

Cilindri idraulici con controflange, conformi alla normativa ISO 6020/2.

Possono essere utilizzati con pressioni fino a 210 bar e sono particolarmente adatti in caso di corse molto lunghe.

I cilindri con disponibili in molteplici configurazioni di guarnizioni, in base alle condizioni di utilizzo e alle prestazioni desiderate.

Tutti i cilindri sono testati prima della consegna in conformità alla normativa ISO 10100.

*Hydraulic cylinders with counterflanges, in compliance with the ISO 6020/2 standard.*

*They can be used with pressures up to 210 bar and they are suitable for long strokes.*

*The cylinders are available in several different sealing configurations, depending on application conditions and desired performances.*

*All the cylinders are tested in compliance with the ISO 10100 standard.*

**HD/HK**

1

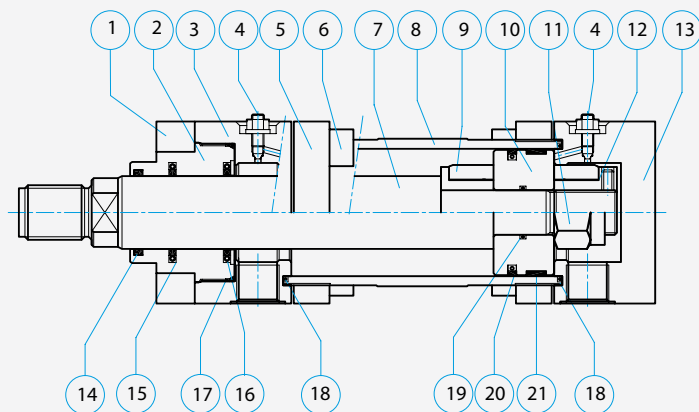


**CARATTERISTICHE TECNICHE / SPECIFICATIONS**

Cilindri a norma Standard cylinders	ISO 6020/2 - DIN 24554 con controflange / with counter flanges			
Alesaggi Bore	mm	da 50 a 100 from 50 to 100	<b>HD</b>	da 125 a 200 from 125 to 200
Pressione Pressure	bar	nominale operating	210	
Corsa massima Max stroke	mm	4000		
Tolleranza sulla corsa Stroke tolerance	0 + 2 mm Norma ISO 8131 ISO 8131 Standard			
Fluido Fluid	Olio idraulico minerale / Hydraulic mineral oil Esteri fosforici / Phosphoric esters Acqua glicole / HFC-fluid			
Viscosità Viscosity	12... 90 mm <sup>2</sup> /S			

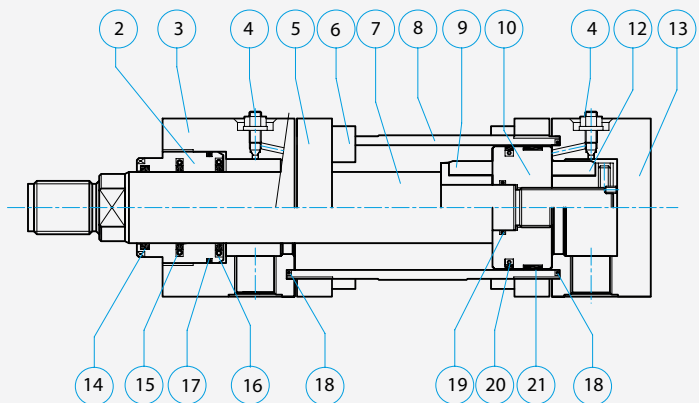
Codice guarnizione Seal code	Prestazioni Performance					Fluido Fluid		
	Alta tenuta High sealing	Basso attrito Low friction	Velocità max Max speed	Temp °C		Olio idraulico Hydraulic oil	Esteri fosforici Phosphoric esters	Acqua glicole HFC-fluid
				Min	Max			
<b>S</b>	√		0,5 m/s	- 20	+ 80	√		
<b>L</b>		√	1 m/s	- 20	+ 80	√		
<b>H</b>		√	1 m/s	- 20	+ 150	√	√	
<b>G</b>		√	0,5 m/s	- 20	+ 80			√

**HD**



1

**HK**



	<b>Componente</b>	<b>Component</b>	<b>Materiale</b>	<b>Material</b>	<b>Specifiche / Specifications</b>
1	Flangia chiusura	Closing flange	Acciaio	Steel	Brunito / Burnished
2	Boccola di guida	Guide bushing	Bronzo	Bronze	
3	Testata anteriore	Front head	Acciaio	Steel	Brunito / Burnished
4	Spillo regolazione frenatura + sfiato	Cushioning adjusting + air bleed	Acciaio	Steel	
5	Controflangia	Counter flange	Acciaio	Steel	Brunito / Burnished
6	Viti di chiusura	Closing screw	Acciaio	Steel	Brunito / Burnished
7	Stelo	Piston rod	Acciaio cromato	Chromeplated steel	Cr 25 µm ISO f7 - Ra 0.20 µm
8	Canna	Cylinder body	Acciaio	Steel	Levigato / Honed H8 - Ra 0.40 µm
9	Freno anteriore	Front cushioning	Acciaio temprato	Hardened steel	
10	Pistone	Piston	Acciaio	Steel	
11	Dado autobloccante stelo	Rod self-locking nut	Acciaio	Steel	
12	Freno posteriore	Rear cushioning	Acciaio temprato	Hardened steel	
13	Testata posteriore	Rear head	Acciaio	Steel	Brunito / Burnished

