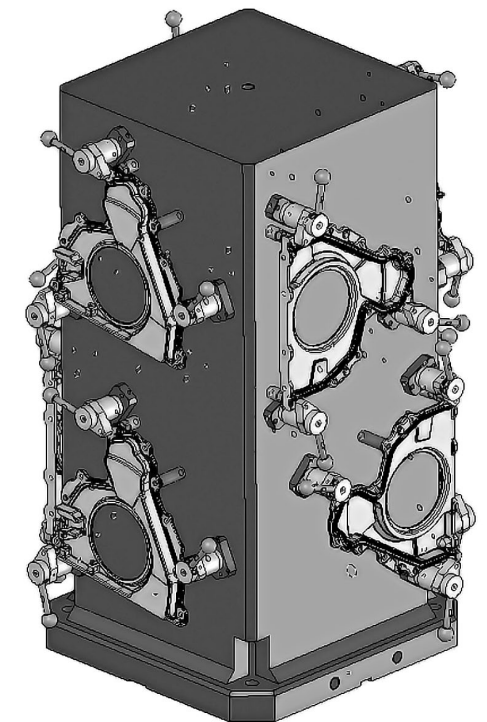
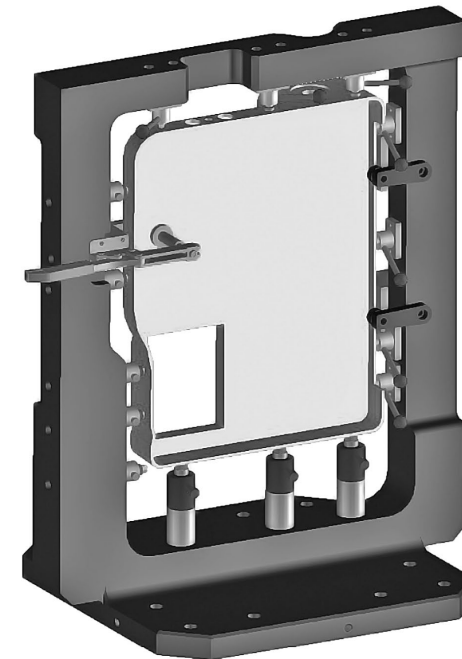


The handle can be removed by loosening the locking screw. To keep the handle mounted permanently, make sure that the locking screw is fully tightened. 3 options of handle mounting position.

Part Number	Clamping Direction	Clamping Range	Clamping Height	B	C	D	E	F	G	H	J	K	L	M
51991515	Clockwise	1.2	70 to 80	40	22	16	38	16	30	120	40	13	50	20
51991516	Counter-clockwise													
51991517	Clockwise	1.6	80 to 90	50	25	20	48	24	38	137	50	18	60	25
51991518	Counter-clockwise													

Part Number	N	P	Q	R	S (P, Q, D)	T	U	Allowable Operating Load (N)*	Clamping Force (N)	Clamping Mechanism	Weight (kg)
51991515	42	M 8x1.25	125	23	28	M6x1 12 deep	39	600	3,500	Spiral Cam	1.1
51991516										Cam Angle	
51991517	48	M12x1.75	160	28	35	M8x1.25 16 deep	47	600	6,000	2°	2
51991518											

*) Allowable load to operate the handle



Information on Your Making Custom Clamp Arms for Standard Size of Swing Clamps
Recommended Dimensions

Series	A (F8)	B	E	F	G	H	J	K	L(Max.) (*)	M	N
QLSW150	10	12	5	32	M4x0.7	11	1.5	30	45	15	C5
QLSW200	16	16	6	42	M5x0.8	15	2	40	55	20	C8

*) See page 138 clamping force vs. clamp-arm length

Clamp Arm Installation/Removal Instructions

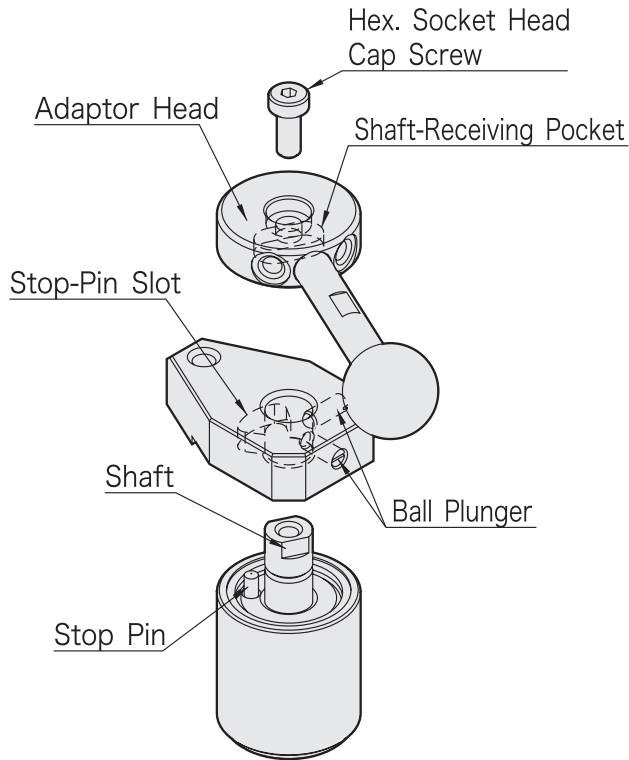
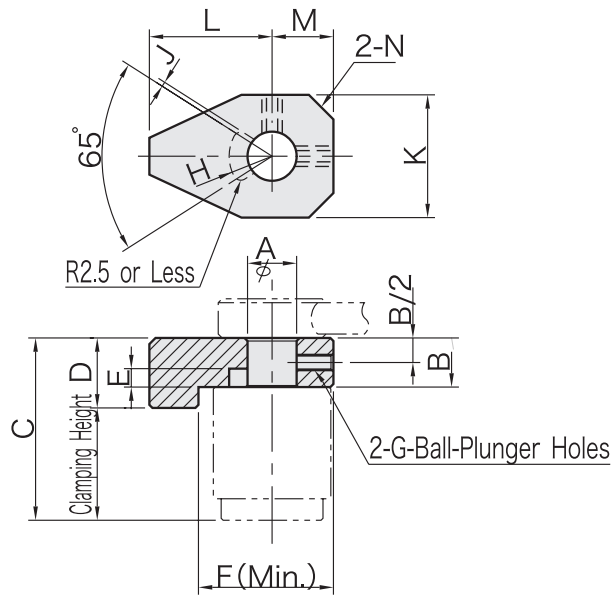
To install a clamp arm,

- 1.Fit it onto the shaft getting the stop pin received in the stop-pin slot provided on the clamp-arm bottom.
- 2.Place the adaptor head onto the shaft getting the shaft fitted into the shaft-receiving pocket in the adaptor head, and then lock the adaptor head using a hex. socket head cap screw.
- 3.Tighten the ball plungers inside the clamp arm.

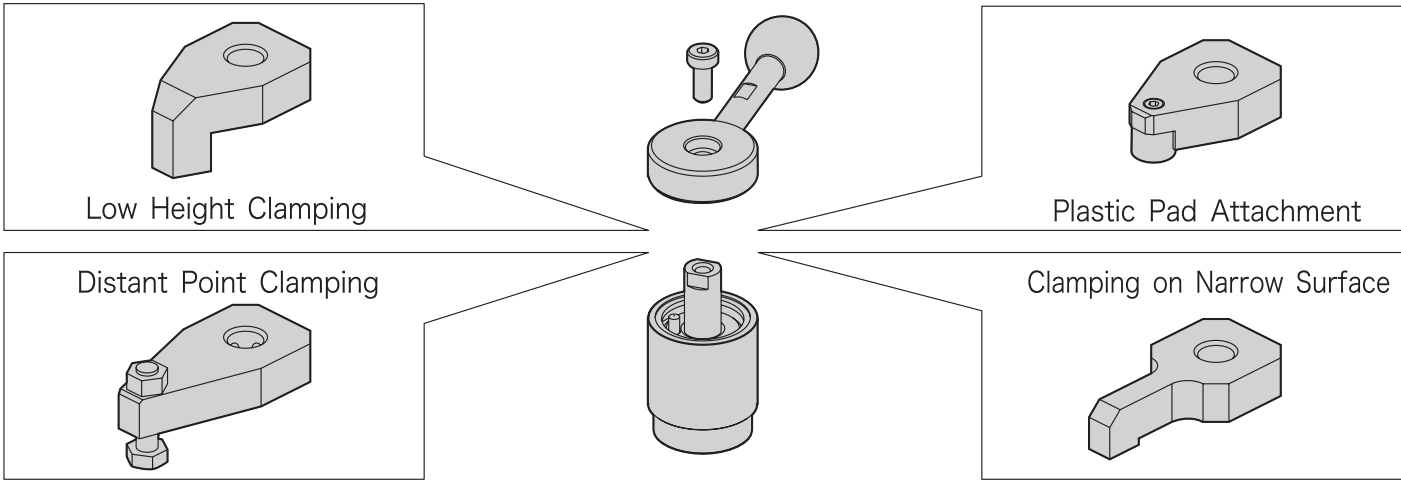
To remove the clamp arm, follow the above steps back.

How To Determine D Dimensions

Series	C	D
QLSW150	46	46 - Clamping Height
QLSW200	63	63 - Clamping Height



Clamp Arm Customization Examples



Information on Your Making Custom Clamp Arms for Heavy Size of Swing Clamps
Recommended Dimensions

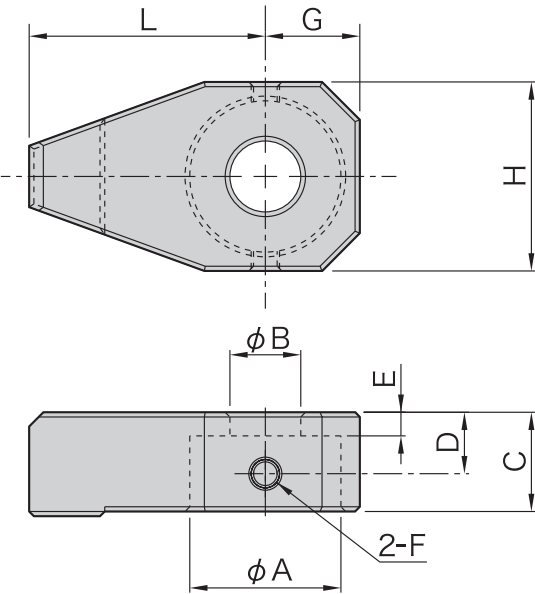
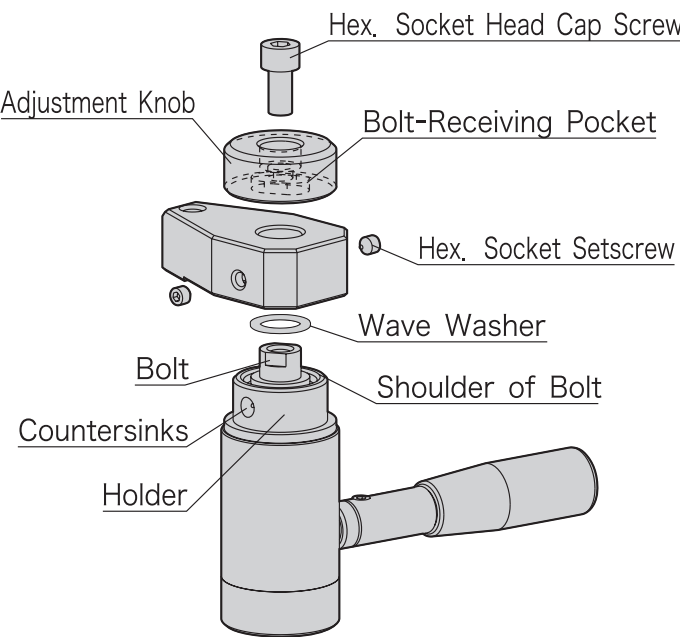
Series	A (F8)	B	C	D	E (±0.1)	F	G	H	L (Max.)
QLSWH400	32	15	21	13	5	M6x1	20	40	50
QLSWH500	41	19	24	15	6	M8x1.25	25	50	60

Clamp Arm Installation/Removal Instructions

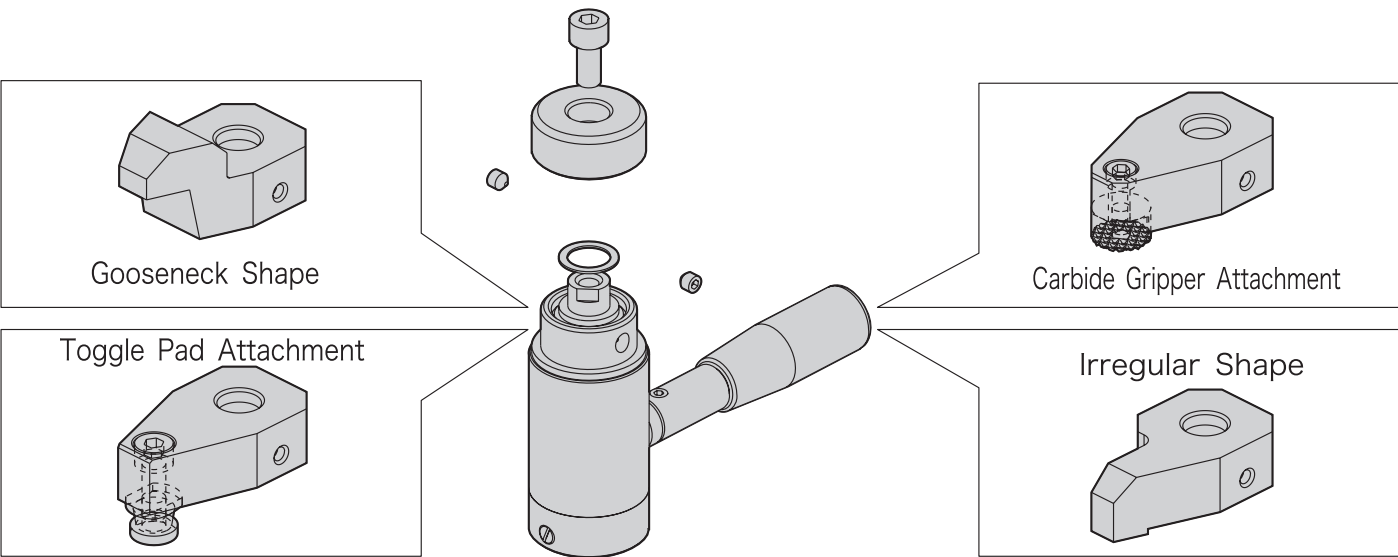
To install a clamp arm,

1. Place the wave washer on the shoulder of the bolt and then fit the clamp arm onto the bolt.
2. Place the adjustment knob onto the bolt getting the bolt fitted into the bolt-receiving pocket in the adjustment knob, and then lock the adjustment knob using a hex. socket head cap screw.
3. Align the countersinks on the side of the holder with the setscrew holes on the side of the clamp arm, and then lock them using the hex. socket setscrews.

To remove the clamp arm, follow the above steps back.

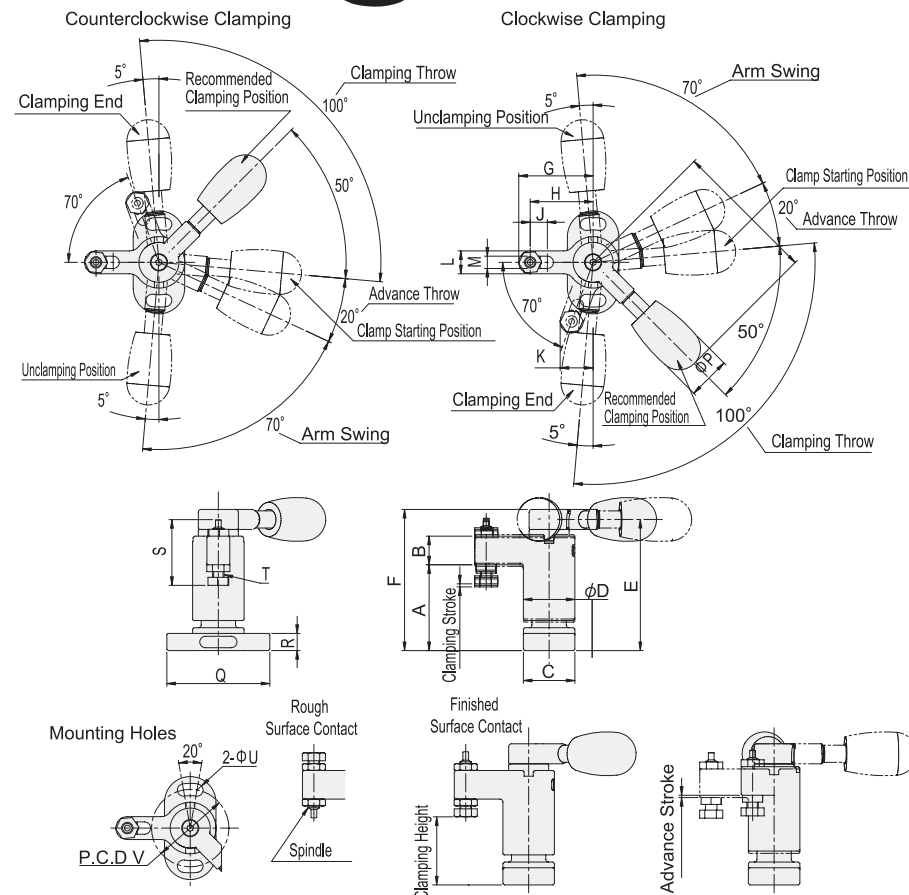


Clamp Arm Customization Examples





Body / Handle / Spindle	
Material	S45C steel
Finish	Black oxide
Heat treat	Quenched and tempered
Arm / Cam Shaft	
Material	SCM440 steel
Finish	Black oxide
Heat treat	Quenched and tempered
Knob	
Material	Phenolic plastic
Color	Black



Part Number	Clamping Direction	Clamping Height *)				Clamping Stroke	Advance Stroke
		Finished Surface Contact	Rough Surface Contact	Min.	Max.		
51991822	Clockwise	22.8	24.8	22.4	24.4	1	0.8
51991823	Counterclockwise	(22.3-23.3)	(24.3-25.3)	(21.9-22.9)	(23.9-24.9)		
51991824	Clockwise	31.3	33.3	32.2	33.3	1.4	1.1
51991825	Counterclockwise	(30.6-32)	(32.6-34)	(31.5-32.9)	(33.5-34.9)		

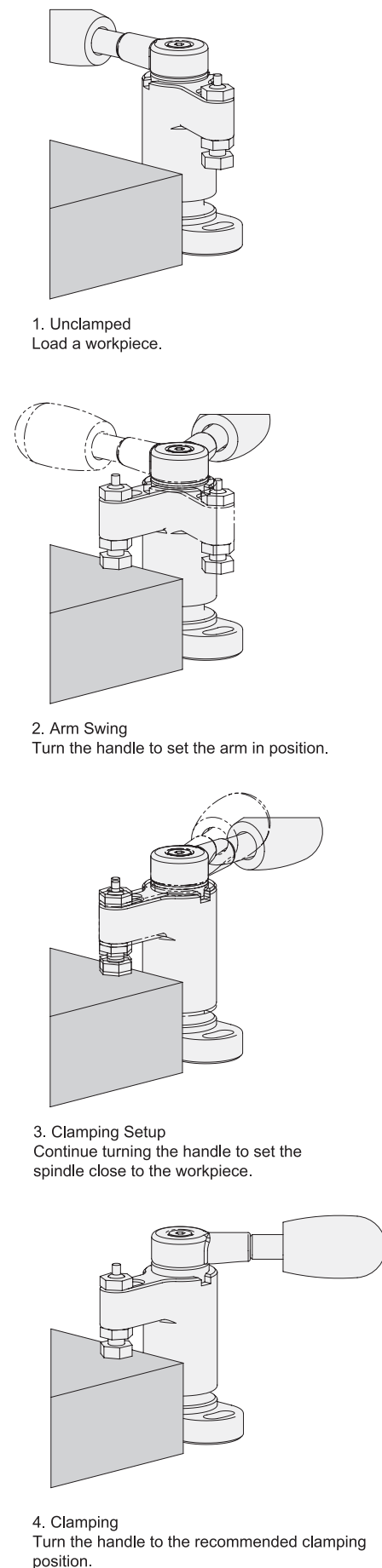
*) Clamping height can be adjusted. The parenthesised values denote actual clamping height.

Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
51991822	30	10	18	18	45.8	49	26	22	6	11.5	8	4.3	50	15	36
51991823															
51991824	40	14	23	23	61.3	66	35	30	8	15.3	10	5.3	63	20	45
51991825															

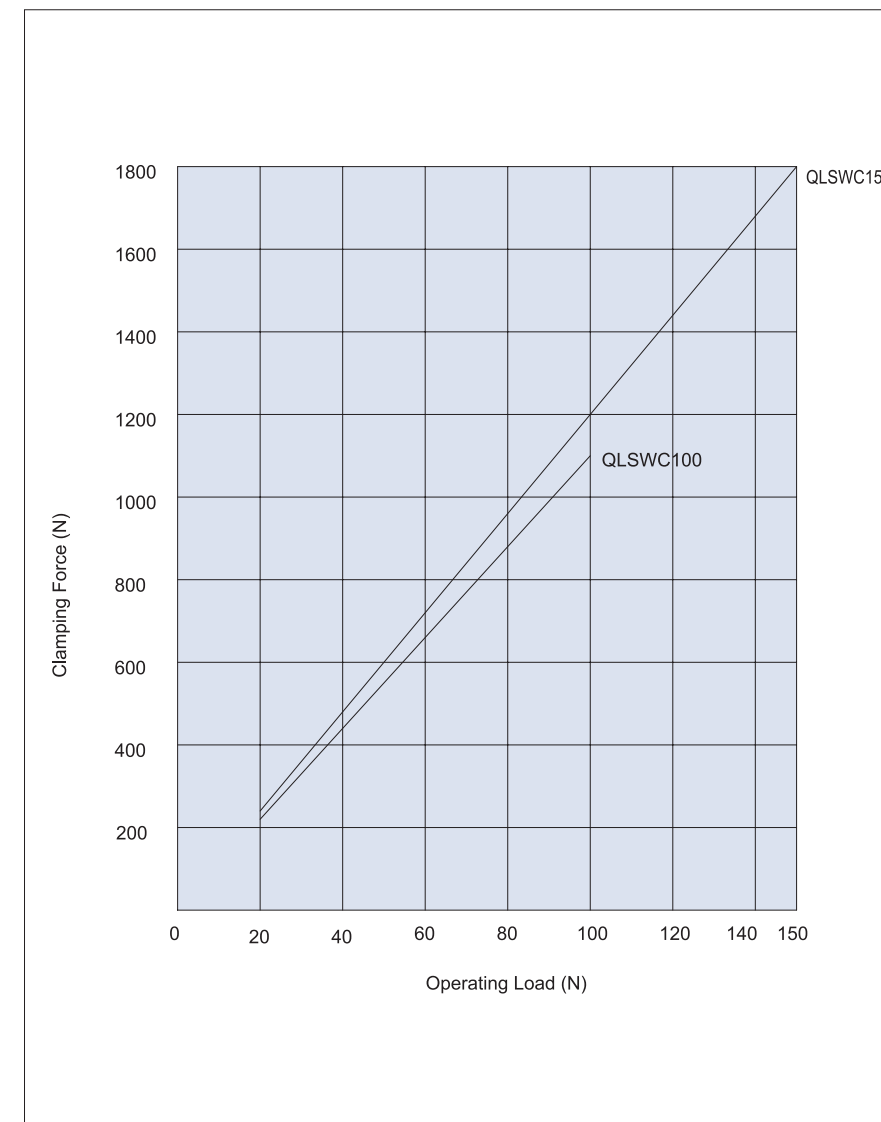
Part Number	R	S	T	U	V	W	Allowable Operating Load (N) **)	Clamping Force (N)	Clamping Mechanism	Weight (g)
51991822	6	22.8	M4×0.7	4.3	27	8	100	1,100	Spiral Cam Cam Angle:5°	112
51991823										
51991824	8	28.5	M5×0.8	5.3	34	10	150	1,800		250
51991825										

**) Allowable load to operate the handle

How To Operate



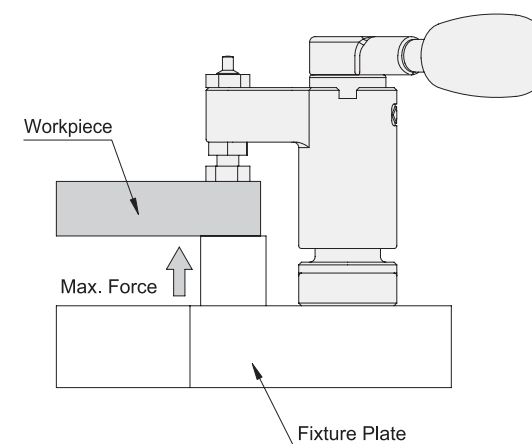
Performance Curve



Technical Information

Allowable Loads in Machining of Workpiece Bottom

Ensure that any force more than stated below is not applied.

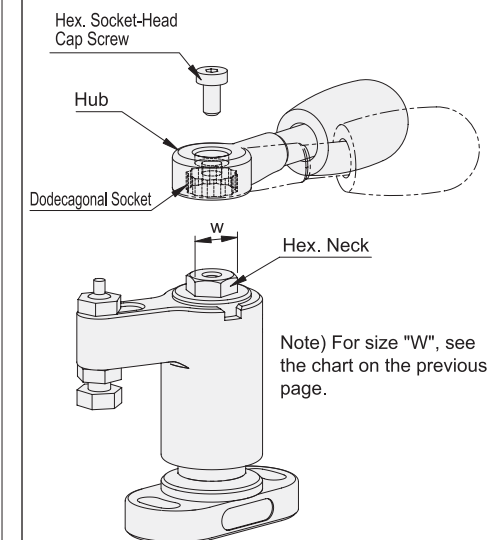


Series	Allowable Force to Workpiece Bottom (per Clamp)
QLSWC100	max.2,300N
QLSWC150	max.3,600N

How To Operate

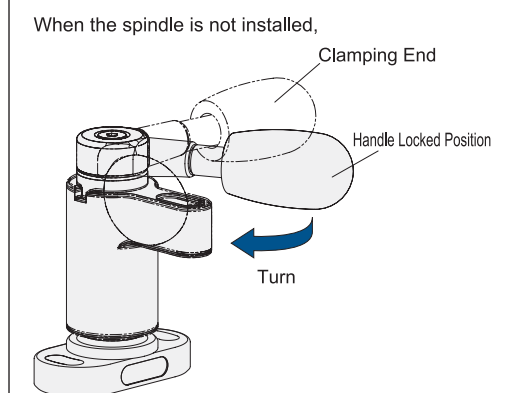
How To Change Handle Position

The dodecagonal socket in the hub of the handle allows changing the handle operating angle by 30°.

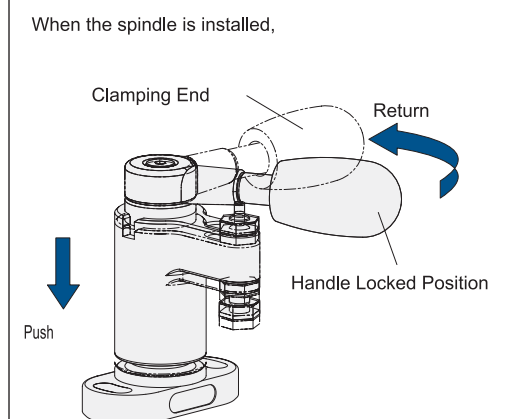


How To Release Locked Handle

When turned beyond the clamping end, the handle will be locked with a click. The locked handle can be released by following the instructions below.



Turn the handle beyond the locked position until another click is made.

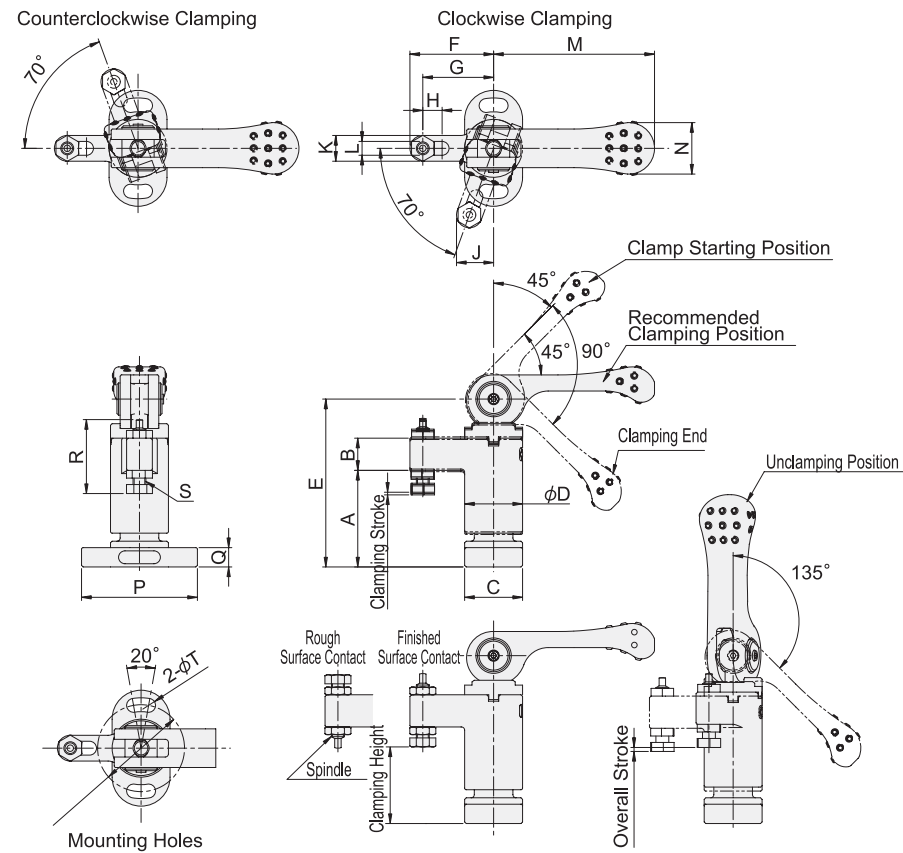


Lower the arm at the handle locked position and then return the handle keeping the arm lowered.

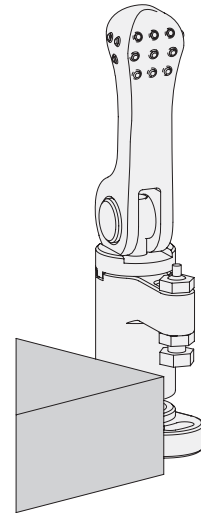
NEW



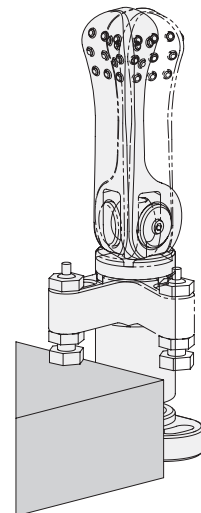
Body / Washer / Spindle	
Material	S45C steel
Finish	Black oxide
Heat treat	Quenched and tempered
Arm / Cam Shaft / Handle	
Material	SCM440 steel
Finish	Black oxide
Heat treat	Quenched and tempered



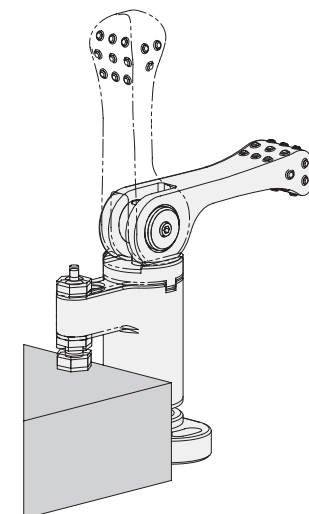
How To Operate



1. Unclamped
Load a workpiece.

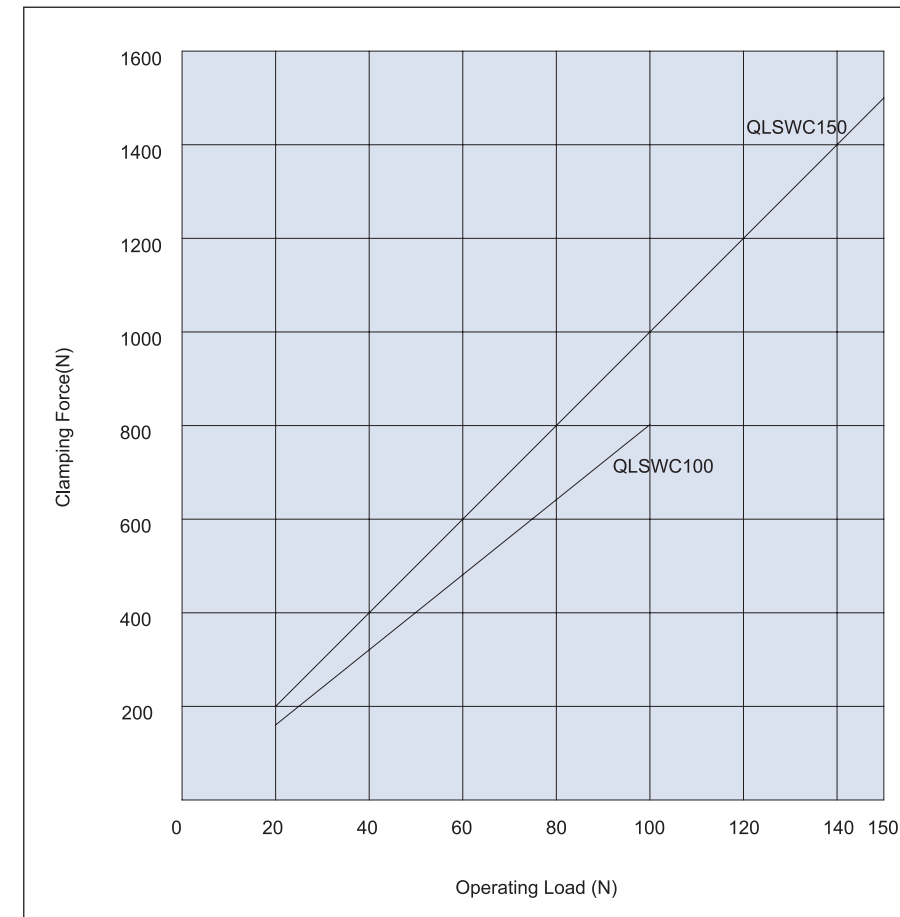


2. Arm Swing
Turn the handle to set the arm in position.



3. Clamping
Set the handle down to clamp the workpiece.

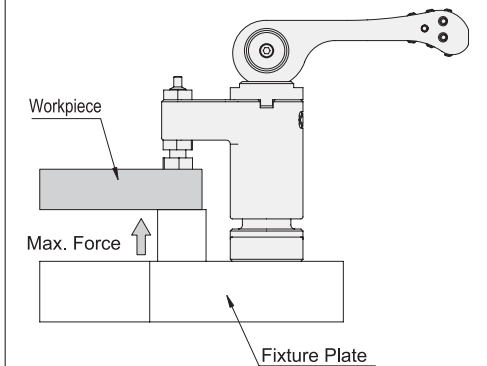
Performance Curve



Technical Information

Allowable Loads in Machining of Workpiece Bottom

Ensure that any force more than stated below is not applied.



Series	Allowable Force to Workpiece Bottom (per Clamp)
QLSWC100	max.2,300N
QLSWC150	max.3,600N

Part Number	Clamping Direction	Clamping Height *)				Clamping Stroke	Overall Stroke
		Finished Surface Contact		Rough Surface Contact			
		Min.	Max.	Min.	Max.		
51991826	Clockwise	22.8	24.8	22.4	24.4	0.8	1.2
51991827	Counterclockwise	(22.4-23.2)	(24.4-25.2)	(22-22.8)	(24-24.8)		
51991828	Clockwise	31.3	33.3	32.2	34.2	1	1.5
51991829	Counterclockwise	(30.8-31.8)	(32.8-33.8)	(31.7-32.7)	(33.7-34.7)		

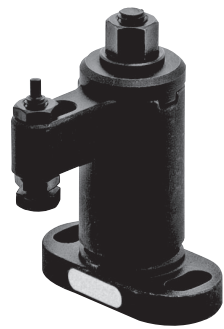
*) Clamping height can be adjusted. The parenthesised values denote actual clamping height.

Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
51991826	30	10	18	18	52	26	22	6	11.5	8	4.3	50	15	36	6
51991827															
51991828	40	14	23	23	68	35	30	8	15.3	10	5.3	63	20	45	8
51991829															

Part Number	R	S	T	U	Cam Handles Part Number	Allowable Operating Load (N) **)	Clamping Force (N)	Clamping Mechanism	Weight (g)
51991826	22.8	M4×0.7	4.3	27	QLCA-05	100	800	Spiral Cam	134
51991827									
51991828	28.5	M5×0.8	5.3	34	QLCA-06	150	1,500	Cam Angle:4°	272
51991829									

**) Allowable load to operate the handle

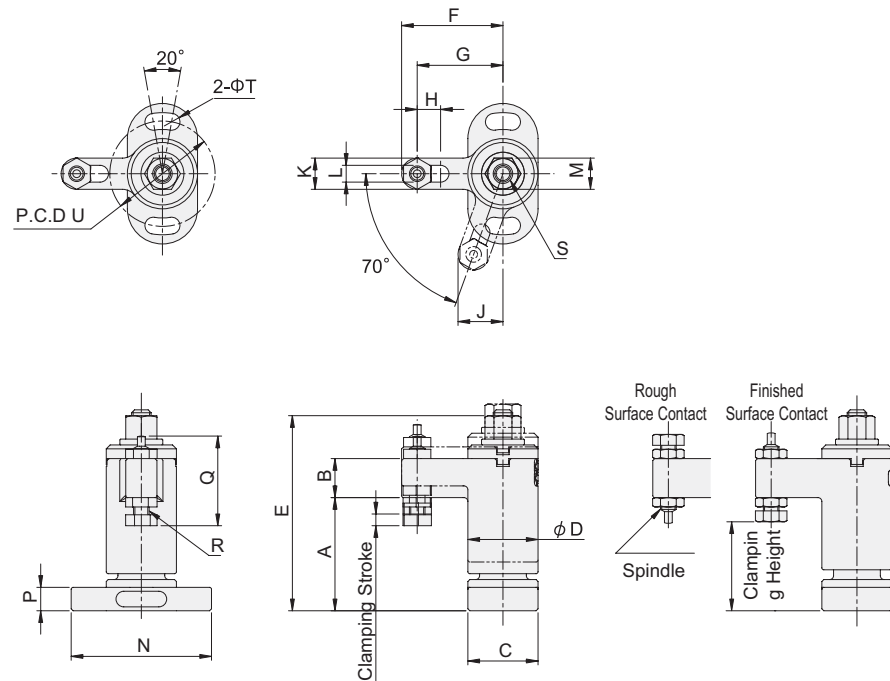
NEW



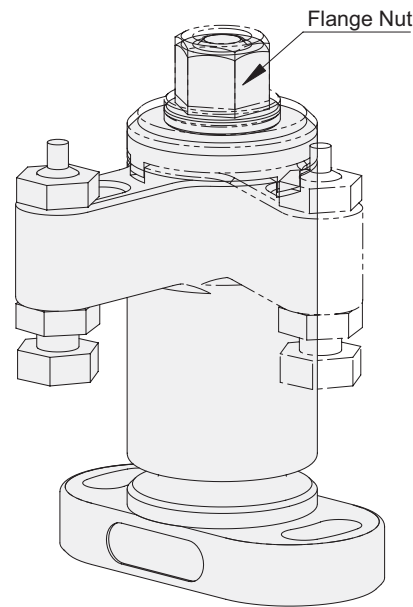
Body / Washer / Flange Nut / Spindle	
Material	S45C steel
Finish	Black oxide
Heat treat	Quenched and tempered

Arm	
Material	SCM440 steel
Finish	Black oxide
Heat treat	Quenched and tempered

- Designed for clamping-force control with a torque wrench
- Screw clamping mechanism allows for longer clamping stroke and greater clamping force.



How To Operate

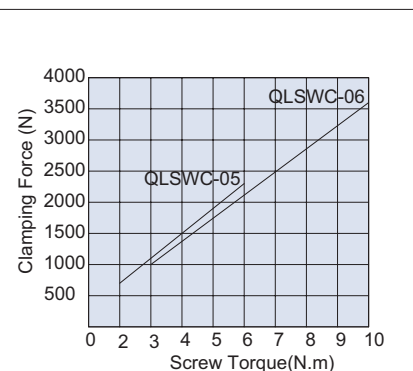


Turning the flange nut allows the arm to swing into position for clamping.

Warning

Do not use a power tool (impact wrench etc.) to turn the flange nut, for damage prevention.

Performance Curve



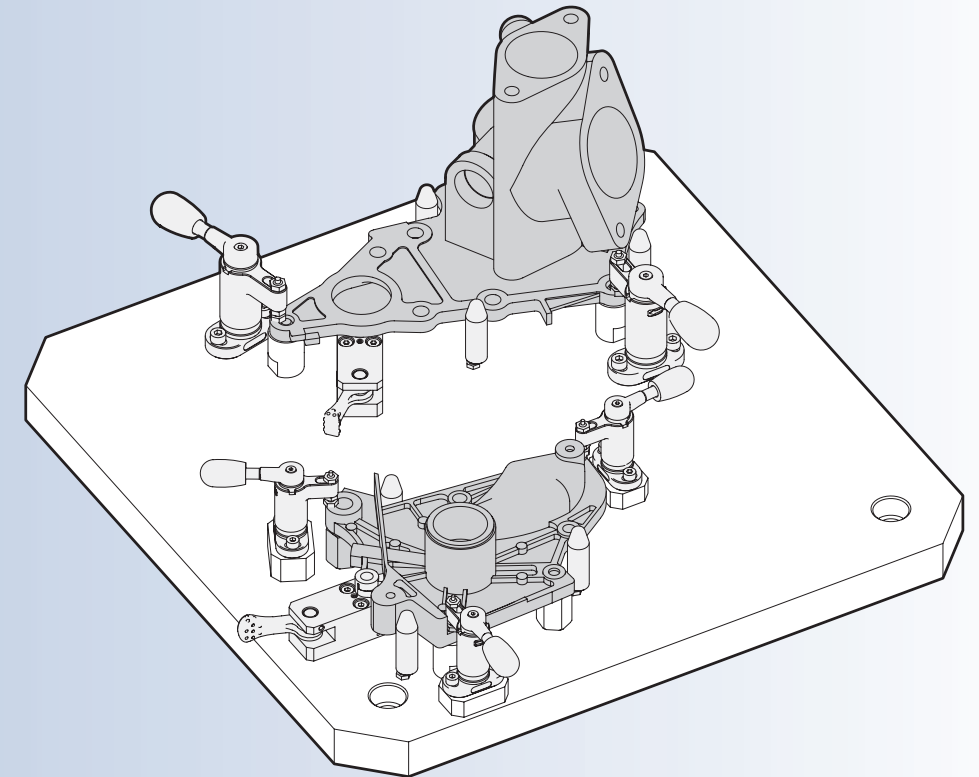
Part Number	Clamping Height *)				Clamping Stroke	A	B	C	D	E
	Finished Surface Contact		Rough Surface Contact							
	Min.	Max.	Min.	Max.						
51991830	22.8 (22.8-25.8)	24.8 (24.8-27.8)	22.4 (22.4-25.4)	24.4 (24.4-27.4)	3	29	10	18	18	52.5
51991831	31.3 (31.3-35.3)	33.3 (33.3-37.3)	32.2 (32.2-36.2)	34.2 (34.2-38.2)	4	39	14	23	23	69.5

*) Clamping height can be adjusted. The parentised values denote actual clamping height.

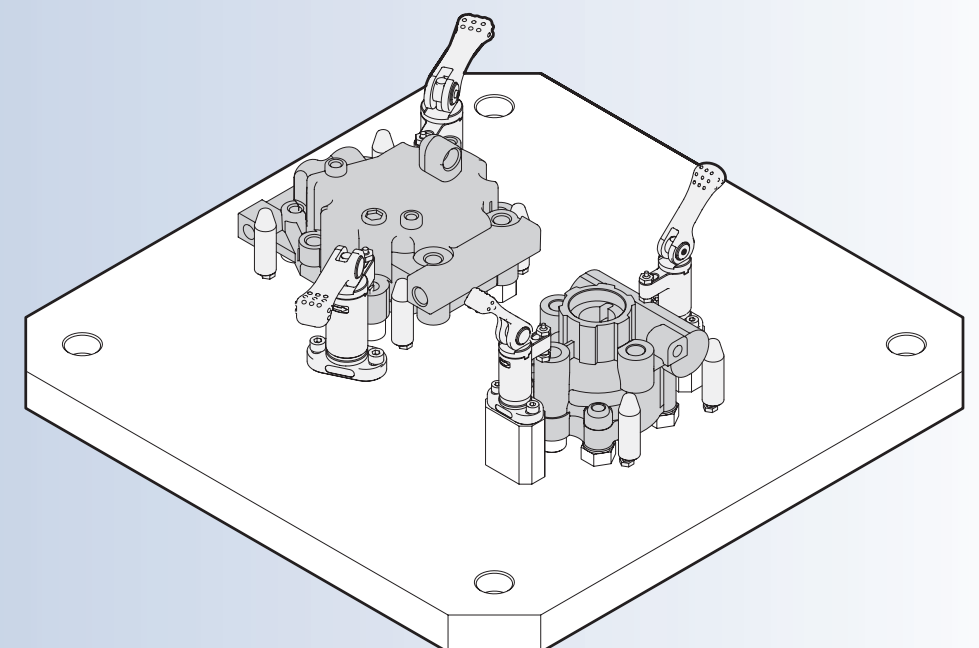
Part Number	F	G	H	J	K	L	M	N	P	Q
51991830	26	22	6	11.5	8	4.3	8	36	6	22.8
51991831	35	30	8	15.3	10	5.3	10	45	8	28.5

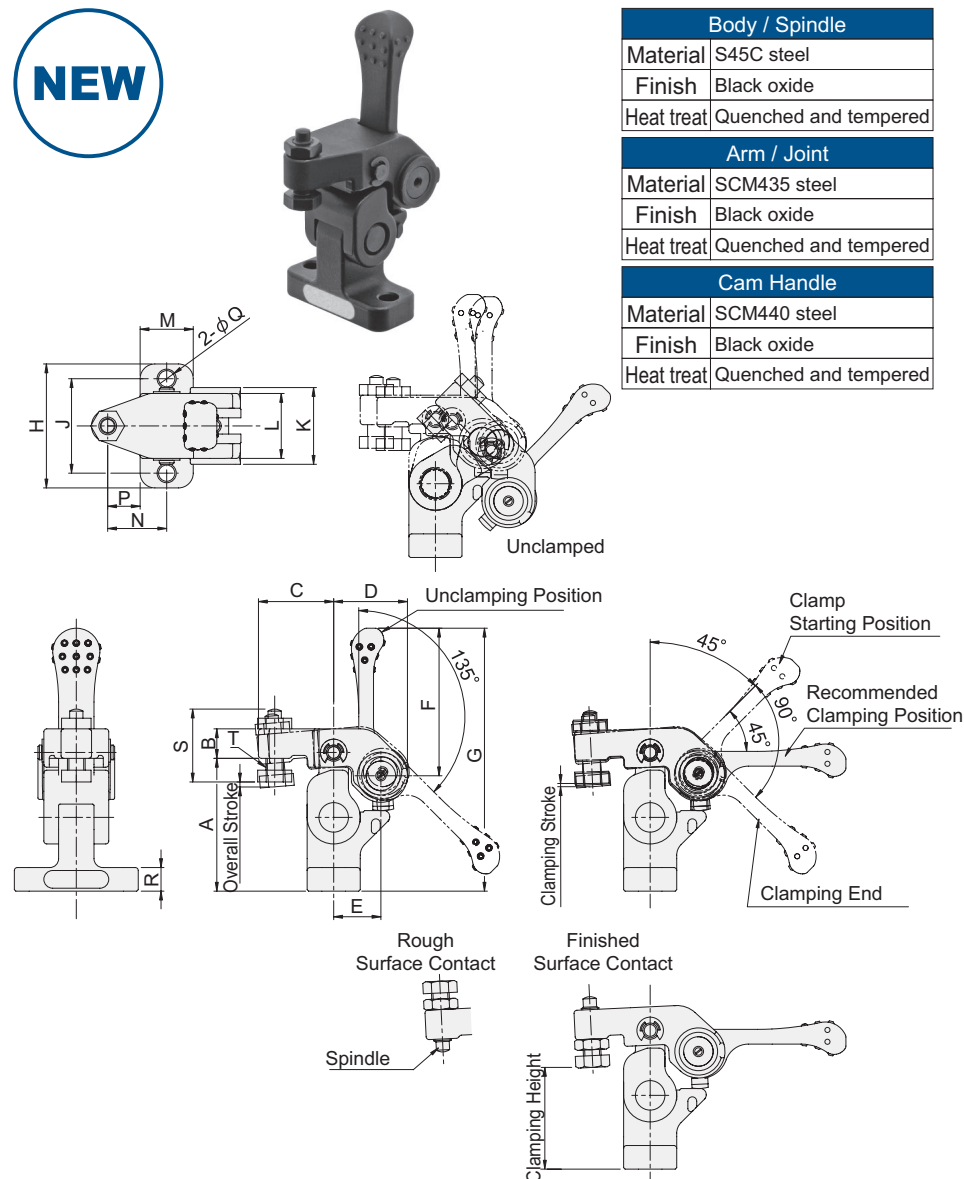
Part Number	R	S	T	U	Clamping Force(N)	Allowable Screw Torque (N.m)	Weight (g)
51991830	M4×0.7	M5×0.8	4.3	27	2,300	6	94
51991831	M5×0.8	M6×1	5.3	34	3,600	10	210

Fixturing with Swing Clamps(Mini)



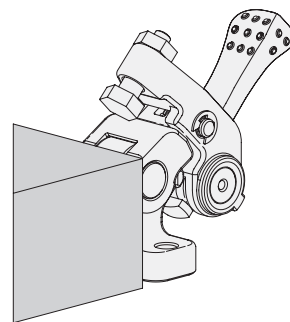
Fixturing with Swing Clamps(Mini) with Cam Handle



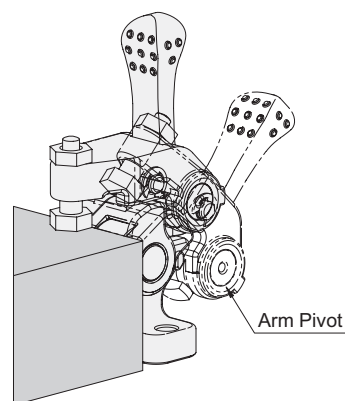


Body / Spindle	
Material	S45C steel
Finish	Black oxide
Heat treat	Quenched and tempered
Arm / Joint	
Material	SCM435 steel
Finish	Black oxide
Heat treat	Quenched and tempered
Cam Handle	
Material	SCM440 steel
Finish	Black oxide
Heat treat	Quenched and tempered

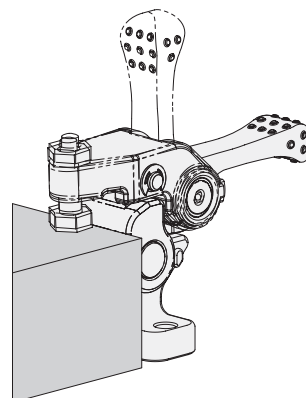
How To Operate



1. Unclamped
Load a workpiece.

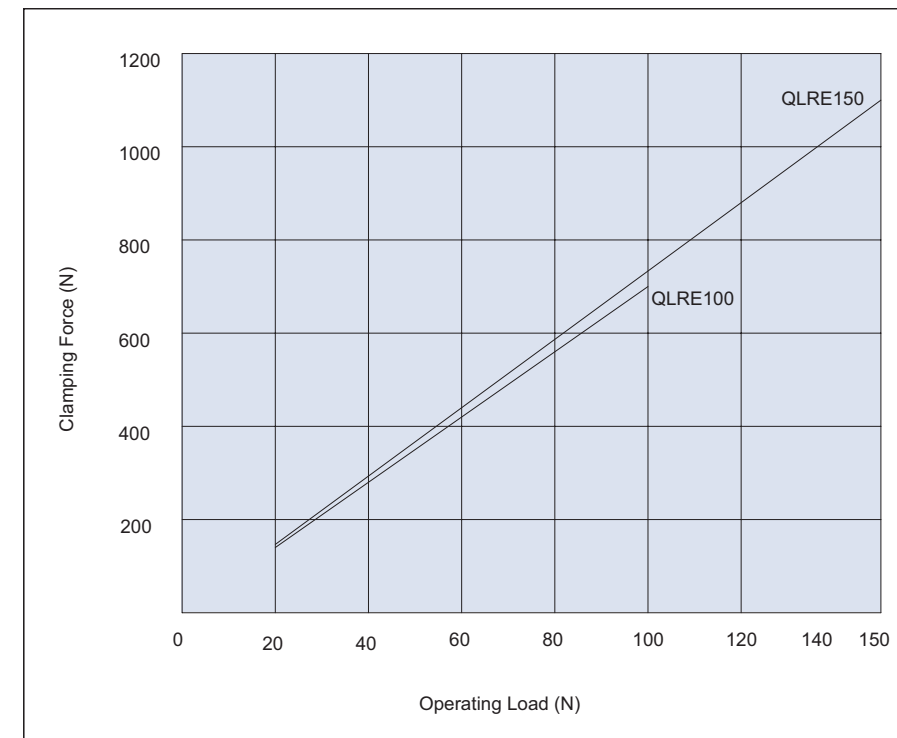


2. Clamping Setup
Set the arm in clamping position holding it at the arm pivot.



3. Clamping
Set the handle down to clamp the workpiece.
For unclamping, follow the above steps back.

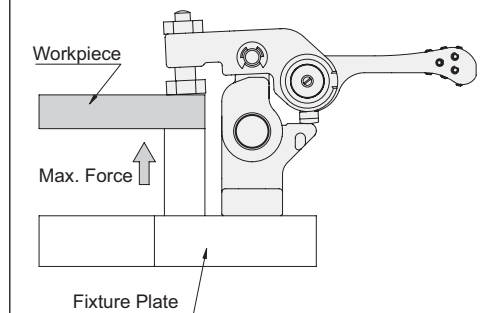
Performance Curve



Technical Information

Allowable Loads in Machining of Workpiece Bottom

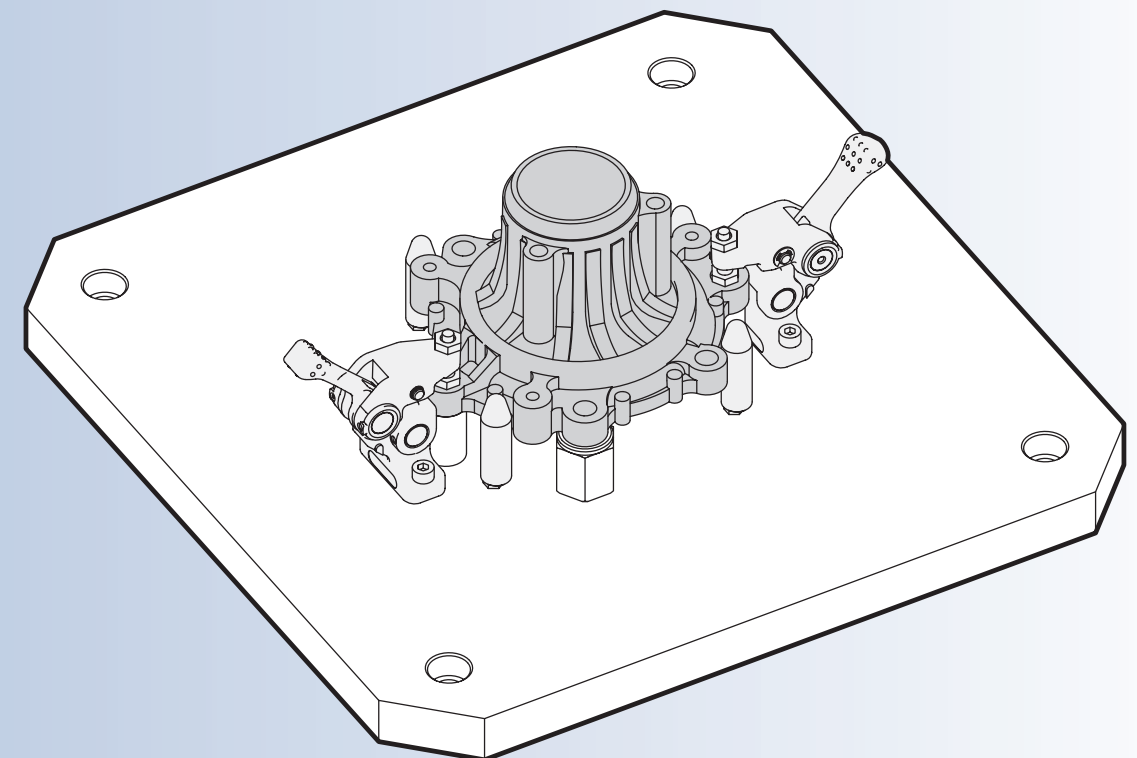
Ensure that any force more than stated below is not applied.



Part Number	Allowable Force to Workpiece Bottom (per Clamp)
51991832	max.5,000N
51991833	max.6,000N

APPLICATION EXAMPLES

Fixturing with Retractable Clamps (Mini) with Cam Handle



Part Number	Clamping Height *)				Clamping Stroke	Overall Stroke
	Finished Surface Contact		Rough Surface Contact			
	Min.	Max.	Min.	Max.		
51991832	32 (31.5-32.5)	40 (39.5-40.5)	35 (34.5-35.5)	43 (42.5-43.5)	1	1.5
51991833	37 (36.4-37.6)	48 (47.4-48.6)	42 (41.4-42.6)	53 (52.4-53.6)	1.2	1.8

*) Clamping height can be adjusted. The parenthesised values denote actual clamping height.

Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
51991832	45	10	25.5	25	16	50	89	42	32	26	22	18	20	11	5.5
51991833	55	12	32	31	20	63	109	52	40	32	28	22	25	14	6.6

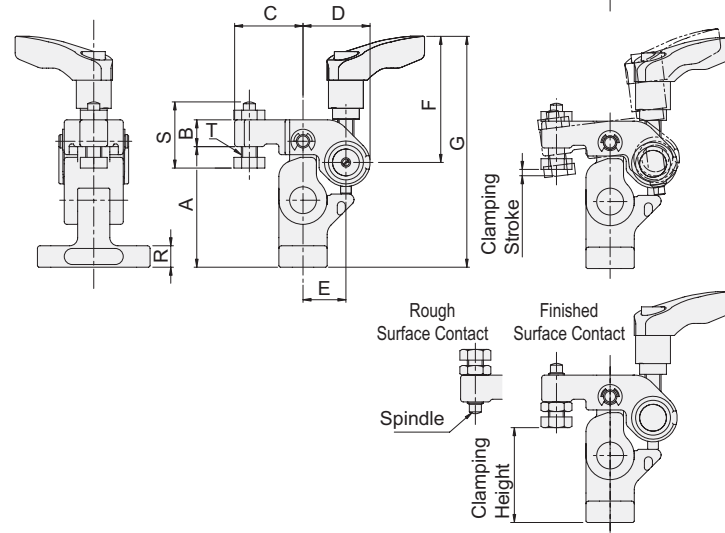
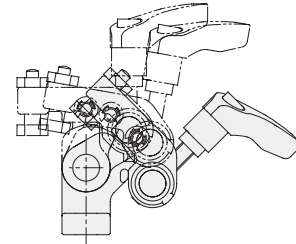
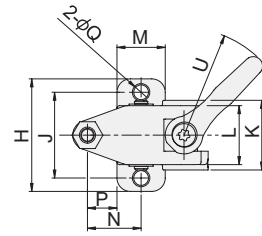
Part Number	R	S	T	Cam Handles Part Number	Allowable Operating Load (N) **)	Clamping Force(N)	Clamping Mechanism	Weight (g)
51991832	8	24	M6×1	QLCA-05	100	700	Spiral Cam Cam Angle:4°	244
51991833	10	30.5	M8×1.25	QLCA-06	150	1,100		468

**) Allowable load to operate the handle

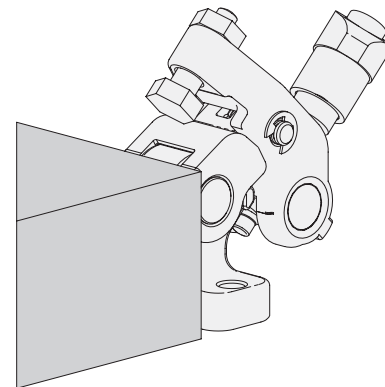
NEW



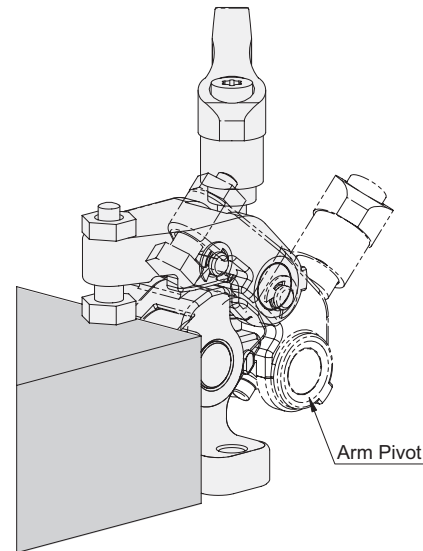
Body / Spindle	
Material	S45C steel
Finish	Black oxide
Heat treat	Quenched and tempered
Arm / Joint	
Material	SCM435 steel
Finish	Black oxide
Heat treat	Quenched and tempered
• Screw clamping mechanism allows for longer clamping stroke and greater clamping force.	



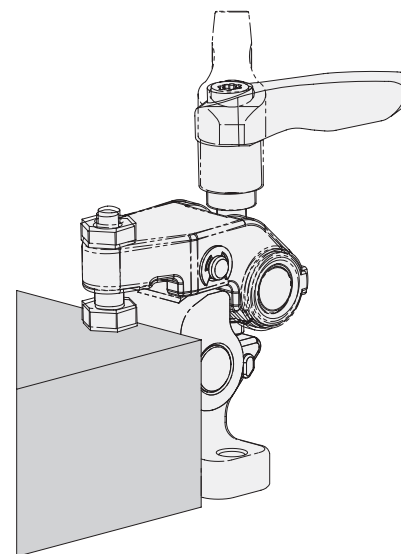
How To Operate



1. Unclamped
Load a workpiece.

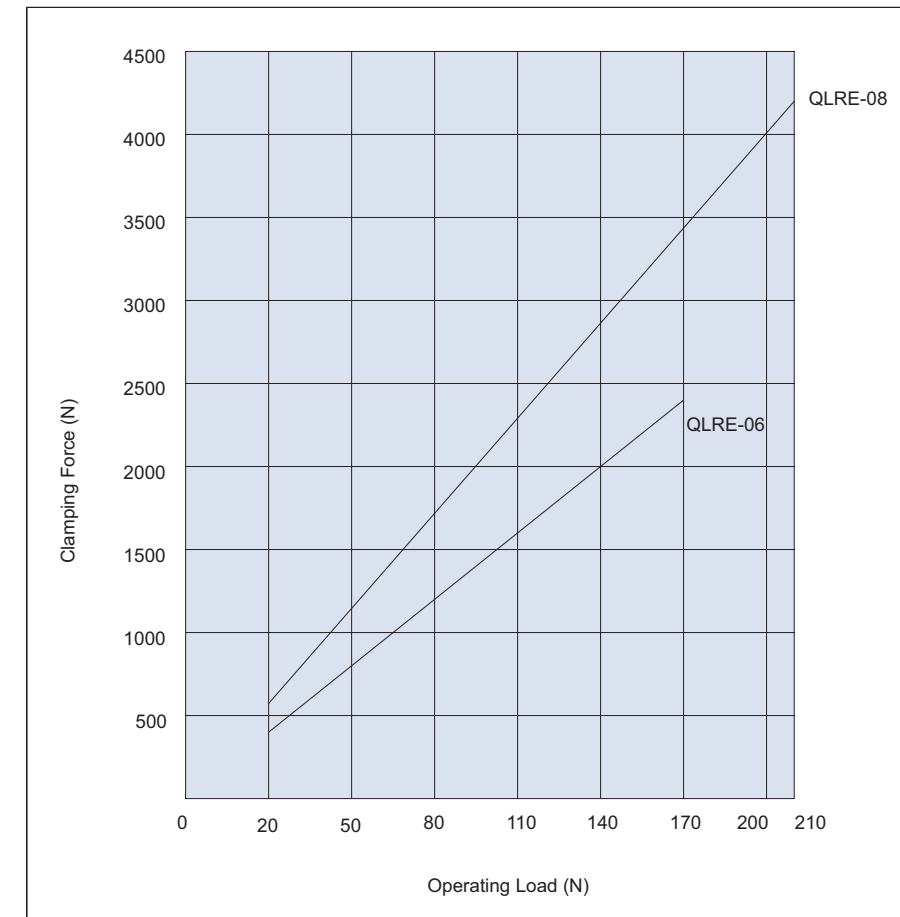


2. Clamping Setup
Set the arm in clamping position holding it at the arm pivot.



3. Clamping
Set the handle down to clamp the workpiece.
For unclamping, follow the above steps back.

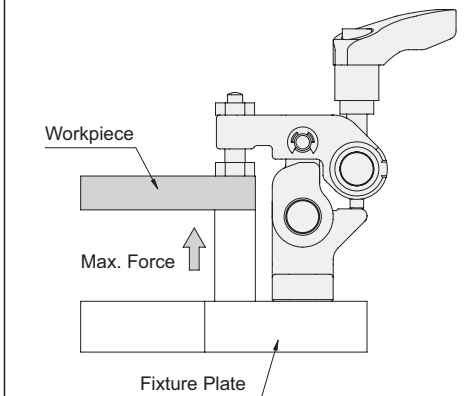
Performance Curve



Technical Information

Allowable Loads in Machining of Workpiece Bottom

Ensure that any force more than stated below is not applied.



Part Number	Allowable Force to Workpiece Bottom (per Clamp)
QLRE-06	max.5,000N
QLRE-08	max.6,000N

Part Number	Clamping Height *)				Clamping Stroke	A	B	C	D	E
	Finished Surface Contact		Rough Surface Contact							
	Min.	Max.	Min.	Max.						
51991834	32 (32-29.5)	40 (40-37.5)	35 (35-32.5)	43 (43-40.5)	2.5	45	10	25.5	25	16
51991835	37 (37-33.5)	48 (48-44.5)	42 (42-38.5)	53 (53-49.5)	3.5	55	12	32	31	20

*) Clamping height can be adjusted. The parenthesised values denote actual clamping height.

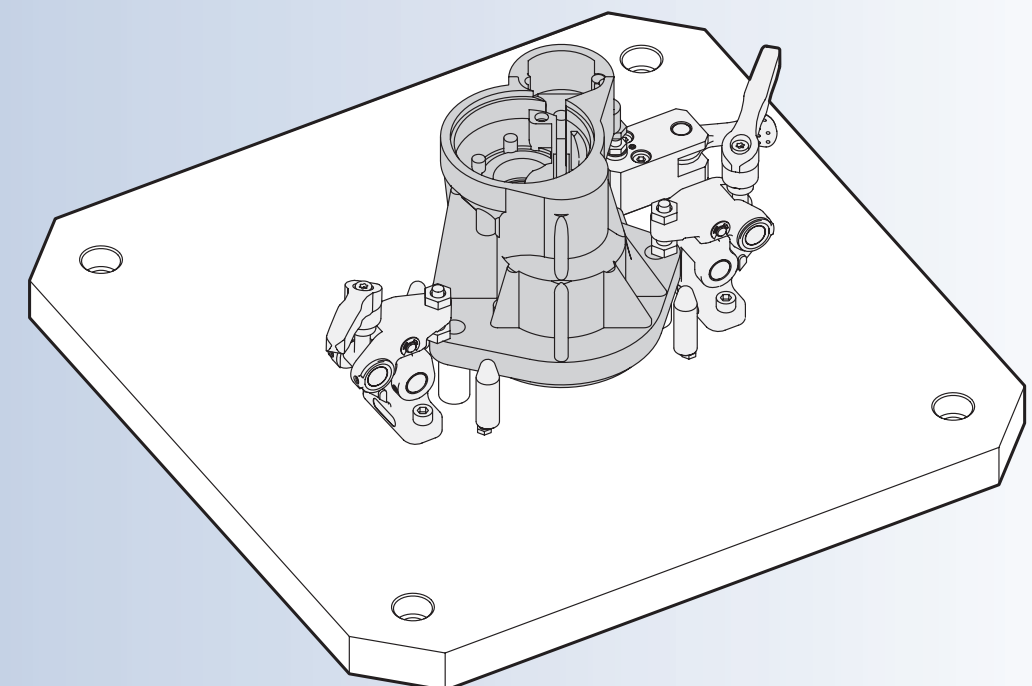
Part Number	F	G	H	J	K	L	M	N	P	Q
51991834	47	86	42	32	26	22	18	20	11	5.5
51991835	63	109	52	40	32	28	22	25	14	6.6

Part Number	R	S	T	U	Adjustable Handles	Allowable Operating Load (N) **	Clamping Force(N)	Clamping Mechanism	Weight (g)
51991834	8	24	M6×1	40	FKF6-BR	170	2,400	Screw	242
51991835	10	30.5	M8×1.25	65	FKF8-BR	210	4,200		490

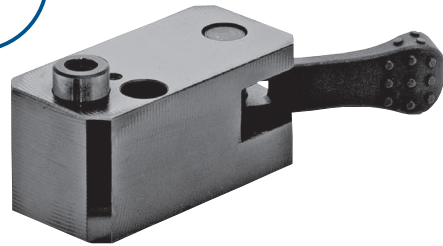
**) Allowable load to operate the handle

APPLICATION EXAMPLES

Fixturing with Retractable Clamps (Mini) with Adjustable Handle



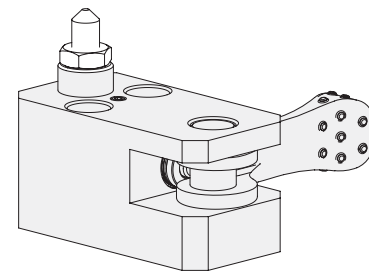
NEW



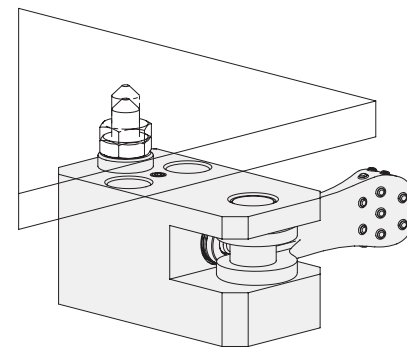
Body	
Material	S45C steel
Finish	Black oxide
Piston	
Material	SK4 steel
Finish	Black oxide
Heat treat	Quenched and tempered
Locking Pin	
Material	S45C steel
Finish	Black oxide
Heat treat	Quenched and tempered
Handle	
Material	SCM440 steel
Finish	Black oxide
Heat treat	Quenched and tempered

* The clamping direction can easily be changed.

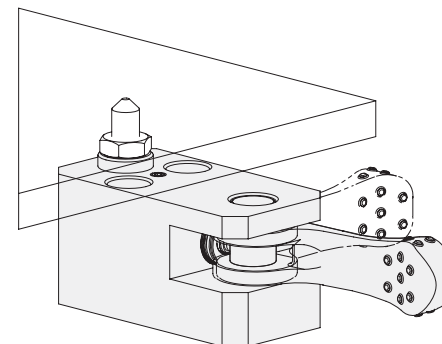
How To Operate



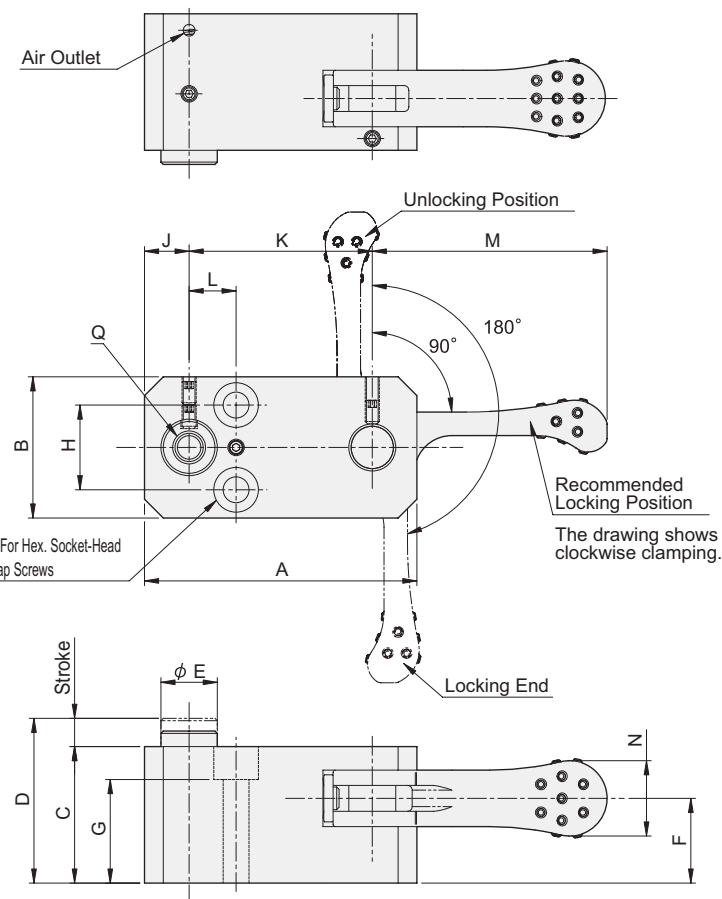
1. Unlocked
No workpiece loaded



2. Workpiece Loading
Load a workpiece, and the piston lowers.



3. Clamping
Turn the handle to lock the piston.



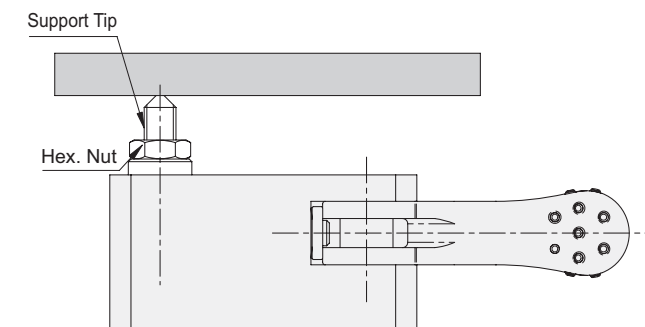
Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N
51991836	52	25	24	29	10	14	19	15	8	36	8	40	14
51991837	58	30	29	35	12	18	22	18	9.5	39	10	50	16
51991838	75	38	37	45	16	23	25	24	12	51	12	63	19
51991839	85	45	42	52	19	26	30	28	14.5	56	15	80	24

Part Number	P	Q	Cam Handles Part Number	Allowable Operating Load (N) *	Support Capacity (N)	Piston Spring Force (N)	Locking Mechanism	Weight (g)
51991836	M4	M5×0.8 8 deep	QLCA-04	80	500	0-6	Spiral Cam Cam Angle: 4°	213
51991837	M5	M6×1 10 deep	QLCA-05	100	700	0-6		335
51991838	M6	M8×1.25 15 deep	QLCA-06	150	900	0-7		738
51991839	M8	M10×1.5 15deep	QLCA-08	200	1,200	1-11		1,110

*) Allowable load to operate the handle

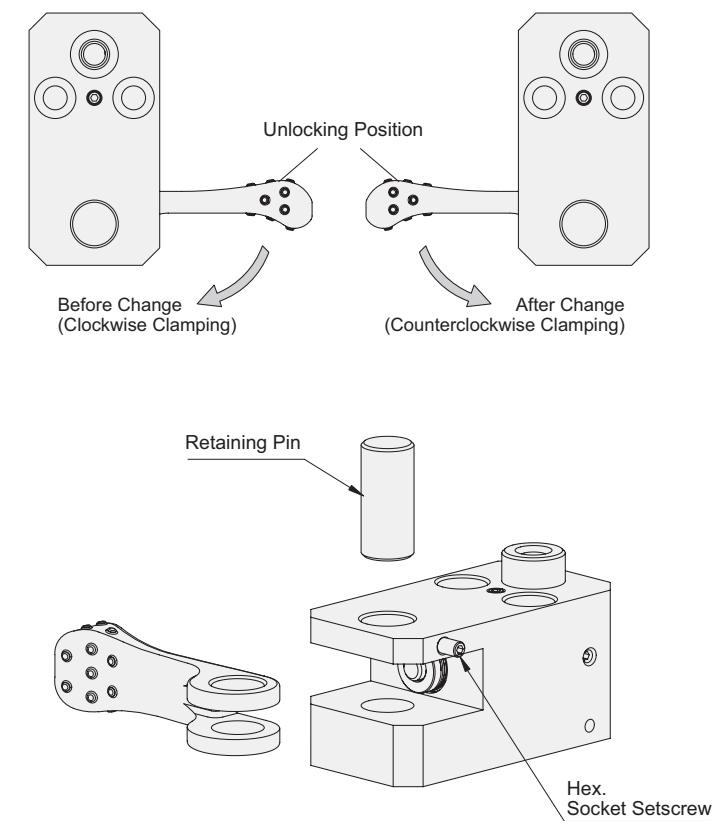
Adjusting Handle Locking Position

Ensure before use that the handle comes to the recommended position when the piston is locked, by adjusting the height of a support tip.

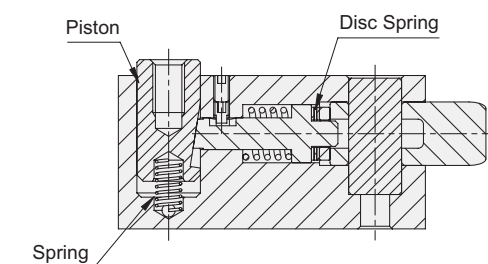


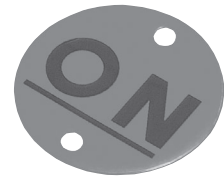
Changing Clamping Direction

Loosen the hex. socket setscrew to remove the retaining pin. Turn the handle upside down and put it in position again.



The built-in disc spring prevents loosened locking.

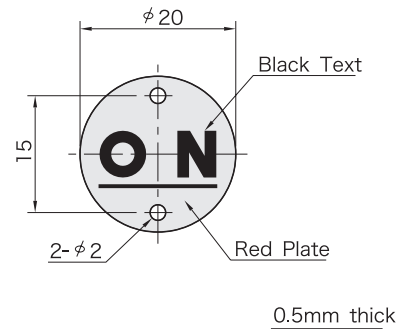




Material: Aluminum

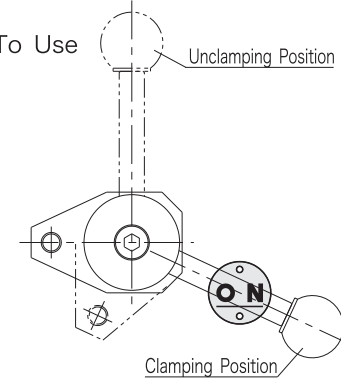
Part Number

51991147



Pressure sensitive adhesive on the backside. Two 2mm-dia. holes allow for riveting.

How To Use

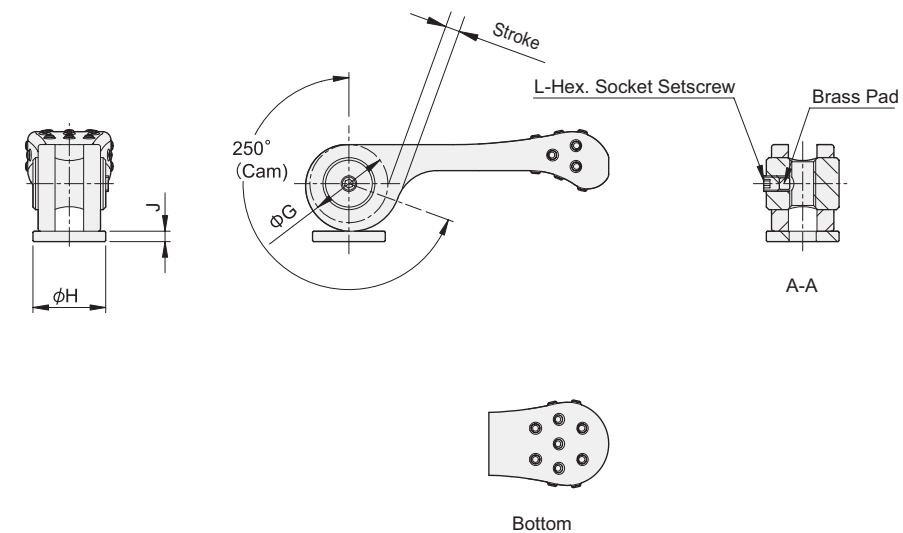
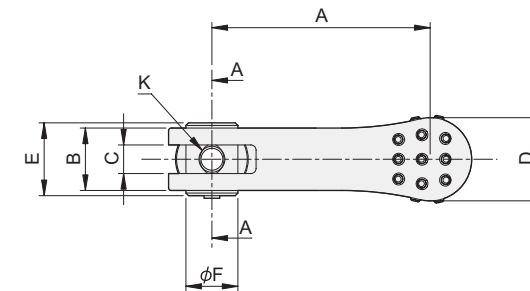


Use to mark the handle position in the clamping mode.

NEW



Lever	
Material	SCM440 steel
Finish	Black oxide
Heat treat	Quenched and tempered
Ring Nut / Washer	
Material	S45C steel
Finish	Black oxide
Heat treat	Quenched and tempered

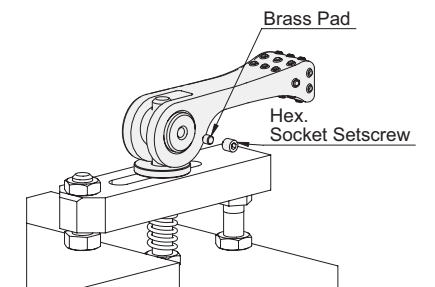


Part Number	A	B	C	D	E	F	G	H	J
51991858	40	10	4.5	14	12	8	12	12	2
51991859	50	12	5.5	16	14	10	15	14	2
51991860	63	14	6.5	19	16	12	18	16	3
51991861	80	18	9	24	20	15	22	20	3

Part Number	K	L	Stroke	Allowable Operating Load (N) *)	Clamping Force(N)	Clamping Mechanism	Weight (g)
51991858	M4×0.7	M3×0.5-3L	1.8	80	900	Spiral Cam Cam Angle:4°	26
51991859	M5×0.8	M3×0.5-3L	2.3	100	1,300		46
51991860	M6×1	M4×0.7-4L	2.7	150	2,600		80
51991861	M8×1.25	M4×0.7-4L	3.3	200	4,000		154

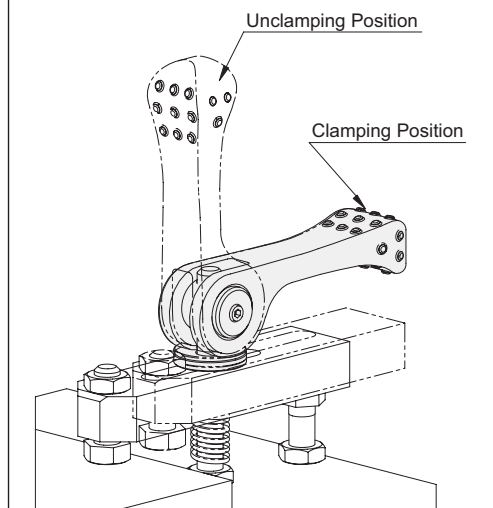
*) Allowable load to operate the handle

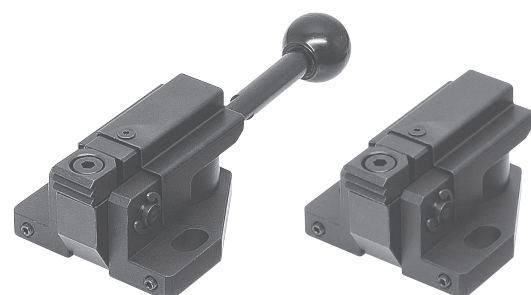
Installing the cam handle



Use a brass pad and a hex. socket setscrew included.

Application Example





With Handle

Without Handle

[Base]
Material: S45C steel
Finish :Black oxide
Heat Treat: Quenched
and tempered

[Jaw]
Material: SKH51 steel
Finish :Black oxide
Heat Treat: Quenched
and tempered

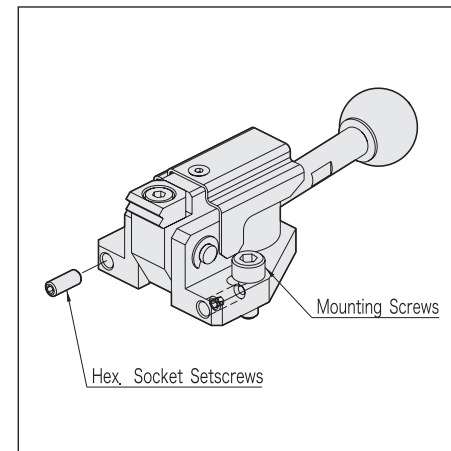
[Cam]
Material: SCM440 steel
Finish :Black oxide
Heat Treat: Quenched
and tempered

[Handle]
Material: S45C steel
Finish :Black oxide

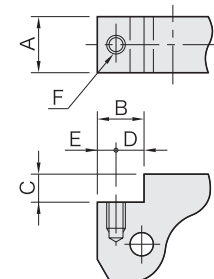
[Ball Knob]
Material: ABS resin
Color :Black

How To Use

The long mounting holes allow adjusting the clamping range. Tightening the hex, socket setscrews in the base front allows preventing the clamp from sliding back in the clamping mode.

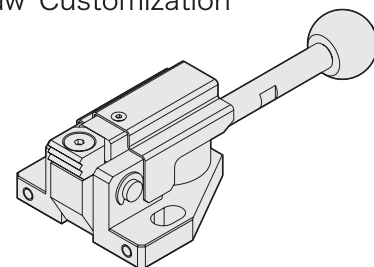


Dimensions of Jaw Base

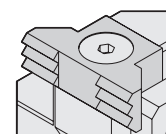


Size	A	B	C	D	E	F
QLSC150	12	10	6	6	4	M4x0.7 7 deep
QLSC200	16	14.5	10	8	6.5	M6x1 9 deep

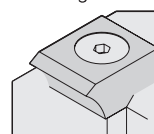
Jaw Customization



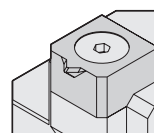
Wide Serrated Jaw



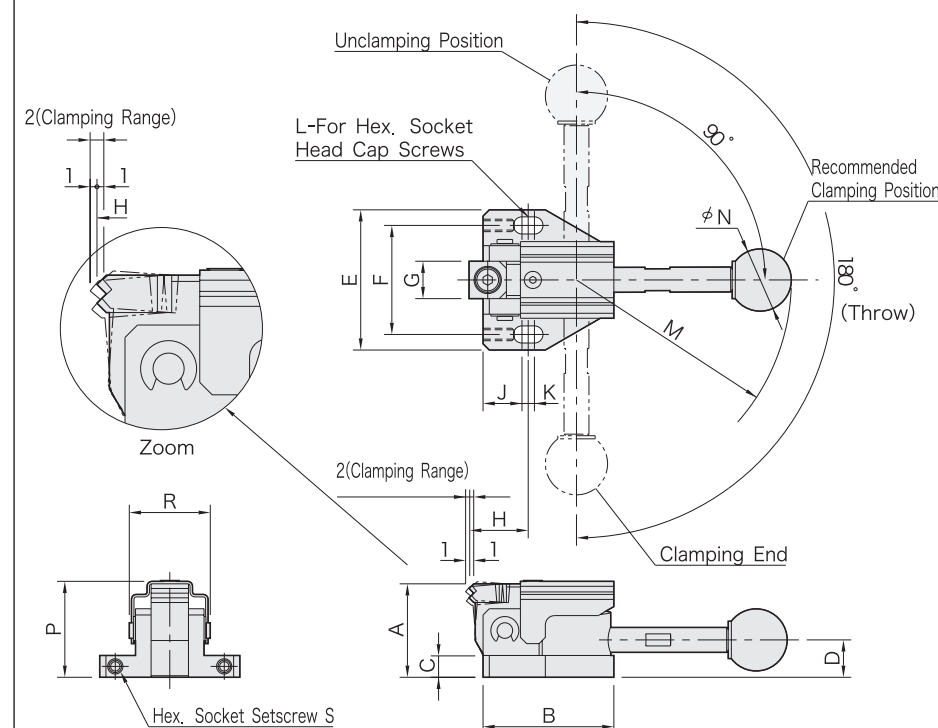
Edged Jaw



Pointed Jaw



Note
See page 151 and 154
for performance curves.



Size	A	B	C	D	E	F	G	H	J	K	L	P
QLSC150	30	42	7	12	45	35	12	19	12.5	4	M5	31
QLSC200	40	62	10	16	65	50	16	28	18.5	5	M8	41

Size	R	S	Clamping Force(N)	Clamping Mechanism
QLSC150	26	M4x0.7-10L	3000	Spiral Cam Cam Angle:4°
QLSC200	38	M4x0.7-15L	4000	

With Handle

Part Number	M	N	Allowable Operating Load (N) *)	Weight (g)
51991125	69	20	150	210
51991126	104	25	200	580

Without Handle

Part Number	Weight (g)
51991127	185
51991128	530

Note: The handle
must be ordered separately.

*) Allowable load to operate the handle



With Handle

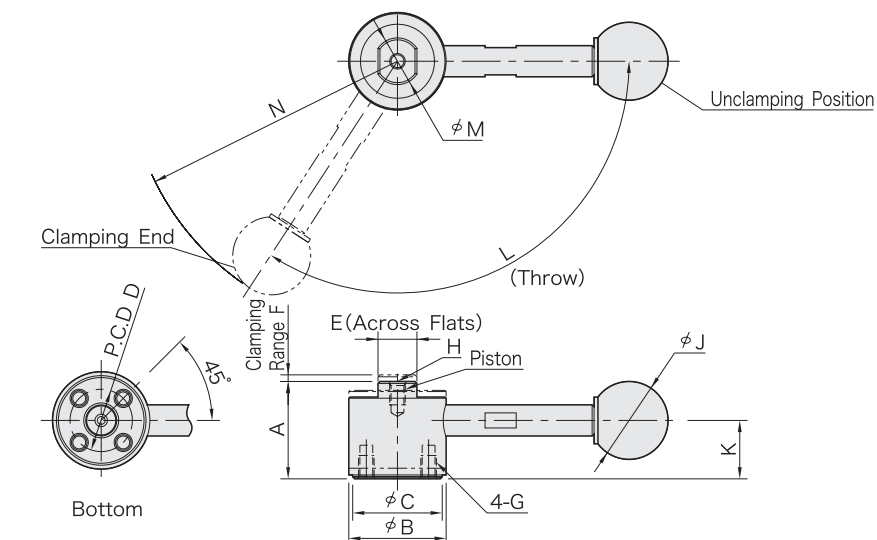
Without Handle

[Cam]
Material: SCM440 steel
Finish : Black oxide
Heat Treat: Quenched
and tempered

[Piston]
Material: S45C steel
Finish : Black oxide
Heat Treat: Quenched
and tempered

[Handle]
Material: S45C steel
Finish : Black oxide

[Ball Knob]
Material: ABS resin
Color : Black



Series	A	B	C	D (P.C.D)	E	F	G	H	K	L	M	Clamping Force(N)	Clamping Mechanism
QLPU150	25	25	23	16	10	1.7	M4x0.7 6 deep	M4x0.7 6 deep	15	123°	12	3000	Spiral Cam
QLPU200	32	32	30	20	13	2.5	M6x1 9 deep	M6x1 9 deep	19.5	135°	15	4000	Cam Angle:4°

With Handle

Part Number	J	N	Allowable Operating Load (N) *)	Weight (g)
51991129	20	69.5	150	180
51991130	25	103	200	370

*) Allowable load to operate the handle

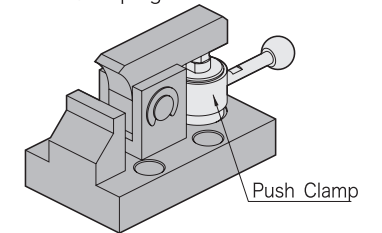
Without Handle

Part Number	Weight (g)
51991131	150
51991132	310

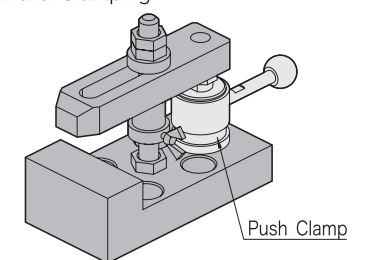
Note: The handle
must be ordered separately.

Application Examples

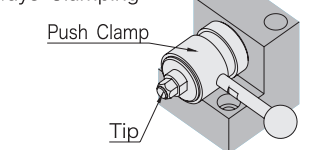
Downthrust Clamping



Downward Clamping



Sideways Clamping



When installing a tip on the piston,
lock the piston using a wrench to prevent
the clamp from receiving any torque.

Note : See page 151 and 154 for performance curves.



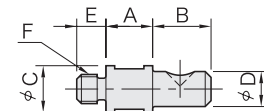
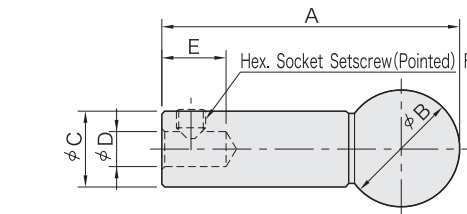
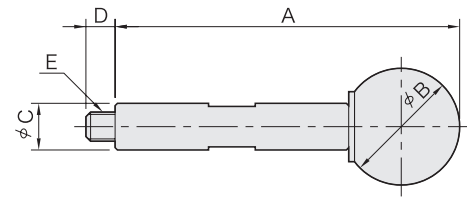
QLSL (Screw-In Handles)
[Handle]
Material: S45C steel
Finish : Black oxide
[Ball Knob]
Material: ABS resin
Color : Black



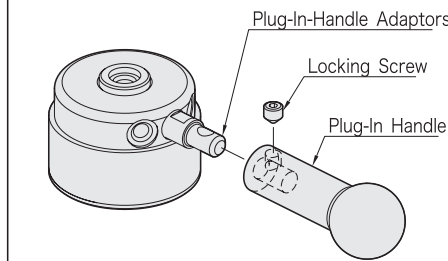
QLSL-RL (Plug-In Handles)
[Handle]
Material: S45C steel
Finish : Black oxide
[Ball Knob]
Material: ABS resin
Color : Black



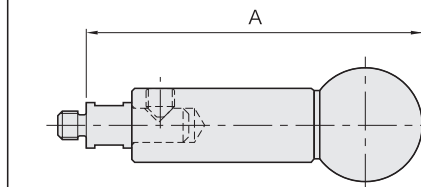
QLSL-RA (Plug-In-Handle Adaptors)
Material: SCM435 steel
Finish: Black oxide
Heat Treat: Quenched and tempered



How To Use



Secure the Plug-In Handle to the Adaptor using the locking screw if necessary.



Size	A
QLSL150	59
QLSL200	89

QLSL (Screw-in Handles)

Part Number	A	B	C	D	E	Weight (g)
51991135	59	20	8	5	M5x0.8	30
51991136	89	25	10	6	M6x1	60

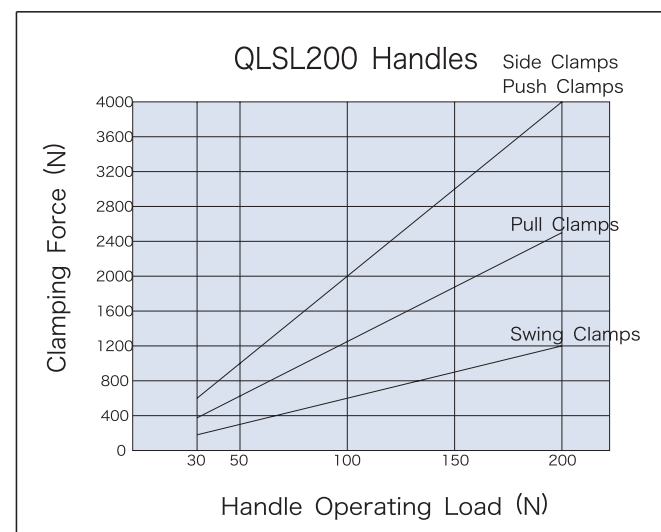
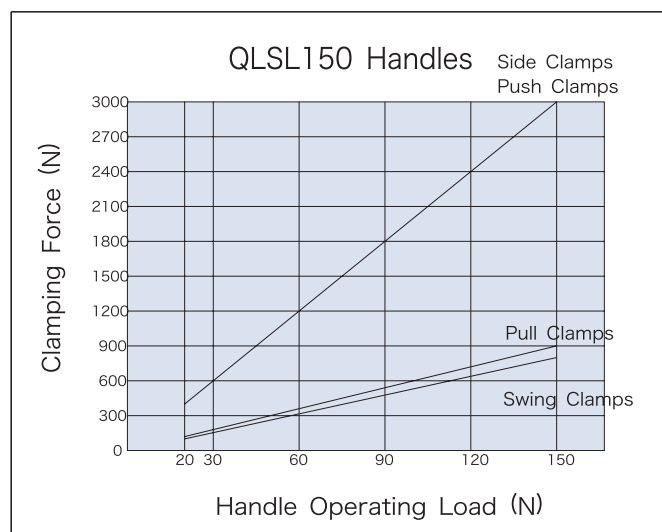
QLSL-RA (Plug-In-Handle Adaptors)

Part Number	A	B	C	D	E	F	Weight (g)
51991139	8	10	8	6	5	M5x0.8	7
51991140	10	12	10	8	6	M6x1	14

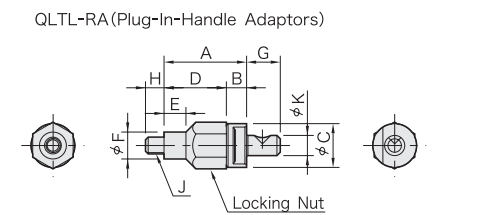
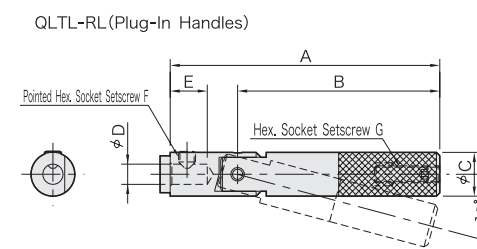
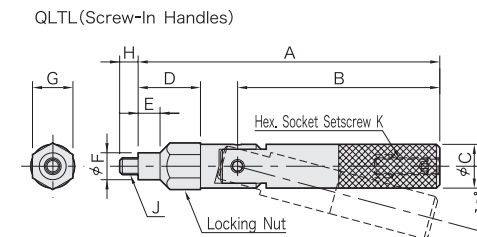
QLSL-RL (Plug-In Handles)

Part Number	A	B	C	D	E	F	Weight (g)
51991137	51	20	13	6	11	M5x0.8-5L	45
51991138	79	25	15	8	13	M6x1 -6L	90

Performance Curves



[Stem]
Material: SCM435 steel
Finish : Black oxide
Heat Treat: Quenched and tempered
[Locking Nut]
Material: S45C steel
Finish : Black oxide
[Handle]
Material: S45C steel
Finish : Black oxide
Heat Treat: Quenched and tempered



QLTL (Screw-In Handles)

Part Number	A	B	C	D	E	F	G	H	J	K	Weight (g)
51991141	89.5	60	13	18.5	6.5	8	12	5.5	M5x0.8	M5x0.8-16L	90
51991142	119	84	15	23	8	10	14	6.5	M6x1	M6x1 -20L	140

QLTL-RL (Plug-In Handles)

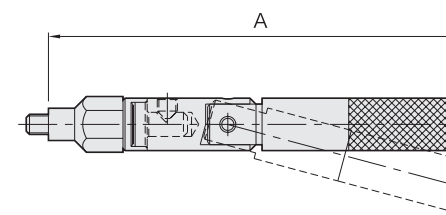
Part Number	A	B	C	D	E	F	G	Weight (g)
51991143	80	60	13	6	11	M5x0.8-5L	M5x0.8-16L	70
51991144	107	84	15	8	13	M6x1 -6L	M6x1 -20L	130

QLTL-RA (Plug-In-Handle Adaptors)

Part Number	A	B	C	D	E	F	G	H	J	K	Weight (g)
51991145	24.5	6	13	18.5	6.5	8	10	5.5	M5x0.8	6	20
51991146	30	7	15	23	8	10	12	6.5	M6x1	8	40

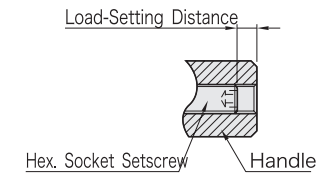
Plug-In Handle Coupled with the Adaptor

Part Number	A
51991143	104.5
51991144	137



How To Use

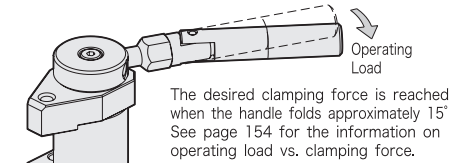
Turning the setscrew inside the handle allows adjusting the torque to set a desired clamping force.



[Operating-Load Setting Range]

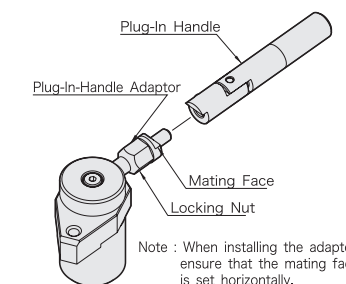
QLTL120/QLTL120-RL : 30N to 120N
QLTL160/QLTL160-RL : 50N to 160N

Note : Ensure that the operating load is not set below the lower limit to prevent the handle from returning to the unclamping position due to shock load generated during the transfer of machine pallets.

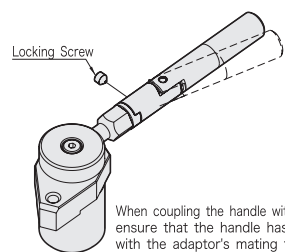


Note : Ensure that the handle is set to fold horizontally.

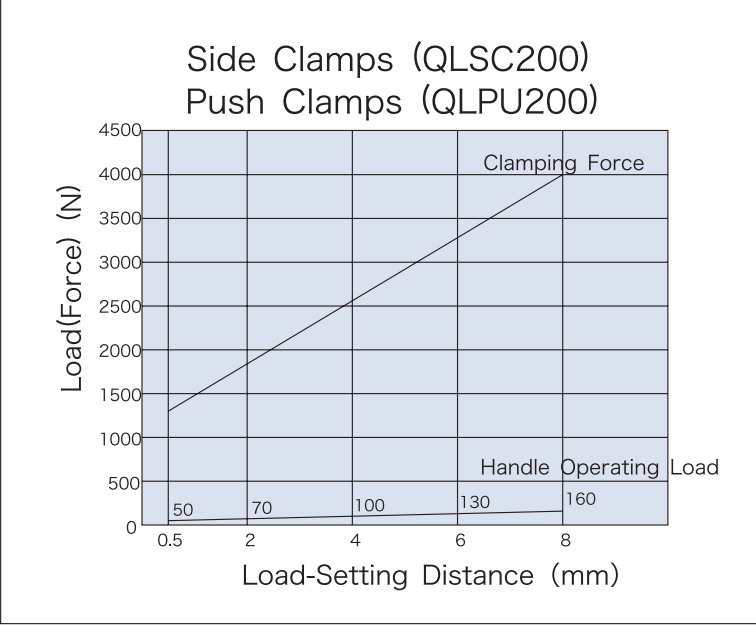
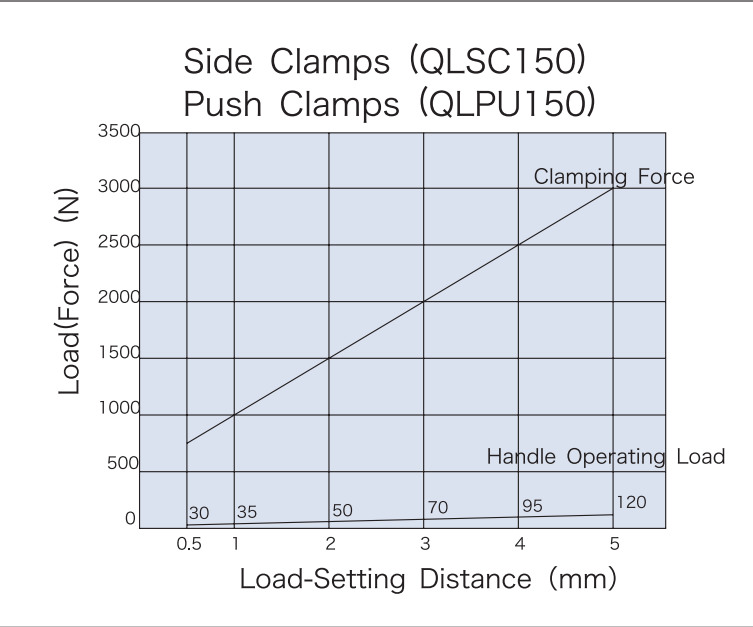
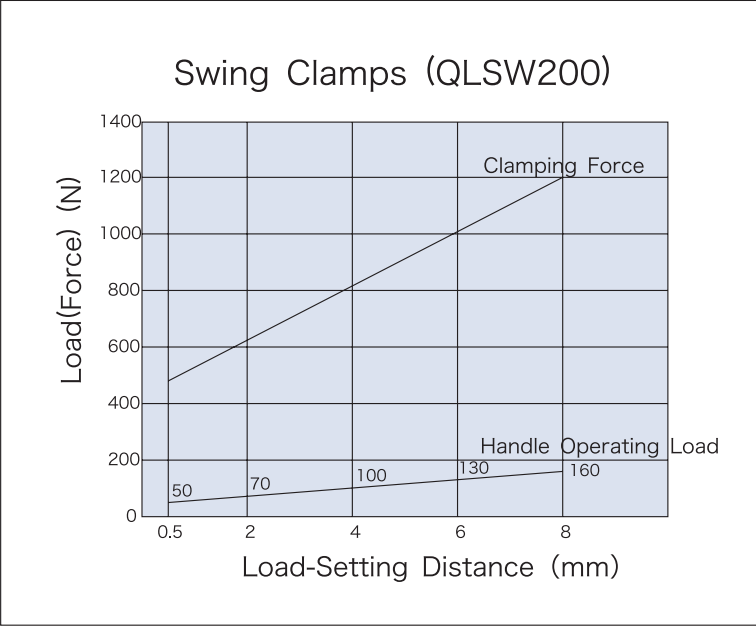
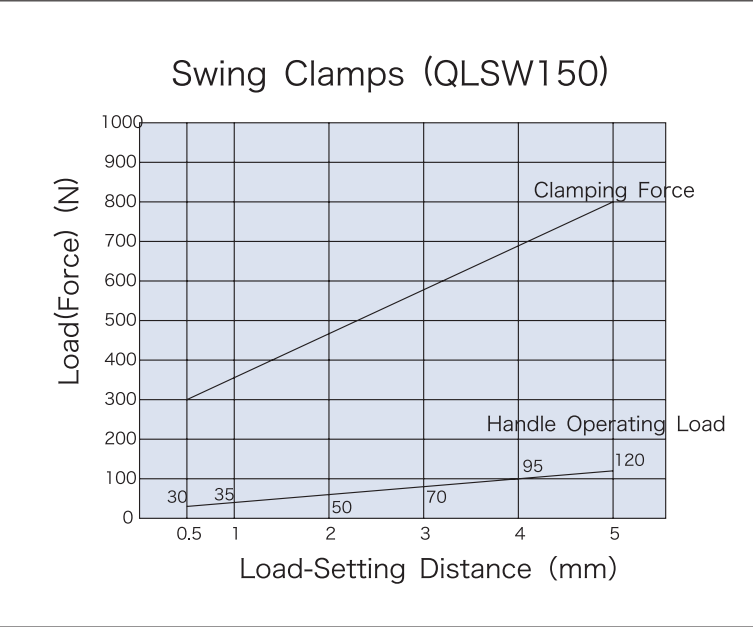
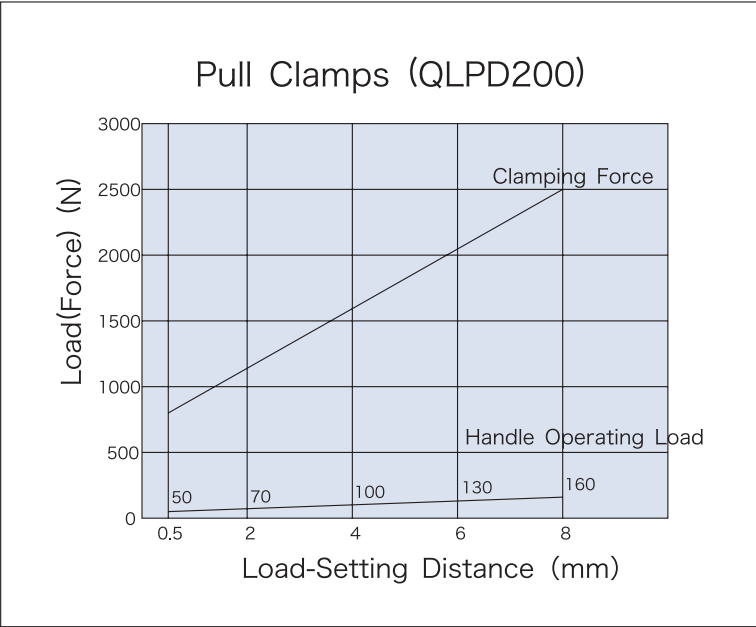
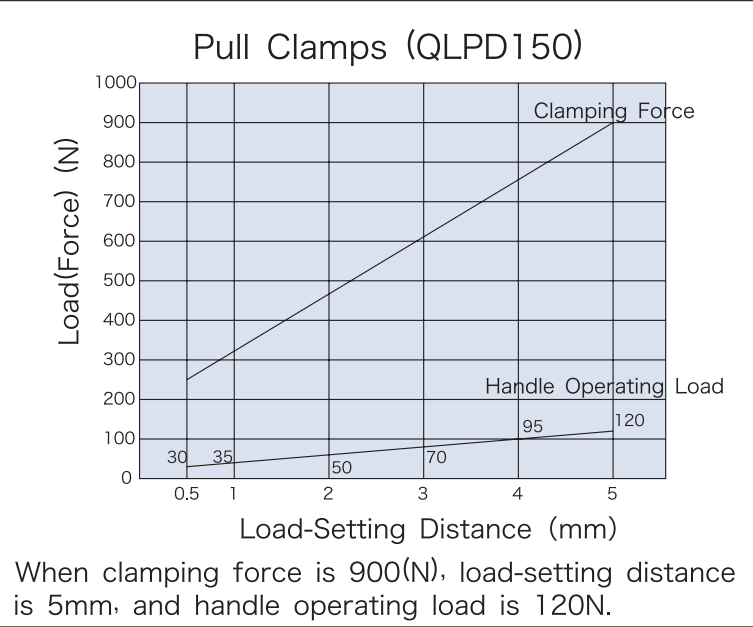
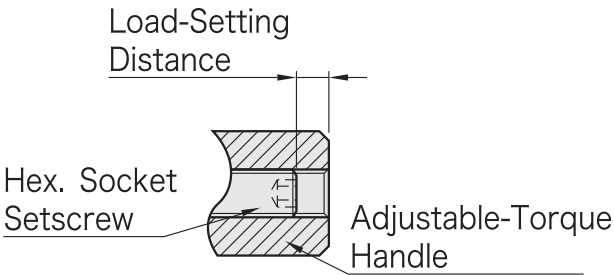
Plug-In Handle Installation



Note : When installing the adaptor, ensure that the mating face is set horizontally.



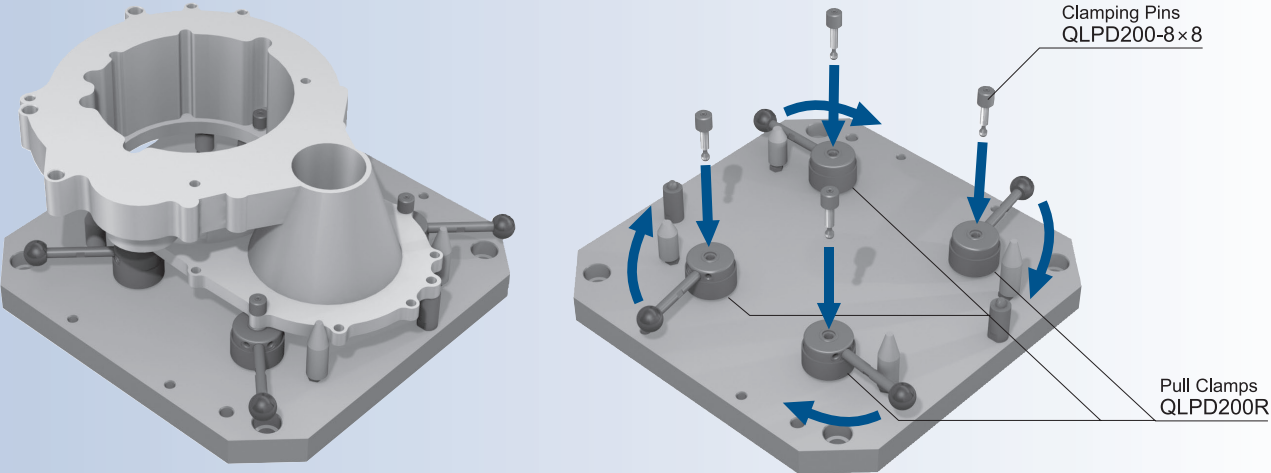
When coupling the handle with the adaptor, ensure that the handle has full contact with the adaptor's mating face. Secure the handle to the adaptor using the locking screw if necessary.



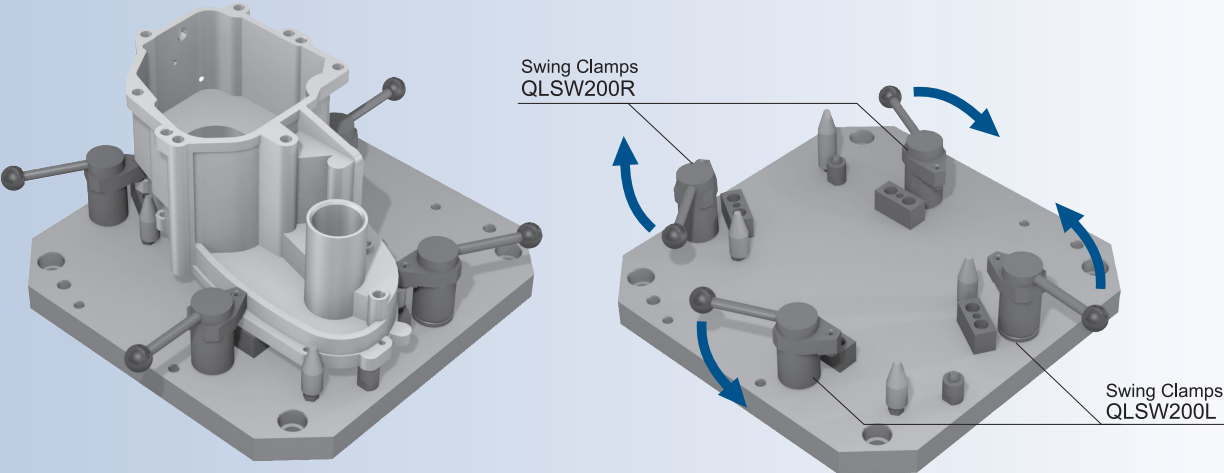
Note : The above performance curves apply when clamps are degreased.

Note : The above performance curves apply when clamps are degreased.

