

Component List for SKF Lubrication Systems Products

Original date: 01-October-2010

Revised date: 19-June-2013

Version No.: 1.7

Scope of the Document

This document contains product information to be used for the selection of components for FGA E&T-CPT programs. This document provides a basic guide to selecting the correct type of lubrication system for the correct application. It also provides the necessary contact information to assist in application engineering, program management review, and stocking locations for ease of purchasing.

All information contained in this document is superseded by the requirements of the FGA E&T-CPT Global Specification.

A current, and accurate, copy of the specification can be obtained from the following web addresses:

<http://supplierinfo.fiatpowertrain.com>

<https://gsp.extra.chrysler.com/mfg/amedd/powertrain.htm>

Document Management Information

<https://www.skf.com/group/products/lubrication-management/system-components/specifications-of-the-automotive-industry>

Any printed copy is an uncontrolled copy. The user shall verify with the project engineer that he/she is using the appropriate version of the specification for the specific project he/she is working on.

Any questions or comments with respect to this specification should be directed to the project engineer for the specific project in question.

Revision Date DD-Month-YYYY	Version No.	Paragraph Affected	Revised By
01-October-2010	1	Original release	R. Gomez Eva-M Tausend
02-February-2011	1.1	Minor formatting changes. 2.2.5, 3.10 - added KFB1-M-W-XXX 2.5.4, 3.7 - added ETP unit 2.11, 3.29 (inserted section) - added check valves for progressive feeders 2.12.4, 2.12.5, 3.21.1 - connectors for cycle switches 3.5.1 - minor drawing revision	D. Schultz
03-February-2012	1.2	Correction made to Section 2.17.2 3/4" Female Quick Coupling read 995-001-521, which is 3/4" Male; changed to 995-001-519	R. Reynolds
27-June-2012	1.3	Replaced all FPT logo with new FP logo, as requested by John H. Janssen Jr., Chrysler LLC 3.0 - revised voltage code +564 to +1FV; and added note "...FP projects in China use voltage code +1FW"	R. Reynolds
01-October-2012	1.4	Added note "...FP projects in Brazil use voltage code +MDG", as requested by Mr. Giuliano of Fiat.	R. Reynolds
19-December-2012	1.5	Added missing technical drawings for all. 1.1 Revised contact to Mr. Angelo Giuliano	R. Reynolds
26-March-2013	1.6	Added order form as requested by Dario Canevari of Fiat; and other general updates	R. Reynolds
19-June-2013	1.7	Fiat Powertrain is now Fiat Group Automobiles S.p.A. Engine and Transmission; replaced old logo & company name with new on all pages	R. Reynolds



Index

Document Management Information	2
1. SKF Lubrication Systems Persons to Contact	6
1.1 CPT and FGA E&T contact	6
2. List of components.....	7
2.1 <i>Pumps for single line parallel piston distributors for oil.....</i>	<i>7</i>
2.2 <i>Pumps for single line parallel piston distributors for fluid grease.....</i>	<i>8</i>
2.3 <i>Pumps for high speed spindle lubrication Oil+Air.....</i>	<i>9</i>
2.4 <i>Pumps for Progressive systems for oil.....</i>	<i>10</i>
2.5 <i>Piston pumps for Progressive systems for grease.....</i>	<i>11</i>
2.6 <i>Single line parallel piston distributors for oil</i>	<i>12</i>
2.7 <i>Single line parallel piston distributors for fluid grease.....</i>	<i>13</i>
2.8 <i>Manifolds for single point piston distributors</i>	<i>13</i>
2.9 <i>Oil+Air metering units</i>	<i>14</i>
2.10 <i>Progressive feeders.....</i>	<i>15</i>
2.11 <i>Check Valves for progressive feeders.....</i>	<i>16</i>
2.12 <i>Cycle switches and connectors for Progressive feeder.....</i>	<i>17</i>
2.13 <i>Over pressure indicators for Progressive feeder.....</i>	<i>17</i>
2.14 <i>Electronic pressure switches</i>	<i>18</i>
2.15 <i>Flow monitors for piston distributor systems</i>	<i>18</i>
2.16 <i>Oil+Air streak sensor</i>	<i>19</i>
2.17 <i>Filter.....</i>	<i>19</i>
2.18 <i>Quick disconnect couplings - CPT ONLY!</i>	<i>20</i>
2.19 <i>Glycerine filled pressure gauges</i>	<i>21</i>
2.20 <i>Solenoid valves</i>	<i>21</i>
2.21 <i>VARIO Units for MQL systems.....</i>	<i>23</i>
2.22 <i>DigitalSuper Units for MQL systems.....</i>	<i>24</i>
2.23 <i>Aerosol Monitor for MQL systems</i>	<i>24</i>
3.0 Technical Information and Drawings.....	25
3.1 <i>MFE-pumps for piston distributor system for oil</i>	<i>25</i>
3.1.1 <i>Standard dimensions of reservoirs: 3, 6 and 15 liter (all dimensions are in mm).....</i>	<i>26</i>
3.1.2 <i>Standard dimensions of reservoirs: 30 and 50 liter (all dimensions are in mm).....</i>	<i>27</i>
3.1.3 <i>MFE5-KW*-C100+1FV</i>	<i>28</i>
3.1.4 <i>MFE5-BW*-C100+1FV</i>	<i>29</i>



3.1.5	<i>MFE5-KW*-F100+140</i>	30
3.1.6	<i>MFE5-BW*-F100+140</i>	31
3.1.7	<i>P-886-BWW*-C100</i>	32
3.2	<i>Angle bracket for filter assembling</i>	33
3.3	<i>Quick disconnect coupling</i>	33
3.4	<i>Glycerine filled pressure gauges</i>	34
3.5	<i>MFE-pumps for piston distributors for fluid grease</i>	35
3.5.1	<i>Standard dimensions of reservoirs: 3 and 6 liter (plastic)</i>	36
3.5.2	<i>MFE2-KW*F-C100+1FV</i>	367
3.5.3	<i>MFE2-KW*F-F100+140</i>	38
3.6	<i>MF/MFE pumps for Progressive systems for oil</i>	39
3.6.1	<i>Standard dimensions of reservoirs: 6 liter (all dimensions are in mm)</i>	40
3.6.2	<i>MFE1-BW*-C100+1FV</i>	41
3.6.3	<i>MF1-BW*-C100+1FV</i>	42
3.6.4	<i>MFE1-BW*-F100+140</i>	43
3.6.5	<i>MF1-BW*-F100+140</i>	44
3.7	<i>ETP-X-WZ-XXXXX-X+924</i>	45
3.8	<i>KFG1-5W2x-V71+924 piston pump for Progressive systems for fluid grease</i>	47
3.9	<i>KFG1-5W1x-V71+924 piston pump for Progressive systems for grease</i>	48
3.10	<i>KFB1-M-W-XXX</i>	49
3.11	<i>KFA1-M-WA-V71+924 pumps for Progressive systems for grease</i>	50
3.12	<i>Piston Distributor 341 and Manifolds</i>	51
3.13	<i>Piston Distributor 342,343,345 Series</i>	53
3.14	<i>Piston Distributor 351 and Manifolds</i>	56
3.15	<i>Piston Distributor 352,353,355 Series</i>	58
3.16	<i>Piston Distributor 391 and Manifolds</i>	61
3.17	<i>Piston Distributor 392, 393 Series</i>	63
3.18	<i>Oil + Air Mixing Valves</i>	66
3.19	<i>Progressive Feeder VPG</i>	67
3.20	<i>Progressive Feeder VPKG</i>	69
3.21	<i>Progressive Feeder VPBG</i>	71
3.22	<i>Progressive Feeder PSG2</i>	73
3.23	<i>177-300-094 cycle switch for VP and PSG progressive feeders</i>	76
3.24	<i>177-300-095 cycle switch for VPK progressive feeders</i>	77
3.25	<i>177-300-097 cycle switch for VPB progressive feeders</i>	78



3.26	Cycle Switch Connectors for Progressive Feeders.....	79
3.27	Overpressure Indicators for Progressive Feeders.....	80
3.28	Pressure Switch - 176-190-001	81
3.29	Pressure Switch - DS-EP-40-D-4	82
3.30	Flow Monitor GS300.....	83
3.31	Oil + Air Streak Sensor GS4011-S.....	84
3.32	Solenoid valve 161-110-031.....	85
3.33	Solenoid valve 161-120-064	86
3.34	Solenoid valve 161-140-050	87
3.35	Solenoid valve - VPG-VEN-V71A.....	88
3.36	Solenoid valve - VPG-VEN-V71	889
3.37	Pressure filter NG63 acc. to DIN24550	90
3.38	Check valves for progressive feeders	91
3.39	Lubrilean VARIO UFV10-014-2.....	92
3.40	Lubrilean VARIOPLUS UFV10-019-2	93
3.41	Lubrilean VARIOSUPER.....	94
3.42	Lubrilean DigitalSuper.....	95
3.43	Lubrilean Aerosol Monitor AM1000	96
4.0	Order Form.....	97



1. SKF Lubrication Systems Persons to Contact

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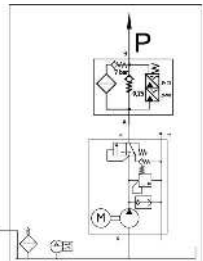
1.1 CPT and FGA E&T contact

FP & CPT	Europe (Italy)	North America
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Mobile		
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E-Mail	angelo.giuliano@fptpowertrain.com	

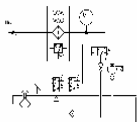


2. List of components

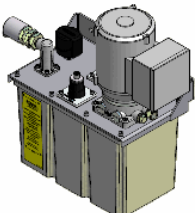
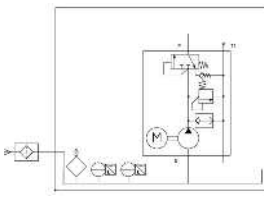
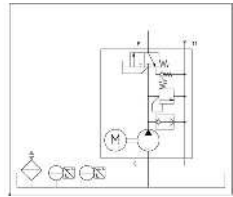
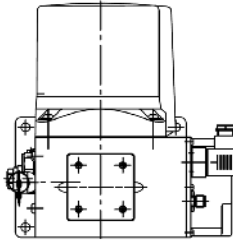
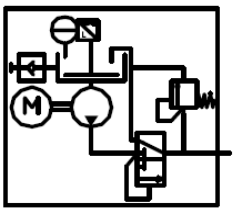
2.1 Pumps for single line parallel piston distributors for oil

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	RESERVOIR	Notes
2.1.1			MFE5-KW3-C100+1FV MFE5-KW6-C100+1FV	CPT only Gear pump for oil Flow rate: 0,5 ltr/min Pressure: 27 bar Electrical: 220-240 / 380-420V @ 50 Hz; 254-280/440-460V @ 60Hz; both +/- 5%, UL/SCA	3l-plastic reservoir 6l-plastic reservoir	CPT Only! Quick fill to be ordered separately. See page 33. Standard components: Filter w/ dirt indicator Pressure gauge Low level float switch Breather
2.1.2			MFE5-BW3-C100+1FV MFE5-BW7-C100+1FV MFE5-BW16-C100+1FV MFE5-BW30-C100+1FV MFE5-BW50-C100+1FV	CPT only Gear pump for oil Flow rate: 0,5 ltr/min Pressure: 27 bar Electrical: 220-240 / 380-420V @ 50 Hz; 254-280/440-460V @ 60Hz; both +/- 5%, UL/SCA	3l metal reservoir 6l metal reservoir 15l metal reservoir 30l metal reservoir 50l metal reservoir	CPT Only! Quick fill to be ordered separately. See page 33. Standard components: Filter w/ dirt indicator Pressure gauge Low level float switch Breather
2.1.3			MFE5-KW3-F100+140 MFE5-KW6-F100+140	FP only Gear pump for oil Flow rate: 0,5 ltr/min Pressure: 27 bar Electrical: 400V, 3PH, 50Hz	3l-plastic reservoir 6l-plastic reservoir	FP Only! Standard components: Filter w/ dirt indicator Pressure gauge Low level float switch Breather
2.1.4			MFE5-BW3-F100+140 MFE5-BW7-F100+140 MFE5-BW16-F100+140 MFE5-BW30-F100+140 MFE5-BW50-F100+140	FP only Gear pump for oil Flow rate: 0,5 ltr/min Pressure: 27 bar Electrical: 400V, 3PH, 50Hz	3l metal reservoir 6l metal reservoir 15l metal reservoir 30l metal reservoir 50l metal reservoir	FP Only! Standard components: Filter w/ dirt indicator Pressure gauge Low level float switch Breather



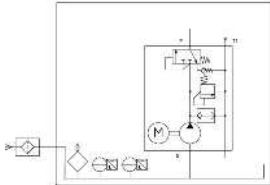
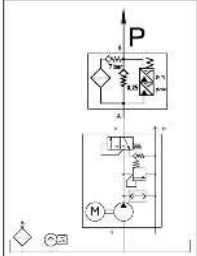
2.1.5			P-886-BWW7-C100 P-886-BWW16-C100	CPT Only Piston pumps for oil Volume/stroke: 30cc Oil Pres max: 25bar Air Pres max: 10bar	7L metal reservoir 16L metal reservoir	CPT Only! Quick fill to be ordered separately. See page 33. Standard components: Filter w/ dirt indicator Pressure gauge Low level float switch Breather
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2.2 Pumps for single line parallel piston distributors for fluid grease

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	RESERVOIR	Notes
2.2.1			MFE2-KW3F-C100+1FV MFE2-KW6F-C100+1FV	CPT only Gear pump for fluid grease Flow rate: 0,2 ltr/min Pressure: 38 bar Electrical: 220-240 / 380-420V @ 50 Hz; 254-280/440-460V @ 60Hz; both +/- 5%, UL/SCA	3l plastic tank 6l plastic tank	CPT Only! Quick fill to be ordered separately. See page 33. Use with 213-900 grease filter in section 2.17
2.2.2			MFE2-KW3F-F100+140 MFE2-KW6F-F100+140	FP only Gear pump for fluid grease Flow rate: 0,2 ltr/min Pressure: 38 bar Electrical: 400V, 3PH, 50Hz	3l plastic tank 6l plastic tank	FP Only! Use with 213-900 grease filter in section 2.17
2.2.3			KFB1-M-W+924	Gear pump for Fluid grease unit for 5-15 points Max Flow rate: 50 cm³/min Pressure: 38 bar Electrical: 24VDC	1.4l plastic reservoir	CPT Only!

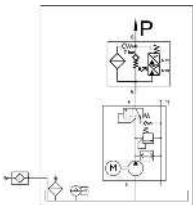
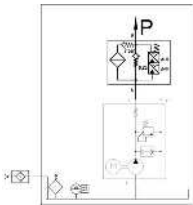
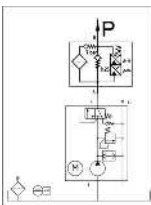


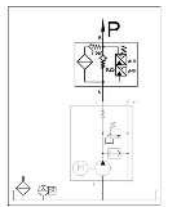
2.3 Pumps for high speed spindle lubrication Oil+Air

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	RESERVOIR	Notes
2.3.1			MFE5-KW3-C100+1FV 3 phase motor	CPT only Gear pump for oil Flow rate: 0,5 ltr/min Pressure: 27 bar Electrical: 220-240 / 380-420V @ 50 Hz; 254-280/440-460V @ 60Hz; both +/- 5%, UL/SCA	3l-plastic reservoir	CPT only! Quick fill to be ordered separately. See page 33. Standard components: Filter w/ dirt indicator Pressure gauge Low level float switch Breather
2.3.2			MFE5-KW3-F100+140 3 phase motor	FP only Gear pump for oil Flow rate: 0,5 ltr/min Pressure: 27 bar Electrical: 400V, 3PH, 50Hz	3l-plastic reservoir	FP Only! Use with 213-900 grease filter in section 2.17

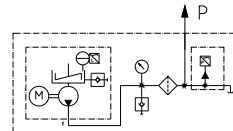
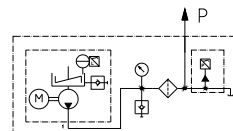
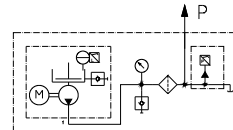


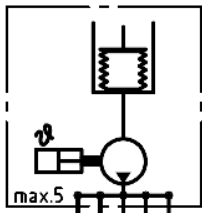
2.4 Pumps for Progressive systems for oil

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	RESERVOIR	Notes
2.4.1			MFE1-BW7-C100+1FV	CPT only For intermittend systems Flow rate: 0,06 ltr/min Pressure: 60 bar Electrical: 220-240 / 380-420V @ 50 Hz; 254-280/440-460V @ 60Hz; both +/- 5%, UL/SCA	6l metal reservoir	CPT Only! Quick fill to be ordered separately. See page 33.
2.4.2			MF1-BW7-C100+1FV	CPT only For circulating systems Flow rate: 0,1 ltr/min Pressure: 60 bar Electrical: 220-240 / 380-420V @ 50 Hz; 254-280/440-460V @ 60Hz; both +/- 5%, UL/SCA	6l metal reservoir	CPT Only! Quick fill to be ordered separately. See page 33.
2.4.3			MFE1-BW7-F100+140	FP only For intermittend systems Flow rate: 0,06 ltr/min Pressure: 60 bar Electrical: 400V, 3PH, 50Hz	6l metal reservoir	FTP only!