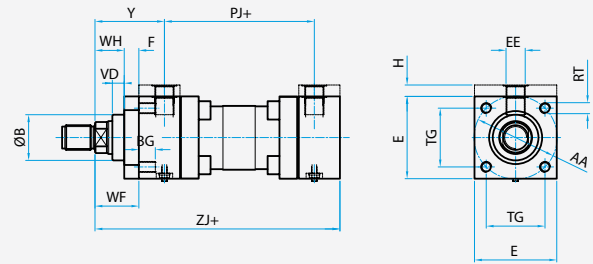
	<b>Componente</b>	<b>Component</b>	<b>Cava / Groove</b>	<b>Materiale / Material</b>			
				<b>S</b>	<b>L</b>	<b>H</b>	<b>G</b>
14	Raschiatore stelo	Rod wiper		NBR + PTFE	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
15	Guarnizione stelo	Rod seal	ISO 7425/2	NBR + PTFE	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
16	Guarnizione stelo	Rod seal	ISO 7425/2	PU	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
17	Guarnizione testata-boccola	Head-bushing sealing		NBR + PTFE	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
18	Guarnizione canna	Tube seal		NBR	NBR	Viton®	NBR
19	Guarnizione pistone	Piston seal		NBR	NBR	Viton®	NBR
20	Guarnizione pistone	Piston seal	ISO 7425/1	NBR + PU	NBR + PTFE	Viton® + PTFE	NBR + PTFE CG
21	Guida pistone	Piston guide		Resina Resin	Resina Resin	Resina Resin	Resina Resin

FORI FILETTATI FRONTALI

X

ISO MX5

FRONT THREADED HOLES



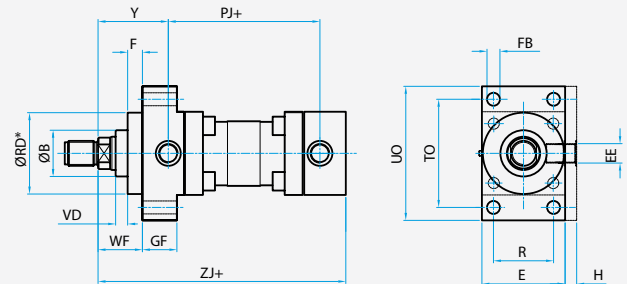
1

FLANGIA ANTERIORE

A

ISO ME5

FRONT FLANGE



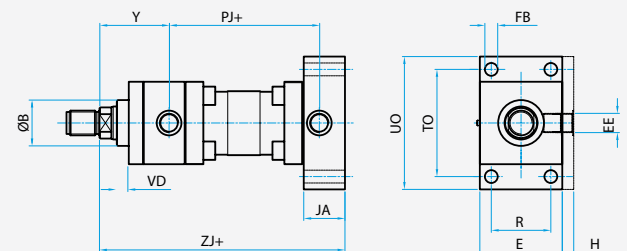
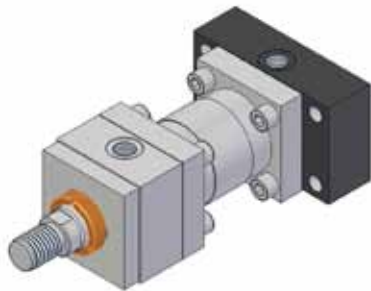
\*Vedi nota pag. 21  
 \*See note at page 21

FLANGIA POSTERIORE

B

ISO ME6

REAR FLANGE

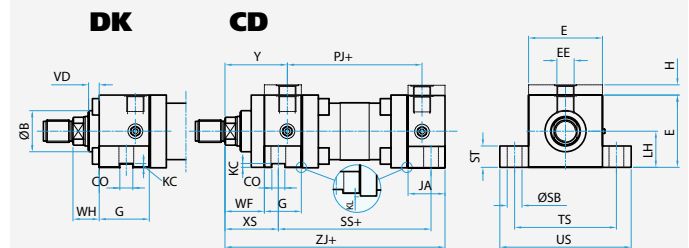
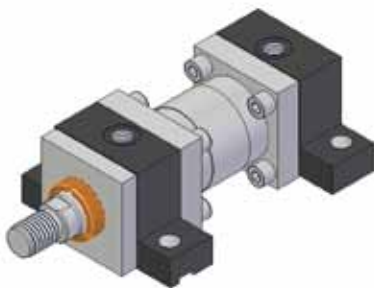


PIEDINI

E

ISO MS2

FEET



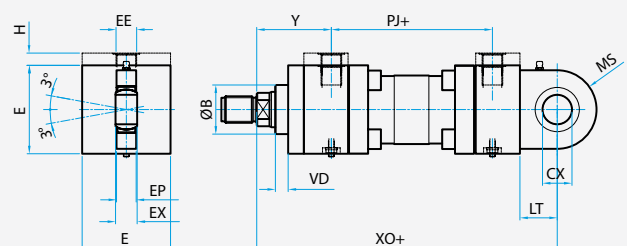
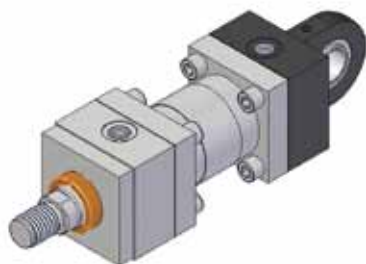
La controflange sporge rispetto alla base del piedino (vedi quota KL)  
 The counterflange stick out from of the feet base (see KL dimension).

