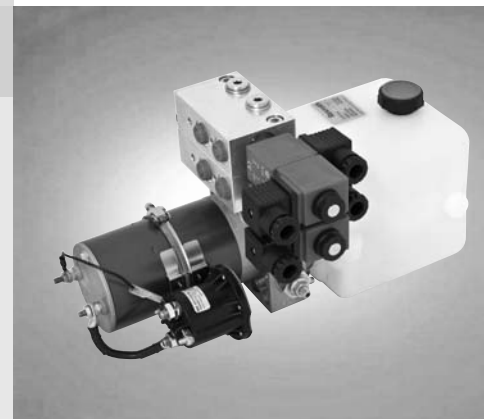


Compact power modules

RE 18306-01/03.14
Replaces: 07.12

1/88

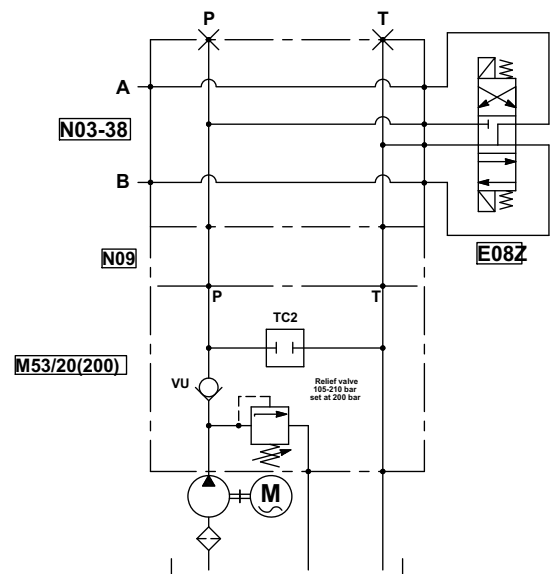
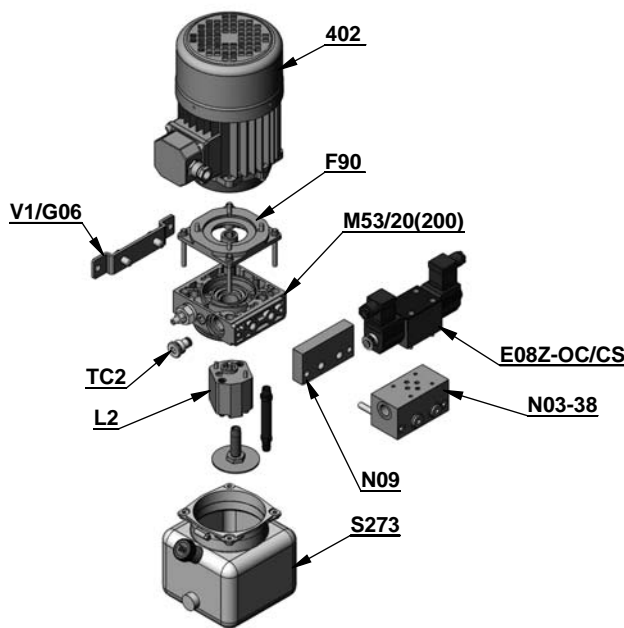
ME - MR series



Summary

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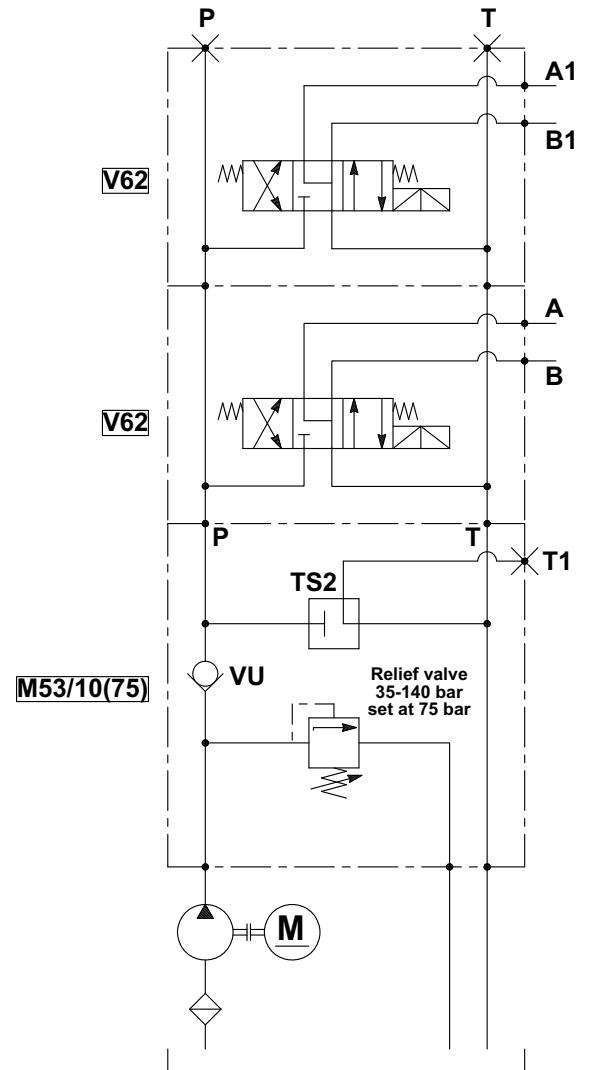
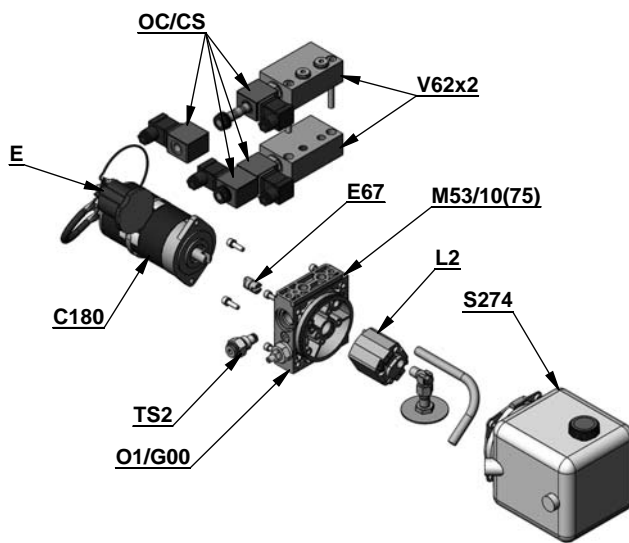
Example of Ordering Details for Compact Power Modules ME with A.C. Motor



Ordering Details for Compact Power Modules with AC Motor

ME	2	-	402	-	F90	-	M53/20(200)	-	TC2	-	L2	-	S273	-	V1/G06	-	N09/N03-38/E08Z-OC/CS
Power Module Type	Power Module Type of Motor		AC Electric motor		Junction Element		Central Manifold with Pressure range Relief Valve + Request Setting of the Relief Valve in Bar beetwen bracket		Built-in Valves		Gears pump		Oil Tank		Mounting Position and Mounting Brackets		Modular Stackable Elements Coil Voltage Connector

Example of Ordering Details for Compact Power Modules ME with D.C. Motor

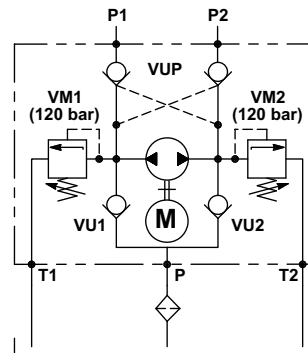
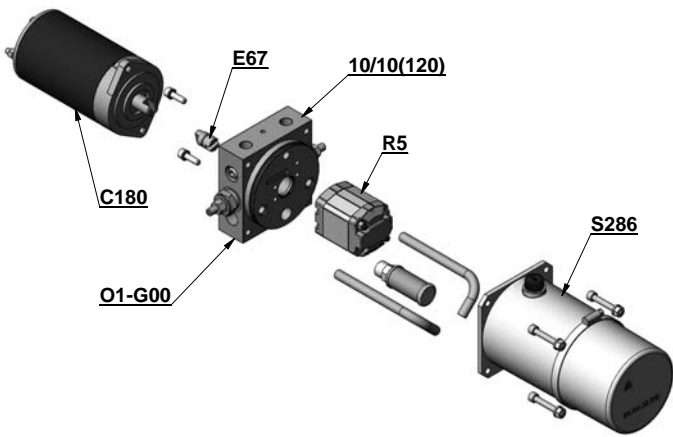


Ordering Details for Compact Power Modules with DC Motor

ME	1	-	C180	-	E	-	E67	-	M53/10(75)	-	TS2	-	L2	-	S274	-	O1/G00	-	V62x2-OC/CS
Power Module Type	Power Module Type of Motor		DC Electric motor		Relay		Junction Element		Central Manifold with Pressure range Relief Valve + Request Setting of the Relief Valve in Bar beetwen bracket		Built-in Valves		Gears pump		Oil Tank		Mounting Position and Mounting Brackets		Modular Stackable Elements Coil Voltage Connector

Ordering Details for Compact Power Modules MR (reversible pump)

<p>Power Module Type MR</p> <p>Power Module Type of Motor</p> <p>Without motor = 0 With DC motor = 1 With AC 3ph motor = 2 With AC 1ph motor = 3</p> <p>Electric motor: Select the required DC motors. (See pages 14-19) Or required AC motors. (See pages 11-12)</p> <p>Junction Element: The code of the Junction Element is showing in the page after the selected motor.</p>						<p>Mounting Position and Mounting Brackets: Select the required working position of the Power Module and the position of Oil Filler cap in case of mounting position V1. If needed select the Mounting Bracket. (See pages 54-55)</p> <p>Oil Tank: Select the required Oil Tank. (See pages 46-53)</p> <p>Gears pump: Select the required gears pump (See page 45)</p> <p>Central Manifold with Pressure range Relief Valve + Request Setting of the Relief Valve in bar: Select the required Central manifold with the required pressure range of the Relief valve and put the required setting in bar between bracket.</p>
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Ordering Details for Compact Power Modules MR

MR	1	-	C180	-	E67	-	10 / 10 (120)	-	R5	-	S286	-	O1-G00
Power Module Type: MR	Power Module Type of Motor: With DC motor=1		DC Electric motor		Junction Element		Central Manifold with Pressure range Relief Valve + Request Setting of the Relief Valve in Bar		Reversible Gears pump		Oil Tank		Mounting Position and Mounting Brackets

General Technical Data for Compact Power Module ME and MR series

Through the years DCOC has developed a highly evolved modular system resulting in powerful, flexible and cost effective power pack range, identified as "**compact power modules**". In its easier configuration, a "compact power module" is an assembly of electric motor, central manifold with valves, pump, oil tank and a few connection elements. The central manifold, with its built-in valves, allows to achieve a large variety of hydraulic control circuits. If more complex circuits are needed, modular integrated blocks can be added by flange mounting, or interfacing, to the central manifold to extend its capabilities.

Typical applications

- Passenger lift
- Fork lift
- Car and motorcycle lift
- Lift table
- Dumper
- Tail gate
- Scissor lift
- Gangway and davits for boats
- Material handling
- Foods machinery

Power module selection

- Choose the circuit which meets your application requirements.
- Take note of all dimensions resulting from the basic components chosen for your application.
NOTE: dimensions may vary slightly and should be confirmed by DCOC, if the assembly is to be installed in a space with narrow clearance.
- The tank capacity and the tank dimensions need to be large enough to assure proper pump suction: there must always be a reserve of oil in the tank when all cylinders are fully extended and avoid overflow when cylinders are fully retracted.
- The tank must be evaluated also for best separation of air from oil, and for settling down oil contamination. It should be placed in a space with, at least, natural ventilation and it should permit enough heat dissipation to prevent high fluid temperature.
- Select the electric motor by evaluating the power needed and the motor compliance with the heat developed during the expected run time (or "duty cycle").

Hydraulic fluid for compact power module

Mineral oil based hydraulic fluids suitable for hydraulic systems can be used; they should have physical lubricating and chemical properties as specified by:

- MINERAL OIL BASED HYDRAULIC FLUIDS HL (DIN 51524 part 1)
- MINERAL OIL BASED HYDRAULIC FLUIDS HL P (DIN 51524 part 2)

For use of environmentally friendly fluids please consult DCOC.

Fluid viscosity, Temperature range of the operating fluid, Ambient temperature

The fluid viscosity should remain within the range 10 to 300 cSt (centistokes); recommended 15 to 120 cSt .

Permissible cold start viscosity is maximum 2000 cSt .

The fluid temperature should remain within the range -15°C and 80°C [*5°F and 176°F*].

Note: For compact power module with plastic tank the fluid temperature should remain within the range -15°C and 70°C [*5°F and 158°F*].

Ambient temperature -15°C +40°C [*5°F and 104°F*].

Fluid cleanliness requirements and maintenance

We recommend a cleanliness of the operating fluid according to ISO 4406 Class 19/17/14 or cleaner.

All components of the hydraulic circuit , including hoses and actuators, must be flushed and cleaned before assembling, because the compact power module has a suction filter only.

The hydraulic fluid should be replaced after the first 50 hours, and then every 1000 hours, or, at least, once a year.

Power module installation

The mounting position (is basically un-restricted; just avoid installations that could compromise the pump suction, it is recommended to support the power module on vibration dampening blocks when the mounting structure is expected to vibrate.

General Technical Data for Compact Power Module ME and MR series

Wiring and starting-up

The wiring between battery and electric motor should be selected in order to avoid excessive voltage drop (recommended less than 1 V).

It is strictly forbidden to allow the backwards rotation of the pump even at the first starting: to prevent reverse rotation, the wiring polarities must be correctly connected (except for the reversible pumps).

Caution: when energized, the surface temperature of the electric motor could reach temperature levels of 60-80°C [140-176°F]: care should be taken to avoid any accidental contact of people with the motor surface.

A.C. Motors

The tolerances on the nominal voltage are:

Single phase motor: 230V +/-5% - Three phase motor: 230-400V +/-10%.

Protection degree : IP54 (protection against dust and water splash).

Insulation class: F (155°C) [311°F].

All motors are aluminum alloy die cast without painting.

D.C. Motors

DCOC has a wide range of D.C. motors. In the following pages you will find a selection of our standard range.

For further information about our complete range please contact our Sales department.

Some motors Ø80 have reversible rotation (see the table) and are suitable for application in CPM MR series.

All the others motors shown have clockwise rotation suitable for driving our counter clockwise gear pumps.

For each motor a diagram is shown that enables the customer to select the right pump displacement needed for the required flow and working pressure.

To be sure of selecting the best electric motor for the application, also the duty cycle has to be verified.

Following are the definitions of the type of duty cycles:

S2 = Short time duty cycle: indicate the number of minutes the motor can operate before reaching the maximum allowable temperature. After this time the motor must cool down until the ambient temperature is reached.

S3 = Intermittent duty cycle: indicate the maximum time percentage (%) based on 10 minute period within the motor can run until reaching the maximum allowable temperature. For example an S3 value of 15% = 1,5 minutes running time every 10 minutes period. For 8,5 minutes the motor is switched-off.

The S2 and S3 values are related to the current draw. On the label of motor are indicated the S2 and S3 values referred to the nominal power of the motor.

To check the S2 or S3 value at different conditions is necessary to find the value of current in the motor-pumps diagram and related it with the represented list.

All the diagrams motor-pumps are obtained at the nominal voltage of 12 or 24 Volt using fluid ISO VG 46 at 20-30°C [68-86°F].

Central Manifolds

All the Central Manifolds shown in the catalogue are made in die cast aluminium alloy except the manifold code 10 for CPM MR series that is made by extruded bar. The validation of the Central Manifolds follows a life-test with 250 bar [625 psi] pulsed pressure repeated for 300.000 cycles.

Built-in valves

A wide range of cartridge valves and special plugs is available to be assembled in our Central Manifolds. The cartridge valves shown are designed for use in our Compact Power Module and are manufactured using steel with high mechanical strength. Surface treatments protect the exposed parts to the external environment. Standard seals are NBR (BUNA-N) with backup rings in PTFE. The cartridge valves with "leak proof seat design" have an average leakage of 10-15 drops/minute (< 1 cm³/minute 0.06 in³/min.) at the maximum pressure using fluid ISO VG46 at 40°C [104°F]. The validation of the cartridge valves follows a life-test at pulsed maximum pressure (indicated for each valve) repeated for 500.000 cycles.

All the solenoid cartridge valves are fitted with protective O-Rings installed between the pole tube and the coil. These O-Rings protect the internal parts from condensation and contaminants, which could cause malfunction.

All the solenoid cartridge valves except the 2/2 VE1 series are designed for operating in D.C..

Power supply in A.C. requires a connector with bridge rectifier included. All the data in the solenoid cartridge valves data sheet are obtained with stabilized coil operating temperature and voltage at -10% of the nominal value.

General Technical Data for Compact Power Module ME and MR series

External Gear Pumps

DCOC offers a wide range of External Gear Pumps to cover different kind of applications. The standard version are suitable for the biggest part of applications. All the pumps are pressure compensated to guarantee the best efficiency.

Oil Tanks

In this catalogue you will find a wide selection of steel and plastic tanks available as a standard product. If a special tank is required please contact our Sales Department. Steel tanks have Black paint finish and are suitable for operating temperature range -15°C / +80°C (5°F / 176°F). Plastic tanks are obtained in one piece in order to avoid welded parts that are weak points at extreme temperature and vibrations. Plastic tanks are suitable for operating temperature range -15°C / +70°C (5°F / 158°F).

Note: even if the plastic tank mounting system is designed to avoid oil leakage the tank must be securely anchored when fitted in mobile equipment and when subject to shocks and heavy vibrations. Please check that the anchorages do not stress or deform the tank.

Modular Stackable Elements

Our modular system offers a wide range of standardised elements. They are divided in two main series:

Modular Elements "N" series: Modular blocks for different mounting position with mechanical valve or interface for CETOP valves to create parallel or series circuits.

Modular Elements "V" series: Modular blocks that incorporate solenoid operated cartridge valves 2,3,4 way.

All the Modular Elements are made in extruded aluminum alloy AL 2011 (AlCu5.5Pb0.4Bi0.4 UNI 9002/5). In the catalogue you will find a selection of the main used models.

Note: To reduce the complexity of the system and optimize the available space, special Modular Elements can be designed and manufactured following the customers needs. In this case please contact our Sales Department.

European machine directive 2006/42/CE

According to the Machine Directive 2006/42/CE, a complete power module, as described in paragraph 15 and made available to the European market, enters into the definition of "partly completed machinery".

Instead, the power module sub-assemblies (motor, pump, reservoir, central manifold,...), when not assembled into a complete power pack, are considered "components" which can be employed in a "machinery" or a "partly completed machinery". In this case, the DCOC components and sub-assemblies must be fitted in compliance with all the relevant technical data sheet applicable to the product, and shall not be operated, adjusted or disassembled before the complete machinery where they are incorporated has been declared to be in compliance with the Machine Directive 2006/42/CE.

Note: All the components shown in the catalogue ARE NOT suitable for use in potentially explosive atmosphere.

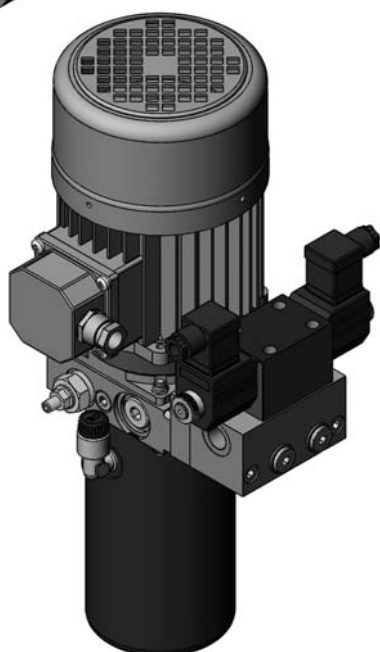
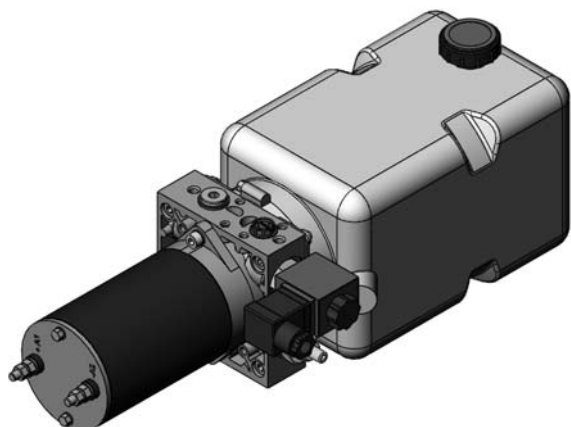
Technical information

Below you will find the most common equations used in hydraulics:

	Flow	Operating pressure	Internal diameter hydraulic cylinder	Area of hydraulic cylinder	Piston force	Drive shaft	Power requirement for motor	Pump displacement	Torque requirement
Common Units	l/min	bar	mm	mm ²	N	rev/min	kW	cm ³ /rev	Nm
Symbols	Q	P	d	A	F	n	N	D	M
Equations	$Q = \frac{D \times n}{1000} \times 0,95$	$P = \frac{F}{0,1 \times A}$	-	$A = \frac{\pi \times d^2}{4}$	-	-	$N = \frac{P \times Q}{612}$	-	$M = \frac{D \times P}{62,8 \times 0,87}$

Compact Power Module Type

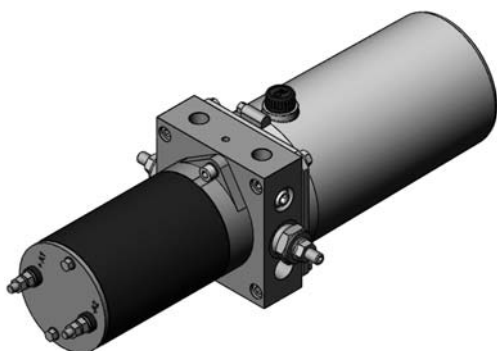
Standard Type **ME series**



ME

- **Smallest overall dimensions.**
- DC motors up to 2200 W (2,95 hp).
- AC motors up to 1100 W (1,48 hp).
- Pump displacement up to 1,5 cm³ [0,09 inch³].
- Pressure up to 250 bar [3626 psi].

Reversible Type **MR series**

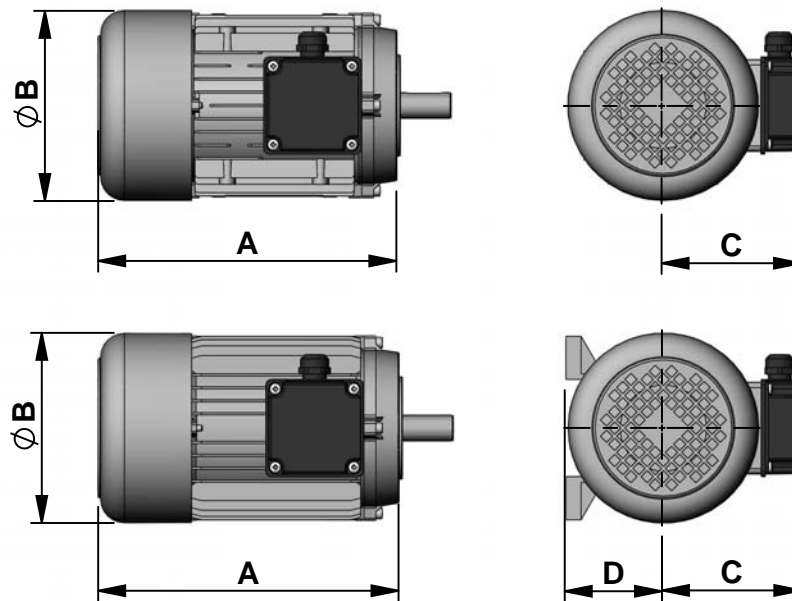


MR

- **Smallest overall dimensions.**
- DC motors up to 800 W (1,1 hp).
- AC motors up to 750 W (1,0 hp).
- Pump displacement up to 1,5 cm³ [0,09 inch³].
- Pressure up to 250 bar [3626 psi].

A.C. Electric Motor Standard Flange

Standard A.C. Motors in B14 form.



2 Poles Three Phase

Current Motors 230/400V 50Hz 278-/480V 60Hz Form B14 Protection IP54 (2900 rpm at 50Hz)

Code	Type	Material Number	Power (kW)	Power (Hp)	Size IEC	Duty Cycle	A mm [inch]	ØB mm [inch]	C mm [inch]	D mm [inch]	Efficiency Classe
204	C162208000	R932000450	0,75	1	80	S3 60%	237 [9,33]	156 [6,14]	123 [4,84]	80 [3,15]	IE1
205	C162209000	R932000451	1,1	1,1	80	S3 60%	237 [9,33]	156 [6,14]	123 [4,84]	80 [3,15]	IE1

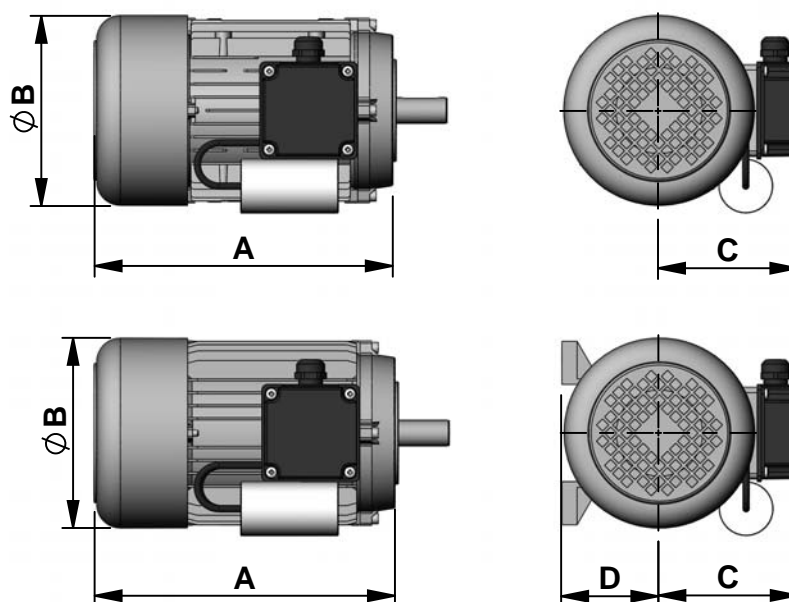
4 Poles Three Phase

Current Motors 230/400V 50Hz 278-/480V 60Hz Form B14 Protection IP54 (1450 rpm at 50Hz)

Code	Type	Material Number	Power (kW)	Power (Hp)	Size IEC	Duty Cycle	A mm [inch]	ØB mm [inch]	C mm [inch]	D mm [inch]	Efficiency Classe
400	C1622S1107	R932000308	0,09	0,12	56	S1	169 [6,65]	110 [4,33]	95 [3,74]	56 [2,20]	-
401	C162266000	R932000490	0,18	0,25	63	S1	189 [7,44]	124 [4,88]	104 [4,09]	63 [2,48]	-
402	C1622670DR	R932008027	0,25	0,35	71	S1	218 [8,58]	140 [5,51]	109 [4,29]	71 [2,79]	-
403	C1622680DR	R932006105	0,37	0,5	71	S1	212 [8,35]	140 [5,51]	113 [4,45]	71 [2,79]	-
404	C1622150DR	R932006106	0,55	0,75	80	S1	250 [9,84]	156 [6,14]	125 [4,92]	80 [3,15]	-
405	C1622160DR	R932006107	0,75	1	80	S2 60MIN.	250 [9,84]	156 [6,14]	125 [4,92]	80 [3,15]	IE1

A.C. Electric Motor Standard Flange

Standard A.C. Motors in B14 form.



On request motors in B34 form are available. In this cases, please put "B34" after the code of the motor when filling in the description. Example "408MB34".

2 Poles Single Phase

Current Motors 230V 50Hz Form B14 Protection IP54 (2900 rpm at 50Hz)

Code	Type	Material Number	Power (kW)	Power (hp)	Size IEC	Duty Cycle	A mm [inch]	ØB mm [inch]	C mm [inch]	D mm [inch]
204M	C1622S1264	R932000361	0,75	1	80	S1	237 [9,33]	156 [6,14]	123 [4,84]	80 [3,15]
205M	C1622S1342	R932000400	1,1	1,5	80	S1	237 [9,33]	156 [6,14]	123 [4,84]	80 [3,15]

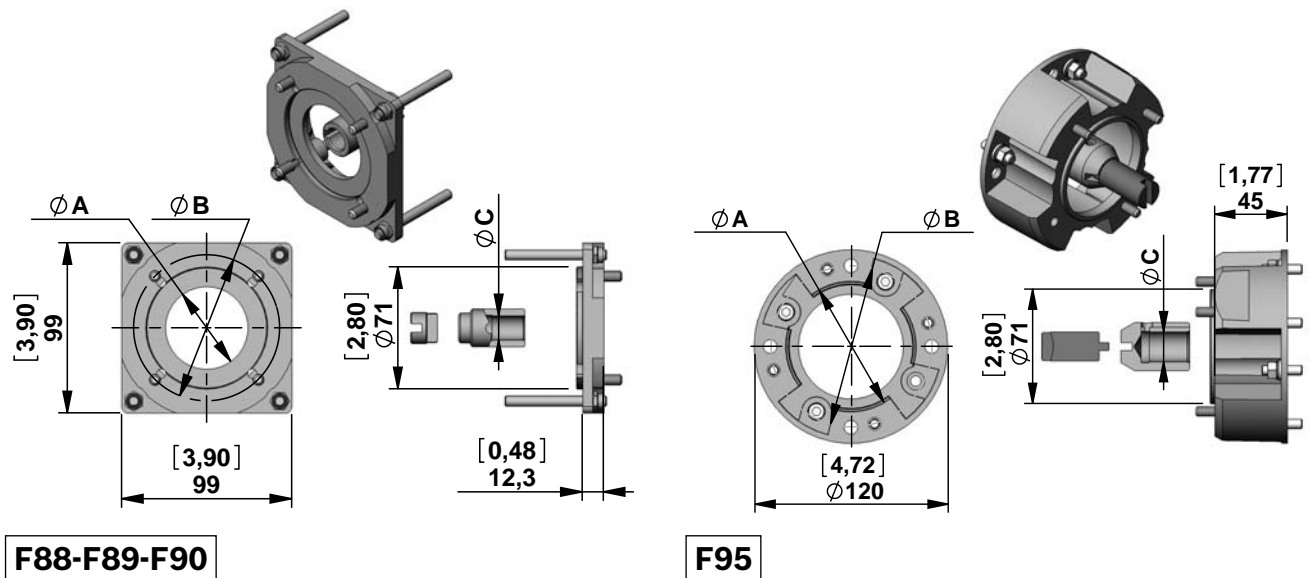
4 Poles Single Phase

Current Motors 230V 50Hz Form B14 Protection IP54 (1450 rpm at 50Hz)

Code	Type	Material Number	Power (kW)	Power (hp)	Size IEC	Duty Cycle	A mm [inch]	ØB mm [inch]	C mm [inch]	D mm [inch]
401M	C162270000	R932000495	0,18	0,25	63	S1	189 [7,44]	124 [4,88]	104 [4,09]	63 [2,48]
402M	C162271000	R932000496	0,25	0,35	71	S1	218 [8,58]	140 [5,51]	109 [4,29]	71 [2,80]
403M	C162272000	R932000497	0,37	0,5	71	S1	212 [8,35]	140 [5,51]	113 [4,45]	71 [2,80]
404M	C162239000	R932000471	0,55	0,75	80	S1	250 [9,84]	156 [6,14]	125 [4,92]	80 [3,15]
405M	C162240000	R932000472	0,75	1	80	S1	250 [9,84]	156 [6,14]	125 [4,92]	80 [3,15]

NOTE: The electric motors with standard flange shown in this pages are delivered by different certified suppliers. This means the indicated dimensions could change a little, depending on which manufacturer will be assembled. On the CPM the choice of the manufacturer is based on our stock availability.

Junction Elements for A.C. Electric Motor Standard Flange

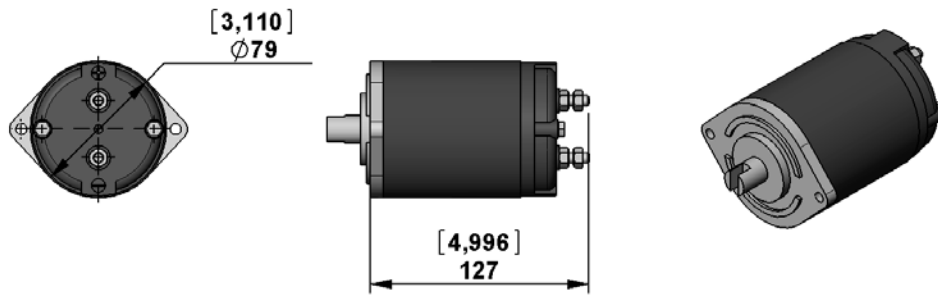


Junction Elements for manifolds **ME - MR** series (STD COUPLINGS)

Code	Motor Codes	Size IEC	A mm [inch]	B mm [inch]	C mm [inch]	H mm [inch]	Type	Material Number
F88	400	56	50 [1,97]	65 [2,56]	9 [0,35]	12,5 [0,49]	K01X3970TR097	R932002068
F89	401-401M	63	60 [2,36]	75 [2,95]	11 [0,43]	12,5 [0,49]	K01X3970TR098	R932002069
F90	402-403-402M-403M	71	70 [2,76]	85 [3,35]	14 [0,55]	12,5 [0,49]	K01X3970TR099	R932002070
F95	204-205-404-405 204M-205M-404M-405M	80	80 [3,15]	100 [3,94]	19 [0,75]	-	K01X3970TR100	R932002071

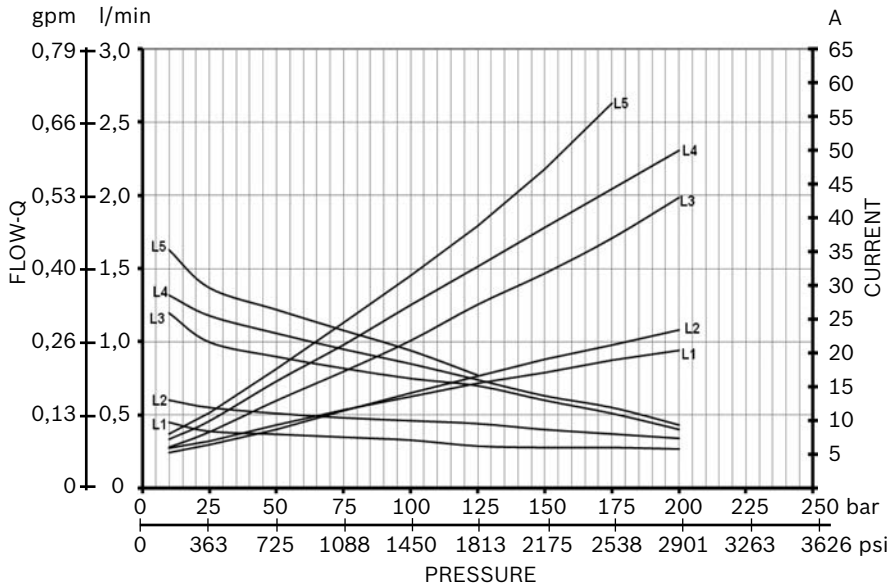
NOTE: The junction element F95 is not usable with manifold MR serie.

