

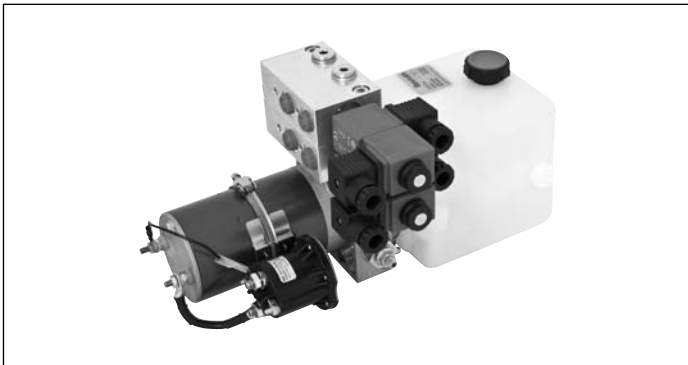
Compact power modules

ME - MR series

RE 18306-01

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

01	02	03	04	05	06	07	08	09	10	11	12	
ME	-	-	-	-	/	()	-	/	-	/	/	/

Family

01	Power module type	ME
----	-------------------	----

Power module type of motor

02	Without motor	0
	With 3ph motor	2
	With 1ph motor	3

A.C. Electric motor

03	(See page 11-12)	
----	------------------	--

Junction Elements

04	The code of the Junction Element is showing in the page after the selected AC motor.	
----	--	--

Central Manifold with Pressure range Relief Valve + Request Setting of the Relief Valve in Bar

05	Select the required Central manifold with the required pressure range of the Relief valve and put the required setting in bar beetwen bracket.	
----	--	--

Built-in Valves

06	Insert the codes of the required valves following the number of the cavity in the Central Manifold (see page after the selected Central Manifold).	
----	--	--

Coil Model and Connector

07	In case of selection of Solenoid Built-in Valve choice the required coil Voltage and the required Connector. (See page 44)	
----	--	--

Gears pump

08	Select the required Gears pump. (See page 47)	
----	---	--

Oil Tank

09	Select the required Oil Tank.(See page 48-54)	
----	---	--

Mounting Position and Mounting Brackets

10	Select the required working position of the Power Module and the position of the therminal box and Oil Filler cap in case of mounting position V1. If needed select the Mounting Bracket. (See page 55-56)	
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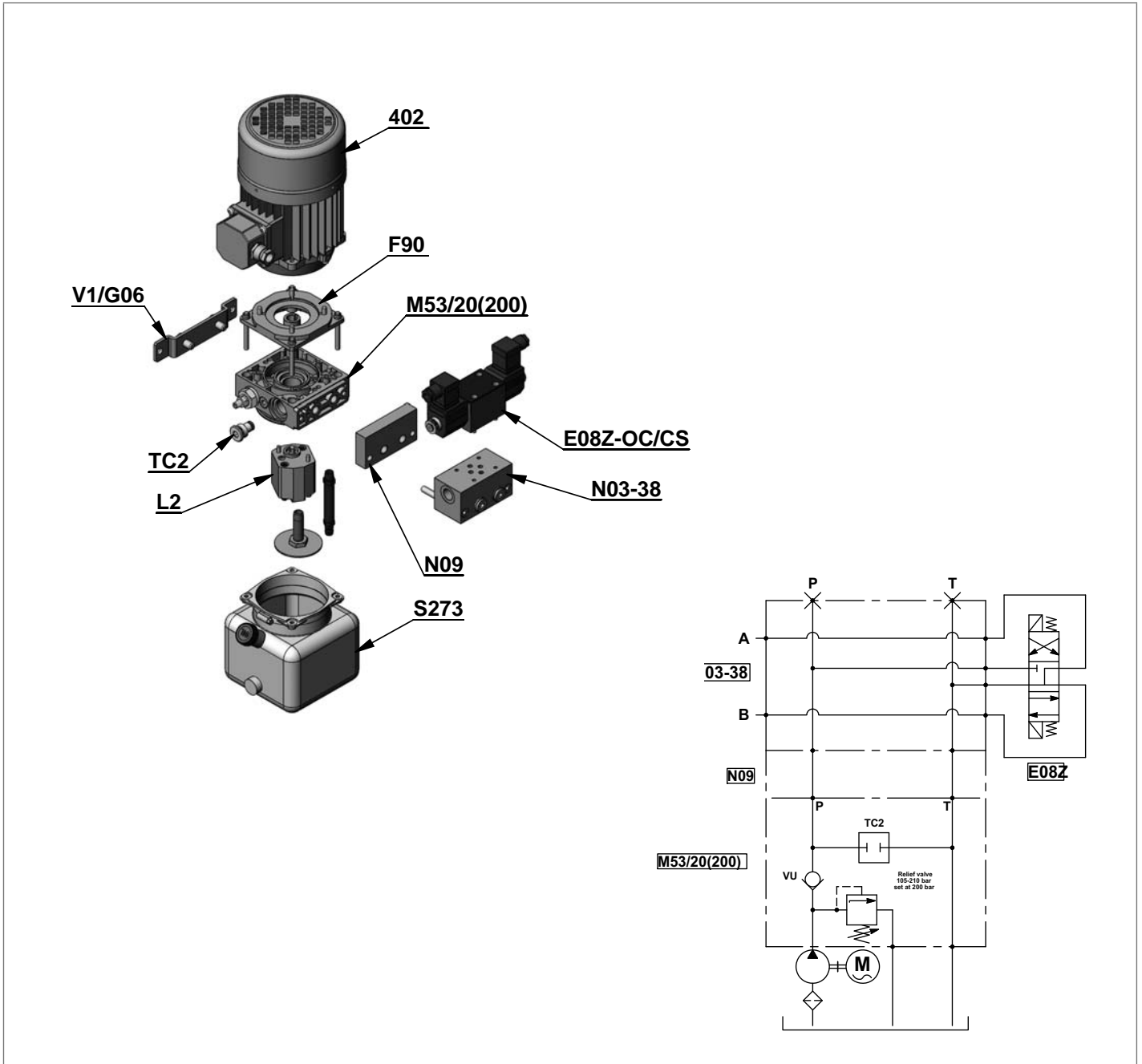
Modular Stackable Elements

11	If needed select the additional Modular Stackable Elements.	
----	---	--

Accessories

12	If needed select the additional Accessories.	
----	--	--

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



Ordering Details for Compact Power Modules with AC Motor

	01	02	03	04	05	06	08	09	10	11
	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	

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

01	02	03	04	05	06	07	08	09	10	11	12	13	14
ME	-	-	-	-	-	-	-	-	-	-	-	-	-

Family

01	Power module type	ME
----	-------------------	-----------

Power module type of motor

02	With DC motor	1
----	---------------	----------

D.C. Electric motor

03	Select the required DC motors. (See page 14-27)	
----	---	--

Relay

04	The available relays are shown in the page after the selected DC motor.	
----	---	--

Plastic Protection

05	The possibility to assemble the plastic protection is shown in the page after the selected DC motor.	
----	--	--

Junction Elements

06	The code of the Junction Element is showing in the page after the selected DC motor.	
----	--	--

Central Manifold with Pressure range Relief Valve + Request Setting of the Relief Valve in Bar

07	Select the required Central manifold with the required pressure range of the Relief valve and put the required setting in bar beetwen bracket.	
----	--	--

Built-in Valves

08	Insert the codes of the required valves following the number of the cavity in the Central Manifold. (see page after the selected Central Manifold)	
----	--	--

Coil Model and Connector

09	In case of selection of Solenoid Built-in Valve choice the required coil Voltage and the required Connector. (See page 44)	
----	--	--

Gears pump

10	Select the required gears pump. (See page 47)	
----	---	--

Oil Tank

11	Select the required Oil Tank. (See page 48-54)	
----	--	--

Mounting Position and Mounting Brackets

12	Select the required working position of the Power Module and the position of Relay and Oil Filler cap in case of mounting position V1. If needed select the Mounting Bracket. (See page 55-56)	
----	--	--

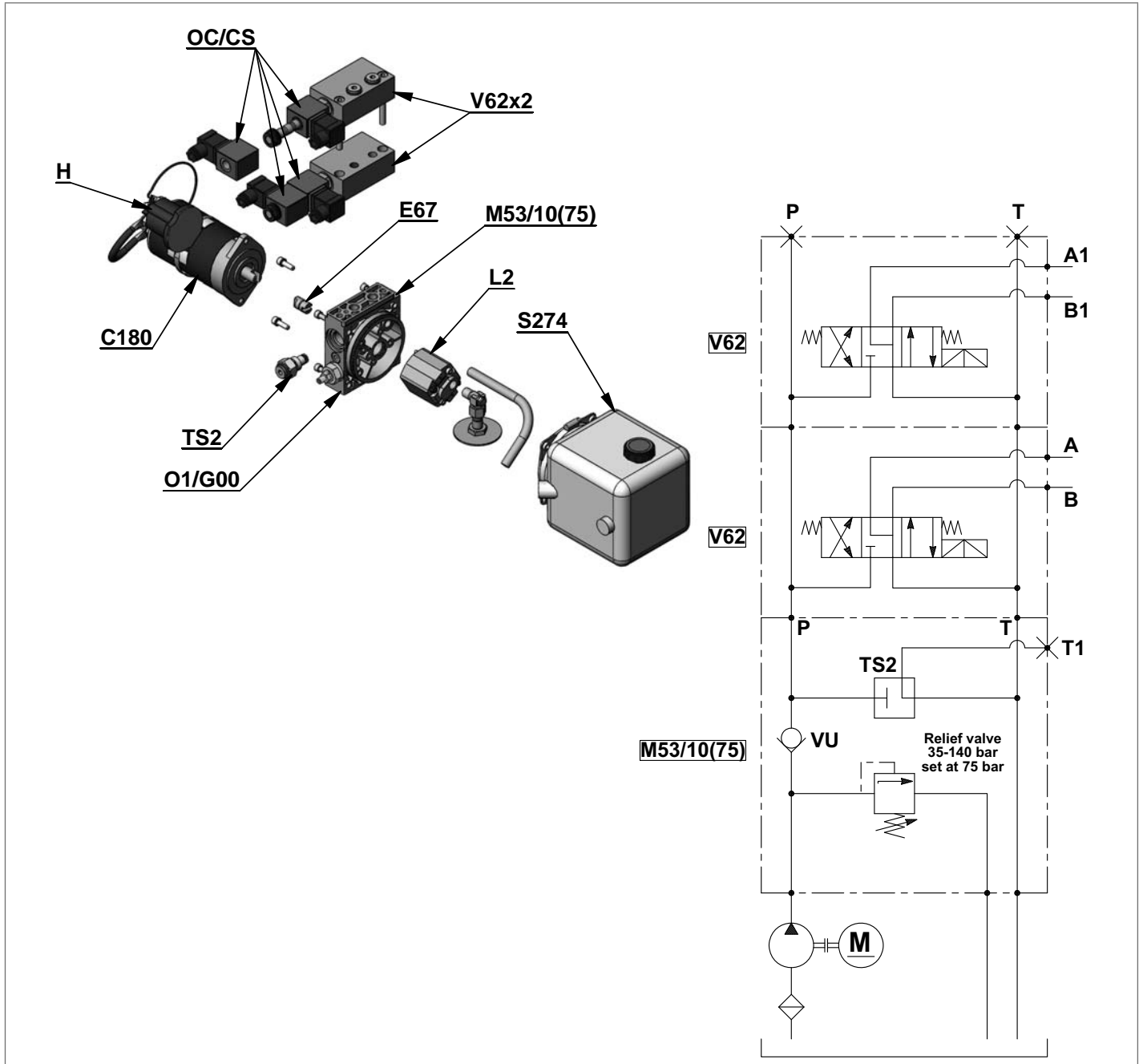
Modular Stackable Elements

13	If needed select the additional Modular Stackable Elements	
----	--	--

Accessories

14	If needed select the additional Accessories	
----	---	--

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



Ordering Details for Compact Power Modules with AC Motor

	01	02	03	04	06	07	08	10	11	12	13
ME	1	- C180	- H	- 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 between 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)

01	02	03	04	05	06	07	08
MR	-	-	-	- / - ()	-	-	-

Family							
01	Power module type						MR

Power module type of motor							
02	Without motor						0
	With DC motor						1
	With AC 3ph motor						2
	With AC 1ph motor						3

Electric motor							
03	Select the required DC motors. (See pages 14-21) Or required AC motors. (See pages 11-12)						

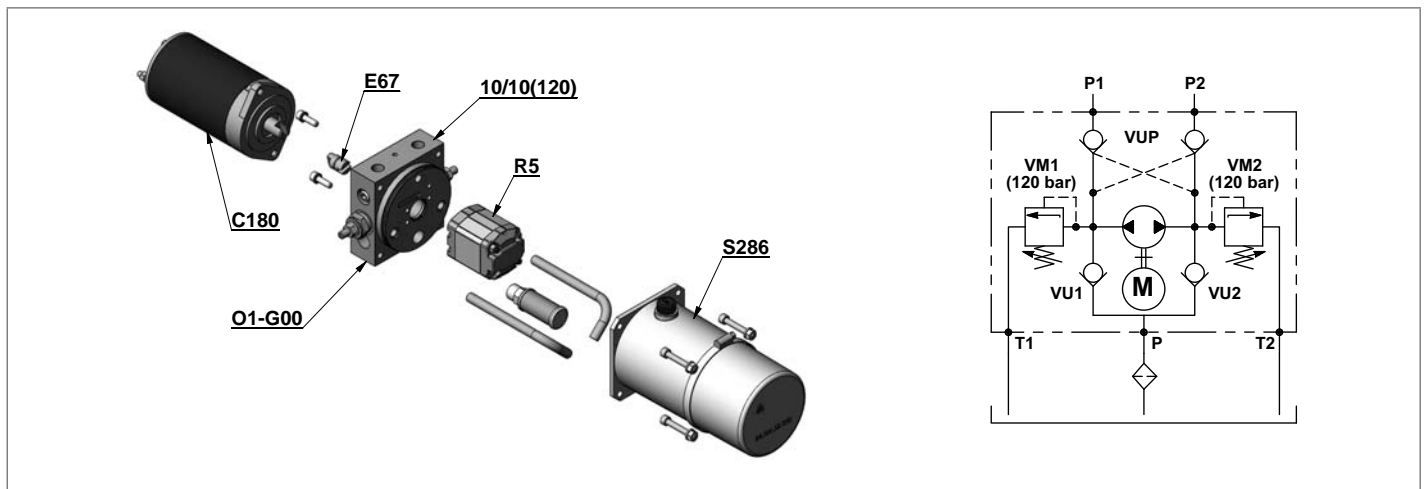
Junction Elements							
04	The code of the Junction Element is showing in the page after the selected motor.						

Central Manifold with Pressure range Relief Valve + Request Setting of the Relief Valve in bar							
05	Select the required Central manifold with the required pressure range of the Relief valve and put the required setting in bar between bracket.						

Gears pump							
06	Select the required gears pump (See page 47)						

Oil Tank							
07	Select the required Oil Tank. (See pages 48-54)						

Mounting Position and Mounting Brackets							
08	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 55-56)						



Ordering Details for Compact Power Modules MR

01	02	03	04	05	06	07	08
MR	1	- C180	- E67	- 10 / 10 (120)	- R5	- S286	- O1-G00
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 between bracket	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.

Permissive 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 20/18/15 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.

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.

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:

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

Compact Power Module Type

ME

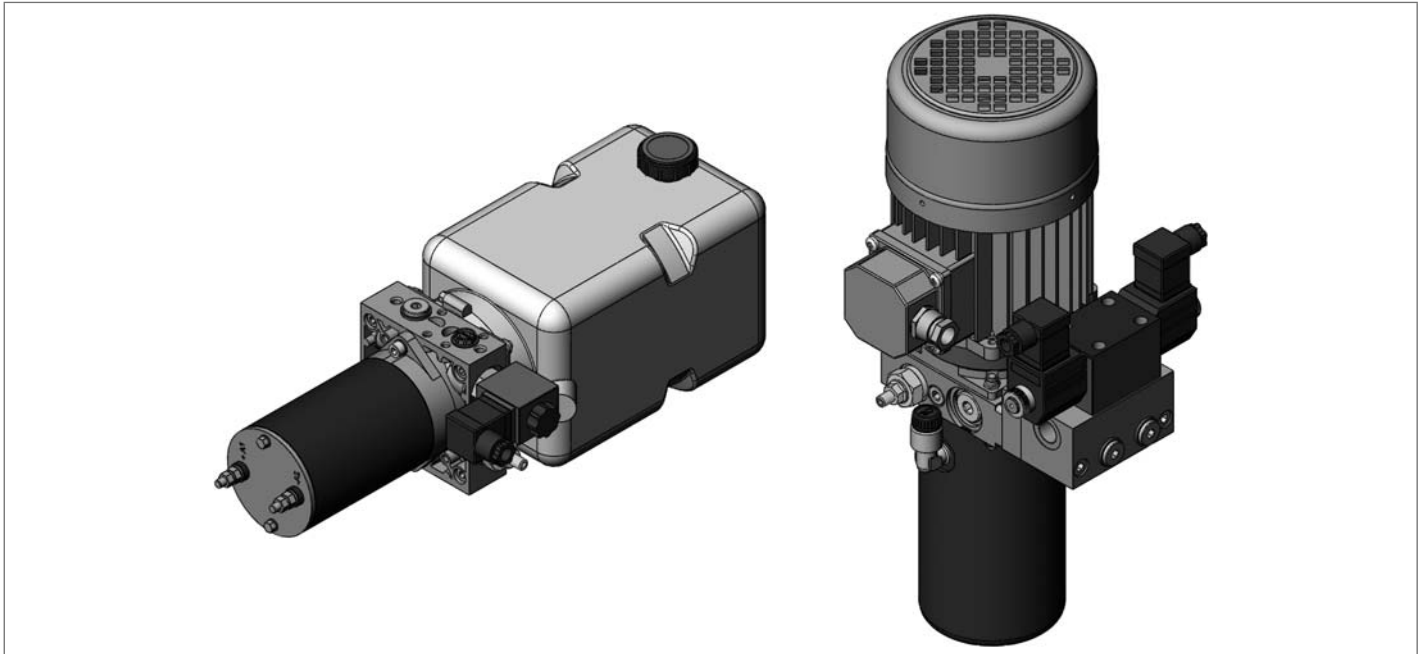
Smallest overall dimensions.

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**

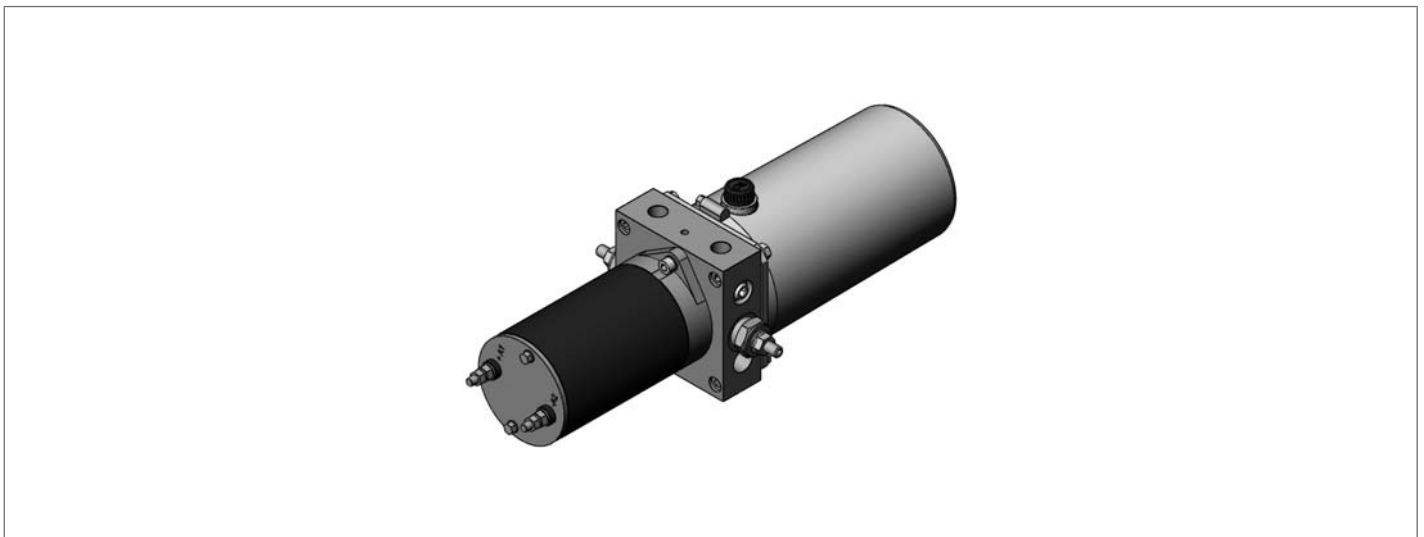
Smallest overall dimensions.

DC motors up to 800 W (1,1 hp).

AC motors up to 750 W (1,0 hp).

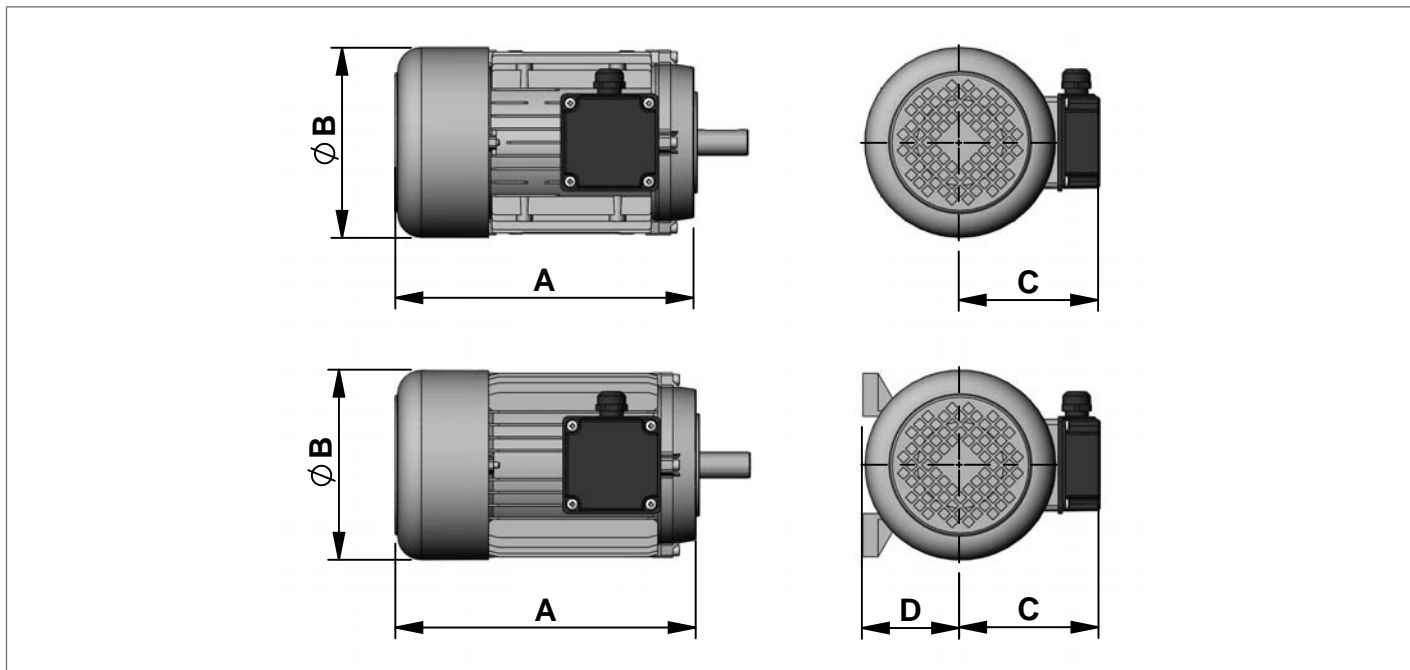
Pump displacement up to 1,5 cm³ (0,09 inch³).

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)

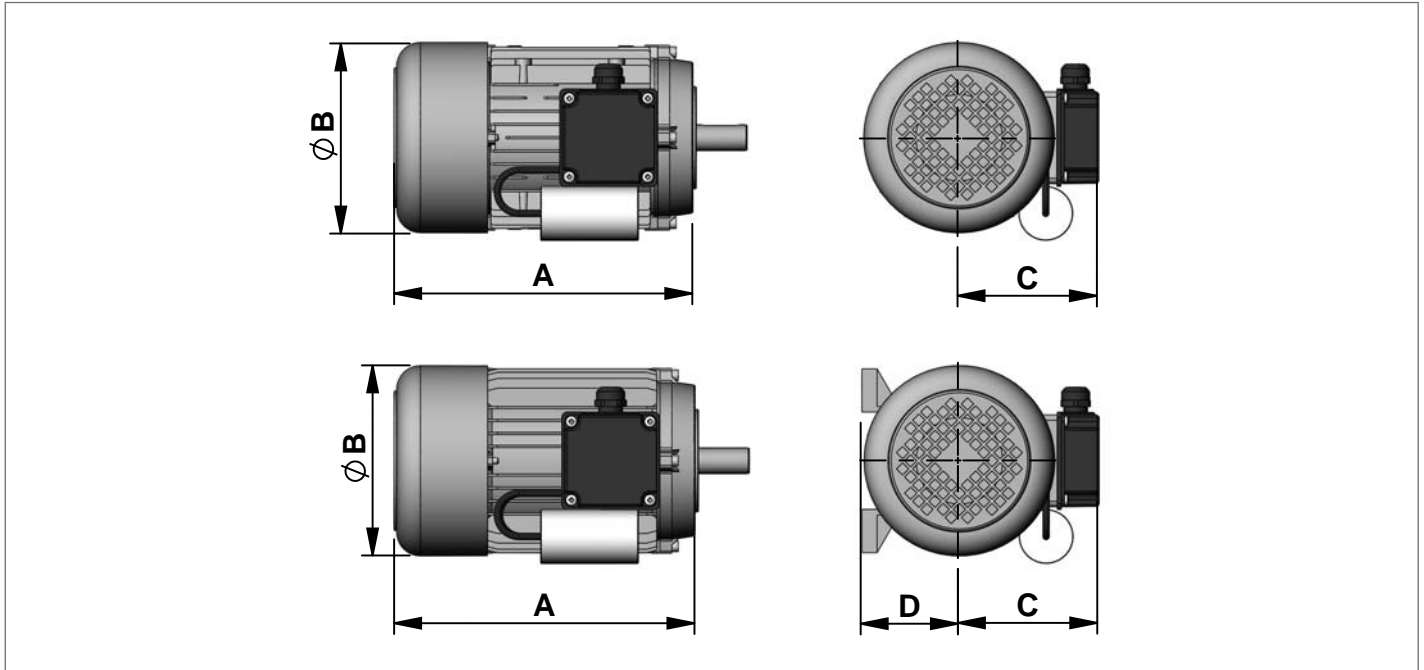
Code	Type	Material Number	Power (kW)	Power (hp)	Size IEC	Duty Cycle	A mm (inch)	ØB mm (inch)	C mm (inch)	D mm (inch)	Efficiency Classe
204	C162208000	R932000450	0,75	1	80	S3 60%	237 (9,33)	156 (6,14)	123 (4,84)	80 (3,15)	IE1
205	C162209000	R932000451	1,1	1,1	80	S3 60%	237 (9,33)	156 (6,14)	123 (4,84)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

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

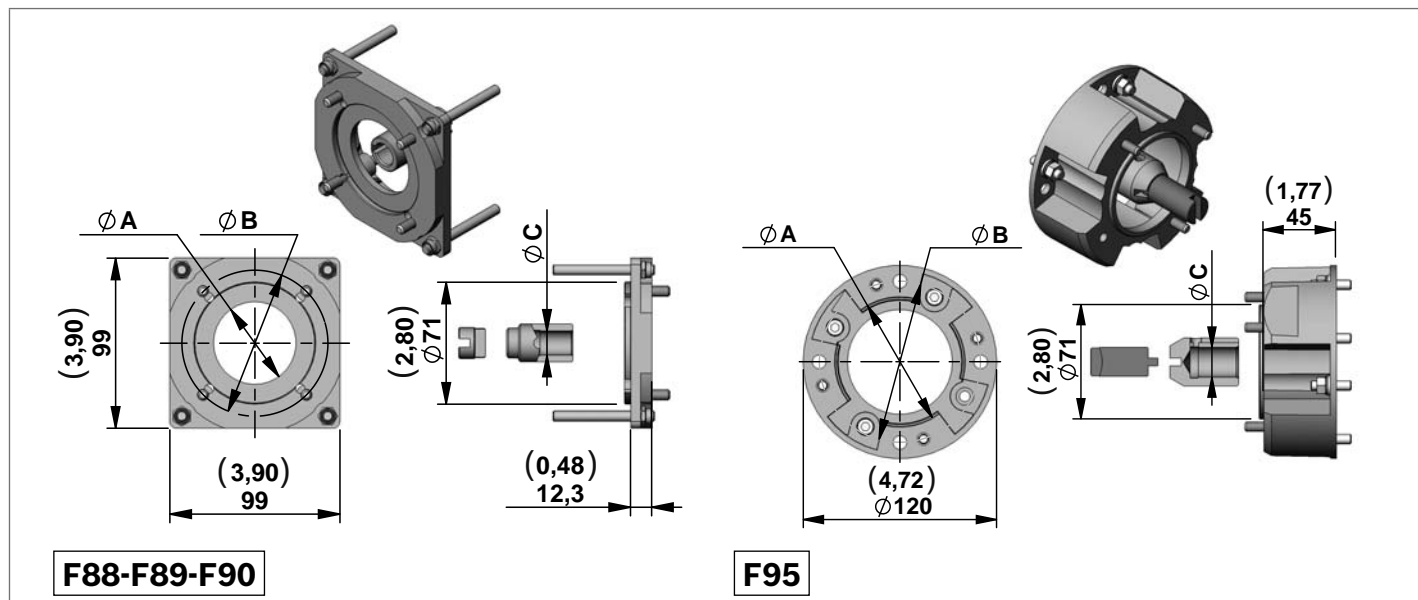
Current Motors 230V 50Hz Form B14 Protection IP54 (1450 rpm at 50Hz)

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



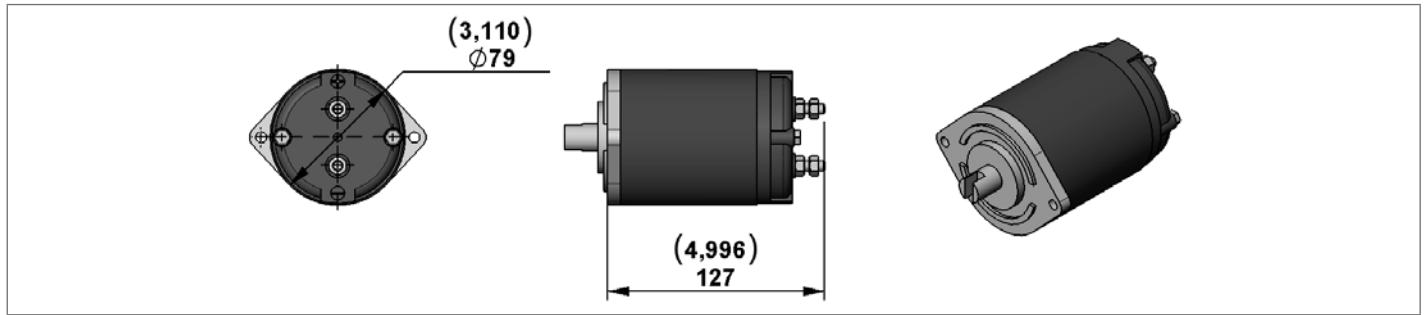
Junction Elements for manifolds ME - MR series (STD COUPLINGS)

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

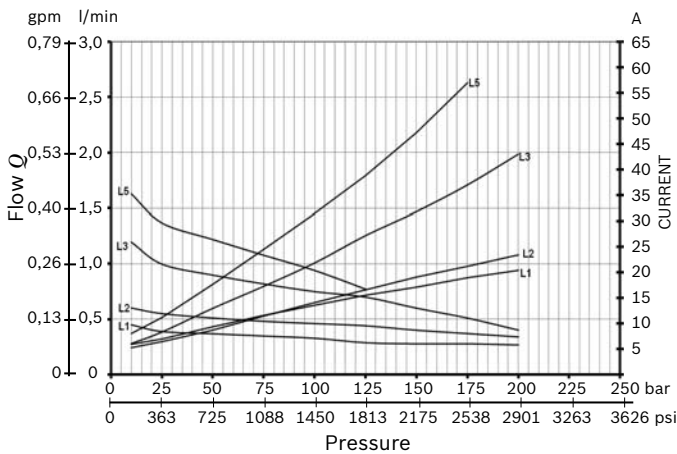
The junction element F95 is not usable with manifold MR serie.

