Rexroth
Bosch Group

Compact power modules

RE 18306-03/03.14
Replaces: 07.12

DL series

Summary

Ordering details for compact power modules for dock leveller with hinged lip (manifold code 66-67-68)

__ | - | ____ | - | ____ | - | ___/__(__) | - | ____ | - | ___/__ | - | ____ | - | _____ | - | __/_/___

Power Module Type
DL

A.C. Electric Motor
Select the required AC motor shown in the catalogue.
(See page 9)

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

Central Manifold:
Central Manifold with Pressure range Sequence Valve + Request Setting of the Relief Valve DB in Bar between brackets + Request setting of the sequence valve V2 in Bar between brackets + Request setting of the Relief Valve DB2 in Bar between brackets (DB2 only for manifold code 68)

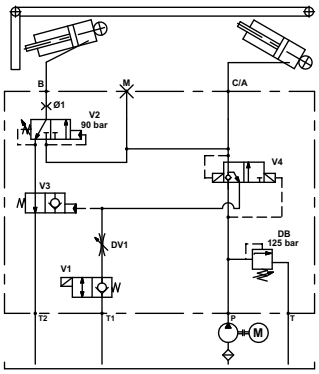
Mounting Position and Mounting Brackets:
Select the required working position of the Power Module and the position of the terminal box of the motor. If needed select a Mounting Bracket
(See page 22)

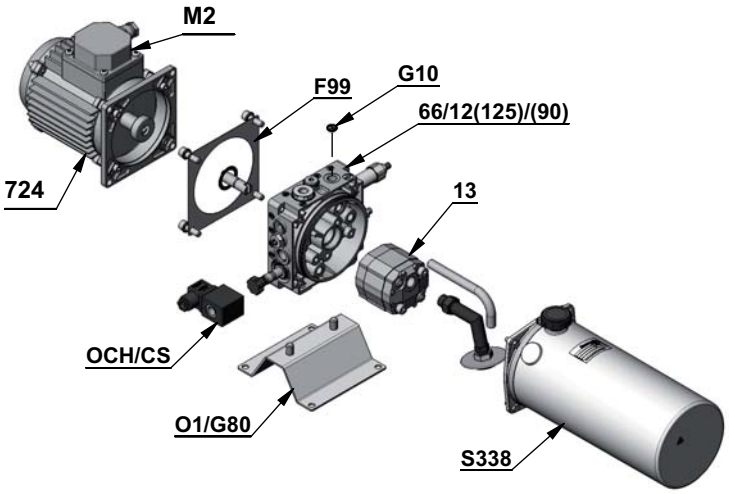
Oil Tank:
Select the required Oil Tank
(See pag.19)

Gear pumps:
Is possible to select the required pump between Standard Version and Low Duty version.
(See page 18)

Coil Model and Connector:
Choice the required coil Voltage and the required Connector.
(See page 17)

Flow restrictor:
Select the required setting of flow restrictor on B line
(see page 16)





Example of Ordering Details

DL	-	724	-	F99	-	66 / 12 (125)/(90)	-	G10	-	OCH/CS	-	13	-	S338	-	O1 / M2/G80
Power Module Type		AC Electric motor		Junction Element		Central Manifold with Pressure range Sequence Valve + Request Setting of the Relief Valve DB in Bar between brackets + Request setting of the sequence valve V2 in Bar between brackets		Setting of flow restrictor on B line		Coil Model and Connector		Gears pump		Oil Tank		Mounting Position and Mounting Brackets

Ordering details for compact power modules for dock leveller with telescopic lip (manifold code 73-74)

__ | - | ____ | - | ____ | - | __/__(__) | - | ____ | - | __/__ | - | ____ | - | _____ | - | __/_/___

Power Module Type

DL

A.C. Electric Motor

Select the required AC motor shown in the catalogue.

(See page 9)

Junction Elements

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

Central Manifold:

Central Manifold with Pressure range Relief Valve + Request Setting of the Relief Valve VM1 in Bar between brackets + Request setting of the Relief Valve VM2 in Bar between brackets + Request setting of the Relief Valve VM3 in Bar between brackets (VM3 only for manifold code 74)

Mounting Position and Mounting Brackets:

Select the required working position of the Power Module and the position of the terminal box of the motor. If needed select a Mounting Bracket

(See page 22)

Oil Tank:

Select the required Oil Tank

(See pag.19)

Gear pumps:

Is possible to select the required pump between Standard Version and Low Duty version.

(See page 18)

Coil Model and Connector:

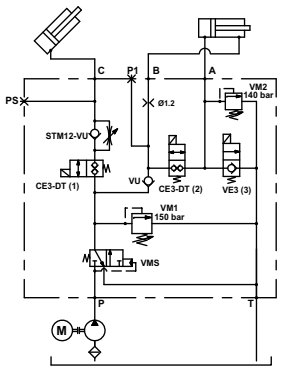
Choice the required coil Voltage and the required Connector.

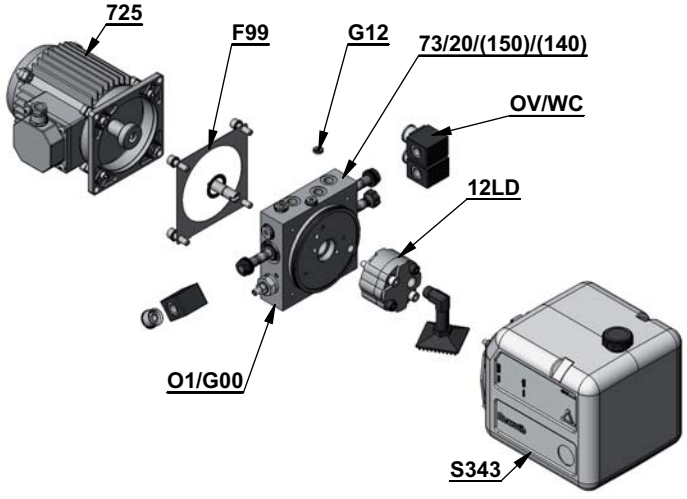
(See page 17)

Flow restrictor:

Select if needed the setting of flow restrictor on B line

(see page 16)





Example of Ordering Details

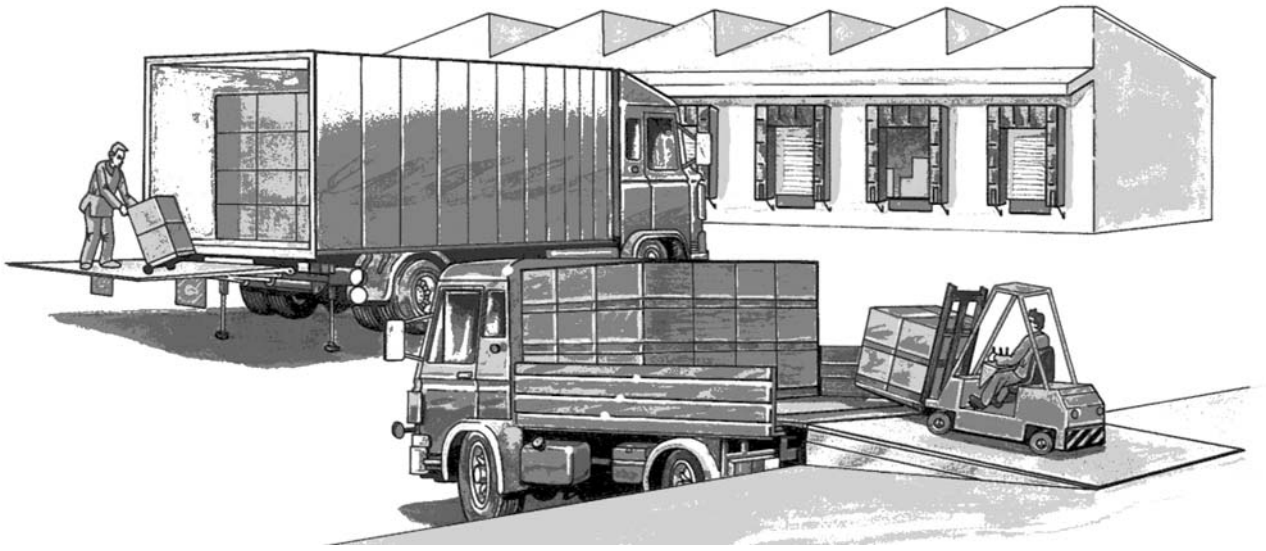
DL	-	725	-	F99	-	73 / 20 (150)/(140)	-	G12	-	OV/WC	-	12LD	-	S343	-	O1/G00
Power Module Type		AC Electric motor		Junction Element		Central Manifold with Pressure range Relief Valve + Request Setting of the Relief Valve VM1 in Bar between brackets + Request setting of the Relief Valve VM2 in Bar between brackets.		Setting of flow restrictor on B line		Coil Model and Connector		Gears pump		Oil Tank		Mounting Position and Mounting Brackets

General Technical Data for Compact Power Module DL

Through the years DCOC has developed a highly evolved dedicated solution for Hydraulic Dock leveller applications.

