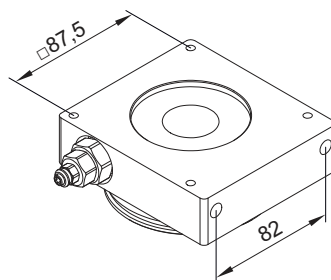
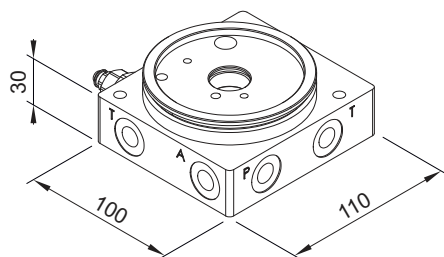
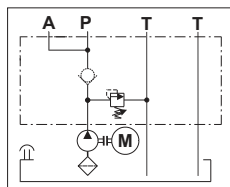


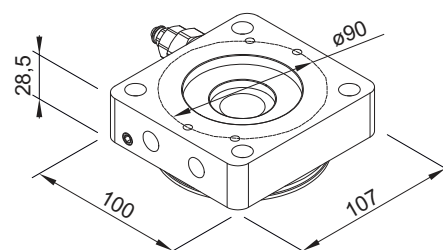
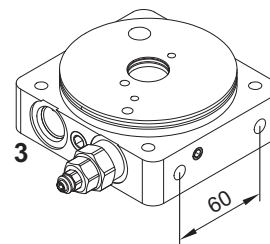
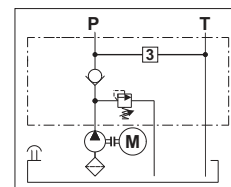


Collettori centrali - central manifolds

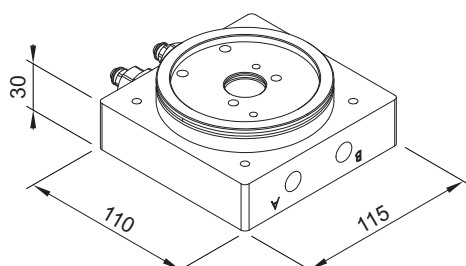
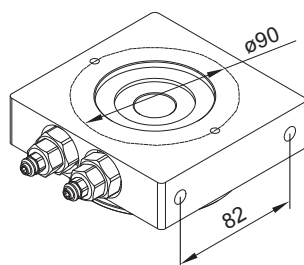
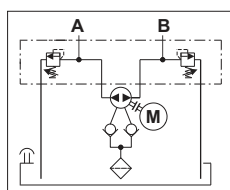
Collettore 2 cavità
Central manifold 2 cavities



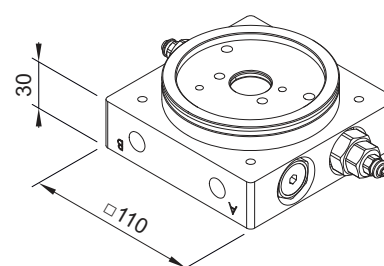
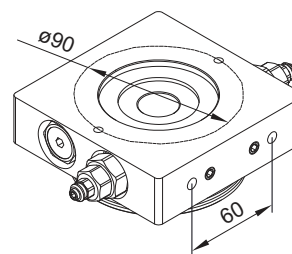
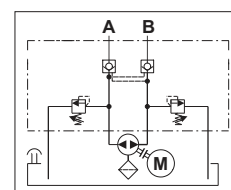
Collettore 3 cavità
Central manifold 3 cavities



Collettore reversibile
Reversible central manifold



Collettore reversibile
Reversible central manifold



SECTION A

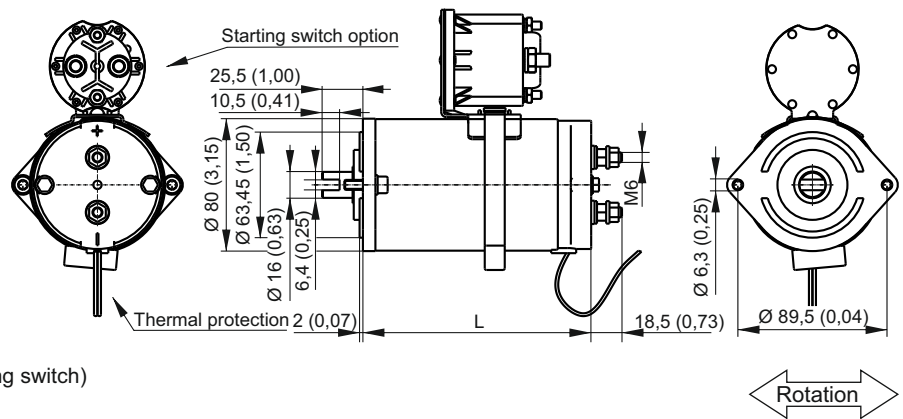
INTEGRAL DC MOTORS Ø80



Permanent magnets
Protection degree: IP54
Insulation class: F



Weight 300W/500W/800W: 2,6 kg (without starting switch)
Weight 150W: 1,85 kg (without starting switch)
UL motors available on request



Code

Description	Assembly code	Spare part code	Nominal duty cycle	Nominal speed	Nominal current	L
150W 12V DC + thermal protection	0,15 12DC_T	M46C1ST01	S2: 20 min S3: 30% ED	1200 rpm	28 A	108 mm
150W 24V DC + thermal protection	0,15 24DC_T	M46C2ST01	S2: 20 min S3: 30% ED	1650 rpm	12 A	108 mm
300W 12V DC + thermal protection	0,3 12DC_T	M46C1ST03	S2: 9 min S3: 18% ED	1800 rpm	39 A	137 mm
300W 24V DC + thermal protection	0,3 24DC_T	M46C2ST03	S2: 9 min S3: 18% ED	1800 rpm	20 A	137 mm
500W 12V DC + thermal protection	0,5 12DC_T	M46C1ST05	S2: 5 min S3: 15% ED	2400 rpm	68 A	137 mm
500W 24V DC + thermal protection	0,5 24DC_T	M46C2ST05	S2: 5 min S3: 15% ED	2500 rpm	31 A	137 mm
800W 12V DC + thermal protection	0,8 12DC_T	M46C1ST08	S2: 3 min S3: 10% ED	2800 rpm	119 A	137 mm
800W 24V DC + thermal protection	0,8 24DC_T	M46C2ST08	S2: 3 min S3: 10% ED	3100 rpm	52 A	137 mm

Options & couplings

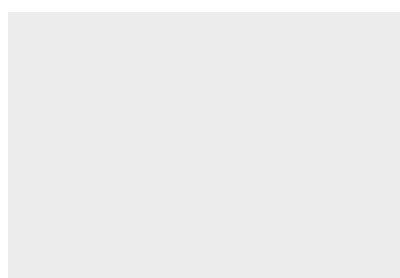
Description	Assembly code	Spare part code
12V DC 150 Amp start relay + mounting kit	S150T 12DC 80	M47TC0001+M47SK0801
12V DC 150 Amp start relay + mounting kit + Faston optional connector	S150 T 12DC 80 F	M47TC0001+M47SK0801+2x24556
24V DC 150 Amp start relay + mounting kit	S150T 24DC 80	M47TC0002+M47SK0801
24V DC 150 Amp start relay + mounting kit + Faston optional connector	S150 T 24DC 80 F	M47TC0002+M47SK0801+2x24556
48V DC 150 Amp start relay + mounting kit	S150T 48DC 80	M47TC0004+M47SK0801
48V DC 150 Amp start relay + mounting kit + Faston optional connector	S150 T 48DC 80 F	M47TC0004+M47SK0801+2x24556
12VDC 100 Amp start relay (reversible)	R100 12DC*	M47NB0001
24VDC 100 Amp start relay (reversible)	R100 24DC*	M47NB0002
Coupling for Ø 80 DC motors and gr.0 pump	E36200003 See table page A200	
Wired remote control with 2 buttons and 3m cable	P0201 (single acting)	
Wired remote control with 4 buttons and 3m cable	P0202 (double acting)	

Notes: The starting switch mounting kit is provided when specifying the **/S150** as motor option in the PPM assembly code. When ordering spare starting switches, they must be ordered separately (example code: M47SK0801).

The coupling is already included when specifying the motor in the YOUM assembly code. It is to be indicated only when ordering YOUM with no motor but with a coupling. The reversible start switch cannot be mounted on the motor. It must be fixed on the machine.

For ambient relative humidity over 60%, motors with optional IP67 protection index are available and required. Please ask your sales representative.

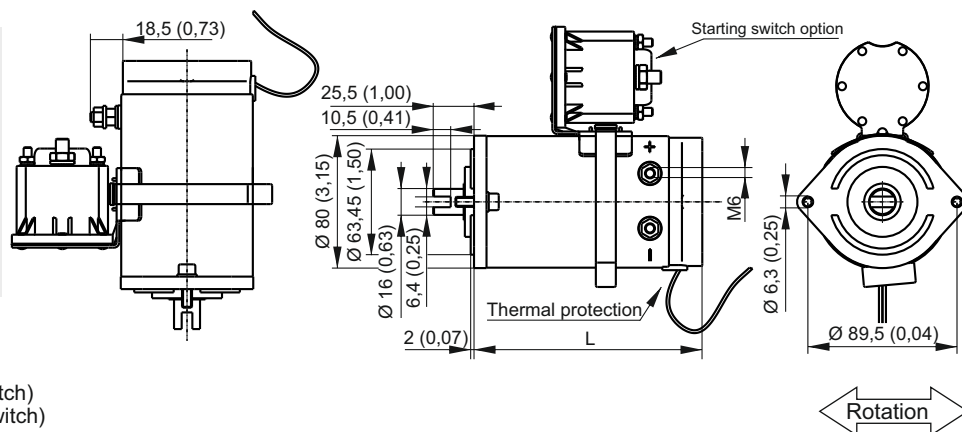
INTEGRAL DC MOTORS Ø80



Permanent magnets
Protection degree: IP54
Insulation class: F



Weight 800W: 2,6 kg (without starting switch)
Weight 1200W: 3,7 kg (without starting switch)
UL motors available on request



Code

Description	Assembly code	Spare part code	Nominal duty cycle	Nominal speed	Nominal current	L
800W 48V DC + thermal protection	0,8 48DC_T	M46C4ST08	S2: 3 min S3: 10% ED	2900 rpm	26 A	187 mm
1200W 12V DC + thermal protection	1,2 12DC_T	M46C1ST12	S2: 1,5 min S3: 7% ED	3200 rpm	140 A	186 mm
1200W 24V DC + thermal protection	1,2 24DC_T	M46C2ST12	S2: 1,5 min S3: 7% ED	3200 rpm	70 A	186 mm

Options & couplings

Description	Assembly code	Spare part code
12V DC 150 Amp start relay + mounting kit	S150T 12DC 80	M47TC0001+M47SK0801
12V DC 150 Amp start relay + mounting kit + Faston optional connector	S150 T 12DC 80 F	M47TC0001+M47SK0801+2x24556
24V DC 150 Amp start relay + mounting kit	S150T 24DC 80	M47TC0002+M47SK0801
24V DC 150 Amp start relay + mounting kit + Faston optional connector	S150 T 24DC 80 F	M47TC0002+M47SK0801+2x24556
48V DC 150 Amp start relay + mounting kit	S150T 48DC 80	M47TC0004+M47SK0801
48V DC 150 Amp start relay + mounting kit + Faston optional connector	S150 T 48DC 80 F	M47TC0004+M47SK0801+2x24556
12VDC 100 Amp start relay (reversible)	R100 12DC*	M47NB0001
24VDC 100 Amp start relay (reversible)	R100 24DC*	M47NB0002
Coupling for Ø 80 DC motors and gr.0 pump	E36200003 See table page A200	
Wired remote control with 2 buttons and 3m cable	P0201 (single acting)	
Wired remote control with 4 buttons and 3m cable	P0202 (double acting)	

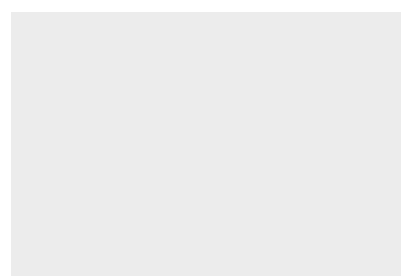
Notes: The starting switch mounting kit is provided when specifying the /S150 as motor option in the YOUM assembly code. When ordering spare starting switches, they must be ordered separately (example code: M47SK0801).

The coupling is already included when specifying the motor in the YOUM assembly code. It is to be indicated only when ordering YOUM with no motor but with a coupling. The reversible start switch cannot be mounted on the motor. It must be fixed on the machine.

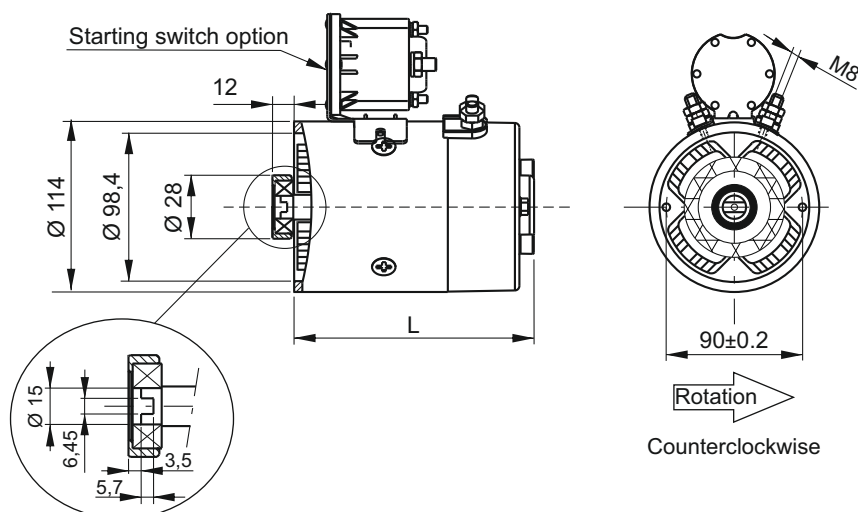
For ambient relative humidity over 60%, motors with optional IP67 protection index are available and required. Please ask your sales representative.

SECTION A

INTEGRAL DC MOTORS Ø114



Compound wound
Protection degree: IP54
Insulation class: F
Weight: 8,15 kg (without starting switch)
UL motors available on request



Code

Description	Assembly code	Spare part code	Nominal duty cycle	Nominal speed	Nominal current	L
1600W 12V DC + thermal protection for PPM	1,6 12DC_TM	M46C1ST16M	S2: 3 min S3: 10% ED	2800 rpm	210 A	165 mm
2100W 12V DC + thermal protection for PPM	2,1 12DC_TM	M46C1ST21M	S2: 2,5 min S3: 10% ED	2400 rpm	300 A	182 mm
2200W 24V DC + thermal protection for PPM	2,2 24DC_TM	M46C2ST22M	S2: 3,5 min S3: 15% ED	2400 rpm	130 A	165 mm
2200W 48V DC + thermal protection for PPM	2,2 48DC_TM	M46C4ST22M	S2: 3 min S3: 15% ED	3000 rpm	65 A	163 mm

Options & couplings

Description	Assembly code	Spare part
12V DC 150 Amp start switch + mounting kit	S150T 12DC 112	M47TC0001 + XACNH00001
12V DC 150 Amp start relay + mounting kit + Faston optional connector	S150T 12DC 112 F	M47TC0001+XACNH00001+2x24556
24V DC 150 Amp start switch + mounting kit	S150T 24DC 112	M47TC0002 + XACNH00001
24V DC 150 Amp start relay + mounting kit+ Faston optional connector	S150T 24DC 112 F	M47TC0002+XACNH00001+2x24556
48V DC 150 Amp start relay + mounting kit	S150T 48DC 112	M47TC0004+XACNH00001
48V DC 150 Amp start relay + mounting kit+ Faston optional connector	S150T 48DC 112 F	M47TC0004+XACNH00001+2x24556
12V DC 300 Amp start switch + mounting kit	S300T 12DC 112	MASRH00001 + XACNH00001
12V DC 300 Amp start relay + mounting kit + Faston optional connector	S300T 12DC 112F	MASRH00001+XACNH00001+2x24556
Coupling for Ø114 motors and gr.0 pump	E36200002 See table page A200	
Remote wired control with 2 buttons and 3m cable	P0201 (single acting)	
Remote wired control with 4 buttons and 3m cable	P0202 (double acting)	

Notes: the starting switch mounting kit is provided when specifying the **/S150** as motor option in YOUM assembly code. When ordering spare starting switches, it must be ordered separately (code: XACNH00001).

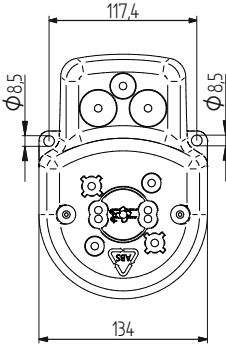
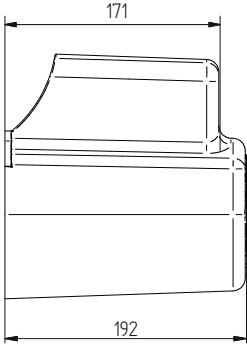
The coupling is already included when specifying the motor in YOUM assembly code. It is to be indicated only when ordering YOUM with no motor but with coupling. Optional relay connection cable can be ordered separately (see page A060).
For ambient relative humidity over 60%, motors with optional IP67 protection index are available and required. Please ask your sales representative.

DC MOTOR OPTIONS



Plastic cover for DC motors Ø 114
Weight: 0,35 kg

Assembly code
MC
Spare part code
MACVH00001



Note: this cover is not intended to improve IP grade but to avoid inadvertent contact with high temperature motor surface.
DC motors S2/S3 values as per the relevant tech tables must be downgraded due to reduced motor ventilation.

