



Approved Components List Mechanical Components

For the Manufacture Of
Foundry
Of the Volkswagen Group
"Technology-Specific Part"

Change history

Version	Date	Type of change	Chapter
1.9	Jan. 01, 2017	<ul style="list-style-type: none"> • Editoriell updates • Advice added • Change of production serie (new guideline for pressure equipment) • Update ordering code, ordering number, technical data • Change of production serie 	<p>1 3.1.7 3.1.8.1 3.2.3.1.1 3.4.1</p>
1.8	Jan. 01, 2016	<ul style="list-style-type: none"> • New phone number HOTLINE • Editoriell updates • Approved components list -exclusive for foundry separated • Update ordering code, addition technical data • Correction data sheet no. 	<p>1 1; 2 3. ff 3.2.1.1.3 3.3.1.1</p>

Table of contents

Change history	2
1 Contacts	5
2 Notes	6
3 Overview	7
3.1 Pump station with tank and accessories	7
3.1.1 Pumps	7
3.1.1.1 Fixed displacement pumps – internal gear pumps	7
3.1.1.2 Variable displacement pumps – axial piston pumps	7
3.1.2 Reservoir	7
3.1.2.1 Reservoir 100 to 1000 l (DIN-24339, type BN, cover type A)	7
3.1.3 Air Breather	7
3.1.4 Pressure measurement and indicating devices	7
3.1.5 Filters	8
3.1.5.1 Clogging indicator	8
3.1.5.2 Inline filter in return flow	8
3.1.5.2.1 Filter bowl can be unscrewed to the bottom: Standard pressure rating 250 bar	8
3.1.5.2.2 Filter bowl can be unscrewed to the top: Standard pressure rating 100 bar	8
3.1.5.2.3 Filter bowl can be unscrewed to the top: Standard pressure rating 250 bar	8
3.1.5.3 Inline filter in bypass circuit	9
3.1.5.3.1 Filter bowl can be unscrewed to the bottom: Standard pressure rating 250 bar	9
3.1.5.3.2 Filter bowl can be unscrewed to the top: Standard pressure rating 100 bar	9
3.1.5.3.3 Filter bowl can be unscrewed to the top: Standard pressure rating 250 bar	9
3.1.5.4 Inline filter in main flow	9
3.1.5.4.1 Medium pressure standard pressure rating 250 bar	9
3.1.5.4.2 High pressure standard pressure rating 400 bar	10
3.1.5.5 Replacement elements	10
3.1.5.5.1 Pressure differential resistance (collapse pressure) 30 bar	10
3.1.5.5.2 Pressure differential resistance (collapse pressure) 330 bar	10
3.1.6 Oil-water heat exchangers	11
3.1.7 Thermostat	11
3.1.8 Accumulators	11
3.1.8.1 Accumulator tank	11
3.1.8.2 Accumulator shut-off block (with manual unloading)	11
3.1.8.3 Isolator valve with test connection	11

3.2	Control devices	12
3.2.1	Directional valves (DC24V; K4, with LED; concealed manual override)	12
3.2.1.1	Spool valves – direct operated	12
3.2.1.1.1	Size 6	12
3.2.1.1.2	Size 10	12
3.2.1.2	Spool valves – pilot operated.....	13
3.2.1.2.1	Size 16 (pmax 280 bar)	13
3.2.1.2.2	Sizes 25 and 32	13
3.2.1.3	Poppet valves (350 bar, leakage oil-free).....	13
3.2.2	2-way cartridge valves	14
3.2.2.1	Cartridge valves.....	14
3.2.2.2	Control cover.....	14
3.2.3	Isolator valves	15
3.2.3.1	Check valves.....	15
3.2.3.1.1	Pipe installation.....	15
3.2.3.1.2	Plate cartridge valves (angle valves).....	15
3.2.3.1.3	Sandwich plate valves	15
3.2.3.2	Check valves – hydraulically pilot operated.....	16
3.2.3.2.1	Pipe installation.....	16
3.2.3.2.2	Subplate mounting.....	16
3.2.3.2.3	Sandwich plate design.....	16
3.2.4	Pressure valves	17
3.2.4.1	Pressure relief valves	17
3.2.4.1.1	Direct operated	17
3.2.4.1.2	Pilot operated.....	18
3.2.4.2	Pressure reducing valves	19
3.2.4.2.1	Direct operated	19
3.2.4.2.2	Pilot operated.....	20
3.2.5	Flow control valves	21
3.2.5.1	Throttle valves.....	21
3.2.5.1.1	Pipe fitting	21
3.2.5.2	Throttle check valves	21
3.2.5.2.1	Pipe fitting	21
3.2.5.2.2	Sandwich plate valves	21
3.2.5.3	Flow control valves	22
3.2.5.3.1	Subplate mounted valves	22
3.2.5.3.2	Screw-in cartridge valves.....	22
3.3	Proportional and servo valves	23
3.3.1	Directional valves.....	23
3.3.1.1	Spool valves.....	23
3.3.1.2	High-response cartridge valve 2-way and 3-way version.....	23
3.3.2	Pressure valves: Pressure relief valves.....	23
3.3.3	Flow control valves: 2-way proportional throttle valve for block installation	23
3.4	Cylinders	24
3.4.1	Tie rod cylinders.....	24
3.5	Accessories.....	24
3.5.1	Cover plates.....	24

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2 Notes

This approved components list for the foundry production in plants for the VOLKSWAGEN group contains hydraulic components that may be used when designing hydraulic systems with flame resisting fluids of the group **HFC**, e.g. die casting machines (reference oil "Ultrasafe 620" by Petrofer)

The use of components that are not listed in this table requires a written special authorization.

A special authorization is not required if the component is not an active functional element. This includes:

Steel components, assembly parts, subplates, cover plates and sandwich plates without hydraulic function, orifice inserts, individual, standard and serial control blocks, manifolds (e.g. type HSR) and stacking systems (e. g. type IH20) and card holders for amplifier cards.

The Global Account Management, division DC-IA/**SDF**11, of Bosch Rexroth AG is responsible for the creation and maintenance of this document.

It was compiled in cooperation with Volkswagen AG.

General information on the use of **HFC** fluids

The characteristics of hydraulic fluids of the HFC group (water glycol, reference oil "Ultrasafe 620 VW Kassel") according to DIN EN ISO 12922 or VDMA 24317 differ from mineral oil in a few important aspects. When designing and manufacturing the hydraulic systems their particularities must be taken into account.

