

CAT ALOG GO 2026

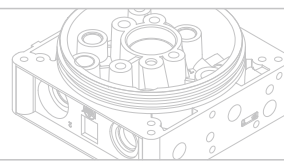
PRECISION
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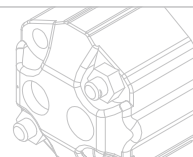


GazZero

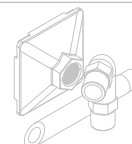
1 Collettori centrali
central manifolds



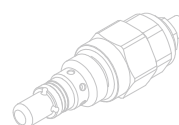
2 Pompe
pumps



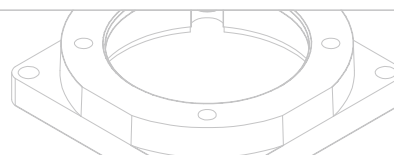
3 Aspirazione e scarico
suction and return



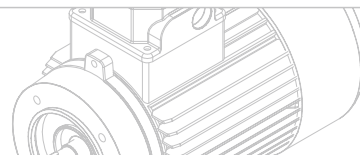
4 Valvole e tappi
valves and plugs



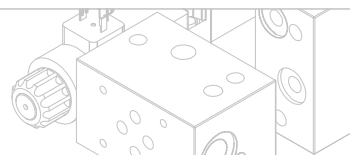
5 Elementi di connessione
junction elements



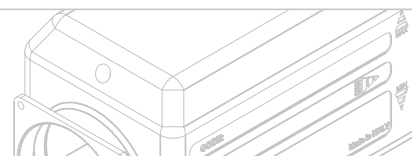
6 Motori elettrici
electric motors



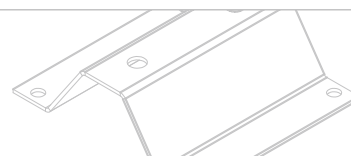
7 Elementi modulari
modular elements



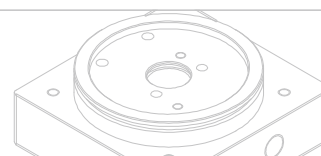
8 Serbatoi
oil tanks



9 Accessori
accessories



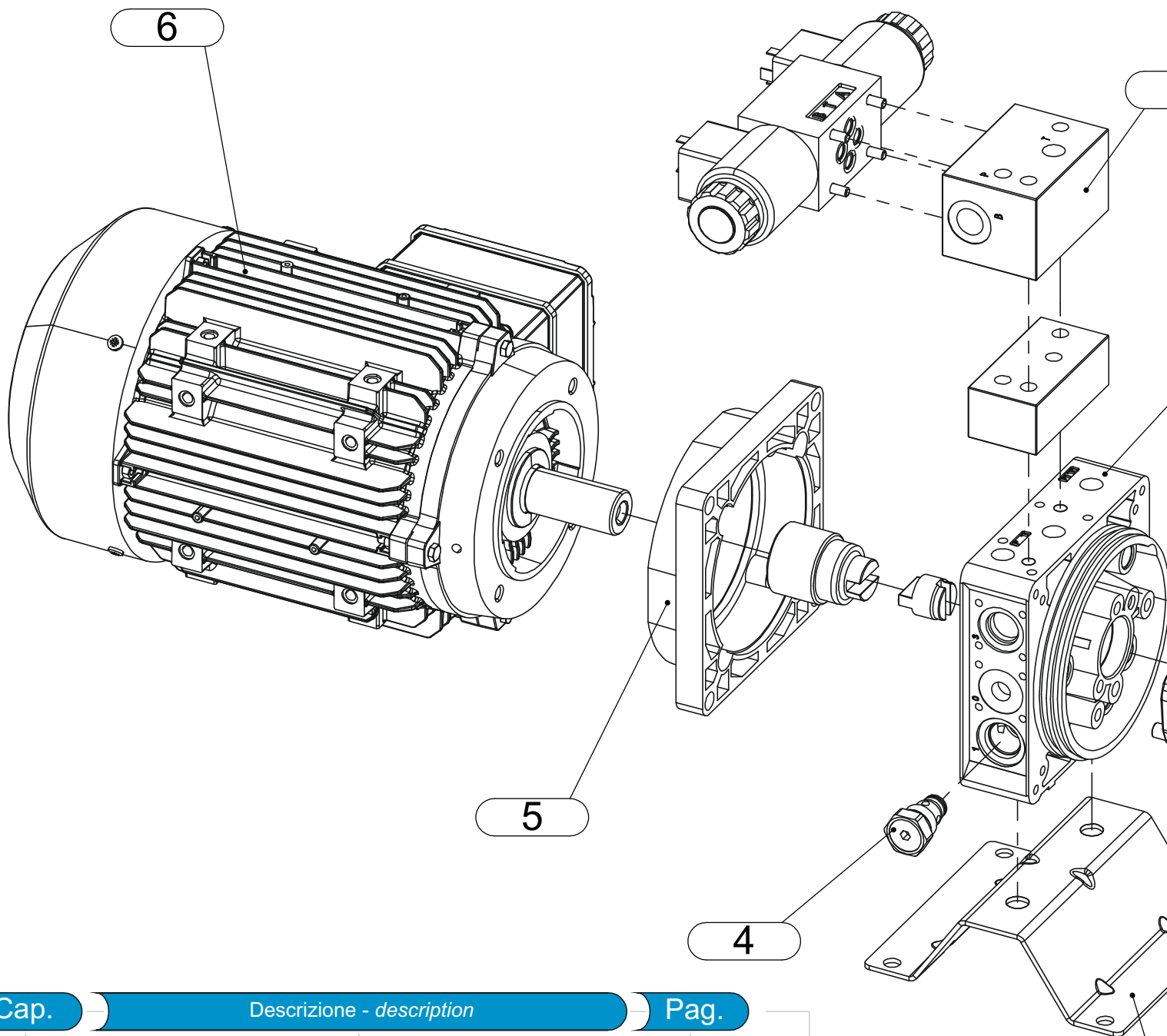
10 Gruppo 05
05 group



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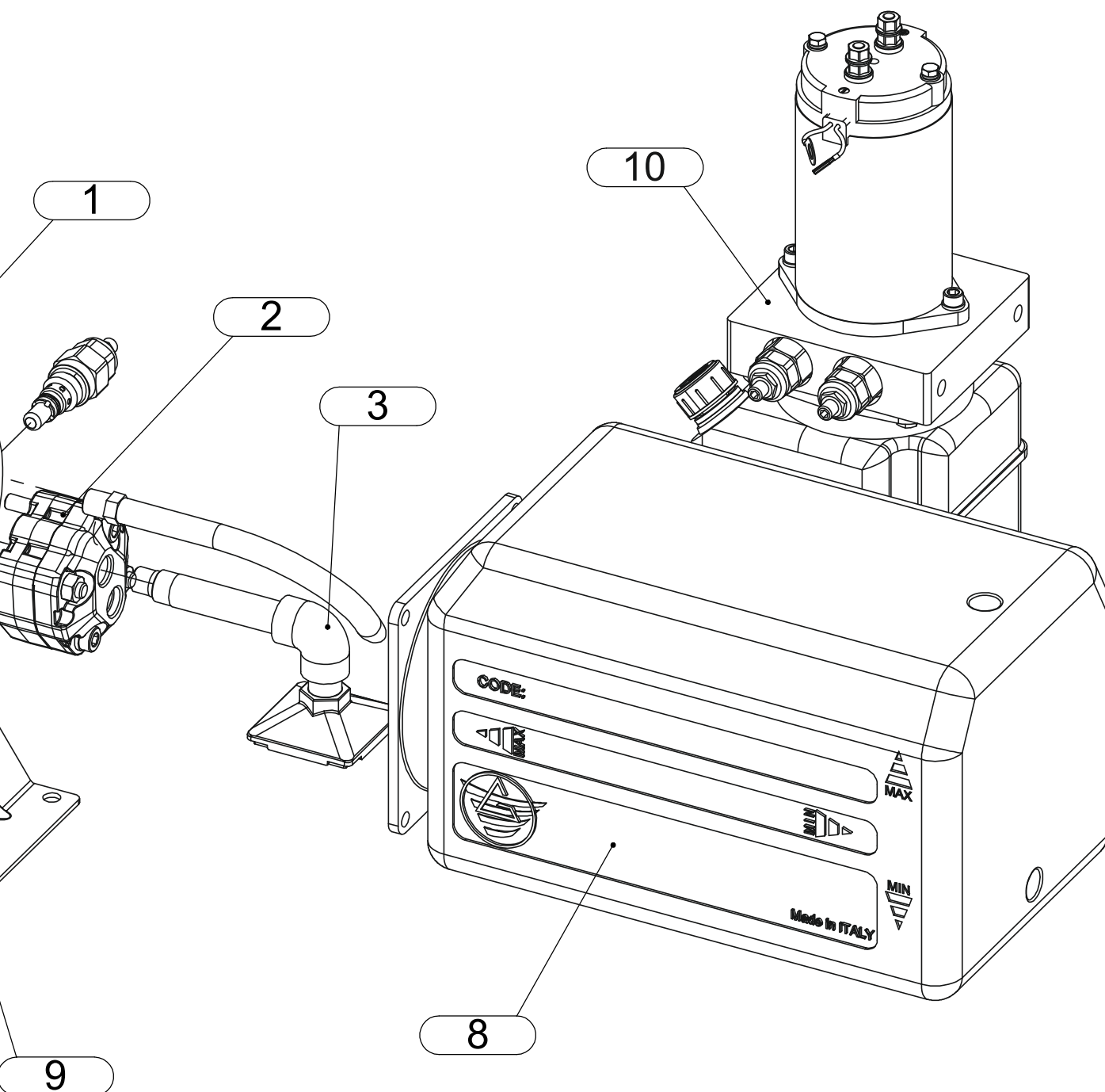
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7



Limiti di funzionamento - working constraints

Temperatura olio - oil temperature

temperatura ambiente -15 +40 °C (con picchi di 50°C)

environment temperature -15 +40 °C (with peaks of 50°C)

Viscosità - viscosity

min 15 mm²/s

max 80 mm²/s

massima viscosità all'avviamento - max viscosity at start up 250 mm²/s

Pressione - pressure

Pressione massima in funzione della pompa e della valvola di massima montate

maximum pressure depending on pump and relief valve used

Istruzioni di montaggio

mounting instructions

Valvole ed elettrovalvole devono essere ingrassate in corrispondenza di tutti gli o-ring montati su di esse e chiuse con la coppia di serraggio indicata sulla scheda tecnica corrispondente.

Valves and solenoid valves must be greased where o-ring are mounted on them and closed with the torque indicated on the data sheet.

Le valvole di massima (con filettatura M20x1,5) sono corredate di rondella in rame che deve essere alloggiata sul codolo della valvola prima della chiusura della stessa.

Relief valves (with M20x1,5 thread) are provided with a copper washer that must be fitted on the shank of the valve before the close of it.

Tutti i collari dei serbatoi devono essere ingrassati prima dell'accoppiamento con i corpi centrali e controllare che siano lisci, esenti da bave o da scorie di saldatura.

All the tank's collars must be greased before coupling with the center manifolds and check that they are smooth and free of burrs or welding slag.

I giunti motore ed i giunti pompa devono essere ingrassati nelle zone di accoppiamento.

Motor couplings and pump couplings must be greased in the coupling zones.

Il montaggio della pompa deve avvenire previo ingrassaggio del codolo anteriore che accoppierà con il centraggio del corpo. La chiusura delle due viti deve essere effettuata con una coppia di serraggio indicata sulla scheda tecnica corrispondente.

The pump mounting must be placed after greasing the front shank that will coupling with the centering of the manifold. The closure of the screws must be made with the torque indicated on the data sheet.

Installazione

installation

Non ci sono limiti nella posizione di montaggio, evitare qualsiasi installazione che potrebbe compromettere l'aspirazione della pompa.

Quando la centrale deve essere montata su strutture soggette a vibrazione, sarebbe meglio posizionare dei blocchi anti-vibranti nei punti di fissaggio.

There are no limits in mounting positions, just avoid any installation that could compromise pump's suction.

When power module is to be fitted on structures liable to vibrations, it is better to place vibration-clamping blocks in fixing points.

Pulizia e manutenzione

cleaning and maintenance

La sostituzione dell'olio viene effettuata la prima volta dopo 100 ore di lavoro, e poi ogni 3000 ore di lavoro (in ogni caso almeno una volta l'anno).

You have to substitute the oil after 100 hours of duty the first time, and then every 3000 hours of duty (in any case at least once a year).

Cablaggio e avviamento

wiring and starting

All'avviamento assicurarsi della corretta rotazione della pompa. E' rigorosamente vietato invertire la direzione di rotazione. Effettuare l'avvio previo svitamento totale della valvola di massima pressione.

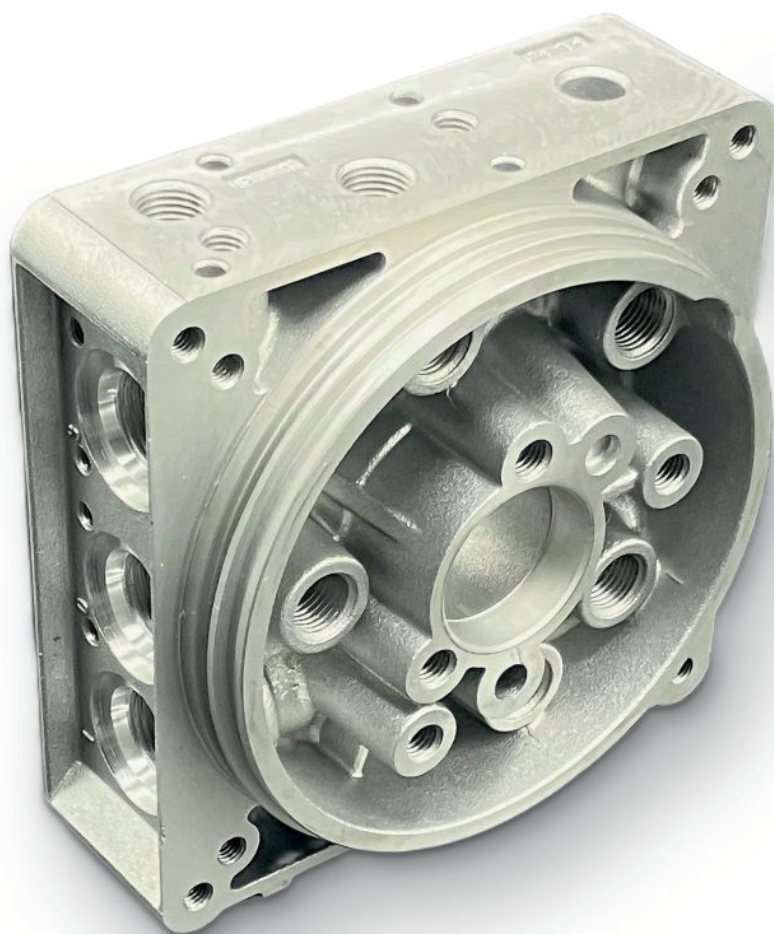
The starting must assure proper pump direction of rotation. It is strictly forbidden to invert the direction of rotation. The start-up must be done after the total unscrewing of the relief valve.

CAPITOLO 01

COLLETTORI CENTRALI

central manifolds

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CAPITOLO 01

Collettori centrali

central manifolds

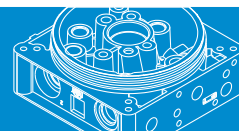
Il collettore centrale è il cuore della minicentralina: unisce motore, pompa e serbatoio e ospita le valvole a cartuccia che governano il circuito. Disponibile a 2, 3 e 5 cavità e in versione reversibile.

The central manifold is the heart of the power pack: it joins motor, pump and tank and houses the cartridge valves that control the circuit. Available with 2, 3 and 5 cavities and in a reversible version.

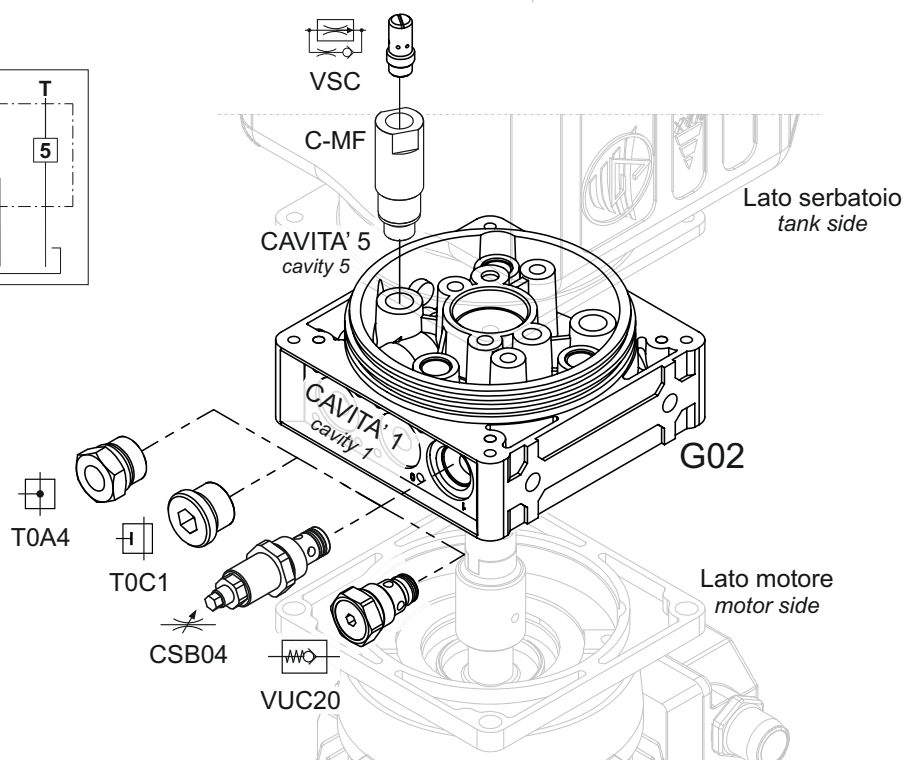
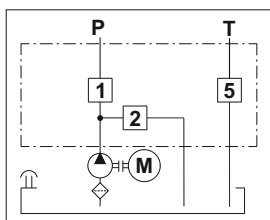
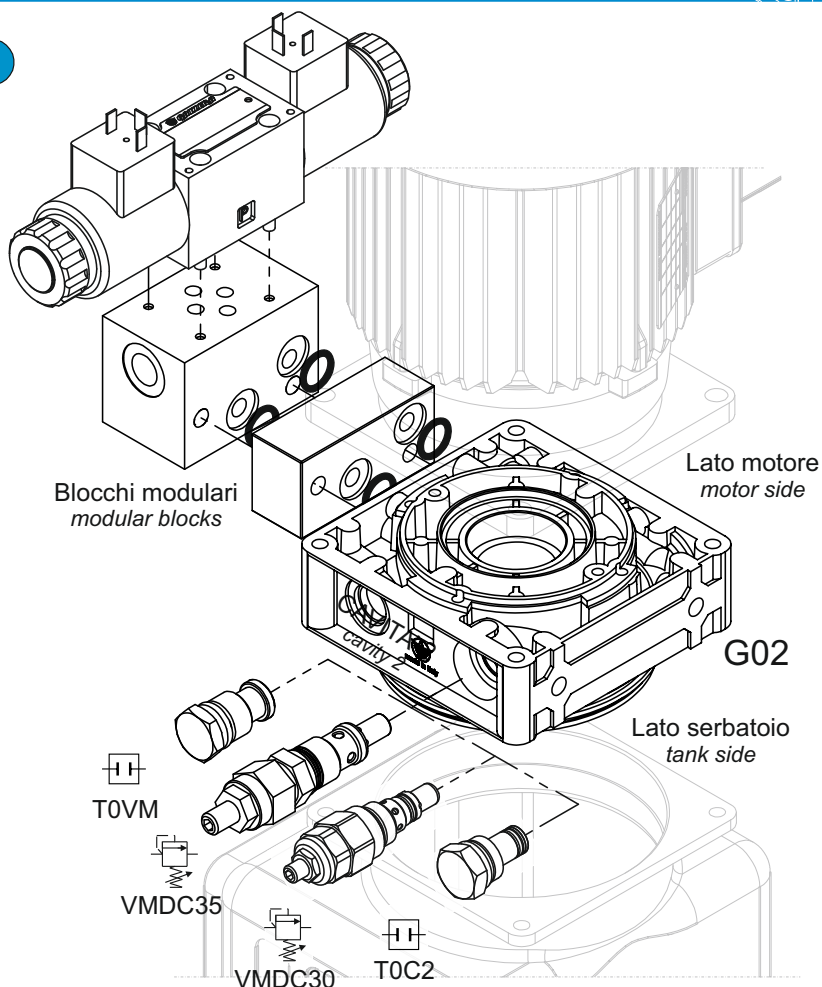
IN QUESTO CAPITOLO *in this chapter*

G02	Collettore 2 cavità <i>central manifold 2 cavities</i>	4
G12	Collettore 3 cavità <i>central manifold 3 cavities</i>	6
G32	Collettore 5 cavità <i>central manifold 5 cavities</i>	8
G34	Collettore 5 cavità, cavità 3 SAE08-4 <i>central manifold 5 cavities, cavity 3 SAE08-4</i>	10
G40	Collettore reversibile <i>reversible central manifold</i>	12
G43	Collettore reversibile UR <i>UR reversible central manifold</i>	14

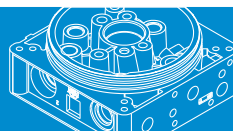
Collettori centrali central manifolds



G02

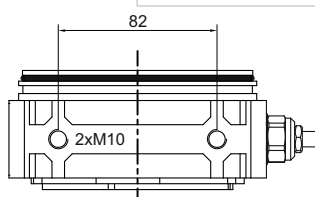
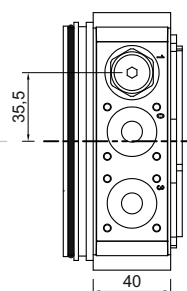
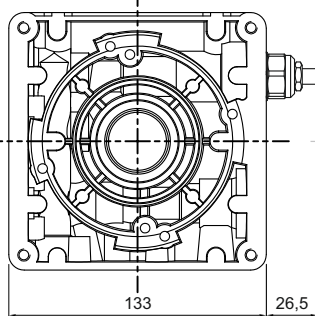
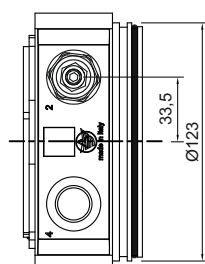
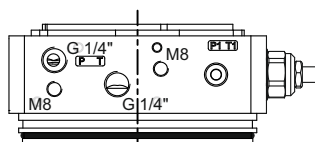
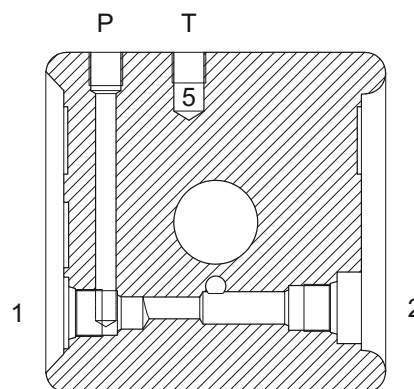
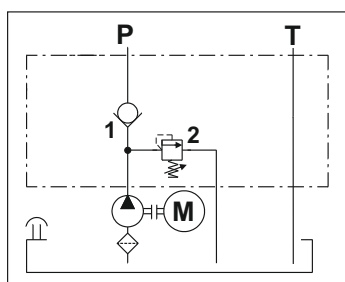


Collettori centrali central manifolds



01

G02



Codice ordinazione - ordering code

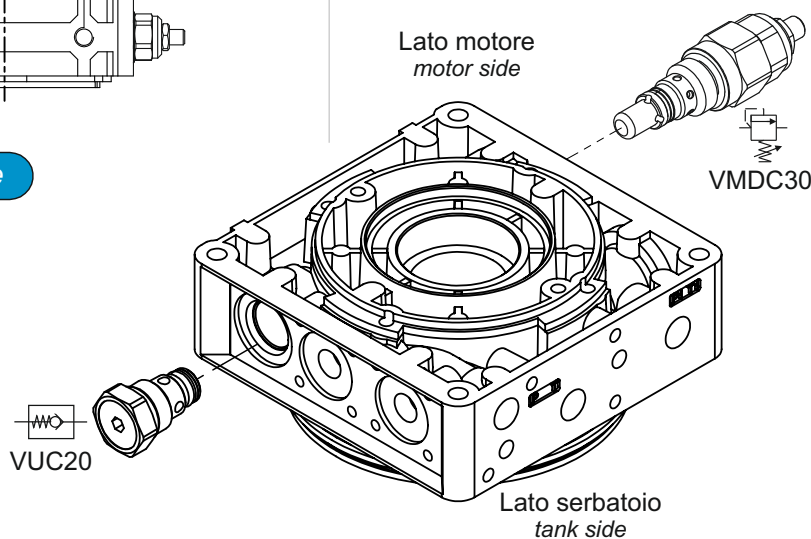
G 0 2
1 2

1 Tipo - type

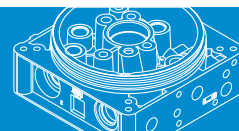
G0 = Collettore 2 cavità
central manifold 2 cavities

2 Serie - series

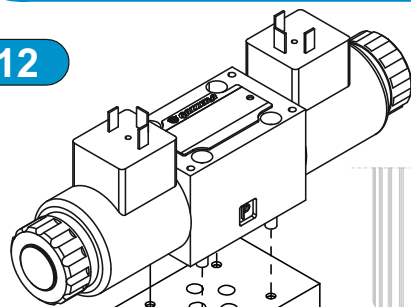
0 = M20x1,5
2 = 3/4" - 16 UNF (std)



Collettori centrali central manifolds

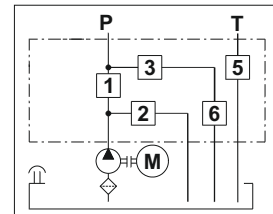


G12



Blocchi modulari
modular blocks

Lato motore
motor side



G12

Lato serbatoio
tank side

T0VM

VMDC35

VMDC20

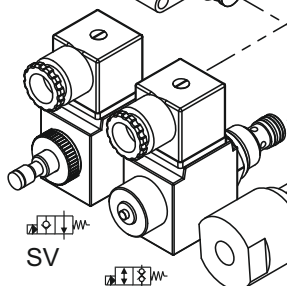
T0C2



PM02



CM04L



SV

MDV

VPN

CPE

CSB04

T0C2

T0A2

T0A3

CSB04

VSC

C-MF

G12

Lato serbatoio
tank side

Lato motore
motor side

CAVITA' 3
cavity 3

CAVITA' 2
cavity 2

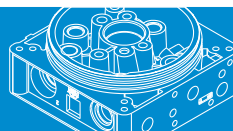
CAVITA' 1
cavity 1

VUC20

T0C1

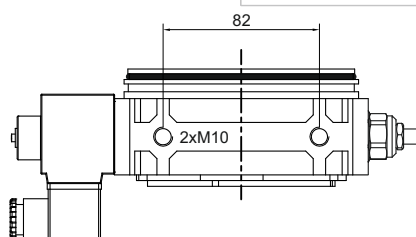
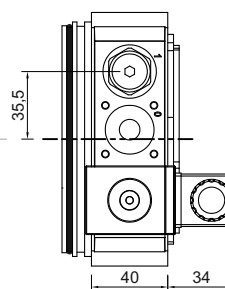
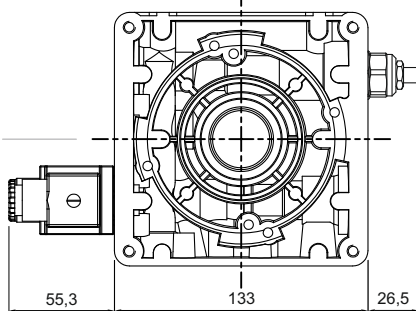
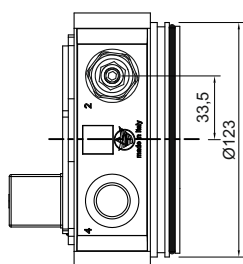
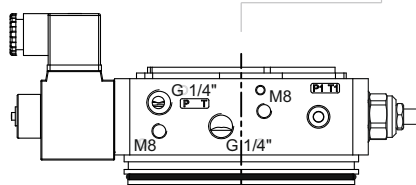
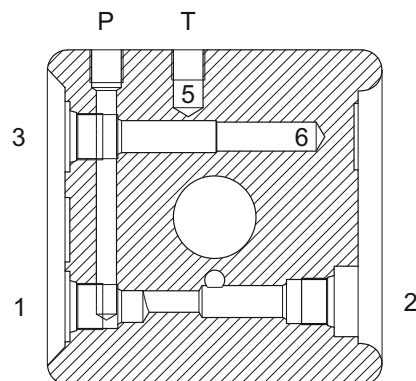
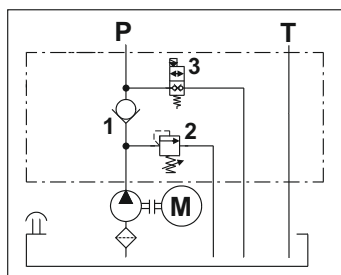
T0A4

Collettori centrali central manifolds



01

G12



Codice ordinazione - ordering code

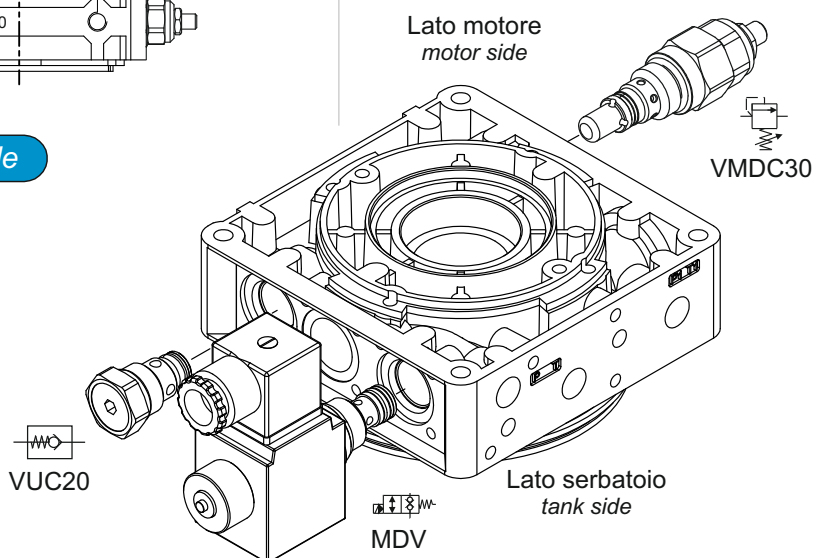
G	1	2
1	2	

1 Tipo - type

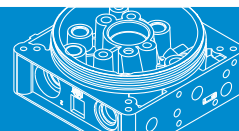
G1 = Collettore 3 cavità
central manifold 3 cavities

2 Serie (cavità 2 - cavity 2)

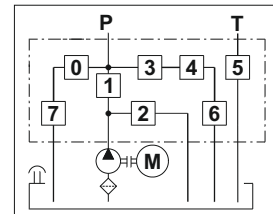
0 = M20x1,5
2 = 3/4" - 16 UNF (std)



Collettori centrali central manifolds



G32

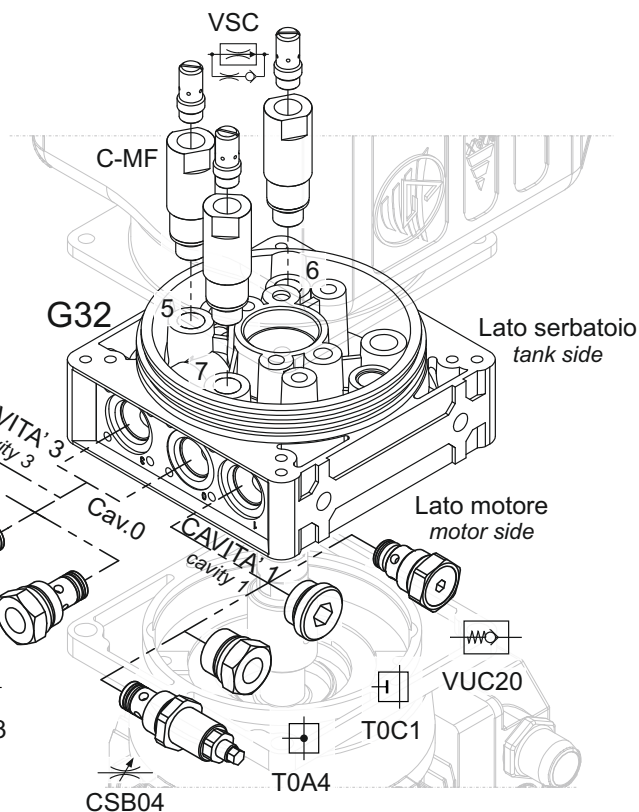
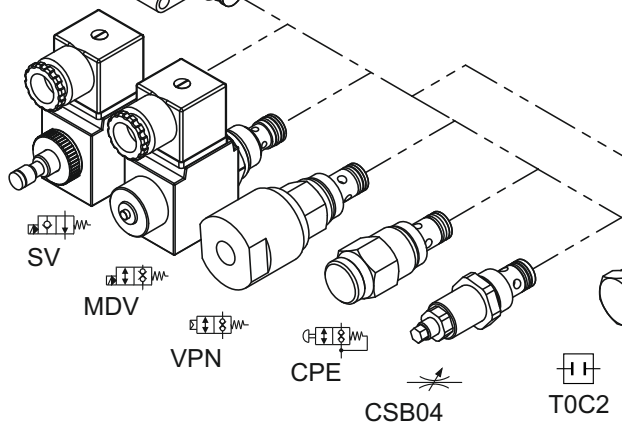
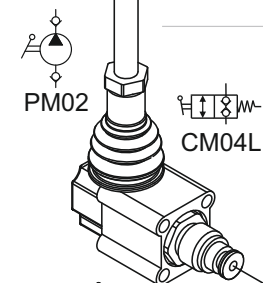
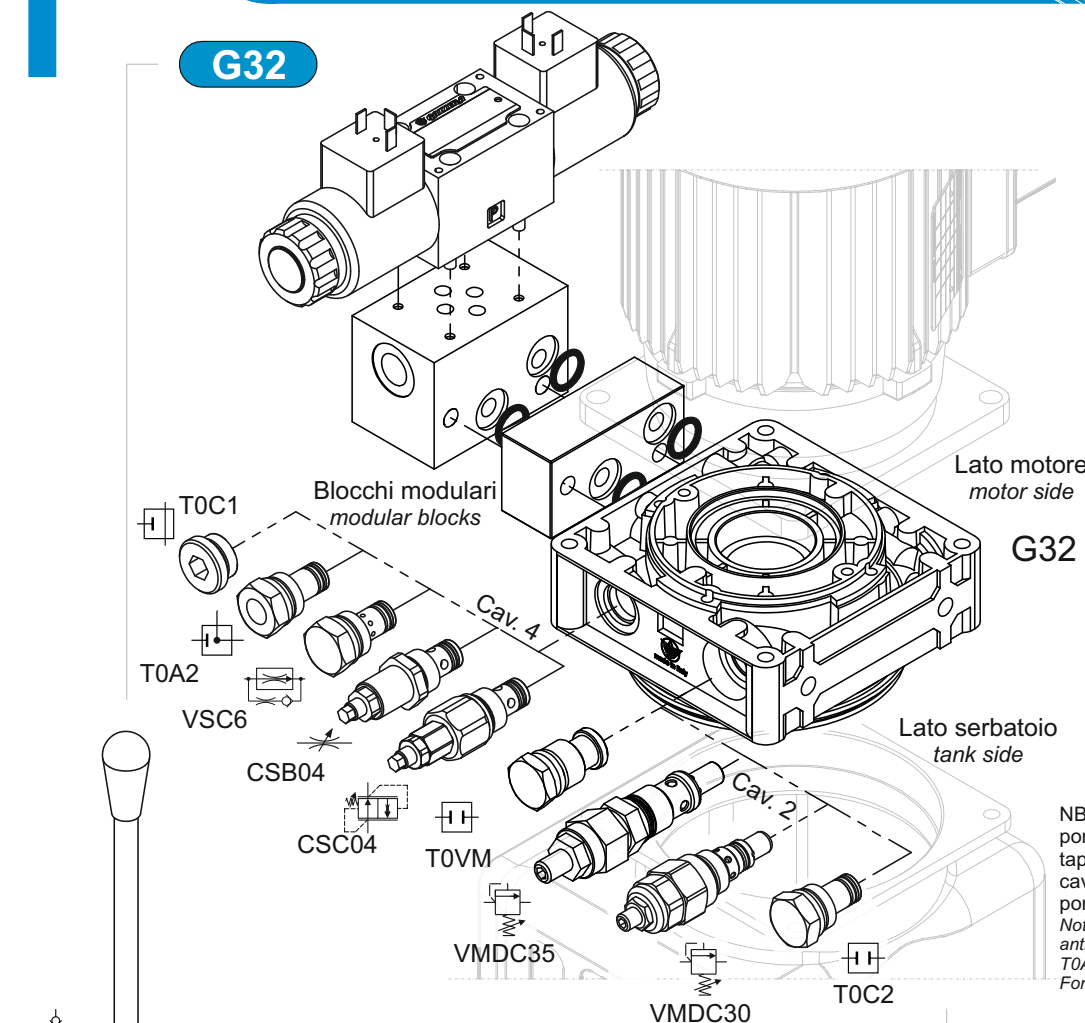


Lato motore
motor side

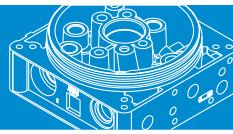
G32

Lato serbatoio
tank side

NB: Il collettore G32 può montare pompe sinistre solo in presenza di tappi T0A3 e T0C2 alloggiati nella cavità 0. Per circuiti completi usare pompe destre.
Note: with G32 manifold it's possible to use anti-clockwise pumps only in presence of T0A3 and T0C2 plugs mounted into cavity 0. For complete circuits use clockwise pumps.

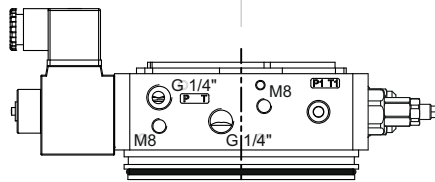
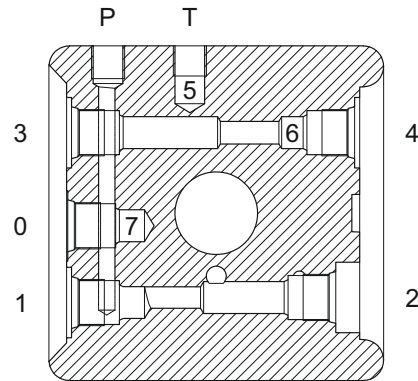
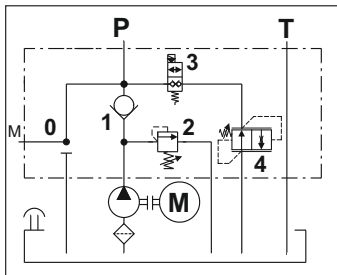


Collettori centrali central manifolds

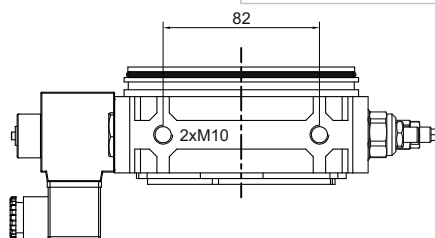
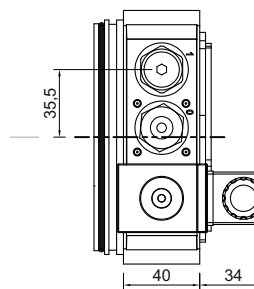
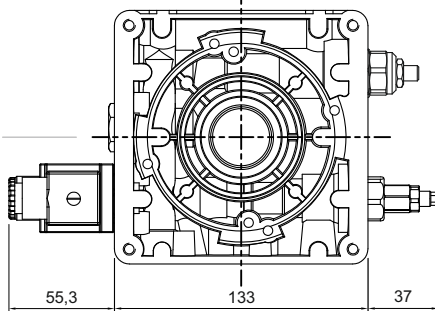
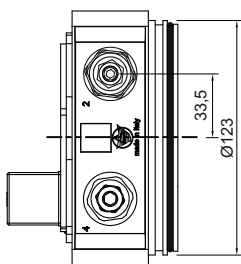


01

G32



NB: Il collettore G32 può montare pompe sinistre solo in presenza di tappi T0A3 e T0C2 alloggiati nella cavità 0. Per circuiti completi usare pompe destre.
Note: with G32 manifold it's possible to use anti-clockwise pumps only in presence of T0A3 and T0C2 plugs mounted into cavity 0. For complete circuits use clockwise pumps.



Codice ordinazione - ordering code

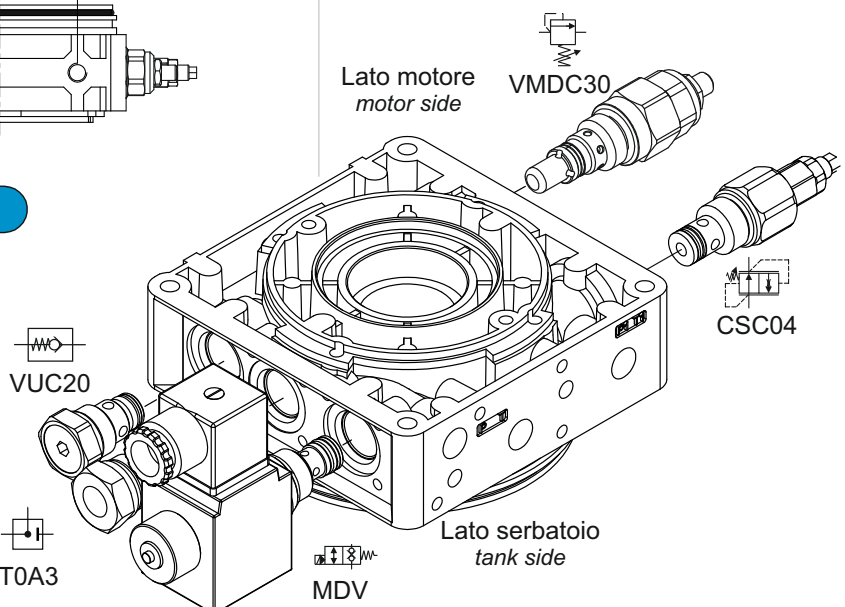


1 Tipo - type

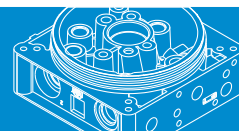
G3 = Collettore 5 cavità
central manifold 5 cavities

2 Serie - series

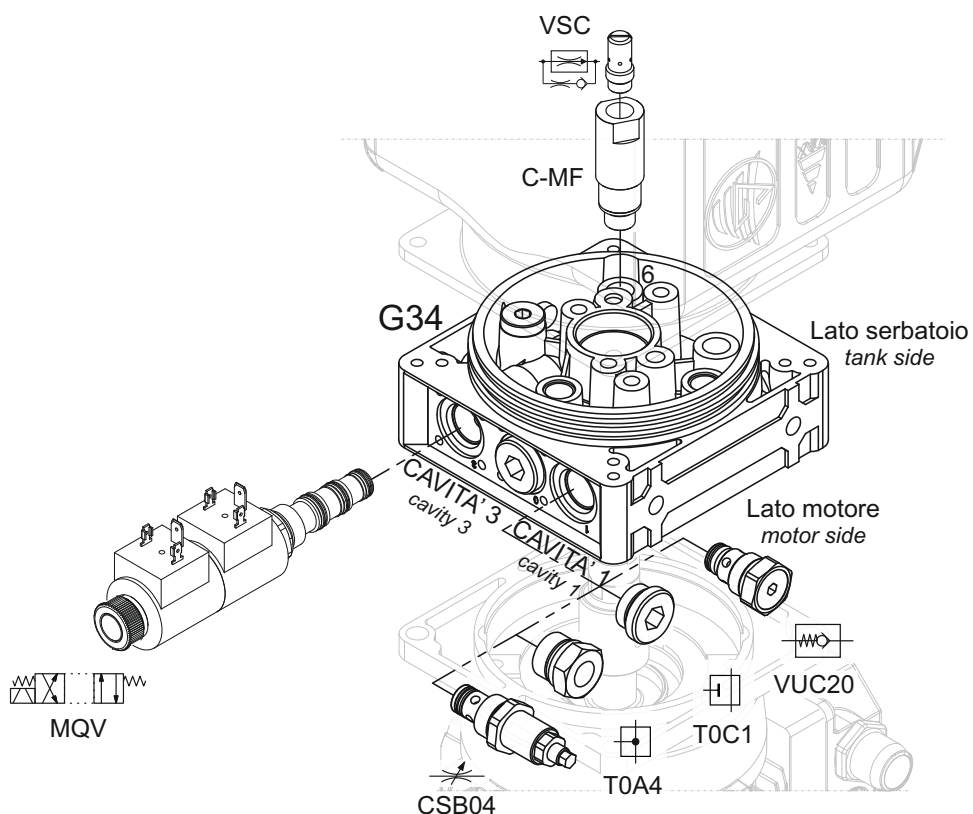
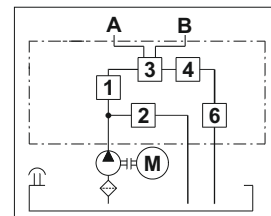
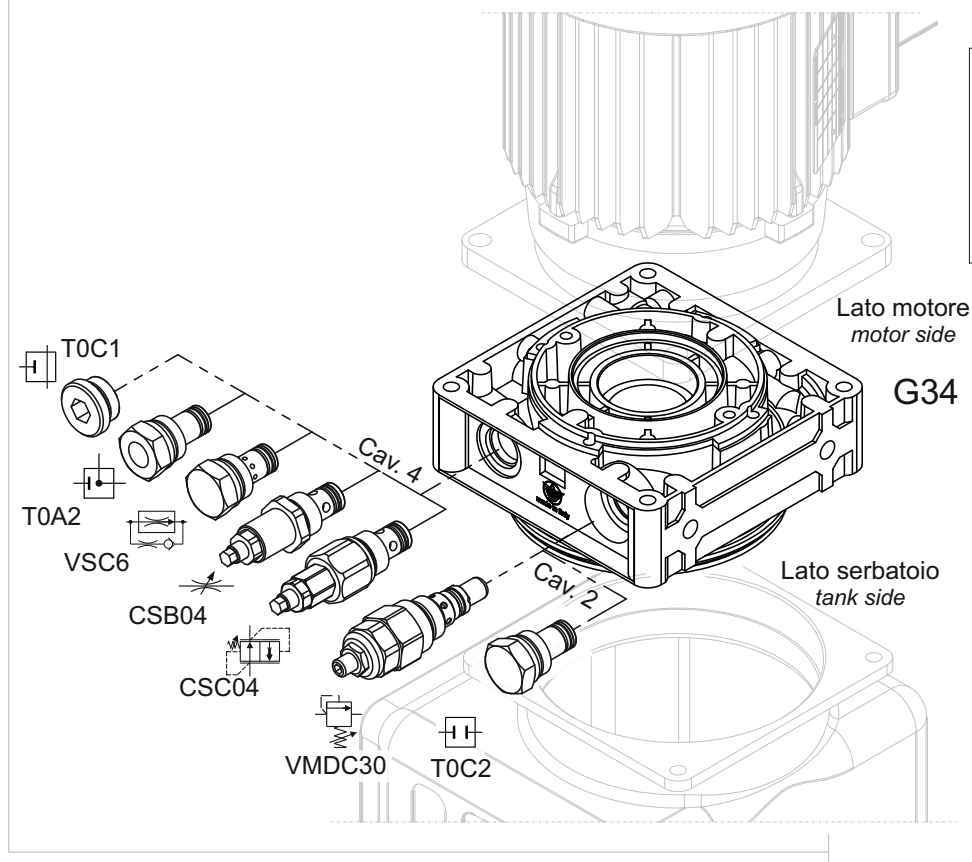
0 = M20x1,5
2 = 3/4" - 16 UNF (std)