D.C. Electric Motors Standard Performance

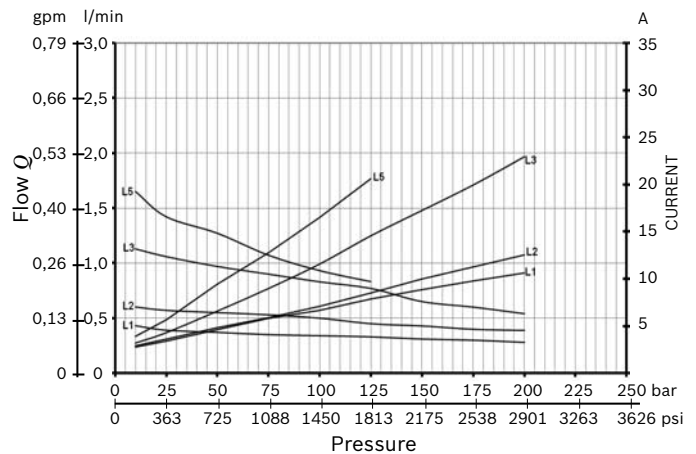


Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Direction of rotation	Type	Material Number
C177	12	150	10% 2,5min	NO	NO	IP 54	<->	C1620S1077	R932010751
C178	24	150	10% 2,5min	NO	NO	IP 54	<->	C1620S1078	R932010752

Electric Motor C177 (12V – 150W) Diagrams



Electric Motor C178 (24V – 150W) Diagrams



S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
20	8	20%
30	4	8%
50	1,5	3%

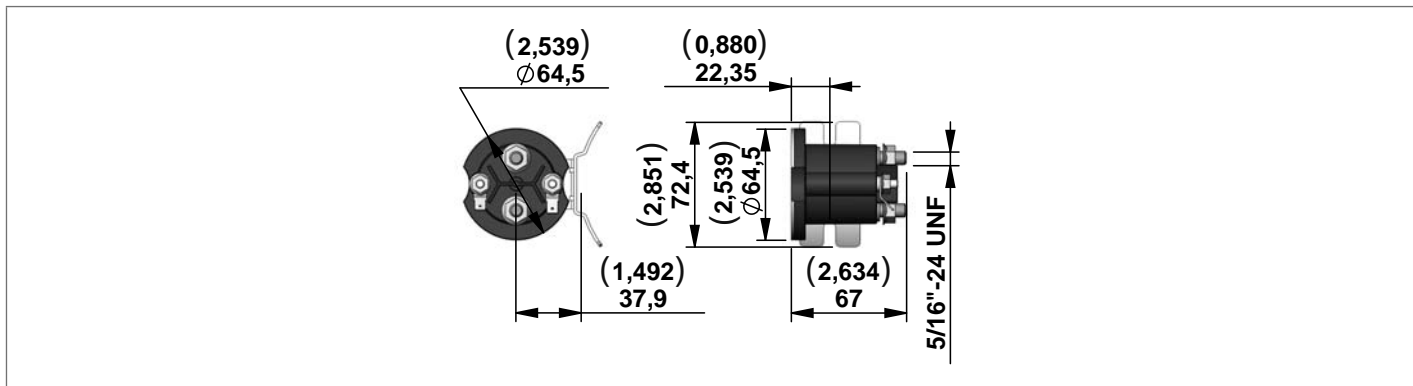
S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
10	4	10%
20	1,5	3%

Note

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

Relay



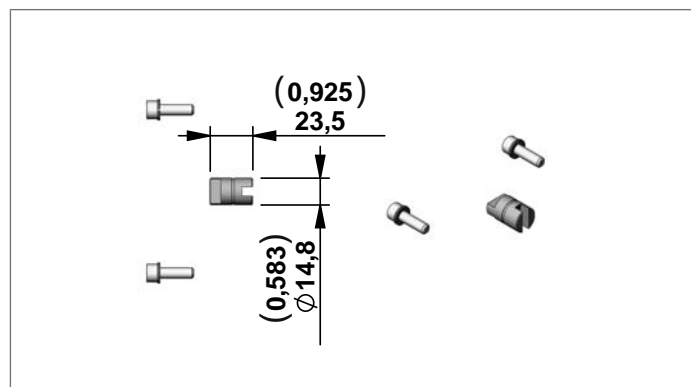
Starting Relay **Standard Performance**

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	IP66	NO	C165535000	R932000693

Kit Motor + Relay



Junction Elements for D.C. Electric Motor

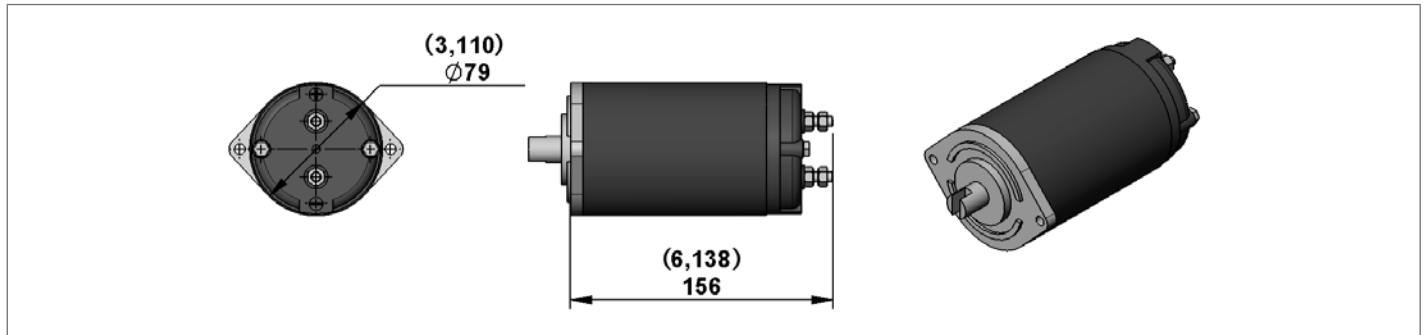


Junction Elements for manifolds **ME - MR series**

Motor + Relay	Type	Material Number
C177+relay 12V STANDARD performance	K396812177PSF	R930051641
C178+relay 24V STANDARD performance	K396824178PSF	R930051629

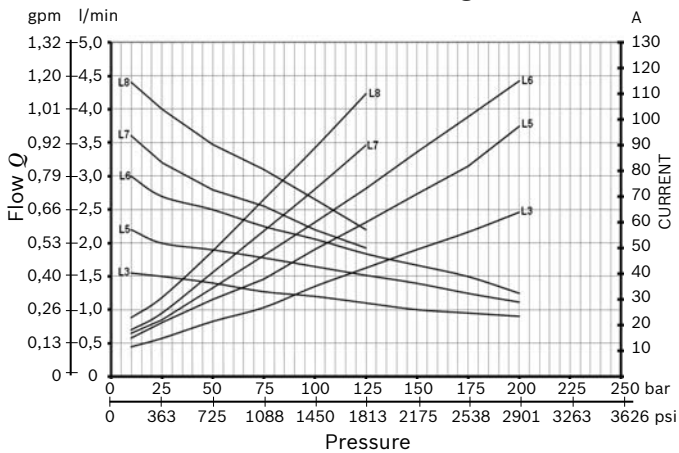
Code	Type	Material Number
E67	K01X3970TR095	R932002066

D.C. Electric Motors Standard Performance

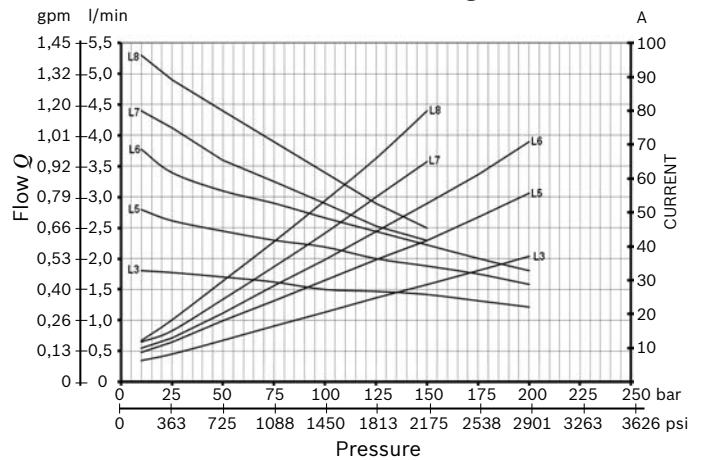


Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Direction of rotation	Type	Material Number
C179	12	500	10% 2,5min	NO	NO	IP 54	<->	C1620S1079	R932010753
C180	24	500	10% 2,5min	NO	NO	IP 54	<->	C1620S1080	R932010755

Electric Motor C179 (12V – 500W) Diagrams



Electric Motor C180 (24V – 500W) Diagrams



S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
50	10	25 %
75	5	10 %
100	2	3 %

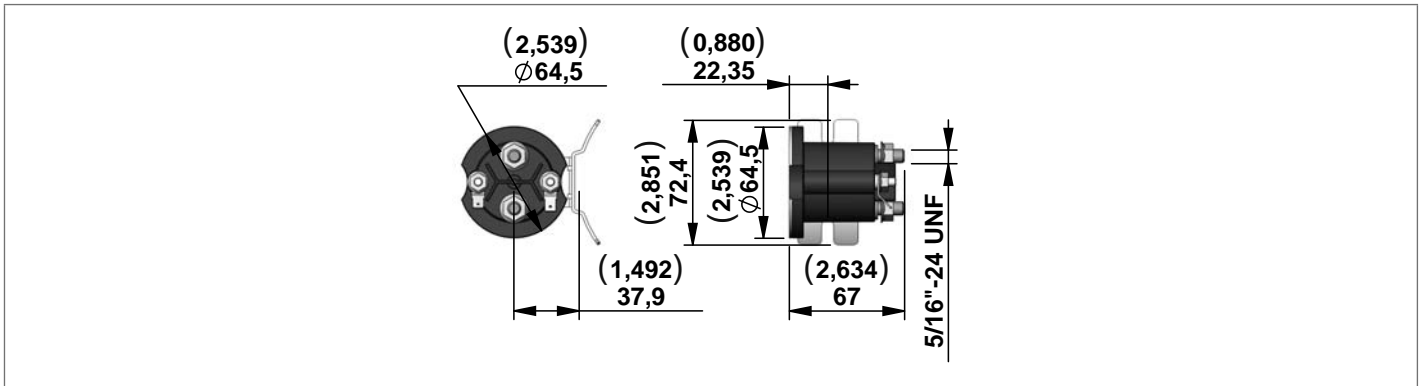
S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
20	10	25 %
40	5	10 %
60	2	2 %

Note

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

Relay



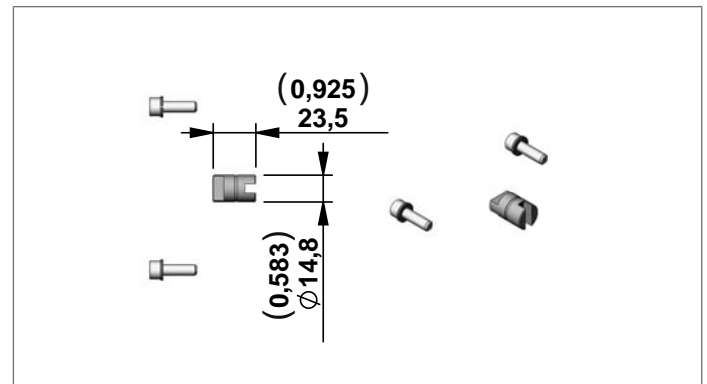
Starting Relay **Standard Performance**

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	IP66	NO	C165535000	R932000693

Kit Motor + Relay



Junction Elements for D.C. Electric Motor

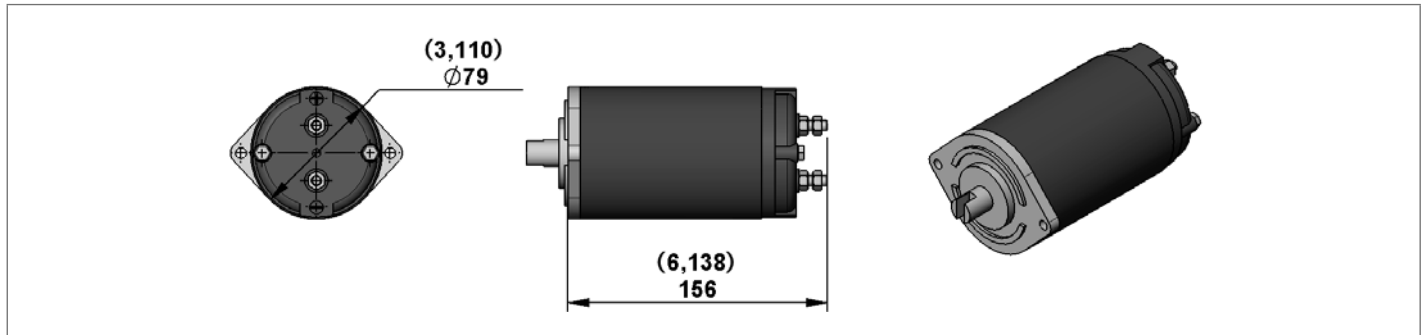


Junction Elements for manifolds **ME - MR series**

Motor + Relay	Type	Material Number
C179+relay 12V STANDARD performance	K396812179PSF	R930051817
C180+relay 24V STANDARD performance	K396824180PSF	R930051820

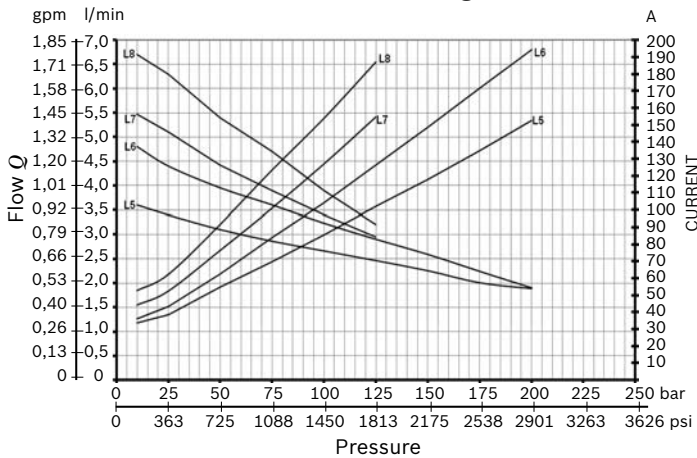
Code	Type	Material Number
E67	K01X3970TR095	R932002066

D.C. Electric Motors Standard Performance

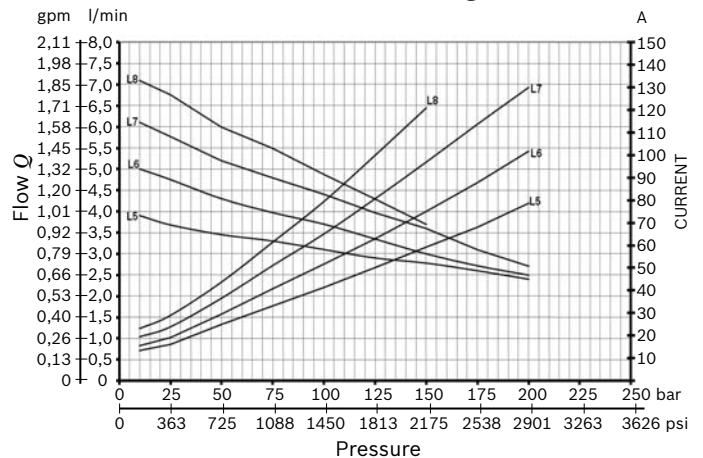


Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Direction of rotation	Type	Material Number
C181	12	800	8% 2,5min	NO	NO	IP 54	<->	C1620S1081	R932010754
C182	24	800	8% 2,5min	NO	NO	IP 54	<->	C1620S1082	R932010756

Electric Motor C181 (12V – 800W) Diagrams



Electric Motor C182 (24V – 800W) Diagrams



S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
50	10	25 %
100	5	10 %
150	1,5	3 %

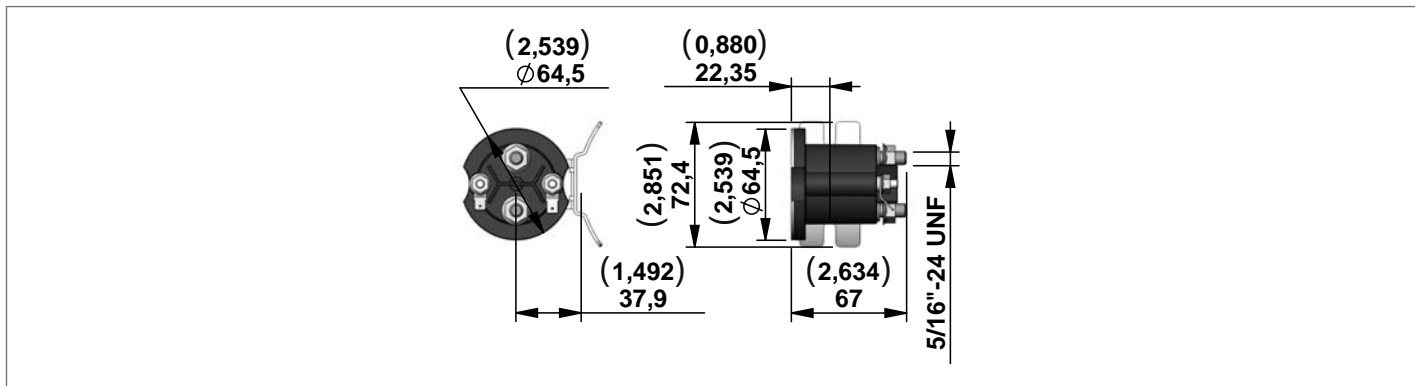
S2 - S3 performance

Amps	S2 (min.)	S3(%) (10 min.)
25	10	25 %
50	5	10 %
75	1,5	3 %

Note

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

Relay



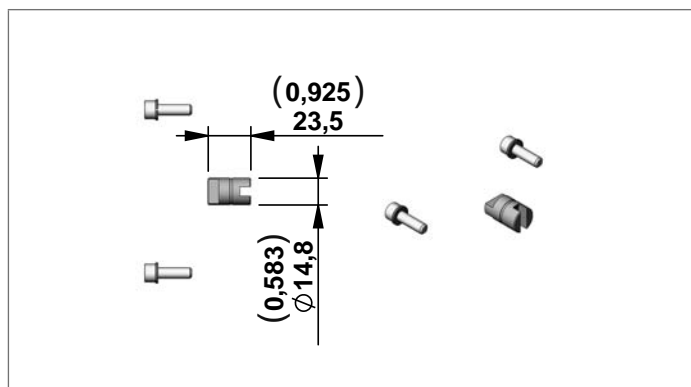
Starting Relay **Standard Performance**

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	IP66	NO	C165535000	R932000693

Kit Motor + Relay



Junction Elements for D.C. Electric Motor

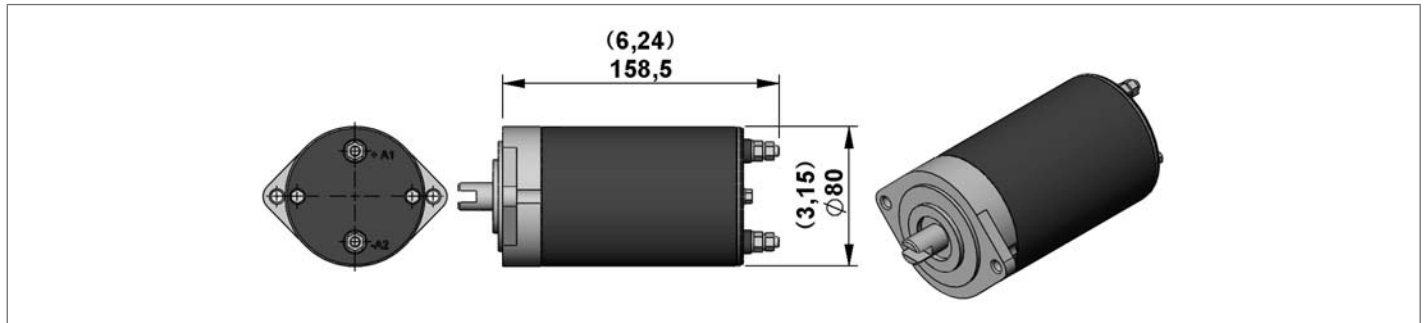


Junction Elements for manifolds **ME - MR series**

Motor + Relay	Type	Material Number
C181+relay 12V STANDARD performance	K396812181PSF	R930051818
C182+relay 24V STANDARD performance	K396824182PSF	R930051821

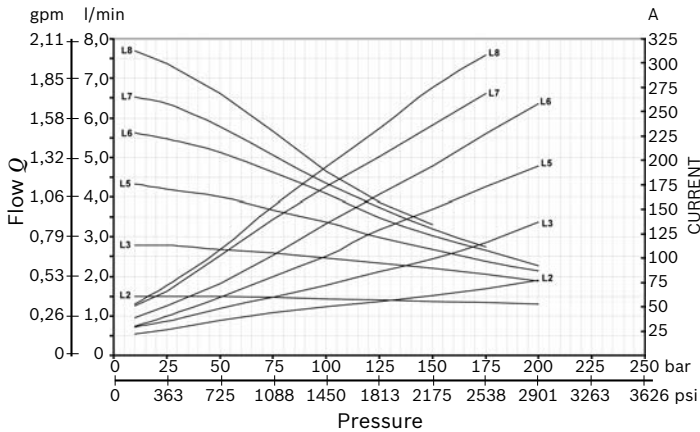
Code	Type	Material Number
E67	K01X3970TR095	R932002066

D.C. Electric Motors Standard Performance

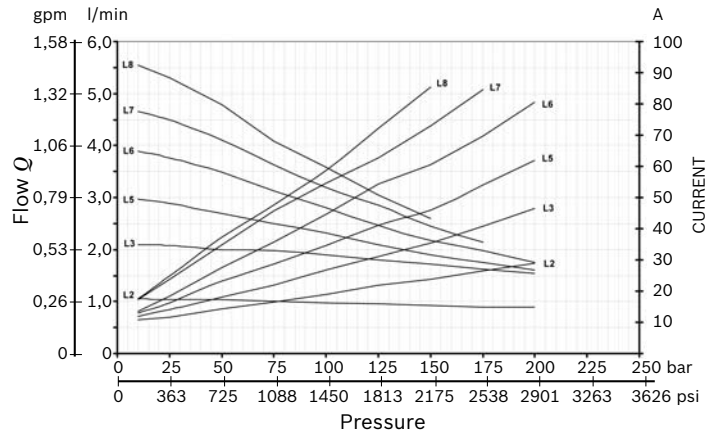


Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Direction of rotation	Type	Material Number
C67	12	800	9% 4min	NO	NO	IP 54	Reversible	C162066000	R932000264
C123	12	800	9% 4min	YES	NO	IP 54	Clockwise	C1620S1023	R932000220
C94	24	800	8% 2,5min	NO	NO	IP 54	Reversible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

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



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



S2 - S3 performance

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

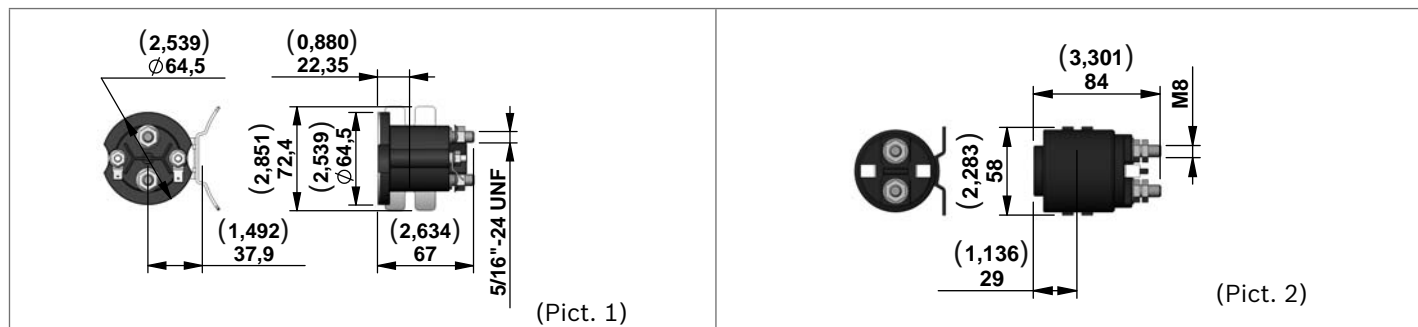
S2 - S3 performance

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

Note

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

Relay



Starting Relay **Standard Performance** (Pict. 1)

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	IP66	NO	C165535000	R932000693

Starting Relay **High Performance** (silver plate contact) (Pict. 2)

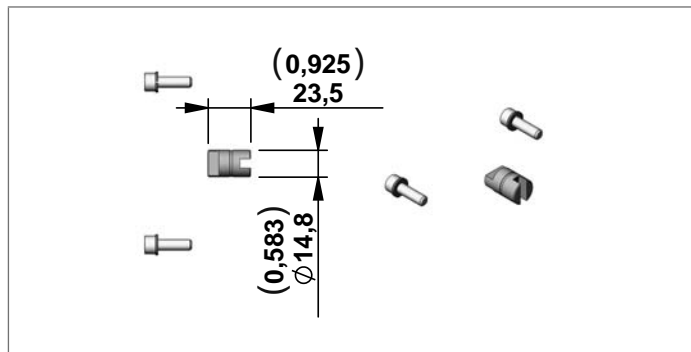
Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
C	12	150	350	IP54	NO	C165524000	R932000690
E	24	150	350	IP54	NO	C165525000	R932000691

Kit Motor + Relay



Motor + Relay	Type	Material Number
C67+relay 12V STANDARD performance	K39681267PSF	R932007536
C67+relay 12V HIGH performance	K39681267C	R930051643
C123+relay 12V STANDARD performance	K396812123PSF	R930051984
C123+relay 12V HIGH performance	K396812123C	R932002723
C94+relay 24V STANDARD performance	K39682494PSF	R932007938
C94+relay 24V HIGH performance	K39682494E	R932002821
C122+relay 24V STANDARD performance	K396824122PSF	R930051967
C122+relay 24V HIGH performance	K396824122E	R932007978

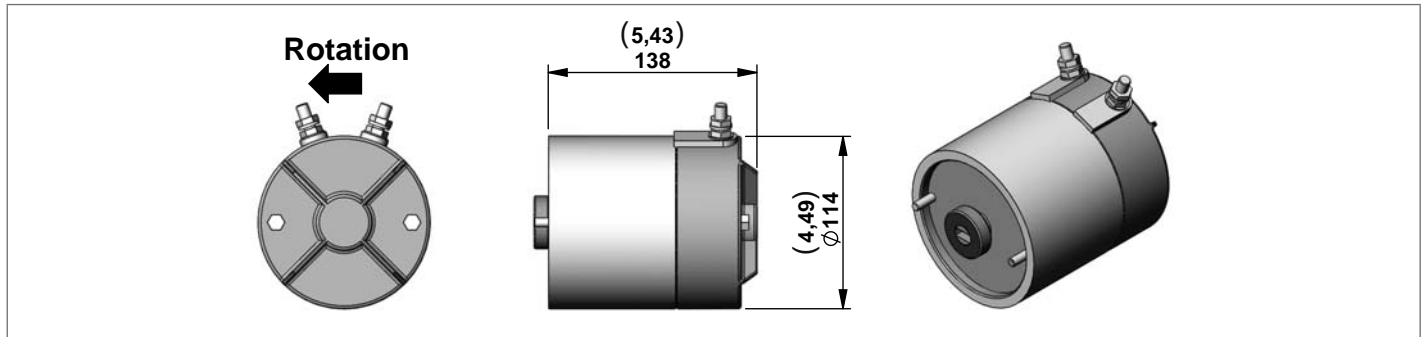
Junction Elements for D.C. Electric Motor



Junction Elements for manifolds **ME - MR series**

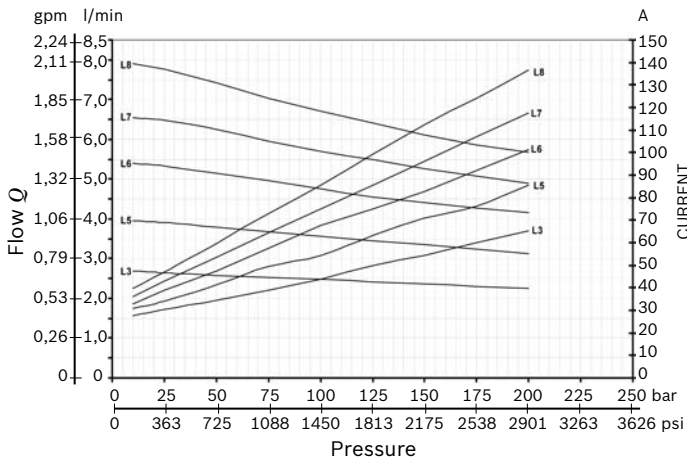
Code	Type	Material Number
E67	K01X3970TR095	R932002066

D.C. Electric Motors Standard Performance



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

Electric Motor C172 (24V – 1300W) Diagrams



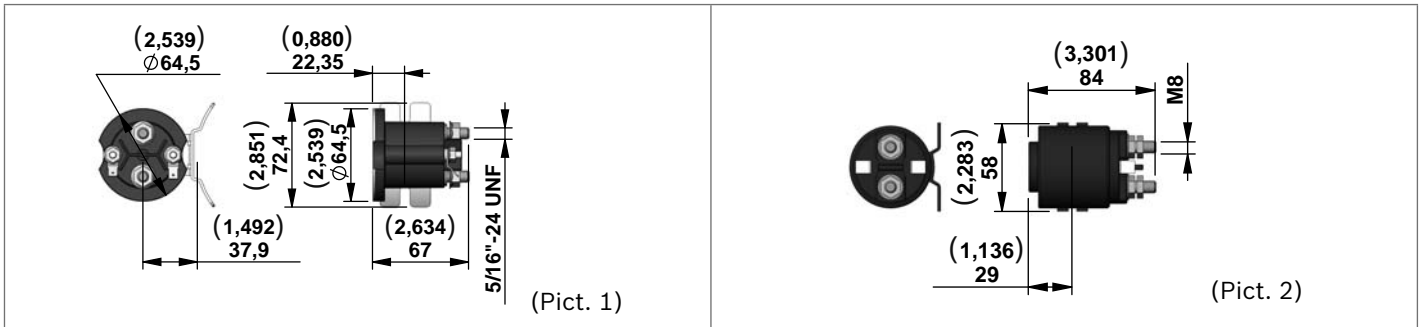
S2 - S3 performance

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



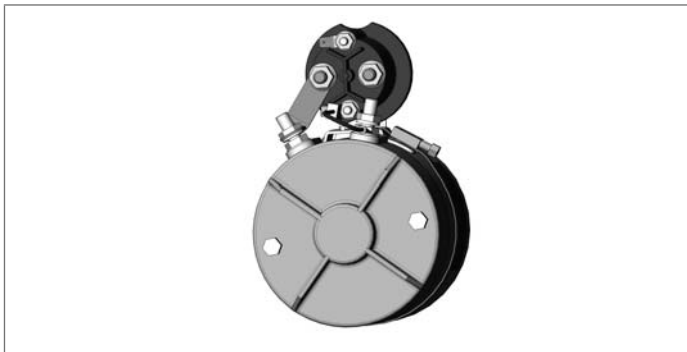
Starting Relay **Standard Performance** (Pict. 1)

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

Starting Relay **High Performance** (silver plate contact) (Pict. 2)

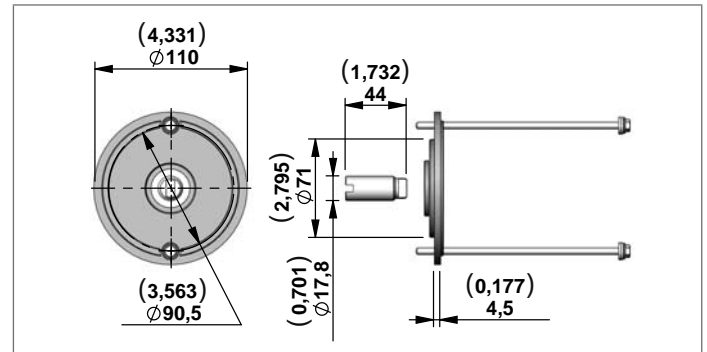
Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
E	24	150	350	IP54	NO	C165525000	R932000691

Kit Motor + Relay



Motor + Relay	Type	Material Number
C172+relay 24V STANDARD performance	K396824172PSF	R930051612
C172+relay 24V STANDARD performance UL certified	K396824172PSFUL	R930051614
C172+relay 24V HIGH performance	K396824172EF	R930051617

Junction Elements for D.C. Electric Motor



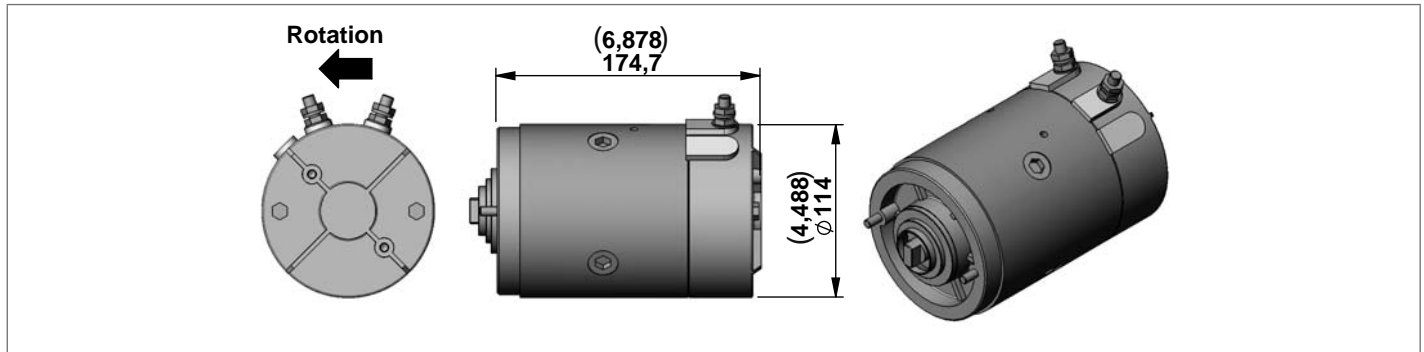
Junction Elements for manifolds **ME**

Code	Type	Material Number
E71	K01X3970TR109	R932009727

Note

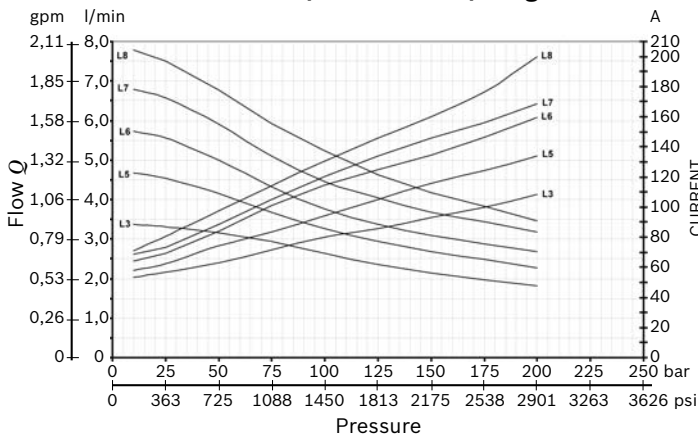
Change the standard screws supplied with the motor with the screws of the junction element E71.

