DANA BREVINI®

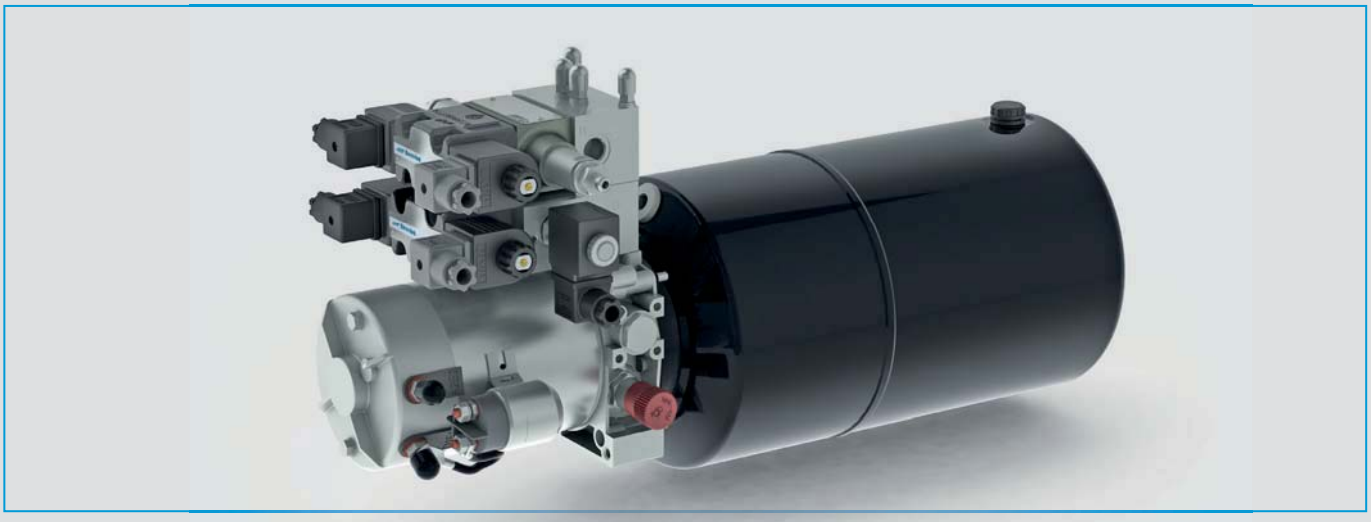
Motion Systems

MC HYDRAULIC POWER PACK

Technical Catalogue

May
2019

web edition



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The MC series power pack is an easy-to-assemble, compact, electro-hydraulic unit. With its versatility and modularity, it offers many combinations of hydraulic circuits to suit various requirements of plant design. This catalogue has been written to help the user choose the components for the power pack required for the specific application. However, the catalogue cannot foresee all the combinations that may be executed, so in some cases it may be necessary to consult our commercial engineering department.

For applications with very complex circuits, standard modular blocks for Cetop valves and other special blocks can be installed on the power pack, or blocks built to order can be included.

A few applications:
- Fork lifts
- Lifting platforms and beds
- Automotive lifts
- Cranes for small trucks
- Snowplows
- Industrial automation (machine tools, food industry, textile industry)

You can chose from a wide variety of components with the following specifications:

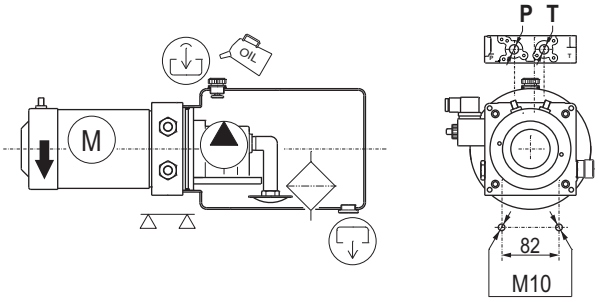
- Gear pumps - Group 0.5 / 1 - from 0.25 to 9.8 cc.
- DC motors, 12/24 V, light-duty service, from 0.35 to 3 Kw
- Single and triple-phase motors with power ratings of up to 4 Kw - in a standard version or built to the customer's specifications (with minimum overall dimensions)
- Tanks in sheet steel with capacities of up to 25 litres
- Tanks in plastic with capacities of up to 10 litres

A fundamental part of the power pack is the endhead, which is made of die-cast aluminum alloy. The parts and dimensions of this component are shown below.

Operating limits
- Intermittent peak pressure: 290 bar (depending on pump type)
- Maximum flow rate: 20 l/min
- Maximum operating temperature:
  - 80°C (with sheet steel tank)
  - 70°C (with polyethylene tank)
  - 60°C (with polypropylene tank)
- Mineral-based hydraulic fluid: ISO 6743-4 (DIN 51524)
  - Minimum viscosity: 12 mm²/s
  - Maximum viscosity: 80 mm²/s
  - Maximum viscosity at start-up: 500 mm²/s
- Minimum ambient temperature -15°C
- Maximum ambient temperature 40°C (with peaks of 50°C)
- The validation of the endhead follows a life-test with 210 bar pulsed pressure repeated for 200.000 cycles

Operating pressure is controlled by the maximum pressure valve and the type of pump used (in terms of performance) may be determined by the maximum pressure valve. Therefore, it is essential not to change the maximum pressure valve. If neccessary, contact our technical service department.

Installation
1) The power pack must be mounted using the M10 holes on the endhead.
2) The power pack must not come into contact with sheet metal, protective guards or any parts that may vibrate and transmit noise.
3) The ports on the endhead have been identified by the letters A-B -C. The hydraulic connection must be made with fittings with cylindrical thread and with copper or rubber sealing gaskets (O-rings).
4) After the electrical connections have been made, check the direction of motor rotation by executing short pulses of 1 second each (max.): the motor must turn anti-clockwise, as shown in the figure.



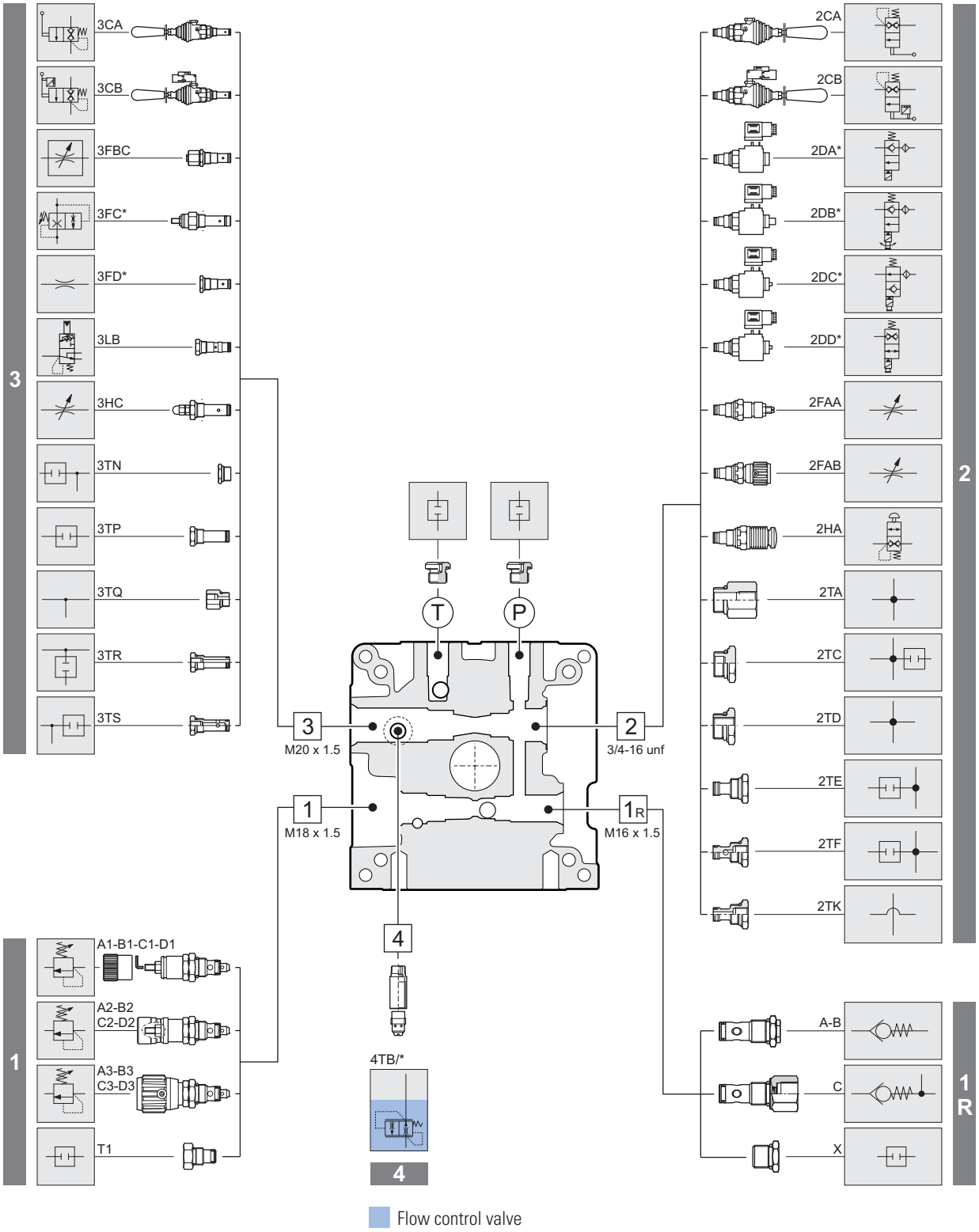
The tank must be filled with new mineral-based, ISO 6743/4 fluid: it is important to filter the fluid while filling the tank.

Symbols used in this catalog:

	Important data/information
	Mounting endhead side
	Ground floor
	Electrical connection boxes on AC motors
	Poles and/or starting relays on DC motors
	Fill plug with breather and level stick
	Fill plug with breather
	Standard plug (closed)
OIL	Standard oil fill plug
	Fill plug with breather
	Fill plug
	Fill plug with check valve
	Fill plug with back check
	Drain plug with magnet
	Plug (or level stick) with visual indicator
	Drain plug
*	Fields to be completed

Power pack endhead configuration

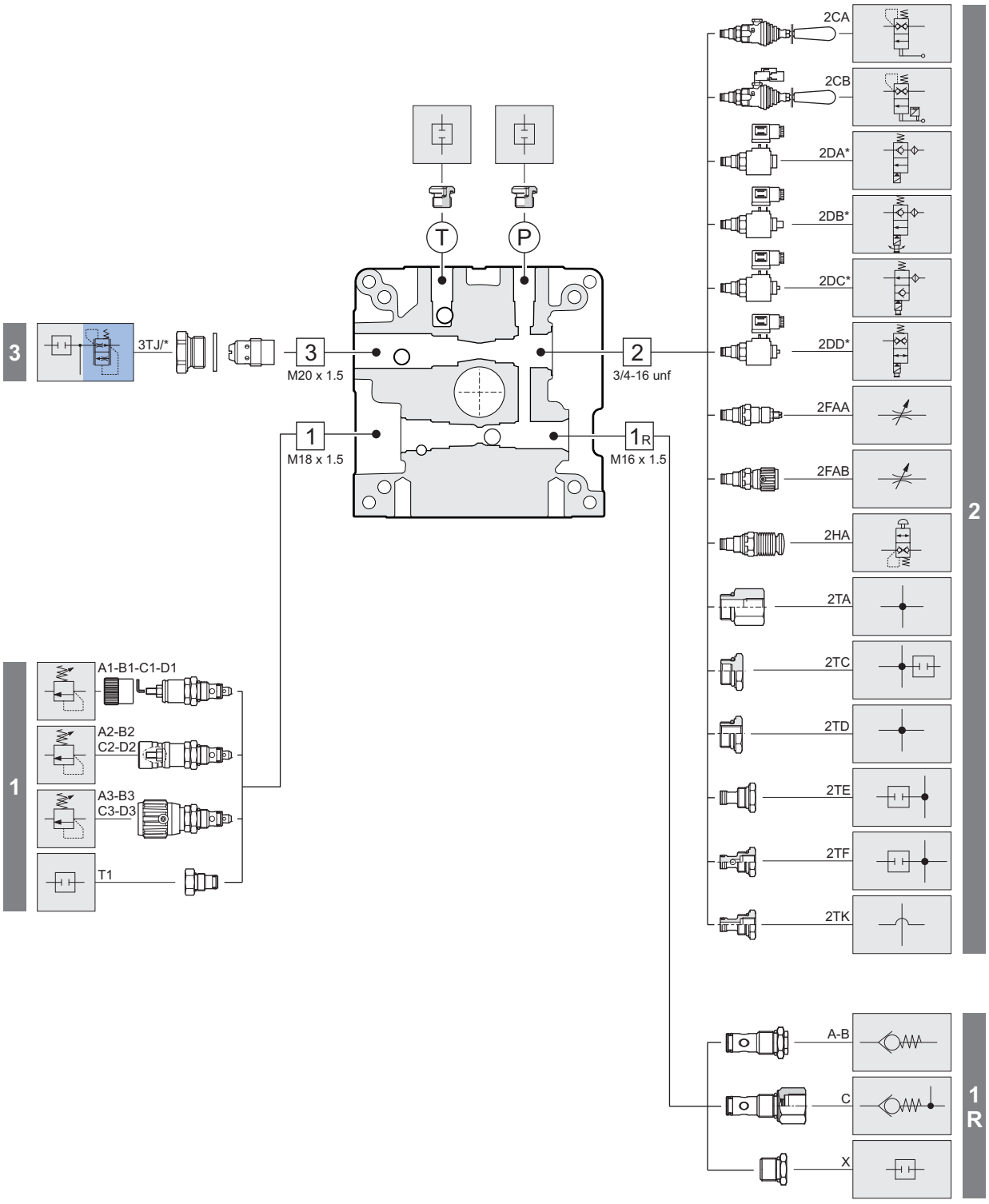
MCA



The possible configurations of the MC power pack are determined by the body machining.
MCA flange allows the mounting of controls and flow regulators in the **cavity 3** and fixeed setting flow control valve on **cavity 4.**

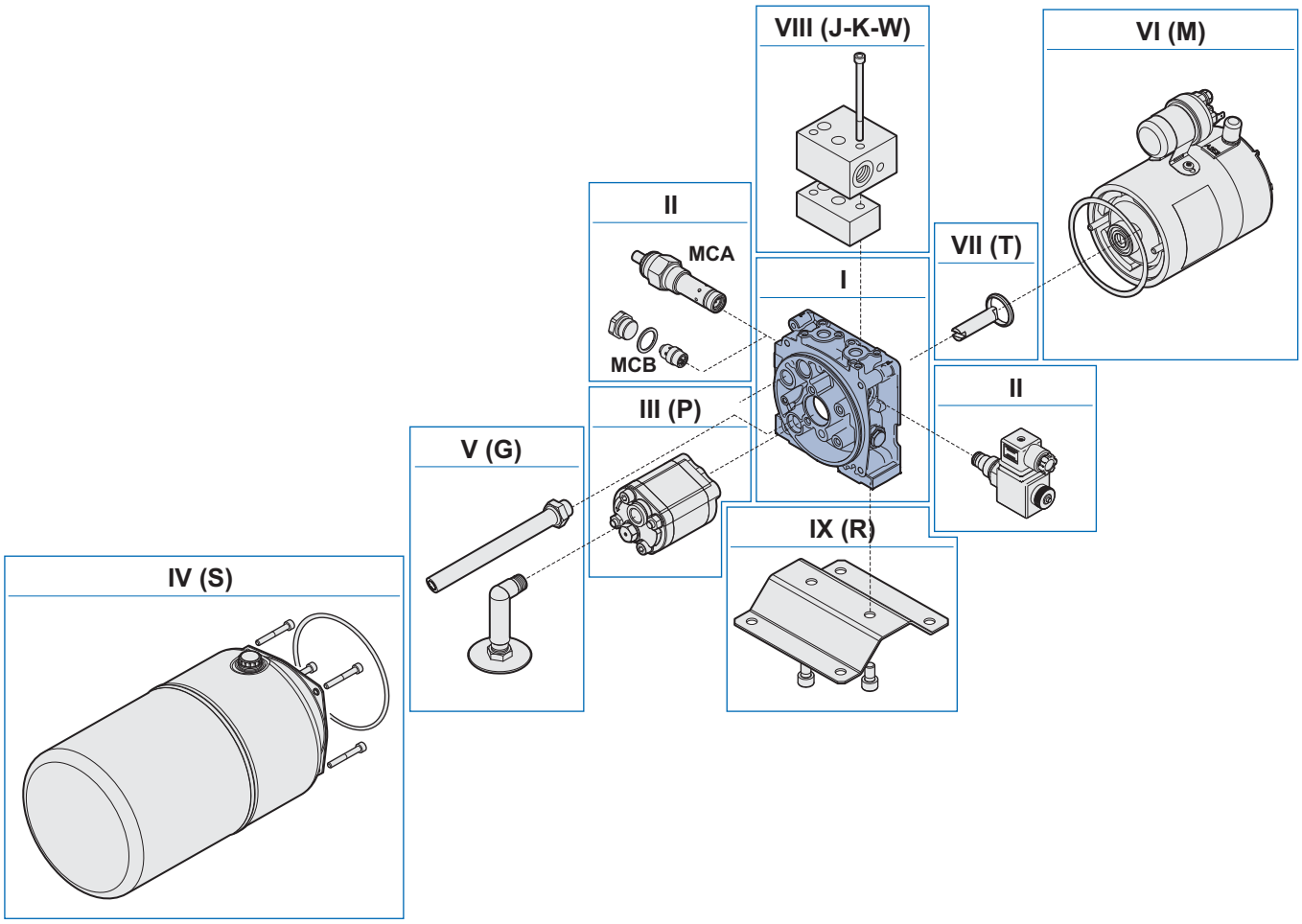
Power pack endhead configuration

MCB



The possible configurations of the MC power pack are determined by the body machining.
MCA flange allows the mounting of controls and flow regulators fixed setting in the **cavity 3.**

Power pack sections



With its great modularity, the MC series of power packs can create multiple configurations which satisfy requirements in a wide range of applications.
To make it easier to choose components, the power pack is subdivided into sections.

SECTION I - SERIE, FLANGE TYPE, VALVES ON CAVITY 1 AND 1R
MC Series Powerpacks are based on the Flange features.
The Flange is the core of the unit, on the flange are mounted all the valves, the pump, the motor and the reservoir.
The MC Flange is available in several Versions (with different tooling options).
The Flange Version must be chosen depending on the type of Hydraulic Circuit Layout required.
Together with the Flange Version, it is required to select the Valves to be mounted in the Various Cavities.
1 (Main Pressure Relief Valve).

SECTION II - VALVES
Depending on the Type of Hydraulic Circuit Layout to be realized, it is required to Select the Valves for each of the available Cavities.
In order to correctly build up the Ordering Code, it is required to use the following procedure.
Peripheral Cavities (it is mandatory to mention all the Cavities in Numeral Order): starting from Cavity 2, mention all the Cavities and the Valves, Plugs or Fittings to be mounted in said Cavity.
Internal Cavities, mention the Internal Cavities where a Valve (usually a Return Line Valve) is mounted.
Outputs, see description in the Table.

SECTION III - PUMPS
It is mandatory to mention this section, defined by the letter P.
Depending on the required features, select the pump from the table provided.

SECTION IV - TANKS
This section is defined by the letter S.
Depending on the required features, select the reservoir from the list provided.
If no Reservoir is required, and also no Suction / Return Kit is required, please omit this section.
If no Reservoir is required, but a Suction / Return Kit is required, please jump to Section V (defined by letter G).

SECTION V - TUBES KIT (suction and return, only for tanks on the catalog)
This section is defined by the letter G.
In order to define this Section, please select the Reservoir Type anyways.

SECTION VI - MOTORS
This section is defined by the letter M.
Depending on the Type of Hydraulic Circuit Layout to be realized, it is required to Select the Motor Type.
If no Motor is required, and no Transmission Kit is required, please omit this section.
If no Motor is required, but a Transmission Kit is required, please jump to Section VII (defined by letter T).

SECTION VII - TRANSMISSION KIT (only for motors on the catalog)
This section is defined by the letter T.
Select the kit as per Table provided.

SECTION VIII - BLOCKS
This section it is not mandatory, depending on the type of auxiliary block required, the letter J, identifies blocks with interface for CETOP valves.

SECTION IX - ACCESSORIES
his section it is not mandatory, is defined by the letter R
Check the available options in the list provided.
Accessories must be listed in Alphabetical Order.

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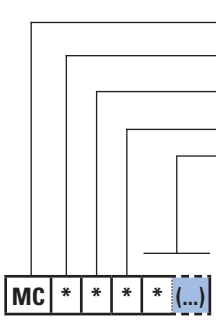
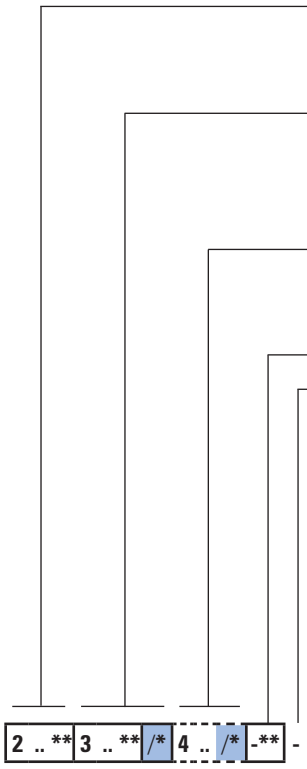
SECTION I - SERIE, ENDHEAD, VALVES ON CAVITY 1 AND 1R



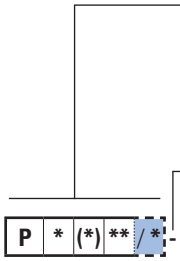
Power pack type
Endhead type
Thread ports
Pressure relief valve - Plug
Setting type (or plug features)
Special setting pressure relief valve (omit if not required)

SECTION II - VALVES



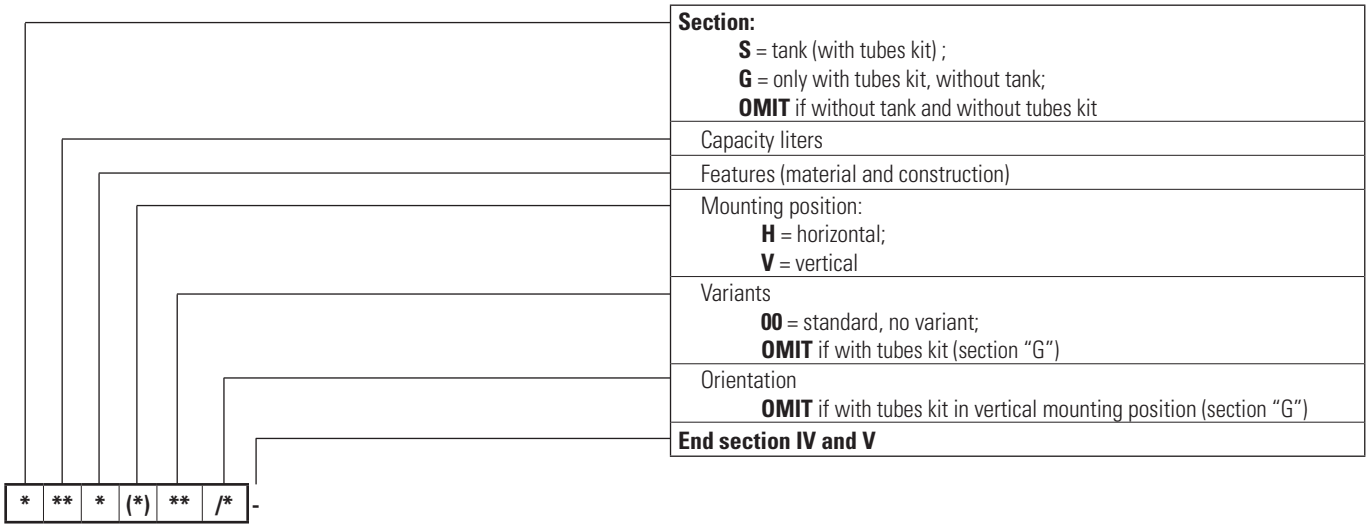
Cavity 2
Type
Features
Cavity 3
Type
Features
Flow control valve can be combined with plug TC (**only for MCB**)
Cavity 4
Fitting on return (omit if not required)
Flow control valve (omit if not required)
Combination plugs for ports (ABC)
End section II

SECTION III - PUMPS

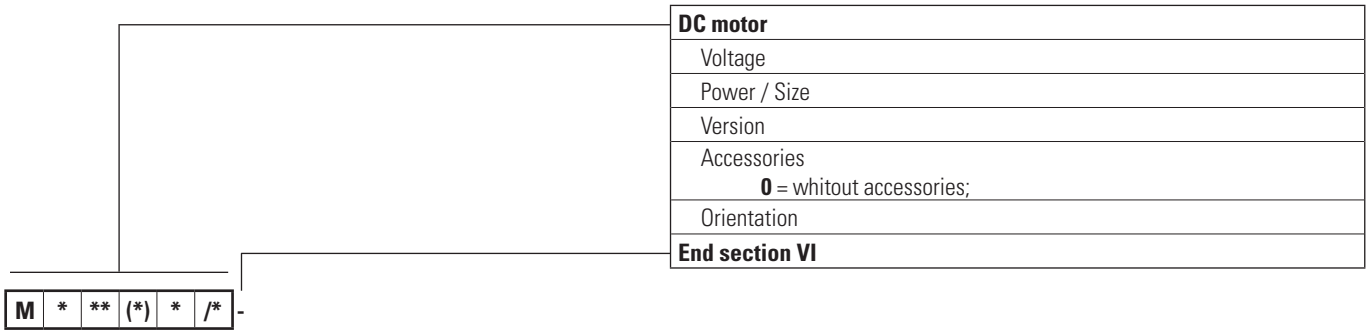


Pump
Pump group
Performance level
Nominal displacement
Accessories (omit if not required)
End section III

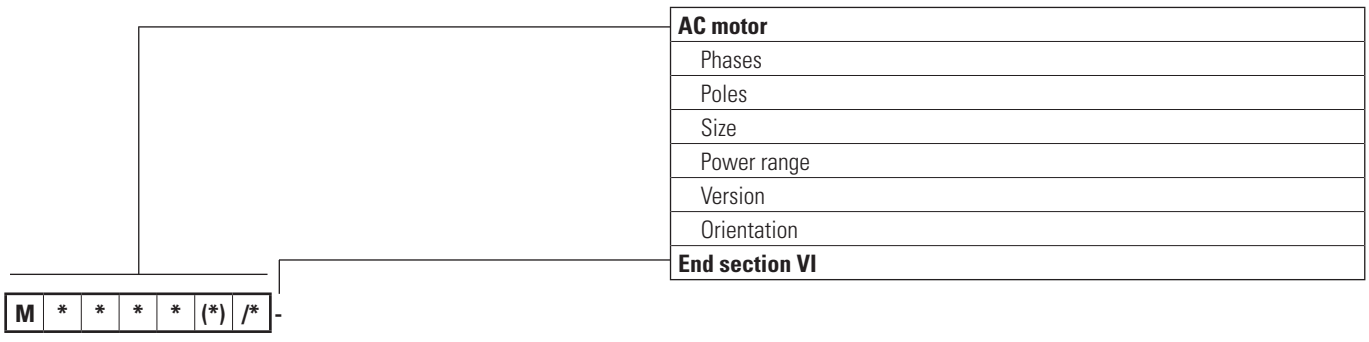
SECTION IV - TANKS / SECTION V - TUBES KIT



SECTION VI - MOTORS



OR ..

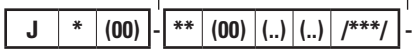


SECTION VII - TRANSMISSION KIT (only for motors on the catalog)

Transmission kit
Type
End section VII

Specify the transmission kit whether you requested the joint and accessories assembly (without motor).

SECTION VIII - BLOCKS



Blocks
Mounting position
Accessory
Separation line
Block type
Accessory
Pressure relief valve setting on “A” line
Pressure relief valve setting on “B” line
CETOP valve
End section VIII

SECTION IX - ACCESSORIES

Accessories (optional)
First accessory
Second accessory

Endhead overall dimensions

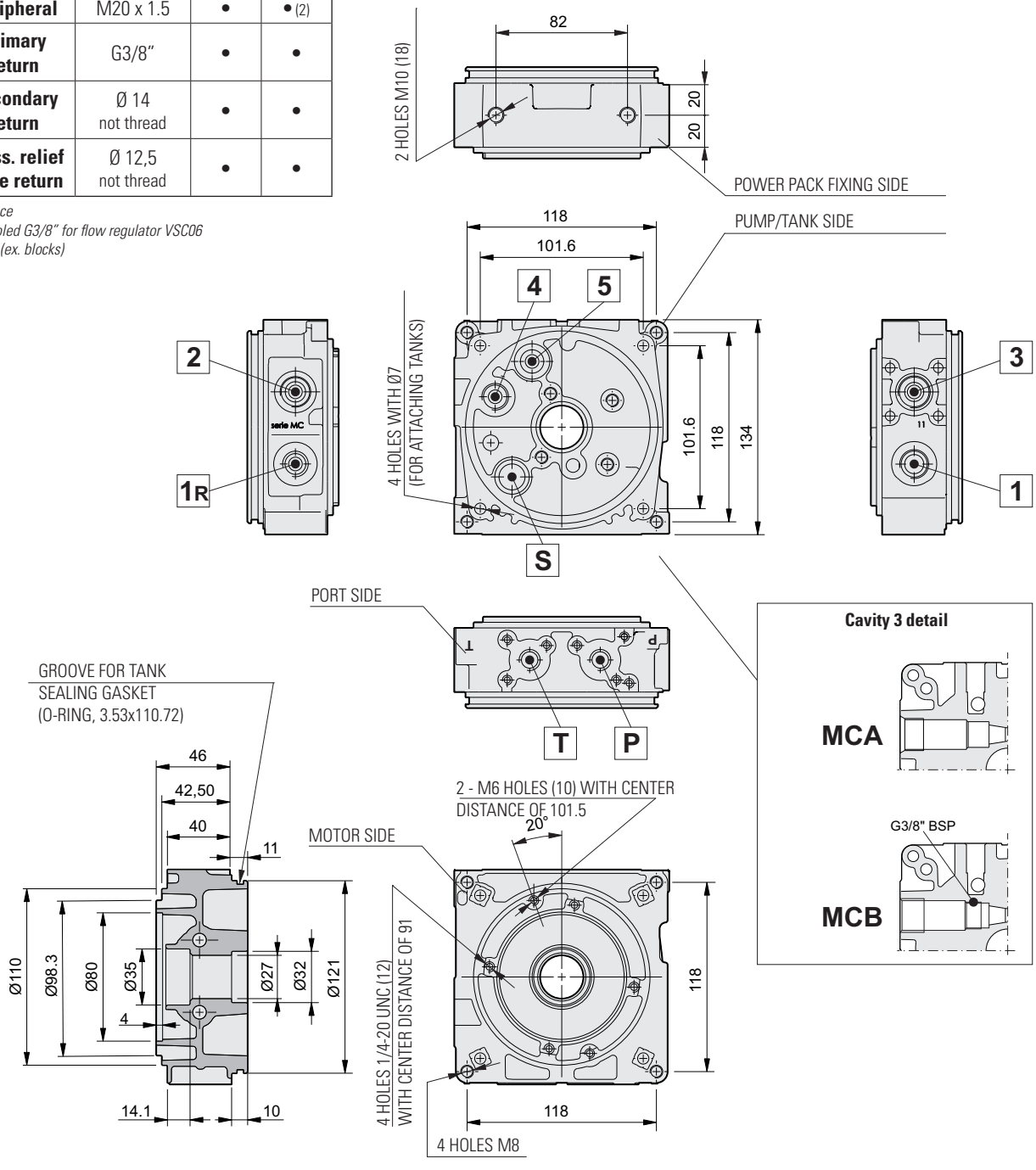
Cavities on endhead:

Cavity		Thread	Endhead type	
			MCA	MCB
P T	Ports	G1/4"	• (1)	• (1)
		G3/8"	•	•
		7/16" 20 UNF	•	•
		9/16" 18 UNF	•	•
1	Peripheral	M18 x 1.5	•	•
1R	Peripheral	M16 x 1.5	•	•
2	Peripheral	3/4" 16 UNF	•	•
3	Peripheral	M20 x 1.5	•	• (2)
4	Primary return	G3/8"	•	•
5	Secondary return	Ø 14 not thread	•	•
S	Press. relief valve return	Ø 12,5 not thread	•	•

1) blocks interface
2) end cavity tooled G3/8" for flow regulator VSC06
3) return from T (ex. blocks)

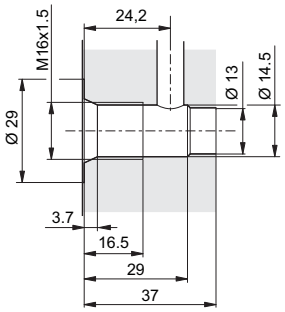
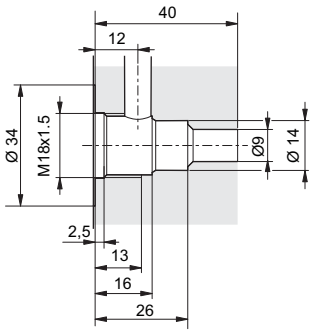
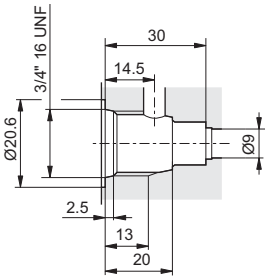
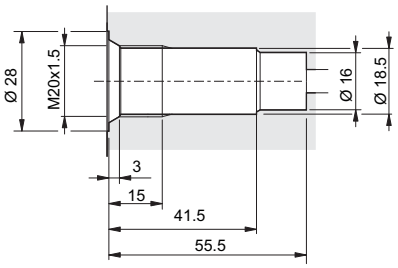
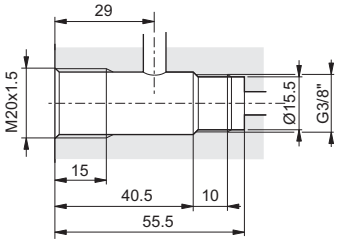
The number of cavities tooled identify the endhead type:

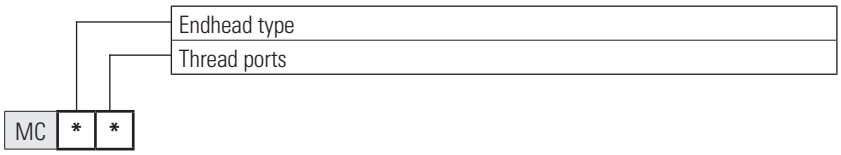
There are three types of cavities:
- **Peripheral cavities**, which can be accessed externally
- **Return cavities**, inside of the tank.
- **Ports**

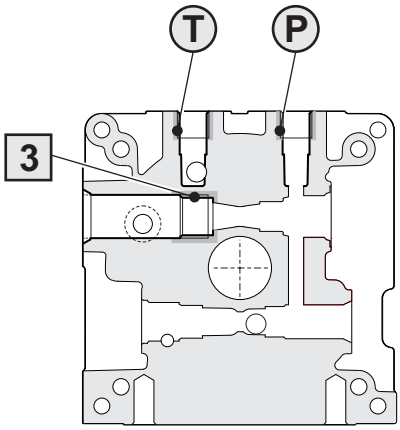


On the endhead are highlighted (P-T) ports. In the drawing are shown the common dimensions.

Cavities dimensions

Cavity		Thread	Drawing
1	**Peripheral**	M18 x 1.5	CN037004 
1R	**Peripheral**	M16 x 1.5	CN041007 
2	**Peripheral**	3/4 16 UNF	3A 
3 MCA	**Peripheral**	M20 x 1.5	1C 
3 MCB	**Peripheral**	M20 x 1.5	1P 





The machining of the **cavity 3** and the **P-T** ports define the body type.

* *Endhead type*

*	Description
A	For manual controls, flow regulators, logic valves on **cavity 3** (Old commercial description MC)
B	For flow regulator VSC06 (3/8" BSP) on **cavity 3** (Old commercial description MS)

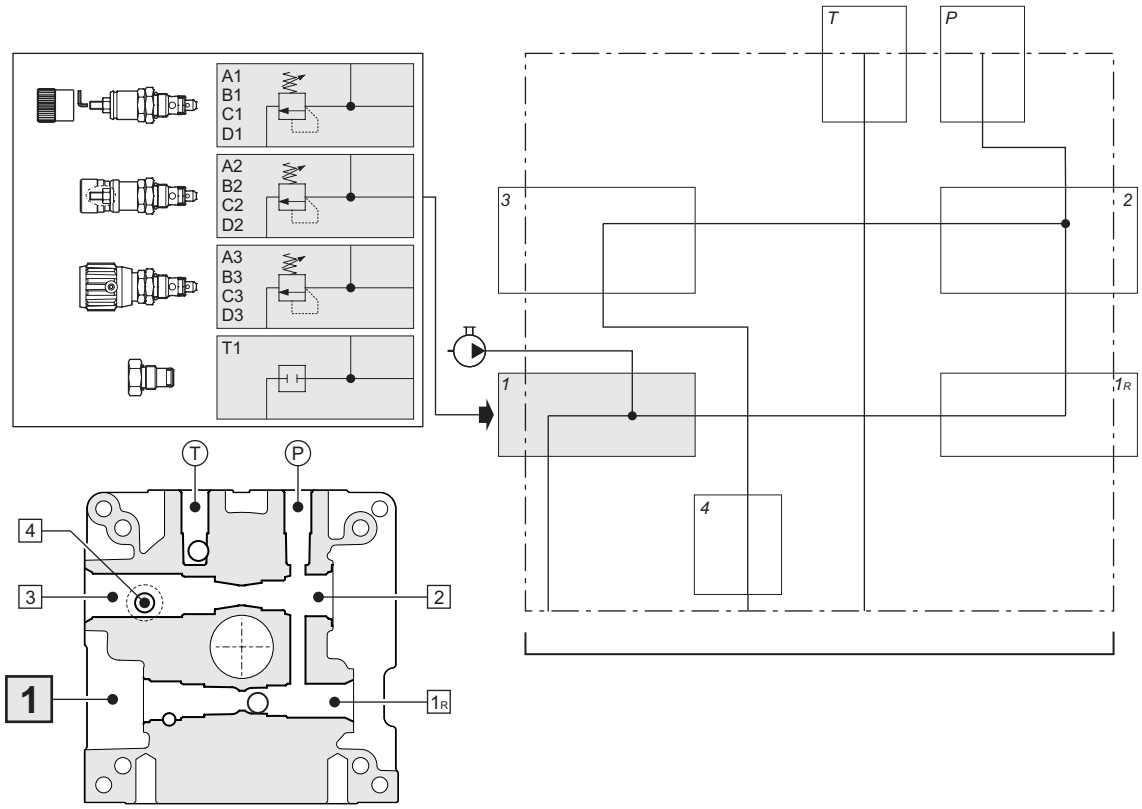
* *Thread ports P-T"*

*	Ports thread				Blocks interface
	G1/4"	G3/8"	9/16" 18 UNF	7/16" 20 UNF	
0	YES				YES
1		YES			NO
2			YES		NO
3				YES	NO

	Endhead codes			
	G1/4"	G3/8"	7/16" 20 UNF	9/16" 18 UNF
MCA	71013000.000	71013001.000	—	71013022.000
MCB	71013003.000	71013005.000	71013007.000	—

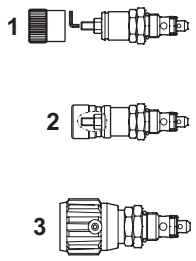
MC	*	*	*	*	(...)

*	Pressure relief valve - Plug
*	Setting type (or plug features)
(...)	Special setting pressure relief valve (omit if not required)



* * (...) *Pressure relief valve direct-acting*

*	*	Pressure (bar)	STD setting (bar)	(...) Special setting (bar)	Setting type	Code	Symbol	Drawing
A	1	15 ÷ 50	30	15 ÷ 50 (5 to 5)	Detachable closing	CPMC04S0001		
	2				Non removable closing *(1)*	CPMC04P0001		
	3				Plastic knob	CPMC04M0001		
B	1	35 ÷ 110	50	35 ÷ 110 (5 to 5)	Detachable closing	CPMC04S1001		
	2				Non removable closing *(1)*	CPMC04P1001		
	3				Plastic knob	CPMC04M1001		
C	1	75 ÷ 220	150	75 ÷ 220 (5 to 5)	Detachable closing	CPMC04S2001		
	2				Non removable closing *(1)*	CPMC04P2001		
	3				Plastic knob	CPMC04M2001		
D	1	160 ÷ 290	180	160 ÷ 290 (10 to 10)	Detachable closing	CPMC04S3001		
	2				Non removable closing *(1)*	CPMC04P3001		
	3				Plastic knob	CPMC04M3001		



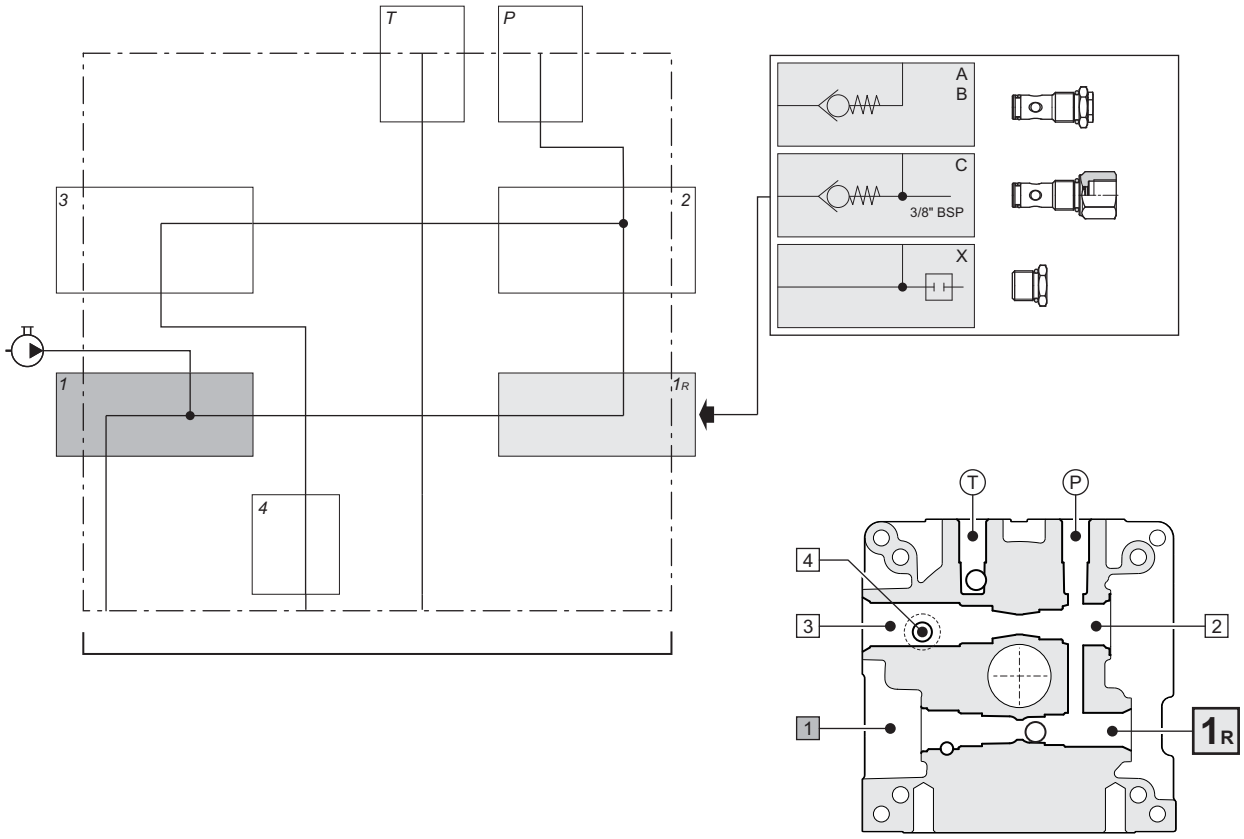
1 = Supplied assembled. Unassembled, see accessories page 59

* * *Plug*

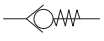
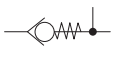
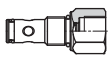
*	*	Description	Code	Symbol	Drawing
T	1	Closed plug to replace pressure relief valve	20001600		

Check valve - Plug

MC	*	*	*	*	(...)	*

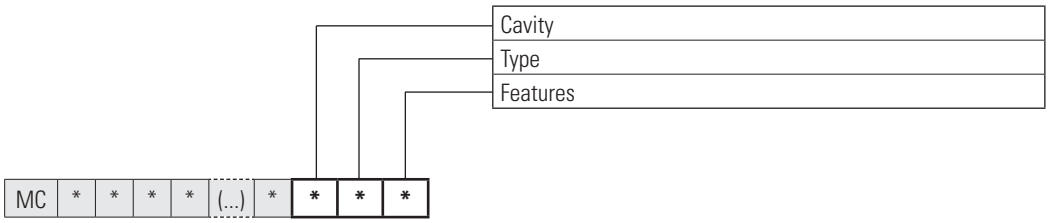


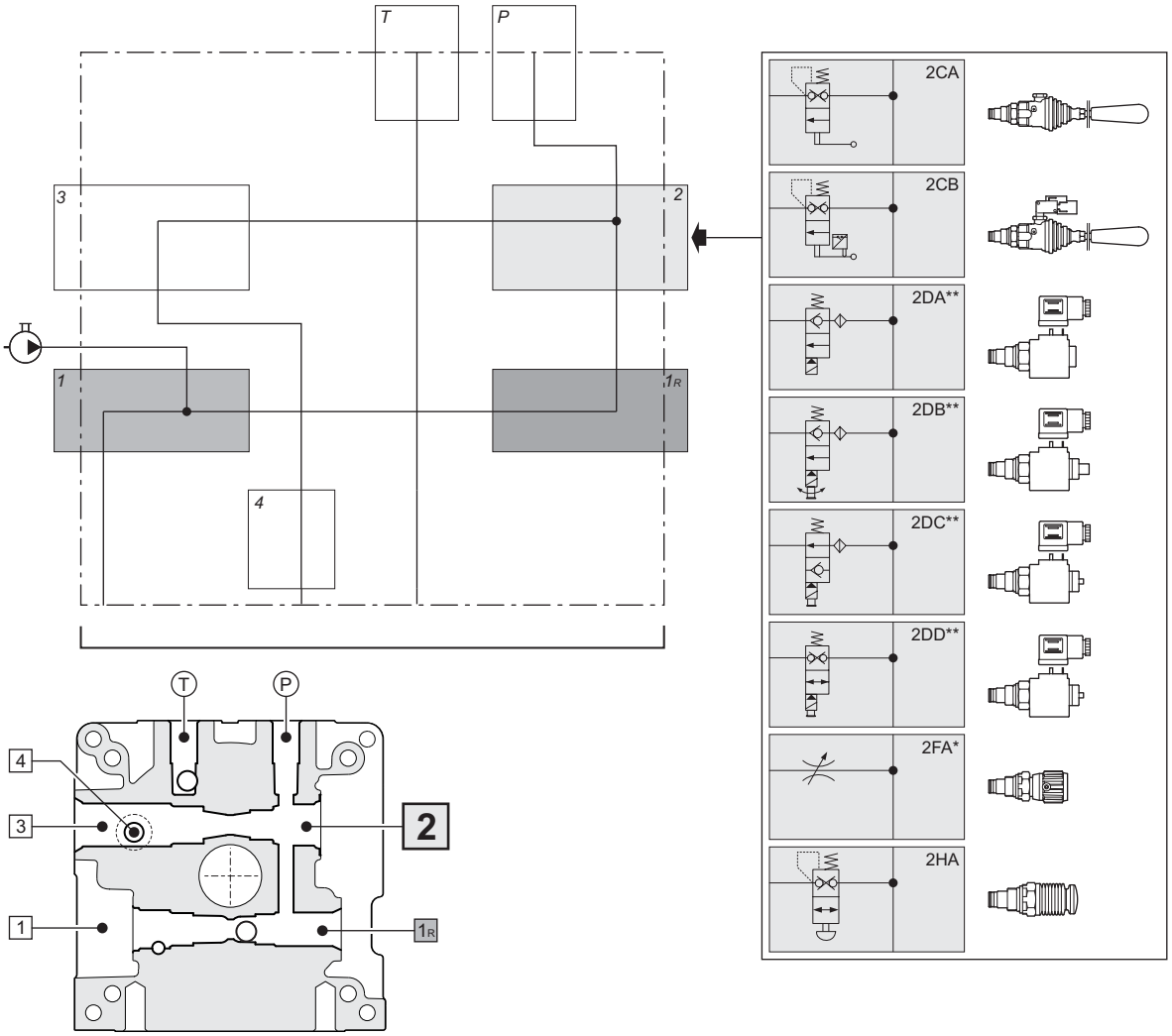
* *Check valve*

*	Description	Code	Symbol	Drawing
A	Standard	20020400		
B	Pre-setting 2 bar	20012000		
C	With outlet 3/8" BSP	20023900		

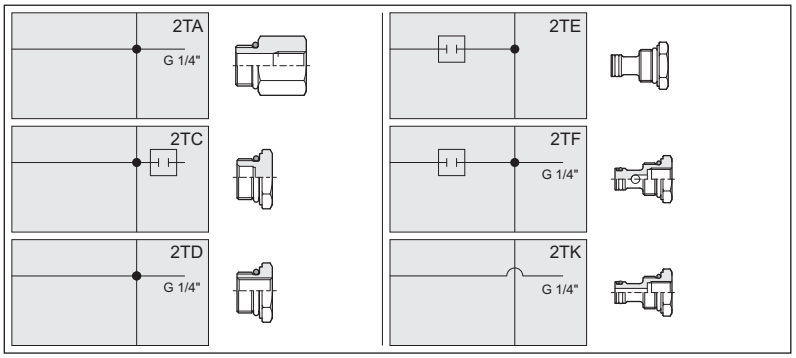
* *Plug*

*	Description	Code	Symbol	Drawing
X	Plug to replace check valve	20006100		

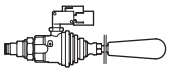

Cavity
Type
Features
MC
*
*
*
*
(...)
*
*
*
*


T
P
3
2
1
1R
4
2CA
2CB
2DA**
2DB**
2DC**
2DD**
2FA*
2HA

T
P
4
3
2
1
1R


2TA
G 1/4"
2TC
2TD
G 1/4"
2TE
2TF
G 1/4"
2TK
G 1/4"

2 C * *Lever operated valve*

*	Description	Code	Symbol	Drawing
A	Without microswitch	CMF04L001		
B	With microswitch	CMF04M001		

2 DA ** *Piloted solenoid valves normally closed, without emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCASL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NCASM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCASA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCASJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCASI003 + V86050002		

2 DB ** *Piloted solenoid valves normally open, with rotary emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCAEL003 + V8605002		
AB	Voltage 24 Vdc	CRP0418NCAEM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCAEA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCAEJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCAEI003 + V86050002		

2 DC ** *Piloted solenoid valves normally open, with button emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NAAEL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NAAEM003 + V86050002		
AC	Voltage 24 Vac 50/60 Hz (RAC with rectifier)	CRP0418NAAE2003 + V86200002		
AD	Voltage 115 Vac 50 - 120 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEZ003 + V86200002		
AE	Voltage 230 Vac 50 - 240 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEX003 + V86200002		
AF	Voltage 48 Vdc	CRP0418NAAEN003 + V86050002		

2 DD ** *Direct operated solenoid valve normally closed, with button emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

1 = Valves supplied with connector. Without connector see accessories page 59

II

2 FA * *Bidirectional flow control valves not compensated*

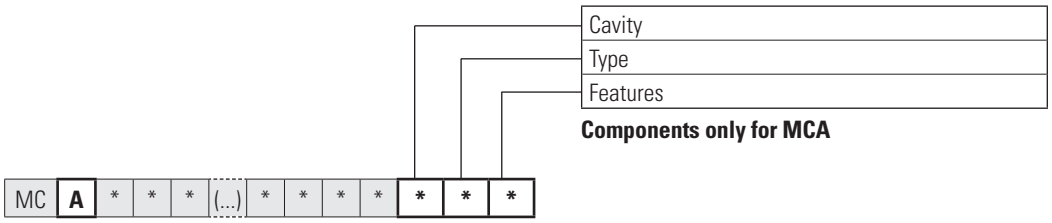
*	Description	Code	Symbol	Drawing
A	Screw adjustment	CSB04C0000		
B	Plastic knob adjustment	CSB04V0000		

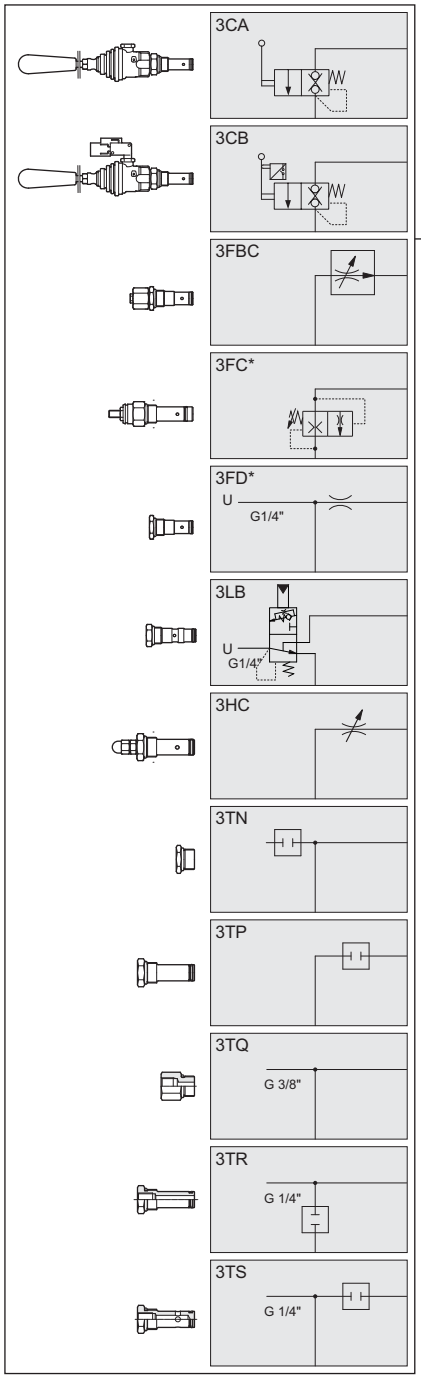
2 H * *Button operated valves*

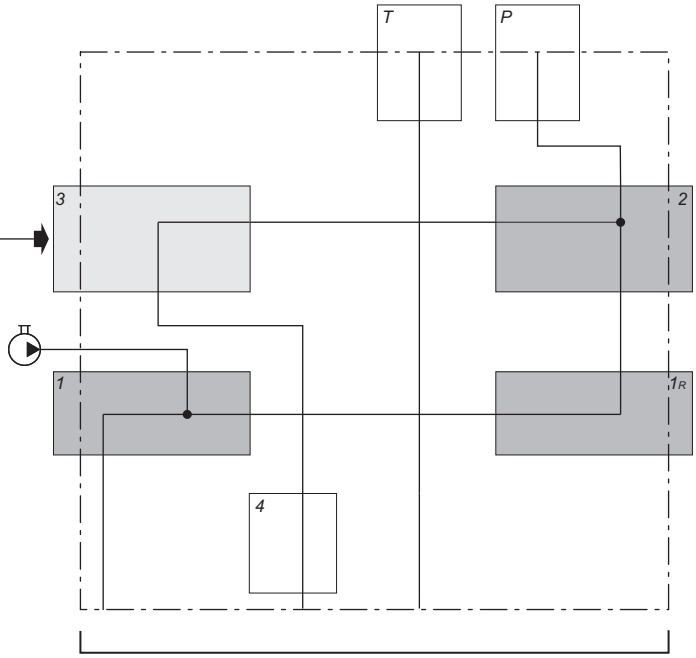
**	Description	Code	Symbol	Drawing
A	Push-button control	CPE04P000.1		

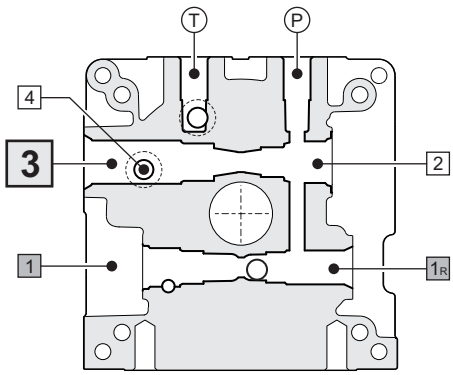
2 T * *Plugs and fittings*

*	Description	Code	Symbol	Drawing
A	Fitting 3/4 16 UNF - G1/4	20012100		
C	Plug 3/4 16 UNF	R78150099		
D	Fitting 3/4 16 UNF - G1/4	20001700		
E	Long plug 3/4 16 UNF	20003800		
F	Fitting 3/4 16 UNF - G1/4	20009400		
K	Fitting 3/4 16 UNF DIN - G1/4	20018000		


Cavity
Type
Features
Components only for MCA
MC
A
(...)


3CA
3CB
3FBC
3FC*
3FD*
U
G1/4"
3LB
U
G1/4"
3HC
3TN
3TP
3TQ
G 3/8"
3TR
G 1/4"
3TS
G 1/4"

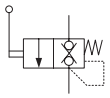
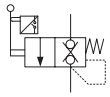
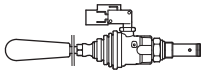

T
P
3
2
1
1R
4


T
P
4
3
2
1
1R

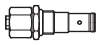
II
MCA

II
MCA

3 C * *Lever operated valve*

*	Description	Code	Symbol	Drawing
A	Without microswitch	CMT044L0001		
B	With microswitch	CMT044M0001		

3 FB * *Adjustable unidirectional flow control valve compensated*

*	Description	Setting	Code	Symbol	Drawing
C	Screw adjustment	0.5 ÷ 22 l/min	21000020.000		

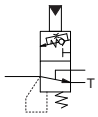
3 FC * *Adjustable flow control valve compensated (type VRFE)*

*	Description	Setting	Code	Symbol	Drawing
A	Screw adjustment	2 ÷ 3,5 l/min	20019800		
B		5 ÷ 7,5 l/min	20019900		
C		8,5 ÷ 13,5 l/min	20020000		

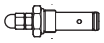
3 FD * *Flow control valve*

*	Description	Ø hole	Code	Symbol	Drawing
A	With G 1/4"	0,7 mm	20020300		
B		0,9 mm	20017500		
C		1 mm	20014400		

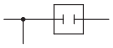
3 LB * *Logic valve with chek valve*

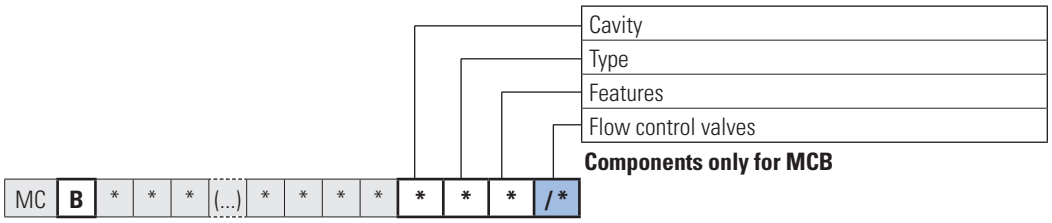
*	Description	Code	Symbol	Drawing
A	Out G 1/4"	20024100		

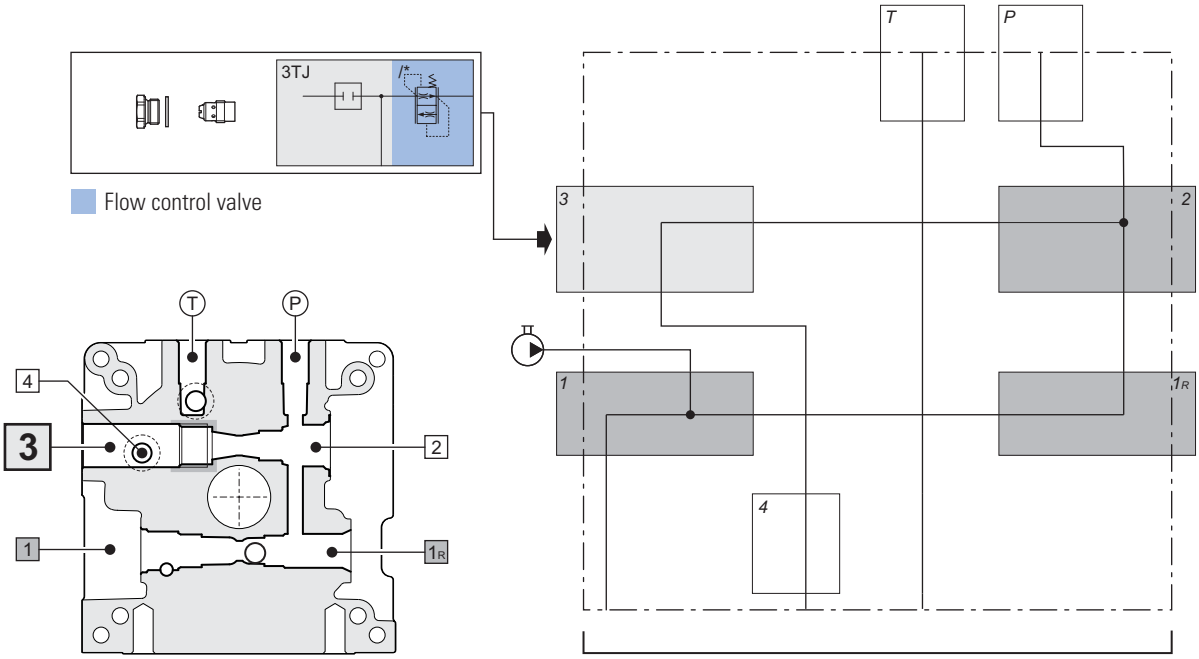
3 H * *Flow control valve not compensated*

*	Description	Code	Symbol	Drawing
C	Screw adjustment	20003900		

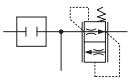
3 T * ***Plugs and fittings***

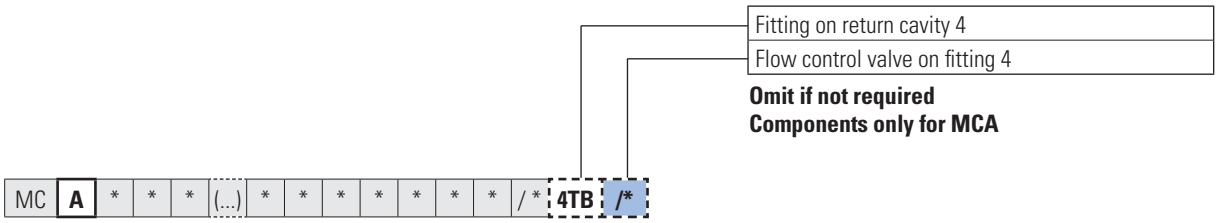
*	Description	Code	Symbol	Drawing
N	Plug	20002200		
P	Long plug	20001100		
Q	Fitting G3/8"	20022800		
R	Long fitting G1/4"	20007900		
S	Return line fitting G1/4"	20001400		



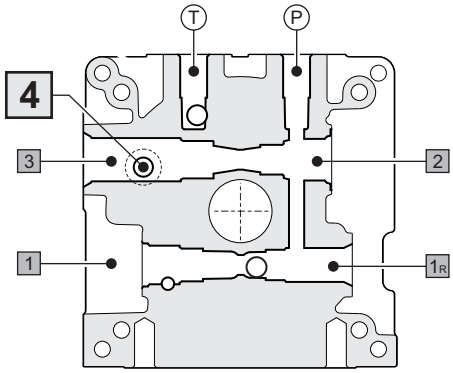


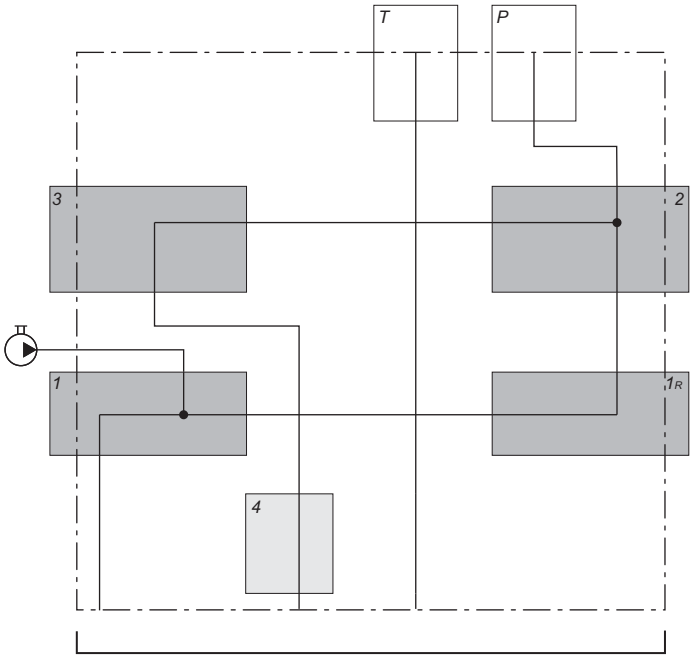
3 TJ /* ***Plug with flow control valve***

/*	Flow	Code (flow control valve)	Code (kit plug + washer)	Simbol	Drawing
/A	0.7 l/min	VSC06100002	17010085		
/B	1.1 l/min	VSC06120002			
/C	2.1 l/min	VSC06130002			
/E	3.2 l/min	VSC06150002			
/G	4.7 l/min	VSC06190002			
/K	6.3 l/min	VSC06220002			
/N	7.5 l/min	VSC06240002			
/Q	10.0 l/min	VSC06280002			
/U	13.2 l/min	VSC06330002			
/V	15.7 l/min	VSC06350002			



Componenti solo per MCA

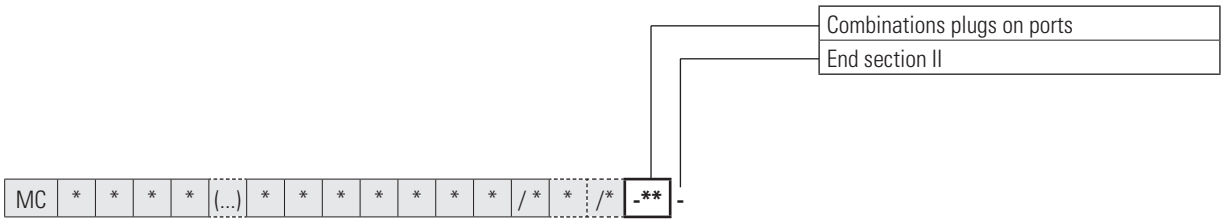




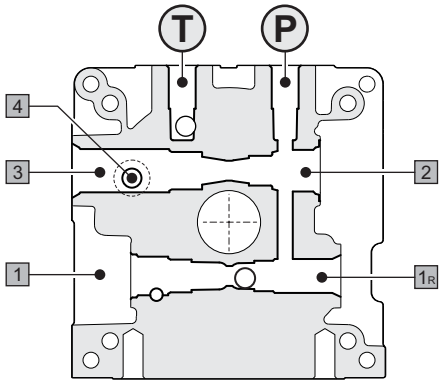
Any fitting and flow control valve on cavity 4

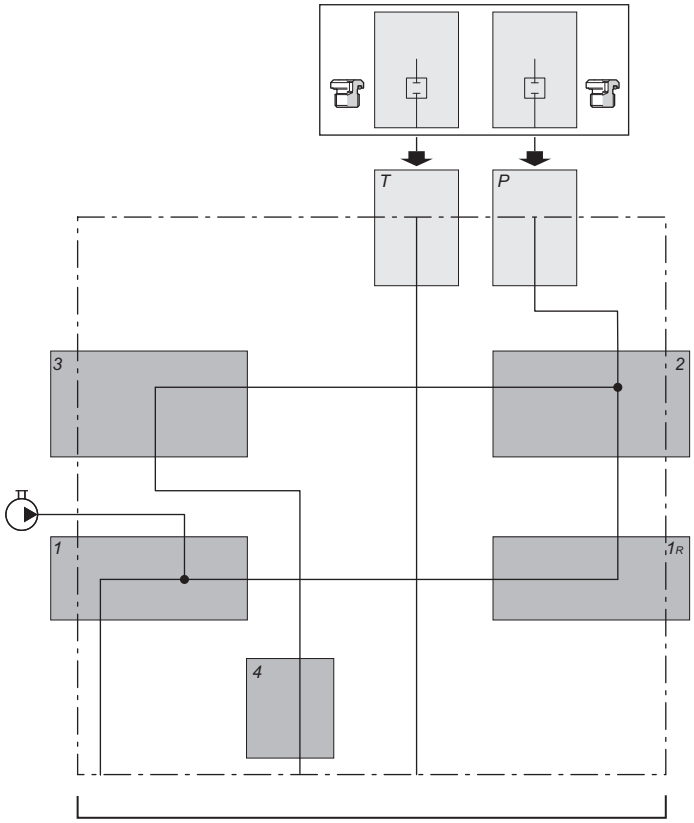
4 TB /* ***Fitting and flow control valve***

/*	Flow	Code (flow control valve)	Code (fitting for flow control valve)	Simbol	Drawing
/A	0.7 l/min	VSC06100002	M67250053		
/B	1.1 l/min	VSC06120002			
/C	2.1 l/min	VSC06130002			
/E	3.2 l/min	VSC06150002			
/G	4.7 l/min	VSC06190002			
/K	6.3 l/min	VSC06220002			
/N	7.5 l/min	VSC06240002			
/Q	10.0 l/min	VSC06280002			
/U	13.2 l/min	VSC06330002			
/V	15.7 l/min	VSC06350002			



II



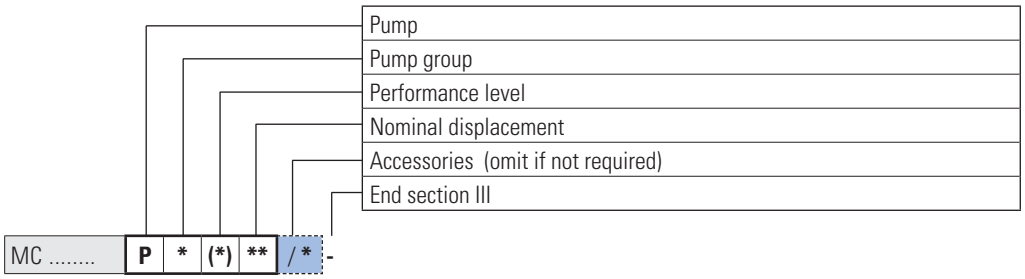


-** ***Combinations plugs on ports P-T***

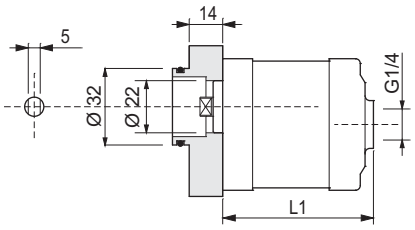
-**	P	T
-00	↑	↑
-02	⊗	↑
-03	↑	⊗
-06	⊗	⊗

Symbols description

Type	Description	Thread	Code	Symbol	Drawing
⊗	Port closed with plug	G 1/4"	20024000		
		G 3/8"	Q26622255 (plug) + Q51435044 (washer)		
		7/16" 20 UNF	TJ08072000		
		9/16" 18 UNF	TJ08091800		
↑	Port open		—	—	—



P 0 (1) ** *Pumps group 05 - Performance level 1*

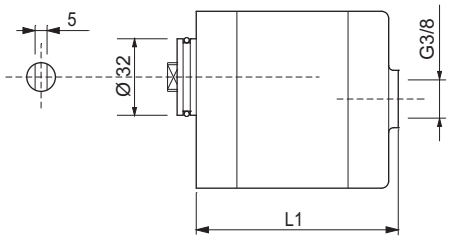


**	Nominal displacement	Tolerance on geometric displacement	P2 bar	P3 bar	Code complete kit	L1 mm	Tanks not compatible (•) S01A (H)	S01A (V)	S09E (H)	S09E (V)	S02G (H)	S02G (V)	All (H)	All (V)	Motors not compatible
02	0.25 cc	0.25 ÷ 0.33	230	270	17050037.035	54									M4FB(1) - M4GJ(1) MM*PA(1) M*AA(1)D - M*AA(1)G M*AA(1)H M*AB(1)D - M*AB(1)G M*AB(1)H
04	0.45 cc	0.45 ÷ 0.55	230	270	17050036.035	55.7									
05	0.56 cc	0.56 ÷ 0.68	230	270	17050039.035	56.7			•		•				
07	0.75 cc	0.69÷ 0.82	230	270	17050038.035	58.5			•		•				
09	0.92 cc	0.83 ÷ 0.95	230	270	17050053.035	59.8			•		•				

P2 = Intermittent operating pressure
P3 = Intermittent peak pressure (20 sec. max)

Tanks not compatible (as dimensions, see page 25)
Motors not compatible (interface and transmission not supplied, see pages 41 - 47)

P 1 (1) ** / * *Pumps group 1 - Performance level 1*



**	Nominal displacement	Tolerance on geometric displacement	P2 bar	P3 bar	Code complete kit	L1 mm	Tanks not compatible (•) S01A (H)	S01A (V)	S09E (H)	S09E (V)	S02G (H)	S02G (V)	All (H)	All (V)
07	0.80 cc	0.69 ÷ 0.82	170	210	17050107.018	72.4			•					
10	1.00 cc	0.96 ÷ 1.09	170	210	17050088.018	73.5			•					
12	1.20 cc	1.10 ÷ 1.30	250	290	17050005.018	74.8			•					
17	1.70 cc	1.50 ÷ 1.70	250	290	17050006.018	76.2			•					
22	2.20 cc	2.10 ÷ 2.30	250	290	17050007.018	78.2			•					
26	2.60 cc	2.50 ÷ 2.70	250	290	17050008.018	79.7			•		•			
32	3.20 cc	3.10 ÷ 3.32	250	290	17050009.018	82.0			•		•			
38	3.80 cc	3.60 ÷ 3.99	250	290	17050010.018	84.0			•		•			
43	4.30 cc	4.00 ÷ 4.35	250	290	17050011.018	86.6			•		•			
48	4.80 cc	4.85 ÷ 4.95	225	260	17050033.018	88.1			•		•			
60	6.00 cc	5.62 ÷ 6.02	185	215	17050012.018	92.2	•		•	•	•	•		
78	7.80 cc	7.48 ÷ 7.90	140	160	17050013.018	98.9	•	•	•	•	•	•		
98	9.80 cc	9.60 ÷ 10.00	110	125	17050054.018	107.2	•	•	•	•	•	•		

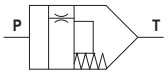
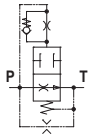
P2 = Intermittent operating pressure
P3 = Intermittent peak pressure (20 sec. max)

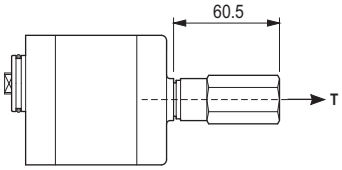
Tanks not compatible (as dimensions, see page 25) .

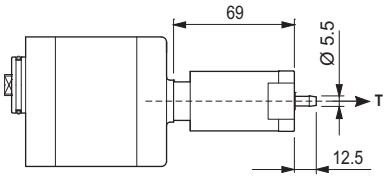
P | 1 | (1) | ** | /*

Accessories for pumps group 1

Displacement

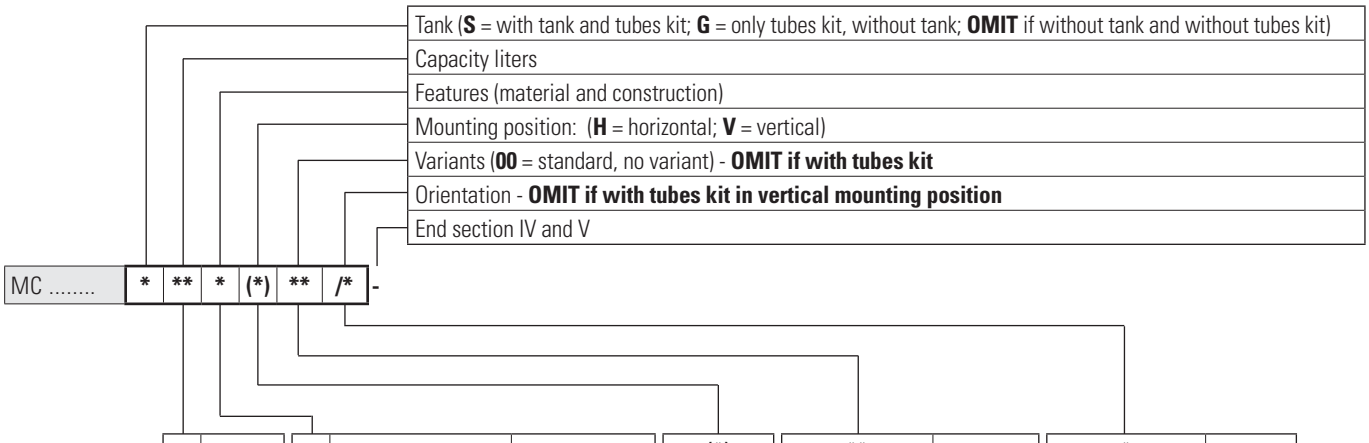
*	Description	Type	Code	Symbol
/A	Single-phase motor start valve - on auxiliary outlet	0.8 ÷ 2.5 l/min	VAM0400L	
/B		> 2.5 ÷ 8.0 l/min	VAM0400M	
/C		> 8.0 ÷ 14 l/min	VAM0400H	
/D	Soft start valve - on auxiliary outlet	hole Ø 0.4 mm	VAMS0404001	





**	With accessory	Tanks not compatible (•)			
		S01A	S09E	S02G	All
09	/A /B /C				
	/D	•	•	•	
12	/A /B /C				
	/D	•	•	•	
17	/A /B /C				
	/D	•	•	•	
22	/A /B /C				
	/D	•	•	•	
26	/A /B /C				
	/D	•	•	•	
32	/A /B /C		•	•	
	/D	•	•	•	
38	/A /B /C	•	•	•	
	/D	•	•	•	
43	/A /B /C	•	•	•	
	/D	•	•	•	

Tanks not compatible (as dimensions, see page 25) .



