

3

CAPITOLO
CHAPTER

STD e StandardFLEX ELEMENTI MODULARI - MODULAR ELEMENTS

3



MORSE MODULARI DI PRECISIONE
PRECISION MODULAR VISSES

ELEMENTI MODULARI MODULAR ELEMENTS

Pagg. 3.2 - 3.14

Le morse **Gerardi** sono ormai considerate sinonimo di produzione ad alto livello tecnologico per l'accurata scelta dei materiali impiegati e per la precisione raggiunta anche nei minimi particolari.

Accuratamente rettificate in ogni loro particolare ed ampiamente collaudate, consentono:

- ✓ una capacità di massimo rendimento della macchina,
- ✓ un forte carico di pressione,
- ✓ una maggior potenza di taglio,
- ✓ esclusione totale di vibrazioni,
- ✓ minor usura dell'utensile
- ✓ una più precisa lavorazione.

La costruzione con un sistema di elementi componibili consente le più svariate possibilità di impiego e combinazioni in caso di necessità.

Gerardi vises are manufactured under rigid quality control. Only the most suitable materials are used, and the accuracy of even the smallest components is assured. As a result of the high standard construction Gerardi vises can maintain their accuracy under the most severe operating conditions.

Hardened and Ground steel construction throughout allowing you maximum machine performance with:

- ✓ bigger clamping power,
- ✓ bigger cutting performances,
- ✓ total exclusion of vibrations,
- ✓ lower tool wear;
- ✓ higher precision during machinework.

The modular design and the concept of interchangeability makes possible a wide variety of set up combination and solutions.

RAPIDITA' DEI SERRAGGI

Grazie allo scorriamento del gruppo di serraggio nella guida della base (a cremagliera) fino in prossimità del pezzo da lavorare dove si adatterà automaticamente alla nicchia più vicina. L'operazione di serraggio si conclude agendo sulla vite di bloccaggio. Naturalmente anche con gli elementi modulari sono disponibili 4 ulteriori sistemi di serraggio intercambiabili e indipendenti oltre a quello manuale meccanico illustrato nella foto:

QUICK CLAMPING

Thanks to the clamping device sliding in the vise base slide (compact rack type) till the proximity of the workpiece. The clamping is completed with the main screw. Besides the manual mechanic system, 4 further interchangeable and independent clamping systems are available:

- 1- Idraulici
- 2- Pneumatici
- 3- Idraulici manuali
- 4- Idraulici elettrici.

L'operazione è in termini di secondi.

- 1- Hydraulic
 - 2- Pneumatic
 - 3- Manual hydraulic
 - 4- Electrical hydraulic.
- The change needs only few seconds.

Art. 102

Gli elementi modulari **Gerardi** Vi permettono di ottimizzare i bloccaggi di pezzi particolarmente grandi, che richiedano le lavorazioni più gravose, sfruttando anche il piano della tavola della macchina come punto di appoggio.

Gli elementi modulari sono sicuramente l'esempio (vedere applicazioni alle pag. seg.) più lampante dell'estrema versatilità del **Sistema Modulare Gerardi**.

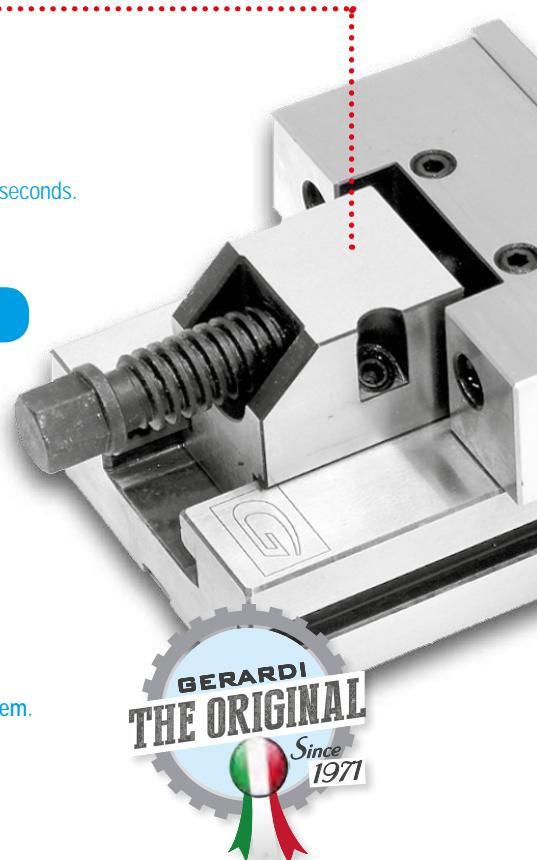
La disponibilità di una vastissima gamma di composizioni (modulari) permette di realizzare con soluzioni standard anche gli allestimenti che credevate speciali.

Gerardi modular elements allow You perfect clamping even of big workpieces which need the heaviest machining using the machine table as surface.

Modular elements are the best example of the extreme versatility of the **Gerardi Modular System**.

The availability of the broadest assortment program allows to build with standard solutions even the fixtures You thought special.

They are a solution for a lot of applications and, with the many reference points available, a perfect complement or alternative to single or double vises



Gli Elementi Modulari altro non sono che delle morse STD sezionate in modo da ottenere la parte mobile e la parte fissa completamente indipendenti per una versatilità estrema

MODULAR ELEMENTS are simply standard vises sections, the movable section and the fixed one, which in this way result completely independent for an extreme versatility

3

CARATTERISTICHE E VANTAGGI

- USURA INESISTENTE
- RAPIDITÀ DEI SERRAGGI
- MODULARITÀ & VERSATILITÀ
- PRECISIONI $\pm 0,02$ mm
- RIGIDITÀ & SICUREZZA
- DESIGN COMPATTO E MANEGGEVOLEZZA

Si rimanda a quanto esposto a pag. 1.2 e 2.3 (morse serie STANDARD)

TECHNICAL FEATURES AND ADVANTAGES

- NO WEAR
- QUICK CLAMPING
- MODULARITY & VERSATILITY
- HIGHEST ACCURACIES $\pm 0,02$ mm
- RIGIDITY & SAFETY
- SPACE SAVING DESIGN & HANDY

See pag. 1.2 and 1.3 (STANDARD series vises)

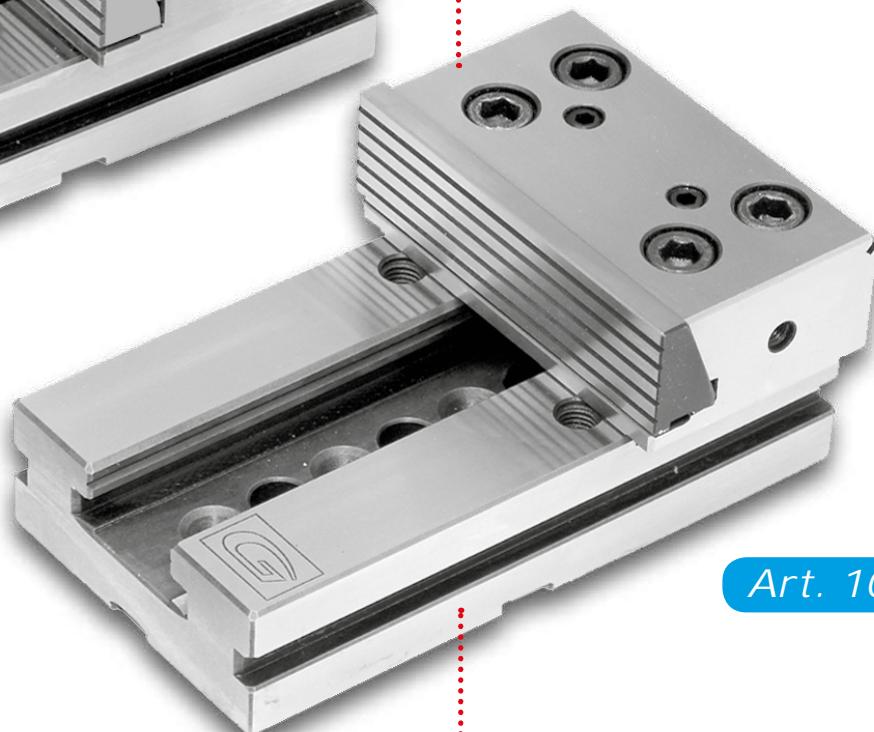
Art. 104



Le ganasce fisse hanno la possibilità di essere posizionate sia con piastrine all'interno della base (come nelle foto), sia con piastrine che fuoriescono dalla base in modo da poter serrare anche particolari posizionati sul piano della tavola della macchina