Application description:

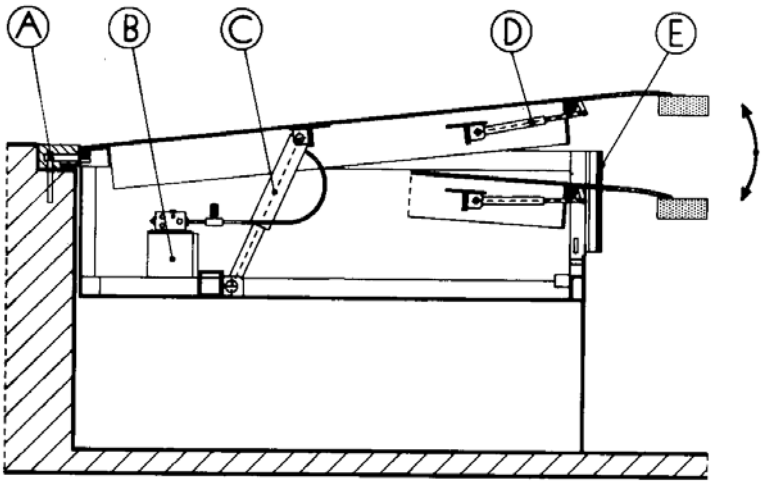
A Dock leveller is a structure which is typically fixed at the doors of the warehouse to load/unload goods. It's used as a crossing bridge by Forklift, Transpallet etc, between the floor of the warehouse and the truck. (Picture 1)



Picture 1 (Example of dock leveller)

Hydraulic system description:

In a Dock leveller the hydraulic system is characterized by a main single acting cylinder C (in some case 2 single acting cylinders connect to the same ports of the compact power module) for the lifting function and a single acting cylinder to move the lip D in case of Dock leveller with a hinged lip (picture 2-3) or a double acting cylinder in case of Dock leveller with a telescopic lip. (Picture 4)



A) Dock leveller anchorage

B) Compact Power Module

C) Single acting cylinder to lift the dock leveller

D) Lip movement cylinder

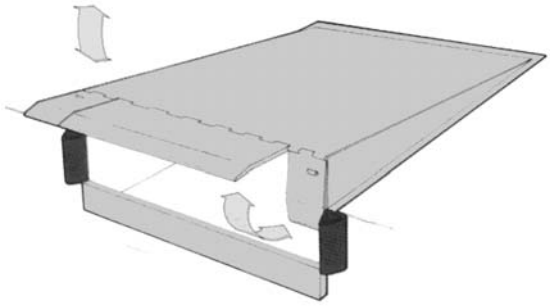
E) Rubber protection

Picture 2 (typical Hydraulic Dock leveller scheme)

General Technical Data for Compact Power Module DL

How the system works:

Hydraulic Dock leveller with Single acting cylinders hinged lip (Picture 3).



Picture 3 (Hydraulic hinged lip Dock leveller)

- *Lifting phase*: By switching on the electric motor, the gear pump pushes oil into the system and with the raising of the pressure the V4 valve changes over giving the possibility for the oil to push the main lifting cylinder connected to the port C/A; The solenoid valve V1 must always be energized or the system doesn't work.

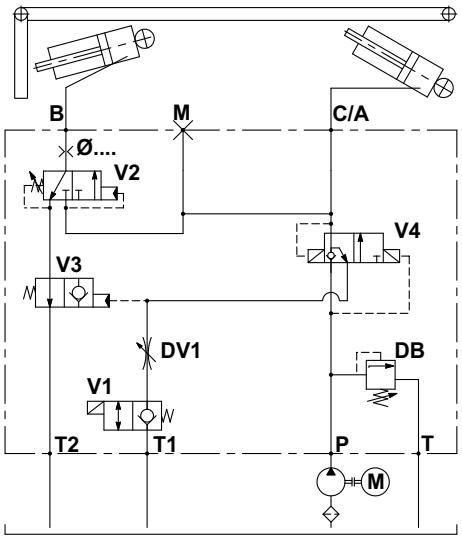
When the main lifting cylinder arrives at the end of the run, the pressure increases and allows for the opening of the V2 sequence valve that starts to put oil into the hinged lip single acting cylinder connected to the port B; The opening speed is set by the dimension of the orifice Ø....

- *Lowering phase:* By stopping the electric motor, the V4 valve changes over on to the normal position, so the oil goes to the return line, crossing the V1 and through the throttle valve DV1 which maintains a backpressure on the system that causes the changing over of the V3 valve that guarantees a backpressure on the lip single acting cylinder and for this reason the lip remains lifted while the main single acting cylinder lowers down. When the main singleacting cylinder stops lowering, leaning on the truck, the pressure on the system is out and automatically the V3 valve goes on the normal position, allowing the oil to run on the return line and allowing the lip to lean on to the track. The Dock leveller remains free to swing to compensate the differences on the truck level during the loading/unloading operations.
- *Closing phase:* To close the Dock leveller you need to restart the motor by lifting the main cylinder (in consequence the lip cylinder is going to close with a setting speed set by the orifice Ø...).

When the lip is completely close the motor can be switched off and the Dock leveller returns to the normal position.

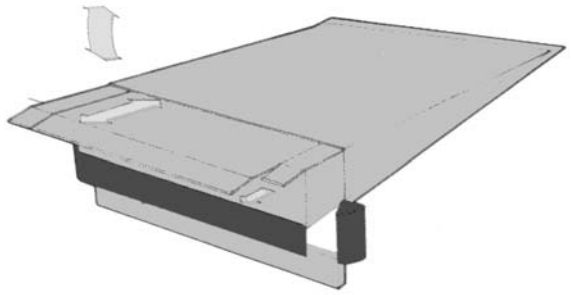
The V1 solenoid valve normally is connected to the emergency push button of the system. Pushing the emergency button the V1 valve return in closed position keeping the cylinder in position.

Schema 1



General Technical Data for Compact Power Module DL

Hydraulic Dock leveller with double acting cylinder telescopic lip (Picture 4).



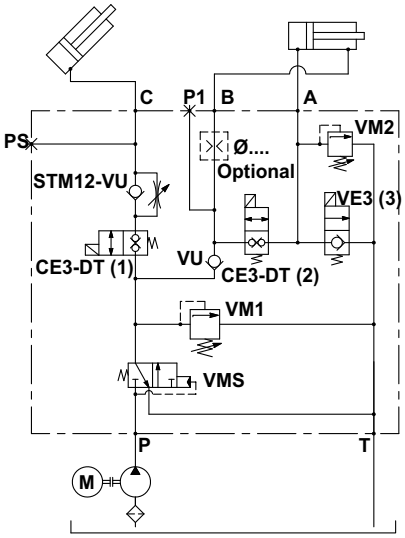
Picture 4 (Hydraulic telescopic lip Dock leveller)

- *Opening phase:* On the opening phase you need to switch on the electric motor energizing simultaneously the CE3-DT (1) solenoid valve. The VMS valve changes over and the main cylinder connected to port C lifts: When the main cylinder arrives at the required position, we energize the CE3-DT (2) solenoid valve and in consequence the telescopic lip double acting cylinder comes out in a regenerative mode between the A zone and B zone. When the telescopic lip arrives at the end of stroke the motor is switched off and all the solenoid valves are switched off too, so that the Dock leveller is completely open. The lip exit speed is controlled by the orifice Ø1.2 (optional).
- *Lowering phase:* With the motor switched off the Dock leveller starts to lower itself energizing the CE3-DT (1) solenoid valve which moves the main cylinder, which lowers down until it is leaning itself on the truck. The lowering speed is controlled by the STM12-VU valve.

