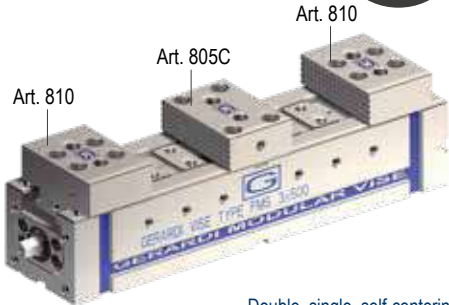
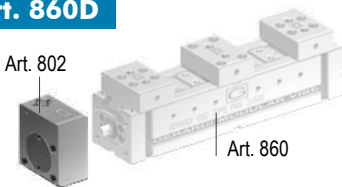


Tipo (grandezza) morsa / Vise type (size)	kN	1		2				3	
		25 kN		25 kN				30 kN	
Apertura massima / Maximum opening	A	2 x 16	2 x 66	2 x 54	2 x 104	2 x 154	2 x 204	2 x 74	2 x 124
Art. 860	B	25		30				40	
Morsa FMS doppia, singola, autocentrante con ganasce zigrinate	C	70		90				100	
	D	232	332	300	400	500	600	400	500
	E	249	349	320	420	520	620	425	525
	G	75		95				125	
	J	56		64				84	
	W	74		94				124	
	kg	9	12	22	29	35	42	44	49
	Cod.	5.86.01200	5.86.01300	5.86.02300	5.86.02400	5.86.02500	5.86.02600	5.86.03400	5.86.03500



Double, single, self-centering FMS vise with serrated jaws

Art. 860D


(Art. 860 + 802) Morsa + moltiplicatore di coppia / Vise + torque multiplier

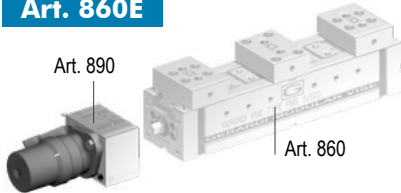
Cod.	5.86.0D120	5.86.0D130	5.86.0D230	5.86.0D240	5.86.0D250	5.86.0D260	5.86.0D340	5.86.0D350
------	------------	------------	------------	------------	------------	------------	------------	------------

Moltiplicatore di coppia con rinvio angolare - Mechanical with torque multiplier with angular transmission

Chiave dinamometrica Art.357 (Consigliata) - Torque wrench Art.357 (Suggested)

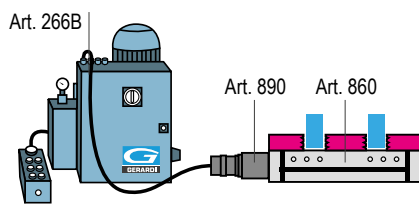
Cod.	5.80.21000	5.80.22000	5.80.23000
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Art. 802

Art. 860E


(Art. 860 + 890) Morsa + motore idraulico / Vise + hydraulic motor

Cod.	5.86.0E120	5.86.0E130	5.86.0E230	5.86.0E240	5.86.0E250	5.86.0E260	5.86.0E340	5.86.0E350
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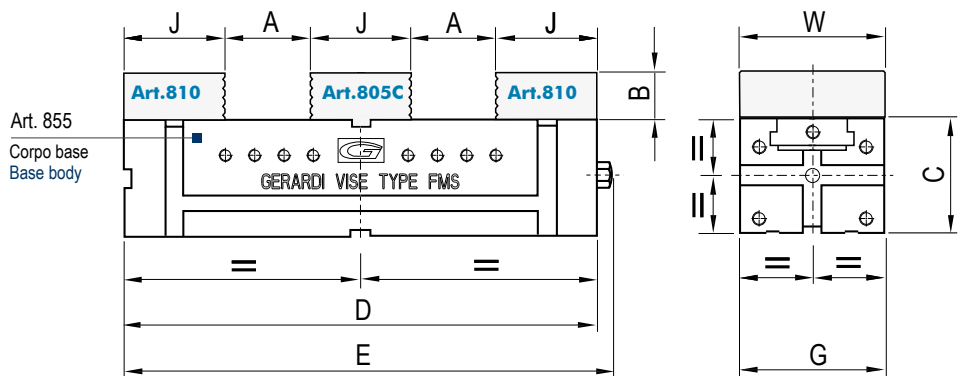
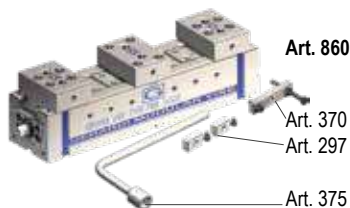
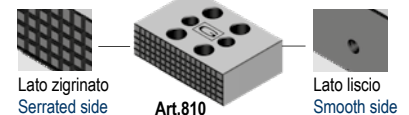
Art. 860F


(Art. 860 + 890 + 266B) Morsa + motore idraulico + centralina / Vise + hydraulic motor + power unit

Cod.	5.86.0F120	5.86.0F130	5.86.0F230	5.86.0F240	5.86.0F250	5.86.0F260	5.86.0F340	5.86.0F350
------	------------	------------	------------	------------	------------	------------	------------	------------

Dotazione standard:

- 2 arresti laterali Art. 370
- 1 coppia di tasselli di posizionamento per cava da 16 mm Art. 297
- 1 chiave a pipa Art. 375



Standard equipment:

- 2 workstops Art. 370
- 1 pair of positioning key-nuts for 16 mm slot Art. 297
- 1 box wrench Art. 375

	3 30 kN			4 30 kN				5 32 kN			6 32 kN		
A	2 x 174	2 x 224	2 x 274	2 x 103	2 x 153	2 x 203	2 x 253	2 x 138	2 x 188	2 x 238	2 x 238	2 x 288	2 x 338
B		40			50				60			60	
C		100			120				140			160	
D	600	700	800	500	600	700	800	600	700	800	800	900	1000
E	625	725	825	525	625	725	825	625	725	825	825	925	1025
G		125			145				170			190	
J		84			98				108			108	
W		124			144				169			189	
kg	54	59	64	71	79	88	96	130	140	150	210	230	250
Cod.	5.86.03600	5.86.03700	5.86.03800	5.86.04500	5.86.04600	5.86.04700	5.86.04800	5.86.05600	5.86.05700	5.86.05800	5.86.06800	5.86.06900	5.86.06100

Art. 860D (Art. 860 + 802) Morsa + moltiplicatore di coppia / Vise + torque multiplier

Cod.	5.86.0D360	5.86.0D370	5.86.0D380	5.86.0D450	5.86.0D460	5.86.0D470	5.86.0D480	5.86.0D560	5.86.0D570	5.86.0D580	5.86.0D680	5.86.0D690	5.86.0D610
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Art. 802 Moltiplicatore di coppia con rinvio angolare - Mechanical with torque multiplier with angular transmission