D.C. Electric Motors Standard Performance

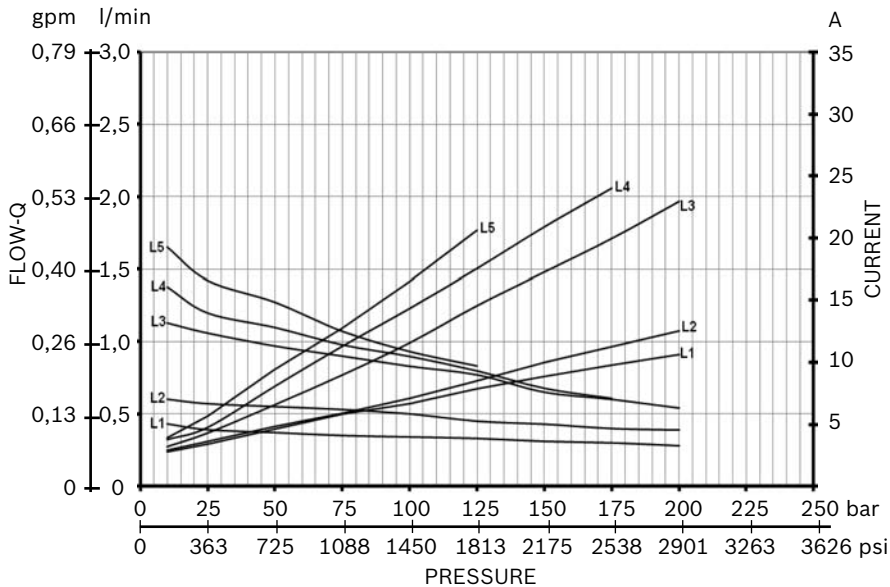


Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Direction of rotation	Type	Material Number
C177	12	150	10% 2,5min	NO	NO	IP 54	↔	C1620S1077	R932010751
C178	24	150	10% 2,5min	NO	NO	IP 54	↔	C1620S1078	R932010752

Electric Motor C177 (12V – 150W) Diagrams

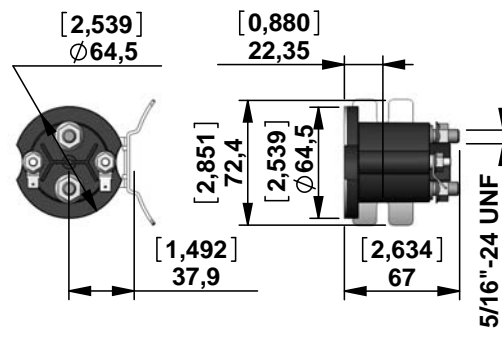


Electric Motor C178 (24V – 150W) Diagrams



NOTE: The values of the curves may change slightly depending on the brand / model of pump that is mounted.

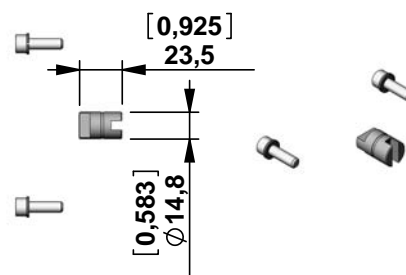
Relay



Starting Relay Standard Performance

Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
G	12	150	350	IP66	NO	C165534000	R932000692
H	24	150	350		NO	C165535000	R932000693
L	24	150	350		YES	C165540000	R932008749

Junction Elements for D.C. Electric Motor

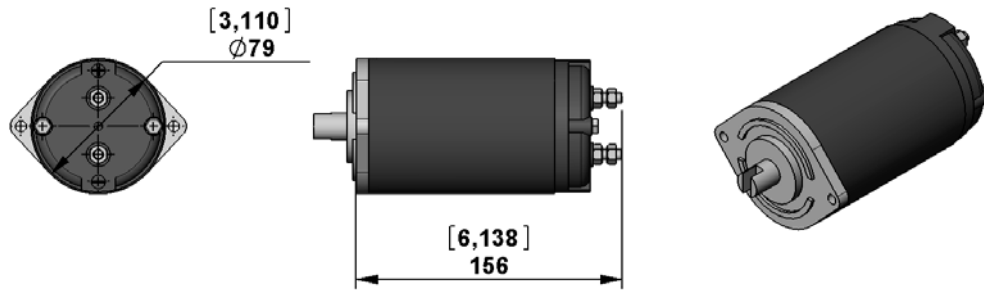


Junction Elements for manifolds

ME - MR series

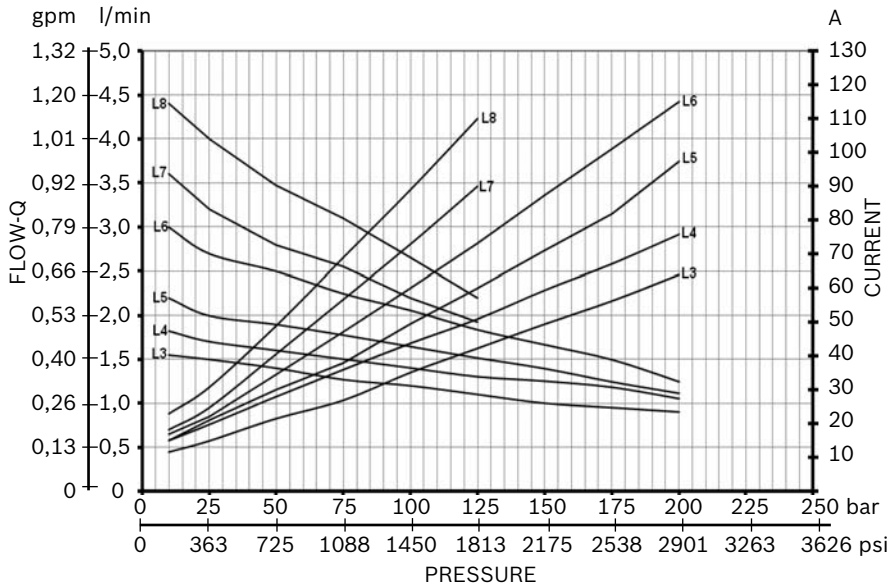
Code	Type	Material Number
E67	K01X3970TR095	R932002066

D.C. Electric Motors Standard Performance

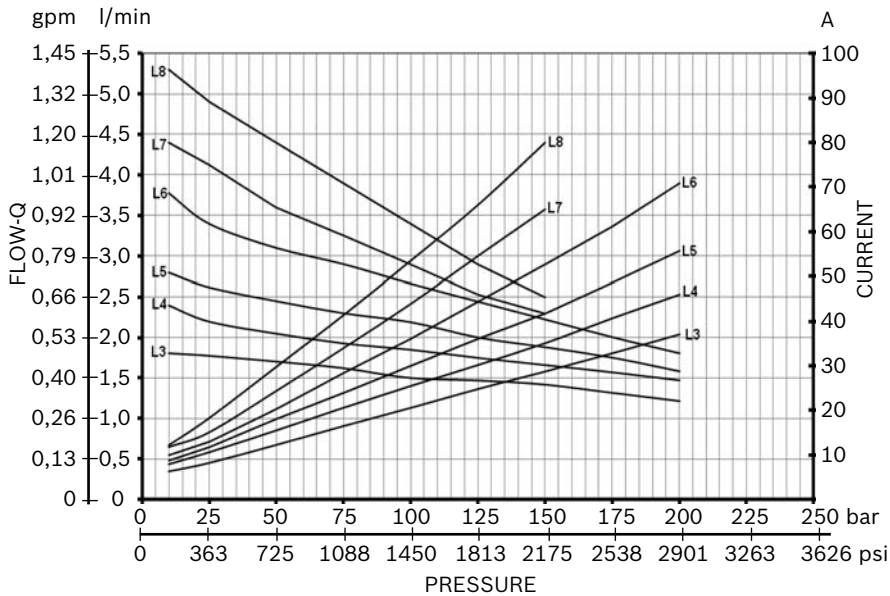


Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Direction of rotation	Type	Material Number
C179	12	500	10% 2,5min	NO	NO	IP 54	↔	C1620S1079	R932010753
C180	24	500	10% 2,5min	NO	NO	IP 54	↔	C1620S1080	R932010755

Electric Motor C179 (12V – 500W) Diagrams

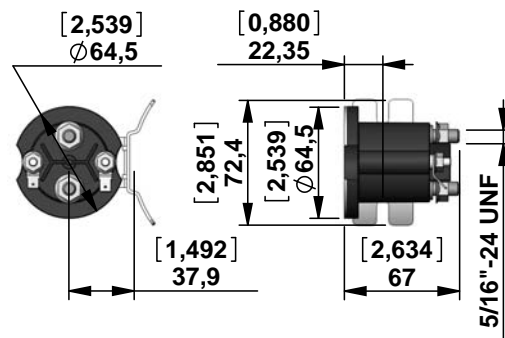


Electric Motor C180 (24V – 500W) Diagrams



NOTE: The values of the curves may change slightly depending on the brand / model of pump that is mounted.

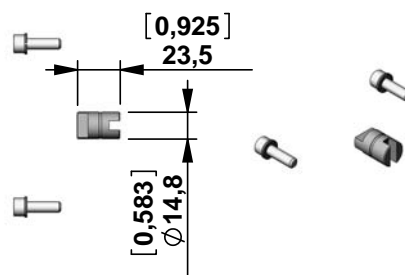
Relay



Starting Relay Standard Performance

Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
G	12	150	350	IP66	NO	C165534000	R932000692
H	24	150	350		NO	C165535000	R932000693
L	24	150	350		YES	C165540000	R932008749

Junction Elements for D.C. Electric Motor

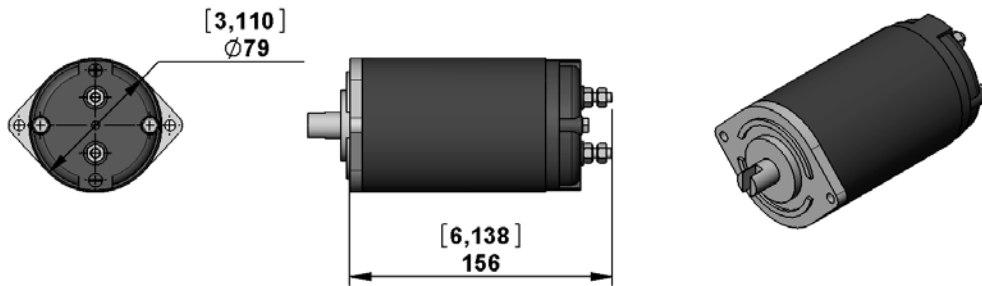


Junction Elements for manifolds

ME - MR series

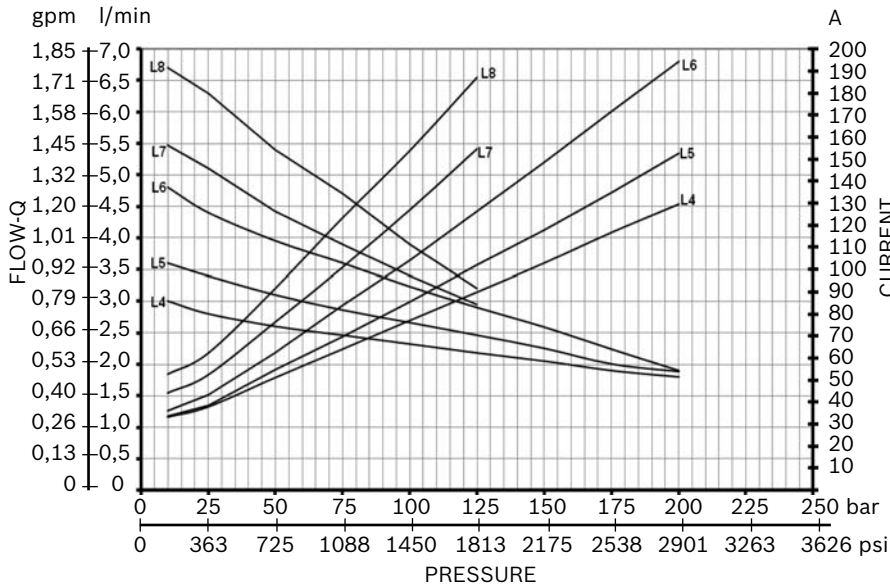
Code	Type	Material Number
E67	K01X3970TR095	R932002066

D.C. Electric Motors Standard Performance

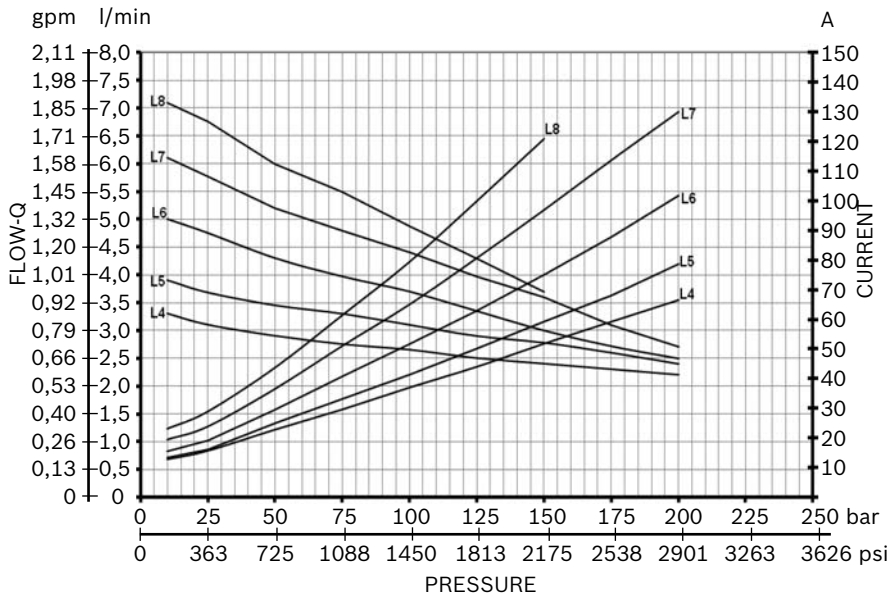


Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Direction of rotation	Type	Material Number
C181	12	800	8% 2,5min	NO	NO	IP 54	↔	C1620S1081	R932010754
C182	24	800	8% 2,5min	NO	NO	IP 54	↔	C1620S1082	R932010756

Electric Motor C181 (12V – 800W) Diagrams

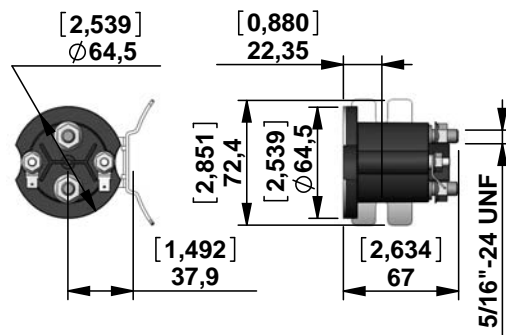


Electric Motor C182 (24V – 800W) Diagrams



NOTE: The values of the curves may change slightly depending on the brand / model of pump that is mounted.

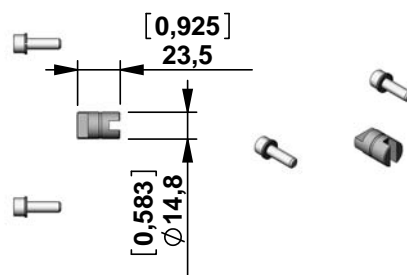
Relay



Starting Relay Standard Performance

Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
G	12	150	350	IP66	NO	C165534000	R932000692
H	24	150	350		NO	C165535000	R932000693
L	24	150	350		YES	C165540000	R932008749

Junction Elements for D.C. Electric Motor

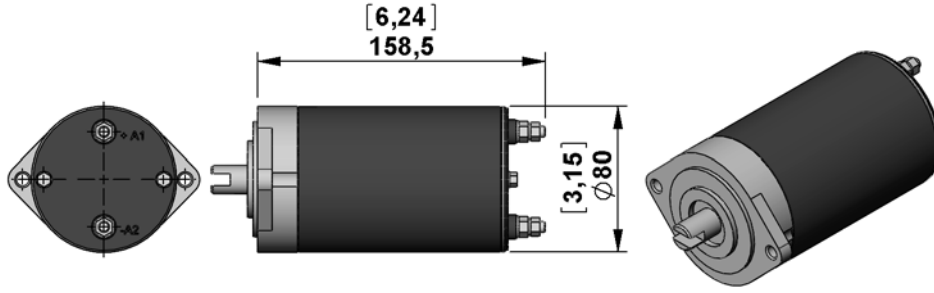


Junction Elements for manifolds

ME - MR series

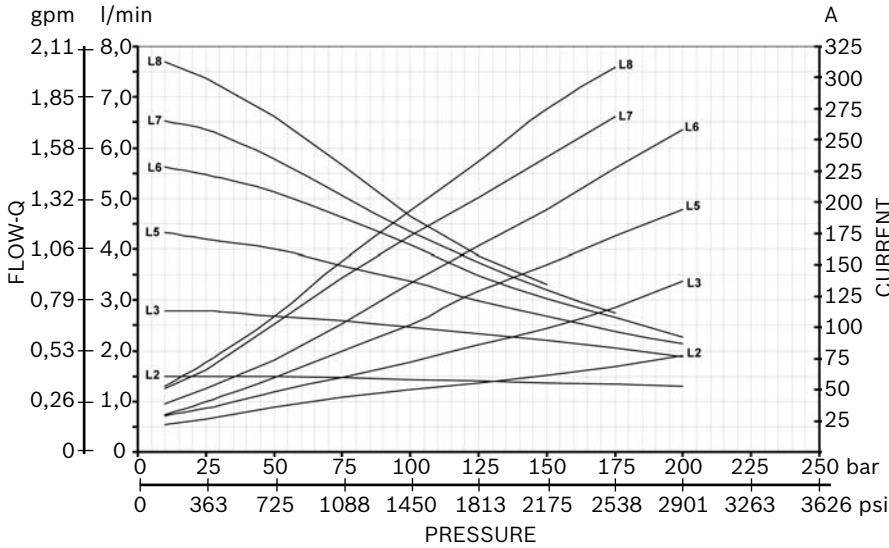
Code	Type	Material Number
E67	K01X3970TR095	R932002066

D.C. Electric Motors High Performance



Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Direction of rotation	Type	Material Number
C67	12	800	9% 4min	NO	NO	IP 54	Reversible	C162066000	R932000264
C123	12	800	9% 4min	YES	NO	IP 54	Clockwise	C1620S1023	R932000220
C94	24	800	8% 2,5min	NO	NO	IP 54	Reversible	C162093000	R932000274
C122	24	800	10% 4min	YES	NO	IP 54	Clockwise	C1620S1022	R932000219

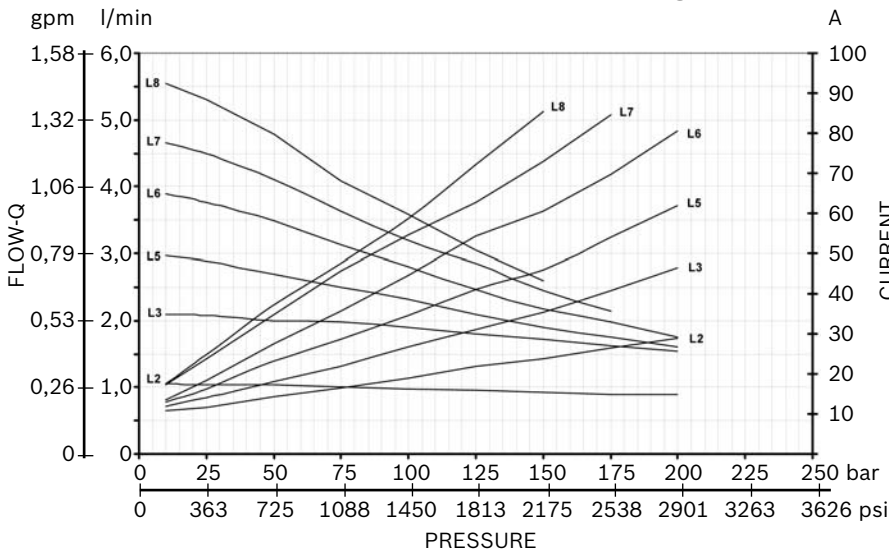
Electric Motor C67-C123 (12V – 800W) Diagrams



S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
50	14	35%
100	6	12%
150	2	3,0%

Electric Motor C94-C122 (24V – 800W) Diagrams

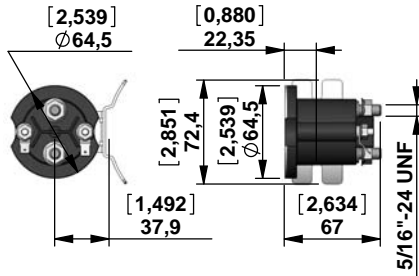


S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
25	16	35%
50	7	15%
75	2	3,0%

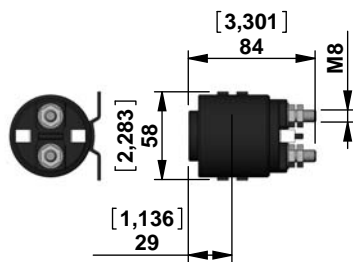
NOTE: The values of the curves may change slightly depending on the brand / model of pump that is mounted.

Relay



Starting Relay Standard Performance

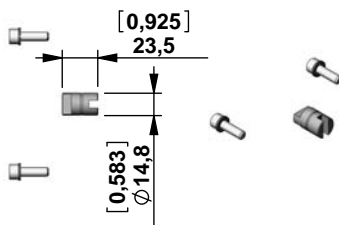
Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
G	12	150	350	IP66	NO	C165534000	R932000692
H	24	150	350		NO	C165535000	R932000693
L	24	150	350		YES	C165540000	R932008749



Starting Relay High Performance (silver plate contact)

Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
C	12	150	350	IP54	NO	C165524000	R932000690
E	24	150	350		NO	C165525000	R932000691

Junction Elements for D.C. Electric Motor

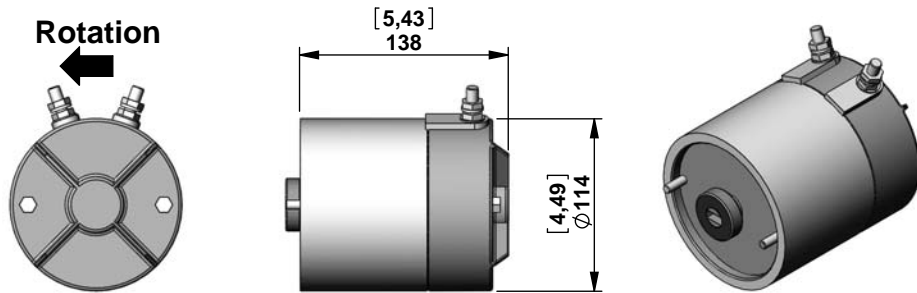


Junction Elements for manifolds

ME - MR series

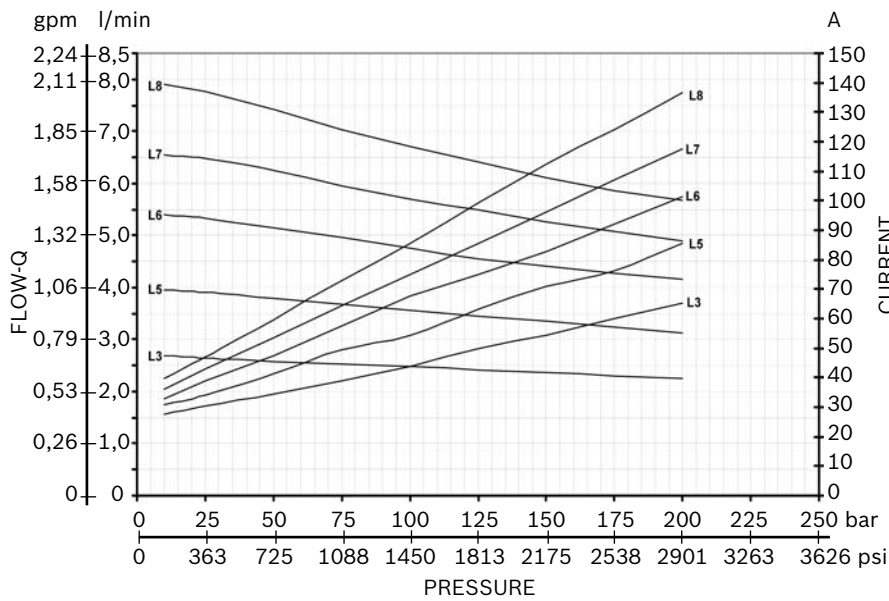
Code	Type	Material Number
E67	K01X3970TR095	R932002066

D.C. Electric Motors High Performance



Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Type	Material Number
C172	24	1300	15% 6,5 min	NO	YES	IP 54	C1620S1072	R932009389

Electric Motor C172 (24V – 1300W) Diagrams

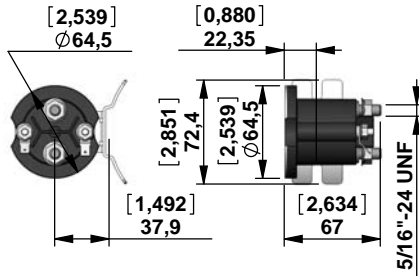


S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
75	6	17%
100	4	11%
125	2,4	7,5%
150	1,5	5%
175	1	3,5%

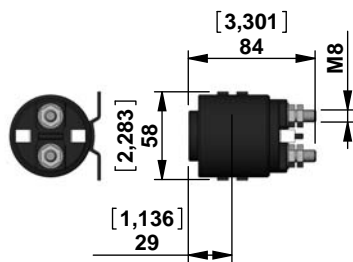
NOTE: The values of the curves may change slightly depending on the brand / model of pump that is mounted.

Relay



Starting Relay Standard Performance

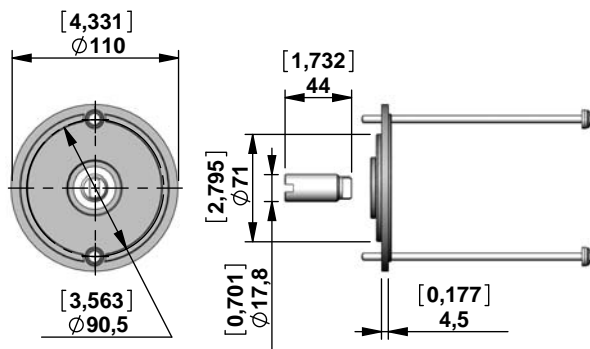
Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
G	12	150	350	IP66	NO	C165534000	R932000692
H	24	150	350		NO	C165535000	R932000693
L	24	150	350		YES	C165540000	R932008749



Starting Relay High Performance (silver plate contact)

Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
C	12	150	350	IP54	NO	C165524000	R932000690
E	24	150	350		NO	C165525000	R932000691

Junction Elements for D.C. Electric Motor

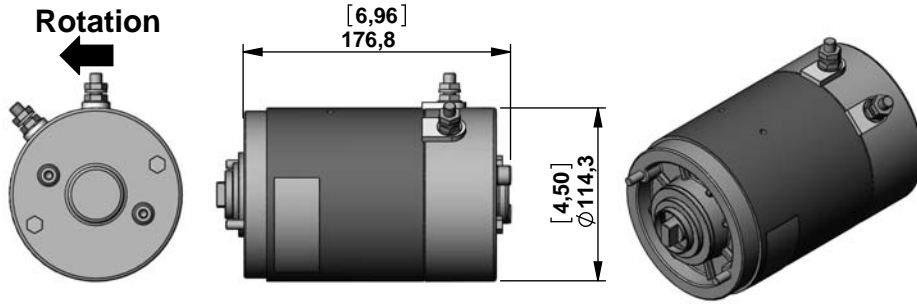


Junction Elements for manifolds **ME**

Code	Type	Material Number
E71	K01X3970TR109	R932009727

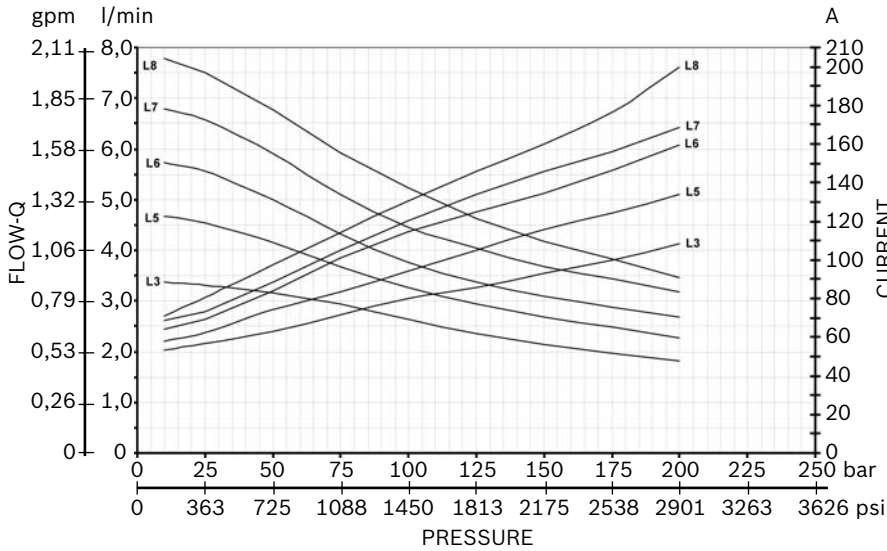
NOTE: Change the standard screws supplied with the motor with the screws of the junction element E71.

D.C. Electric Motors Standard Performance



Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Type	Material Number
C165	12	1600	10% 2 min	NO	YES	IP 54	C1620S1A65	R932009935
C167	12	1600	10% 2 min	YES	YES	IP 54	C1620S1067	R932009105
C166	24	2200	5% 2 min	NO	YES	IP 54	C1620S1066	R932009104
C168	24	2200	5% 2 min	YES	YES	IP 54	C1620S1068	R932009106

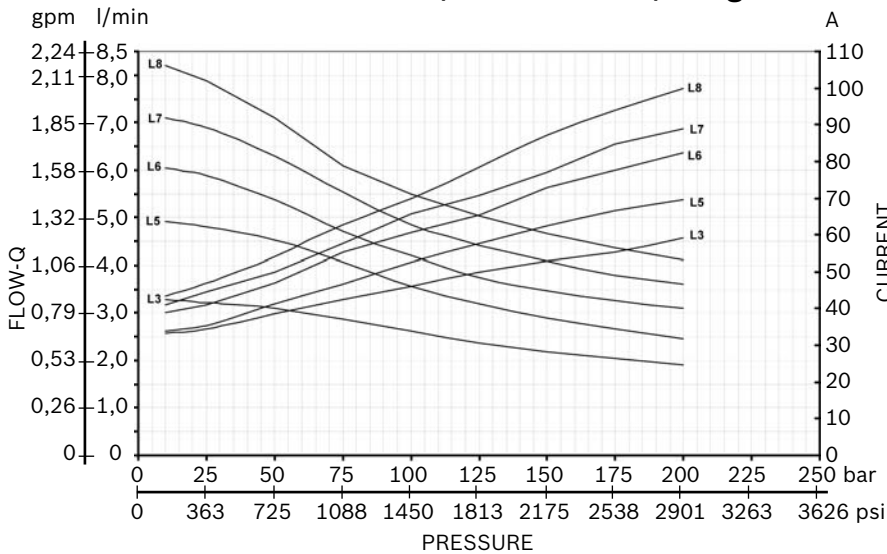
Electric Motor C165-167 (12V – 1600W) Diagrams



S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
150	5,5	12%
200	3,5	8%
250	2	6%
300	1,5	4%
350	1	3%

Electric Motor C166 - C168 (24V – 2200W) Diagrams

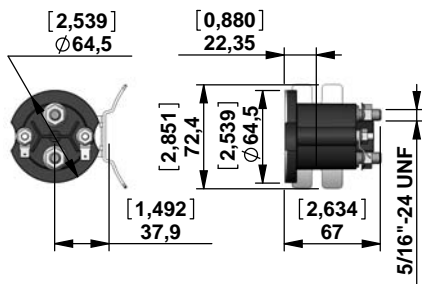


S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
75	5	12%
100	3	7%
125	1,8	5%
150	1	4%
175	0,7	2,5%

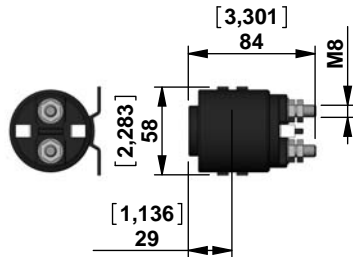
NOTE: The values of the curves may change slightly depending on the brand / model of pump that is mounted.