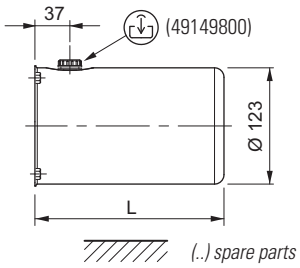
**	Liters	*	Dimensions (mm)	Material	(*) Mounting	** Variants	Page	* Orientation	Page
01	1	A	Ø 123 - L 141	Sheet steel	(H)	00	26	/1(std) /2 /3 /4	39
					(V)	00			
02	1,5	G	⍁ 130x140 - L 135	Polyethylene	(H)	00	35		
					(V)	00			
	2	A	Ø 123 - L 200	Sheet steel	(H)	00	26		
					(V)	00			
03	2,5	G	⍁ 130x140 - L 235	Polyethylene	(H)	00	35		
					(V)	00			
	3	A	Ø 123 - L 330	Sheet steel	(H)	00	26		
					(V)	00			
04	4	G	⍁ 130x140 - L 295	Polyethylene	(H)	00	35		
					(V)	00			
	4	L	⍁ 180 - L 210	Polyethylene	(H)	00	36		
					(V)	00			
05	5	B	Ø 175 - L 246	Sheet steel	(H)	00-01-02-03-04	27		
					(V)	00			
	5	C	Ø 200 - L 210	Sheet steel	(H)	00	28		
					(V)	00			
	5	F	⍁ 180 - L 240	Polypropylene	(H)	00	34		
					(V)	00			
06	6	B	Ø 175 - L 308	Sheet steel	(H)	00-04	27		
					(V)	00			
07	7	E	⍁ 154x188 - L 299	Sheet steel	(V)	00-01	30		
	7	F	⍁ 180 - L 308	Polypropylene	(H)	00	34		
					(V)	00			
	7	L	⍁ 180 - L 310	Polyethylene	(H)	00	37		
					(V)	00			
	7	M	⍁ 180 - L 335	Polietilene	(H)	00	38		
					(V)	00			
08	8	B	Ø 175 - L 370	Sheet steel	(H)	00-04	27		
					(V)	00			
	8	C	Ø 200 - L 306	Sheet steel	(H)	00	28		
					(V)	00			
09	9	E	⍁ 230x130 - L 350	Sheet steel	(H)	00	31		
					(V)	00			
		L	⍁ 180 - L 370	Polietilene	(V)	00	37		
10	10	C	Ø 200 - L 373	Sheet steel	(H)	00	28		
					(V)	00			
	10	D	Ø 217 - L 273	Sheet steel	(H)	00	29		
					(V)	00			
	10	L	⍁ 180 - L 410	Polyethylene	(H)	00	37		
					(V)	00			
12	12	D	Ø 217 - L 370	Sheet steel	(H)	00	29		
					(V)	00			
14	14	E	⍁ 255x193 - L 366	Sheet steel	(V)	00-01	32		
25	25	E	⍁ 250x255 - L 436	Sheet steel	(H)	00-01	33		
					(V)	00-01			

IV
V

*	**	*	(H)	**	*

- ***Tanks Ø 123 - Sheet steel, capacity 1-2-3 liters - Horizontal mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
01	A	(H)	00	141	1	1.0	0.7	90310000	17010086
02				200	2	1.6	1.5	90310001	
03				330	3	3	2.8	90310002	



(..) spare parts

(1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant				Tank

Variant				Tank

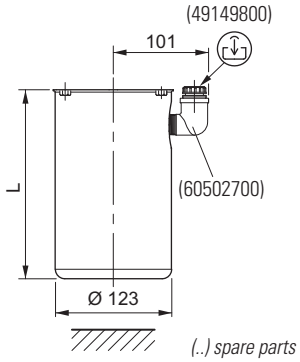
Variant				Tank

Variant				Tank

*	**	*	(V)	**	*

- ***Tanks Ø 123 - Sheet steel, capacity 1-2-3 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
01	A	(V)	00	141	1	0.9	0.7	90310009	17010086
02				200	2	1.6	1.5	90310010	
03				330	3	2.9	2.9	90310011	



(..) spare parts

(1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant				Tank

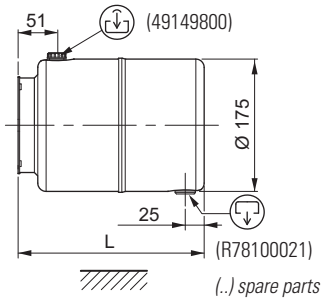
Variant				Tank

Variant				Tank

Variant				Tank

* | ** | * | (H) | ** | * - ***Tanks Ø 175 - Sheet steel, capacity 5-6-8 liters - Horizontal mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
05	**B**	**(H)**	**00**	246	5	4.7	4.5	90310003	17010086
06				308	6	6	5.9	90310004	
08				370	8	8	7.3	90310005	

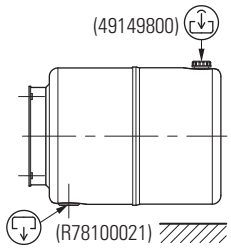


(..) spare parts

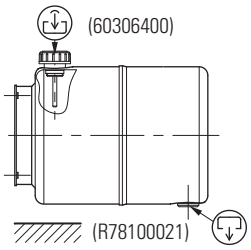
(1) Variant - OMIT if without tank but with tubes kit

Other variants

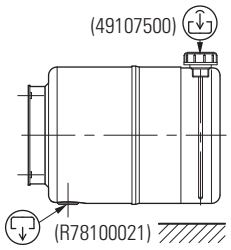
Variant				Tank
05	B	(H)	**01**	90310003
06				
08				



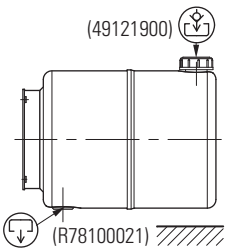
Variant				Tank
05	B	(H)	**02**	90310149
06				
08				



Variant				Tank
05	B	(H)	**03**	90310134
06				90310062
08				90310069

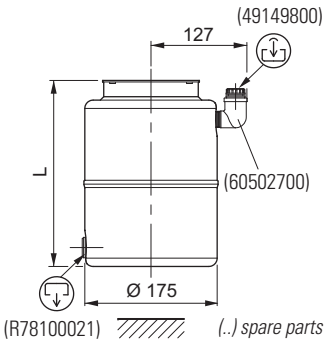


Variant				Tank
05	B	(H)	**04**	90310176
06				
08				



* | ** | * | (V) | ** | * - ***Tanks Ø 175 - Sheet steel, capacity 5-6-8 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
05	**B**	**(V)**	**00**	246	5	4.3	4.1	90310012	17010086
06				308	6	5.8	5.5	90310013	
08				370	8	7.5	7.2	90310015	



(..) spare parts

(1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant				Tank

Variant				Tank

Variant				Tank

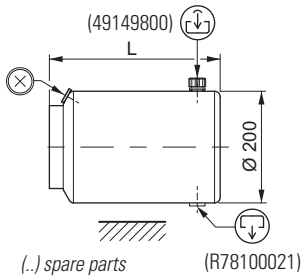
Variant				Tank

IV
V

*	**	*	(H)	**	*

- ***Tanks Ø 200 - Sheet steel, capacity 5-8-10 liters - Horizontal mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
05	**C**	**(H)**	**00**	205	5	5.3	5.0	90310425	17010086
08				301	8	8.0	7.7	90310428	
10				368	10	10	9.3	90310431	



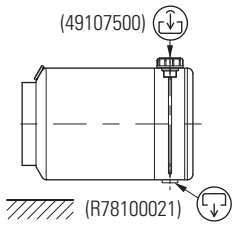
(1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant				Tank

Variant				Tank

Variant				Tank
05	C	(H)	**03**	90310453
08				90310443
10				90310483

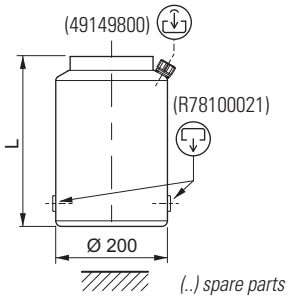


Variant				Tank

*	**	*	(V)	**	*

- ***Tanks Ø 200 - Sheet steel, capacity5-8-10 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
05	**C**	**(V)**	**00**	205	5	4.6	4.3	90310444	17010086
08				301	8	7.5	7.1	90310437	
10				368	10	9.5	9.1	90310439	



(1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant				Tank

Variant				Tank

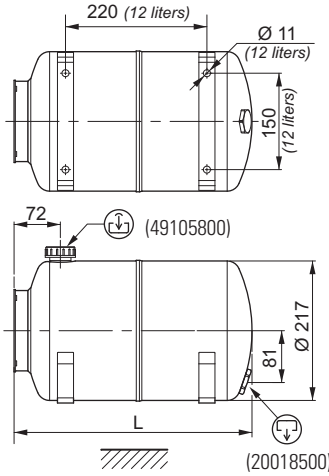
Variant				Tank

Variant				Tank

* | ** | * | (H) | ** | * - *Tanks Ø 217 - Sheet steel, capacity10-12 liters - Horizontal mounting (black painted)*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
10	D	(H)	00	273	10	8	7.6	90310006	17010086
12				370	12	12	11	90310058	

(1) Variant - OMIT if without tank but with tubes kit



Other variants

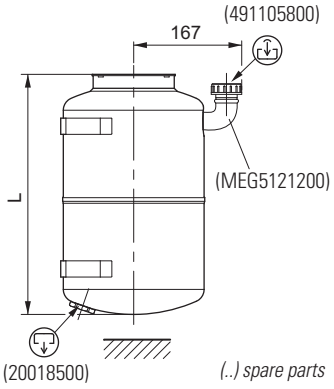
(..) spare parts

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

* | ** | * | (V) | ** | * - *Tanks Ø 217 - Sheet steel, capacity10-12 liters - Vertical mounting (black painted)*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
10	D	(V)	00	273	10	7	6.8	90310029	17010086
12				370	12	10.3	10.1	90310100	

(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

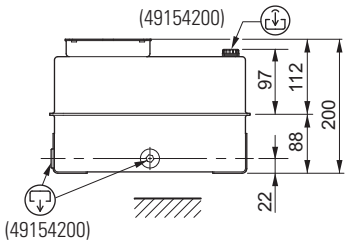
IV
V

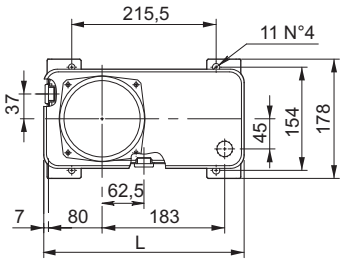
*	**	*	(V)	**	*	-

Rectangular tanks - Sheet steel, capacity 7 liters - Vertical mounting (black painted)

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
07	**E**	**(V)**	**00**	299	7	5.5	5.1	90310014	17010086

(1) Variant - OMIT if without tank but with tubes kit

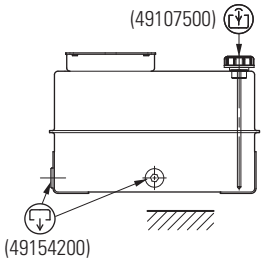




(..) spare parts

Other variants

Variant				Tank
07	E	(V)	**01**	90310036



Variant				Tank

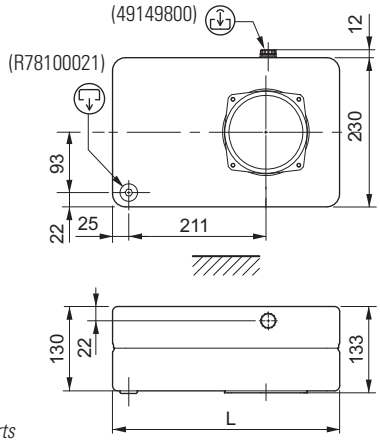
Variant				Tank

Variant				Tank

* | ** | * | (H) | ** | * - ***Rectangular tanks - Sheet steel, capacity 9 liters - Horizontal mounting (black painted)***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
09	**E**	**(H)**	**00**	350	9	9	8	90310142	17010086

(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

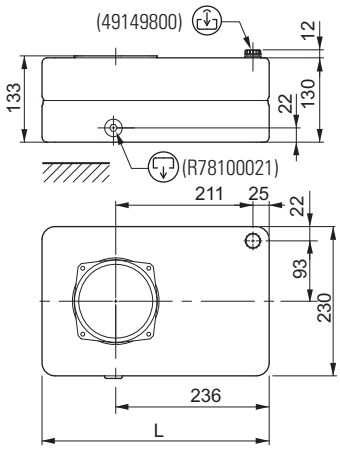
Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

* | ** | * | (V) | ** | * - ***Rectangular tanks - Sheet steel, capacity 9 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
09	**E**	**(V)**	**00**	350	9	8.6	7.5	90310142	17010086

(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

Other variants

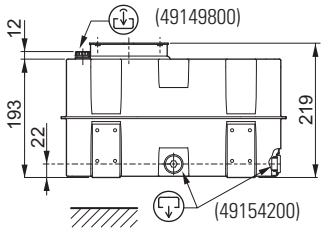
Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

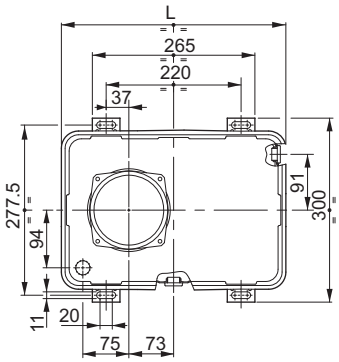
IV
V

*	**	*	(*)	**	*	-	***Rectangular tanks - Sheet steel, capacity 14 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
14	**E**	**(V)**	**00**	366	14	14	13	90310045	17010086

(1) Variant - OMIT if without tank but with tubes kit



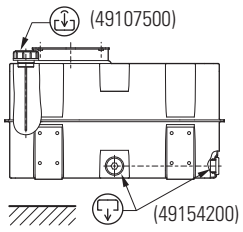


(..) spare parts

IV
V

Other variants

Variant				Tank
14	E	(V)	**01**	90310046



Variant				Tank

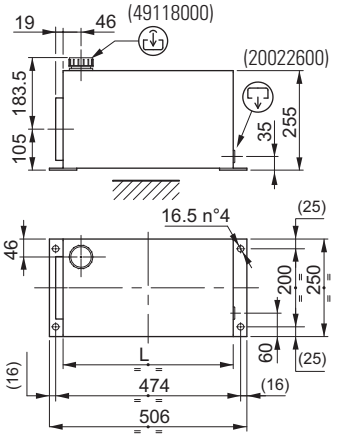
Variant				Tank

Variant				Tank

* | ** | * | (*) | ** | * - ***Rectangular tanks - Sheet steel, capacity 25 liters - Horizontal mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
25	**E**	**(H)**	**00**	436	25	22	21	90310060	17010086

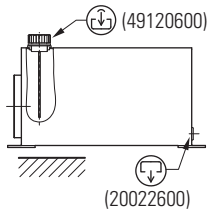
(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

Other variants

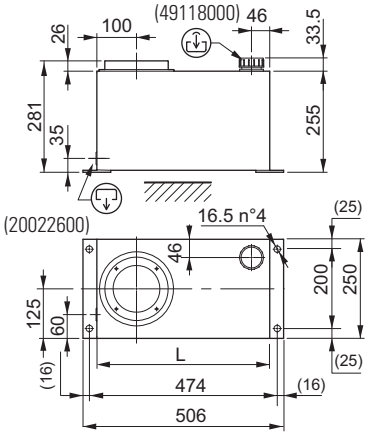
Variant				Tank
25	E	(H)	**01**	90310083



* | ** | * | (*) | ** | * - ***Rectangular tanks - Sheet steel, capacity 25 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
25	**E**	**(V)**	**00**	436	25	25	22	90310071	17010086

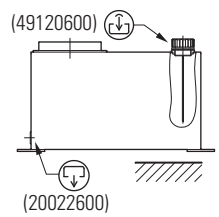
(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

Other variants

Variant				Tank
25	E	(V)	**01**	90310124

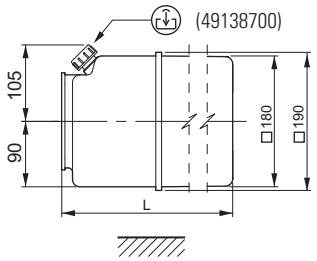


IV
V

IV
V

* ** * (H) ** * - *Square polypropylene tanks capacity 5-7 liters - Horizontal mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, brackets, nuts)	Tank fixing kit (screws and O-Ring)
05	F	(H)	00	242	5	5.4	4.5	90310313	17010086
07				308	7	7.4	6.5	90310289	

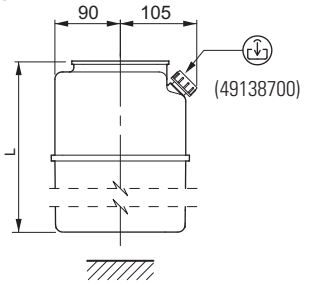


Operating temperature -10°C ÷ +60°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

* ** * (V) ** * - *Square polypropylene tanks capacity 5-7 liters - Vertical mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, brackets, nuts)	Tank fixing kit (screws and O-Ring)
05	F	(V)	00	242	5	5.4	4.5	90310313	17010086
07				306	7	7.4	6.5	90310289	

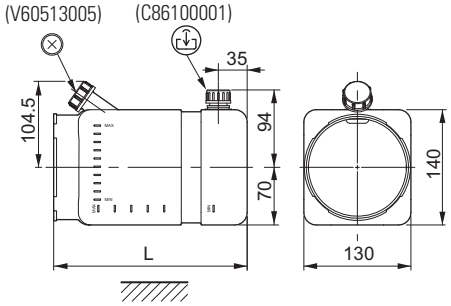


(..) spare parts

Operating temperature -10°C ÷ +60°C - (1) Variant - OMIT if without tank but with tubes kit

* | ** | * | (H) | ** | * - ***Square polyethylene tanks capacity 1.5-2.5-4 liters - Horizontal mounting***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
02	**G**	**(H)**	**00**	135	1.5	1.3	1	90310491	17010087
03				235	2.5	2.5	2	90310484	
04				295	4	3.4	2.5	90310422	



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

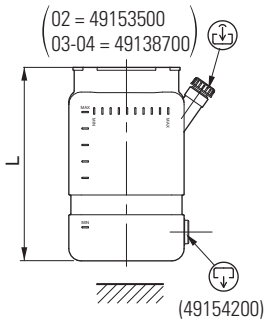
Other variants

Variant				Tank	Variant				Tank	Variant				Tank	Variant				Tank

IV
V

* | ** | * | (V) | ** | * - ***Square polyethylene tanks capacity 1.5-2.5-4 liters - Vertical mounting***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
02	**G**	**(V)**	**00**	135	1.5	1.1	0.7	90310486	17010087
03				235	2.5	2.7	2.3	90310419	
04				296	4	3.5	3.1	90310402	



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

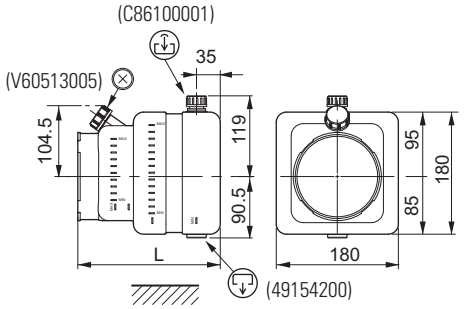
Other variants

Variant				Tank	Variant				Tank	Variant				Tank	Variant				Tank

*	**	*	(H)	**	*	-

Square polyethylene tanks capacity 4 liters - Horizontal mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
04	**L**	**(H)**	**00**	210	4	3.6	3	90310331	17010087



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

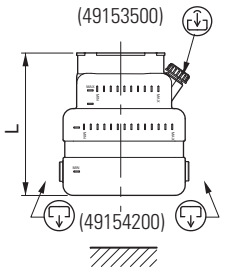
Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

*	**	*	(V)	**	*	-

Square polyethylene tanks capacity 4 liters - Vertical mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
04	**L**	**(V)**	**00**	210	4	3.7	3	90310332	17010087

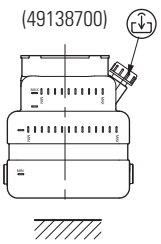


Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

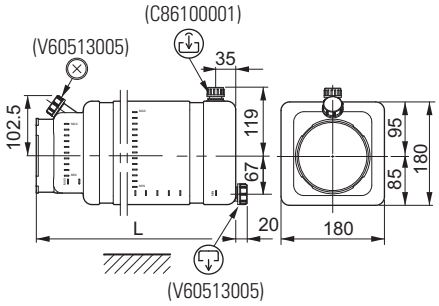
Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank
04 L (V) **01**	90310433						



* | ** | * | (*) | ** | * - *Square polyethylene tanks capacity 7-10 liters - Horizontal mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
07	L	(H)	00	310	7	6.7	5.5	90310330	17010087
10				410	10	8.7	7.5	90310339	



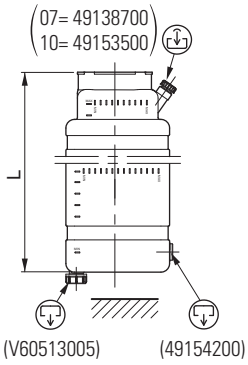
Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

IV
V

* | ** | * | (*) | ** | * - *Square polyethylene tanks capacity 7-10 liters - Vertical mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
07	L	(V)	00	310	7	6.7	6	90310403	17010087
10				410	10	9.8	9	90310338	

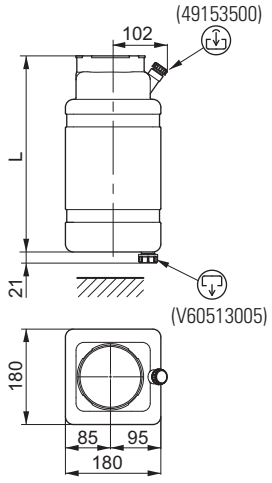


Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

* | ** | * | (*) | ** | * - *Square polyethylene tanks capacity 9 liters - Vertical mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
09	L	(V)	00	370	9	8.6	8	90310371	17010087



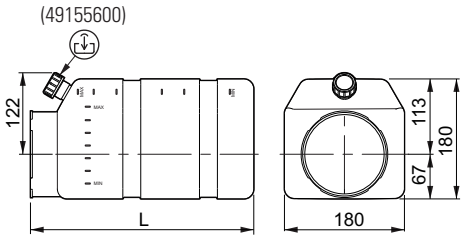
Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

*	**	*	(H)	**	*

- ***Special square polyethylene tanks capacity 7 liters - Horizontal mounting***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
07	**M**	**(H)**	**00**	335	7	7.3	6.6	90310380	17010087



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

Other variants

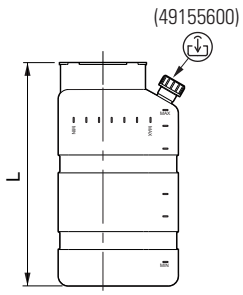
Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

IV
V

*	**	*	(V)	**	*

- ***Special square polyethylene tanks capacity 7 liters - Vertical mounting***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
07	**M**	**(V)**	**00**	335	7	7.2	6.4	90310380	17010087



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

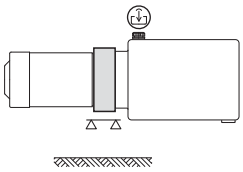
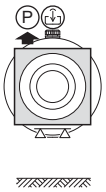
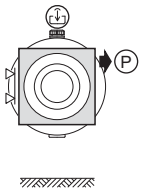
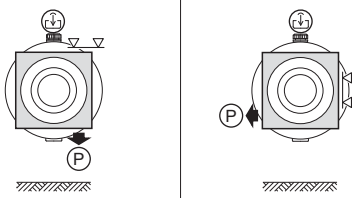
(..) spare parts

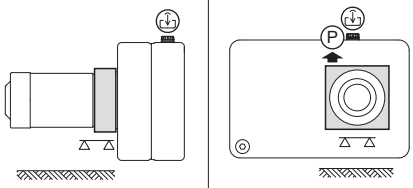
Other variants

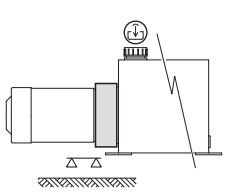
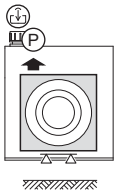
Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

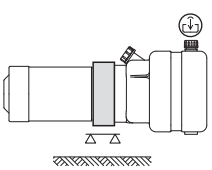
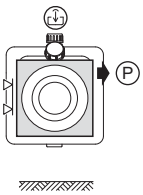
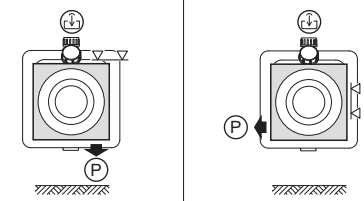
*	**	*	(*)	**	/*

- ***Tanks orientation according to the mounting position***

For tamks			(*)	Mounting position	/* Orientation /1 (standard)	/2	/3	/4
S	**	A B C D	(H)	Horizontal		 (1)			

For tamks			(*)	Mounting position	/* Orientation /1 (standard)	/2	/3	/4
S	09	E	(H)	Horizontal				

For tamks			(*)	Mounting position	/* Orientation /1 (standard)	/2	/3	/4
S	25	E	(H)	Horizontal					

For tamks			(*)	Mounting position	/* Orientation /1 (standard)	/2	/3	/4
S	**	F G L	(H)	Horizontal		 (1)			

(1) Orientation TO BE USED with blocks

IV
V

*	**	*	(*)	**	/*

- *Tanks orientation according to the mounting position*

For tamks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	**	A B C D F G L	(V)	Vertical	(2)			

For tamks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	07	E	(V)	Vertical	(1)			

For tamks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	09 25	E	(V)	Vertical	(1)			

For tamks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	14	E	(V)	Vertical	(1)			

(1) Orientation TO BE USED with blocks
(2) D Orientation DO NOT USE with blocks

Motor
Voltage
Power / Size
Version
Accessories
Orientation
End section VI

All motors are equipped with a transmission kit (coupling and components for the assembly)

MC	M	*	**	(*)	*	/*	-

*	Voltage
2	12 VDC
4	24 VDC

**	Power	Size
GA	350 W	Ø 80
GC	700 W	Ø 80
AA	1500 W	Ø 115
EN	1600 W	Ø 115
GN	1600 W	Ø 115
GB	400 W	Ø 80
GD	800 W	Ø 80
AB	2000 W	Ø 115
ES	2200 W	Ø 115
GP	2200 W	Ø 115
GJ	3000 W	Ø 125
FB	3000 W	Ø 125

(*)	Version	Page
(1)	Std	42
(1)	Std	42
(1)	Std	43
(1)	Std	43
(1)	Std	44
(1)	Std	42
(1)	Std	42
(1)	Std	43
(1)	Std	43
(1)	Std	44
(1)	Std	44
(1)	Std	44

* Accessories
0 - B
0 - B
0 - B - C - D - F - G - H
0 - B - C - E
0 - B - C - E
0 - B
0 - B
0 - B - C - D - F - G - H
0 - B - C - E
0 - B - C - E
0 - B - C - E
0 - B - C - E

/* Orientation	Page
/1 /2 Std /3 /4	46

*	Accessories description	Page
0	Without accessories	—
B	Starting switch	45
C	Thermal protection	—
D (•)	Ventilation	45
E	Starting switch + thermal protection	—
F (•)	Starting switch + ventilation	—
G	Thermal protection + ventilation	—
H (•)	Starting switch + thermal protection + ventilation	—

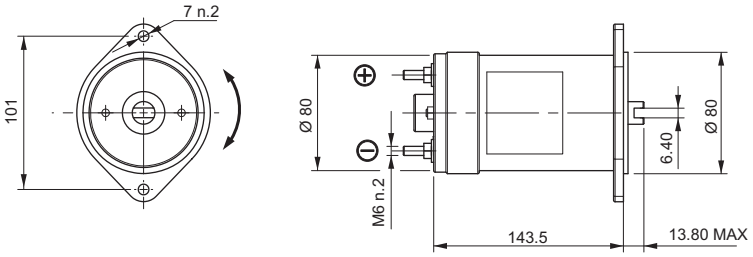
(•)= IP protection level becomes effective after installationon on power pack. Acquires IP 10 level with "ventilation" accessory.

For more details, features and performances DC motors, see catalog Dana code DOC00053.

Motors: 12 VDC 350 W / 24 VDC 400 W (permanent magnets)

	Voltage	W	A	rpm	Nm	S2 min	S3%	IP	IC	Ø mm	Code (⊗)
M **2 GA (1)** * /*	12 VDC	350	40	3300	1.0	10	35	54	F	80	25021400
M **4 GB (1)** * /*	24 VDC	400	30	3100	1.2	5	20	54	F	80	25021500

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M * ** (*) ***** /* - ***Accessories (page 45)***

*	Description
0	Without accessories
B	Starting switch 120A fixing with clamp

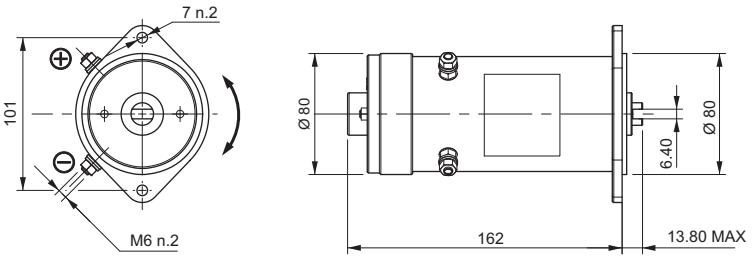
Code trasmission kit: page 53

VI
DC

Motors: 12 VDC 700 W / 24 VDC 800 W (permanent magnets)

	Voltage	W	A	rpm	Nm	S2 min	S3%	IP	IC	Ø mm	Code (⊗)
M **2 GC (1)** * /*	12 VDC	700	90	3300	2.0	2.5	10	54	F	80	25021600
M **4 GD (1)** * /*	24 VDC	800	70	3000	2.5	2	5	54	F	80	25021700

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M * ** (*) ***** /* - ***Accessories (page 45)***

*	Description
0	Without accessories
B	Starting switch 120A

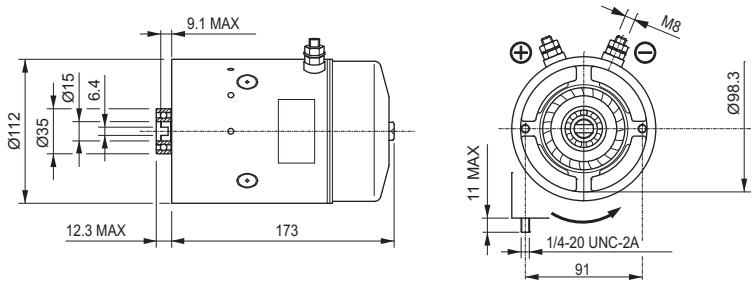
Code trasmission kit: page 53

For more details, features and performances DC motors, see catalog Dana code DOC00053.

Motors: 12 VDC 1500 W / 24 VDC 2000 W (wound field compound)

	Voltage	W	A	rpm	Nm	S2 min	S3%	IP	IC	Ø mm	Code (⊗)
M **2 AA (1)** * /*	12 VDC	1500	225	2500	5.5	1	5	54	F	115	25022200
M **4 AB (1)** * /*	24 VDC	2000	150	2250	8	2	5	54	F	115	25022300

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M * ** (*) * /* - ***Accessories (page 45)***

*	Description
0	Without accessories
B	Starting switch 120A
D	Ventilation
F	Ventilation + Starting switch
G	Ventilation + Thermal protection
H	Ventilation + Thermal protection + Starting switch

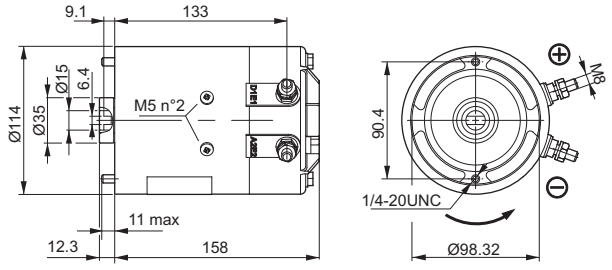
Acquires IP 10 protection level with "ventilation" accessory.

Code trasmission kit: page 53

Motors: 12 VDC 1600 W / 24 VDC 2200 W (wound field compound)

	Voltage	W	A	rpm	Nm	S2 min	S3%	IP	IC	Ø mm	Code (⊗)
M **2 EN (1)** * /*	12 VDC	1600	230	2600	5	2	10	54	F	115	25021100
M **4 ES (1)** * /*	24 VDC	2200	140	2700	8	1.2	5	54	F	115	25021200

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M * ** (*) * /* - ***Accessories (page 45)***

*	Description
0	Without accessories
B	Starting switch 120A
C	Thermal protection
E	Starting switch + thermal protection

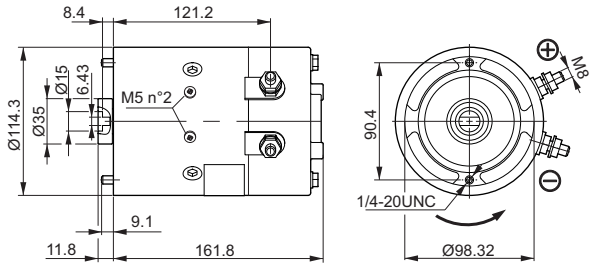
Code trasmission kit: page 53

For more details, features and performances DC motors, see catalog Dana code DOC00053.

Motors: 12 VDC 1600 W / 24 VDC 2200 W (wound field serie)

					Voltage	**W**	**A**	**rpm**	**Nm**	**S2** min	**S3%**	**IP**	**IC**	**Ø mm**	**Code** (⊗)
M	**2**	**GN**	**(1)**	*	/*	12 VDC	1600	220	2600	6	4	8	54	F	115	25022600
M	**4**	**GP**	**(1)**	*	/*	24 VDC	2200	140	2600	6	2	7.5	54	F	115	25022700

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M	*	**	(*)	*	/*	-	***Accessories (page 45)***

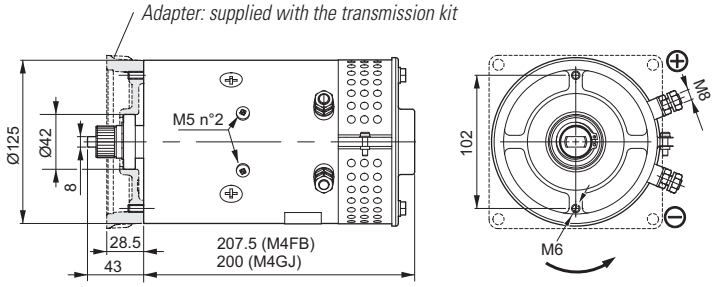
*	**Description**
0	Without accessories
B	Starting switch 120A

Code trasmission kit: page 53

Motors: 24 VDC 3000 W (wound field compound)

					Voltage	**W**	**A**	**rpm**	**Nm**	**S2** min	**S3%**	**IP**	**IC**	**Ø mm**	**Code** (⊗)
M	**4**	**FB**	**(1)**	*	/*	24 VDC	3000	200	3300	8.5	4	15	20	F	125	25021300
M	**4**	**GJ**	**(1)**	*	/*	24 VDC	3000	180	3500	8.5	3.5	15	20	F	125	25022400

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M	*	**	(*)	*	/*	-	***Accessories (page 45)***

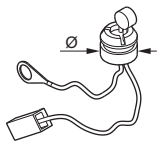
**	*	**Description**
FB GJ	**0**	Without accessories
	B	Starting switch 150A
	D	Ventilation
	F	Ventilation + Starting switch
FB	**G**	Ventilation + Thermal protection
	H	Ventilation + Thermal protection + Starting switch

Code trasmission kit: page 53

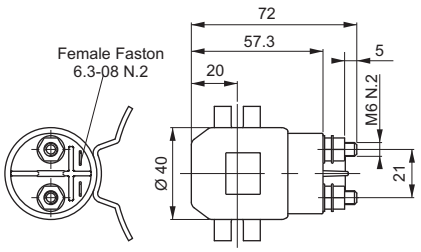
For more details, features and performances DC motors, see catalog Dana code DOC00053.

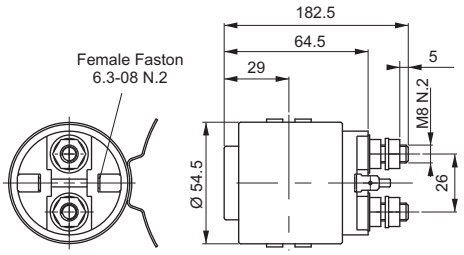
M | * | ** | (*) | **C** | /* - ***Accessory: Thermal protection***

Thermal protection		
Code	**Ø mm**	**For motors**
90340009	16	M2EN - M4ES



M | * | ** | (*) | **B** | /* - ***Accessory: Starting switch***





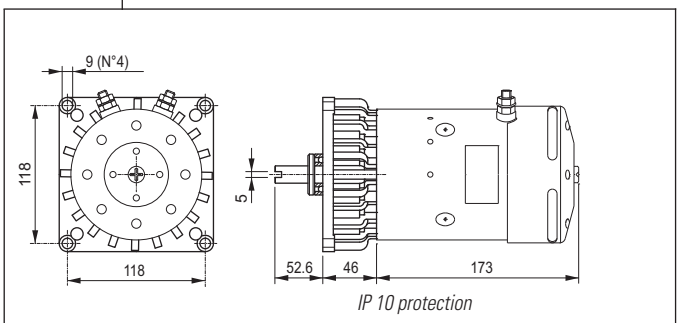
120A starting switch		
Code (•)	**VDC**	**For motors**
KIT07012.027	12	M2GA - M2GC
KIT07012.032	24	M4GB - M4GD
KIT07012.033	12	M2AA
KIT07012.034	24	M4AB
KIT07012.025	12	M2EN - M2GN
KIT07012.026	24	M4ES - M2GP

150A starting switch		
Code (•)	**VDC**	**For motors**
KIT07012.019	24	M4FB - M4GJ

(•) Complete kit with all assembly components.

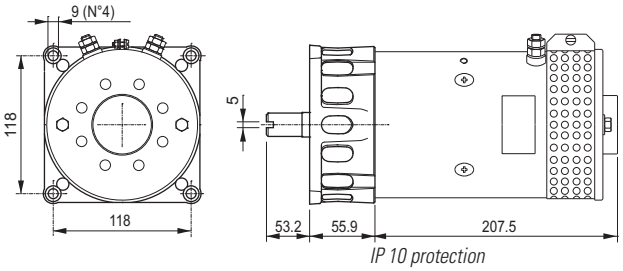
For more details, features and performances DC motors, see catalog Dana code DOC00053.

M | * | ** | (*) | ***** | /* - ***Accessory: Ventilation (motor included)***



IP 10 protection

*	Code (•)	VDC	For motors
D	**KIT01008.065**	12	M2AA
G	**KIT01008.088**	12	M2AA + thermal protecion
D	**KIT01008.067**	24	M4AB
G	**KIT01008.077**	24	M4AB + thermal protecion



IP 10 protection

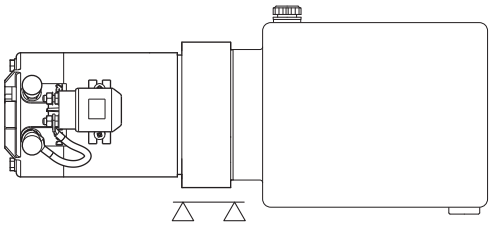
*	Code (•)	VDC	For motors
D	**KIT01008.118**	24	M4FB
D	**KIT01008.215**	24	M4GJ
G	**KIT01008.119**	24	M4FB + thermal protecion

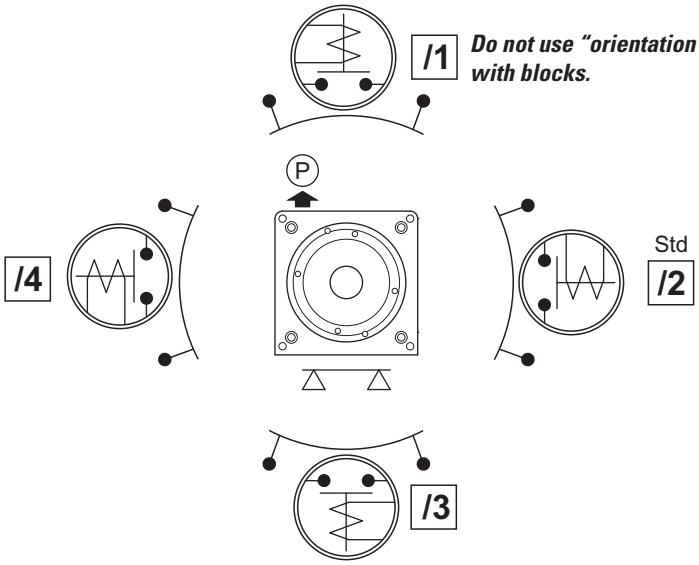
(•) Complete kit with all assembly components (motor, transmission kit, etc).

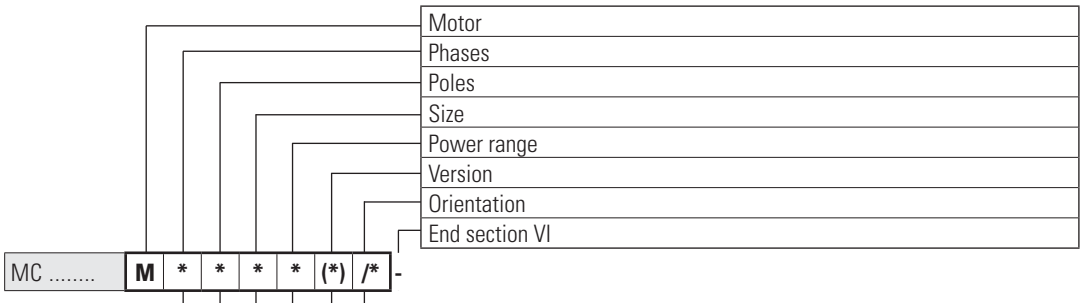
For more details, features and performances DC motors, see catalog Dana code DOC00053.

M	*	**	(*)	*	/*	-	***Motor orientation***

Starting switch and poles position.







*	Phases
M	Monofase
T	Trifase

* Poles
2
4
2
4

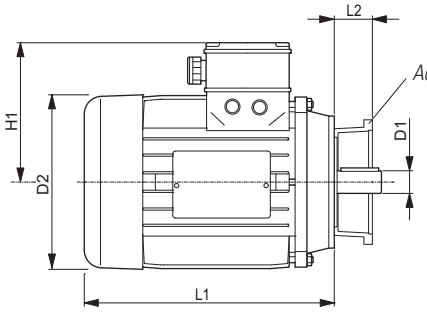
*	Size
L	71
L	71
S	71
S	71
M	80
M	80
N	90
N	90
P	100
L	71
L	71
S	71
M	80
M	80
N	90
N	90
V	90
V	90
P	100
R	63
R	63
L	71
L	71
S	71
S	71
M	80
M	80
T	80
T	80
N	90
N	90
P	100
P	112
R	63
R	63
L	71
L	71
S	71
M	80
M	80
T	80
T	80
T	80
T	80
N	90
N	90
P	100
P	100
P	112

*	Power range		Page
	Power	Voltage	
A	0.37 kW	230 Vac 50 Hz	48
B	0.55 kW	230 Vac 50 Hz	48
A	0.75 kW	230 Vac 50 Hz	50
B	1.10 kW	230 Vac 50 Hz	50
A	0.75 kW	230 Vac 50 Hz	48
B	1.10 kW	230 Vac 50 Hz	48
A	1.50 kW	230 Vac 50 Hz	48
B	2.20 kW	230 Vac 50 Hz	48
A	3.00 kW	230 Vac 50 Hz	48
A	0.25 kW	230 Vac 50 Hz	48
B	0.37 kW	230 Vac 50 Hz	48
C	0.85 kW	230 Vac 50 Hz	50
A	0.55 kW	230 Vac 50 Hz	48
B	0.75 kW	230 Vac 50 Hz	48
A	1.10 kW	230 Vac 50 Hz	48
B	1.50 kW	230 Vac 50 Hz	48
A	1.80 kW	230 Vac 50 Hz	51
B	3.00 kW	230 Vac 50 Hz	51
A	2.20 kW	230 Vac 50 Hz	48
A	0.18 kW	230/400 Vac 50 Hz	49
B	0.25 kW	230/400 Vac 50 Hz	49
A	0.37 kW	230/400 Vac 50 Hz	49
B	0.55 kW	230/400 Vac 50 Hz	49
A	0.75 kW	230/400 Vac 50 Hz	50
B	1.10 kW	230/400 Vac 50 Hz	50
A	0.75 kW	230/400 Vac 50 Hz	49
B	1.10 kW	230/400 Vac 50 Hz	49
A	2.70 kW	230/400 Vac 50 Hz	51
B	2.70 kW	230/400 Vac 50 Hz	51
A	1.50 kW	230/400 Vac 50 Hz	49
B	2.20 kW	230/400 Vac 50 Hz	49
A	3.00 kW	230/400 Vac 50 Hz	49
B	4.00 kW	230/400 Vac 50 Hz	49
A	0.12 kW	230/400 Vac 50 Hz	49
B	0.18 kW	230/400 Vac 50 Hz	49
A	0.25 kW	230/400 Vac 50 Hz	49
B	0.37 kW	230/400 Vac 50 Hz	49
A	0.75 kW	230/400 Vac 50 Hz	50
A	0.55 kW	230/400 Vac 50 Hz	49
B	0.75 kW	230/400 Vac 50 Hz	49
A	2.20 kW	230/400 Vac 50 Hz	51
B	2.20 kW	230/400 Vac 50 Hz	51
C	2.20 kW	230/400 Vac 50 Hz	51
D	3.00 kW	230/400 Vac 50 Hz	51
A	1.10 kW	230/400 Vac 50 Hz	49
B	1.50 kW	230/400 Vac 50 Hz	49
A	2.20 kW	230/400 Vac 50 Hz	49
B	3.00 kW	230/400 Vac 50 Hz	49
C	4.00 kW	230/400 Vac 50 Hz	49

(*) Version	
(1)	Std

/* Orientation		Page
/1 /2 /3 /4	Std	52

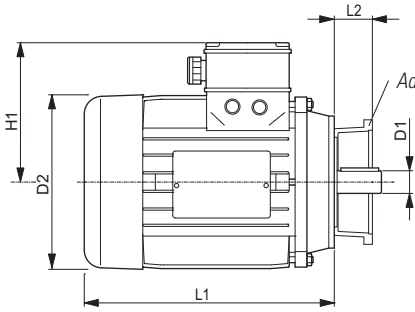
Motors supplied with all assembly components (transmission kit, coupling, etc).



Single-phase motors 2-4 Poles - 230 Vac 50Hz - Version B14

		Phases	Poles	Size	D1 (•)	D2 (•)	H1 (•)	L1 (•)	Power range: Power kW	Power range: Voltage	Power range: IP	Power range: IC	Power range: S1	Cable gland metric thred	Adapter: Code	Adapter: Screw UNI 5931	Adapter: L2	Single Motor	Transmission kit (for pump)
M	**M 2 L A (1)**	2	2	71	14	148	115	208	0.37	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	M12E2000	KIT01008.006 (Gr.05)
M	**M 2 L B (1)**	2	2	71	14	148	115	208	0.55	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	M12F2000	KIT01008.001 (Gr.1)
M	**M 2 M A (1)**	2	2	80	19	170	126	234	0.75	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	M13G2000	KIT01008.005 (Gr.05)
M	**M 2 M B (1)**	2	2	80	19	170	126	234	1.10	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	M13H2000	KIT01008.002 (Gr.1)
M	**M 2 N A (1)**	2	2	90	24	185	142	247	1.50	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	M14L2000	KIT01008.007 (Gr.05)
M	**M 2 N B (1)**	2	2	90	24	185	142	272	2.20	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	M14N2000	KIT01008.003 (Gr.1)
M	**M 2 P A (1)**	2	2	100	28	210	155	310	3.00	230 Vac 50 Hz	54	F	Si	25-32	61001000	M8x28	75	M15P2000	KIT01008.013 (Gr.05) KIT01008.004 (Gr.1)
M	**M 4 L A (1)**	2	4	71	14	148	115	208	0.25	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	M12D4000	KIT01008.006 (Gr.05)
M	**M 4 L B (1)**	2	4	71	14	148	115	208	0.37	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	M12E4000	KIT01008.001 (Gr.1)
M	**M 4 M A (1)**	2	4	80	19	170	126	234	0.55	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	M13F4000	KIT01008.005 (Gr.05)
M	**M 4 M B (1)**	2	4	80	19	170	126	234	0.75	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	M13G4000	KIT01008.002 (Gr.1)
M	**M 4 N A (1)**	2	4	90	24	185	142	247	1.10	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	M14H4000	KIT01008.007 (Gr.05)
M	**M 4 N B (1)**	2	4	90	24	185	142	272	1.50	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	M14L4000	KIT01008.003 (Gr.1)
M	**M 4 P A (1)**	2	4	100	28	210	155	310	2.20	230 Vac 50 Hz	54	F	Si	25-32	61001000	M8x28	75	M15N4000	KIT01008.013 (Gr.05) KIT01008.004 (Gr.1)

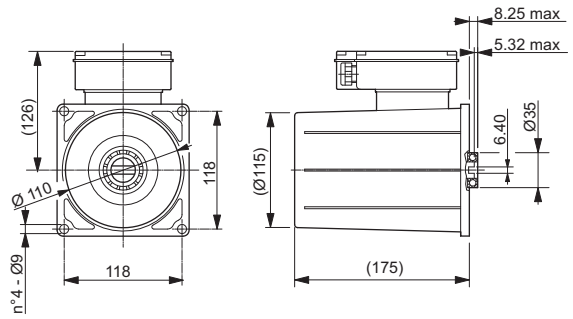
(•)= Approximate dimensions



Three-phase motors 2-4 Poles - 230/400 Vac 50Hz - Version B14

		Phases	Poles	Size	D1 (•)	D2 (•)	H1 (•)	L1 (•)	Power range: Power kW	Power range: Voltage	Power range: IP	Power range: IC	Power range: S3	Cable gland metric thred	Adapter: Code	Adapter: Screw UNI 5931	Adapter: L2	Single Motor	Transmission kit (for pump)
M	T 2 R A (1)	3	2	63	11	125	95	189	0.18	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	M31C2000	KIT01008.008 (Gr.05)
M	T 2 R B (1)	3	2	63	11	125	95	189	0.25	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	M31D2000	KIT01008.014 (Gr.1)
M	T 2 L A (1)	3	2	71	14	148	115	208	0.37	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	M32E2000	KIT01008.006 (Gr.05)
M	T 2 L B (1)	3	2	71	14	148	115	208	0.55	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	M32F2000	KIT01008.001 (Gr.1)
M	T 2 M A (1)	3	2	80	19	170	126	234	0.75	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	M33G2000	KIT01008.005 (Gr.05)
M	T 2 M B (1)	3	2	80	19	170	126	234	1.10	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	M33H2000	KIT01008.002 (Gr.1)
M	T 2 N A (1)	3	2	90	24	185	142	247	1.50	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	M34L2000	KIT01008.007 (Gr.05)
M	T 2 N B (1)	3	2	90	24	185	142	272	2.20	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	M34N2000	KIT01008.003 (Gr.1)
M	T 2 P A (1)	3	2	100	28	210	155	310	3.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M35P2000	KIT01008.013 (Gr.05)
M	T 2 P B (1)	3	2	112	28	225	182	325	4.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M36Q2000	KIT01008.004 (Gr.1)
M	T 4 R A (1)	3	4	63	11	125	95	189	0.12	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	M31B4000	KIT01008.008 (Gr.05)
M	T 4 R B (1)	3	4	63	11	125	95	189	0.18	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	M31C4000	KIT01008.014 (Gr.1)
M	T 4 L A (1)	3	4	71	14	148	115	208	0.25	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	M32D4000	KIT01008.006 (Gr.05)
M	T 4 L B (1)	3	4	71	14	148	115	208	0.37	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	M32E4000	KIT01008.001 (Gr.1)
M	T 4 M A (1)	3	4	80	19	170	126	234	0.55	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	M33F4000	KIT01008.005 (Gr.05)
M	T 4 M B (1)	3	4	80	19	170	126	234	0.75	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	M33G4000	KIT01008.002 (Gr.1)
M	T 4 N A (1)	3	4	90	24	185	142	247	1.10	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	M34H4000	KIT01008.007 (Gr.05)
M	T 4 N B (1)	3	4	90	24	185	142	272	1.50	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	M34L4000	KIT01008.003 (Gr.1)
M	T 4 P A (1)	3	4	100	28	210	155	310	2.20	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M35N4000	KIT01008.013 (Gr.05)
M	T 4 P B (1)	3	4	100	28	210	155	310	3.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M35P4000	KIT01008.004 (Gr.1)
M	T 4 P C (1)	3	4	112	28	225	182	325	4.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M36Q4000	

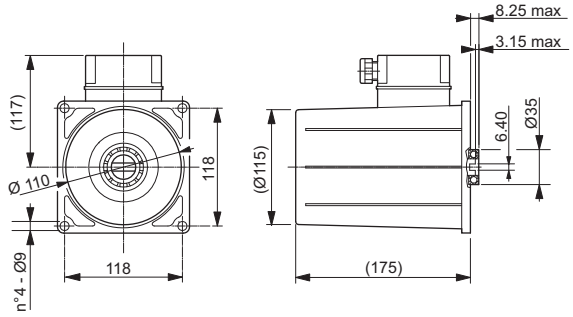
(•)= Approximate dimensions



Single-phase motors 2-4 Poles - 230 Vac 50Hz - Special housing

						Phases	Poles	Size	Power range: Power kW	Power range: Voltage	Power range: IP	Power range: IC	Power range: Service	Cable gland metric thred	Single Motor	Transmission kit	Note
M	**M**	**2**	**S**	**A**	**(1)**	2	2	71	0.75	230 Vac 50 Hz	54	F	Light-duty	20	M12GY3FF.001	KIT01008.126 (per pompe Gr.1) KIT01008.130 (per pompe Gr.0.5)	Without fan
M	**M**	**2**	**S**	**B**	**(1)**	2	2	71	1.10	230 Vac 50 Hz	54	F	Light-duty	20	M12HY3FF.000	KIT01008.126 (per pompe Gr.1) KIT01008.130 (per pompe Gr.0.5)	Without fan
M	**M**	**4**	**S**	**C**	**(1)**	2	4	71	0.85	230 Vac 50 Hz	54	F	Light-duty	20	M12YY3FF.001	KIT01008.126 (per pompe Gr.1) KIT01008.130 (per pompe Gr.0.5)	Without fan

IP protection level becomes effective after installationon on power pack.

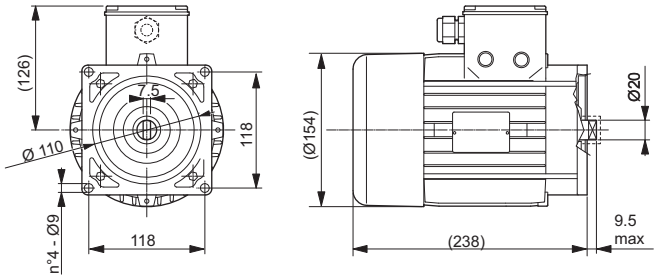


Three-phase motors 2-4 Poles - 230/400 Vac 50Hz - Direct fixing

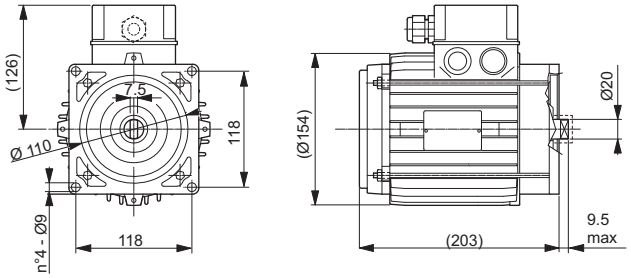
						Phases	Poles	Size	Power range: Power kW	Power range: Voltage	Power range: IP	Power range: IC	Power range: Service	Cable gland metric thred	Single Motor	Transmission kit	Note
M	**T**	**2**	**S**	**A**	**(1)**	3	2	71	0.75	230/400 Vac 50 Hz	54	F	Light-duty	20	M32GY3FL.003	KIT01008.126 (per pompe Gr.1) KIT01008.130 (per pompe Gr.0.5)	Without fan
M	**T**	**2**	**S**	**B**	**(1)**	3	2	71	1.10	230/400 Vac 50 Hz	54	F	Light-duty	20	M32HY3FL.001	KIT01008.126 (per pompe Gr.1) KIT01008.130 (per pompe Gr.0.5)	Without fan
M	**T**	**4**	**S**	**A**	**(1)**	3	4	71	0.75	230/400 Vac 50 Hz	54	F	Light-duty	20	M32GY3FL.002	KIT01008.126 (per pompe Gr.1) KIT01008.130 (per pompe Gr.0.5)	Without fan

IP protection level becomes effective after installationon on power pack.

With fan



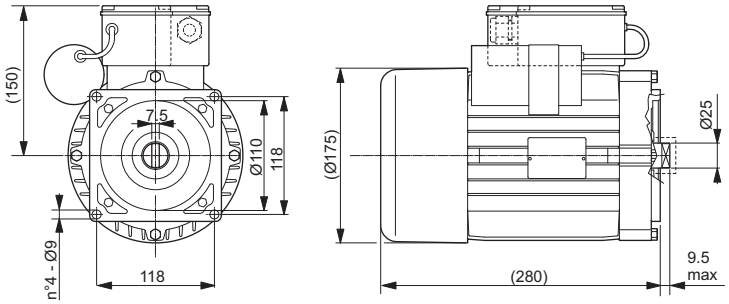
Without fan



Three-phase motors 2-4 Poles - 230/400 Vac 50Hz - Direct fixing

		Phases	Poles	Size	Power range: Power kW	Voltage	IP	IC	Service	Cable gland metric thred	Single Motor	Transmission kit	Note
M	T 2 T A (1)	3	2	80	2.7	230/400 Vac 50 Hz	44	F	Light-duty	20-25	M33YD1FF.000	KIT01008.131 (per pompe Gr.1)	With fan
M	T 2 T B (1)	3	2	80	2.7	230/400 Vac 50 Hz	44	F	Light-duty	20-25	M33YD1FF.001	KIT01008.131 (per pompe Gr.1)	Without fan
M	T 4 T A (1)	3	4	80	2.2	230/400 Vac 50 Hz	44	F	S3 - 4%	20-25	M33NF1FF.001	KIT01008.131 (per pompe Gr.1)	Without fan
M	T 4 T B (1)	3	4	80	2.2	230/400 Vac 50 Hz	55	F	S3 - 4%	20-25	M33NF4FF.000	KIT01008.131 (per pompe Gr.1)	With fan
M	T 4 T C (1)	3	4	80	2.2	230/400 Vac 50 Hz	44	F	S3 - 4%	20-25	M33NF1FF.000	KIT01008.131 (per pompe Gr.1)	With fan
M	T 4 T D (1)	3	4	80	3.0	230/400 Vac 50 Hz	54	F	Light-duty	20-25	M33PF3FF.000	KIT01008.131 (per pompe Gr.1)	With fan

IP protection level becomes effective after installationon on power pack.



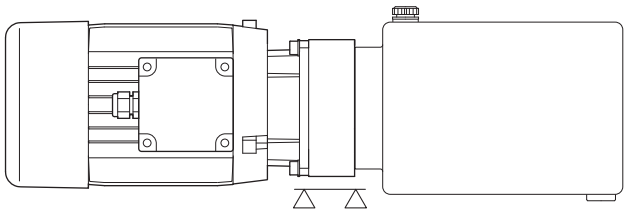
Single-phase motors 4 Poles - 230 Vac 50Hz - Direct fixing

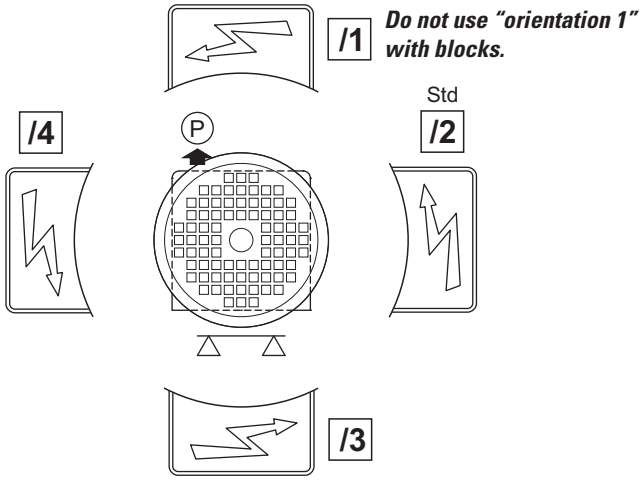
		Phases	Poles	Size	Power range: Power kW	Voltage	IP	IC	Service	Cable gland metric thred	Single Motor	Transmission kit	Note
M	M 4 V A (1)	2	4	90	1.8	230 Vac 50 Hz	44	F	Light-duty	20-25	M14MF1FF.001	KIT01008.131 (per pompe Gr.1)	With fan Start torque 13Nm
M	M 4 V B (1)	2	4	90	3.0	230 Vac 50 Hz	55	F	S3 - 7%	20-25	M14PF4FF.000	KIT01008.131 (per pompe Gr.1)	With fan

IP protection level becomes effective after installationon on power pack.

M	*	*	*	*	(*)	/*	-	***Motor orientation***

Connector box position on power pack.



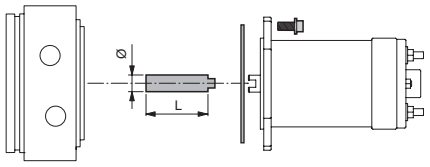


Transmission kit (only for motors on the catalog)	
Type	
End section VII	

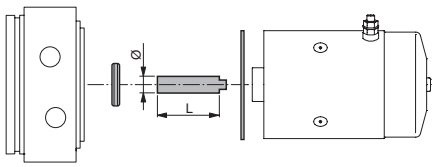
Specify the transmission kit whether you requested the joint and accessories assembly (without motor).

MC ..... **T** ****** -

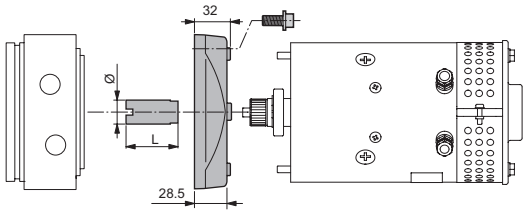
**	Transmission kit Code	Pump	L	Ø	For DC motors
01	KIT08019.027	Gr. 0.5	52.7	14	**GA** (350 W - Ø 80 - Page 42) **GC** (700 W - Ø 80 - Page 42) **GB** (400 W - Ø 80 - Page 42) **GD** (800 W - Ø 80 - Page 42)
	KIT08019.026	Gr. 1	36.6	14	



**	Transmission kit Code	Pump	L	Ø	For DC motors
02	KIT08019.028	Gr. 0.5	53.9	14	**AA** (1500 W - Ø 115 - Page 43) **EN** (1600 W - Ø 115 - Page 43) **AB** (2000 W - Ø 115 - Page 43) **ES** (2200 W - Ø 115 - Page 43) **GN** (1600 W - Ø 115 - Page 44) **GP** (2200 W - Ø 115 - Page 44)
	KIT08019.025	Gr. 1	37.9	14	



**	Transmission kit Code	Pump	L	Ø	For DC motors
03	KIT08019.029	Gr. 1	34.6	20	**GJ** (3000 W - Ø 125 - Page 44) **FB** (3000 W - Ø 125 - Page 44)



Note: in ventilated motors (accessory "D" page 44) the transmission is included in the kit ventilation

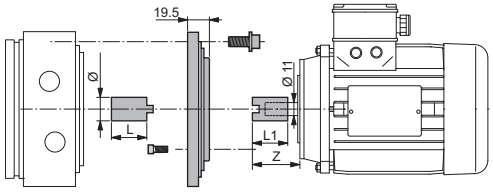
VII

Transmission kit (only for motors on the catalog)
Type
End section VII

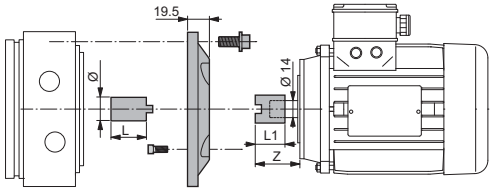
Specify the transmission kit whether you requested the joint and accessories assembly (without motor).

MC ..... | **T** | ****** | -

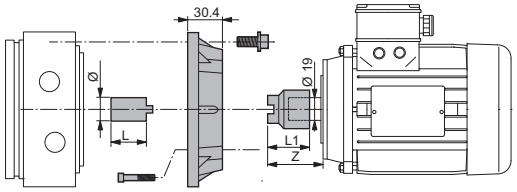
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1R	KIT01008.008	Gr. 0.5	16	14	49.5	62.7	R	63 (B14)	49
	KIT01008.014	Gr. 1	19.5	20	30	42.8			



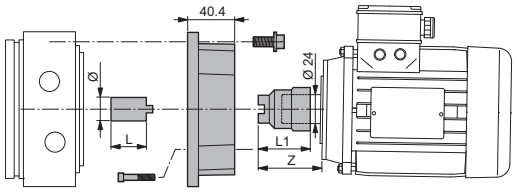
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1L	KIT01008.006	Gr. 0.5	36.1	14	26.5	42	L	71 (B14)	48
	KIT01008.001	Gr. 1	19.5	20	26.5	42			49



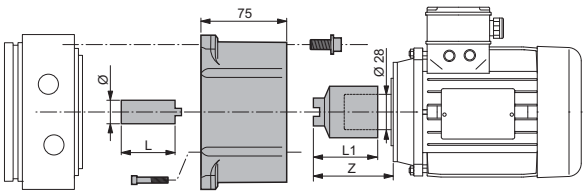
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1M	KIT01008.005	Gr. 0.5	36.1	14	38	53	M	80 (B14)	48
	KIT01008.002	Gr. 1	19.5	20	38	53			49



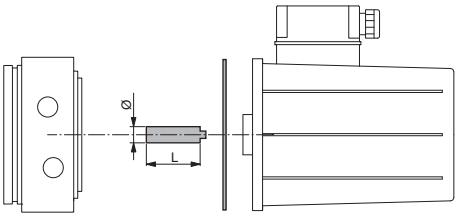
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1N	KIT01008.007	Gr. 0.5	36.1	14	45.5	63	N	90 (B14)	48
	KIT01008.003	Gr. 1	19.5	20	45.5	63			49



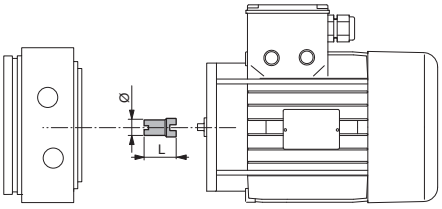
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1P	KIT01008.013	Gr. 0.5	52.7	14	57	81.5	P	100-112 (B14)	48
	KIT01008.004	Gr. 1	36.3	20	57	81.5			49



**	Transmission kit				For AC motors		Page
	Code	Pump	L	Ø	Ref.	Size	
1S	KIT01008.130	Gr. 0.5	53.9	14	S	71 (direct fixing)	50
	KIT01008.126	Gr. 1	37.9	14			



**	Transmission kit				For AC motors		Page
	Code	Pump	L	Ø	Ref.	Size	
1T	KIT01008.131	Gr. 1	41.5	20	T V	80-90 (direct fixing)	51



"Z" : dimension of the coupling side motor

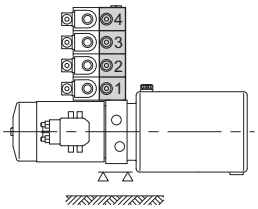
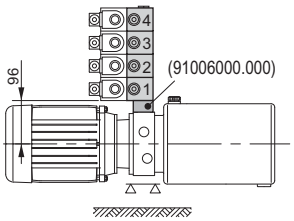
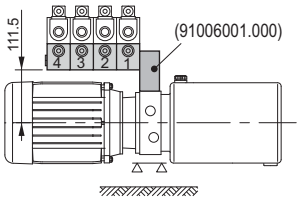
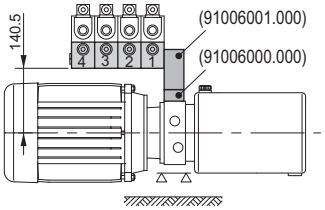
MC ...	**J**	*	**(00)**	-

Standard blocks
Mounting position
Accessory
Separation line

In the order confirmation the code of the "Blocks and CETOP valves" will be converted into a type Jxxxx (xxxx = sequential number).

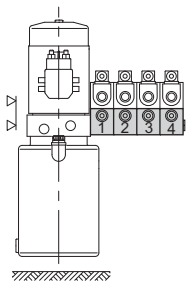
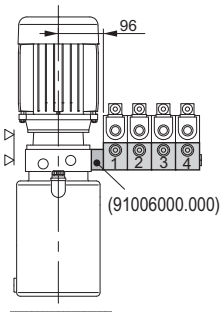
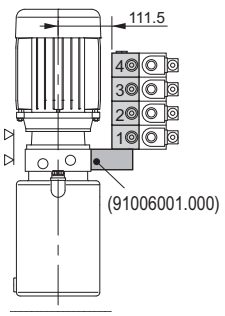
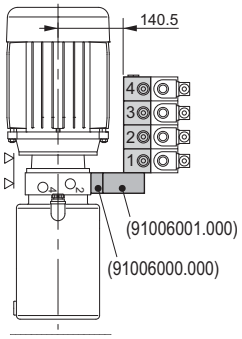
The blocks mounting kit (interface 90°, heighten) is included on the selection code (see "Mounting kits "table page 58).

Blocks mounting on horizontal power pack

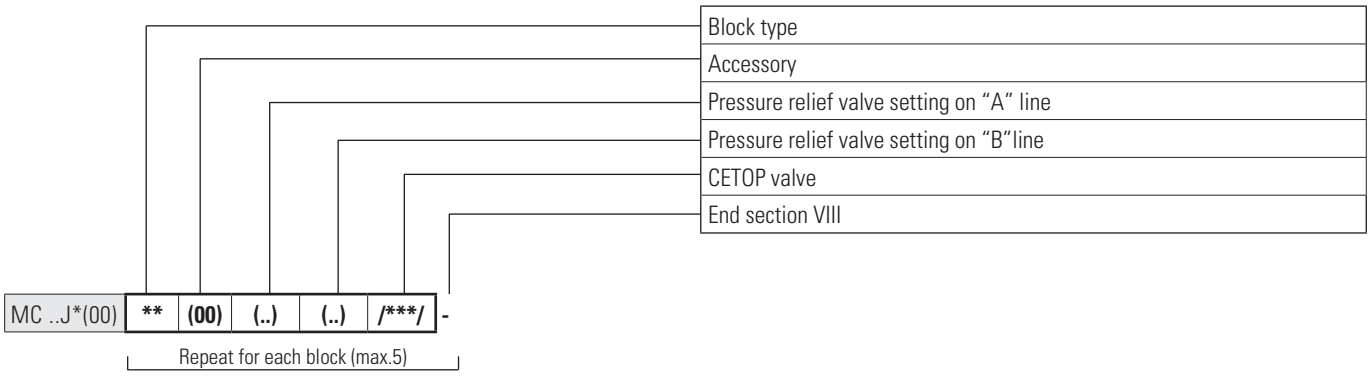
J 0	J A	J B	J C
			
Blocks orthogonal to the axis Except AC motors ref. size M-N-P	**Blocks orthogonal to the axis with heighten** For AC motors ref. size M-N-P	**Blocks parallel to the axis with interface 90°** Except AC motors ref. size P	**Blocks parallel to the axis with heighten and interface 90°** For AC motors ref. size P

The blocks can not be mounted with motors oriented in position "1" (DC motors, see page 46. AC motors, see page 52).

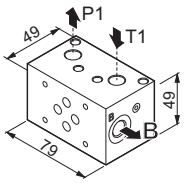
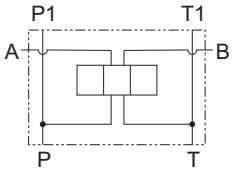
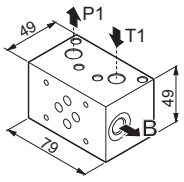
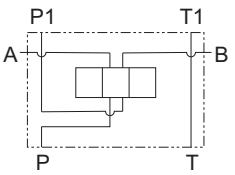
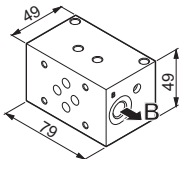
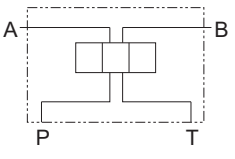
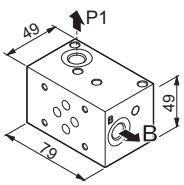
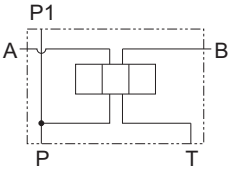
Blocks mounting on vertical power pack

J 0	J A	J B	J C
			
Blocks orthogonal to the axis Except AC motors ref. size M-N-P	**Blocks orthogonal to the axis with heighten** For AC motors ref. size M-N-P	**Blocks parallel to the axis with interface 90°** Except AC motors ref. size P	**Blocks parallel to the axis with heighten and interface 90°** For AC motors ref. size P

The blocks can not be mounted with motors oriented in position "1" - DC motors, see page 46. AC motors, see page 52.

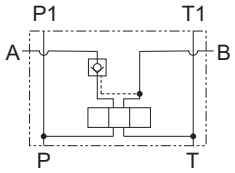
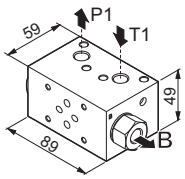
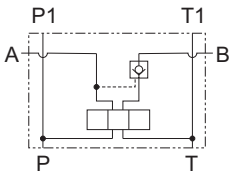
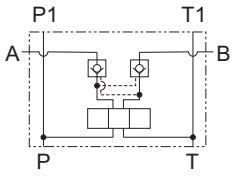
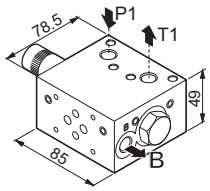
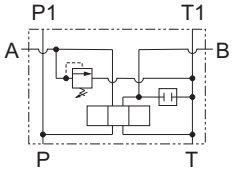
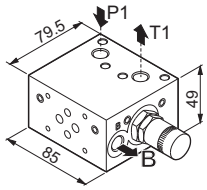
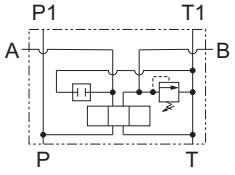
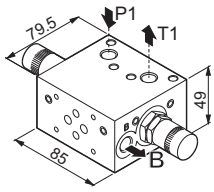
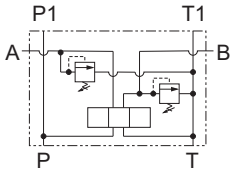
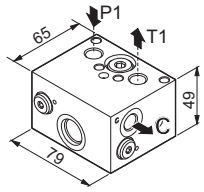
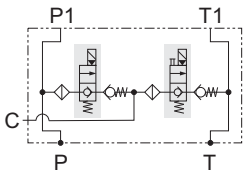
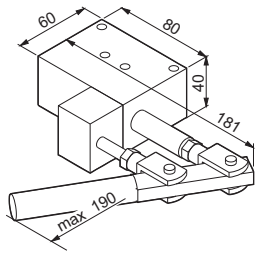
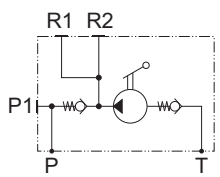


|(00)|(..)|(..)|/*/ - ***Block type***

**	(00)	(..)	(..)	Description	Code	Drawing	Scheme
A1	(00)	**(0)**	**(0)**	Middle parallel - Lateral ports G1/4"	91006002.000		
A2	(00)	**(0)**	**(0)**	Middle parallel - Lateral ports G3/8"	91006003.000		
B1	(00)	**(0)**	**(0)**	Middle series - Lateral ports G1/4"	91006006.000		
B2	(00)	**(0)**	**(0)**	Middle series - Lateral ports G3/8"	91006007.000		
C1	(00)	**(0)**	**(0)**	End - Lateral ports G1/4"	91006004.000		
C2	(00)	**(0)**	**(0)**	End - Lateral ports G3/8"	91006005.000		
D1	(00)	**(0)**	**(0)**	With pressure gauge connection - Lateral ports G1/4"	91006008.000		
D2	(00)	**(0)**	**(0)**	With pressure gauge connection - Lateral ports G3/8"	91006009.000		

VIII

**	(00)	(..)	(..)	/***/	-	***Block type***

**	(00)	(..)	(..)	Description	Code	Drawing	Scheme
E1	(00)	**(0)**	**(0)**	With pilot check valve on "A" port Lateral ports G1/4"	91006010.000		
E2	(00)	**(0)**	**(0)**	With pilot check valve on "B" port Lateral ports G1/4"	91006011.000		
E3	(00)	**(0)**	**(0)**	With pilot check valve on "A" and "B" ports Lateral ports G1/4"	91006012.000		
F1	(00)	**(A)**	**(0)**	With pressure relief valve on "A" port Setting 35 ÷ 90 bar - Lateral ports G1/4"	91006013.000		
		(B)	**(0)**	With pressure relief valve on "A" port Setting 75 ÷ 190 bar - Lateral ports G1/4"	91006014.000		
		(C)	**(0)**	With pressure relief valve on "A" port Setting 160 ÷ 290 bar - Lateral ports G1/4"	91006015.000		
F2	(00)	**(0)**	**(A)**	With pressure relief valve on "B" port Setting 35 ÷ 90 bar - Lateral ports G1/4"	91006016.000		
		(0)	**(B)**	With pressure relief valve on "B" port Setting 75 ÷ 190 bar - Lateral ports G1/4"	91006017.000		
		(0)	**(C)**	With pressure relief valve on "B" port Setting 160 ÷ 290 bar - Lateral ports G1/4"	91006018.000		
F3	(00)	**(A)**	**(A)**	With pressure relief valve on "A" and "B" Setting 35 ÷ 90 bar - Lateral ports G1/4"	91006019.000		
		(B)	**(B)**	With pressure relief valve on "A" and "B" Setting 75 ÷ 190 bar - Lateral ports G1/4"	91006020.000		
		(C)	**(C)**	With pressure relief valve on "A" and "B" Setting 160 ÷ 290 bar - Lateral ports G1/4"	91006021.000		
G1	(00)	**(0)**	**(0)**	Block No.13 (CRP04 valves to be ordered separately, see catalogue code. DOC00044) Lateral ports G1/4"	91006022.000		
K1	(00)	**(0)**	**(0)**	End - Hand pump	91006023.000		

VIII

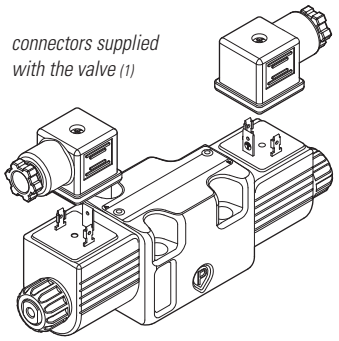
Mounting kits

Mounting kit: blocks	For No. blocks	Code
Mounting position **0-B-C**	1	17070013
	2	17070015
	3	17070017
	4	17070019
Mounting position **A** (with heighten)	1	17070014
	2	17070016
	3	17070018
	4	17070020

Mounting kit: interface 90°	Code
Mounting position **B**	17070022

Mounting kit: interface 90° with heighten	Code
Mounting position **C**	17070023

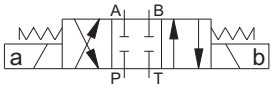
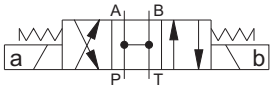
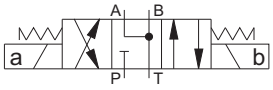
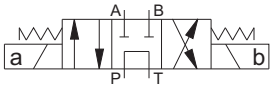
The blocks mounting kit (interface 90°, heighten) is included on the selection code (see mounting position, page 55).



connectors supplied with the valve (1)

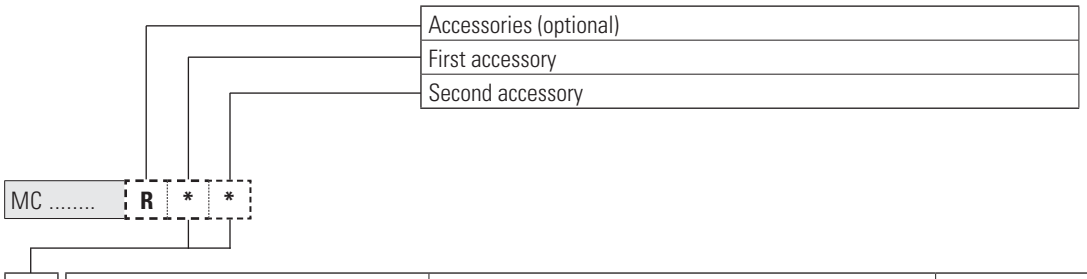
**	(00)	(..)	(..)	/***/	-	***CETOP 3 valves***

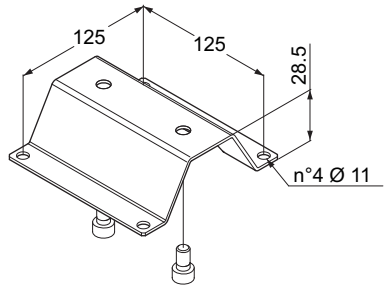
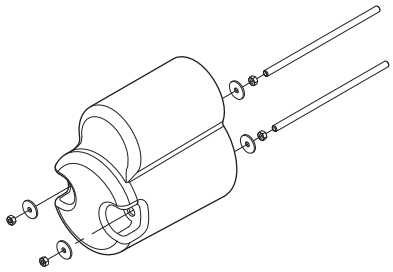
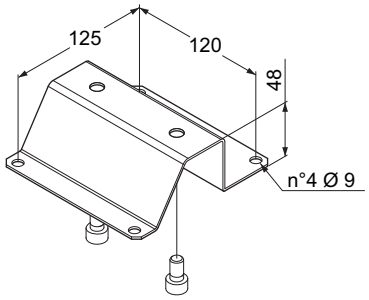
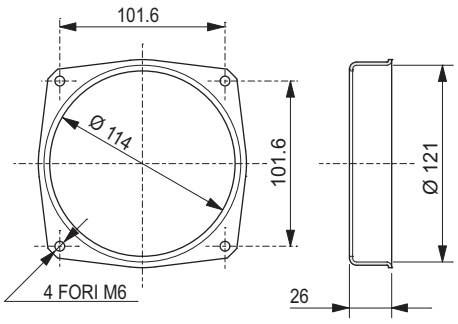
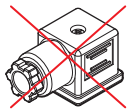
VIII

/***/	Voltage	Code	Spool (2)			Screw kit for valve mounting
			Type	Mounting	Scheme	
/000/	Without valve					
/001/	24 VDC (M)	ADC3E01CM001	01	C		V60513015
/002/	12 VDC (L)	ADC3E01CL001				
/003/	24 VDC (M)	ADC3E02CM001	02	C		
/004/	12 VDC (L)	ADC3E02CL001				
/005/	24 VDC (M)	ADC3E03CM001	03	C		
/006/	12 VDC (L)	ADC3E03CL001				
/007/	24 VDC (M)	ADC3E04CM001	04	C		
/008/	12 VDC (L)	ADC3E04CL001				

1 = Valves supplied with connector. Without connector see accessories page 59

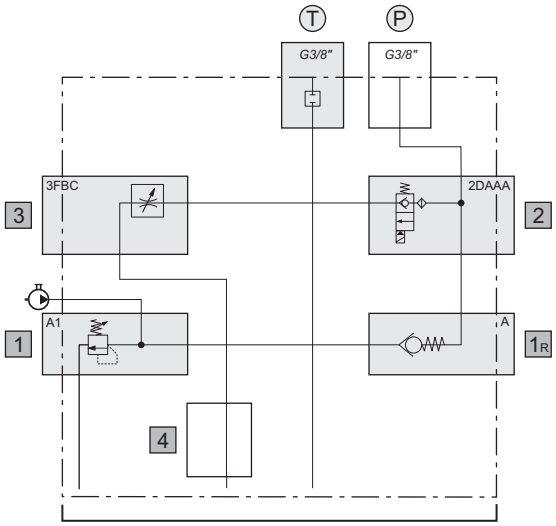
2 = More details, features and performances, see catalog Dana "Valves and Electronics" code DOC00078



*	Description	Drawing	Code	Note
G	Standard foot, (galvanized sheet steel) thickness 2.5 mm (unassembled)		Kit (foot and screws): 17010021	All motors are compatible except orientation / 3 Tanks compatible (except for orientation / 3) S**A S**B S**C S**G S**L
B	Non-removable red plastic plug for pressure relief valve (unassembled)		Plug: 60309200	
C	Protection device for DC motors (supplied assembled)		Kit (protectin, nut, tierods, washers): 17010048	For motors: M2EN M4ES With blocks, please add the block code 91006000.000
D	High foot, (galvanized sheet steel) thickness 2 mm (unassembled)		Kit (foot and screws): 17010053	All motors are compatible except orientation / 3 Tanks compatible (except for orientation / 3) S**A S**B S**C S**D S**F S**G S**L
E	Collar in welded sheet steel, thickness 2 mm (unassembled)		Collar: 25000300 Tank fixing kit (screws and O-Ring): 17010086	
F	Without valves connectors			

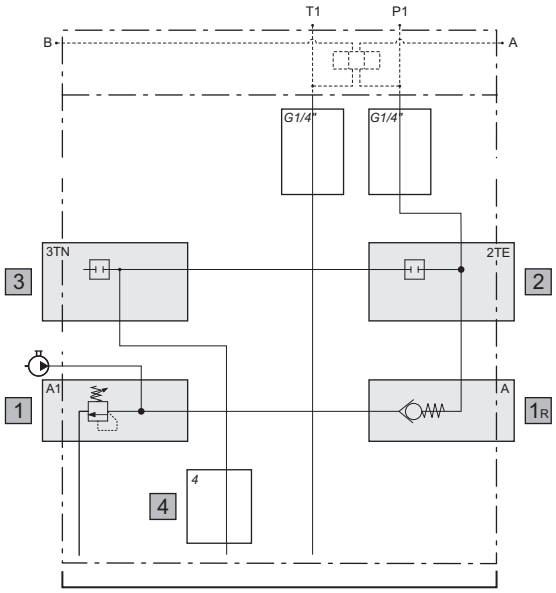
IX

Examples with MCA endhead



MCA	1	A1	A	2DAAA	3FBC	-03	-	..