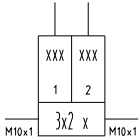
2.4.4			MF1-BW7-F100+140	FP only For circulating systems Flow rate: 0,1 ltr/min Pressure: 60 bar Electrical: 400V, 3PH, 50Hz	6l metal reservoir	FTP only!
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2.5 Piston pumps for Progressive systems for grease

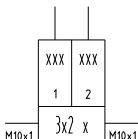
	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.5.1			KFG1-5W1GA-V71+924 KFG1-5W1GB-V71+924 KFG1-5W1GC-V71+924 KFG1-5W1GD-V71+924	Q= 2,5cm³/min Q= 1,8cm³/min Q= 1,3cm³/min Q= 0,8cm³/min Electric piston pump for grease, 24VDC	Quick fill to be ordered separately. See page 33.
2.5.2			KFG1-5W2A-V71+924 KFG1-5W2B-V71+924 KFG1-5W2C-V71+924 KFG1-5W2D-V71+924	Q= 2,5cm³/min Q= 1,8cm³/min Q= 1,3cm³/min Q= 0,8cm³/min Electric piston pump for fluid grease, 24VDC	Quick fill to be ordered separately. See page 33.
2.5.3	3D model not available		KFA1-M-WA-V71+924 KFA1-M-WB-V71+924 KFA1-M-WC-V71+924	Q= 2,0cm³/min Q= 1,5cm³/min Q= 1,0cm³/min Electric piston pump for grease, 24VDC	Quick fill to be ordered separately. See page 33. CPT Only!

2.5.4			ETP-X-WZ-XXXXXX+924	Grease unit for 5 points or less. Metering: 10 mm ³ /stroke, 15 mm ³ /stroke, 20 mm ³ /stroke	CPT Only!
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2.6 Single line parallel piston distributors for oil

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.6.1			341-1XX-X0000-00 351-0XX-X0000-00 391-000-X0000-00	Single piston distributor for oil Single piston distributor for oil Single piston distributor for oil	0.01 to 0.16 cm ³ 0.05 to 0.60 cm ³ 0.20 to 1.50 cm ³
2.6.2			342-4XX-XX000-XX 343-4XX-XXX00-XX 345-4XX-XXXXX-XX	Standard piston distributor for oil	
2.6.3			352-0XX-XX000-XX 353-0XX-XXX00-XX 355-0XX-XXXXX-XX	Standard piston distributor for oil	
2.6.4			392-000-XX000-XX 393-000-XXX00-XX	Standard piston distributor for oil	

2.7 Single line parallel piston distributors for fluid grease

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.7.1			341-7XX-X0000-00 351-1XX-X0000-00 391-100-X0000-00	Standard piston distributor for fluid grease Standard piston distributor for fluid grease Standard piston distributor for fluid grease	0.01 to 0.16 cm ³ 0.05 to 0.60 cm ³ 0.10 to 0.30 cm ³
2.7.2			342-5XX-XX000-XX 343-5XX-XXX00-XX 345-5XX-XXXXX-XX	Standard piston distributor for fluid grease	
2.7.3			352-1XX-XX000-XX 353-1XX-XXX00-XX 355-1XX-XXXXX-XX	Standard piston distributor for fluid grease	
2.7.4			392-100-XX000-XX 393-100-XXX00-XX	Standard piston distributor for fluid grease	

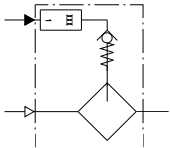
2.8 Manifolds for single point piston distributors

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.8.1			VL-0xAAG1 VL-0xAAG2 VL-0xAAM1 VL-0xAAM2	G 1/8 G 1/4 M10x1 M14x15 Manifolds for 341 series	To be used with 341 single piston distributors
2.8.2			VL-0xBAG1 VL-0xBAG2 VL-0xBAM1 VL-0xBAM2	G 1/8 G 1/4 M10x1 M14x15 Manifolds for 351 series	To be used with 351 single piston distributors

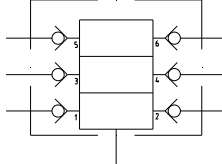
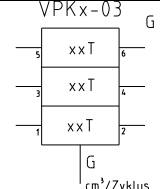
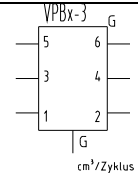
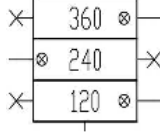


2.8.3			VL-0xCAG1 VL-0xCAG2 VL-0xCAM1 VL-0xCAM2	G 1/8 G 1/4 M10x1 M14x15 Manifolds for 391 series	To be used with 391 single piston distributors
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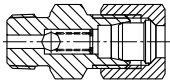
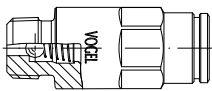
2.9 Oil+Air metering units

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.9.1			MV20x-100-xxxxxxx	Oil+Air metering unit	For use in Oil+Air Systems using the MFE5-KW3-C100+1FV

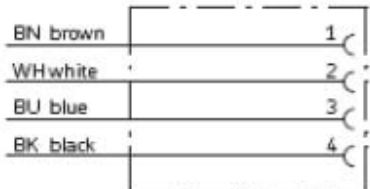
2.10 Progressive feeders

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.10.1			VPG	Progressive sectional feeder Metered quantity of lubricant: 0,1-1,2 cm³/stroke Threaded inlet port: G1/4 Threaded outlet port: G1/8	
2.10.2			VPKG	Progressive sectional feeder Metered quantity of lubricant: 0,05±0,6 cm³/stroke Threaded inlet port: G1/8 Threaded outlet port: G1/8	
2.10.3			VPBG	Progressive block feeder Metered quantity of lubricant: 0,2 cm³/stroke Threaded inlet port: G1/8 Threaded outlet port: G1/8	
2.10.4			PSG2	Progressive sectional feeder Metered quantity of lubricant: 0,06 - 0,84 cm³/stroke Threaded inlet port: G1/4 Threaded outlet port: G1/4	

2.11 Check Valves for progressive feeders

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.11.1			VPG-RV VPG-RV6 VPG-RV8	G1/8, ø 4mm, 10 bar G1/8, ø 6mm, 10 bar G1/8, ø 8mm, 10 bar	With sleeve fitting and compression nut
2.11.2			VPKG-RV	G1/8, ø 6mm, 3 bar	
2.11.3			VPKG-RV-VS	G1/8, ø 6mm, 3 bar	Quick connection

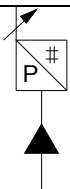
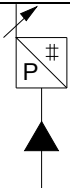
2.12 Cycle switches and connectors for Progressive feeder

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.12.1			177-300-094	3 wires cycle switch for VP/PSG	NC contact, connection: M12x1
2.12.2			177-300-095	3 wires cycle switch for VPK	NC contact, connection: M12x1
2.12.3			177-300-097	3 wires cycle switch for VPB	NC contact, connection: M12x1
2.12.4			179-990-600	Straight Socket w/ 5 m cable for 177-300-094, 177-300-095, and 177-990-097 cycle switches	4 pole; UL-CSA approved
			179-660-601	Elbow Socket w/ 5 m cable for 177-300-094, 177-300-095, and 177-990-097 cycle switches	4 pole; UL-CSA approved

2.13 Over pressure indicators for Progressive feeder

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.13.1			VPG-UE16-2 VPG-UE32-2 VPG-UE63-2 VPG-UE80-2 VPG-UE100-2 VPG-UE50-3 VPG-UE100-3 VPG-UE150-3 VPG-UE200-3	16 bar - 232 PSI - 1.6 MPa 32 bar - 464 PSI - 3.2 MPa 63 bar - 915 PSI - 6.3 MPa 80 bar - 1160 PSI - 8 MPa 100 bar - 1450 PSI - 10 MPa 50 bar - 725 PSI - 5 MPa 100 bar - 1450 PSI - 10 MPa 150 bar - 2175 PSI - 15 MPa 200 bar - 2900 PSI - 20 MPa	

2.14 Electronic pressure switches

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.14.1			DS-EP-40-D-4	electronic pressure switch, Rated Pressure: Max 100 bars. Permissible overpressure: 200 bars Ambient and Fluid temperature range: -25 to + 800 C IP 67 rating	M12x1, 4-pins 1-1701-EN Brochure
2.14.2			176-190-001	electronic pressure switch,	

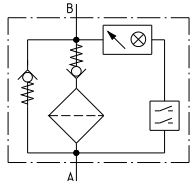
2.15 Flow monitors for piston distributor systems

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.15.1			GS300	24VDC Flow range: 0,01-0,6cc/cycle	

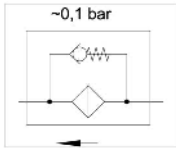
2.16 Oil+Air streak sensor

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.16.1			GS4011-S20 GS4011-S50	Oil+air streak sensor, 120 - 600 mm ³ /hr Oil+air streak sensor, 60 - 120 mm ³ /hr	

2.17 Filter

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.17.1			169-460-099-V57 169-460-087-V70 169-460-185	3 µm - Oil 10µm - Oil 25µm - Oil Oil pressure line with electrical contamination indicator, electrical connection: 24VDC,4pin connector, M12x1	



2.17.2			213-900	25 µm - Grease Screen filter for grease. Flow rate - 2 l/min. Max operating pressure - 45 bar Connection - M14x1.5	
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2.18 Quick disconnect couplings - CPT ONLY!

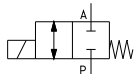
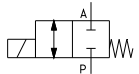
	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.18.1			995-001-088 995-001-096 995-001-108 995-001-093 995-001-519 995-001-521	G1/8 G1/4 G3/8 G1/2 G3/4 male quick disconnect, female thread	CPT Only! <i>All quick disconnections must be approved by AME control's engineering and chemical management.</i>
2.18.2			995-001-517 995-001-500 995-001-518 995-001-112 995-001-519	G1/8 G1/4 G3/8 G1/2 G3/4 female quick disconnect, male thread	CPT Only! <i>All quick disconnections must be approved by AME control's engineering and chemical management.</i>
2.18.3			995-004-088 995-002-096 995-004-108 995-004-093 995-004-521	G1/8 G1/4 G3/8 G1/2 G3/4 complete quick disconnect with strainer	CPT Only! <i>All quick disconnections must be approved by AME control's engineering and chemical management.</i>

Please add:
male quick
disconnect

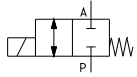
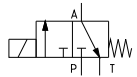
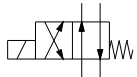
2.19 Glycerine filled pressure gauges

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.19.1			169-104-015 169-110-015 169-125-015	0-40 bar / 0-580 PSI / 0-4 MPa 0-100 bar / 0-1450 PSI / 0 - 10 MPa 0-250 bar / 0-3625 / 0-25 MPa Glycerine pressure gauge, G1/4 face in MPA, PSI, bar	

2.20 Solenoid valves

	Photo	SYMBOL	ORDER CODE	DESCRIPTION	Notes
2.20.1			161-110-031+924	2/2 way valve For OIL and GREASE	1-1703-EN Brochure
2.20.2			VPG-VEN-V71A+924	2/2 way Zero Leakage Valve For OIL	



2.20.3			VPG-VEN-V71+924	2/2 way Zero Leakage Valve with Union Block for remote mounting FOR OIL	
2.20.4			161-120-064+924	3/2 way valve For OIL and GREASE	1-1703-EN Brochure
2.20.5			161-140-050+924	4/2 way valve FOR OIL	1-1703-EN Brochure

2.21 VARIO Units for MQL systems

	Photo	ORDER CODE	DESCRIPTION	Notes
2.21.1		UFV10-014-2	Lubrilean VARIO 1.8 liter capacity Internal or external lubrication Compressed air port: Min: 6 bars Optional: 8 bars Max: 10 bars Manual slide valve actuation	Can be used with SKF LubriOil or SKF LubriFluid. See page 15 of brochure 1-5102-EN
2.21.2		UFV10-019-2	Lubrilean VARIOPLUS 1.8 liter capacity Internal or external lubrication Compressed air port: Min: 6 bars Optional: 8 bars Max: 10 bars 24 VDC actuation Level monitoring for 4 points	Can be used with SKF LubriOil or SKF LubriFluid. See page 15 of brochure 1-5102-EN
2.21.3		UFV30-003	Lubrilean VARIOSUPER- 1.8 liter capacity Internal or external lubrication Compressed air port: Min: 6 bars Optional: 8 bars Max: 10 bars 24 VDC actuation Level monitoring for 2 points Pressure monitoring	Basic Information Can be used with SKF LubriOil or SKF LubriFluid. See page 15 of brochure 1-5102-EN



2.22 DigitalSuper Units for MQL systems

	Photo	ORDER CODE	DESCRIPTION	Notes
2.22.1		UFD10-020	<u>LUBRILEAN DIGITALSUPER 1</u> 1.8 liter capacity Internal or external lubrication Compressed air port: Min: 6 bars, Optional: 8 bars, Max: 10 bars 24 VDC actuation Level monitoring for 4 points Flow sensor Pressure monitoring	See brochure 1-5109-EN Requires FP-CPT Controls engineering prior approval. Can be used with SKF LubriOil or SKF LubriFluid. See page 15 of brochure 1-5102-EN
2.22.2		UFD20-020	<u>LUBRILEAN DIGITALSUPER 2</u> For machining centers with double spindles or turning machines with two turrets 1.8 liter capacity Internal or external lubrication Compressed air port: Min: 6 bars, Optional: 8 bars, Max: 10 bars 24 VDC actuation Level monitoring for 4 points Flow sensor Pressure monitoring	See brochure 1-5109-EN Requires FP-CPT Controls engineering prior approval Can be used with SKF LubriOil or SKF LubriFluid. See page 15 of brochure 1-5102-EN

2.23 Aerosol Monitor for MQL systems

	Photo	ORDER CODE	DESCRIPTION	Notes
2.23.1		AM1000	Aerosol monitor	See brochure 1-5109-EN

ACCESSORIES

Spray blocks, nozzles and coaxial tubes see Publication [1-5102-EN](#)



3.0 Technical Information and Drawings

Voltage key for electric motors:

For **CPT** plants - 480 Volts, 3PH, 60 Hz: SKF voltage key: **+1FV**

For **FP** plants - 400 Volts, 3PH, 50 Hz. SKF voltage key: **+140**

For direct current pumps (KFG & KFA) the operating voltage is 24 VDC. SKF voltage key: **+924**

For **FP** Projects in China 220/380V, 50Hz +/- 10% "CCC" motor; SKF voltage key: **+1FW**

For **FP** Projects in Brazil 460V, 60Hz +/- 10% "CCC" motor; SKF voltage key: **+MDG**

Quick disconnects

FP units include a manual fill with strainer only. CPT units include a blank plate where a quick disconnect must be installed. A list of quick disconnect couplings can be found on page 33, section 3.3. Any drawing, graphic or photo showing a quick disconnect is for representative purposes only. Quick disconnects must be ordered separately

3.1 MFE-pumps for piston distributor system for oil

[MFE Brochure and Technical Information, Publication 1-1202-EN](#)

Technical data gear pump units:

Output:	0,5 l/min
Max. back pressure:	27 bar
Operating viscosity:	20 to 1500 mm ² /s
Medium:	Mineral- or synthetic oil compliant with: plastics, NBR- elastomers, copper and copper alloys
Operating temperatur:	+10 to +40 °C

20 to 1000mm²/s is right

All gear pump units for piston distributor parallel system are without filter and quick disconnects.

Depending on applications and plants filter and/or quick disconnects can be assembled.

Quick disconnects must be ordered separately! See page 33, section 3.3.