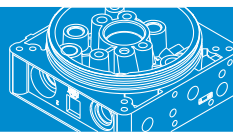
Collettori centrali central manifolds



G34

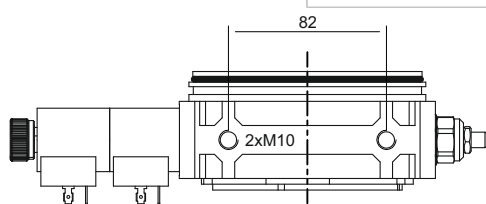
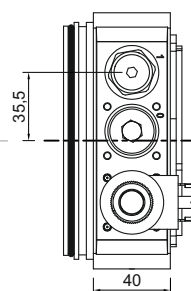
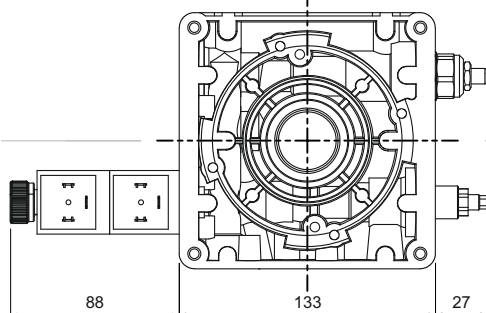
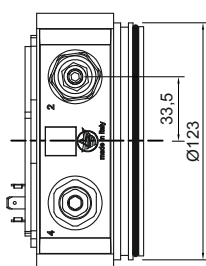
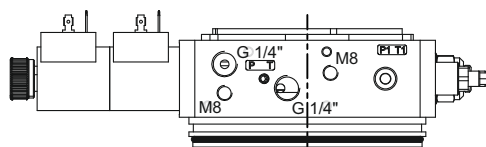
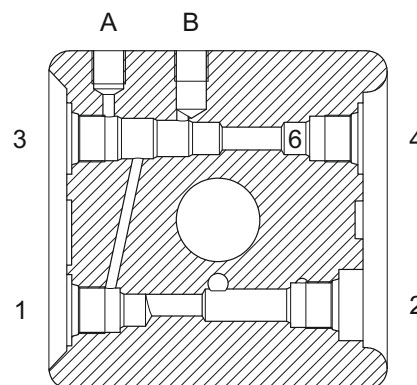
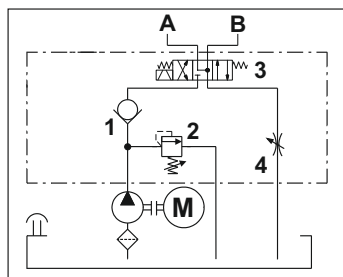


Collettori centrali central manifolds



01

G34



Codice ordinazione - ordering code

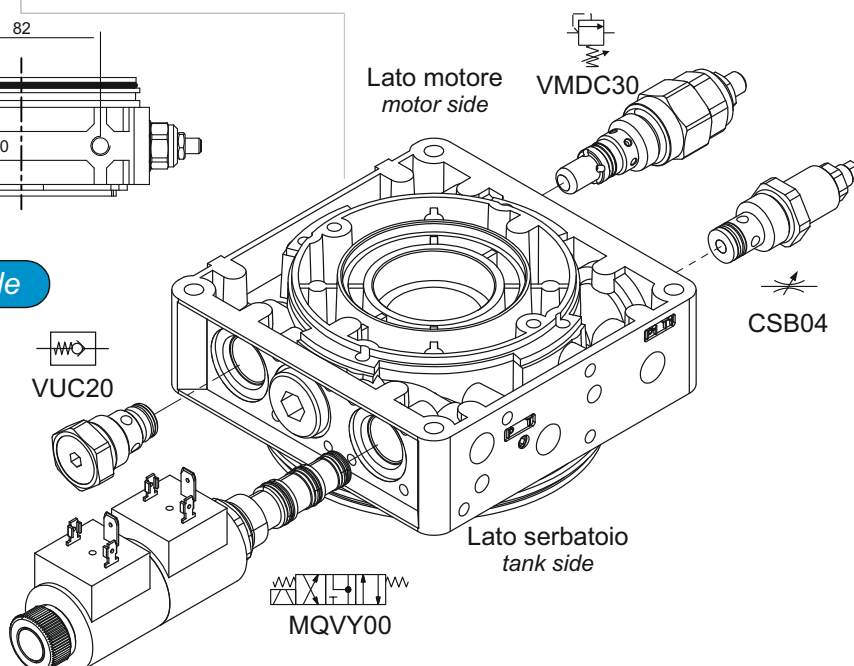
G 3 4
1 2

1 Tipo - type

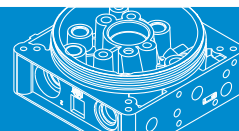
G3 = Collettore 5 cavità
central manifold 5 cavities

2 Serie (cavità 3 - cavity 3)

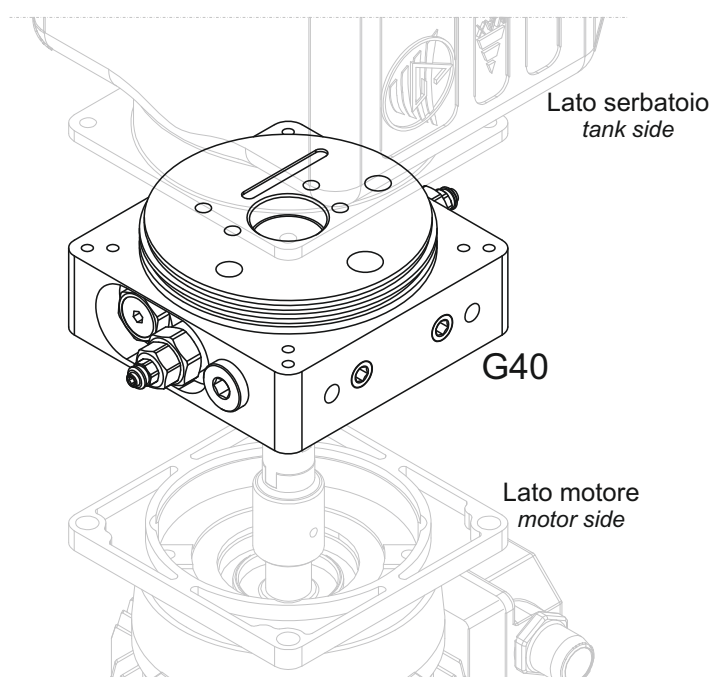
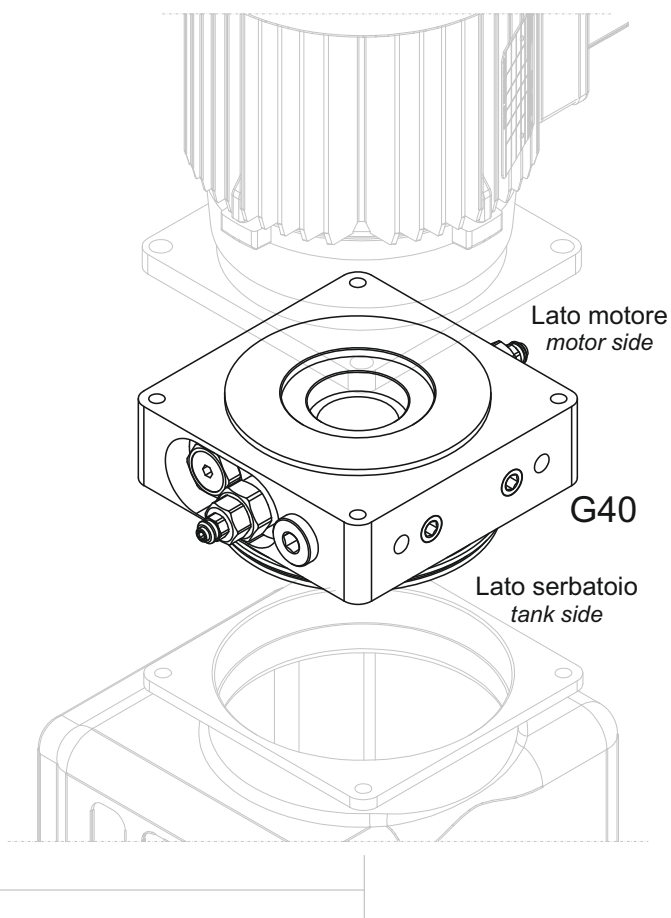
4 = SAE08-4 (3/4" - 16 UNF)



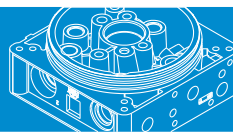
Collettori centrali central manifolds



G40

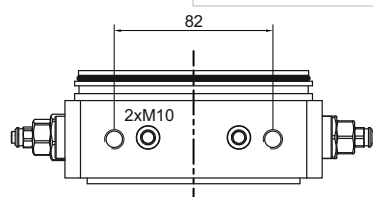
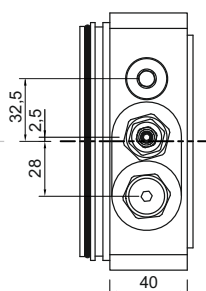
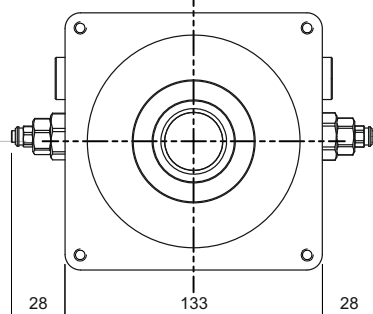
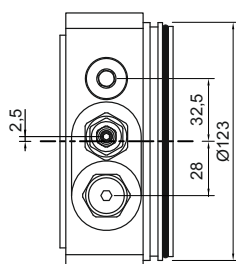
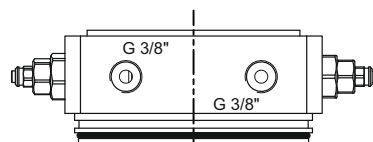
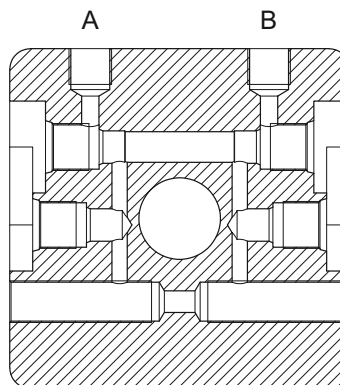
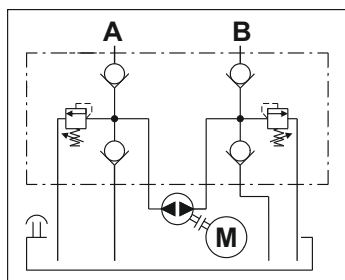


Collettori centrali central manifolds



01

G40



Codice ordinazione - ordering code

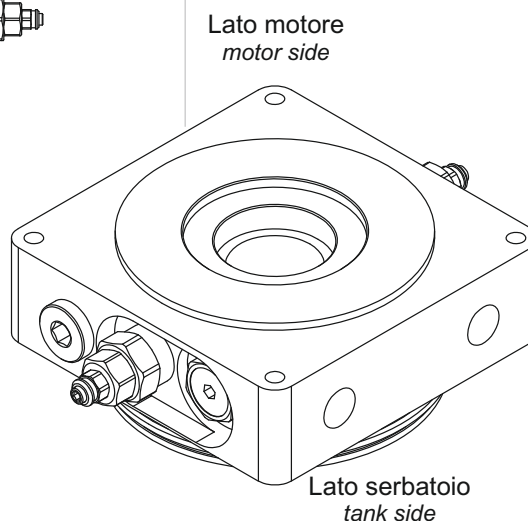
G 4 0
1 2

1 Tipo - type

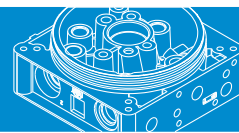
G4 = Collettore reversibile
reversible central manifold

2 Serie - series

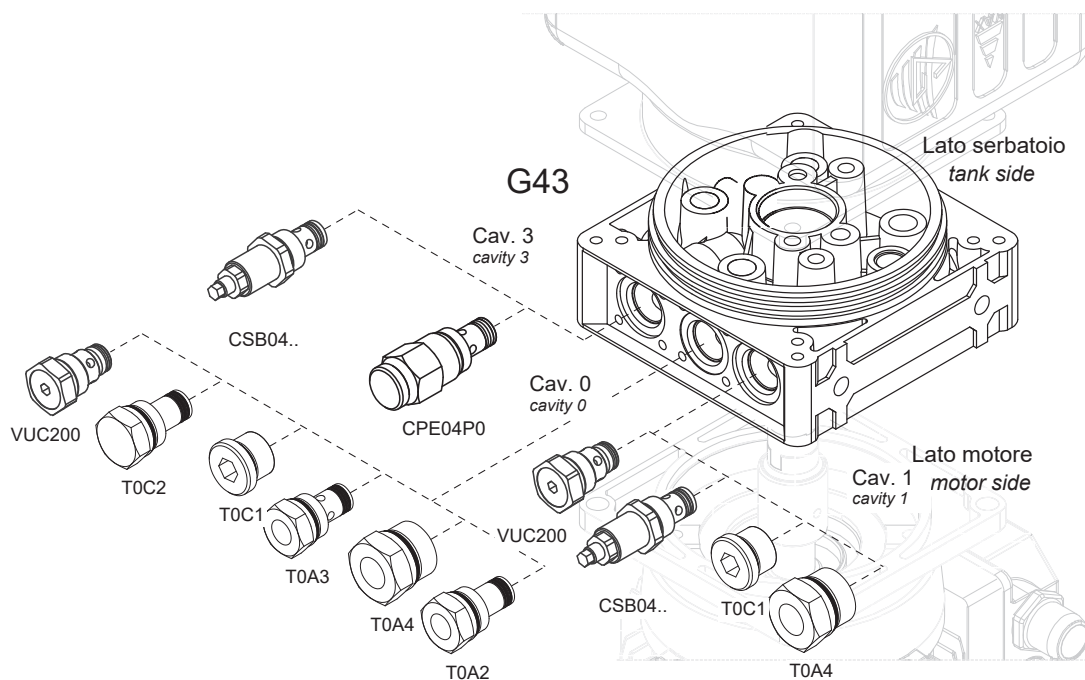
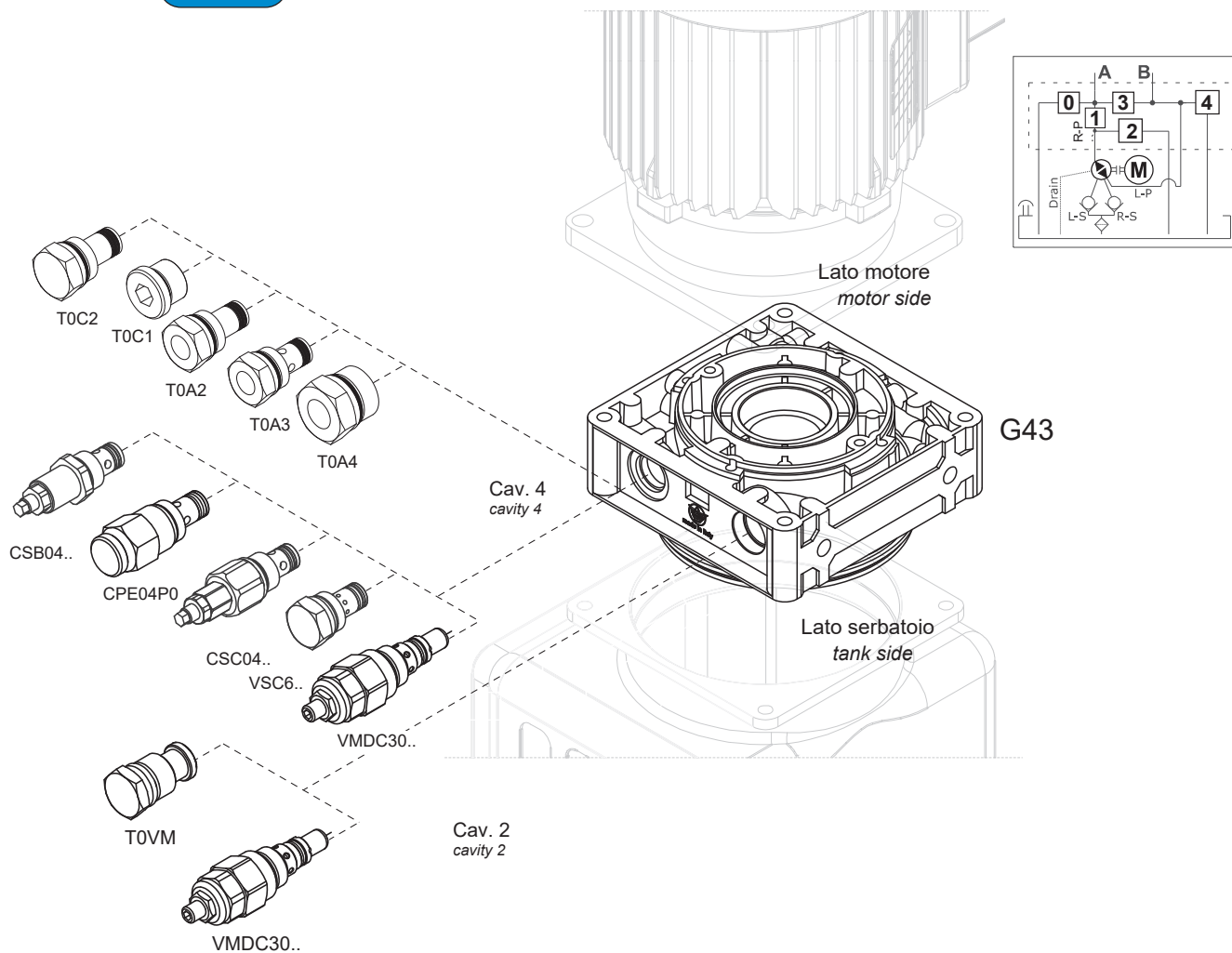
0 = Da pieno machined from solid



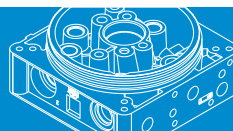
Collettori centrali central manifolds



G43

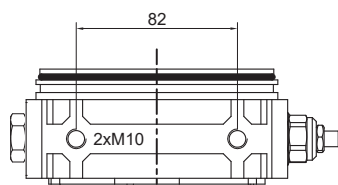
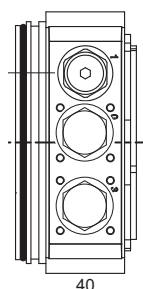
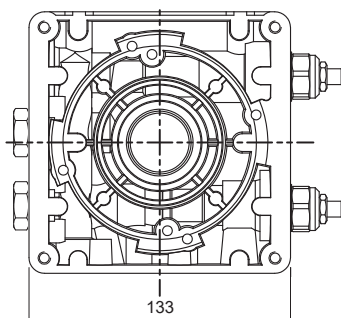
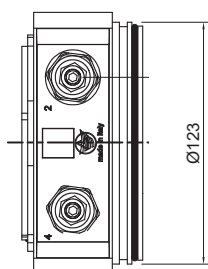
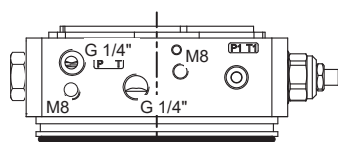
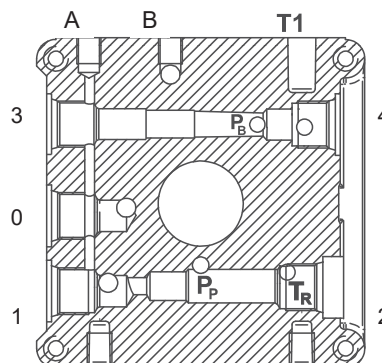
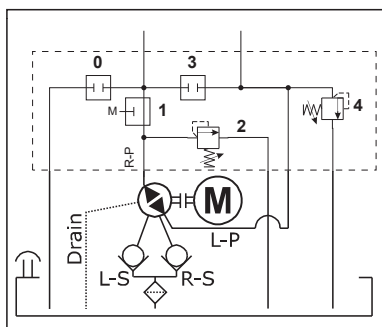


Collettori centrali central manifolds



01

G43



Codice ordinazione - ordering code

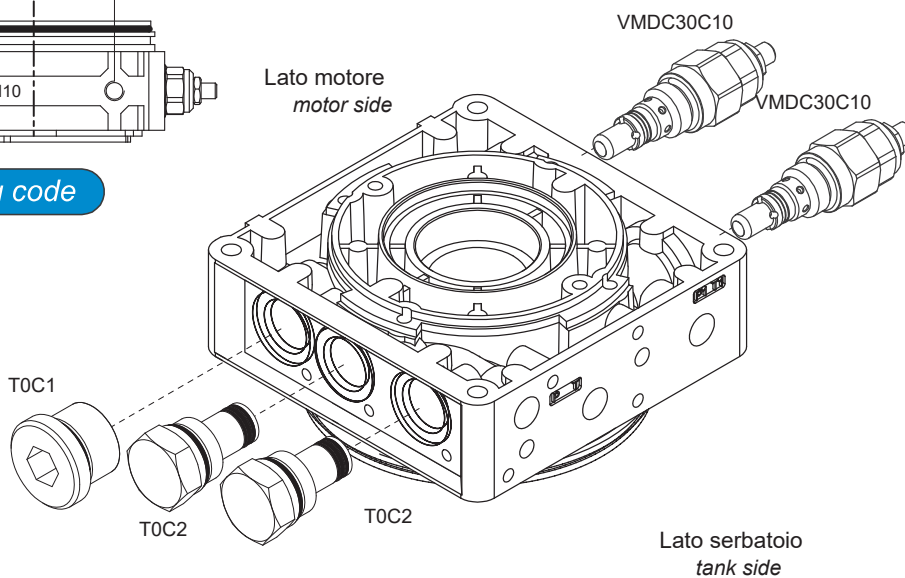


1 Tipo - type

G4 = Collettore reversibile
reversible central manifold

2 Serie - series

3 = Pressofuso die-cast



CAPITOLO | CHAPTER

CAPITOLO 02

POMPE

pumps

ITALIAN QUALITY SINCE 1989



CAPITOLO 02

Pompe

pumps

Pompe ad ingranaggi singole e reversibili per applicazione immersa nel serbatoio, in un'ampia gamma di cilindrata.

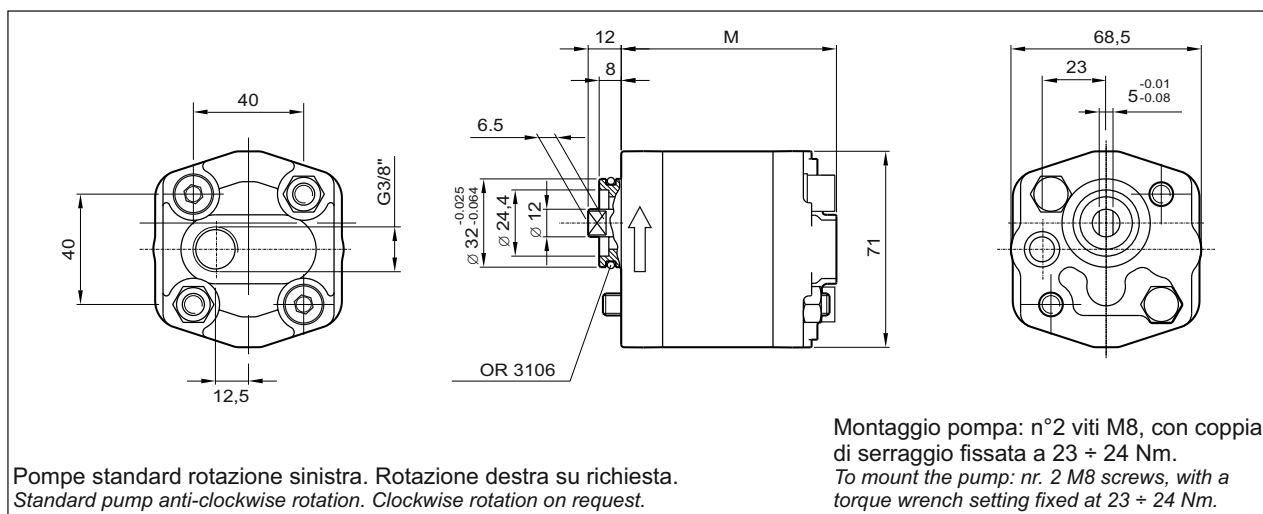
Single and reversible gear pumps for immersed application in the tank, in a wide range of displacements.

IN QUESTO CAPITOLO *in this chapter*

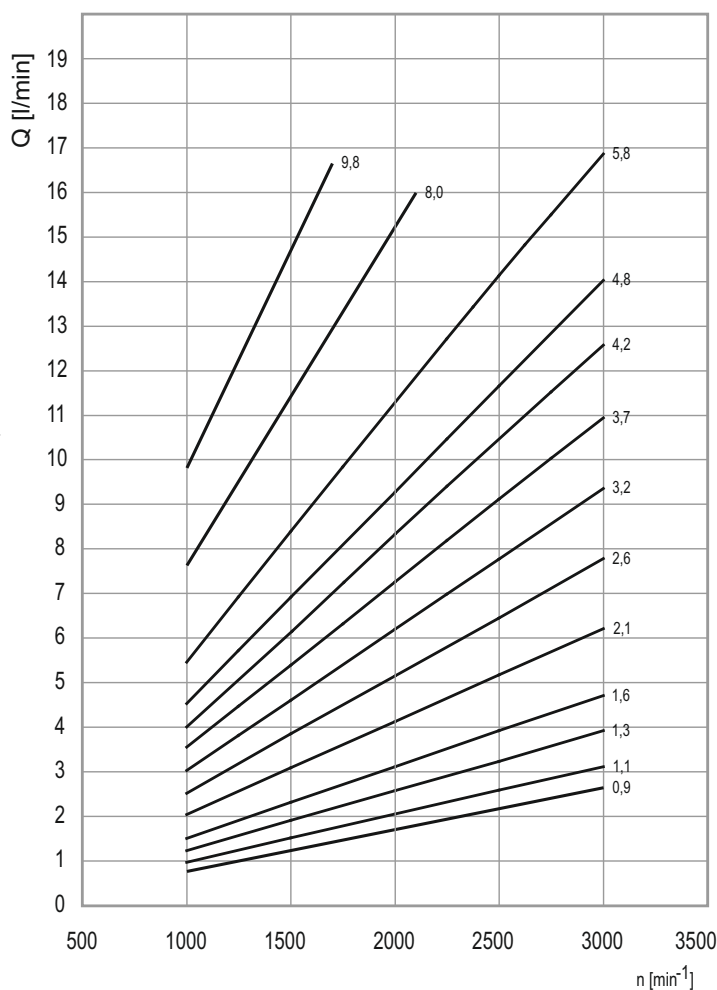
PA	Pompe ad ingranaggi singole <i>single gear pumps</i>	18
PR	Pompe reversibili <i>reversible pumps</i>	19



Pompe ad ingranaggi singole - single gear pumps



Modelli - models			
Code	cc/rev	P.max	M mm
PA109	0,9	210	47
PA111	1,1	210	47,5
PA113	1,3	210	48,5
PA116	1,6	210	49,5
PA121	2,1	210	51
PA126	2,6	210	53
PA132	3,2	190	54,5
PA137	3,7	190	56,5
PA142	4,2	190	58
PA148	4,8	170	60
PA158	5,8	170	63,5
PA180	8,0	160	100
Pa198	9,8	130	107



Pompa per applicazione immersa
Immersed pump application

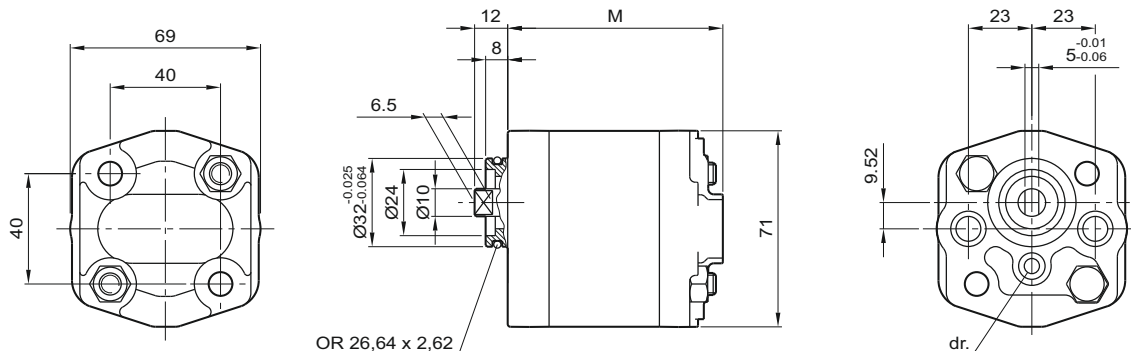
Le curve sono indicative e sono state ottenute alla temperatura di 50 °C, utilizzando olio con viscosità 30 cSt.
Each curve are only indicative and have been obtained at 50 °C, using oil with viscosity 30 cSt.

Pompe pumps



02

Pompe reversibili - reversible pumps



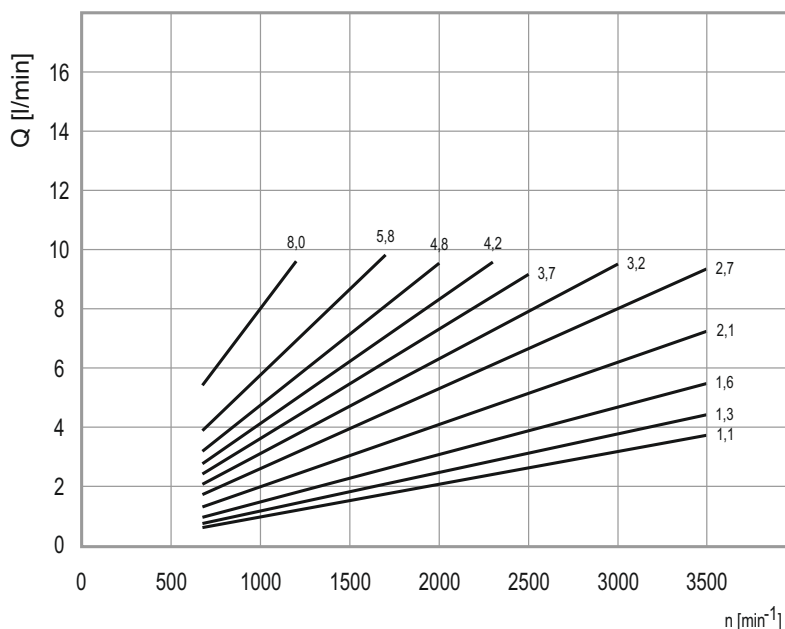
Pressione massima drenaggio 0,3 ÷ 0,5 bar.
Max drain pressure: 0,3 ÷ 0,5 bar.

Montaggio pompa: n°2 viti M8, con coppia di serraggio fissata a 23 ± 2,4 Nm.
To mount the pump: nr. 2 M8 screws, with a torque wrench setting fixed at 23 ± 2,4 Nm.

Modelli - models

Code	cc/rev	P.max	M mm
PR111	1,1	230	74
PR113	1,3	230	75
PR116	1,6	230	76
PR121	2,1	230	78
PR127	2,7	230	80
PR132	3,2	210	82
PR137	3,7	210	84
PR142	4,2	210	86
PR148	4,8	190	88
PR158	5,8	190	92
PR180	8,0	160	100

Pompa per applicazione immersa
Immersed pump application



Le curve sono indicative e sono state ottenute alla temperatura di 40 °C, utilizzando olio con viscosità 68 cSt.
Each curve are only indicative and have been obtained at 40 °C, using oil with viscosity 68 cSt.



CAPITOLO | CHAPTER

CAPITOLO 03

ASPIRAZIONE E SCARICO

suction and return

ITALIAN QUALITY SINCE 1989

03



CAPITOLO 03

Aspirazione e scarico

suction and return

Tubi di aspirazione e di scarico in EPD e kit di aspirazione completi, orizzontali e verticali, studiati per ogni serie di serbatoi Gazzera. A fine capitolo le indicazioni su pulizia dell'impianto e filtrazione.

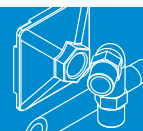
EPD suction and return pipes and complete suction kits, horizontal and vertical, designed for every series of Gazzera tanks. At the end of the chapter, notes on system cleaning and filtration.

IN QUESTO CAPITOLO *in this chapter*

EPD	Tubi di aspirazione G3/8" in EPD <i>EPD G3/8" suction hoses</i>	22
EPD	Tubi rigidi di scarico G1/4" in EPD <i>EPD G1/4" rigid return pipes</i>	23
KR	Kit di scarico per serbatoi orizzontali <i>return kit for horizontal tanks</i>	24
KO	Kit aspirazione orizzontale (PE, PC, CS) <i>horizontal suction kits (PE, PC, CS)</i>	25
KV	Kit aspirazione verticale (PE, LM, LMS, CS, PC) <i>vertical suction kits (PE, LM, LMS, CS, PC)</i>	27
TUBI	Tubi di scarico verticale <i>vertical return pipes</i>	30
NOTE	Pulizia dell'impianto e filtrazione <i>system cleaning and filtration</i>	31

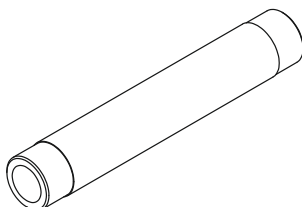
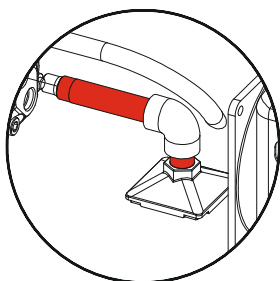
03

Aspirazione e scarico suction and return



EPD60R 3/8

Serie tubi di aspirazione G3/8" in EPD
Series of EPD G3/8" suction hoses

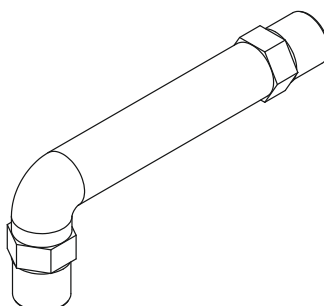
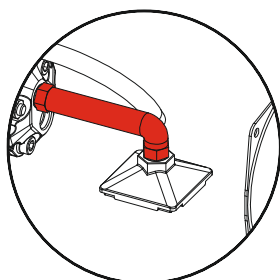


Lunghezze disponibili available lengths		
30	40	60
80	100	120
140	160	180
185	200	225
250	350	385

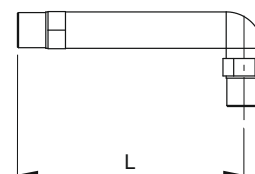


EPD60R3/890FCF

Tubi G3/8" 90° per aspirazione in EPD
G3/8" 90° suction hoses of EPD

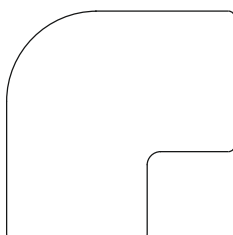
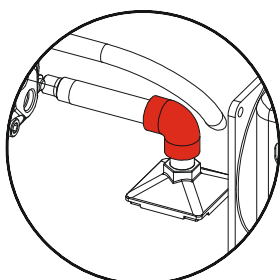


Lunghezze disponibili available lengths	
50	104



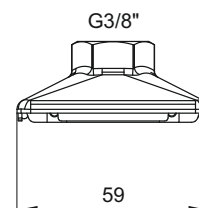
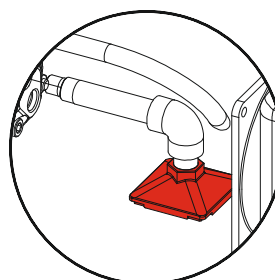
E602

Raccordo G3/8" in PVC 90° per kit aspirazione orizzontale
90° G3/8" PVC fitting for horizontal suction kit

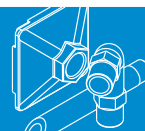


FT180

Elemento filtrante 180μ Reps FeZN 15 lt/min ΔP 0,1 b
Filtering element 180μ Reps FeZN 15 lt/min ΔP 0,1 bar



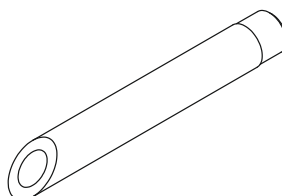
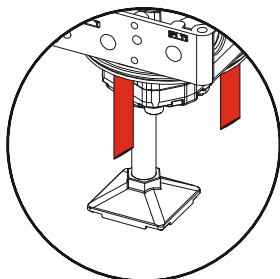
Aspirazione e scarico suction and return



03

EPD60R1/4FDS

Tubo rigido per linee di scarico G1/4" in EPD
EPD G1/4" rigid pipes for return lines

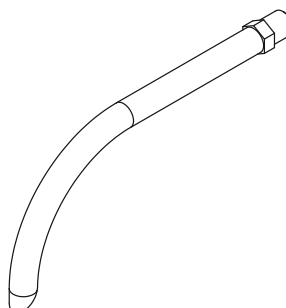
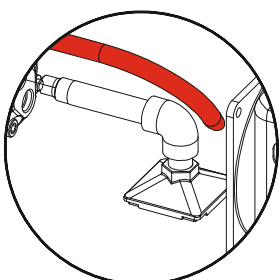


Lunghezze disponibili available lengths		
80	90	100
150	170	180
210	280	315

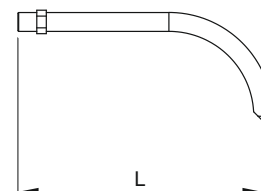


EPD60R1/490FCS

Tubi 90° 1/4"BSPT per linee di scarico
90° 1/4"BSPT rigid pipes for return lines

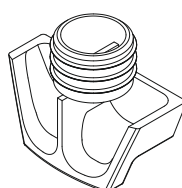
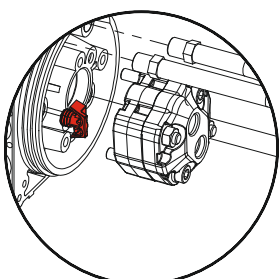


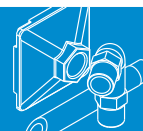
Lunghezze disponibili available lengths		
124	139	169
209	239	289



DFL14

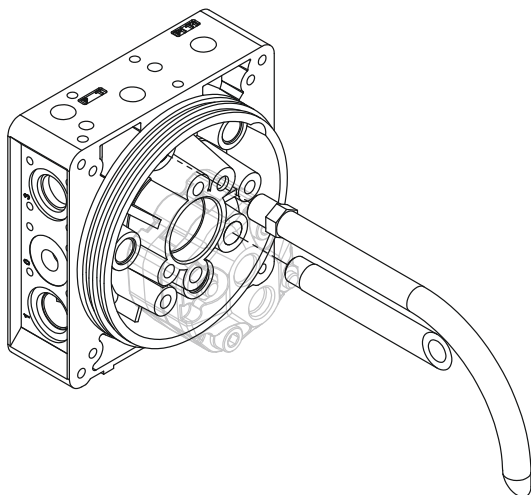
Deflettore
Oil deflector



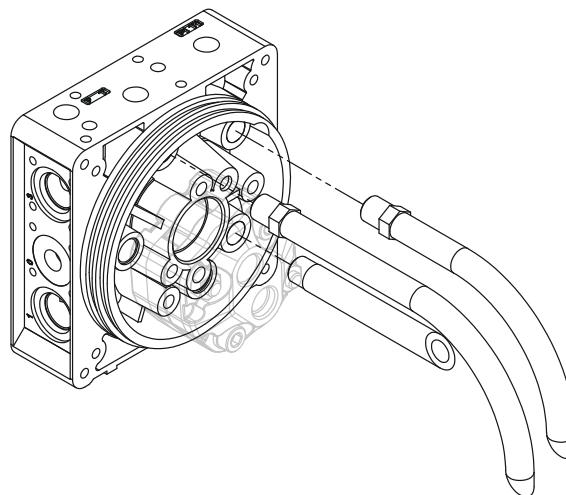


KR

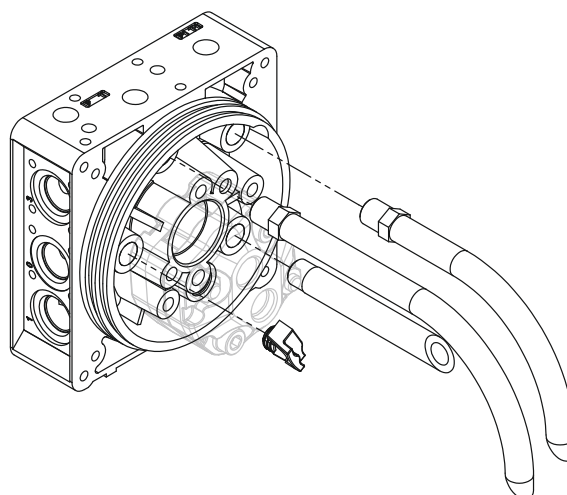
Kit di scarico per serbatoi orizzontali
Return kit for horizontal tanks



G0 collettore G02 - G02 manifold



G1 collettore G12 - G12 manifold



G3 collettore G32 - G32 manifold

In caso di serbatoi CS010 e CS020 o collettori reversibili (G40), per il kit di scarico contattare l'ufficio tecnico
in case of CS010 and CS020 tanks or reversible manifold (G40), for the return kit, contact our technical department

Codici ordinazione - ordering codes

K	R	G	3
1	2		

1 Kit scarico - return kit
KR

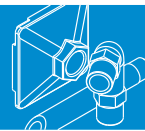
2 Collettore - manifold

G0 = EPD60R1/4FDS100 + EPD60R1/490FCS169

G1 = EPD60R1/4FDS100 + EPD60R1/490FCS169 + EPD60R1/490FCS124

G3 = EPD60R1/4FDS100 + EPD60R1/490FCS169 + EPD60R1/490FCS124 + DFL14

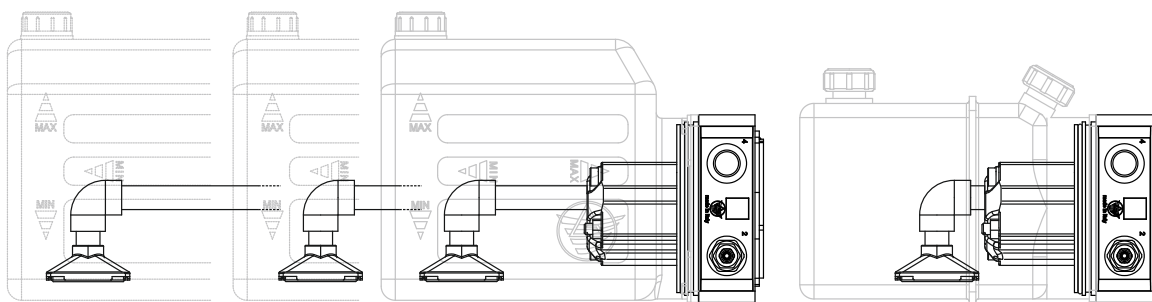
Aspirazione e scarico suction and return



03

KOPE

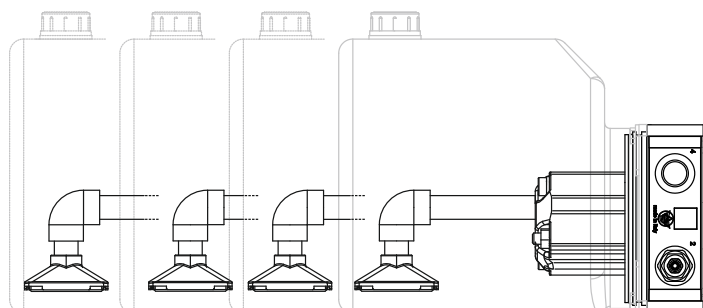
Kit aspirazione orizzontale per serbatoi PE
Suction horizontal kit for PE tanks



PE12O	12 lt.	PE08O	8 lt.	PE05O	5 lt.	PE02O	2 lt.
-------	--------	-------	-------	-------	-------	-------	-------

KOPC

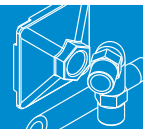
Kit aspirazione orizzontale per serbatoi PC
Suction horizontal kit for PC tanks



PC11O	11 lt.	PC09O	9 lt.	PC07O	7 lt.	PC05O	5 lt.
-------	--------	-------	-------	-------	-------	-------	-------

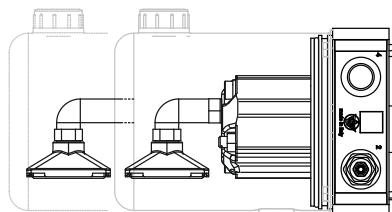


Aspirazione e scarico suction and return

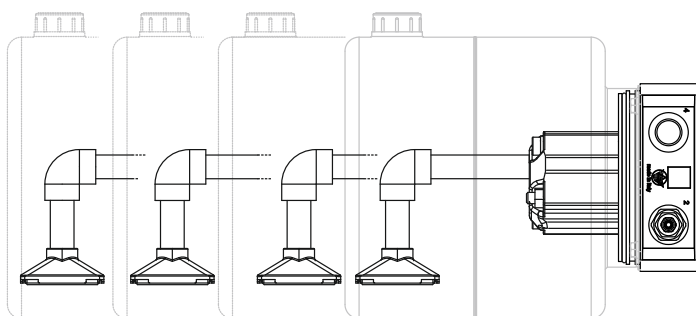


KOCS

Kit aspirazione orizzontale per serbatoi CS
Suction horizontal kit for CS tanks



CS020 2,5 lt. CS010 1,5 lt.



CS120 12 lt. CS100 10 lt. CS080 8 lt. CS050 5 lt.

NB: I kit aspirazione sono validi per tutti i tipi di collettori e pompe, esclusi il G40 (collettore reversibile) e PA180-PA198 (pompe 8cc/rev e 9,8cc/rev). In caso di impiego di questi componenti, rivolgersi al nostro ufficio tecnico.
Note: Suction kits are valid for all type of manifolds and pumps, except G40 (reversible manifold) and PA180-PA198 (8cc/rev and 9,8cc/rev pumps). When using these components, please contact our technical department.

Codici ordinazione - ordering codes

K	O	P	E	0	8
1	2	3			

1 Kit orizzontale - horizontal kit

KO (2xEPD60R3/8 + E602 + FT180)
o (EPD60R3/890FCF + FT180)

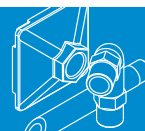
2 Serie serbatoio - tank series

PE
PC
CS

3 Volume serbatoio - tank volume

PE	PC	CS
02 = 2,5 lt	05 = 5,0 lt	01 = 1,5 lt
05 = 5,0 lt	07 = 7,0 lt	02 = 2,5 lt
08 = 8,0 lt	09 = 9,0 lt	05 = 5,0 lt
12 = 12,0 lt	11 = 11,0 lt	08 = 8,0 lt
		10 = 10,0 lt
		12 = 12,0 lt

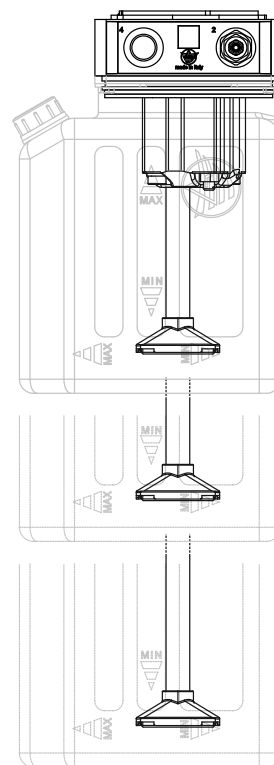
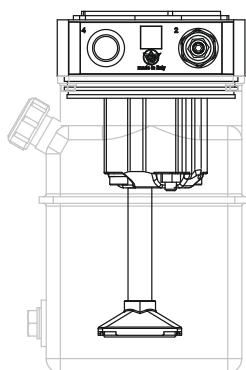
Aspirazione e scarico suction and return



03

KVPE

Kit aspirazione verticale per serbatoi PE
Suction vertical kit for PE tanks

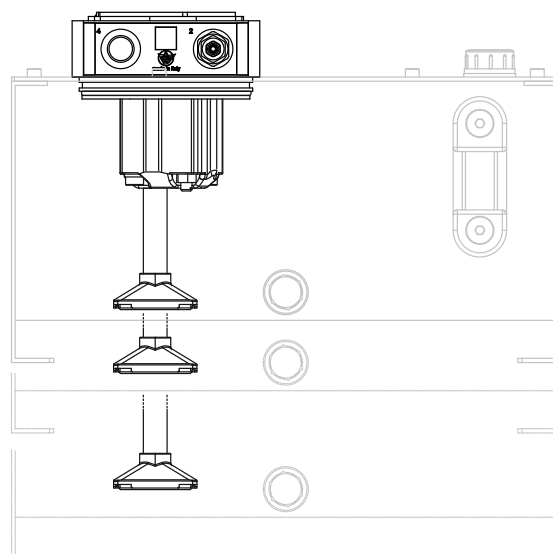
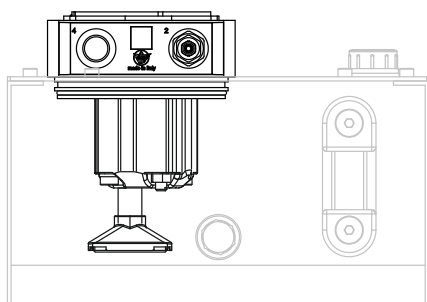


PE02V 2,5 lt.