D.C. Electric Motors Standard Performance

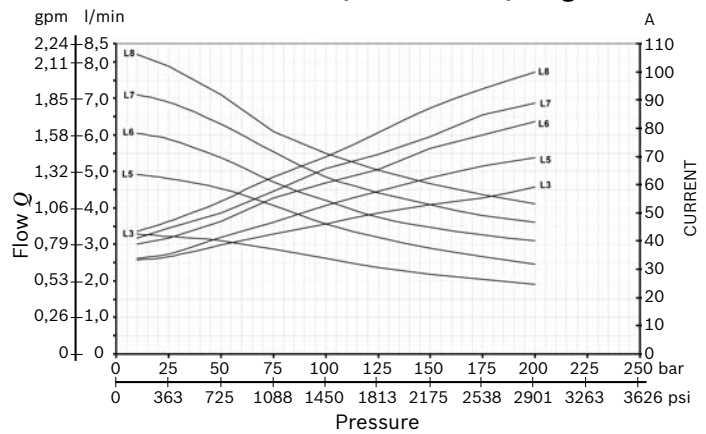


Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Type	Material Number
C190	12	1600	5% 2 min	no	yes	IP 54	C1620S1090	R930056392
C191	12	1600	5% 2 min	yes	yes	IP 54	C1620S1091	R930056391
C192	24	2200	5% 2 min	no	yes	IP 54	C1620S1092	R930056390
C193	24	2200	5% 2 min	yes	yes	IP 54	C1620S1093	R930056389

Electric Motor C190-191 (12V – 1600W) Diagrams



Electric Motor C192 - C193 (24V – 2200W) 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%

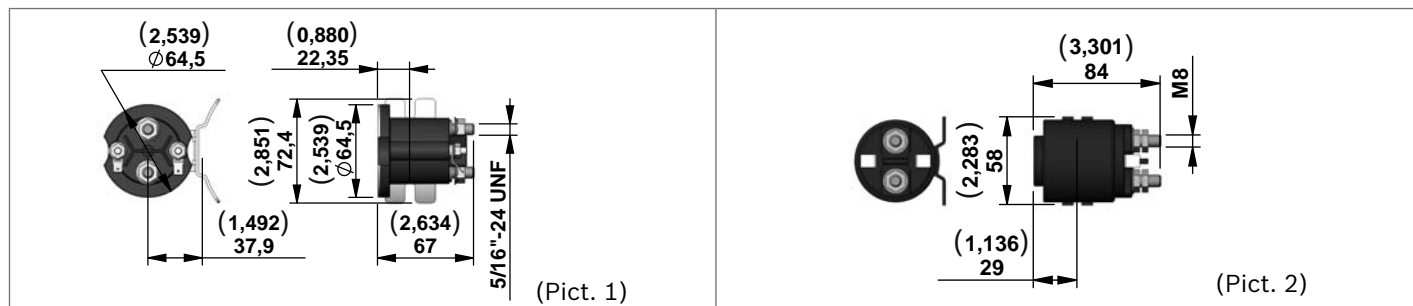
S2 - S3 performance

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** (Pict. 1)

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

Starting Relay **High Performance** (silver plate contact) (Pict. 2)

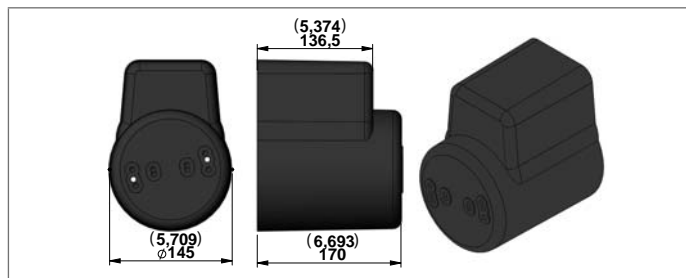
Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
C	24	150	350	IP54	NO	C165524000	R932000690
E	24	150	350	IP54	NO	C165525000	R932000691

Kit Motor + Relay



Motor + Relay	Type	Material Number
C190+relay 12V STANDARD performance	K396812190PSCUF	R930034093
C190+relay 12V HIGH performance	K396812190C	R930034094
C191+relay 12V STANDARD performance	K396812191PSCUF	R930034095
C191+relay 12V HIGH performance	K396812191C	R930034097
C192+relay 24V STANDARD performance	K396824192PSCUF	R930035261
C192+relay 24V STANDARD performance UL certified	K396824192PSUL	R930034098
C192+relay 24V HIGH performance	K396824192E	R930034101
C193+relay 24V STANDARD performance	K396824193PSCUF	R930034102
C193+relay 24V STANDARD performance UL certified	K396824193PSUL	R930035112
C193+relay 24V HIGH performance	K396824193E	R930035252

Plastic Protection

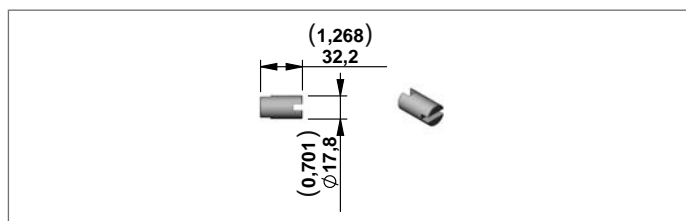


Code	Type	Material Number
0	Without Protection -	-
1	With Protection	K229701000 R932002246

Kit for assembly plastic protection

Type	Material Number
K01K211565000	R930059147

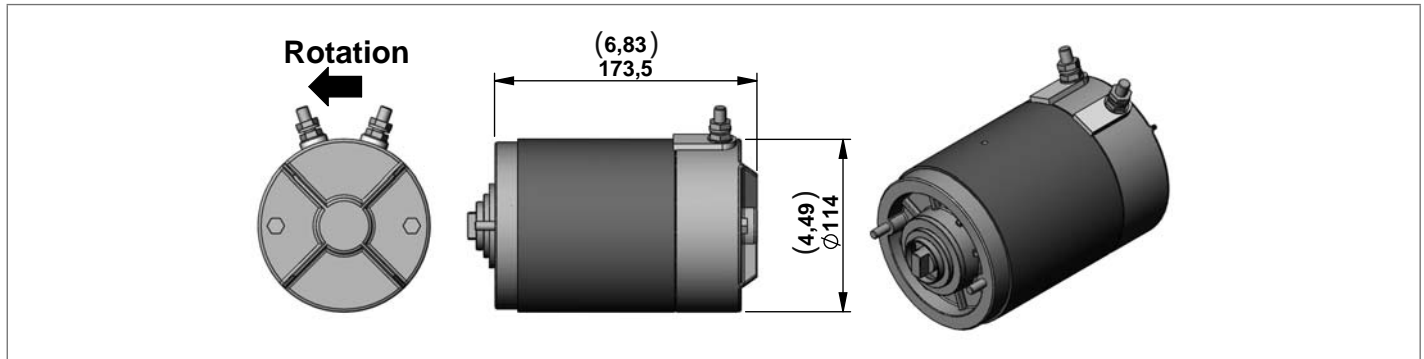
Junction Elements for D.C. Electric Motor



Junction Elements for manifolds **ME** series

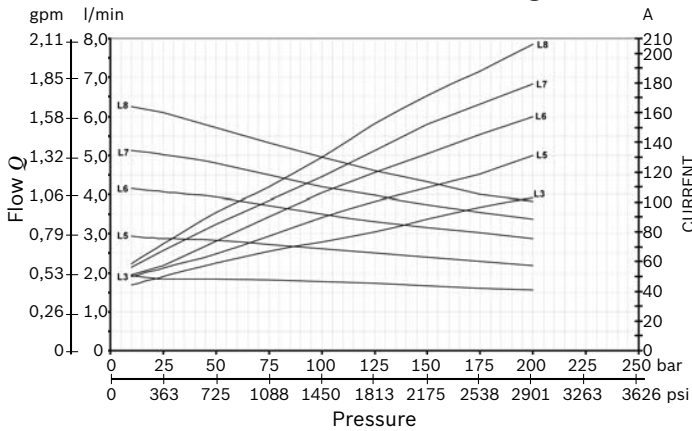
Code	Type	Material Number
E31	K01K3970TR008	R932001907

D.C. Electric Motors High Performance

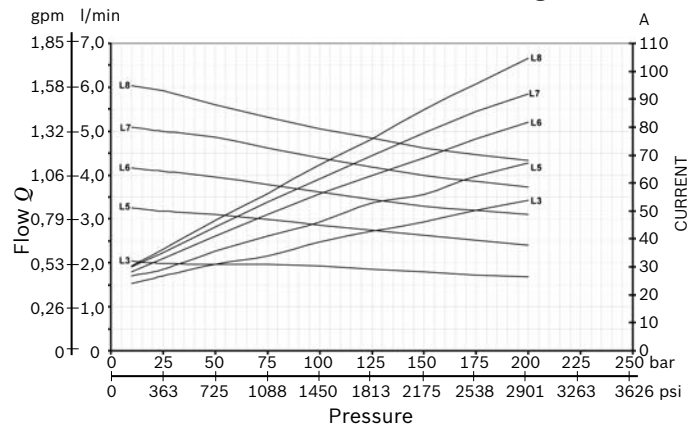


Code	Voltage (V)	Power (W)	Duty Cycle S3% S2 min.	Thermal Switch	UL Certified	Protection index	Type	Material Number
C91	12	1600	7,5% 3 min	NO	NO	IP 54	C162090000	R932000272
C102	12	1600	7,5% 3 min	YES	NO	IP 54	C1620S1002	R932000201
C92	24	2200	4,5% 1,2 min	NO	NO	IP 54	C162091000	R932000273
C103	24	2200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

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



Electric Motor C92-C103 (24V - 2200W) 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%

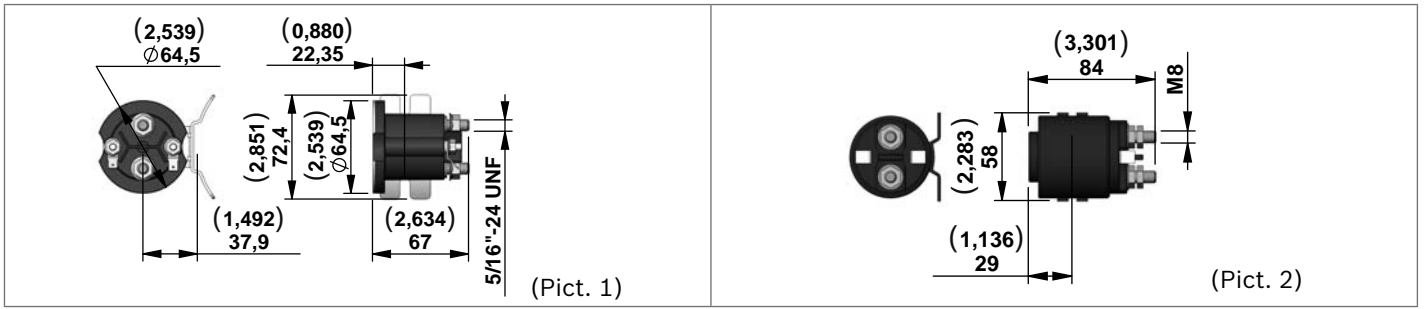
S2 - S3 performance

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** (Pict. 1)

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

Starting Relay **High Performance** (silver plate contact) (Pict. 2)

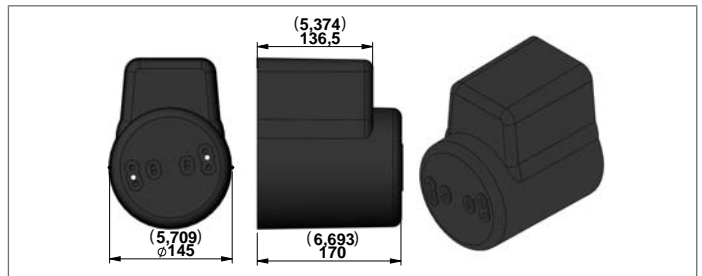
Code	Voltage (V)	Nominal Current (A)	Short time Current (A)	Protection INDEX	UL Certified	Type	Material Number
A	Without Relay						
C	24	150	350	IP54	NO	C165524000	R932000690
E	24	150	350	IP54	NO	C165525000	R932000691

Kit Motor + Relay



Motor + Relay	Type	Material Number
C91+relay 12V STANDARD performance	K39681291PSCUF	R932007960
C91+relay 12V HIGH performance	K39681291CF	R932002749
C102+relay 12V STANDARD performance	K396812102PSCUF	R932007969
C102+relay 12V HIGH performance	K396812102CF	R932002715
C92+relay 24V STANDARD performance	K39682492PSCUF	R932007961
C92+relay 24V HIGH performance	K39682492EF	R932002818
C103+relay 24V STANDARD performance	K396824103PSCUF	R932007968
C103+relay 24V HIGH performance	K396824103EF	R932002771

Plastic Protection

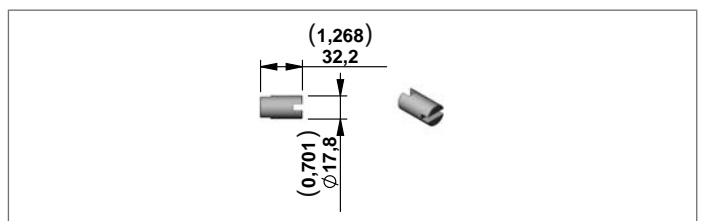


Code	Type	Material Number
0	Without Protection -	-
1	With Protection	K229701000 R932002246

Kit for assembly plastic protection

Type	Material Number
K01K211518000	R932009439

Junction Elements for D.C. Electric Motor

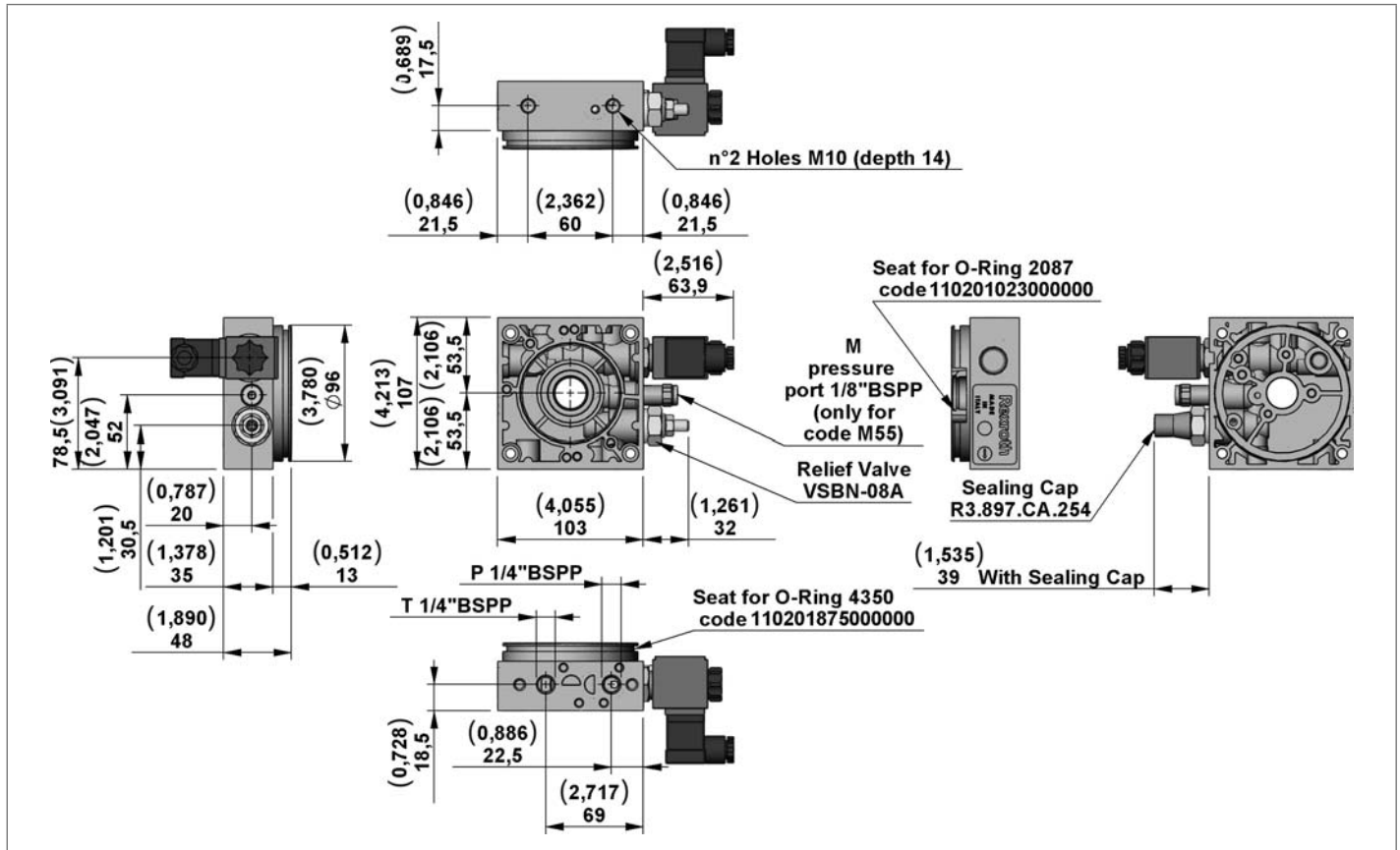


Junction Elements for manifolds **ME** series

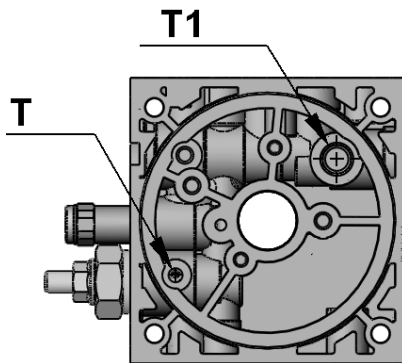
Code	Type	Material Number
E31	K01K3970TR008	R932001907