CERNIERA CON SNODO

D

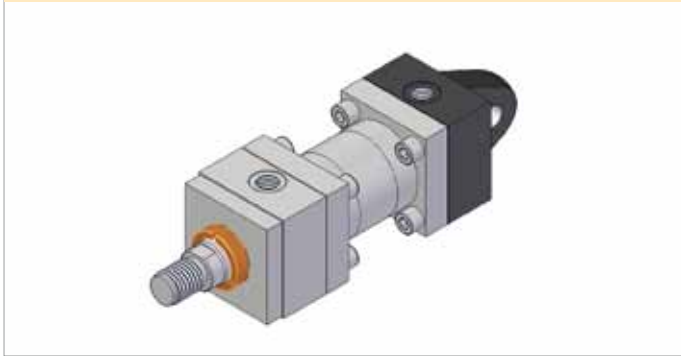
ISO MP5

BALL JOINTED EYE



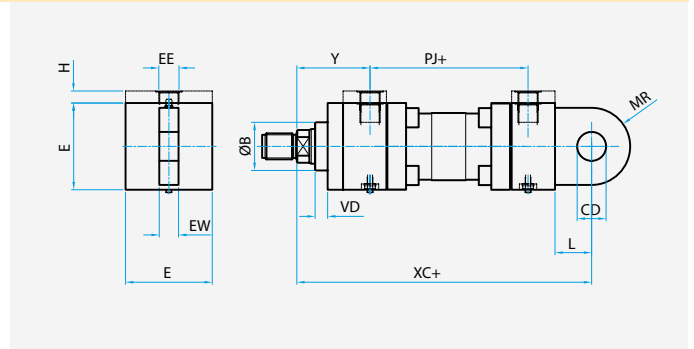
CERNIERA MASCHIO

**C**



ISO MP3

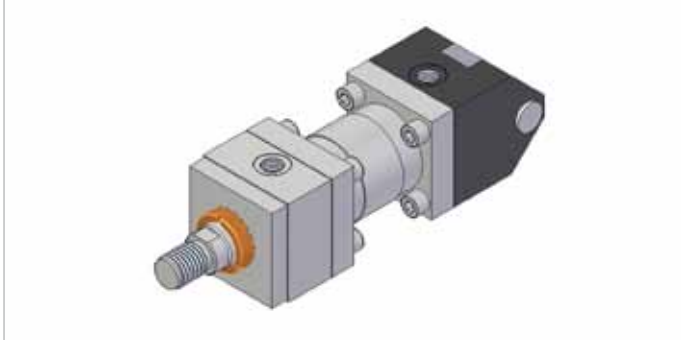
MALE CLEVIS



1

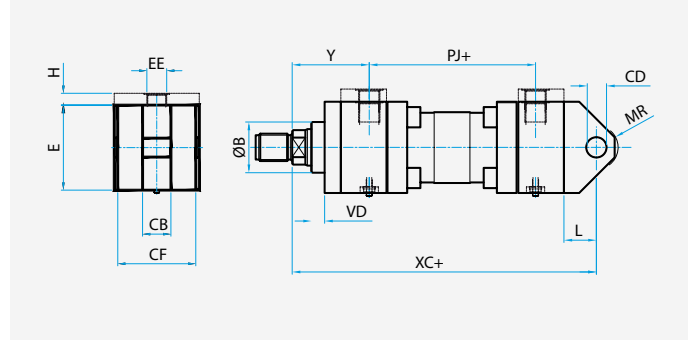
CERNIERA FEMMINA

**M**



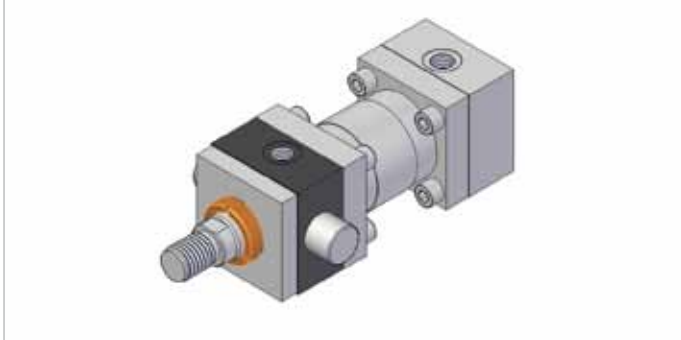
ISO MP1

FEMALE CLEVIS



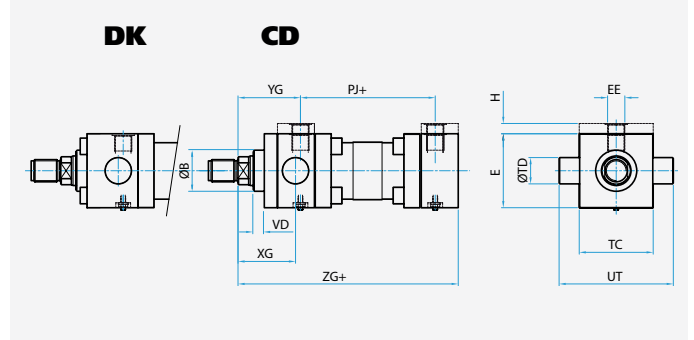
PERNI ANTERIORI

**G**



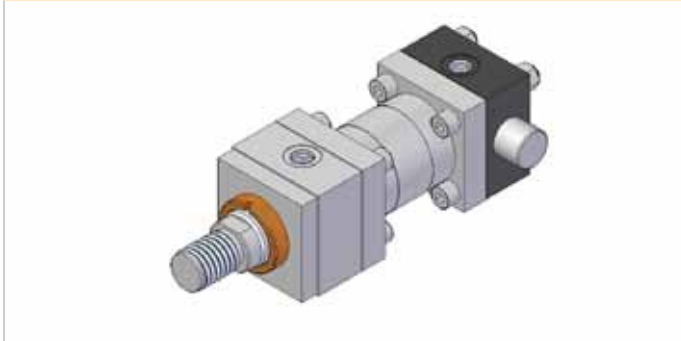
ISO MT1

FRONT TRUNNIONS



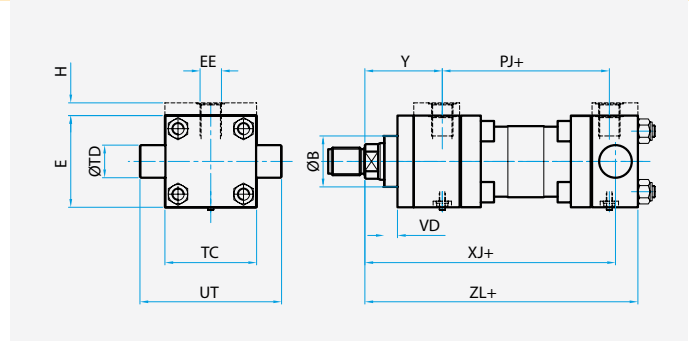
PERNI POSTERIORI