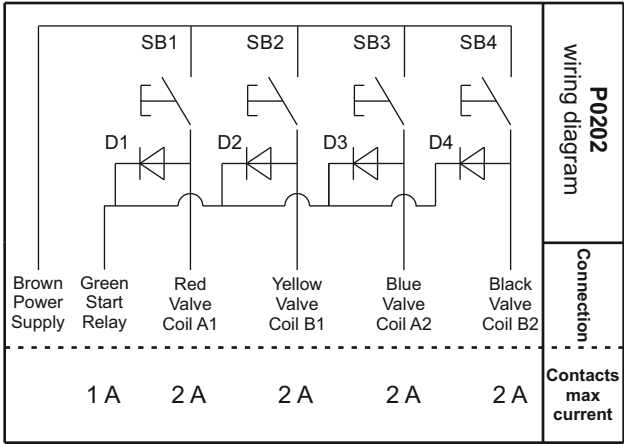
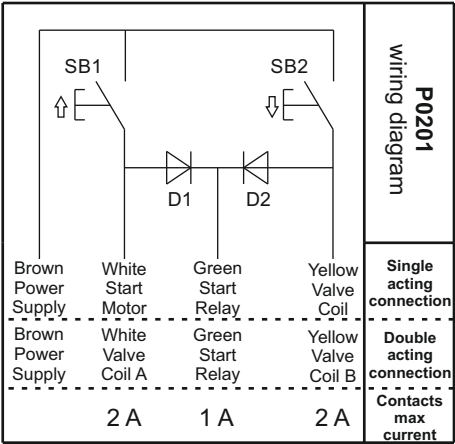
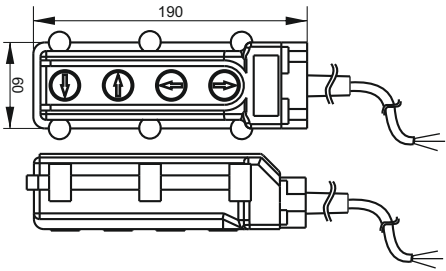
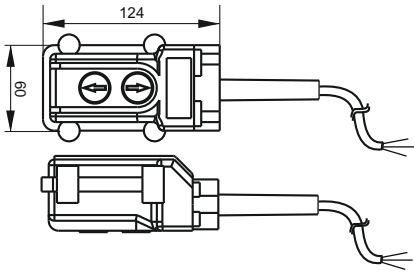


Description	Spare part code
Wired remote control with 2 buttons single/double acting	P0201

Description	Spare part code
Wired remote control with 4 buttons double acting	P0202

Wired remote control

Weight: 0,60 kg
Protection degree: IP65
DC only use



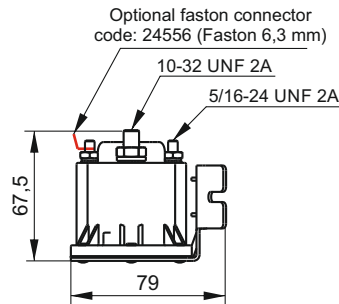
SECTION A

DC MOTOR OPTIONS

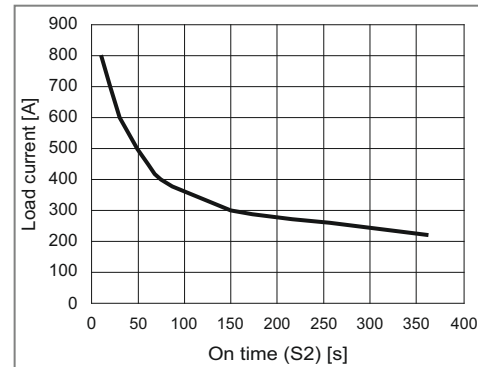


Starting relay 150A
for motors Ø80 - Ø114

Weight: 0,38kg
Protection degree: IP67
Max current draw: 2A@12VDC - 1A@24VDC - 0,5A@48VDC
Standard temperature range: -40°C to +82°C
Poles thread: 2 x 10-32 UNF 2A; 2 x 5/16-24 UNF 2A
UL starting relays available on request
* on resistive load



Typical Intermittent Duty Unit Performance in a + 25°C Ambient
using 2 foot lenght (0,6 m) of 2#AWG (33,6 mm²) cable.
ON time versus Load current reach 90°C temperature.



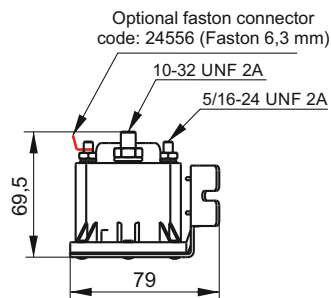
Nominal current	Peak Current (3ms) *	Spare part code
150A	800A	M47TC0001 (12V DC) M47TC0002 (24V DC) M47TC0004 (48V DC)

Coils	M47TC0001 12V DC	M47TC0002 24V DC	M47TC0004 48V DC
Max Sustained Duty Cycle (S3)	25%	25%	25%
Max On-Time (S2) @ 150A	6 min	6 min	6 min
Pull In Voltage	7,6 V	15,5 V	33 V
Hold minimum Voltage	3,5 V	7,0 V	14 V
Coil Resistance [Ohms]	5,7 Ω	20,1 Ω	86 Ω

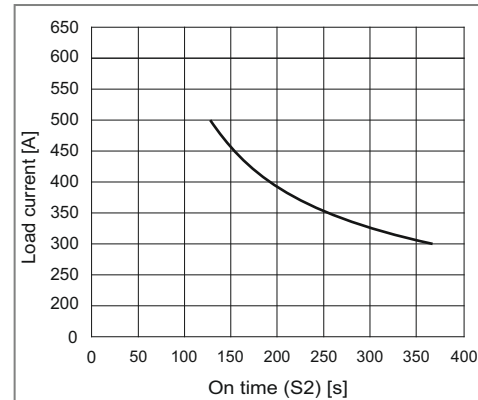


Starting relay 300A
for motors Ø125 and 151

Weight: 0,39kg
Protection degree: IP67
Max current draw: 2A@12VDC - 1A@24VDC
Standard temperature range: -40°C to +85°C
Poles thread: 2 x 10-32 UNF 2A; 2 x 5/16-24 UNF 2A
UL starting relays available on request
*on resistive load



Typical Intermittent Duty Unit Performance in a + 25°C Ambient
using 2 foot lenght (0,6 m) of 2#AWG (33,6 mm²) cable.
ON time versus Load current reach 110°C temperature.



Nominal current	Peak Current (3ms)*	Spare part code
300A	1000A	MASRH00001 (12V DC) MASRH00002 (24V DC)

Coils	MASRH00001 12V DC	MASRH00002 24V DC
Max Sustained Duty Cycle (S3)	25%	25%
Max On-Time (S2) @ 150A	6 min	6 min
Pull In Voltage at 25°C	8,5 V	15 V
Hold minimum Voltage at 25°C	4,5 V	7,0 V
Coil Resistance at 25°C [Ohms]	5,37 Ω	20,1 Ω

Recommended working position: either horizontal or vertical with poles set upwards.
Optional faston connector code: 24556.
All the test are made at the environmental temperature of 25 °C.

DC MOTOR OPTIONS

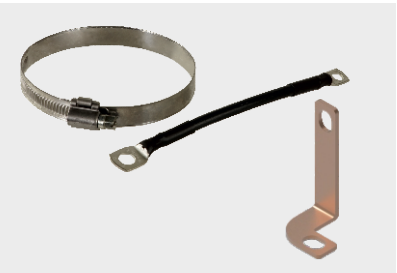


Starting relay (reversible) 100A
for reversible motors and pumps

Weight: 0,5kg
Protection degree: IP65
Max current draw: 1A@12VDC - 0,5A@24VDC
Max environment temperature: 40°C
Poles thread: 4 x M6

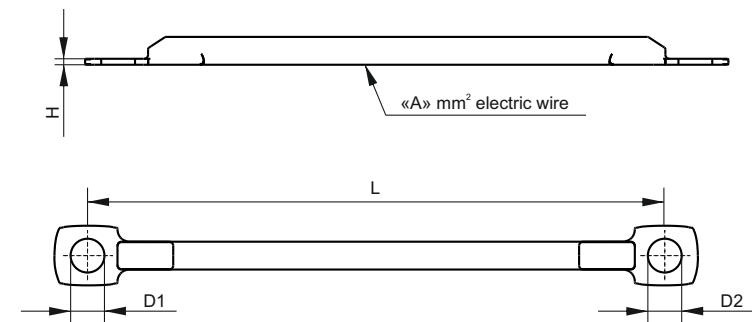
Nominal current	Peak Current (40ms)	Spare part code
100A	400A	M47NB0001 (12V DC) M47NB0002 (24V DC)

Recommended working position: either horizontal or vertical with poles set upwards.



Mounting kit for DC motors

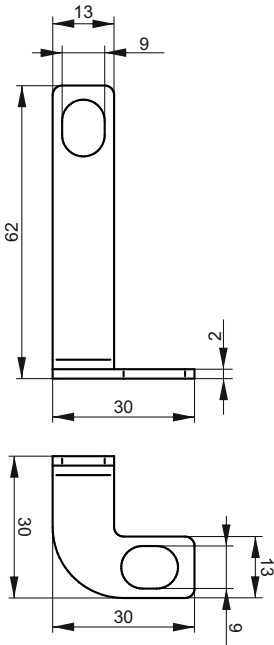
Motor Type	Mounting Kit code	Mounting kit sub-parts	
		Power cable	Fixing system
Ø 80	M47SK0801	M47SK000A	Clamp band E60513080
Ø 114 Rigid	XACNH00001	MACNH00001	2xscrew TCEIM5X10 + 2xwasher WASHL05
Ø 114 Flexible	M47SK1121	M47SK000C	2xscrew TCEIM5X10 + 2xwasher WASHL05
Ø 125 - 151	M47SK1251	M47SK000E	2xscrews TCEIM5X10 + 2xwasher WASHL05



Power Cables

Spare part	L (mm)	A (mm²)	D1 (mm)	D2 (mm)	H (mm)
M47SK000A	130	10	6	8	1,5
M47SK000C	130	16	8	8	2
M47SK000E	130	25	10	8	2

Spare part code
MACNH00001

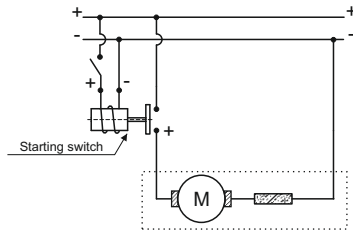


SECTION A

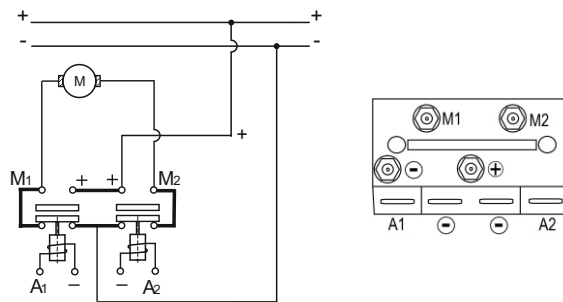
DC MOTOR CHOICE AND ELECTRIC CONNECTION SCHEME

Electrical connection scheme

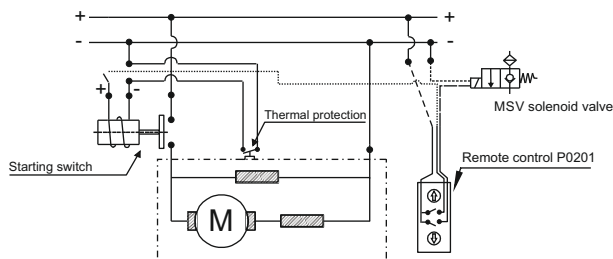
M47*C000*



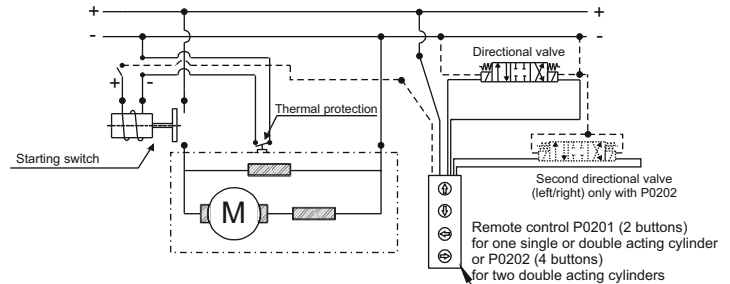
M47NB000*



Single acting cylinder



Double acting cylinder



DC motors selection

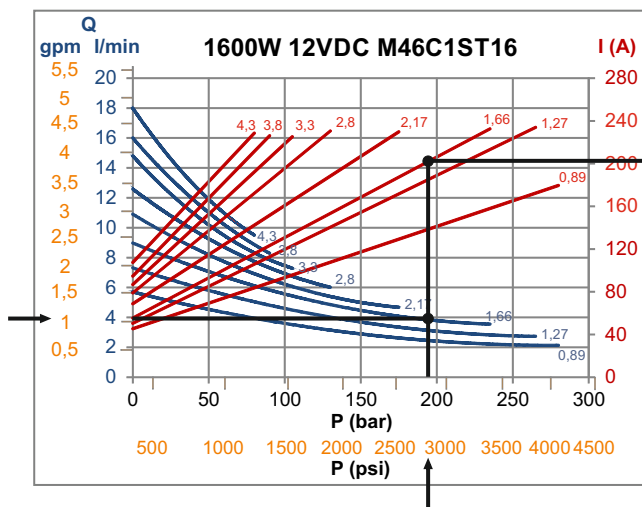
DC motor selection is a critical step for the proper power pack definition. Required Pressure, Required Flow, Service Factor (or Duty Cycle) should be known before starting the motor selection. Please note that DC motors speed is **not** constant and depends on torque. Once you choose a motor, look at Motor-Pump Performance diagram if a pump displacement (blue curve) is available at the **intersection** of required pressure and flow values. On the relevant "I" axis (red curve) you obtain the current drawn. When the intersection point is not exactly on a pump curve, select a smaller pump. On Motor Ratings diagram you can easily obtain the maximum allowed Service Factor: S2, Short Time Duty (min); S3, Intermittent Periodic Duty (% of total cycle). If the obtained Service values are not sufficient to meet required performances, choose a higher power or heavier duty motor and repeat the calculation on the new motor curves.

Example:

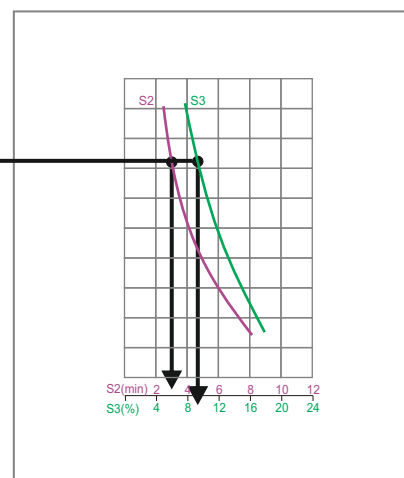
an application requires the following data: flow = 4 l/min, max pressure = 195 bar, duty cycle is unknown.

- check on 1,6 Kw 12V DC motor diagram: the 1,66 cc pump curve meet the intersection of 4 liters/minutes and 195 bar
- choose from curves a 1,66 cm³/rev pump. the corresponding "I" curve declares 200 A drawn current at 195 bar.
- project horizontally the current drawn to the Motor Rating diagram: the DC motor can work for maximum 3 min (S2) and S3 is about 9% of the total cycle, i.e. after 3 min working, the motor should cool down for at least 30 min.
- The total cycle time is calculated by adding the working time and the idle time (9% working time plus 91% idle time), in this case 33 min. If this duty cycle is not adequate for our application, we must choose a higher power or higher duty DC motor and check the relevant diagram again.

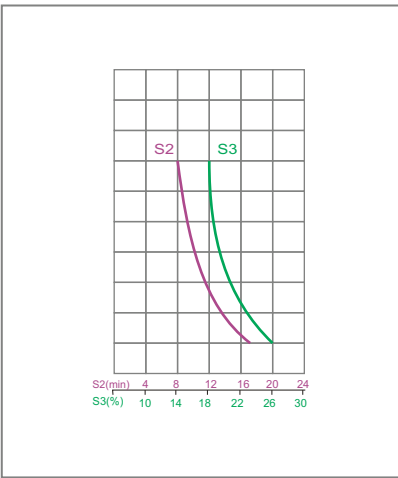
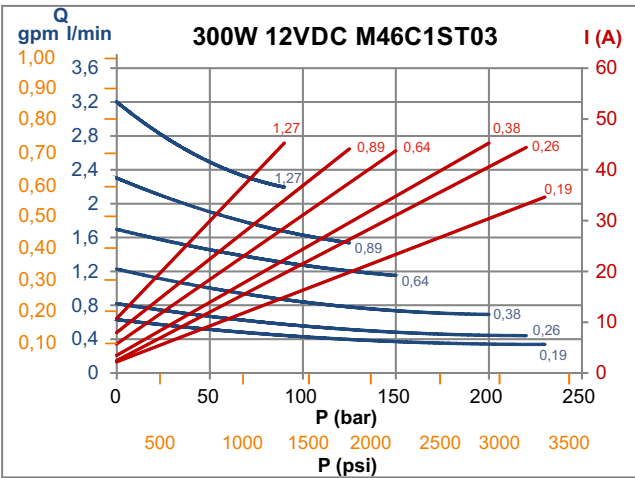
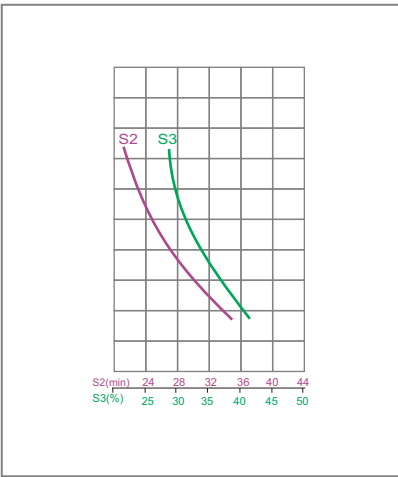
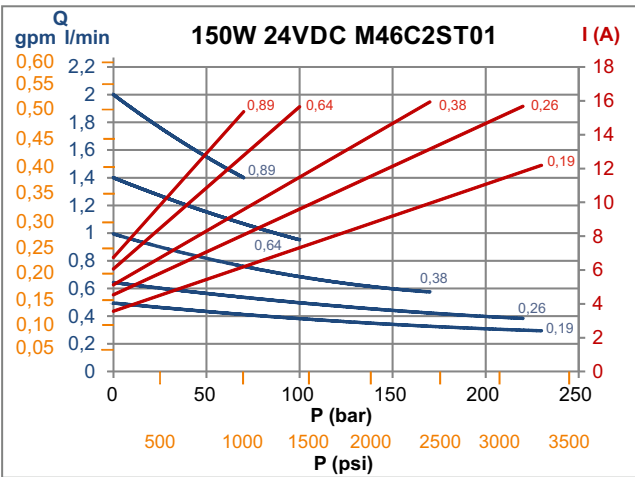
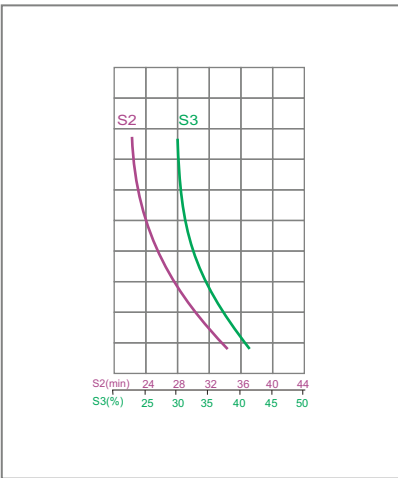
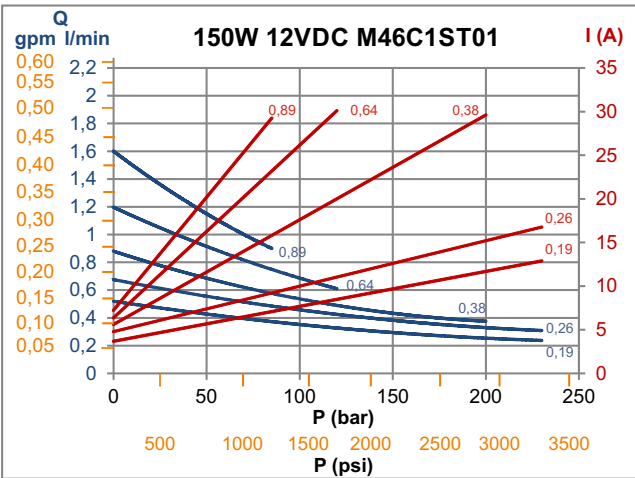
Motor-Pump Performances