The VM2 relief valve that is located on the double acting cylinder A line works as an antishock during the lip exit phase and also as protection of the same in case of an occasional bump as the truck stops.

- *Closing phase.* To bring back the Dock leveller to the sleeping position, we need to repeat the opening phase to lift the Dock leveller from the truck and after to retract back the lip we need to energize the VE3 (3) solenoid valve which puts the double acting chamber A on the return line.

Schema 2



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 19/17/14 or cleaner.

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

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

Power module installation

The mounting position is basically unrestricted; just avoid installations that could compromise the pump suction, Typically in these applications the Compact Power Module is assembled in horizontal position. 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 cable size and lenght from the power source to the electric motor should be selected in order to avoid voltage drop.

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.

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.

Central Manifolds

The Central Manifolds shown in the catalogue are made in die cast aluminium alloy or extruded aluminum alloy AL 2011 (Al-Cu5.5Pb0.4Bi0.4 UNI 9002/5).. The validation of the Central Manifolds follows a lifetest with 250 bar *[3625 psi]* pulsed pressure repeated for 300.000 cycles.

Built-in valves

The valves used in the central manifolds 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 cm^3/minute *[0.06 in^3/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 are designed for operating in D.C..

Power supply in A.C. requires a connector with bridge rectifier included.

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. The Low Duty pumps are a dedicated series of pumps for this kind of applications that are particulary cost effective. 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. 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.

European machine directive 2006/42/CE

According to the Machine Directive2006/42/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 subassemblies (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 subassemblies must be fitted in compliance with all the relevant technical data sheet applicable to the product, and shall not be operated, adjusted or disassembled before the complete machinery where they are incorporated has been declared to be in compliance with the Machine Directive 2006/42/CE.

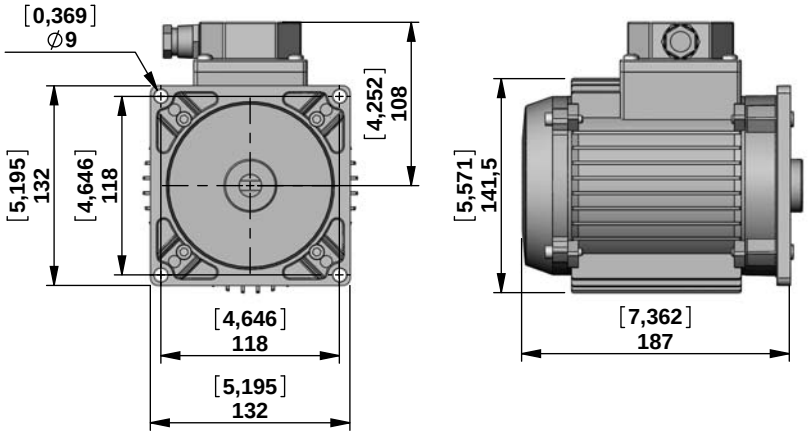
Note: All the components shown in the catalogue ARE NOT suitable for use in potentially explosive atmosphere.

Technical information

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

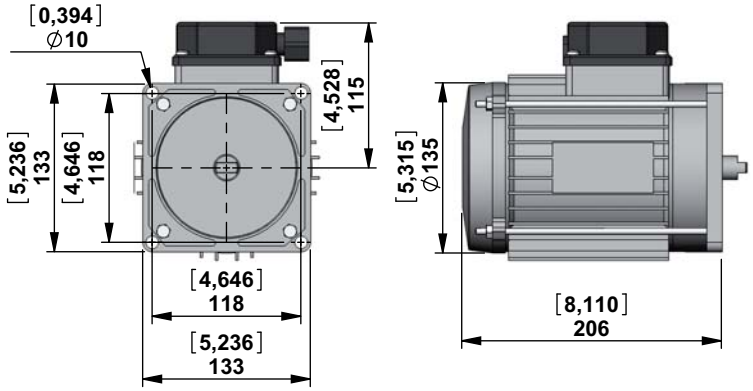
	Flow	**Operating pressure**	**Internal diameter hydraulic cylinder**	**Area of hydraulic cylinder**	**Piston force**	**Drive shaft**	**Power requirement for motor**	**Pump displacement**	**Torque requirement**
Common Units	l/min	bar	mm	mm^2	N	rev/min	kW	cm^3/rev	Nm
Symbols	**Q**	**P**	**d**	**A**	**F**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

A.C. Electric Motor Compact Mounting Style for Power Module Type DL



Three Phase Current Motors 230/400V 50Hz IP54 Size **IEC 71**

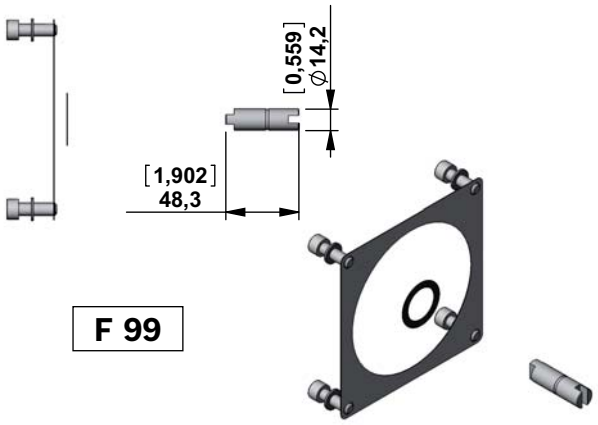
Code	Type	Material Number	Power (kW)	Power (hp)	Poles	Rpm at 50Hz	Duty Cycle	Thermal Switch
724	C1622S1085C	R932000302	0,75	1	2	2900	S3 30%	no
724T	C1622S1368C	R932006634	0,75	1	2	2900	S3 30%	yes
725	C1622S1083C	R932000301	1,1	1,5	2	2900	S3 30%	no
725T	C1622S1374	R932000423	1,1	1,5	2	2900	S3 30%	yes

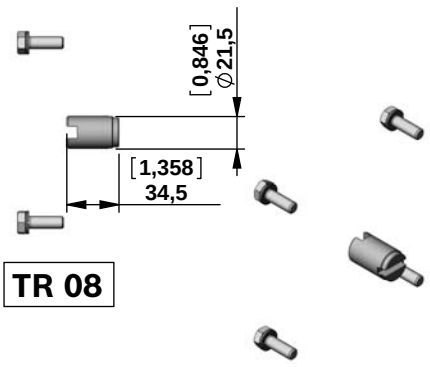


Three Phase Current Motors 230/400V 50Hz IP54 Size **IEC 80**

Code	Type	Material Number	Power (kW)	Power (hp)	Poles	Rpm at 50Hz	Duty Cycle	Thermal Switch
826T	C1622S1410C	R932011320	1,5	2	2	2800	S3 20%	yes
827T	C1622S1409C	R932011321	2,2	3	2	2800	S3 15%	yes

Junction Elements for A.C. Electric Motor Compact Mounting Style for Power Module Type DL