- The optimum operating temperature is +40 °C.
The lower operating temperature must be taken into consideration with respect to the thermal efficiency. Operating temperatures above 60 °C are not admissible!
- The maximum admissible operating pressure is 210 bar.
- The density of the HFC fluid is (at 15 °C) approximately 20 % greater than that of mineral oil. Therefore, the suction lines must have greater dimensions.
- The air release capacity of water glycol is significantly lower. This must be taken into account when dimensioning the system in order to prevent cavitation and erosion.
- To ensure a trouble-free operation of the hydraulic system, the fluid should be monitored (according to the manufacturer's specifications).
- Since the HFC hydraulic fluid has a lower dirt separation capacity than mineral oil it is crucial that all solid and liquid foreign substances in this fluid are continuously monitored. Contamination with other fluids (including other HFC fluids) must be prevented in any case.
- It is to be ensured that the devices and pipelines of the hydraulic system do not run empty and generate air cushions when the machine is at standstill. Extended standstill times are to be avoided.
- The following metal materials or their alloys must not be used: zinc, aluminum, cadmium, magnesium.
- The following non-metal materials are unsuitable:
FKM seals and materials based on polyurethane PU (Vulkollan or Hydrofit), polyamide (PA), asbestos and leather.

3 Overview

All components with locking functions are marked with a lock "🔒" symbol.

All components that are used have to be free of chromium VI.

Carry out all labels in the planning language and in the language at the plant's location.

3.1 Pump station with tank and accessories

3.1.1 Pumps

3.1.1.1 Fixed displacement pumps – internal gear pumps

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
PGH4-3X/020RE11WE4	210 bar; 28.9 l/min with n=1450 (max)	R901 330 079	10 227
PGH4-3X/032RE11WE4	210 bar; 46.9 l/min with n=1450 (max)	On Demand	
PGH5-3X/063RE11WE4	210 bar; 92.8 l/min with n=1450 (max)	On Demand	
PGH5-3X/100RE11WE4	210 bar; 143.8 l/min with n=1450 (max)	On Demand	
PGH5-3X/125RE11WE4	210 bar; 179.8 l/min with n=1450 (max)	R901 310 644	
PGH5-3X/200RE07WE4	115 bar; 287.7 l/min with n=1450 (max)	R901 371 526	
PGH5-3X/250RE07WE4	90 bar; 359.6 l/min with n=1450 (max)	bitte anfragen	

3.1.1.2 Variable displacement pumps – axial piston pumps

min. pressure at suction port: ≥ 1 bar absolute

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
AE-A10VSO18DFR1/31R-PPA12N00	280 bar; 27 l/min with n=1450	R910 939 599	92 711
AE-A10VSO28DFR1/31R-PPA12N00	280 bar; 42 l/min with n=1450	R910 914 036	
AE-A10VSO45DFR1/31R-PPA12N00	280 bar; 68 l/min with n=1450	R910 916 405	
AE-A10VSO71DFR1/31R-PPA12N00	280 bar; 107 l/min with n=1450	R910 948 634	
AE-A10VSO100DFR1/31R-PPA12N00	280 bar; 150 l/min with n=1450	R910 929 637	
AE-A10VSO140DFR1/31R-PPA12N00	280 bar; 150 l/min with n=1450 max.	Upon request	
AE-A10VSO28DFLR/31R-PPA12N00	Power controller specification required	XXXX XXX XXX	
AE-A10VSO45DFLR/31R-PPA12N00	Power controller specification required	XXXX XXX XXX	
AE-A10VSO71DFLR/31R-PPA12N00	Power controller specification required	XXXX XXX XXX	
AE-A10VSO100DFLR/31R-PPA12N00	Power controller specification required	XXXX XXX XXX	
AE-A10VSO140DFLR/31R-PPA12N00	Power controller specification required	XXXX XXX XXX	

3.1.2 Reservoir

3.1.2.1 Reservoir 100 to 1000 l (DIN-24339, type BN, cover type A)

Stainless steel reservoirs – structural design according to AB10217

The following filling coupling is to be used:

MD-019-2-WR033-01-1 with dust protection cap MD-019-5-01-1 (stainless steel version)

3.1.3 Air Breather

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Air filter PI0125 SM-L/UM-OS	Mounting 6 x M5, hole circle \varnothing 73 mm	R901 064 797	see Mahle

3.1.4 Pressure measurement and indicating devices

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
AB42-15/10-100AM1	Pressure control unit with pressure gauge	R901 064 994	AB42-15
AB42-15/10-200AM1	Pressure control unit with pressure gauge	R900 827 581	

3.1.5 Filters

All filter types according to DIN 24550. If used and designed properly and according to the criteria below, the service life of the filter element is 6 months or 3000 operating hours.

The installation of duplex switch filters may be necessary (according to works-specific instructions). Duplex filters must be approved by VW.

3.1.5.1 Clogging indicator

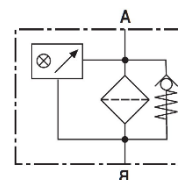
- Electric maintenance indicator
- 3 LED displays:

green:	pressure differential <75 %
yellow:	pressure differential \geq 75 %
red:	pressure differential = 100 %

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
WE-2SP-M12x1	M12x1, 75 %, 100 %	R928 028 410	51 450

3.1.5.2 Inline filter in return flow

- Single filter with bypass (cracking pressure 3.5 bar)
- Optical maintenance indicator with switching pressure 2.2 bar



3.1.5.2.1 Filter bowl can be unscrewed to the bottom: Standard pressure rating 250 bar

Designation (type)	Max. flow for initial $\Delta p \leq 0.5$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
245LEN0100-H10XLA00-V2,2-M-R3	32 l/min	17 / 14 / 10	R928 053 783	51 421
245LEN0160-H10XLA00-V2,2- M-R6	68 l/min	17 / 14 / 10	R928 053 563	
245LEN0250-H10XLA00-V2,2- M-R6	96 l/min	17 / 14 / 10	R928 053 786	
245LEN0100-H3XLA00-V2,2- M-R3	16 l/min	13 / 10 / 8	R928 053 784	
245LEN0160-H3XLA00-V2,2- M-R6	36 l/min	13 / 10 / 8	R928 053 785	
245LEN0250-H3XLA00-V2,2- M-R6	56 l/min	13 / 10 / 8	R928 053 787	

3.1.5.2.2 Filter bowl can be unscrewed to the top: Standard pressure rating 100 bar

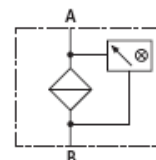
Designation (type)	Max. flow for initial $\Delta p \leq 0.5$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
100 FLEN 0250 H10XL-A00-07V2.2-S0M00	96 l/min	17 / 14 / 10	R928 053 778	51 402
100 FLEN 0400 H10XL-A00-07V2.2-S0M00	108 l/min	17 / 14 / 10	R928 053 780	
100 FLEN 0630 H10XL-A00-07V2.2-S0M00	414 l/min	17 / 14 / 10	R928 040 618	
100 FLEN 1000 H10XL-A00-07V2.2-D0M00	464 l/min	17 / 14 / 10	R928 053 792	
100 FLEN 0250 H3XL-A00-07V2.2-S0M00	56 l/min	13 / 10 / 8	R928 053 779	
100 FLEN 0400 H3XL-A00-07V2.2-S0M00	68 l/min	13 / 10 / 8	R928 053 781	
100 FLEN 0630 H3XL-A00-07V2.2-S0M00	184 l/min	13 / 10 / 8	R928 052 318	
100 FLEN 1000 H3XL-A00-07V2.2-D0M00	207 l/min	13 / 10 / 8	R928 053 793	