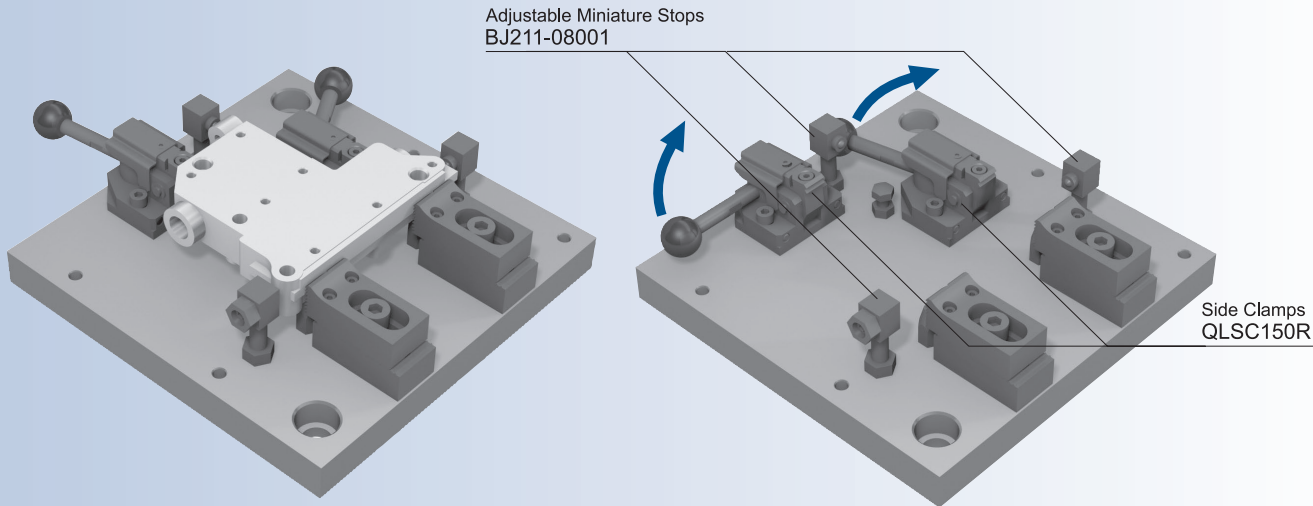
Pull Clamps



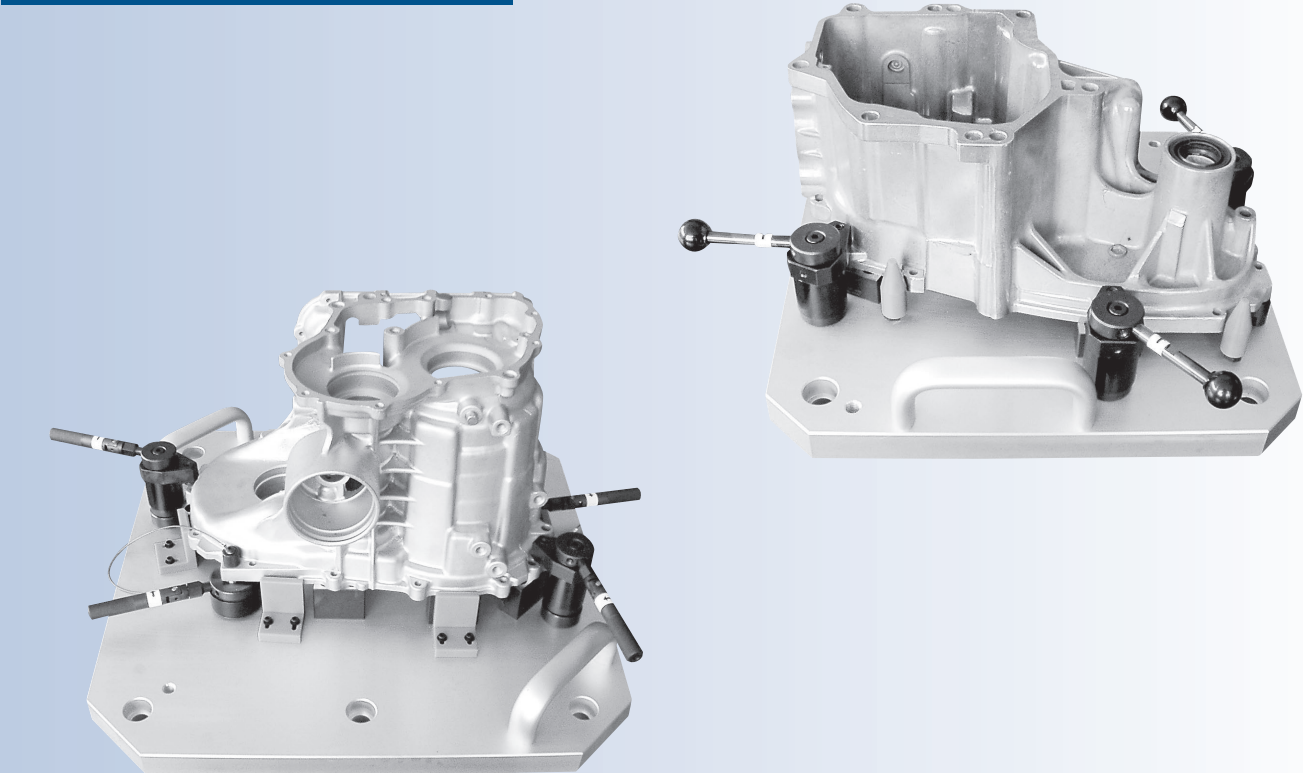
Swing Clamps



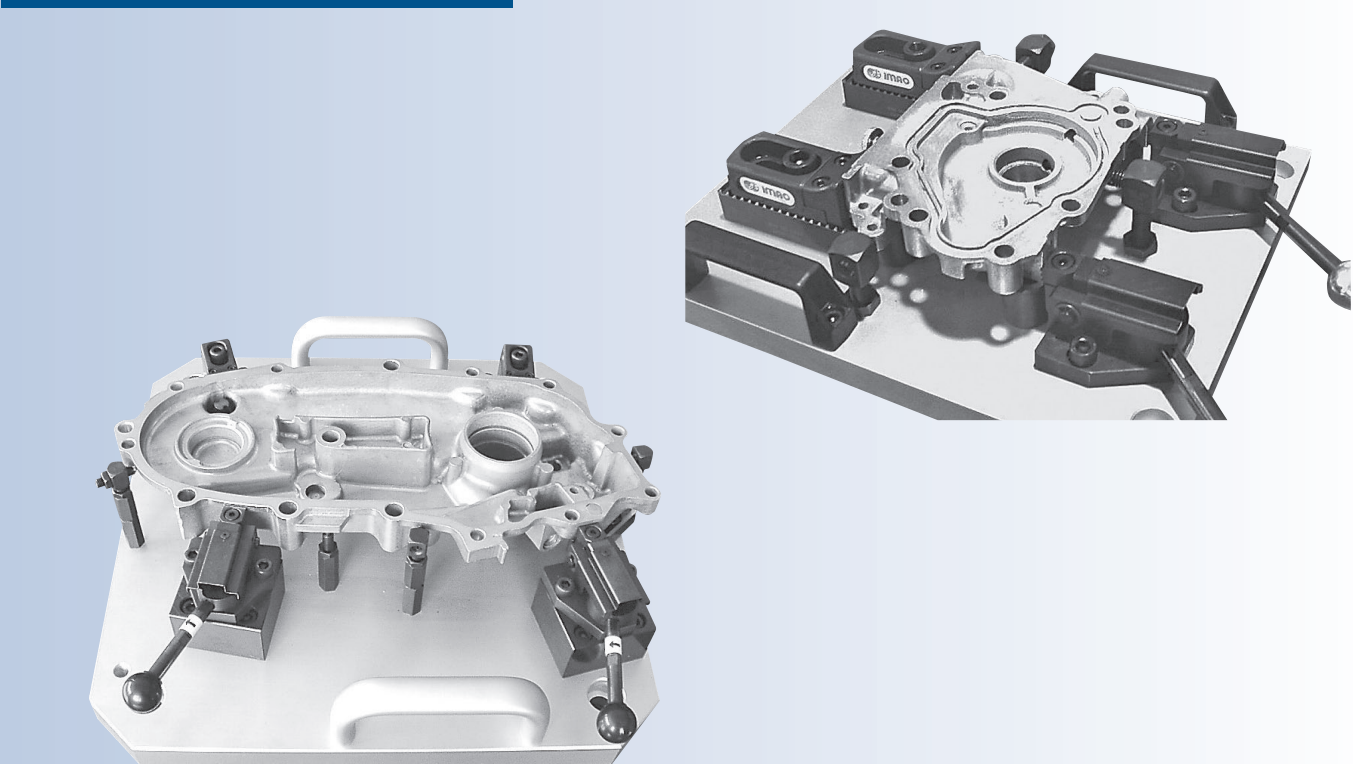
Side Clamps



Actual Applications of Swing Clamps



Actual Applications of Side Clamps



CP710

SPRING-LOADED WORK LOCATORS

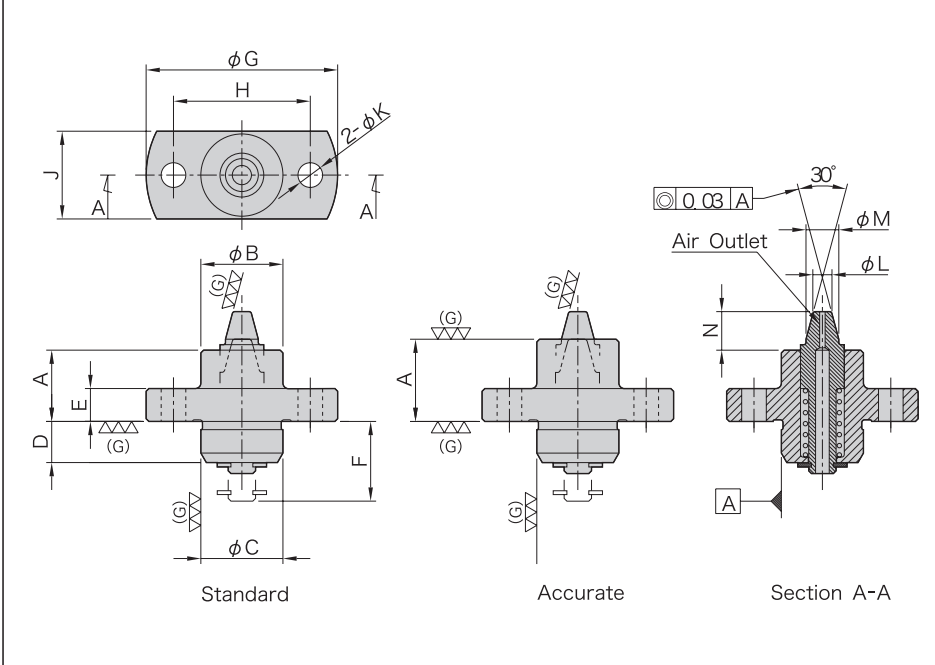
NEW

[Body]
Material: S45C steel
Finish : Black oxide
Heat Treat: Quenched and tempered

[Locating Pin]
Material: SK4 steel
Heat Treat: Quenched and tempered

Standard

Accurate



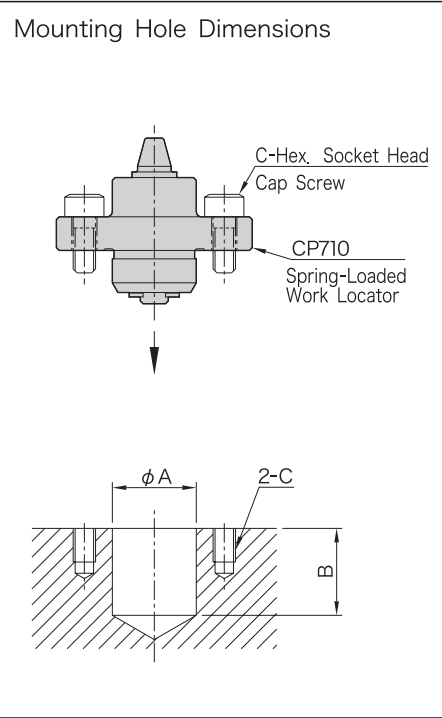
Standard											
Part Number	A	B	C (g6)	D	E	F	G	H	J	K	M
51991521	13	15	15	7.5	6	15	35	25	16	4.5	3.5
51991522											4.5
51991523	18	20	20	10	8	20	40	30	22	4.5	5.5
51991524											7.5

Part Number	N	Locating Hole Dia. *	Support Capacity (N)	Weight (g)
51991521	7.4	φ3.8 to φ 5.2	6.4 to 19.3	45
51991522		φ4.8 to φ 6.2		45
51991523	9.3	φ5.8 to φ 8.2	5.5 to 20.5	95
51991524		φ7.8 to φ10.2		95

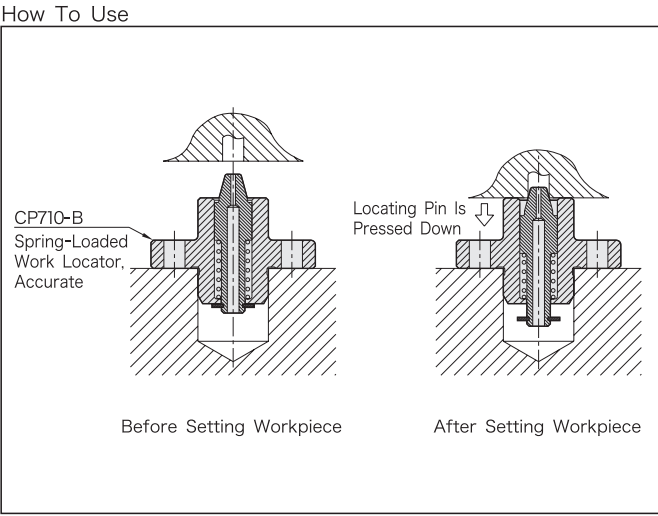
Accurate											
Part Number	A (±0.01)	B	C (g6)	D	E	F	G	H	J	K	M
51991525	15	15	15	7.5	6	15	35	25	16	4.5	3.5
51991526											4.5
51991527	20	20	20	10	8	20	40	30	22	4.5	5.5
51991528											7.5

Part Number	N	Locating Hole Dia. *	Support Capacity (N)	Weight (g)
51991525	5.4	φ3.8 to φ 5.2	6.4 to 19.3	50
51991526		φ4.8 to φ 6.2		50
51991527	7.3	φ5.8 to φ 8.2	5.5 to 20.5	100
51991528		φ7.8 to φ10.2		100

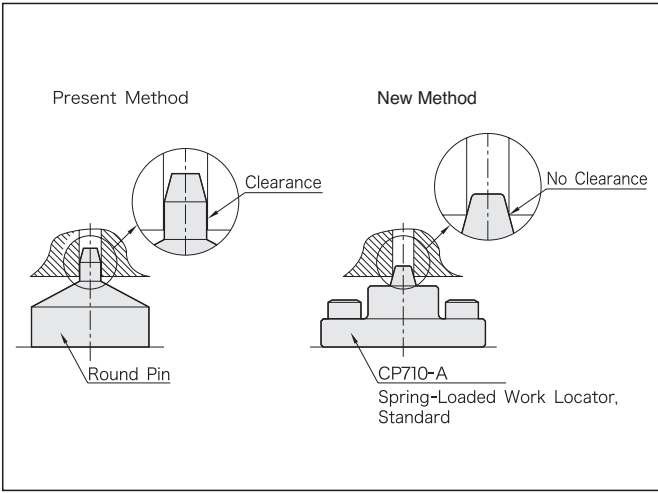
*)Within these diameter limits, locating holes can be chamfered up to 1mm x 1mm.



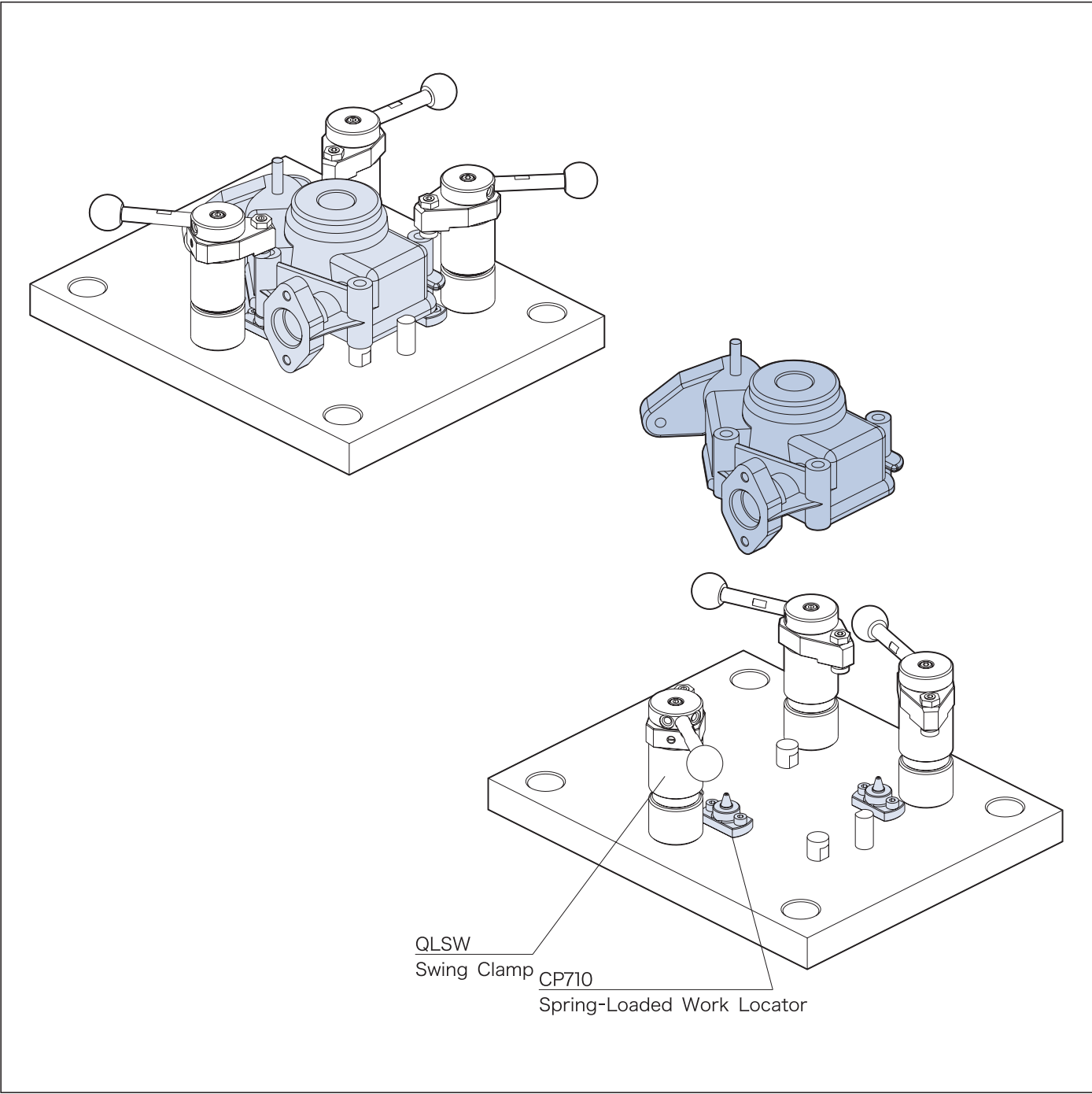
Series	A (H7)	B	C
51991521 51991522	15 (H7-effective depth: 8)	16	M4x0.7
51991525 51991526	20 (H7-effective depth: 10)	21	M4x0.7
51991523 51991524	20 (H7-effective depth: 10)	21	M4x0.7
51991527 51991528	20 (H7-effective depth: 10)	21	M4x0.7



When the workpiece is set, the tapered pin is pressed down to locate it. The accurate style allows vertically as well as horizontally positioning the workpiece with accuracy.



Use of tapered pin allows secure locating with no clearance between the locating hole and the tapered pin.



Note:In clamping, hold down the workpiece by hand to avoid lift that can be generated by spring force.

NEW



[Body]
Material: S45C steel
Finish : Black oxide
Heat Treat: Quenched and tempered

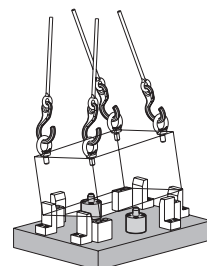
[Piston]
Material: SCM440 steel
Finish : Black oxide
Heat Treat: Quenched and tempered

[Handle]
Material: S45C steel
Finish : Black oxide

[Ball Knob]
Material: ABS resin
Color : Black

How To Use

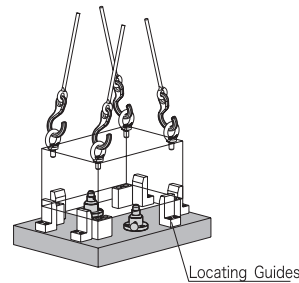
Present Method



Galling and damage caused

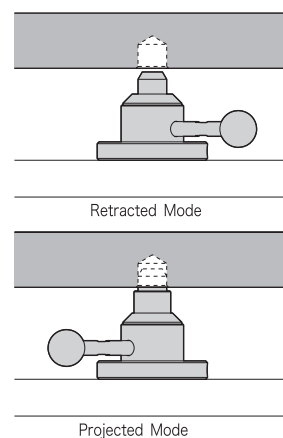


Our Method

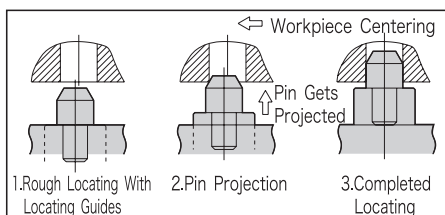


No galling caused

The locating pin gets projected only after the workpiece is set on supports. This allows loading and unloading the workpiece smoothly, with no galling. Get the locating pin projected to locate the workpiece after it is roughly positioned with the help of locating guides.



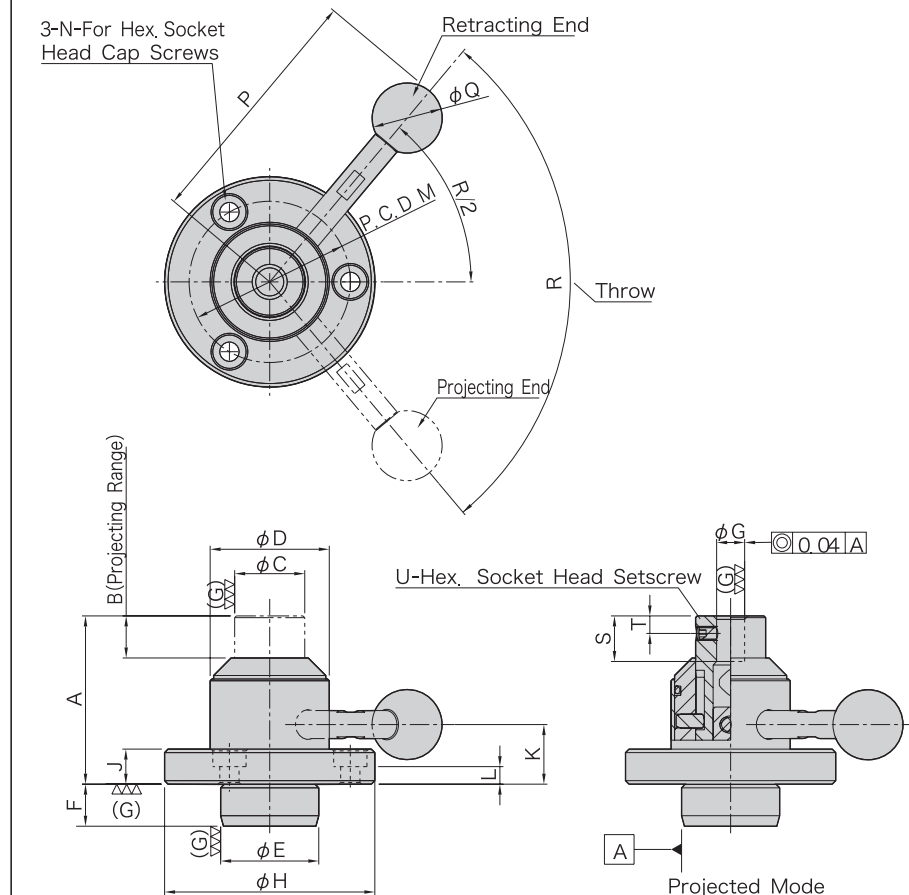
Projected Mode



1. Rough Locating With Locating Guides

2. Pin Projection

3. Completed Locating



Part Number	A	B	C	D	E (g6)	F	G (G7)	H	J	K	L	M (P, C, D)	N	P
51991529	48	12	20	34	28	12	8	60	10	17	5	46	M5	71
51991530	61	15	30	48	42	14	12	80	13	23	7	63	M6	94

Part Number	Q	R	S	T	U	Allowable Operating Load (N)*)	Max. Workpiece Weight (kg) **)	Weight (kg)
51991529	20	100	13	5	M4x0.7-5L	150	250	0.42
51991530	25	90	15	8	M6x1 -8L	200	300	1.04

*) Allowable load to operate the handle

**)Max. weight that allows the locating pin to project and provide workpiece centering

NEW

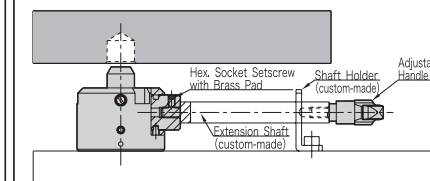


[Body & Piston]
Material: S45C steel
Finish : Black oxide
Heat Treat: Quenched and tempered

[Crank shaft]
Material: S45C steel
Color : Black

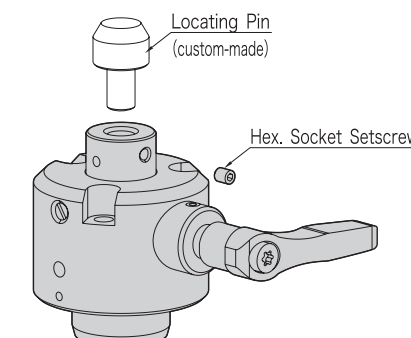
How To Use

Extended Application



With an extension shaft and a shaft holder prepared separately, the handle control can be easily done even when small space is available under the workpiece.

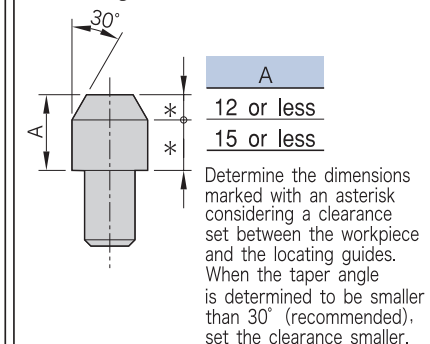
Locating-Pin Mounting



Projected Mode

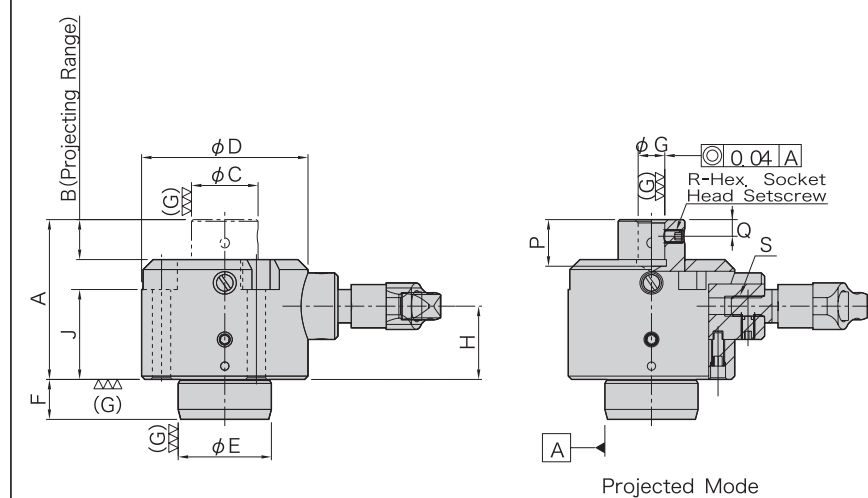
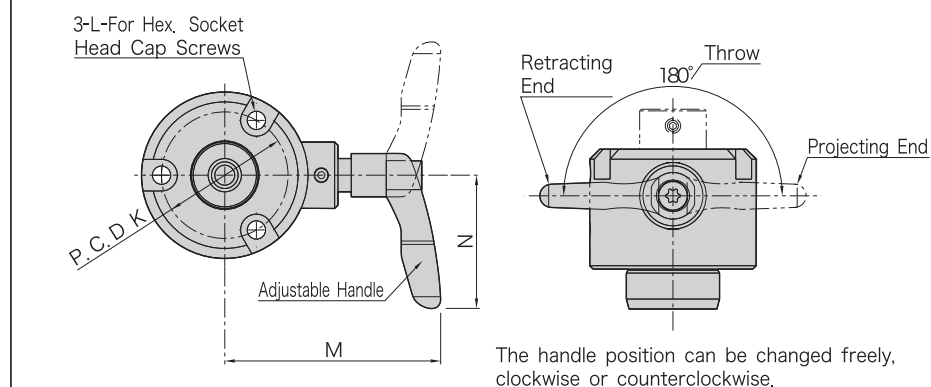
A locating pin can easily be mounted by using a hex socket setscrew when the piston is fully projected (locating pins must be prepared separately).

Locating-Pin Head Dimensions



A
12 or less
15 or less

Determine the dimensions marked with an asterisk considering a clearance set between the workpiece and the locating guides. When the taper angle is determined to be smaller than 30° (recommended), set the clearance smaller.



Projected Mode

Part Number	A	B	C	D	E (g6)	F	G (G7)	H	J	K (P, C, D)	L	M	N	P
51991533	48	12	20	50	28	12	8	22	27	38	M5	65	40	14
51991534	61	15	30	65	42	14	12	26	31	52	M6	87.5	65	16

Part Number	Q	R	S	Adjustable Handles	Allowable Operating Load (N)*)	Max. Workpiece Weight (kg) **)	Weight (kg)
51991533	5	M4x0.7-5L	M6x1 12 deep	FKR6X10-BR	170	250	0.59
51991534	6	M5x0.8-8L	M8x1.25 17 deep	FKR8X15-BR	210	300	1.31

*) Allowable load to operate the handle

**)Max. weight that allows the locating pin to project and provide workpiece centering

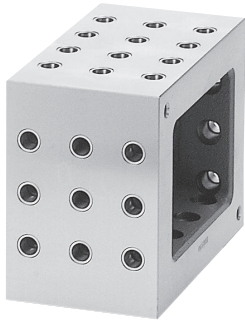
Features

•Can support heavy workpieces made from steel or cast iron

•No tools needed

•Different locating pins can be mounted depending on workpiece's locating holes.

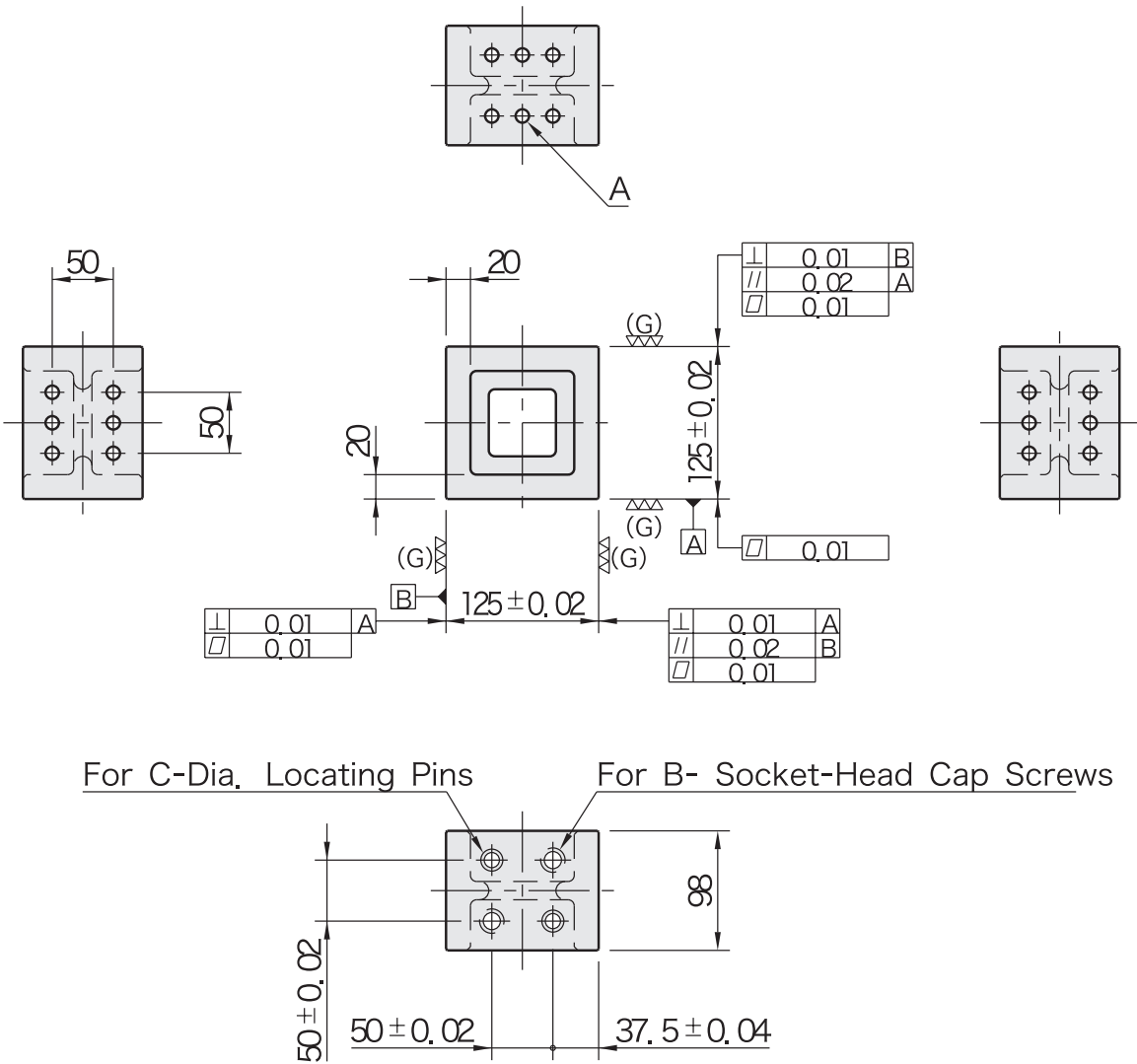
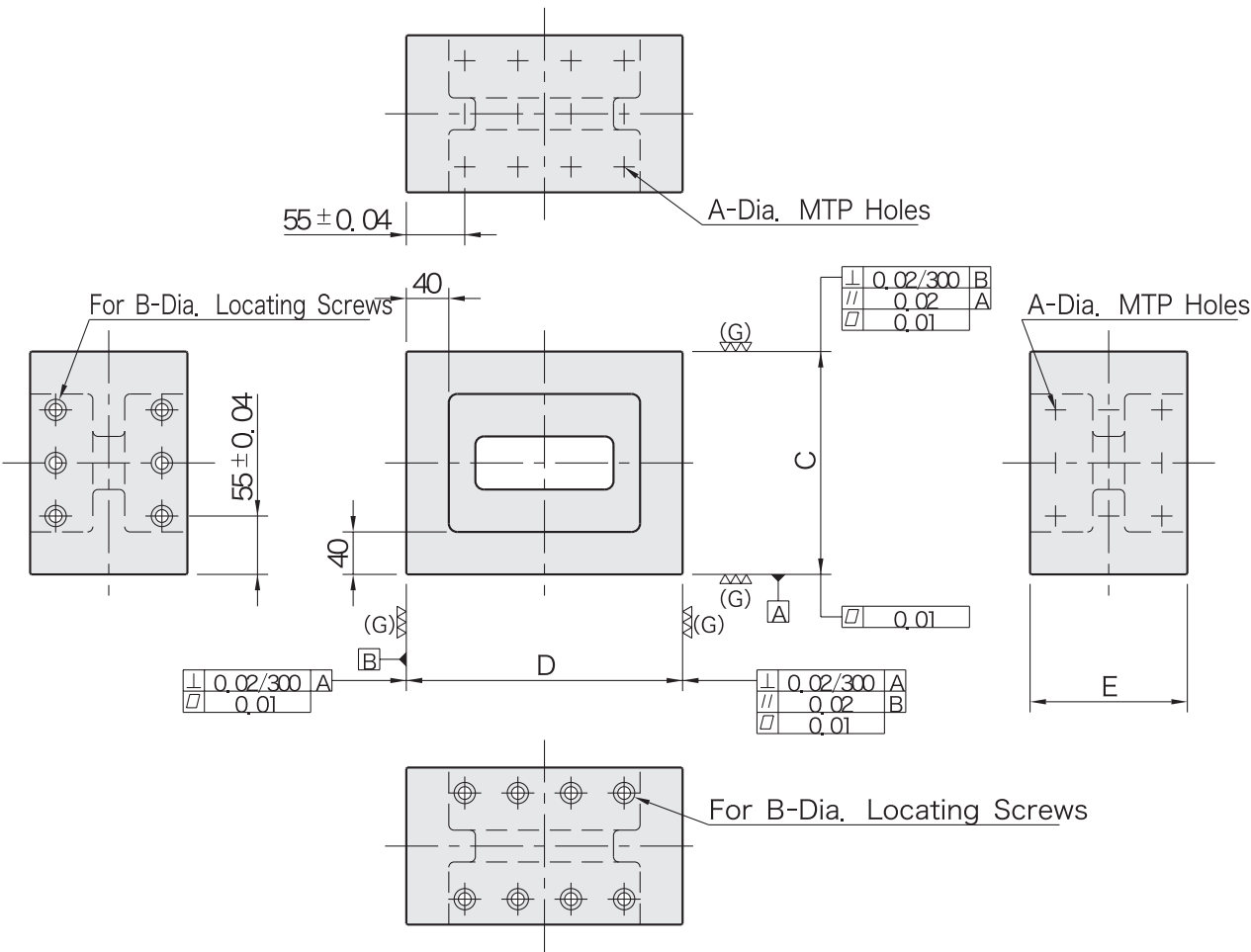
•The piston stays locked when it is fully projected or retracted until the handle is operated again.



[Body]
Material:FC300 cast iron
Annealed
Precision ground
[Alignment Bushing]
Material:SUI2 steel
Heat treated
[Threaded Insert]
Material:S45C steel
Heat treated



[Body]
Material:FC300 cast iron
Annealed
Precision ground
[Alignment Bushing]
Material:SUI2 steel
Heat treated
[Threaded Insert]
Material:S45C steel
Heat treated

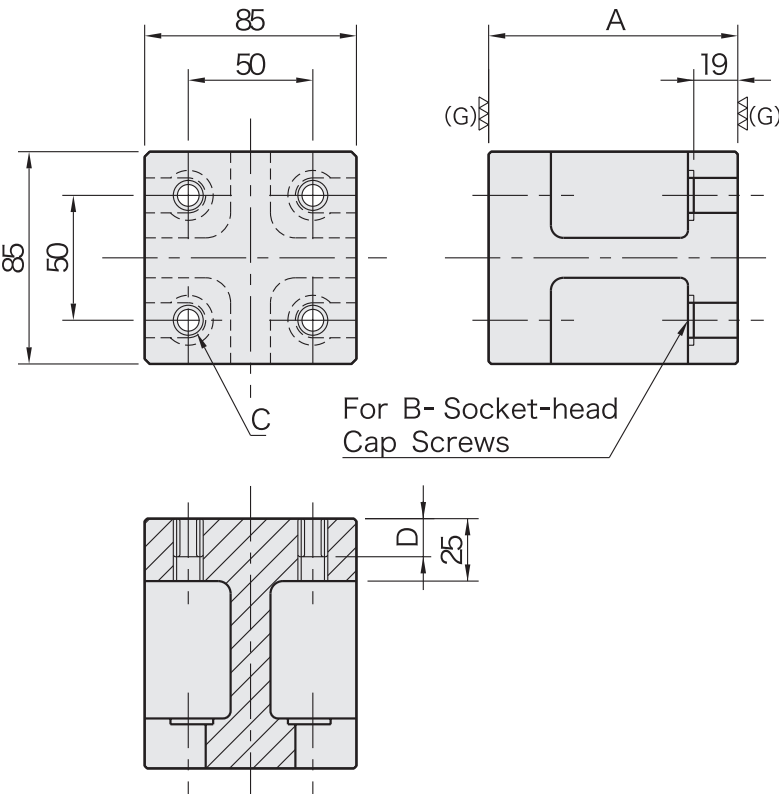
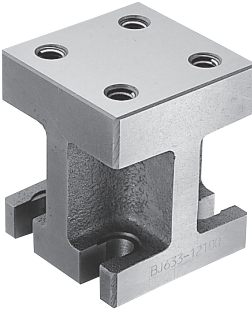


Part Number	A		B	C		D	E	No. of MTP Holes	No. of Mounting Holes	Proper Locating Screws Cod.	Weight (kg)
	(F7)	(Thread)		(±0.02)	(±0.02)						
51991535	12	M12x1.75	12	160	210	148	15	10	51991863		26
51991536				210	260		21	14			37
51991537	16	M16x2	16	160	210	148	15	10	51991865		25
51991538				210	260		21	14			36

•MTP-hole protection plugs and eye bolts are included.
•Locate on a tooling plate or block using Locating Screws.
•MTP holes spacing : 50 ± 0.02mm

Part Number	A	B	C (F7)	Weight (kg)
51991539	M12x1.75	M12	12	6.3
51991540	M16x2	M16	16	6.2

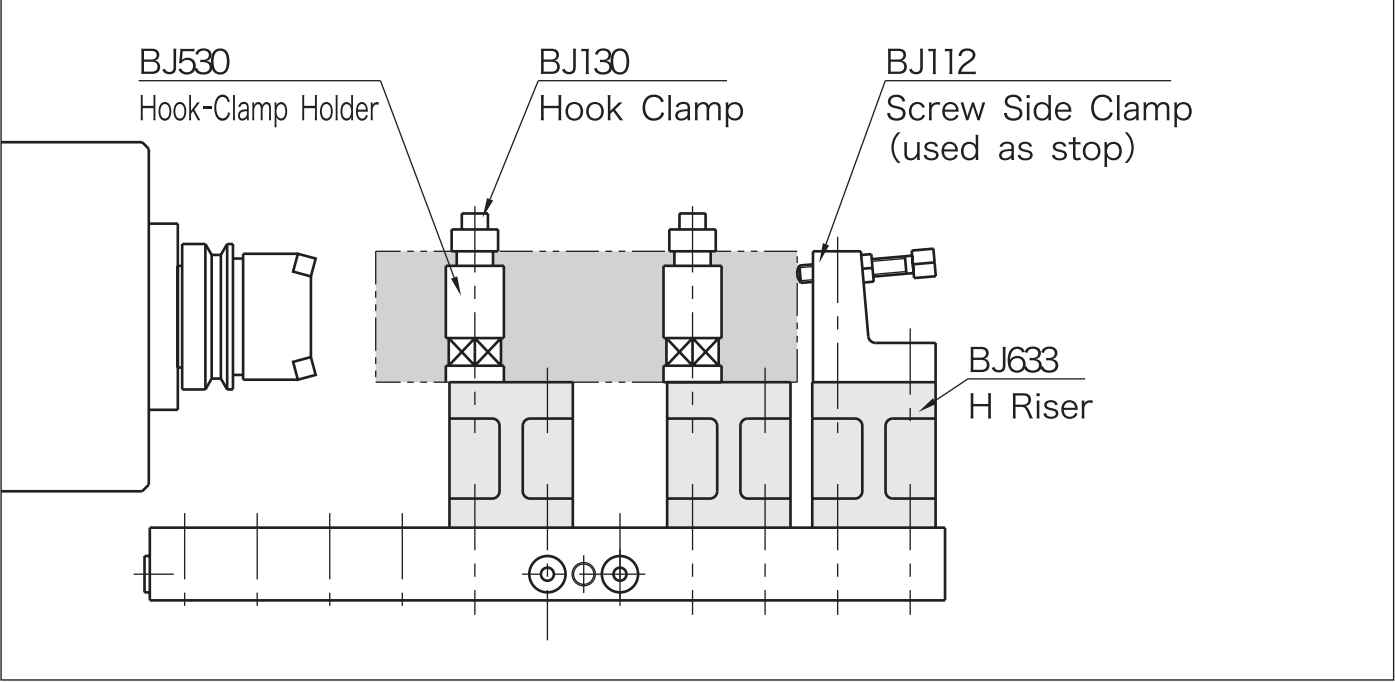
•Locate on a tooling plate or block using a round pin and a diamond pin.



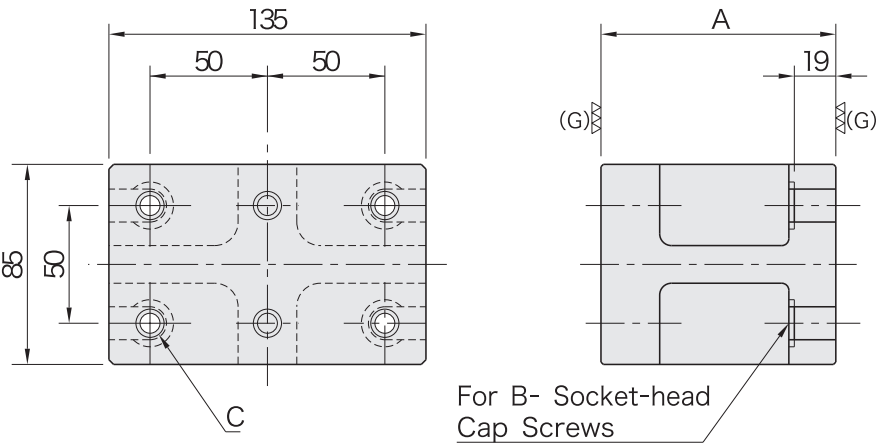
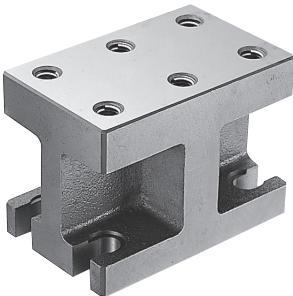
- 【Body】
- Material : FC300 cast iron
 - Annealed
 - Precision ground
- 【Threaded Insert】
- Material : S45C steel
 - Heat treated

Part Number	A (±0.01)	B	C	D	Weight (kg)
51991543	100	M16	M16×2	16	3.2
51991544	125				3.8

■How To Use

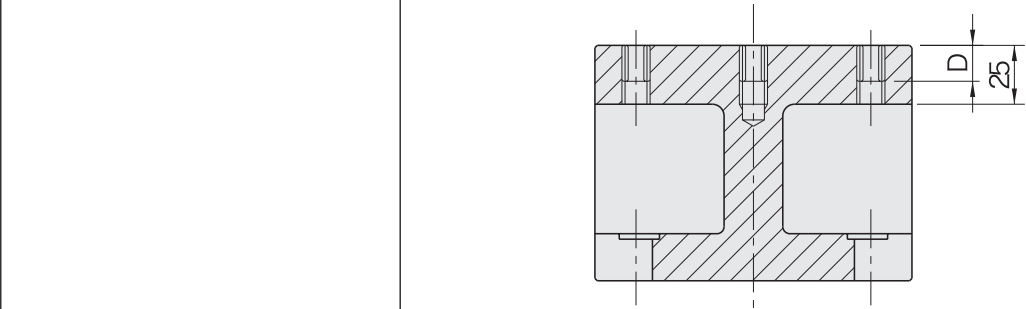


Use to raise a workpiece or components, parallel to a tooling plate.



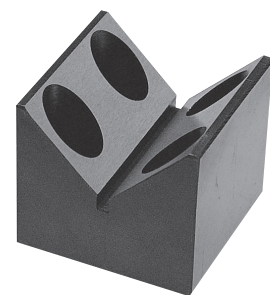
- 【Body】
- Material : FC300 cast iron
 - Annealed
 - Precision ground
- 【Threaded Insert】
- Material : S45C steel
 - Heat treated

Part Number	A (±0.01)	B	C	D	Weight (kg)
51991547	100	M16	M16×2	16	5.1
51991548	125				5.8



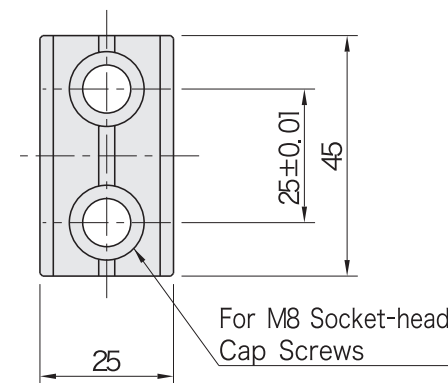
BJ440(Mini)

V BLOCKS

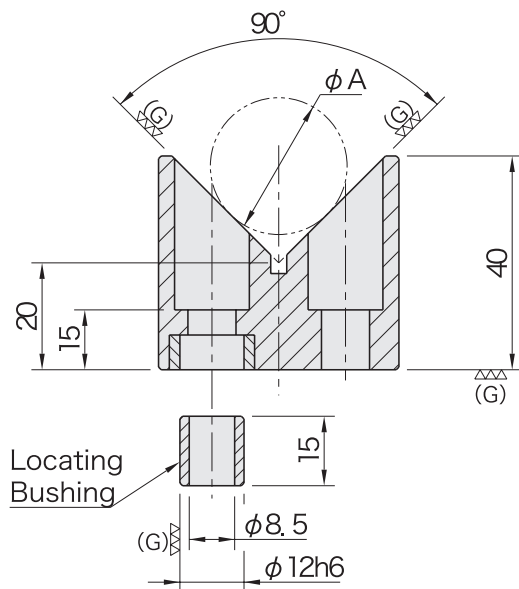
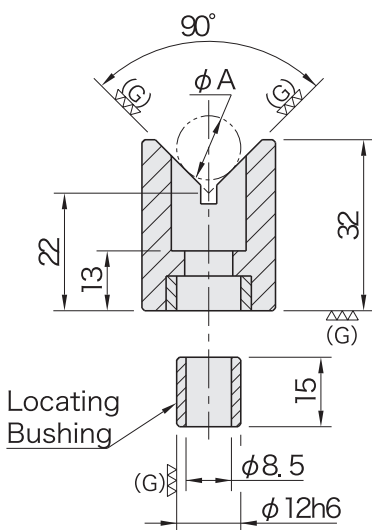
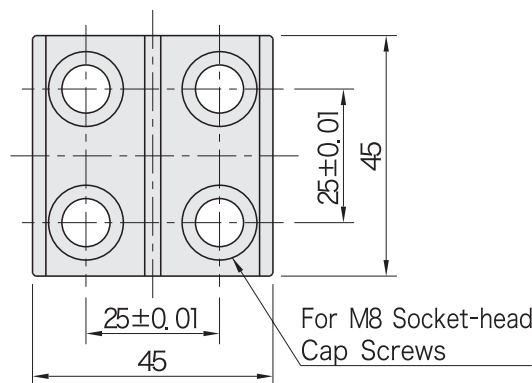


- Material : S45C steel
- Heat treated
- Black oxide finish
- Precision ground

BJ440-08032



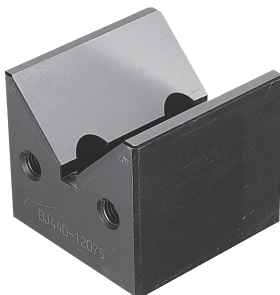
BJ440-08040



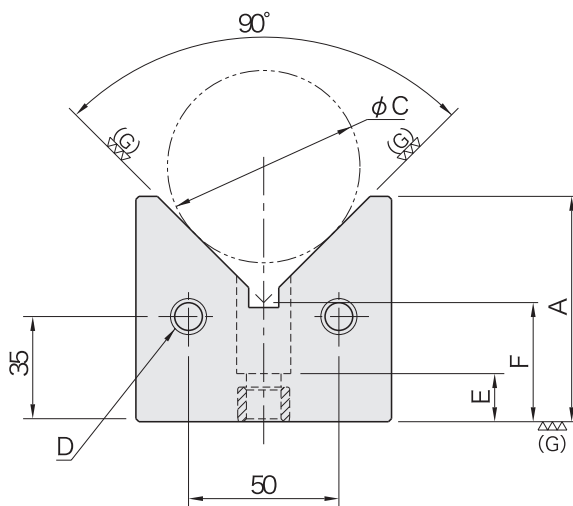
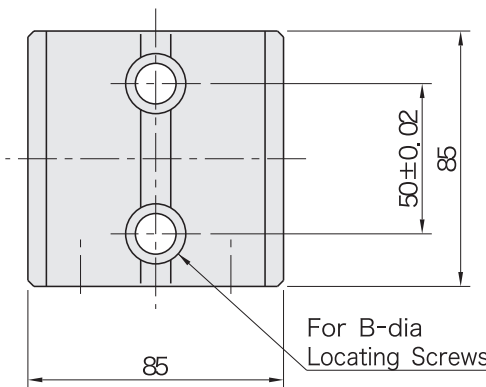
Part Number	A		Weight (g)
	min.	max.	
51991549	10	25	200
51991550	15	50	370

BJ440

V BLOCKS



- Material : S45C steel
- Heat treated
- Black oxide finish
- Precision ground



Part Number	A	B (F7)	C		D	E	F
			Min.	Max.			
51991551	63	12	15	80	M12×1.75 30 deep	22	34.72
51991552	75			100			39.65
51991553	63	16	35	80	M16×2 35 deep	25	34.72
51991554	75			100			39.65

Part Number	Proper Locating Screws Cod.	Weight (kg)
51991551	51991862	2.9
51991552		3.3
51991553	51991864	2.9
51991554		3.3

BJ770

METAL PROTECTION PLUGS



51991556



51991555

Part Number	Thread	Weight (g)
51991555	M12	15
51991556	M16	20
57290020	D16/M12	18

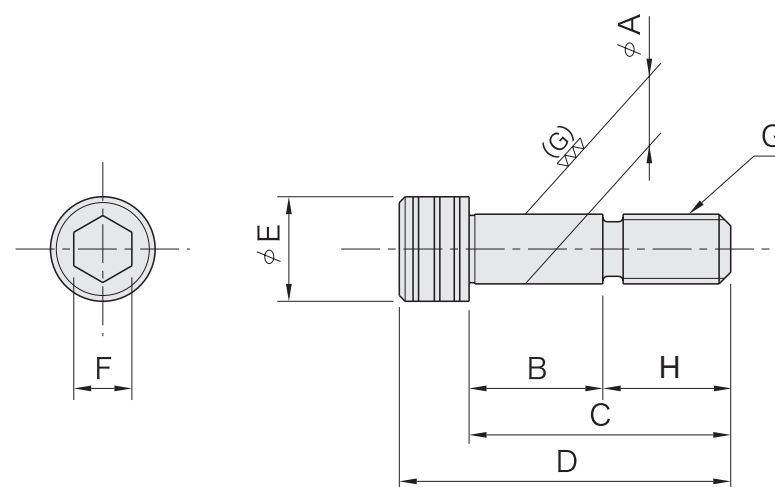
•Replacement protection plugs.
•Use to keep chips and dirt out of unused MTP holes.

BJ701

HIGH PRECISION LOCATING SCREW



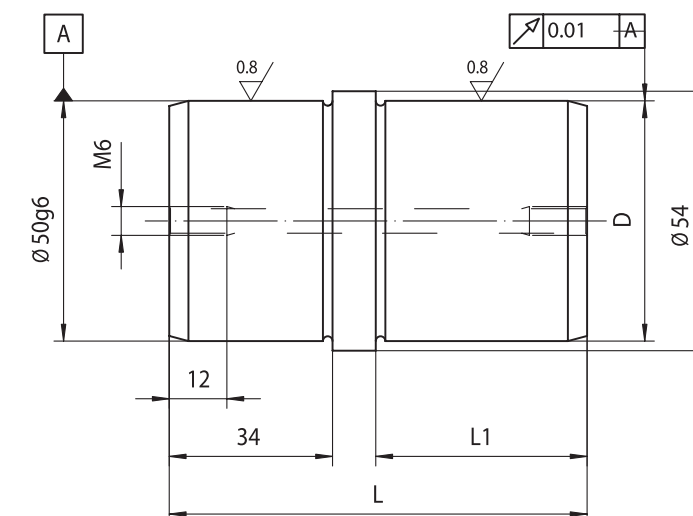
Material:SCM435 steel
Heat treated
Black oxide finish
Precision ground



Part Number	A*	B	C	D	E	F	G	H	Weight (g)
51 99 18 66	12	23	45	57	18	10	M12x1,75	22	52
51 99 18 62		33	55	67					59
51 99 18 63		43	65	77					68
51 99 18 65	16	30	55	71	24	14	M16x2	25	120
51 99 18 64		40	65	81					134

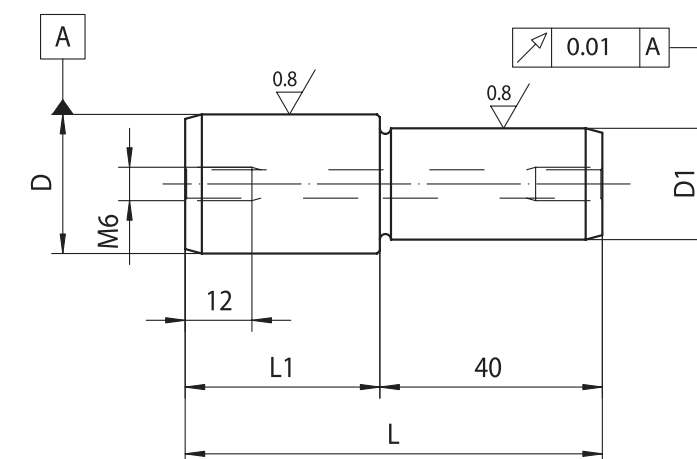
* - 0,005
- 0,013

CENTERING PIN



Part Number	Dg6	L	L1	Weight (Kg)
57001051	25	77	34	0.81
57001052	40	87	44	1.12
57001053	50	87	44	1.36

CENTERING PIN FOR ALIGNING HOLE



Part Number	Dg6	D1g6	L	L1	Weight (Kg)
57001061	25	20	75	35	0.23
57001062	30	20	85	45	0.34
57001063	30	35	85	45	0.40

EDGE CLAMP



Edge clamp
M12x14, complete with M12 mounting.
Body is made of case-hardened steel and blued.
Clamping hook is made of case-hardened steel and blued.
Tightening torque 75 Nm.
Mounted using strength grade 10.9 screws.

Order no.	Size		H ± 0,1	G	F1 [kN]	F2 [kN]	Weight [g]
58990101	M12x14	14	65	M12	12	5	1530

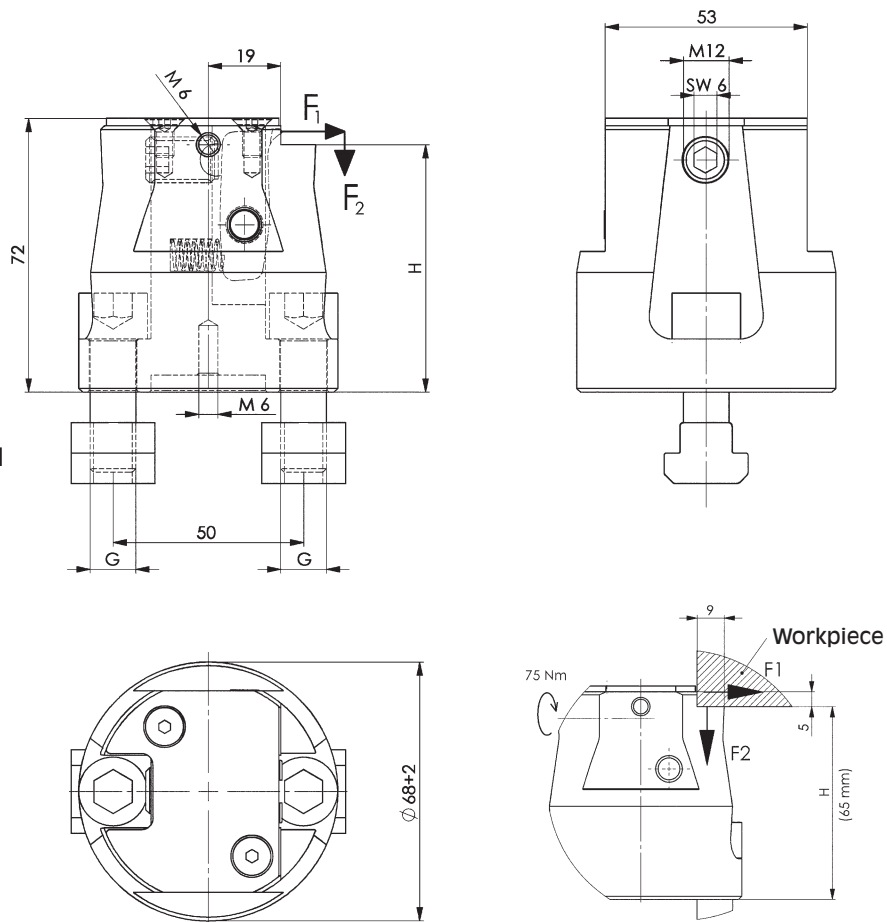
Special versions (dimension H ±0.01) are available on request

Use:
The mechanical side clamp with holddown effect can be used as a clamping element and as a fixed stop.
Moving the adjusting bolt causes hook ends to clamp the workpiece. At the same time, a pull-down effect occurs on the contact surface.
Attaching a lateral stop enables the workpiece to be repeatedly clamped.
When used in conjunction with base plate 58990103, the side clamp can also be placed across the table groove.
In conjunction with round base plate 58990102, only along the table groove.