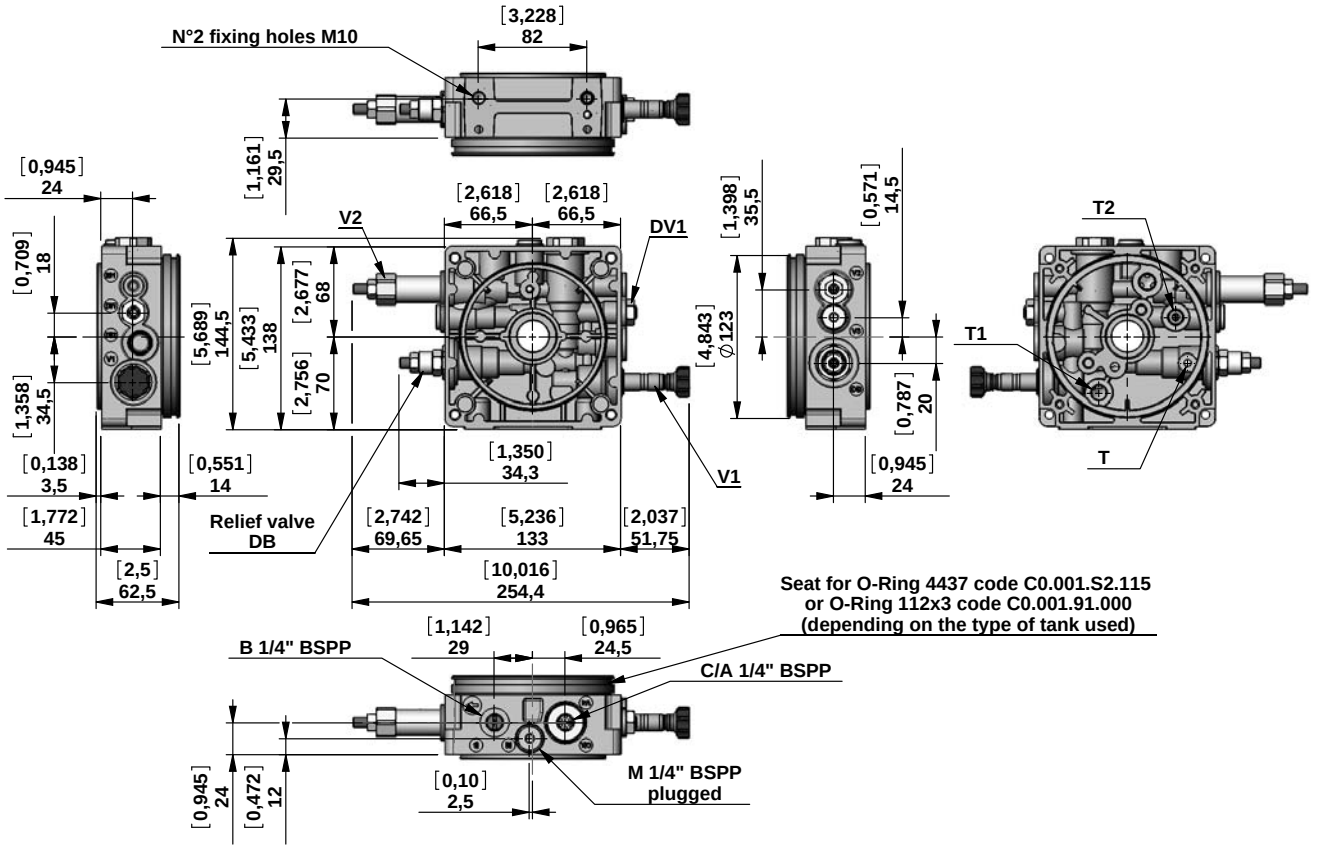


Junction Elements for manifolds DL

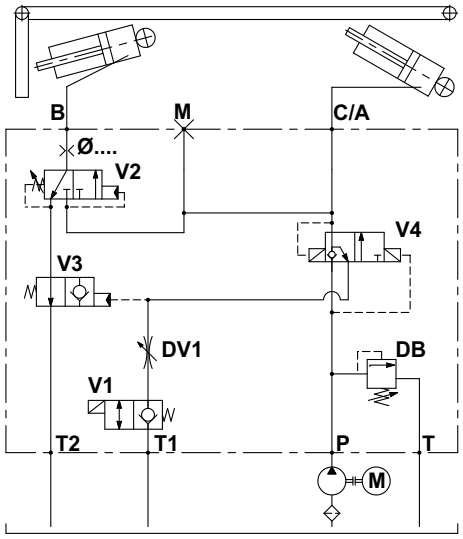
Code	Motor Codes	Size IEC	Type	Material Number
F99	724-724T-725-725T-745	71	K01K3970TR105	R932001934
TR08	826-826T-827-827T	80	K01KE970TR008	R932001900

