

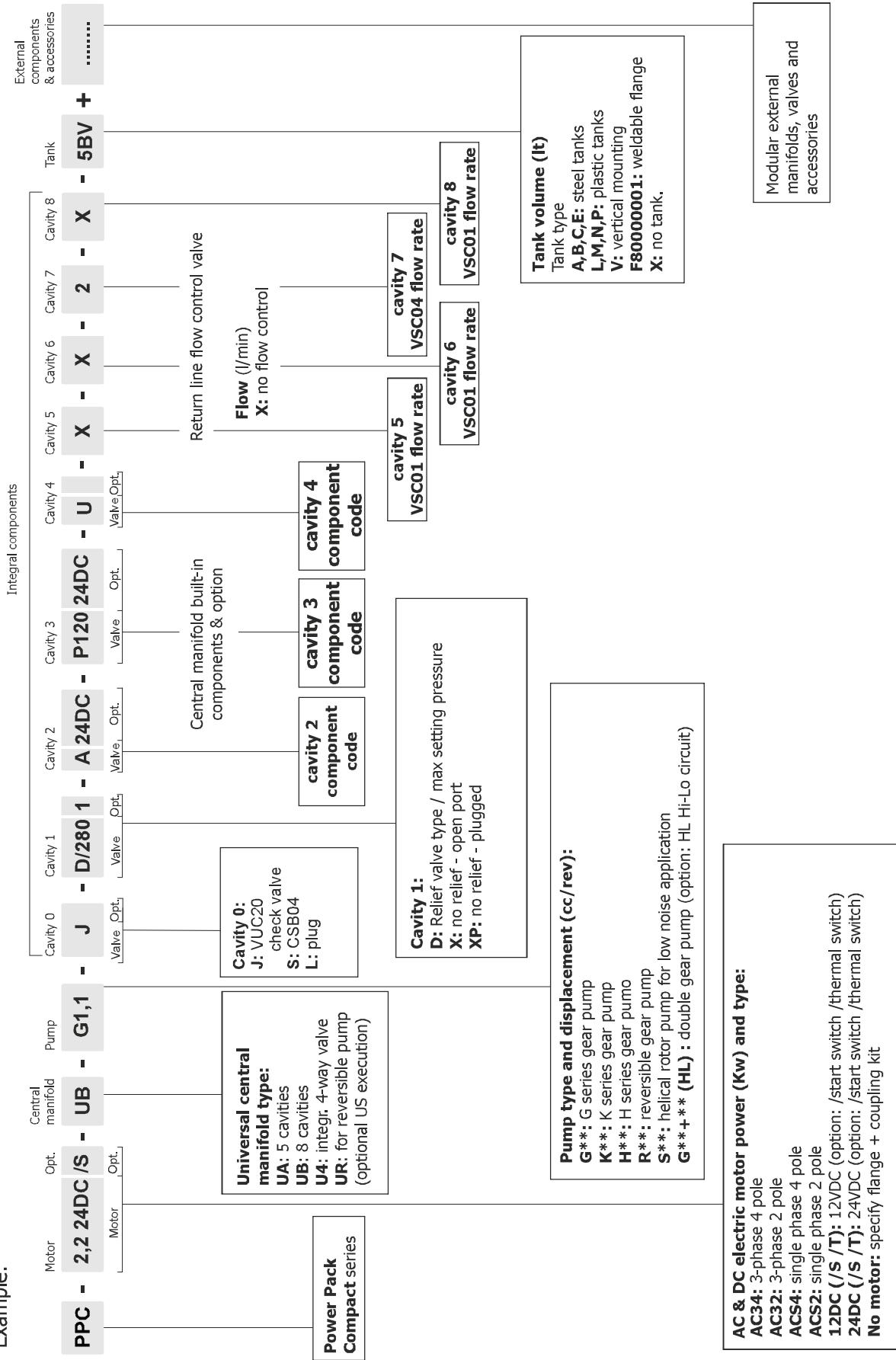
Hydronit



2011
AC & DC Hydraulic
Power Packs Compact

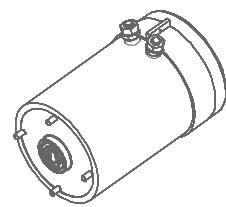
POWER PACKS COMPACT series ordering code**MODEL CODE**

Example:



QUICK SELECTION GUIDE**AC & DC electric motors****DC motors**

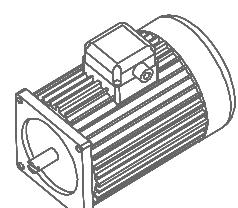
0,15 12DC_T	12VDC motor - 150W - Ø 80 + thermal switch
0,15 24DC_T	24VDC motor - 150W - Ø 80 + thermal switch
0,5 12DC	12VDC motor - 500W - Ø 80
0,5 24DC	24VDC motor - 500W - Ø 80
0,5 12DC_T	12VDC motor - 500W - Ø 80 + thermal switch
0,5 24DC_T	24VDC motor - 500W - Ø 80 + thermal switch
0,8 12DC	12VDC motor - 800W - Ø 80
0,8 24DC	24VDC motor - 800W - Ø 80
0,8 12DC_T	12VDC motor - 800W - Ø 80 + thermal switch
0,8 24DC_T	24VDC motor - 800W - Ø 80 + thermal switch
1,6 12DC_T	12VDC motor - 1600W - Ø 114 + thermal switch
2,1 12DC_T	12VDC motor - 2100W - Ø 114 + thermal switch
2,2 24DC_T	24VDC motor - 2200W - Ø 114 + thermal switch
2,4 12DC_T	12VDC motor - 2400W - Ø 125 fan cooled + thermal switch
3 24DC_T	24VDC motor - 3000W - Ø 125 fan cooled + thermal switch
2,5HD 12DC_T	12VDC motor - 2500W - Ø 151 fan cooled B14-90 frame + thermal switch
3HD 24DC_T	24VDC motor - 3000W - Ø 151 fan cooled B14-90 frame + thermal switch
4HD 24DC_T	24VDC motor - 4000W - Ø 151 fan cooled B14-90 frame + thermal switch

**AC motors: three-phase 4 poles (~1450 rpm at 50Hz)**

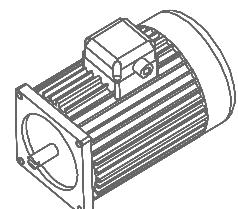
E025AC341	integral motor 0,25kW 3-ph 4-pole 220/380V 50/60Hz frame 71
E037AC341	integral motor 0,37kW 3-ph 4-pole 220/380V 50/60Hz frame 71
E055AC341	integral motor 0,55kW 3-ph 4-pole 220/380V 50/60Hz frame 71
E075AC342S3	integral motor 0,75kW S3 (0,55kW S1) 3-ph 4-pole 220/380V 50/60Hz frame 80
E110AC342S3	integral motor 1,1kW S3 (0,75kW S1) 3-ph 4-pole 220/380V 50/60Hz frame 80
E150AC343S3	integral motor 1,5kW S3 (1,1kW S1) 3-ph 4-pole 220/380V 50/60Hz frame 90
E220AC343S3	integral motor 2,2kW S3 (1,5kW S1) 3-ph 4-pole 220/380V 50/60Hz frame 90
E300AC343S3	integral motor 3kW S3 (2,2kW S1) 3-ph 4-pole 220/380V 50/60Hz frame 90

AC motors: single-phase 4 poles (~1450 rpm at 50Hz)

E025ACS41	integral motor 0,25kW 1-ph 4-pole 220V 50Hz frame 71
E037ACS41	integral motor 0,37kW 1-ph 4-pole 220V 50Hz frame 71
E055ACS42S3	integral motor 0,55kW S3 (0,37kW S1) 1-ph 4-pole 220V 50Hz frame 80
E075ACS42S3	integral motor 0,75kW S3 (0,55kW S1) 1-ph 4-pole 220V 50Hz frame 80
E110ACS43S3	integral motor 1,1kW S3 (0,75kW S1) 1-ph 4-pole 220V 50Hz frame 90
E150ACS43S3	integral motor 1,5kW S3 (1,1kW S1) 1-ph 4-pole 220V 50Hz frame 90
E220ACS43S3	integral motor 2,2kW S3 (1,5kW S1) 1-ph 4-pole 220V 50Hz frame 90

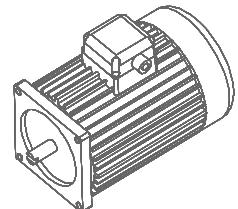


2 pole and special execution motors (High starting torque, high IP, with thermal protector,... available on request)

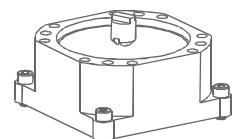


QUICK SELECTION GUIDE**AC & DC electric motors****B14 AC motors**

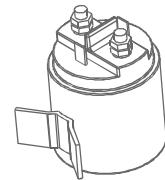
B14400AC324	B14 motor 4kW 3-ph 2-pole 220/380V 50/60Hz frame 100
B14550AC325	B14 motor 5,5kW 3-ph 2-pole 220/380V 50/60Hz frame 112
B14300AC344	B14 motor 3kW 3-ph 4-pole 220/380V 50/60Hz frame 100
B14400AC344	B14 motor 4kW 3-ph 4-pole 220/380V 50/60Hz frame 100
B14550AC345	B14 motor 5,5kW 3-ph 4-pole 220/380V 50/60Hz frame 112
B14750AC345	B14 motor 7,5kW 3-ph 4-pole 220/380V 50/60Hz frame 112
B14220ACS44	B14 motor 2,2kW 1-ph 4-pole 220V 50Hz frame 100
B14300ACS24	B14 motor 3kW 1-ph 2-pole 220V 50Hz frame 100

**No motor: B14 Flange + coupling kit**

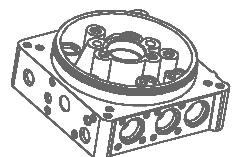
XB14 71-0	mounting kit PPC for B14 motors frame 71 with pump group 0
XB14 80-0	mounting kit PPC for B14 motors frame 80 with pump group 0
XB14 71-1	mounting kit PPC for B14 motors frame 71 with pump group 1
Xb14 80-1	mounting kit PPC for B14 motors frame 80 with pump group 1
XB14 90-1	mounting kit PPC for B14 motors frame 90 with pump group 1
XB14 100-1	mounting kit PPC for B14 motors frame 100/112 with pump group 1
X56C-0	mounting kit PPC for Nema 56C-face motors with pump group 0
X56C-1	mounting kit PPC for Nema 56C-face motors with pump group 1

**Electric motors options****DC motor options**

S150 12DC 80	starting relay 12VDC 150A with mounting kit for Ø 80 motors
S150 24DC 80	starting relay 24VDC 150A with mounting kit for Ø 80 motors
S150 12DC 112	starting relay 12VDC 150A with mounting kit for Ø 112-114 motors
S150 24DC 112	starting relay 24VDC 150A with mounting kit for Ø 112-114 motors
S200 12DC	starting relay 12VDC 200A for Ø 125 and Ø 151 motors
S200 24DC	starting relay 24VDC 200A for Ø 125 and Ø 151 motors

**Universal central manifold****International execution (1/4" BSP exit ports)**

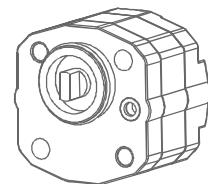
UA	Universal A type PPC body with 3 lateral cavities
UB	Universal B type PPC body with 5 lateral cavities
U4	Universal 4 type PPC body for 4 way cartridge valves
UR	Universal R type PPC body for reversible pump

**USA execution (SAE 06 exit ports)**

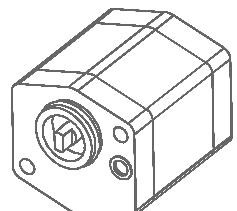
UAUS	Universal A type PPC body with 3 lateral cavities US execution
UBUS	Universal B type PPC body with 5 lateral cavities US execution
U4US	Universal 4 type PPC body for 4 way cartridge valves US execution
URUS	Universal R type PPC body for reversible pump US execution

QUICK SELECTION GUIDE**Pumps****G type gear pumps**

G0,8	gear pump group 1 – 0,85 cc/rev G series
G1,1	gear pump group 1 – 1,15 cc/rev G series
G1,3	gear pump group 1 – 1,3 cc/rev G series
G1,6	gear pump group 1 – 1,6 cc/rev G series
G2,1	gear pump group 1 – 2,1 cc/rev G series
G2,6	gear pump group 1 – 2,6 cc/rev G series
G3,2	gear pump group 1 – 3,2 cc/rev G series
G3,7	gear pump group 1 – 3,7 cc/rev G series
G4,2	gear pump group 1 – 4,2 cc/rev G series
G4,9	gear pump group 1 – 4,9 cc/rev G series
G6,0	gear pump group 1 – 6,0 cc/rev G series
G7,9	gear pump group 1 – 7,9 cc/rev G series
G9,8	gear pump group 1 – 9,8 cc/rev G series

**K type gear pumps**

K0,2	gear pump group 0 – 0,26 cc/rev K series + adaptor flange for group 0 pump
K0,4	gear pump group 0 – 0,38 cc/rev K series + adaptor flange for group 0 pump
K0,6	gear pump group 0 – 0,64 cc/rev K series + adaptor flange for group 0 pump
K0,9	gear pump group 1 – 0,89 cc/rev K series
K1,2	gear pump group 1 – 1,27 cc/rev K series
K1,6	gear pump group 1 – 1,66 cc/rev K series
K2,1	gear pump group 1 – 2,17 cc/rev K series
K2,7	gear pump group 1 – 2,8 cc/rev K series
K3,2	gear pump group 1 – 3,3 cc/rev K series
K3,7	gear pump group 1 – 3,8 cc/rev K series
K4,2	gear pump group 1 – 4,3 cc/rev K series
K5,0	gear pump group 1 – 5,1 cc/rev K series
K6,0	gear pump group 1 – 6,0 cc/rev K series
K7,9	gear pump group 1 – 7,9 cc/rev K series

**H type high pressure gear pumps**

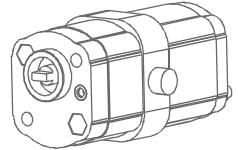
H1,2	gear pump group 1 high pressure – 1,2 cc/rev H series
H1,7	gear pump group 1 high pressure – 1,7 cc/rev H series
H2,2	gear pump group 1 high pressure – 2,2 cc/rev H series
H2,6	gear pump group 1 high pressure – 2,6 cc/rev H series
H3,2	gear pump group 1 high pressure – 3,2 cc/rev H series
H3,8	gear pump group 1 high pressure – 3,8 cc/rev H series
H4,2	gear pump group 1 high pressure – 4,3 cc/rev H series
H4,7	gear pump group 1 high pressure – 4,7 cc/rev H series
H6,0	gear pump group 1 high pressure – 6,0 cc/rev H series

QUICK SELECTION GUIDE

Pumps

Double gear pumps with Hi-Lo system

K0,9+3,2HL	HI-LO double pump - 0,9 + 3,3cc/rev K series
K1,2+5HL	HI-LO double pump - 1,2 + 5cc/rev K series

**Bidirectional gear pumps**

R0,2	Reversible gear pump group 0-0,26 cc/rev + adaptor flange for group 0 pump
R0,4	reversible gear pump - 0,38cc/rev + adaptor flange for group 0 pump
R0,6	reversible gear pump - 0,63cc/rev + adaptor flange for group 0 pump
R0,9	reversible gear pump - 0,88cc/rev + adaptor flange for group 0 pump
R1,3	reversible gear pump - 1,25cc/rev + adaptor flange for group 0 pump
R1,5	reversible gear pump - 1,5cc/rev + adaptor flange for group 0 pump
R2,1	Reversible gear pump group 1 - 2,1 cc/rev
R2,6	Reversible gear pump group 1 - 2,6 cc/rev

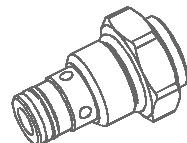
Helical rotor pumps for high pressure and low noise and low pulsation applications

S6,4	low noise helical rotor pump group 1 - 6,4cc/rev
S8,3	low noise helical rotor pump group 1 - 8,3cc/rev
S10	low noise helical rotor pump group 1 - 10,2cc/rev
S13	low noise helical rotor pump group 1 - 12,9cc/rev

Integral components: Cavity 0

Components in central manifold cavity 0

J	check valve ball type 3/4-16UNF
S	flow control valve 3/4-16UNF with screw
L	plug 3/4-16UNF basic
N	plug 3/4-16UNF open passage with 1/4"BSPP exit port

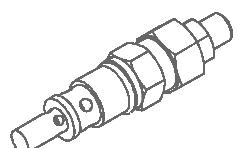
**Cavity 0 option**

EP01	exit port 1/4 BSPP
EM9001C	pressure gauge shut-off valve 90° F-F + nipples M 1/4" BSPP – M 1/4" BSPP
EMILO1C	pressure gauge shut-off valve F-F + nipples M 1/4" BSPP – M 1/4" BSPP
F401**	pressure switch 1/4" BSPP where ** = max setting pressure (50-100-200-400 bar)
MIR63**EM	pressure gauge Ø63 where ** = max press. (60-160-250-315 bar) + shut-off valve 90°

Integral components: Cavity 1

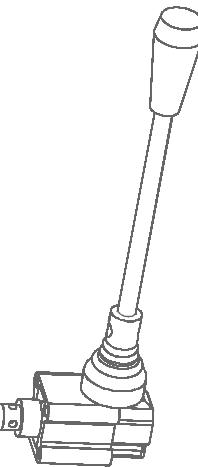
Components in central manifold cavity 1

D_60	guided needle relief valve M20x1,5 - 10÷60 bar - socket screw adj.
D_180	guided needle relief valve M20x1,5 - 20÷180 bar - socket screw adj.
D_280	guided needle relief valve M20x1,5 - 35÷280 bar - socket screw adj.
D_350	Guided needle relief valve M20x1,5 - 50÷350 bar - socket screw adj.
XP	closed plug for relief valve M20x1,5 cavity

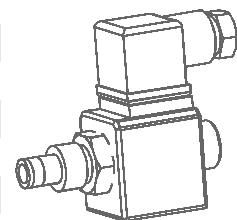


QUICK SELECTION GUIDE**Cavity 1 option**

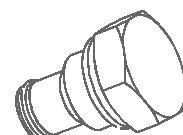
2	handwheel M8 for VMDC35/VMDC20/VCF6 valves
3	steel cap for VMDC35 relief valve
4	plastic seal for VMDC35 relief valve

**Integral components: Cavity 2****Components in central manifold cavity 2**

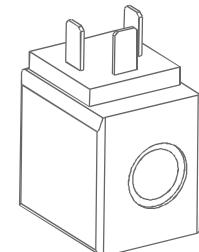
X	open cavity – no valve
A	NC solenoid 2/2 way 3/4-16UNF poppet valve
B	NC solenoid 2/2 way 3/4-16UNF poppet valve with emergency
C	NO solenoid 2/2 way 3/4-16UNF poppet valve with emergency
D	NC solenoid 2/2 way 3/4-16UNF double poppet valve with emergency
E	lever operated 2/2 way valve without micro-switch
EM	lever operated 2/2 way valve with micro-switch
Z	2 way emergency button valve
S	flow control valve 3/4-16UNF with screw
T12DC	proportional flow control valve poppet type 15l/min 315 bar + coil 12VDC ED100%
T24DC	proportional flow control valve poppet type 15l/min 315 bar + coil 24VDC ED100%
U	hand pump 3/4-16UNF 2 cc/stroke + suction/return line pipe 1/4"BSP 370mm
G	closed plug 3/4-16UNF
H	plug 3/4-16UNF with 1/4"BSPP exit port
N	plug 3/4-16UNF open passage with 1/4"BSPP exit port
P	plug 3/4-16UNF passing through 1/4"BSPP
L	plug 3/4-16UNF basic
J	check valve ball type 3/4-16UNF
4VA11C	4/2 way solenoid directional valve, closed center transient (only for M4 manifolds)
4VA2	4/3 way solenoid directional valve, center P to T (only for M4 manifolds)
4VB2	4/3 way solenoid directional valve, closed center (only for M4 manifolds)
4VC2	4/3 way solenoid directional valve, H center (only for M4 manifolds)
4VE2	4/3 way solenoid directional valve, center A-B to T (only for M4 manifolds)

**Cavity 2 option**

V-CSB	handwheel for CSB/CSU
EM9001C	pressure gauge shut-off valve 90° F-F + nipples M 1/4" BSPP – M 1/4" BSPP
EMILO1C	pressure gauge shut-off valve F-F + nipples M 1/4" BSPP – M 1/4" BSPP
F401**	pressure switch 1/4" BSPP where ** = max setting pressure (50-100-200-400 bar)
MIR63**EM	pressure gauge Ø63 where ** = max press. (60-160-250-315 bar) + shut-off valve 90°

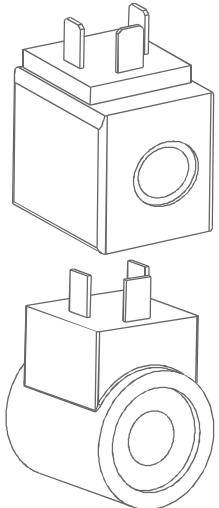
**Cavity 2 valve coil**

12DC_M130	Coil 12V DC 18W ED75% for MSV30-31 + Electric connector DIN 43650-A
24DC_M130	Coil 24V DC 18W ED75% for MSV30-31 + Electric connector DIN 43650-A
24RAC_M130	Coil 24V DC 18W ED75% for MSV30-31 + El. connector with rectifier 12-24V
115_50AC_M13	Coil 115V/50Hz AC 28VA ED75% only for MSV30 + El. connector DIN 43650-A
230_50AC_M13	Coil 230V/50Hz AC 28VA ED75% only for MSV30 + El. connector DIN 43650-A
110RAC_M130	Coil 110V RAC 18W ED75% for MSV30-31 + El. connector with rectifier 115 V
220RAC_M130	Coil 220V RAC 18W ED75% for MSV30-31 + El. connector with rectifier 230 V



QUICK SELECTION GUIDE**Cavity 2 valve coil**

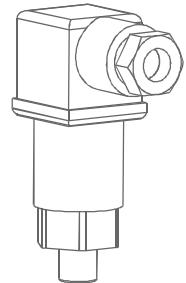
12DC_M140	Coil 12V DC 22W ED100% for MSV-MDV + Electric connector DIN 43650-A
24DC_M140	Coil 24V DC 22W ED100% for MSV-MDV + Electric connector DIN 43650-A
24RAC_M140	Coil 24V DC 22W ED100% for MSV-MDV + El. connector with rectifier 12-24 V
110RAC_M140	Coil 110V RAC 22W ED100% for MSV-MDV + El. connector with rectifier 115 V
220RAC_M140	Coil 220V RAC 22W ED100% for MSV-MDV + El. connector with rectifier 230 V
12DC_M630	coil 12V DC ED100% for MSV4V / CSPC15 / VMPC2 + El. connector DIN 43650-A
24DC_M630	coil 24V DC ED100% for MSV4V / CSPC15 / VMPC2 + El. connector DIN 43650-A
24AC_M631	coil 24V AC ED100% for MSV4V + Electric connector DIN 43650-A
115AC_M631	coil 115V AC ED100% with integrated rectifier for MSV4V + El. connector
230AC_M631	coil 230V AC ED100% with integrated rectifier for MSV4V + El. connector

**Integral components: Cavity 3****Components in central manifold cavity 3**

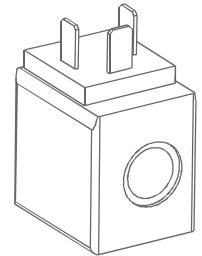
F02	fixed pressure compensated flow control valve 3/4-16UNF hole 0,8mm	
F03	fixed pressure compensated flow control valve 3/4-16UNF hole 1mm	
F04	fixed pressure compensated flow control valve 3/4-16UNF hole 1,25mm	
F05	fixed pressure compensated flow control valve 3/4-16UNF hole 1,5mm	
F06	fixed pressure compensated flow control valve 3/4-16UNF hole 1,75mm	
F07	fixed pressure compensated flow control valve 3/4-16UNF hole 2mm	
F09	fixed pressure compensated flow control valve 3/4-16UNF hole 2,5mm	
F11	fixed pressure compensated flow control valve 3/4-16UNF hole 3mm	
F13	fixed pressure compensated flow control valve 3/4-16UNF hole 3,5mm	
F15	fixed pressure compensated flow control valve 3/4-16UNF hole 4mm	
R2	compensated flow control valve 3/4-16UNF with screw 1 ÷ 2,2 l/min	
R3	compensated flow control valve 3/4-16UNF with screw 1,6 ÷ 4 l/min	
R4	compensated flow control valve 3/4-16UNF with screw 2,5 ÷ 5 l/min	
R5	compensated flow control valve 3/4-16UNF with screw 3 ÷ 7 l/min	
R6	compensated flow control valve 3/4-16UNF with screw 4,9 ÷ 10,8 l/min	
R7	compensated flow control valve 3/4-16UNF with screw 8 ÷ 18,5 l/min	
S	flow control valve 3/4-16UNF with screw	
Z	2 way emergency button valve	
A	NC solenoid 2/2 way 3/4-16UNF poppet valve	
B	NC solenoid 2/2 way 3/4-16UNF poppet valve with emergency	
C	NO solenoid 2/2 way 3/4-16UNF poppet valve with emergency	
D	NC solenoid 2/2 way 3/4-16UNF double poppet valve with emergency	
J	check valve ball type 3/4-16UNF	
G	closed plug 3/4-16UNF	
H	plug 3/4-16UNF with 1/4"BSPP exit port	
N	plug 3/4-16UNF open passage with 1/4"BSPP exit port	
P	plug 3/4-16UNF passing through 1/4"BSPP	
L	plug 3/4-16UNF basic	
P**12DC	proportional relief valve 3/4-16UNF 12VDC where ** = max pressure (60-120-210 bar)	
P**24DC	proportional relief valve 3/4-16UNF 24VDC where ** = max pressure (60-120-210 bar)	
V**	relief valve 3/4-16UNF where ** = max pressure (40-110-250-350 bar) - socket screw	

QUICK SELECTION GUIDE**Cavity 3 option**

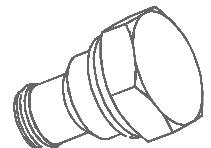
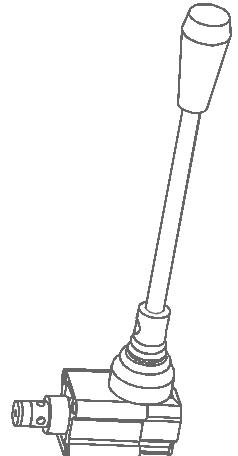
V-CSB	handwheel for CSB/CSU
2	handwheel M8 for VMDC35/VMDC20/VCF6 valves
EM9001C	pressure gauge shut-off valve 90° F-F + nipples M 1/4" BSPP – M 1/4" BSPP
EMILO1C	pressure gauge shut-off valve F-F + nipples M 1/4" BSPP – M 1/4" BSPP
F401**	pressure switch 1/4" BSPP where ** = max setting pressure (50-100-200-400 bar)
MIR63**EM	pressure gauge Ø63 where ** = max press. (60-160-250-315 bar) + shut-off valve 90°

**Cavity 3 valve coil voltage**

12DC_M130	Coil 12V DC 18W ED75% for MSV30-31 + Electric connector DIN 43650-A
24DC_M130	Coil 24V DC 18W ED75% for MSV30-31 + Electric connector DIN 43650-A
24RAC_M130	Coil 24V DC 18W ED75% for MSV30-31 + El. connector with rectifier 12-24 V
115_50AC_M13	Coil 115V/50Hz AC 28VA ED75% only for MSV30 + Electric connector DIN 43650-A
230_50AC_M13	Coil 230V/50Hz AC 28VA ED75% only for MSV30 + Electric connector DIN 43650-A
110RAC_M130	Coil 110V RAC 18W ED75% for MSV30-31 + El. connector with rectifier 115 V
220RAC_M130	Coil 220V RAC 18W ED75% for MSV30-31 + El. connector with rectifier 230 V
12DC_M140	Coil 12V DC 22W ED100% for MSV-MDV + Electric connector DIN 43650-A
24DC_M140	Coil 24V DC 22W ED100% for MSV-MDV + Electric connector DIN 43650-A
24RAC_M140	Coil 24V DC 22W ED100% for MSV-MDV + El. connector with rectifier 12-24 V
110RAC_M140	Coil 110V RAC 22W ED100% for MSV-MDV + El. connector with rectifier 115 V
220RAC_M140	Coil 220V RAC 22W ED100% for MSV-MDV + El. connector with rectifier 230 V

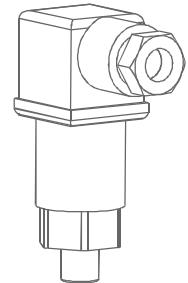
**Integral components: Cavity 4****Component in central manifold cavity 4**

A	NC solenoid 2/2 way 3/4-16UNF poppet valve
B	NC solenoid 2/2 way 3/4-16UNF poppet valve with emergency
C	NO solenoid 2/2 way 3/4-16UNF poppet valve with emergency
D	NC solenoid 2/2 way 3/4-16UNF double poppet valve with emergency
E	lever operated 2/2 way valve without micro-switch
EM	lever operated 2/2 way valve with micro-switch
Z	2 way emergency button valve
S	flow control valve 3/4-16UNF with screw
T12DC	proportional flow control valve poppet type 15l/min 315 bar + coil 12VDC ED100%
T24DC	proportional flow control valve poppet type 15l/min 315 bar + coil 24VDC ED100%
U	hand pump 3/4-16UNF 2 cc/stroke + suction/return line pipe 1/4"BSP 370mm
G	closed plug 3/4-16UNF
H	plug 3/4-16UNF with 1/4"BSPP exit port
N	plug 3/4-16UNF open passage with 1/4"BSPP exit port
P	plug 3/4-16UNF passing through 1/4"BSPP
L	plug 3/4-16UNF basic
J	check valve ball type 3/4-16UNF

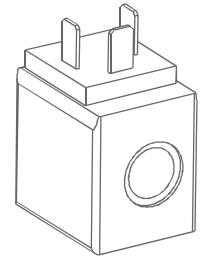


QUICK SELECTION GUIDE**Cavity 4 option**

V-CSB	handwheel for CSB/CSU
EM9001C	pressure gauge shut-off valve 90° F-F + nipples M 1/4" BSPP – M 1/4" BSPP
EMILO1C	pressure gauge shut-off valve F-F + nipples M 1/4" BSPP – M 1/4" BSPP
F401**	pressure switch 1/4" BSPP where ** = max setting pressure (50-100-200-400 bar)
MIR63**EM	pressure gauge Ø63 where ** = max press. (60-160-250-315 bar) + shut-off valve 90°

**Cavity 4 valve coil voltage**

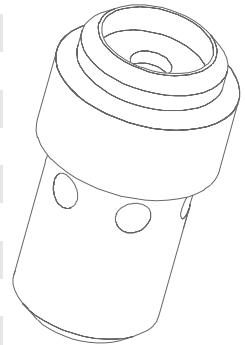
12DC_M130	Coil 12V DC 18W ED75% for MSV30-31 + Electric connector DIN 43650-A
24DC_M130	Coil 24V DC 18W ED75% for MSV30-31 + Electric connector DIN 43650-A
24RAC_M130	Coil 24V DC 18W ED75% for MSV30-31 + El. connector with rectifier 12-24 V
115_50AC_M13	Coil 115V/50Hz AC 28VA ED75% only for MSV30 + Electric connector DIN 43650-A
230_50AC_M13	Coil 230V/50Hz AC 28VA ED75% only for MSV30 + Electric connector DIN 43650-A
110RAC_M130	Coil 110V RAC 18W ED75% for MSV30-31 + El. connector with rectifier 115 V
220RAC_M130	Coil 220V RAC 18W ED75% for MSV30-31 + El. connector with rectifier 230 V
12DC_M140	Coil 12V DC 22W ED100% for MSV-MDV + Electric connector DIN 43650-A
24DC_M140	Coil 24V DC 22W ED100% for MSV-MDV + Electric connector DIN 43650-A
24RAC_M140	Coil 24V DC 22W ED100% for MSV-MDV + El. connector with rectifier 12-24 V
110RAC_M140	Coil 110V RAC 22W ED100% for MSV-MDV + El. connector with rectifier 115 V
220RAC_M140	Coil 220V RAC 22W ED100% for MSV-MDV + El. connector with rectifier 230 V

**Flow restrictor in central manifold cavity 5****Flow restrictor in central manifold cavity 5**

PLUGTCE01	1/4" BSPP plug with copper washer
Pp01370	suction/return line pipe 1/4"BSP 370mm
RETURN-KIT	1/4" BSP holder for SF12 + flexible plastic pipe 12 mm for return line / price per meter
C34200001	return line tank immersed filter
1(01)	fixed pressure compensated flow control valve 1/4"BSP 1l/min
2(01)	fixed pressure compensated flow control valve 1/4"BSP 2l/min
3(01)	fixed pressure compensated flow control valve 1/4"BSP 3l/min
4(01)	fixed pressure compensated flow control valve 1/4"BSP 4l/min
5(01)	fixed pressure compensated flow control valve 1/4"BSP 5l/min
6(01)	fixed pressure compensated flow control valve 1/4"BSP 6l/min
8(01)	fixed pressure compensated flow control valve 1/4"BSP 8l/min
10(01)	fixed pressure compensated flow control valve 1/4"BSP 10l/min
12(01)	fixed pressure compensated flow control valve 1/4"BSP 12l/min
15(01)	fixed pressure compensated flow control valve 1/4"BSP 15l/min

QUICK SELECTION GUIDE**Flow restrictor in central manifold cavity 6****Flow restrictor in central manifold cavity 6**

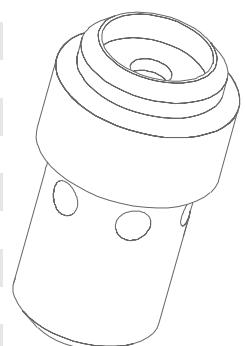
PLUGTCE01	1/4" BSPP plug with copper washer
PLUGTCE01	suction/return line pipe 1/4"BSP 370mm
RETURN-KIT	1/4" BSP holder for SF12 + flexible plastic pipe 12 mm for return line / price per meter
C34200001	return line tank immersed filter
1(01)	fixed pressure compensated flow control valve 1/4"BSP 1l/min
2(01)	fixed pressure compensated flow control valve 1/4"BSP 2l/min
3(01)	fixed pressure compensated flow control valve 1/4"BSP 3l/min
4(01)	fixed pressure compensated flow control valve 1/4"BSP 4l/min
5(01)	fixed pressure compensated flow control valve 1/4"BSP 5l/min
6(01)	fixed pressure compensated flow control valve 1/4"BSP 6l/min
8(01)	fixed pressure compensated flow control valve 1/4"BSP 8l/min
10(01)	fixed pressure compensated flow control valve 1/4"BSP 10l/min
12(01)	fixed pressure compensated flow control valve 1/4"BSP 12l/min
15(01)	fixed pressure compensated flow control valve 1/4"BSP 15l/min

**Flow restrictor in central manifold cavity 7****Flow restrictor in central manifold cavity 7**

0(04)	closed plug for cavity 7
1(01)	fixed pressure compensated flow control valve 1/4"BSP 1l/min
2(01)	fixed pressure compensated flow control valve 1/4"BSP 2l/min
3(01)	fixed pressure compensated flow control valve 1/4"BSP 3l/min
4(01)	fixed pressure compensated flow control valve 1/4"BSP 4l/min
5(01)	fixed pressure compensated flow control valve 1/4"BSP 5l/min
6(01)	fixed pressure compensated flow control valve 1/4"BSP 6l/min
8(01)	fixed pressure compensated flow control valve 1/4"BSP 8l/min
10(01)	fixed pressure compensated flow control valve 1/4"BSP 10l/min
12(01)	fixed pressure compensated flow control valve 1/4"BSP 12l/min
15(01)	fixed pressure compensated flow control valve 1/4"BSP 15l/min

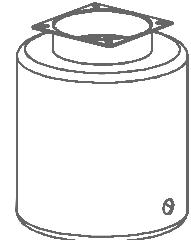
**Flow restrictor in central manifold cavity 8****Flow restrictor in central manifold cavity 8**

PLUGTCE01	1/4" BSPP plug with copper washer
PLUGTCE01	suction/return line pipe 1/4"BSP 370mm
RETURN-KIT	1/4" BSP holder for SF12 + flexible plastic pipe 12 mm for return line / price per meter
C34200001	return line tank immersed filter
1(01)	fixed pressure compensated flow control valve 1/4"BSP 1l/min
2(01)	fixed pressure compensated flow control valve 1/4"BSP 2l/min
3(01)	fixed pressure compensated flow control valve 1/4"BSP 3l/min
4(01)	fixed pressure compensated flow control valve 1/4"BSP 4l/min
5(01)	fixed pressure compensated flow control valve 1/4"BSP 5l/min
6(01)	fixed pressure compensated flow control valve 1/4"BSP 6l/min
8(01)	fixed pressure compensated flow control valve 1/4"BSP 8l/min
10(01)	fixed pressure compensated flow control valve 1/4"BSP 10l/min
12(01)	fixed pressure compensated flow control valve 1/4"BSP 12l/min
15(01)	fixed pressure compensated flow control valve 1/4"BSP 15l/min

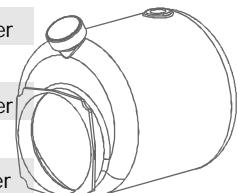
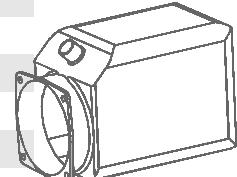


QUICK SELECTION GUIDE**Tanks****Steel tanks**

1,5A	1,5l cylindrical steel tank horizontal mounting + 1/2"BSPP std filler & breather plug
1,5AV	1,5l cylindrical steel tank vertical mounting + 1/2"BSPP std filler & breather plug
2,5A	2,5l cylindrical steel tank horizontal mounting + 1/2"BSPP std filler & breather plug
2,5AV	2,5l cylindrical steel tank vertical mounting + 1/2"BSPP std filler & breather plug
5B	5l cylindrical steel tank horizontal mounting + 1/2"BSPP std filler & breather plug
5BV	5l cylindrical steel tank vertical mounting + 1/2"BSPP std filler & breather plug
10B	10l cylindrical steel tank horizontal mounting + 1/2"BSPP std filler & breather plug
10BV	10l cylindrical steel tank vertical mounting + 1/2"BSPP std filler & breather plug
12B	12l cylindrical steel tank horizontal mounting + 1/2"BSPP std filler & breather plug
12BV	12l cylindrical steel tank vertical mounting + 1/2"BSPP std filler & breather plug
10C	10l square steel tank horizontal mounting + 1/2"BSPP std filler & breather plug
10CV	10l square steel tank vertical mounting + 1/2"BSPP std filler & breather plug
22C	22l square steel tank horizontal mounting + 3/4"BSPP male filler & breather plug
22CV	22l square steel tank vertical mounting + 3/4"BSPP male filler & breather plug
3EV	3l vertical square steel tank vertical mounting + 1/2"BSPP std filler & breather plug
7EV	7l vertical square steel tank vertical mounting + 1/2"BSPP std filler & breather plug
8EV	8l vertical square steel tank vertical mounting + 3/4"BSPP male filler & breather plug
15EV	15l vertical square steel tank vertical mounting + 3/4"BSPP male filler & breather plug
20EV	20l vertical square steel tank vertical mounting + 3/4"BSPP male filler & breather plug
30EV	30l vertical square steel tank vertical mounting + 3/4"BSPP male filler & breather plug
F80000001	steel tank adapter for PPC - to be welded on custom made tanks