PE05V 5 lt. PE08V 8 lt. PE12V 12 lt.

KVLM

Kit aspirazione per serbatoi LM
Suction kit for LM tanks



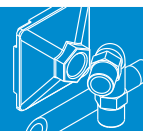
LM07 7 lt.

LM15 15 lt. LM20 20 lt. LM30 30 lt.



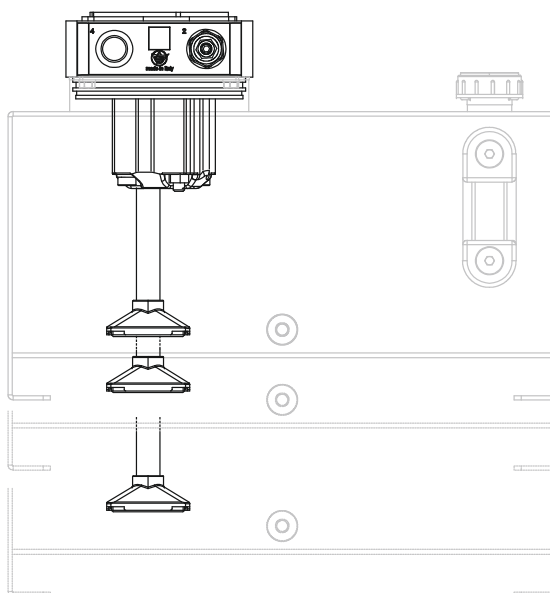
03

Aspirazione e scarico suction and return



KVLS

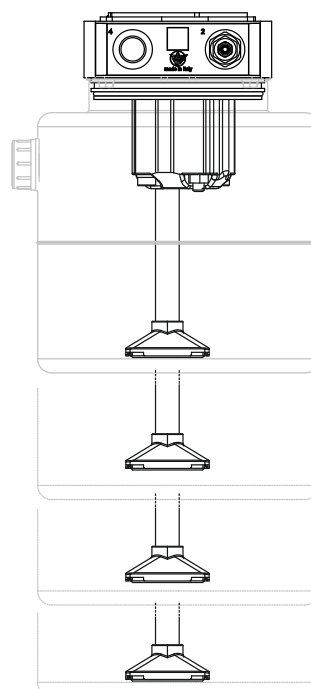
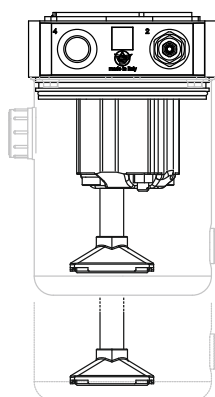
Kit aspirazione per serbatoi LMS
Suction kit for LMS tanks



LMS15	15 lt.	LMS20	20 lt.	LMS30	30 lt.
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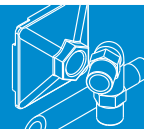
KVCS

Kit aspirazione verticale per serbatoi CS
Suction vertical kit for CS tanks



CS01V	1,5 lt.	CS02V	2,5 lt.	CS05V	5 lt.	CS08V	8 lt.	CS10V	10 lt.	CS12V	12 lt.
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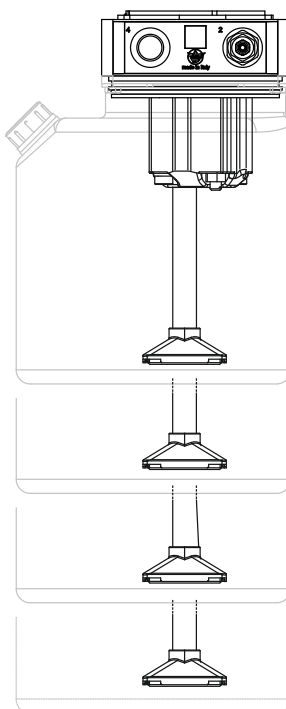
Aspirazione e scarico suction and return



03

KVPC

Kit aspirazione verticale per serbatoi PC
Suction vertical kit for PC tanks



PC05V	5 lt.	PC07V	7 lt.	PC09V	9 lt.	PC11V	11 lt.
-------	-------	-------	-------	-------	-------	-------	--------

NB: I kit aspirazione sono validi per tutti i tipi di collettori e pompe, esclusi il G40 (collettore reversibile) e PA180 (pompa 8cc/rev). In caso di impiego di questi componenti, rivolgersi al nostro ufficio tecnico.
Note: Suction kits are valid for all type of manifolds and pumps, except G40 (reversible manifold) and PA180 (8cc/rev pump). When using these components, please contact our technical department.

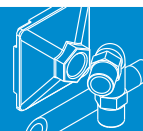
Codici ordinazione - ordering codes

K	V	C	S	1	0
1	2	3			

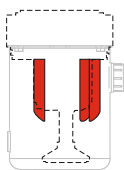
1 Kit verticale - vertical kit	2 Serie - series	3 Volume serbatoio - tank volume				
KV (EPD60R3/8 + FT180)	PE	PE	LM	LS	CS	PC
	PC	02 = 2,5 lt	07 = 7,0 lt	15 = 15,0 lt	01 = 1,5 lt	05 = 5,0 lt
	CS	05 = 5,0 lt	15 = 15,0 lt	20 = 20,0 lt	02 = 2,5 lt	07 = 7,0 lt
	LM	08 = 8,0 lt	20 = 20,0 lt	30 = 30,0 lt	05 = 5,0 lt	09 = 9,0 lt
	LS (LMS)	12 = 12,0 lt	30 = 30,0 lt		08 = 8,0 lt	11 = 11,0 lt
					10 = 10,0 lt	
					12 = 12,0 lt	



Aspirazione e scarico suction and return

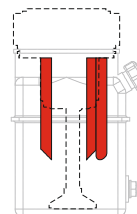
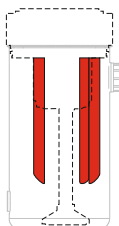


1,5 lt



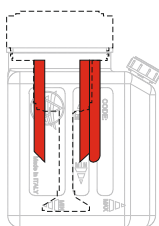
Serbatoi - tanks
CS01
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/4FDS100

2,5 lt



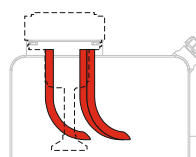
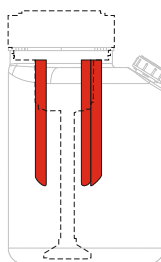
Serbatoi - tanks
CS02, PE02
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/4FDS150
EPD60R1/4FDS180

5 lt



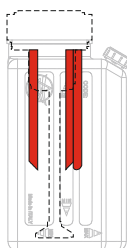
Serbatoi - tanks
CS05, PE05, PC05
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/4FDS150

7 lt



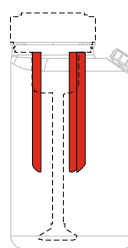
Serbatoi - tanks
PC07, LM07, LM07TF
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/4FDS180
EPD60R1/490FCS124
EPD60R1/490FCS169

8 lt



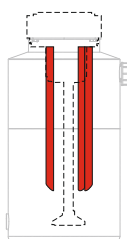
Serbatoi - tanks
CS08, PE08
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/4FDS210

9 lt



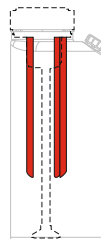
Serbatoi - tanks
PC09
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/4FDS210

10 lt



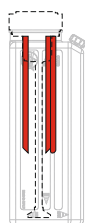
Serbatoi - tanks
CS10
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/4FDS280

11 lt



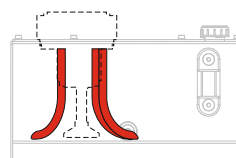
Serbatoi - tanks
PC11
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/4FDS315

12 lt



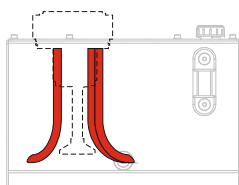
Serbatoi - tanks
CS12, PE12
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/4FDS210

15 lt



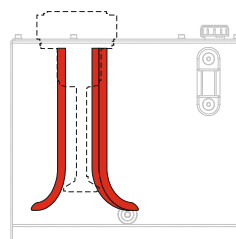
Serbatoi - tanks
LM15, LMS15
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/490FCS169

20 lt



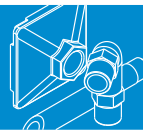
Serbatoi - tanks
LM20, LMS20
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/490FCS209

30 lt



Serbatoi - tanks
LM30, LMS30
Tubi scarico verticale
vertical exhaust pipes
EPD60R1/490FCS289

Aspirazione e scarico suction and return



03

Note

Pulizia dell'impianto e filtrazione *Cleaning and filtering the system*

È ormai universalmente riconosciuto che la maggior parte dei prematuri cali di prestazioni delle pompe è dovuta ad un loro funzionamento con fluidi contaminati; l'estrema riduzione delle tolleranze che contraddistinguono i componenti delle pompe e il loro conseguente funzionamento con giochi ridotti, possono essere irrimediabilmente compromessi se non si pone estrema cura nel mantenere il fluido pulito.

It is widely known that most pumps early failures are due to contaminated fluids. The extreme reduction of the tolerances required in the design of the pumps and therefore their operation with minimum clearances, are heavily influenced by a fluid that is not perfectly clean.

È comunemente accertato che le particelle circolanti continuamente nel fluido agiscono come agente abrasivo danneggiando le superfici con cui vengono a contatto e contribuendo alla formazione di ulteriore contaminante.

It is proved that particles circulating in the fluid act as abrasive agents, damaging the surfaces they touch and increasing the quantity of contaminant.

Per questo raccomandiamo di porre molta attenzione alla pulizia in fase di avviamento e al mantenimento della stessa nell'impianto. Gli interventi necessari per controllare e limitare il grado di contaminazione devono essere effettuati in maniera preventiva e correttiva.

For this reason, ensure that system is perfectly clean during startup and keep it clean for its whole operating life. Necessary interventions to check and limit contamination should be performed in a preventive and corrective way.

Le azioni preventive comprendono l'accurata pulizia dell'impianto durante la fase di montaggio, la conseguente eliminazione delle bave residue, delle scorie delle saldature ecc., ed il trattamento del fluido prima del riempimento; prevedere una adeguata filtrazione anche al momento del riempimento dell'impianto e comunque ad ogni rabbocco. Dimensionare adeguatamente il serbatoio facendo in modo che abbia una capacità proporzionata al volume del fluido spostato dalla pompa in un minuto di funzionamento.

Preventive actions include: proper cleaning of the system during assembly, deburring, eliminating the welding scum and fluid filtering before filling up. Always pre-filter the fluid when filling up or topping up the system. Fit a proper tank; its capacity should be proportional to the volume displaced by the pump in one working minute.

Il controllo e la correzione dei livelli di contaminazione del fluido durante il funzionamento si ottiene attraverso l'installazione di filtri aventi la funzione di trattenere le particelle trasportate dal fluido. Due sono i parametri che determinano la buona scelta del filtro: il potere assoluto di filtrazione e il rapporto di filtrazione β . Bassi valori di potere assoluto di filtrazione e alti valori del rapporto di filtrazione β per particelle di piccole dimensioni concorrono a garantire buone caratteristiche di filtrazione. È pertanto molto importante limitare, oltre alle dimensioni massime, anche il numero delle particelle di più piccole dimensioni che oltrepassano il filtro. Risulta pertanto evidente che, all'aumentare della pressione di esercizio e al grado di sofisticazione dell'impianto, la filtrazione deve diventare sempre più efficace.

Fluid contamination level check and correction during operation can be obtained through filters that retain the particles in the fluid. Two parameters tell which filter is most suitable: absolute filtering power and β filtering ratio. Low absolute filtering power and high β filtering ratio for small particles help ensuring good filtration. It is then very important to limit not only max. dimensions, but also the number of smaller particles that pass through the filter. It goes without saying that with an operating pressure increase and according to the system sophistication degree, filtering should become more and more efficient.



CAPITOLO 04

VALVOLE E TAPPI

valves and plugs

ITALIAN QUALITY SINCE 1989



CAPITOLO 04

Valvole e tappi

valves and plugs

Valvole a cartuccia per il collettore centrale: massima pressione, ritegno, strozzatori, controllo di flusso, valvole elettriche e manuali, con i tappi funzionali per le cavità.

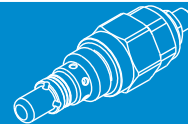
Cartridge valves for the central manifold: relief, check, throttle and flow control valves, solenoid and manual valves, with the function plugs for the cavities.

IN QUESTO CAPITOLO *in this chapter*

VMDC35	Valvola di massima pressione ad azione diretta <i>direct acting relief valve</i>	34
VMDC30	Valvola di massima pressione a cono guidato <i>guided poppet relief valve</i>	35
VUC20	Valvola unidirezionale ad otturatore <i>guided poppet check valve</i>	36
VSC	Strozzatori fissi a pressione compensata <i>fixed compensated throttles</i>	37
CMF	Corpo per montaggio in linea VSC <i>in-line body for VSC</i>	39
MSV	Valvola elettrica pilotata singola tenuta <i>pilot operated single locking solenoid valve</i>	40
MDV	Valvola elettrica pilotata doppia tenuta <i>pilot operated double locking solenoid valve</i>	41
AM	Connettori elettrici <i>electric connectors</i>	42
HDB	Bobine <i>coils</i>	42
MQV	Valvola elettrica 4/3 a cartuccia <i>4/3 cartridge solenoid valve</i>	43
HDQ	Bobine per valvola MDQ <i>coils for MDQ valves</i>	44
CPE	Valvola a due vie con comando a pulsante <i>push button two-way valve</i>	45
VPN	Valvola a due vie a cartuccia con comando pneumatico <i>pneumatic two-way cartridge valve</i>	46
CSC04	Valvola di controllo flusso compensata regolabile <i>adjustable compensated flow control valve</i>	47
CSB	Valvola bidirezionale di controllo di flusso <i>bidirectional flow control valve</i>	48
CM04L	Valvola a due vie con comando a leva <i>lever operated two-way valve</i>	49
PM02	Pompa manuale doppio effetto <i>double acting hand pump</i>	50
T0	Cavità e tappi funzionali <i>cavities and function plugs</i>	51

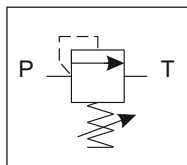
04

Valvole e tappi valves and plugs



VMDC35

Valvola di massima pressione ad azione diretta
Direct acting relief valve



Caratteristiche principali main features	
Pressione max max pressure	320 bar
Portata max max flow	30 l/min
Peso weight	0,16 Kg

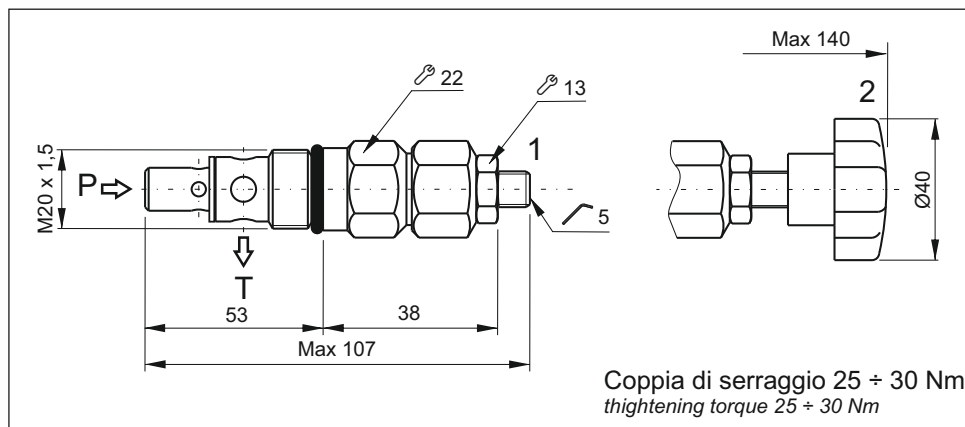
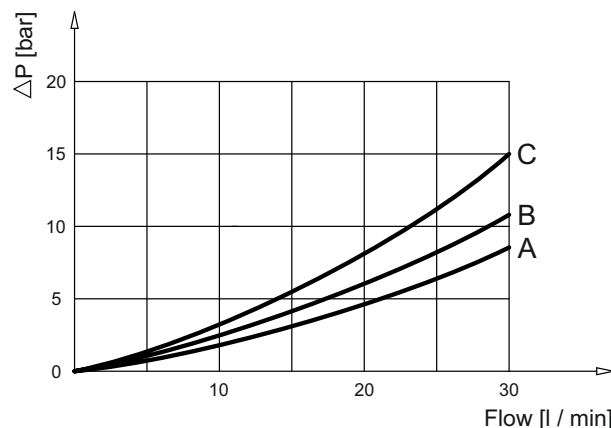


Diagramma perdita di carico - pressure drop diagram

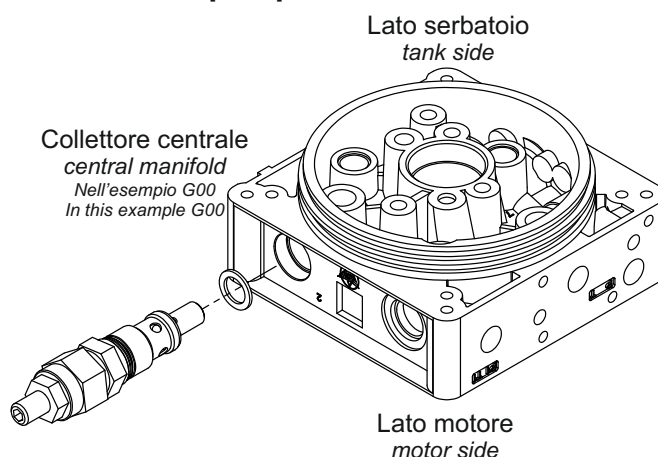


NB: Valori misurati sulla sola valvola.
La perdita di carico potrebbe variare a seconda della viscosità del liquido e della temperatura. Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.
Note: Values measured on valve alone. Pressure drop may change depending on fluid viscosity and temperature. The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.

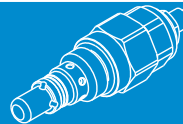
Codice ordinazione - ordering code

V	M	D	C	3	5	B	1	0
1			2		3	4	5	

1 Tipo di valvola - valve type VMDC	2 Grandezza nominale - nominal size M20x1,5	3 Range di lavoro - working range A = 10 ÷ 90 bar B = 20 ÷ 210 bar C = 70 ÷ 350 bar
4 Dispositivo di regolazione - adjusting device 1 = Vite - screw (standard) 2 = Manopola - handknob	5 Serie - series 0 = Standard	



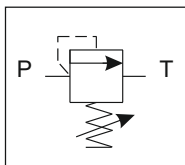
Valvole e tappi valves and plugs



04

VMDC30

Valvola di massima pressione ad azione diretta a cono guidato
Direct acting guided poppet type relief valve



Caratteristiche principali main features	
Pressione max max pressure	280 bar
Portata max max flow	30 l/min
Peso weight	0,13 Kg

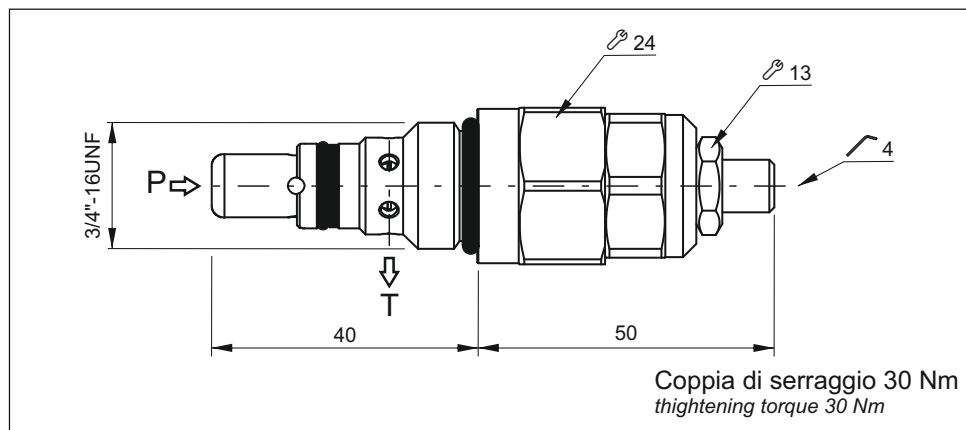
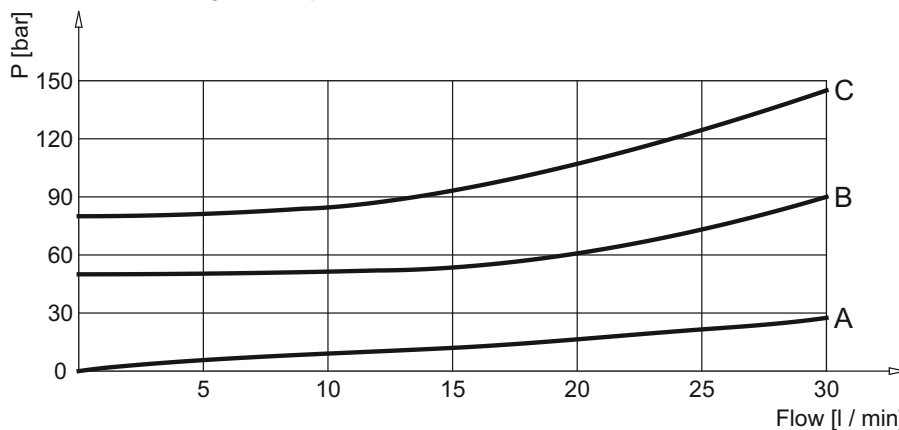
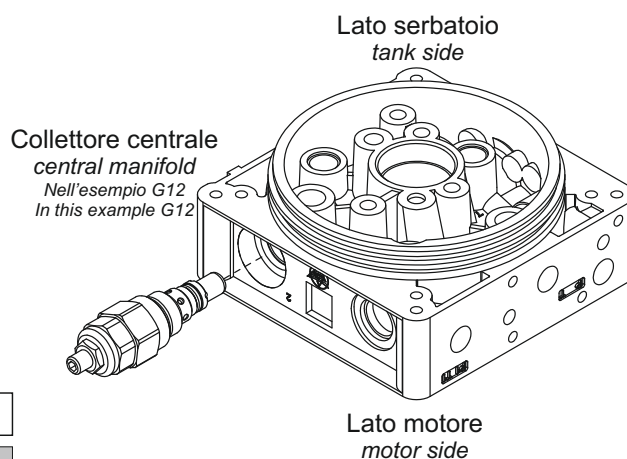


Diagramma perdita di carico - pressure drop diagram



NB: Valori misurati sulla sola valvola.
Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.
Note: Values measured on valve alone.
The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.



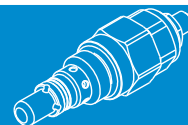
Codice ordinazione - ordering code

V	M	D	C	3	0	C	1	0
1		2		3		4		5

1 Tipo di valvola - valve type VMDC	2 Grandezza nominale - nominal size 3/4"-16 UNF	3 Range di lavoro - working range A = 10 ÷ 70 bar B = 30 ÷ 150 bar C = 50 ÷ 280 bar
4 Dispositivo di regolazione - adjusting device 1 = Vite - screw	5 Serie - series 0 = Standard	

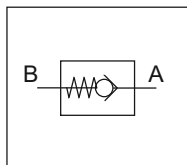
04

Valvole e tappi valves and plugs



VUC20

Valvola unidirezionale ad otturatore
Guided poppet type check valve



Caratteristiche principali main features	
Pressione max max pressure	350 bar
Portata max max flow	30 l/min
Peso weight	0,07 Kg

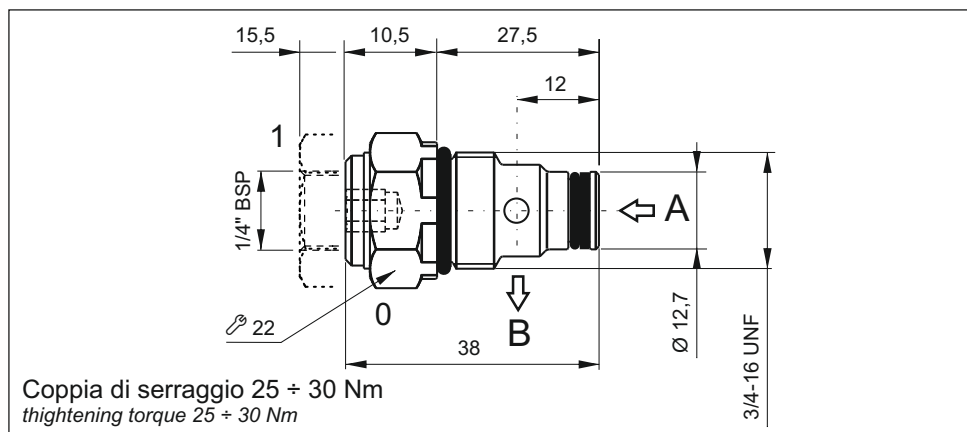
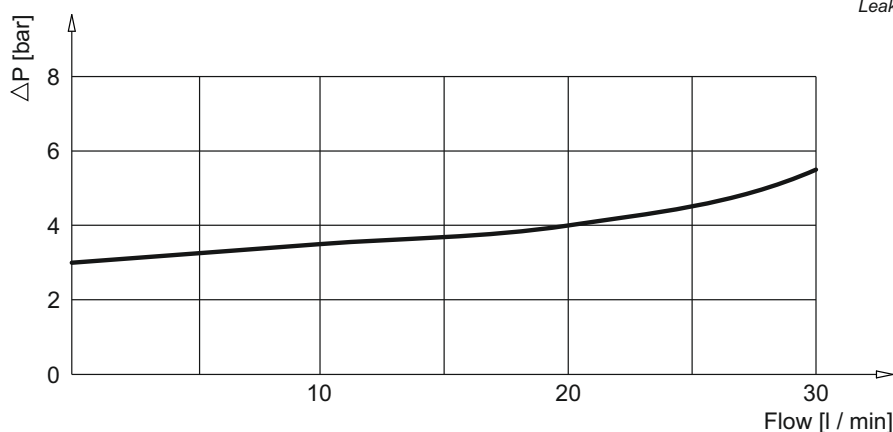


Diagramma perdita di carico - pressure drop diagram



Perdite: 0,25 cc/min (5 gocce/min)
Leakage: 0,25 cc/min (5 drops/min)
P max 350 bar

NB: Valori misurati sulla sola valvola.
La perdita di carico potrebbe variare a seconda della viscosità del liquido e della temperatura. Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.
Note: Values measured on valve alone. Pressure drop may change depending on fluid viscosity and temperature. The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.

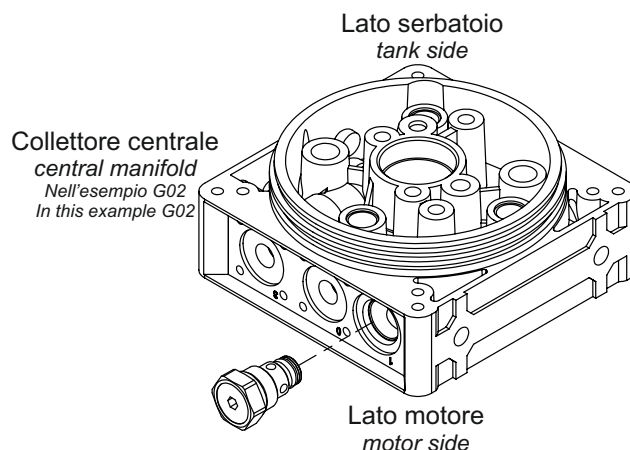
Codice ordinazione - ordering code

V U C 2 0 0
1 2 3

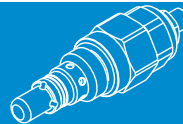
1 Tipo di valvola - valve type
VUC

2 Grandezza nominale - nominal size
3/4"-16 UNF

3 Serie - series
0 = Standard
1 = 1/4" BSP



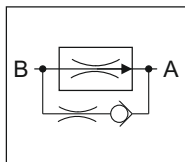
Valvole e tappi valves and plugs



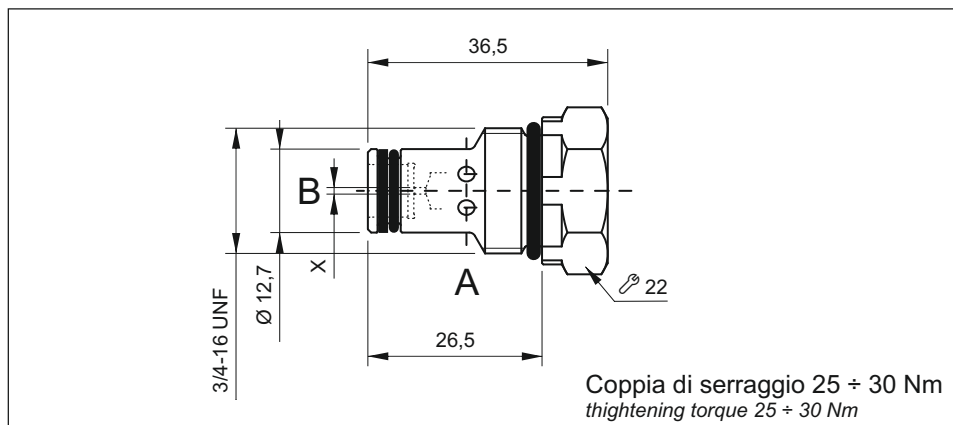
04

VSC6

Strozzatore fisso a pressione compensata
Fixed compensated pressure throttle



Caratteristiche principali main features	
Pressione max max pressure	250 bar
Portata max max flow	12 l/min
Peso weight	0,06 Kg



Flusso controllato - controlled flow

Code	Ø X [mm]
VSC60	chiusa closed
VSC6A	0,8
VSC6B	1
VSC6C	1,25
VSC6D	1,5
VSC6E	1,75
VSC6F	1,8
VSC6G	1,9
VSC6H	2
VSC6I	2,25
VSC6L	2,6

NB: Portata nominale controllata, misurata con Δp di 50bar. La caduta di pressione può variare a seconda della viscosità e della temperatura.

Note: nominal controlled flow, measured with Δp of 50bar. Pressure drop may change depending on fluid viscosity and temperature.

Codice ordinazione - ordering code

V	S	C	6	C	0
1	2	3	4		

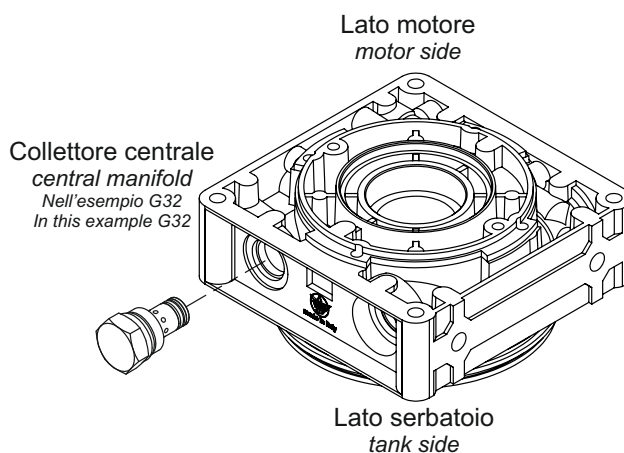
1 Tipo di valvola - valve type VSC
2 Grandezza nominale - nominal size 3/4"-16 UNF

3 Flusso controllato - controlled flow

A = 1,0 lt/min D = 4,0 lt/min G = 7,0 lt/min L = 12 lt/min
B = 2,0 lt/min E = 5,0 lt/min H = 8,0 lt/min 0 = chiusa - closed
C = 3,0 lt/min F = 6,0 lt/min I = 10 lt/min

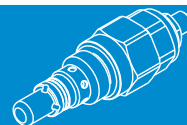
4 Serie - series

0 = Standard



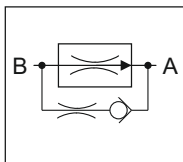
04

Valvole e tappi valves and plugs

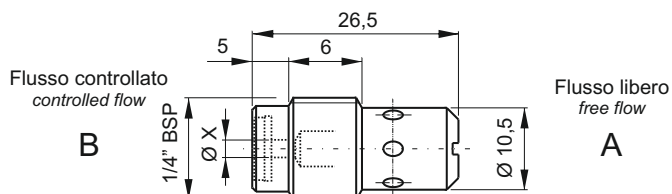


VSC01

Strozzatore fisso a pressione compensata
Fixed compensated pressure throttle



Caratteristiche principali main features	
Pressione max max pressure	250 bar
Portata max max flow	12 l/min
Peso weight	0,015 Kg



Coppia di serraggio 6 Nm
tightening torque 6 Nm

Flusso controllato - controlled flow

Code	ø X [mm]
VSC010	chiusa closed
VSC01A	1
VSC01B	1,2
VSC01C	1,5
VSC01D	1,7
VSC01E	1,9
VSC01F	2,1
VSC01G	2,3
VSC01H	2,4
VSC01I	2,8
VSC01L	3,3

NB: Portata nominale controllata, misurata con Δp di 50bar. La caduta di pressione può variare a seconda della viscosità e della temperatura.

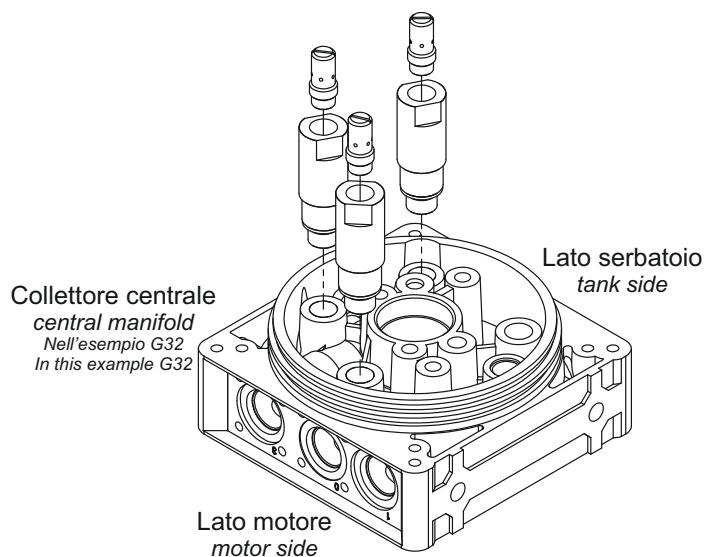
Note: nominal controlled flow, measured with Δp of 50bar. Pressure drop may change depending on fluid viscosity and temperature.

Codice ordinazione - ordering code

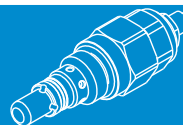
V	S	C	0	1	E	0
1	2	3	4			

1	Tipo di valvola - valve type	2	Grandezza nominale - nominal size
	VSC		1/4" BSP

3	Flusso controllato - controlled flow	4	Serie - series
	A = 1,0 lt/min D = 4,0 lt/min G = 7,0 lt/min L = 12 lt/min B = 2,0 lt/min E = 5,0 lt/min H = 8,0 lt/min O = chiusa - closed C = 3,0 lt/min F = 6,0 lt/min I = 10 lt/min		0 = Standard



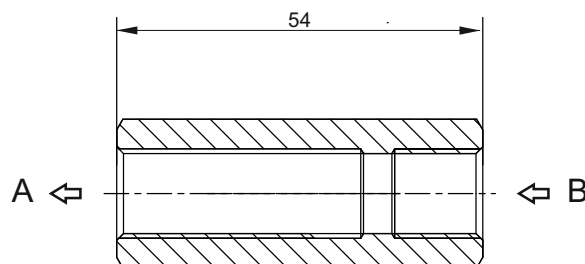
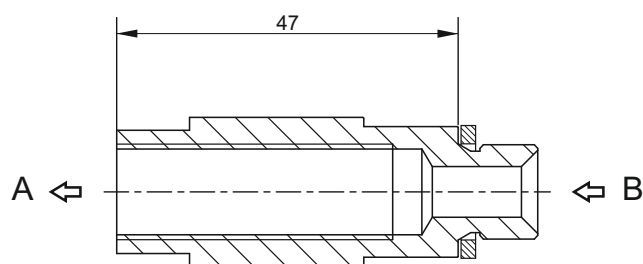
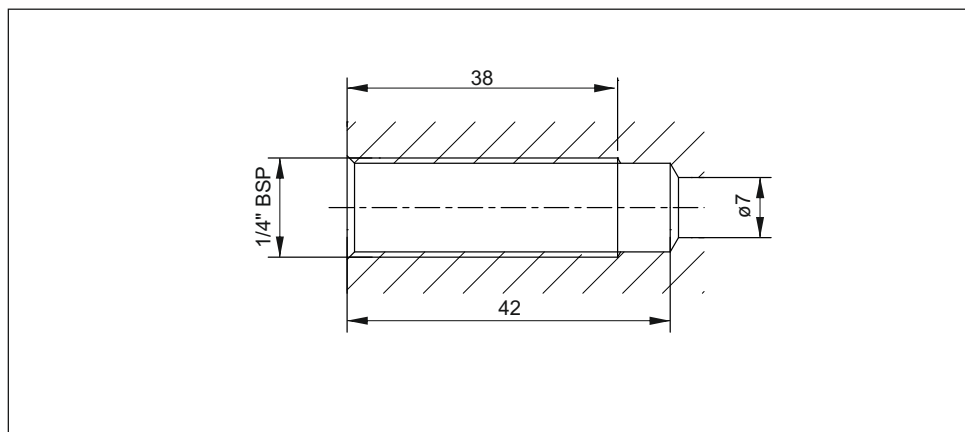
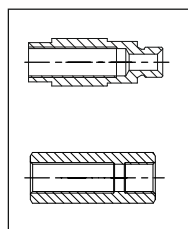
Valvole e tappi valves and plugs



04

CMF

Corpo per montaggio in linea VSC
Body for VSC in-line mount

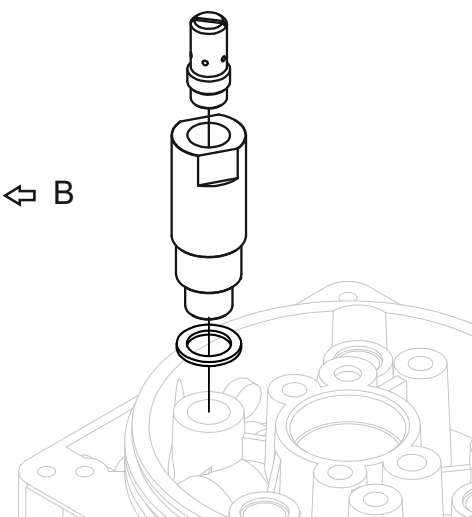


Code	Tipo type
CMF059	F - M
CMF060	F - F

Codice ordinazione - ordering code

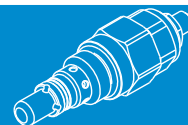
C	M	F	0	5	9	0
1		2		3		

1	Corpo - body	2	Tipo - type	3	Serie - series
	CMF		059 = MF (Std) 060 = FF		0 = Standard



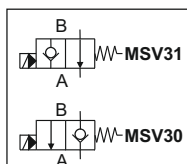
04

Valvole e tappi valves and plugs



MSV

Valvola elettrica pilotata singola tenuta
Pilot operated two-ways single locking solenoid valve



Caratteristiche principali main features	
Pressione max max pressure	350 bar
Portata max max flow	40 l/min
Peso (con bobina) weight (with coil)	0,27 Kg

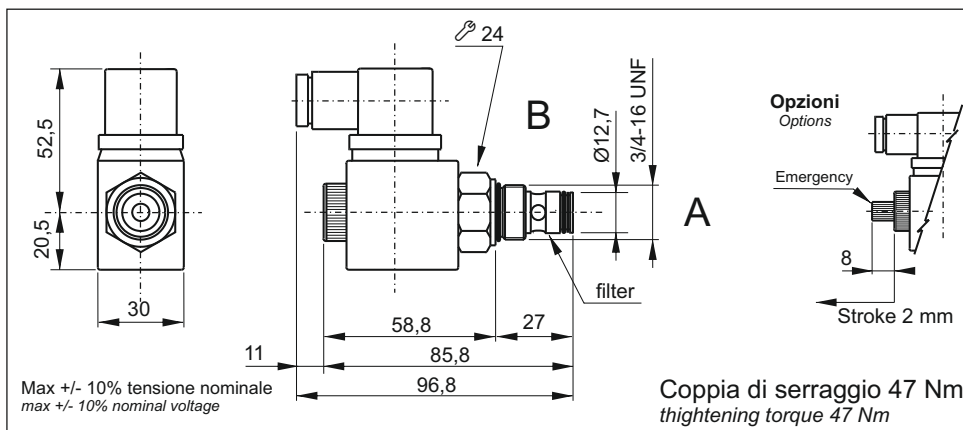
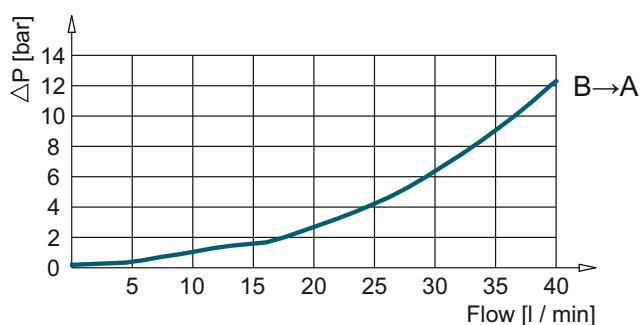


Diagramma perdita di carico - pressure drop diagram



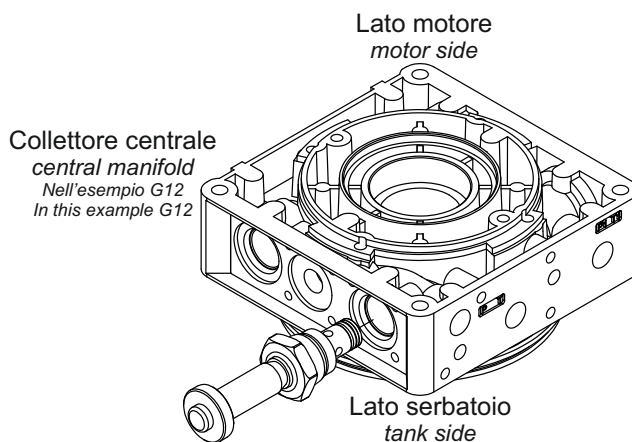
Tipologia valvola valve type	Tipologia bobina coil type	Potenza assorbita power consumption
MSV3000	HDB...DC/RAC	18W
MSV30E0	HDB...DC/RAC	18W
MSV3100	HDB...DC/RAC	18W
MSV31E0	HDB...DC/RAC	18W

NB: Valori misurati sulla sola valvola.
La perdita di carico potrebbe variare a seconda della viscosità del liquido e della temperatura. Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.
Note: Values measured on valve alone. Pressure drop may change depending on fluid viscosity and temperature. The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.

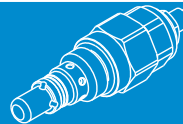
Codice ordinazione - ordering code

M	S	V	3	0	0	0
1	2	3	4			

1 Tipo di valvola - valve type MSV	2 Operazione - operation 30 = normalmente chiusa - normally closed 31 = normalmente aperta - normally open	3 Opzioni - options 0 = Senza opzioni - no options (Std) E = Comando manuale - manual override
4 Serie - series 0 = Standard		



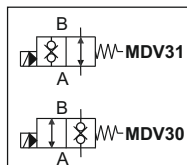
Valvole e tappi valves and plugs



04

MDV

Valvola elettrica pilotata doppia tenuta
Direct operated two-ways double locking solenoid valve



Caratteristiche principali main features	
Pressione max max pressure	250 bar
Portata max max flow	15 l/min
Peso (con bobina) weight (with coil)	0,35 Kg

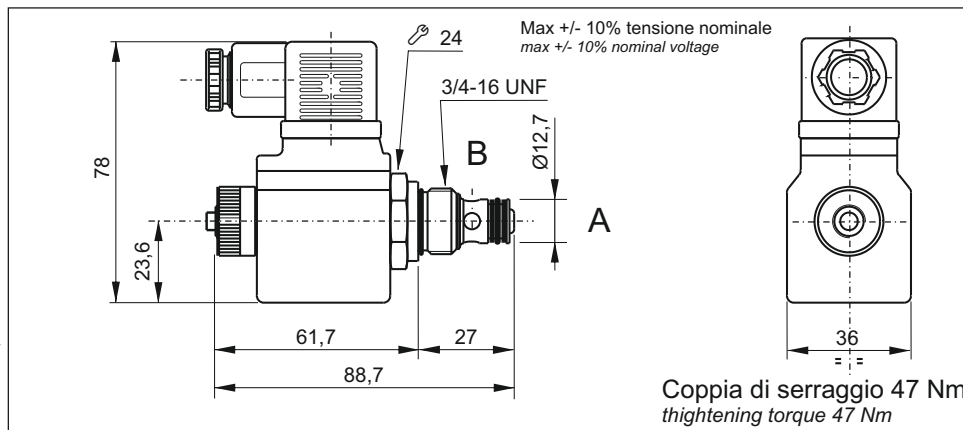
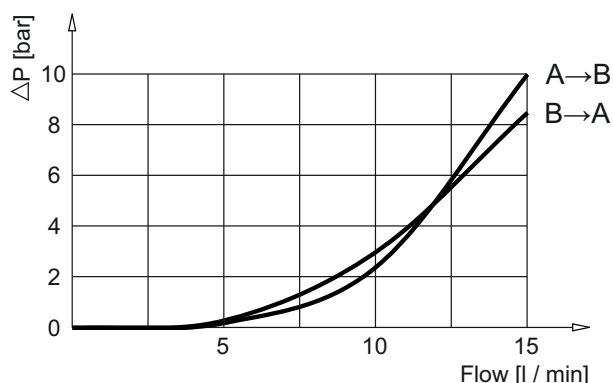


Diagramma perdita di carico - pressure drop diagram



Tipologia valvola valve type	Tipologia bobina coil type	Potenza assorbita power consumption
MDV30E0	HDB...DC/RAC	22W
MDV31E0	HDB...DC/RAC	22W

NB: Valori misurati sulla sola valvola.

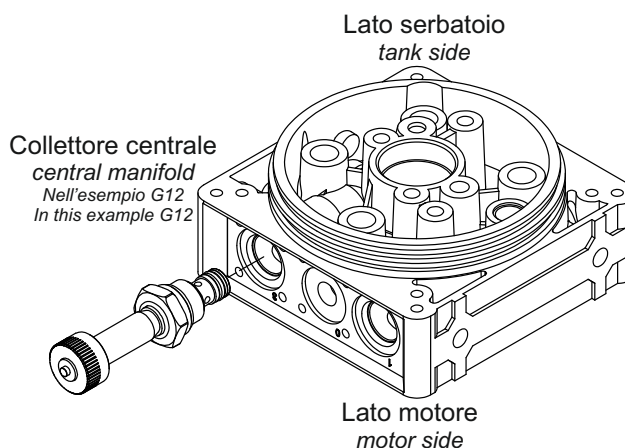
La perdita di carico potrebbe variare a seconda della viscosità del liquido e della temperatura. Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.

Note: Values measured on valve alone. Pressure drop may change depending on fluid viscosity and temperature. The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.