Summary of MFE-pumps for piston distributor system for CPT

MFE5-KW3-C100+xxx

MFE5-KW6-C100+xxx

MFE5-BW3-C100+xxx

MFE5-BW7-C100+xxx

MFE5-BW16-C100+xxx

MFE5-BW30-C100+xxx

MFE5-BW50-C100+xxx

Summary of MFE-pumps for piston distributor system for FP

MFE5-KW3-F100+xxx

MFE5-KW6-F100+xxx

MFE5-BW3-F100+xxx

MFE5-BW7-F100+xxx

MFE5-BW16-F100+xxx

MFE5-BW30-F100+xxx

MFE5-BW50-F100+xxx

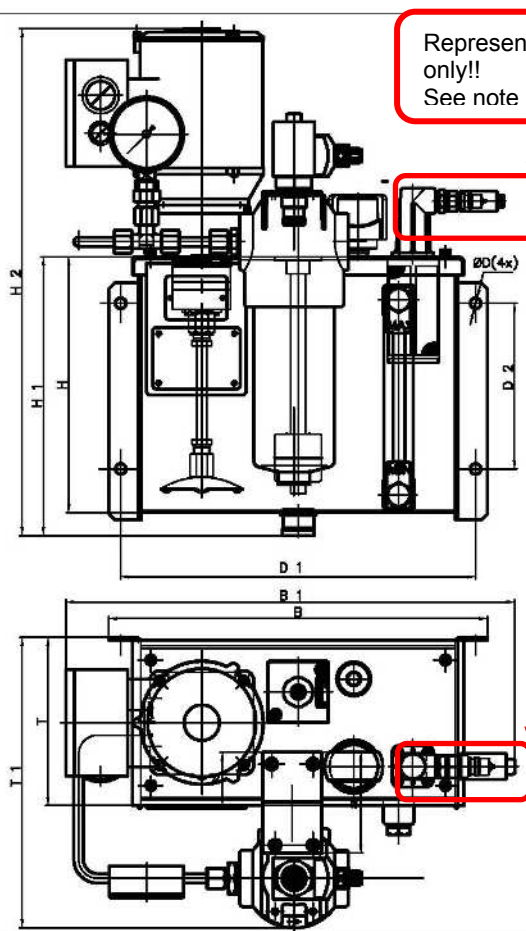
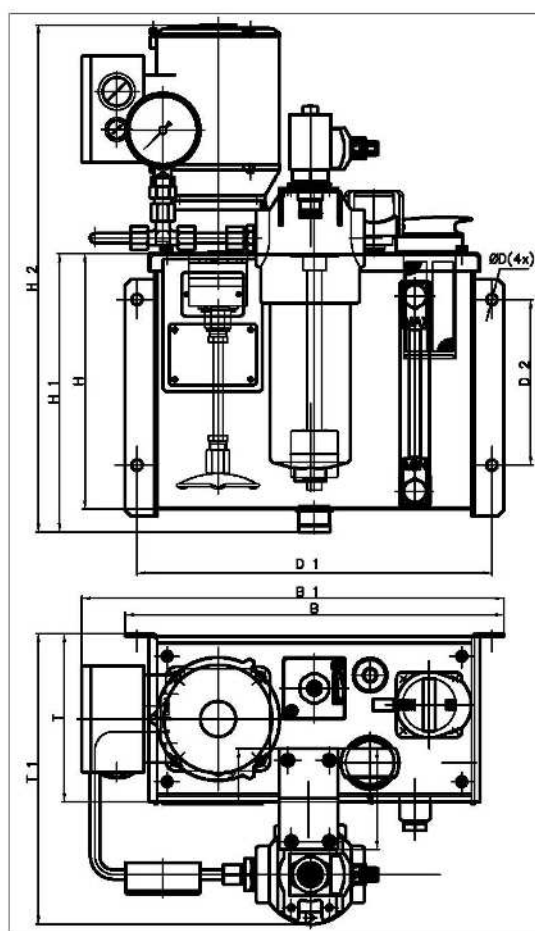


3.1.1 Standard dimensions of reservoirs: 3, 6 and 15 liter (all dimensions are in mm)

Reservoir capacity [liters]	Height [mm]			Width [mm]			Depth [mm]			Center distance [mm]		Whole Ø[mm]
	H	H1	H2 *	B	B1	B2	T	T1 *	T2 *	D1	D2	D
3 plastic	---	154	350	245	320	320	135	---	---	220	17,5	7
6 plastic	---	183	380	290	390	390	178	---	---	220	20	8,5
3 metal	152	170	365	238	315	315	134	220	220	220	110	7
6 metal	216	236	430	320	360	380	142	210	250	300	140	9
15 metal	250	304	500	436	475	490	180	260	285	400	124	9

Units for FP

Units for CPT



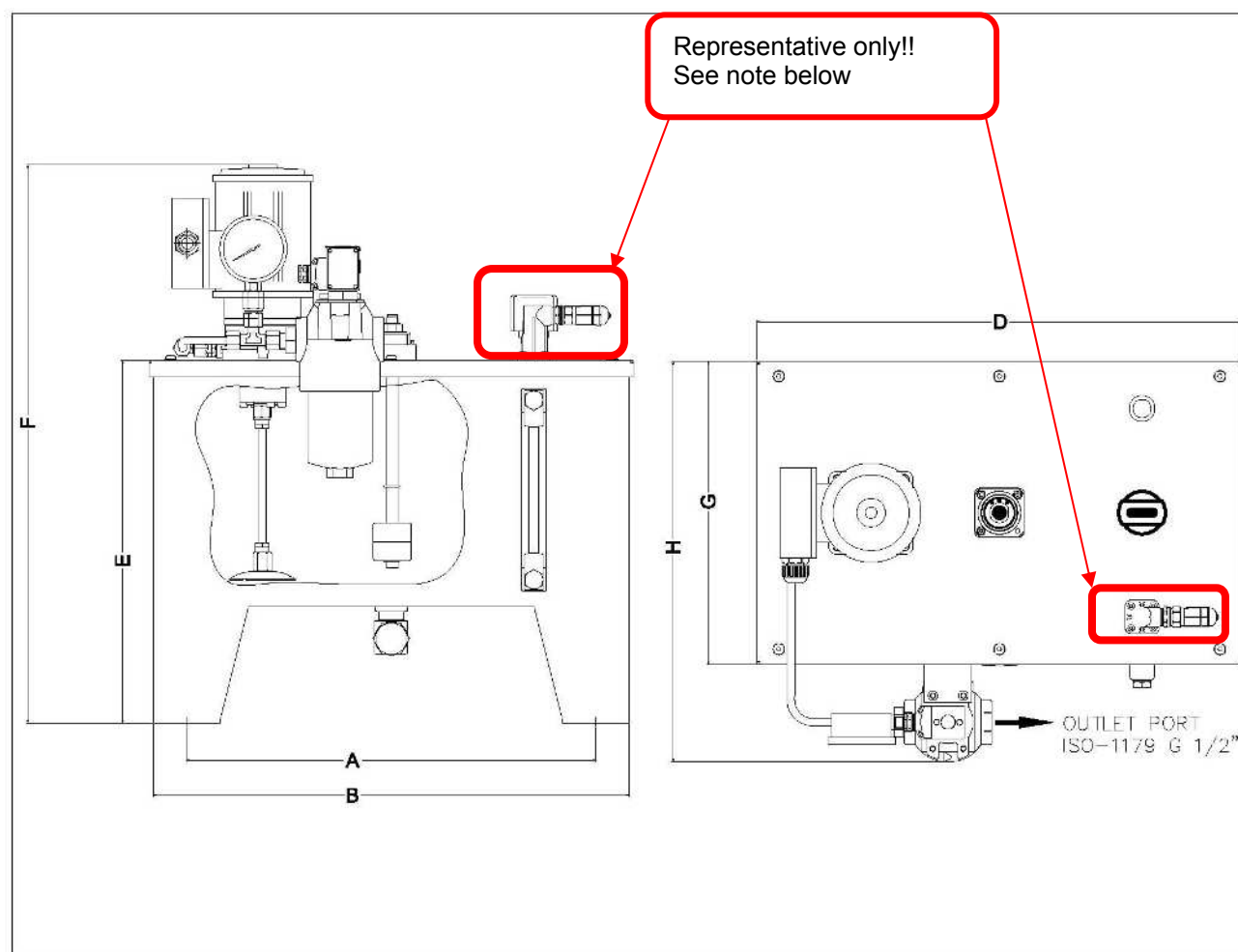
Representative only!!
See note below

Please notice: FP units include manual fill with strainer only. CPT units include a blank plate where a quick disconnect must be installed. Quick fill disconnect MUST BE ORDERED SEPARATELY. Please see page 33, section 3.3.



3.1.2 Standard dimensions of reservoirs: 30 and 50 liter (all dimensions are in mm)

Reservoir capacity [liters]	Reservoir Center- Center footprint A	B	C	Width D	Tank Height E	Height - overall F	Depth G	H
30 metal	430 x 240	500	~514	510	~381	~523	320	~394
50 metal	490 x 270	570	586	580	475	~617	374	~448



Please notice: FP units include manual fill with strainer only. CPT units include a blank plate where a quick disconnect must be installed. Quick fill disconnect MUST BE ORDERED SEPARATELY. Please see page 33, section 3.3.

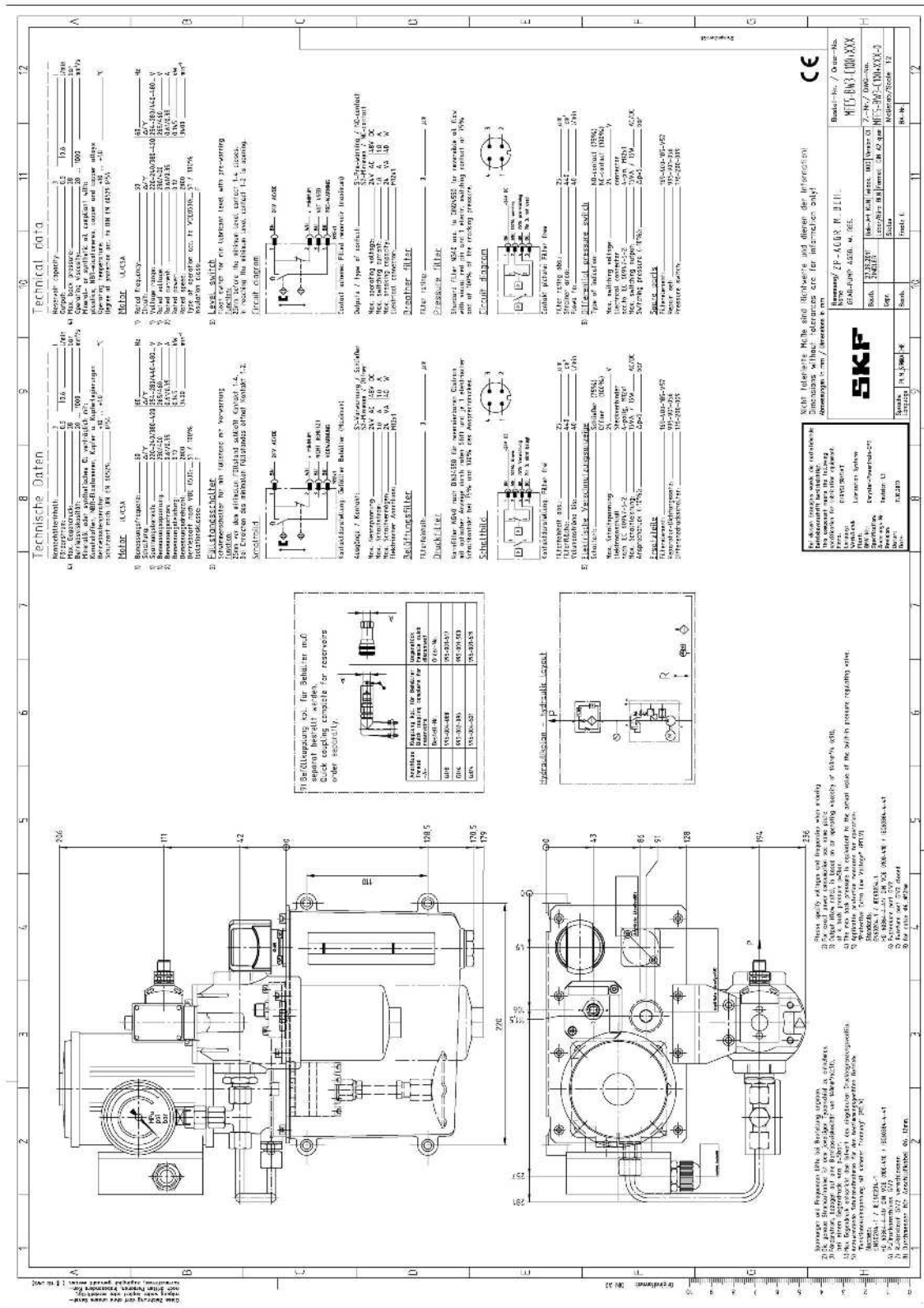


3.1.3 MFE5-KW3-C100

Technical data Capacity: _____ l/min Output: _____ bar Max. back pressure: _____ bar Operating viscosity: _____ mm²/s Mineral- or synthetic oil compliant with: _____ Operating temperature: _____ °C Degree of protection acc. to DIN EN 60528: IP54		Motor ULCSA Rated frequency: _____ Hz Rated voltage: _____ V Rated current: _____ A Rated power: _____ kW Rated speed: _____ min⁻¹ Type of operation acc. to VDE0530: _____ Insulation class: _____		Level switch Float switch for min lubricant level with pre-warming Zone 1: _____ Zone 2: _____ In reaching the minimum level contact 1-4 closes. In reaching the minimum level contact 1-2 is opening.		Circuit diagram		Outputs / Type of contact: S1 Pre-warming / NO contact S2 Minimum / NO contact Max. switching voltage: _____ V AC / _____ V DC Max. switching current: _____ A Max. breaking capacity: _____ VA / _____ W Electrical connector: _____		Pressure filler Filter milt: _____ µm Pressure filler Standard filter NQ40 acc. to DIN24550 for reversible oil flow with visual red air and 1 elect. switching contact at 75% and at 100% of the cracking pressure.		Circuit diagram		5) Differential pressure switch Type of indication: _____ NO-contact (75%) _____ NC-contact (100%) _____ Max. switching voltage: _____ V Electrical connector: _____ Max. switching capacity: _____ VA / _____ W Switching pressure (10%): _____ bar		State parts Flareless: _____ Report set: _____ Pressure switch: _____									
9) Quick coupling connector for hose ends must be ordered separately. <table border="1"> <thead> <tr> <th>Thread</th> <th>Quick coupling complete</th> <th>Female quick connector</th> </tr> </thead> <tbody> <tr> <td>G1/8</td> <td>986-001-088</td> <td>986-001-517</td> </tr> <tr> <td>G1/4</td> <td>986-002-088</td> <td>986-001-500</td> </tr> <tr> <td>G3/4</td> <td>986-003-021</td> <td>986-001-519</td> </tr> </tbody> </table>		Thread	Quick coupling complete	Female quick connector	G1/8	986-001-088	986-001-517	G1/4	986-002-088	986-001-500	G3/4	986-003-021	986-001-519	Hydraulic layout		Please specify voltages and frequencies when ordering 2) For exact power consumption see name plate. 3) Output (flow rate), is based on an operating viscosity of 140mm²/s (cSt). 4) The max back pressure is equivalent to the actual value of the built-in pressure regulating valve. 5) Applicable protection measures for operation: Protective Extra Low Voltage (PELV) Standards: EN60204-1 / IEC60204-1 HD 60364-4-41 DIN VDE 0100-410 / IEC60364-4-41 6) Pressure part G1/2 7) Return part G1/2 closed 8) for cable Ø6...Ø12mm		SKF SKF LUBRICATION SYSTEMS USA - SKF USA INC. DESCRIPTION: Gear Pump Unit PART: MFE5-KW3-C100 REVISION HISTORY: <table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>NAME</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> </tr> </tbody> </table>		REV	DATE	NAME	1		
Thread	Quick coupling complete	Female quick connector																							
G1/8	986-001-088	986-001-517																							
G1/4	986-002-088	986-001-500																							
G3/4	986-003-021	986-001-519																							
REV	DATE	NAME																							
1																									