Fixed jaws have the possibility to be positioned both with jaw plates inside the vise base (as shown in the picture) and with jaw plates externally from the vise base in order to be able to clamp even workpieces positioned on the machine table directly

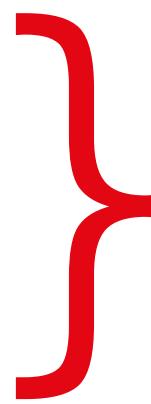
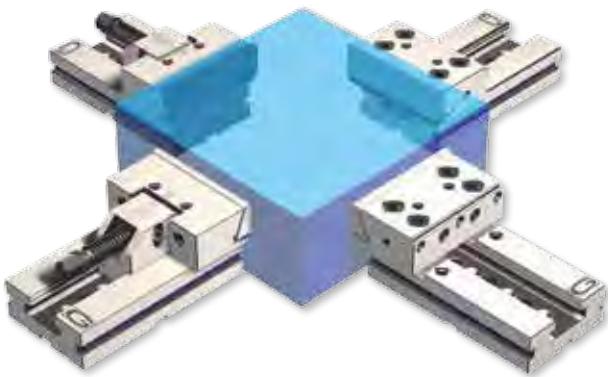
Art. 103



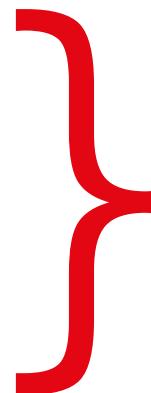
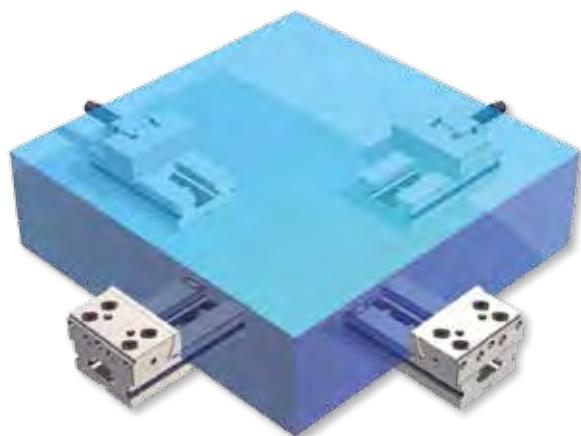
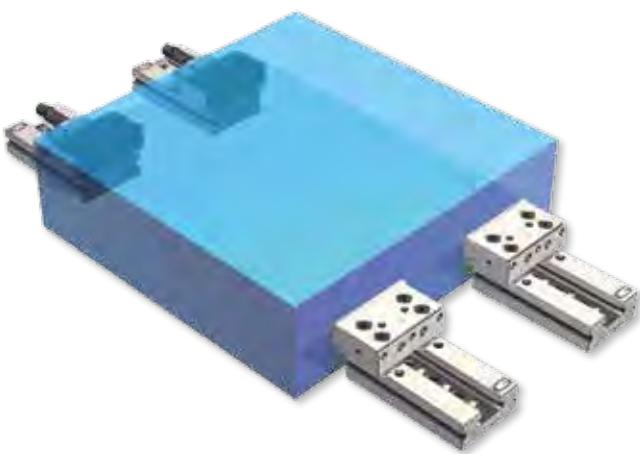
Slitline base (per Art. 103 e 104) o elemento di prolunga (per Art. 102) sempre previsti con chiavette di posizionamento longitudinali e trasversali per allineamento agli assi della macchina. Inoltre per le ganasce fisse sono sempre previsti 2 differenti posizionamenti per permettere alle stesse anche la possibilità di serrare pezzi direttamente appoggiati sul piano / tavola della macchina (vedi immagini a pag. 3.4, 3.5).

Vise bases (for Art. 102 and 104) or base extensions (for Art. 102) are always built with longitudinal and cross keyways in order to be aligned with the machine axis. Furthermore fixed jaws have always 2 different positions in order to be able to clamp even workpieces positioned on the machine table directly (see images on pages 3.4, 3.5).

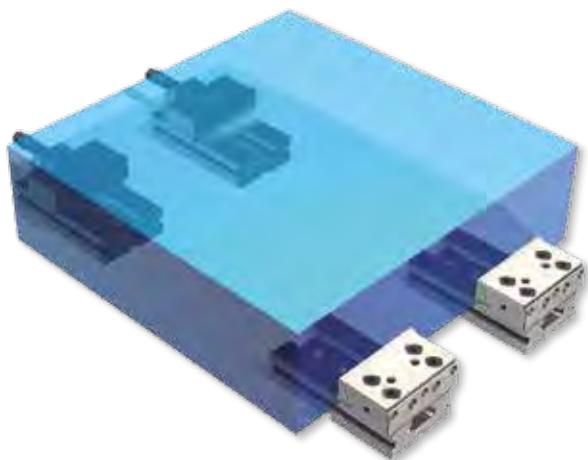
3

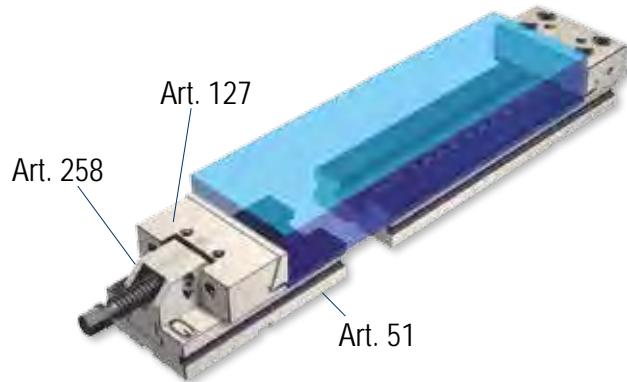


Particolare di grosse
dimensioni posizionati sulla
tavola della macchina
Huge workpiece clamped
directly on the machine table



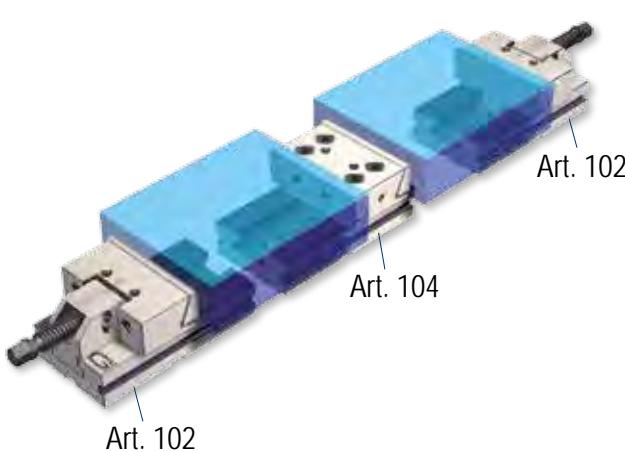
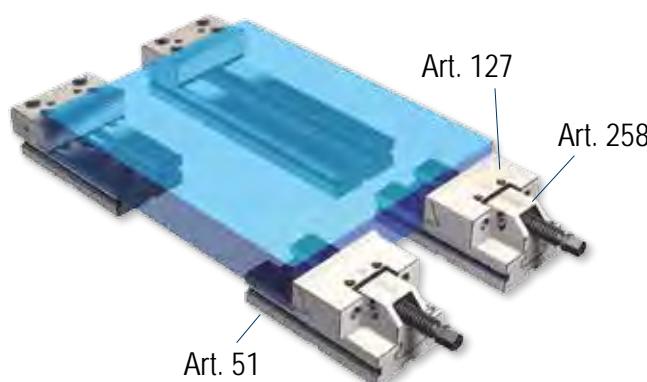
Particolari di medie dimensioni
posizionati sui moduli.
Medium size workpieces clamped
on the vise sections