Central Manifold ME

M52 - M55

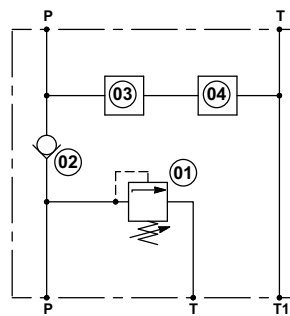


View Manifold Tank side

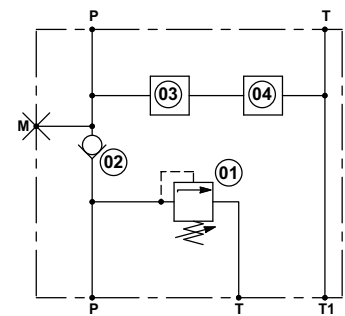


Manifold Hydraulic Diagram

M52



M55

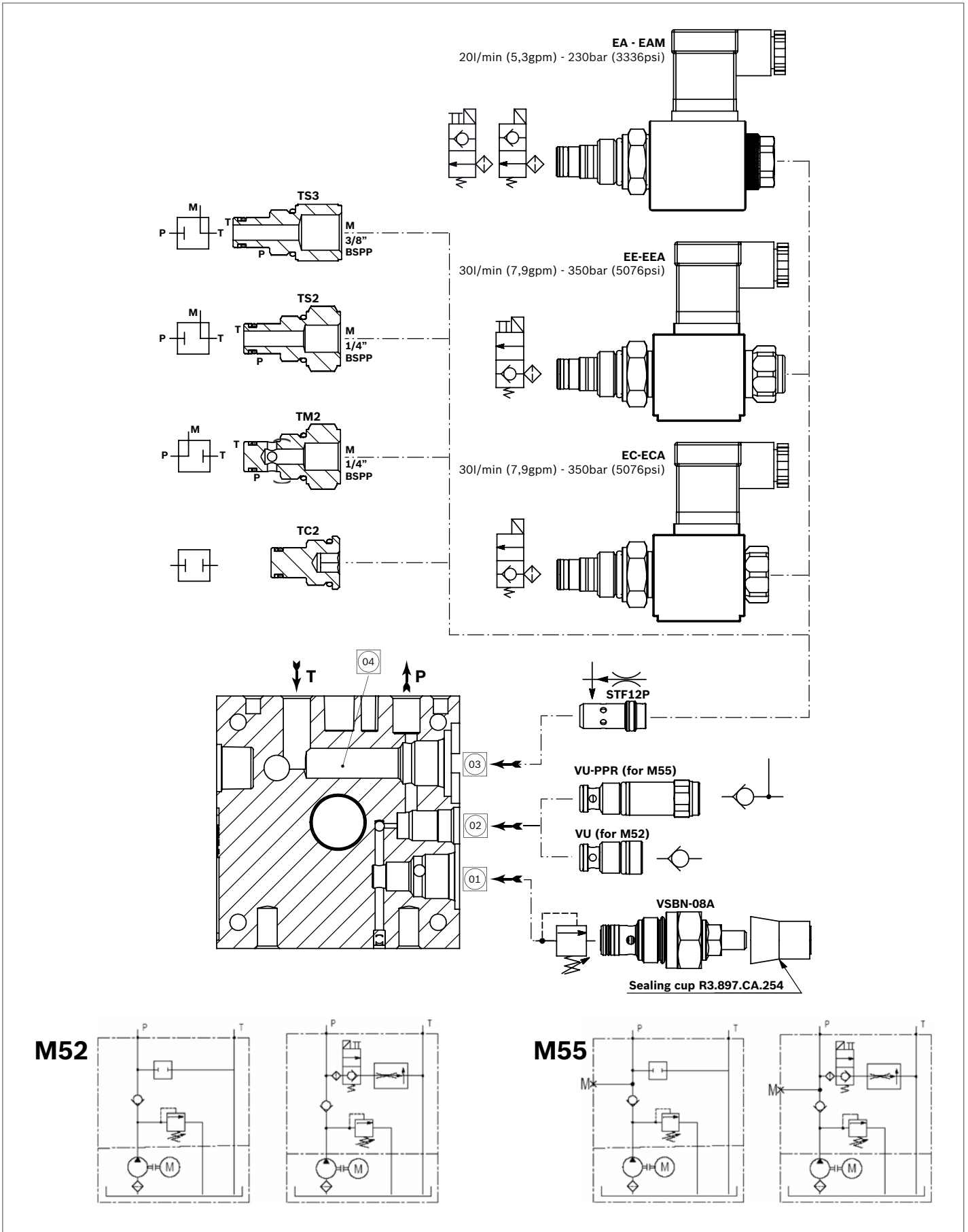


M52

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

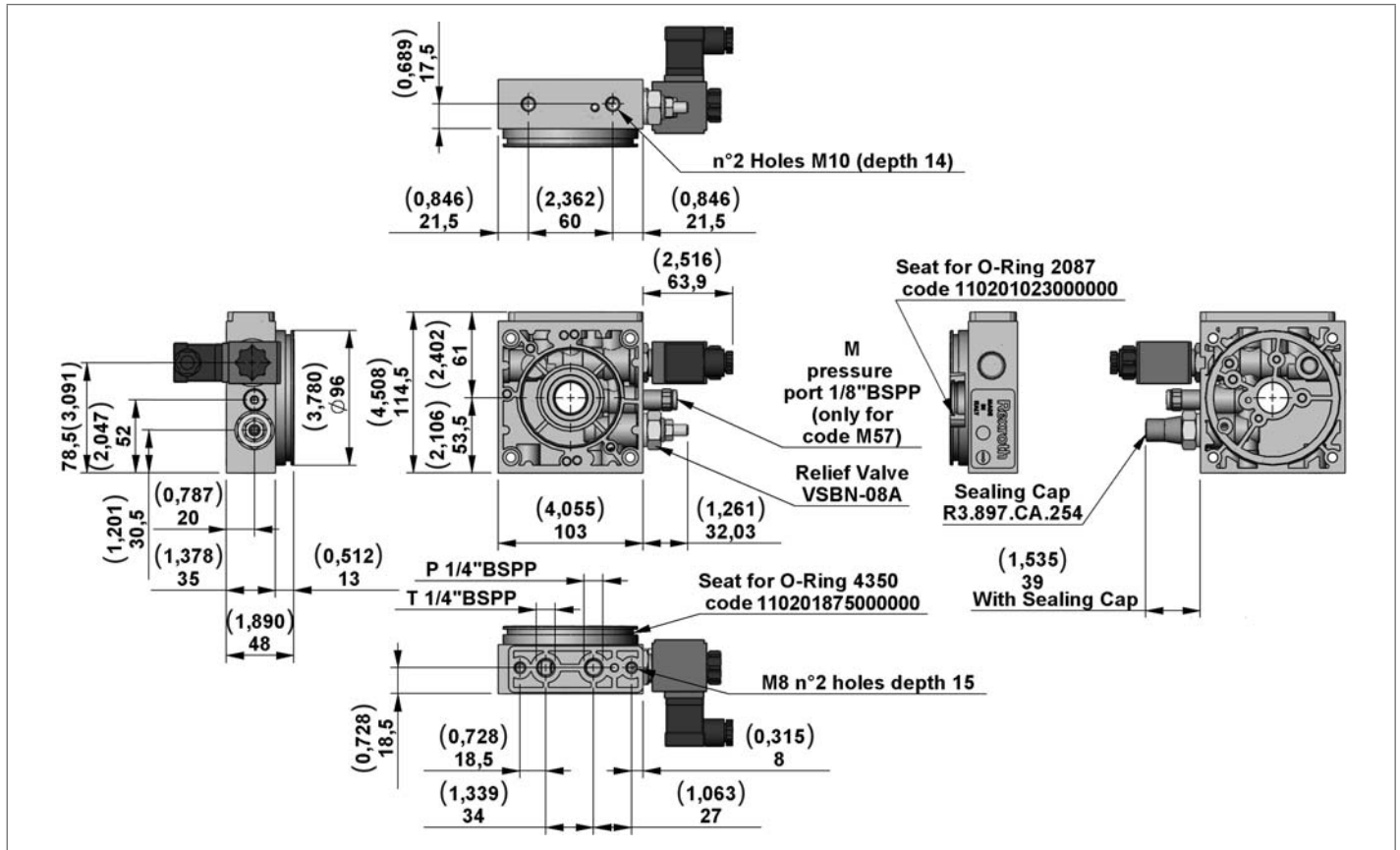
M55

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

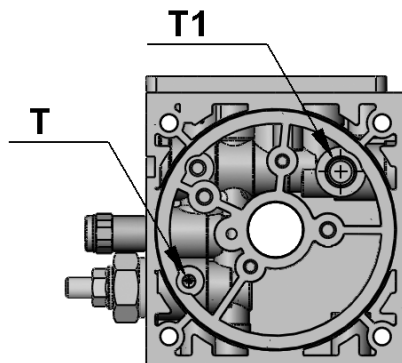


Central Manifold ME

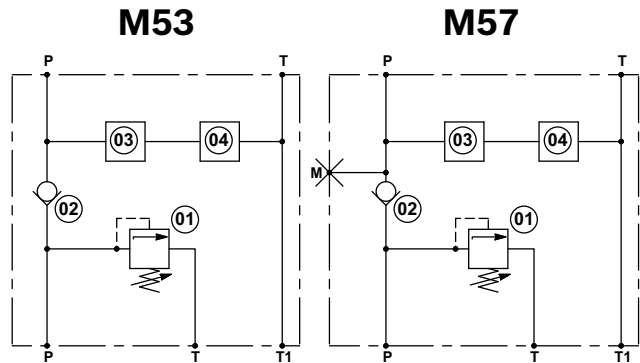
M53 - M57



View Manifold Tank side



Manifold Hydraulic Diagram

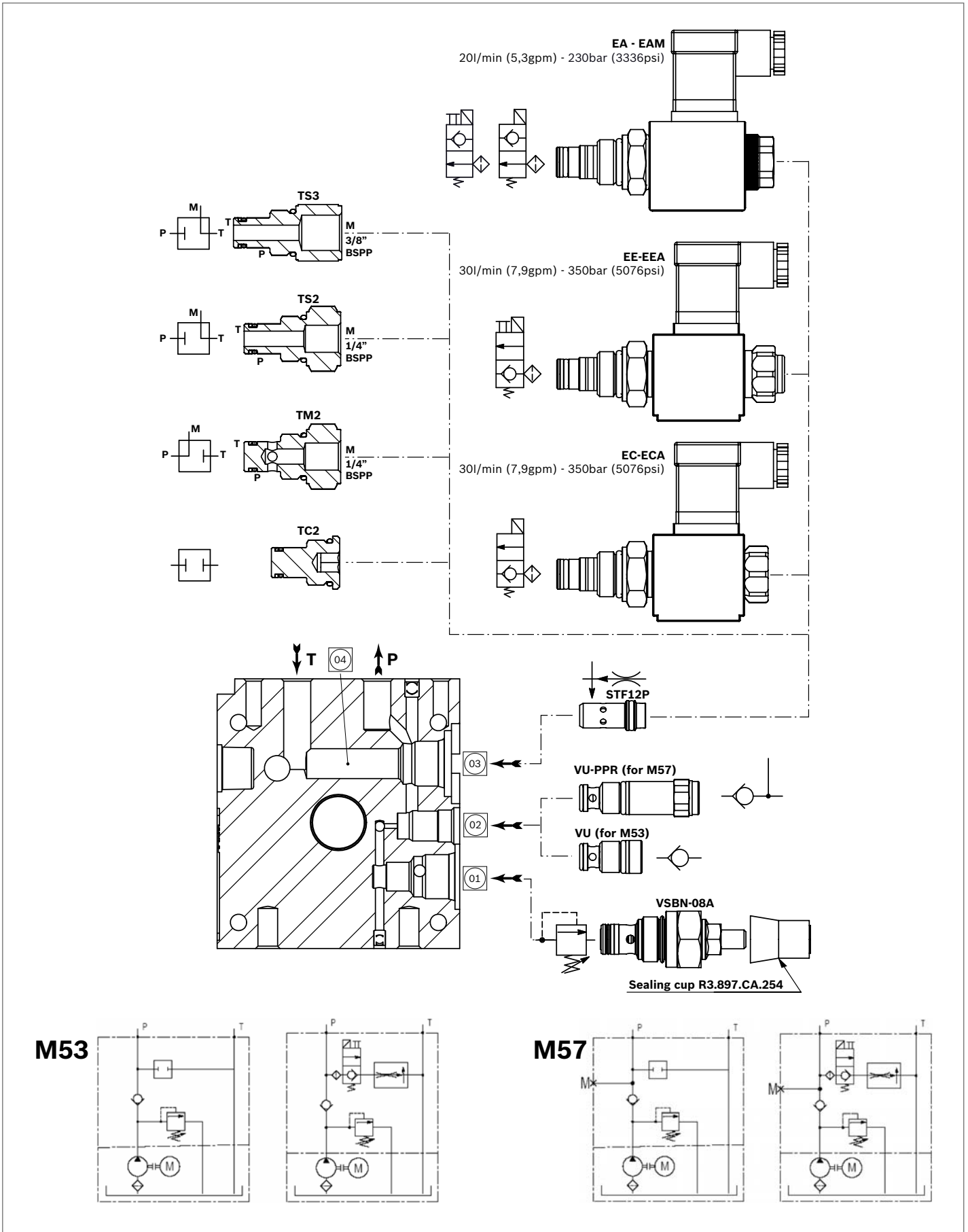


M53

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

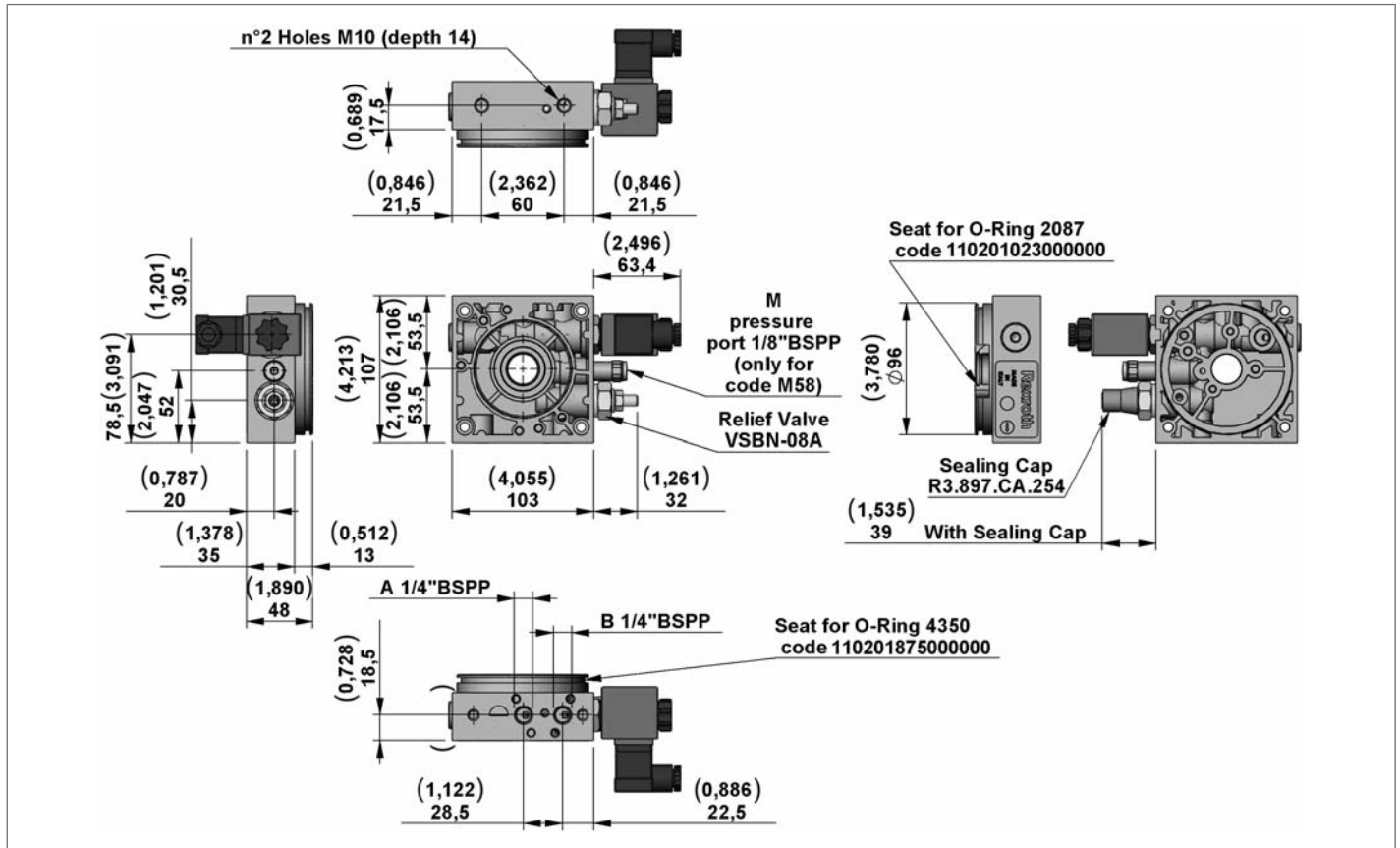
M57

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

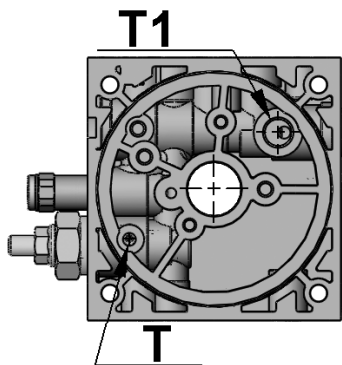


Central Manifold ME

M54 - M58

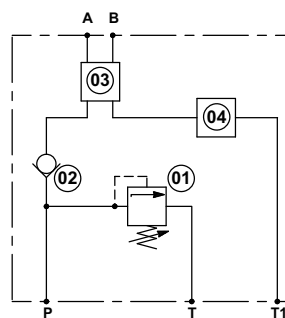


View Manifold Tank side

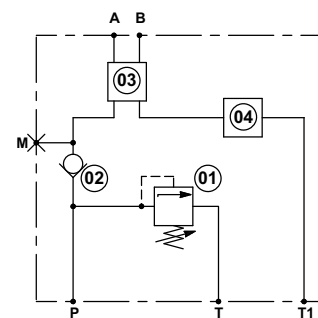


Manifold Hydraulic Diagram

M54



M58

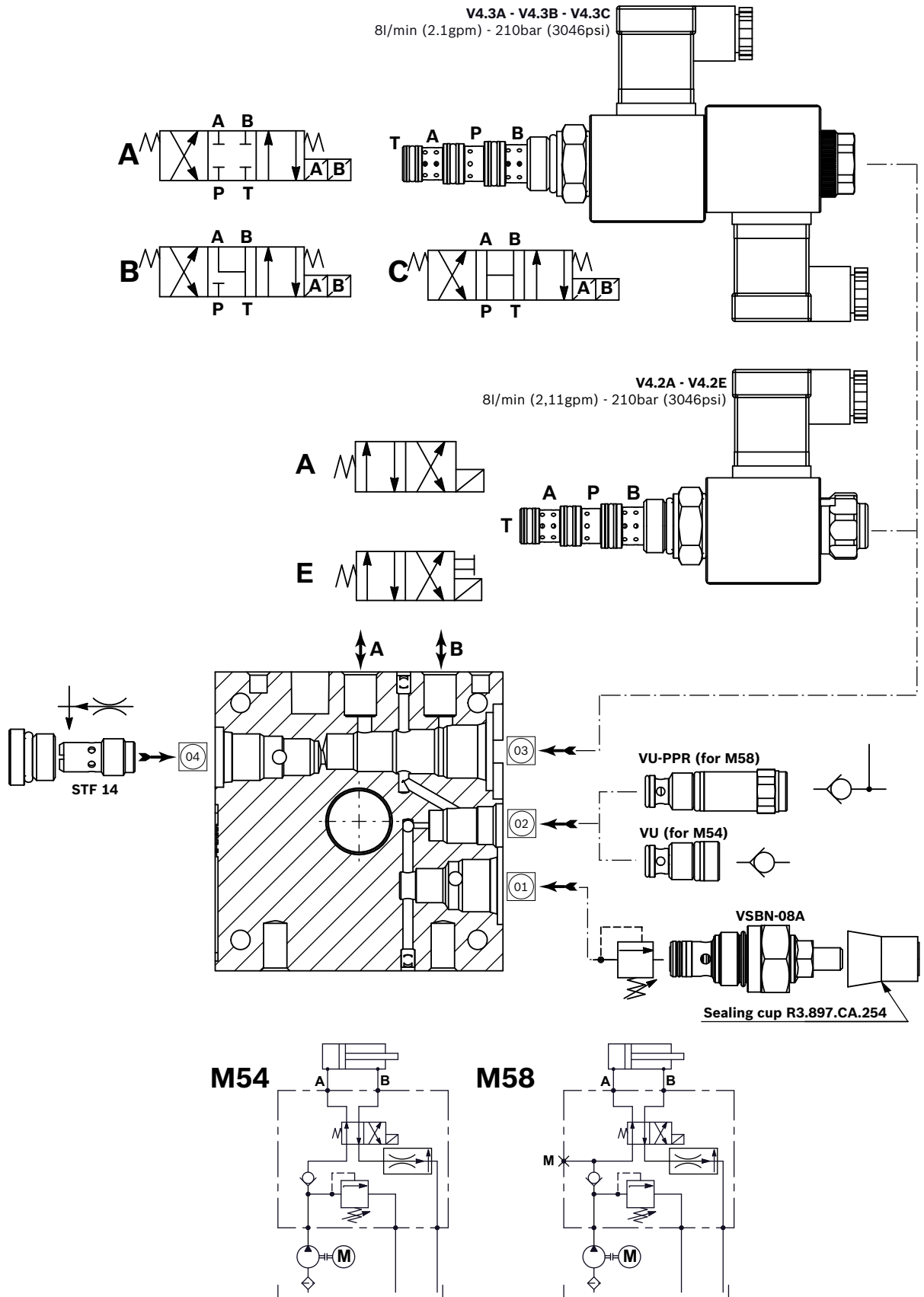


M54

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

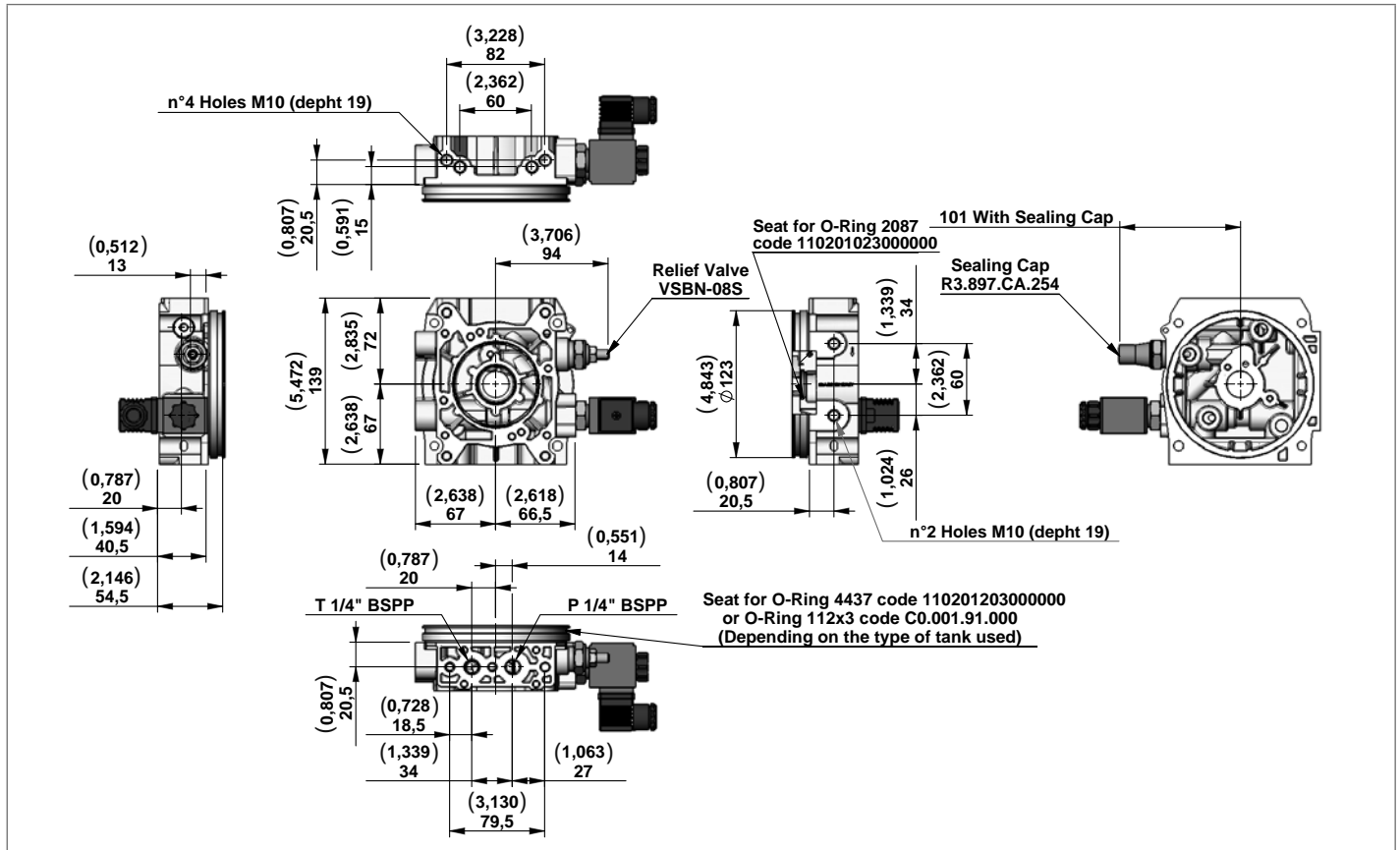
M58

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

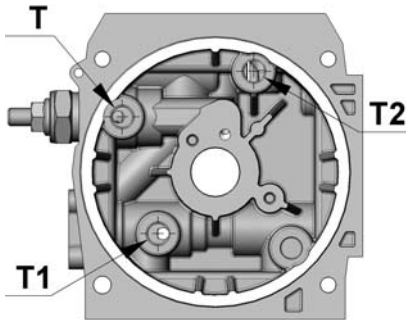


Central Manifold ME

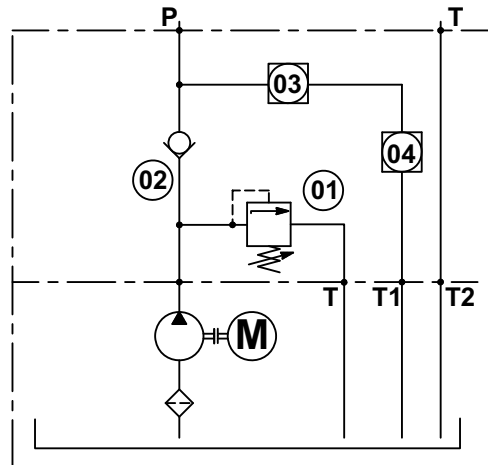
A16



View Manifold Tank side

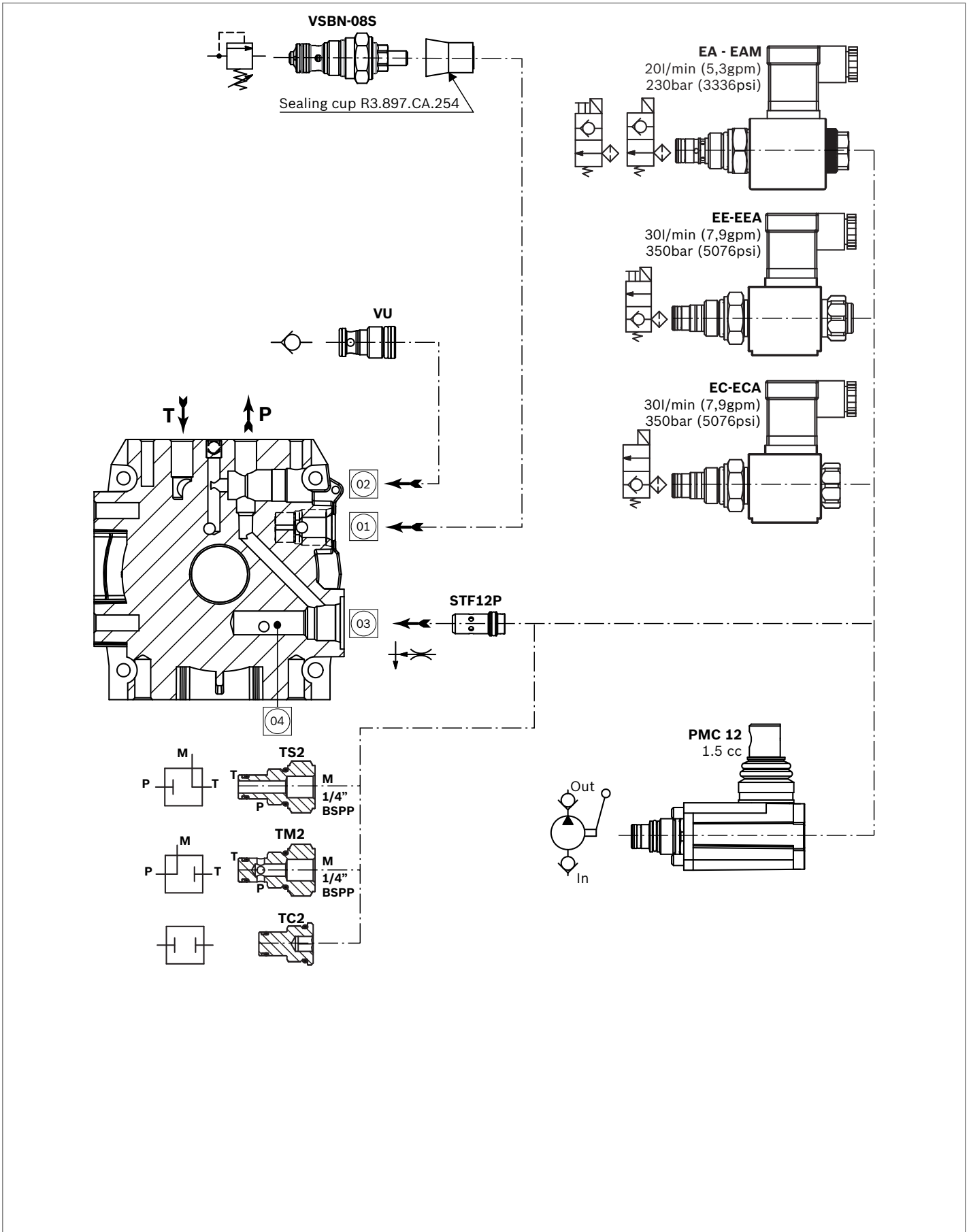


Manifold Hydraulic Diagram



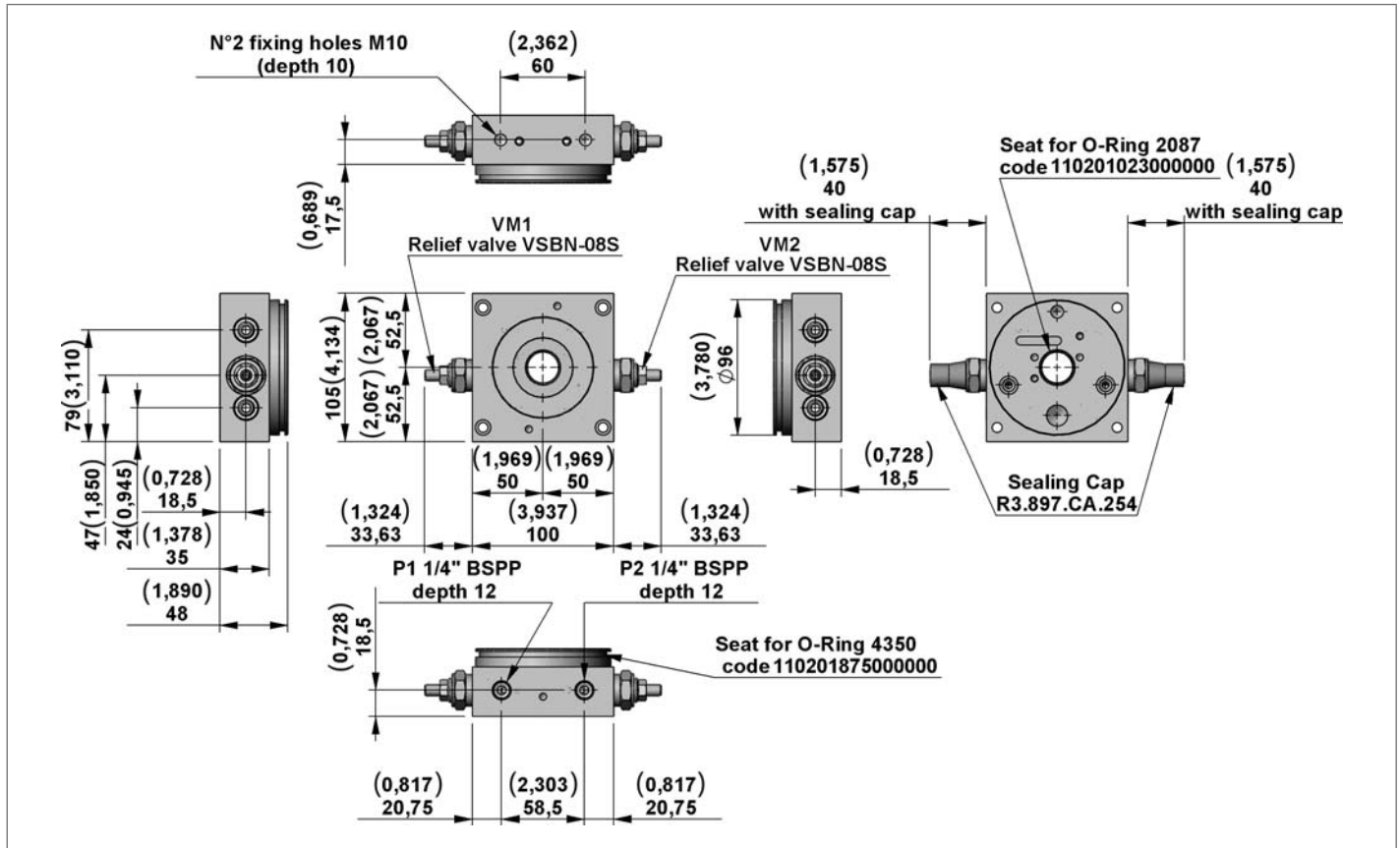
A16

Manifold Code with Relief Valve Pressure Range	Pressure Range bar (psi)	Type	Material Number
A16/05	10-55 (145-798)	116A000A	R930052174
A16/10	35-100 (508-1450)	116B000A	R930052184
A16/20	90-250 (1305-3626)	116C000	R932008693

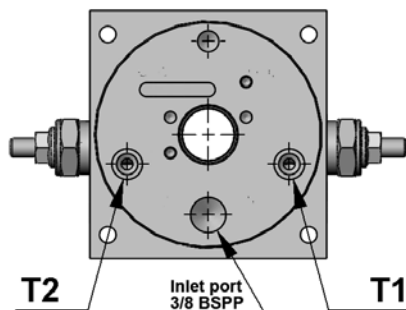


Central Manifold MR

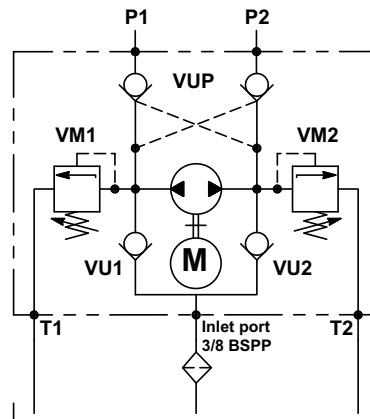
10



View Manifold Tank side



Manifold Hydraulic Diagram



10

Manifold Code with Relief Valve Pressure Range	Pressure Range bar (psi)	Type	Material Number
A10/05	10-55 (145-798)	810A000A	R930053852
A10/10	35-100 (508-1450)	810B000A	R930053853
A10/20	90-250 (1305-3626)	810C000	R932009780

Note

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

Note

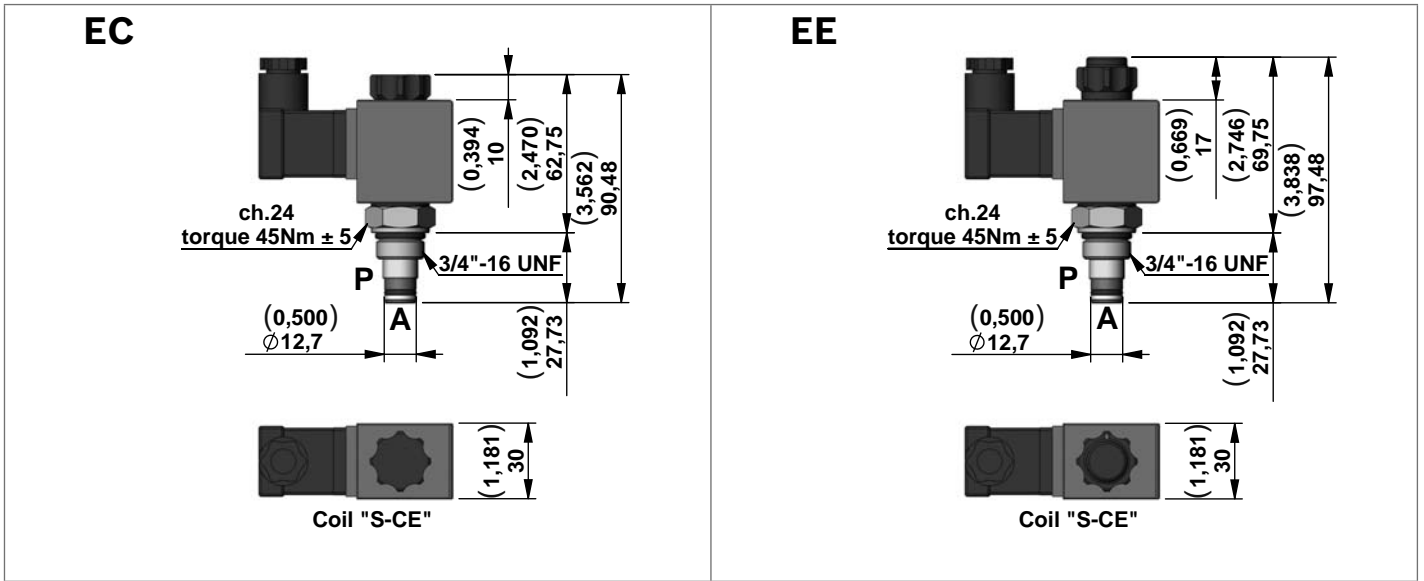
In the central manifold MR series is possible connect only the following motors:

DC motor code: C67 - C94 - C177 - C178 - C179 - C180

- C181 - C182

AC motor from size IEC56 to size IEC71.

Built-in Valve
VE3-NC Series



**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.

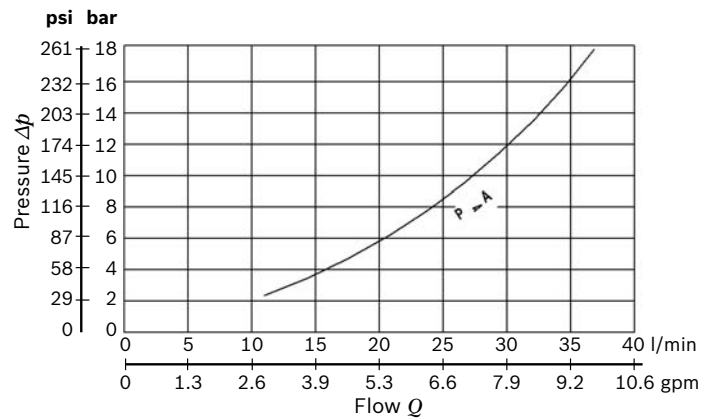
- **Only for D.C. current.**
- Internal leakage: see technical data.
- Minimum operating voltage: 90% of nominal.
- Screen on P 300 Micron.
- Screw Type Emergency on EE.

Valve symbol

Code	Symbol	Operating features with solenoid	
		De-energized	Energized
EC		P \diamond A	P <-> A
EE		P \diamond A	P <-> A

Technical Data

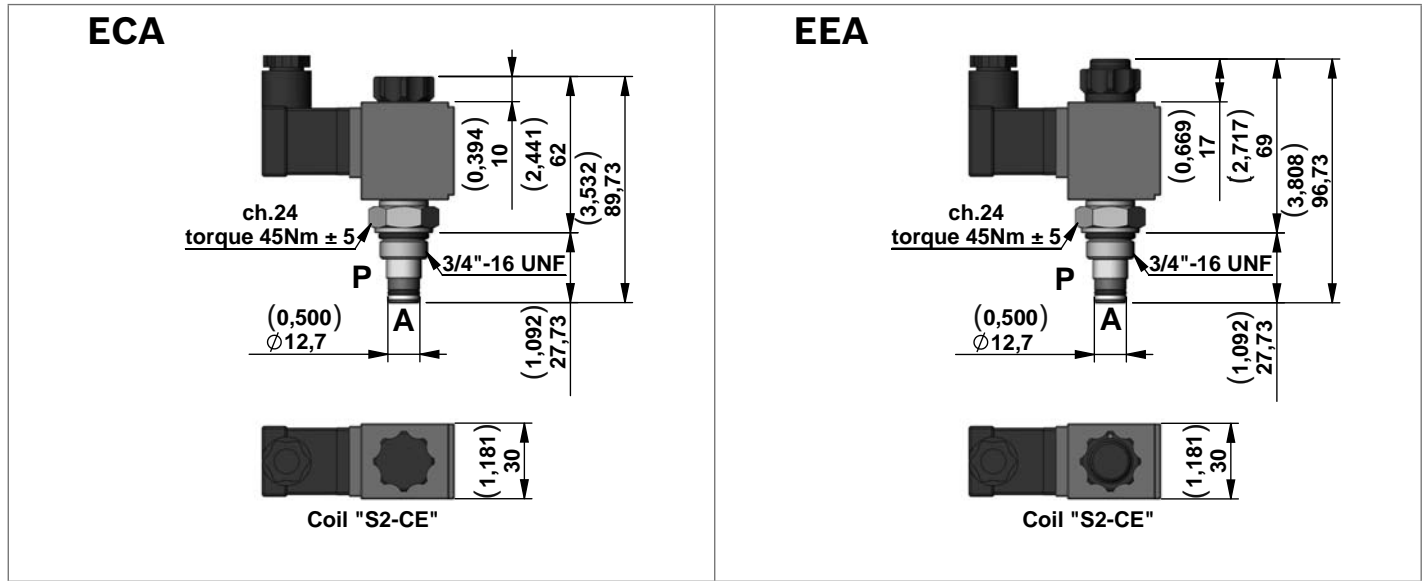
General		
Operating time	ms	Opening 30-40 Closing 60-85
Max. working pressure	bar (psi)	350 (5076)
Max. flow	l/min (gpm)	30 (7,92)



S-CE Coil Voltage Available

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

VE1-NC Series



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.

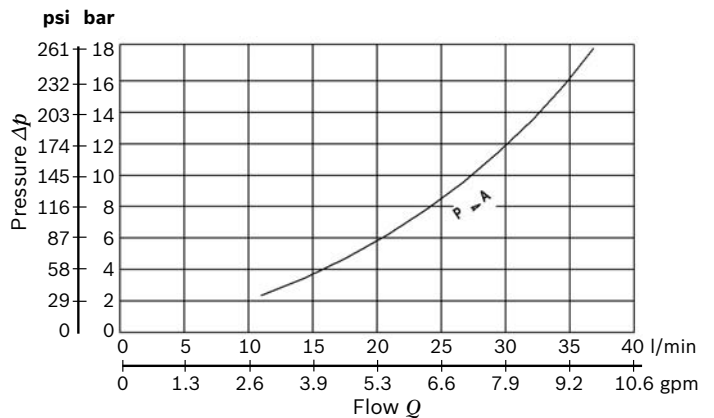
- **Only for A.C. current.**
- Internal leakage: see technical data.
- Minimum operating voltage: 90% of nominal.
- Screen on P 300 Micron.
- Screw Type Emergency on EEA.

Valve symbol

Code	Symbol	Operating features with solenoid	
		De-energized	Energized
ECA		P \diamond A	P -> A
EEA		P \diamond A	P -> A

Technical Data

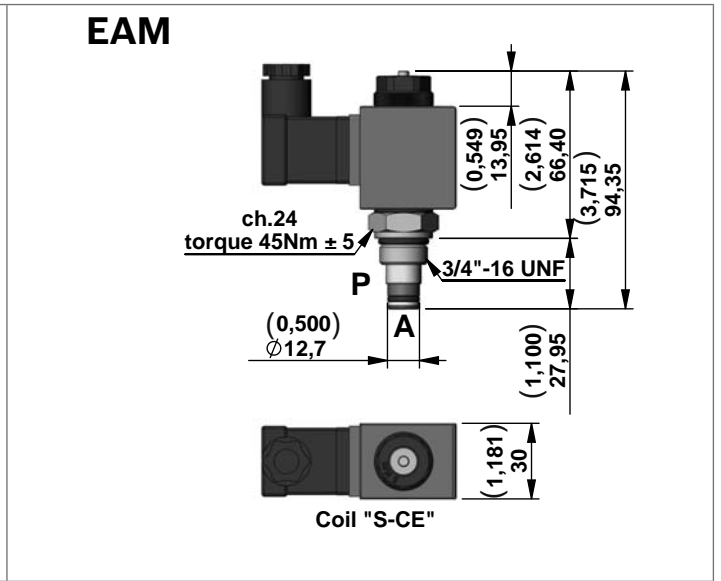
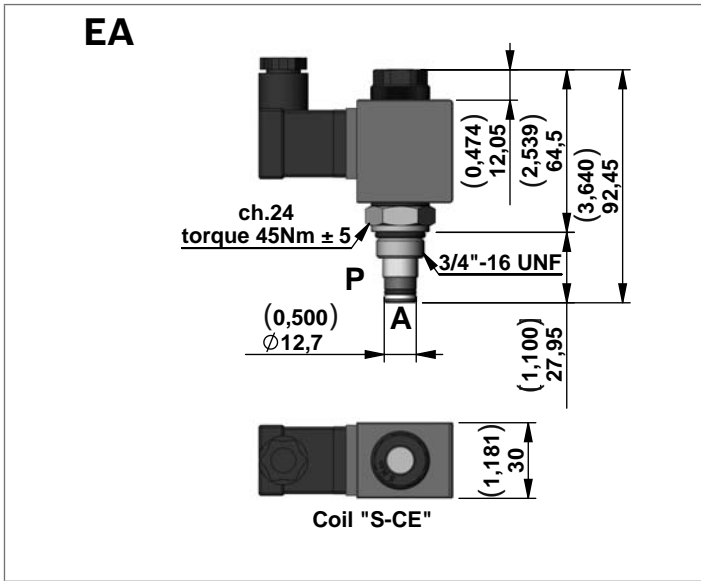
General		
Operating time	ms	Opening 30-40 Closing 60-85
Max. working pressure	bar (psi)	350 (5076)
Max. flow	l/min (gpm)	30 (7,92)



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.

VE3-NA Series



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.

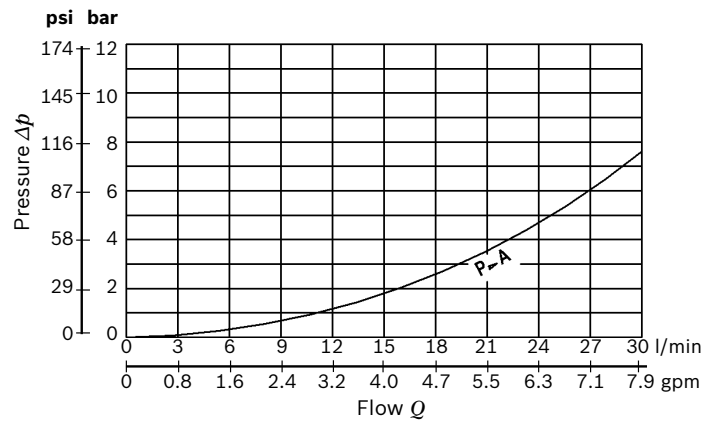
- **Only for D.C. current.**
- Internal leakage: see technical data.
- Minimum operating voltage: 90% of nominal.
- Screen on P 300 Micron.
- Push Type Emergency on EAM.

Valve symbol

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

Technical Data

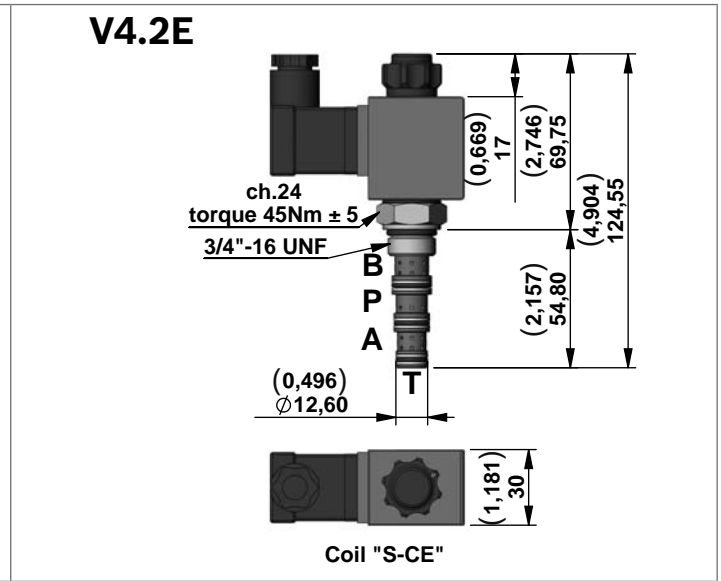
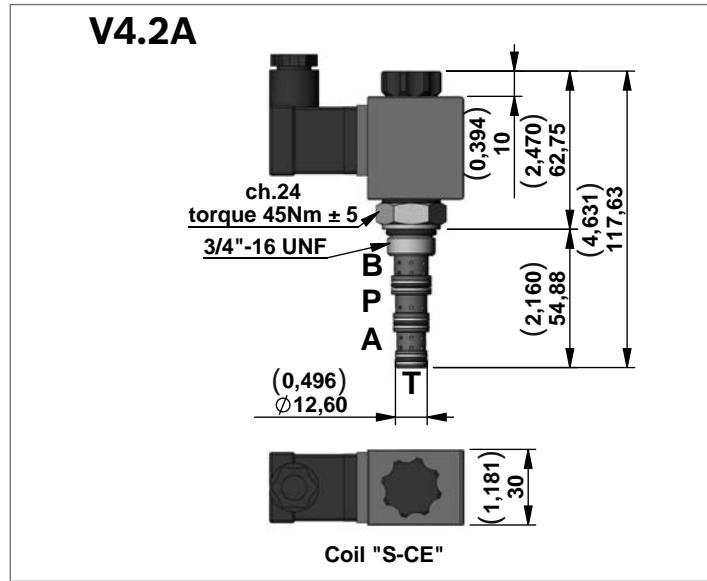
General		
Max. working pressure	bar (psi)	230 (3336)
Max. flow	l/min (gpm)	20 (5,28)



S-CE Coil Voltage Available

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

V4DS-2P Series



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

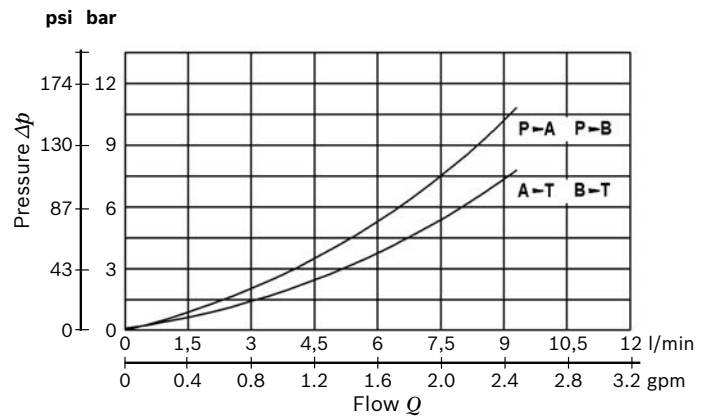
- **Only for D.C. current.**
- Minimum operating voltage: 90% of nominal.
- Screw Type Emergency on V4.2E.

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

Technical Data

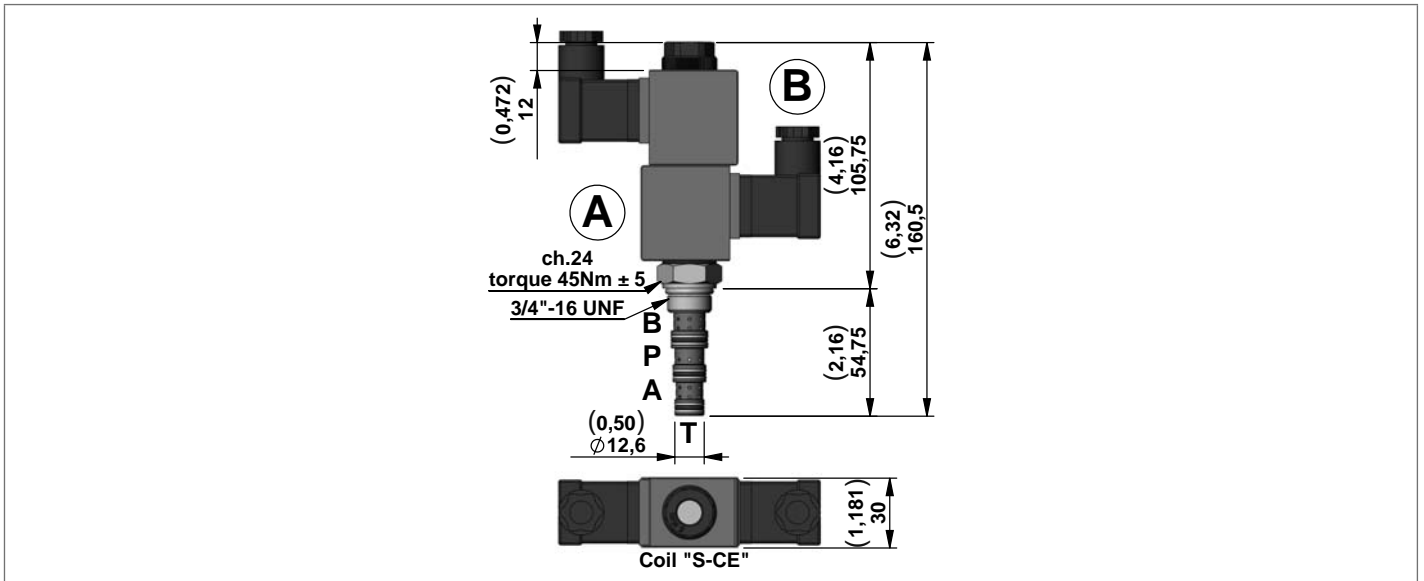
General		
Max. working pressure	bar (psi)	210 (3046)
Max. flow	l/min (gpm)	8 (2,11)



S-CE Coil Voltage Available

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

V4DS-3P Series



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.**

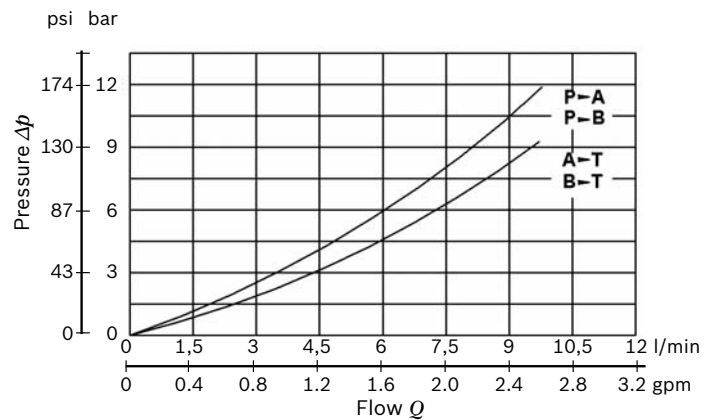
- Minimum operating voltage: 90% of nominal.

Valve symbol

Code	Symbol	Operating features with solenoid		
		Energized A	De-energized	Energized B
V4.3A		P -> B A -> T	P P A O O A B B T T	P -> A B -> T
V4.3B		P -> B A -> T	A -> T B -> T P O	P -> A B -> T
V4.3C		P -> B A -> T	P P A <-> A B B T T	P -> A B -> T

Technical Data

General		
Max. working pressure	bar (psi)	210 (3046)
Max. flow	l/min (gpm)	8 (2,11)



S-CE Coil Voltage Available

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

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)).

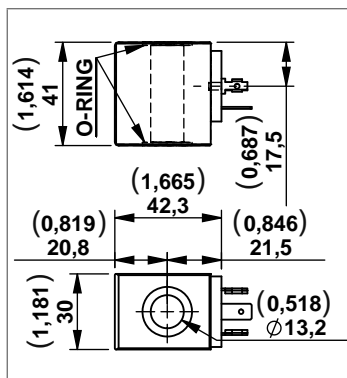
Solenoids "S-CE" (18 W) are designed for continuous duty ED100%.

Ambient temperature range: -15°/+40°

Inlet voltage fluctuations must not exceed +/- 10% of nominal voltage to obtain correct operations and long life coils

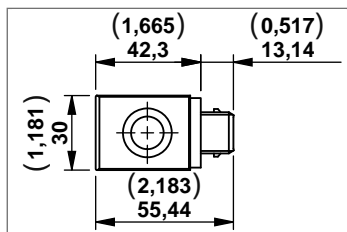
Protection degree: see tables below

DIN 43650 - ISO 4400 IP65 with connector assembled



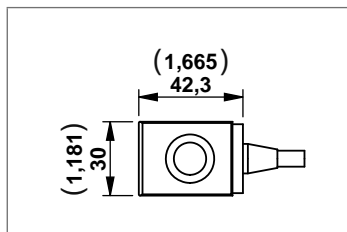
Code	Voltage	Heat Insulation class	Type	Material Number
OB	12 Volts D.C.	F (155°C) (311°F)	C166455OB1	R932000804
OC	24 Volts D.C.	F (155°C) (311°F)	C166455OC1	R932000805
OD	48 Volts D.C.	F (155°C) (311°F)	C166455OD1	R932000806
OBH	12 Volts D.C.	H (180°C) (356°F)	C166462OB1	R932000819
OCH	24 Volts D.C.	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

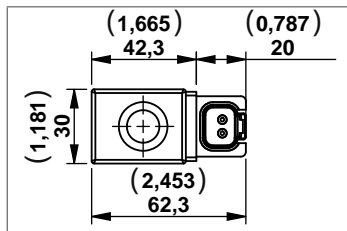
SINGLE LEAD IP54



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

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

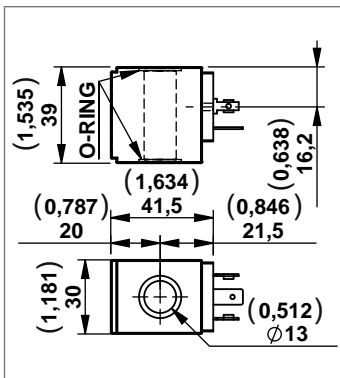
Coil protection: Polyamide resin with fiber glass for Heat insulation class F (155°C) (311°F).