Relay



Starting Relay Standard Performance

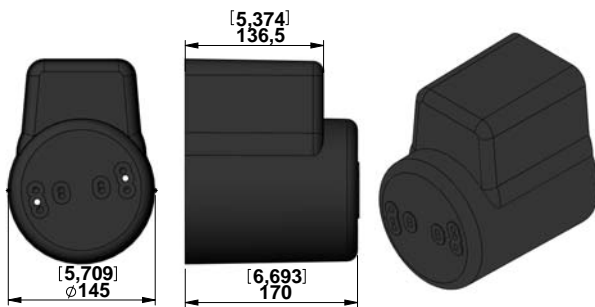
Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
G	12	150	350	IP66	NO	C165534000	R932000692
H	24	150	350		NO	C165535000	R932000693
L	24	150	350		YES	C165540000	R932008749



Starting Relay High Performance (silver plate contact)

Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
C	12	150	350	IP54	NO	C165524000	R932000690
E	24	150	350		NO	C165525000	R932000691

Plastic Protection

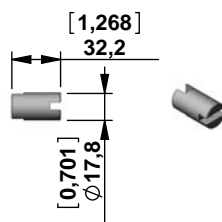


Code	Type	Material Number
0	Without Protection	-
1	With Protection	K229701000 R932002246

Kit for assembly plastic protection

Type	Material Number
K01K211563000	R932009354

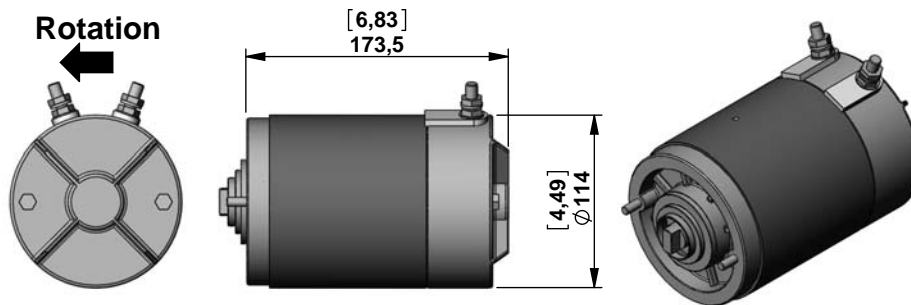
Junction Elements for D.C. Electric Motor



Junction Elements for manifolds **ME** series

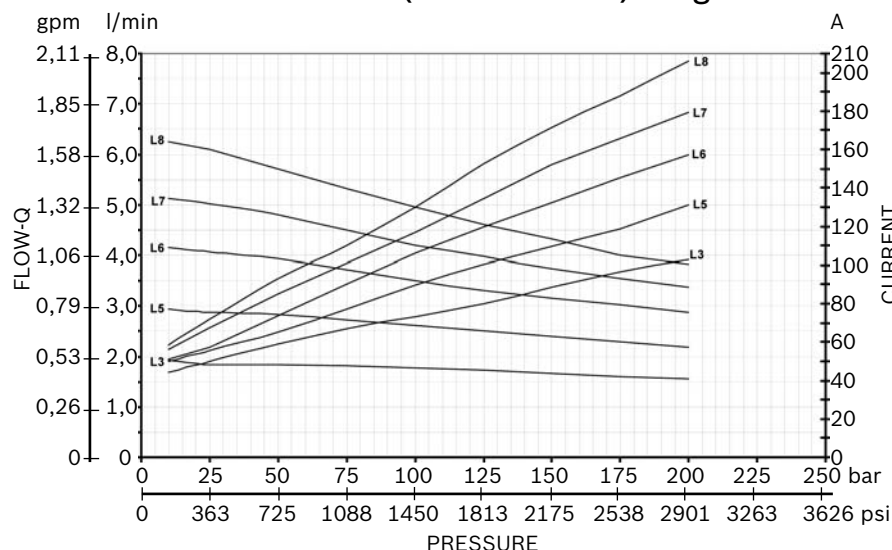
Code	Type	Material Number
E31	K01K3970TR008	R932001907

D.C. Electric Motors High Performance



Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Type	Material Number
C91	12	1600	7,5% 3 min	NO	NO	IP 54	C162090000	R932000272
C102	12	1600	7,5% 3 min	YES	NO	IP 54	C1620S1002	R932000201
C92	24	2200	4,5% 1,2 min	NO	NO	IP 54	C162091000	R932000273
C103	24	2200	4,5% 1,2 min	YES	NO	IP 54	C1620S1003	R932000202

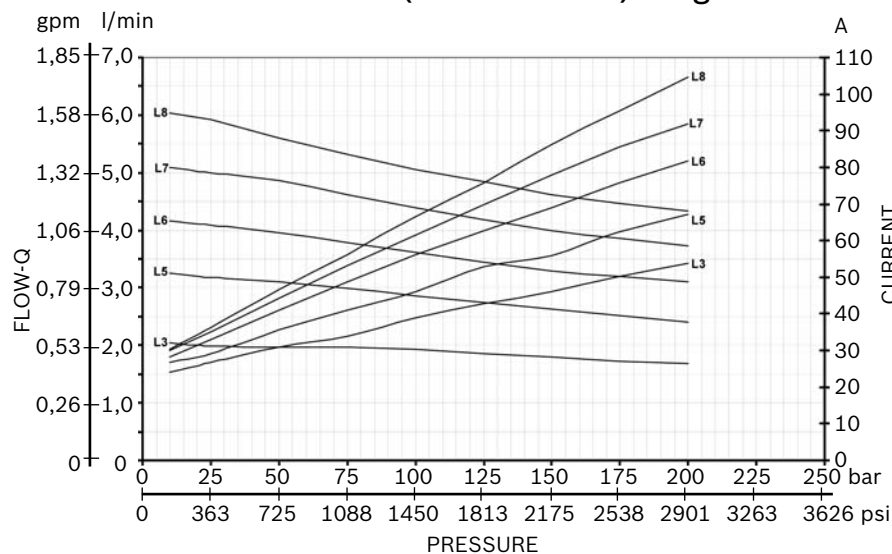
Electric Motor C91-C102 (12V – 1600W) Diagrams



S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
150	5,5	12%
200	3,5	8%
250	2	6%
300	1,5	4%
350	1	3%

Electric Motor C92-C103 (24V – 2200W) Diagrams

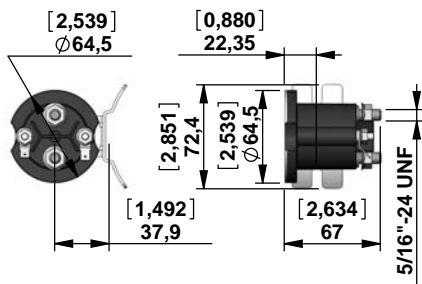


S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
75	5	12%
100	3	7%
125	1,8	5%
150	1	4%
175	0,7	2,5%

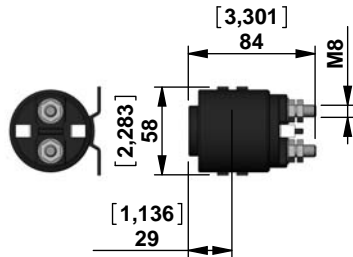
NOTE: The values of the curves may change slightly depending on the brand / model of pump that is mounted.

Relay



Starting Relay Standard Performance

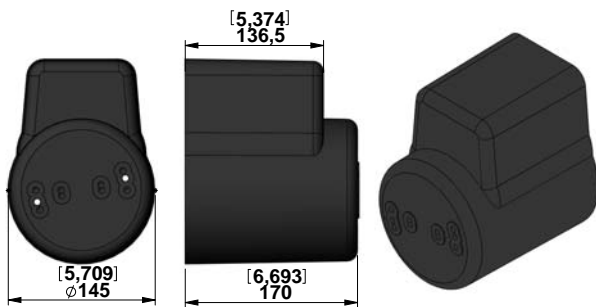
Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
G	12	150	350	IP66	NO	C165534000	R932000692
H	24	150	350		NO	C165535000	R932000693
L	24	150	350		YES	C165540000	R932008749



Starting Relay High Performance (silver plate contact)

Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
C	12	150	350	IP54	NO	C165524000	R932000690
E	24	150	350		NO	C165525000	R932000691

Plastic Protection

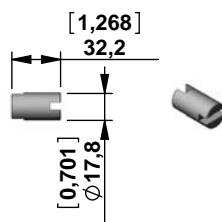


Code	Type	Material Number
0	Without Protection	-
1	With Protection	K229701000 R932002246

Kit for assembly plastic protection

Type	Material Number
K01K211518000	R932009439

Junction Elements for D.C. Electric Motor

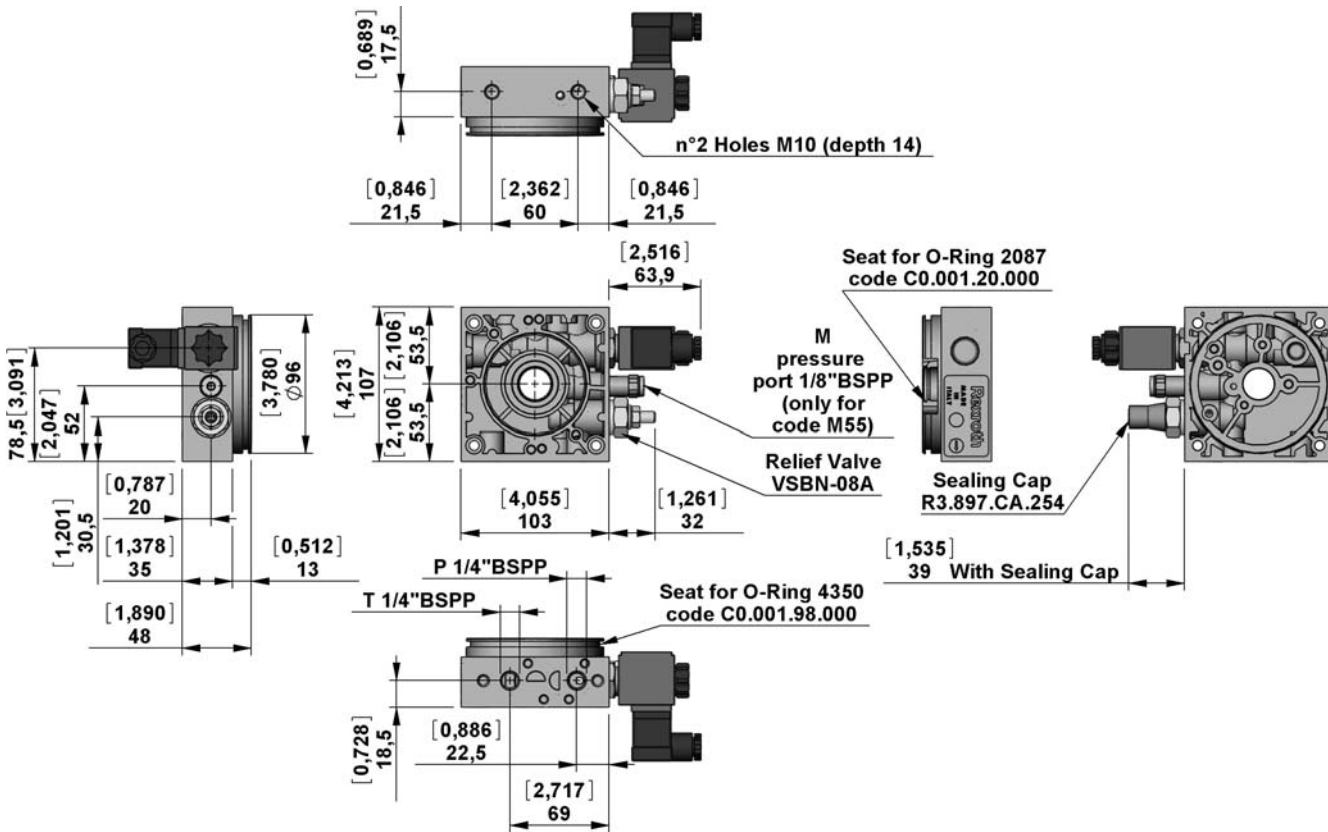


Junction Elements for manifolds **ME** series

Code	Type	Material Number
E31	K01K3970TR008	R932001907

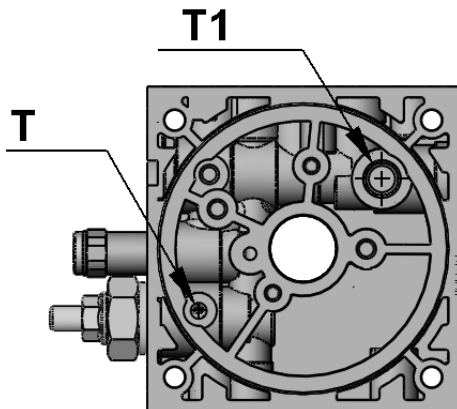
Central Manifold ME

M52 - M55



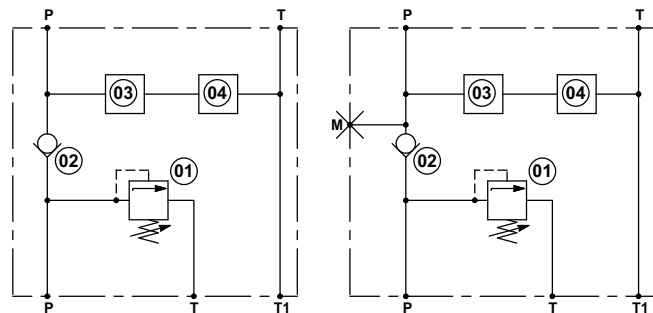
View Manifold Tank side

Manifold Hydraulic Diagram



M52

M55



M52

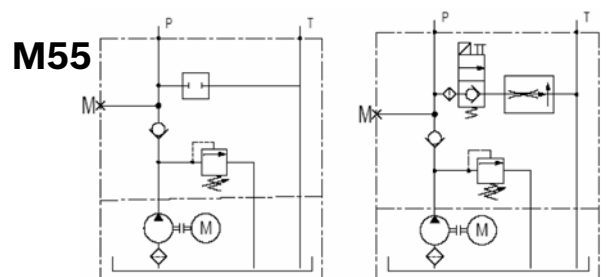
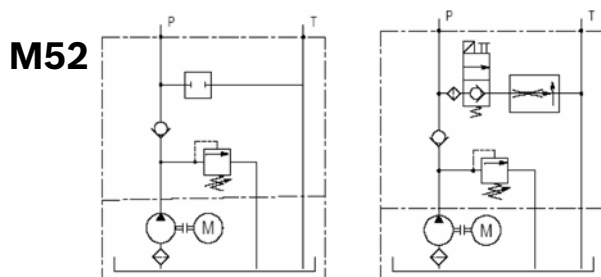
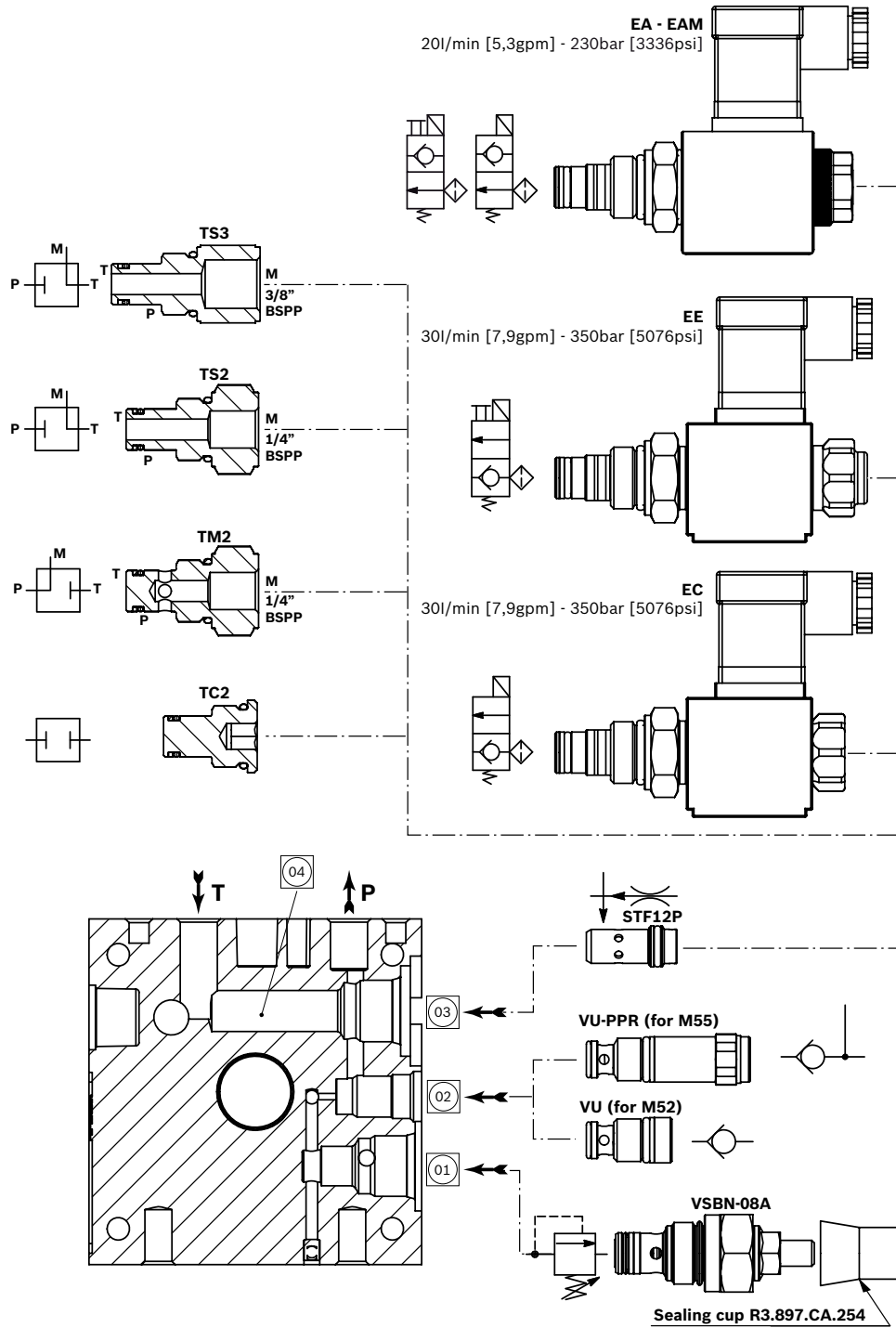
Manifold Code with Relief Valve Pressure Range	Pressure Range bar [psi]	Type	Material Number
M52/05	10-70 [145-1015]	452A000	R932008635
M52/10	35-140 [508-2030]	452B000	R932008636
M52/20	105-210 [1523-3046]	452C000	R932008637
M52/35	175-350 [2538-5076]	452D000	R932008638

M55

Manifold Code with Relief Valve Pressure Range	Pressure Range bar [psi]	Type	Material Number
M55/05	10-70 [145-1015]	455A000	R932008639
M55/10	35-140 [508-2030]	455B000	R932008640
M55/20	105-210 [1523-3046]	455C000	R932008641
M55/35	175-350 [2538-5076]	455D000	R932008642

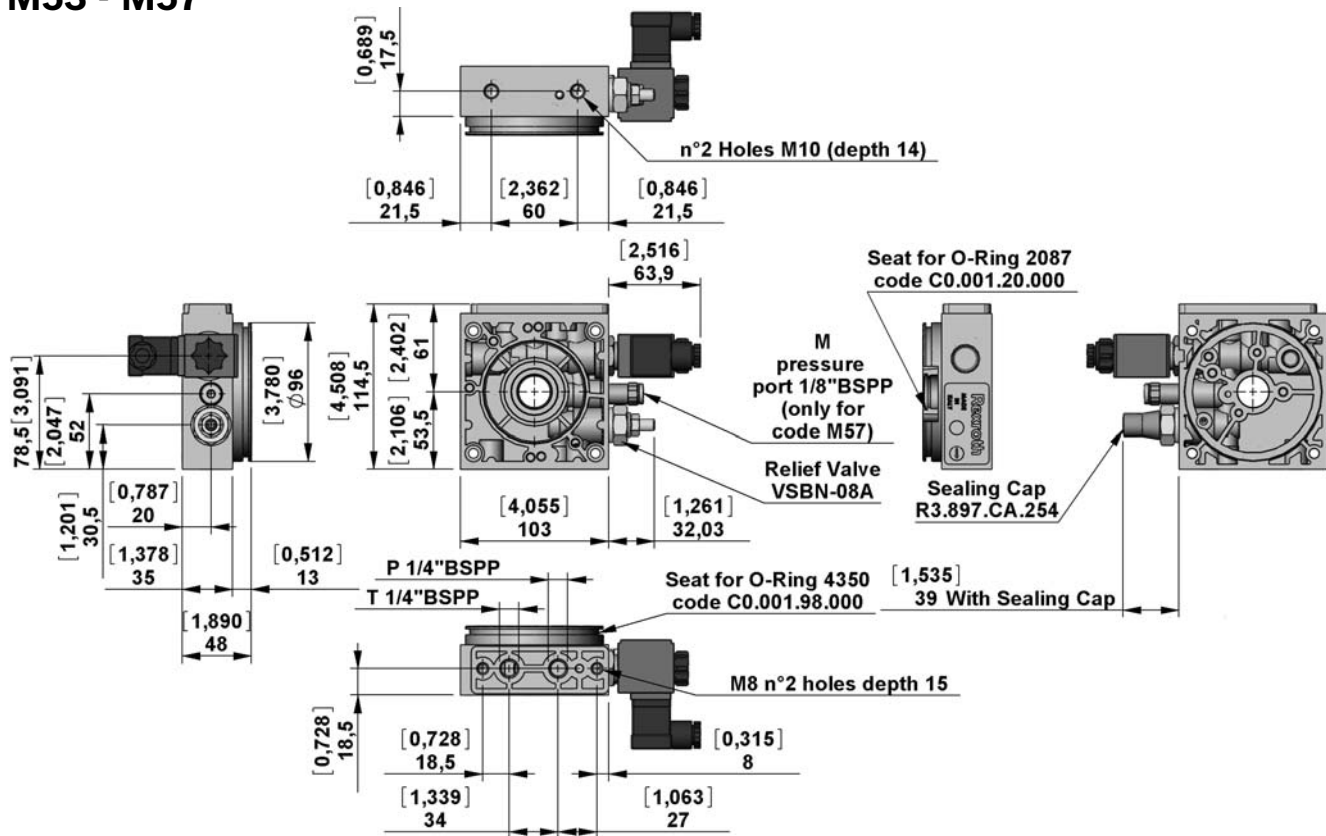
Central Manifold ME

M52-M55 with valves



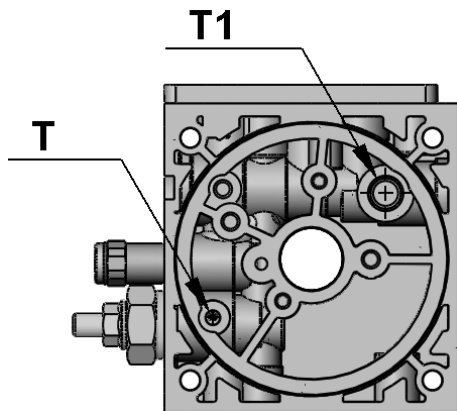
Central Manifold ME

M53 - M57



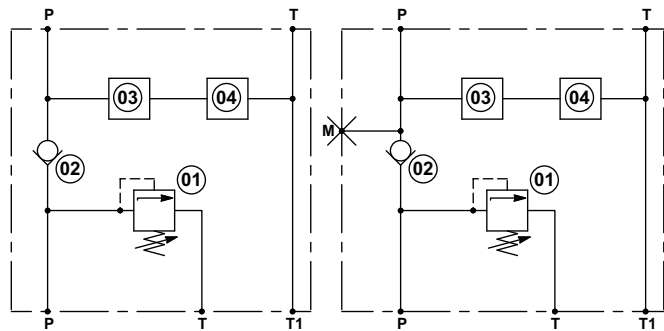
View Manifold Tank side

Manifold Hydraulic Diagram



M53

M57



M53

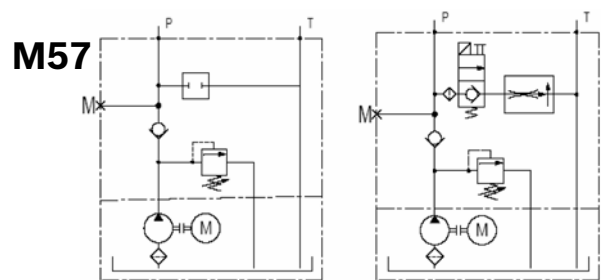
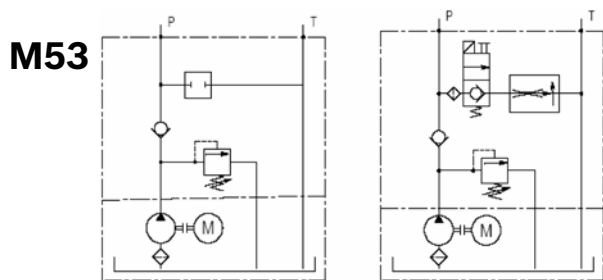
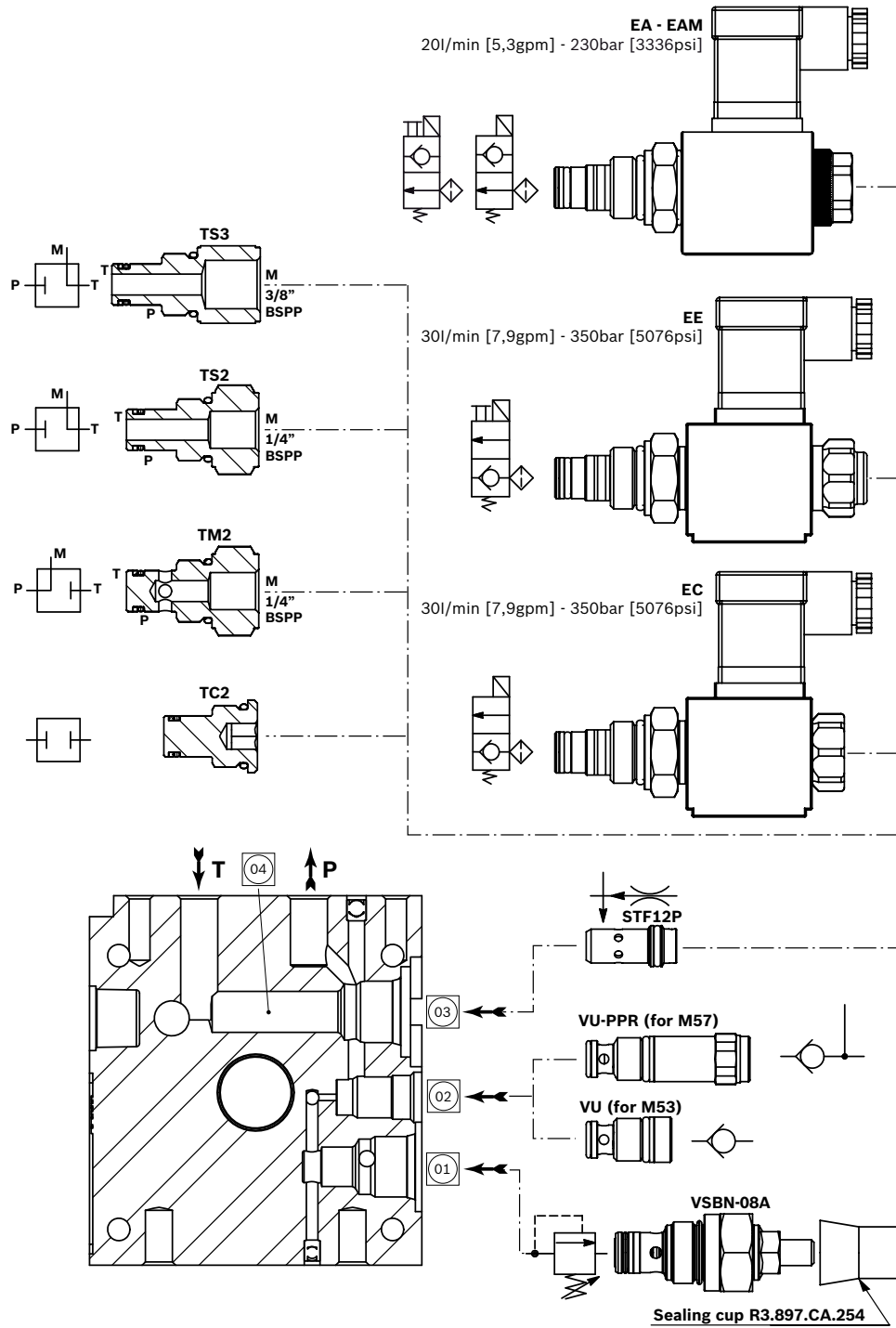
Manifold Code with Relief Valve Pressure Range	Pressure Range bar [psi]	Type	Material Number
M53/05	10-70 [145-1015]	453A000	R932008627
M53/10	35-140 [508-2030]	453B000	R932008628
M53/20	105-210 [1523-3046]	453C000	R932008629
M53/35	175-350 [2538-5076]	453D000	R932008630

M57

Manifold Code with Relief Valve Pressure Range	Pressure Range bar [psi]	Type	Material Number
M57/05	10-70 [145-1015]	457A000	R932008631
M57/10	35-140 [508-2030]	457B000	R932008632
M57/20	105-210 [1523-3046]	457C000	R932008633
M57/35	175-350 [2538-5076]	457D000	R932008634

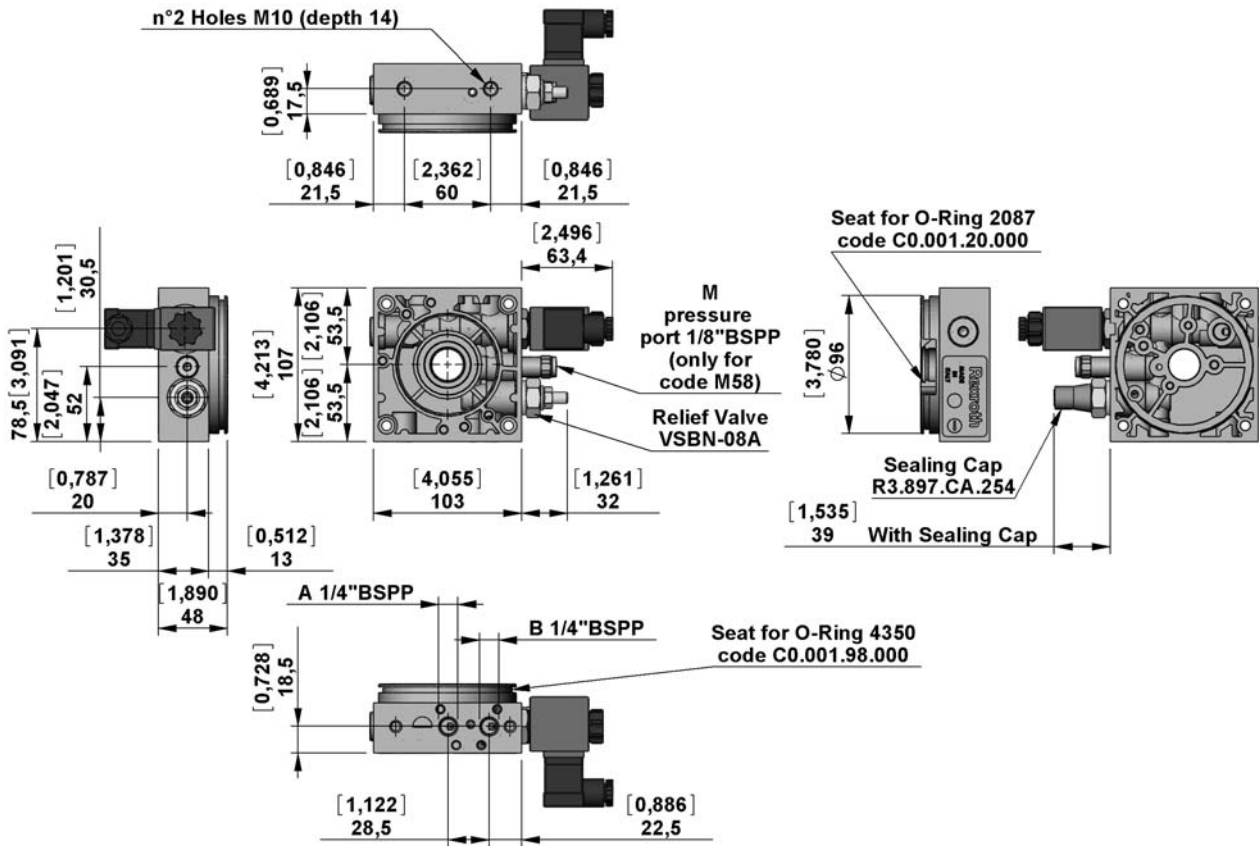
Central Manifold ME

M53-M57 with valves



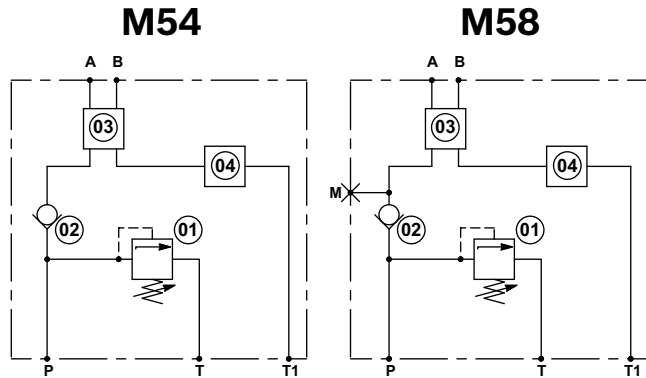
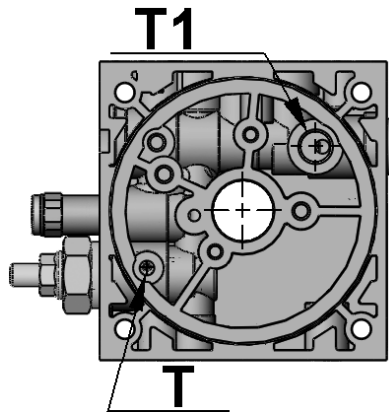
Central Manifold ME

M54 - M58



View Manifold Tank side

Manifold Hydraulic Diagram



M54

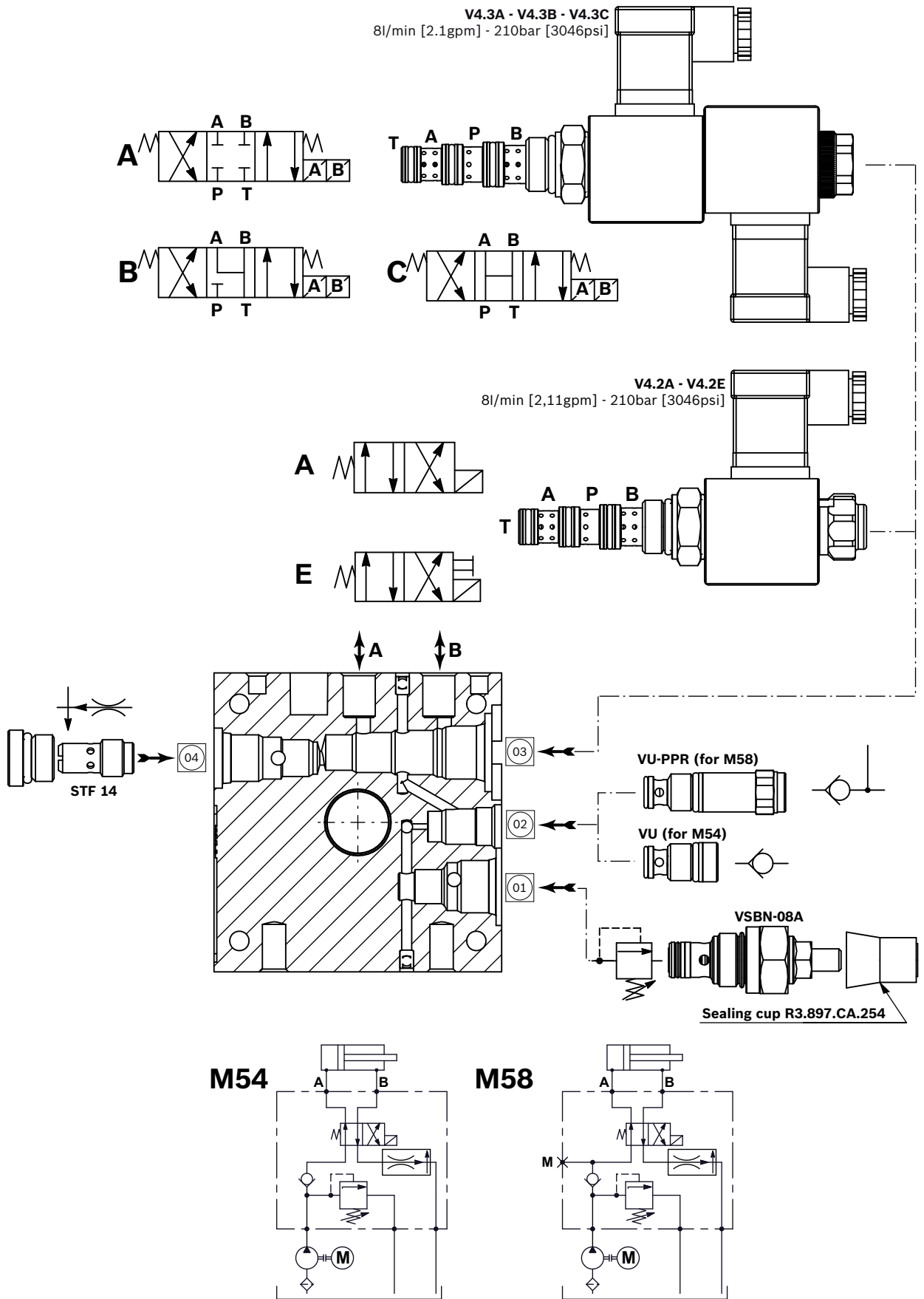
Manifold Code with Relief Valve Pressure Range	Pressure Range bar [psi]	Type	Material Number
M54/05	10-70 [145-1015]	454A000	R932008619
M54/10	35-140 [508-2030]	454B000	R932008620
M54/20	105-210 [1523-3046]	454C000	R932008621
M54/35	175-350 [2538-5076]	454D000	R932008622