Motor Ratings



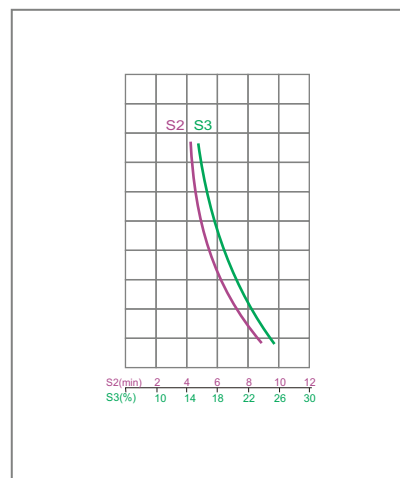
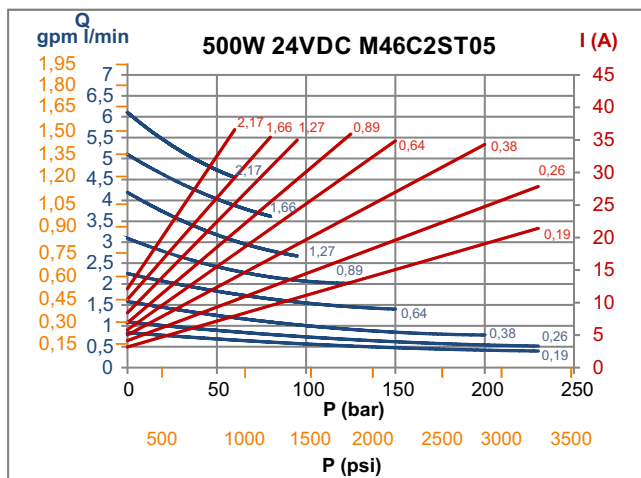
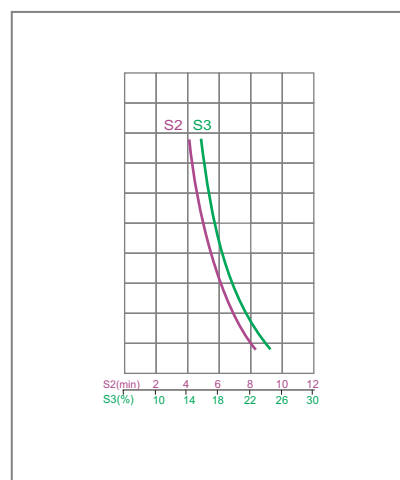
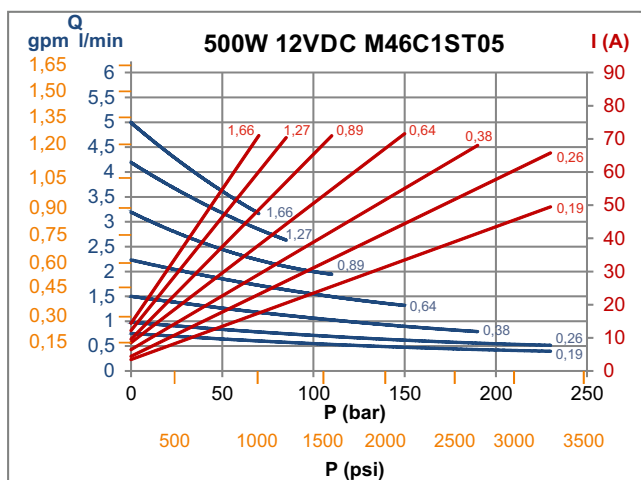
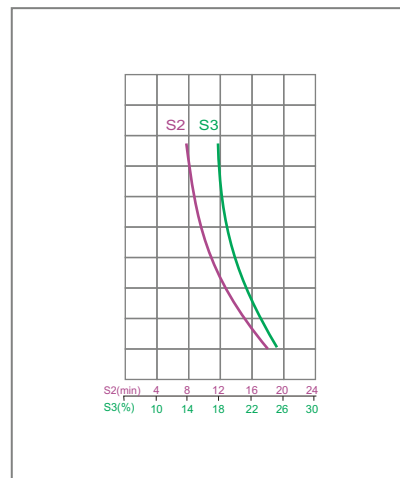
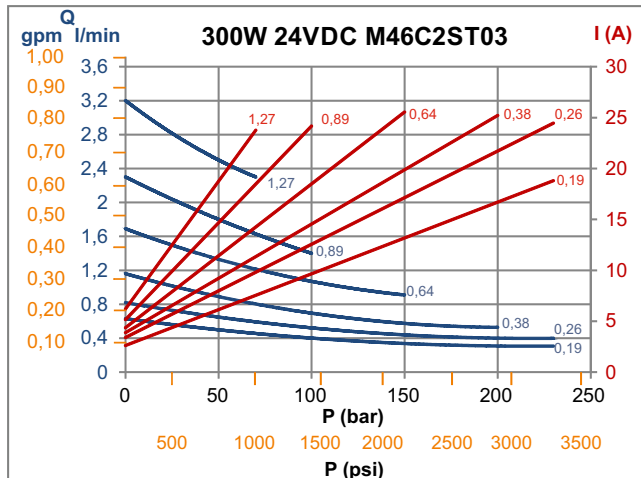
DC MOTORS Ø80 DIAGRAMS



Tests made with rectified current supplied at nominal motor voltage (measured at the motor connection terminals) and oil ISO VG46 at 40°C

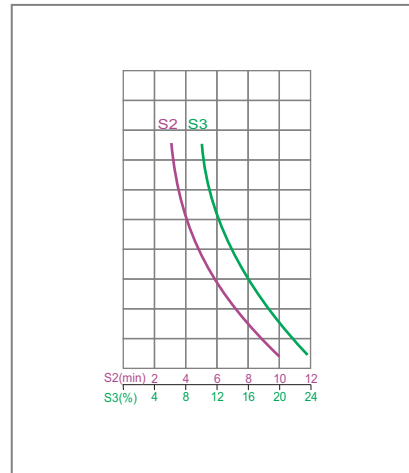
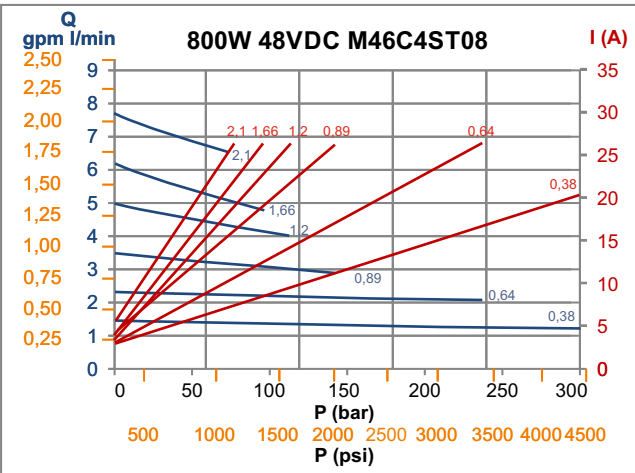
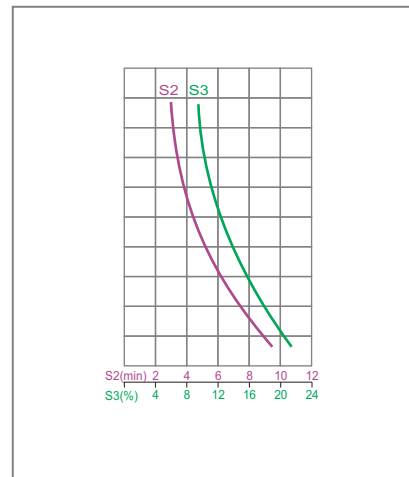
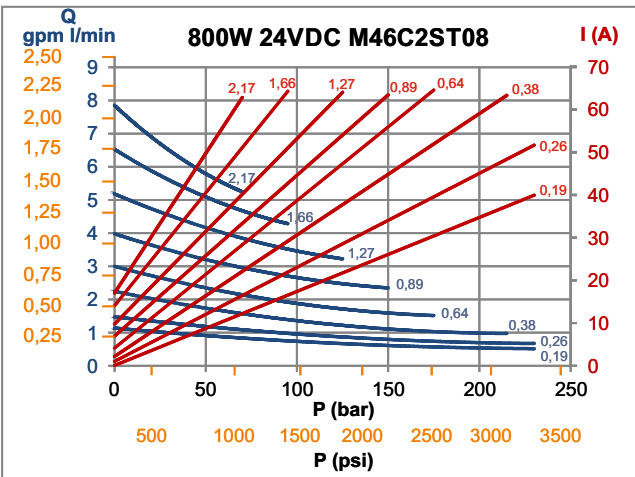
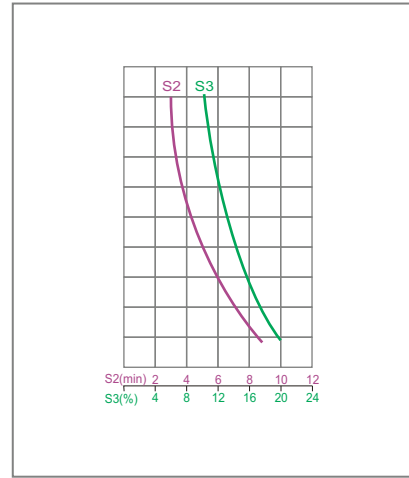
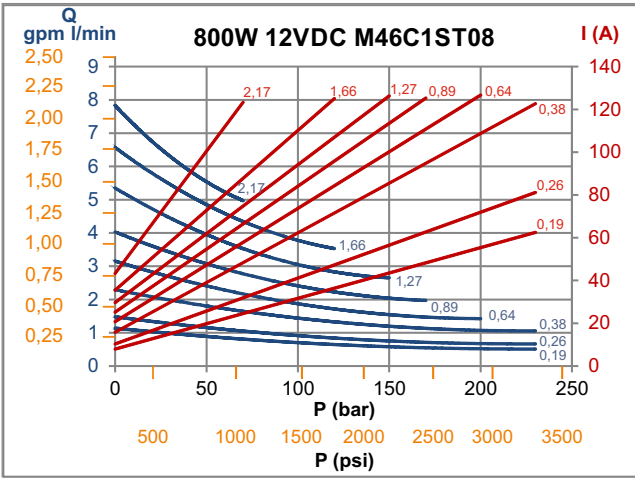
SECTION A

DC MOTORS Ø80 DIAGRAMS



Tests made with rectified current supplied at nominal motor voltage (measured at the motor connection terminals) and oil ISO VG46 at 40°C

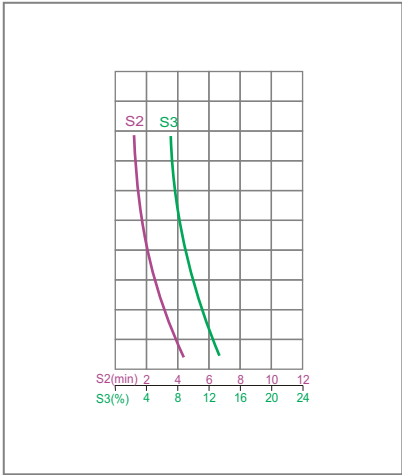
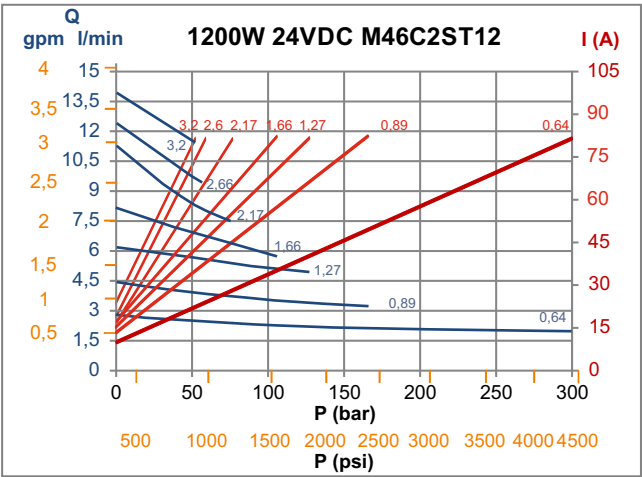
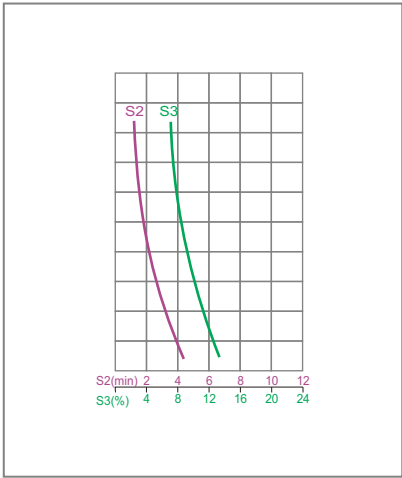
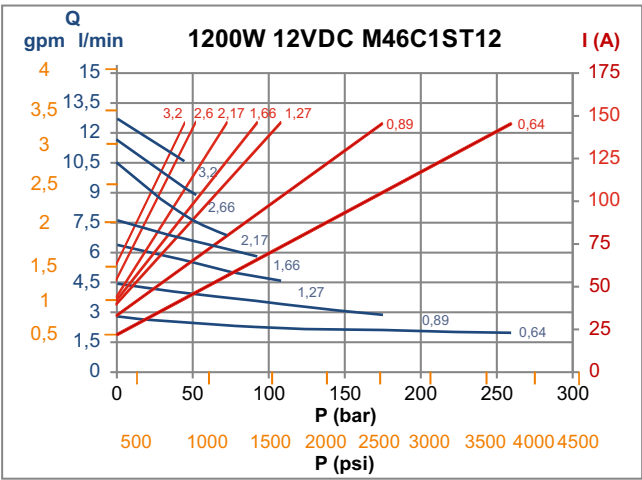
DC MOTORS Ø80 DIAGRAMS



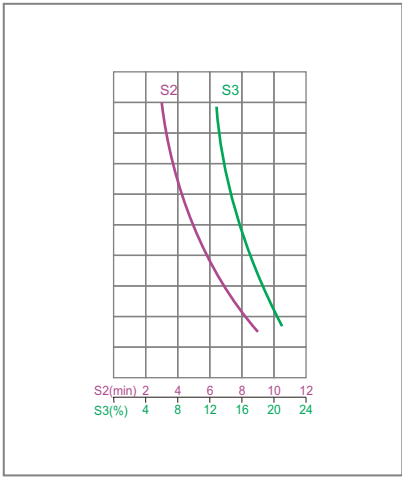
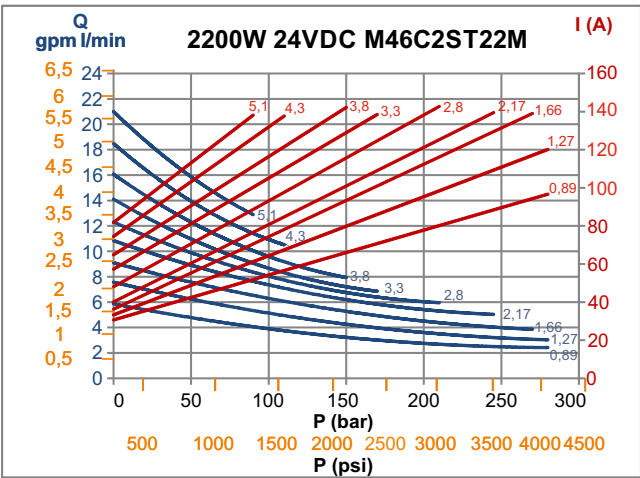
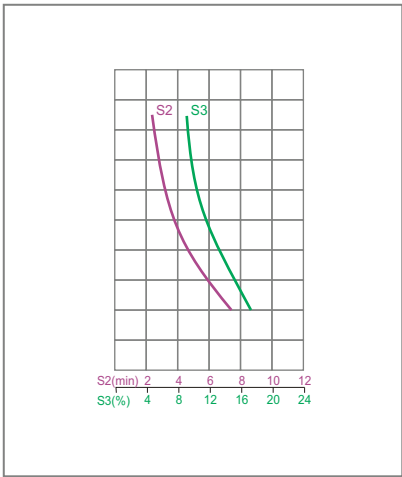
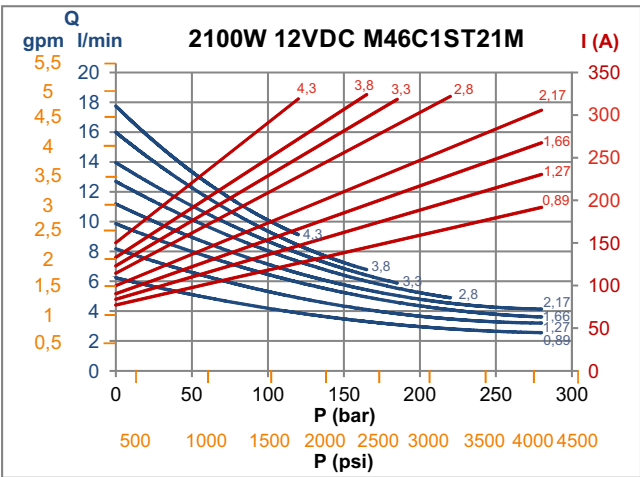
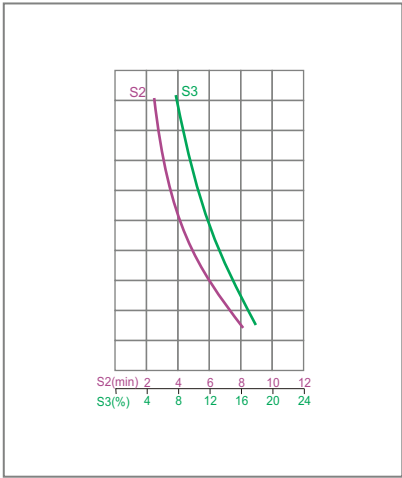
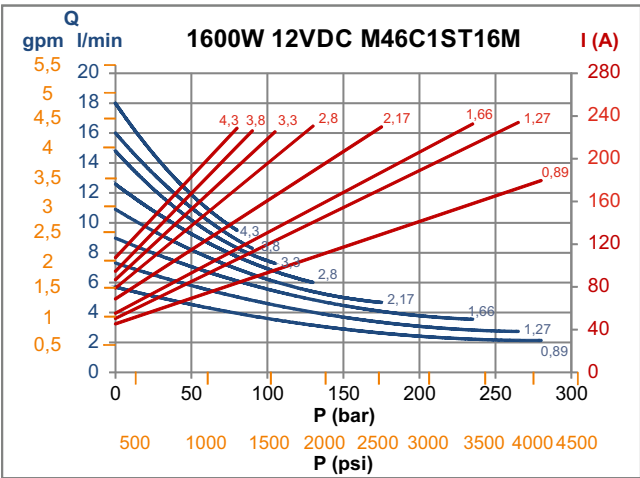
Tests made with rectified current supplied at nominal motor voltage (measured at the motor connection terminals) and oil ISO VG46 at 40°C