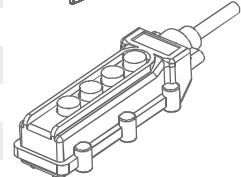
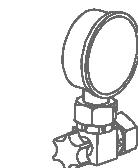
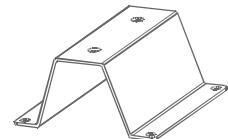
**Plastic tanks**

1,5L	1,5l square plastic tank type L horizontal mounting + 3/4"BSPP F filler & breather plug
1,5LV	1,5l square plastic tank type L vertical mounting + 3/4"BSPP F filler & breather plug
3L	3l square plastic tank type L horizontal mounting + 3/4"BSPP F filler & breather plug
3LV	3l square plastic tank type L vertical mounting + 3/4"BSPP F filler & breather plug
6L	6l square plastic tank type L horizontal mounting + 3/4"BSPP F filler & breather plug
6LV	6l square plastic tank type L vertical mounting + 3/4"BSPP F filler & breather plug
5M	5l square plastic tank 170mm type M horizontal mounting + 3/4"BSPP F filler & breather
5MV	5l square plastic tank 170mm type M vertical mounting + 3/4"BSPP F filler & breather
8M	8l square plastic tank 170mm type M horizontal mounting + 3/4"BSPP F filler & breather
8MV	8l square plastic tank 170mm type M vertical mounting + 3/4"BSPP F filler & breather
5P	5l round plastic tank for PPC Ø195mm horizontal mounting + 1/2"BSPP filler & breather
5PV	5l round plastic tank for PPC Ø195mm vertical mounting + 1/2"BSPP filler & breather
9P	9l round plastic tank for PPC Ø195mm horizontal mounting + 1/2"BSPP filler & breather
9PV	9l round plastic tank for PPC Ø195mm vertical mounting + 1/2"BSPP filler & breather
12N	12l square plastic tank 180mm type N horizontal mounting + 1/2"BSPP filler & breather
12NV	12l square plastic tank 180mm type N vertical mounting + 1/2"BSPP filler & breather

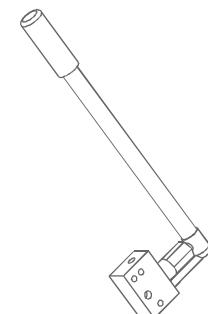
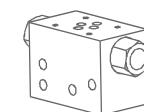
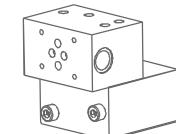


QUICK SELECTION GUIDE**Accessories****Accessories**

E60543006	foot mounting support (45mm height)
E60543007	foot mounting support tall type (67mm height)
MIR63**	pressure gauge Ø63 where ** = max press. (60-160-250-315 bar)
EM9001C	pressure gauge shut-off valve 90° F-F + nipples M 1/4" BSPP – M 1/4" BSPP
EMILO1C	pressure gauge shut-off valve F-F + nipples M 1/4" BSPP – M 1/4" BSPP
F16000001	plastic Ø112-114 DC motor protection cover
F401**	pressure switch 1/4" BSPP where ** = max setting pressure (50-100-200-400 bar)
F4ROM3	pressure switch 1/8" BSPP 0,2-2,5bar for filter manifold E60403020
MIR4010	pressure gauge Ø40 10bar max for filter manifold E60403020
P0201	remote up/down control with 3m flying cable for single acting cylinder
P0202	Remote 4 buttons control with 3m flying cable for 2 double acting cylinders
VPC00	electronic PWM driver for proportional valves 12/24VDC
BFCSAE0801	in-line manifolds for 3/4-16UNF valves 1/4" BSPP ports
BFCSAE0802	in-line manifolds for 3/4-16UNF valves 3/8" BSPP ports

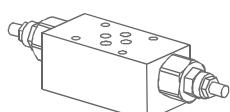
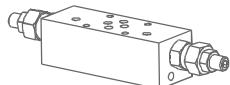
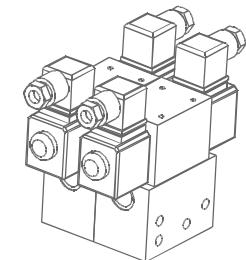
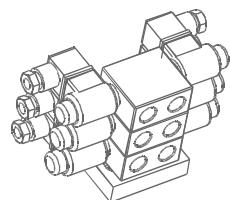
**External manifolds****External manifolds**

E60403004	28mm spacer subplate
E60403005	90° rotation manifold
E60403001	Cetop 3 parallel block - 3/8" BSPP rear ports
E60403010	Cetop 3 parallel block - 3/8" BSPP lateral ports
E60403011	Cetop 3 series block - 3/8" BSPP lateral ports
E60403030	manifold for MSV or MDV 2/2 way valves
E60403031	manifold for MSV3V 3/2 way valve
E60413002	Cetop 3 manifold with piloted check valve on A
E60413001	Cetop 3 manifold with piloted check valve on A and B
E60413003	Cetop 3 manifold with piloted check valve on B
E60403027	modular manifold with piloted check valves on A and B
E60403028	modular manifold with check valve for differential cylinder
E60403020	modular basic manifold for spin-on return filter on T line
E60403006	base manifold for SD01 stackable valves
PM09	hand pump 8,8 cc/stroke – cartridge only + base modular manifold



QUICK SELECTION GUIDE**External valves****External valves**

MSV3V4000000	3/2 way solenoid directional valve, A to T de-energized
MSV3000000	NC solenoid 2/2 way 3/4-16UNF poppet valve
MSV30E0000	NC solenoid 2/2 way 3/4-16UNF poppet valve with emergency
MSV31E0000	NO solenoid 2/2 way 3/4-16UNF poppet valve with emergency
MDV30E0000	NC solenoid 2/2 way 3/4-16UNF double poppet valve with emergency
SD00A11C	NG3 spool type single solenoid valve 4 way, 2 positions
SD00A2	NG3 spool type double solenoid valve 4 way, 3 pos. center P to T
SD00B2	NG3 spool type double solenoid valve 4 way, 3 pos. closed center
SD00C2	NG3 spool type double solenoid valve 4 way, 3 pos. H center
SD00E2	NG3 spool type double solenoid valve 4 way, 3 pos. center A-B to T
SD01A11C	Bancable single solenoid valve 4 way, 2 positions
SD01A2	Bancable double solenoid valve 4 way, 3 pos. center P to T
SD01B2	Bancable double solenoid valve 4 way, 3 pos. closed center
SD01C2	Bancable double solenoid valve 4 way, 3 pos. H center
SD01E2	Bancable double solenoid valve 4 way, 3 pos. center A-B to T
SD01A11CC	Bancable single solenoid valve 4 way, 2 positions, stack top closed
SD01A2C	Bancable double solenoid valve 4 way, 3 pos. center P to T, stack top closed
SD01B2C	Bancable double solenoid valve 4 way, 3 pos. closed center, stack top closed
SD01C2C	Bancable double solenoid valve 4 way, 3 pos. H center, stack top closed
SD01E2C	Bancable double solenoid valve 4 way, 3 pos. center A-B to T, stack top closed
SD03A11C	Cetop3 single solenoid valve 4 way, 2 positions
SD03A2	Cetop3 double solenoid valve 4 way, 3 pos. center P to T
SD03B2	Cetop3 double solenoid valve 4 way, 3 pos. closed center
SD03C2	Cetop3 double solenoid valve 4 way, 3 pos. H center
SD03E2	Cetop3 double solenoid valve 4 way, 3 pos. center A-B to T
HD03A1	Cetop3 manual control valve, spring centered P to T
HD03A2	Cetop3 manual control valve, spring centered closed center
HD03A3	Cetop3 manual control valve, spring centered H center
HD03A10	Cetop3 manual control valve, spring centered A-B to T
HD03D1	Cetop3 manual control valve, detent, center P to T
HD03D2	Cetop3 manual control valve, detent, closed center
HD03D3	Cetop3 manual control valve, detent, H center
HD03D10	Cetop3 manual control valve, detent, center A-B to T
E60423001L	Cetop 3 sandwich type modular valve with relief valve on A & B 60bar max
E60423001A	Cetop 3 sandwich type modular valve with relief valve on A & B 180bar max
E60423001B	Cetop 3 sandwich type modular valve with relief valve on A & B 280bar max
E60423002L	Cetop 3 sandwich type modular valve with relief valve on A 60bar max
E60423002A	Cetop 3 sandwich type modular valve with relief valve on A 180bar max
E60423002B	Cetop 3 sandwich type modular valve with relief valve on A 280bar max
E60423003L	Cetop 3 sandwich type modular valve with relief valve on B 60bar max
E60423003A	Cetop 3 sandwich type modular valve with relief valve on B 180bar max
E60423003B	Cetop 3 sandwich type modular valve with relief valve on B 280bar max
E60433001	Cetop 3 sandwich type modular valve with unidirectional throttle valve on A & B
E60433002	Cetop 3 sandwich type modular valve with unidirectional throttle valve on A
E60433003	Cetop 3 sandwich type modular valve with unidirectional throttle valve on B



QUICK SELECTION GUIDE**External cartridge valves coils**

12DC_M130	Coil 12V DC 18W ED75% for MSV30-31 + Electric connector DIN 43650-A
24DC_M130	Coil 24V DC 18W ED75% for MSV30-31 + Electric connector DIN 43650-A
24RAC_M130	Coil 24V DC 18W ED75% for MSV30-31 + El. connector with rectifier 12-24 V
115_50AC_M13	Coil 115V/50Hz AC 28VA ED75% only for MSV30 + Electric connector DIN 43650-A
230_50AC_M13	Coil 230V/50Hz AC 28VA ED75% only for MSV30 + Electric connector DIN 43650-A
110RAC_M130	Coil 110V RAC 18W ED75% for MSV30-31 + El. connector with rectifier 115 V
220RAC_M130	Coil 220V RAC 18W ED75% for MSV30-31 + El. connector with rectifier 230 V
12DC_M140	Coil 12V DC 22W ED100% for MSV-MDV + Electric connector DIN 43650-A
24DC_M140	Coil 24V DC 22W ED100% for MSV-MDV + Electric connector DIN 43650-A
24RAC_M140	Coil 24V DC 22W ED100% for MSV-MDV + El. connector with rectifier 12-24 V
110RAC_M140	Coil 110V RAC 22W ED100% for MSV-MDV + El. connector with rectifier 115 V
220RAC_M140	Coil 220V RAC 22W ED100% for MSV-MDV + El. connector with rectifier 230 V

External SD00 valves coils

12DC_M100	coil 12V DC 16W ED100% + Electric connector DIN 43650-A
24DC_M100	coil 24V DC 16W ED100% + Electric connector DIN 43650-A

External SD01 valves coils

12DC_M120	coil 12V DC 22W ED100% + Electric connector DIN 43650-A
24DC_M120	coil 24V DC 22W ED100% + Electric connector DIN 43650-A
24RAC_M120	coil 24V DC 22W ED100% + El. conn. with rectifier 12-24 V black pg11
220RAC_M120	coil 220V RAC 26W ED100% + El. conn. with rectifier 230 V black pg11

External SD03 valves coils

12DC_M160	coil 12V DC 26W ED100% + Electric connector DIN 43650-A
24DC_M160	coil 24V DC 26W ED100% + Electric connector DIN 43650-A
24RAC_M160	coil 24V DC 26W ED100% + El. conn. DIN 43650-A with rectifier 12-24 V black pg11
110RAC_M160	coil 110V RAC 26W ED100% + El. conn. DIN 43650-A with rectifier 115 V black pg11
220RAC_M160	coil 220V RAC 26W ED100% + El. conn. DIN 43650-A with rectifier 230 V black pg11

AC/DC ELECTRIC MOTORS

Integral AC motors: the engineered solution for compact and optimised power units from 0,25 to 4 kW, single or three phase. The AC motors are directly flanged on the central manifold for extra compactness. A single coupling can suit all frame sizes and powers.

We suggest to adopt these advanced motors because of their peculiar advantages over standard B14 AC motors and because they are designed specifically for use on our mini power packs, offering an higher power density and high starting torque (in HT models) than market standard motors. Motors have a double power rating: the maximum power is for intermittent duty charge (S3 40%), which is typical for mini-power packs applications; if the application is continuative (S1) please consider the relevant rated power as the maximum output to guarantee a proper cooling of the motor. Single phase motors should not run without load for long time to avoid overheating.



B14 standard AC motors: the standard solution easily available on every market from 0,25 to 7,5 kW, single or three phase. These motors are normally procured by the customer itself. Hydronit provides adaptor flanges and double piece coupling for frame size: 71, 80, 90, 100 and 112.



Frame 151 DC motors: real heavy duty bulk motors, with fan cooling, thermal protector and running time up to 16 min or over. Power from 2,5kW 12VDC up to 4kW 24VDC.



Frame 114 DC motors: the most popular choice. All our motors have thermal protector switch as standard.

Are there special requirements to mount B14 motors?

No special toolings are required. Please strictly follow motor side coupling mounting dimension tolerance as per the relevant drawings. Failing in doing so may cause malfunctioning of the power pack and even the break of the coupling and pump.

Can I start single phase AC motors under load?

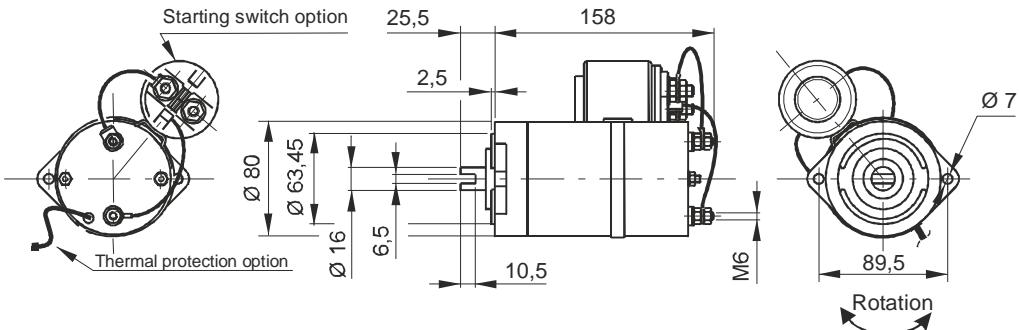
Single phase motors have a reduced starting torque due to their intrinsical design. Normally this ranges around 30-40% of the nominal torque at full power output. When designing circuits where a single phase motor must start under load, a proper dimensioning must be done and test on field must be performed. High starting torque «HT» motors are available. Ask our technical office.

How do I dimension a DC motor?

These motors are normally for intermittent duty. It is important to know required flow in l/min and working pressure in bar. Then following A050 table instructions a proper motor/pump combination can be selected. From the diagrams you can obtain absorbed current [Amp] and S2 (allowed running time in seconds) and S3 (percentage of allowed running cycle over total running+cooling cycle) characteristic values.

SECTION A**INTEGRAL DC MOTORS Ø 80**

Permanent magnets
Protection degree: IP54
Insulation class: F
Weight: 2,6 kg

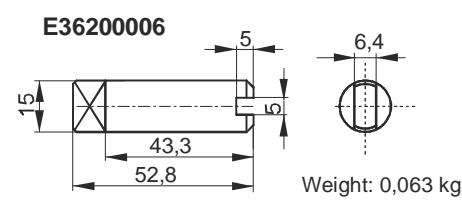
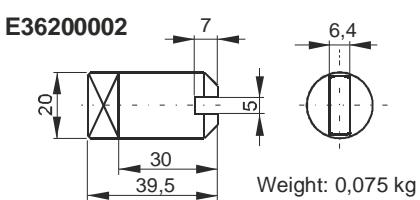
**Code**

Description	PPC assembly code	Spare part code	Nominal duty cycle	Nominal speed	Nominal current
500W 12V DC motor	0,5 12DC	M46C1S005	S2: 6 min S3: 10% ED	2800 rpm	90 A
500W 24V DC motor	0,5 24DC	M46C2S005	S2: 6 min S3: 10% ED	2800 rpm	50 A
800W 12V DC motor	0,8 12DC	M46C1S008	S2: 3 min S3: 10% ED	4000 rpm	130 A
800W 24V DC motor	0,8 24DC	M46C2S008	S2: 4 min S3: 10% ED	4000 rpm	80 A
150W 12V DC + thermal protector	0,15 12DC/T	M46C1ST01	S2: 10 min S3: 15% ED	1400 rpm	30 A
150W 24V DC + thermal protector	0,15 24DC/T	M46C2ST01	S2: 10 min S3: 15% ED	1400 rpm	15 A
500W 12V DC + thermal protector	0,5 12DC/T	M46C1ST05	S2: 6 min S3: 10% ED	2800 rpm	90 A
500W 24V DC + thermal protector	0,5 24DC/T	M46C2ST05	S2: 6 min S3: 10% ED	2800 rpm	50 A
800W 12V DC + thermal protector	0,8 12DC/T	M46C1ST08	S2: 3 min S3: 10% ED	4000 rpm	130 A
800W 24V DC + thermal protector	0,8 24DC/T	M46C2ST08	S2: 4 min S3: 10% ED	4000 rpm	80 A

Options & couplings

Description	PPC assembly code	Spare part code
12V DC 150 Amp start switch + mounting kit	S150 12DC 80	M47SC0001 + M47SK0801
24V DC 150 Amp start switch + mounting kit	S150 24DC 80	M47SC0002 + M47SK0801
Remote wired control with 2 buttons and 3m cable	P0201 (single acting)	
Remote wired control with 4 buttons and 3m cable	P0202 (double acting)	
Shaft coupling for Ø 80 DC motors and gr.1 pump	E36200002	
Shaft coupling for Ø 80 DC motors and gr.0 pump	E36200006	

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



The coupling is already included when specifying the motor in PPC assembly code. It is to be indicated only when ordering PPM with no motor but with coupling.

SECTION A**INTEGRAL DC MOTORS Ø 114**

Compound wound
Protection degree: IP54
Insulation class: F
Weight: 7,05 kg

**Code**

Description	PPC assembly code	Spare part code	Nominal duty cycle	Nominal speed	Nominal current
1600W 12V DC motor	1,6 12DC	M46C1S016	S2: 2min S3: 7,5% ED	2600 rpm	230 A
2200W 24V DC motor	2,2 24DC	M46C2S022	S2: 1,2min S3: 4,5% ED	2600 rpm	140 A
1600W 12V DC motor with thermal protection	1,6 12DC/T	M46C1ST16	S2: 2min S3: 7,5% ED	2600 rpm	230 A
2100W 12V DC motor with thermal protection	2,1 12DC/T	M46C1ST21	S2: 1,2min S3: 7,5% ED	2300 rpm	330 A
2200W 24V DC motor with thermal protection	2,2 24DC/T	M46C2ST22	S2: 1,2min S3: 4,5% ED	2600 rpm	140 A

Options

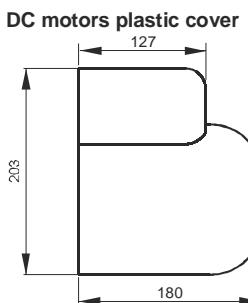
Description	PPC assembly code	Spare part code
Starting switch 150A 12 or 24V DC + mounting kit	S150 12DC 112 S150 24DC 112	M47SC0001 + M47SK1121 (12V DC) M47SC0002 + M47SK1121(24V DC)
Remote wired control with two buttons and 3m cable (see U040.40.03)	P0201 P0202	P0201 (single acting) P0202 (double acting)
DC motors plastic cover	F16000001	F16000001

Notes: the starting switch mounting kit is provided when specifying the /S150 in PPC assembly code.
When ordering spare starting switches, it must be ordered separately (code: M47SK1121).

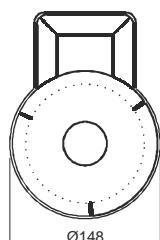
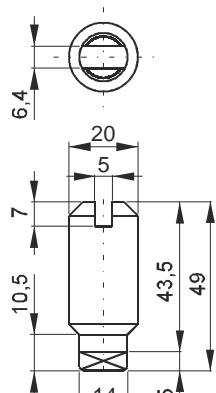
Coupling

Description	PPC assembly code / Spare part code
Shaft coupling for Ø114 - Ø125 DC motors and gr.1 pump	E36200001
Shaft coupling for Ø114 motors and gr.0 pump	E36200005

Note: the coupling is already included when specifying the motor in PPC assembly code.
The coupling spare code is to be indicated only when ordering PPC with no motor, but with coupling.



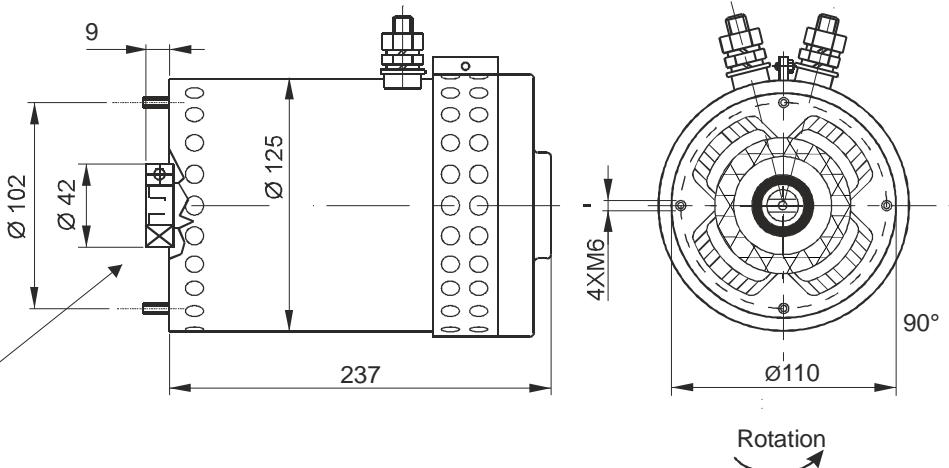
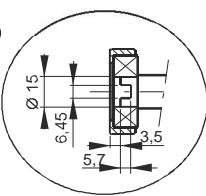
Weight: 0,27 kg

**Coupling E36200001**

Weight: 0,094 kg

FAN COOLED INTEGRAL DC MOTORS Ø 125

Compound wound
Protection degree: IP20
Insulation class: F
Weight: 11kg

**Code**

Description	PPC assembly code	Spare part code	Nominal duty cycle	Nominal speed	Nominal current
2400W 12V DC motor with thermal protection & fan	2,4 12DC/T	M46C1ST24	S2: 4min S3: 7,5% ED	3400 rpm	290 A
3000W 24 V DC motor with thermal protection & fan	3 24DC/T	M46C2ST30	S2: 4min S3: 7,5% ED	3500 rpm	170 A

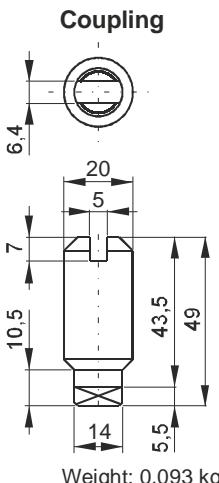
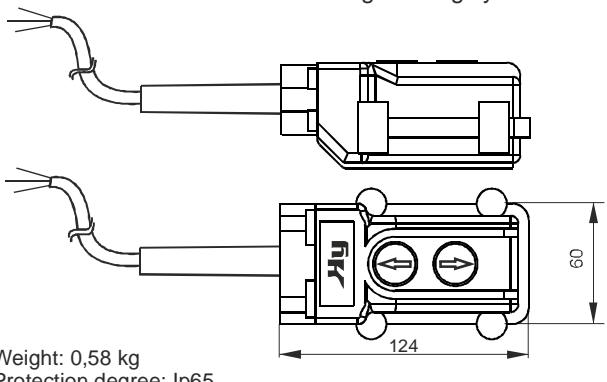
Options

Description	PPC assembly code	Spare part code
Starting switch 200A 12 or 24V DC	S200 12DC S200 24DC	M47ZC0001 (12V DC) M47ZC0002 (24V DC)
Remote wired control with two buttons and 3m cable (see U040.40.03)	P0201 P0202	P0201 (single acting) P0202 (double acting)

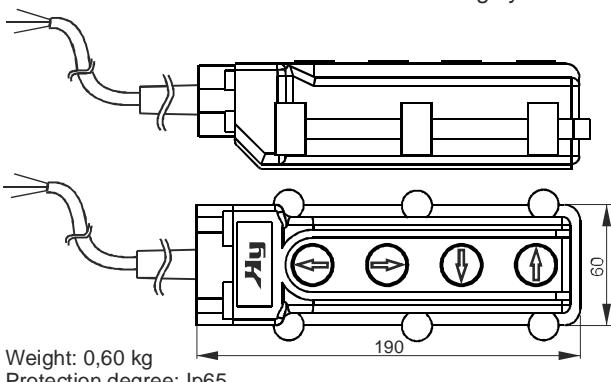
Coupling

Description	PPC assembly code / Spare part code
Shaft coupling for Ø 112 and Ø125 DC motors	E36200001

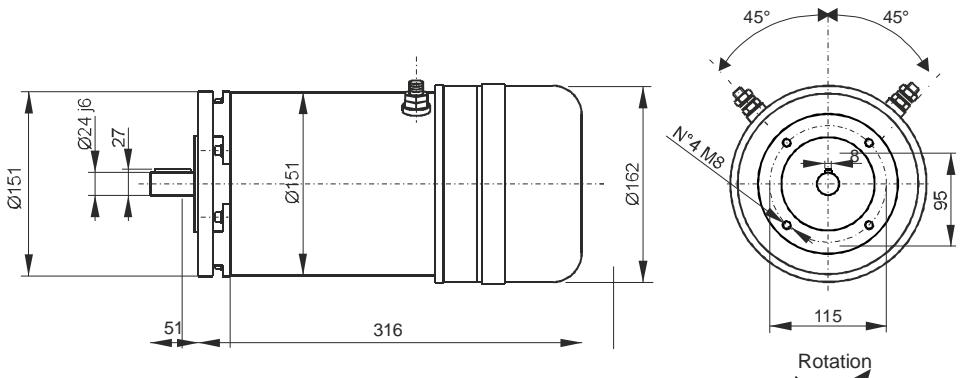
Note: the coupling is already included when specifying the motor in PPC assembly code.
The coupling spare code is to be indicated only when ordering PPC with no motor, but with coupling.

**Remote control P0201: for single acting cylinder**

Weight: 0,58 kg
Protection degree: Ip65

Remote control P0202: for double acting cylinder

Weight: 0,60 kg
Protection degree: Ip65

SECTION A**HEAVY DUTY DC MOTORS Ø 151 WITH FAN COOLING**

Series wound
Protection degree: IP20
Insulation class: F

Weight: 21,5 kg
Front attachment: B14-90

Code

Description	PPC code	Spare part code	Nominal duty cycle	Nominal speed	Nominal current	Mounting kit
2500W 12V DC motor + thermal protection & fan	2,5HD 12DC/T	MB14C1ST25	S2: 16min	1700 rpm	290 A	XB1490
3000W 24V DC motor + thermal protection & fan	3HD 24DC/T	MB14C2ST30	S2: 16min	1700 rpm	170 A	XB1490
4000W 24V DC motor + thermal protection & fan	4HD 24DC/T	MB14C2ST40	S2: 10min	2000 rpm	240 A	XB1490

Options

Description	PPC assembly code	Spare part code
Starting switch 200A 12 or 24V DC	S200 12DC S200 24DC	M47ZC0001 (12 V DC) M47ZC0002 (24 V DC)
Remote wired control with two/four buttons and 3m cable (see U040.40.03)	P0201 P0202	P0201 (single acting) P0202 (double acting)

The mounting kit is already included when specifying the motor in PPC assembly code.
When ordering spare part motors, the mounting kit must be ordered separately.

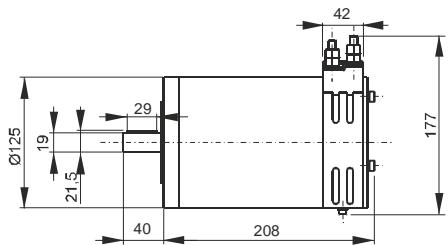
Other B14 DC motors for heavy duty or special applications

They are available with Ø125, Ø151 or Ø191 in multiple executions, engineered to perform heavy duty cycles and tailor made to suit each specific application, with or without fan cooling or thermal protection. They are mounted on the central manifold with B14 standard mounting kits (see tables U040.40.11 and following).

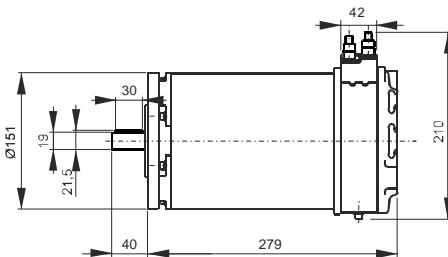
To properly choose these motors, following minimum information must be provided to our technical office: 1) motor power and voltage, 2) application type, 3) duty factors: S2 [min] continuous running time and S3 [%] percentage of running time on total cycle time, 4) required motor speed, 5) quantity to be supplied.

Some examples:

Cod. MB14M1S010: 1000W 12V DC frame 80 B14 motor



Cod. MB14M2S020: 2000W 24V DC frame 80 B14 motor



DC MOTORS CHOICE AND ELECTRIC CONNECTION SCHEMES**DC motors choice**

Once required pressure and flow and available voltage (12 or 24V DC) are known, you can select the motor checking on each provided diagram if a pump displacement is available at the intersection of pressure and flow values. On the relevant "I" curve you obtain the absorbed current. When the intersection point is not exactly on a pump curve, choose the closer pump.

On the right hand diagram, from the current value, you can easily obtain the maximum allowed S2 (min) and S3 (%) values. S2 gives the allowable motor continuous running time in minutes, S3 gives the allowable running time in % of the total cycle.

If obtained S2 and S3 values are not enough for required duty cycle, choose a bigger motor and repeat the calculation on the new motor curves.

Example:

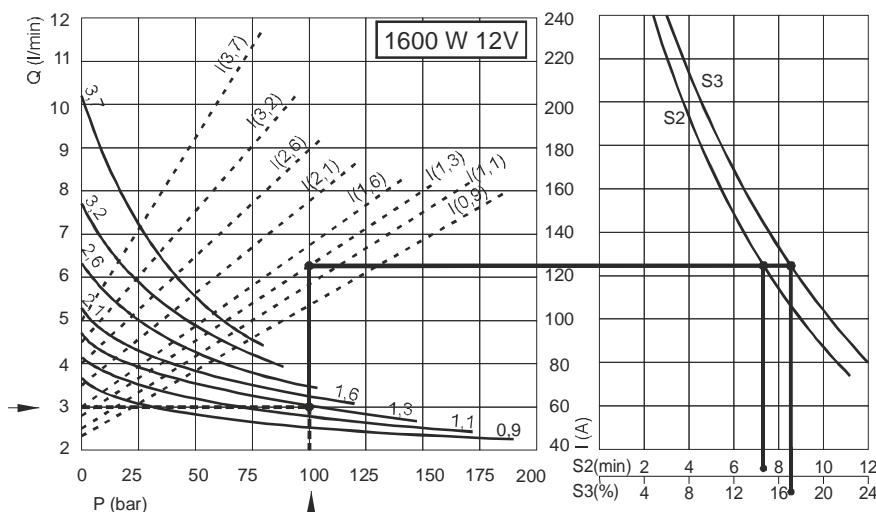
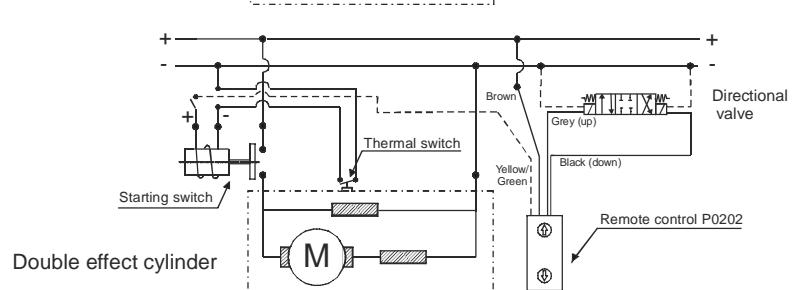
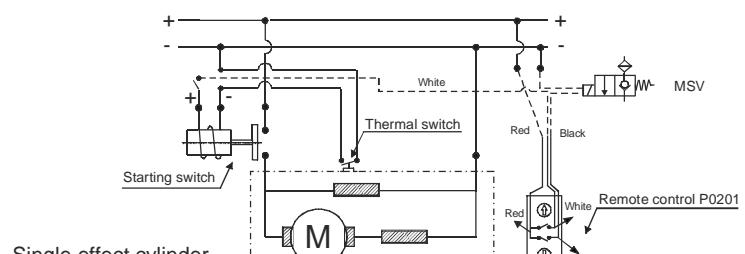
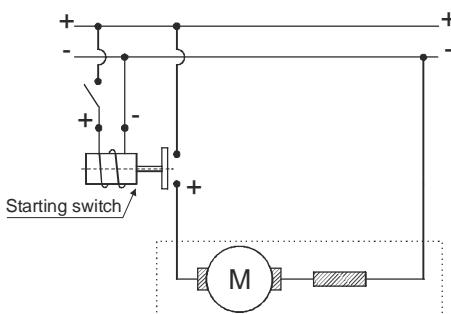
For our application we have following data:

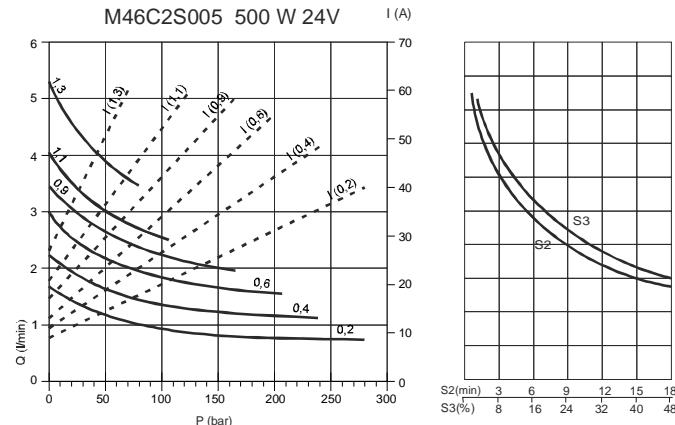
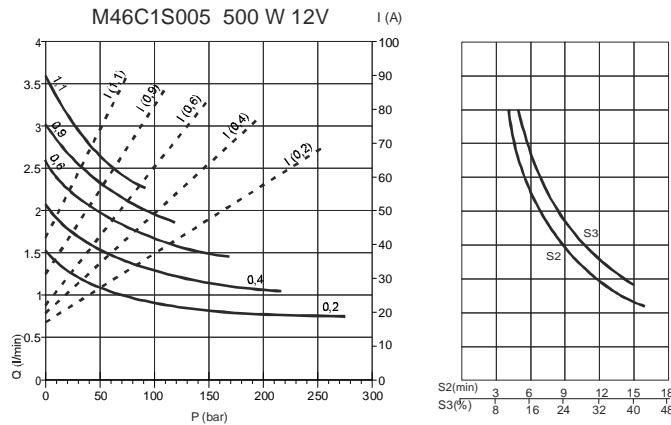
flow = 3 l/min, max pressure = 100 bar, not clearly defined duty cycle.

-We check on 1,6 Kw 12V DC motor diagram and see there is a pump available.

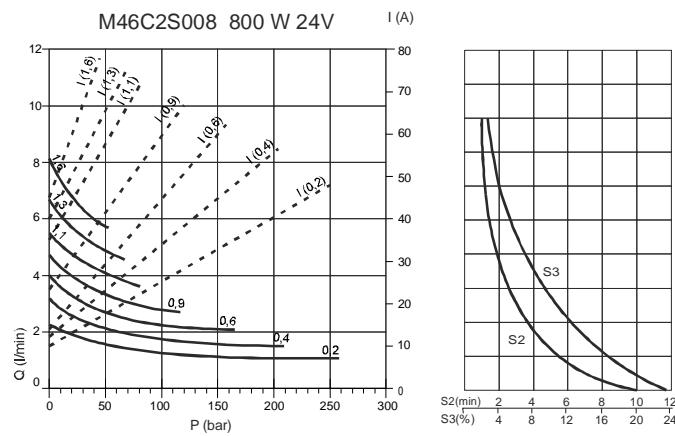
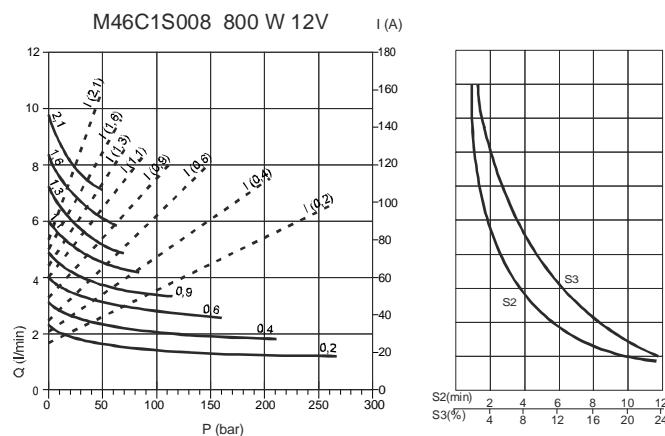
-We choose from curves 1,3 pump: a 1,3 cm³/rev pump. On the corresponding "I" curve we read 125 A absorbed current. In these conditions on the S2 / S3 diagram we read that the DC motor can work for maximum 7 min (S2), that is 17% (S3) of the total cycle, i.e. after 7 min working, the motor should cool down for at least 34 min.

-The total cycle time is calculated adding the working time and the idle time (17% working time plus 83% idle time), in this case 41 min. If this duty cycle is not adequate for our application, we must choose a higher power DC motor and check the relevant diagram again.