Codice ordinazione - ordering code

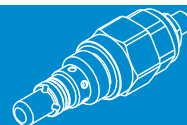
M	D	V	3	0	E	0
1	2	3	4			

1 Tipo di valvola - valve type	2 Operazione - operation	3 Opzioni - options
MDV	30 = normalmente chiusa - normally closed 31 = normalmente aperta - normally open	E = Comando manuale - manual override
4 Serie - series		
0 = Standard		



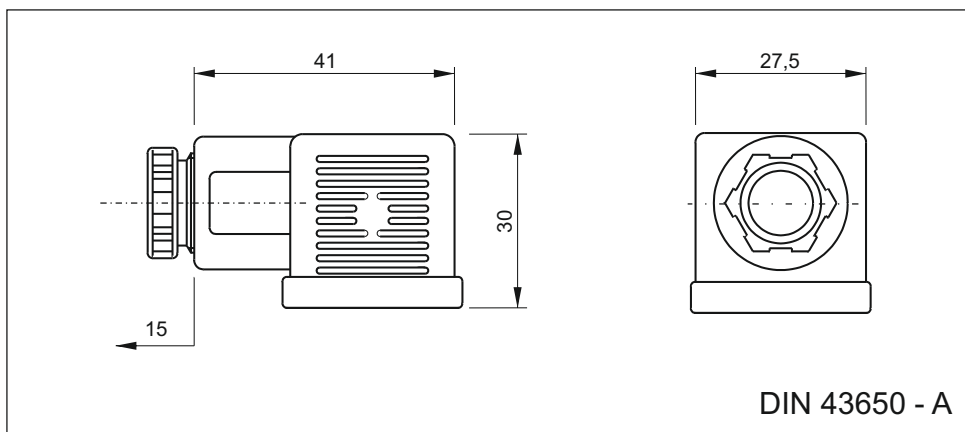
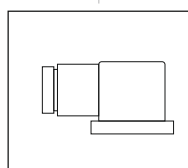
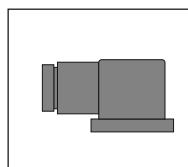
04

Valvole e tappi valves and plugs



AM

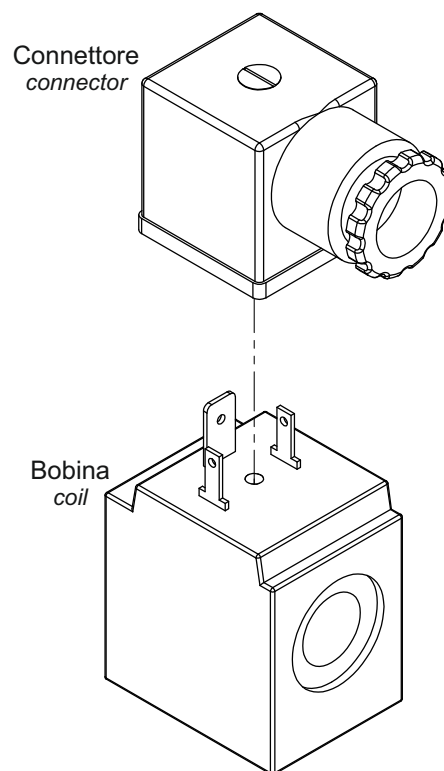
Connettori elettrici
Electric connectors



HDB

Bobine
coils

cod. connettore connector code	cod. bobina coil code
18 W Potenza - power	
AM5111, AM5128/1	HDB0012DC0
AM5111, AM5128/2	HDB0024DC0
AM5111/RD, AM5128/2/RD	HDB024RAC0
AM5111/RD, AM5128/3/RD	HDB220RAC0



Codici ordinazione - ordering codes

A M 5 1 2 8 / 2 / R D
1 2 3

1 Connettore - connector

AM5111 = nero - black (Std)
AM5128 = luminoso - LED

2 Tensione (solo LED) - voltage (only LED)

1 = 12 V
2 = 24 V
3 = 110 - 220 V

3 Raddrizzatore - rectifier

RD = con raddrizzatore - with rectifier
Omettere se non richiesto - omit if not request

Per connettore AM5111 omettere punto 2 - for AM5111 omit point 2

H D B 2 2 0 R A C 0
1 2 3

1 Bobina - coil

HDB = 18W

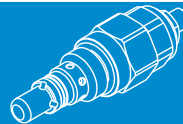
2 Tensione - voltage

0012DC, 0024DC = corrente continua - DC current
024RAC, 220RAC = corrente raddrizzata - RAC current

3 Serie - series

0 = Standard

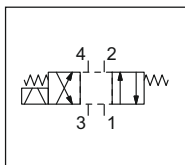
Valvole e tappi valves and plugs



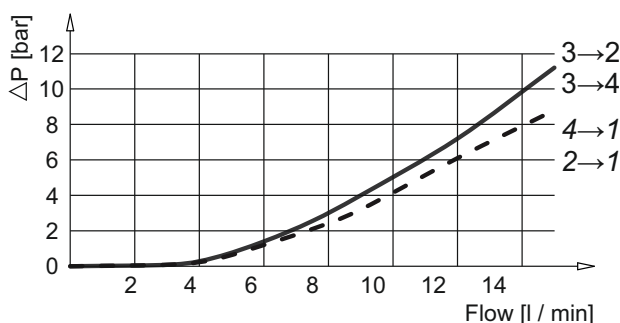
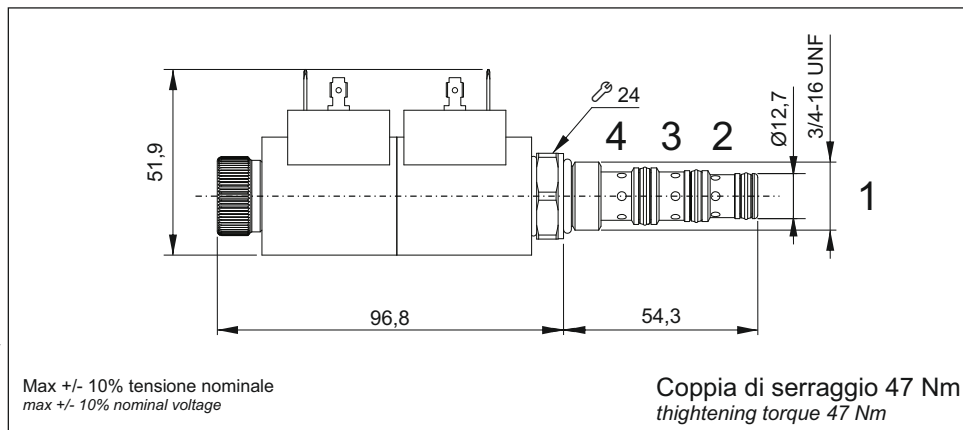
04

MQV

Valvola elettrica 4/3 a cartuccia
4/3 cartridge solenoid valve



Caratteristiche principali main features	
Pressione max max pressure	210 bar
Portata max max flow	12 l/min
Peso (senza bobine) weight (without coil)	0,19 Kg



Schema idraulico - hydraulic scheme	
Code	Schema - scheme
C0	
H0	
Y0	
T0	
X1	

NB: Valori misurati sulla sola valvola.

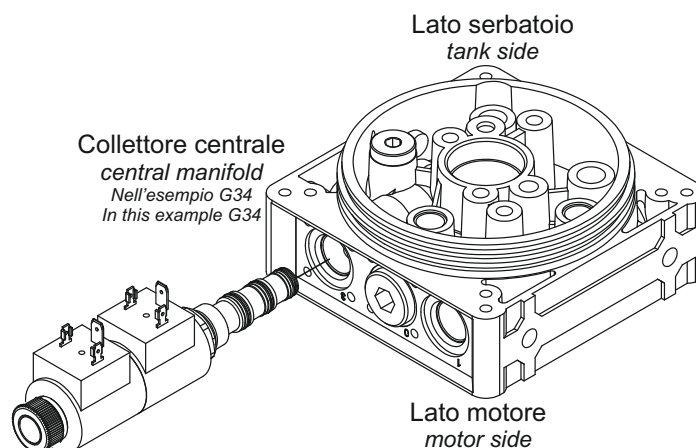
La perdita di carico potrebbe variare a seconda della viscosità del liquido e della temperatura. Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.

Note: Values measured on valve alone. Pressure drop may change depending on fluid viscosity and temperature. The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.

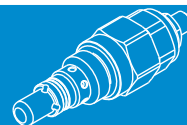
Codice ordinazione - ordering code

M	Q	V	C	0	0
1	2	3			

1	2	3
Tipo di valvola - valve type	Schema idraulico - hydraulic scheme	Serie - series
MQV	C0 = centri chiusi - closed centers H0 = centro H - center H Y0 = P chiuso - closed P T0 = centro tandem (P in T) - center tandem (P in T) X1 = incrociato parallelo - cross-parallel	0 = Standard

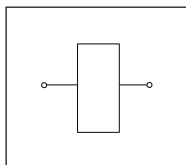


Valvole e tappi valves and plugs

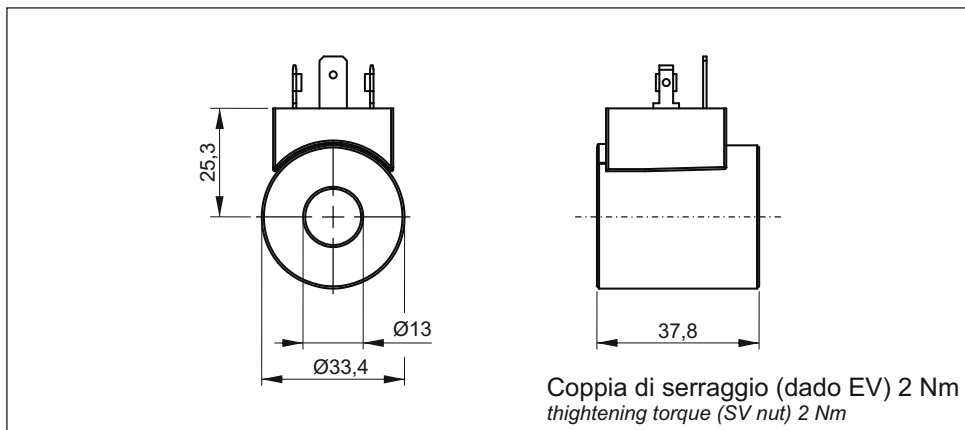


HDQ

Bobine per valvola MDQ
Coils for MDQ valves

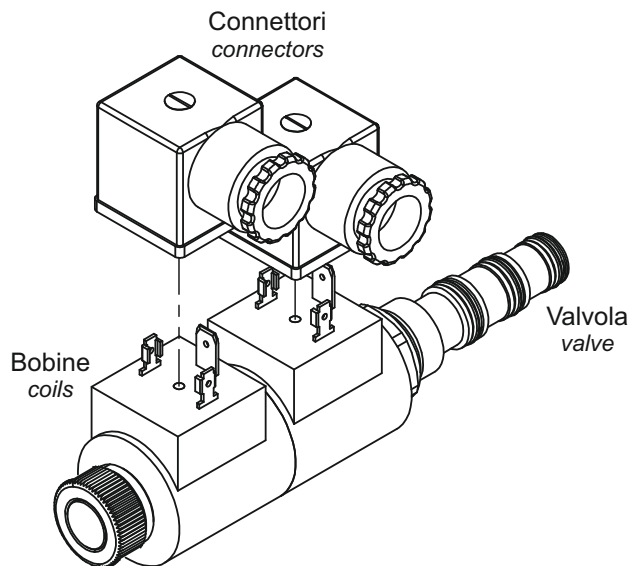


Caratteristiche principali main features	
Connettore connector	DIN 43650
Tensione nominale nominal voltage	±10%
Resistenza 12 Vdc 12 Vdc resistance	6,6 Ω ±10%
Resistenza 24 Vdc 24 Vdc resistance	27 Ω ±10%
Classe isolamento insulation class	H
Classe protezione protection class	IP 65



NB: Valori di riferimento alla temperatura di 20°C.
Classe di protezione con connettore montato.
Servizio 100% con temperatura ambiente -20°C +40°C.
Note: Reference values at temperature of 20°C.
Protection class with connector installed.
ED 100% with ambient temperature -20°C +40°C.

cod. connettore connector code	cod. bobina coil code
20,5 W Potenza - power	
AM5111, AM5128/1	HDQ0012DC0
AM5111, AM5128/2	HDQ0024DC0

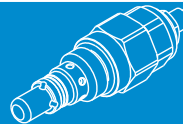


Codici ordinazione - ordering codes

H	D	Q	0	0	2	4	D	C	0
1					2				3

1 Bobina - coil HDQ = 20,5W	2 Tensione - voltage 0012DC, 0024DC = corrente continua - DC current	3 Serie - series 0 = Standard
--------------------------------	---	----------------------------------

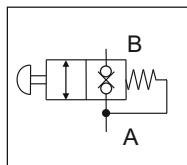
Valvole e tappi valves and plugs



04

CPE

Valvola direzionale a due vie con comando a pulsante
Button operated two-ways directional valve



Caratteristiche principali main features	
Pressione max max pressure	320 bar
Portata max max flow	15 l/min
Peso weight	0,12 Kg

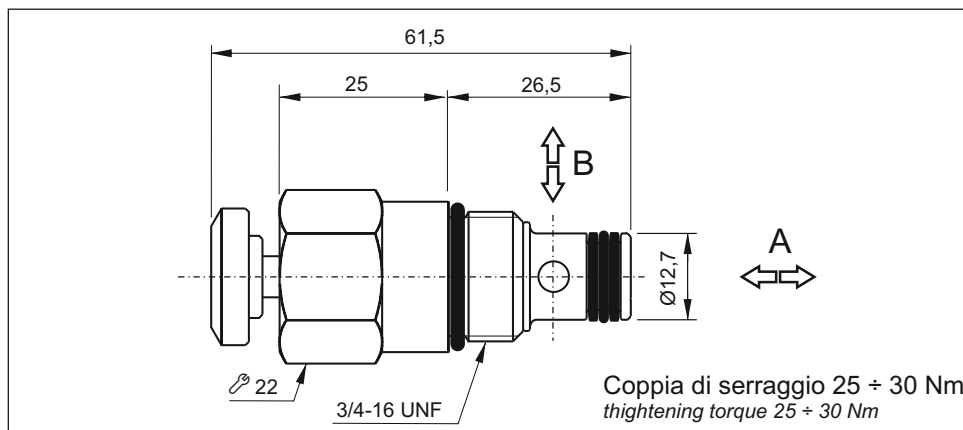
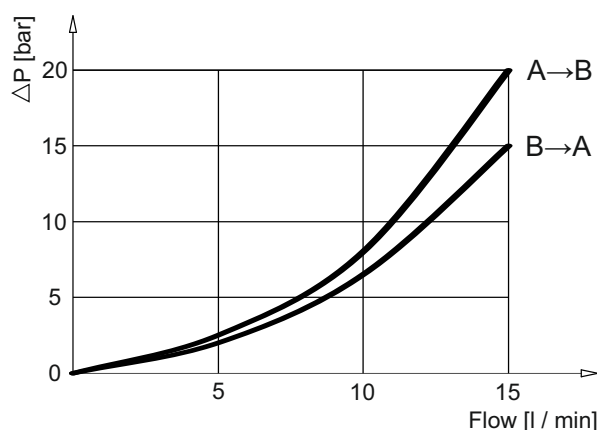


Diagramma perdita di carico - pressure drop diagram



NB: Valori misurati sulla sola valvola.

La perdita di carico potrebbe variare a seconda della viscosità del liquido e della temperatura. Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.

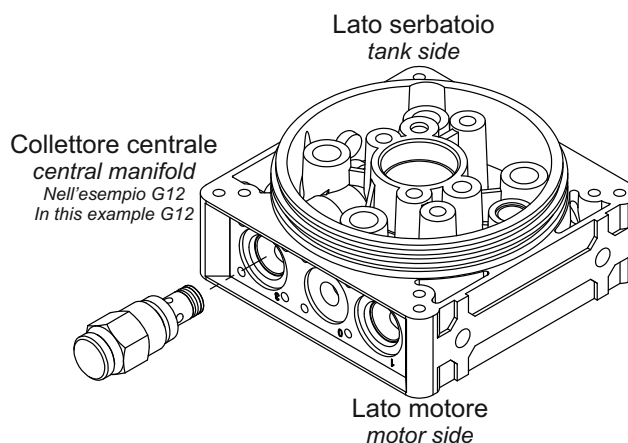
Note: Values measured on valve alone. Pressure drop may change depending on fluid viscosity and temperature. The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.

Codice ordinazione - ordering code

C	P	E	0	4	P	0
1	2	3	4			

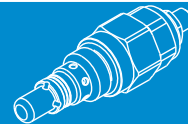
1 Tipo di valvola - valve type CPE	2 Grandezza nominale - nominal size 3/4"-16 UNF	3 Dispositivo di comando - operation device P = bottone - press button
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4 Serie - series 0 = Standard



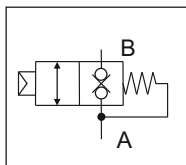
04

Valvole e tappi valves and plugs



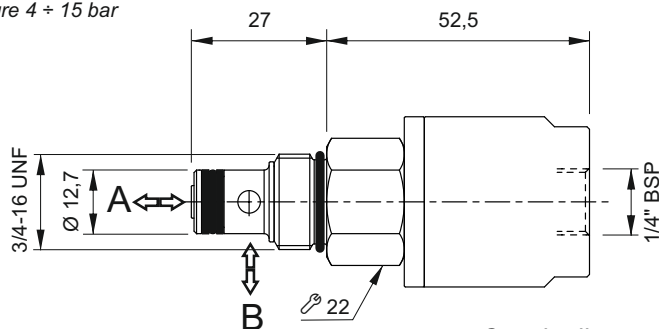
VPN

Valvola direzionale a due vie a cartuccia con comando pneumatico
Pneumatic operated two-ways directional cartridge valve



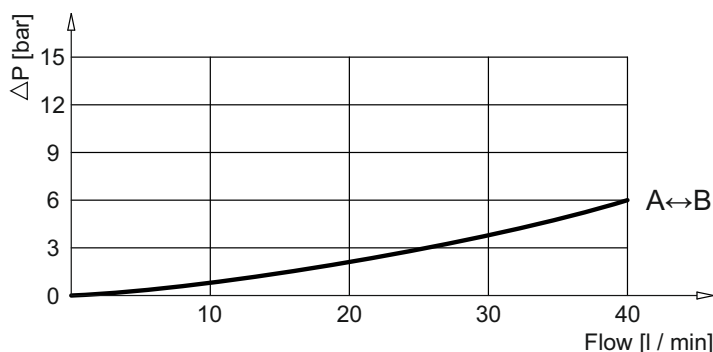
Caratteristiche principali main features	
Pressione max max pressure	350 bar
Portata max max flow	40 l/min
Peso weight	0,16 Kg

Pressione di pilotaggio 4 ÷ 15 bar
pilot pressure 4 ÷ 15 bar



Coppia di serraggio 25 ÷ 30 Nm
tightening torque 25 ÷ 30 Nm

Diagramma perdita di carico - pressure drop diagram



NB: Valori misurati sulla sola valvola.

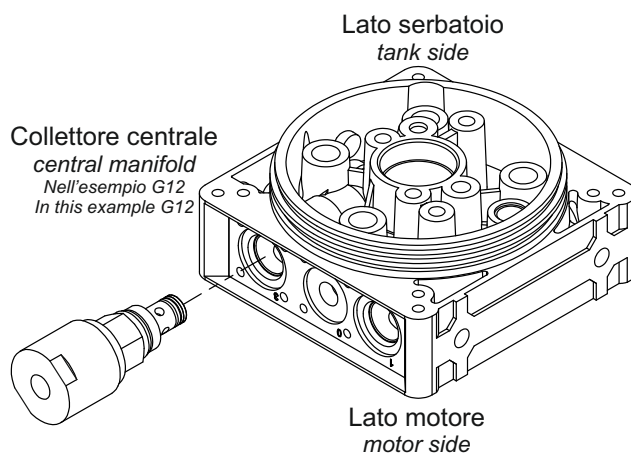
La perdita di carico potrebbe variare a seconda della viscosità del liquido e della temperatura. Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.

Note: Values measured on valve alone. Pressure drop may change depending on fluid viscosity and temperature. The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.

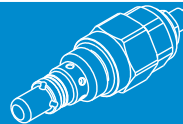
Codice ordinazione - ordering code

V	P	N	0
1	2		

1 Tipo di valvola - valve type VPN	2 Serie - series 0 = Standard
---------------------------------------	----------------------------------



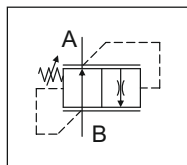
Valvole e tappi valves and plugs



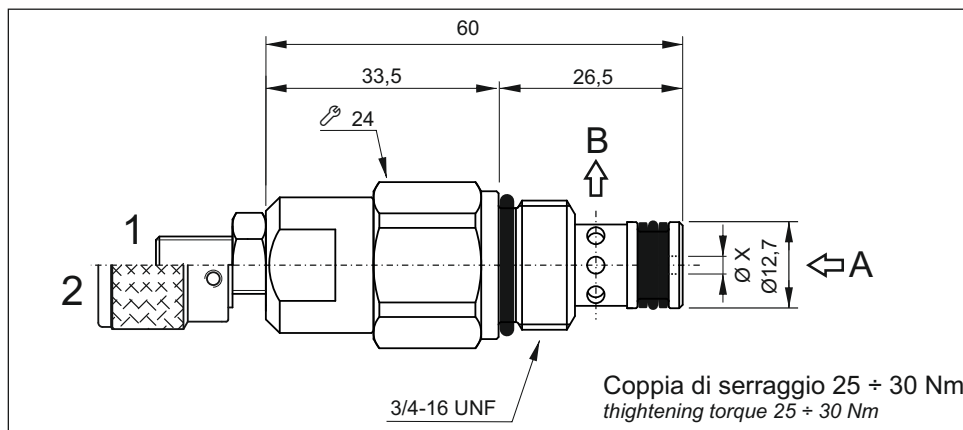
04

CSC04

Valvola di controllo flusso compensata regolabile
Adjustable compensated flow control valve



Caratteristiche principali main features	
Pressione max max pressure	350 bar
Portata max max flow	18 l/min
Peso weight	0,21 Kg

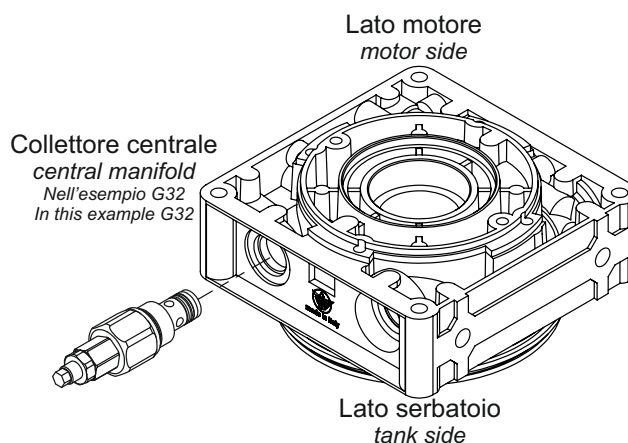


Flusso controllato - controlled flow

Code	Ø X [mm]
CSC04A	0,9
CSC04B	1
CSC04C	1,3
CSC04D	1,5
CSC04E	1,7
CSC04F	2,2
CSC04G	2,8

NB: Portata nominale controllata, misurata con Δp di 50bar. La caduta di pressione può variare a seconda della viscosità e della temperatura.

Note: nominal controlled flow, measured with Δp of 50bar. Pressure drop may change depending on fluid viscosity and temperature.



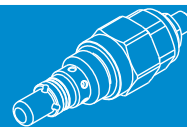
Codice ordinazione - ordering code

C	S	C	0	4	C	1	0
1				2		3	
				4			

1 Tipo di valvola - valve type	2 Flusso controllato - controlled flow		
CSC04	A = 0,6 ÷ 2,2 lt/min	D = 1,9 ÷ 6,8 lt/min	G = 7,2 ÷ 18,0 lt/min
	B = 0,8 ÷ 3,0 lt/min	E = 2,6 ÷ 9,1 lt/min	
	C = 1,3 ÷ 5,1 lt/min	F = 4,0 ÷ 14,4 lt/min	
3 Dispositivo di regolazione - adjusting device	4 Serie - series		
1 = Vite - screw (standard)	0 = Standard		
2 = Manopola - handknob			

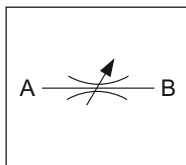


Valvole e tappi valves and plugs



CSB

Valvola bidirezionale di controllo di flusso
Bidirectional flow control valve



Caratteristiche principali main features	
Pressione max max pressure	300 bar
Portata max max flow	20 l/min
Peso weight	0,09 Kg

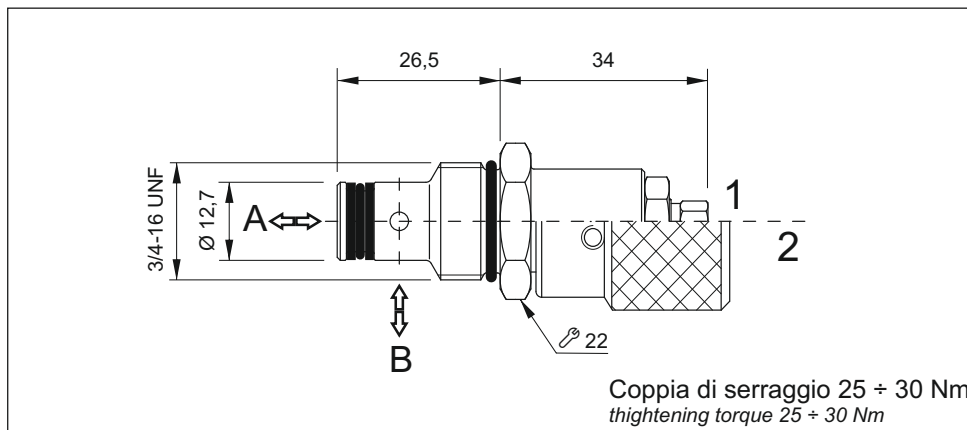
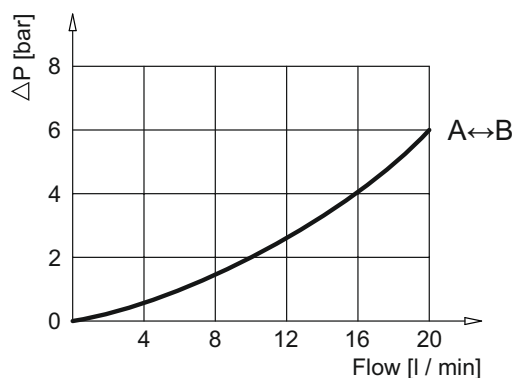


Diagramma perdita di carico - pressure drop diagram



NB: Valori misurati sulla sola valvola.

La perdita di carico potrebbe variare a seconda della viscosità del liquido e della temperatura. Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.

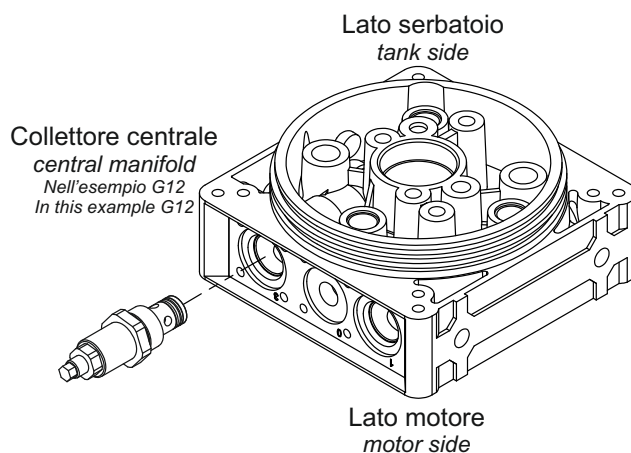
Note: Values measured on valve alone. Pressure drop may change depending on fluid viscosity and temperature. The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.

Codice ordinazione - ordering code

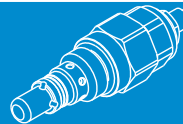
C	S	B	0	4	C	0
1	2	3	4			

1 Tipo di valvola - valve type CSB	2 Grandezza nominale - nominal size 3/4"-16 UNF	3 Dispositivo di regolazione - adjusting device C = Vite - screw (standard) V = Manopola - handknob
---------------------------------------	--	---

4 Serie - series 0 = Standard



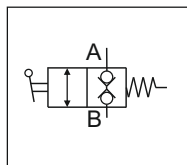
Valvole e tappi valves and plugs



04

CM04L

Valvola direzionale a due vie a cartuccia con comando a leva
Lever operated two-ways directional valve



Caratteristiche principali main features	
Pressione max max pressure	320 bar
Portata max max flow	25 l/min
Peso weight	0,39 Kg

NB: Valori misurati sulla sola valvola.
La perdita di carico potrebbe variare a seconda della viscosità del liquido e della temperatura.
Note: Values measured on valve alone. Pressure drop may change depending on fluid viscosity and temperature.

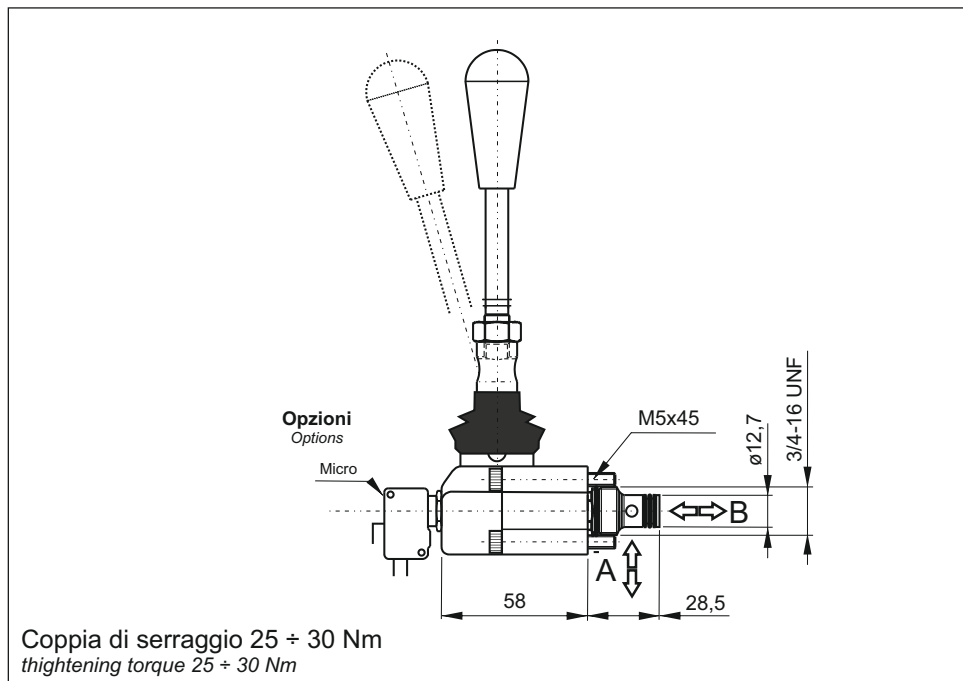
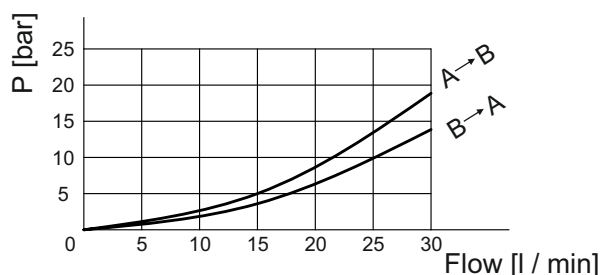


Diagramma perdita di carico - pressure drop diagram

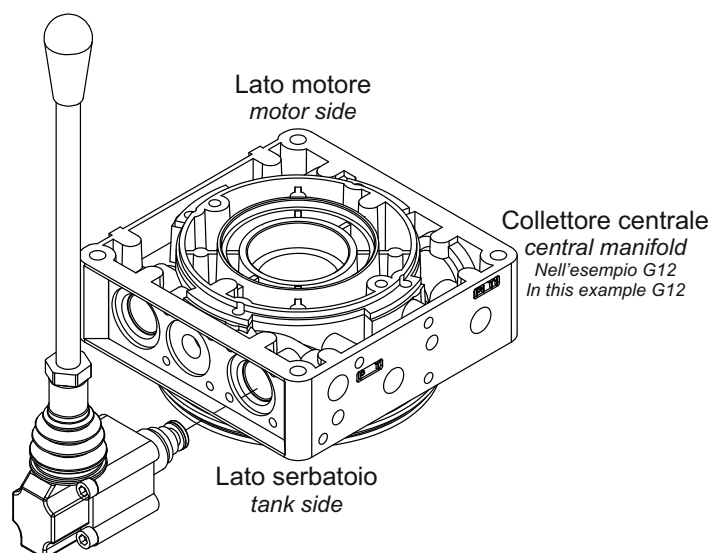


Le curve sopra riportate sono state ottenute alla temperatura di 40°C, utilizzando olio con viscosità 46 cSt.
The curves above, have been obtained at 40°C, using oil with viscosity 46 cSt.

Codice ordinazione - ordering code

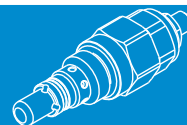
C	M	0	4	L	M	0
1					2	3

1 Tipo di valvola - valve type	2 Opzioni - options	3 Serie - series
CM04L	0 = senza micro - without micro (Std) M = con micro - with micro	0 = Standard



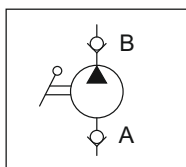
04

Valvole e tappi valves and plugs



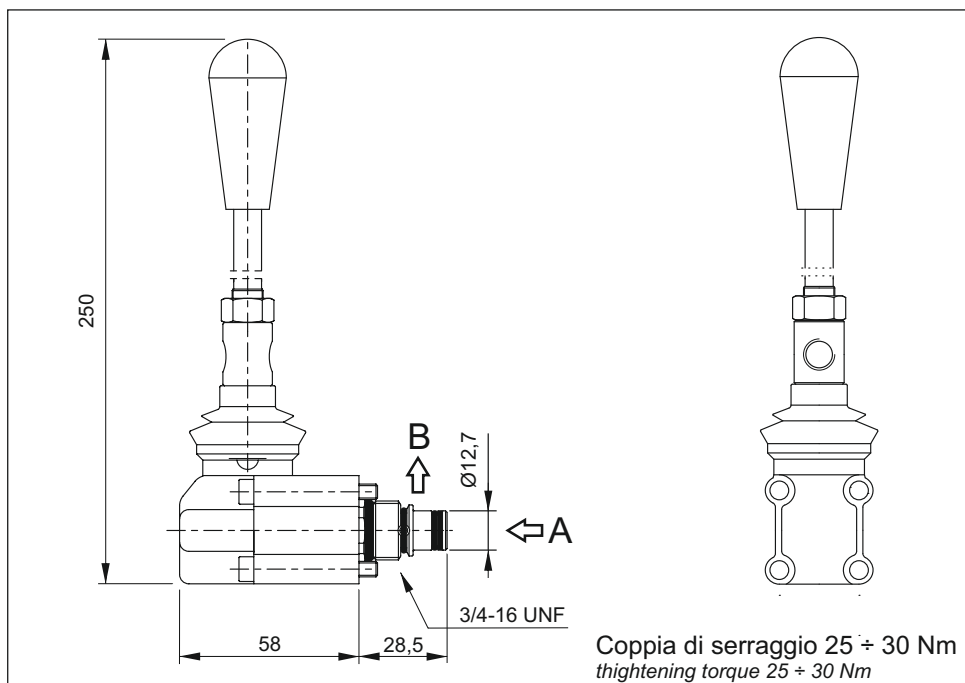
PM02

Pompa manuale doppio effetto
Double acting hand pump



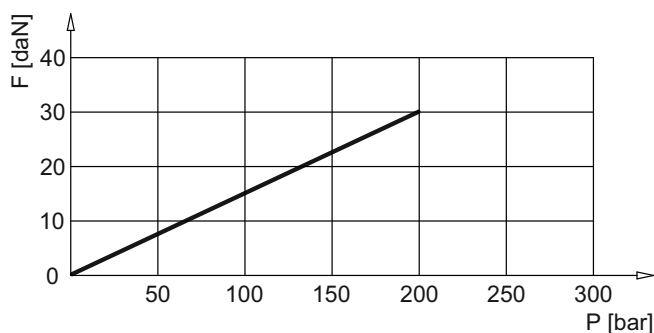
Caratteristiche principali main features	
Pressione max max pressure	200 bar
Cilindrata displacement	2 cc
Peso weight	0,40 Kg

NB: Valori misurati sulla sola valvola.
Note: Values measured on valve alone.



Coppia di serraggio 25 ÷ 30 Nm
tightening torque 25 ÷ 30 Nm

Diagramma forze azionamento - actuating forces diagram

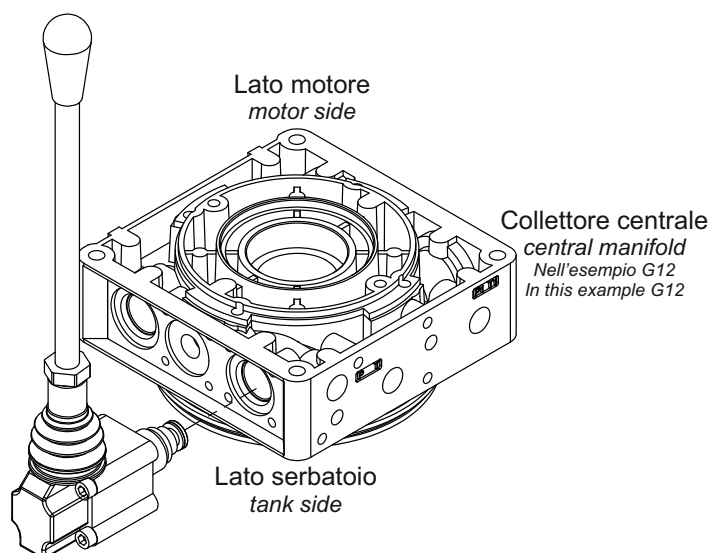


Codice ordinazione - ordering code

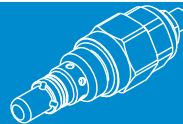
P M 0 2 0
1 2

1 Tipo di valvola - valve type
PM02

2 Serie - series
0 = Standard

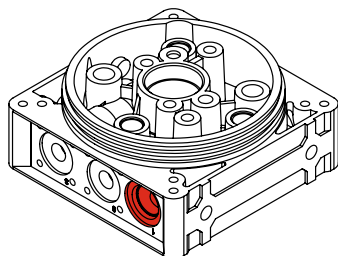


Valvole e tappi valves and plugs



04

CAV. 1



Collettori - manifolds

Tutti - all

Cavità - cavity

3/4"-16 UNF-2B

Valvole - valves

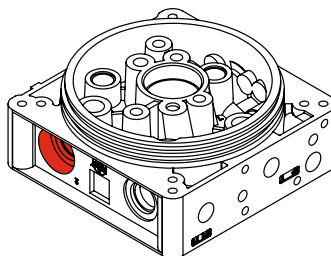
VUC20

CSB04

T0A4

T0C1

CAV. 2



Collettori - manifolds

Tutti - all

Cavità - cavity

M20x1,5
3/4"-16 UNF-2B (std)

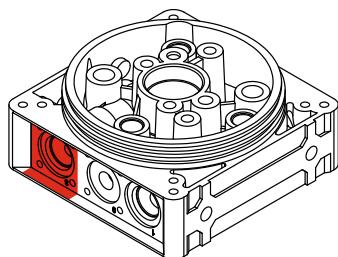
Valvole - valves

VMDC35 (G10)

T0VM

VMDC30

CAV. 3



Collettori - manifolds

G12, G22, G32

Cavità - cavity

3/4"-16 UNF-2B

Valvole - valves

MSV

MDV

MQV

VPN

CPE

CSB04

PM02

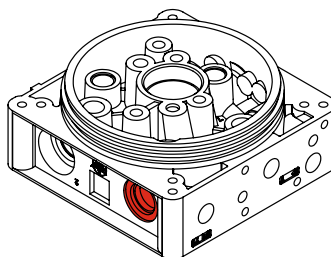
CM04L

T0C2

T0A2

T0A3

CAV. 4



Collettori - manifolds

G22, G32

Cavità - cavity

3/4"-16 UNF-2B

Valvole - valves

CSC04

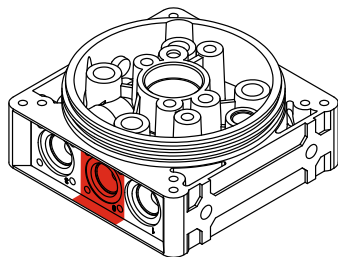
CSB04

VSC6

T0A2

T0C1

CAV. 0



Collettori - manifolds

G32

Cavità - cavity

3/4"-16 UNF-2B

Valvole - valves

MSV

MDV

VPN

CPE

CSB04

PM02

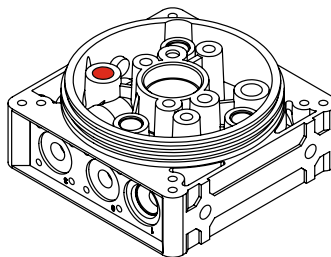
CM04L

T0C2

T0A2

T0A3

CAV. 5



Collettori - manifolds

Tutti - all

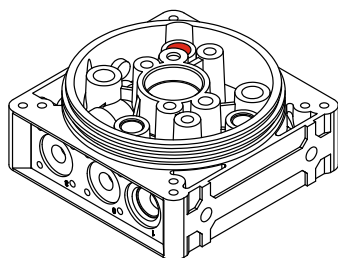
Cavità - cavity

G 1/4"

Valvole - valves

VSC

CAV. 6



Collettori - manifolds

Tutti - all

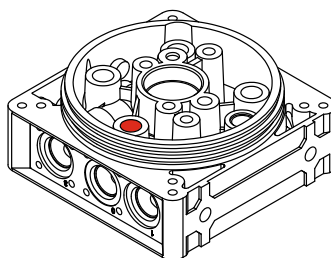
Cavità - cavity

G 1/4"

Valvole - valves

VSC

CAV. 7



Collettori - manifolds

G32

Cavità - cavity

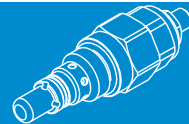
G 1/4"

Valvole - valves

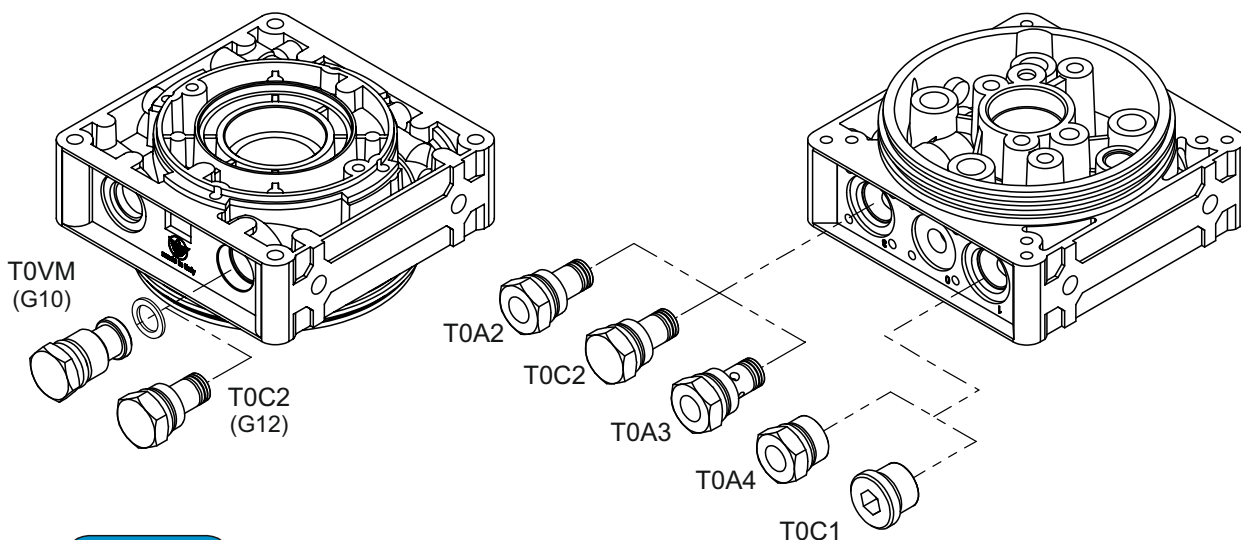
VSC



Valvole e tappi valves and plugs

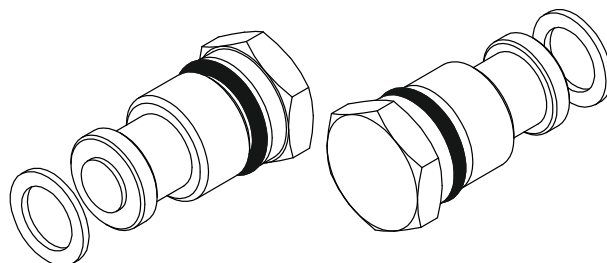
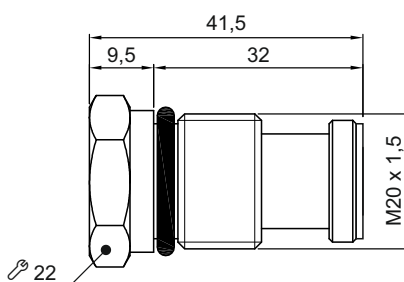
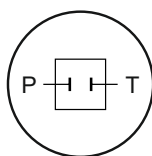


Tappi funzionali - function plugs



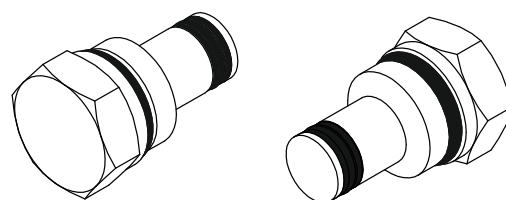
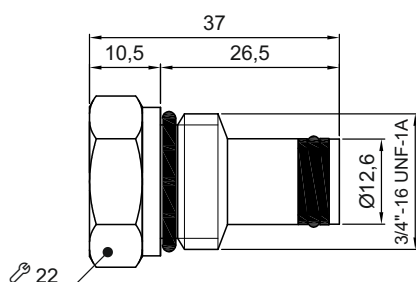
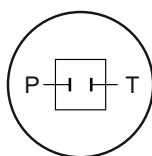
T0VM

Simbolo
symbol

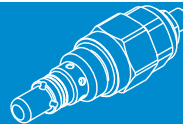


T0C2

Simbolo
symbol



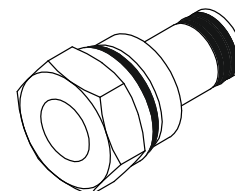
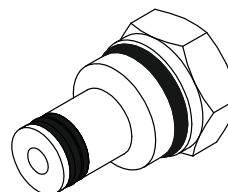
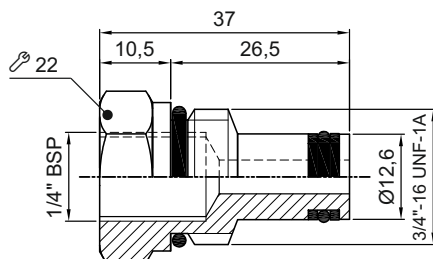
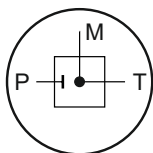
Valvole e tappi valves and plugs



04

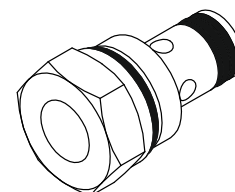
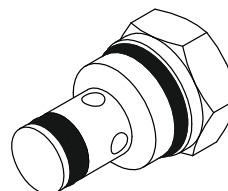
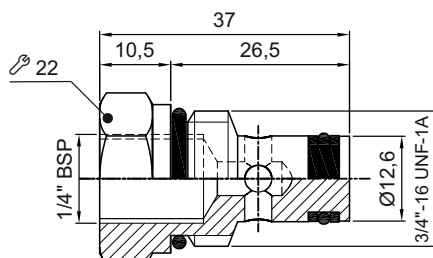
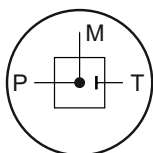
T0A2

Simbolo
symbol



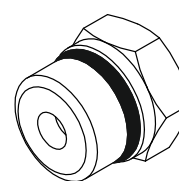
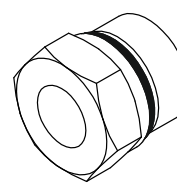
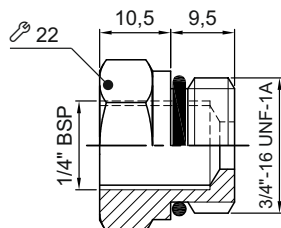
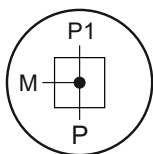
T0A3

Simbolo
symbol



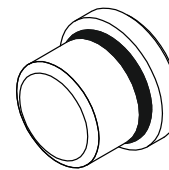
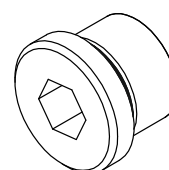
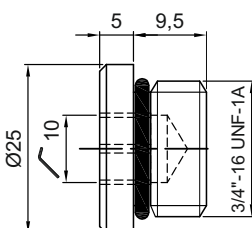
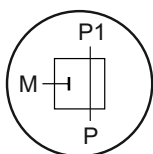
T0A4

Simbolo
symbol



T0C1

Simbolo
symbol



CAPITOLO | CHAPTER

05

CAPITOLO 05

ELEMENTI DI CONNESSIONE

junction elements

ITALIAN QUALITY SINCE 1989



CAPITOLO 05

Elementi di connessione

junction elements

Flange di adattamento e giunti per accoppiare motore e pompa, disponibili singolarmente o come kit completo per ogni grandezza di motore.