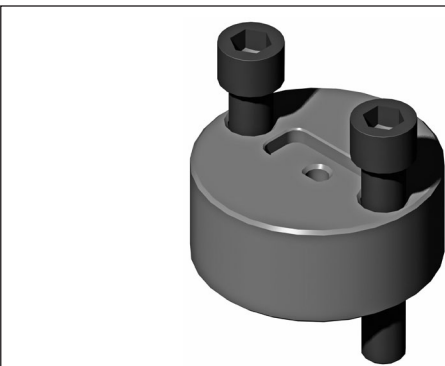
Advantages:

- compact dimensions
- workpiece fastened rigid and secure through pull-down effect
- plate tension increased to make holes and grooves
- lateral plate tension to completely finish surfaces without collision contour
- lateral thread enables a stop to be fastened
- can be used for horizontal and vertical applications
- reduced tooling time and tool elements cuts tooling costs
- diverse and variable applications

Note:
Flat sliding block 58990104
Enables the side clamp to be accurately positioned in the machine table groove.



BASE PLATE, ROUND



Base plate, round
M12x14, complete with fixing screws.
Housing from hardened, nitride steel.
Fastened with screws of strength class 10.9.

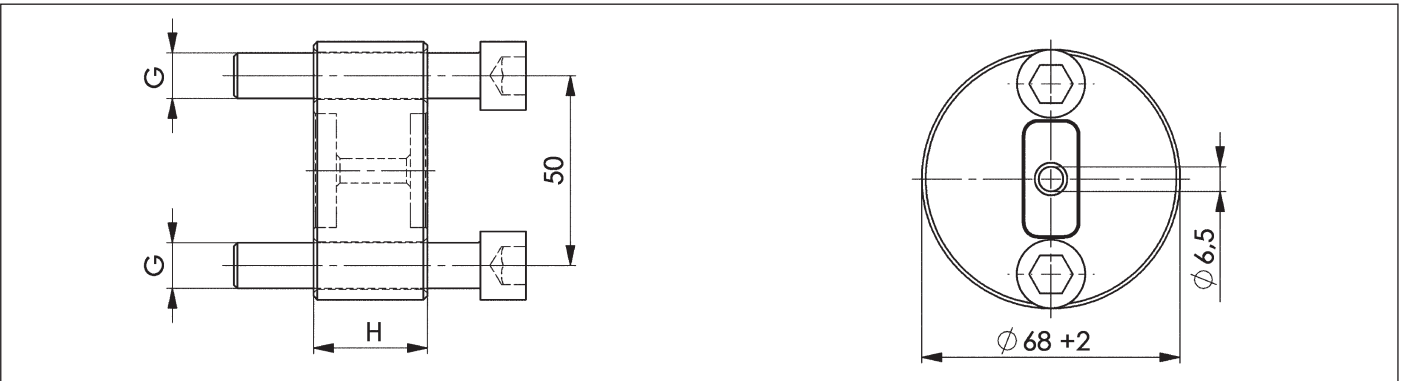
Use:
Used in conjunction with side clamp 58990101 to clamp slot the table groove.

Advantages:

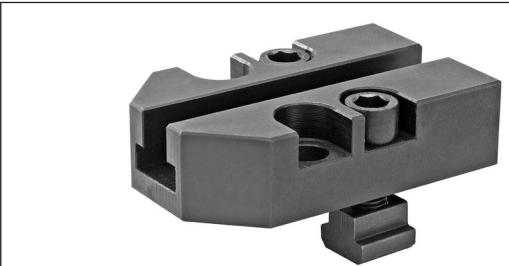
- clamping along the groove achieved with the side clamp only
- workpiece mounting surface increased by 30 mm.
- same external diameter as side clamp 58990101

Note:
Flat sliding block 58990104
Enables the side clamp with round base plate to be accurately positioned in the machine table groove.

Order no.	Size		H	G	Weight [g]
58990102	M12x14	14	30	M12	910



BASE PLATE



Base plate
M12x14, complete with M12 mounting.
Body is made of hardened and tempered alloy steel.
Mounted using strength grade 10.9 screws.

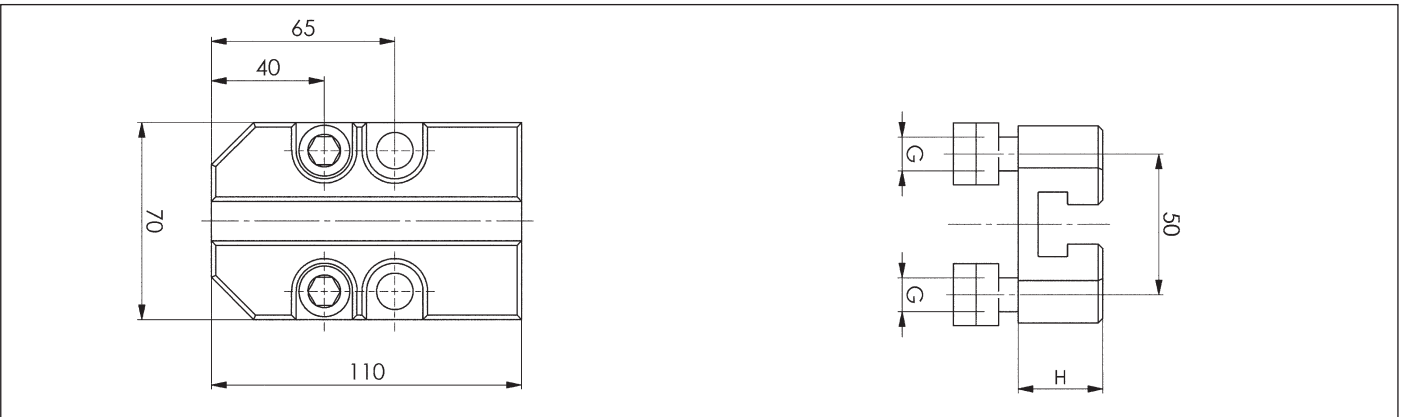
Use:
Used in conjunction with side clamp 58990101 to also clamp slot the table groove.

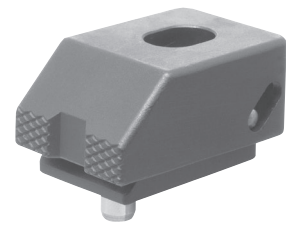
Advantages:

- clamping also along the groove achieved with the lateral clamp only
- workpiece mounting surface increased by 30 mm.
- side clamp can be pushed 40 mm on the base plate

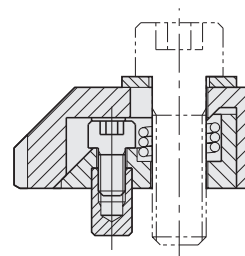
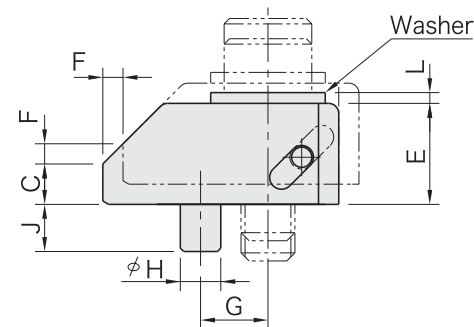
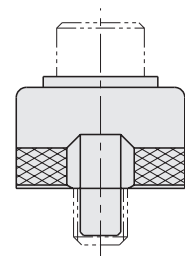
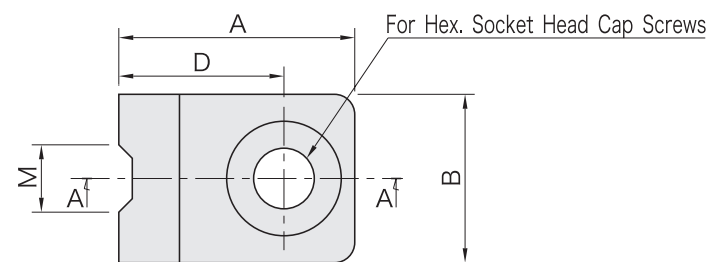
Special versions (dimension H ±0.01) are available on request.

Order no.	Size		H	G	Weight [g]
58990103	M12x14	14	30	M12	1330





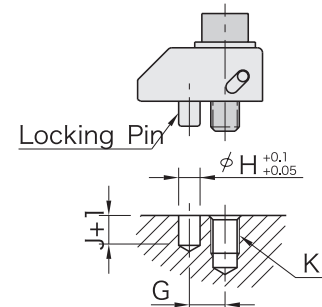
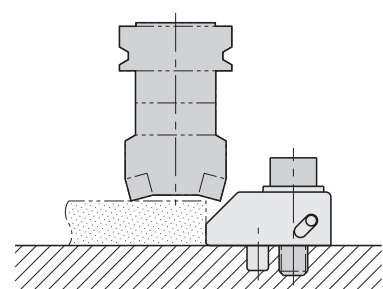
Material: S45C steel
Finish : Black oxide
Heat Treated



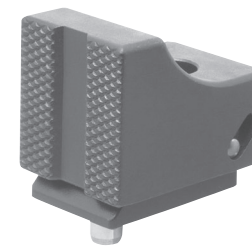
Section A-A

Part Number	A	B	C	D	E	F	G	H (h7)	J	K	L	M	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
51991557	35	25	6	24.5	15	3	10	6	7	M 8	1.6	10	7,000	25	100
51991558	43	30	8	29	19	4	12	6	7	M10	2	11	8,500	50	185
51991559	54	35	9	37	23	5	16	8	10	M12	2.3	12	20,000	90	320
51991560	65	40	10	45	25	6	20	10	10	M16	3.2	14	40,000	200	520

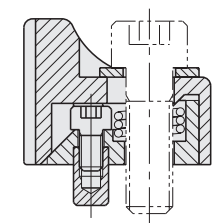
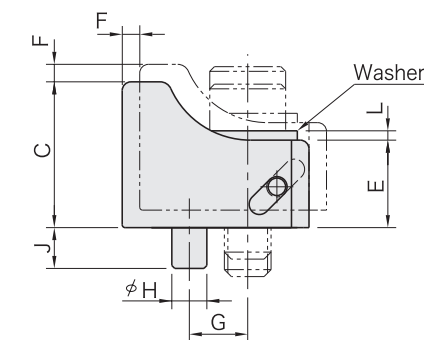
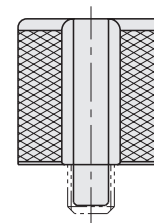
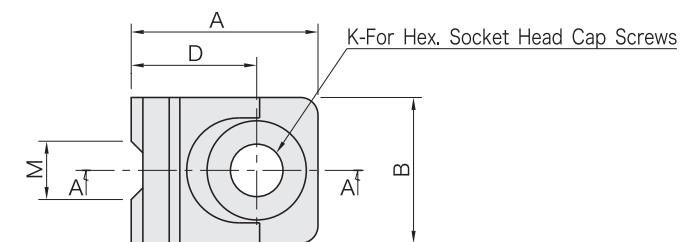
How To Use and Install



- Drill a cap-screw hole and a locking-pin hole as specified.
- One flat washer is included.



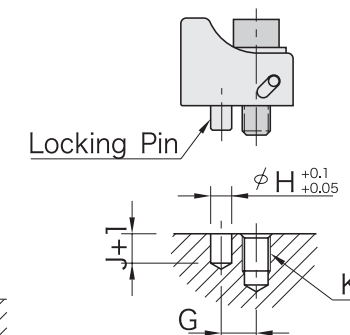
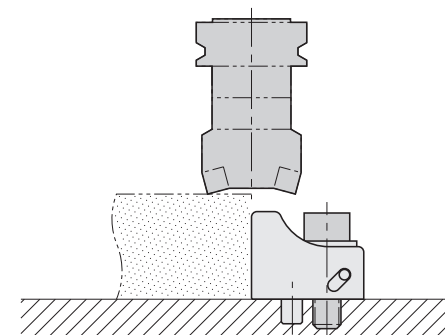
Material: S45C steel
Finish : Black oxide
Heat Treated



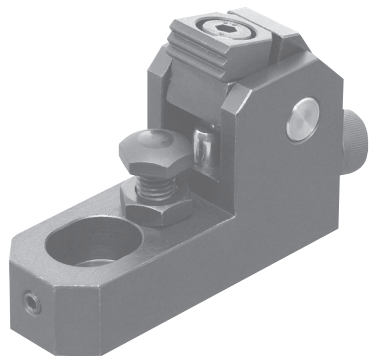
Section A-A

Part Number	A	B	C	D	E	F	G	H (h7)	J	K	L	M	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
51991561	32	25	25	21.5	15	3	10	6	7	M 8	1.6	10	7,000	25	115
51991562	40	30	32	26	19	4	12	6	7	M10	2	11	8,500	50	225
51991563	50	35	38	33	23	5	16	8	10	M12	2.3	12	20,000	90	390
51991564	60	40	45	40	25	6	20	10	10	M16	3.2	14	40,000	200	640

How To Use and Install



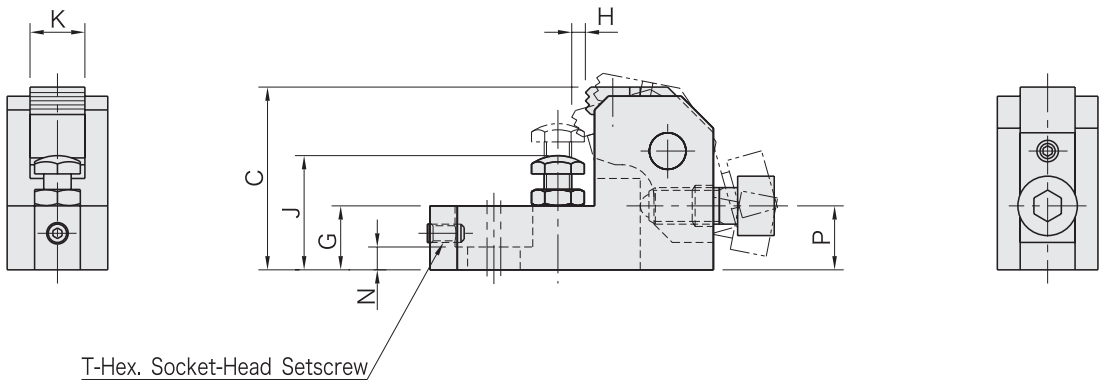
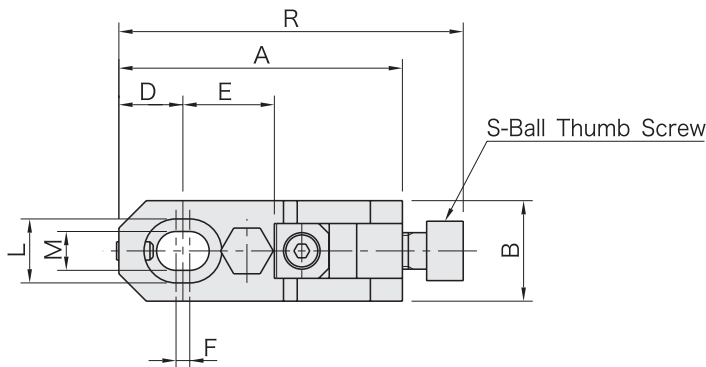
- Drill a cap-screw hole and a locking-pin hole as specified.
- One flat washer is included.



[Body]
Material: S45C steel
Finish : Black oxide
Heat Treated

[Arm]
Material: S45C steel
Finish : Black oxide

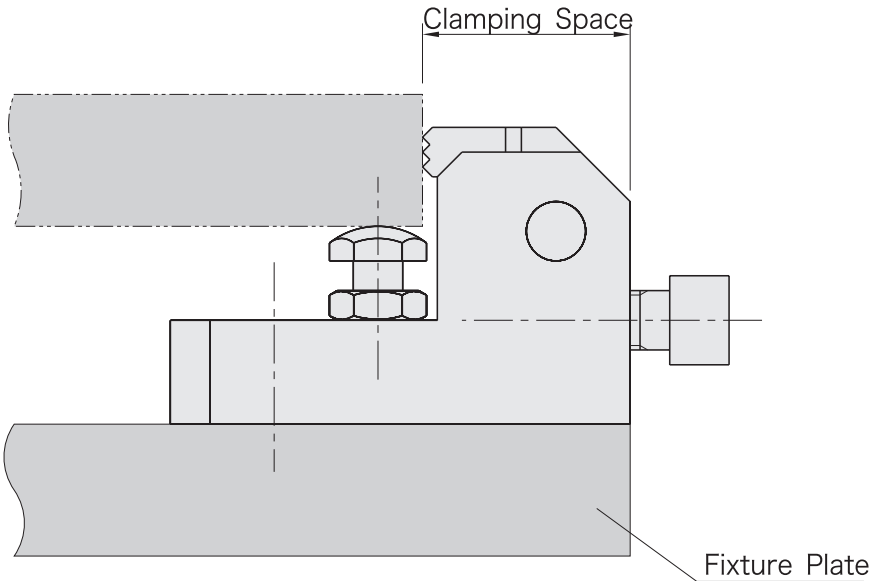
[Jaw]
Material: SKH51 steel
Finish : Black oxide
Heat Treated



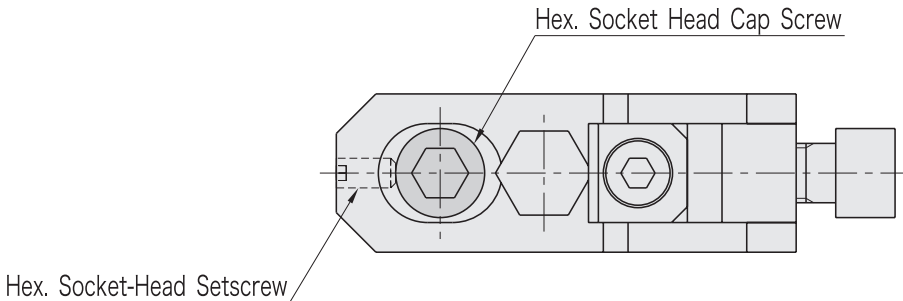
Part Number	A	B	C	D	E	F	G	H	J	K	L	M
51991565	62	22	40	14	20	3	14	3	25 to 32	12	14	8.5
51991566	78	25	50	18	25	4	18	3.7	32 to 40	16	17.5	11
51991567	93	32	60	21	30	5	21	4.5	40 to 48	20	20	13
51991568	124	38	80	28	40	6	27	6	48 to 63	25	26	17

Part Number	N	P	R	S	T	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (kg)
51991565	5	14	75.5	M 8x1.25-20L	M4x0.7-8L	6.000	15	0.23
51991566	7	17.5	95	M10x1.5-25L	M5x0.8-10L	10.000	30	0.41
51991567	8	21	113	M12x1.75-30L	M6x1-12L	17.000	65	0.75
51991568	10	28	151	M16x2-40L	M8x1.25-16L	25.000	130	1.57

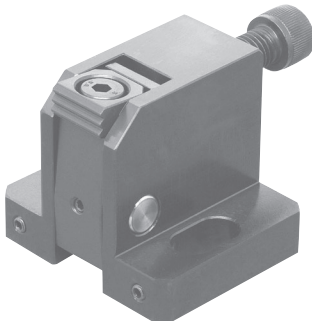
How To Use and Install



Smaller clamping space allows clamping a larger workpiece.



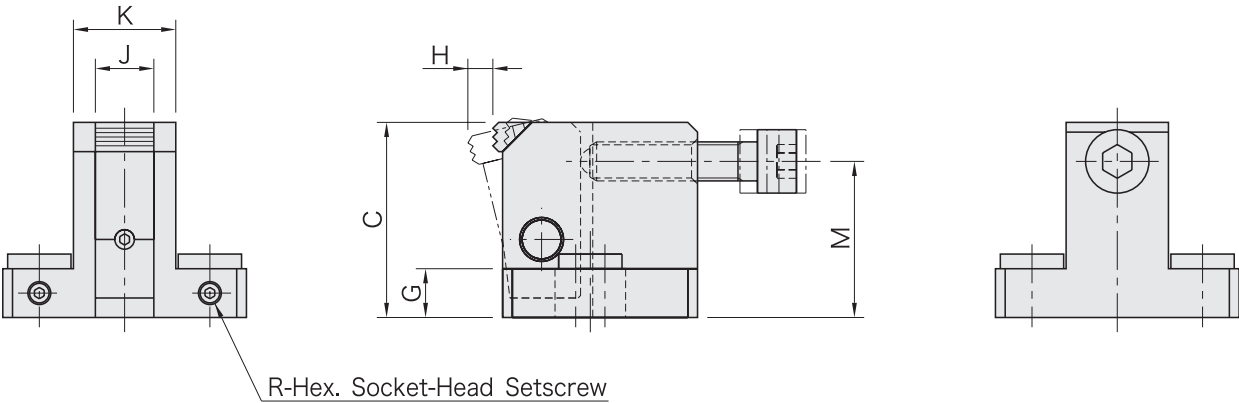
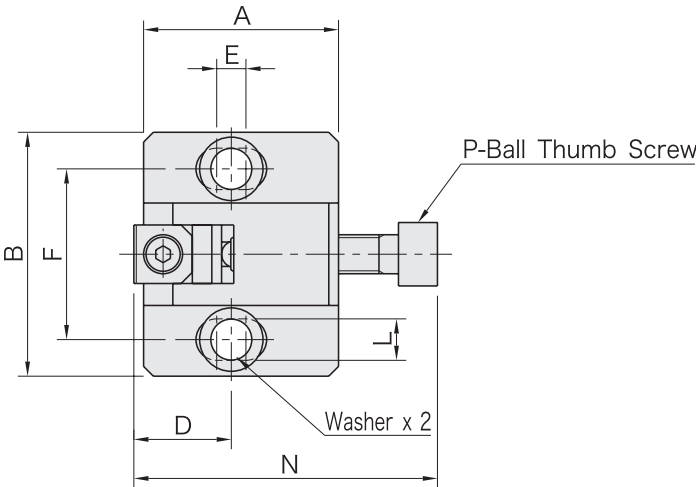
The hex. socket-head setscrew works to prevent the clamp from sliding back if screwed in until it contacts the cap screw.



[Body]
Material: S45C steel
Finish : Black oxide

[Arm]
Material: S45C steel
Finish : Black oxide
Heat Treated

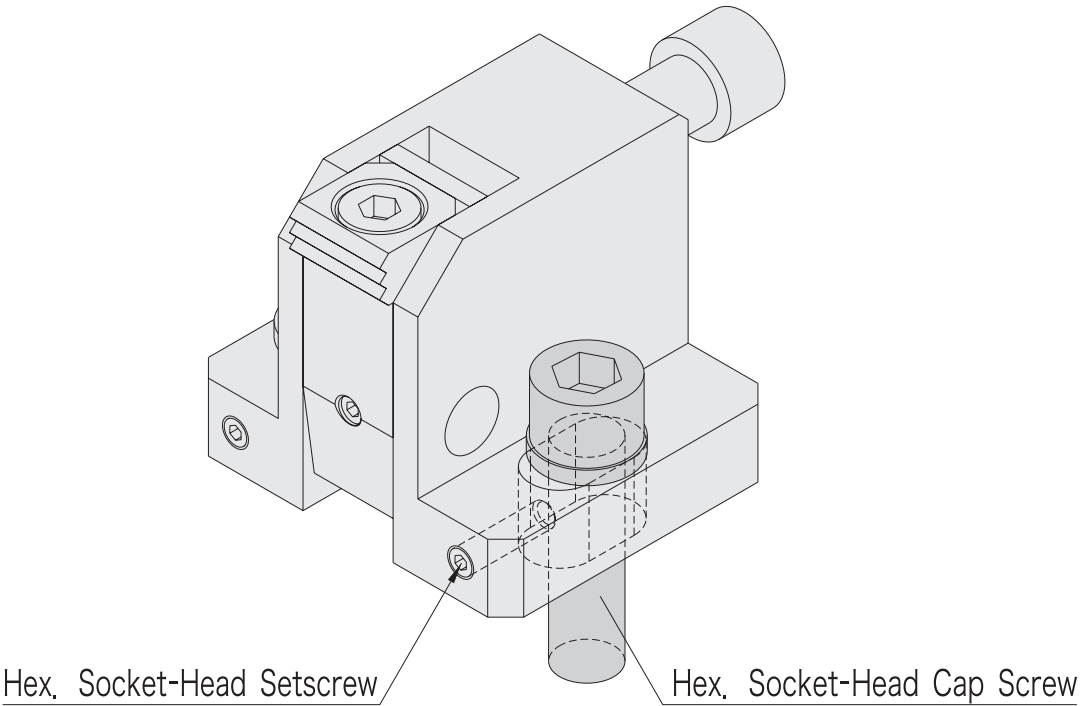
[Jaw]
Material: SKH51 steel
Finish : Black oxide
Heat Treated



Part Number	A	B	C	D	E	F	G	H	J	K	L
51991569	40	50	40	20	6	35	10	5.3	12	21	8.5
51991570	50	65	50	25	8	45	12	7.1	16	27	11
51991571	60	70	60	30	10	50	15	8	20	31	13
51991572	80	90	80	40	15	65	20	10.2	25	39	17

Part Number	M	N	P	R	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (kg)
51991569	32	62.5	M 8x1.25-35L	M4x0.7-10L	11,000	25	0.33
51991570	40	74	M10x1.5-40L	M4x0.7-12L	18,000	50	0.66
51991571	48	91	M12x1.75-50L	M5x0.8-15L	25,000	90	1.06
51991572	64	115	M16x2-60L	M6x1-20L	46,000	200	2.38

How To Install

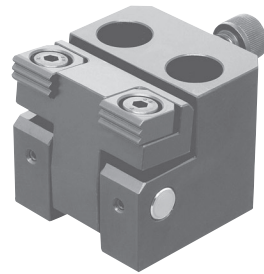


The hex. socket-head setscrew works to prevent the clamp from sliding back if screwed in until it contacts the cap screw.

•Two flat washers are included.

CP102

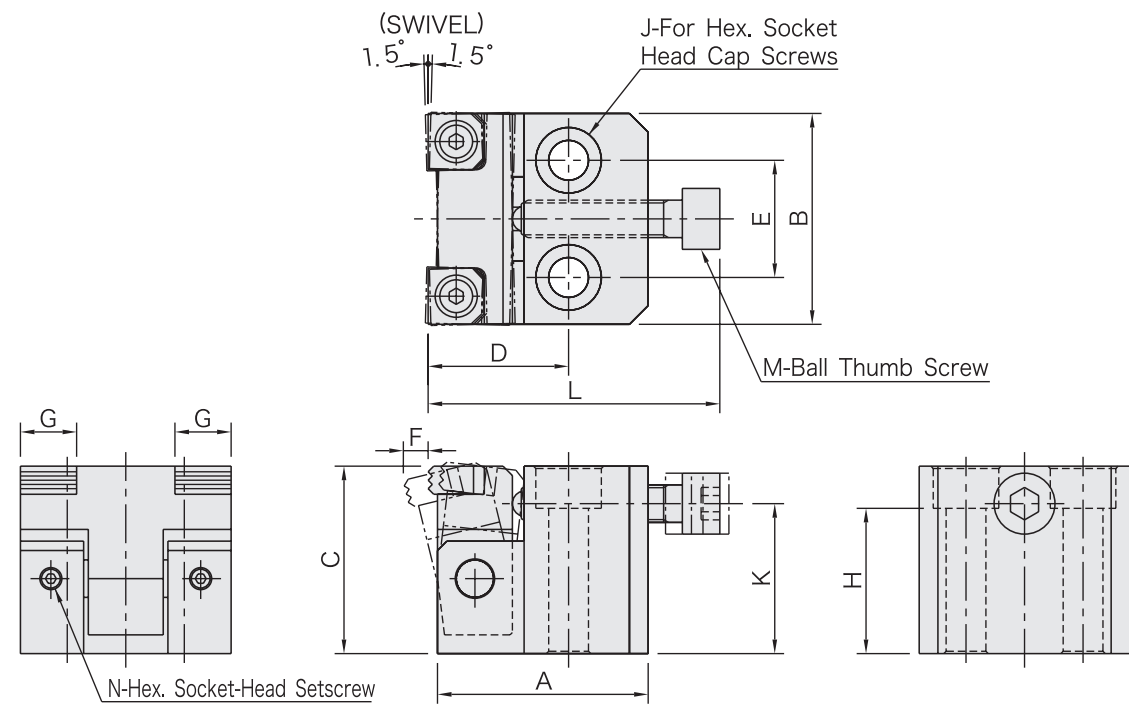
WIDE-JAW SIDE CLAMPS



[Body]
Material: S45C steel
Finish : Black oxide

[Arm]
Material: S45C steel
Finish : Black oxide
Heat Treated

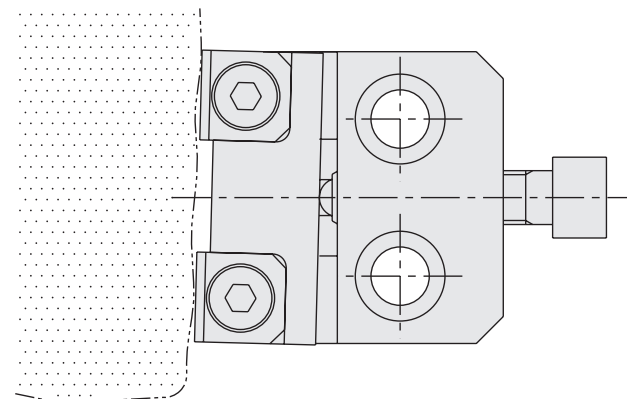
[Jaw]
Material: SKH51 steel
Finish : Black oxide
Heat Treated



Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N
51991573	45	45	40	30	25	5.3	12	31	M 8	32	62.5	M 8x1.25-35L	M4x0.7-4L
51991574	55	55	50	40	30	7.1	16	39	M10	40	74	M10x1.5 -40L	M4x0.7-4L
51991575	65	65	60	45	35	8	20	47	M12	48	91	M12x1.75-50L	M5x0.8-5L

Part Number	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (kg)
51991573	11,000	25	0.55
51991574	18,000	50	1
51991575	25,000	90	1.69

How To Use



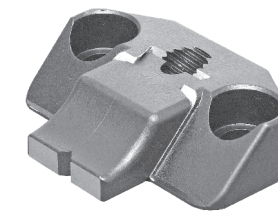
The jaw swivels to fit an unmachined surface of the workpiece.

CP104

TOE CLAMPS



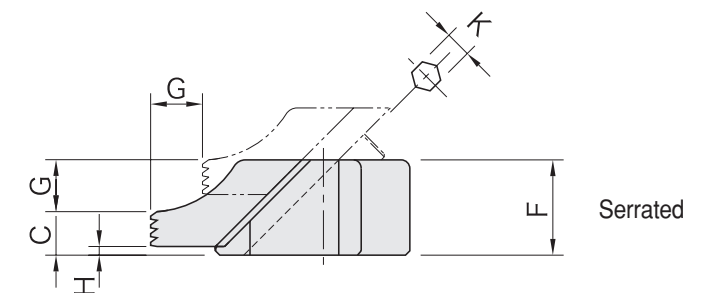
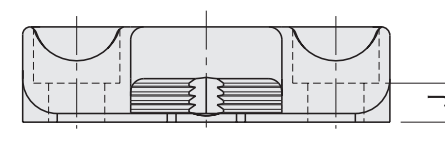
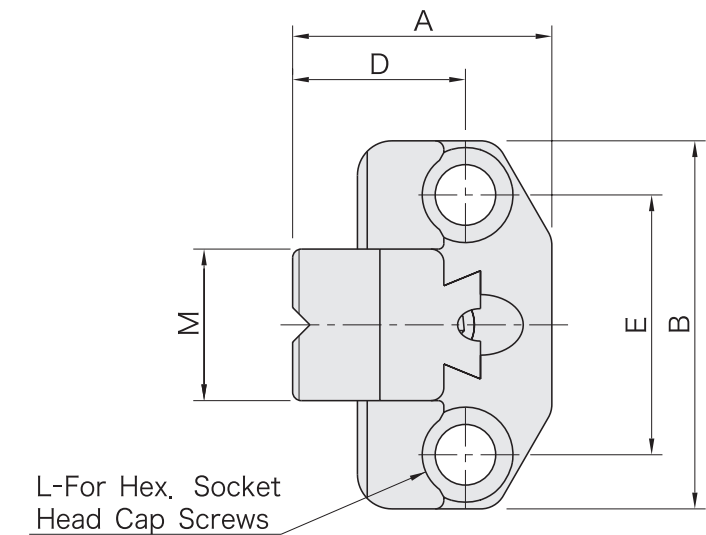
Serrated



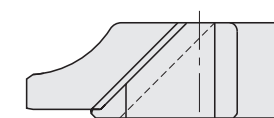
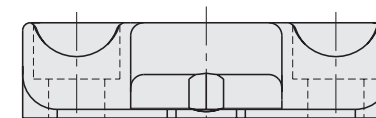
Ground

[Body]
Material: SCM440 steel
Finish : Black oxide
Heat Treated

[Jaw]
Material: SCM440 steel
Finish : Black oxide
Heat treated on edge



Serrated



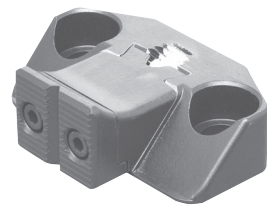
Ground

Serrated	A	B	C	D	E	F	G	H	J	K	L	M	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
51991576	39.5	65	7.5	25	45	16	7	1.5	7	4	M 8	25	4,000	8	160
51991578	60	85	10	40	60	22	12	2	9	6	M12	35	9,000	26	450
51991580	77	100	14	50	70	30	14	2	13	8	M16	40	17,000	60	900

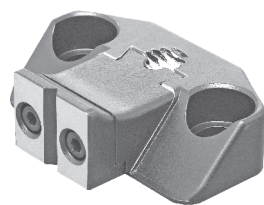
Ground	A	B	C	D	E	F	G	H	J	K	L	M	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
51991577	39.5	65	7.5	25	45	16	7	1.5	7	4	M 8	25	4,000	8	160
51991579	60	85	10	40	60	22	12	2	9	6	M12	35	9,000	26	450
51991581	77	100	14	50	70	30	14	2	13	8	M16	40	17,000	60	900

CP105

SIDE CLAMPS



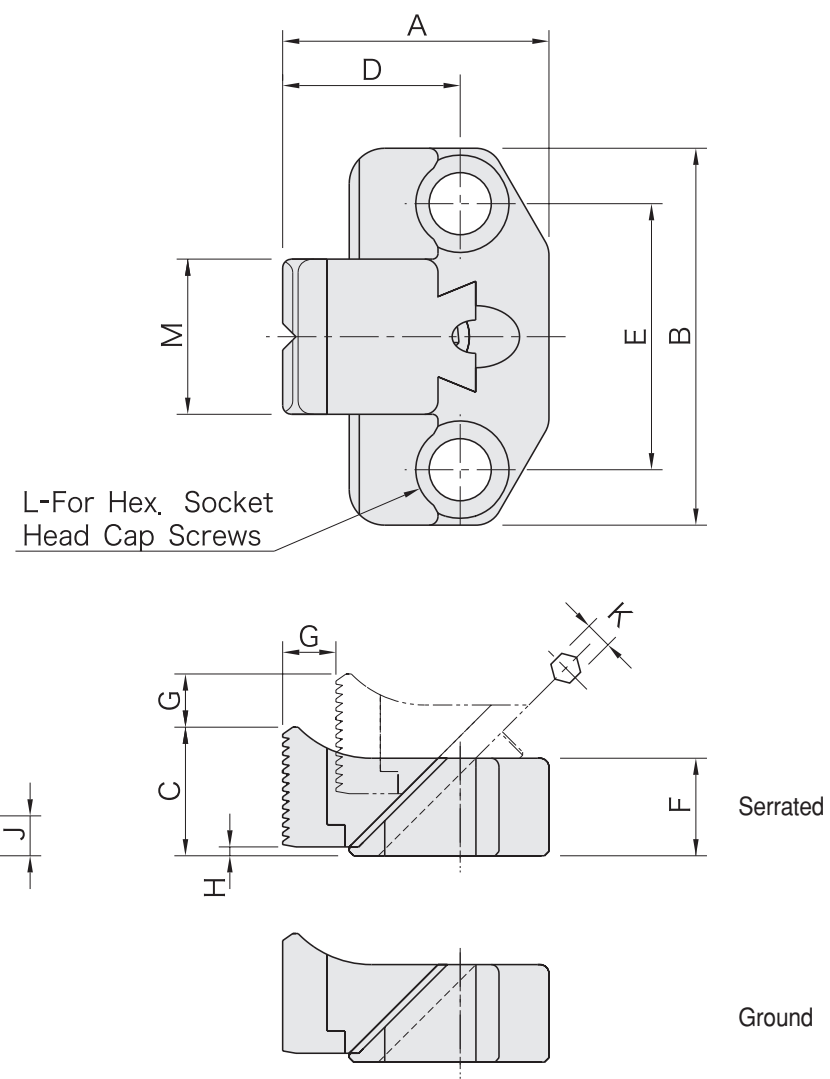
Serrated



Ground

[Body & Jaw Carrier]
Material: SCM440 steel
Finish : Black oxide
Heat treated

[Jaw]
Material: SCM440 steel
Finish : Black oxide
Heat treated on edge



Serrated Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
51991582	39.5	65	19.5	25	45	16	7	1.5	7	4	M 8	25	4,000	8	180
51991584	60	85	29	40	60	22	12	2	9	6	M12	35	9,000	26	500
51991586	77	100	38	50	70	30	14	2	13	8	M16	40	17,000	60	1,010

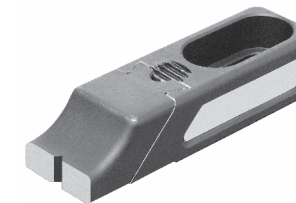
Ground Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
51991583	39.5	65	19.5	25	45	16	7	1.5	7	4	M 8	25	4,000	8	180
51991585	60	85	29	40	60	22	12	2	9	6	M12	35	9,000	26	500
51991587	77	100	38	50	70	30	14	2	13	8	M16	40	17,000	60	1,010

BJ101

ADJUSTABLE TOE CLAMPS



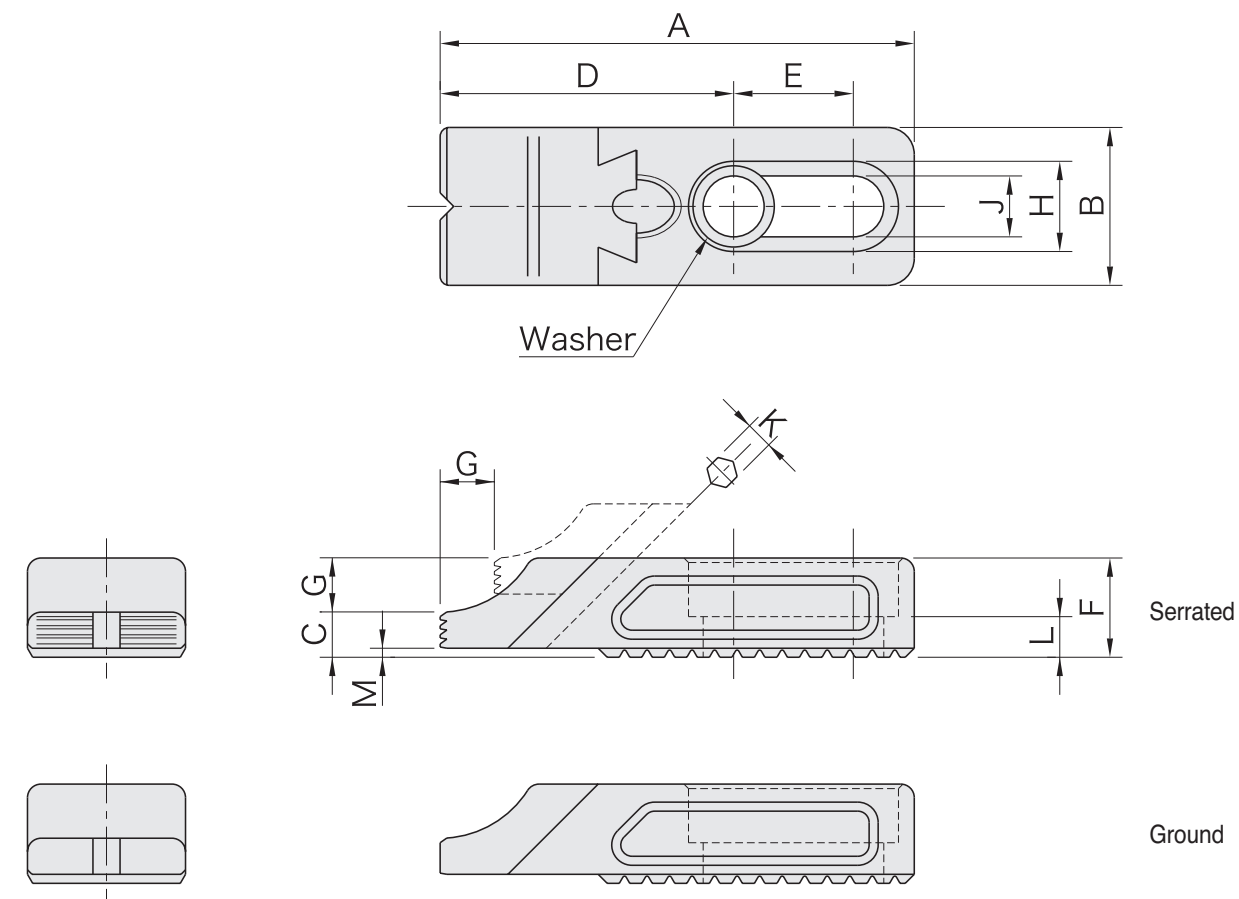
Serrated



Ground

[Body]
Material:FCM440 steel
Heat treated
Black oxide finish

[Sliding Nose]
Material:SCM440 steel
Heat treated (on edge)
Black oxide finish
Precision ground or serrated



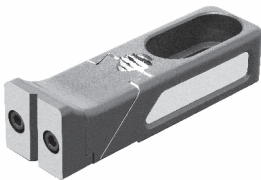
Serrated Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Weight (g)
51991588	72	25	7.5	45.5	16.5	16	7	14	8.5	4	7	1.5	150
51991590	105	35	10	65	26.5	22	12	20	13	6	9	2	400
51991592	137	40	14	89.5	30	30	14	26	17	8	13	2	830

Ground Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Weight (g)
51991589	72	25	7.5	45.5	16.5	16	7	14	8.5	4	7	1.5	150
51991591	105	35	10	65	26.5	22	12	20	13	6	9	2	400
51991593	137	40	14	89.5	30	30	14	26	17	8	13	2	830

Part Number	When Used Singularly		When Used with Slide Stop		Weight (g)
	Clamping Force (N)	Allowable Screw Torque (N·m)	Clamping Force (N)	Allowable Screw Torque (N·m)	
51991588	3,600	6,5	4,000	8	150
51991589					150
51991590					150
51991591	7,400	19	10,400	26	400
51991592					400
51991593	11,700	32	24,000	60	830

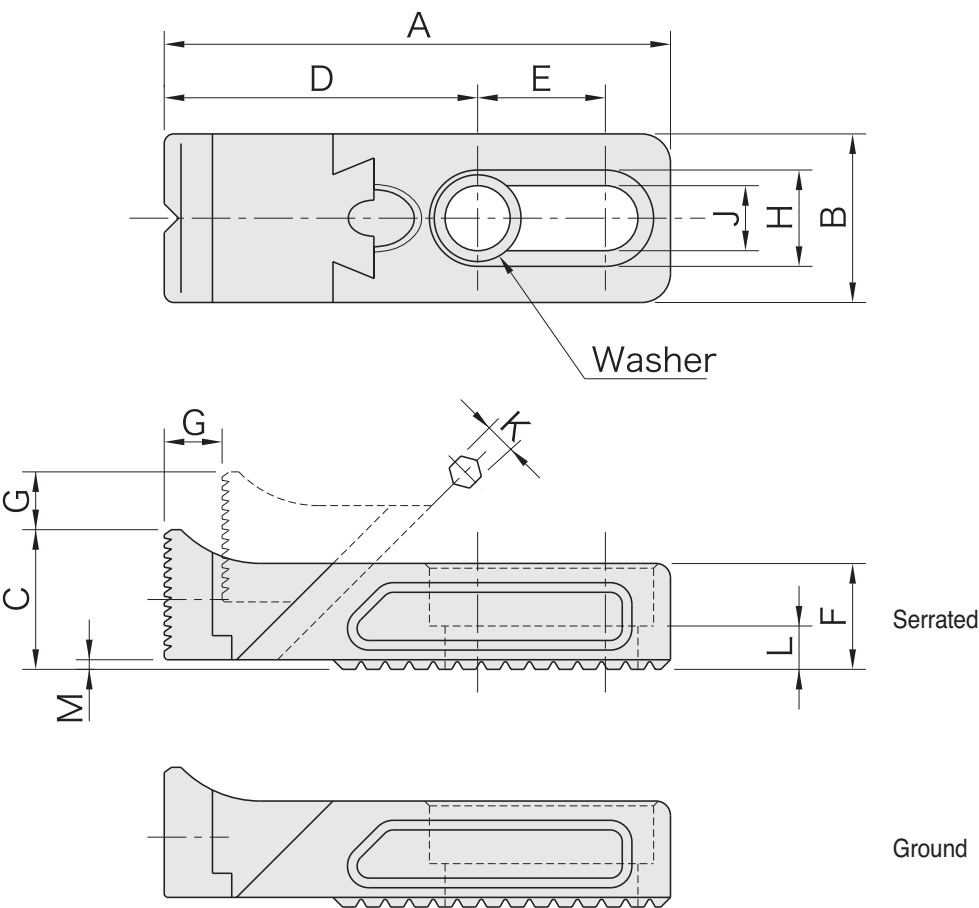


Serrated



Ground

[Body & Jaw Carrier]
Material:FCM440 steel
Heat treated
Black oxide finish
[Jaw]
Material:SCM440 steel
Heat treated
Black oxide finish
Precision ground or serrated



Serrated Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Weight (g)
51991594	72	25	19.5	45.5	16.5	16	7	14	8.5	4	7	1.5	160
51991596	105	35	29	65	26.5	22	12	20	13	6	9	2	440
51991598	137	40	38	89.5	30	30	14	26	17	8	13	2	920

Ground Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Weight (g)
51991595	72	25	19.5	45.5	16.5	16	7	14	8.5	4	7	1.5	160
51991597	105	35	29	65	26.5	22	12	20	13	6	9	2	440
51991599	137	40	38	89.5	30	30	14	26	17	8	13	2	920

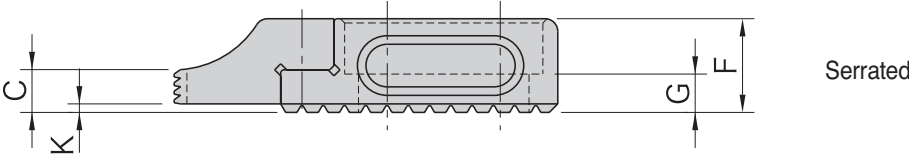
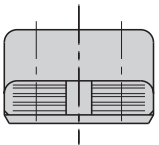
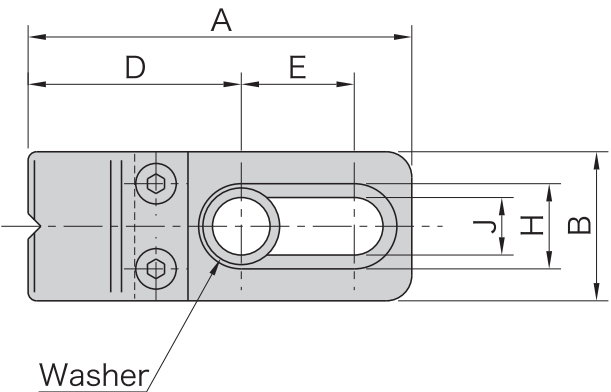
Part Number	Clamping Force (N) *)	Allowable Screw Torque (N•m) *)	Weight (g)
51991594	3,600	6,5	160
51991595			160
51991596	7,400	19	440
51991597			440
51991598	11,700	32	920
51991599			920

Note *) The stated values are effective when used singularly (not mounted on a serrated adaptor).



Serrated

[Body]
■Material : FCM440 steel
■Black oxide finish
[Jaw]
■Material : SCM440 steel
■Heat treated
■Black oxide finish
■Precision serrated

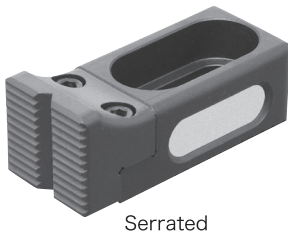


Part Number	A	B	C	D	E	F	G	H	J	K	Weight (g)
51991600	60	25	7.5	33.5	16.5	16	7	14	8.5	1.5	120
51991601	90	35	10	50	26.5	22	9	20	13	2	330
51991602	115	40	14	67.5	30	30	13	26	17	2	660

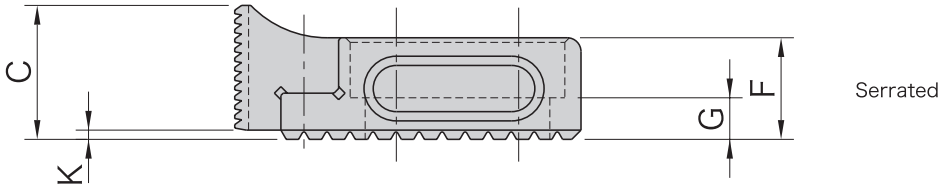
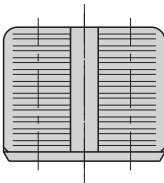
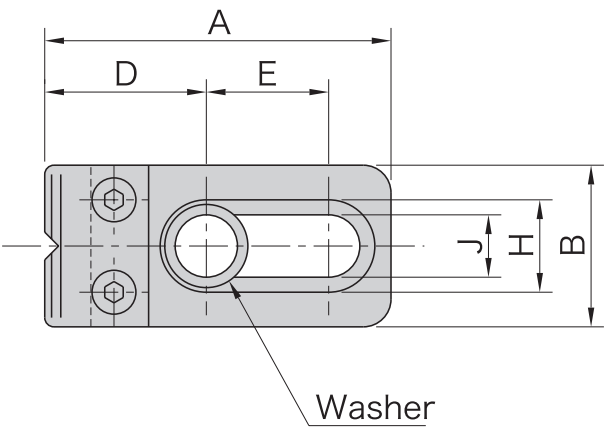
Note *) The stated values are effective when used singularly (not mounted on a serrated adaptor).
• Stop that mounts on a BJ500, Rack Block to prevent backslide.

BJ202

ADJUSTABLE SIDE STOPS



- 【Body】
- Material : FCM440 steel
 - Black oxide finish
- 【Jaw】
- Material : SCM440 steel
 - Heat treated
 - Black oxide finish
 - Precision serrated

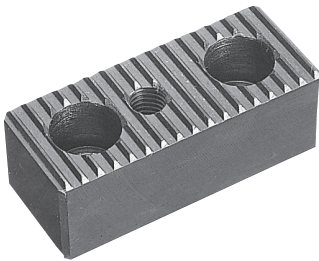


Part Number	A	B	C	D	E	F	G	H	J	K	Weight (g)
51991603	50	25	19.5	23.5	16.5	16	7	14	8.5	1.5	100
51991604	75	35	29	35	26.5	22	9	20	13	2	310
51991605	95	40	38	47.5	30	30	13	26	17	2	625

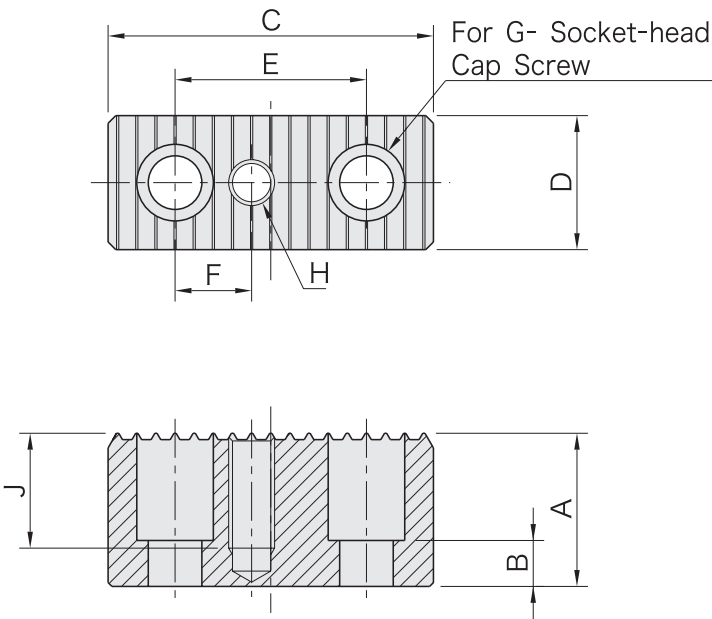
Note *) The stated values are effective when used singularly (not mounted on a serrated adaptor).
· Stop that mounts on a BJ500, Rack Block to prevent backslide.

BJ500

RACK BLOCKS

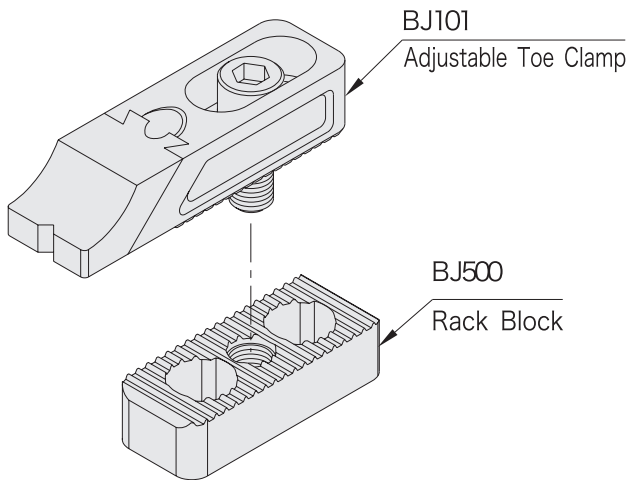


- Material : S45C steel
- Black oxide finish



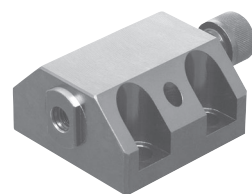
Part Number	A	B	C	D	E	F	G	H	J	Weight (kg)					
51991606	16	7	50	25	25	12.5	M 8	M 8×1.25	Through	0.13					
51991607	20	9								0.17					
51991608	25	13							20	0.21					
51991609	32	20								0.27					
51991610	40	28								0.33					
51991611	50	38								0.42					
51991612	20	5	85	35	50	20	M12	M12×1.75	Through	0.34					
51991613	25	10								0.45					
51991614	32	12							35	50	20	M12	M12×1.75	30	0.57
51991615	40														0.71
51991616	50														0.9
51991617	25	6							90	40	50	25	M16	M16×2	Through
51991618	32	13	0.62												
51991619	40	15	30	50	25	M16	M16×2	35							0.78
51991620	50														0.98
51991621	63														1.24

How To Use



Serrated riser that prevents BJ101/BJ102 clamps and BJ201/BJ202 stops from slipping backward.

CP110/CP111 BLOCK PUSH CLAMPS

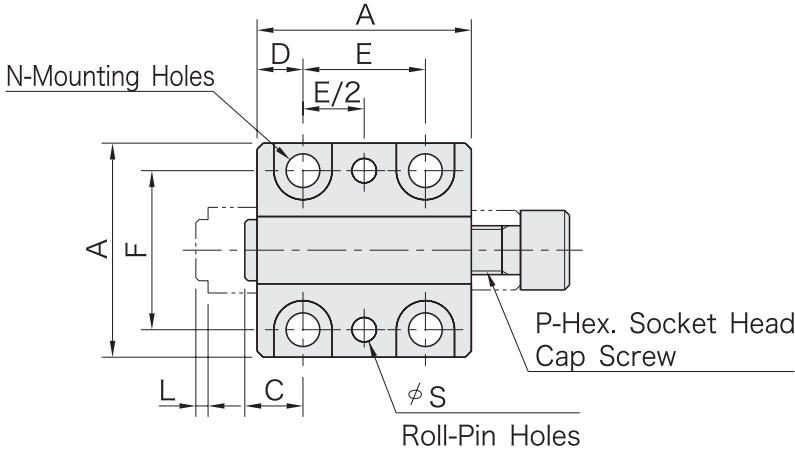


CP110
(Cap Screw Style)

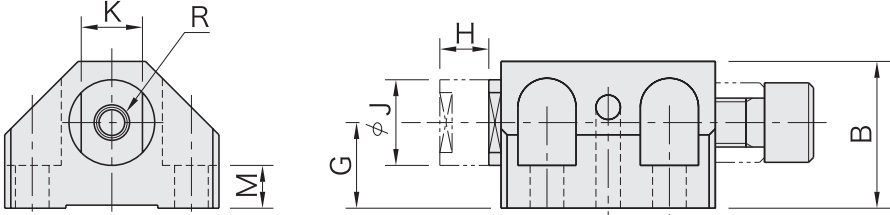
[Body]
Material: S45C steel
Finish : Black oxide

[Piston]
Material: S45C steel
Finish : Black oxide
Heat Treated

[Knurled Knob]
Material: S45C steel
Finish : Black oxide



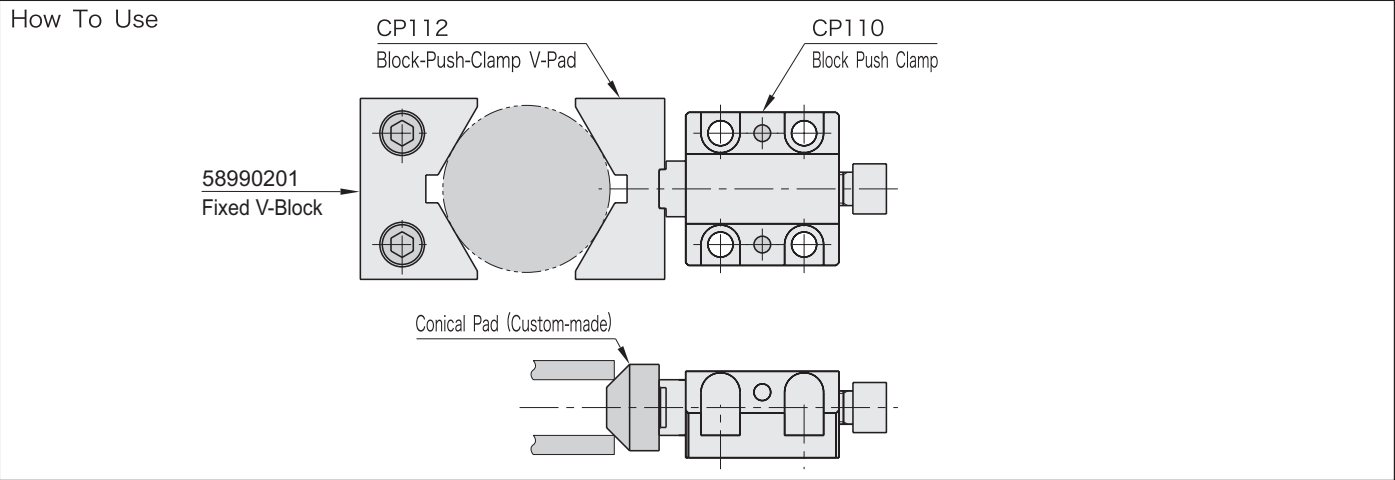
CP110
(Cap Screw Style)



Part Number		A	B	C	D	E	F	G	H	J	K ($\frac{1}{16}$)	L	M	N	P	R	S	T	U
51991622		35	24	9.5	7.5	20	26	14	8	14	10	2	7	M 5	M 8x1.25	M 5x0.8 8 deep	4	24	14
51991623		45	29	12	10	25	35	16	10	18	12	2	8	M 6	M10x1.5	M 6x1 10 deep	4	24	14
51991624		55	31	15	12.5	30	40	18	12	20	14	2.5	8	M 8	M12x1.75	M 8x1.25 12 deep	6	30	17
51991625		70	37	18	15	40	50	20	16	25	19	3	8	M10	M16x2	M10x1.5 15 deep	8	36	20

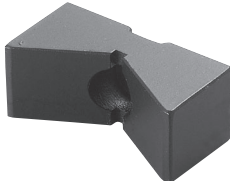
Cap Screw Style			
Part Number	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
51991622	6.200	10	160
51991623	11.000	22	340
51991624	20.000	48	540
51991625	37.000	121	1,050

Note : The stated values of both "Clamping Force" and "Allowable Screw Torque" are based on the manual operation of the knob.