SECTION A

DC MOTORS Ø80 DIAGRAMS



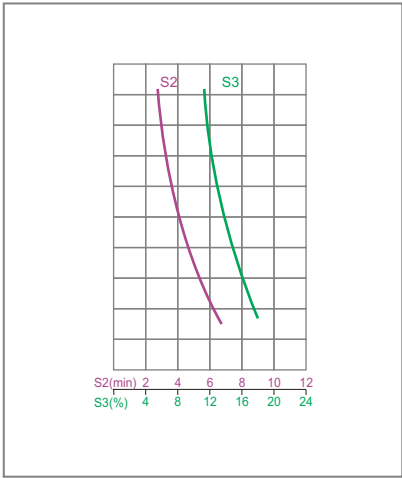
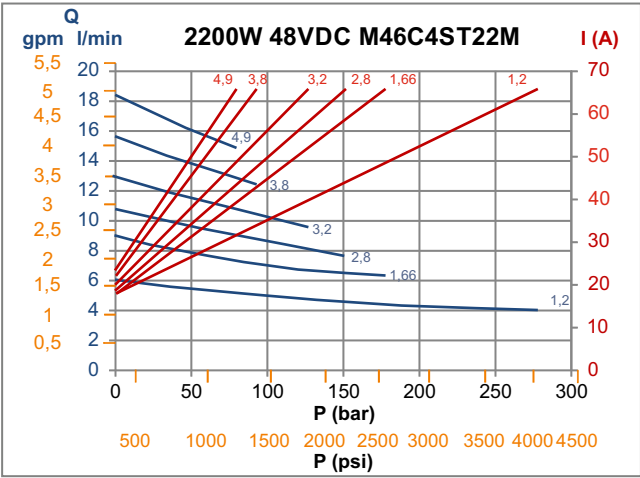
DC MOTORS Ø114 DIAGRAMS



Tests made with rectified current supplied at nominal motor voltage (measured at the motor connection terminals) and oil ISO VG46 at 40°C

SECTION A

DC MOTORS Ø114 DIAGRAMS



INTEGRAL AC MOTORS

Integral motors: these are motors specifically engineered and manufactured for our mini power packs, featuring high power density and direct connection to the YOUM.

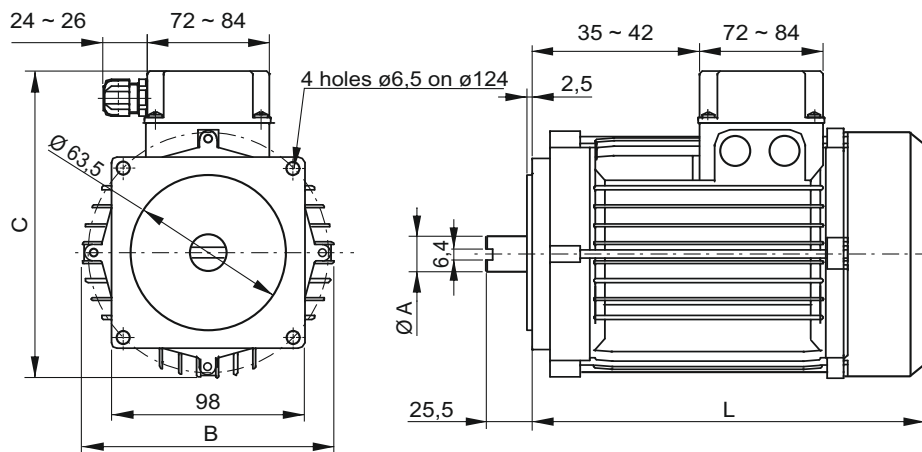
They are available in single phase or three phase execution, in frame 71 with square flange and tang drive shaft. A single coupling fits all dimensions.

Other powers and/or special designs are available on request. Standard motors are for intermittent use: S3 40% is a typical work cycle consisting of up to six cycles (on-off) in one hour with the motor ON and OFF for 4 min to 6 min. These motors can be used in emergency situations even in continuous use at a reduced power (30% less than the nominal value S3).



Drawings show typical three phase motors. Single phase motors have a larger wiring box which also contains the capacitor(s) or can have an external capacitor(s).

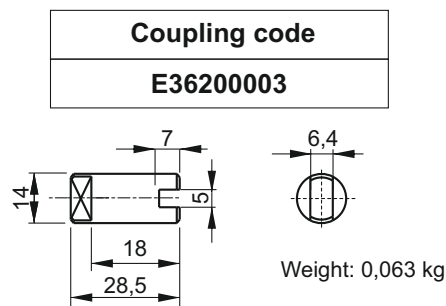
Protection degree: IP54
Insulation class: F
Type of duty: S3= intermittent use



PPM motor assembly code

N	AC integral motor
0,75	Maximum Power [kW]
AC	Alternate current
3	Fasi: 3 = three phase S = single phase
4	Poli: 4 = four poles 2 = two poles
71	Cassa

A single coupling will fit all motor frame sizes. This is the same coupling (pump side) included in the B14 motor mounting kit. The coupling is already included when specifying an integral AC motor in the YOUM assembly code. When ordering spare motors, the coupling is not included and must be ordered separately.



See a table of available codes on next page

SECTION A

INTEGRAL AC MOTORS

Three-phase 4 poles (~1450 rpm at 50Hz)

Frame size	Maximum Power (S3 40%)	Assembly code	Spare motor code	Ø A	B	C	L	Weight kg
71	0,37kW (0,5HP)	N0,37AC 34 71	N037AC341S3	15	138	180	210	5,5
	0,55kW (0,75HP)	N0,55AC 34 71	N055AC341S3	15	138	180	210	5,5
	0,75kW (1HP)	N0,75AC 34 71	N075AC341S3	15	138	180	210	5,5

Three-phase 2 poles (~2900 rpm at 50Hz)

Frame size	Maximum Power (S3 40%)	Assembly code	Spare motor code	Ø A	B	C	L	Weight kg
71	0,55kW (0,75HP)	N0,55AC 32 71	N055AC321S3	15	138	180	210	5
	0,75kW (1HP)	N0,75AC 32 71	N075AC321S3	15	138	180	210	5

Single-phase 4 poles (~1450 rpm at 50Hz)

Frame size	Maximum Power (S3 40%)	Assembly code	Spare motor code	Ø A	B	C	L	Weight kg
71	0,37kW (0,5HP)	N0,37AC S4 71	N037ACS41S3	15	138	180	210	6,5
	0,55kW (0,75HP)	N0,55AC S4 71	N055ACS41S3	15	138	180	210	7,2

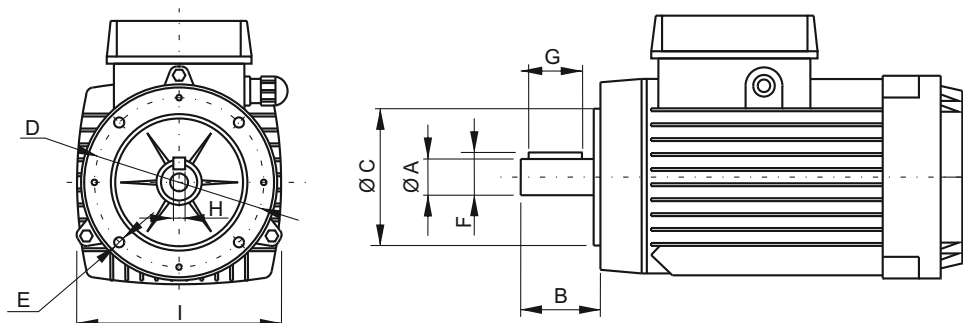
Single-phase 2 poles (~2900 rpm at 50Hz)

Frame size	Maximum Power (S3 40%)	Assembly code	Spare motor code	Ø A	B	C	L	Weight kg
71	0,55kW (0,75HP)	N0,55AC S2 71	N055ACS21S3	15	138	180	210	6
	0,75kW (1HP)	N0,75AC S2 71	N075ACS21S3	15	138	180	210	6,5

B14 IEC AC MOTORS

B14 IEC motors: for market compatibility, any IEC standard B14 AC motor with frame 63 and 71 can be mounted. In this case two-piece couplings and additional adaptor flanges as per relevant tables must be mounted.

Motor overall dimensions are not indicated since they can vary substantially depending on the motor brand selected.



Main dimensions for B14 IEC standard motors

Frame size	Typical power range	ØA	B	ØC	D	E	F	G	H	Mounting kit
63	0,12 ~ 0,25 kW 0,16 ~ 0,35 HP	11 j6	23	60	75	M5	12,5	18	4	NB14 63
71	0,25 ~ 0,37 kW 0,37 ~ 5 HP	14 j6	30	70	85	M6	16	25	5	NB14 71

PPM B14 motor assembly code

B14	Type
025	Power [kW]
AC	Alternate current
3	Phase: 3 = three phase S = single phase
4	Poles: 4 = four poles 2 = two poles
0	Frame size: 0 = 63 1 = 71
-	Duty factor: - = ED 100% (S1) S3 = intermittent duty

Mounting kit spare parts

The B14 mounting kits are made of:

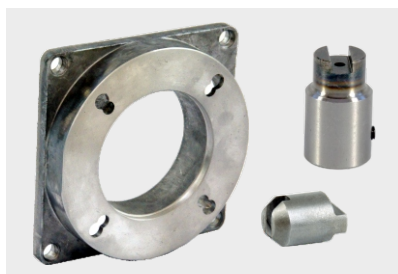
- a semi-coupling E3610000M on pump shaft side, that is the same used on AC integral motors.
- a semi-coupling on motor shaft side, which is different for each frame size,
- an adaptor flange to suit the central manifold, which is also different for each frame size.

The mounting kit is already included when specifying a B14 AC motor in PPM assembly code.

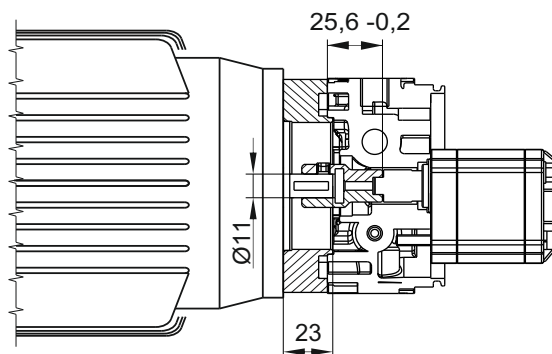
When ordering spare motors, the relevant mounting kit is not included and must be ordered separately.

SECTION A

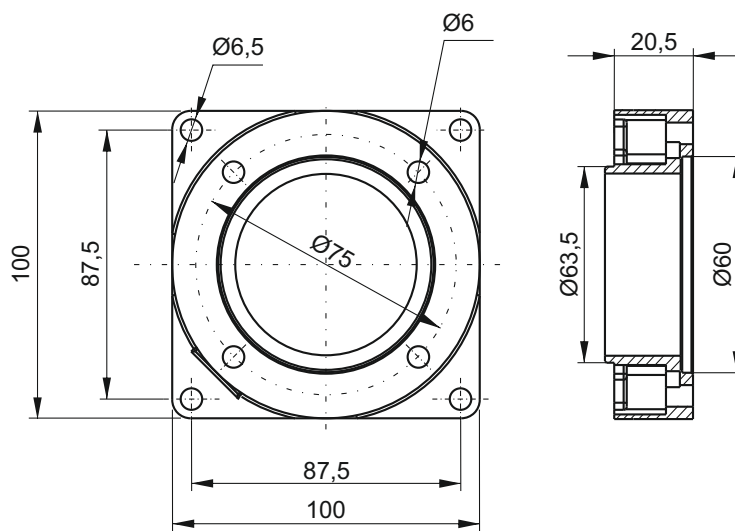
MOUNTING KIT FOR FRAME 63 B14 IEC MOTORS



Kit weight: 0,18 Kg

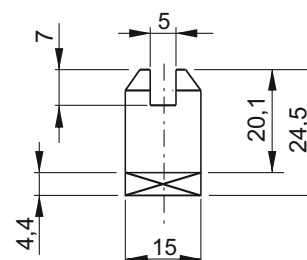


Adaptor flange

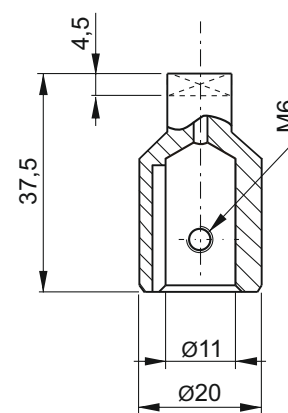


Coupling

Pump side E36100000M



Motor side M36100011



Description	Assembly code*	Spare part code
B14 63 motor side semi-coupling	NB14 63	M36100011
B14 pump side semi-coupling		E36100000M
B14 63 adaptor flange		F25030002

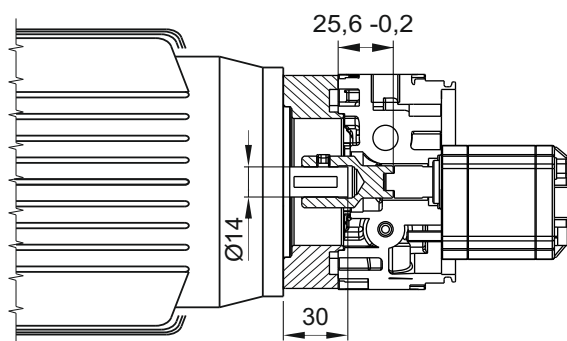
* Note: the coupling + flange kit is already included when specifying a B14 motor in YOUM assembly code. NB1463 code to be indicated only when ordering PPM with no motor but with coupling + flange kit.

Attention! When assembling B14 IEC motors with NB14 flange + couplings kit, please respect positioning tolerances as shown in the drawing at the top of this page. Failure to do so can cause malfunctioning or component failure.

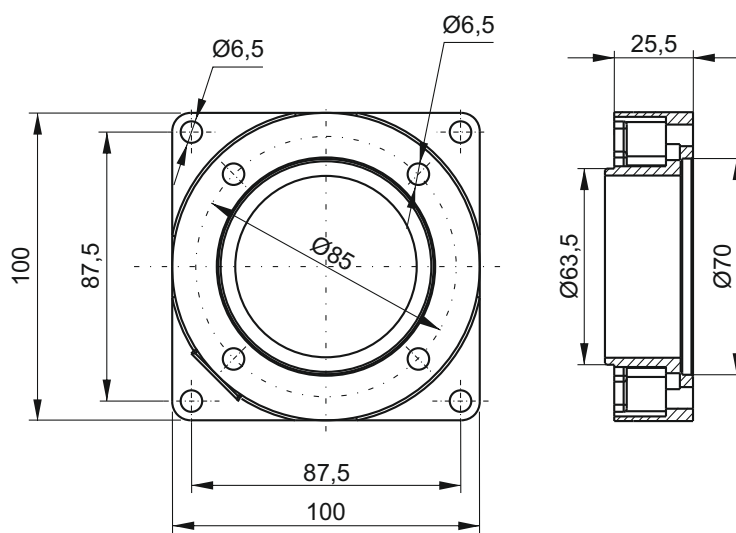
MOUNTING KIT FOR FRAME 71 B14 IEC MOTORS



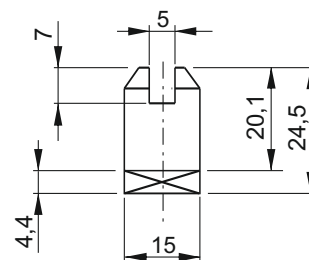
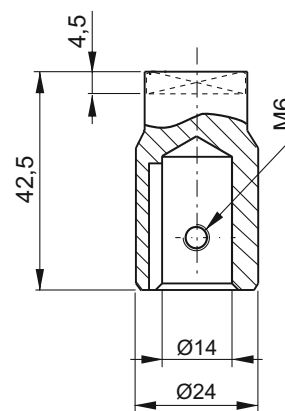
Kit weight: 0,18 Kg



Adaptor flange



Couplings

Pump side **E36100000M**Motor side **E36100001**

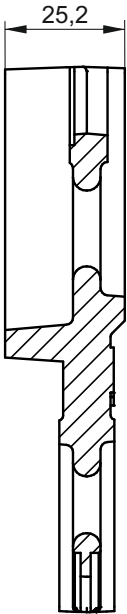
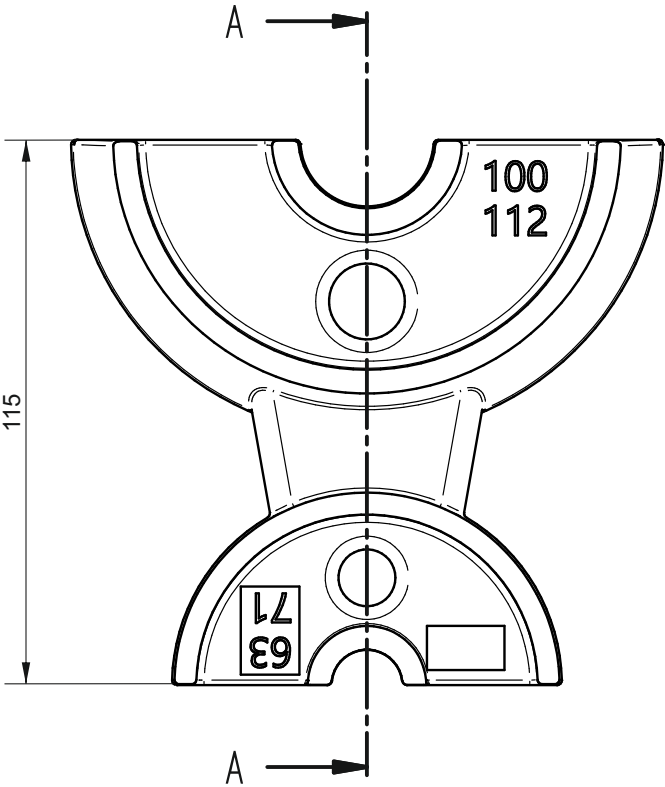
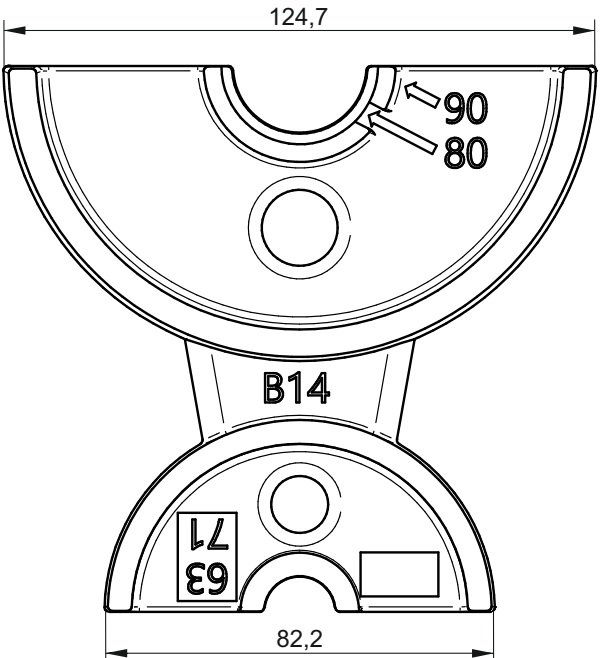
Description	Assembly code*	Spare part code
B14 71 motor side semi-coupling	NB14 71	E36100001
B14 pump side semi-coupling		E36100000M
B14 71 adaptor flange		F25030003

* Note: the coupling + flange kit is already included when specifying a B14 motor in YOUM assembly code. NB1471 code to be indicated only when ordering PPM with no motor but with coupling + flange kit.