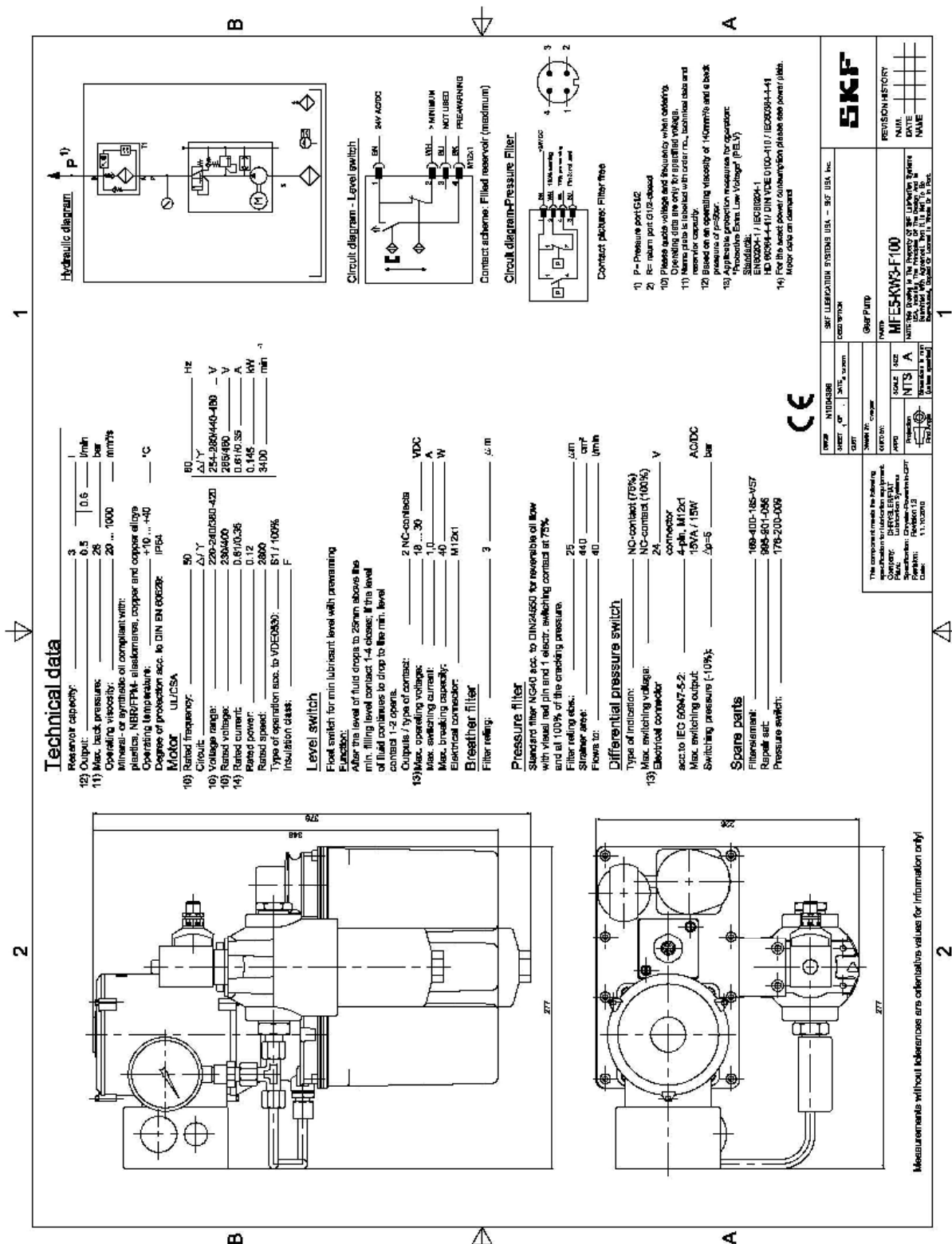


3.1.4 MFE5-BW3-C100



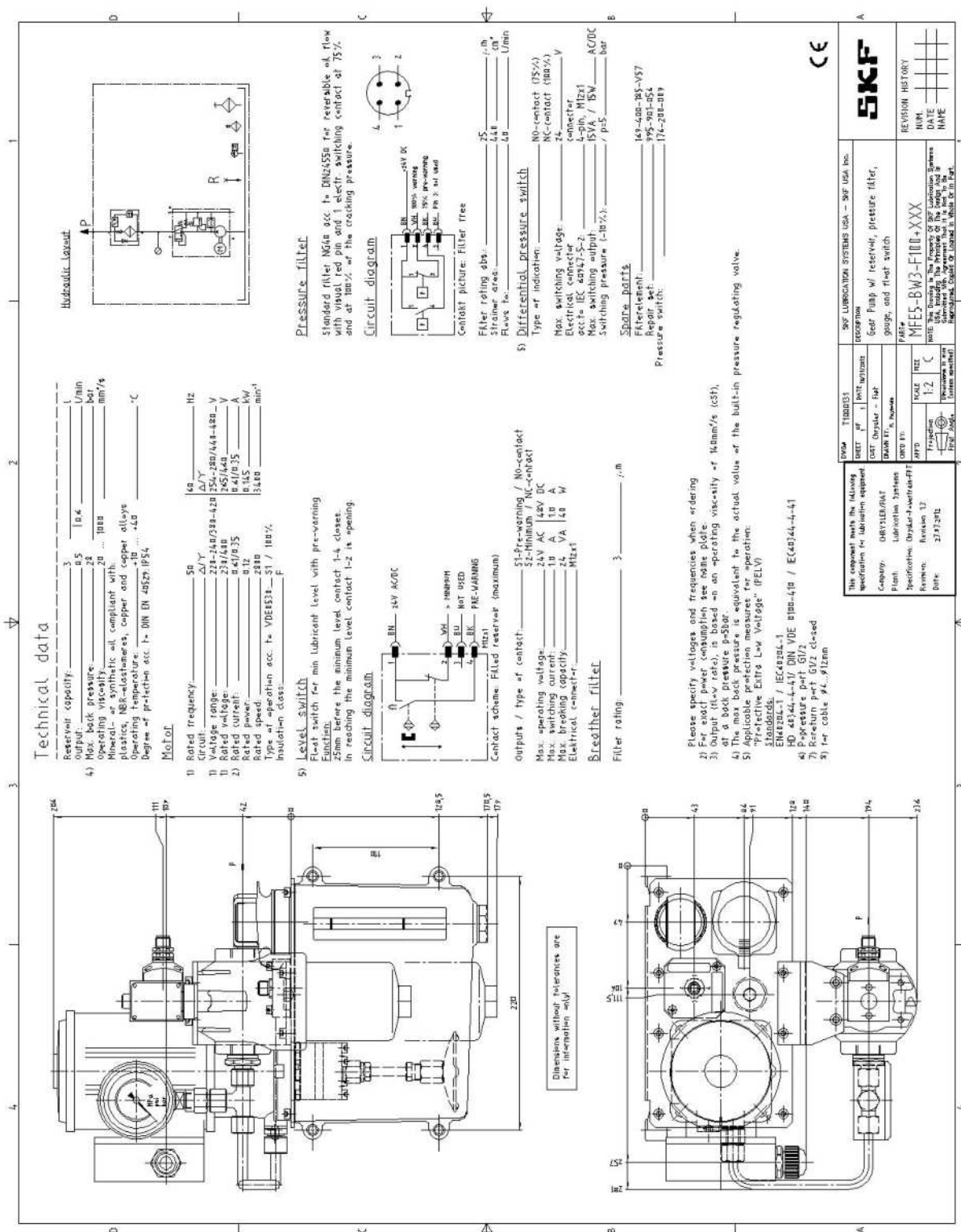


3.1.5 MFE5-KW3-F100

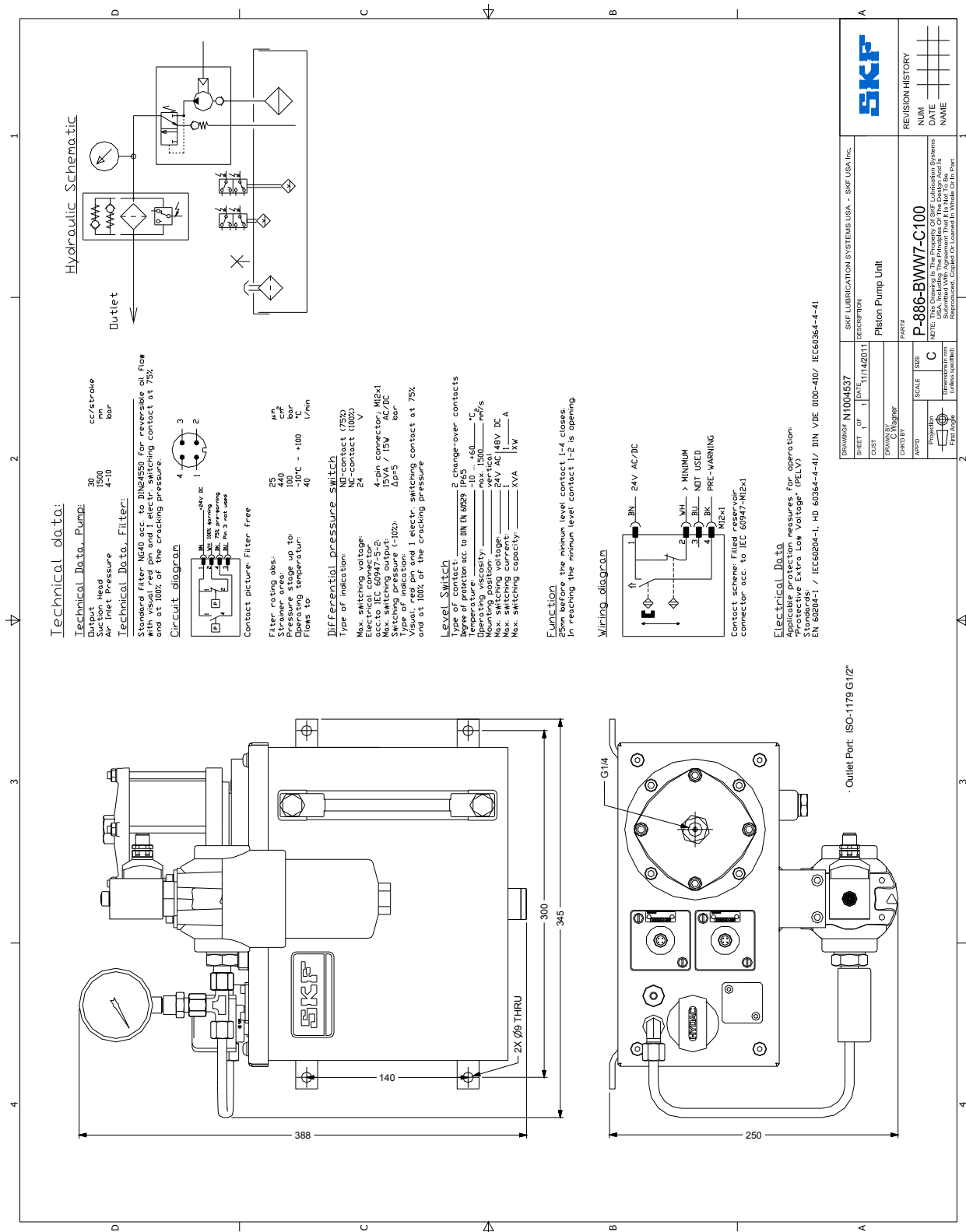




3.1.6 MFE5-BW3-F100



3.1.7 P-886-BWW*-C100

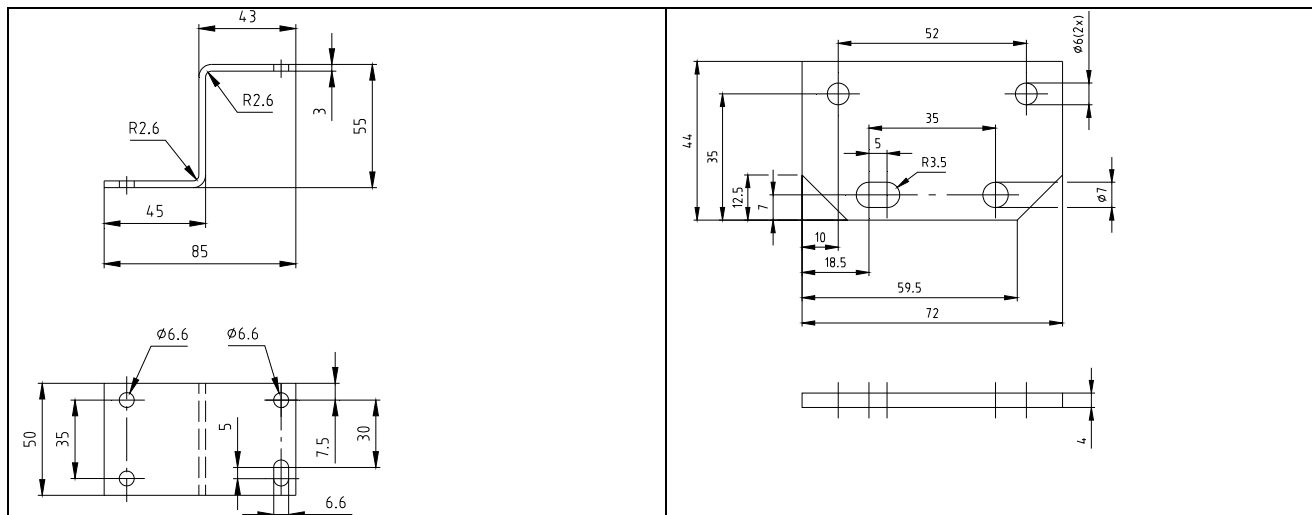




3.2 Angle bracket for filter assembling

881-280-086

881-260-041



Reservoir capacity (liters)	Angle bracket Order No.
3 plastic	---
6 plastic	---
3 metal	881-260-041
6 metal	881-280-086
15 metal	881-280-086
30 metal	881-280-086
50 metal	881-280-086

3.3 Quick disconnect coupling

ISO 7241-1-B	male quick disconnect	adapter for KFU angle	dust cup	female quick disconnect	quick coupling complete for reservoirs
G1/8	995-001-088	402-116-191	995-001-089	995-001-517	995-004-088
G1/4	995-001-096	402-116-161	995-001-235	995-001-500	995-002-096
G3/8	995-001-108	402-116-211	995-001-109	995-001-518	995-004-108
G1/2	995-001-093	402-116-131	995-001-079	995-001-112	995-004-093
G3/4	995-001-521	402-116-121	995-001-520	995-001-519	995-004-521

3.4 Glycerine filled pressure gauges

Technical data

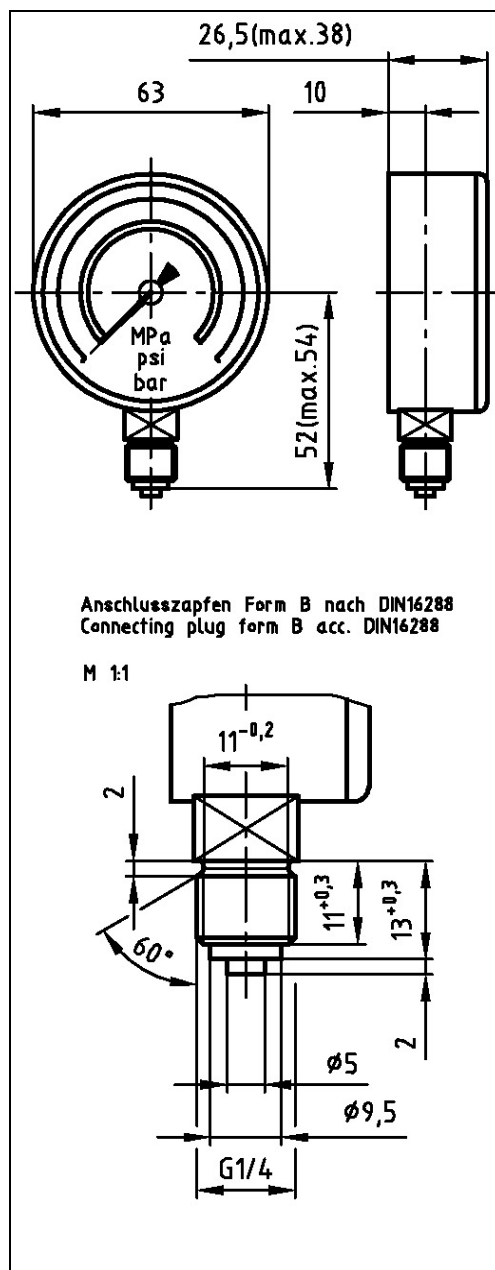
Ranges: _____ 0-40 bar, 0-100 bar, 0-250 bar

Measurements: _____ bar, psi and MPa

Damping: _____ Glycerine

Casing: _____ Stainless steel

Thread: G 1/4





3.5 MFE-pumps for piston distributors for fluid grease

Technical data

Output: _____ 0,2 _____ l/min
 Max. back pressure: _____ 38 _____ bar
 Fluid grease NLGI-class: _____ 00,000
 Operating temperatur: _____ +10 +40 _____ °C
 Degree of protection acc. to DIN EN 60529: _____ IP54

Summary of MFE-pumps for piston distributors for fluid grease for CPT

MFE2-KW6F-C100+xxx

MFE2-KW3F-C100+xxx

Summary of MFE-pumps for piston distributors for fluid grease for FP

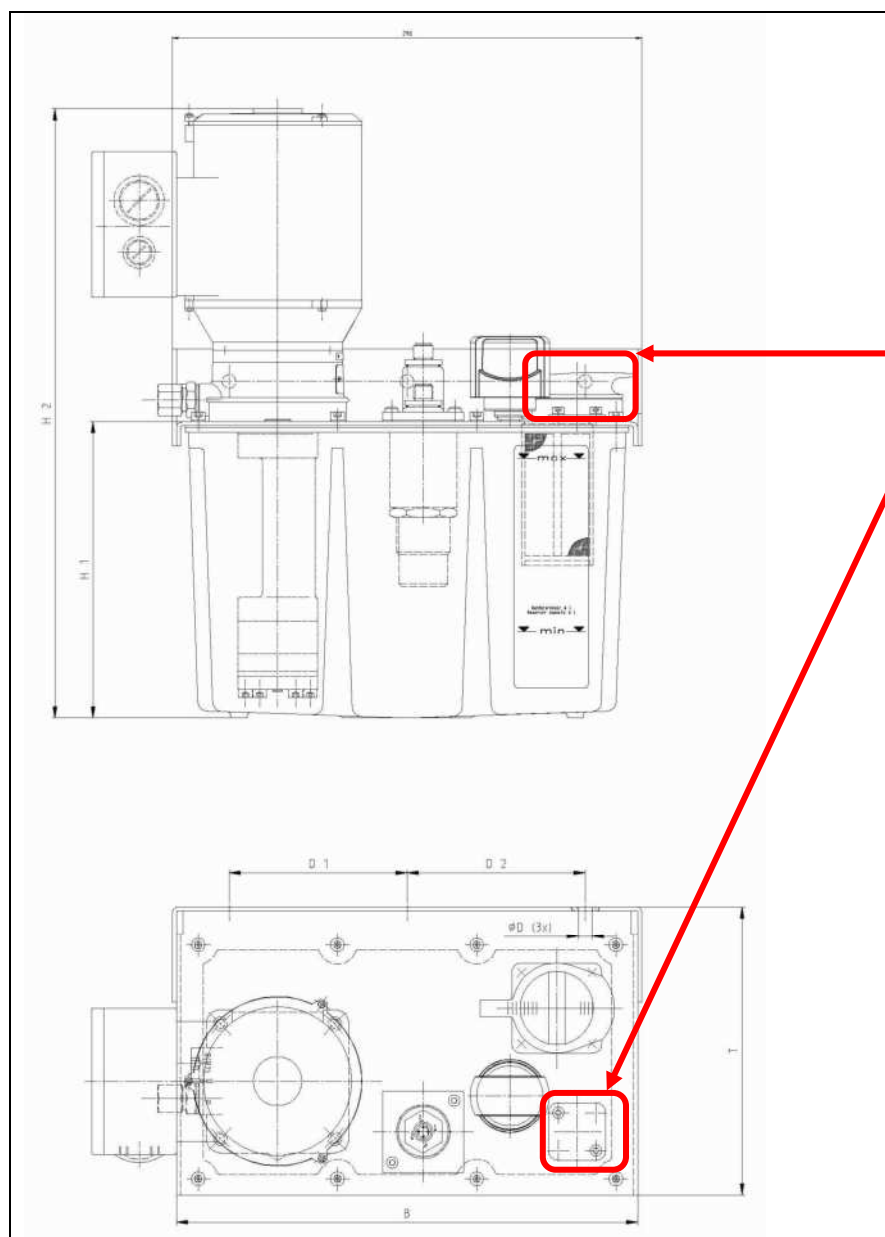
MFE2-KW3F-F100+xxx

MFE2-KW6F-F100+xxx



3.5.1 Standard dimensions of reservoirs: 3 and 6 liter (plastic)

Reservoir capacity [liters]	Height [mm]			Width [mm]		Depth [mm]		Center distance [mm]		Hole Ø[mm]
	H	H1	H2 *	B	B1*	T	T1 *	D1	D2	D
3 plastic	---	154	350	245	330	130	---	220	---	7
6 plastic	---	183	380	285	390	178	---	110	110	8,5