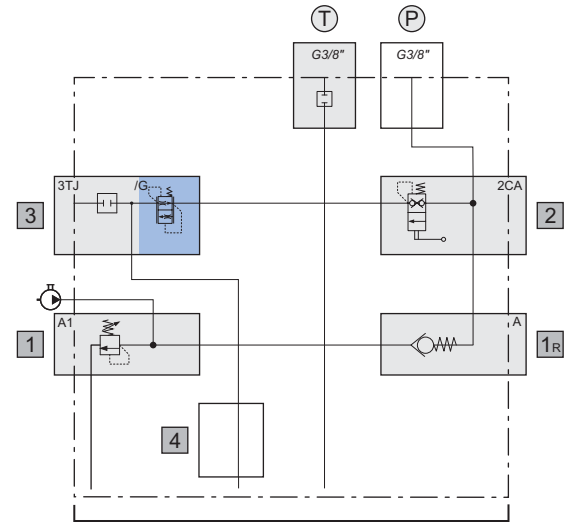
Cavity	Code	Description	Page
-	**1**	Thread ports P-T G3/8"	11
1	**A1**	Pressure relief valve with check valve (15 ÷ 50 bar) with screw and detachable closing, **standard** setting 50 bar	12
1R	**A**	Standard check valve	13
2	**2DAAA**	Piloted solenoid valve normally closed, without emergency. Voltage 12 VDC	15
3	**3FBC**	Unidirectional flow control valve compensated	18
P-T	**-03**	Combinations plugs on ports (P= open ; T= closed)	22
-	**-**	End section	—



MCA	0	A1	A	2TE	3TN	-00	-	..

Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	11
1	**A1**	Pressure relief valve with check valve (15 ÷ 50 bar) with screw and detachable closing, **standard** setting 50 bar	12
1R	**A**	Standard check valve	13
2	**2TE**	Long plug 3/4 16 UNF - G1/4"	16
3	**3TN**	Plug	19
P-T	**-00**	Combinations plugs on ports (P= open ; T= open)	22
-	**-**	End section	—

Examples with MCB endhead



MCB	1	B1(80)	A	2CA	3TJ/G	-03	-	..

Cavity	Code	Description	Page
-	**1**	Thread ports P-T G3/8"	11
1	**B1**	Pressure relief valve with check valve with screw and detachable closing, **special** setting 80 bar	12
1R	**A**	Standard check valve	13
2	**2CA**	Lever operated valve without microswitch	15
3	**3TJ/G**	Plug and flow control valve 4.7 l/min	20
P-T	**-03**	Combinations plugs on ports (P= open ; T= closed)	22
-	**-**	End section	—

DANA

BREVINI®

Motion Systems

FP HYDRAULIC POWER PACK

Technical Catalogue

June

2019

Table of contents

Introduction

The FP series power pack is an easy-to-assemble, compact, electro-hydraulic unit. With its versatility and modularity, it offers many combinations of hydraulic circuits to suit various requirements of plant design. This catalogue has been written to help the user choose the components for the power pack required for the specific application. However, the catalogue cannot foresee all the combinations that may be executed, so in some cases it may be necessary to consult our commercial engineering department.

For applications with very complex circuits, standard modular blocks for Cetop valves and other special blocks can be installed on the power pack, or blocks built to order can be included.

A few applications:

- Fork lifts
- Lifting platforms and beds
- Automotive lifts
- Cranes for small trucks
- Snowplows
- Industrial automation (machine tools, food industry, textile industry)

You can chose from a wide variety of components with the following specifications:

- Gear pumps - Group 0.5 / 1 - from 0.25 to 9.8 cc.
- DC motors, 12/24 V, light-duty service, from 0.35 to 3 Kw
- Single and triple-phase motors with power ratings of up to 4 Kw - in a standard version or built to the customer's specifications (with minimum overall dimensions)
- Tanks in sheet steel with capacities of up to 25 litres
- Tanks in plastic with capacities of up to 10 litres

A fundamental part of the power pack is the endhead, which is made of die-cast aluminum alloy. The parts and dimensions of this component are shown below.

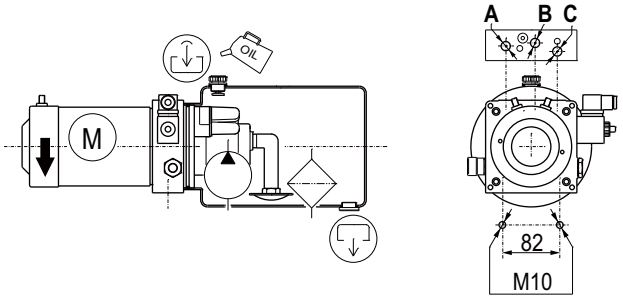
Operating limits

- Intermittent peak pressure: 290 bar (depending on pump type)
- Maximum flow rate: 20 l/min
- Maximum operating temperature:
  - 80°C (with sheet steel tank)
  - 70°C (with polyethylene tank)
  - 60°C (with polypropylene tank)
- Mineral-based hydraulic fluid: ISO 6743-4 (DIN 51524)
  - Minimum viscosity: 12 mm²/s
  - Maximum viscosity: 80 mm²/s
  - Maximum viscosity at start-up: 500 mm²/s
- Minimum ambient temperature -15°C
- Maximum ambient temperature 40°C (with peaks of 50°C)
- The validation of the endhead follows a life-test with 250 bar pulsed pressure repeated for 100.000 cycles

Operating pressure is controlled by the maximum pressure valve and the type of pump used (in terms of performance) may be determined by the maximum pressure valve. Therefore, it is essential not to change the maximum pressure valve. If neccessary, contact our technical service department.

Installation

1) The power pack must be mounted using the M10 holes on the endhead.
2) The power pack must not come into contact with sheet metal, protective guards or any parts that may vibrate and transmit noise.
3) The ports on the endhead have been identified by the letters A-B -C. The hydraulic connection must be made with fittings with cylindrical thread and with copper or rubber sealing gaskets (O-rings).
4) After the electrical connections have been made, check the direction of motor rotation by executing short pulses of 1 second each (max.): the motor must turn anti-clockwise, as shown in the figure.



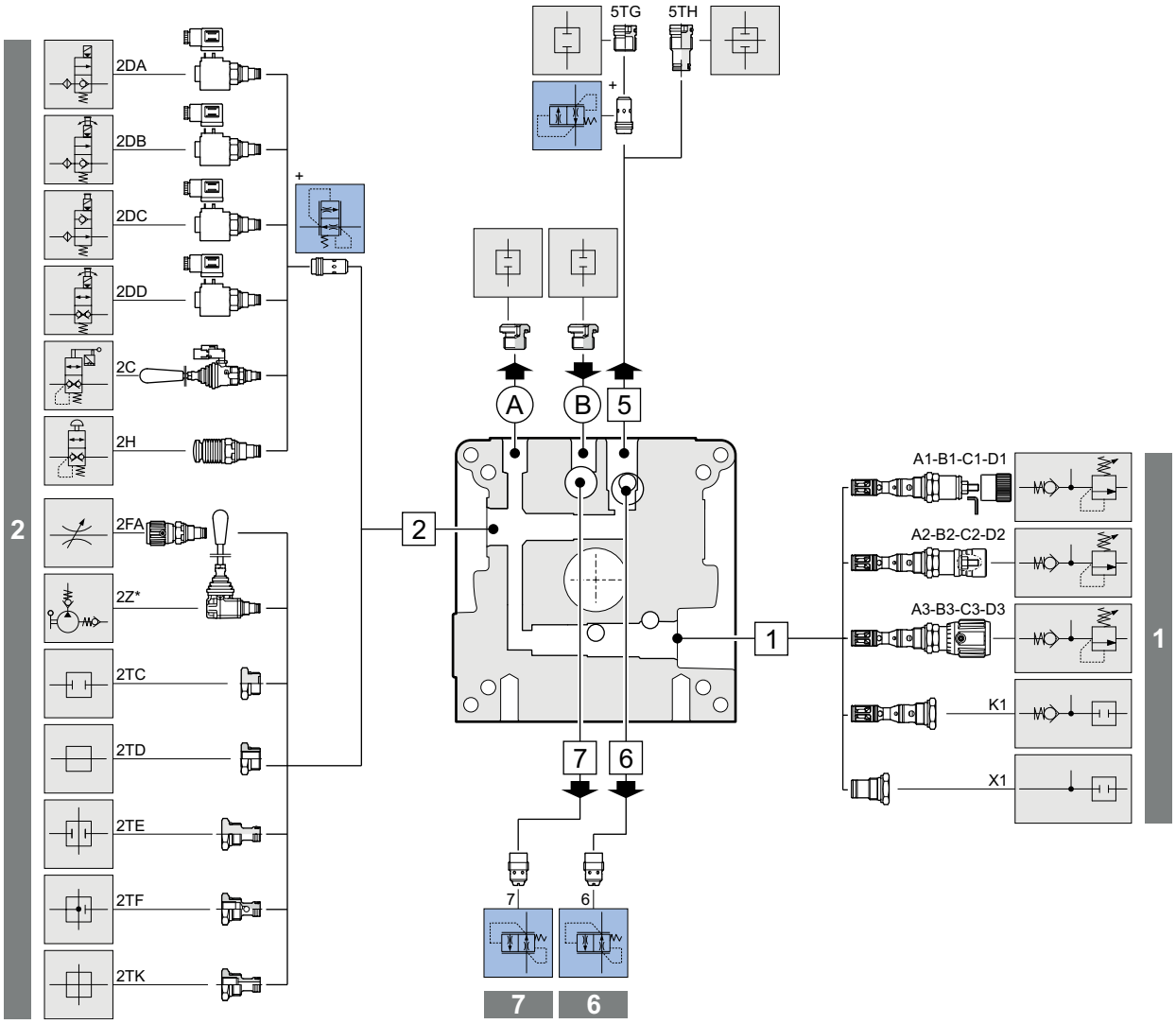
The tank must be filled with new mineral-based, ISO 6743/4 fluid: it is important to filter the fluid while filling the tank.

Symbols used in this catalog:

	Important data/information
	Mounting endhead side
	Ground floor
	Electrical connection boxes on AC motors
	Poles and/or starting relays on DC motors
	Fill plug with breather and level stick
	Fill plug with breather
	Standard plug (closed)
OIL	Standard oil fill plug
	Fill plug with breather
	Fill plug
	Fill plug with check valve
	Fill plug with back check
	Drain plug with magnet
	Plug (or level stick) with visual indicator
	Drain plug
*	Fields to be completed

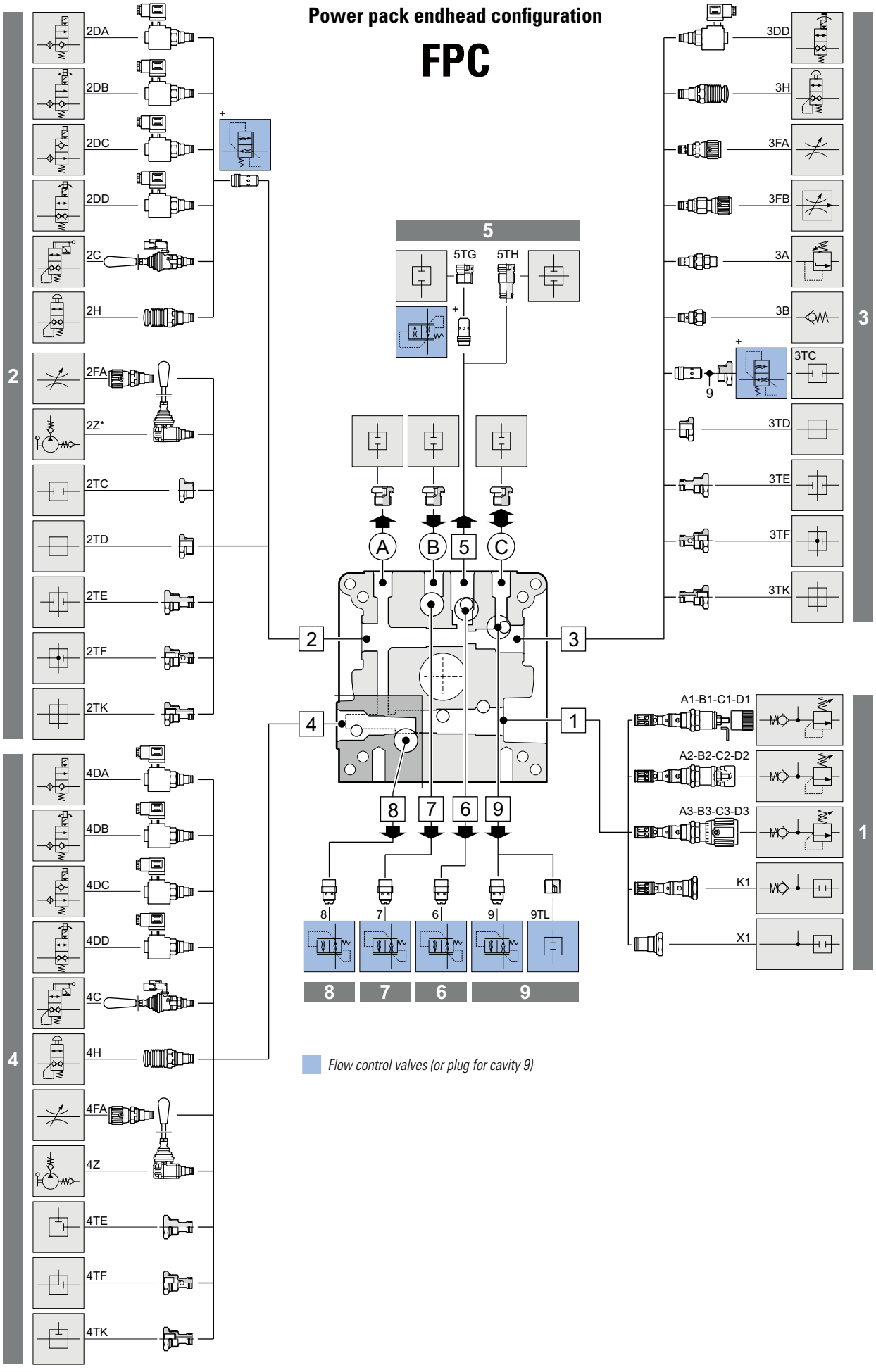
Power pack endhead configuration

FPA



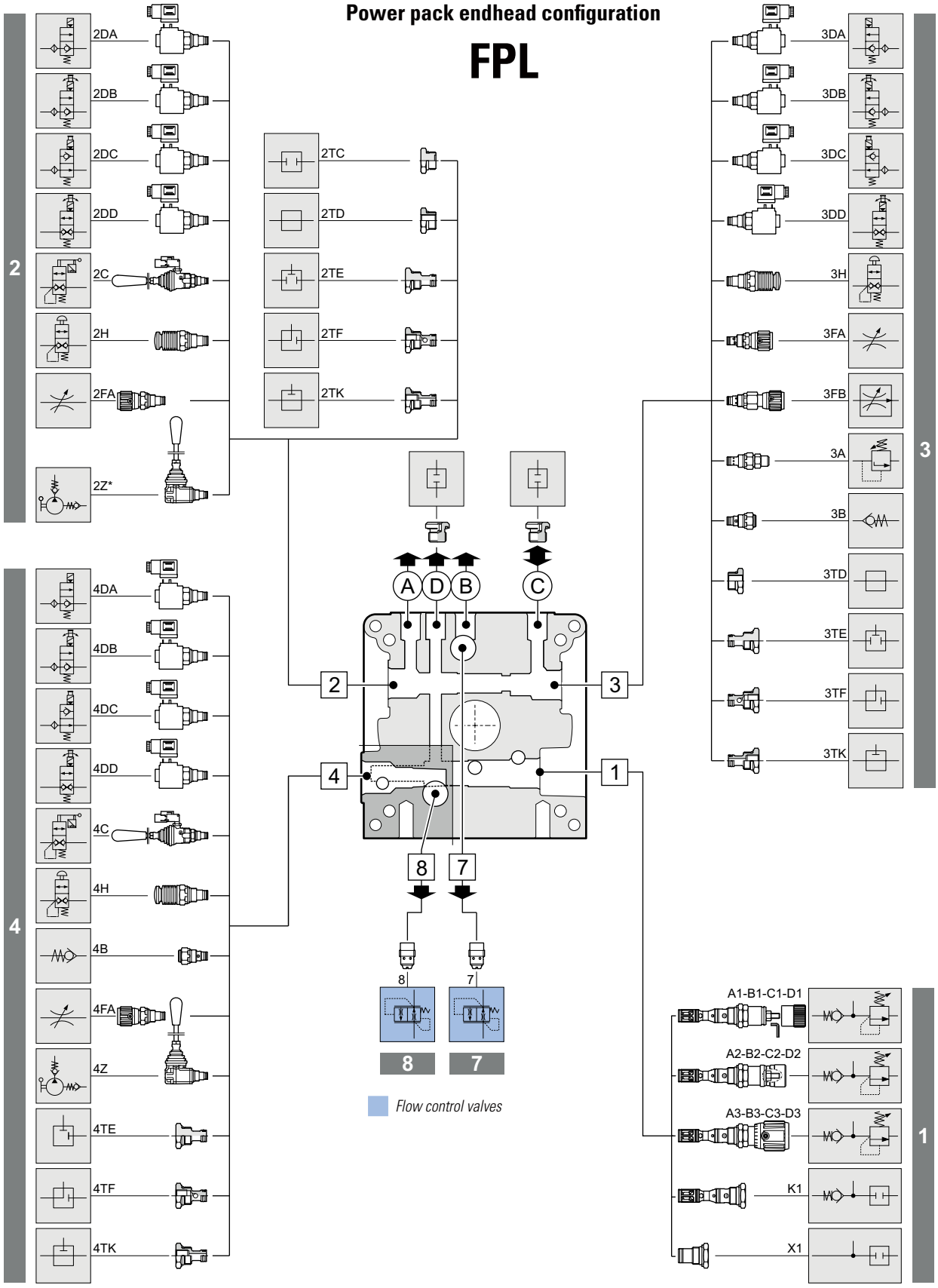
Power pack endhead configuration

FPC



Power pack endhead configuration

FPL

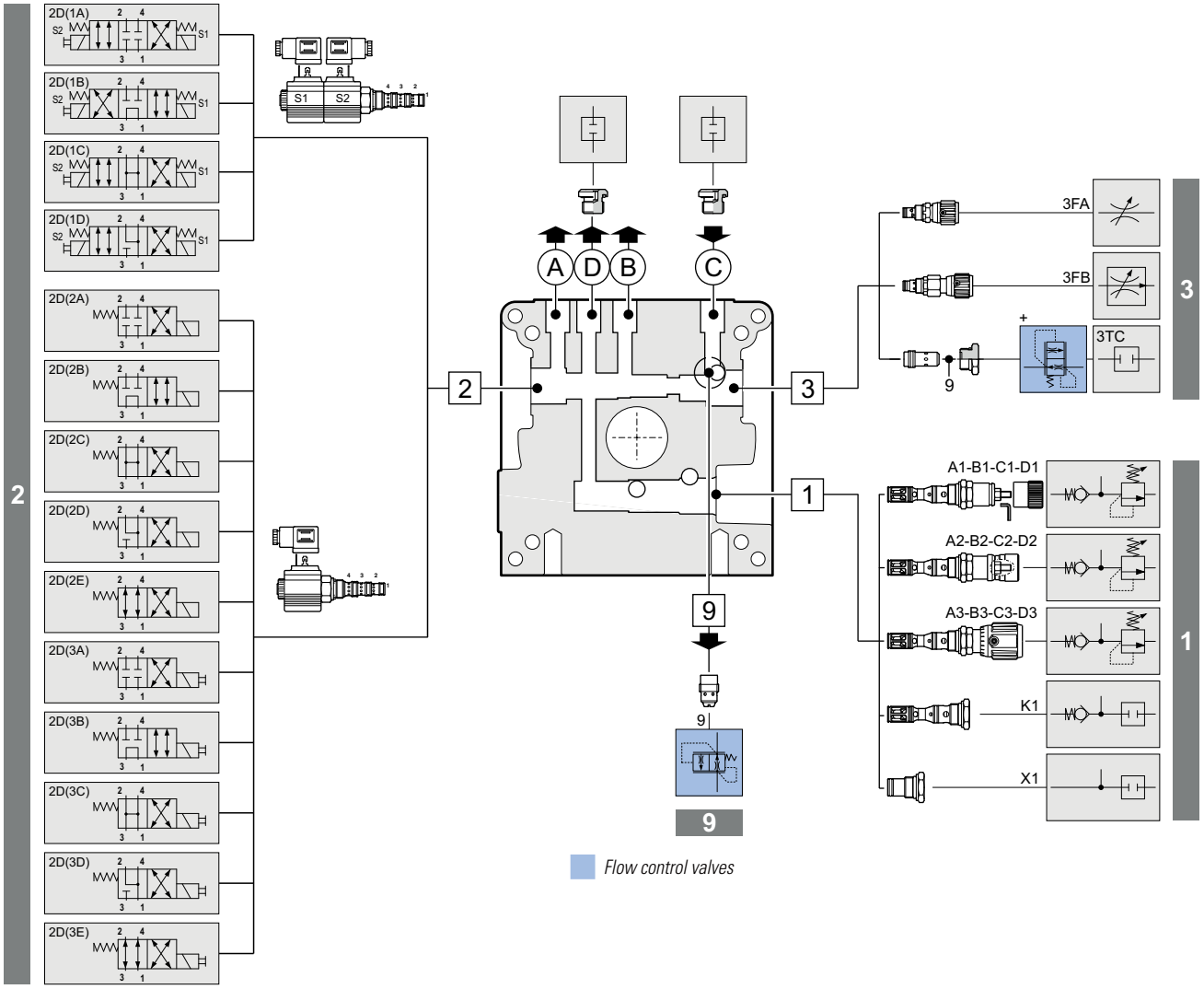


i

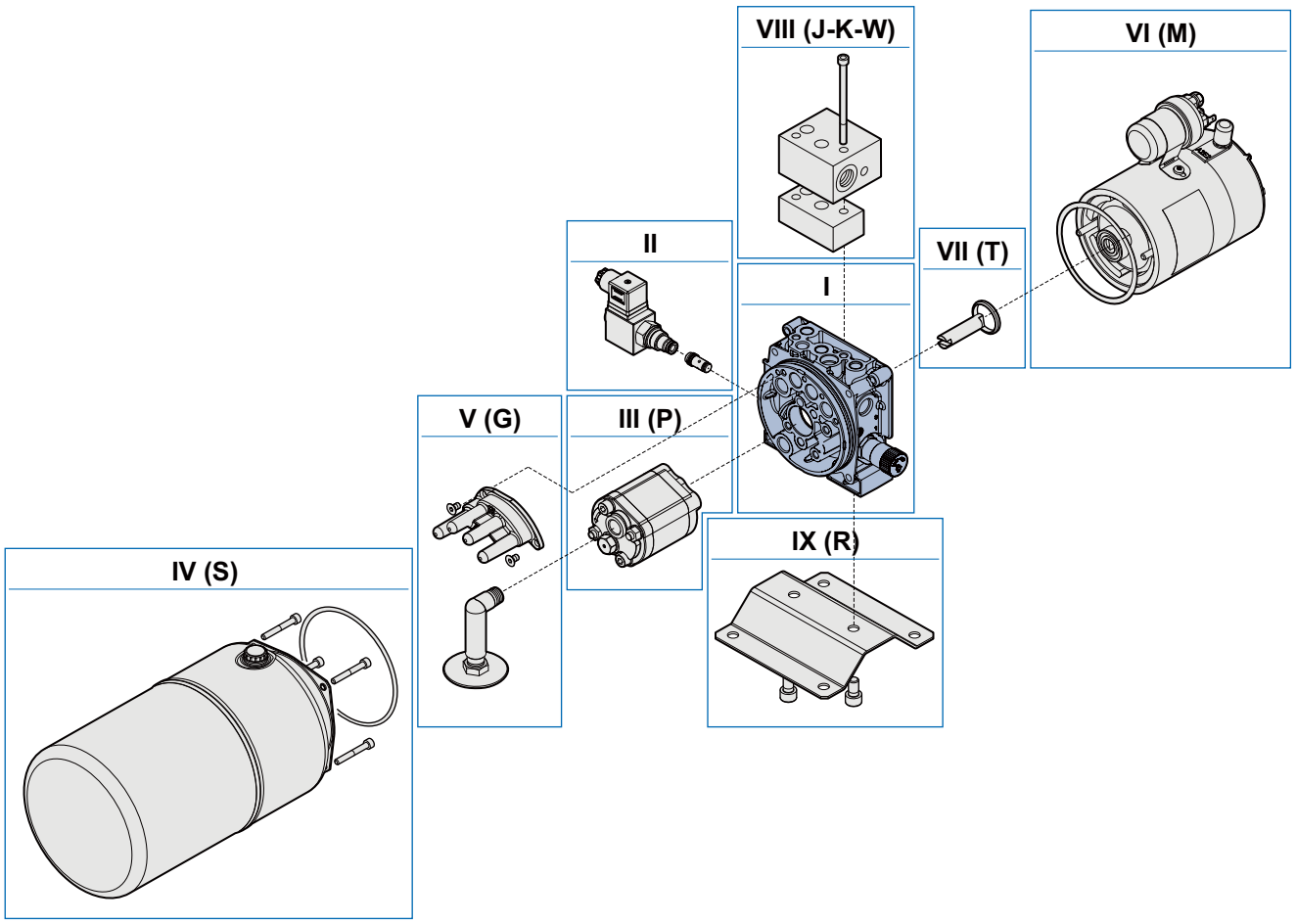
Power pack endhead configuration

FPE

(for directional control valves)



Power pack sections



With its great modularity, the FP series of power packs can create multiple configurations which satisfy requirements in a wide range of applications.
To make it easier to choose components, the power pack is subdivided into sections.

SECTION I - SERIE, FLANGE TYPE, VALVES ON CAVITY 1
FP Series Powerpacks are based on the Flange features.
The Flange is the core of the unit, on the flange are mounted all the valves, the pump, the motor and the reservoir.
The FP Flange is available in several Versions (with different tooling options).
The Flange Version must be chosen depending on the type of Hydraulic Circuit Layout required.
Together with the Flange Version, it is required to select the Valves to be mounted in the Various Cavities.
1 (Main Pressure Relief Valve).

SECTION II - VALVES
Depending on the Type of Hydraulic Circuit Layout to be realized, it is required to Select the Valves for each of the available Cavities.
In order to correctly build up the Ordering Code, it is required to use the following procedure.
Peripheral Cavities (it is mandatory to mention all the Cavities in Numeral Order): starting from Cavity 2, mention all the Cavities and the Valves, Plugs or Fittings to be mounted in said Cavity.
Internal Cavities: normally connected to Tank (It is not mandatory to mention, but if required it should be done in Numeral Order): starting from Cavity 6, mention all the Internal Cavities where a Valve (usually a Return Line Valve) is mounted, Selecting the Valve Type to be mounted in said Cavity.
Outputs, see description in the Table.

SECTION III - PUMPS
It is mandatory to mention this section, defined by the letter P.
Depending on the required features, select the pump from the table provided.

SECTION IV - TANKS
This section is defined by the letter S.
Depending on the required features, select the reservoir from the list provided.
If no Reservoir is required, and also no Suction / Return Kit is required, please omit this section. If no Reservoir is required, but a Suction / Return Kit is required, please jump to Section V (defined by letter G).

SECTION V - TUBES KIT (suction and return, only for tanks on the catalog)
This section is defined by the letter G.
In order to define this Section, please select the Reservoir Type anyways.

SECTION VI - MOTORS
This section is defined by the letter M.
Depending on the Type of Hydraulic Circuit Layout to be realized, it is required to Select the Motor Type. If no Motor is required, and no Transmission Kit is required, please omit this section. If no Motor is required, but a Transmission Kit is required, please jump to Section VII (defined by letter T).

SECTION VII - TRANSMISSION KIT (only for motors on the catalog)
This section is defined by the letter T.
Select the kit as per Table provided.

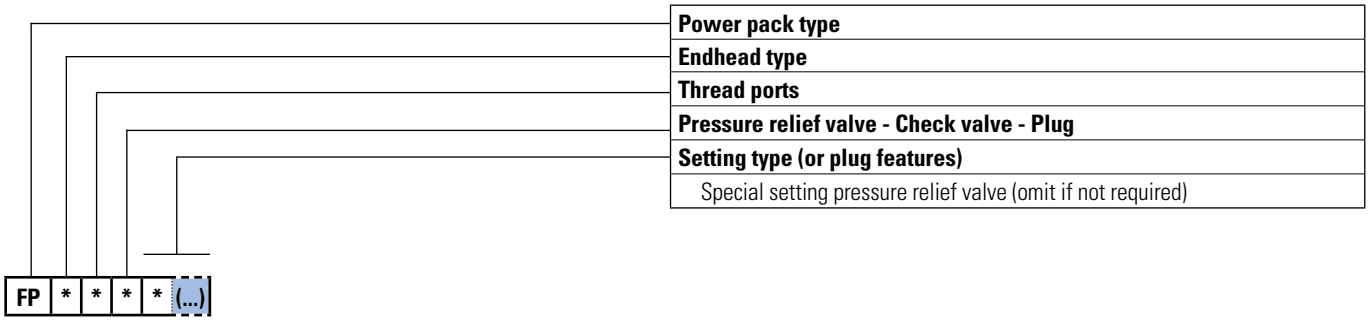
SECTION VIII - BLOCKS
This section it is not mandatory, depending on the Type of auxiliary Block required, definition Letter changes:
J, Blocks with CETOP type of interface for Solenoid Valves;
K, Bankable Valves Interface – Horizontal (Parallel to Unit Axis);
W, Bankable Valves Interface – Vertical (Perpendicular to Unit Axis);

SECTION IX - ACCESSORIES
His section it is not mandatory, is defined by the letter R
Check the available options in the list provided.
Accessories must be listed in Alphabetical Order.

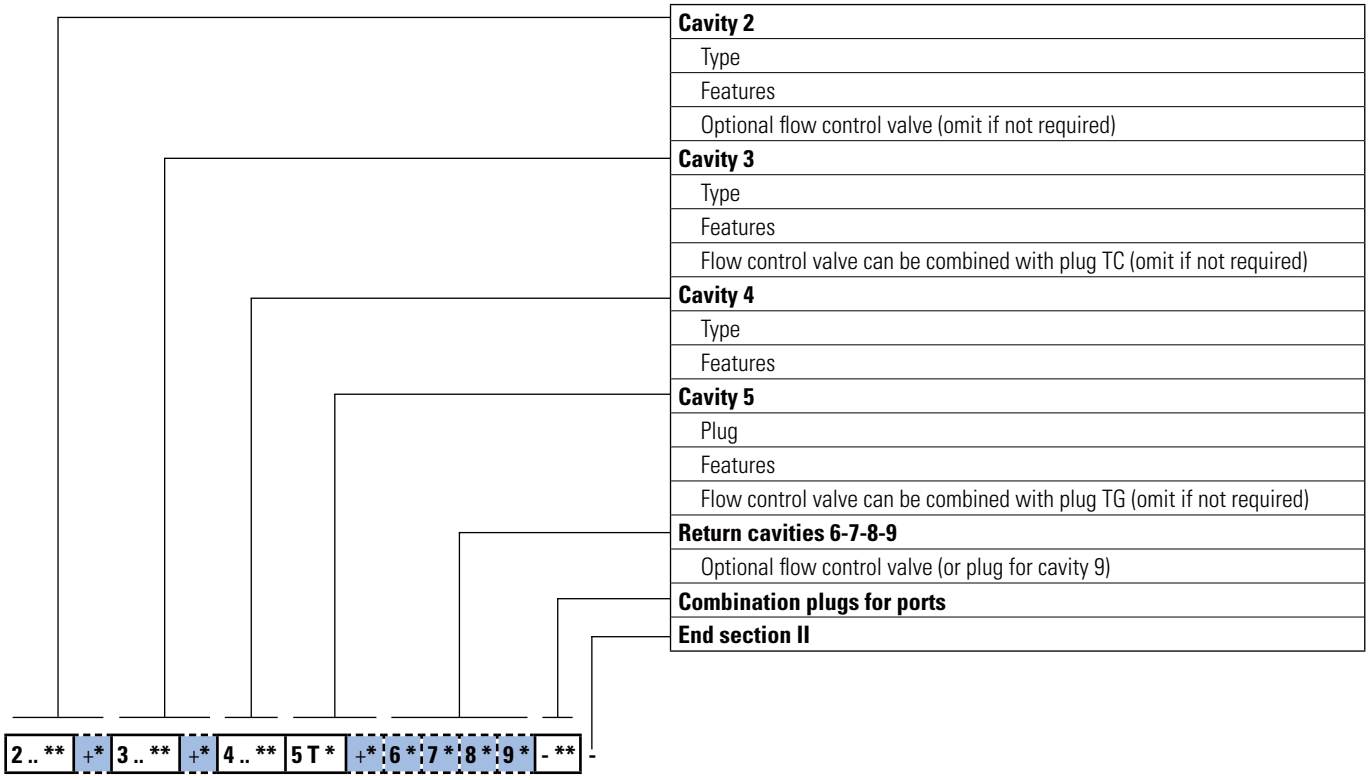
Selection code

i

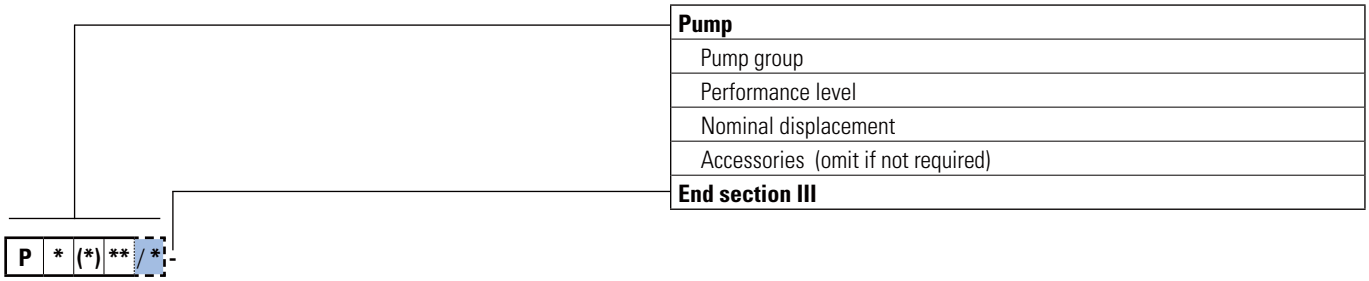
SECTION I - SERIE, ENDHEAD, VALVES ON CAVITY 1



SECTION II - VALVES

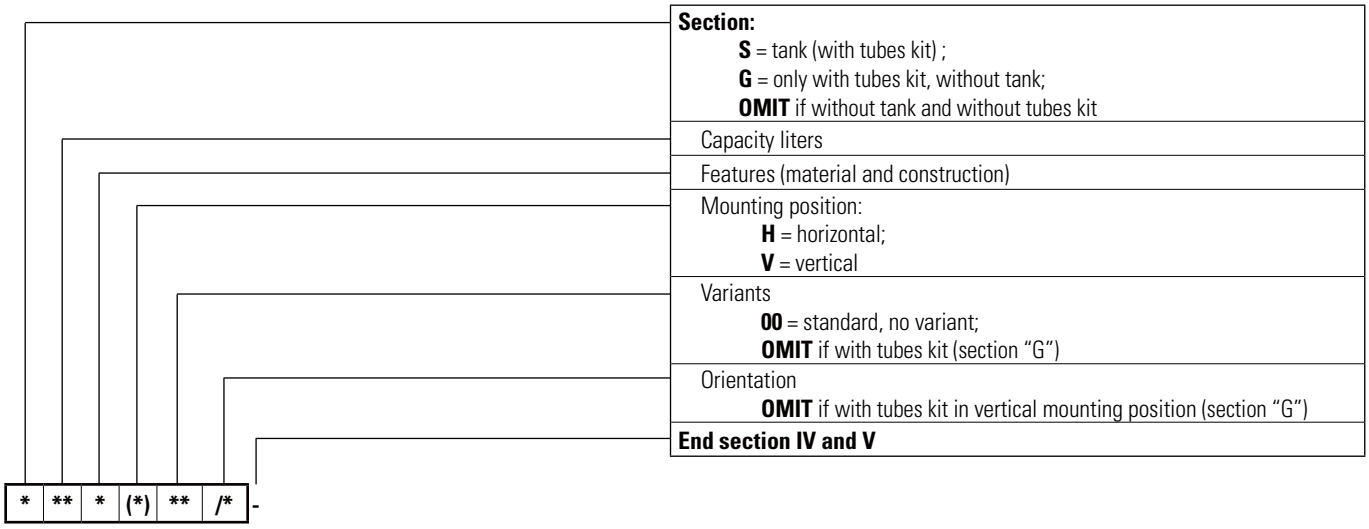


SECTION III - PUMPS

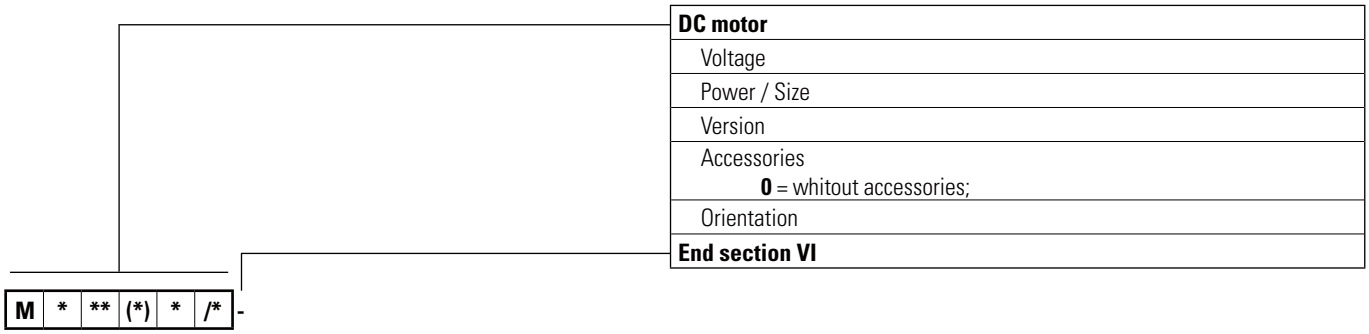


Selection code

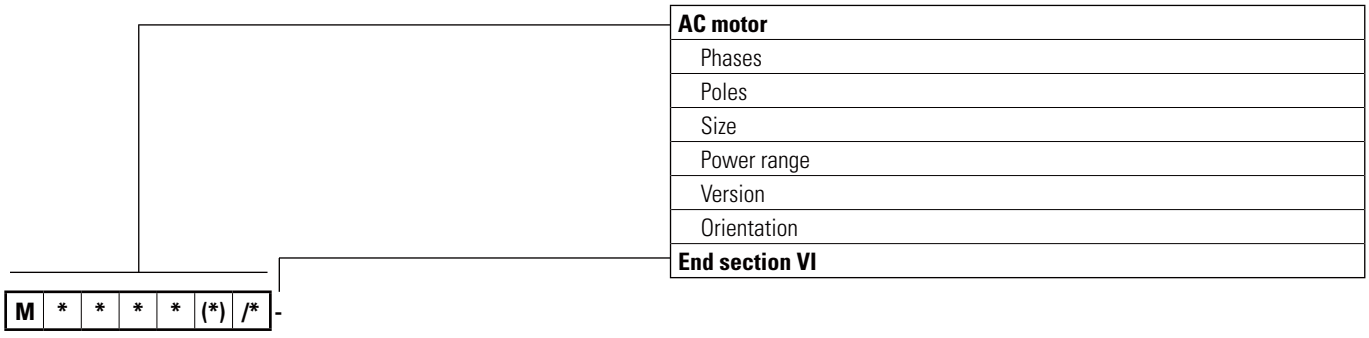
SECTION IV - TANKS / SECTION V - TUBES KIT



SECTION VI - MOTORS



OR ..



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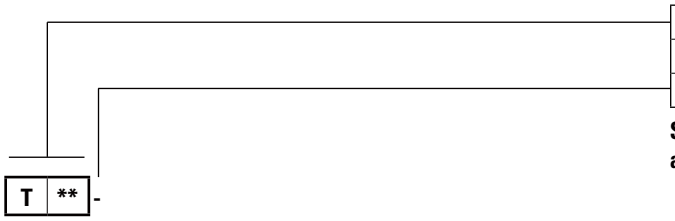
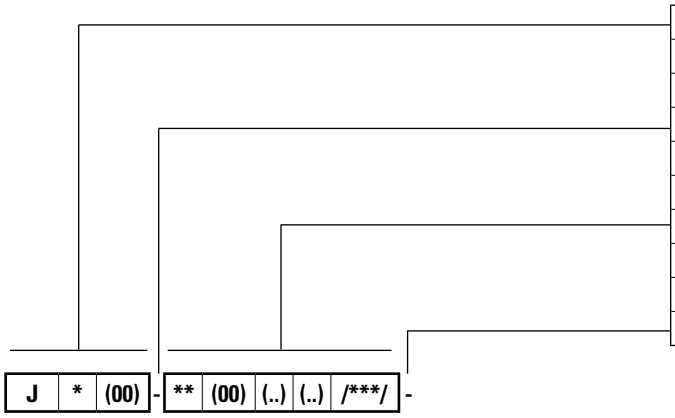
SECTION VII - TRANSMISSION KIT (only for motors on the catalog)



Transmission kit
Type
End section VII

Specify the transmission kit whether you requested the joint and accessories assembly (without motor).

SECTION VIII - BLOCKS



Blocks
Mounting position
Accessory
Separation line
Block type
Accessory
Pressure relief valve setting on “A” line
Pressure relief valve setting on “B” line
CETOP valve
End section VIII

SECTION IX - ACCESSORIES

Accessories (optional)
First accessory
Second accessory

Endhead overall dimensions

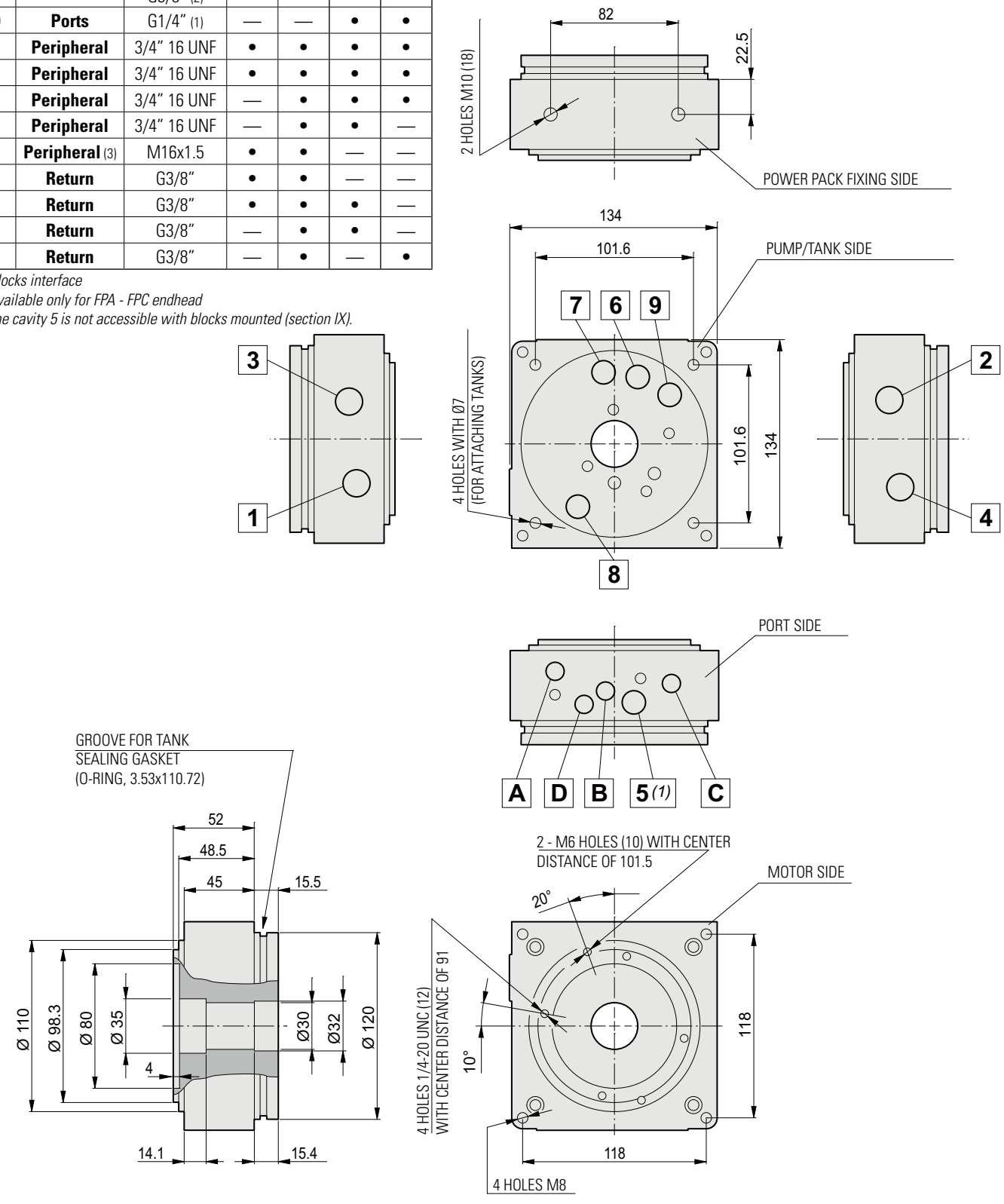
Cavities on endhead:

Cavity		Thread	Endhead type			
			FPA	FPC	FPL	FPE
A	Ports	G1/4" (1) G3/8" (2)	•	•	•	•
B	Ports	G1/4" (1) G3/8" (2)	•	•	•	•
C	Ports	G1/4" (1) G3/8" (2)	—	•	•	•
D	Ports	G1/4" (1)	—	—	•	•
1	Peripheral	3/4" 16 UNF	•	•	•	•
2	Peripheral	3/4" 16 UNF	•	•	•	•
3	Peripheral	3/4" 16 UNF	—	•	•	•
4	Peripheral	3/4" 16 UNF	—	•	•	—
5	Peripheral (3)	M16x1.5	•	•	—	—
6	Return	G3/8"	•	•	—	—
7	Return	G3/8"	•	•	•	—
8	Return	G3/8"	—	•	•	—
9	Return	G3/8"	—	•	—	•

1) blocks interface
2) available only for FPA - FPC endhead
3) the cavity 5 is not accessible with blocks mounted (section IX).

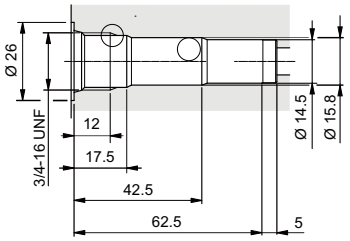
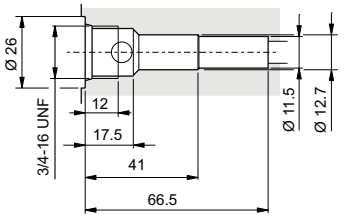
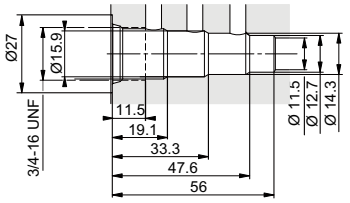
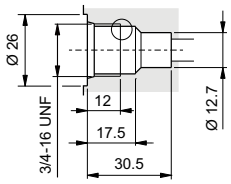
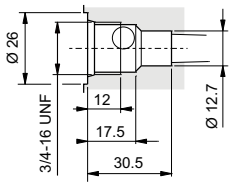
The number of cavities tooled identify the endhead type:

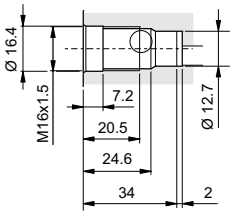
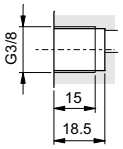
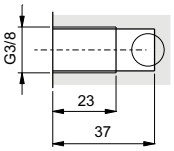
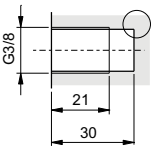
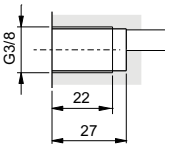
There are three types of cavities:
- **Peripheral cavities**, which can be accessed externally
- **Return cavities**, inside of the tank.
- **Ports**



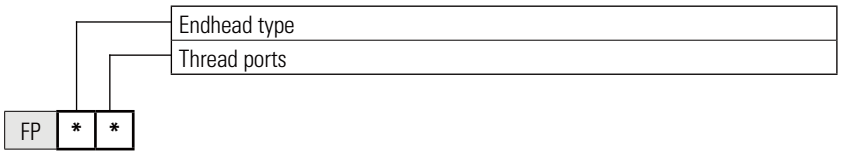
The cavities (1-2-3-4-5) and the ports (A-B-C) are marked on the die-cast endhead. The dimensions on the drawing are the same for all endhead.

Cavities dimensions

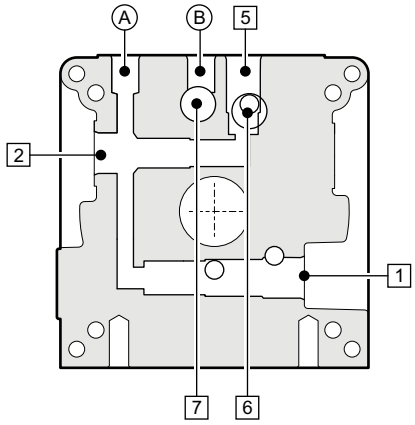
	Cavity	Thread	Drawing
1	**Peripheral**	3/4 16 UNF	CD018013 
2	**Peripheral (FPA-FPC)**	3/4 16 UNF	CD018009 
2	**Peripheral (FPE)**	3/4 16 UNF	CD018001 
3	**Peripheral**	3/4 16 UNF	CD018014 
4	**Peripheral**	3/4 16 UNF	CD018014 

	Cavity	Filettatura	Drawing
5	**Peripheral**	M16 x 1.5	
6	**Return**	G 3/8	
7	**Return**	G 3/8	
8	**Return**	G 3/8	
9	**Return**	G 3/8	

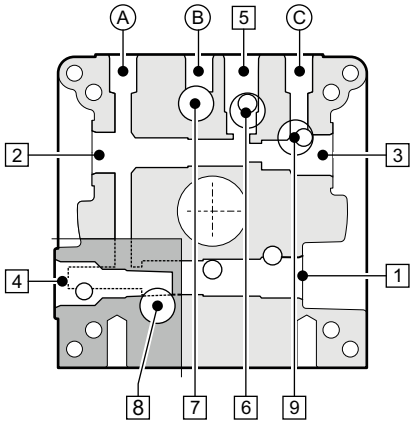
Endhead choice



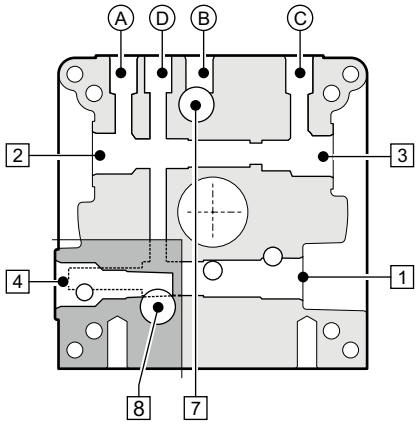
A



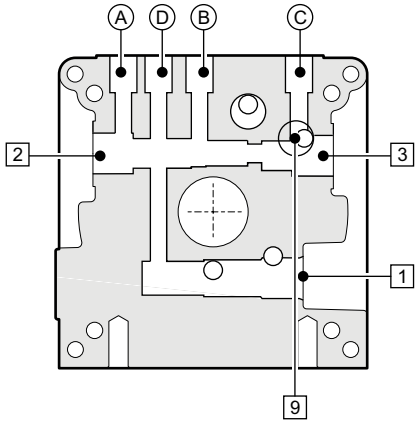
C



L



E



***** ***Endhead type***

*	Ports	Peripheral	Return
A	n. 2 (A - B)	n. 3 (1 - 2 - 5)	n. 2 (6 - 7)
C	n. 3 (A - B - C)	n. 5 (1 - 2 - 3 - 4 - 5)	n. 4 (6 - 7 - 8 - 9)
L	n. 4 (A - B - C - D)	n. 4 (1 - 2 - 3 - 4)	n. 2 (7 - 8)
E	n. 4 (A - B - C - D)	n. 3 (1 - 2 - 3)	n. 1 (9)

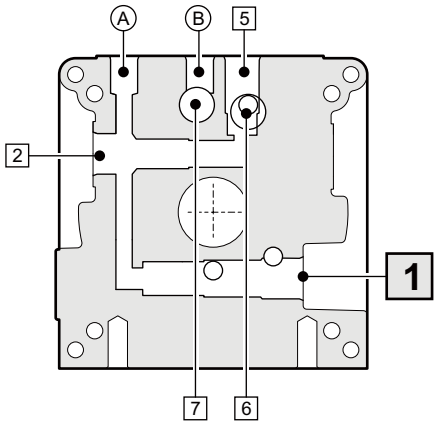
***** ***Thread ports***

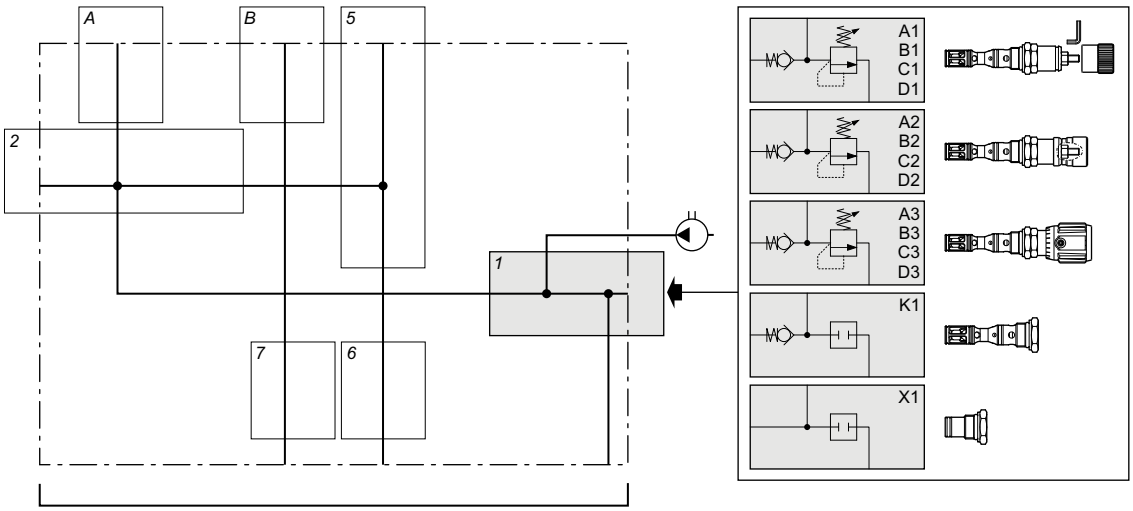
*	Ports thread		Blocks interface
	G1/4"	G3/8"	
0	YES		YES
1		YES	NO

	Endhead codes	
	G1/4"	G3/8"
FPA	78013010.000	78013011.000
FPC	78013014.000	78013015.000
FPL	78013022.000	
FPE	78013016.000	

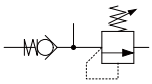
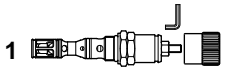
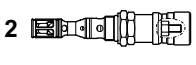
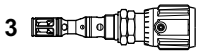
FPA**	*	*	(...)

Pressure relief valve - Check valve - Plug
Setting type (or plug features)
Special setting pressure relief valve (omit if not required)



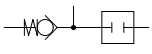


* * (...) *Pressure relief valve with check valve*

*	*	Pressure (bar)	STD setting (bar)	(...) Special setting (bar)	Setting type	Code	Symbol	Drawing
D	1	15 ÷ 50	30	15 ÷ 50 (5 to 5)	Detachable closing	CMPR04S00002		 1
	2				Non removable closing *(1)*	CMPR04P00002		 2
	3				Plastic knob	CMPR04M00002		 3
E	1	35 ÷ 110	50	35 ÷ 110 (5 to 5)	Detachable closing	CMPR04S01002		
	2				Non removable closing *(1)*	CMPR04P01002		
	3				Plastic knob	CMPR04M01002		
F	1	75 ÷ 220	150	75 ÷ 220 (5 to 5)	Detachable closing	CMPR04S02002		
	2				Non removable closing *(1)*	CMPR04P02002		
	3				Plastic knob	CMPR04M02002		
G	1	160 ÷ 290	180	160 ÷ 290 (10 to 10)	Detachable closing	CMPR04S03002		
	2				Non removable closing *(1)*	CMPR04P03002		
	3				Plastic knob	CMPR04M03002		

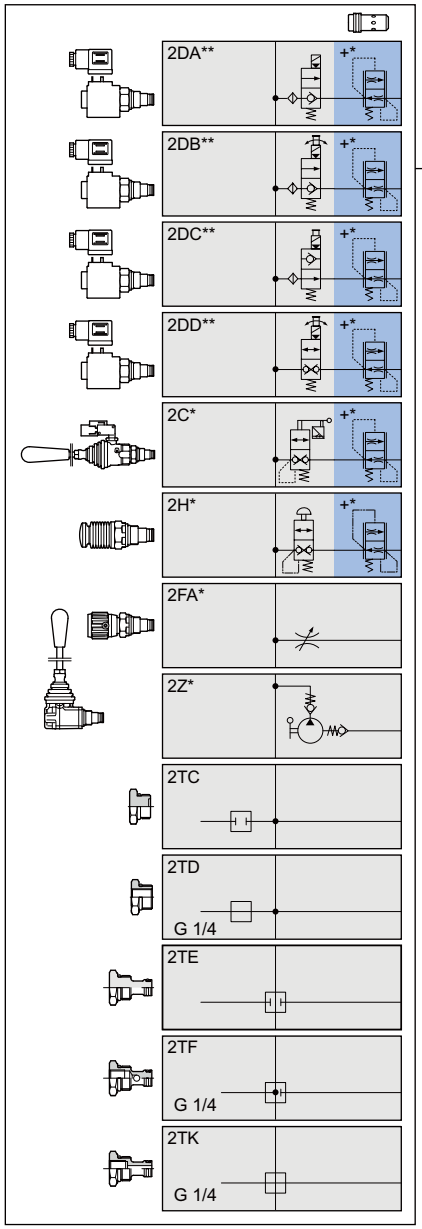
1 = Supplied assembled. Unassembled, see accessories page 89

* * *Check valve and plug*

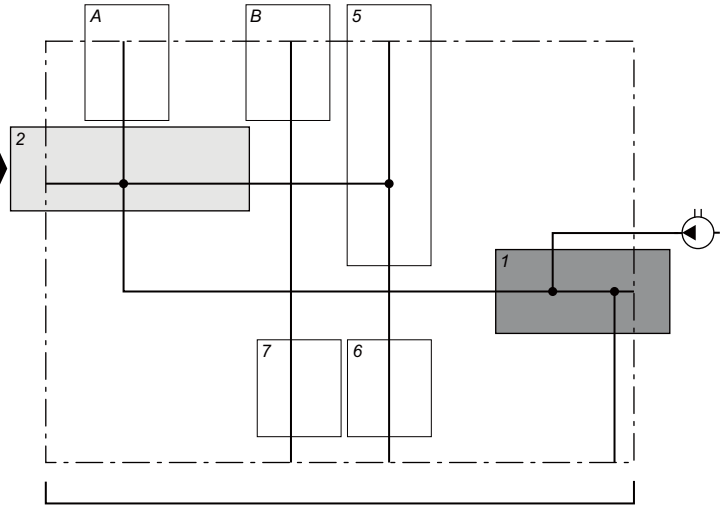
*	*	Description	Code	Symbol	Drawing
K	1	Check valve - Opening pressure 0.5 bar	CRI0400001		
X	1	Plug	R78150100		

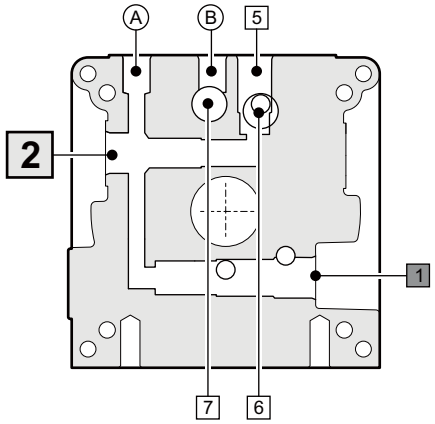
	Cavity
	Type
	Features
	Optional flow control valve (omit if not required)

FPA** | ** (...) | 2 .. ** | +*

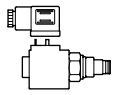


Flow control valves

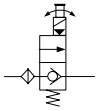
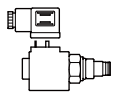




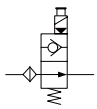
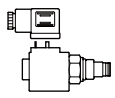
2 DA ** +* *Piloted solenoid valves normally closed, without emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCASL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NCASM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCASA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCASJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCASI003 + V86050002		

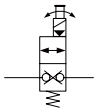
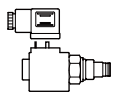
2 DB ** +* *Piloted solenoid valves normally open, with rotary emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCAEL003 + V8605002		
AB	Voltage 24 Vdc	CRP0418NCAEM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCAEA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCAEJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCAEI003 + V86050002		

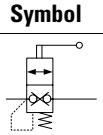
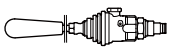
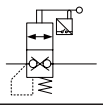
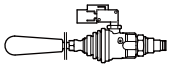
2 DC ** +* *Piloted solenoid valves normally open, with button emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NAAEL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NAAEM003 + V86050002		
AC	Voltage 24 Vac 50/60 Hz (RAC with rectifier)	CRP0418NAAE2003 + V86200002		
AD	Voltage 115 Vac 50 - 120 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEZ003 + V86200002		
AE	Voltage 230 Vac 50 - 240 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEX003 + V86200002		
AF	Voltage 48 Vdc	CRP0418NAAEN003 + V86050002		

2 DD ** +* *Direct operated solenoid valve normally closed, with button emergency* (1)

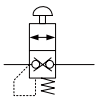
**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

2 C * +* *Lever operated valve*

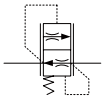
*	Description	Code	Symbol	Drawing
A	Without microswitch	CMF04L001		
B	With microswitch	CMF04M001		

1 = Valves supplied with connector. Without connector see accessories page 89

2 H * +* *Button operated valves*

**	Description	Code	Symbol	Drawing
A	Push-button control	CPE04P000.1		

2 .. ** +* *Flow control valves* (1)

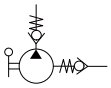
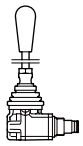
*	Flow	Code	Symbol	Drawing
+B	1.4 l/min	VSC040101		
+C	2.3 l/min	VSC040201		
+E	2.8 l/min	VSC040301		
+G	4.3 l/min	VSC040401		
+J	5.2 l/min	VSC040601		
+L	6.5 l/min	VSC040801		
+N	8.0 l/min	VSC041101		
+Q	11.1 l/min	VSC041601		

(1) The flow control valves can be installed with solenoid valves, with manual controls and with push-button valves.

2 FA * *Bidirectional flow control valves not compensated*

*	Description	Code	Symbol	Drawing
A	Screw adjustment	CSB04C0000		
B	Plastic knob adjustment	CSB04V0000		

2 Z * *Hand pumps*

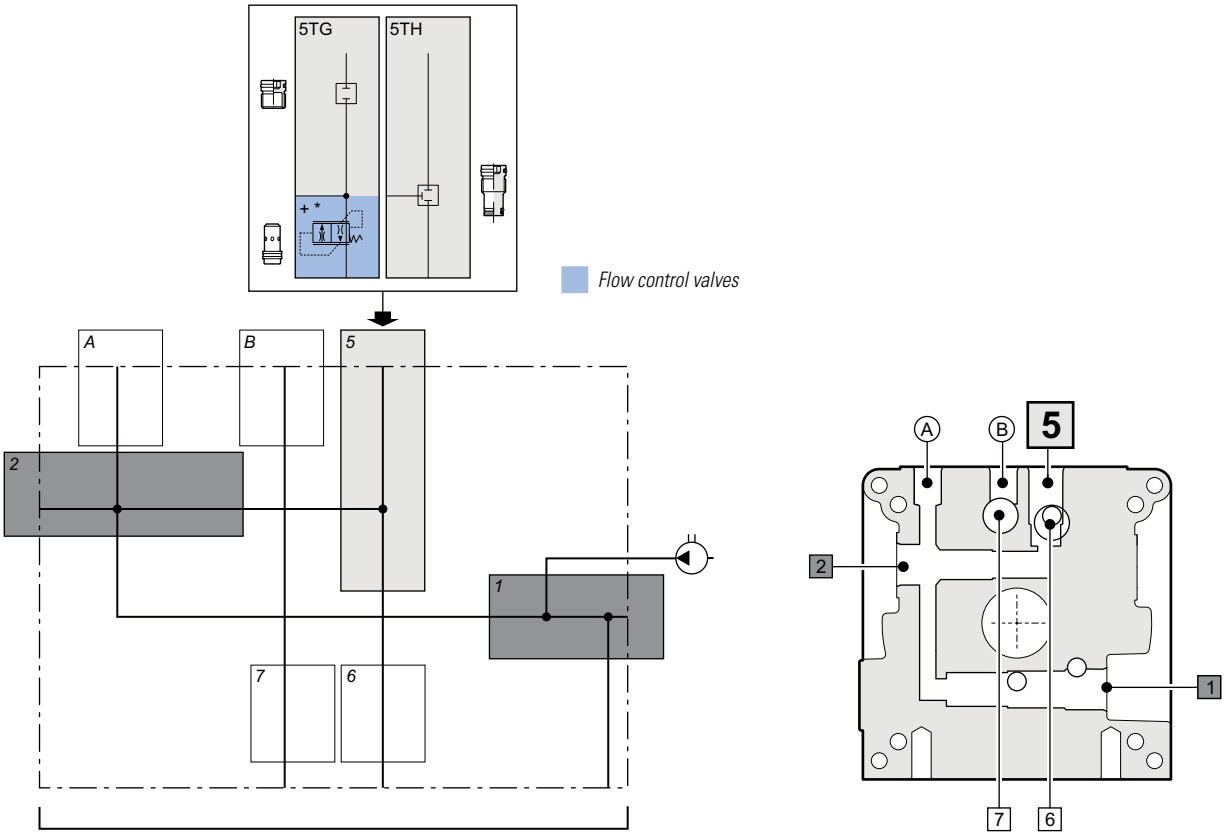
*	Description	Code	Symbol	Drawing
A	Cilindrata 1 cc	CPM0410001		
B	Cilindrata 2 cc	CPM0420001		

2 T * *Plugs and fittings*

*	Description	Code	Symbol	Drawing
C	Plug 3/4 16 UNF	R78150099		
D	Fitting 3/4 16 UNF - G1/4	20001700		
E	Long plug 3/4 16 UNF	20003800		
F	Fitting 3/4 16 UNF - G1/4	20009400		
K	Fitting 3/4 16 UNF DIN - G1/4	20018000		

Peripheral	
Plug	
Features	
Flow control valve can be combined with plug TC	

FPA**	** (...)	2 .. **	+*	5 T *	+*



5 T *	+*

Plugs

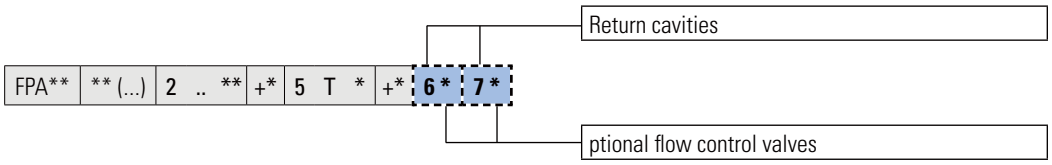
**	Description	Code	Symbol	Drawing
G	Plug M16x1.5 *(1)*	R78150104		
H	Long plug M16x1.5	R78150101		

2 .. **	+*

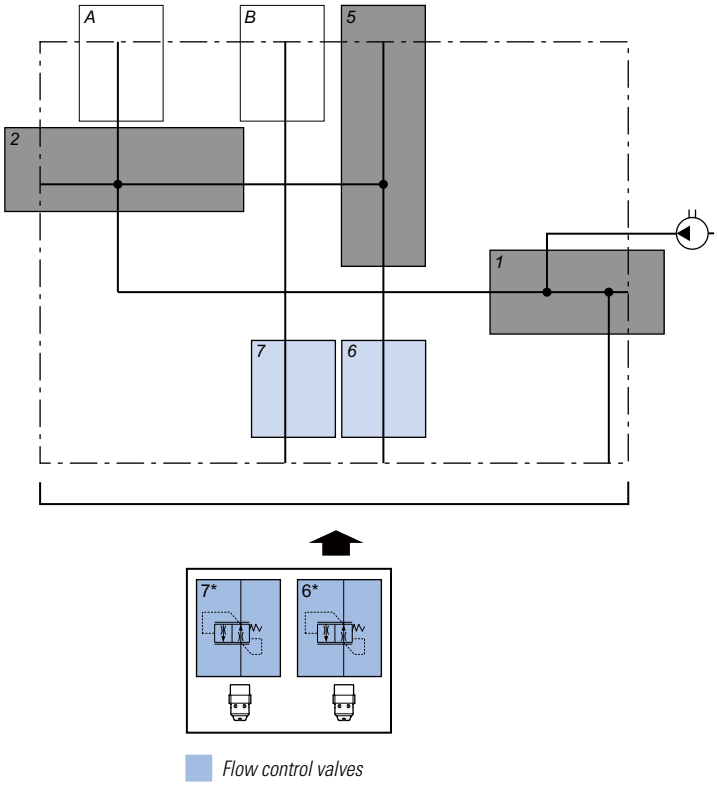
Flow control valves *(1)*

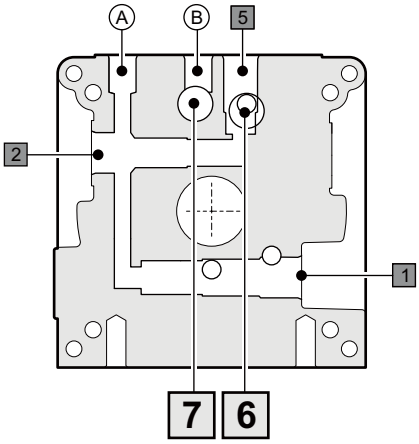
*	Flow	Code	Symbol	Drawing
+B	1.4 l/min	VSC040101		
+C	2.3 l/min	VSC040201		
+E	2.8 l/min	VSC040301		
+G	4.3 l/min	VSC040401		
+J	5.2 l/min	VSC040601		
+L	6.5 l/min	VSC040801		
+N	8.0 l/min	VSC041101		
+Q	11.1 l/min	VSC041601		

(1) Flow control valves can be combined with plug TG.