M58

Manifold Code with Relief Valve Pressure Range	Pressure Range bar [psi]	Type	Material Number
M58/05	10-70 [145-1015]	458A000	R932008623
M58/10	35-140 [508-2030]	458B000	R932008624
M58/20	105-210 [1523-3046]	458C000	R932008625
M58/35	175-350 [2538-5076]	458D000	R932008626

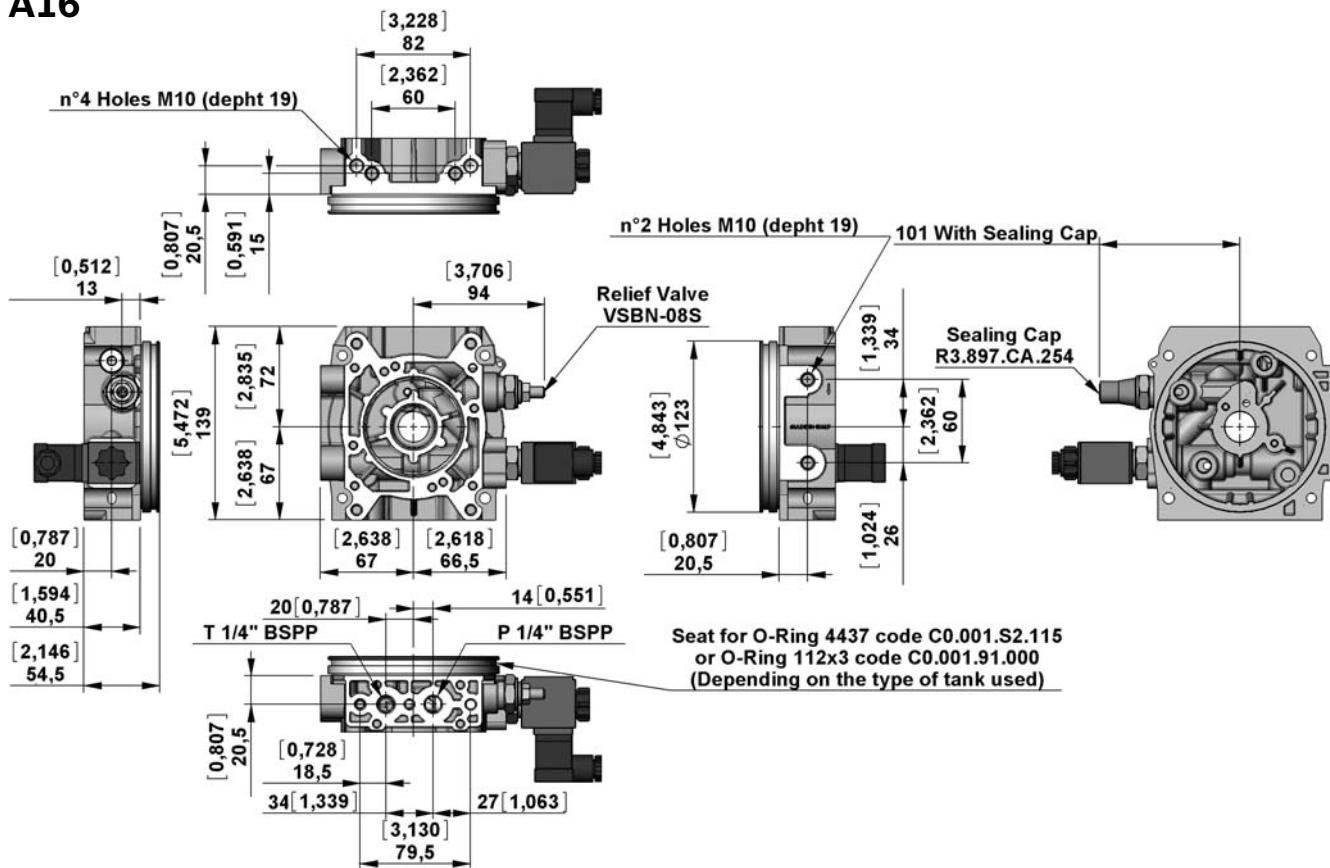
Central Manifold ME

M54-M58 with valves

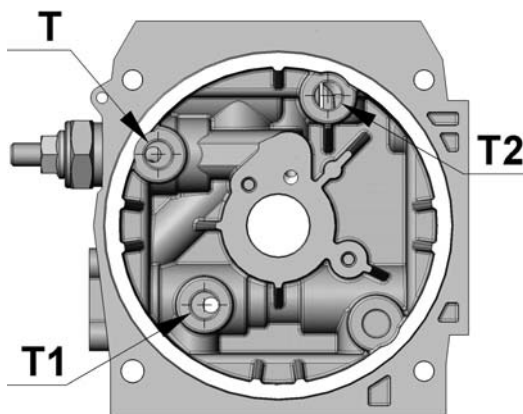


Central Manifold ME

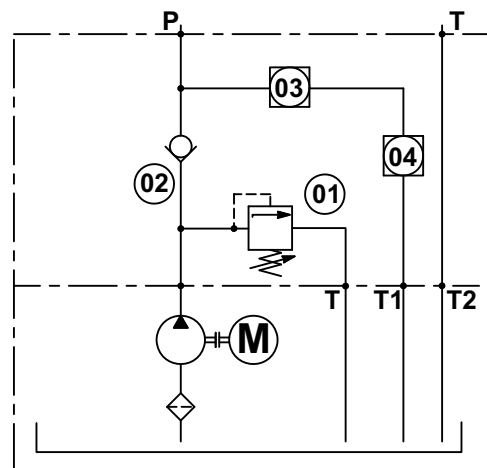
A16



View Manifold Tank side



Manifold Hydraulic Diagram

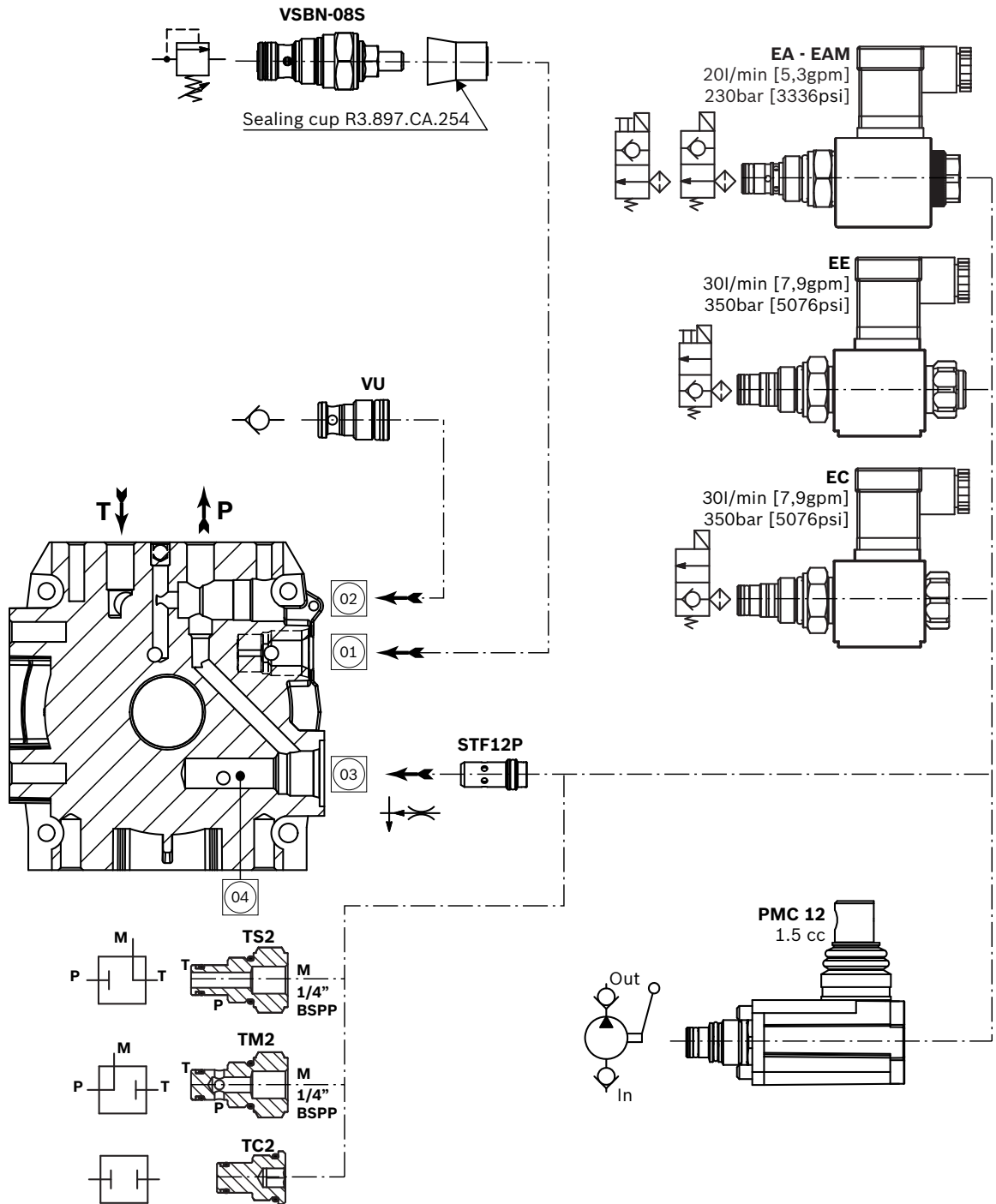


A16

Manifold Code with Relief Valve Pressure Range	Pressure Range bar [psi]	Type	Material Number
A16/05	10-70 [145-1015]	116A000	R932008691
A16/10	35-140 [508-2030]	116B000	R932008692
A16/20	105-210 [1523-3046]	116C000	R932008693
A16/35	175-350 [2538-5076]	116D000	R932008694

Central Manifold ME

A16 with valves

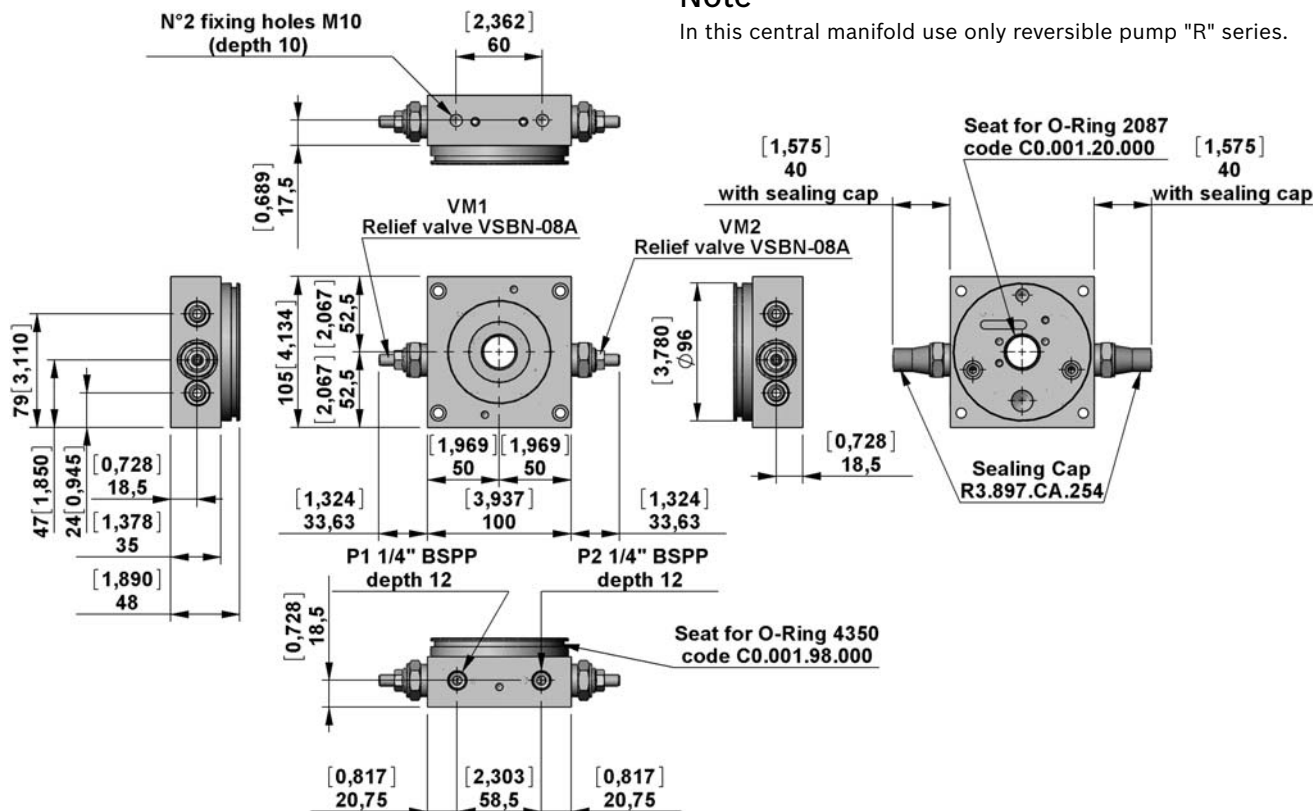


Central Manifold MR

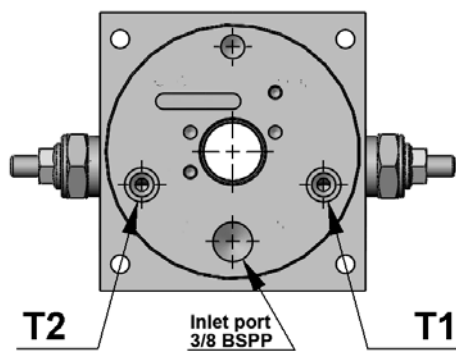
A10

Note

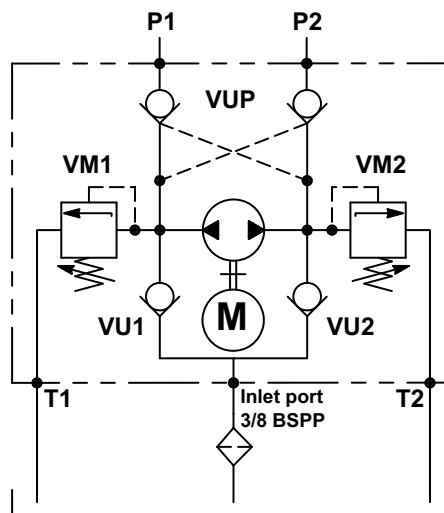
In this central manifold use only reversible pump "R" series.



View Manifold Tank side



Manifold Hydraulic Diagram



A10

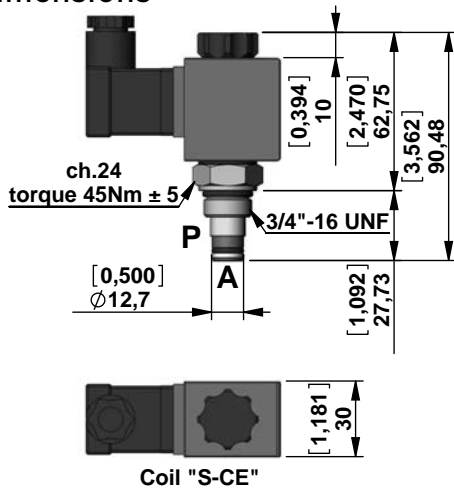
Manifold Code with Relief Valve Pressure Range	Pressure Range bar [psi]	Type	Material Number
10/05	10-70 [145-1015]	810A000	R932009778
10/10	35-140 [508-2030]	810B000	R932009779
10/20	105-210 [1523-3046]	810C000	R932009780

NOTE: In the central manifold MR series is possible connect only the following motors:
 DC motor code: C105 - C152 - C153 - C67 - C94
 AC motor from size IEC56 to size IEC71.

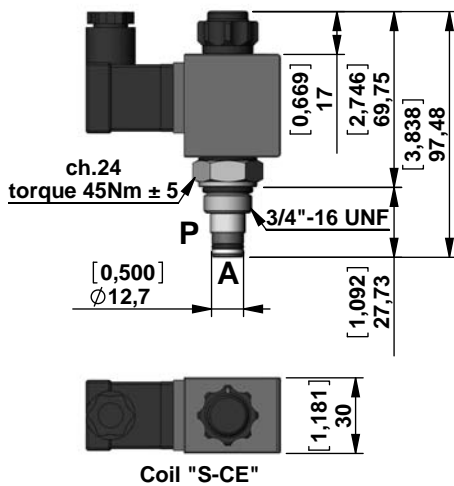
Built-in Valve

VE3-NC Series

EC Dimensions



EE Dimensions



2 Way Pilot Operated Solenoid Valves, Normally Closed for D.C. current

Code	Type	Material Number
EC	K01V389671A20	R932009180
EE	K01V389671E20	R932009181

Description

This is a standard 2 way pilot operated valves poppet style.

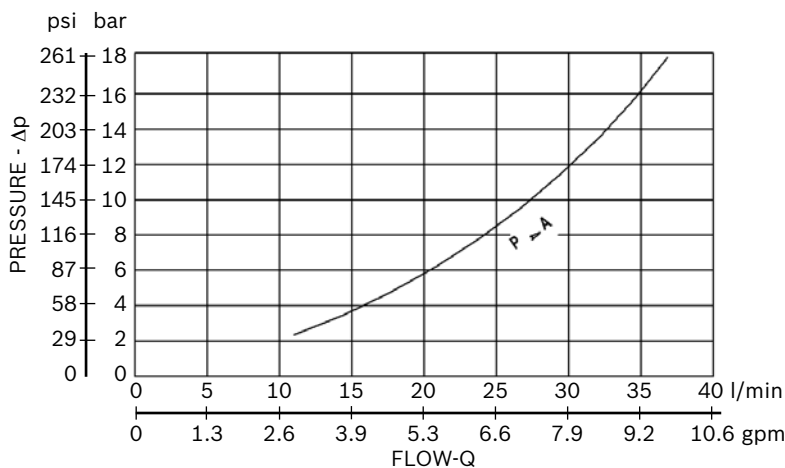
- **Only for D.C. current.**
- Internal leakage: see technical data.
- Minimum operating voltage: 90% of nominal.
- Screen on P 300 Micron.
- Screw Type Emergency on EE.

Technical Data

Operating time	ms	Opening 30-40 Closing 60-85
Max. working pressure	bar [psi]	350 [5076]
Max. flow	l/min [gpm]	30 [7,92]

Valve symbol

Code	Symbol	Operating features with solenoid	
		De-energized	Energized
EC		P ◊ A	P → A
EE		P ◊ A	P → A



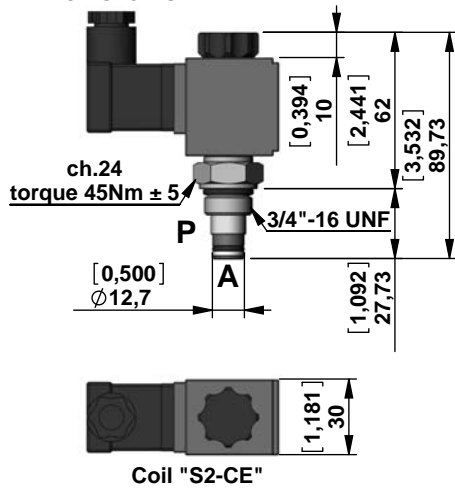
S-CE Coil Voltage Available

Voltage
12 Volts D.C.
24 Volts D.C.
48 Volts D.C.
12 Volts D.C.
24 Volts D.C.
24 Volts RAC
48 Volts RAC
110 Volts RAC
220 Volts RAC

Built-in Valve

VE1-NC Series

ECA Dimensions



2 Way Pilot Operated Solenoid Valves, Normally Closed for A.C. current

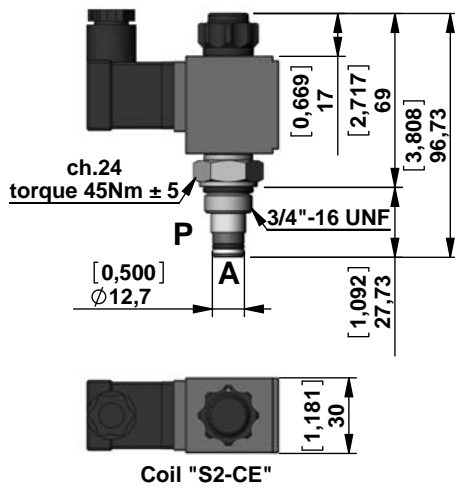
Code	Type	Material Number
ECA	K01V389669A20	R932009182
EEA	K01V389669E20	R932009183

Description

This is a standard 2 way pilot operated valves poppet style.

- **Only for A.C. current.**
- Internal leakage: see technical data.
- Minimum operating voltage: 90% of nominal.
- Screen on P 300 Micron.
- Screw Type Emergency on EEA.

EEA Dimensions

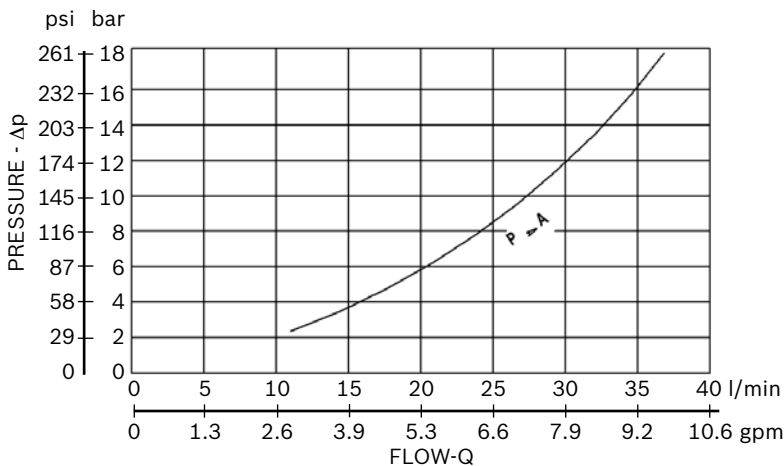


Technical Data

Operating time	ms	Opening 30-40
		Closing 60-85
Max. working pressure	bar [psi]	350 [5076]
Max. flow	l/min [gpm]	30 [7,92]

Valve symbol

Code	Symbol	Operating features with solenoid	
		De-energized	Energized
ECA		P ◊ A	P → A
EEA		P ◊ A	P → A



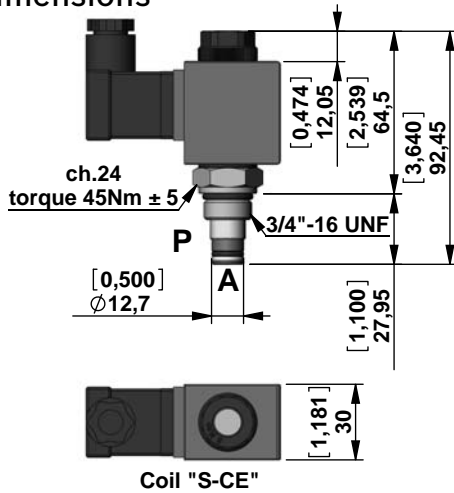
S2-CE Coil Voltage Available

Voltage
24 Volts 50 Hz A.C.
220 Volts 50 Hz A.C.
24 Volts 60 Hz A.C.
220 Volts 60 Hz A.C.
24 Volts 50-60 Hz A.C.

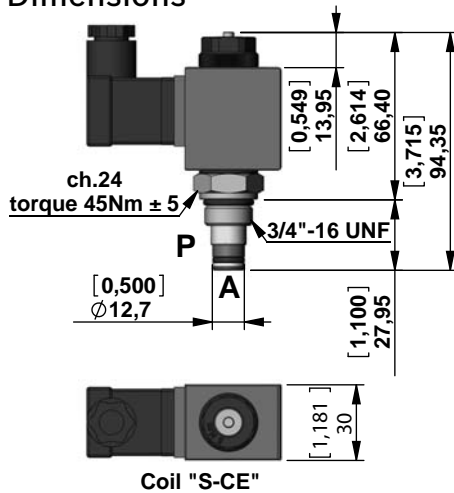
Built-in Valve

VE3-NA Series

EA Dimensions



EAM Dimensions



2 Way Pilot Operated Solenoid Valves, Normally Open

Code	Type	Material Number
EA	K01V389674A20	R932009184
EAM	K01V389674E20	R932009185

Description

This is a standard 2 way pilot operated valves poppet style.

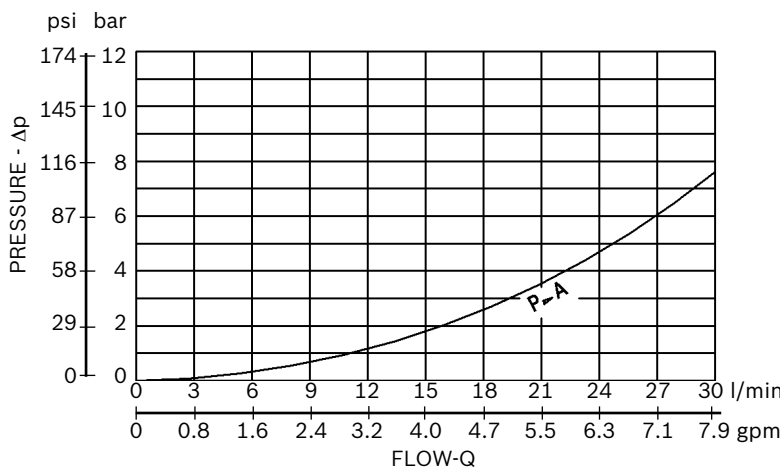
- **Only for D.C. current.**
- Internal leakage: see technical data.
- Minimum operating voltage: 90% of nominal.
- Screen on P 300 Micron.
- Push Type Emergency on EAM.

Technical Data

Max. working pressure	bar [psi]	230 [3336]
Max. flow	l/min [gpm]	20 [5,28]

Valve symbol

Code	Symbol	Operating features with solenoid	
		De-energized	Energized
EA		P → A	P ◊ A
EAM		P → A	P ◊ A



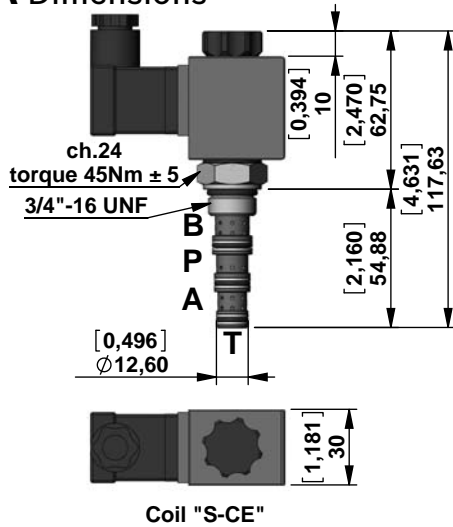
S-CE Coil Voltage Available

Voltage
12 Volts D.C.
24 Volts D.C.
48 Volts D.C.
12 Volts D.C.
24 Volts D.C.
24 Volts RAC
48 Volts RAC
110 Volts RAC
220 Volts RAC

Built-in Valve

V4DS-2P Series

V4.2A Dimensions



**4 Way 2 Position Solenoid Valves
Spool Type**

Code	Type	Material Number
V4.2A	K01V389656A00	R932009300
V4.2E	K01V389656E00	R932009301

Description

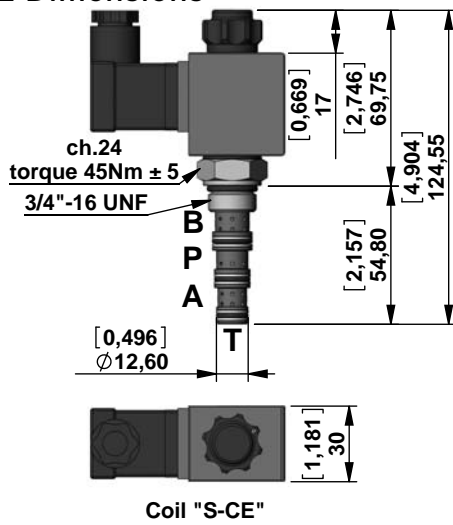
4 Way 2 Position Solenoid Valves Spool Type

- **Only for D.C. current.**
- Minimum operating voltage: 90% of nominal.
- Screw Type Emergency on V4.2E.

Technical Data

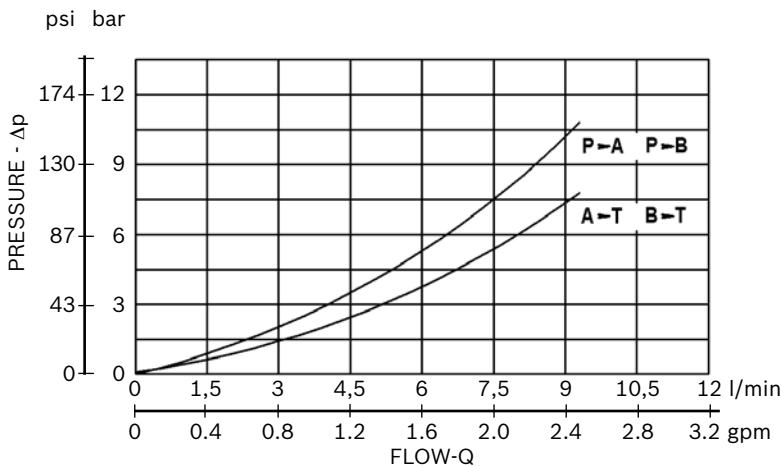
Max. working pressure	bar [psi]	210 [3046]
Max. flow	l/min [gpm]	8 [2,11]

V4.2E Dimensions



Valve symbol

Code	Symbol	Operating features with solenoid	
		De-energized	Energized
V4.2A		P ↔ A B ↔ T	P ↔ B A ↔ T
V4.2E		P ↔ A B ↔ T	P ↔ B A ↔ T



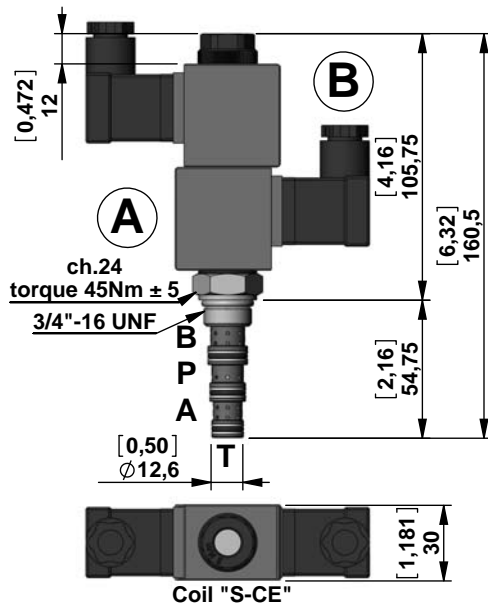
S-CE Coil Voltage Available

Voltage
12 Volts D.C.
24 Volts D.C.
48 Volts D.C.
12 Volts D.C.
24 Volts D.C.
24 Volts RAC
48 Volts RAC
110 Volts RAC
220 Volts RAC

Built-in Valve

V4DS-3P Series

Dimensions



**4 Way 3 Position Solenoid Valves
Spool Type**

Code	Type	Material Number
V4.3A	K01V389657A00	R932009303
V4.3B	K01V389657B00	R932009304
V4.3C	K01V389657C00	R932009305

Description

4 Way 3 Position Solenoid Valves Spool Type

- **Only for D.C. current.**

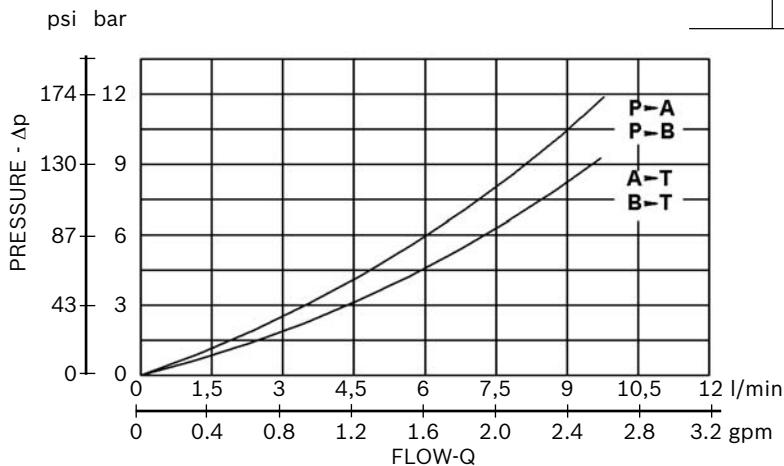
- Minimum operating voltage: 90% of nominal.