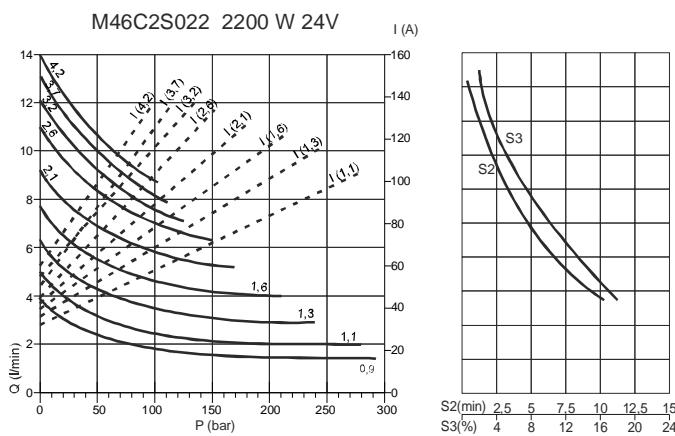
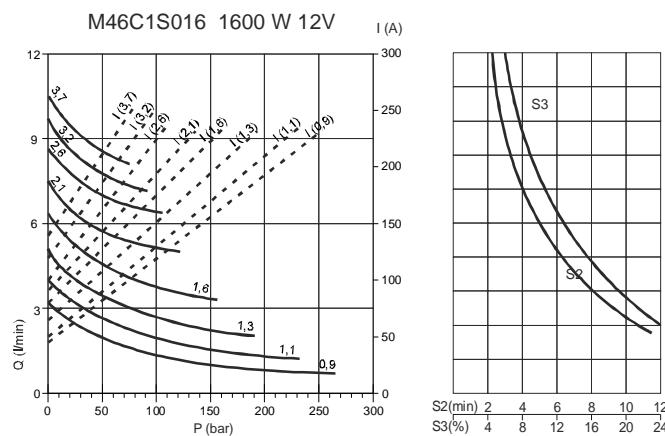
**Electric connection schemes**

DC MOTORS DIAGRAMS

Test made with battery 135Ah 50% charged at 15°C and mineral oil ISO VG46 at 40°C

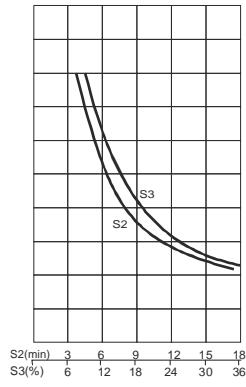
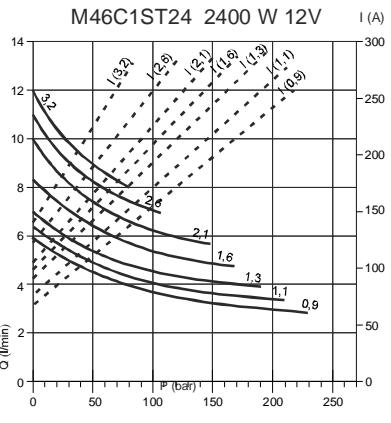
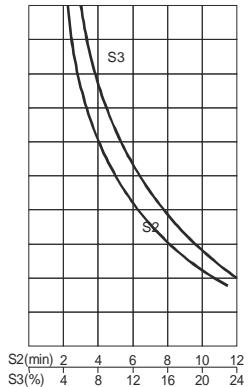
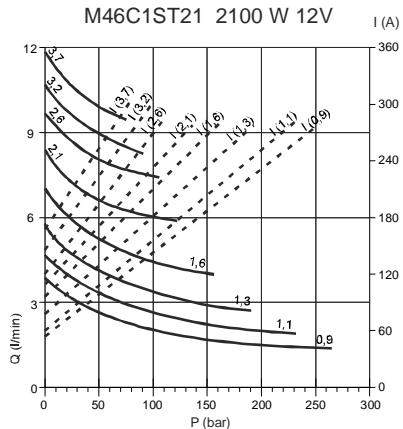


Test made with battery 135Ah 50% charged at 15°C and mineral oil ISO VG46 at 40°C

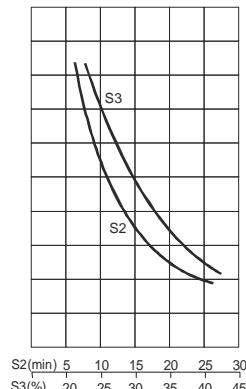
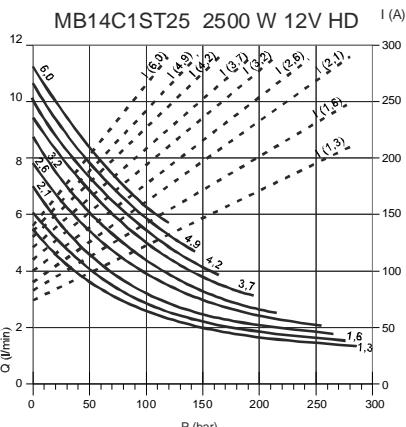
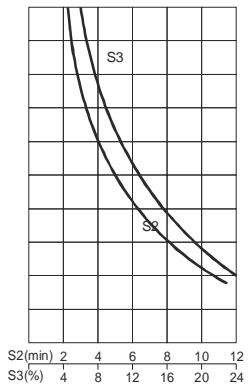
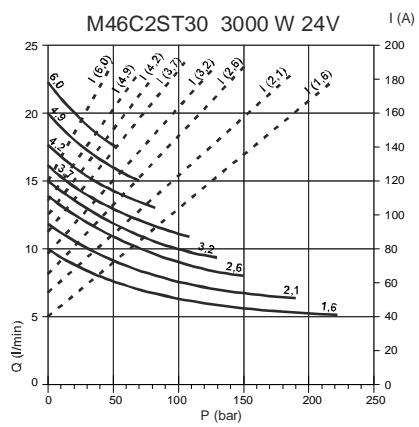


Test made with battery 135Ah 50% charged at 15°C and mineral oil ISO VG46 at 40°C

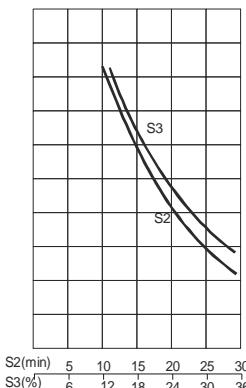
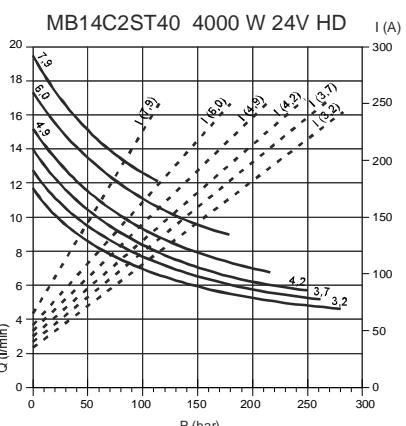
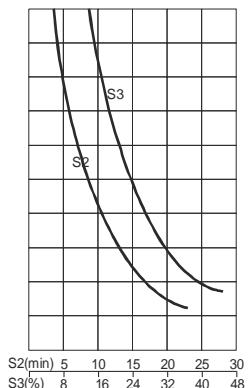
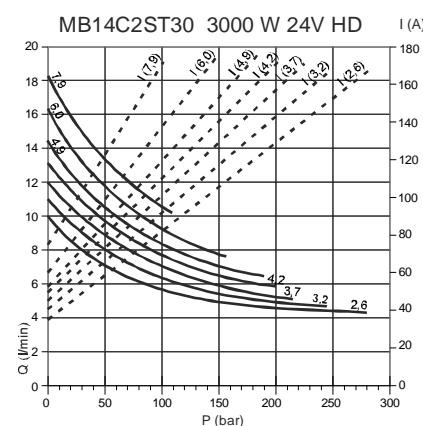
DC MOTORS DIAGRAMS



Test made with battery 135Ah 50% charged at 15°C and mineral oil ISO VG46 at 40°C



Test made with battery 135Ah 50% charged at 15°C and mineral oil ISO VG46 at 40°C



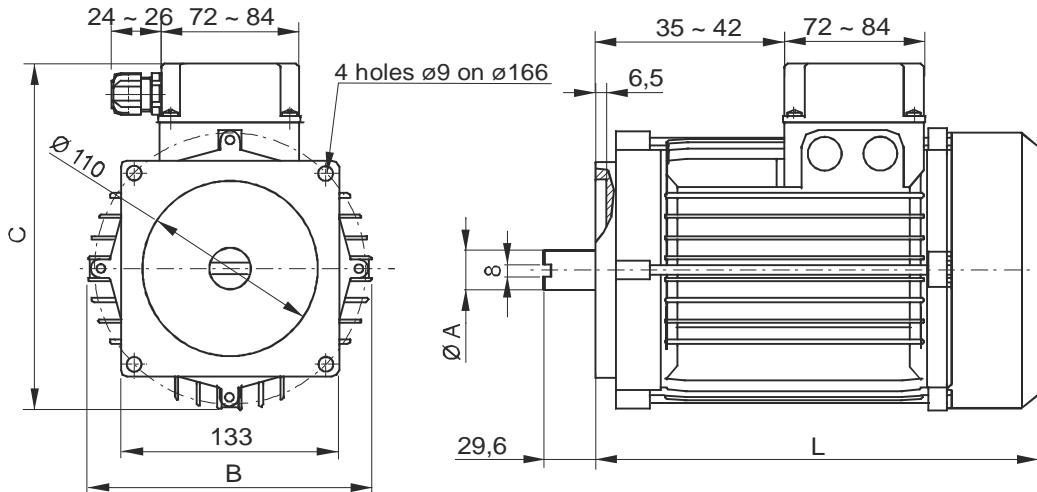
Test made with battery 135Ah 50% charged at 15°C and mineral oil ISO VG46 at 40°C

INTEGRAL AC MOTORS

Integral motors: single phase or three phase in frame 71, 80 and 90, with square flange for direct connection to PPC central manifold and tang drive shaft. A single coupling fits all dimensions. High starting torque single phase «HT» executions available.

CE

Drawings show typical three phase motors. Single phase motors electric have different wiring box (since includes capacitors).



Protection degree: IP54
Insulation class: F

PPC motor assembly code

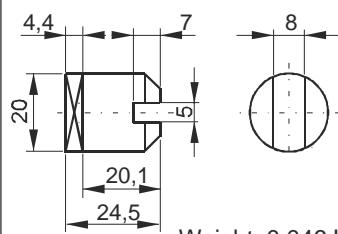
E	AC integral motor
150	Maximum Power [kW] i.e. 150 = 1,5kW
AC	Alternate current
3	Phase: 3 = three phase S = single phase
4	Poles: 4 = four poles 2 = two poles
3	Frame size: 1 = 71 2 = 80 3 = 90
S3	Type of Duty: - = ED 100% (S1) S3 = intermittent duty HT = high torque

See a table of available codes on next table page

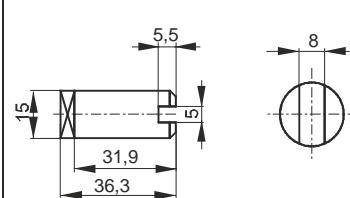
A single coupling can be applied on all motor frame sizes. This is the same coupling included in B14 motors mounting kit.
The coupling is already included when specifying an integral AC motor in the PPC assembly code. When ordering spare motors, the coupling is not included and must be ordered separately.

Coupling spare part code

E36100000 for Gr.1 pumps

**Coupling spare part code**

E36100006 for Gr.0 pumps



INTEGRAL AC MOTORS

Integral AC motor frame size	Maximum Power (S3 40%)	Rated Power (S1 continuous duty)	Spare motor code	Ø A	B	C	L	Weight Kg
	kW (HP)	kW (HP)						
Three-phase 4 poles (~1450 rpm at 50Hz)								
71	-	0,25 (0,35)	E025AC341	17	138	180	210	5,5
	-	0,37 (0,5)	E037AC341	17	138	180	210	5,5
	-	0,55 (0,75)	E055AC341	17	138	180	210	5,6
80	0,75 (1)	-	E075AC341S3	17	138	180	210	5,6
	0,75 (1)	0,55 (0,75)	E075AC342S3	19	156	202	234	10
	1,1 (1,5)	0,75 (1)	E110AC342S3	19	156	202	234	10,5
90	1,5 (2)	1,1 (1,5)	E150AC343S3	24	176	217	279	14
	2,2 (3)	1,5 (2)	E220AC343S3	24	176	217	279	15
	3 (4)	2,2 (3)	E300AC343S3	24	176	217	279	16

Three-phase 2 poles (~2900 rpm at 50Hz)								
Integral AC motor frame size	Maximum Power (S3 40%)	Rated Power (S1 continuous duty)	Spare motor code	Ø A	B	C	L	Weight Kg
	kW (HP)	kW (HP)						
71	-	0,37 (0,5)	E037AC321	17	138	180	210	5
	-	0,55 (0,75)	E055AC321	17	138	180	210	5
80	1,1 (1,5)	0,75 (1)	E110AC322S3	19	156	202	234	10
	1,5 (2)	1,1 (1,5)	E150AC322S3	19	156	202	234	12
	2,2 (3)	1,5 (2)	E220AC322S3	19	156	202	234	12
90	3 (4)	2,2 (3)	E300AC323S3	24	176	217	279	16
	4 (5,4)	3 (4)	E400AC323S3	24	176	217	279	16

Integral AC motor frame size	Maximum Power (S3 40%)	Rated Power (S1 continuous duty)	Spare motor code	Ø A	B	C	L	Weight Kg
	kW (HP)	kW (HP)						
Single-phase 4 poles (~1450 rpm at 50Hz)								
71	-	0,25 (0,35)	E025ACS41	17	138	180	210	6,5
	-	0,37 (0,5)	E037ACS41	17	138	180	210	7,2
80	0,55 (0,75)	0,37 (0,55)	E055ACS42S3*	19	156	202	234	8
	0,75 (1)	0,55 (0,75)	E075ACS42S3*	19	156	202	234	10
90	1,1 (1,5)	0,75 (1)	E110ACS43S3*	24	176	217	279	13
	1,5 (2)	1,1 (1,5)	E150ACS43S3*	24	176	217	279	15
	2,2 (3)	1,5 (2)	E220ACS43S3*	24	176	217	279	15,5

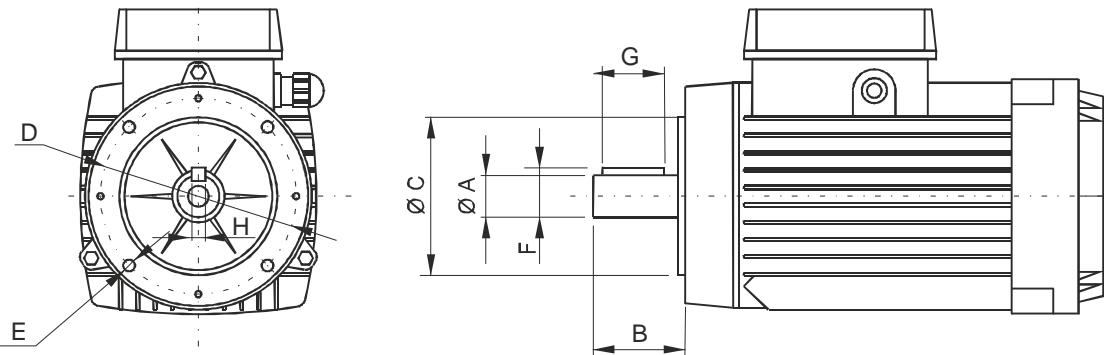
Single-phase 2 poles (~2900 rpm at 50Hz)								
Integral AC motor frame size	Maximum Power (S3 40%)	Rated Power (S1 continuous duty)	Spare motor code	Ø A	B	C	L	Weight Kg
	kW (HP)	kW (HP)						
71	-	0,37 (0,5)	E037ACS21	17	138	180	210	6
	-	0,55 (0,75)	E055ACS21	17	138	180	210	6,5
80	0,75 (1)	0,55 (0,75)	E075ACS22S3	19	156	202	234	8
	1,1 (1,5)	0,75 (1)	E110ACS22S3	19	156	202	234	10
	1,5 (2)	1,1 (1,5)	E150ACS22S3	19	156	202	234	11
90	1,5 (2)	1,1 (1,5)	E150ACS23S3	24	176	217	279	12
	2,2 (3)	1,5 (2)	E220ACS23S3	24	176	217	279	15

Other power / frame sizes and special motor types are available on request. Motors with codes ending with "S3" are for intermittent duty, S3 40% duty cycle means up to 6 switching on and off in an hour, i.e. the motors are ON for 4 min. and OFF for 6 min. These motors can be applied to a continuous duty (S1) at a reduced rated power. See above table.

*: these motors are available in "HT" high starting torque version too.

B14 AC MOTORS

B14 motors: for market compatibility, any standard B14 AC motor with frame 71, 80, 90 or 100/112 can be mounted. In this case two-pieces couplings and additional adaptor flanges as per tables U040.40.10, .11, .12 and .13 must be mounted.

CE


Motors overall dimensions are not indicated since they can vary substantially depending on the motor brand

B14 standard dimensions

MOTOR FRAME SIZE	Typically power range	ØA	B	ØC	D	E	F	G	H	Mounting kit
71	0,25 ~ 0,37 kW 0,37 ~ 0,5 HP	14 j6	30	70	85	M6	16	30	5	XB1471
80	0,55 ~ 0,75 kW 0,75 ~ 1 HP	19 j6	40	80	100	M6	21,5	40	6	XB1480
90	1,1 ~ 1,5 kW 1,5 ~ 2 HP	24 j6	50	95	115	M8	27	50	8	XB1490
100/112	2,2 ~ 7,5 kW 3 ~ 10 HP	28 j6	60	110	130	M8	31	60	8	XB14100

PPC B14 motor assembly code

7,5	Power [kW]
AC	Alternate current
3	Phase: 3 = three phase S = single phase
4P	Poles: 4P = four pole 2P = two pole
112	Frame size: 71, 80, 90, 100, 112
-	Duty factor: - = ED 100% (S1) S3 = intermittent duty

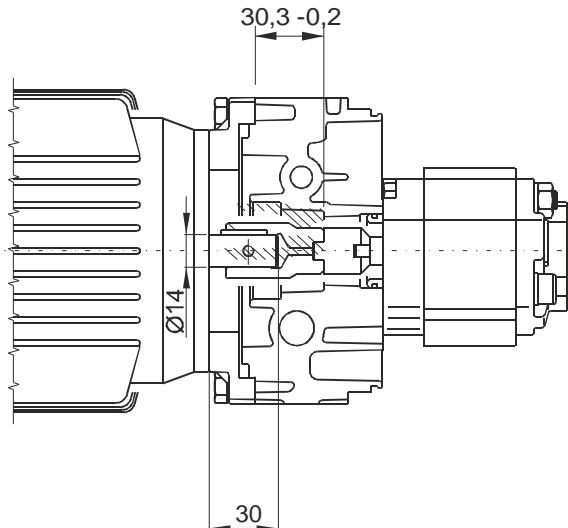
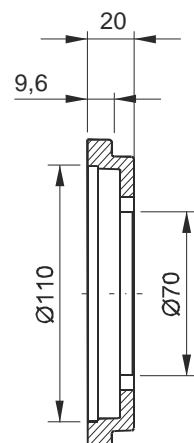
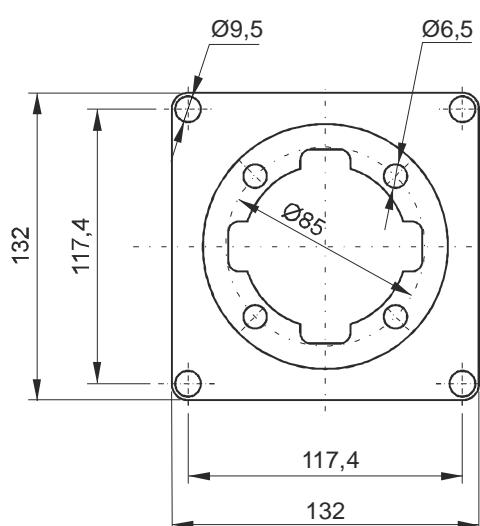
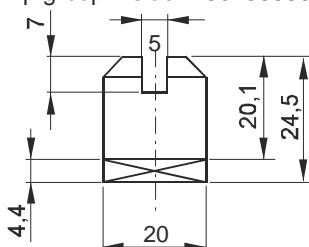
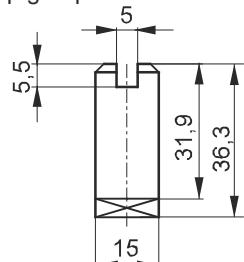
Mounting kits spare parts

The B14 mounting kits are made of:

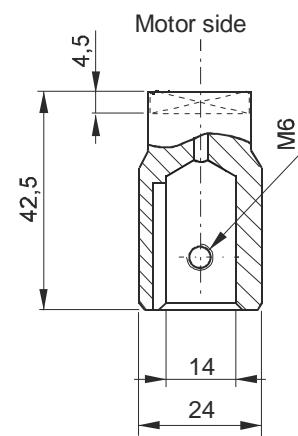
- a semi-coupling E36100000 (the same used for integral AC motors) on pump shaft side
 - a semi-coupling on motor shaft side, which is different for any frame size
 - an adaptor flange to suit the central manifold, which is also different for any frame size.
- For detailed dimensions and codes see tables U040.40.09, .10, .11 and .12.
- The mounting kit is already included when specifying a B14 AC motor in PPC assembly code. When ordering spare motors, the relevant mounting kit is not included and must be ordered separately.

SECTION A**MOUNTING KIT FOR FRAME 71 B14 MOTORS**

Kit weight: 0,32 Kg

**Adaptor flange****Coupling**Pump group 1 side **E36100000**Pump group 0 side **E36100006**

Weight: 0,18 Kg



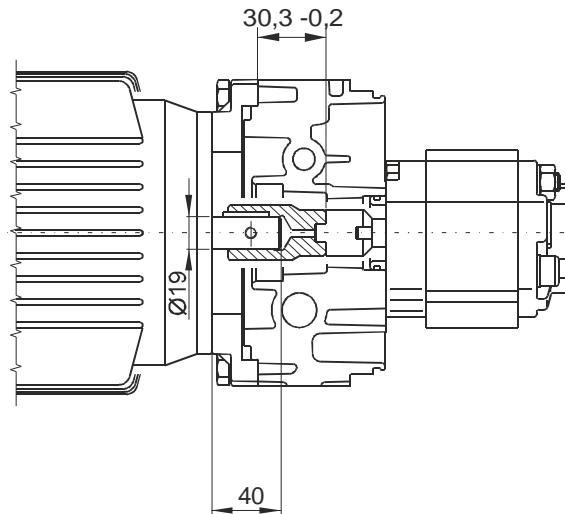
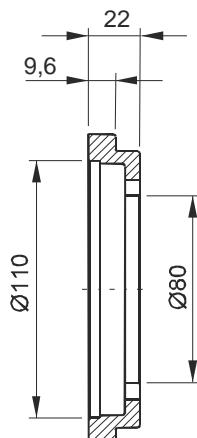
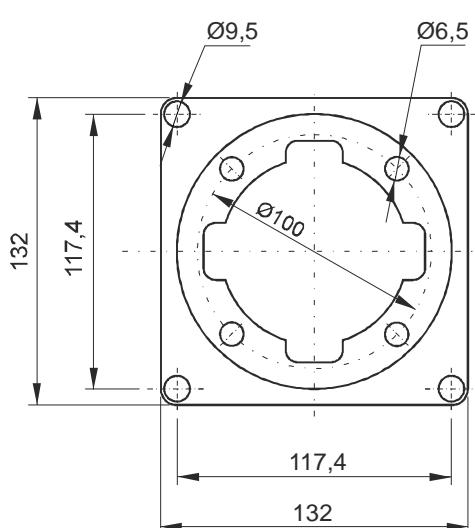
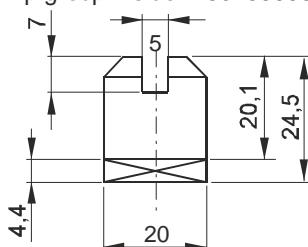
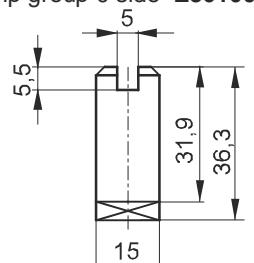
Description	PPC assembly code*	Spare part code
B14 71 motor side semi-coupling		E3610001
B14 pump side semi-coupling	XB1471 -0 (gr.0)	E3610006
B14 71 adaptor flange	-1 (gr.1)	E3610000
		F27010001

* Note: the coupling+ flange kit is already included when specifying a B14 motor in PPC assembly code. XB14-71 code to be indicated only when ordering PPC with no motor but with coupling + flange kit.

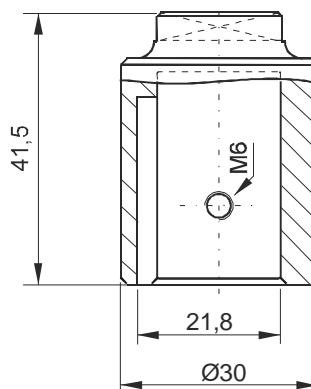
Attention! When assembling frame 71 B14 motors with X-B14 flange + couplings kit, please respect following positioning measures. Failing to do so can cause malfunctioning or components failure.

MOUNTING KIT FOR FRAME 80 B14 MOTORS

Kit weight: 0,36 Kg

**Adaptor flange****Coupling**Pump group 1 side **E36100000**Pump group 0 side **E36100006****Motor side**

Weight: 0,21 Kg



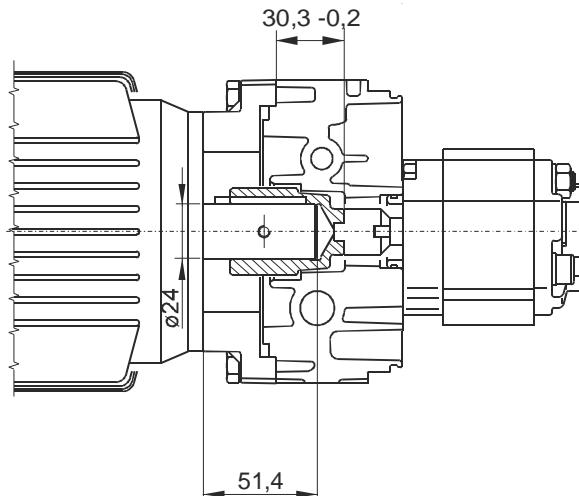
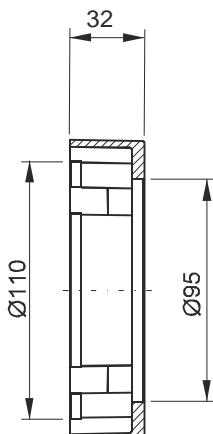
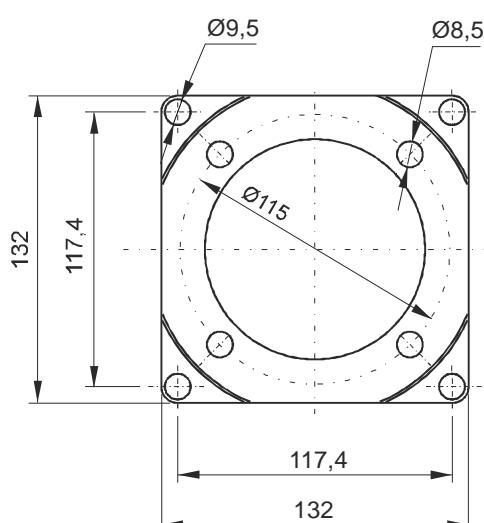
Description	PPC assembly code*	Spare part code
B14 80 motor side semi-coupling		E36100002
B14 pump side semi-coupling	XB1480 -0 (gr.0)	E36100006 E36100000
B14 80 adaptor flange	XB1480 -1 (gr.1)	F27010002

* Note: the coupling+ flange kit is already included when specifying a B14 motor in PPC assembly code. XB14-80 code to be indicated only when ordering PPC with no motor but with coupling + flange kit.

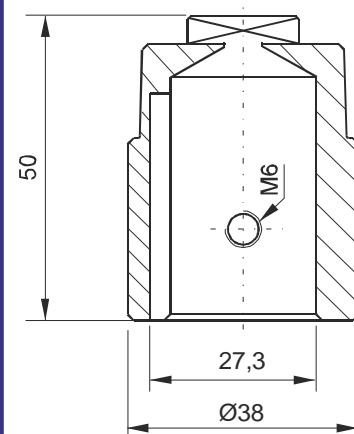
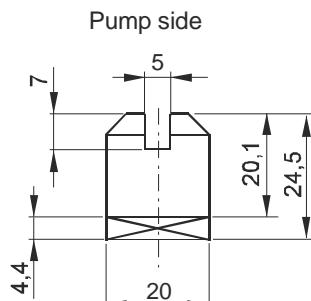
Attention! When assembling frame 80 B14 motors with X-B14 flange + couplings kit, please respect following positioning measures. Failing to do so can cause malfunctioning or components failure.

MOUNTING KIT FOR FRAME 90 B14 MOTORS

Kit weight: 0,59 Kg

**Adaptor flange**

Weight: 0,35 Kg

Coupling**Motor side**

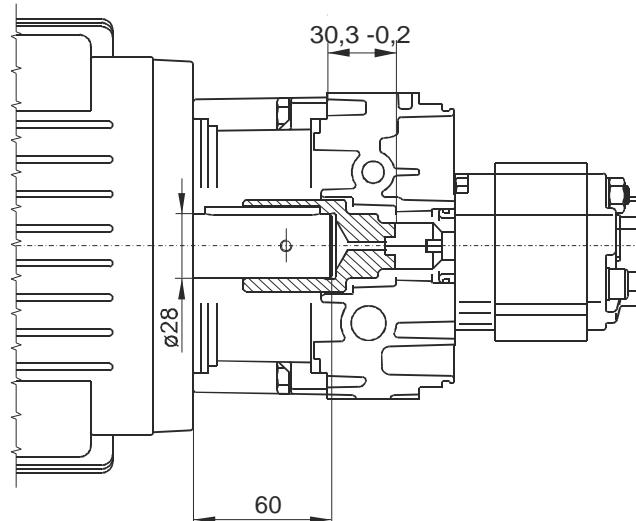
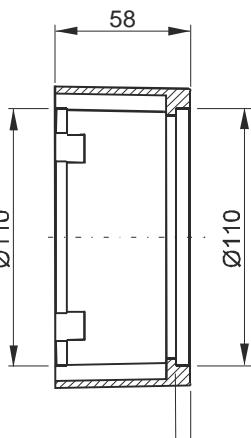
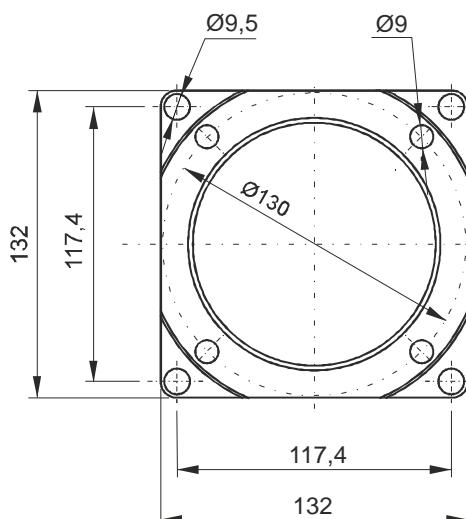
Description	PPC assembly code*	Spare part code
B14 90 motor side semi-coupling	XB1490	E36100003
B14 pump side semi-coupling		E36100000
B14 90 adaptor flange		F27010003

* Note: the coupling+ flange kit is already included when specifying a B14 motor in PPC assembly code. XB14-90 code to be indicated only when ordering PPC with no motor but with coupling + flange kit.

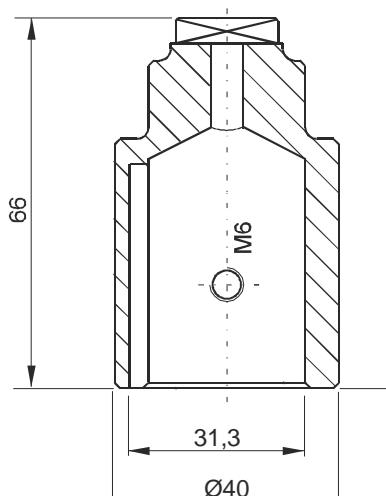
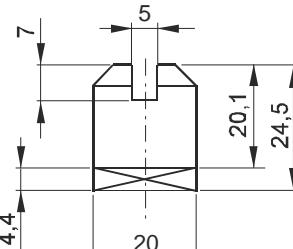
Attention! When assembling frame 90 B14 motors with X-B14 flange + couplings kit, please respect following positioning measures. Failing to do so can cause malfunctioning or components failure.

MOUNTING KIT FOR FRAME 100/112 B14 MOTORS

Kit weight: 0,99 Kg

**Adaptor flange****Coupling**

Weight: 0,66 Kg

Pump side**Motor side**

Description	PPC assembly code*	Spare part code
B14 100 motor side semi-coupling	XB14100	E36100004
B14 pump side semi-coupling		E36100000
B14 100 adaptor flange		F27010004

* Note: the coupling+ flange kit is already included when specifying a B14 motor in PPC assembly code. XB14-100 code to be indicated only when ordering PPC with no motor but with coupling + flange kit.

Attention! When assembling frame 100/112 B14 motors with X-B14 flange + couplings kit, please respect following positioning measures. Failing to do so can cause malfunctioning or components failure.

UNIVERSAL CENTRAL MANIFOLD

A single universal die-cast aluminium central manifold in 4 different executions is the core part to realize all power units in industrial, mobile and marine fields. It features the highest integration and flexibility on the market, with up to nine devices which can be fitted inside, plus a wide selection of manifold blocks which can be connected externally to suit spool or cartridge type valves

The interface to hose fittings or external additional manifolds is unified. The P and T ports threads for the hose fittings direct connection are 1/4" BSPP (International standard) or 9/16-18UNF (SAE06) for the American standard execution.

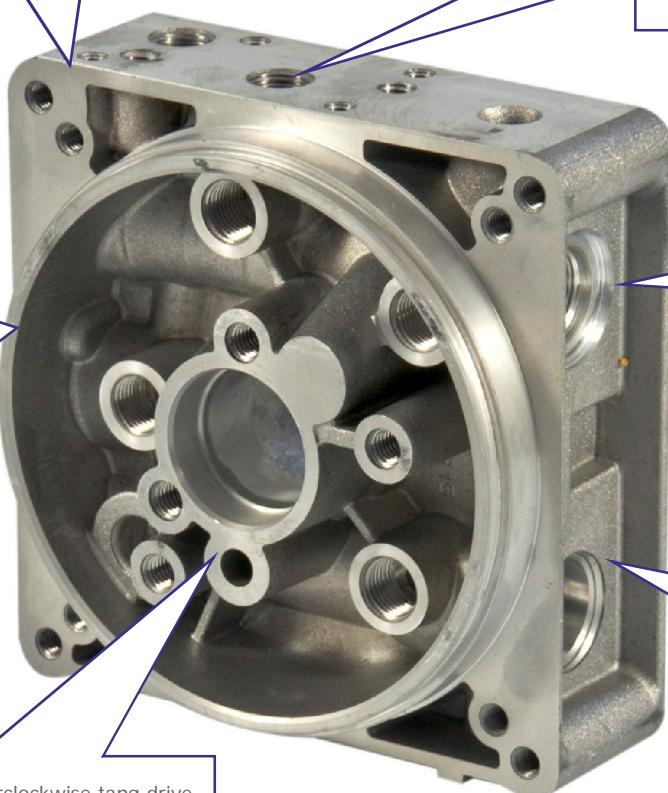
The interfaces to tanks and motors are unified. All plastic or steel tanks have same interface and can be easily swapped.

All AC or DC motors can be fitted easily either directly to the central manifold or through adaptor flanges (B14 IEC standard motors)

Lateral cavities are according SAE08 standard (3/4-16UNF), except for the main relief valve one which is M20x1,5

Maximum flow is 25 l/min, with a low pressure drop, and maximum motor power is 7,5kW, well above the average of other alternative products on the market

Clockwise (our standard) or counterclockwise tang drive shaft standard gear pumps can be mounted.
Double pump, also with HI-LO circuit, are available too.



Which universal central manifold execution should I choose?

UA type is the most widely applied for single acting or double acting circuits. UB is the real «Universal» central manifold since adds to UA type features two extra lateral cavities to mount, for example, an integrated emergency hand pump and an externally adjustable flow control. U4 is recommended for compact and cost effective double acting circuits with a single cylinder while UR is for bidirectional pumps.

Do I need special tools to assemble the components within the central manifold?

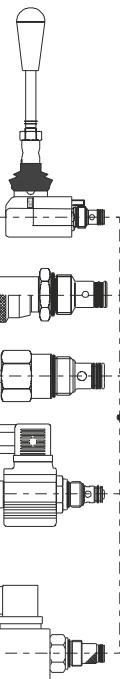
No. All valves are screw-in type in a single piece construction (no loose nuts, washers, springs,... difficult to assemble and falling apart). The components are easily assemblable with simple hand tools and hexagon keys.

Is the central manifold available as loose component?

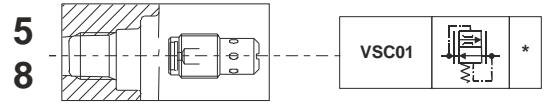
Yes. We can supply either fully assembled and tested power packs or kits of loose components, which can be kept in stock by our worldwide distributors and easily assembled to satisfy local market demand quickly and effectively. Central manifolds and other components are 100% tested even when supplied as loose parts.