**L**



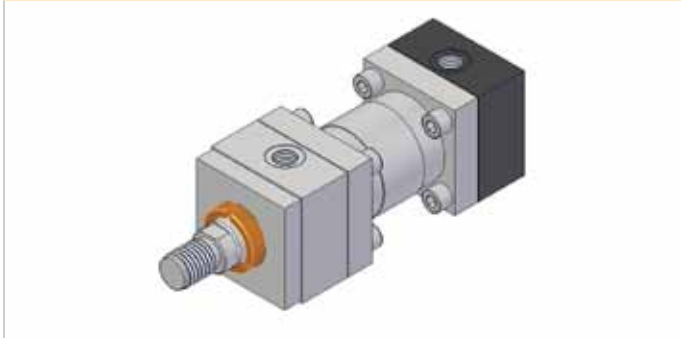
ISO MT2

REAR TRUNNIONS



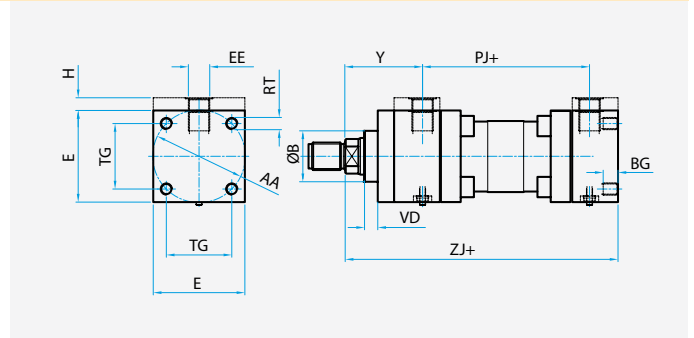
FORI FILETTATI POSTERIORI

**T**



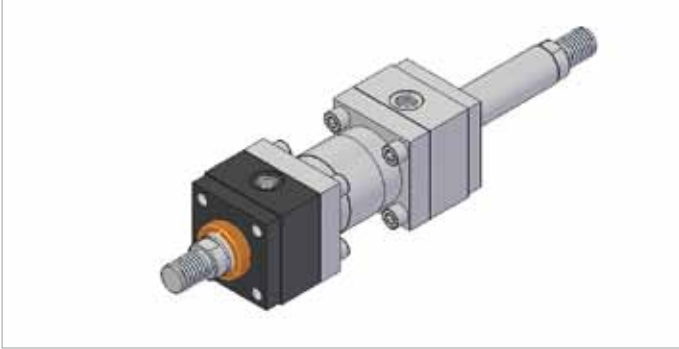
ISO MX6

REAR THREADED HOLES

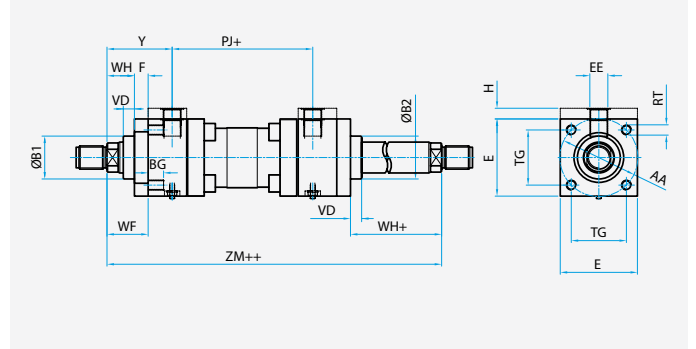


**FORI FILETTATI FRONTALI**

**X**

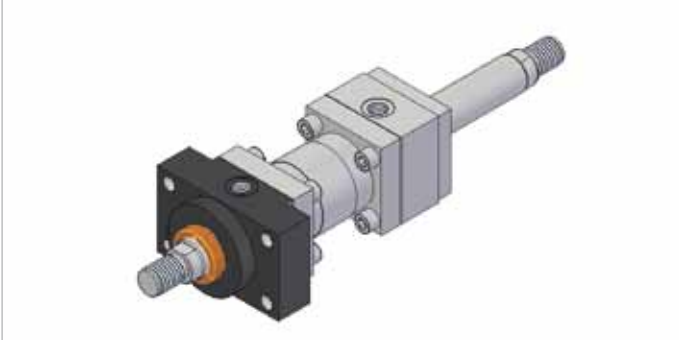


**FRONT THREADED HOLES**

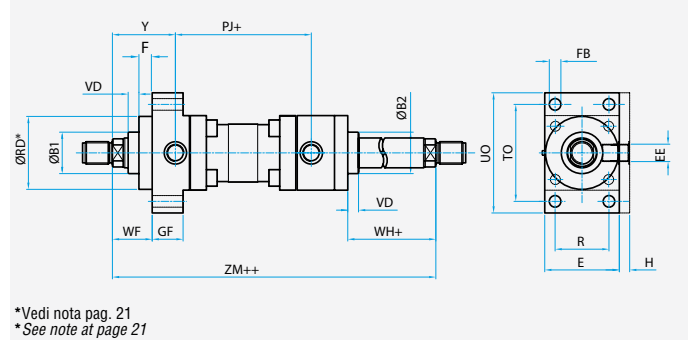


**FLANGIA ANTERIORE**

**A**



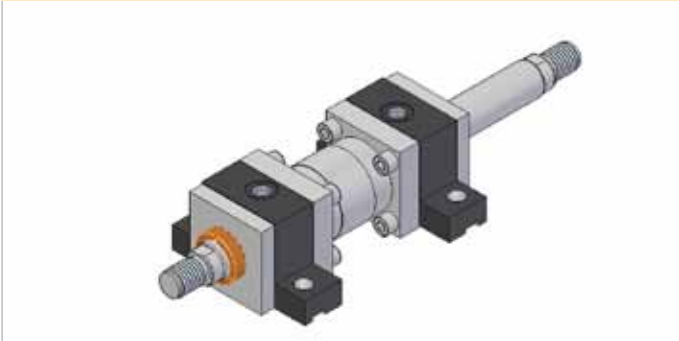
**FRONT FLANGE**



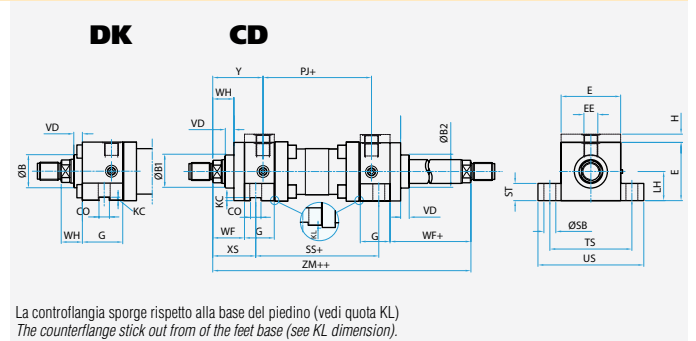
\*Vedi nota pag. 21  
 \*See note at page 21