Adapter flanges and couplings to join motor and pump, available individually or as a complete kit for every motor size.

IN QUESTO CAPITOLO *in this chapter*

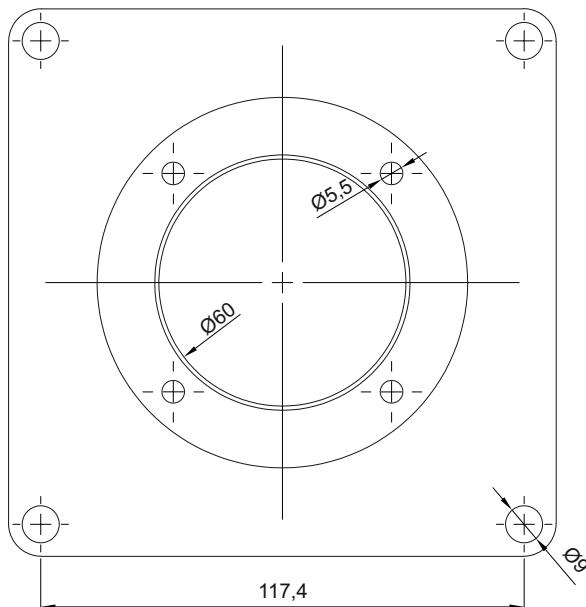
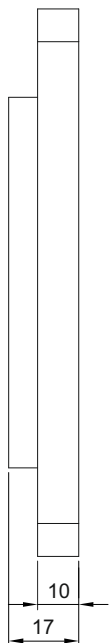
FA 63	Flangia e giunti, motori grandezza 63 <i>flange and couplings, size 63 motors</i>	56
FA 71	Flangia e giunti, motori grandezza 71 <i>flange and couplings, size 71 motors</i>	57
FA 80	Flangia e giunti, motori grandezza 80 <i>flange and couplings, size 80 motors</i>	58
FA 90	Flangia e giunti, motori grandezza 90 <i>flange and couplings, size 90 motors</i>	59
FA 100	Flangia e giunti, motori grandezza 100 <i>flange and couplings, size 100 motors</i>	60
FAD20	Flangia anteriore e giunto trapano <i>front flange and drill coupling</i>	61

Elementi di connessione junction elements



FA 63

Flangia di adattamento
Adapter flange



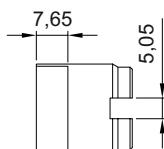
Assemblaggio lato collettore: 4 x viti DIN 6921 M8 x 25

Manifold side assembly: 4 x screws DIN 6921 M8 x 25

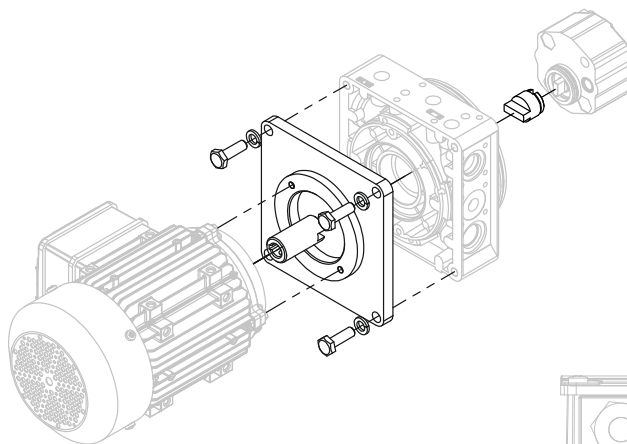
Assemblaggio lato motore: 4 x viti DIN 5931 M5 x 16

Motorside assembly: 4 x screws DIN 5931 M5 x 16

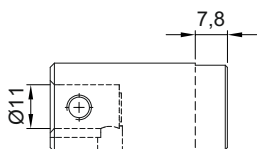
K00



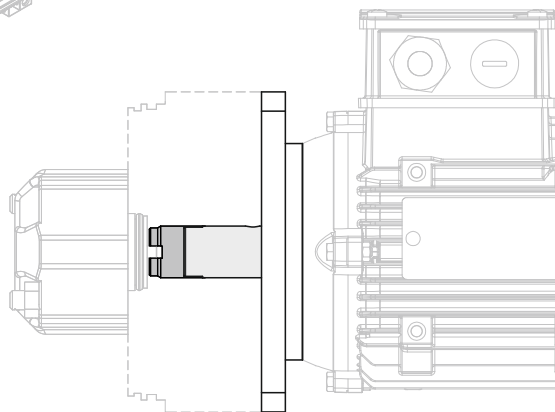
Giunto lato pompa
pump side coupling



K05



Giunto lato motore
motor side coupling



KIT1463

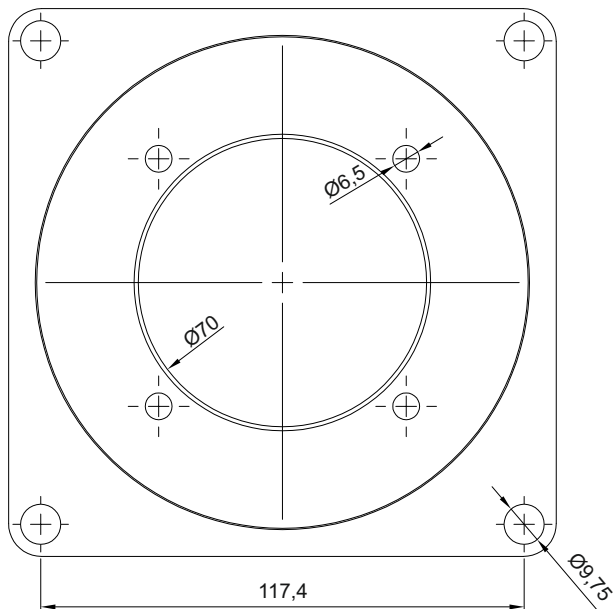
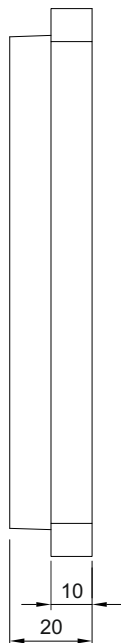
Codice di ordinazione per kit completo (FA63+K00+K05)
Ordering code for complete kit (FA63+K00+K05)

Elementi di connessione junction elements

05

FA 71

Flangia di adattamento
Adapter flange



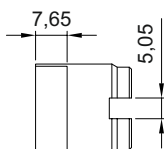
Assemblaggio lato collettore: 4 x viti DIN 6921 M8 x 25

Manifold side assembly: 4 x screws DIN 6921 M8 x 25

Assemblaggio lato motore: 4 x viti DIN 5931 M6 x 16

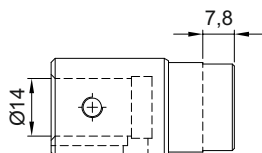
Motorside assembly: 4 x screws DIN 5931 M6 x 16

K00



Giunto lato pompa
pump side coupling

K01

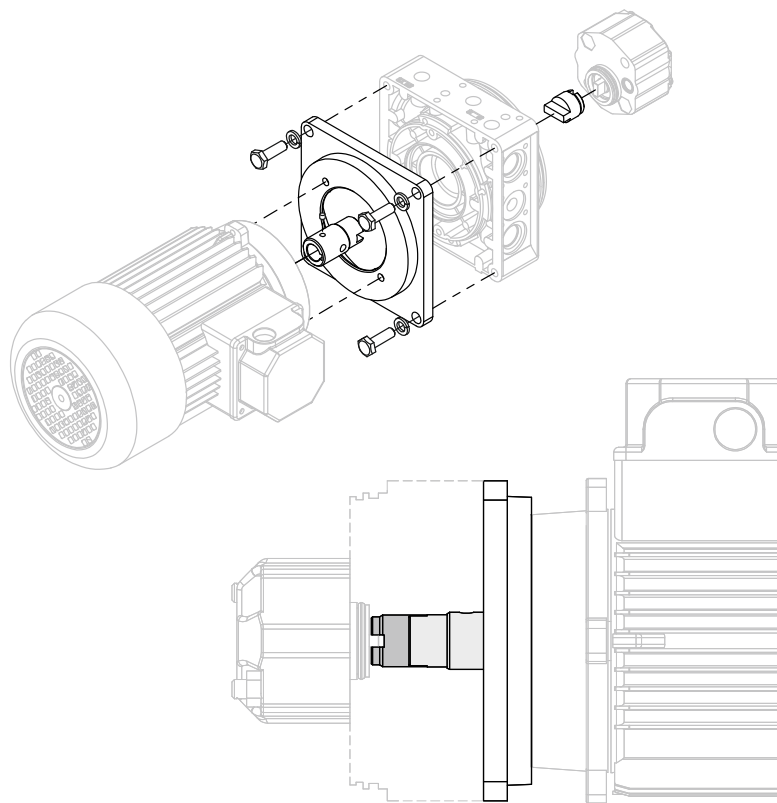


Giunto lato motore
motor side coupling

KIT1471

Codice di ordinazione per kit completo (FA71+K00+K01)

Ordering code for complete kit (FA71+K00+K01)

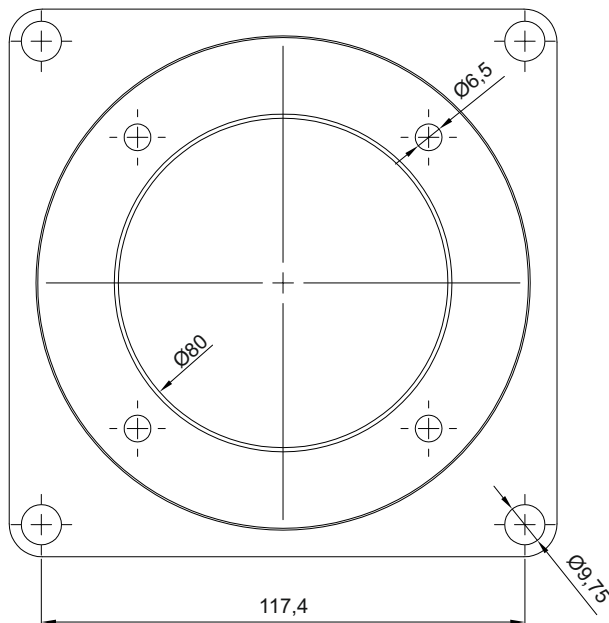
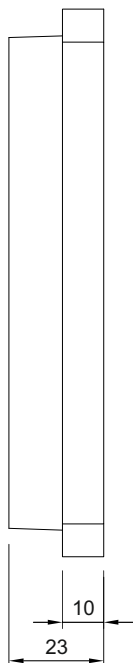


Elementi di connessione junction elements



FA 80

Flangia di adattamento
Adapter flange



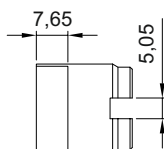
Assemblaggio lato collettore: 4 x viti DIN 6921 M8 x 25

Manifold side assembly: 4 x screws DIN 6921 M8 x 25

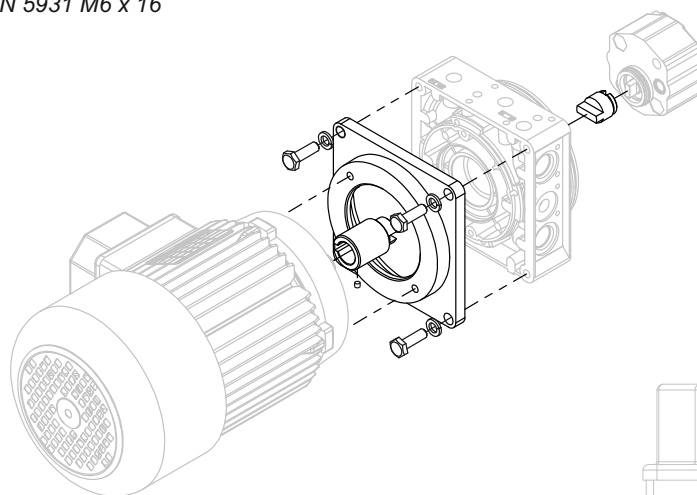
Assemblaggio lato motore: 4 x viti DIN 5931 M6 x 16

Motorside assembly: 4 x screws DIN 5931 M6 x 16

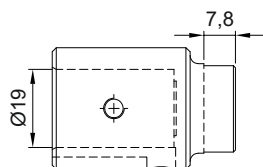
K00



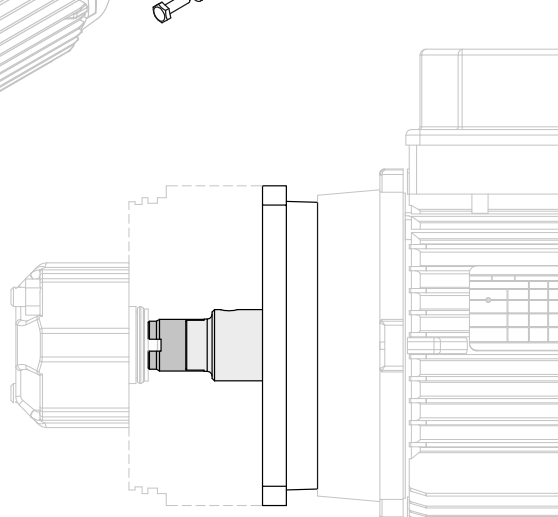
Giunto lato pompa
pump side coupling



K02



Giunto lato motore
motor side coupling



KIT1480

Codice di ordinazione per kit completo (FA80+K00+K02)
Ordering code for complete kit (FA80+K00+K02)

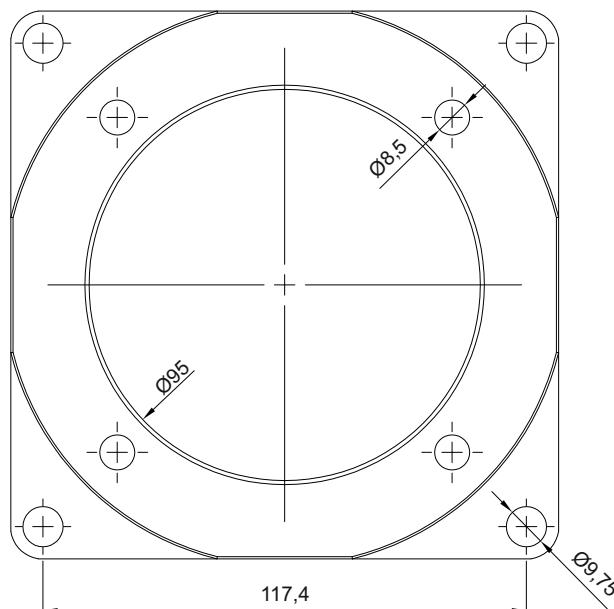
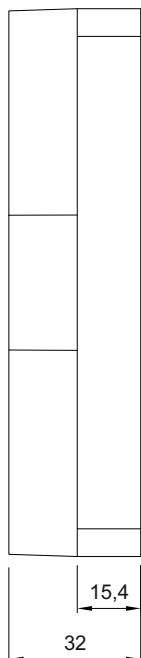
Elementi di connessione junction elements



05

FA 90

Flangia di adattamento
Adapter flange



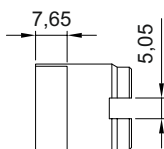
Assemblaggio lato collettore: 4 x viti DIN 6921 M8 x 30

Manifold side assembly: 4 x screws DIN 6921 M8 x 30

Assemblaggio lato motore: 4 x viti DIN 5931 M8 x 30

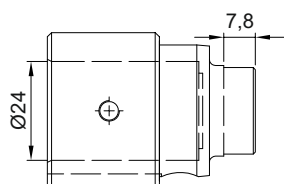
Motorside assembly: 4 x screws DIN 5931 M8 x 30

K00



Giunto lato pompa
pump side coupling

K03

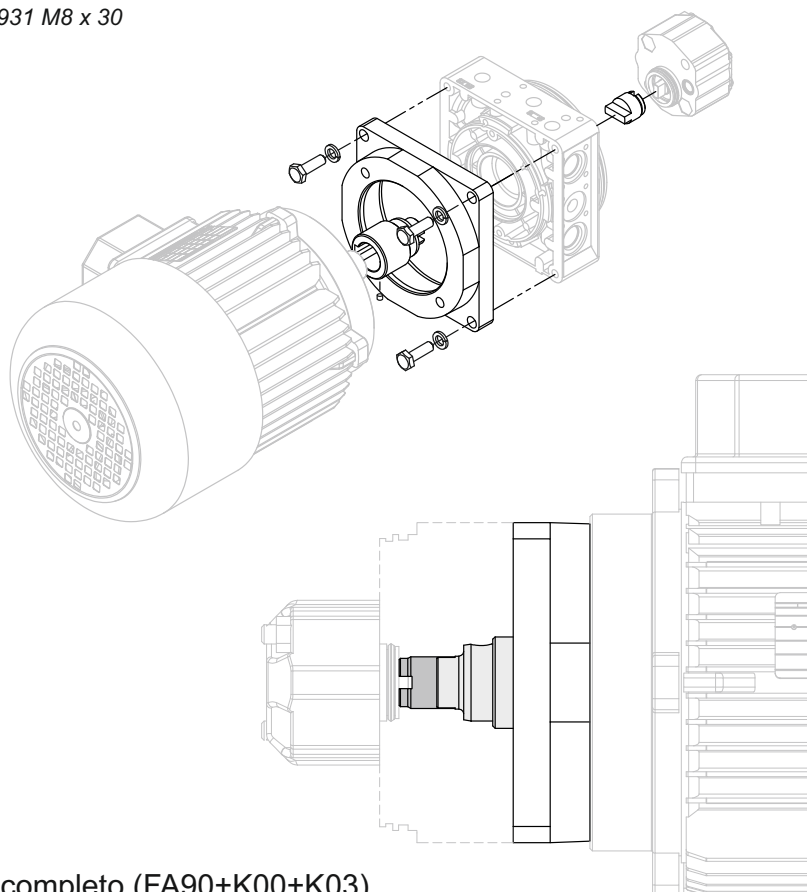


Giunto lato motore
motor side coupling

KIT1490

Codice di ordinazione per kit completo (FA90+K00+K03)

Ordering code for complete kit (FA90+K00+K03)

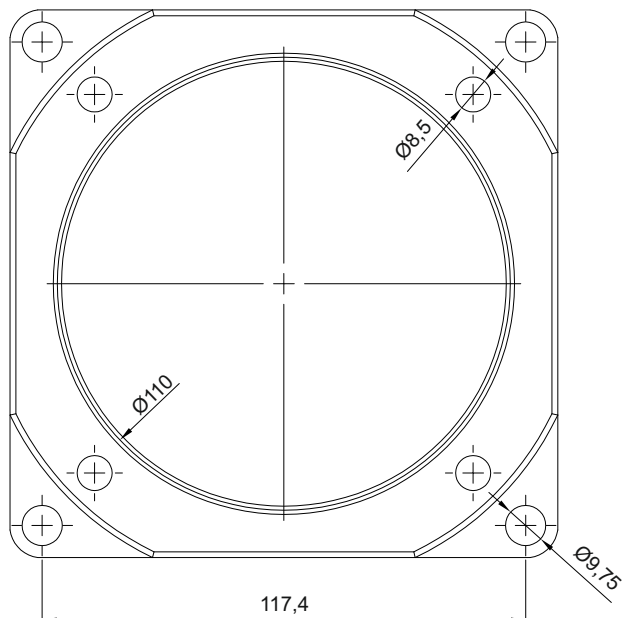
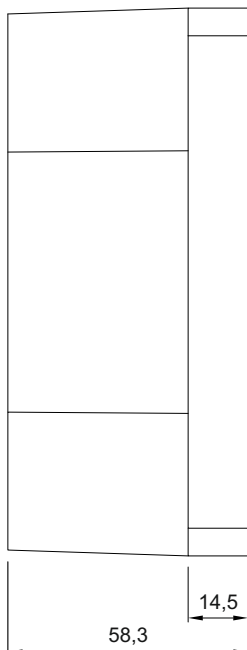


Elementi di connessione junction elements



FA 100

Flangia di adattamento
Adapter flange



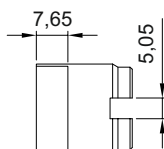
Assemblaggio lato collettore: 4 x viti DIN 6921 M8 x 30

Manifold side assembly: 4 x screws DIN 6921 M8 x 30

Assemblaggio lato motore: 4 x viti DIN 5931 M8 x 60

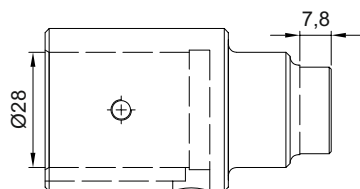
Motorside assembly: 4 x screws DIN 5931 M8 x 60

K00



Giunto lato pompa
pump side coupling

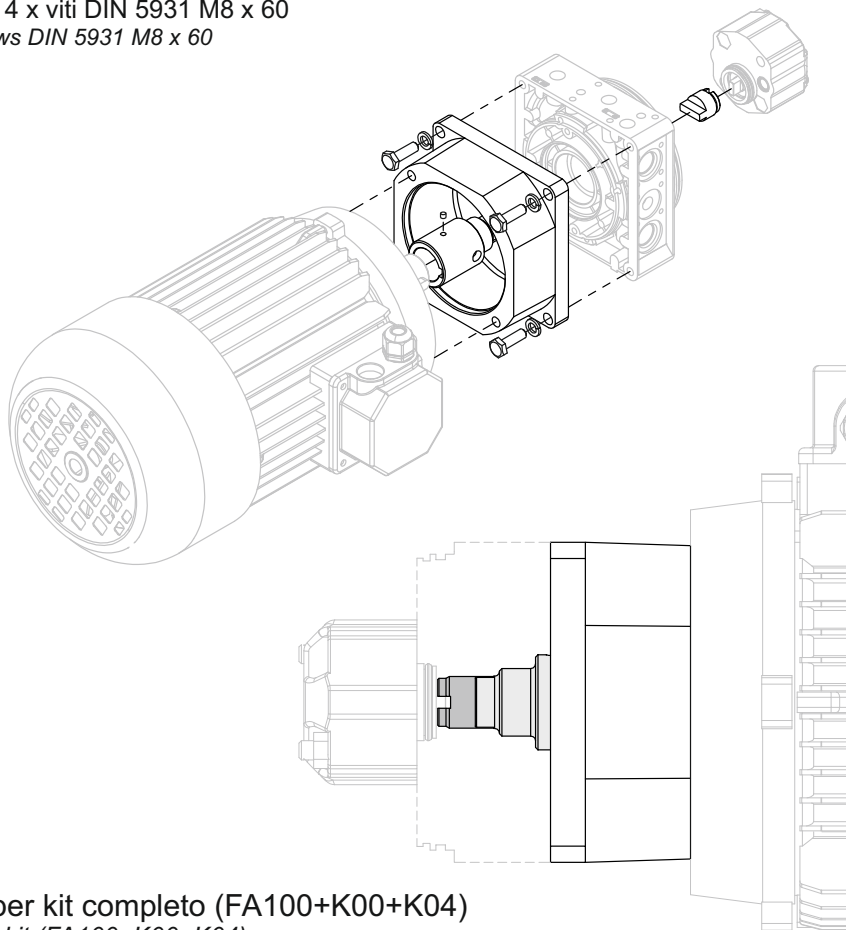
K04



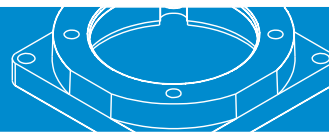
Giunto lato motore
motor side coupling

KIT14100

Codice di ordinazione per kit completo (FA100+K00+K04)
Ordering code for complete kit (FA100+K00+K04)



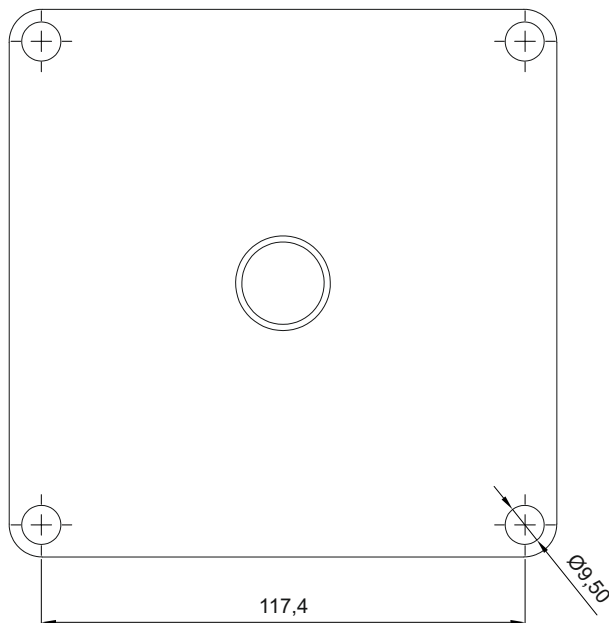
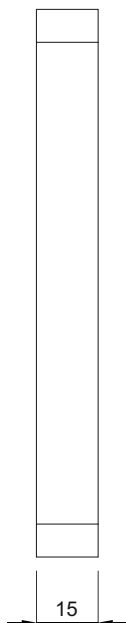
Elementi di connessione junction elements



05

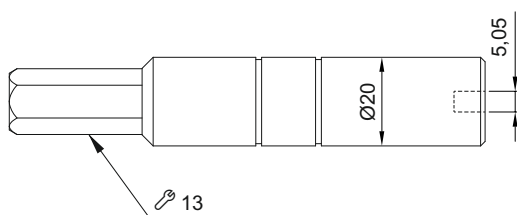
FAD20

Flangia anteriore
Front flange

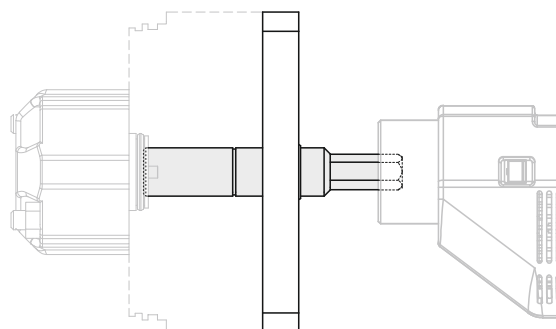
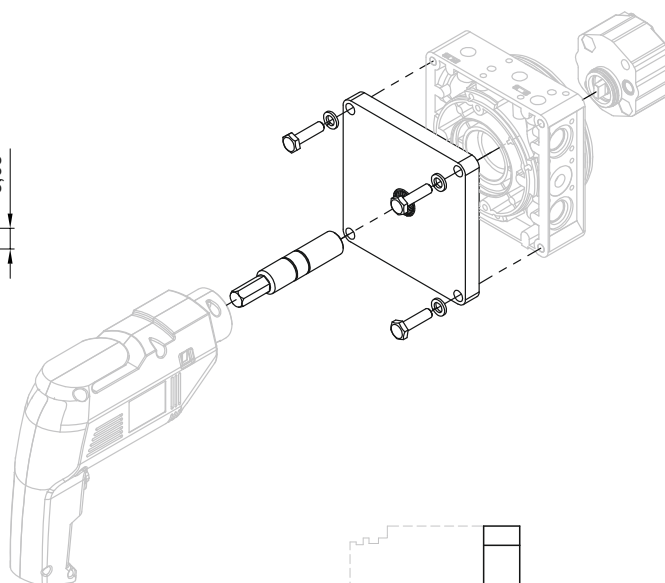


Assemblaggio con collettore: 4 x viti DIN 6921 M8 x 30
Assembly with manifold: 4 x screws DIN 6921 M8 x 30

K27



Giunto trapano
drill coupling



KITD20

Codice di ordinazione per kit completo (FAD20+K27)
Ordering code for complete kit (FAD20+K27)



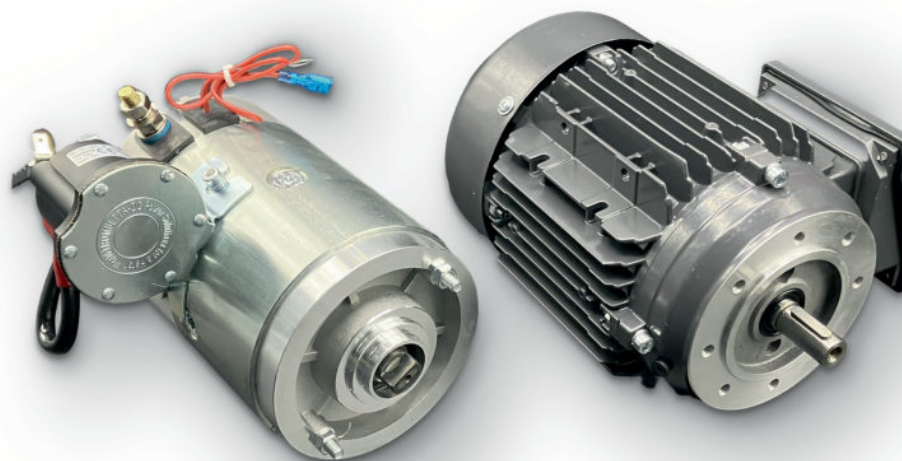
CAPITOLO | CHAPTER

CAPITOLO 06

MOTORI ELETTRICI

electric motors

ITALIAN QUALITY SINCE 1989



CAPITOLO 06

Motori elettrici

electric motors

Motori in corrente alternata B14, monofase e trifase, e motori in corrente continua 12 V e 24 V con teleruttore, completi di dati di servizio e schema di cablaggio.

B14 AC motors, single and three phase, and 12 V and 24 V DC motors with solenoid switch, with duty data and wiring diagram.

IN QUESTO CAPITOLO *in this chapter*

MM MT

Motori CA B14 monofase e trifase
AC B14 single and three phase motors

64

MDC

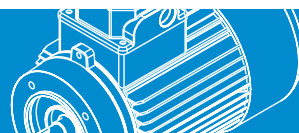
Motori CC 12 V e 24 V con teleruttore
12 V and 24 V DC motors with solenoid switch

68

SCHEMA

Schema di cablaggio
wiring diagram

71



Motori CA B14 - AC B14 motors

Motori S1 IP 55 50Hz - IP55 50Hz S1 motors								
Codice code	Potenza power	Flangia flange	A	øB	C	Flangia flange	Potenza power	Codice code
Monofase - single-phase								
2 poli - two poles						4 poli - four poles		
MM 711-2	0,37	FA71	211	147	125	FA71	0,25	MM 711-4
MM 712-2	0,55	FA71	211	147	125	FA71	0,37	MM 712-4
MM 801-2	0,75	FA80	250	163	146	FA80	0,55	MM 801-4
MM 802-2	1,1	FA80	250	163	146	FA80	0,75	MM 802-4
MM 90S-2	1,5	FA90	262	183	153	FA90	1,1	MM 90S-4
MM 90L-2	2,2	FA90	287	183	153	FA90	1,5	MM 90L-4
	-	-	309	205	165	FA100	2,2	MM100L1-4
Trifase - three-phase								
2 poli - two poles						4 poli - four poles		
MT 631-2	0,18	FA63	190	119	100	FA63	0,12	MT 631-4
MT 632-2	0,25	FA63	190	119	100	FA63	0,18	MT 632-4
MT 711-2	0,37	FA71	211	147	115	FA71	0,25	MT 711-4
MT 712-2	0,55	FA71	211	147	115	FA71	0,37	MT 712-4
MT 801-2	0,75	FA80	250	163	133	FA80	0,55	MT 801-4
MT 802-2	1,1	FA80	250	163	133	FA80	0,75	MT 802-4
MT 90S-2	1,5	FA90	262	183	139	FA90	1,1	MT 90S-4
MT 90L1-2	2,2	FA90	287	183	139	FA90	1,5	MT 90L1-4
MT 100L1-2	3	FA100	309	205	152	FA100	2,2	MT 100L1-4
MT 100L2-2	4	FA100	309	205	152	FA100	3	MT 100L2-4
MT 112L1-2	5,5	FA100	330	221	155	FA100	4	MT 112M-4
	-	-	330	221	155	FA100	5,5	MT 112L1-4

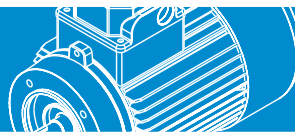
Potenza espressa in kW - power in kW

Per i kit di accoppiamento vedi capitolo precedente (5 - elementi di connessione).
For coupling kits see previous section (5 - junction elements).

Le caratteristiche tecniche, le dimensioni e gli altri dati non sono vincolanti. Gazzera S.r.l. si riserva il diritto di cambiarle o modificarle in qualsiasi momento senza preavviso e senza obblighi.
The technical characteristics, dimensions and other data are not bindings. Gazzera S.r.l. reserve the right to change them or modify them at any time and without notice.



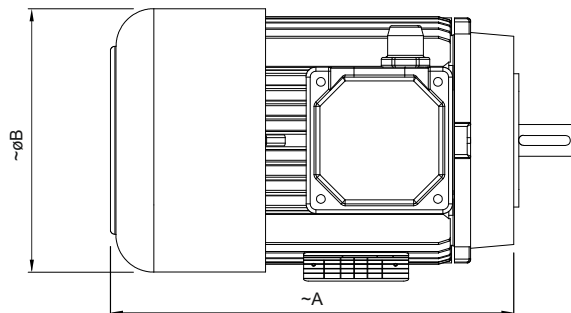
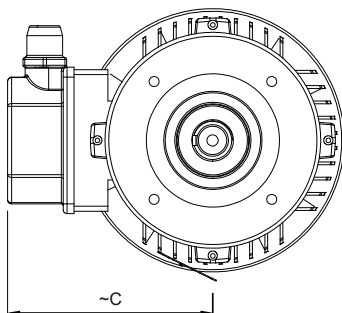
Motori elettrici electric motors

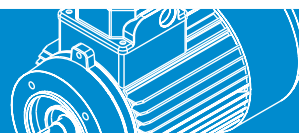


06

Motori S3 IP 55 50Hz - IP55 50Hz S3 motors								
Codice code	Potenza power	Flangia flange	A	øB	C	Flangia flange	Potenza power	Codice code
Monofase - single-phase								
2 poli - two poles						4 poli - four poles		
MM3711-2	0,75	FA71	250	163	146	FA71	0,55	MM3711-4
MM3712-2	1,1	FA71	250	163	146	FA80	0,75	MM3801-4
MM3801-2	1,5	FA80	262	183	153	FA80	1,1	MM3802-4
MM390L-2	2,2	FA90	287	183	153	FA90	1,5	MM390S-4
	-	-	309	205	165	FA90	2,2	MM390L-4
	-	-	327	205	165	FA100	3	MM3100L1-4
Trifase - three-phase								
2 poli - two poles						4 poli - four poles		
MT3631-2	0,18	FA63	190	119	100	FA63	0,12	MT3631-4
MT3632-2	0,25	FA63	190	119	100	FA63	0,18	MT3632-4
MT3711-2	0,37	FA71	211	147	115	FA71	0,25	MT3711-4
MT3712-2	0,55	FA71	211	147	115	FA71	0,37	MT3712-4
MT3801-2	0,75	FA80	250	163	133	FA80	0,55	MT3801-4
MT3802-2	1,1	FA80	250	163	133	FA80	0,75	MT3802-4
MT390S-2	1,5	FA90	262	183	139	FA90	1,1	MT390S-4
MT390L1-2	2,2	FA90	287	183	139	FA90	1,5	MT390L1-4
MT3100L1-2	3	FA100	309	205	152	FA100	2,2	MT3100L1-4
MT3100L2-2	4	FA100	309	205	152	FA100	3	MT3100L2-4
MT3112L1-2	5,5	FA100	335	229	167	FA100	4	MT3112M-4
	-	-	335	229	167	FA100	5,5	MT3112L1-4

Potenza espressa in kW - power in kW





S1

Servizio continuo
Continuous running duty

Una volta partito, il motore lavora con un carico costante fino almeno a raggiungimento dell'equilibrio termico. Il motore può quindi funzionare per un tempo illimitato.
Once started, the motor works at a constant load at least until thermal equilibrium is reached. Then that motor may be operated for an unlimited period.

I motori con servizio S1 sono inclusi nel regolamento europeo riguardante i motori ad alta efficienza.
Motors with duty S1 are included in high efficiency European regulation.

S3

Servizio intermittente periodico
Intermittent periodic duty

Sequenza di cicli di funzionamento uguali composti da un periodo di funzionamento a carico costante ed un periodo senza carico e senza alimentazione elettrica.
A sequence of identical duty cycles, made up with a time of operation at constant load and a time at rest. When at rest, the motor is not fed.

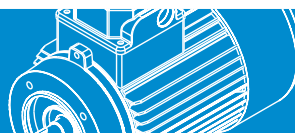
La corrente di avviamento non influenza l'innalzamento di temperatura.
Starting current does not significantly influence temperature rise.

Se non diversamente specificato, la durata di un ciclo per il servizio S3 è di 10 minuti e i rapporti di intermittenza dovranno assumere un valore tra i seguenti: 15%, 25%, 40%, 60%.
Unless otherwise specified, the duration of a cycle for S3 duty shall be 10 minutes and the cycle duration factor shall be one of the following values: 15%, 25%, 40%, 60%.

Il tipo di servizio S3 ha un tempo di riposo (cioè senza carichi esterni applicati) durante il quale il motore ha il tempo di raffreddarsi, permettendo così di sovraccaricarlo rispetto a quando lo stesso è utilizzato con un servizio S1 (e quindi ininterrottamente sotto carico). Inoltre i motori con servizio diverso da S1 non sono inclusi nel regolamento europeo riguardante i motori ad alta efficienza.
The duty type S3 share a time to rest (no external load is applied) during which the motor lowers its temperature, thus affording to overload such motor with respect to the same motor when loaded with S1 duty cycle (then continuously loaded). Moreover motors with duty types different from S1 are not included in high efficiency European regulation.

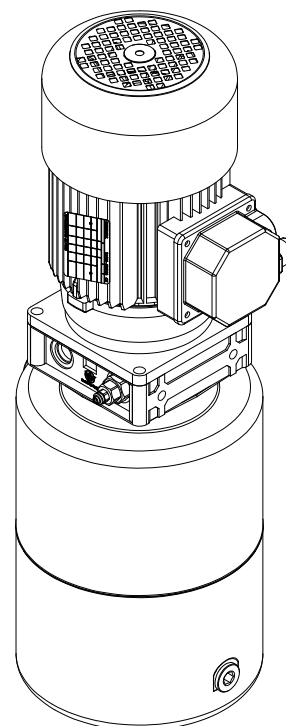
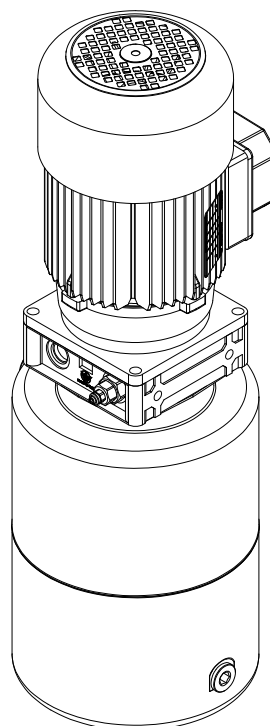
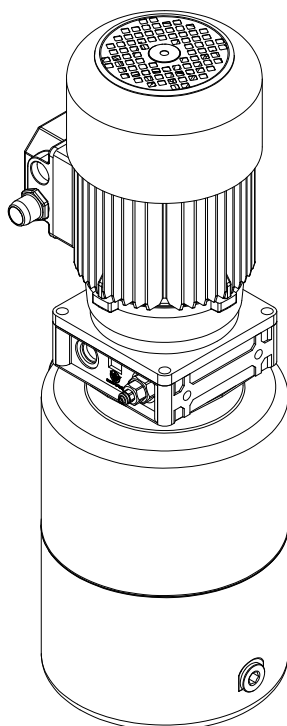
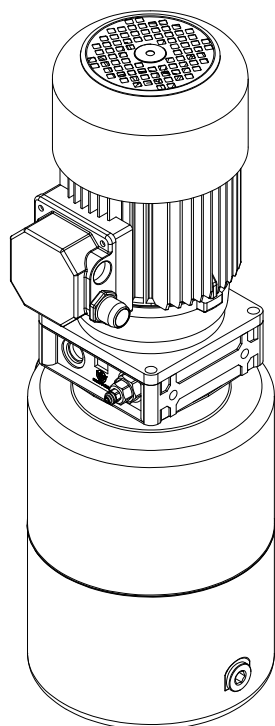
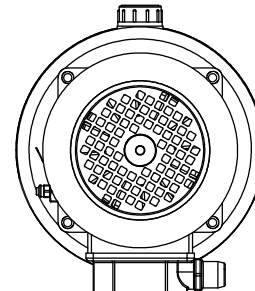
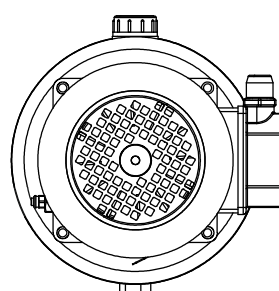
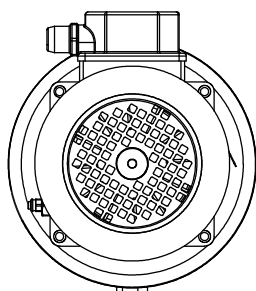
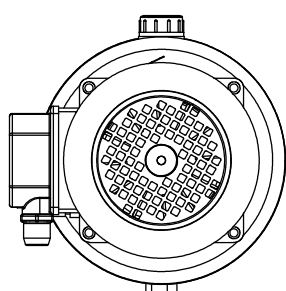
Per ulteriori informazioni si rimanda alla Norma IEC 60034-1.
Further information can be found in IEC 60034-1 standard.

Motori elettrici electric motors



06

Orientamento motore - motor positioning



1 Sinistra - left (std)

morsettiera stesso lato della
valvola di massima
terminal box same side of the
relief valve

2 Anteriore - front

morsettiera lato blocchi
modulari
terminal box on modular blocks
side

3 Destra - right

morsettiera lato opposto della
valvola di massima
terminal box on opposite side of
the relief valve

4 Posteriore - rear

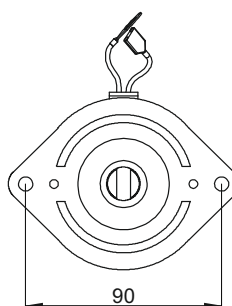
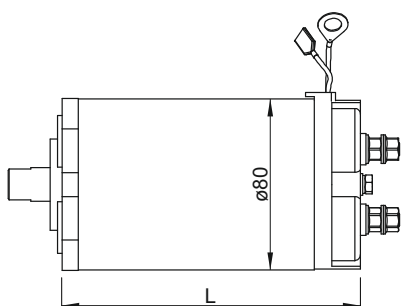
morsettiera lato opposto
blocchi modulari
terminal box on opposite side o
the modular blocks





Motori CC - DC motors

Motori corrente continua ø80 - Direct current motors ø80							
Codice code	Potenza power	Tensione voltage	L	S2	S3	Kit connessione junction kit	Teleruttore starting switch
	W	V	mm	min	%		
MDC120150T	150	12	108	2	8	K17	684-1211-212-06
MDC240150T	150	24	108	2	8		684-2411-212-06
MDC120300T	300	12	137	2	8		684-1211-212-06
MDC240300T	300	24	137	2	8		684-2411-212-06
MDC120500T	500	12	137	2	8		684-1211-212-06
MDC240500T	500	24	137	2	8		684-2411-212-06
MDC120800T	800	12	137	2	8		684-1211-212-06
MDC240800T	800	24	137	2	8		684-2411-212-06



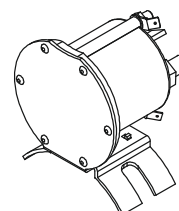
K17

Kit connessione
junction kit



Teleruttore - Starting switch

Caratteristiche principali - main features			
Codice code	Tensione voltage	Servizio duty cycle	Carico resistivo resistive load carry
	V	%	A
684-1211-212-06	12	25	150
684-2411-212-06	24	25	150



Il teleruttore viene fornito con una fascetta per il fissaggio sul motore e il cavo di alimentazione.
The starting switch is supplied with a clamp for the fastening on the motor and the power cable.

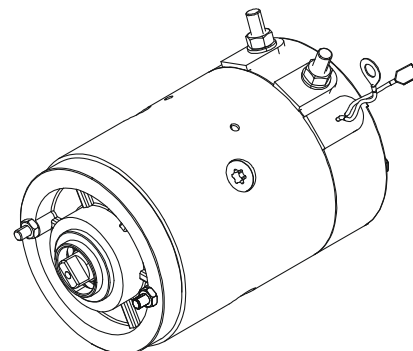
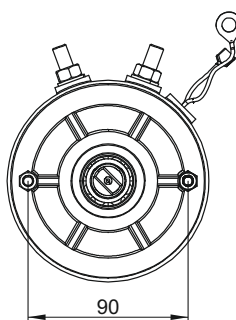
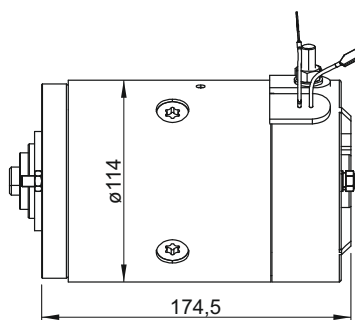
Motori elettrici electric motors



06

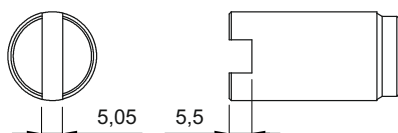
Motori corrente continua ø114 - Direct current motors ø114

Codice code	Potenza power	Tensione voltage	S2	S3	Kit connessione junction kit	Teleruttore starting switch
	W	V	min	%		
MDC121600T	1600	12	2	8	K26	684-1211-212-06
MDC241600T	1600	24	2	5		684-2411-212-06
MDC122200T	2200	12	2	8		684-1211-212-06
MDC242200T	2200	24	2	5		684-2411-212-06



K26

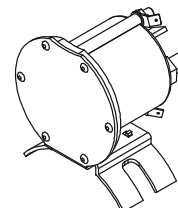
Kit connessione
junction kit



Teleruttore - Starting switch

Caratteristiche principali - main features

Codice code	Tensione voltage	Servizio duty cycle	Carico resistivo resistive load carry
	V	%	A
684-1211-212-06	12	25	150
684-2411-212-06	24	25	150

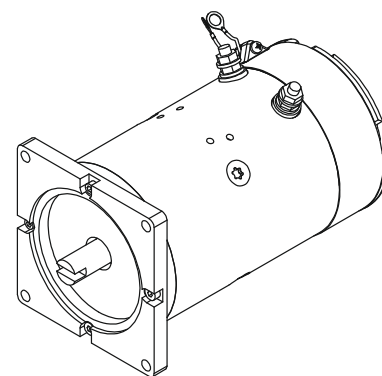
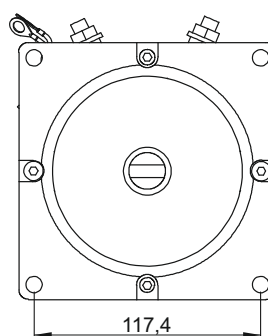
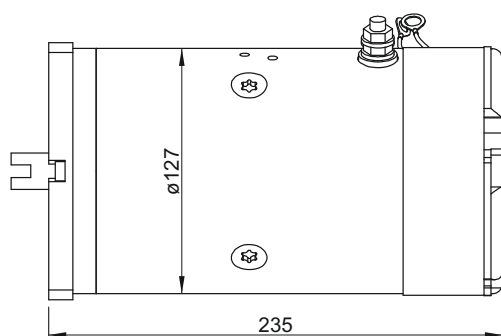


Il teleruttore viene fornito con n°2 viti M5 per il fissaggio sul motore e il cavo di alimentazione.
The starting switch is supplied with nr.2 M5 screws for the fastening on the motor and the power cable.