UNIVERSAL CENTRAL MANIFOLD «UA» EXECUTION VALVE COMBINATIONS

EM		CM04M
E		CM04
U		PMC02
S		CSB
Z		CPE
D		MDV30E
C		MSV31E
A		MSV30
B		MSV30E
T		CSPC15

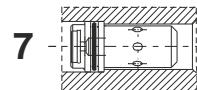


VSC04



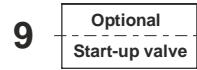
VSC01

*



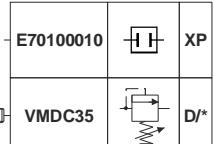
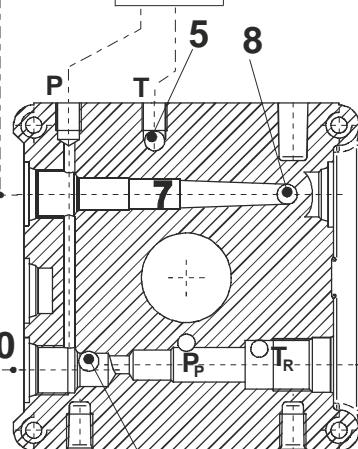
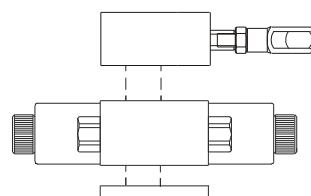
VSC04

*



VUBA01

SUV

Modular manifolds
(See section U040.30)

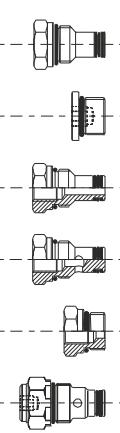
E70100010

XP

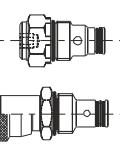
VMDC35

D/*

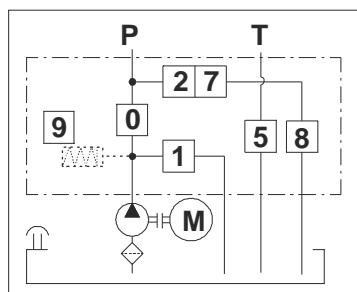
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L		E70100004
P		E70100006
H		E70100003
N		E70100002
J		VUC20

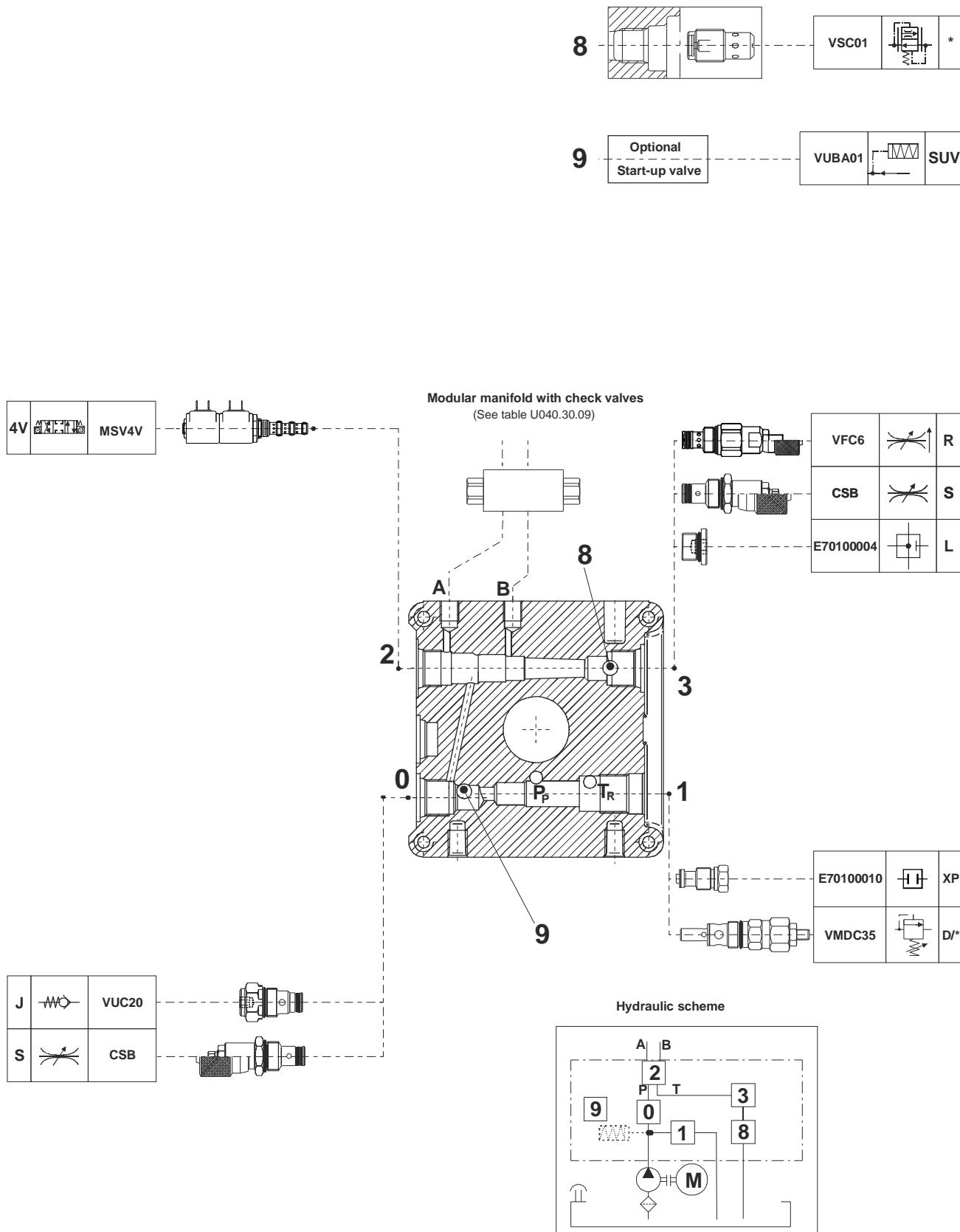


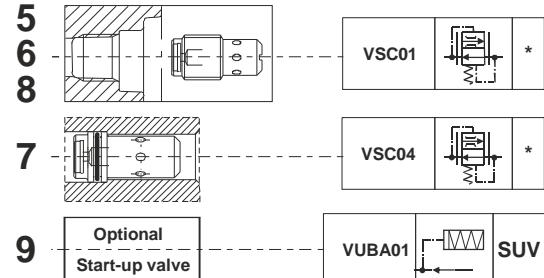
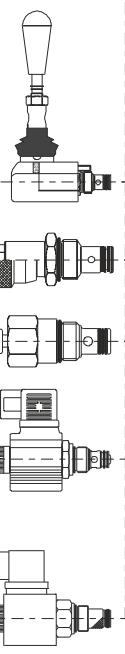
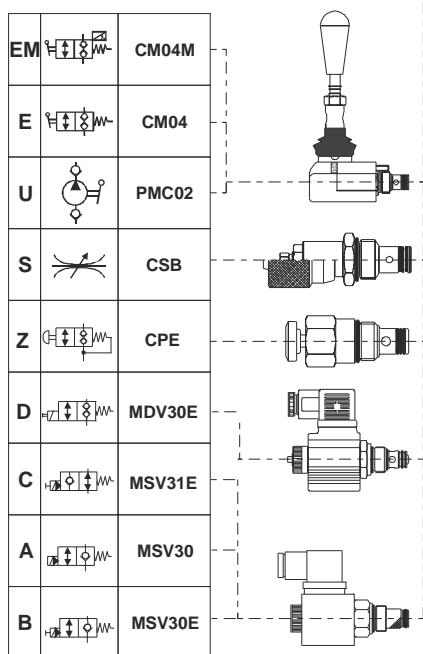
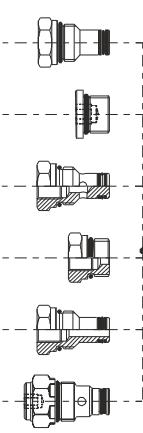
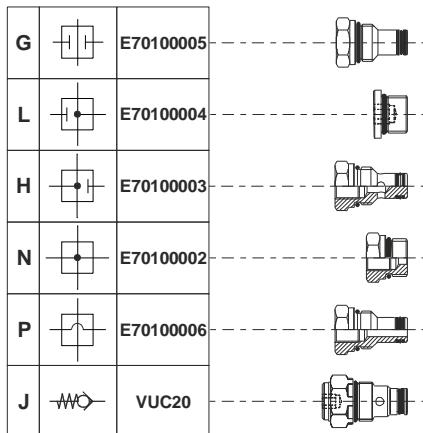
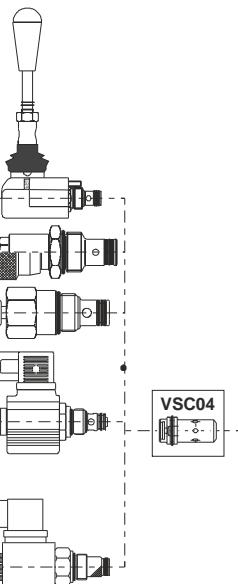
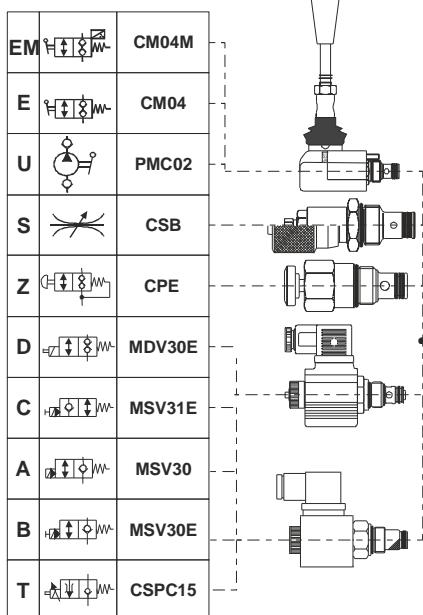
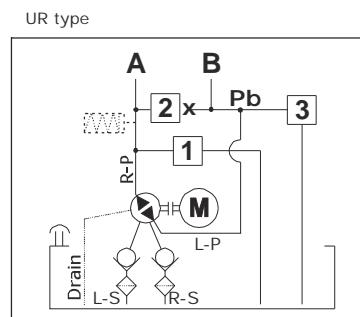
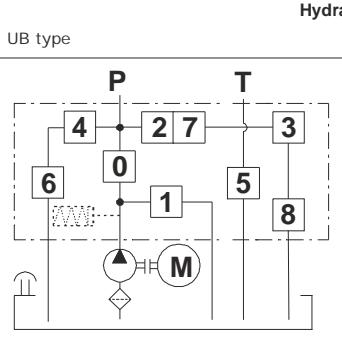
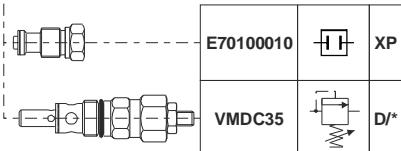
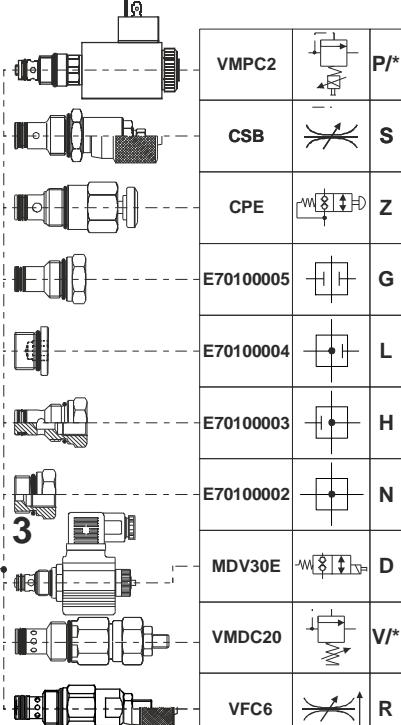
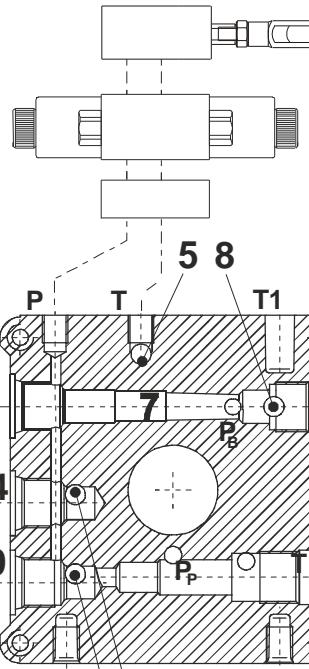
J		VUC20
S		CSB



Hydraulic scheme



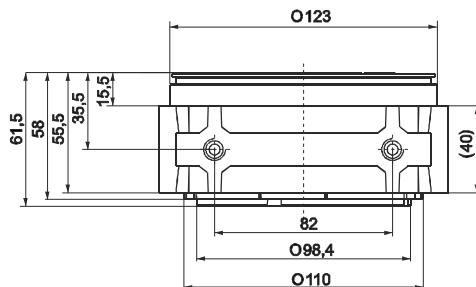
SECTION B**UNIVERSAL CENTRAL MANIFOLD «U4» EXECUTION VALVE COMBINATIONS**

SECTION B**UNIVERSAL CENTRAL MANIFOLD «UB» AND «UR» EXECUTION VALVE COMBINATIONS**Modular manifolds
(See section U040.30)

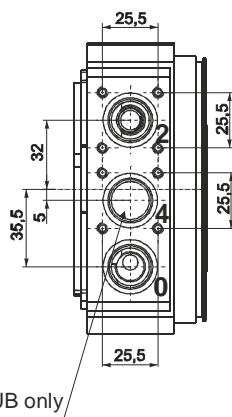
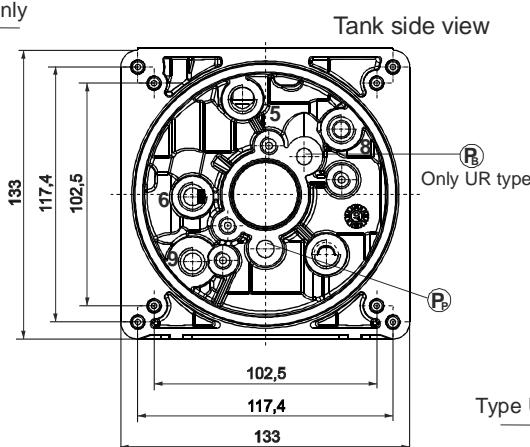
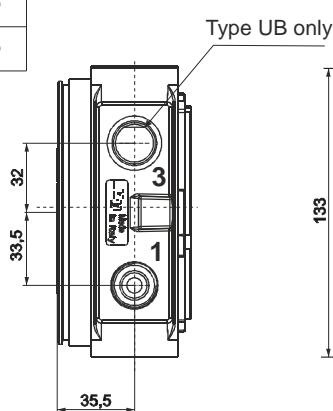
BR type is for reversible pumps. See section U040.20.21

UNIVERSAL CENTRAL MANIFOLD OVERALL DIMENSIONS

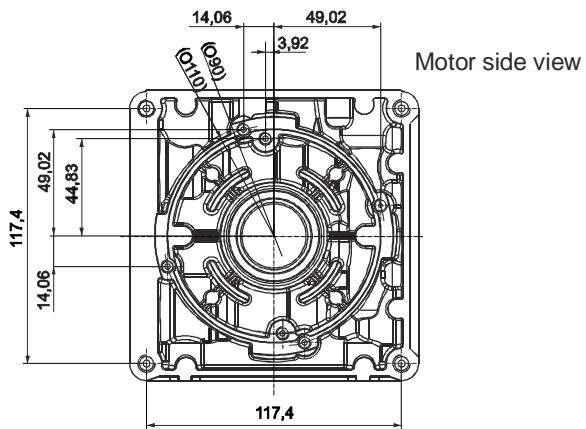
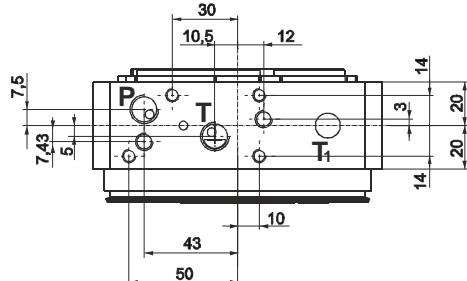
Type	Spare part code
UA	E60104020
UB	E60104021
U4	E60104022
UR	E60104023
UAUS	E60104020US
MBUS	E60104021US
U4US	E60104022US
URUS	E60104023US



Weight: 1,10 kg



Cavity	Threads
1	M20x1,5 (relief valve)
0, 2, 3, 4	3/4-16 UNF (SAE08)
P-T	1/4" BSPP 9/16-18 UNF (US type)
T ₁	1/4" BSPP (threaded on request only)
5, 6, 8, 9	1/4" BSPP (9 threaded on request only)
External manifold attachment	2 pcs M8 tie-rods 4 pcs M6 tie-rods
Tanks attachment	4 pcs M6x14
Integral AC Motors attachment	4 pcs M8x25
DC Motors attachment	2 pcs M6x14 or M6 tie rods
Pump attachments	2 pcs M8 (see pump length on the relevant tables)
Foot mounting support attachments	2 pcs M10x18
PMC hand pump / CM lever valve cap attachments	2 pcs M5x45



PUMPS

K series. The standard pressure balanced design for cost effective solutions. Also available in double execution, with or without HI-LO circuit integrated in the pump itself



G series. The lightweight, pressure balanced, low noise and high efficiency pump specifically designed for mini power packs

H series. It features an oversized shaft and an higher number of teeth for high pressure applications, up to 280 bar peak.



R series: bidirectional pumps with integrated suction check valves and two front outlet ports. They can be fitted on UR type central manifold.

Why are pressure balanced gear pumps better than fixed clearings gear pumps?

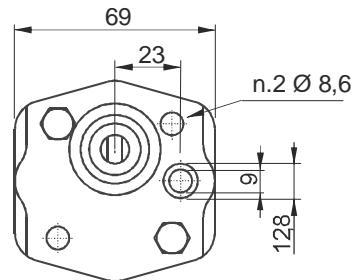
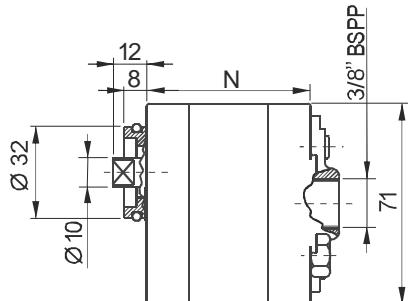
Pressure balanced gear pumps are built with lateral pressure plates which reduce the mechanical clearings on the gears with the increase of the pressure on the outlet, thus greatly improving the fluidodynamic efficiency, reducing heat generation and energy consumption. The mechanical efficiency is kept at optimal levels too.

How can we mount both group 0 and group 1 pumps on the same Universal central manifold?

The group 1 pumps fits directly on the central manifold and are fixed to it by two bolts, provided together with the pump. The group 0 pumps are fitted by the adaptor plate E60513025, which adapts the pump front flange to the central manifold.

Why are the pump technical specifications showing three maximum pressure levels?

Our pumps have three ratings for the maximum allowable pressure: 1-Peak: is the maximum one and can be allowed for a maximum cycle of 2 seconds. 2-Intermittent: it can be applied on the pump for a maximum cycle of 20 seconds; 3-Continuous: it can be applied on the pump continuously.

G TYPE GEAR PUMPS. GROUP 1**Main features**

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar (absolute pressure)
Fixing bolts	2 x M8 8.8 class steel tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON
Filtration setting	25 ÷ 50 µ

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

Spare part code

E60 ** 30 **

Size:

Pump type:
60 = Group 1
50 = Group 0

see spare part code
on below table

PPC assembly code field

G

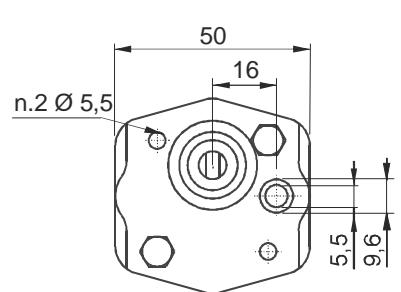
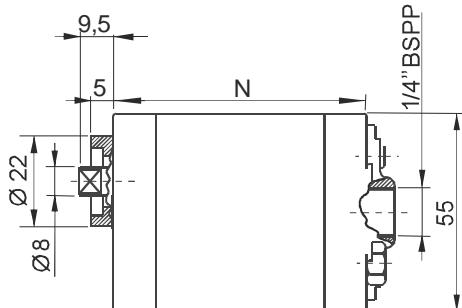
Pump type:
G = G type

1,1

Nominal displacement:
(cc/rev) see below table**Available range**

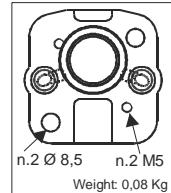
Nominal displacement (cc/rev)	Peak pressure (bar)	Intermittent pressure (bar)	Continuous pressure (bar)	Max speed (rpm)	N (mm)	Bolts* (mm)	Code marked on pump	Spare part code	Weight
0,8	250	230	210	6000	35,8	M8x50	EK1PD1.2G	E60603001	0,49 Kg
1,1	250	230	210	6000	36,8	M8x50	EK1PD1.6G	E60603002	0,50 Kg
1,3	250	230	210	6000	37,8	M8x50	EK1PD2G	E60603003	0,51 Kg
1,6	250	230	210	6000	38,8	M8x50	EK1PD2.5G	E60603035	0,52 Kg
2,1	250	230	210	6000	40,3	M8x55	EK1PD3.3G	E60603004	0,54 Kg
2,6	250	230	210	6000	42,3	M8x55	EK1PD4.2G	E60603005	0,56 Kg
3,2	230	210	190	5000	43,8	M8x55	EK1PD5G	E60603006	0,58 Kg
3,7	230	210	190	4500	45,8	M8x60	EK1PD5.8G	E60603007	0,61 Kg
4,2	230	210	190	4000	47,3	M8x60	EK1PD6.7G	E60603008	0,63 Kg
4,9	210	190	170	3500	49,3	M8x60	EK1PD7.5G	E60603009	0,65 Kg
6,0	210	190	170	3000	51,3	M8x90	EK1PD9.2G	E60603010	1,01 Kg
7,9	200	180	160	2100	88,0	M8x100	K1PD11.5G	E60603012	1,12 Kg
9,8	170	150	130	1700	95,0	M8x110	K1PD14.5G	E60603014	1,27 Kg

* A proper washer is to be forecast to adapt bolt length

G TYPE GEAR PUMPS. GROUP 0**Main features**

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar (absolute pressure)
Fixing bolts	2 x M8 8.8 class steel tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON
Filtration setting	25 ÷ 50 µ

Aluminium adapter flange for group 0
Code: E60513025



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

Spare part code

E60 ** 30 **

Pump type:
60 = Group 1
50 = Group 0

Size:
see spare part code
on below table

PPC assembly code field

G

Pump type:
G = G type

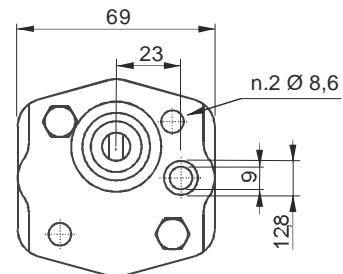
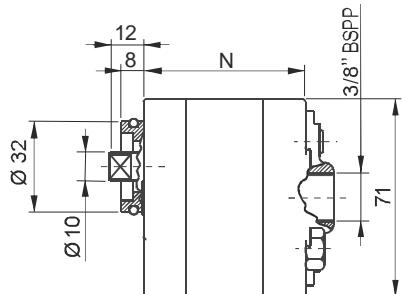
1,1

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)	Code marked on pump	Spare part code	Weight
0,1	230	210	190	7000	44,5	M5x55	UK0,25D18G	E60503001	0,31 Kg
0,2	230	210	190	7000	44,5	M5x55	UK0,25D24G	E60503002	0,33 Kg
0,4	230	210	190	7000	47,5	M5x55	UK0,25D36G	E60503004	0,35 Kg
0,6	230	210	190	7000	51,5	M5x60	UK0,5D0.75G	E60503006	0,40 Kg

* A proper washer is to be forecast to adapt bolt lenght

K TYPE GEAR PUMPS. GROUP 1**Main features**

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar (absolute pressure)
Fixing bolts	2 x M8 8.8 class steel tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON
Filtration setting	25 ÷ 50 µ

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: **E60 ** 40 ****
60 = Group 1
50 = Group 0

Size:
see spare part code
on below table

PPC assembly code field

K → Pump type:
K = K type

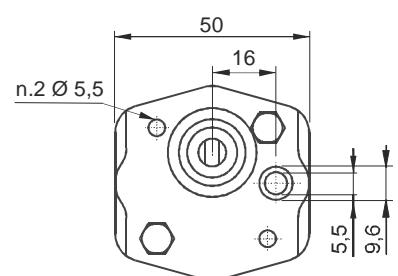
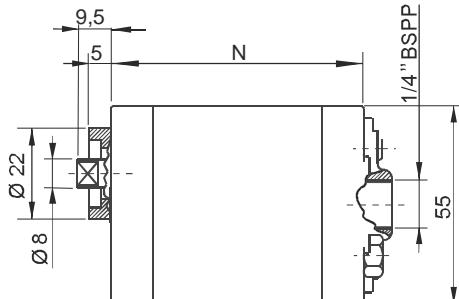
1,2 → Nominal displacement:
(cc/rev) see below table

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
0,9	250	230	200	4500	60	M8x75	E60604001	0,73 Kg
1,2	250	230	200	4500	61	M8x75	E60604002	0,75 Kg
1,6	250	230	200	4500	63	M8x80	E60604035	0,77 Kg
2,1	250	230	200	4500	65	M8x80	E60604004	0,79 Kg
2,7	250	230	200	4500	66	M8x80	E60604005	0,82 Kg
3,2	250	230	200	4500	70	M8x85	E60604006	0,86 Kg
3,7	230	210	180	3600	72	M8x85	E60604007	0,88 Kg
4,2	230	210	180	3600	74	M8x90	E60604008	0,90 Kg
5,0	210	180	140	3000	76	M8x90	E60604009	0,94 Kg
6,0	210	180	140	3000	80	M8x100	E60604010	0,98 Kg
7,9	180	140	100	3000	90	M8x110	E60604012	1,10 Kg

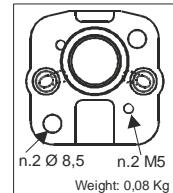
Other pumps executions with different pressure/speed ratings are available on request.

* A proper washer is to be forecast to adapt bolt lenght

K TYPE GEAR PUMPS. GROUP 0**Main features**

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar (absolute pressure)
Fixing bolts	2 x M8 8.8 class steel tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON
Filtration setting	25 ÷ 50 µ

Aluminium adapter flange for group 0
Code: E60513025



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

Spare part code

E60 ** 40 **

Pump type:
60 = Group 1
50 = Group 0

Size:
see spare part code
on below table

PPC assembly code field

K

Pump type:
K = K type

1,2

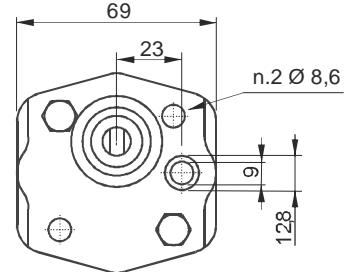
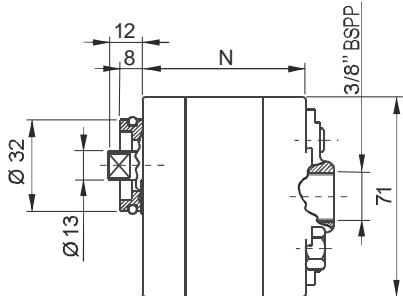
Nominal displacement:
(cc/rev) see below table

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
0,2	200	180	160	6000	45,5	M5x55	E60504002	0,33 Kg
0,4	200	180	160	6000	47,5	M5x55	E60504004	0,35 Kg
0,6	200	180	160	6000	51,5	M5x60	E60504006	0,40 Kg

Other pumps executions with different pressure/speed ratings are available on request.

* A proper washer is to be forecast to adapt bolt lenght

H TYPE HIGH PRESSURE GEAR PUMPS**Main features**

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar (absolute pressure)
Fixing bolts	2 x M8 8.8 class steel tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON
Filtration setting	25 ÷ 50 µ

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

Spare part code

E60 60 50 **

Size:
see spare part code
on below table

PPC assembly code field

H

Pump type:
H = H type

1,2

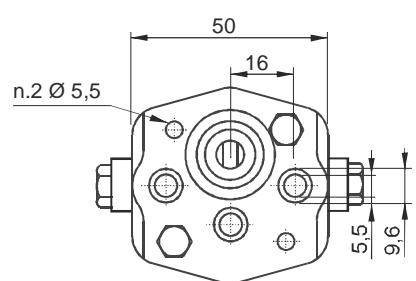
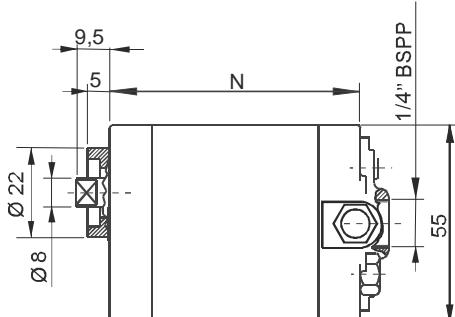
Nominal displacement:
(cc/rev) see below table

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
1,2	280	270	250	5000	40	M8x55	E60605002	0,5 Kg
1,7	280	270	250	4500	41	M8x55	E60605035	0,52 Kg
2,2	280	270	250	4500	44	M8x55	E60605004	0,54 Kg
2,6	280	270	250	4500	46	M8x60	E60605005	0,56 Kg
3,2	280	270	250	4000	52	M8x65	E60605006	0,58 Kg
3,8	280	270	250	3800	55	M8x70	E60605007	0,61 Kg
4,2	280	270	250	3500	82	M8x95	E60605008	1,05 Kg
4,7	260	250	240	3200	84	M8x100	E60605009	1,12 Kg
6,0	230	220	210	3000	94	M8x110	E60605010	1,22 Kg

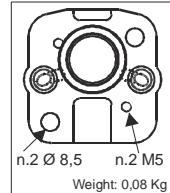
Other pumps executions with different pressure/speed ratings are available on request.

* Proper washers are to be forecast to adapt bolt lenght

BIDIRECTIONAL GEAR PUMPS. GROUP 0**Main features**

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 3,0 bar (absolute pressure)
Fixing bolts	2 x M8 8.8 class steel tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 2 s ON Intermittent pressure: cycle 20 s ON Continuous pressure: cycle always ON
Filtration setting	25 ÷ 50 µ

Aluminium adapter flange
Code: E60513025



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

Spare part code

E605045 **

Size:
see spare part code
on below table

PPC assembly code field

R

Pump type:
R = Reversible type

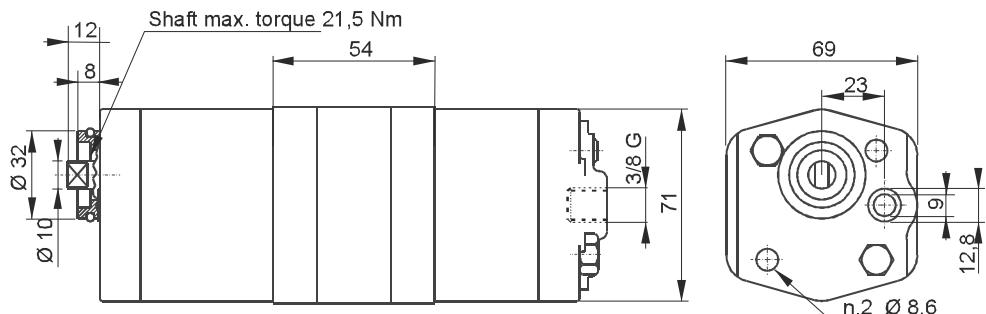
1,3

Nominal displacement:
(cc/rev) see below table

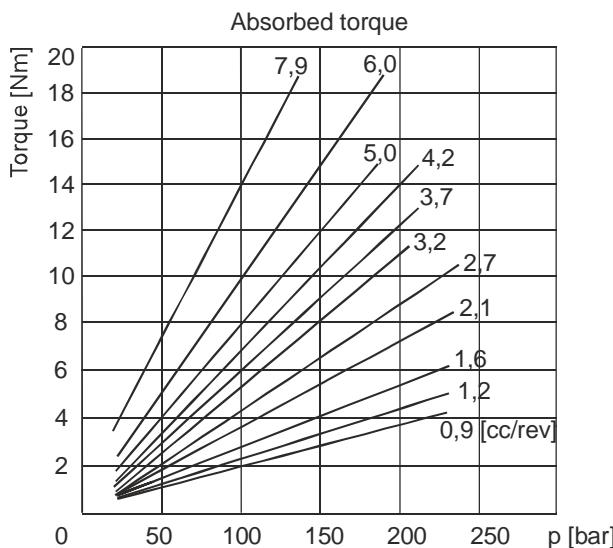
Available range

Nominal Displacement (cc/rev)	Peak pressure (bar)	Intermittent pressure (bar)	Continuous pressure (bar)	Max speed (rpm)	N (mm)	Bolts* (mm)	Spare part code	Weight
0,1	190	170	150	6000	45,5	M5x55	E60503501	0,44 Kg
0,2	200	180	160	6000	45,5	M5x55	E60504502	0,46 Kg
0,4	200	180	160	6000	47,5	M5x55	E60504504	0,48 Kg
0,6	200	180	160	6000	54,5	M5x60	E60504506	0,49 Kg
0,9	200	180	160	5000	62,4	M5x60	E60504509	0,50 Kg
1,3	200	180	160	3900	63,2	M5x65	E60504513	0,51 Kg
1,5	200	180	160	3900	64,5	M5x65	E60504515	0,52 Kg

* A proper washer is to be forecast to adapt bolt lenght
For higher displacement please ask to our technical department

DOUBLE GEAR PUMPS

Common 3/8" BSPP inlet port (on the rear cover) alternatively individual inlet side ports are available

**PPC assembly code field**

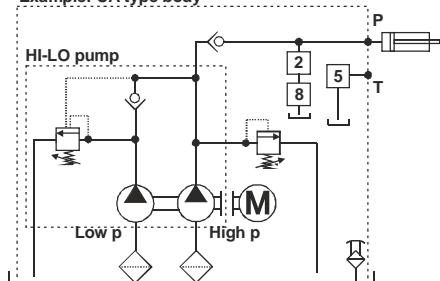
- G** Pump type:
G = G type
K = K type
- 1,1** Displacement 1st section:
see U040.20.18 - 19 table
- +**
- 2,1** Displacement 2nd section:
see U040.20.18 - 19 table
- HL** Option:
Hi - Lo execution

Standard combinations available

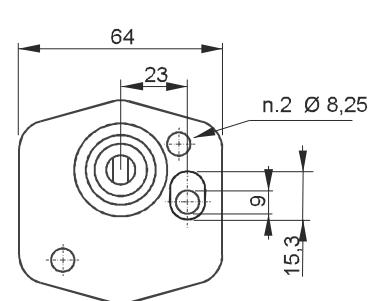
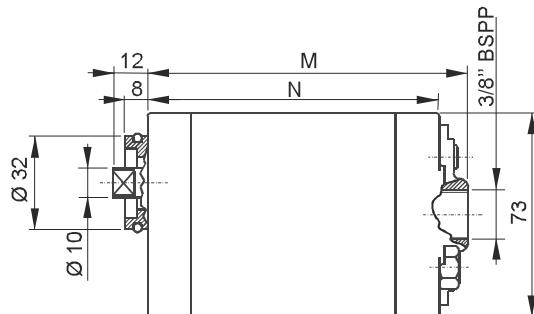
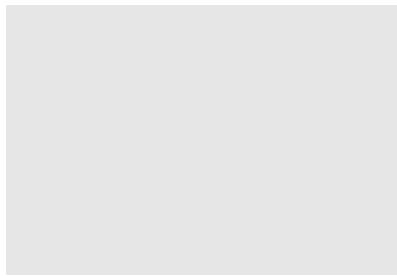
Type	Nominal Displacement (cc/rev)	Peak pressure (bar)	Intermittent pressure (bar)	Continuous pressure (bar)	Unloading pressure (bar)	Max speed (rpm)	Spare part code	Weight
K0,9+3,2HL	0,9 + 3,2	250	230	210	42±5	1750	E60600932HL	2,12 Kg
K2,1+6,0HL	2,1 + 6,0	250	230	210	42±5	1750	E60602160HL	2,29 Kg

PUMPS CHOICE DIMENSIONING:

- Check that the power absorption of the front element is equal or higher than the rear one
- Element performance and features are the same as the elements of corresponding single pumps (see table in U040.20.18 - 19 sections)
- Double pump maximum rotation speed is determined by the lowest speed among maximum rotation speeds of each single element
- Torque applied on the shaft of the first element is the addition of the torques absorbed by the two pumps (see above diagram); this value must never go over the limit value allowed for the shaft (21,5 Nm).

Example: UA type body**HI-LO**

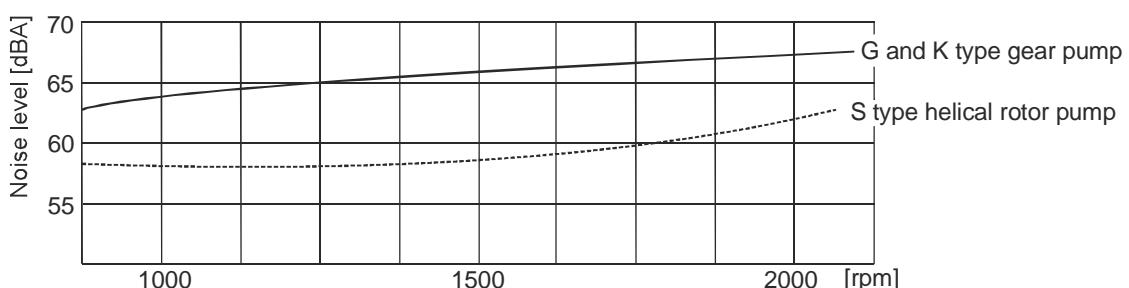
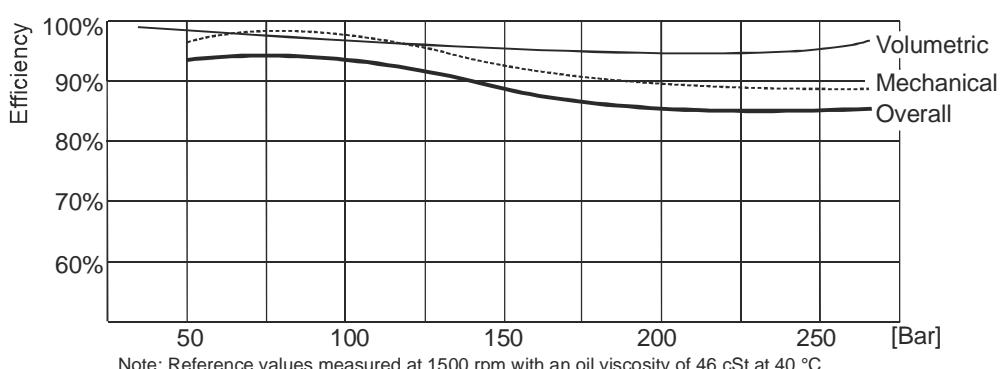
It's an efficient and energy saving solution for applications where you need a fast approach and an high pressure working phase (industrial presses, garbage compactors,...). During the high speed phase both pumps are supplying flow to the system while during the high pressure phase, the high flow pump is discharged back to tank with no load. This solution can be conveniently realized with our UA or UB or U4 central manifold without any additional kit. Ask to our technical office for more details.

HELICAL ROTOR PUMPS FOR HIGH PRESSURE, HIGH FLOW AND LOW NOISE APPLICATIONS**Main features**

Oil temperature	-15 ÷ +80 °C
Inlet pressure	0,7 < P < 2,0 bar (absolute pressure)
Weight	2 ÷ 2,5 Kg
Filtration setting	30 ÷ 50 µ
Fixing bolts	2 x M8 8.8 class steel tightening torque: 25 Nm
Pressure definition	Peak pressure: cycle 1 sec. & 3 sec. OFF Intermittent pressure: cycle 20 sec. & 3 sec. OFF Continuous pressure: cycle always ON

Available range

PPC code	Displacement (cc/rev)	Peak pressure (bar)	Intermittent pressure (bar)	Continuous pressure (bar)	Max speed (rpm)	N (mm)	M (mm)	Noise level (dbA)	Spare part code
S6,4	6,4	250	230	200	3600	93	100	55	S60603010
S8,3	8,3	215	195	153	3600	98	105	55	S60603012
S10	10,2	190	170	126	3600	103	110	55	S60603014
S13	12,9	160	140	99	3600	110	117	55	S60603016



INTEGRAL COMPONENTS

Two way no leakage solenoid valves SAE08 (3/4-16UNF) are available in Normally Closed, Normally Open, single and double locking executions. Manual override also available.



The PMC02 cartridge hand pump SAE08 (3/4-16UNF), 2 cc/stroke is an affordable and easy way to add an emergency function to your power pack.



VSC flow control valves are pressure compensated to keep a stable lowering speed of single acting cylinders independently of the load



The main relief valve is fitted in a M20x1.5 cavity and is built with a guided poppet to improve pressure setting stability and avoid the typical noise of lower cost alternative valves



All cartridges are supplied in single piece, easily screwable

The main check valve fits in a SAE08 (3/4-16UNF) standard cavity and can be easily unmounted from the outside for easy cleaning and servicing

How does the coding of the power pack works?