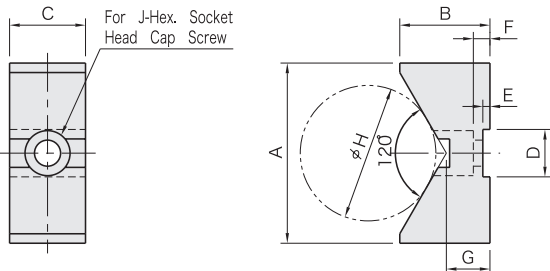


Depending on workpiece shapes, a custom pad can mount on the Block Push Clamp.

CP112 MOVABLE BLOCK PUSH CLAMP V-PADS

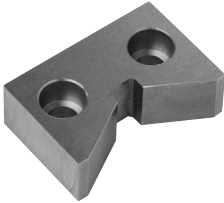


Material: S45C steel
Finish : Black oxide
Heat treated

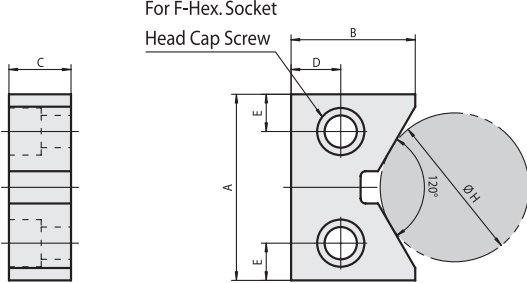


Part Number	A	B	C	D ($\frac{1}{16}$)	E	F	G	H		J	Weight (g)
								min.	max.		
51991630	38	19	16	10	1.5	3.5	9.2	15	60	M 5	65
51991631	50	24	19	12	1.5	4.5	11	20	80	M 6	125
51991632	65	32	22	14	2	5.5	15	25	100	M 8	250
51991633	75	38	25	19	2.5	7.5	18.7	30	120	M10	390

CP112F FIXED V-BLOCK PUSH CLAMP



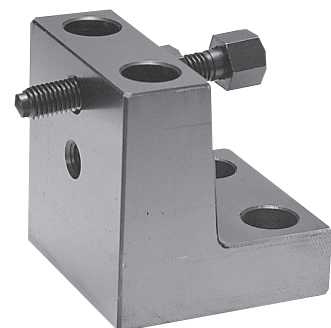
Material: S45C steel
Finish : Black oxide
Heat treated



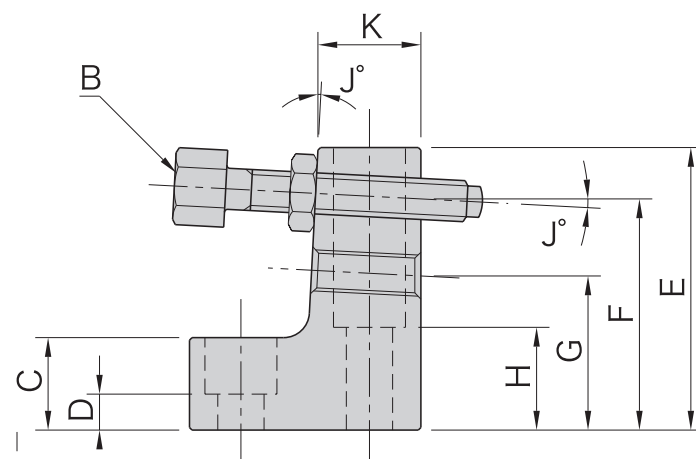
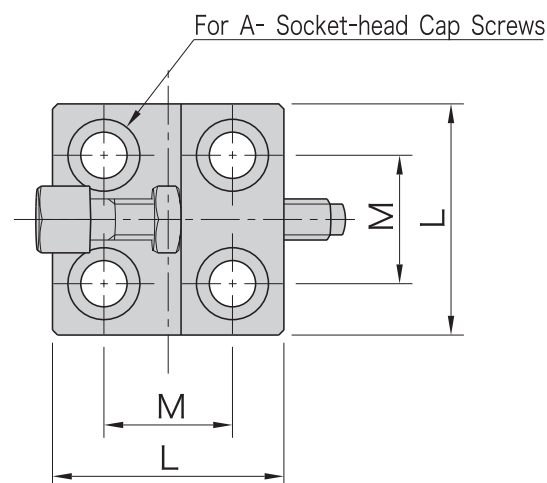
Part Number	A	B	C	D	E	F	H		Weight (Kg)
							min	max	
58990201	38	25	16	8	8	M6	15	60	0.09
58990202	50	35	19	10	10	M8	20	80	0.19
58990203	65	40	22	12	12	M10	25	100	0.30
58990204	75	50	25	20	15	M12	30	120	0.52

BJ112

REVERSE SCREW SIDE CLAMPS

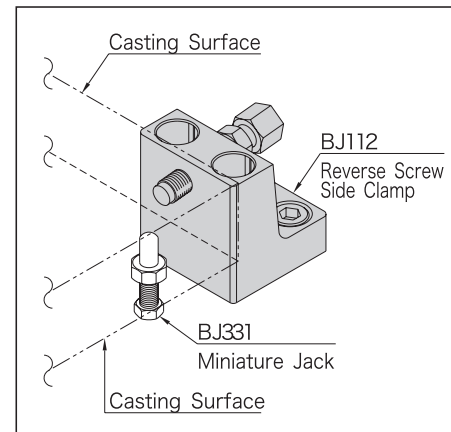
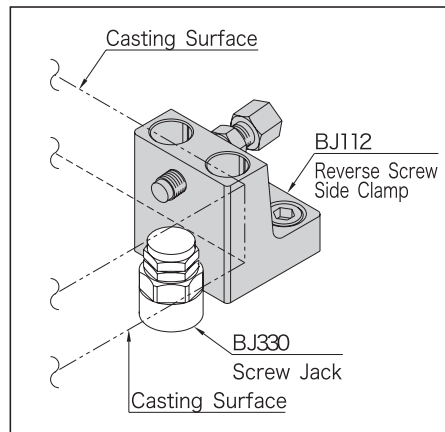
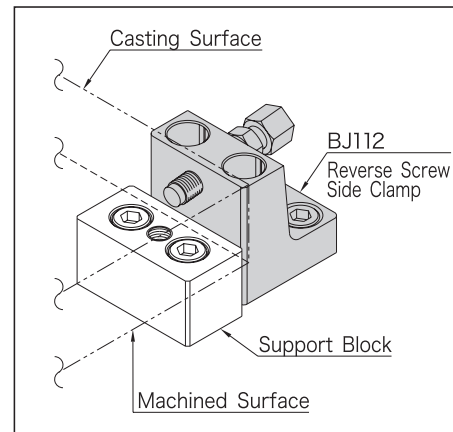


- [Body]**
- Material : S45C steel
 - Black oxide finish
- [Screw]**
- Material : SCM435 steel
 - Heat treated
 - Black oxide finish



Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Weight (kg)
51991634	M 8	M 8x1.25-50L	18	7	55	45	30	20	3	20	45	25	0.45
51991636	M16	M16x2 -80L	27	10	90	75	50	33	5	33	85	50	2.3

Application Examples

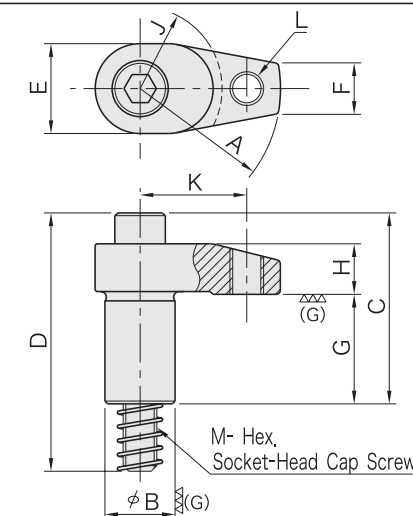


BJ130

HOOK CLAMPS

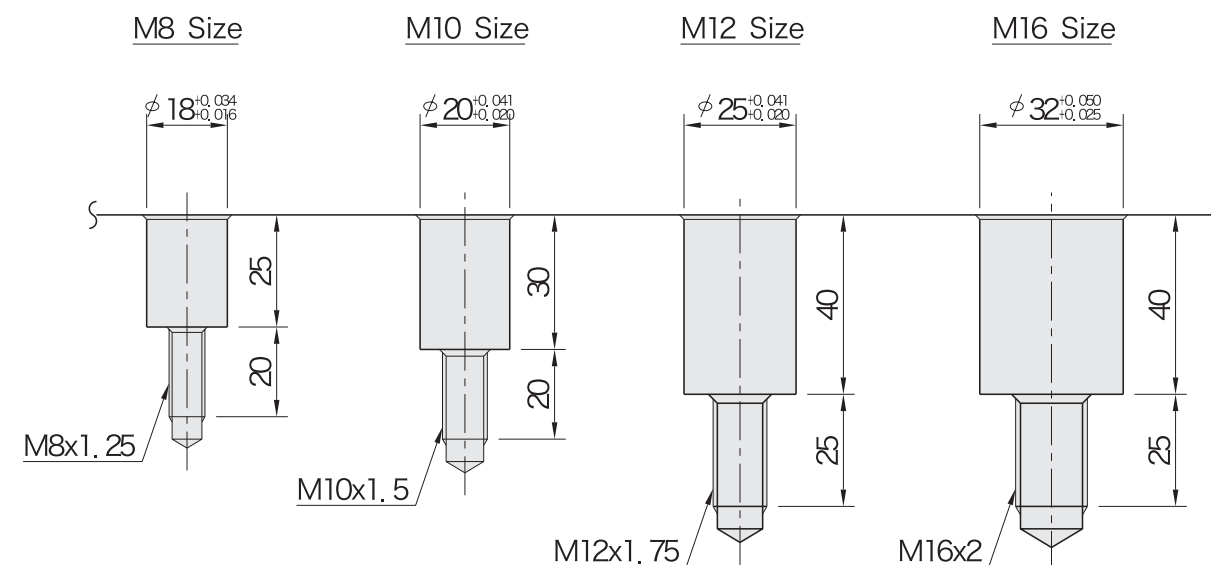


Material:SCM435 steel
Heat treated
Black oxide finish
Precision ground



•Use with a BJ530 Hook-Clamp Holder.

How To Use (Reference)

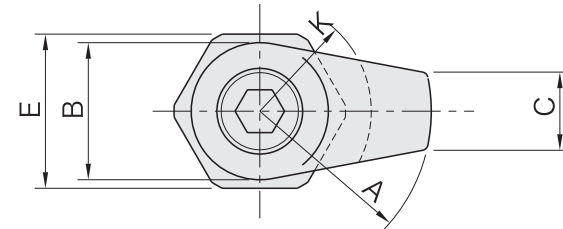


Hook Clamps can be plugged directly into custom blocks with receiving holes as specified above.

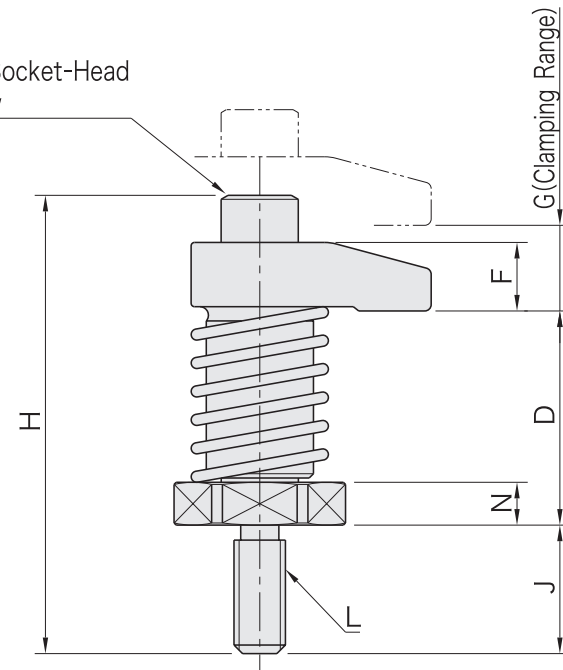
Part Number	A	B (h7)	C	D	E	F	G	H	J	K	L	M	Allowable Screw Torque (N·m)	Weight (Kg)
51991637	20	18	37	58	22	10	23	12	15	-	-	M8x1.25 - 50L	38	90
51991638	25								20				33	95
51991639	30								25				30	105
51991640	30	20	54	75	24	12	30	15	20	-	-	M10x1.5 - 65L	38	200
51991641	40								25				32	210
51991642	40								25				60	280
51991643	50	25	66	92	32	18	39	16	25	-	-	M12x1.75 - 80L	50	310
51991644	60								18				46	350
51991645	40								16				60	280
51991646	50	25	68	92	32	18	39	18	25	31	38	M12x1.75 - 80L	50	310
51991647	60								25				46	350
51991648	40								16				170	420
51991649	50	32	75	101	36	22	39	21	25	-	-	M16x2 - 85L	150	470
51991650	60								25				130	530
51991651	50								25				150	470
51991652	60								25				130	530



Material:SCM435 steel
Heat treated
Black oxide finish
Precision ground



M- Hex. Socket-Head
Cap Screw

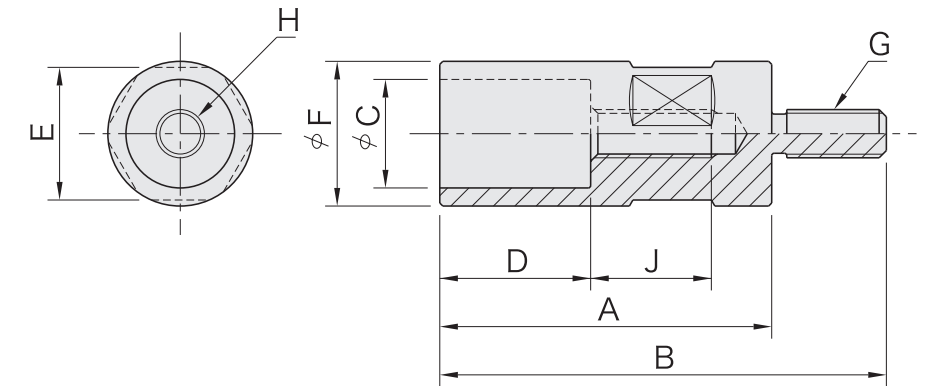


Part Number	A	B	C	D	E	F	G	H	J	K	L
51991655	30	22	10	35	22	12	10	68	19	20	M 8x1.25
51991659	40					16		107			
51991660	50	32	18	50	36	18	15	109	30	25	M12x1.75
51991661	60										
51991665	40										
51991666	50	36	22	50	36	21	15	116	30	25	M16x2
51991667	60										

Part Number	M	N	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
51991655	M 8x1.25-30L	6	6,700	20	135
51991659			13,500		450
51991660	M12x1.75-45L	10	12,600	45	480
51991661			11,700		520
51991665			13,400		630
51991666	M16x2 -55L	10	12,400	60	680
51991667			12,000		740



Material:S45C steel
Black oxide finish



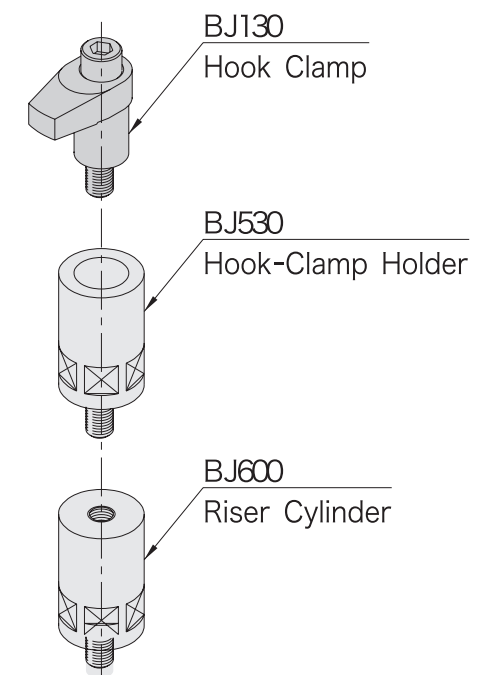
Part Number	A	B	C (F7)	D	E	F	G	H	J	Allowable Screw Torque (N·m) *	Weight (g)
51991671	55	74	18	25	22	24	M 8x1.25	M 8x1.25	20	30	140
51991672	63	93	20	30	30	32	M12x1.75	M10x1.5	21	40	400
51991673	80	110							23		500
51991674	80	110	25	40	36	40	M12x1.75	M12x1.75	25	50	1,080
51991675	100	130									1,280
51991676	80	110	32	40	46	50	M16x2	M16x2	25	80	1,690
51991677	100	130									2,000

*) The above screw torque values are effective for installation of Hook Clamps.

How To Use



Holder that is specifically designed to receive a BJ130 Hook Clamp.

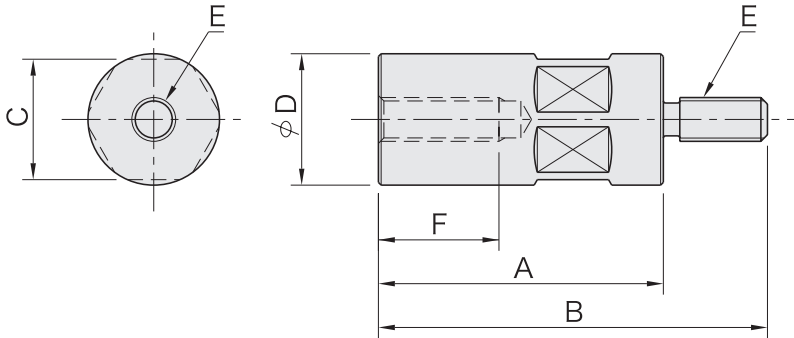


BJ600

RISER CYLINDERS



Material: SCM435 steel(Mini)
S45C steel(Standard&heavy)
Heat treated(Mini)
Black oxide finish



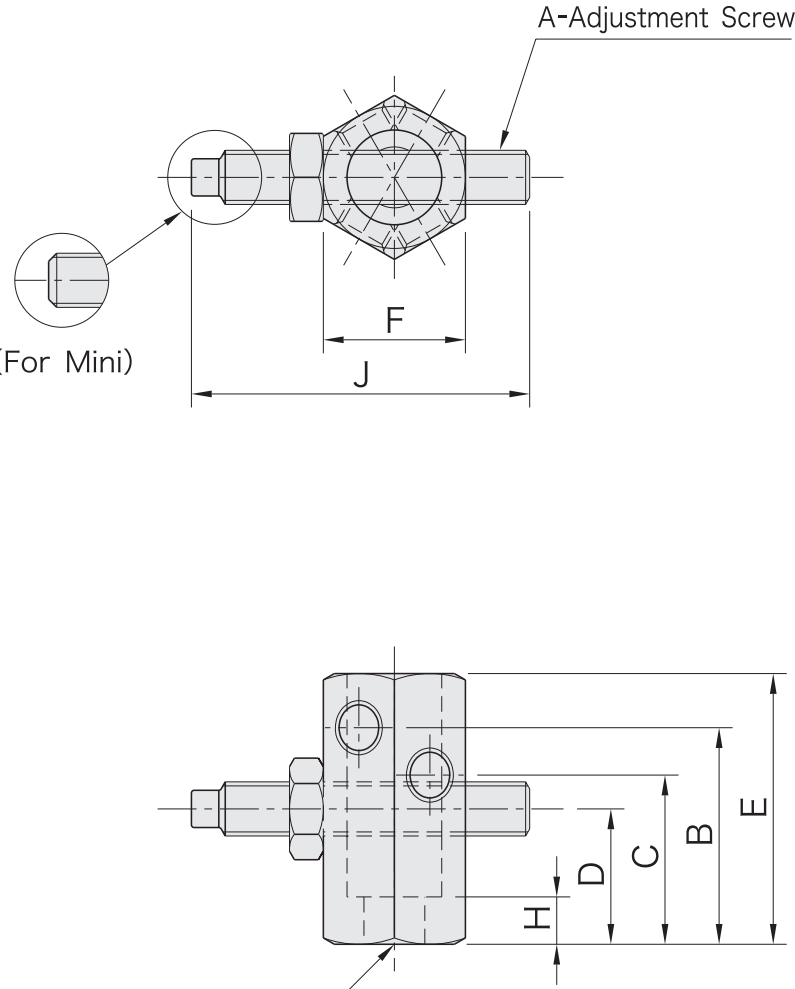
Part Number	A	B	C	D	E	F	Weight (g)
51991678	32	51	22	24	M 8x1.25	20	105
51991679	40	59					135
51991680	50	69					170
51991681	65	84					220
51991684	50	80	36	40	M12x1.75	35	480
51991685	65	95					640
51991686	80	110					780
51991687	100	130					980
51991688	125	155	46	50	M16x2	35	1,230
51991691	50	80					770
51991692	65	95					1,000
51991693	80	110					1,230
51991694	100	130					1,540
51991695	125	155					1,920

BJ210

ADJUSTABLE STOPS



[Body]
Material:S45C steel
Black oxide finish
[Adjustment Screw]
Material:Steel
Heat treated
Black oxide finish



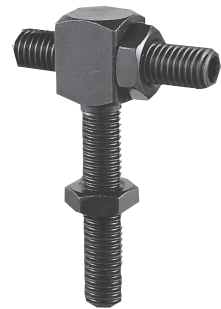
A-Adjustment Screw
(For Mini)
For G- Socket-Head Cap Screw

Part Number	A	B	C	D	E	F	G	H	J	Weight (g)
51991698	M 8x1.25	32	25	20	40	21	M 8	7	50	95
51991699	M12x1.75	50	40	32	60	36	M12	12	100	500
51991700	M16x2	63	50	40	80	46	M16	14	100	1,200

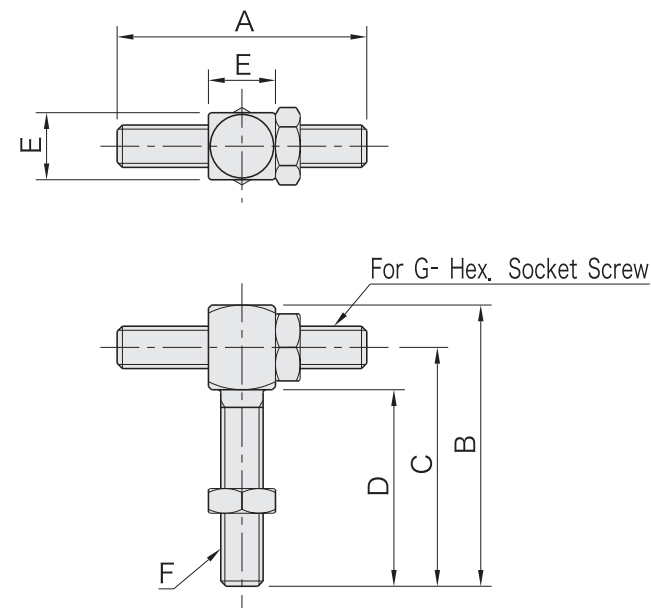
•Side stop that offers three options of screw height.
•Can also be used as auxiliary clamps.

BJ211

ADJUSTABLE MINIATURE STOPS

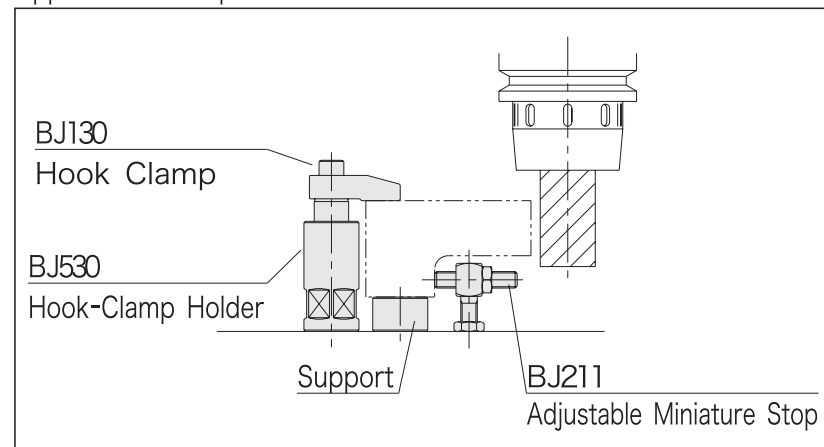


Material:S45C steel
Heat treated
Black oxide finish

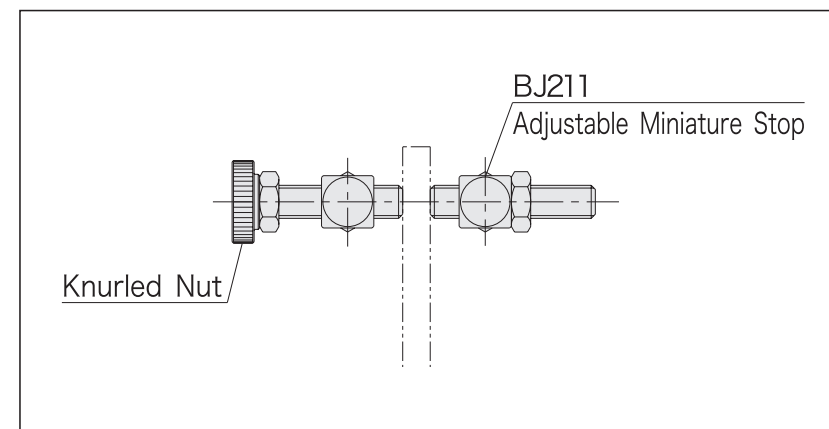


Part Number	A	B	C	D	E	F	G	Weight (g)
51991213	40	56	48	40	13	M 8x1.25	M 8x1.25	60
51991214	50	70	60	50	17	M10x1.5	M10x1.5	120
51991215	60	84	72	60	19	M12x1.75	M12x1.75	190
51991216	80	112	96	80	24	M16x2	M16x2	410

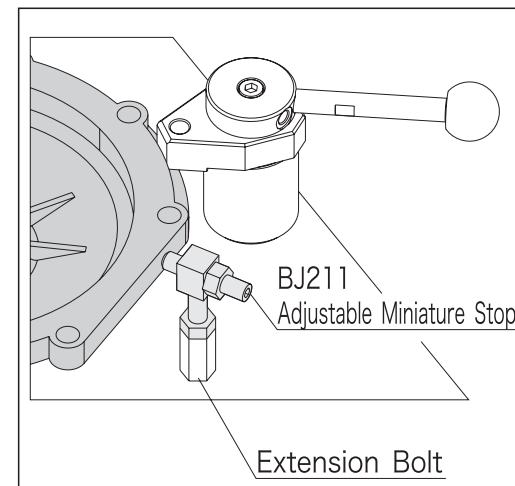
Application Examples



Miniature size allows use in small space.



Can be used as auxiliary clamps.

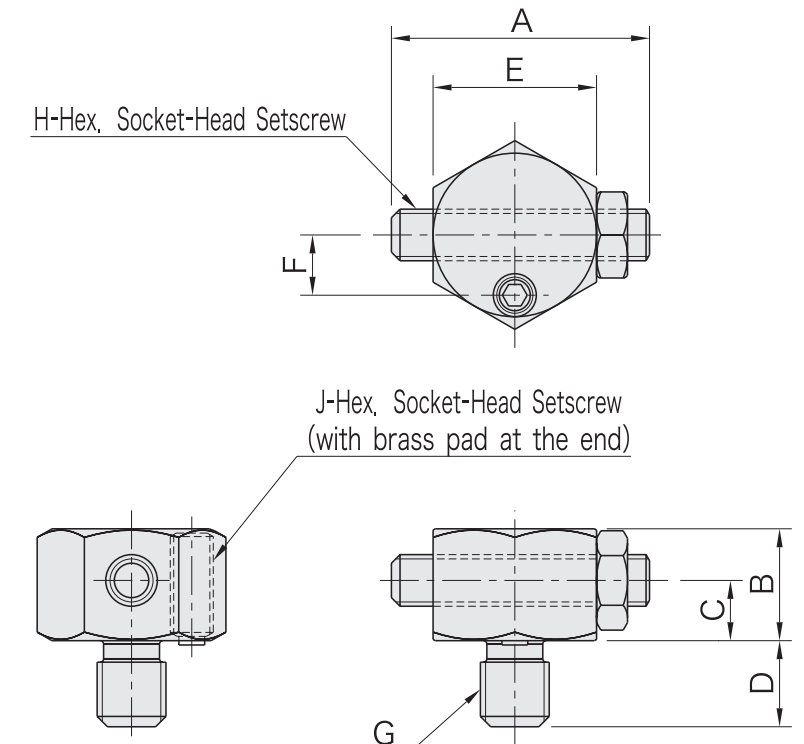


BJ214

SCREW STOP BUTTONS

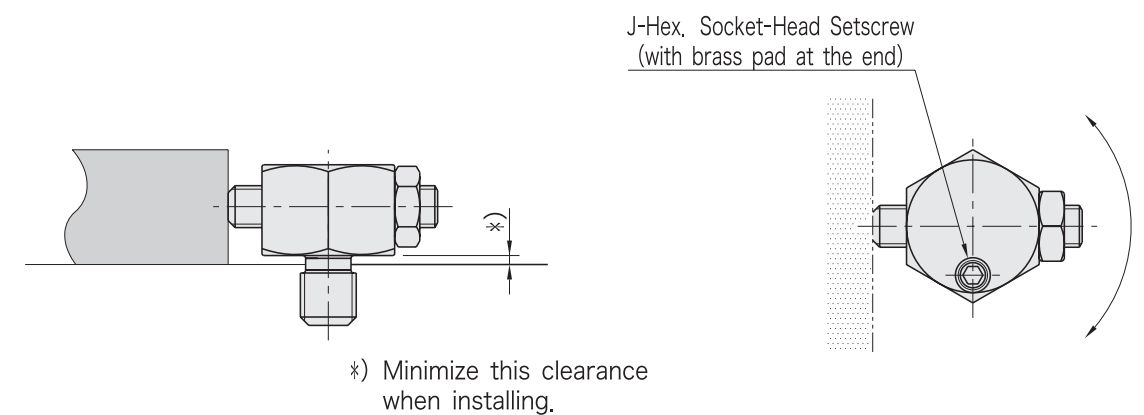


Material:S45C steel
Finish :Black oxide
Heat treated



Part Number	A	B	C	D	E	F	G	H	J	Weight (g)
51991701	30	13	7	10	19	7	M 8x1.25	M 6x1	M5x0.8-12L	40
51991702	40	16.5	8.5	12	22	8	M10x1.5	M 8x1.25	M5x0.8-12L	75
51991703	50	21	11	15	24	9	M12x1.75	M10x1.5	M6x1 -20L	120
51991704	60	23	12	20	30	12	M16x2	M12x1.75	M6x1 -20L	210

How To Use



- Installation Information
1. Screw in the body completely.
 2. Screw back the body and set the adjustment screw.
 3. Tighten up the hex, socket-head setscrew to lock the body.

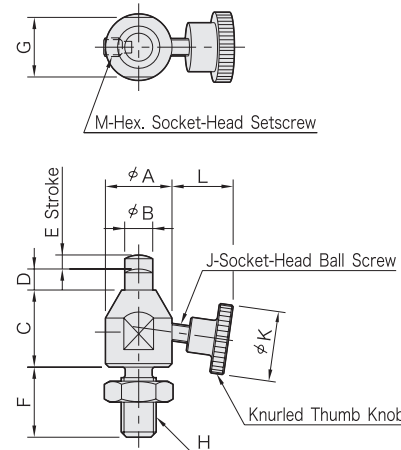
•Use to stop a low-profile workpiece.

BJ360

COMPACT WORK SUPPORTS

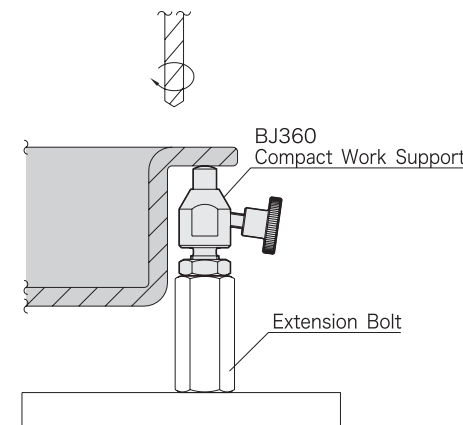


[Body]
Material: S45C steel
Finish : Black oxide
[Piston]
Material: SK4 steel
Finish : Black oxide
Heat treated



Note) The socket-head ball screw is glued to the knurled thumb knob.

How To Use



Part Number	A	B	C	D	E	F	G	H	J	K
51991148	15	6	18	5	3	16	13	M 8x1.25	M4x0.7-16L	16
51991149	19	8	22	6	4	20	17	M10x1.5	M5x0.8-20L	20
51991150	22	10	25			24	19	M12x1.75	M6x1 -25L	24

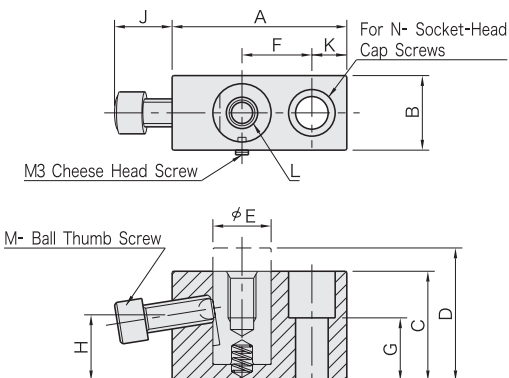
Part Number	L	M	Piston Spring Force (N)	Support Capacity (N)	Weight (g)
51991148	13.2	M4x0.7-6L	1.5 to 3.0	200	36
51991149	16.3		1.8 to 3.0	300	72
51991150	22.3			400	150

BJ350

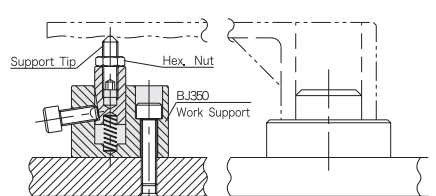
WORK SUPPORTS



[Body]
Material: S45C steel
Black oxide finish
[Piston]
Material: SK4 steel
Heat treated
Black oxide finish



Application Example



Ideal for preventing the workpiece from chattering and deflecting.

- The positive locking mechanism offers high support capacities.
- The above support capacity values are reached when the ball thumb screw is fully tightened.

Part Number	A	B	C	D	E	F	G	H	J	K
51991152	38	19	29	35	12	15	15	17.6	13	8
51991153	50	22	37	47	16	20	20	21.1	16	10
51991154	65	25	42	52	19	25	20	24.6	18.5	15
51991155	75	32	47	57	25	30	27	28.3	25	15

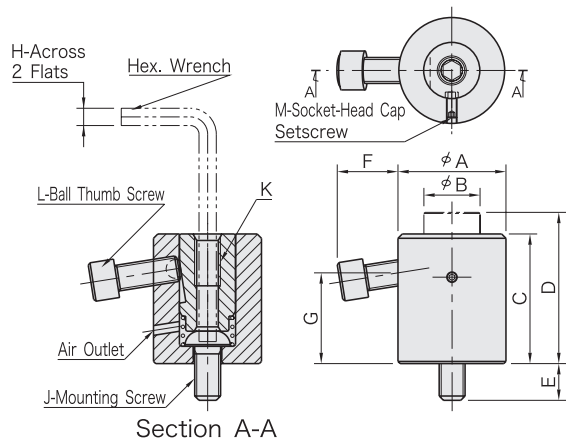
Part Number	L		M	N	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
51991152	M 6x1	10 deep	M 6x1 -16L	M 6	4,000	0 to 6	150
51991153	M 8x1.25	15 deep	M 8x1.25 -20L	M 8	6,000	0 to 7	285
51991154	M10x1.5	15 deep	M10x1.5 -25L	M10	7,500	1 to 11	480
51991155	M12x1.75	20 deep	M12x1.75 -30L	M12	9,000	1 to 11	800

BJ351

WORK SUPPORT CYLINDERS

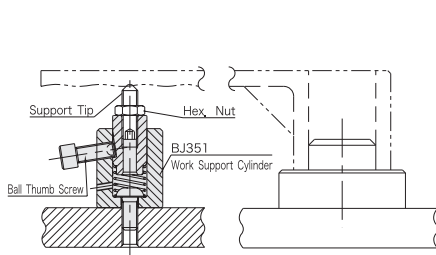


[Body]
Material: S45C steel
Black oxide finish
[Piston]
Material: SK4 steel
Heat treated
Black oxide finish



To install, insert a hex. wrench through the piston into the mounting screw.

Application Example

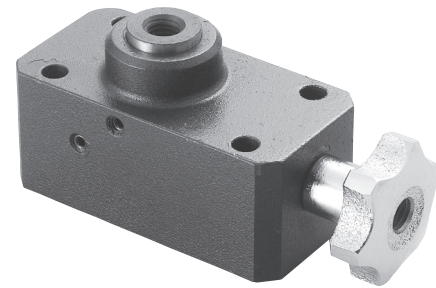


Ideal for preventing the workpiece from chattering and deflecting.

- The positive locking mechanism offers high support capacities.
- The above support capacity values are reached when the ball thumb screw is fully tightened.

Part Number	A	B	C	D	E	F	G	H	J	K
51991156	28	14	33	39	10	13.1	22.2	4	M 6x1	M 6x1 12 deep
51991157	35	19	42	52	14	17.2	27.5	5	M 8x1.25	M 8x1.25 16 deep
51991159	50	26	60	70	16	28.1	42.1	8	M12x1.75	M12x1.75 24 deep
51991160	60	33	70	80	22	26.6	47.4	10	M16x2	M16x2 32 deep

Part Number	L		M	Support Capacity (N)	Piston Spring Force (N)	Weight (g)
51991156	M 6x1	-16L	M4x0.7 - 8L	4000	10 to 22	150
51991157	M 8x1.25	-20L	M4x0.7 - 8L	6000	10 to 27	300
51991159	M12x1.75	-30L	M5x0.8 -12L	9000	15 to 30	865



[Body]

Material: S45C steel
Finish : Black oxide

[Piston & Locking Pin]

Material: SK4 steel
Finish : Black oxide
Heat Treated

[Spindle]

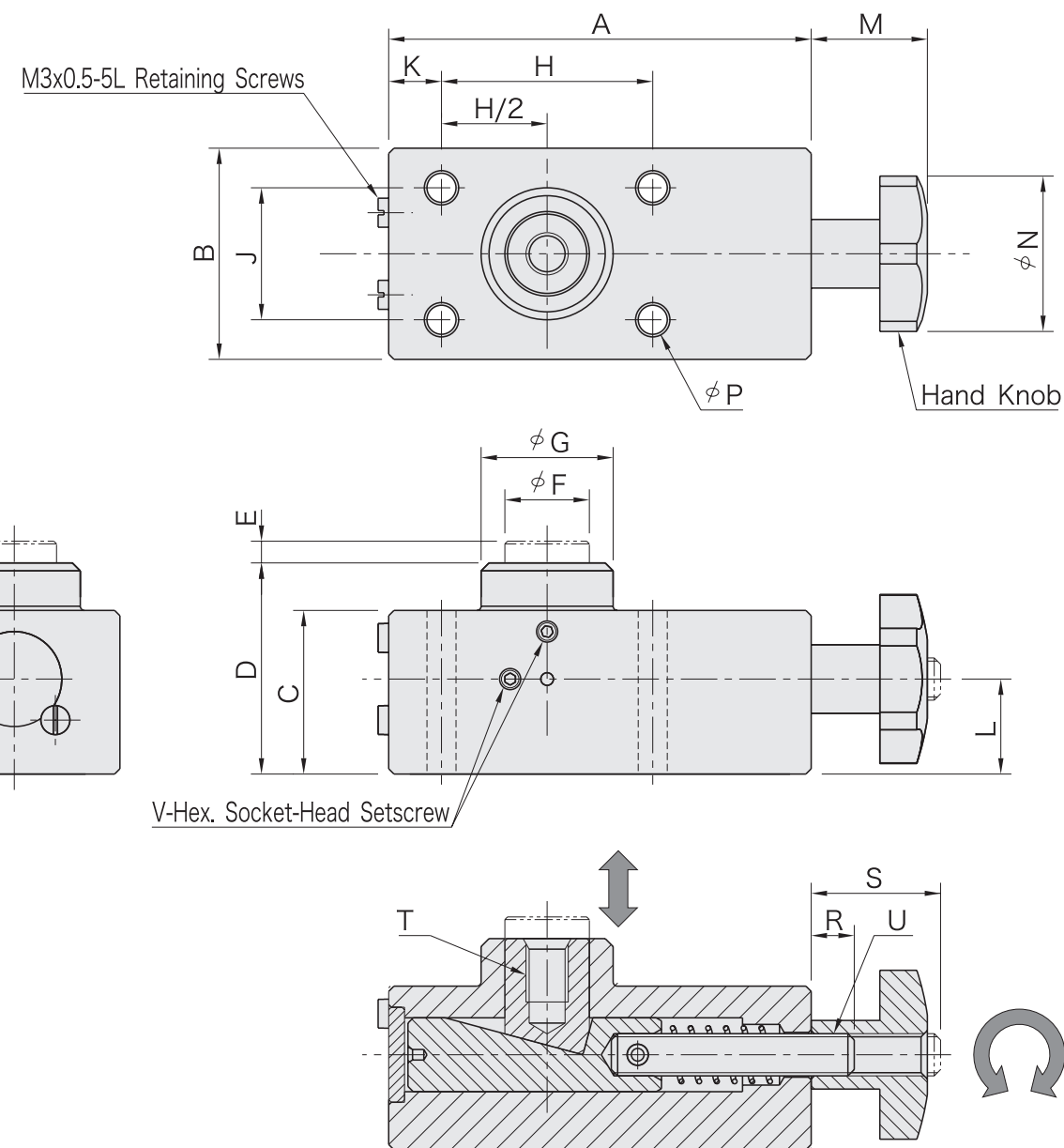
Material: S45C steel
Finish : Black oxide
Heat Treated

[Piston Plug]

Material: S45C steel
Finish : Black oxide

[Knob]

Material: FC200 cast iron
Finish : Chrome plated



Turning the hand knob clockwise lets the locking pin move upward and turning it counterclockwise lets the locking pin move downward.

Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
51991709	80	40	31	40	4	16	25	40	25	10	18	22	32	5.5	8	23.5
51991710	95	50	39	50	5	20	32	50	30	10	23	25	40	6.5	9	28
51991711	115	60	47	60	6	24	38	60	40	15	28	32	50	9	12	35.5

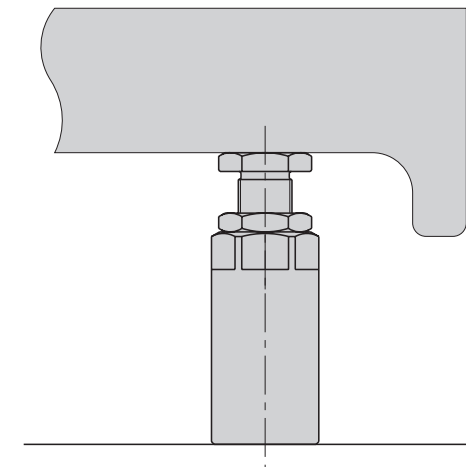
Part Number	T	U	V	Support Capacity(N)	Allowable Screw Torque (N·m)	Weight (kg)
51991709	M 8x1.25 12 deep	M 8x1.25	M4x0.7-10L	700	1	0.82
51991710	M10x1.5 15 deep	M10x1.5	M4x0.7-10L	800	1.5	1.52
51991711	M12x1.75 18 deep	M12x1.75	M5x0.8-16L	900	2	2.67

Note : The stated values of both "Support Capacity" and "Allowable Screw Torque" are based on the manual operation of the hand knob.

How To Use

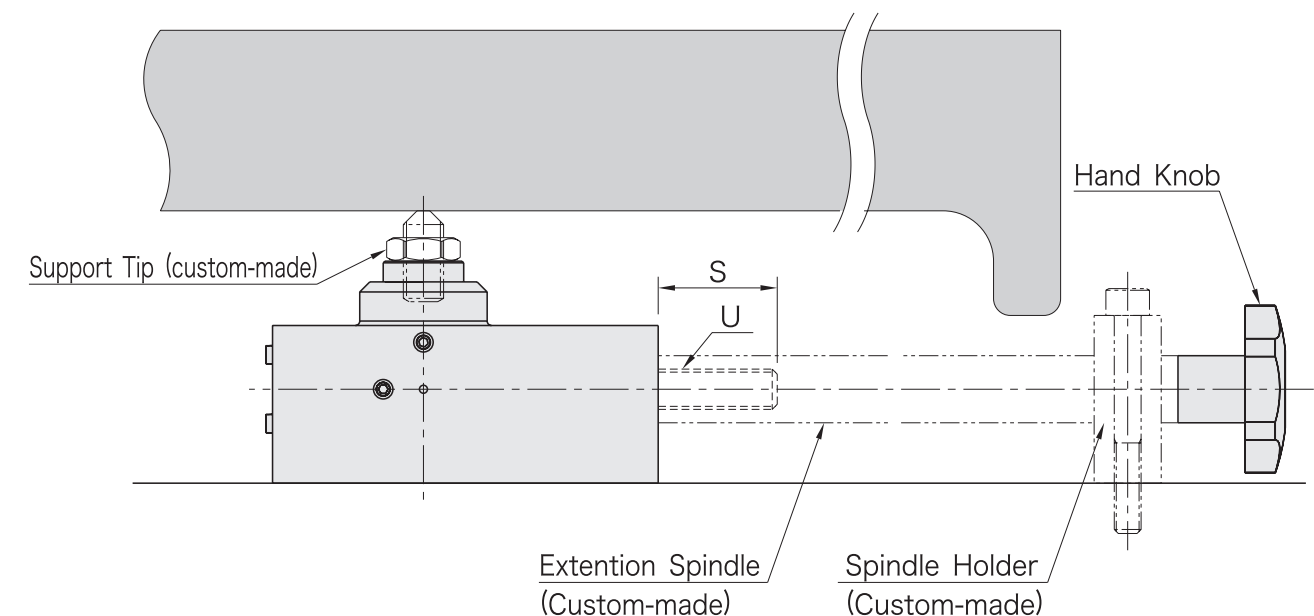
Conventional Method

Cumbersome height adjustment with a wrench
Limited positioning area

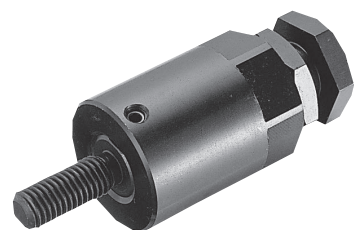


Extendable Work Support Method

Easy height adjustment with a hand knob
Flexible positioning

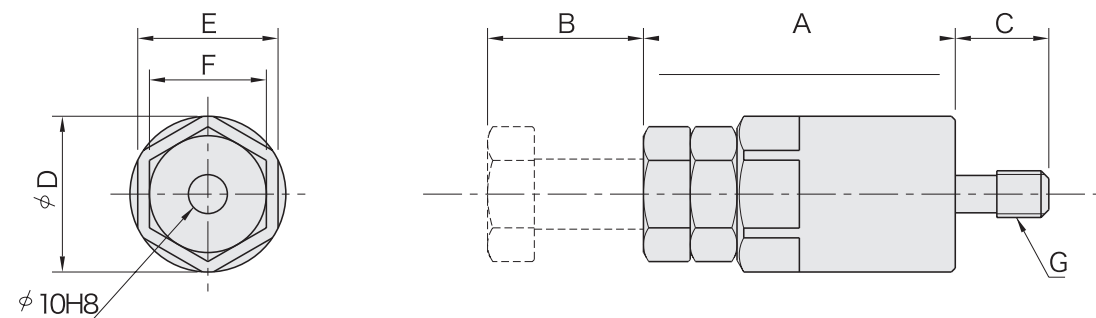


•Connecting an extension spindle allows adjusting the part height with ease.
•Provide a tapped hole for the extension spindle for connection, as specified in chart above.

BJ330**SCREW JACKS**

[Body]
Material:S45C steel
Black oxide finish

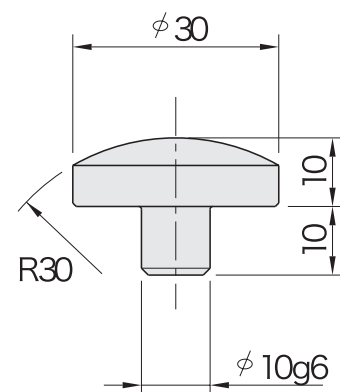
[Bolt]
Material:SCM435 steel
Heat treated
Black oxide finish



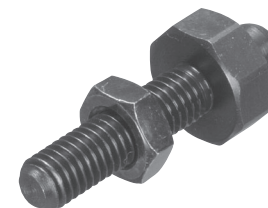
Part Number	A	B	C	D	E	F	G	Load Capacity (N)	Weight (g)
51991712	40	10	30	40	36	30	M12x1.75	31,800	350
51991713	50	20							420
51991714	70	40							570
51991718	50	20	30	40	36	30	M16x2	31,800	430
51991719	70	40							580

BJ733**SCREW-JACK TIP**

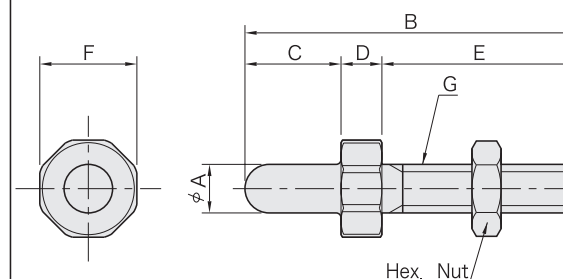
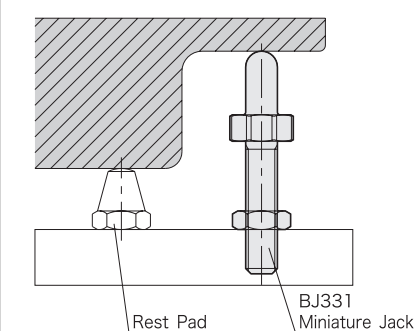
Material:S45C steel
Heat treated
Black oxide finish



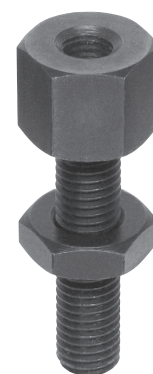
Part Number	Weight (g)
51991722	50

BJ331**MINIATURE JACKS**

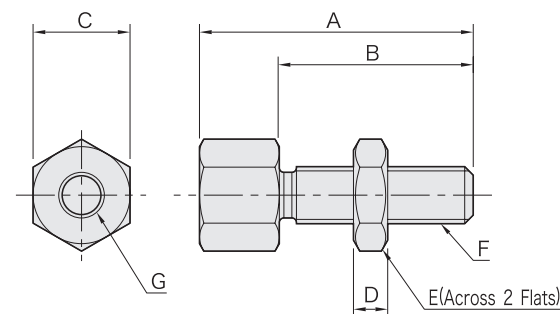
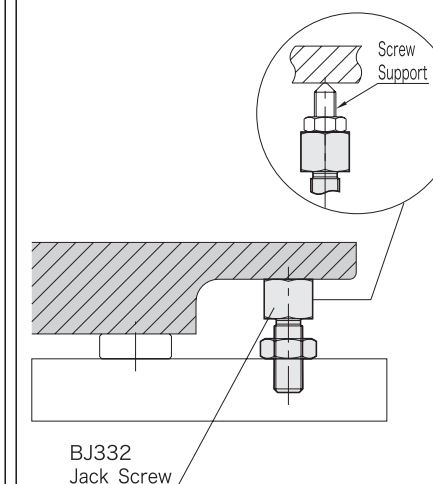
Material:S45C steel
Heat treated
Black oxide finish
Hardness:RC33 - 39

**How To Use**

Part Number	A	B	C	D	E	F	G	Weight (g)
51991161	6	37	6	6	25	13	M 6x1	11
51991162		43	12					13
51991163	8	45	8	7	30	17	M 8x1.25	40
51991164		53	16					45
51991165	10	58	10	8	40	19	M10x1.5	60
51991166		68	20					65
51991167	12	72	12	10	50	24	M12x1.75	110
51991168		84	24					120
51991169	16	89	16	13	60	30	M16x2	240
51991170		105	32					265

BJ332**JACK SCREWS**

Material: S45C steel
Finish : Black oxide

**How To Use**

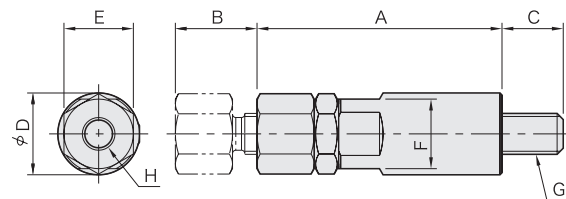
Part Number	A	B	C	D	E	F	G	Weight (g)
51991173	30	20	13	5	13	M 8x1.25	M 6x1 6 deep	20
51991174	40	30						25
51991175	38	24	17	6	17	M10x1.5	M 8x1.25 8 deep	45
51991176	48	34						50
51991177	51	33	22	7	22	M12x1.75	M10x1.5 10 deep	95
51991178	66	48						110
51991179	62	40	27	10	27	M16x2	M12x1.75 12 deep	185
51991180	77	55						210

BJ333

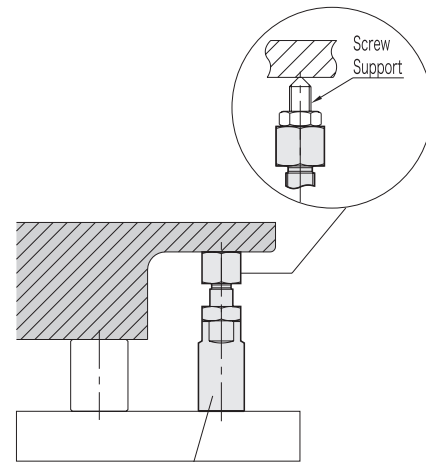
SMALL SCREW JACKS



Material: S45C steel
Finish : Black oxide



How To Use



BJ333
Small Screw Jack

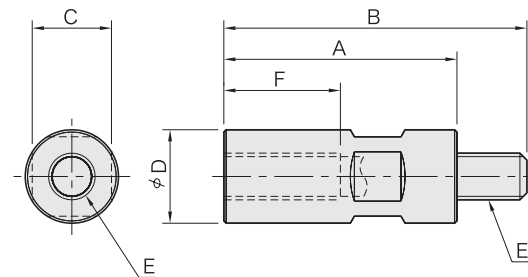
Part Number	A	B	C	D	E	F	G	H	Weight (g)
51991181	40	10	12	16	13	13	M 8 x1.25	M 6x1 6 deep	55
51991182	50	20							70
51991183	50	10	14	20	17	17	M10x1.5	M 8x1.25 8 deep	110
51991184	60	20							135
51991185	65	15	19	24	22	22	M12x1.75	M10x1.5 10 deep	220
51991186	80	30							275
51991187	80	15	24	32	27	27	M16x2	M12x1.75 12 deep	460
51991188	95	30							555

BJ601

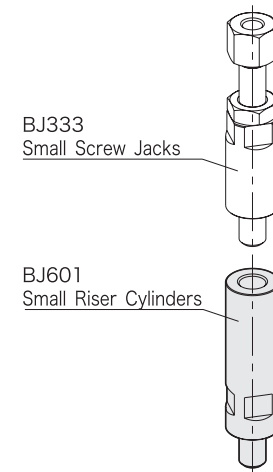
SMALL RISER CYLINDERS



Material: S45C steel
Finish : Black oxide



How To Use



BJ333
Small Screw Jacks

BJ601
Small Riser Cylinders

Part Number	A	B	C	D	E	F	Weight (g)
51991189	32	44				18	45
51991190	40	52					55
51991191	50	62	13	16	M 8X1.25	20	70
51991192	65	77					90
51991193	80	92					115
51991194	100	112					145
51991195	40	54				23	85
51991196	50	64					105
51991197	65	79	17	20	M10X1.5	25	145
51991198	80	94					180
51991199	100	114					230

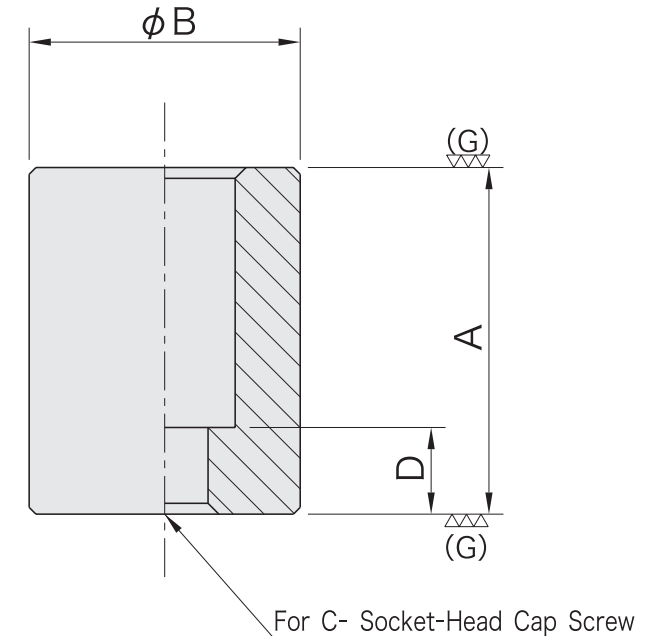
Part Number	A	B	C	D	E	F	Weight (g)
51991201	50	69					160
51991202	65	84					200
51991203	80	99	22	24	M12X1.75	30	255
51991204	100	119					325
51991205	125	144					415
51991206	160	179					540
51991207	50	74				32	280
51991208	65	89					350
51991209	80	104	27	32	M16X2	40	430
51991210	100	124					560
51991211	125	149					715
51991212	160	184					935