**PIEDINI**

**E**



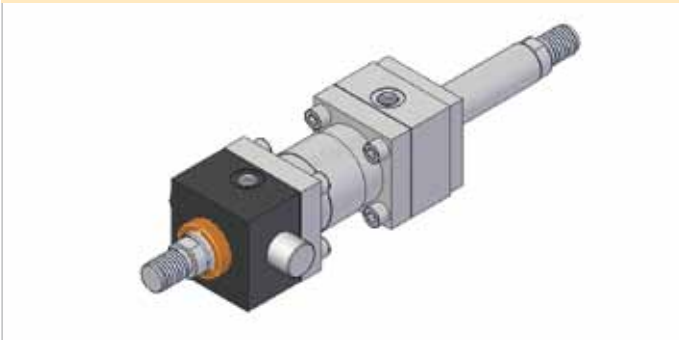
**FEET**



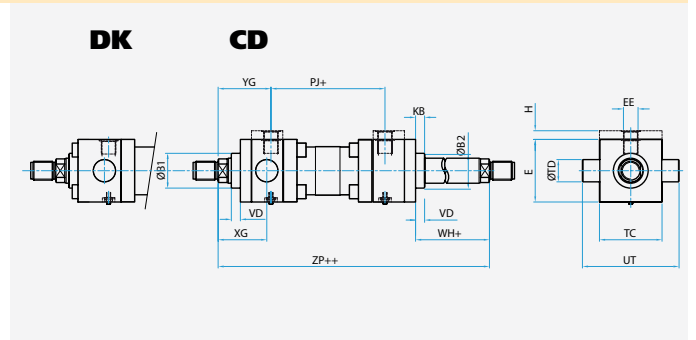
La controflange sporge rispetto alla base del piedino (vedi quota KL)  
 The counterflange sticks out from of the feet base (see KL dimension).

**PERNI ANTERIORI**

**G**



**FRONT TRUNNIONS**



Alesaggio Bore	50			63			80			100			125			160			200		
	22	28	36	28	36	45	36	45	56	45	56	70	56	70	90	70	90	110	90	110	140
<b>B f9</b>	34	42	50	42	50	60	50	60	72	60	72	88	72	88	108	88	108	133	108	133	163
<b>AA</b>	74			91			117			137			178			219			269		
<b>BD</b>	38			48			58			68			88			108			125		
<b>BG</b>	18			18			24			24			30			35			40		
<b>CB</b>	30			30			40			50			64(*)			80(*)			80		
<b>CD h8</b>	20			20			28			36			45			56			70		
<b>CF</b>	74			90			110			130			164			200			240		
<b>CO H8</b>	12			16			16			16			20			30			40		
<b>CX</b>	25 -0.012			30 -0.012			40 -0.012			50 -0.012			60 -0.015			80 -0.015			100 -0.020		
<b>DD</b>	M12x1.25			M12x1.25			M16x1.5			M16x1.5			M22x1.5			M27x2			M30x2		
<b>E max</b>	75			90			115			130			165			200			245		
<b>EE</b>	G 1/2"			G 1/2"			G 3/4"			G 3/4"			G 1"			G 1"			G 1 1/4"		
<b>EP</b>	18			20			24			30			38			47			58		
<b>EW h14</b>	30			30			40			50			60			70			80		
<b>EX</b>	20			22			28			35			44			55			70		
<b>F</b>	16			16			20			22			22			25			25		
<b>FB H13</b>	14			14			18			18			22			26			33		
<b>G</b>	45			45			52			55			87			95			117		
<b>GF</b>	38			38			45			45			58			58			76		
<b>H</b>	—			—			—			—			—			—			—		
<b>JA</b>	45			45			52			55			65			70			92		
<b>KC</b>	4.5			4.5			5			6			6			8			8		
<b>KL</b>	1			2			2			6			3			1			5		
<b>L</b>	32			32			39			54			57			63			82		
<b>LH h10</b>	37			44			57			63			82			101			122		
<b>LT</b>	31			38			48			58			72			92			116		
<b>MR max</b>	29			29			34			50			53			59			78		
<b>MS max</b>	33			40			50			62			80			100			120		
<b>PJ</b>	62+ (*)			64+ (*)			77+ (*)			78+ (*)			117+			130+			165+		
<b>R</b>	52			65			83			97			126			155			190		
<b>RD f8</b>	74			88 (**)			105 (**)			125 (**)			150 (**)			170 (**)			210 (**)		
<b>RT</b>	M12			M12			M16			M16			M22			M27			M30		
<b>SB H13</b>	14			18			18			26			26			33			39		
<b>SS</b>	92+			86+			105+			102+			131+			130+			172+		
<b>ST</b>	19			26			26			32			32			38			44		
<b>TC</b>	76			89			114			127			165			203			241		
<b>TD f8</b>	25			32			40			50			63			80			100		
<b>TG</b>	52.3			64.3			82.7			96.9			125.9			154.9			190.2		
<b>TO</b>	105			117			149			162			208			253			300		
<b>TS</b>	102			124			149			172			210			260			311		
<b>UO</b>	130			145			180			200			250			300			360		
<b>US</b>	127			161			186			216			254			318			381		
<b>UT</b>	116			139			178			207			265			329			401		
<b>UW</b>	90			100			130			140			180			215			300		
<b>VD</b>	9			13			9			10			10			7			7		
<b>WF</b>	41			48			51			57			57			57			57		
<b>WH</b>	25			32			31			35			35			32			32		
<b>XC</b>	191+			200+			229+			257+			289+			308+			381+		
<b>XG</b>	64			70			76			71			75			75			85		
<b>XJ</b>	136+ (*)			146+ (*)			165+ (*)			177+ (*)			214+ (*)			227+ (*)			271+ (*)		
<b>XO</b>	190+			206+			238+			261+			304+			337+			415+		
<b>XS</b>	54			65			68			79			79			86			92		
<b>Y</b>	69 (*)			76 (*)			82 (*)			91 (*)			86			86			98		
<b>YG</b>	69 (*)			76 (*)			82 (*)			79 (*)			86			86			98		
<b>ZG</b>	159+			168+			190+			191+			232+			245+			299+		
<b>ZJ</b>	159+			168+			190+			203+			232+			245+			299+		
<b>ZL</b>	159+			168+			190+			203+			254+			270+			324+		
<b>ZM</b>	200++			216++			241++			260++			289++			302++			356++		
<b>ZP</b>	200++			216++			241++			248++			289++			302++			356++		