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

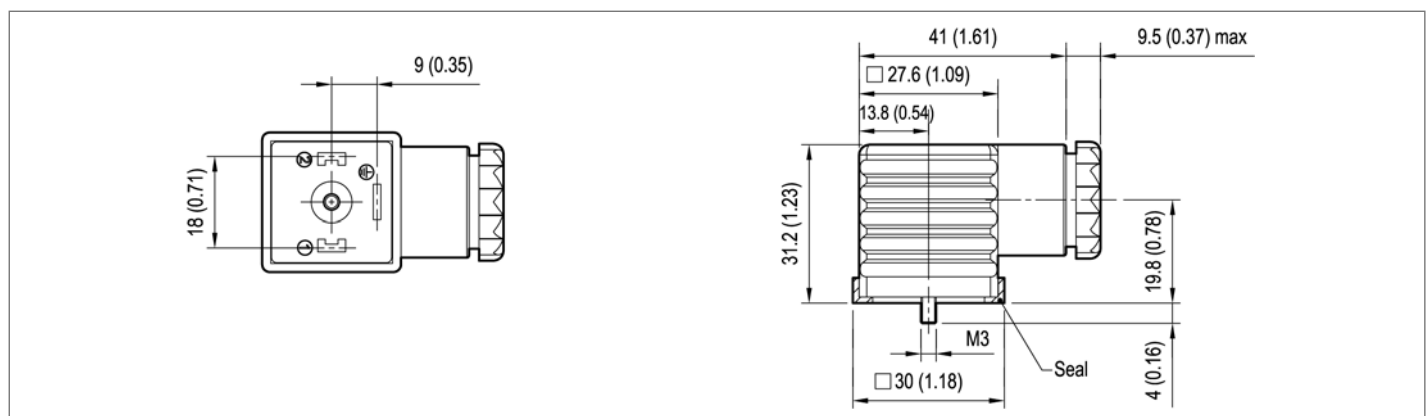
Protection degree: IP65 IEC 144 – DIN 40050 (total protection against dust and low pressure jets) with connector

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

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	1
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

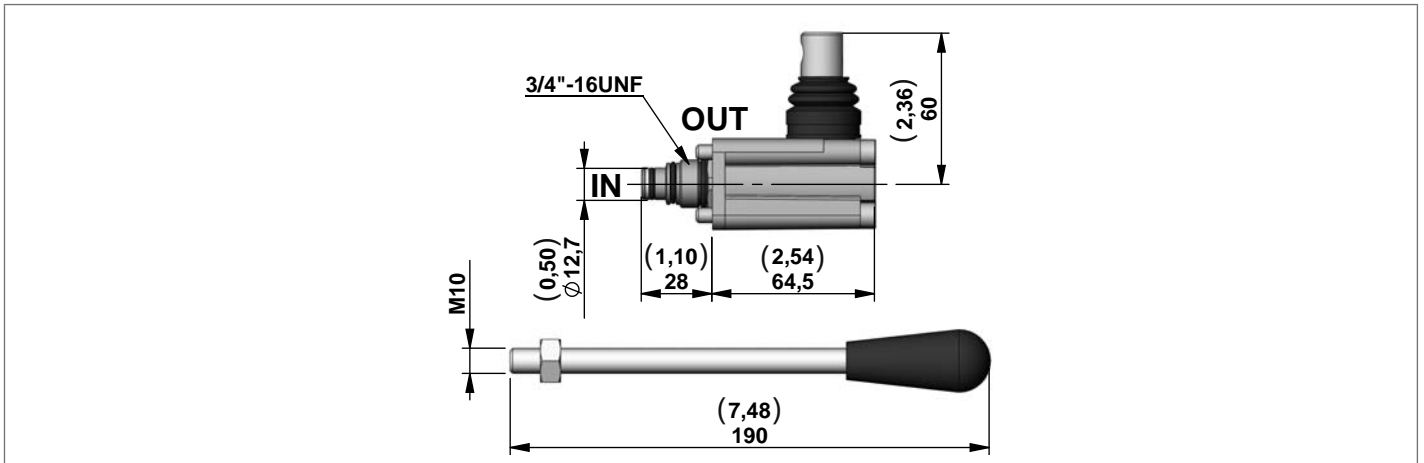
Code	Colour	Cable entry	Type	Material Number
WC	Without Connector			
CS	black	Pg9 / Pg11	OD016901000000	R934004344
	grey	Pg9 / Pg11	OD016901000003	R934004346

Circuit with VDR + Wave Rectifier

Code	Voltage V		Diode Capacity I max	Colour	Cable entry	Type	Material Number
	AC	DC					
CR	230	/	1A	black	Pg9 / Pg11	OD016902010Z00	R934004353

Note
Diode with capacity max 1 Amp.

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

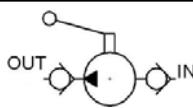


Type	Material Number
K250113000	R932002448

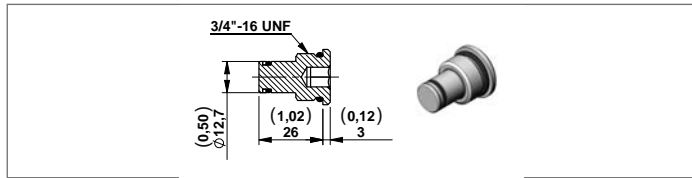
Technical Data

General		
Max. working pressure	bar (psi)	300 (4500)
Displacement	cc	1,5

Hand pump (1.5cc)

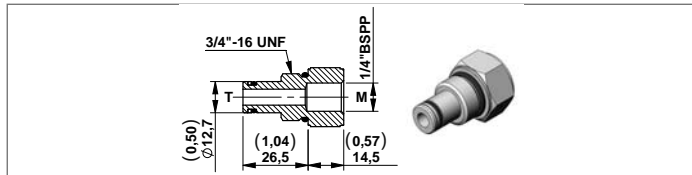
Code	Diagram	Type with lever	Material Number with lever
PMC12		K01V388540LV190	R932009298

Plug for Cavity



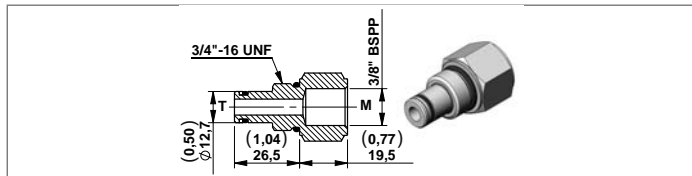
Code	Diagram	Type	Material Number
TC2		R3897TA001	R932003193

1/4" Auxiliary Return Port



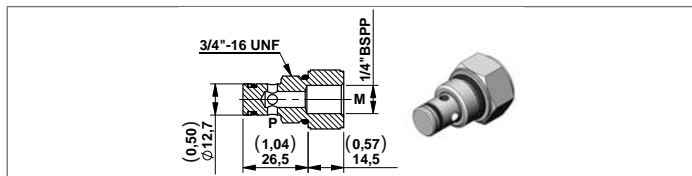
Code	Diagram	Type	Material Number
TS2	M	R3897TA304	R932003214

3/8" Auxiliary Return Port



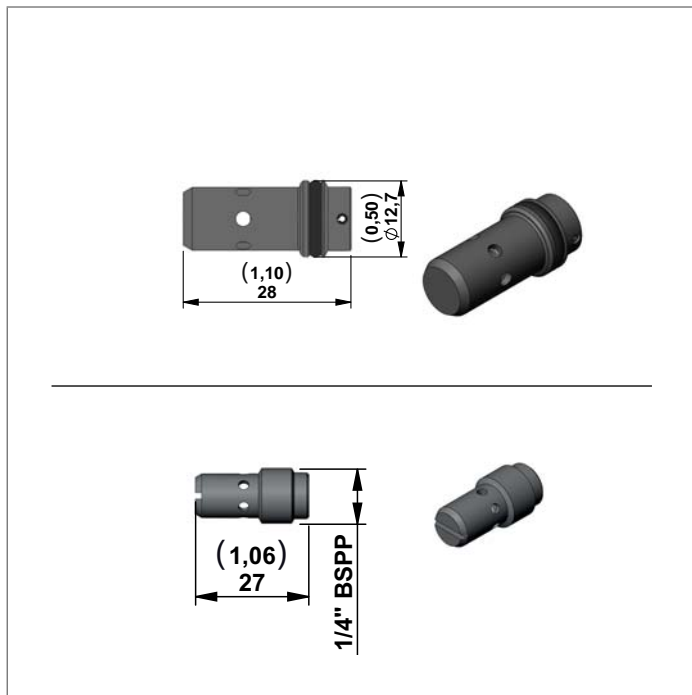
Code	Diagram	Type	Material Number
TS3	M	R3897TA147	R932003195

1/4" Auxiliary Pressure Port



Code	Diagram	Type	Material Number
TM2	M	R3897TA305	R932003215

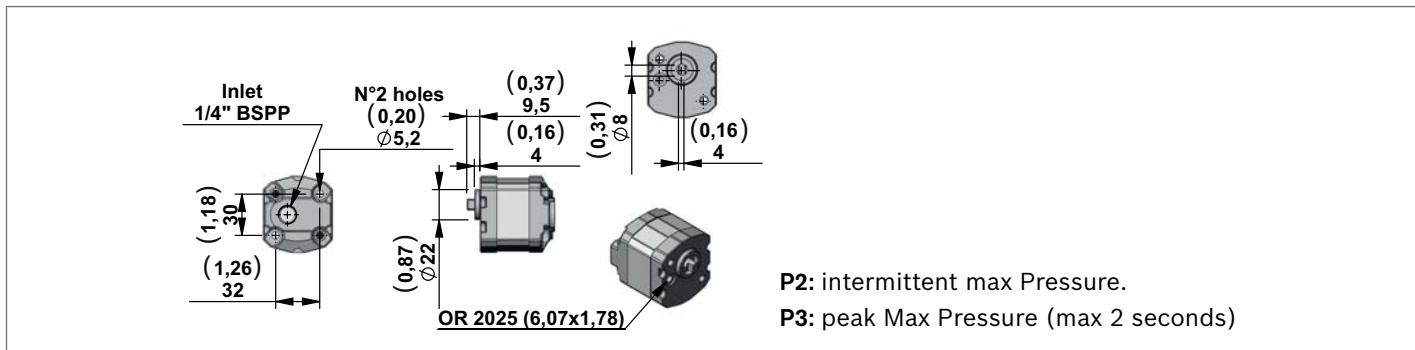
Flow Control Valves Pressure Compensated



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

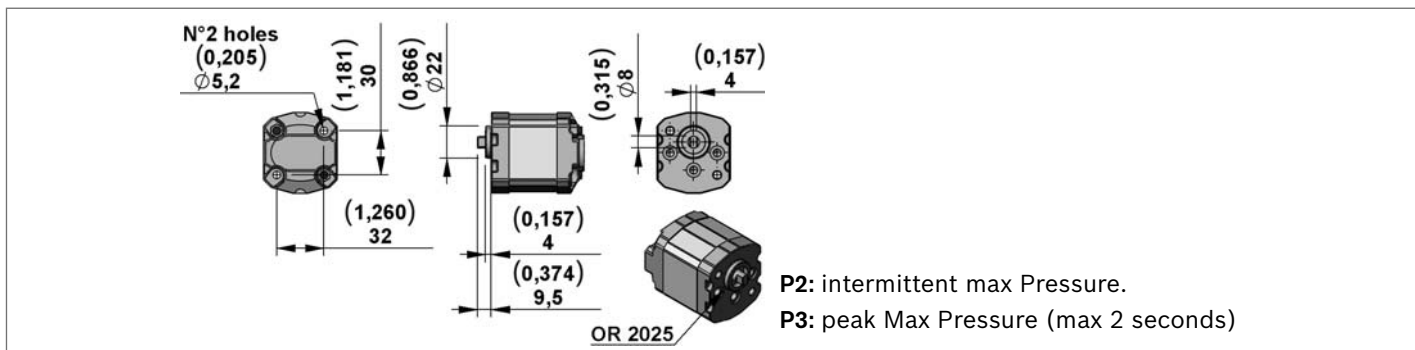
Gear Pumps

Gear Pumps Group 0.5 for ME



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

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)	C1641R6000	R932008245
R7	1,50	2,25 (0,59)	170 (2465)	190 (2756)	C1641R700M	R932000685

Note

All pumps have anti-clockwise rotation.

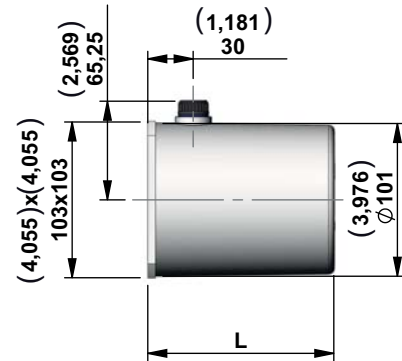
Oil Tanks

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: 110201875000000 Material-Number: R932000191	

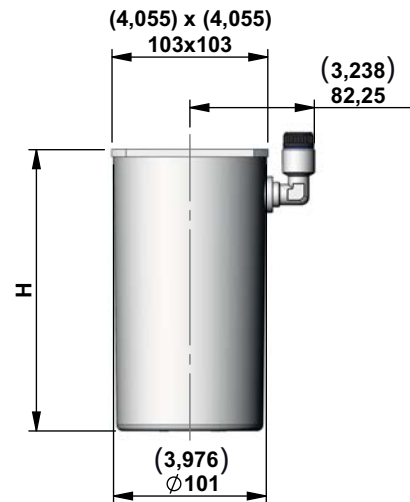
Code	Tank capacity l (USgal)	Useable capacity l (USgal)	L mm (inch)	Material	Type	Material Number
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S284	0,5 (0,13)	0,4 (0,11)	123 (4,84)	PP	K01M3976SE318	R932002054
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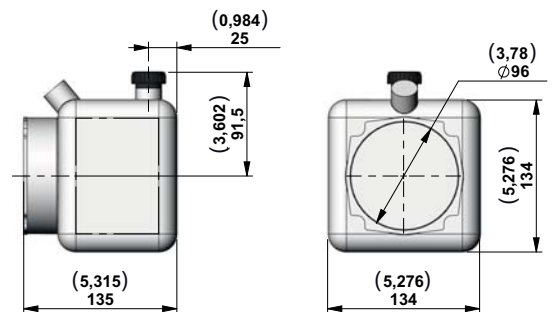
S286	1 (0,26)	0,7 (0,18)	186 (7,32)	PP	K01M3976SE320	R932002056
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S285	0,5 (0,13)	0,4 (0,11)	123 (4,84)	PP	K01M3976SE319	R932002055
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S287	1 (0,26)	0,7 (0,18)	186 (7,32)	PP	K01M3976SE321	R932002057
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S270	1 (0,26)	0,9 (0,24)	-	PE	K01X3976SE303	R932002077
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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)	PE	K01X3976SE305	R932002079
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)	PE	K01X3976SE307	R932002081
S275	2,5 (0,66)	2,2 (0,58)	240 (9,45)	PE	K01X3976SE308	R932002082

Assembly Kit for Plastic Tank - ME

Please make sure that the tank and motor are mounted correctly

Code	Type	Material Number
S270 - S271 - S272 - S273 - S274 - S275	K2501VT005	R932002435
S284 - S285 - S286 - S287	K2501VT009	R932002438

Technical Data for Steel Tanks

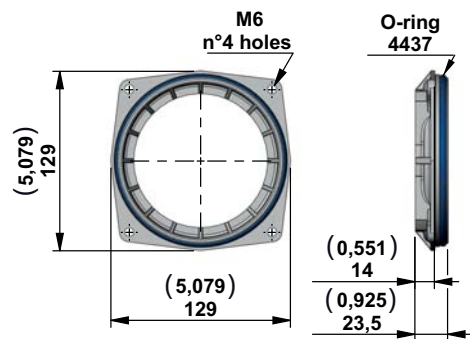
Temperature range	°C (°F)	-15....+80 (5....176)
Materials		Steel
Colors		Black paint finish
Seal		For all the steel tanks with Ø99 is necessary to use O-Ring 4350 (Ø88,5x3,53) on the central manifold. Code:110201875000000 - Material-Number:R932000191. If is necessary to use a tank designed for KE-K (Ø123mm) must use the O-ring 4350 on the manifold and add the flange S81.

Collar for Tanks

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

K01K3976SM091 R932002053



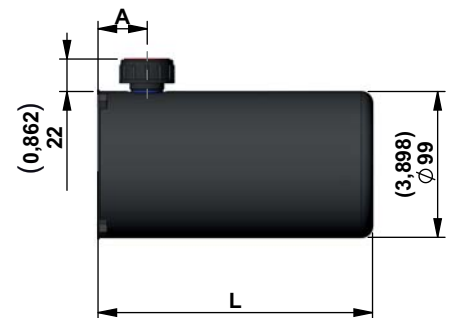
Steel Tanks

Code	Tank capacity l (USgal)	Useable capacity l (USgal)	L mm (inch)	A mm (inch)	Type	Material Number
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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

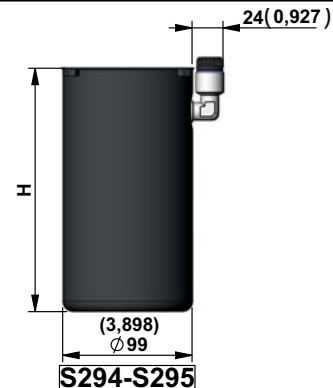
S183 1 (0,26) 0,7 (0,18) 184 (7,24) 154 (6,06) K01X3976SE213 R932002072



Code	Tank capacity l (USgal)	Useable capacity l (USgal)	H mm (inch)	Type	Material Number
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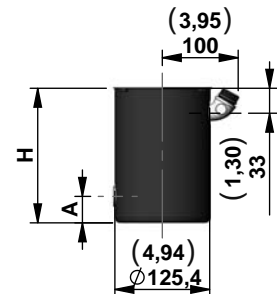
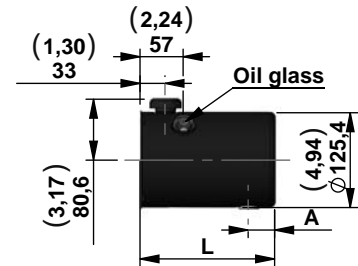
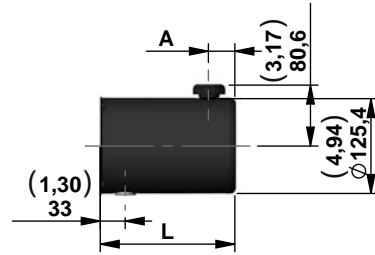
S294 0,5 (0,13) 0,4 (0,11) 120 (4,72) K01X3976SE328 R932002083

S295 1 (0,26) 0,7 (0,18) 184 (7,24) K01X3976SE329 R932002084



Steel Tanks

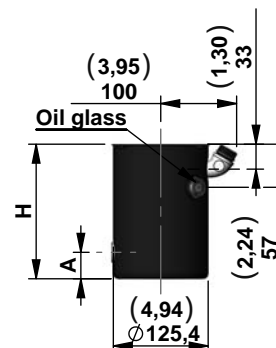
Code	Tank capacity l (USgal)	Useable capacity l (USgal)	L mm (inch)	A mm (inch)	Type	Material Number
S01	1 (0,26)	0,7 (0,18)	133 (5,24)	35 (1,38)	K01K3976SE001	R932001937
S20	1,8 (0,48)	1,2 (0,32)	178 (7,01)	35 (1,38)	K01K3976SE026	R932001953
S02	2,5 (0,66)	1,7 (0,45)	238 (9,37)	60 (2,36)	K01K3976SE003	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
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



Steel Tanks

Code	Tank capacity l (USgal)	Useable capacity l (USgal)	H mm (inch)	A mm (inch)	Type	Material Number
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S20V	1,8 (0,48)	1,1 (0,29)	178 (7,01)	35 (1,38)	K01K3976SE027	R932001954
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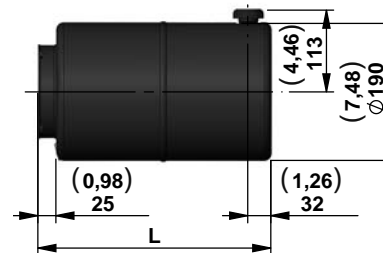
S02V	2,5 (0,66)	1,7 (0,45)	238 (9,37)	60 (2,36)	K01K3976SE004	R932001940
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Code	Tank capacity l (USgal)	Useable capacity l (USgal)	L mm (inch)	Type	Material Number
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S03	5 (1,32)	4 (1,06)	219 (8,62)	K01K3976SE005	R932001941
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S34	7 (1,85)	5,4 (1,43)	271 (10,67)	K01K3976SE041	R932001956
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S04	8 (2,11)	6,6 (1,74)	323 (12,72)	K01K3976SE007	R932001943
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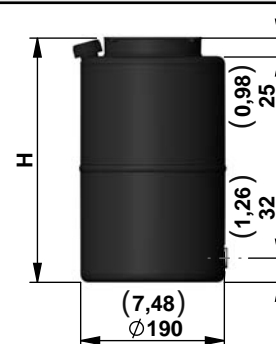


Code	Tank capacity l (USgal)	Useable capacity l (USgal)	H mm (inch)	Type	Material Number
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S03V	5 (1,32)	3 (7,9)	219 (8,62)	K01K3976SE006	R932001942
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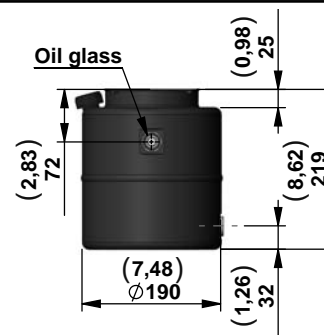
S34V	7 (1,85)	4,4 (1,16)	271 (10,67)	K01K3976SE042	R932001957
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S04V	8 (2,11)	5,8 (1,53)	323 (12,72)	K01K3976SE008	R932001944
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Code	Tank capacity l (USgal)	Useable capacity l (USgal)	Type	Material Number
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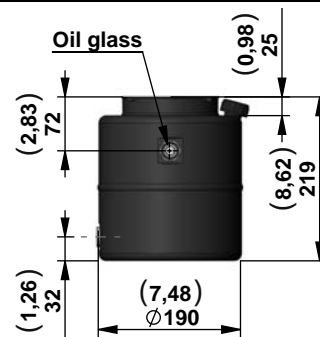
S185	5 (1,32)	3 (7,9)	K01K3976SE345	R932007057
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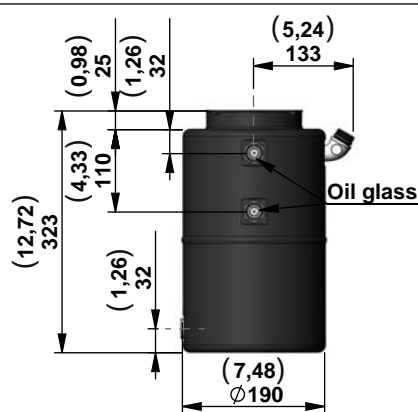
Steel Tanks

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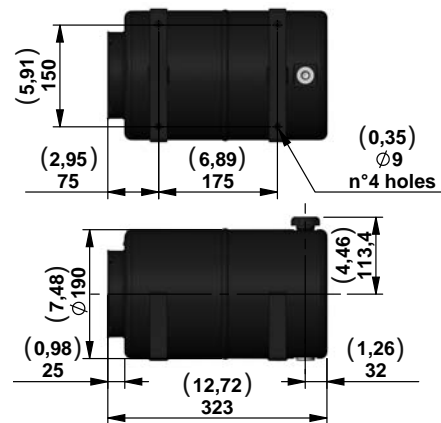
S106 5 (1,32) 3 (7,9) K01K3976SE215 R932001997



S108 8 (2,11) 5,8 (1,53) K01K3976SE120 R932001971



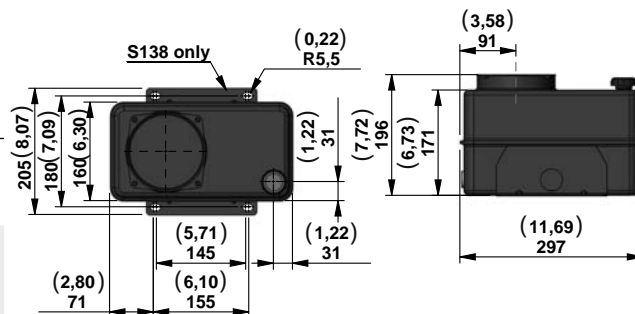
S94 8 (2,11) 6,6 (1,74) K01K3976SE106 R932001965



Code	Tank capacity l (USgal)	Useable capacity l (USgal)	Brackets	Type	Material Number
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S07 6 (1,58) 4 (1,06) No K01K3976SE013 R932001945

S138* 6 (1,58) 4 (1,06) Yes K01K3976SE162 R932001977



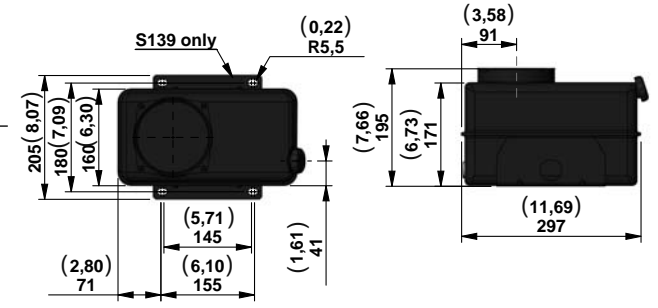
***Note** In order to avoid to support the weight of motor by the collar of the tank when the tanks with fixing brackets are used, it is strongly suggested to support also the central manifold.

Steel Tanks

Code	Tank capacity l (USgal)	Useable capacity l (USgal)	Brackets	Type	Material Number
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S48	6 (1,58)	4 (1,06)	No	K01K3976SE056	R932001959
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S139*	6 (1,58)	4 (1,06)	Yes	K01K3976SE163	R932001978
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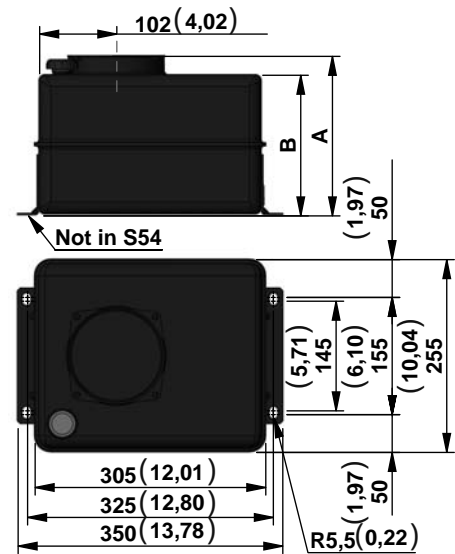


Code	Tank capacity l (USgal)	Useable capacity l (USgal)	A mm (inch)	B mm (inch)	Type	Material Number
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S223*	8 (2,11)	6 (1,58)	156 (6,14)	131 (5,16)	K01K3976SE253	R932002013
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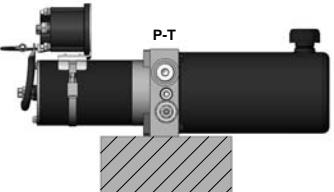
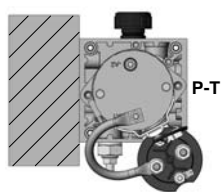
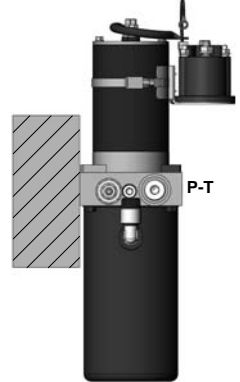
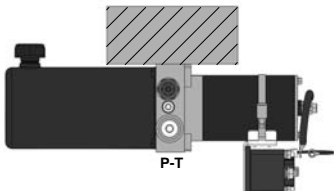
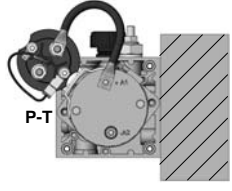
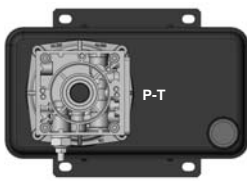
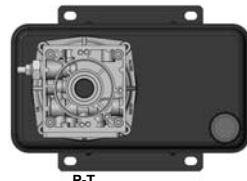
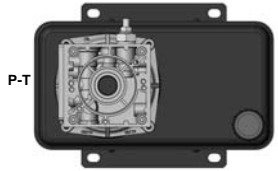
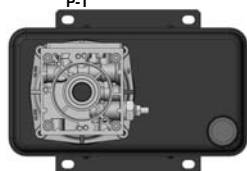
S54	12 (3,17)	9,5 (2,51)	210 (8,27)	186 (7,32)	K01K3976SE063	R932001960
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S140*	12 (3,17)	9,5 (2,51)	210 (8,27)	186 (7,32)	K01K3976SE164	R932001979
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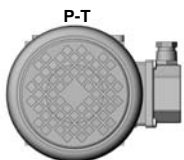

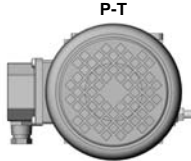



***Note** In order to avoid to support the weight of motor by the collar of the tank when the tanks with fixing brackets are used, it is strongly suggested to support also the central manifold.

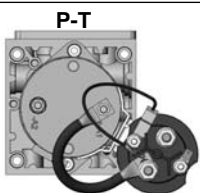
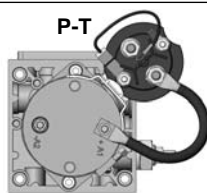
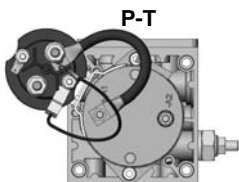
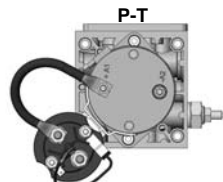
Mounting position

Code	Code	Code
O1	O3	V1
		
O2	O4	
		
-	O6	
		
O7	O8	
		

Terminal Box Position for A.C. Motors

-	M2
	
M3	M4
	

Relay Position for D.C. Motors

-	R2
	
R3	R4
	

Oil Cap Position for V1 only

Code	Code
-	LU
LO	LP

Mounting Brackets

Support for Manifold ME - MR Series

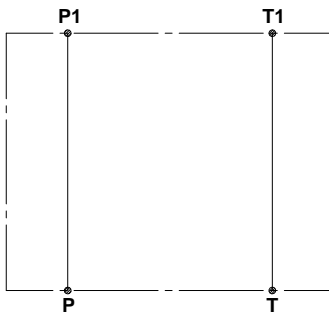
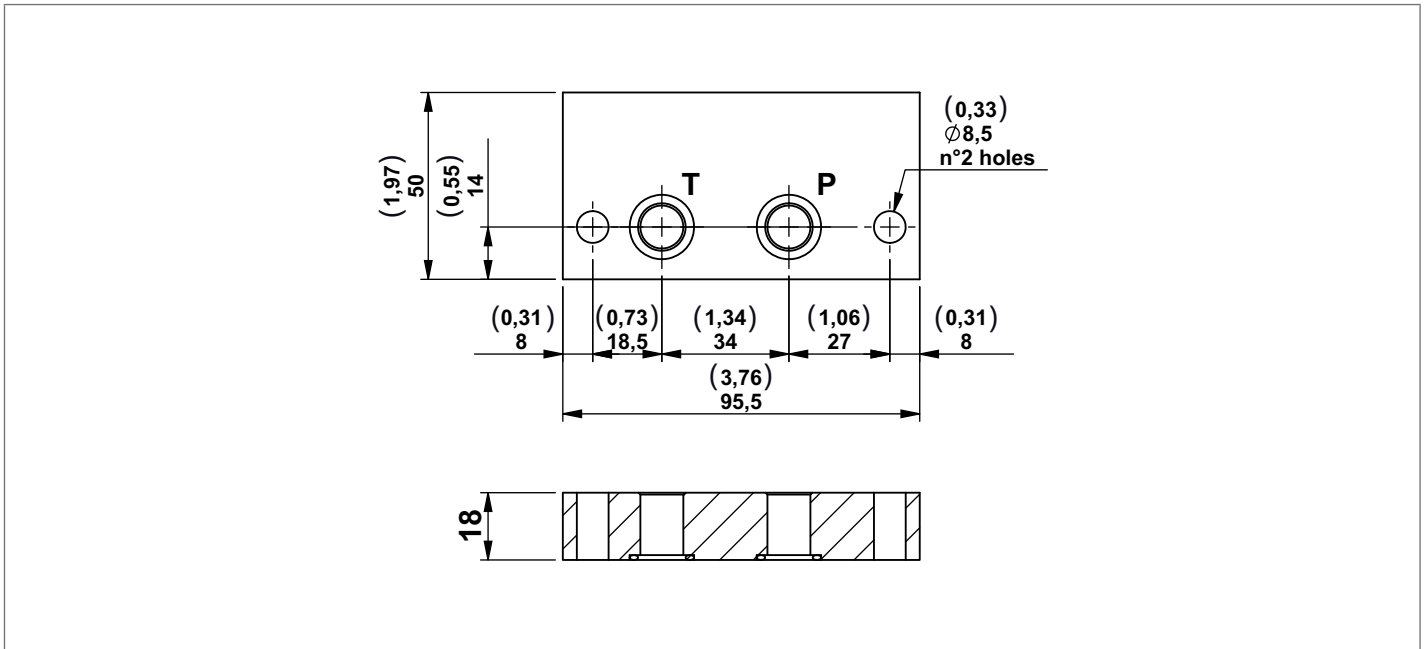
Code	Central manifold	Type	Material number
G06	ME	K01X331518000	R932000734

Support for Manifold Code A16

Code	Central manifold	Type	Material number
G07	K	K01K331507000	R932009393
G07L	K	K01K331507000	R932009393

Modular Stackable Elements

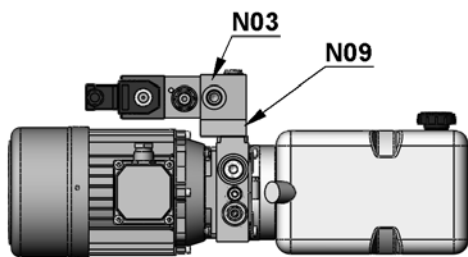
Space Modular Block



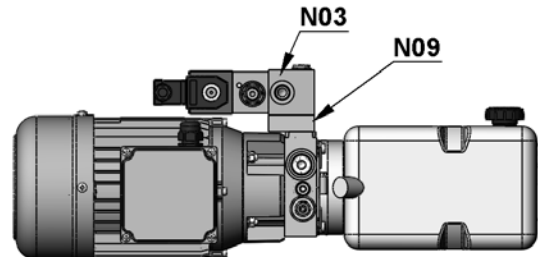
These modular blocks have been designed to have the ability to be assembled as a stack to allow clearance between flanges and motors of different sizes and types. Each block includes 2 OR 3056 gaskets.