BJ300

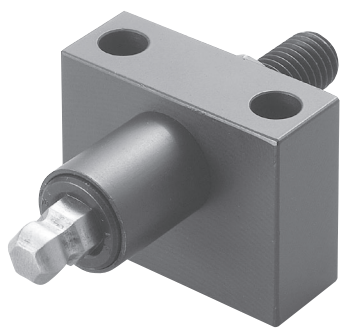
SUPPORT CYLINDERS



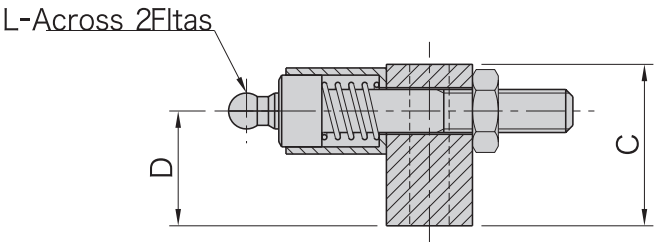
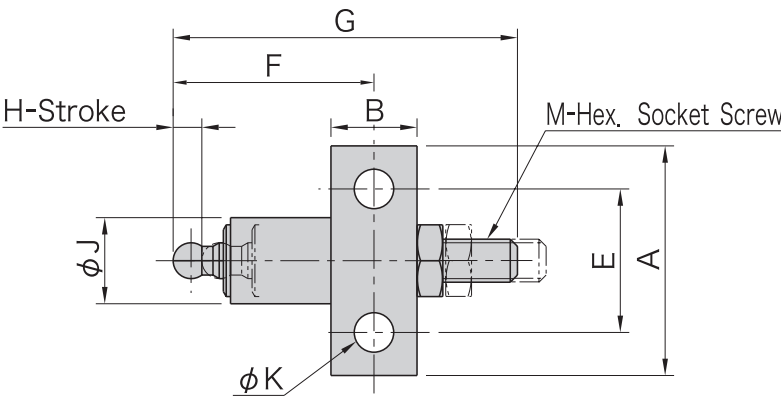
Material: S45C steel
Heat treated
Black oxide finish
Precision ground
Hardness: RC39 - 45



Part Number	A (±0.01)	B	C	D	Weight (g)
51991723	16				47
51991724	20				58
51991725	25	25	M 8	7	71
51991726	32				89
51991727	40				110
51991728	50				136
51991729	20				97
51991730	25				120
51991731	32	32	M10	9	151
51991732	40				186
51991733	50				229
51991734	63				287
51991735	20			7	160
51991736	25				200
51991737	32				260
51991738	40			12	330
51991739	50	40	M12		420
51991740	63				530
51991741	80				660
51991742	100			22	840
51991744	25			8	350
51991745	32				390
51991746	40			15	500
51991747	50				630
51991748	63	50	M16		810
51991749	80				1,000
51991750	100			35	1,260
51991751	125				1,600



Material: S45C steel
Finish : Black oxide



Short

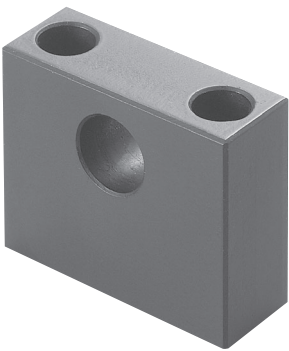
Part Number	A	B	C	D	E	F	G	H	J	K
51991752	32	12	22	16	20	30	48	4	12	5.5
51991753	32	12	27	19.2	20	34	57	4	15	5.5
51991754	44	16	32	22.2	30	45	76	5	18	9
51991755	44	16	36	25.2	30	50	86	5	20	9

Part Number	L	M	Work Supports BJ 350	Weight (g)	Recommended Distance between Work Supprt and Remote-Control Unit A
51991752	5	M 6x1 -35L	51991152	75	66
51991753	6	M 8x1.25-40L	51991153	100	81
51991754	8	M10x1.5 -55L	51991154	210	103
51991755	10	M12x1.75-60L	51991155	250	121

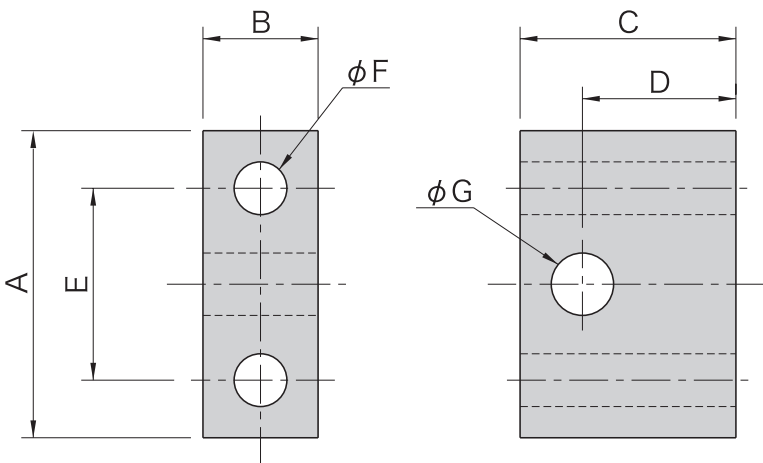
Tall

Part Number	A	B	C	D	E	F	G	H	J	K
51991756	32	12	26	20	20	30	48	4	12	5.5
51991757	32	12	33	25.2	20	34	57	4	15	5.5
51991759	44	16	49	38.2	30	50	86	5	20	9
51991760	44	16	54	43.7	30	50	86	5	20	9

Part Number	L	M	Work Supports BJ 351	Weight (g)	A:Recommended Distance between Work Supprt and Remote-Control Unit
51991756	5	M 6x1 -35L	51991156	85	52
51991757	6	M 8x1.25-40L	51991157	115	62
51991759	10	M12x1.75-60L	51991159	310	92
51991760	10	M12x1.75-60L	51991160	335	95



Material: S45C steel
Finish : Black oxide



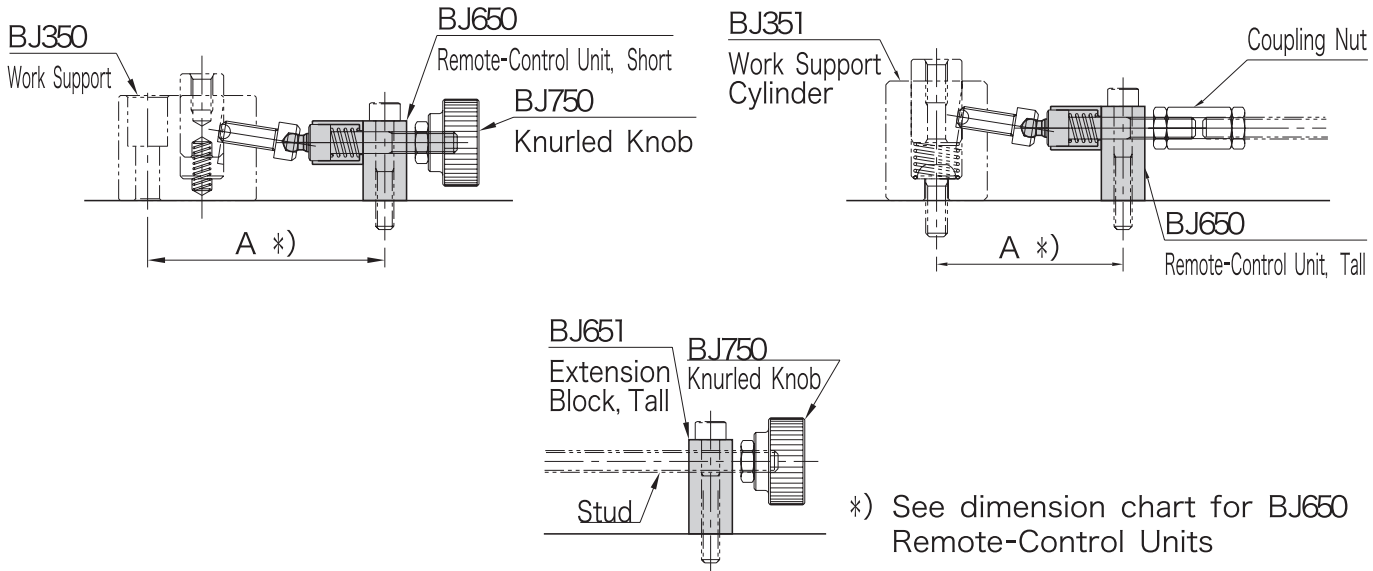
Short

Part Number	A	B	C	D	E	F	G	Remote-Control Units BJ 650	Weight (g)
51991761	32	12	22	16	20	5.5	6.5	51991752	55
51991762	32	12	27	19.2	20	5.5	8.5	51991753	65
51991763	44	16	32	22.2	30	9	10.5	51991754	140
51991764	44	16	36	25.2	30	9	12.5	51991755	145

Tall

Part Number	A	B	C	D	E	F	G	Remote-Control Units BJ 650	Weight (g)
51991765	32	12	26	20	20	5.5	6.5	51991756	65
51991766	32	12	33	25.2	20	5.5	8.5	51991757	80
51991768	44	16	49	38.2	30	9	12.5	51991758	205
51991769	44	16	54	43.7	30	9	12.5	51991759	230

How To Use

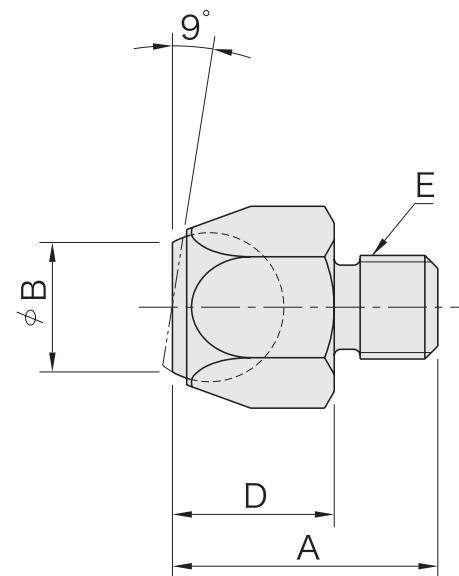
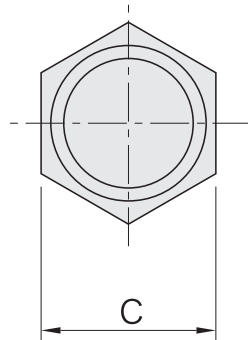


Block that works with a BJ650 Remote-Control Unit to extend the remote-control distance.

Note:When used with a BJ650 Remote-Control Unit, a BJ350 or BJ351 Work Support provides lower support capacity.

BJ730

SWIVEL CONTACT BOLTS

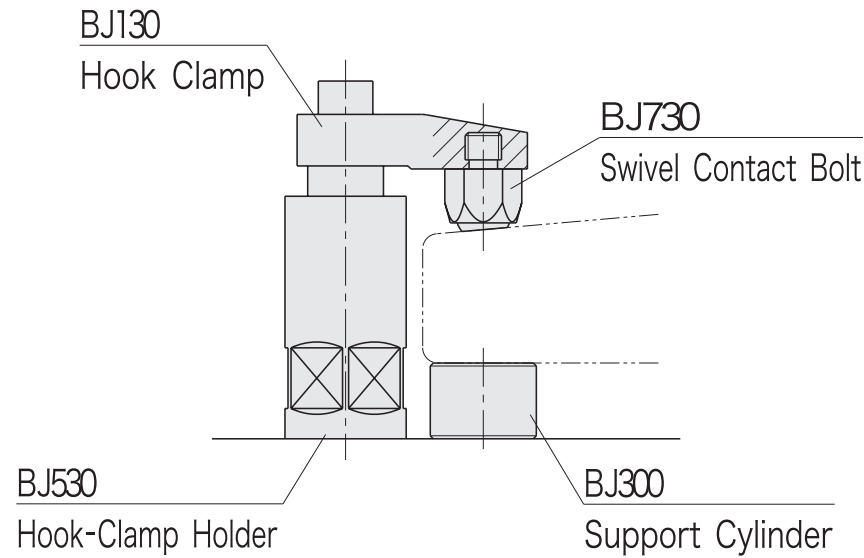


[Body]
Material:S45C steel
Heat treated (M6&M8 sizes)
Black oxide finish

[Ball]
Material:SUSJ2
Heat treated

Part Number	A	B	C	D	E	Load Capacity (N)	Weight (g)
51991770	16	7.4	10	9	M 6x1	13.700	12
51991771	21	10.5	13	12	M 8x1.25	25.600	15
51991772	27	12.7	17	16	M10x1.5	40.000	45
51991773	32	15	22	20	M12x1.75	59.400	50
51991774	41	20	27	25	M16x2	96.400	115

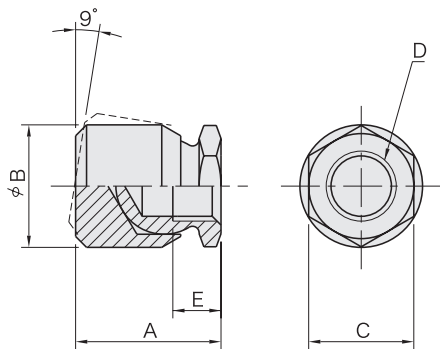
Application Example



•Use to clamp from above and/or below a workpiece.
•Ball swivel is not limited.

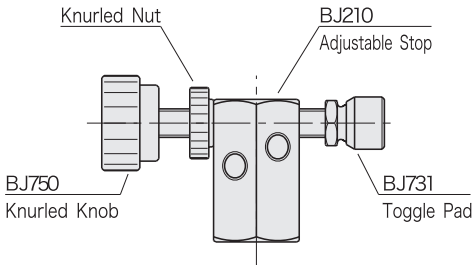
BJ731

TOGGLE PADS



Material:S45C steel
Heat treated (contact surface)
Black oxide finish

Application Example

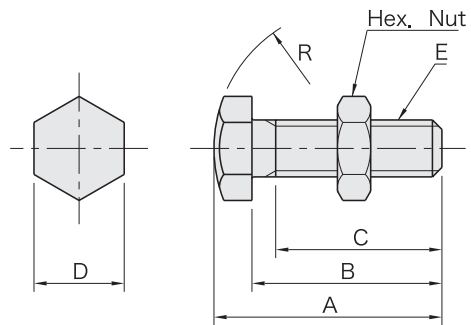


Use to distribute clamping pressure to irregular workpiece surfaces.

Part Number	A	B	C	D	E	Load Capacity(N)		Weight (g)
						Static	Repeated	
51991775	17	15	13	M 8x1.25	6	8.000	5.300	18
51991776	25	22	19	M12x1.75	8	15.900	10.600	60
51991777	33	28	24	M16x2	10	26.700	17.800	130

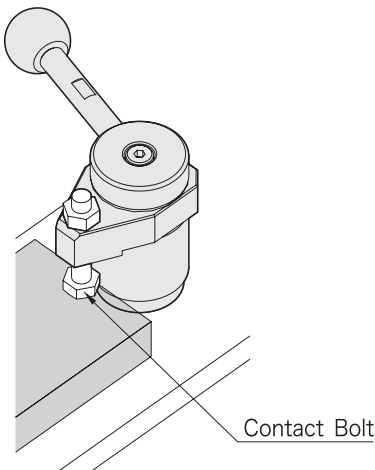
BJ732

CONTACT BOLTS



Material:SCM435 steel
Heat treated
Black oxide finish
Heat treated on edge

Application Example



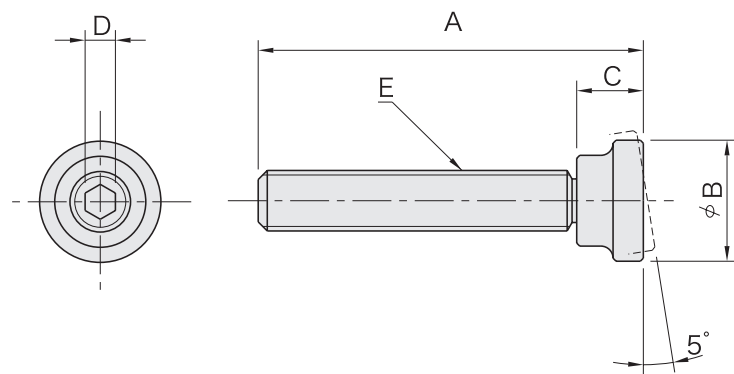
Part Number	A	B	C	D	E	R	Weight (g)
51991235	30	25	22	10	M 6x1	R15	7
51991236	40	35	32				9
51991237	50	45	42				11
51991238	36	30	27	13	M 8x1.25	R17.5	16
51991239	46	40	37				19
51991240	56	50	47				22
51991241	48	40	37	17	M10x1.5	R20	33
51991242	58	50	47				38
51991243	68	60	57				42
51991244	50	40	35	19	M12x1.75	R30	60
51991245	70	60	55				65
51991246	80	70	65				70
51991247	55	45	40	24	M16x2	R35	110
51991248	75	65	60				125
51991249	85	75	70				135

BJ746

SOCKET TOGGLE SCREWS



Material:S45C steel
Heat treated
Black oxide finish



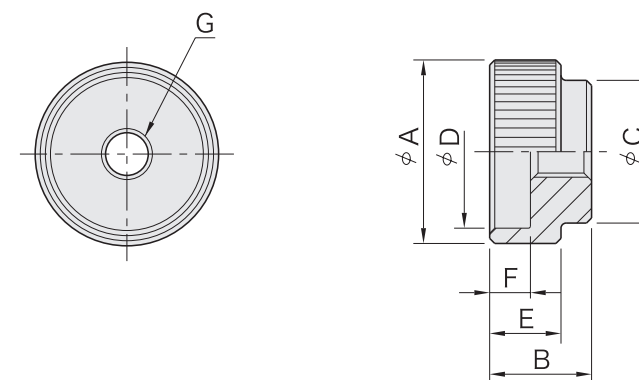
Part Number	A	B	C	D	E	Weight (g)
51991780	43	16	9	4	M 8x1.25	28
51991781	63					37
51991782	83					46
51991783	64	20	11	5	M10x1.5	50
51991784	84					60
51991785	104					70
51991786	65	25	13	6	M12x1.75	75
51991787	85					95
51991788	105					110
51991789	130	32	15	8	M16x2	130
51991790	85					170
51991791	105					190
51991792	130					230
51991793	155					265

BJ750

KNURLED KNOBS



Material:S45C steel
Finish :Black oxide



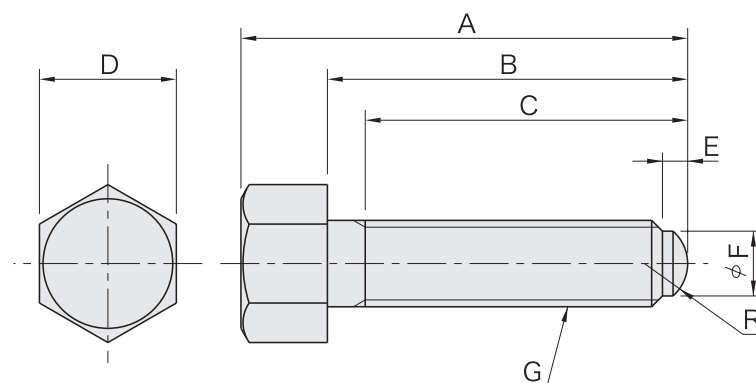
Part Number	A	B	C	D	E	F	G	Weight (g)
51991819	30	17	20	24	12	7	M 8x1.25	50
51991820	36	20	28	30	14	8	M10x1.5	90
51991821	40	24	32	34	16	10	M12x1.75	125

BJ748

CLAMP SCREWS



Material:SCM435 steel
Heat treated
Black oxide finish
Hardness:RC33 - 39



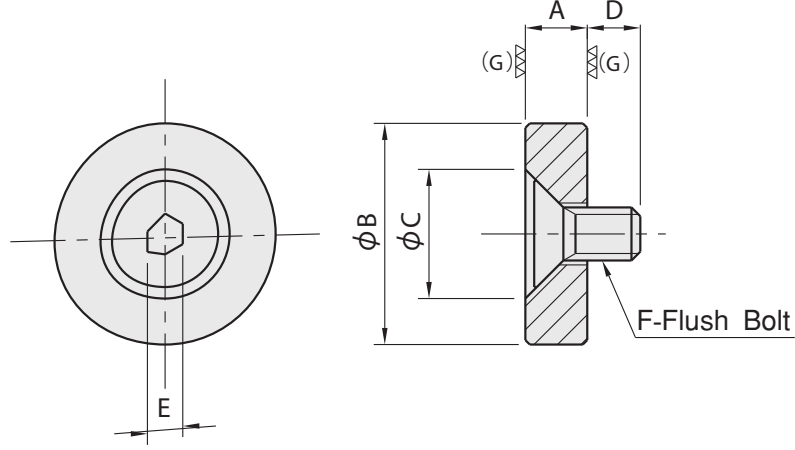
Part Number	A	B	C	D	E	F	G	R	Clamping Force (N)	Allowable Screw Torque (N·m)	Weight (g)
51991800	50	40	37	13	3	5.5	M 8x1.25	R 6	53.000	84	21
51991801	60	50	47								24
51991802	70	60	57								26
51991803	52	40	37	17	3.5	7.5	M10x1.5	R 8	89.000	178	38
51991804	62	50	47								42
51991805	72	60	57								46
51991806	75	60	55	19	5	9	M12x1.75	R 9	100.000	240	70
51991807	95	80	75								80
51991808	115	100	95								95
51991809	140	125	120	24	6	12	M16x2	R12	130.000	417	115
51991810	100	80	75								165
51991811	120	100	95								185
51991812	145	125	120								215

BJ763

FLAT FEET

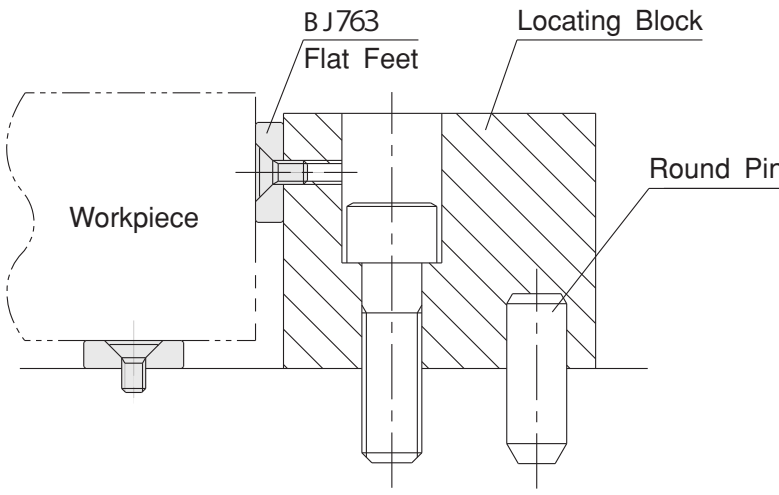


- Material: S45C steel
- Heat treated
- Black oxide finish
- Precision ground
- Hardness: RC39 to 45



Code	A ($\begin{smallmatrix} +0.01 \\ 0 \end{smallmatrix}$)	ϕB	ϕC	D	E	F	Weight (g)
51 99 18 67	5	25	14	7.7	4	M6x 1	20
51 99 18 68		30					30
51 99 18 69		35					40
51 99 18 70	10	25	10.7	10.7	4	M6x 1	40
51 99 18 71		30					60
51 99 18 72		35					80
51 99 18 73	10	30	19.4	11.3	5	M8x 1.25	60
51 99 18 74		35					80
51 99 18 75		40					100
51 99 18 76	15	30	19.4	11.3	5	M8x 1.25	90
51 99 18 77		35					115
51 99 18 78		40					150

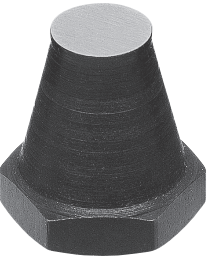
Application Example



Precision locator that keeps workpieces machined surfaces out of damage.
The accuracy of a locating block with Flat Feet installed can easily be compensated by regrounding the feet.

BJ810

REST PADS



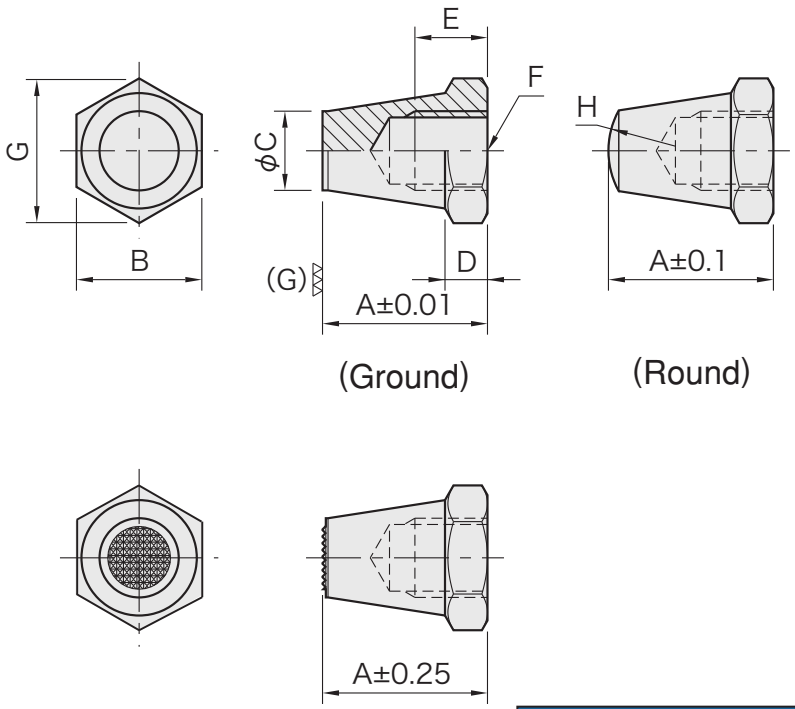
(Ground)



(Round)



(Serrated)



(Ground)

(Round)

(Serrated)

Material&finish	
Steel (S15C)	
Carburized-hardened	
Black oxide finish	

Ground code	Round code	Serrated code	A	B	C	D	E	F	G	H	Weight (g)
51 99 18 79	51 99 18 80	51 99 18 81	12.5	11	6	3	4	M 6x1	12.7	5	5
51 99 18 82	51 99 18 83	51 99 18 84	25				7				8
51 99 18 85	51 99 18 86	51 99 18 87	15	13	8	4	6	M 8x1.25	15	8.5	9
51 99 18 88	51 99 18 89	51 99 18 90	30				9				18
51 99 18 91	51 99 18 92	51 99 18 93	20	17	10	5	9	M10x1.5	19.6	9	17
51 99 18 94	51 99 18 95	51 99 18 96	40				13				35
51 99 18 97	51 99 18 98	51 99 18 99	25	19	12	6	11	M12x1.75	21.9	12.8	25
51 99 19 00	51 99 19 01	51 99 19 02	50				16				62



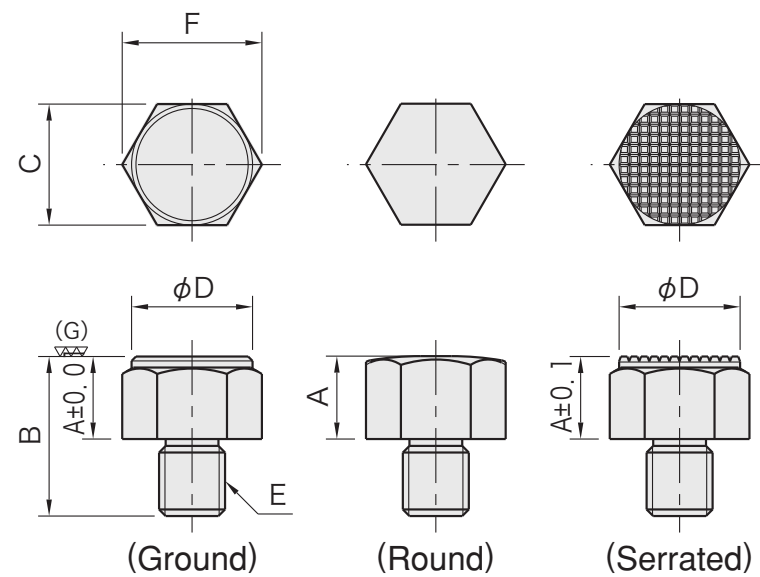
(Ground)



(Round)

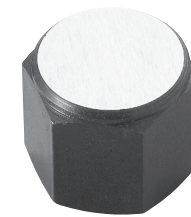


(Serrated)

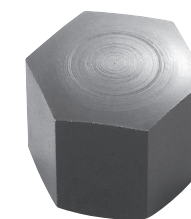
**Material&finish**

Steel (SUM22L)
Carburized - hardened
Black oxide finish

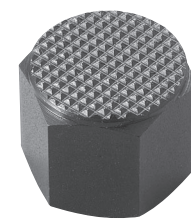
Ground code	Round code	Serrated code	A	B	C	D	E	F	Weight (g)
51 99 19 03	51 99 19 04	51 99 19 05	10	20	17	17	M 8x1.25	19.4	24
51 99 19 06	51 99 19 07	51 99 19 08		24	22	22	M12x1.75	25.2	40
51 99 19 09	51 99 19 10	51 99 19 11		29					56



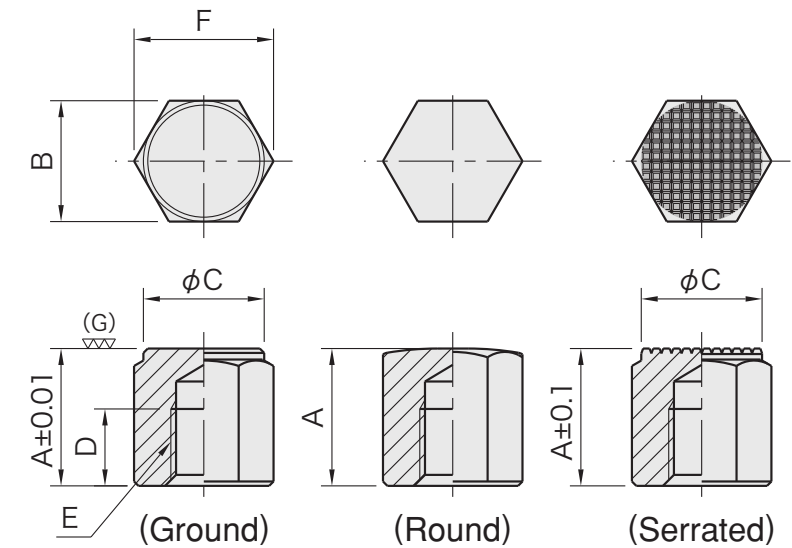
(Ground)



(Round)



(Serrated)

**Material&finish**

Steel (SUM22L)
Carburized-hardened
Black oxide finish

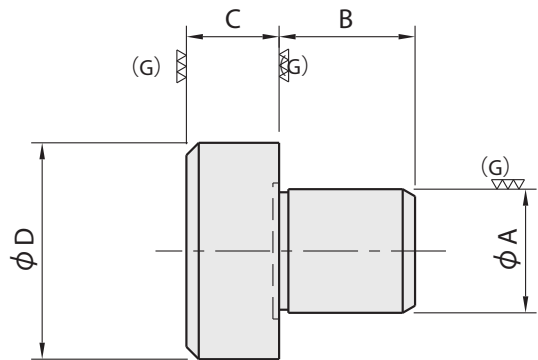
Ground	Round	Serrated	A	B	C	D	E	F	Weight (g)
code	code	code							
51 99 19 12	51 99 19 13	51 99 19 14	15	17	17	6	M 8x1.25	19.4	23
51 99 19 15	51 99 19 16	51 99 19 17	25			16			40
51 99 19 18	51 99 19 19	51 99 19 20	20	22	22	10	M12x1.75	25.2	52
51 99 19 21	51 99 19 22	51 99 19 23	25			15			65
51 99 19 24	51 99 19 25	51 99 19 26	30			20			77
51 99 19 27	51 99 19 28	51 99 19 29	40			25			105
51 99 19 30	51 99 19 31	51 99 19 32	50						135

BJ769

REST BUTTONS

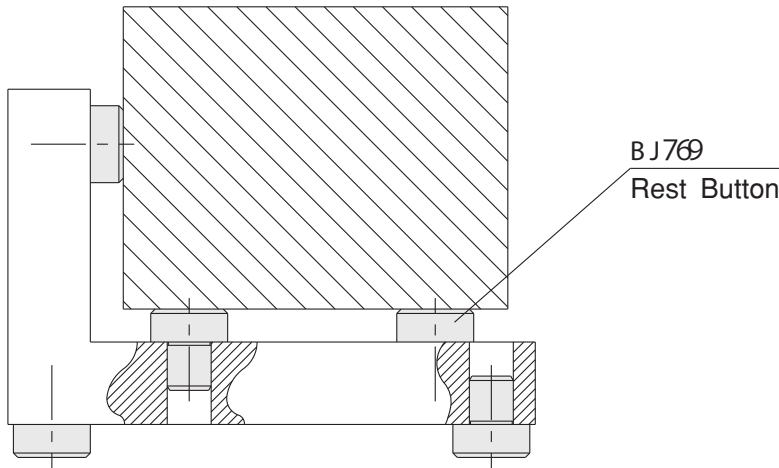


- Material: SUM43 steel
- Heat treated
- Black oxide finish
- Precision ground
- Hardness: RC40 to 45



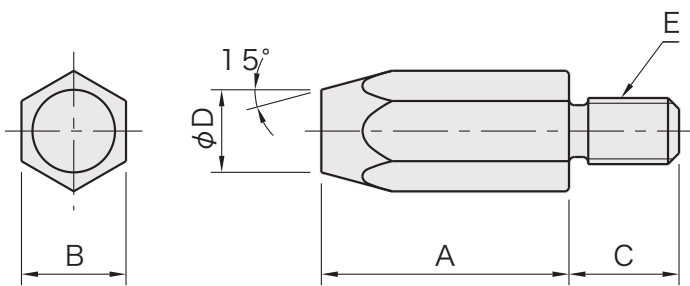
Part Number	ϕA ($+0.025$ $+0.012$)	B	C ($+0.03$ 0)	ϕD	Weight (g)
51 99 19 33	6	8	5	10	5
51 99 19 34			10		8
51 99 19 35	8	10	5	16	12
51 99 19 36			10		20
51 99 19 37			15		28
51 99 19 38			20		36
51 99 19 39	10	12	10	20	32
51 99 19 40			15		45
51 99 19 41			20		58

■ Application Example



BJ760

SCREW REST PADS



Material&finish

Steel (S45C)
Quenched and tempered
Black oxide finish
Heat treated to Rc33-39

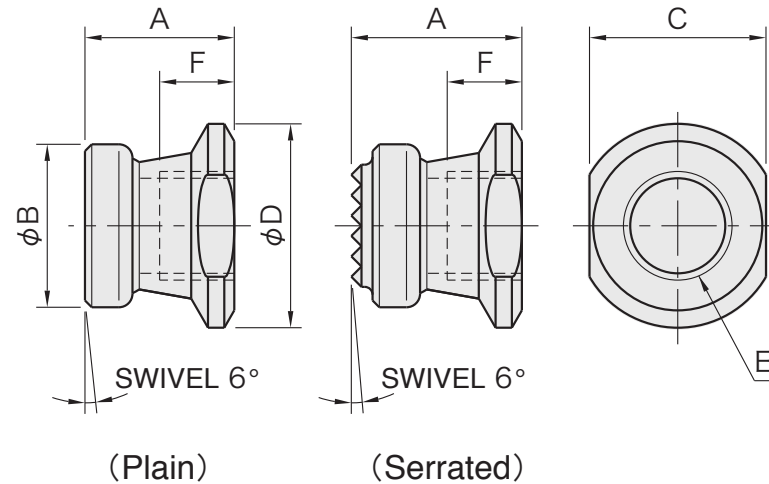
Part Number	A	B	C	D	E	Weight (g)
51 99 19 42	10	10	11	8	M 6×1	6
51 99 19 43	20			6		13
51 99 19 44	15	13	13	10	M 8×1.25	18
51 99 19 45	30			9		33
51 99 19 46	20	17	16	13	M10×1.5	44
51 99 19 47	40					80
51 99 19 48	25	19	20	15	M12×1.75	70
51 99 19 49	50					120



(Plain)



(Serrated)



Type	Body	Pad	Insert Tip
Plain	Steel (SCM440)	Steel (SCM440) Quenched and tempered	-
Serrated	Black oxide finish	Black oxide finish Heat treated to Rc36-40	Carbide Black oxide finish

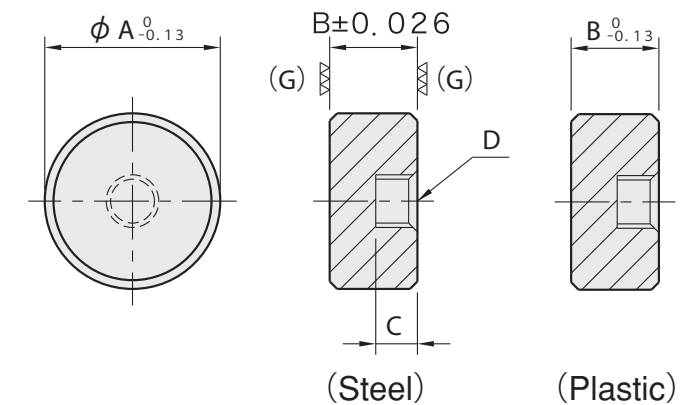
code	A	B	C	D	E	F	Load Capacity (N)	Weight (g)
51 99 19 50	15.5	14	12	14.3	M 6×1	5.5	5,000	9
51 99 19 51	13							
51 99 19 52	19.5	16	14	16	M 8×1.25	7	10,000	13
51 99 19 53	17							
51 99 19 54	21.5	18	16	19.1	M10×1.5	8	13,000	21
51 99 19 55	18							
51 99 19 56	25.5	21	22	25.4	M12×1.75	9.5	24,000	34
51 99 19 57	22							
51 99 19 58	28	24	22	25.4	M16×2	11	38,000	50
51 99 19 59	25							
51 99 19 60	33	28	30	31.5	M20×2.5	13.5	57,000	82
51 99 19 61	29							



(Steel)



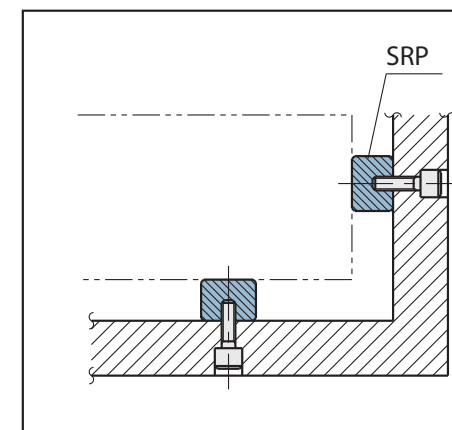
(Plastic)



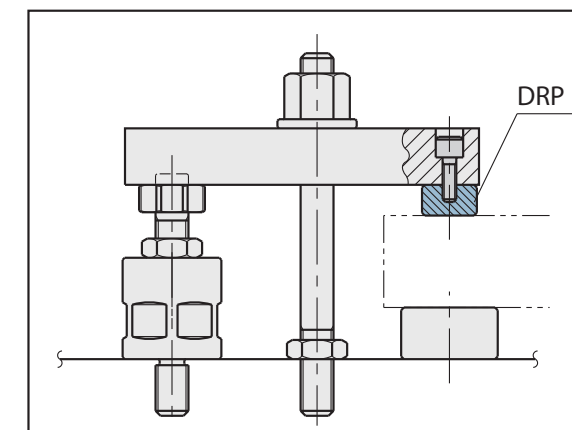
Type	Material & Finish
Steel	Steel (SNCM220) Carburized-hardened Black oxide finish Heat treated to Rc60
Plastic	Polyacetal plastic White

Steel		Plastic		A	B	C	D
Part Number	Weight (g)	Part Number	Weight (g)				
51 99 19 62	5	51 99 19 68	1	10	10	5	M5×0.8
51 99 19 63	8	51 99 19 69	2	12	10	5	M5×0.8
51 99 19 64	10	51 99 19 70	2	12	12	6.4	M5×0.8
51 99 19 65	15	51 99 19 71	3	16	10	5	M6×1
51 99 19 66	23	51 99 19 72	4	20	10	5	M6×1
51 99 19 67	37	51 99 19 73	7	25	10	5	M6×1

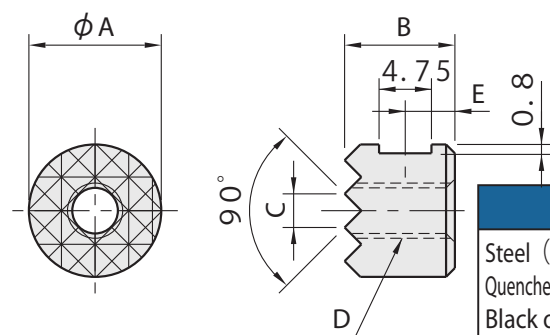
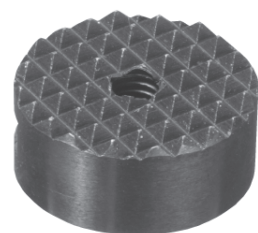
Application Examples



• Workpiece positioning

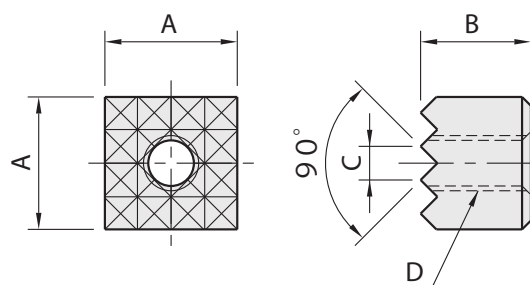
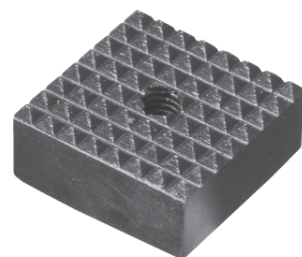


• Protecting a soft or precision ground workpiece.

HS**ROUND GRIPPERS, Tapped**

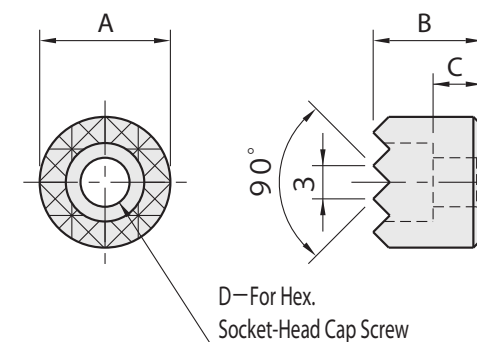
Steel (SKH51)
Quenched and tempered
Black oxide finish
Heat treated to Rc62

Part Number	A ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	B ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	C	D	E	Weight (g)
51 99 19 74	10	10	2.3	M5×0.8	4.5	5
51 99 19 75		12			6	6
51 99 19 76	12	10	3	M5×0.8	4.5	8
51 99 19 77		12			6	9
51 99 19 78	16	10	3	M6×1	4.5	14
51 99 19 79		12			6	15
51 99 19 80	20	10	3	M6×1	4.5	23
51 99 19 81		12			6	25
51 99 19 82	25	10	3	M6×1	4.5	37
51 99 19 83		12			6	40

HS**SQUARE GRIPPERS, Tapped****Material & Finish**

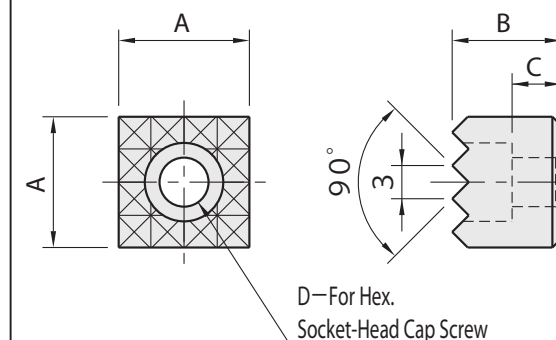
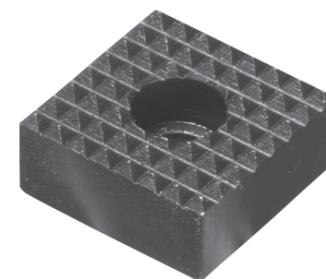
Steel (SKH51)
Quenched and tempered
Black oxide finish
Heat treated to Rc62

Part Number	A ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	B ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	C	D	Weight (g)
51 99 19 84	10	10	2.3	M5×0.8	7
51 99 19 85		12			7.5
51 99 19 86	12	10	3	M5×0.8	10
51 99 19 87		12			11
51 99 19 88	16	10	3	M6×1	17
51 99 19 89	20	10	3	M5×0.8	30
51 99 19 90		12			33.5
51 99 19 91	25	10	3	M6×1	47
51 99 19 92		12			53

HS-C**ROUND GRIPPERS, C'Bored**

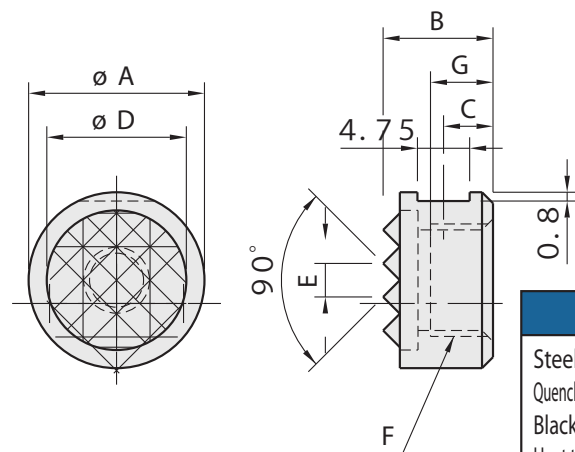
Steel (SKH51)
Quenched and tempered
Black oxide finish
Heat treated to Rc62

Part Number	A ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	B ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	C	D	Weight (g)
51 99 19 93	12	10	4.5	M4	6
51 99 19 94		12	6.5		8
51 99 19 95	16	10	4.5	M4	12
51 99 19 96		12	6.5		15
51 99 19 97	20	10	3.5	M5	19
51 99 19 98		12	5.5		23
51 99 19 99	25	10	2.5	M6	30
51 99 20 00		12	4.5		38

HS-C**SQUARE GRIPPERS, C'Bored**

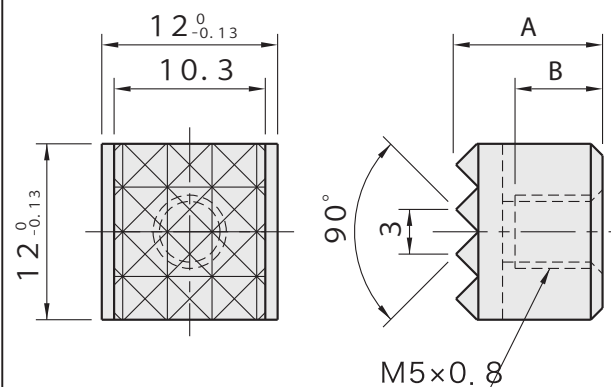
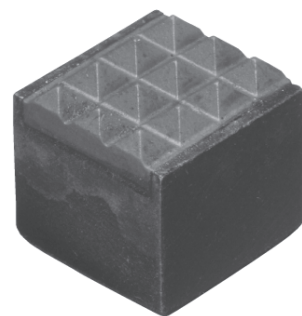
Steel (SKH51)
Quenched and tempered
Black oxide finish
Heat treated to Rc62

Part Number	A ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	B ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	C	D	Weight (g)
51 99 20 01	12	10	4.5	M4	8
51 99 20 02		12	6.5		10
51 99 20 03	16	10	4.5	M4	16
51 99 20 04	20	10	3.5	M5	25
51 99 20 05		12	5.5		31
51 99 20 06	25	10	2.5	M6	40
51 99 20 07		12	4.5		49

CT**ROUND GRIPPERS**

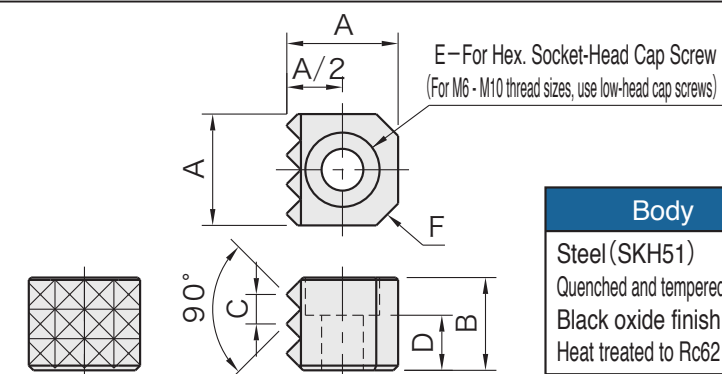
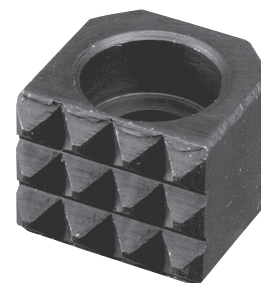
Body	Tip
Steel (SCM440) Quenched and tempered Black oxide finish Heat treated to Rc32	Carbide Black oxide finish

code	A ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	B ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	C	D	E	F	G (Effective Thread Length)	Weight (g)
51 99 20 08	10	10	4.5	7.9	2.3	M5×0.8	6.5	5
51 99 20 09		12	6				8.5	6
51 99 20 10	12	10	4.5	9.5	3	M5×0.8	6.5	8
51 99 20 11		12	6				8.5	9
51 99 20 12	16	10	4.5	12.7	3	M6×1	6.5	14
51 99 20 13		12	6				8.5	17
51 99 20 14	20	10	4.5	15.9	3	M6×1	6.5	23
51 99 20 15		12	6				8.5	28
51 99 20 16	25	10	4.5	19.1	3	M6×1	6.5	35
51 99 20 17		12	6				8.5	43

CT**SQUARE GRIPPERS**

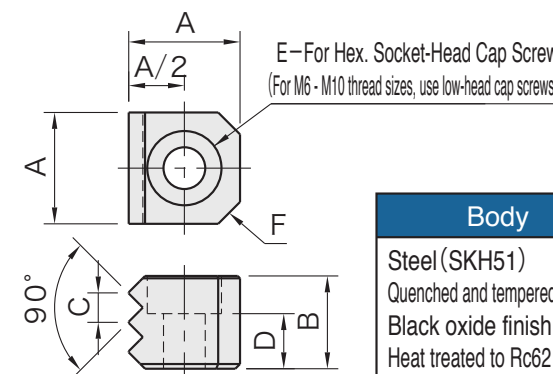
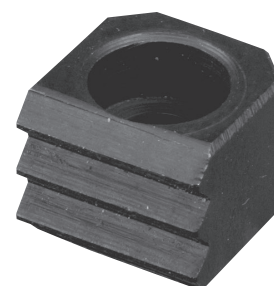
code	A ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	B (Effective Thread Length)	Weight (g)
51 99 20 18	10	6.5	10
51 99 20 19	12	8.5	13

Body	Tip
Steel (SCM440) Quenched and tempered Black oxide finish Heat treated to Rc32	Carbide Black oxide finish

HSE**EDGE GRIPPERS, Diamond Serration**

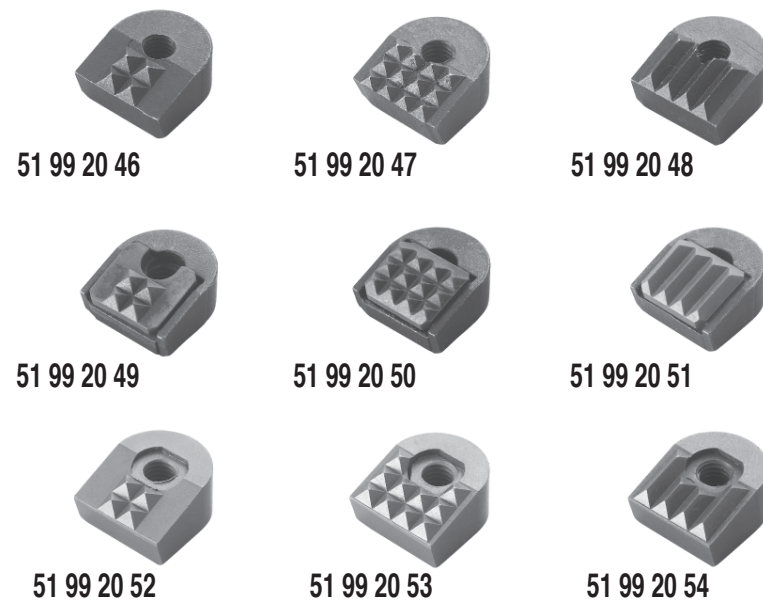
Body
Steel (SKH51) Quenched and tempered Black oxide finish Heat treated to Rc62

code	A ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	B ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	C	D	E	F	Weight (g)
51 99 20 20	10	6	2.3	2.8	M 3	1.6	4
51 99 20 21		10		6.8			6
51 99 20 22	12	6	3	1.9	M 4	2.3	4
51 99 20 23		10		5.9			8
51 99 20 24	16	12	3	7.9	M 6	3.2	10
51 99 20 25		6		1.8			8
51 99 20 26	20	10	3	5.8	M 8	3.2	14
51 99 20 27		12		7.8			17
51 99 20 28	25	6	3	0.9	M10	3.2	10
51 99 20 29		10		4.9			20
51 99 20 30	25	12	3	6.9			25
51 99 20 31		10		3.4			31
51 99 20 32		12		5.4			39

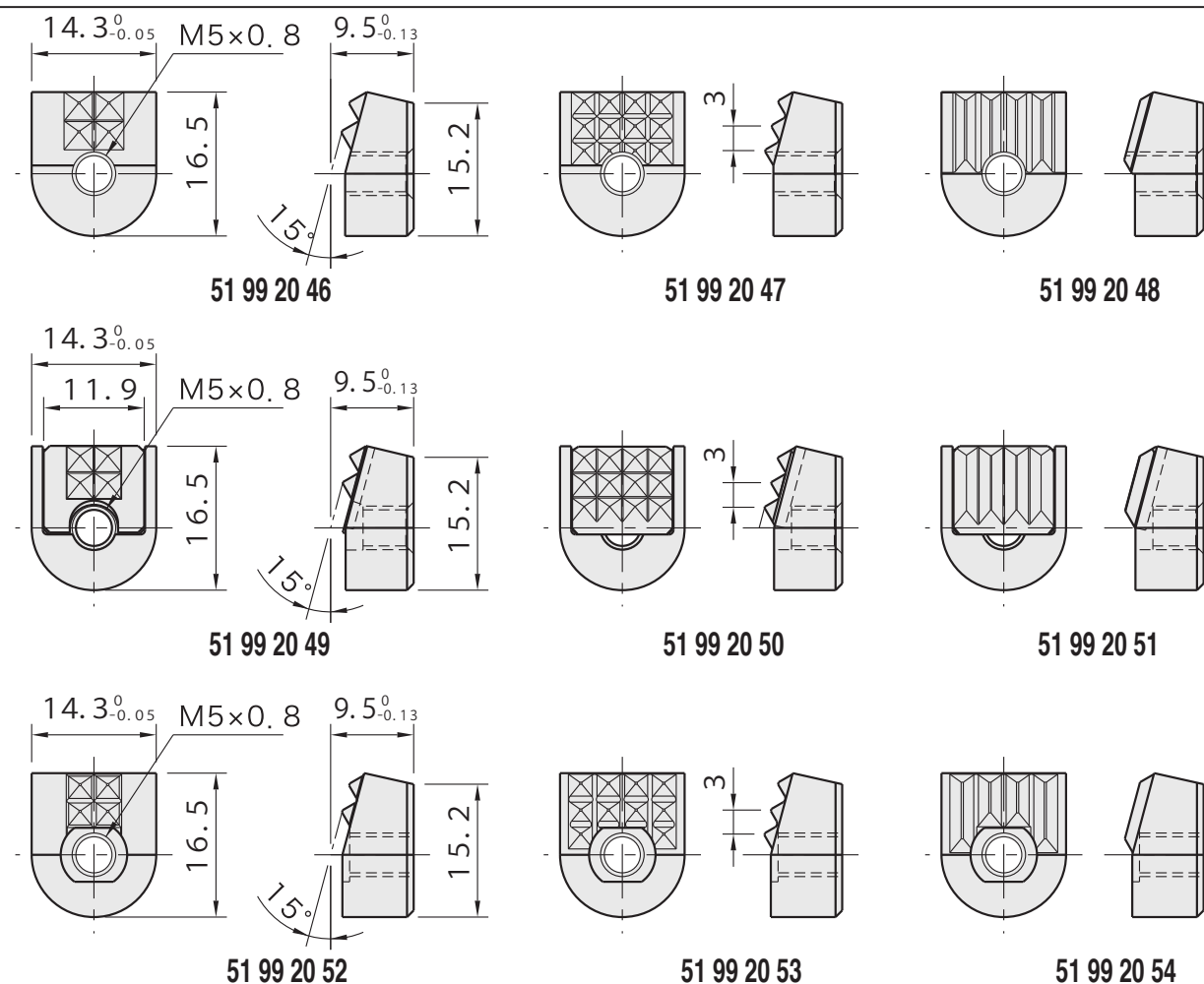
HSE-SS**EDGE GRIPPERS, Straight Serration**

Body
Steel (SKH51) Quenched and tempered Black oxide finish Heat treated to Rc62

code	A ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	B ($\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$)	C	D	E	F	Weight (g)
51 99 20 33	10	6	2.3	2.8	M 3	1.6	4
51 99 20 34		10		6.8			6
51 99 20 35	12	6	3	1.9	M 4	2.3	5
51 99 20 36		10		5.9			8
51 99 20 37	16	12	3	7.9	M 6	3.2	10
51 99 20 38		6		1.8			8
51 99 20 39	20	10	3	5.8	M 8	3.2	14
51 99 20 40		12		7.8			18
51 99 20 41	25	6	3	0.9	M10	3.2	10
51 99 20 42		10		4.9			20
51 99 20 43	25	12	3	6.9			25
51 99 20 44		10		3.4			31
51 99 20 45		12		5.4			40



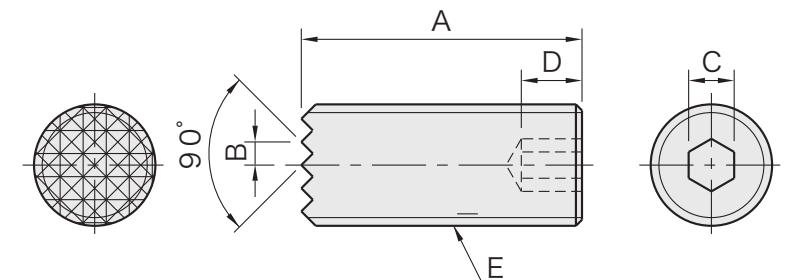
code	Material & Finish	
51 99 20 46	Steel (SKH51)	
51 99 20 47	Quenched and tempered	
51 99 20 48	Black oxide finish	
51 99 20 49	Heat treated to Rc62	
51 99 20 49	Steel (SKH51)	Carbide Black oxide finish
51 99 20 50	Quenched and tempered	
51 99 20 51	Black oxide finish	
51 99 20 51	Heat treated to Rc62	
51 99 20 52	Carbide	
51 99 20 53	Black oxide finish	
51 99 20 54		



Part Number	Weight (g)
51 99 20 46	11
51 99 20 47	12
51 99 20 48	12

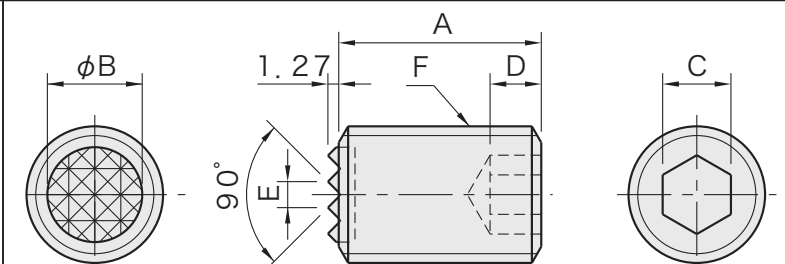
Part Number	Weight (g)
51 99 20 49	12
51 99 20 50	13
51 99 20 51	13