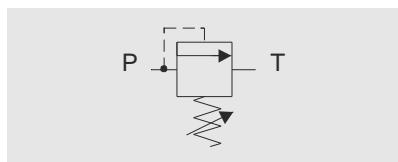
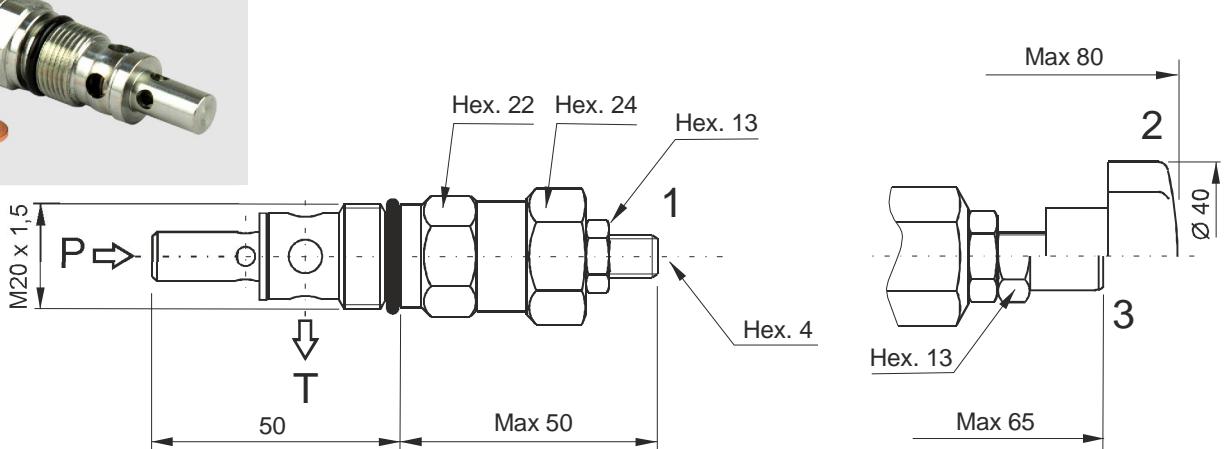
The power packs are coded with a speaking code, which is basically the list of subassemblies which make up the power pack (motor, pump, valves, tank,...). Integral components are those fitting inside central manifold cavities, which are numbered from 0 to 8. Each component has an assembly code, normally a single letter which compose the speaking code, and a spare part code in case they are ordered as loose components. The numbered cavities are indicated in the hydraulic scheme too, so that it is easy to draw it starting from the speaking code itself

There are several different coils and connectors for the cartridge solenoid valves. How do I choose the proper ones?

Normally closed 2-way solenoid valves (MSV30*) use M130 series of coils either DC or directly AC. Normally open 2-way solenoid valves (MSV31E) can only use DC or RAC (rectified current) coils due to their constructive principle. Both can use M140 series of coils for enhanced performances. When choosing a RAC coil, a rectifying bridge connector must be chosen (KA132R***). MSV4V 4-way cartridge valves use M63 series coils. M630 are for DC supply, while M631 are rectified coils with integrated rectifying bridge. A standard KA13200000 connector must be always used with these coils.

Which are the mostly used plugs?

G or H plugs are normally fitted in cavity 2 and 4, of UA and UB central manifolds when these cavities are not used. H type has an exit 1/4"BSP port to allow mounting of a pressure gauge or switch. L type plug goes in cavity 3 of U4 and UB manifolds, when this cavity is not used.

VMDC35 - DIRECT ACTING MAIN RELIEF VALVE**Main features**

Max pressure	450 bar
Max flow	35 l/min
Weight	0,16 kg

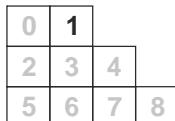
Recommended tightening torque: 50 Nm
Recommended filtration settings: 25 ÷ 50 μ
Oil temperature: -30 ÷ + 80 °C

PPC assembly code field

D/*** ..

where *** stands for max setting pressure [bar]. Ex. D/280

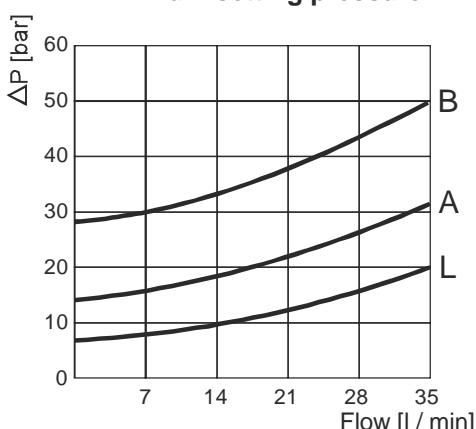
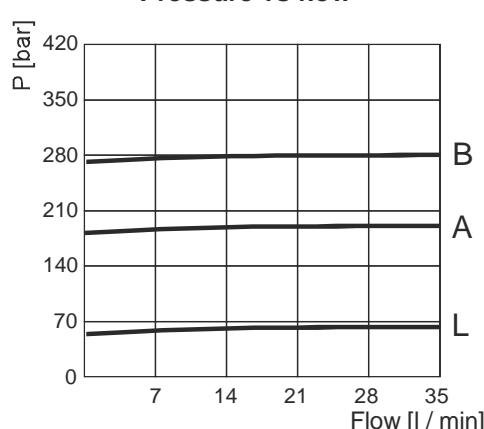
where .. stands for option other than the standard one.

Mounting cavities

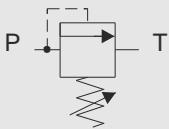
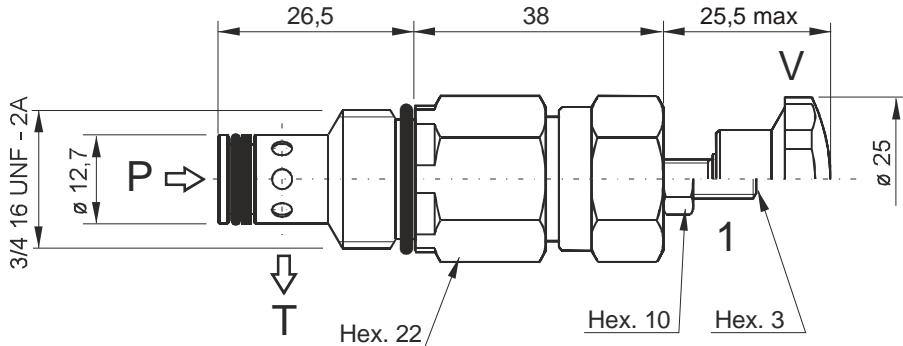
Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code

VMDC	Direct acting main relief valve
35	Nominal size: 35 = 35 l/min
B	Working range: L = 10 ÷ 60 bar A = 20 ÷ 180 bar B = 35 ÷ 280 bar C = 60 ÷ 350 bar
1	Option: 1 = screw (std) 2 = handwheel 3 = with cap 4 = plastic seal

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 RELIEF VALVE**Main features**

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

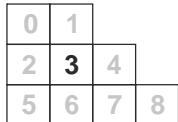
Recommended tightening torque: 40 Nm
Recommended filtration settings: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

PPC assembly code field

V*** ..

where *** stands for max setting pressure [bar]. Ex. V250

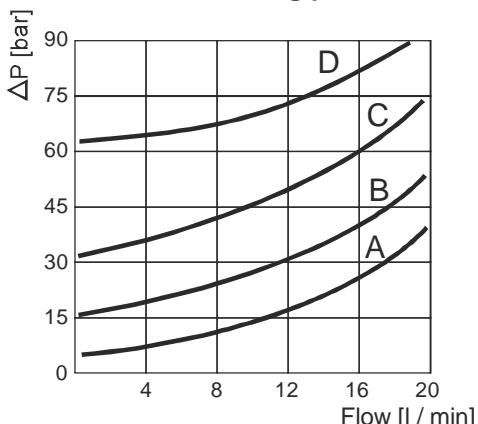
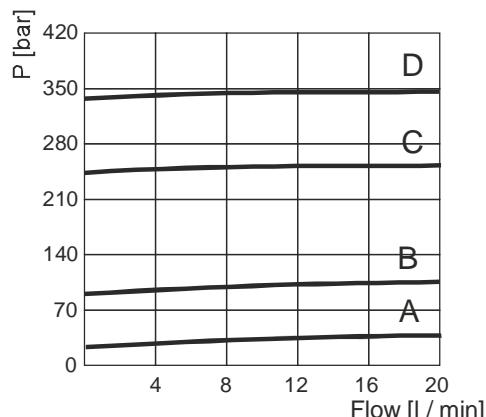
where .. stands for adjustment other than the standard one

Mounting cavities

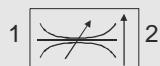
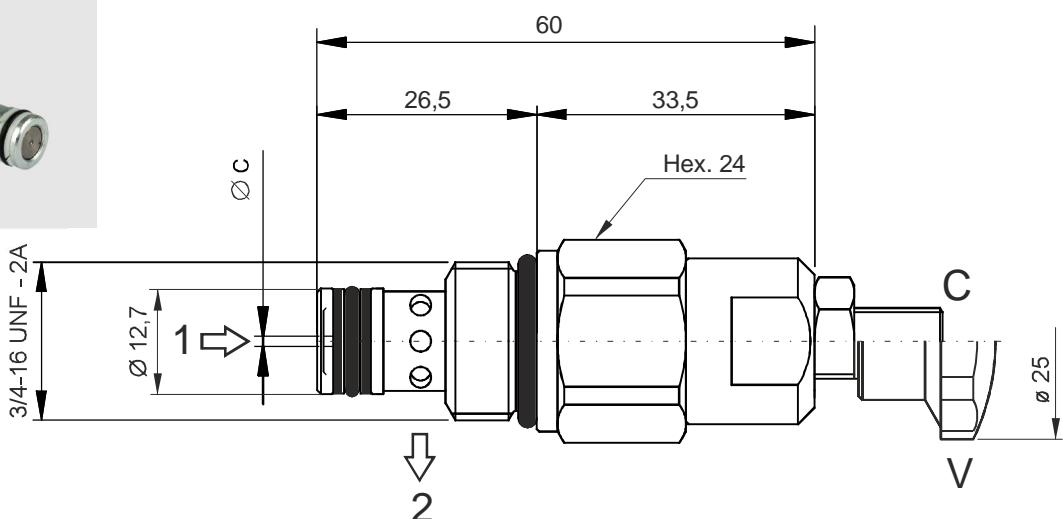
Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code

VMDC	Direct acting relief valve
20	Nominal size: 20 = 20 l/min
B	Working range: A = 10 ÷ 40 bar B = 20 ÷ 110 bar C = 30 ÷ 250 bar D = 70 ÷ 350 bar
1	Adjustment: 1 = screw (std) V = handwheel

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**

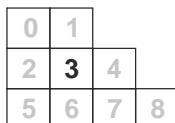
Max pressure	350 bar
Max flow	18 l/min
Weight	0,11 kg

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

PPC assembly code field

R *

where * stands for nominal dimension

Mounting cavities

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code

VCF6

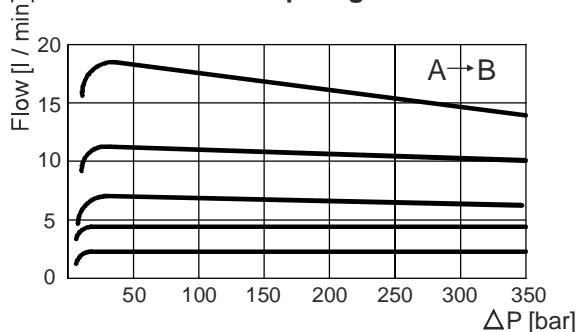
Flow control valve pressure compensated

*

Nominal dimension:
See table below

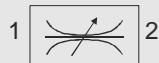
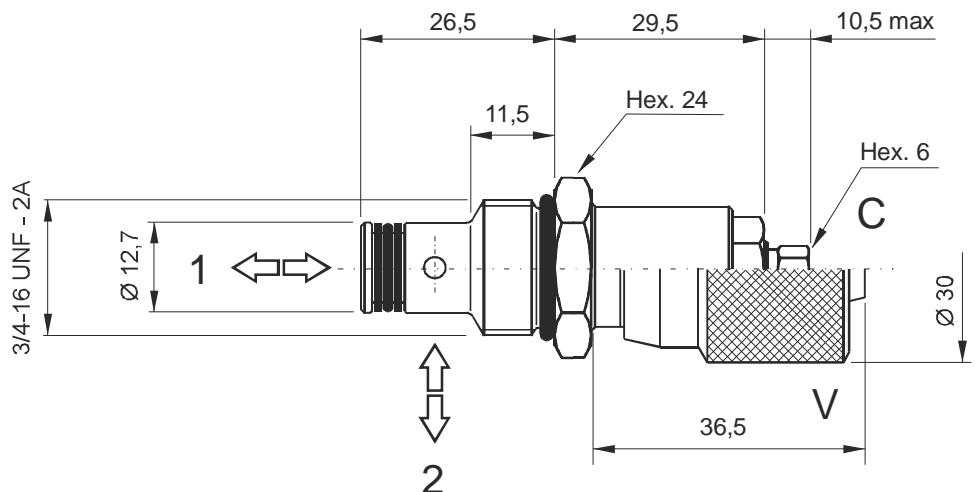
C

Adjustment:
C = screw (std)
V = handwheel

Pressure drop diagram

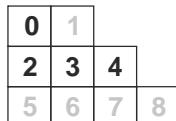
Nominal dimension	A C	Controlled flow at 100 bar ± 10% l/min
2	0,6	1,0 - 2,2
3	1,0	1,6 - 4,0
4	1,2	2,5 - 5,0
5	1,8	3,0 - 7,0
6	2,8	4,9 - 10,8
7	4,8	8,0 - 18,5

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

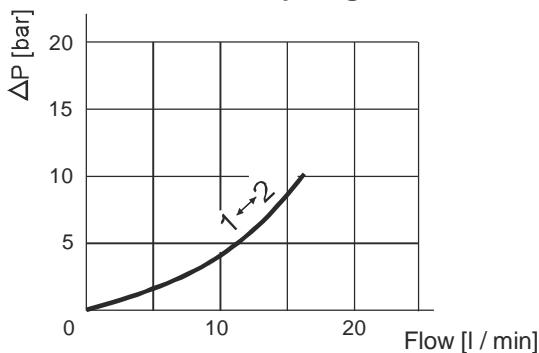
CSB - BIDIRECTIONAL FLOW CONTROL VALVE**Main features**

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

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

PPC assembly code field**Spare part code****Flow control valve****Nominal size:**
04 = 3/4-16 UNF**Adjustment:**
C = screw (std)
V = handwheel**Mounting cavities**

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

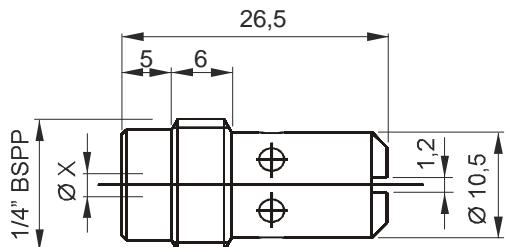
Pressure drop diagram

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

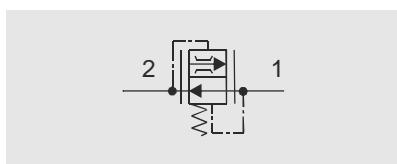
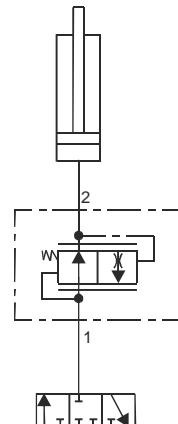
Controlled flow

2 →



Free flow

1 ←

Typical application**Main features**

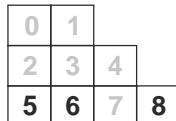
Max pressure	250 bar
Max flow	15 l/min
Weight	0,012 kg

Recommended tightening torque: 6 Nm
 Recommended filtration settings: 25 ÷ 50 µ
 Oil temperature: -30 ÷ + 80 °C

PPC assembly code field

Nominal controlled flow [l/min] (01)

Ex. 5(01)

Mounting cavities

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code

VSC

Flow control valve pressure compensated

01

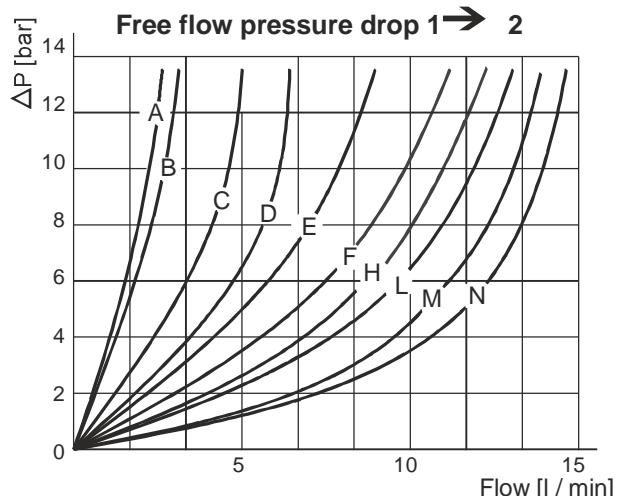
Nominal size:
01 = 1/4" BSPP

E

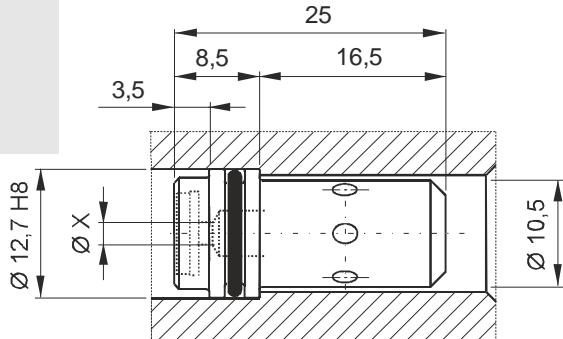
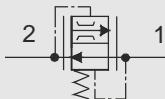
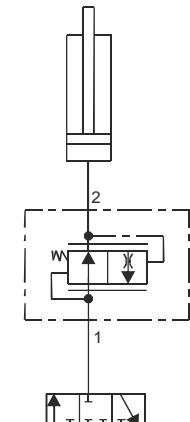
Controlled flow:
A, B, C, D, E, F
H, L, M, N**Controlled flow through X port 2 → 1**

Spare part code	Ø X [mm]	Nominal controlled flow [l/min]
VSC01A	1	1
VSC01B	1,2	2
VSC01C	1,5	3
VSC01D	1,7	4
VSC01E	1,9	5
VSC01F	2,1	6
VSC01H	2,5	8
VSC01L	2,8	10
VSC01M	3	12
VSC01N	5	15

Note: nominal controlled flow, measured at 100 bar with an oil viscosity of 46 cSt at 40 °C, are to be taken as general reference values and must be tested on the field.



Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 40 °C. Pressure drop may change depending on fluid viscosity and temperature

VSC04 - PRESSURE COMPENSATED FIXED FLOW CONTROL VALVEControlled flow
2 →**Typical application****Main features**

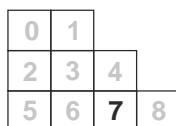
Max pressure	250 bar
Max flow	15 l/min
Weight	0,012 kg

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

PPC assembly code field

Nominal controlled flow [l/min] (04)

Ex. 5(04)

Mounting cavities

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code

VSC

Flow control valve pressure compensated

04

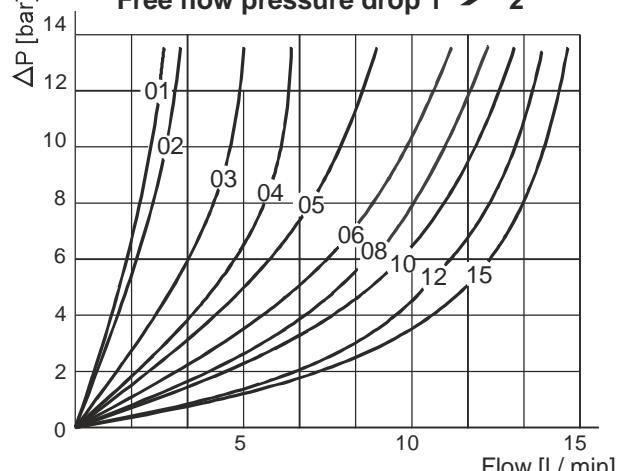
Nominal size:
04

02

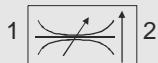
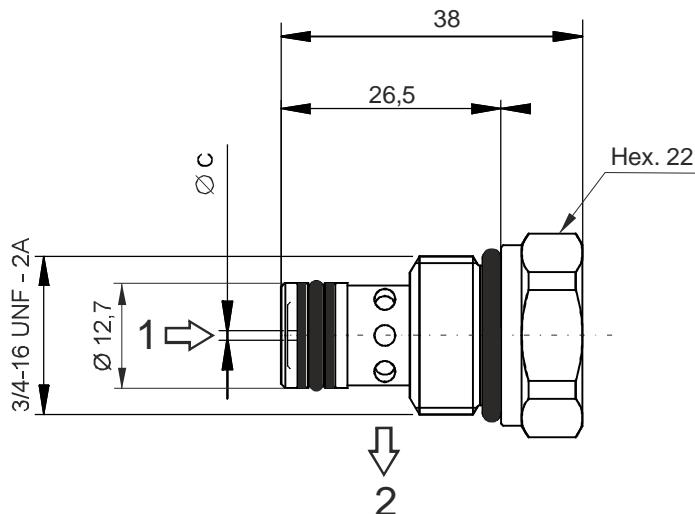
Controlled flow:
00, 01, 02, 03, 04, 05
06, 08, 10, 12, 15**Controlled flow through X port 2 → 1**

Spare part code	Ø X [mm]	Nominal controlled flow [l/min]
VSC0400	Closed	0
VSC0401	0,8	1
VSC0402	1	2
VSC0403	1,25	3
VSC0404	1,5	4
VSC0405	1,75	5
VSC0406	2	6
VSC0408	2,75	8
VSC0410	3,5	10
VSC0412	4	12
VSC0415	5	15

Note: nominal controlled flow, 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 on the field

Free flow pressure drop 1 → 2

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

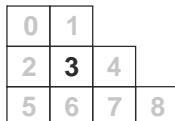
VSC6 - PRESSURE COMPENSATED FIXED FLOW CONTROL VALVE**Main features**

Max pressure	350 bar
Max flow	18 l/min
Weight	0,06 kg

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

PPC assembly code field
F *

where * stands for nominal dimension

Mounting cavities

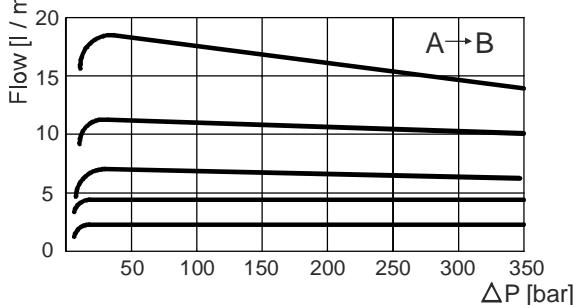
Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code
VSC6

**Flow control valve
pressure
compensated**

Nominal dimension:
See table below

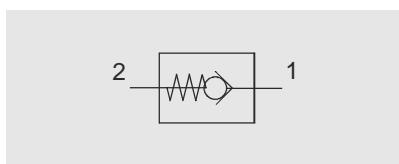
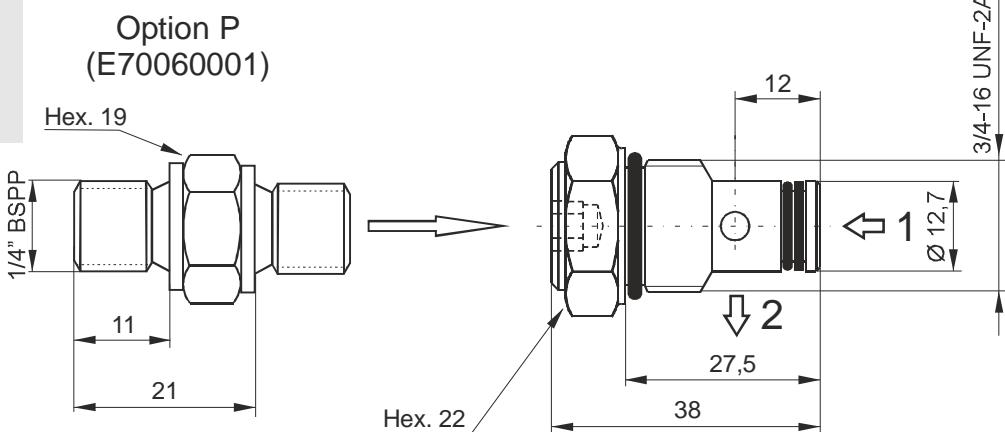
Nominal dimension	$\text{f} \text{ C}$	Controlled flow at 100 bar $\pm 10\%$ l/min
02	0,8	1
03	1,0	2
04	1,25	3
05	1,5	4
06	1,75	6
07	2	8
09	2,5	11
11	3	14
13	3,5	16
15	4	20

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

VUC20 - BASIC CHECK VALVE

This part is typically used to connect a pressure gauge for statical pressure measurement.
It is not suitable for instantaneous pressure measurement.

**Main features**

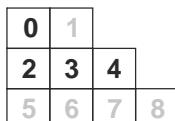
Max pressure	350 bar
Max flow	25 l/min
Weight	0,052 kg
Cracking pressure	1 bar

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

PPC assembly code field

J *

where * stands for optional pressure port

Mounting cavities

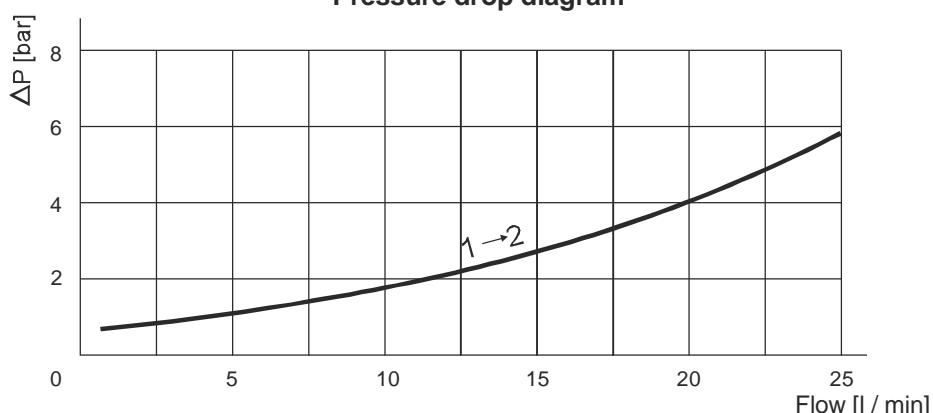
Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code

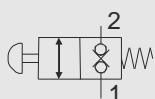
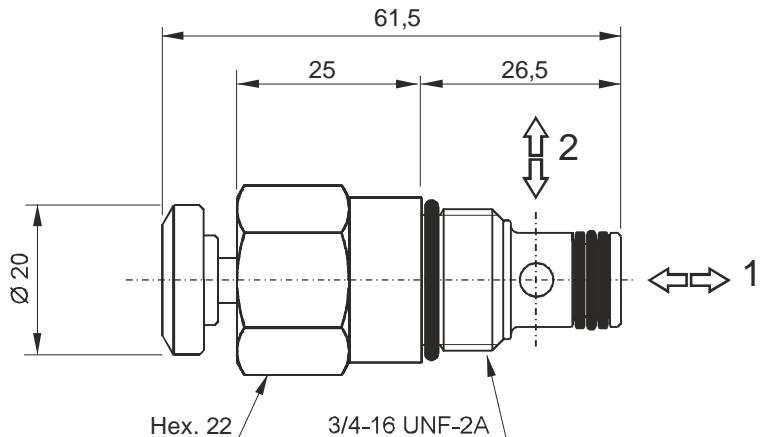
VUC Check valve

20 Nominal size: 20

- Options:
- = no options
P = pressure port 1/4" BSPP

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

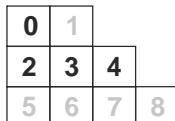
CPE - MANUAL EMERGENCY VALVE**Main features**

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

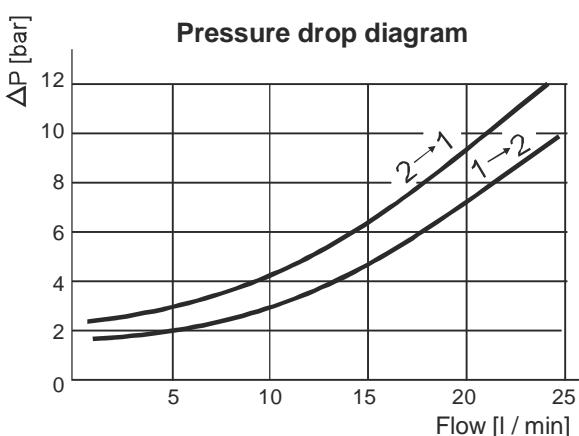
Recommended tightening torque: 25 Nm
Recommended filtration settings: 25 ÷ 50 μ
Oil temperature: -30 ÷ + 80 °C

PPC assembly code field**Spare part code**

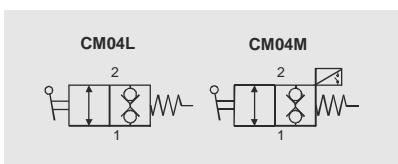
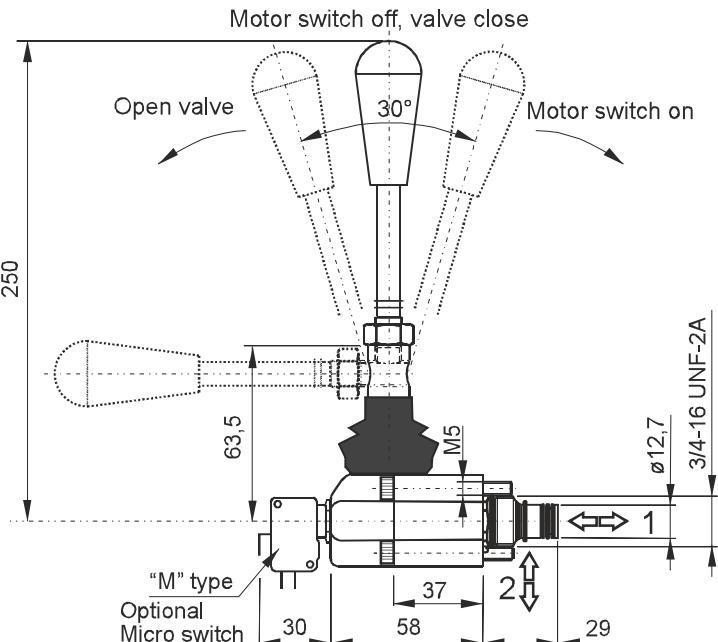
CPE	Two-way manual emergency valve
04	Nominal size: 04 = 3/4-16 UNF
P	Operating device: P = press button

Mounting cavities

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

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

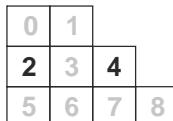
SECTION D**CM - MANUAL LEVER VALVE****Main features**

Max pressure	300 bar
Max flow	25 l/min
Weight	0,34 kg
Micro switch max current	10 A - 400 V 16 A - 250 V

Fixing bolts: 4x M5x45 (tightening torque: 5 Nm)
 Recommended cartridge tightening torque: 20 Nm
 Recommended filtration settings: 25 ÷ 50 µ
 Oil temperature: -30 ÷ + 80 °C

PPC assembly code field

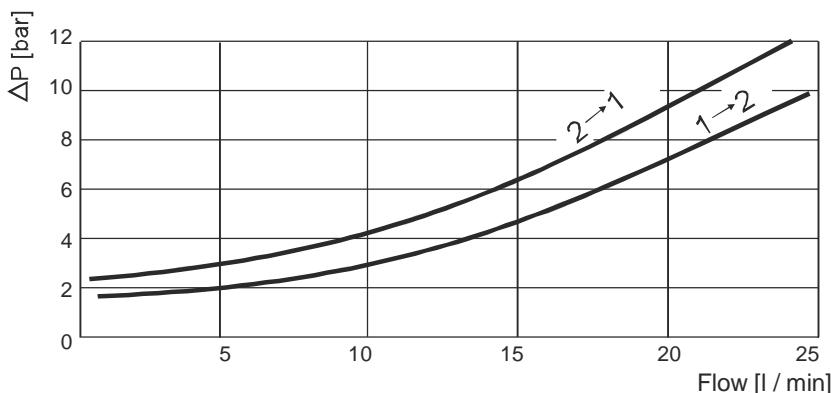
E (CM04L)
EM (CM04M)

Mounting cavities

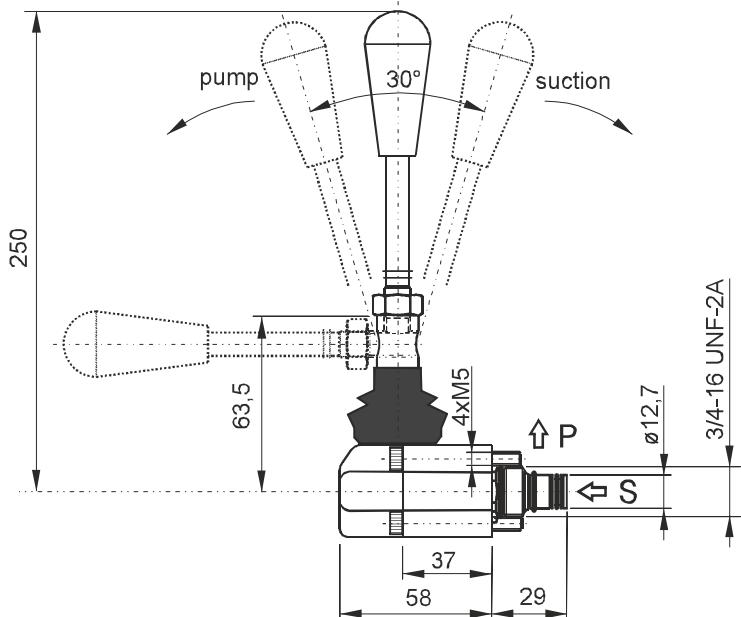
Note: cavities 3, 4 and 6 are present on central manifold type UB only.

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

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	200 bar
Max flow	-
Weight	0,34 kg

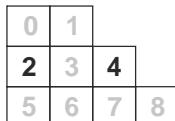
Fixing bolts: 4x M5x45 (tightening torque: 5 Nm)
Recommended cartridge tightening torque: 15 Nm
Recommended filtration settings: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

PPC assembly code field**Spare part code**

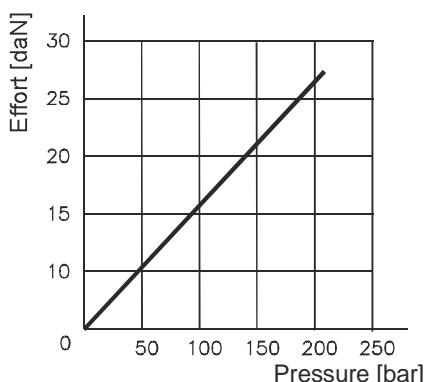
Nominal size:
02 = 2 cc/stroke



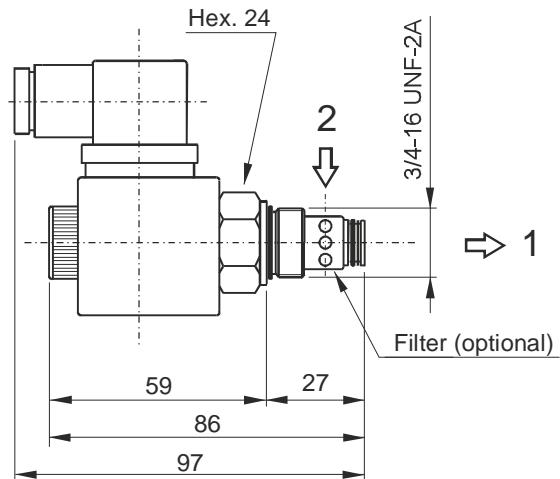
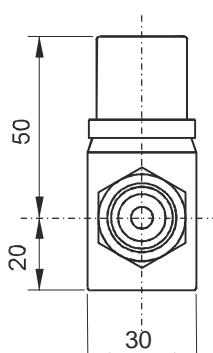
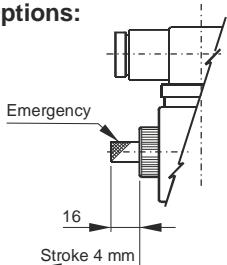
Type:
L = lever (std)

Mounting cavities

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

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 VALVE**Options:**

MSV30	MSV30E	MSV31E
1 2	1 2	1 2

Main features

Max pressure	210 bar (up to 300bar*)
Max flow	25 l/min
Weight	0,27 Kg (with coil)
Coil thermal insulation	Class F (Class H*)
Electric connection	DIN 43650-A / ISO 4400
Coil protection degree	IP 65 / DIN 40050
Duty cycle	ED 75% (ED 100%*)
Voltage required	+/- 10% nominal voltage
Normatives	EN50081-1/EN50082-2 (89/368 EEC electromagnetic comp.) 73/23/EEC / 96/68/EEC (low voltage)

*: with M140 series coils only. See table U040.20.12 coils section. The max flow/max pressure cannot be achieved at the same time.

PPC assembly code field

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

Ex: A12DC

Mounting cavities

0	1
2	3
5	6
7	8

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code

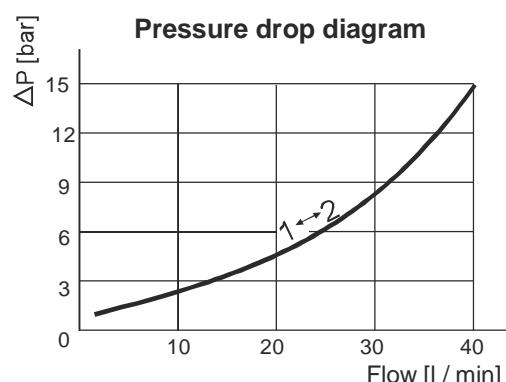
MSV	Two-way pilot operated solenoid valve
30	Operation: 30 = normally closed 31 = normally open
0	Options: 0 = no options (std) E = emergency
0000	Supply voltage: 0000 = no coil (std) see below table

Coils section

Supply voltage (V)	Coil type	Spare coil code	Spare connector code	Holding power consumption
12DC	12DC	M13040001	KA132000B1	18W
24DC	24DC	M13040002	KA132000B1	18W
24AC/ 50 Hz 60 Hz	24DC	M13040002	KA132R11B1	18W
115AC/ 50 Hz 60 Hz	110RC	M13040004	KA132R12B1	18W
230AC/ 50 Hz 60 Hz	220RC	M13040005	KA132R13B1	18W
115AC/50Hz*	115/50AC	M13040006	KA132000B1	28VA
230AC/50Hz*	230/50AC	M13040007	KA132000B1	28VA

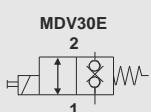
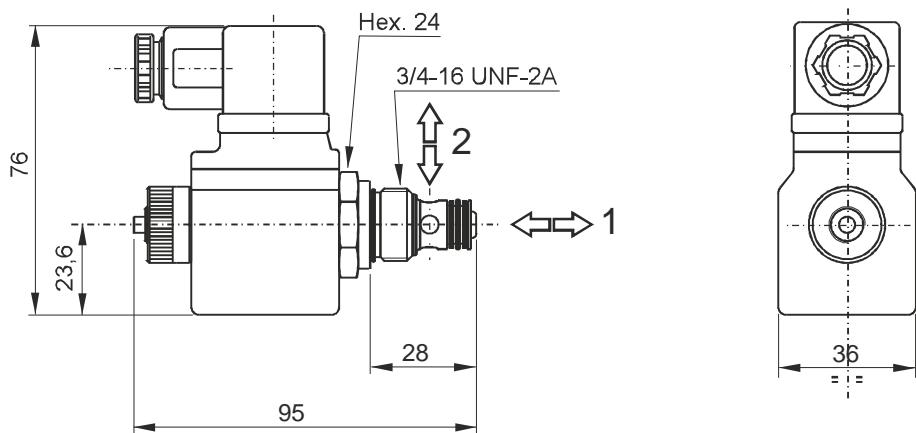
*Only for MSV30*NC valves.