3.1.5.2.3 Filter bowl can be unscrewed to the top: Standard pressure rating 250 bar

Designation (type)	Max. flow for initial $\Delta p \leq 0.5$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
445LEN0400-H10XLA00-V5,0-M-R6-V3-9	108 l/min	17 / 14 / 10	R928 051 526	51 423
445LEN0400-H3XLA00-V5,0-M-R6-V3-9	68 l/min	13 / 10 / 8	R928 0515 25	

3.1.5.3 Inline filter in bypass circuit

- Single filter with bypass (cracking pressure 3.5 bar)
- Optical maintenance indicator with switching pressure 2.2 bar



3.1.5.3.1 Filter bowl can be unscrewed to the bottom: Standard pressure rating 250 bar

Designation (type)	Max. flow for initial $\Delta p \leq 0.5$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
245LEN0100-H3XLA00-V2,2- M-R3	20 l/min	13 / 10 / 8	R928 053 784	51 421
245LEN0160-H3XLA00-V2,2- M-R6	45 l/min	13 / 10 / 8	R928 053 785	
245LEN0250-H3XLA00-V2,2- M-R6	70 l/min	13 / 10 / 8	R928 053 787	

3.1.5.3.2 Filter bowl can be unscrewed to the top: Standard pressure rating 100 bar

Designation (type)	Max. flow for initial $\Delta p \leq 0.5$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
100 FLEN 0250 H3XL-A00-07V2.2-S0M00	70 l/min	13 / 10 / 8	R928 053 779	51 402
100 FLEN 0400 H3XL-A00-07V2.2-S0M00	85 l/min	13 / 10 / 8	R928 053 781	
100 FLEN 0630 H3XL-A00-07V2.2-S0M00	231 l/min	13 / 10 / 8	R928 052 318	
100 FLEN 1000 H3XL-A00-07V2.2-D0M00	259 l/min	13 / 10 / 8	R928 053 793	

3.1.5.3.3 Filter bowl can be unscrewed to the top: Standard pressure rating 250 bar

Designation (type)	Max. flow for initial $\Delta p \leq 0.5$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
445LEN0400-H3XLA00-V5,0-M-R6-V3-9	85 l/min	ISO 13/10/8	R928 051 525	51 423

3.1.5.4 Inline filter in main flow

- Single filter without bypass
- Optical maintenance indicator with switching pressure 5 bar

3.1.5.4.1 Medium pressure standard pressure rating 250 bar

3.1.5.4.1.1 Filter bowl can be unscrewed to the bottom

Designation (type)	Max. flow for initial $\Delta p \leq 1$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
245LEN0100-H10XLB00-V5.0--M-R3	44 l/min	17 / 14 / 10	R928 030 674	51 421
245LEN0160-H10XLB00-V5.0--M-R6	100 l/min	17 / 14 / 10	R928 030 549	
245LEN0250-H10XLB00-V5.0--M-R6	144 l/min	17 / 14 / 10	R928 030 550	
245LEN0100-H3XLB00-V5.0--M-R3	28 l/min	13 / 10 / 8	R928 030 162	
245LEN0160-H3XLB00-V5.0--M-R6	56 l/min	13 / 10 / 8	R928 030 037	
245LEN0250-H3XLB00-V5.0-M-R6	96 l/min	13 / 10 / 8	R928 030 038	

3.1.5.4.1.2 Filter bowl can be unscrewed to the top

- Maintenance indicator flanged to the side
- Draining bore in the WO flange surface

Designation (type)	Max. flow for initial $\Delta p \leq 1$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
445LEN0630-H3XLB00-V5,0-M-R8-V3-9	176 l/min	13 / 10 / 8	R928 051 524	51 423
445LEN0400-H3XLB00-V5,0-M-R6-V3-9	144 l/min	13 / 10 / 8	R928 051 523	

3.1.5.4.2 High pressure standard pressure rating 400 bar

3.1.5.4.2.1 Filter bowl can be unscrewed to the bottom

Designation (type)	Max. flow for initial $\Delta p \leq 1$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
445LEN0100-H10XLB00-V5,0-M-R3	44 l/min	17 / 14 / 10	R928 043 916	51 423
445LEN0160-H10XLB00-V5,0-M-R6	100 l/min	17 / 14 / 10	R928 043 839	
445LEN0250-H10XLB00-V5,0-M-R6	144 l/min	17 / 14 / 10	R928 043 840	
445LEN0100-H3XLB00-V5,0-M-R3	24 l/min	13 / 10 / 8	R928 043 308	
445LEN0160-H3XLB00-V5,0-M-R6	64 l/min	13 / 10 / 8	R928 043 231	
445LEN0250-H3XLB00-V5,0-M-R6	96 l/min	13 / 10 / 8	R928 043 232	

3.1.5.4.2.2 Filter bowl can be unscrewed to the top

-Maintenance indicator flanged to the side - - Draining bore in the WO flange surface

Designation (type)	Max. flow for initial $\Delta p \leq 1$ bar	Oil cleanliness classes according to ISO 4406	Order number (manufacturer)	Data sheet
445LEN0400-H10XLB00-V5,0-M-R6-V3-9	176 l/min	17 / 14 / 10	R928 053 797	51 423
445LEN0630-H10XLB00-V5,0-M-R8-V3-9	252 l/min	17 / 14 / 10	R928 053 796	
445LEN0400-H3XLB00-V5,0-M-R6-V3-9	144 l/min	13 / 10 / 8	R928 051 523	
445LEN0630-H3XLB00-V5,0-M-R8-V3-9	192 l/min	13 / 10 / 8	R928 051 524	

3.1.5.5 Replacement elements

For all pressure ratings - Pleated filter elements

3.1.5.5.1 Pressure differential resistance (collapse pressure) 30 bar

Designation (type)		Order number (manufacturer)	Data sheet
1.0160 H10XL-A00-0-M	ISO 17/14/10	R928 005 891	51 420
1.0250 H10XL-A00-0-M	ISO 17/14/10	R928 005 927	
1.0400 H10XL-A00-0-M	ISO 17/14/10	R928 005 963	
1.0630 H10XL-A00-0-M	ISO 17/14/10	R928 005 999	
1.1000 H10XL-A00-0-M	ISO 17/14/10	R928 006 035	
2.0100 H10XL-A00-0-M	ISO 17/14/10	R928 006 755	
2.0160 H10XL-A00-0-M	ISO 17/14/10	R928 006 809	
2.0250 H10XL-A00-0-M	ISO 17/14/10	R928 006 863	
2.0400 H10XL-A00-0-M	ISO 17/14/10	R928 006 917	
2.0630 H10XL-A00-0-M	ISO 17/14/10	R928 006 971	
1.0160 H3XL-A00-0-M	ISO 13/10/8	R928 005 889	
1.0250 H3XL-A00-0-M	ISO 13/10/8	R928 005 925	
1.0400 H3XL-A00-0-M	ISO 13/10/8	R928 005 961	
1.0630 H3XL-A00-0-M	ISO 13/10/8	R928 005 997	
1.1000 H3XL-A00-0-M	ISO 13/10/8	R928 006 033	
2.0100 H3XL-A00-0-M	ISO 13/10/8	R928 006 753	
2.0160 H3XL-A00-0-M	ISO 13/10/8	R928 006 807	
2.0250 H3XL-A00-0-M	ISO 13/10/8	R928 006 861	
2.0400 H3XL-A00-0-M	ISO 13/10/8	R928 006 915	
2.0630 H3XL-A00-0-M	ISO 13/10/8	R928 006969	