(\*) Non conforme a ISO 6020/2  
Does not comply with ISO 6020/2 standard

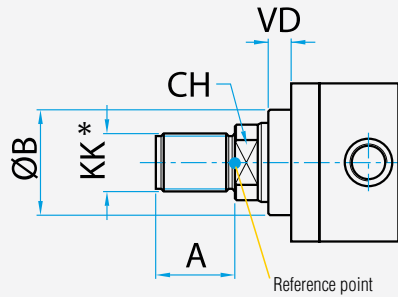
(\*\*) Quota RD unificata, con riferimento allo stelo maggiore rispetto a quelli previsti dalla norma ISO 6020/2. RD speciale su richiesta.  
RD dimension is unified, with reference to the higher diameter between the ones defined by ISO 6020/2 standard.  
Special RD dimension on request.

+ = sommare la corsa  
add the stroke

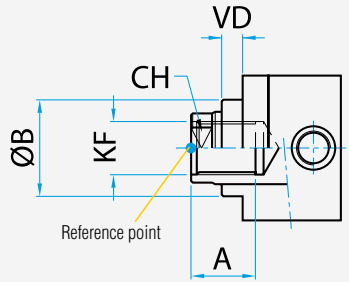
++ = sommare il doppio della corsa  
add the double of the stroke

**ISO 6020/2**

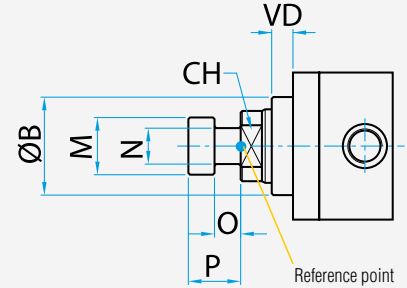
**STANDARD**



**SF**



**ST**



Stelo / Rod	22	28	36	45	56	70	90	110	140
<b>A</b>	22	28	36	45	56	63	85	95	112
<b>B f9</b>	34	42	50	60	72	88	108	133	163
<b>CH</b>	19	22	30	36	46	60	75	95	120
<b>KK</b>	M16x1.5	M20x1.5	M27x2	M33x2	M42x2	M48x2	M64x3	M80x3	M100x3
<b>KF</b>	M16x1.5	M20x1.5	M27x2	M33x2	M42x2	M48x2	M64x3	M80x3	M100x3
<b>M</b>	18	22	28	35	45	56	70	106	136
<b>N</b>	11	14	18	22	28	35	45	65	70
<b>O</b>	8	10	13	16	20	25	35	35	45
<b>P</b>	16	20	25	32	40	50	70	70	90

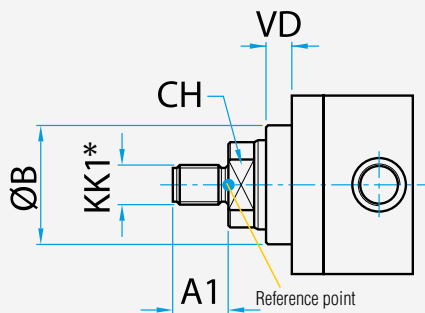
\* Per l'estremità stelo standard maschio, il terminale stelo con snodo sferico più adatto è la versione CS (vedi pagina 40).

\* For the standard male rod end, the most suitable rod end eye with spherical bearing is the CS version (see page 40).

**DIN 24554**

**SL**

**DIN 24554**



Alesaggio Bore	50			63				80			100			125			160			200		
	22	28	36	28	36	45	36	45	56	45	56	70	56	70	90	70	90	110	90	110	140	
<b>A1</b>	22			28				36			45			56			63			85		
<b>B f9</b>	34	42	50	42	50	60	50	60	72	60	72	88	72	88	108	88	108	133	108	133	163	
<b>CH</b>	19	22	30	22	30	36	30	36	46	36	46	60	46	60	75	60	75	95	75	95	120	
<b>KK1</b>	M16x1.5			M20x1.5				M27x2			M33x2			M42x2			M48x2			M64x3		
<b>VD</b>	9			13				9			10			10			7			7		

\* Per l'estremità stelo maschio SL, il terminale stelo con snodo sferico più adatto è la versione TS (vedi pagina 40).

\* For the SL male rod end, the most suitable rod end eye with spherical bearing is the TS version (see page 40).

CODICE ORDINAZIONE / ORDERING CODE

I campi in cui sono stati inseriti i valori di esempio sono obbligatori. The fields containing sample values are compulsory.

**HD** **50 / 28 /** **A** **500** **S**

Serie / Type Alesaggio / Bore

Standard	50... 100	<b>HD</b>
	125... 200	<b>HK</b>





Esecuzione speciale / Special version (1) **SX**

Opzioni/Esecuzioni speciali (vedi pag. 24/25)  
Special options/versions (see page 24/25)

Sfiato aria / Air bleed

	Nessuno sfiato / No air bleed
<b>SV</b>	Anteriore / Front only
<b>SZ</b>	Posteriore / Rear only
<b>SK</b>	Anteriore + posteriore / Front and rear

Estremità stelo / Rod end (vedi pag. 22 / see page 22)

	<b>SF</b>	Filetto maschio / Male thread (standard)
	<b>SF</b>	Filetto femmina / Female thread
	<b>ST</b>	Testa a martello / Floating joint
	<b>SL</b>	Filetto maschio DIN 24554 / Male thread DIN 24554

Guarnizioni / Seals (vedi pag. 16 / see page 16)

<b>S</b>	Standard (olio minerale) / Standard (mineral oil)
<b>L</b>	Basso attrito / Low friction
<b>H</b>	Viton® (alte temperature, esteri fosforici) / Viton® (high temperature, phosphoric esters)
<b>G</b>	Acqua glicole / HFC-fluid