Other voltages and electric connectors types (Amp Juitor, flying leads,...) are available on request.
Inrush power consumption can be up to 3,5 times higher than the holding one.



Recommended tightening torque: 45 Nm
Recommended filtration settings: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

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

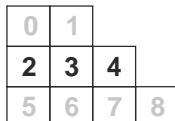
MDV - DIRECT OPERATED TWO-WAY DOUBLE BLOCKING SOLENOID VALVE**CE****Main features**

Max pressure	210 bar
Max flow	15 l/min
Weight	0,34 Kg (with coil)
Coil thermal insulation	Class H
Electric connection	DIN 43650-A / ISO 4400
Coil protection degree	IP 65 / DIN 40050
Duty cycle	ED 75% (ED 100%*)
Voltage required	+/- 10% nominal voltage
Normatives	EN50081-1/EN50082-2 (89/36 CEE electromagnetic comp.) 73/23/CEE / 96/68/CEE (low voltage)

*: with M140 series coils only. See table U040.20.12 coils section. The max flow/max pressure cannot be achieved at the same time.

PPC assembly code field**D Voltage**

Ex: D24DC

Mounting cavities

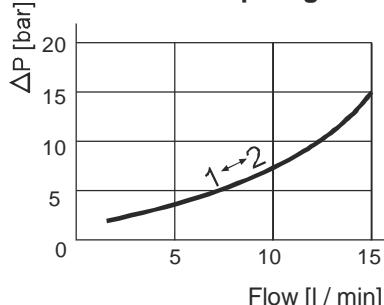
Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Coils section

Supply voltage (V)	Coil type	Spare coil code	Spare connector code	Holding power consumption
12DC	12DC	M14040001	KA132000B1	22W
24DC	24DC	M14040002	KA132000B1	22W
24AC/ 50 Hz 60 Hz	24DC	M14040002	KA132R11B1	22W
115AC/ 50 Hz 60 Hz	110RC	M14040004	KA132R12B1	22W
230AC/ 50 Hz 60 Hz	220RC	M14040005	KA132R13B1	22W

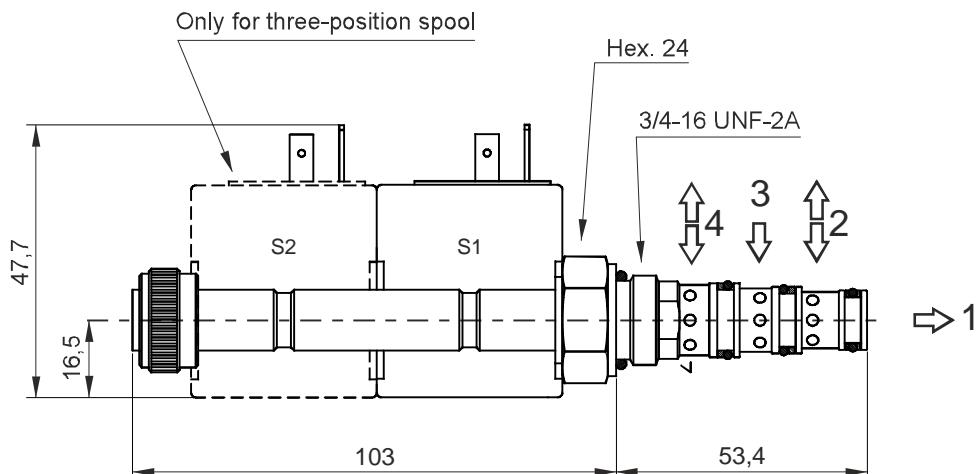
Other voltages and electric connectors types (Amp Junior, flying leads,...) available on request.

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

Spare part code**MDV****Two-way double blocking solenoid valve****30****Operation:**
30 = normally closed**E****Options:**
E = emergency (std)**0000****Supply voltage:**
0000 = no coil (std)
see below table**Pressure drop diagram**

Recommended tightening torque: 45 Nm
Recommended filtration settings: 25 ÷ 50 µ
Oil temperature: -30 ÷ + 80 °C

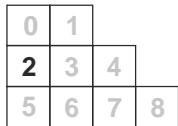
Note: Values measured on valve alone (no cavity) with an oil viscosity of 46 cSt at 50 °C. Pressure drop may change depending on fluid viscosity and temperature

MSV4V - DIRECT OPERATED 4/3 OR 4/2 DIRECTIONAL SPOOL SOLENOID VALVE**Main features**

Max pressure	210 bar
Max flow	12 l/min
Weight	0,37 Kg (1 solenoid) 0,64 Kg (2 solenoid)
Coil thermal insulation	Class H)
Electric connection	DIN 43650-A / ISO 4400
Coil protection degree	IP 65 / DIN 40050
Duty cycle	ED 100%
Voltage required	+/- 10% nominal voltage
Recommended tightening torque	30 Nm
Oil temperature	-25 ÷ +70°C

PPC assembly code field**4VA2 Voltage**

Ex: 4VA2 24DC

Mounting cavities

Note: MSV4V can be mounted on central manifold type U4 only.

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Coils section

Supply voltage (V)	Coil voltage	Spare coil code	Spare connector code	Holding power consumption
12DC	12DC	M6306012	KA132000B1	22W
24DC	24DC	M6306024	KA132000B1	22W
24AC/ 50 Hz 60 Hz	24AC	M6316024	KA132000B1	22W
115AC/ 50 Hz 60 Hz	115AC	M6316115	KA132000B1	22W
230AC/ 50 Hz 60 Hz	230AC	M6316230	KA132000B1	22W

Spare part code

MSV4V	4/3 or 4/2 directional spool solenoid valve
A2	Spool and scheme: see side table
00	Options: 00 = std
24DC	Supply voltage: see below table

**Double solenoid**

A2*	
B2	
C2	
E2	

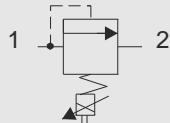
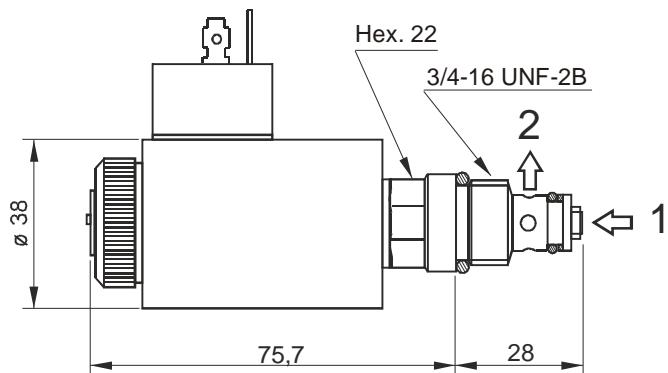
Single solenoid

A11C	
-------------	--

* = spools with price additional
Other spools are available on request

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

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

VMPC2 - PROPORTIONAL RELIEF VALVE**CE****Main features**

Max pressure	350 bar
Max flow	2 l/min
Weight	0,46 Kg (with coil)
Coil thermal insulation	Class H
Electric connection	DIN 43650-A / ISO 4400
Coil protection degree	IP 65 / DIN 40050
PWM	120 Hz
Hysteresis	5%
Duty cycle	ED 100%
Voltage required	+/- 10% nominal voltage
Normatives	EN50081-1/EN50082-2 (89/336 CEE electromagnetic comp.) 73/23/CEE / 96/68/CEE (low voltage)

Recommended tightening torque: 30 Nm
Recommended filtration settings: 10 \div 25 μ
Oil temperature: -40 \div +80 °C

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

For the controller see page U040.20.16

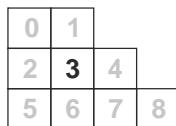
Coils section

Supply voltage	Spare coil code	Spare connector code
12DC	M6306012	KA132000B1
24DC	M6306024	KA132000B1

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

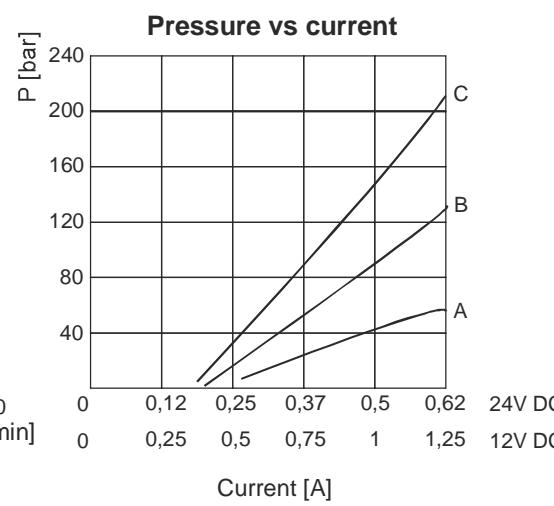
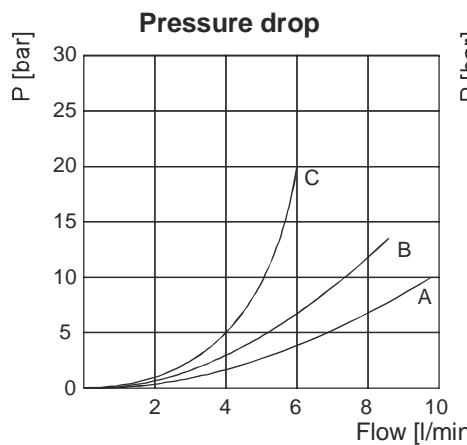
PPC assembly code field
P* Voltage**

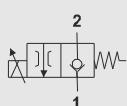
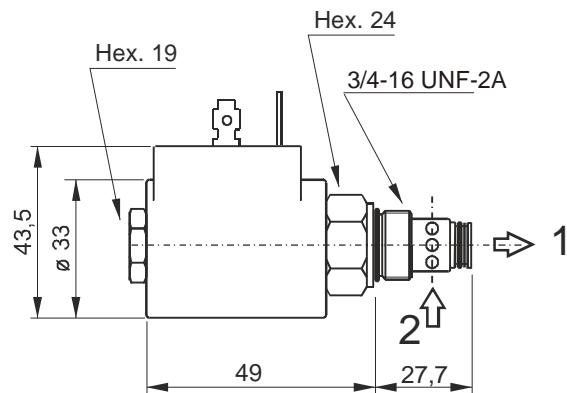
where *** stands for max setting pressure [bar]. Ex. P25012DC

Mounting cavities

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code
VMPC
Direct acting proportional relief valve
2
Nominal size
B
Working range:
A = 2 \div 60 bar
B = 3 \div 120 bar
C = 4 \div 210 bar

-
Option
0000
Supply voltage:
- 0000 = no coil
- 12DC
- 24DC


CSPC15 - PROPORTIONAL FLOW CONTROL VALVE**Main features**

Max pressure	315 bar
Max flow	15 l/min
Weight	0,25 Kg (with coil)
Coil thermal insulation	Class H
Electric connection	DIN 43650-A / ISO 4400
Coil protection degree	IP 65 / DIN 40050
PWM	120 Hz
Hysteresis	5%
Duty cycle	ED 100%
Voltage required	+/- 10% nominal voltage
Normatives	EN50081-1/EN50082-2 (89/336 CEE electromagnetic comp.) 73/23/CEE / 96/68/CEE (low voltage)

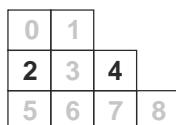
Recommended tightening torque: 30 Nm
Recommended filtration settings: 10 ÷ 25 μ
Oil temperature: -10 ÷ +80 °C

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

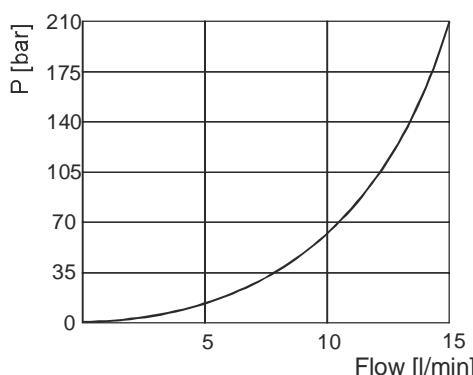
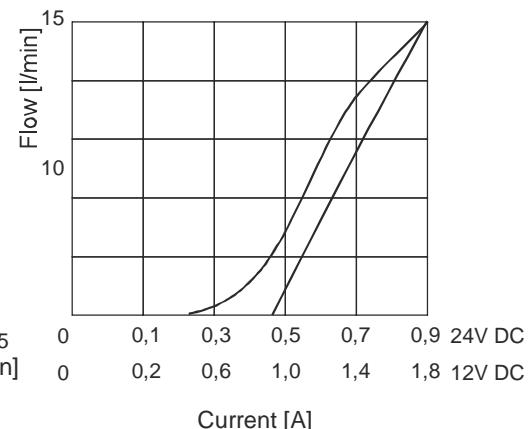
For the controller see page U040.20.16

PPC assembly code field**T Voltage**

Ex: T12DC

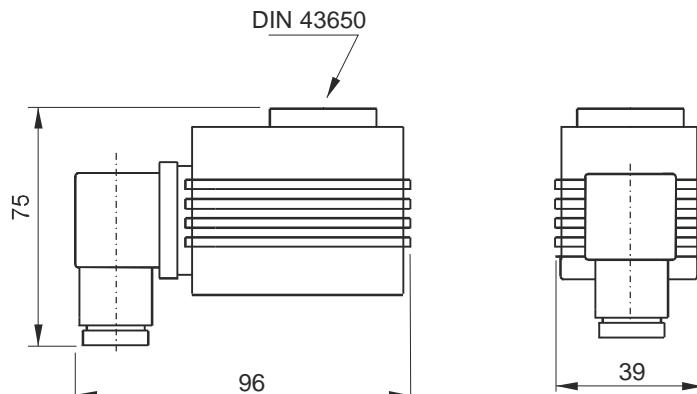
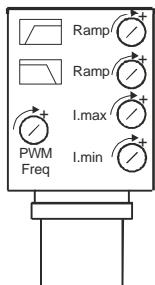
Mounting cavities

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

Spare part code**CSPC****Proportional flow control valve****15****Nominal size:**
15 = 15 l/min**0****Option:**
0 = no options**0000****Supply voltage:**
- 0000 = no coil
- 12DC
- 24DC**Pressure vs flow****Flow vs current****Coils section**

Supply voltage	Spare coil code	Spare connector code
12DC	M6306012	KA132000B1
24DC	M6306024	KA132000B1

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

VPC - ELECTRONIC AMPLIFIER FOR PROPORTIONAL SOLENOID VALVES

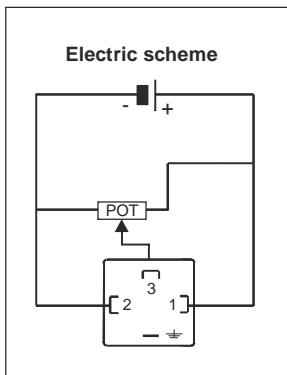
Weight: 0,11 Kg

Main features

Supply voltage	12 / 24VDC
Voltage input signal range	0 - 10 V
Input impedance	100 kohm
Max current range	2,5A
Electric connection	DIN 43650-A / ISO 4400
Ramp adjustment (independent)	0 ÷ 3 s
PWM (optionally adjustable)	120 Hz (50 ÷ 400 Hz)
Working temperature	-10 ÷ +50 °C
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

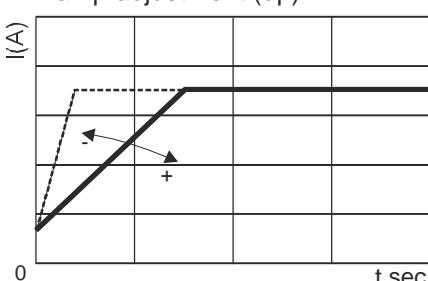


Suitable for:
 - CSPC15**** (see table U040.20.15.00)
 - VMPC2**** (see table U040.20.14.00)

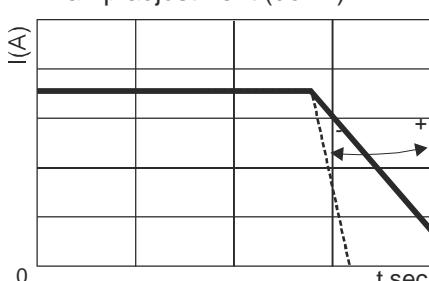
Instruction for use:

- 1) turn completely "I MIN" trimmer in counterclockwise direction;
- 2) adjust the external voltage input signal to the initial regulating (flow or pressure) value;
- 3) turn "I MIN" trimmer in clockwise direction until valve 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.

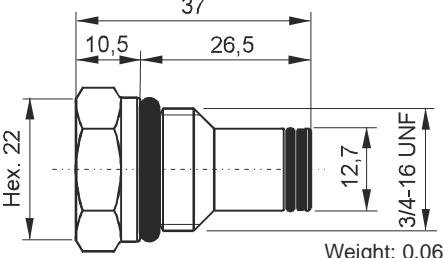
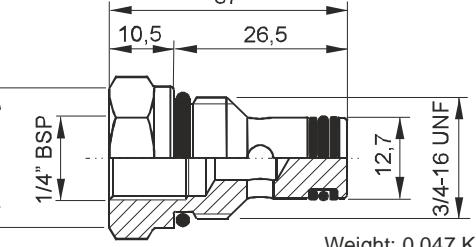
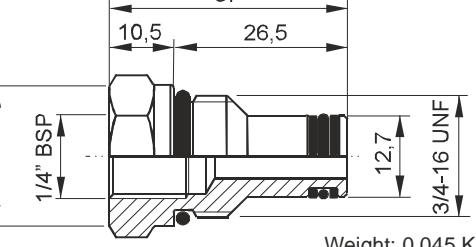
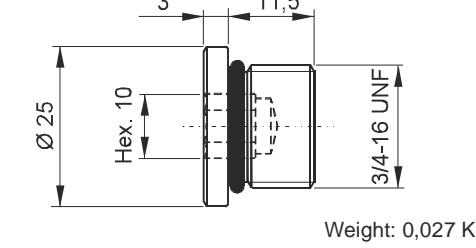
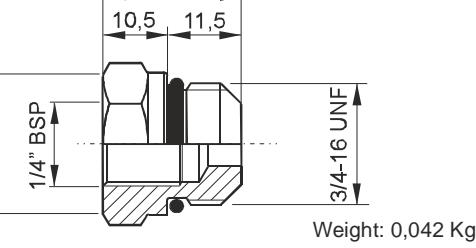
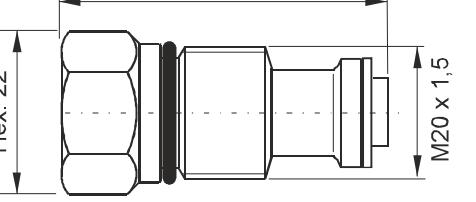
Ramp adjustment (up)



Ramp adjustment (down)



SECTION D**PLUGS**

 <p>Weight: 0,066 Kg</p>	Hydraulic symbol  Spare part code E70100005	PPC assembly code  Mounting cavities <table border="1" data-bbox="1166 482 1341 617"> <tr><td>0</td><td>1</td></tr> <tr><td>2</td><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td></tr> </table>	0	1	2	3	4	5	6	7	8
0	1										
2	3	4									
5	6	7	8								
 <p>Weight: 0,047 Kg</p>	Hydraulic symbol  Spare part code E70100003	PPC assembly code  Mounting cavities <table border="1" data-bbox="1166 774 1341 909"> <tr><td>0</td><td>1</td></tr> <tr><td>2</td><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td></tr> </table>	0	1	2	3	4	5	6	7	8
0	1										
2	3	4									
5	6	7	8								
 <p>Weight: 0,045 Kg</p>	Hydraulic symbol  Spare part code E70100006	PPC assembly code  Mounting cavities <table border="1" data-bbox="1166 1066 1341 1201"> <tr><td>0</td><td>1</td></tr> <tr><td>2</td><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td></tr> </table>	0	1	2	3	4	5	6	7	8
0	1										
2	3	4									
5	6	7	8								
 <p>Weight: 0,027 Kg</p>	Hydraulic symbol  Spare part code E70100004	PPC assembly code  Mounting cavities <table border="1" data-bbox="1166 1381 1341 1516"> <tr><td>0</td><td>1</td></tr> <tr><td>2</td><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td></tr> </table>	0	1	2	3	4	5	6	7	8
0	1										
2	3	4									
5	6	7	8								
 <p>Weight: 0,042 Kg</p>	Hydraulic symbol  Spare part code E70100002	PPC assembly code  Mounting cavities <table border="1" data-bbox="1166 1673 1341 1808"> <tr><td>0</td><td>1</td></tr> <tr><td>2</td><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td></tr> </table>	0	1	2	3	4	5	6	7	8
0	1										
2	3	4									
5	6	7	8								
 <p>Weight: 0,110 Kg</p>	Hydraulic symbol  Spare part code E70100010	PPC assembly code  Mounting cavities <table border="1" data-bbox="1166 1965 1341 2100"> <tr><td>0</td><td>1</td></tr> <tr><td>2</td><td>3</td><td>4</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td></tr> </table>	0	1	2	3	4	5	6	7	8
0	1										
2	3	4									
5	6	7	8								

Note: cavities 3, 4 and 6 are present on central manifold type UB only.

TANKS

Squared steel tanks from 3 to 30 l



Round steel tanks from 1,5 to 12 l, for horizontal and vertical mounting



Squared plastic tanks, from 1,5 to 12 l, for horizontal or vertical mounting



Round plastic tanks with 5 or 9 l volume, for horizontal or vertical mounting.



Better plastic or steel tanks?

Plastic tanks have several advantages. Among them they do not get rust, the oil level is visible, they do not damage if getting bumped,... On the other hand steel tanks are to be preferred in case of ultra high or ultra low temperatures. They are the only choice for volumes of 12 l.

Is it possible to realize custom made tanks?

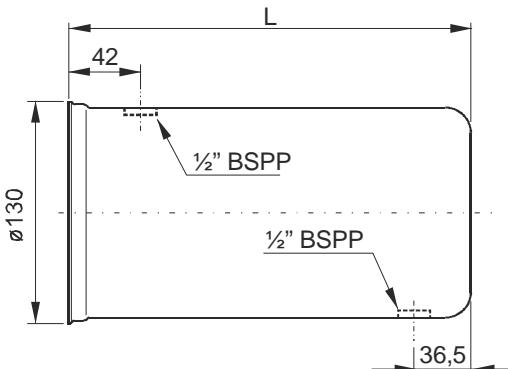
Yes. We can provide an adaptor flange (F80000001) which can be welded on custom made tanks, at customer care.

How do I order spare tanks?

Tanks can be ordered without accessories just by adding a J in front of the relevant code (es. JE60303015 instead of E60303015). When ordered with the normal code (e.g. E60303015) they include the relevant accessories such as: plugs, filler breather, oil level, fixing devices,... depending on the kind of tank. Tanks specified in PPC speaking code always include all relevant accessories.

ROUND STEEL TANKS A & B SERIES

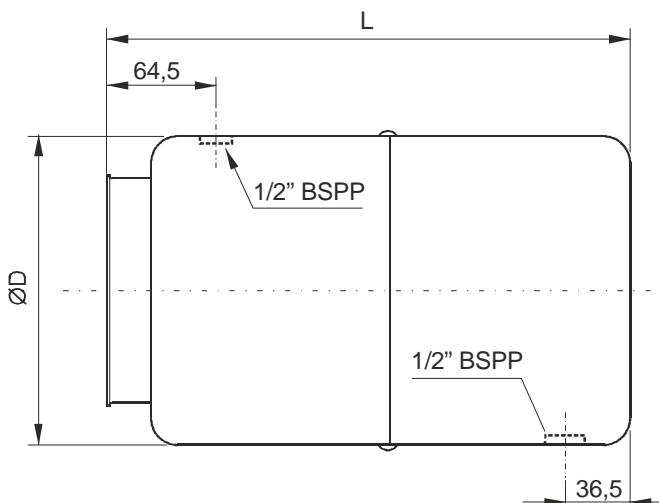
Recommended tightening torque for $\frac{1}{2}$ " BSPP: 10 Nm



Description	PPC assembly code	Spare part code	L (mm)	Weight	Actual filling volume (lt)	
					Horizontal	Vertical
1,5 l cylindrical horizontal / vertical mounting	1,5A / 1,5AV	E60303001	150	0,78 Kg	1,6	1,5
2,5 l cylindrical horizontal / vertical mounting	2,5A / 2,5AV	E60303004	235	1,04 Kg	2,8	2,4



Recommended tightening torque for $\frac{1}{2}$ " BSPP: 10 Nm

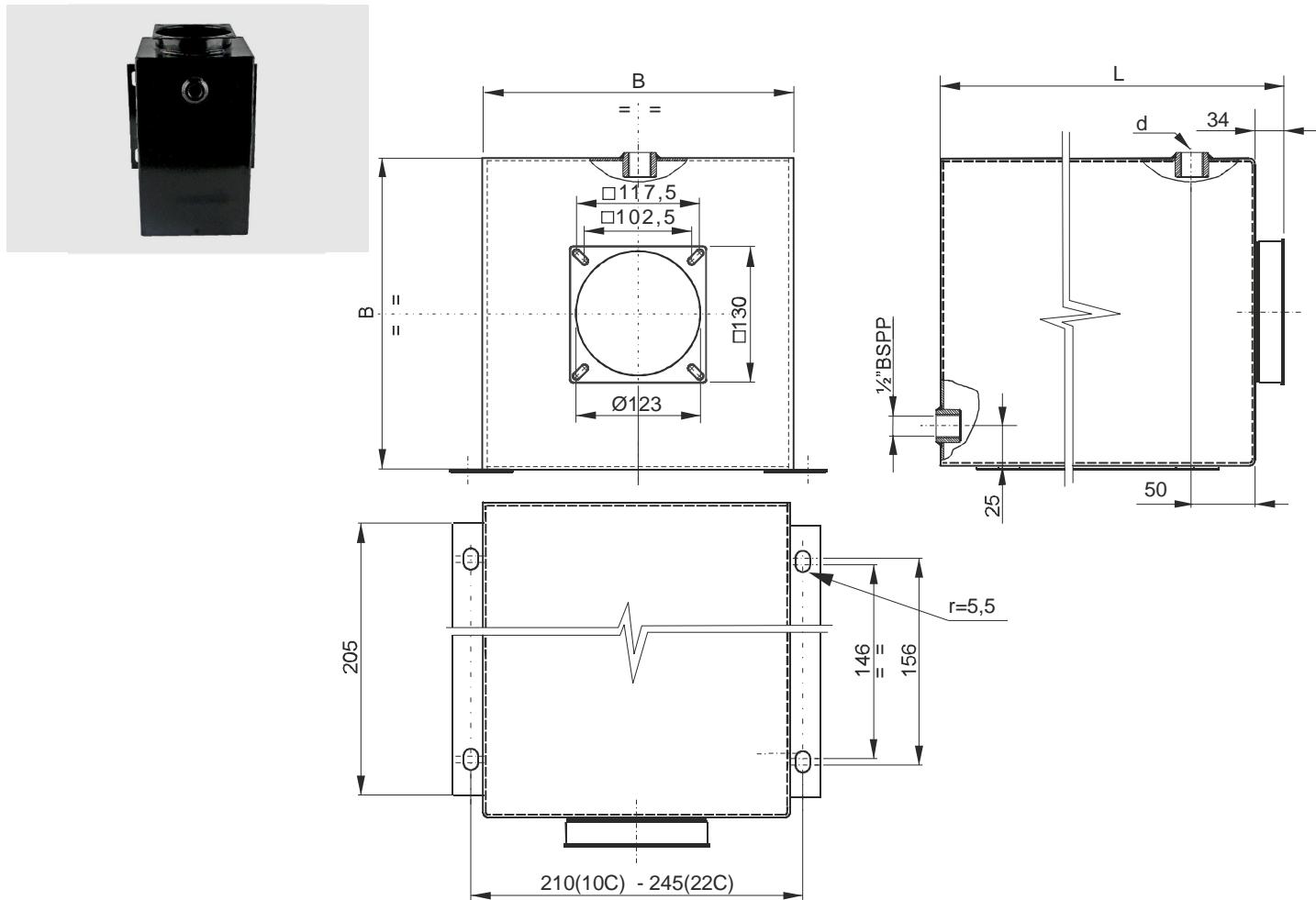


Description	PPC assembly code	Spare part code	L (mm)	ØD (mm)	Weight	Actual filling volume (lt)	
						Horiz.	Vert.
5 l cylindrical horizontal / vertical mounting	5B / 5BV	E60303006	300	180	1,82 Kg	5,3	5,3
10 l cylindrical horizontal / vertical mounting	10B / 10BV	E60303011	262	220	2,01 Kg	10,4	10,3
12 l cylindrical horizontal / vertical mounting	12B / 12BV	E60303012	380	220	2,47 Kg	13,5	13,5

All measures are indicative in mm

Material	Fe P04-EN10130 steel sheet 1,5mm thickness
Fluid	Mineral based oil ISO/DIN 6743/4
Working temperature	-15 / +70°C

Note: the piping kit, standard suction filter, filler/breather and discharge plug are included when specifying the tank in PPC assembly code. When ordering spare parts, only the discharge plug and filler/breather are included. See accessories tables U040.50.06-07

HORIZONTAL/VERTICAL SQUARE WELDED STEEL TANKS C SERIES

Description	PPC assembly code	Spare part code	L (mm)	B (mm)	d	Weight	Actual filling volume (lt)	
							Horizont.	Vertical
10 l squared horiz./vert. mounting	10C / 10CV	E60303042	330	185	1/2" BSPP	5,50 Kg	10,20	8,24
22 l squared horiz./vert. mounting	22C / 22CV	E60303044	470	223	3/4" BSPP	6,80 Kg	23,30	19,45

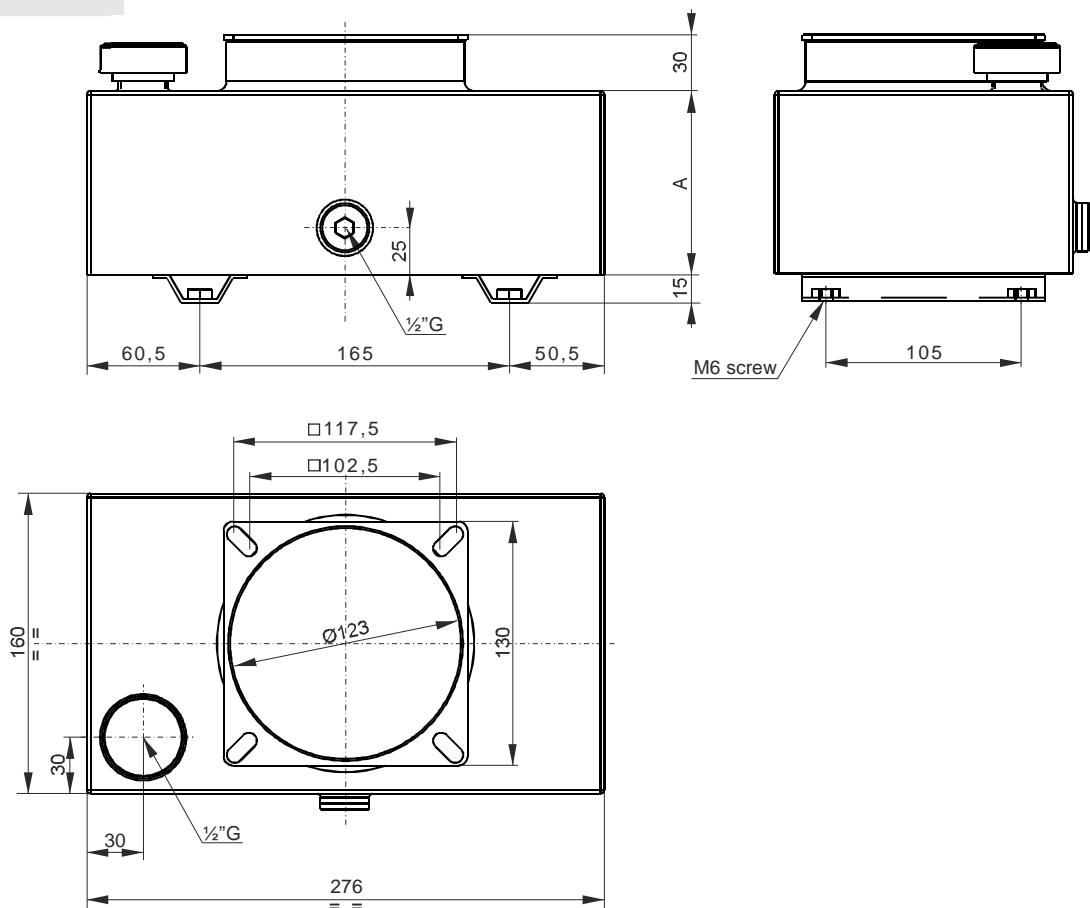
All measures are indicative in mm

Material	Fe P04-EN10130 steel sheet 1,5mm thickness
Fluid	Mineral based oil ISO/DIN 6743/4
Working temperature	-15 / +70°C

Notes: the piping kit, standard suction strainer, filler/breather and discharge plug are included when specifying the tank in PPC assembly code.

When ordering spare tanks, only the discharge plug and filler/breather are included. See accessories table U040.50.06-07

On request special square welded tanks can be realized. An inquiry must be sent to our technical department with indication of quantities.

SMALL SIZE SQUARE WELDED STEEL TANKS E SERIES

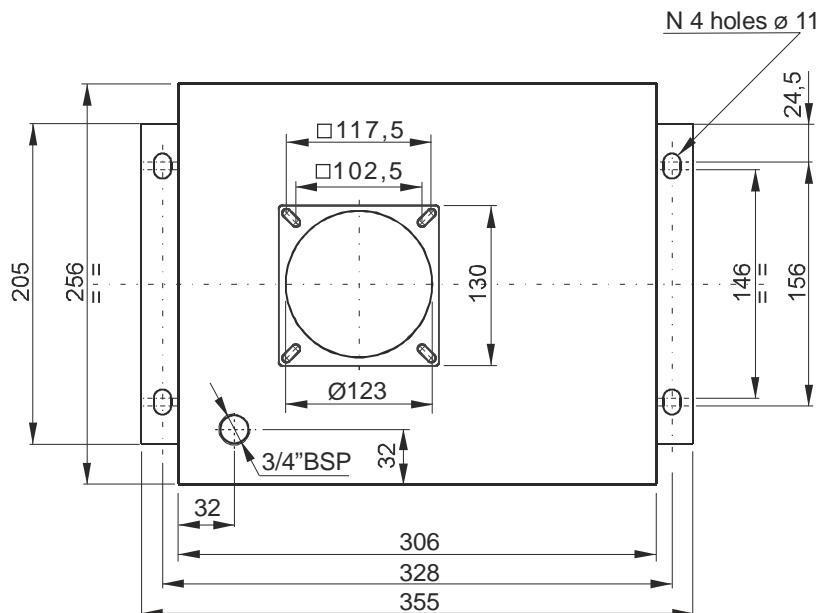
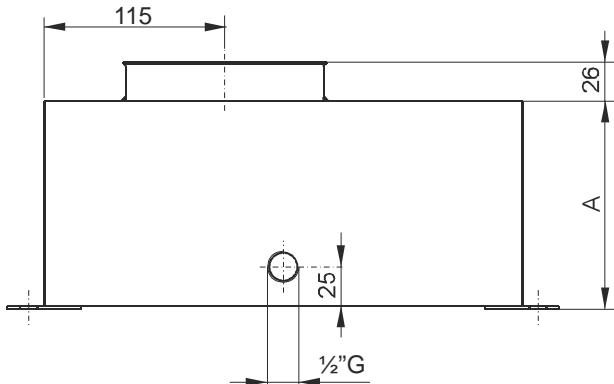
Description	PPC assembly code	Spare part code	A	Weight	Actual filling volume (lt)	
					Horizontal	Vertical
3 l square vertical mounting	3EV	E60303053	98 mm	3,09 Kg	-	3,8
7 l square vertical mounting	7EV	E60303057	190 mm	4,32 Kg	-	7,9

All measures are indicative in mm

Material	Fe P04-EN10130 steel sheet 1,5mm thickness
Fluid	Mineral based oil ISO/DIN 6743/4
Working temperature	-15 / +70°C

Notes: the piping kit, standard suction strainer, filler/breather and discharge plug are included when specifying the tank in PPC assembly code.

When ordering spare tanks, only the discharge plug and filler/breather are included. See accessories tables U040.50.06-07

SMALL SIZE SQUARE WELDED STEEL TANKS E SERIES

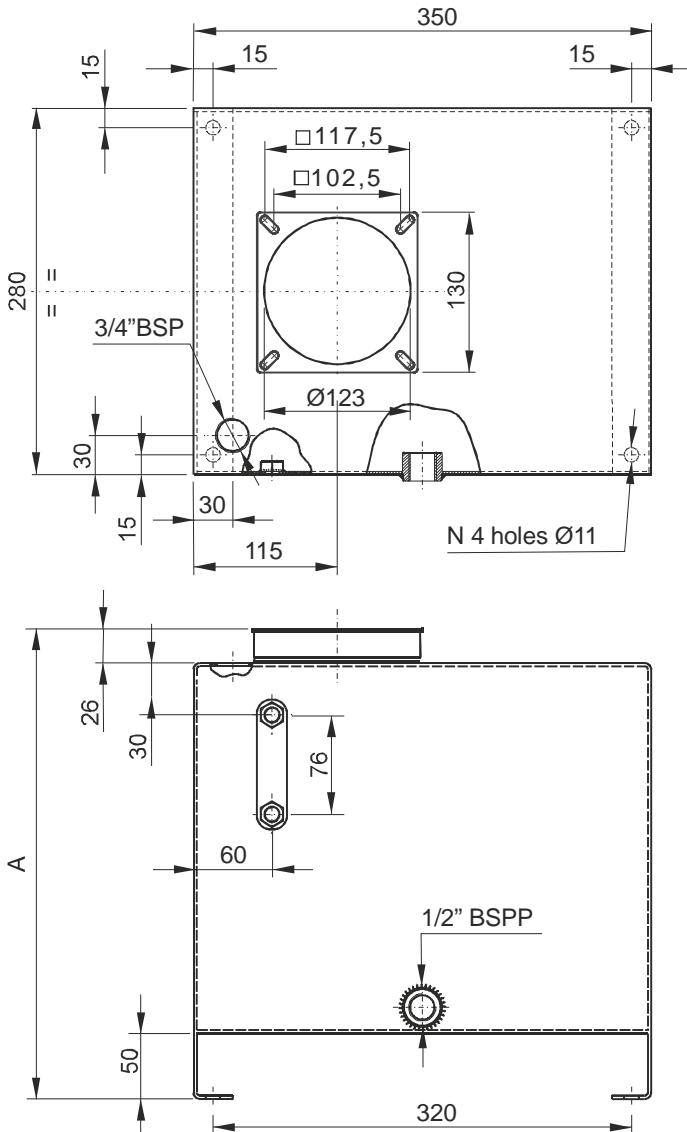
Description	PPC assembly code	Spare part code	A	Weight	Actual filling volume (lt)	
					Horizontal	Vertical
8 l square vertical mounting	8EV	E60303041	133 mm	4,50 Kg	-	10,5
15 l square vertical mounting	15EV	E60303014	237 mm	5,20 Kg	-	18

All measures are indicative in mm

Material	Fe P04-EN10130 steel sheet 1,5mm thickness
Fluid	Mineral based oil ISO/DIN 6743/4
Working temperature	-15 / +70°C

Notes: the piping kit, standard suction strainer, filler/breather and discharge plug are included when specifying the tank in PPC assembly code.

When ordering spare tanks, only the discharge plug and filler/breather are included. See accessories tables U040.50.06-07

SQUARE WELDED STEEL TANKS E SERIES

Description	PPC assembly code	Spare part code	A	Weight	Actual filling volume (lt)	
					Horizontal	Vertical
20 l squared vertical mounting	20EV	E60303015	293 mm	6,50 Kg	-	21
30 l squared vertical mounting	30EV	E60303048	423 mm	8,50 Kg	-	33,5

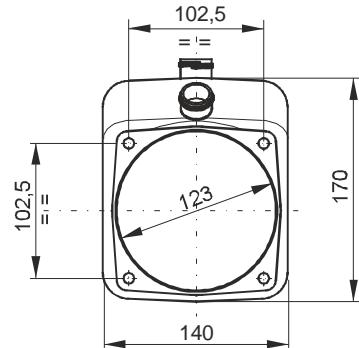
All measures are indicative in mm

Material	Fe P04-EN10130 steel sheet 2,5mm thickness on top and side, 1,5mm thickness front and rear
Fluid	Mineral based oil ISO/DIN 6743/4
Working temperature	-15 / +70°C

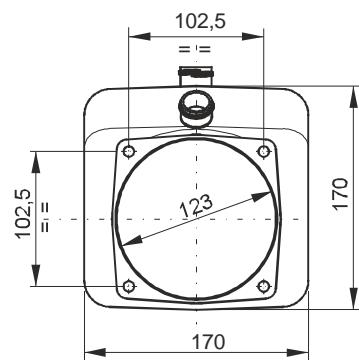
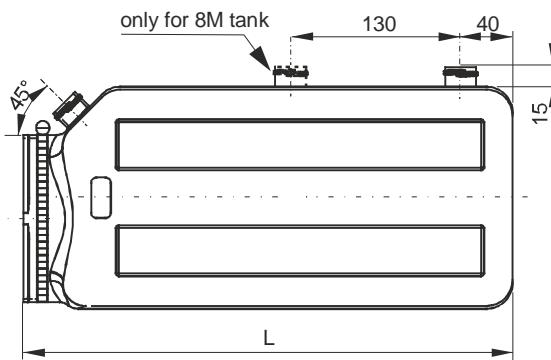
Notes: the piping kit, standard suction strainer, filler/breather, level gauge and discharge plug are included when specifying the tank in PPC assembly code.

When ordering spare tanks, only the discharge plug, filler/breather and level gauge are included. See accessories table U040.50.06-07

On request special square welded tanks can be realized. An inquiry must be sent to our technical department with indication of quantities.

SQUARE PLASTIC TANKS L & M SERIES

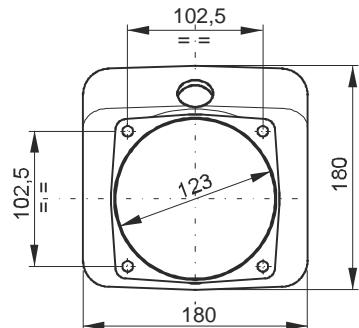
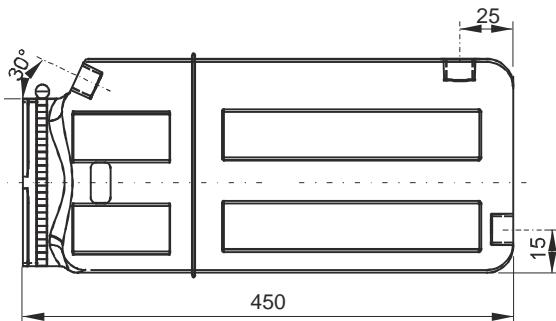
Description	PPC assembly code	Spare part code	L (mm)	Weight	Actual filling volume (lt)	
					Horizontal	Vertical
1,5 l squared horizontal / vertical mounting	1,5L / 1,5LV	H60303016	135	0,32 Kg	2,46	1,43
3 l squared horizontal / vertical mounting	3L / 3LV	H60303018	250	0,42 Kg	4,55	4,17
6 l squared horizontal / vertical mounting	6L / 6LV	H60303020	350	0,63 Kg	6,37	6,55



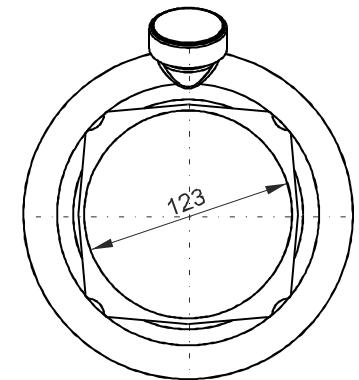
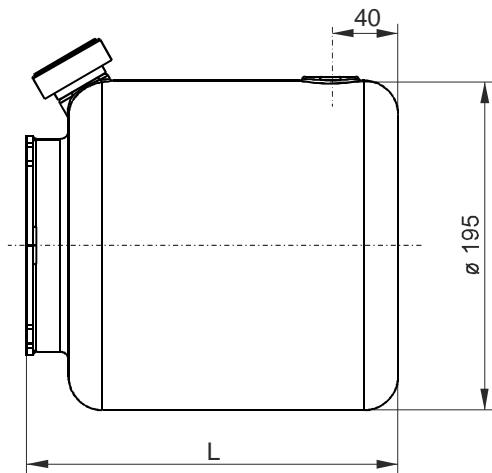
Description	PPC assembly code	Spare part code	L (mm)	Weight	Actual filling volume (lt)	
					Horizontal	Vertical
5 l squared horizontal / vertical mounting	5M / 5MV	H60303025	270	0,60 Kg	5,97	5,64
8 l squared horizontal / vertical mounting	8M / 8MV	H60303033	375	0,76 Kg	8,29	8,67

Material	PE-HD neutral / transparent color (DO NOT EXPOSE TO DIRECT SUNLIGHT)
Fluid	Mineral based oil ISO/DIN 6743/4
Working temperature	-15 / +70°C

Notes: the piping kit, standard suction strainer and filler/breather are included when specifying the tank in PPC assembly code. When ordering spare tanks, only the filler/breather C86100003, C86200002 or C86100001 and clamp band are included. Discharge ports are normally blind moulded. See accessories table U040.50.06 and .07

SECTION E**PLASTIC TANKS N & P SERIES**

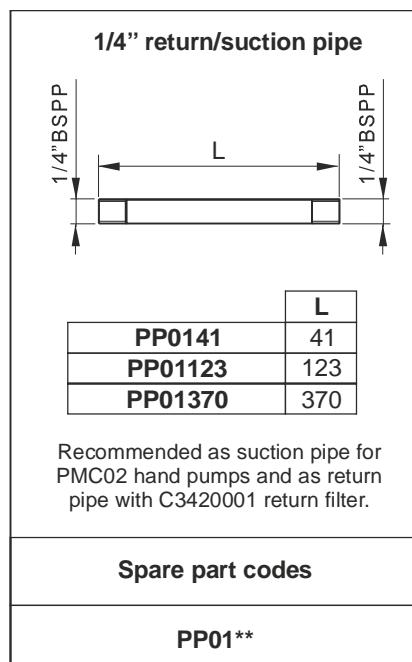
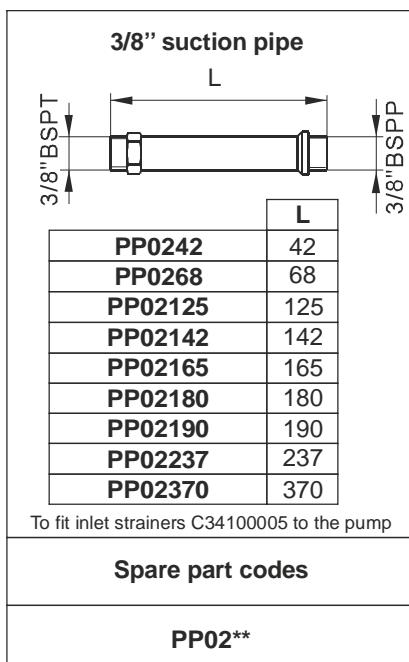
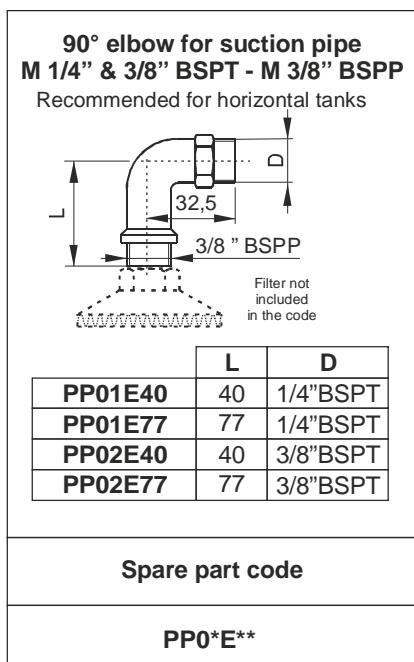
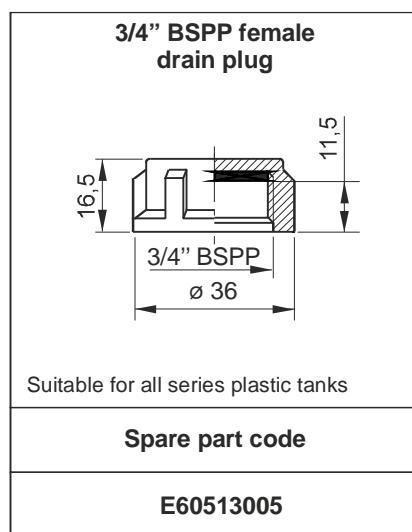
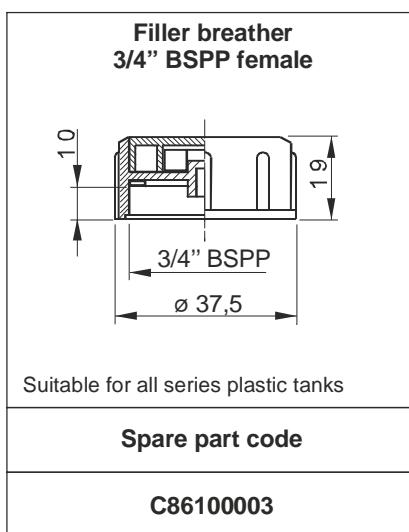
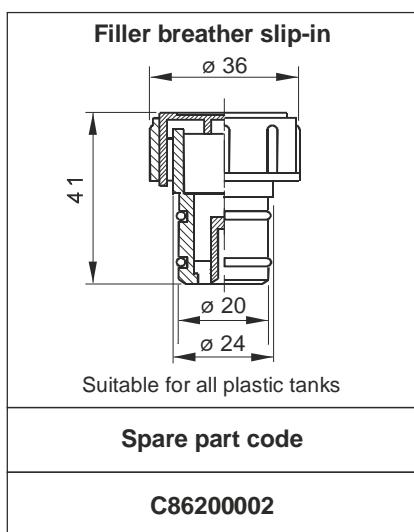
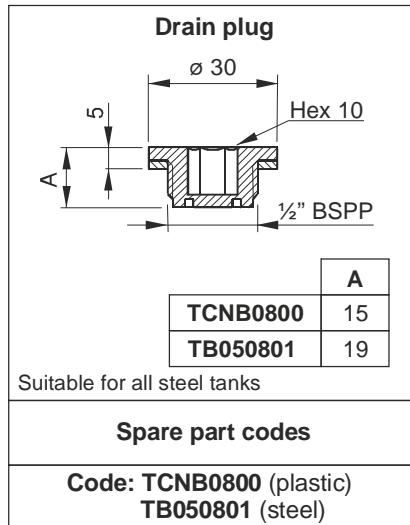
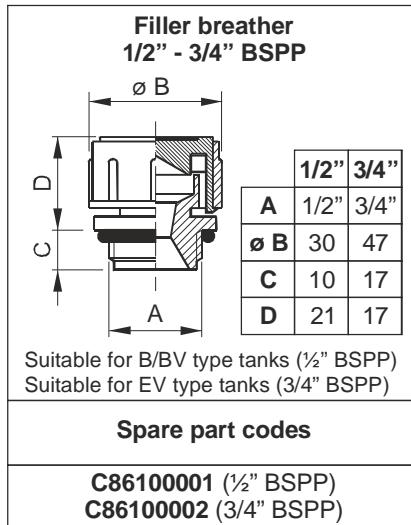
Description	PPC assembly code	Spare part code	Weight	Actual filling volume (lt)	
				Horizontal	Vertical
12 l squared horizontal / vertical mounting	12N / 12NV	H60303036	0,94 Kg	12,23	12,14



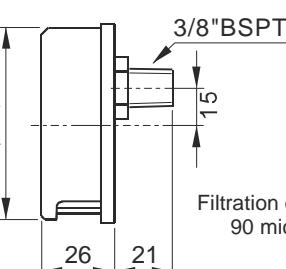
Description	PPC assembly code	Spare part code	L (mm)	Weight	Actual filling volume (lt)	
					Horizontal	Vertical
5 l round horizontal / vertical mounting	5P / 5PV	H60303028	219	0,60 Kg	5,97	5,64
9 l round horizontal / vertical mounting	9P / 9PV	H60303031	323	0,76 Kg	9,25	9,34

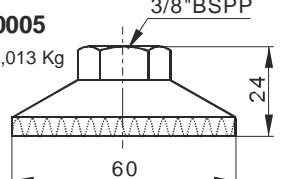
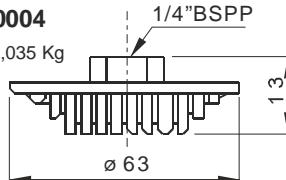
Material	PE-HD neutral / transparent color (DO NOT EXPOSE TO DIRECT SUNLIGHT)
Fluid	Mineral based oil ISO/DIN 6743/4
Working temperature	-15 / +70°C

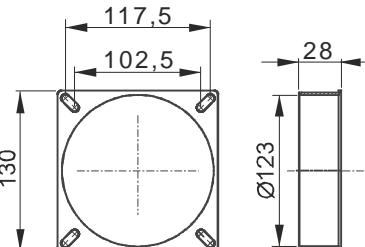
Notes: the piping kit, standard suction strainer and filler/breather are included when specifying the tank in PPC assembly code. When ordering spare tanks, only the filler/breather C86100003, C86200002 or C86100001 and clamp band are included. Discharge ports are normally blind moulded. See accessories table U040.50.06 and .07

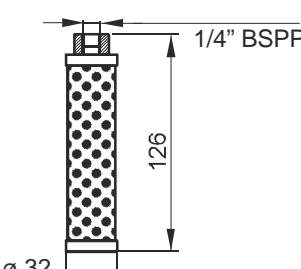
TANKS PLUGS AND ACCESSORIES

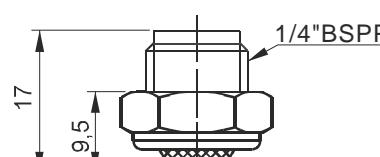
ACCESSORIES

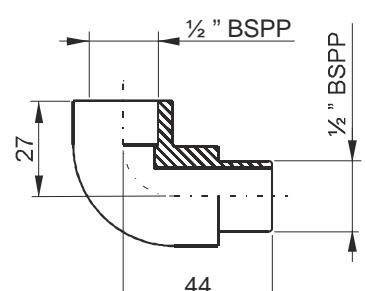
Inlet strainers Screened eccentric type
 Filtration degree: 90 micron
Recommended for 1,5 l tanks horizontal mounting Weight: 0,13 Kg
Spare part code C34100001

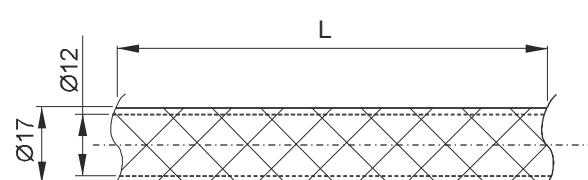
Standard inlet strainer filters Filtration degree: 90 micron
C34100005 Weight: 0,013 Kg 
C34100004 Weight: 0,035 Kg 

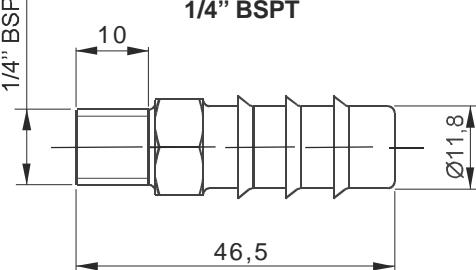
Steel tank adapter
 Unpainted, to be welded on custom made tanks
Weight: 0,21 Kg

Return filter

Suitable for all tanks over 3l Weight: 0,13 Kg Filtration degree: 90 micron
Spare part code C34200001

Relief valve return filter To be mounted in cavity Tr

It reduces foam and noise when relief valve is laminating. Recommended for all vertical mounting tanks.

90° adapter for vertical tanks

Spare part code E60513004

Flexible plastic pipe

Recommended as standard return pipe. To be fixed with TR01-12 and cut at proper lenght. To be ordered in meters
Spare part code SF12

Flexible plastic pipe holder for return line 1/4" BSPT

Spare part code TR0112

EXTERNAL MANIFOLDS & ACCESSORIES

Standard Ng6 (cetop3) base modular manifold blocks with parallel or series connections, rear or lateral ports. They can be stacked one upon the other. Top manifold P and T ports can be plugged with simple 1/4" or 1/8"BSP plugs.



Piloted operated check valves can be integrated within a modular manifold block for Ng6 (cetop3) valves, thus avoiding the extra modular cetop 3 sandwich type valve between the base block and the spool valve.



The external bulk 8,8 cc/stroke hand pump can be fitted under Ng6 (cetop) 3 modular manifolds. An easy way to add an «emergency» functionality to the power pack. The lever can be rotated 360°.



The spin-on type return filter is mounted in a modular manifold which can be stacked under Ng6 (cetop3) modular manifolds



A full set of accessories is available to complete the power pack configuration

How many types of external manifold blocks can be mounted?

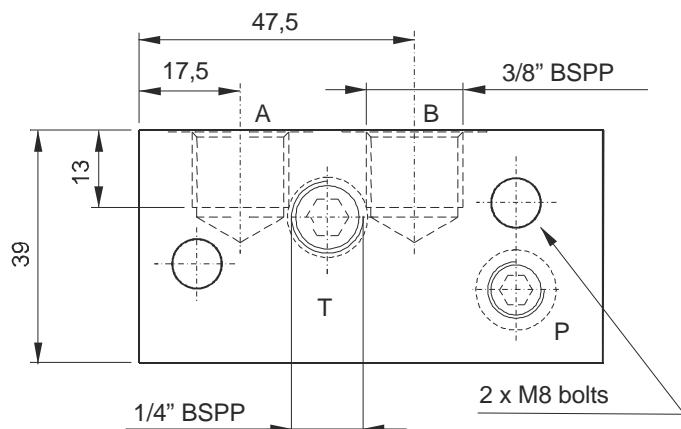
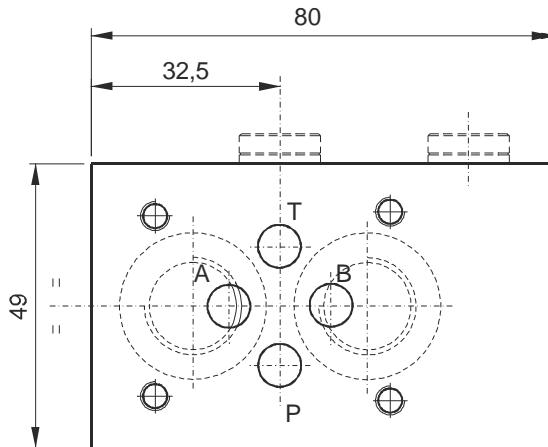
The central manifold exit face allows the mounting of two different block systems, through 2x M8 bolts (normally used for cetop3 modular manifolds stacks) or 4x M6 bolts systems (for modular manifolds for cartridge valves). The two bolt systems cannot be mixed on the same stack.

When do I need to mount the spacer block 28mm?

Whenever a big motor is mounted on the power pack. Normally the E60403004 spacer must be mounted below the stack of cetop3 blocks with AC motors with frame 80 or higher and with DC motors with frame 125 or higher.

When are the modular manifolds for differential area cylinders used?

With UR central manifolds, for reversible pumps circuits, the exit port are A and B, instead of P and T as usual. With differential area cylinders, when the bidirectional pump flow is outputting to B port, there will be more flow returning to A port, connected to the piston side of the cylinder, than that going to B port, connected to the rod side, due to the cylinder different area ratio. This block function is to discharge to tank the extra flow generated, which cannot be absorbed by the pump itself.

CETOP 3 MODULAR MANIFOLDS. REAR PORTS

Weight: 0,37 kg

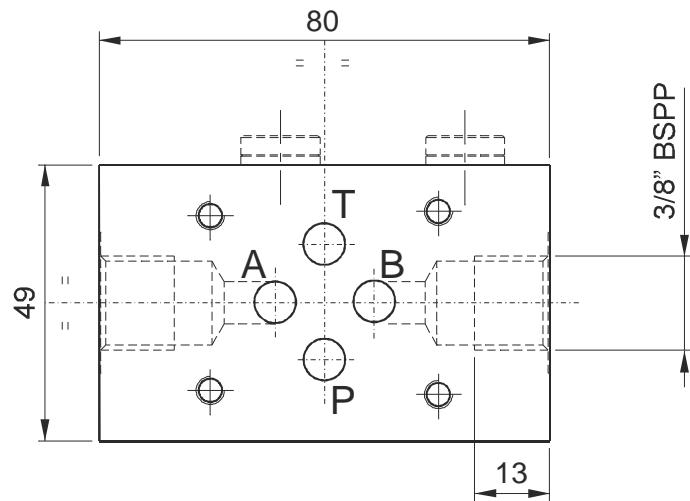
Fixing system: 2xM8 tie-rods
steel class 8.8 or above

Parallel connection	Spare part code
Rear ports	E60403001

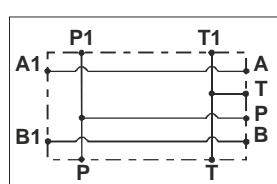
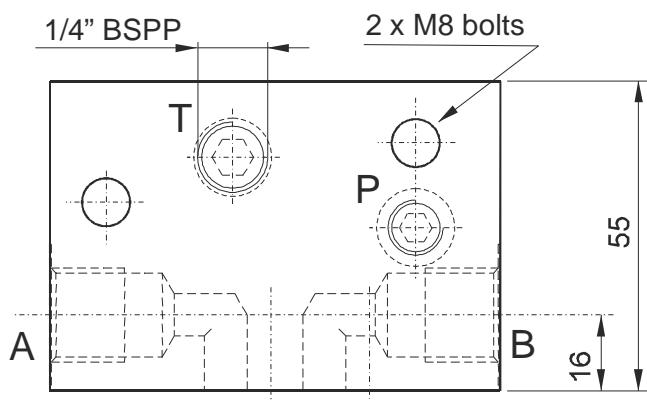
Note: to add external manifolds to PPC assembly code, just add their spare part codes at the end of PPC code. Ex: PPC-0,8 12DC-UA-J-G1,1-D/280-G-1,5L+E60403004+E60403010

The Cetop attachment is on motor side. With AC motor frames bigger than 71, always add a spacer manifold E60403004 (see next page) below the Cetop manifold to avoid interference between the Cetop valve and the motor.

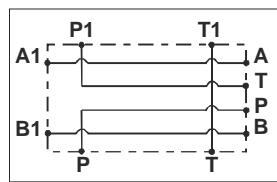
Recommended tightening torque for M8 bolts: 16 Nm

CETOP 3 MODULAR MANIFOLDS. LATERAL PORTS

Weight: 0,56 kg
Fixing system: 2xM8 tie-rods
steel class 8.8 or above

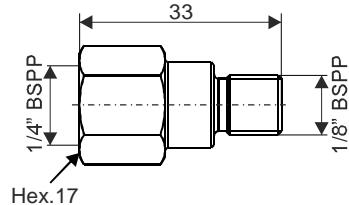


<i>Parallel connection</i>	Spare part code
Lateral ports	E60403010



<i>Serial connection</i>	Spare part code
Lateral ports	E60403011

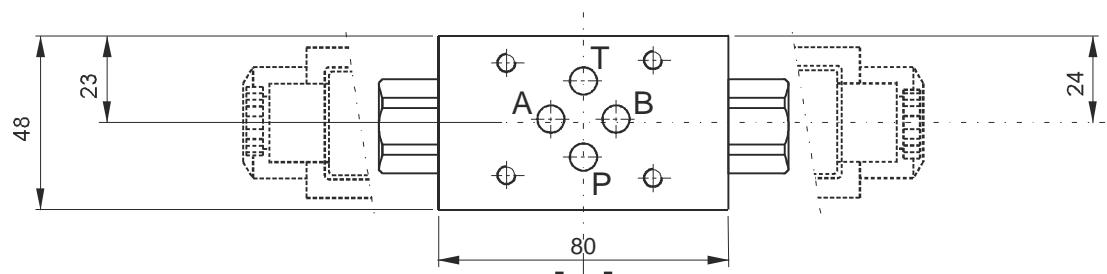
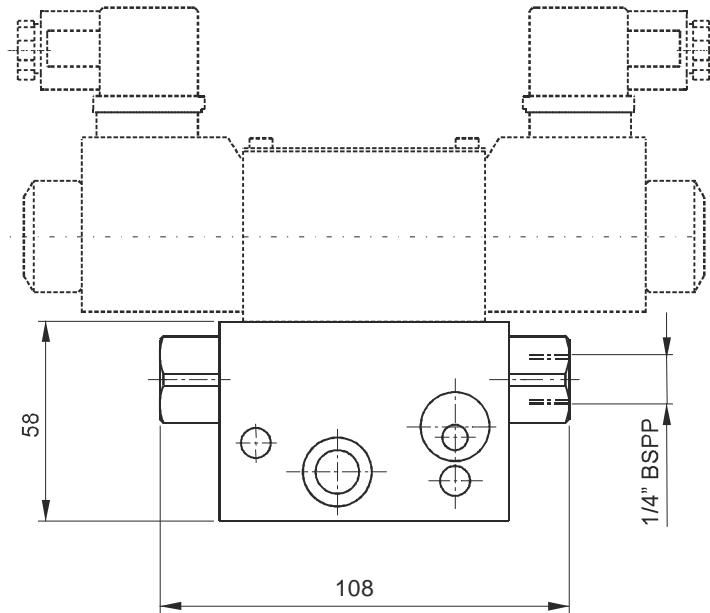
Option P port:
P port for modular blocks



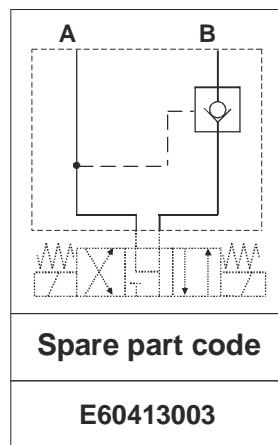
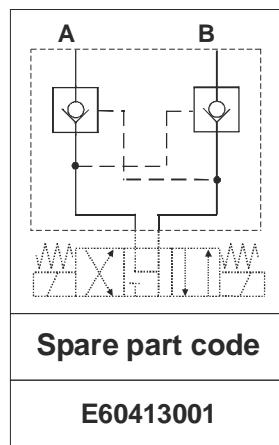
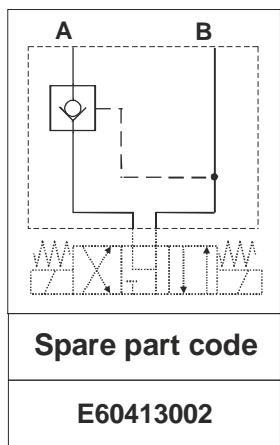
Note: to add external manifolds to PPC assembly code, just add their spare part codes at the end of PPC code. Ex: PPC-0,8 12DC-UA-J-G1,1-D/280-G-1,5L+E60403004+E60403010

The Cetop attachment is on motor side. With AC motor frames bigger than 71, always add a spacer manifold E60403004 (see next page) below the Cetop manifold to avoid interference between the Cetop valve and the motor.

Recommended tightening torque for M8 bolts: 16 Nm

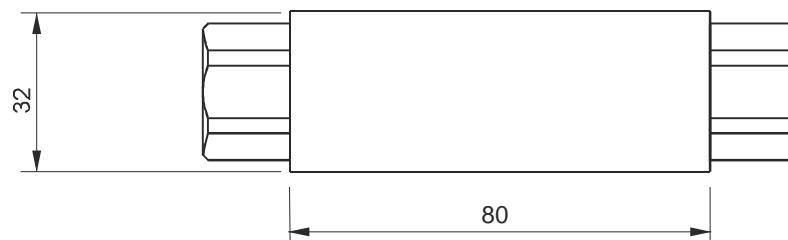
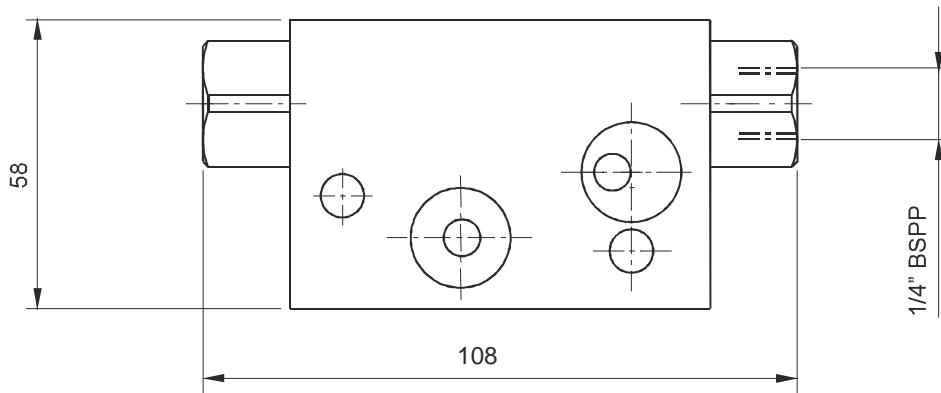
CETOP 3 MODULAR MANIFOLDS WITH INTEGRAL PILOT OPERATED CHECK VALVES**Main features**

Weight	0,71 Kg
Fixing system	2xM8 tie-rods steel class 8.8 or above



Notes: code does not include the Cetop solenoid valve.
Recommended tightening torque for M8 bolts: 16 Nm

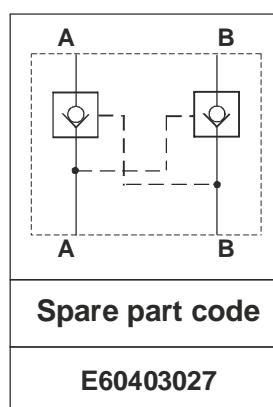
MODULAR MANIFOLD WITH PILOT OPERATED CHECK VALVES



Suitable for:
U4 body
UR body

Weight: 0,5 kg

Fixing system: 2xM8 tie-rods
steel class 8.8 or above



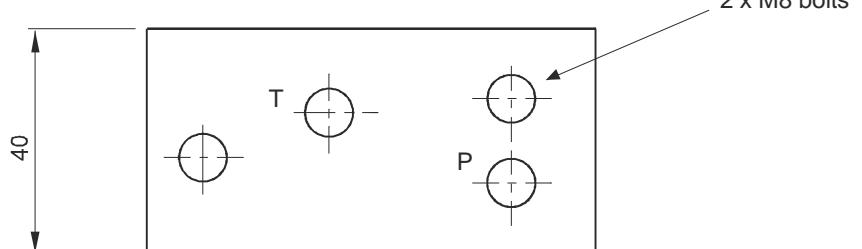
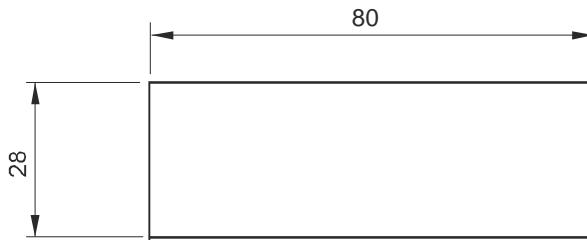
Notes: Recommended tightening torque for M8 bolts: 16 Nm

SPACER ELEMENT



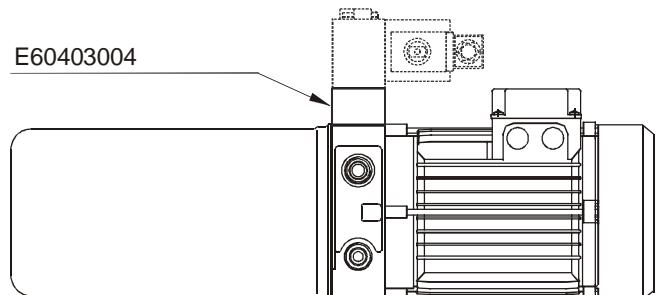
Weight: 0,23 kg

Fixing system: 2xM8 tie-rods
steel class 8.8 or above



Suitable for: all central manifolds with
AC motors with frame bigger than 71
and DC motors with frame
bigger than Ø125.

Mounting example



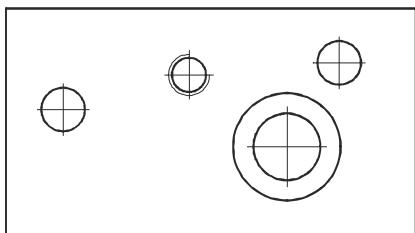
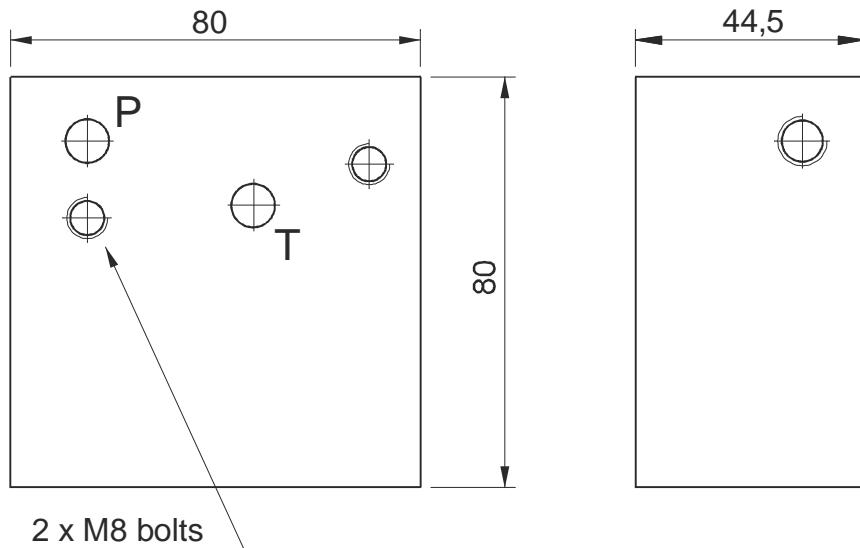
P1	T1
P	T
Spare part code	
E60403004	

90° ROTATION MANIFOLD



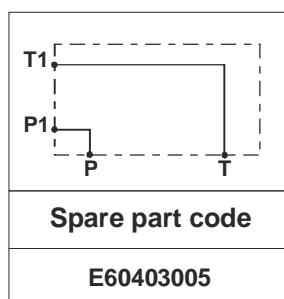
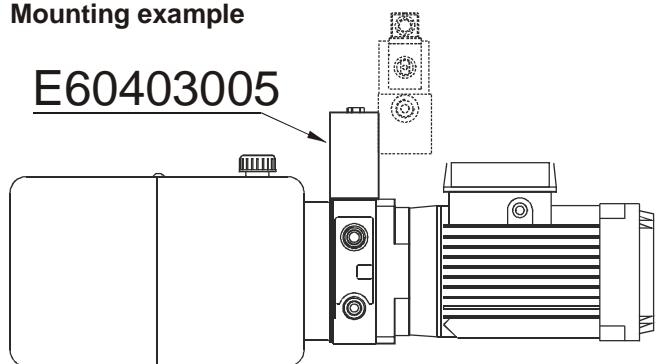
Weight: 0,72 kg

Fixing system: 2xM8 tie-rods
steel class 8.8 or above



Mounting example

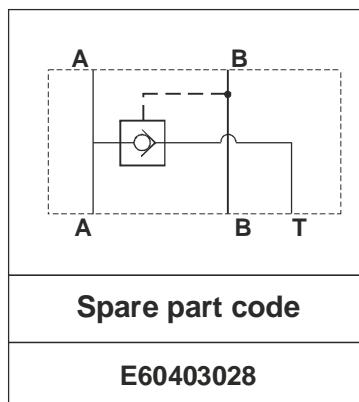
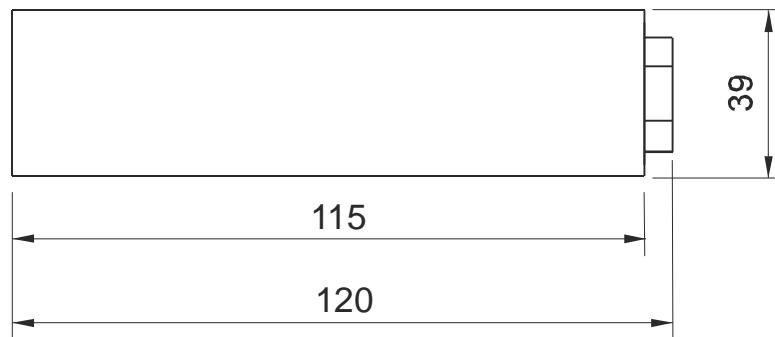
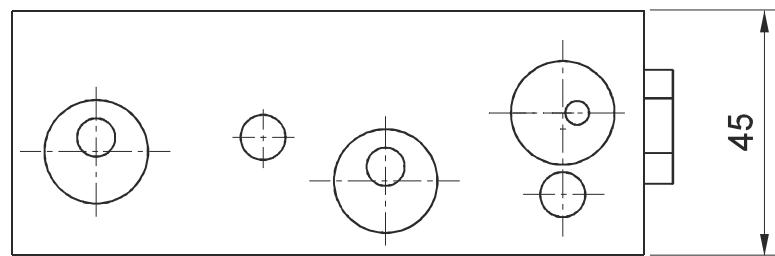
E60403005



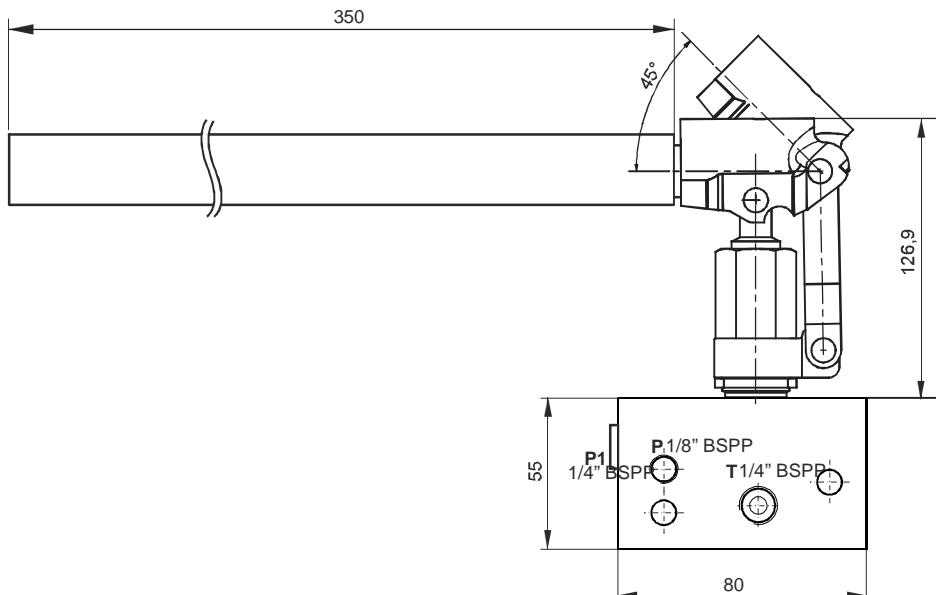
MODULAR MANIFOLD WITH CHECK VALVE FOR DIFFERENTIAL AREA CYLINDER



Weight: 0,5 kg



Suitable for: UR body with differential cylinders
Fixing system: 2xM8 tie-rods
steel class 8.8 or above
Notes: Recommended tightening torque for M8 bolts: 16 Nm

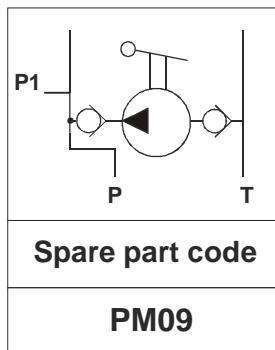
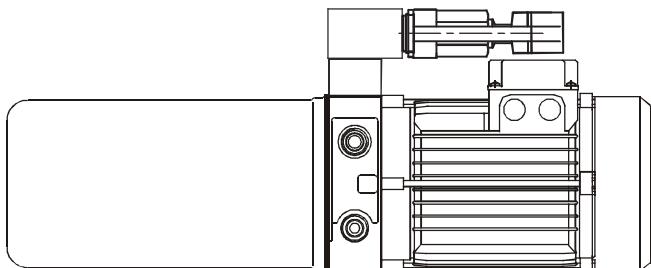
PM09 HAND PUMP MODULAR MANIFOLD

Fixing system: 2xM8 tie-rods
Material class: min. 8.8 or equivalent

Block height: 39mm
Weight: 1,8 kg

Main features

Max pressure	210 bar
Displacement	8,8 cc/stroke
Fixing bolts	2 x M8 (8.8 class steel)
Filtration grade	25 ÷ 50 µ
Temperature range	-20 ÷ +70°C

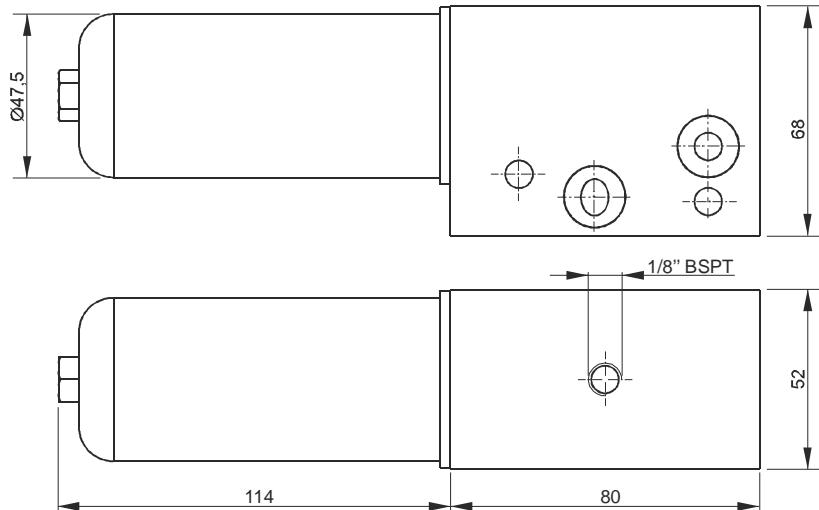
Mounting example

Recommended tightening torque for M8 bolts: 16 Nm.