3.1.5.5.2 Pressure differential resistance (collapse pressure) 330 bar

Designation (type)		Order number (manufacturer)	Data sheet
2.0100 H10XL-B00-0-M	ISO 17/14/10	R928 006 764	51 420
2.0160 H10XL-B00-0-M	ISO 17/14/10	R928 006 818	
2.0250 H10XL-B00-0-M	ISO 17/14/10	R928 006 872	
2.0400 H10XL-B00-0-M	ISO 17/14/10	R928 006 926	
2.0630 H10XL-B00-0-M	ISO 17/14/10	R928 006 980	
2.0100 H3XL-B00-0-M	ISO 13/10/8	R928 006 762	
2.0160 H3XL-B00-0-M	ISO 13/10/8	R928 006 816	
2.0250 H3XL-B00-0-M	ISO 13/10/8	R928 006 870	
2.0400 H3XL-B00-0-M	ISO 13/10/8	R928 006 924	
2.0630 H3XL-B00-0-M	ISO 13/10/8	R928 006 978	

3.1.6 Oil-water heat exchangers

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Heat exchanger AB32-12/00-K-006-22	4 kW (18 l/min); up to 10 bar	R900 028 816	AB 32-12

3.1.7 Thermostat

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Thermostat TT3050*E35030+TR7432	2 x normally open/normally closed contacts, programmable	R901 278 209	by IFM

TR7432 will be delivered until Dec. 31.2017 only; to be replaced by TR7439

3.1.8 Accumulators

3.1.8.1 Accumulator tank

Accumulators of the type "HAB...-350-6X/..." are not permitted!

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
HAB1-330-6X/0G05G-2N111-BA	1 liters	R901 191 370	50 171
HAB2,5-330-6X/0G07G-2N111-CE	2,5 liters	R901 191 371	
HAB4-330-6X/0G07G-2N111-CE	4 liters	R901 191 372	
HAB10-330-6X/0G09G-2N111-CE-	10 liters	R901 435 304	
HAB20-330-6X/0G09G-2N111-CE-	20 liters	R901 435 305	
HAB32-330-6X/0G09G-2N111-CE-	32 liters	R901 435 307	

3.1.8.2 Accumulator shut-off block (with manual unloading)

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DSV10M0.0/0 S105	G ¾ without pressure relief valve (see separate table)	R900 014 956	AB 42-07
DSV10M0.0/0 S107	G1 ¼ without pressure relief valve (see separate table)	R900 014 957	
DSV10M0.0/0 S109	G2 without pressure relief valve (see separate table)	R900 014 958	

3.1.8.3 Isolator valve with test connection

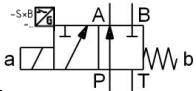
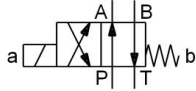
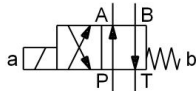
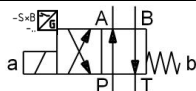
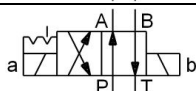

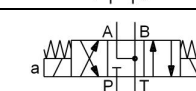


Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Isolator valve AB42-02/AMR-PA	for safety block; up to 400 bar; G1/2	R900 015 297	AB 42-02

3.2 Control devices

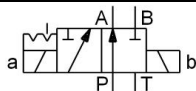
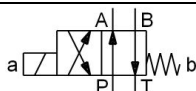


3.2.1 Directional valves (DC24V; K4, with LED; concealed manual override)

3.2.1.1 Spool valves – direct operated

3.2.1.1.1 Size 6

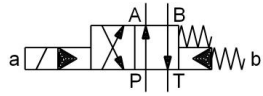
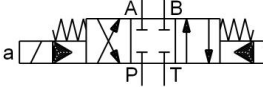
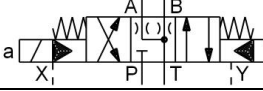

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
3WE6A6X/EG24N9K4QMBG24		R900 907 012	23 178
4WE6C6X/EG24N9K4		R900 561 272	
4WE6D6X/EG24N9K4		R900 561 274	
4WE6D6X/EG24N9K4QMBG24		R900 910 413	
4WE6D6X/OFEG24N9K4		R900 567 512	
4WE6E6X/EG24N9K4		R900 561 278	
4WE6J6X/EG24N9K4		R900 561 288	
4WE6Y6X/EG24N9K4		R900 561 276	
4WE6Y6X/EG24N9K4QMAG24		R900 923 204	

3.2.1.1.2 Size 10

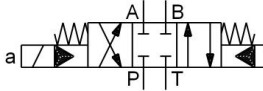
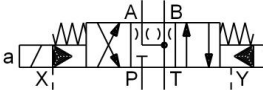
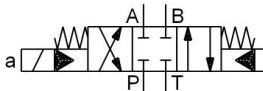
Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
3WE10A5X/OFEG24N9K4/MH		Upon request	23 340
4WE10D5X/EG24N9K4/MH		R901321520	
4WE10E5X/EG24N9K4/MH		R901325487	
4WE10J5X/EG24N9K4/MH		R901325488	

3.2.1.2 Spool valves – pilot operated

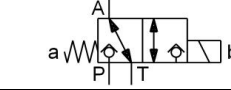

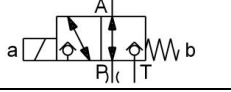
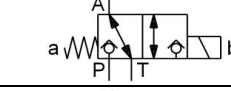
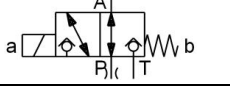
3.2.1.2.1 Size 16 (pmax 280 bar)

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
4WEH16D7X/6EG24N9ETK4/B10		R900 924 874	24 751
4WEH16E7X/6EG24N9ETK4/B10		R900 923 971	
4WEH16W7X/6EG24N9ETK4/B10		R901 045 630	
4WEH16Y7X/6EG24N9ETK4/B10		R900 248 848	

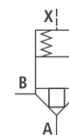
3.2.1.2.2 Sizes 25 and 32

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
H-4WEH25E6X/6EG24N9ETK4/B10D3		R900 952 126	24 751
H-4WEH25W6X/6EG24N9ETK4/B10D3		R900 929 750	
4WEH32E6X/6EG24N9ES2K4/B10		R900 701 440	

3.2.1.3 Poppet valves (350 bar, leakage oil-free)

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
M-3SEW6C3X/420MG24N9K4		R900 566 273	22 058
M-4SEW6D3X/420MG24N9K4		R900 566 293	
M-3SEW6U3X/420MG24N9K4		R900 566 283	22 075
M-3SEW10C1X/420MG24N9K4		R900 075 565	
M-3SEW10U1X/420MG24N9K4		R900 075 563	