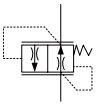


Return cavity, omit if not required flow control valves



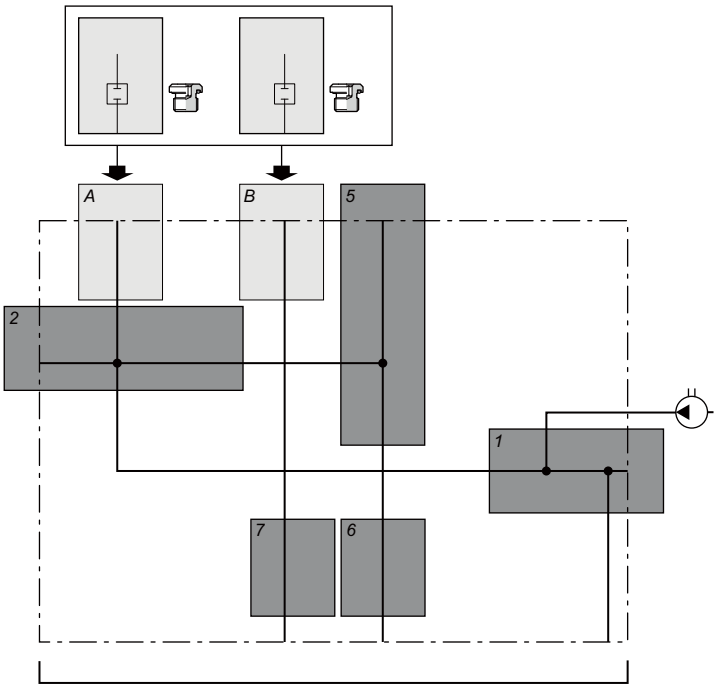


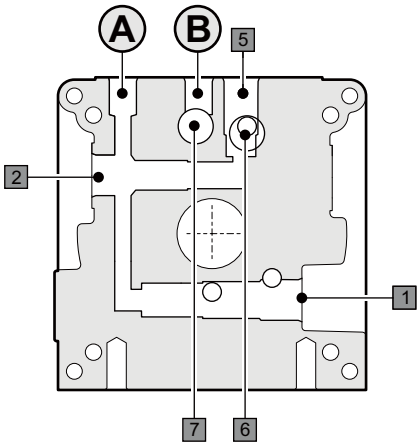
6 * 7 ***Flow control valves for return cavities"6-7"***

*	Nominal flow at 120 bar	Code	Symbol	Drawing
A	0.7 l/min	VSC06100002		
B	1.1 l/min	VSC06120002		
C	2.1 l/min	VSC06130002		
E	3.2 l/min	VSC06150002		
G	4.7 l/min	VSC06190002		
K	6.3 l/min	VSC06220002		
N	7.5 l/min	VSC06240002		
Q	10.0 l/min	VSC06280002		
U	13.2 l/min	VSC06330002		
V	15.7 l/min	VSC06350002		

FPA**	** (...)	2 .. **	+*	5 T *	+*	6 *	7 *	-**	-

Possible combinations plugs on ports
End section II





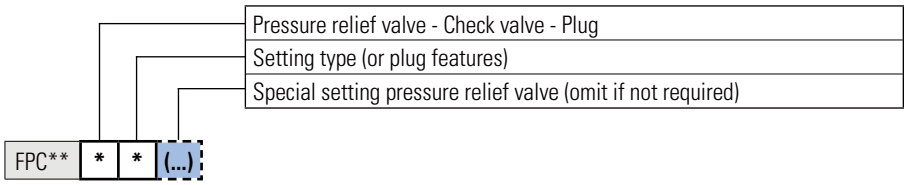
-** ***Combinations plugs on ports A-B***

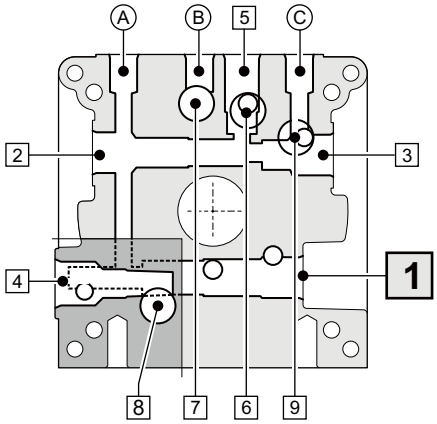
-**	P	T
-00	↑	↑
-02	⊗	↑
-03	↑	⊗
-06	⊗	⊗

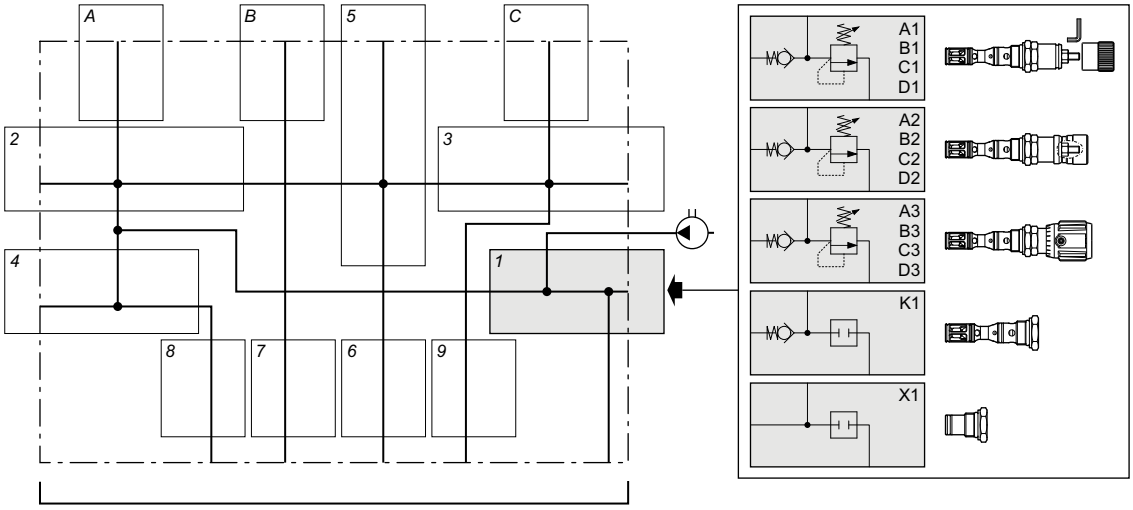
Combination -00 to use with the standard blocks (page 85)

Symbols description

Type	Description	Thread	Code	Symbol	Drawing
⊗	Port closed with plug	G 1/4"	20024000		
		G 3/8"	Q26622255 (plug whith OR)		
↑	Port open		—	—	—







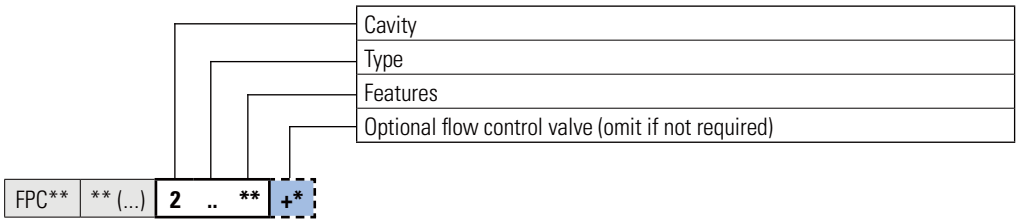
* * (...) *Pressure relief valve with check valve*

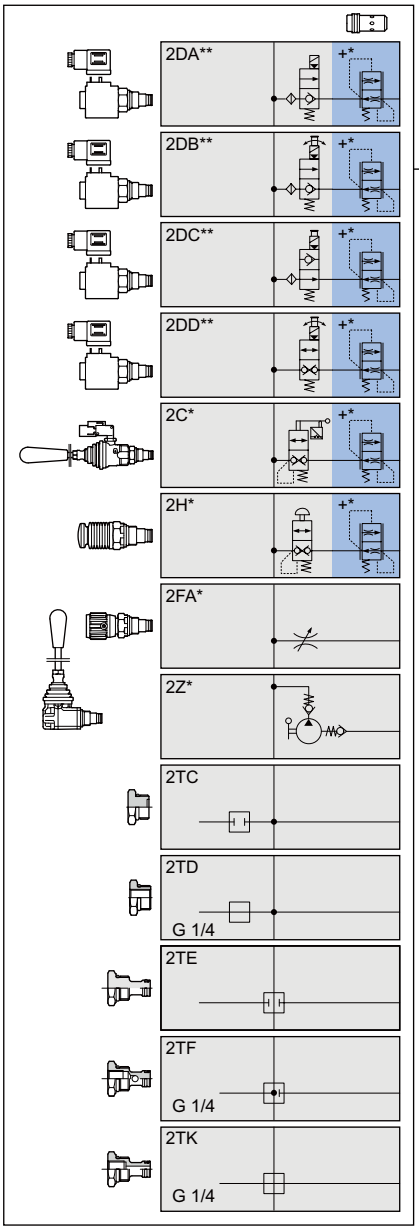
*	*	Pressure (bar)	STD setting (bar)	(...) Special setting (bar)	Setting type	Code	Symbol	Drawing
D	1	15 ÷ 50	30	15 ÷ 50 (5 to 5)	Detachable closing	CMPR04S00002		1
	2				Non removable closing *(1)*	CMPR04P00002		
	3				Plastic knob	CMPR04M00002		2
E	1	35 ÷ 110	50	35 ÷ 110 (5 to 5)	Detachable closing	CMPR04S01002		
	2				Non removable closing *(1)*	CMPR04P01002		
	3				Plastic knob	CMPR04M01002		3
F	1	75 ÷ 220	150	75 ÷ 220 (5 to 5)	Detachable closing	CMPR04S02002		
	2				Non removable closing *(1)*	CMPR04P02002		
	3				Plastic knob	CMPR04M02002		
G	1	160 ÷ 290	180	160 ÷ 290 (10 to 10)	Detachable closing	CMPR04S03002		
	2				Non removable closing *(1)*	CMPR04P03002		
	3				Plastic knob	CMPR04M03002		

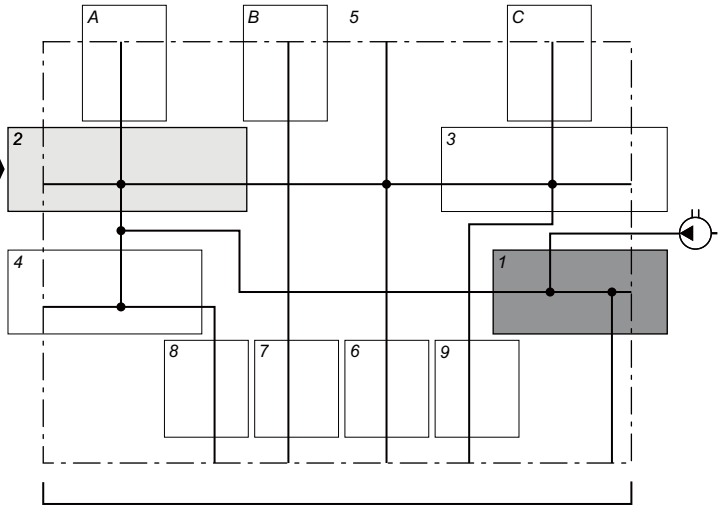
1 = Supplied assembled. Unassembled, see accessories page 89

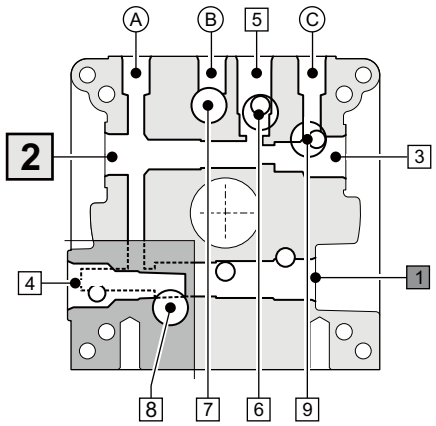
* * *Check valve and plug*

*	*	Description	Code	Symbol	Drawing
K	1	Check valve - Opening pressure 0.5 bar	CRI0400001		
X	1	Plug	R78150100		



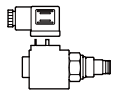




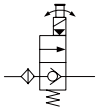
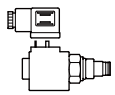


Flow control valves

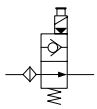
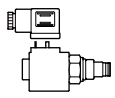
2 DA ** +* *Piloted solenoid valves normally closed, without emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCASL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NCASM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCASA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCASJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCASI003 + V86050002		

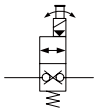
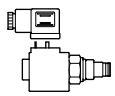
2 DB ** +* *Piloted solenoid valves normally open, with rotary emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCAEL003 + V8605002		
AB	Voltage 24 Vdc	CRP0418NCAEM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCAEA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCAEJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCAEI003 + V86050002		

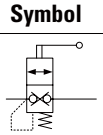
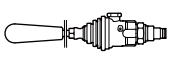
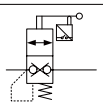
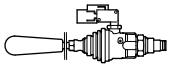
2 DC ** +* *Piloted solenoid valves normally open, with button emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NAAEL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NAAEM003 + V86050002		
AC	Voltage 24 Vac 50/60 Hz (RAC with rectifier)	CRP0418NAAE2003 + V86200002		
AD	Voltage 115 Vac 50 - 120 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEZ003 + V86200002		
AE	Voltage 230 Vac 50 - 240 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEX003 + V86200002		
AF	Voltage 48 Vdc	CRP0418NAAEN003 + V86050002		

2 DD ** +* *Direct operated solenoid valve normally closed, with button emergency* (1)

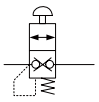
**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

2 C * +* *Lever operated valve*

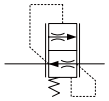
*	Description	Code	Symbol	Drawing
A	Without microswitch	CMF04L001		
B	With microswitch	CMF04M001		

1 = Valves supplied with connector. Without connector see accessories page 89

2 H * +* *Button operated valves*

**	Description	Code	Symbol	Drawing
A	Push-button control	CPE04P000.1		

2 .. ** +* *Flow control valves* *(1)*

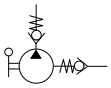
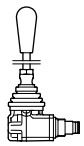
*	Flow	Code	Symbol	Drawing
+B	1.4 l/min	VSC040101		
+C	2.3 l/min	VSC040201		
+E	2.8 l/min	VSC040301		
+G	4.3 l/min	VSC040401		
+J	5.2 l/min	VSC040601		
+L	6.5 l/min	VSC040801		
+N	8.0 l/min	VSC041101		
+Q	11.1 l/min	VSC041601		

(1) The flow control valves can be installed with solenoid valves, with manual controls and with push-button valves.

2 FA * *Bidirectional flow control valves not compensated*

*	Description	Code	Symbol	Drawing
A	Screw adjustment	CSB04C0000		
B	Plastic knob adjustment	CSB04V0000		

2 Z * *Hand pumps*

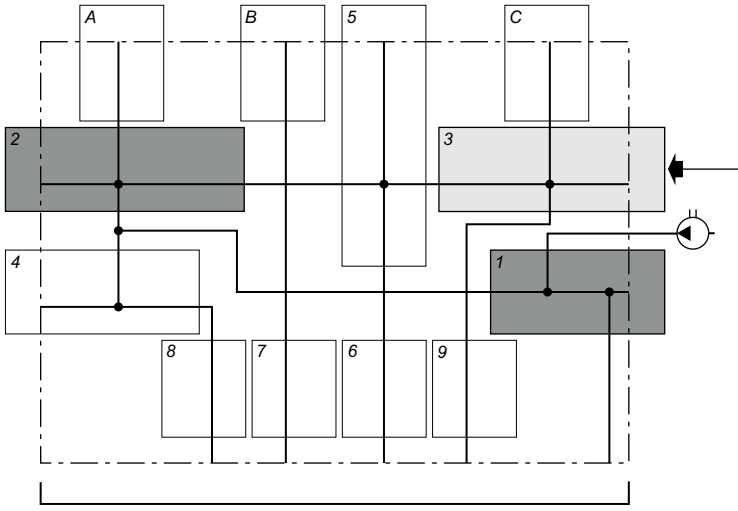
*	Description	Code	Symbol	Drawing
A	Cilindrata 1 cc	CPM0410001		
B	Cilindrata 2 cc	CPM0420001		

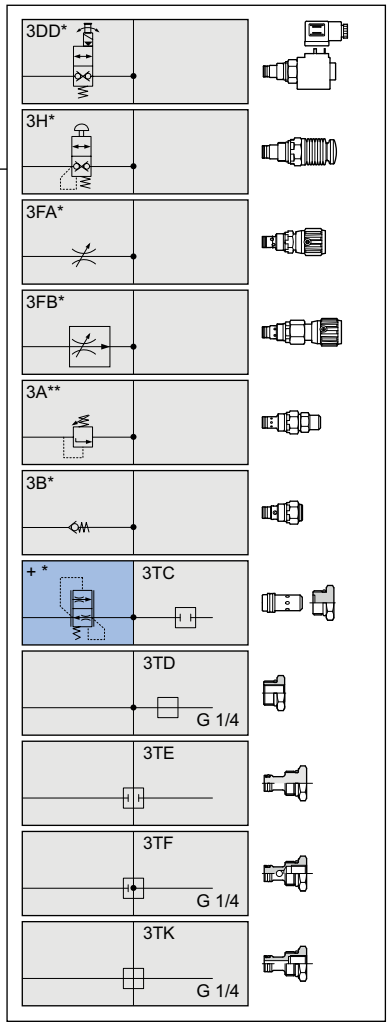
2 T * *Plugs and fittings*

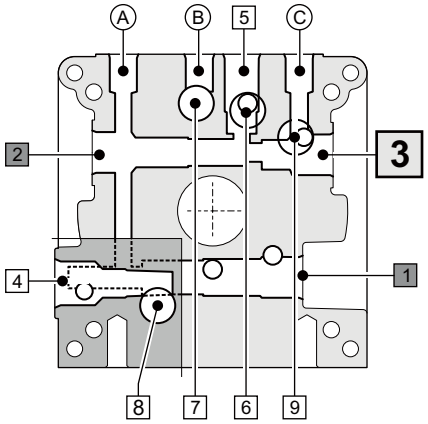
*	Description	Code	Symbol	Drawing
C	Plug 3/4 16 UNF	R78150099		
D	Fitting 3/4 16 UNF - G1/4	20001700		
E	Long plug 3/4 16 UNF	20003800		
F	Fitting 3/4 16 UNF - G1/4	20009400		
K	Fitting 3/4 16 UNF DIN - G1/4	20018000		

FPC**	** (...)	2 .. **	+*	3 .. **	+*

Cavity
Type
Features
Flow control valve can be combined with plug TC

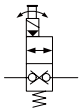
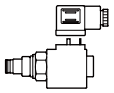




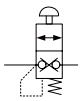


Flow control valves

3 DD ** *Piloted solenoid valves normally closed, with emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

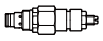
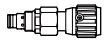
3 H * *Button operated valves*

*	Descrizione	Codice (elettrovalvola + connettore)	Simbolo	Disegno
A	Push-button control	CPE04P000.1		

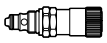
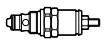
3 FA * *Bidirectional flow control valves not compensated*

*	Description	Code (valve + connector)	Symbol	Drawing
A	Screw adjustment	CSB04C0000		
B	Plastic knob adjustment	CSB04V0000		

3 FB * *Unidirectional flow control valves compensated*

*	Description	Code (valve + connector)	Symbol	Drawing
A	Screw adjustment	CSC04C0000		
B	Plastic knob adjustment	CSC04V0000		

3 A ** *Pressure relief valves*

**	Description	Regolazione (bar)	Code	Symbol	Drawing
AD	Short screw adjustment	Min 15 - Max 50	CMP04AS0002		
AE		Min 35 - Max 110	CMP04AS1002		
AF		Min 75 - Max 220	CMP04AS2002		
AG		Min 160 - Max 290	CMP04AS3002		
BD	Screw adjustment	Min 15 - Max 50	CMP04AC0002		
BE		Min 35 - Max 110	CMP04AC1002		
BF		Min 75 - Max 220	CMP04AC2002		
BG		Min 160 - Max 290	CMP04AC3002		
CD	Plastic knob adjustment	Min 15 - Max 50	CMP04AM0002		
CE		Min 35 - Max 110	CMP04AM1002		
CF		Min 75 - Max 220	CMP04AM2002		
CG		Min 160 - Max 290	CMP04AM3002		
DD	Short screw + sealed cap	Min 15 - Max 50	CMP04AP0002		
DE		Min 35 - Max 110	CMP04AP1002		
DF		Min 75 - Max 220	CMP04AP2002		
DG		Min 160 - Max 290	CMP04AP3002		

1 = Valves supplied with connector. Without connector see accessories page 89

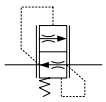
3 B * *One-way check valves*

*	Description	Code (valve + connector)	Symbol	Drawing
A	0.7 bar (Standard)	CRU0400002		
B	4.5 bar	CRU0404002		
C	10 bar	CRU0410002		

3 T * +* *Plugs and fittings*

*	Description	Code	Symbol	Drawing
C	Plug 3/4 16 UNF *(1)*	R78150099		
D	Fitting 3/4 16 UNF - G1/4	20001700		
E	Long plug 3/4 16 UNF	20003800		
F	Fitting 3/4 16 UNF - G1/4	20009400		
K	Fitting 3/4 16 UNF - DIN G1/4	20018000		

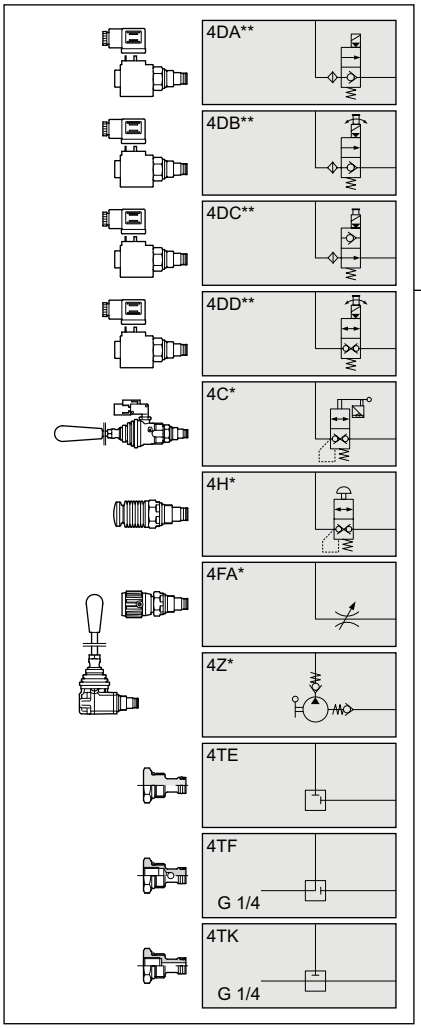
3 T C +* *Flow control valves (1)*

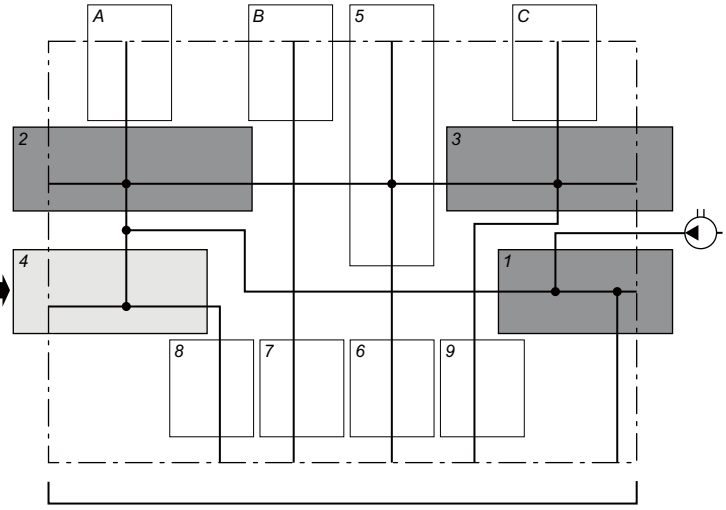
*	Flow	Code	Symbol	Drawing
+B	1.4 l/min	VSC040101		
+C	2.3 l/min	VSC040201		
+E	2.8 l/min	VSC040301		
+G	4.3 l/min	VSC040401		
+J	5.2 l/min	VSC040601		
+L	6.5 l/min	VSC040801		
+N	8.0 l/min	VSC041101		
+Q	11.1 l/min	VSC041601		

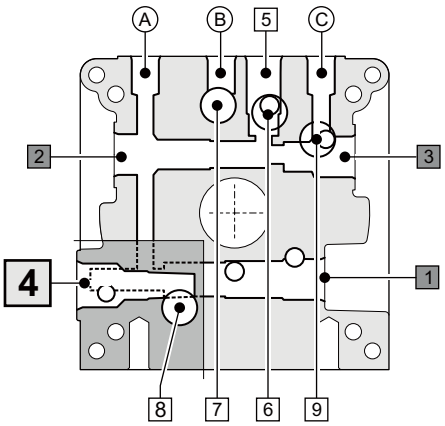
(1) The flow control valves can be installed with the plug TC.

FPC**	** (...)	2 .. **	+*	3 .. **	+*	4 .. **

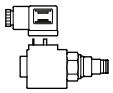
Cavity
Type
Features



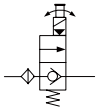
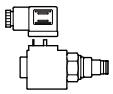




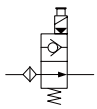
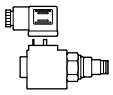
4 DA ** *Piloted solenoid valves normally closed, without emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCASL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NCASM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCASA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCASJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCASI003 + V86050002		

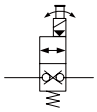
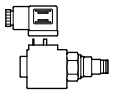
4 DB ** *Piloted solenoid valves normally open, with rotary emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCAEL003 + V8605002		
AB	Voltage 24 Vdc	CRP0418NCAEM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCAEA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCAEJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCAEI003 + V86050002		

4 DC ** *Piloted solenoid valves normally open, with button emergency* (1)

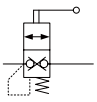
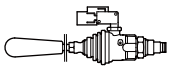
**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NAAEL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NAAEM003 + V86050002		
AC	Voltage 24 Vac 50/60 Hz (RAC with rectifier)	CRP0418NAAE2003 + V86200002		
AD	Voltage 115 Vac 50 - 120 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEZ003 + V86200002		
AE	Voltage 230 Vac 50 - 240 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEX003 + V86200002		
AF	Voltage 48 Vdc	CRP0418NAAEN003 + V86050002		

4 DD ** *Direct operated solenoid valve normally closed, with button emergency* (1)

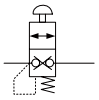
**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

1 = Valves supplied with connector. Without connector see accessories page 89

4 C * ***Lever operated valve***

*	Description	Code	Symbol	Drawing
A	Without microswitch	CMF04L001		
B	With microswitch	CMF04M001		

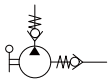
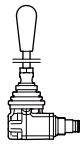
4 H * ***Button operated valves***

**	Description	Code	Symbol	Drawing
A	Push-button control	CPE04P000.1		

4 FA * ***Bidirectional flow control valves not compensated***

*	Description	Code	Symbol	Drawing
A	Screw adjustment	CSB04C0000		
B	Plastic knob adjustment	CSB04V0000		

4 Z * ***Hand pumps***

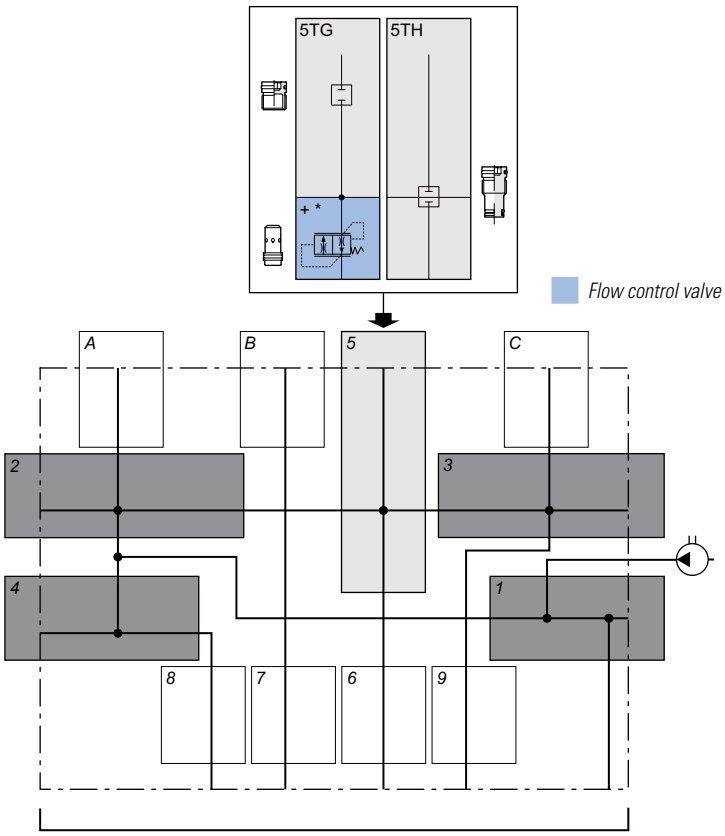
*	Description	Code	Symbol	Drawing
A	Cilindrata 1 cc	CPM0410001		
B	Cilindrata 2 cc	CPM0420001		

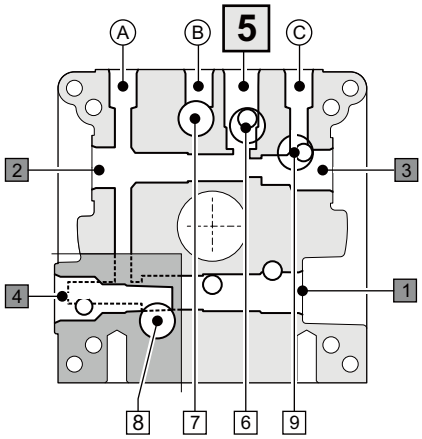
4 T * ***Plugs and fittings***

*	Description	Code	Symbol	Drawing
E	Long plug 3/4 16 UNF	20003800		
F	Fitting 3/4 16 UNF - G1/4	20009400		
K	Fitting 3/4 16 UNF DIN - G1/4	20018000		

Peripheral
Plug
Features
Flow control valve can be combined with plug TG

FPC**	** (...)	2 .. **	+*	3 .. **	+*	4 .. **	**5 T ***	**+***

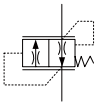




5 T * **+*** ***Plugs***

*	Description	Code	Symbol	Drawing
G	Plug M16x1.5 *(1)*	R78150104		
H	Long plug M16x1.5	R78150101		

5 T G **+*** ***Flow control valves*** *(1)*

*	Flow	Code	Symbol	Drawing
+B	1.4 l/min	VSC040101		
+C	2.3 l/min	VSC040201		
+E	2.8 l/min	VSC040301		
+G	4.3 l/min	VSC040401		
+J	5.2 l/min	VSC040601		
+L	6.5 l/min	VSC040801		
+N	8.0 l/min	VSC041101		
+Q	11.1 l/min	VSC041601		

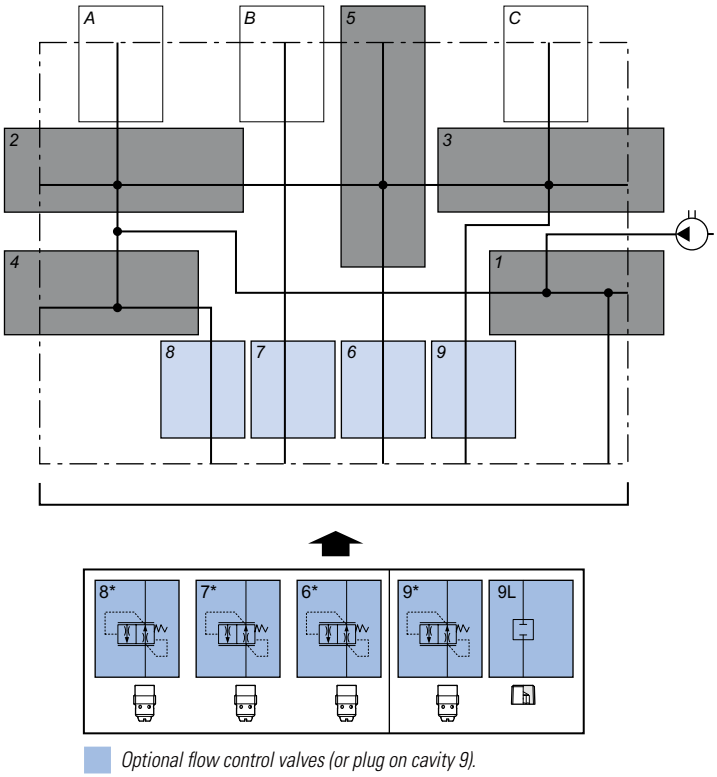
(1) The flow control valves can be installed with the plug TG.

FPC**	** (...)	2 .. **	+*	3 .. **	+*	4 .. **	5 T *	+*	6 *	7 *	8 *	9 *

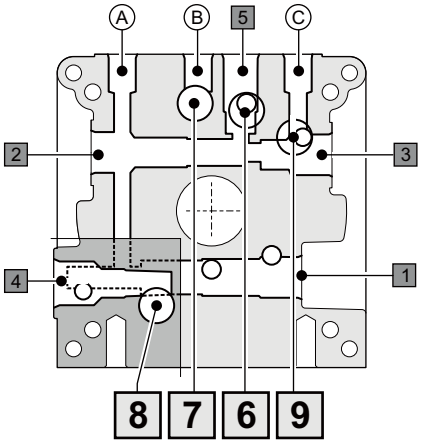
Return cavities

Optional flow control valves (or plug on cavity 9)

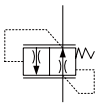
Return cavity, omit if not required flow control valves or caps.



Optional flow control valves (or plug on cavity 9).



6 7 8 9 * *Flow control valves for return cavities 6-7-8-9"*

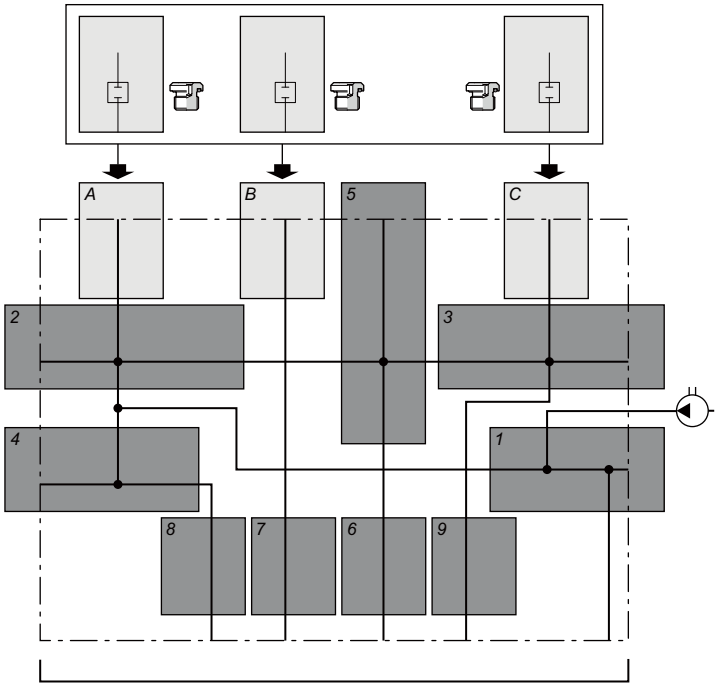
*	Nominal flow at 120 bar	Code	Symbol	Drawing
A	0.7 l/min	VSC06100002		
B	1.1 l/min	VSC06120002		
C	2.1 l/min	VSC06130002		
E	3.2 l/min	VSC06150002		
G	4.7 l/min	VSC06190002		
K	6.3 l/min	VSC06220002		
N	7.5 l/min	VSC06240002		
Q	10.0 l/min	VSC06280002		
U	13.2 l/min	VSC06330002		
V	15.7 l/min	VSC06350002		

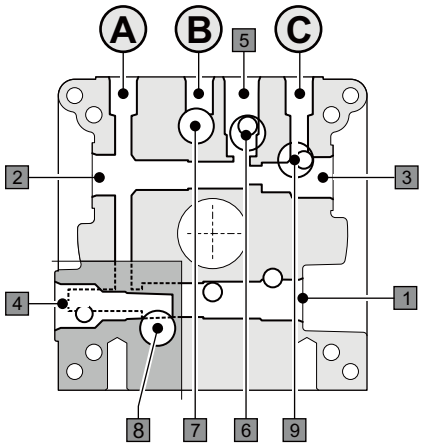
9 T * *Plugs for return cavity "9"*

*	Description	Code	Symbol	Drawing
M	Conical plug G3/8	Q26620350		

Combinations plugs on ports
End section II

FPC**	** (...)	2 .. **	+*	3 .. **	+*	4 .. **	5 T *	+*	6 *	7 *	8 *	9 *	-**	-





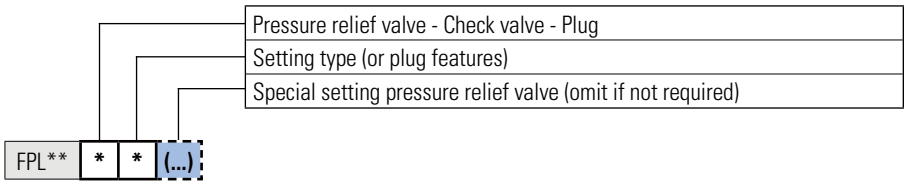
-** ***Combinations plugs on ports A-B-C***

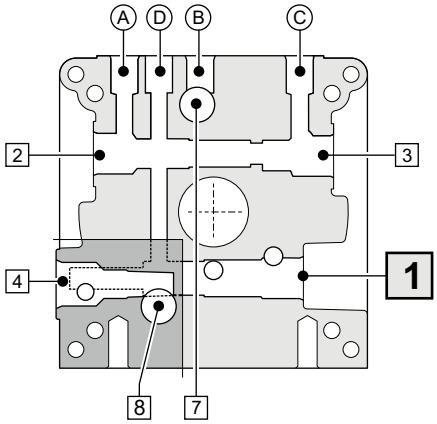
-**	A	B	C
-00	↑	↑	⊗
-01	↑	↑	↑
-02	⊗	↑	↑
-03	↑	⊗	↑
-05	↑	⊗	⊗
-06	⊗	⊗	↑
-07	⊗	↑	⊗
-08	⊗	⊗	⊗

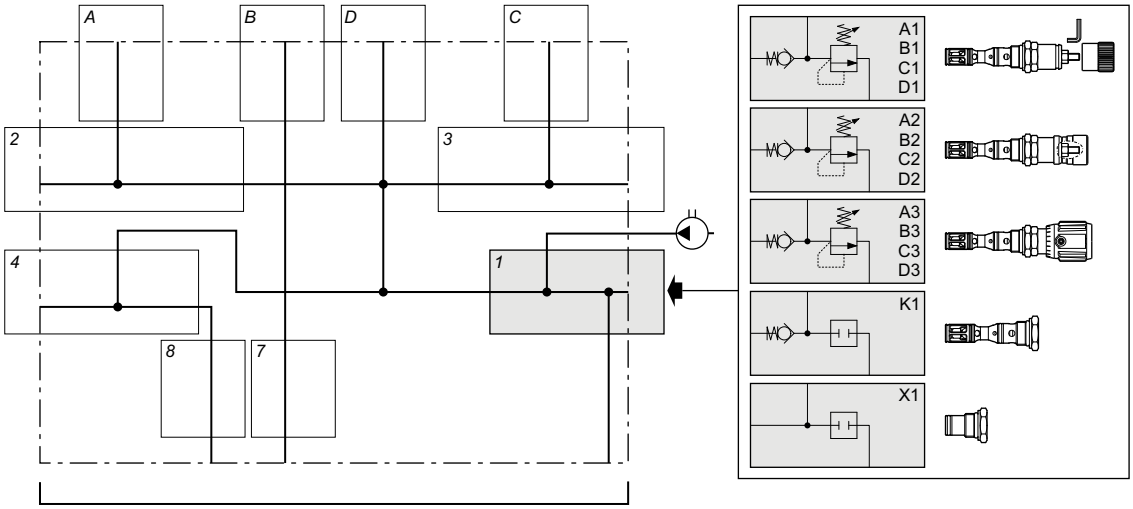
Combination -00 to use with the standard blocks (page 85)

Symbols description

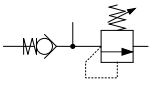
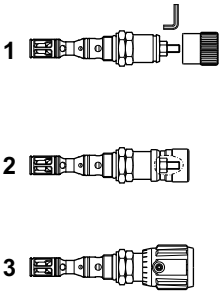
Type	Description	Thread	Code	Symbol	Drawing
⊗	Port closed with plug	G 1/4"	20024000		
		G 3/8"	Q26630006 (plug with OR)		
↑	Port open		—	—	—





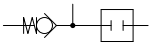


* * (...) *Pressure relief valve with check valve*

*	*	Pressure (bar)	STD setting (bar)	(...) Special setting (bar)	Setting type	Code	Symbol	Drawing
D	1	15 ÷ 50	30	15 ÷ 50 (5 to 5)	Detachable closing	CMPR04S00002		
	2				Non removable closing *(1)*	CMPR04P00002		
	3				Plastic knob	CMPR04M00002		
E	1	35 ÷ 110	50	35 ÷ 110 (5 to 5)	Detachable closing	CMPR04S01002		
	2				Non removable closing *(1)*	CMPR04P01002		
	3				Plastic knob	CMPR04M01002		
F	1	75 ÷ 220	150	75 ÷ 220 (5 to 5)	Detachable closing	CMPR04S02002		
	2				Non removable closing *(1)*	CMPR04P02002		
	3				Plastic knob	CMPR04M02002		
G	1	160 ÷ 290	180	160 ÷ 290 (10 to 10)	Detachable closing	CMPR04S03002		
	2				Non removable closing *(1)*	CMPR04P03002		
	3				Plastic knob	CMPR04M03002		

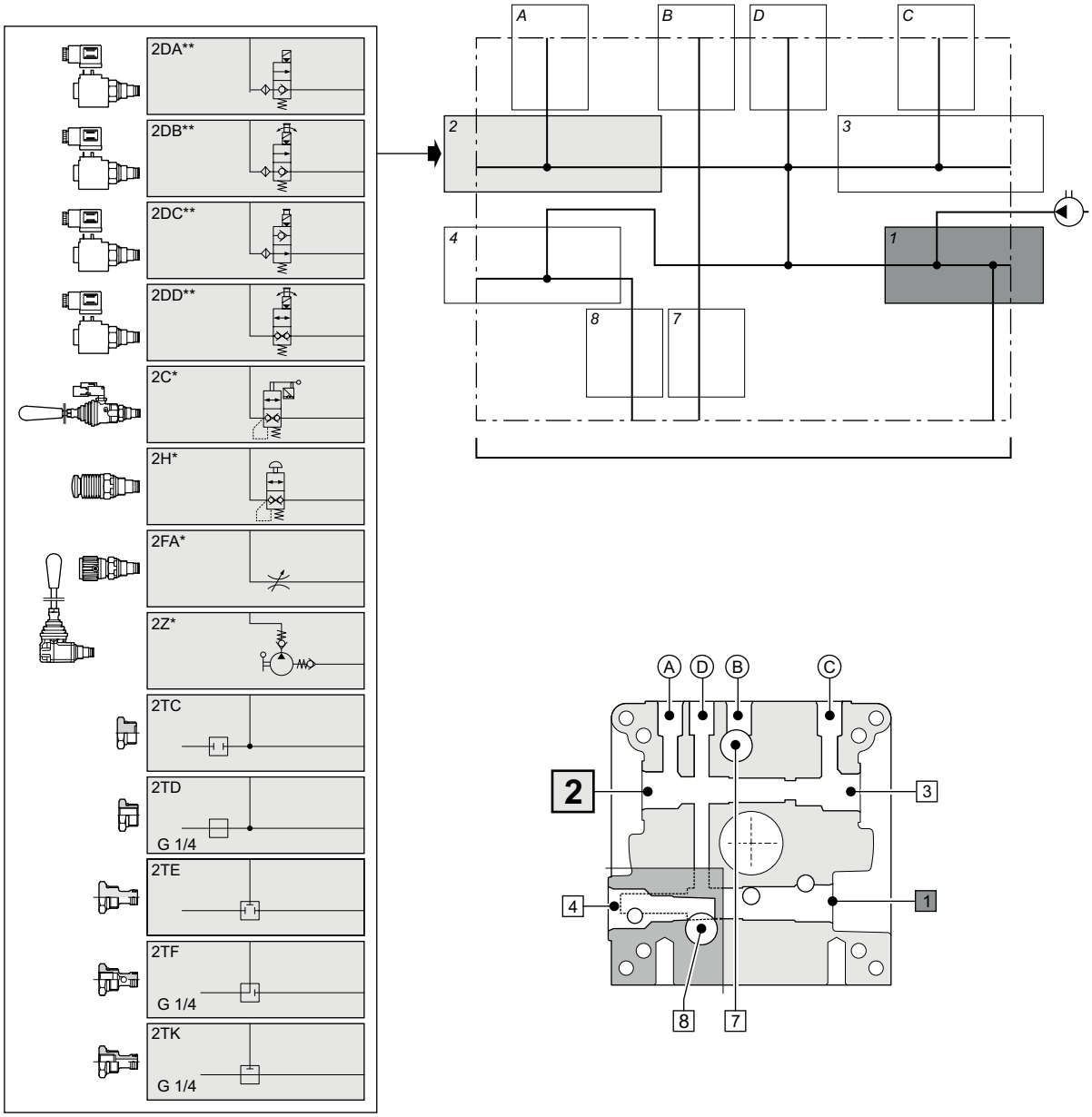
1 = Supplied assembled. Unassembled, see accessories page 89

* * *Check valve and plug*

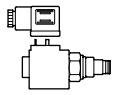
*	*	Description	Code	Symbol	Drawing
K	1	Check valve - Opening pressure 0.5 bar	CRI0400001		
X	1	Plug	R78150100		

Cavity
Type
Features

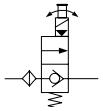
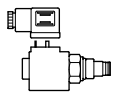
FPL**	** (...)	2 .. **



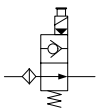
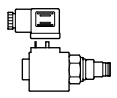
2 DA ** *Piloted solenoid valves normally closed, without emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCASL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NCASM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCASA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCASJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCASI003 + V86050002		

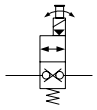
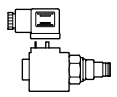
2 DB ** *Piloted solenoid valves normally open, with rotary emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCAEL003 + V8605002		
AB	Voltage 24 Vdc	CRP0418NCAEM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCAEA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCAEJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCAEI003 + V86050002		

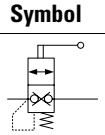
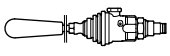
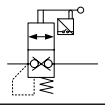
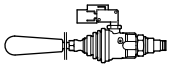
2 DC ** *Piloted solenoid valves normally open, with button emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NAAEL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NAAEM003 + V86050002		
AC	Voltage 24 Vac 50/60 Hz (RAC with rectifier)	CRP0418NAAE2003 + V86200002		
AD	Voltage 115 Vac 50 - 120 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEZ003 + V86200002		
AE	Voltage 230 Vac 50 - 240 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEX003 + V86200002		
AF	Voltage 48 Vdc	CRP0418NAAEN003 + V86050002		

2 DD ** *Direct operated solenoid valve normally closed, with button emergency* (1)

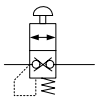
**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

2 C * *Lever operated valve*

*	Description	Code	Symbol	Drawing
A	Without microswitch	CMF04L001		
B	With microswitch	CMF04M001		

1 = Valves supplied with connector. Without connector see accessories page 89

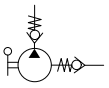
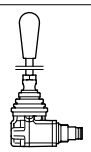
2 H * *Button operated valves*

**	Description	Code	Symbol	Drawing
A	Push-button control	CPE04P000.1		

2 FA * *Bidirectional flow control valves not compensated*

*	Description	Code	Symbol	Drawing
A	Screw adjustment	CSB04C0000		
B	Plastic knob adjustment	CSB04V0000		

2 Z * *Hand pumps*

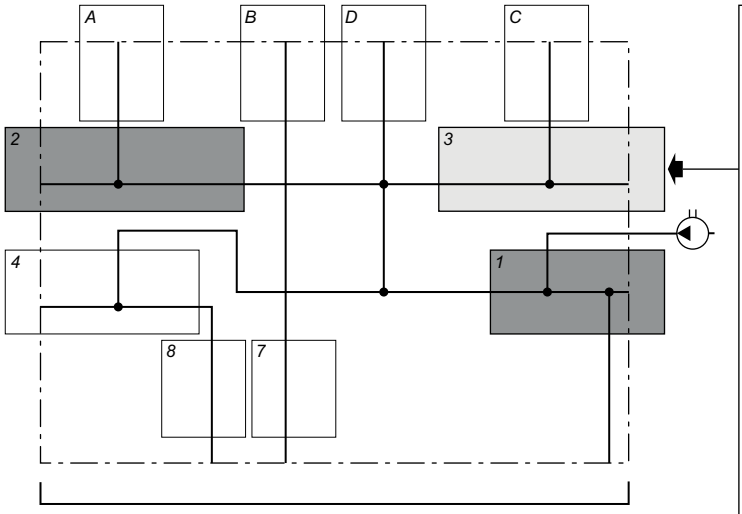
*	Description	Code	Symbol	Drawing
A	Cilindrata 1 cc	CPM0410001		
B	Cilindrata 2 cc	CPM0420001		

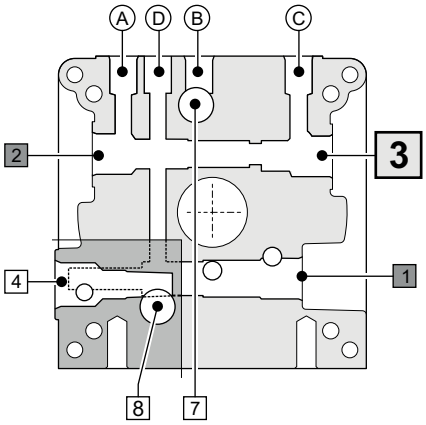
2 T * *Plugs and fittings*

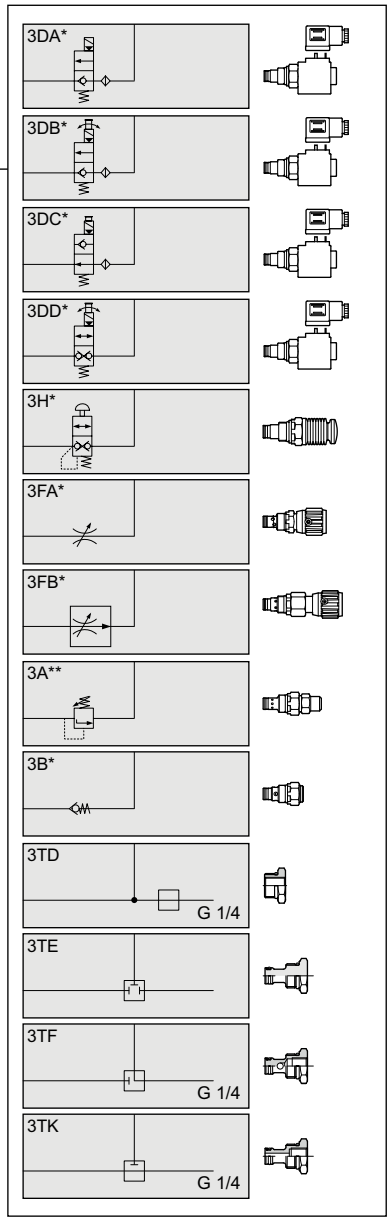
*	Description	Code	Symbol	Drawing
C	Plug 3/4 16 UNF	R78150099		
D	Fitting 3/4 16 UNF - G1/4	20001700		
E	Long plug 3/4 16 UNF	20003800		
F	Fitting 3/4 16 UNF - G1/4	20009400		
K	Fitting 3/4 16 UNF DIN - G1/4	20018000		

Cavity
Type
Features

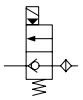
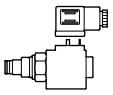
FPL**	** (...)	2 .. **	3 .. **



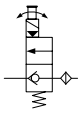
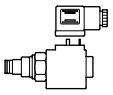




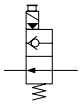
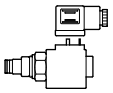
3 DA ** *Piloted solenoid valves normally closed, without emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCASL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NCASM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCASA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCASJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCASI003 + V86050002		

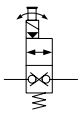
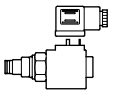
3 DB ** *Piloted solenoid valves normally open, with rotary emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCAEL003 + V8605002		
AB	Voltage 24 Vdc	CRP0418NCAEM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCAEA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCAEJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCAEI003 + V86050002		

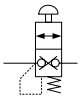
3 DC ** *Piloted solenoid valves normally open, with button emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NAAEL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NAAEM003 + V86050002		
AC	Voltage 24 Vac 50/60 Hz (RAC with rectifier)	CRP0418NAAE2003 + V86200002		
AD	Voltage 115 Vac 50 - 120 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEZ003 + V86200002		
AE	Voltage 230 Vac 50 - 240 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEX003 + V86200002		
AF	Voltage 48 Vdc	CRP0418NAAEN003 + V86050002		

3 DD ** *Direct operated solenoid valve normally closed, with button emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

3 H * *Button operated valves*

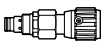
*	Descrizione	Codice (elettrovalvola + connettore)	Simbolo	Disegno
A	Push-button control	CPE04P000.1		

3 FA * *Bidirectional flow control valves not compensated*

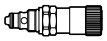
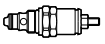
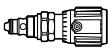
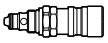
*	Description	Code (valve + connector)	Symbol	Drawing
A	Screw adjustment	CSB04C0000		
B	Plastic knob adjustment	CSB04V0000		

1 = Valves supplied with connector. Without connector see accessories page 89

3 FB * *Unidirectional flow control valves compensated*

*	Description	Code (valve + connector)	Symbol	Drawing
A	Screw adjustment	CSC04C0000		
B	Plastic knob adjustment	CSC04V0000		

3 A ** *Pressure relief valves*

**	Description	Regolazione (bar)	Code	Symbol	Drawing
AD	Short screw adjustment	Min 15 - Max 50	CMPAS0002		
AE		Min 35 - Max 110	CMPAS1002		
AF		Min 75 - Max 220	CMPAS2002		
AG		Min 160 - Max 290	CMPAS3002		
BD	Screw adjustment	Min 15 - Max 50	CMPAC0002		
BE		Min 35 - Max 110	CMPAC1002		
BF		Min 75 - Max 220	CMPAC2002		
BG		Min 160 - Max 290	CMPAC3002		
CD	Plastic knob adjustment	Min 15 - Max 50	CMPAM0002		
CE		Min 35 - Max 110	CMPAM1002		
CF		Min 75 - Max 220	CMPAM2002		
CG		Min 160 - Max 290	CMPAM3002		
DD	Short screw + sealed cap	Min 15 - Max 50	CMPAP0002		
DE		Min 35 - Max 110	CMPAP1002		
DF		Min 75 - Max 220	CMPAP2002		
DG		Min 160 - Max 290	CMPAP3002		

3 B * *One-way check valves*

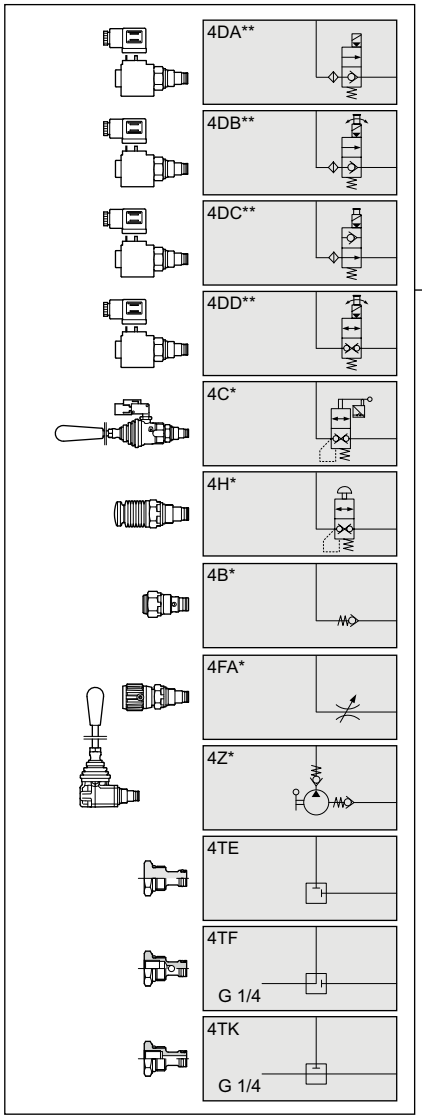
*	Description	Code (valve + connector)	Symbol	Drawing
A	0.7 bar (Standard)	CRU0400002		
B	4.5 bar	CRU0404002		
C	10 bar	CRU0410002		

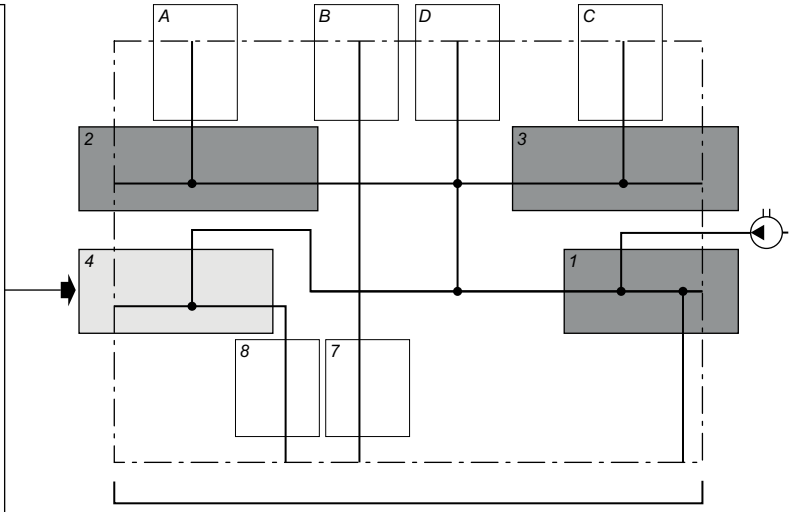
3 T * *Plugs and fittings*

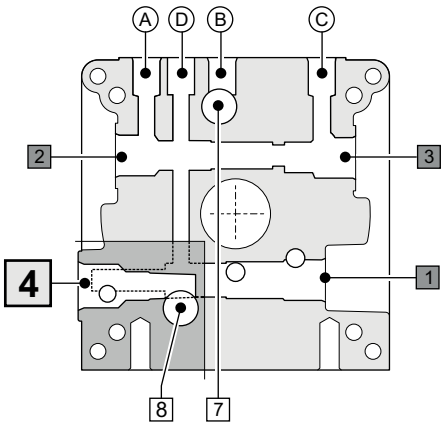
*	Description	Code	Symbol	Drawing
D	Fitting 3/4 16 UNF - G1/4	20001700		
E	Long plug 3/4 16 UNF	20003800		
F	Fitting 3/4 16 UNF - G1/4	20009400		
K	Fitting 3/4 16 UNF - DIN G1/4	20018000		

FPL**	** (...)	2 .. **	3 .. **	4 .. **

Cavity
Type
Features

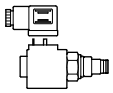




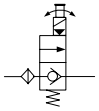
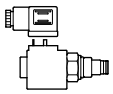


II
FPL

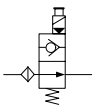
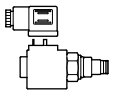
4 DA ** *Piloted solenoid valves normally closed, without emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCASL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NCASM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCASA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCASJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCASI003 + V86050002		

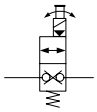
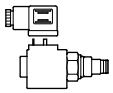
4 DB ** *Piloted solenoid valves normally open, with rotary emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCAEL003 + V8605002		
AB	Voltage 24 Vdc	CRP0418NCAEM003 + V86050002		
AC	Voltage 24 Vac 50 Hz	CRP0418NCAEA003 + V86050002		
AD	Voltage 115 Vac 50 Hz	CRP0418NCAEJ003 + V86050002		
AE	Voltage 230 Vac 50 Hz	CRP0418NCAEI003 + V86050002		

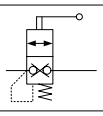
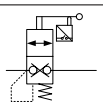
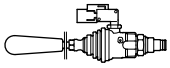
4 DC ** *Piloted solenoid valves normally open, with button emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NAAEL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NAAEM003 + V86050002		
AC	Voltage 24 Vac 50/60 Hz (RAC with rectifier)	CRP0418NAAE2003 + V86200002		
AD	Voltage 115 Vac 50 - 120 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEZ003 + V86200002		
AE	Voltage 230 Vac 50 - 240 Vac 60 Hz (RAC with rectifier)	CRP0418NAAEX003 + V86200002		
AF	Voltage 48 Vdc	CRP0418NAAEN003 + V86050002		

4 DD ** *Direct operated solenoid valve normally closed, with button emergency* (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

4 C * *Lever operated valve*

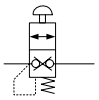
*	Description	Code	Symbol	Drawing
A	Without microswitch	CMF04L001		
B	With microswitch	CMF04M001		

1 = Valves supplied with connector. Without connector see accessories page 89

4 B * *One-way check valves*

*	Description	Code (valve + connector)	Symbol	Drawing
A	0.7 bar (Standard)	CRU0400002		
B	4.5 bar	CRU0404002		
C	10 bar	CRU0410002		

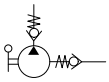
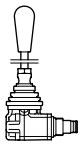
4 H * *Button operated valves*

**	Description	Code	Symbol	Drawing
A	Push-button control	CPE04P000.1		

4 FA * *Bidirectional flow control valves not compensated*

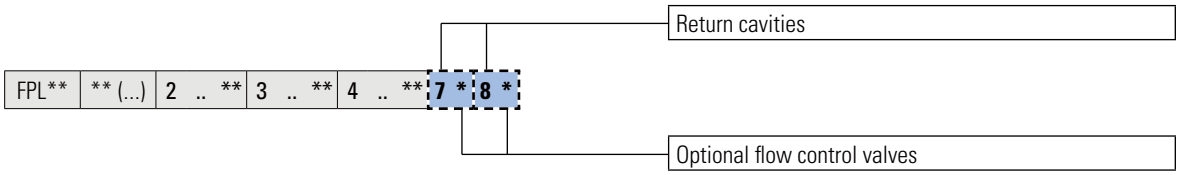
*	Description	Code	Symbol	Drawing
A	Screw adjustment	CSB04C0000		
B	Plastic knob adjustment	CSB04V0000		

4 Z * *Hand pumps*

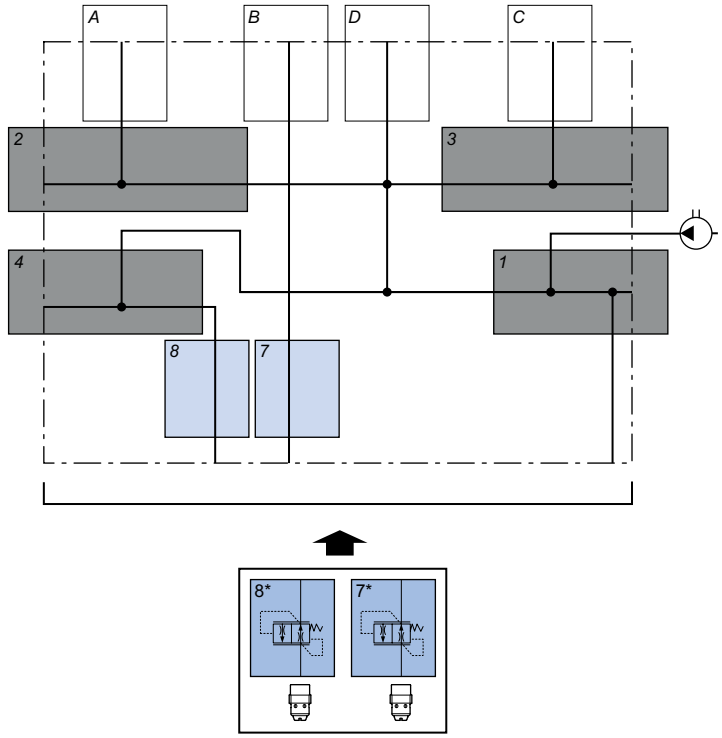
*	Description	Code	Symbol	Drawing
A	Cilindrata 1 cc	CPM0410001		
B	Cilindrata 2 cc	CPM0420001		

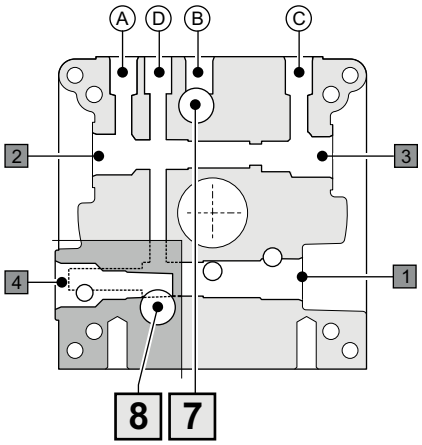
4 T * *Plugs and fittings*

*	Description	Code	Symbol	Drawing
E	Long plug 3/4 16 UNF	20003800		
F	Fitting 3/4 16 UNF - G1/4	20009400		
K	Fitting 3/4 16 UNF DIN - G1/4	20018000		



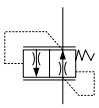
Return cavity, omit if not required flow control valves.





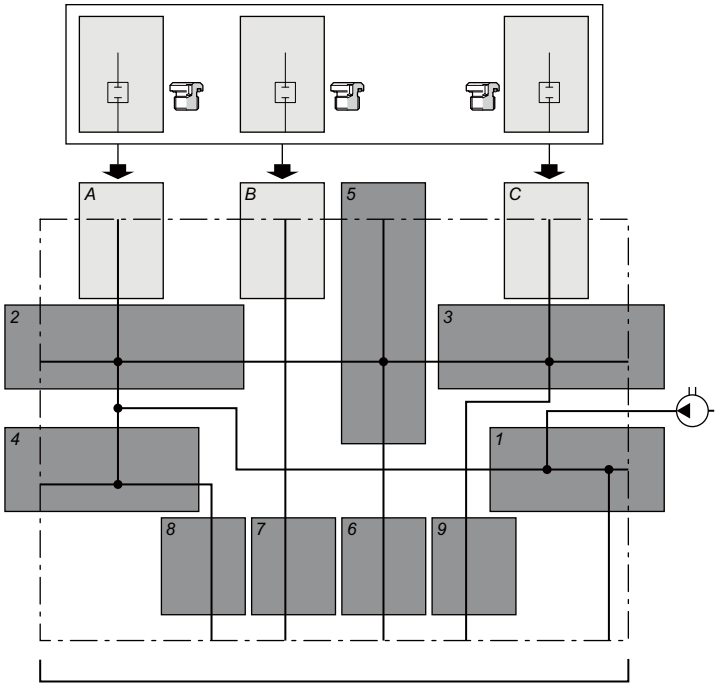
Optional flow control valves.

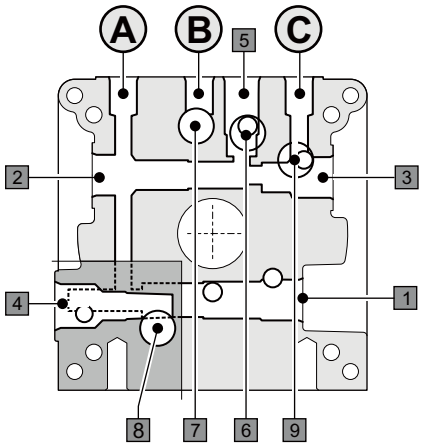
7 * 8 ***Flow control valves for return cavities "7-8"***

*	Nominal flow at 120 bar	Code	Symbol	Drawing
A	0.7 l/min	VSC06100002		
B	1.1 l/min	VSC06120002		
C	2.1 l/min	VSC06130002		
E	3.2 l/min	VSC06150002		
G	4.7 l/min	VSC06190002		
K	6.3 l/min	VSC06220002		
N	7.5 l/min	VSC06240002		
Q	10.0 l/min	VSC06280002		
U	13.2 l/min	VSC06330002		
V	15.7 l/min	VSC06350002		

FPL**	** (...)	2 .. **	3 .. **	4 .. **	7 *	8 *	-**	-

Combinations plugs on ports
End section II





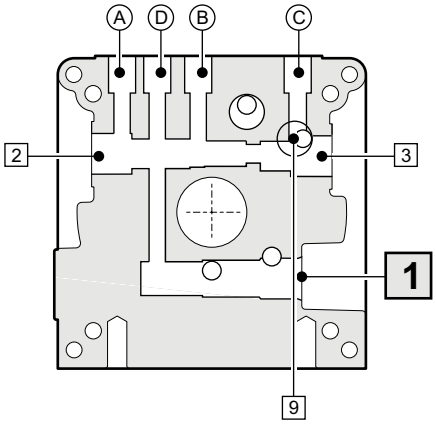
-** ***Combinations plugs on ports A-B-C-D***

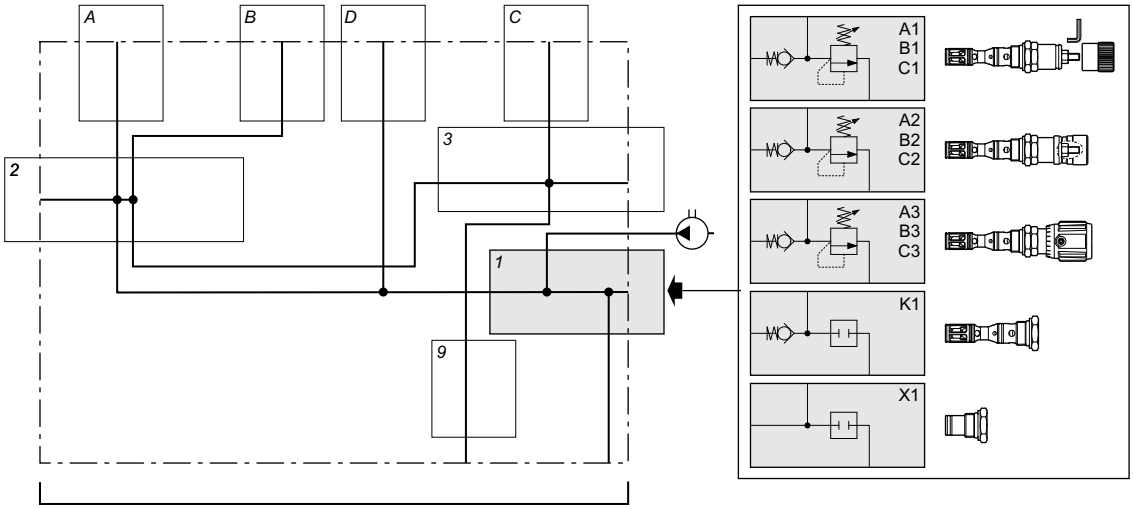
-**	A	B	C	D
-00	↑	⊗	↑	⊗
-01	↑	↑	↑	↑
-03	↑	⊗	↑	↑
-04	↑	↑	↑	⊗

Symbols description

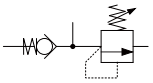
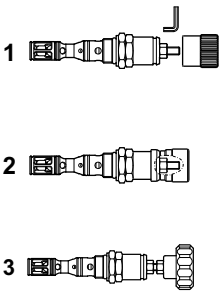
Type	Description	Thread	Code	Symbol	Drawing
⊗	Port closed with plug	G 1/4"	20024000		
↑	Port open		—	—	—

FPE**	*	Pressure relief valve - Check valve - Plug
	*	Setting type (or plug features)
	(...)	Special setting pressure relief valve (omit if not required)



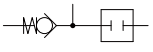


* * (...) *Pressure relief valve with check valve*

*	*	Pressure (bar)	STD setting (bar)	(...) Special setting (bar)	Setting type	Code	Symbol	Drawing
D	1	15 ÷ 50	30	15 ÷ 50 (5 to 5)	Detachable closing	CMPR04S00002		
	2				Non removable closing *(1)*	CMPR04P00002		
	3				Plastic knob	CMPR04M00002		
E	1	35 ÷ 110	50	35 ÷ 110 (5 to 5)	Detachable closing	CMPR04S01002		
	2				Non removable closing *(1)*	CMPR04P01002		
	3				Plastic knob	CMPR04M01002		
F	1	75 ÷ 220	150	75 ÷ 220 (5 to 5)	Detachable closing	CMPR04S02002		
	2				Non removable closing *(1)*	CMPR04P02002		
	3				Plastic knob	CMPR04M02002		
G	1	160 ÷ 290	180	160 ÷ 290 (10 to 10)	Detachable closing	CMPR04S03002		
	2				Non removable closing *(1)*	CMPR04P03002		
	3				Plastic knob	CMPR04M03002		

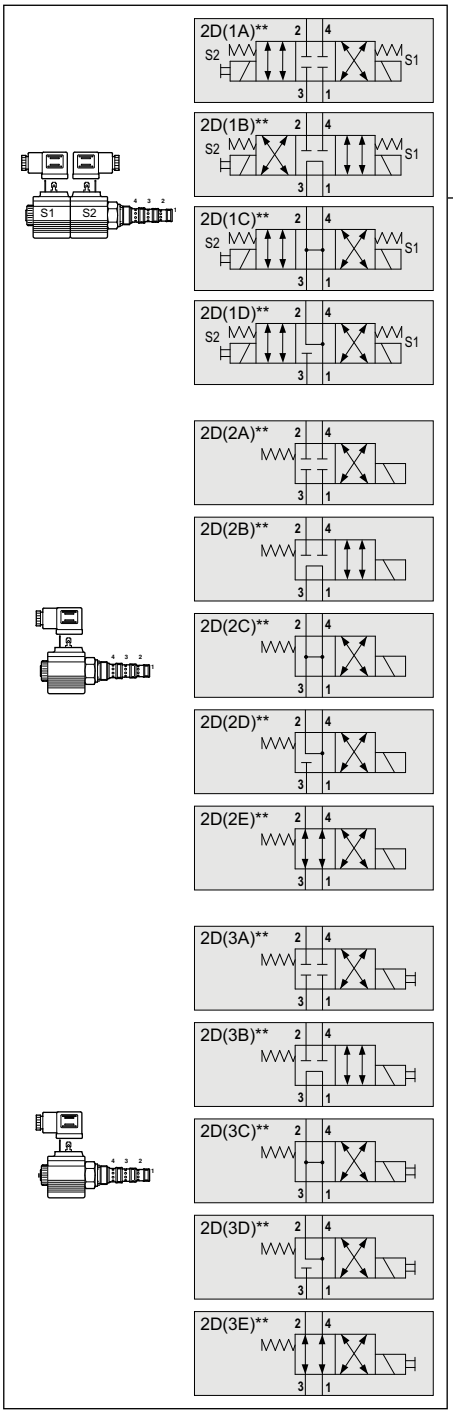
1 = Supplied assembled. Unassembled, see accessories page 89

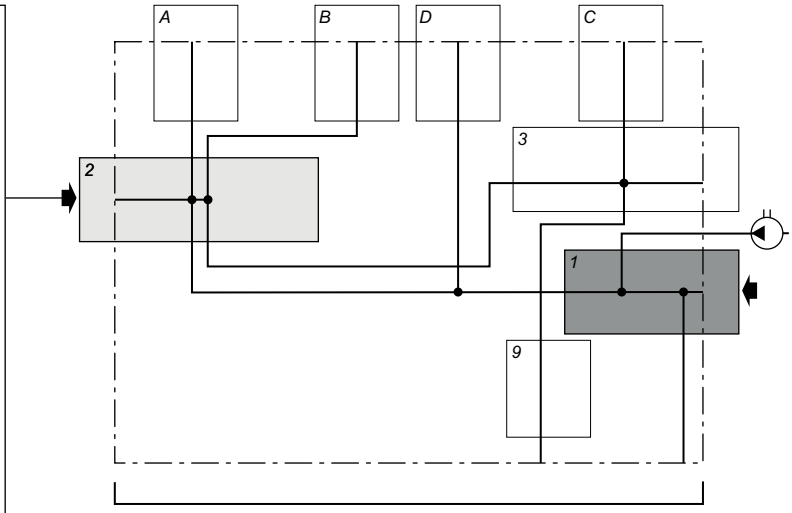
* * *Check valve and plug*

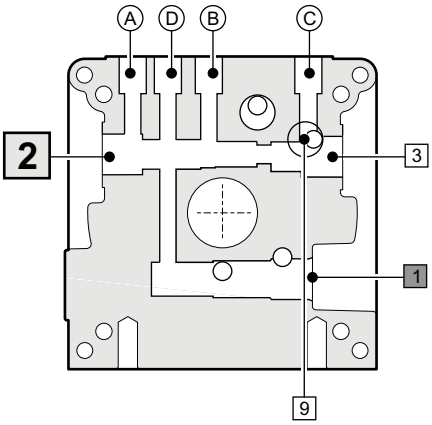
*	*	Description	Code	Symbol	Drawing
K	1	Check valve - Opening pressure 0.5 bar	CRI0400001		
X	1	Plug	R78150100		

Cavity
Type
Features

FPE**	** (...)	2 D(**) **

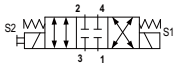
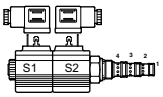
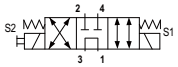
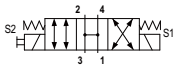
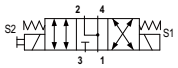




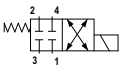
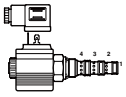
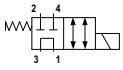
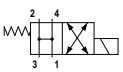
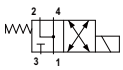
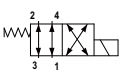


II
FPE

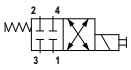
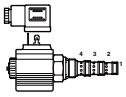
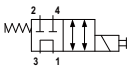
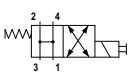
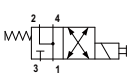
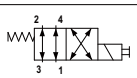
2 D(**) ** *Solenoid valves 4 way 3 positions with emergency* (1)

(**) **	Description	Code (valve + connectors)	Symbol	Drawing
(1A)AA	Voltage 12 Vdc (closed centre "C" spool)	C4V0422C3FEL001 + V86050002 (x2)		
(1A)AB	Voltage 24 Vdc (closed centre "C" spool)	C4V0422C3FEM001 + V86050002 (x2)		
(1B)AA	Voltage 12 Vdc (open centre "A" spool)	C4V0422A3FEL001 + V86050002 (x2)		
(1B)AB	Voltage 24 Vdc (open centre "A" spool)	C4V0422A3FEM001 + V86050002 (x2)		
(1C)AA	Voltage 12 Vdc (centre "H" spool)	C4V0422H3FEL001 + V86050002 (x2)		
(1C)AB	Voltage 24 Vdc (centre "H" spool)	C4V0422H3FEM001 + V86050002 (x2)		
(1D)AA	Voltage 12 Vdc (centre "Y" spool)	C4V0422Y3FEL001 + V86050002 (x2)		
(1D)AB	Voltage 24 Vdc (centre "Y" spool)	C4V0422Y3FEM001 + V86050002 (x2)		

2 D(**) ** *Solenoid valves 4 way 2 positions without emergency* (1)

(**) **	Description	Code (valve + connector)	Symbol	Drawing
(2A)AA	Voltage 12 Vdc (closed centre "C" spool)	C4V0422C2FSL001 + V86050002		
(2A)AB	Voltage 24 Vdc (closed centre "C" spool)	C4V0422C2FSM001 + V86050002		
(2B)AA	Voltage 12 Vdc (open centre "A" spool)	C4V0422A2FSL001 + V86050002		
(2B)AB	Voltage 24 Vdc (open centre "A" spool)	C4V0422A2FSM001 + V86050002		
(2C)AA	Voltage 12 Vdc (centre "H" spool)	C4V0422H2FSL001 + V86050002		
(2C)AB	Voltage 24 Vdc (centre "H" spool)	C4V0422H2FSM001 + V86050002		
(2D)AA	Voltage 12 Vdc (centre "Y" spool)	C4V0422Y2FSL001 + V86050002		
(2D)AB	Voltage 24 Vdc (centre "Y" spool)	C4V0422Y2FSM001 + V86050002		
(2E)AA	Voltage 12 Vdc (direct "D" spool)	C4V0422D2FSL001 + V86050002		
(2E)AB	Voltage 24 Vdc (direct "D" spool)	C4V0422D2FSM001 + V86050002		

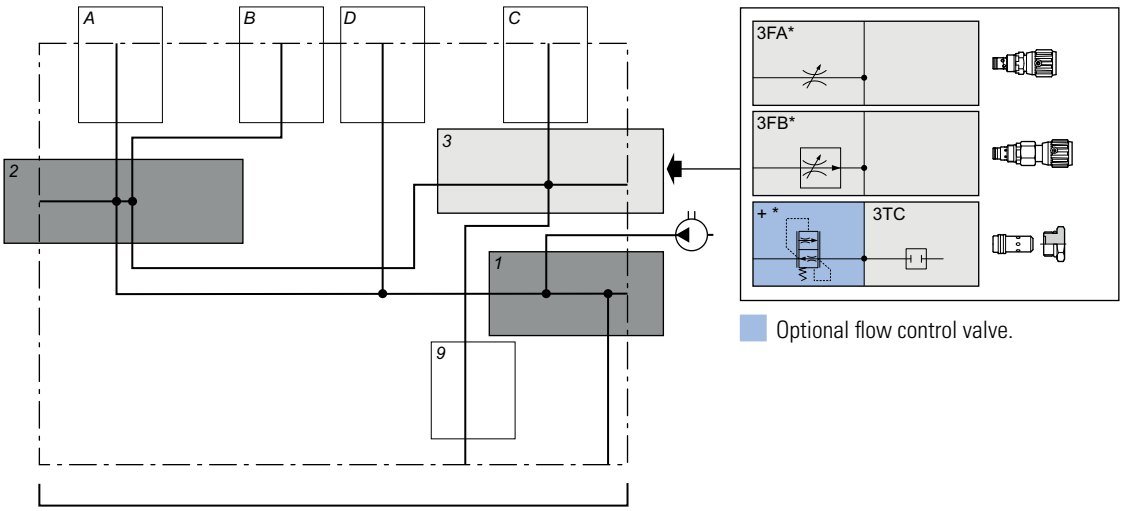
2 D(**) ** *Solenoid valves 4 way 2 positions with emergency* (1)

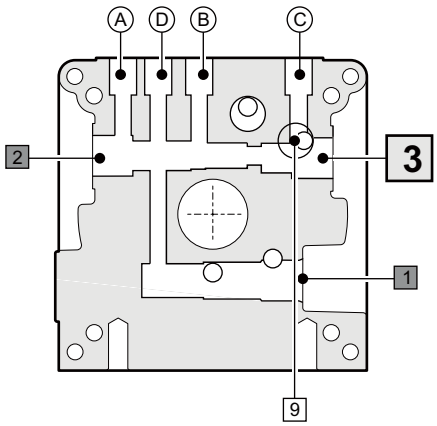
(**) **	Description	Code (valve + connector)	Symbol	Drawing
(3A)AA	Voltage 12 Vdc (closed centre "C" spool)	C4V0422C2FEL001 + V86050002		
(3A)AB	Voltage 24 Vdc (closed centre "C" spool)	C4V0422C2FEM001 + V86050002		
(3B)AA	Voltage 12 Vdc (open centre "A" spool)	C4V0422A2FEL001 + V86050002		
(3B)AB	Voltage 24 Vdc (open centre "A" spool)	C4V0422A2FEM001 + V86050002		
(3C)AA	Voltage 12 Vdc (centre "H" spool)	C4V0422H2FEL001 + V86050002		
(3C)AB	Voltage 24 Vdc (centre "H" spool)	C4V0422H2FEM001 + V86050002		
(3D)AA	Voltage 12 Vdc (centre "Y" spool)	C4V0422Y2FEL001 + V86050002		
(3D)AB	Voltage 24 Vdc (centre "Y" spool)	C4V0422Y2FEM001 + V86050002		
(3E)AA	Voltage 12 Vdc (direct "D" spool)	C4V0422D2FEL001 + V86050002		
(3E)AB	Voltage 24 Vdc (direct "D" spool)	C4V0422D2FEM001 + V86050002		

1 = Valves supplied with connector. Without connector see accessories page 89

FPE**	** (...)	2	D(**) **	3	..	**	+*

- Cavity
- Type
- Features
- Flow control valve can be combined with plug TC

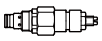
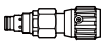




3 FA * *Bidirectional flow control valves not compensated*

*	Description	Code (valve + connector)	Symbol	Drawing
A	Screw adjustment	CSB04C0000		
B	Plastic knob adjustment	CSB04V0000		

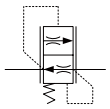
3 FB * *Unidirectional flow control valves compensated*

*	Description	Code (valve + connector)	Symbol	Drawing
A	Screw adjustment	CSC04C0000		
B	Plastic knob adjustment	CSC04V0000		

3 T * +* *Plug*

**	Description	Code	Symbol	Drawing
C	Plug 3/4 16 UNF (1)	R78150099		

3 T C +* *Flow control valves* *(1)*

*	Flow	Code	Symbol	Drawing
+B	1.4 l/min	VSC040101		
+C	2.3 l/min	VSC040201		
+E	2.8 l/min	VSC040301		
+G	4.3 l/min	VSC040401		
+J	5.2 l/min	VSC040601		
+L	6.5 l/min	VSC040801		
+N	8.0 l/min	VSC041101		
+Q	11.1 l/min	VSC041601		

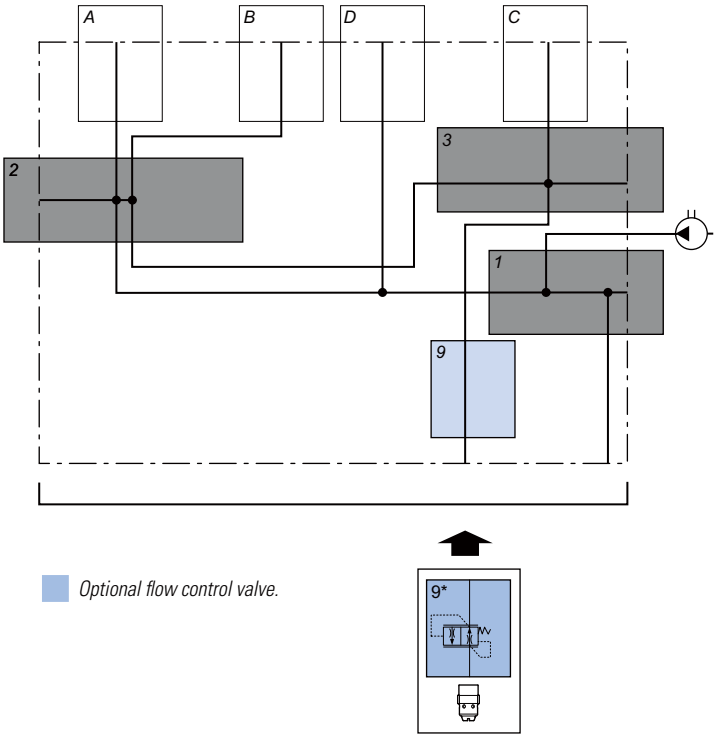
(1) The flow control valves can be installed with the plug TC.