Technical Data

Max. working pressure	bar [psi]	210 [3046]
Max. flow	l/min [gpm]	8 [2,11]

Valve symbol

Code	Symbol	Operating features with solenoid		
		Energized A	De-energized	Energized B
V4.3A		P → B A → T	P P A ↔ A B B T T	P → A B → T
V4.3B		P → B A → T	A → T B → T P ↔	P → A B → T
V4.3C		P → B A → T	P P A ↔ A B B T T	P → A B → T



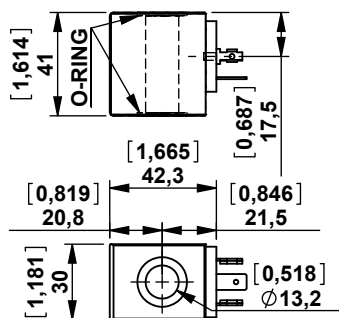
S-CE Coil Voltage Available

Voltage
12 Volts D.C.
24 Volts D.C.
48 Volts D.C.
12 Volts D.C.
24 Volts D.C.
24 Volts RAC
48 Volts RAC
110 Volts RAC
220 Volts RAC

Built-in Valve

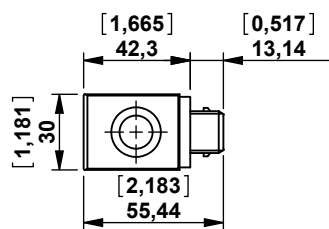
COIL Model S-CE – 18W – ED 100% for valves VE3-NC, VE3-NA, V4DS-2P, V4DS-3P Series

- Coil protection: Polyamide resin with fiber glass for Heat insulation class F (155°C [311°F])
IXEF for Heat insulation class H (180°C [356°F])
- Solenoids “S-CE” (18 W) are designed for continuous duty ED100%.
- Ambient temperature range : -15°/+40°
- Inlet voltage fluctuations must not exceed +/- 10% of nominal voltage to obtain correct operations and long life coils
- Protection degree: see tables below



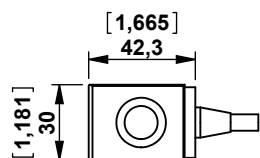
DIN 43650 - ISO 4400 IP65 with connector assembled

Code	Voltage	Heat Insulation class	Type	Material Number
OB	12 Volts D.C.	F (155°C) [311°F]	C166455OB1	R932000804
OC	24 Volts D.C.	F (155°C) [311°F]	C166455OC1	R932000805
OD	48 Volts D.C.	F (155°C) [311°F]	C166455OD1	R932000806
OBH	12 Volts D.C.	H (180°C) [356°F]	C166462OB1	R932000819
OCH	24 Volts D.C.	H (180°C) [356°F]	C166462OC1	R932000820
OV	24 Volts RAC	H (180°C) [356°F]	C166462OV1	R932000821
OK	48 Volts RAC	H (180°C) [356°F]	C166462OK1	R932008238
OW	110 Volts RAC	H (180°C) [356°F]	C166462OW1	R932008239
OZ	220 Volts RAC	H (180°C) [356°F]	C166462OZ1	R932000822



AMP JUNIOR IP67

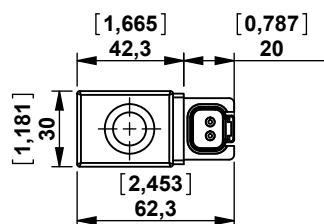
Code	Voltage	Heat Insulation class	Type	Material Number
OBA	12 Volts D.C.	F (155°C) [311°F]	C166458OB1	R932000815
OCA	24 Volts D.C.	F (155°C) [311°F]	C166458OC1	R932000816



SINGLE LEAD IP54

Code	Voltage	Heat Insulation class	Type	Material Number
OBL	12 Volts D.C.	F (155°C) [311°F]	C166467OB00600F	R932009109
OCL	24 Volts D.C.	F (155°C) [311°F]	C166467OC00600F	R932007010

Cable Length 600mm



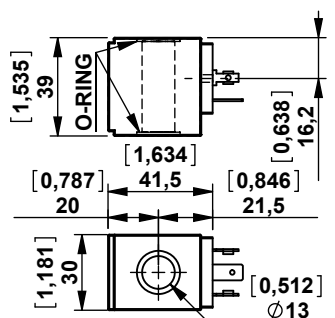
DEUTSCH DT04-2P-V IP67

Code	Voltage	Heat Insulation class	Type	Material Number
OBD	12 Volts D.C.	F (155°C) [311°F]	C166463OB1	R932000823
OCD	24 Volts D.C.	F (155°C) [311°F]	C166463OC1	R932009110

Built-in Valve

COIL Model **S2-CE** – 18W – ED 100% for valves VE1-NC Series

- Coil protection: Polyamide resin with fiber glass for Heat insulation class F (155°C) [311°F].
- Solenoids “S2-CE” (18 W) are designed for continuous duty ED100%.
- Ambient temperature range : -15°/+40°
- Inlet voltage fluctuations must not exceed +/- 10% of nominal voltage to obtain correct operations and long life coils
- Protection degree: IP65 IEC 144 – DIN 40050 (total protection against dust and low pressure jets) with connector



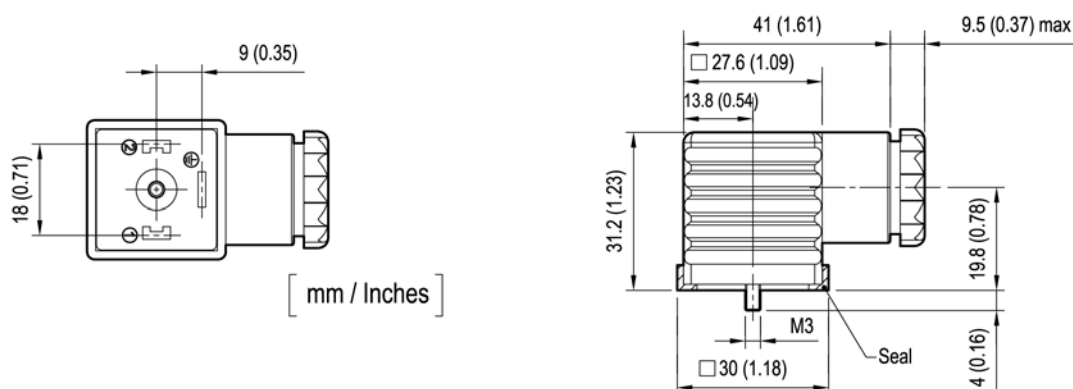
DIN 43650 - ISO 4400 IP65 (with connector assembled)

Code	Voltage	Heat Insulation class	Type	Material Number
OH	24 Volts 50 Hz A.C.	F (155°C) [311°F]	C166401OH1	R932000762
ON	220 Volts 50 Hz A.C.	F (155°C) [311°F]	C166401ON1	R932000766
OP	24 Volts 60 Hz A.C.	F (155°C) [311°F]	C166401OP1	R932000767
OS	220 Volts 60 Hz A.C.	F (155°C) [311°F]	C166401OS1	R932000769
OU	24 Volts 50-60 Hz A.C.	F (155°C) [311°F]	C166401OU1	R932000771

Built-in Valve

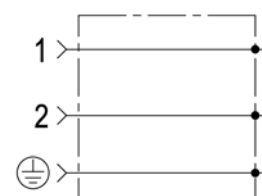
CONNECTOR IP67 - EN175000 (DIN 4350-A) / ISO 4400

Ambient temperature - Standard	°C [°F]	- 20 to + 60 [-4 to +140°F]
Type of protection according to DIN 40050		IP67 with cable socket mounted and locked
Operating voltage	V	Choose the proper ordering code according to the circuit
Maximum operating current - Standard	A	16
	- With rectifier	A
Number of pins		2 + PE
Clamping range for cables having an outer diameter of	mm [inch]	5, up to 10 [0,2 up to 0,4]
Cable entry		Pg9 / Pg11 (unified)
Maximum cable cross-section	mm ² [inch ²]	1.5 [0,002]



Standard Circuit

Code	Colour	Cable entry	Type	Material Number
WC	Without Connector			
CS	black	Pg9 / Pg11	OD016901000000	R934004344
	grey	Pg9 / Pg11	OD016901000003	R934004346

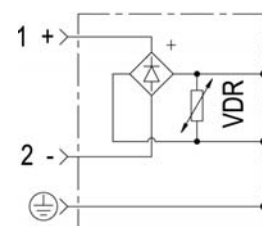


NOTE: Black is the standard colour. Grey is used in case of valves with 2 coils (V4DS-3P Series).

Circuit with VDR + Wave Rectifier

Note: diode with capacity max 1 Amp.

Code	Voltage V		Diode Capacity I max	Colour	Cable entry	Type	Material Number
	AC	DC					
CR	230	/	1 A	black	Pg9 / Pg11	OD01690201OZ00	R934004353



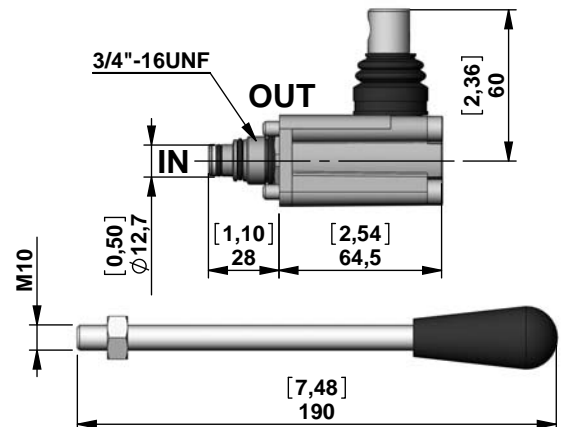
Built-in Valve

PMC12 Order Code for Lever (only for manifold code A16)


Type	Material Number
K250113000	R932002448

Technical Data

Max. working pressure	bar [psi]	300 [4500]
Displacement	cc	1,5



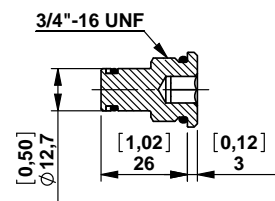
Hand pump (1.5cc)

Code	Diagram	Type with lever	Material Number with lever
PMC12		K01V388540LV190	R932009298

Built-in Valve

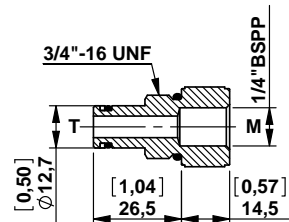
Plug for Cavity

Code	Diagram	Type	Material Number
TC2		R3897TA001	R932003193



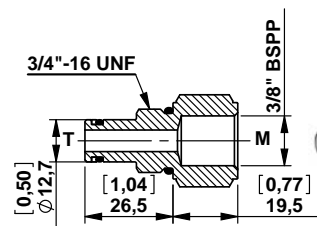
1/4" Auxiliary Return Port

Code	Diagram	Type	Material Number
TS2		R3897TA304	R932003214



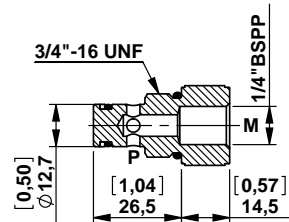
3/8" Auxiliary Return Port

Code	Diagram	Type	Material Number
TS3		R3897TA147	R932003195



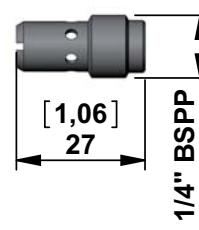
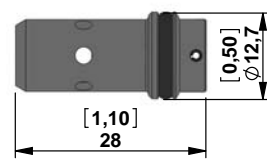
1/4" Auxiliary Pressure Port

Code	Diagram	Type	Material Number
TM2		R3897TA305	R932003215



Flow Control Valves Pressure Compensated

Code	l/min [gpm]	Diagram	Type	Material Number	
STF12P	A	1 [0,3]		V38953600A	R932003940
	B	2 [0,5]		V38953600B	R932003941
	C	3 [0,8]		V38953600C	R932003942
	D	4 [1,1]		V38953600D	R932003943
	E	5 [1,3]		V38953600E	R932003944
	F	6 [1,6]		V38953600F	R932003945
	G	7 [1,9]		V38953600G	R932003946
	H	8 [2,1]		V38953600H	R932003947
	I	9 [2,4]		V38953600I	R932003948
	L	10 [2,6]		V38953600L	R932003949
STF14	A	1 [0,3]		V38950100A	R932003836
	B	2 [0,5]		V38950100B	R932003837
	C	3 [0,8]		V38950100C	R932003838
	D	4 [1,1]		V38950100D	R932003839
	E	5 [1,3]		V38950100E	R932003840
	F	6 [1,6]		V38950100F	R932003841
	G	7 [1,9]		V38950100G	R932003842
	H	8 [2,1]		V38950100H	R932003843
	I	9 [2,4]		V38950100I	R932003844
	L	10 [2,6]		V38950100L	R932003846

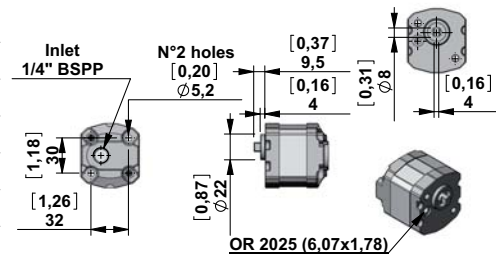


Gear Pumps

Gear Pumps Group 0.5 for ME

Please Note: All pumps have anti-clockwise rotation.

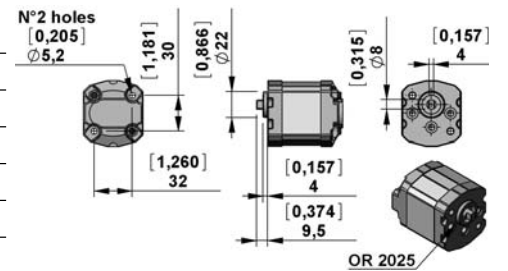
Code	Displacement cc/rev	Flow at 1500 rpm l/min [gpm]	P2 bar [psi]	P3 bar [psi]	Type	Material Number
L1	0,18	0,27 [0,07]	190 [2756]	230 [3336]	K01CV641L1000	R932007490
L2	0,25	0,37 [0,10]	190 [2756]	230 [3336]	K01CV641L200C	R932007491
L3	0,50	0,75 [0,20]	190 [2756]	230 [3336]	K01CV641L300C	R932007492
L5	0,75	1,12 [0,30]	190 [2756]	230 [3336]	K01CV641L500C	R932007494
L6	1,00	1,50 [0,40]	190 [2756]	230 [3336]	K01CV641L600C	R932007495
L7	1,25	1,87 [0,50]	190 [2756]	230 [3336]	K01CV641L700C	R932007496
L8	1,50	2,25 [0,60]	190 [2756]	230 [3336]	K01CV641L800C	R932007497



P2: intermittent max Pressure.
P3: peak Max Pressure (max 2 seconds).

Reversible Gear Pumps Group 0.5 for MR

Code	Displacement cc/rev	Flow at 1500 rpm l/min [gpm]	P2 bar [psi]	P3 bar [psi]	Type	Material Number
R1	0,24	0,36 [0,09]	170 [2465]	190 [2756]	C1641R100M	R932000678
R2	0,48	0,72 [0,19]	170 [2465]	190 [2756]	C1641R200M	R932000681
R3	0,61	0,92 [0,24]	170 [2465]	190 [2756]	C1641R300M	R932000682
R4	0,84	1,26 [0,33]	170 [2465]	190 [2756]	C1641R400M	R932000683
R5	0,97	1,50 [0,40]	170 [2465]	190 [2756]	C1641R500M	R932000684
R6	1,22	1,83 [0,48]	170 [2465]	190 [2756]	C1641R600M	R932008245
R7	1,50	2,25 [0,59]	170 [2465]	190 [2756]	C1641R700M	R932000685



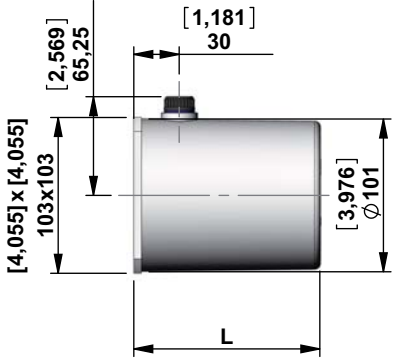
P2: intermittent max Pressure.
P3: peak Max Pressure (max 2 seconds).

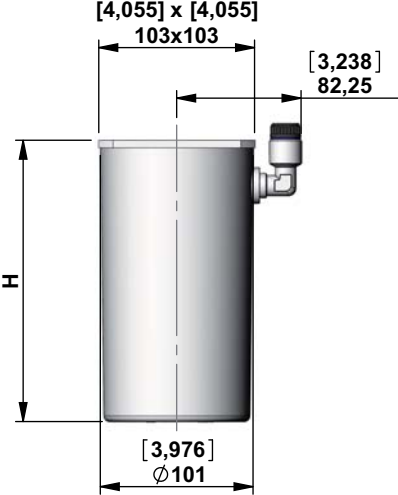
Oil Tanks

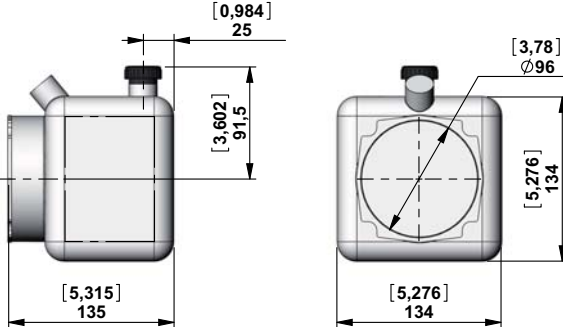
Technical Data for Plastic Tanks

Temperature range	°C [°F]	-15....+70 [5....158]
Materials	PE=Polyethylene - PP=Polypropilene	
Seal	For all the plastic Tanks use O-ring 4350 (Ø88,5x3,53) Code: C00198000 Material-Number: R932000191	

Plastic Tanks

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	L mm [inch]	Material	Type	Material Number	
S284	0,5 [0,13]	0,4 [0,11]	123 [4,84]	PP	K01M3976SE318	R932002054	
S286	1 [0,26]	0,7 [0,18]	186 [7,32]		K01M3976SE320	R932002056	

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	H mm [inch]	Material	Type	Material Number	
S285	0,5 [0,13]	0,4 [0,11]	123 [4,84]	PP	K01M3976SE319	R932002055	
S287	1 [0,26]	0,7 [0,18]	186 [7,32]		K01M3976SE321	R932002057	

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	Material	Type	Material Number	
S270	1 [0,26]	0,9 [0,24]	PE	K01X3976SE303	R932002077	

Oil Tanks

Plastic Tanks

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	L mm [inch]	Material	Type	Material Number	
S271	1,8 [0,48]	1,6 [0,42]	170 [6,71]	PE	K01X3976SE304	R932002078	
S272	2,5 [0,66]	2,2 [0,58]	240 [9,45]		K01X3976SE305	R932002079	

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	H mm [inch]	Material	Type	Material Number	
S273	1 [0,26]	0,9 [0,24]	135 [5,31]	PE	K01X3976SE306	R932002080	
S274	1,8 [0,48]	1,6 [0,42]	170 [6,71]		K01X3976SE307	R932002081	
S275	2,5 [0,66]	2,2 [0,58]	240 [9,45]		K01X3976SE308	R932002082	

Assembly Kit for Plastic Tank - ME

Oil Tank	Code	Material Number	Please make sure that the tank and motor are mounted correctly
S270 - S271 - S272 - S273 - S274 - S275	K2501VT005	R932002435	
S284 - S285 - S286 - S287	K2501VT009	R932002438	

Oil Tanks

Technical Data for Steel Tanks

Temperature range	°C [°F]	-15....+80 [5....176]
Materials		Steel
Colors		Black paint finish
Seal		For all the steel tanks with Ø99 is necessary to use O-Ring 4350 (Ø88,5x3,53) on the central manifold. Code:C000198000 - Material-Number:R932000188 If is necessary to use a tank designed for KE-K (Ø123mm) must use the O-ring 4350 on the manifold and add the flange S81.

Collar for Tanks

Code	Description	Type	Material Number	
S81	This adaptor allows you to use steel tanks designed for KE-K (Ø123 mm) with ME manifolds (Ø96 mm)	K01K3976SM091	R932002053	

Steel Tanks

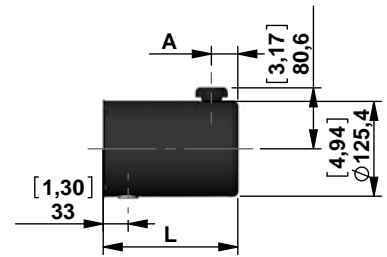
Code	Tank capacity l [USgal]	Useable capacity l [USgal]	L mm [inch]	A mm [inch]	Type	Material Number	
S266	0,5 [0,13]	0,4 [0,11]	120 [4,72]	32 [1,26]	K01X3976SE299	R932002073	
S267	1 [0,26]	0,7 [0,18]	184 [7,24]	32 [1,26]	K01X3976SE300	R932002074	
S183	1 [0,26]	0,7 [0,18]	184 [7,24]	154 [6,06]	K01X3976SE213	R932002072	

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	H mm [inch]	Type	Material Number	
S294	0,5 [0,13]	0,4 [0,11]	120 [4,72]	K01X3976SE328	R932002083	
S295	1 [0,26]	0,7 [0,18]	184 [7,24]	K01X3976SE329	R932002084	
S268	0,5 [0,13]	0,4 [0,11]	120 [4,72]	K01X3976SE301	R932002075	
S269	1 [0,26]	0,7 [0,18]	184 [7,24]	K01X3976SE302	R932002076	

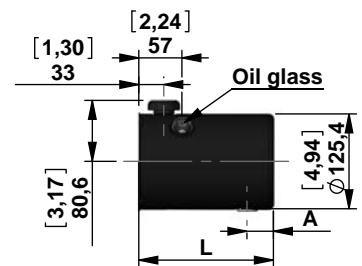
Oil Tanks

Steel Tanks

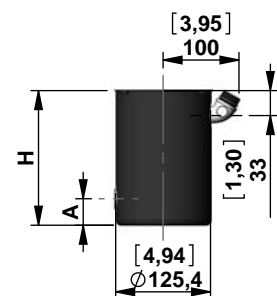
Code	Tank capacity l [USgal]	Useable capacity l [USgal]	L mm [inch]	A mm [inch]	Type	Material Number
S01	1 [0,26]	0,7 [0,18]	133 [5,24]	35 [1,38]	K01K3976SE001	R932001937
S20	1,8 [0,48]	1,2 [0,32]	178 [7,01]	35 [1,38]	K01K3976SE026	R932001953
S02	2,5 [0,66]	1,7 [0,45]	238 [9,37]	60 [2,36]	K01K3976SE003	R932001939
S161	3 [0,79]	2,3 [0,61]	280 [11,02]	60 [2,36]	K01K3976SE186	R932001987
S107	4 [1,06]	3,2 [0,84]	409 [16,10]	60 [2,36]	K01K3976SE119	R932001970



Code	Tank capacity l [USgal]	Useable capacity l [USgal]	L mm [inch]	A mm [inch]	Type	Material Number
S144	1,8 [0,48]	1,2 [0,32]	178 [7,01]	35 [1,38]	K01K3976SE168	R932001983
S142	2,5 [0,66]	1,7 [0,45]	238 [9,37]	60 [2,36]	K01K3976SE166	R932001981



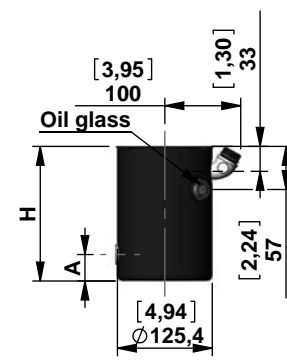
Code	Tank capacity l [USgal]	Useable capacity l [USgal]	H mm [inch]	A mm [inch]	Type	Material Number
S216	1 [0,26]	0,6 [0,16]	133 [5,24]	35 [1,38]	K01K3976SE246	R932002011
S217	1,8 [0,48]	1,1 [0,29]	178 [7,01]	35 [1,38]	K01K3976SE247	R932002012
S218	2,5 [0,66]	1,7 [0,45]	238 [9,37]	60 [2,36]	K01K3976SE248	R932009269
S239	3 [0,79]	2,3 [0,61]	280 [11,02]	60 [2,36]	K01K3976SE269	R932002015
S107V	4 [1,06]	3,2 [0,84]	409 [16,10]	60 [2,36]	K01K3976SE161	R932001976



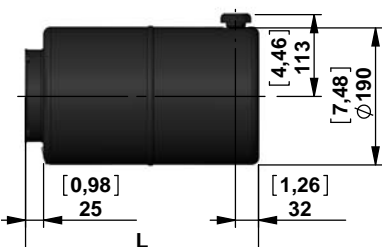
Oil Tanks

Steel Tanks

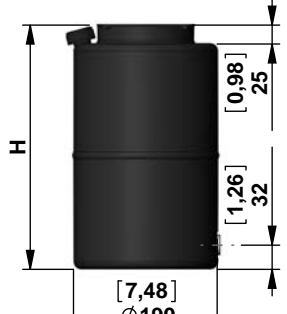
Code	Tank capacity l [USgal]	Useable capacity l [USgal]	H mm [inch]	A mm [inch]	Type	Material Number
S20V	1,8 [0,48]	1,1 [0,29]	178 [7,01]	35 [1,38]	K01K3976SE027	R932001954
S02V	2,5 [0,66]	1,7 [0,45]	238 [9,37]	60 [2,36]	K01K3976SE004	R932001940



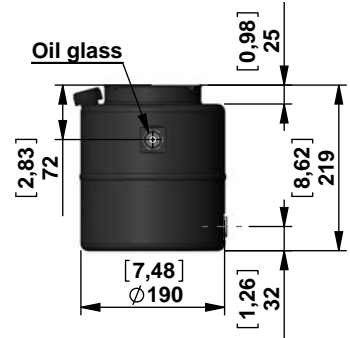
Code	Tank capacity l [USgal]	Useable capacity l [USgal]	L mm [inch]	Type	Material Number
S03	5 [1,32]	4 [1,06]	219 [8,62]	K01K3976SE005	R932001941
S34	7 [1,85]	5,4 [1,43]	271 [10,67]	K01K3976SE041	R932001956
S04	8 [2,11]	6,6 [1,74]	323 [12,72]	K01K3976SE007	R932001943



Code	Tank capacity l [USgal]	Useable capacity l [USgal]	H mm [inch]	Type	Material Number
S03V	5 [1,32]	3 [7,9]	219 [8,62]	K01K3976SE006	R932001942
S34V	7 [1,85]	4,4 [1,16]	271 [10,67]	K01K3976SE042	R932001957
S04V	8 [2,11]	5,8 [1,53]	323 [12,72]	K01K3976SE008	R932001944



Code	Tank capacity l [USgal]	Useable capacity l [USgal]	Type	Material Number
S185	5 [1,32]	3 [7,9]	K01K3976SE345	R932007057



Oil Tanks

Steel Tanks

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	Type	Material Number	
S106	5 [1,32]	3 [7,9]	K01K3976SE215	R932001997	

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	Type	Material Number	
S108	8 [2,11]	5,8 [1,53]	K01K3976SE120	R932001971	

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	Type	Material Number	
S94	8 [2,11]	6,6 [1,74]	K01K3976SE106	R932001965	

Code	Tank cap. [USgal]	Use. cap. [USgal]	Brackets	Type	Material Number	
S07	6 [1,58]	4 [1,06]	No	K01K3976SE103	R932001945	
S138	6 [1,58]	4 [1,06]	Yes	K01K3976SE162	R932001977	

Oil Tanks

Steel Tanks

Code	Tank cap. [USgal]	Use. cap. [USgal]	Brackets	Type	Material Number	
S48	6 [1,58]	4 [1,06]	No	K01K3976SE056	R932001959	
S139	6 [1,58]	4 [1,06]	Yes	K01K3976SE163	R932001978	

Code	Tank capacity [USgal]	Useable capacity [USgal]	A mm [inch]	B mm [inch]	Type	Material Number	
S223*	8 [2,11]	6 [1,58]	156 [6,14]	131 [5,16]	K01K3976SE253	R932002013	
S54	12 [3,17]	9,5 [2,51]	210 [8,27]	186 [7,32]	K01K3976SE063	R932001960	
S140*	12 [3,17]	9,5 [2,51]	210 [8,27]	186 [7,32]	K01K3976SE164	R932001979	

* **NOTE:** In order to avoid to support the weight of motor by the collar of the tank when the tanks with fixing brackets are used, it is strongly suggested to support also the central manifold.

Oil Tanks

Alluminium Tanks

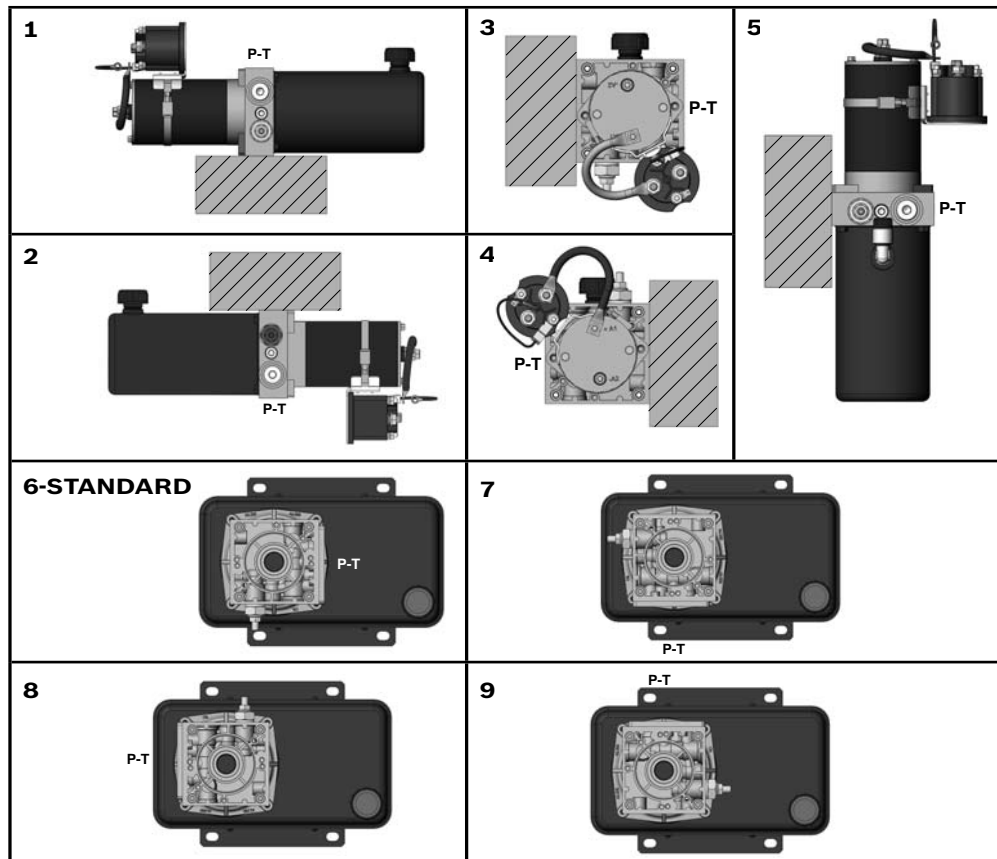
Code	Tank capacity l [USgal]	Useable capacity l [USgal]	Type	Material Number	
S102	3 [7,9]	2,3 [0,61]	K01K3976SE114	R932001966	<p>Technical drawing of aluminium tank S102. The side view shows a height of 152 mm [5,984] and a top thickness of 6 mm [0,236]. The base dimensions are 165 mm x 105 mm [6,496] x [4,134]. It features 4 M6 holes. The top view shows a square base with a central circular opening of diameter 124 mm [4,882]. The base has a thickness of 25 mm [0,984]. The distance from the center to the bottom edge is 80 mm [3,150]. The distance from the center to the side edge is 160 mm [6,299]. The distance from the center to the bottom hole is 77,5 mm [3,051]. The distance from the center to the side hole is 32 mm [1,260].</p>

Code	Tank capacity l [USgal]	Useable capacity l [USgal]	Type	Material Number	
S103	6 [1,58]	5 [1,32]	K01K3976SE115	R932001967	<p>Technical drawing of aluminium tank S103. The side view shows a height of 177 mm [6,969] and a top thickness of 6 mm [0,236]. The base dimensions are 210 mm x 130 mm [8,268] x [5,118]. It features 4 M6 holes. The top view shows a square base with a central circular opening of diameter 124 mm [4,882]. The base has a thickness of 26 mm [1,024]. The distance from the center to the bottom edge is 110 mm [4,331]. The distance from the center to the side edge is 200 mm [7,874]. The distance from the center to the bottom hole is 77,5 mm [3,051]. The distance from the center to the side hole is 32 mm [1,260].</p>

Mounting Position

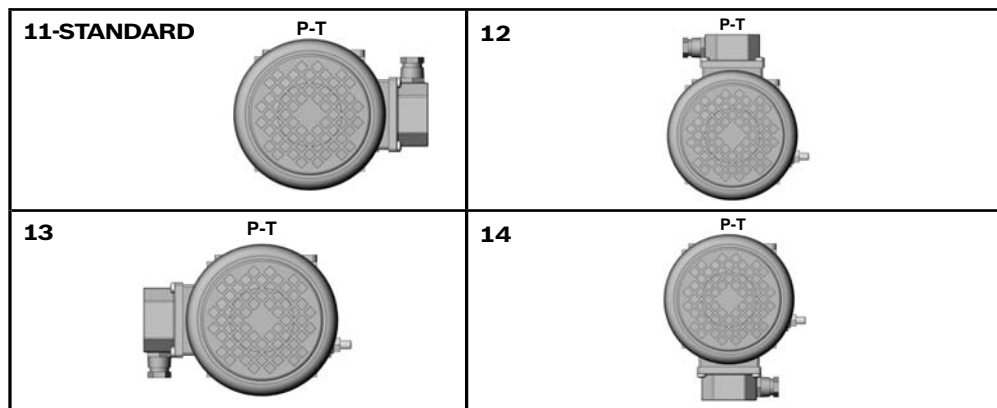
Mounting Position

Code	Image
O1	1
O2	2
O3	3
O4	4
V1	5
-	6
O6	7
O7	8
O8	9



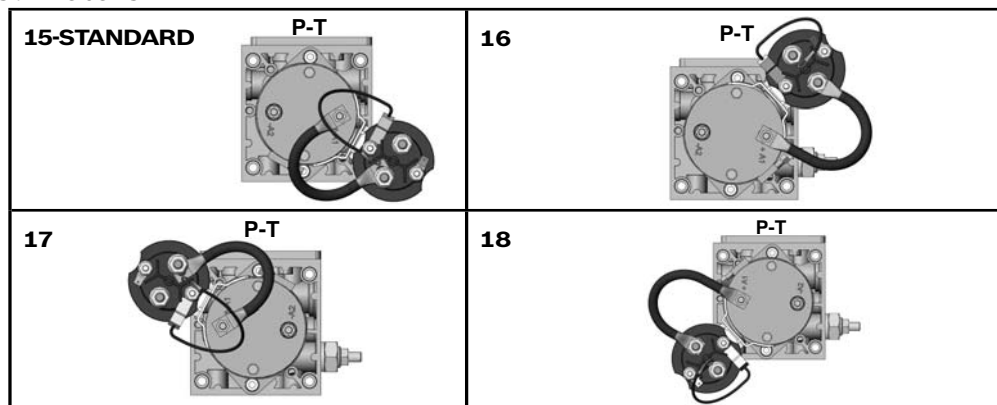
Terminal Box Position for A.C. Motors

Code	Image
-	11
M2	12
M3	13
M4	14







Relay Position for D.C. Motors

Code	Image
-	15
R2	16
R3	17
R4	18




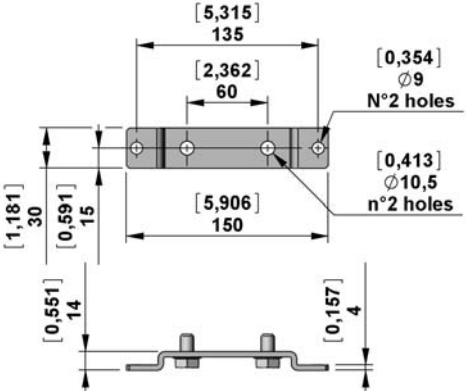
Mounting Position

Oil Cap Position for V1 only


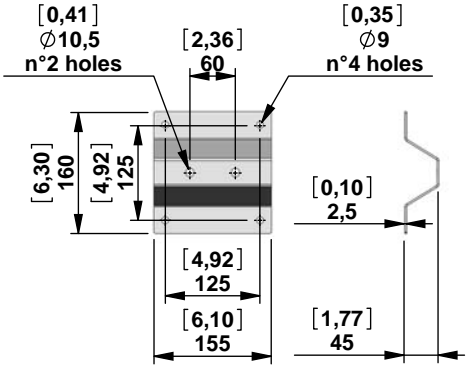

Code	Image	19-STANDARD		20	
-	19				
LU	20				
LO	21	21		22	
LP	22				

Mounting Brackets

Support for Manifold **ME - MR** Series

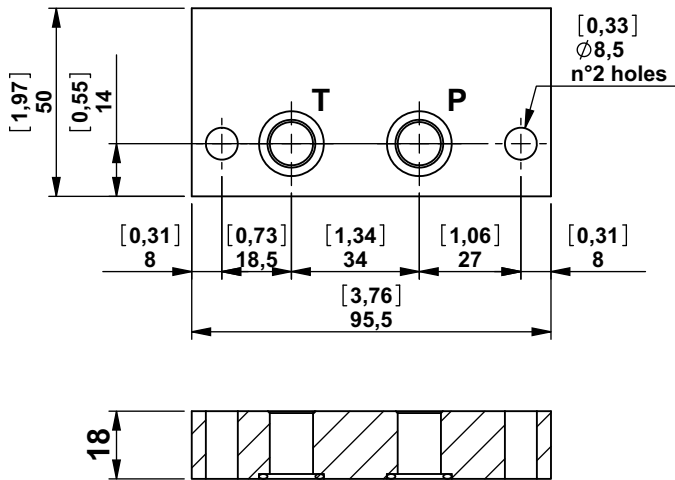
Code	Central manifold	Type	Material Number		
G06	ME	K01X331518000	R932000734		

Support for Manifold Code **A16**

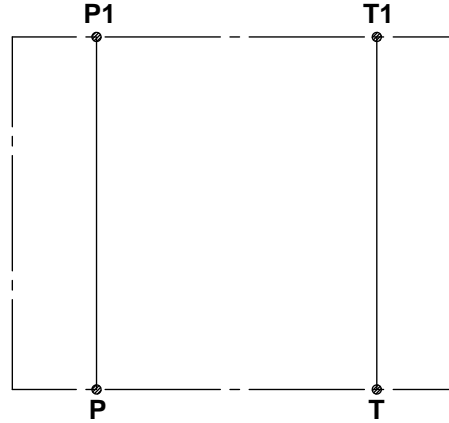
Code	Central manifold	Type	Material Number		
G07	K	K01K331507000	R932009393		
G07L					

Modular Stackable Elements

Space Modular Block

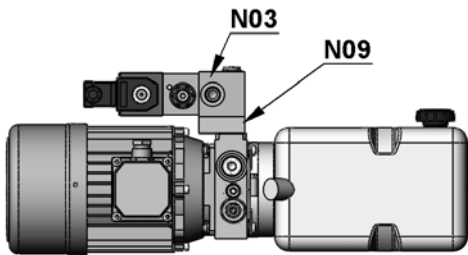


These modular blocks have been designed to have the ability to be assembled as a stack to allow clearance between flanges and motors of different sizes and types.
 - Each block includes 2 OR 3056 gaskets.