3.2.2 2-way cartridge valves



3.2.2.1 Cartridge valves

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
LC16A..E7X/...	without damping nose	XXXX XXX XXX	21 010
LC16A..D7X/...	with damping nose	XXXX XXX XXX	
LC25A..E7X/...	without damping nose	XXXX XXX XXX	
LC25A..D7X/...	with damping nose	XXXX XXX XXX	
LC32A..E7X/...	without damping nose	XXXX XXX XXX	
LC32A..D7X/...	with damping nose	XXXX XXX XXX	
LC40A..E7X/...	without damping nose	XXXX XXX XXX	
LC40A..D7X/...	with damping nose	XXXX XXX XXX	
LC50A..E7X/...	without damping nose	XXXX XXX XXX	
LC50A..D7X/...	with damping nose	XXXX XXX XXX	
LC63A..E7X/...	without damping nose	XXXX XXX XXX	
LC63A..D7X/...	with damping nose	XXXX XXX XXX	
LC80A..E6X/...	without damping nose	XXXX XXX XXX	
LC80A..D6X/...	with damping nose	XXXX XXX XXX	
LC100A..E6X/...	without damping nose	XXXX XXX XXX	
LC100A..D6X/...	with damping nose	XXXX XXX XXX	
LC125A..E2X/...	without damping nose	XXXX XXX XXX	
LC125A..D2X/...	with damping nose	XXXX XXX XXX	

3.2.2.2 Control cover

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
LFA16D7X/...	standard cover	XXXX XXX XXX	21 010
LFA16GWB-7X/...	with shuttle valve, for directional valve set-up	XXXX XXX XXX	
LFA16H2-7X/...	with stroke limitation	XXXX XXX XXX	
LFA16WEA-7X/...	for directional valve set-up	XXXX XXX XXX	
LFA16WEB-7X/...	for directional valve set-up	XXXX XXX XXX	
LFA25D7X/...	standard cover	XXXX XXX XXX	
LFA25G7X/...	with shuttle valve	XXXX XXX XXX	
LFA25GWB-7X/...	with shuttle valve, for directional valve set-up	XXXX XXX XXX	
LFA25H2-7X/...	with stroke limitation	XXXX XXX XXX	
LFA25KWA-7X/...	with shuttle valve, for directional valve set-up	XXXX XXX XXX	
LFA25WEA-7X/...	for directional valve set-up	XXXX XXX XXX	
LFA25WEMA-7X/...	for directional valve set-up + additional port	XXXX XXX XXX	
LFA32D7X/...	standard cover	XXXX XXX XXX	
LFA32D19-7X/...	for leakage oil-free spool sealing	XXXX XXX XXX	
LFA32EWMA-7X/CA40DQMG24	with limit switch	R900 619 603	
LFA32GWB-7X/...	with shuttle valve, for directional valve set-up	XXXX XXX XXX	
LFA32H3-7X/...	with stroke limitation	XXXX XXX XXX	
LFA32WEA-7X/...	for directional valve set-up	XXXX XXX XXX	
LFA32WEMA-7X/...	for directional valve set-up + additional port	XXXX XXX XXX	
LFA40D7X/...	standard cover	XXXX XXX XXX	
LFA40H2-7X/...	with stroke limitation	XXXX XXX XXX	
LFA50GWA-7X/...	with shuttle valve, for directional valve set-up	XXXX XXX XXX	
LFA50H2-7X/...	with stroke limitation	XXXX XXX XXX	
LFA50WEB-7X/...	for directional valve set-up	XXXX XXX XXX	
LFA63D-7X/...	standard cover	XXXX XXX XXX	
LFA80D-7X/...	standard cover	XXXX XXX XXX	
LFA100D-6X/...	standard cover	XXXX XXX XXX	
LFA100WEA-6X/...	for directional valve set-up	XXXX XXX XXX	
LFA125D-2X/...	standard cover	XXXX XXX XXX	

3.2.3 Isolator valves



3.2.3.1 Check valves

3.2.3.1.1 Pipe installation

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
S 6 A05-1X/450J3	up to 420bar; up to 36 l/min; 1 bar spring	R901 454 046	20 378
S 8 A05-1X/450J3	up to 420bar; up to 60 l/min; 1 bar spring	R901 454 052	
S 10 A05-1X/450J3	up to 420bar; up to 150 l/min; without spring	R901 424 189	
S 15 A00-1X/450J3	up to 420bar; up to 150 l/min; 1 bar spring	R901 454 063	
S 15 A05-1X/450J3	up to 420bar; up to 150 l/min; 5 bar spring	R901 454 065	
S 15 A50-1X/450J3	up to 420bar; up to 180 l/min; 1 bar spring	R901 454 069	
S 20 A05-1X/450J3	up to 420bar; up to 180 l/min; 5 bar spring	R901 424 190	
S 20 A50-1X/450J3	up to 420bar; up to 350 l/min; 1 bar spring	R901 454 076	
S 25 A05-1X/420J3	up to 420bar; up to 450 l/min; 1 bar spring	R901 454 079	
S 30 A05-1X/420J3	up to 420bar; up to 450 l/min; 5 bar spring	R901 454 090	
S 30 A50-1X/420J3	up to 420bar; up to 36 l/min; 1 bar spring	R901 454 094	
S 6 A05-1X/450J3	up to 420bar; up to 60 l/min; 1 bar spring	R901 454 046	
S52F2-1X/	up to 315 bar; up to 1200 l/min; 5 bar spring	R900 446 709	20 392

3.2.3.1.2 Plate cartridge valves (angle valves)

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
M-SR08 KE05-1X/	up to 315 bar; up to 35 l/min; 0.5 bar spring	R900 346 083	20 380
M-SR10 KE05-1X/	up to 315 bar; up to 50 l/min; 0.5 bar spring	R900 344 549	
M-SR20 KE05-1X/	up to 315 bar; up to 200 l/min; 0.5 bar spring	R900 340 979	
M-SR25 KE05-1X/	up to 315 bar; up to 300 l/min; 0.5 bar spring	R900 344 778	
M-SR25 KE50-1X/SO11	up to 315 bar; up to 300 l/min; 5 bar spring	R900 926 052	
M-SR30 KE05-1X/	up to 315 bar; up to 400 l/min; 0.5 bar spring	R900 344 919	
M-SR30 KE30-1X/	up to 315 bar; up to 400 l/min; 0.5 bar spring	R900 345 961	
M-SR30 KE50-1X/SO11	up to 315 bar; up to 400 l/min; 0.5 bar spring	R900 923 676	
M-SR52 KE05-1X/	up to 315 bar; up to 1200 l/min; 0.5 bar spring	R900 306 740	20 395

3.2.3.1.3 Sandwich plate valves

3.2.3.1.3.1 Size 6

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Z1S6P15-4X/N	up to 315 bar; up to 40 l/min; check valve in P; spring 0.5 bar:	R901 219 725	21 534
Z1S6T15-4X/N	up to 315 bar; up to 40 l/min; check valve in T; spring 0.5 bar:	---	