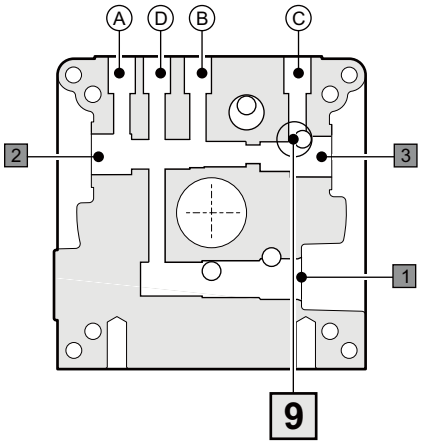
FPE**	** (...)	2	D(**) **	3	..	**	+*	9 *

Return cavities

Optional flow control valve

Return cavity, omit if not required flow control valves.



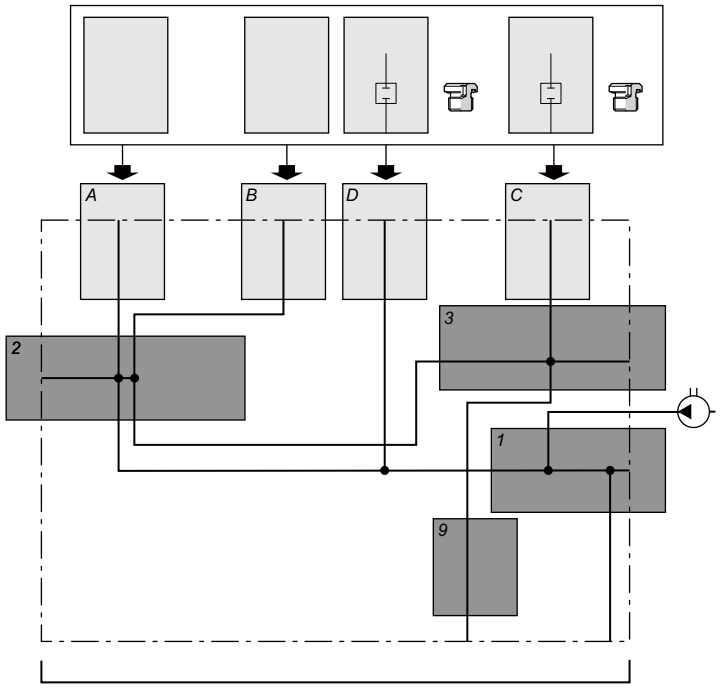


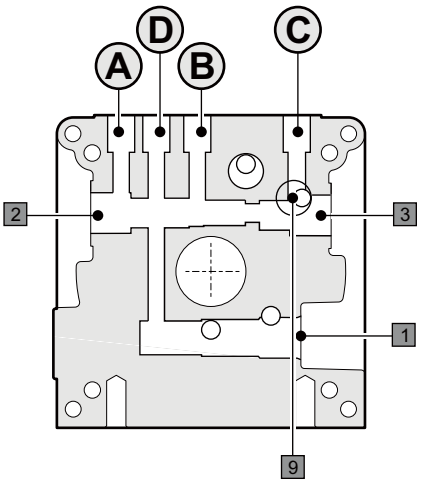
9 * *Flow control valves*

*	Nominal flow at 120 bar	Code	Symbol	Drawing
A	0.7 l/min	VSC06100002		
B	1.1 l/min	VSC06120002		
C	2.1 l/min	VSC06130002		
E	3.2 l/min	VSC06150002		
G	4.7 l/min	VSC06190002		
K	6.3 l/min	VSC06220002		
N	7.5 l/min	VSC06240002		
Q	10.0 l/min	VSC06280002		
U	13.2 l/min	VSC06330002		
V	15.7 l/min	VSC06350002		

FPE**	** (...)	2 D(**) **	3 .. **	+*	9 *	-**	-

Combinations plugs on ports
End section II





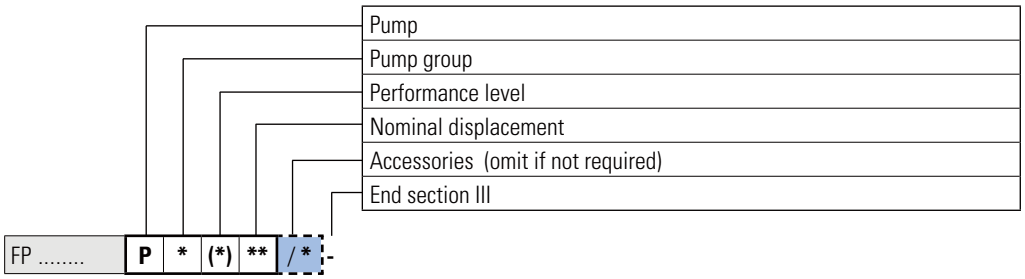
-** ***Combinations plugs on ports A-B-C-D***

-**	A	B	C	D
-00	↑	↑	⊗	↑
-01	↑	↑	↑	⊗
-03	↑	⊗	↑	⊗
-04	↑	↑	⊗	⊗

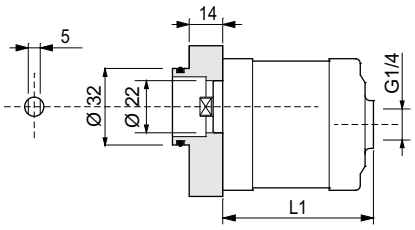
Symbols description

Type	Description	Thread	Code	Symbol	Drawing
⊗	Port closed with plug	G 1/4"	20024000		
↑	Port open		—	—	—

With the FPE hydraulic power pack, cannot be mounted the standard blocks.



P 0 (1) ** Pumps group 05 - Performance level 1

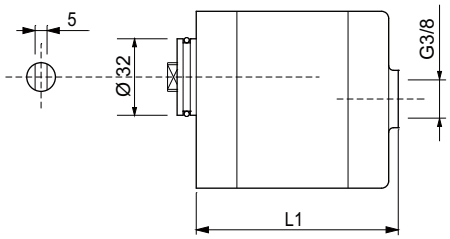


**	Nominal displacement	Tolerance on geometric displacement	P2 bar	P3 bar	Code complete kit	L1 mm	Tanks not compatible (•) S01A (H)	S01A (V)	S09E (H)	S09E (V)	S02G (H)	S02G (V)	All (H)	All (V)	Motors not compatible
02	0.25 cc	0.25 ÷ 0.33	230	270	17050037.035	54									M4FB(1) - M4GJ(1) MM*PA(1) M*AA(1)D - M*AA(1)G M*AA(1)H M*AB(1)D - M*AB(1)G M*AB(1)H
04	0.45 cc	0.45 ÷ 0.55	230	270	17050036.035	55.7									
05	0.56 cc	0.56 ÷ 0.68	230	270	17050039.035	56.7			•		•				
07	0.75 cc	0.69÷ 0.82	230	270	17050038.035	58.5			•		•				
09	0.92 cc	0.83 ÷ 0.95	230	270	17050053.035	59.8			•		•				

P2 = Intermittent operating pressure
P3 = Intermittent peak pressure (20 sec. max)

Tanks not compatible (as dimensions, see page 55)
Motors not compatible (interface and transmission not supplied, see pages 71 - 77)

P 1 (1) ** / * Pumps group 1 - Performance level 1



**	Nominal displacement	Tolerance on geometric displacement	P2 bar	P3 bar	Code complete kit	L1 mm	Tanks not compatible (•) S01A (H)	S01A (V)	S09E (H)	S09E (V)	S02G (H)	S02G (V)	All (H)	All (V)
07	0.80 cc	0.69 ÷ 0.82	170	210	17050107.018	72.4			•					
10	1.00 cc	0.96 ÷ 1.09	170	210	17050088.018	73.5			•					
12	1.20 cc	1.10 ÷ 1.30	250	290	17050005.018	74.8			•					
17	1.70 cc	1.50 ÷ 1.70	250	290	17050006.018	76.2			•					
22	2.20 cc	2.10 ÷ 2.30	250	290	17050007.018	78.2			•					
26	2.60 cc	2.50 ÷ 2.70	250	290	17050008.018	79.7			•		•			
32	3.20 cc	3.10 ÷ 3.32	250	290	17050009.018	82.0			•		•			
38	3.80 cc	3.60 ÷ 3.99	250	290	17050010.018	84.0			•		•			
43	4.30 cc	4.00 ÷ 4.35	250	290	17050011.018	86.6			•		•			
48	4.80 cc	4.85 ÷ 4.95	225	260	17050033.018	88.1			•		•			
60	6.00 cc	5.62 ÷ 6.02	185	215	17050012.018	92.2	•		•	•	•	•		
78	7.80 cc	7.48 ÷ 7.90	140	160	17050013.018	98.9	•	•	•	•	•	•		
98	9.80 cc	9.60 ÷ 10.00	110	125	17050054.018	107.2	•	•	•	•	•	•		

P2 = Intermittent operating pressure
P3 = Intermittent peak pressure (20 sec. max)

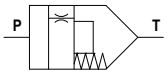
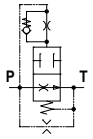
Tanks not compatible (as dimensions, see page 55) .

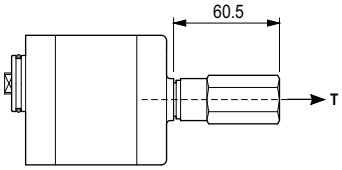
III

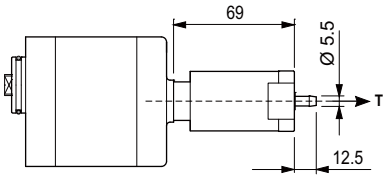
P	1	(1)	**	/*

Accessories for pumps group 1

Displacement

*	Description	Type	Code	Symbol
/A	Single-phase motor start valve - on auxiliary outlet	0.8 ÷ 2.5 l/min	VAM0400L	
/B		> 2.5 ÷ 8.0 l/min	VAM0400M	
/C		> 8.0 ÷ 14 l/min	VAM0400H	
/D	Soft start valve - on auxiliary outlet	hole Ø 0.4 mm	VAMS0404001	

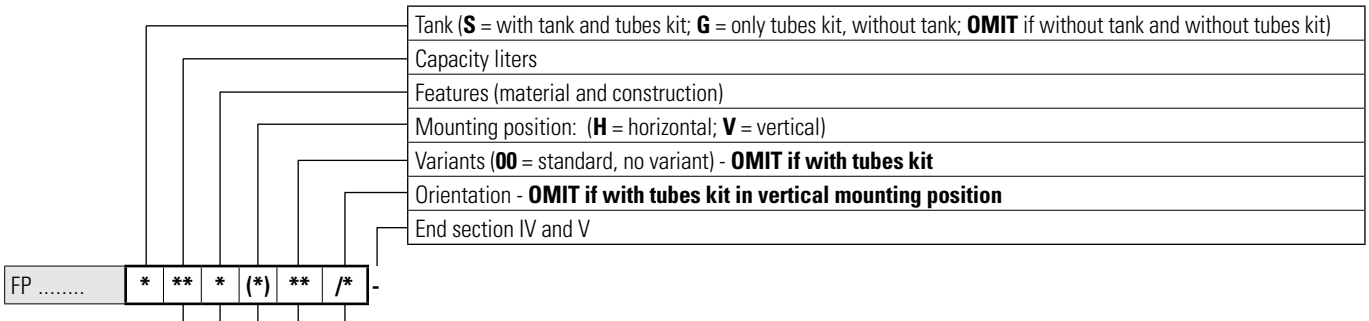




**	With accessory	Tanks not compatible (•)			
		S01A	S09E	S02G	All
09	/A /B /C				
	/D	•	•	•	
12	/A /B /C				
	/D	•	•	•	
17	/A /B /C				
	/D	•	•	•	
22	/A /B /C				
	/D	•	•	•	
26	/A /B /C				
	/D	•	•	•	
32	/A /B /C		•	•	
	/D	•	•	•	
38	/A /B /C	•	•	•	
	/D	•	•	•	
43	/A /B /C	•	•	•	
	/D	•	•	•	

Tanks not compatible (as dimensions, see page 55) .

III



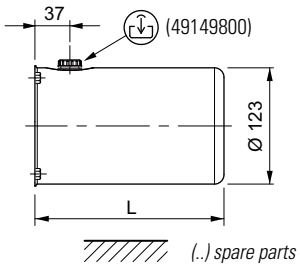
**	Liters	*	Dimensions (mm)	Material	(*) Mounting	** Variants	Page	* Orientation	Page
01	1	A	Ø 123 - L 141	Sheet steel	(H)	00	56	/1(std) /2 /3 /4	69
					(V)	00			
02	1,5	G	⍁ 130x140 - L 135	Polyethylene	(H)	00	65		
					(V)	00			
	2	A	Ø 123 - L 200	Sheet steel	(H)	00	56		
					(V)	00			
03	2,5	G	⍁ 130x140 - L 235	Polyethylene	(H)	00	65		
					(V)	00			
	3	A	Ø 123 - L 330	Sheet steel	(H)	00	56		
					(V)	00			
04	4	G	⍁ 130x140 - L 295	Polyethylene	(H)	00	65		
					(V)	00			
	4	L	⍁ 180 - L 210	Polyethylene	(H)	00	66		
					(V)	00			
05	5	B	Ø 175 - L 246	Sheet steel	(H)	00-01-02-03-04	57		
					(V)	00			
	5	C	Ø 200 - L 210	Sheet steel	(H)	00	58		
					(V)	00			
	5	F	⍁ 180 - L 240	Polypropylene	(H)	00	64		
					(V)	00			
06	6	B	Ø 175 - L 308	Sheet steel	(H)	00-04	57		
					(V)	00			
07	7	E	⍁ 154x188 - L 299	Sheet steel	(V)	00-01	60		
	7	F	⍁ 180 - L 308	Polypropylene	(H)	00	64		
					(V)	00			
	7	L	⍁ 180 - L 310	Polyethylene	(H)	00	67		
					(V)	00			
	7	M	⍁ 180 - L 335	Polietilene	(H)	00	68		
					(V)	00			
08	8	B	Ø 175 - L 370	Sheet steel	(H)	00-04	57		
					(V)	00			
	8	C	Ø 200 - L 306	Sheet steel	(H)	00	58		
					(V)	00			
09	9	E	⍁ 230x130 - L 350	Sheet steel	(H)	00	61		
					(V)	00			
		L	⍁ 180 - L 370	Polietilene	(V)	00	67		
10	10	C	Ø 200 - L 373	Sheet steel	(H)	00	58		
					(V)	00			
	10	D	Ø 217 - L 273	Sheet steel	(H)	00	59		
					(V)	00			
	10	L	⍁ 180 - L 410	Polyethylene	(H)	00	67		
					(V)	00			
12	12	D	Ø 217 - L 370	Sheet steel	(H)	00	59		
					(V)	00			
14	14	E	⍁ 255x193 - L 366	Sheet steel	(V)	00-01	62		
25	25	E	⍁ 250x255 - L 436	Sheet steel	(H)	00-01	63		
					(V)	00-01			

IV
V

*	**	*	(H)	**	*

- ***Tanks Ø 123 - Sheet steel, capacity 1-2-3 liters - Horizontal mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
01	**A**	**(H)**	**00**	141	1	1.0	0.7	90310000	17010080
02				200	2	1.6	1.5	90310001	
03				330	3	3	2.8	90310002	



(..) spare parts

(1) Variant - OMIT if without tank but with tubes kit

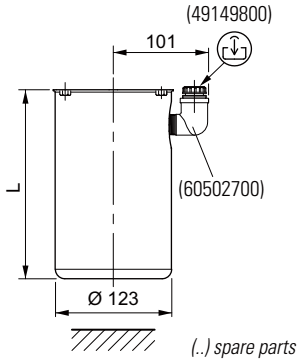
Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

*	**	*	(V)	**	*

- ***Tanks Ø 123 - Sheet steel, capacity 1-2-3 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
01	**A**	**(V)**	**00**	141	1	0.9	0.7	90310009	17010080
02				200	2	1.6	1.5	90310010	
03				330	3	2.9	2.9	90310011	



(..) spare parts

(1) Variant - OMIT if without tank but with tubes kit

Other variants

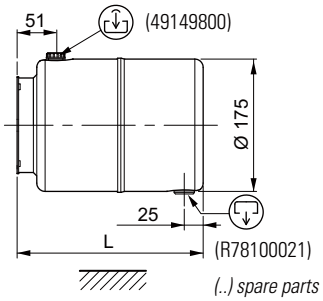
Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

*	**	*	(H)	**	*

- ***Tanks Ø 175 - Sheet steel, capacity 5-6-8 liters - Horizontal mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
05	**B**	**(H)**	**00**	246	5	4.7	4.5	90310003	17010080
06				308	6	6	5.9	90310004	
08				370	8	8	7.3	90310005	

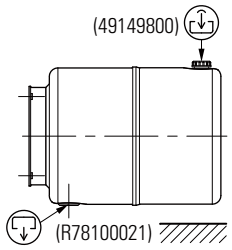
(1) Variant - OMIT if without tank but with tubes kit



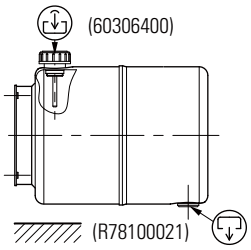
(..) spare parts

Other variants

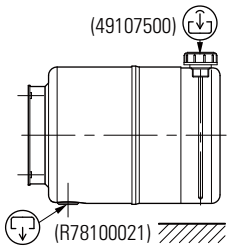
Variant				Tank
05	B	(H)	**01**	90310003
06				
08				



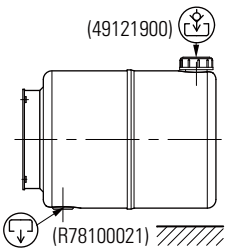
Variant				Tank
05	B	(H)	**02**	90310149
06				
08				



Variant				Tank
05	B	(H)	**03**	90310134
06				90310062
08				90310069



Variant				Tank
05	B	(H)	**04**	90310176
06				
08				

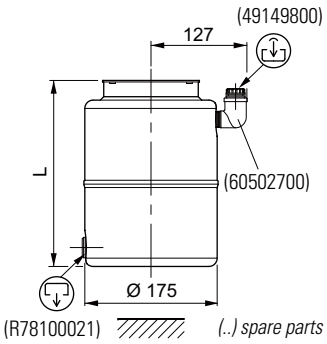


*	**	*	(V)	**	*

- ***Tanks Ø 175 - Sheet steel, capacity 5-6-8 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
05	**B**	**(V)**	**00**	246	5	4.3	4.1	90310012	17010080
06				308	6	5.8	5.5	90310013	
08				370	8	7.5	7.2	90310015	

(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

Other variants

Variant				Tank

Variant				Tank

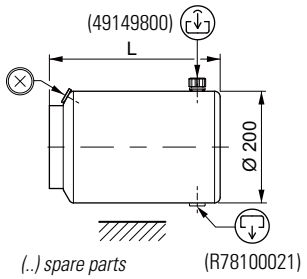
Variant				Tank

Variant				Tank

*	**	*	(H)	**	*

- ***Tanks Ø 200 - Sheet steel, capacity 5-8-10 liters - Horizontal mounting (black painted)***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
05	**C**	**(H)**	**00**	205	5	5.3	5.0	90310425	17010080
08				301	8	8.0	7.7	90310428	
10				368	10	10	9.3	90310431	



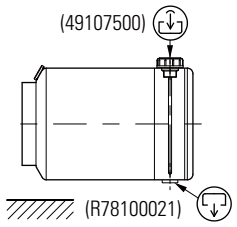
(1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant				Tank

Variant				Tank

Variant				Tank
05	C	(H)	**03**	90310453
08				90310443
10				90310483

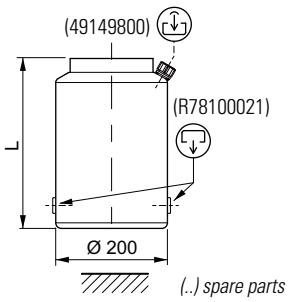


Variant				Tank

*	**	*	(V)	**	*

- ***Tanks Ø 200 - Sheet steel, capacity5-8-10 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
05	**C**	**(V)**	**00**	205	5	4.6	4.3	90310444	17010080
08				301	8	7.5	7.1	90310437	
10				368	10	9.5	9.1	90310439	



(1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant				Tank

Variant				Tank

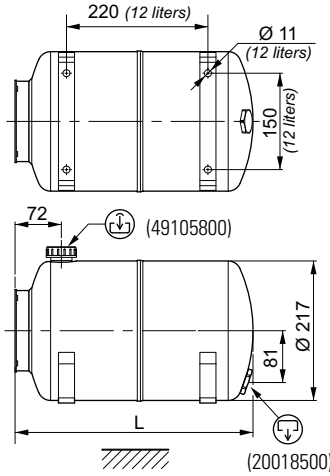
Variant				Tank

Variant				Tank

* | ** | * | (H) | ** | * - *Tanks Ø 217 - Sheet steel, capacity10-12 liters - Horizontal mounting (black painted)*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
10	D	(H)	00	273	10	8	7.6	90310006	17010080
12				370	12	12	11	90310058	

(1) Variant - OMIT if without tank but with tubes kit



Other variants

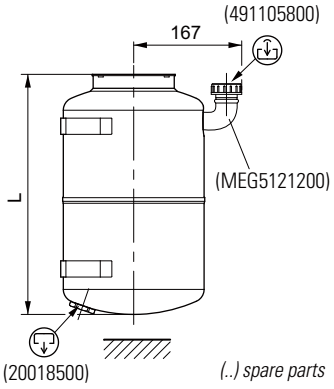
(..) spare parts

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

* | ** | * | (V) | ** | * - *Tanks Ø 217 - Sheet steel, capacity10-12 liters - Vertical mounting (black painted)*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
10	D	(V)	00	273	10	7	6.8	90310029	17010080
12				370	12	10.3	10.1	90310100	

(1) Variant - OMIT if without tank but with tubes kit



Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

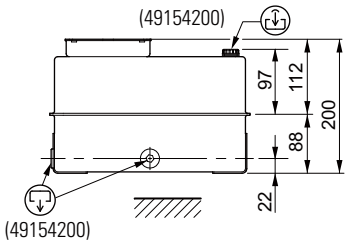
IV
V

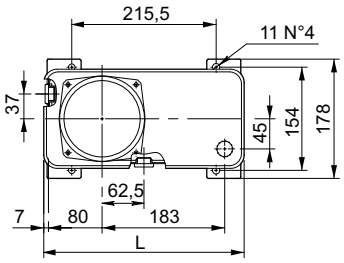
*	**	*	(V)	**	*	-

Rectangular tanks - Sheet steel, capacity 7 liters - Vertical mounting (black painted)

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
07	**E**	**(V)**	**00**	299	7	5.5	5.1	90310014	17010080

(1) Variant - OMIT if without tank but with tubes kit

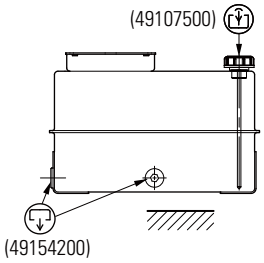




(..) spare parts

Other variants

Variant				Tank
07	E	(V)	**01**	90310036



Variant				Tank

Variant				Tank

Variant				Tank

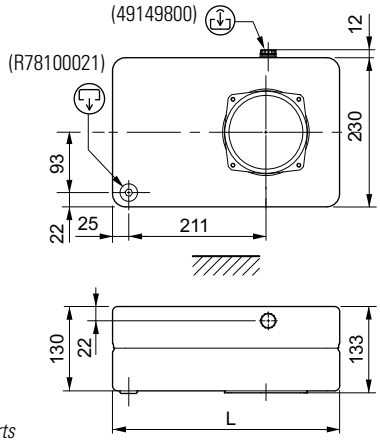
IV
V

*	**	*	(H)	**	*

- ***Rectangular tanks - Sheet steel, capacity 9 liters - Horizontal mounting (black painted)***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
09	**E**	**(H)**	**00**	350	9	9	8	90310142	17010080

(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

Other variants

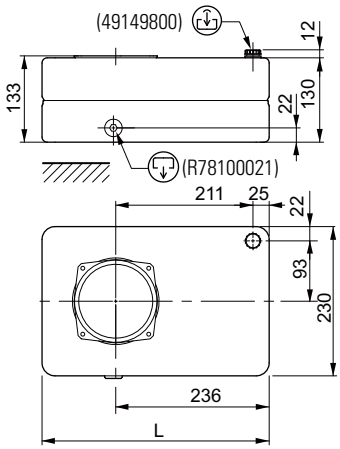
Variant				Tank	Variant				Tank	Variant				Tank	Variant				Tank

*	**	*	(V)	**	*

- ***Rectangular tanks - Sheet steel, capacity 9 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
09	**E**	**(V)**	**00**	350	9	8.6	7.5	90310142	17010080

(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

Other variants

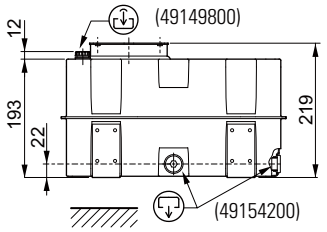
Variant				Tank	Variant				Tank	Variant				Tank	Variant				Tank

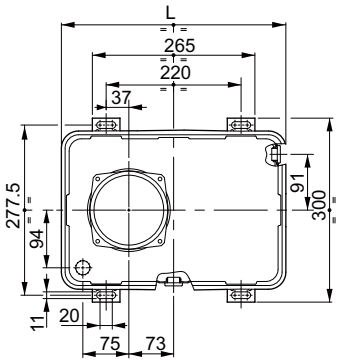
IV
V

*	**	*	(*)	**	*	-	***Rectangular tanks - Sheet steel, capacity 14 liters - Vertical mounting (black painted)***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
14	**E**	**(V)**	**00**	366	14	14	13	90310045	17010080

(1) Variant - OMIT if without tank but with tubes kit





(..) spare parts

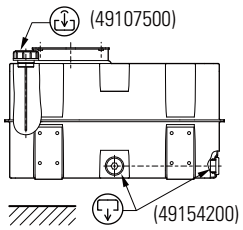
Other variants

Variant				Tank
14	E	(V)	**01**	90310046

Variant				Tank

Variant				Tank

Variant				Tank

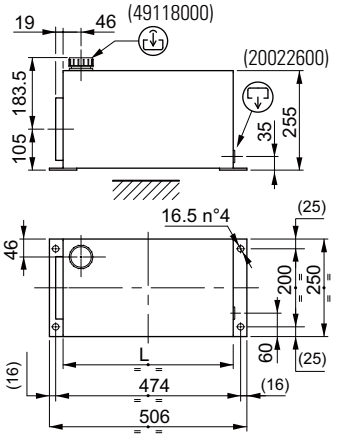


IV
V

* | ** | * | (*) | ** | * - *Rectangular tanks - Sheet steel, capacity 25 liters - Horizontal mounting (black painted)*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
25	**E**	**(H)**	**00**	436	25	22	21	90310060	17010080

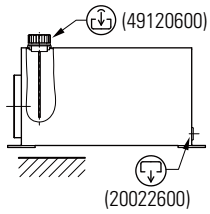
(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

Other variants

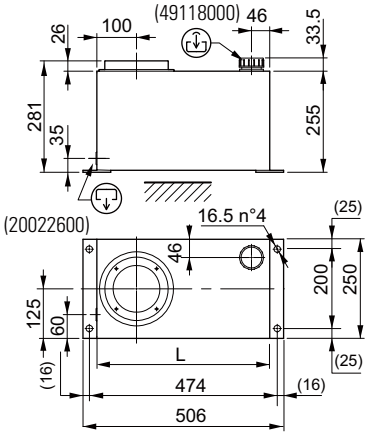
Variant				Tank
25	E	(H)	**01**	90310083



* | ** | * | (*) | ** | * - *Rectangular tanks - Sheet steel, capacity 25 liters - Vertical mounting (black painted)*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs)	Tank fixing kit (screws and O-Ring)
25	**E**	**(V)**	**00**	436	25	25	22	90310071	17010080

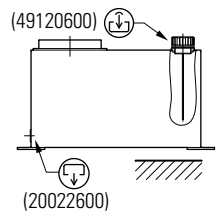
(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

Other variants

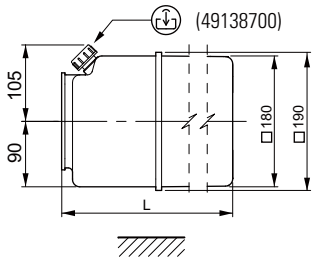
Variant				Tank
25	E	(V)	**01**	90310124



*	**	*	(H)	**	*

- ***Square polypropylene tanks capacity 5-7 liters - Horizontal mounting***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, brackets, nuts)	Tank fixing kit (screws and O-Ring)
05	**F**	**(H)**	**00**	242	5	5.4	4.5	90310313	17010083
07				308	7	7.4	6.5	90310289	



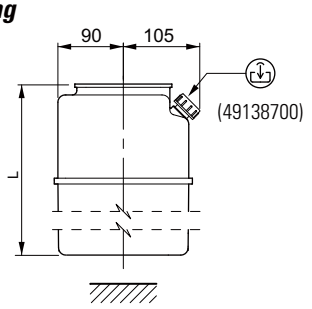
Operating temperature -10°C ÷ +60°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

*	**	*	(V)	**	*

- ***Square polypropylene tanks capacity 5-7 liters - Vertical mounting***

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, brackets, nuts)	Tank fixing kit (screws and O-Ring)
05	**F**	**(V)**	**00**	242	5	5.4	4.5	90310313	17010083
07				306	7	7.4	6.5	90310289	

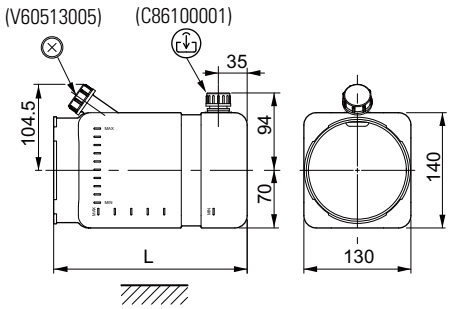


(..) spare parts

Operating temperature -10°C ÷ +60°C - (1) Variant - OMIT if without tank but with tubes kit

* | ** | * | (H) | ** | * - *Square polyethylene tanks capacity 1.5-2.5-4 liters - Horizontal mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
02	G	(H)	00	135	1.5	1.3	1	90310491	17010081
03				235	2.5	2.5	2	90310484	
04				295	4	3.4	2.5	90310422	



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

Other variants

Variant				Tank

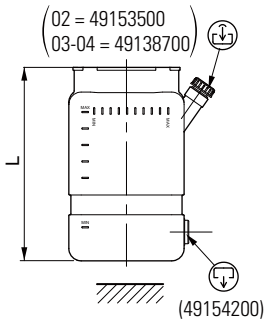
Variant				Tank

Variant				Tank

Variant				Tank

* | ** | * | (V) | ** | * - *Square polyethylene tanks capacity 1.5-2.5-4 liters - Vertical mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
02	G	(V)	00	135	1.5	1.1	0.7	90310486	17010081
03				235	2.5	2.7	2.3	90310419	
04				296	4	3.5	3.1	90310402	



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

Other variants

Variant				Tank

Variant				Tank

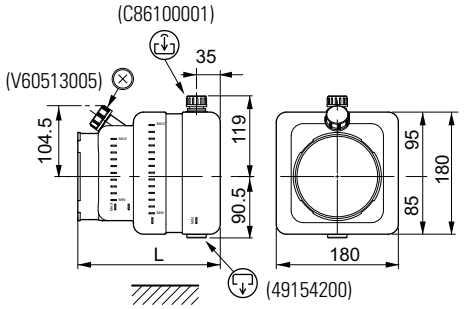
Variant				Tank

Variant				Tank

IV
V

* | ** | * | (H) | ** | * - *Square polyethylene tanks capacity 4 liters - Horizontal mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
04	**L**	**(H)**	**00**	210	4	3.6	3	90310331	17010081



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

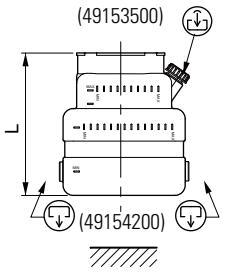
(..) spare parts

Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

* | ** | * | (V) | ** | * - *Square polyethylene tanks capacity 4 liters - Vertical mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
04	**L**	**(V)**	**00**	210	4	3.7	3	90310332	17010081

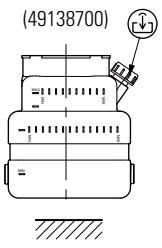


Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

Other variants

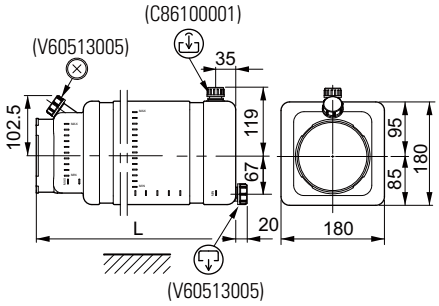
Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank
04 L (V) **01**	90310433						



* | ** | * | (*) | ** | * - *Square polyethylene tanks capacity 7-10 liters - Horizontal mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
07	L	(H)	00	310	7	6.7	5.5	90310330	17010081
10				410	10	8.7	7.5	90310339	

Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

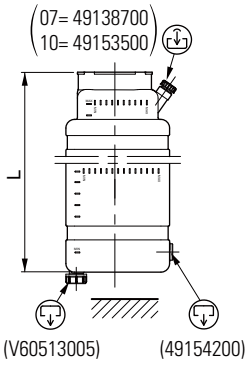


(..) spare parts

* | ** | * | (*) | ** | * - *Square polyethylene tanks capacity 7-10 liters - Vertical mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
07	L	(V)	00	310	7	6.7	6	90310403	17010081
10				410	10	9.8	9	90310338	

Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

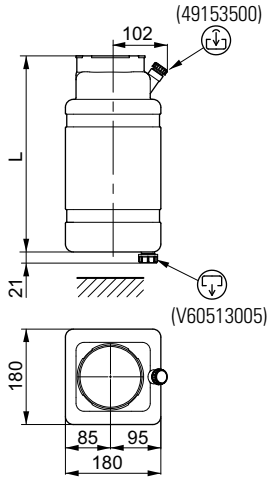


(..) spare parts

* | ** | * | (*) | ** | * - *Square polyethylene tanks capacity 9 liters - Vertical mounting*

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
09	L	(V)	00	370	9	8.6	8	90310371	17010081

Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit



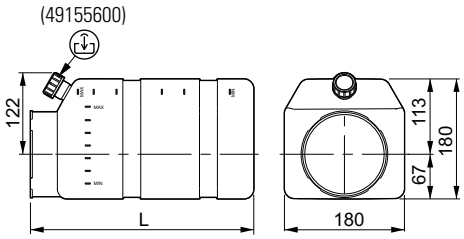
(..) spare parts

IV
V

*	**	*	(H)	**	*	-

Special square polyethylene tanks capacity 7 liters - Horizontal mounting

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
07	**M**	**(H)**	**00**	335	7	7.3	6.6	90310380	17010081



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

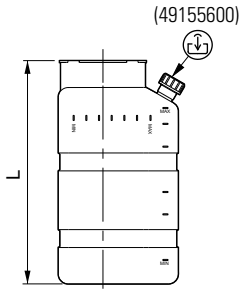
Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

*	**	*	(V)	**	*	-

Special square polyethylene tanks capacity 7 liters - Vertical mounting

Capacity	Features	Mounting	Variant *(1)*	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plugs, clamp, nuts)	Tank fixing kit collar Ø123 (screws and O-Ring)
07	**M**	**(V)**	**00**	335	7	7.2	6.4	90310380	17010081



Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

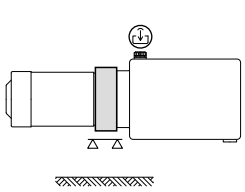
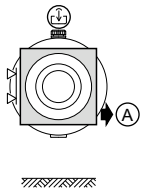
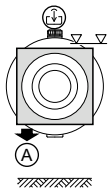
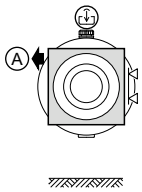
(..) spare parts

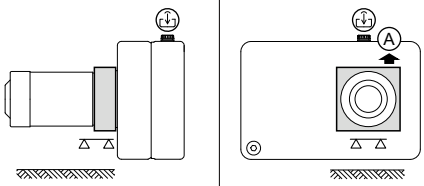
Other variants

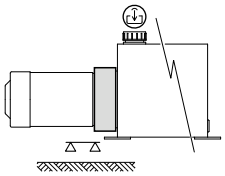
Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

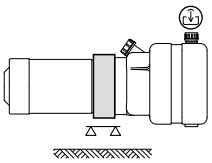
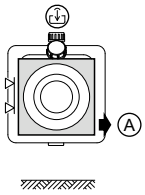
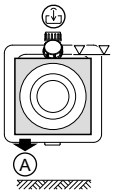
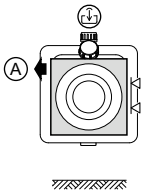
*	**	*	(*)	**	/*

- ***Tanks orientation according to the mounting position***

For tanks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	**	A B C D	(H)	Horizontal	 (1)			

For tanks			(*)	Mounting position	/* Orientation			
					/1 (standard)			
S	09	E	(H)	Horizontal				

For tanks			(*)	Mounting position	/* Orientation			
					/1 (standard)			
S	25	E	(H)	Horizontal				

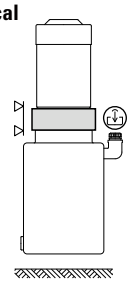
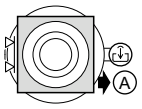
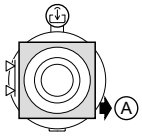
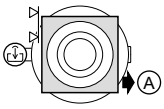
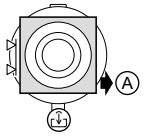
For tanks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	**	F G L	(H)	Horizontal	 (1)			

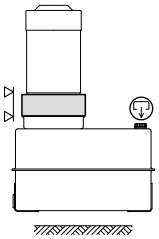
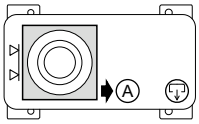
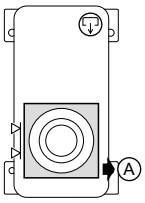
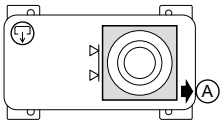
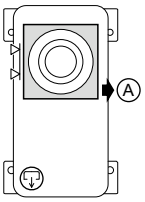
(1) Orientation TO BE USED with blocks

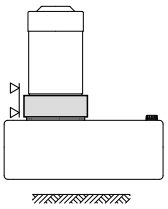
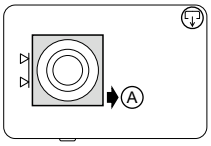
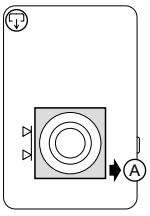
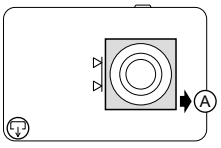
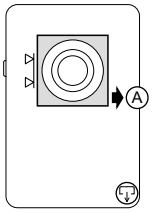
IV
V

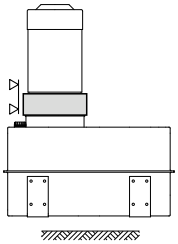
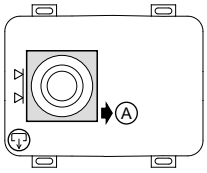
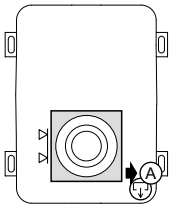
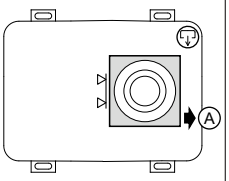
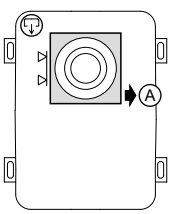
*	**	*	(*)	**	/*

- ***Tanks orientation according to the mounting position***

For tanks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	**	A B C D F G L	(V)	Vertical 	 (2)			

For tanks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	07	E	(V)	Vertical 	 (1)			

For tanks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	09 25	E	(V)	Vertical 	 (1)			

For tanks			(*)	Mounting position	/* Orientation			
					/1 (standard)	/2	/3	/4
S	14	E	(V)	Vertical 	 (1)			

(1) Orientation TO BE USED with blocks
(2) D Orientation DO NOT USE with blocks

Motor
Voltage
Power / Size
Version
Accessories
Orientation
End section VI

All motors are equipped with a transmission kit (coupling and components for the assembly)

FP	M	*	**	(*)	*	/*	-

*	Voltage
2	12 VDC
4	24 VDC

**	Power	Size
GA	350 W	Ø 80
GC	700 W	Ø 80
AA	1500 W	Ø 115
EN	1600 W	Ø 115
GN	1600 W	Ø 115
GB	400 W	Ø 80
GD	800 W	Ø 80
AB	2000 W	Ø 115
ES	2200 W	Ø 115
GP	2200 W	Ø 115
GJ	3000 W	Ø 125
FB	3000 W	Ø 125

(*)	Version	Page
(1)	Std	72
(1)	Std	72
(1)	Std	73
(1)	Std	73
(1)	Std	74
(1)	Std	72
(1)	Std	72
(1)	Std	73
(1)	Std	73
(1)	Std	74
(1)	Std	74
(1)	Std	74

* Accessories
0 - B
0 - B
0 - B - C - D - F - G - H
0 - B - C - E
0 - B - C - E
0 - B
0 - B
0 - B - C - D - F - G - H
0 - B - C - E
0 - B - C - E
0 - B - C - E
0 - B - C - E

/* Orientation	Page
/1 /2 Std /3 /4	76

*	Accessories description	Page
0	Without accessories	—
B	Starting switch	75
C	Thermal protection	—
D (•)	Ventilation	75
E	Starting switch + thermal protection	—
F (•)	Starting switch + ventilation	—
G	Thermal protection + ventilation	—
H (•)	Starting switch + thermal protection + ventilation	—

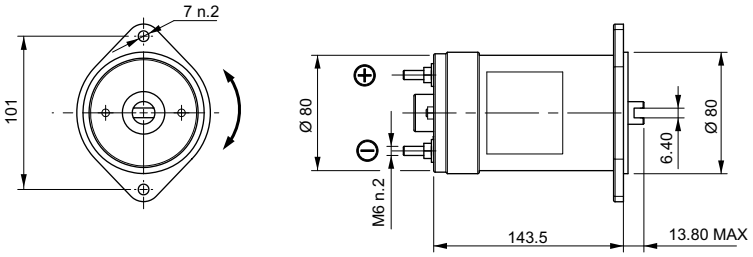
(•)= IP protection level becomes effective after installationon on power pack. Acquires IP 10 level with "ventilation" accessory.

For more details, features and performances DC motors, see catalog Dana code DOC00053.

Motors: 12 VDC 350 W / 24 VDC 400 W (permanent magnets)

	Voltage	W	A	rpm	Nm	S2 min	S3%	IP	IC	Ø mm	Code (⊗)
M **2 GA (1)** * /*	12 VDC	350	40	3300	1.0	10	35	54	F	80	25021400
M **4 GB (1)** * /*	24 VDC	400	30	3100	1.2	5	20	54	F	80	25021500

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M * ** (*) * /* - ***Accessories (page 75)***

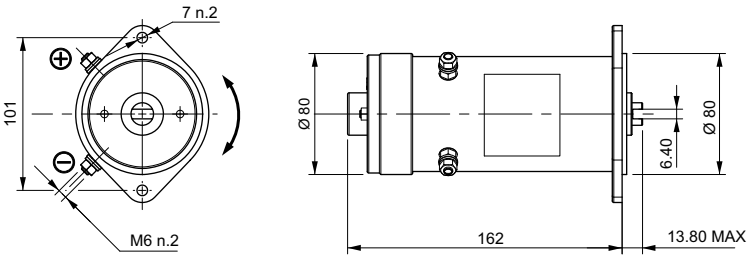
*	Description
0	Without accessories
B	Starting switch 120A fixing with clamp

Code trasmission kit: page 83

Motors: 12 VDC 700 W / 24 VDC 800 W (permanent magnets)

	Voltage	W	A	rpm	Nm	S2 min	S3%	IP	IC	Ø mm	Code (⊗)
M **2 GC (1)** * /*	12 VDC	700	90	3300	2.0	2.5	10	54	F	80	25021600
M **4 GD (1)** * /*	24 VDC	800	70	3000	2.5	2	5	54	F	80	25021700

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M * ** (*) * /* - ***Accessories (page 75)***

*	Description
0	Without accessories
B	Starting switch 120A

Code trasmission kit: page 83

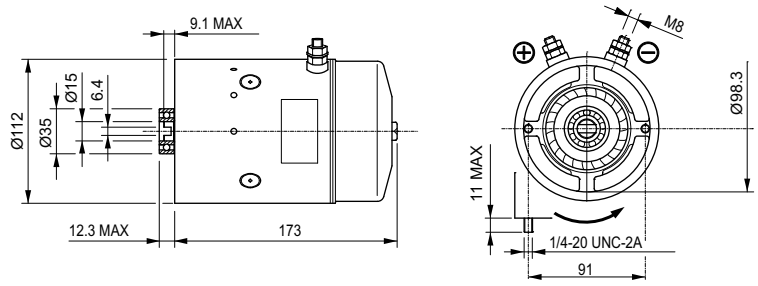
VI
DC

For more details, features and performances DC motors, see catalog Dana code DOC00053.

Motors: 12 VDC 1500 W / 24 VDC 2000 W (wound field compound)

	Voltage	W	A	rpm	Nm	S2 min	S3%	IP	IC	Ø mm	Code (⊗)
M **2 AA (1)** * /*	12 VDC	1500	225	2500	5.5	1	5	54	F	115	25022200
M **4 AB (1)** * /*	24 VDC	2000	150	2250	8	2	5	54	F	115	25022300

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M * ** (*) * /* - ***Accessories (page 75)***

*	Description
0	Without accessories
B	Starting switch 120A
D	Ventilation
F	Ventilation + Starting switch
G	Ventilation + Thermal protection
H	Ventilation + Thermal protection + Starting switch

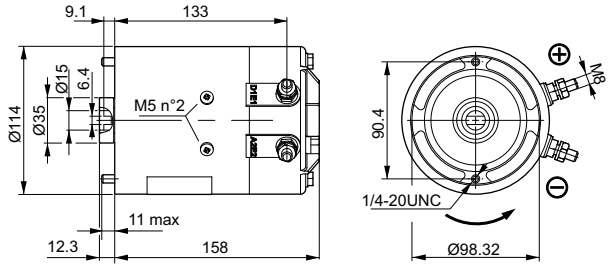
Acquires IP 10 protection level with "ventilation" accessory.

Code trasmission kit: page 83

Motors: 12 VDC 1600 W / 24 VDC 2200 W (wound field compound)

	Voltage	W	A	rpm	Nm	S2 min	S3%	IP	IC	Ø mm	Code (⊗)
M **2 EN (1)** * /*	12 VDC	1600	230	2600	5	2	10	54	F	115	25021100
M **4 ES (1)** * /*	24 VDC	2200	140	2700	8	1.2	5	54	F	115	25021200

IP protection level becomes effective after installationon on power pack.
( ) Motor without accessories



M * ** (*) * /* - ***Accessories (page 75)***

*	Description
0	Without accessories
B	Starting switch 120A
C	Thermal protection
E	Starting switch + thermal protection

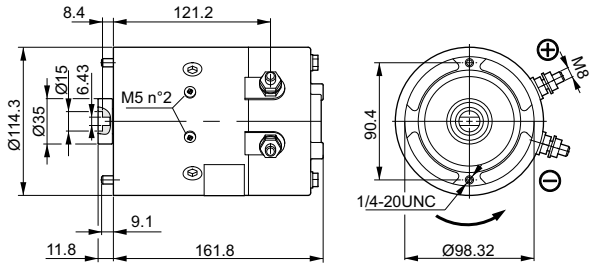
Code trasmission kit: page 83

For more details, features and performances DC motors, see catalog Dana code DOC00053.

Motors: 12 VDC 1600 W / 24 VDC 2200 W (wound field serie)

		Voltage	**W**	**A**	**rpm**	**Nm**	**S2** min	**S3%**	**IP**	**IC**	**Ø mm**	**Code** (⊗)
M	**2** **GN** **(1)** * /*	12 VDC	1600	220	2600	6	4	8	54	F	115	25022600
M	**4** **GP** **(1)** * /*	24 VDC	2200	140	2600	6	2	7.5	54	F	115	25022700

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M * ** (*) * /* - ***Accessories (page 75)***

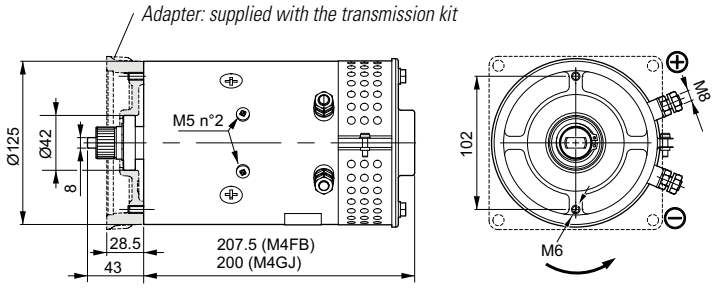
*	**Description**
0	Without accessories
B	Starting switch 120A

Code trasmission kit: page 83

Motors: 24 VDC 3000 W (wound field compound)

		Voltage	**W**	**A**	**rpm**	**Nm**	**S2** min	**S3%**	**IP**	**IC**	**Ø mm**	**Code** (⊗)
M	**4** **FB** **(1)** * /*	24 VDC	3000	200	3300	8.5	4	15	20	F	125	25021300
M	**4** **GJ** **(1)** * /*	24 VDC	3000	180	3500	8.5	3.5	15	20	F	125	25022400

IP protection level becomes effective after installationon on power pack.
(⊗) Motor without accessories



M * ** (*) * /* - ***Accessories (page 75)***

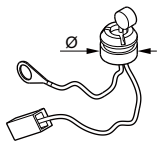
**	*	**Description**
FB GJ	**0**	Without accessories
	B	Starting switch 150A
	D	Ventilation
	F	Ventilation + Starting switch
FB	**G**	Ventilation + Thermal protection
	H	Ventilation + Thermal protection + Starting switch

Code trasmission kit: page 83

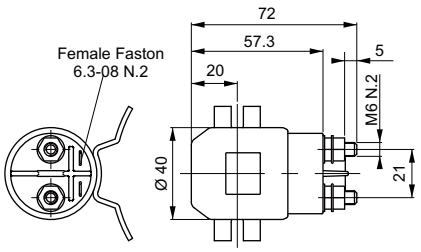
For more details, features and performances DC motors, see catalog Dana code DOC00053.

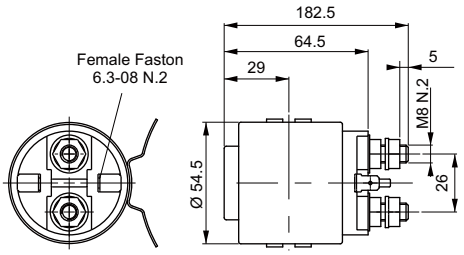
M | * | ** | (*) | **C** | /* - ***Accessory: Thermal protection***

Thermal protection		
Code	**Ø mm**	**For motors**
90340009	16	M2EN - M4ES



M | * | ** | (*) | **B** | /* - ***Accessory: Starting switch***





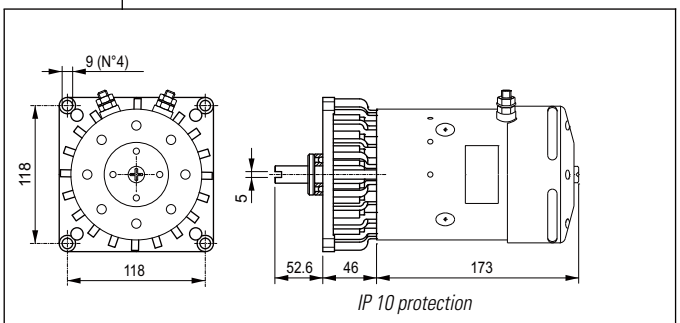
120A starting switch		
Code (•)	**VDC**	**For motors**
KIT07012.027	12	M2GA - M2GC
KIT07012.032	24	M4GB - M4GD
KIT07012.033	12	M2AA
KIT07012.034	24	M4AB
KIT07012.025	12	M2EN - M2GN
KIT07012.026	24	M4ES - M2GP

150A starting switch		
Code (•)	**VDC**	**For motors**
KIT07012.019	24	M4FB - M4GJ

(•) Complete kit with all assembly components.

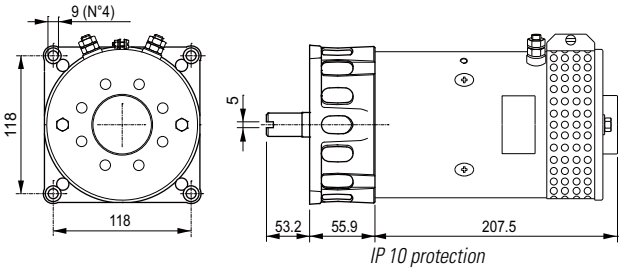
For more details, features and performances DC motors, see catalog Dana code DOC00053.

M | * | ** | (*) | ***** | /* - ***Accessory: Ventilation (motor included)***



IP 10 protection

*	Code (•)	VDC	For motors
D	**KIT09008.061**	12	M2AA
G	**KIT09008.062**	12	M2AA + thermal protecion
D	**KIT09008.031**	24	M4AB
G	**KIT09008.063**	24	M4AB + thermal protecion



IP 10 protection

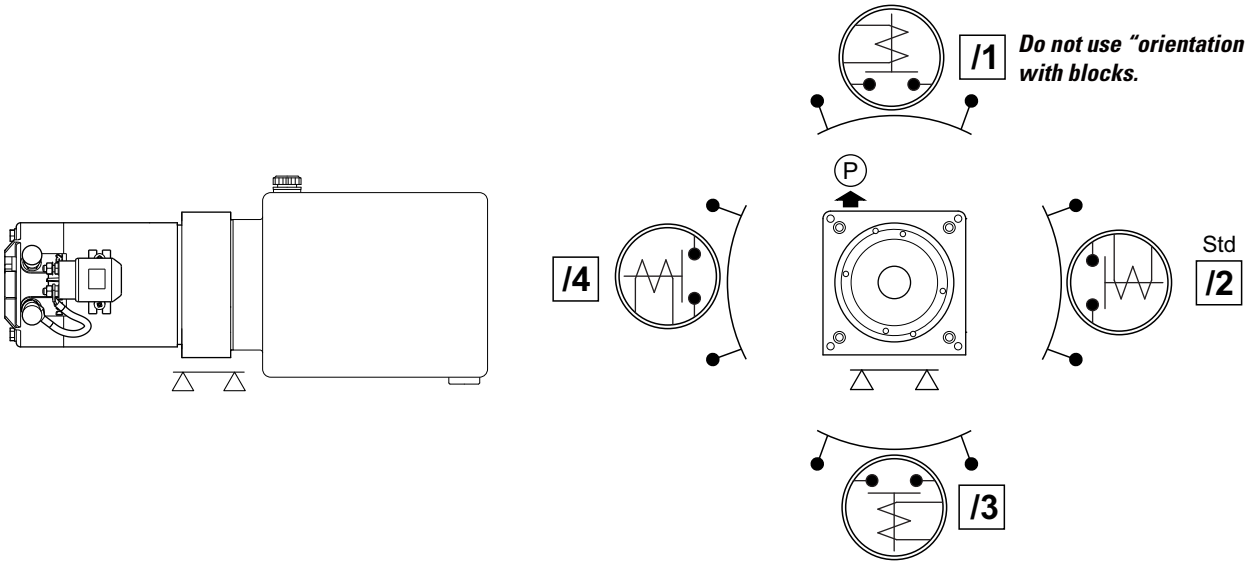
*	Code (•)	VDC	For motors
D	**KIT09008.029**	24	M4FB

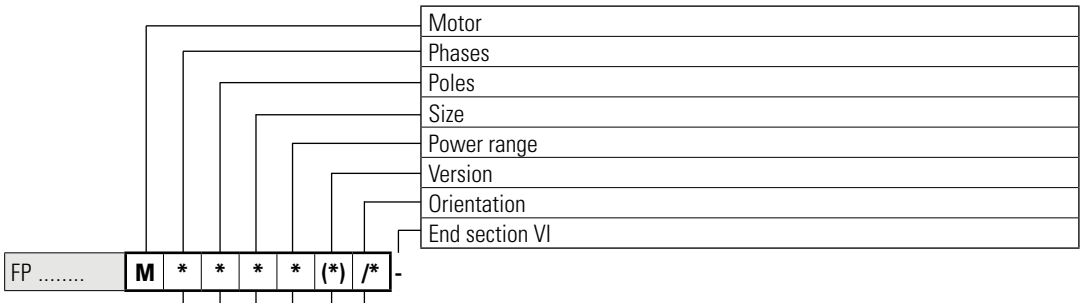
(•) Complete kit with all assembly components (motor, transmission kit, etc).

For more details, features and performances DC motors, see catalog Dana code DOC00053.

M	*	**	(*)	*	/*	-	***Motor orientation***

Starting switch and poles position.





*	Phases
M	Single phase
T	Three phase

* Poles
2
4
2
4

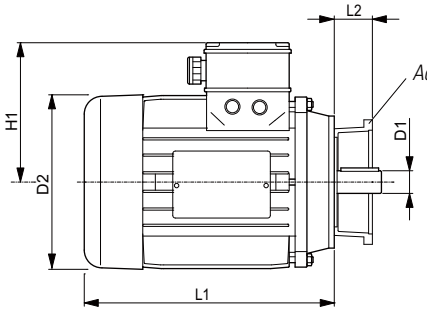
*	Size
L	71
L	71
S	71
S	71
M	80
M	80
N	90
N	90
P	100
L	71
L	71
S	71
M	80
M	80
N	90
N	90
V	90
V	90
P	100
R	63
R	63
L	71
L	71
S	71
S	71
M	80
M	80
T	80
T	80
N	90
N	90
P	100
P	112
R	63
R	63
L	71
L	71
S	71
M	80
M	80
T	80
T	80
T	80
T	80
N	90
N	90
P	100
P	100
P	112

*	Power range		Page
	Power	Voltage	
A	0.37 kW	230 Vac 50 Hz	78
B	0.55 kW	230 Vac 50 Hz	78
A	0.75 kW	230 Vac 50 Hz	80
B	1.10 kW	230 Vac 50 Hz	80
A	0.75 kW	230 Vac 50 Hz	78
B	1.10 kW	230 Vac 50 Hz	78
A	1.50 kW	230 Vac 50 Hz	78
B	2.20 kW	230 Vac 50 Hz	78
A	3.00 kW	230 Vac 50 Hz	78
A	0.25 kW	230 Vac 50 Hz	78
B	0.37 kW	230 Vac 50 Hz	78
C	0.85 kW	230 Vac 50 Hz	80
A	0.55 kW	230 Vac 50 Hz	78
B	0.75 kW	230 Vac 50 Hz	78
A	1.10 kW	230 Vac 50 Hz	78
B	1.50 kW	230 Vac 50 Hz	78
A	1.80 kW	230 Vac 50 Hz	81
B	3.00 kW	230 Vac 50 Hz	81
A	2.20 kW	230 Vac 50 Hz	78
A	0.18 kW	230/400 Vac 50 Hz	79
B	0.25 kW	230/400 Vac 50 Hz	79
A	0.37 kW	230/400 Vac 50 Hz	79
B	0.55 kW	230/400 Vac 50 Hz	79
A	0.75 kW	230/400 Vac 50 Hz	80
B	1.10 kW	230/400 Vac 50 Hz	80
A	0.75 kW	230/400 Vac 50 Hz	79
B	1.10 kW	230/400 Vac 50 Hz	79
A	2.70 kW	230/400 Vac 50 Hz	81
B	2.70 kW	230/400 Vac 50 Hz	81
A	1.50 kW	230/400 Vac 50 Hz	79
B	2.20 kW	230/400 Vac 50 Hz	79
A	3.00 kW	230/400 Vac 50 Hz	79
B	4.00 kW	230/400 Vac 50 Hz	79
A	0.12 kW	230/400 Vac 50 Hz	79
B	0.18 kW	230/400 Vac 50 Hz	79
A	0.25 kW	230/400 Vac 50 Hz	79
B	0.37 kW	230/400 Vac 50 Hz	79
A	0.75 kW	230/400 Vac 50 Hz	80
A	0.55 kW	230/400 Vac 50 Hz	79
B	0.75 kW	230/400 Vac 50 Hz	79
A	2.20 kW	230/400 Vac 50 Hz	81
B	2.20 kW	230/400 Vac 50 Hz	81
C	2.20 kW	230/400 Vac 50 Hz	81
D	3.00 kW	230/400 Vac 50 Hz	81
A	1.10 kW	230/400 Vac 50 Hz	79
B	1.50 kW	230/400 Vac 50 Hz	79
A	2.20 kW	230/400 Vac 50 Hz	79
B	3.00 kW	230/400 Vac 50 Hz	79
C	4.00 kW	230/400 Vac 50 Hz	79

(*) Version
(1) Std

/* Orientation		Page
/1 **/2** **/3** **/4**	Std	82

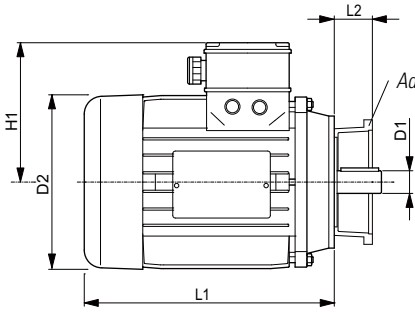
Motors supplied with all assembly components (transmission kit, coupling, etc).



Single-phase motors 2-4 Poles - 230 Vac 50Hz - Version B14

		Phases	Poles	Size	D1 (•)	D2 (•)	H1 (•)	L1 (•)	Power range: Power kW	Power range: Voltage	Power range: IP	Power range: IC	Power range: S1	Cable gland metric thred	Adapter: Code	Adapter: Screw UNI 5931	Adapter: L2	Single Motor	Transmission kit (for pump)
M	**M 2 L A (1)**	2	2	71	14	148	115	208	0.37	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	M12E2000	KIT08019.011 (Gr.05)
M	**M 2 L B (1)**	2	2	71	14	148	115	208	0.55	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	M12F2000	KIT08019.012 (Gr.1)
M	**M 2 M A (1)**	2	2	80	19	170	126	234	0.75	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	M13G2000	KIT08019.013 (Gr.05)
M	**M 2 M B (1)**	2	2	80	19	170	126	234	1.10	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	M13H2000	KIT08019.014 (Gr.1)
M	**M 2 N A (1)**	2	2	90	24	185	142	247	1.50	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	M14L2000	KIT08019.015 (Gr.05)
M	**M 2 N B (1)**	2	2	90	24	185	142	272	2.20	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	M14N2000	KIT08019.016 (Gr.1)
M	**M 2 P A (1)**	2	2	100	28	210	155	310	3.00	230 Vac 50 Hz	54	F	Si	25-32	61001000	M8x28	75	M15P2000	KIT08019.017 (Gr.05) KIT08019.018 (Gr.1)
M	**M 4 L A (1)**	2	4	71	14	148	115	208	0.25	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	M12D4000	KIT08019.011 (Gr.05)
M	**M 4 L B (1)**	2	4	71	14	148	115	208	0.37	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	M12E4000	KIT08019.012 (Gr.1)
M	**M 4 M A (1)**	2	4	80	19	170	126	234	0.55	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	M13F4000	KIT08019.013 (Gr.05)
M	**M 4 M B (1)**	2	4	80	19	170	126	234	0.75	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	M13G4000	KIT08019.014 (Gr.1)
M	**M 4 N A (1)**	2	4	90	24	185	142	247	1.10	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	M14H4000	KIT08019.015 (Gr.05)
M	**M 4 N B (1)**	2	4	90	24	185	142	272	1.50	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	M14L4000	KIT08019.016 (Gr.1)
M	**M 4 P A (1)**	2	4	100	28	210	155	310	2.20	230 Vac 50 Hz	54	F	Si	25-32	61001000	M8x28	75	M15N4000	KIT08019.017 (Gr.05) KIT08019.018 (Gr.1)

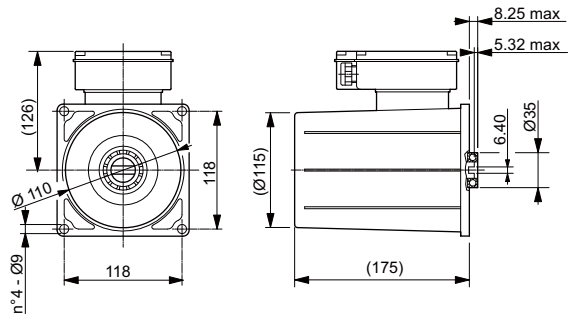
(•)= Approximate dimensions



Three-phase motors 2-4 Poles - 230/400 Vac 50Hz - Version B14

		Phases	Poles	Size	D1 (•)	D2 (•)	H1 (•)	L1 (•)	Power range: Power kW	Power range: Voltage	Power range: IP	Power range: IC	Power range: S3	Cable gland metric thred	Adapter: Code	Adapter: Screw UNI 5931	Adapter: L2	Single Motor	Transmission kit (for pump)
M	T 2 R A (1)	3	2	63	11	125	95	189	0.18	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	M31C2000	KIT08019.009 (Gr.05) KIT08019.010 (Gr.1)
M	T 2 R B (1)	3	2	63	11	125	95	189	0.25	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	M31D2000	
M	T 2 L A (1)	3	2	71	14	148	115	208	0.37	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	M32E2000	KIT08019.011 (Gr.05) KIT08019.012 (Gr.1)
M	T 2 L B (1)	3	2	71	14	148	115	208	0.55	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	M32F2000	
M	T 2 M A (1)	3	2	80	19	170	126	234	0.75	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	M33G2000	KIT08019.013 (Gr.05) KIT08019.014 (Gr.1)
M	T 2 M B (1)	3	2	80	19	170	126	234	1.10	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	M33H2000	
M	T 2 N A (1)	3	2	90	24	185	142	247	1.50	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	M34L2000	KIT08019.015 (Gr.05) KIT08019.016 (Gr.1)
M	T 2 N B (1)	3	2	90	24	185	142	272	2.20	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	M34N2000	
M	T 2 P A (1)	3	2	100	28	210	155	310	3.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M35P2000	KIT08019.017 (Gr.05) KIT08019.018 (Gr.1)
M	T 2 P B (1)	3	2	112	28	225	182	325	4.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M36Q2000	
M	T 4 R A (1)	3	4	63	11	125	95	189	0.12	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	M31B4000	KIT08019.009 (Gr.05) KIT08019.010 (Gr.1)
M	T 4 R B (1)	3	4	63	11	125	95	189	0.18	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	M31C4000	
M	T 4 L A (1)	3	4	71	14	148	115	208	0.25	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	M32D4000	KIT08019.011 (Gr.05) KIT08019.012 (Gr.1)
M	T 4 L B (1)	3	4	71	14	148	115	208	0.37	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	M32E4000	
M	T 4 M A (1)	3	4	80	19	170	126	234	0.55	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	M33F4000	KIT08019.013 (Gr.05) KIT08019.014 (Gr.1)
M	T 4 M B (1)	3	4	80	19	170	126	234	0.75	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	M33G4000	
M	T 4 N A (1)	3	4	90	24	185	142	247	1.10	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	M34H4000	KIT08019.015 (Gr.05) KIT08019.016 (Gr.1)
M	T 4 N B (1)	3	4	90	24	185	142	272	1.50	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	M34L4000	
M	T 4 P A (1)	3	4	100	28	210	155	310	2.20	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M35N4000	KIT08019.017 (Gr.05) KIT08019.018 (Gr.1)
M	T 4 P B (1)	3	4	100	28	210	155	310	3.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M35P4000	
M	T 4 P C (1)	3	4	112	28	225	182	325	4.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	M36Q4000	

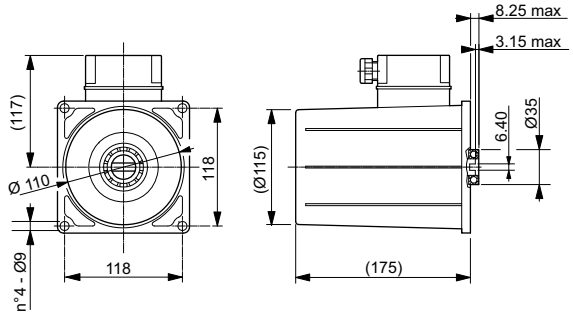
(•)= Approximate dimensions



Single-phase motors 2-4 Poles - 230 Vac 50Hz - Special housing

						Phases	Poles	Size	Power range: Power kW	Voltage	IP	IC	Service	Cable gland metric thred	Single Motor	Transmission kit	Note
M	M	2	S	A	(1)	2	2	71	0.75	230 Vac 50 Hz	54	F	Light-duty	20	M12GY3FF.001	KIT08019.005 (for pumps Gr.1) KIT08019.006 (for pumps Gr.0.5)	Without fan
M	M	2	S	B	(1)	2	2	71	1.10	230 Vac 50 Hz	54	F	Light-duty	20	M12HY3FF.000	KIT08019.005 (for pumps Gr.1) KIT08019.006 (for pumps Gr.0.5)	Without fan
M	M	4	S	C	(1)	2	4	71	0.85	230 Vac 50 Hz	54	F	Light-duty	20	M12YY3FF.001	KIT08019.005 (for pumps Gr.1) KIT08019.006 (for pumps Gr.0.5)	Without fan

IP protection level becomes effective after installationon on power pack.

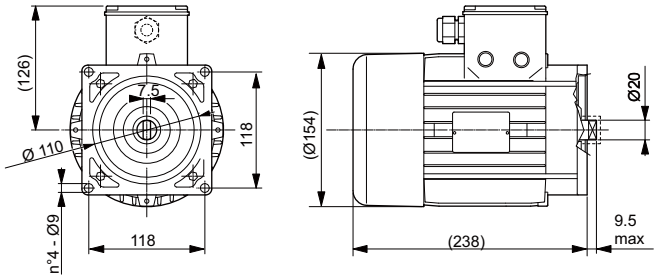


Three-phase motors 2-4 Poles - 230/400 Vac 50Hz - Direct fixing

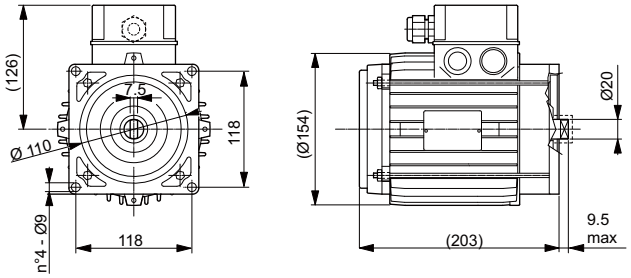
						Phases	Poles	Size	Power range: Power kW	Voltage	IP	IC	Service	Cable gland metric thred	Single Motor	Transmission kit	Note
M	T	2	S	A	(1)	3	2	71	0.75	230/400 Vac 50 Hz	54	F	Light-duty	20	M32GY3FL.003	KIT08019.005 (for pumps Gr.1) KIT08019.006 (for pumps Gr.0.5)	Without fan
M	T	2	S	B	(1)	3	2	71	1.10	230/400 Vac 50 Hz	54	F	Light-duty	20	M32HY3FL.001	KIT08019.005 (for pumps Gr.1) KIT08019.006 (for pumps Gr.0.5)	Without fan
M	T	4	S	A	(1)	3	4	71	0.75	230/400 Vac 50 Hz	54	F	Light-duty	20	M32GY3FL.002	KIT08019.005 (for pumps Gr.1) KIT08019.006 (for pumps Gr.0.5)	Without fan

IP protection level becomes effective after installationon on power pack.