<b>Distanziale Spacer</b>	Consigliato per corse: Recommended for stroke:
	da 0 a 1000 / from 0 to 1000
<b>SJ 50</b>	da 1000 a 1500 / from 1000 to 1500
<b>SJ 100</b>	da 1500 a 2000 / from 1500 to 2000
<b>SJ 150</b>	da 2000 a 3000 / from 2000 to 3000
<b>SJ 200</b>	oltre 3000 / above 3000

Corsa / Stroke

Indicare in mm / Specify in mm

Frenatura regolabile / Adjustable cushioning (2)

	Senza frenatura / Not cushioned
	<b>V</b> Anteriore / Front only
	<b>Z</b> Posteriore / Rear only
	<b>K</b> Anteriore + posteriore / Front and rear

(1) Indicare **SX** ogni qual volta il cilindro ha opzioni o esecuzioni speciali. Indicare poi nell'apposita casella, a fine codice, il corrispondente codice (vedi pag. 24) seguito da eventuale n. di disegno. Indicate **SX** when the cylinder has special options or versions. Then, indicate in the appropriate box, after the ordering code, the corresponding code (see page 24) followed by the drawing's number, if any.

(2) Per alesaggio 25, la frenatura standard non è regolabile. La frenatura regolabile è disponibile su richiesta, contattando il nostro ufficio tecnico. For bore 25, the cushioning is not adjustable. Adjustable cushioning is available under request, contacting our technical department.

	Alesaggio / Bore	Stelo / Rod
HD	50	22
		28
		36
	63	28
		36
		45
80	36	
	45	
	56	
100	45	
	56	
	70	
HK	125	56
		70
		90
	160	70
		90
		110
200	90	
	110	
	140	

Eventuale 2° stelo / Possible 2<sup>nd</sup> rod

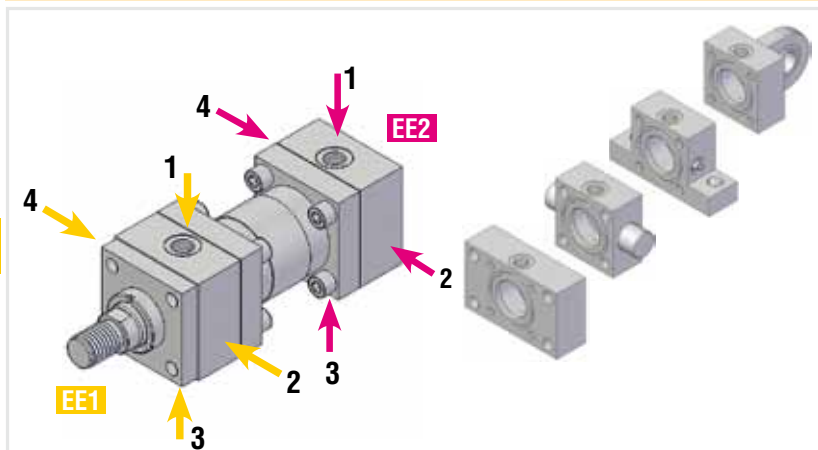
Vedi pagg. 18-20 / See pages 18-20	ISO 6020/2	DIN24554	Ancoraggio Mounting
Fori filettati frontali / Front tapped holes	MX5		<b>X</b>
Flangia anteriore / Front flange	ME5	ME5	<b>A</b>
Flangia posteriore / Rear flange	ME6	ME6	<b>B</b>
Piedini / Feet	MS2	MS2	<b>E</b>
Cerniera con snodo / Ball jointed eye	MP5	MP5	<b>D</b>
Cerniera maschio / Male clevis	MP3		<b>C</b>
Cerniera femmina / Female clevis	MP1		<b>M</b>
Perni anteriori / Front trunnions	MT1		<b>G</b>
Perni posteriori / Rear trunnions	MT2		<b>L</b>
Fori filettati posteriori / Rear threaded holes	MX6		<b>T</b>





ORIENTAMENTO CONNESSIONI

PORT LOCATION



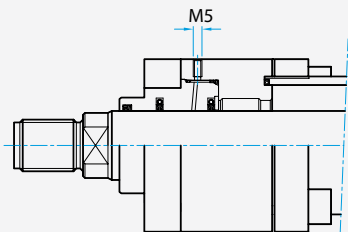
Alesaggio Bore	Lato Side	ISO 1179-1 (GAS)		SAE 3000	
		Standard	Maggiorate Oversize	Standard	Maggiorate Oversize
50	Anter. / Front	G 1/2"	-	-	-
	Poster. / Rear	G 1/2"	G 3/4"	-	-
63	Anter. / Front	G 1/2"	-	-	-
	Poster. / Rear	G 1/2"	G 3/4"	-	-
80	Anter. / Front	G 3/4"	-	3/4"	1"
	Poster. / Rear	G 3/4"	G 1"	3/4"	1"
100	Anter. / Front	G 3/4"	-	3/4"	1"
	Poster. / Rear	G 3/4"	G 1"	3/4"	1"
125	Anter. / Front	G 1"	G 1 1/4"	1"	1 1/4"
	Poster. / Rear	G 1"	G 1 1/4"	1"	1 1/4"
160	Anter. / Front	G 1"	G 1 1/4"	1"	1 1/4"
	Poster. / Rear	G 1"	G 1 1/4"	1"	1 1/4"
200	Anter. / Front	G 1 1/4"	G 1 1/2"	1 1/4"	1 1/2"
	Poster. / Rear	G 1 1/4"	G 1 1/2"	1 1/4"	1 1/2"

La configurazione standard prevede la porta dell'olio in posizione 1 ed eventuali grani di regolazione della frenatura o sfiati sul lato 3, ad eccezione dell'ancoraggio E in cui sono in posizione 2.  
The standard configuration has the oil ports in position 1 and the cushioning adjustment or air bleed in position 3, except for the mounting type E, where they are in position 2.

OPZIONI STELO / ROD END

<b>RRX</b>	Stelo INOX cromato / Stainless steel chromeplated rod
<b>RRB</b>	Stelo bonificato cromato / Hardened and tempered chromeplated rod
<b>RRK</b>	Stelo Nikrom / Nikrom rod
<b>RRH</b>	Stelo temprato cromato / Hardened chromeplated rod

SD DRENAGGIO BOCCOLA / BUSHING DRAIN



Il drenaggio della boccolla impedisce l'accumulo di fluido dietro al raschiatore. Una connessione situata tra il raschiatore e la tenuta a labbro consente il rinvio al serbatoio del fluido. Il drenaggio è normalmente posizionato sul lato opposto alla bocca olio.