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

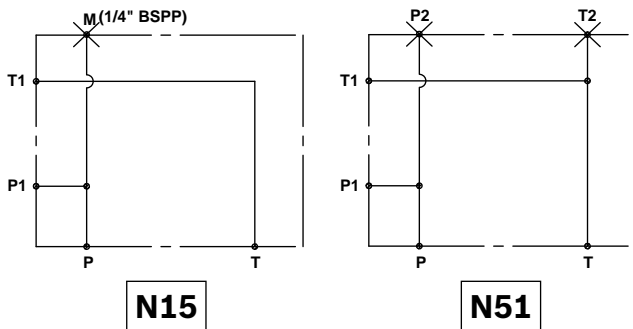
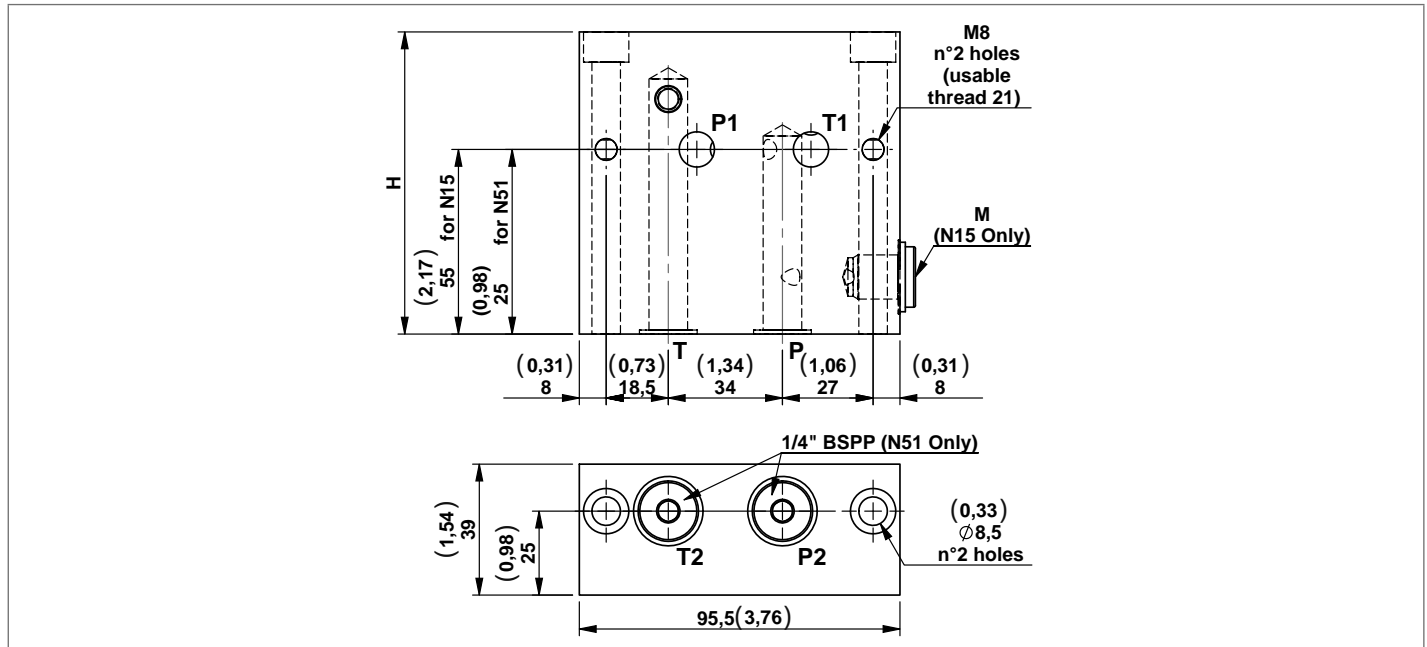
Motor IEC71 frame Coupling F90



Motor IEC80 frame Coupling F95

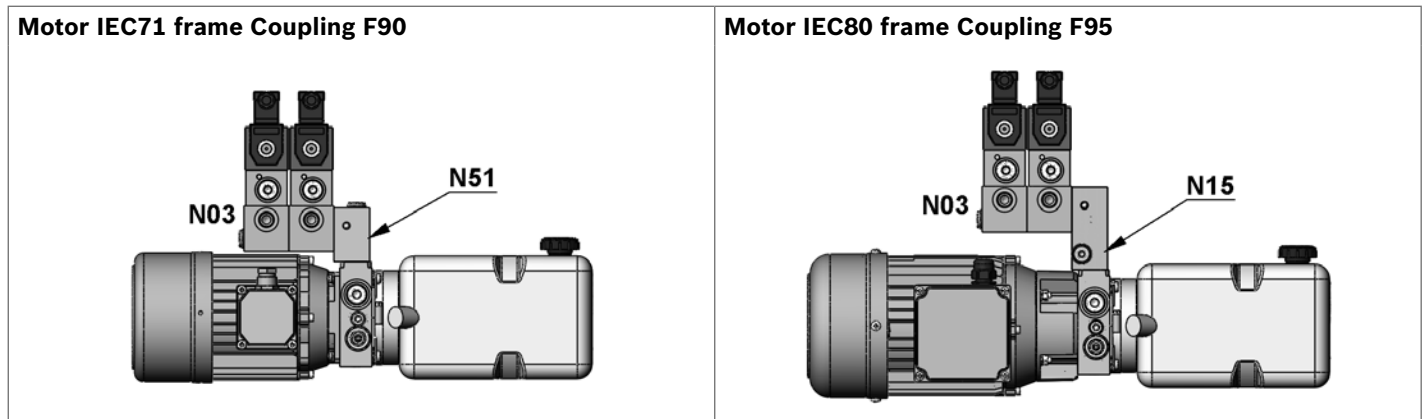


90° modular block allowing horizontal mounting (motor side)

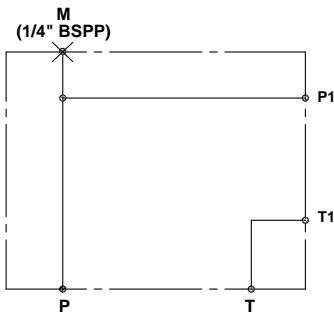
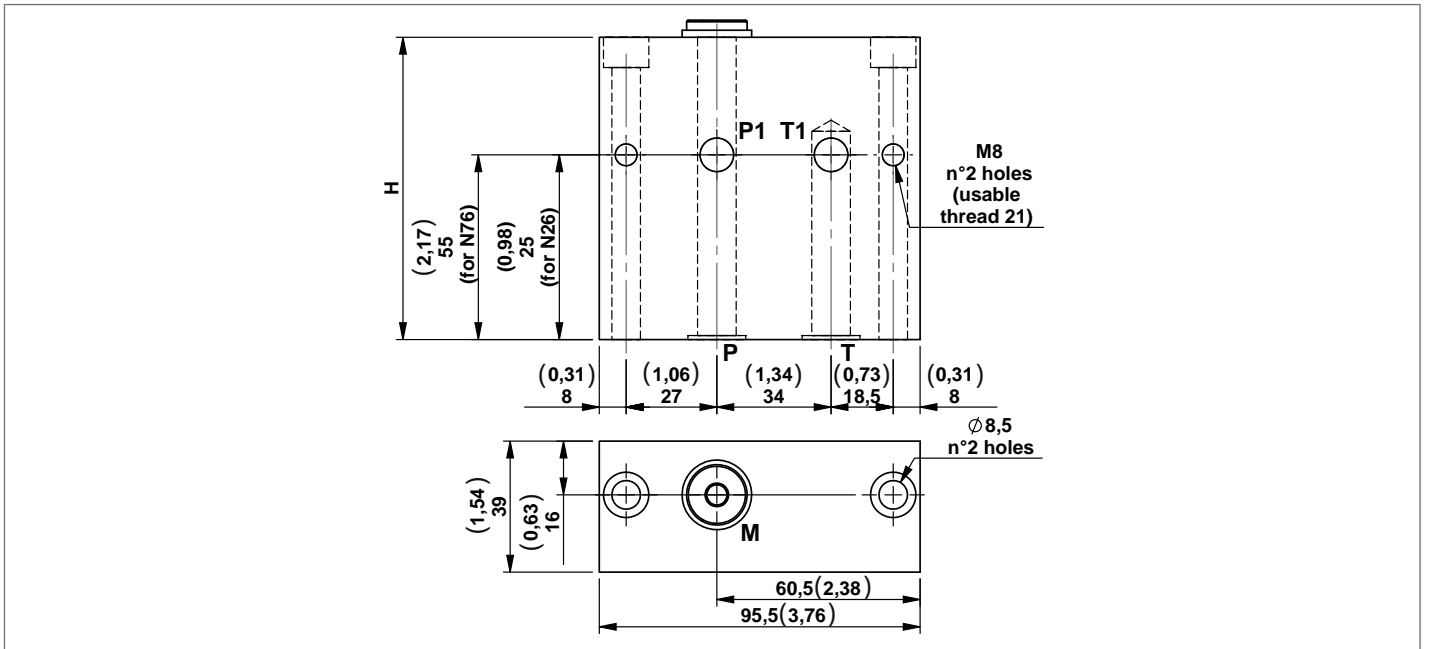


A modular block that is able to turn the standard assembling of 90°, in order to place other manifold blocks over the motor.
The “N15” block has a 1/4” BSPP port for Pressure Gauge.
Each block includes 2 OR 2056 gaskets.

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



90° modular block allowing horizontal mounting (tank side)

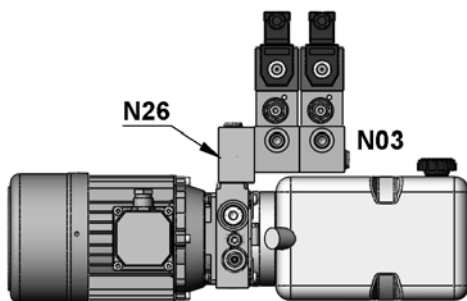


A modular block that is able to turn the standard assembling of 90°, in order to place other blocks over the tank.

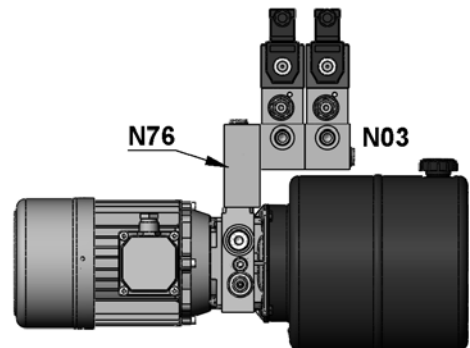
The blocks have a 1/4" BSPP port for Pressure Gauge. Each block includes 2 OR 2056 gaskets.

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



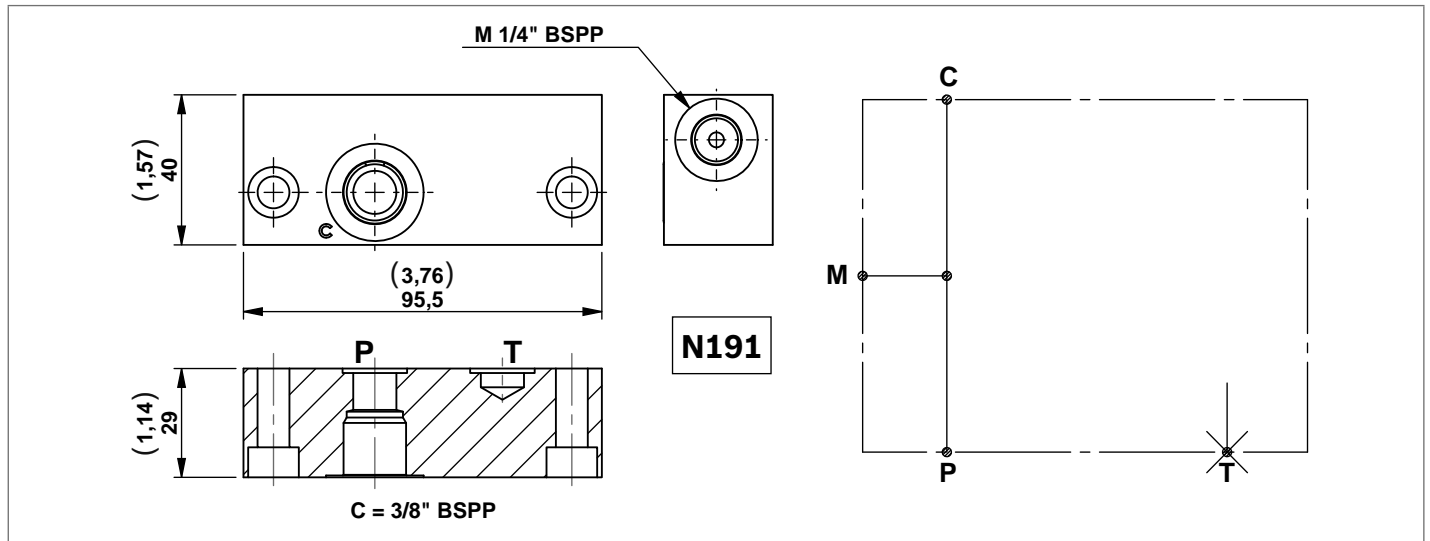
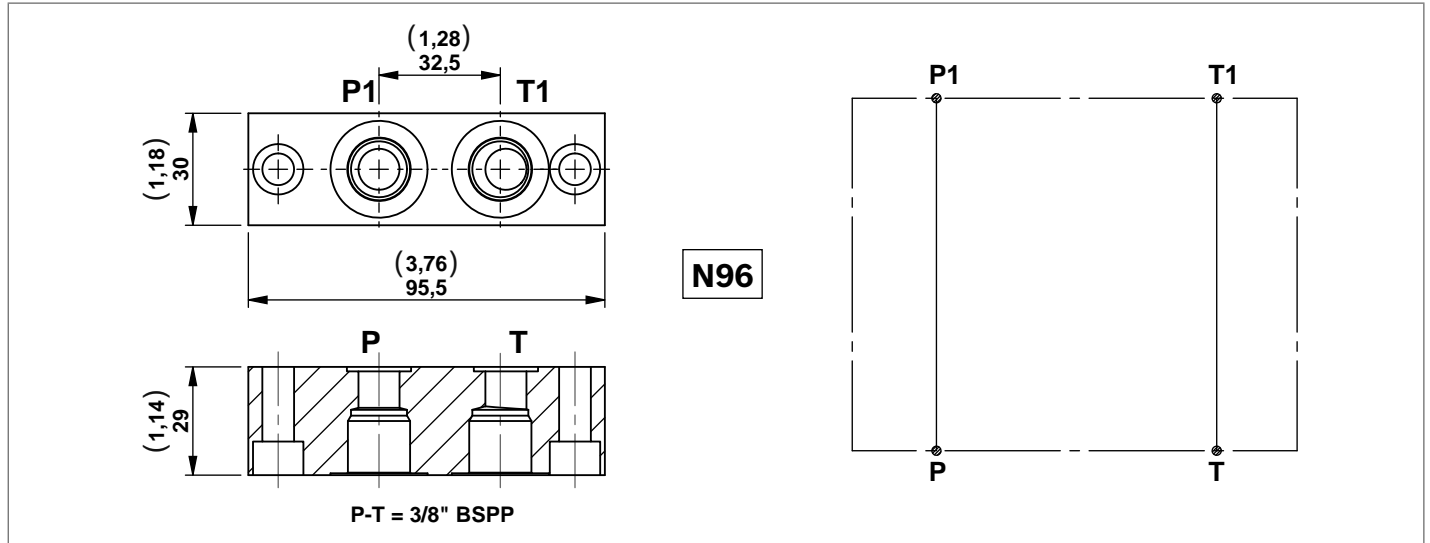
Tank Diameter Ø190



Modular blocks with threaded ports

Modular blocks with exit 3/8" BSPP.

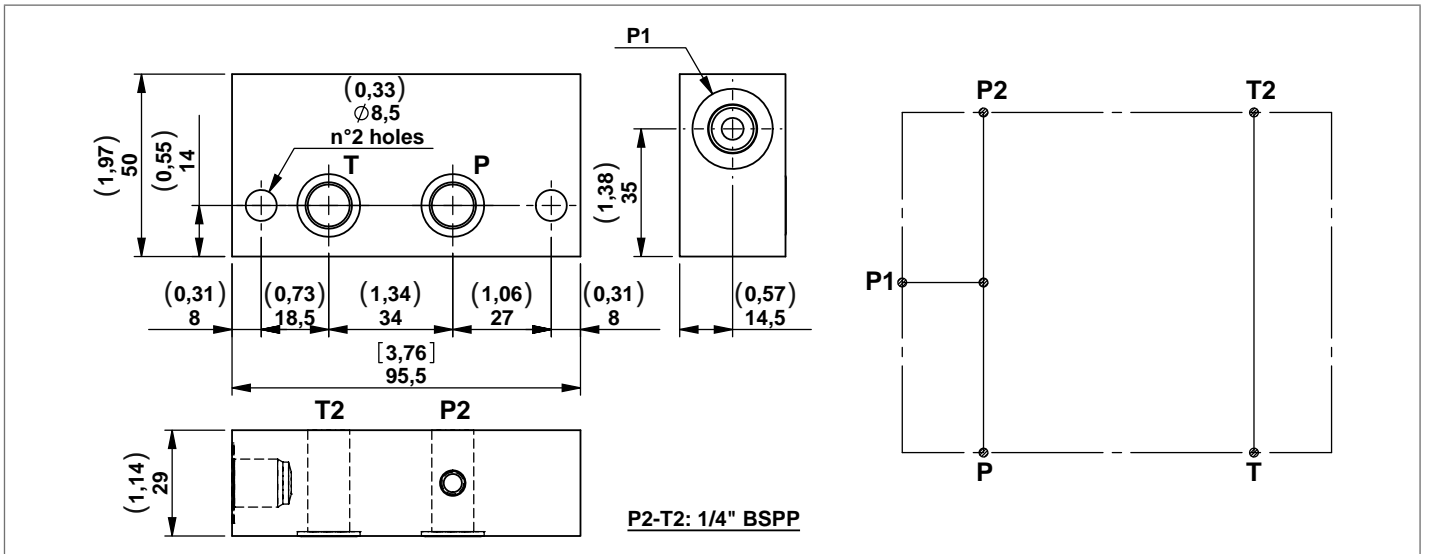
Each block includes 2 OR 2056 gaskets.



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 spacer block with extra "P1" port

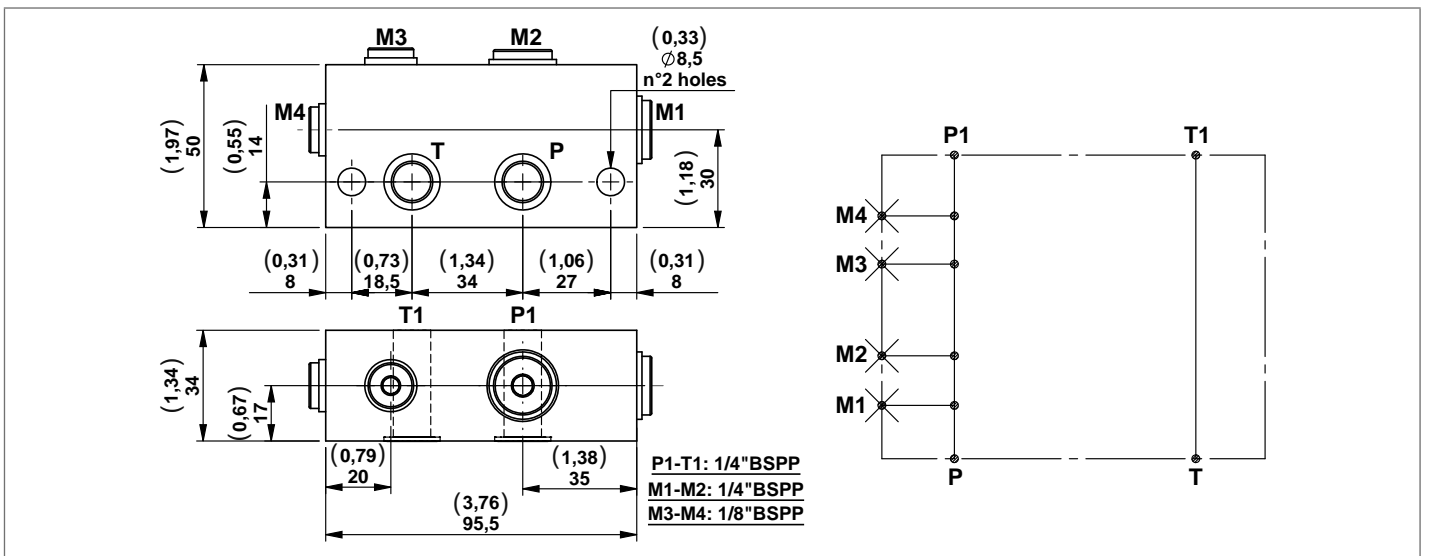
A modular block with an extra port.
Each block includes 2 OR 2056 gaskets.



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

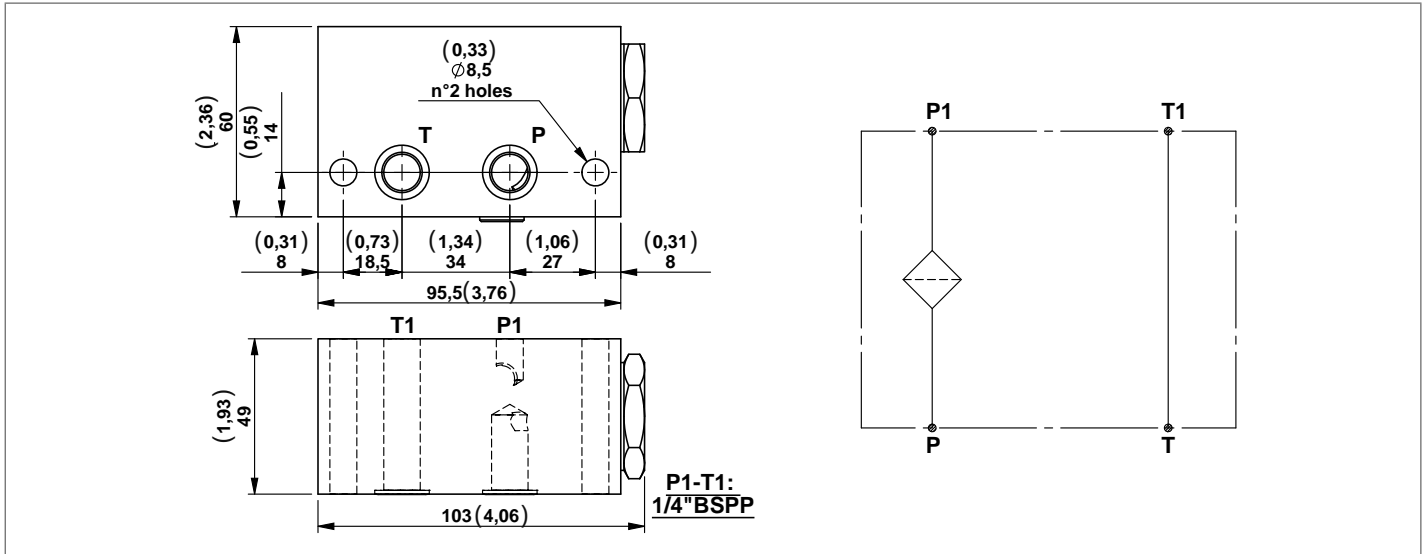
A modular block with 4 extra ports.
Each block includes 2 OR 2056 gaskets.



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 block with filter on pressure line

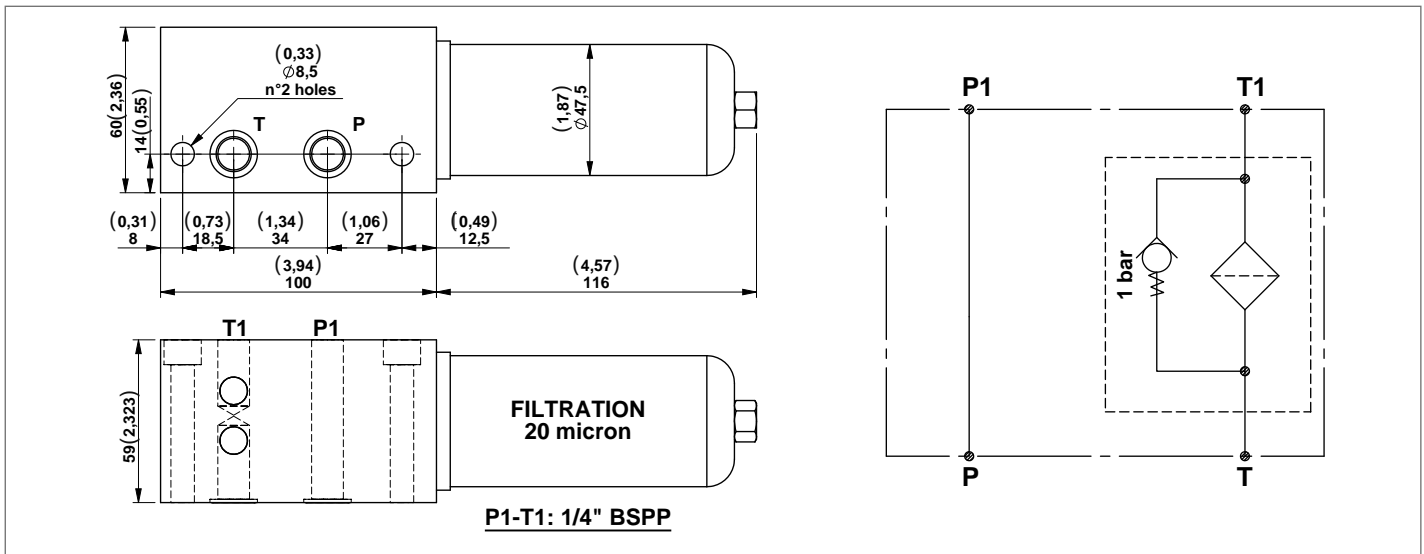
A modular block with a filter on the pressure line. This is recommended for applications where valve may be subjected to contamination. Each block includes 2 OR 2056 gaskets.



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

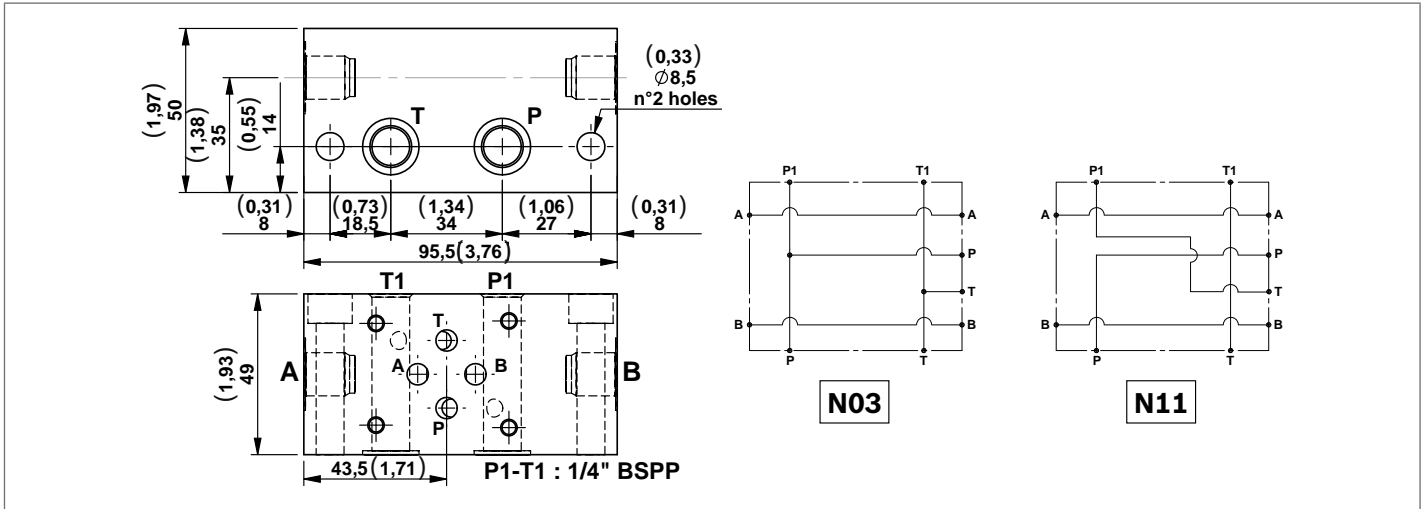
A modular block with filter on return line. This is recommended for applications where valves may be subjected to contamination. Each block includes 2 OR 2056 gaskets. By-pass valve set at a pressure of 1 bar.



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 block for CETOP 3 (2143) configuration valves

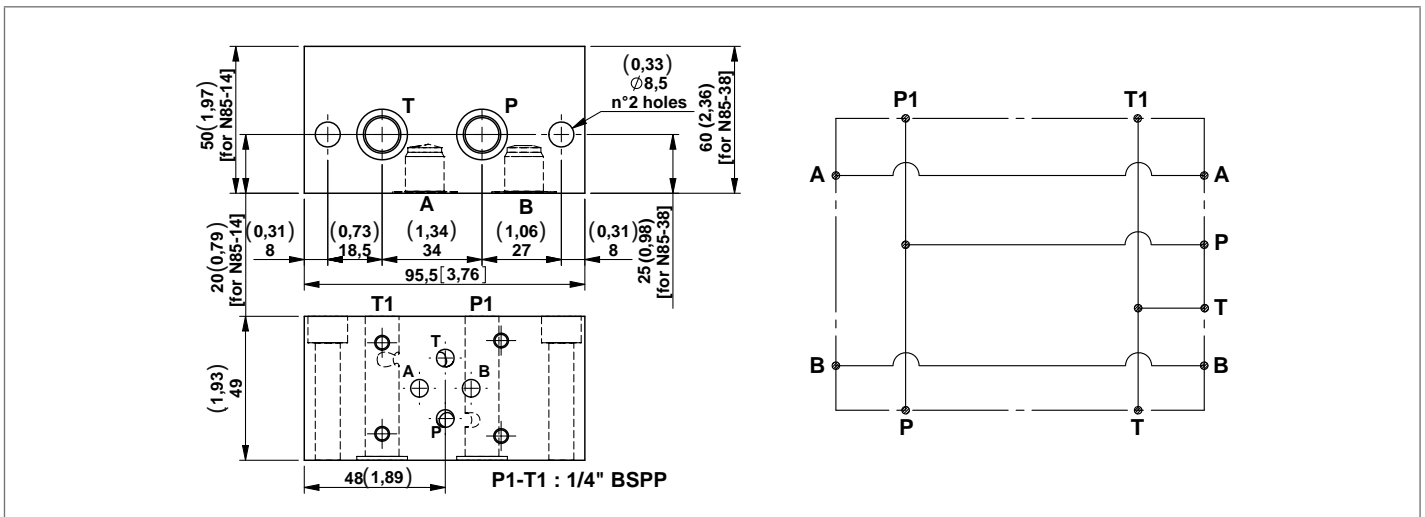
Modular blocks for CETOP 3 (2143) electrovalves for parallel or series circuits.
Each block includes 2 OR 2056 gaskets.



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

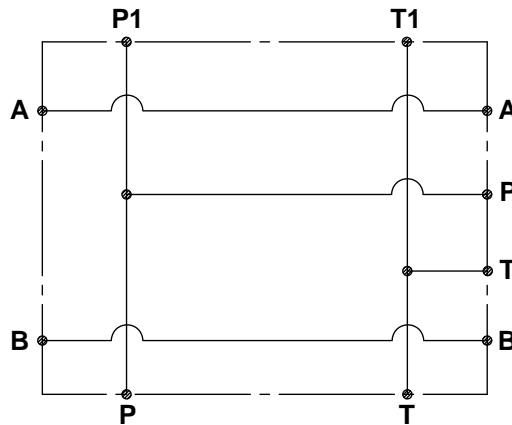
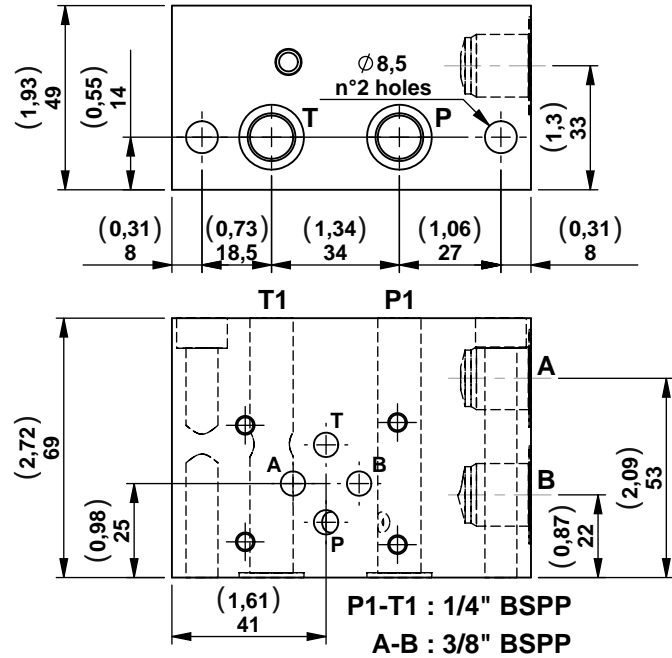
A modular block that is for CETOP 3 (2143) electrovalves for a parallel circuit with ports on the oppsite side of the valve.
Each block includes 2 OR 2056 gaskets.



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 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.



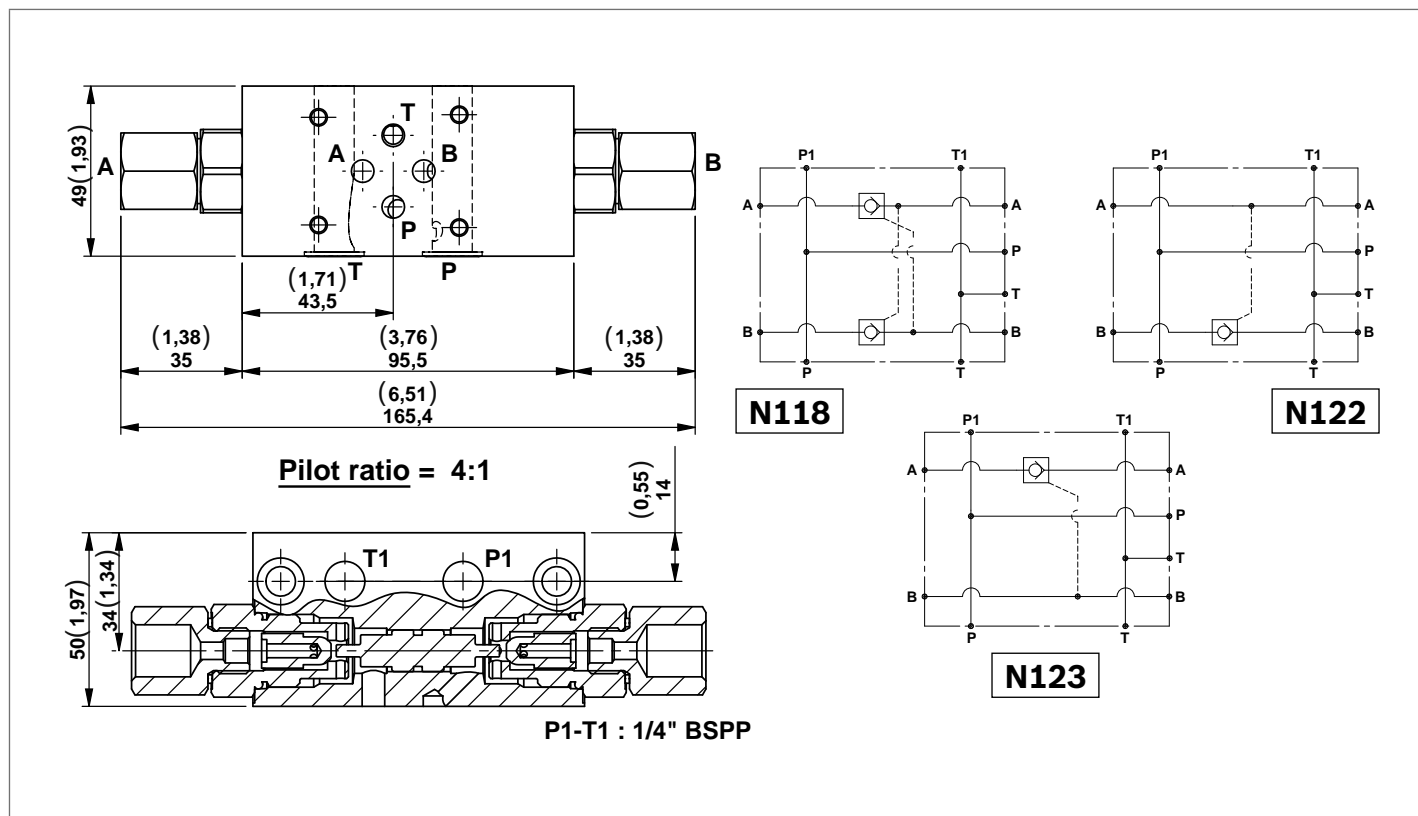
Code	Description	Max working pressure bar (psi)	Max flow l/min (gpm)	Type	Material number
N142	Modular block for CETOP 3 (2143) confuguration valves with side ports	300 (4351)	40 (10,57)	G386142000	R932001252

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.