3.2.3.1.3.2 Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Z1S10P05-1-4X/N	up to 315 bar; up to 100 l/min; check valve in P; spring 0.5 bar:	R901 285 818	21 537
Z1S10T05-1-4X/N	up to 315 bar; up to 100 l/min; check valve in T; spring 0.5 bar:	Upon request	

3.2.3.1.3.3 Size 16

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Z1S16P1-1X/		R900 550 413	48 054
Z1S16T1-1X/		Upon request	

3.2.3.1.3.4 Size 22

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Z1S22P1-1X/		R900 523 050	48 056
Z1S22T1-1X/		R900 926 565	

3.2.3.2 Check valves – hydraulically pilot operated

3.2.3.2.1 Pipe installation

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
SL10GA1-4X/	up to 315 bar; up to 150 l/min; with pre-opening + leakage oil connection	R900 483 370	21 468
SL10GB1-4X/100	up to 315 bar; up to 150 l/min; without pre-opening + leakage oil connection	R900 451 135	
SL20GA1-4X/	up to 315 bar; up to 350 l/min; with pre-opening + leakage oil connection	R900 587 554	
SL30GA1-4X/	up to 315 bar; up to 550 l/min; with pre-opening + leakage oil connection	R900 587 556	
SV10GA1-4X/	up to 315 bar; up to 150 l/min; with pre-opening	R900 483 368	
SV20GA1-4X/	up to 315 bar; up to 350 l/min; with pre-opening	R900 587 550	

3.2.3.2.2 Subplate mounting

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
SV30PA1-4X/	up to 315 bar; up to 350 l/min; with pre-opening	R900 587 558	21 468

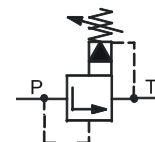
3.2.3.2.3 Sandwich plate design

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Z2S6-1-6X/	up to 315 bar; up to 40 l/min; check valve in A and B; spring 1.5 bar:	R900 347 495	21 548
Z2S10-1-3X/	up to 315 bar; up to 100 l/min; check valve in A and B; spring 1.5 bar:	R900 407 394	21 553
Z2S16-1-5X/	up to 315 bar; up to 300 l/min; check valve in A and B; spring 3 bar:	R900 407 394	21 558
Z2S22-1-5X/	up to 315 bar; up to 450 l/min; check valve in A and B; spring 3 bar:	R900 407 394	21 564

3.2.4 Pressure valves

3.2.4.1 Pressure relief valves

3.2.4.1.1 Direct operated



3.2.4.1.1.1 Subplate mounted valves

Size 6

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBDS6P1X/50	up to 50 bar; up to 50 l/min	R900423 732	25 402
DBDS6P1X/100	up to 100 bar; up to 50 l/min	R900 423 728	
DBDS6P1X/200	up to 200 bar; up to 50 l/min	R900 423 729	
DBDS6P1X/315	up to 315 bar; up to 50 l/min;	R900 423 730	

Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBDS10P1X/50	up to 50 bar; up to 120 l/min	R900 425 661	25 402
DBDS10P1X/100	up to 100 bar; up to 120 l/min	R900 424 155	
DBDS10P1X/200	up to 200 bar; up to 120 l/min	R900 424 157	
DBDS10P1X/315	up to 315 bar; up to 120 l/min	R900 424 158	

Size 20

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBDS20P1X/50	up to 50 bar; up to 250 l/min	R900 424 272	25 402
DBDS20P1X/100	up to 100 bar; up to 250 l/min	R900 424 274	
DBDS20P1X/200	up to 200 bar; up to 250 l/min	R900 424 277	
DBDS20P1X/315	up to 315 bar; up to 250 l/min	R900 424 278	

3.2.4.1.1.2 Screw-in cartridge valves

Size 6

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBDS6K1X/50	up to 50 bar; up to 50 l/min;	R900 423 727	25 402
DBDS6K1X/100	up to 100 bar; up to 50 l/min;	R900 423 723	
DBDS6K1X/200	up to 200 bar; up to 50 l/min;	R900 423 724	
DBDS6K1X/315	up to 315 bar; up to 50 l/min;	R900 423 725	

Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBDS10K1X/50	up to 50 bar; up to 120 l/min;	R900 424 153	25 402
DBDS10K1X/100	up to 100 bar; up to 120 l/min;	R900 424 147	
DBDS10K1X/200	up to 200 bar; up to 120 l/min;	R900 424 149	
DBDS10K1X/315	up to 315 bar; up to 120 l/min;	R900 424 150	

Size 20

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBDS20K1X/50	up to 50 bar; up to 250 l/min;	R900 424 205	25 402
DBDS20K1X/100	up to 100 bar; up to 250 l/min;	R900 424 267	
DBDS20K1X/200	up to 200 bar; up to 250 l/min;	R900 423 269	
DBDS20K1X/315	up to 315 bar; up to 250 l/min;	R900 424 271	

3.2.4.1.1.3 Valves for threaded connection

Size 6

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBDS6G1X/50	up to 50 bar; up to 50 l/min;	R900 423 722	25 402
DBDS6G1X/100	up to 100 bar; up to 50 l/min;	R900 423 717	
DBDS6G1X/200	up to 200 bar; up to 50 l/min;	R900 423 719	
DBDS6G1X/315	up to 315 bar; up to 50 l/min;	R900 423 720	

Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBDS10G1X/50	up to 50 bar; up to 120 l/min;	R900 424 745	25 402
DBDS10G1X/100	up to 100 bar; up to 120 l/min;	R900 424 738	
DBDS10G1X/200	up to 200 bar; up to 120 l/min;	R900 424 140	
DBDS10G1X/315	up to 315 bar; up to 120 l/min;	R900 424 742	

Size 20

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBDS20G1X/50	up to 50 bar; up to 250 l/min;	R900 424 276	25 402
DBDS20G1X/100	up to 100 bar; up to 250 l/min;	R900 424 170	
DBDS20G1X/200	up to 200 bar; up to 250 l/min;	R900 424 172	
DBDS20G1X/315	up to 315 bar; up to 250 l/min;	R900 424 174	

3.2.4.1.1.4 Sandwich plate valves

Size 6

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
HSZ06A100-3X/S025M00	Sandwich plate with pressure relief function P->T	R900 936 130	48 050
ZDBT-XA2-1X/160	Sandwich plate with pressure relief function A->T	0811 104 120	25 724
ZDBT-XP2-1X/160	Sandwich plate with pressure relief function P->T	0811 104 112	
ZDBT-XP2-1X/315	Sandwich plate with pressure relief function P->T	0811 104 113	

Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
HSZ10A100-3X/M00	Sandwich plate with pressure relief function P->T	R900 526 220	48 052

3.2.4.1.2 Pilot operated

3.2.4.1.2.1 Subplate mounted valves

Size 20

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DB20-2-5X/200XY	up to 200 bar; up to 500 l/min;	R900 500 218	25 802
DB20-2-5X/50	up to 50 bar; up to 500 l/min;	R900 597 212	