With fan



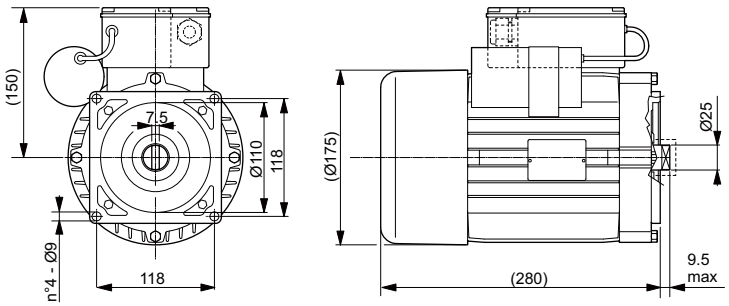
Without fan



Three-phase motors 2-4 Poles - 230/400 Vac 50Hz - Direct fixing

						Phases	Poles	Size	Power range: Power kW	Power range: Voltage	Power range: IP	Power range: IC	Power range: Service	Cable gland metric thred	Single Motor	Transmission kit	Note
M	T	2	T	A	(1)	3	2	80	2.7	230/400 Vac 50 Hz	44	F	Light-duty	20-25	M33YD1FF.000	KIT08019.007 (for pumps Gr.0.5) KIT08019.008 (for pumps Gr.1)	With fan
M	T	2	T	B	(1)	3	2	80	2.7	230/400 Vac 50 Hz	44	F	Light-duty	20-25	M33YD1FF.001	KIT08019.007 (for pumps Gr.0.5) KIT08019.008 (for pumps Gr.1)	Without fan
M	T	4	T	A	(1)	3	4	80	2.2	230/400 Vac 50 Hz	44	F	S3 - 4%	20-25	M33NF1FF.001	KIT08019.007 (for pumps Gr.0.5) KIT08019.008 (for pumps Gr.1)	Without fan
M	T	4	T	B	(1)	3	4	80	2.2	230/400 Vac 50 Hz	55	F	S3 - 4%	20-25	M33NF4FF.000	KIT08019.007 (for pumps Gr.0.5) KIT08019.008 (for pumps Gr.1)	With fan
M	T	4	T	C	(1)	3	4	80	2.2	230/400 Vac 50 Hz	44	F	S3 - 4%	20-25	M33NF1FF.000	KIT08019.007 (for pumps Gr.0.5) KIT08019.008 (for pumps Gr.1)	With fan
M	T	4	T	D	(1)	3	4	80	3.0	230/400 Vac 50 Hz	54	F	Light-duty	20-25	M33PF3FF.000	KIT08019.007 (for pumps Gr.0.5) KIT08019.008 (for pumps Gr.1)	With fan

IP protection level becomes effective after installationon on power pack.



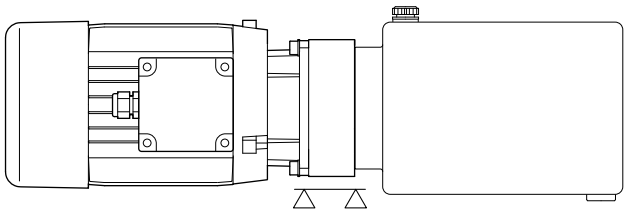
Single-phase motors 4 Poles - 230 Vac 50Hz - Direct fixing

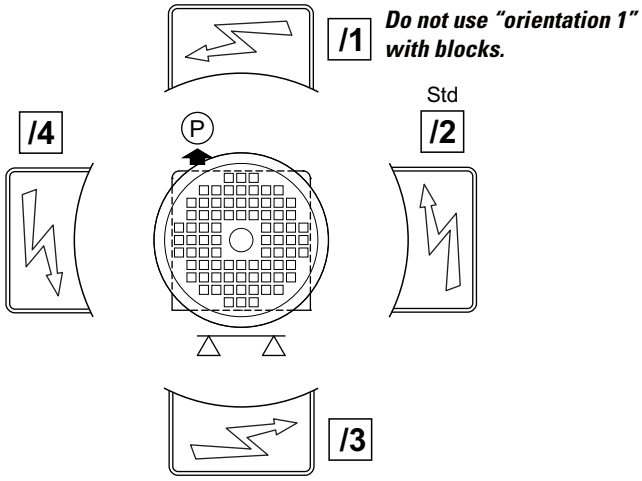
						Phases	Poles	Size	Power range: Power kW	Power range: Voltage	Power range: IP	Power range: IC	Power range: Service	Cable gland metric thred	Single Motor	Transmission kit	Note
M	M	4	V	A	(1)	2	4	90	1.8	230 Vac 50 Hz	44	F	Light-duty	20-25	M14MF1FF.001	KIT08019.007 (for pumps Gr.0.5) KIT08019.008 (for pumps Gr.1)	With fan Start torque 13Nm
M	M	4	V	B	(1)	2	4	90	3.0	230 Vac 50 Hz	55	F	S3 - 7%	20-25	M14PF4FF.000	KIT08019.007 (for pumps Gr.0.5) KIT08019.008 (for pumps Gr.1)	With fan

IP protection level becomes effective after installationon on power pack.

M	*	*	*	*	(*)	/*	-	***Motor orientation***

Connector box position on power pack.



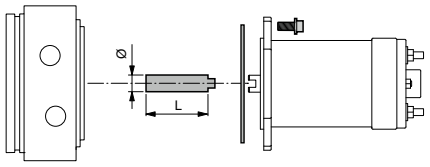


Transmission kit (only for motors on the catalog)	
Type	
End section VII	

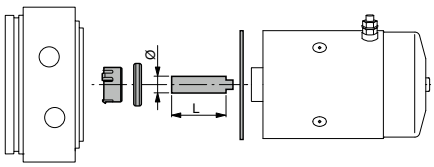
Specify the transmission kit whether you requested the joint and accessories assembly (without motor).

FP ..... **T** ****** -

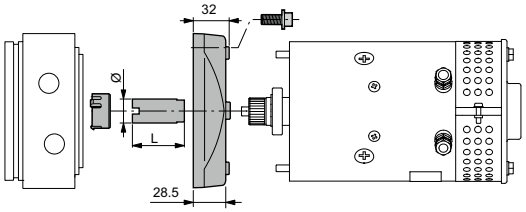
**	Transmission kit				For DC motors
	Code	Pump	L	Ø	
01	KIT08019.000	Gr. 0.5	63.3	14	**GA** (350 W - Ø 80 - Page 72) **GC** (700 W - Ø 80 - Page 72) **GB** (400 W - Ø 80 - Page 72) **GD** (800 W - Ø 80 - Page 72)
	KIT08019.001	Gr. 1	46.9	14	



**	Transmission kit				For DC motors
	Code	Pump	L	Ø	
02	KIT08019.002	Gr. 0.5	64.5	14	**AA** (1500 W - Ø 115 - Page 73) **EN** (1600 W - Ø 115 - Page 73) **AB** (2000 W - Ø 115 - Page 73) **ES** (2200 W - Ø 115 - Page 73) **GN** (1600 W - Ø 115 - Page 74) **GP** (2200 W - Ø 115 - Page 74)
	KIT08019.003	Gr. 1	48.2	14	



**	Transmission kit				For DC motors
	Code	Pump	L	Ø	
03	KIT08019.004	Gr. 1	45.4	20	**GJ** (3000 W - Ø 125 - Page 74) **FB** (3000 W - Ø 125 - Page 74)



Note: in ventilated motors (accessory "D" page 74) the transmission is included in the kit ventilation

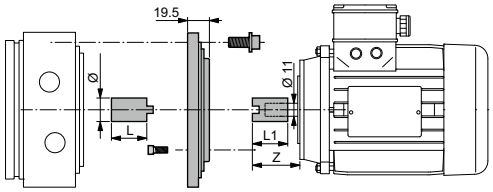
VII

Transmission kit (only for motors on the catalog)	
Type	
End section VII	

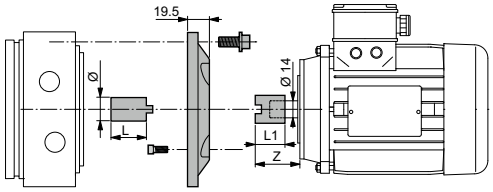
Specify the transmission kit whether you requested the joint and accessories assembly (without motor).

FP ..... **T** ****** -

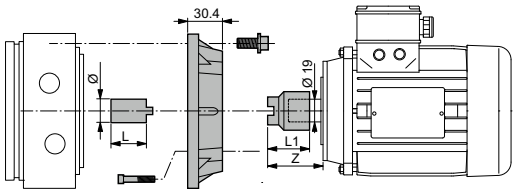
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1R	KIT08019.009	Gr. 0.5	47.1	14	30	62.7	R	63 (B14)	79
	KIT08019.010	Gr. 1	30.6	20	30	42.8			



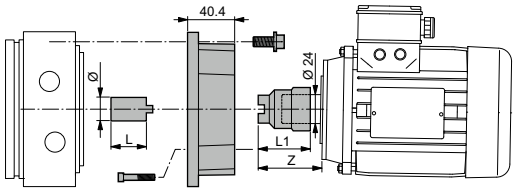
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1L	KIT08019.011	Gr. 0.5	47.1	14	26.5	42	L	71 (B14)	78
	KIT08019.012	Gr. 1	30.7	20	26.5	42			79



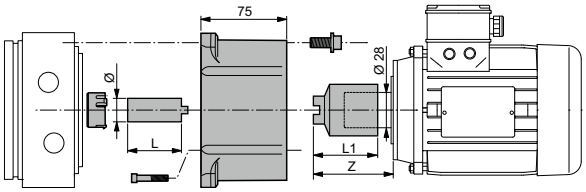
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1M	KIT08019.013	Gr. 0.5	47.1	14	38	53	M	80 (B14)	78
	KIT08019.014	Gr. 1	30.7	20	38	53			79



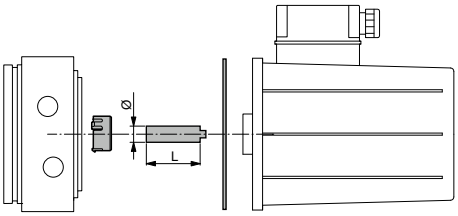
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1N	KIT08019.015	Gr. 0.5	47.1	14	45.4	63	N	90 (B14)	78
	KIT08019.016	Gr. 1	30.7	20	45.4	63			79



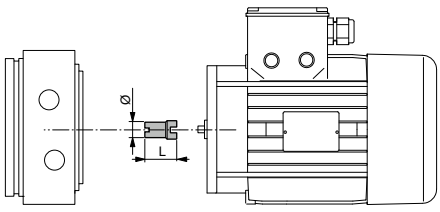
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1P	KIT08019.017	Gr. 0.5	62.9	14/20	57	81.5	P	100-112 (B14)	78
	KIT08019.018	Gr. 1	46.6	20	57	81.5			79



**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1S	KIT08019.005	Gr. 0.5		64.5		14	S	71 (direct fixing)	80
	KIT08019.006	Gr. 1		48.2		14			



**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1T	KIT08019.007	Gr. 0.5		68		14	T V	80-90 (direct fixing)	81
	KIT08019.008	Gr. 1		51.7		20			



"Z" : dimension of the coupling side motor

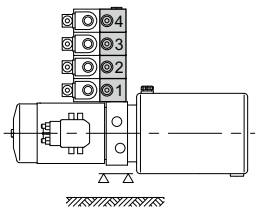
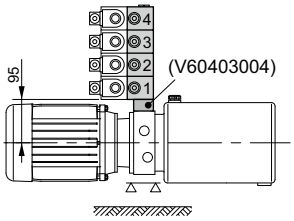
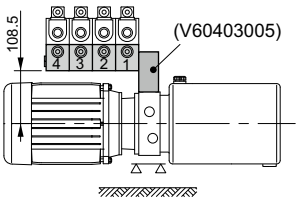
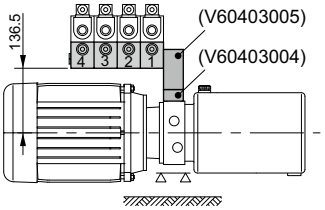
FP ...	J * (00) -

Standard blocks
Mounting position
Accessory
Separation line

In the order confirmation the code of the "Blocks and CETOP valves" will be converted into a type Jxxxx (xxxx = sequential number).

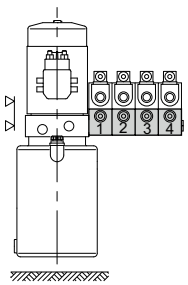
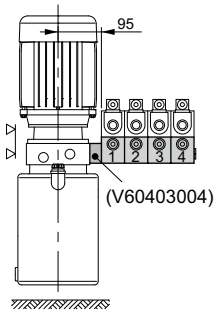
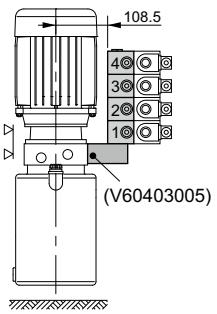
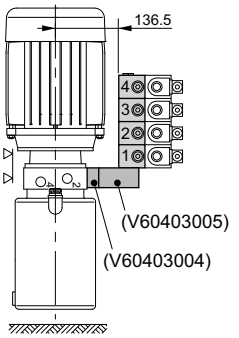
The blocks mounting kit (interface 90°, heighten) is included on the selection code (see "Mounting kits "table page 88).

Blocks mounting on horizontal power pack

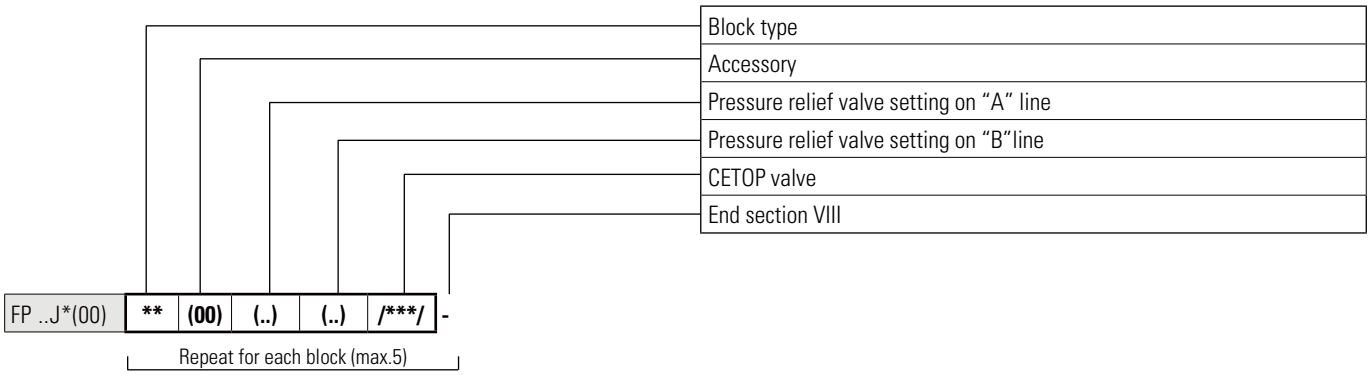
J 0	J A	J B	J C
			
Blocks orthogonal to the axis Except AC motors ref. size M-N-P	**Blocks orthogonal to the axis with heighten** For AC motors ref. size M-N-P	**Blocks parallel to the axis with interface 90°** Except AC motors ref. size P	**Blocks parallel to the axis with heighten and interface 90°** For AC motors ref. size P

The blocks can not be mounted with motors oriented in position "1" (DC motors, see page 76. AC motors, see page 82).

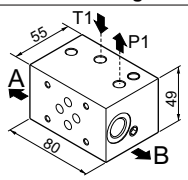
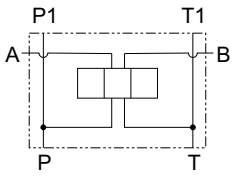
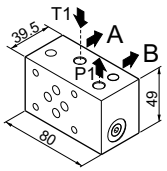
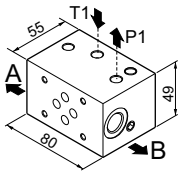
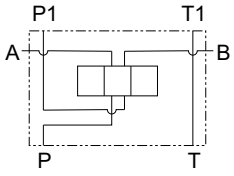
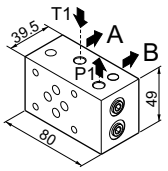
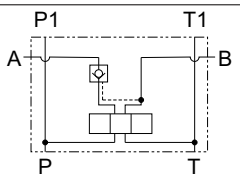
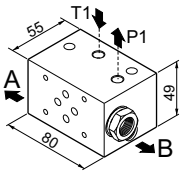
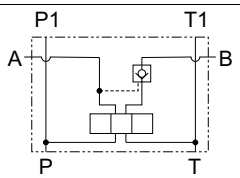
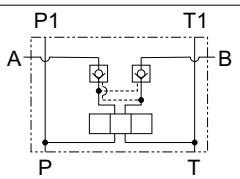
Blocks mounting on vertical power pack

J 0	J A	J B	J C
			
Blocks orthogonal to the axis Except AC motors ref. size M-N-P	**Blocks orthogonal to the axis with heighten** For AC motors ref. size M-N-P	**Blocks parallel to the axis with interface 90°** Except AC motors ref. size P	**Blocks parallel to the axis with heighten and interface 90°** For AC motors ref. size P

The blocks can not be mounted with motors oriented in position "1" - DC motors, see page 76. AC motors, see page 82.



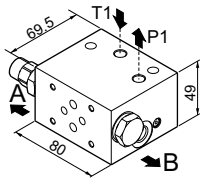
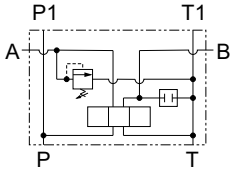
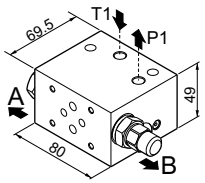
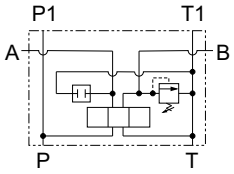
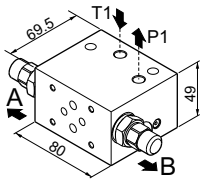
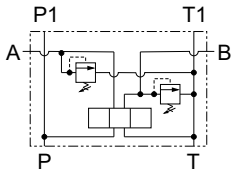
**
(00)
(..)
(..)
/***/
- ***Block type***

**	(00)	(..)	(..)	Description	Code	Drawing	Scheme
A2	(00)	**(0)**	**(0)**	Middle parallel - Lateral ports G3/8"	V60403010		
A3	(00)	**(0)**	**(0)**	Middle parallel - Rear ports G3/8"	V60403001		
B2	(00)	**(0)**	**(0)**	Middle series - Lateral ports G3/8"	V60403011		
B3	(00)	**(0)**	**(0)**	Middle series - Rear ports G3/8"	V60403003		
E1	(00)	**(0)**	**(0)**	With pilot check valve on "A" port . Rear ports G1/4"	V60413002		
E2	(00)	**(0)**	**(0)**	With pilot check valve on "B" port. Rear ports G1/4"	V60413003		
E3	(00)	**(0)**	**(0)**	With pilot check valve on "A" and "B" ports. Rear ports G1/4"	V60413001		

P1 - T1: thread, closing with plug G1/8" (Plug Q26622251 + Washer Q51435012)

VIII

**	(00)	(..)	(..)	/***/	-	***Block type***

**	(00)	(..)	(..)	Description	Code	Drawing	Scheme
F1	(00)	(D)	(0)	With pressure relief valve on "A" port Setting 15 ÷ 50 bar - Lateral ports G1/4"	1318828		
		(E)	(0)	With pressure relief valve on "A" port Setting 50 ÷ 110 bar - Lateral ports G1/4"	1318829		
		(F)	(0)	With pressure relief valve on "A" port Setting 110 ÷ 220 bar - Lateral ports G1/4"	1318830		
		(G)	(0)	With pressure relief valve on "A" port Setting 220 ÷ 290 bar - Lateral ports G1/4"	1318831		
F2	(00)	(0)	(D)	With pressure relief valve on "B" port Setting 15 ÷ 50 bar - Lateral ports G1/4"	1318832		
		(0)	(E)	With pressure relief valve on "B" port Setting 50 ÷ 110 bar - Lateral ports G1/4"	1318833		
		(0)	(F)	With pressure relief valve on "B" port Setting 110 ÷ 220 bar - Lateral ports G1/4"	1318834		
		(0)	(G)	With pressure relief valve on "B" port Setting 220 ÷ 290 bar - Lateral ports G1/4"	1318835		
F3	(00)	(D)	(D)	With pressure relief valve on "A" and "B" Setting 15 ÷ 50 bar - Lateral ports G1/4"	1318836		
		(E)	(E)	With pressure relief valve on "A" and "B" Setting 50 ÷ 110 bar - Lateral ports G1/4"	1318837		
		(F)	(F)	With pressure relief valve on "A" and "B" Setting 110 ÷ 220 bar - Lateral ports G1/4"	1318838		
		(G)	(G)	With pressure relief valve on "A" and "B" Setting 220 ÷ 290 bar - Lateral ports G1/4"	1318839		

P1 - T1: thread, closing with plug G1/8" (Plug Q26622251 + Washer Q51435012)

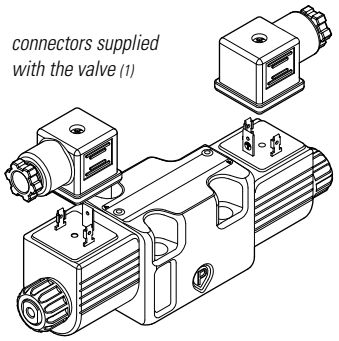
Mounting kits

Mounting kit: blocks	For No. blocks	Code
Mounting position **0-2-3**	1	V60513007
	2	V60513008
	3	V60513009
	4	V60513010
Mounting position **1** (with heighten)	1	V60513011
	2	V60513012
	3	V60513013
	4	V60513014

Mounting kit: interface 90°	Code
Mounting position **2**	V60513051

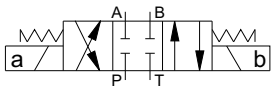
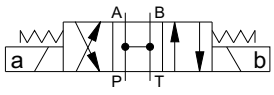
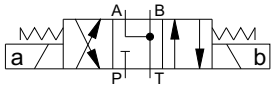
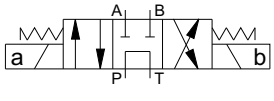
Mounting kit: interface 90° with heighten	Code
Mounting position **3**	V60513049

The blocks mounting kit (interface 90°, heighten) is included on the selection code (see mounting position, page 85).



connectors supplied with the valve (1)

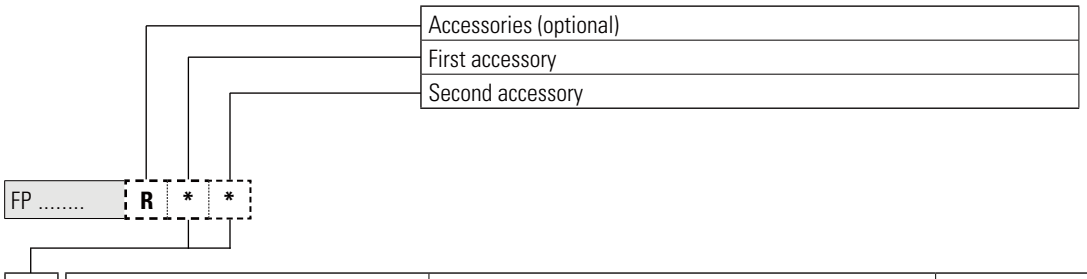
**	(00)	(..)	(..)	/***/	-	***CETOP 3 valves***

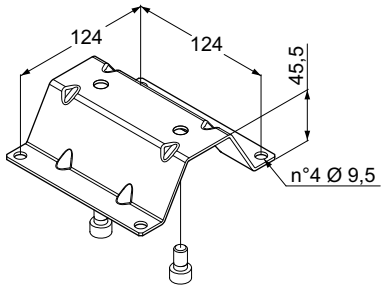
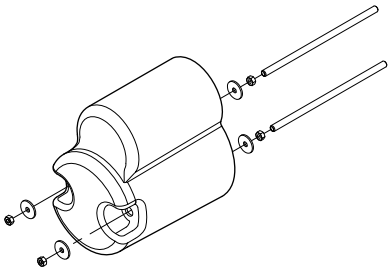
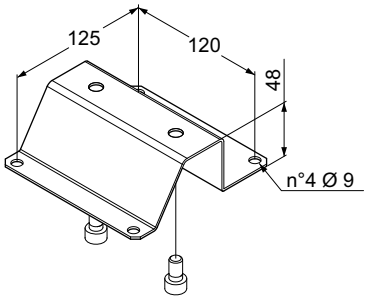
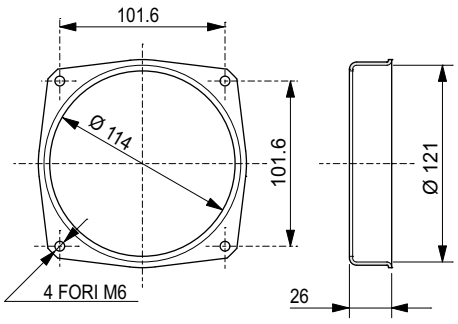
/***/	Voltage	Code	Spool (2)			Screw kit for valve mounting
			Type	Mounting	Scheme	
/000/	Without valve					
/001/	24 VDC (M)	ADC3E01CM001	01	C		V60513015
/002/	12 VDC (L)	ADC3E01CL001				
/003/	24 VDC (M)	ADC3E02CM001	02	C		
/004/	12 VDC (L)	ADC3E02CL001				
/005/	24 VDC (M)	ADC3E03CM001	03	C		
/006/	12 VDC (L)	ADC3E03CL001				
/007/	24 VDC (M)	ADC3E04CM001	04	C		
/008/	12 VDC (L)	ADC3E04CL001				

1 = Valves supplied with connector. Without connector see accessories page 89

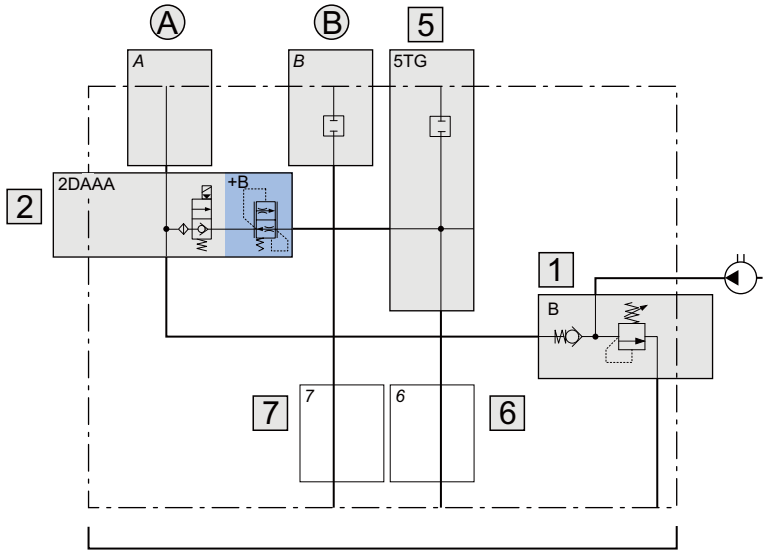
2 = More details, features and performances, see catalog Dana "Valves and Electronics" code DOC00078

VIII



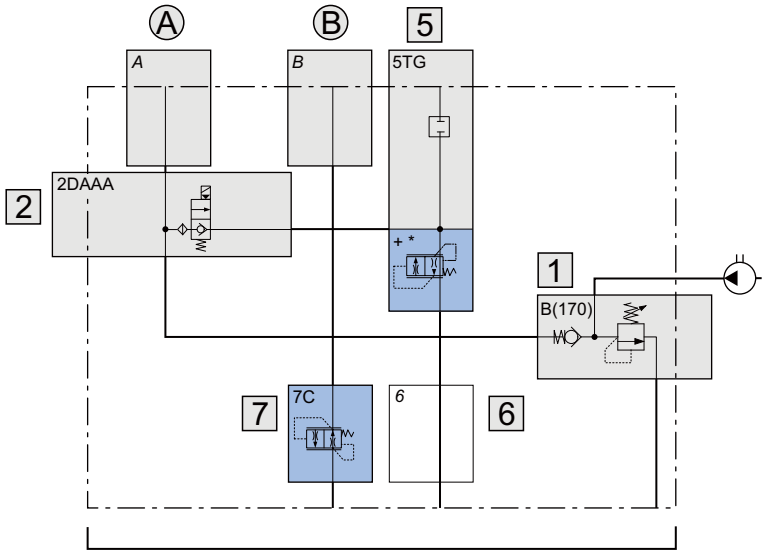
*	Description	Drawing	Code	Note
A	Standard foot, (galvanized sheet steel) thickness 2.5 mm (unassembled)		Kit (foot and screws): 17010075	All motors are compatible except orientation / 3 Tanks compatible (except for orientation / 3) S**A S**B S**C S**G S**L
B	Non-removable red plastic plug for pressure relief valve (unassembled)		Plug: 60309200	
C	Protection device for DC motors (supplied assembled)		Kit (protectin, nut, tierods, washers): 17010048	For motors: M2EN M4ES With blocks, please add the block code 91006000.000
D	High foot, (galvanized sheet steel) thickness 2 mm (unassembled)		Kit (foot and screws): 17010053	All motors are compatible except orientation / 3 Tanks compatible (except for orientation / 3) S**A S**B S**C S**D S**F S**G S**L
E	Collar in welded sheet steel, thickness 2 mm (unassembled)		Collar: 25000300 Tank fixing kit (screws and O-Ring): 17010080	
F	Without valves connectors			

Examples with FPA endhead



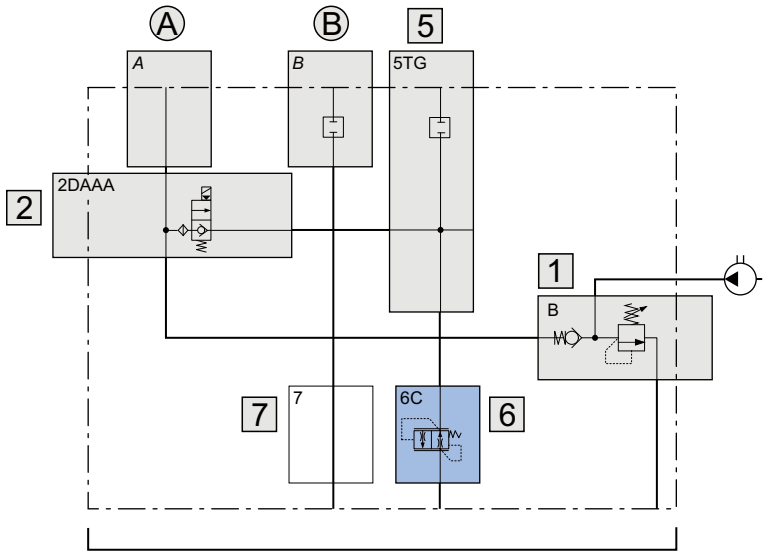
FPA	0	F1	2DAAA+B	5TG	-03	-	..

Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**F1**	Pressure relief valve with check valve (75 ÷ 220 bar) with screw and detachable closing, **standard** setting 150 bar	14
2	**2DAAA +B**	Piloted solenoid valve normally closed, without emergency. Voltage 12 VDC + Flow control valve 1.4 l/min	16
5	**5TG**	Plug	18
6-7		Not specified, return lines 6 and 7 open	—
A-B	**-03**	Combinations plugs on ports (A= open; B= with plug)	20
-	**-**	End section	—



FPA	0	E1(90)	2DAAA	5TG+B	7C	-00	-	..

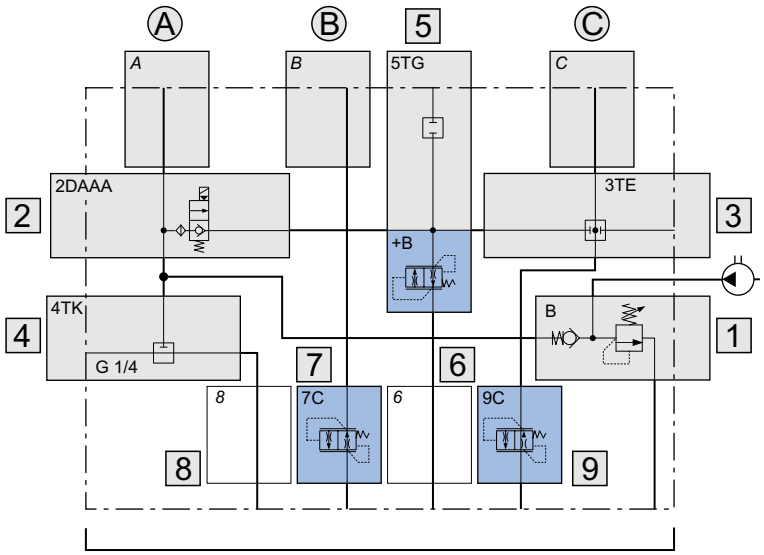
Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**E1(90)**	Pressure relief valve with check valve with screw and detachable closing, **special** setting 90 bar	14
2	**2DAAA**	Piloted solenoid valve normally closed, without emergency. Voltage 12 VDC	16
5	**5TG +B**	Plug + Flow control valve 1.4 l/min	18
6		Not specified, return line 6 open	—
7	**7C**	Flow control valve on return 7, flow 2.1 l/min	19
A-B	**-00**	Combinations plugs on ports (A,B= open)	20
-	**-**	End section	—



FPA	0	F1	2DAAA	5TG	6C	-03	-	..

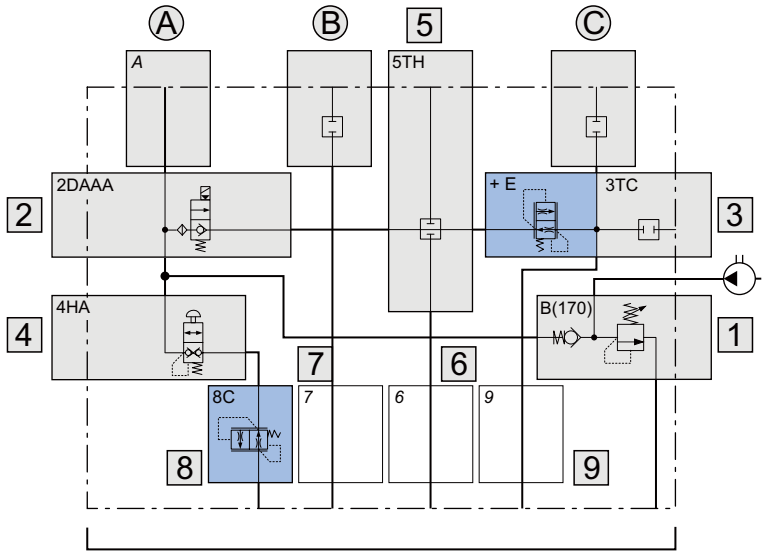
Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**F1**	Pressure relief valve with check valve (75 ÷ 220 bar) with screw and detachable closing, **standard** setting 150 bar	14
2	**2DAAA**	Piloted solenoid valve normally closed, without emergency. Voltage 12 VDC	16
5	**5TG**	Plug	18
6	**6C**	Not specified, return line 6 open	19
7		Not specified, return line 7 open	—
A-B	**-03**	Combinations plugs on ports (A= open; B= with plug)	20
-	**-**	End section	—

Examples with FPC endhead



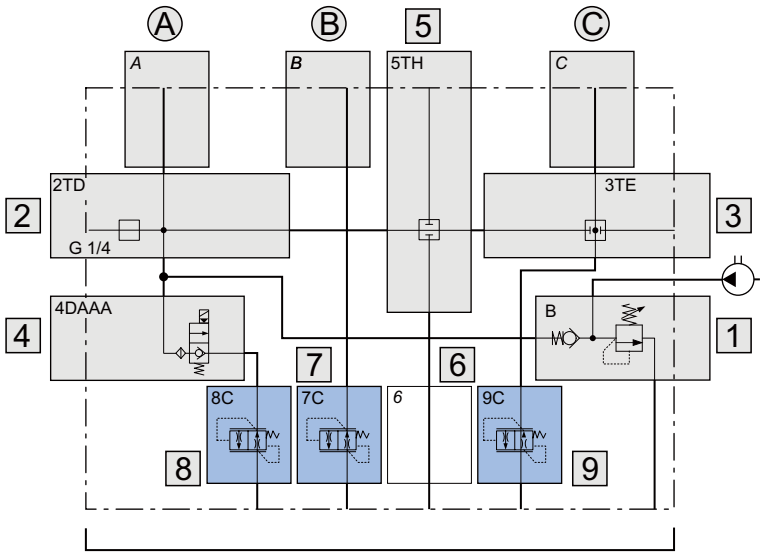
FPC	0	F1	2DAAA	3TE	4TK	5TG+B	7C	9C	-01	-	..

Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**F1**	Pressure relief valve with check valve (75 ÷ 220 bar) with screw and detachable closing, **standard** setting 150 bar	21
2	**2DAAA**	Piloted solenoid valve normally closed, without emergency. Voltage 12 VDC	23
3	**3TE**	Plug	27
4	**4TK**	Plug (union G1/4)	30
5	**5TG +B**	Plug + Flow control valve 1.4 l/min	31
6		Not specified, return line 6 open	—
7	**7C**	Flow control valve 2.1 l/min	32
8		Not specified, return line 8 open	—
9	**9C**	Flow control valve 2.1 l/min	32
A-B-C	**-01**	Combinations plugs on ports (A-B-C= open)	33
-	**-**	End section	—



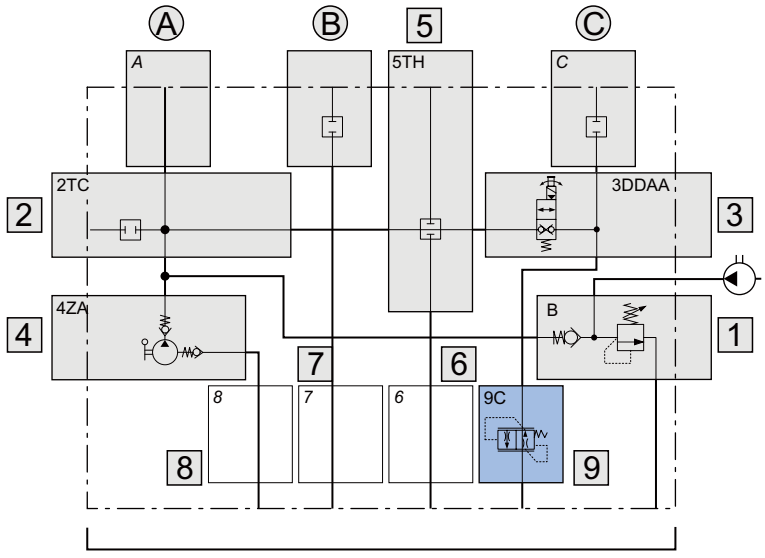
FPC	0	E1(90)	2DAAA	3TC+B	4HA	5TH	8C	-05	-	..

Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**E1(90)**	Pressure relief valve with check valve with screw and detachable closing, **special** setting 90 bar	21
2	**2DAAA**	Piloted solenoid valve normally closed, without emergency. Voltage 12 VDC	23
3	**3TG +B**	Plug + Flow control valve 1.4 l/min	27
4	**4HA**	Push-button control	30
5	**5TH**	Plug	31
6-7		Not specified, return lines 6 and 7 open	—
8	**8C**	Flow control valve 2.1 l/min	—
9		Not specified, return 9 open	32
A-B-C	**-05**	Combinations plugs on ports (A = open; B-C= with plug)	33
-	**-**	End section	—



FPC	0	F1	2TD	3TE	4DAAAA	5TH	7C	8C	9C	-01	-	..

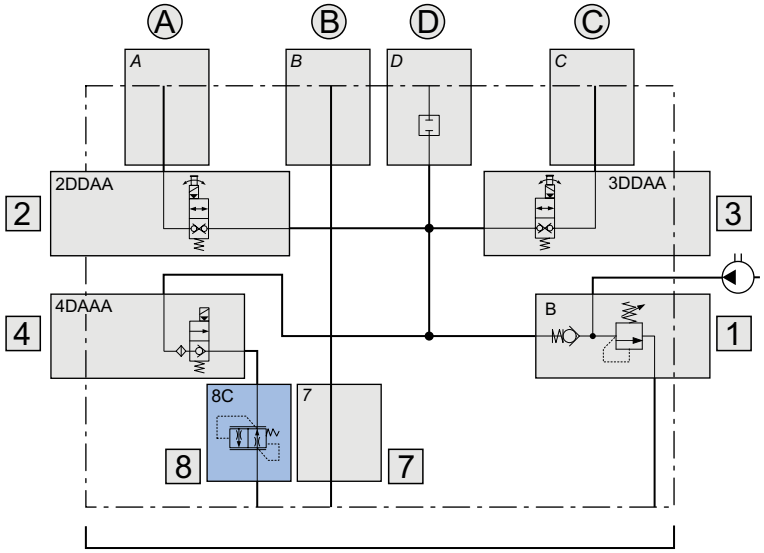
Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**F1**	Pressure relief valve with check valve (75 ÷ 220 bar) with screw and detachable closing, **standard** setting 150 bar	21
2	**2TD**	Plug (union G1/4)	24
3	**3TE**	Plug	27
4	**4DAAAA**	Piloted solenoid valve normally closed, without emergency. Voltage 12 VDC	29
5	**5TH**	Plug	31
6		Not specified, return line 6 open	—
7	**7C**	Flow control valve 2.1 l/min	32
8	**8C**	Flow control valve 2.1 l/min	32
9	**9C**	Flow control valve 2.1 l/min	32
A-B-C	**-01**	Combinations plugs on ports (A-B-C= open)	33
-	**-**	End section	—



FPC	0	F1	2TC	3DDAA	4ZA	5TH	9C	-05	-	..

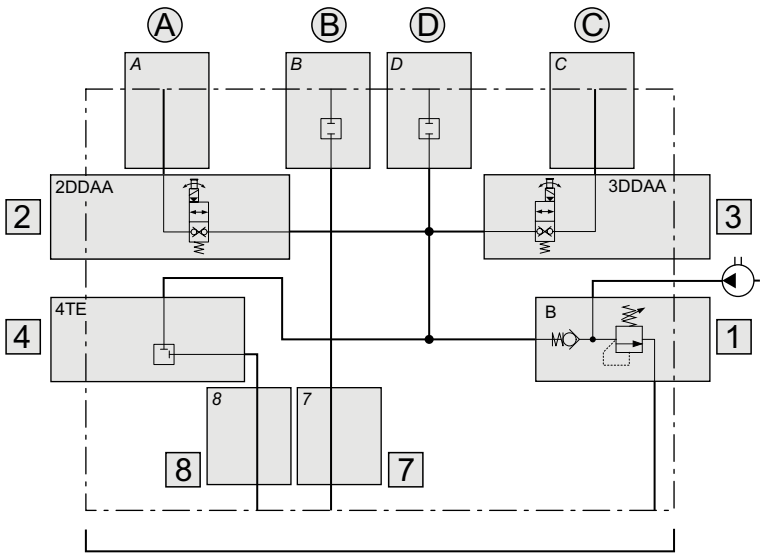
Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**F1**	Pressure relief valve with check valve (75 ÷ 220 bar) with screw and detachable closing, **standard** setting 150 bar	21
2	**2TC**	Plug	24
3	**3DDAA**	Piloted solenoid valve normally closed, with emergency. Voltage 12 VDC	26
4	**4ZA**	Hand pump displacement 1cc	30
5	**5TH**	Plug	31
6-7-8		Not specified, return lines 6-7-8 open	—
9	**9C**	Flow control valve 2.1 l/min	32
A-B-C	**-05**	Combinations plugs on ports (A = open; B-C= with plug)	33
-	**-**	End section	—

Examples with FPL endhead



FPL	0	F1	2DDAA	3DDAA	4DAAA	8C	-04	-	..

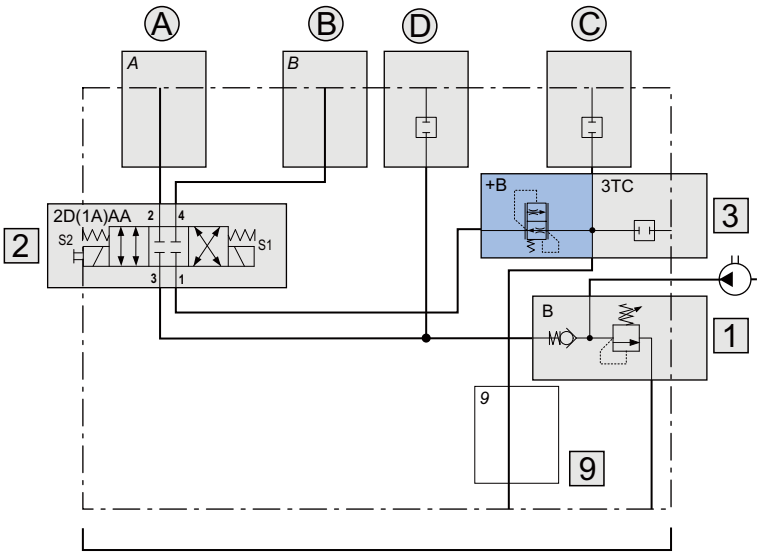
Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**F1**	Pressure relief valve with check valve (75 ÷ 220 bar) with screw and detachable closing, **standard** setting 150 bar	34
2	**2DDAA**	Direct operated solenoid valve normally closed, with emergency Voltage 12 VDC	36
3	**3DDAA**	Direct operated solenoid valve normally closed, with emergency Voltage 12 VDC	39
4	**4DAAA**	Piloted solenoid valve normall closed, without emergency. Voltage 12 VDC	42
7		Not specified, return line 7 open	—
8	**8C**	Flow control valve 2.1 l/min	44
A-B-C-D	**-04**	Combinations plugs on ports (A-B-C= open; D= with plug)	45
-	**-**	End section	—



FPL	0	F1(100)	2DDAA	3DDAA	4TE	-04	-	..

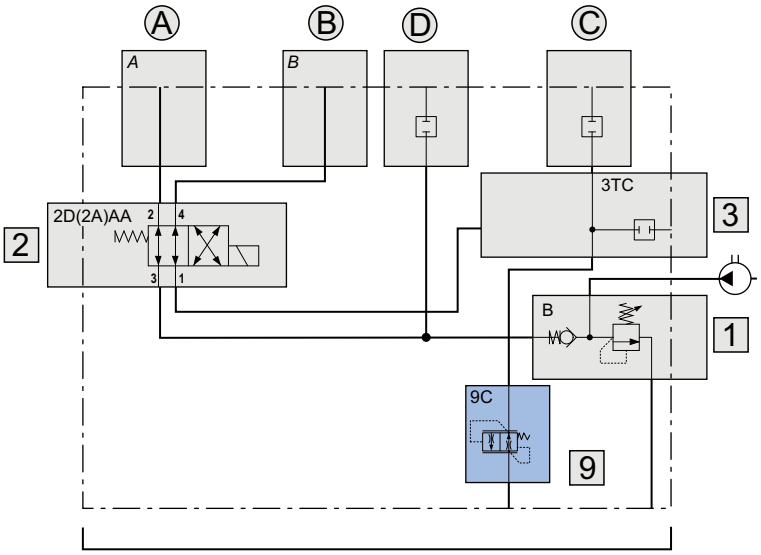
Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**F1(100)**	Pressure relief valve with check valve with screw and detachable closing, **special** setting 100 bar	34
2	**2DDAA**	Direct operated solenoid valve normally closed, with emergency Voltage 12 VDC	36
3	**3DDAA**	Direct operated solenoid valve normally closed, with emergency Voltage 12 VDC	39
4	**4TE**	Piloted solenoid valve normall closed, without emergency. Voltage 12 VDC	43
7-8		Not specified, return lines 7-8 open	—
A-B-C-D	**-04**	Combinations plugs on ports (A-C= open; B-D= with plug)	45
-	**-**	End section	—

Examples with FPE endhead



FPE	0	F1	2D(1A)AA	3TC+B	-04	-	..

Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**F1**	Pressure relief valve with check valve (75 ÷ 220 bar) with screw and detachable closing, **standard** setting 150 bar	46
2	**2D(1A) AA**	Directional control valve 4 way 3 positions with emergency. Voltage 12 Vdc (closed centre "C" spool)	48
3	**3TC +B**	Plug + Flow control valve 1.4 l/min	50
9		Not specified, return 9 open	—
A-B-C-D	**-04**	Combinations plugs on ports (A-B= with protection; C-D= with plug)	52
-	**-**	End section	—



FPE	0	F1	2D(2A)AA	3TC	9C	-04	-	..

Cavity	Code	Description	Page
-	**0**	Thread ports P-T G1/4" (blocks interface)	13
1	**F1**	Pressure relief valve with check valve (75 ÷ 220 bar) with screw and detachable closing, **standard** setting 150 bar	46
2	**2D(2A) AA**	Directional control valve 4 way 3 positions with emergency. Voltage 12 Vdc (closed centre "C" spool)	48
3	**3TC**	Plug	50
9	**9C**	Flow control valve 2.1 l/min	51
A-B-C-D	**-04**	Combinations plugs on ports (A-B= with protection; C-D= with plug)	52
-	**-**	End section	—

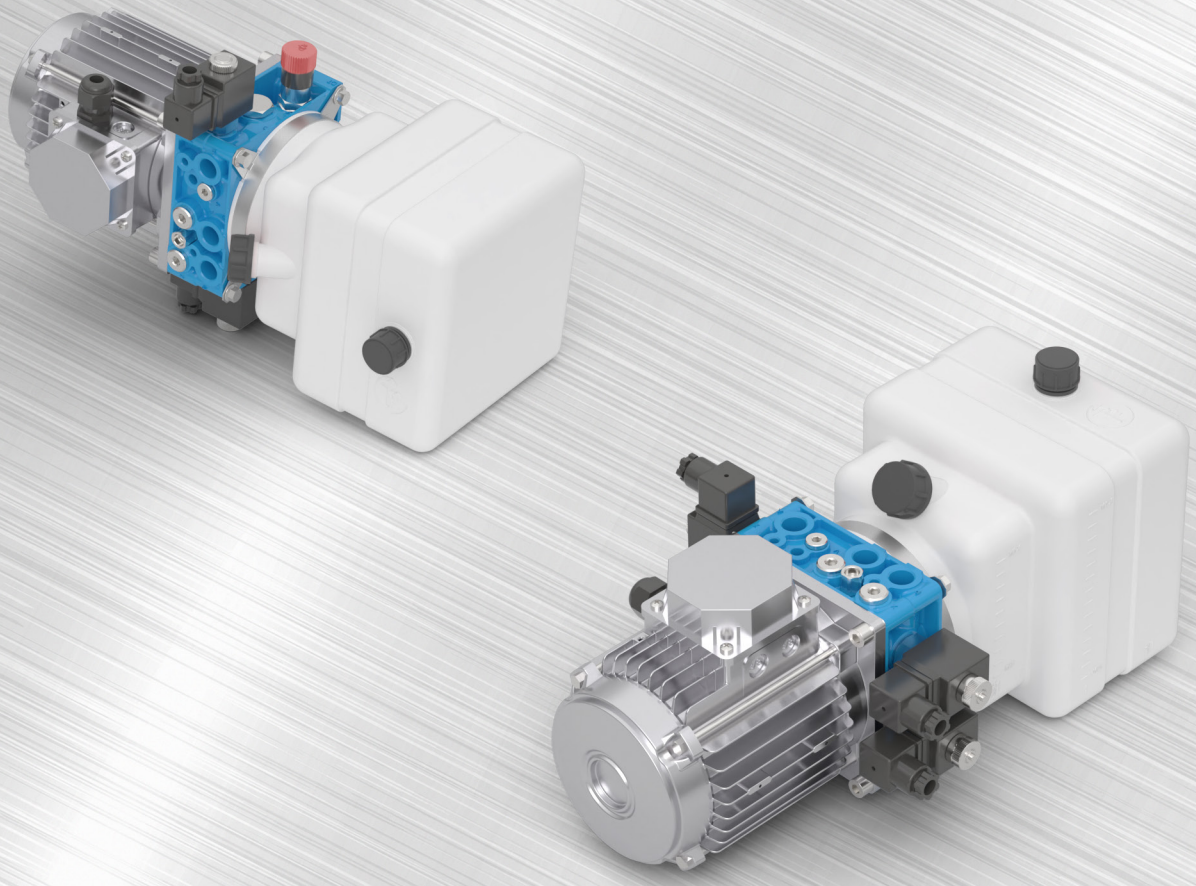
DANA BREVINI® Motion Systems

DC6A1A1_B90-000
05 2022

Product Catalog

Brevini® Power Units
DTR Power Packs

Custom mini powerpacks for telescopic dock levelers



Power Packs

The DTR series power pack is an easy-to-assemble, compact electro-hydraulic unit with high flexibility and modularity

Index

Dana has introduced the introductive index, page symbols and bookmars, which allow you to arrive and print the relevant section faster.
Clicking the Dana logo at the bottom page, you'll come back to the index.

Introduction

The DTR series power pack is an easy-to assemble, compact, electro-hydraulic unit. It offers application driven solutions for any kind of telescopic dock levellers. This catalogue has been written to help the user to choose the components for the power pack required for the specific application. However, the catalogue cannot foresee all the combinations that may be executed, so in some cases it may be necessary to consult our local Dana Sales.
You can chose from a wide variety of components with the following specifications:

- Gear pumps - Group 1 - from 0.90 to 4.3 cc. Single and triple-phase motors with power ratings of up to 4 Kw - in a standard version or built to the customer's specifications (with minimum overall dimensions)
- Tanks in sheet steel with capacities of up to 12 litres
- Tanks in plastic with capacities of up to 10 litres

A fundamental part of the power pack is the endhead, which is made of die-cast aluminum alloy. The parts and dimensions of this component are shown below.

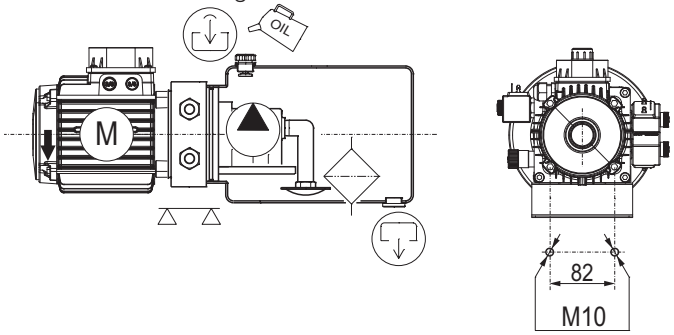
Operating limits

- Intermittent peak pressure: 220 bar (depending on pump type)
- Maximum flow rate: 20 l/min
- Maximum operating temperature:
  - 80°C (with sheet steel tank)
  - 70°C (with polyethylene tank)
  - 60°C (with polypropylene tank)
- Mineral-based hydraulic fluid: ISO 6743-4 (DIN 51524)
  - Minimum viscosity: 12 mm^2/s
  - Maximum viscosity: 80 mm^2/s
  - Maximum viscosity at start-up: 500 mm^2/s
- Minimum ambient temperature -15°C
- Maximum ambient temperature 40°C (with peaks of 50°C)
- The validation of the endhead follows a life-test with 210 bar pulsed pressure repeated for 200.000 cycles

Operating pressure is controlled by the maximum pressure valve and the type of pump used (in terms of performance) may be determined by the maximum pressure valve. Therefore, it is essential not to change the maximum pressure valve. If necessary, contact our technical service.

Installation

1. The power pack must be mounted using the M10 holes on the endhead.
2. The power pack must not come into contact with sheet metal, protective guards or any parts that may vibrate and transmit noise.
3. The ports on the endhead have been identified by the letters X-L-P-C-A. The hydraulic connection must be made with fittings with cylindrical thread and with copper or rubber sealing gaskets (O-rings).
4. After the electrical connections have been made, check the direction of motor rotation by executing short pulses of 1 second each (max.): the motor must turn anti-clockwise, as shown in the figure.



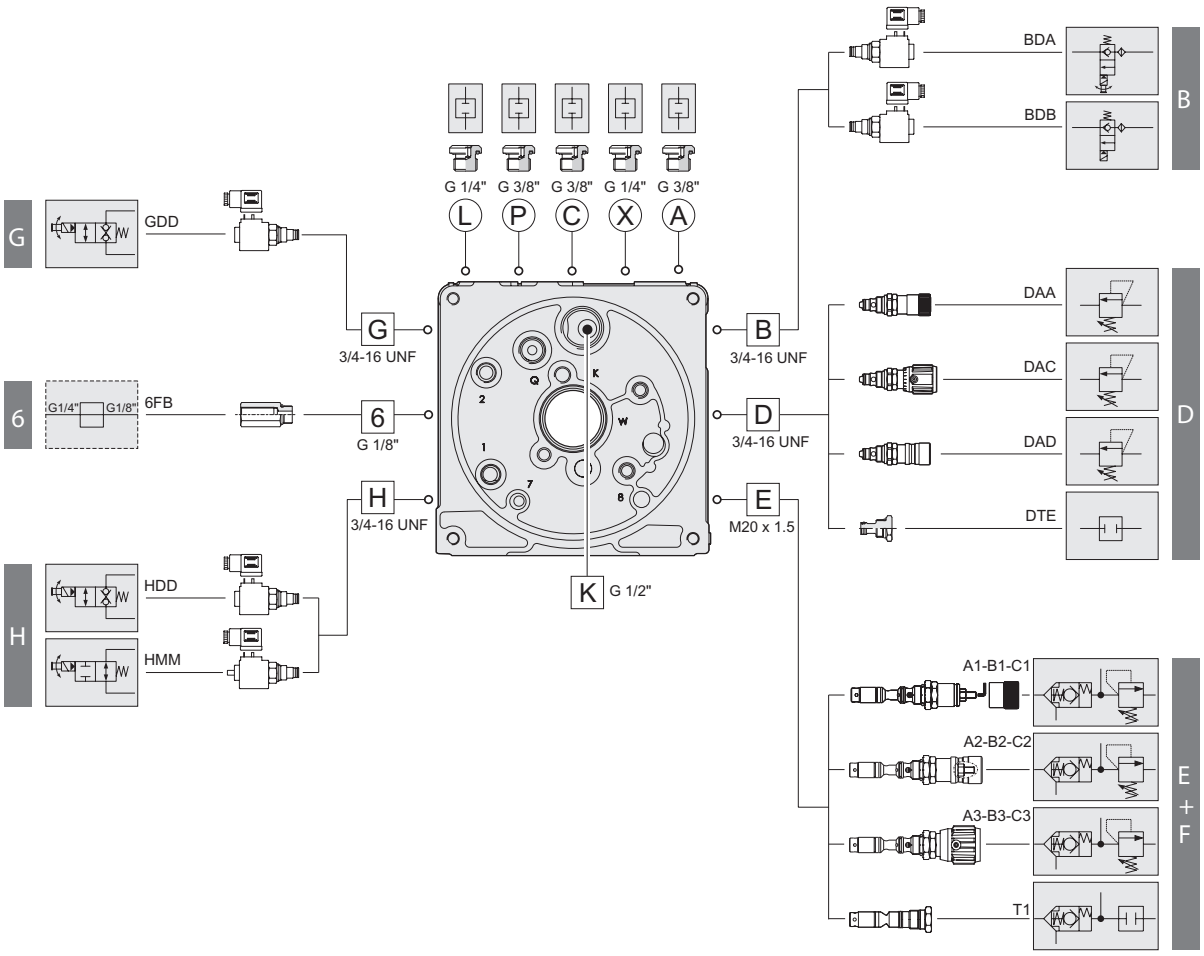
The tank must be filled with new mineral-based, ISO 6743/4 fluid: it is important to filter the fluid while filling the tank.

Symbology

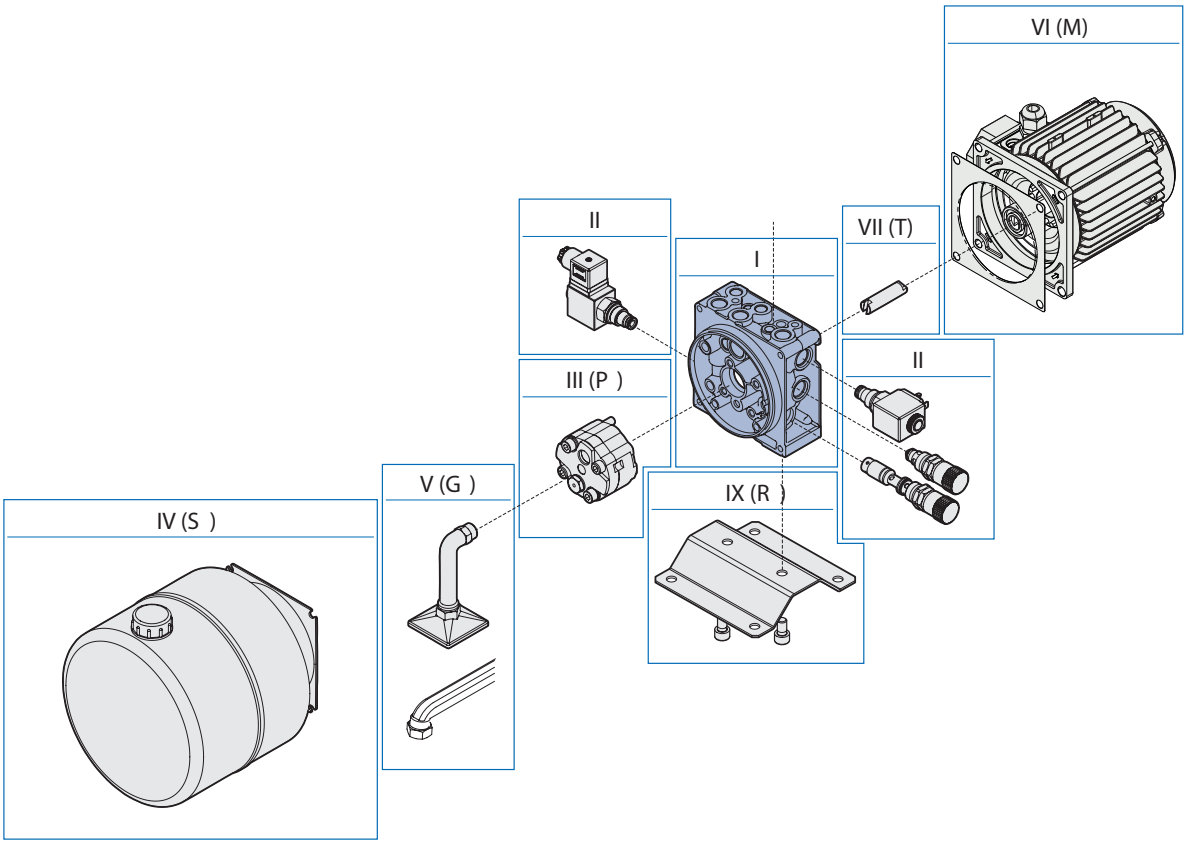
	Important data/information
	Mounting endhead side
	Ground floor
	Electrical connection boxes on AC motors
	Fill plug with breather and level stick
	Fill plug with breather
	Standard plug (closed)
OIL	Standard oil fill plug
	Fill plug with breather
	Fill plug
	Fill plug with check valve
	Fill plug with back check
	Drain plug with magnet
	Plug (or level stick) with visual indicator
	Drain plug
*	Fields to be completed

Power pack endhead configuration

DTR



Power pack sections



With its great modularity, the DTR series of power packs can create multiple configurations which satisfy requirements in a wide range of applications.
To make it easier to choose components, the power pack is subdivided into sections.

Section I - Serie, Flange Type, Valves on Cavity E+F
DTR Series Powerpacks are based on the Flange features.
The Flange is the core of the unit, on the flange are mounted all the valves, the pump, the motor and the reservoir.
The DTR Flange is available in several Versions (with different tooling options).
The Flange Version must be chosen depending on the type of Hydraulic Circuit Layout required.
Together with the Flange Version, it is required to select the Valves to be mounted in the Various Cavities E+F (Main Pressure Relief Valve).

Section II - Valves
Depending on the Type of Hydraulic Circuit Layout to be realized, it is required to select the Valves for each of the available Cavities.
In order to correctly build up the Ordering Code, it is required to use the following procedure.
Peripheral Cavities (it is mandatory to mention all the Cavities in sequential Order): starting from Cavity D, mention all the Cavities and the Valves, Plugs or Fittings to be mounted in said Cavity. Internal Cavities, mention the Internal Cavities where a Valve (usually a Return Line Valve) is mounted. Outputs, see description in the Table.

Section III- Pumps
It is mandatory to mention this section, defined by the letter P.
Depending on the required features, select the pump from the table provided.

Section IV - Tanks
This section is defined by the letter S.
Depending on the required features, select the reservoir from the list provided.
If no Reservoir is required, and also no Suction / Return Kit is required, please omit this section.
If no Reservoir is required, but a Suction / Return Kit is required, please jump to Section V (defined by letter G).

Section V -Tubes Kit (suction and return, only for tanks on the catalog)
This section is defined by the letter G.
In order to define this Section, please select the Reservoir Type anyways.

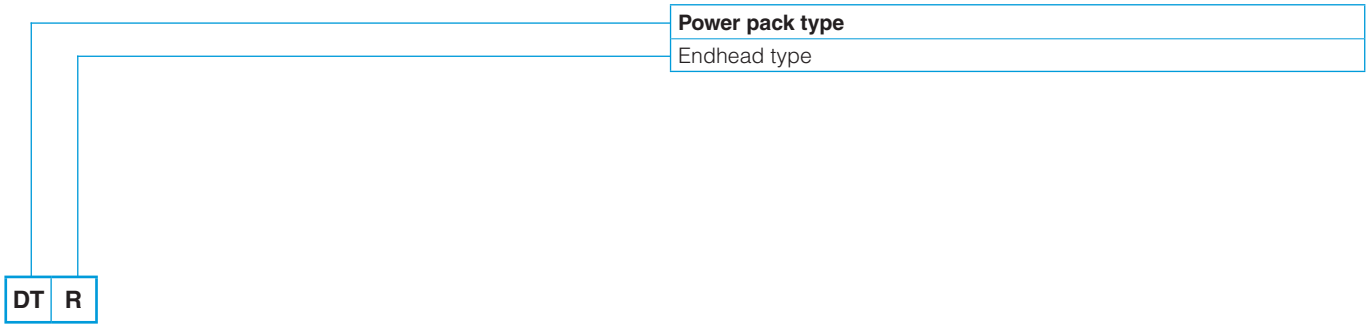
Section VI - Motors
This section is defined by the letter M.
Depending on the Type of Hydraulic Circuit Layout to be realized, it is required to Select the Motor Type.
If no Motor is required, and no Transmission Kit is required, please omit this section.
If no Motor is required, but a Transmission Kit is required, please jump to Section VII (defined by letter T).

Section VII - Transmission Kit (only for motors on the catalog)
This section is defined by the letter T.
Select the kit as per Table provided.

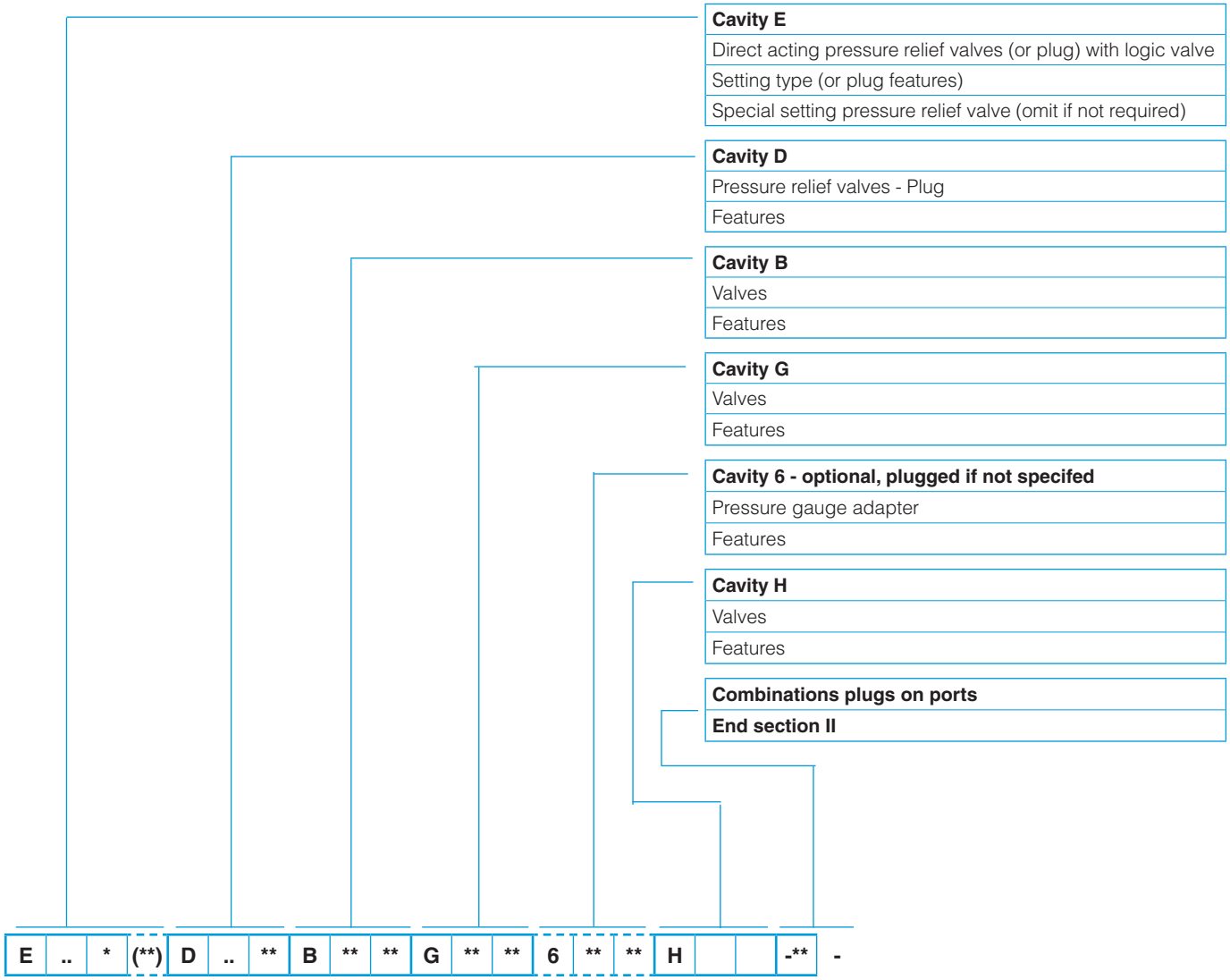
Section VIII - Accessories
This section it is not mandatory, is defined by the letter R
Check the available options in the list provided.
Accessories must be listed in Alphabetical Order.

Selection code

SECTION I - SERIE, ENDHEAD, VALVES ON CAVITY 1 AND 1R

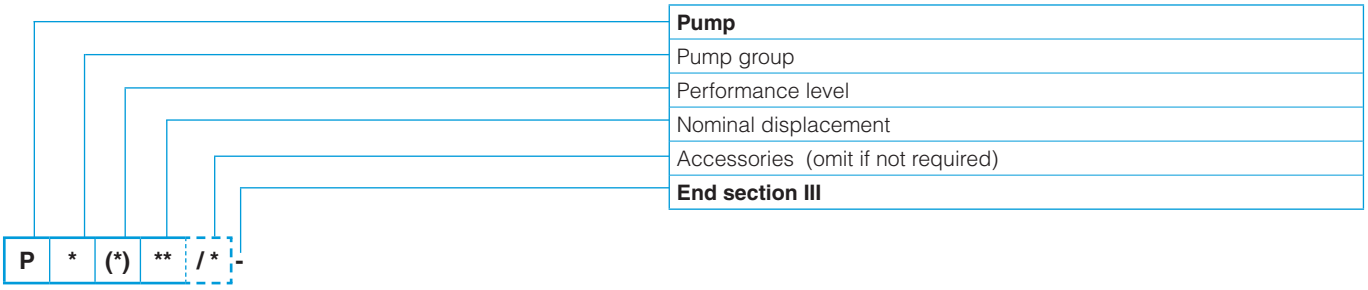


SECTION II - VALVES

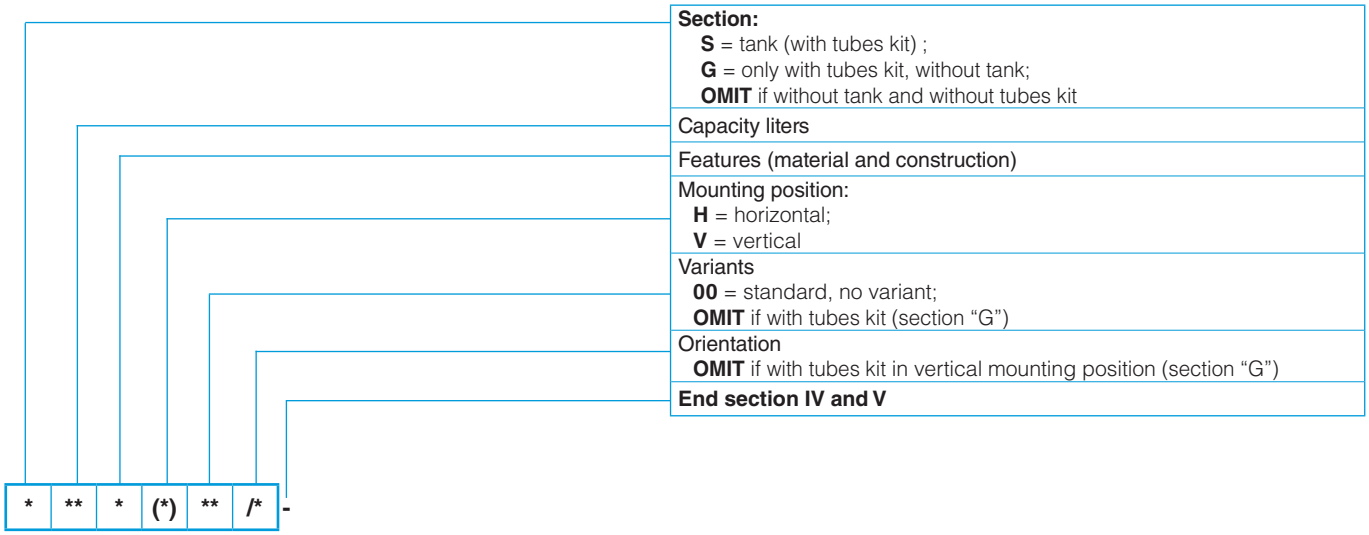


Selection code

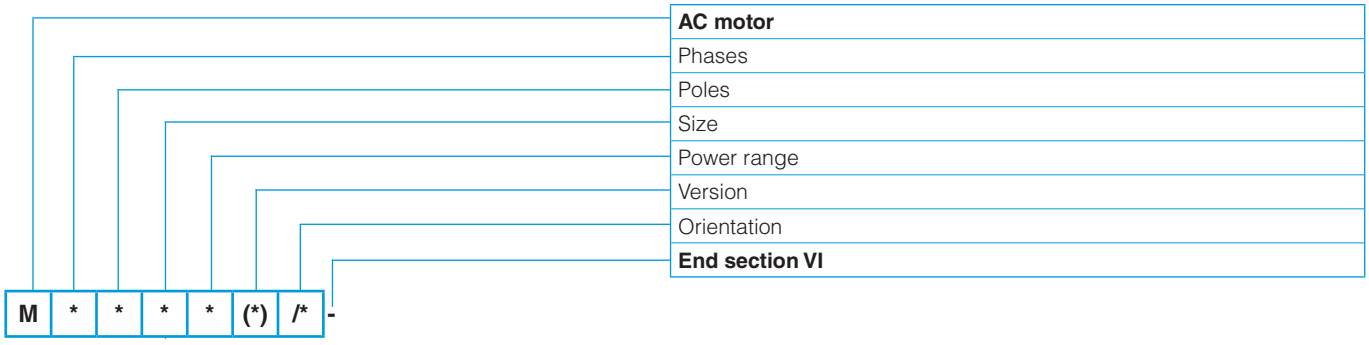
SECTION III - PUMPS



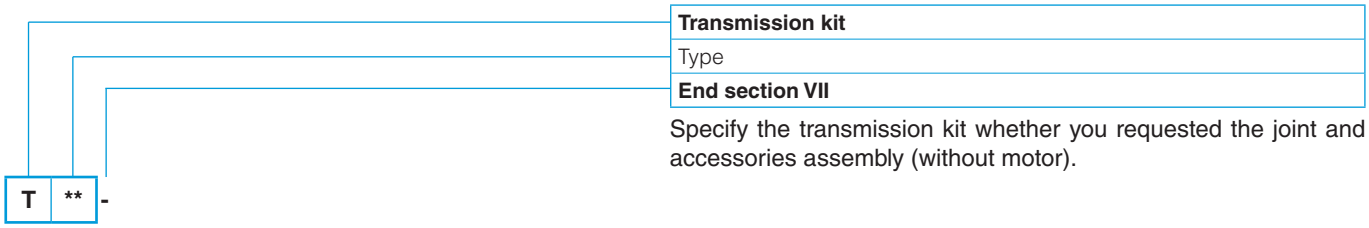
SECTION IV - TANKS and TUBES KIT



SECTION V - MOTORS

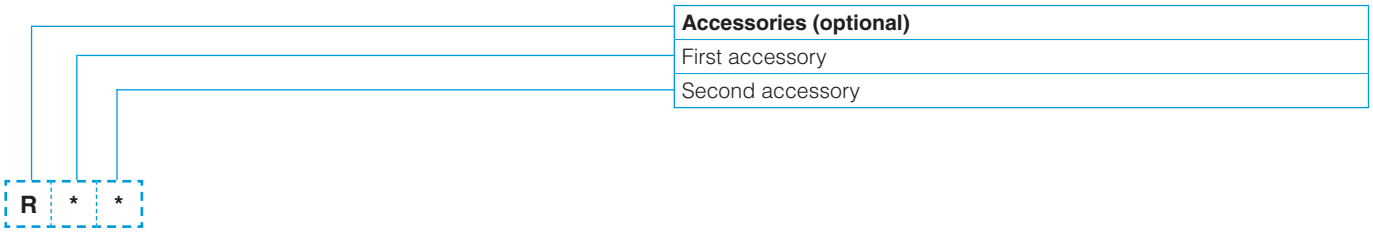


SECTION VI - TRANSMISSION KIT (only for motors on the catalog)



Specify the transmission kit whether you requested the joint and accessories assembly (without motor).