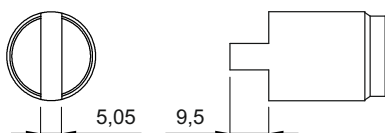


Motori corrente continua ø125 - <i>Direct current motors ø125</i>						
Codice code	Potenza power	Tensione voltage	S2	S3	Kit connessione junction kit	Teleruttore starting switch
	W	V	min	%		
MDC123000T	3000	12	2	8	K17	114-1211-020
MDC243000T	3000	24	2	5		114-2411-020
MDC244000T	4000	24	2	5		114-2411-020



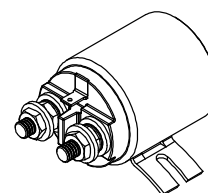
K17

Kit connessione
junction kit



Teleruttore - Starting switch

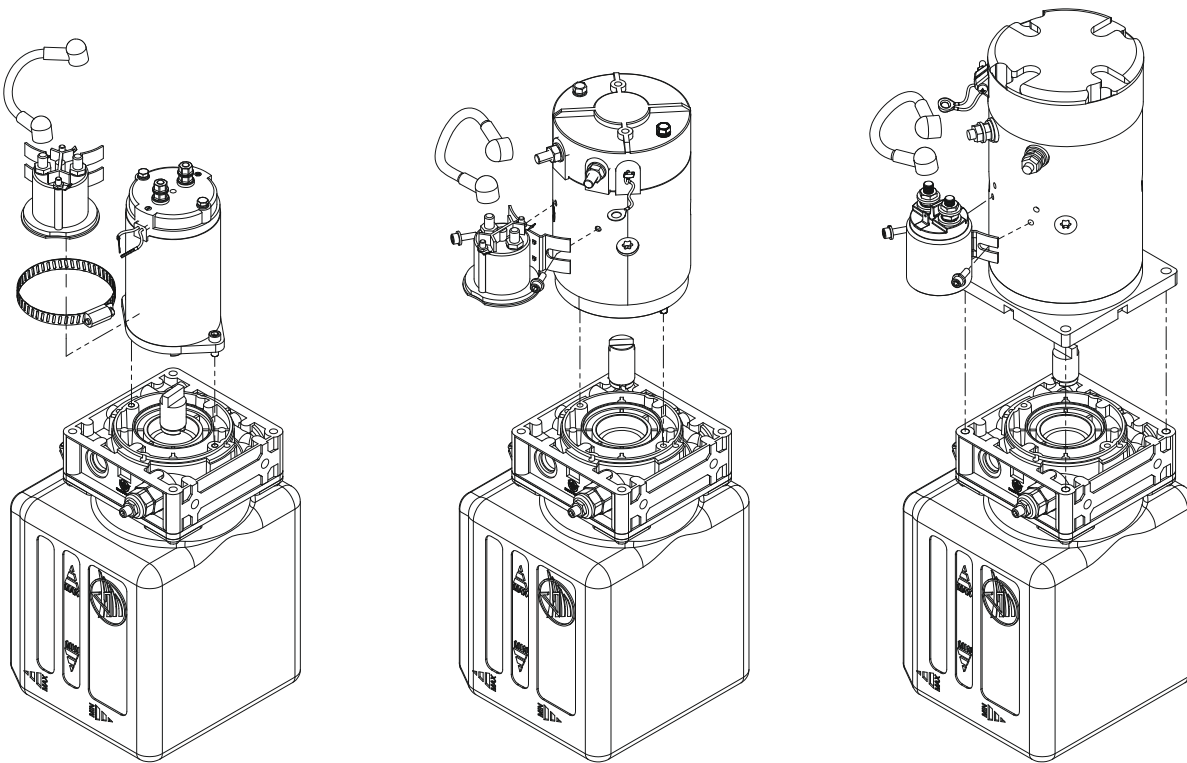
Caratteristiche principali - <i>main features</i>			
Codice code	Tensione voltage	Servizio duty cycle	Carico resistivo resistive load carry
	V		A
114-1211-520	12	50%	300
114-2411-520	24	50%	300



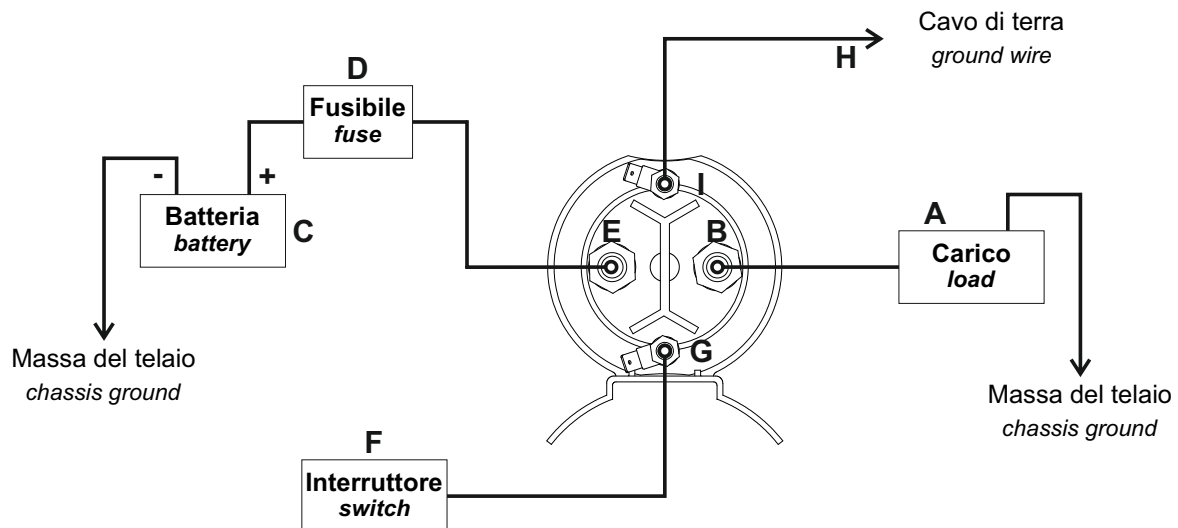
Il teleruttore viene fornito con n°2 viti M5 per il fissaggio sul motore e il cavo di alimentazione.
The starting switch is supplied with nr.2 M5 screws for the fastening on the motor and the power cable.

Motori elettrici electric motors

06

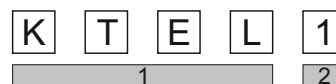


Schema di cablaggio - wiring diagram



- 1 - Connettere il carico (A) alla borchia (B).
Connect load (A) to stud (B).
- 2 - Connettere il polo positivo della batteria (C) al fusibile (D).
Connect battery positive (C) to fuse (D).
- 3 - Connettere il fusibile (D) alla borchia (E).
Connect fuse (D) to stud (E).
- 4 - Connettere l'interruttore (F) alla borchia (G).
Connect switch (F) to stud (G).
- 5 - Connettere il cavo di terra (H) alla borchia (I).
Connect ground wire (H) to stud (I).

Cavo di alimentazione - power cable



1 Kit	2 Motore - motor
KTEL	1 = ø80 2 = ø114-125



CAPITOLO | CHAPTER

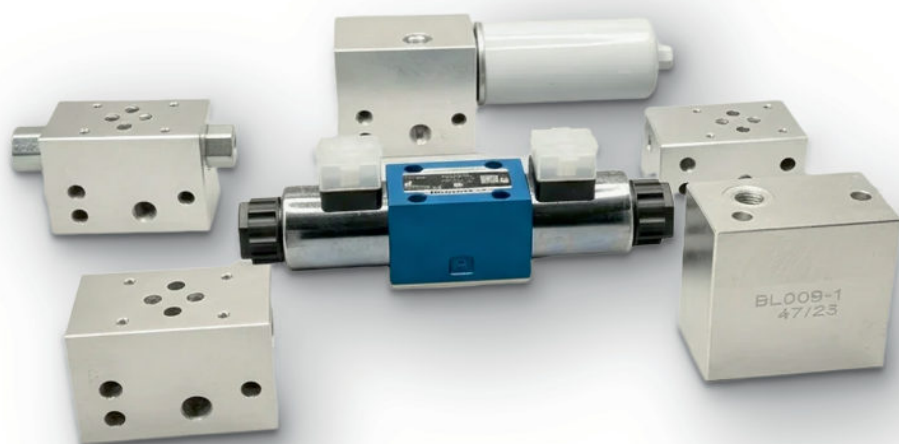
CAPITOLO 07

ELEMENTI MODULARI

modular elements

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07



CAPITOLO 07

Elementi modulari

modular elements

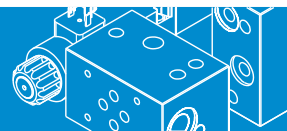
Blocchi modulari da montare sul collettore centrale per comporre il circuito: distanziali, blocchi con valvole, filtro di ritorno, regolatori di flusso ed elettrovalvole.

Modular blocks to mount on the central manifold to build the circuit: spacers, valve manifolds, return filter, flow regulators and solenoid valves.

IN QUESTO CAPITOLO *in this chapter*

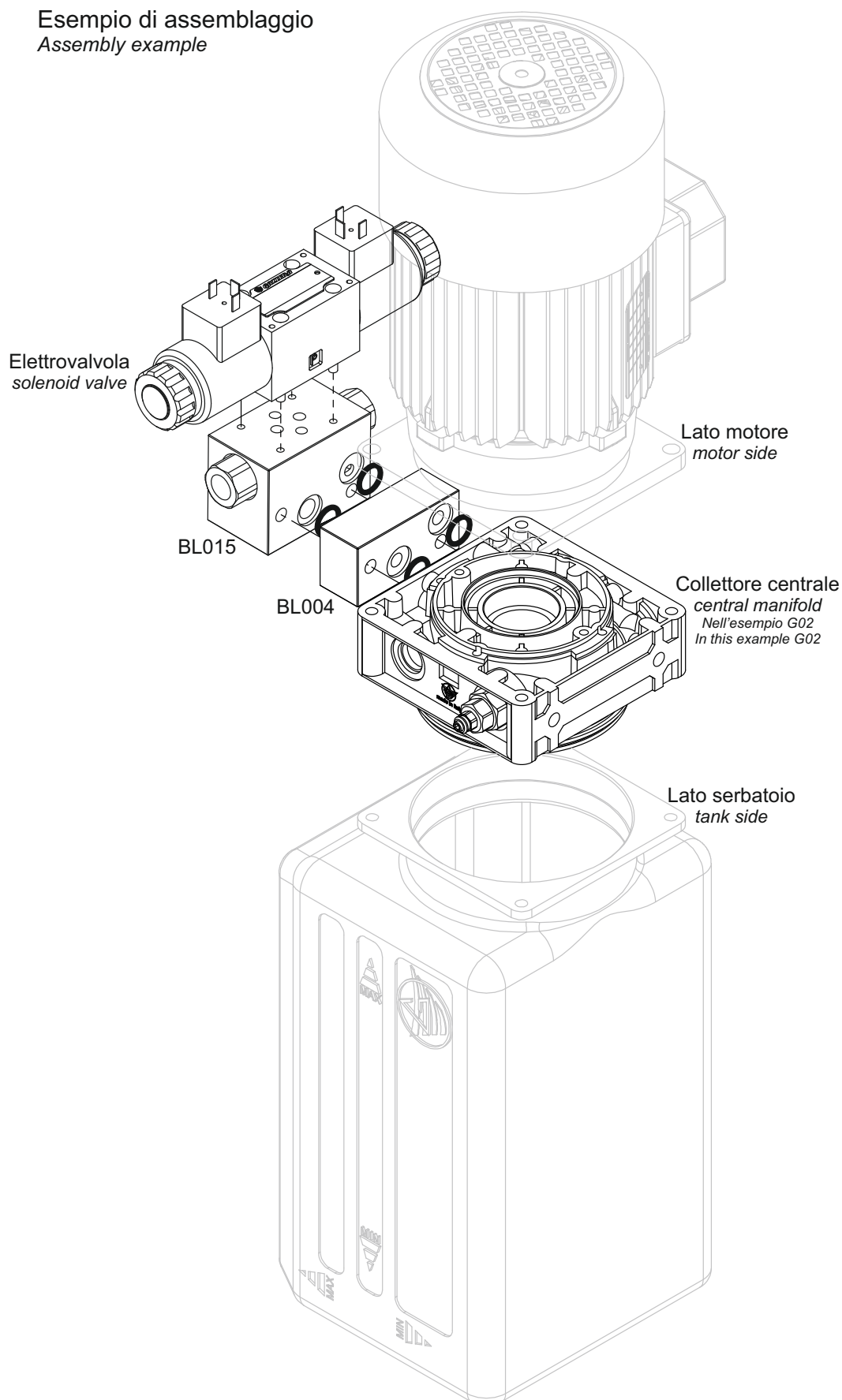
BL	Esempio di assemblaggio <i>assembly example</i>	74
BL004	Distanziali <i>spacers</i>	75
BL004-1	Distanziale con connessione 1/4" BSP <i>spacer with additional 1/4" BSP port</i>	75
BL008	Blocchi modulari con porte posteriori 3/8" BSP <i>modular manifolds with rear 3/8" BSP ports</i>	76
BL009	Blocco per rotazione 90° con porta 1/4" BSP <i>90° rotation manifold, 1/4" BSP port</i>	76
BL010	Blocco modulare con porte laterali 3/8" BSP <i>modular manifold with lateral 3/8" BSP ports</i>	77
BL011	Blocco per circuito semplice effetto aggiuntivo <i>manifold for additional single acting circuit</i>	77
BL015	Blocchi con valvola di ritegno pilotata <i>manifolds with pilot check valve</i>	78
BL018	Valvole di blocco modulari <i>modular pilot operated check valves</i>	79
BL021	Blocco per valvole MSV e MDV <i>manifold for MSV and MDV valves</i>	80
BL022	Blocco modulare per valvole MSV e MDV <i>modular manifold for MSV and MDV valves</i>	80
BL023	Blocco pompa manuale <i>hand pump modular manifold</i>	81
BL025	Blocco filtro di ritorno <i>return filter manifold</i>	82
BL035	Regolatori di flusso A+B in scarico <i>flow regulators in lines A and B</i>	83
BL050	Blocchi limitatrice di pressione <i>pressure control manifolds</i>	84
DD DM	Elettrovalvole <i>solenoid valves</i>	85

Elementi modulari *modular elements*

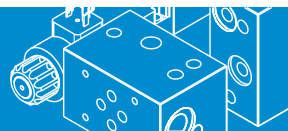


Blocchi valvole - *valve blocks*

Esempio di assemblaggio
Assembly example



Elementi modulari modular elements

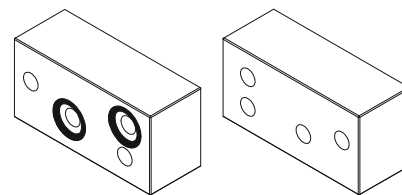
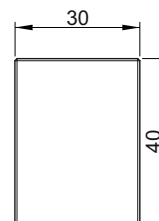
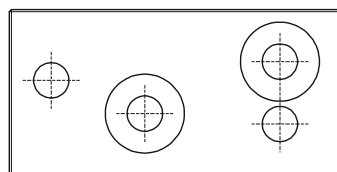
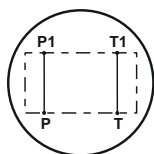


07

BL004

Distanziale
Spacer element

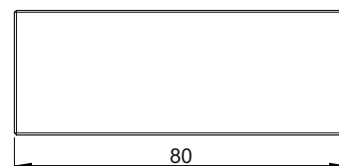
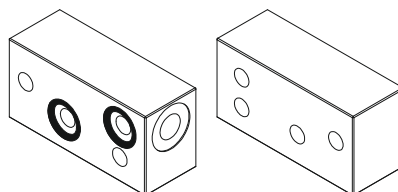
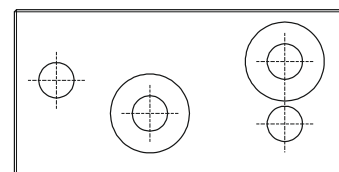
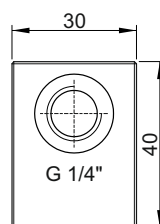
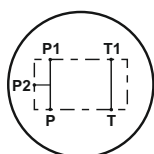
Simbolo
symbol



BL004-1

Distanziale con connessione aggiuntiva 1/4" BSP
Spacer element with additional 1/4" BSP port

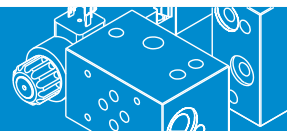
Simbolo
symbol



NB: Versione larghezza 40 disponibile con il codice BL004-2 (indispensabile per blocchi in presenza di motore taglia 112).
Note: version width 40 available with code BL004-2 (essential for manifolds in presence of motors size 112).



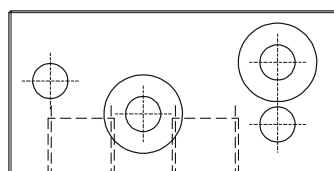
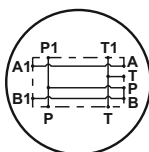
Elementi modulari modular elements



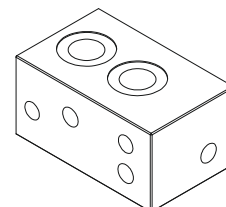
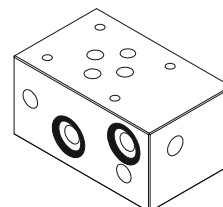
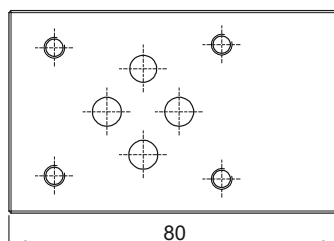
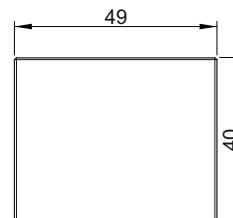
BL008

Blocco modulare con porte posteriori 3/8" BSP
Modular manifold with rear 3/8" BSP ports

Simbolo
symbol



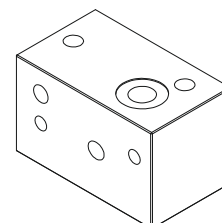
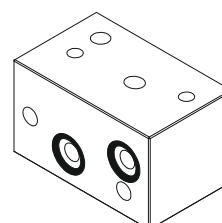
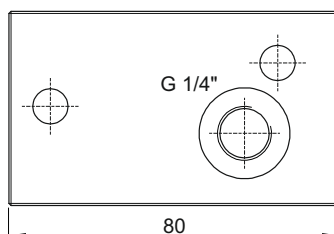
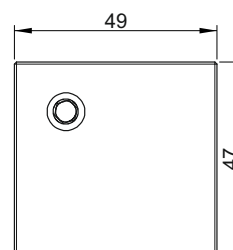
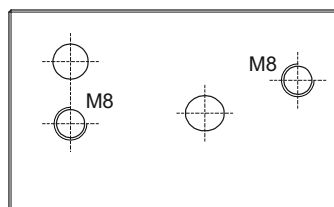
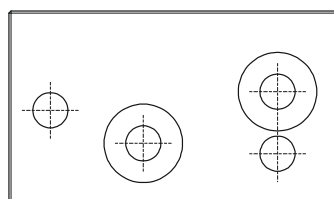
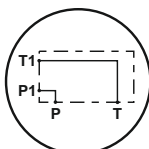
G 3/8" G 3/8"



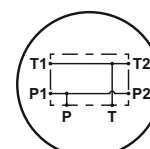
BL009

Blocco per rotazione 90° con connessione aggiuntiva 1/4" BSP
90° rotation manifold with additional 1/4" BSP

Simbolo
symbol



NB: Versione altezza 79 disponibile con il codice BL009-1 (anche bidirezionale, codice BL009-2).
Note: version height 79 available with code BL009-1 (also bidirectional, code BL009-2).



BL009-2

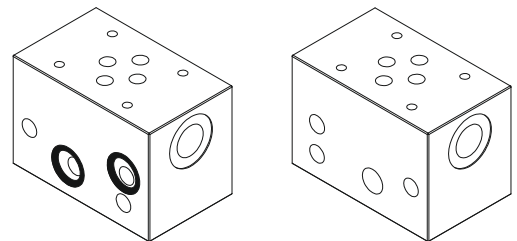
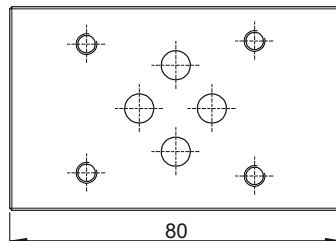
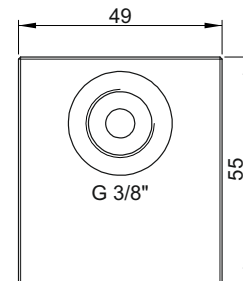
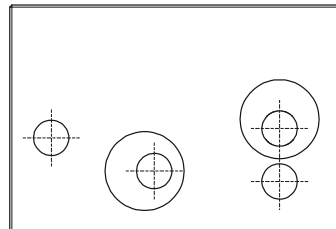
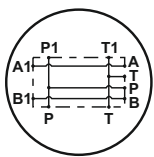
Elementi modulari modular elements

07

BL010

Blocco modulare con porte laterali 3/8" BSP
Modular manifold with lateral 3/8" BSP ports

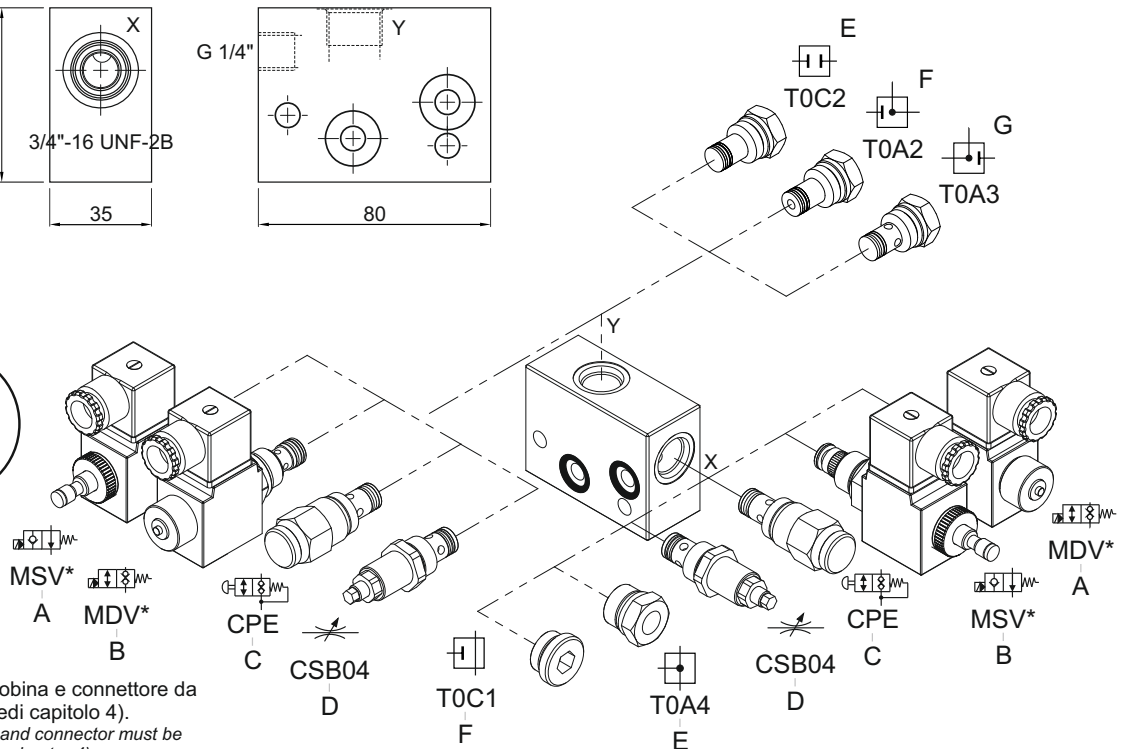
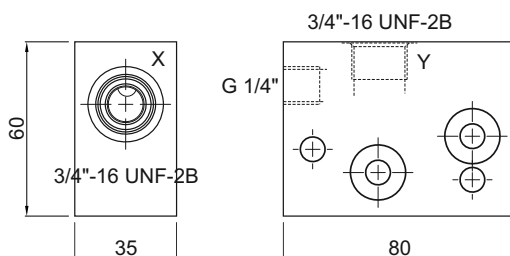
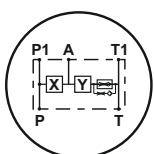
Simbolo
symbol



BL011-X-Y

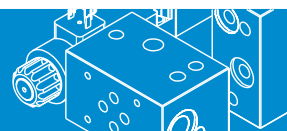
Blocco per circuito semplice effetto aggiuntivo
Manifold for additional single acting circuit

Simbolo
symbol



*NB: Tipo, tensione bobina e connettore da specificare a parte (vedi capitolo 4).
*Note: type, coil voltage and connector must be specified separately (see chapter 4).

Elementi modulari modular elements



BL015

Blocco con valvola di ritegno pilotata
Manifold with pilot check valve

Simbolo
symbol

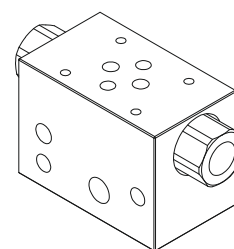
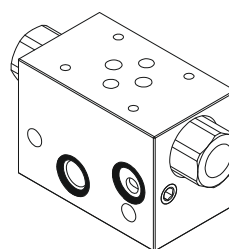
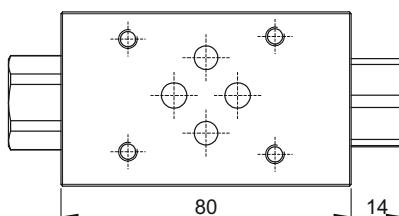
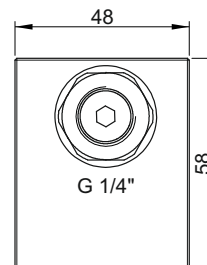
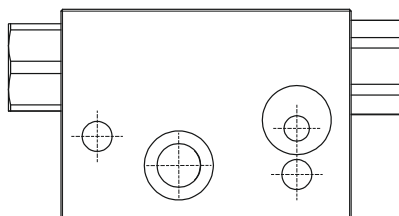
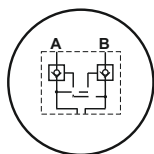
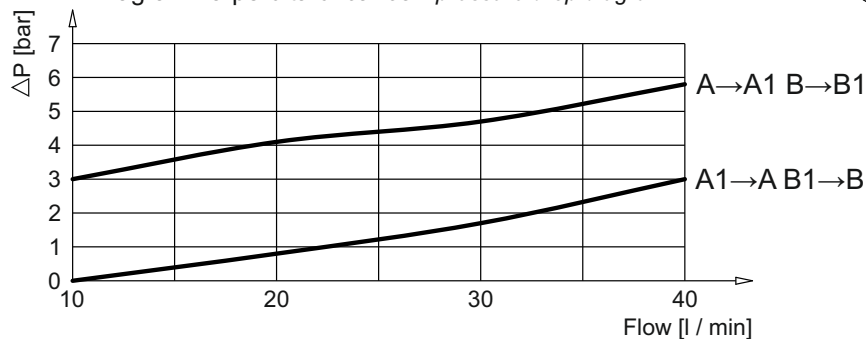
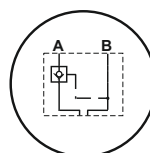


Diagramma perdita di carico - pressure drop diagram



BL016

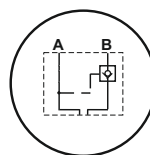
Blocco con valvola di ritegno pilotata su A
Manifold with pilot check valve on A



Simbolo
symbol

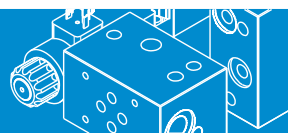
BL017

Blocco con valvola di ritegno pilotata su B
Manifold with pilot check valve on B



Simbolo
symbol

Elementi modulari modular elements

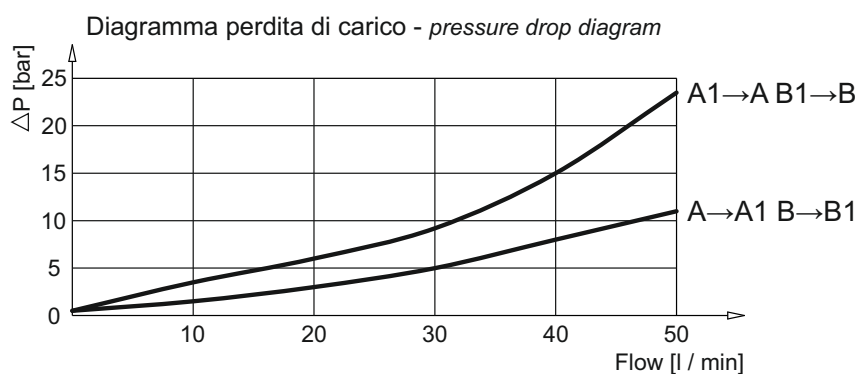
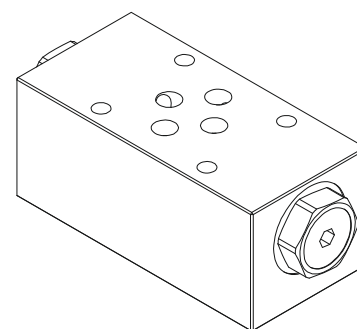
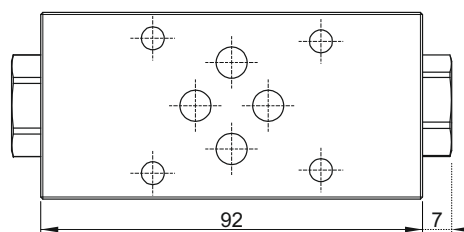
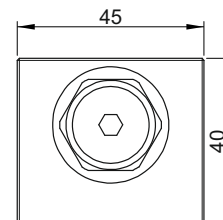
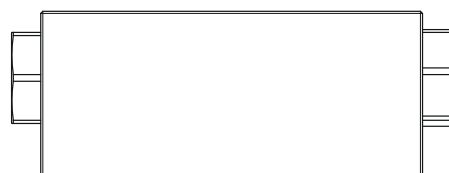
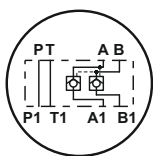


07

BL018

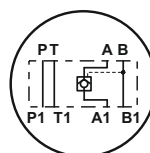
Valvola di blocco modulare
Pilot operated check valve

Simbolo
symbol



BL019

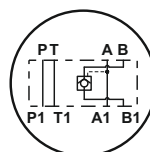
Valvola di blocco modulare bocca A
Pilot operated check valve seal on line A



Simbolo
symbol

BL020

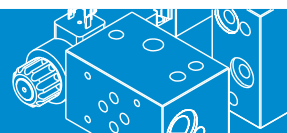
Valvola di blocco modulare bocca B
Pilot operated check valve seal on line B



Simbolo
symbol



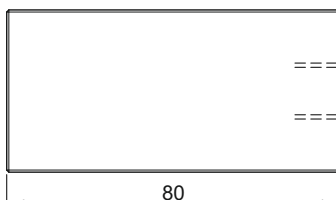
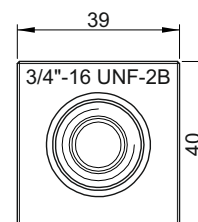
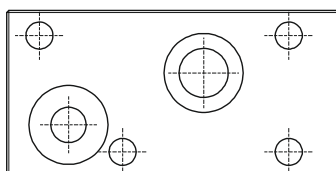
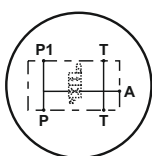
Elementi modulari modular elements



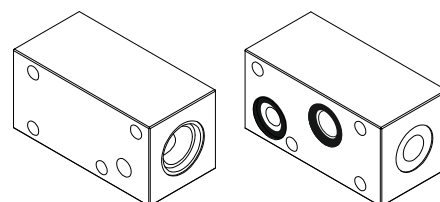
BL021

Blocco per valvole MSV e MDV
Manifold for MSV and MDV valves

Simbolo
symbol



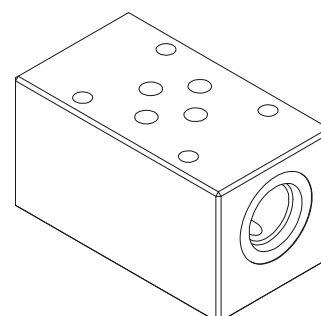
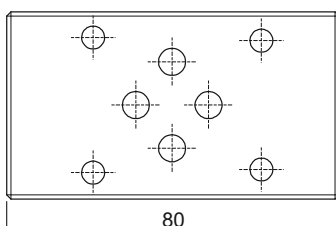
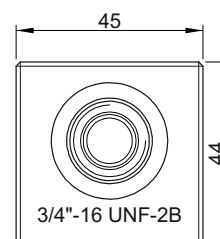
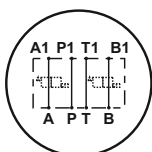
G 1/4"



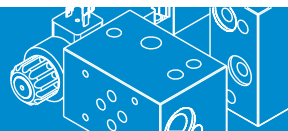
BL022

Blocco modulare per valvole MSV e MDV
Modular manifold for MSV and MDV valves

Simbolo
symbol



Elementi modulari modular elements



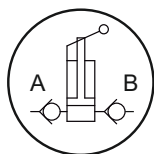
07

BL023

BL023-1

Blocco pompa manuale
Hand pump modular manifold

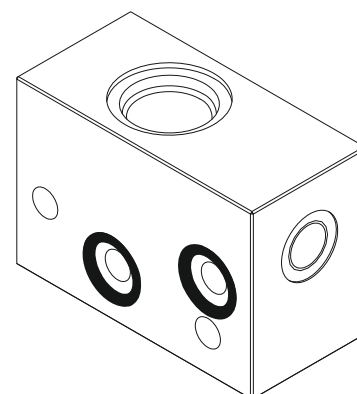
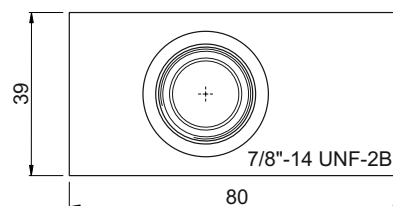
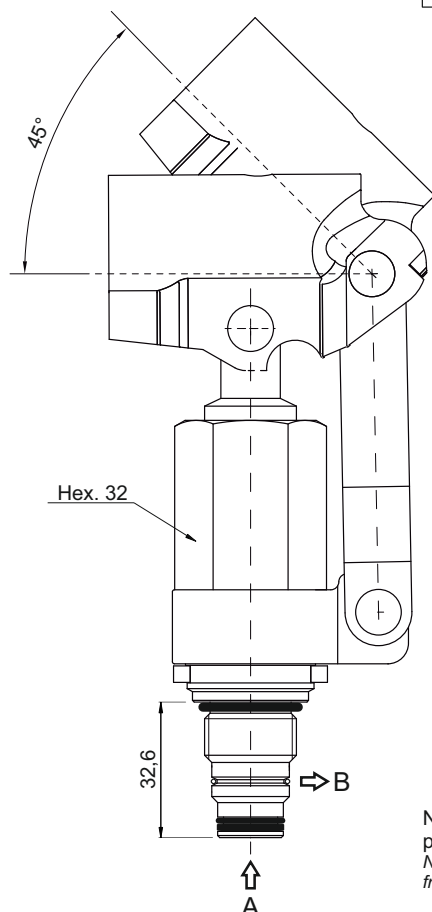
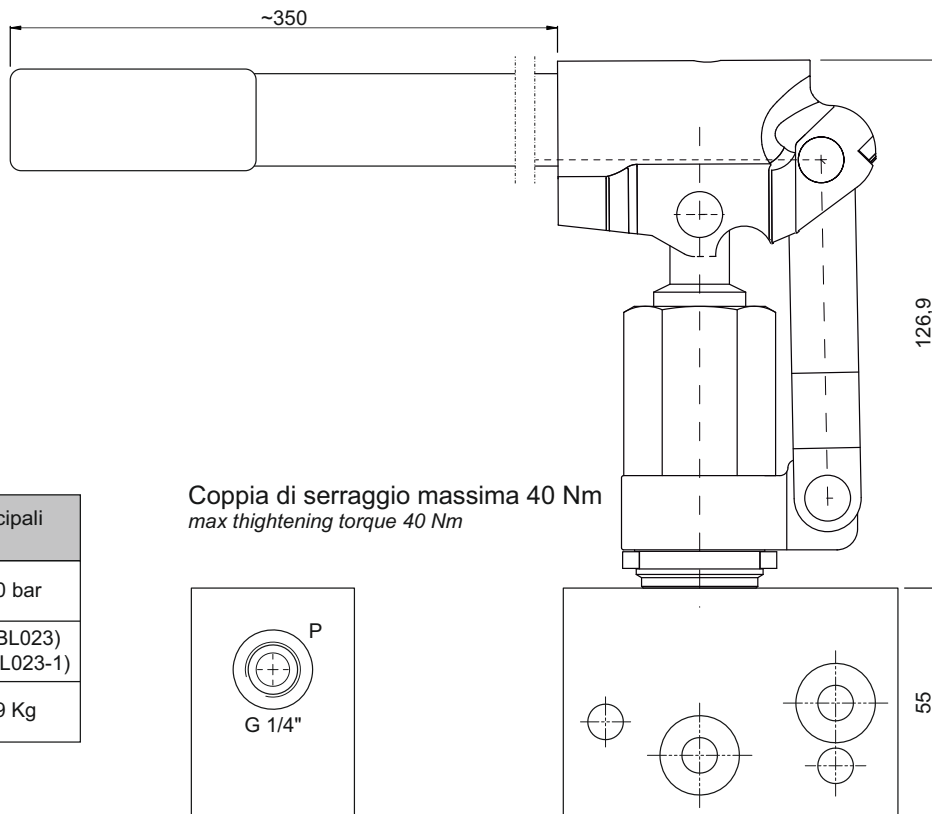
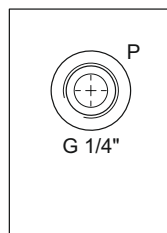
Simbolo
symbol



Caratteristiche principali
main features

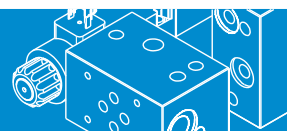
Pressione max max pressure	210 bar
cc/corsa cc/stroke	8,8 (BL023) 4,0 (BL023-1)
Peso weight	1,9 Kg

Coppia di serraggio massima 40 Nm
max tightening torque 40 Nm



NB: Per facilitare l'aspirazione della pompa, lasciare libero il percorso P
Note: to make suction easier, leave P path free

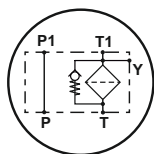




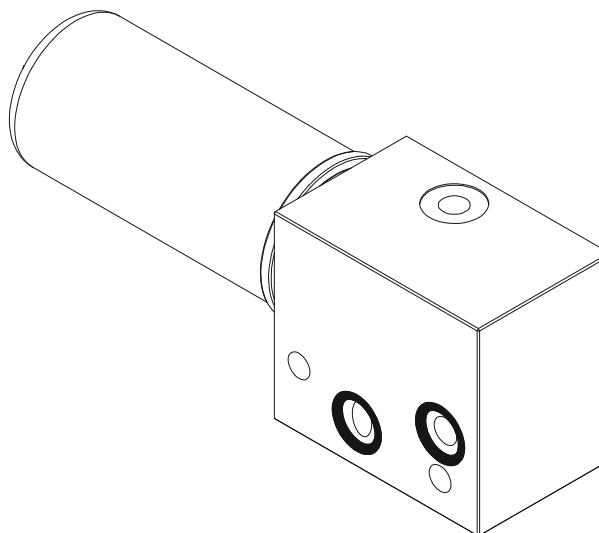
BL025-1-15

Blocco filtro di ritorno
Return filter manifold

Simbolo
symbol

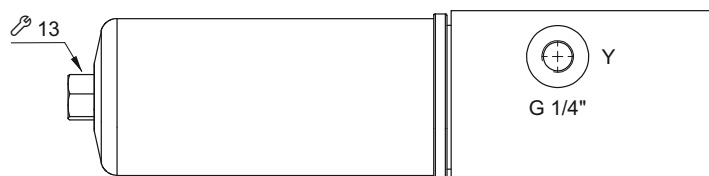
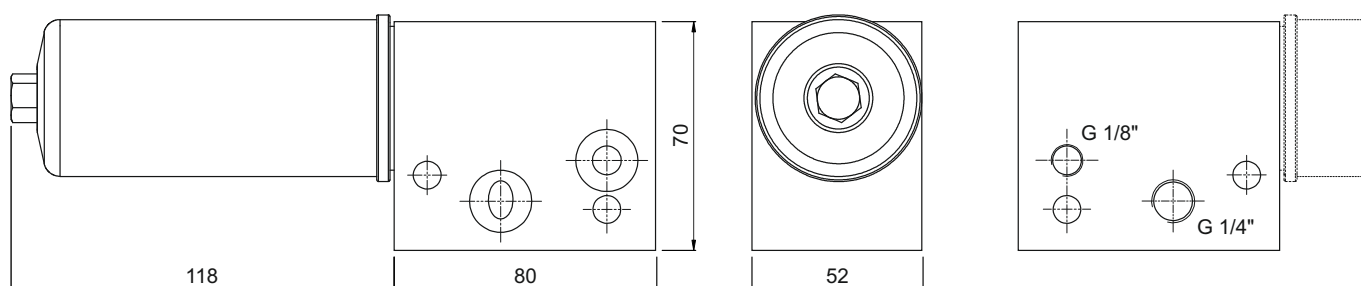


Caratteristiche principali main features	
Pressione esercizio working pressure	10 bar
portata max max flow	16 l/min
Filtrazione filtration	15 µm



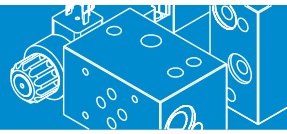
Valvola by-pass: apertura 1 bar
By-pass valve: opening 1 bar

Portata rilevata con olio avente viscosità cinematica 30 cst, densità 0,86 kg/dm³ e Δp=0,03 bar
Flow rate measured with oil of 30 cst kinematic viscosity, 0,86 kg/dm³ density and Δp=0,03 bar



Elemento filtrante: carta
Filter element: paper

Elementi modulari modular elements



07

BL035

Regolatore di flusso A+B in scarico
Flow regulator valve control in lines A and B

Simbolo
symbol

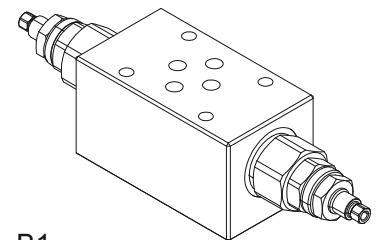
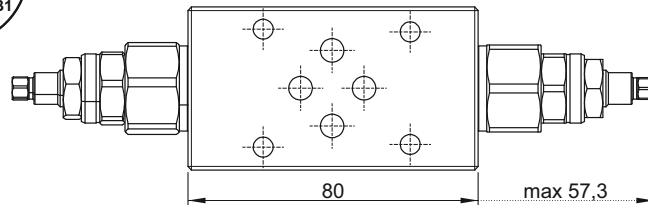
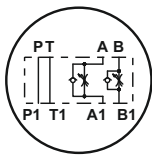
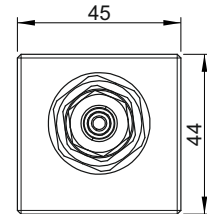
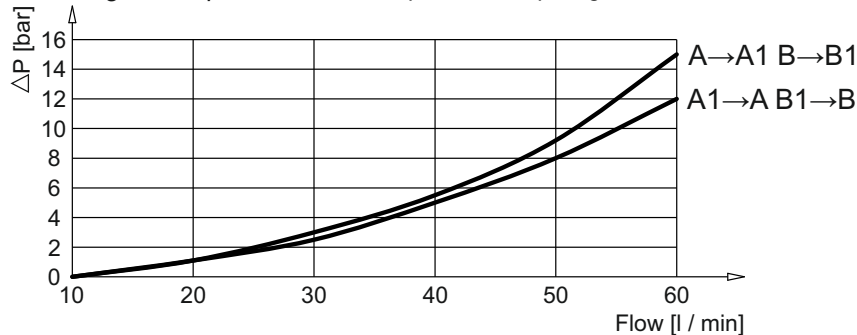
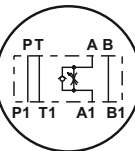


Diagramma perdita di carico - pressure drop diagram



BL036

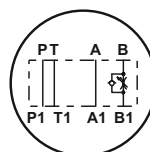
Regolatore di flusso scarico su A
Flow regulator valve control in line A



Simbolo
symbol

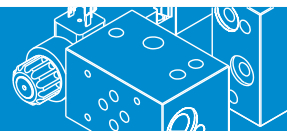
BL037

Regolatore di flusso scarico su B
Flow regulator valve control in line B



Simbolo
symbol

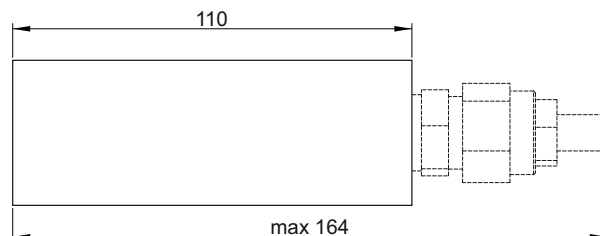
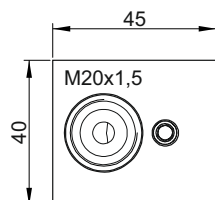
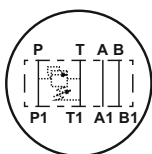
Elementi modulari modular elements



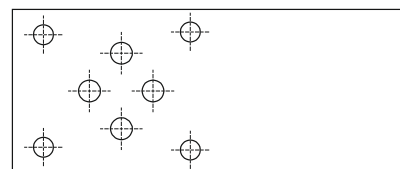
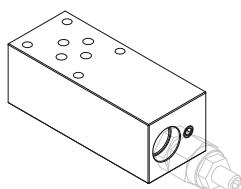
BL050

Blocco limitatrice di pressione P in T cavità M20x1,5
Manifold for pressure control valves P in T cavity M20x1,5

Simbolo
symbol



Ingombro valvola VMDC35
Valve size VMDC35

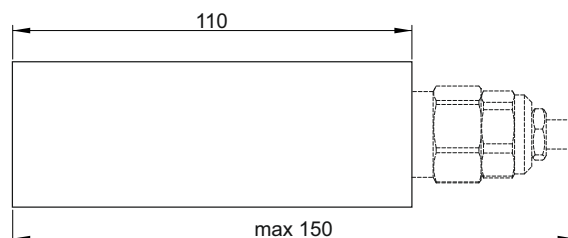
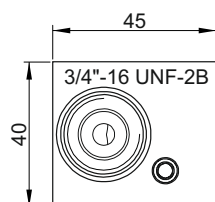
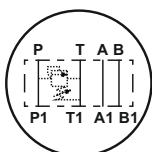


Regolazione semplice ad azione diretta sulla via P con scarico in T
Single adjustment direct operated on line P with discharge in T

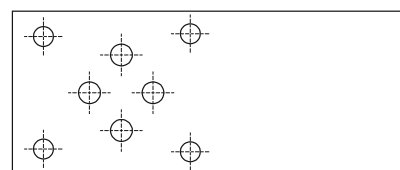
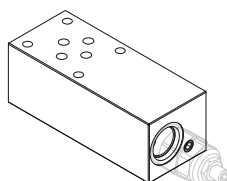
BL055

Blocco limitatrice di pressione P in T cavità S08-2
Manifold for pressure control valves P in T cavity S08-2

Simbolo
symbol

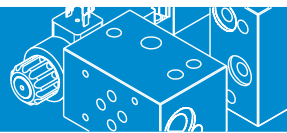


Ingombro valvola VMDC30
Valve size VMDC30



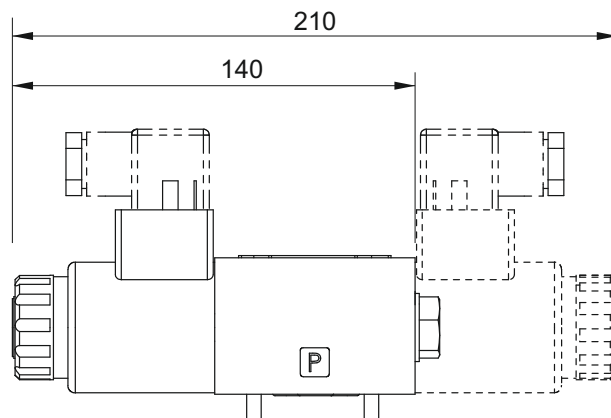
Regolazione semplice ad azione diretta sulla via P con scarico in T
Single adjustment direct operated on line P with discharge in T

Elementi modulari modular elements



07

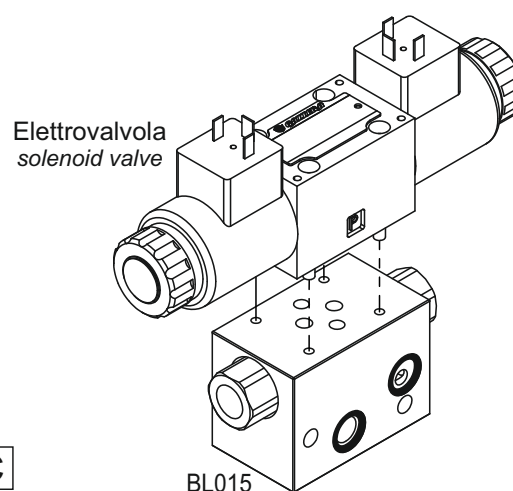
Elettrovalvole - solenoid valves



Schema idraulico - hydraulic scheme

Code	Schema scheme	Code	Schema scheme
DM01		DD01	
DM02		DD02	
DM03		DD03	
DM04		DD04	
		DD05	

Tensioni standard per elettrovalvole: 12DC, 24DC, 48DC, 110/50AC, 230/50AC.
Altre tensioni su richiesta.
Per i connettori consultare il capitolo 4
Standard voltages for solenoid valves: 12DC, 24DC, 48DC, 110/50AC, 230/50AC.
Others voltages on request.
For connectors see chapter 4



Codice ordinazione - ordering code

D	M	0	1	0	0	2	4	D	C
1		2		3					

1 Tipo di valvola - valve type

DM = Elettrovalvola singola - single solenoid valve
DD = Elettrovalvola doppia - double solenoid valve

2 Schema idraulico - hydraulic scheme

Vedi tabella sopra - see table above

3 Tensione bobina - coil voltage

0012DC, 0024DC, 0048DC = corrente continua - DC current
0110AC, 0230AC = corrente alternata - AC current



CAPITOLO 08

SERBATOI

oil tanks

ITALIAN QUALITY SINCE 1989



CAPITOLO 08

Serbatoi

oil tanks

Serbatoi in plastica e in acciaio, rettangolari, cilindrici e stagni, da 1,5 a 30 litri, con le indicazioni per l'orientamento sulla centralina.