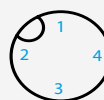
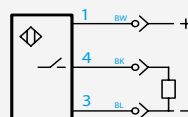
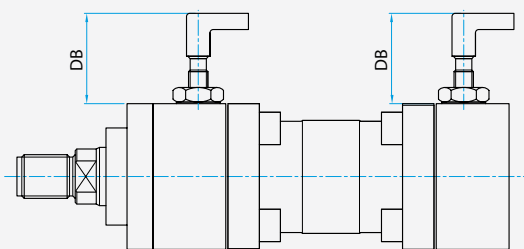
The bushing drain avoids the accumulation of liquid behind the scraper. A connection between the scraper and the lip seal allows to send the fluid back to the tank. The drain is usually installed on the opposite side of the oil port.

BL

Per applicazioni speciali in cui è richiesta alta tenuta e alta scorrevolezza (ad esempio, applicazioni con circuiti chiusi), è possibile utilizzare una versione speciale del pistone appositamente modificata. Consultare il nostro ufficio tecnico per verificare l'applicabilità di questa soluzione.

For special application, where high sealing and low friction is required (i.e., closed circuit application), a special piston is available. Contact our technical department in order to verify the feasibility of this solution.

SENSORI DI PROSSIMITÀ / PROXIMITY SWITCHES



Alesaggio Bore (mm)	DB max (mm)
40	85
50	80
63	80
80	70
100	60
125	65
160	55
200	50

<b>SPV</b>	Sensore anteriore / Front sensor
<b>SPZ</b>	Sensore posteriore / Rear sensor
<b>SPK</b>	Sensore anteriore e posteriore / Front and rear sensor

Per caratteristiche e modalità di funzionamento del sensore fare riferimento alla documentazione a pagina 14.  
For proximity switches features, see documentation at page 14.

Le piastre incorporate consentono il montaggio di valvole di controllo a quattro vie con superfici di montaggio ISO 4401.

In questo modo, i volumi d'olio tra il cilindro e la valvola vengono ridotti, ottenendo una migliore precisione di controllo.

Sono montate direttamente sulla testata posteriore del cilindro tramite quattro viti di fissaggio e un nipplo.

Sono disponibili anche in versioni con nipplo conico filettato, impiegabile anche per gli alesaggi più piccoli o in altre situazioni particolari: per informazioni, contattare il nostro ufficio tecnico.

*The incorporated plate allows mounting a four port control valve with an ISO 4410 mounting surface.*

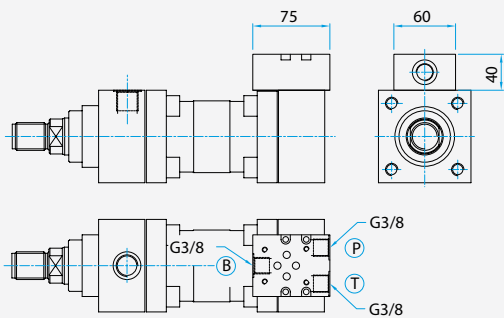
*In this way, the oil volumes between the cylinder and the valve are reduced, obtaining a better control precision.*

*They are mounted directly on the cylinder's rear head though four screws and a nipple.*

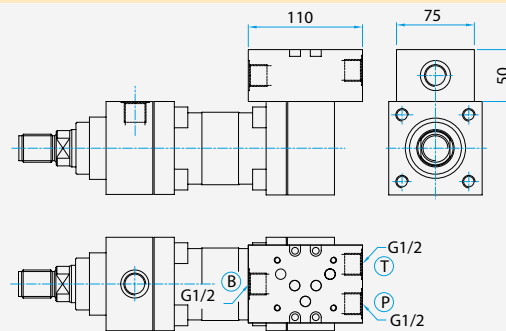
*They are available also in a version with conic threaded nipple, usable also for small bores or in other particular situations: for information, contact our technical department.*

**PIASTRE INCORPORATE: FISSAGGIO CON QUATTRO VITI / INCORPORATED PLATES: MOUNTED WITH FOUR SCREWS**

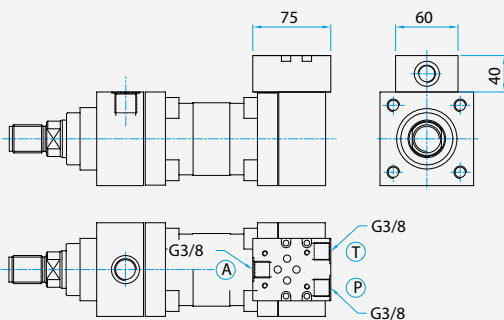
**BV3-A**



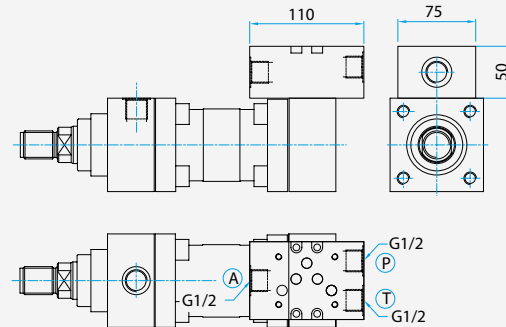
**BV5-A**



**BV3-B**



**BV5-B**



**CODICE ORDINAZIONE PIASTRE INCORPORATE / INCORPORATED PLATES ORDERING CODE**

I campi in cui sono stati inseriti i valori di esempio sono obbligatori.  
The fields containing sample values are compulsory.

**BV 3 - A**

Dimensione porte olio Oil port dimension	Alesaggi Bore range			Collegamenti Link configuration
ISO 4001-03 NG6	50 - 125	<b>3</b>	<b>A</b>	Porta A ▶ lato posteriore Port A ▶ rear side
ISO 4001-05 NG10	50 - 200	<b>5</b>		Porta B ▶ lato posteriore Port B ▶ rear side