Attention! When assembling B14 IEC motors with NB14 flange + couplings kit, please respect positioning tolerances as shown in the drawing at the top of this page. Failure to do so can cause malfunctioning or component failure.

SECTION A

COUPLING MOUNTING TOOL FOR FRAME 63/71 B14 MOTORS YOU/YOUM

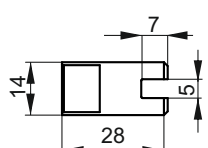
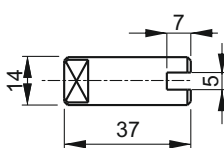


SECTION A-A

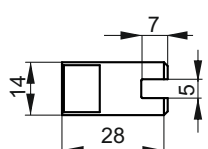
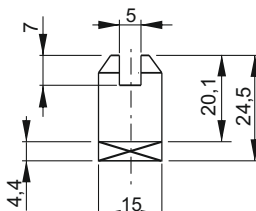
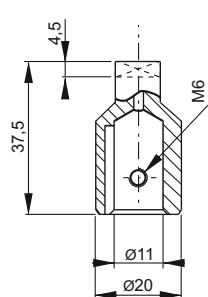
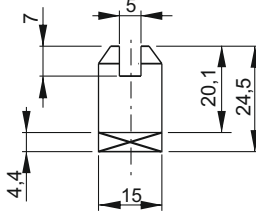
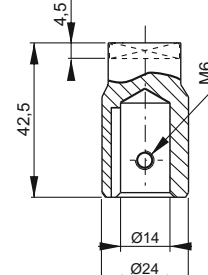
Description	Spare part code
Coupling mounting tool for B14 motors	ATZB14001

Attention! Cannot be used for EPB151 electropumps with flange E10105010.

SUMMARY TABLE - DC PUMP/MOTOR COUPLING KITS

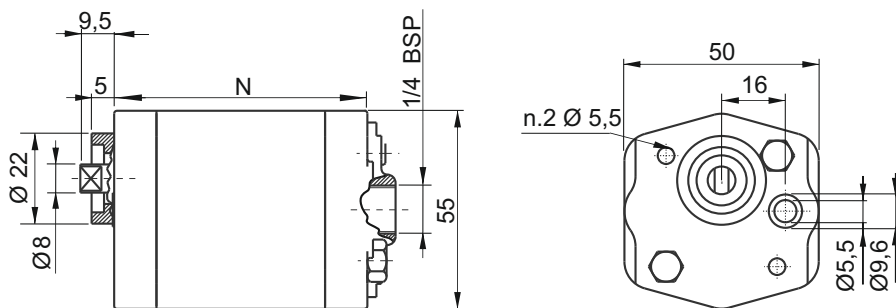
Motor \ Pump	Group 0 pump	Dimensional drawings
DC Ø 80	E36200003	 Weight: 0,028 kg
DC Ø 114	E36200002	 Weight: 0,041 kg

SUMMARY TABLE - AC PUMP/MOTOR COUPLING KITS

Motor \ Pump	Group 0 pump	Dimensional drawings
INTEGRAL AC	E36200003	 Weight: 0,028 kg
AC B14 63	NB14 63 (M36100011+E36100000M+F25030002)	Pump side E36100000M  Motor side M36100011 
AC B14 71	NB14 71 (E36100001+E36100000M+F25030003)	Pump side E36100000M  Motor side E36100001 

SECTION C

G TYPE GEAR PUMPS



Main features

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar (absolute pressure)
Fixing bolts	2 x M5 8.8 class steel tightening torque: 8 ÷ 9,5 Nm
Pressure limits definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON

Standard rotation direction: clockwise (from shaft side).
Counterclockwise rotation pumps can be mounted on request.
Ask our sales department.

Spare part code

Type: 50 = Group 0	E60 50 30 **		Reference code: see below table
	Series: 30 = G		

Assembly code

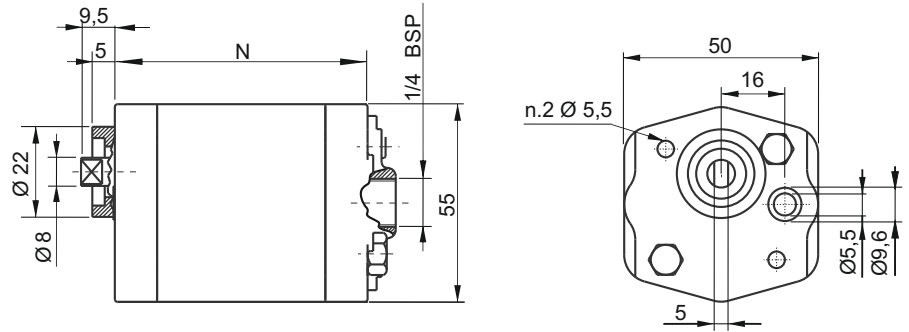
GM	Series: GM = G series
0,4	Size

Available range

Nominal displacement [cc/rev]	Peak pressure [bar]	Intermittent pressure [bar]	Continuous pressure [bar]	Max speed [rpm]	N [mm]	Bolts* [mm]	Code marked on pump	Spare part code	Weight [Kg]
0,19	230	210	190	7000	43,6	M5x65	UK0,25D18G	E60503001	0,49
0,26	230	210	190	7000	44,6	M5x55	UK0,25D24G	E60503002	0,50
0,38	230	210	190	7000	46,6	M5x60	UK0,25D36G	E60503004	0,51
0,64	230	210	190	7000	53,5	M5x65	UK0,5D0,75G	E60503006	0,52

* One or more washers are always fitted to secure the bolt engagement
Other pumps with different displacement/pressure/speed are available on request.

K TYPE GEAR PUMPS



Main features

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar (absolute pressure)
Fixing bolts	2 x M5 8.8 steel class tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON

Standard rotation direction: clockwise rotation (from shaft side).
Counterclockwise rotation pumps can be mounted on request.
Ask our sales department.

Spare part code

E60 50 40 **	
Pump type: 50 = Group 0	Nominal size: see table
Series: 40 = K	

PPM assembly code

KM	Pump series: KM = K series
0,6	Nominal displacement cc/rev (see table below)

Available range

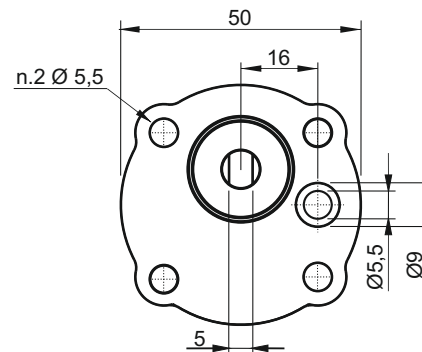
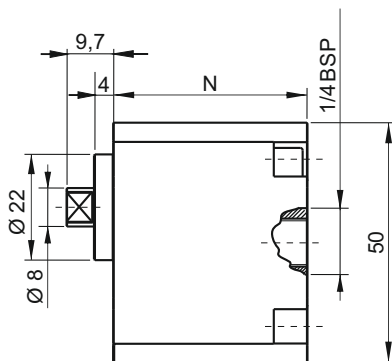
Nominal displacement [cc/rev]	Peak pressure [bar]	Intermittent pressure [bar]	Continuous pressure [bar]	Max speed [rpm]	N [mm]	Bolts* [mm]	Spare part code	Weight [Kg]
0,2	200	180	160	6000	51,9	M5x65	E60504002	0,33
0,4	200	180	160	6000	52,9	M5x65	E60504004	0,35
0,6	200	180	160	6000	54,9	M5x65	E60504006	0,40
0,9	200	180	160	5000	56,9	M5x70	E60504009	0,44
1,3	200	180	160	3900	59,9	M5x70	E60504013	0,49
1,5	200	180	160	3900	62,2	M5x75	E60504015	0,51

Other gear pumps with different pressure and speed available upon request.

* Washers may be fitted to adapt bolt length

SECTION C

H TYPE HIGH PRESSURE GEAR PUMPS



Main features

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar
Fixing bolts	2 x M5 8.8 steel class tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON

Standard rotation direction: clockwise rotation (from shaft side).
Counterclockwise rotation pumps can be mounted on request.
Ask our sales department.

Spare part code

Pump type: 50 = Group 0	E60 50 50 **	Nominal size: see spare part code on table
	Series: 50 = H	

PPM assembly code

HM	Pump series: HM = H series
0,8	Nominal displacement cc/rev (see below table)

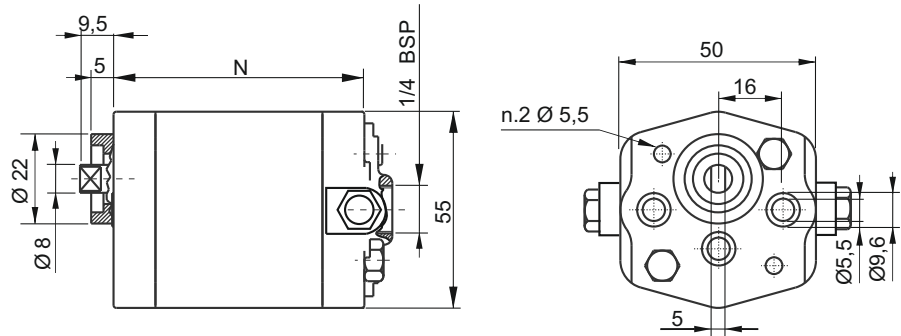
Available range

Nominal displacement [cc/rev]	Peak pressure [bar]	Intermittent pressure [bar]	Continuous pressure [bar]	Max speed [rpm]	N [mm]	Bolts* [mm]	Spare part code	Weight [Kg]
0,1	270	250	230	7000	36,4	5x50	E60505001	0,26
0,2	270	250	230	7000	36,7	5x50	E60505002	0,27
0,4	270	250	230	7000	37,8	5x50	E60505004	0,27
0,6	270	250	230	7000	39,5	5x50	E60505006	0,28
0,8	270	250	230	7000	40,7	5x50	E60505008	0,29
1,2	270	250	230	5000	43,4	5x55	E60505012	0,31
1,5	270	250	230	5000	45,0	5x55	E60505015	0,32

Other gear pumps with different pressure and speed available upon request.

* Washers may be fitted to adapt bolt lenght

R TYPE BIDIRECTIONAL GEAR PUMPS



Main features

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar
Fixing bolts	2 x M5 8.8 steel class tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON

Spare part code

E60 50 35 **	
Pump type: 50 = Group 0	Nominal size: see table
Series: 35 = R	

PPM assembly code

RM	Pump type: RM = R series
1,3	Nominal displacement: cc/rev (see below table)

Available range

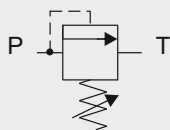
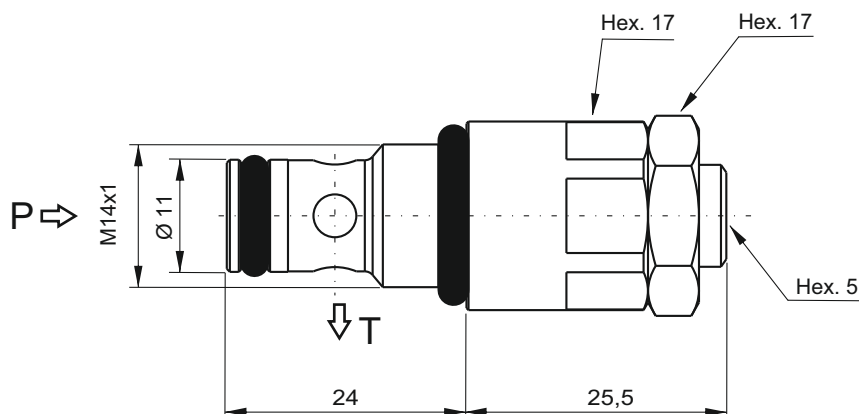
Nominal size	Nominal displacement [cc/rev]	Peak pressure [bar]	Intermittent pressure [bar]	Continuous pressure [bar]	Max speed [rpm]	N [mm]	Bolts* [mm]	Code marked on pump	Spare part code	Weight [Kg]
R0,1	0,19	190	170	150	7000	44,5	M5x55	U0.25R18GVNKX	E60503501	0,38
R0,2	0,26	190	170	150	7000	45,6	M5x55	U0.25R24GVNKX	E60503502	0,39
R0,3	0,32	190	170	150	7000	46,5	M5x60	U0.25R30GVNKX	E60503503	0,42
R0,4	0,38	190	170	150	7000	47,7	M5x60	U0.25R36GVNKX	E60503504	0,43
R0,5	0,51	190	170	150	7000	49,6	M5x60	U0.25R48GVNKX	E60503505	0,44
R0,7	0,64	190	170	150	7000	55,6	M5x65	U0.5R0,75GVNKX	E60503506	0,46
R0,9	0,88	190	170	150	7000	56,6	M5x70	U0.5R1,00GVNKX	E60503509	0,48
R1,3	1,25	190	170	150	5000	59,6	M5x70	U0.5R1,60GVNKX	E60503513	0,49
R1,5	1,5	190	170	150	4000	61,6	M5x75	U0.5R2,00GVNKX	E60503515	0,58

Other gear pumps with different pressure and speed available upon request.

* Washers may be fitted to adapt bolt length

SECTION D

VMDC15 - DIRECT ACTING MAIN RELIEF VALVE



Main features

Maximum pressure	280 bar
Maximum flow	15 l/min
Weight	0,06 kg

Recommended tightening torque: 25 Nm
Recommended filtration settings: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

Spare part code

VMDC	Direct acting main relief valve
15	Nominal size: 15 = 15 l/min
B	Working range: L = 10 ÷ 60 bar A = 10 ÷ 180 bar B = 20 ÷ 280 bar
1	Options: 1 = screw (std)

Assembly code

DM_***

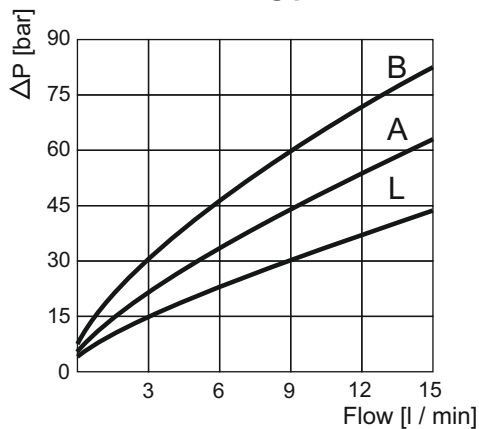
where *** stands for max setting pressure [bar]. Ex. DM_280

Mounting cavities

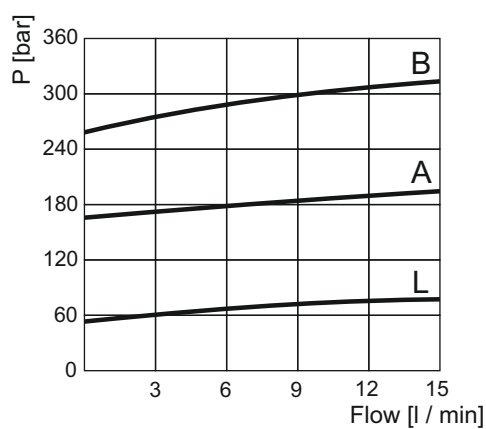
0	1	
2	3	4
5		7 8

Note: cavity 4 only for MR type.