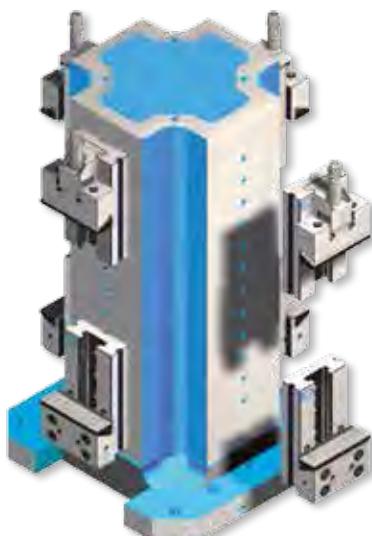
*Art. 1 + Art. 51*

Per realizzare una stazione mobile è sufficiente sfilare dalla morsa Art. 1 il gruppo di bloccaggio Art. 258 + la ganascia mobile Art. 127 ed inserirli in un elemento di prolunga Art. 51.

In order to get a movable vise section it is enough to remove from vise Art. 1 the blocking device Art. 258 + the movable jaw Art. 127 and to assemble them on an extension base Art. 51



Elemento modulare fisso doppio (Art. 104)
+ 2 elementi modulari mobili (Art. 102)
Double fixed vise section (Art. 104)
+ 2 movable vises sections (Art. 102)



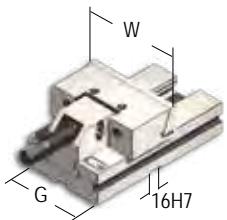
Elementi modulari montati su
cubo a croce Art. 5
**Modular elements assembled
on cross cube type Art. 57**



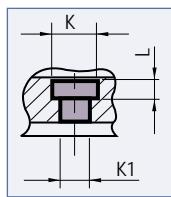
Tipo (grandezza) morsa / Vise (type) size

Art. 102

Blocco tenditore completo di base.
Movable jaw section and base assy.



Art. 360



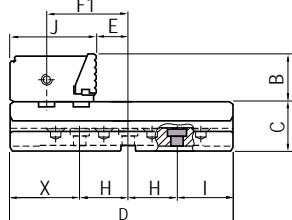
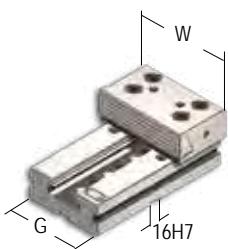
M = numero fori / M = holes number

kn	1 16 kN	2 25 kN	3 30 kN	4 30 kN	5 40 kN	6 40 kN
W	100	125	150	175	200	300
B	30	40	50	60	65	80
C	35	40	50	58	70	78
D	140	160	230	240	300	350
F	55	83	82	62	92	70
G	75	95	125	145	170	195
H	40	40	50	50	100	100
I	29	39	40	82,5	69	83
K1 Ø	6,5	8,5	13	13	17	17
K Ø	10,5	13,5	19	19	26	26
L	4,5	5,5	8,5	8,5	17	17
X	31	41	40	57,5	31	67
kg	3,4	6,3	14,2	20,8	35	60
M	3	3	4	3	5	5
Cod.	2.10.21000	2.10.22000	2.10.23000	2.10.24000	2.10.25000	2.10.26000

Disponibile anche versione Art.112 con piastre piane - Also available Art.112 version with straight plate jaws

Art. 103

Blocco fisso con ganascia fissa STD.
Fixed jaw section and base STD.



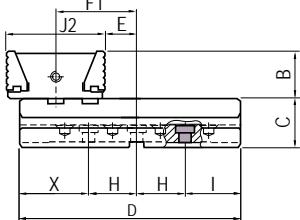
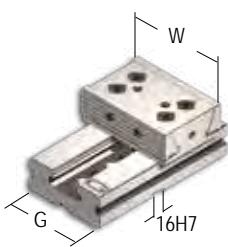
M = numero fori / M = holes number

J	77,9	77,9	89,4	96,9	113,4	120,4
E	33,6	33,6	33,6	33,6	33,6	33,6
F1	76	76	84,5	89	100	107
X	31	31	72,5	29	45	52
H	40	40	50	50	100	100
I	29	49	57,5	61	55	98
kg	3,3	5,8	12,6	17,8	29,8	50,5
M	3	3	3	4	5	5
Cod.	2.10.31000	2.10.32000	2.10.33000	2.10.34000	2.10.35000	2.10.36000

Disponibile anche versione Art.113 con piastre piane - Also available Art.113 version with straight plate jaws

Art. 104

Blocco fisso con ganascia doppia STD.
Fixed double jaw section and base STD.

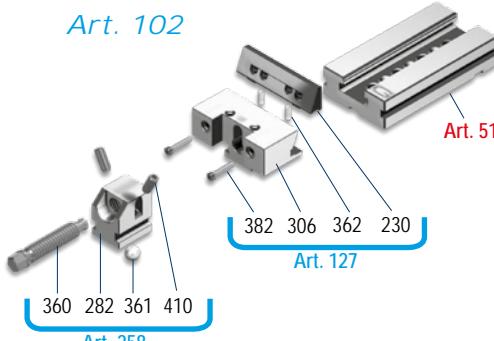


M = numero fori / M = holes number

J2	84,8	84,8	101,8	110,8	132,8	146,8
E	33,6	33,6	33,6	33,6	33,6	33,6
kg	3,4	6	13,3	18,8	30	52,5
M	3	3	3	4	5	5
Cod.	2.10.41000	2.10.42000	2.10.43000	2.10.44000	2.10.45000	2.10.46000

Disponibile anche versione Art.114 con piastre piane - Also available Art.114 version with straight plate jaws

Art. 102



Dotazione standard:

- 1 coppia di tasselli di posizionamento Art. 297

Standard equipment:

- 1 pair of positioning key-nuts Art. 297

Art. 103

Art. 120



Art. 104

Art. 123



Art. Pag.

44 3.10

44A 3.10

51 3.10

51A 3.10

120 4.6

123 4.6

127 4.6

230 4.7

248 4.7

258 4.28

282 4.28

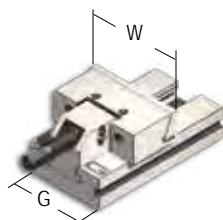


Tipo (grandezza) morsa / Vise (type) size

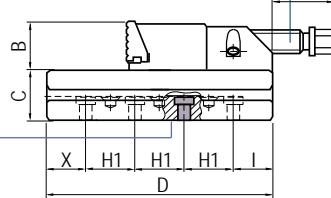
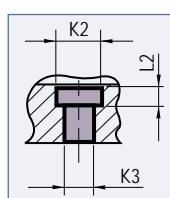
	1 16 kN	2 25 kN	3 30 kN	4 30 kN	5 40 kN	6 40 kN
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Art. 102A a reticolo / grid *

Blocco tenditore completo di base per posizionamento con viti calibrate
 Movable jaw section and base assy for positioning through ground screws



Art. 360



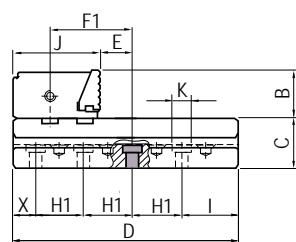
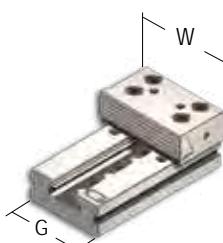
Foro calibrato / Calibrated hole