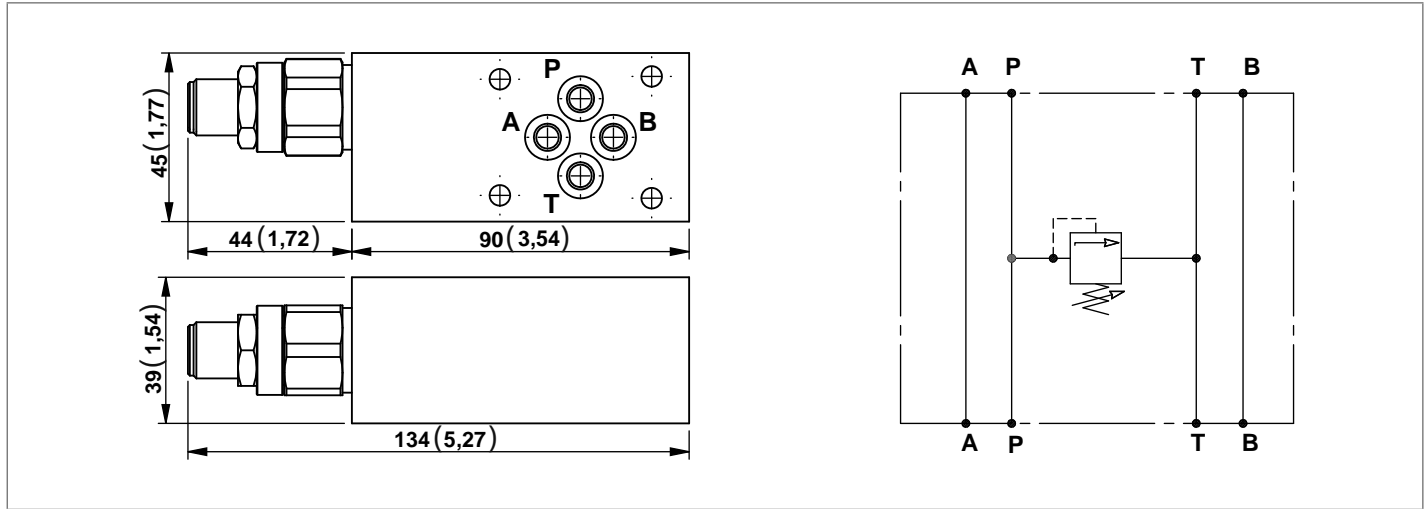
Possibility to have an OR gasket on the piloting piston for application with low flow.



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

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

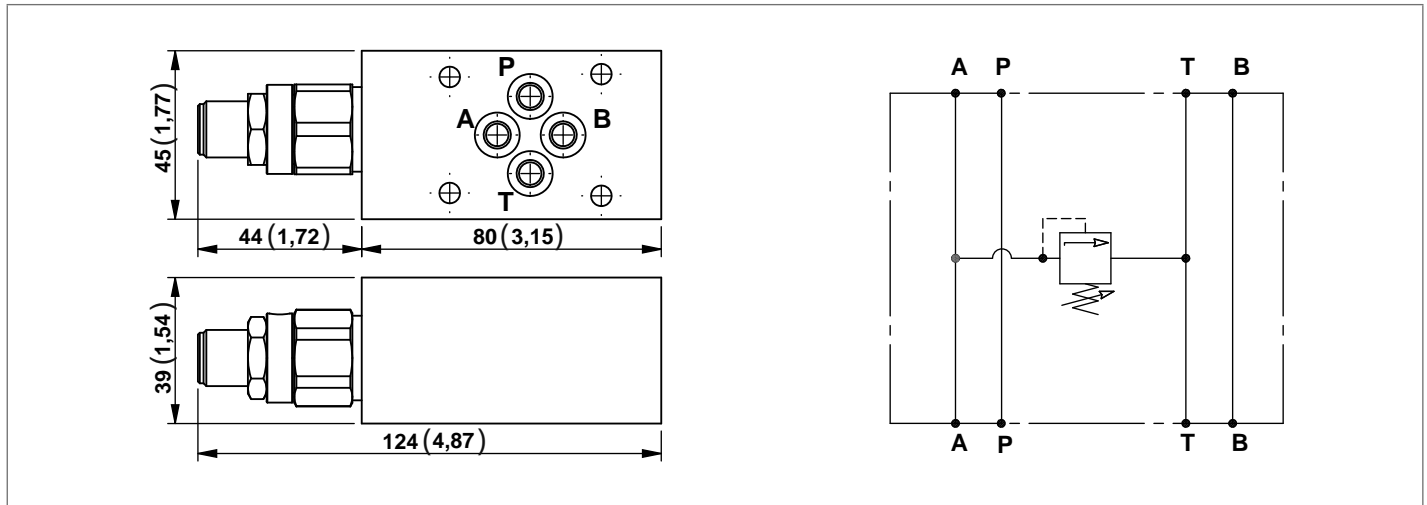
Each block includes 4 OR 108 gaskets.



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

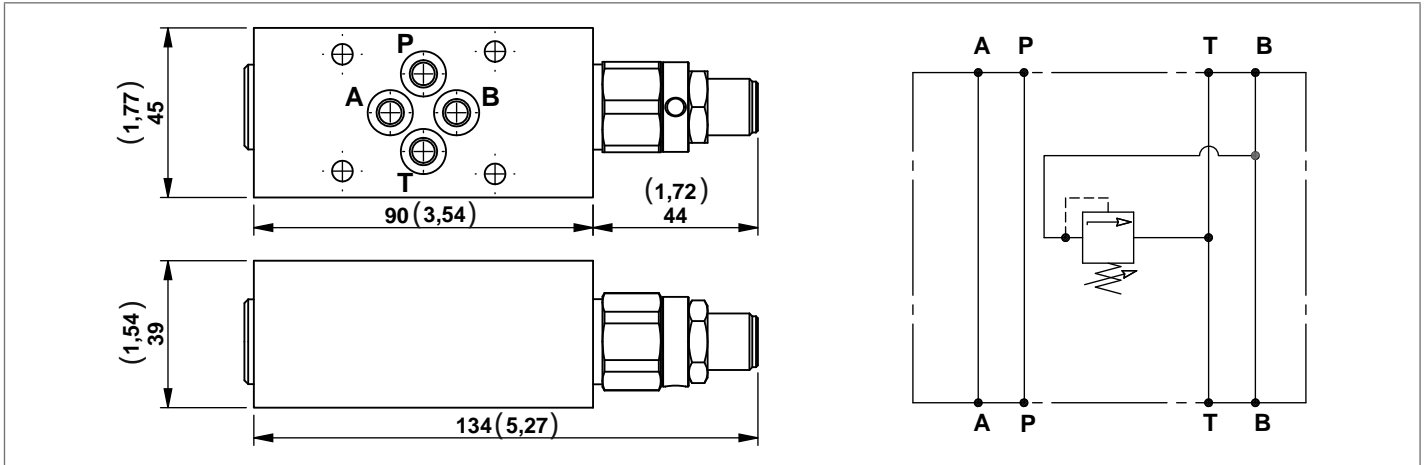
Each block includes 4 OR 108 gaskets.



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

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

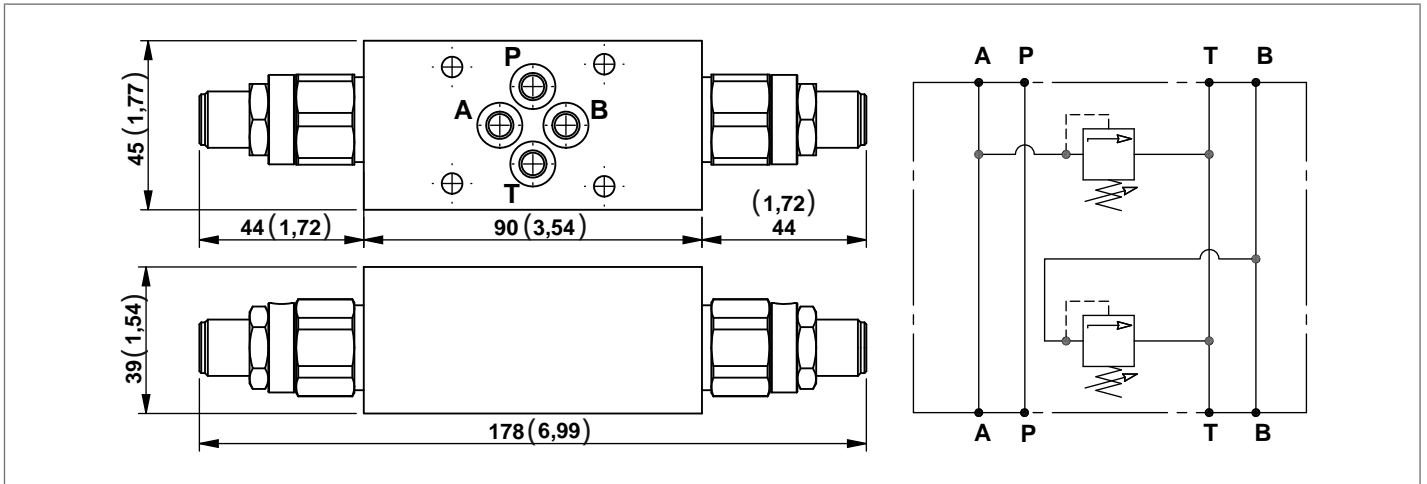
Each block includes 4 OR 108 gaskets.



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

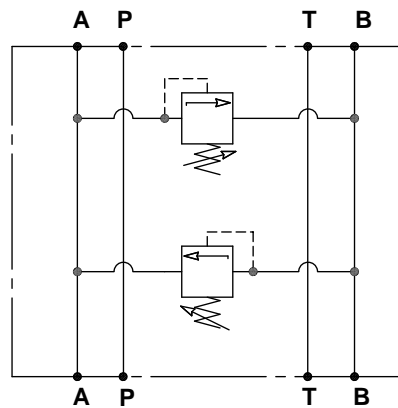
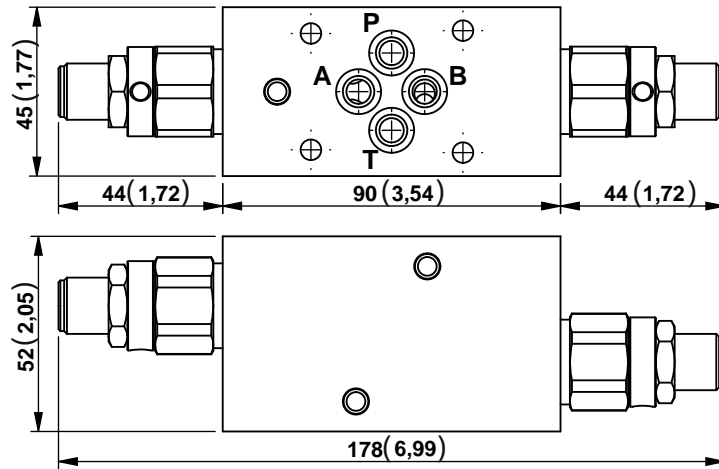
Each block includes 4 OR 108 gaskets.



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

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

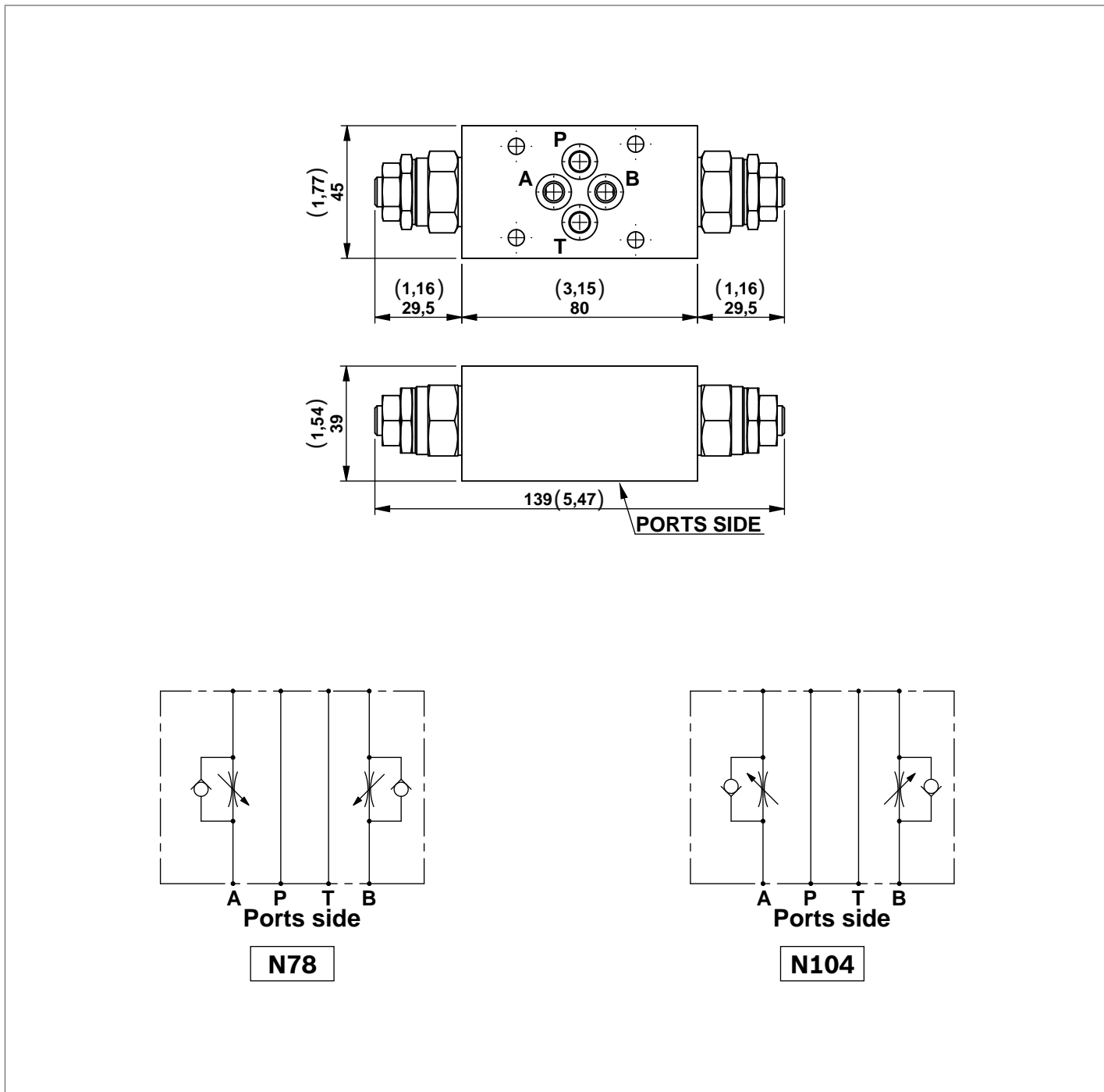
Each block includes 4 OR 108 gaskets.



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

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

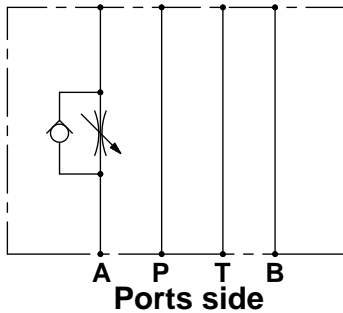
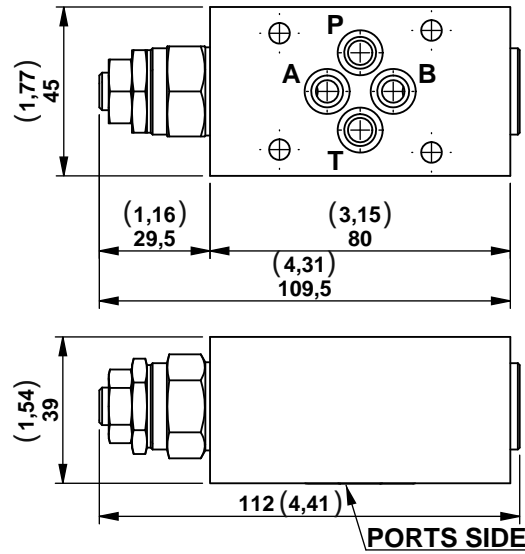
Each block includes 4 OR 108 gaskets.



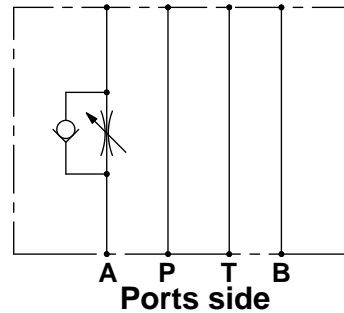
Code	Description	Max working pressure bar (psi)	Max flow l/min (gpm)	Type	Material number
N78	Sandwich blocks with ST-CU-06 adjustable flow control valves (that working on the return to the tank of the A and B line) for CETOP 3 (2143) configuration valves	300 (4351)	25 (6,60)	G386077A81	R932001156
N104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

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

Each block includes 4 OR 108 gaskets.



N105

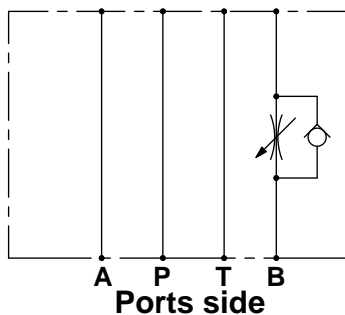
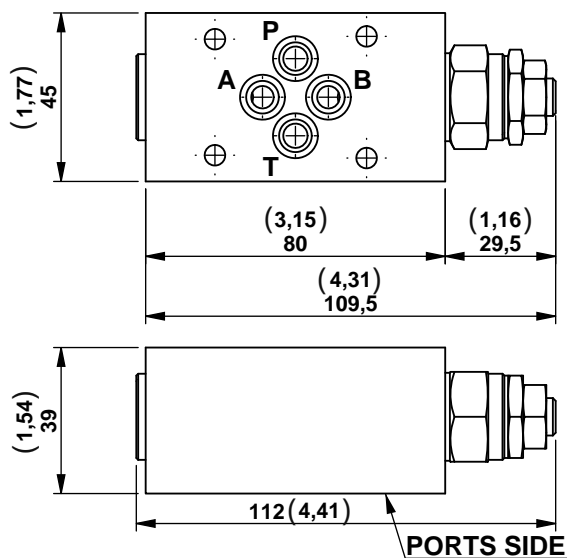


N107

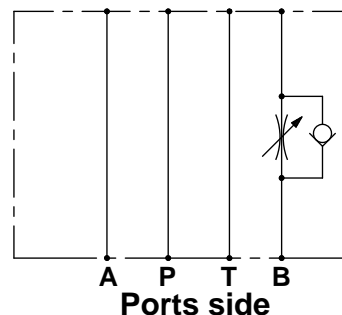
Code	Description	Max working pressure bar (psi)	Max flow l/min (gpm)	Type	Material number
N105	Sandwich blocks with ST-CU-06 adjustable flow control valves (that working on the return to the tank of the A line) for CETOP 3 (2143) configuration valves	300 (4351)	25 (6,60)	G386105A81	R932000183
N107	Sandwich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

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

Each block includes 4 OR 108 gaskets.



N106

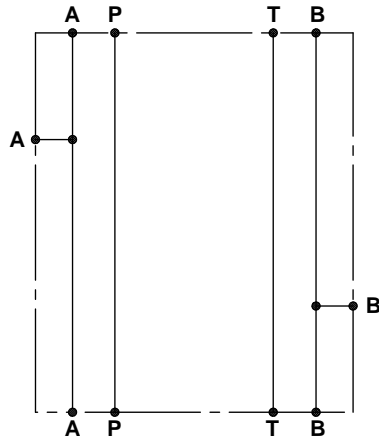
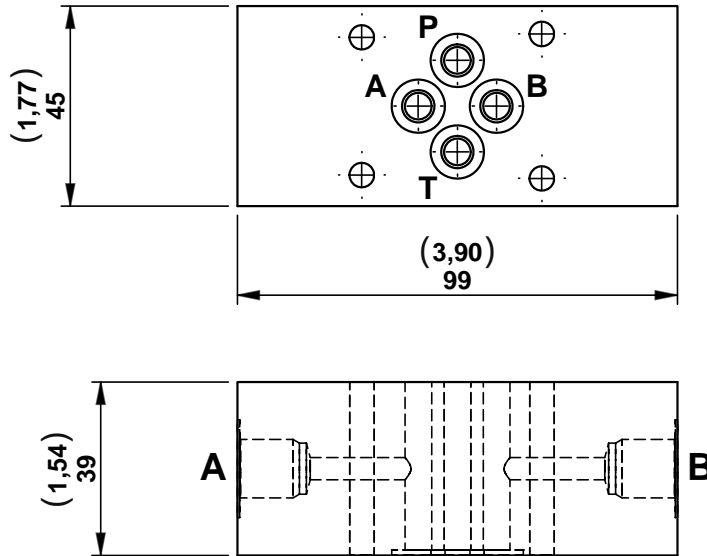


N108

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

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

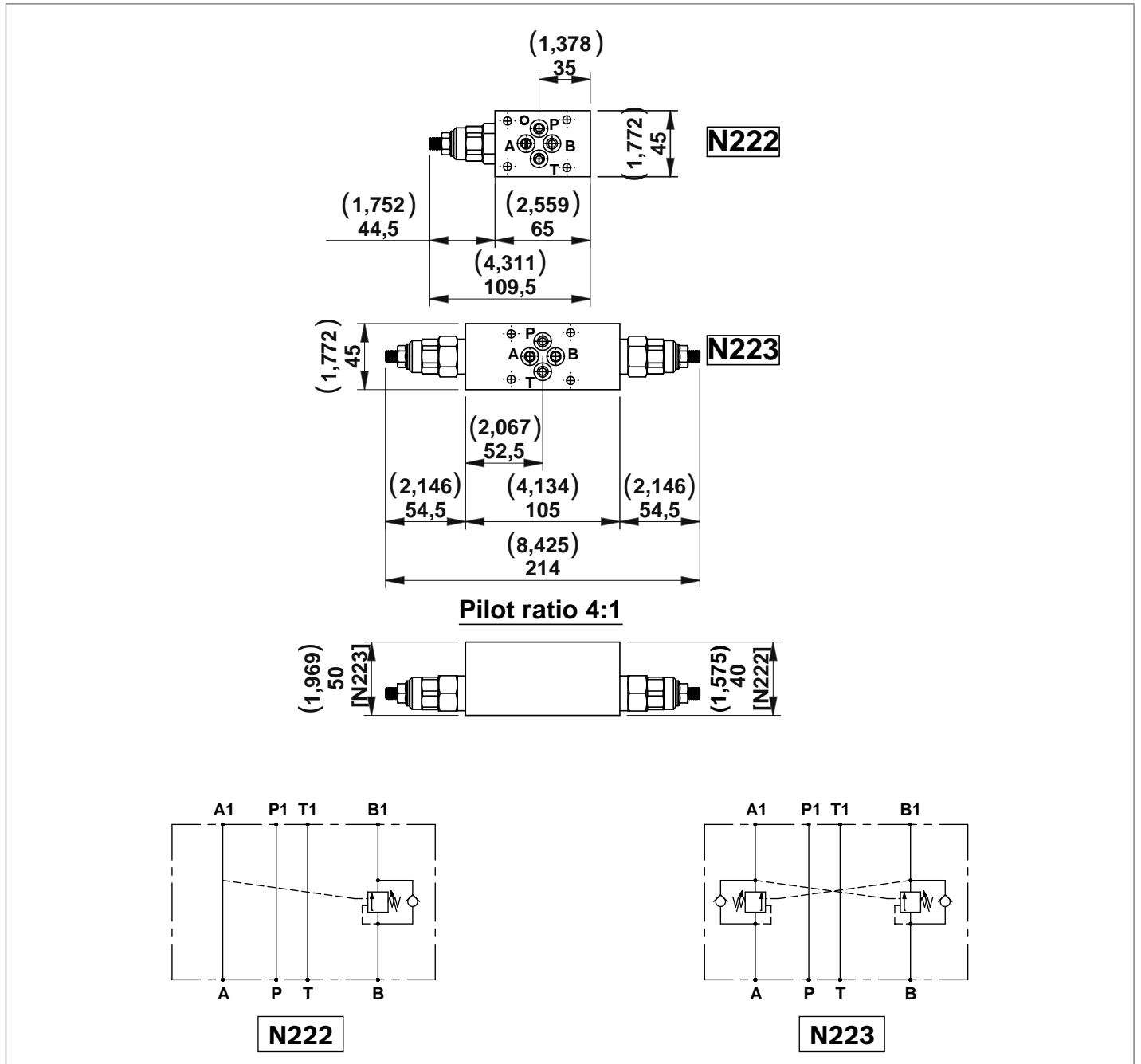
Each block includes 2 OR 2056 gaskets.



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

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

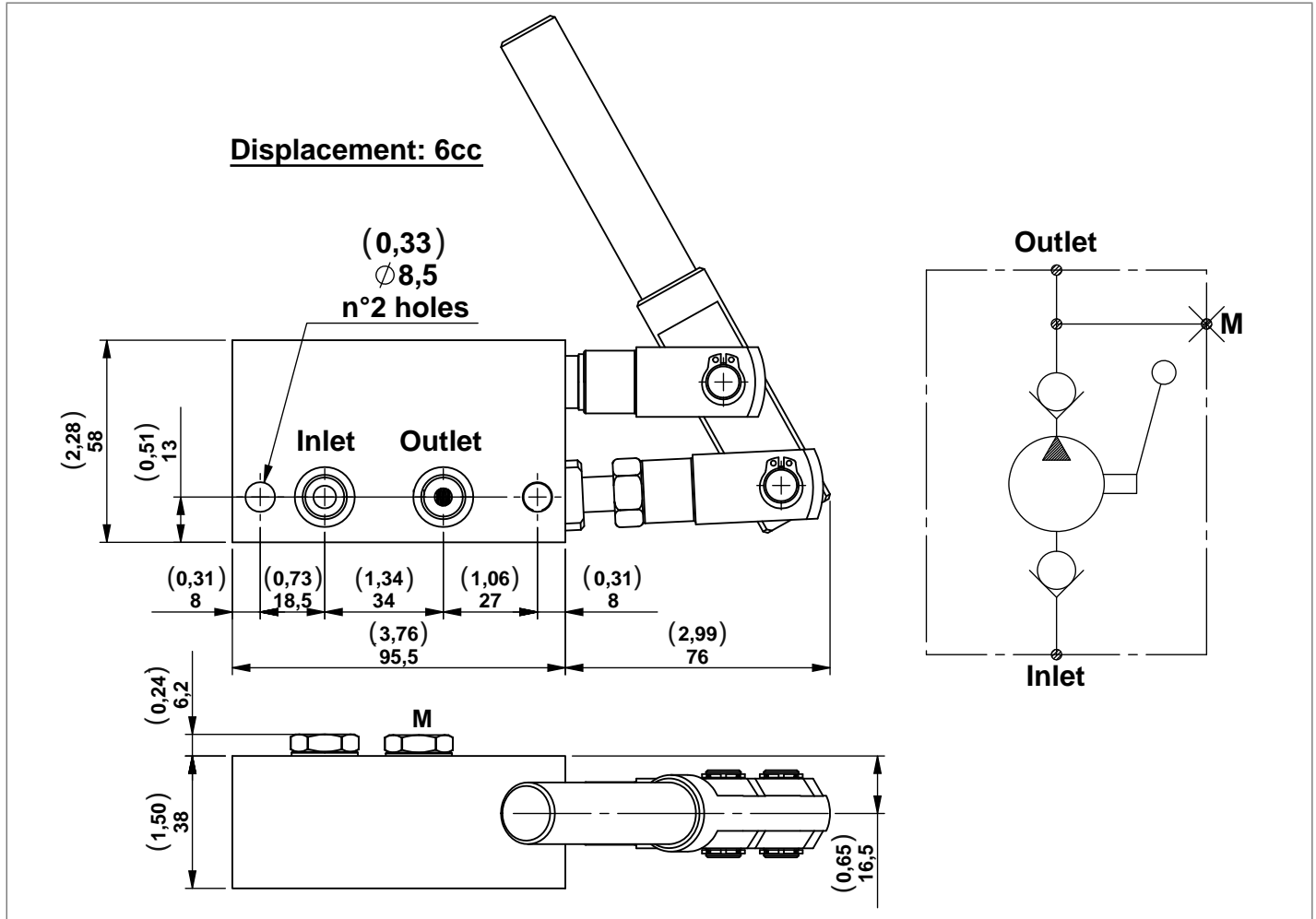
Each block includes 4 OR 108 gaskets.



Code	Description	Max working pressure bar (psi)	Max flow l/min (gpm)	Type	Material number
N222.20	Sandwich block with Overcentre valve VBSN-08AA (100-210 bar) on B line for CETOP3	300 (4351)	30 (7,93)	G386222002	R932001326
N222.35	Sandwich block with Overcentre valve VBSN-08AA (200-350 bar) on B line for CETOP3	300 (4351)	30 (7,93)	G386222003	R932001327
N223.20	Sandwich block with Overcentre valves VBSN-08AA (100-210 bar) on A and B line for CETOP3	300 (4351)	30 (7,93)	G386223002	R932001329
N223.35	Sandwich block with Overcentre valves VBSN-08AA (200-350 bar) on A and B line for CETOP3	300 (4351)	30 (7,93)	G386223003	R932001330

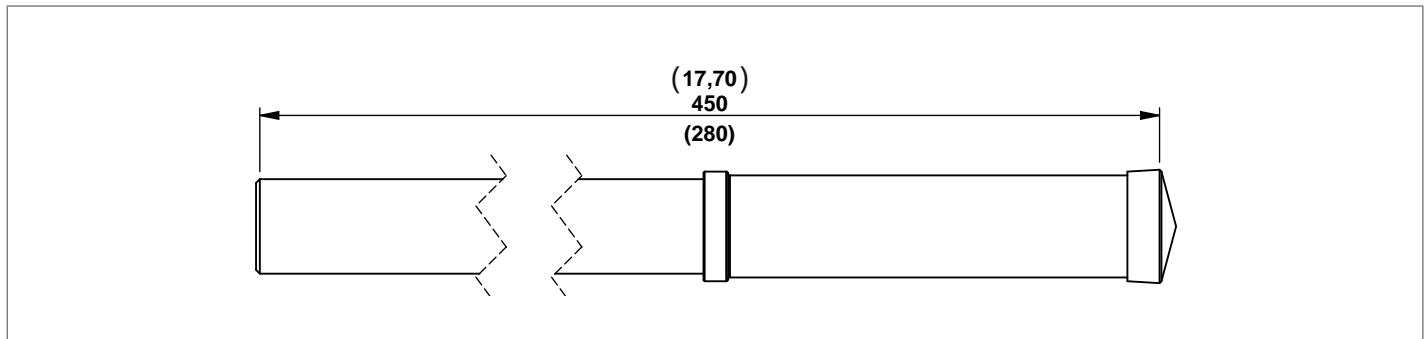
Modular hand pump manifold block

A single acting hand pump usually used for emergency.
Each block includes 5 OR 2050 gaskets.



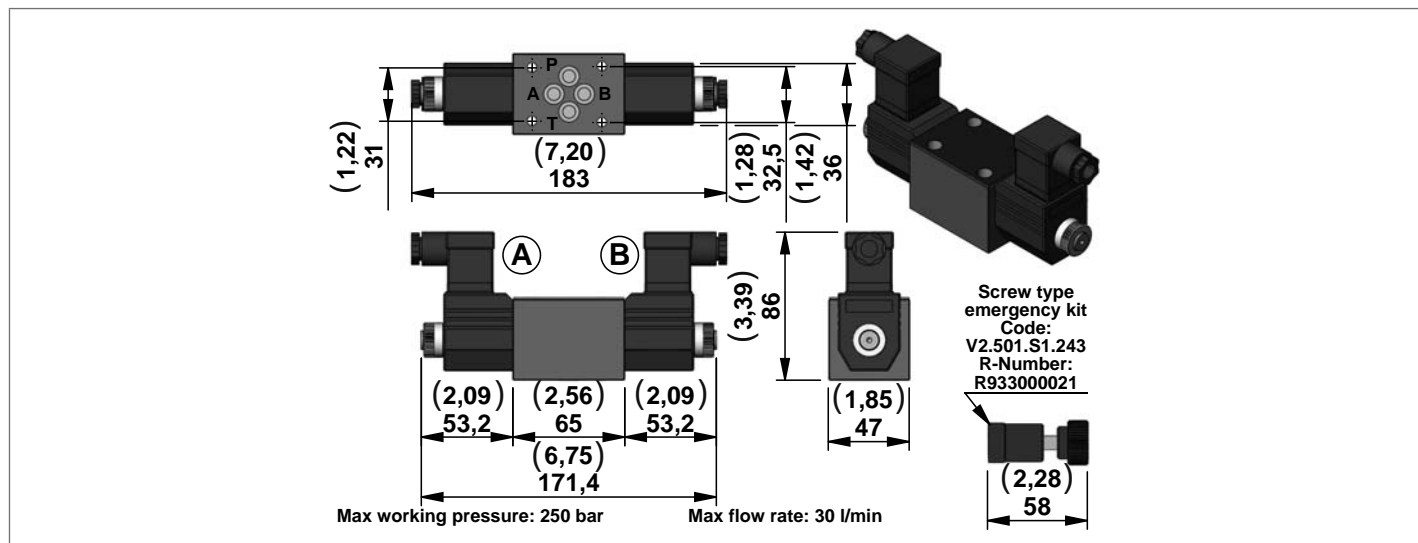
Code	Description	Max working pressure bar (psi)	Max flow l/min (gpm)	Type	Material number
N22	Modular hand pump manifold block	350 (5076)	-	G386021010	R932001093

Lever Kit



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

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 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.