Plastic and steel tanks, rectangular, cylindrical and sealed, from 1.5 to 30 liters, with the positioning options on the power pack.

IN QUESTO CAPITOLO *in this chapter*

SERIE	Panoramica delle serie <i>series overview</i>	88
PE	Serbatoi in plastica <i>plastic tanks</i>	89
LM	Serbatoi rettangolari in acciaio <i>rectangular steel tanks</i>	91
LMS	Serbatoi stagni in acciaio <i>sealed steel tanks</i>	93
CS	Serbatoi cilindrici in acciaio <i>cylindrical steel tanks</i>	96
PC	Serbatoi cilindrici in plastica <i>cylindrical plastic tanks</i>	99
POSIZIONE	Orientamento dei serbatoi <i>tanks positioning</i>	101
VOLUME	Dimensionamento del serbatoio <i>tank sizing</i>	103

Serbatoi oil tanks

Modello - type

Serie LMS - acciaio stagno
LMS serie - watertight steel

Serie PC - plastica cilindrico
CP serie - cylindrical plastic

Serie PE - plastica
PE serie - plastic

Serie LM - acciaio rettangolare
LM serie - rectangular steel

Serie CS - acciaio cilindrico
CS serie - cylindrical steel

Codice ordinazione - ordering code

P E 1 2 V
1 2 3

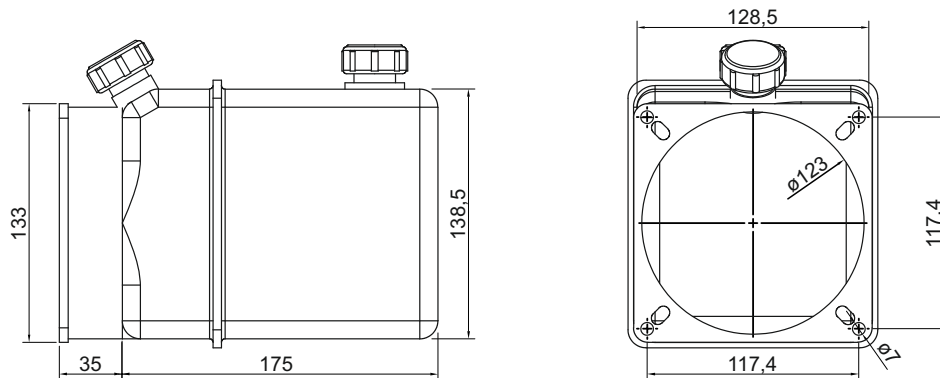
1 Serie - series	2 Volume serbatoio - tank volume					3 Tappo di carico - filler cap
PE	PE	LM	LMS	CS	PC	O = Orizzontale - horizontal
LM	02 = 2,5 lt	07 = 7,0 lt	15 = 15,0 lt	01 = 1,5 lt	05 = 5,0 lt	V = Verticale - vertical
CS	05 = 5,0 lt	15 = 15,0 lt	20 = 20,0 lt	02 = 2,5 lt	07 = 7,0 lt	TF= Stagno (solo LM07)
PC	08 = 8,0 lt	20 = 20,0 lt	30 = 30,0 lt	05 = 5,0 lt	09 = 9,0 lt	watertight (LM07 only)
	12 = 12,0 lt	30 = 30,0 lt		08 = 8,0 lt	11 = 11,0 lt	
				10 = 10,0 lt		
				12 = 12,0 lt		

Serbatoi plastica plastic oil tanks

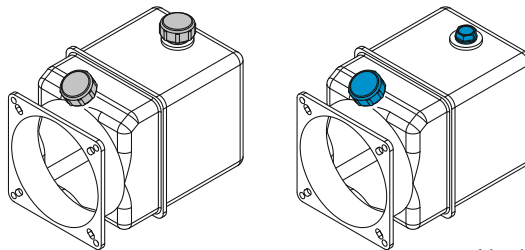
08

PE02

Serbatoio in plastica capacità 2,5 litri
Plastic tank 2,5 liters capacity



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +70°C
Foro std std hole	G3/8"

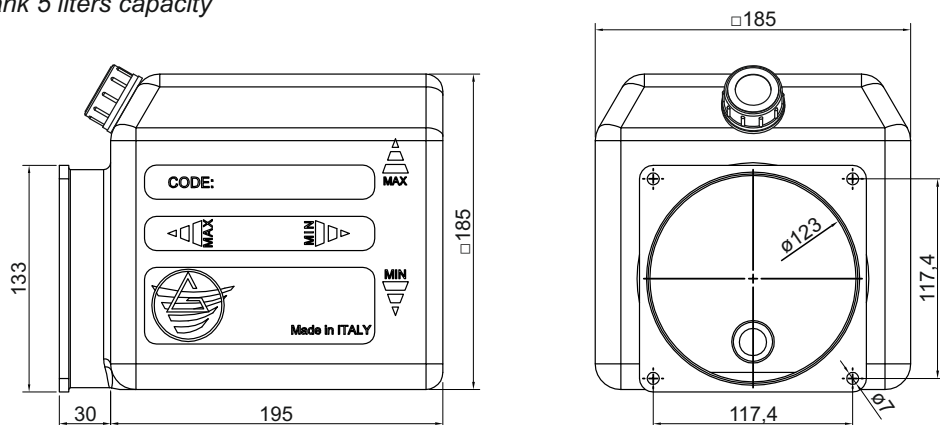


Versione - version

○ = Orizzontale - horizontal
■ = Verticale - vertical

PE05

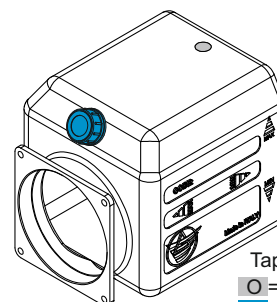
Serbatoio in plastica capacità 5 litri
Plastic tank 5 liters capacity



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +70°C
Foro std std hole	G1/2"

Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting

A richiesta, è inoltre possibile avere un ulteriore foro di scarico sul retro del serbatoio. In questo caso la cavità verrà tappata da tappo cieco G1/2".
Tutte le variazioni rispetto allo standard sono da specificare in fase d'ordine.
On request, it is possible to have an additional unloading hole on the rear of the tank. In this case the cavity will be capped by G1/2" plug.
All changes compared to the standard, must be specified during the order phase.

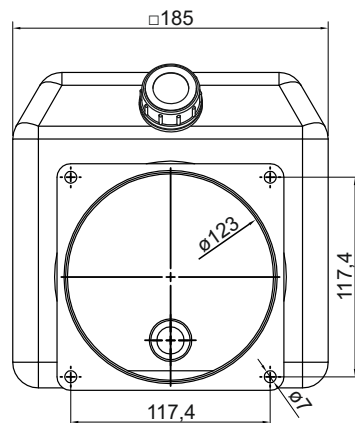
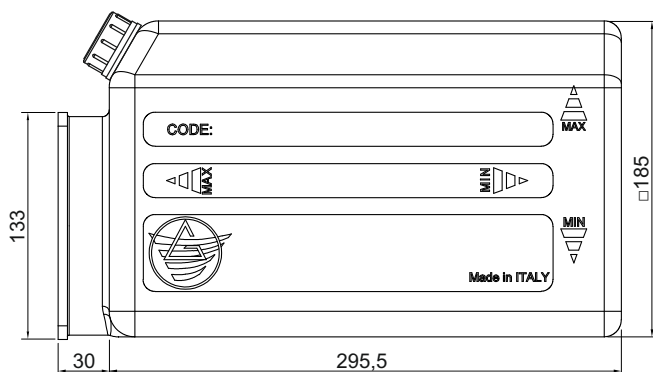


Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

Serbatoi plastica plastic oil tanks

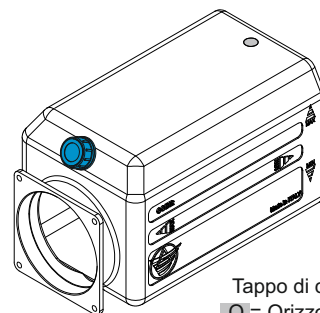
PE08

Serbatoio in plastica capacità 8 litri
Plastic tank 8 liters capacity



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +70°C
Foro std std hole	G1/2"

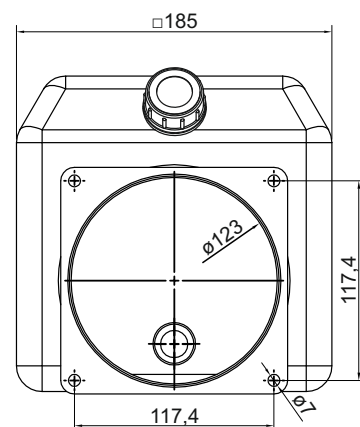
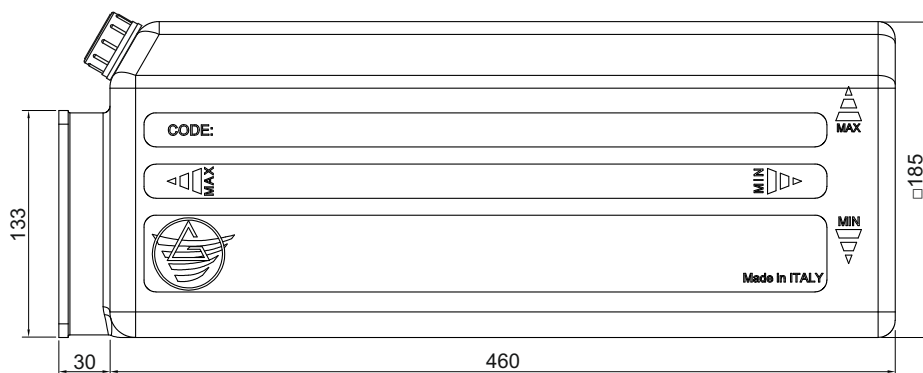
Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting
*vedi nota PE12 per foro di scarico aggiuntivo
*see note PE12 for additional unloading hole



Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

PE12

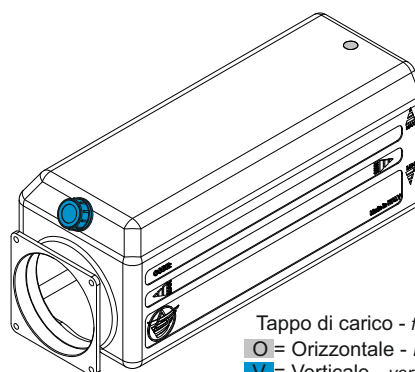
Serbatoio in plastica capacità 12 litri
Plastic tank 12 liters capacity



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +70°C
Foro std std hole	G1/2"

Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting

*A richiesta, è inoltre possibile avere un ulteriore foro di scarico sul retro del serbatoio. In questo caso la cavità verrà tappata da tappo cieco G1/2".
Tutte le variazioni rispetto allo standard sono da specificare in fase d'ordine.
*On request, is possible to have an additional unloading hole on the rear of the tank. In this case the cavity will be capped by G1/2" plug.
All changes compared to the standard, must be specified during the order phase.



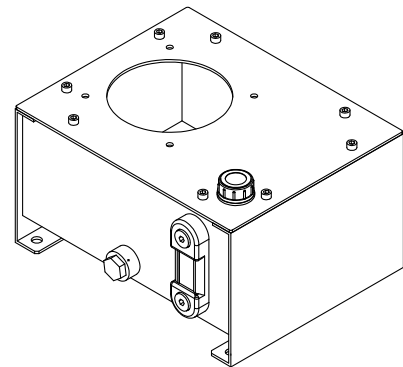
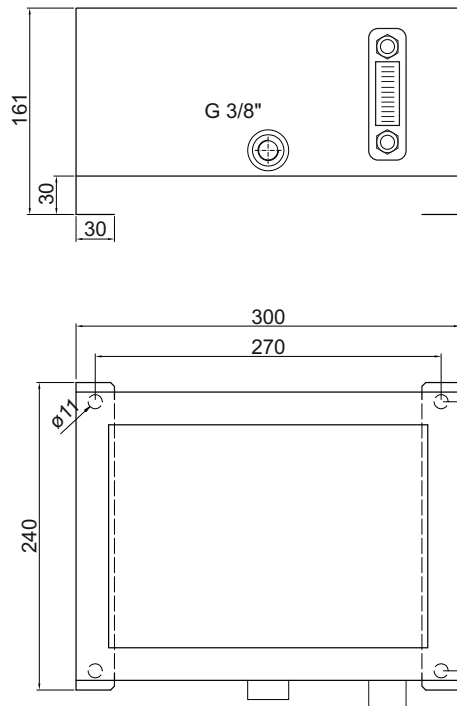
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

Serbatoi acciaio steel oil tanks

08

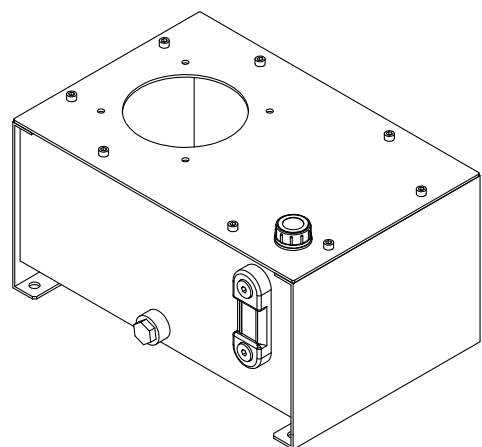
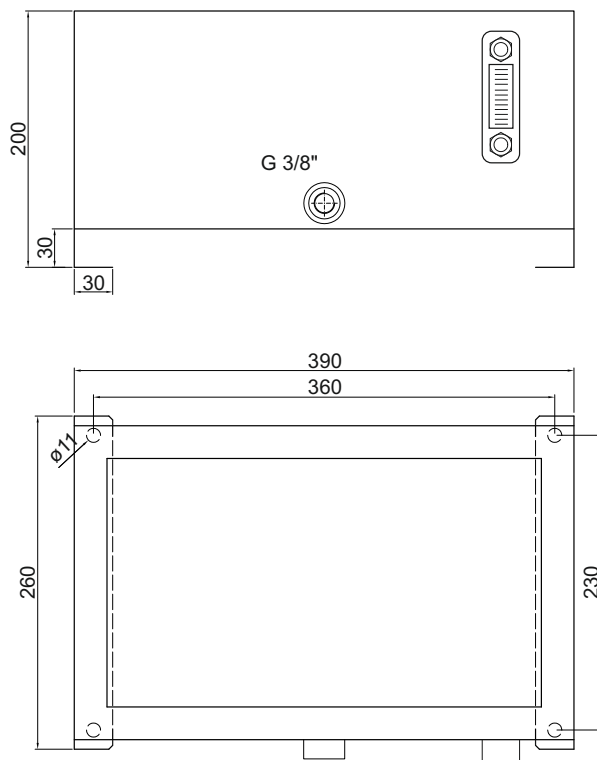
LM07

Serbatoio rettangolare in acciaio capacità 7 litri
7 liters capacity rectangular steel tank



LM15

Serbatoio rettangolare in acciaio capacità 15 litri
15 liters capacity rectangular steel tank

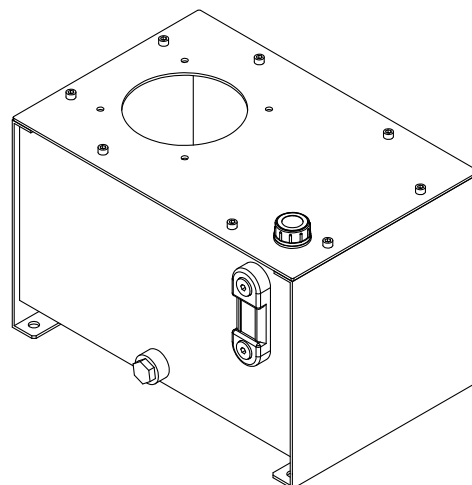
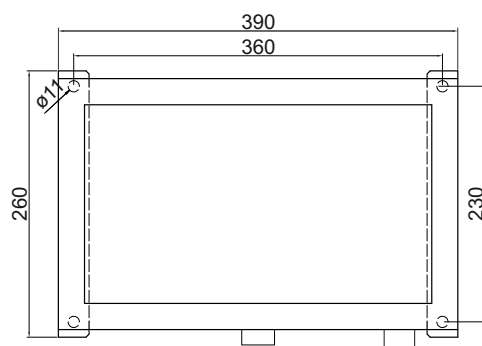
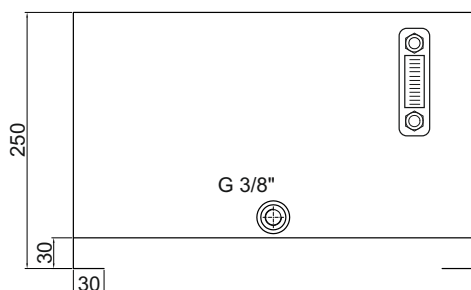


Serbatoi acciaio steel oil tanks



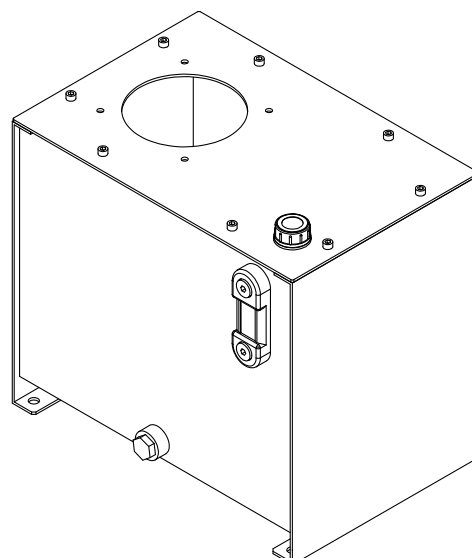
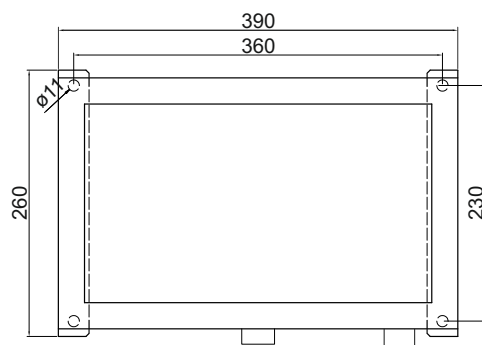
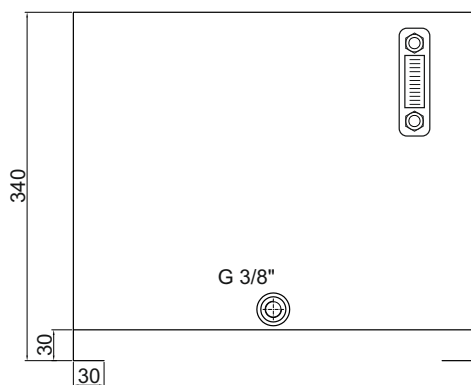
LM20

Serbatoio rettangolare in acciaio capacità 20 litri
20 liters capacity rectangular steel tank



LM30

Serbatoio rettangolare in acciaio capacità 30 litri
30 liters capacity rectangular steel tank

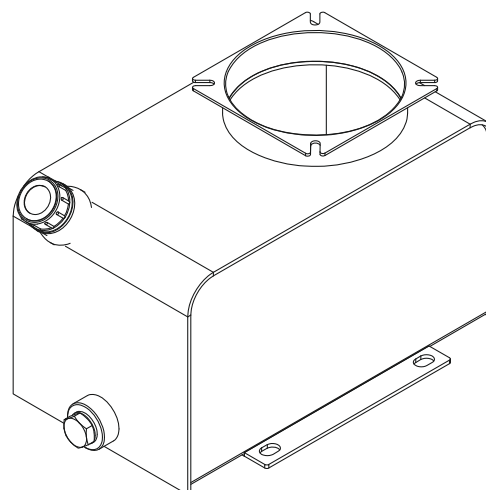
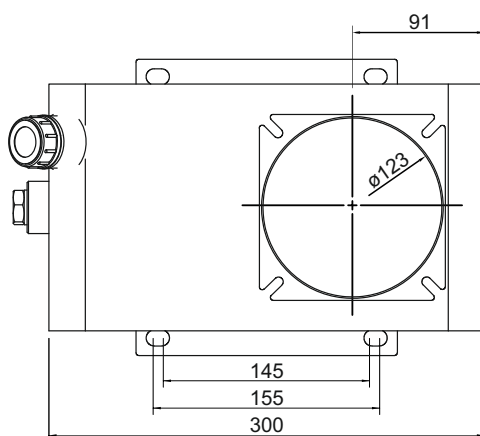
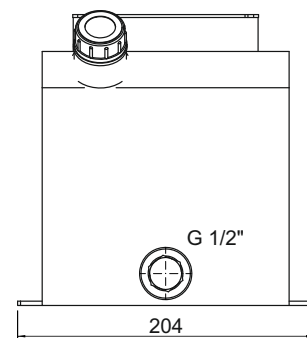
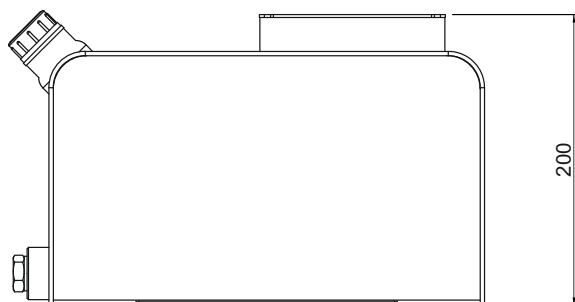


Serbatoi acciaio steel oil tanks

08

LM07TF

Serbatoio stagno in acciaio capacità 7 litri
7 liters capacity watertight steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Tappo di sfiato std std filler breather	G3/4"
Tappo di sfiato LM07TF LM07TF filler breather	G1/2"

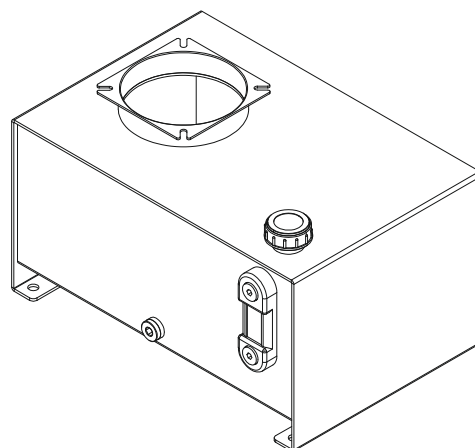
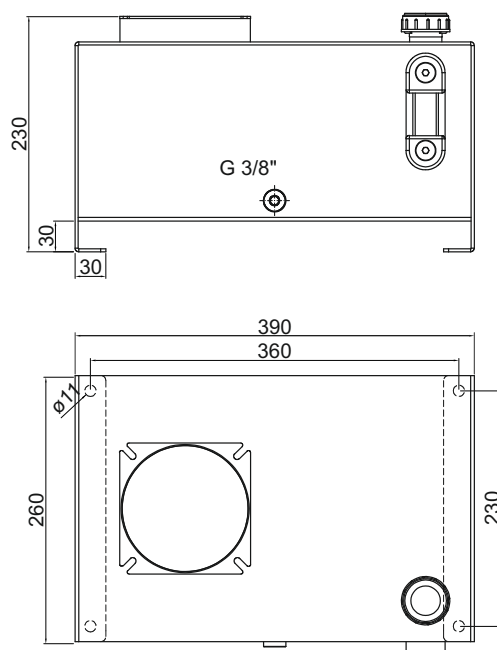


Serbatoi acciaio steel oil tanks



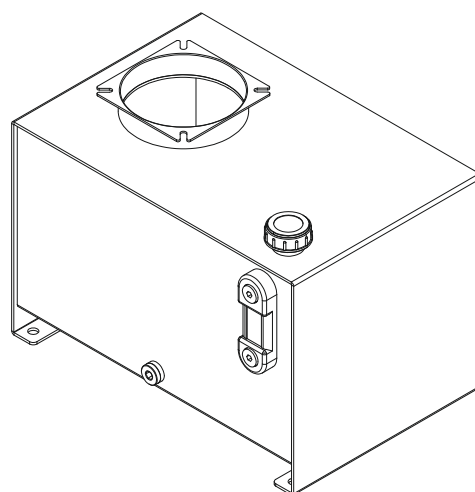
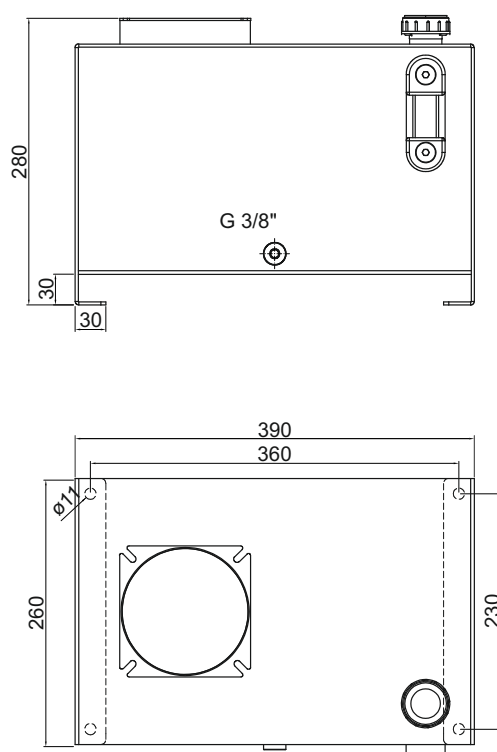
LMS15

Serbatoio rettangolare stagno in acciaio capacità 15 litri
15 liters capacity rectangular watertight steel tank



LMS20

Serbatoio rettangolare stagno in acciaio capacità 20 litri
20 liters capacity rectangular watertight steel tank

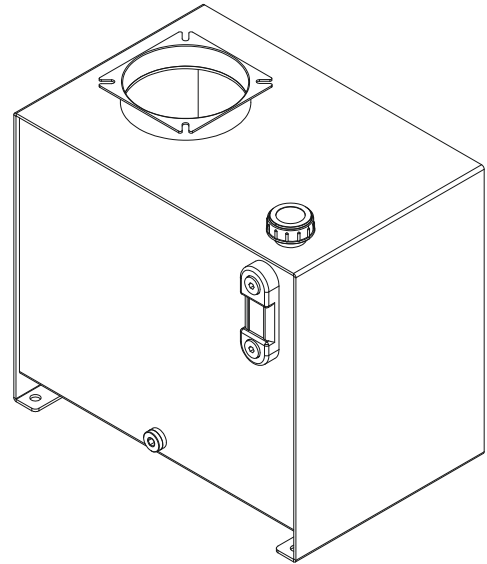
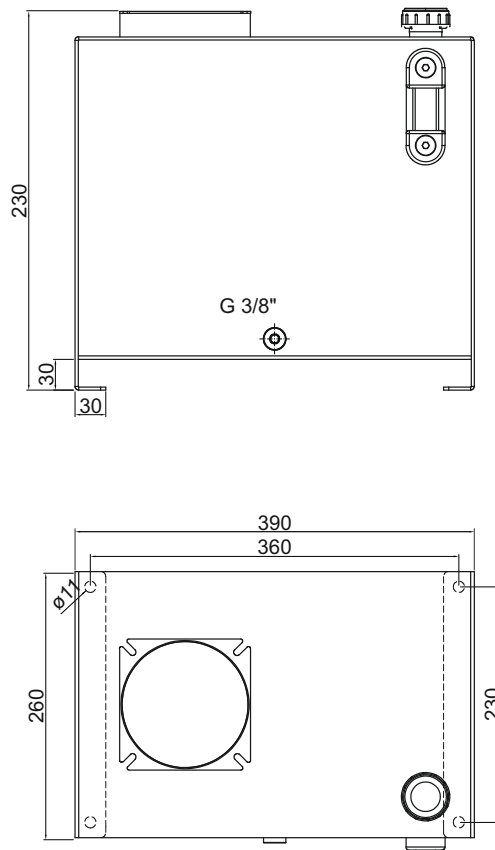


Serbatoi acciaio steel oil tanks

08

LMS30

Serbatoio rettangolare stagno in acciaio capacità 30 litri
30 liters capacity rectangular watertight steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Tappo di sfiato filler breather	G3/4"

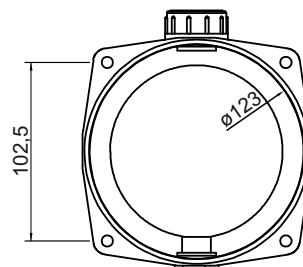
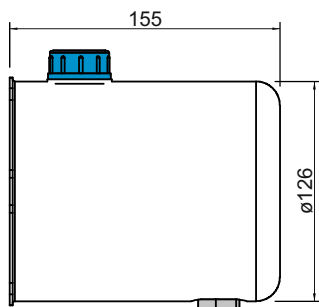


Serbatoi acciaio steel oil tanks

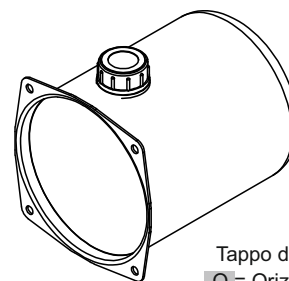


CS01

Serbatoio cilindrico in acciaio capacità 1,5 litri
1,5 liters capacity cylindrical steel tank



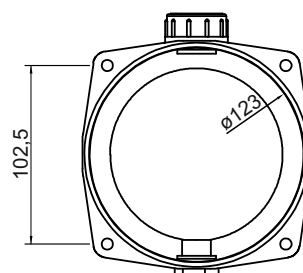
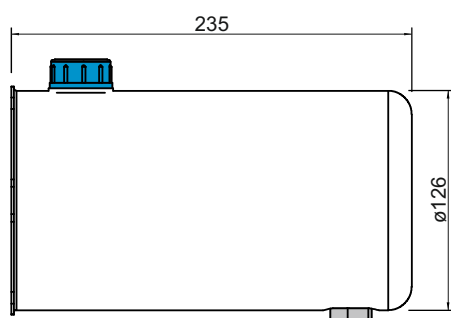
Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



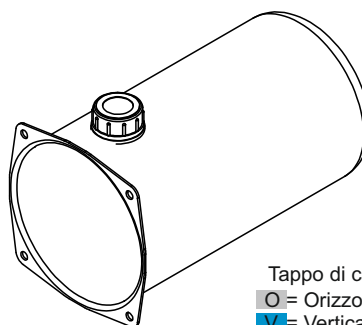
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

CS02

Serbatoio cilindrico in acciaio capacità 2,5 litri
2,5 liters capacity cylindrical steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



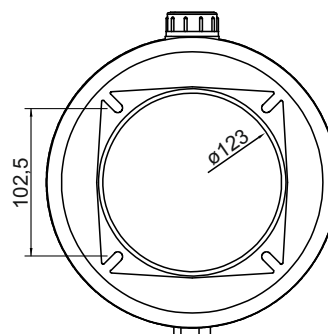
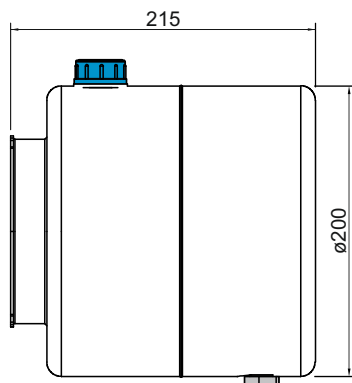
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

Serbatoi acciaio steel oil tanks

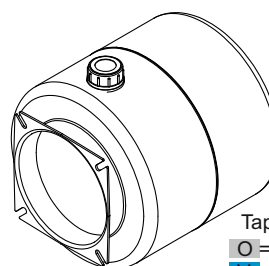
08

CS05

Serbatoio cilindrico in acciaio capacità 5 litri
5 liters capacity cylindrical steel tank



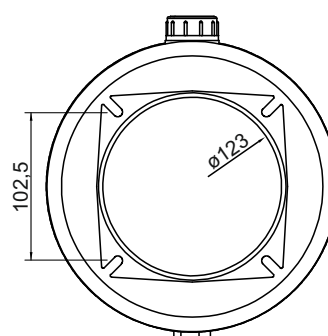
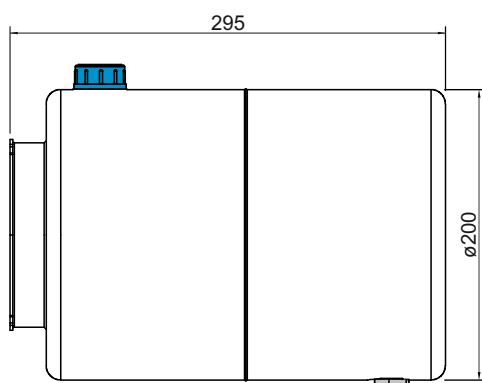
Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



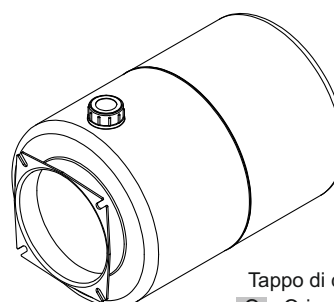
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

CS08

Serbatoio cilindrico in acciaio capacità 8 litri
8 liters capacity cylindrical steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



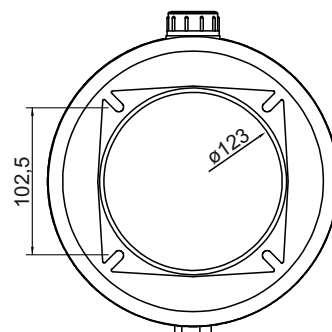
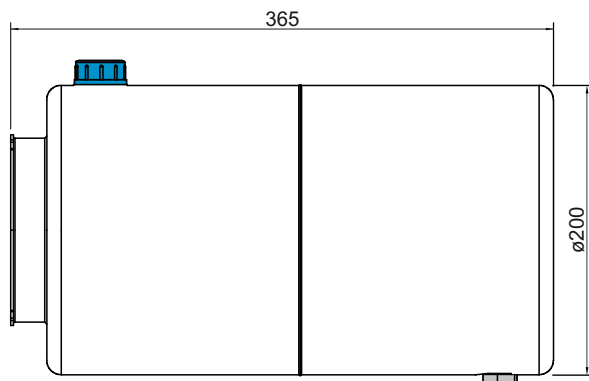
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical



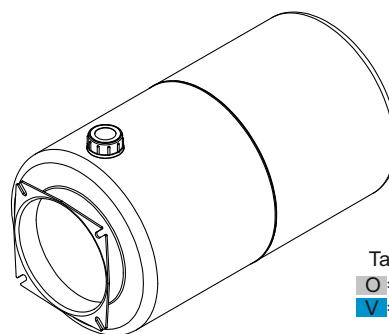
Serbatoi acciaio steel oil tanks

CS10

Serbatoio cilindrico in acciaio capacità 10 litri
10 liters capacity cylindrical steel tank



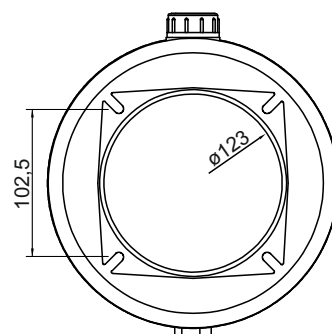
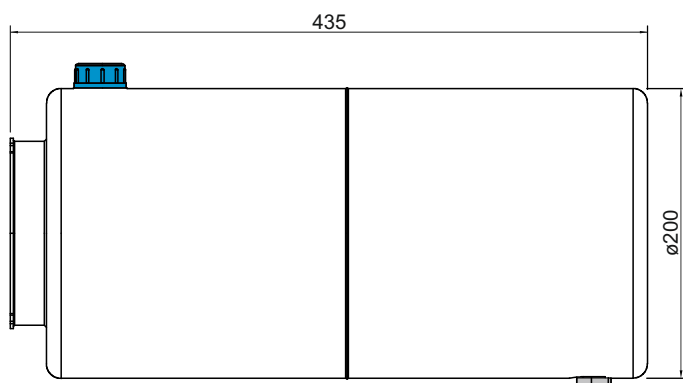
Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



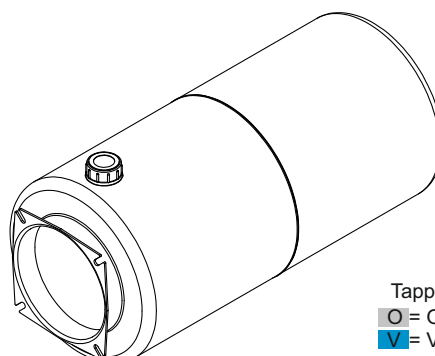
Tappo di carico - filler cap
O = Orizzontale - horizontal
V = Verticale - vertical

CS12

Serbatoio cilindrico in acciaio capacità 12 litri
12 liters capacity cylindrical steel tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-10°C +80°C
Foro std std hole	G1/2"



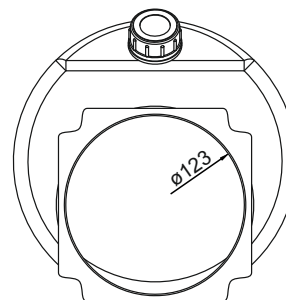
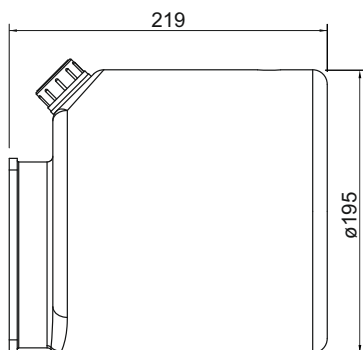
Tappo di carico - filler cap
O = Orizzontale - horizontal
V = Verticale - vertical

Serbatoi plastica plastic oil tanks

08

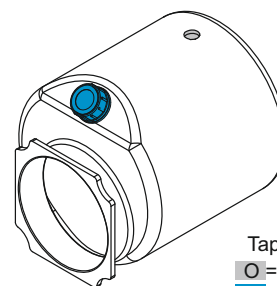
PC05

Serbatoio cilindrico in plastica capacità 5 litri
5 liters capacity cylindrical plastic tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-15°C +70°C
Foro std std hole	G1/2"

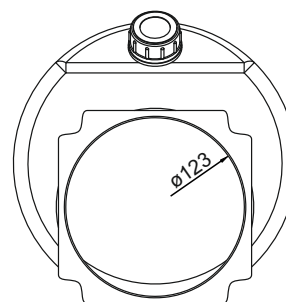
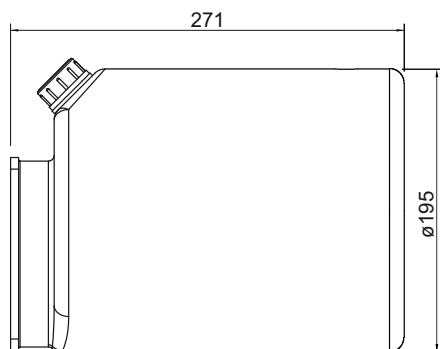
Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting



Tappo di carico - filler cap
O = Orizzontale - horizontal
V = Verticale - vertical

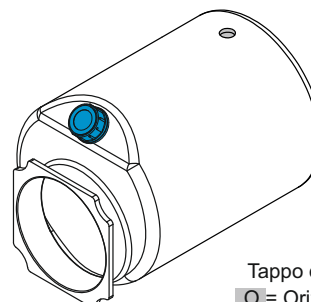
PC07

Serbatoio cilindrico in plastica capacità 7 litri
7 liters capacity cylindrical plastic tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-15°C +70°C
Foro std std hole	G1/2"

Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting



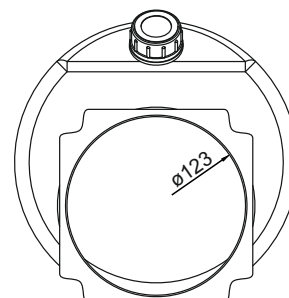
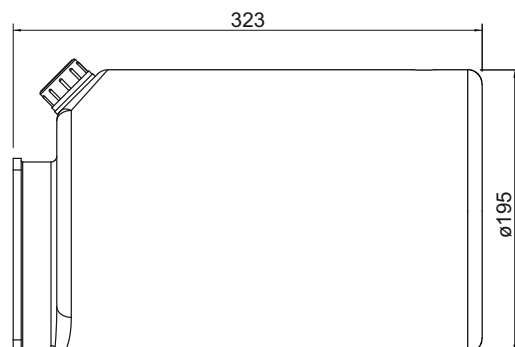
Tappo di carico - filler cap
O = Orizzontale - horizontal
V = Verticale - vertical

Serbatoi plastica plastic oil tanks



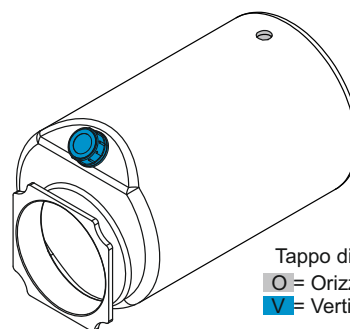
PC09

Serbatoio cilindrico in plastica capacità 9 litri
9 liters capacity cylindrical plastic tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-15°C +70°C
Foro std std hole	G1/2"

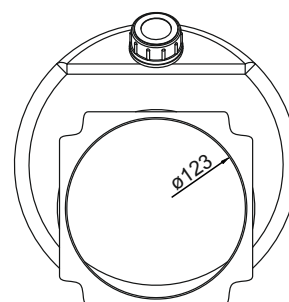
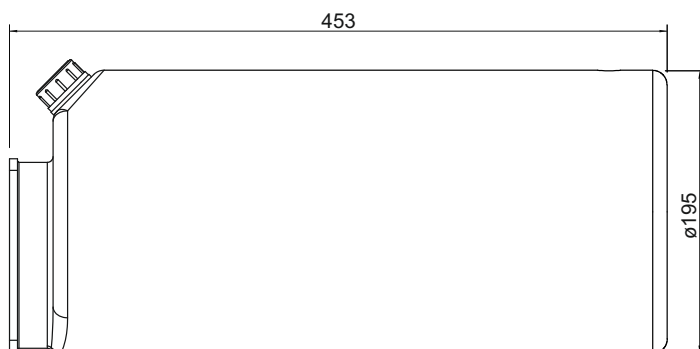
Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting



Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

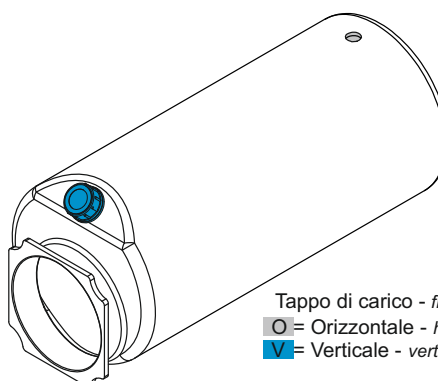
PC11

Serbatoio cilindrico in plastica capacità 11 litri
11 liters capacity cylindrical plastic tank



Caratteristiche principali main features	
Temperatura di impiego working temperature	-15°C +70°C
Foro std std hole	G1/2"

Predisposizione tappo di carico per montaggio orizzontale (O), o verticale (V)
predisposition for filler cap position for horizontal (O), or vertical (V) mounting



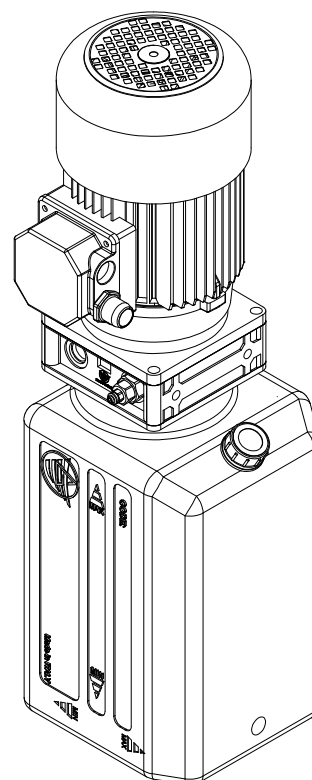
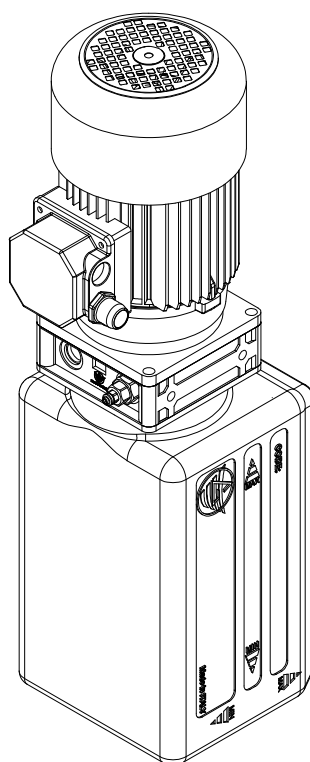
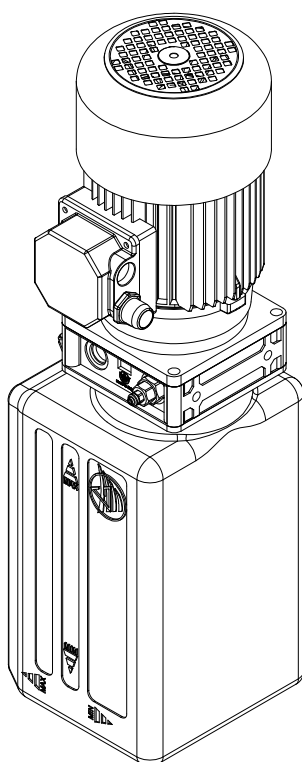
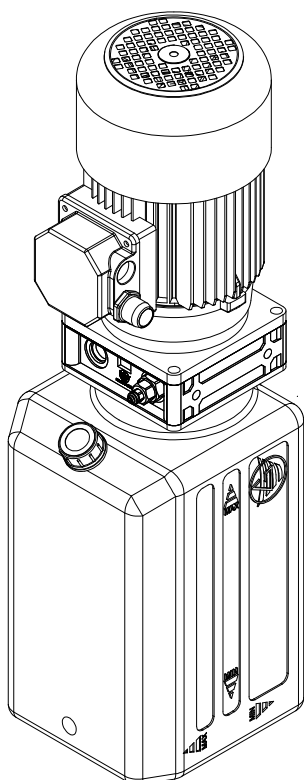
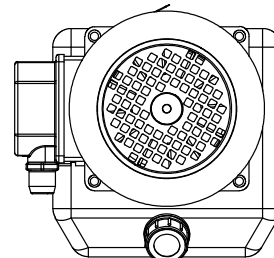
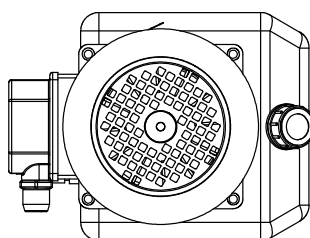
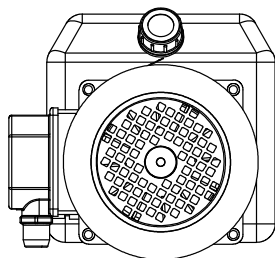
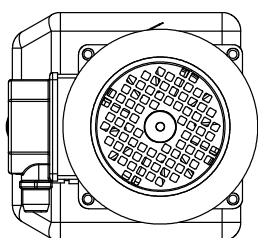
Tappo di carico - filler cap
○ = Orizzontale - horizontal
■ = Verticale - vertical

Serbatoi oil tanks

08

Orientamento Serbatoi - tanks positioning

Serie PE - CS - PC



1 Sinistra - left (std)

2 Anteriore - front

3 Destra - right

4 Posteriore - rear

tappo di carico stesso lato
della valvola di massima
filler cap same side of the relief
valve

tappo di carico lato blocchi
modulari
filler cap on modular blocks side

tappo di carico lato opposto
della valvola di massima
filler cap on opposite side of the
relief valve

tappo di carico lato opposto
blocchi modulari
filler cap on opposite side modular
blocks

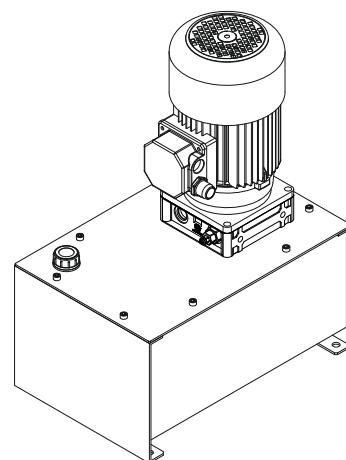
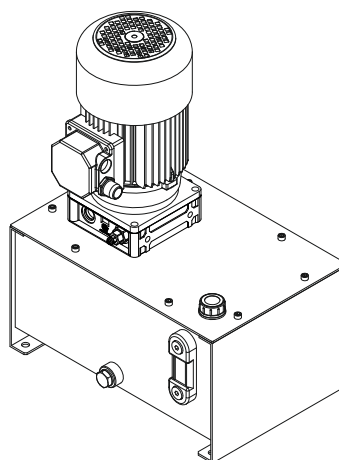
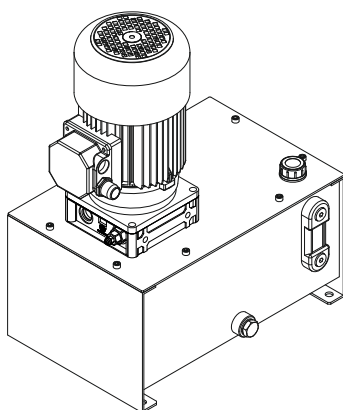
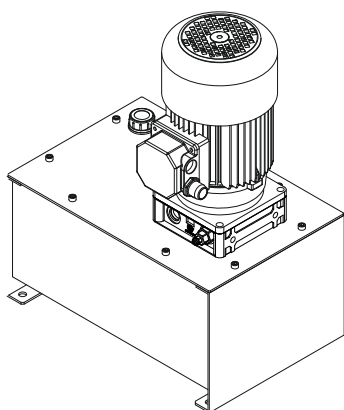
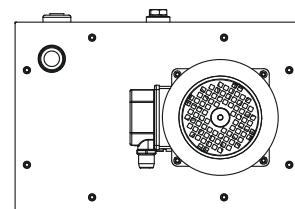
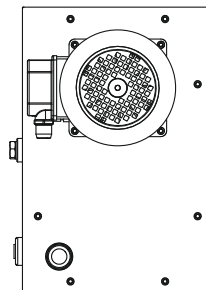
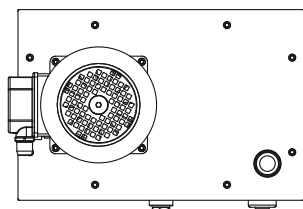
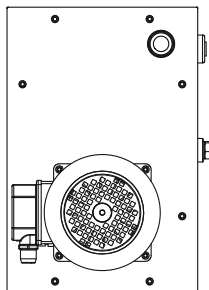


08

Serbatoi oil tanks

Orientamento Serbatoi - tanks positioning

Serie LM e LMS



1 Sinistra - left (std)

tappo di carico verso blocchi modulari
filler cap toward modular blocks

2 Anteriore - front

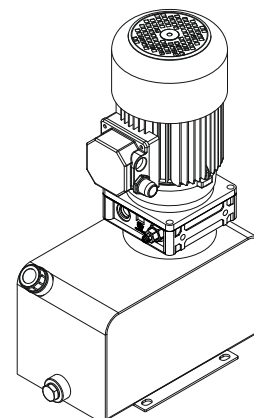
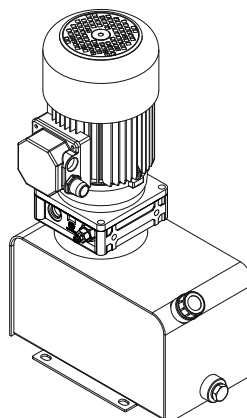
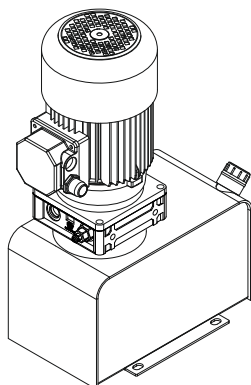
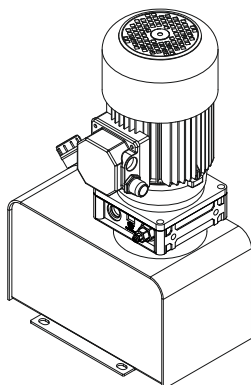
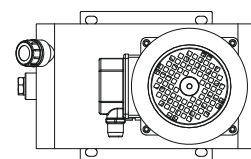
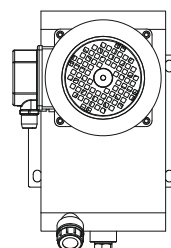
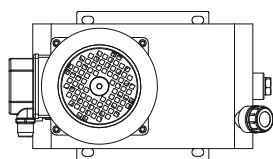
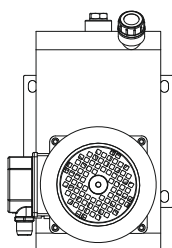
tappo di carico opposto alla valvola di massima
filler cap on opposite side of the relief valve

3 Destra - right

tappo di carico opposto a blocchi modulari
filler cap on opposite side of the modular blocks

4 Posteriore - rear

tappo di carico verso valvola di massima
filler cap toward relief valve



Serbatoi oil tanks



08

Dimensionamento serbatoio - tank sizing

Il serbatoio deve contenere l'olio che i cilindri richiedono quando sono tutti estesi, più un riserva che tenga il filtro di aspirazione sempre immerso e lasci spazio alla dilatazione dell'olio.