Part Number	Weight (g)
51 99 20 52	20
51 99 20 53	
51 99 20 54	



code	A	B	C	D	E	Weight (g)
51 99 20 55	25	2.3	3	4	M10x1.5	13
51 99 20 56	40					21
51 99 20 57	25	3	5	6	M12x1.75	16
51 99 20 58	40					29
51 99 20 59	25	3	6	8	M16x2	34
51 99 20 60	40					53
51 99 20 61	25	3	8	10	M20x2.5	54
51 99 20 62	40					82

Material & Finish
Steel (SKH51)
Quenched and tempered
Black oxide finish
Heat treated to Rc58

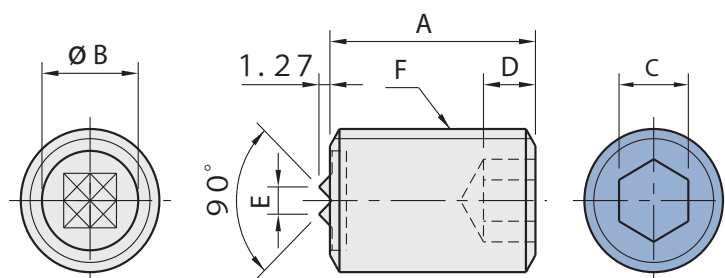


Body	Tip
Steel (SCM440)	Carbide Black oxide finish
Quenched and tempered	
Black oxide finish	

code	A	B	C	D	E	F	Weight (g)
51 99 20 63	25	6.4	5	4	2.3	M10x1.5	15
51 99 20 64	50						30
51 99 20 65	25	7.9	6	5	2.3	M12x1.75	21
51 99 20 66	50						43
51 99 20 67	25	11.1	8	6	3	M16x2	37
51 99 20 68	50						77
51 99 20 69	25	12.7	10	8	3	M20x2.5	57
51 99 20 70	50						119

PG

TIPPED SOCKET SCREW GRIPPERS

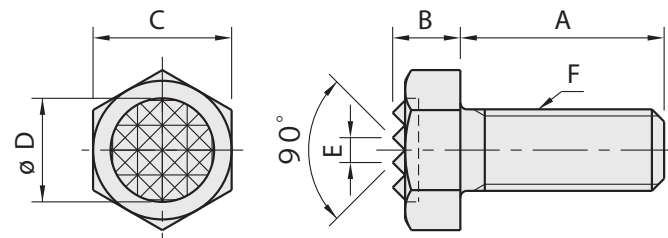


code	A	B	C	D	E	F	Weight (g)
51 99 20 71	25	7.9	6	5	3	M12×1.75	21
51 99 20 72	50						43
51 99 20 73	25	11.1	8	6	3	M16×2	37
51 99 20 74	50						77
51 99 20 75	25	12.7	10	8	3	M20×2.5	57
51 99 20 76	50						119

Steel (SCM440)	Carbide
Quenched and tempered	Black oxide finish
Black oxide finish	

CT

HEX-HEAD SCREW GRIPPERS



code	A	B	C	D	E	F	Weight (g)
51 99 20 77	12	5	10	7.9	2.3	M 6×1	6
51 99 20 78	25						8
51 99 20 79	12	6.4	13	9.5	3	M 8×1.25	10
51 99 20 80	25						15
51 99 20 81	35	8.3	17	12.7	3	M10×1.25	17
51 99 20 82	25						20
51 99 20 83	12	8.3	17	12.7	3	M10×1.5	25
51 99 20 84	25						27
51 99 20 85	40	8.7	19	15.9	3	M12×1.75	36
51 99 20 86	25						42
51 99 20 87	40	11	24	19.1	3	M16×2	55
51 99 20 88	35						88
51 99 20 89	50	13.5	30	25.4	2.3	M20×2.5	127
51 99 20 90	40						133
51 99 20 91	60						231

Steel (SCM440)	Carbide
Quenched and tempered	Black oxide finish
Black oxide finish	
Heat treated to Rc32	

BUH

HEX-HEAD SWIVEL GRIPPER SCREW



51 99 20 92 - 20 97
(Serrated, Steel Ball)

51 99 20 98 - 21 11
(Serrated, Steel Tip)



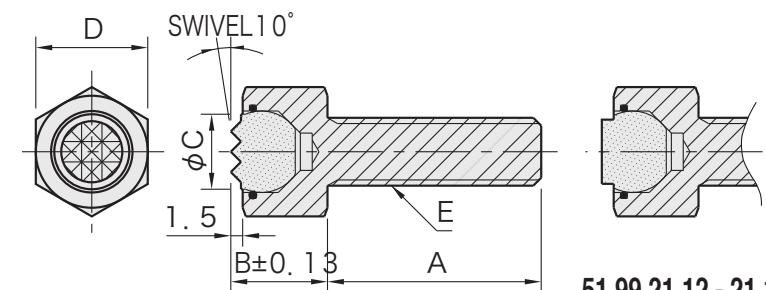
51 99 21 12 - 21 17
(Plain, Steel Ball)

51 99 21 18 - 21 31
(Plain, Steel Tip)



51 99 21 32 - 21 37
(Plain, Plastic Ball)

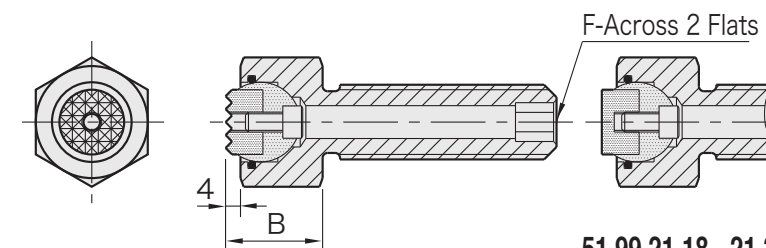
51 99 21 38 - 21 51
(Plain, Plastic Tip)



51 99 20 92 - 20 97
(Serrated, Steel Ball)

51 99 21 12 - 21 17
(Plain, Steel Ball)

51 99 21 32 - 21 37
(Plain, Plastic Ball)



51 99 20 98 - 21 11
(Serrated, Steel Tip)

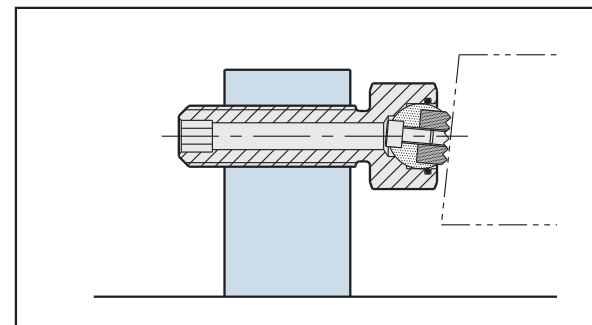
51 99 21 18 - 21 31
(Plain, Steel Tip)

51 99 21 38 - 21 51
(Plain, Plastic Tip)

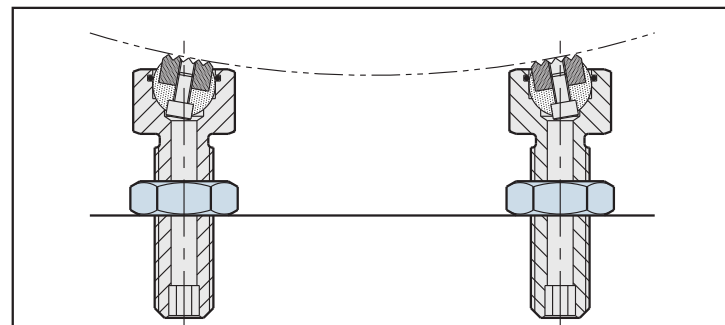
code	Body	Ball	Tip
51 99 20 92 - 20 97 51 99 21 12 - 21 17	Steel(SCM440)	Steel(SKH51) Quenched and tempered Black oxide finish Heat treated to Rc60	Polyacetal plastic White
51 99 21 32 - 21 37			
51 99 20 98 - 21 11	Quenched and tempered	Stainless steel (SUS440)	Steel(SKH51) Quenched and tempered Black oxide finish Heat treated to Rc62
51 99 21 18 - 21 31	Black oxide finish		Steel(SNCM220) Carburized-hardened Black oxide finish Heat treated to Rc60
51 99 21 38 - 21 51			Polyacetal plastic White

Serrated (Steel)		Plain (Steel)		Plain (Plastic)		A	B	C	D	E	F	Load Capacity (N)
code	Weight(g)	code	Weight(g)	code	Weight(g)							
51 99 20 92	7	51 99 21 12	7	51 99 21 32	6	12						
51 99 20 93	8	51 99 21 13	8	51 99 21 33	7	25	9.5	6	10	M 6x1	-	5,300
51 99 20 94	10	51 99 21 14	10	51 99 21 34	9	40						
51 99 20 95	12	51 99 21 15	12	51 99 21 35	11	12						
51 99 20 96	18	51 99 21 16	18	51 99 21 36	16	25	13	8.5	13	M 8x1.25	-	10,900
51 99 20 97	22	51 99 21 17	22	51 99 21 37	21	40						
51 99 20 98	26	51 99 21 18	26	51 99 21 38	22	15						
51 99 20 99	33	51 99 21 19	33	51 99 21 39	29	30	17	10	17	M10x1.5	3	18,400
51 99 21 00	43	51 99 21 20	43	51 99 21 40	39	50						
51 99 21 01	55	51 99 21 21	55	51 99 21 41	49	20						
51 99 21 02	65	51 99 21 22	65	51 99 21 42	59	40	19	12	19	M12x1.75	5	24,500
51 99 21 03	75	51 99 21 23	75	51 99 21 43	69	60						
51 99 21 04	87	51 99 21 24	87	51 99 21 44	75	25						
51 99 21 05	117	51 99 21 25	117	51 99 21 45	105	50	23	16	24	M16x2	6	43,600
51 99 21 06	152	51 99 21 26	152	51 99 21 46	140	80						
51 99 21 07	153	51 99 21 27	154	51 99 21 47	134	30						
51 99 21 08	205	51 99 21 28	206	51 99 21 48	186	60	24	20	30	M20x2.5	8	57,700
51 99 21 09	276	51 99 21 29	277	51 99 21 49	257	100						
51 99 21 10	287	51 99 21 30	289	51 99 21 50	257	40						
51 99 21 11	432	51 99 21 31	434	51 99 21 51	402	100	30	25	36	M24x3	10	85,600

Application Example



- Ideal for workpiece positioning and positive holding.



- Can also be used as screw jacks.

How To Install Tip

- Push the ball out of the body and then secure the tip to the ball using the included hex. socket-head cap screw.

TBU

SWIVEL GRIPPER SCREWS



51 99 21 52 - 21 57
(Serrated, Steel Ball)



51 99 21 58 - 21 62
(Serrated, Steel Tip)



51 99 21 63 - 21 68
(Plain, Steel Ball)



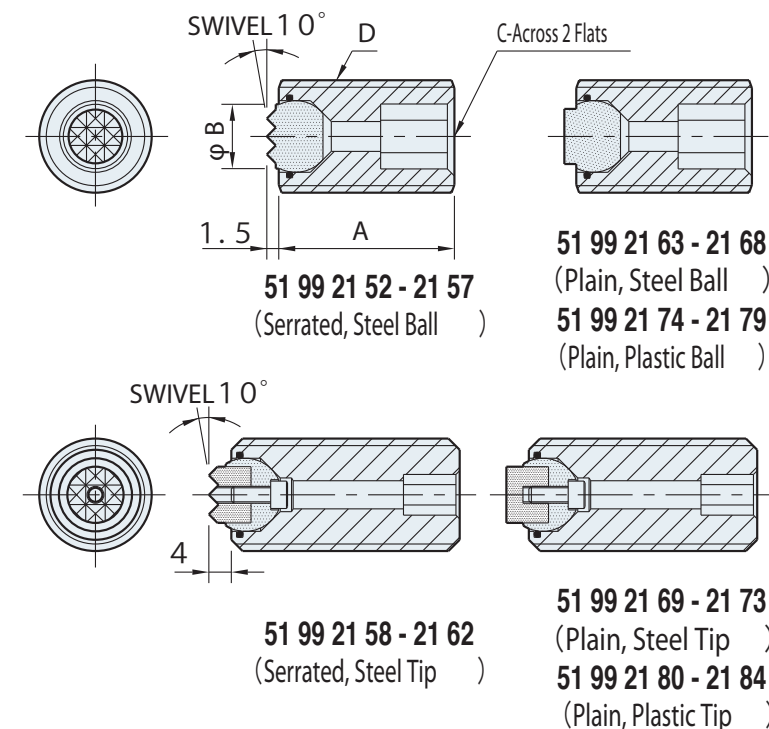
51 99 21 69 - 21 73
(Plain, Steel Tip)



51 99 21 74 - 21 79
(Plain, Plastic Ball)



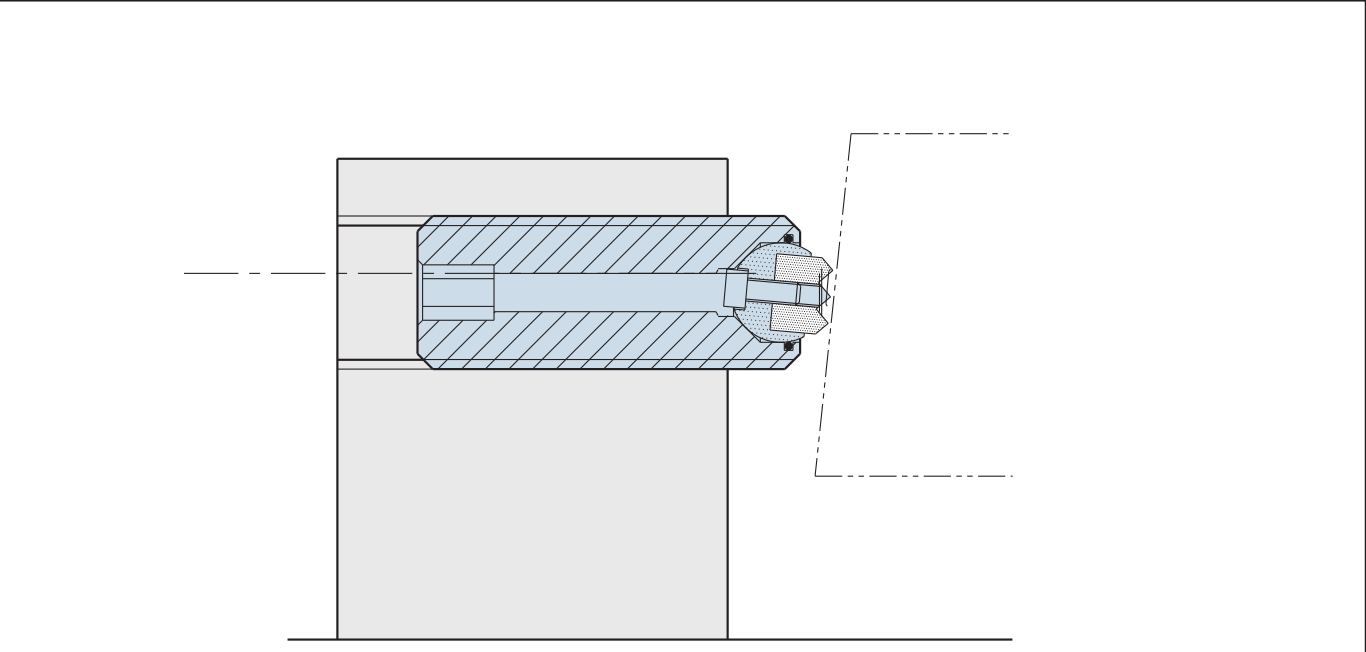
51 99 21 80 - 21 84
(Plain, Plastic Tip)



code	Body	Ball	Tip
51 99 21 52 - 21 57 51 99 21 63 - 21 68	Steel (SCM440) Quenched and tempered Black oxide finish Heat treated to Rc45	Steel (SKH51) Quenched and tempered Black oxide finish Heat treated to Rc60	
51 99 21 74 - 21 79		Polyacetal plastic White	
51 99 21 58 - 21 62		Stainless steel (SUS440)	Steel (SKH51) Quenched and tempered Black oxide finish Heat treated to Rc62
51 99 21 69 - 21 73			Steel (SNCM220) Carburized-hardened Black oxide finish Heat treated to Rc60
51 99 21 80 - 21 84			Polyacetal plastic White

Serrated (Steel)		Plain (Steel)		Plain (Plastic)		A	B	C	D	Load Capacity (N)
code	Weight (g)	code	Weight (g)	code	Weight (g)					
51 99 21 52	13	51 99 21 63	13	51 99 21 74	12	25				
51 99 21 53	19	51 99 21 64	19	51 99 21 75	18	35	6	6	M12x1.75	5,300
51 99 21 54	28	51 99 21 65	28	51 99 21 76	27	50				
51 99 21 55	26	51 99 21 66	26	51 99 21 77	25	25				
51 99 21 56	39	51 99 21 67	39	51 99 21 78	38	35	8.5	8	M16x2	10,900
51 99 21 57	58	51 99 21 68	58	51 99 21 79	57	50				
51 99 21 58	57	51 99 21 69	57	51 99 21 80	53	30		10		
51 99 21 59	90	51 99 21 70	90	51 99 21 81	86	50	10		M20x2.5	18,400
51 99 21 60	123	51 99 21 71	123	51 99 21 82	119	70		8		
51 99 21 61	113	51 99 21 72	113	51 99 21 83	107	40				
51 99 21 62	210	51 99 21 73	210	51 99 21 84	204	80	12	10	M24x3	24,500

Application Example TBU

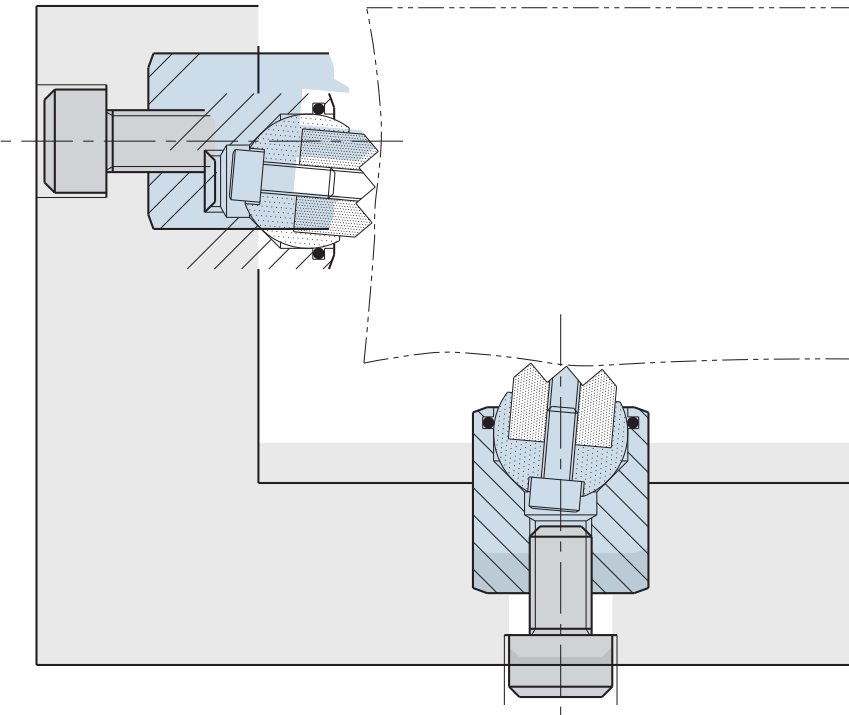


• Ideal for workpiece positioning and positive holding.

How To Install Tip

• Push the ball out of the body and then secure the tip to the ball using the included hex. socket-head cap screw.

Application Example BBU



• Grippers for better workpiece positioning methods.

How To Install Tip

• Push the ball out of the body and then secure the tip to the ball using the included hex. socket-head cap screw.

BBU

SWIVEL PAD GRIPPERS



51 99 21 85 - 21 88
(Serrated, Steel Ball)



51 99 21 89 - 21 93
(Serrated, Steel Tip)



51 99 21 94 - 21 97
(Plain, Steel Ball)



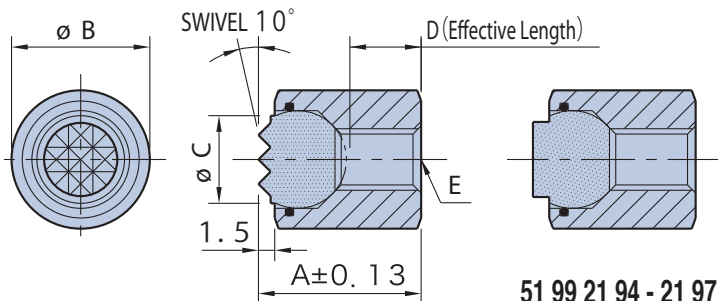
51 99 21 98 - 22 02
(Plain, Steel Tip)



51 99 22 03 - 22 06
(Plain, Plastic Ball)

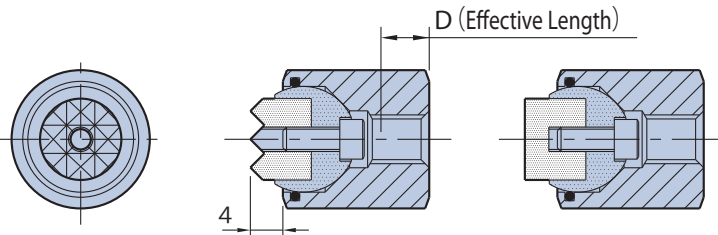


51 99 22 07 - 22 11
(Plain, Plastic Tip)



51 99 21 85 - 21 88
(Serrated, Steel Ball)

51 99 21 94 - 21 97
(Plain, Steel Ball)
51 99 22 03 - 22 06
(Plain, Plastic Ball)

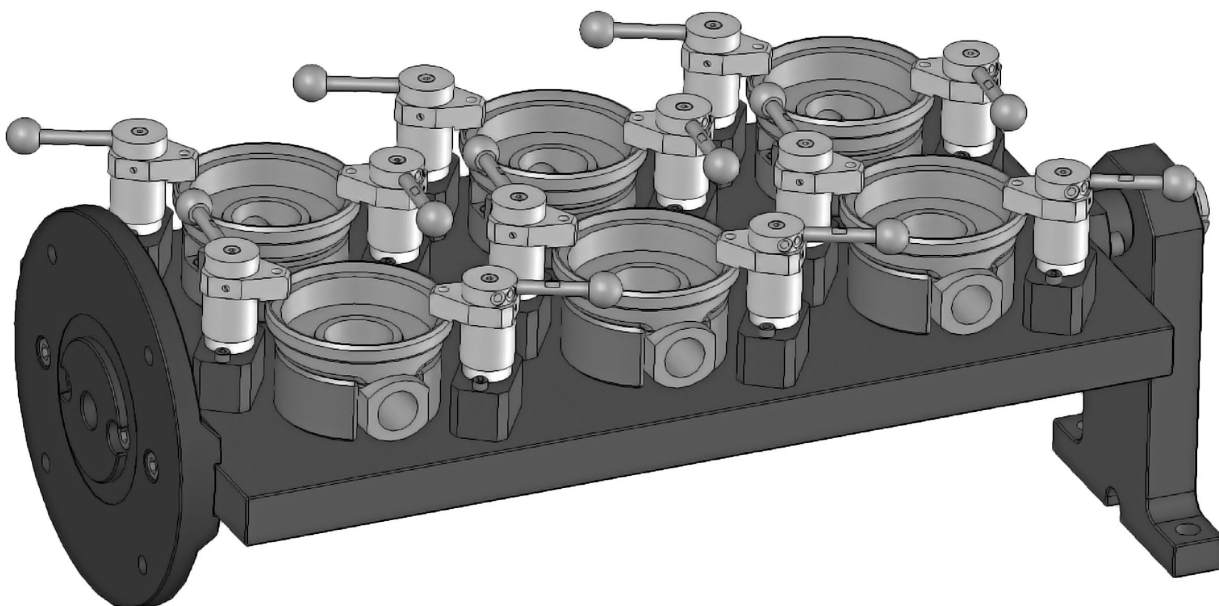
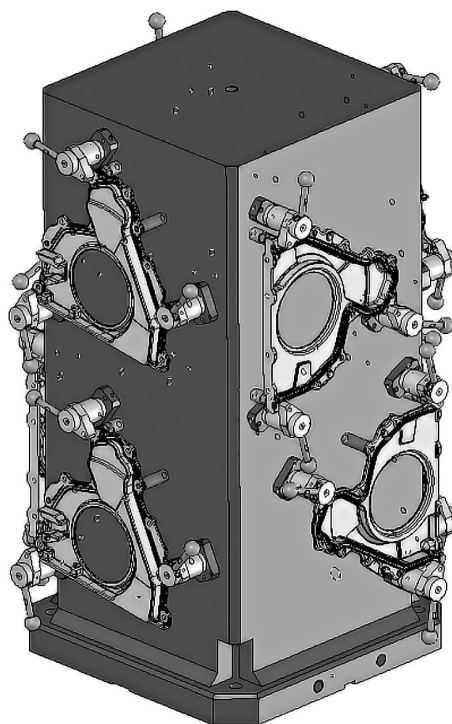
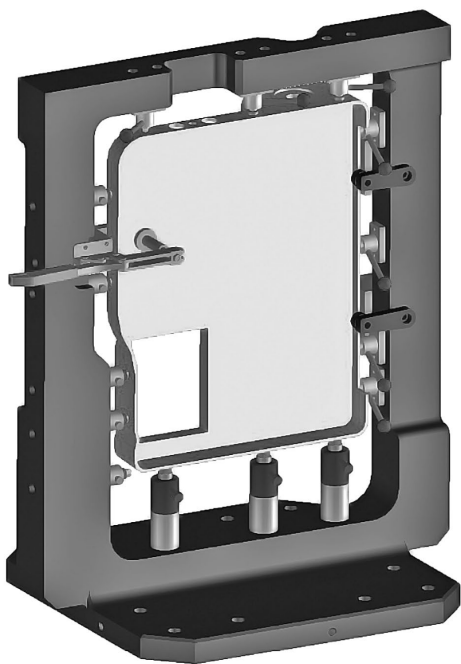


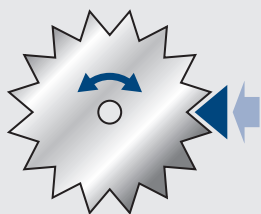
51 99 21 89 - 21 93
(Serrated, Steel Tip)

51 99 21 98 - 22 02
(Plain, Steel Tip)
51 99 22 07 - 22 11
(Plain, Plastic Tip)

code			
51 99 21 85 - 21 88 51 99 21 94 - 21 97	Steel (SKH51) Quenched and tempered Black oxide finish Heat treated to Rc60	Polyacetal plastic White	
51 99 22 03 - 22 06			
51 99 21 89 - 21 93	Steel (SCM440) Quenched and tempered Black oxide finish	Stainless steel (SUS440)	Steel (SKH51) Quenched and tempered Black oxide finish Heat treated to Rc62
51 99 21 98 - 22 02			Steel (SNCM220) Carburized-hardened Black oxide finish Heat treated to Rc60
51 99 22 07 - 22 11			Polyacetal plastic White

Serrated (Steel)		Plain (Steel)		Plain (Plastic)		A	B	C	D	E	Load Capacity (N)
Part Number	Weight (g)	Part Number	Weight (g)	Part Number	Weight (g)						
51 99 21 85	6	51 99 21 94	6	51 99 22 03	5	12	10	6	3.5	M 4×0.7	5300
51 99 21 86	13	51 99 21 95	13	51 99 22 04	12	25			9		
51 99 21 87	12	51 99 21 96	12	51 99 22 05	11	16	13	8.5	6.5	M 5×0.8	10900
51 99 21 88	21	51 99 21 97	21	51 99 22 06	20	25			9		
51 99 21 89	31	51 99 21 98	31	51 99 22 07	27	22	17	10	7.5	M 6×1	18400
51 99 21 90	43	51 99 21 99	43	51 99 22 08	37	24	19	12	8.5	M 8×1.25	24500
51 99 21 91	72	51 99 22 00	73	51 99 22 09	61	28	24	16	9	M10×1.5	43600
51 99 21 92	128	51 99 22 01	129	51 99 22 10	109	30	30	20	8.5	M12×1.75	57700
51 99 21 93	235	51 99 22 02	237	51 99 22 11	205	36	36	25	12	M12×1.75	85600





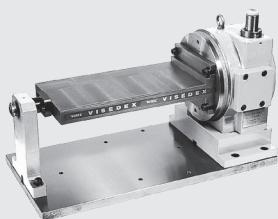
Description and operating instructions

Pag. 15. 3



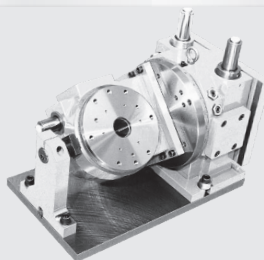
TOUCHDEX indexing tables

Pag. 15. 8



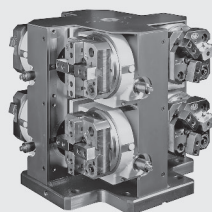
COMBIDEX

Pag. 15. 13



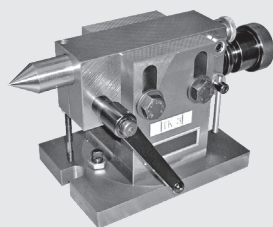
TILTING

Pag. 15. 14



MULTIDEX

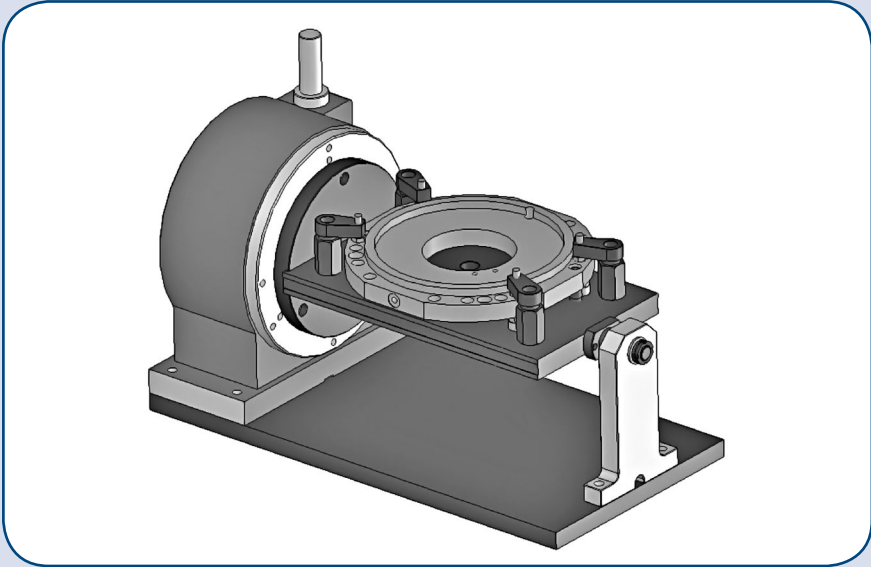
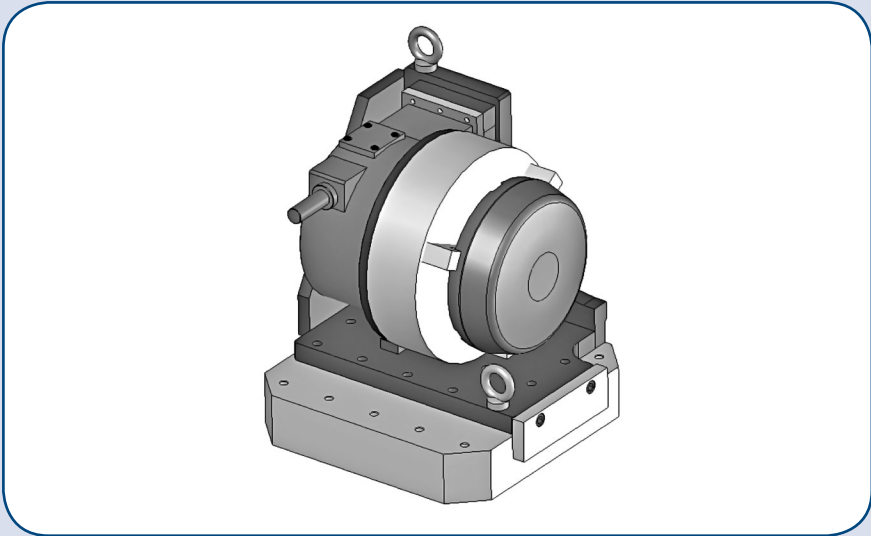
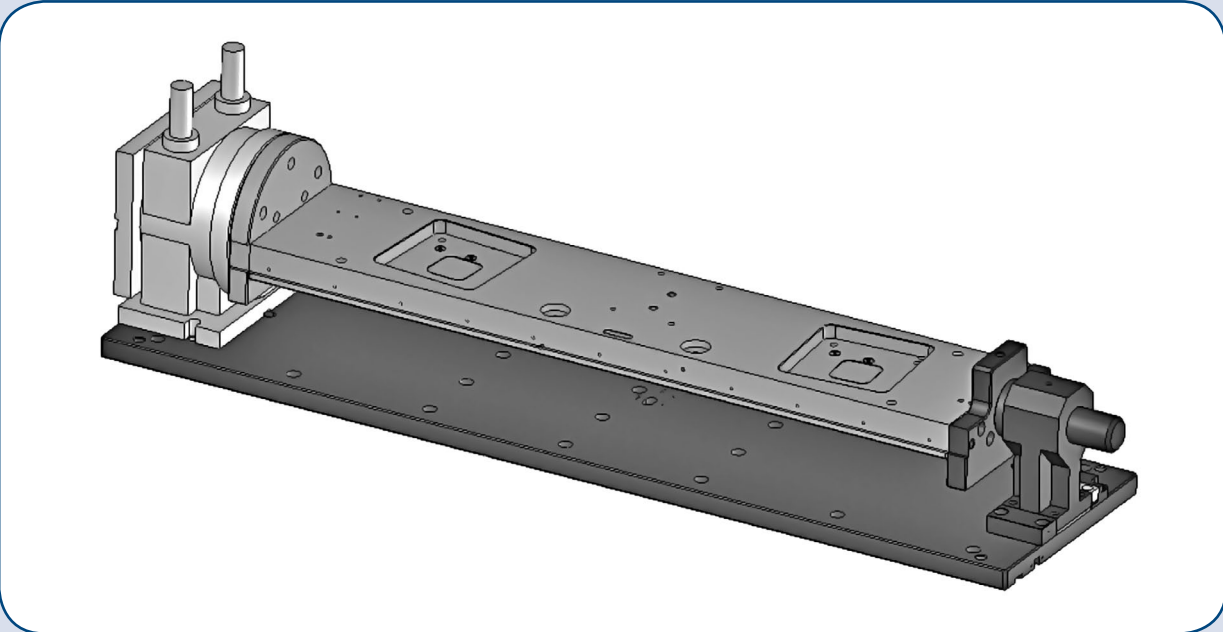
Pag. 15. 15



Accessories

Pag. 15. 16

On our website: www.omlspa.it
(in the video section) are available some videos by means
of which we show how TOUCHDEX works.



HIGH RIGIDITY AND PRECISION OF THE SYSTEM

TOUCHDEX



Exclusive Mechanical clamping
System “LOCKING PIN”

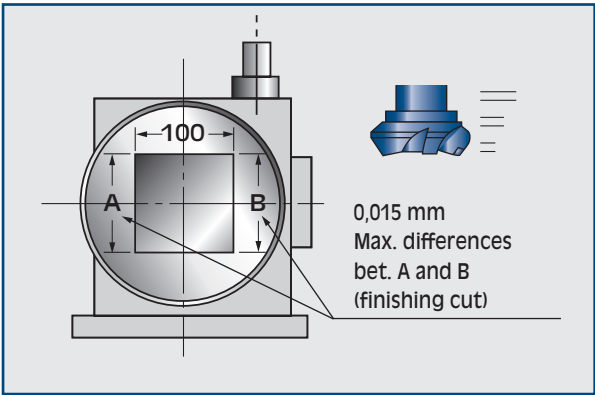
CNC System



Traditional braking jaws system

The exclusive TOUCHDEX system provides a clamping force 2 to 3 times that an ordinary index table thus allowing heavy machining.

Example	Face Milling	Drilling	Drilling
Machining S45C Material			
FD-200	Δ 80 Face mill 3 mm (depth of cut) 130 mm/min (Feedrate)	Δ 35 Drill 20 mm/min (Feedrate)	Δ 20 Drill 30 mm/min (Feedrate) H = 80 mm
FD-300	Δ 80 Face mill 3 mm (depth of cut) 130 mm/min (Feedrate)	Δ 40 Drill 20 mm/min (Feedrate)	Δ 25 Drill 30 mm/min (Feedrate) H = 90 mm

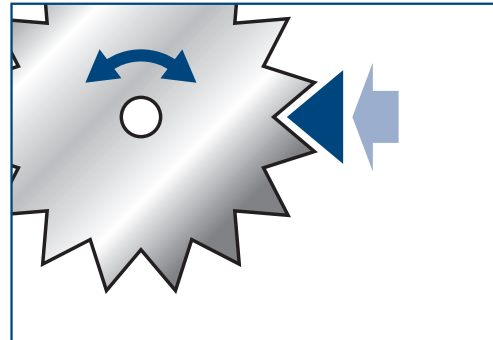


HIGH PRECISION

- Indexing accuracy of less than 30"
- Repeat accuracy ± 3"

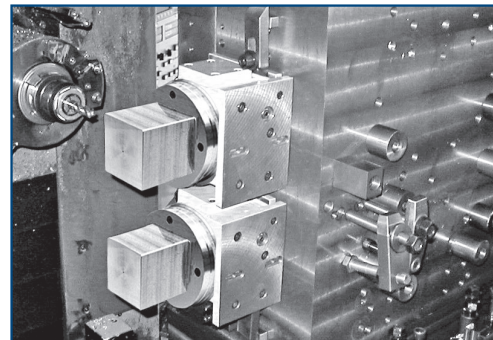
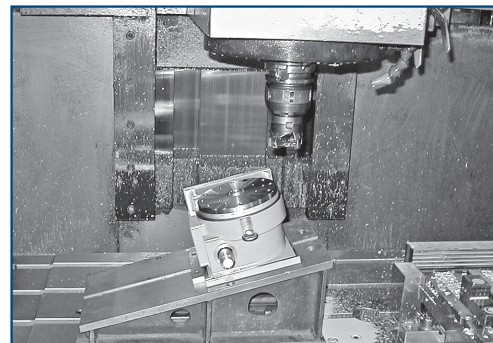
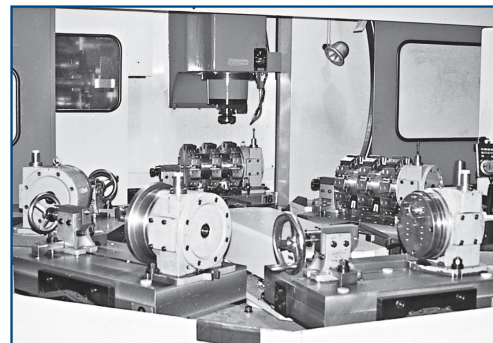
The unique clamping system ensures high accuracy despite locking pin wear, and with 0 backlash for the life of the unit (see example)

VERSATILITY OF THE SYSTEM



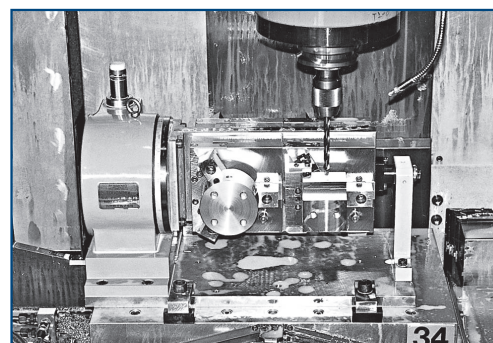
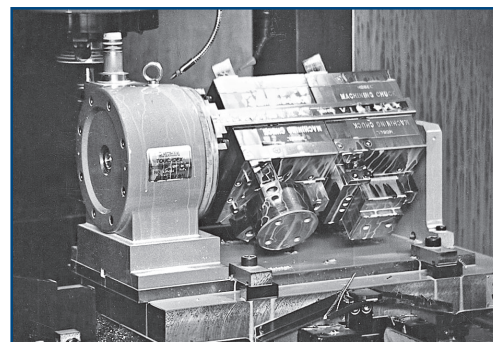
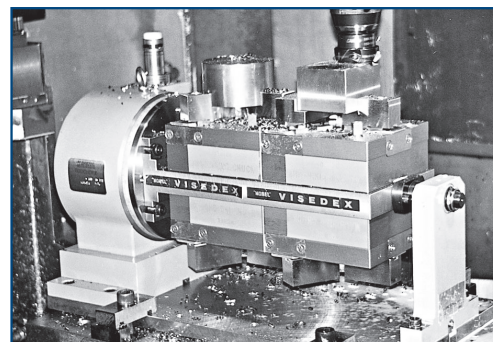
• Minimum space required

Since it has no motorized part, it can be installed in a minimum amount of space



• Versatility

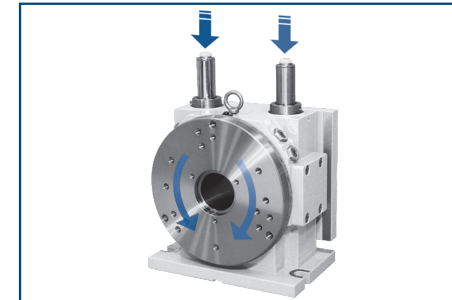
Since it has no electric or pneumatic connections, it can be installed on MULTI-PALLET machining centers either vertical or horizontal with the possibility to create flexible production systems



• Easily mounted

As a power control cable is not required the displacement from a machining center to another one is very easy

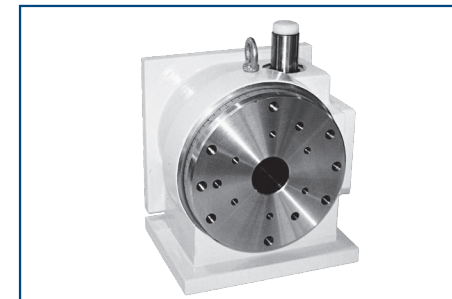
VARIETY OF TOUCHDEX MODELS AVAILABLE



FDR

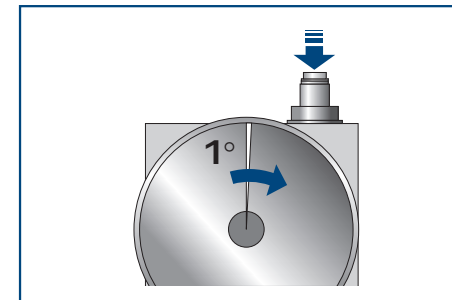
Indexing and rotation in TWO directions

- Left pushbar for counterclockwise
- Right pushbar for clockwise



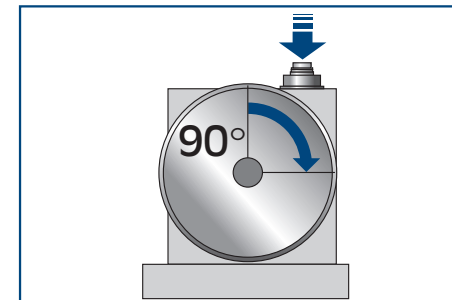
FDM

With the adaption for the installation either in horizontal or in vertical



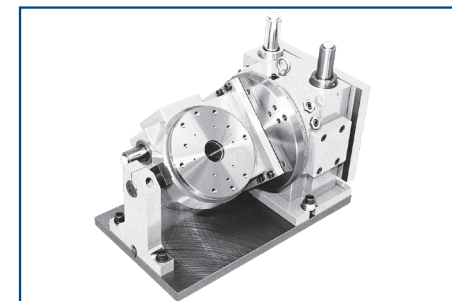
FD - ... - 360

1 deg. Indexing ideal for workpieces of complex shape



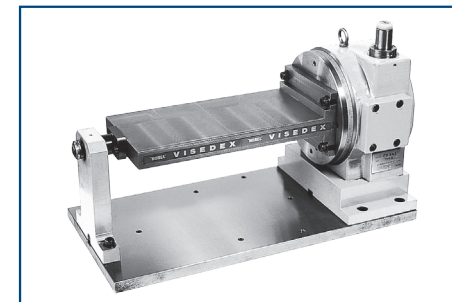
FD - ... - 04

90 deg. Indexing rotation per stroke. Pressing the pushbar down one rotate the table by 90 deg. Ideal for square workpieces



TILTING 230-150

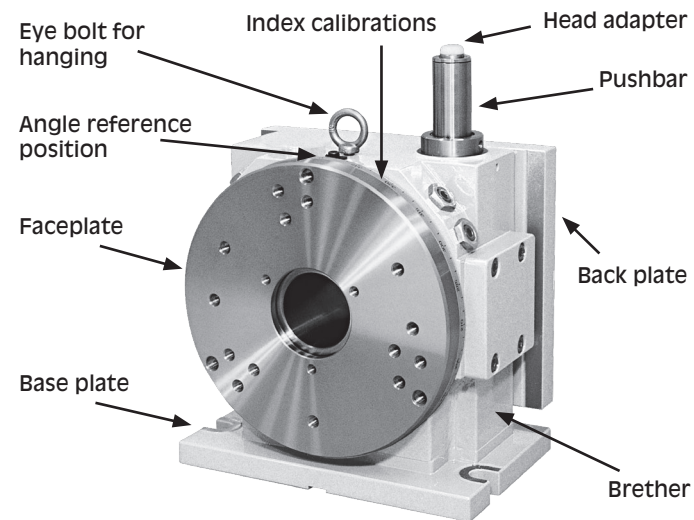
Five-face machining. Integrates FDR-230 and FDM-150 for five-face machining on vertical machining centers



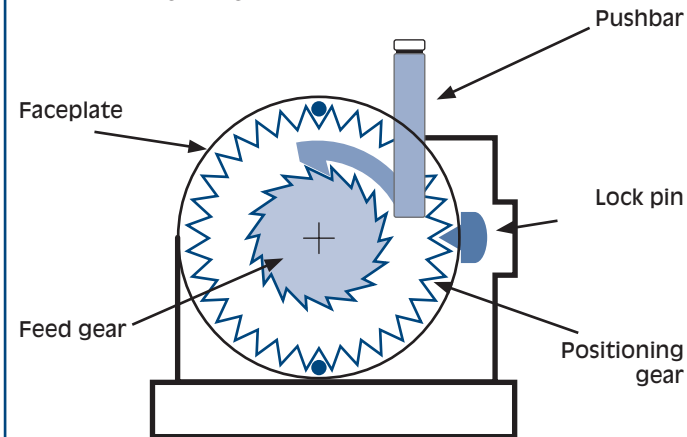
COMBIDEX

Integrates subplate and plate for workholding applications

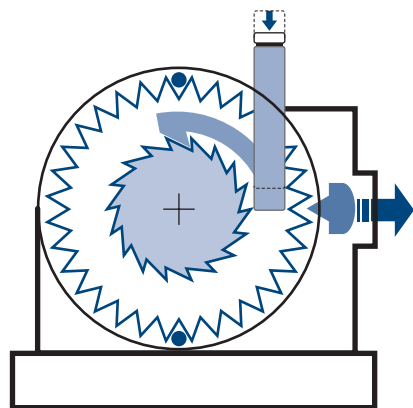
WORKING



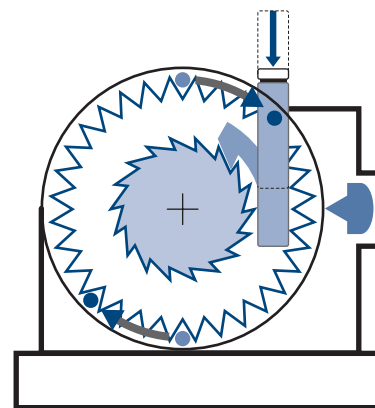
INTERNAL MECHANISM



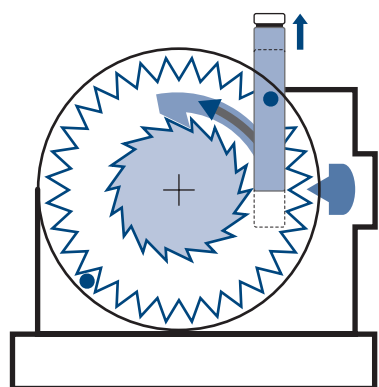
- 1 When the pushbar is pressed down a little, the lock pin retracts due to a grooved cam mechanism.



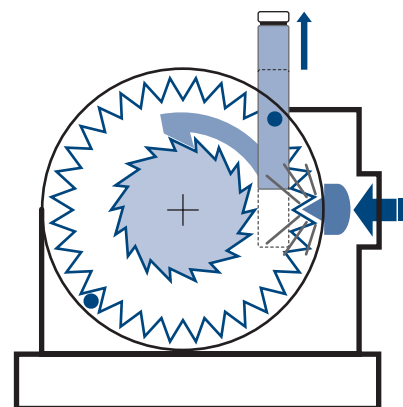
- 2 When pressed down further, the faceplate begins to rotate.



- 3 The pushbar returns, but until a certain position is reached the faceplate and the lock pin continue to be as they were.



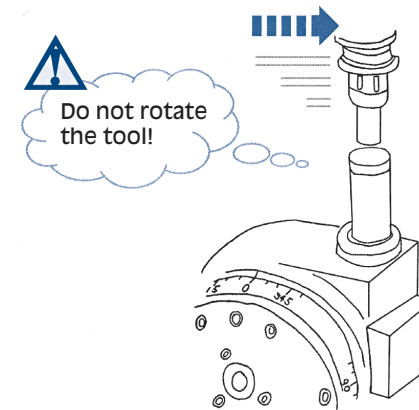
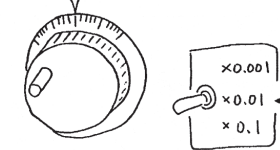
- 4 When the pushbar reaches the top most position, the lock pin engages with the positioning gear and fixes the table.



PROGRAMMING

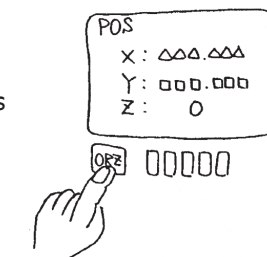
* POSITION A

Using handle mode.



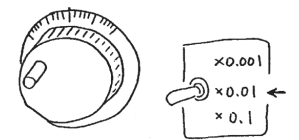
Move the tool over the pushbar, using manual mode.

Read and memory Z axis number.

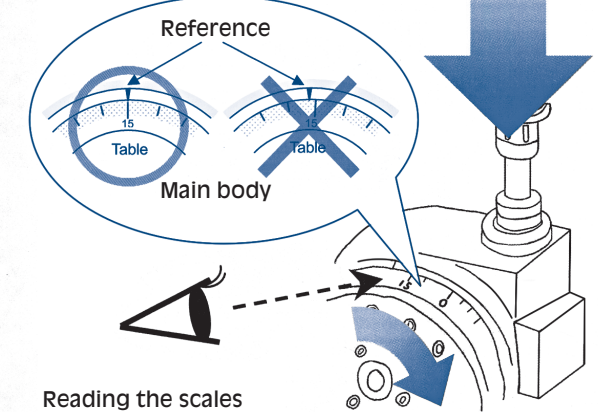


* POSITION B

Using handle mode.

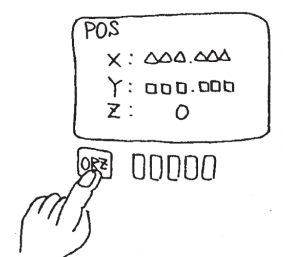


Adjust the indexing as accurately as your eyes can master.

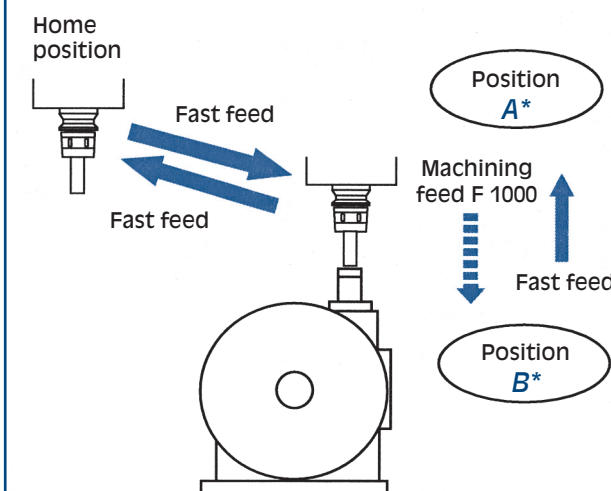


Reading the scales on the side of the table, move the Z axis with manual handle mode until the indexing is completed.

Read and memory Z axis number.



PROGRAM



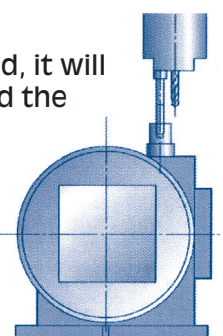
INFORMATION

Regarding the push-in tool

Providing the drill is $\varnothing 10$ mm or wider and no bending is caused during the pushing down, the tool you are using is appropriate.

If a tool with a sharp tip is used, it will badly wear down the resin and the resin will have to be replaced.

The main shaft cover can also be used to push down.