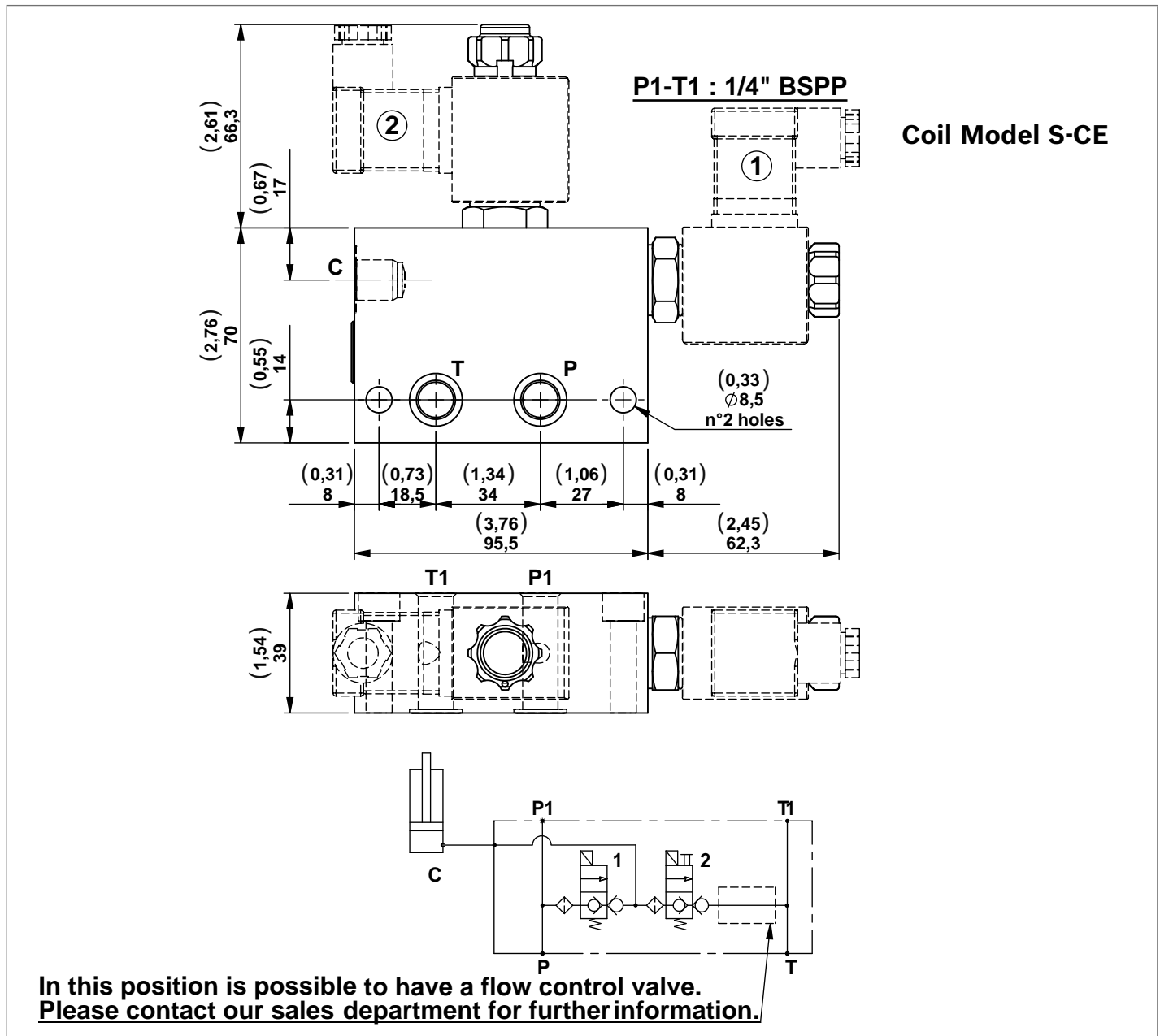
Each block includes 2 OR 2056 gaskets.

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 42.

For the selection of connectors please refer to page 44.



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 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.

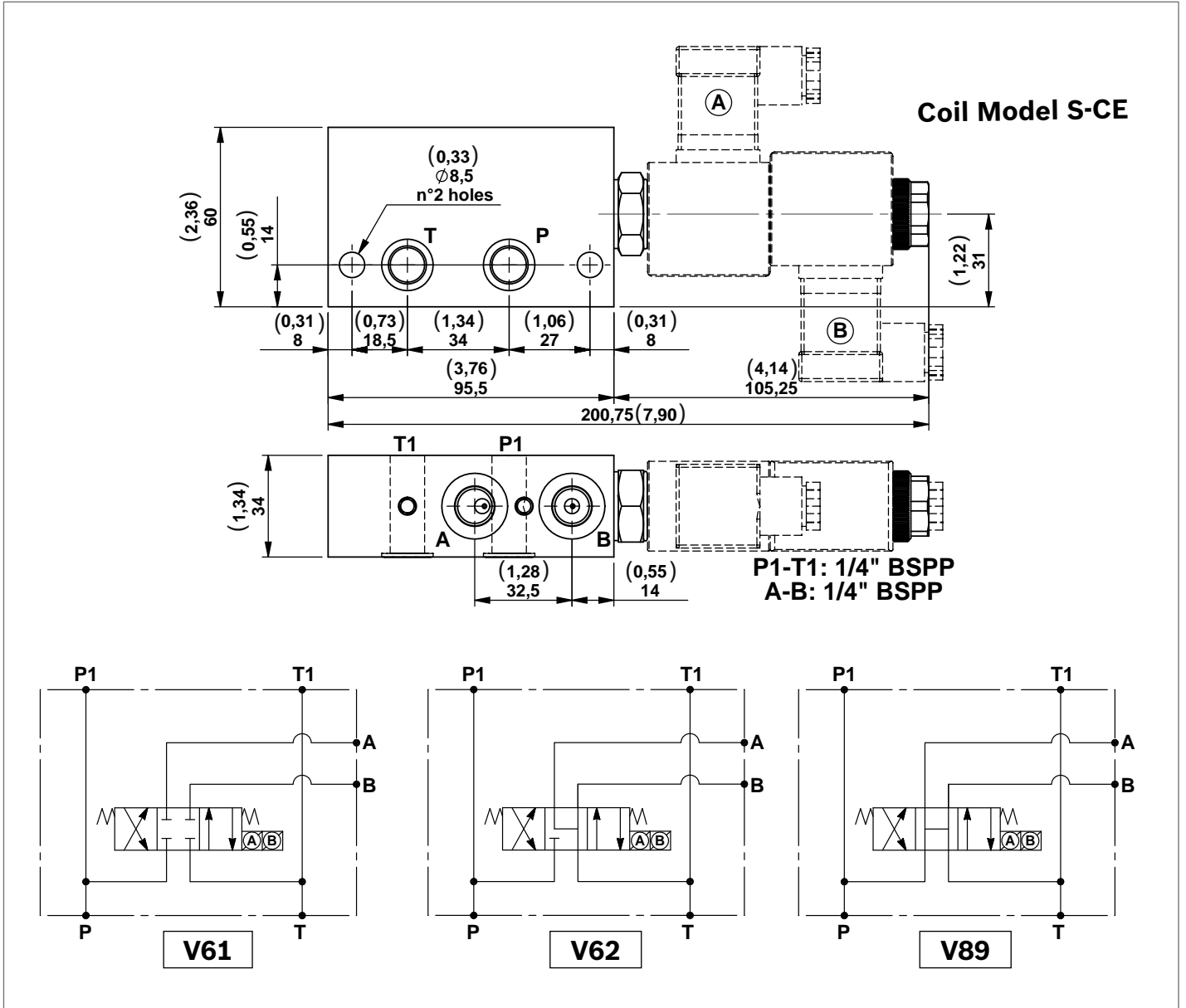
Each block includes 2 OR 2056 gaskets.

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 42.

For the selection of connectors please refer to page 44.



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 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.

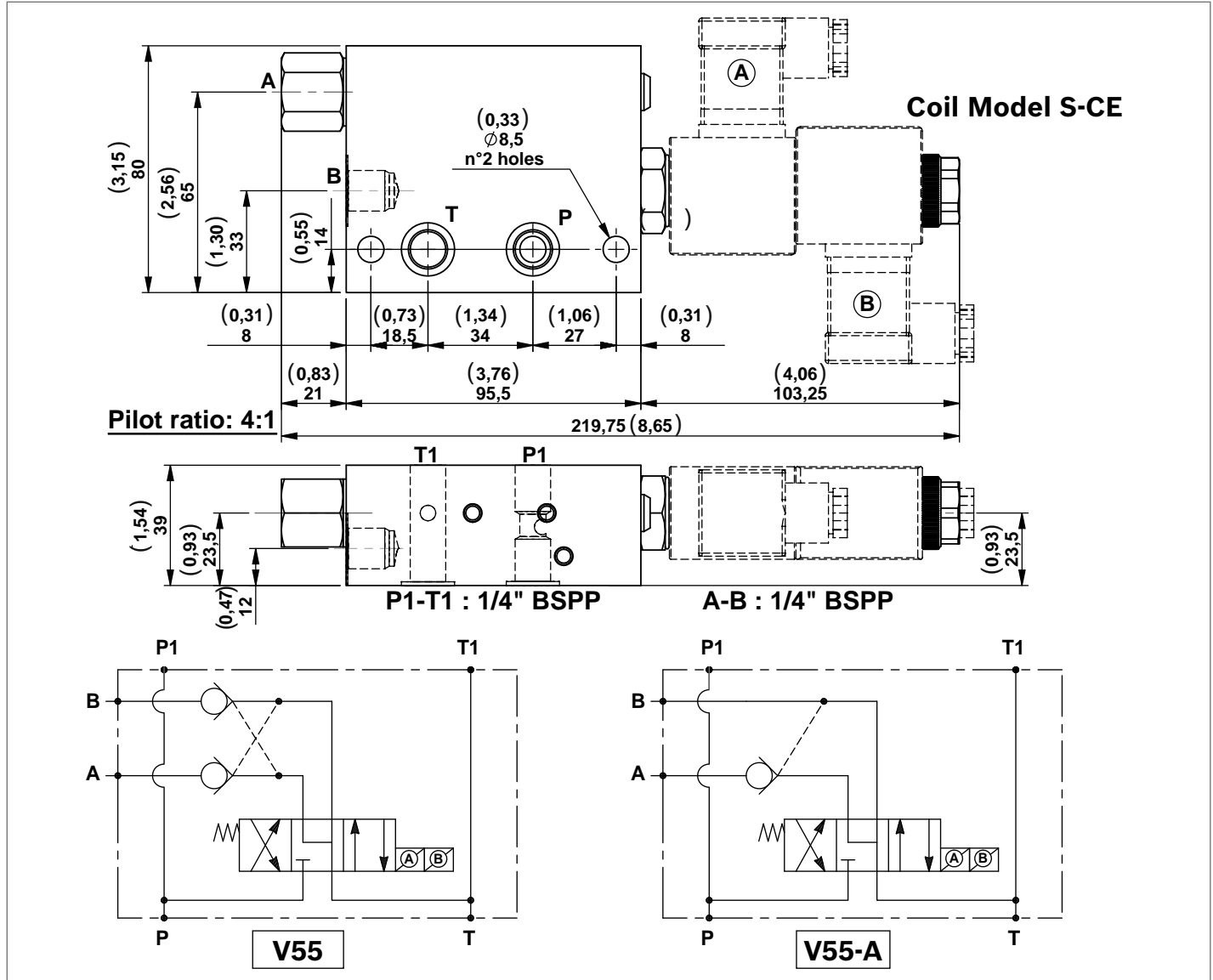
Each block includes 2 OR 2056 gaskets.

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 42.

For the selection of connectors please refer to page 44.



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 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.

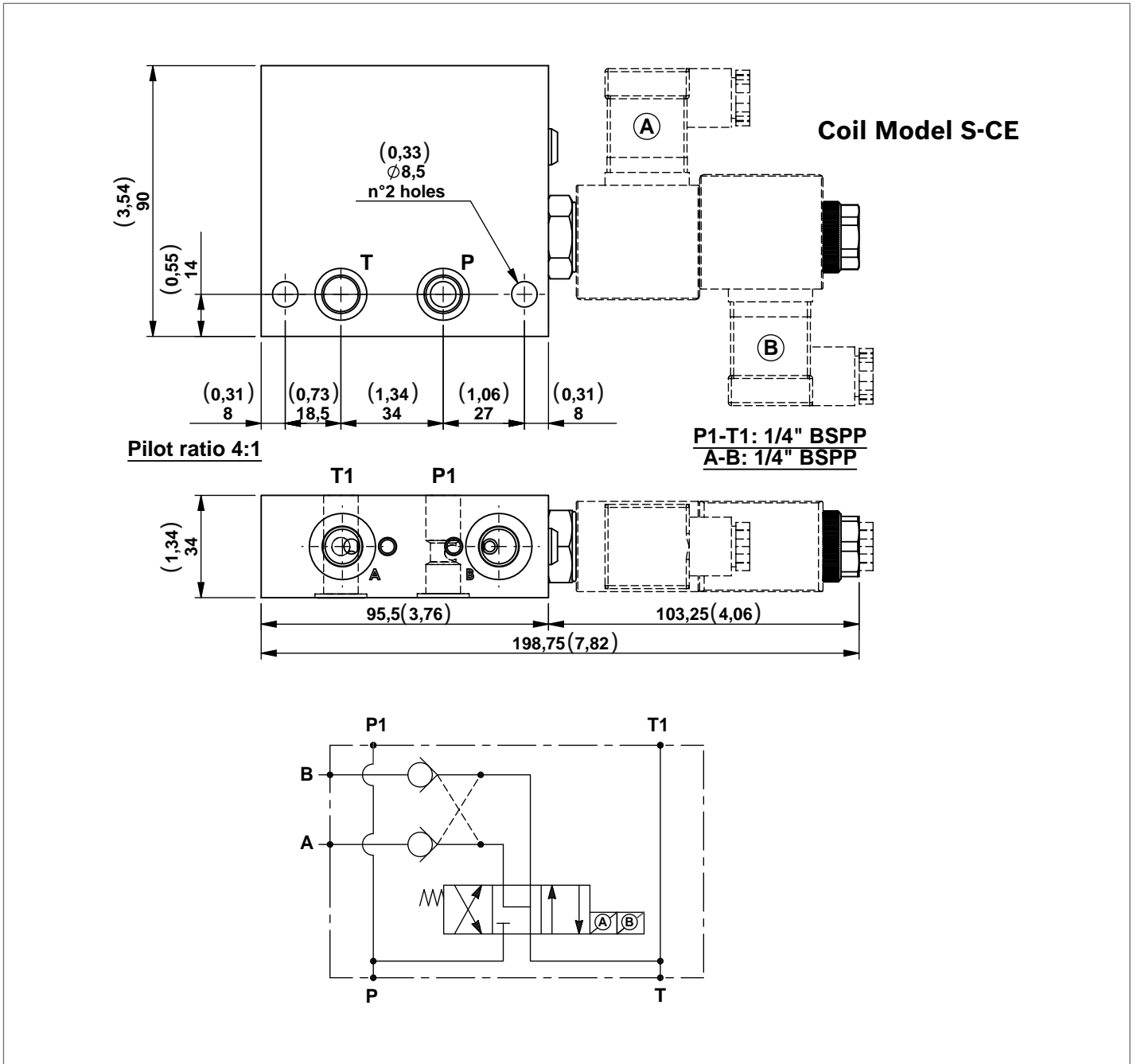
Each block includes 2 OR 2056 gaskets.

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 42.

For the selection of connectors please refer to page 44.



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

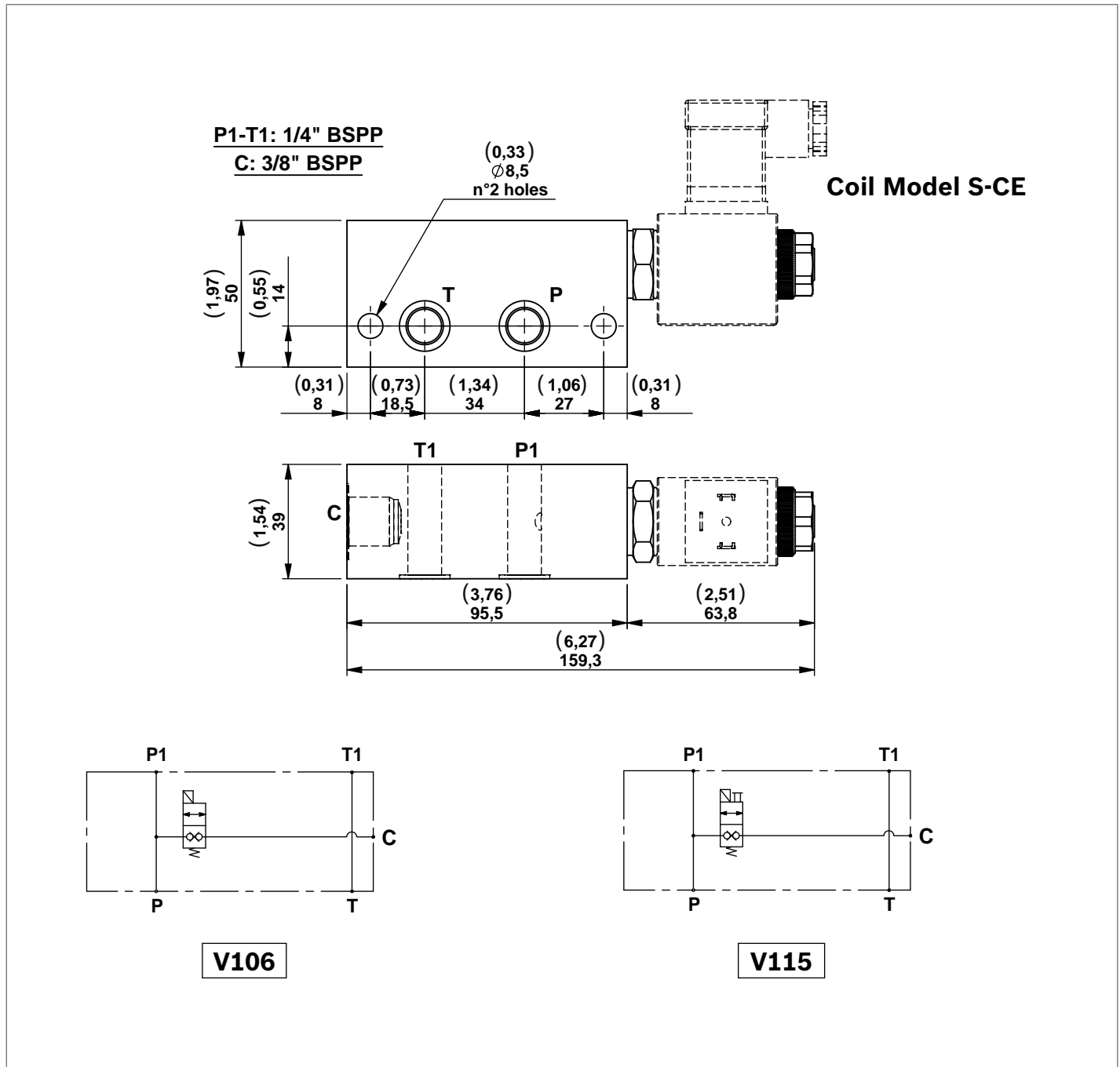
Modular blocks with double locking solenoid valve

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 42.

For the selection of connectors please refer to page 44.



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

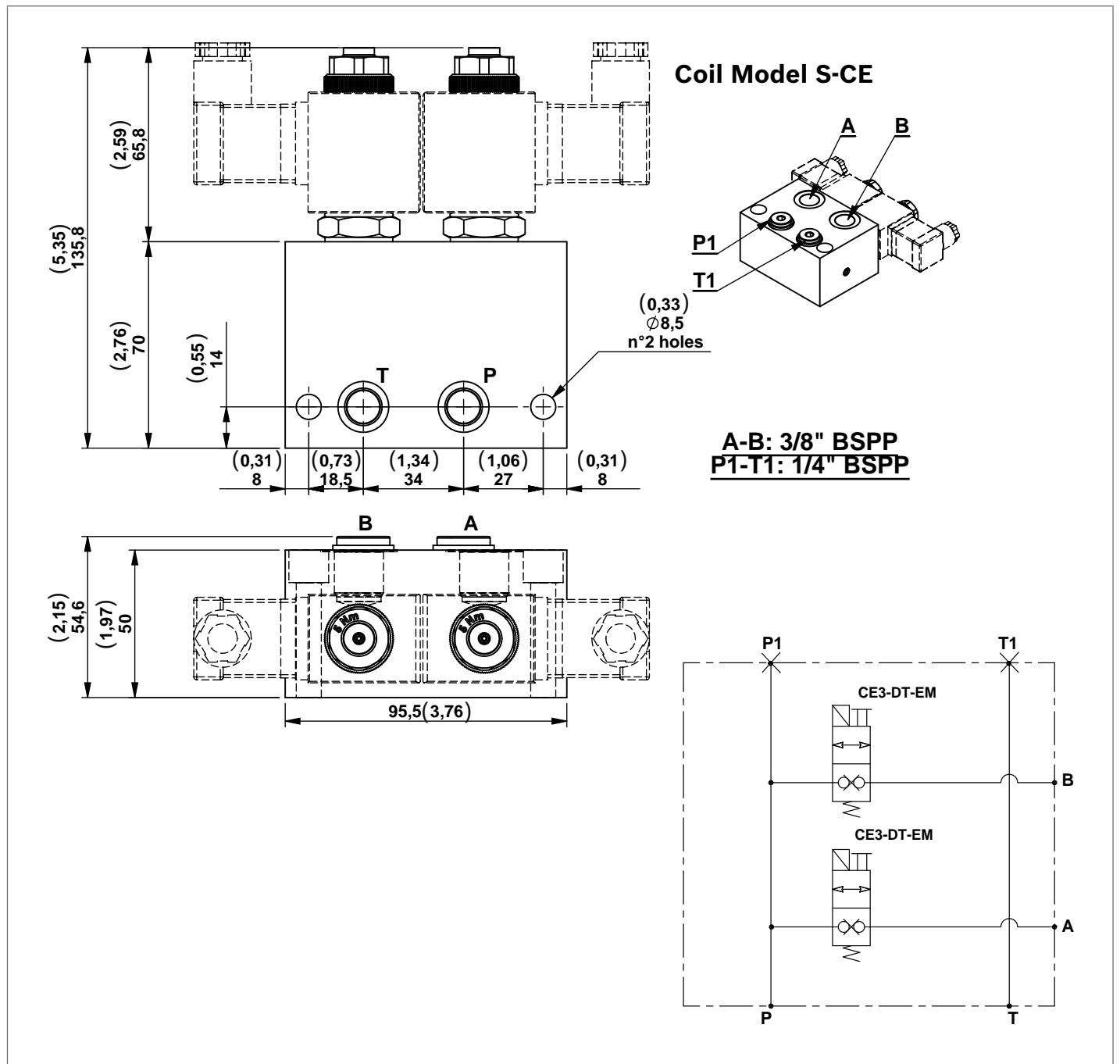
Modular block with 2 double locking solenoid valves

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 42.

For the selection of connectors please refer to page 44.



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 block with 2 double locking solenoid valves

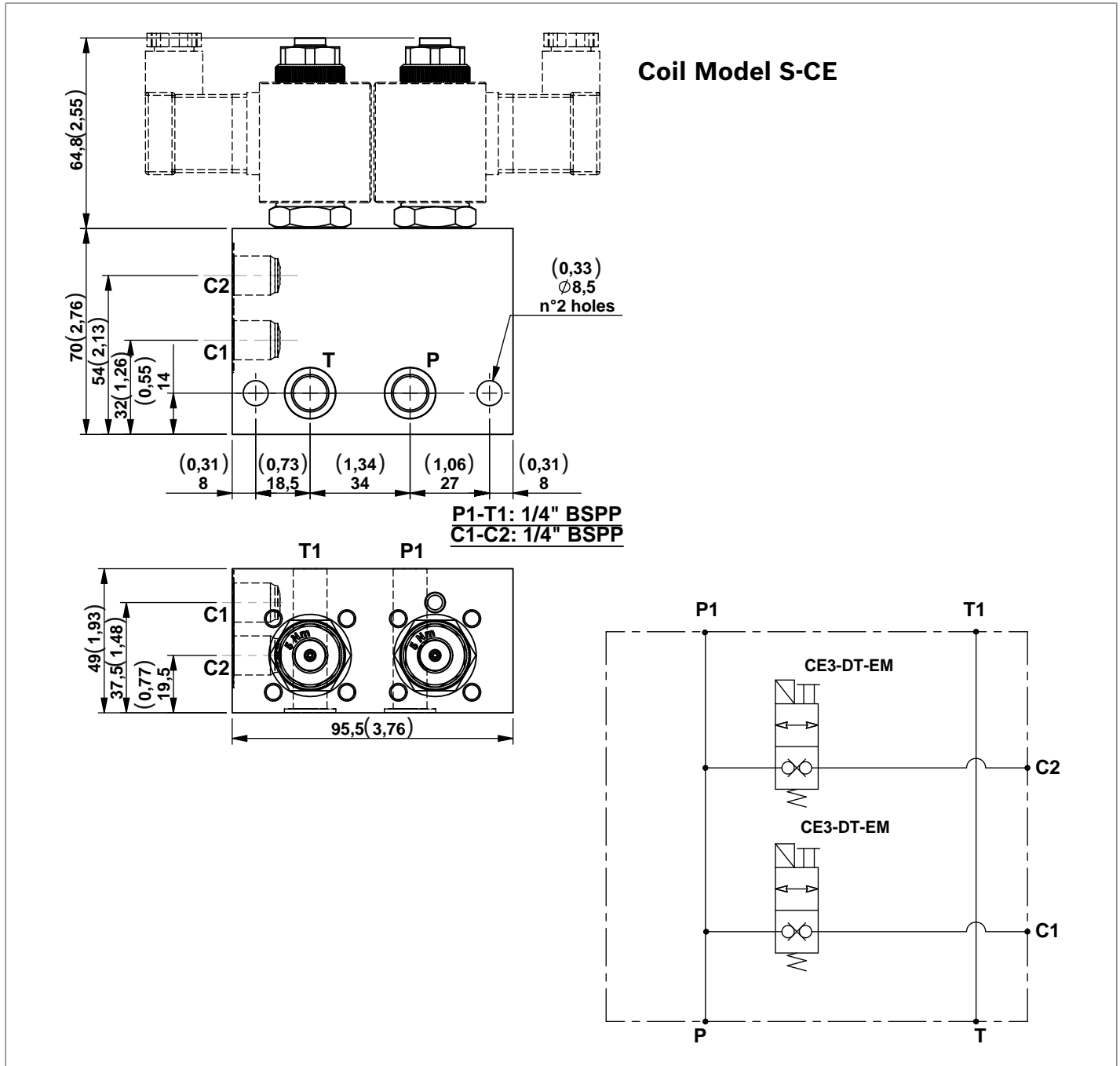
Each block includes 2 OR 2056 gaskets.

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 42.

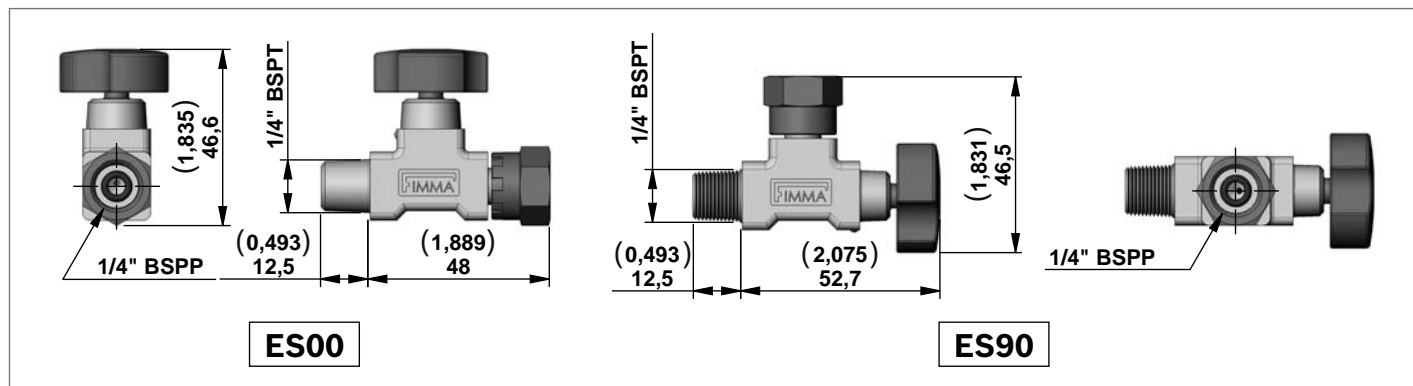
For the selection of connectors please refer to page 44.



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

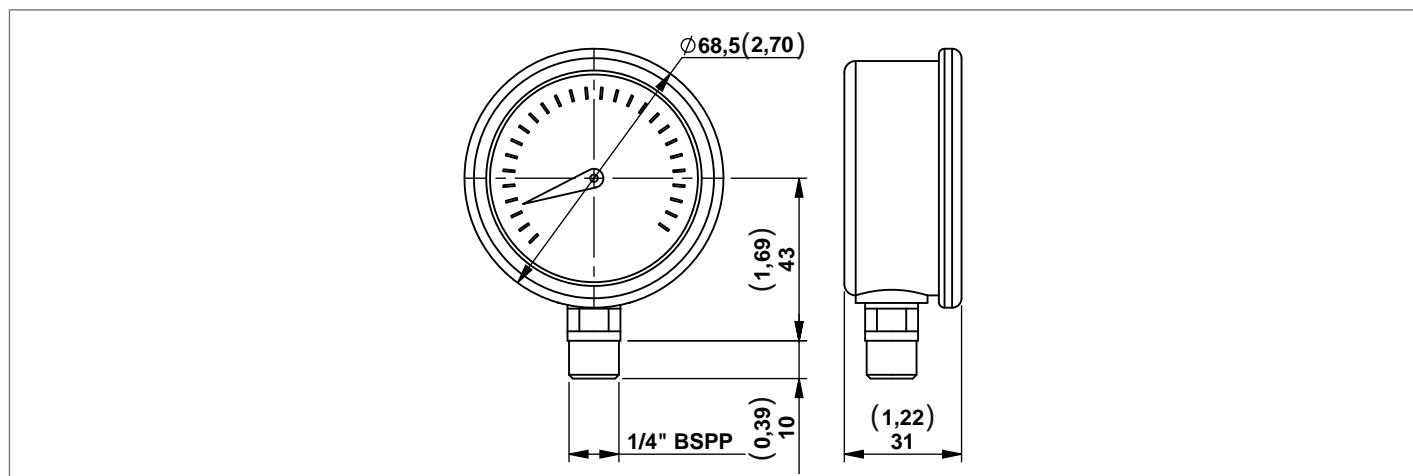
Accessories

Isolator



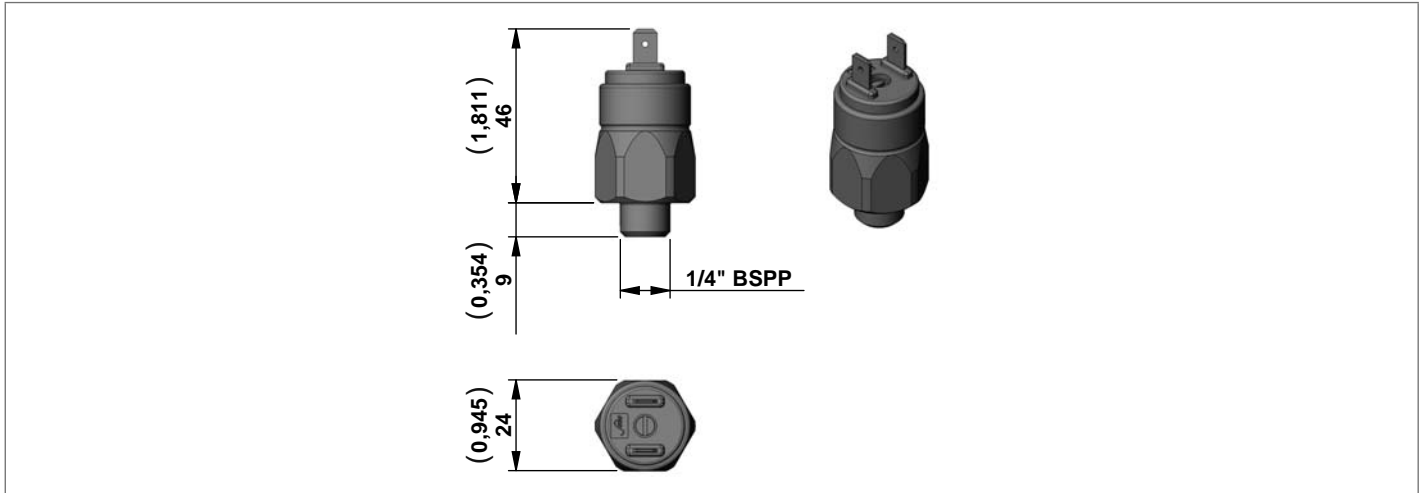
Code	Description	Type	Material Number
ES00	Straight isolator	EM 14	R932500182
ES90	90° isolator	EM 14 T	R932500184

Manometer



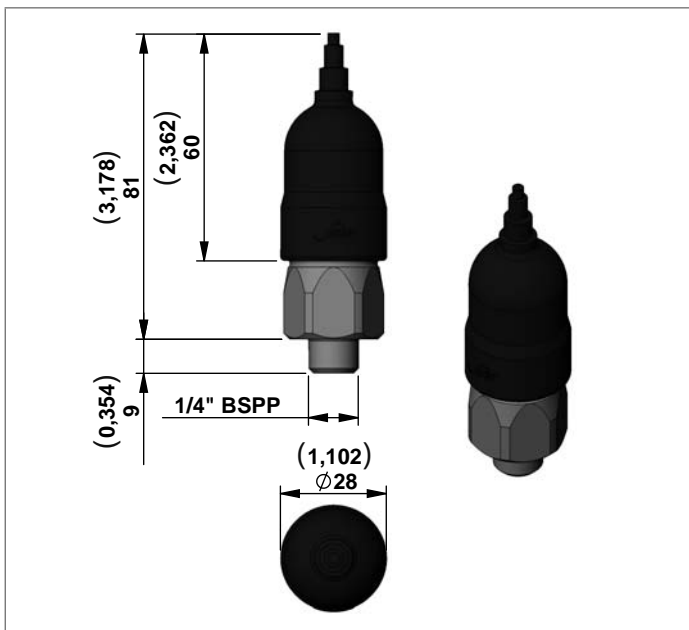
Code	Description	Pressure range bar (psi)	Type	Material Number
MN100	Pressure gauge	0-100 (0-1450)	C163017000	R932000582
MN160	Pressure gauge	0-160 (0-2320)	C163018000	R932000583
MN250	Pressure gauge	0-250 (0-3626)	C163019000	R932000584
MN315	Pressure gauge	0-315 (0-4568)	C163020000	R932000585

Pressure Switches

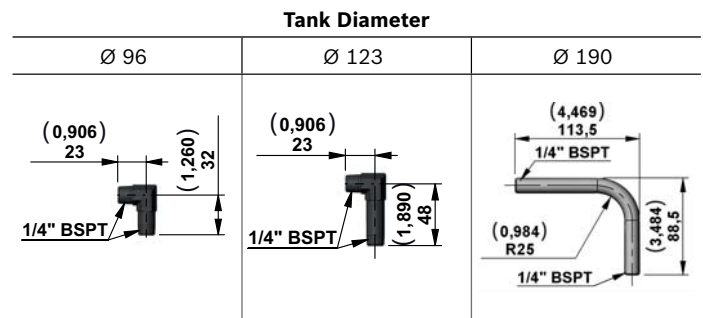


Code	Adjustment Range bar (psi)	Contact Type	Internal Features	Protection (with protective cap assembled)	Type	Material Number
PRNO20	10-20 (145-290)	N.O.	Diaphragm	IP65	C164761000	R932010002
PRNC20	10-20 (145-290)	N.C.	Diaphragm	IP65	C164766000	R932010001
PRNO50	20-50 (290-725)	N.O.	Diaphragm	IP65	C164767000	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

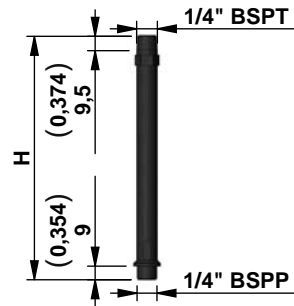


Horizontal Suction, Pipe

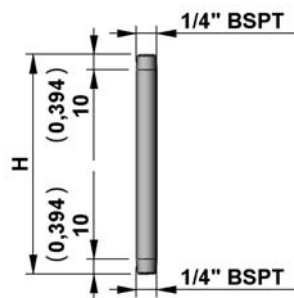


Central Manifold	Oil tank diameter mm (inch)	Type	Material Number
ME	90 (3,54)	K2340S2177	R932011066
	123 (4,84)	K2340S2175	R932011064
	190 (7,48)	M234048000	R932003086

Code	Type	Material Number
CAP	F224013000	R932010000

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)	K234057000	R932002339
	63 (2,48)	M2340S2163	R932009736
	70 (2,76)	M234051000	R932003089
	86 (3,39)	M234052000	R932003090
	96 (3,78)	M234046000	R932003084
	108 (4,25)	M234050000	R932003088
	123 (4,84)	M234055000	R932003093
	145 (5,71)	M234054000	R932003092
	170 (6,69)	M234053000	R932003091
	250 (9,84)	M234095000	R932003095
	330 (12,99)	M234022000	R932003082

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	Drawing
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.	Drawing
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	Drawing
250 (9,84)	K234718000	R932002377	
300 (11,81)	K234719000	R932002378	
400 (15,75)	K234722000	R932002379	

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