Minimum setting pressure

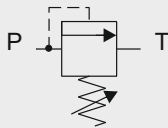
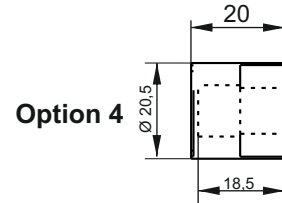
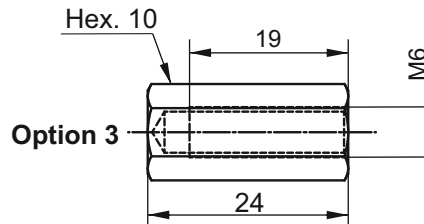
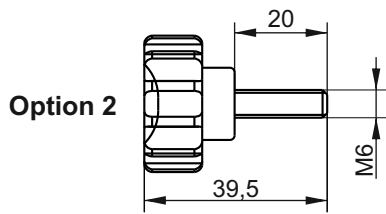
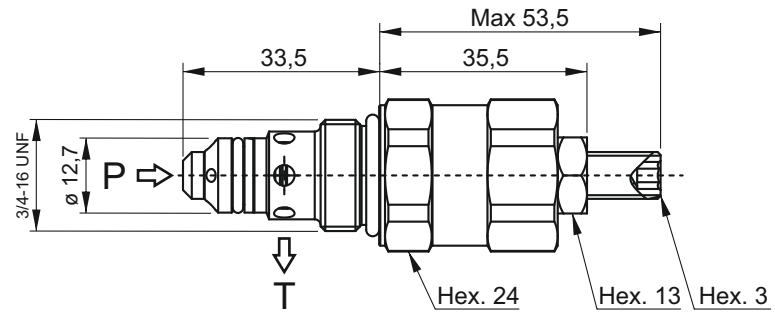


Pressure vs flow



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

VMDC20 - DIRECT ACTING MAIN RELIEF VALVE



Main features

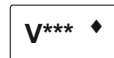
Max pressure	350 bar
Max flow	20 l/min
Weight	0,14 kg

Recommended tightening torque: 40 Nm
Recommended filtration: 25 + 50 μ
Oil temperature: -30 + + 80 °C

Spare part code

VMDC	Relief valve
20	Nominal size: 20 = 20 l/min
B	Working range: A = 3 ÷ 60 bar B = 40 ÷ 120 bar C = 80 ÷ 250 bar D = 150 ÷ 350 bar
1	Option: 1 = M6 screw (std) 2 = handwheel 3 = with cap 4 = plastic seal

Assembly code

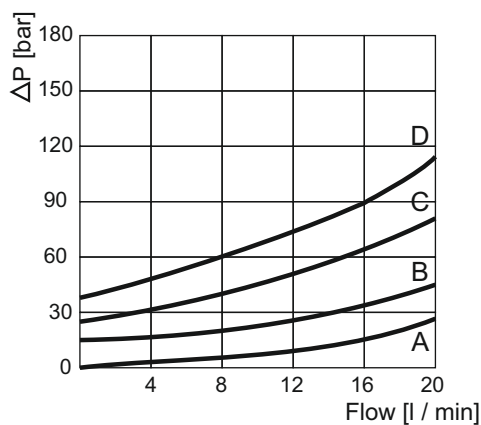


where *** stands for max setting pressure [bar]. Ex. V200
where * is the option

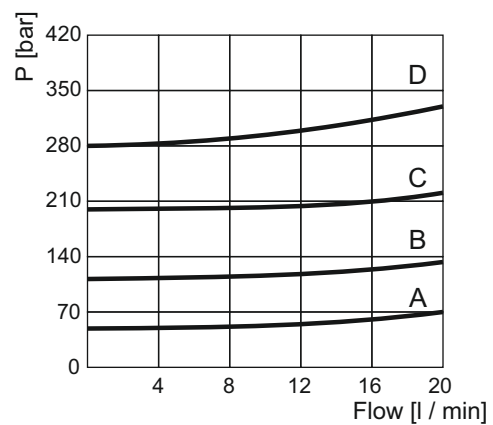
Mounting cavities

0	1		
2	3	4	
5		7	8

Minimum setting pressure

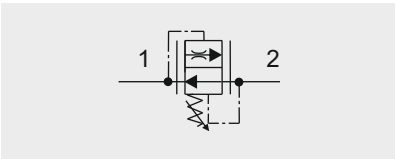
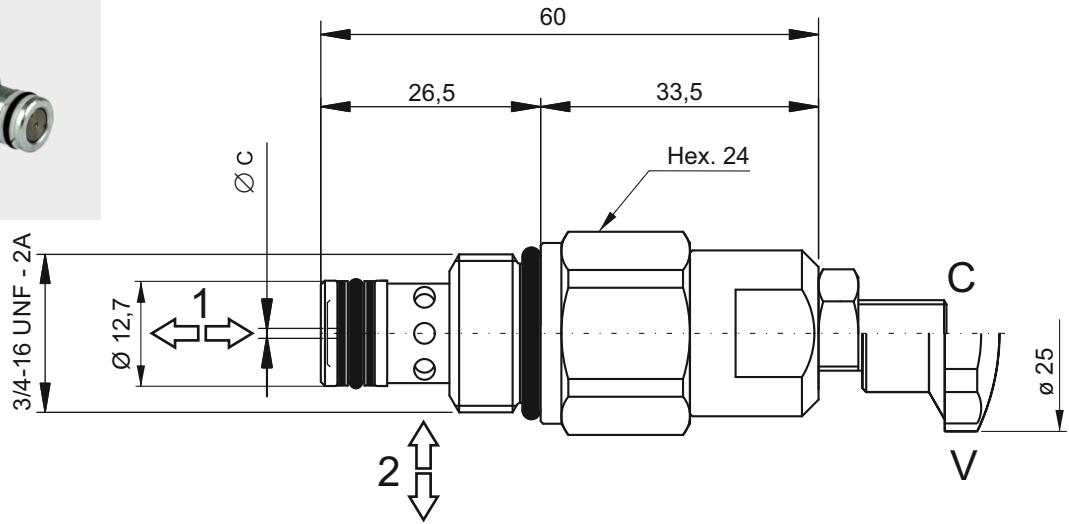


Pressure vs Flow



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

VCF6 - PRESSURE COMPENSATED FLOW CONTROL VALVE



Main features

Max pressure	350 bar
Max flow	18 l/min
Weight	0,11 kg

Recommended tightening torque: 25 Nm
Recommended filtration: 15 ÷ 20 µm
Oil temperature: -20 ÷ + 80 °C

Spare part code

- VCF6** — Flow control valve pressure compensated
- *** — Nominal dimension: see below table
- C** — Adjustment:
C = screw (std)
V = handwheel

Assembly code

R *

Where * stands for nominal dimension

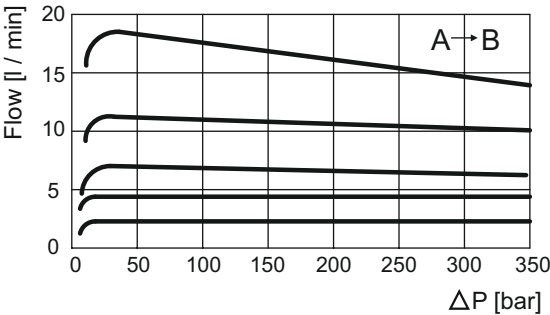
Mounting cavities

0	1		
2	3	4	
5		7	8

Available Range

Nominal dimension	Ø C	Controlled flow at 100 bar ± 10% l/min
2	1	0,8 ÷ 3,0 l/min
3	1,3	1,3 ÷ 5,1 l/min
4	1,5	1,9 ÷ 6,8 l/min
5	1,7	2,6 ÷ 9,1 l/min
6	2,2	4,0 ÷ 14,4 l/min
7	2,8	7,2 ÷ 18,0 l/min

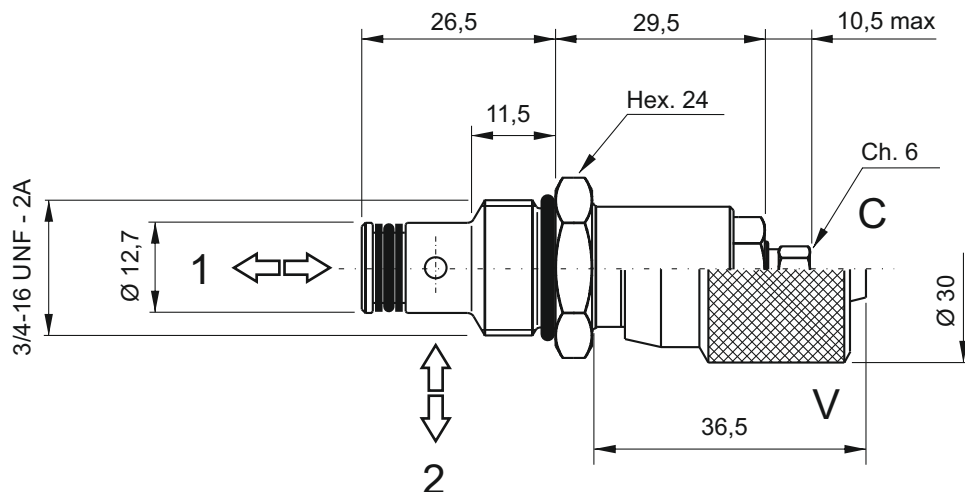
Pressure drop diagram



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

SECTION D

CSB - BIDIRECTIONAL FLOW CONTROL VALVE



Main features

Max pressure	300 bar
Max flow	15 l/min
Weight	0,08 kg

Recommended tightening torque: 25 Nm
Recommended filtration: 25 + 50 µ
Oil temperature: -30 + + 80 °C

Spare part code

CSB	Flow control valve
04	Nominal size: 04 = 3/4-16 UNF
C	Adjustment: C = screw (std) V = handwheel

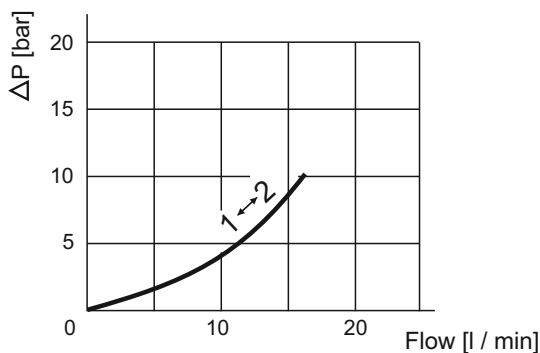
Assembly code

S

Mounting cavities

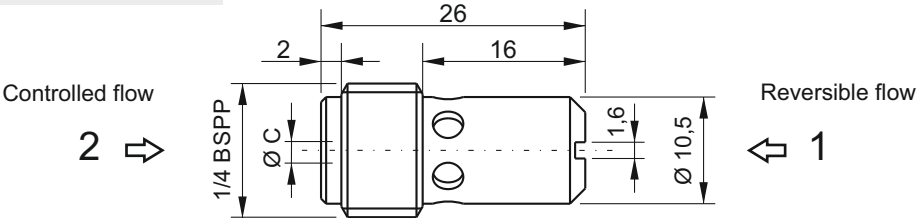
0	1		
2	3	4	
5		7	8

Pressure drop diagram

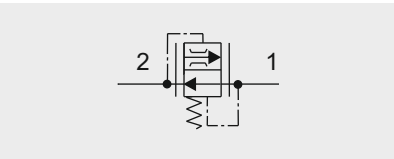
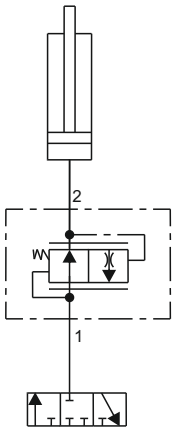


Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

VSC01 - PRESSURE COMPENSATED FIXED FLOW CONTROL VALVE



Typical application



Main features

Max pressure	300 bar
Max flow	22 l/min
Weight	0,012 kg

Recommended tightening torque: 15 Nm
Recommended filtration settings: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

Spare part code

VSC	Flow control valve pressure compensated
01	Nominal size: 01
*	Controlled flow: see below table

Assembly code

*(01)

Where * stands for controlled flow
[l/min]

Mounting cavities

0	1		
2	3	4	
5		7	8

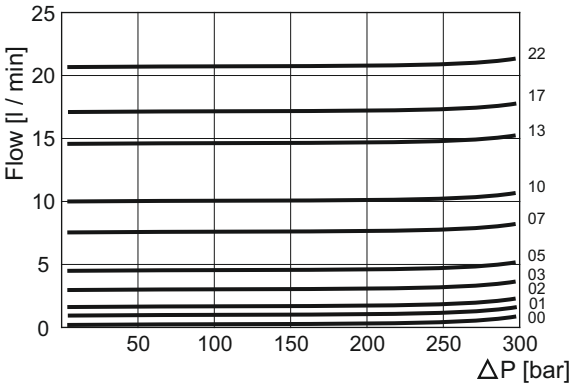
Note: cavity 5 is machined only on
central manifold MB, cavity 8 is
machined only on central manifolds
MB and M4.

Controlled flow

Spare part code	Ø C [mm]	Portata [l/min]
VSC0100	0,8	1
VSC0101	1	1,5
VSC0102	1,25	2
VSC0103	1,5	3
VSC0105	1,75	5
VSC0107	2	7
VSC0110	2,5	10
VSC0113	2,75	13
VSC0117	3	17
VSC0122	3,5	22

Note: nominal controlled flows, measured at 100 bar with an oil viscosity
of 46 cSt at 50 °C, are to be taken as general reference values and must
be tested in the field.

Pressure drop diagram



Note: Values measured on valve alone (no cavity) with an oil
viscosity of 46 cSt at 50 °C. Pressure drop may change
depending on fluid viscosity and temperature

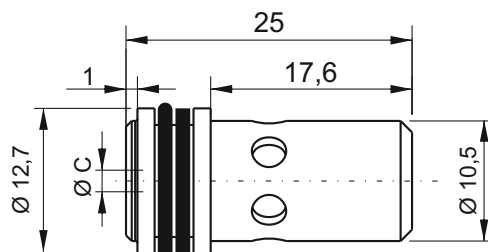
SECTION D

VSC04 - PRESSURE COMPENSATED FIXED FLOW CONTROL VALVE



Controlled flow

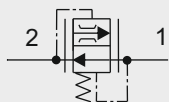
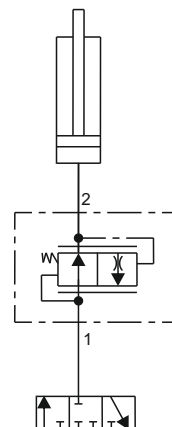
2 →



Reversible flow

← 1

Typical application



Main features

Max pressure	300 bar
Max flow	22 l/min
Weight	0,012 kg

Spare part code

VSC — Flow control valve
pressure
compensated

04 — Nominal size:
04

***** — Controlled flow:
see below table

Assembly code

***(04)**

Where * stands for controlled flow
[l/min]

Mounting cavities

0	1		
2	3	4	
5		7	8

Note: cavity 7 is machined only on
central manifold MB and MR.

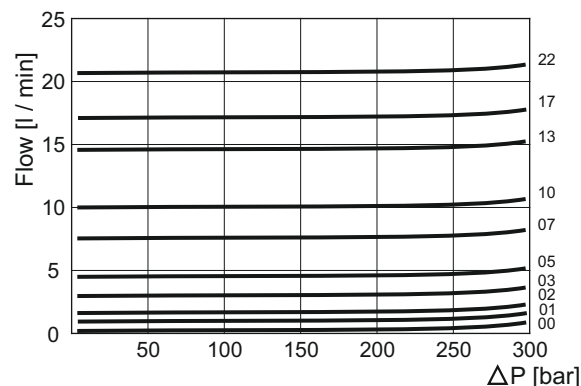
Mounting cavity dimension: 12,7 H8
Recommended filtration settings: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

Controlled flow

Spare part code	Ø C [mm]	Portata [l/min]
VSC0400	0,8	1
VSC0401	1	1,5
VSC0402	1,25	2
VSC0403	1,5	3
VSC0405	1,75	5
VSC0407	2	7
VSC0410	2,5	10
VSC0413	2,75	13
VSC0417	3	17
VSC0422	3,5	22

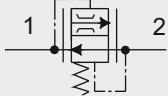
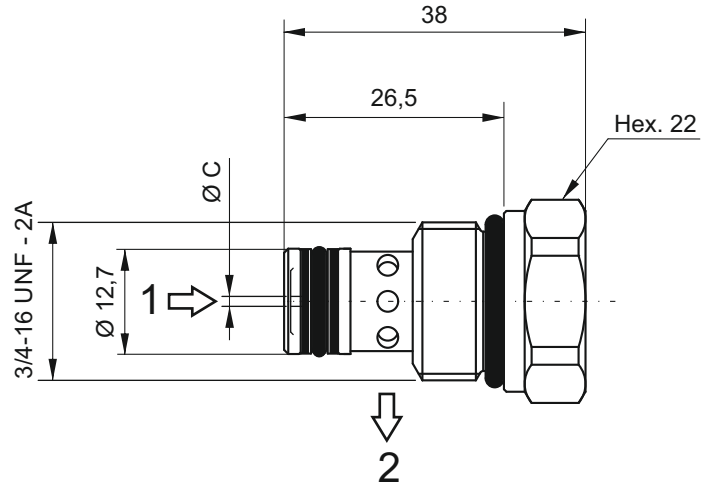
Note: nominal controlled flows, measured at 100 bar with an oil viscosity of 46 cSt at 50 °C, are to be taken as general reference values and must be tested in the field.

Pressure drop diagram



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

VSC6 - PRESSURE COMPENSATED FIXED FLOW CONTROL VALVE



Main features

Max pressure	350 bar
Max flow	22 l/min
Weight	0,06 kg

Recommended tightening torque: 25 Nm
Recommended filtration: 25 + 50 μ
Oil temperature: -30 + + 80 °C

Spare part code

VSC	Flow control valve pressure compensated
6	Nominal size: 6
*	Controlled flow: see below table

Assembly code

F*

Where * stands for controlled flow
[l/min]

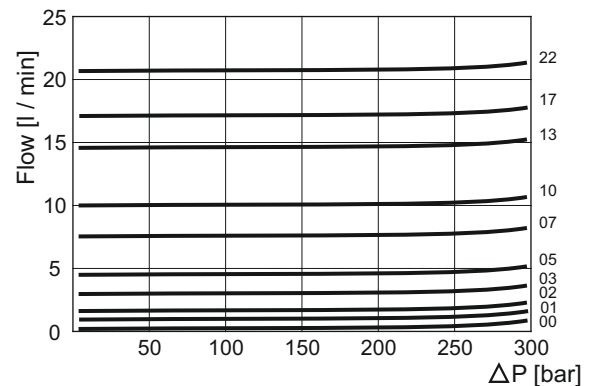
Mounting cavities

0	1		
2	3	4	
5		7	8

Controlled flow

Spare part code	Ø C [mm]	Portata [l/min]
VSC600	0,8	1
VSC601	1	1,5
VSC602	1,25	2
VSC603	1,5	3
VSC605	1,75	5
VSC607	2	7
VSC610	2,5	10
VSC613	2,75	13
VSC617	3	17
VSC622	3,5	22

Pressure drop diagram

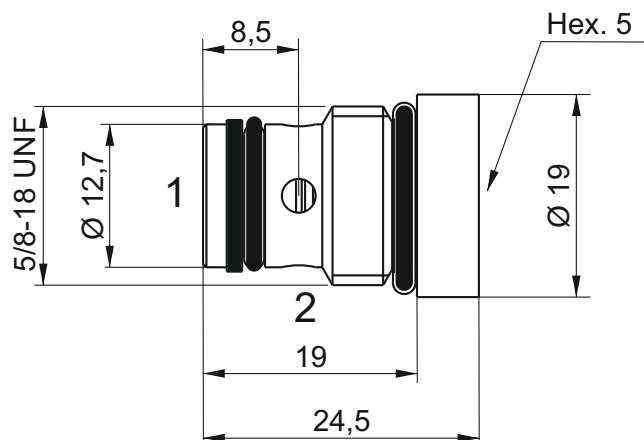


Note: nominal controlled flows, measured at 100 bar with an oil viscosity of 46 cSt at 50 °C, are to be taken as general reference values and must be tested in the field.

Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

SECTION D

VUC10 - BASIC CHECK VALVE



Main features

Max pressure	350 bar
Max flow	15 l/min
Weight	0,045 kg
Cracking pressure	1 bar

Recommended tightening torque: 25 Nm
Recommended filtration settings: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

Spare part code

VUC — Check valve

10 — Nominal size:
10

- — Options:
- = ball type
C = poppet type

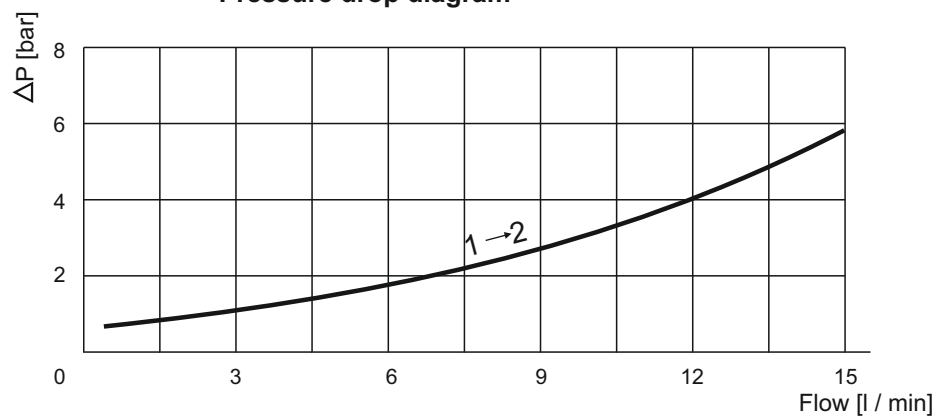
Assembly code

JM (VUC10)
JP (VUC10C)

Mounting cavities

0	1	
2	3	4
5		7 8

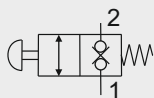
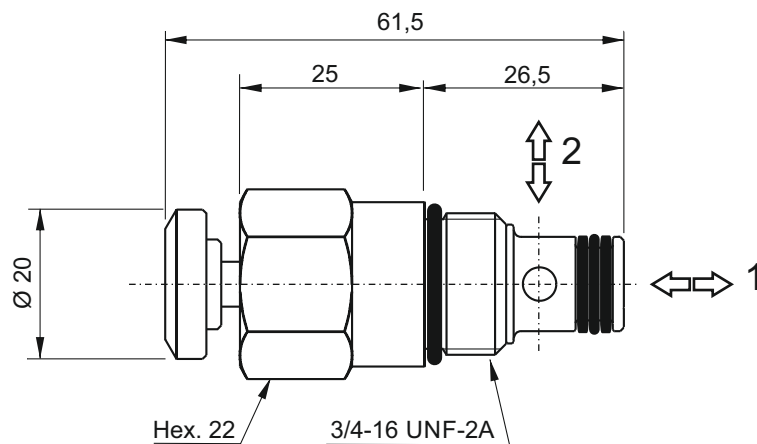
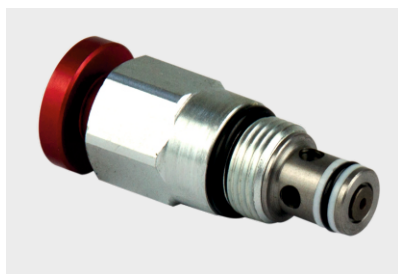
Pressure drop diagram



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

SECTION D

CPE - MANUAL EMERGENCY VALVE



Main features

Max pressure	300 bar
Max flow	25 l/min
Weight	0,12 kg

Recommended tightening torque: 25 Nm
 Recommended filtration: $25 \pm 50 \mu$
 Oil temperature: $-30 \pm 80^\circ\text{C}$

Spare part code

CPE	Two-way manual emergency valve
04	Nominal size: 04 = 3/4-16 UNF
P	Operating device: P = press button

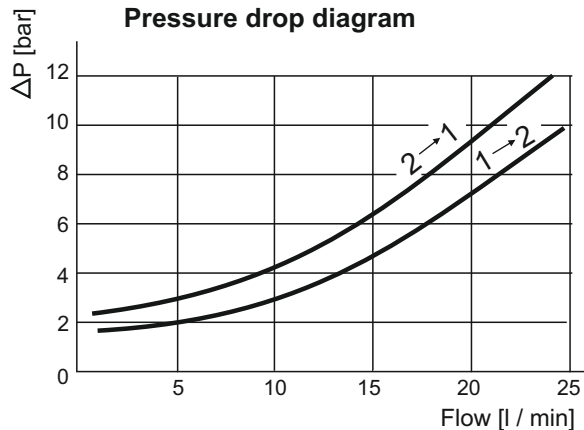
Assembly code

Z

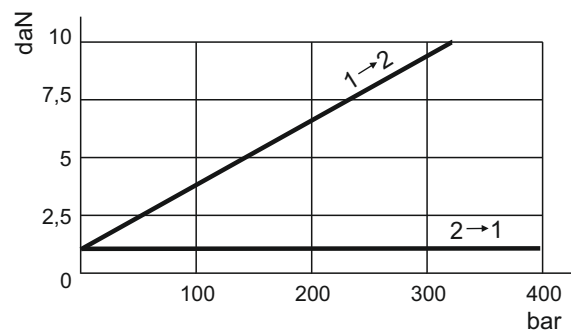
Mounting cavities

0	1	
2	3	4
5		7 8

Pressure drop diagram

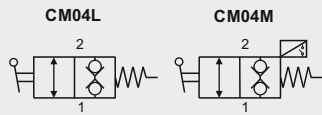
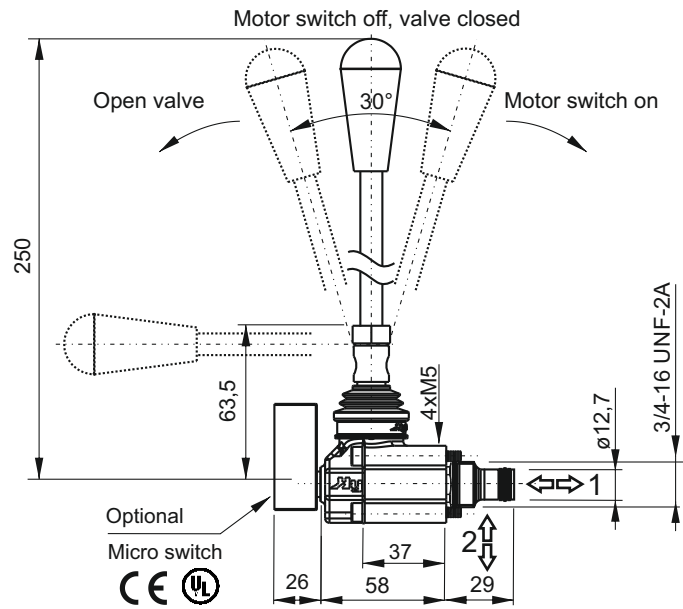
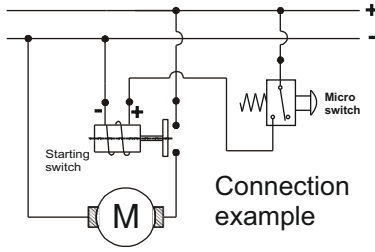
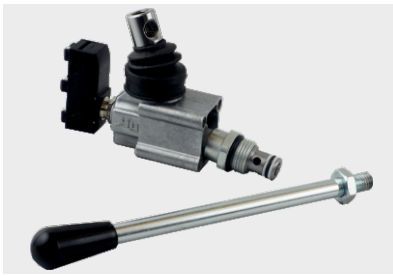


Operating force (daN) on the button



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50°C . Pressure drop may change depending on fluid viscosity and temperature

CM - MANUAL LEVER VALVE



Main features

Max pressure	300 bar
Max flow	25 l/min
Weight	0,34 kg
Max current	10 A - 400 V
Protection	IP20 (up to IP65 on request)
Room temp.	-25°C ÷ +85°C (higher temperature on request)

Fixing bolts: 4 x M5x45 (torque 5Nm)
 Cartridge tightening torque: 25Nm
 Recommended filtration: 25 ÷ 50 µ
 Oil temperature: -30 ÷ + 80 °C

Spare part code

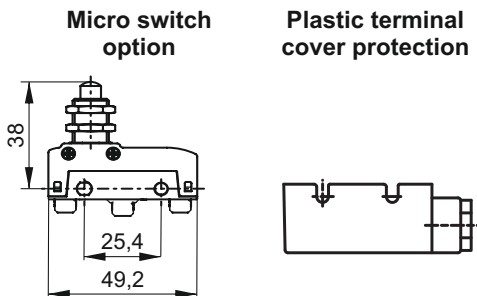
CM	Two-way manual lever valve
04	Nominal size: 04 = 3/4-16 UNF
L	Type: L = lever (std) M = lever+micro switch

Assembly code

E (CM04L)
 EM (CM04M)

Mounting cavities

0	1		
2	3	4	
5		7	8



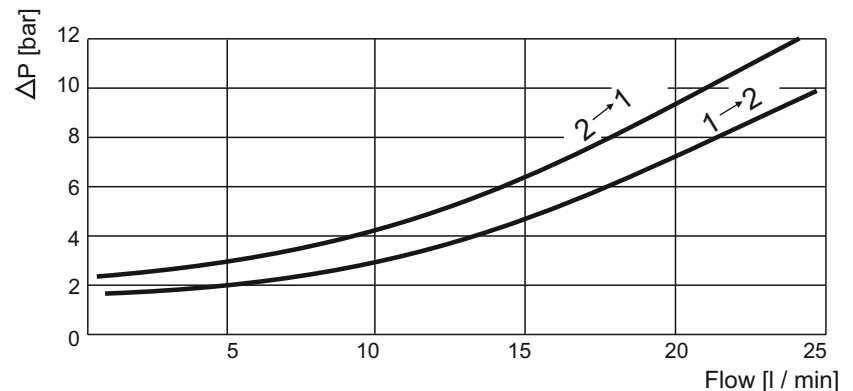
Spare part code

MCR1222

Spare part code

VFC02

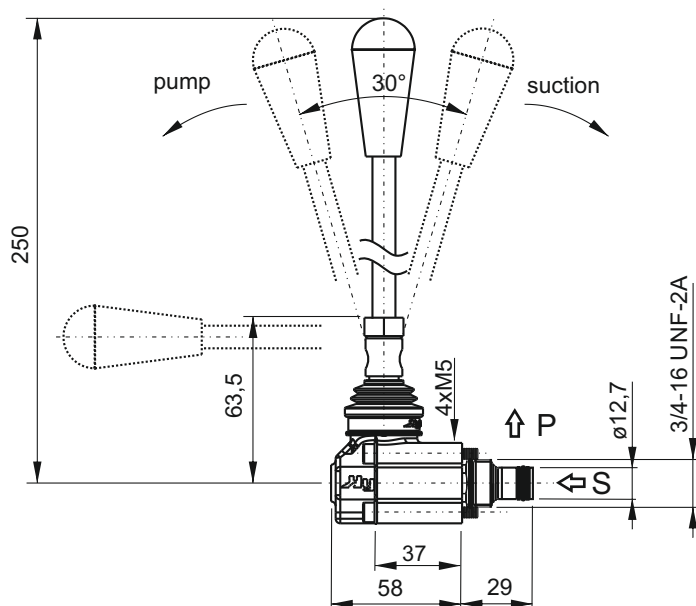
Pressure drop diagram



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

SECTION D

PMC - CARTRIDGE HAND PUMP



Main features

Max pressure	180 bar
Max flow	-
Weight	0,34 kg

Fixing bolts: 4x M5x45 (tightening torque: 5Nm)
 Cartridge tightening torque: 25Nm
 Recommended filtration: 25 ÷ 50 µ
 Oil temperature: -30 ÷ + 80 °C

Spare part code

PMC — Hand pump

02 — Nominal size:
02 = 2 cc/stroke

L — Type:
L = lever (std)

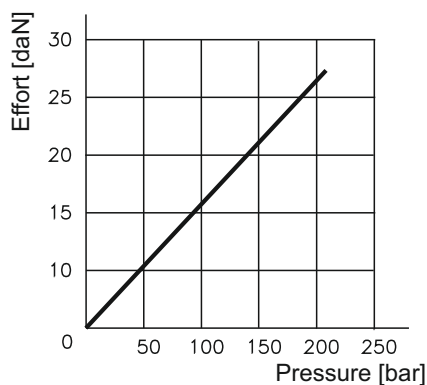
Assembly code

U

Mounting cavities

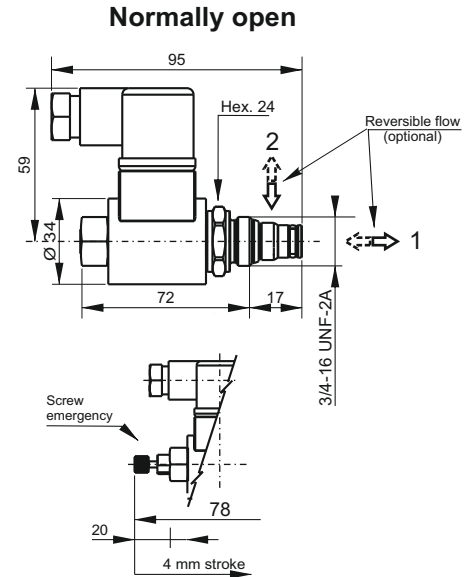
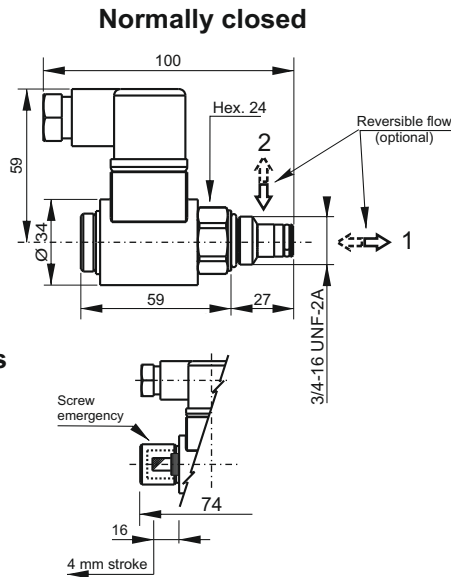
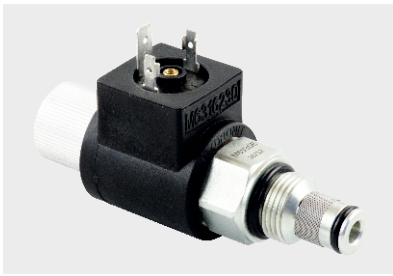
0	1	
2	3	4
5		7 8

Effort (daN) operating on the lever end

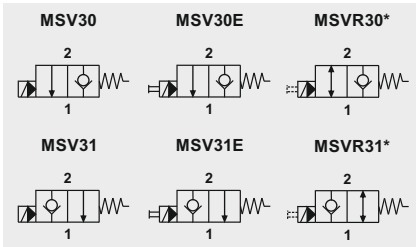
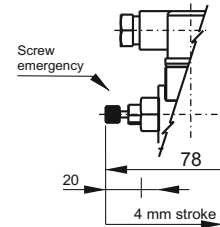
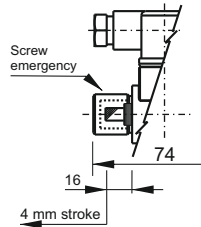


Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

MSV - PILOT OPERATED TWO-WAY SINGLE LOCKING SOLENOID VALVES



Options



Main features

Max pressure	up to 350 bar
Max flow	up to 30 l/min
Weight	0,11 Kg (without coil)
Internal leakage	5 drops/min at 350bar
Response time	30ms (energizing) 50ms (de-energizing)
Available voltages	12VDC 24VDC 24VAC 110RAC 220RAC
Coils (see coils table)	M630 series M631 series
Standards	EN50081-1/EN50082-2 (89/336 CEE electromagnetic comp.) 73/23/CEE / 96/68/CEE (low voltage)

Recommended tightening torque: 25 Nm
Recommended filtration settings: 25 + 50 µ
Oil temperature: -30 + 80 °C

Spare part code

MSV	Pilot Operated 2-way Single Locking Valve
-	Options: R = with reversible flow
30	Operation: 30 = normally closed 31 = normally open
0	Emergency override: 0 = no emergency (std) E = emergency
0000	Supply voltage: 0000 = no coil (std) see coils table

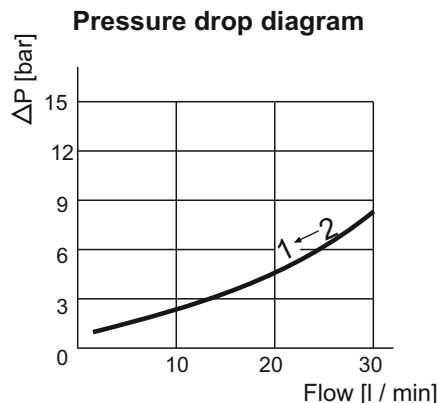
Assembly code

A (MSV30)	Voltage
B (MSV30E)	Voltage
Q (MSV31)	Voltage
C (MSV31E)	Voltage

Ex: A12DC

Mounting cavities

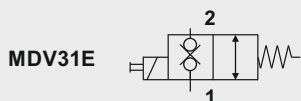
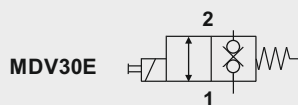
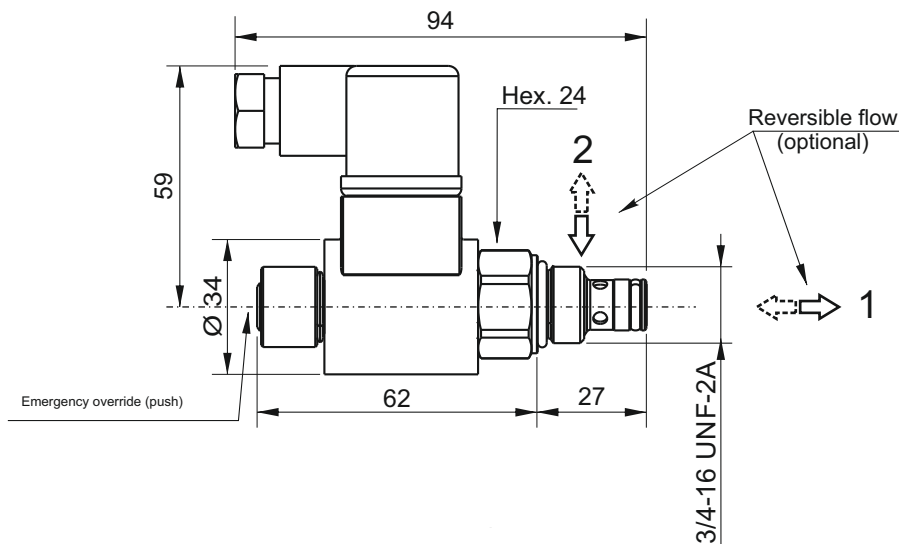
0	1
2	3
5	7



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

SECTION D

MDV - DIRECT OPERATED TWO-WAY DOUBLE LOCKING SOLENOID VALVES



Main features

Max pressure	up to 250 bar
Max flow	up to 15 l/min
Weight	0,11 Kg (without coil)
Internal leakage	5 drops/min at 350bar
Response time	30ms (energizing) 50ms (de-energizing)
Available voltage	12VDC 24VDC 24VAC 110RAC 220RAC
Coils (see coils table)	M140 series
Normatives	EN50081-1/EN50082-2 (89/336 CEE electromagnetic comp.) 73/23/CEE / 96/68/CEE (low voltage)