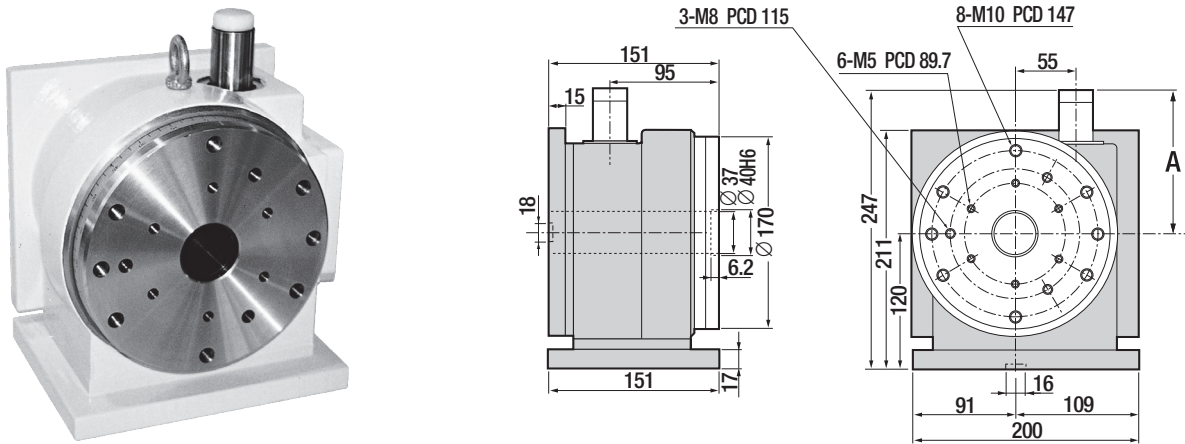
TOLERANCES

Inspecting item	Tollerances	Measurement Method (FD)	Measurement Method (FDM)
Table Center Hole Run-out	0.01 mm		
Table Surface Run-out (15 mm inside table periphery)	0.01 mm		
Table Surface Squareness (15 mm inside table periphery)	0.03 mm		

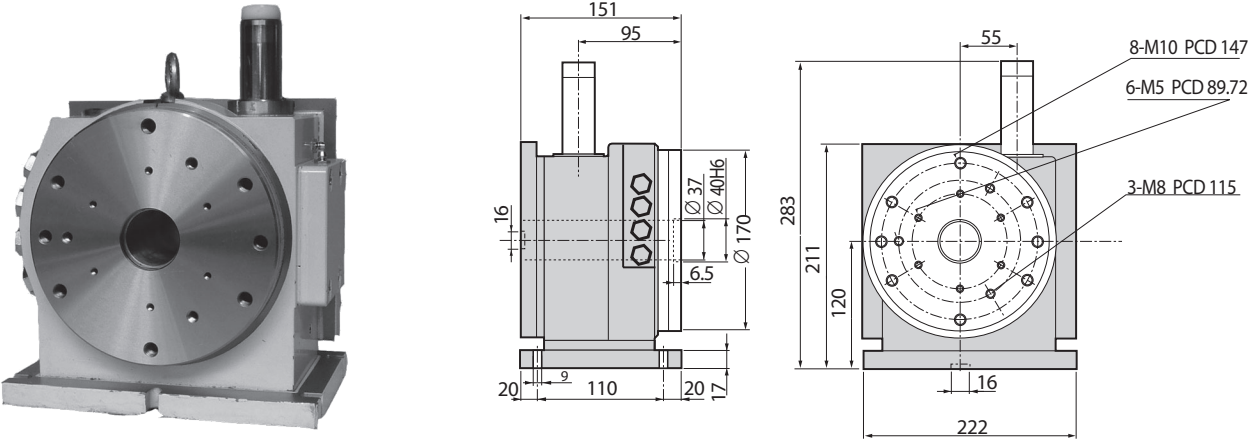
SPECIFICATIONS

Type		FDM-150	FDMK-150-04	FD-200-04
Table diameter	mm	170	170	210
Spindle bore diameter	mm	37	37	16.5
Center height	mm	120	120	135
Table indexing anglesat full pushbar stroke	gradi	45	90	90
Min. indexing angles	gradi	5	5	5
Full pushbar stroke	mm	38	53	78
Approx. pushbar load	N [kgf]	295 [30]	392 [40]	784 [80]
Loadings	vertical use	200	200	250
	horizontal use	300	300	---
Allowable unbalanced weight differences in load at table periphery	W ₁ - W ₂	4	20	4
Allowable load (Table clamped)	F x L	588 [60]	588 [60]	1030 [105]
Accuracy	sec	30	30	30
Ripeatability	sec	±3	±3	±3
Weight	kg	30	37	38

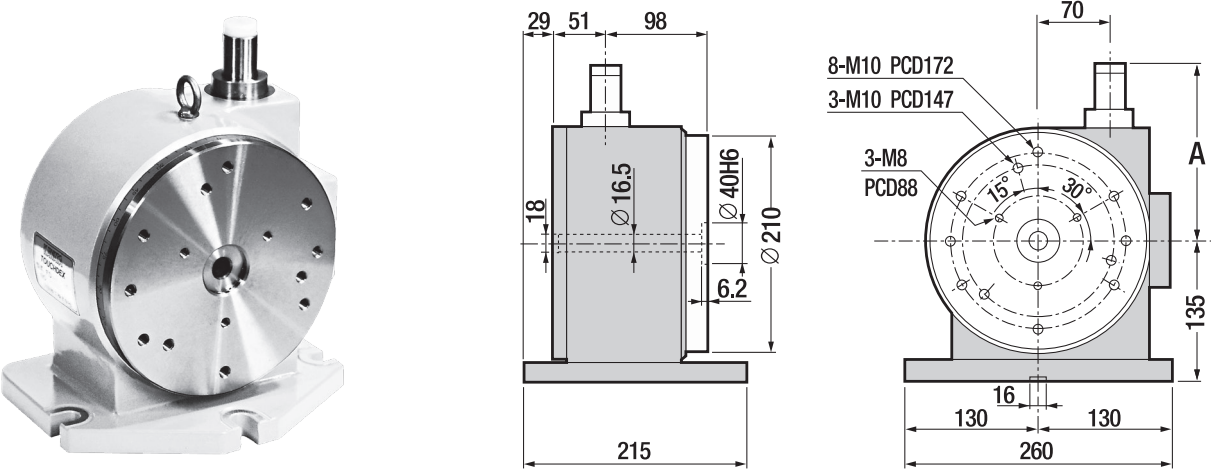
Code	Type	Indexing Angles		Pushbar Stroke mm	A mm
		Min °	Max °		
51 99 13 01	FDM-150	5°	45°	38	127



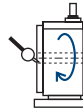
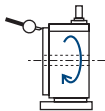
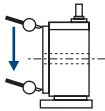
Code	Type	Indexing Angles		Pushbar Stroke mm	A mm
		Min °	Max °		
51 99 13 16	FDMK-150-04	5°	90°	53	163



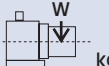
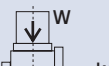
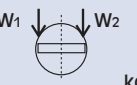
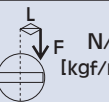
Code	Type	Indexing Angles		Pushbar Stroke mm	A mm
		Min °	Max °		
51 99 13 02	FD-200-04	5°	90°	78	208



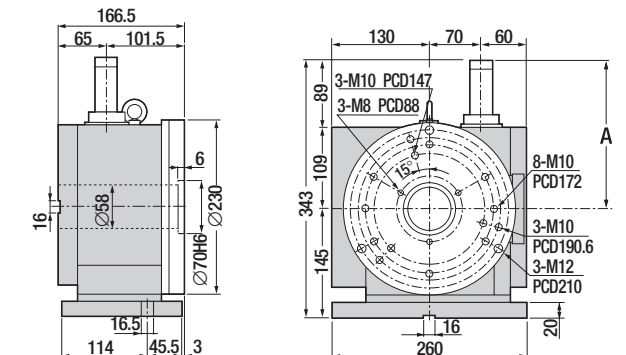
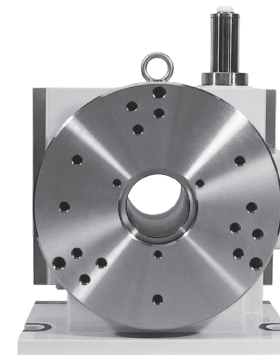
TOLERANCES

Inspecting item	Tollerances	Measurement Method (FD)	Measurement Method (FDM)
Table Center Hole Run-out	0.01 mm		
Table Surface Run-out (15 mm inside table periphery)	0.01 mm		
Table Surface Squareness (15 mm inside table periphery)	0.03 mm		

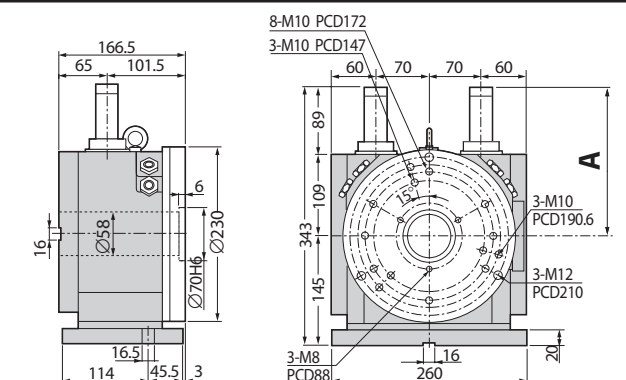
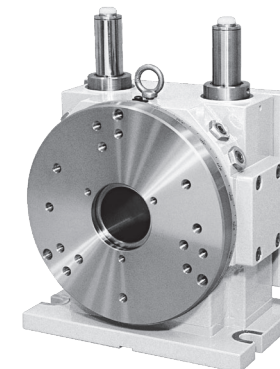
SPECIFICATIONS

Type		FDM-230	FDM 230-360	FDR-230	FDR 230-360	FD-300	FD 300-360	FDMK 340	FDMK 340-360
Table Diameter mm		230	230	230	230	310	310	340	340
Spindle Bore Diameter mm		58	58	58	58	52	52	100	100
Center Height mm		145	145	145	145	185	185	200	200
Table Indexing Angles at Full Pushbar Stroke deg.		45	45	45	45	45	45	45	45
Min. Indexing Angles deg.		5	1	5	1	5	1	5	1
Full Pushbar Stroke mm		56	56	56	56	75	75	83	83
Approx. Pushbar Load N [kgf]		784 [80]	784 [80]	1470 [150]	1470 [150]	1078 [110]	1078 [110]	1764 [180]	1764 [180]
Loadings	Vertical use  kg	250	250	250	250	350	350	350	350
	Horizontal use  kg	350	350	350	350	500	500	500	500
Allowable Unbalanced weight (differences in load at table periphery)	$W_1 - W_2$  kg	4	4	20	20	4	4	20	20
Allowable load (Table clamped)	$F \times L$  N/m [kgf/m]	1127 [115]	1127 [115]	1127 [115]	1127 [115]	2280 [232.5]	2280 [232.5]	2280 [233]	2280 [233]
Accuracy sec		30	30	30	30	30	30	30	30
Repeatability sec		±3	±3	±3	±3	±3	±3	±3	±3
Weight kg		42	42	48	48	80	80	98	98

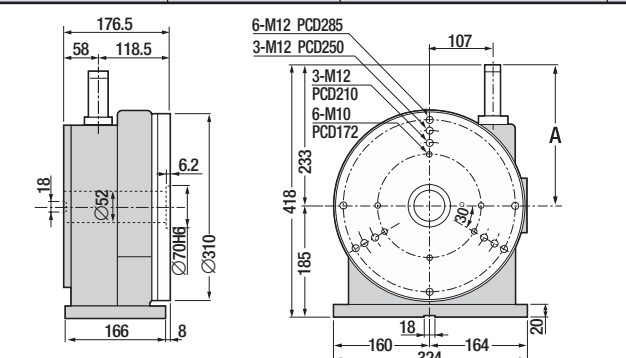
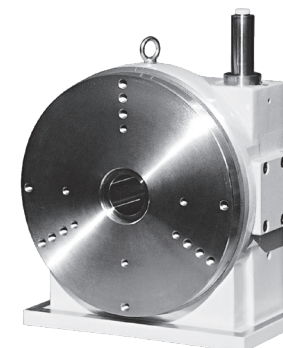
Code	Model	Indexing Angles		Pushbar Stroke mm	A mm
		Min	Max		
51 99 13 04	FDM-230	5°	45°	56	198
51 99 13 05	FDM-230-360	1°	45°	56	198



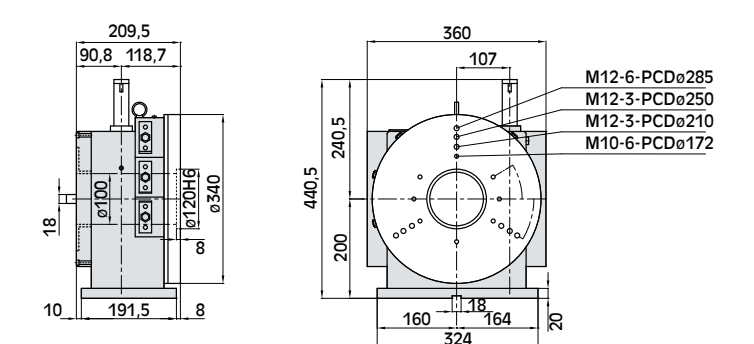
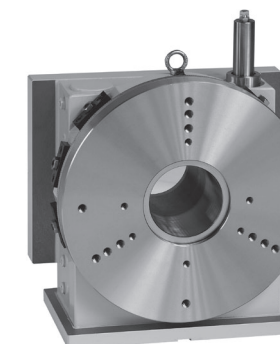
Code	Model	Indexing Angles		Pushbar Stroke mm	A mm
		Min	Max		
51 99 13 06	FDR-230	5°	45°	56	198
51 99 13 60	FDR-230-360	1°	45°	56	198



Code	Model	Indexing Angles		Pushbar Stroke mm	A mm
		Min	Max		
51 99 13 07	FD-300	5°	45°	75	233
51 99 13 08	FD-300-360	1°	45°	75	233



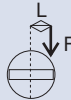
Code	Model	Indexing Angles		Pushbar Stroke mm	A mm
		Min	Max		
51 99 13 18	FDMK-340	5°	45°	83	240,5
51 99 13 19	FDMK-340-360	1°	45°	83	240,5

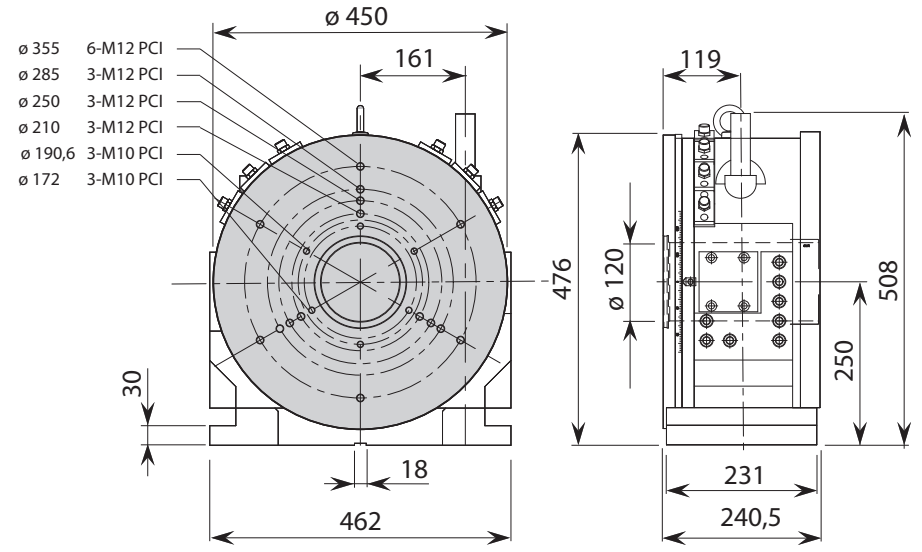


"TOUCHDEX"

Series

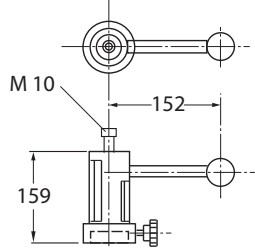
Code	Type	Indexing Angles		Pushbar Stroke mm	A mm
		Min °	Max °		
51 99 13 20	FDK-450	5°	45°	93	258

Type		FDK-450	
Table diameter	mm	450	
Spindle bore diameter	mm	120	
Center height	mm	250	
Table indexing anglesat full pushbar stroke	gradi	45	
Min. indexing angles	gradi	5	
Full pushbar stroke	mm	93	
Approx. pushbar load	N [kgf]	1.960 [200]	
Loadings	vertical use 	kg	450
	horizontal use 	kg	---
Allowable unbalanced weight differences in load at table periphery	$W_1 - W_2$ 	kg	40
Allowable load (Table clamped)	$F \times L$ 	N/m [kgf/m]	4.560 [465]
Accuracy	sec	30	
Ripeatability	sec	±3	
Weight	kg	214	



Manual handle
(stroke 15 mm)

The manual handle MH-6
is a standard accessories

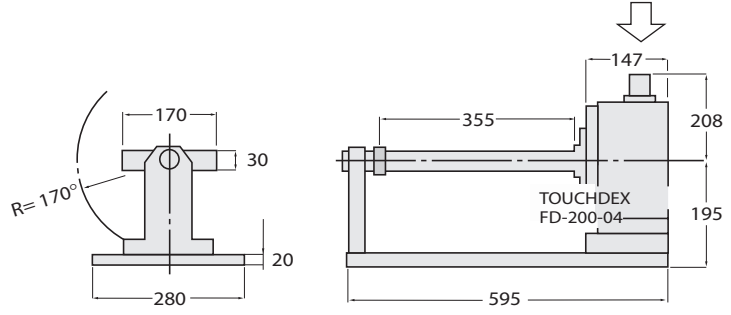
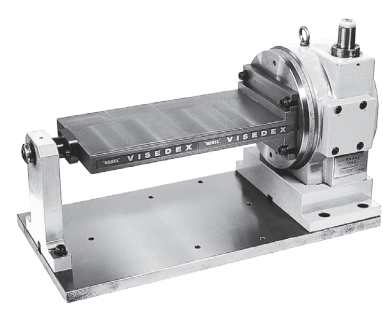


Series

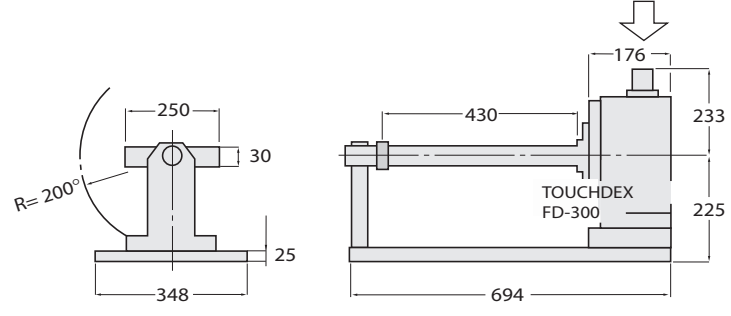
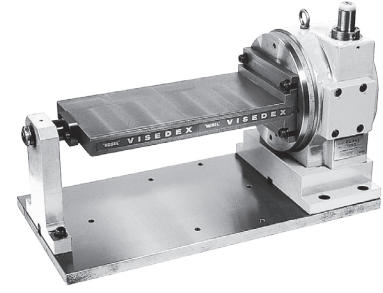
"COMBIDEX"

15

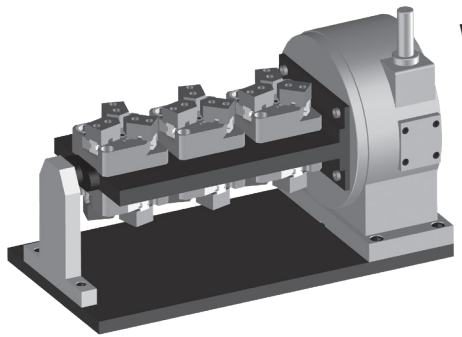
Code	Model	Indexing Angles		Pushbar Stroke mm	A mm
		Min	Max		
51 99 13 11	FDV-201-04	5°	90°	78	208



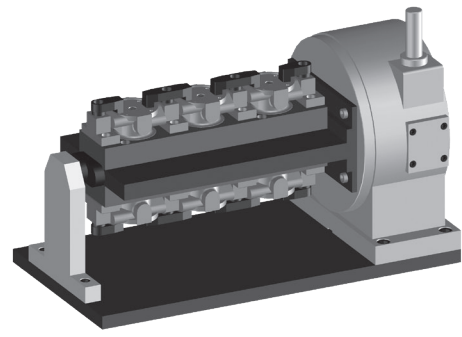
Code	Model	Indexing Angles		Pushbar Stroke mm	A mm
		Min	Max		
51 99 13 12	FDV-301	5°	45°	75	233



Examples

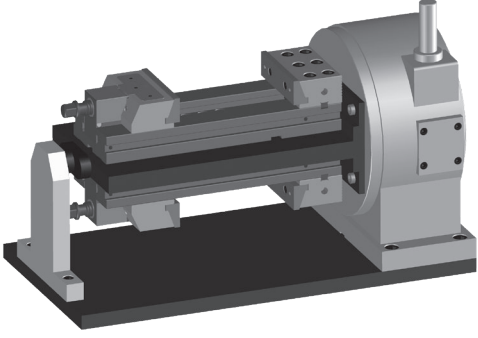


With SC square chuck



With clamping
devices

With TC-t clamping
system

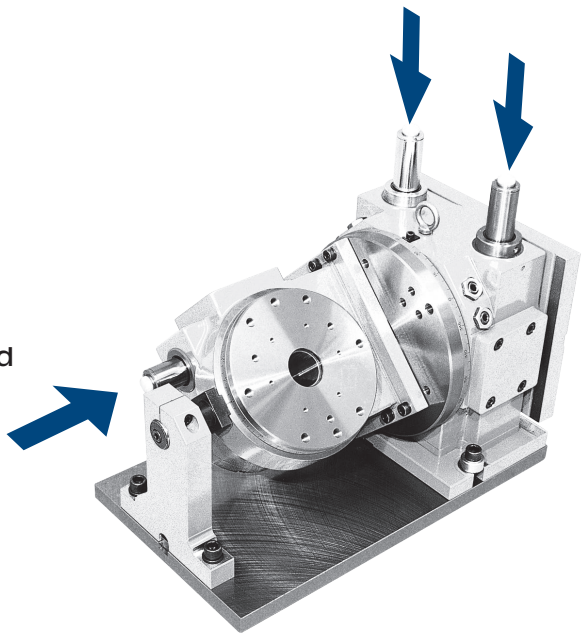


"TILTING"

Code	type
51 99 13 13	TL 230-150

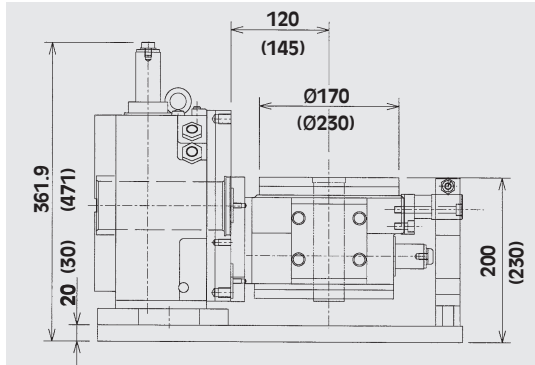
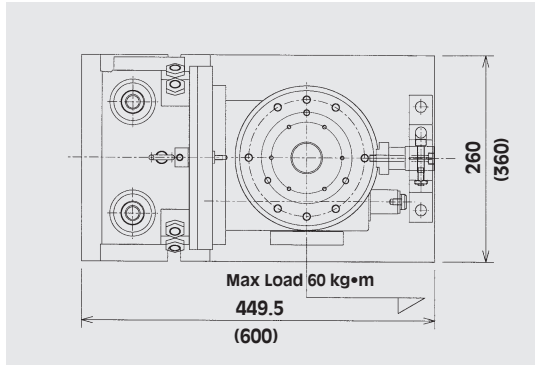
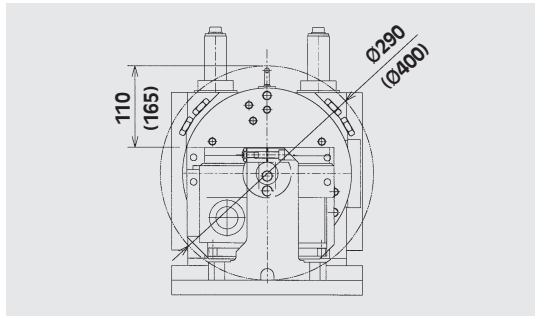
Integrates FDR-230 and FDM-150 + FDR-340 and FDM-230 for five-face machining on vertical machining centers.

- Table inclination and rotation adjusted automatically with the pushbar of TOUCHDEX.
- Minimum indexing angle in both inclination and rotation of 5°.
- Extremely compact footprint - 450 x 260 mm.



Specifications			TL 230-150	TL 340-230
Table Diameter	mm		170	230
Spindle Bore Diameter	mm		37	58
Center Height (90° Tilted)	mm		145	200
Table surface height (0 deg. tilted)	mm		200	265
Full Pushbar Stroke (Tilting)	mm		56	83
Full Pushbar Stroke (Rotation)	mm		38	56
Approx. Pushbar LoadTilting)	N [kgf]		1470 [150]	1764 [180]
Approx. Pushbar LoadRotation)	N [kgf]		295 [30]	1470 [150]
Loadings (0° to 90°)	kg		70	100
Allowable load (Table clamped)				
	F x L N-m [kgf·m]		1127 [115]	1960 [200]
	F x L N-m [kgf·m]		625 [63.8]	1.127 [115]
Accuracy (Tilting)	sec		30	30
Accuracy (Rotation)	sec		30	30
Repeatability (Tilting)	sec		±3	±3
Repeatability (Rotation)	sec		±3	±3
Weight	kg		98	215

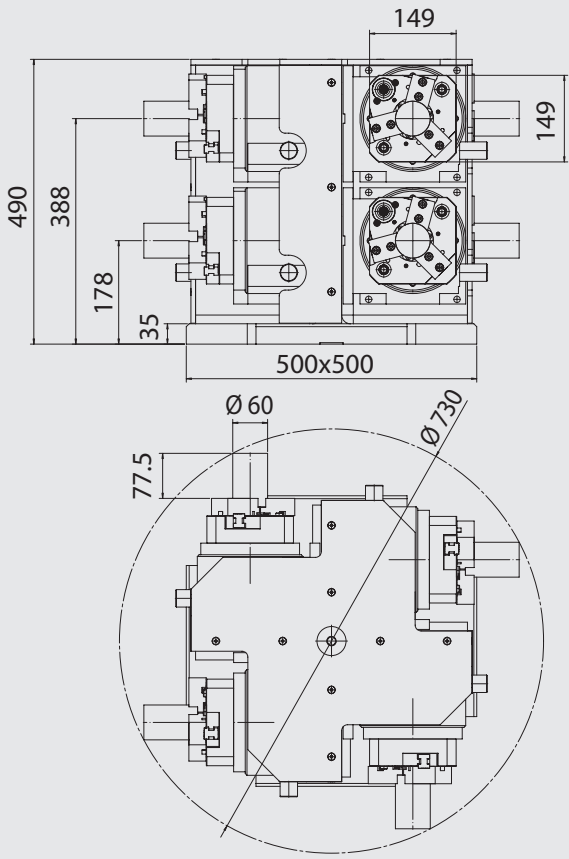
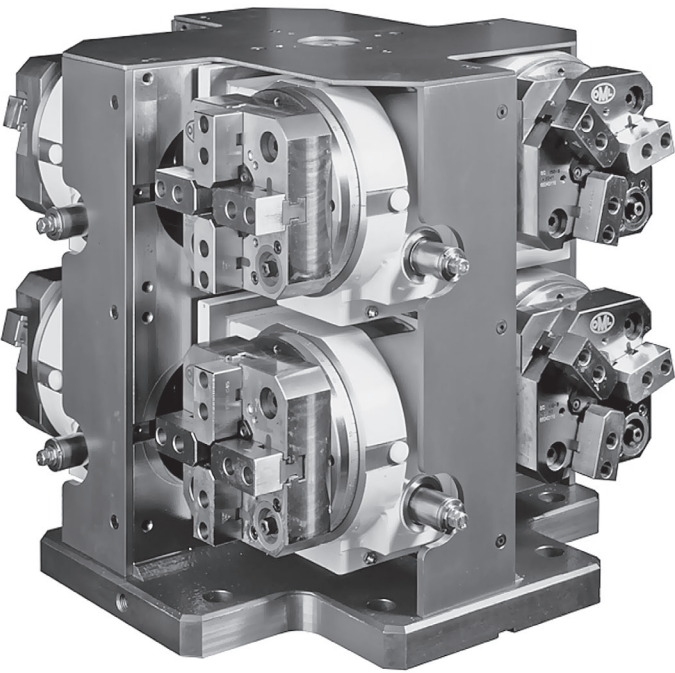
* A counterweight may be required for balance when machining bar-shaped workpieces etc mounted significantly off-center on the TOUCHDEX.



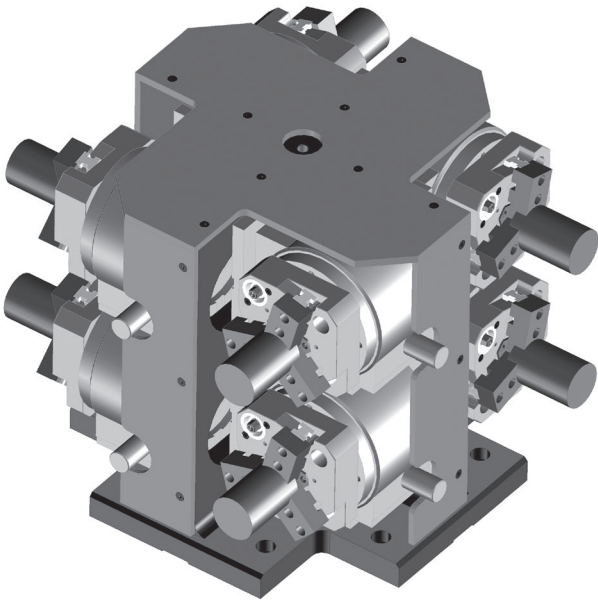
"MULTIDEX"

15

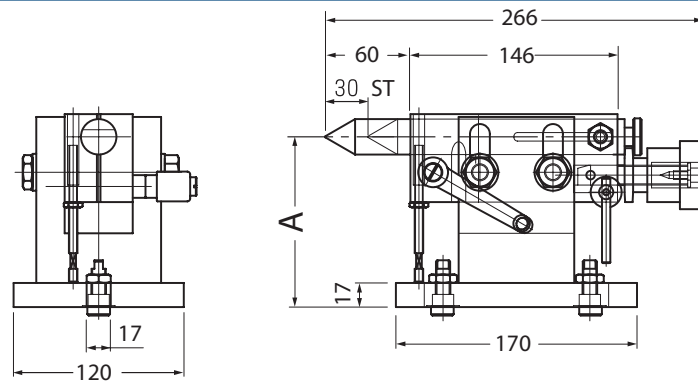
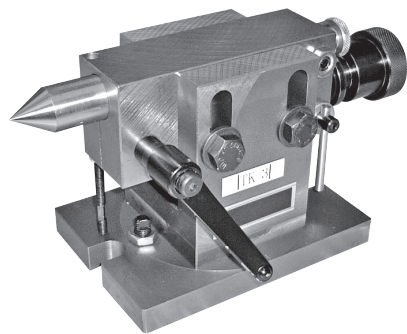
"4 AXIS" CLAMPING EQUIPMENT for horizontal machining centers integrated with automatic mechanical indexing tables "TOUCHDEX" for the working of the workpieces on the 5 faces.



Code	Model
33 58 98 01	MULTIDEX FDM 150 with SC3/150
33 58 98 02	MULTIDEX FDM 150 with SC4/150

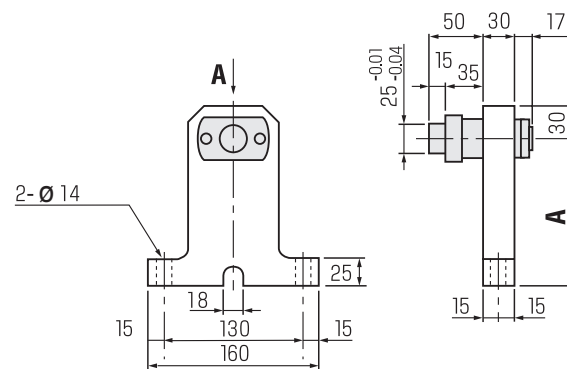
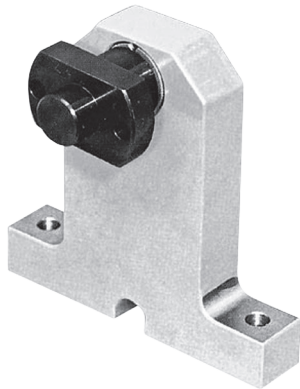


TAIL STOCK TK3



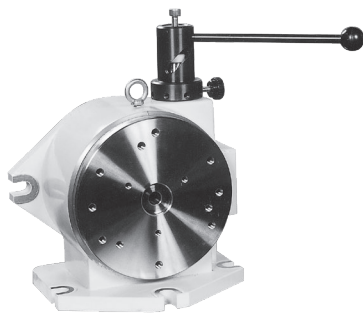
Code	type	A (mm)
51 99 13 21	TK-3	120 - 145
51 99 13 22	TK-3 HI	160 - 185

END SUPPORT

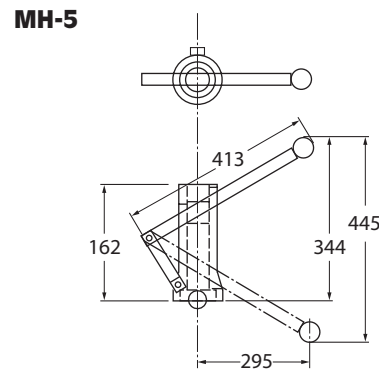
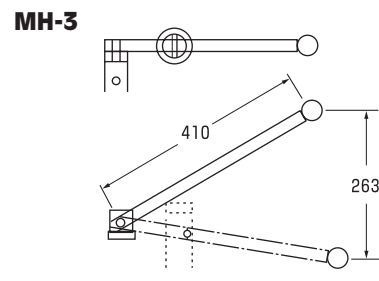
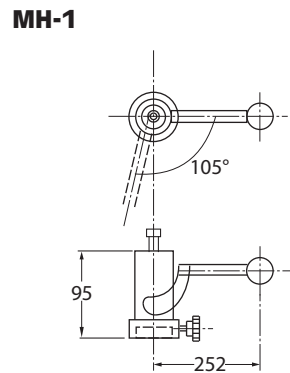
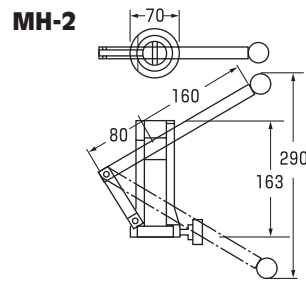


Code	type	A (mm)
51 99 13 23	FES-120	120
51 99 13 24	FES-135	135
51 99 13 25	FES-145	145
51 99 13 26	FES-175	175
51 99 13 27	FES-185	185
51 99 13 28	FES-200	200

MANUAL HANDLE



Code	type	stroke
51 99 13 30	MH-1	35
51 99 13 31	MH-2	88
51 99 13 32	MH-3	38
51 99 13 48	MH-5	95



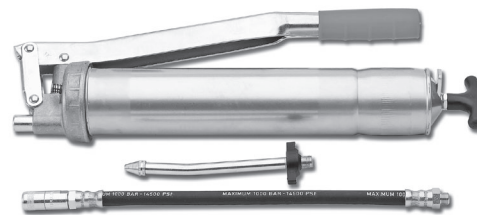
Type	Tailstok	Manual handle	End support
FDM-150	TK-3	MH-3	FES-120
FDR-150-04 (MK)	TK-3	MH-2	FES-120
FD (M)-200 (-360)	TK-3	MH-1	FES-135
FD (M)-200-04	TK-3	MH-2	FES-135
FD (M,R)-230 (-360) (MK)	TK-3	MH-2	FES-145
FDR-230-04 (-360) (MK)	TK-3-HI	MH-2	FES-175
FDM-300	TK-3-HI	MH-2	FES-185
FDMK-340 (-360)	-----	MH-5	FES-200
FDK-450	-----	MH-6	-----

K67



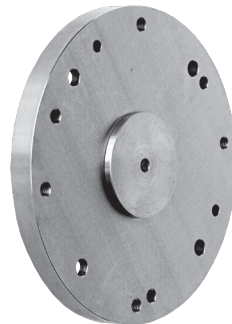
Code		
10 73 12 23	Cartridge 500 g	Grease K67
10 73 12 24	Can 1000 g	Grease K67

GREASING KIT



Code
08 37 26

MOUNTING FLANGE FOR MANUAL CHUCK



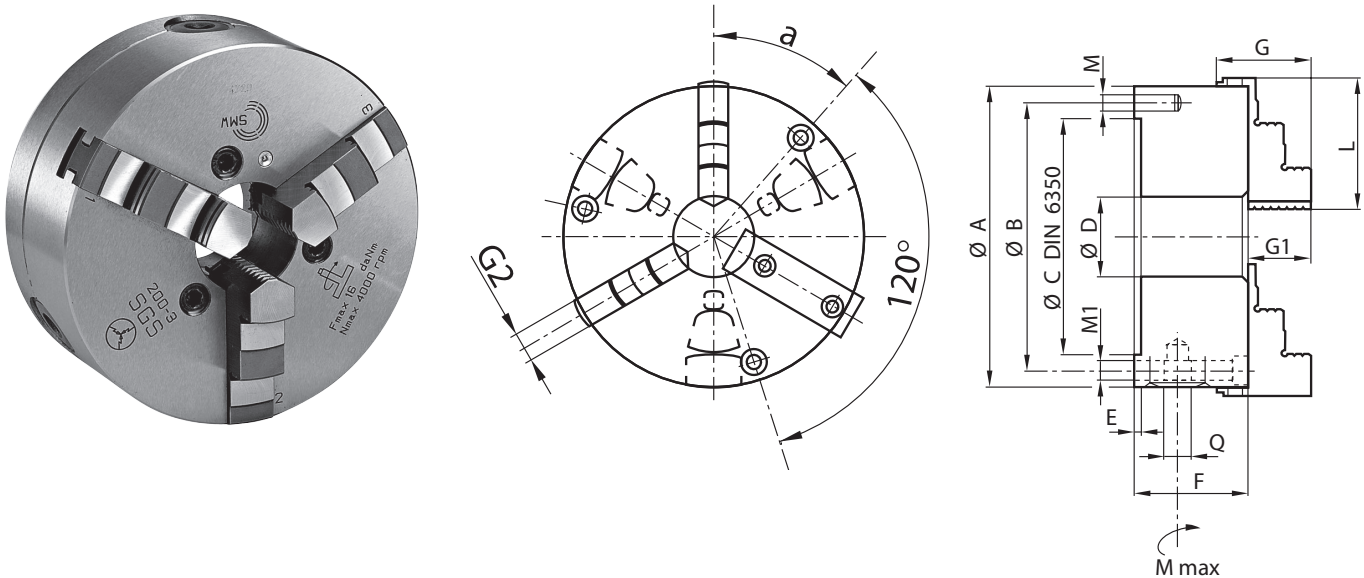
Codice	for type	for chuck	D (mm)
51 99 13 41	FDM-150	SGSF 160-42	170
51 99 13 42	FD-200-04 / FD-200-360 FDM-230 / FDM-230-360 / FDR-230	SGSF 200-55	210
51 99 13 43	FD-300 / FD-300-360 FDMK-340 / FDMK-340-360	SGSF 315-103	310
51 99 13 47	FDK-450	SGSF 400-136	450

PAIR OF KEYS

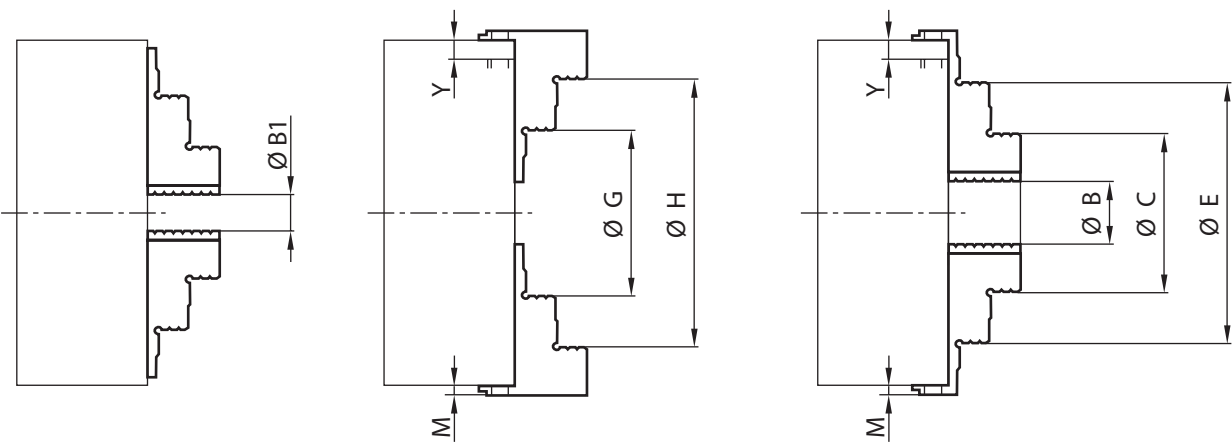


Code	mm
51 99 13 51	16 x 14
51 99 13 52	16 x 16
51 99 13 53	16 x 18
51 99 13 54	18 x 14
51 99 13 55	18 x 16
51 99 13 56	18 x 18

SGSF MANUAL CHUCK (frontal mounting)
SMW self-centering manual chuck, steel body



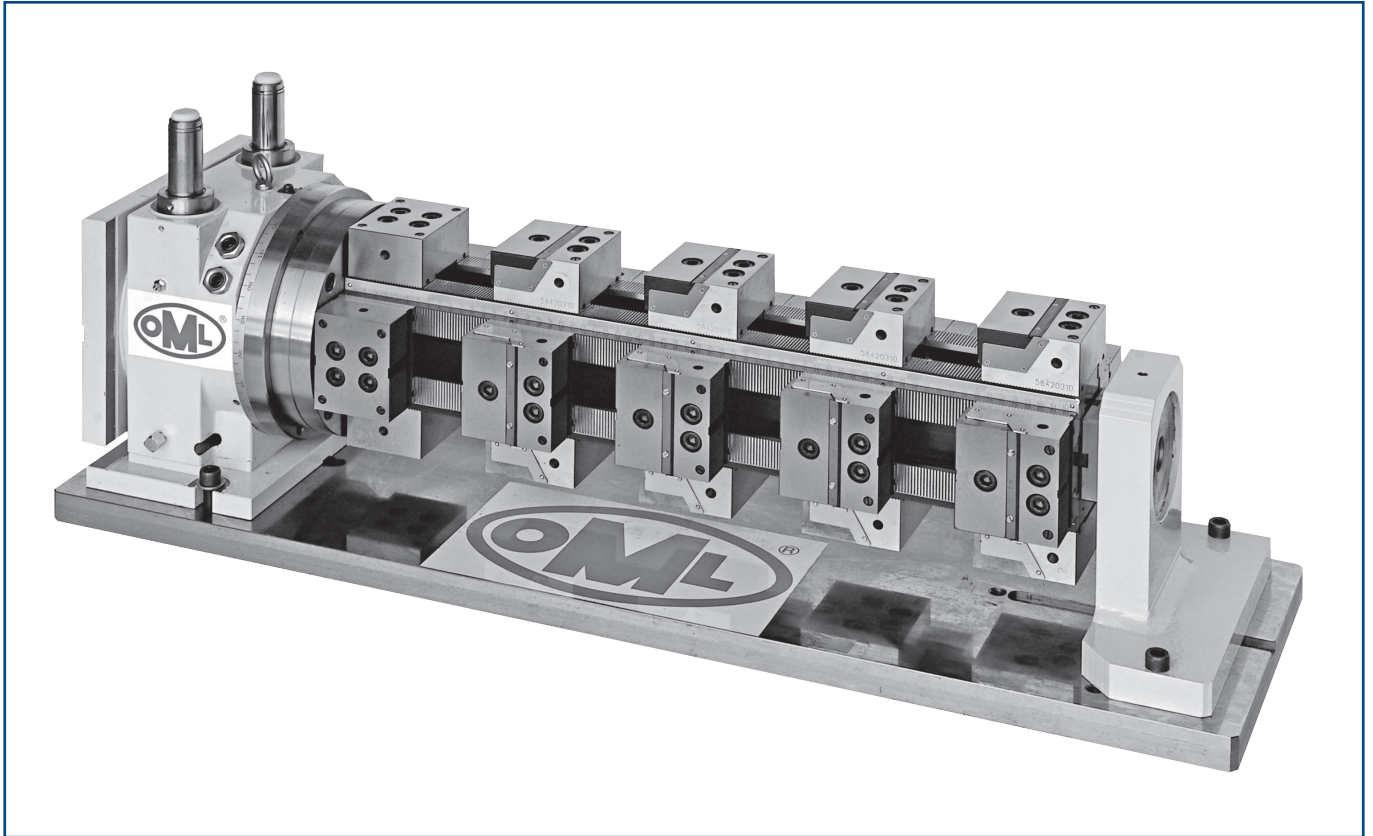
Code		33 03 12 16	33 03 12 20	33 03 12 31	33 03 12 40
Chuck		SGSF 160-42	SGSF 200-55	SGSF 315-103	SGSF 400-136
Attachement DIN 6350	Dim.	FL125	FL160	FL260	FL330
	A mm	160	200	315	400
	B mm	140	176	286	362
H6	C mm	125	160	260	330
	D mm	42	55	103	136
	E mm	4	4	5	5
	F mm	68	78	96,2	108
	G mm	53	54	73	92
	G ₁ mm	32	29	41	55
	G ₂ mm	20	25	32	36
	L mm	70	85	125	145
Front mounting	M ₁ mm	3xM10	3xM10	3xM16	3xM16
	Q mm	11	11	14	17
	a °	102°	42°	42°	45°
Max speed	giri/min.	4500	4000	2800	2000
Torque M max	N·m	120	160	200	280
Weight (w. jaws)	kg	11,2	20	50	90
Moment of inertia	kgm ²	0,03	0,10	0,60	1,80



Chuck		SGSF 160-42	SGSF 200-55	SGSF 315-103	SGSF 400-136
Suggested clamping diameters at max. clamping force					
Monoblock jaws	B mm	19-56	22-75	58-115	77-162
	G mm	64-101	78-130	129-199	169-254
	H mm	113-150	146-198	226-296	295-380
	C mm	57-94	68-121	128-184	149-234
	E mm	109-146	136-189	212-281	275-360
	Y mm	0	4	9	16
	M mm	18	22	25	26
Min. clamping diameters with clamping force reduced by 40%					
		3	4	10	10
No. of scroll teeth		2	3	5	5
No. of meshing scroll teets for safety clamping		2	3	5	5

- For max. speed and max. clamping, all teeth shall be meshing.
- For meshing teeth control towards outside dimension (M) toward inside dimension (Y).
- For features exceeding these limits ±16 mm on diameter, shall be reduced by 25%.
- ATTENTION: CLAMPING DIAMETERS HAVE BEEN CALCULATED WITH A.M. MESHING TEETH.

Chuck		SGSF 160-42	SGSF 200-55	SGSF 315-103	SGSF 400-136
Accessories		Codici			
Set-3 GRC		03 65 16 30	03 65 20 30	03 65 31 30	03 65 40 30
Set-3 Soft jaws		03 60 16 30	03 60 20 30	03 60 31 30	03 60 40 30
Set-3 ins. jaws Dx		03 55 16 30	03 55 20 30	03 55 31 30	03 55 40 30
Set-3 ins. jaws Sx		03 56 16 30	03 56 20 30	03 56 31 30	0356 40 30
Set-3 Rev. jaws		03 63 16 30	03 63 20 30	03 63 31 30	03 63 40 30
Key		02 71 17 00		02 71 31 00	02 71 40 00



The example shows:

- TOUCHDEX table
- Column CIVI 2000 (General catalogue OML group 6)
- Moveable jaws set CIVI 2000 (General catalogue OML group 6)



The example shows:

- TOUCHDEX table with manual chuck

CODE	PAGE	CODE	PAGE	CODE	PAGE
01 38 63	12.11	30 10 10 39	13.11	46 16 23 25	0.49
01 38 64	12.11	30 10 10 40	13.11	46 16 23 28	0.53
01 39 04	12.10	30 10 10 41	13.11	46 16 23 29	0.53
01 39 05	12.10	30 10 10 42	13.11	46 16 24 00	0.11
01 39 06	12.10	30 50 10 05	13.7	46 16 24 05	0.13
02 71 17 00	15.19	30 50 10 06	13.7	46 16 24 06	0.13
02 71 31 00	15.19	30 50 10 07	13.7	46 16 24 07	0.13
02 71 40 00	15.19	30 50 10 08	13.7	46 16 25 00	0.12
03 34 29	12.11	30 50 20 05	13.7	46 16 70 10	0.14
03 55 16 30	15.19	30 50 20 06	13.7	46 16 70 20	0.15
03 55 20 30	15.19	30 50 20 07	13.7	46 16 70 25	0.15
03 55 31 30	15.19	30 50 20 08	13.7	46 16 70 30	0.16
03 55 40 30	15.19	30 50 30 05	13.7	46 16 70 35	0.16
03 56 16 30	15.19	30 50 30 06	13.7	46 16 70 40	0.17
03 56 20 30	15.19	30 50 30 07	13.7	46 16 70 45	0.17
03 56 31 30	15.19	30 50 30 08	13.7	46 16 70 50	0.17
03 56 40 30	15.19	30 50 40 05	13.7	46 16 70 55	0.17
03 59 54	12.11	30 50 40 06	13.7	46 16 70 60	0.17
03 60 16 30	15.19	30 50 40 07	13.7	46 16 70 65	0.17
03 60 20 30	15.19	33 03 12 16	15.18	46 16 71 10	0.38
03 60 31 30	15.19	33 03 12 20	15.18	46 16 71 20	0.38
03 60 40 30	15.19	33 03 12 31	15.18	46 16 71 30	0.39
03 63 16 30	15.19	33 03 12 40	15.18	46 16 71 40	0.38
03 63 20 30	15.19	33 58 02 27	13.13	46 16 71 50	0.38
03 63 31 30	15.19	33 58 02 28	13.13	46 16 71 60	0.39
03 63 40 30	15.19	33 58 02 29	13.13	46 16 71 70	0.38
03 65 16 30	15.19	33 58 02 47	13.13	46 16 71 80	0.38
03 65 20 30	15.19	33 58 02 48	13.13	46 16 71 90	0.39
03 65 31 30	15.19	33 58 02 49	13.13	46 16 72 10	0.40
03 65 40 30	15.19	33 58 02 67	13.13	46 16 72 20	0.40
05 28 10	12.10	33 58 02 68	13.13	46 16 72 30	0.40
08 16 16	12.11	33 58 02 69	13.13	46 16 72 40	0.41
08 16 18	12.11	33 58 41 01	6.13	46 16 72 50	0.41
08 37 26	15.17	33 58 42 02	6.13	46 16 73 10	0.42
08 98 10	12.11	33 58 41 11	6.13	46 16 73 20	0.42
10 72 99 40	2.30-3.1.21	33 58 41 12	6.13	46 16 73 30	0.43
10 73 12 23	15.17	33 58 41 13	6.13	46 16 73 40	0.42
10 73 12 24	15.17	33 58 42 11	6.13	46 16 73 50	0.42
12 07 13 00	12.11	33 58 42 12	6.13	46 16 73 60	0.43
12 08 13 06	12.11	33 58 42 13	6.13	46 16 73 70	0.42
12 08 16 36	12.11	33 58 98 01	15.15	46 16 73 80	0.42
12 08 20 36	12.11	33 58 98 02	15.15	46 16 73 90	0.43
12 08 30 36	12.11	46 16 23 00	0.10	46 16 74 10	0.44
27 58 16 20	12.8	46 16 23 05	0.13	46 16 74 20	0.44
30 10 10 37	13.11	46 16 23 06	0.13	46 16 74 30	0.44
30 10 10 38	13.11	46 16 23 07	0.13	46 16 74 40	0.44

CODE	PAGE	CODE	PAGE	CODE	PAGE
46 16 74 50	0.44	46 16 81 30	0.29	51 99 11 32	14.29
46 16 74 60	0.44	46 16 81 35	0.29	51 99 11 35	14.30
46 16 75 10	0.45	46 16 81 40	0.30	51 99 11 36	14.30
46 16 75 20	0.45	46 16 81 45	0.30	51 99 11 37	14.30
46 16 75 30	0.45	46 16 81 50	0.30	51 99 11 38	14.30
46 16 75 40	0.45	46 16 81 55	0.30	51 99 11 39	14.30
46 16 75 50	0.45	46 16 81 60	0.30	51 99 11 40	14.30
46 16 75 60	0.45	46 16 81 65	0.30	51 99 11 41	14.31
46 16 76 10	0.47	46 16 82 10	0.36	51 99 11 42	14.31
46 16 76 20	0.46	46 16 82 20	0.36	51 99 11 43	14.31
46 16 76 92	0.53	46 16 82 30	0.36	51 99 11 44	14.31
46 16 76 93	0.53	51 43 12 51	2.22-3.1.14	51 99 11 45	14.31
46 16 76 94	0.53	51 43 12 51	13.14	51 99 11 46	14.31
46 16 76 95	0.53	51 50 10 01	2.21	51 99 11 47	14.26
46 16 77 10	0.48	51 50 10 01	9.19	51 99 11 48	14.74
46 16 77 50	0.31	51 50 10 02	2.21-3.1.13	51 99 11 49	14.74
46 16 77 55	0.31	51 50 10 03	2.21-3.1.13	51 99 11 50	14.74
46 16 78 00	0.53	51 50 10 06	5.5	51 99 11 52	14.75
46 16 78 10	0.18	51 50 29 10	5.9	51 99 11 53	14.75
46 16 78 20	0.18	51 99 11 01	14.4	51 99 11 54	14.75
46 16 78 30	0.19	51 99 11 02	14.4	51 99 11 55	14.75
46 16 78 40	0.19	51 99 11 03	14.4	51 99 11 56	14.75
46 16 78 50	0.19	51 99 11 04	14.4	51 99 11 57	14.75
46 16 78 60	0.19	51 99 11 05	14.5	51 99 11 59	14.75
46 16 79 10	0.22	51 99 11 06	14.5	51 99 11 60	14.75
46 16 79 15	0.22	51 99 11 07	14.5	51 99 11 61	14.79
46 16 79 20	0.22	51 99 11 08	14.5	51 99 11 62	14.79
46 16 79 25	0.22	51 99 11 09	14.5	51 99 11 63	14.79
46 16 79 30	0.23	51 99 11 10	14.5	51 99 11 64	14.79
46 16 79 35	0.23	51 99 11 11	14.5	51 99 11 65	14.79
46 16 79 40	0.23	51 99 11 12	14.5	51 99 11 66	14.79
46 16 79 45	0.23	51 99 11 15	14.8	51 99 11 67	14.79
46 16 79 50	0.23	51 99 11 16	14.8	51 99 11 68	14.79
46 16 79 55	0.23	51 99 11 17	14.8	51 99 11 69	14.79
46 16 79 60	0.23	51 99 11 18	14.8	51 99 11 70	14.79
46 16 79 65	0.23	51 99 11 19	14.8	51 99 11 73	14.79
46 16 80 10	0.26	51 99 11 20	14.8	51 99 11 74	14.79
46 16 80 15	0.26	51 99 11 21	14.8	51 99 11 75	14.79
46 16 80 20	0.27	51 99 11 22	14.8	51 99 11 76	14.79
46 16 80 25	0.27	51 99 11 25	14.28	51 99 11 77	14.79
46 16 80 30	0.28	51 99 11 26	14.28	51 99 11 78	14.79
46 16 80 35	0.28	51 99 11 27	14.28	51 99 11 79	14.79
46 16 81 10	0.29	51 99 11 28	14.28	51 99 11 80	14.79
46 16 81 15	0.29	51 99 11 29	14.29	51 99 11 81	14.80
46 16 81 20	0.29	51 99 11 30	14.29	51 99 11 82	14.80
46 16 81 25	0.29	51 99 11 31	14.29	51 99 11 83	14.80

CODE	PAGE	CODE	PAGE	CODE	PAGE
51 99 11 84	14.80	51 99 12 49	14.85	51 99 13 60	15.11
51 99 11 85	14.80	51 99 13 01	15.9	51 99 15 01	14.6
51 99 11 86	14.80	51 99 13 02	15.9	51 99 15 02	14.6
51 99 11 87	14.80	51 99 13 04	15.11	51 99 15 03	14.7
51 99 11 88	14.80	51 99 13 05	15.11	51 99 15 04	14.7
51 99 11 89	14.80	51 99 13 06	15.11	51 99 15 05	14.7
51 99 11 90	14.80	51 99 13 07	15.11	51 99 15 06	14.7
51 99 11 91	14.80	51 99 13 08	15.11	51 99 15 07	14.7
51 99 11 92	14.80	51 99 13 11	15.13	51 99 15 08	14.7
51 99 11 93	14.80	51 99 13 12	15.13	51 99 15 09	14.7
51 99 11 94	14.80	51 99 13 13	15.14	51 99 15 10	14.7
51 99 11 95	14.80	51 99 13 14	15.14	51 99 15 13	14.9
51 99 11 96	14.80	51 99 13 16	15.9	51 99 15 14	14.9
51 99 11 97	14.80	51 99 13 18	15.11	51 99 15 15	14.10
51 99 11 98	14.80	51 99 13 19	15.11	51 99 15 16	14.10
51 99 11 99	14.80	51 99 13 20	15.12	51 99 15 17	14.10
51 99 12 01	14.80	51 99 13 21	15.16	51 99 15 18	14.10
51 99 12 02	14.80	51 99 13 22	15.16	51 99 15 21	14.36
51 99 12 03	14.80	51 99 13 23	15.16	51 99 15 22	14.36
51 99 12 04	14.80	51 99 13 24	15.16	51 99 15 23	14.36
51 99 12 05	14.80	51 99 13 25	15.16	51 99 15 24	14.36
51 99 12 06	14.80	51 99 13 26	15.16	51 99 15 25	14.36
51 99 12 07	14.80	51 99 13 27	15.16	51 99 15 26	14.36
51 99 12 08	14.80	51 99 13 28	15.16	51 99 15 27	14.36
51 99 12 09	14.80	51 99 13 30	15.16	51 99 15 28	14.36
51 99 12 10	14.80	51 99 13 31	15.16	51 99 15 29	14.38
51 99 12 11	14.80	51 99 13 32	15.16	51 99 15 30	14.38
51 99 12 12	14.80	51 99 13 33	12.2	51 99 15 33	14.39
51 99 12 13	14.72	51 99 13 34	12.2	51 99 15 34	14.39
51 99 12 14	14.72	51 99 13 35	12.2	51 99 15 35	14.40
51 99 12 15	14.72	51 99 13 36	12.2	51 99 15 36	14.40
51 99 12 16	14.72	51 99 13 37	12.3	51 99 15 37	14.40
51 99 12 35	14.85	51 99 13 38	12.3	51 99 15 38	14.40
51 99 12 36	14.85	51 99 13 39	12.3	51 99 15 39	14.41
51 99 12 37	14.85	51 99 13 40	12.3	51 99 15 40	14.41
51 99 12 38	14.85	51 99 13 41	15.17	51 99 15 43	14.42
51 99 12 39	14.85	51 99 13 42	15.17	51 99 15 44	14.42
51 99 12 40	14.85	51 99 13 43	15.17	51 99 15 47	14.43
51 99 12 41	14.85	51 99 13 47	15.17	51 99 15 48	14.43
51 99 12 42	14.85	51 99 13 48	15.16	51 99 15 49	14.44
51 99 12 43	14.85	51 99 13 51	15.17	51 99 15 50	14.44
51 99 12 44	14.85	51 99 13 52	15.17	51 99 15 51	14.45
51 99 12 45	14.85	51 99 13 53	15.17	51 99 15 52	14.45
51 99 12 46	14.85	51 99 13 54	15.17	51 99 15 53	14.45
51 99 12 47	14.85	51 99 13 55	15.17	51 99 15 54	14.45
51 99 12 48	14.85	51 99 13 56	15.17	51 99 15 55	14.46

CODE	PAGE	CODE	PAGE	CODE	PAGE
51 99 21 73	14.105	57 00 30 10	1.15	57 00 90 26	1.19
51 99 21 74	14.105	57 00 30 20	1.15	57 00 90 40	1.19
51 99 21 75	14.105	57 00 40 00	1.17	57 00 90 41	1.19
51 99 21 76	14.105	57 00 40 10	1.17	57 00 90 45	1.19
51 99 21 77	14.105	57 00 40 20	1.17	57 00 90 46	1.19
51 99 21 78	14.105	57 00 50 30	1.25	57 00 90 60	1.19
51 99 21 79	14.105	57 00 50 40	1.25	57 00 90 61	1.19
51 99 21 80	14.105	57 00 50 50	1.25	57 00 90 65	1.19
51 99 21 81	14.105	57 00 50 60	1.25	57 00 90 66	1.19
51 99 21 82	14.105	57 00 50 70	1.25	57 00 90 80	1.19
51 99 21 83	14.105	57 00 50 80	1.25	57 00 90 81	1.19
51 99 21 84	14.105	57 00 50 90	1.25	57 00 90 90	1.19
51 99 21 85	14.107	57 00 60 05	1.6	57 00 90 91	1.19
51 99 21 86	14.107	57 00 60 06	1.6	57 01 00 10	1.34
51 99 21 87	14.107	57 00 60 15	1.6	57 01 00 20	1.34
51 99 21 88	14.107	57 00 60 16	1.6	57 01 00 30	1.34
51 99 21 89	14.107	57 00 60 30	1.6	57 02 00 15	1.7
51 99 21 90	14.107	57 00 60 31	1.6	57 02 00 25	1.7
51 99 21 91	14.107	57 00 60 35	1.6	57 02 00 40	1.7
51 99 21 92	14.107	57 00 60 36	1.6	57 02 00 45	1.7
51 99 21 93	14.107	57 00 60 50	1.6	57 02 00 60	1.7
51 99 21 94	14.107	57 00 60 51	1.6	57 02 00 65	1.7
51 99 21 95	14.107	57 00 60 55	1.6	57 02 00 70	1.7
51 99 21 96	14.107	57 00 60 56	1.6	57 02 00 80	1.7
51 99 21 97	14.107	57 00 60 60	1.6	57 02 01 00	1.7
51 99 21 98	14.107	57 00 60 61	1.6	57 02 01 20	1.7
51 99 21 99	14.107	57 00 60 70	1.6	57 02 01 30	1.7
51 99 22 00	14.107	57 00 60 71	1.6	57 03 00 15	1.8
51 99 22 01	14.107	57 00 60 90	1.6	57 03 00 25	1.8
51 99 22 02	14.107	57 00 60 91	1.6	57 03 00 40	1.8
51 99 22 03	14.107	57 00 61 10	1.6	57 03 00 45	1.8
51 99 22 04	14.107	57 00 61 11	1.6	57 03 00 60	1.8
51 99 22 05	14.107	57 00 61 20	1.6	57 03 00 65	1.8
51 99 22 06	14.107	57 00 61 21	1.6	57 03 00 70	1.8
51 99 22 07	14.107	57 00 70 05	1.9	57 03 00 80	1.8
51 99 22 08	14.107	57 00 70 10	1.9	57 03 01 00	1.8
51 99 22 09	14.107	57 00 70 25	1.9	57 03 01 20	1.8
51 99 22 10	14.107	57 00 70 30	1.9	57 03 01 30	1.8
51 99 22 11	14.107	57 00 80 30	1.22	57 04 00 10	1.21
57 00 10 51	14.47	57 00 80 40	1.22	57 04 00 30	1.21
57 00 10 52	14.47	57 00 80 50	1.22	57 04 00 35	1.21
57 00 10 53	14.47	57 00 90 00	1.19	57 04 00 50	1.21
57 00 10 61	14.47	57 00 90 01	1.19	57 04 00 55	1.21
57 00 10 62	14.47	57 00 90 20	1.19	57 04 00 70	1.21
57 00 10 63	14.47	57 00 90 21	1.19	57 04 00 75	1.21
57 00 30 00	1.15	57 00 90 25	1.19	57 04 00 90	1.21

CODE	PAGE	CODE	PAGE	CODE	PAGE
57 04 01 00	1.21	57 07 00 15	1.10	57 12 02 35	1.29
57 04 10 10	1.20	57 07 00 20	1.10	57 12 02 40	1.29
57 04 10 30	1.20	57 07 00 35	1.10	57 12 02 50	1.29
57 04 10 35	1.20	57 07 00 40	1.10	57 13 00 10	1.31
57 04 10 50	1.20	57 08 00 15	1.11	57 13 00 20	1.31
57 04 10 55	1.20	57 08 00 20	1.11	57 13 00 30	1.31
57 04 10 70	1.20	57 08 00 35	1.11	57 13 00 40	1.31
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58 90 66 20	9.18	58 92 44 19	13.4	58 96 44 19	3.2.9
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