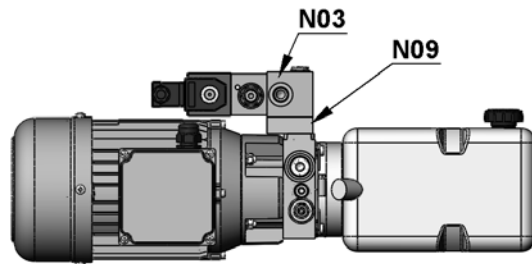


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N09	Space modular block	300 [4351]	40 [10,57]	G386010000	R932001058

Motor IEC71 frame Coupling F90

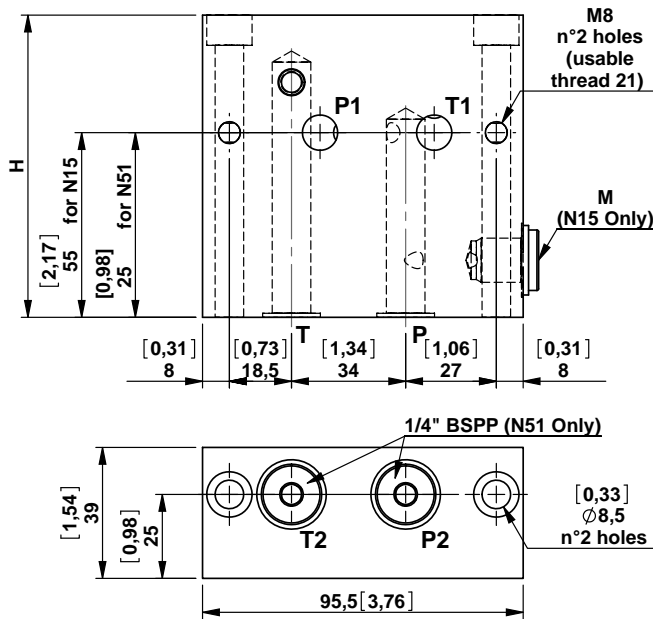


Motor IEC80 frame Coupling F95



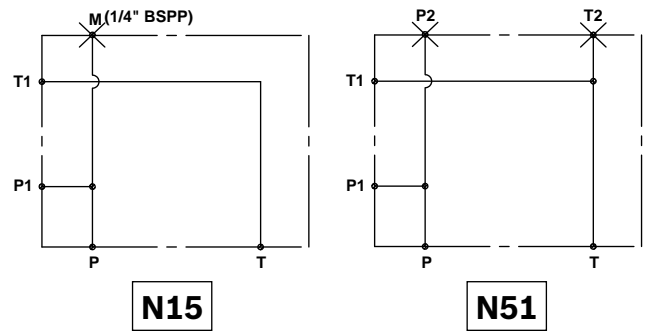
Modular Stackable Elements

90° modular block allowing horizontal mounting (motor side)



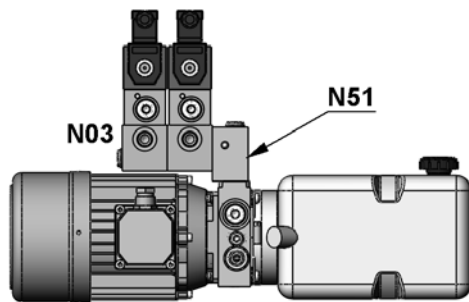
A modular block that is able to turn the standard assembling of 90°, in order to place other manifold blocks over the motor.

- The "N15" block has a 1/4" BSPP port for Pressure Gauge.
- Each block includes 2 OR 2056 gaskets.

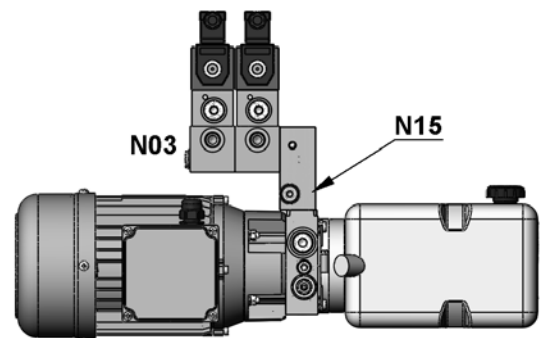


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N15	90° modular block allowing horizontal mounting (motor side) H=90	300 [4351]	35 [9,25]	G386014000	R932001087
N51	90° modular block allowing horizontal mounting (motor side) H=60	300 [4351]	35 [9,25]	G386050000	R932001146

Motor IEC71 frame Coupling F90

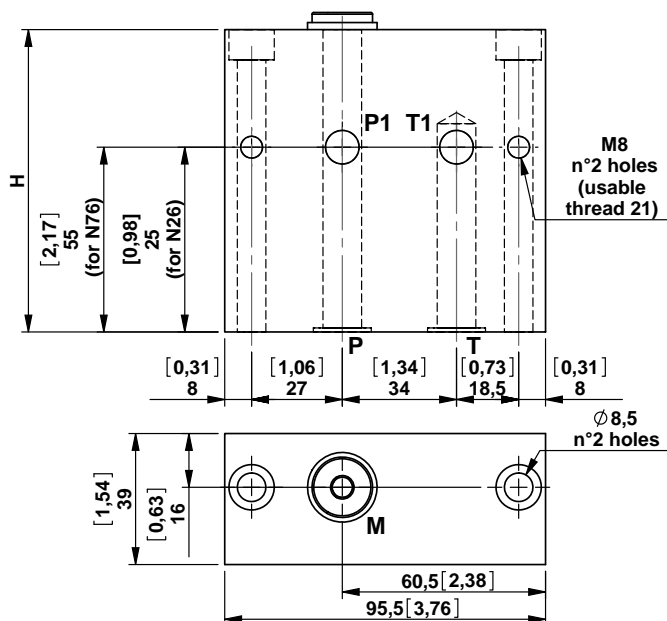


Motor IEC80 frame Coupling F95



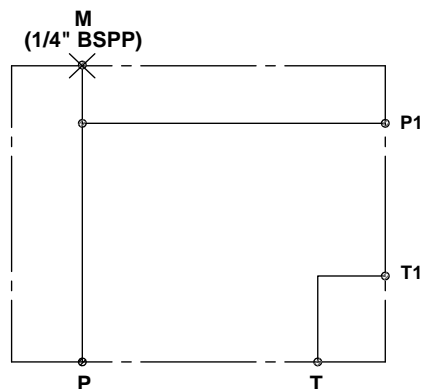
Modular Stackable Elements

90° modular block allowing horizontal mounting (tank side)



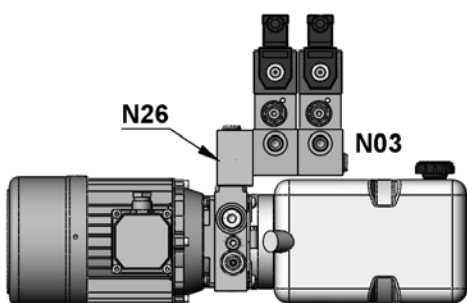
A modular block that is able to turn the standard assembling of 90°, in order to place other blocks over the tank.

- The blocks have a 1/4" BSPP port for Pressure Gauge.
- Each block includes 2 OR 2056 gaskets.

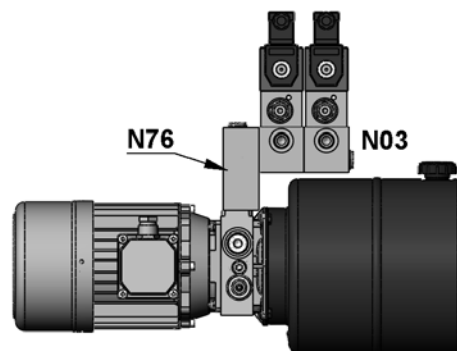


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N76	90° modular block allowing horizontal mounting (tank side) H=90	300 [4351]	35 [9,25]	G386075000	R932001153
N26	90° modular block allowing horizontal mounting (tank side) H=60	300 [4351]	35 [9,25]	G386025000	R932001100

Tank **H=134**



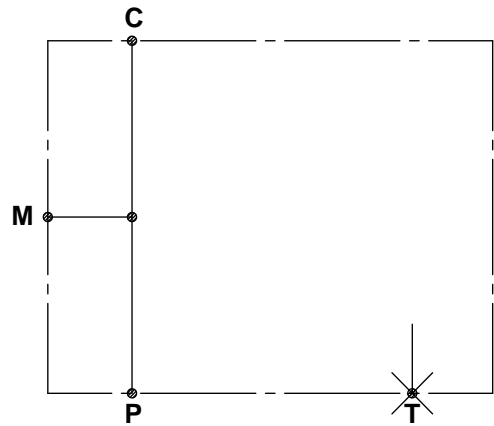
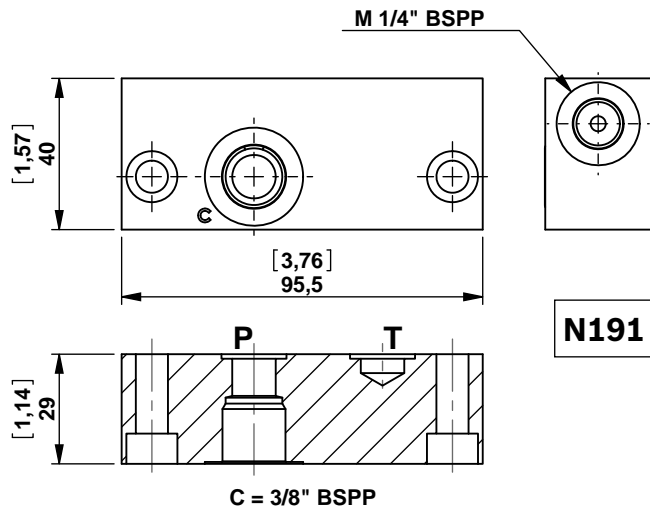
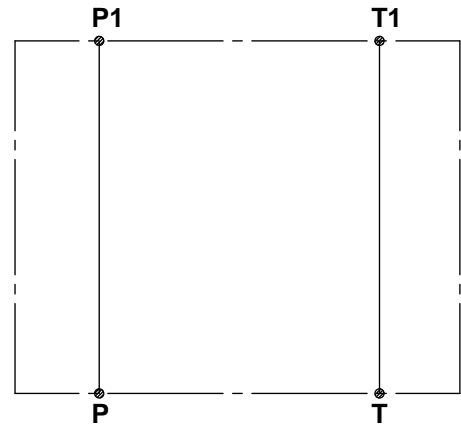
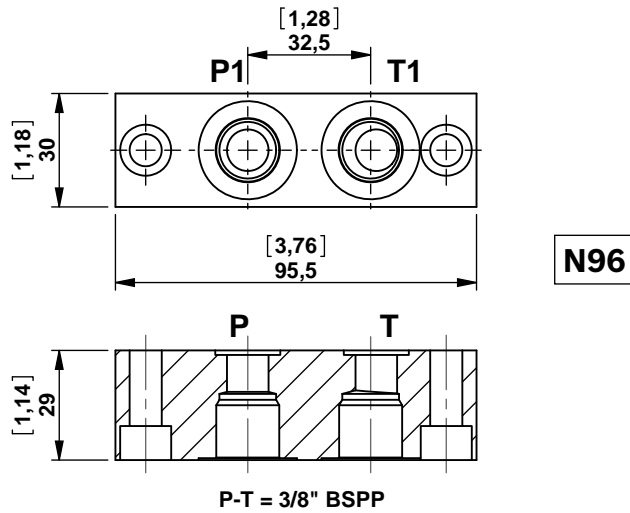
Tank Diameter **Ø190**



Modular Stackable Elements

Modular blocks with threaded ports

Modular blocks with exit 3/8" BSPP.
 - Each block includes 2 OR 2056 gaskets.

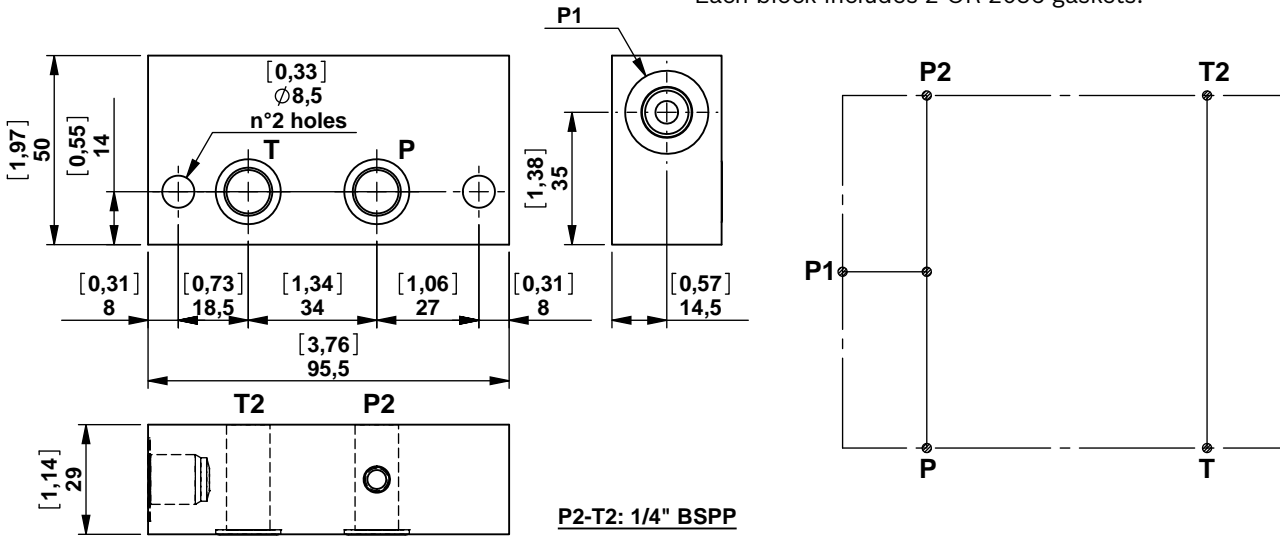


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N96	Modular block with threaded ports	300 [4351]	35 [9,25]	G386095000	R932001173
N191	Modular block with threaded ports	300 [4351]	35 [9,25]	G386191000	R932001284

Modular Stackable Elements

Modular spacer block with extra "P1" port

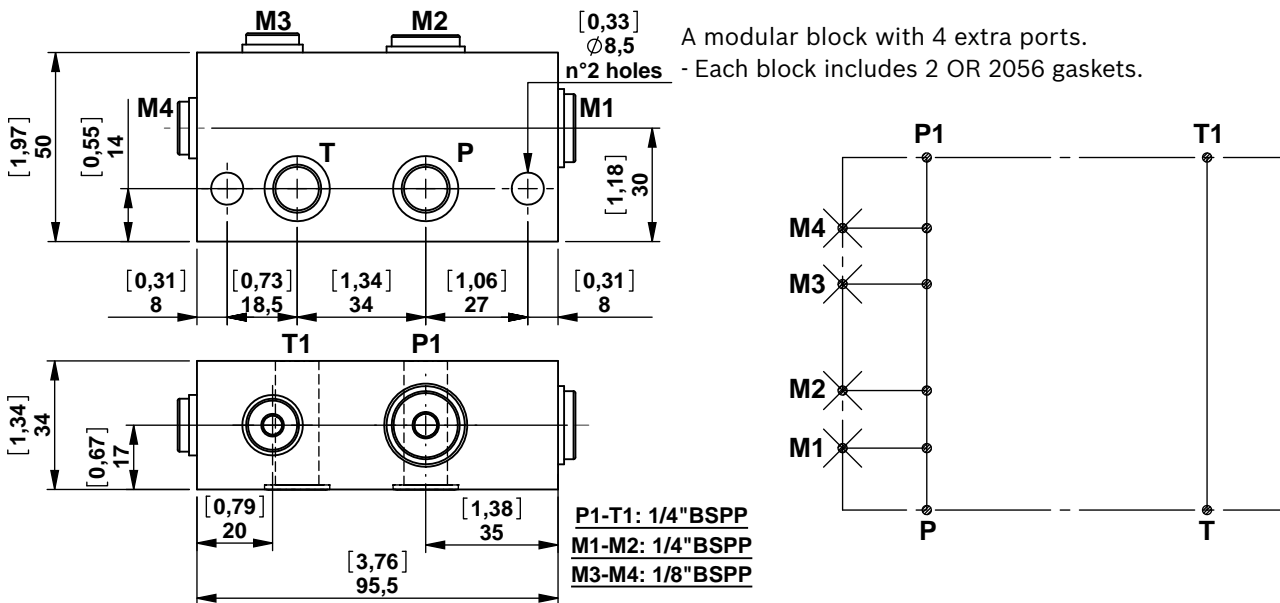
A modular block with an extra port.
 - Each block includes 2 OR 2056 gaskets.



Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N46-14	Modular spacer block with extra "P1" port 1/4" BSPP	300 [4351]	20 [5,28]	G386045000	R932001142
N46-38	Modular spacer block with extra "P1" port 3/8" BSPP	300 [4351]	20 [5,28]	1386000053	R932009506

Modular spacer block with two 1/8" BSPP and two 1/4" BSPP ports

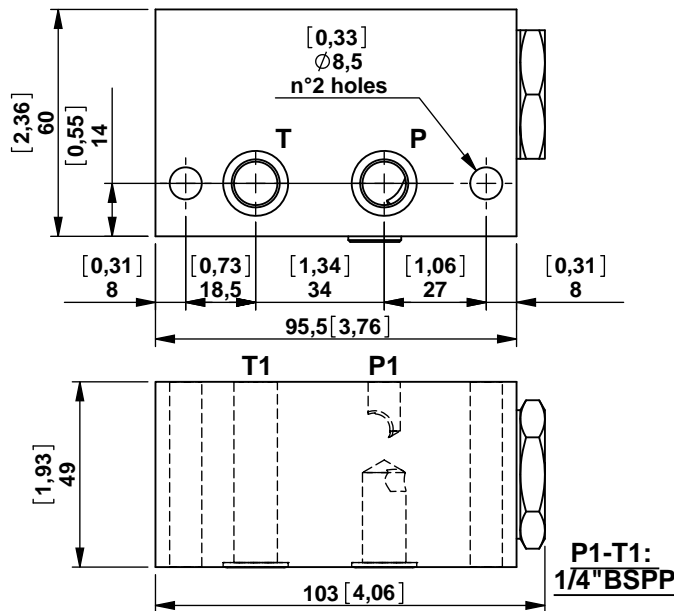
A modular block with 4 extra ports.
 - Each block includes 2 OR 2056 gaskets.



Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N128	Modular spacer block with two 1/8" BSPP ports and two 1/4" BSPP ports	300 [4351]	35 [9,25]	G386128000	R932001241

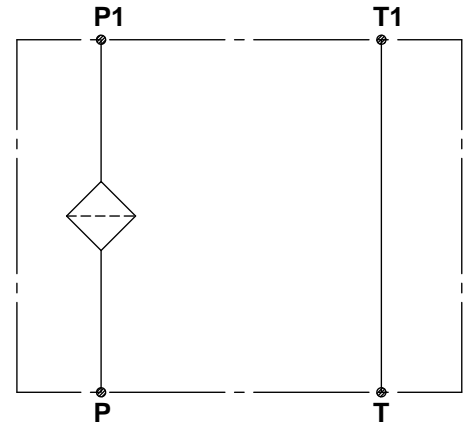
Modular Stackable Elements

Modular block with filter on pressure line



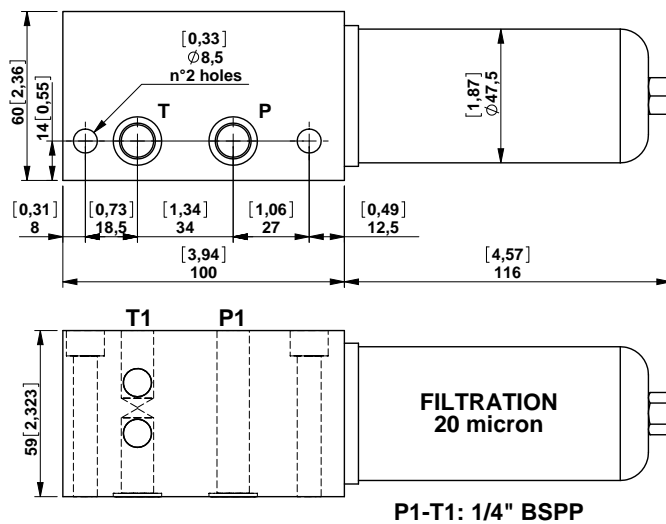
A modular block with a filter on the pressure line. This is recommended for applications where valve may be subjected to contamination.

-Each block includes 2 OR 2056 gaskets.



Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N39-25	Modular block with filter (25 micron) on pressure line	230 [3336]	10 [2,64]	G386038010	R932001123
N39-60	Modular block with filter (60 micron) on pressure line	230 [3336]	10 [2,64]	G386038020	R932001124

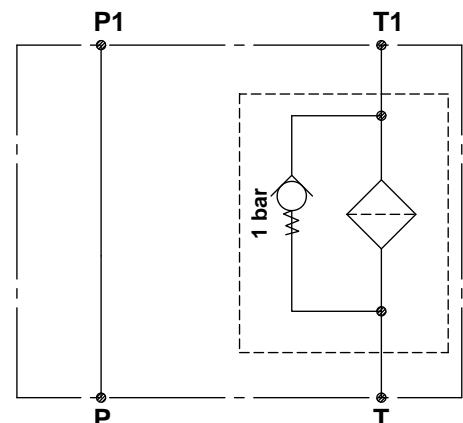
Modular block with filter on the return line



A modular block with filter on return line. This is recommended for applications where valves may be subjected to contamination.

- Each block includes 2 OR 2056 gaskets.

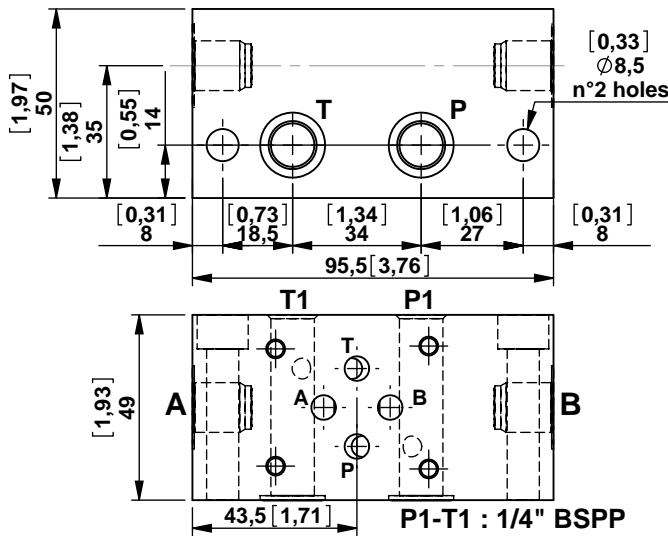
- By-pass valve set at a pressure of 1 bar.



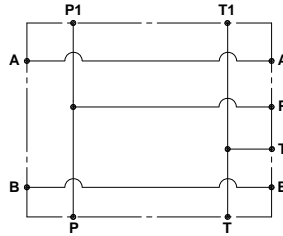
Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N116	Modular block with filter on the return line (20 micron)	6 [87]	20 [5,28]	G386116010	R932001214

Modular Stackable Elements

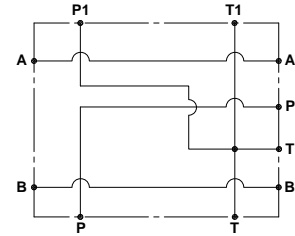
Modular block for CETOP 3 (2143) configuration valves



Modular blocks for CETOP 3 (2143) electrovalves for parallel or series circuits.
 - Each block includes 2 OR 2056 gaskets.



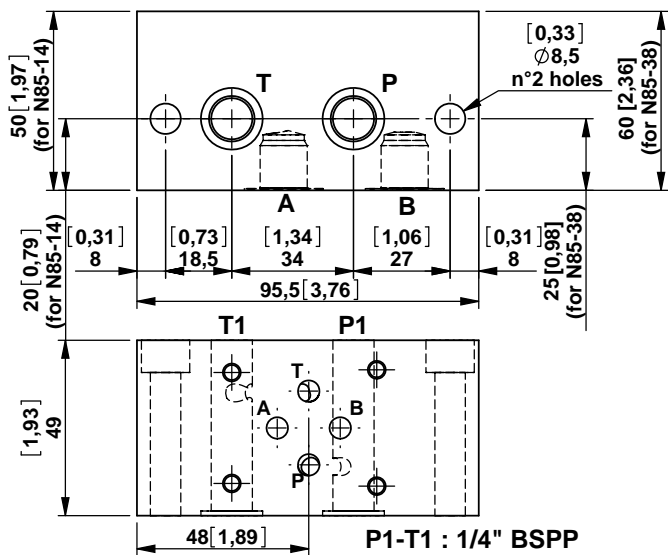
N03



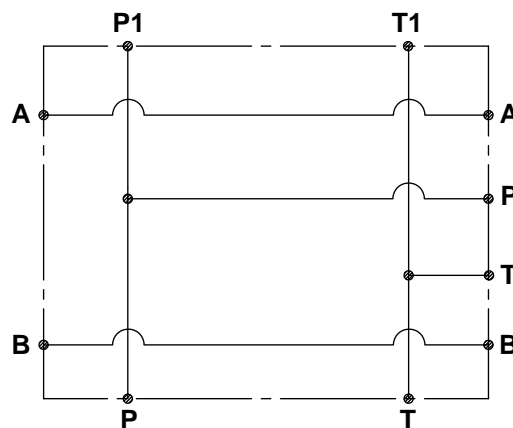
N11

Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N03-14	Modular block for CETOP3 (2143) configuration valves with A-B 1/4" BSPP (parallel circuit)	300 [4351]	40 [10,57]	G386002010	R932001010
N03-38	Modular block for CETOP3 (2143) configuration valves with A-B 3/8" BSPP (parallel circuit)	300 [4351]	40 [10,57]	G386002020	R932001011
N11-14	Modular block for CETOP3 (2143) configuration valves with A-B 1/4" BSPP (series circuit)	300 [4351]	40 [10,57]	G386009010	R932001054
N11-38	Modular block for CETOP3 (2143) configuration valves with A-B 3/8" BSPP (series circuit)	300 [4351]	40 [10,57]	G386009020	R932001056

Modular block for CETOP 3 (2143) configuration valves



A modular block that is for CETOP 3 (2143) electrovalves for a parallel circuit with ports on the opposite side of the valve.
 - Each block includes 2 OR 2056 gaskets.



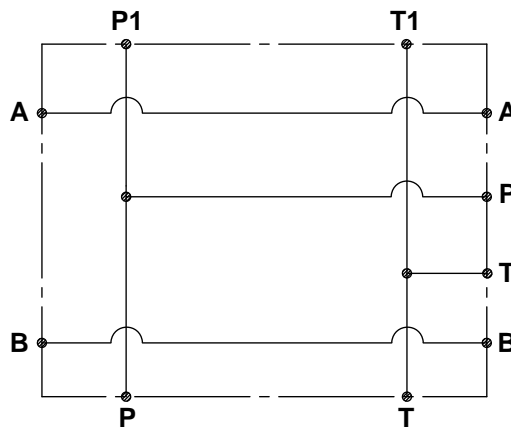
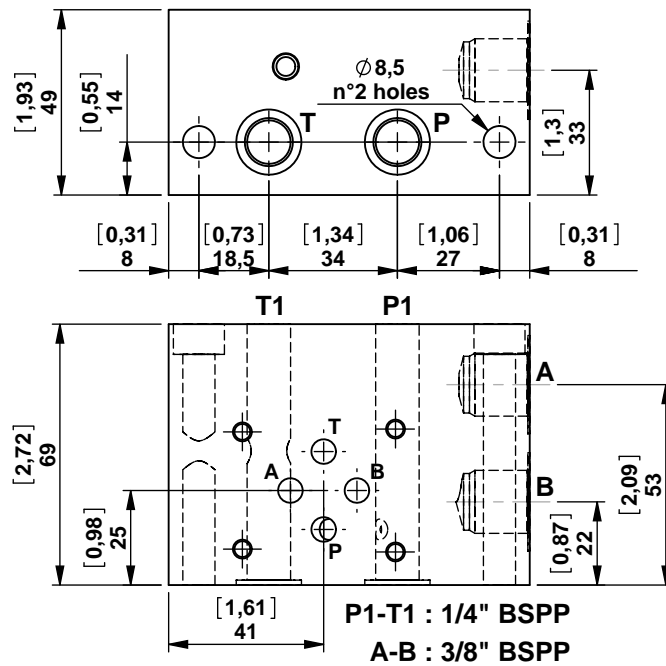
Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N85-14	Modular block for CETOP3 (2143) configuration valves with A-B 1/4" BSPP (parallel circuit)	300 [4351]	40 [10,57]	G386084010	R932001158
N85-38	Modular block for CETOP3 (2143) configuration valves with A-B 3/8" BSPP (parallel circuit)	300 [4351]	40 [10,57]	G386084020	R932001159

Modular Stackable Elements

Modular block for CETOP 3 (2143) configuration valves with side ports

A modular block that is for CETOP 3 (2143) electrovalves for parallel circuit with side device ports on one face.

- Each block includes 2 OR 2056 gaskets.



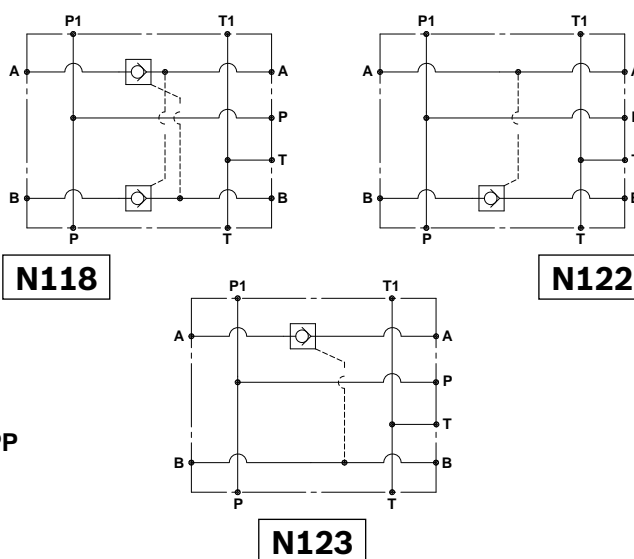
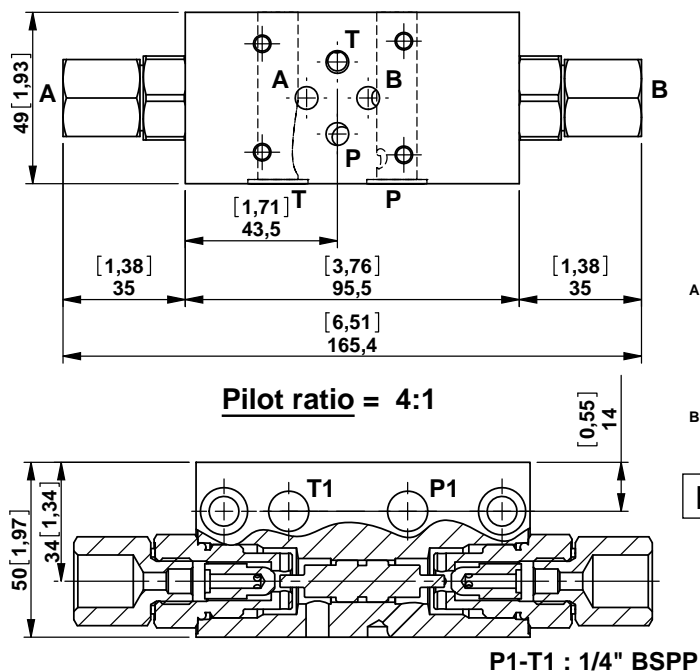
Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N142	Modular block for CETOP 3 (2143) configuration valves with side ports	300 [4351]	40 [10,57]	G386142000	R932001252

Modular Stackable Elements

Modular block with poppet type P.O. check valves for CETOP 3 (2143) configuration valves (parallel circuit)

A selection of modular block with P.O. check valves for block CETOP 3 (2143) electrovalves.

- Each block includes 2 OR 2056 gaskets.
- Possibility to have an OR gasket on the piloting piston for application with low flow.