Size 30

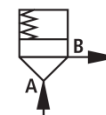
Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DB30-2N5X/200E	up to 200 bar; up to 650 l/min;	R900 769 503	25 802
DB30-2N5X/210E	up to 210 bar; up to 650 l/min;	R900 769 505	

3.2.4.1.2.2 Screw-in cartridge valves

Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DB10K2-4X/50Y	up to 50 bar; up to 100 l/min;	R900 408 654	25 731
DB10K2-4X/100Y	up to 100 bar; up to 100 l/min;	R900 430 681	
DB10K2-4X/200Y	up to 200 bar; up to 100 l/min;	R900 481 084	

3.2.4.1.2.3 2-way cartridge valves



Cartridge valve

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
LC16DB20E7X/		R900 912 531	21 050
LC16DB40E7X/		R900 912 532	
LC25DB40D7X/		R900 912 555	
LC32DB20D7X/		R900 912 556	
LC32DB20E7X/		R900 912 543	
LC32DB40E7X/		R900 910 773	
LC32DB40E7X/004	leakage oil-free	R900 919 236	
LC32DB50E7X/		R900 947 666	
LC402DB20D7X/		R900 928 821	
LC40DB20E7X/		R900 938 012	
LC40DB40E7X/		R900 927 969	
LC40DB40E7X/-104	leakage oil-free	R900 947 917	

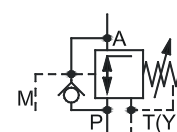
Control cover

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
LFA16DB2-7X/...	pressure limitation	XXXX XXX XXX	21 050
LFA16DBWD1-7X/...	pressure limitation with shut-off	XXXX XXX XXX	
LFA32DAWB2-7X/...	pressure limitation with shut-off	XXXX XXX XXX	
LFA32DB2-7X/...	pressure limitation	XXXX XXX XXX	
LFA32DBE-7X/...	proportional pressure limitation	XXXX XXX XXX	
LFA32DBEM-7X/...	proportional pressure limitation	XXXX XXX XXX	
LFA32DBW-7X/...	pressure limitation with shut-off	XXXX XXX XXX	
LFA32DR2-7X/...	pressure reduction	XXXX XXX XXX	
LFA40DB2-7X/...	pressure limitation	XXXX XXX XXX	
LFA40DBW2-7X/...	pressure limitation with shut-off	XXXX XXX XXX	
LFA40DR2-7X/...	pressure reduction	XXXX XXX XXX	

3.2.4.2 Pressure reducing valves

3.2.4.2.1 Direct operated

3.2.4.2.1.1 Subplate mounted valves



Size 6

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DR6DP2-5X/150Y	up to 150 bar; up to 60 l/min; with check v.	R900 413 242	26 564
DR6DP2-5X/210YM	up to 210 bar; up to 60 l/min; without check v.	R900 455 316	

Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DR10DP2-4X/75Y	up to 75 bar; up to 80 l/min; with check v.	R900 500 471	26 580
DR10DP2-4X/210Y	up to 210 bar; up to 80 l/min; with check v.	R900 594 125	

3.2.4.2.1.2 Sandwich plate valves

Size 6

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
ZDR6DA2-4X/150YM	up to 150 bar; up to 80 l/min; in channel A; without check v.	R900 445 958	26 570
ZDR6DA2-4X/150Y	up to 150 bar; up to 50 l/min; in channel A; with check v.	R900 410 849	
ZDR6DA2-4X/210YM	up to 210 bar; up to 50 l/min; in channel A; without check v.	R900 423 213	
ZDR6DA2-4X/210Y	up to 210 bar; up to 50 l/min; in channel A; with check v.	R900 410 855	
ZDR6DB2-4X/150YM	up to 150 bar; up to 50 l/min; in channel B; without check v.	R900 431 172	
ZDR6DB2-4X/210YM	up to 210 bar; up to 50 l/min; in channel B; without check v.	R900 463 269	
ZDR6DP2-4X/150YM	up to 150 bar; up to 50 l/min; in channel P; without check v.	R900 483 787	
ZDR6DP2-4X/210YM	up to 210 bar; up to 50 l/min; in channel P; without check v.	R900 483 788	

Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
ZDR10DA2-5X/150YM	up to 150 bar; up to 80 l/min; in channel A; without check v.	R900 406 225	26 585
ZDR10DA2-5X/150Y	up to 150 bar; up to 80 l/min; in channel A; with check v.	R900 410 884	
ZDR10DA2-5X/210YM	up to 210 bar; up to 80 l/min; in channel A; without check v.	R900 428 474	
ZDR10DA5-5X/210Y	up to 210 bar; up to 80 l/min; in channel A; with check v.	R900 406 651	
ZDR10DB2-5X/150YM	up to 150 bar; up to 80 l/min; in channel B; without check v.	R900 408 340	
ZDR10DB2-5X/210YM	up to 210 bar; up to 80 l/min; in channel B; without check v.	R900 443 484	
ZDR10DP2-5X/150YM	up to 150 bar; up to 80 l/min; in channel P; without check v.	R900 410 880	
ZDR10DP2-5X/210YM	up to 210 bar; up to 80 l/min; in channel P; without check v.	R900 410 876	

3.2.4.2.2 Pilot operated

Size 10

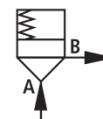
Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DR10-5-5X/200YM	up to 200 bar; up to 150 l/min; without check v.	R900 598 358	26 892

Size 20

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DR20-5-5X/200YM	up to 200 bar; up to 300 l/min; without check v.	R900 597 233	26 892

3.2.4.2.2.1 2-way cartridge valves

Cartridge valve: See chapter 3.2.4.1.2.3



Control cover

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
LFA32DR2-7X/...	pressure reduction	XXXX XXX XXX	21 050
LFA40DR2-7X/...	pressure reduction	XXXX XXX XXX	

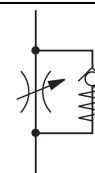
3.2.5 Flow control valves



3.2.5.1 Throttle valves

3.2.5.1.1 Pipe fitting

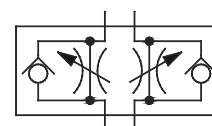
Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
MG6G1X/V	up to 315 bar; up to 15 l/min; G1/4;	R900 437 338	27 219
MG8G1X/V	up to 315 bar; up to 30 l/min; G3/8;	R900 438 885	
MG10G1X/V	up to 315 bar; up to 50 l/min; G1/2;	R900 422 145	
MG15G1X/V	up to 315 bar; up to 125 l/min; G3/4;	R900 437 653	
MG20G1X/V	up to 315 bar; up to 200 l/min; G1;	R900 422 150	
MG25G1X/V	up to 315 bar; up to 300 l/min; G1 1/4;	R900 413 979	
MG30G1X/V	up to 315 bar; up to 400 l/min; G1 1/2;	R900 422 453	