The tank must hold the oil required by the cylinders when fully extended, plus a reserve that keeps the suction filter always submerged and leaves room for oil expansion.

1. Volume d'olio dei cilindri oil volume of the cylinders

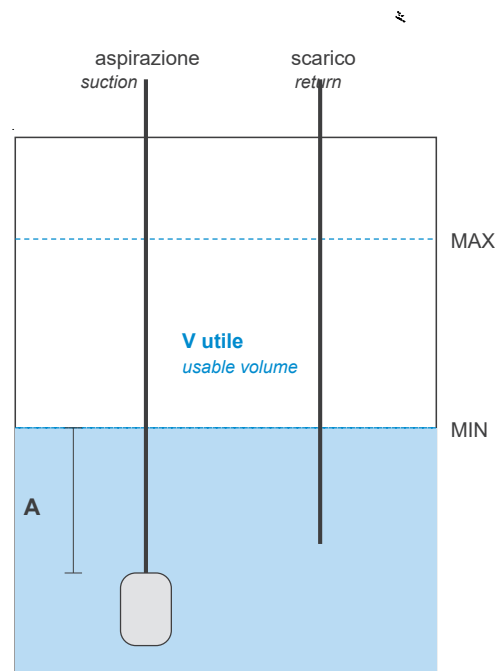
$$V [l] = 3,14 \times D^2 \times C / 4.000.000 \quad D = \text{alesaggio del cilindro [mm]} \quad C = \text{corsa [mm]}$$

D = cylinder bore [mm] C = stroke [mm]. Con più cilindri si sommano i volumi. Per i cilindri a doppio effetto conta il lato con il volume maggiore.

D \ C [mm]	200	300	500	800	1000
Ø 40	0,25 l	0,38 l	0,63 l	1,01 l	1,26 l
Ø 50	0,39 l	0,59 l	0,98 l	1,57 l	1,96 l
Ø 63	0,62 l	0,94 l	1,56 l	2,49 l	3,12 l
Ø 80	1,01 l	1,51 l	2,51 l	4,02 l	5,03 l
Ø 100	1,57 l	2,36 l	3,93 l	6,28 l	7,85 l

2. Come scegliere il serbatoio how to choose the tank

- Volume utile, tra il livello massimo e il minimo, almeno pari al volume dei cilindri.
Usable volume, between maximum and minimum level, at least equal to the cylinder volume.
- Con i cilindri tutti estesi il filtro di aspirazione deve restare immerso di almeno 30 - 50 mm (quota A): così la pompa non aspira aria.
With all cylinders extended the suction filter must stay at least 30 - 50 mm under the oil (A), so the pump does not draw air.
- Non riempire oltre il livello massimo: lo spazio libero serve alla dilatazione dell'olio e alla separazione dell'aria.
Do not fill above the maximum level: the free space is needed for oil expansion and air release.
- Servizio intermittente (S3): volume dei cilindri più una riserva del 20 - 30%. Servizio continuo: indicativamente 3 - 5 volte la portata della pompa al minuto, oppure uno scambiatore di calore.
Intermittent duty (S3): cylinder volume plus a 20 - 30% reserve. Continuous duty: about 3 - 5 times the pump flow per minute, or a heat exchanger.
- Il tubo di scarico deve finire sotto il livello minimo, lontano dall'aspirazione.
The return pipe must end below the minimum level, away from the suction.



3. Esempio example

Cilindro a semplice effetto Ø 50, corsa 500 mm: $V = 3,14 \times 50^2 \times 500 / 4.000.000 = 0,98 \text{ l}$. Con il 30% di riserva servono circa 1,3 l di volume utile: si sceglie il serbatoio con volume utile subito superiore.

Single-acting cylinder Ø 50, stroke 500 mm: $V = 0.98 \text{ l}$. With a 30% reserve about 1.3 l of usable volume is needed: choose the tank with the next larger usable volume.

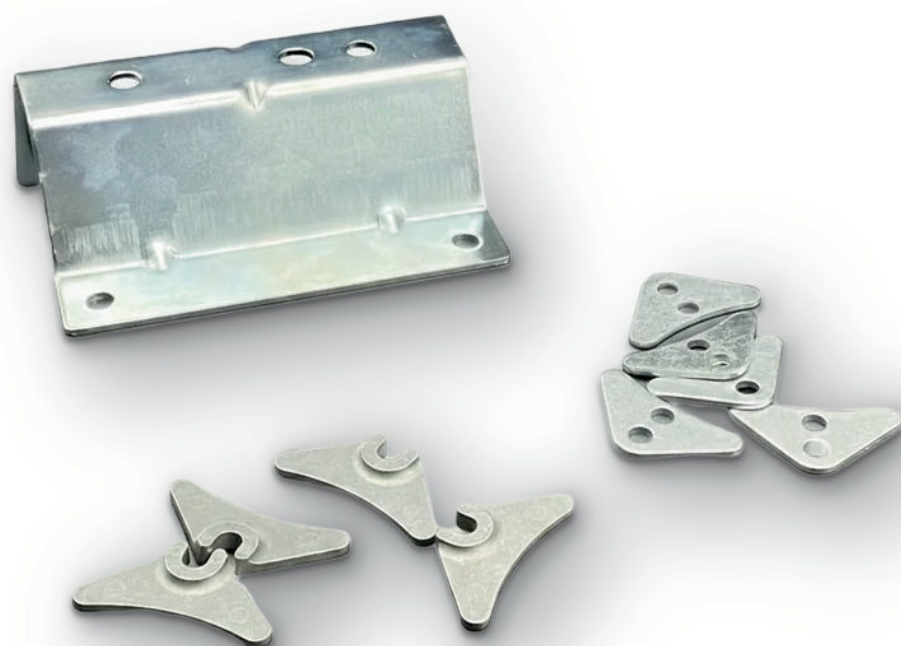


CAPITOLO 09

ACCESSORI

accessories

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CAPITOLO 09

Accessori

accessories

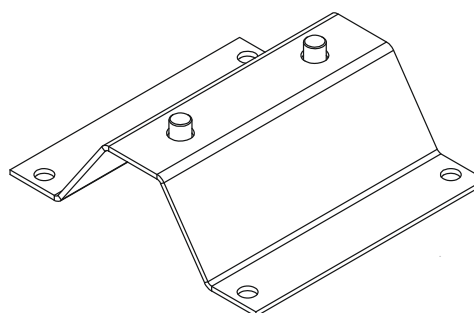
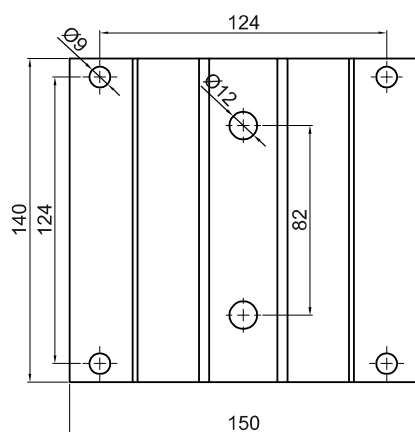
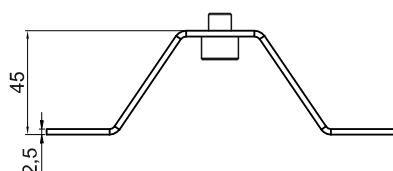
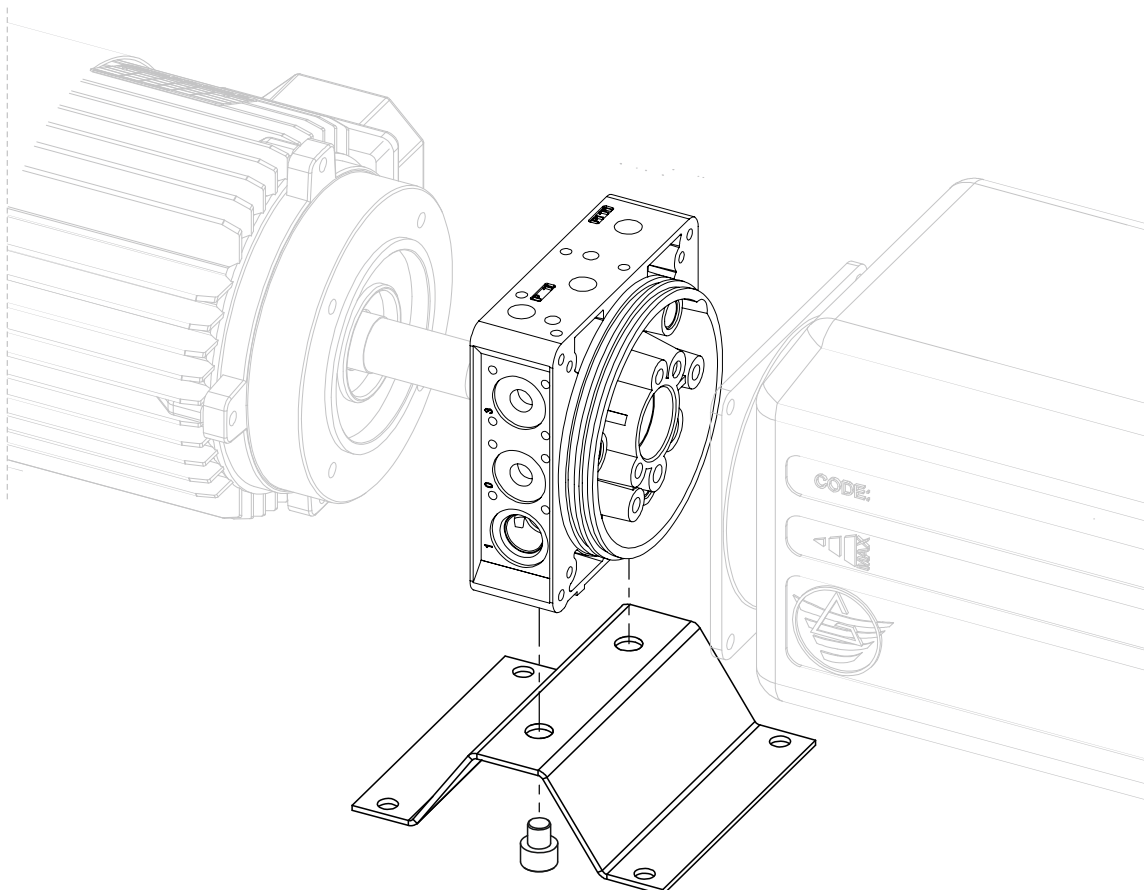
Gli accessori per completare la centralina: piedini di supporto, manometri con valvola di esclusione, fissaggi per i serbatoi in plastica e collari per quelli in acciaio.

Accessories to complete the power pack: support feet, pressure gauges with isolator valve and fixings for plastic tanks and collars for steel tanks.

IN QUESTO CAPITOLO *in this chapter*

F01	Piedino di supporto centralina <i>mounting foot support</i>	106
F03	Piedino di supporto centralina rialzato <i>raised mounting foot support</i>	107
ES	Valvola di esclusione e manometri <i>gauge isolator valve and pressure gauges</i>	108
FFPL	Fazzoletti di fissaggio per serbatoi in plastica <i>mounting kit for plastic tanks</i>	109
FFPC	Fissaggio per serbatoi in plastica serie PC <i>mounting kit for PC series plastic tanks</i>	109
FLTK	Collare per serbatoi in acciaio <i>collar for steel tanks</i>	109

Piedino di supporto centralina
Mounting foot support

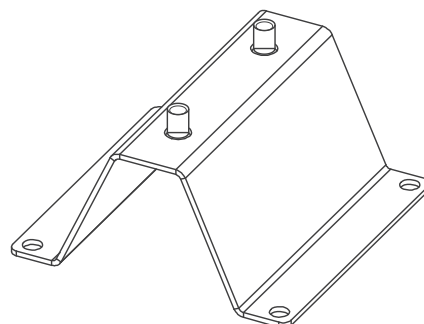
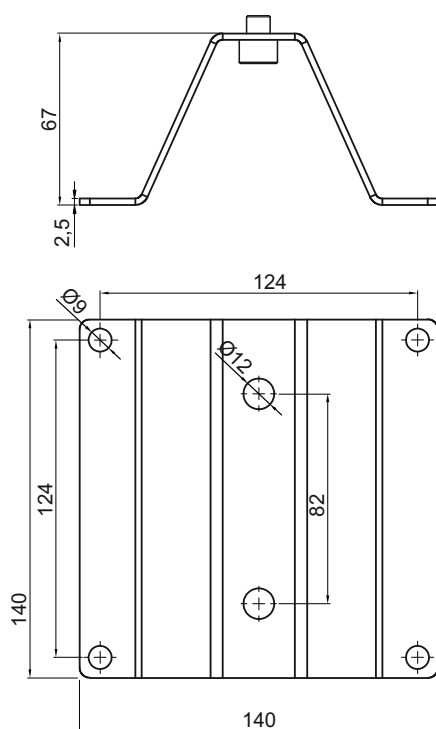
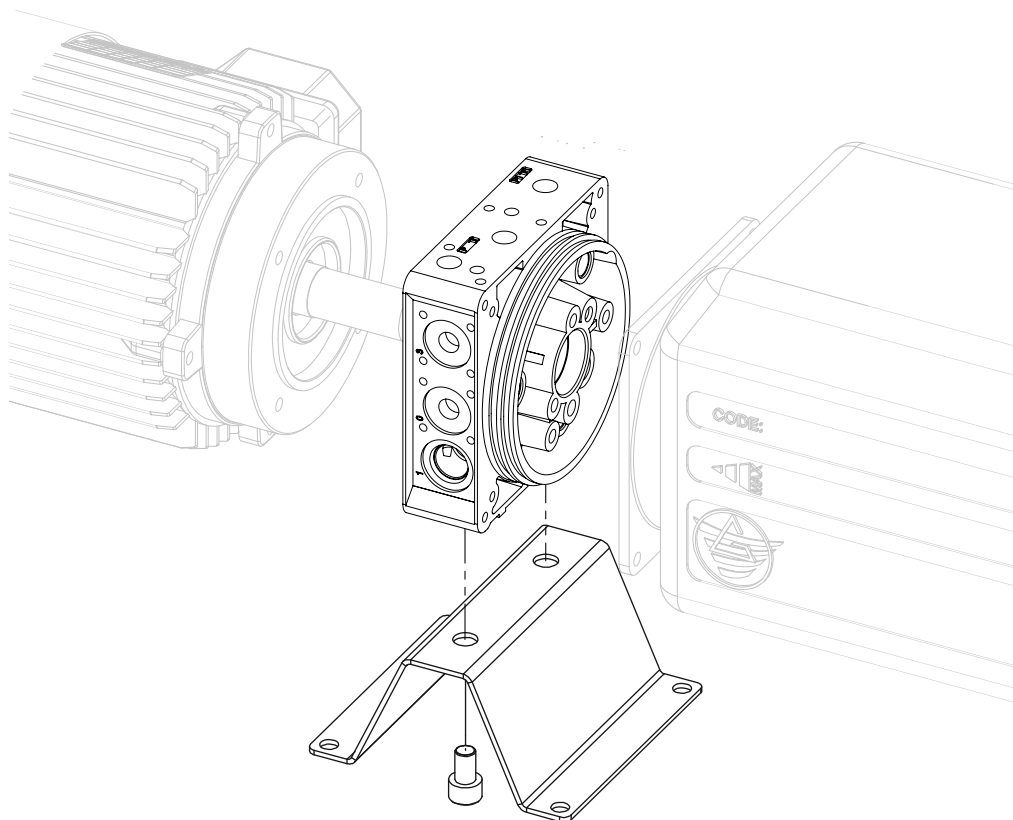


Accessori accessories

09

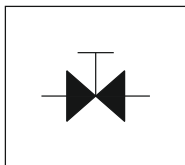
F03

Piedino di supporto centralina rialzato
Raised mounting foot support



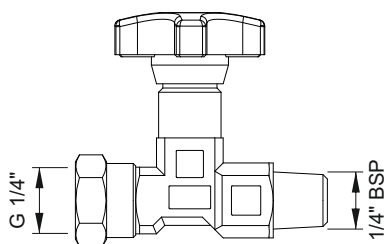
ES

Valvola di esclusione manometro
Pressure gauge isolator



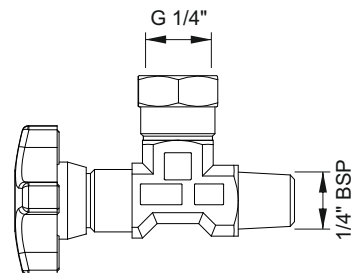
Caratteristiche principali main features	
Temp. di impiego working temperature	-20°C+100°C
Connessioni connections	G1/4"
Pressione max max pressure	400 bar

Esclusore manometro attacco in linea
Pressure gauge isolator in-line connection



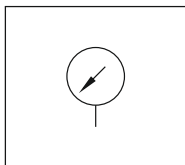
Versione con connessioni F-F a richiesta
F-F connection version on request

Esclusore manometro attacco 90°
Pressure gauge isolator 90° connection

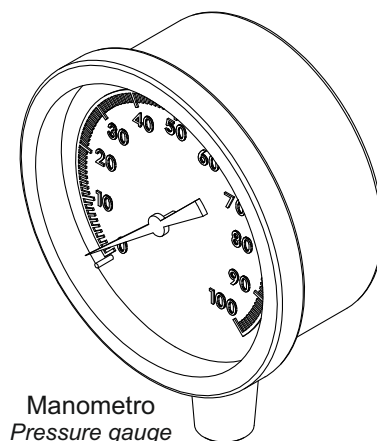


9022

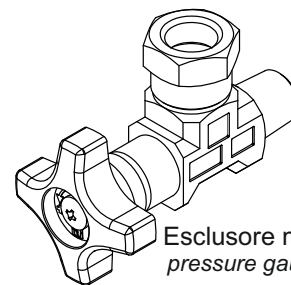
Manometro
Pressure gauge



Caratteristiche principali main features	
Connessione connection	G1/4"
Diametro nominale nominal diameter	63 mm
Classe di precisione accuracy class	1
Grado di protezione protection degree	IP 65
cod. code	Scala scale
90220310	0 - 60 bar
90220400	0 - 100 bar
90220580	0 - 160 bar
90220660	0 - 250 bar



Manometro
Pressure gauge



Esclusore manometro
pressure gauge isolator

Codici ordinazione - ordering codes

E	S	2	9	0	0
1	2	3			

1	Esclusore - isolator	2	Tipo - type	3	Serie - series
	ES		290 = Connessione in linea - in-line connection 291 = Connessione 90° - 90° connection		0 = Standard

9	0	2	2	0	4	0	0
1	2	3					

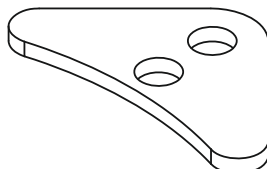
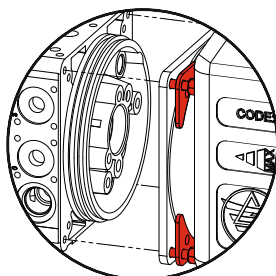
1	Manometro - gauge	2	Scala - scale	3	Serie - series
	9022		031 = da 0 a 60 bar - from 0 to 60 bar 040 = da 0 a 100 bar - from 0 to 100 bar 058 = da 0 a 160 bar - from 0 to 160 bar		0 = Standard

Accessori accessories

09

FFPL

Fazzoletti di fissaggio per serbatoi in plastica
Mounting kit for plastic tanks



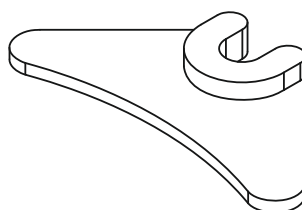
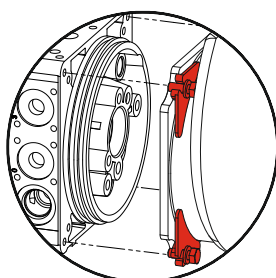
Caratteristiche principali main features

Spessore thickness	2,5 mm
Materiale material	Acciaio zincato galvanized steel

Il kit prevede 4 piastrine di rinforzo
kit includes 4 reinforcement plates

FFPC

Fissaggio per serbatoi in plastica serie PC
Mounting kit for plastic tanks PC serie



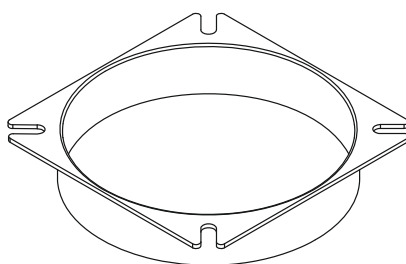
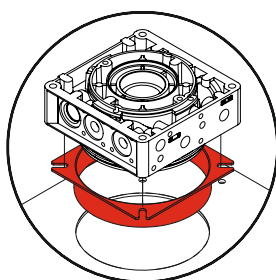
Caratteristiche principali main features

Spessore thickness	2+3 mm
Materiale material	Al pressofuso diecast Al

Il kit prevede 4 piastre indispensabili per il montaggio dei serbatoi serie PC sul collettore
kit includes 4 indispensable plates for mounting the PC serie tanks of the manifold

FLTK

Collare per serbatoi in acciaio
Collar for steel tanks



Caratteristiche principali main features

Materiale material	Acciaio steel
Altezza height	25mm

NB: Flangia non verniciata da saldare sul serbatoio. Foro Ø123
NOTE: unpainted flange, to be welded on tanks. Hole Ø123



CAPITOLO 10

GRUPPO 05

05 group

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CAPITOLO 10

Gruppo 05

05 group

La linea Gruppo 05 per minicentrali compatte: collettori centrali, motori in corrente continua, micropompe ad ingranaggi, serbatoi e accessori dedicati.

The 05 group line for compact power packs: central manifolds, DC motors, gear micropumps, dedicated tanks and accessories.

IN QUESTO CAPITOLO *in this chapter*

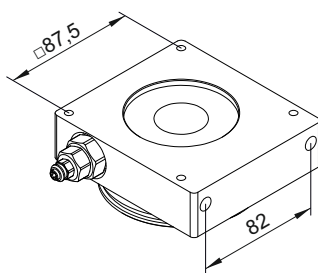
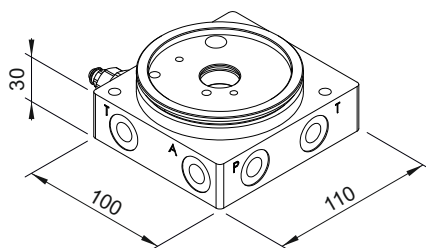
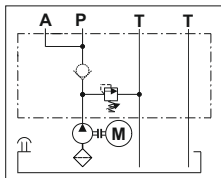
M02	Collettore 2 cavità <i>central manifold 2 cavities</i>	112
M12	Collettore 3 cavità <i>central manifold 3 cavities</i>	112
R01	Collettore reversibile <i>reversible central manifold</i>	112
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MDC	Motori in corrente continua <i>DC motors</i>	113
PA PR	Micropompe ad ingranaggi <i>gear micropumps</i>	113
PM01	Serbatoio in plastica capacità 1,5 litri <i>plastic tank 1.5 liters capacity</i>	113
PM02	Serbatoio in plastica capacità 2,5 litri <i>plastic tank 2.5 liters capacity</i>	113



Collettori centrali - central manifolds

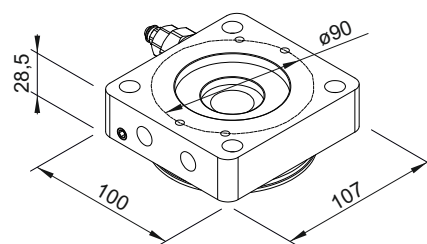
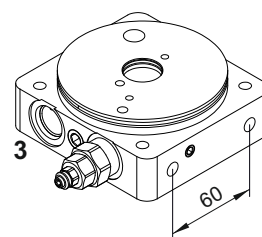
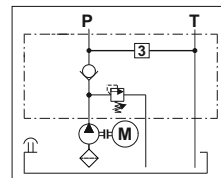
Collettore 2 cavità
Central manifold 2 cavities

M02



Collettore 3 cavità
Central manifold 3 cavities

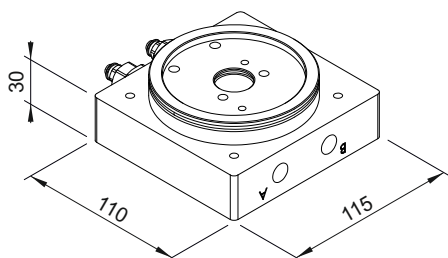
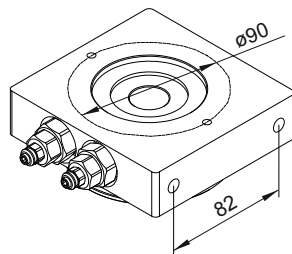
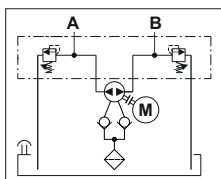
M12



Per gli accoppiamenti rivolgersi al nostro UT - For coupling please contact our TD

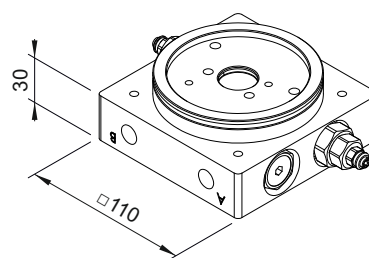
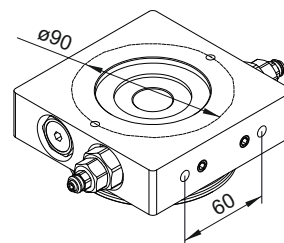
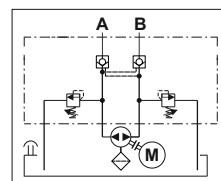
Collettore reversibile
Reversible central manifold

R01



Collettore reversibile
Reversible central manifold

R02

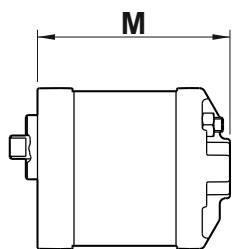


Gruppo 05 05 group



10

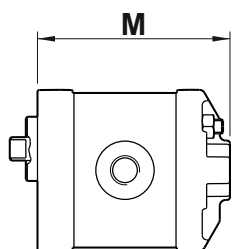
Pompe - pumps



Micropompe
ad ingranaggi
Gear micropumps



cod.	cc/rev.	M mm	Pmax
PA009	0,88	66	230
PA010	1,0	67	230

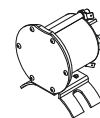
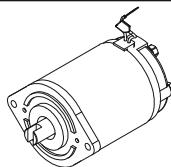


Micropompa
reversibile
Reversible micropump



PR009	0,88	66	190
-------	------	----	-----

Motori - Electric motors



cod.	W	V	cod.
MDC120150T	150	12	684-1211-212-06
MDC240150T	150	24	684-2411-212-06
MDC120300T	300	12	684-1211-212-06
MDC240300T	300	24	684-2411-212-06
MDC120500T	500	12	684-1211-212-06
MDC240500T	500	24	684-2411-212-06
MDC120800T	800	12	684-1211-212-06
MDC240800T	800	24	684-2411-212-06

Accessori - accessories



FFPL05

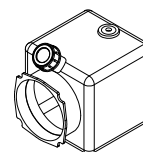
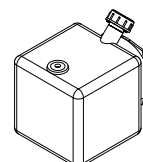
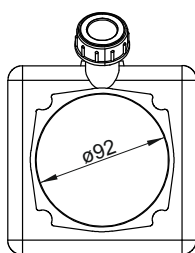
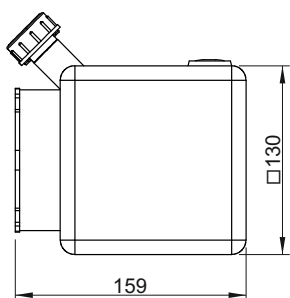


CLAMP CNS100

Serbatoi - tanks

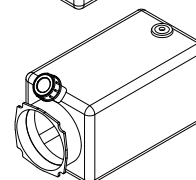
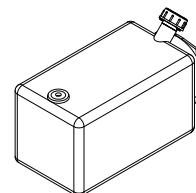
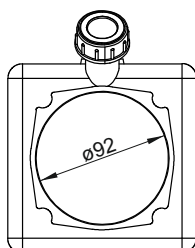
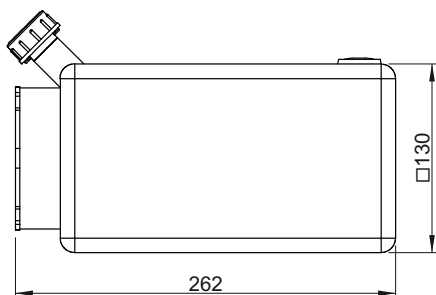
PM01

Serbatoio in plastica capacità 1,5 litri
Plastic tank 1,5 liters capacity



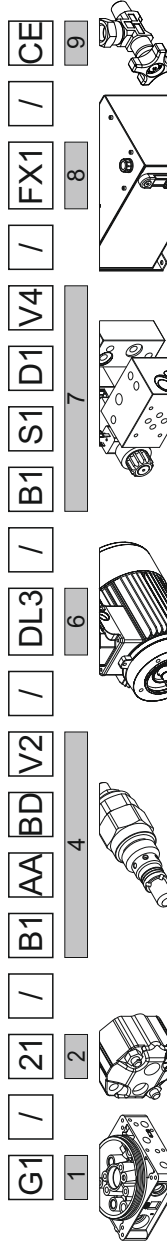
PM02

Serbatoio in plastica capacità 2,5 litri
Plastic tank 2,5 liters capacity



[illegible]

Es. chiave di codifica - e.g. of speaking code



NOTE:

*1 - In caso di valvole, blocchi modulari o accessori aggiuntivi, riportare i codici in modo consecutivo nella rispettiva categoria.

*1 - In case of additional valves, modular elements or accessories, enter the codes consecutively in the respective category.

Tramite la chiave di codifica, se non specificato, vengono forniti i componenti nella loro versione standard. Eventuali personalizzazioni vanno specificate a parte.

Esempi: (4) CE - viene fornita la valvola CM04L senza micro. | I connettori di eventuali bobine vengono forniti neri (AM5111)

Using the speaking code, if not specified, are provided the components in their standard version. Any customization, must be

Blocchi modulari
modular blocks

Q.tà
Qty

0 0 0 0

*1

7

cod.	des.	pag.
A	BL004	75
B	BL004-1	75
C	BL004-2	75
D	BL009	76
E	BL009-1	76
F	BL009-2	76
0	no distanziatore no spacing ele.	

cod.	des.	pag.
P	BL008	76
Q	BL010	77
R	BL015	78
S	BL016	78
T	BL017	78
U	BL022	80
V	BL011-X-Y	77
W	BL021	80
X	BL023	81
Y	BL023-1	81
Z	BL025-1-15	82
0	no blocchi no blocks	

Per BL011 vedi pagina 77
For BL011 see page 77

MT 90L 1-4

6

Elettrovalvole
solenoids

P.O.R
S.T.U

0 0 0 0

0 0 0 0

7

cod.	des.	pag.
A	DM01	85
B	DM02	85
C	DM03	85
D	DM04	85
E	DD01	85
F	DD02	85
G	DD03	85
H	DD04	85
I	DD05	85
0	no elettrovalvole no solenoids	

cod.	Tensione - voltage
V1	12V DC
V2	24V DC
V3	48V DC
V4	110V AC - 50Hz
V5	230V AC - 50Hz
00	no elettrovalvole no solenoids

Solo con blocchi - only with blocks:
BL008, BL010, BL015,
BL016, BL017

Serbatoi
tanks

0 0 0 0

0 0 0 0

8

cod.	des.	pag.
A	PE02	89
B	PE05	89
C	PE08	90
D	PE12	90
E	LM07	91
F	LM15	91
G	LM20	92
H	LM30	92
I	LM07TF	93
J	LMS15	96
K	LMS20	96
L	LMS30	96
M	CS01	96
N	CS02	96
O	CS05	97
P	CS08	97
Q	CS10	98
R	CS12	98
S	PC05	99
T	PC07	99
U	PC09	100
V	PC11	100
0	no serbatoio no tank	

cod.	Tappo - filler cap
O	Orizz. - horizontal
V	Verticale - vertical
X	Serie LM - LMS
0	no serbatoio no tank

cod.	des.	pag.
1	pos. 1 101-102	
2	pos. 2 101-102	
3	pos. 3 101-102	
4	pos. 4 101-102	
0	no serbatoio no tank	

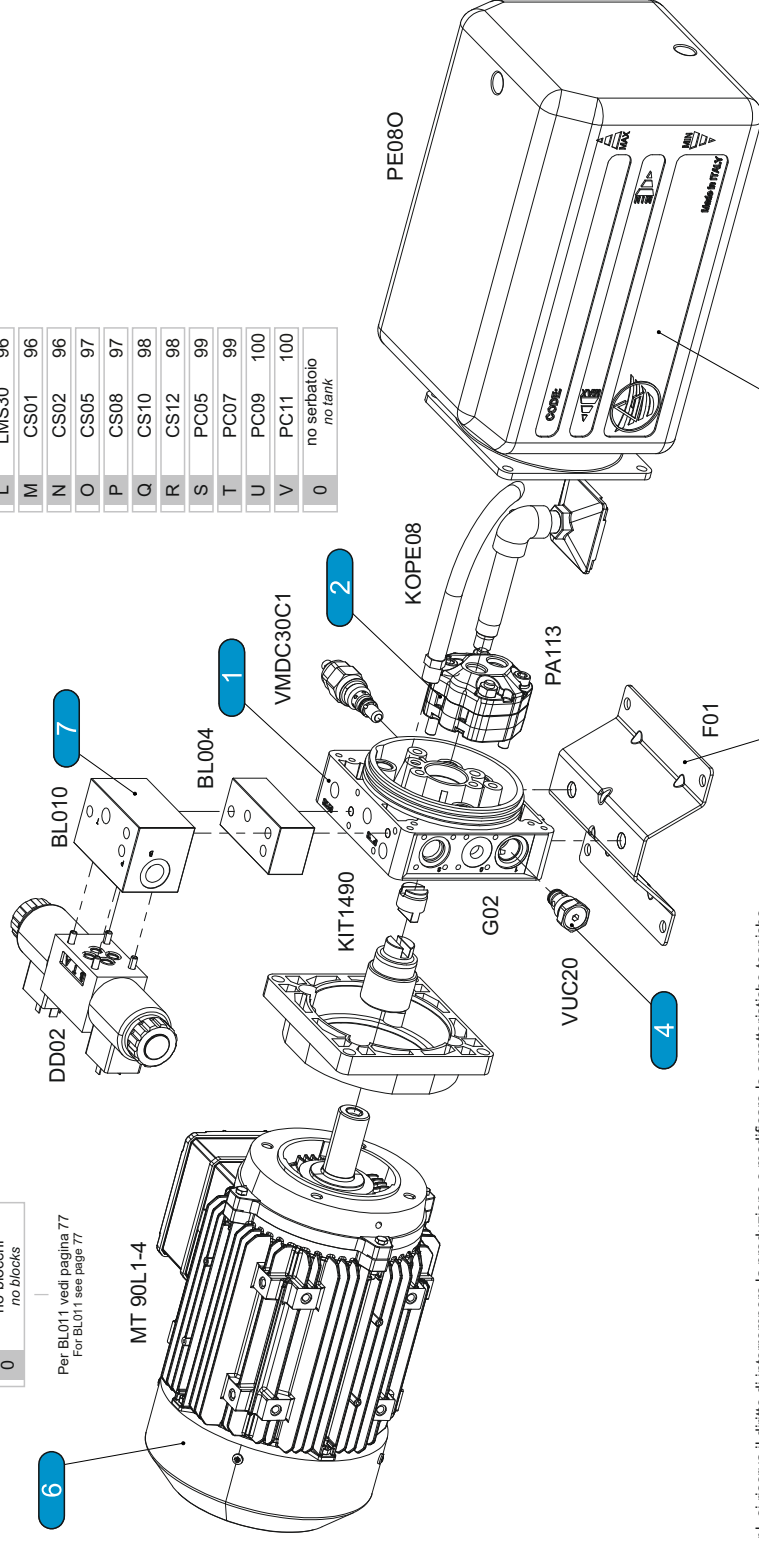
cod.	des.	pag.
A	F01	106
B	F03	107
C	ES290	108
D	ES291	108
E	9022031	108
F	9022040	108
G	9022058	108
H	9022066	108
I	FFPL	109
J	FFPC	109
0	no accessori no accessories	

Accessori
accessories

0

*1

9



GAZZERA S.r.l. si riserva il diritto di interrompere la produzione o modificare le caratteristiche tecniche e dimensionali di tutti i propri prodotti in qualsiasi momento senza preavviso e senza obblighi
GAZZERA S.r.l. reserve the right to stop the production or to modify the technical and dimensional of all own product in every moment without notice and without obligation.

cod. G0 / 13 / C1AA / HB1 / A1Q1F1V2 / C02 / A
Senza connettori - without connectors

APPLICAZIONI | APPLICATIONS

Esempi di minicentraline

power pack examples



GRUPPO 1 DC

Minicentralina 12/24V DC con serbatoio in acciaio

12/24V DC power pack with steel tank

Motore in corrente continua, collettore centrale con valvola di massima pressione e serbatoio cilindrico in acciaio: la soluzione compatta per i mezzi alimentati a batteria.

DC motor, central manifold with relief valve and cylindrical steel tank: the compact solution for battery-powered vehicles and equipment.

CAMPO DI APPLICAZIONE *field of application*

Sponde montacarichi, ribaltabili, piattaforme aeree, spazzaneve.

Liftgates, tippers, aerial platforms, snow plows.

Motore	DC 12/24 V, 0,5 - 3 kW
Pompe	0,9 - 9,8 cm ³ /giro
Pressione max	210 bar
Servizio	S3 intermittente

GRUPPO 1 DC

Minicentralina 12V DC con pompa a mano

12V DC power pack with hand pump

Alla centralina elettrica si affianca il blocco pompa manuale: con la leva l'impianto si comanda anche senza alimentazione, per esempio in emergenza o per le regolazioni.

The electric power pack is fitted with the hand pump manifold: with the lever the system can be operated even without power, for example in an emergency or for adjustments.

CAMPO DI APPLICAZIONE *field of application*

Sollevatori, rampe di carico, attrezzature mobili, impianti di emergenza.

Lifts, loading ramps, mobile equipment, emergency systems.

Motore	DC 12 V
Serbatoio	plastica
Comando	elettrico + manuale
Blocco	pompa manuale BL023



SU MISURA

Centrale AC con banco di elettrovalvole

AC power unit with solenoid valve bank

Motore trifase, serbatoio in acciaio con indicatore di livello e un banco di elettrovalvole CETOP 3 con manometro: più utenze comandate da un'unica centrale, progettata sul ciclo macchina.

Three-phase motor, steel tank with level gauge and a bank of CETOP 3 solenoid valves with pressure gauge: several actuators driven by a single unit, designed around the machine cycle.

CAMPO DI APPLICAZIONE *field of application*

Macchine utensili, presse, linee automatiche con più movimenti.

Machine tools, presses, automated lines with several movements.

Motore	AC 400 V trifase
Valvole	banco CETOP 3 / NG6
Serbatoio	acciaio, indicatore di livello
Configurazione	su specifica

SERIE OEM

Minicentraline DC prodotte in serie

DC power packs built in series

La stessa configurazione, con la stessa distinta, a ogni riordino: le minicentraline a corrente continua con serbatoio cilindrico in acciaio pronte per la spedizione al costruttore.

The same configuration, with the same bill of materials, at every reorder: DC power packs with cylindrical steel tank ready to ship to the machine builder.

CAMPO DI APPLICAZIONE *field of application*

Allestimenti veicoli, sponde montacarichi, sollevamento.

Vehicle equipment, liftgates, lifting.

Motore	DC 12/24 V
Serbatoio	acciaio, cilindrico
Fornitura	di serie per OEM
Collaudo	100% delle unità





PRODUZIONE | MANUFACTURING

Dalla singola unità alla serie

from the single unit to series production

Ogni minicentralina viene montata nella nostra sede di Cervere e collaudata in pressione prima della spedizione. La configurazione resta documentata: a ogni riordino ricevi la stessa unità.

Every power pack is assembled at our Cervere plant and pressure tested before shipping. The configuration stays documented: at every reorder you get the same unit.

8500

unità prodotte ogni anno
units built every year

230

clienti OEM in Europa
OEM customers across Europe

100%

unità collaudate
units tested

ISO 9001

produzione italiana
Italian manufacturing

Parliamo della tua applicazione

let's talk about your application

Più dettagli ci dai, più la prima proposta sarà vicina alla soluzione finale. Inviaci schema o specifiche: ti rispondiamo con una proposta tecnica dimensionata sulla tua applicazione.

COSA CI SERVE SAPERE *what we need to know*

- Forza o coppia da generare, e la corsa *Force or torque required, and the stroke*
- Velocità o tempo di ciclo richiesto *Speed or required cycle time*
- Alimentazione disponibile: 230/400V AC oppure 12/24V DC *Available supply: 230/400V AC or 12/24V DC*
- Numero di utenze e loro simultaneità *Number of actuators and their simultaneity*
- Cicli all'ora e ore di lavoro al giorno *Cycles per hour and working hours per day*
- Vincoli di ingombro e ambiente di installazione *Space constraints and installation environment*
- Lo schema idraulico, se lo hai già *The hydraulic diagram, if you already have one*

Note





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