Central Manifold DL

66



Manifold Hydraulic Diagram

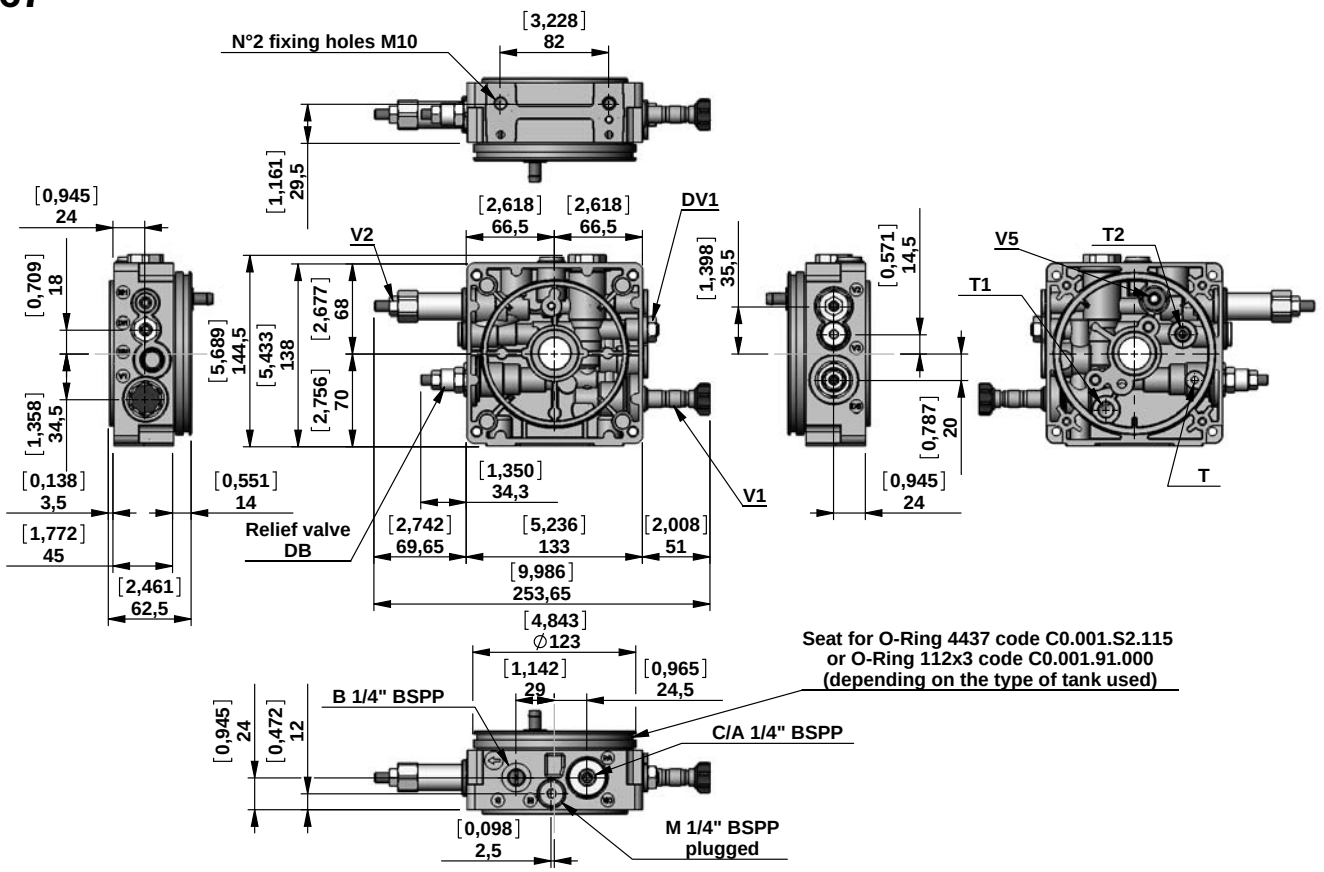


66

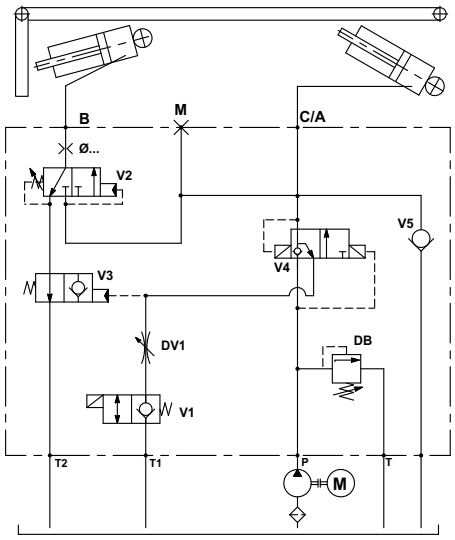
Manifold code with Sequence Valve pressure range	Pressure range Relief Valve DB bar *[psi]*	Pressure range Sequence Valve V2 bar *[psi]*	Type	Material Number
66/12	80-250 *[1160-3626]*	30-120 *[435-1740]*	-	**-**
66/17	80-250 *[1160-3626]*	60-170 *[870-2465]*	-	**-**

Central Manifold DL

67



Manifold Hydraulic Diagram

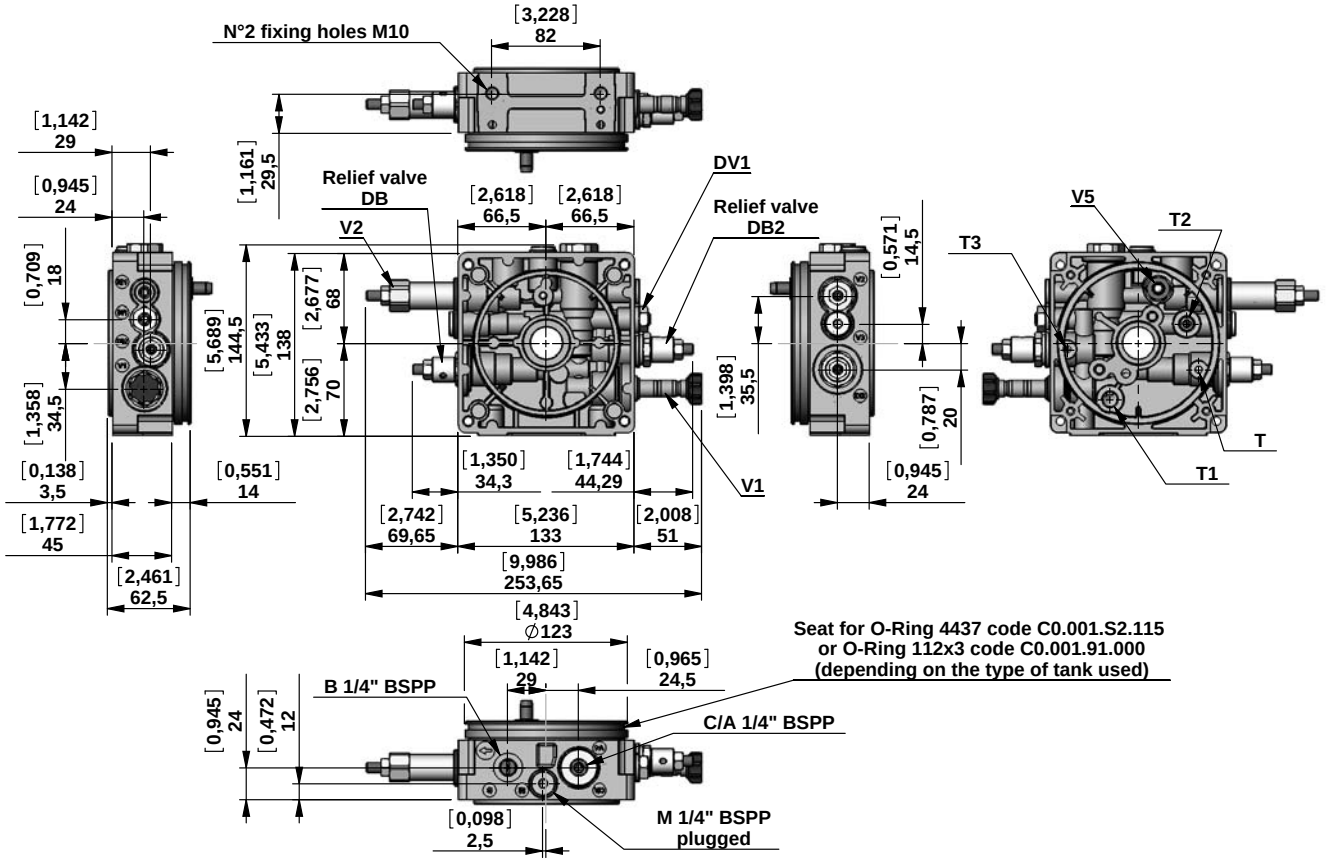


67

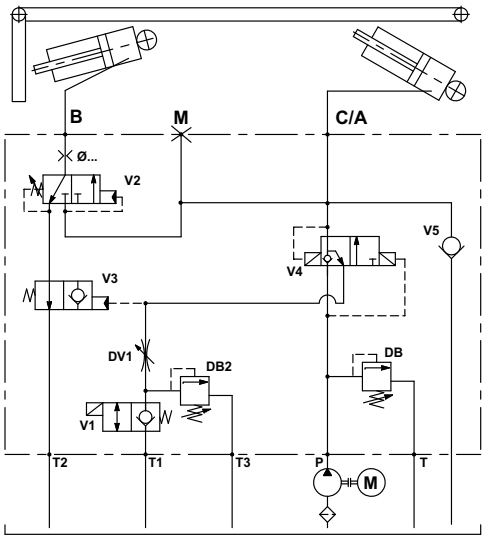
Manifold code with Sequence Valve pressure range	Pressure range Relief Valve DB bar *[psi]*	Pressure range Sequence Valve V2 bar *[psi]*	Type	Material Number
67/12	80-250 *[1160-3626]*	30-120 *[435-1740]*	-	-
67/17	80-250 *[1160-3626]*	60-170 *[870-2465]*	-	-

Central Manifold DL

68



Manifold Hydraulic Diagram

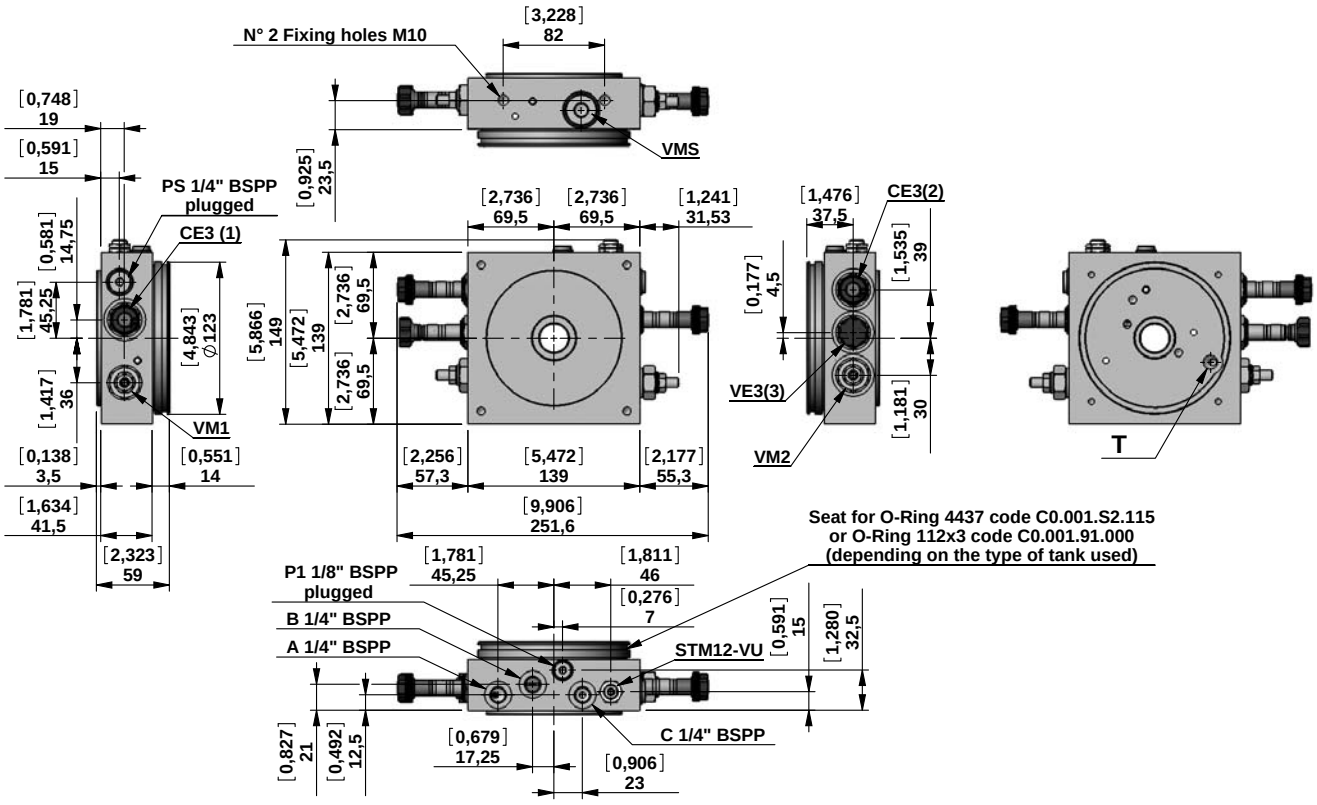


68

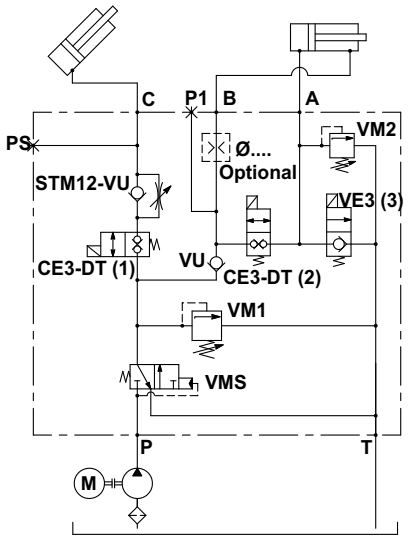
Manifold code with Sequence Valve pressure range	Pressure range Relief Valve DB bar *[psi]*	Pressure range Relief Valve DB2 bar *[psi]*	Pressure range Sequence Valve V2 bar *[psi]*	Type	Material Number
68/12	80-250 *[1160-3626]*	30-120 *[435-1740]*	30-120 *[435-1740]*	-	-
68/17	80-250 *[1160-3626]*	30-120 *[435-1740]*	60-170 *[870-2465]*	-	-

Central Manifold DL

73



Manifold Hydraulic Diagram

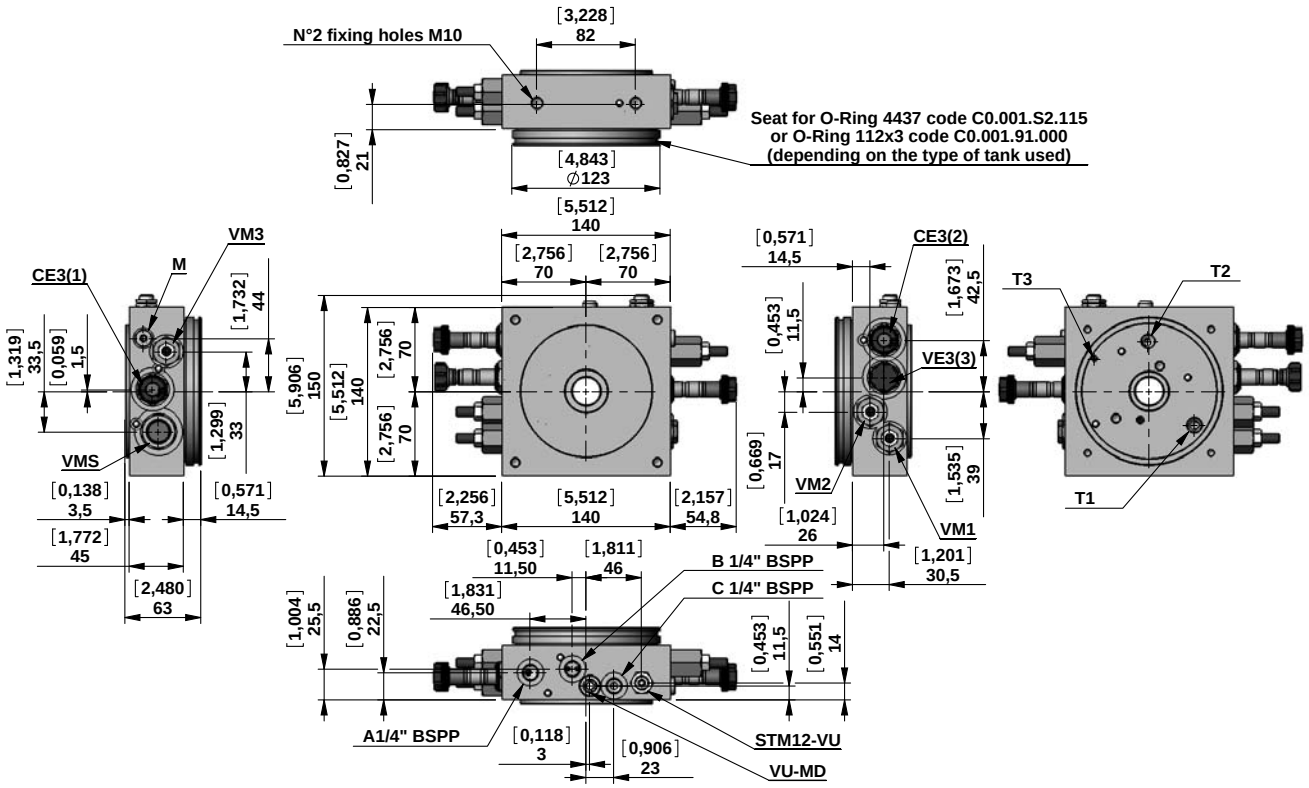


73

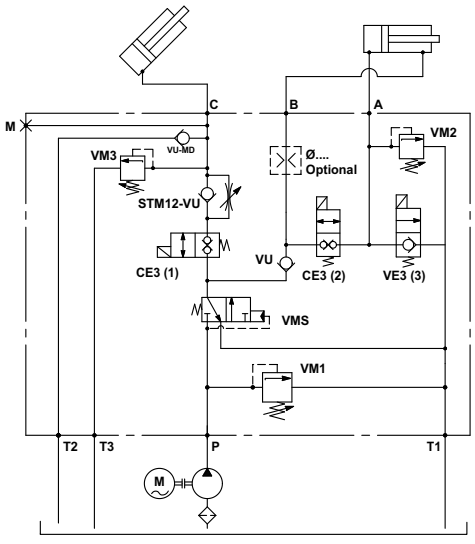
Manifold code with Relief Valve pressure range	Pressure range Relief Valve VM1 bar *[psi]*	Pressure range Relief Valve VM2 bar *[psi]*	Type	Material Number
73/20	105-210 *[1523-3046]*	105-210 *[1523-3046]*	-	**-**

Central Manifold DL

74



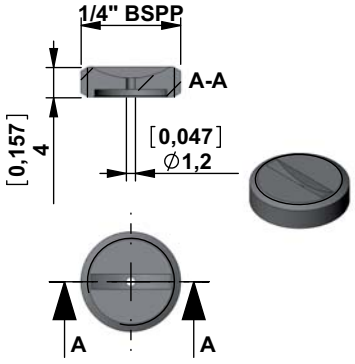
Manifold Hydraulic Diagram



74

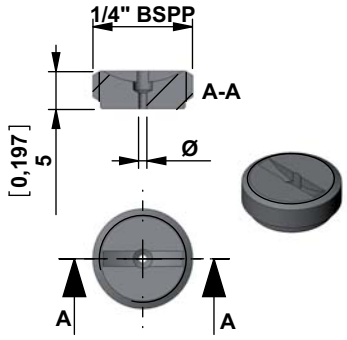
Manifold code with Relief Valve pressure range	Pressure range Relief Valve VM1 bar *[psi]*	Pressure range Relief Valve VM2 bar *[psi]*	Pressure range Relief Valve VM3 bar *[psi]*	Type	Material Number
74/20	60-220 *[870-3191]*	60-220 *[870-3191]*	60-220 *[870-3191]*	**-**	**-**

Flow Restrictor



Flow restrictor for manifold code 66-67-68

Code	Ø of flow restrictor mm
G00	Without flow restrictor
G07	0,7
G075	0,75
G08	0,8
G09	0,9
G11	1,1
G13	1,3
G15	1,5
G18	1,8



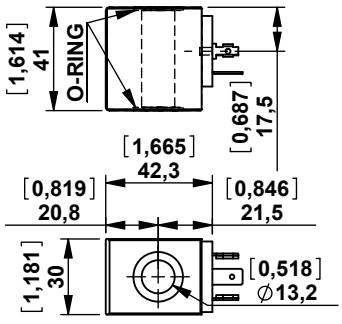
Flow restrictor for manifold code 73-74

Code	Ø of flow restrictor mm
G00	Without flow restrictor
G12	1,2

Coil and Connectors

COIL Model **S-CE** – 18W – ED 100%

- Coil protection: IXEF for Heat insulation class H (180°C *[356°F]*)
- Solenoids “S-CE” (18 W) are designed for continuos 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



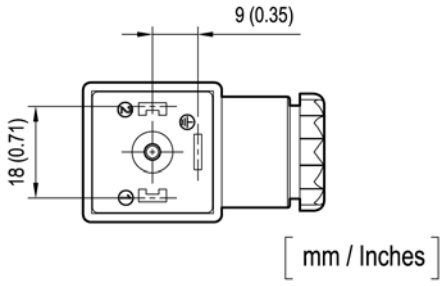
DIN 43650 - ISO 4400 IP65 with connector assembled

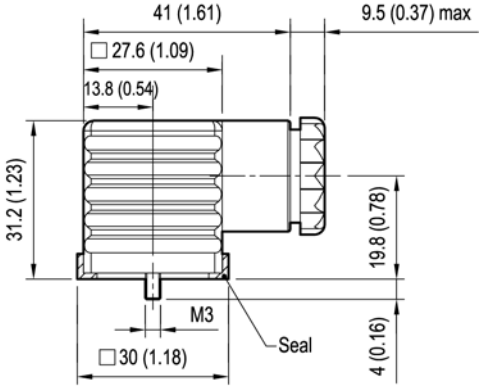
Code	Voltage	Heat Insulation class	Type	Material Number
OBH	12 Volts D.C.	H (180°C) *[356°F]*	C166462OB1	R932000819
OCH	24 Volts D.C.	H (180°C) *[356°F]*	C166462OC1	R932000820
OV	24 Volts RAC	H (180°C) *[356°F]*	C166462OV1	R932000821
OZ	220 Volts RAC	H (180°C) *[356°F]*	C166462OZ1	R932000822

Coil and Connectors

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

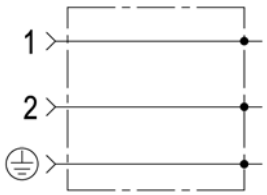
Ambient temperature	- Standard	°C *[°F]*	- 20 to + 60 *[-4 to +140°F]*
Type of protection according to DIN 40050			IP67 with cable socket mounted and locked
Operating voltage		V	Choose the proper ordering code according to the circuit
Maximum operating current	- Standard	A	16
	- With rectifier	A	1
Number 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

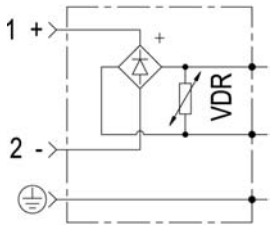
Code	Colour	Cable entry	Type	Material Number
WC	Without Connector			
CS	black	Pg9 / Pg11	OD016901000000	R934004344



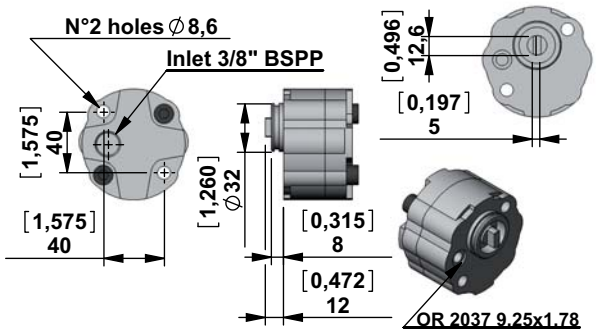
Circuit with VDR + Wave Rectifier

Note: diode with capacity max 1 Amp.

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



Gear Pumps



Gear Pumps Group 1 for **DL**

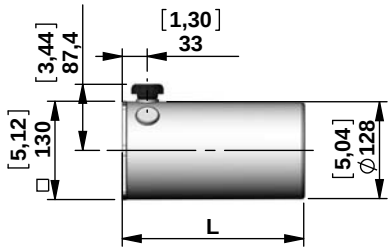
P2: intermittent max Pressure.
P3: peak Max Pressure (max 2 seconds).

Code	Displacement cc/rev	Flow at 1500 rpm l/min *[gpm]*	P2 bar *[psi]*	P3 bar *[psi]*	Type	Material Number
11LD	1,2	1,8 *[0,48]*	210 *[3046]*	230 *[3336]*	-	-
12LD	1,7	2,55 *[0,67]*	210 *[3046]*	230 *[3336]*	-	-
13LD	2,2	3,3 *[0,87]*	210 *[3046]*	230 *[3336]*	-	-
14LD	2,6	3,9 *[1,03]*	210 *[3046]*	230 *[3336]*	-	-
15LD	3,2	4,8 *[1,27]*	210 *[3046]*	230 *[3336]*	-	-

Oil Tanks for DL

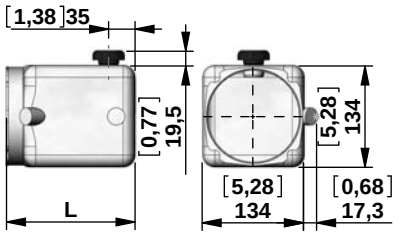
Technical Data for **Plastic Tanks**

Temperature range °C *[°F]*	-15....+70 *[5....158]*
Materials	PE=Polyethylene - PP=Polypropilene
Seal	For tanks codes S335-S336-S337-S338 is necessary to use the O-RING Ø112x3 Code: C000191000 R-Number:R932000190. For all the other tanks except the codes above is necessary to use the O-RING 4437 (Ø110,7x3,53) Code:C0001S2115 R-Number:R932000188



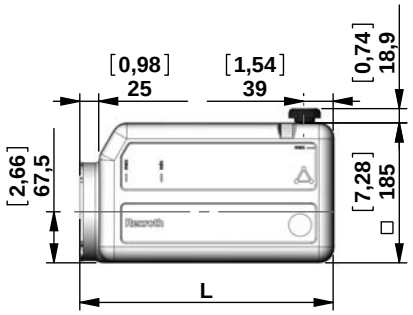
For this tanks is necessary to use the O-RING Ø112x3
code: C000191000 R-Number: R932000190

Code	Tank capacity l *[USgal]*	Useable capacity l *[USgal]*	L mm *[inch]*	Material	Type	Material Number
S335	1,0 *[0,26]*	0,7 *[0,18]*	140 *[5,51]*	PP	K01K3976SE372	R932002035
S336	1,8 *[0,48]*	1,2 *[0,32]*	180 *[7,09]*		K01K3976SE373	R932002036
S337	2,5 *[0,66]*	1,7 *[0,45]*	240 *[9,45]*		K01K3976SE374	R932002037
S338	3,0 *[0,79]*	2,3 *[0,61]*	285 *[11,22]*		K01K3976SE375	R932002038



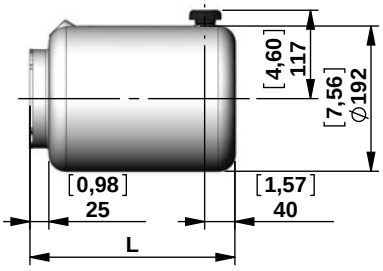
Code	Tank capacity l *[USgal]*	Useable capacity l *[USgal]*	L mm *[inch]*	Material	Type	Material Number
S247	1,8 *[0,48]*	1,6 *[0,42]*	170 *[6,71]*	PE	K01K3976SE271	R932002017
S248	2,5 *[0,66]*	2,2 *[0,58]*	240 *[9,45]*		K01K3976SE272	R932002018

Oil Tanks for DL



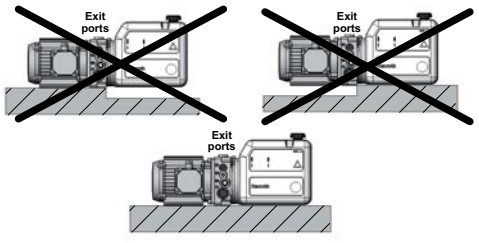
Plastic Tanks

Code	Tank capacity l *[USgal]*	Useable capacity l *[USgal]*	L mm *[inch]*	Material	Type	Material Number
S343	5,0 *[1,32]*	3,8 *[1,00]*	230 *[9,05]*	PE	K01K3976SE380	R932002039
S331	5,0 *[1,32]*	3,8 *[1,00]*	230 *[9,05]*	PE Black	K01K3976SE368	R932007872
S413	7,0 *[1,85]*	5,5 *[1,45]*	310 *[12,20]*	PE	K01K3976SE439	R932007873
S414	7,0 *[1,85]*	5,5 *[1,45]*	310 *[12,20]*	PE Black	K01K3976SE440	R932007874
S415	8,0 *[2,11]*	6,5 *[1,72]*	335 *[13,19]*	PE	K01K3976SE441	R932006036
S416	8,0 *[2,11]*	6,5 *[1,72]*	335 *[13,19]*	PE Black	K01K3976SE442	R932007875



Code	Tank capacity l *[USgal]*	Useable capacity l *[USgal]*	L mm *[inch]*	Material	Type	Material Number
S374	5,0 *[1,32]*	4,0 *[1,06]*	219 *[8,62]*	PE	K01K3976SE415	R932002042
S376	7,0 *[1,85]*	5,4 *[1,43]*	271 *[10,67]*		K01K3976SE417	R932002044
S378	8,0 *[2,11]*	6,6 *[1,74]*	323 *[12,72]*		K01K3976SE419	R932002046

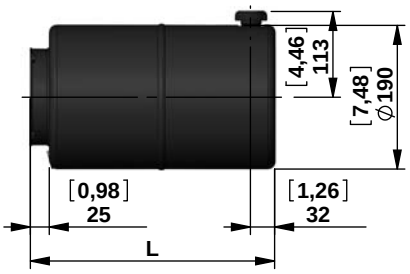
Assembly Kit for Plastic Tank - **DL**

Oil Tank	Code	Material Number	Please make sure that the tank and motor are mounted correctly
S335 - S336 - S337 - S338	K2501VT016	R932007391	
S247 - S248 - S343 - S331 - S413 - S414 - S415 - S416 - S374 - S376 - S378	K2501VT015	R932008244	

Oil Tanks for DE

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 is necessary to use the O-RING 4437 (Ø110,7x3,53) Code:C0001S2115 R-Number:R932000188



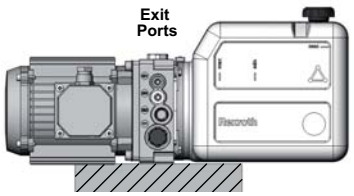
Code	Tank capacity l *[USgal]*	Useable capacity l *[USgal]*	L mm *[inch]*	Type	Material Number
S03SD	5,0 *[1,32]*	4,0 *[1,06]*	219 *[8,62]*	K01K3976SE005SD	R932007901
S04SD	8,0 *[2,11]*	6,6 *[1,74]*	323 *[12,72]*	K01K3976SE007SD	R932007902

Mounting Position

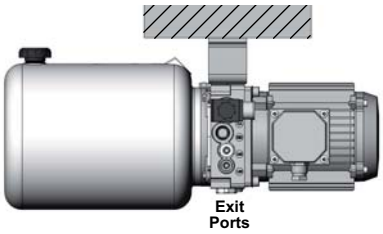
Mounting Position

Code	Image
O1	1
O2	2

1



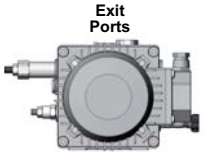
2



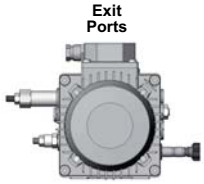
Terminal Box Position for A.C. Motors

Code	Image
-	11
M2	12
M3	13
M4	14

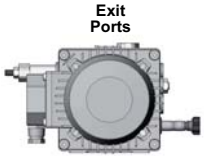
11 - STANDARD



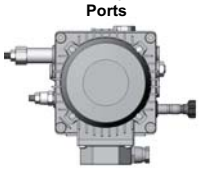
12



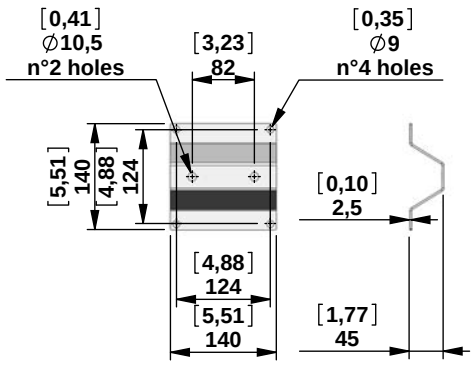
13



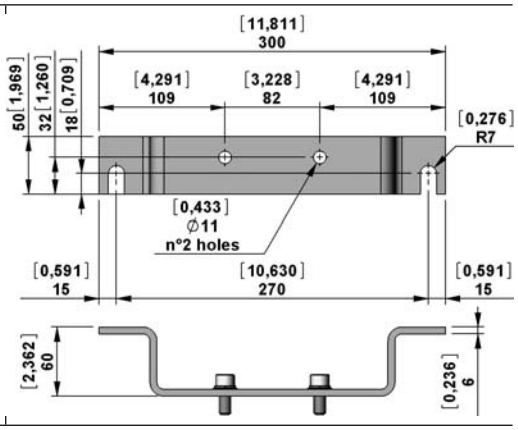
14



Mounting Brackets

Code	Central manifold	Type	Material Number		
G80	DL	K01F331514000	R932009395		

Support for Manifold K series

Code	Central manifold	Type	Material Number		
G87	DL	K01K331523000	R932010187		

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