3.2.5.2 Throttle check valves

3.2.5.2.1 Pipe fitting

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
MK6G1X/V	up to 315 bar; up to 15 l/min; G1/4;	R900 423 340	27 219
MK8G1X/V	up to 315 bar; up to 30 l/min; G3/8;	R900 423 343	
MK10G1X/V	up to 315 bar; up to 50 l/min; G1/2;	R900 424 579	
MK15G1X/V	up to 315 bar; up to 125 l/min; G3/4;	R900 423 326	
MK20G1X/V	up to 315 bar; up to 200 l/min; G1;	R900 423 328	
MK25G1X/V	up to 315 bar; up to 300 l/min; G1 1/4;	R900 423 330	
MK30G1X/V	up to 315 bar; up to 400 l/min; G1 1/2;	R900 423 333	



3.2.5.2.2 Sandwich plate valves

Size 6

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Z2FS6A2-4X/2Q	up to 315 bar; up to 80 l/min; in channel A; discharge throttle.	R900 440 565	27 506
Z2FS6B2-4X/2Q	up to 315 bar; up to 80 l/min; in channel B; discharge throttle.	R900 423 224	
Z2FS6-2-4X/2Q	up to 315 bar; up to 80 l/min; in channel A+B	R900 481 622	

Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Z2FS10-5-3X/	up to 315 bar; up to 160 l/min; in channel A+B	R900 989 095	27 518
Z2FS10A5-3X/S2	up to 315 bar; up to 160 l/min; in channel A; discharge throttle.	R900 571 890	
Z2FS10B5-3X/S2	up to 315 bar; up to 160 l/min; in channel B; discharge throttle.	R900 989 106	

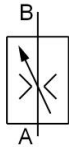
Size 16


Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
Z2FS16A8-3X/S2	up to 350 bar; up to 250 l/min; in channel A	Upon request	27 526
Z2FS16-3X/S2	up to 350 bar; up to 250 l/min; in channel A+B	Upon request	

3.2.5.3 Flow control valves

3.2.5.3.1 Subplate mounted valves

Size 6



Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
2FRM6A76-3X/32QR	up to 315 bar; up to 32 l/min; with check valve 	Upon request	28 163

Size 10

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
2FRM10-3X/25LB	up to 315 bar; up to 25 l/min;	Upon request	28 389
2FRM10-3X/50LB	up to 315 bar; up to 50 l/min;	Upon request	

3.2.5.3.2 Screw-in cartridge valves

Size 6

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
2FRM6K2-1X/6QR	up to 315 bar; up to 6 l/min;	Upon request	28 155
2FRM6K2-1X/32QR	up to 315 bar; up to 32 l/min;	Upon request	

Size 10

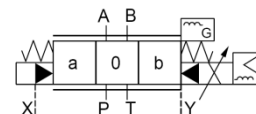
Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
2FRM10K2-1X/60QR	up to 315 bar; up to 60 l/min;	Upon request	28 155

3.3 Proportional and servo valves

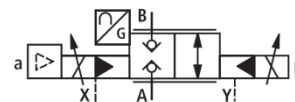
Preferably, components with integrated electronics are to be used.
If this is not possible, the respective control electronics must be added.

3.3.1 Directional valves

3.3.1.1 Spool valves



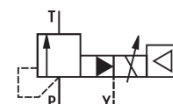
Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
4WRKE10...3X/6EG24...K31/...D3M	up to 350 bar; with integrated electronics	XXXX XXX XXX	29 075
4WRKE16...3X/6EG24...K31/...D3M	up to 350 bar; with integrated electronics	XXXX XXX XXX	
4WRKE25...3X/6EG24...K31/...D3M	up to 350 bar; with integrated electronics	XXXX XXX XXX	
4WRKE35...3X/6EG24...K31/...D3M	up to 350 bar; with integrated electronics	XXXX XXX XXX	
4WRLE16...Z.SJ-3XH/G24:K0/A1M	P,A,B up to 350 bar; with integrated electronics	XXXX XXX XXX	29 089
4WRPE6...SJ-2X/G24K0.M	up to 315 bar; with integrated electronics	XXXX XXX XXX	29 025
4WRPE10... SJ-2X/G24K0.M	up to 315 bar; with integrated electronics	XXXX XXX XXX	
4WRVE25...-2XH/G24.K0/B5M	P,A,B up to 350 bar; with integrated electronics	XXXX XXX XXX	29 077
4WRZ10...-7X/...M	up to 350 bar; without integrated electronics	XXXX XXX XXX	29 115



3.3.1.2 High-response cartridge valve 2-way and 3-way version

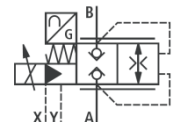
Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
2WRCE32S...-3X/PG24K31/...	up to 420 bar, 2-way cartridge valve	XXXX XXX XXX	29 137
2WRCE40S...-3X/PG24K31/...	up to 420 bar, 2-way cartridge valve	XXXX XXX XXX	
2WRCE63K...-1X/SG15/M...	up to 420 bar, 2-way cartridge valve	XXXX XXX XXX	
2WRCE80K...-1X/SG15/M...	up to 420 bar, 2-way cartridge valve	XXXX XXX XXX	
2WRCE100K...-1X/SG15/M...	up to 420 bar, 2-way cartridge valve	XXXX XXX XXX	
3WRCE63L...-1X/SG15/M ...	up to 420 bar, 3-way cartridge valve	XXXX XXX XXX	
3WRCE80L...-1X/SG15/M...	up to 420 bar, 3-way cartridge valve	XXXX XXX XXX	

3.3.2 Pressure valves: Pressure relief valves



Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
DBET-6X/...G24K4...SO33	up to 420 bar; without integrated electronics	Upon request	29 162
DBETE-6X/...G24K31...SO33	up to 420 bar; with integrated electronics	Upon request	
DBETR-1X/...G24K4M	up to 350 bar; without integrated electronics	Upon request	29 166
(Z)DBEE6...-1X/...G24NK31M	up to 315 bar; with integrated electronics	Upon request	29 158

3.3.3 Flow control valves: 2-way proportional throttle valve for block installation



Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
FES40CA-3X/...K4...M	up to 315 bar; without integrated electronics	XXXX XXX XXX	29 209
FESE40CA-3X/...K0...M	up to 315 bar; with integrated electronics	XXXX XXX XXX	

3.4 Cylinders

3.4.1 Tie rod cylinders

Piston rod with square, with drain port if required

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
CDT3...3X/...H ^① ...E ^② ...TB ^③ ...	160 bar; Pistons 25-200 mm; rods 12-140 mm	XXXX XXX XXX	17 049
CGT3...3X/...H ^① ...E ^② ...TB ^③ ...	160 bar; Pistons 25-200 mm; rods 12-140 mm	XXXX XXX XXX	

- ① H = Piston rod hardened and hard chromium-plated
- ② E = End position cushioning adjustable on both sides
- ③ B = with leakage oil connection (only for concealed cylinders)

3.5 Accessories

3.5.1 Cover plates

Designation (type)	Techn. data	Order number (manufacturer)	Data sheet
HSA06A001-3X/M00	up to 315 bar; as cover plate with porting pattern A06	R900 316 232	48 042
HSA06A064-3X/M00	Cover plate with pressure relief function P-T	R900 579 914	---

Notes: