

Olsbergs

means total control



Valve Pv90

MultiDrive 2 with D3



Products and spare parts



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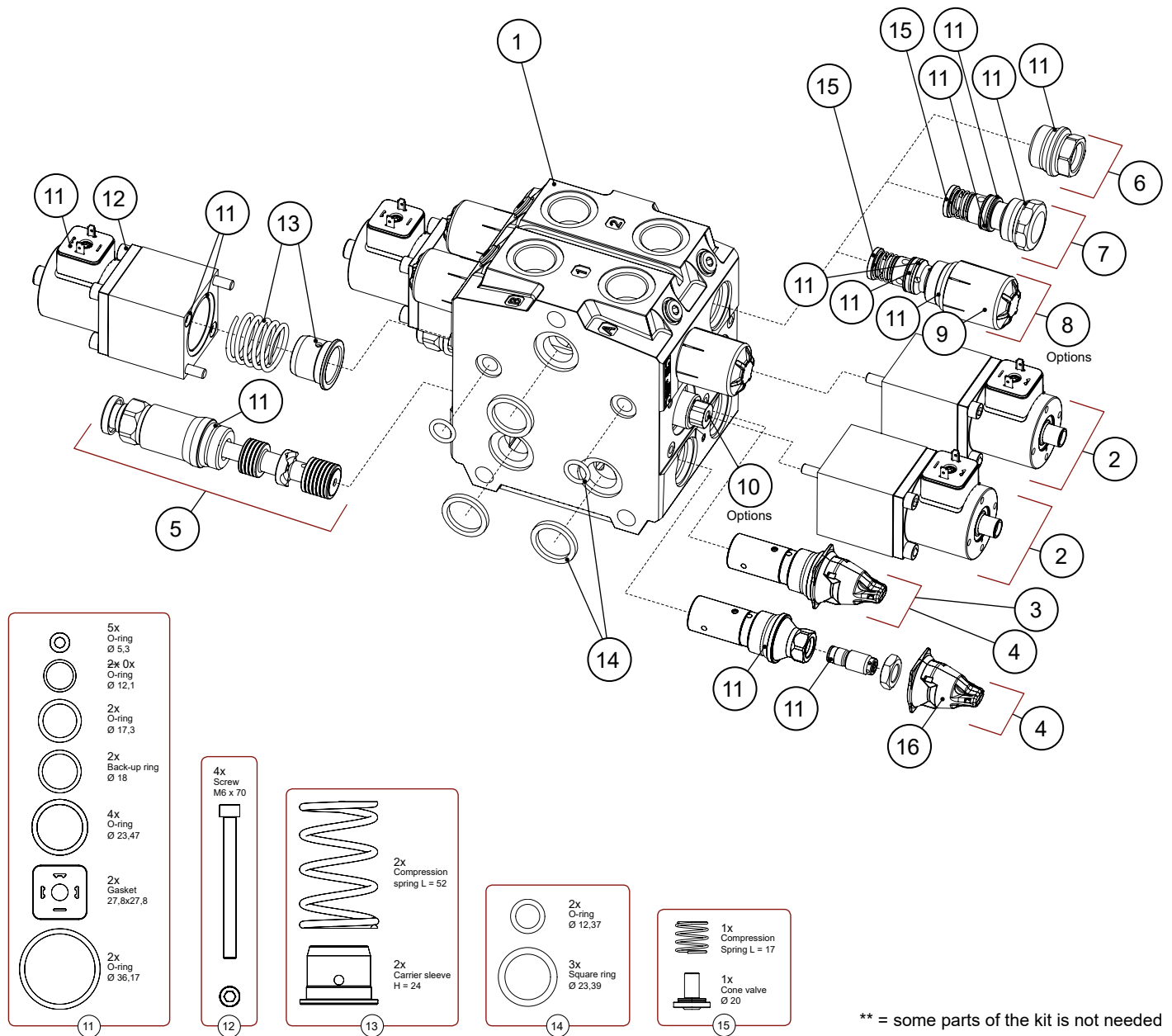
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Subject to change in case of printing errors.

Valve Pv90: Electrically operated valve with positioner P9

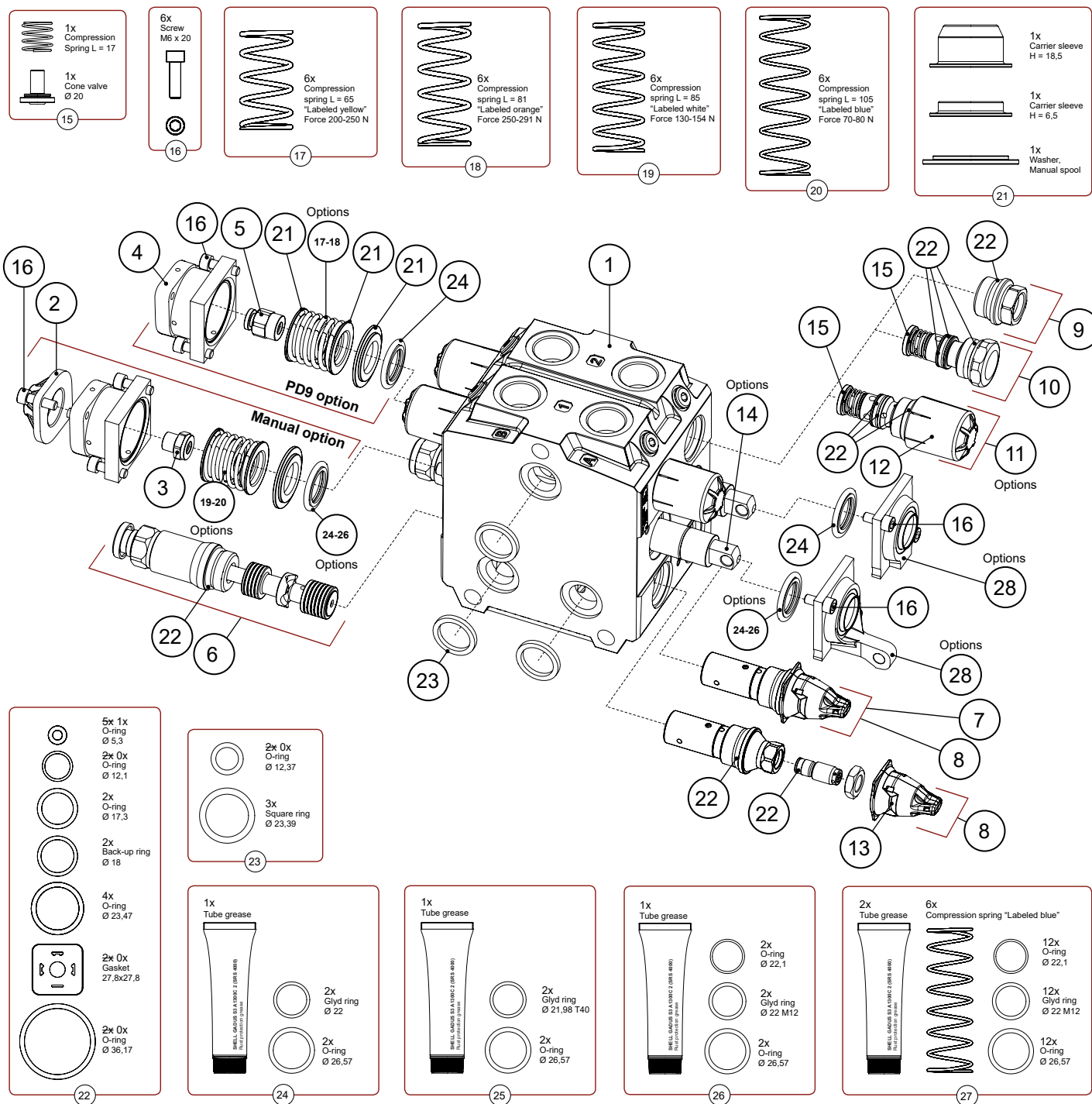
Spare parts



** = some parts of the kit is not needed

Valve Pv90: Manually operated or electrically operated valve with PD9

Spare parts (Page 1/2)



Pos.	Part no.	Description	Note
1	xxxx	Valve Pv90 Man. / Valve Pv90 EI-PD9	
2	V2121	Cover plate V	
3	V2120	Bolt, manual	
4	P0181	Cover V, complete	Incl. o-rings
5	P0191	Bolt, CombiDrive	
6	V0760	Pressure compensator Pv90	
7	V0751	Signal relief valve complete without shuttle valve	For last section, see valve specification
8	V0750	Signal relief valve complete with shuttle valve	For last section, see valve specification
9	V0741	Plug TK G 3/4", complete	Incl. o-ring
10	V0740	Chock valve P plug Pv90	
11	V1xxx	Shock valve xx MPa standard	See page 37
12	V2271GR	Plastic cap grey, shock valve	
13	V2589GR	Closure sealing, grey	Consumption: 1 pcs per signal relief valve
14	V32xxx	Spool xxx-man xx-xx-xx	See valve specification and page 38 - 46

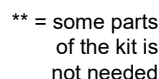
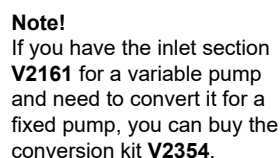
Valve Pv90: Manually operated or electrically operated valve with PD9

Spare parts (Page 2/2)

** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
15	V9045	Anti-cavitation kit Pv90	Consumption: 1 kit per shock valve
16	V9007	Screw package Man	Consumption: 1 kit per valve section
17	V9047	Spring set x6 yellow	Consumption: 1 kit per 6 valve sections
18	V9023	Spring set x6 orange	Consumption: 1 kit per 6 valve sections
19	V9005	Spring set x6 white	Consumption: 1 kit per 6 valve sections
20	V9046	Spring set x6 blue	Consumption: 1 kit per 6 valve sections
21	V9008	Spring guide package spool	Consumption: 1 kit per valve section
22	V9004	Sealing package TV2	Consumption: 1 kit per valve section**
23	V0762	Seal kit	Consumption: 2 kit per valve**
24	S1102	Sealing kit spool	Consumption: 1 kit per valve section
25	V2541	Sealing kit spool	Consumption: 1 kit per valve section
26	V2468	Sealing kit spool	Consumption: 1 kit per valve section
27	V2520	Low friction kit	Consumption: 1 kit per 6 valve sections
28	-	Console	See page 31

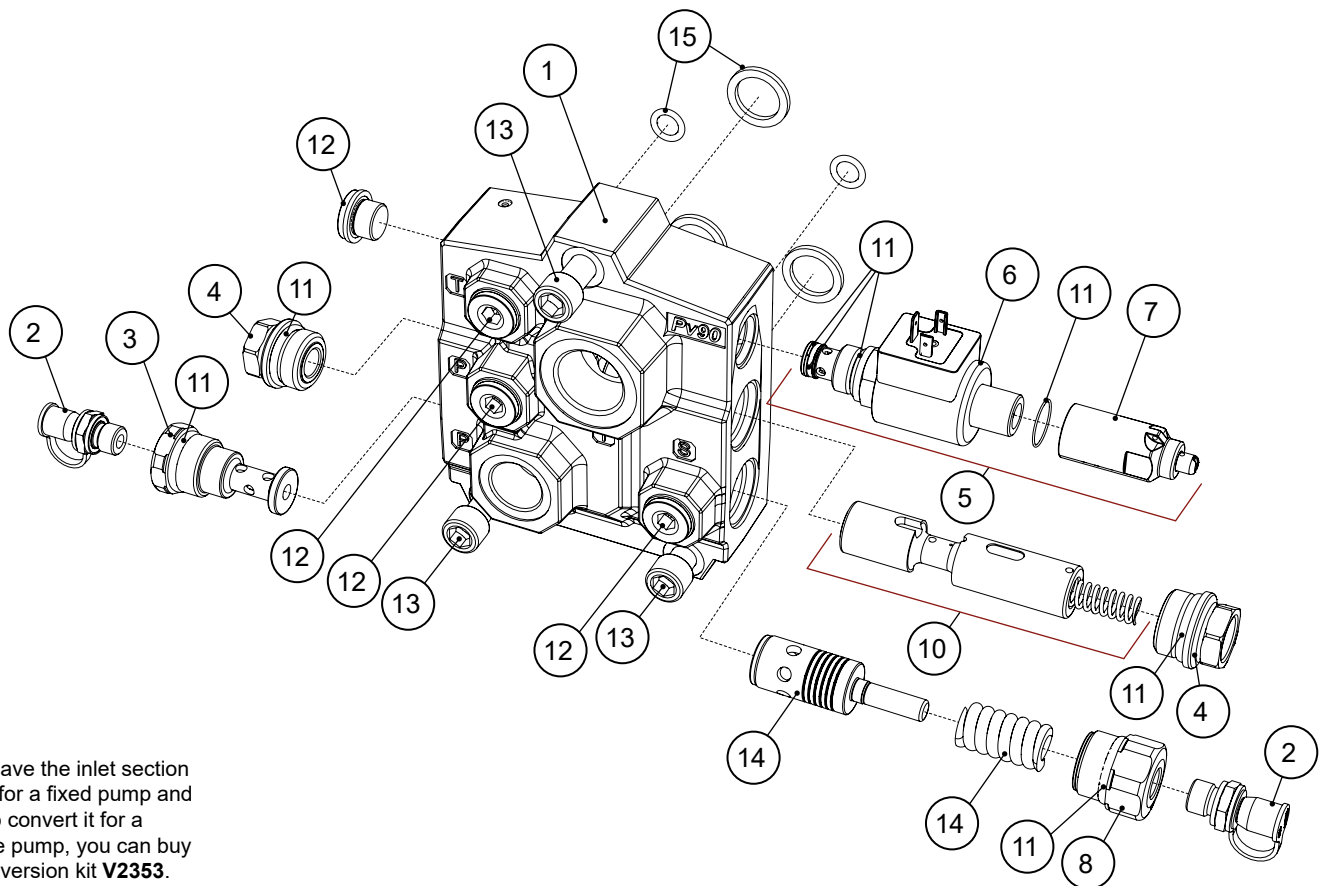
Spare parts



Note

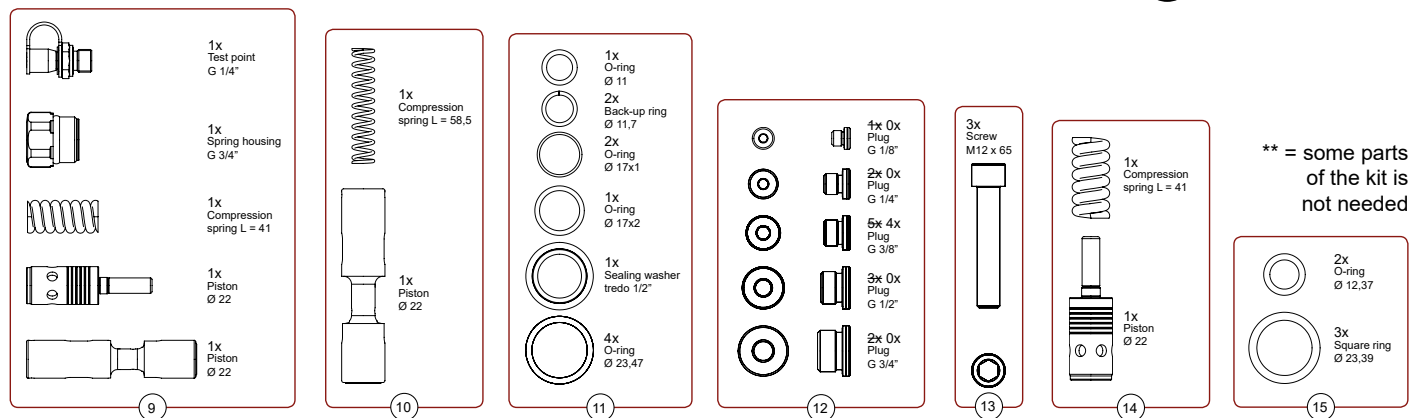
Valve Pv90: Inlet section V2161, variable pump

Spare parts



Note!

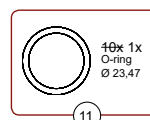
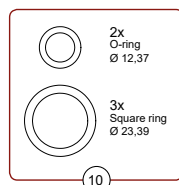
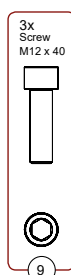
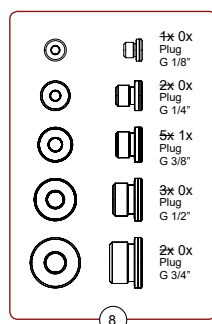
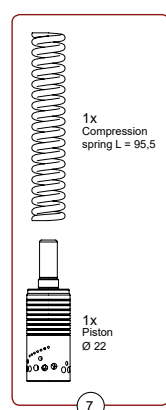
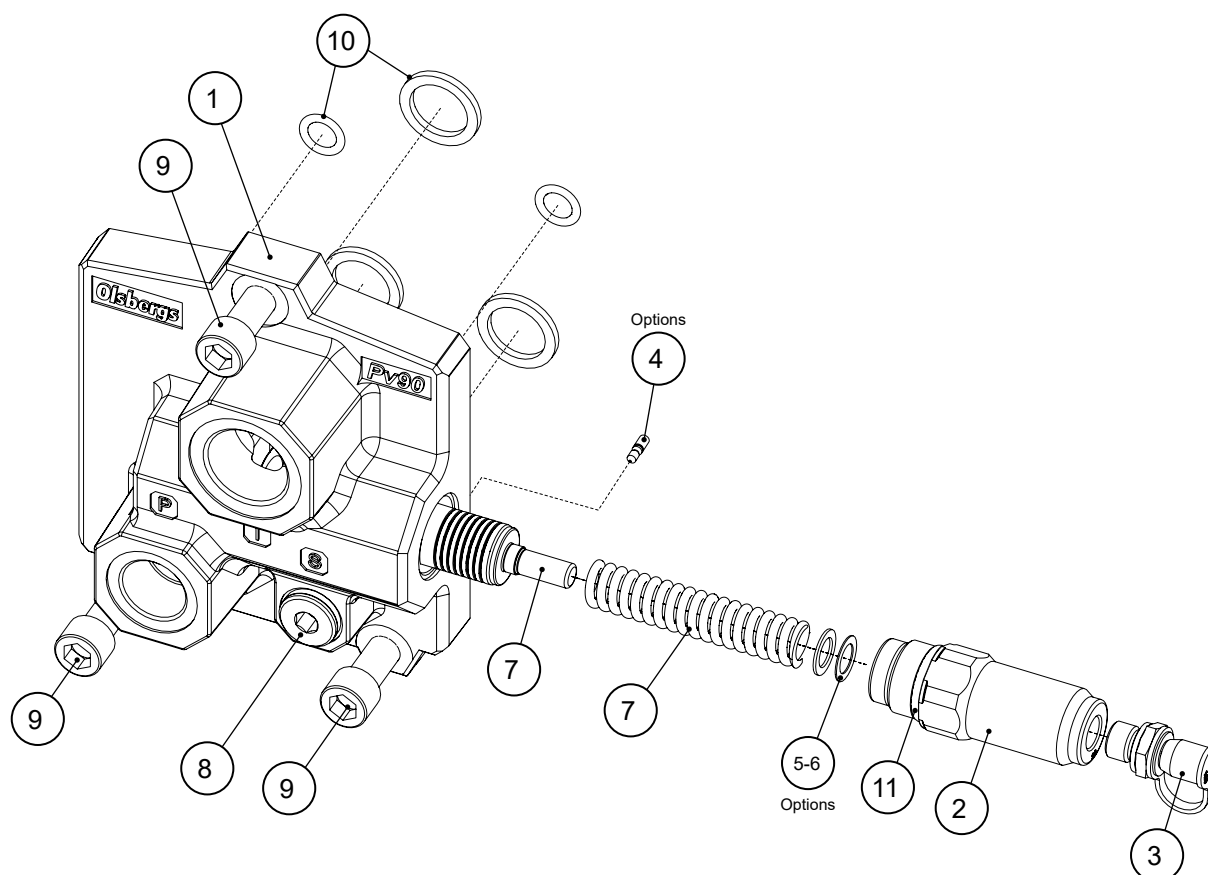
If you have the inlet section **V2160** for a fixed pump and need to convert it for a variable pump, you can buy the conversion kit **V2353**.



Pos.	Part no.	Description	Note
1	V2160	Inlet section F Pv90, complete	
2	S1546	Measuring point G 1/4"	TEMA system 100
3	V2294	Plug shunt Pv90 incl. O-ring	
4	V0741	Plug TK G 3/4", complete	Incl. o-ring
5	V2418	Solenoid V 28V, complete	
6	S2661	Coil 28V	
7	V2149	Sealing nut solenoid, complete	
8	V2093	Spring housing dump/sh50 incl. O-ring	
9	V2353	Conversion kit, variable pump	Consumption: 1 kit per inlet section
10	V9050	Dump piston kit inlet Pv90	Consumption: 1 kit per inlet section
11	V9048	Sealing package TG2	Consumption: 1 kit per inlet section
12	V9027	Plug kit PG2	Consumption: 1 kit per inlet section**
13	V9029	Screw package SG3	Consumption: 1 kit per inlet section
14	V9051	Piston kit inlet 50	Consumption: 1 kit per inlet section
15	V0762	Seal kit	Consumption: 1 kit per inlet section

Valve Pv90: Inlet section V0731, fixed pump

Spare parts

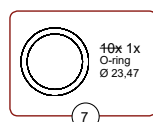
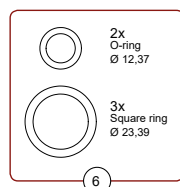
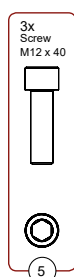
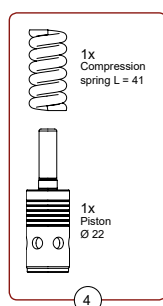
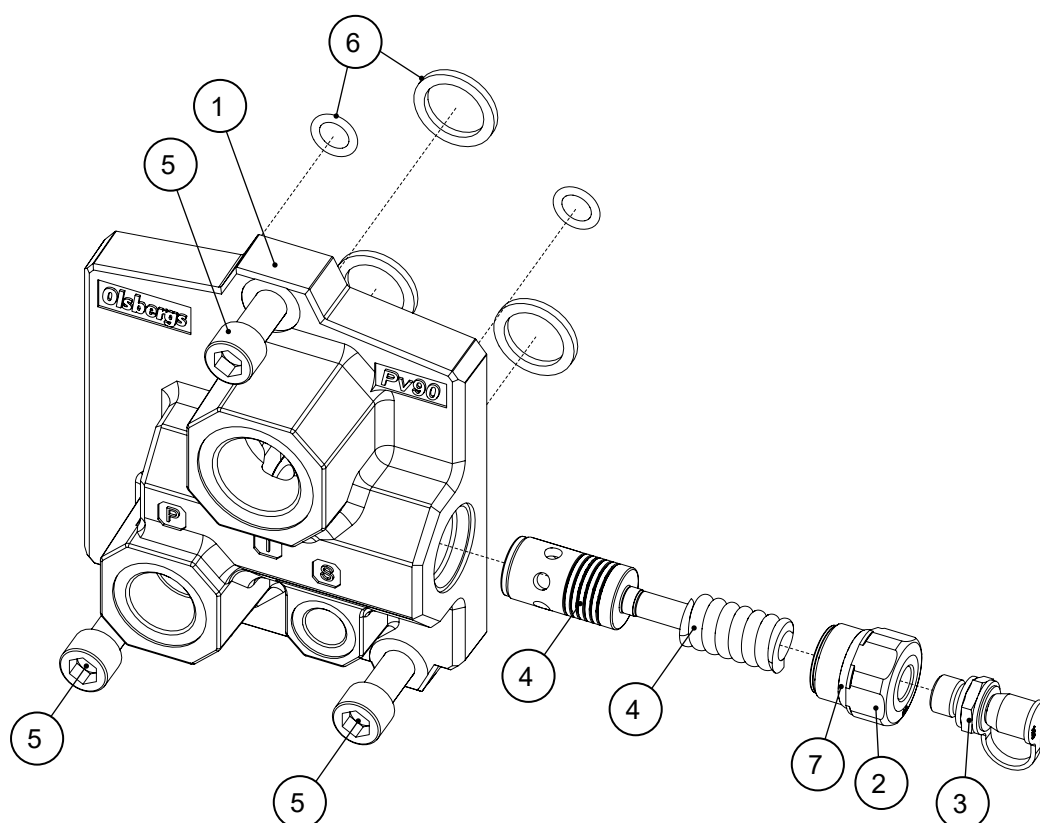


** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V0731	Inlet section FP 13 bar Pv90, complete	
2	V2094	Spring housing sh13 incl. O-ring	
3	S1546	Measuring point G 1/4"	TEMA system 100
4	V0860	Throttle 0,7 M4	Standard, options are available
5	S1058	Washer PS 11x17x0.5 Untreated	
6	S1059	Washer PS 11x17x1 Untreated	
7	V9049	Piston kit inlet 13/6	Consumption: 1 kit per inlet section
8	V9027	Plug kit PG2	Consumption: 1 kit per inlet section**
9	V9030	Screw package SG4	Consumption: 1 kit per inlet section
10	V0762	Seal kit	Consumption: 1 kit per inlet section
11	V9011	Sealing package TE1	Consumption: 1 pcs per component**

Valve Pv90: Inlet section V0733, variable pump

Spare parts

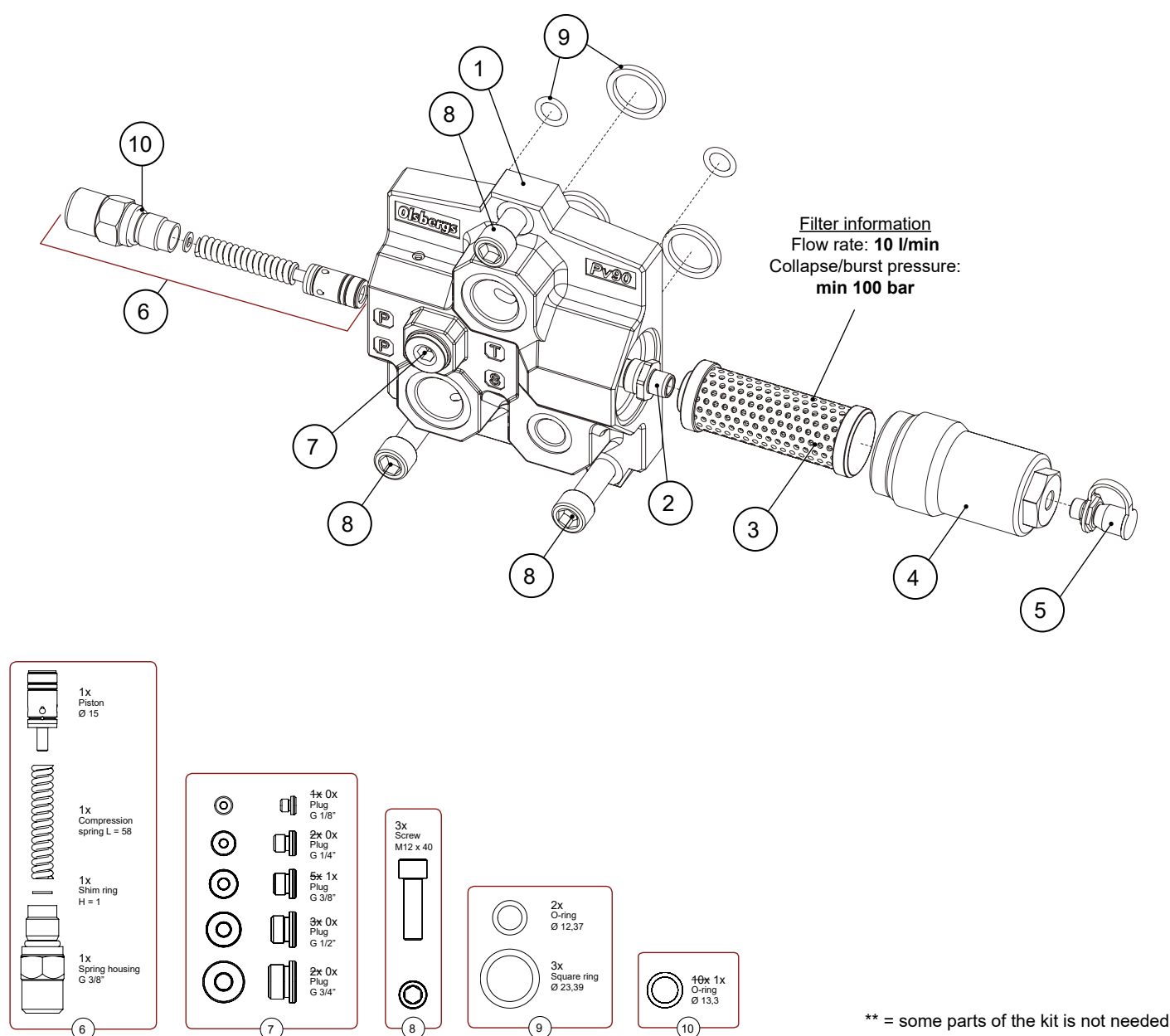


** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V0733	Inlet section VP 50 bar Pv90, complete	
2	V2093	Spring housing dump/sh50	Incl. o-ring
3	S1546	Measuring point G 1/4"	TEMA system 100
4	V9051	Dump piston kit inlet Pv90	Consumption: 1 kit per inlet section
5	V9030	Screw package SG4	Consumption: 1 kit per inlet section
6	V0762	Seal kit	Consumption: 1 kit per inlet section
7	V9011	Sealing package TE1	Consumption: 1 pcs per component**

Valve Pv90: Inlet section V0290, pressure reducer intern

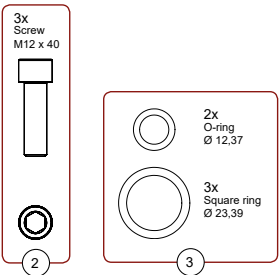
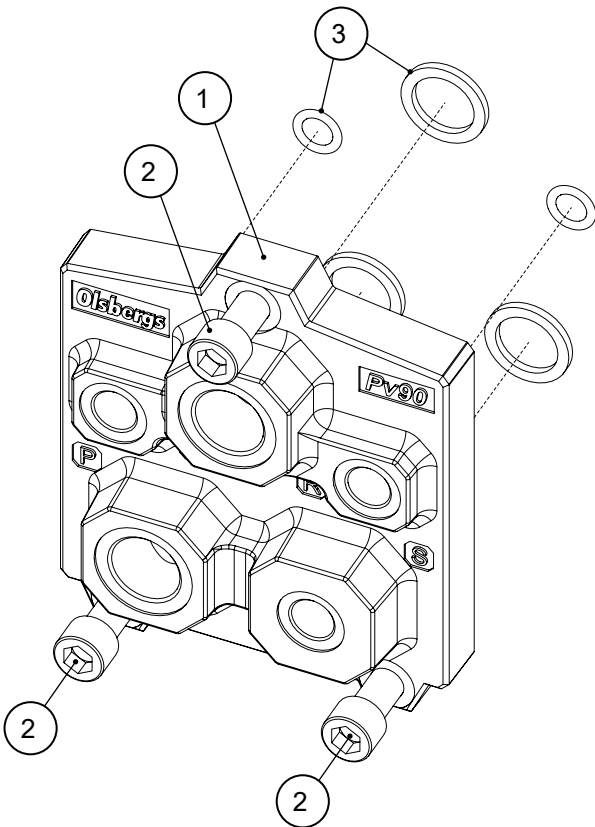
Spare parts



Pos.	Part no.	Description	Note
1	V0290	Inlet section pressure reducer intern, complete	No longer available as a spare part
2	V0287	Filter guiding, inlet section	
3	S0146	Filter cartridge 20my absolute	
4	V0286	Filter housing, inlet section	No longer available as a spare part
5	S2250	Measuring nipple G 1/8"	TEMA system 100
6	V9041	Piston kit PRF T1	Consumption: 1 kit per inlet section
7	V9027	Plug kit PG2	Consumption: 1 kit per inlet section**
8	V9030	Screw package SG4	Consumption: 1 kit per inlet section
9	V0762	Seal kit	Consumption: 1 kit per inlet section
10	V9022	Sealing package TE2	Consumption: 1 pcs per inlet section**

Valve Pv90: Inlet section V0291

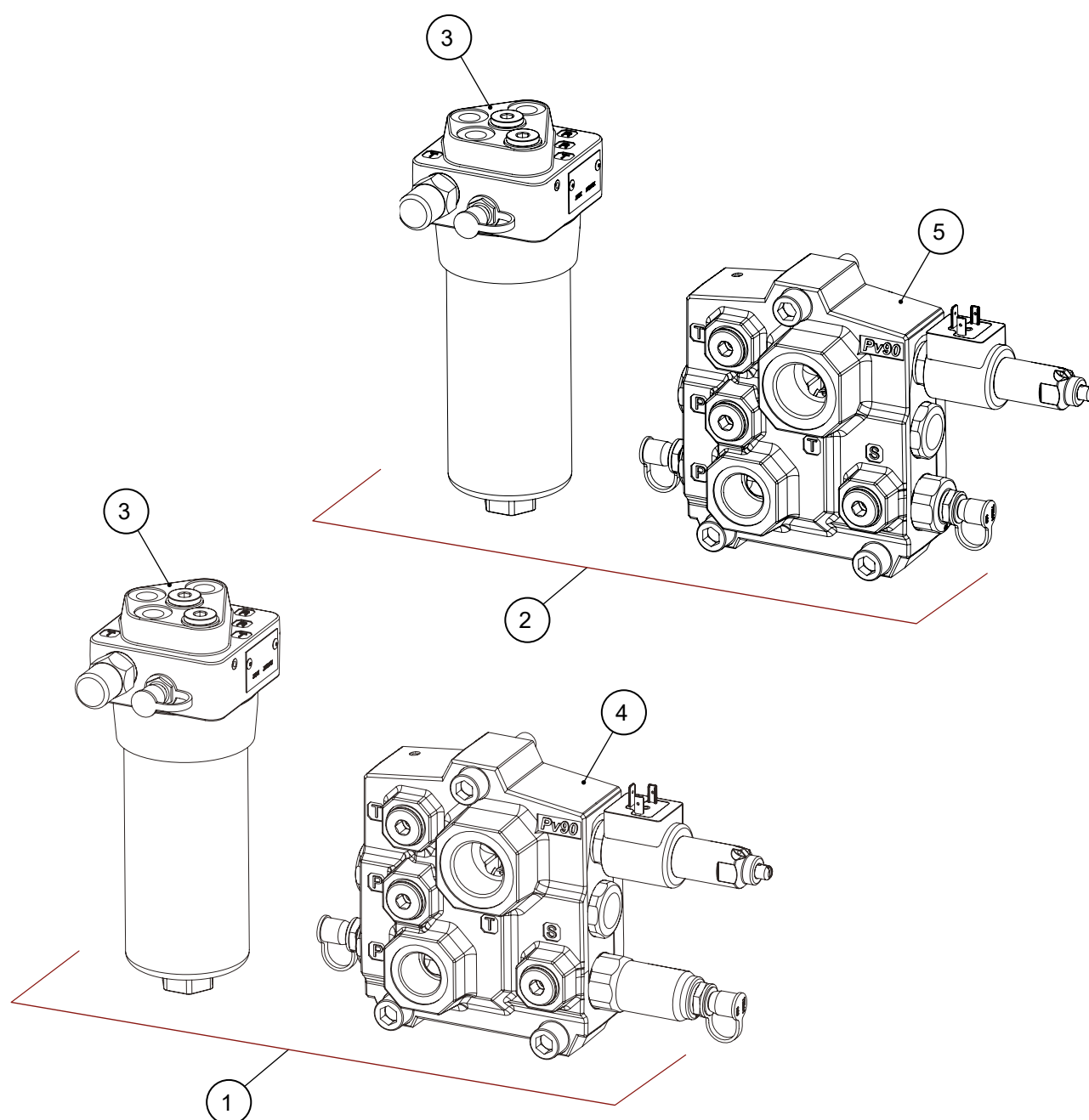
Spare parts



Pos.	Part no.	Description	Note
1	V0291	Inlet section Pv90, complete	
2	V9030	Screw package SG4	Consumption: 1 kit per inlet section
3	V0762	Seal kit	Consumption: 1 kit per inlet section

Valve Pv90: Inlet section, replacement kit V2360 and V2361

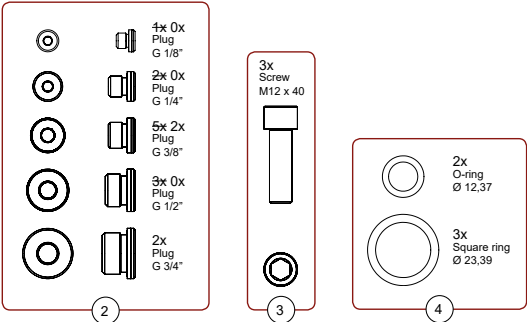
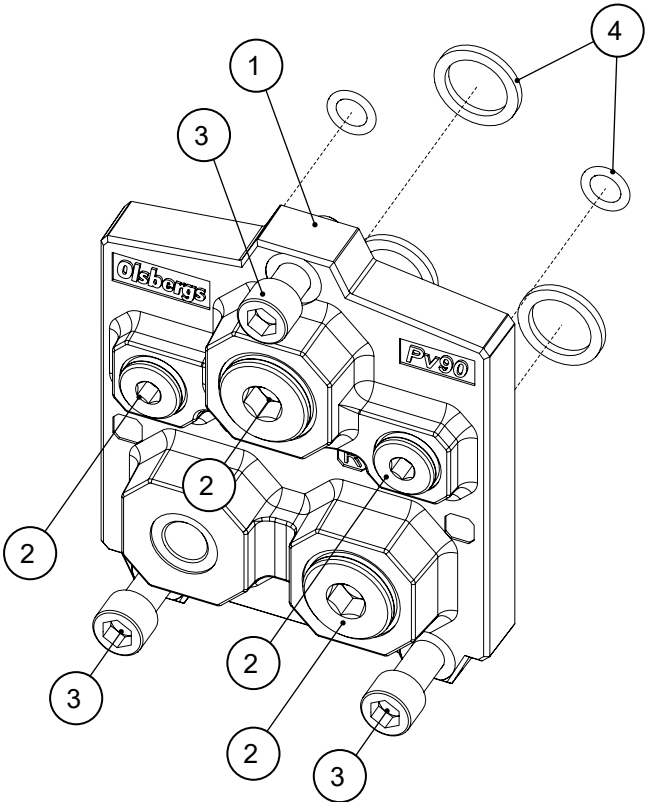
Spare parts



Pos.	Part no.	Description	Note
1	V2360	Kit Inlet section F13 Pv90 + PRF	Replaces inlet section V0730 and V0738
2	V2361	Kit inlet section V50 Pv90 + PRF	Replaces inlet section V0732, V0735, V0736 and V0737
3	0580	Pressure reducer/filter PRF, complete	See page 30
4	V2160	Inlet section F Pv90, complete	See page 7
5	V2161	Inlet section V Pv90, complete	See page 8

Valve Pv90: Outlet section V0292

Spare parts



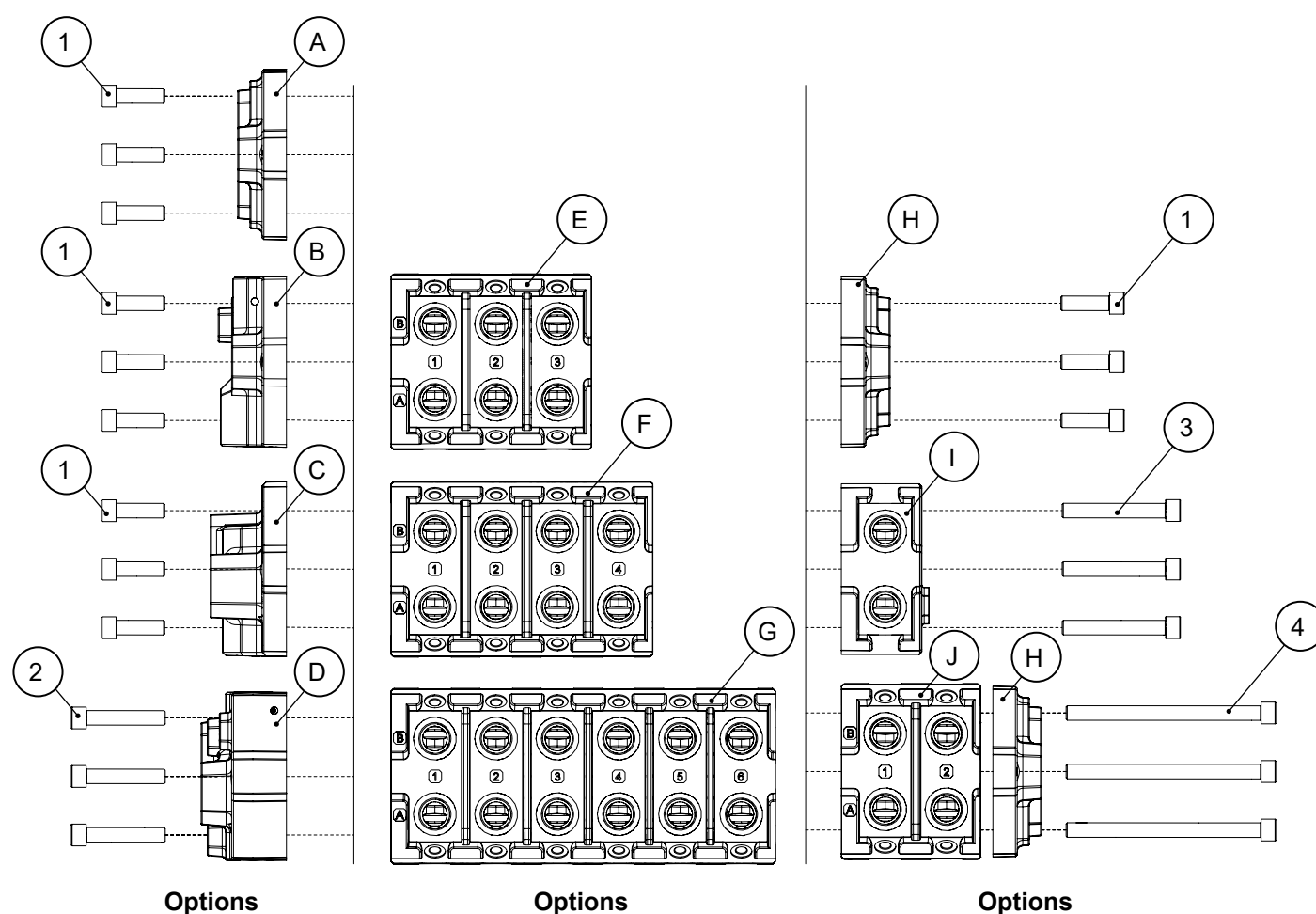
** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V0292	Outlet section Pv90, complete	
2	V9027	Plug kit PG2	Consumption: 1 kit per outlet section**
3	V9030	Screw package SG4	Consumption: 1 kit per outlet section
4	V0762	Seal kit	Consumption: 1 kit per outlet section

Valve Pv90: Section structure

Spare parts

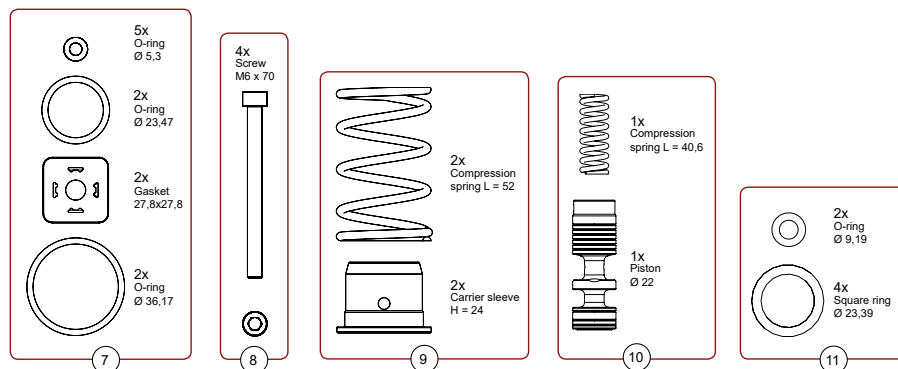
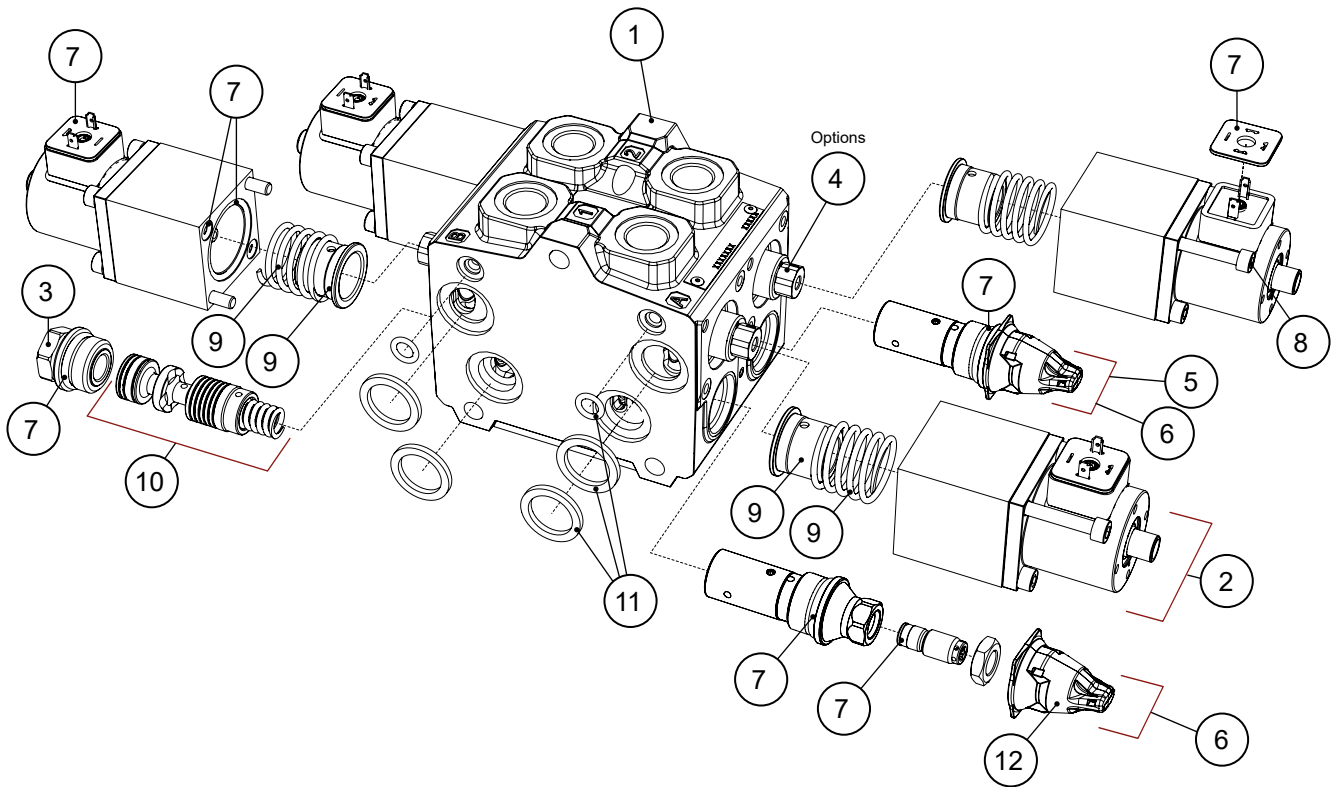
Pos.	Description	Pos.	Description
A	Inlet section Pv90, V0291	E	Valve Pv90 3-Sections
B	Inlet section Pv90, V0290 (no longer available)	F	Valve Pv90 4-Sections
C	Inlet section VP 50 bar Pv90, V0733	G	Valve Pv90 6-Sections
	Inlet section FP 13 bar Pv90, V0731	H	Outlet section Pv90, V0292
D	Inlet section F Pv90, V2160	I	Valve Pv90 1-Sections (no longer available)
	Inlet section V Pv90, V2161	J	Valve Pv90 2-Sections



Pos.	Part no.	Description	Note
1	V9030	Screw package SG4	
2	V9029	Screw package SG3	
3	S1341	Screw MC6S M12x85	
4	S1344	Screw MC6S M12x160	

Valve Pv91M: Electrically operated valve with positioner P9 (for support legs)

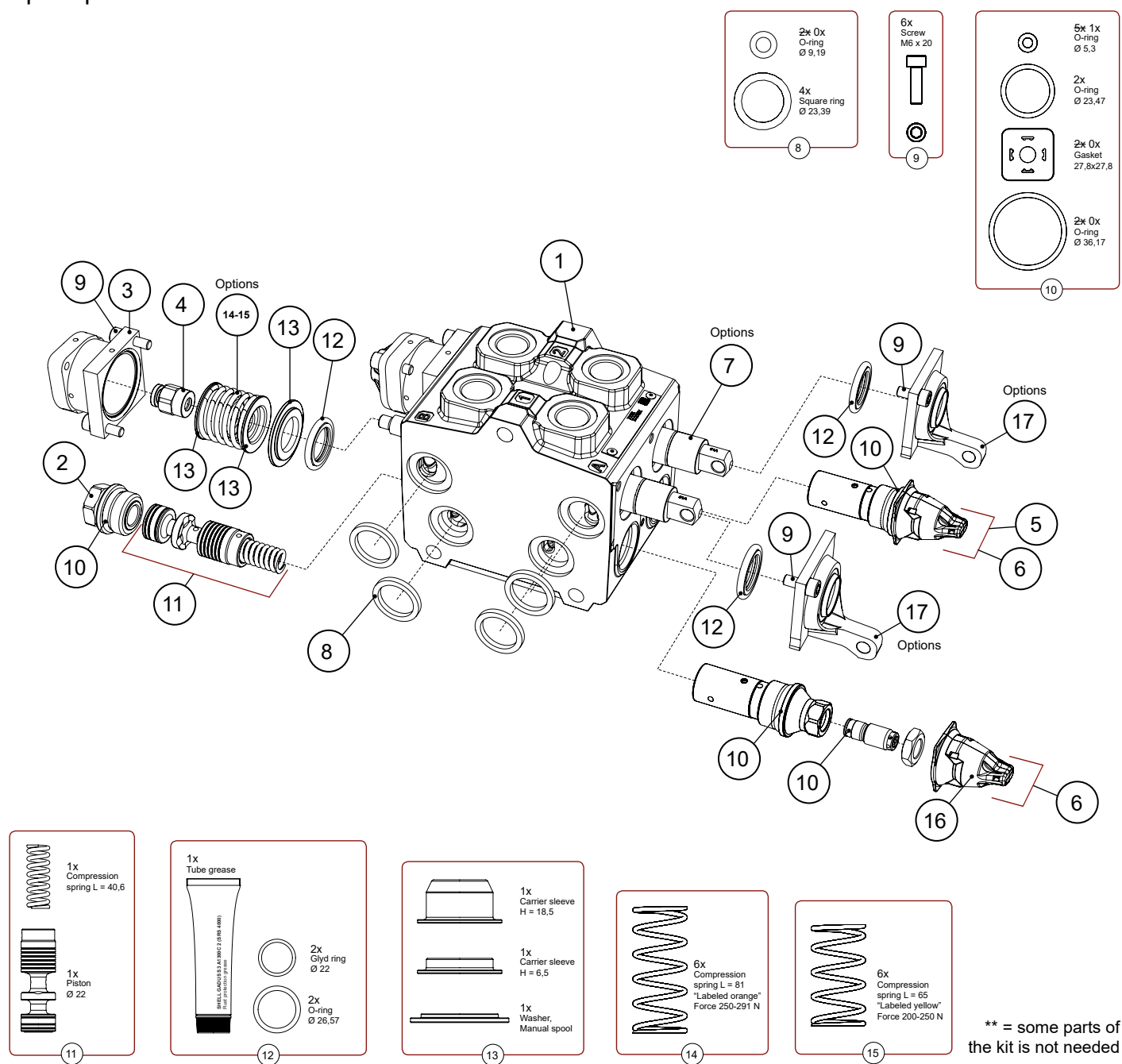
Spare parts



Pos.	Part no.	Description	Note
1	xxxxx	Valve Pv91M EI-P9, complete	
2	0421	Positioner P9, complete	
3	V0741	Plug TK G 3/4", complete	Incl. o-ring
4	V06xxx	Spool xxx-P9 xx-xx-xx Pv90/91M	See valve specification and page 47 - 53
5	V0751	Signal relief valve complete without shuttle valve	For last section, see valve specification
6	V0750	Signal relief valve complete with shuttle valve	For last section, see valve specification
7	V9001	Sealing package TV1	Consumption: 1 kit per valve section
8	V9044	Screw package P9	Consumption: 1 kit per valve section
9	V9003	Centering kit spool P9	Consumption: 1 kit per valve section
10	V9052	Pressure compensator Pv91M	Consumption: 1 kit per valve section
11	V2454	Seal kit	Consumption: 2 kit per valve
12	V2589GR	Closure sealing, grey	Consumption: 1 pcs per signal relief valve

Valve Pv91M: Electrically operated valve with PD9 (for support legs)

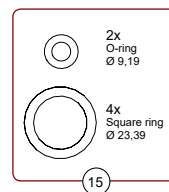
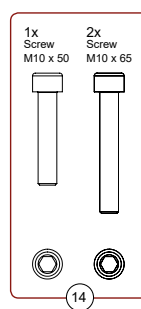
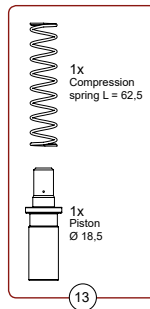
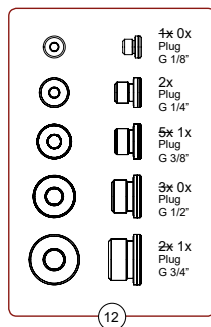
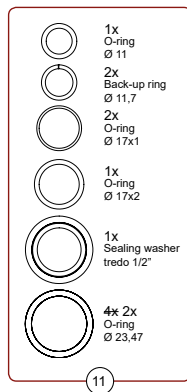
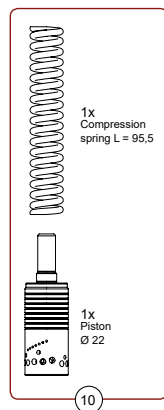
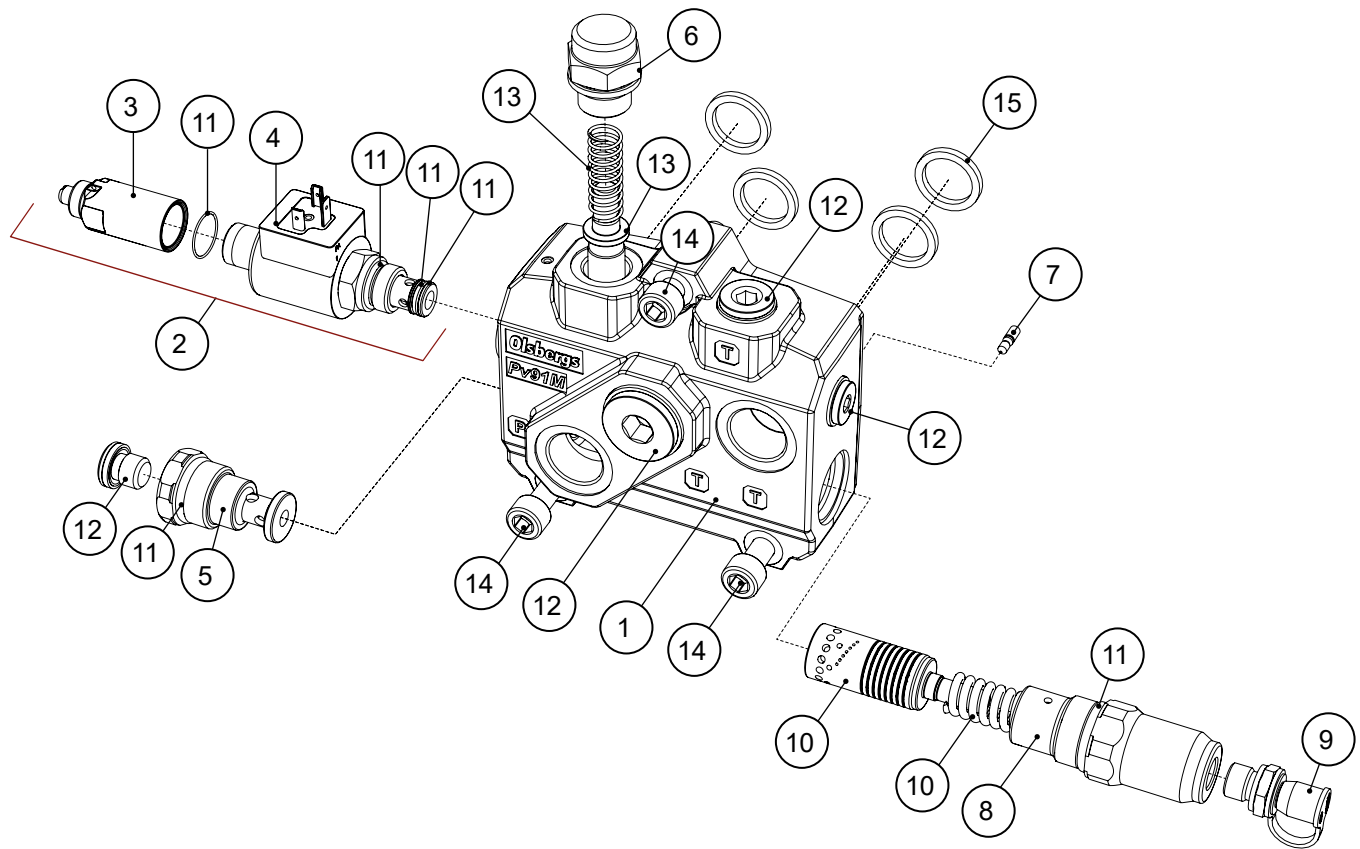
Spare parts



Pos.	Part no.	Description	Note
1	xxxx	Valve Pv91M EI-PD9, complete	
2	V0741	Plug TK G 3/4", complete	Incl. o-ring
3	P0181	Cover V, complete	Incl. o-rings
4	P0191	Bolt, CombiDrive	
5	V0751	Signal relief valve complete without shuttle valve	For last section, see valve specification
6	V0750	Signal relief valve complete with shuttle valve	For last section, see valve specification
7	V32xxx	Spool xxx-man xx-xx-xx Pv90/91M	See valve specification and page 38 - 46
8	V2454	Seal kit	Consumption: 2 kit per valve
9	V9007	Screw package Man	Consumption: 1 kit per valve section
10	V9001	Sealing package TV1	Consumption: 1 kit per valve section**
11	V9052	Pressure compensator Pv91M	Consumption: 1 kit per valve section
12	S1102	Sealing kit spool	Consumption: 1 kit per valve section
13	V9008	Spring guide package spool	Consumption: 1 kit per valve section
14	V9023	Spring set x6 orange	Consumption: 1 kit per 6 valve sections
15	V9047	Spring set x6 yellow	Consumption: 1 kit per 6 valve sections
16	V2589GR	Closure sealing, grey	Consumption: 1 pcs per signal relief valve
17	-	Console	See page 31

Valve Pv91M: Inlet section V2050, fixed pump

Spare parts

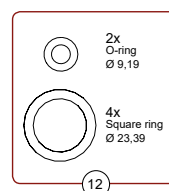
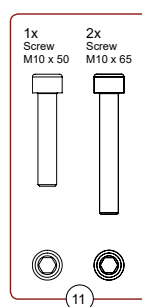
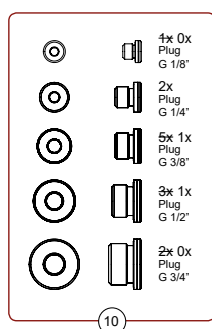
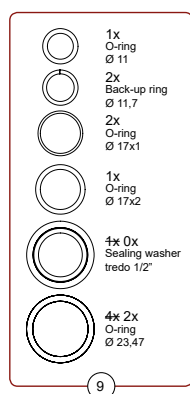
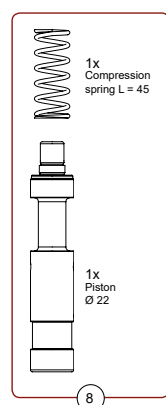
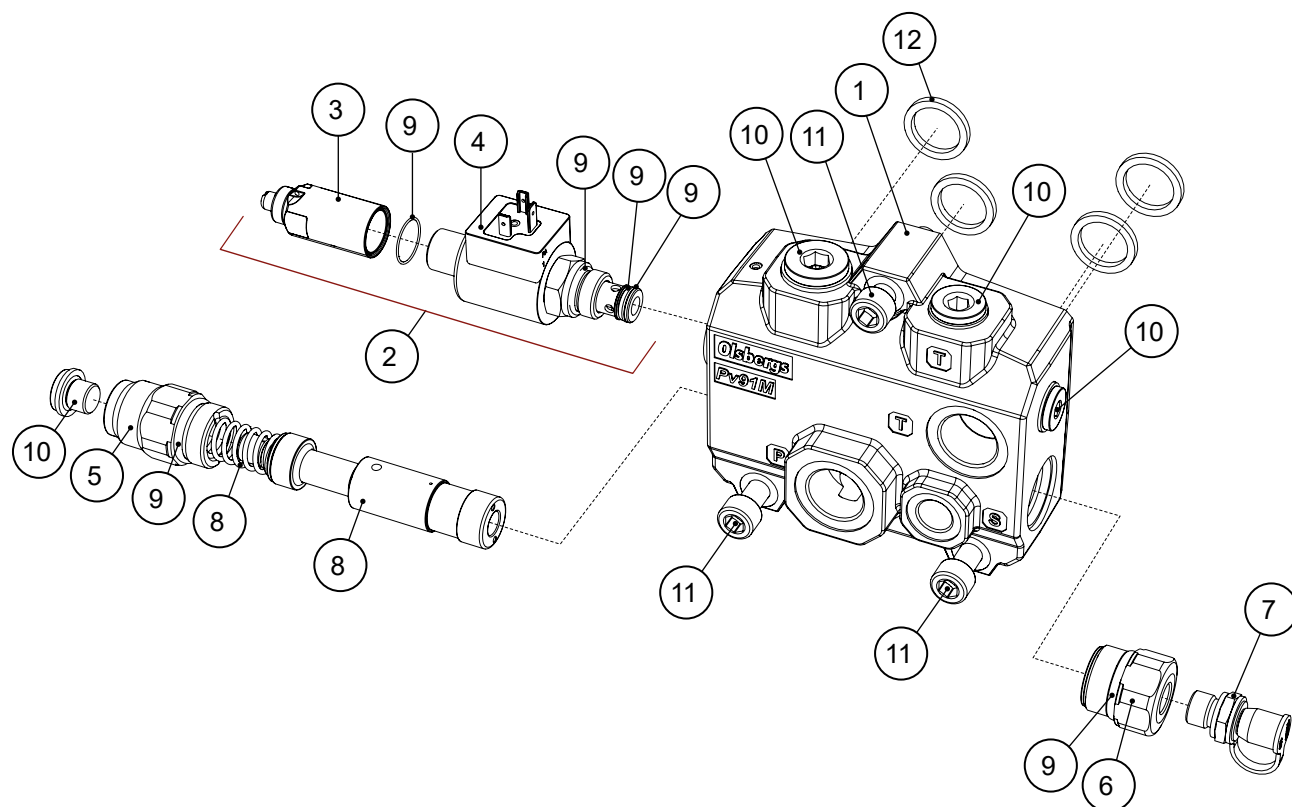


** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V2050	Inlet section FP Pv91M, complete	
2	V2418	Solenoid V 28V, complete	
3	V2149	Sealing nut solenoid, complete	
4	S2661	Coil 28V	
5	V2085	Plug shunt Pv91M, complete	
6	V2084	Spring housing dump, complete	Incl. sealing washer
7	V0860	Throttle 0,7 M4	Standard, options are available
8	V2086	Spring housing shunt 13 Pv91M	Incl. o-ring
9	S1546	Measuring point G 1/4"	TEMA system 100
10	V9049	Piston kit inlet 13/6	Consumption: 1 kit per inlet section
11	V9048	Sealing package TG2	Consumption: 1 kit per inlet section**
12	V9027	Plug kit PG2	Consumption: 1 kit per inlet section**
13	V9053	Dump piston kit inlet Pv91M	Consumption: 1 kit per inlet section
14	V9031	Screw package SG5	Consumption: 1 kit per inlet section
15	V2454	Seal kit	Consumption: 1 kit per inlet section

Valve Pv91M: Inlet section V2052, variable pump

Spare parts

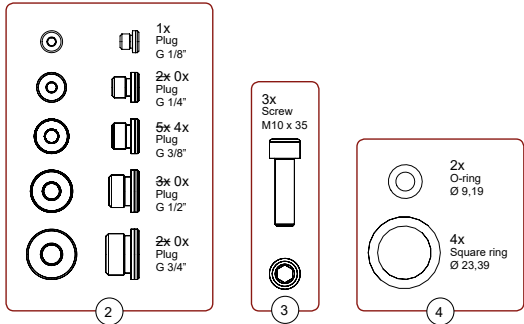
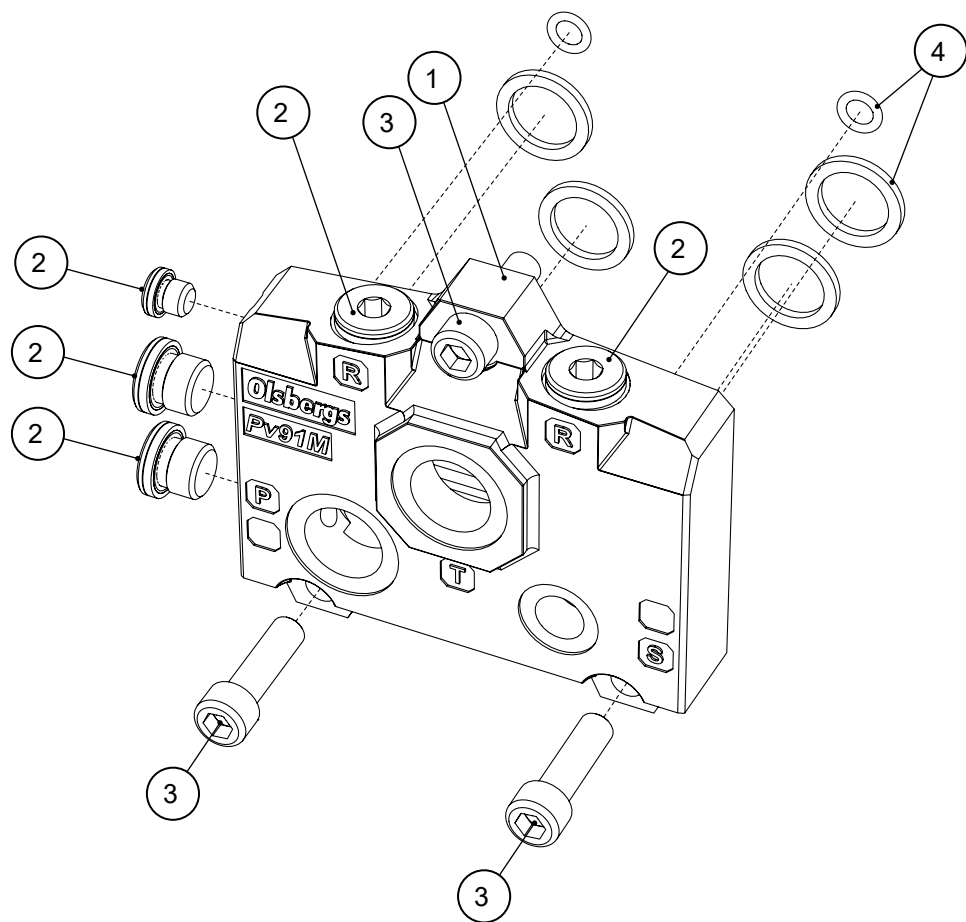


** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V2052	Inlet section VP Pv91M, complete	
2	V2418	Solenoid V 28V, complete	
3	V2149	Sealing nut solenoid, complete	
4	S2661	Coil 28V	
5	V2098	Spring housing VP, complete	Incl. o-ring
6	V2097	Plug shunt variable, complete	
7	S1546	Measuring point G 1/4"	TEMA system 100
8	V9024	Piston kit VP	Consumption: 1 kit per inlet section
9	V9048	Sealing package TG2	Consumption: 1 kit per inlet section**
10	V9027	Plug kit PG2	Consumption: 1 kit per inlet section**
11	V9031	Screw package SG5	Consumption: 1 kit per inlet section
12	V2454	Seal kit	Consumption: 1 kit per inlet section

Valve Pv91M: Inlet section J V2058

Spare parts

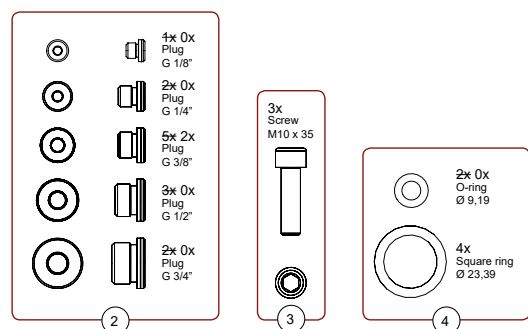
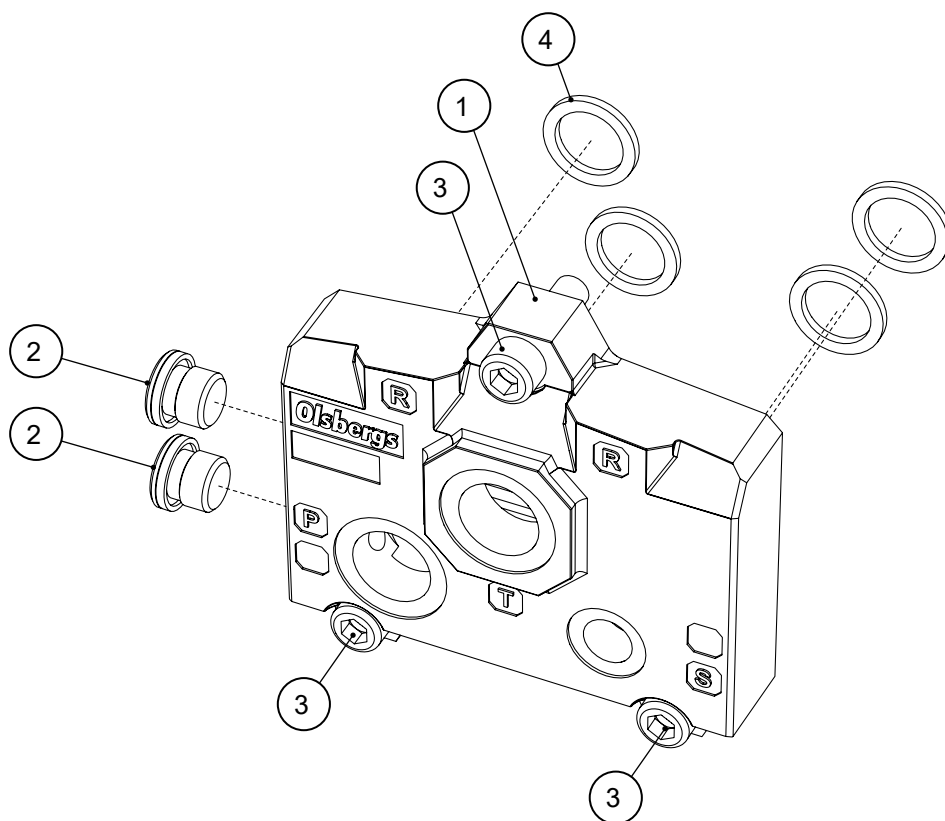


** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V2058	Inlet section J, complete	
2	V9027	Plug kit PG2	Consumption: 1 kit per inlet section**
3	V9017	Screw package SG1	Consumption: 1 kit per inlet section
4	V2454	Seal kit	Consumption: 1 kit per inlet section

Valve Pv91M: Inlet section V2051

Spare parts

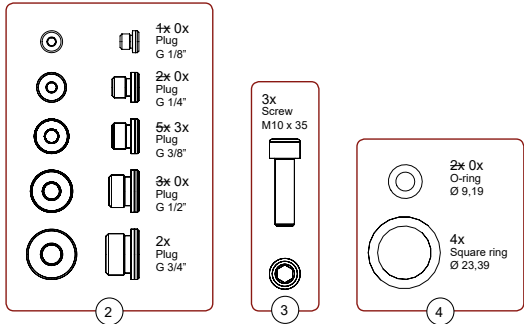
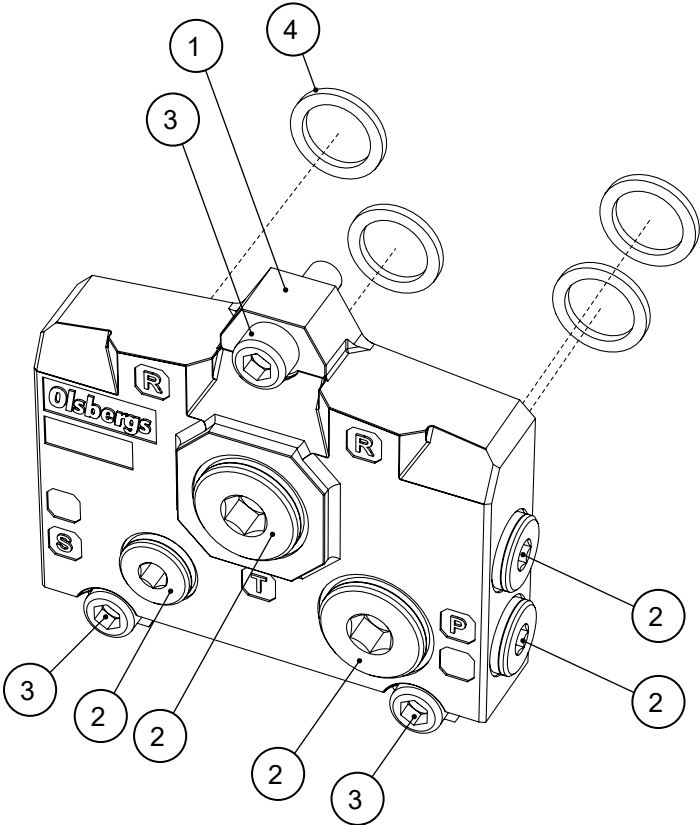


** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V2051	Inlet section Pv91M for PD9, complete	
2	V9027	Plug kit PG2	Consumption: 1 kit per inlet section**
3	V9017	Screw package SG1	Consumption: 1 kit per inlet section
4	V2454	Seal kit	Consumption: 1 kit per inlet section**

Valve Pv91M: Outlet section V2053

Spare parts

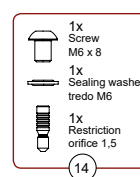
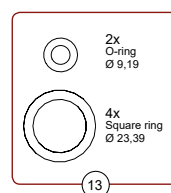
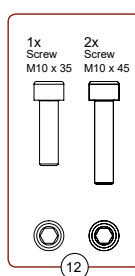
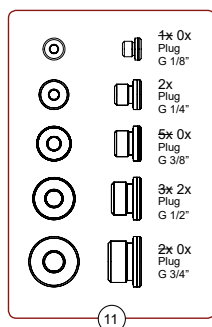
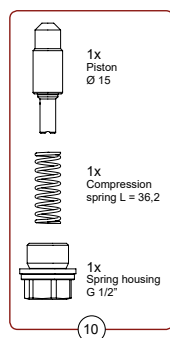
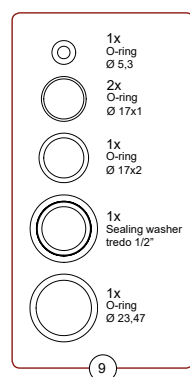
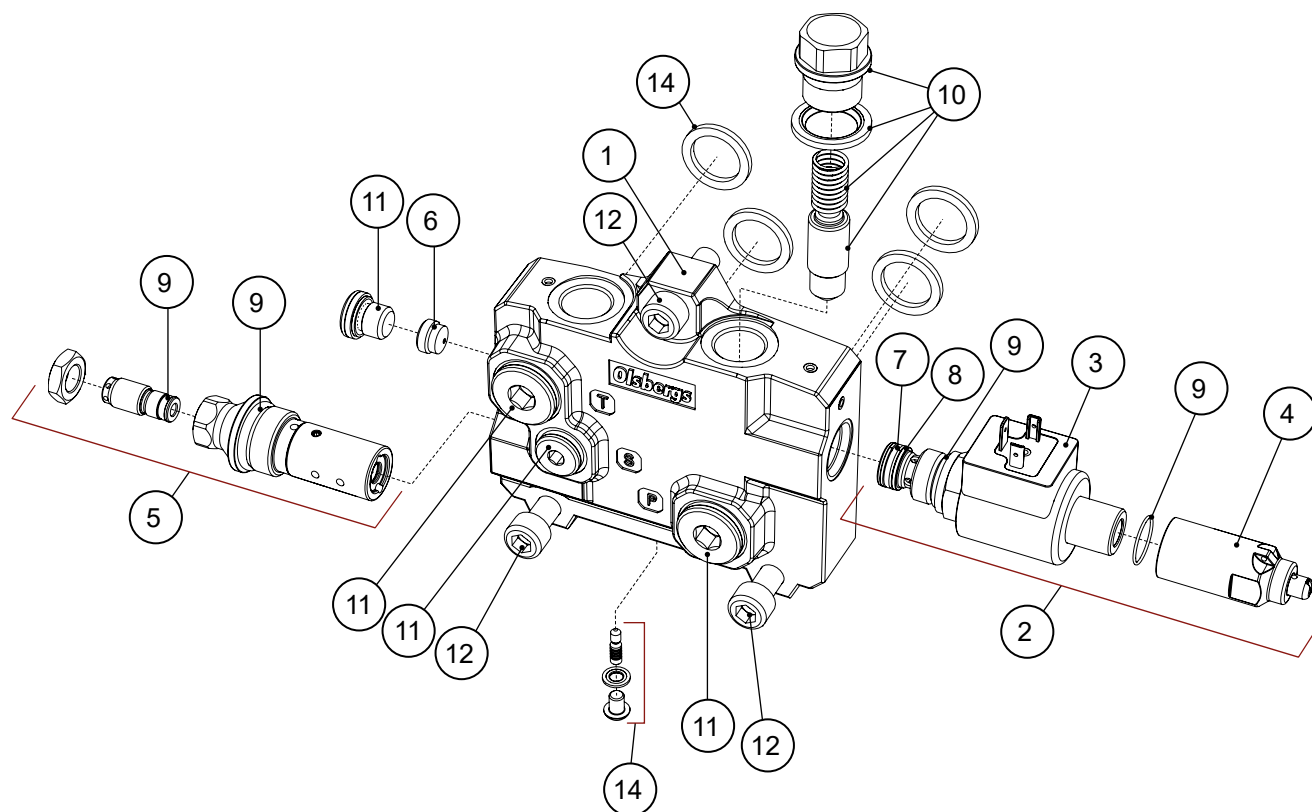


** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V2053	Outlet section Pv91M for PD9, complete	
2	V9027	Plug kit PG2	Consumption: 1 kit per outlet section
3	V9017	Screw package SG1	Consumption: 1 kit per outlet section**
4	V2454	Seal kit	Consumption: 1 kit per inlet section**

Valve Pv91M: Outlet section V2055

Spare parts

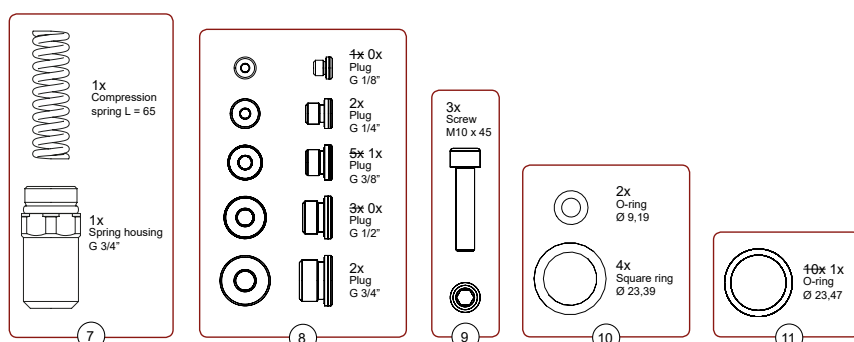
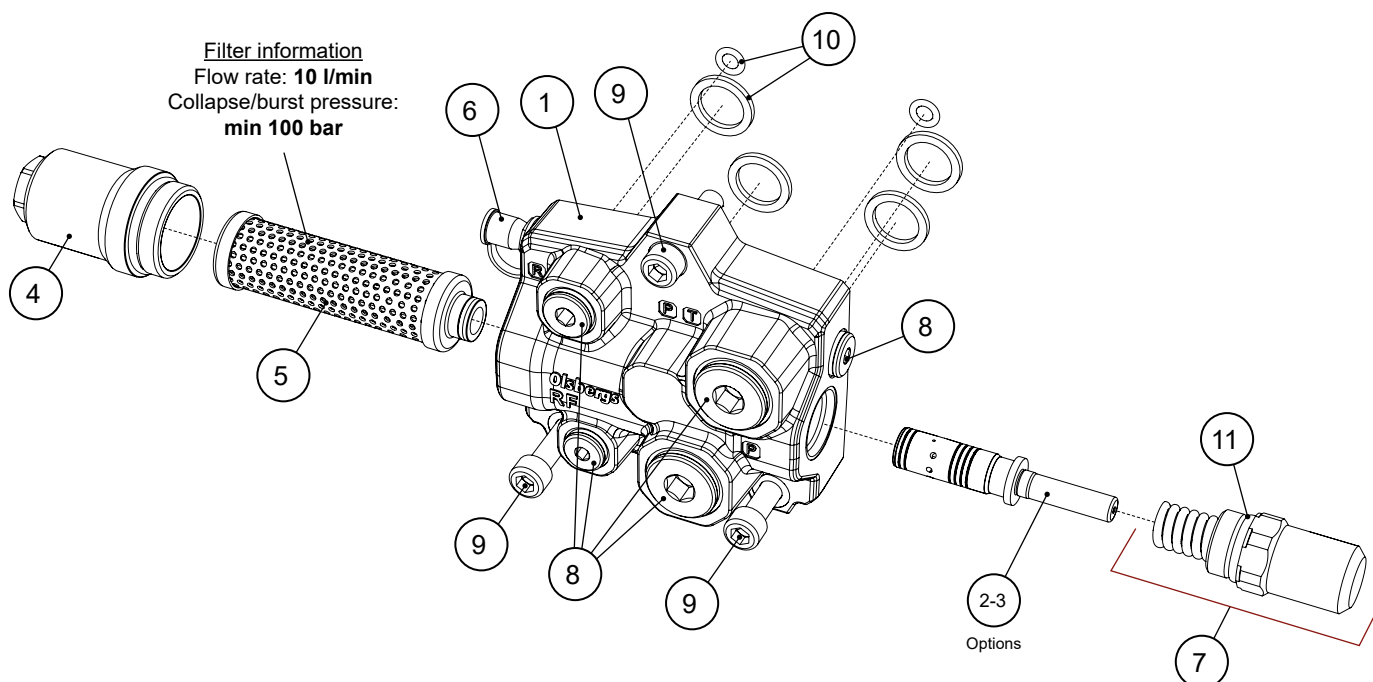


** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V2055	Outlet section U Pv91M, complete	
2	V2148	Solenoid type W, complete	
3	S2661	Coil 28V	
4	V2149	Sealing nut solenoid, complete	
5	V0751	Signal relief valve complete without shuttle valve	
6	V2136	Plug, throttle	
7	-	O-ring 14x1,78 FPM 80	
8	-	Support ring 14,2x17,0x1,0 PTFE	
9	V9056	Sealing package TG3	Consumption: 1 kit per outlet section
10	V9055	Piston kit outlet Pv91M	Consumption: 1 kit per outlet section
11	V9027	Plug kit PG2	Consumption: 1 kit per outlet section**
12	V9032	Screw package SG6	Consumption: 1 kit per outlet section
13	V2454	Seal kit	Consumption: 1 kit per outlet section
14	V9054	Restriction orifice Ø1.5 outlet Pv91M	Consumption: 1 kit per outlet section

Outlet section RF

Spare parts

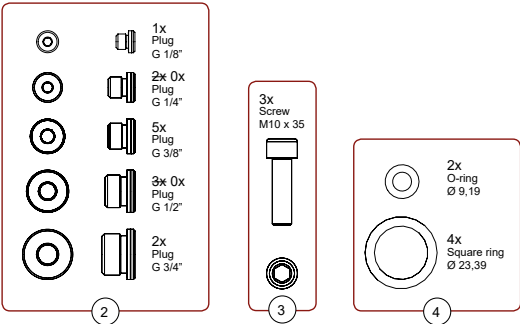
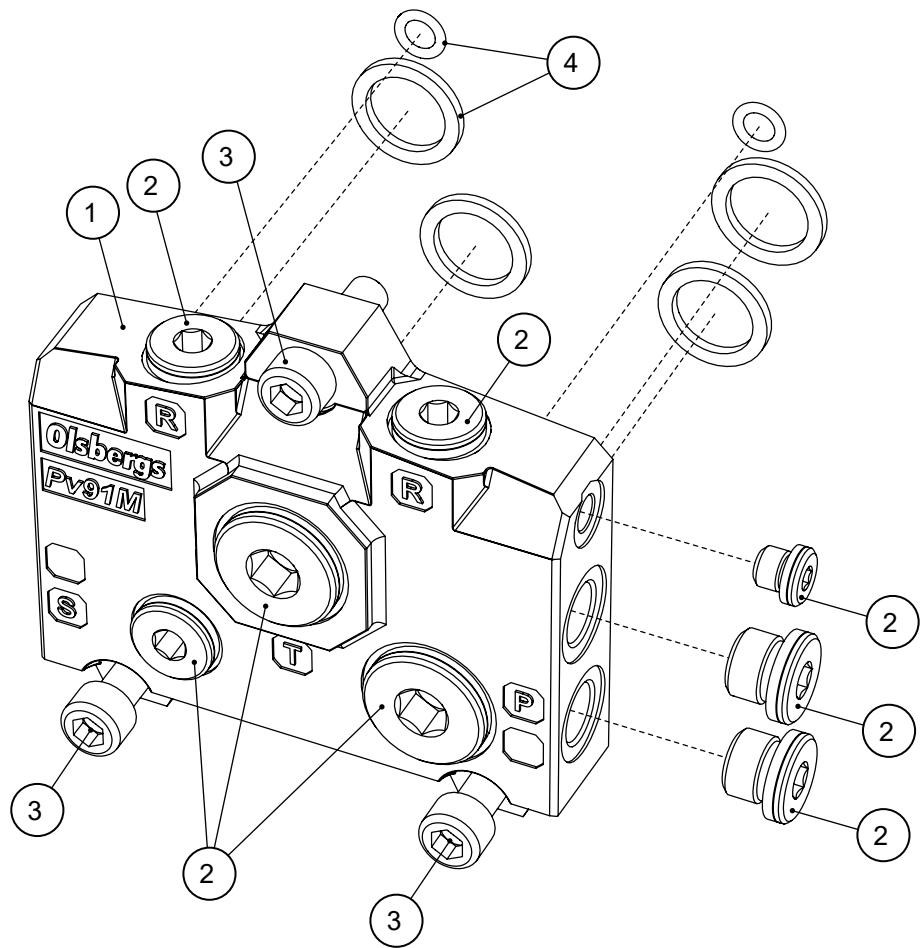


** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V38xx	Outlet section RF, complete	
2	V2319	Piston inline TRR Q-series	
3	V2329	Piston inline TRR Q-series for glyd ring	Incl. glyd ring
4	V2327	Filter housing RF Q-series	Incl. o-ring
5	S3026	Filter cartridge 20my absolute	Incl. o-ring
6	S2250	Measuring nipple G 1/8"	TEMA system 100
7	V9020	Spring package TRR	Consumption: 1 kit per outlet section
8	V9027	Plug kit PG2	Consumption: 1 kit per outlet section**
9	V9033	Screw package SG7	Consumption: 1 kit per outlet section
10	V2454	Seal kit	Consumption: 1 kit per outlet section
11	V9011	Sealing package TE1	Consumption: 1 pcs per component**

Outlet section S

Spare parts



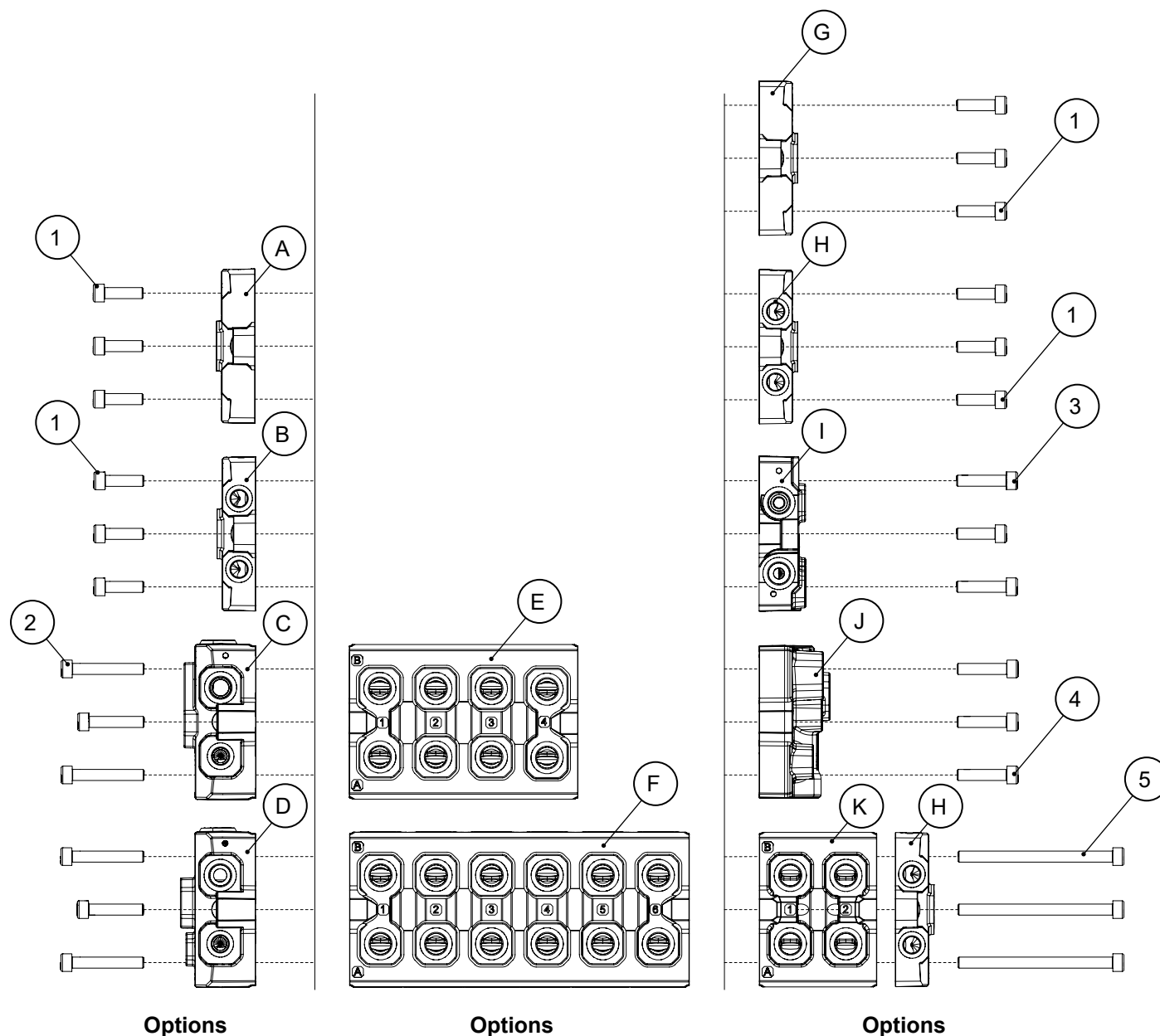
** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	V2056	Outlet section S, complete	
2	V9027	Plug kit PG2	Consumption: 1 kit per outlet section**
3	V9017	Screw package SG1	Consumption: 1 kit per outlet section
4	V2454	Seal kit	Consumption: 1 kit per outlet section

Valve Pv91M: Section structure (for support legs)

Spare parts

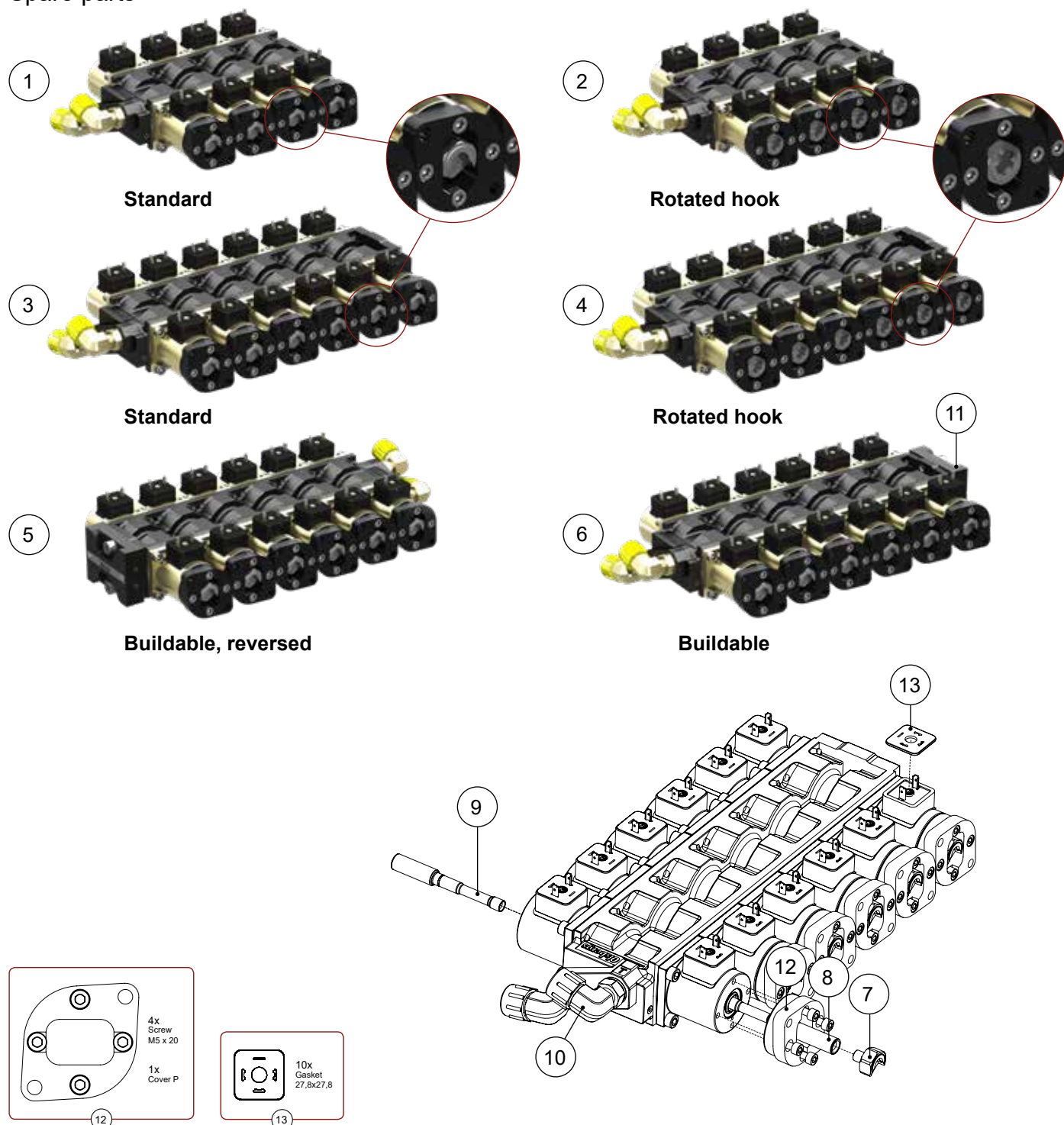
Pos.	Description	Pos.	Description
A	Inlet section Pv91M, V2051	G	Outlet section Pv91M, V2053
B	Inlet section J Pv91M, V2058	H	Outlet section S, V2056
C	Inlet section FP Pv91M, V2050	I	Outlet section U, V2055
D	Inlet section VP Pv9M, V2052	J	Outlet section RF, V38xx
E	Valve Pv91M 4-Sections	K	Valve Pv91M 2-Sections
F	Valve Pv91M 6-Sections		



Pos.	Part no.	Description	Note
1	V9017	Screw package SG1	
2	V9031	Screw package SG5	
3	V9032	Screw package SG6	
4	V9033	Screw package SG7	
5	S2297	Screw MC6S M10x45	

Positioner PD9, 4 and 6 sections

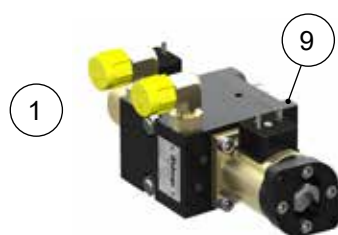
Spare parts



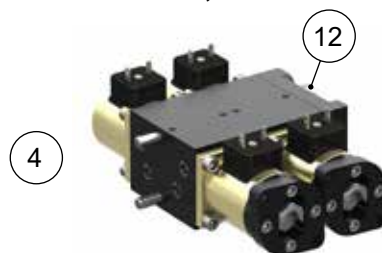
Pos.	Part no.	Description	Note
1	0471	PD9 4-Sections	Incl. connection
2	1106	PD9 4-Sections (rotated hook)	Incl. connection
3	0470	PD9 6-Sections	Incl. connection
4	1105	PD9 6-Sections (rotated hook)	Incl. connection
5	1103	PD9 6-Sections (buildable)	Incl. connection
6	1101	PD9 6-Sections (buildable, reversed)	Incl. connection
7	P0192	Hook PD9	
8	P0173	Piston rod long PD9	External thread
9	P0172	Piston rod short PD9	Internal thread
10	S1827	Nipple 90° G 1/4" - Jic 3/4"	
11	0487	Cover plate PD9	
12	V9025	Cover P	Consumption: 1 kit per PD9 section
13	V9026	Sealing package TE3	Consumption: 1 kit per 10 positioners

Positioners PD9, 1 and 2 sections

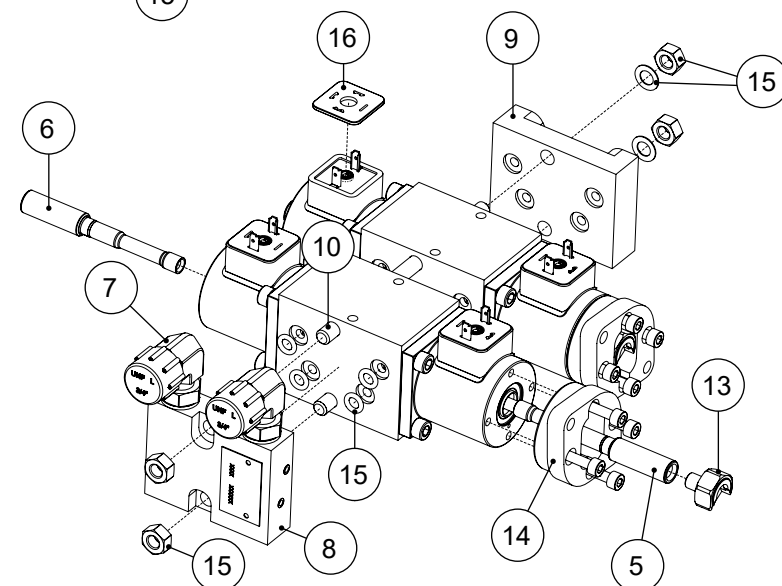
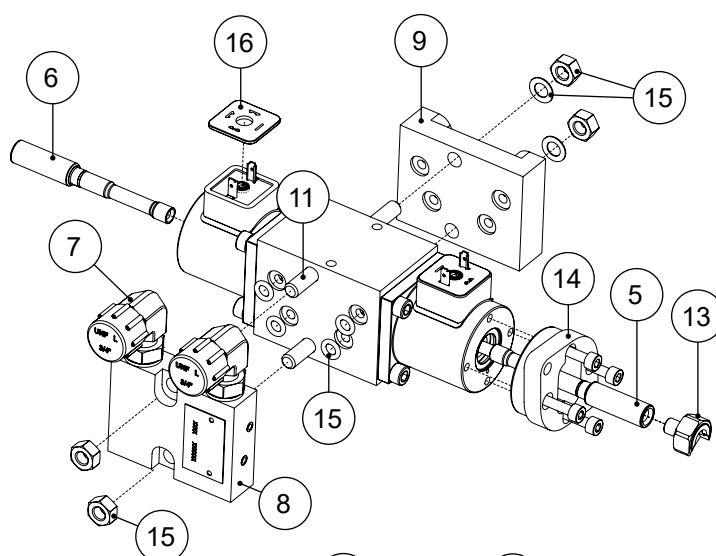
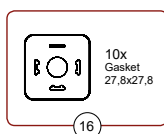
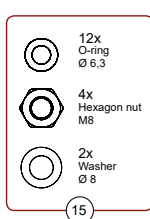
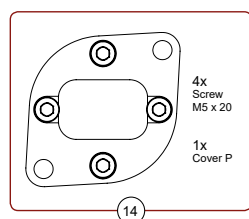
Spare parts



Buildable, reversed



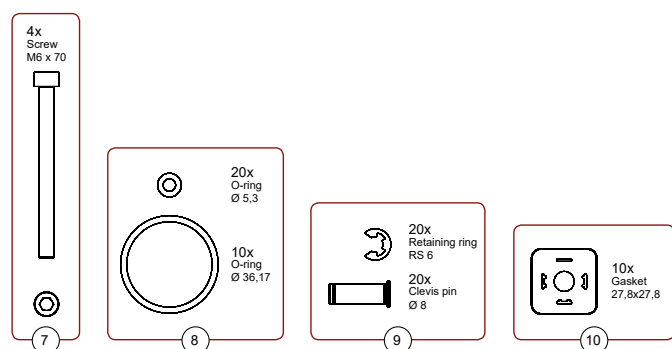
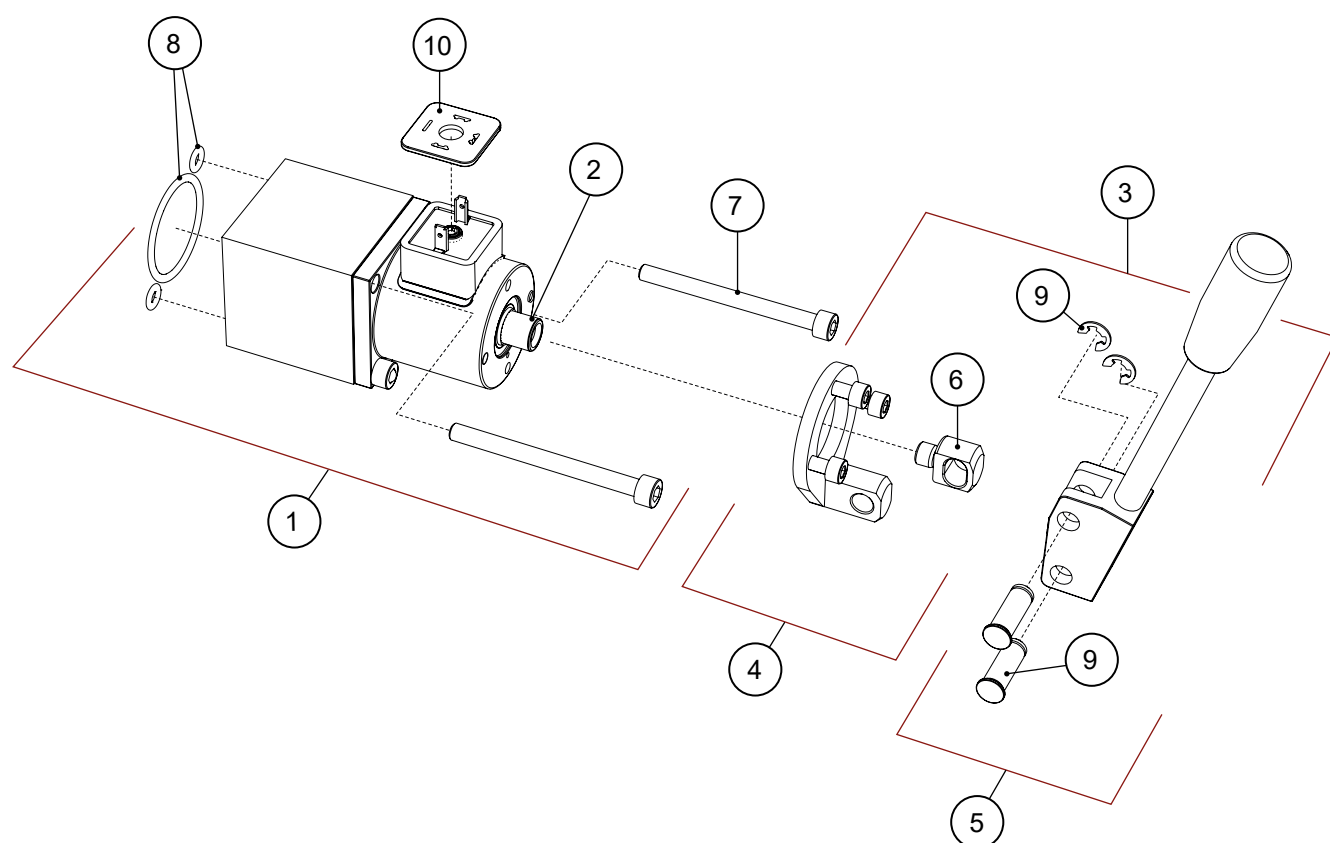
Buildable



Pos.	Part no.	Description	Note
1	0482	PD9 1-Section	Incl. connection
-	0486	Positioner PD9 1-Section	
2	0477	PD9 2-Sections	Incl. connection
3	1102	PD9 2-Sections (buildable, reversed)	
4	1104	PD9 2-Sections (buildable)	
5	P0173	Piston rod, long PD9	External thread
6	P0172	Piston rod, short PD9	Internal thread
7	S1827	Nipple 90° G 1/4" - Jic 3/4"	
8	0488	Inlet section PD9	
9	0487	Cover plate PD9	
10	P0072	Traction rod 142mm	
11	P0108	Traction rod 92 mm	
12	S2551	Screw MC6S M8x130	
13	P0192	Hook PD9	
14	V9025	Cover P	Consumption: 1 kit per PD9 section
15	V9057	Assembly kit PE1	Consumption: 1 kit per PD9 unit
16	V9026	Sealing package TE3	Consumption: 1 kit per 10 positioner

Positioner P9

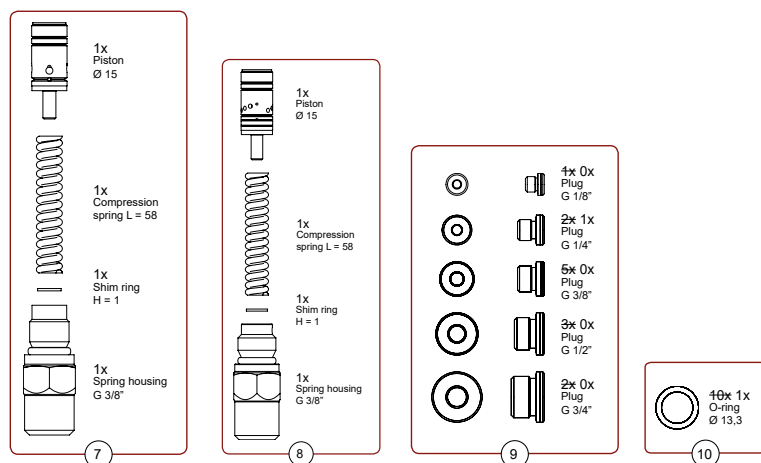
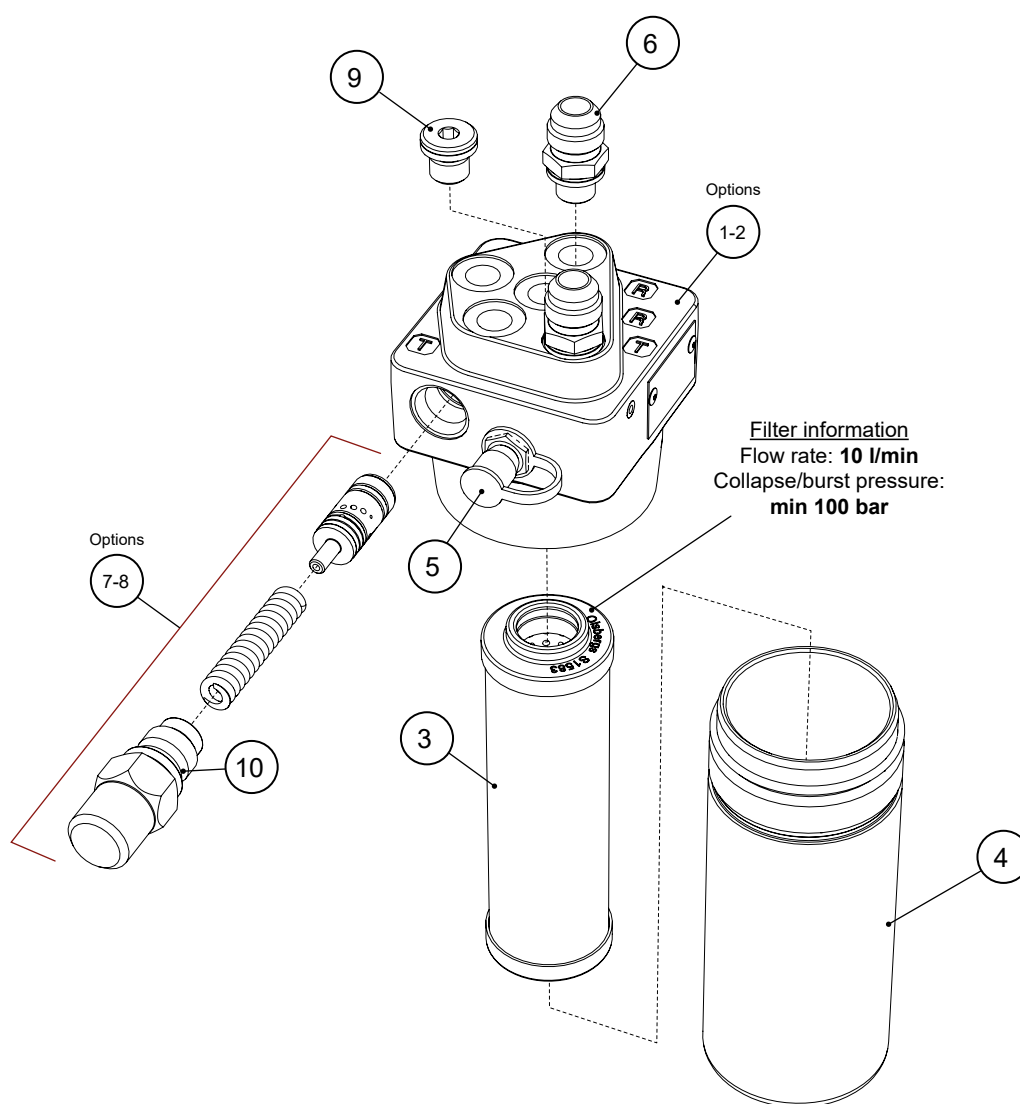
Spare parts



Pos.	Part no.	Description	Note
1	0421	Positioner P9, complete	
2	P0155	Piston rod P9	
3	V0447	Lever P9, complete	
4	V2526	Bracket kit P9	
5	V0446	Lever P9	
6	P0162	Piston end P9	
7	V9044	Screw package P9	Consumption: 1 kit per 2 Positioners
8	V9042	Sealing package TE4	Consumption: 1 kit per 10 units
9	V9043	Locking kit lever PX	Consumption: 1 kit per 10 levers
10	V9026	Sealing package TE3	Consumption: 1 kit per 10 units

Pressure reducer/filter PRF

Spare parts



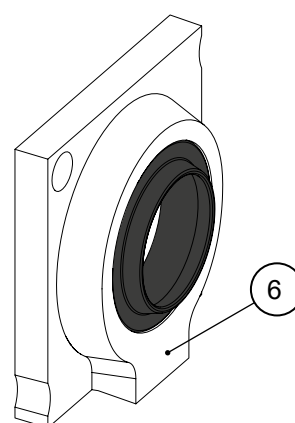
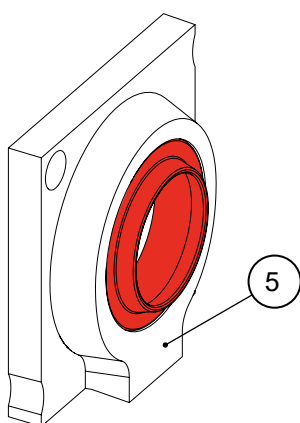
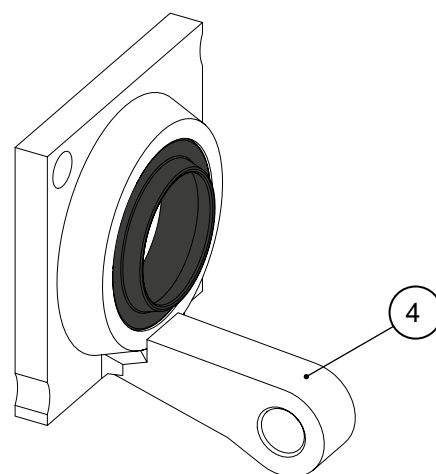
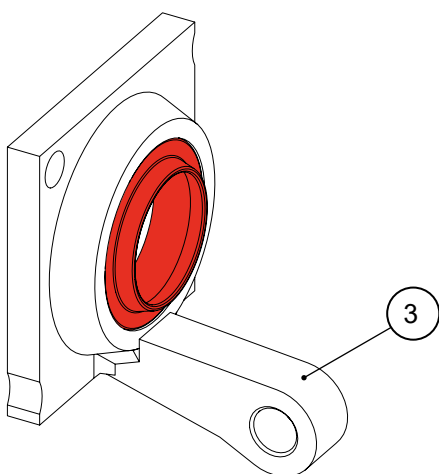
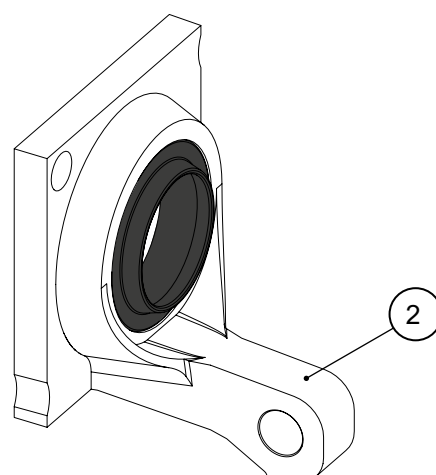
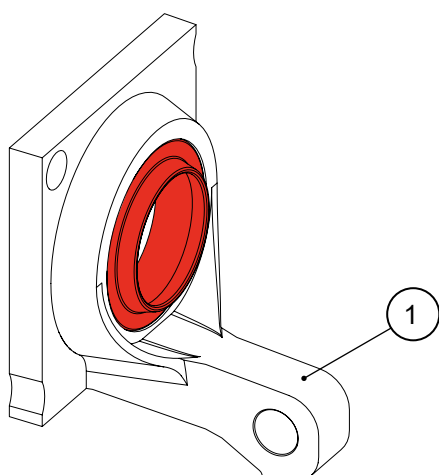
Note:
V9041 fits PRF with serial number up to: 21871
V9040 fits PRF with serial number from: 21871

** = some parts of the kit is not needed

Pos.	Part no.	Description	Note
1	0480	Pressure reducer/filter PRF, complete	(2.2-2.5 MPa)
2	0580	Pressure reducer/filter PRF, complete	(2.7-3.0 MPa)
3	S1583	Filter cartridge 10my absolute	Incl. o-ring
4	P0204	Filter housing PRF, complete	Incl. o-ring
5	S2250	Measuring nipple G 1/8"	TEMA system 100
6	S1828	Nipple G 1/4" Jic 3/4"	
7	V9041	Piston kit PRF T1	Consumption: 1 kit per PRF unit
8	V9040	Piston kit PRF T2	Consumption: 1 kit per PRF unit
9	V9027	Plug kit PG2	Consumption: 1 kit per PRF unit**
10	V9022	Sealing package TE2	Consumption: 1 pcs per PRF unit**

Consoles

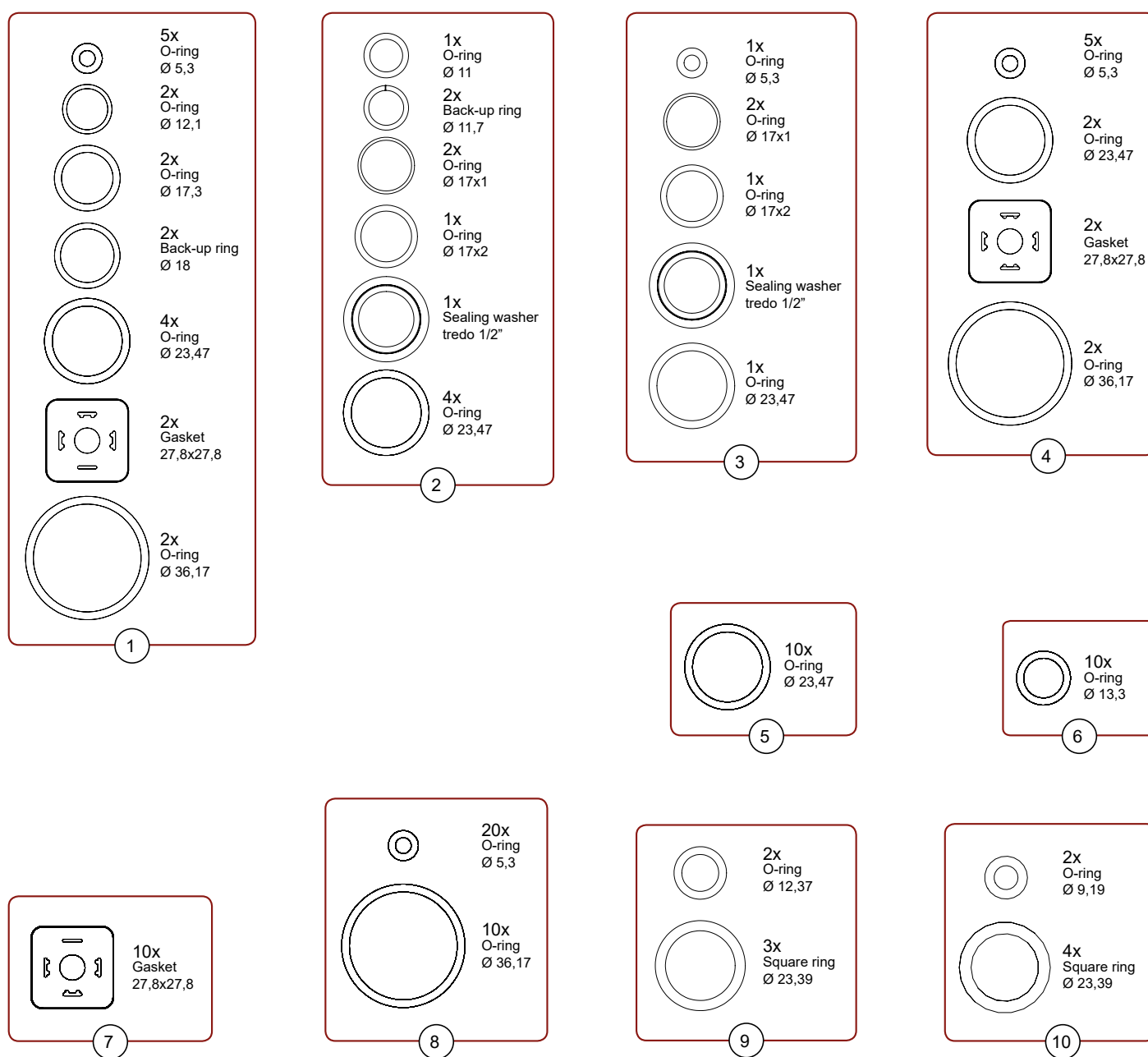
Spare parts



Pos	Part.no	Description	Notes
1	V2113	Console with connection, red scraper	
2	V2522	Console with connection, black scraper	
3	V2428	Steel console with connection, red scraper	
4	V2519	Steel console with connection, black scraper	
5	V2523	Console without connection, red scraper	
6	V2521	Console without connection, black scraper	

Sealing packages

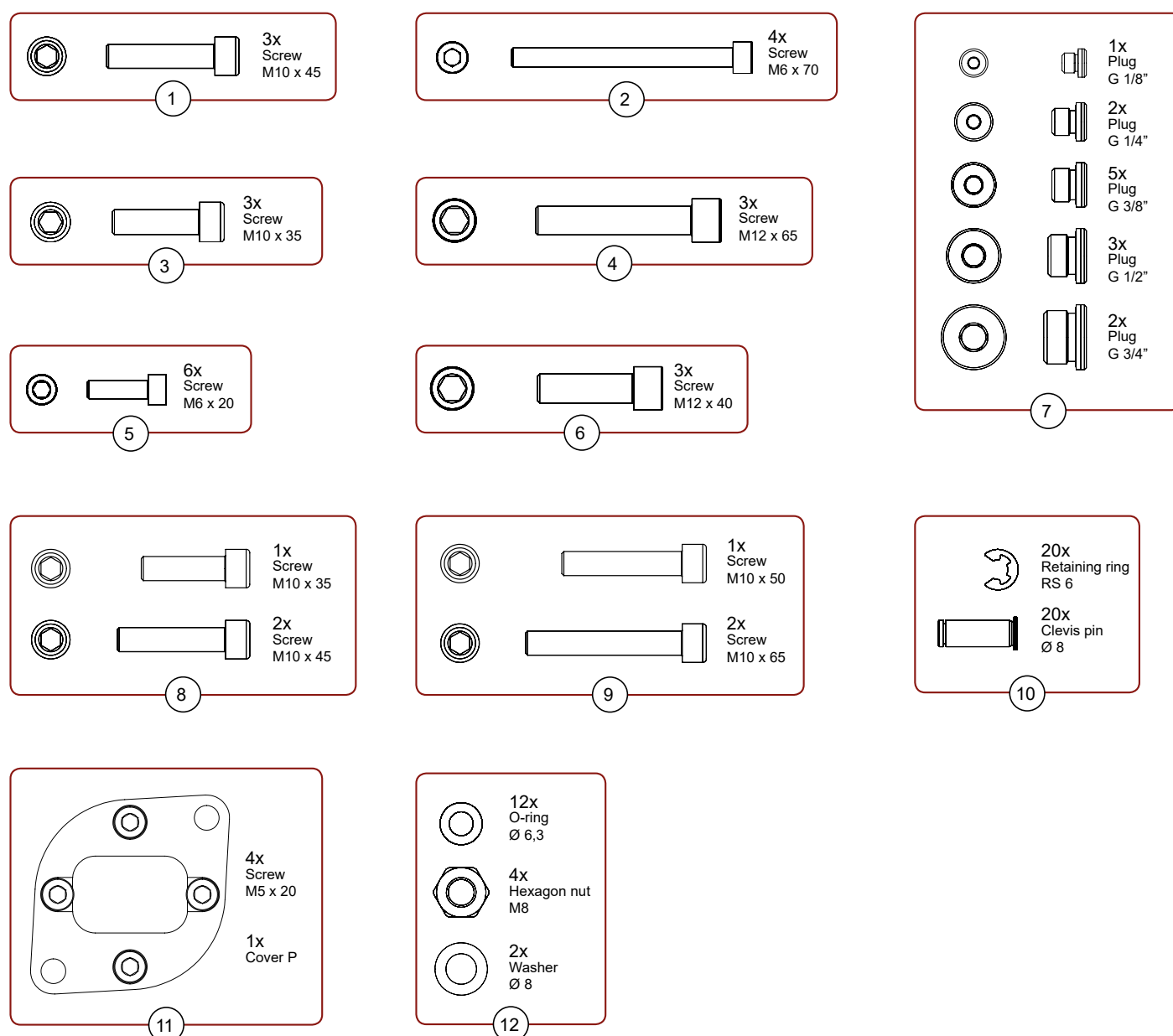
Spare part kits



Pos.	Part no.	Description	Consumption	Fits
1	V9004	Sealing package TV2	1 kit per valve section	Valve Pv90
2	V9048	Sealing package TG2	1 kit per inlet section	Inlet section V2160, V2161, V2052, V2050
3	V9056	Sealing package TG3	1 kit per outlet section	Outlet section V2055
4	V9001	Sealing package TV1	1 kit per valve section	Valve Pv98 amd Pv91M
5	V9011	Sealing package TE1	1 pcs per component	Most components, including plugs, signal pressure limiter, relief valves, spring housings, adaptors
6	V9022	Sealing package TE2	1 pcs per component	Pressure reducer filter PRF and inlet section V0290
7	V9026	Sealing package TE3	1 kit per 10 positioners	Positioner P9
8	V9042	Sealing package TE4	1 kit per 10 positioners	Positioner P9
9	V0762	Seal kit	1 kit per inlet- or outlet section	All Pv90 inlet and outlet sections
10	V2454	Seal kit	1 kit per inlet- or outlet section	All Pv91M inlet and outlet sections

Assembly and plug packages

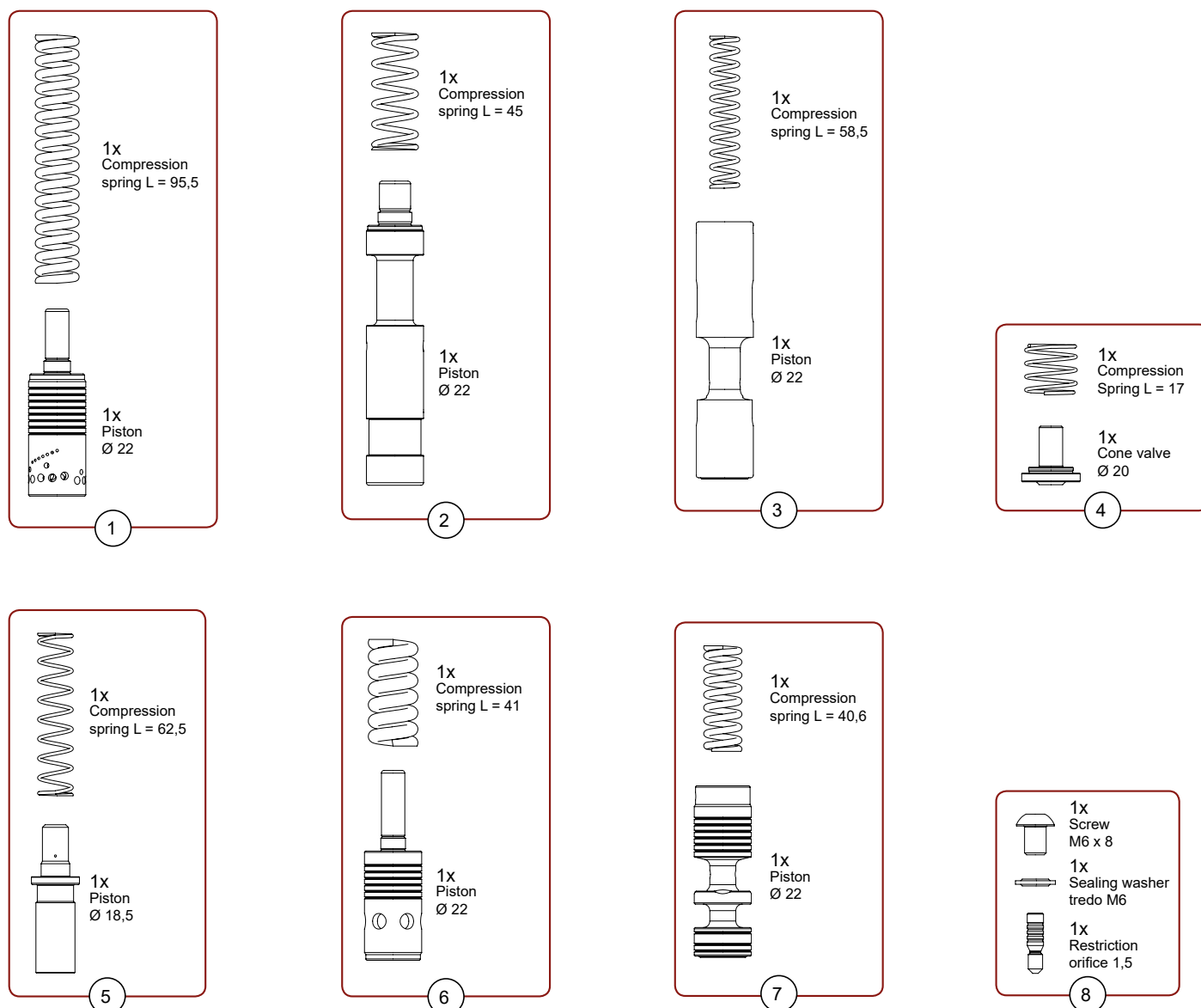
Spare part kits



Pos.	Part no.	Description	Consumption	Fits
1	V9033	Screw package SG7	1 kit per outlet section	Outlet section RF
2	V9044	Screw package P9	1 kit per valve section	All valves with P9
3	V9017	Screw package SG1	1 kit per inlet- or outlet section	Inlet section J, V2051, Outlet section S, P, V2053
4	V9029	Screw package SG3	1 kit per inlet section	Inlet section V2160
5	V9007	Screw package Man	1 kit per valve section	All manual operated valves
6	V9030	Screw package SG4	1 kit per inlet- or outlet section	Inlet section V0731, V0733, V0290, V0291 and outlet section V0292
7	V9027	Plug kit PG2	1 kit per inlet- or outlet section	Inlet section J, V2160, V2161, V0731, V0290, V2050, V2052, Outlet section RF, S, P, V0292, V2053, V2055, Pressure reducer filter PRF
8	V9032	Screw package SG6	1 kit per outlet section	Outlet section V2055
9	V9031	Screw package SG5	1 kit per inlet section	Inlet section V2050, V2052
10	V9043	Locking kit lever PX	1 kit per 10 levers	Lever for P9
11	V9025	Cover P	1 kit per valve section	All valves with PD9
12	V9057	Assembly kit PE1	1 kit per complete PD9 unit	PD9 1- and 2-sections

Spring and piston packages

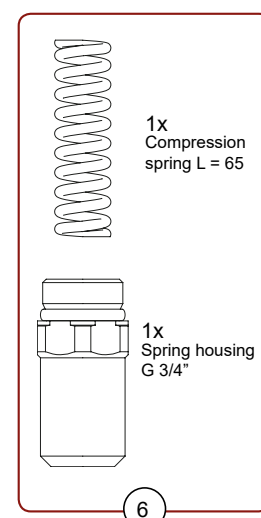
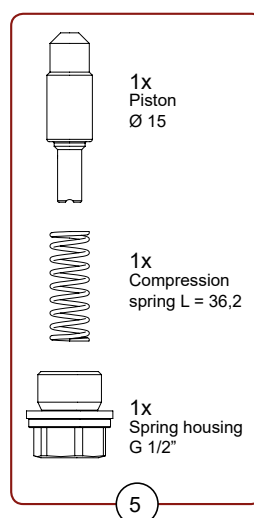
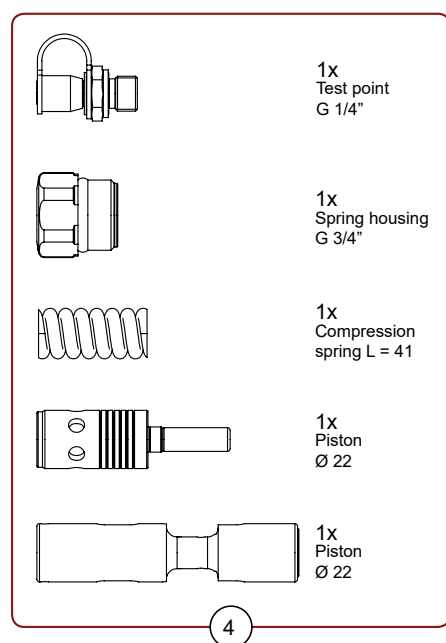
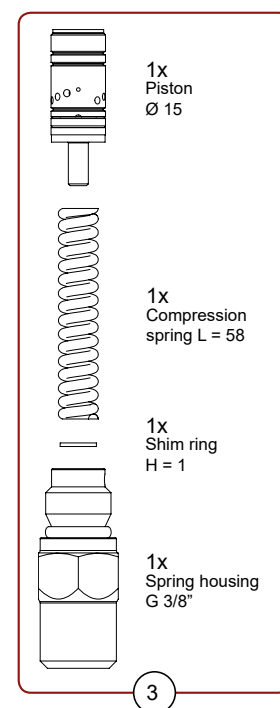
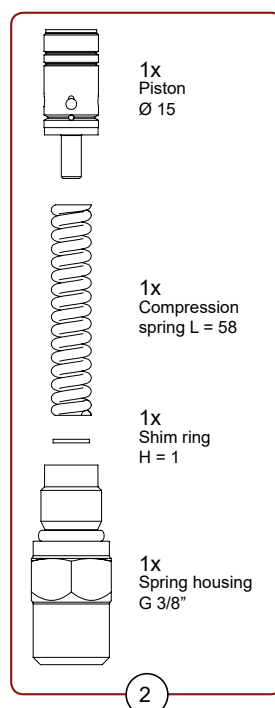
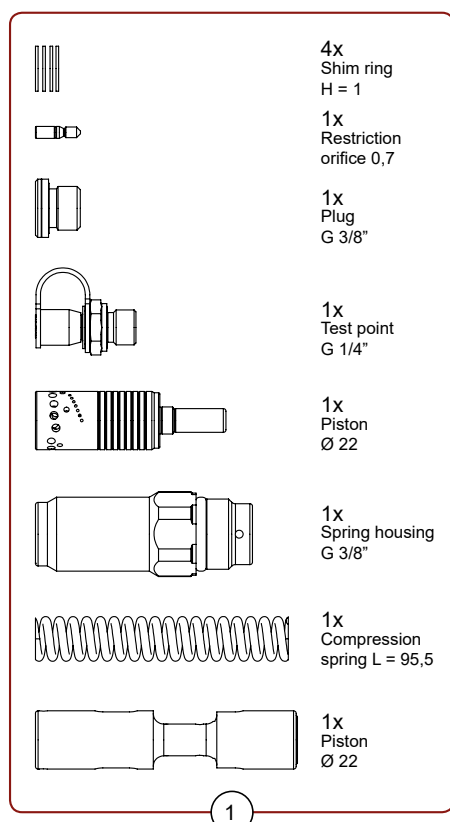
Spare part kits



Pos.	Part no.	Description	Consumption	Fits
1	V9049	Piston kit inlet 13/6	1 kit per inlet section	Inlet section V2160, V0731, V2050
2	V9024	Piston kit VP	1 kit per inlet section	Inlet section V2052
3	V9050	Dump piston kit inlet Pv90	1 kit per inlet section	Inlet section V2160, V2161
4	V9045	Anti-cavitation kit Pv90	1 kit per shock valve	shock valve standard and type P plug
5	V9053	Dump piston kit inlet Pv91M	1 kit per inlet section	Inlet section V2050
6	V9051	Piston kit inlet 50	1 kit per inlet section	Inlet section V2161, V0733
7	V9052	Pressure compensator Pv91M	1 kit per valve section	Valve Pv91M
8	V9054	Restriction orifice Ø1.5 outlet Pv91M	1 kit per outlet section	Outlet section V2055

Spring and piston packages

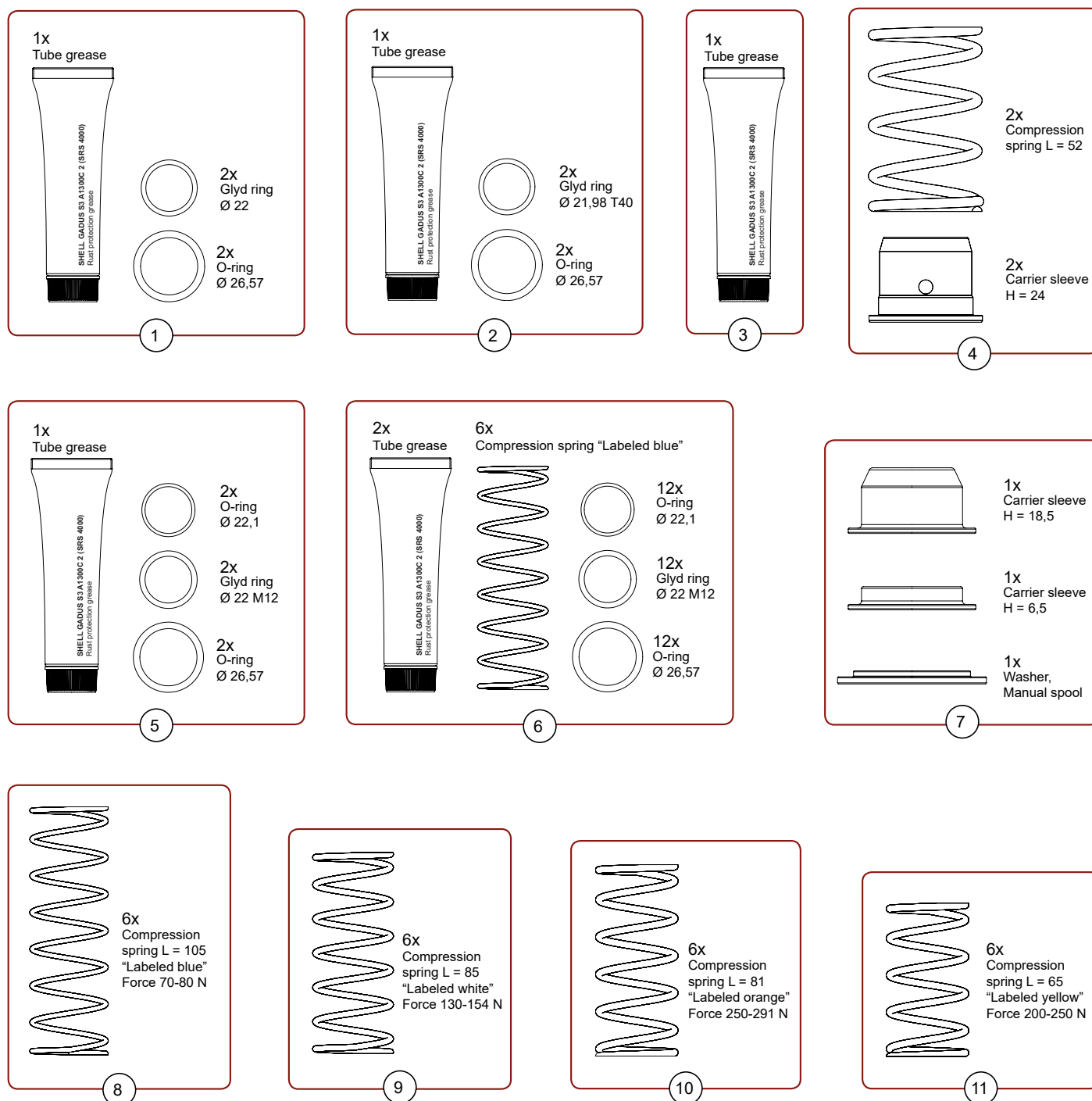
Spare part kits



Pos.	Part no.	Description	Consumption	Fits
1	V2354	Conversion kit, fixed pump	1 kit per inlet section	Inlet section V2161, V2160
2	V9041	Piston kit PRF T1	1 kit per PRF unit or inlet section	PRF with serial number up to 21871 and inlet section V0290
3	V9040	Piston kit PRF T2	1 kit per PRF unit	PRF with serial number from 21871
4	V2353	Conversion kit, variable pump	1 kit per inlet section	Inlet section V2161, V2160
5	V9055	Piston kit outlet Pv91M	1 kit per outlet section	Outlet section V2055
6	V9020	Spring package TRR	1 kit per outlet section	Outlet section RF

Spring and sealing packages for spools

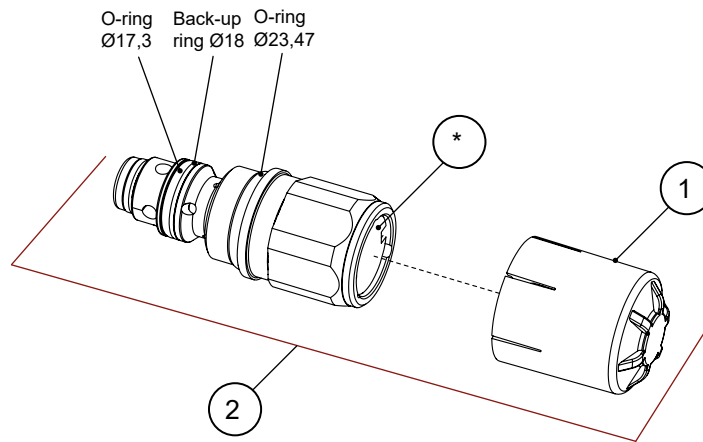
Spare part kits



Pos.	Part no.	Description	Consumption	Fits
1	S1102	Sealing kit spool	1 kit per valve section	Valve Q200 man, Q300 man, Pv98 man
2	V2541	Sealing kit spool	1 kit per valve section	Valve Q200 man, Q300 man
3	S2943	Grease 20 gram	not specified	For component assembly
4	V9003	Centering kit spool P9	1 kit per valve section	Valve Pv90 with P9 and Pv91M with P9
5	V2468	Sealing kit spool	1 kit per valve section	Valve Q200 man, Q300 man
6	V2520	Low friction kit	1 kit per 6 valve sections	Valve Q200 man, Q300 man
7	V9008	Spring guide package spool	1 kit per valve section	All manual operated valves
8	V9046	Spring set x6 blue	1 kit per 6 valve sections	Valve Q200 man, Q300 man and Pv90 man
9	V9005	Spring set x6 white	1 kit per 6 valve sections	Valve Q200 man, Q300 man, Pv98 man and Pv90 man
10	V9023	Spring set x6 orange	1 kit per 6 valve sections	All valves with PD9
11	V9047	Spring set x6 yellow	1 kit per 6 valve sections	All valves with PD9

Shock valve standard

Spare parts



Note:

Extra back-up ring and seals are available in the respective valve spare sealing packages

* = marking on cap

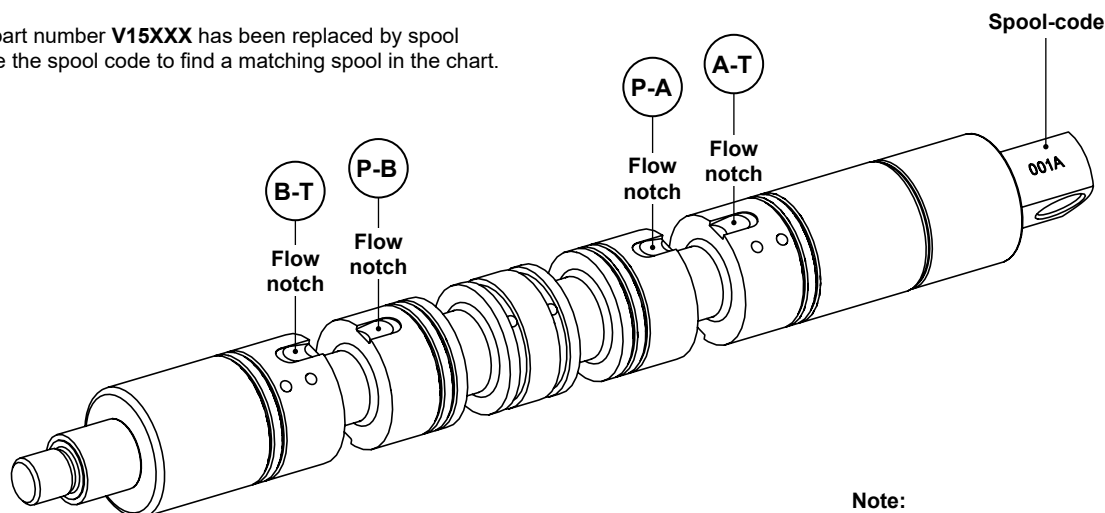
Pos.	Part no.	Description	*	Pos.	Part no.	Description	*
1	V2271GR	Plastic cap grey, shock valve		2	V1200	Shock valve 20 MPa	20
2	V1020	Shock valve 2 MPa	2		V1205	Shock valve 20,5 MPa	20,5
	V1040	Shock valve 4 MPa	4		V1210	Shock valve 21 MPa	21
	V1050	Shock valve 5 MPa	5		V1215	Shock valve 21,5 MPa	21,5
	V1055	Shock valve 5,5 MPa	5,5		V1220	Shock valve 22 MPa	22
	V1060	Shock valve 6 MPa	6		V1225	Shock valve 22,5 MPa	22,5
	V1065	Shock valve 6,5 MPa	6,5		V1230	Shock valve 23 MPa	23
	V1070	Shock valve 7 MPa	7		V1235	Shock valve 23,5 MPa	23,5
	V1075	Shock valve 7,5 MPa	7,5		V1240	Shock valve 24 MPa	24
	V1080	Shock valve 8 MPa	8		V1245	Shock valve 24,5 MPa	24,5
	V1085	Shock valve 8,5 MPa	8,5		V1250	Shock valve 25 MPa	25
	V1090	Shock valve 9 MPa	9		V1255	Shock valve 25,5 MPa	25,5
	V1095	Shock valve 9,5 MPa	9,5		V1260	Shock valve 26 MPa	26
	V1100	Shock valve 10 MPa	10		V1265	Shock valve 26,5 MPa	26,5
	V1105	Shock valve 10,5 MPa	10,5		V1270	Shock valve 27 MPa	27,5
	V1110	Shock valve 11 MPa	11		V1275	Shock valve 27,5 MPa	27,5
	V1115	Shock valve 11,5 MPa	11,5		V1280	Shock valve 28 MPa	28
	V1120	Shock valve 12 MPa	12		V1285	Shock valve 28,5 MPa	28,5
	V1125	Shock valve 12,5 MPa	12,5		V1290	Shock valve 29 MPa	29
	V1130	Shock valve 13 MPa	13		V1295	Shock valve 29,5 MPa	29,5
	V1135	Shock valve 13,5 MPa	13,5		V1300	Shock valve 30 MPa	30
	V1140	Shock valve 14 MPa	14		V1305	Shock valve 30,5 MPa	30,5
	V1145	Shock valve 14,5 MPa	14,5		V1310	Shock valve 31 MPa	31
	V1150	Shock valve 15 MPa	15		V1315	Shock valve 31,5 MPa	31,5
	V1155	Shock valve 15,5 MPa	15,5		V1320	Shock valve 32 MPa	32
	V1160	Shock valve 16 MPa	16		V1325	Shock valve 32,5 MPa	32,5
	V1165	Shock valve 16,5 MPa	16,5		V1330	Shock valve 33 MPa	33
	V1170	Shock valve 17 MPa	17		V1335	Shock valve 33,5 MPa	33,5
	V1175	Shock valve 17,5 MPa	17,5		V1340	Shock valve 34 MPa	34
	V1180	Shock valve 18 MPa	18		V1345	Shock valve 34,5 MPa	34,5
	V1185	Shock valve 18,5 MPa	18,5		V1350	Shock valve 35 MPa	35
	V1190	Shock valve 19 MPa	19		V1380	Shock valve 38 MPa	38
	V1195	Shock valve 19,5 MPa	19,5				

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Symmetric spools (Eg. rotator, grapple)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Note:

Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min			
Part no.	Code	B-T	P-B	P-A	A-T
V32000A	000A	7	- 7	- 7	- 7
V32001A	001A	12	- 12	- 12	- 12
V32002A	002A	25	- 25	- 25	- 25
V32003A	003A	35	- 35	- 35	- 35
V32004A	004A	50	- 50	- 50	- 50

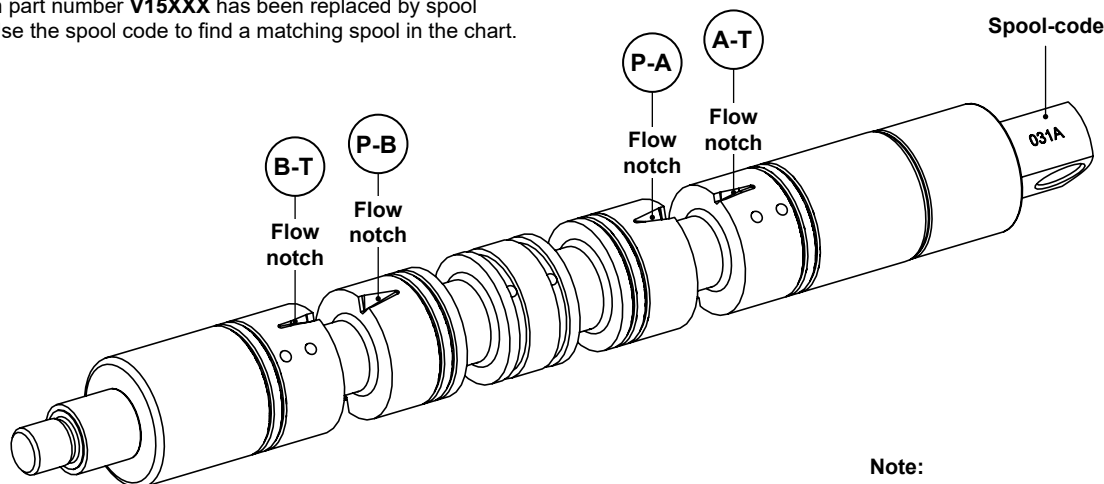
		Flow l/min			
Part no.	Code	B-T	P-B	P-A	A-T
V32005A	005A	150	- 75	- 75	- 150
V32006A	006A	150	- 100	- 100	- 150
V32007A	007A	150	- 150	- 150	- 150
V32148A	148A	4	- 7	- 7	- 4

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Symmetric spools with restricted return notches (Eg. slewing)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Note:

Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min			
Part no.	Code	B-T	P-B	P-A	A-T
V32031A	031A	S18	- 18	- 18	- S18
V32032A	032A	S25	- 25	- 25	- S25
V32034A	034A	S35	- 35	- 35	- S35
V32036A	036A	S50	- 50	- 50	- S50
V32037A	037A	S63H	- 63E	- 63E	- S63H
V32038A	038A	S75	- 75	- 75	- S75
V32039A	039A	S100	- 100	- 100	- S100

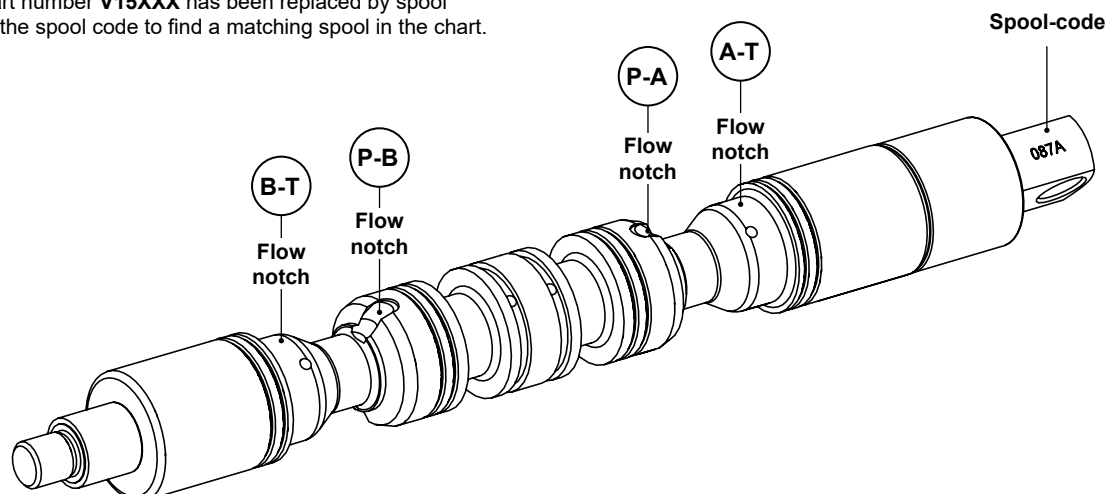
		Flow l/min			
Part no.	Code	B-T	P-B	P-A	A-T
V32040A	040A	S150	- 150	- 150	- S150
V32129A	129A	S75E	- 75E	- 75E	- S75E
V32130A	130A	S75G	- 75E	- 75E	- S75G
V32133A	133A	S63E	- 63E	- 63E	- S63E
V32134A	134A	S50E	- 50E	- 50E	- S50E
V32137A	137A	S50G	- 50E	- 50E	- S50G
V32330A	330A	S12	- 12	- 12	- S12

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Symmetric motor spools (Eg. jib)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Note:

Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V32081A	081A	M	-	12	-	12	M
V32082A	082A	M	-	25	-	25	M
V32083A	083A	M	-	35	-	35	M
V32084A	084A	M	-	50	-	50	M

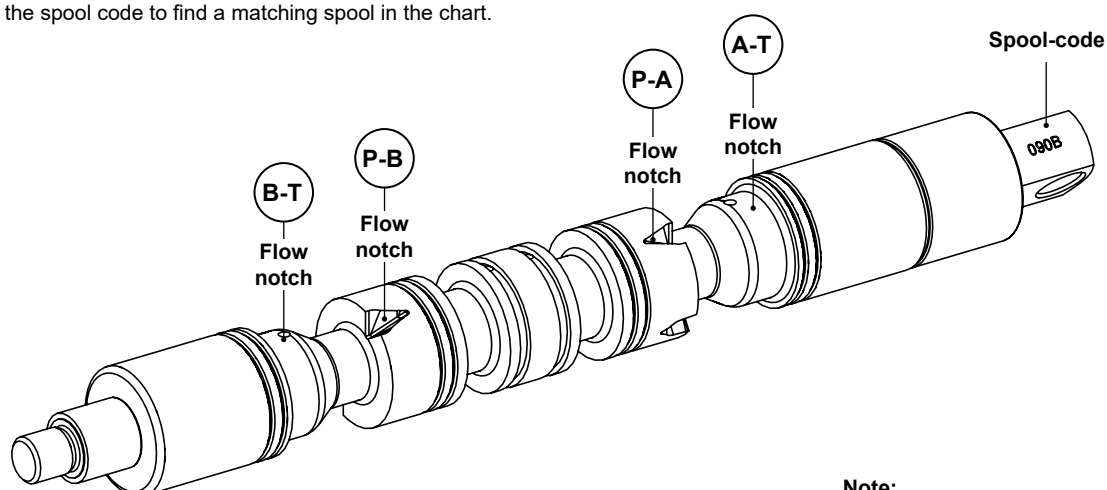
		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V32085A	085A	M	-	75	-	75	M
V32086A	086A	M	-	100	-	100	M
V32087A	087A	M	-	150	-	150	M

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Matched motor spools (Eg. winch)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Note:

Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V32090A	090A	M	-	50	-	30	M
V32090B	090B	M	-	30	-	50	M
V32092A	092A	M	-	75	-	50	M
V32092B	092B	M	-	50	-	75	M
V32093A	093A	M	-	75	-	35	M
V32093B	093B	M	-	35	-	75	M

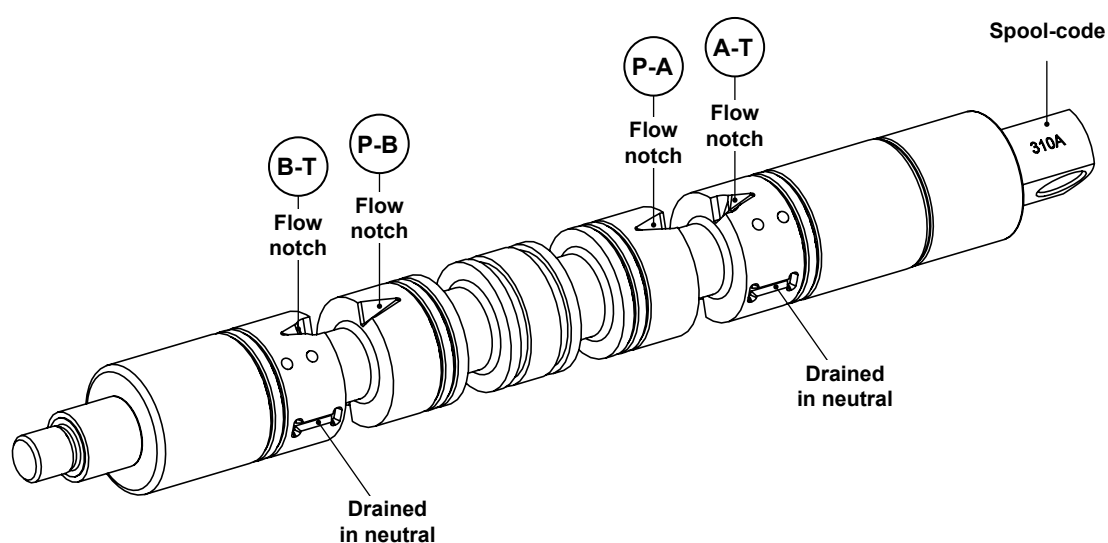
		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V32094A	094A	M	-	100	-	75	M
V32094B	094B	M	-	75	-	100	M
V32157A	157A	M	-	35	-	18	M
V32157B	157B	M	-	18	-	35	M
V32173A	173A	M	-	100	-	63	M
V32173B	173B	M	-	63	-	100	M

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Symmetric spools with drain in neutral position (Eg. slewing with load holding valve)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Note:

Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

Part no.	Code	Flow l/min					
		B-T	P-B	P-A	A-T		
V32310A	310A	D S12	- 12	- 12	- S12	D	
V32311A	311A	D S18	- 18	- 18	- S18	D	
V32312A	312A	D S25	- 25	- 25	- S25	D	
V32314A	314A	D S35	- 35	- 35	- S35	D	
V32316A	316A	D S50	- 50	- 50	- S50	D	
V32319A	319A	D 50	- 50	- 50	- 50	D	
V32320A	320A	D 75	- 75	- 75	- 75	D	
V32321A	321A	D 12	- 18	- 18	- 12	D	
V32322A	322A	D V35	- 35	- 35	- V35	D	
V32323A	323A	D V75	- 75	- 75	- V75	D	

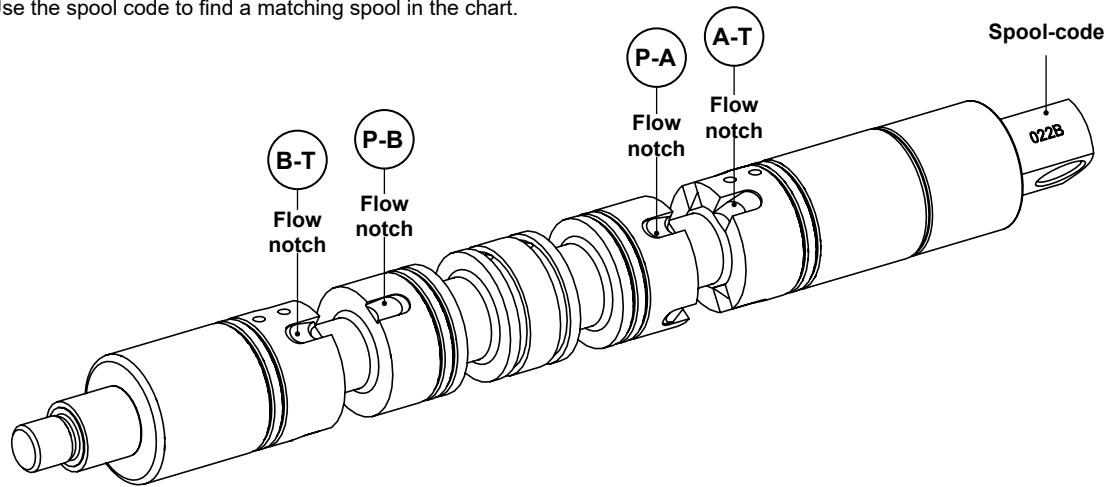
Part no.	Code	Flow l/min					
		B-T	P-B	P-A	A-T		
V32324A	324A	D 75	- 50	- 50	- 75	D	
V32325A	325A	D 63	- 63	- 63	- 63	D	
V32326A	326A	D 25	- 25	- 25	- 25	D	
V32328A	328A	D V100	- 100	- 100	- V100	D	
V32329A	329A	D S50H	- 50E	- 50E	- S50H	D	
V32332A	332A	D S63H	- 63E	- 63E	- S63H	D	
V32356A	356A	D S25H	- 25	- 25	- S25H	D	
V32361A	361A	D S35H	- 35	- 35	- S35H	D	
V32364A	364A	D S75	- 75	- 75	- S75	D	
V32365A	365A	D S75H	- 75H	- 75H	- S75 H	D	

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Matched spools (Eg. extension)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Note:

Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V32018A	018A	50	- 25	- 12	- 50		
V32018B	018B	50	- 12	- 25	- 50		
V32020A	020A	50	- 35	- 25	- 50		
V32020B	020B	50	- 25	- 35	- 50		
V32022A	022A	75	- 50	- 12	- 50		
V32022B	022B	50	- 12	- 50	- 75		
V32024A	024A	75	- 50	- 35	- 75		
V32024B	024B	75	- 35	- 50	- 75		
V32026A	026A	100	- 75	- 50	- 100		
V32026B	026B	100	- 50	- 75	- 100		
V32028A	028A	150	- 100	- 75	- 150		
V32028B	028B	150	- 75	- 100	- 150		
V32029A	029A	150	- 150	- 55	- 150		
V32029B	029B	150	- 55	- 150	- 150		
V32030A	030A	150	- 150	- 100	- 150		
V32030B	030B	150	- 100	- 150	- 150		
V32052A	052A	25	- 50	- 35	- 35		
V32052B	052B	35	- 35	- 50	- 25		
V32054A	054A	35	- 75	- 50	- 50		
V32054B	054B	50	- 50	- 75	- 35		
V32056A	056A	50	- 100	- 75	- 75		
V32056B	056B	75	- 75	- 100	- 50		
V32058A	058A	75	- 150	- 100	- 100		
V32058B	058B	100	- 100	- 150	- 75		
V32062A	062A	35	- 35	- 25	- 12		
V32062B	062B	12	- 25	- 35	- 35		
V32064A	064A	50	- 50	- 35	- 12		
V32064B	064B	12	- 35	- 50	- 50		
V32066A	066A	75	- 75	- 50	- 25		
V32066B	066B	25	- 50	- 75	- 75		
V32068A	068A	100	- 100	- 75	- 35		
V32068B	068B	35	- 75	- 100	- 100		
V32070A	070A	150	- 150	- 100	- 50		
V32070B	070B	50	- 100	- 150	- 150		
V32127A	127A	35	- 100	- 75	- 75		

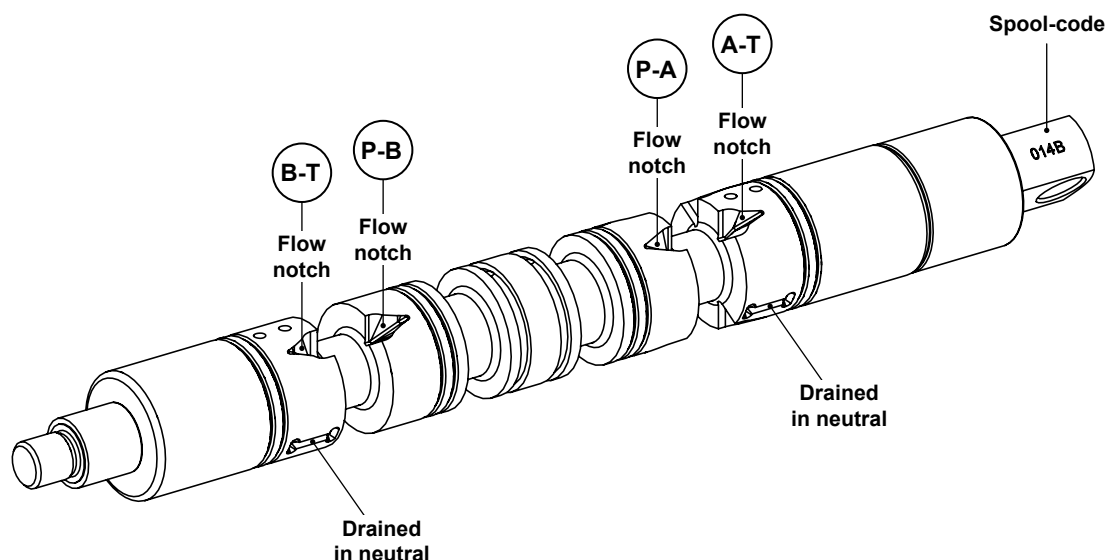
		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V32127B	127B	75	- 75	- 100	- 35		
V32128A	128A	35	- 100	- 75	- 35		
V32128B	128B	35	- 75	- 100	- 35		
V32131A	131A	25E	- 100	- 75	- 75		
V32131B	131B	75	- 75	- 100	- 25E		
V32138A	138A	25E	- 100	- 63	- 63		
V32138B	138B	63	- 63	- 100	- 25E		
V32139A	139A	18E	- 75	- 50	- 50		
V32139B	139B	50	- 50	- 75	- 18E		
V32142A	142A	4	- 7	- 4	- 4		
V32142B	142B	4	- 4	- 7	- 4		
V32143A	143A	7	- 12	- 7	- 7		
V32143B	143B	7	- 7	- 12	- 7		
V32144A	144A	12	- 18	- 12	- 12		
V32144B	144B	12	- 12	- 18	- 12		
V32145A	145A	12	- 25	- 18	- 18		
V32145B	145B	18	- 18	- 25	- 12		
V32146A	146A	18	- 35	- 25	- 25		
V32146B	146B	25	- 25	- 35	- 18		
V32147A	147A	4	- 5,5	- 4	- 4		
V32147B	147B	4	- 4	- 5,5	- 4		
V32149A	149A	2,5	- 5,5	- 4	- 4		
V32149B	149B	4	- 4	- 5,5	- 2,5		
V32155A	155A	30	- 100	- 42	- 25		
V32155B	155B	25	- 42	- 100	- 30		
V32161A	161A	35	- 125	- 50	- 40		
V32161B	161B	40	- 50	- 125	- 35		
V32162A	162A	42	- 150	- 63	- 35		
V32162B	162B	35	- 63	- 150	- 42		
V32163A	163A	50	- 125	- 75	- 75		
V32163B	163B	75	- 75	- 125	- 50		
V32169A	169A	42	- 100	- 42	- 42		
V32169B	169B	42	- 42	- 100	- 42		
V32170A	170A	50	- 100	- 42	- 42		
V32170B	170B	42	- 42	- 100	- 50		

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Matched spools with drain in neutral position (Eg. inner boom with load holding valve)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Note:

Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

Part no.	Code	Flow l/min			
		B-T	P-B	P-A	A-T
V32009A	009A	D L35	- 35	- 18	- 12 D
V32009B	009B	D 12	- 18	- 35	- L35 D
V32010A	010A	D L22	- 22	- 12	- 12 D
V32010B	010B	D 12	- 12	- 22	- L22 D
V32011A	011A	D L35	- 35	- 18	- 18 D
V32011B	011B	D 18	- 18	- 35	- L35 D
V32012A	012A	D L50	- 50	- 22	- 22 D
V32012B	012B	D 22	- 22	- 50	- L50 D
V32013A	013A	D L50	- 50	- 27	- 27 D
V32013B	013B	D 27	- 27	- 50	- L50 D
V32014A	014A	D L63	- 63	- 35	- 35 D
V32014B	014B	D 35	- 35	- 63	- L63 D
V32015A	015A	D L63	- 63	- 30	- 30 D
V32015B	015B	D 30	- 30	- 63	- L63 D
V32016A	016A	D L75	- 75	- 35	- 35 D
V32016B	016B	D 35	- 35	- 75	- L75 D
V32017A	017A	D L75	- 75	- 50	- 50 D
V32017B	017B	D 50	- 50	- 75	- L75 D
V32019A	019A	D L100	- 100	- 63	- 63 D
V32019B	019B	D 63	- 63	- 100	- L100 D
V32113A	113A	D 50	- 50	- 35	- L35 D

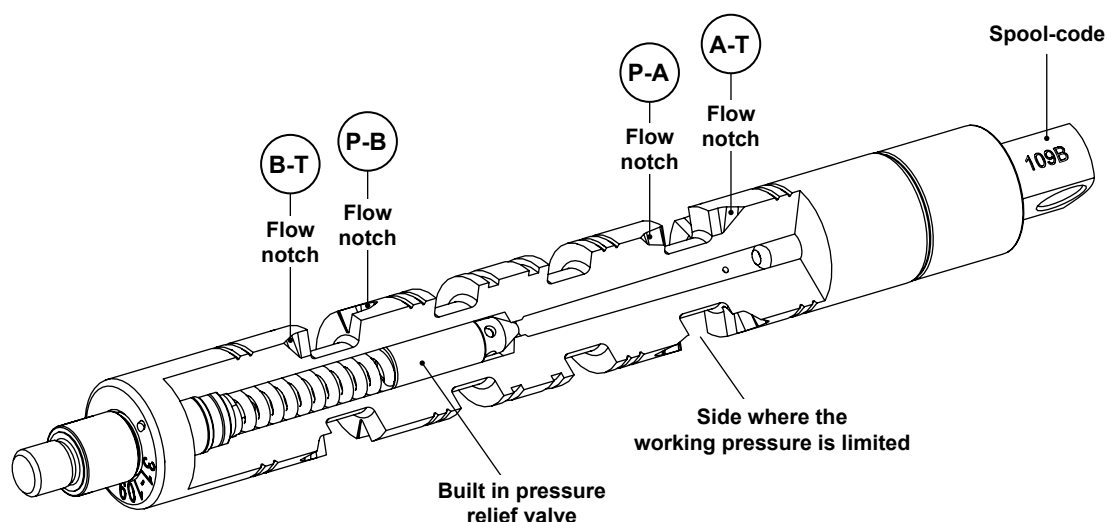
Part no.	Code	Flow l/min			
		B-T	P-B	P-A	A-T
V32113B	113B	D L35	- 35	- 50	- 50 D
V32114A	114A	D 100	- 100	- 75	- L75 D
V32114B	114B	D L75	- 75	- 100	- 100 D
V32115A	115A	D 75	- 75	- 50	- L50 D
V32115B	115B	D L50	- 50	- 75	- 75 D
V32117A	117A	D L75	- 75	- 27	- 27 D
V32117B	117B	D 27	- 27	- 75	- L75 D
V32125A	125A	D L100	- 100	- 75	- 75 D
V32125B	125B	D 75	- 75	- 100	- L100 D
V32171A	171A	D 7	- 12	- 7	- 7 D
V32171B	171B	D 7	- 7	- 12	- 7 D
V32327A	327A	D L18	- 18	- 12	- 12 D
V32327B	327B	D 12	- 12	- 18	- L18 D
V32333A	333A	D L75	- 75	- 42	- 42 D
V32333B	333B	D 42	- 42	- 75	- L75 D
V32335A	335A	D L100	- 100	- 42	- 25 D
V32335B	335B	D 25	- 42	- 100	- L100 D
V32336A	336A	D L150	- 150	- 100	- 100 D
V32336B	336B	D 100	- 100	- 150	- L150 D
V32339A	339A	D L100	- 100	- 42	- 75 D
V32339B	339B	D 75	- 42	- 100	- L100 D

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Matched spools with pressure relief valve (Eg. extension)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Example: 50S22 =
50l/min flow, 22 Mpa working pressure.

Note:

Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min			
Part no.	Code	B-T	P-B	P-A	A-T
V32096A	096A	75	- 50S14	- 35	- 75
V32096B	096B	75	- 35	- 50S14	- 75
V32098A	098A	100	- 75S14	- 50	- 100
V32098B	098B	100	- 50	- 75S14	- 100
V32101A	101A	75	- 50S12	- 35	- 75
V32101B	101B	75	- 35	- 50S12	- 75
V32102A	102A	75	- 50S10	- 35	- 75
V32102B	102B	75	- 35	- 50S10	- 75
V32103A	103A	100	- 75S20	- 50	- 100
V32103B	103B	100	- 50	- 75S20	- 100
V32104A	104A	75	- 50S16	- 35	- 75
V32104B	104B	75	- 35	- 50S16	- 75
V32108A	108A	100	- 75S18	- 50	- 100
V32108B	108B	100	- 50	- 75S18	- 100
V32109A	109A	100	- 75S16	- 50	- 100
V32109B	109B	100	- 50	- 75S16	- 100
V32111A	111A	75	- 50S20	- 35	- 75
V32111B	111B	75	- 35	- 50S20	- 75
V32116A	116A	100	- 75S10	- 50	- 100
V32116B	116B	100	- 50	- 75S10	- 100
V32118A	118A	100	- 75S22	- 50	- 100
V32118B	118B	100	- 50	- 75S22	- 100
V32136A	136A	50	- 75S10	- 100	- 35

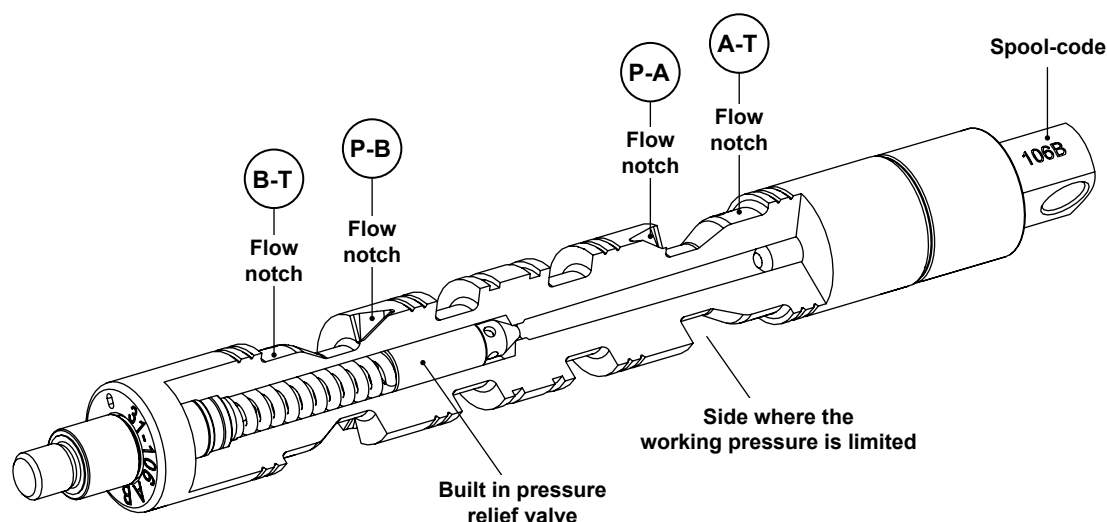
		Flow l/min			
Part no.	Code	B-T	P-B	P-A	A-T
V32136B	136B	35	- 100	- 75S10	- 50
V32150A	150A	7	- 12S7	- 7	- 7
V32150B	150B	7	- 7	- 12S7	- 7
V32158A	158A	100	- 75S10	- 50	- 100
V32158B	158B	100	- 50	- 75S10	- 100
V32159A	159A	25	- 18S10	- 7	- 25
V32159B	159B	25	- 7	- 18S10	- 25
V32164A	164A	125	- 125S10	- 75	- 35
V32164B	164B	35	- 75	- 125S10	- 125
V32165A	165A	100	- 100S10	- 63	- 30
V32165B	165B	30	- 63	- 100S10	- 100
V32166A	166A	100	- 100S10	- 75	- 35
V32166B	166B	35	- 75	- 100S10	- 100
V32168A	168A	100	- 100S14	- 75	- 100
V32168B	168B	100	- 75	- 100S14	- 100
V32174A	174A	100	- 100S12	- 75	- 35
V32174B	174B	35	- 75	- 100S12	- 100
V32175A	175A	35	- 75	- 35S20	- 35
V32175B	175B	35	- 35S20	- 75	- 35
V32177A	177A	75	- 75S12	- 50	- 25
V32177B	177B	25	- 50	- 75S12	- 75
V32178A	178A	50	- 150	- 100S7	- 100
V32178B	178B	100	- 100S7	- 150	- 50

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Matched motor spools with pressure relief valve (Eg. extension)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Example: 50S22 =
50l/min flow, 22 Mpa working pressure.

Note:
Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V32106A	106A	M	- 50S22	- 30	- M		
V32106B	106B	M	- 30	- 50S22	- M		
V32107A	107A	M	- 50	- 30S20	- M		
V32107B	107B	M	- 30S20	- 50	- M		
V32110A	110A	M	- 50S12	- 30	- M		
V32110B	110B	M	- 30	- 50S12	- M		
V32112A	112A	M	- 100S22	- 50	- M		
V32112B	112B	M	- 50	- 100S22	- M		
V32119A	119A	M	- 50	- 30S12	- M		
V32119B	119B	M	- 30S12	- 50	- M		
V32120A	120A	M	- 75S22	- 50	- M		
V32120B	120B	M	- 50	- 75S22	- M		
V32121A	121A	M	- 50S12	- 30	- M		

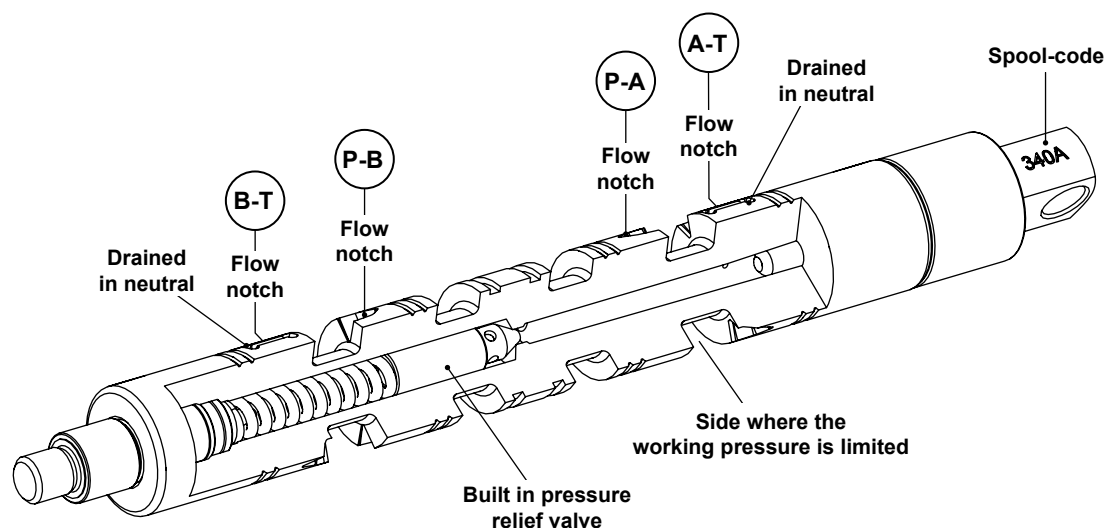
		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V32121B	121B	M	- 30	- 50S12	- M		
V32122A	122A	M	- 75S14	- 50	- M		
V32122B	122B	M	- 50	- 75S14	- M		
V32123A	123A	M	- 75S30	- 50	- M		
V32123B	123B	M	- 50	- 75S30	- M		
V32124A	124A	M	- 100S16	- 75	- M		
V32124B	124B	M	- 75	- 100S16	- M		
V32167A	167A	M	- 100S30	- 50	- M		
V32167B	167B	M	- 50	- 100S30	- M		
V32172A	172A	M	- 100S30	- 63	- M		
V32172B	172B	M	- 63	- 100S30	- M		
V32359A	359A	M	- 75S20	- 50	- M		
V32359B	359B	M	- 50	- 75S20	- M		

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Matched spools with pressure relief valve and drain in neutral position (Eg. extension)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Example: 50S22 =
50l/min flow, 22 Mpa working pressure.

Note:

Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min			
Part no.	Code	B-T	P-B	P-A	A-T
V32340A	340A	D L63 - 63	- 42S14 - 42	D	
V32340B	340B	D 42 - 42S14 - 63	- L63	D	
V32341A	341A	D L63 - 63	- 30S28 - 30	D	
V32341B	341B	D 30 - 30S28 - 63	- L63	D	
V32342A	342A	D L63 - 63	- 35S28 - 35	D	
V32342B	342B	D 35 - 35S28 - 63	- L63	D	
V32343A	343A	D L75 - 75	- 35S28 - 35	D	
V32343B	343B	D 35 - 35S28 - 75	- L75	D	
V32344A	344A	D L75 - 75	- 50S28 - 50	D	
V32344B	344B	D 50 - 50S28 - 75	- L75	D	
V32345A	345A	D 100 - 100S20 - 75	- L75	D	
V32345B	345B	D L75 - 75	- 100S20 - 100	D	
V32346A	346A	D 75 - 75S20 - 50	- L50	D	
V32346B	346B	D L50 - 50	- 75S20 - 100	D	
V32347A	347A	D L75 - 75	- 42S24 - 42	D	
V32347B	347B	D 42 - 42S24 - 75	- 42	D	
V32348A	348A	D L150 - 150	- 100S16 - 100	D	
V32348B	348B	D 100 - 100S16 - 150	- L150	D	
V32349A	349A	D L100 - 100	- 63S10 - 63	D	
V32349B	349B	D 63 - 63S10 - 100	- L100	D	

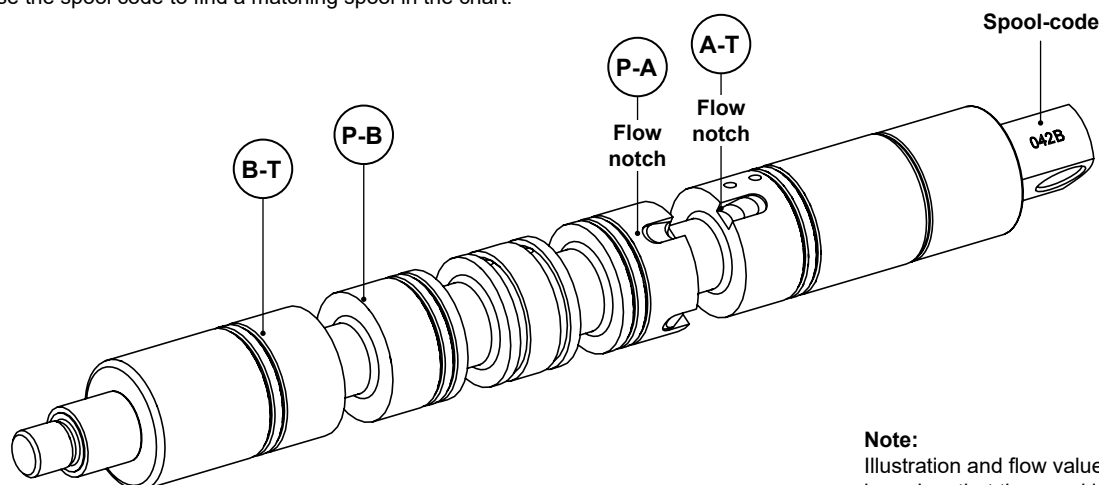
		Flow l/min			
Part no.	Code	B-T	P-B	P-A	A-T
V32350A	350A	D 100 - 100S16 - 63	- L63	D	
V32350B	350B	D L63 - 63	- 100S16 - 100	D	
V32352A	352A	D L75 - 75	- 50S10 - 50	D	
V32352B	352B	D 50 - 50S10 - 75	- L75	D	
V32353A	353A	D L75 - 75	- 27S21 - 27	D	
V32353B	353B	D 27 - 27S21 - 75	- L75	D	
V32354A	354A	D 100 - 100S14 - 75	- L75	D	
V32354B	354B	D L75 - 75	- 100S14 - 100	D	
V32355A	355A	D L100 - 100	- 75S10 - 75	D	
V32355B	355B	D 75 - 75S10 - 100	- L100	D	
V32357A	357A	D 100 - 75S20 - 50	- 100	D	
V32357B	357B	D 100 - 50	- 75S20 - 100	D	
V32358A	358A	D 100 - 75S14 - 50	- 100	D	
V32358B	358B	D 100 - 50	- 75S14 - 100	D	
V32360A	360A	D 75 - 50S16 - 35	- 75	D	
V32360B	360B	D 75 - 35	- 50S16 - 75	D	
V32362A	362A	D L75 - 75	- 50S21 - 50	D	
V32362B	362B	D 50 - 50S21 - 75	- L75	D	
V32363A	363A	D 100 - 75S17 - 50	- 100	D	
V32363B	363B	D 100 - 50	- 75S17 - 100	D	

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Single acting spools (Eg. single acting cylinder, inner boom)

Attention!

Spools with part number **V15XXX** has been replaced by spool **V32XXX**. Use the spool code to find a matching spool in the chart.



Note:

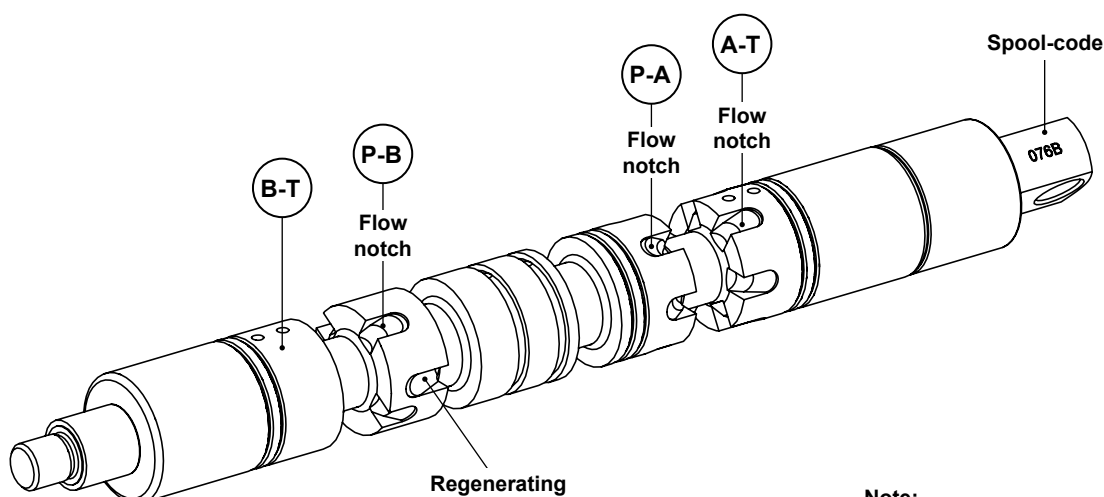
Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V32042A	042A	25	-	50	-	0	- 0
V32042B	042B	0	-	0	-	50	- 25
V32044A	044A	35	-	75	-	0	- 0
V32044B	044B	0	-	0	-	75	- 35
V32046A	046A	50	-	100	-	0	- 0

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V32046B	046B	0	-	0	-	100	- 50
V32048A	048A	75	-	150	-	0	- 0
V32048B	048B	0	-	0	-	150	- 75
V32049A	049A	75	-	180	-	0	- 0
V32049B	049B	0	-	0	-	180	- 75

Spools for valve Pv90 and Pv91M, manually or electrically operated with PD9

Regenerating spools (Eg. outer boom with pulling cylinder)



Note:

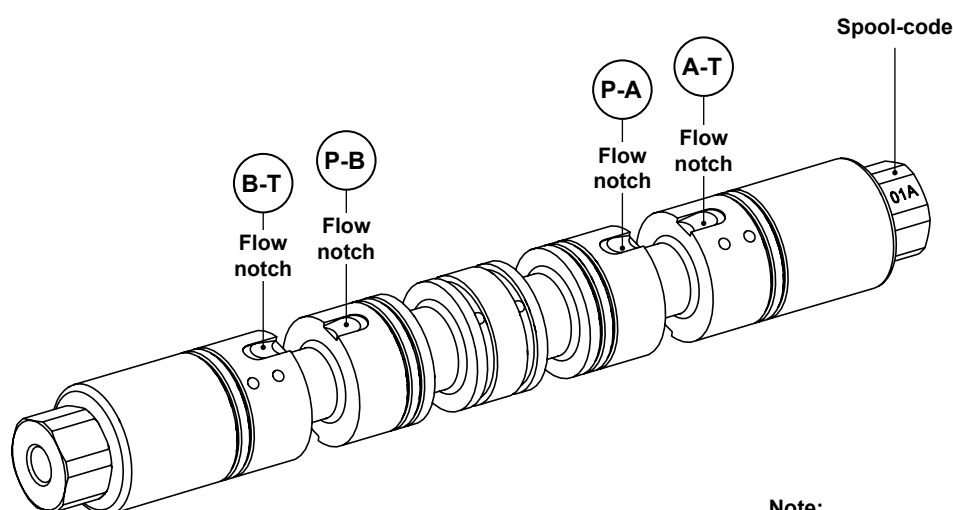
Illustration and flow values in this table are based on that the spool is mounted with the spool tongue on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V32072A	072A	50	-	50	-	35	- R
V32072B	072B	R	-	35	-	50	- 50
V32074A	074A	75	-	75	-	50	- R
V32074B	074B	R	-	50	-	75	- 75
V32076A	076A	100	-	100	-	75	- R
V32076B	076B	R	-	75	-	100	- 100

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V32078A	078A	150	-	150	-	100	- R
V32078B	078B	R	-	100	-	150	- 150
V32132A	132A	100	-	100F	-	75	- R75F
V32132B	132B	R75F	-	75	-	100F	- 100
V32135A	135A	75	-	75E	-	50	- R50F
V32135B	135B	R50F	-	50	-	75E	- 75

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Symmetric spools (Eg. rotator, grapple)



Note:

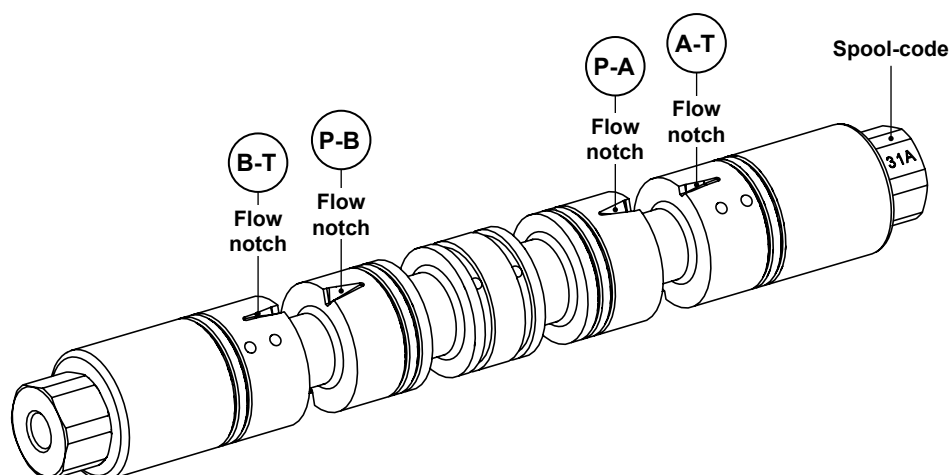
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V0601A	01A	12	-	12	-	12	12
V0602A	02A	25	-	25	-	25	25
V0603A	03A	35	-	35	-	35	35
V0604A	04A	50	-	50	-	50	50

		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V0605A	05A	150	-	75	-	75	150
V0606A	06A	150	-	100	-	100	150
V0607A	07A	150	-	150	-	150	150

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Symmetric spools with restricted return notches (Eg. slewing)



Note:

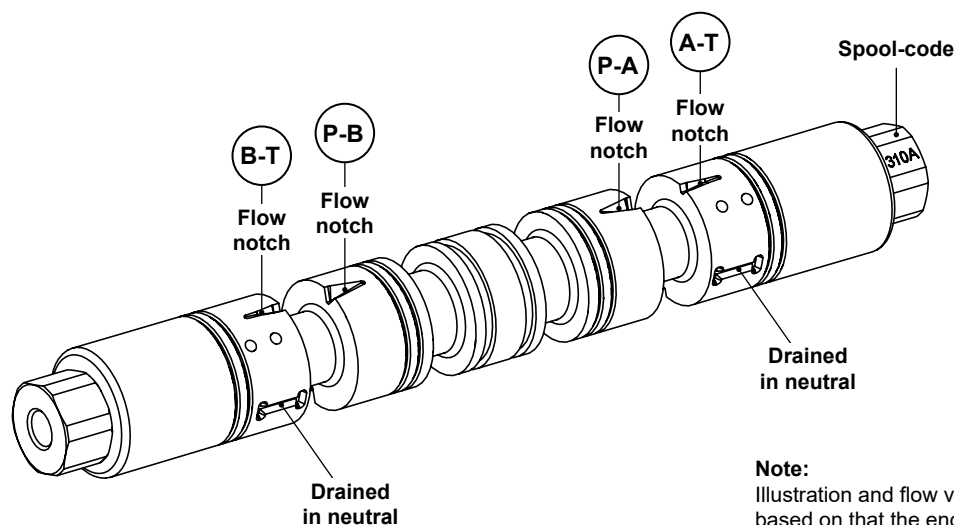
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V0631A	31A	S18	-	18	-	18	S18
V0632A	32A	S25	-	25	-	25	S25
V0634A	34A	S35	-	35	-	35	S35
V0636A	36A	S50	-	50	-	50	S50

		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V0638A	38A	S75	-	75	-	75	S75
V0639A	39A	S100	-	100	-	100	S100
V06129A	129A	S75E	-	75E	-	75E	S75E
V06130A	130A	S75G	-	75E	-	75E	S75G

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Symmetric spools with drain in neutral position (Eg. slewing with load holding valve)



Note:

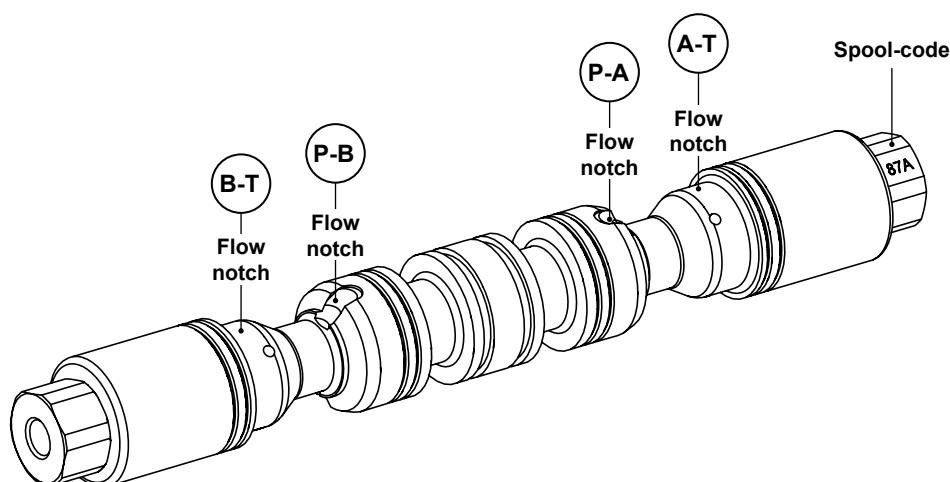
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V06310A	310A	D S12	- 12	- 12	- S12	D	
V06311A	311A	D S18	- 18	- 18	- S18	D	
V06312A	312A	D S25	- 25	- 25	- S25	D	
V06314A	314A	D S35	- 35	- 35	- S35	D	
V06316A	316A	D S50	- 50	- 50	- S50	D	
V06319A	319A	D 50	- 50	- 50	- 50	D	
V06320A	320A	D 75	- 75	- 75	- 75	D	
V06321A	321A	D 12	- 18	- 18	- 12	D	

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V06322A	322A	D V35	- 35	- 35	- V35	D	
V06323A	323A	D V75	- 75	- 75	- V75	D	
V06324A	324A	D 75	- 50	- 50	- 75	D	
V06325A	325A	D 63	- 63	- 63	- 63	D	
V06326A	326A	D 25	- 25	- 25	- 25	D	
V06328A	328A	D V100	- 100	- 100	- V100	D	
V06329A	329A	D S50H	- 50E	- 50E	- S50H	D	

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Symmetric motor spools (Eg. jib)



Note:

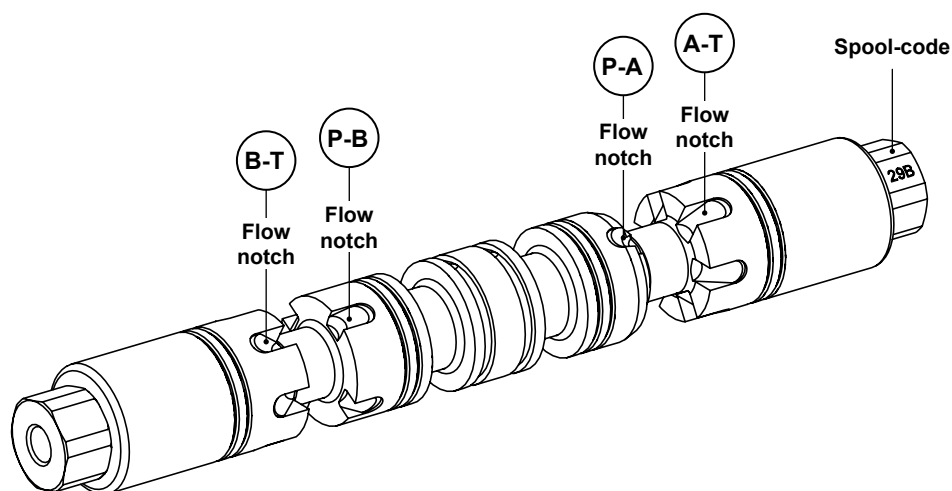
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V0681A	81A	M	- 12	- 12	- M		
V0682A	82A	M	- 25	- 25	- M		
V0683A	83A	M	- 35	- 35	- M		
V0684A	84A	M	- 50	- 50	- M		

		Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T		
V0685A	85A	M	- 75	- 75	- M		
V0686A	86A	M	- 100	- 100	- M		
V0687A	87A	M	- 150	- 150	- M		

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Matched spools (Eg. extensions)



Note:

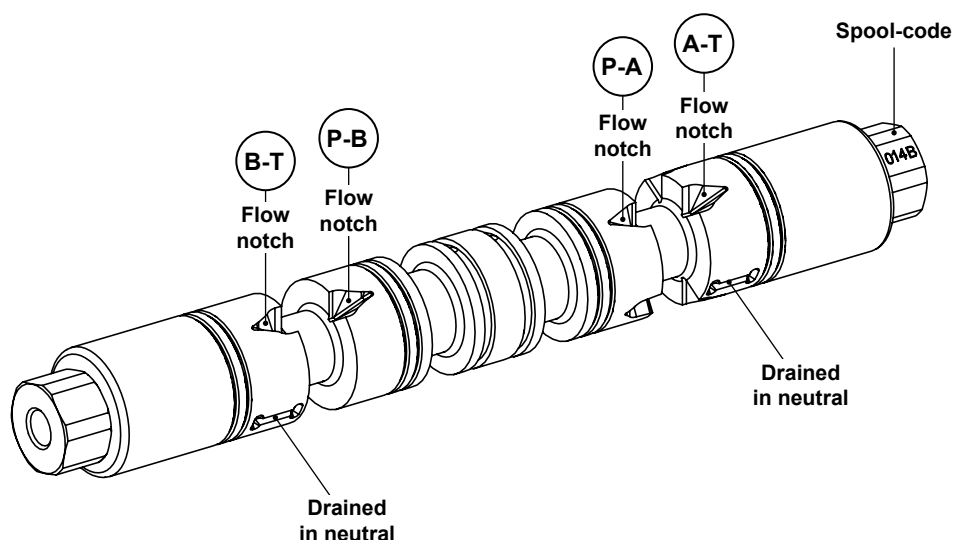
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

Part no.	Code	Flow l/min					
		B-T	P-B	P-A	A-T		
V0618A	18A	50	-	25	-	12	- 50
V0618B	18B	50	-	12	-	25	- 50
V0620A	20A	50	-	35	-	25	- 50
V0620B	20B	50	-	25	-	35	- 50
V0622A	22A	75	-	50	-	12	- 50
V0622B	22B	50	-	12	-	50	- 75
V0624A	24A	75	-	50	-	35	- 75
V0624B	24B	75	-	35	-	50	- 75
V0626A	26A	100	-	75	-	50	- 100
V0626B	26B	100	-	50	-	75	- 100
V0628A	28A	150	-	100	-	75	- 150
V0628B	28B	150	-	75	-	100	- 150
V0629A	29A	150	-	150	-	55	- 150
V0629B	29B	150	-	55	-	150	- 150
V0630A	30A	150	-	150	-	100	- 150
V0630B	30B	150	-	100	-	150	- 150
V0652A	52A	25	-	50	-	35	- 35
V0652B	52B	35	-	35	-	50	- 25
V0654A	54A	35	-	75	-	50	- 50
V0654B	54B	50	-	50	-	75	- 35
V0656A	56A	50	-	100	-	75	- 75
V0656B	56B	75	-	75	-	100	- 50
V0658A	58A	75	-	150	-	100	- 100

Part no.	Code	Flow l/min					
		B-T	P-B	P-A	A-T		
V0658B	58B	100	-	100	-	150	- 75
V0662A	62A	35	-	35	-	25	- 12
V0662B	62B	12	-	25	-	35	- 35
V0664A	64A	50	-	50	-	35	- 12
V0664B	64B	12	-	35	-	50	- 50
V0666A	66A	75	-	75	-	50	- 25
V0666B	66B	25	-	50	-	75	- 75
V0668A	68A	100	-	100	-	75	- 35
V0668B	68B	35	-	75	-	100	- 100
V0670A	70A	150	-	150	-	100	- 50
V0670B	70B	50	-	100	-	150	- 150
V06127A	127A	35	-	100	-	75	- 75
V06127B	127B	75	-	75	-	100	- 35
V06128A	128A	35	-	100	-	75	- 35
V06128B	128B	35	-	75	-	100	- 35
V06138A	138A	25E	-	100	-	63	- 63
V06138B	138B	63	-	63	-	100	- 25E
V06146A	146A	18	-	35	-	25	- 25
V06146B	146B	25	-	25	-	35	- 18
V06149A	149A	4	-	5,5	-	4	- 2,5
V06149B	149B	2,5	-	4	-	5,5	- 4
V06155A	155A	30	-	100	-	42	- 25
V06155B	155B	25	-	42	-	100	- 30

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Matched spools with drain in neutral position (Eg. inner boom with load holding valve)



Note:

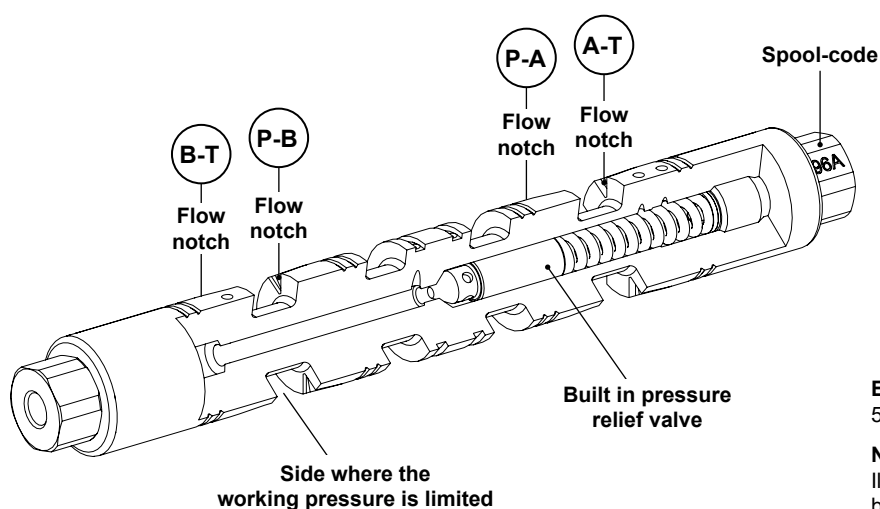
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

Part no.	Code	Flow l/min					
		B-T	P-B	P-A	A-T		
V06010A	010A	D L22	- 22	- 12	- 12	D	
V06010B	010B	D 12	- 12	- 22	- L22	D	
V06011A	011A	D L35	- 35	- 18	- 18	D	
V06011B	011B	D 18	- 18	- 35	- L35	D	
V06012A	012A	D L50	- 50	- 22	- 22	D	
V06012B	012B	D 22	- 22	- 50	- L50	D	
V06013A	013A	D L50	- 50	- 27	- 27	D	
V06013B	013B	D 27	- 27	- 50	- L50	D	
V06014A	014A	D L63	- 63	- 35	- 35	D	
V06014B	014B	D 35	- 35	- 63	- L63	D	
V06015A	015A	D L63	- 63	- 30	- 30	D	
V06015B	015B	D 30	- 30	- 63	- L63	D	
V06016A	016A	D L75	- 75	- 35	- 35	D	
V06016B	016B	D 35	- 35	- 75	- L75	D	
V06017A	017A	D L75	- 75	- 50	- 50	D	
V06017B	017B	D 50	- 50	- 75	- L75	D	
V06336A	336A	D L150	- 150	- 100	- 100	D	

Part no.	Code	Flow l/min					
		B-T	P-B	P-A	A-T		
V06336B	336B	D 100	- 100	- 150	- L150	D	
V06019A	019A	D L100	- 100	- 63	- 63	D	
V06019B	019B	D 63	- 63	- 100	- L100	D	
V06113A	113A	D 50	- 50	- 35	- L35	D	
V06113B	113B	D L35	- 35	- 50	- 50	D	
V06114A	114A	D 100	- 100	- 75	- L75	D	
V06114B	114B	D L75	- 75	- 100	- 100	D	
V06115A	115A	D 75	- 75	- 50	- L50	D	
V06115B	115B	D L50	- 50	- 75	- 75	D	
V06327A	327A	D L18	- 18	- 12	- 12	D	
V06327B	327B	D 12	- 12	- 18	- L18	D	
V06333A	333A	D L75	- 75	- 42	- 42	D	
V06333B	333B	D 42	- 42	- 75	- L75	D	
V06335A	335A	D L100	- 100	- 42	- 25	D	
V06335B	335B	D 25	- 42	- 100	- L100	D	
V06339A	339A	D L100	- 100	- 42	- 75	D	
V06339B	339B	D 75	- 42	- 100	- L100	D	

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Matched spools with pressure relief valve (Eg. extension)



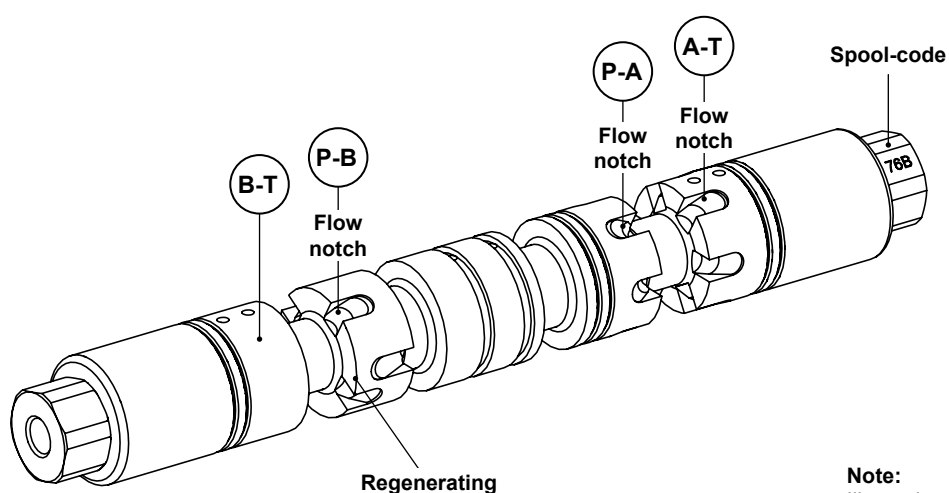
Example: 50S22 =
50l/min flow, 22 Mpa working pressure.

Note:
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

Flow l/min						Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T	Part no.	Code	B-T	P-B	P-A	A-T
V0696A	96A	75	- 50S14	- 35	- 75	V06104A	104A	75	- 50S16	- 35	- 75
V0696B	96B	75	- 35	- 50S14	- 75	V06104B	104B	75	- 35	- 50S16	- 75
V0698A	98A	100	- 75S14	- 50	- 100	V06104A	104A	75	- 50S16	- 35	- 75
V0698B	98B	100	- 50	- 75S14	- 100	V06104B	104B	75	- 35	- 50S16	- 75
V06101A	101A	75	- 50S12	- 35	- 75	V06136A	136A	50	- RF35S2	- 100	- 35
V06101B	101B	75	- 35	- 50S12	- 75	V06136B	136B	35	- 100	- RF35S2	- 50
V06102A	102A	75	- 50S10	- 35	- 75	V06150A	150A	7	- 12S7	- 7	- 7
V06102B	102B	75	- 35	- 50S10	- 75	V06150B	150B	7	- 7	- 12S7	- 7

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Regenerating spools (Eg. outer boom with pulling cylinder)

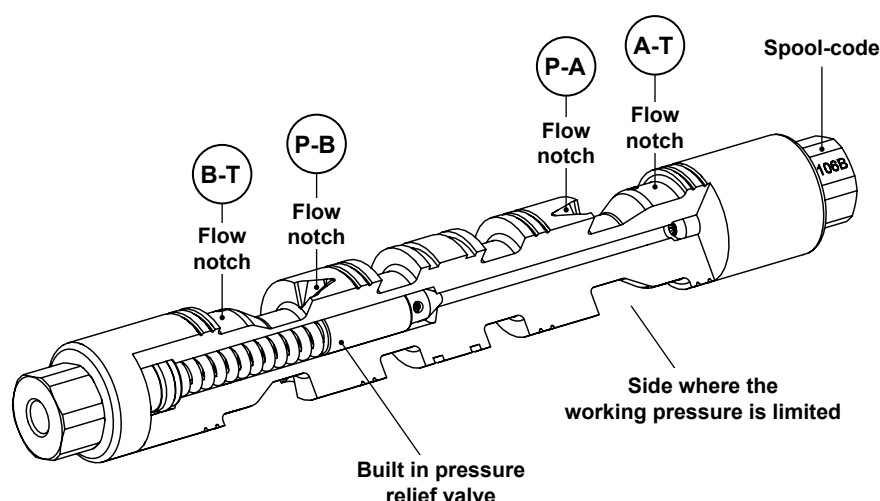


Note:
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

Flow l/min						Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T	Part no.	Code	B-T	P-B	P-A	A-T
V0672A	72A	50	- 50	- 35	- R	V0676A	76A	100	- 100	- 75	- R
V0672B	72B	R	- 35	- 50	- 50	V0676B	76B	R	- 75	- 100	- 100
V0674A	74A	75	- 75	- 50	- R	V0678A	78A	150	- 150	- 100	- R
V0674B	74B	R	- 50	- 75	- 75	V0678B	78B	R	- 100	- 150	- 150

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Matched motor spools with pressure relief valve (Eg. extension)



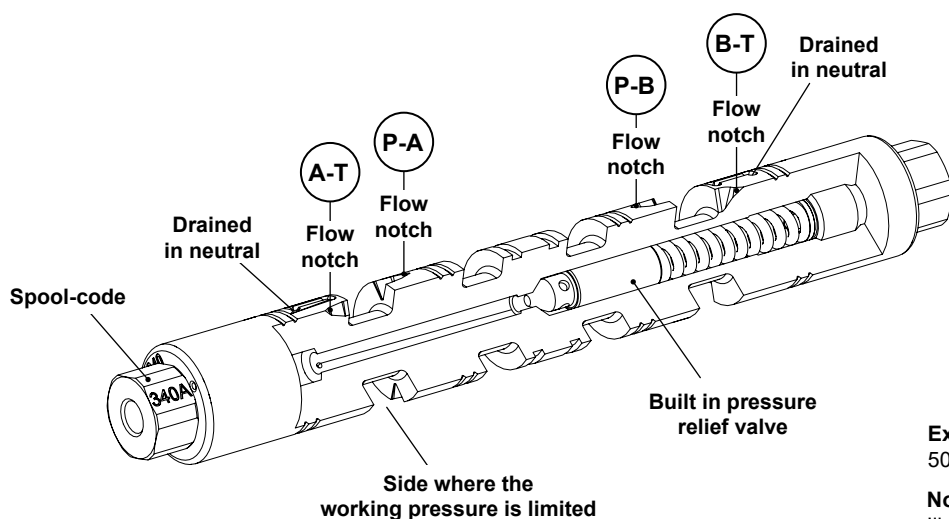
Example: 50S22 =
50l/min flow, 22 Mpa working pressure.

Note:
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

Flow l/min						Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T	Part no.	Code	B-T	P-B	P-A	A-T
V06123A	123A	M	-	75S30	-	50	-	M			
V06123B	123B	M	-	50	-	75S30	-	M			

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Matched spools with pressure relief valve and drain in neutral position (Eg. extension)



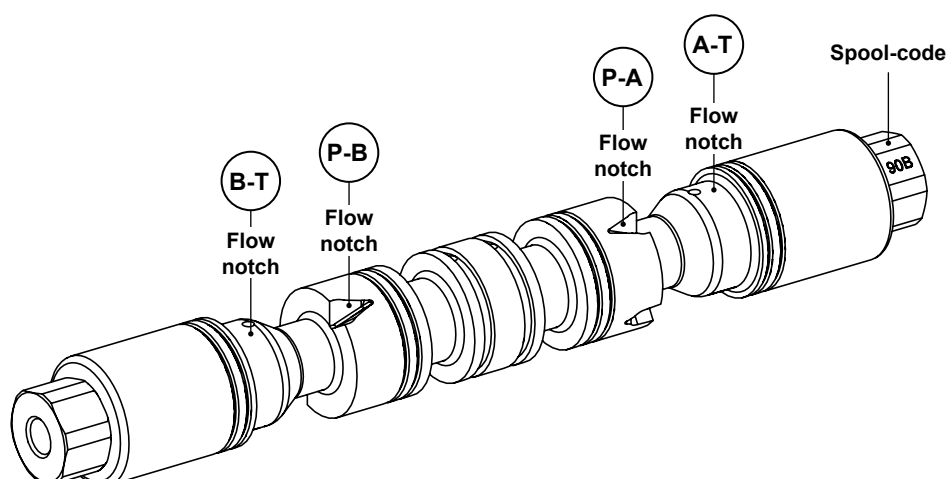
Example: 50S22 =
50l/min flow, 22 Mpa working pressure.

Note:
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

Flow l/min						Flow l/min					
Part no.	Code	B-T	P-B	P-A	A-T	Part no.	Code	B-T	P-B	P-A	A-T
V06342A	342A	D L63	-	63	-	35S28	-	35	D		
V06342B	342B	D 35	-	35S28	-	63	-	L63	D		
V06343A	343A	D L75	-	75	-	35S28	-	35	D		
V06343B	343B	D 35	-	35S28	-	75	-	L75	D		
V06344A	344A	D L75	-	75	-	50S28	-	50	D		
V06344B	344B	D 50	-	50S28	-	75	-	L75	D		
V06345A	345A	D 100	-	100S20	-	75	-	L75	D		
V06345B	345B	D L75	-	75	-	100S20	-	100	D		
V06346A	346A	D 75	-	75S20	-	50	-	L50	D		
V06346B	346B	D L50	-	50	-	75S20	-	75	D		
V06347A	347A	D L75	-	75	-	42S24	-	42	D		
V06347B	347B	D 42	-	42S24	-	75	-	L75	D		
V06348A	348A	D L150	-	150	-	100S16	-	100	D		
V06348B	348B	D 100	-	100S16	-	150	-	L150	D		
V06349A	349A	D L100	-	100	-	63S10	-	63	D		
V06349B	349B	D 63	-	63S10	-	100	-	L100	D		
V06350A	350A	D 100	-	100S16	-	63	-	L63	D		
V06350B	350B	D L63	-	63	-	100S16	-	100	D		
V06352A	352A	D L75	-	75	-	50S10	-	50	D		
V06352B	352B	D 50	-	50S10	-	75	-	L75	D		

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Matched motor spools (Eg. winch)



Note:

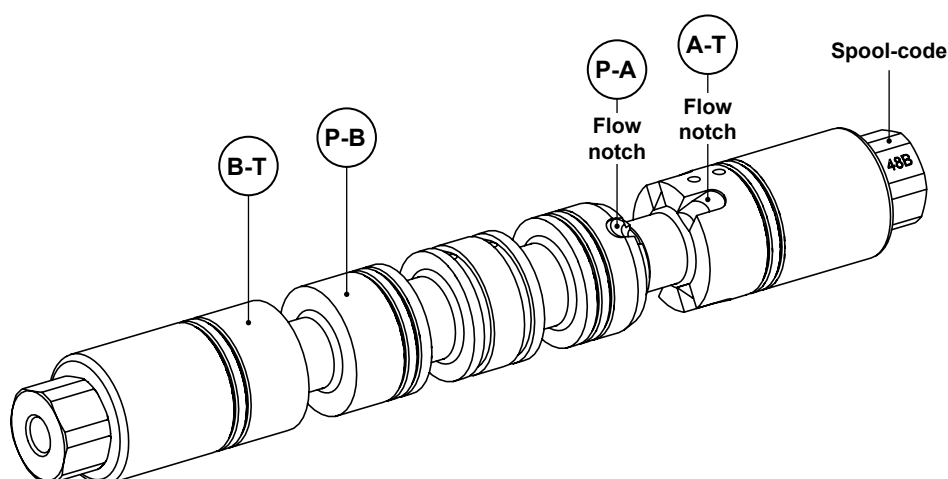
Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V0690A	90A	M	-	50	-	30	- M
V0690B	90B	M	-	30	-	50	- M
V0692A	92A	M	-	75	-	50	- M
V0692B	92B	M	-	50	-	75	- M

		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V0693A	93A	M	-	75	-	35	- M
V0693B	93B	M	-	35	-	75	- M
V0694B	94B	M	-	75	-	100	- M

Spools for valve Pv90 and Pv91M, electrically operated with positioner P9

Single acting spools (Eg. single acting cylinder, inner boom)



Note:

Illustration and flow values in this table are based on that the end with the spool-code is mounted on the A-side of the valve.

		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V0642A	42A	25	-	50	-	0	- 0
V0642B	42B	0	-	0	-	50	- 25
V0644A	44A	35	-	75	-	0	- 0
V0644B	44B	0	-	0	-	75	- 35
V0646A	46A	50	-	100	-	0	- 0

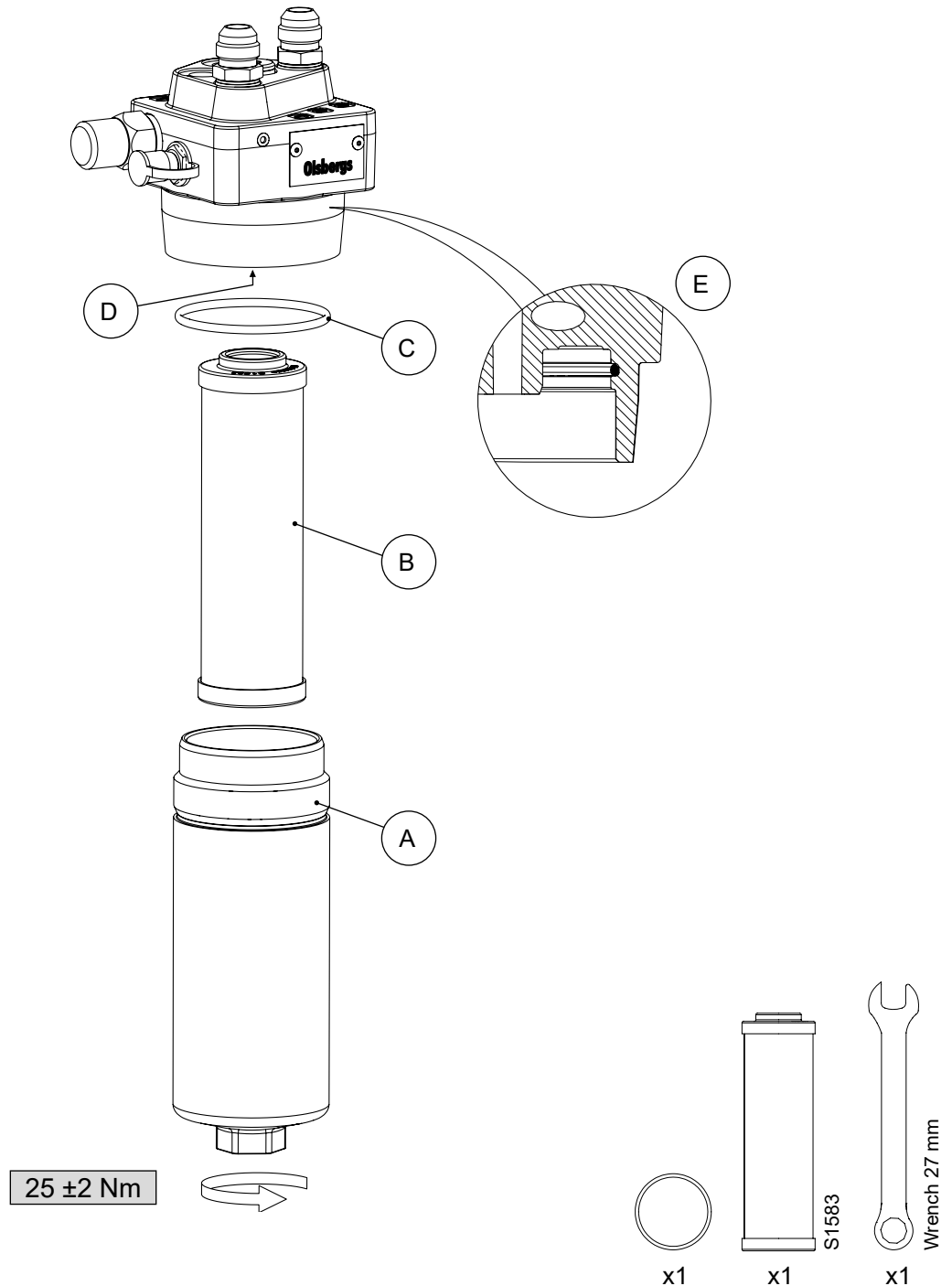
		Flow l/min					
Part no.	Code	B-T		P-B		P-A	A-T
V0646B	46B	0	-	0	-	100	- 50
V0648A	48A	75	-	150	-	0	- 0
V0648B	48B	0	-	0	-	150	- 75
V0649B	49A	75	-	180	-	0	- 0
V0649B	49B	0	-	0	-	180	- 75

Instructions - Pressure reducer / filter PRF

Replacement of filter cartridge, article no. S1583

To prevent dirt from entering the unit.

Do not unpack the filter cartridge until you are ready to mount it.

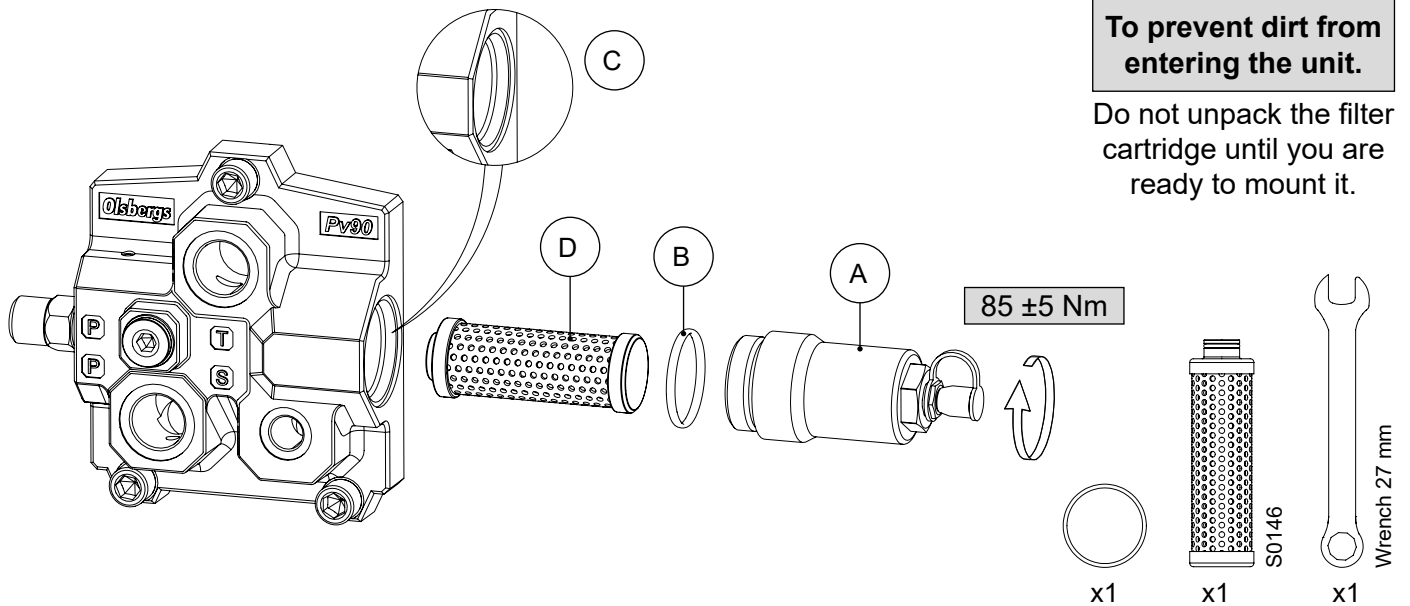


Instructions

1. Carefully clean the filter cover (A) and the area (D) on the housing.
2. Remove the filter cover (A) using a 27 mm wrench.
3. Remove the old filter cartridge.
4. Remove the old O-ring (C) (E) and replace it with the supplied one (oil it before assembly).
5. Add new grease to the threads of the filter cover. (A)
6. Unpack the new filter cartridge (art.S1583), make sure it's clean and mount it.
7. Remount the filter cover and tighten it, torque $25 \pm 2 \text{ Nm}$.

Instructions - Inlet section Pv90

Replacement of filter cartridge, article no. **S0146**

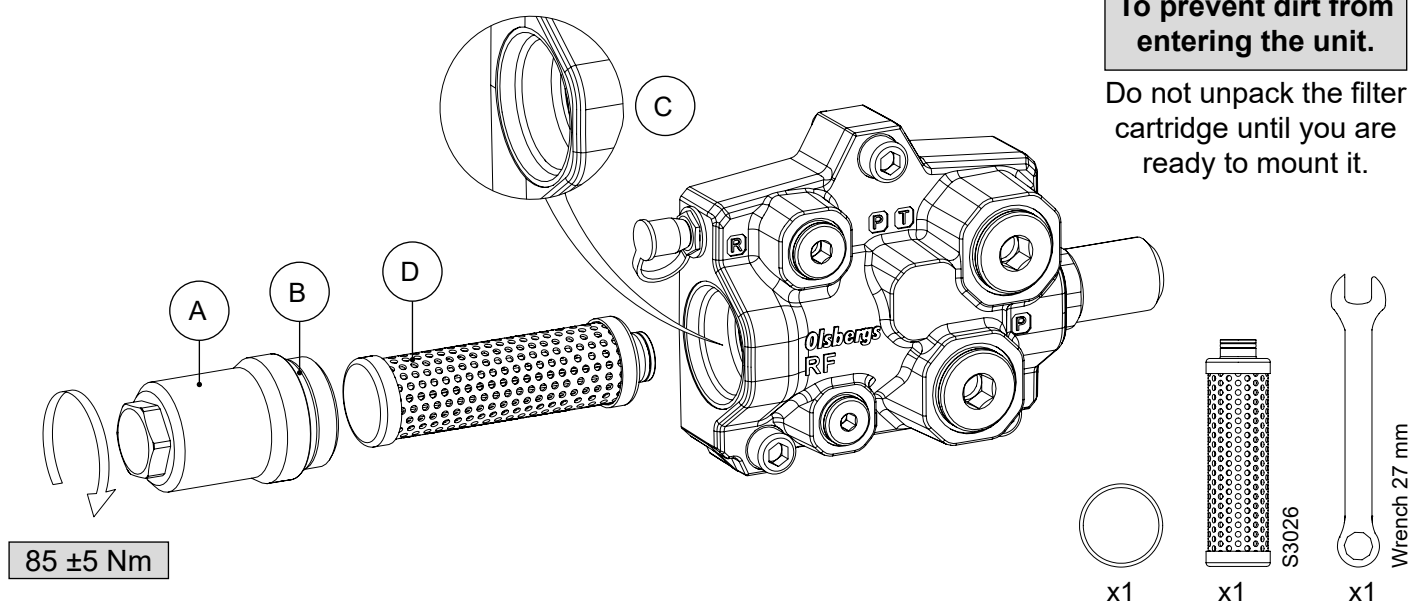


Instructions

1. Carefully clean the filter cover (A) and the area (C) on the housing.
2. Remove the filter cover (A) using a 27 mm wrench.
3. Remove the old O-ring (B) and replace it with the supplied one (oil it before assembly).
3. Remove the old filter cartridge. (C)
4. Unpack the new filter cartridge (art.S0146), make sure it's clean and mount it.
5. Remount the filter cover and tighten it, torque $85 \pm 5 \text{ Nm}$.

Instructions - Outlet section RF

Replacement of filter cartridge, article no. **S3026**

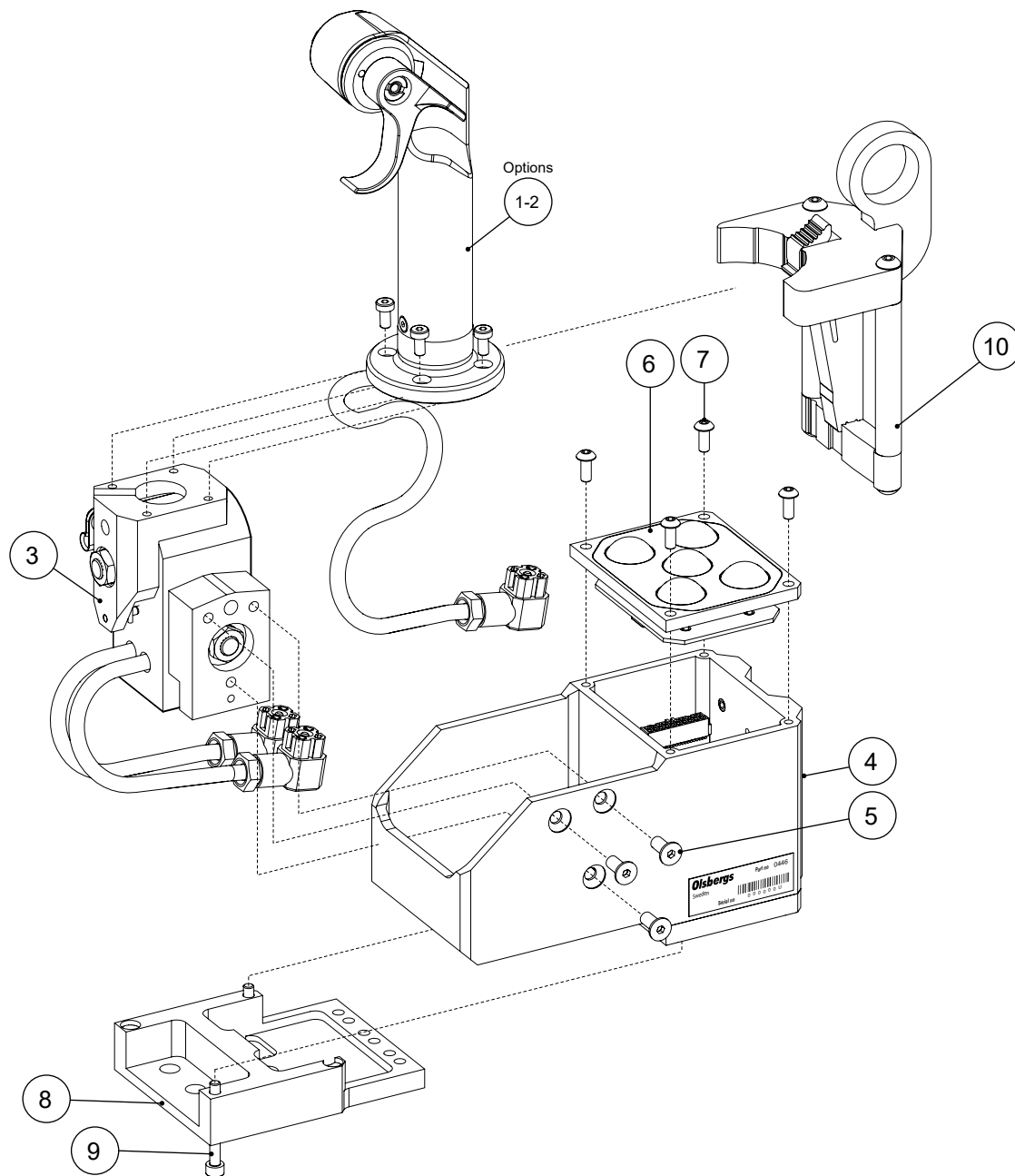


Instructions

1. Carefully clean the filter cover (A) and the area (C) on the housing.
2. Remove the filter cover (A) using a 27 mm wrench.
3. Remove the old O-ring (B) and replace it with the supplied one (oil it before assembly).
3. Remove the old filter cartridge. (C)
4. Unpack the new filter cartridge (art.S3026), make sure it's clean and mount it.
5. Remount the filter cover and tighten it, torque $85 \pm 5 \text{ Nm}$.

D3 Joysticks

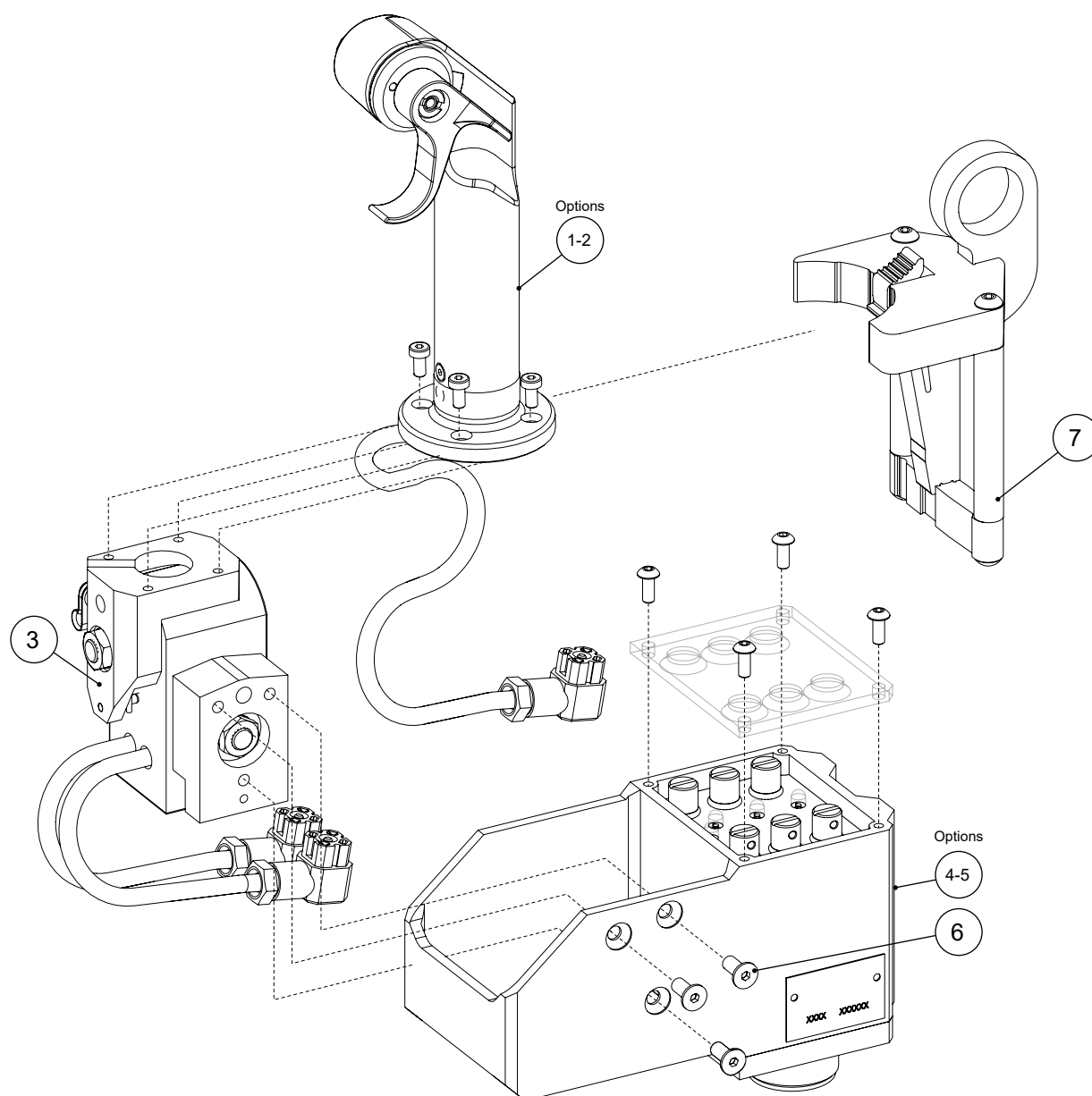
Spare parts



Pos	Part no.	Description	Note
-	1280	Joystick D3, right	Complete with all listed parts
-	1281	Joystick D3, left	Complete with all listed parts
-	0444	Joint and stick A3/D3, right	Incl. part no. 0441 and 0440
-	0445	Joint and stick A3/D3, left	Incl. part no. 0442 and 0440
1	0441	Stick A3/D3, right	Incl. screws
2	0442	Stick A3/D3, left	Incl. screws
3	0440	Joint A3/D3	Fits both right and left stick.
4	0446	Chassis D3, complete with button covers	Fits both right and left stick.
5	S1222	Screw MF6S FT M5x12 10.9 Black chrome	
6	E1327	Button Cover D3, complete	Fits both right and left stick.
7	S0191	Screw MK6S FT M4x10 10.9 Black chrome	
8	1499	Cover cables joystick D3, kit	Incl. screws
9	S3372	Screw MC6S FT M4x35 10.9 Black chrome	
10	E1966	Transport fixture 3G, joystick	Fits joints with serial number 5000 and higher.

A3 Joysticks

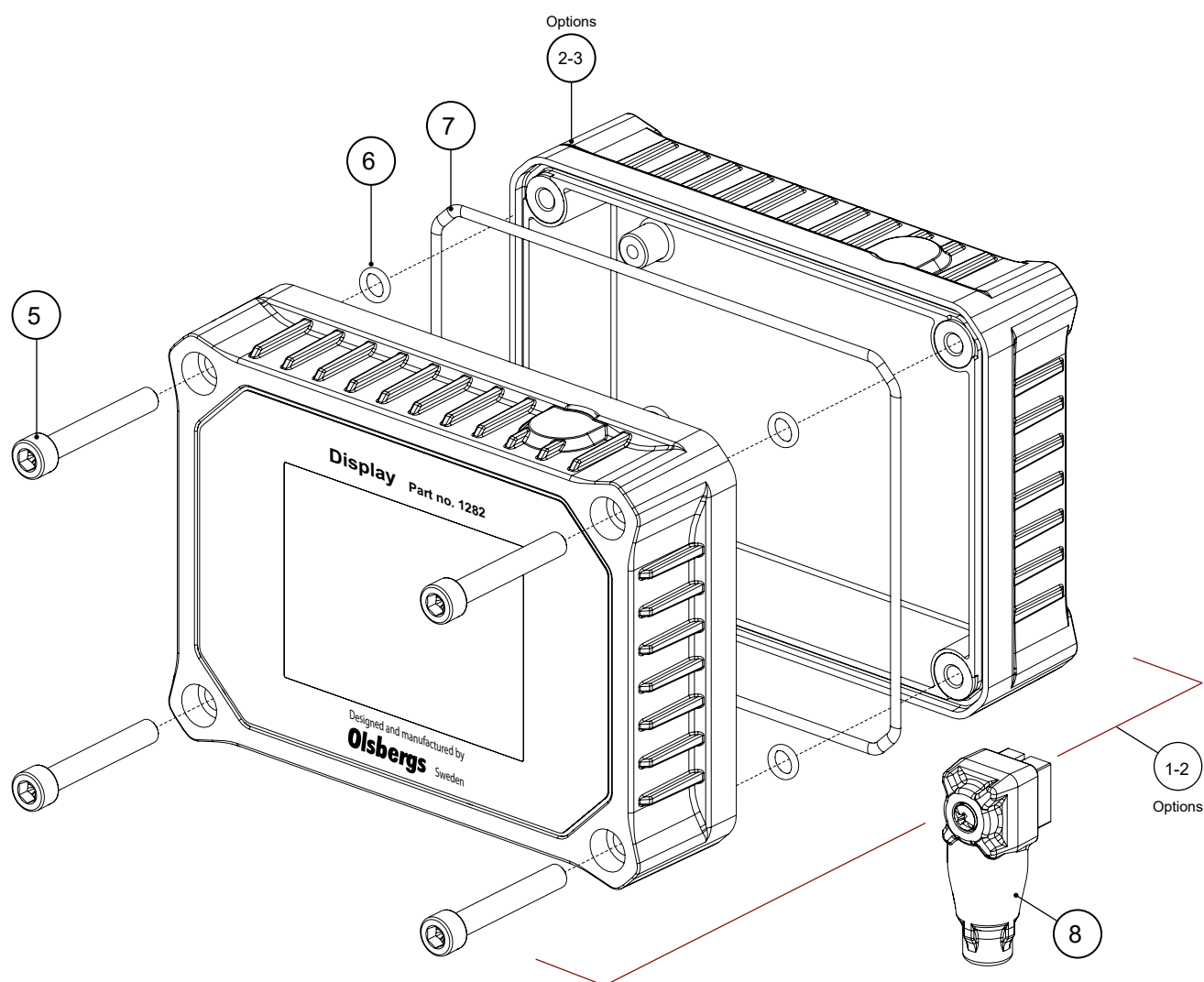
Spare parts (only available as spare part)



Pos	Part no.	Description	Note
-	0444	Joint and stick A3/D3, right	Incl. part no. 0441 and 0440
-	0445	Joint and stick A3/D3, left	Incl. part no. 0442 and 0440
1	0441	Stick A3/D3, right	Incl. screws
2	0442	Stick A3/D3, left	Incl. screws
3	0440	Joint A3/D3	Fits both right and left stick.
4	0443	Chassis A3 complete	Fits both right and left stick.
5	0443S	Chassis A3 with delay, complete	Fits both right and left stick.
6	S1222	Screw MF6S FT M5x12 10.9 Black chrome	
7	E1966	Transport fixture 3G, joystick	Fits joints with serial number 5000 and higher.

Display Box D3

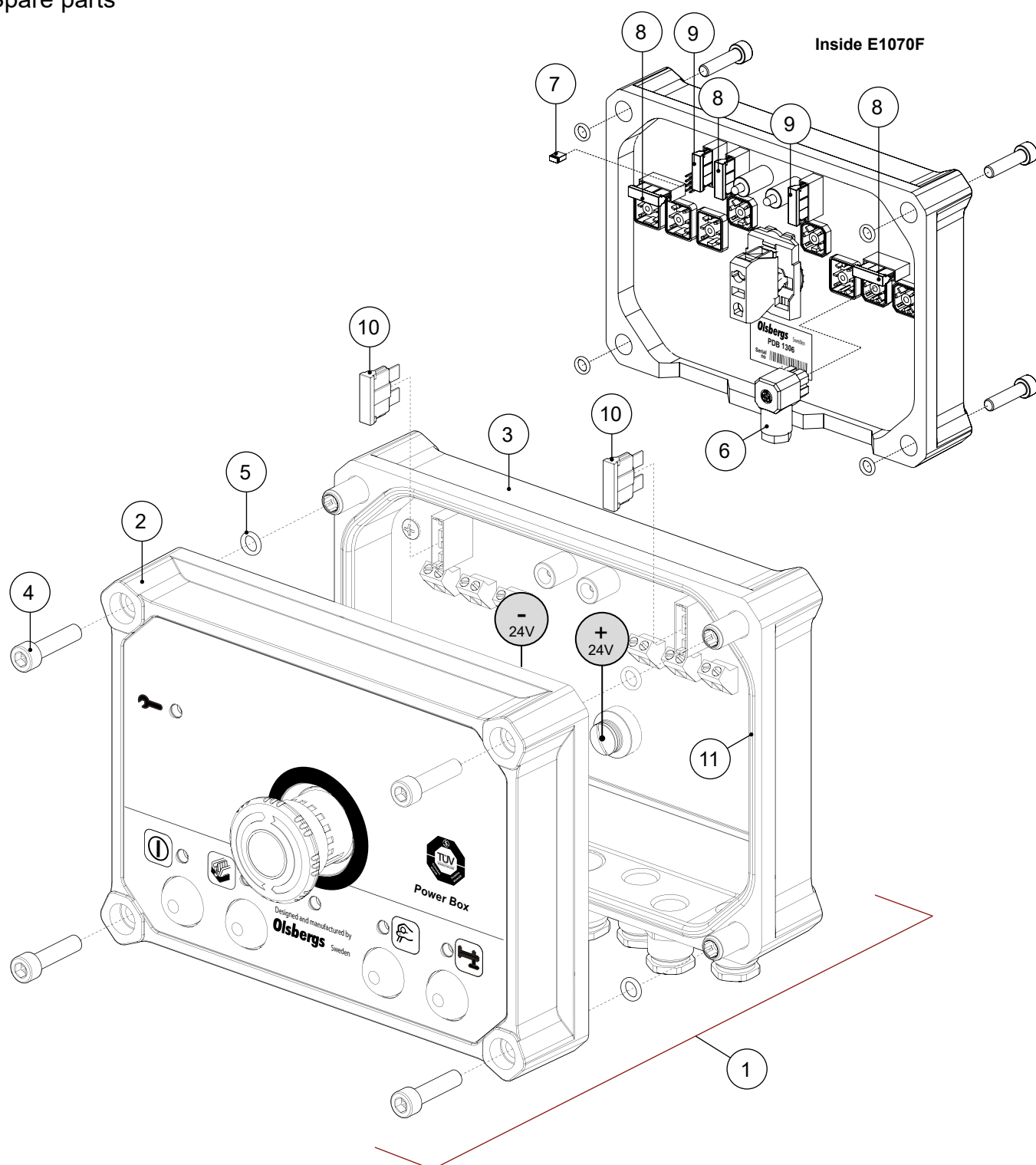
Spare parts



Pos	Part no.	Description	Note
1	1282H	Display Box D3, high	Incl. E1431
2	1282L	Display Box D3, low	Incl. E1432
3	E1431	Bottom box high, complete	Incl. o-rings
4	E1432	Bottom box low, complete	Incl. o-rings
5	S3152	Screw MC6S M6x40	
6	S2556	O-ring 5,28x1,78	
7	S3151	O-ring 150x2	
8	E0792	Termination 120 ohm	

Power Box PBF

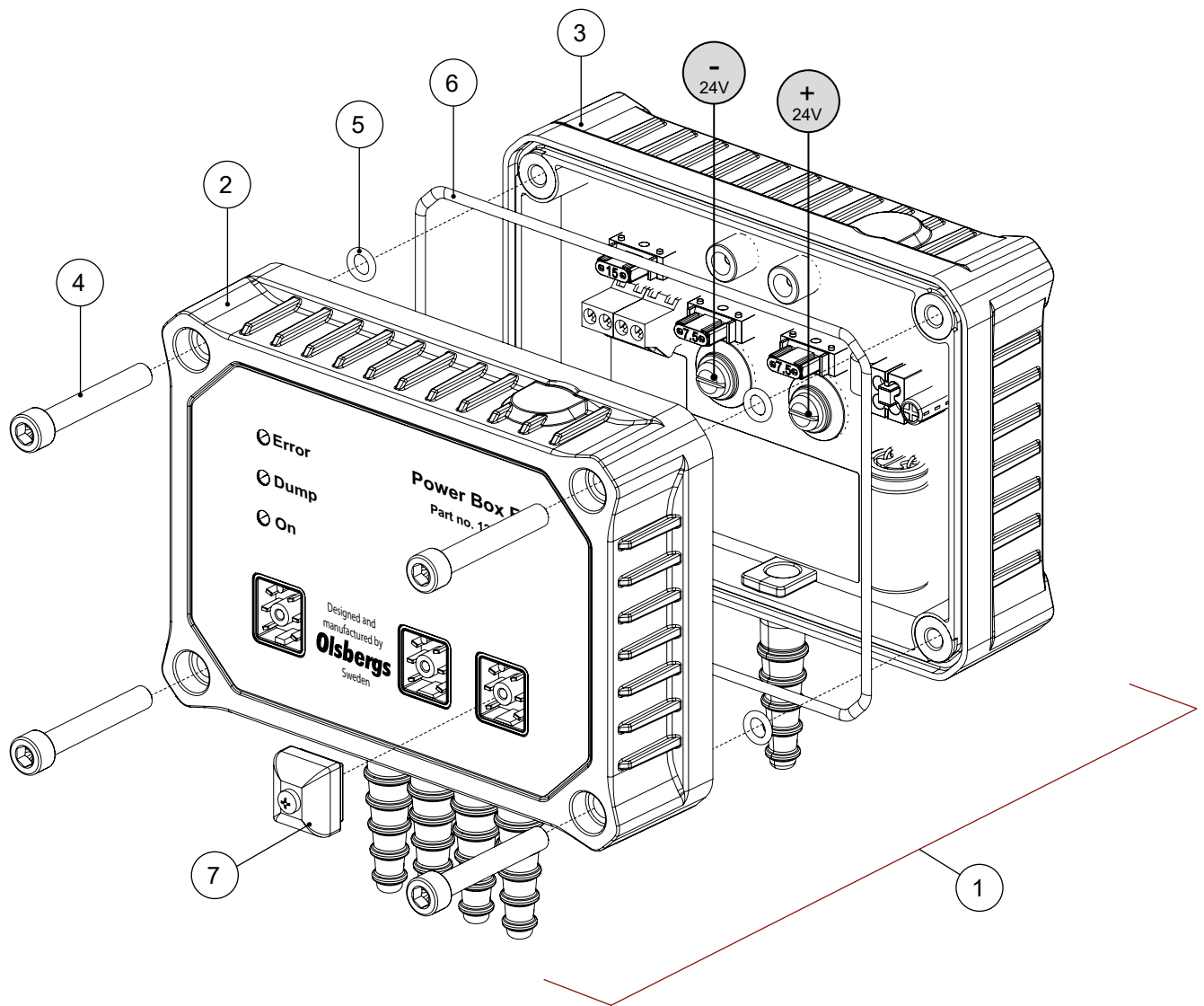
Spare parts



Pos.	Part no.	Description	Note
1	1208F	Power Box PBF MD+MD2	Incl. extra fuses and jumpers
2	E1070F	Power Box PBF, top unit MD+MD2	
3	E1081	Power Display Box, bottom module MD+MD2+MD2 M	Fits all PDB types
4	S2490	Screw MC6S FT M6x25	
5	S2556	O-ring 5,28x1,78	
6	E0793	Strapped plug, ext. stop	
7	S2605	Jumper, blue	
8	S2453	Fuse 3A	
9	F0593	Fuse 7,5A	
10	S2454	Fuse 15A	
11	S2489	O-ring 184,5x3	

Power Box PB.F2

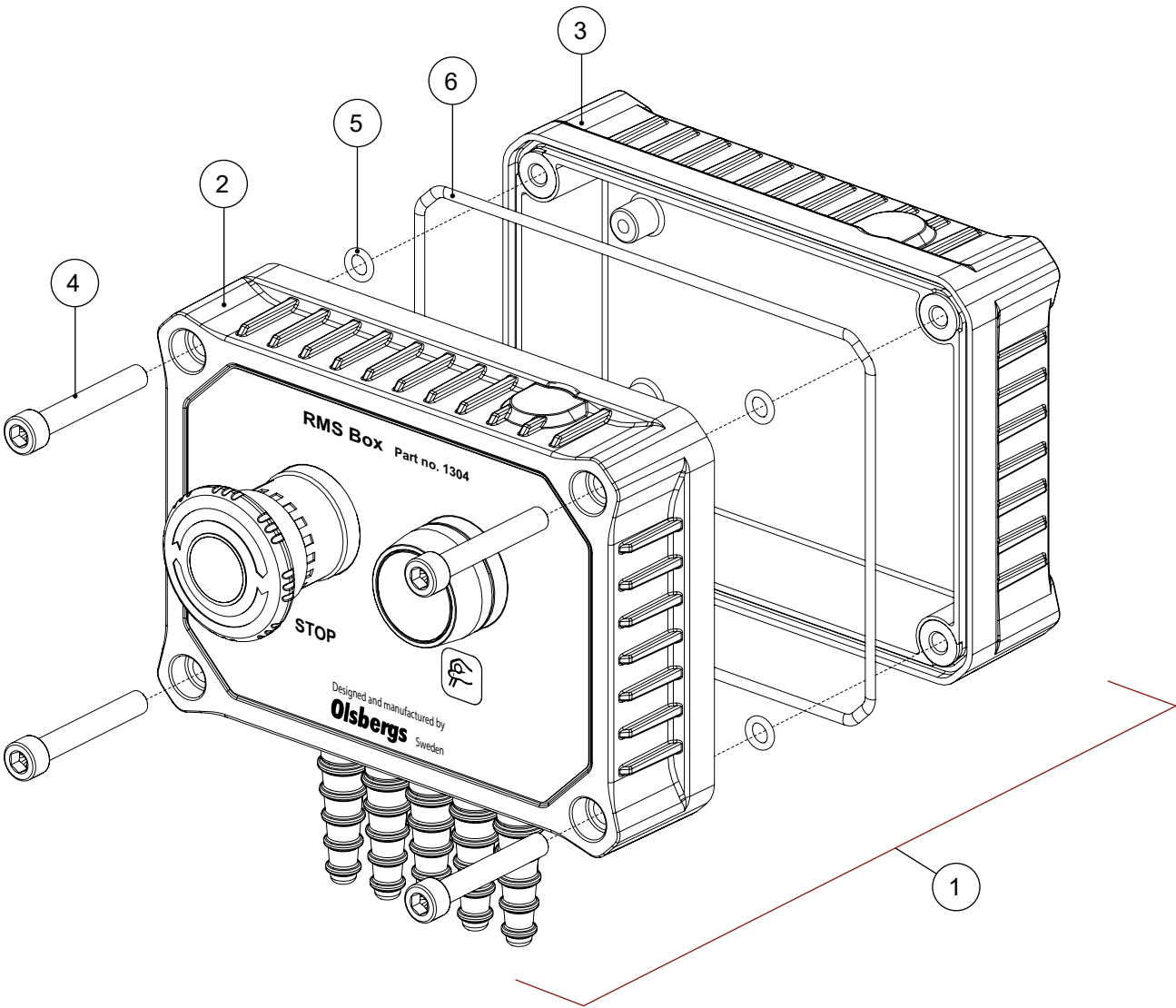
Spare parts



Pos	Part no.	Description	Note
1	1297	Power Box PB.F2 MD2+MD2 M	
2	E1539	Power Box PB.F2, top unit, MD2+MD2 M	Incl. screws and o-rings
3	E1541	Power Box PB.F2, bottom unit MD2+MD2 M	Incl. o-rings
4	S3152	Screw MC6S M6x40	
5	S2556	O-ring 5,28x1,78	
6	S3151	O-ring 150x2	
7	S2539	Protective Cap	

RMS Box

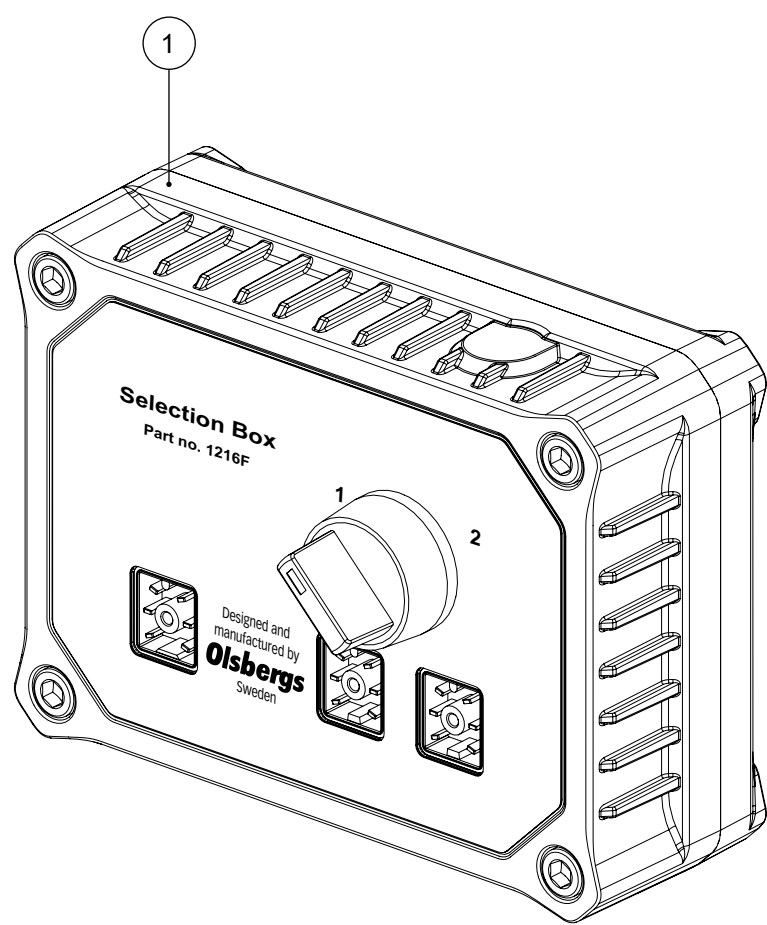
Spare parts



Pos	Part no.	Description	Note
1	1304	RMS Box	
2	E1542	RMS Box, top unit	Incl. screws and o-rings
3	E1431	Bottom box, high	Incl. o-rings
4	S3152	Screw MC6S M6x40	
5	S2556	O-ring 5,28x1,78	
6	S3151	O-ring 150x2	

Selection Box

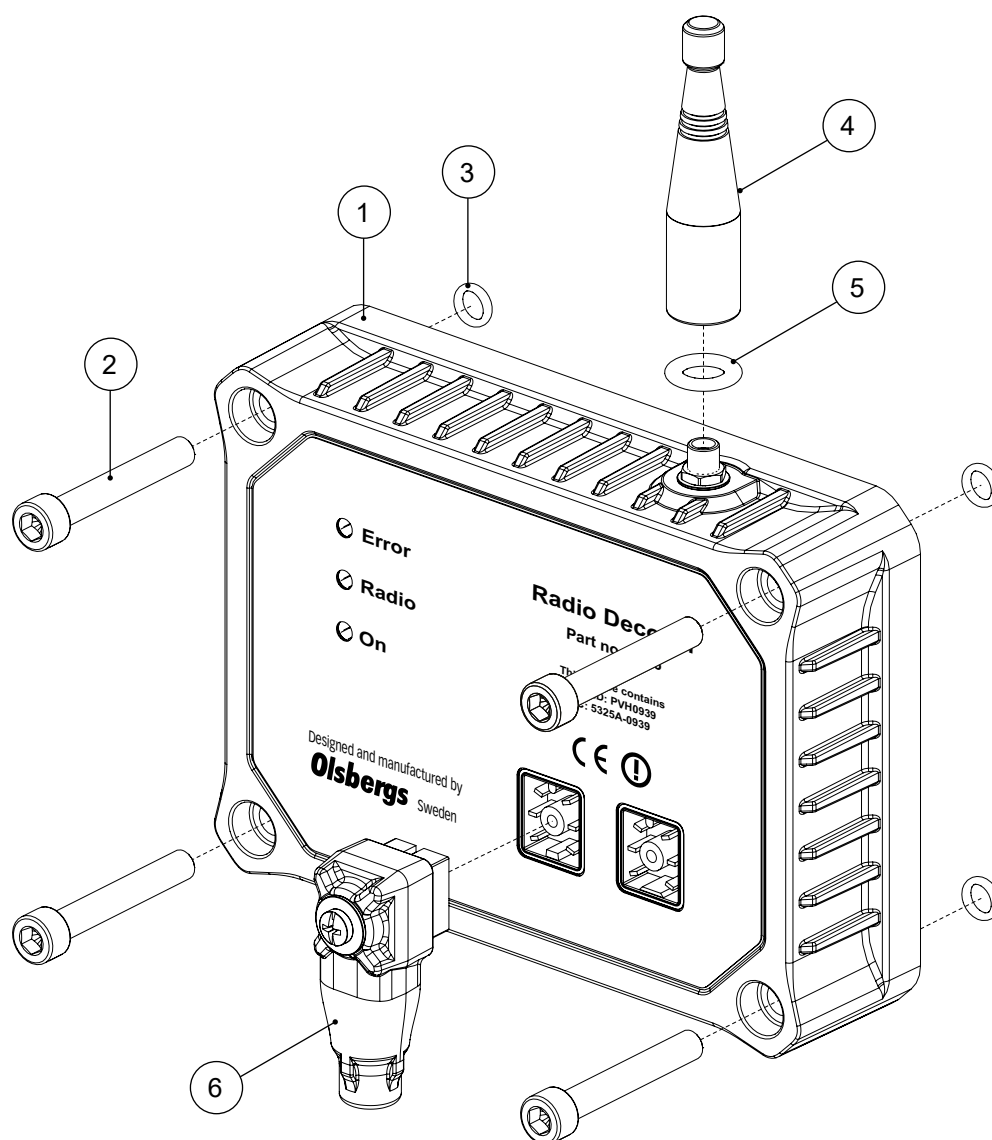
Spare parts



Pos.	Part no.	Description	Note
1	1216F	Selection Box	

Radio Decoder MD2 M

Spare parts



Pos.	Part no.	Description	Note
1	1296	Decoder Radio, top module MD2 M	Yellow label with art. no.
2	S3152	Screw MC6S M6x40	
3	S2556	O-ring 5,28x1,7	
4	S3183	Antenna stub ½ wave length RSMA 2.4GHz	
5	S2948	O-ring 8x3	
6	E0854	Strapped plug, decoder	

Possible bottom modules

Pos.	Part no.	Description	Note
-	1293	Relay Box, bottom module MD2 M	Incl. o-ring
-	E1431	Bottom box, high	Incl. o-ring

Controller Basic 6F MD2

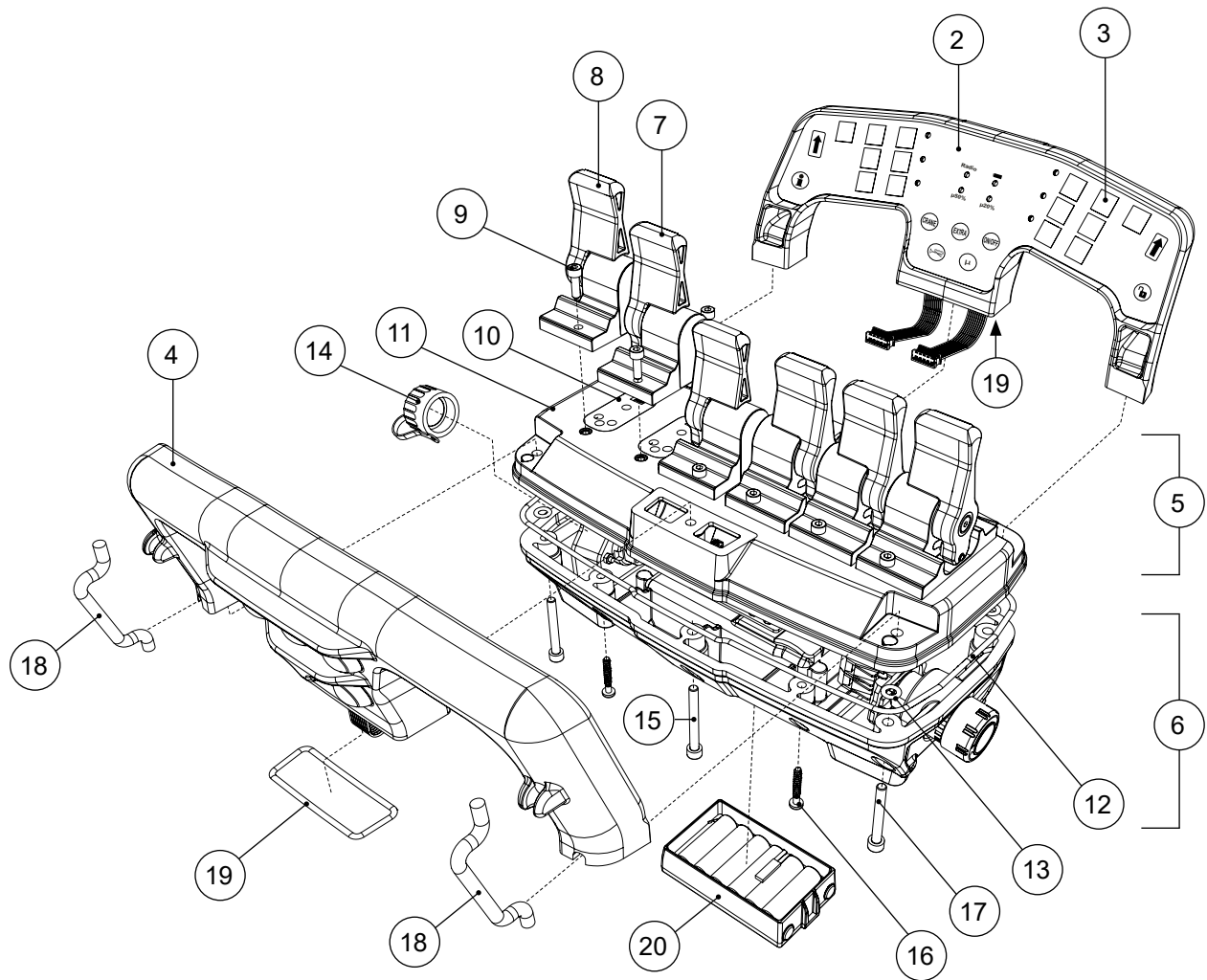
Radio kit



Pos.	Qty	Part no.	Description	Note
1 - 6	1	1550BO	Controller Basic 6F MD2, Radio kit	
1	1	1218B	Controller Basic 6F MD2	
2A	1	1296	Decoder Radio, top module MD2 M	
2B	1	E1431	Bottom box, high	
3	1	1200	Battery charger NiMH 7,2V	
4	2	1201	Battery NiMH 7,2V	
5	1	E1294	Neck belt	
6	1	E0781	Cable CAN GO60-T3105 4,0 m	

Controller Basic 6F MD2

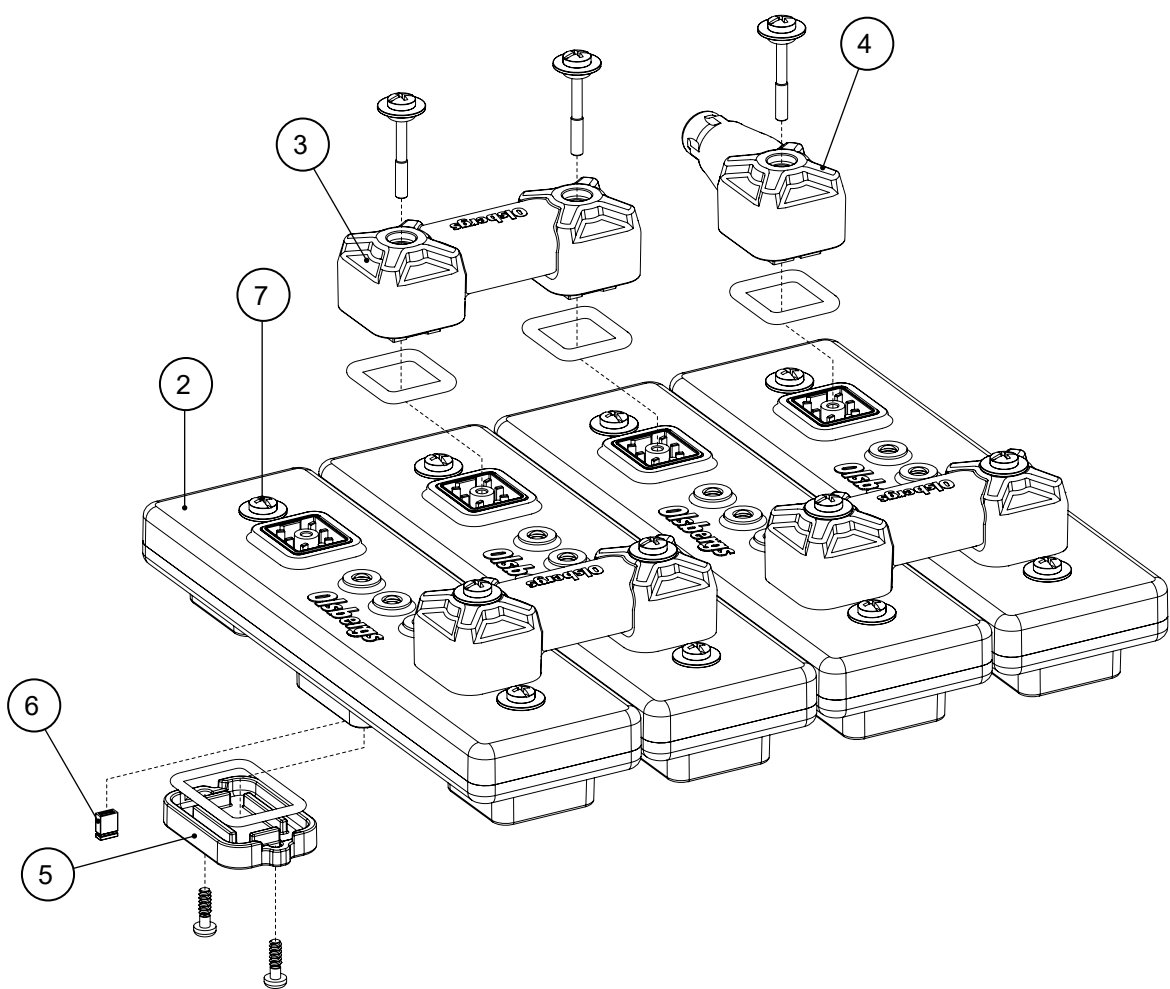
Spare parts



Pos.	Part no.	Description	Note
1	1218B	Controller Basic 6F MD2	
2	E1235	Handle diode, Controller Basic 6F MD2	Incl. symbol sign
3	E1284	Symbol sign, Controller Basic 6F MD2	Symbol label supplied on a separate sheet
4	E1390	Handle push button, controller 6F MD2	
5	E1198	Top module, controller 6F MD2	Incl. levers
6	E1200	Bottom module, controller 6F MD2	Incl. stop button, contact chassis and cap
7	0498	Lever black	Incl. screws and gasket
8	0499	Lever red	Incl. screws and gasket
9	S2831	Screw MC6S FT M4x12	
10	E0447	Gasket 44,6x21,4x2 red	
11	E1197	Top box, controller 6F MD2	Excl. levers
12	S2920	O-ring 224x2,62	
13	S2939	O-ring 6x2	
14	S2532	Cap, controller	
15	S0238	Screw MC6S M5x45	
16	S2938	Screw TPPT T40x25	
17	S2912	Screw MC6S M5x40 A4-70	
18	E1377	Attachment carrier strap MD2	
19	S2940	O-ring 45x2	
20	1201	Battery NiMH 7.2V	

Digital Amplifier DA2 4F MD+MD2, Kit

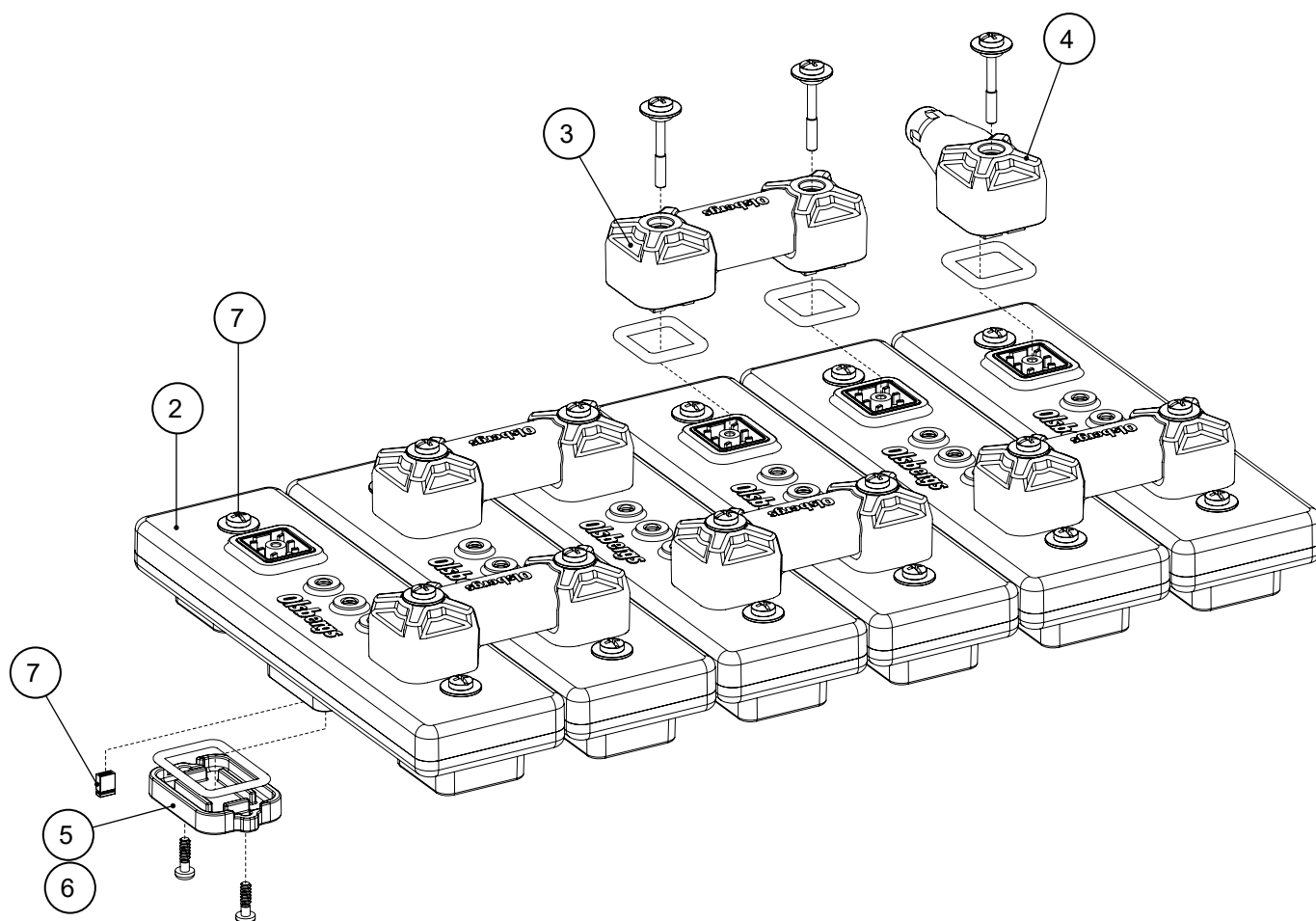
Spare parts



Pos.	Qty.	Part no.	Description	Note
1	1	1411	Digital Amplifier DA2 4F MD+MD2, Kit	
2	4	1205	Digital Amplifier DA2 MD+MD2	Incl. screws, cap and jumpers
3	3	E1163	Connector bridge DA	Incl. screws
4	1	E0792B	Termination CAN 120 ohm	
5	4	E1111	Cover DA2 black	Incl. screws and o-ring
6	16	S2605	Jumper, blue	
7	8	E1378	Screw MRX PH M3x32	Incl. o-ring and washer

Digital Amplifier DA2 6F MD+MD2, Kit

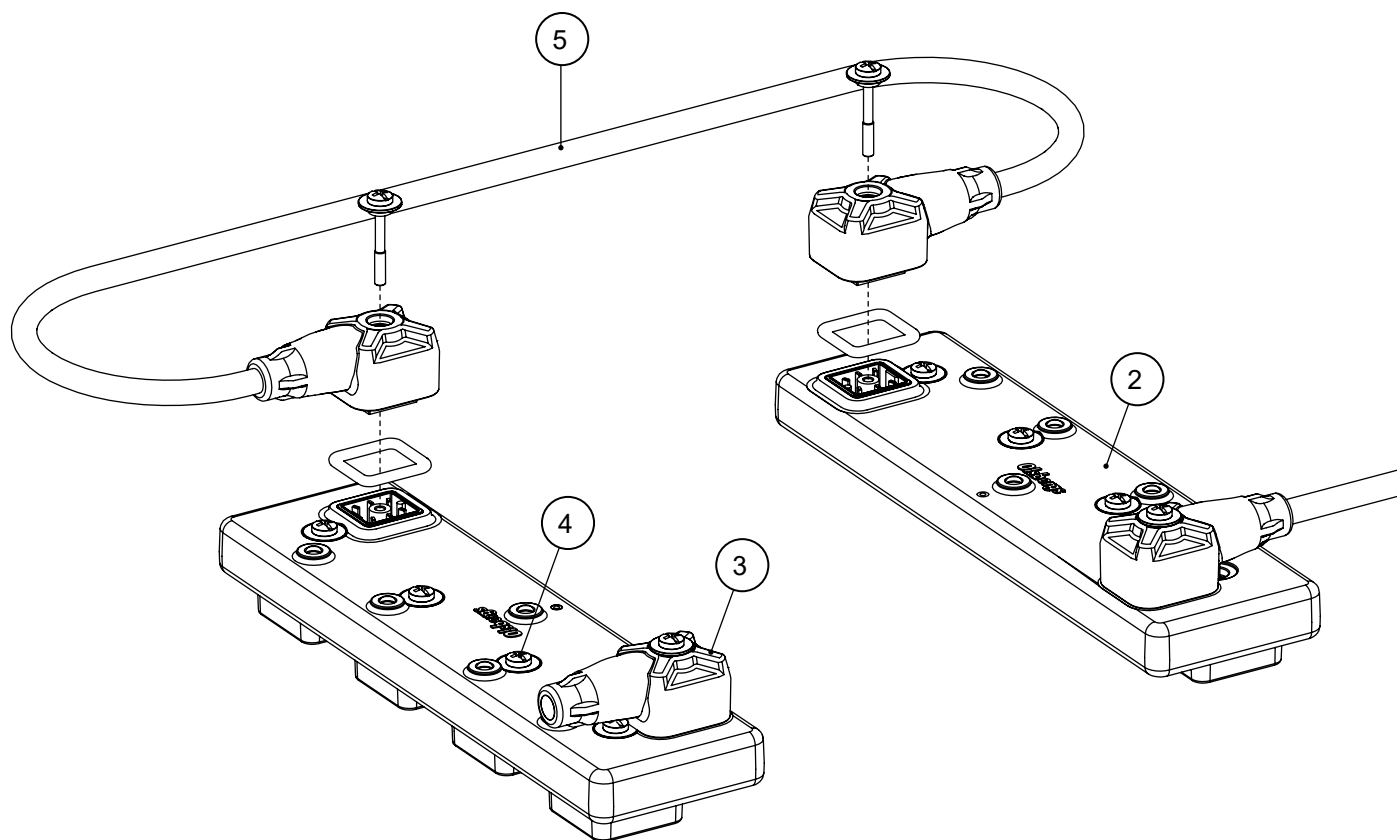
Spare parts



Pos.	Qty.	Part no.	Description	Note
1	1	1410	Digital Amplifier DA2 6F MD+MD2, Kit	
2	6	1205	Digital Amplifier DA2 MD+MD2	Incl. screws, cap and jumpers
3	5	E1163	Connector bridge DA	Incl. screws
4	1	E0792B	Termination CAN 120 ohm	
5	5	E1111	Cover DA2 black	Incl. screws and o-ring
6	1	E1112	Cover DA2 red	Incl. screws and o-ring
7	24	S2605	Jumper, blue	
8	12	E1378	Screw MRX PH M3x32	Incl. o-ring and washer

Digital Amplifier DA14 4F MD2, Kit

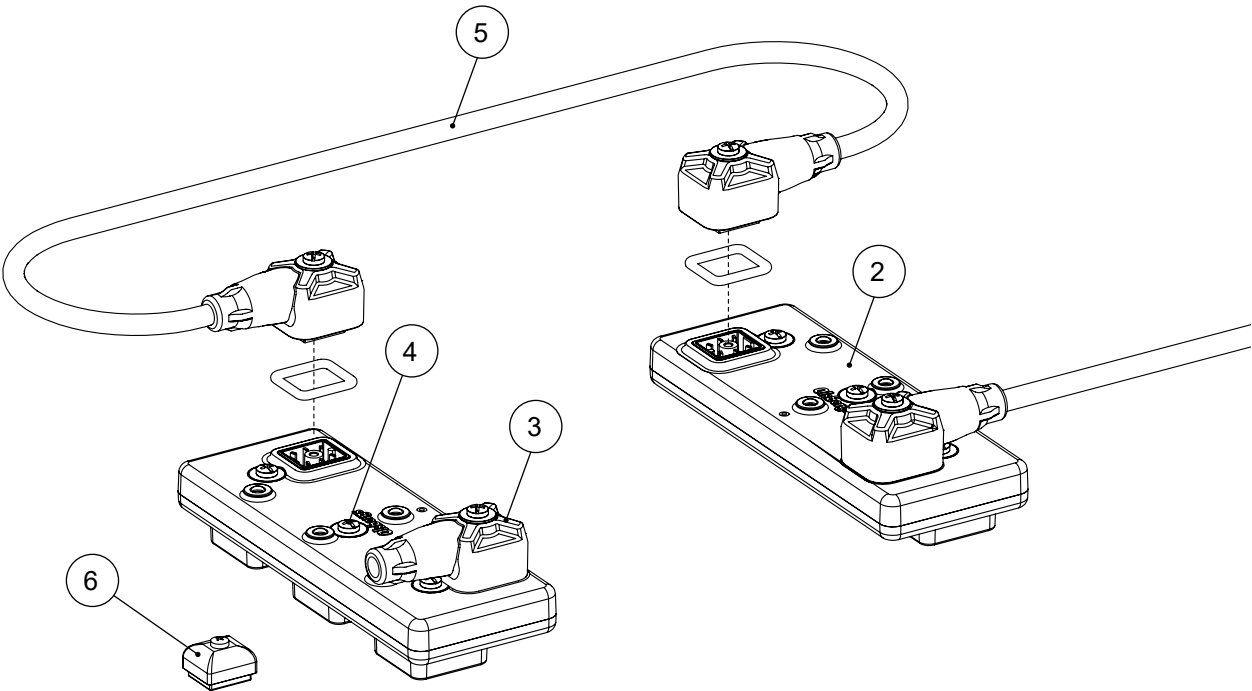
Spare parts



Pos.	Qty.	Part no.	Description	Note
1	1	1480	Digital Amplifier DA14 4F MD2, Kit	
2	2	1207	Digital Amplifier DA14 MD2	Incl. screws
3	1	E0792B	Termination CAN 120 ohm	
4	8	E1378	Screw MRX PH M3x32	Incl. o-ring and washer
5	1	E1278BB	Cable CAN GO6-GO6 0,75 m	

Digital Amplifier DA13 3F MD2, Kit

Spare parts



ATTENTION!

When the system has DA13 sets on both the crane valve and outrigger valve, the 120Ω termination E0792B (Pos.3) on one DA13 set must be replaced with S2539 (Pos.6).

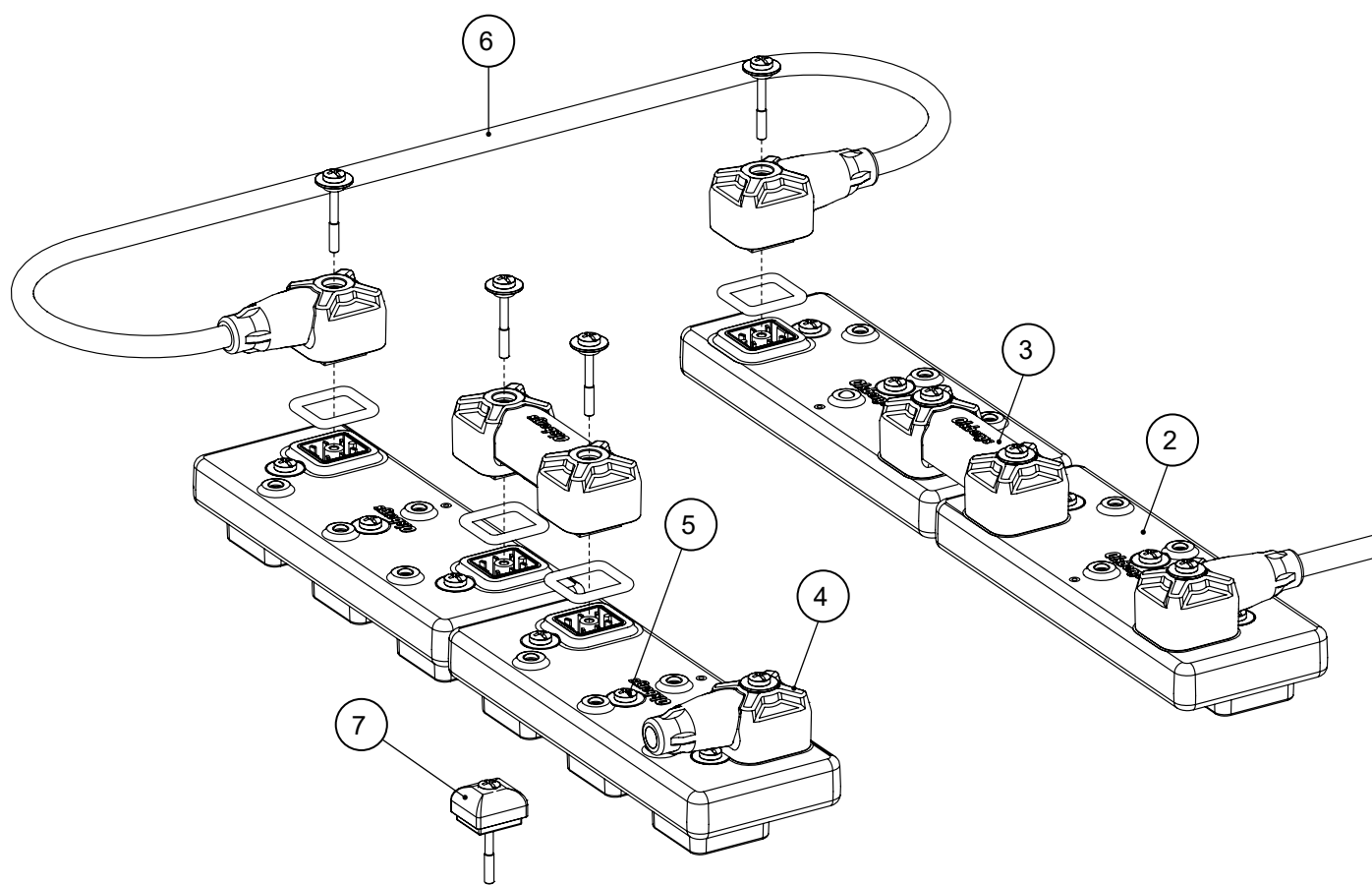
Pos.	Qty.	Part no.	Description	Note
1	1	1482	Digital Amplifier DA13 3F MD2, Kit	Section 5,7 see page 70
2	2	1283	Digital Amplifier DA13 MD2	Incl. screws
3	1	E0792B	Termination CAN 120 ohm	
4	6	E1378	Screw MRX PH M3x32, complete	Incl. o-ring and washer
5	1	E1278BB	Cable CAN GO6-GO6 0,75 m	Incl. o-rings and washers
6	1	S2539	Protective Cap	

Digital Amplifier DA13 6F MD2, Kit

Spare parts

DA modules come pre-programmed, numbered and must be installed following on the crane and outrigger valve:

DA13 Kit	Module	Valve side	Valve section
1479C	1	A	1-3
1479C	2	A	4-6
1479C	3	B	1-3
1479C	4	B	4-6
1479E	5	A	1-3
1479E	6	A	4-6
1479E	7	B	1-3
1479E	8	B	4-6



ATTENTION!

When the system has DA13 sets on both the crane valve and outrigger valve, the 120Ω termination E0792B (Pos. 4) on one DA13 set must be replaced with S2539 (Pos. 7).

Pos.	Qty.	Part no.	Description	Note
1A	1	1479C	Digital Amplifier DA13 6F MD2, Kit C	Kit for crane valve
1B	-	1479E	Digital Amplifier DA13 6F MD2, Kit E	Kit for support leg valve
2	4	1283	Digital Amplifier DA13 MD2	Incl. screws
3	2	E1163	Connector bridge DA	Incl. screws
4	1	E0792B	Termination CAN 120 ohm	
5	12	E1378	Screw MRX PH M3x32	Incl. o-ring and washer
6	1	E1278BB	Cable CAN GO6-GO6 0,75 m	
7	1	S2539	Protective Cap	

Cable range

Cable CAN between PDB/Relay box, PDB/DA modules, DA/DA



Part no.	Description	Part no.	Description
E0771	Cable CAN 0.5 m	E1281	Cable CAN 4.0 m
E0773	Cable CAN 1.0 m	E0774	Cable CAN 6.0 m
E0832	Cable CAN 1.5 m	E1330	Cable CAN 7.0 m
E0775	Cable CAN 2.0 m	E0776	Cable CAN 9.0 m
E1126	Cable CAN 2.5 m	E1335	Cable CAN 12.0 m
E0772	Cable CAN 3.0 m		

Cable CAN between PDB/DA modules, PBF/DA modules



Part no.	Description	Part no.	Description
E0771B	Cable CAN 0.5 m	E0772B	Cable CAN 3.0 m
E0773B	Cable CAN 1.0 m	E1281B	Cable CAN 4.0 m
E0832B	Cable CAN 1.5 m	E0774B	Cable CAN 6.0 m
E0775B	Cable CAN 2.0 m	E0776B	Cable CAN 9.0 m
E1126B	Cable CAN 2.5 m	E1335B	Cable CAN 12.0 m

Cable CAN between DA/DA



Part no.	Description	Part no.	Description
E1170BB	Cable CAN 0.22 m	E0775BB	Cable CAN 2.0 m
E0771BB	Cable CAN 0.5 m	E1126BB	Cable CAN 2.5 m
E1278BB	Cable CAN 0.75 m	E0772BB	Cable CAN 3.0 m
E0773BB	Cable CAN 1.0 m	E0774BB	Cable CAN 6.0 m
E0832BB	Cable CAN 1.5 m		

Cable CAN between PBF/DA modules



Part no.	Description	Part no.	Description
E0775BK	Cable CAN 2.0 m	E1281BK	Cable CAN 4.0 m

Cable range

GO6 Broad 180° Twisted

Cable CAN between DA/DA

GO6 Broad 180° Twisted



Type 105

Part no.	Description
E1278BBK	Cable CAN 0.75 m

GO6

Cable CAN between PBF/ DA modules (Forestry cranes)

GO6 Broad



Type 106

Part no.	Description	Part no.	Description
E1287B	Cable CAN 8.0 m (Cable R839C)	E1779B	Cable CAN 15.0 m (Cable R839C)

Cable CAN between PDB/Decoder, PDB/Selection box, PBF/Joystick, PBF/Selection box, Selection box/Joystick and Decoder/Controller

GO60

GO6



Type 109

Part no.	Description	Part no.	Description
E0779	Cable CAN 1.0 m	E1282	Cable CAN 4.0 m
E1222	Cable CAN 1.5 m	E1426	Cable CAN 5.0 m
E1285	Cable CAN 2.0 m	E1286	Cable CAN 6.0 m
E0778	Cable CAN 3.0 m		

Cable CAN between PBF/Joystick, PBF/Selection box, Selection box/Joystick and Decoder/Controller

GO60

GO6



Type 110

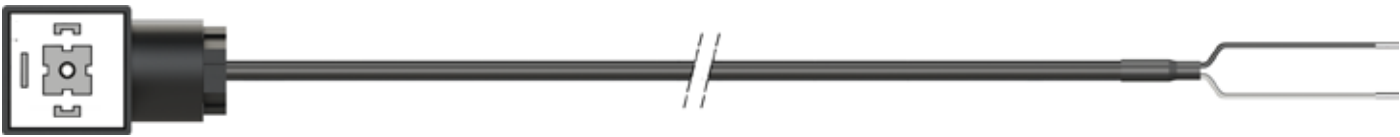
Part no.	Description	Part no.	Description
E1247	Cable CAN 8.0 m (Cable R839C)	E1926	Cable CAN 11.0 m (Cable R839C)
E1331	Cable CAN 9.0 m (Cable R839C)	E1386	Cable CAN 14.0 m (Cable R839C)

Cable range

Cable (2-wire) between Swivel/Dump 1, PB.F2/Dump 1 and 2

MPM 182-09-N

Conductors x2



Type 123

Part no.	Description	Part no.	Description
E0788	Cable, Swivel/Dump, 2.2 m	E1759	Cable, Swivel/Dump, 6.0 m

Cable (2-wire) Repeater, PB.F2/RMS box

Conductors x2

Conductors x2



Type 124

Part no.	Description
E1532	Cable (2x0,5 mm²) 1.5 m

Cable (2-wire) between Joystick/Stop button

4-pol G4 W1F

Conductors x2



Type 128

Part no.	Description
E1239	Cable 2.0 m

Cable (2-wire) between PDB OS/Swivel

Ring terminal (M6) / G30 W 3 F E IVP

Conductors x2



Type 130

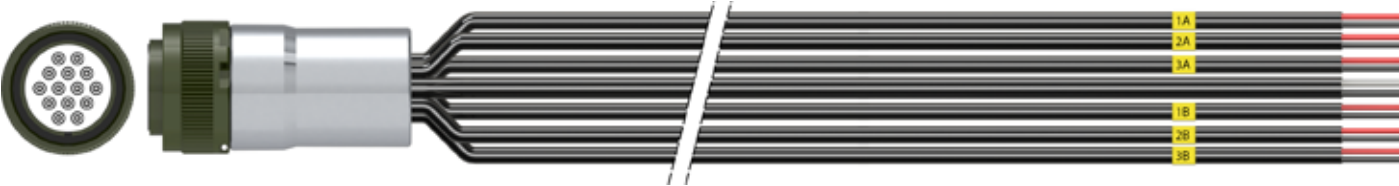
Part no.	Description
E0786	Cable, Swivel 0.5 m

Cable range

Cable between A3 lever/positioners

Includes MPM 182-09-N
Part no. S0011 (x6)

14-pol MS3106E-20-27S



Part no.	Description	Part no.	Description
0450	Cable shielded, 14H, 6.0 m	0453	Cable shielded, 14H, 10.0 m
0451	Cable shielded, 14H, 7.0 m		

Cable between Combi Drive Controller/SFB CD

2-pol bayonet

2-pol bayonet



Part no.	Description	Part no.	Description
0095	Cable shielded, 2DB, 1.5 m	0090	Cable shielded, 2DB, 15.0 m
0100	Cable shielded, 2DB, 8.0 m		

Connector bridge between DA/DA



Part no.	Description
E1163	Connector bridge DA

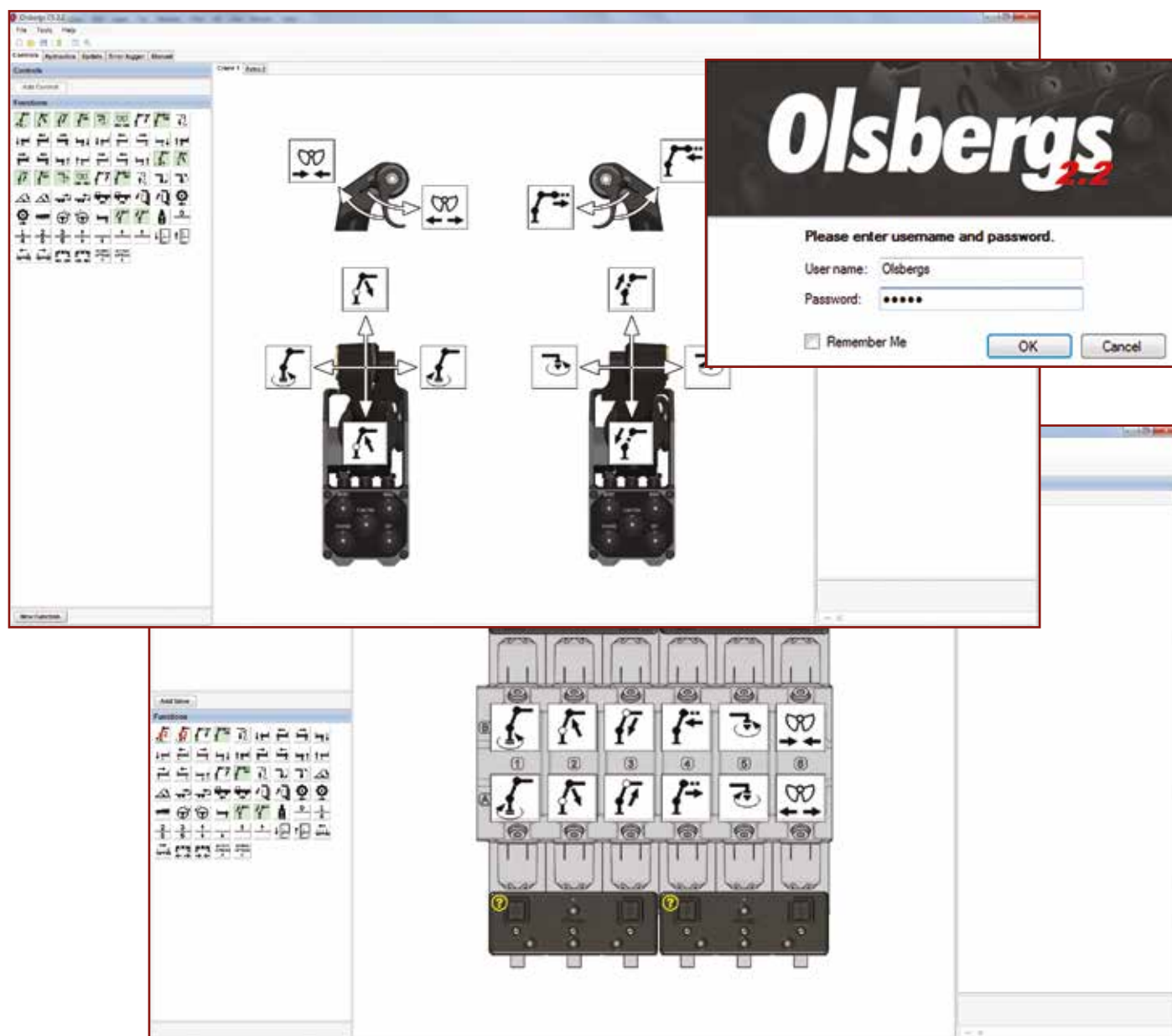
Strapped plugs and terminations



Part no.	Description	Part no.	Description
E0793	Strapped plug ext. emergency stop	E0792B	Termination CAN 120 ohm
E0792	Termination CAN 120 ohm		

Cable types





Simple, quick and easy configuration

With Olsbergs Configuration Software, OCS, it is quick and easy to configure Olsbergs Multidrive 2 Control systems according to own preferences. OCS system can be used for configure both forestry crane systems (50 kbps) and loader crane systems (125 kbps). The system is very easy to use and it is designed to be installed on a standard PC equipped with a USB port .

Easy menus with" Drag and Drop " feature

OCS menu system is run either by using shortcuts in the form of icons or via the tabs File, Tools and Help and sub menus. Configurable controllers , joysticks and valves are pre-programmed in scroll lists selectable by clicking on their names.

An icon library with standard functions are available for quick configuration of both controllers , levers and valves. Just click on the icon and drag to the desired location on the device to be configured. As easy as it could be!

Create driver menus unique

Up to eight menus can be configured in the loader crane system, four menus of type Crane and Extra as well as four menus of type On/Off. Configurations are saved and can be reused for other systems.

Olsbergs Configuration Software, OCS

In the forest crane system, there are a Crane and an Extras menu to be configured.

Create customised texts on controller displays

The system offers the ability to individualize the controllers by writing own texts that appear in the displays instead of , or in addition to, the existing symbols in the system.

System status and diagnostics

OCS provides the ability to log the CAN traffic and store it in an encrypted file. The information in the encrypted file can then be analysed by a Olsbergs certified technician.

User manual

In OCS user manuals in Swedish and English, are integrated both in printable format as well as in a web format that can be easily read on the screen. The user manual contains all necessary information about the system and how to use it, easily accessible and well described.

Olsbergs OCS system kit

OCS software is delivered on a USB-stick along with a CAN/USB drive, a power supply adapter and a CAN cable. The software can be installed with multiple users. When ordering, please state where login details should be sent.

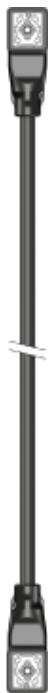


Power supply adapter



CAN/USB drive

GO6-GO6 cable



USB-stick with OCS software

Part no.	Description	Note
1485	Olsbergs OCS, System kit	Incl. USB-stick, CAN/USB drive, Power supply and CAN cable

Getting started with the display and D3 joysticks



D3 joysticks are a driver's tools for controlling the crane.

The joysticks have ball bearing joints that provide a special control feel, and they use contact less technology for long service life. Each joystick has a microprocessor that constantly senses its position and converts this information to a data protocol for transmission via the CAN bus.

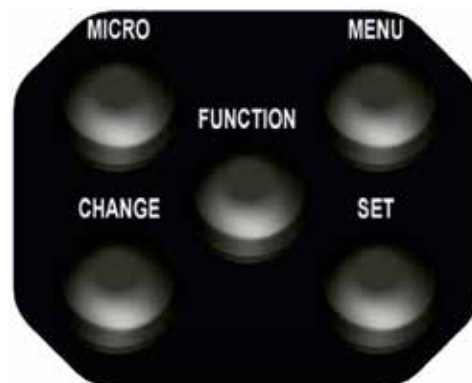
There are buttons on the joysticks for selecting MENU and MICRO. These buttons act on the entire system regardless of the joystick in use. The driver profile buttons FUNCTION, CHANGE and SET only apply to the joystick the keypad belongs to.

MICRO

Precision operating mode. All crane functions run at 50% or 20% of normal speed at full joystick actuation. Pressing the button once gives 50%; twice gives 20%

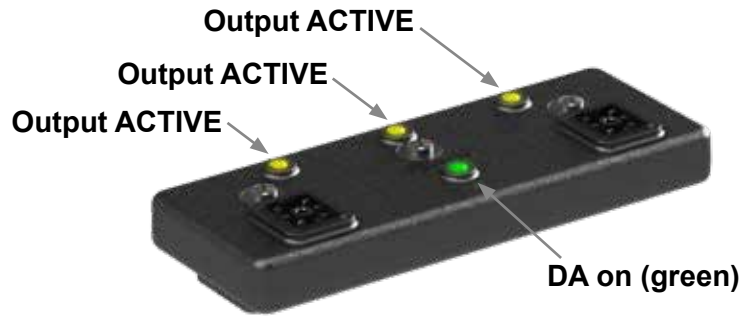
CHANGE

Only active in the configuration menu. Press CHANGE to select a submenu and to select a value or driver.



FUNCTION

Only active in standby mode. Press FUNCTION to reach the configuration menu, tuning and to scroll between the different main menus.



DA modules are available in two models – DA13 and DA14 – and they constitute the interface between system electronics and hydraulics. Data is transmitted to the DA modules located on the positioner solenoids via the CAN bus. The DA modules convert the data to pulse-width modulated control current.

Control current acts on the positioner solenoids which in turn control valve spool position in direct proportion to the degree of three way joystick actuation. Each DA13/DA14-module controls three or four valve functions respectively in one direction.

Function settings

All DA modules are delivered factory aligned. A configuration program – OCS – determines the functions the respective modules will control and the menu in which they are active.

MENU

For switching operating menu from e.g. crane mode to outriggers or other extra functions.

SET

Only active in the configuration menu. Press SET to confirm a selected driver or value and to scroll out of a submenu or main menu.

Getting started with the display and D3 joysticks



In normal operations the display provides information on the selected operating mode, whether MICRO is active or if there is a fault. The display provides a visual presentation of selections made when configuring driver profiles and selecting drivers.



Various operating modes and diagnostic alerts

If MICRO is selected, the chosen micro mode is shown at the bottom left corner of the display in the driver menu.



Start-up safety check

The system senses if a joystick is not in the neutral position at start-up. This is shown in the display by a warning triangle and flashing symbols for the functions actuated. After 10 seconds, only the warning triangle is shown.



Functions actuated at start-up are automatically disconnected. If the joystick is not actuated at the next start it will function normally again.

If a button is depressed or short circuit at start-up it is indicated in the same way. The button remains inactive until it is no longer short circuit.



Status information

If the system loses contact with a joystick this is also shown in the display.

Power box PB.F2

Power Box, PB.F2, which acts as the system control centre, is powered by a 24V supply from the vehicle battery.

The PB.F2 has three LEDs that indicate different operational modes, statuses, errors, etc. There are means for connecting remote control (radio, controllers or joysticks) and outputs to the DA modules or RMS box.

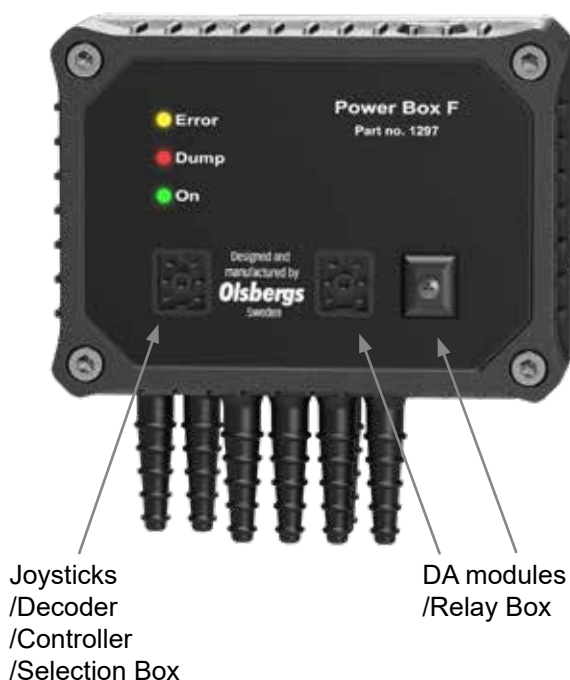
PB.F2 houses many safety-related functions in respect of both hardware and software.

The box has robust input protection on the 24V supply that protects the rest of the system from dirty power.

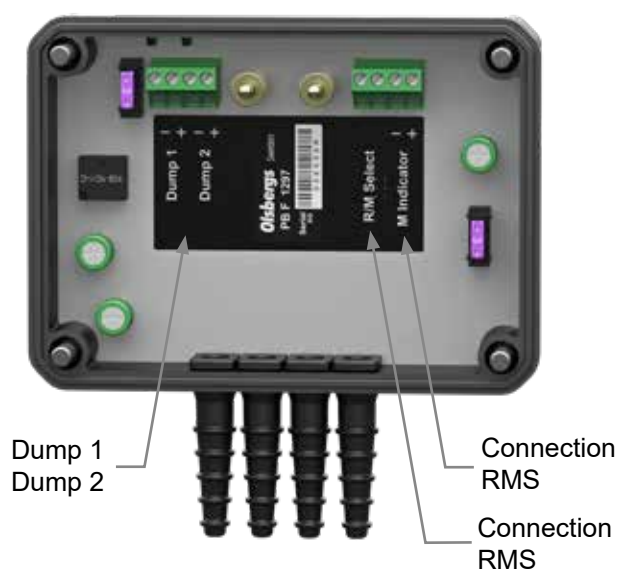
The system has full functionality between 16V and 32V. Olsbergs control system circuit breakers are located in the PB.F2.

The PB.F2. is designed for systems that have no requirement for emergency stop integrated in the power supply.

An optional RMS box can be connected that includes an emergency stop and a push button for selecting remote or manual system control. The LED in the button lights up when the dump valve is activated in manual mode and there is power from the DA output.



Cover



Bottom



System start-up

System activation

When power to the PB.F2 is activated, e.g. when the power take-off on the truck is engaged, the PB.F2 starts up in standby and the system is ready for remote control. **(Figures 1 and 3)**

When the control system is activated by the switch button installed in the crane cab, the PB.F2 and the system switch to crane mode. In this mode the machine or crane is operated by the D3 joysticks in the cab.

When the system is energized it is possible to directly select manual crane operation by activating the button  on the RMS box. **(Figure 2)**

The next time the button is pressed the system reverts to standby. The LED in the button lights up when the dump valve is activated in manual mode and there is power from the DA output.

When an extra function e.g. outriggers must be run from the crane cab, press the menu button on the joystick chassis once; EXTRA will be shown in the display. **(Figures 4a and 4b)**

If drivers forget to switch off at the switch button when they leave the cab, RESTART will be shown in the display. The system must be switched off and on again using the switch button in the crane cab in order to restart. **(Figure 5)**



Figure 1



Figure 2



Figure 3



Figure 4a



Figure 4b



Figure 5

Settings

DRIVER - selection

1. Put the system in STANDBY
2. Press the FUNCTION button on one of the joysticks; DRIVER is the first main menu. **(Figure 1)**
3. Press CHANGE to select the highlighted menu.
4. Using the CHANGE button, scroll until the correct driver is shown in the display. Top speed and whether or not any function has a changed direction appears under each driver. **(Figures 2 and 3)**
5. Exit the driver settings submenu by pressing the SET button or by selecting drive mode by means of the rocker switch/stop button on the panel in the cab.



Figure 1

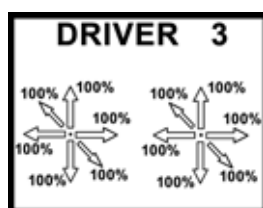


Figure 2

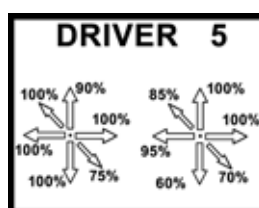


Figure 3

SPEED – limiting top speed

1. Put the system in STANDBY
 2. Press the FUNCTION button on the joystick whose function must be limited.
 3. Using the FUNCTION button, scroll until SPEED is highlighted in the display. **(Figure 1)**
 4. Press CHANGE to select the highlighted menu. **(Figure 2)**
 5. Highlight the function that must be limited by actuating (pulling) the joystick for the function concerned. **(Figure 3)**
 6. Using the CHANGE button, scroll until the correct value appears.
100% = no limitation, 50% = maximum limitation. **(Figure 4)**
 7. Confirm the set value by pressing the SET button. **(Figure 5)**
- Repeat items 5-7 until the functions that must be limited are completed.

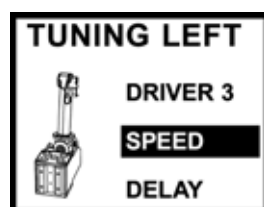


Figure 1

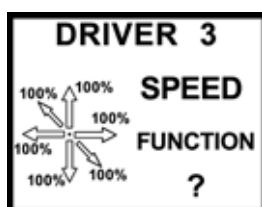


Figure 2

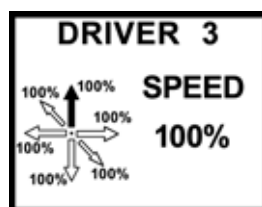


Figure 3

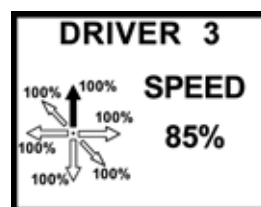


Figure 4

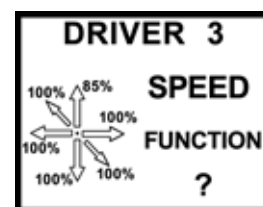


Figure 5

Settings

DELAY – delaying acceleration

1. Put the system in STANDBY
 2. Press the FUNCTION button on the joystick whose function must be limited.
 3. Using the FUNCTION button, scroll until DELAY is highlighted in the display. **(Figure 1)**
 4. Press CHANGE to select the highlighted menu. **(Figure 2)**
 5. Highlight the function that must be limited by actuating (pulling) the joystick for the function concerned. **(Figure 3)**
 6. Using the CHANGE button, scroll until the correct value appears.
0 = no delay, 4 = maximum delay. **(Figure 4)**
 7. Confirm the set value by pressing the SET button. **(Figure 5)**
- Repeat items 5-7 until the functions that must have delays are completed.



Figure 1

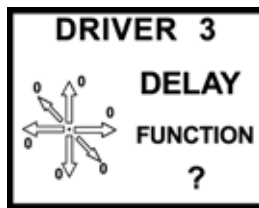


Figure 2

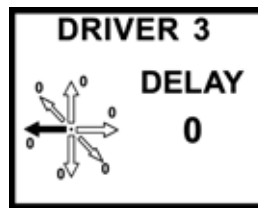


Figure 3

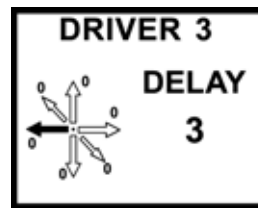


Figure 4

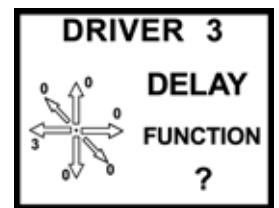
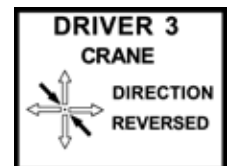
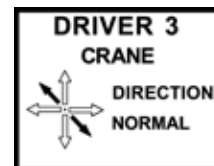
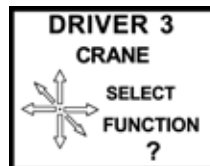


Figure 5

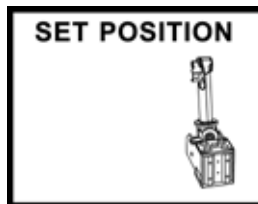
SERVICE – Service mode

Service mode allows service workshops to make the following settings:

1. The ability to change directions on one or more functions. For one or more drivers.



2. The ability to allocate left or right side to a chassis/joystick as when replacing parts.

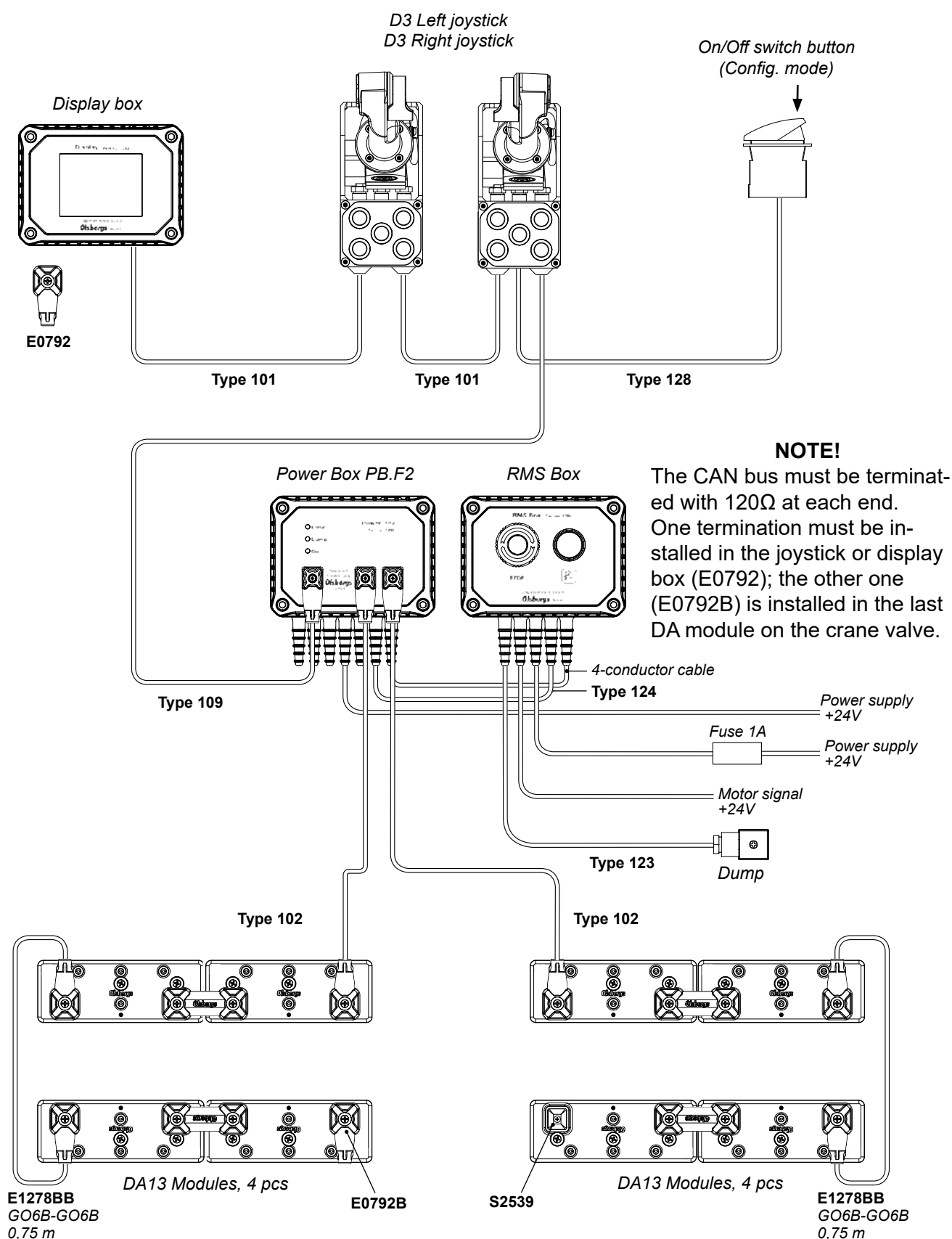


3. Safety check – if e.g. the chassis from a right side joystick is installed on the left, the symbol below will be shown in the display. The chassis can then be reconfigured as described in item 2 (above) to assume the left position.



MultiDrive 2 with D3 Joysticks and Display

Example of circuit diagram - D3 system with DA13

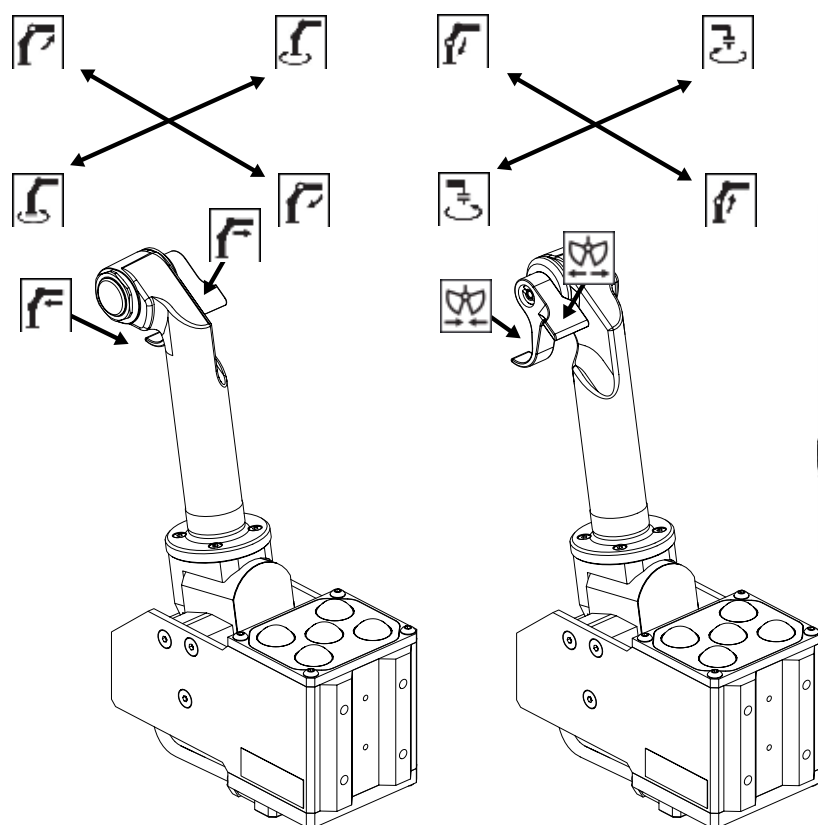


ATTENTION!

When the system has DA13 sets on both the crane valve and outrigger valve, the 120Ω termination (part no. E0792B) on one DA13 set must be replaced with part no. S2539. See spare parts DA13

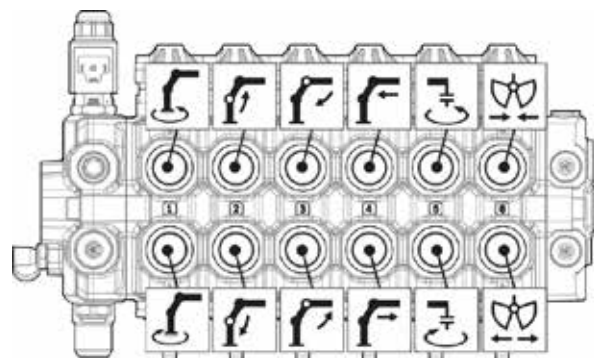
Joystick functions connected to the Crane valve Pv90

- Menu CRANE -



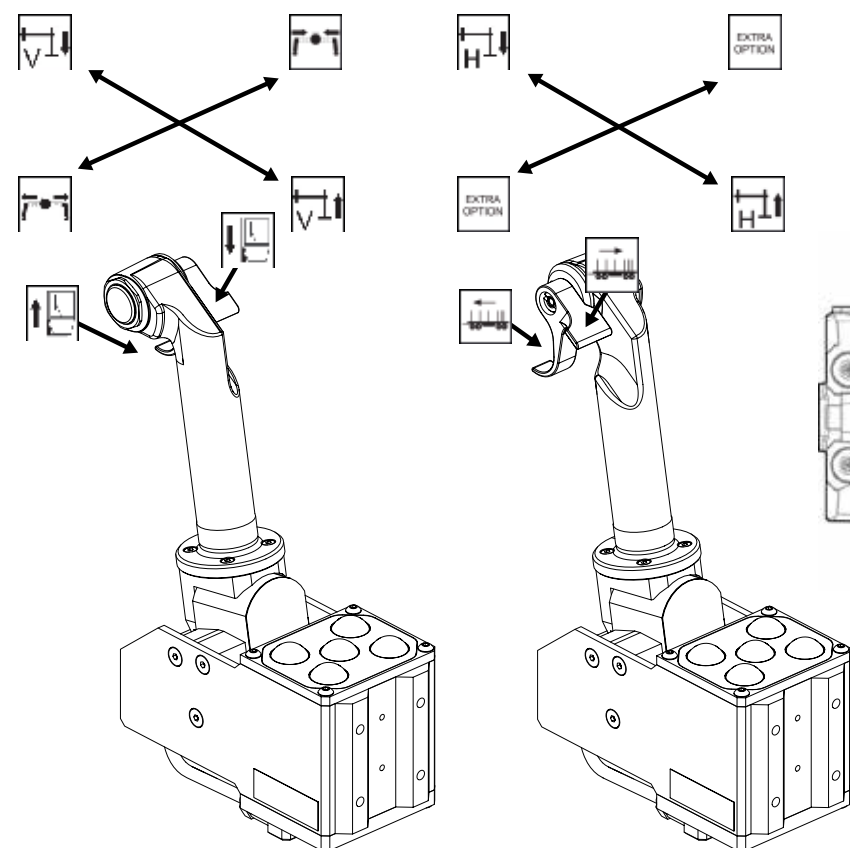
Left joystick

Right joystick



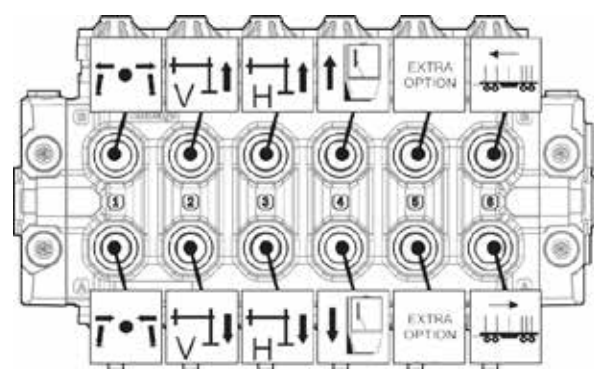
Joystick functions connected to the Outrigger valve Pv91M

- Menu EXTRA -



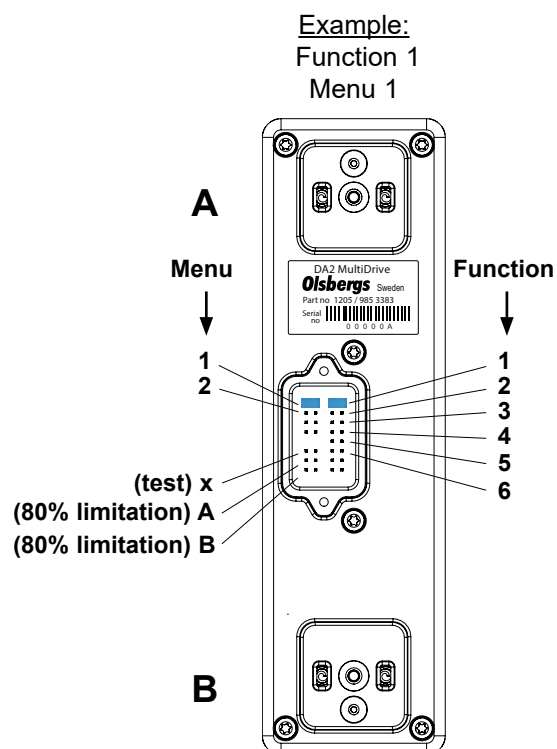
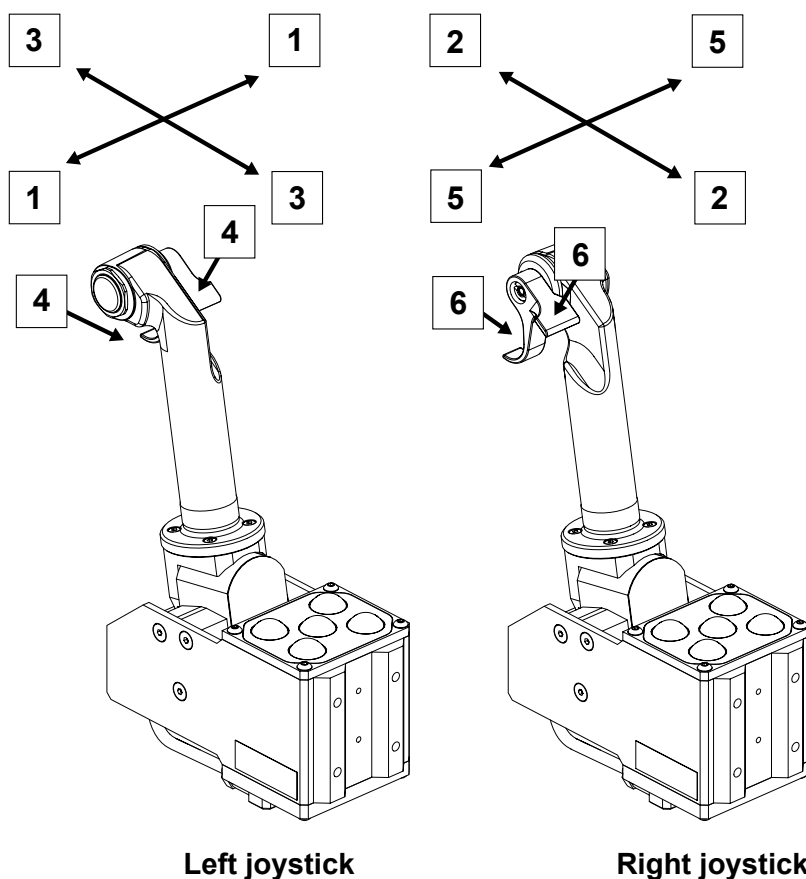
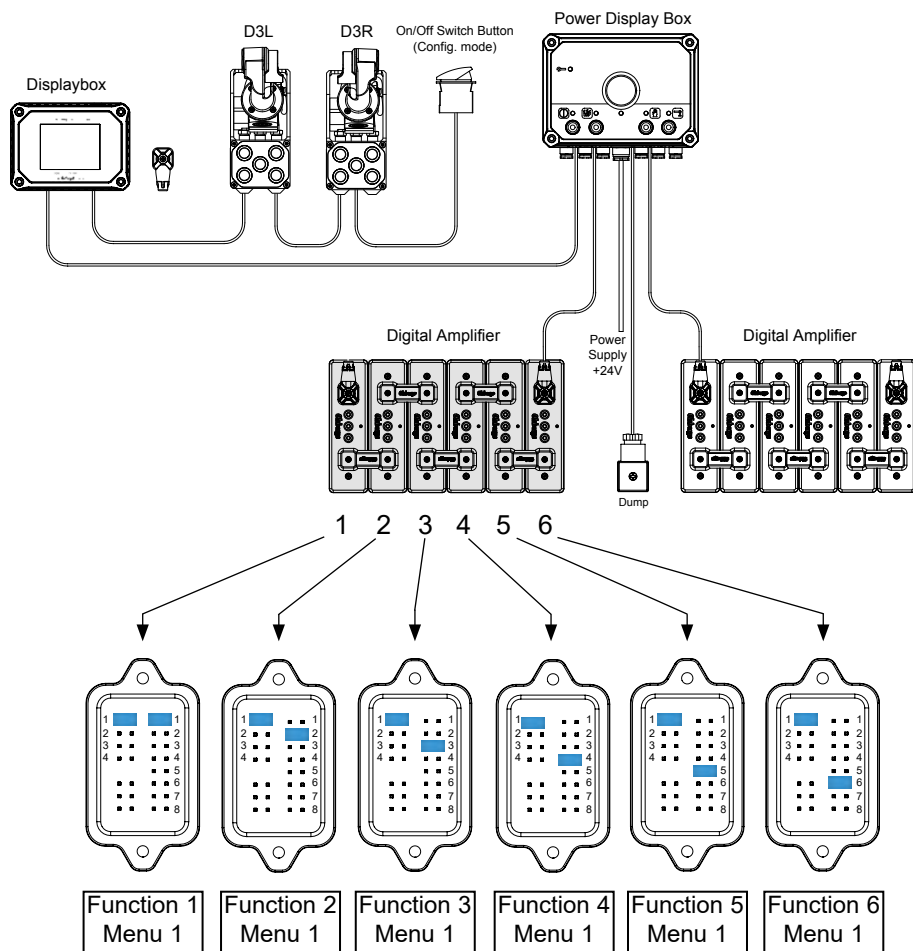
Left joystick

Right joystick



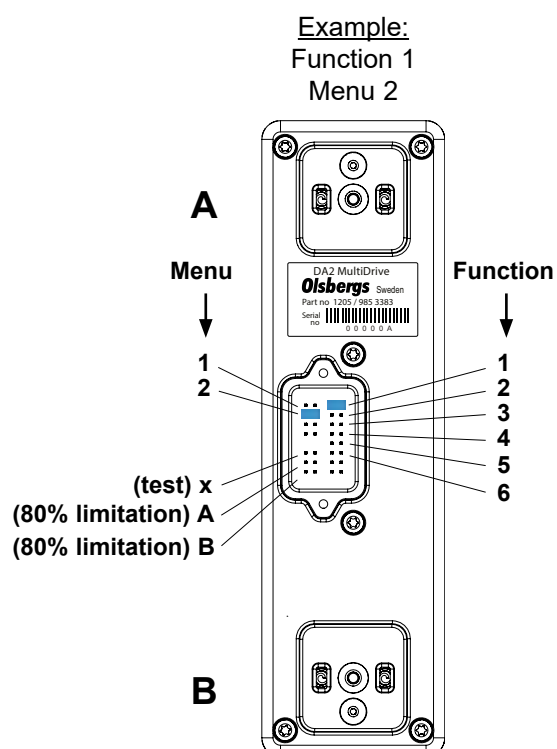
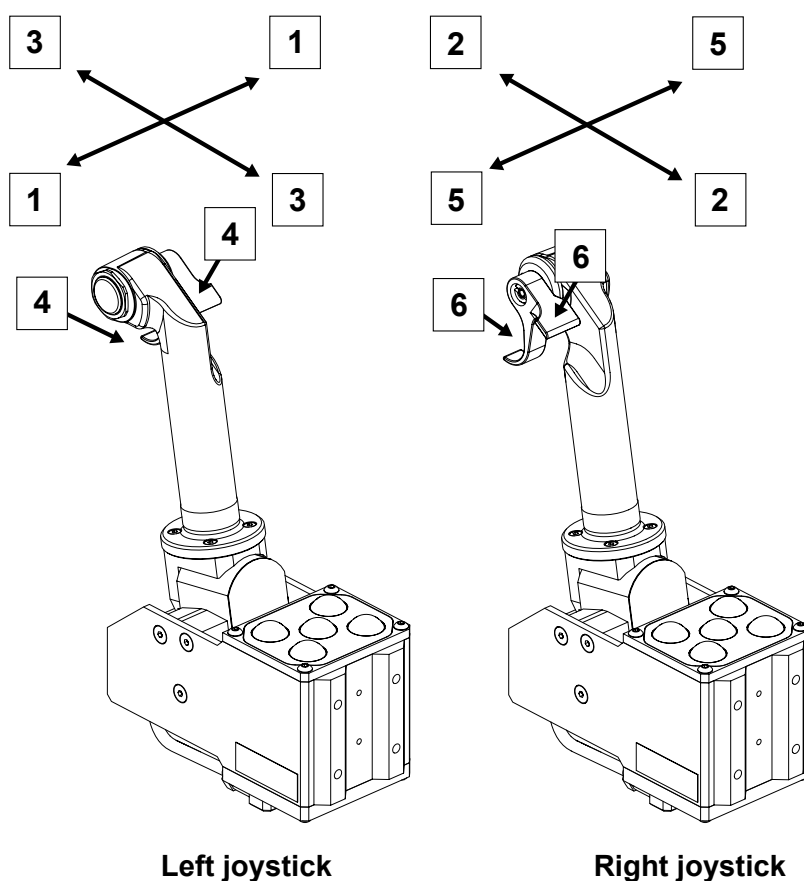
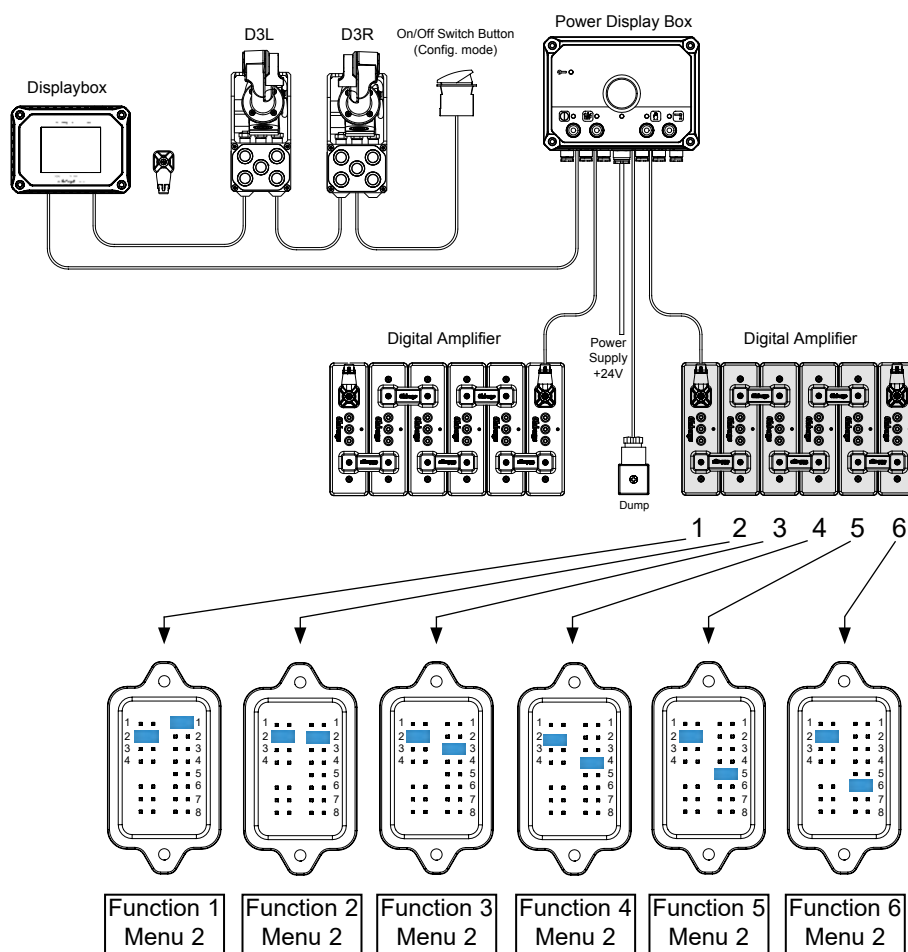
How to program DA2 modules in two menus.

6 DA2 units in menu 1 "CRANE"



How to program DA2 modules in two menus.

6 DA2 units in menu 2 "EXTRA"



MultiDrive 2 - D3 system (This error code indication system is available in Display boxes with serial number 853 and higher.)

Error codes

Olsbergs MultiDrive D3 system uses error codes in order to indicate if something is wrong or if there are deviation from set values in the system. The error code is indicated in the Display box and the letter in the error code indicates in which module of the system the error is located.

Error code ending with U relates to joysticks and chassis

Error code ending with R relates to PBF

Error code ending with O,P relates to DA13 resp. DA14 modules

Error code ending with I relates to DA2

D3 Joystick

Error code	Error type	Error code	Error type
100U	Right joystick out of position at start	200U	Left joystick out of position at start
101U	Right joystick out of position at start	201U	Left joystick out of position at start
102U	Right joystick out of position at start	202U	Left joystick out of position at start
103U	Right joystick out of position at start	203U	Left joystick out of position at start
104U	Right joystick not valid lever value	204U	Left joystick not valid lever value
105U	Right joystick not valid lever value	205U	Left joystick not valid lever value
110U	Right joystick out of position at start	210U	Left joystick out of position at start
111U	Right joystick out of position at start	211U	Left joystick out of position at start
112U	Right joystick out of position at start	212U	Left joystick out of position at start
113U	Right joystick out of position at start	213U	Left joystick out of position at start
114U	Right joystick not valid lever value	214U	Left joystick not valid lever value
115U	Right joystick not valid lever value	215U	Left joystick not valid lever value
120U	Right joystick trigger out of position at start	220U	Left joystick trigger out of position at start
121U	Right joystick trigger out of position at start	221U	Left joystick trigger out of position at start
122U	Right joystick trigger out of position at start	222U	Left joystick trigger out of position at start
123U	Right joystick trigger out of position at start	223U	Left joystick trigger out of position at start
124U	Right joystick trigger not valid lever value	224U	Left joystick trigger not valid lever value
125U	Right joystick trigger not valid lever value	225U	Left joystick trigger not valid lever value
130U	Right joystick Micro button short circuit/pushed in	230U	Left joystick Micro button short circuit/push
131U	Right joystick Menu button short circuit/pushed in	231U	Left joystick Menu button short circuit/pushed in
132U	Right joystick Function button short circuit/pushed in	232U	Left joystick Function button short circuit/pushed in
133U	Right joystick Change button short circuit/pushed in	233U	Left joystick Change button short circuit/pushed in
134U	Right joystick Set button short circuit/pushed in	234U	Left joystick Set button short circuit/pushed in

Correct errors in D3 joysticks/buttons

Joystick out of position - Secure that joystick including trigger is in neutral position at start (Transition Standby to Crane).

Not valid lever value - Probable sources to problem:

- 1) Short circuit to ground or supply voltage,
- 2) No contact - connector or cable loose alternatively cable breakage in the lever.

Button short circuit or pushed in– Secure that the button is not pushed in.

If the button is not pressed in the button is malfunctioning and must be changed.

MultiDrive 2 - D3 system (This error code indication system is available in Display boxes with serial number 853 and higher.)

Error codes

PBF Power supply box

Error code	Error type	Error code	Error type
001R	CAN Transmitter passive	008R	High voltage
002R	CAN Transmitter active	009R	Low voltage
003R	CAN Transmitter passive	012R	Internal error
004R	CAN Transmitter active	100R	Dump 1 fuse broken
006R	System overloaded		

Correct errors in PBF

001R-004R Error detected in the system CAN bus. - Check cables and connection points (Connectors).

006R The system uses higher current than expected. - Systematically check for short circuits.

008R Battery voltage higher than allowed. - Check if the charging regulator in the truck is working.

009R Battery voltage lower than allowed. - Check if the truck's battery/generator is OK.

012R Internal error in the PBF. - Visit service centre for check and eventual replacement.

100R - Check the fuse and replace it if out of order.

DA14 modules

Error code	Error type
100P	Disruption exit 1
101P	Short circuit exit 1
110P	Disruption exit 2
111P	Short circuit exit 2
120P	Disruption exit 3
121P	Short circuit exit 3
130P	Disruption exit 4
131P	Short circuit exit 4

DA13 modules

Error code	Error type
100O	Disruption exit 1
101O	Short circuit exit 1
110O	Disruption exit 2
111O	Short circuit exit 2
120O	Disruption exit 3
121O	Short circuit exit 3

DA2 modules

Error code	Error type
012I	Internal error

Correct errors in DA modules

Disruption – No contact with the positioners

Step 1. Secure that the DA modules are attached properly to the positioners.

Step 2. Check that the positioners are OK by measuring the resistance over the contact plates.

Set value 28-33 Ohm. If the resistance is within the set values the DA module must be replaced. If not, the positioner must be replaced.

Short circuit – Check the positioner is OK by measuring the resistance over the contact plates.

Set value 28-33 Ohm. If the resistance is within the set values the DA module must be replaced. If not, the positioner must be replaced.

Internal error – Internal error in the DA module - replace the broken DA to a new DA.

Note! Important at replacement of DA module to configure the new DA exactly as the DA replaced.

DA2 is configured via jumpers on the backside of the DA module. DA13 and DA14 are configured via OCS system alternatively at the service centre.

Olsbergs Hydraulics AB, Eksjö

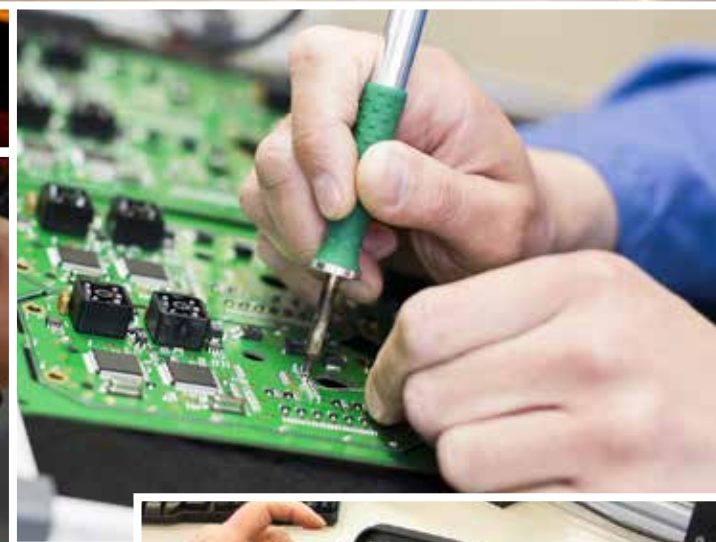
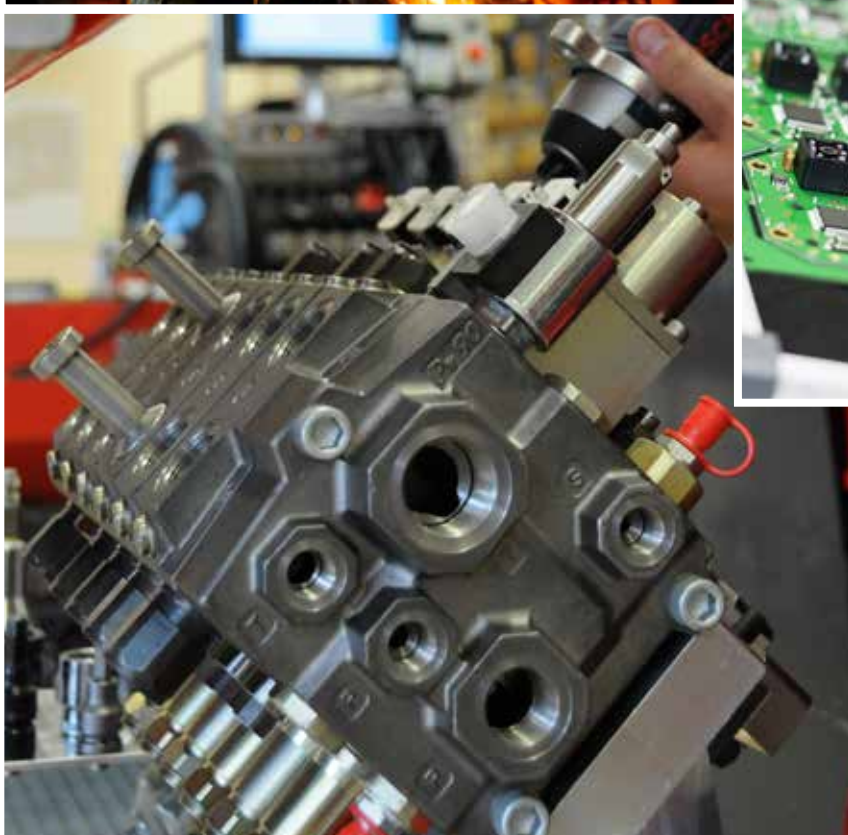


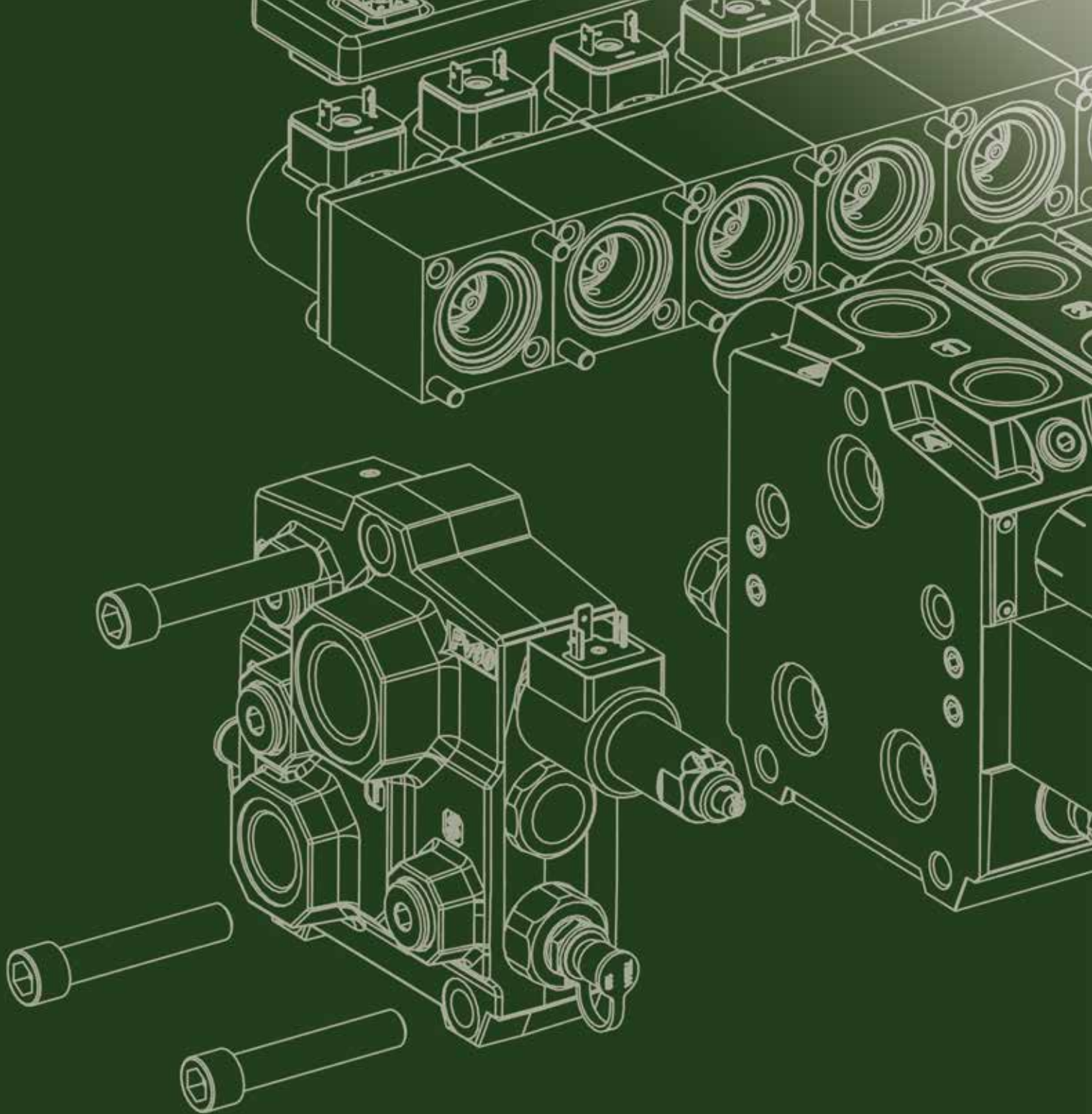
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Pv90 and MultiDrive 2 with D3

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