Recommended tightening torque: 25 Nm
Recommended filtration: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

Spare part code

MDV	Two-way double blocking solenoid valve
30	Operation: 30 = normally closed 31 = normally open
E	Option: E = emergency (std)
0000	Supply voltage: 0000 = no coil (std) see coils table

Assembly code

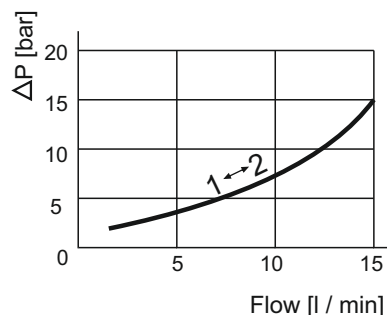
D (MDV30E) **Voltage**
M (MDV31E) **Voltage**

Ex: D12DC

Mounting cavities

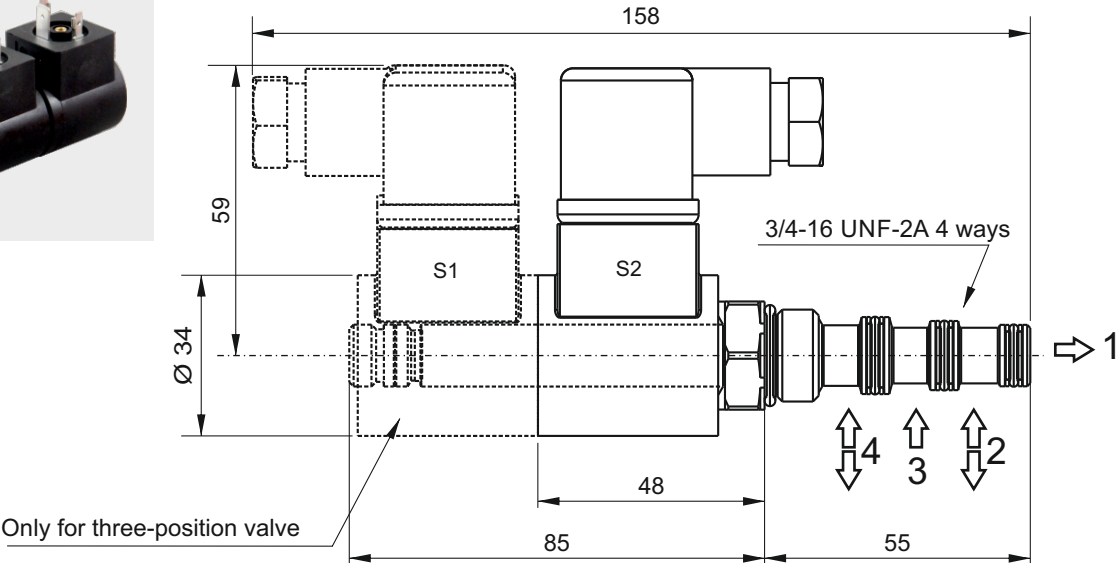
0	1		
2	3	4	
5		7	8

Pressure drop diagram



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

MSV4V - DIRECT OPERATED 4/3 OR 4/2 DIRECTIONAL SPOOL SOLENOID VALVES



Main features

Max pressure	210 bar
Max flow	11,5 l/min
Weight	0,37 Kg (1 solenoid) 0,64 Kg (2 solenoid)
Internal leakage	278 cc/min at 210 bar
Minimum pull-in voltage	85% of nominal
Available voltage	12VDC 24VDC 24VAC 110RAC 220RAC
Coils (see coils table)	M630 series M631 series
Normatives	EN50081-1/EN50082-2 (89/336 CEE electromagnetic comp.) 73/23/CEE / 96/68/CEE (low voltage)

Spare part code

MSV4V	4/3 or 4/2 directional spool solenoid valve
A2	Spool configuration: see below table
00	Option: 00 = std
0000	Supply voltage: 0000 = no coil (std) see coils table

Assembly code

4VA2 Voltage
Ex: 4VA2 24DC

Mounting cavities

0	1		
2	3	4	
5		7	8

Note: MSV4V can be mounted on central manifold type M4 only.

Spools

Double solenoid

A2	
B2	
C2	
E2	

Single solenoid

A11C	
------	--

Recommended tightening torque: 25 Nm
Recommended filtration: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

Code	
------	--

SECTION D

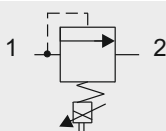
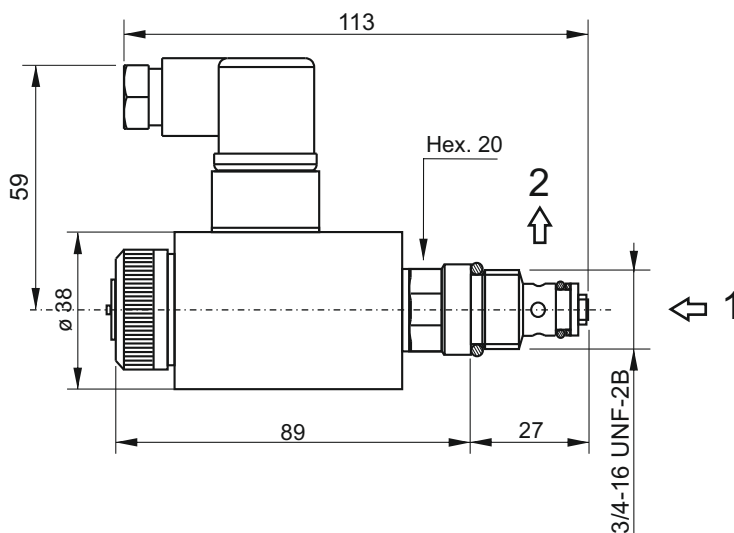
VMPC2 - PROPORTIONAL PRESSURE RELIEF VALVE



Coils

Supply Voltage	Coil code	Connector code
12DC	98001190	KA132000B1
24DC	98002190	KA132000B1

For the controller see the VPC table in D section



Main features

Max pressure	350 bar
Max flow	2 l/min
Weight	0,46 Kg
PWM	120Hz
Hysteresis	5%
Duty cycle	ED 100%
Voltage	+/- 10% nominal voltage

Normatives EN50081-1/EN50082-2(89/336 CEE electr. comp.) - 73/23/CEE / 96/68/CEE (low voltage)

Spare part code

VMPC	Direct acting proportional relief valve
2	Nominal size: 2 = 2 l/min
C	Working range: A = 10 ÷ 80 bar C = 40 ÷ 250 bar
E	Options: E = emergency (std)
0000	Supply voltage: - 0000 = no coil - 12DC - 24DC see coils table

Assembly code

P* Voltage**

where *** stands for max setting pressure [bar]. eg. P25012DC

Mounting cavities

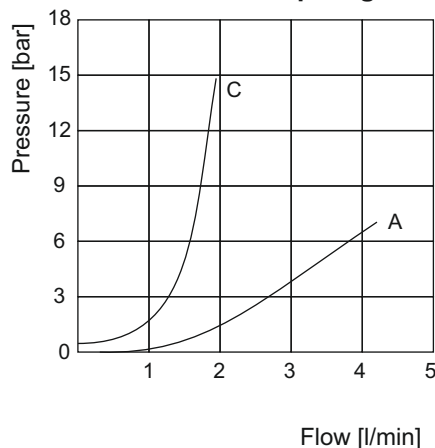
0	1	
2	3	4
5		7 8

Recommended tightening torque: 25Nm
Recommended filtration: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

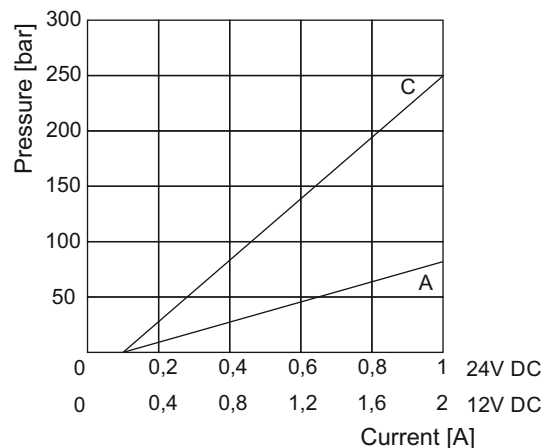
For the controller see table D170

Note: Supplying current to the coil from 0 to I max (see diagram), a proportional pressure variation is obtained on port P.

Pressure drop diagram



Pressure vs current



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature.

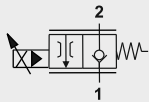
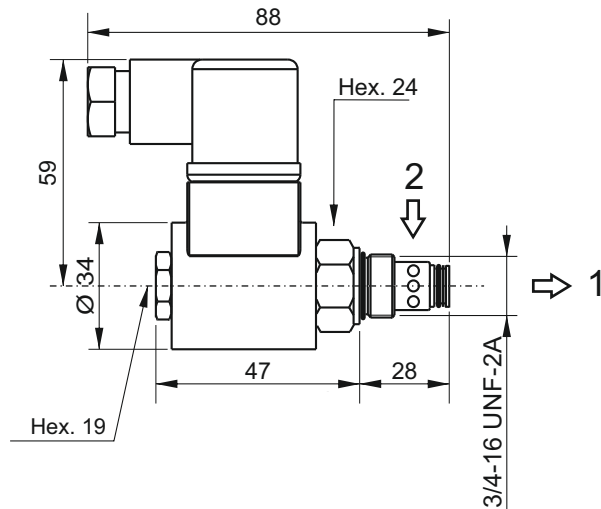
CSPC15 - PROPORTIONAL FLOW CONTROL VALVE



Coils

Supply voltage	Coil code	Connector code
12DC	M6306012	KA132000B1
24DC	M6306024	KA132000B1

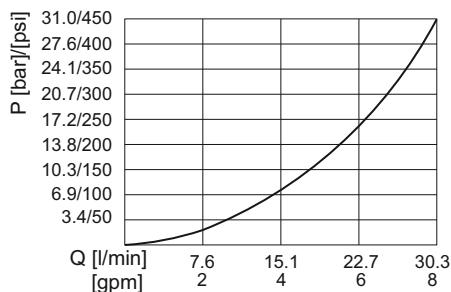
For the controller see the VPC table in D section



Main features

Max press.	210 bar
Max flow	22 l/min
Weight	0,1 Kg (without coil)
PWM	120Hz
Hysteresis	5% (10% above 85% I _{max})
Duty cycle	ED 100%
Voltage	+/- 10% nominal voltage
Normatives	EN50081-1/EN50082-2 (89/336 CEE) 73/23/CEE / 96/68/CEE
Oil temperature	-40 - +120°C
Filtration	10 + 25 µ
Tightening torque	30Nm

Pressure Drop 2 > 1 with fully open valve



Spare part code

CSPC	Proportional flow control valve
15	Nominal size: 15 = 15 l/min
0	Option: 0 = no option
0000	Supply voltage: - 0000 = no coil (std) - 12DC - 24DC see coils table

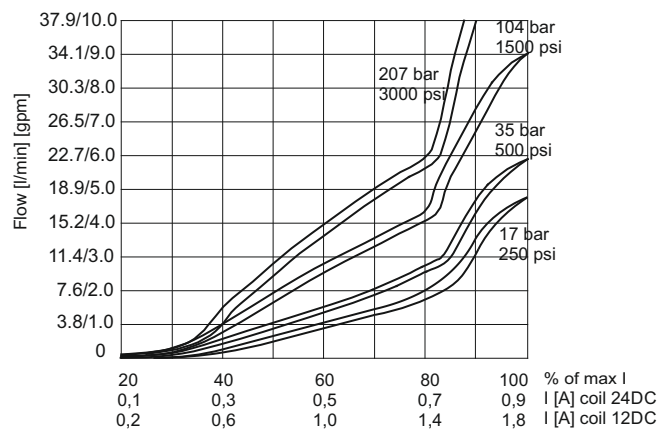
Assembly code

T*** Voltage
eg: T12DC

Mounting cavities

0	1		
2	3	4	
5		7	8

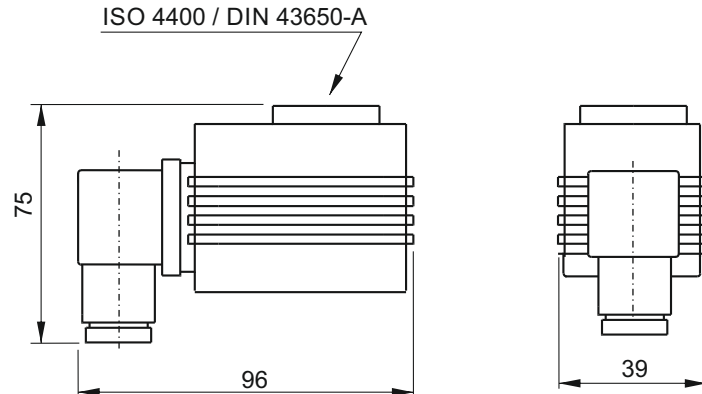
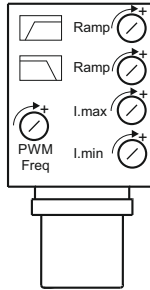
Flow vs current at different pressure drops



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature.

SECTION D

VPC - ELECTRONIC AMPLIFIER FOR PROPORTIONAL SOLENOID VALVES



Main features

Supply voltage	12 / 24V DC
Voltage input signal range	0 ~ 10 V
Max current range	2,5A
PWM (optionally adjustable)	120 Hz (50 ÷ 400 Hz)
Ramp adjustment (independent)	5%
Input impedance	100 kohm
Voltage	+/- 10% nominal voltage
Weight	0,11 kg
Normatives	EN50081-1/EN50082-2 (89/336 CEE electromagnetic comp.) 73/23/CEE / 96/68/CEE (low voltage)

Spare part code

VPC

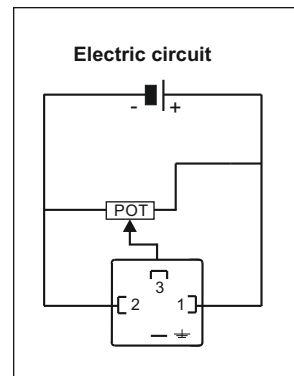
**Electronic amplifier
for solenoid valves**

00

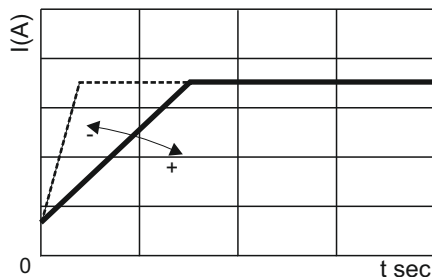
Options

Suitable for:

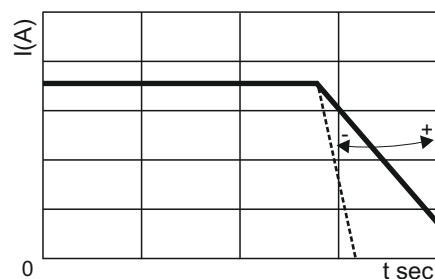
- CSPC15**** proportional flow control valve
- VMPC2**** proportional pressure relief valve
- other proportional valves



Ramp adjustment (up)



Ramp adjustment (down)



Instruction for use:

- 1) turn the "I MIN" trimmer fully counterclockwise;
- 2) adjust the external voltage input signal to the desired initial regulating (flow or pressure) value;
- 3) turn "I MIN" trimmer in a clockwise direction until valve just starts regulating;
- 4) adjust the external voltage input signal to the max value and adjust "I MAX" trimmer until the valve regulates the maximum flow or pressure on the hydraulic system.

COILS FOR SOLENOID VALVES



M630* / M631*



9800*



M140



M630DT*



Supply voltage [V]	Assembly code	Coil type	Spare part code	Spare connector code	Holding Power [W]	Duty charge ED [%]	Prot. class	Wt [g]	Suitable for valves
12DC	12DC_M630	DC	M6306012	KA132000B1 DIN43650/ISO4400	18W	100	H	130	MSV30 MSV4V CSPC15
24DC	24DC_M630	DC	M6306024	KA132000B1 DIN43650/ISO4400	18W	100	H	130	MSV30 MSV4V CSPC15
48DC	48DC_M630	DC	M6306048	KA132000B1 DIN43650/ISO4400	18W	100	H	130	MSV3V MSV30/31 SD02
24AC	24AC_M631	RC with integrated rectifying bridge	M6316024	KA132000B1 DIN43650/ISO4400	18W	100	H	130	MSV30 MSV4V
115AC	115AC_M631	RC with integrated rectifying bridge	M6316115	KA132000B1 DIN43650/ISO4400	18W	100	H	130	MSV30 MSV4V
230AC	230AC_M631	RC with integrated rectifying bridge	M6316230	KA132000B1 DIN43650/ISO4400	18W	100	H	130	MSV30 MSV4V
12DC	12DC_M630DT	DC, Deutsch	M6306012DT	DT06-4S Deutsch	16W	100	H	117	MSV30 SD00
24DC	24DC_M630DT	DC, Deutsch	M6306024DT	DT06-4S Deutsch	16W	100	H	117	MSV30 SD00
12DC	Embedded in the VMPC2 proportional valve code	DC	98001190	KA132000B1 DIN43650/ISO4400	36W	100	H	257	VMPC2
24DC	Embedded in the VMPC2 proportional valve code	DC	98002190	KA132000B1 DIN43650/ISO4400	36W	100	H	247	VMPC2
12DC	12DC_M140	DC	M14040001	KA132000B1 DIN43650/ISO4400	22W	100	H	202	MDV30 MDV31
24DC	24DC_M140	DC	M14040002	KA132000B1 DIN43650/ISO4400	22W	100	H	202	MDV30 MDV31
48DC	48DC_M140	DC	M14040003	KA132000B1 DIN43650/ISO4400	22W	100	H	202	MDV30 MDV31
24AC	24RAC_M140	RC - needs external rectifying connector	M14040002	KA132R11B1 DIN43650/ISO4400	22W	100	H	202	MDV30 MDV31
115AC	110RAC_M140	RC - needs external rectifying connector	M14040004	KA132R12B1 DIN43650/ISO4400	22W	100	H	202	MDV30 MDV31
230AC	220RAC_M140	RC - needs external rectifying connector	M14040005	KA132R13B1 DIN43650/ISO4400	22W	100	H	202	MDV30 MDV31

Other voltages and electric connector types (Amp Junior, flying leads,...) available on request.

Inrush power consumption can be up to 3,5 times higher than holding power.

Coil thermal insulation: Class H. Electric connection: DIN 43650-A / ISO 4400. Coil protection degree: IP65

The tests were carried out at the nominal current $\pm 5\%$, at an environmental temperature of 25°C.