M = numero fori / M = holes number

W	100	125	150	175	200	300
B	30	40	50	60	65	80
C	35	40	50	58	70	78
D	140	160	230	240	300	350
F	55	83	82	62	92	70
G	75	95	125	145	170	195
H1	50	50	50	50	100	100
I	54	39	40	57,5	69	83
K2 Ø	25	25	25	25	25	25
K3 Ø	16 F7					
L2	8	8	10	10	10	10
X	36	21	40	32,5	31	67
kg	3,4	6,3	14,2	20,8	35	60
M	2	3	4	4	3	3
Cod.	2.10.2A100	2.10.2A200	2.10.2A300	2.10.2A400	2.10.2A500	2.10.2A600

Art. 103A a reticolo / grid *

Blocco fisso con ganascia fissa per posizionamento con viti calibrate
 Fixed jaw section and base for positioning through ground screws

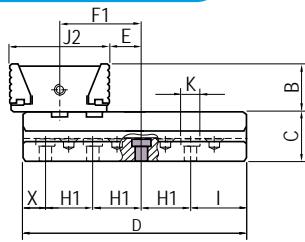
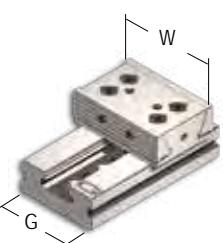


M = numero fori / M = holes number

J	77,9	77,9	89,4	96,9	113,4	120,4
E	33,6	33,6	33,6	33,6	33,6	33,6
F1	76	76	84,5	89	100	107
X	61	21	72,5	29	45	52
H1	50	50	50	50	100	100
I	29	49	57,5	61	55	98
kg	3,3	5,8	12,6	17,8	29,8	50,5
M	2	2	3	4	3	3
Cod.	2.10.3A100	2.10.3A200	2.10.3A300	2.10.3A400	2.10.3A500	2.10.3A600

Art. 104A a reticolo / grid *

Blocco fisso con ganascia doppia per posizionamento con viti calibrate
 Fixed double jaw section and base for positioning through ground screws



M = numero fori / M = holes number

J2	84,8	84,8	101,8	110,8	132,8	146,8
E	33,6	33,6	33,6	33,6	33,6	33,6
kg	3,4	6	13,3	18,8	30	52,5
M	2	3	3	4	3	3
Cod.	2.10.4A100	2.10.4A200	2.10.4A300	2.10.4A400	2.10.4A500	2.10.4A600

Art. Pag.

300	4.21
303	4.21
306	4.21
360	4.28
361	4.28
362	4.20
380	4.20
381	4.20
383	4.20
410	4.28

Art. 102A



Senza alcuna dotazione
 Without accessory equipment

A richiesta: vite calibrata Art. 83 o 83B
 On request: calibrated screw Art. 83 or 83B

Art. 103A



Art. 44A

Art. 104A



Art. 44A

* Passo del reticolo = 50 mm - Vite calibrata Ø 16F7 Pitch of grid = 50 mm - Calibrated screw Ø 16F7

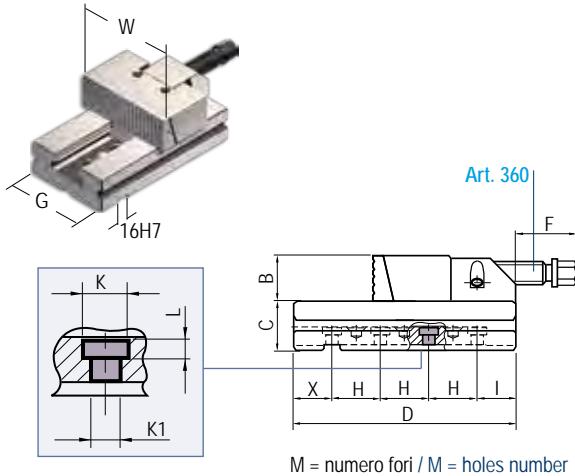


Tipo (grandezza) morsa / Vise (type) size

kN	1 16 kN	2 25 kN	3 30 kN	4 30 kN	5 40 kN	6 40 kN
W	96	121	146	171	196	296
B	28	38	48	58	63	78
C	35	40	50	58	70	78
D	140	160	230	240	300	350
F	55	83	82	62	92	70
G	75	95	125	145	170	195
H	40	40	50	50	100	100
I	29	39	40	82,5	69	83
K1 Ø	6,5	8,5	13	13	17	17
K Ø	10,5	13,5	19	19	26	26
L	4,5	5,5	8,5	8,5	17	17
X	31	41	40	57,5	31	67
kg	3,4	6,3	14,2	20,8	35	60
M	3	3	4	3	5	5
Cod.	3.10.2i100	3.10.2i200	3.10.2i300	3.10.2i400	3.10.2i500	3.10.2i600

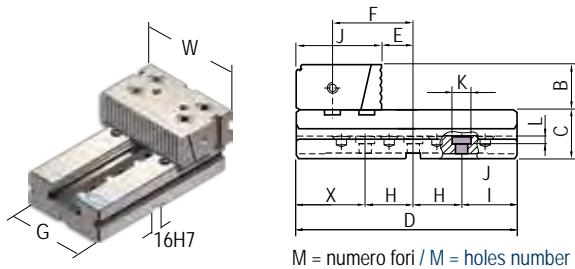
Art. 102i

Blocco tenditore con ganascia a cambio rapido. (*Sistema a pettine*)
Movable jaw section with quick change jaw plate. (*Comb system*)



Art. 103i

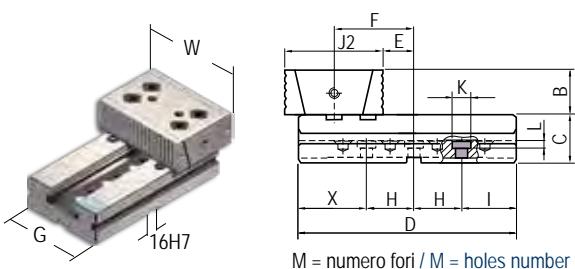
Blocco fisso con ganascia a cambio rapido. (*Sistema a pettine*)
Fixed jaw section with quick change jaw plate. (*Comb system*)



J	77,9	77,9	89,4	96,9	113,4	120,4
E	33,6	33,6	33,6	33,6	33,6	33,6
F	76	76	84,5	89	100	107
X	31	31	72,5	29	45	52
H	40	40	50	50	100	100
I	29	49	57,5	61	55	98
kg	3,3	5,8	12,6	17,8	29,8	50,5
M	3	3	3	4	5	5
Cod.	3.10.3i100	3.10.3i200	3.10.3i300	3.10.3i400	3.10.3i500	3.10.3i600

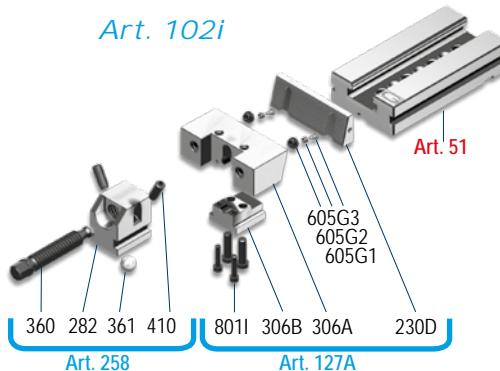
Art. 104i

Blocco fisso con ganascia doppia a cambio rapido. (*Sistema a pettine*)
Fixed double-jaw section with quick change jaw plate. (*Comb system*)



J2	84,8	84,8	101,8	110,8	132,8	146,8
E	33,6	33,6	33,6	33,6	33,6	33,6
kg	3,4	6	13,3	18,8	30	52,5
M	3	3	3	4	5	5
Cod.	3.10.4i100	3.10.4i200	3.10.4i300	3.10.4i400	3.10.4i500	3.10.4i600

Art. 102i



Dotazione standard:

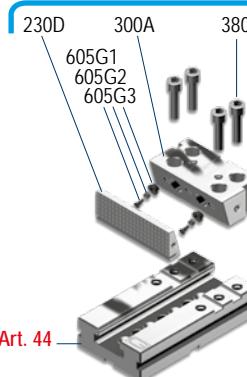
- 1 coppia di tasselli di posizionamento Art. 297 + 2 tappi Art. 291

Standard equipment:

- 1 pair of positioning key-nuts Art. 297 + 2 insert Art. 291

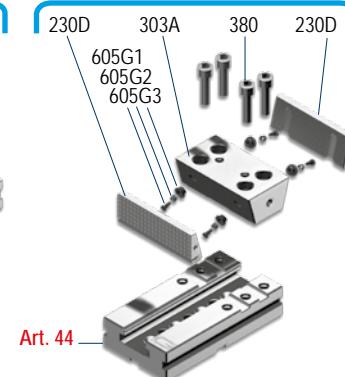
Art. 103i

Art. 120A



Art. 104i

Art. 123A

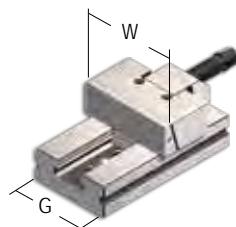


Art. Pag.