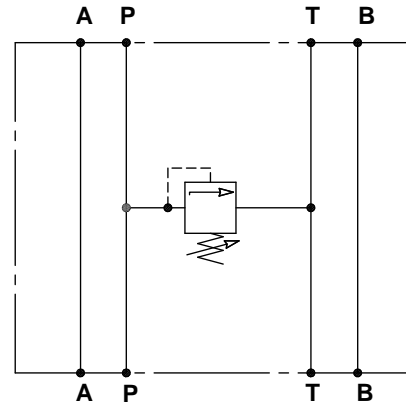
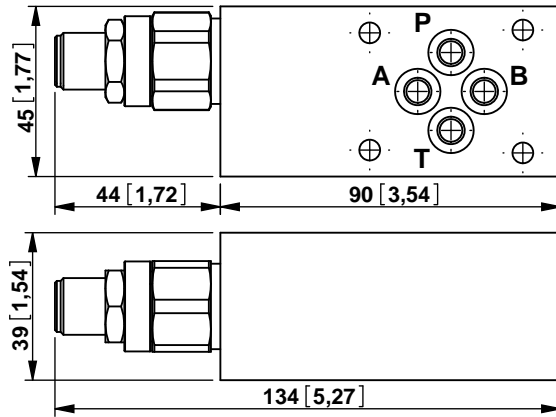


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N118-38	Modular block with poppet type P.O. check valves on A-B for CETOP 3 (2143) configuration valves (without O-ring on pilot piston and A-B 3/8" BSPP)	300 [4351]	20 [5,28]	G386118A02	R932001217
N118G-38	Modular block with poppet type P.O. check valves on A-B for CETOP 3 (2143) configuration valves (with O-ring on pilot piston and A-B 3/8" BSPP)	300 [4351]	20 [5,28]	G386118B02	R932001222
N118-14	Modular block with poppet type P.O. check valves on A-B for CETOP 3 (2143) configuration valves (without O-ring on pilot piston and A-B 1/4" BSPP)	300 [4351]	20 [5,28]	G386118A03	R932001218
N118G-14	Modular block with poppet type P.O. check valves on A-B for CETOP 3 (2143) configuration valves (with O-ring on pilot piston and A-B 1/4" BSPP)	300 [4351]	20 [5,28]	G386118B03	R932001223
N122-38	Modular block with poppet type P.O. check valve on B for CETOP 3 (2143) configuration valves (without O-ring on pilot piston and A-B 3/8" BSPP)	300 [4351]	20 [5,28]	G386122A02	R932001233
N122-14	Modular block with poppet type P.O. check valve on B for CETOP 3 (2143) configuration valves (without O-ring on pilot piston and A-B 1/4" BSPP)	300 [4351]	20 [5,28]	G386122A01	R932001232
N123-38	Modular block with poppet type P.O. check valves on A for CETOP 3 (2143) configuration valves (without O-ring on pilot piston and A-B 3/8" BSPP)	300 [4351]	20 [5,28]	G386123A02	R932001237
N123-14	Modular block with poppet type P.O. check valves on A for CETOP 3 (2143) configuration valves (without O-ring on pilot piston and A-B 1/4" BSPP)	300 [4351]	20 [5,28]	G386123A01	R932001236

Modular Stackable Elements

Sandwich blocks with poppet type "VM25" relief valves for CETOP 3 (2143) configuration valves

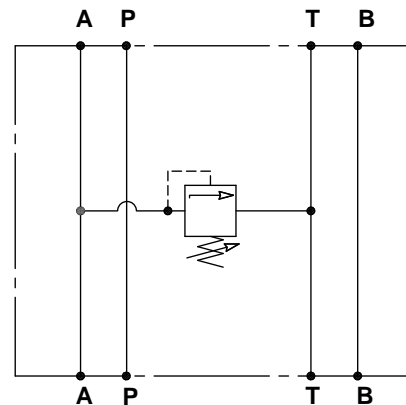
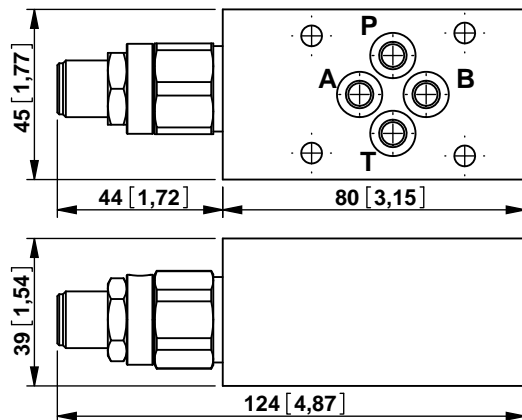
- Each block includes 4 OR 108 gaskets.



Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N99-10	Sandwich block with poppet type "VM25" relief valve P in T (10-100 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386098A81	R932001174
N99-20	Sandwich block with poppet type "VM25" relief valve P in T (40-200 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386098A82	R932001175
N99-35	Sandwich block with poppet type "VM25" relief valve P in T (70-350 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386098A83	R932001176

Sandwich blocks with poppet type "VM25" relief valves for CETOP 3 (2143) configuration valves

- Each block includes 4 OR 108 gaskets.

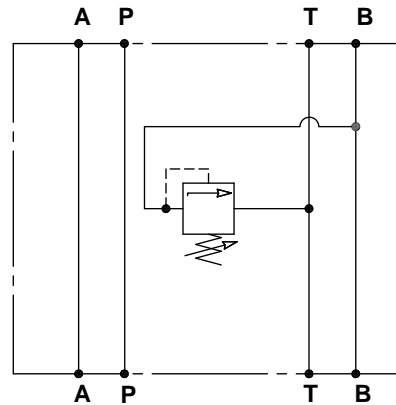
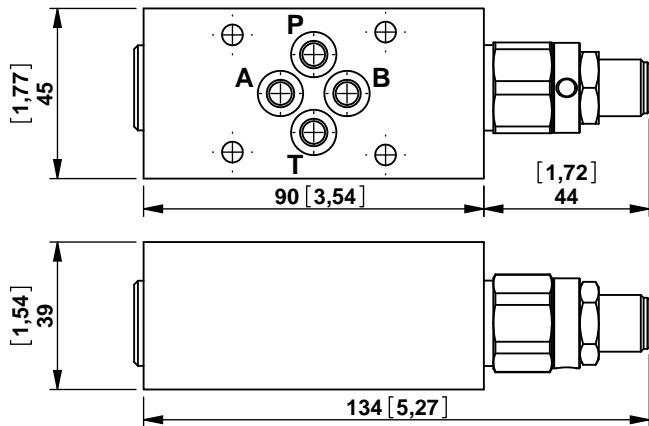


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N100-05	Sandwich block with poppet type "VM25" relief valve A in T (5-50 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386099A84	R932001183
N100-10	Sandwich block with poppet type "VM25" relief valve A in T (10-100 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386099A81	R932001180
N100-20	Sandwich block with poppet type "VM25" relief valve A in T (40-200 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386099A82	R932001181
N100-35	Sandwich block with poppet type "VM25" relief valve A in T (70-350 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386099A83	R932001182

Modular Stackable Elements

Sandwich blocks with poppet type "VM25" relief valves for CETOP 3 (2143) configuration valves

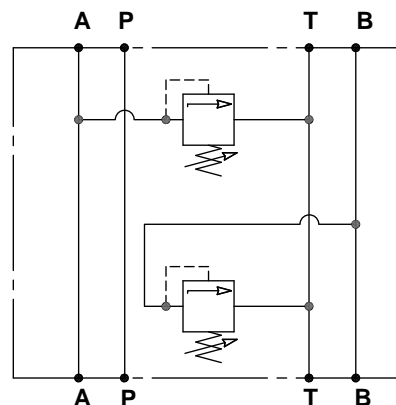
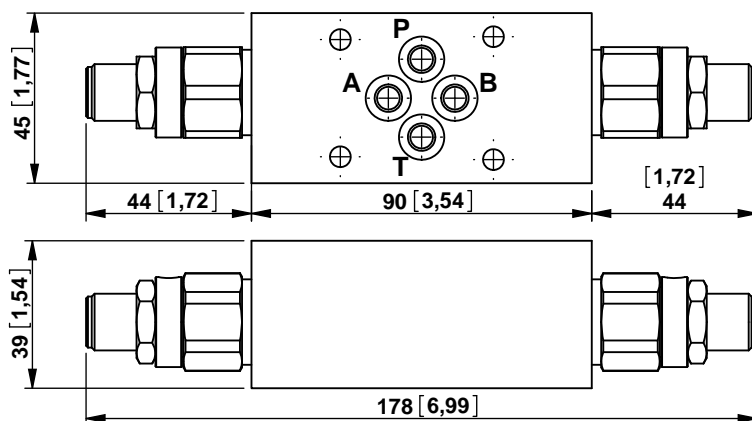
- Each block includes 4 OR 108 gaskets.



Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N101-05	Sandwich block with poppet type "VM25" relief valve B in T (5-50 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386101A84	R932001191
N101-10	Sandwich block with poppet type "VM25" relief valve B in T (10-100 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386101A81	R932001188
N101-20	Sandwich block with poppet type "VM25" relief valve B in T (40-200 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386101A82	R932001189
N101-35	Sandwich block with poppet type "VM25" relief valve B in T (70-350 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386101A83	R932001190

Sandwich blocks with poppet type "VM25" relief valves for CETOP 3 (2143) configuration valves

- Each block includes 4 OR 108 gaskets.

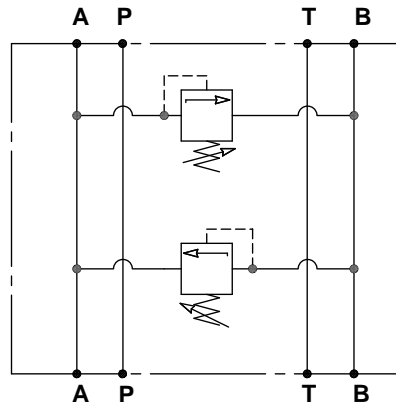
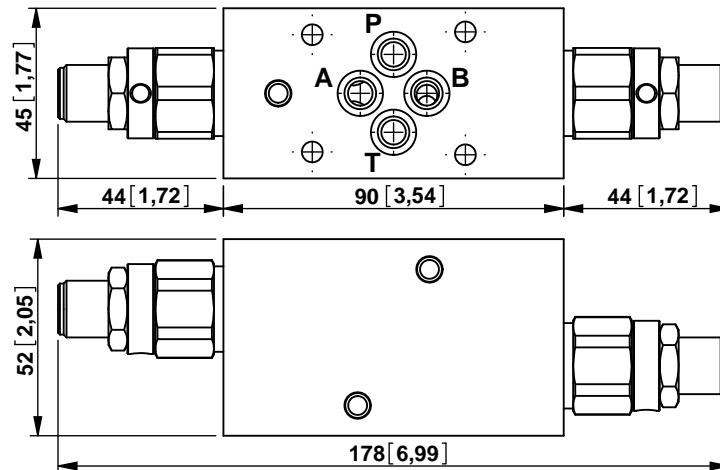


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N102-05	Sandwich block with poppet type "VM25" relief valves A-B in T (5-50 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386102A84	R932001200
N102-10	Sandwich block with poppet type "VM25" relief valves A-B in T (10-100 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386102A81	R932001196
N102-20	Sandwich block with poppet type "VM25" relief valves A-B in T (40-200 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386102A82	R932001198
N102-35	Sandwich block with poppet type "VM25" relief valves A-B in T (70-350 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386102A83	R932001199

Modular Stackable Elements

Sandwich blocks with poppet type "VM25" relief valves for CETOP 3 (2143) configuration valves

- Each block includes 4 OR 108 gaskets.

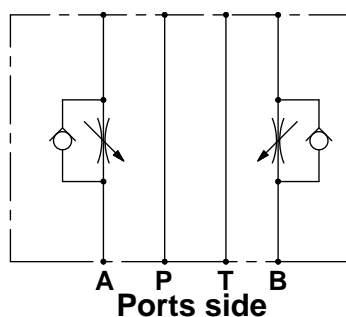
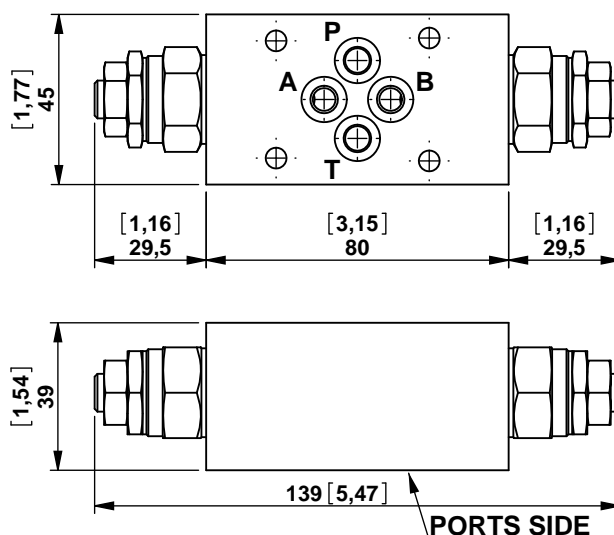


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N103-10	Sandwich block with poppet type "VM25" relief valves A in B and B in A (10-100 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386103A81	R932001202
N103-20	Sandwich block with poppet type "VM25" relief valves A in B and B in A (40-200 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386103A82	R932001203
N103-35	Sandwich block with poppet type "VM25" relief valves A in B and B in A (70-350 bar) for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386103A83	R932001204

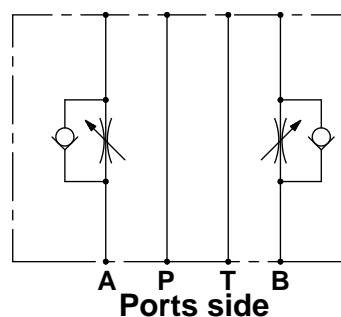
Modular Stackable Elements

Sandwich blocks with "ST-CU-06" adjustable flow control valves for CETOP 3 (2143) configuration valves

- Each block includes 4 OR 108 gaskets.



N78



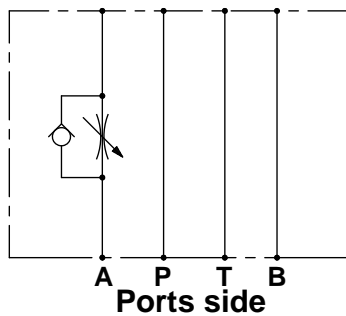
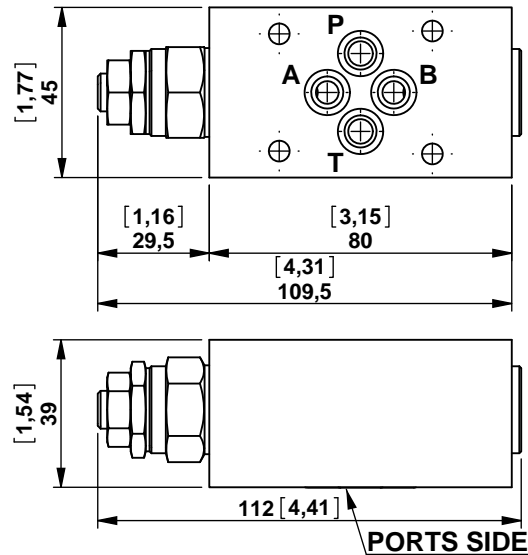
N104

Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N78	Sandwich blocks with ST-CU-06 adjustable flow control valves (that working on the return to the tank of the A and B line) for CETOP 3 (2143) configuration valves	300 [4351]	25 [6,60]	G386077A81	R932001156
N104	Sandwich blocks with ST-CU-06 adjustable flow control valves (that working on the delivery of the A and B line) for CETOP 3 (2143) configuration valves	300 [4351]	25 [6,60]	G386104A80	R932001205

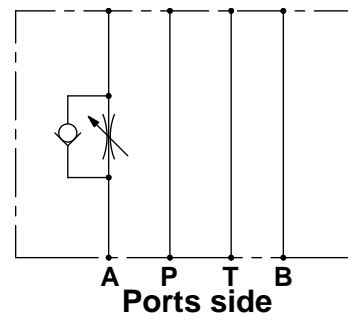
Modular Stackable Elements

Sandwich blocks with “ST-CU-06” adjustable flow control valves for CETOP 3 (2143) configuration valves

- Each block includes 4 OR 108 gaskets.



N105



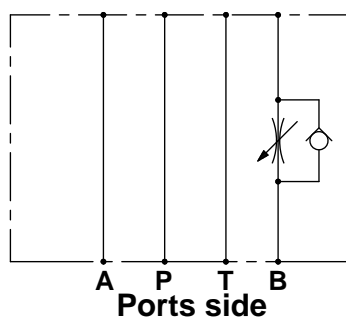
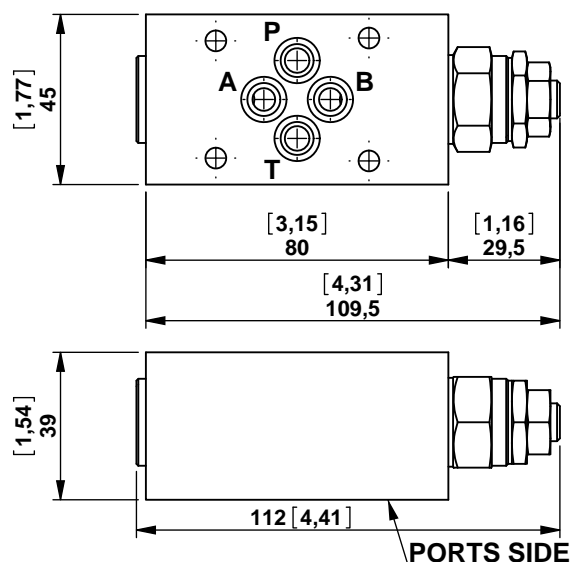
N107

Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N105	Sandwich blocks with ST-CU-06 adjustable flow control valves (that working on the return to the tank of the A line) for CETOP 3 (2143) configuration valves	300 [4351]	25 [6,60]	G386105A81	R932000183
N107	Sandwich blocks with ST-CU-06 adjustable flow control valves (that working on the delivery of the A line) for CETOP 3 (2143) configuration valves	300 [4351]	25 [6,60]	G386107A80	R932001211

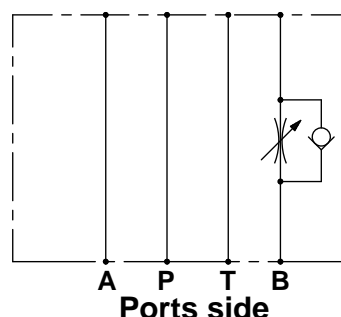
Modular Stackable Elements

Sandwich blocks with “ST-CU-06” adjustable flow control valves for CETOP 3 (2143) configuration valves

- Each block includes 4 OR 108 gaskets



N106



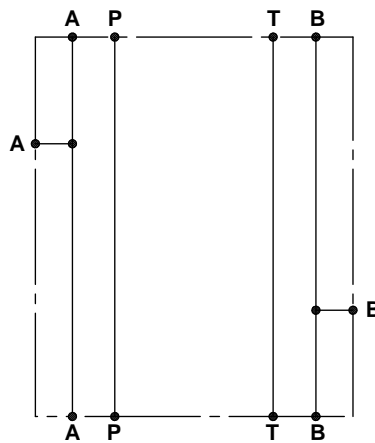
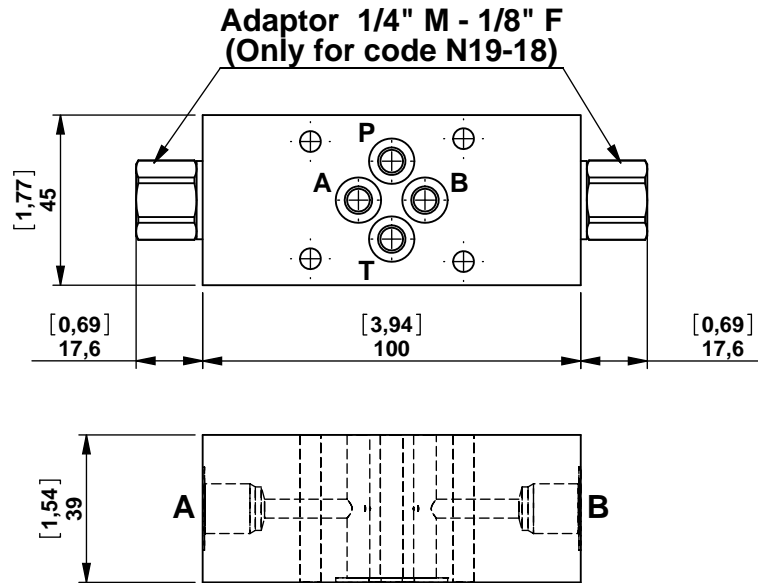
N108

Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N106	Sandwich blocks with ST-CU-06 adjustable flow control valves (that working on the return to the tank of the B line) for CETOP 3 (2143) configuration valves	300 [4351]	25 [6,60]	G386106A81	R932000184
N108	Sandwich blocks with ST-CU-06 adjustable flow control valves (that working on the delivery of the B line) for CETOP 3 (2143) configuration valves	300 [4351]	25 [6,60]	G386108A80	R932001212

Modular Stackable Elements

Sandwich block with ports on "A" and "B" line for CETOP 3 (2143) configuration valves

- Each block includes 2 OR 2056 gaskets.

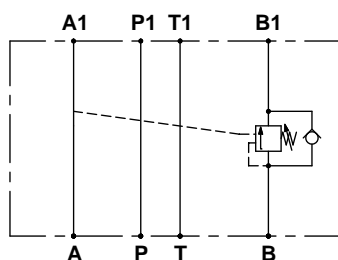
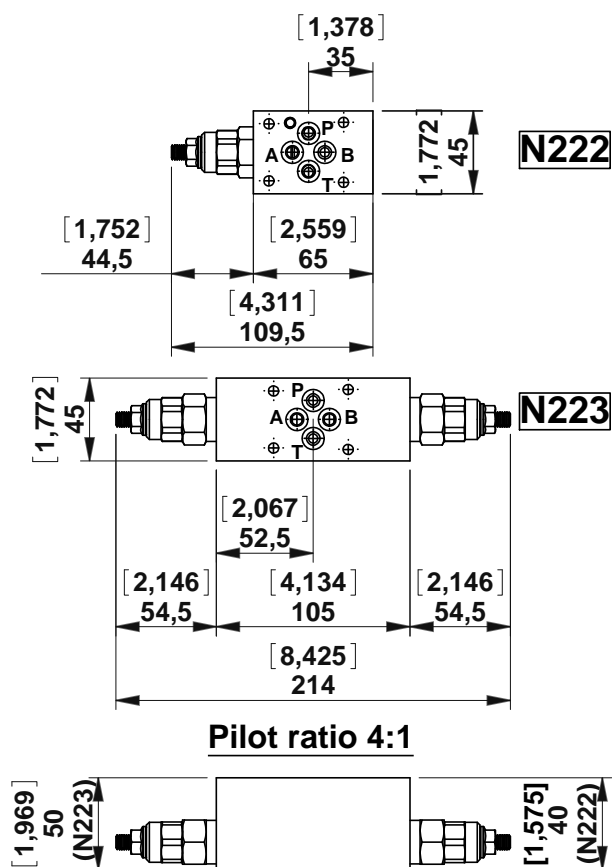


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N19-14	Sandwich block with 1/4" BSPP ports on A and B line for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386018010	R932001091
N19-18	Sandwich block with 1/8" BSPP ports on A and B line for CETOP3 (2143) configuration valves	300 [4351]	25 [6,60]	G386018000	R932001090

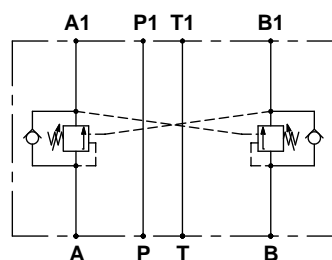
Modular Stackable Elements

Sandwich blocks with overcenter valves for CETOP 3 (2143) configuration valves

- Each block includes 4 OR 108 gaskets



N222

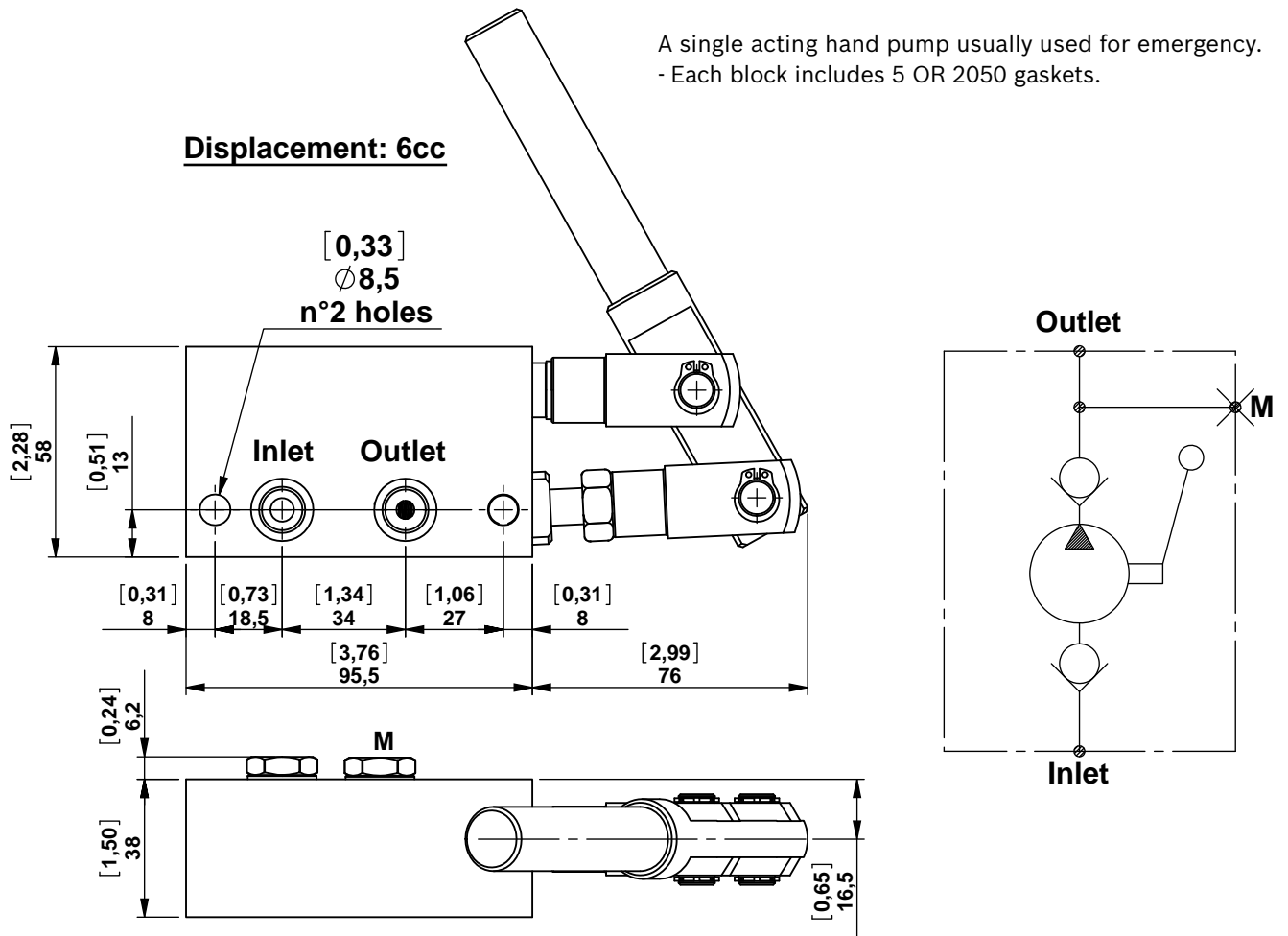


N223

Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N222.20	Sandwich block with Overcentre valve VBSN-08AA (70-210 bar) on B line for CETOP3	300 [4351]	30 [7,93]	G386222002	R932001326
N222.35	Sandwich block with Overcentre valve VBSN-08AA (100-350 bar) on B line for CETOP3	300 [4351]	30 [7,93]	G386222003	R932001327
N223.20	Sandwich block with Overcentre valves VBSN-08AA (70-210 bar) on A and B line for CETOP3	300 [4351]	30 [7,93]	G386223002	R932001329
N223.35	Sandwich block with Overcentre valves VBSN-08AA (100-350 bar) on A and B line for CETOP3	300 [4351]	30 [7,93]	G386223003	R932001330

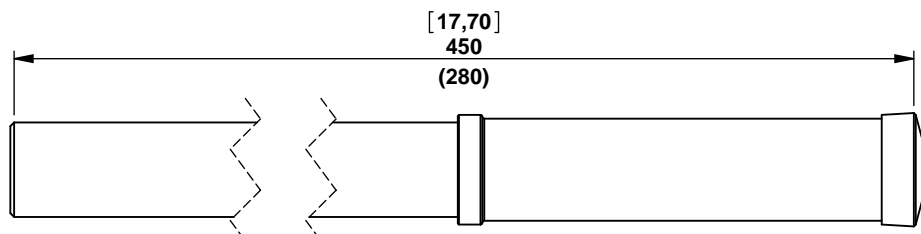
Modular Stackable Elements

Modular hand pump manifold block



Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
N22	Modular hand pump manifold block	350 [5076]	-	G386021010	R932001093

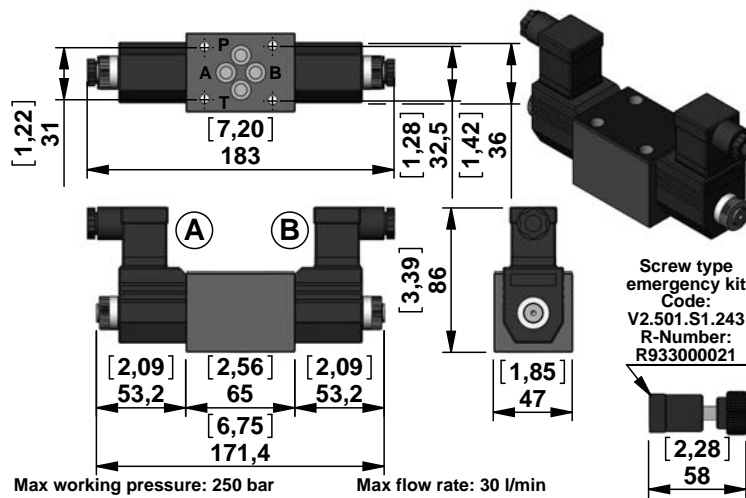
Lever Kit



Description	Type	Material Number
Lever L= 450	K250133000	R932002452
Lever L= 280	K2501S1058	R932002407

Modular Stackable Elements

CETOP 2143 (Ø6mm [0,24inch]) Solenoid Valves



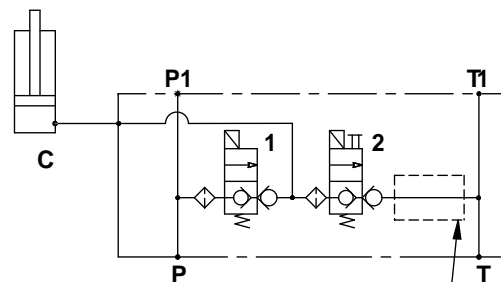
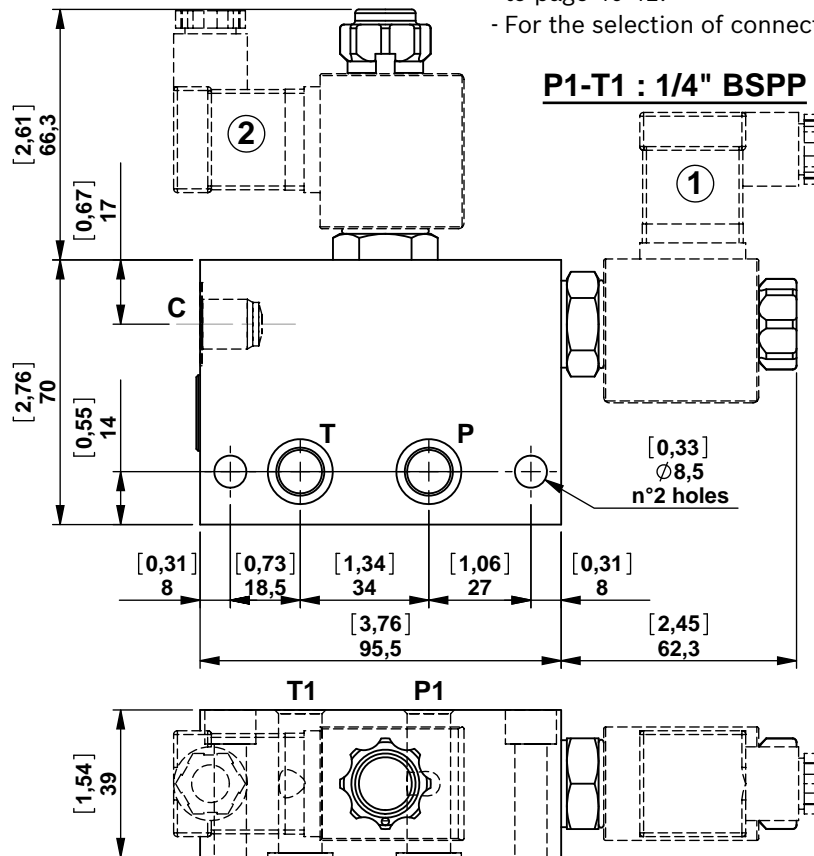
Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Material Number	Diagram
E02Z-OB	CETOP3 solenoid valve 12V D.C.	250 [3626]	30 [7,92]	R933004275	
E02Z-OC	CETOP3 solenoid valve 24V D.C.	250 [3626]	30 [7,92]	R933004277	
E02Z-OV	CETOP3 solenoid valve 24V RAC	250 [3626]	30 [7,92]	R933004279	
E02Z-OZ	CETOP3 solenoid valve 220V RAC	250 [3626]	30 [7,92]	R933004281	
E06Z-OB	CETOP3 solenoid valve 12V D.C.	250 [3626]	30 [7,92]	R933004096	
E06Z-OC	CETOP3 solenoid valve 24V D.C.	250 [3626]	30 [7,92]	R933004098	
E06Z-OD	CETOP3 solenoid valve 48V D.C.	250 [3626]	30 [7,92]	R933007830	
E06Z-OV	CETOP3 solenoid valve 24V RAC	250 [3626]	30 [7,92]	R933004102	
E06Z-OW	CETOP3 solenoid valve 110V RAC	250 [3626]	30 [7,92]	R933004103	
E06Z-OZ	CETOP3 solenoid valve 220V RAC	250 [3626]	30 [7,92]	R933004104	
E07Z-OB	CETOP3 solenoid valve 12V D.C.	250 [3626]	30 [7,92]	R933004131	
E07Z-OC	CETOP3 solenoid valve 24V D.C.	250 [3626]	30 [7,92]	R933004133	
E07Z-OD	CETOP3 solenoid valve 48V D.C.	250 [3626]	30 [7,92]	R933004135	
E07Z-OV	CETOP3 solenoid valve 24V RAC	250 [3626]	30 [7,92]	R933004136	
E07Z-OW	CETOP3 solenoid valve 110V RAC	250 [3626]	30 [7,92]	R933004137	
E07Z-OZ	CETOP3 solenoid valve 220V RAC	250 [3626]	30 [7,92]	R933004138	
E08Z-OB	CETOP3 solenoid valve 12V D.C.	250 [3626]	30 [7,92]	R933004191	
E08Z-OC	CETOP3 solenoid valve 24V D.C.	250 [3626]	30 [7,92]	R933004193	
E08Z-OD	CETOP3 solenoid valve 48V D.C.	250 [3626]	30 [7,92]	R933004197	
E08Z-OV	CETOP3 solenoid valve 24V RAC	250 [3626]	30 [7,92]	R933004198	
E08Z-OW	CETOP3 solenoid valve 110V RAC	250 [3626]	30 [7,92]	R933004199	
E08Z-OZ	CETOP3 solenoid valve 220V RAC	250 [3626]	30 [7,92]	R933004200	
E10Z-OB	CETOP3 solenoid valve 12V D.C.	250 [3626]	30 [7,92]	R933004057	
E10Z-OC	CETOP3 solenoid valve 24V D.C.	250 [3626]	30 [7,92]	R933004061	
E10Z-OD	CETOP3 solenoid valve 48V D.C.	250 [3626]	30 [7,92]	R933004063	
E10Z-OV	CETOP3 solenoid valve 24V RAC	250 [3626]	30 [7,92]	R933004065	
E10Z-OW	CETOP3 solenoid valve 110V RAC	250 [3626]	30 [7,92]	R933004067	
E10Z-OZ	CETOP3 solenoid valve 220V RAC	250 [3626]	30 [7,92]	R933004068	

Modular Stackable Elements

Modular blocks with two lowering solenoid valves, check valves, and compensated flow control throttle valves (available upon request)

Modular blocks to operate a single acting cylinder in a parallel circuit or a double acting cylinder in regenerative.

- Each block includes 2 OR 2056 gaskets.
- Minimum voltage required: 90% of nominal.
- Coils not included, must be ordered separately.
- For the selection of coil model and voltage please refer to page 40-41.
- For the selection of connectors please refer to page 42.