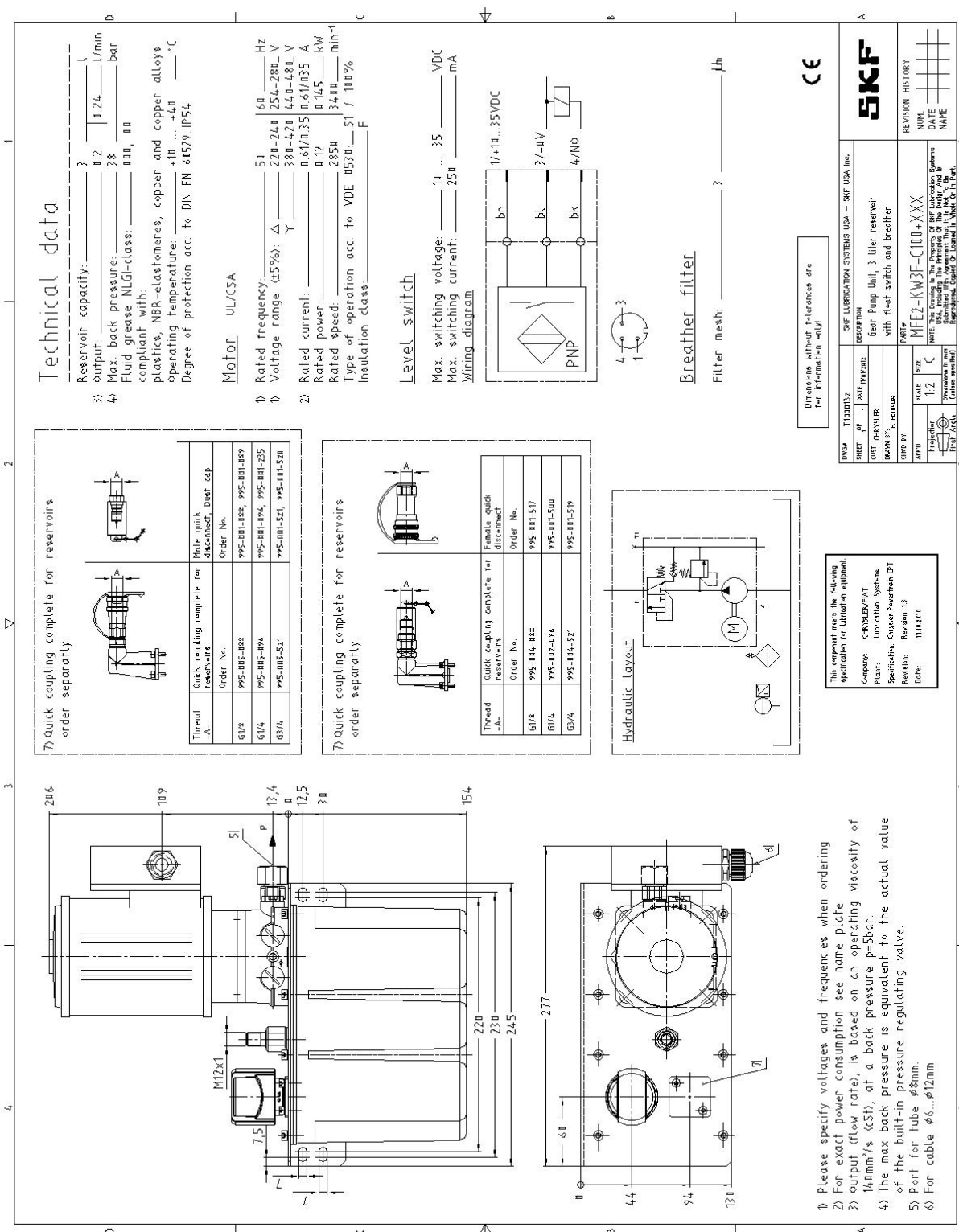


For CPT units, see note below regarding quick disconnect.

Please notice: FP units include manual fill with strainer only. CPT units include a blank plate where a quick disconnect must be installed. Quick fill disconnect MUST BE ORDERED SEPARATELY. Please see page 33, section 3.3.

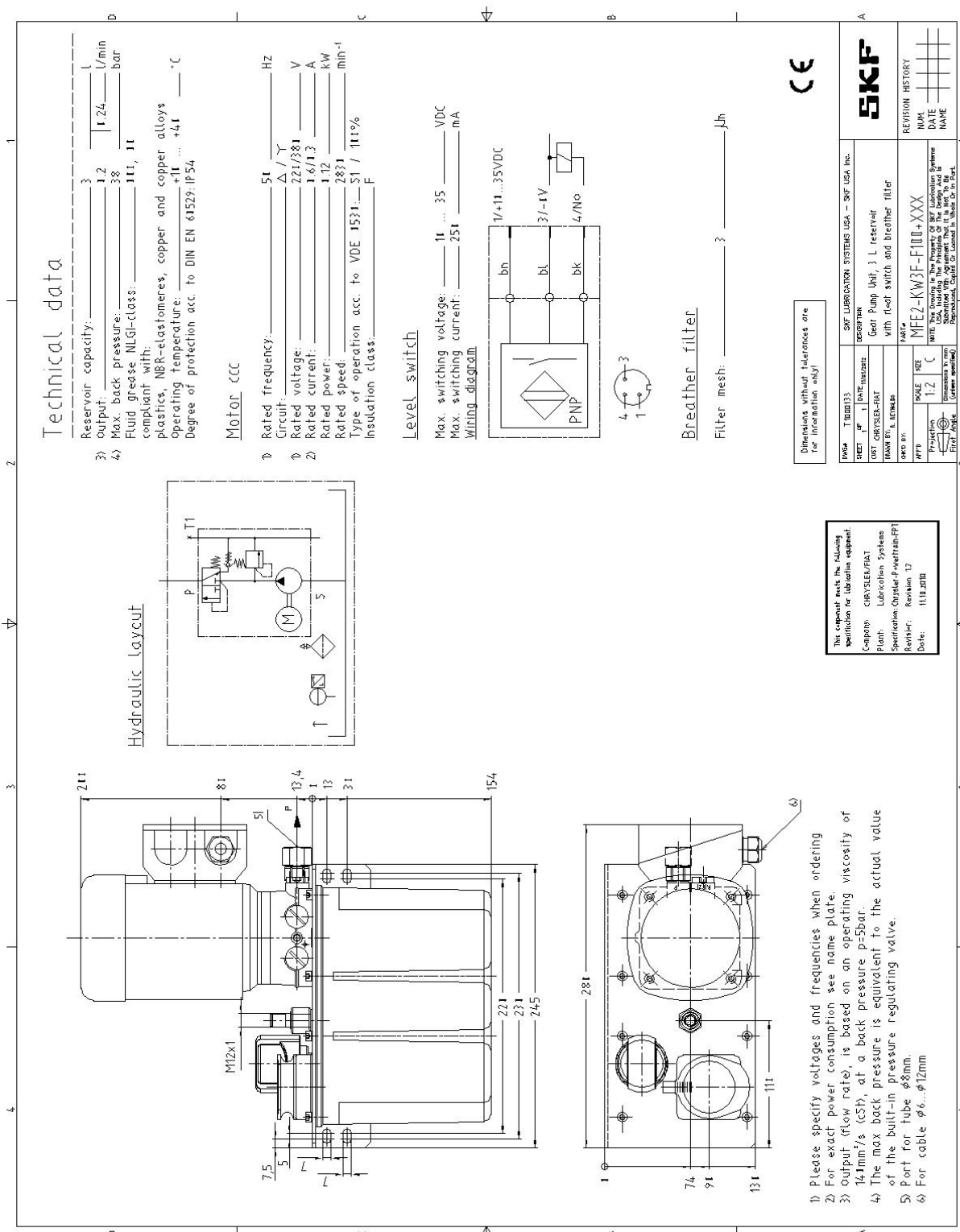


3.5.2 MFE2-KW*F-C100





3.5.3 MFE2-KW*F-F100





3.6 MF/MFE pumps for Progressive systems for oil

Technical data :

MFE1-BW7-V100+XXX

Output: _____ 0,06 l/min
 Max. back pressure: _____ 60 bar
 Operating viscosity: _____ 20... 1500 mm²/s
 Mineral- or synthetic oil compliant with: plastics, NBR- elastomeres, copper and copper alloys
 Operating temperature: _____ +10 +40 °C
 Degree of protection acc. to DIN EN 60529: ____ IP54

Technical data units MF1-BW7-V100+XXX

Output: _____ 0,1 l/min
 Max. back pressure: _____ 60 bar
 Operating viscosity: _____ 20... 1500 mm²/s
 Mineral- or synthetic oil compliant with: plastics, NBR- elastomeres, copper and copper alloys
 Operating temperature: _____ +10 +40 °C
 Degree of protection acc. to DIN EN 60529: ____ IP54

Summary of MFE-pumps for progressive systems for oil for CPT

MFE1-BW7-C100+xxx MF1-BW7-C100+xxx

Summary of MFE-pumps for progressive systems for oil for FP

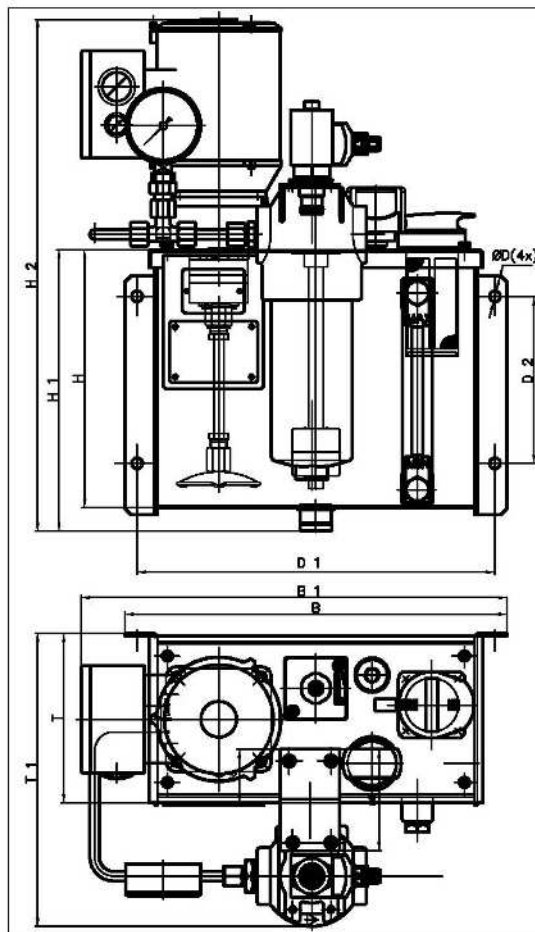
MFE1-BW7-F100+xxx MF1-BW7-F100+xxx



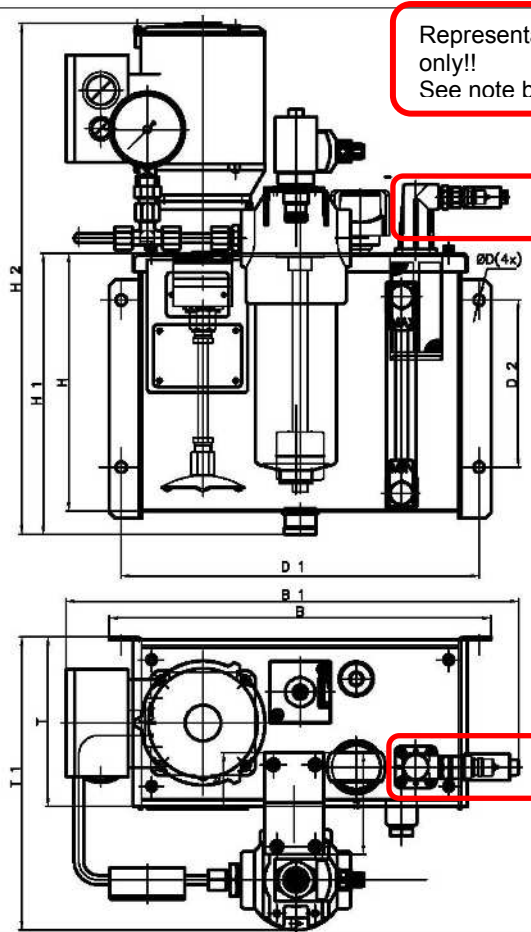
3.6.1 Standard dimensions of reservoirs: 6 liter (all dimensions are in mm)

Reservoir capacity [liters]	Height [mm]			Width [mm]			Depth [mm]			Center distance [mm]		wHole Ø[mm]
	H	H1	H2 *	B	B1	B2	T	T1 *	T2 *	D1	D2	D
6 metal	216	236	430	320	360	380	142	210	250	300	140	9