44	3.10
44A	3.10
51	3.10
51A	3.10
120A	4.12
123A	4.12
127A	4.12
230D	4.13
258	4.28
282	4.28
300A	4.22

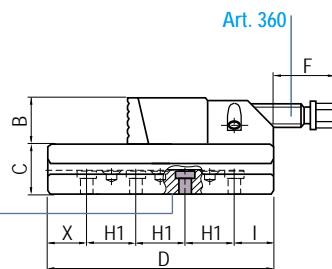
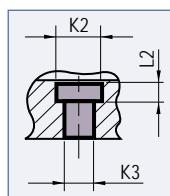


Tipo (grandezza) morsa / Vise (type) size	kN	1 16 kN	2 25 kN	3 30 kN	4 30 kN	5 40 kN	6 40 kN
Art. 102Ai a reticolo / grid *	W	96	121	146	171	196	296
Blocco tenditore con ganascia a cambio rapido. (<i>Sistema a pettine</i>) Movable jaw section with quick change jaw plate. (<i>Comb system</i>)	B	28	38	48	58	63	78
	C	35	40	50	58	70	78
	D	140	160	230	240	330	350
	F	55	83	82	62	92	70
	G	75	95	125	145	170	195
	H1	50	50	50	50	100	100
	I	54	39	40	57,5	69	83
	K3 Ø	16 F7					
	K2 Ø	25	25	25	25	25	25
	L2	8	8	10	10	10	10
	X	36	21	40	32,5	31	67
	kg	3,4	6,3	14,2	20,8	35	60
	M	2	3	4	4	3	3
	Cod.	3.10.2Ai10	3.10.2Ai20	3.10.2Ai30	3.10.2Ai40	3.10.2Ai50	3.10.2Ai60



Art. 102Ai - 103Ai - 104Ai

Basi per posizionamento con viti calibrate
 Base assy for positioning through ground screws

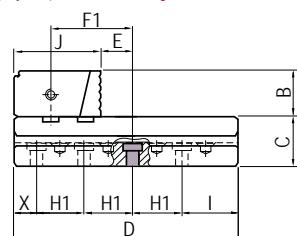
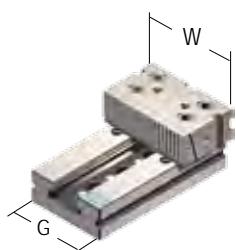


Foro calibrato / Calibrated hole

M = numero fori / M = holes number

Art. 103Ai a reticolo / grid *

Blocco fisso con ganascia a cambio rapido. (*Sistema a pettine*)
 Fixed jaw section with quick change jaw plate (*Comb system*)

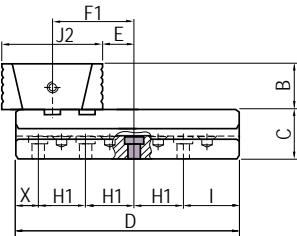
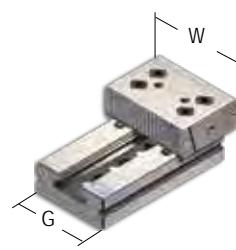


M = numero fori / M = holes number

J	77,9	77,9	89,4	96,9	113,4	120,4
E	33,6	33,6	33,6	33,6	33,6	33,6
F1	76	76	84,5	89	100	107
X	61	21	72,5	29	45	52
H1	50	50	50	50	100	100
I	29	39	57,5	61	55	98
kg	3,3	5,8	12,6	17,8	29,8	50,5
M	2	3	3	4	3	3
Cod.	3.10.3Ai10	3.10.3Ai20	3.10.3Ai30	3.10.3Ai40	3.10.3Ai50	3.10.3Ai60

Art. 104Ai a reticolo / grid *

Blocco fisso con ganascia doppia a cambio rapido. (*Sistema a pettine*)
 Fixed double-jaw section with quick change jaw plate. (*Comb system*)



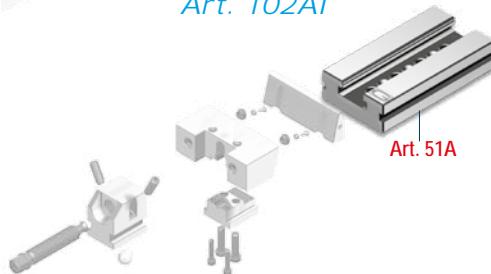
M = numero fori / M = holes number

J2	84,8	84,8	101,8	110,8	132,8	146,8
E	33,6	33,6	33,6	33,6	33,6	33,6
kg	3,4	6	13,3	18,8	30	52,5
M	2	3	3	4	3	3
Cod.	3.10.4Ai10	3.10.4Ai20	3.10.4Ai30	3.10.4Ai40	3.10.4Ai50	3.10.4Ai60

Art. Pag.

303A	4.22
306A	4.22
306B	4.22
360	4.28
361	4.28
380	4.20
410	4.28
605G1	6.31
605G2	6.31
605G3	6.34
801I	5.54

Art. 102Ai

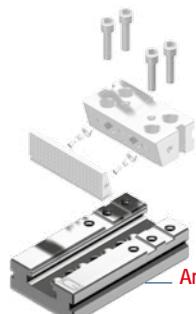


Art. 51A

Senza alcuna dotazione
 Without accessory equipment

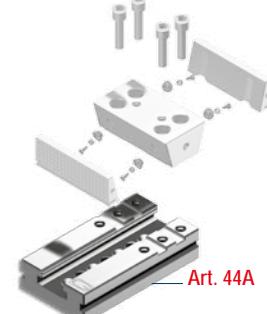
A richiesta: vite calibrata Art. 83 o 83B
 On request: calibrated screw Art. 83 or 83B

Art. 103Ai



Art. 44A

Art. 104Ai



Art. 44A

* Passo del reticolo = 50 mm - Vite calibrata Ø 16F7 Pitch of grid = 50 mm - Calibrated screw Ø 16F7

ELEMENTI MODULARI BASE / Supplemento extra per ogni folo calibrato + €76

BASIC MODULAR UNITS / Extra supplement for each ground hole + €76

Tipo (grandezza) morsa / Vise (type) size	1	2	3	4	5	6
Art. 44	G 75	95	125	145	170	195
D 140	160	230	240	300	350	
kg 1.8	3.3	6.9	8	14.5	21.8	
Cod. 1.80.14140	1.80.24160	1.80.34230	1.80.44250	1.80.54300	1.80.64351	

Slittone base per ganascia fissa
Split base for fixed jaw

D	140	160	230	240	300	350
kg	1.7	3.2	6.8	7.9	14.4	21.7
Cod.	3.44.A1000	3.44.A2000	3.44.A3000	3.44.A4000	3.44.A5000	3.44.A6000

Slittone base a reticolo (Passo 50 mm, Ø 16 per blocco fisso)
Split grid (50 mm) pitch, Ø 16 base for fixed section

D	140	160	230	240	300	350
kg	2.1	3.4	8.2	11.5	20	30
Cod.	1.80.13140	1.180.23160	1.80.33230	1.80.43250	1.80.53300	1.80.63350

Art. 51

Elemento di prolunga base per ganascia mobile
Base extension for movable jaw

Cod.	3.51.A1000	3.51.A2000	3.51.A3000	3.51.A4000	3.51.A5000	3.51.A6000

Art. 51A

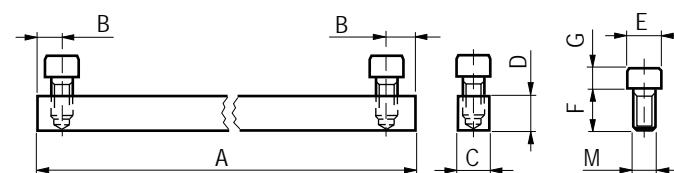
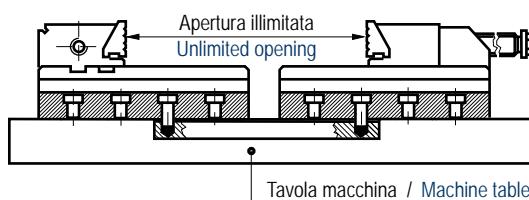
Elemento di prolunga base a reticolo (Passo 50 mm, Ø 16)
Grid (50 mm) pitch, Ø 16 base extension

ACCESSORI

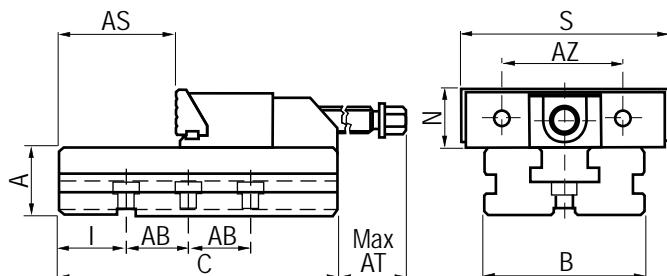
ACCESSORIES

Tipo (grandezza) morsa / Vise (type) size	1	2	3	4	5	6
Art. 358 Barra di tensione / Tension bar	A 320	320	400	400	500	500
B 11	11	11	18	18	20	20
C 10	10	10	15	15	20	20
D 20	20	20	25	25	25	25
M M6	M6	M8	M12	M12	M16	M16
E 9	9	12	18	18	24	24
F 15	15	15	20	20	30	30
G 6	6	8	12	12	16	16
kg 0.5	0.5	0.5	1.2	1.2	2	2
Cod. 3.35.81000	3.35.82000	3.35.83000	3.35.84000	3.35.85000	3.35.86000	

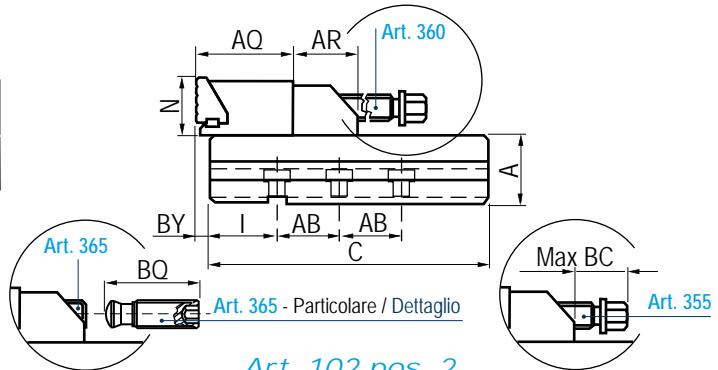
Accessori per Art. 51 e 102
A richiesta altre larghezze senza variazione di prezzo
Accessories for Art. 51 and 102
Other widths available on request without price change



Art. 102

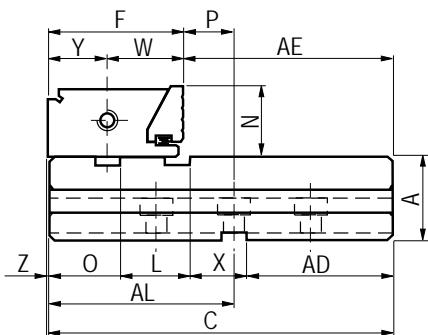


Art. 102 pos. 1

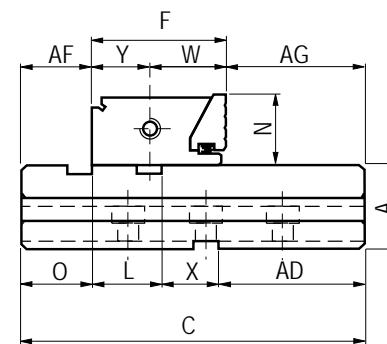


Art. 102 pos. 2

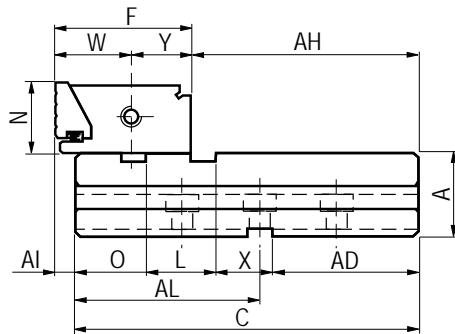
Art. 103



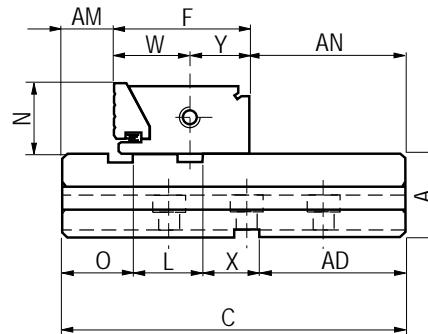
Art. 103 pos. 1



Art. 103 pos. 2

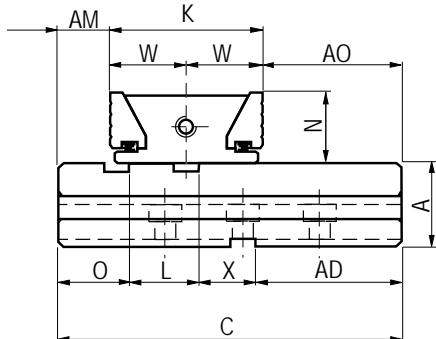


Art. 103 pos. 3

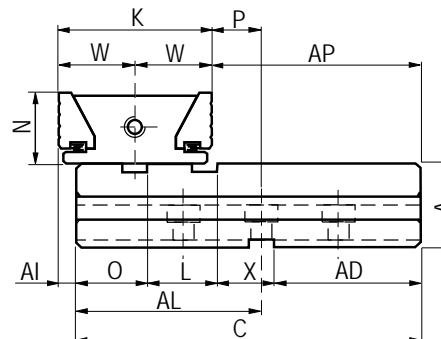


Art. 103 pos. 4

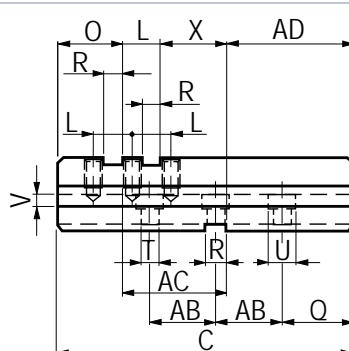
Art. 104



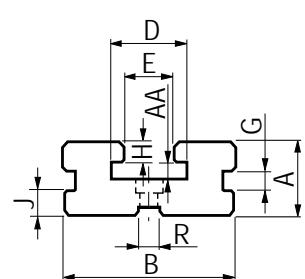
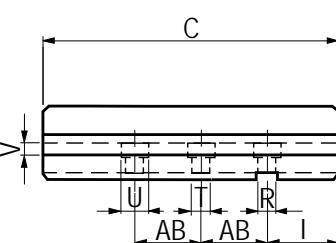
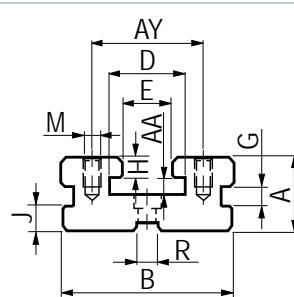
Art. 104 pos. 1



Art. 104 pos. 2

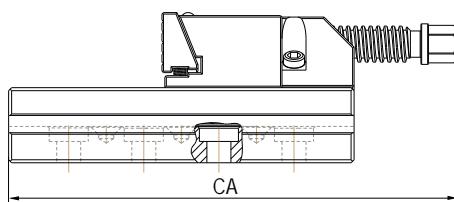


Art. 4



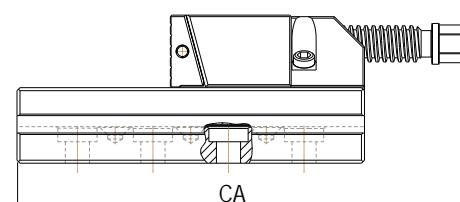
Art. 51

Art. 102A



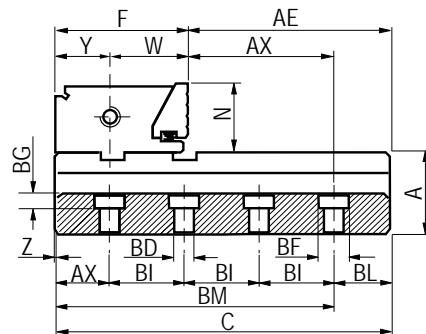
Art. 102A pos. 1

Art. 102Ai

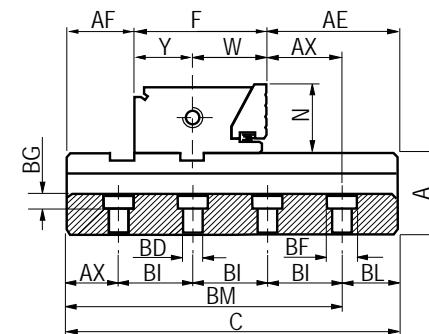


Art. 102Ai pos. 1

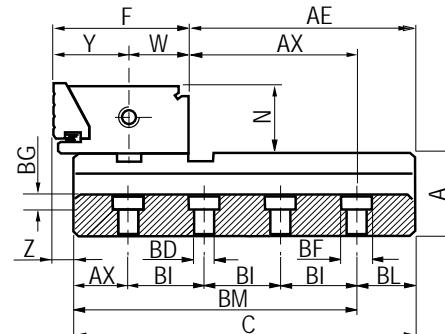
Art. 103A



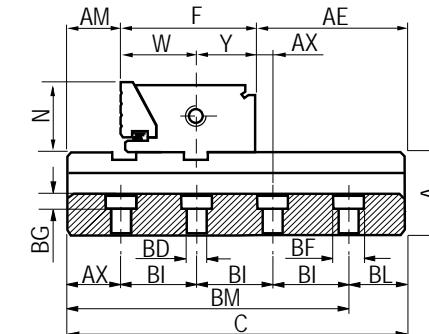
Art. 103A pos. 1



Art. 103A pos. 2

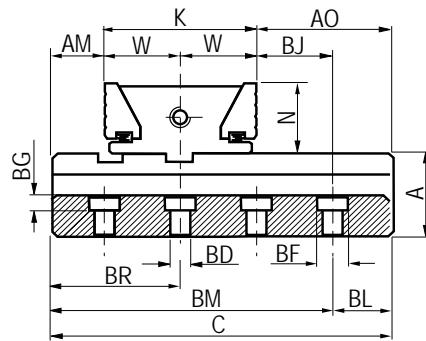


Art. 103A pos. 3

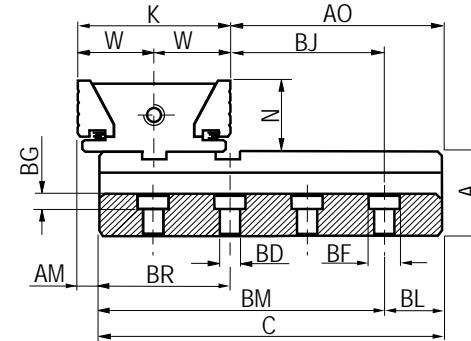


Art. 103A pos. 4

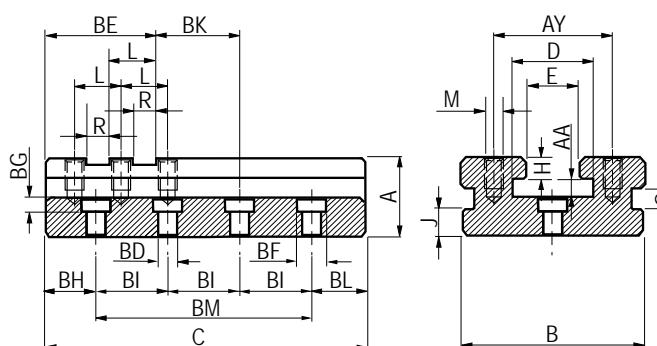
Art. 104A



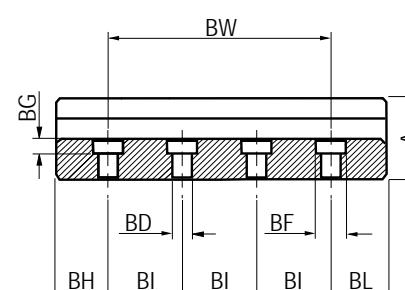
Art. 104A pos. 1



Art. 104A pos. 2



Art. 44A



Art. 51A

Tipo (grandezza) morsa / Vise (type) size							Tipo (grandezza) morsa / Vise (type) size								
mm	1	2	3	4	5	6	Tolleranza Tolerance	mm	1	2	3	4	5	6	Tolleranza Tolerance
A	35	40	50	58	70	78	- 0.02	AV	29	49	107.5	111	155	198	
B	75	95	125	145	170	195	- 0.02	AW	111	111	122.5	129	145	152	
C	140	160	230	240	300	350		AX	33.6	33.6	33.6	33.6	33.6	33.6	± 0.02
D	31	41	57	70	80	90		AY	50	62	88	100	120	133	
E	21	28	41	51	61	71	+ 0.02	AZ	62	80	90	116	138	184	
F	77.9	77.9	89.4	96.9	113.4	120.4	- 0.04	BA							
G	9.5	9.5	11.5	11.5	17.5	17.5		BB	20	32	50	50	76	90	
H	10	10	13	15	20	20	- 0.02	BC	45	38	47	32	52	55	
I	31	41	40	57.5	31	67		BD	16	16	16	16	16	16	F7
J	15	15	20	20	26	26		BE	75	75	82	84	97	97	
K	84.8	84.8	101.8	101.8	132.8	146.8	- 0.04	BF	20.5	25	25	25	25	25	
L	32	32	36	36	44	44	- 0.02	BG	8	8	10	10	10	10	
M	M10	M12	M14	M16	M20	M20		BH	36	21	40	32.5	31	67	
N	30	40	50	60	65	80	± 0.02	BI	50	50	50	50	50	50	± 0.01
O	43	43	46	48	53	53		BJ	33.6	33.6	33.6	33.6	33.6	33.6	± 0.02
P	33.6	33.6	33.6	33.6	33.6	33.6	± 0.02	BK	36	36	40.5	45	48	55	± 0.01
Q	29	49	157.5	61	55	98		BL	29	39	40	57.5	69	83	
R	16	16	16	16	16	16	H7	BM	111	121	190	182.5	231	267	
S	100	125	150	175	200	300		BN	320	320	400	400	500	500	
T	6.5	8.5	13	13	17	17		BO	11	11	18	18	20	20	
U	10.5	13.5	19	19	26	26		BP	24.6	24.6	23.1	20.6	22.6	15.6	
V	4.5	5.5	8.5	8.5	17	17		BQ	35	35	38	40	45	45	
W	42.4	42.4	50.9	55.4	66.4	73.4	± 0.02	BR	67	67	74	76	89	89	
X	44	44	48.5	53	56	63	± 0.02	BS	12	12	12	12	12	12	F7
Y	35.5	35.5	35.5	41.5	47	47	± 0.02	BT	20	20	20	20	20	20	
Z	0.5	0.5	0.5	1.5	2	2		BU	8	8	8	8	8	8	
AA	10	10	12	18	18	18	+ 0.04	BV	31	31	42.5	49	65	72	
AB	40	40	50	50	100	100		BW	100	100	150	150	200	200	
AC	76	76	84.5	89	100	107	- 0.02		3 x Ø16	3 x Ø16	4 x Ø16	4x Ø16	3 x Ø16	3 x Ø16	± 0.01
AD	21	41	99.5	103	147	190		BX	10	10	15	15	20	20	
AE	62.6	82.6	141.6	144.6	188.6	231.6		BY	10	10	15	20	25	30	
AF	31.5	31.5	35.5	35.5	42	42		BZ	40	40	40	40	40	40	± 0.01
AG	30.6	50.6	105.1	108.6	144.6	187.6		CA	195	228	312	302	392	420	
AH	69.5	89.5	153.5	158.5	208	258		CB							
AI	7.4	7.4	12.9	15.4	21.4	28.4		CC	20	20	25	25	25	25	
AJ	36	36	40.5	45	48	55	± 0.1	CD	M6	M8	M12	M12	M16	M16	
AK	80	80	120	120	160	240	± 0.01	CE	9	12	18	18	24	24	
	3 x Ø12	3 x Ø12	4 x Ø12	4 x Ø12	3 x Ø12	4 x Ø12		CF	15	15	20	20	30	30	
AL	111	111	122.5	129	145	152		CG	4	5	12	12	16	16	
AM	24.6	24.6	23.6	20.6	22.6	15.6									
AN	37.5	57.5	117.5	122.5	164.	214									
AO	30.6	50.6	105.1	108.6	144.6	187.6									
AP	62.6	82.6	141.6	144.6	188.6	231.6									
AQ	50	60	80	90	100	120									
AR	32	51	48	68	78	94									
AS	28	49	102	82	122	136									
AT	55	68	82	62	92	70									
AU	45	38	47	27	52	45									