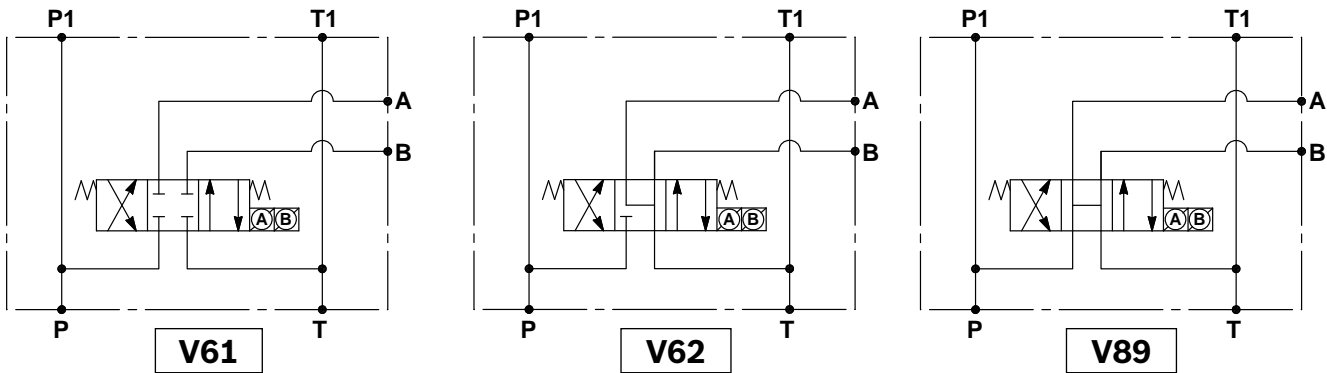
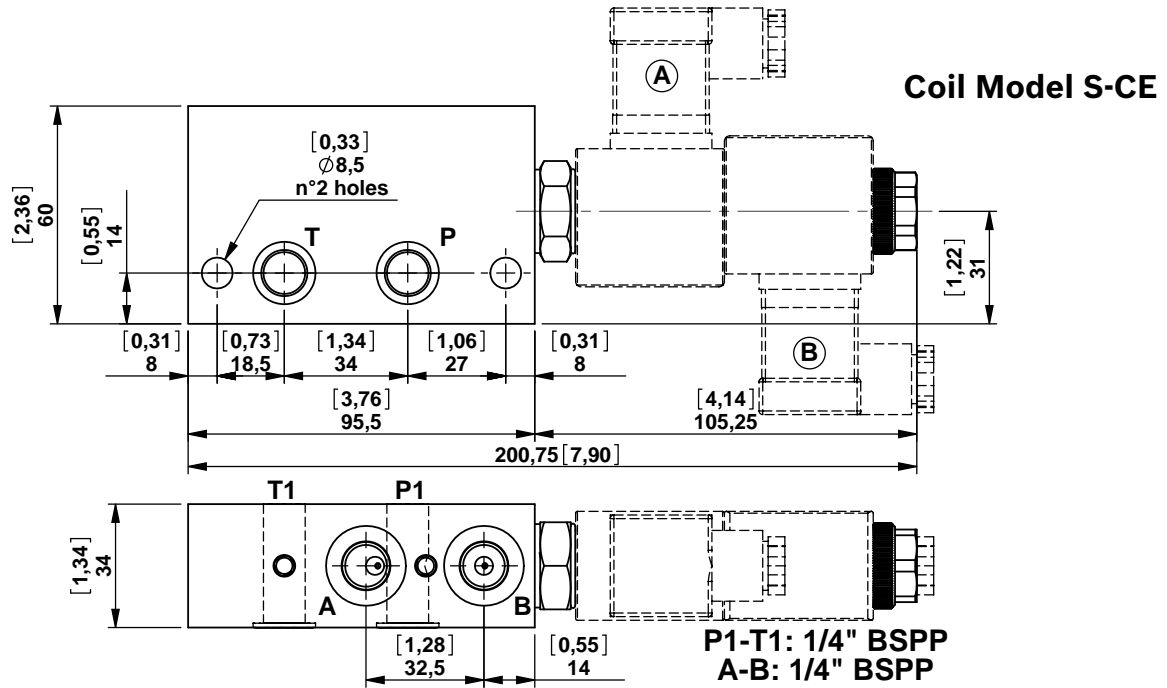
In this position is possible to have a flow control valve. Please contact our sales department for further information.

Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
V07-14	Modular block with 2 VE3-NC-VU with "C" port 1/4" BSPP	250 [3626]	25 [6,60]	G386507010DC	R932001406
V07-38	Modular block with 2 VE3-NC-VU with "C" port 3/8" BSPP	250 [3626]	25 [6,60]	G386507020DC	R932009707

Modular Stackable Elements

Modular blocks with four way three position solenoid valve. Spool type

- A selection of modular blocks with 4/3 spool type solenoid valve for small double acting cylinders.
- Each block includes 2 OR 2056 gaskets.
- Minimum voltage required: 90% of nominal.
- Coils not included, must be ordered separately.
- For the selection of coil model and voltage please refer to page 40-41.
- For the selection of connectors please refer to page 42.



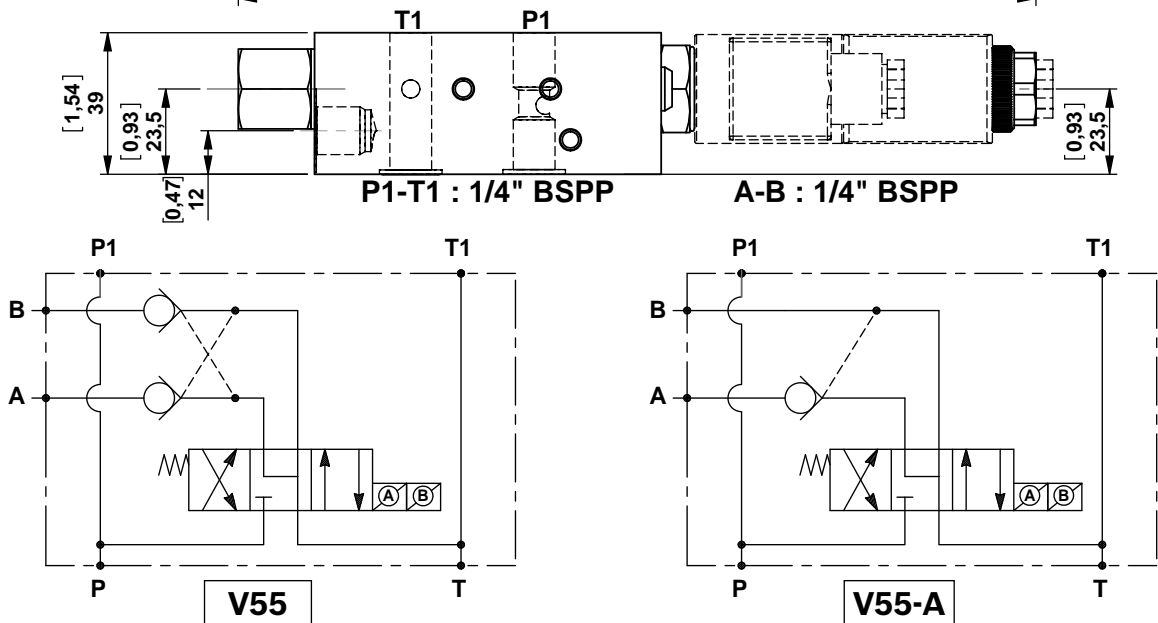
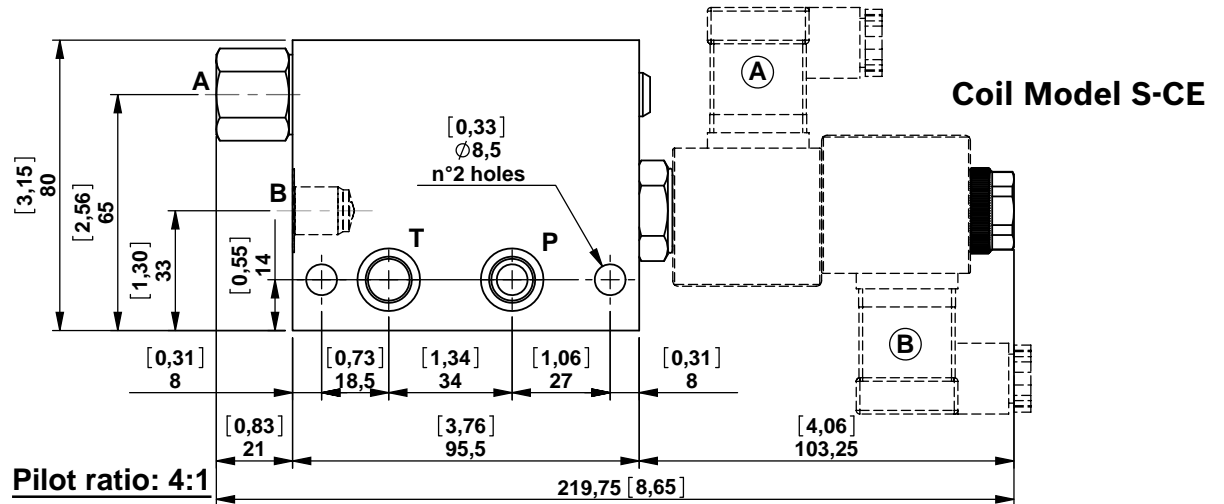
Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
V61	Modular block with 4 way 3 position solenoid valve (V4.3A)	210 [3046]	8 [2,11]	G386562010	R932001552
V62	Modular block with 4 way 3 position solenoid valve (V4.3B)	210 [3046]	8 [2,11]	G386563010	R932001556
V89	Modular block with 4 way 3 position solenoid valve (V4.3C)	210 [3046]	8 [2,11]	G386590010	R932001580

Modular Stackable Elements

Modular block with four way three position solenoid valve and P.O. check valves on “A” and “B” line

A modular block with 4/3 spool type solenoid valve and P.O. check valves on “A” and “B” line. For small double acting cylinders.

- Each block includes 2 OR 2056 gaskets.
- Minimum voltage required: 90% of nominal.
- Coils not included, must be ordered separately.
- For the selection of coil model and voltage please refer to page 40-41.
- For the selection of connectors please refer to page 42.



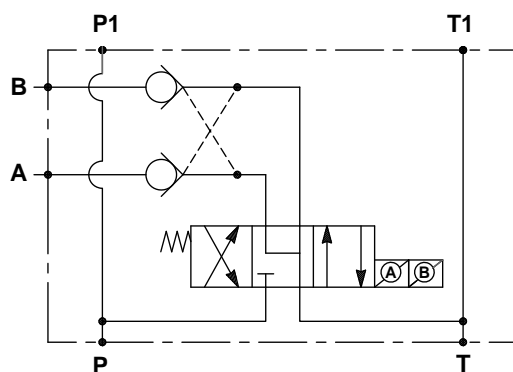
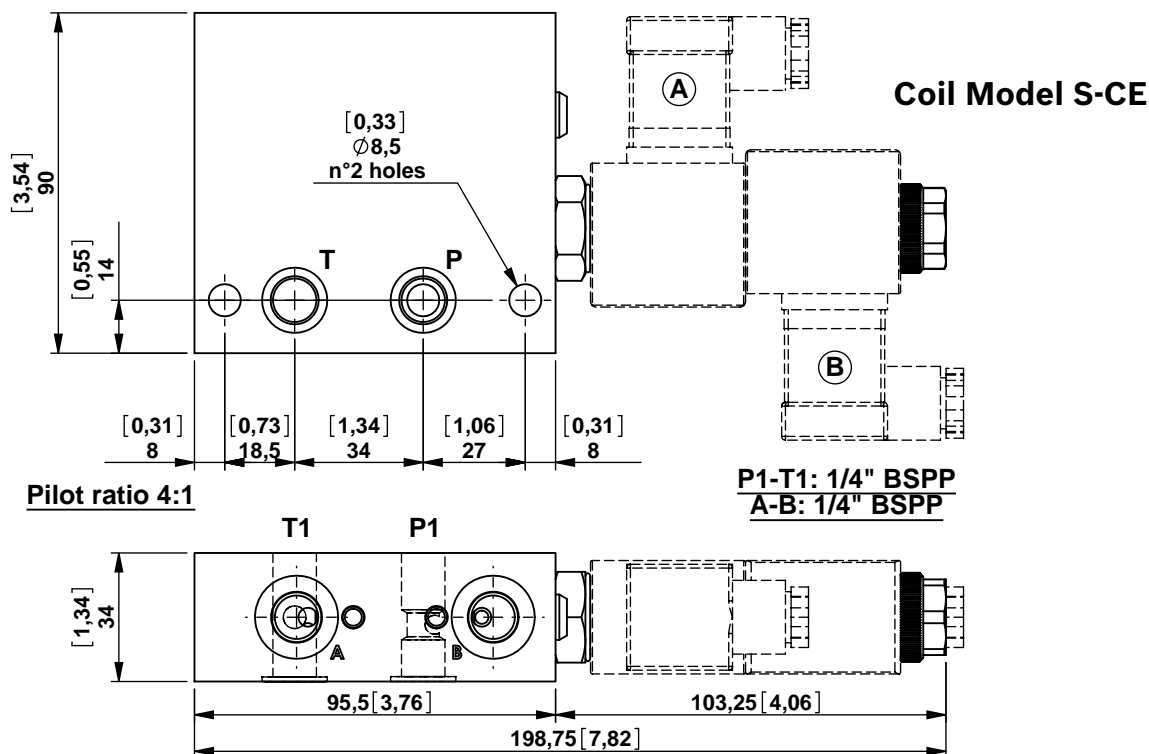
Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
V55	Modular block with 4 way 3 position solenoid valve and P.O. check valves on A and B without O-Ring on pilot piston	210 [3046]	8 [2,11]	G386591A10	R932001584
V55	Modular block with 4 way 3 position solenoid valve and P.O. check valves on A and B with O-Ring on pilot piston	210 [3046]	8 [2,11]	G386591B10	R932001589
V55/A	Modular block with 4 way 3 position solenoid valve and P.O. check valve on A without O-Ring on pilot piston	210 [3046]	8 [2,11]	G386591A1A	R932001581
V55/A	Modular block with 4 way 3 position solenoid valve and P.O. check valve on A with O-Ring on pilot piston	210 [3046]	8 [2,11]	G386591B1A	R932001586

Modular Stackable Elements

Modular block with four way three position solenoid valve and P.O. check valves on "A" and "B" line

A modular block with 4/3 spool type solenoid valve and P.O. check valves on "A" and "B" line. For small double acting cylinders.

- Each block includes 2 OR 2056 gaskets.
- Minimum voltage required: 90% of nominal.
- Coils not included, must be ordered separately.
- For the selection of coil model and voltage please refer to page 40-41.
- For the selection of connectors please refer to page 42.

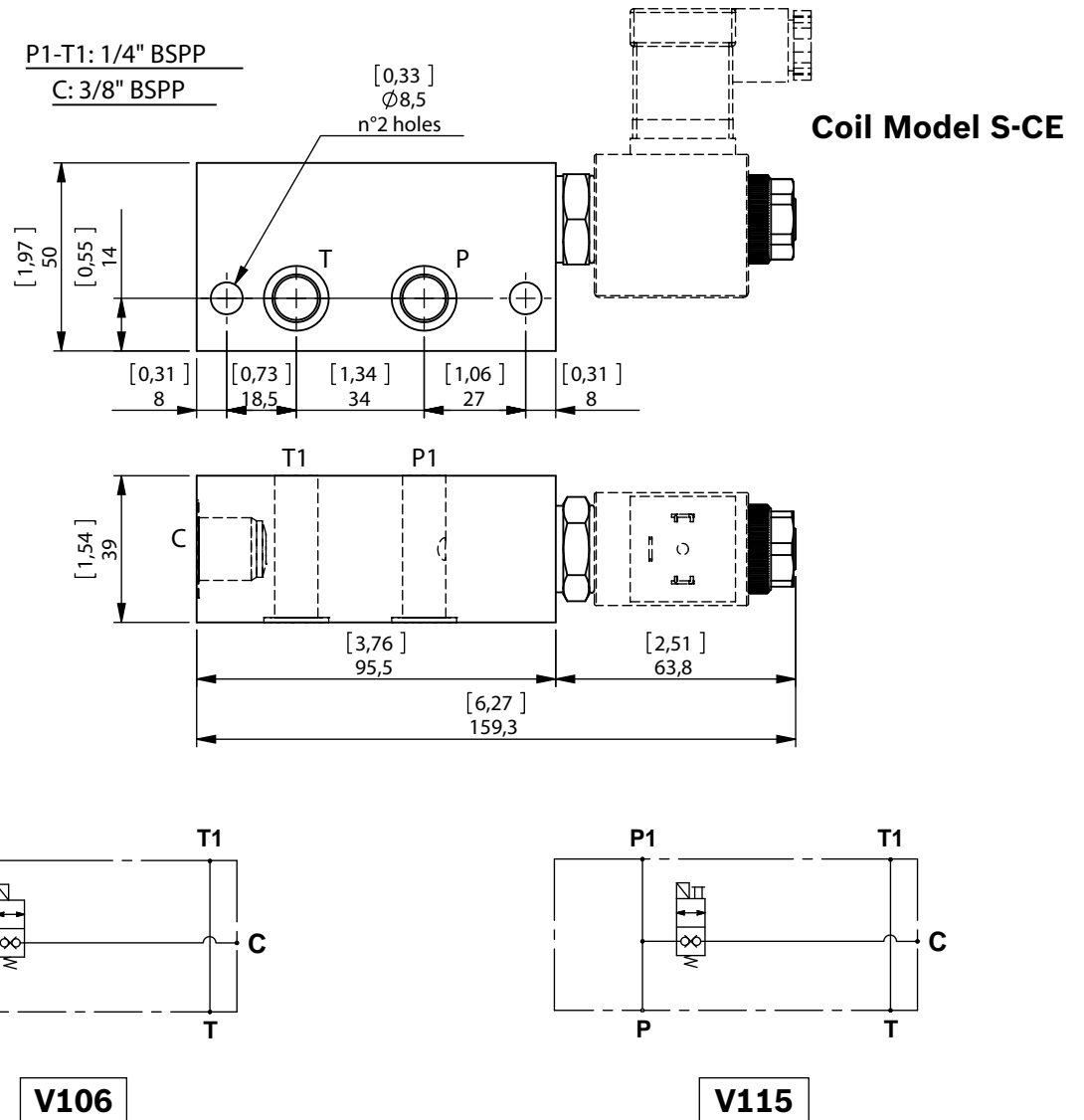


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
V295	Modular block with four way three position solenoid valve and pilot operated check valves on "A" and "B" line	210 [3046]	8 [2,11]	1586500083	R932009708

Modular Stackable Elements

Modular blocks with double locking solenoid valve

- Each block includes 2 OR 2056 gaskets.
- Coils not included, must be ordered separately.
- For the selection of coil model and voltage please refer to page 40-41.
- For the selection of connectors please refer to page 42.

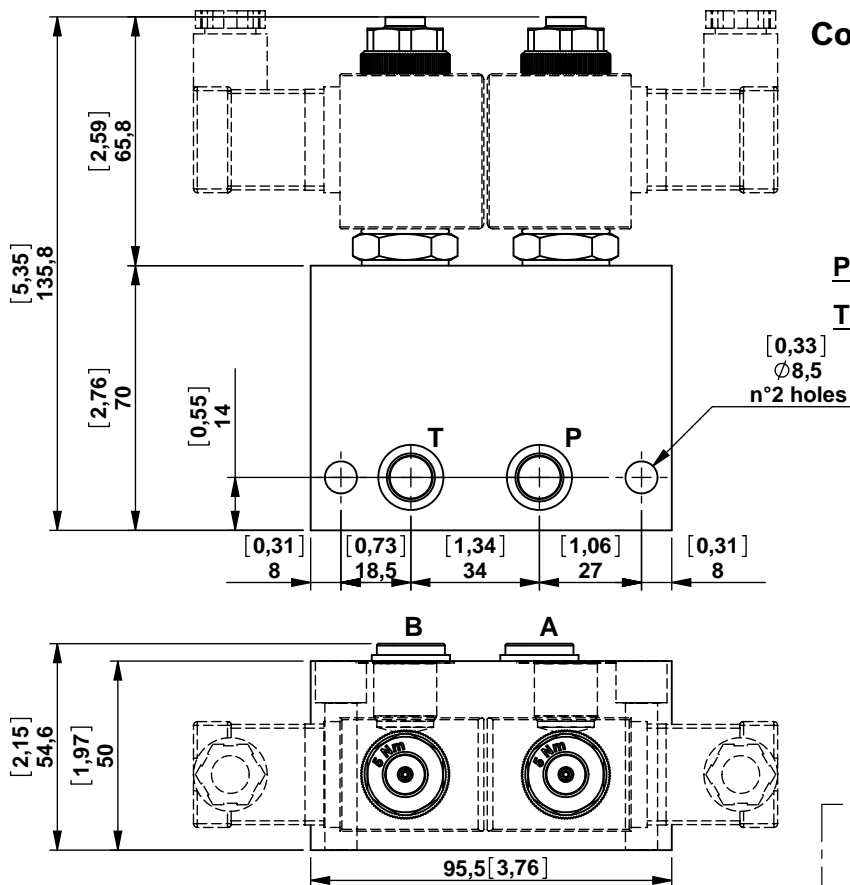


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
V106	Modular block with CE3-DT solenoid valve	210 [3046]	16 [4,23]	G386606020	R932001613
V115	Modular block with CE3-DT-EM solenoid valve	210 [3046]	16 [4,23]	1586500023	R932004543

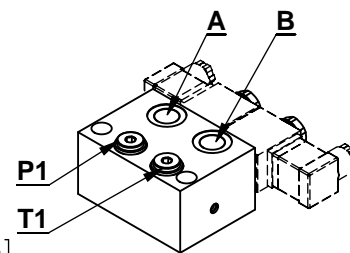
Modular Stackable Elements

Modular block with 2 double locking solenoid valves

- Each block includes 2 OR 2056 gaskets.
- Coils not included, must be ordered separately.
- For the selection of coil model and voltage please refer to page 40-41.
- For the selection of connectors please refer to page 42.

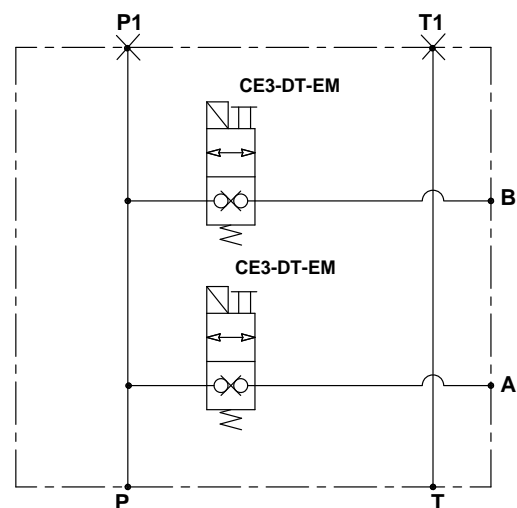


Coil Model S-CE



[0,33]
Ø8,5
n°2 holes

A-B: 3/8" BSPP
P1-T1: 1/4" BSPP

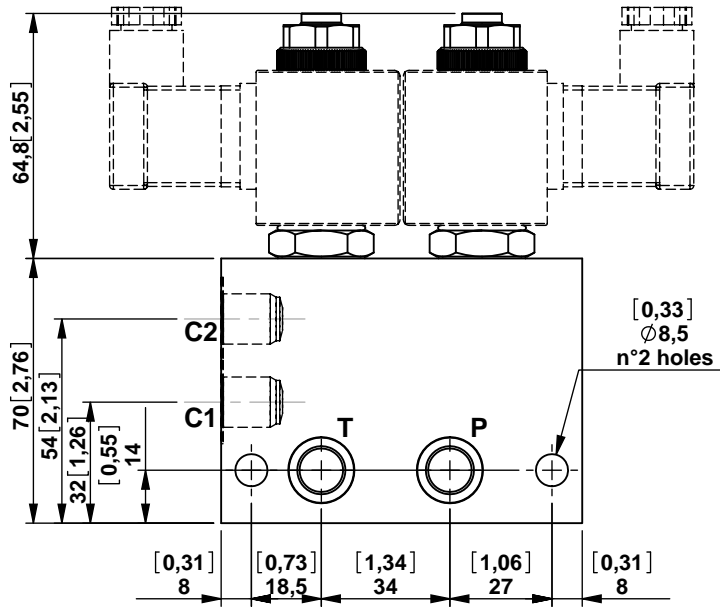


Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
V220	Modular block with 2 CE3-DT-EM with ports 3/8" BSPP	210 [3046]	16 [4,23]	1586500098	R932009614

Modular Stackable Elements

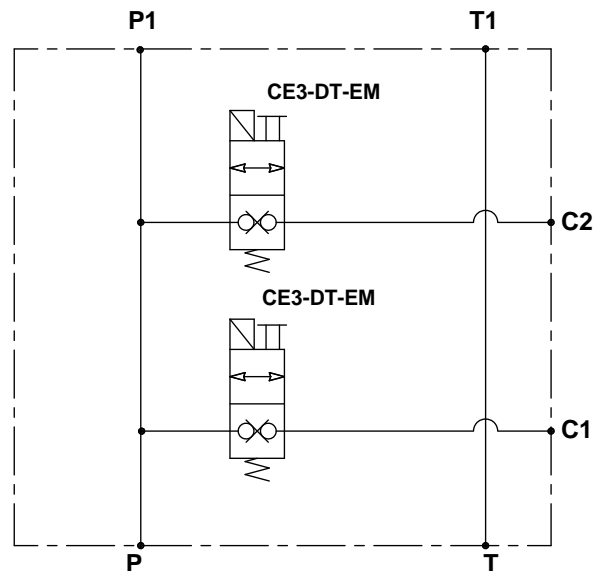
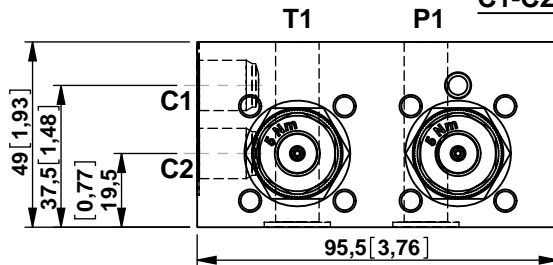
Modular block with 2 double locking solenoid valves

- Each block includes 2 OR 2056 gaskets.
- Minimum voltage required: 90% of nominal.
- Coils not included, must be ordered separately.
- For the selection of coil model and voltage please refer to page 40-41.
- For the selection of connectors please refer to page 42.



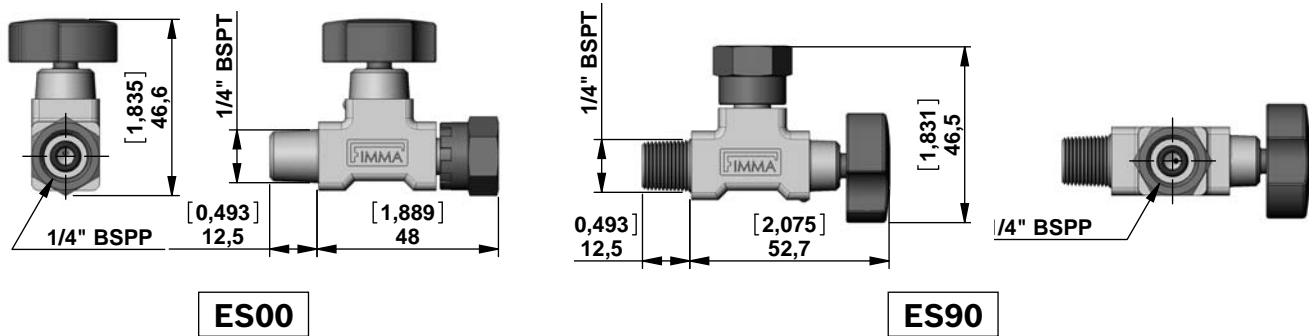
Coil Model S-CE

P1-T1: 1/4" BSPP
C1-C2: 1/4" BSPP



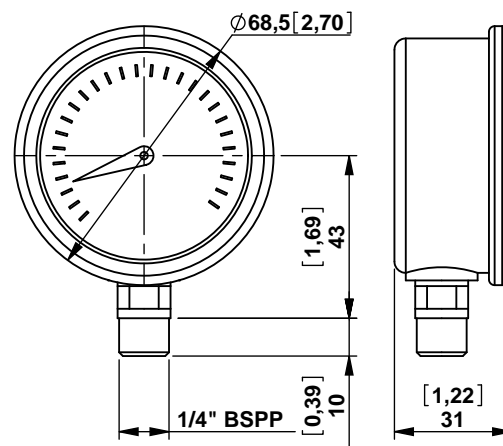
Code	Description	Max Working Pressure bar [psi]	Max Flow l/min [gpm]	Type	Material Number
V307	Modular block with 2 CE3-DT-EM with ports 1/4" BSPP	210 [3046]	16 [4,23]	1586500099	R932009709

Accessories



Isolator

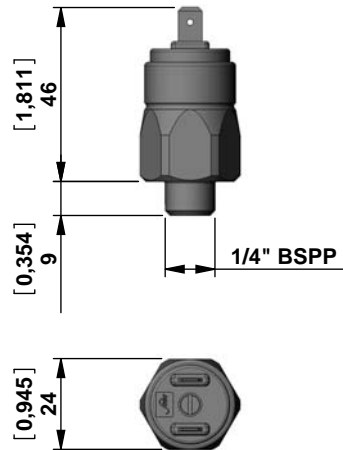
Code	Description	Type	Material Number
ES00	Straight isolator	EM 14	R932500182
ES90	90° isolator	EM 14 T	R932500184



Manometer

Code	Description	Pressure range bar [psi]	Type	Material Number
MN100	Pressure gauge	0-100 [0-1450]	C163017000	R932000582
MN160	Pressure gauge	0-160 [0-2320]	C163018000	R932000583
MN250	Pressure gauge	0-250 [0-3626]	C163019000	R932000584
MN315	Pressure gauge	0-315 [0-4568]	C163020000	R932000585

Accessories

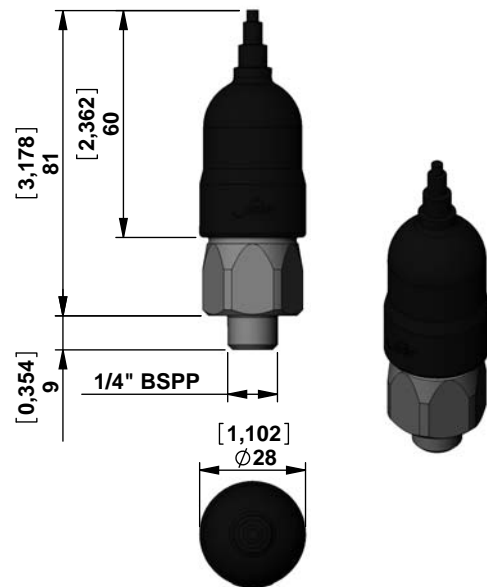


Pressure Switches

Code	Adjustment Range bar [psi]	Contact Type	Internal Features	Protection	Type	Material Number
PRNO20	10-20 [145-290]	N.O.	Diaphragm	IP65	C164761000	R932010002
PRNC20	10-20 [145-290]	N.C.	Diaphragm	IP65	C164766000	R932010001
PRNO50	20-50 [290-725]	N.O.	Diaphragm	IP65	C164767000	R932010003
PRNC50	20-50 [290-725]	N.C.	Diaphragm	IP65	C164768000	R932010004
PRNO150	50-150 [725-2175]	N.O.	Piston	IP65	C164769000	R932010005
PRNC150	50-150 [725-2175]	N.C.	Piston	IP65	C164770000	R932010006

Protective Cap for Pressure Switches

Code	Type	Material Number
CAP	F224013000	R932010000



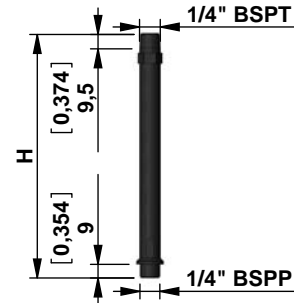
Horizontal Suction, Pipe

				Tank Diameter		
Central Manifold	Oil tank diameter mm [inch]	Type	Material Number	Ø 96	Ø 123	Ø 190
ME	90 [3,54]	K234052177	R932011066	[0,906] 23 1/4" BSPT	[0,906] 23 1/4" BSPT	[4,469] 113,5 1/4" BSPT
	123 [4,84]	K234052175	R932011064	[1,260] 32 1/4" BSPT	[1,890] 48 1/4" BSPT	[0,984] R25 1/4" BSPT
	190 [7,48]	M234048000	R932003086			[3,484] 88,5 1/4" BSPT

Accessories

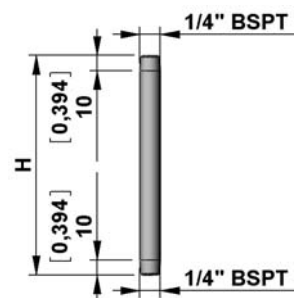
Vertical Suction, Plastic Pipe

Central Manifold	Oil tank diameter mm [inch]	Type	Material Number
ME	33 [1,30]	K2340S2178	R932011067
	43 [1,70]	K2340S2179	R932011068
	49 [1,93]	K2340S2180	R932011069
	54 [2,13]	K2340S2181	R932011070
	61 [2,40]	K2340S2182	R932011071
	77 [3,03]	K2340S2183	R932011072
	87 [3,42]	K2340S2184	R932011073
	99 [3,90]	K2340S2185	R932011074
	114 [4,49]	K2340S2186	R932011075
	136 [5,35]	K2340S2187	R932011076
	161 [6,34]	K2340S2188	R932011077
	241 [9,49]	K2340S2189	R932011078
	321 [12,64]	K2340S2190	R932011079
	381 [15,00]	K2340S2191	R932011080



Vertical Suction, Steel Pipe

Central Manifold	H mm [inch]	Type	Material Number
ME	42 [1,65]	M234049000	R932003087
	52 [2,05]	K2340S2009	R932002254
	58 [2,28]	K2340S7000	R932002339
	63 [2,48]	M2340S2163	R932009736
	70 [2,76]	M2340S1000	R932003089
	86 [3,39]	M2340S2000	R932003090
	96 [3,78]	M234046000	R932003084
	108 [4,25]	M2340S0000	R932003088
	123 [4,84]	M2340S5000	R932003093
	145 [5,71]	M2340S4000	R932003092
	170 [6,69]	M2340S3000	R932003091
	250 [9,84]	M234095000	R932003095
	330 [12,99]	M234022000	R932003082



Accessories

Suction Filter

Compatibility	Filtering Degree μm	Max Flow l/min [gpm]	Type	Material Number	Drawing
ME	90	8 [2,11]	K225583000	R932010867	

Horizontal Return, Steel Pipe

L mm [inch]	H mm [inch]	Type	Material Number	
120 [4,72]	45 [1,77]	K234716000	R932002375	
134 [5,28]	90 [3,54]	K234717000	R932002376	
170 [6,69]	90 [3,54]	K234727000	R932002383	

Vertical Return, Plastic Pipe

H mm [inch]	Type	Material Number	Drawing ref.	
100 [3,94]	K234715000	R932002374	A	
110 [4,33]	K234780000	R932011081	B	
120 [4,72]	K234781000	R932011082	B	
150 [5,91]	K234714000	R932002373	A	
160 [6,30]	K234782000	R932011083	B	
200 [7,87]	K234713000	R932002372	A	
250 [9,84]	K234784000	R932011084	B	
300 [11,81]	K234785000	R932011085	B	
400 [15,75]	K234786000	R932011086	B	

Vertical Return, Steel Pipe

H mm [inch]	Type	Material Number	
250 [9,84]	K234718000	R932002377	
300 [11,81]	K234719000	R932002378	
400 [15,75]	K234722000	R932002379	