Units for FP



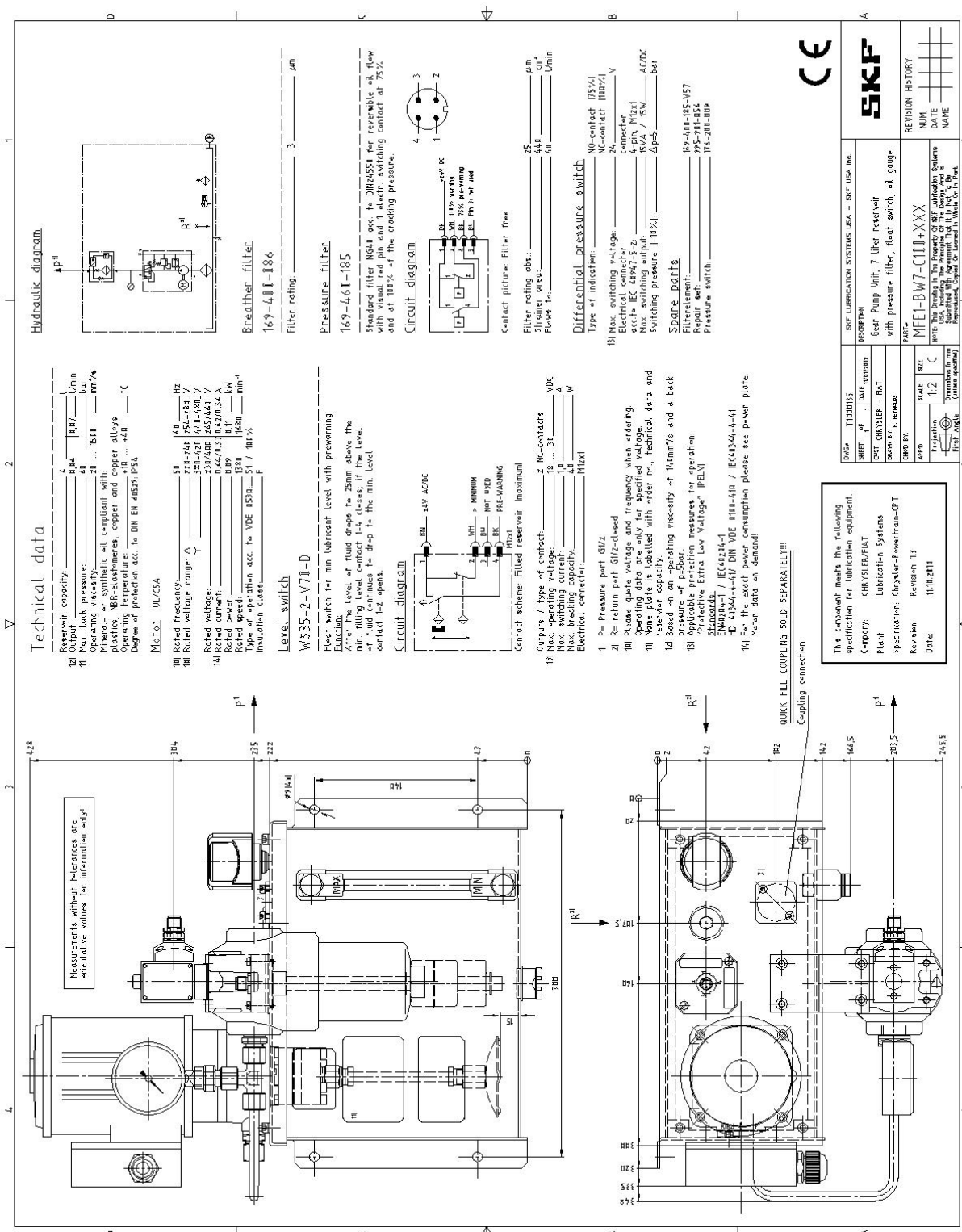
Units for CPT



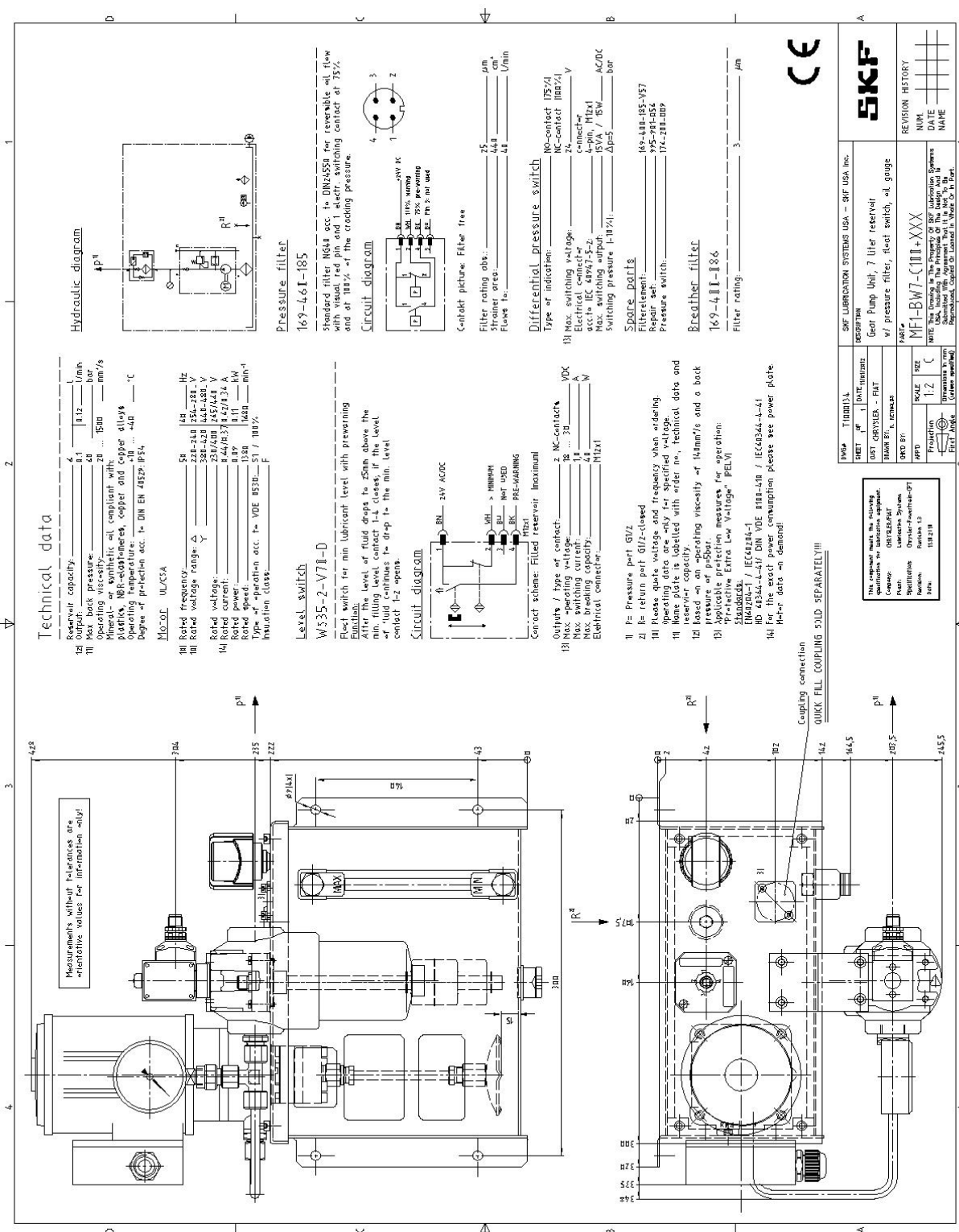
Representative only!!
See note below

Please notice: FP units include manual fill with strainer only. CPT units include a blank plate where a quick disconnect must be installed. Quick fill disconnect MUST BE ORDERED SEPARATELY. Please see page 33, section 3.3.

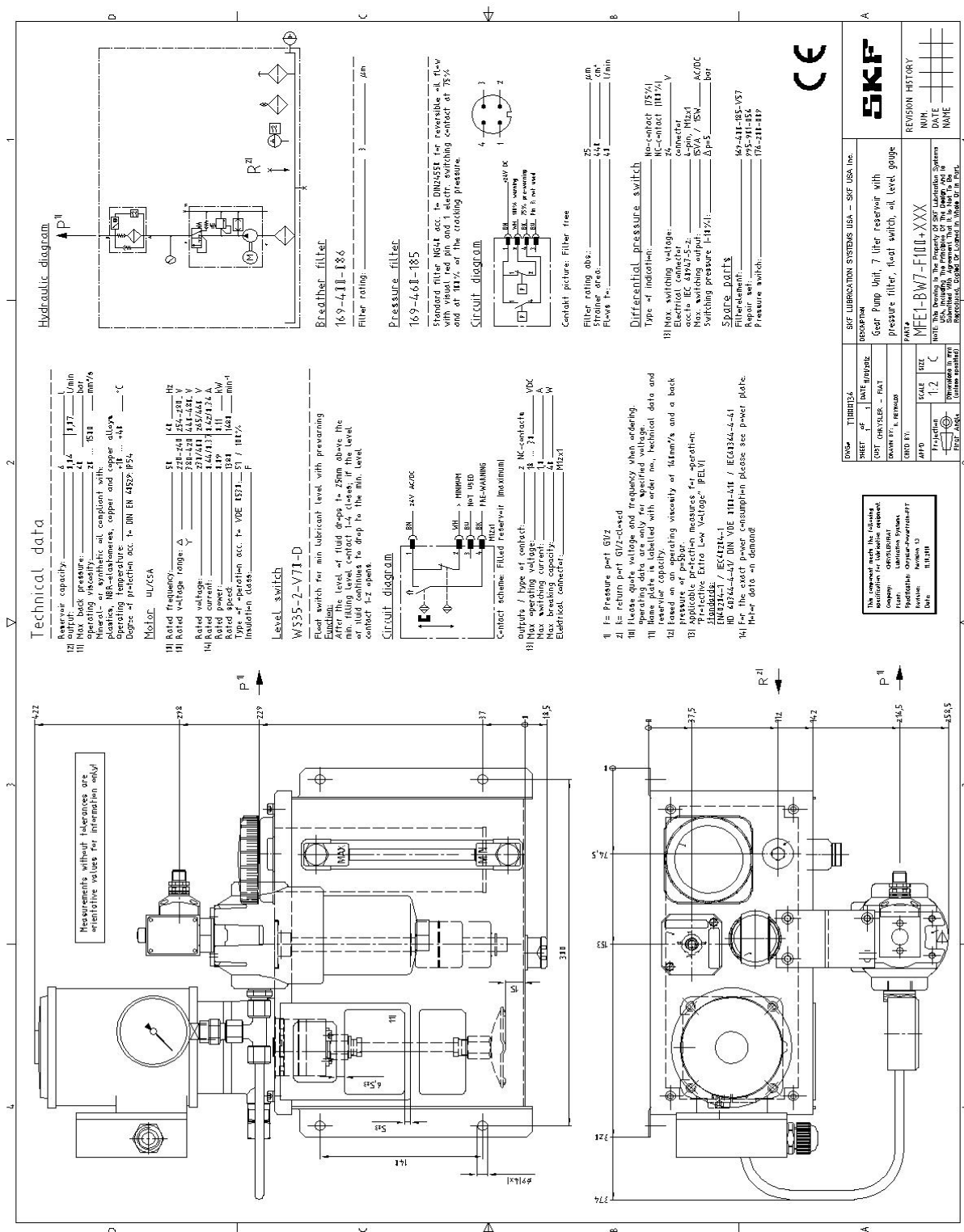
3.6.2 MFE1-BW7-C100



3.6.3 MF1-BW*-C100

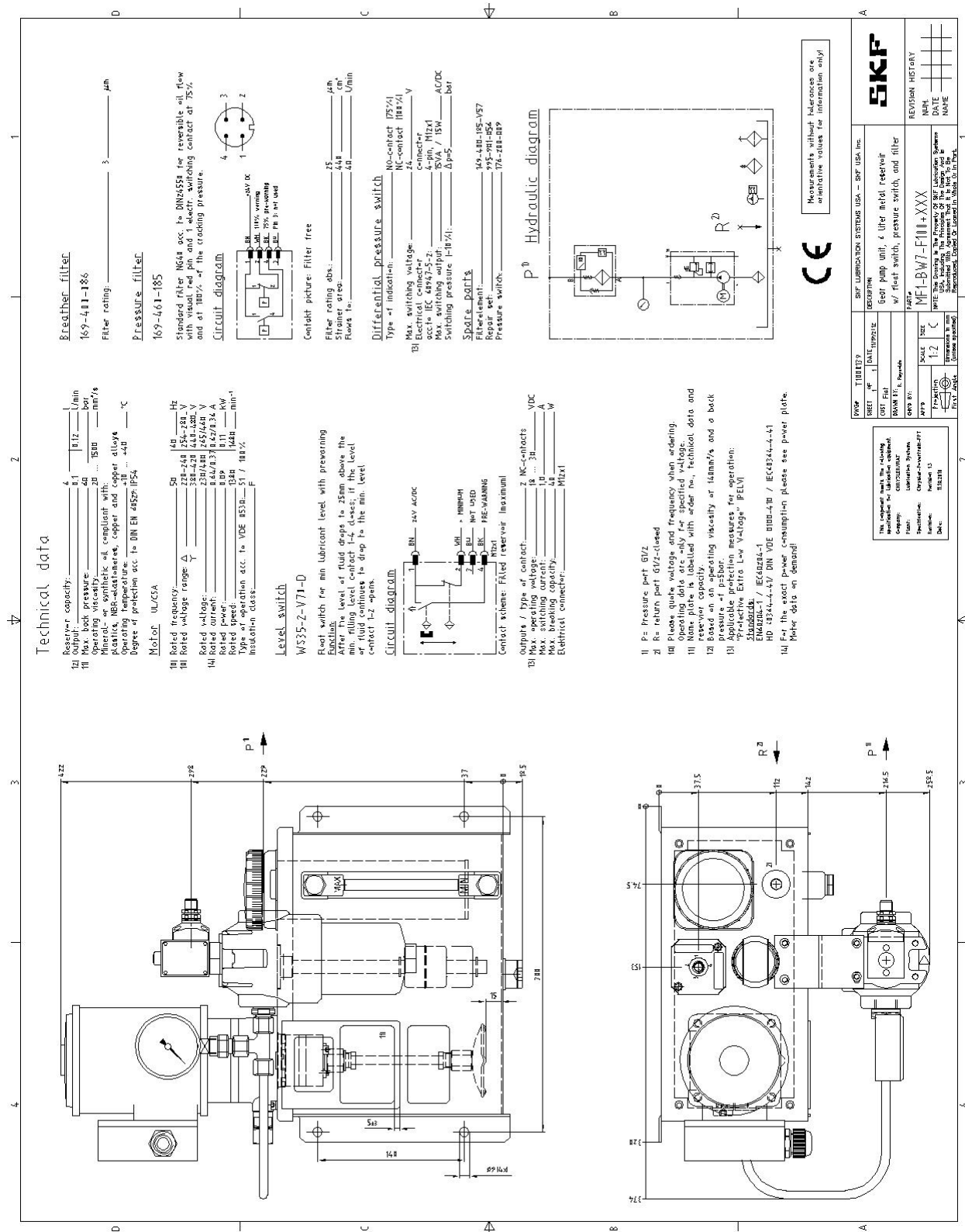


3.6.4 MFE1-BW*-F100



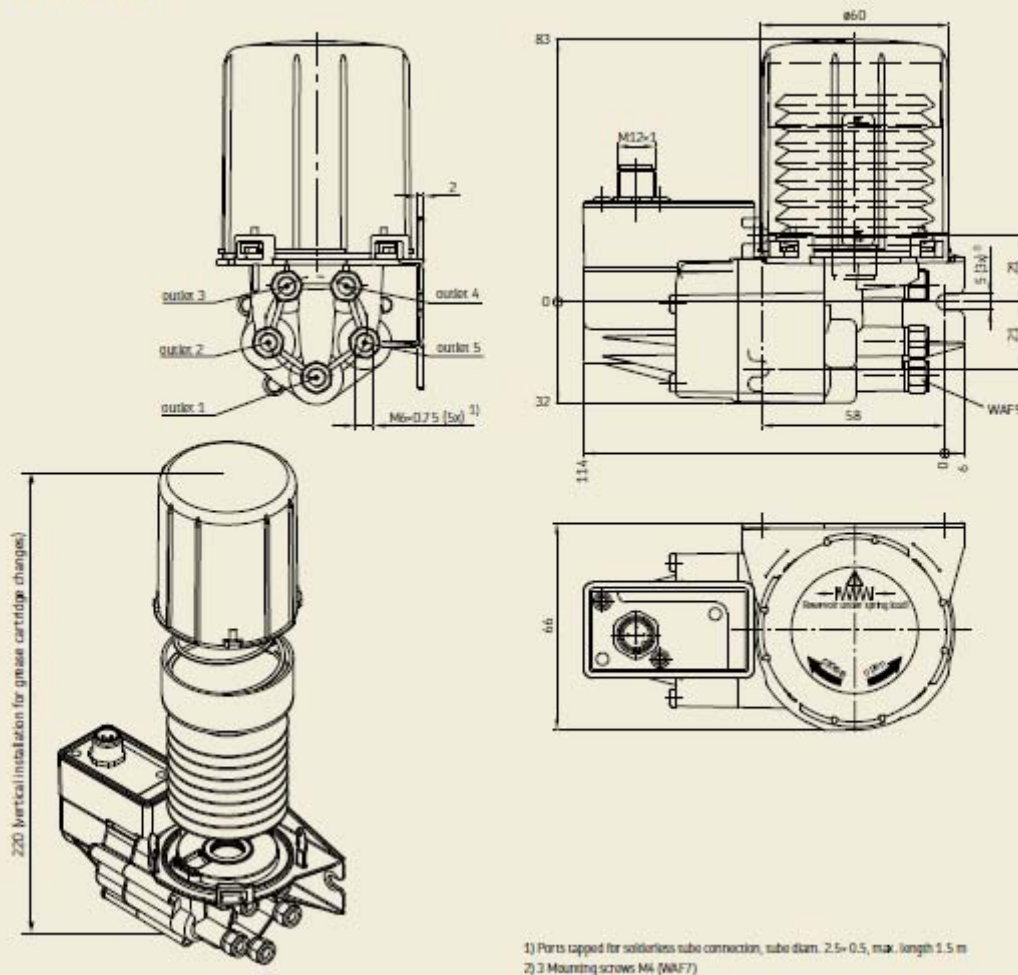


3.6.5 MF1-BW*-F100



3.7 Compact Greaser ETPxWZ-xxxxx-x+924

ETP5 with level indication



Technical data

Metering volume/outlet	15 mm ³ /stroke = B (standard) 10 mm ³ /stroke = C 20 mm ³ /stroke = A
Number of outlets	2, 3, 4 or 5
Max. back pressure	25 bar
Weight with full cartridge	380 g (without monitoring) 410 g (with monitoring)
Operating voltage	24 V DC (+924)
Contact time	7 min
Min. interval time	30 min
Power input	24 W
Max. starting current	1 A
Operating temperature	+15 to 40 °C

Type of enclosure acc. EN 60529 IP55 with mounted socket
Lubricant Grease, NLGI grades 0 to 2
(NLGI grade 3 on request)

Electrical connection

Without monitoring
Electrical connection DIN EN 175301-803-A

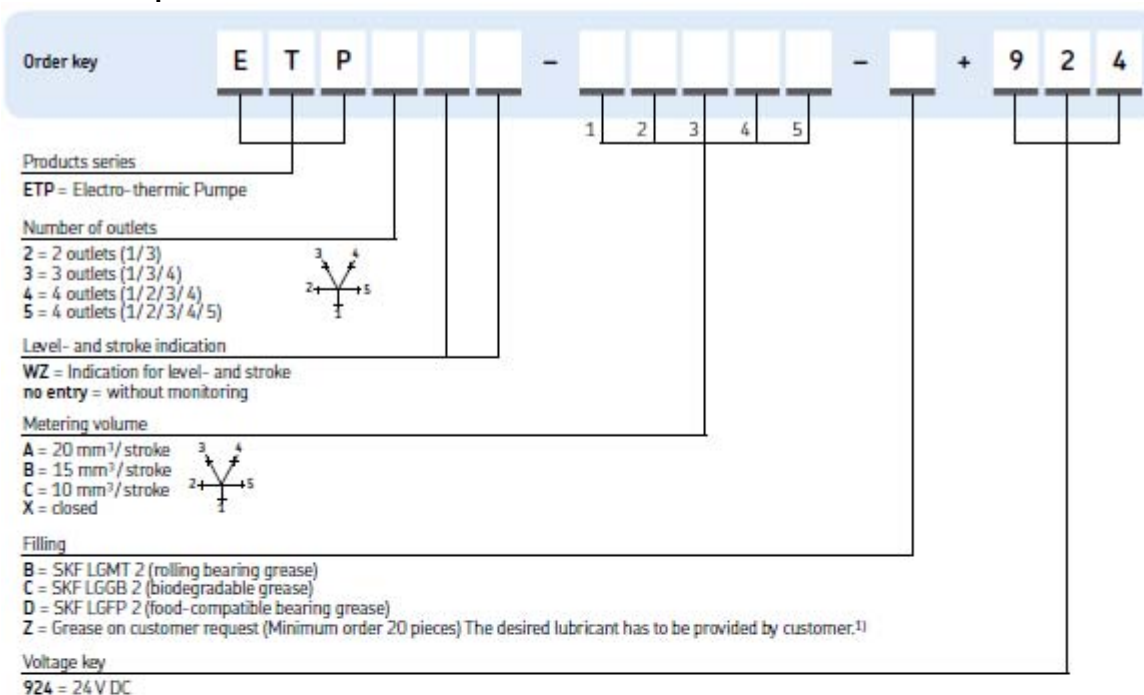
With monitoring

Electrical connection M12x1

Level- and stroke indication

Max. switching current	0.5A
Max. breaking capacity	10VA

Compact Greaser ETPxWZ-xxxxx-x+924



Order example: ETP4WZ-BBCBX-B+924

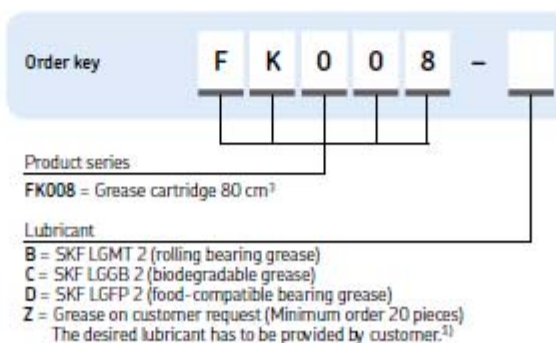
- Product series ETP
- 4 outlets
- Indication for level- and stroke

- Outlet 1 = 15 mm³/stroke
- Outlet 2 = 15 mm³/stroke
- Outlet 3 = 10 mm³/stroke
- Outlet 4 = 15 mm³/stroke

- Outlet 5 = closed
- filling with LGMT 2 rolling bearing grease
- 24 V DC operating voltage

Accessories

Grease cartridge



Order example

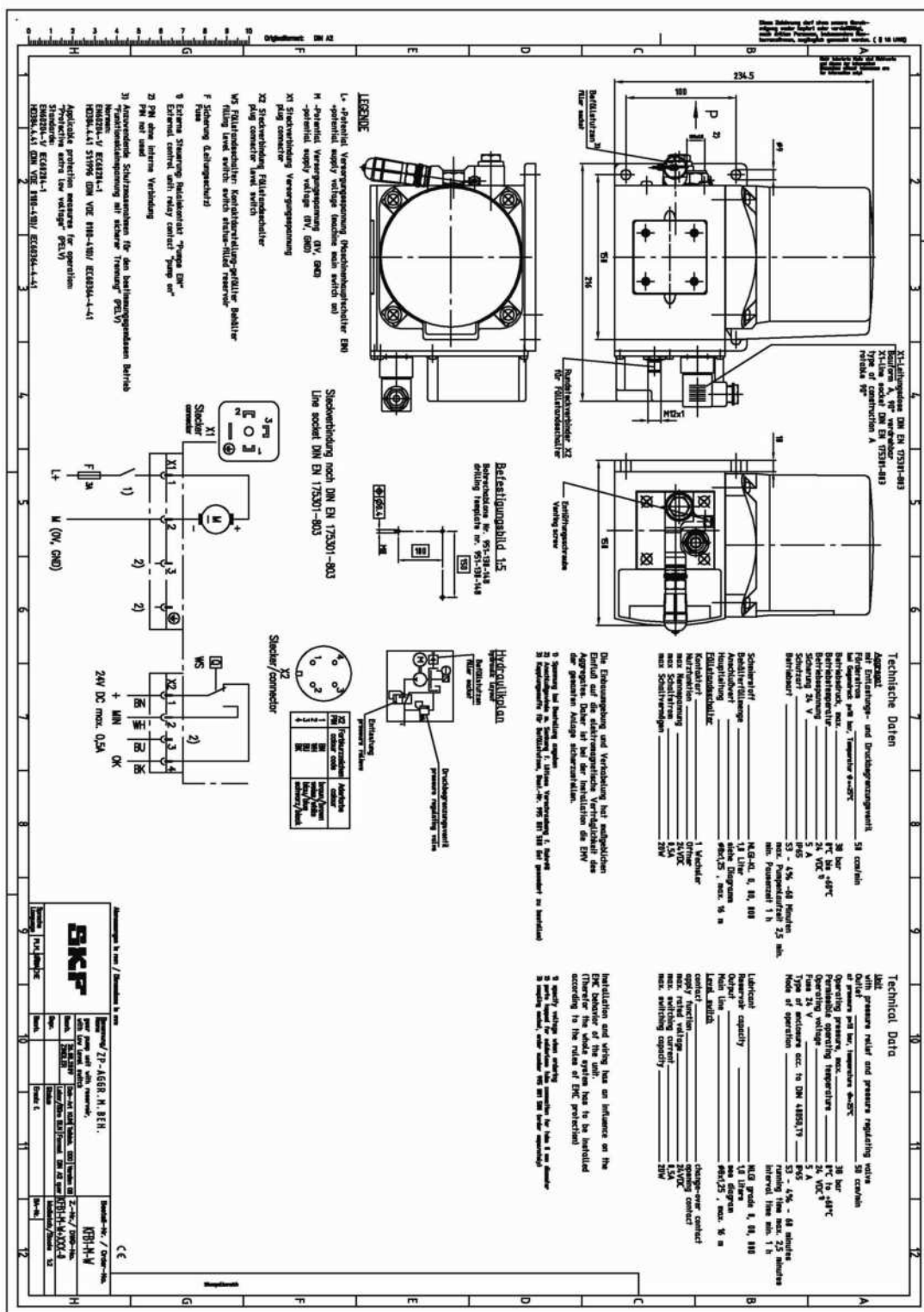
FK008-B

- Grease cartridge, 80 cm³
- filling with LGMT 2 rolling bearing grease

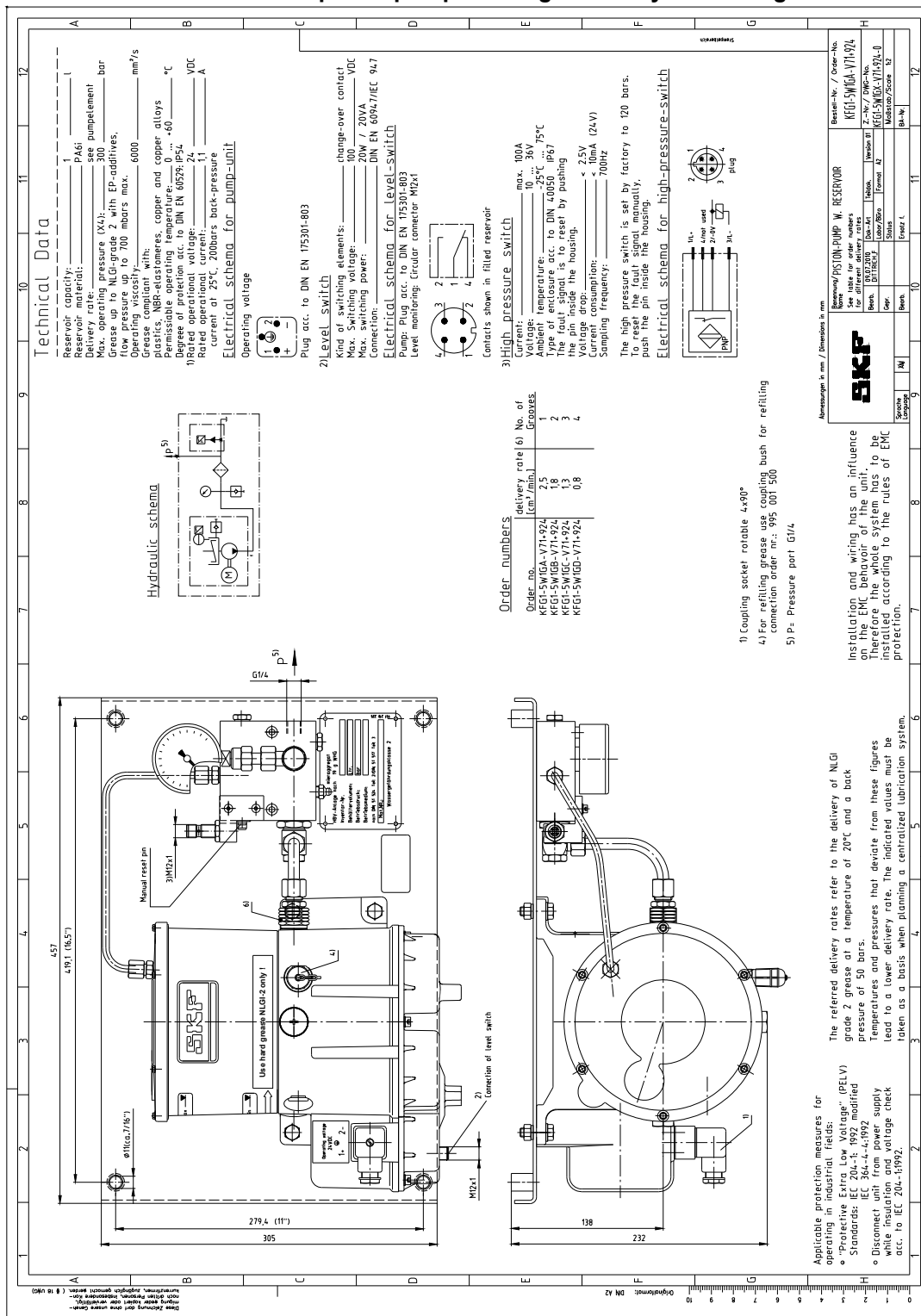
2) The desired lubricant must be delivered in 400g standard cartridges. For air venting and test processes the quantity of the delivered 400g cartridge shall be calculated with the following equation: $1 \cdot (X/2)$ (X = ordered quantity). When sending lubricant the Security Data Sheet shall be packed in. In order to properly assign the task the order number and the ID-Code "Lubricant for ETP-filling" shall be marked on the outside of the packaging.

3.8 KFG1-5W2x-V71+924 piston pump for Progressive systems for fluid grease

Quick fill/disconnect is shown for representative purposes only. Quick disconnect couplings must be ordered separately. Please see page 33, section 3.3.



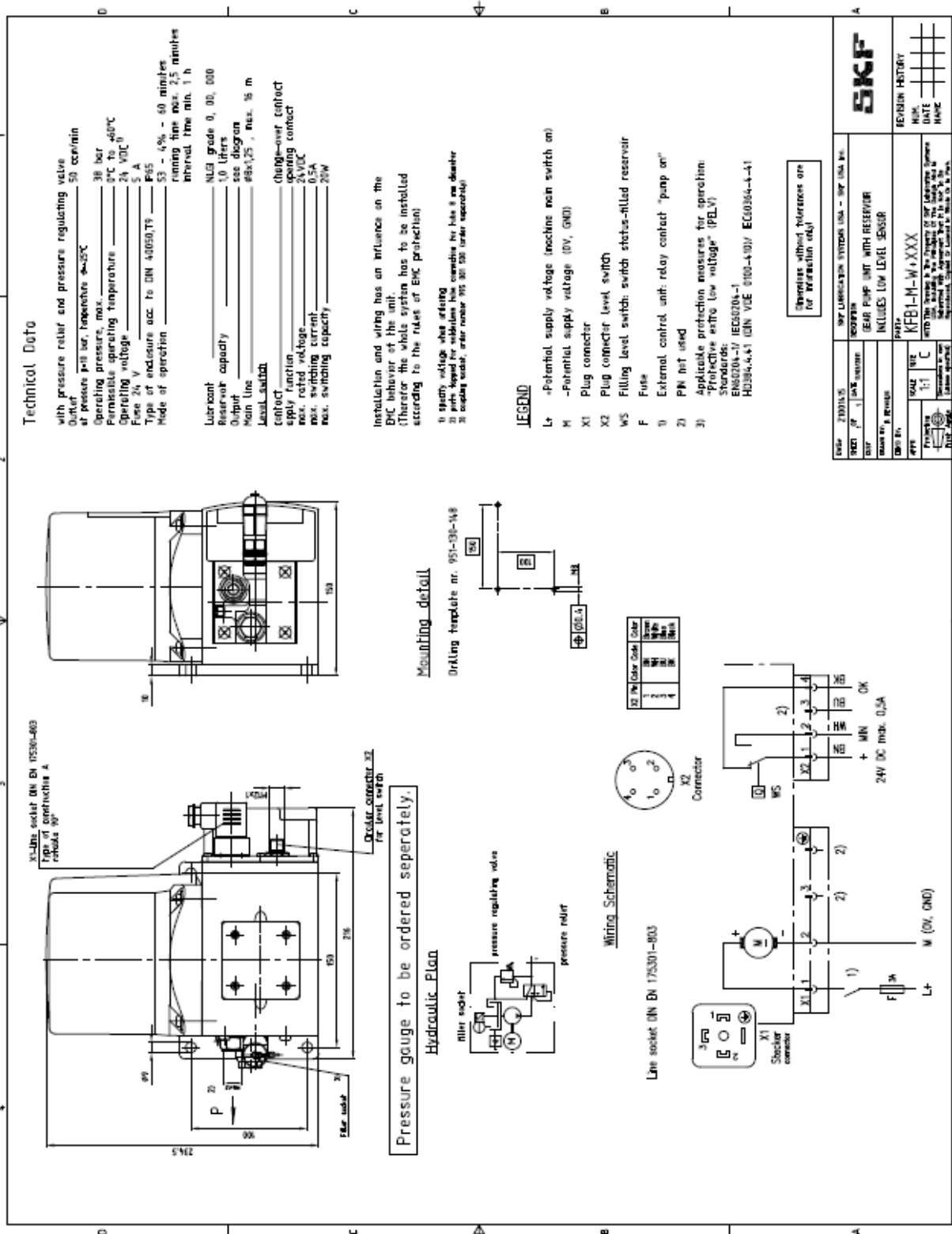
3.9 KFG1-5W1x-V71+924 piston pump for Progressive systems for grease



Quick fill/disconnect is shown for representative purposes only. Quick disconnect couplings must be ordered separately. Please see page 33, section 3.3.