SECTION VII - ACCESSORIES



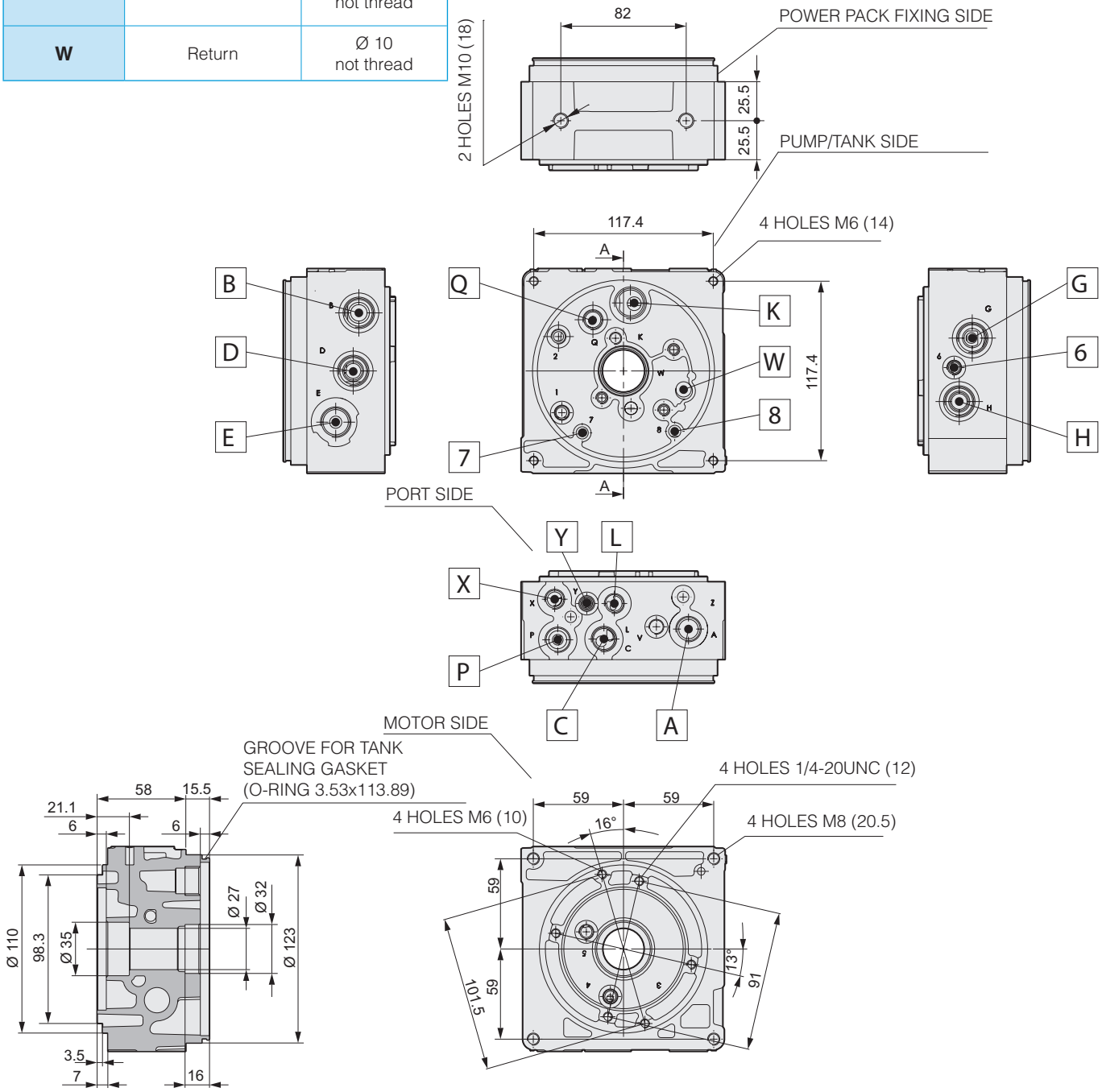
Endhead overall dimensions

Cavities on endhead:

Cavity		Thread
X-L	Ports	G1/4”
P-C-A	Ports	G3/8”
E	Peripheral	M20 x 1.5
D-B-G-H	Peripheral	3/4” 16 UNF
Y	Peripheral	M10 x 1
6	Peripheral pressure gauge	G1/8” STD plugged
K	Return	G1/2”
Q	Return	G1/4”
7-8	Return	Ø 8 not thread
W	Return	Ø 10 not thread

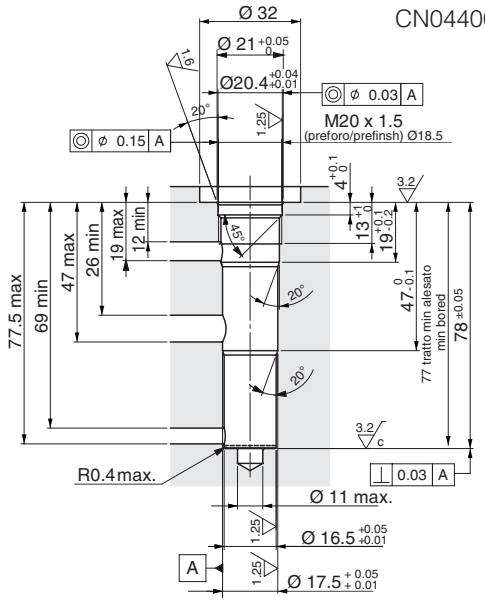
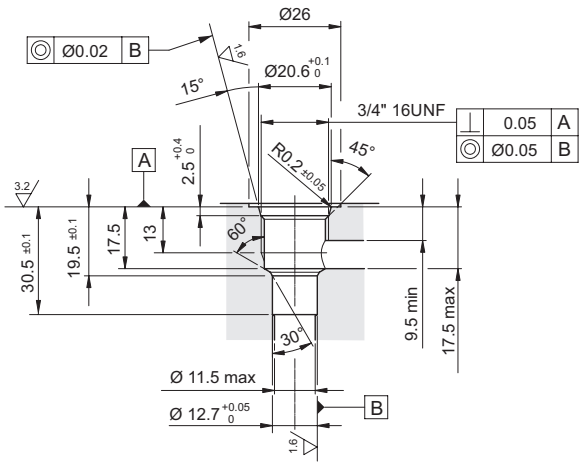
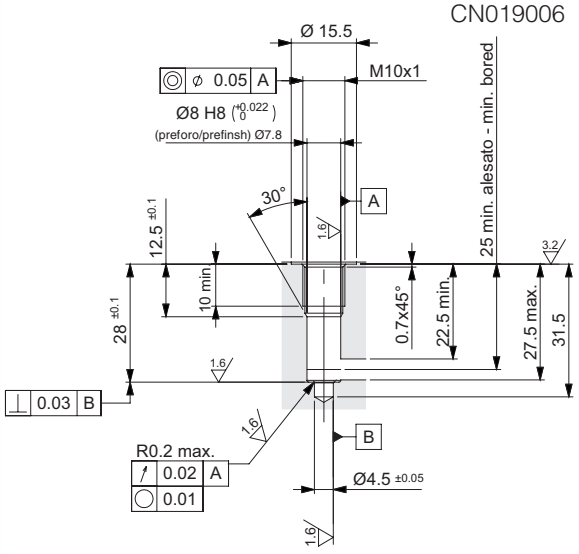
There are three types of cavities:

- Peripheral cavities, which can be accessed externally
- Return cavities, inside of the tank.
- Ports



In the drawing are shown the common dimensions.

Cavities dimensions

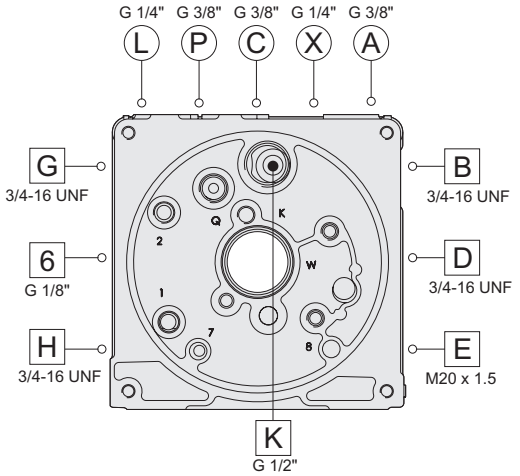
Cavity		Thread	Drawing
E	**Peripheral**	M20 x 1.5	CN044003 
D **B** **G** **H**	**Peripheral**	3/4” 16 UNF	CD018014 
Y	**Peripheral**	M10 x 1	CN019006 

Section I - Endhead choice

Power pack type	DT
Endhead type	R

* Endhead type

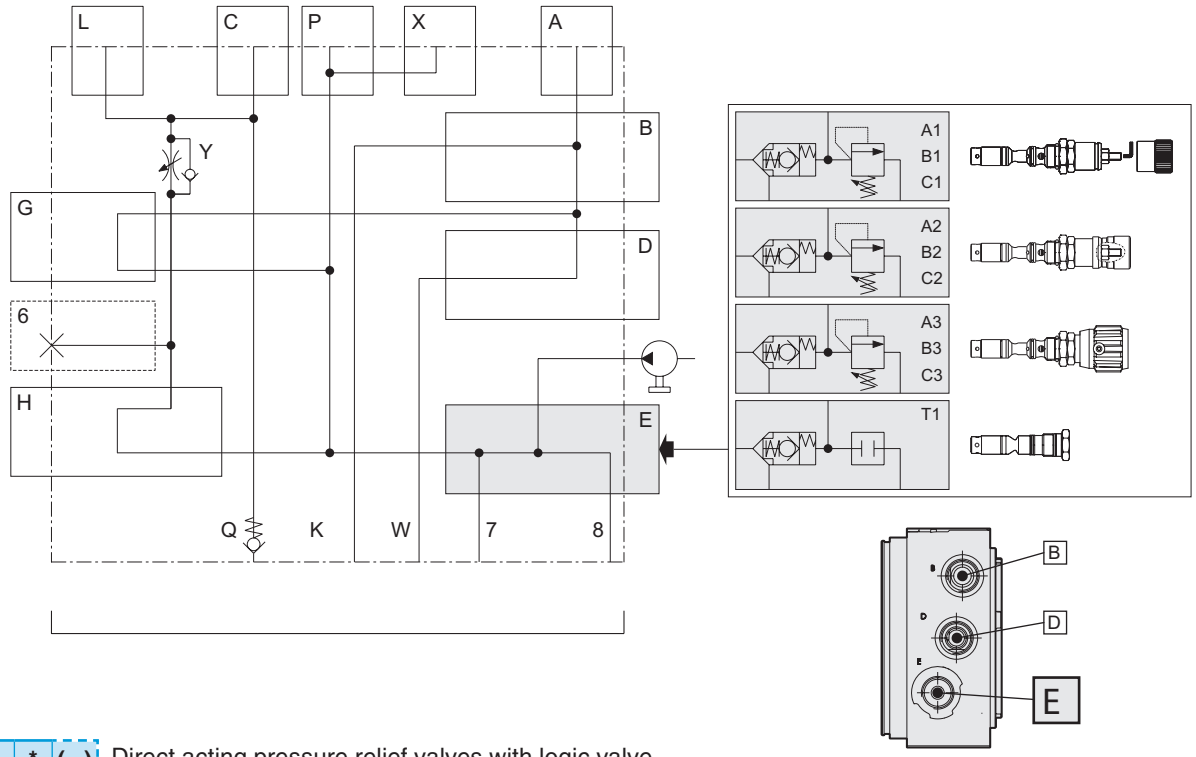
*	Cavity	Type	Thread
R	X-L	Ports	G1/4”
	P-C-A	Ports	G3/8”
	E	Peripheral	M20 x 1.5
	D-B-G-H	Peripheral	3/4” 16 UNF
	6	Peripheral pressure gauge	G1/8” STD plugged
	K	Return	G1/2”



Endhead code
M17190001.000

DT	R	E	*	*	

- Cavity E
- Direct acting pressure relief valves (or plug) with logic valve
- Setting type (or plug features)
- Special setting pressure relief valve (omit if not required)



E * * (...) Direct acting pressure relief valves with logic valve

*	*	Pressure (bar)	STD setting (bar)	(...) Special setting (bar)	Setting type	Code	Symbol	Drawing
A	1	15 ÷ 50	30	15 ÷ 50 (5 to 5)	Detachable closing	CPMK04S0001		1
	2				Non removable closing (1)	CPMK04P0001		
	3				Plastic knob	CPMK04M0001		
B	1	35 ÷ 110	50	35 ÷ 110 (5 to 5)	Detachable closing	CPMK04S1001		2
	2				Non removable closing (1)	CPMK04P1001		
	3				Plastic knob	CPMK04M1001		
C	1	75 ÷ 220	150	75 ÷ 220 (5 to 5)	Detachable closing	CPMK04S2001		3
	2				Non removable closing (1)	CPMK04P2001		
	3				Plastic knob	CPMK04M2001		

1 = Supplied assembled. Unassembled, see accessories page 33

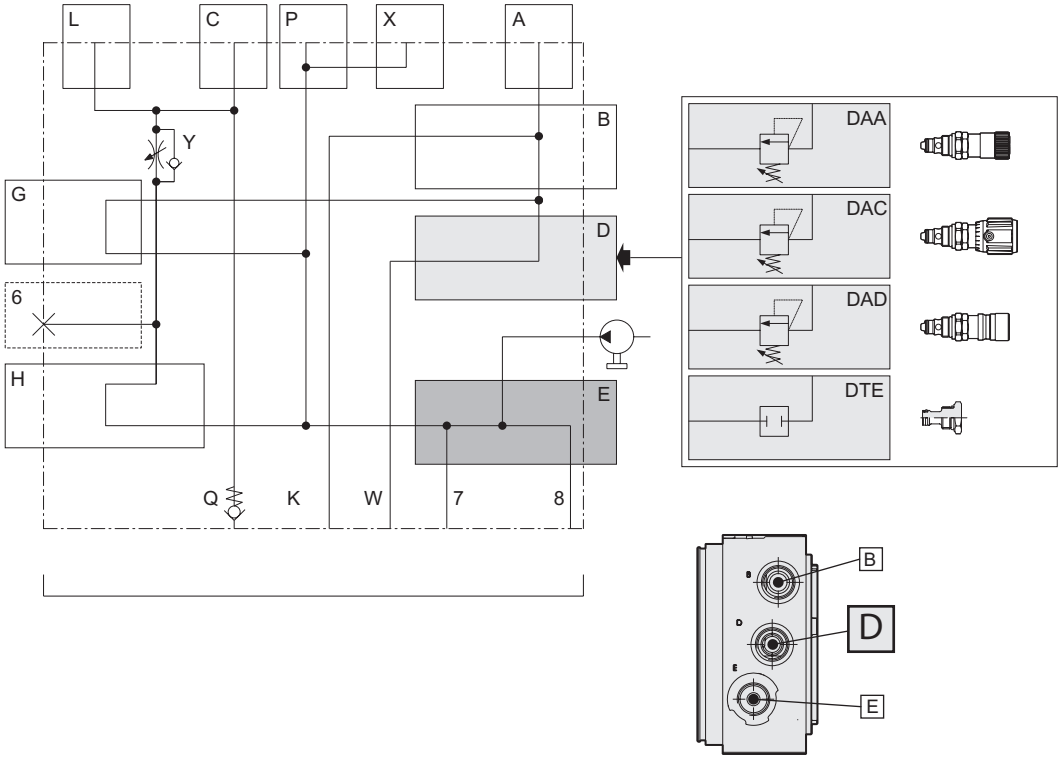
E * * Plug with logic valve

*	*	Description	Code	Symbol	Drawing
T	1	Plug to replace pressure relief valve	27000026.000		

Section II - DTR Cavity D

DT	R	*	*	*	(...)	D	..	**

Cavity D
Pressure relief valves - Plug
Features



D A ** (...) Pressure relief valves

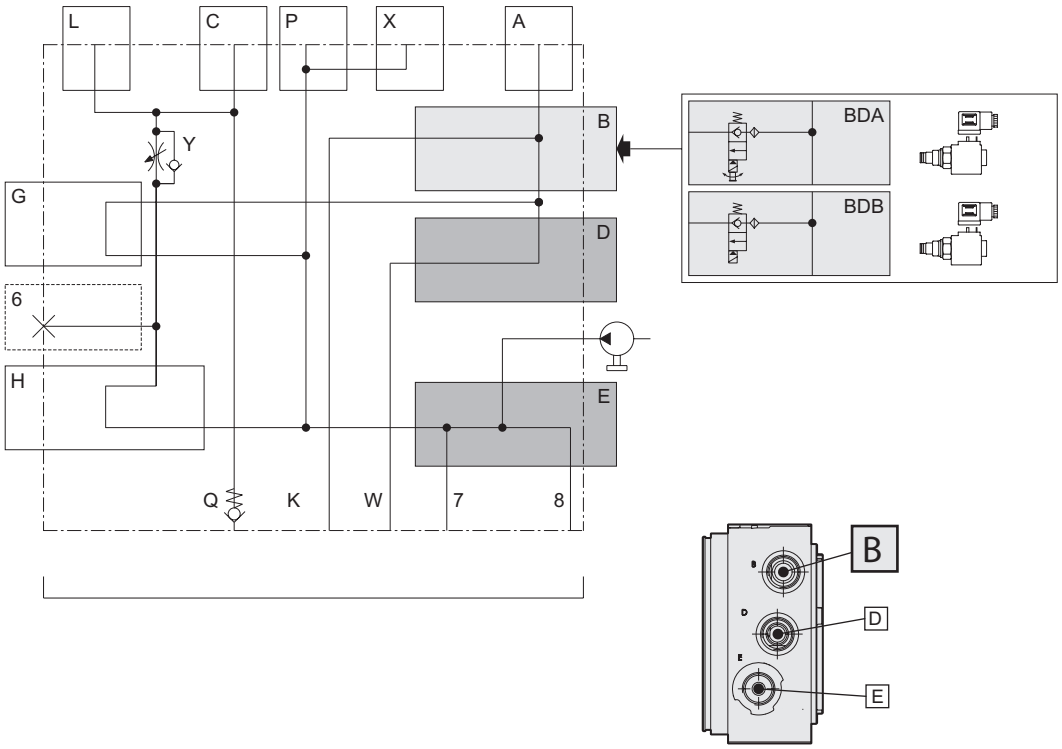
**	Description	(...) Special setting (bar)	Code	Symbol	Drawing
AD	Short screw adjustment + detachable closing	Min 15 - Max 50	CMP04AS0002		
AE		Min 35 - Max 110	CMP04AS1002		
AF		Min 75 - Max 220	CMP04AS2002		
AG		Min 160 - Max 290	CMP04AS3002		
CD	Plastic knob adjustment	Min 15 - Max 50	CMP04AM0002		
CE		Min 35 - Max 110	CMP04AM1002		
CF		Min 75 - Max 220	CMP04AM2002		
CG		Min 160 - Max 290	CMP04AM3002		
DD	Short screw + sealed cap	Min 15 - Max 50	CMP04AP0002		
DE		Min 35 - Max 110	CMP04AP1002		
DF		Min 75 - Max 220	CMP04AP2002		
DG		Min 160 - Max 290	CMP04AP3002		

D T * Plug

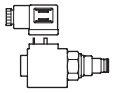
*	Description	Code	Symbol	Drawing
E	Long plug 3/4 16 UNF	20003800		

DT	R	*	*	*	(...)	D	..	**	**B**	**	**

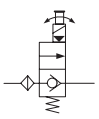
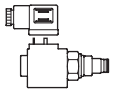
Cavity B
Valves
Features



**B DA ** Piloted solenoid valves normally closed, without emergency (1)

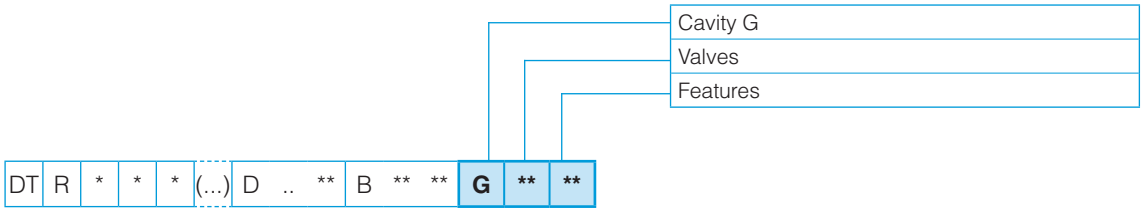
**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCASL003 + V86050002		
AB	Voltage 24 Vdc	CRP0418NCASM003 + V86050002		

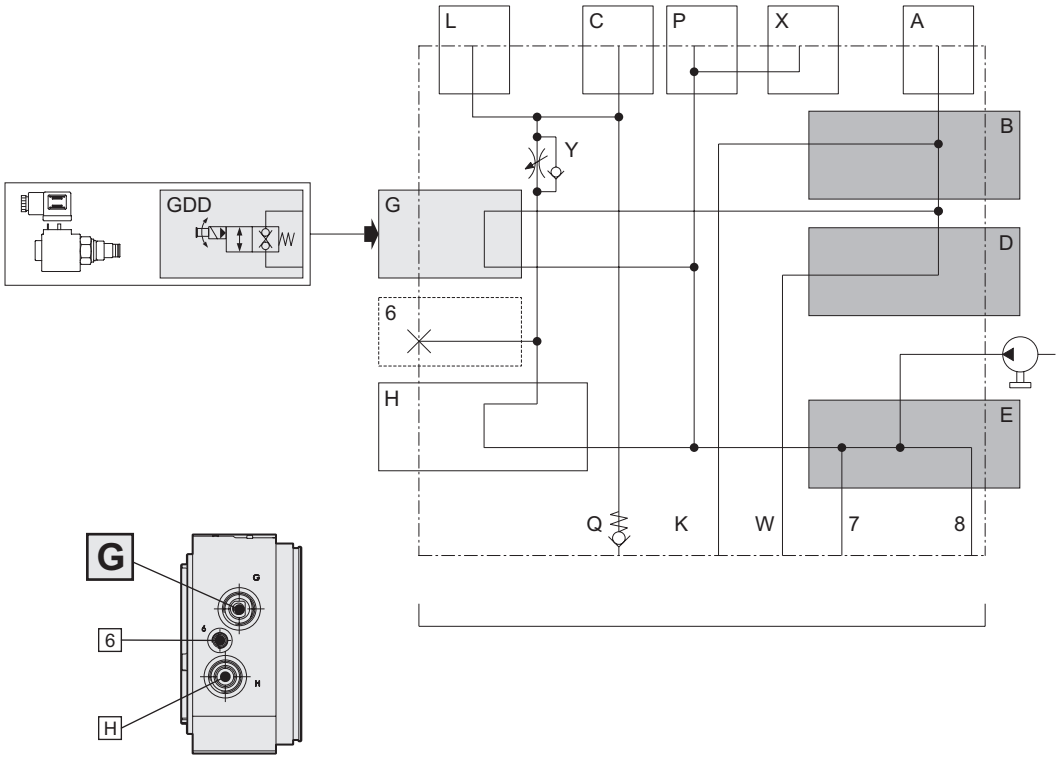
**B DB ** Piloted solenoid valves normally closed, with rotary emergency (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRP0418NCAEL003 + V8605002		
AB	Voltage 24 Vdc	CRP0418NCAEM003 + V86050002		

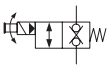
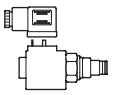
1 = Valves supplied with connector. Without connector see accessories page 33

Section II - DTR Cavity G





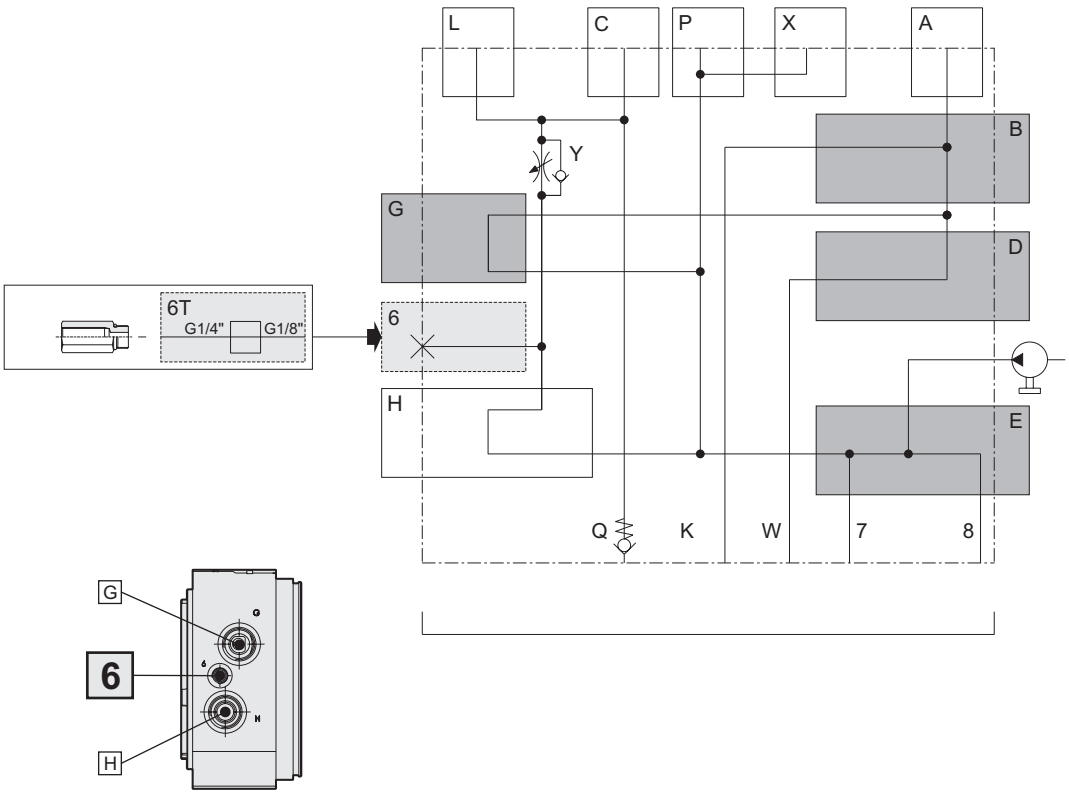
G DD ** Direct operated solenoid valve normally closed, with button emergency (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

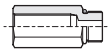
1 = Valves supplied with connector. Without connector see accessories page 33

DT	R	*	*	*	(...)	D .. **	B ** **	G ** **	6	**	**

Cavity 6 - optional, plugged if not specified
Pressure gauge adapter
Features



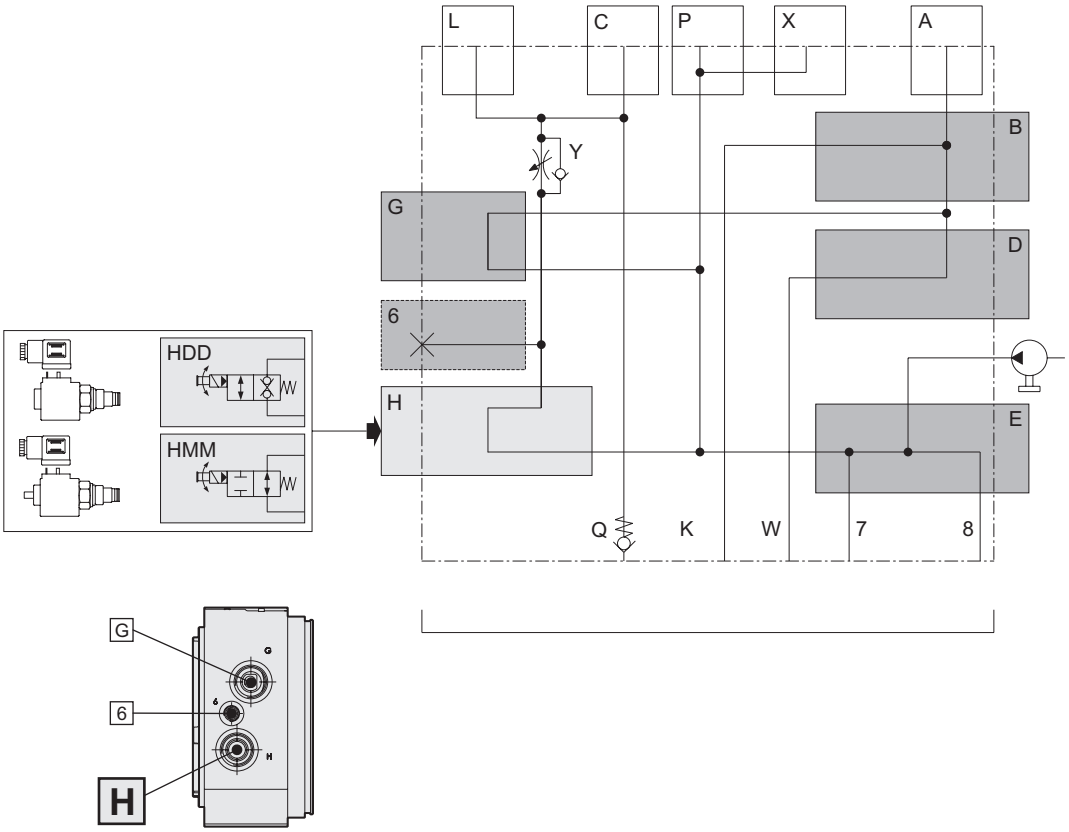
6 T * Pressure gauge adapter

*	Description	Code	Symbol	Drawing
M	Pressure gauge adapter G1/4” (male G1/8”)	1321820		

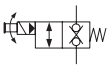
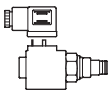
Section II - DTR Cavity H

DT	R	*	*	*	(...)	D .. **	B ** **	G ** **	6 ** **	H	**	**

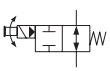
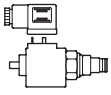
Cavity H
Valves
Features



H DD ** Direct operated solenoid valve normally closed, with button emergency (1)

**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	CRD0418NCAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

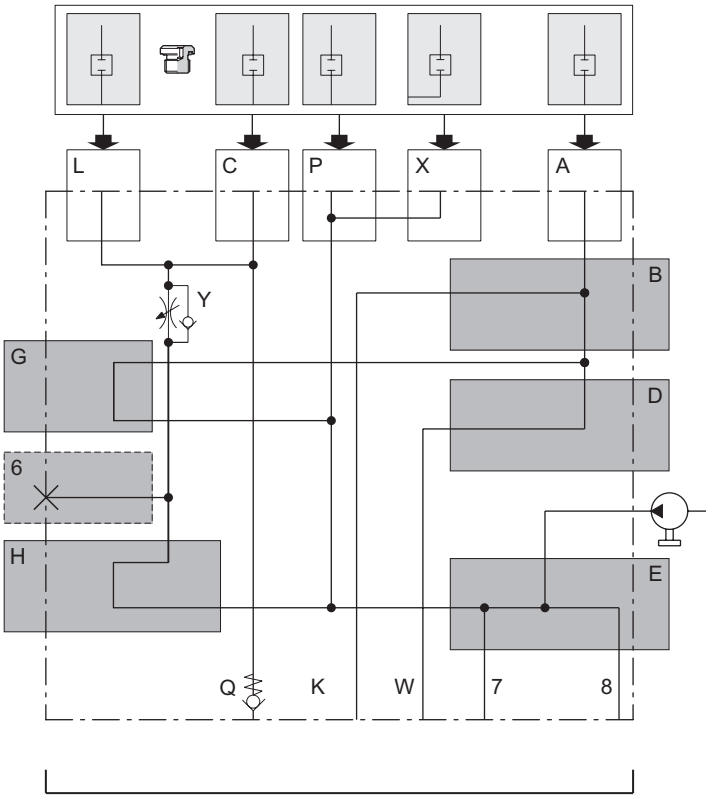
H MM ** Direct operated solenoid valve normally opened, with button emergency (1)

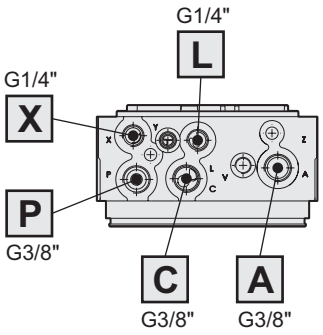
**	Description	Code (valve + connector)	Symbol	Drawing
AA	Voltage 12 Vdc	C2V0422NAAEL002 + V86050002		
AB	Voltage 24 Vdc	CRD0418NCAEM002 + V86050002		

1 = Valves supplied with connector. Without connector see accessories page 33

Combinations plugs on ports
End section II

DT	R	*	*	*	(...)	D .. **	B ** **	G ** **	6 ** **	H ** **	-**	-



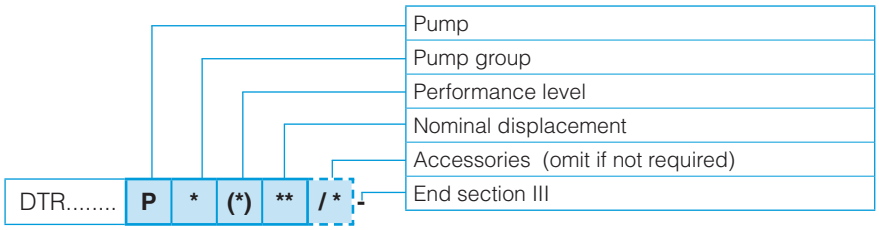


-** Plugs combinations

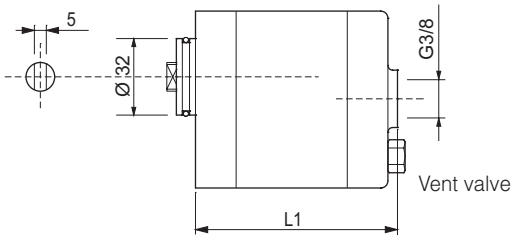
-**	A	P	C	X	L
-00	↑	↑	↑	⊗	⊗
-01	↑	⊗	⊗	↑	↑
-02	↑	⊗	↑	↑	⊗
-03	↑	⊗	↑	↑	↑

Symbols description

Type	Description	Thread	Code	Symbol	Drawing
⊗	Port closed with plug	G 1/4"	20024000		
		G 3/8"	Q26630006		
↑	Port open		—	—	—



P 1 (2) ** Pumps group 1 with vent valve - Performance level 2

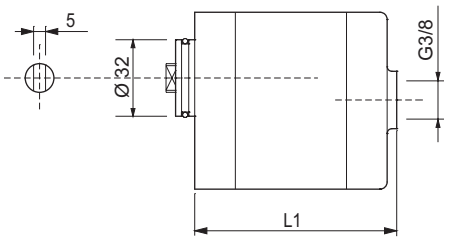


**	Nominal displacement	Tolerance on geometric displacement	P2 bar	P3 bar	Code complete kit	L1 mm
09	0.90 cc	0.83 ÷ 0.95	210	250	17050088.014	42.2
12	1.20 cc	1.10 ÷ 1.30	210	250	17050005.014	43.5
17	1.70 cc	1.50 ÷ 1.70	210	250	17050006.014	45.3
22	2.20 cc	2.10 ÷ 2.30	210	250	17050007.014	49.2
26	2.60 cc	2.50 ÷ 2.70	210	250	17050008.014	50.7
32	3.20 cc	3.10 ÷ 3.32	210	250	17050009.014	60.9
38	3.80 cc	3.60 ÷ 3.99	210	250	17050010.014	63.1
43	4.30 cc	4.00 ÷ 4,.35	210	250	17050011.014	63.4

P2 = Intermittent operating pressure
P3 = Intermittent peak pressure (20 sec. max)

P	1	(2)	**	/ *

Pumps group 1 with start valve - Performance level 2 (1)

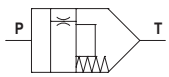
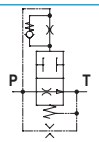


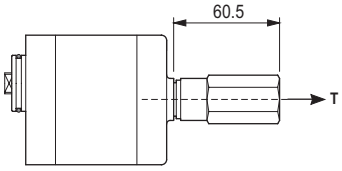
**	Nominal displacement	Tolerance on geometric displacement	P2 bar	P3 bar	Code complete kit	L1 mm
09	0.90 cc	0.83 ÷ 0.95	210	250	17050096.014	42.2
12	1.20 cc	1.10 ÷ 1.30	210	250	17050041.014	43.5
17	1.70 cc	1.50 ÷ 1.70	210	250	17050042.014	45.3
22	2.20 cc	2.10 ÷ 2.30	210	250	17050043.014	49.2
26	2.60 cc	2.50 ÷ 2.70	210	250	17050044.014	50.7
32	3.20 cc	3.10 ÷ 3.32	210	250	17050045.014	60.9
38	3.80 cc	3.60 ÷ 3.99	210	250	17050046.014	63.1
43	4.30 cc	4.00 ÷ 4,.35	210	250	17050047.014	63.4

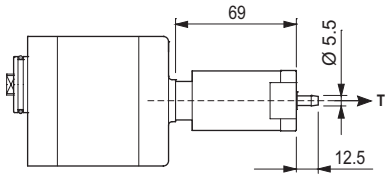
1 = Specify Accessory (see table below “Accessories for pumps group 1”)
P2 = Intermittent operating pressure
P3 = Intermittent peak pressure (20 sec. max)

P	1	(1)	**	/ *

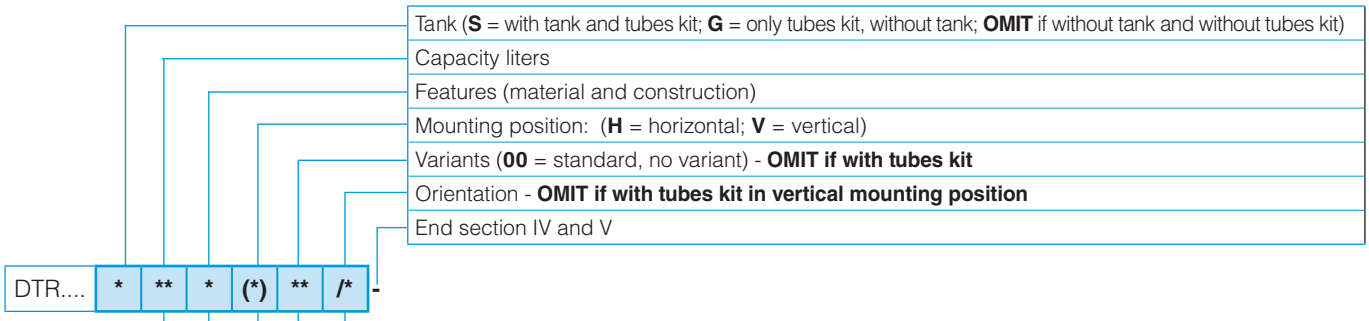
Accessories for pumps group 1

*	Description	Type	Code	Symbol
/A	Single-phase motor start valve - on auxiliary outlet	0.8 ÷ 2.5 l/min	VAM0400L	
/B		> 2.5 ÷ 8.0 l/min	VAM0400M	
/C		> 8.0 ÷ 14 l/min	VAM0400H	
/D	Soft start valve - on auxiliary outlet	hole Ø 0.4 mm	VAMS0404001	





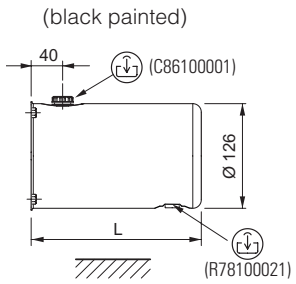
Section IV - Tanks and Tubes kit



**	Liters	*	Dimensions (mm)	Material	(*) Mounting	** Variants	Page	* Orientation
02	1,5	G	⍁ 130x140 - L 135	Polyethylene	(H)	00	24	/1(std) /2 /3 /4
					(V)	00		
03	2.5	G	⍁ 130x140 - L 235	Polyethylene	(H)	00	24	
					(V)	00		
	2.5	A	Ø 126 - L 235	Sheet steel	(H)	00-01-02	21	
					(V)	00		
04	4	G	⍁ 130x140 - L 295	Polyethylene	(H)	00	24	
					(V)	00		
	4	L	⍁ 180 - L 210	Polyethylene	(H)	00	25	
					(V)	00		
05	5	C	Ø 200 - L 210	Sheet steel	(H)	00-01-02-03	22	
					(V)	00		
07	7	L	⍁ 180 - L 310	Polyethylene	(H)	00	26	
					(V)	00		
08	8	C	Ø 200 - L 306	Sheet steel	(H)	00-03	22	
					(V)	00		
10	10	C	Ø 200 - L 373	Sheet steel	(H)	00	22	
					(V)	00		
	10	L	⍁ 180 - L 410	Polyethylene	(H)	00	26	
					(V)	00		
12	12	D	Ø 260 - L 273	Sheet steel	(H)	00	23	
			Ø 200 - L 440		(H)	01		
					(V)	00		

* | ** | * | (H) | ** | * - Tanks Ø 126 - Sheet steel, capacity 2.5 liters - Horizontal mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
2.5	**A**	**(H)**	**00**	235	2.5	2.1	2	1321554	17010093

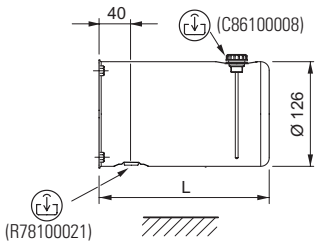


(1) Variant - OMIT if without tank but with tubes kit

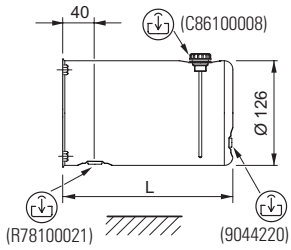
(..) spare parts

Other variants

Variant	Tank
2.5 A (H) 01	1321555



Variant	Tank
2.5 A (H) 02	1321553



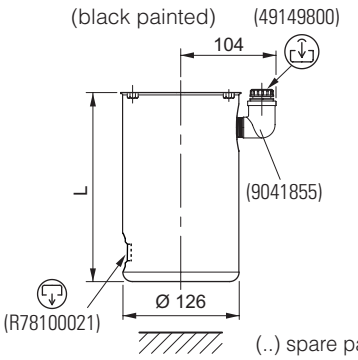
Variant	Tank

Variant	Tank

IV

* | ** | * | (V) | ** | * - Tanks Ø 126 - Sheet steel, capacity 2.5 - Vertical mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
2.5	**A**	**(V)**	**00**	235	2.5	2.1	2	1321764	17010093



(1) Variant - OMIT if without tank but with tubes kit

(..) spare parts

Other variants

Variant	Tank

Variant	Tank

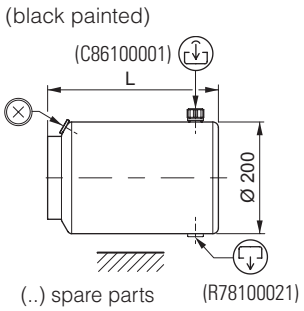
Variant	Tank

Variant	Tank

Section IV - Tanks and Tubes kit

* | ** | * | (H) | ** | * - Tanks Ø 200 - Sheet steel, capacity 5-8 liters - Horizontal mounting

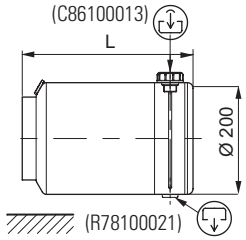
Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
05	C	(H)	00	210	5	5	4.7	1321546	17010093
08				306	8	8.0	7.7	1321539	



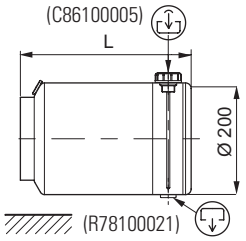
(1) Variant - OMIT if without tank but with tubes kit

Other variants

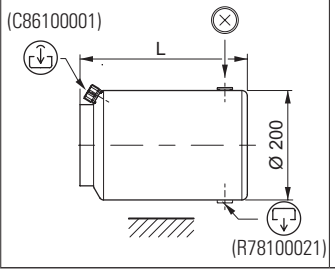
Variant	Tank
05 B (H) **01**	1321542



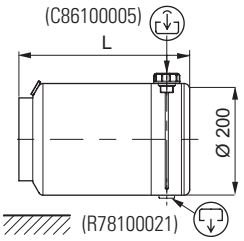
Variant	Tank
05 B (H) **02**	1321544



Variant	Tank
05 B (H) (V) **03**	1321545

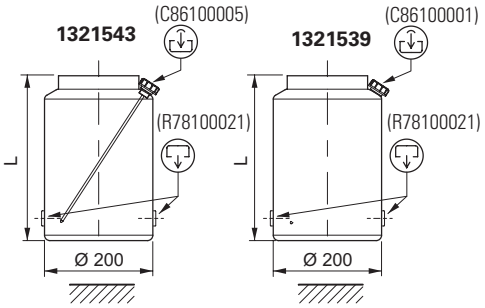


Variant	Tank
08 B (H) **01**	1321538



* | ** | * | (V) | ** | * - Tanks Ø 200 - Sheet steel, capacity 5-8 liters - Vertical mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
05	C	(V)	00	210	5	4.6	4.3	1321543	17010093
08				306	8	7.5	7.1	1321539	



(1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant	Tank

Variant	Tank

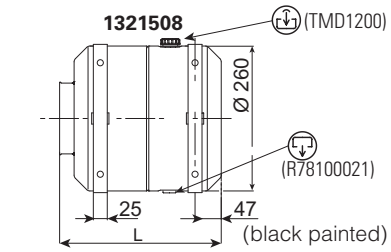
Variant	Tank

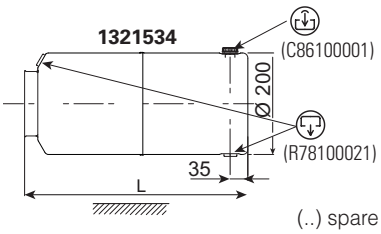
Variant	Tank

* | ** | * | (H) | ** | * - Tanks Ø 200 and Ø 260 - Sheet steel, capacity 12 liters - Horizontal mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
12	D	(H)	00	273	12	10	9.6	1321508	17010093
12	D	(H)	01	440	12	10	9.6	1321534	

(1) Variant - OMIT if without tank but with tubes kit





Other variants

(..) spare parts

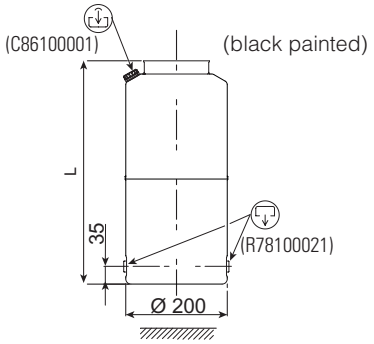
Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

IV

* | ** | * | (V) | ** | * - Tanks Ø 200 - Sheet steel, capacity 12 liters - Vertical mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug)	Tank fixing kit (screws and O-Ring)
12	D	(V)	00	440	12	10	9.6	1321534	17010093

(1) Variant - OMIT if without tank but with tubes kit



(..) spare parts

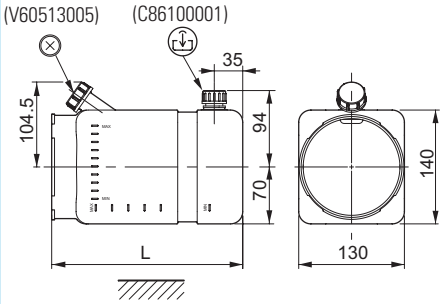
Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

Section IV - Tanks and Tubes kit

* | ** | * | (H) | ** | * - Square polyethylene tanks capacity 1.5-2.5-4 liters - Horizontal mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, clamp, nuts)	Tank fixing kit Ø123 (screws and O-Ring)
02	G	(H)	00	135	1.5	1.3	1	1321557	17010087
03				235	2.5	2.5	2	1321552	
04				295	4	3.4	2.5	1321550	



(..) spare parts

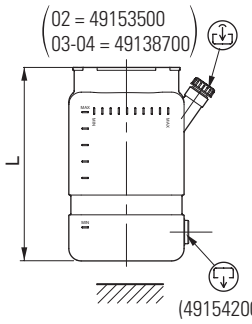
Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

* | ** | * | (V) | ** | * - Square polyethylene tanks capacity 1.5-2.5-4 liters - Vertical mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, clamp, nuts)	Tank fixing kit Ø123 (screws and O-Ring)
02	G	(V)	00	135	1.5	1.1	0.7	1321556	17010087
03				235	2.5	2.7	2.3	1321551	
04				295	4	3.5	3.1	1321549	



(..) spare parts

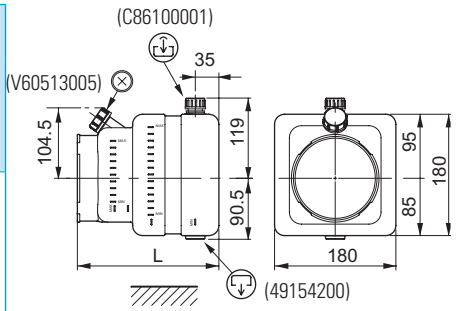
Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

Other variants

Variant	Tank	Variant	Tank	Variant	Tank	Variant	Tank

* | ****** | ***** | **(H)** | ****** | * - Square polyethylene tanks capacity 4 liters - Horizontal mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, clamp, nuts)	Tank fixing kit Ø123 (screws and O-Ring)
04	**L**	**(H)**	**00**	210	4	3.6	3	1321547	17010087



(..) spare parts

Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

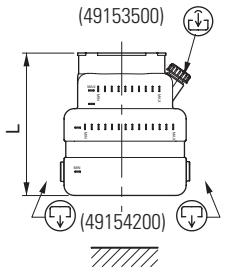
Other variants

Variant				Tank	Variant				Tank	Variant				Tank	Variant				Tank

IV

* | ****** | ***** | **(V)** | ****** | * - Square polyethylene tanks capacity 4 liters - Vertical mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, clamp, nuts)	Tank fixing kit Ø123 (screws and O-Ring)
04	**L**	**(V)**	**00**	210	4	3.7	3	1321548	17010087



(..) spare parts

Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

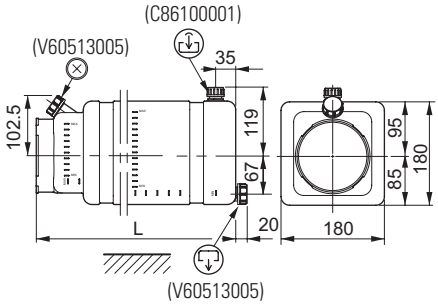
Other variants

Variant				Tank	Variant				Tank	Variant				Tank	Variant				Tank

Section IV - Tanks and Tubes kit

* | ** | * | (H) | ** | * - Square polyethylene tanks capacity 7-10 liters - Horizontal mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, clamp, nuts)	Tank fixing kit Ø123 (screws and O-Ring)
07	L	(H)	00	310	7	6.7	5.5	1321541	17010087
10				410	10	8.7	7.5	1321537	

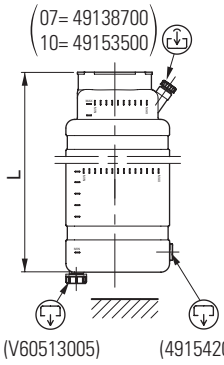


(..) spare parts

Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

* | ** | * | (V) | ** | * - Square polyethylene tanks capacity 7-10 liters - Vertical mounting

Capacity	Features	Mounting	Variant (1)	L (mm)	Capacity (liters) Nominal	Full	Usable	Tank (with plug, clamp, nuts)	Tank fixing kit Ø123 (screws and O-Ring)
07	L	(V)	00	310	7	6.7	6	1321540	17010087
10				410	10	9.8	9	1321535	

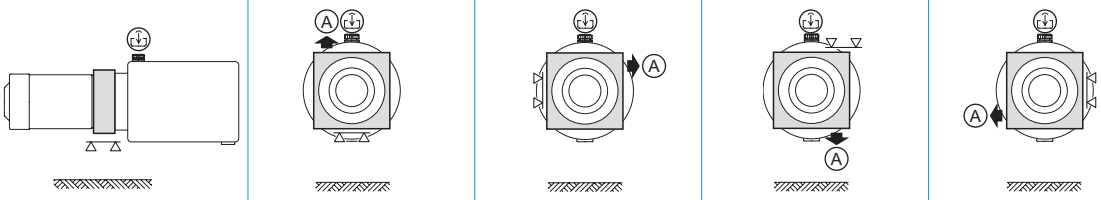


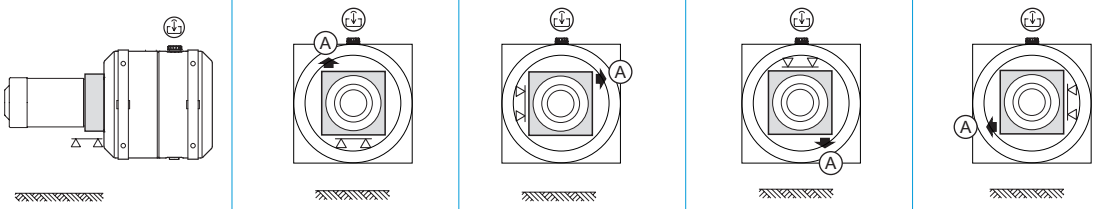
(..) spare parts

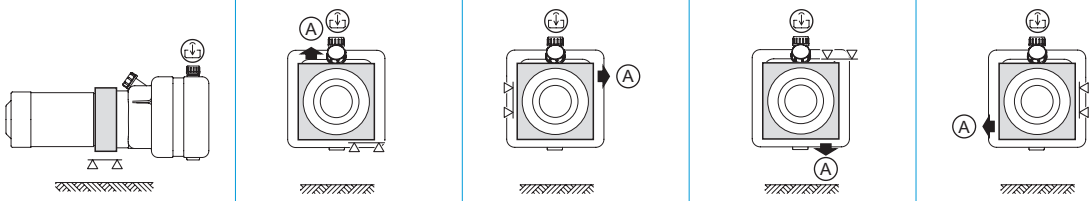
Operating temperature -10°C ÷ +70°C - (1) Variant - OMIT if without tank but with tubes kit

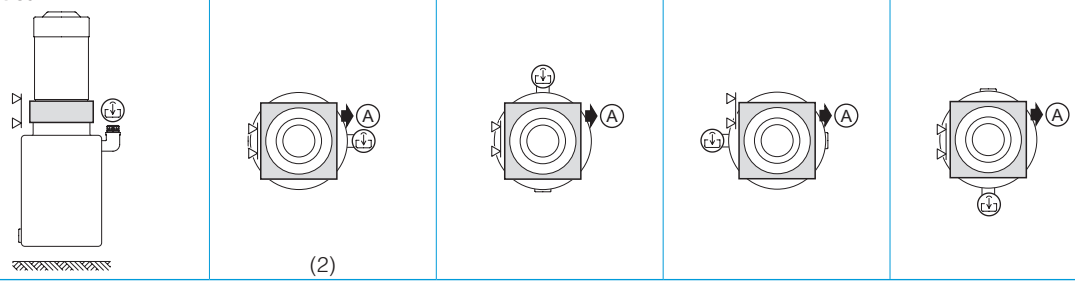
*	**	*	(*)	**	/*

- Tanks orientation according to the mounting position

For tanks	(*)	Mounting position	/* Orientation			
			/1 (standard)	/2	/3	/4
S ** A C D	(H)	Horizontal	 (1)			

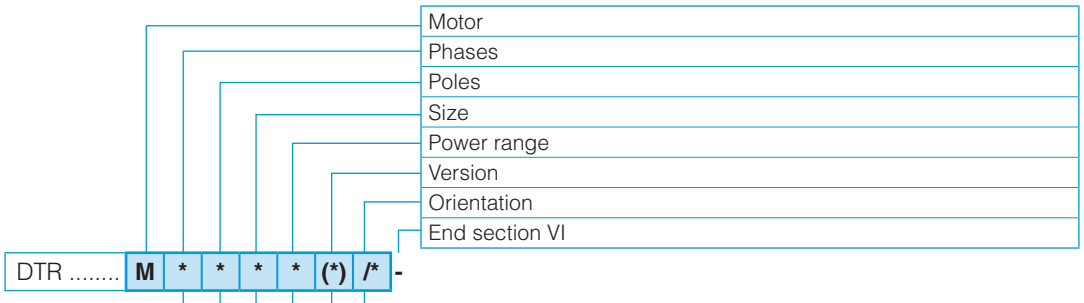
For tanks	(*)	Mounting position	/* Orientation			
			/1 (standard)	/2	/3	/4
S 12 D	(H)	Horizontal				

For tanks	(*)	Mounting position	/* Orientation			
			/1 (standard)	/2	/3	/4
S ** G L	(H)	Horizontal	 (1)			

For tanks	(*)	Mounting position	/* Orientation			
			/1 (standard)	/2	/3	/4
S ** A C D G L	(V)	Vertical	 (2)			

(1) Orientation TO BE USED with blocks

Section V - AC Motors



*	Phases
M	Single-phase
T	Three-phase

* Poles
2
4
2
4

*	Size
L	71
L	71
S	71
S	71
M	80
M	80
N	90
N	90
P	100
L	71
L	71
M	80
M	80
N	90
N	90
P	100
R	63
R	63
L	71
L	71
S	71
M	80
M	80
N	90
N	90
P	100
P	112
R	63
R	63
L	71
L	71
S	71
M	80
M	80
N	90
N	90
P	100
P	100
P	112

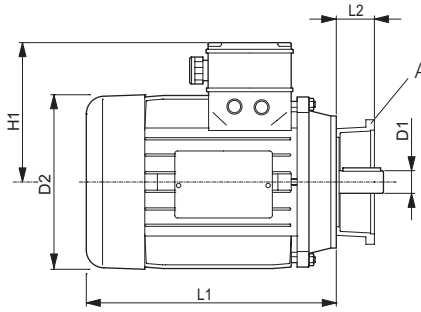
*	Power range		Page
	Power	Voltage	
A	0.37 kW	230 Vac 50 Hz	29
B	0.55 kW	230 Vac 50 Hz	29
A	0.75 kW	230 Vac 50 Hz	31
B	1.10 kW	230 Vac 50 Hz	34
A	0.75 kW	230 Vac 50 Hz	29
B	1.10 kW	230 Vac 50 Hz	29
A	1.50 kW	230 Vac 50 Hz	29
B	2.20 kW	230 Vac 50 Hz	29
A	3.00 kW	230 Vac 50 Hz	29
A	0.25 kW	230 Vac 50 Hz	29
B	0.37 kW	230 Vac 50 Hz	29
A	0.55 kW	230 Vac 50 Hz	29
B	0.75 kW	230 Vac 50 Hz	29
A	1.10 kW	230 Vac 50 Hz	29
B	1.50 kW	230 Vac 50 Hz	29
A	2.20 kW	230 Vac 50 Hz	29
A	0.18 kW	230/400 Vac 50 Hz	30
B	0.25 kW	230/400 Vac 50 Hz	30
A	0.37 kW	230/400 Vac 50 Hz	30
B	0.55 kW	230/400 Vac 50 Hz	30
A	0.75 kW	230/400 Vac 50 Hz	31
A	0.75 kW	230/400 Vac 50 Hz	30
B	1.10 kW	230/400 Vac 50 Hz	30
A	1.50 kW	230/400 Vac 50 Hz	30
B	2.20 kW	230/400 Vac 50 Hz	30
A	3.00 kW	230/400 Vac 50 Hz	30
B	4.00 kW	230/400 Vac 50 Hz	30
A	0.12 kW	230/400 Vac 50 Hz	30
B	0.18 kW	230/400 Vac 50 Hz	30
A	0.25 kW	230/400 Vac 50 Hz	30
B	0.37 kW	230/400 Vac 50 Hz	30
A	0.75 kW	230/400 Vac 50 Hz	31
A	0.55 kW	230/400 Vac 50 Hz	30
B	0.75 kW	230/400 Vac 50 Hz	30
A	1.10 kW	230/400 Vac 50 Hz	30
B	1.50 kW	230/400 Vac 50 Hz	30
A	2.20 kW	230/400 Vac 50 Hz	30
B	3.00 kW	230/400 Vac 50 Hz	30
C	4.00 kW	230/400 Vac 50 Hz	30

(*) Version	
(1)	Std

/* Orientation	
/1 /2 /3 /4	Std

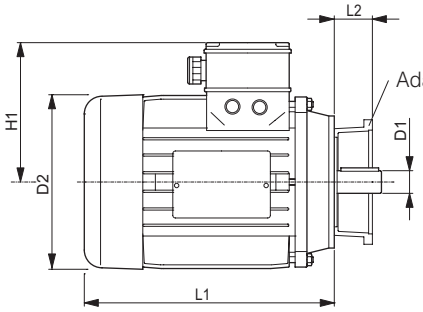
Motors supplied with all assembly components (transmission kit, coupling, etc).

M	*	*	*	*	(*)



Single-phase motors 2-4 Poles - 230 Vac 50Hz - Version B14

		Phases	Poles	Size	D1 (•)	D2 (•)	H1 (•)	L1 (•)	Power range					Cable gland metric thred	Adapter			Single Motor	Transmission kit (for pump)
									Power kW	Voltage	IP	IC	S1		Code	Screw UNI 5931	L2		
M	M 2 L A (1)	2	2	71	14	148	115	208	0.37	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	9045596	KIT08019.012
M	M 2 L B (1)	2	2	71	14	148	115	208	0.55	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	9045597	
M	M 2 M A (1)	2	2	80	19	170	126	234	0.75	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	9045598	KIT08019.014
M	M 2 M B (1)	2	2	80	19	170	126	234	1.10	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	9045599	
M	M 2 N A (1)	2	2	90	24	185	142	247	1.50	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	9045600	KIT08019.016
M	M 2 N B (1)	2	2	90	24	185	142	272	2.20	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	9045601	
M	M 2 P A (1)	2	2	100	28	210	155	310	3.00	230 Vac 50 Hz	54	F	Si	25-32	61001000	M8x28	75	9045602	KIT08019.046
M	M 4 L A (1)	2	4	71	14	148	115	208	0.25	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	9045589	KIT08019.012
M	M 4 L B (1)	2	4	71	14	148	115	208	0.37	230 Vac 50 Hz	54	F	Si	20-25	61000700	M6x20	19.5	9045590	
M	M 4 M A (1)	2	4	80	19	170	126	234	0.55	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	9045591	KIT08019.014
M	M 4 M B (1)	2	4	80	19	170	126	234	0.75	230 Vac 50 Hz	54	F	Si	20-25	61000800	M6x20	30.4	9045592	
M	M 4 N A (1)	2	4	90	24	185	142	247	1.10	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	9045593	KIT08019.016
M	M 4 N B (1)	2	4	90	24	185	142	272	1.50	230 Vac 50 Hz	54	F	Si	20-25	61000900	M8x21	40.4	9045594	
M	M 4 P A (1)	2	4	100	28	210	155	310	2.20	230 Vac 50 Hz	54	F	Si	25-32	61001000	M8x28	75	9045595	KIT08019.046

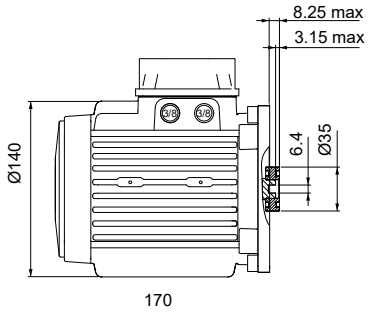


Adapter: supplied with the transmission kit

Three-phase motors 2-4 Poles - 230/400 Vac 50Hz - Version B14

						Phases	Poles	Size	D1 (•)	D2 (•)	H1 (•)	L1 (•)	Power range					Cable gland metric thred	Adapter			Single Motor	Transmission kit (for pump)
													Power kW	Voltage	IP	IC	S3		Code	Screw UNI 5931	L2		
M	T	2	R	A	(1)	3	2	63	11	125	95	189	0.18	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	9045557	KIT08019.010
M	T	2	R	B	(1)	3	2	63	11	125	95	189	0.25	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	9045558	
M	T	2	L	A	(1)	3	2	71	14	148	115	208	0.37	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	9045559	KIT08019.012
M	T	2	L	B	(1)	3	2	71	14	148	115	208	0.55	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	9045560	
M	T	2	M	A	(1)	3	2	80	19	170	126	234	0.75	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	9045527	KIT08019.014
M	T	2	M	B	(1)	3	2	80	19	170	126	234	1.10	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	9045561	
M	T	2	N	A	(1)	3	2	90	24	185	142	247	1.50	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	9045562	KIT08019.016
M	T	2	N	B	(1)	3	2	90	24	185	142	272	2.20	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	9045563	
M	T	2	P	A	(1)	3	2	100	28	210	155	310	3.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	9045564	KIT08019.046
M	T	2	P	B	(1)	3	2	112	28	225	182	325	4.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	9045565	
M	T	4	R	A	(1)	3	4	63	11	125	95	189	0.12	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	9045574	KIT08019.010
M	T	4	R	B	(1)	3	4	63	11	125	95	189	0.18	230/400 Vac 50 Hz	54	F	60%	16-20	61004300	M5x16	19.5	9045575	
M	T	4	L	A	(1)	3	4	71	14	148	115	208	0.25	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	9045576	KIT08019.012
M	T	4	L	B	(1)	3	4	71	14	148	115	208	0.37	230/400 Vac 50 Hz	54	F	60%	20-25	61000700	M6x20	19.5	9045577	
M	T	4	M	A	(1)	3	4	80	19	170	126	234	0.55	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	9045578	KIT08019.014
M	T	4	M	B	(1)	3	4	80	19	170	126	234	0.75	230/400 Vac 50 Hz	54	F	60%	20-25	61000800	M6x20	30.4	9045579	
M	T	4	N	A	(1)	3	4	90	24	185	142	247	1.10	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	9045580	KIT08019.016
M	T	4	N	B	(1)	3	4	90	24	185	142	272	1.50	230/400 Vac 50 Hz	54	F	60%	20-25	61000900	M8x21	40.4	9045581	
M	T	4	P	A	(1)	3	4	100	28	210	155	310	2.20	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	9045583	
M	T	4	P	B	(1)	3	4	100	28	210	155	310	3.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	9045584	KIT08019.046
M	T	4	P	C	(1)	3	4	112	28	225	182	325	4.00	230/400 Vac 50 Hz	54	F	60%	25-32	61001000	M8x28	75	9045585	

(•)= Approximate dimensions



Three-phase motors 2-4 Poles - 230/400 Vac 50Hz - Direct fixing

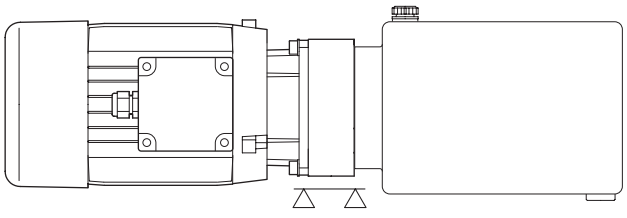
	Phases	Poles	Size	Power range					Cable gland metric thred	Single Motor	Transmission kit	Note
				Power kW	Voltage	IP	IC	Service				
M T 2 S A (1)	3	2	71	0.75	230/400 Vac 50 Hz	54	F	Light-duty	20	9044919	KIT09008.000	Without fan
M T 2 S B (1)	3	2	71	1.10	230/400 Vac 50 Hz	54	F	Light-duty	20	9044406	KIT09008.000	Without fan
M T 4 S A (1)	3	4	71	0.75	230/400 Vac 50 Hz	54	F	Light-duty	20	9044411	KIT09008.000	Without fan

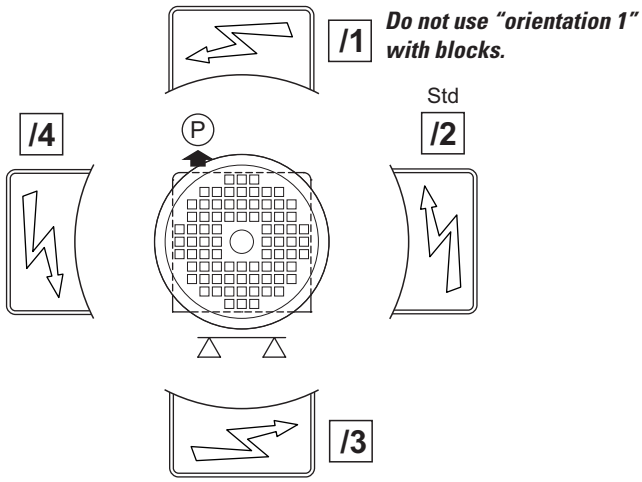
V

IP protection level becomes effective after installationon on power pack.

M * * * * (*) /* - Motor orientation

Connector box position on power pack.





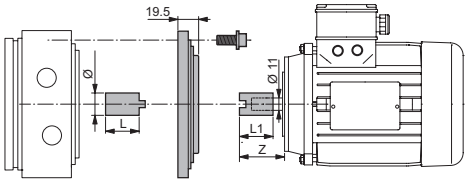
Section VI - Transmission kit AC motors

Transmission kit (only for motors on the catalog)
Type
End section VII

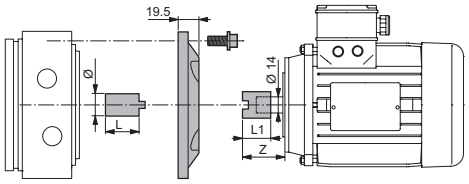
Specify the transmission kit whether you requested the joint and accessories assembly (without motor).

DTR..... **T** ****** -

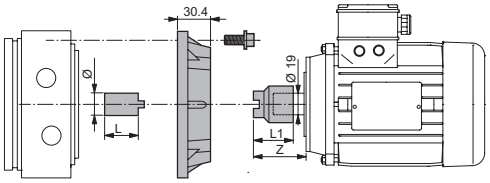
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1R	KIT08019.010	Gr. 1	19.5	20	30	42.8	R	63 (B14)	29 30



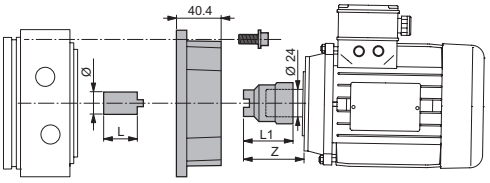
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1L	KIT08019.012	Gr. 1	19.5	20	26.5	42	L	71 (B14)	29 30



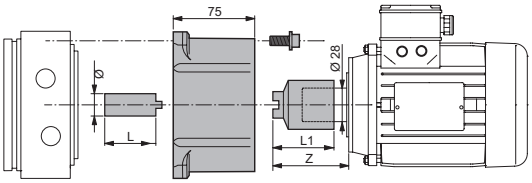
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1M	KIT08019.014	Gr. 1	19.5	20	38	53	M	80 (B14)	29 30



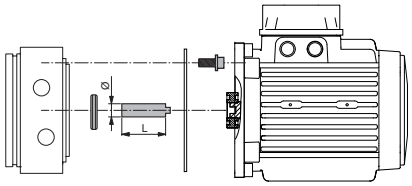
**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1N	KIT08019.016	Gr. 1	19.5	20	45.5	63	N	90 (B14)	29 30



**	Transmission kit						For AC motors		Page
	Code	Pump	L	Ø	L1	Z	Ref.	Size	
1P	KIT08019.046	Gr. 1	36.3	20	57	81.5	P	100-112 (B14)	29 30



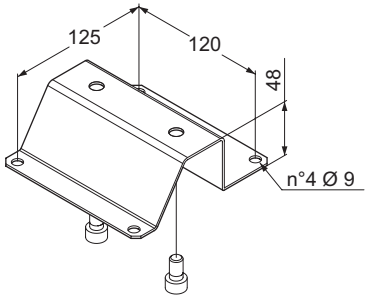
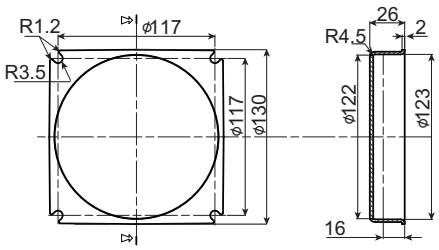
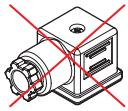
**	Transmission kit				For AC motors		Page
	Code	Pump	L	Ø	Ref.	Size	
1S	KIT09008.000	Gr. 1	37.9	14	S	71 (direct fixing)	31



"Z" : dimension of the coupling side motor

Accessories (optional)
First accessory
Second accessory

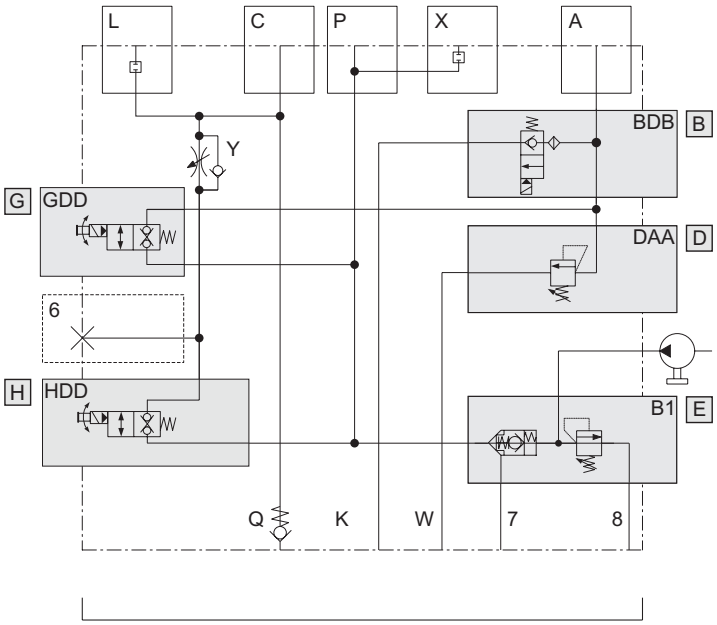
DTR ..... **R** * *

*	Description	Drawing	Code	Note
B	Non-removable red plastic plug for pressure relief valve (unassembled)		Plug: 60309200	
D	High foot, (galvanized sheet steel) thickness 2 mm (unassembled)		Kit (foot and screws): 17010053	All motors are compatible except orientation / 3 Tanks compatible (except for orientation / 3) S**A S**B S**C S**D S**F S**G S**L
E	Collar in welded sheet steel, thickness 2 mm (unassembled)		Collar: F80000001 Tank fixing kit (screws and O-Ring): 17010083	
F	Without valves connectors			

VII

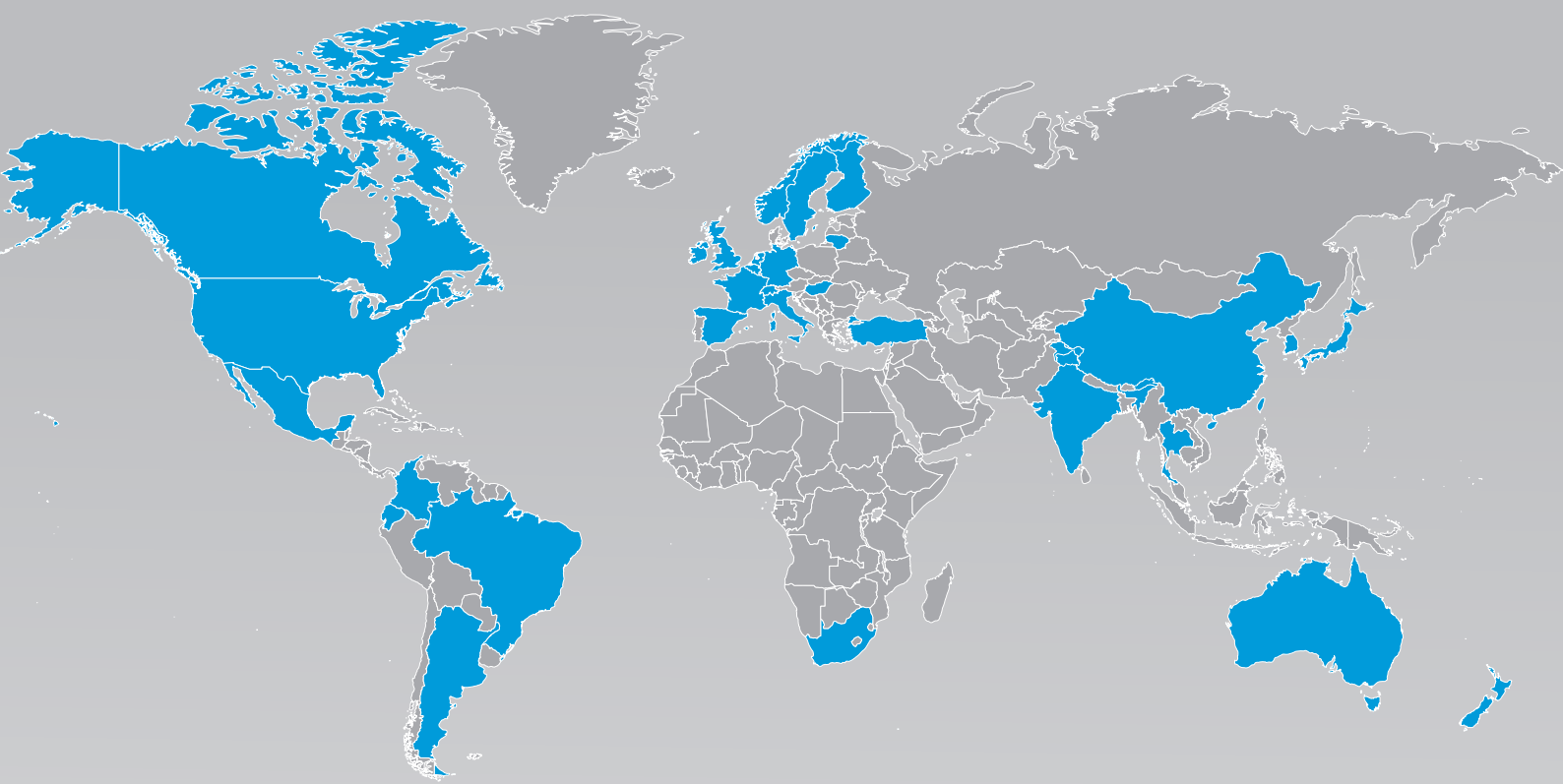
Example

Example with DTR endhead



DTR	EB1(100)	DAAF(100)	BDBAB	GDDAB	HDDAB	00

Cavity	Code	Description	Page
	R		10
E	**EB1(100)**	Pressure relief valve with logic valve (35 ÷ 110 bar) with screw and detachable closing, special setting 100 bar	11
D	**DAAF(150)**	Pressure relief valve with short screw adjustment and detachable closing, special setting 150 bar	12
B	**BDBAB**	Piloted solenoid valve normally closed, with rotary emergency. Voltage 24 VDC	13
G	**GDDAB**	Direct operated solenoid valve normally closed, with button emergency. Voltage 24 VDC	14
H	**HDDAB**	Direct operated solenoid valve normally closed, with button emergency. Voltage 24 VDC	16
-	**-**	End section	—



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DANA

BREVINI® Motion Systems

DANA **BREVINI**®
Motion Systems

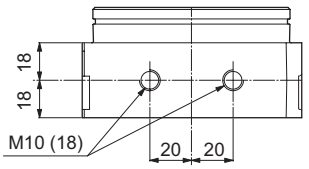
CENTRALINA *POWER PACK* MR

ITA-ING

Le centraline serie **MR** sono state concepite per offrire una soluzione razionale ed economica ai più svariati problemi di automazione oleodinamica. La modularità è realizzata attraverso componenti standardizzati di larga produzione che uniscono un elevato livello qualitativo ad un'estrema semplicità di assemblaggio e di funzionamento. Questi componenti sono facilmente intercambiabili e danno alle centraline una eccezionale flessibilità di impiego per le più svariate esigenze. La modularità consente inoltre di avere a disposizione l'intera gamma di centraline con uno stoccaggio versatile ed estremamente economico di componenti. Ne deriva un gruppo compatto con elevate prestazioni e silenziosità, la cui economicità di esercizio ne consente l'impiego in tutti i settori industriali.

*The **MR** power packs have been studied to offer a rational and economic solution to the many applications of the hydraulic automation. The modularity is realized with large production standard components joining a high quality level to a very simple way of mounting and working of the unit. The components are easily interchangeable and make power packs exceptionally flexible. More on, the modularity allows the availability of the whole range of power packs with a versatile and economic stocking of the components. The result is a compact, economic and noiseless unit with high performances to be employed in all the industrial fields.*

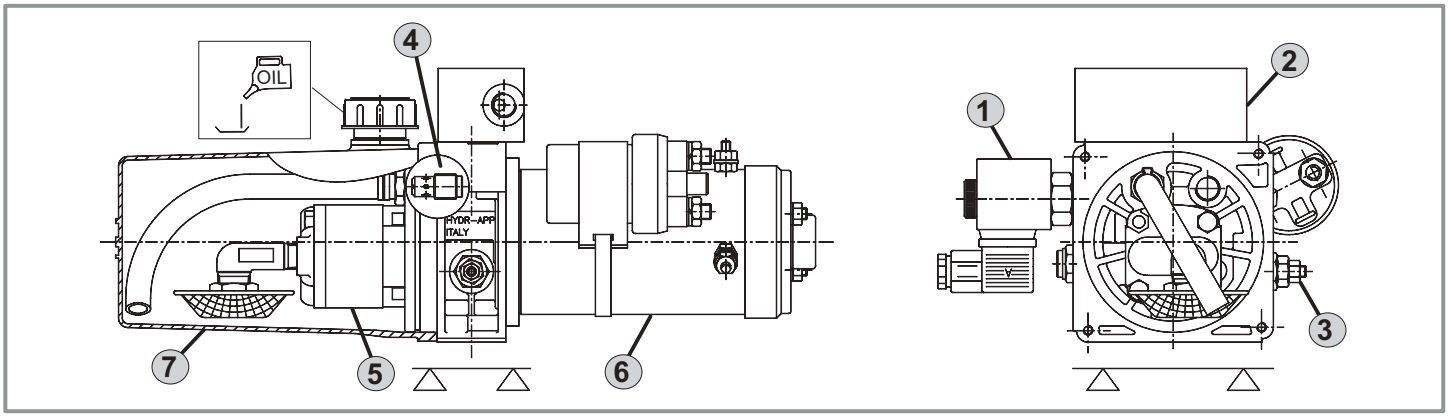
Fori di fissaggio
Fixing holes



CODICE DI ORDINAZIONE — *HOW TO ORDER*

MR□-□-□-V□□-F□-P□-M□□-T□□-F□

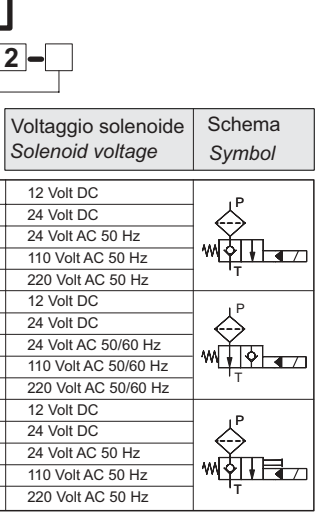
Tipo / Type: 1 2 3 4 5 6 7

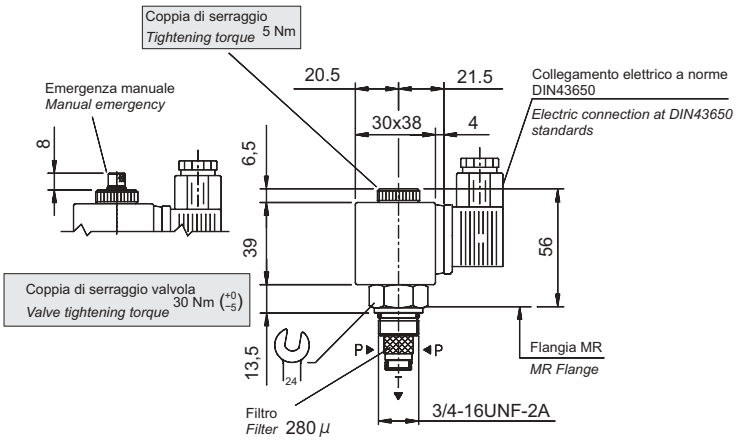


1 Comando a solenoide / Solenoid valve

MR2-□

Voltaggio solenoide / *Solenoid voltage*		Schema / *Symbol*
A	12 Volt DC	
B	24 Volt DC	
C	24 Volt AC 50 Hz	
D	110 Volt AC 50 Hz	
E	220 Volt AC 50 Hz	
F	12 Volt DC	
G	24 Volt DC	
L	24 Volt AC 50/60 Hz	
M	110 Volt AC 50/60 Hz	
N	220 Volt AC 50/60 Hz	
P	12 Volt DC	
Q	24 Volt DC	
R	24 Volt AC 50 Hz	
S	110 Volt AC 50 Hz	
T	220 Volt AC 50 Hz	

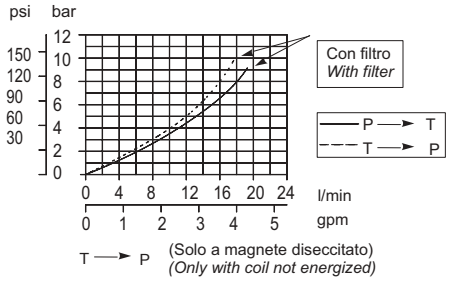


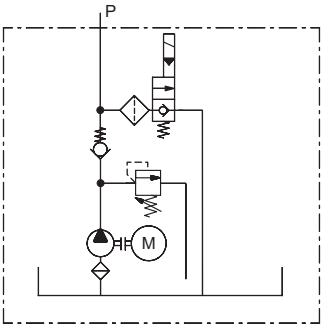


Connettori / *Connectors*	
Numero poli / *Poles*	2 + ⏚
Serracavo / *Cable gland*	PG 9
Grado di protezione / *Protection class*	IP 65 (DIN 40050)
Classe di isolamento Gruppo C - (VDE0110)	*Insulation Class Group C - (VDE 0110)*

Caratteristiche tecniche / *Specifications*		
Pressione max di lavoro / *Max operating pressure*		210 bar
Portata max / *Max flow*		22 l/min.
Drenaggio (a 210 bar) / *Leakage (at 210 bar)*		12 cc/h
Tempi di risposta / *Responce time*	Apertura *Energized*	40 msec.
	Chiusura *Denergized*	130 msec.
Fluidi : Riferimento ISO 6743/4 e DIN 51524 *Fluids: Reference ISO 6743/4 and DIN 51524*		

Caduta di pressione / *Pressure drop* ΔP — Solo cartuccia / *Cartridge only*

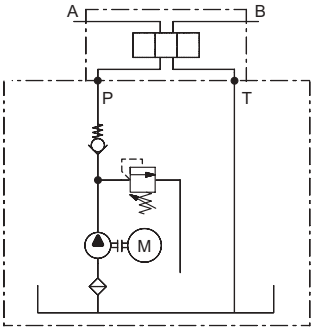




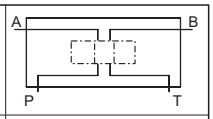
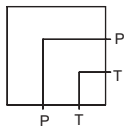
Bobine / *Coils*		
Tolleranza sulla tensione nominale / *Voltage tolerance*		±10%
Isolamento classe "F" a norme / *Insulation class "F" ref.*		VDE 0580
Temperatura limite in ambiente / *Ambient temperature range*		-15°C +40°C
Potenza assorbita / *Power consumption*	In C.C. D.C.	18 WATT
	In C.A. A.C.	28 V.A. In servizio/*Holding* 40 V.A. Allo spunto/*In rush*
Servizio / *Duty*		ED 100%

2 Blocchetti Modulari / Modular manifolds

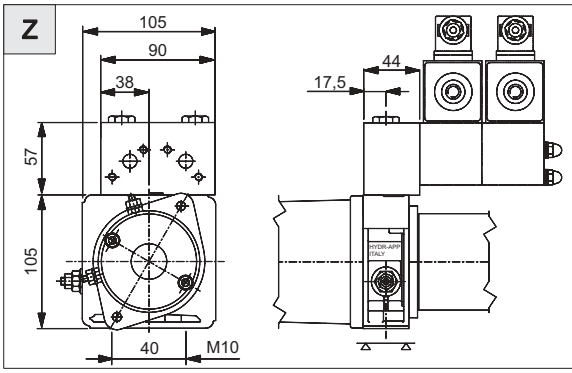
MR 4 - ☐



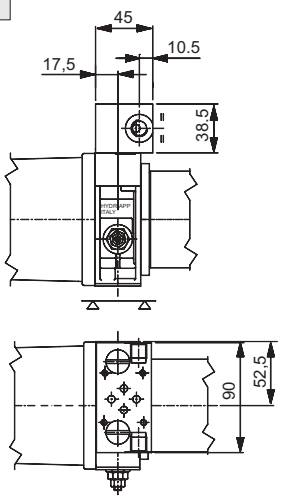
Blocchetti Cetop3
Cetop3 manifolds

C	1/4" Chiuso *1/4" Closed*	
Z	Pannello adattatore blocchetti Cetop3 per centralina *Cetop3 manifolds adapting panel for power pack*	

Z

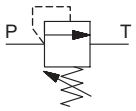


C



3 Valvola di massima pressione / Relief valve

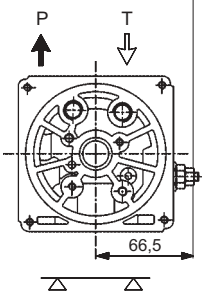
V 1 ☐



Taratura valvola di max. pressione
Relief valve setting range

A	25 - 80 bar	Standard 40 bar
B	75 - 220 bar	Standard 140 bar
C	5 - 30 bar	Standard 20 bar

Valvola di massima pressione
Relief valve

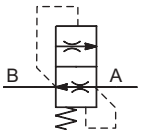


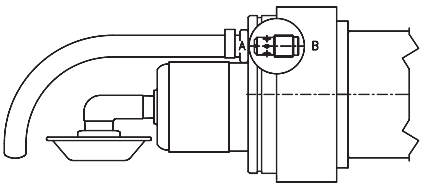
4 Valvola di strozzamento compensata fissa / Flow compensated fixed valve

F ☐

Portata nominale
Nominal flow

1,5	1,5	Lt/min
2	2	Lt/min
3,5	3,5	Lt/min
4,5	4,5	Lt/min
5,5	5,5	Lt/min
7	7	Lt/min
9	9	Lt/min
11,5	11,5	Lt/min

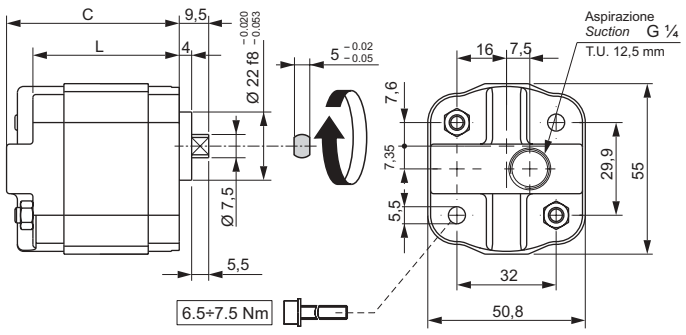




5 Pompe / Pumps

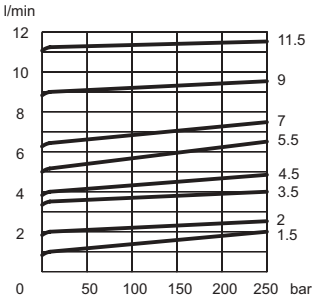
Rotazione albero : DESTRA
Direction of rotation: RIGHT

P ☐



Portata controllata:
Flow controlled: B → A l/min

Fluido impiegato: olio minerale con viscosità:
Fluid used: mineral based oil with viscosity :
15 mm²/s a 40°C



Caratteristiche tecniche
Technical features

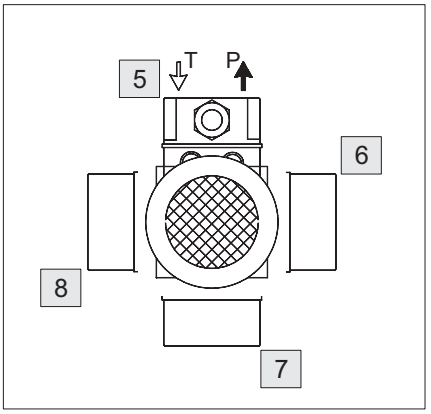
Pressione max.di esercizio *Max working pressure*	250 bar
Portata max. *Max flow*	12 l/min
Portata minima *Minimum flow*	0.8 l/min
Errore sulla portata nominale a 120 bar *Possible deviation on nominal flow at 120 bar*	±10%
Temperatura di esercizio *Working temperature*	-15°C/+70°C
Olio idraulico a base minerale *Mineral based hydraulic oil*	ISO/DIN 6743/4
Viscosità fluido *Fluid viscosity*	22÷100mm²/sec ISO3448
Grado di contaminazione massimo classe *Max contamination degree class*	18/14 ISO 4406
Peso *Weight*	Kg 0.014

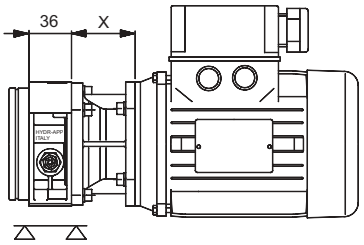
	Gr	Cilindrata (cc/giro) *Displacement (cc/rev)*	C (mm)	L (mm)	P2 (bar)	P3 (bar)	Velocità massima (giri/min) *Max speed (RPM)*	Codice pompa *Pump code*	Codice kit pompa *Pump kit code*
A	05	0.3	54.0	45.5	230	270	7000	23003800.035	17050019.035
B	05	0.5	55.7	47.2	230	270	7000	23004000.035	17050021.035
C	05	0.62	56.7	48.2	230	270	6500	23004100.035	17050022.035
D	05	0.84	58.5	50.0	230	270	6500	23004200.035	17050023.035
J	05	1	59.8	51.3	230	270	6000	23004300.035	17050024.035
Z	05	1.25	61.9	53.4	230	270	6000	23004400.035	17050025.035

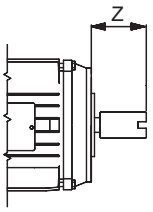
P2 = Pressione massima di esercizio / *Max working pressure*
P3 = Pressione intermittente (20 sec. max) / *Intermittent peack pressure (20 sec. max)*

6 Motori elettrici / Electric motors

Motori elettrici C.A. Forma B14 secondo le Norme UNEL IEC
A.C. electric motors B14 according to UNEL IEC standards







Z	
R	42,8 mm
L	42 mm
M	53 mm

ATTENZIONE
- Determinare accuratamente la quota Z e bloccare la vite di fermo
- Dopo il collegamento elettrico, verificare il senso di rotazione per la durata di 1 secondo max.con la pompa a scarico; si eviteranno così danni irreparabili alla pompa.

WARNING
- *Carefully determine the Z dimension and lock the grub- screw*
- *After the electric connection, please check the sense of rotation of the pump in exhaust flow for no more than 1 second: Serious damages will be so avoided.*

M ☐☐ — **5 6 7 8** Posizione di montaggio / *Mounting position* — **0** Senza motore / *Without motor*

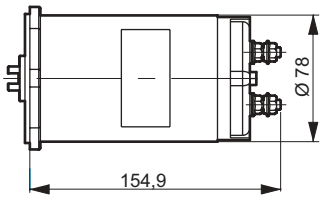
	Grandezza / *Size* B14	Potenza / *Power* kW	HP	Flangia / *Flange* X	
R	63	0,18-0,25	0,25-0,33	54,7	2 Poli / *2 Poles*
L	71	0,35-0,55	0,5-0,75	53,9	
M	80	0,75-1,1	1-1,5	54,7	
R	63	0,12-0,18	0,17-0,25	54,7	4 Poli / *4 Poles*
L	71	0,25-0,37	0,33-0,5	53,9	
M	80	0,55-0,75	0,75-1	54,7	
R	63	0,09-0,12	0,12-0,17	54,7	6 Poli / *6 Poles*
L	71	0,18-0,25	0,25-0,34	53,9	
M	80	0,37-0,55	0,5-0,75	54,7	

Motori elettrici C.C
D.C. Electric motors

M ☐☐ — **1 2 3 4** Posizione teleruttore / *Start switch position* — **5 6 7 8** Posizione dei poli senza teleruttore / Poles *position without start switch*

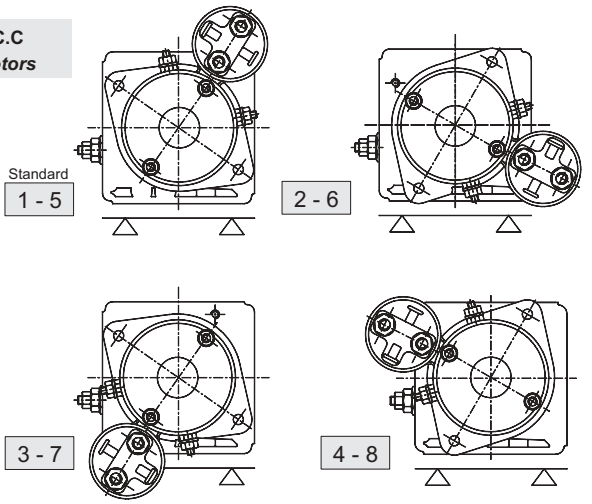
GC GD 162

HF	12 Volts D.C. 500 W	code 25024200
HE	24 Volts D.C. 500 W	code 25024300
GU	12 Volts D.C. 800 W	code 25021800
GZ	24 Volts D.C. 800 W	code 25021900



Caratteristiche tecniche / *Specifications*

Motore in c.c.a magneti permanenti / *Permanent magnet d.c. Motor*	
Senso di rotazione reversibile (nominale sx) / *Reversible rotation (nominal left)*	
Grado di protezione / *Protection class*	IP54
Classe di isolamento / *Insulation class*	F

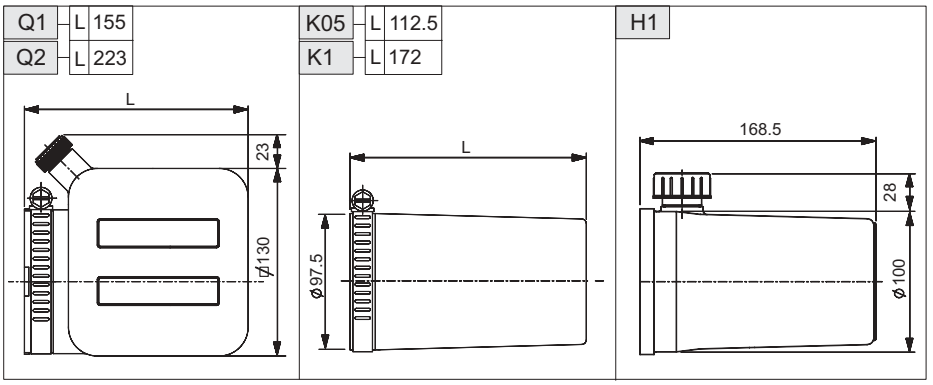


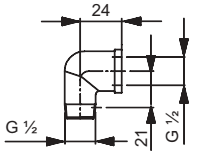
7 Serbatoi / Reservoirs

Serbatoi in plastica
Plastic reservoirs

T ☐

H1	Serbatoio capacità nominale litri 1 con tappo di carico / *1 liter nominal capacity reservoir with fill port*
K05	Serbatoio capacità nominale litri 0,5 senza tappo di carico / *0.5 lt nominal capacity reservoir without fill port*
K1	Serbatoio capacità nominale litri 1 senza tappo di carico / *1 lt nominal capacity reservoir without fill port*
Q1	Serbatoio capacità nominale litri 1 con tappo di carico a 45° / *1 lt nominal capacity reservoir with 45° fill port*
Q2	Serbatoio capacità nominale litri 2 con tappo di carico a 45° / *2 lt nominal capacity reservoir with 45° fill port*



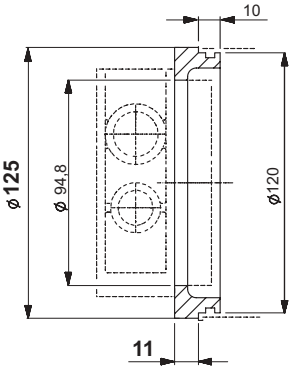


Raccordo per tappo di carico montaggio verticale
Filling plug adapter for vertical mounting

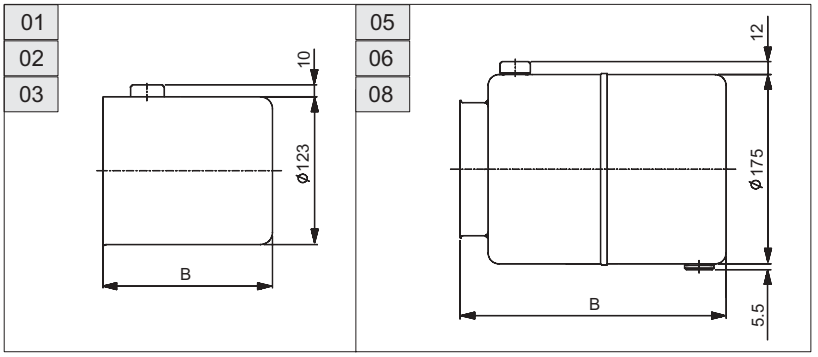
Serbatoi in acciaio
Steel reservoirs

T ☐

		B
01	Litri / *Liters* 1	141
02	Litri / *Liters* 2	200
03	Litri / *Liters* 3	330
05	Litri / *Liters* 5	246
06	Litri / *Liters* 6	308
08	Litri / *Liters* 8	370



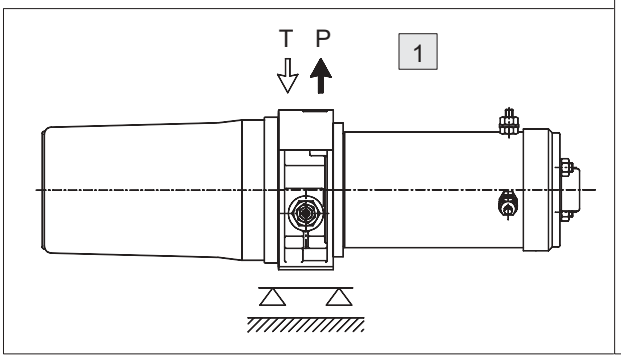
Flangia adattatrice per serbatoi in acciaio
Adapting flange for steel reservoirs

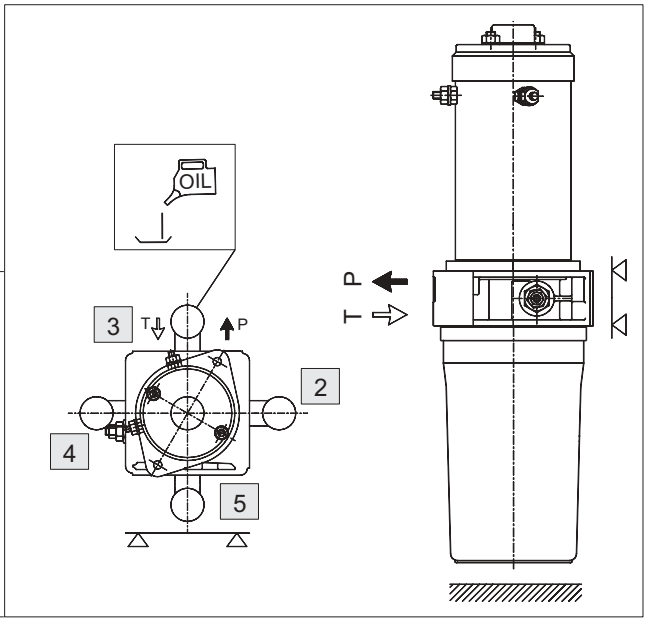


7 Posizioni di montaggio
Mounting positions

F

- 0 — Verticale senza serbatoio / *Vertical without tank*
- 1 — Orizzontale / *Horizontal*
- 2, 3, 4, 5 — Verticale / *Vertical*





Norme di impiego ed installazione

- Dimensionare accuratamente l'impianto idraulico nel suo complesso e scegliere una centralina appropriata nella cilindrata della pompa e nella capacità del serbatoio. Dotare l'impianto di sicurezze adeguate e strumentazioni affidabili.
- La centralina può essere montata in tutte le posizioni raffigurate, sia in orizzontale che in verticale con serbatoio rivolto verso il basso: nel caso di montaggi su strutture o macchinari soggetti a vibrazioni o oscillazioni, prevedere dei tasselli antivibranti.
- Scegliere un serbatoio ben dimensionato, in modo da avere sempre una corretta aspirazione della pompa ed una temperatura di esercizio di 60°C (Max. 80°C).
- Scegliere un fluido idraulico adeguato: si consiglia di filtrare il fluido a 25 ÷ 30 μ, prima del riempimento del serbatoio.
- Evitare le partenze a freddo sotto carico: temperatura ambiente -15°C+60°C (5°F+140°F).
- Evitare strozzature e curve a piccolo raggio nelle tubazioni dell'impianto.

Norme di manutenzione

- Ripristinare l'olio nel serbatoio dopo il primo avviamento dell'impianto.
- Eseguire una accurata pulizia dei tubi e di tutti i componenti dell'impianto.
- Eseguire una frequente pulizia del circuito sostituendo il fluido idraulico.

Limiti funzionali dei motori elettrici in c.c.

I limiti funzionali del motore elettrico in C.C. si possono leggere sulle linee S2 ÷ S3 dei diagrammi di prestazione raffigurati sul catalogo motori elettrici.
La linea S2 determina il tempo limite di inserzione del motore elettrico in C.C. espresso in minuti.
La linea S3 esprime il rapporto di intermittenza in%, che ha il valore S2 in un ciclo totale di lavoro (100%).
N.B.: Per ciclo totale di lavoro si intende la somma dei minuti di lavoro S2 e i minuti di riposo che servono al motore per non superare mai i limiti di riscaldamento.

Calcolo del limite funzionale	Calcolo del tempo di lavoro
S2 : S3 = Tt : 100	TL : S3 = Tt : 100
$Tt = \frac{100 \times S2}{S3}$ dove Tt = Tempo totale ciclo di lavoro	$Tt = \frac{100 \times TL}{S3}$ dove TL = Tempo di lavoro qualsiasi purché non superi i limiti posti S2
Tp = Tempo di pausa	
Tp = Tt-S2	Tp = Tt-TL

Scelta del motore

- Per calcolare la potenza teorica (in kW) richiesta della pompa, utilizzare la seguente formula:

$$kW\ (teorica) = \frac{Q \times P}{612}$$ dove Q = Portata (dm³/min), P = Pressione (bar)

Caratteristiche dei fluidi idraulici

Tipo di fluido da impiegare: olio idraulico a base minerale con caratteristiche lubrificanti, antischiuma, anticorrosione,antiossidanti HL-HLP (ISO e UNI HM) - HV - HLPD secondo le norme DIN51524 parte 1-2.

Viscosità minima	15 cts (23°E / 77,39 SSU a 100°F)
Viscosità max. avviamento	800 cts (105,6°E / 3708 SSU a 100°F)
Viscosità max. di funzionamento	100 cts (13,2 E / 463,5 SSU a 100°F)
Campo di viscosità consigliato	25÷40 cts = (3,47÷5,35° E / 119,3÷186,3 SSU a 100°F)
Temperatura ammessa	max 80°C (176°F)
Temperatura raccomandata	30÷60°C (86÷140°F)

Installation and use

- Carefully spot the hydraulic system and choose a proper power pack both for the pump displacement and the reservoir capacity. Equip the system with the adequate securities and trusteable tools.
- The power pack can be mounted in all the stated positions, both in horizontal and in vertical position with the reservoir downwards: in case the power pack is mounted on structures or machines bearing vibrations or oscillations, vibration dampings must be used.
- Choose a proper reservoir for a correct suction of the pump and a working temperature of 60°C (80°C max).
- Choose a proper hydraulic fluid: it is suggested to filter the fluid at 25 ÷ 30 μ before filling the reservoir.
- Avoid to pressurize the power pack before its warming up: ambient temperature: -15°C+60°C (5°F+140°F).
- Avoid to throttle pipings and small bend radius.

Maintenance

- Refill the reservoir with oil after the first starting-up.
- Carefully clean pipings and all the components of the system.
- Frequently clean the circuit replacing the hydraulic fluid.

Service limits of the D.C. electric motors

The service limits of the D.C. electric motors can be read on the S2÷ S3 lines of the relevant diagrams on the electric motors catalogue.
The S2 line is stating the limit connection time in minutes of the D.C. electric motor .
The S3 line is stating in % the intermittence ratio , having the S2 value in a total cycle of work (100%).
Note: Total cycle of work means the sum of S2 working minutes and the rest minutes motor needs not to overheats.

Calculation of service limits	Calculation of working time
S2 : S3 = Tt : 100	TL : S3 = Tt : 100
$Tt = \frac{100 \times S2}{S3}$ Tt = Total time of working cylce	$Tt = \frac{100 \times TL}{S3}$ TL = Any working time, but do not exceed the S2 limits
Tp = Time of rest	
Tp = Tt-S2	Tp = Tt-TL

Choice of the motor

- To calculate the the theoretic power (kW) the pump needs, please use the following formula:

$$kW\ (theoretic) = \frac{Q \times P}{612}$$ Q = Flow (dm³/min), P = Pressure (bar)

Specifications of the hydraulic fluids

Type of the fluid to use: mineral basis hydraulic oil with lubricating, antifoaming, anticorrosive, antioxidant HL-HLP (ISO and UNI HM)-HV-HLPD performances according to DIN51524 part 1-2 standards.

Minumum viscosity	15 cts (23°E / 77,39 SSU at 100°F)
Max. Viscosity at starting-up	800 cts (105,6°E / 3708 SSU at 100°F)
Max. Working viscosity	100 cts (13,2 E / 463,5 SSU at 100°F)
Suggested viscosity range	25÷40 cts = (3,47÷5,35° E / 119,3÷186,3 SSU a 100°F)
Allowed temperature	max 80°C (176°F)
Recommended temperature	30÷60°C (86÷140°F)

DANA BREVINI Motion Systems

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DANA

BREVINI®

Motion Systems

MW HYDRAULIC POWER UNIT

Technical Catalogue

January
2018

web edition

MW HYDRAULIC POWER UNIT

ORDERING CODE

MW* - A* / A* - P* - M** * - T ** - F *

Hydraulic power unit type		Page
MW	Standard	2
MW1	With cylinder differencial volume drain and manual override	3
MW2	With cylinder differencial volume drain	4

A	Pressure relief valve on **P1** (screw adjustment)

Setting range		Page
A	25 ÷ 80 bar	2
B	75 ÷ 220 bar	
C	5 ÷ 30 bar	

A	Pressure relief valve on **P2** (screw adjustment)

Setting range		Page
A	25 ÷ 80 bar	2
B	75 ÷ 220 bar	
C	5 ÷ 30 bar	

P	Reverse pump PHV 0.5

Nominal displacement				Page
A	0.25 cc/rev	**D**	0.75 cc/rev	5
B	0.45 cc/rev	**J**	0.92 cc/rev	
C	0.56 cc/rev	**Z**	1.26 cc/rev	

Mounting type		Page
0	Verticale without tank	11
1	Horizontal	12
2	Vertical	13
3		14
4		
5		

F	Mounting position tank

Tank type			Page
K05	0.5 liters	Plastic	11
K1	1 liter		12
H1	1 liter		12
Q1	1 liter		13
Q2	2 liters		13
01	1 liter	Steel	14
02	2 liters		
03	3 liters		
05	5 liters		
06	6 liters		
08	8 liters		

T	Tank

0-5-6-7-8	Mounting position motors	Pages 8-6-10

DC motors		Page
GA	12V CC - 0.35 kW	6
GB	24V CC - 0.40 kW	6
HF	12V CC - 0.50 kW	7
HE	24V CC - 0.50 kW	7
GC	12V CC - 0.70 kW	8
GD	24V CC - 0.80 kW	8
GU	12V CC - 0.80 kW	9
GZ	24V CC - 0.80 kW	9

AC motors		Page
R	Size 63	10
L	Size 71	10
M	Size 80	10

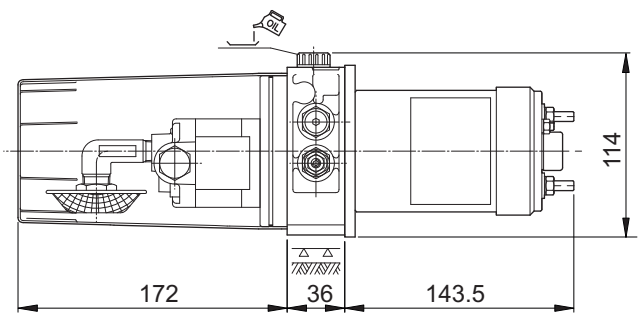
M	DC/AC motors

ORDERING CODE EXAMPLE

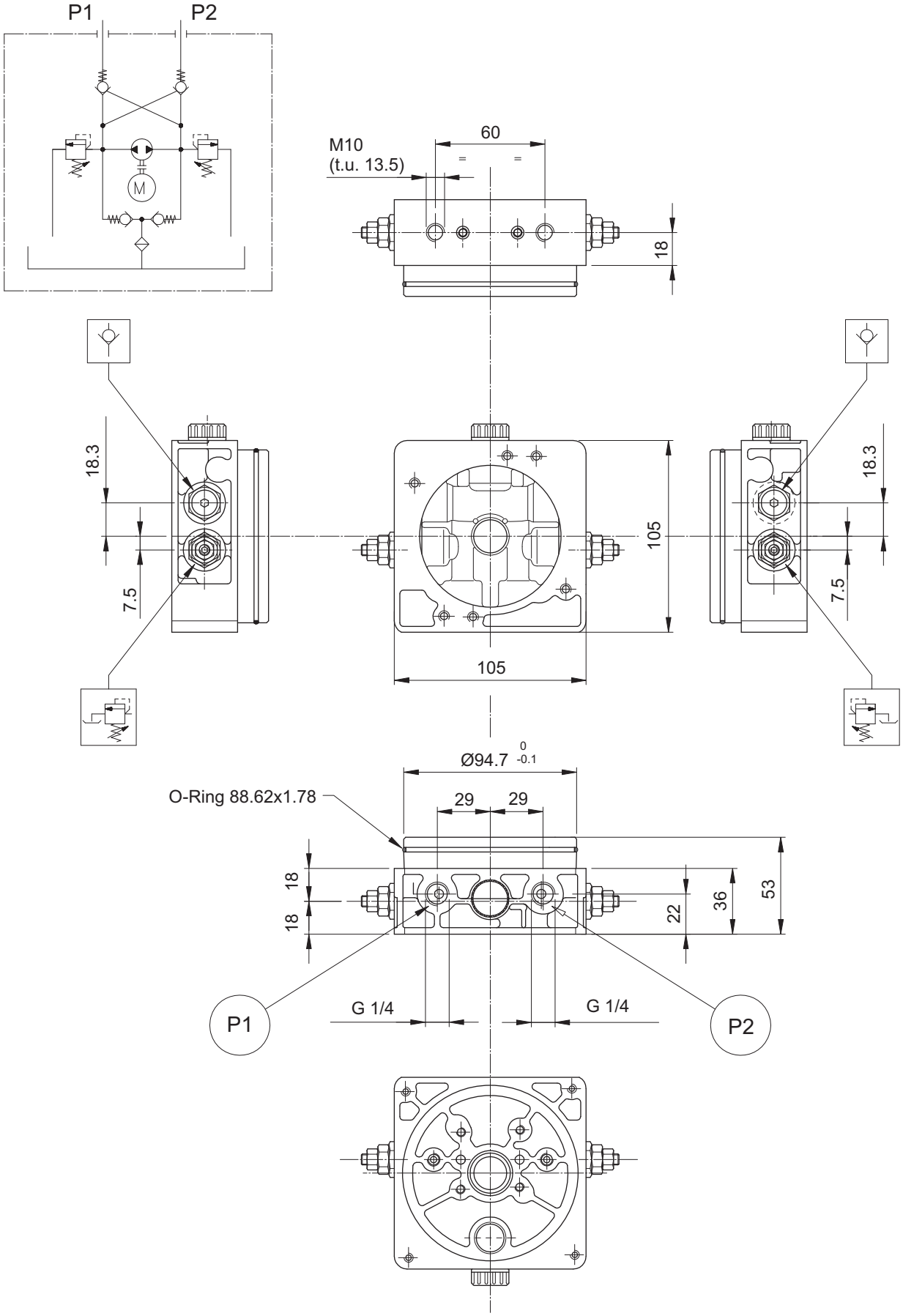
MW- AA/AA- PB- MGB5- TK1-F1

Hydraulic power unit type MW reversible type, with pressure relief valve on P1, setting 25 to 80 bar with adjustable screw, pressure relief valve on P2 setting 25 to 80 bar with adjustable screw, pump a 0.45 cc/rev, DC motor 24 Volt 0.4 kW in standard mounting position, standard 1-liter fuel tank mounted horizontally.

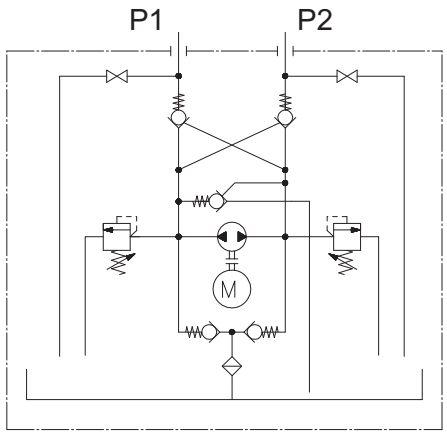
STANDARD VERSION OVERALL DIMENSIONS

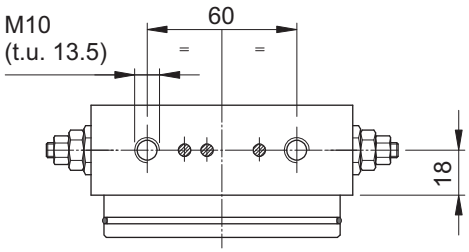


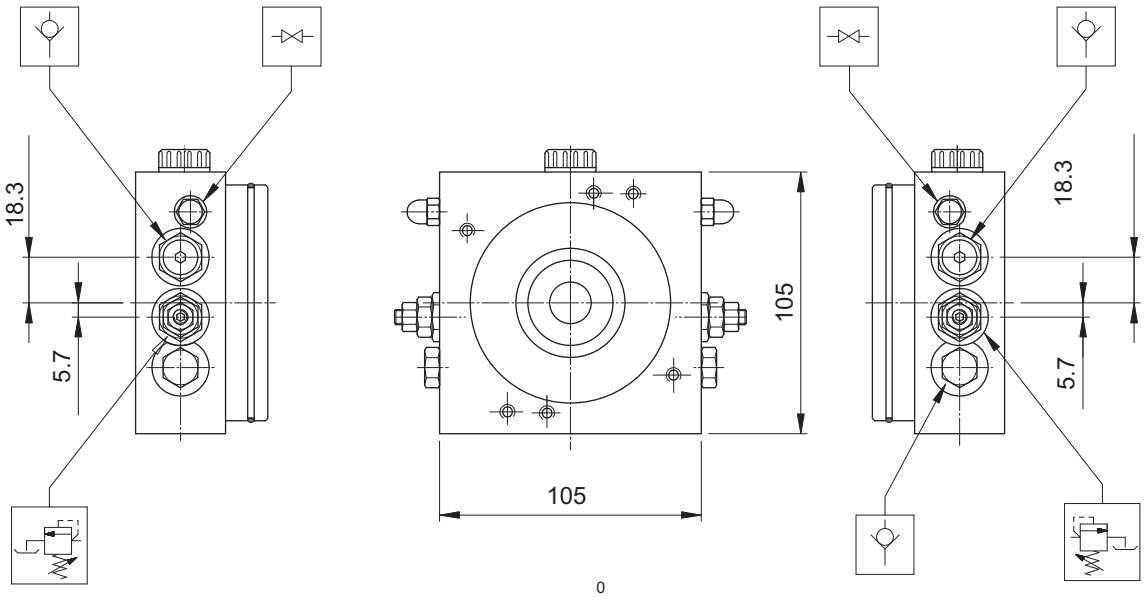
STANDARD VERSION

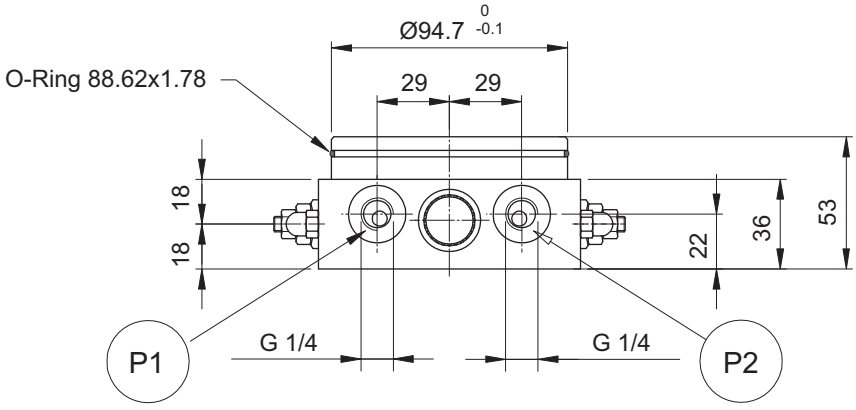


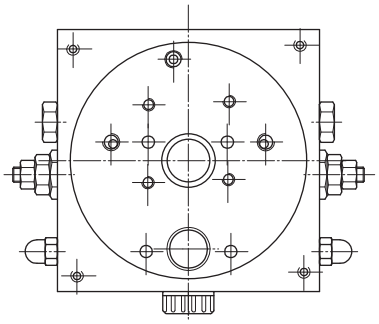
WITH CYLINDER DIFFERENCIAL VOLUME DRAIN AND MANUAL OVERRIDE



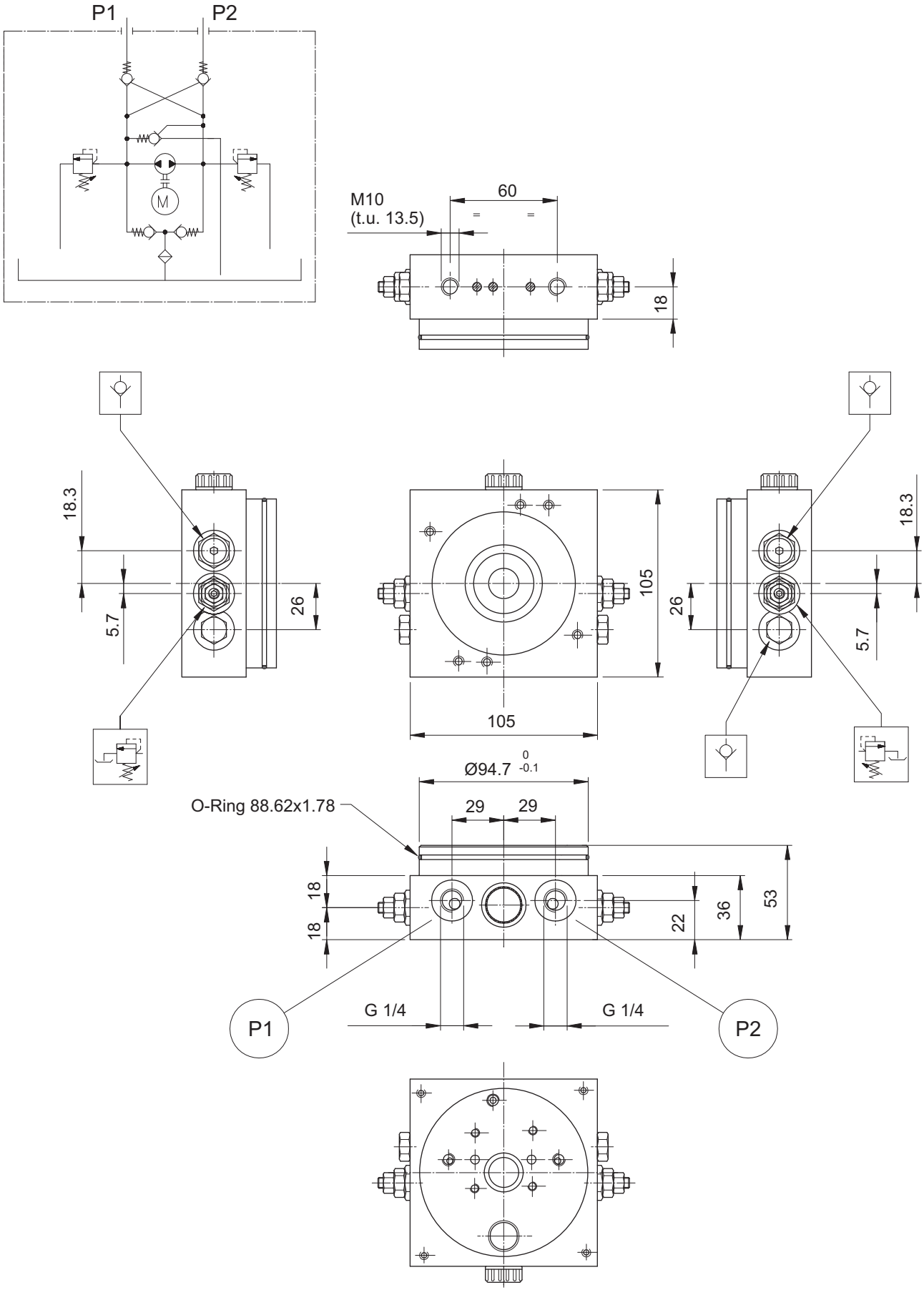




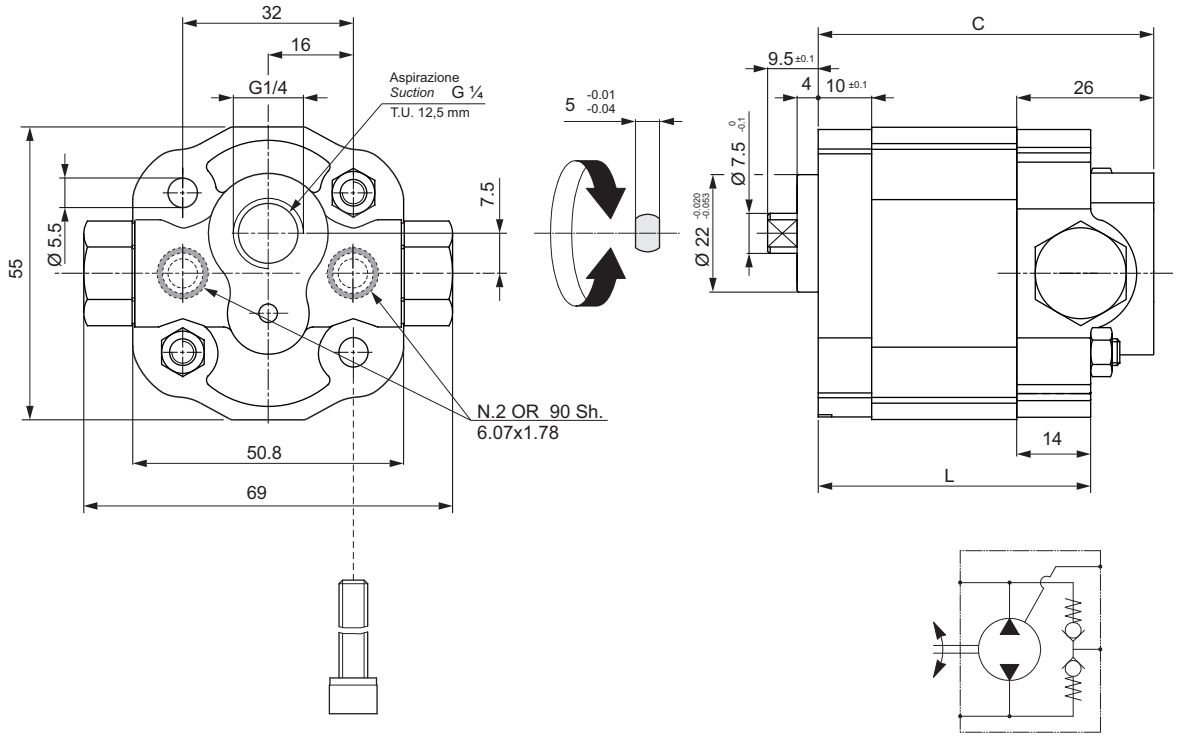




WITH CYLINDER DIFFERENCIAL VOLUME DRAIN



PUMP GR 05 OVERALL DIMENSIONS



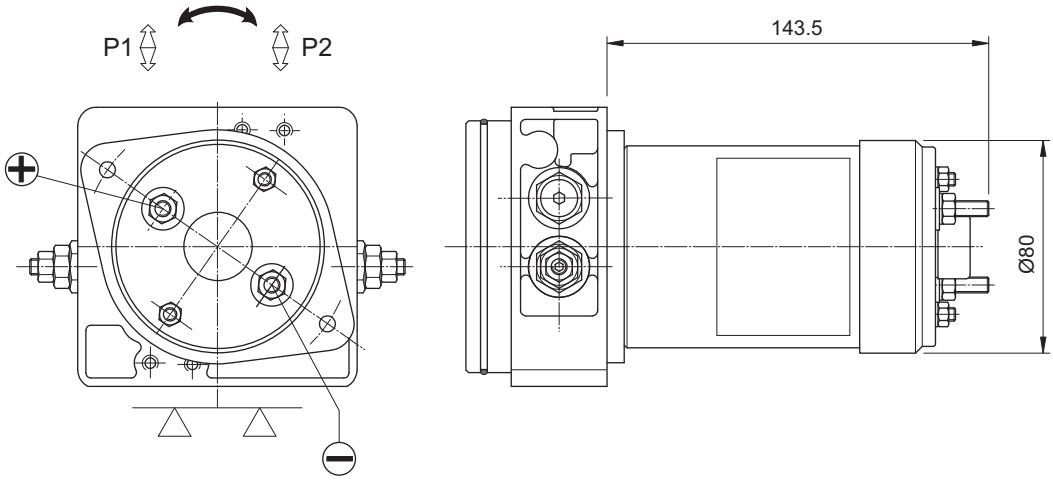
Tightening torque 6.5 ÷ 7.5 Nm

Symbol

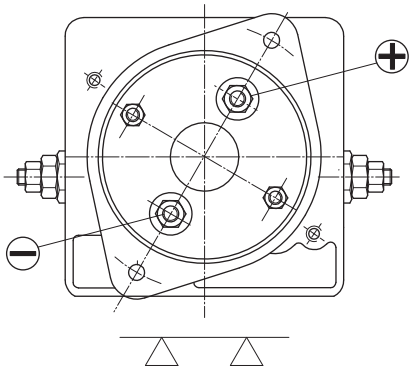
Code	Nominal displacement (cc/rev)	C (mm)	L (mm)	Pump code	Pump Kit code	Max working pressure (bar)	Peack pressure (bar)	Max RPM (rpm)
A	0.30	61.5	49.5	23006700.036	17050062.036	210	250	7000
B	0.50	63.2	51.2	23006800.036	17050063.036	210	250	7000
C	0.62	64.2	52.2	23006900.036	17050064.036	210	250	6500
D	0.84	66.0	54.0	23007000.036	17050065.036	210	250	6500
J	1.00	67.3	55.3	23008800.036	17050066.036	210	250	6000
Z	1.25	69.4	57.4	23007100.036	17050067.036	210	250	6000

12VDC 0.35 KW / 24VDC 0.40 KW MOTORS

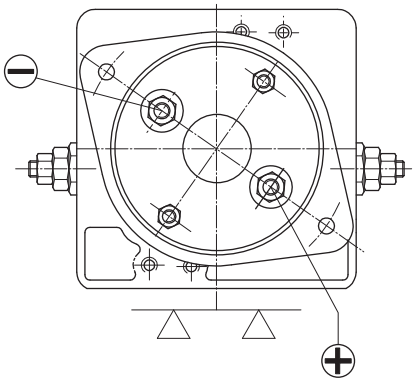
Mounting position **5**



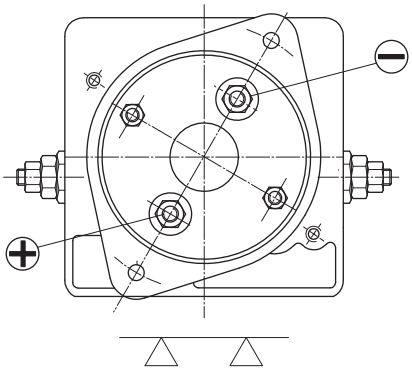
Position **6**



Position **7**



Position **8**



For more details, features and performances DC motors, see catalog Dana Brevini cod. DOC00053.

ORDERING CODE

M	**	*

Code	Description	Motor
GA	12VDC motor - 0.35 kW	25021400
GB	24VDC motor - 0.40 kW	25021500

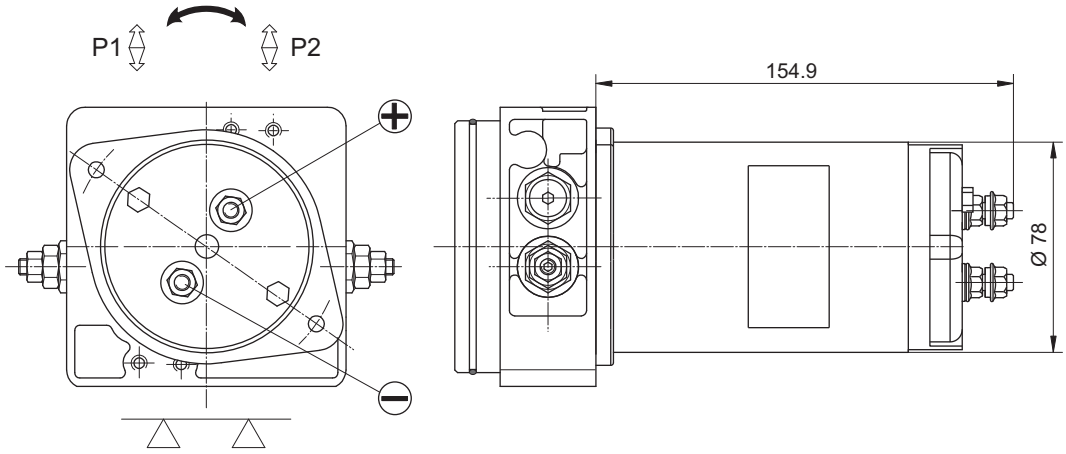
M	**	*

Code	Mounting position
5	Position 5
6	Position 6
7	Position 7
8	Position 8

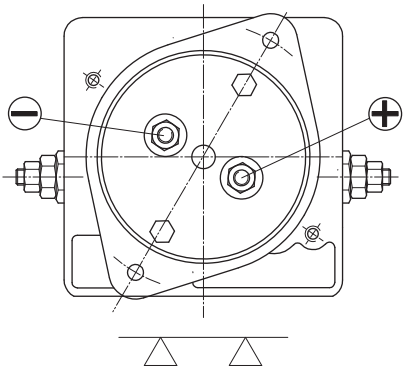
- DC motors permanent magnet
- Rotation CCW-CW
- Protection class IP54
- Insulation class F

12VDC 0.50 KW / 24VDC 0.50 KW MOTORS

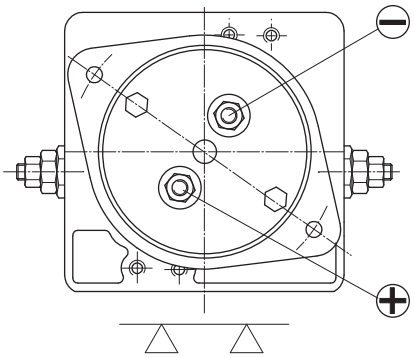
Mounting position **5**



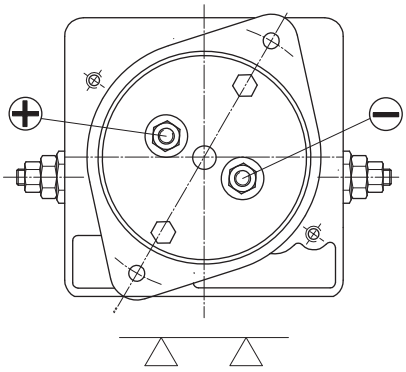
Position **6**



Position **7**



Position **8**



For more details, features and performances DC motors, see catalog Dana Brevini cod. DOC00053.

ORDERING CODE

M	**	*

Code	Description	Motor
HF	Motor 12VDC - 0.50 kW	25024200
HE	Motor 24VDC - 0.50 kW	25024300

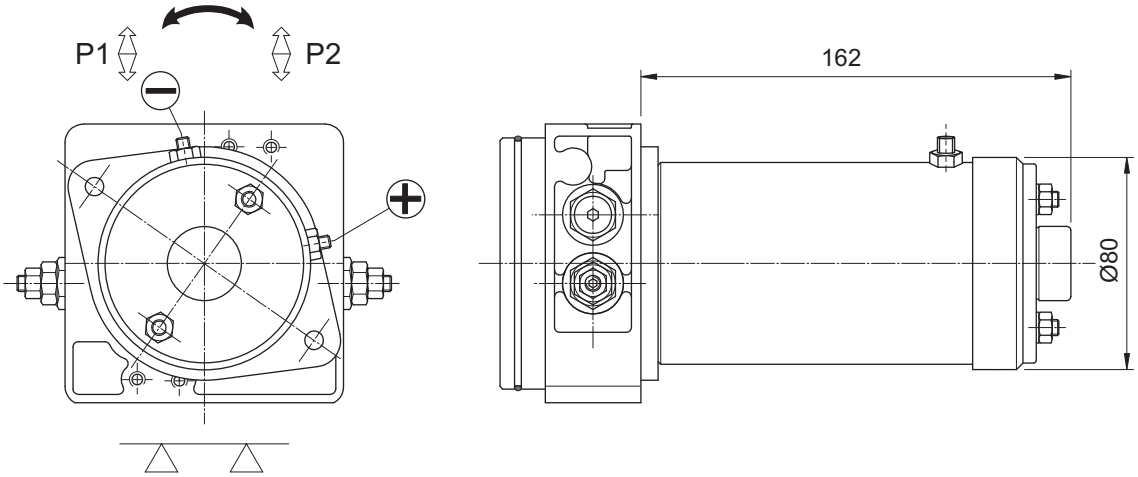
M	**	*

Code	Mounting position
5	Position 5
6	Position 6
7	Position 7
8	Position 8

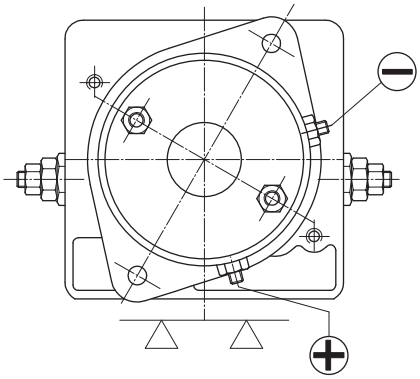
- DC motors permanent magnet
- Rotation CCW-CW
- Protection class IP54
- Insulation class F

12VDC 0,7 KW / 24VDC 0,8 KW MOTORS

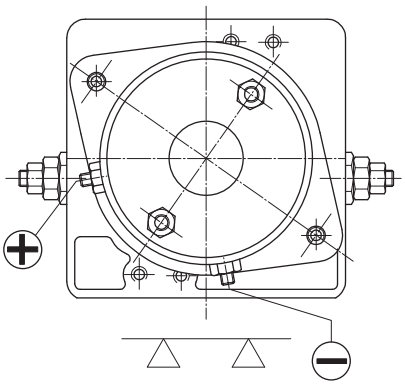
Mounting position **5**



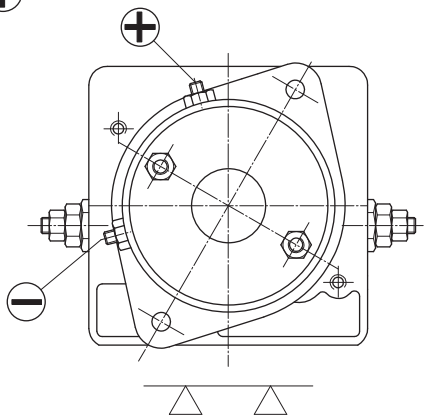
Position **6**



Position **7**



Position **8**



For more details, features and performances DC motors, see catalog Dana Brevini cod. DOC00053.

ORDERING CODE

M	**	*

Code	Description	Motor
GC	12VDC motor - 0.7 kW	25021600
GD	24VDC motor - 0.8 kW	25021700

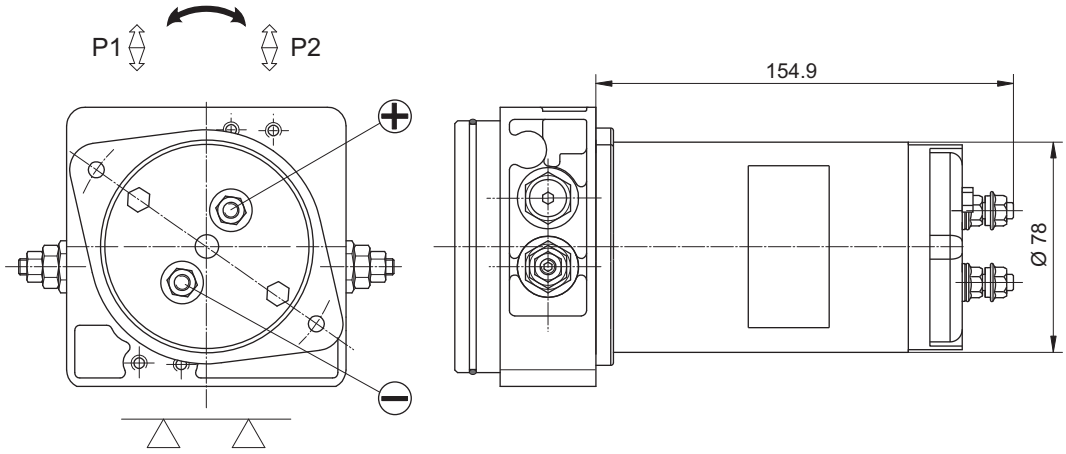
M	**	*

Code	Mounting position
5	Position 5
6	Position 6
7	Position 7
8	Position 8

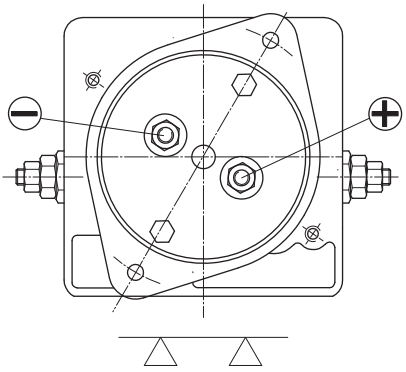
- DC motors permanent magnet
- Rotation CCW-CW
- Protection class IP54
- Insulation class F

12VDC 0.80 KW / 24VDC 0.80 KW MOTORS

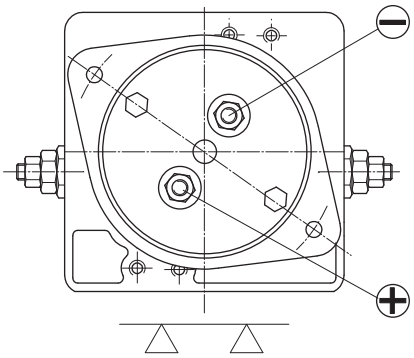
Mounting position **5**



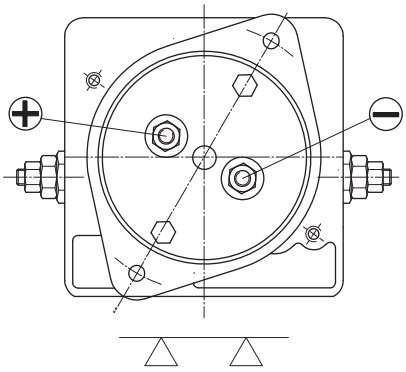
Position **6**



Position **7**



Position **8**



For more details, features and performances DC motors, see catalog Dana Brevini cod. DOC00053.

ORDERING CODE

M	**	*

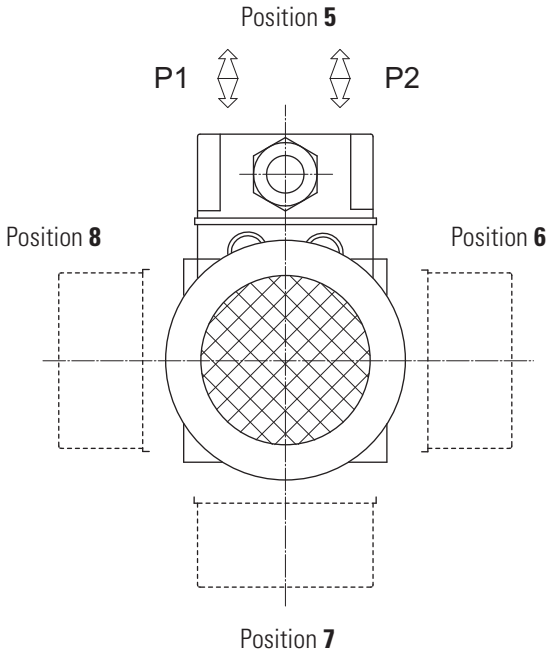
Code	Description	Motor
GU	Motor 12VDC - 0.80 kW	25021800
GZ	Motor 24VDC - 0.80 kW	25021900

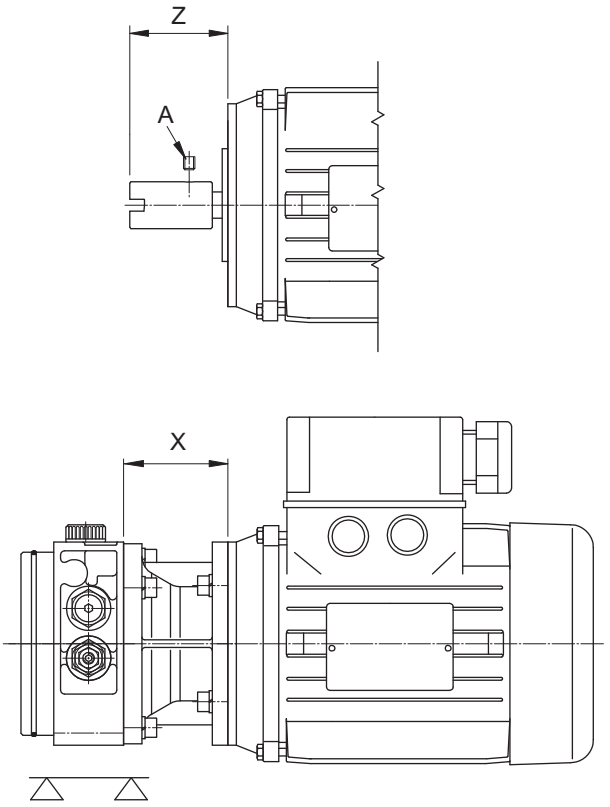
M	**	*

Code	Mounting position
5	Position 5
6	Position 6
7	Position 7
8	Position 8

- DC motors permanent magnet
- Rotation CCW-CW
- Protection class IP54
- Insulation class F

AC MOTOR - FRAME B14





ATTENTION
Adjust the Z value and lock the coupling with the screw (A).
- After the electrical connection, check the rotation direction for max 1 second (pump discharge), you will avoid irreparable damage to the pump.

Code	Size	kW (2 poles)	kW (4 poles)	kW (6 poles)	Z (mm)	X (mm)	Frame
R	63	0.18 ÷ 0.25	0.12 ÷ 0.18	0.09 ÷ 0.12	42.8	54.7	B14
L	71	0.35 ÷ 0.55	0.25 ÷ 0.37	0.18 ÷ 0.25	42	53.9	
M	80	0.75 ÷ 1.10	0.55 ÷ 0.75	0.37 ÷ 0.55	53	54.7	

ORDERING CODE

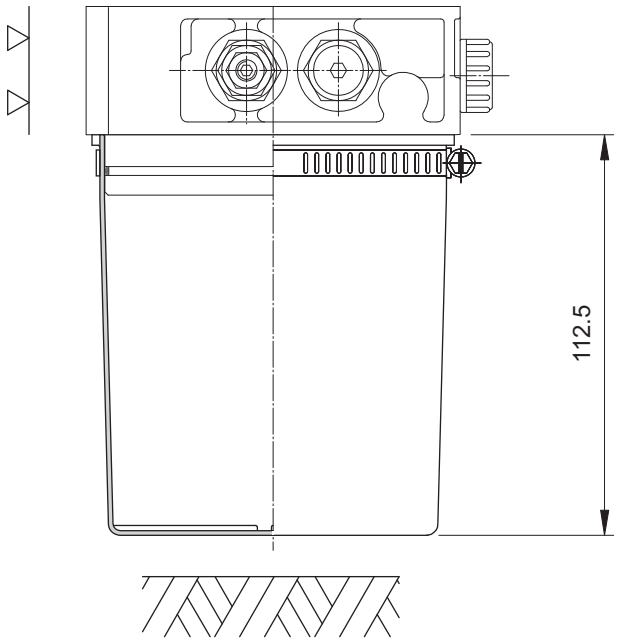
M	*	*

Code	Description	Motor kit
R	Motore taglia 63	KIT02008.001
L	Motore taglia 71	KIT02008.002
M	Motore taglia 80	KIT02008.003

M	**	*

Code	Mounting position
0	Without motor
5	Position 5
6	Position 6
7	Position 7
8	Position 8

NYLON TANK TK05



ORDERING CODE

T	K05	*

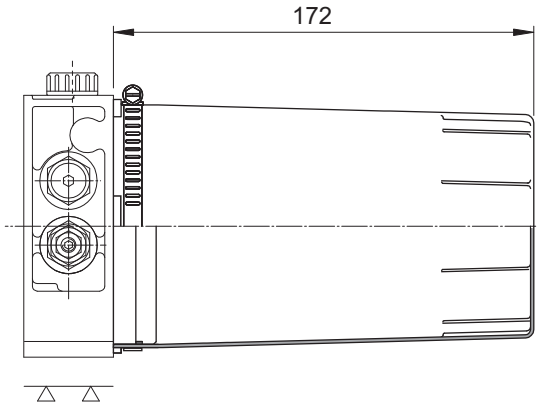
Code	Capacity (nominal lt.)	Tank type	Tank kit
K05	0.5	Nylon (visual oil level)	90310177

F	*

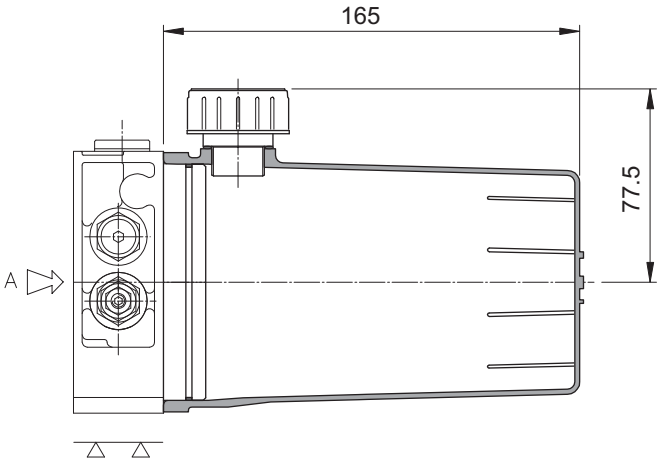
Code	Mounting position
02	Vertical

NYLON TANK TK1 - TH1

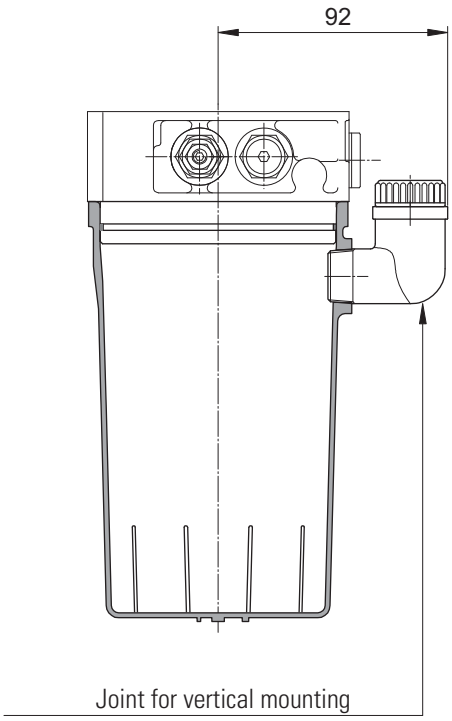
Tank **TK1** (horizontal)



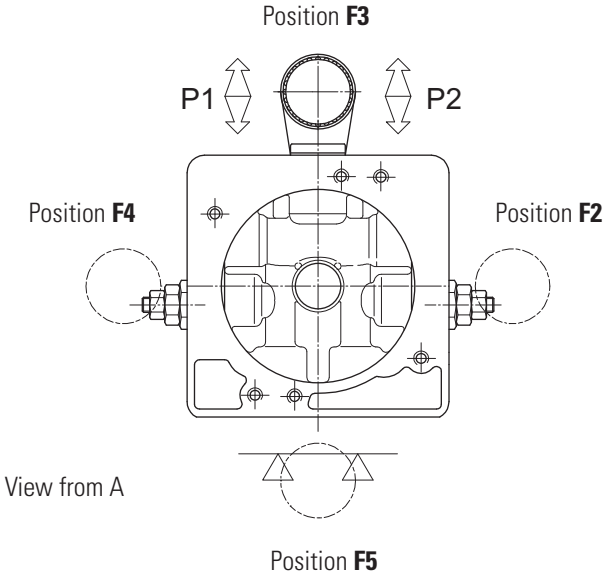
Tank **TH1** (horizontal)



Tank **TH1** (vertical)



Mounting position



ORDERING CODE

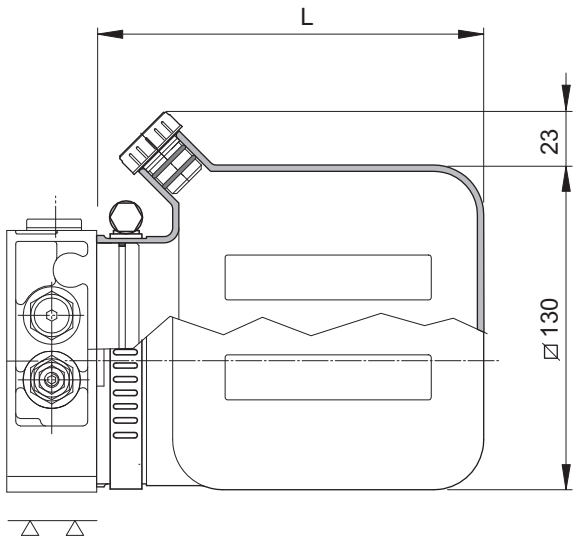
T * *

Code	Capacity (nominal lt.)	Tank type	Tank kit
K1	1	Nylon (visual oil level)	90310104
H1	1	Nylon tank reinforced with fiberglass (visual oil level)	90310065 Horizontal
			90310066 Vertical

F *

Code	Type		Mounting position
	TK1	TH1	
0	X	—	Vertical without tank
1	X	X	Horizontal
2	X	X	Vertical (referred to the filling cap)
3	—	X	
4	—	X	
5	—	X	

NYLON TANK Q1 - Q2



ORDERING CODE

T	*	*

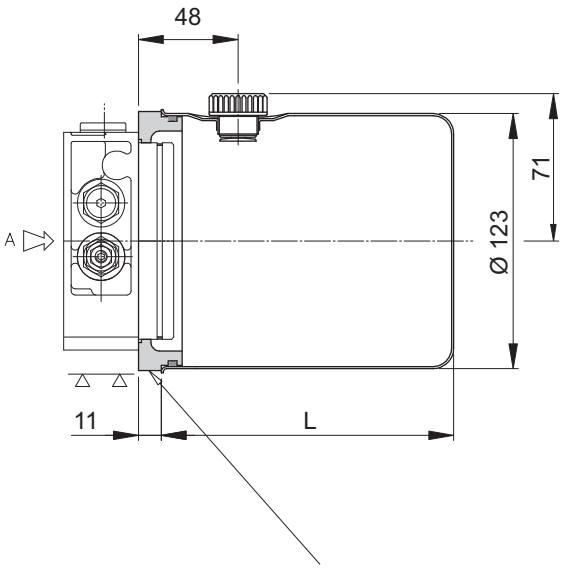
Code	Capacity (nominal lt.)	Tank type	L (mm)	Tank kit
Q1	1	In nylon (livello olio visivo)	155	90310278
Q2	2		223	90310279

F	*

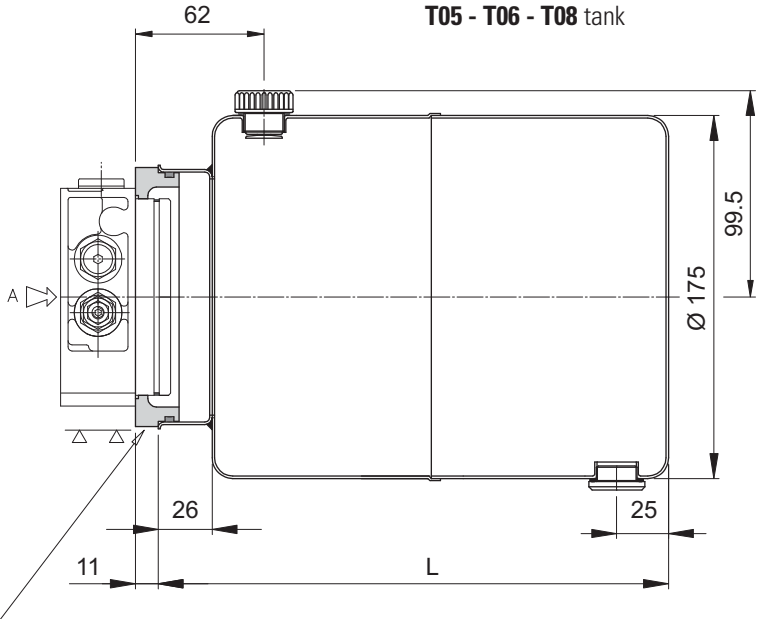
Code	Mounting position
0	Vertical without tank
1	Horizontal
2	Vertical (referred to the filling cap)
3	
4	
5	

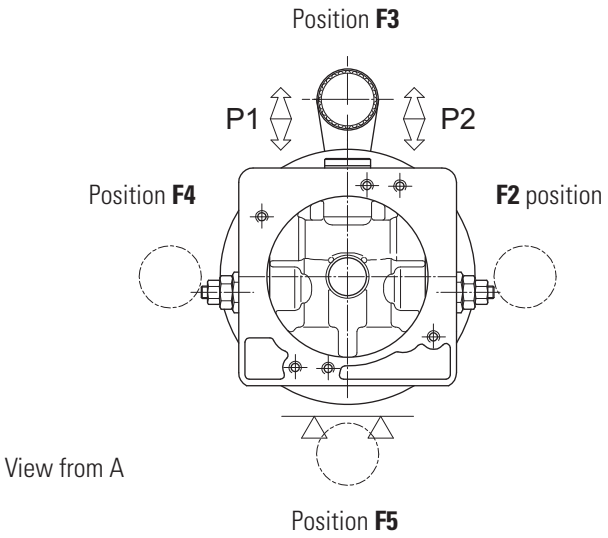
STEEL TANKS T01 - T02 - T03 - T05 - T06 - T08

T1 - T02 - T03 tank

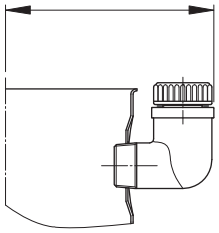


T05 - T06 - T08 tank





100.5 (T01 - T02 - T03)
129 (T05 - T06 - T08)



Joint for vertical mounting

ORDERING CODE

T	*	*

Code	Capacity (nominal lt.)	Tank type	L (mm)	Tank kit		Flange kit
				horizontal	vertical	
01	1	Steel	141	90310000	90310009	17010022
02	2	Steel	200	90310001	90310010	
03	3	Steel	330	90310002	90310011	
05	5	Steel	246	90310003	90310012	17010051
06	6	Steel	308	90310004	90310013	
08	8	Steel	370	90310005	90310014	

F	*

Code	Mounting position
0	Vertical without tank
1	Horizontal
2	Vertical (referred to the filling cap)
3	
4	
5	