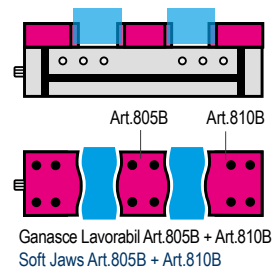
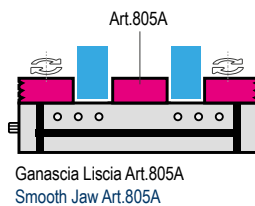
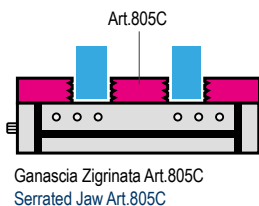
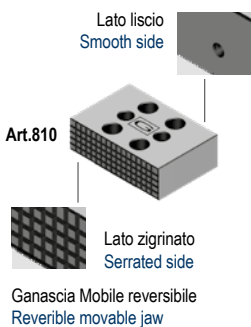
Cod.	5.80.23000	5.80.24000	5.80.25000	5.80.26000
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Art. 860E (Art. 860 + 890) Morsa + motore idraulico / Vise + hydraulic motor

Cod.	5.86.0E360	5.86.0E370	5.86.0E380	5.86.0E450	5.86.0E460	5.86.0E470	5.86.0E480	5.86.0E560	5.86.0E570	5.86.0E580	5.86.0E680	5.86.0E690	5.86.0E610
------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------

Art. 860F (Art. 860 + 890 + 266B) Morsa + motore idraulico + centralina / Vise + hydraulic motor + power unit

Cod.	5.86.0F360	5.86.0F370	5.86.0F380	5.86.0F450	5.86.0F460	5.86.0F470	5.86.0F480	5.86.0F560	5.86.0F570	5.86.0F580	5.86.0F680	5.86.0F690	5.86.0F610
------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------

Art. 860 Esempi applicativi ganasce: / Jaw application examples:


Art.	Pag.
810	5.56
805C	5.54
805A	5.54
805B	5.54
810B	5.56

Morse e cubi morsa / Vises & vise-towers

FMS SERIES


 Precisione / Accuracy
 $\pm 0,02\text{mm}$

 Durezza / Hardened
HRC 58±2

Un sistema modulare flessibile con centinaia di ganasce disponibili

A Flexible modular system with hundreds of jaws available

ESTREMA VERSATILITÀ EXTREME VERSATILITY

- 3 posizioni per la ganasca fissa; •Serraggio dall'esterno all'interno e viceversa;
- Posizionamento verticale-orizzontale-laterale; •Collegamento: fianco a fianco, dorso a dorso, fianco a dorso; •Possibilità illimitata per ganasce speciali; •Sostituzione semplice e precisa delle ganasce; •Elemento di prolunga per pezzi fuori misura; •Sistema di serraggio meccanico, idraulico, pneumatico elettrico o con moltiplicatore di potenza, tramite comando manuale, a pedale o mediante pulsante elettrico (vedi pag. 12); •Costruzione solida e compatta e massima apertura rispetto alla sua lunghezza; •Flessioni praticamente ridotte di due volte rispetto alle precedenti morse modulari standard; •Accurata ripetibilità di posizionamento del pezzo da lavorare; •Precisioni geometriche con tolleranze entro 0,02 mm; •Protezione integrale dalla penetrazione di corpi estranei tramite piastre scorrevoli; •Possibilità di trasformazione di ogni morsa singola in morsa autocentrante o in morsa doppia tramite la semplice sostituzione delle ganasce sul corpo base universale. (ESEMPLI APPLICATIVI A PAGINA 5.76).

- 3 positions for the fixed jaw; •Outside to inside clamping and viceversa; •Vertically, horizontally and sideways vise positioning; •Side to side, back to back and back to side vise positioning; •Unlimited special jaws; •Simple and precise exchange of jaws; •Extension element for extra-long pieces; •Mechanic, hydraulic or pneumatic or electrical clamping system or with pressure multiplier, through manual, pedal or push button control (see page 12); •Space saving design, solid construction and maximum blocking ratio to total length; •Deflection reduced two times with respect to the STANDARD modular vises; •Very accurate repeatability of workpiece position; •Geometrical accuracy with tolerances within 0,02 mm; •Integral protection from chips and dirty through sliding protection; •Possibility to transform each single vise in a self-centering vise with possibility to block from outside to inside and vice versa and in a double vise through the simple substitution of the jaws on the universal vise body base. (APPLICATION EXAMPLES ON PAGE 5.76)

Vite a doppio filetto Double thread spindle



Vite principale (completamente protetta) con filetto destro e sinistro e slitte guidate lunghe quanto il corpo base con più chiavette per ganasce mobili

Completely protected main spindle with left and right thread and guided slides long as the vise base with multiple movable jaw positions

Chiavette di posizionamento Positioning Keyways



Chiavette longitudinali e trasversali sia sulla base per il posizionamento orizzontale, sia in testa per il posizionamento verticale.

Longitudinal and cross keyways both on the base bottom surface for horizontal positioning and on the side for vertical positioning



3 Morse in Una 3 Vises in One

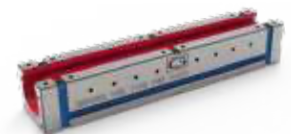


Possibilità di trasformare ogni morsa singola in una morsa autocentrante con bloccaggio concentrico dall'esterno all'interno e viceversa e in morsa doppia tramite la semplice sostituzione delle ganasce sul corpo base universale.

Possibility to transform each single vise in a self-centering vise with the possibility to block from outside to inside and viceversa and in a double vise through the simple substitution of the jaw on the universal vise body base.

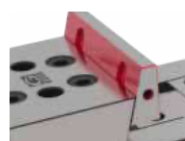


Altissima rigidità Highest rigidity



Base della morsa con una sezione doppia per garantire maggiore rigidità. Flessioni ridotte di due volte rispetto alle normali morse modulari standard. Disponibili cubi monoblocco.

Higher vise base in order to guarantee a better rigidity. Bending reduced two times with respect to the standard modular vises. Available solid vise towers



Riconfigurazione Rapidissima Quickest Vise Resetting

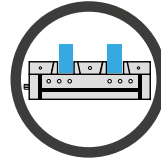


Grazie alla piastra ganasca intercambiabile manualmente tramite sistema a pettine

Thanks to the quick interchangeable jaw plate through ground comb system

Nata espressamente per i centri di lavoro, la gamma FMS permette ottimizzazioni di serraggio con riferimenti precisi in spazi contenuti, usure inesistenti e rigidità impensabile (spessore della base raddoppiato), possibilità di bloccare più pezzi contemporaneamente con l'ausilio di sistemi meccanici, pneumatici, elettrici o idraulici. Tutte sono disponibili/predisposte sia per piazzamenti verticali che orizzontali. Serraggi di qualsiasi lunghezza. La caratteristica (Brevetata) che meglio contraddistingue questa serie di morse consiste nella possibilità di trasformare ogni morsa singola (cioè adibita al serraggio di un singolo pezzo) in una morsa autocentrante con bloccaggio concentrico dall'esterno all'interno e viceversa e in morsa doppia tramite la semplice sostituzione delle ganasce sul corpo base universale. Tutto ciò ne suggerisce l'impiego in situazioni produttive caratterizzate da lotti di pezzi estremamente diversi fra loro riducendo tempi di set-up e garantendo un'accurata ripetibilità di posizionamento e quindi di precisione migliorando l'efficienza globale del sistema produttivo.

Born to be dedicated to machining centres, FMS series of vises allow workholdings with perfect alignment in a space saving design, extremely high wear resistance, with deflection reduced 2 times in respect to the STD modular vises (base thickness doubled), possibility to clamp more pieces simultaneously with mechanic, hydraulic pneumatic or electric devices. You can use them both for vertical and horizontal clamping without any price charge. Grip any work length. The feature (Patented) which identifies this line of vises consists in the possibility to transform each single vise (1 piece clamping) in a self-centering vise with possibility to block from outside to inside and viceversa and in a double vise through the simple substitution of the jaws on the universal vise body base. All that suggests their use in the production of lots of highly different pieces reducing set-up times and assuring very accurate repetability of workpiece position and precision, increasing the global efficiency of the production process.



SCAN IT TO SEE

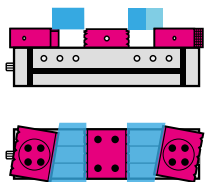


THE WEB PAGE

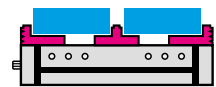


Singole, Doppie o Autocentranti!

Single, Double or Self-centering!



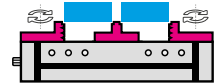
Ganasce Mobili Oscillanti
per serraggio di pezzi irregolari
Floating Movable Jaws
for irregular workpieces



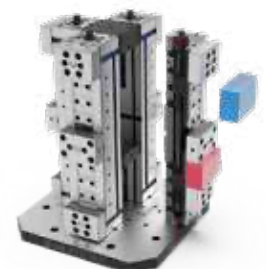
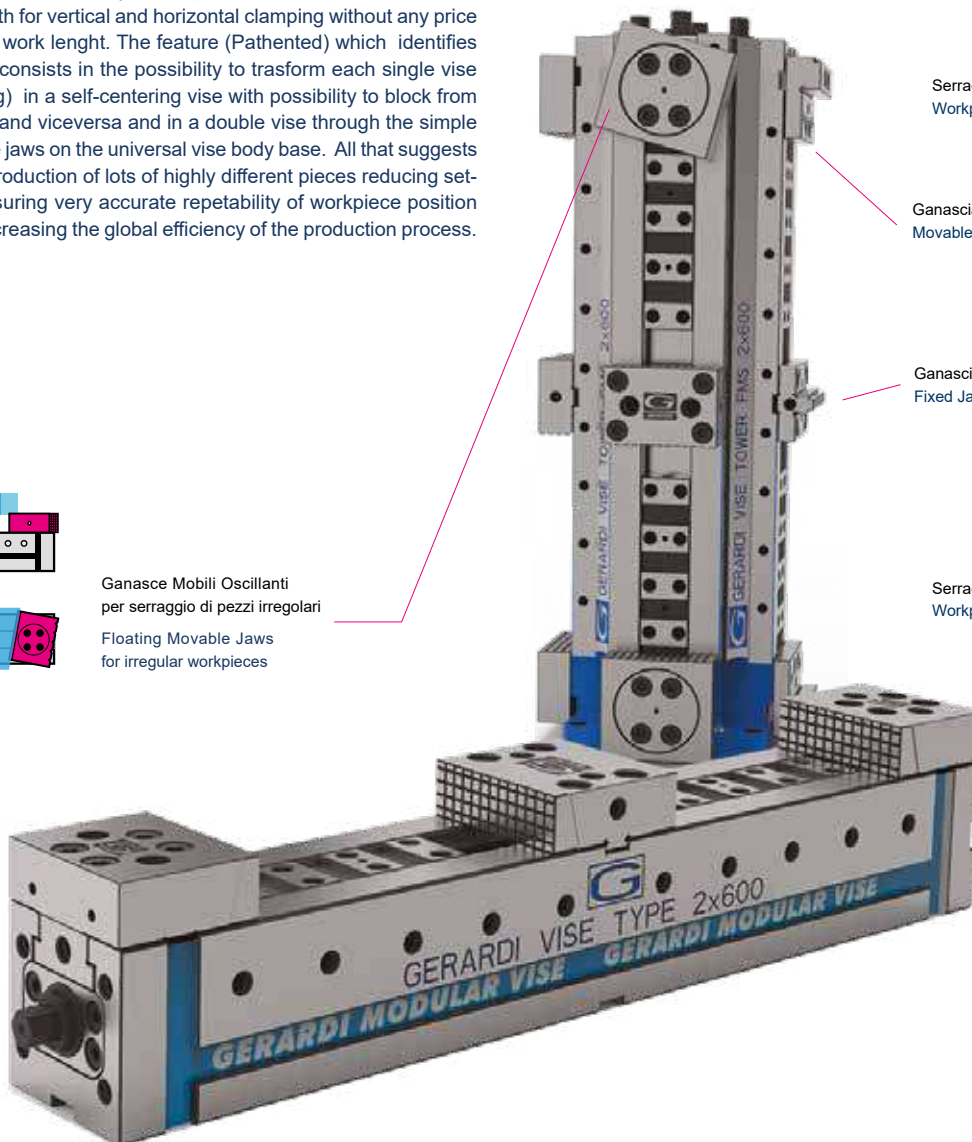
Serraggio particolare su gradino grande
Workpiece clamping on the large step

Ganascia Mobile Art.810P
Movable Jaw Art.810P

Ganascia Fissa Art.805Q
Fixed Jaw Art.805Q



Serraggio particolare su gradino piccolo
Workpiece clamping on the small step



Sistema a terza mano - Third hand service

Consente il carico e serraggio lieve del primo particolare da lavorare mentre viene caricato il secondo di dimensione maggiore. Molto utile con l'utilizzo verticale della morsa.

It allows the first workpiece loaded to be clamped lightly while the second workpiece is being loaded. Such device is useful especially with the vise vertically positioned

Staffe di ancoraggio / Vise holding clamps

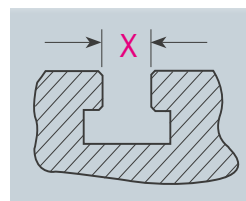
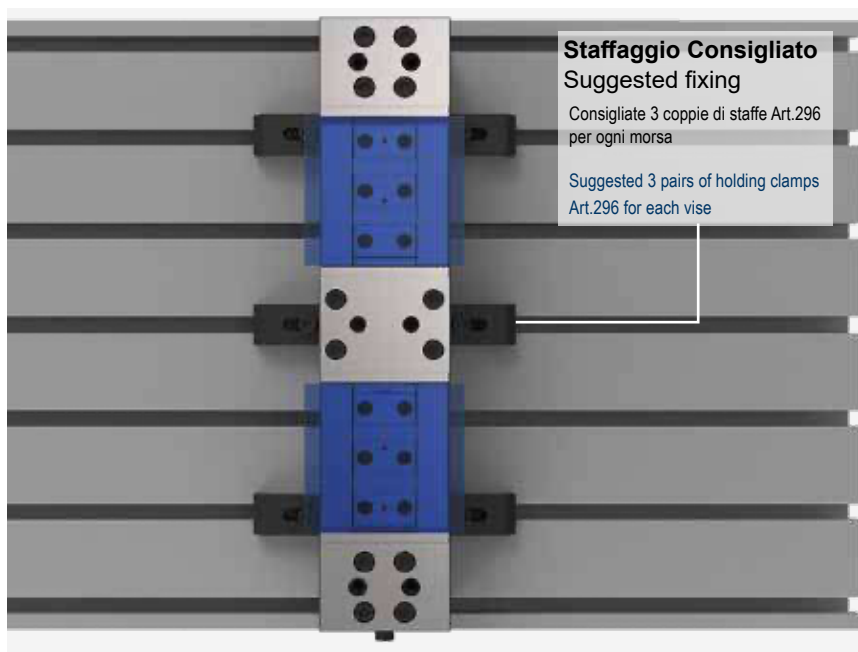
NEW
2024

FMS

Coppia staffe di fissaggio Art.296, complete di vite e dado a "T"
Pair of vise holding clamps Art.296 complete of screw and "T" nuts

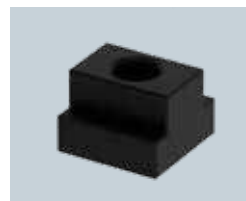
Esempio d'ordine per morsa tipo 3 su macchina con cave a T da 18mm: Art.296 T.3 X=18mm
Oppure con codice: 2.29.6300 X=18mm

 Order example for Type 3 vise on machine with 18mm T-slots: Art.296 T.3 X=18mm

 Also with code: 2.29.6300 X=18mm

Cava a T
T Slot

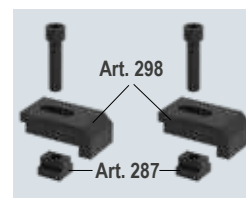
Specificare sempre la cava della vostra macchina

Always specify the machine T-slot dimension


Art.287 (Pag.4.34)
Dadi a T - T Nuts

Per fissaggio morsa alle cave a T della macchina

For vise clamping on the machine T-slots


Art.296

(Art.298 + Art.287)

Consigliate 3 coppie di staffe Art.296 per ogni morsa

Suggested 3 pairs of holding clamps Art.296 for each vise

Tipo (grandezza) Type (size)	1				1				2 - 3				4 - 5 - 6								
Art. 296	Cava a T slot X	12	14	16	18	12*	14	16	18	20	18*	20	22	16	18	20	22	18*	20	22	
	T-nuts Ref. N°	8	9	10	11	12	13	14	20	21	22	32	39	40	20	21	22	23	32	39	40
Coppia di staffe Holding clamps pair	Filetto vite Screw thread	M8				M10				M12 *				M16							
1 X M8 	A	50	50	50	50	76	76	86	86												
	B	24	24	24	24	30	30	40	40												
	C	6	6	6	6	6	6	10	10												
	ØD	8,5	11	13	17	13	17	13	17												
	E	10	10	10	10	13	13	15	15												
	ØF	14	-	-	-	-	-	-	-												
	G / G1	14	16/15	17,5/13	19/9	17/22	16/15	26/27	26/27												
	H	34	34	34	34	42	42	50	50												
	I	8	10	10	10	-	-	-	-												
	J	4	4	4	4	10	10	10	10												
T ± 0,1	15	15	15	15	20	20	26	26													
Cod.	2.29.61000 / M8				2.29.61000 / M10				2.29.61000 / M12				2.29.61000 / M16								
	2.29.63000 / M12				2.29.63000 / M12				2.29.65000 / M12				2.29.65000 / M16								

*Scelta consigliata - Suggested choice

*Scelta NON consigliata - NO Suggested choice

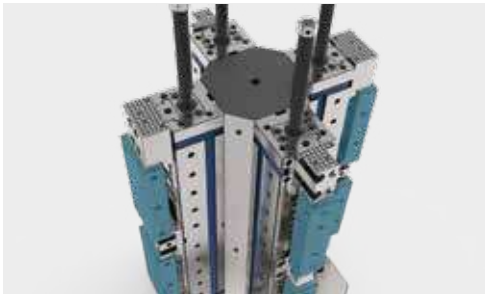
5

Soluzioni personalizzate / Customized solutions

FMS

Soluzioni personalizzate a tutti i vostri problemi di serraggio

Customized solutions for all your clamping problems



Morse FMS automatizzate in verticale

FMS vises automated vertically mounted

Gestione automatica di morse meccaniche grazie alla predisposizione per connessione con il robot. Lavorazioni del particolare su 3 lati con un unico serraggio evitando il riposizionamento ed una seconda ripresa del particolare da lavorare.

Automated machine setting thanks to the pre-fitting with robot connection. Workpiece machining on 3 sides with one clamping and so avoiding re-positioning and a second machining of the workpiece.

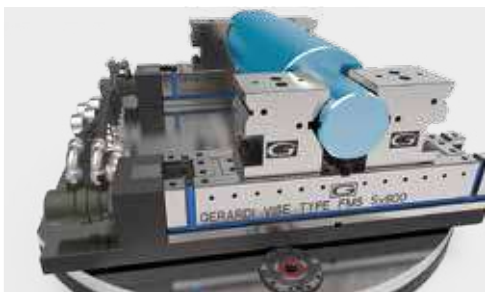


Morsa FMS con riduttore epicicloidale

FMS vise with epicyclic force reducer

Riduttore epicicloidale il quale consente di moltiplicare notevolmente la coppia sviluppata dal motore idraulico consentendo di arrivare a elevate forze di serraggio , fino a 480 kN

Epicyclic force reducer able to multiply greatly the torque generated by the hydraulic engine reaching a very high clamping force, maximum 480kN.



Serraggio automatico di grandi particolari tondi

Round workpieces automatic clamping

Sistema di serraggio meccanico con morse FMS per il serraggio di particolari tondi di grandi dimensioni controllato tramite centralina idraulica da CNC

Quick positioning and clamping with FMS vises of whole equipment on round Zero Point plate through pull-studs and centering pin.



Non solo per centri a 5 assi

Not only for 5th axis machines

Morsa autocentrante FMS su centro di lavoro verticale con ganasce personalizzate in alluminio.

Self Centering FMS vise with taylor made jaws aluminum mounted on Vertical CNC



Morse FMS in verticale con robot

FMS vises vertically mounted + robot

Assieme di morse FMS montate verticalmente su centro orizzontale gestite tramite robot anche per carico e scarico pezzi

FMS vises vertically mounted on horizontal machining center.

Both vise clamping and workpieces turnover are operated through automated robotic system.

TRE MORSE IN UNA THREE VISES IN ONE



Acquista il modulo base universale. Una soluzione aperta per il lavoro di oggi pensando a quello di domani !
Buy the base body. A Versatile solution for present and future machining !

CORPO BASE Art.855

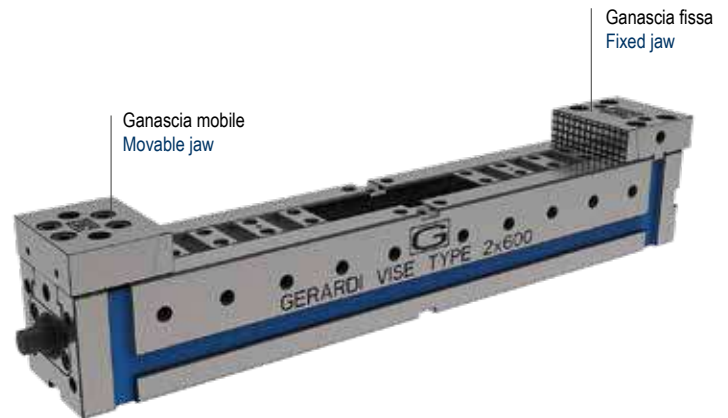
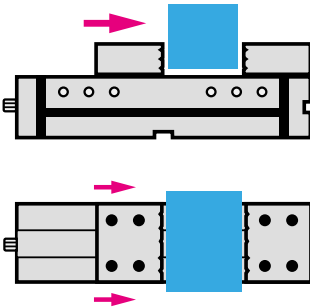
BASE BODY Art.855

Modulo base universale
CENTINAIA DI GANASCE DISPONIBILI !!

Universal vise body module
HUNDREDS OF JAWS AVAILABLE !!

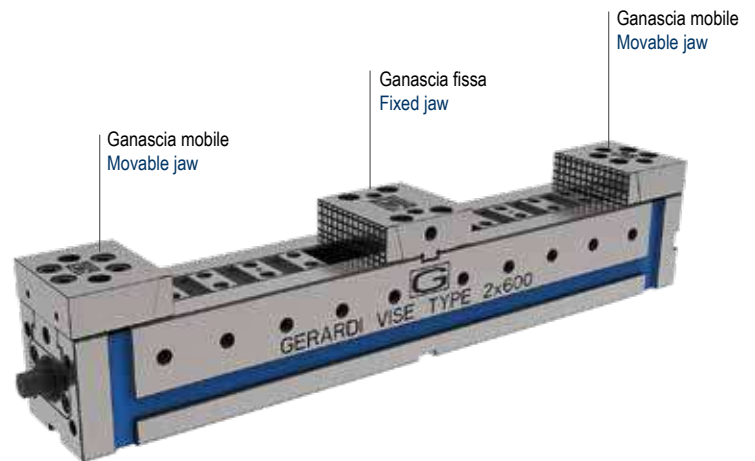
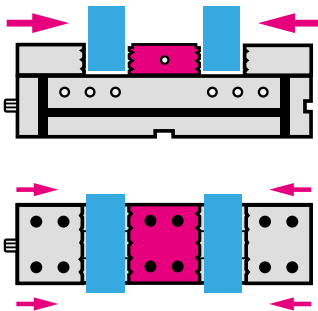
SERRAGGI SINGOLI

SINGLE CLAMPING



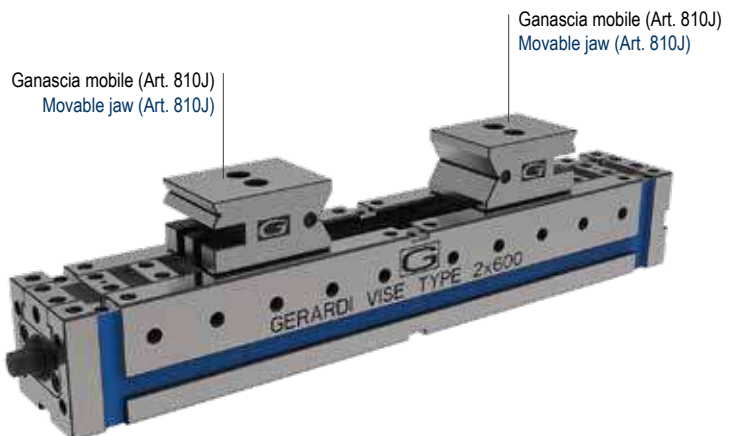
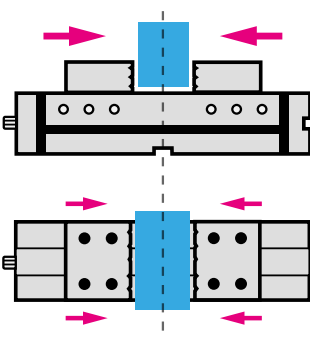
SERRAGGI DOPPI

DOUBLE CLAMPING

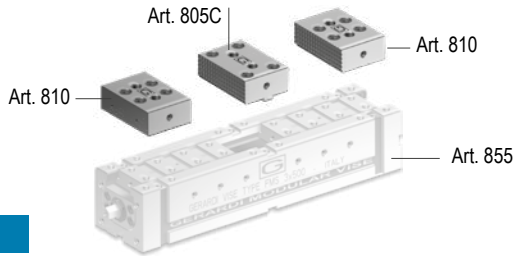


AUTOCENTRANTE

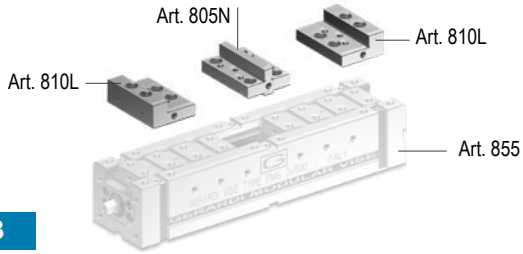
SELF-CENTERING



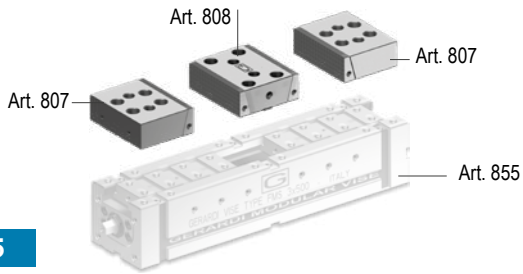
VERSIONI PER SERRAGGI DOPPI
DOUBLE CLAMPING CONFIGURATION



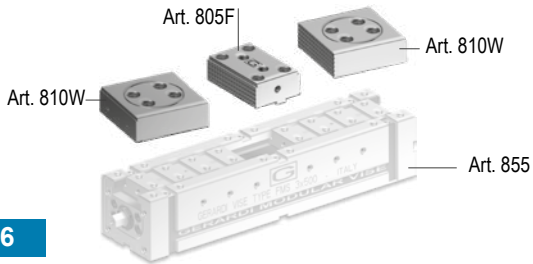
Art. 860



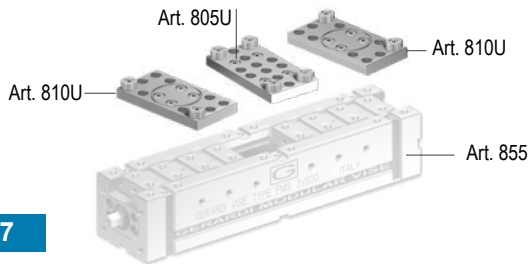
Art. 863



Art. 865



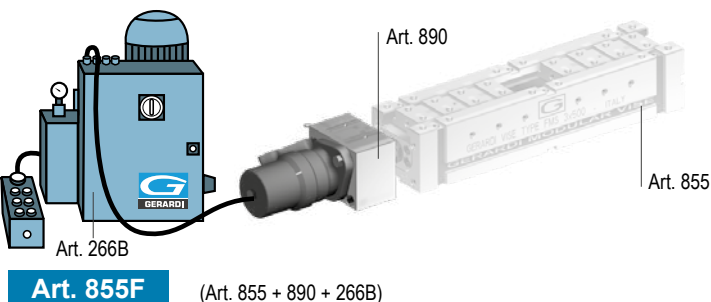
Art. 866



Art. 867

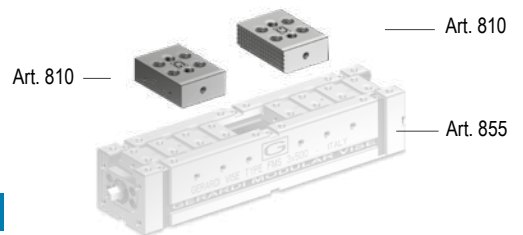


(Art. 855 + 802)
Art. 855D

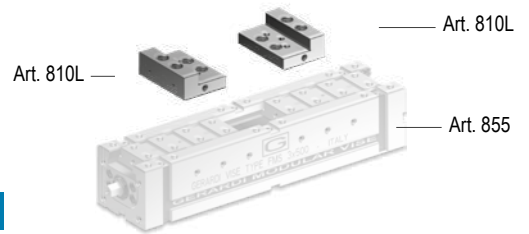


Art. 855F (Art. 855 + 890 + 266B)

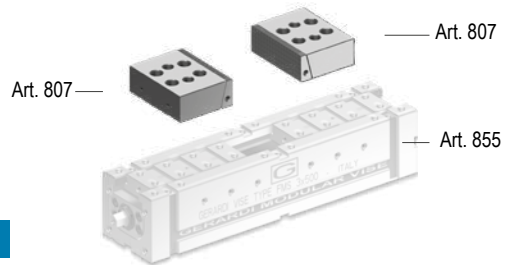
VERSIONI AUTOCENTRANTI
SELF-CENTERING TYPE



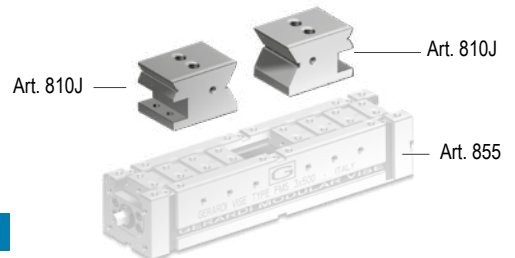
Art. 860



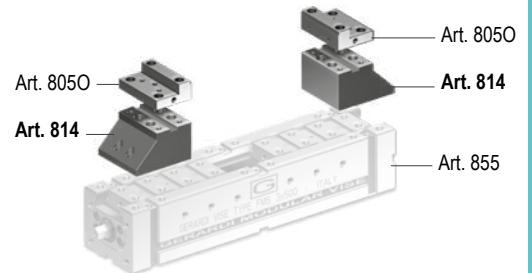
Art. 863



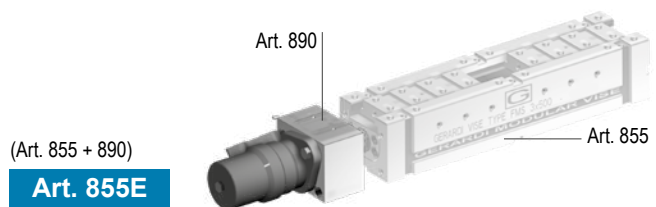
Art. 865



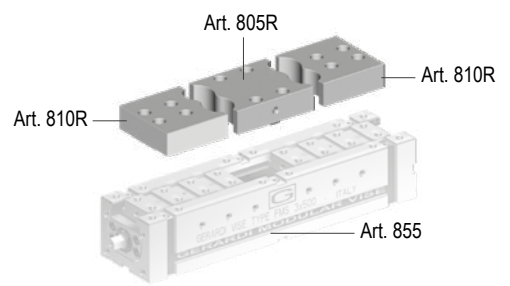
Art. 870



Art. 868

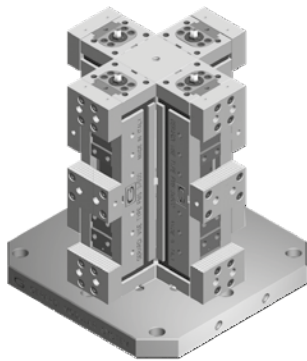


(Art. 855 + 890)
Art. 855E



CUBI DI MORSE MONTATI A CROCE O DORSO A DORSO

WISE TOWERS CROSS OR BACK TO BACK MOUNTED

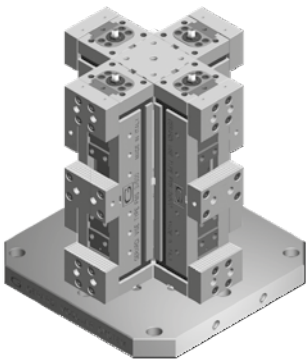


N° 4 MORSE FMS

montate a croce su piastra base (Art. 827A)
 con distanziali (Art. 835)

N° 4 FMS VISES

cross-mounted on base plate (Art. 827A)
 with spacers (Art. 835)

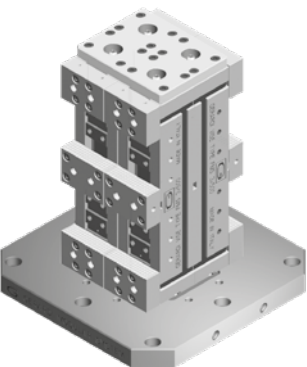


N° 4 MORSE FMS

montate a croce su piastra base (Art. 827A)
 con supporto centrale (Art.836)

N° 4 FMS VISES

cross-mounted on base plate (Art.827A)
 with center support (Art.836)

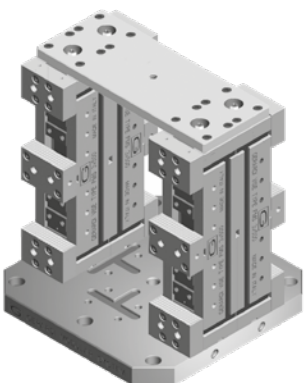


N° 4 MORSE FMS

montate dorso a dorso, fianco a fianco, su piastra base
 (Art. 827) con piastra di collegamento (Art. 832)

N° 4 FMS VISES

cross-mounted back-to-back, side by side, on base
 plate (Art. 827) with connecting plate (Art. 832)

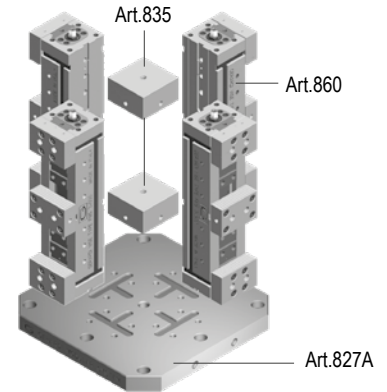


N° 4 MORSE FMS

montate dorso a dorso, su piastra base
 (Art. 827A) con piastra di collegamento (Art. 832)

N° 4 FMS VISES

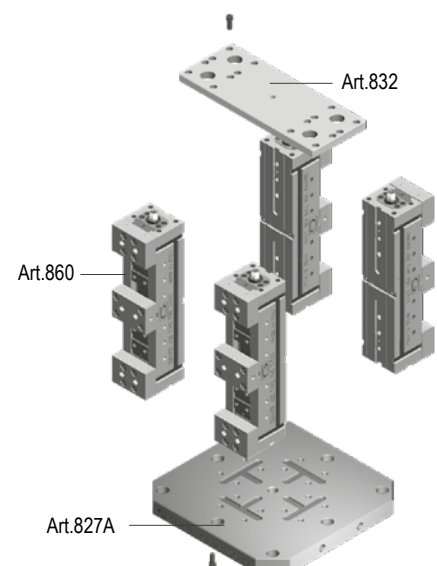
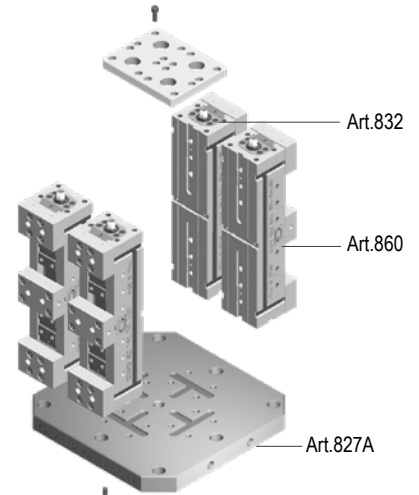
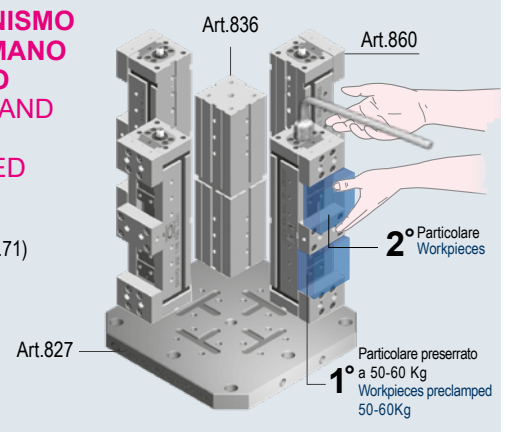
cross-mounted back-to-back, on base plate
 (Art. 827A) with connecting plate (Art. 832)



**MECCANISMO
 TERZA MANO
 INCLUSO
 THIRD HAND
 DEVICE
 INCLUDED**

Art.850P

(Pag - Page 5.71)

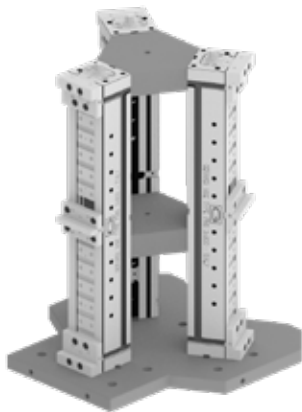


Montaggio ed allineamento morsa con distanziali, supporto centrale o piastra di collegamento (Vedi pag.5.3)
 Vise and alignment mounted with spacers, center support or connecting plate (See page 5.3)

5

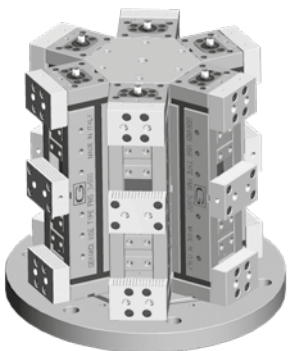
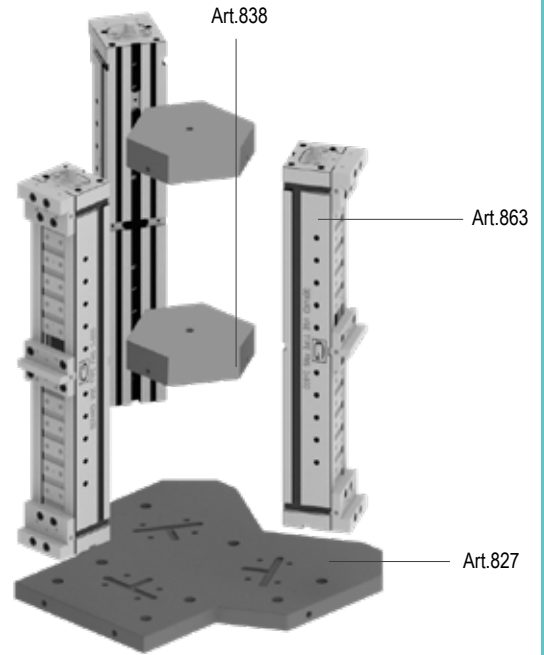
CUBI DI MORSE MONTATI VERTICALMENTE

VISE TOWERS VERTICALLY ASSEMBLED



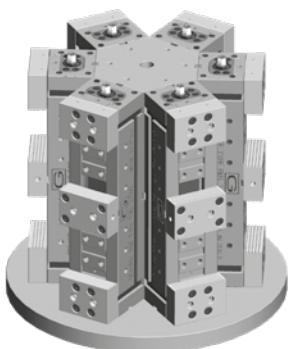
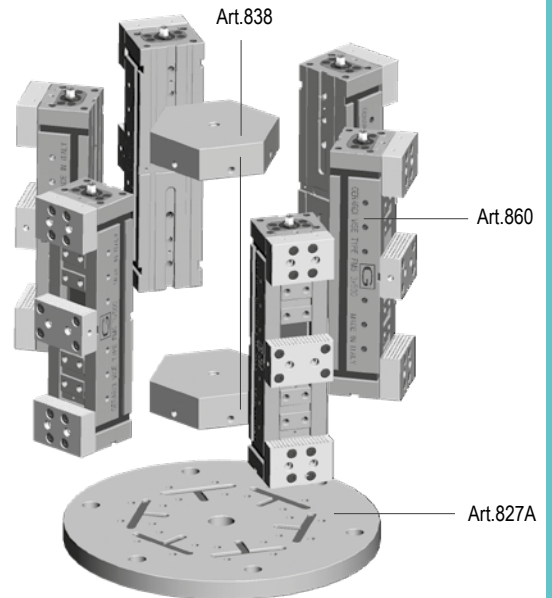
N° 3 morse FMS
 montate verticalmente su piastra base a Y (827)
 con supporto centrale (Art. 838)

N° 3 FMS vises
 vises vertically mounted on Y base plate (827A)
 with exagon center support (Art. 838)



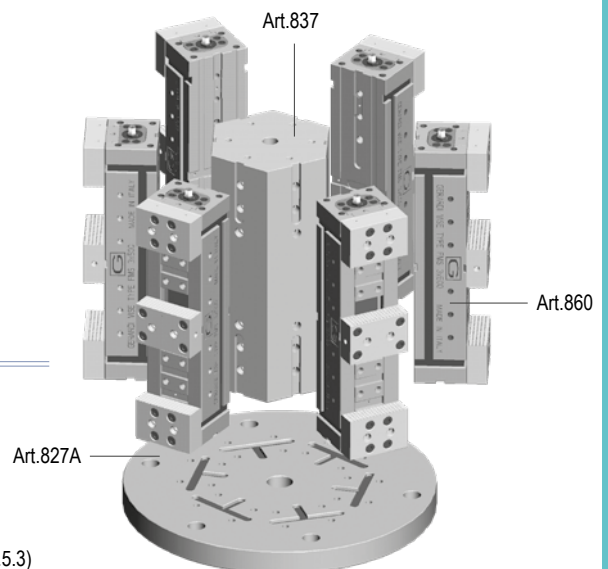
N° 6 morse FMS
 montate verticalmente su piastra base (Art. 827A)
 con distanziali esagonali (Art. 838)

N° 6 FMS vises
 vises vertically mounted on base plate (Art. 827A)
 with exagon spacer (Art. 838)



N° 6 morse FMS montate verticalmente
 su piastra base (Art. 827A)
 con supporto centrale (Art. 837)

N° 6 FMS vises vertically mounted
 on base plate (Art. 827A) with exagon
 center support (Art. 837)



Montaggio ed allineamento morse con distanziali, supporto centrale o piastra di collegamento (Vedi pag.5.3)
 Vise and alignment mounted with spacers, center support or connecting plate (See page 5.3)

VALIGETTA DI CAMPIONATURA FMS (Art.860)

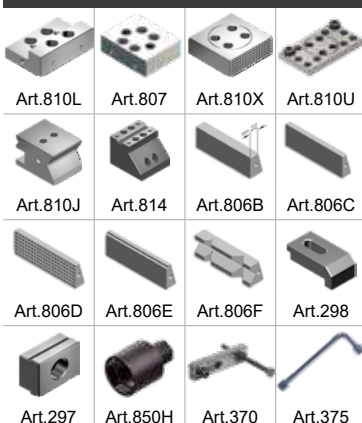
FMS SAMPLE KIT CASE (Art.860)

Art. 983

Art.860 T.1x300


Morsa / Vise Art. 860

Cod. 0.98.30000

Art. 860 - All'Interno - Inside:


SIMBOLOGIA DATI TECNICI

TECHNICAL DATA ICONS

GANASCE JAWS						POSSIBILITÀ POSSIBILITY						
	Piane Straights	A gradino With step	Oscillanti Floating	Oscillanti con inserti regolabili Floating with inserts adjustable	Prismatiche Prismatic		Serraggio singolo Single clamping	Serraggio doppio Double clamping	Predisposizione Zero Point Zero Point Ready	Cubi-morsa Vise tower	Divisore Automatico Automatic dividing head	Divisore Meccanico Mechanical dividing head
PIASTRE GANASCE JAW PLATES						PAGINE PAGES						
	Discendente Pull down	Piana Straight	Cambio rapido manuale Quick manual change	GRIP GRIP	Inserti GRIP Inserti GRIP		Lavorazioni a 5 assi 5 axis machining	Accessori & Ricambi Accessories & Spare Parts	Istruzioni corretto utilizzo Instruction for a proper use	Diagrammi forze di serraggio Clamping force diagrams	Sistema Idraulico Hydraulic System	

OPZIONI LAVORAZIONI EXTRA

OPTIONS FOR EXTRA MACHINING

Nei codici, **FMS** si riferisce agli articoli dei gruppi 5, 6 e 7.
 In codes, **FMS** refers to articles in groups 5, 6 and 7.

Lavorazione extra Extra machining	Cod.	Lavorazione extra Extra machining	Cod.
AGGIUNTA di un foro calibrato ADDITION of a calibrated hole	MAN-010-FMS	MONTAGGIO SEMPLICE SIMPLE ASSEMBLY	MAN-060-FMS
AGGIUNTA di una chiave calibrata ADDITION of a calibrated key-way	MAN-020-FMS	MONTAGGIO ed ALLINEAMENTO (Standard) (Standard) ASSEMBLY and ALIGNMENT	MAN-070-FMS
PREDISPOSIZIONE SEMPLICE SIMPLE SET UP	MAN-030-FMS	MONTAGGIO VERTICALE COMPLETE VERTICAL ASSEMBLY	MAN-080-FMS
PREDISPOSIZIONE & MONTAGGIO COMPLETO COMPLETE SET UP & MOUNTING	MAN-040-FMS	ALLINEAMENTO e CONTROLLO tramite DEA ALIGNMENT and CONTROL by DEA \ CMM	MAN-090-FMS
MONTAGGIO PARZIALE PARTIAL ASSEMBLY	MAN-050-FMS	TABULATO controllo DEA PRINTOUT DEA control	MAN-100-FMS

Vedi pagina 5.70 per esempi applicativi - See page 5.70 for application examples