SERRAGGIO MECCANICO CON CHIAVE DINAMOMETRICA

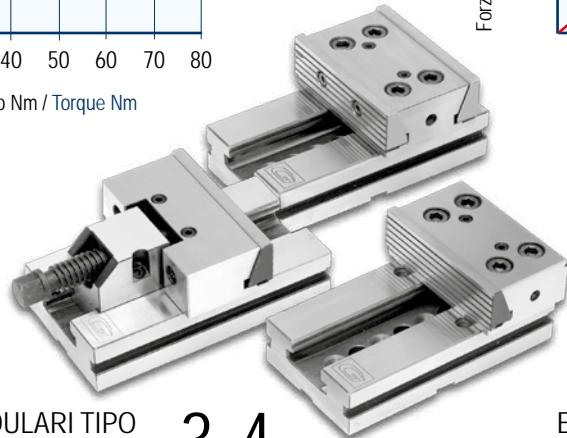
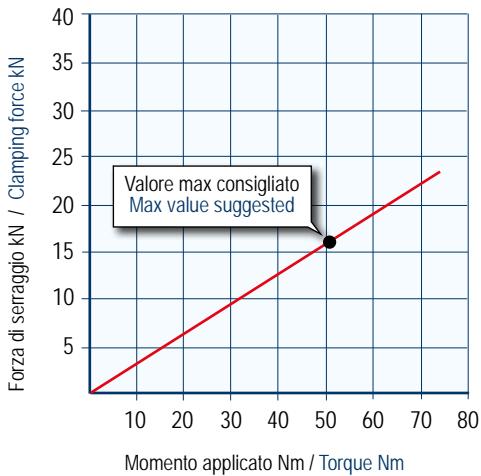
MECHANICAL CLAMPING WITH TORQUE WRENCH

GRUPPI DI SERRAGGIO MECCANICI (*Art. 258 e similari*)

I diagrammi seguenti consentono di determinare le forze di serraggio ottenibili con le morse di varia grandezza (da 1 a 6), in funzione del momento applicato

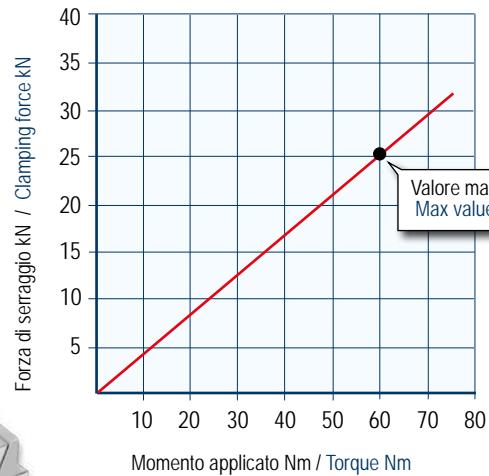
ELEMENTI MODULARI TIPO 1 MODULAR ELEMENTS TYPE 1

Vite Ø 14 - Passo 4 mm
Screw Ø 14 - Pitch 4 mm



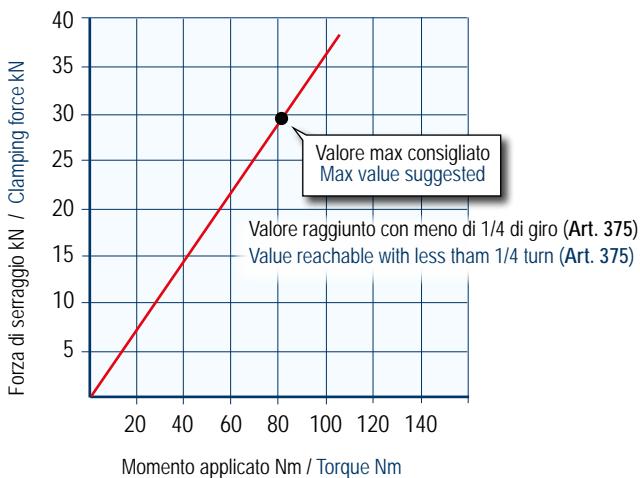
ELEMENTI MODULARI TIPO 2 MODULAR ELEMENTS TYPE 2

Vite Ø 18 - Passo 4 mm
Screw Ø 18 - Pitch 4 mm



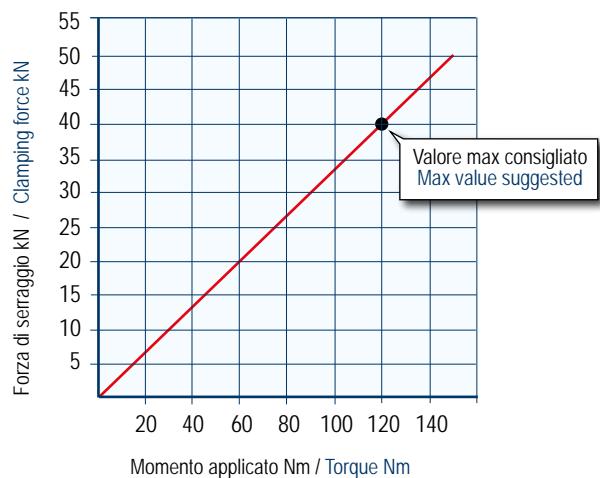
ELEMENTI MODULARI TIPO 3-4 MODULAR ELEMENTS TYPE 3-4

Vite Ø 24 - Passo 5 mm
Screw Ø 24 - Pitch 5 mm



ELEMENTI MODULARI TIPO 5-6 MODULAR ELEMENTS TYPE 5-6

Vite Ø 30 - Passo 5 mm
Screw Ø 30 - Pitch 5 mm



NB: Alcuni fattori, come la lubrificazione, lo staffaggio, gli attriti ed altro, possono modificare i valori indicati fino a $\pm 10\%$.
Per un corretto utilizzo non superare i valori indicati nel grafico

Some factor as lubrication, clamping on the machine table, frictions and more can modify above values within a $\pm 10\%$ range. For optimum operation do not exceed chart values.