Commissioning: the pump must be bled by opening the plug of the unused pressure port (P or P1), pumping a few times until oil comes out, then tightening the plug again.

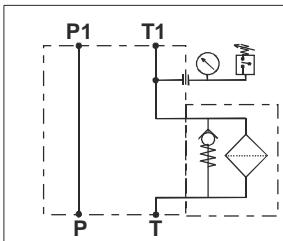
RETURN LINE FILTER MODULAR MANIFOLD

Fixing system: 2xM8 tie-rods
steel class 8.8 or above

**Main features**

Opening valve pressure	210 bar
Max flow	20 l/min
Filtration setting	15 µ
Oil temperature	-30 ÷ + 80 °C
Weight	0,87 kg

Note: Recommended tightening torque
for M8 bolts: 16 Nm

Hydraulic scheme

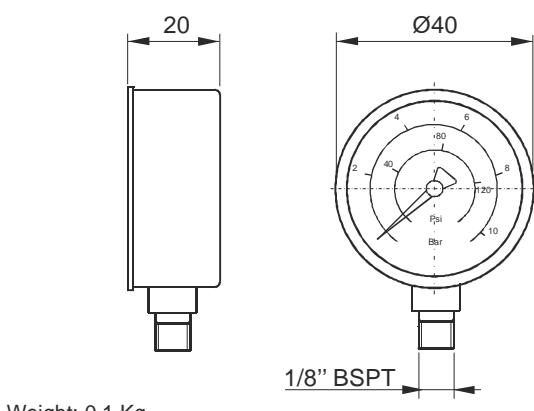
Note: code does not include
the MIR40 pressure gauge or
F4 pressure switch

Spare part code

E60403020	Modular manifold with return filter on T
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Replacement cartdrige part code

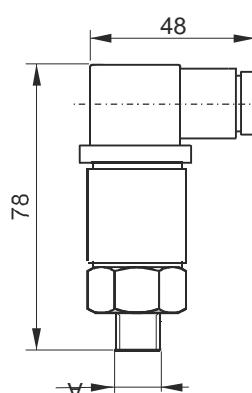
FO201385

Options**Pressure gauge
for return filter manifold**

Weight: 0,1 Kg

Spare part code

MIR4010

Pressure switch

Setting range	0,2 ÷ 2,5 bar
Protection degree	IP 65
Hysteresis	10 ÷ 15 %
Weight	0,05 Kg
Max load	0,5 A at 250 VAC
Electric switch	NO/NC

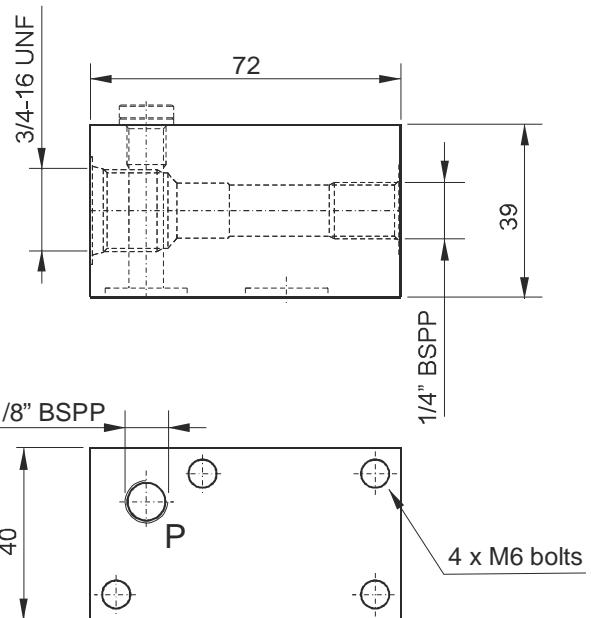
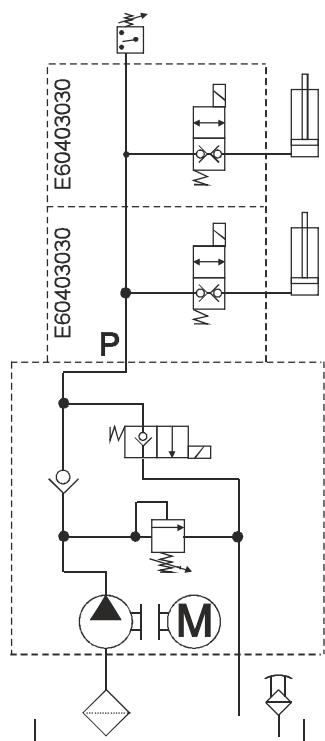
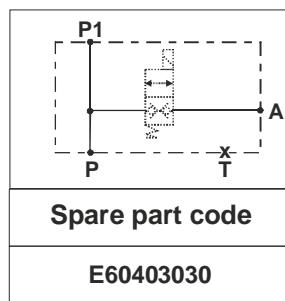
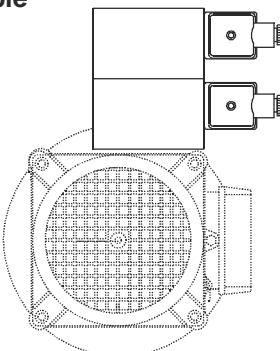
A
F4R0M3 1/8" BSPP

Spare part code

F4R0M3

MODULAR MANIFOLDS FOR 3/4-16 UNF CARTRIDGES. TWO WAY

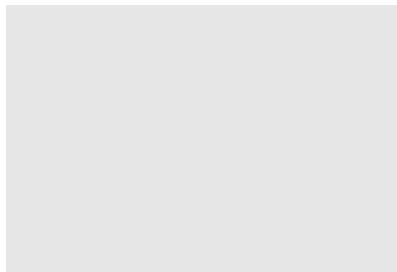
Weight: 0,26 kg
Fixing system: 4xM6 tie-rods
steel class 8.8 or above

**Circuit example****Mounting example**

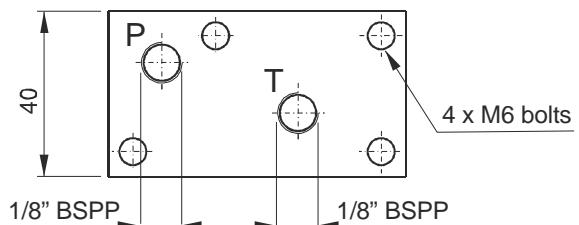
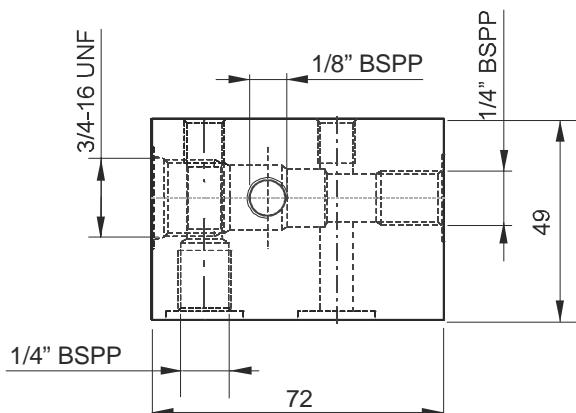
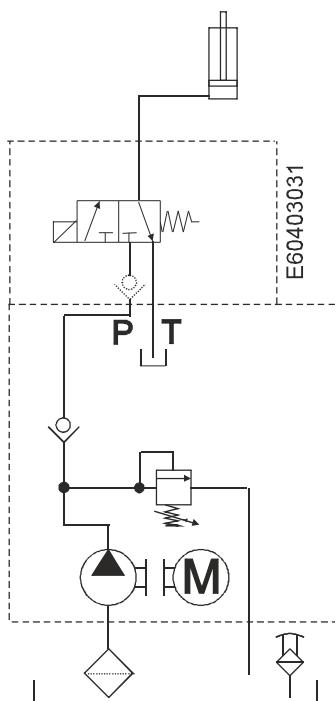
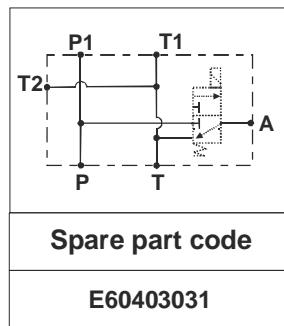
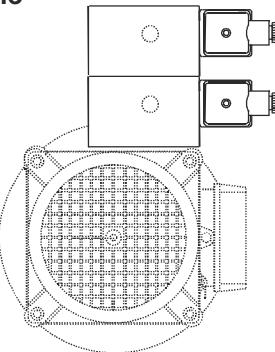
Note: code does not include the MSV or MDV solenoid valve.

Recommended tightening torque for M6 bolts: 8 Nm

Note: 3/4-16 UNF manifolds can be stacked one upon the other but cannot be used with cetop 3 modular manifolds since the tie rods bolt pattern is different. The three way block is not compatible with square vertical tanks.

MODULAR MANIFOLDS FOR 3/4-16 UNF CARTRIDGES. THREE WAY

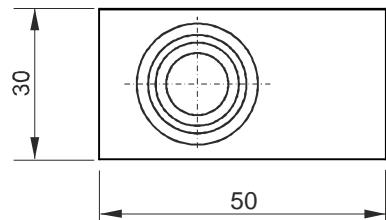
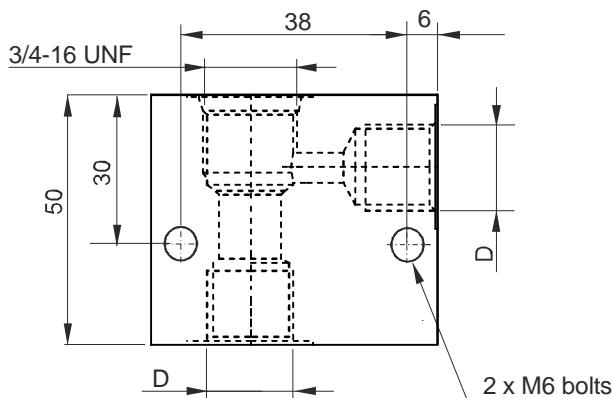
Weight: 0,32 kg
Fixing system: 4xM6 tie-rods
steel class 8.8 or above

**Circuit example****Mounting example**

Note: code does not include the MSV3V solenoid valve.

Recommended tightening torque for M6 bolts: 8 Nm

Note: 3/4-16 UNF manifolds can be stacked one upon the other but cannot be used with cetop 3 modular manifolds since the tie rods bolt pattern is different. The three way block is not compatible with square vertical tanks.

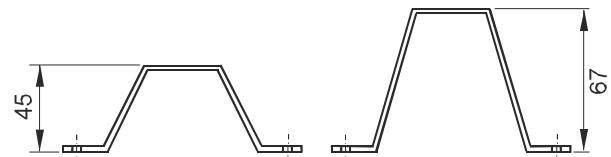
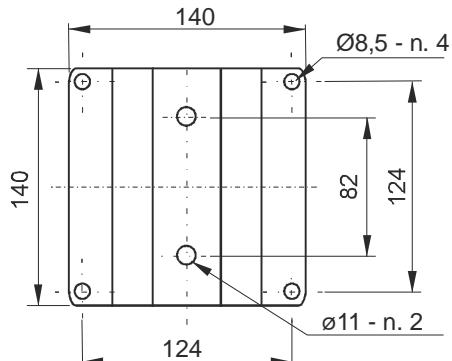
ACCESSORIES**In line mounting 3/4-16 UNF manifolds**

	D	Weight
BFCSAE0802	3/8" BSPP	0,16 Kg
BFCSAE0801	1/4" BSPP	0,48 Kg

Spare part codes

BFCSAE0802

BFCSAE0801

Foot mounting supportE60543006
Weight: 0,4 KgE60543007
Weight: 0,6 Kg

E60543006: suitable for all tanks except E60303012

E60543007: recommended for E60303011, E60303012 tanks and with frame 90 AC integral motors.

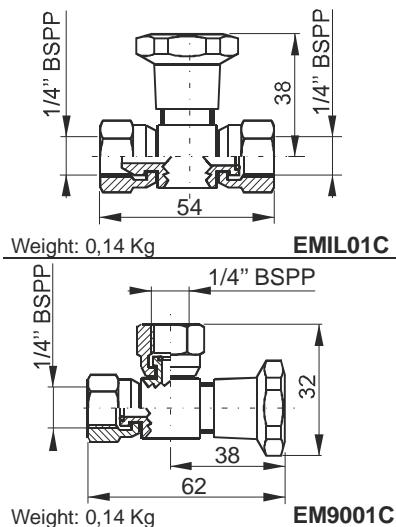
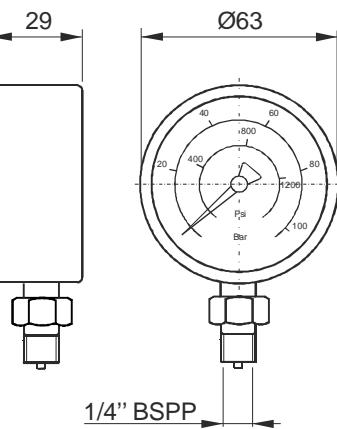
Spare part codes

E60543006

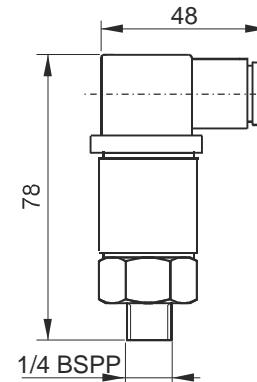
E60543007

ACCESSORIES**Gauge isolator F-F**

Max working pressure: 350 bar

**Spare part code****EM9001C / EMIL01C****Pressure gauge****Spare part code****MIR63***** ***:pressure max in bar
(060, 100, 160, 250, 315 bar)**Pressure switch**

Protection degree	IP 65
Hysteresis	10 ÷ 15 %
Weight	0,05 Kg
Max load	0,5 A at 250 VAC
Electric switch	NO/NC

**Spare part code****F401***** ***:pressure max in bar
(050, 100, 200, 400 bar)

EXTERNAL VALVES

Ng6 (cetop 3) valves: the conventional choice for market compatibility and universal service around the world. Each valve requires a base modular manifold.



Bancable valves: the «new» solution to reduce power pack dimensions and weight. A and B threaded ports are machined directly on the valve body



Ng6 (cetop 3) modular sandwich type valves: flow control and pressure control. These valves are made with aluminium body and the same functional cartridges used in the power pack central manifold for cost effectiveness and lightweight

Cartridge valves in external blocks: the cost effective and the lightweight solution

Which are the advantages of bancable valves compared to cetop 3 valves?

Lower weight, lower dimensions, lower costs. Their height of just 31 mm can let you build a stack of, for example, 7 valves in 217mm. A similar stack made with cetop 3 valves would be nearly the double high.

Is it possible to manufacture special blocks with special valves combinations for specific applications?

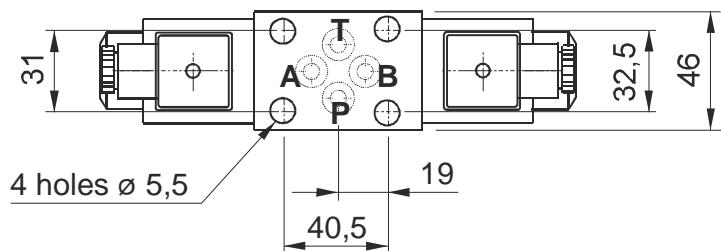
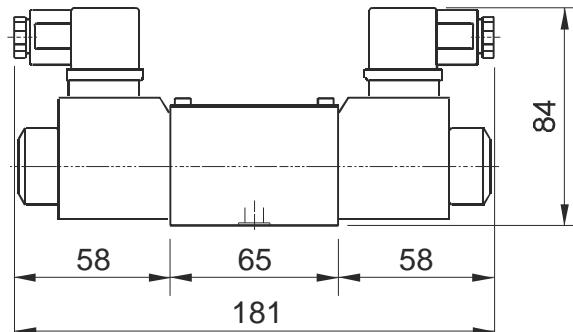
Yes. Whenever quantities justify the investment in design and manufacturing. Ask our sales department first.

Which coils and connectors do I select for the spool valves?

Ng6 (cetop3) valves SD03* use M160 series of coils either DC or RAC (rectified current). Bancable valves SD01* use DC or RAC M120 series coils. When choosing a RAC coil, a rectifying bridge connector must be chosen (KA132R***). A standard KA13200000 connector must be always used with DC coils.

CETOP 3 DIRECTIONAL SOLENOID VALVES

Weight: 1,43 kg (2 sol), 1,16 kg (1 sol)

**Main features**

Max pressure	250 bar
Max p on T port	210 bar static, 180 bar dynamic
Max flow	40 l/min
Fixing bolts	4 TCEI M5x30. 5Nm torque 10.9 class steel or better
Coil insulation	Class H
Electric connection	DIN 43650-A / ISO 4400
Protection class	IP 65 / DIN 40050
Duty cycle	ED 100%
Voltage required	+/- 10% nominal voltage included as standard
Manual override	EN50081-1 / EN50082-2 (89/336 CEE electromagnetic comp.)
Normatives	73/23/CEE / 96/68/CEE (low voltage)

Spare part code

- SD03** → **Cetop 3 directional solenoid valve**
- A2** → **Spool and scheme:**
see side table
- 24DC** → **Supply voltage:**
see below table
- → **Options:**
- = std

Supply voltage (V)	Coil voltage	Spare coil code	Spare connector code	Holding power consumption
12DC	12DC	M16040001	KA132000B1	26W
24DC	24DC	M16040002	KA132000B1	26W
24AC/ ^{50 Hz} _{60 Hz}	24DC	M16040002	KA132R11B1	26W
115AC/ ^{50 Hz} _{60 Hz}	110RC	M16040004	KA132R12B1	26W
230AC/ ^{50 Hz} _{60 Hz}	220RC	M16040005	KA132R13B1	26W

**Double solenoid**

A2*	
B2	
C2	
E2	

Single solenoid

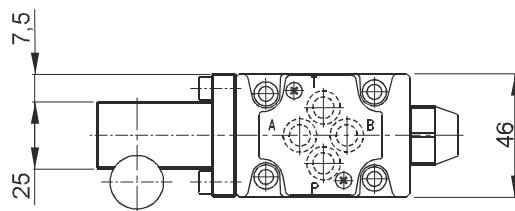
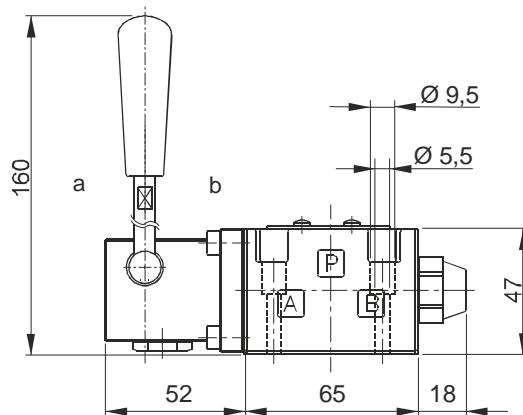
A11C	
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Other voltages and electric connectors types (Amp Junior, flying leads,...) available on request.
Inrush power consumption can be up to 3,5 times higher than the holding one.

* = spools with price addition. Other spools are available on request

CETOP 3 DIRECTIONAL MANUAL VALVES

Weight: 1,32 kg

**Main features**

Max pressure	300 bar
Max p on T port	150 bar
Max flow	30 l/min
Fixing bolts	4 TCEI M5x30. 5Nm torque 10.9 class steel or better
Temperature range	-20 ÷ +80°C
Recommended filtration	25 ÷ 50 µ

Spare part code

HD03 ────────── **Cetop 3 directional manual control valve**

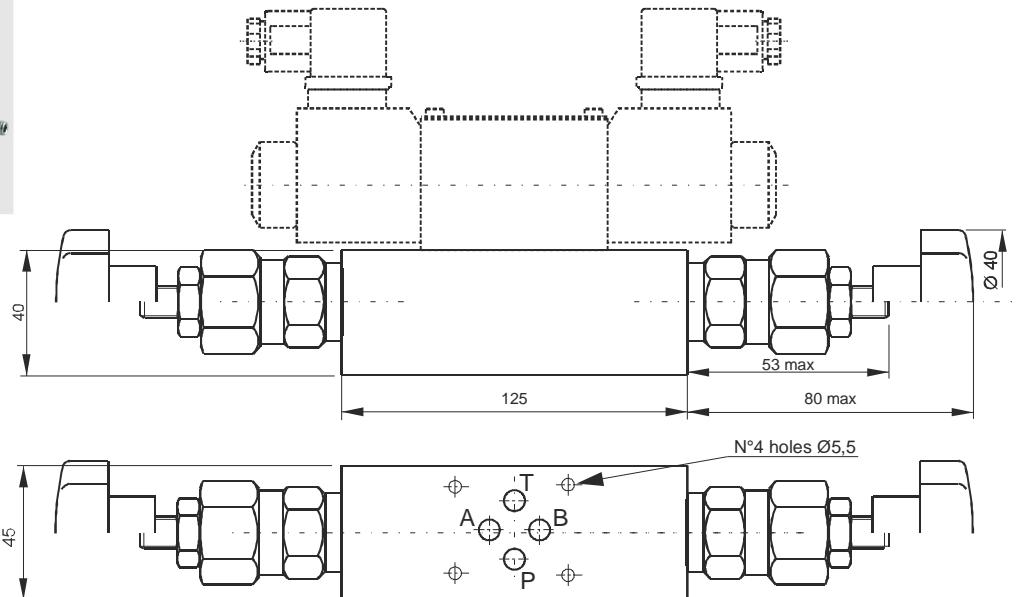
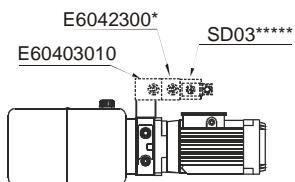
A ────────── **Spool control:**
see side table

1 ────────── **Spool type:**
see side table

- ────────── **Options:**
- = std

Code	
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Code	Spool type	Spring centered	Spool control	
			A	D
1				
2				
3				
10				

SECTION B**CETOP 3 SANDWICH RELIEF VALVES****Mounting example****Main features**

Max pressure	350 bar
Max flow	35 l/min
Weight	Single relief: 0,71 kg Double relief: 0,87 kg

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

Fixing system: 4xM5 tie-rods
steel class 12.9 or above

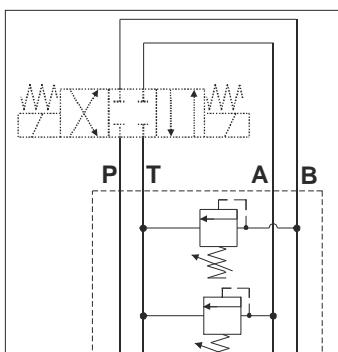
E6042300* — Cetop3 sandwich relief valve

B — Pressure range settings:

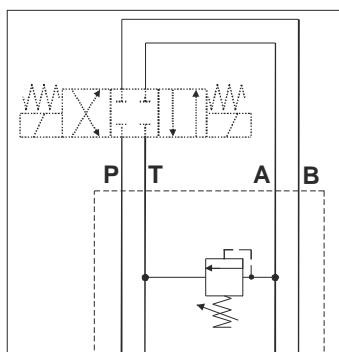
- L = 10 ÷ 60 bar
- A = 20 ÷ 180 bar
- B = 35 ÷ 280 bar

1 — Option:

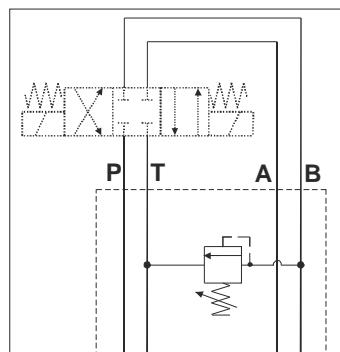
- 1 = screw (std)
- 2 = handwheel
- 3 = with cap
- 4 = plastic seal

**Spare part code**

E60423001**

**Spare part code**

E60423002**

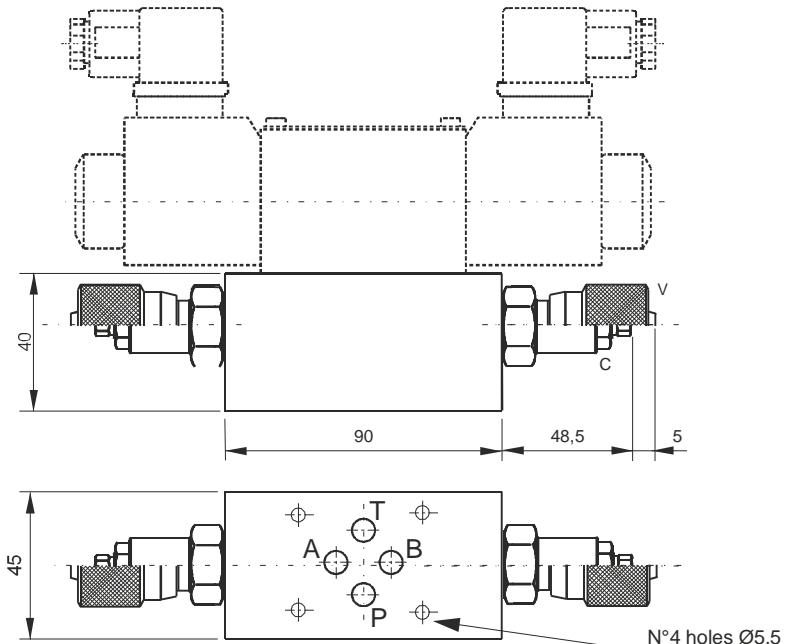
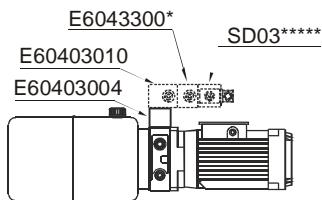
**Spare part code**

E60423003**

Notes: code does not include the Cetop solenoid valve. When E60423001 relief valves have different pressure ranges, please specify them separately.
Es: E60423001AB=180 bar max for valve on A port, 280bar max for valve on B one.

CETOP 3 SANDWICH FLOW CONTROL VALVES

Fixing system: 4xM5 tie-rods
steel class 12.9 or above

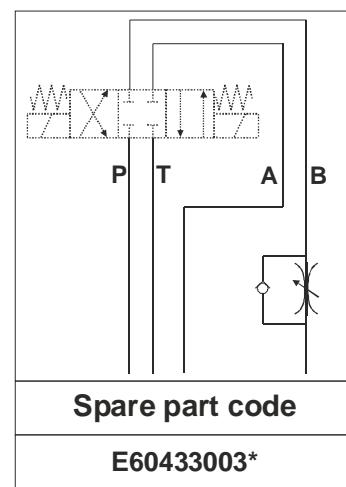
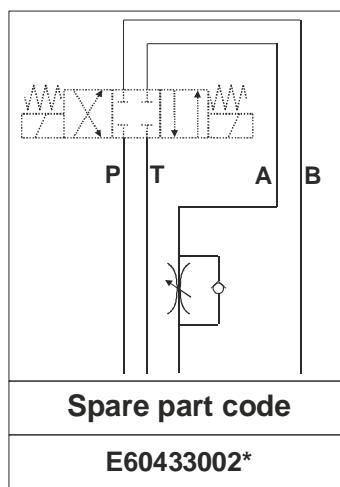
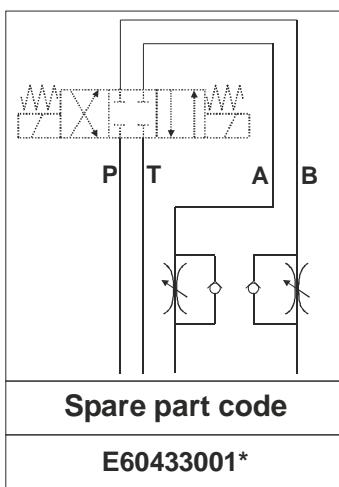
Mounting example**Main features**

Max pressure	300 bar
Max flow	15 l/min
Weight	Single relief: 0,52 kg Double relief: 0,64 kg

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

E60433001 → Cetop3 sandwich
meter-out
flow control valve

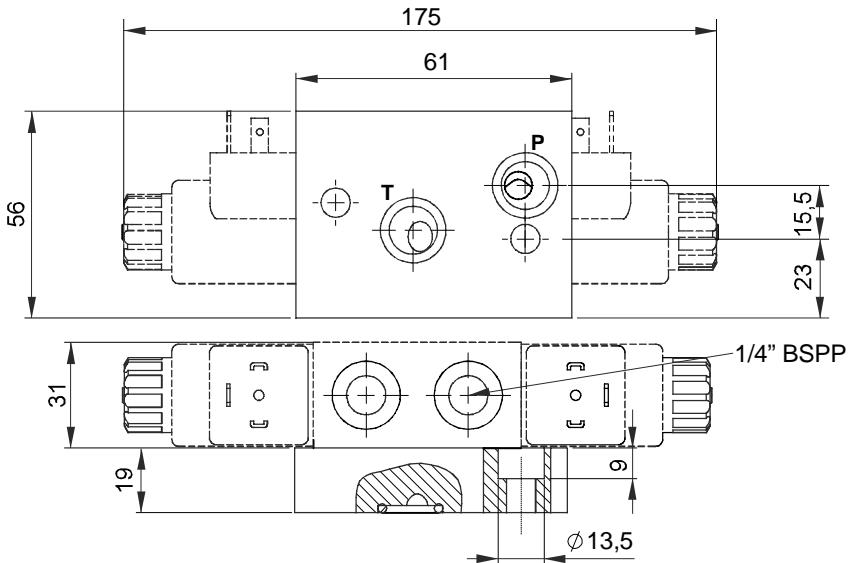
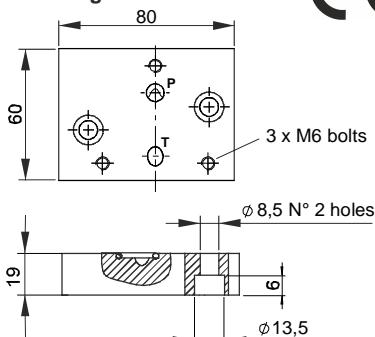
C → Adjusting device:
C = screw (std)
V = handwheel



Notes: code does not include the Cetop solenoid valve.

STACKABLE DIRECTIONAL SOLENOID VALVES

Mounting manifold



Spare part code: **E60403006**
 Mounting bolts 2 x M8x20
 Weight: 0,22 Kg

Weight: 0,89 Kg (1 sol.)
 1,09 Kg (2 sol.)
 Fixing system: 3xM6 tie-rods

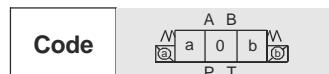
Main features

Max pressure	250 bar
Max p on T port	210 bar static, 140 bar dynamic
Max flow	20 l/min
Fixing bolts	3 TCEI M6 x 6Nm torque. 10.9 class steel
Coil insulation	Class H
Electric connection	DIN 43650-A / ISO 4400
Protection class	IP 65 / DIN 40050
Duty cycle	ED 100%
Voltage required	+/- 10% nominal voltage
Manual override	included as standard
Normatives	EN50081-1 / EN50082-2 (89/336 CEE electromagnetic comp.) 73/23/CEE / 96/68/CEE (low voltage)

Spare part code

- SD01** Stackable directional solenoid valve
- A2** Spool and scheme: see side table
- 24DC** Supply voltage: see below table
- Position type:
- = intermediate
C = top closed

Supply voltage (V)	Coil voltage	Spare coil code	Spare connector code	Holding power consumption
12DC	12DC	M12040001	KA132000B1	22W
24DC	24DC	M12040002	KA132000B1	22W
24AC/ ^{50 Hz} _{60 Hz}	24DC	M12040002	KA132R11B1	22W
230AC/ ^{50 Hz} _{60 Hz}	220RC	M12040005	KA132R13B1	22W

**Double solenoid**

A2*	
B2	
C2	
E2	

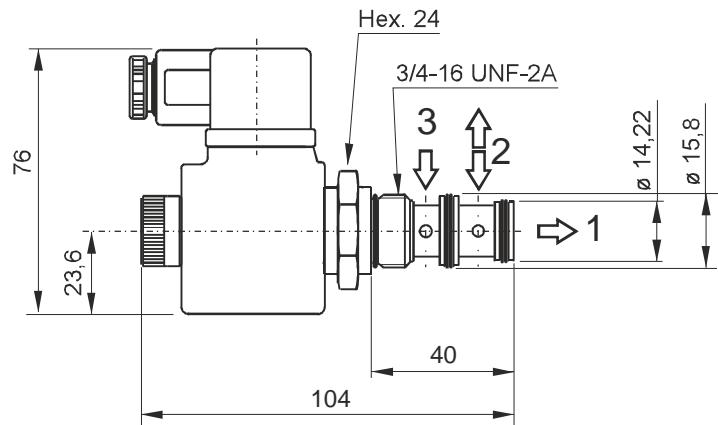
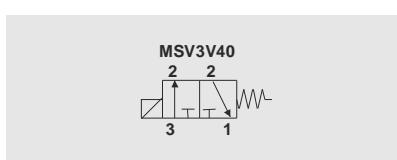
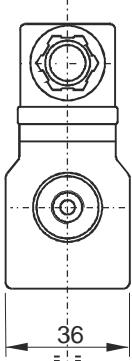
Single solenoid

A11C	
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Other voltages and electric connectors types (Amp Junior, flying leads,...) available on request.

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

* = spools with price additional. Other spools available on request

MSV3V - DIRECT OPERATED 3/2 WAY DIRECTIONAL SPOOL SOLENOID VALVE**CE****Main features**

Max pressure	210 bar
Max flow	12 l/min (20 l/min with no block)
Weight	0,35 Kg (with coil)
Coil thermal insulation	Class H
Electric connection	DIN 43650-A / ISO 4400
Coil protection class	IP 65 / DIN 40050
Duty cycle	ED 100%
Voltage required	+/- 10% nominal voltage
Recommended tightening torque	30 Nm
Oil temperature	-25 ÷ +70°C

Spare part code

MSV3V	Three-way pilot operated solenoid valve
40	Spool type: 40 = std
0	Options: 0 = no options (std) E = emergency
0000	Supply voltage: 0000 = no coil (std) see below table

Coils selection

Supply voltage (V)	Coil type	Spare coil code	Spare connector code	Holding power consumption
12DC	12DC	M14040001	KA132000B1	22W
24DC	24DC	M14040002	KA132000B1	22W
24AC/ ^{50 Hz} _{60 Hz}	24DC	M14040002	KA132R11B1	22W
115AC/ ^{50 Hz} _{60 Hz}	110RC	M14040004	KA132R12B1	22W
230AC/ ^{50 Hz} _{60 Hz}	220RC	M14040005	KA132R13B1	22W

Other voltages and electric connectors types (AMP JUNIOR,flying leads,...) are available on request.

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

Pressure drop diagram