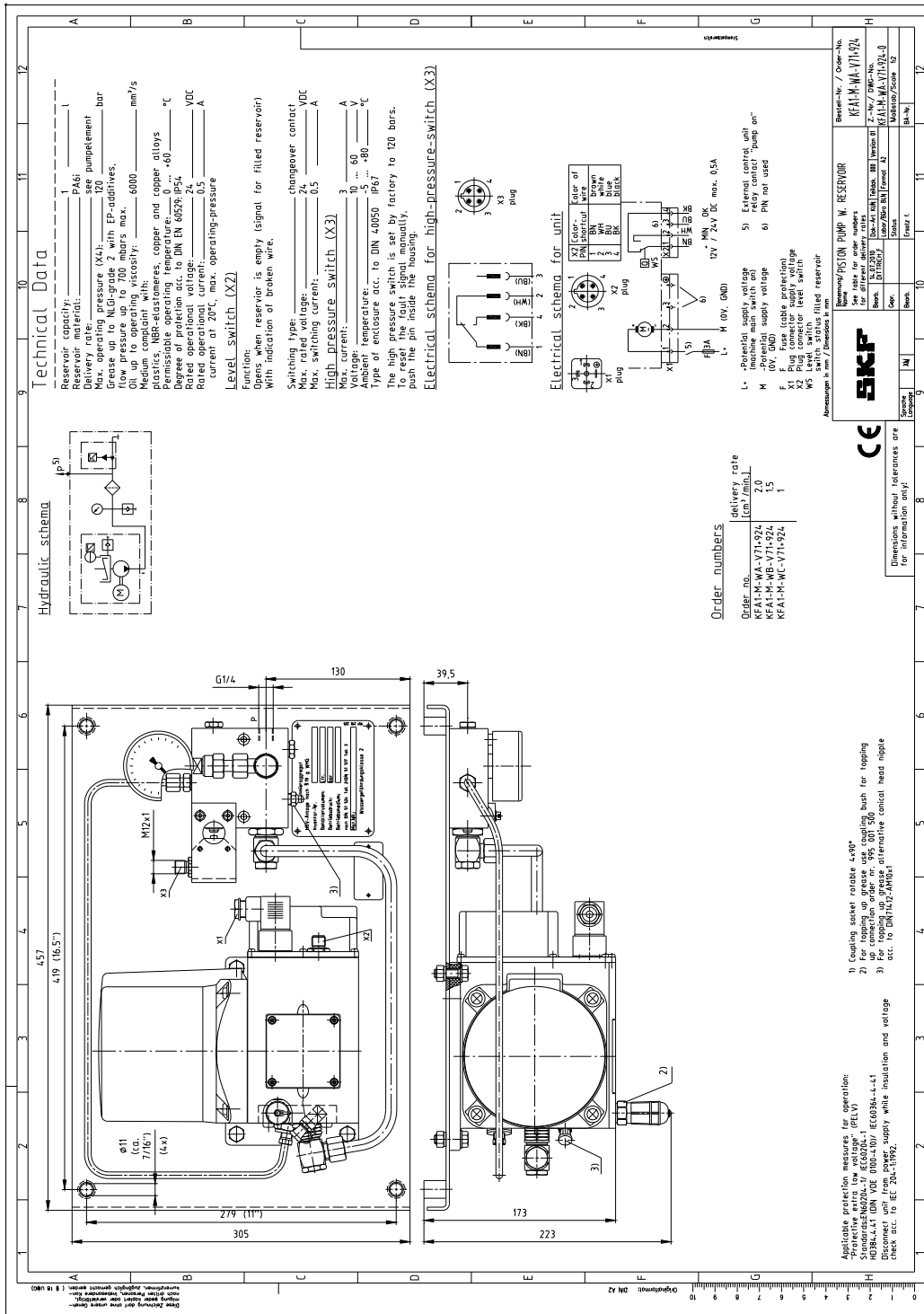


3.10 KFB1-M-W+924





3.11 KFA1-M-WA-V71+924 pumps for Progressive systems for grease



Quick fill/disconnect is shown for representative purposes only. Quick disconnect couplings must be ordered separately. Please see page 33, section 3.3.



3.12.1 Single Piston Distributor 341; Metering up to 0.16 ccm

Configurator

Order code: **3 4 1 - - - 0 0 0 0 - 0 0**

Product series: **3 4 1**

Number of metering points (1): **1**

Design code: **2 4 8 5 9 1 7 6**

Lubricant: **Oil Oil Oil Fluid grease Fluid grease Oil Fluid grease Oil**

Ø lubrication point line [mm]: **2,5 4 4 4 4 4 4 4**

Distributor body material: **Steel, galvanized Steel, galvanized Steel, galvanized Steel, galvanized Steel, galvanized Steel, galvanized Steel, galvanized Stainless steel (1.4305)**

Metering nipple material: **Brass Brass Brass Brass nickel-plated Brass nickel-plated Brass Brass nickel-plated Stainless steel (1.4305)**

Elastomer material: **NBR NBR FKM (FPM) NBR FKM (FPM) NBR NBR FKM (FPM)**

Threaded seal material: **Flat washer ²⁾ Flat washer ²⁾ Flat washer ²⁾ Flat washer ²⁾ Flat washer ²⁾ O-ring ³⁾ O-ring ³⁾ O-ring ³⁾**

Lubrication point line connection: **00 VS 00 VS 00 VS 00 00 VS 00 VS 00 00**

Metered quantity code: **1 1 1 1 1 - - - 1 1 - - 1**

Metered quantity [cm³]: **0,01 ¹⁾ 0,02 ¹⁾ 0,03 0,06 0,10 0,16 - - - 0,01 ¹⁾ 0,02 ¹⁾ 0,03 0,06 0,10 0,16 - - -**

Design of lubrication point line connection (VS = SKF quick connectors, 00 = solderless pipe connection)

Metered quantity code

¹⁾ Subsequent modification of the metered quantity is not technically possible.
²⁾ Flat washer must be ordered separately. Order number: DIN7603-A9x11,5-CU
³⁾ O-ring is part of the shipment

Order example



341-100-30000-00

- Single-port single-line distributor for oil
- NBR design
- Lubrication point line connection per DIN 3862 for pipe Ø 4 mm
- Metered quantity 0,06 cm³
- O-ring seal on internal thread



3.12.2 Manifolds for Single Piston Distributor 341

Order code

V L -

Product series

Number of ports

01 = 1 screw-in point 04 = 4 screw-in points
02 = 2 screw-in points 05 = 5 screw-in points
03 = 3 screw-in points 06 = 6 screw-in points
(other numbers of ports available on request)

Design of distributor pipe thread

A = Normal profile, M8x1 with counterbore for flat washer or O-ring
D = Small profile, M8x1 without counterbore

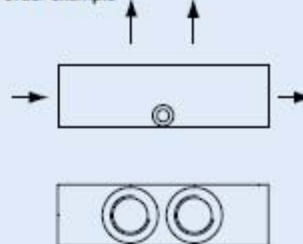
Material

A = Aluminum
E = Stainless steel (1.4305) (can only be selected for normal profile)

Design of main line connection

G1 = G1/8 per DIN 3852-2, Form X, schmal
G2 = G1/4 per DIN 3852-2, Form X, schmal
M3 = M10x1 with counterbore for solderless pipe connection per DIN 3862 (→ page 14)
M4 = M14x1,5 with counterbore for solderless pipe connection per DIN 3862 (→ page 14)
(can only be selected for normal profile)

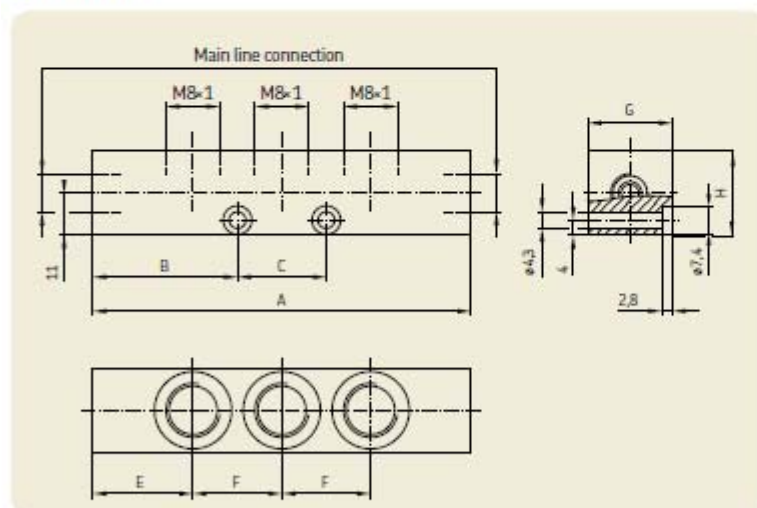
Order example



VL-02AAM3

- Product series VL
- 2 ports
- Normal profile made of aluminum
- M8x1 internal thread with counterbore for flat washer or O-ring
- M10x1 main line connection with counterbore for solderless pipe connection per DIN 3862

Dimensions



Normal profile A

Main line connection M10x1

Number of ports	A	B	C	E	F	G	H
1	40	20	-	20	-	22	22
2	55	27,5	-	20	1x15	22	22
3	70	27,5	15	20	2x15	22	22
4	85	27,5	30	20	3x15	22	22
5	100	27,5	45	20	4x15	22	22
6	115	27,5	60	20	5x15	22	22

Normal profile A

Main line connection M14x1,5

Number of ports	A	B	C	E	F	G	H
1	48	24	-	24	-	22	22
2	63	31,5	-	24	1x15	22	22
3	78	31,5	15	24	2x15	22	22
4	93	31,5	30	24	3x15	22	22
5	108	31,5	45	24	4x15	22	22
6	123	31,5	60	24	5x15	22	22

Small profile D

Main line connection M10x1

Number of ports	A	B	C	E	F	G	H
1	39	19,5	-	20,5	-	13	17
2	52	26	-	20,5	1x13	13	17
3	65	32,5	-	20,5	2x13	13	17
4	78	39	-	20,5	3x13	13	17
5	91	45,5	-	20,5	4x13	13	17
6	104	52	-	20,5	5x13	13	17

Normal profile A

Main line connection G1/8

Number of ports	A	B	C	E	F	G	H
1	34	17	-	17	-	22	22
2	49	24,5	-	17	-	22	22
3	64	24,5	15	17	2x15	22	22
4	79	24,5	30	17	3x15	22	22
5	94	24,5	45	17	4x15	22	22
6	109	24,5	60	17	5x15	22	22

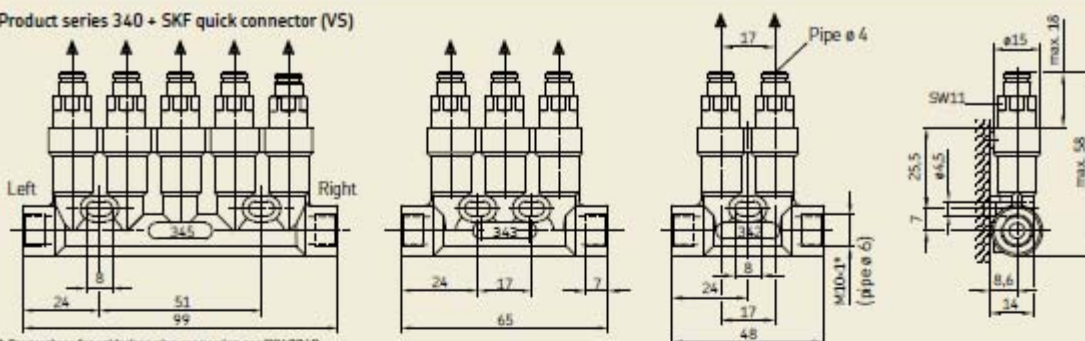
Normal profile A

Main line connection G1/4

Number of ports	A	B	C	E	F	G	H
1	46	23	-	23	-	22	22
2	61	30,5	-	23	1x15	22	22
3	76	30,5	15	23	2x15	22	22
4	91	30,5	30	23	3x15	22	22
5	106	30,5	45	23	4x15	22	22
6	121	30,5	60	23	5x15	22	22

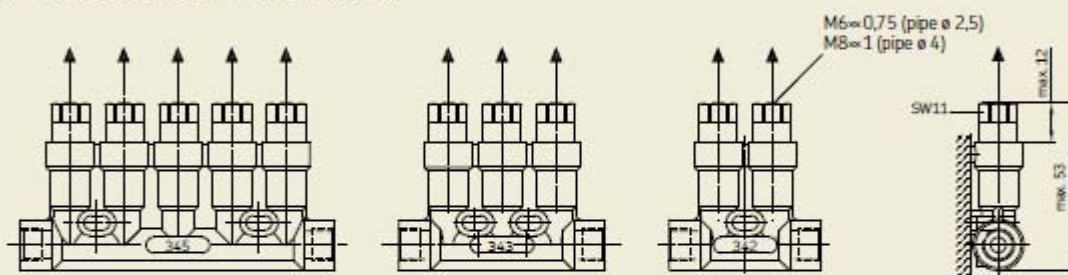
3.13 Piston Distributor 342,343,345 Series; Metering up to 0.16 ccm Dimensions

Product series 340 + SKF quick connector (VS)



* Counterbore for solderless pipe connection per DIN 3862

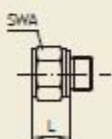
Product series 340 + solderless pipe connection (00)



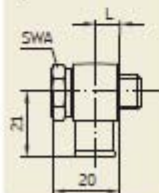
For mixing dimensions, → product series 340 + SKF quick connector (VS).

Fittings for main line connection
(→ page 26 for exact designation)

B, C, D



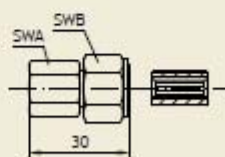
F



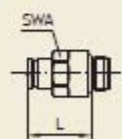
H



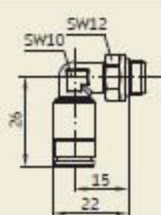
M, N, P



T, U



V



Y



Widths across flats and lengths

Code	B	C	D	F	M	N	P	T	U
ø main line [mm]	6	8	10	6	6	8	10	6	8
WAFA	14	17	19	14	14	17	19	12	14
WAFB	-	-	-	-	17	17	17	-	-
Length L [mm]	12	22	23	8	-	-	-	21	27



Piston Distributor 342, 343, 345 Series

Technical data

Product series 340

Lubricant	Metered quantity [cm ³]	Metering nipple	Operating pressure [bar] min.	Operating pressure [bar] max.	Relief pressure [bar]	Operating temperature [°C]
Mineral and synthetic oil 20 – 2 000 mm ² /s; compatible with zinc die-cast, FKM (FPM)/NBR, brass, steel	0,01 – 0,02	00	12	45	max. 3	0 – 80
		VS	12	80	max. 3	0 – 80
	0,03 – 0,16	00	6	45	≤ 1	0 – 80
		VS	6	80	≤ 1	0 – 80
Fluid grease of NLGI Grade 000, 00; compatible with zinc die-cast, NBR, brass, steel	0,03 – 0,10	00	12	45	max. 3	0 – 80
		VS	12	80	max. 3	0 – 80

Mark on metering nipple

Metered quantity [cm ³]	Mark
0,01	1
0,02	2
0,03	3
0,06	6
0,10	10
0,16	16

Accessories

Order numbers for metering nipples for oil (replaceable)

ø lubrication point line [mm]	Metering nipple material	Elastomer material	Metering nipple	Metered quantity [cm ³]			
				0,03	0,06	0,10	0,16
2,5	Brass	NBR	00	995-994-003	995-994-006	995-994-010	995-994-016
4	Brass	NBR	VS	995-994-103-VS	995-994-106-VS	995-994-110-VS	995-994-116-VS
4	Brass	NBR	00	995-994-103	995-994-106	995-994-110	995-994-116
4	Brass	FKM (FPM)	VS	341-453-S8-VS	341-456-S8-VS	341-460-S8-VS	341-466-S8-VS
4	Brass	FKM (FPM)	00	341-453-K-S8	341-456-K-S8	341-460-K-S8	341-466-K-S8

Order numbers for metering nipples for fluid grease (replaceable)

ø lubrication point line [mm]	Metering nipple material	Elastomer material	Metering nipple	Metered quantity [cm ³]		
				0,03	0,06	0,10
4	Brass, nickel-plated	NBR	VS	341-853-VS	341-856-VS	341-860-VS
4	Brass, nickel-plated	NBR	00	341-853-K	341-856-K	341-860-K

Fittings for metering nipples

Description	ø lubrication point line [mm]	Pipe thread	Order number A	B	C
Screw plug with flat washer for solderless pipe connection	2,5	M6x0,75	402-011.U1	–	–
	4	M8x1	404-011.U1	–	–
Locking pin (A) for SKF quick connectors	4	–	450-204-002	–	–
Solderless pipe connection for metal pipeline* consisting of socket union (A) double cone sleeve (B)	2,5	M6x0,75	402-002	402-001	–
	4	M8x1	404-002	404-001	–
Solderless pipe connection for plastic pipe* consisting of socket union (A), reinforcing socket (B), and tapered 4 sleeve (C)	2,5	M6x0,75	402-612	402-603	402-611
	4	M8x1	404-612	404-603	404-611



Piston Distributor 342, 343, 345 Series

Order code

3

4

-

-

-

Product series

Number of metering points (2, 3, 5)

Design and metered quantity

Design code	2	4	8	5
Lubricant	Oil	Oil	Oil	Fluid grease
Lubrication point line [mm]	2,5	4	4	4
Distributor body material	Zinc die-cast	Zinc die-cast	Zinc die-cast	Zinc die-cast
Metering nipple material	Brass	Brass	Brass	Brass, nickel-plated
Elastomer material	NBR	NBR	FKM (FPM)	NBR
Lubrication point line connection	00	VS 00	VS 00	VS 00

Metered quantity [cm ³]	2	4	8	5
0,01 ¹⁾	1	1	1	-
0,02 ¹⁾	-	-	6	-
0,03	2	2	2	2
0,06	3	3	3	3
0,10	4	4	4	4
0,16	5	5	5	-
closed ²⁾	V	V	V	V

¹⁾ Subsequent modification of the metered quantity is not technically possible.
²⁾ V = Metered quantity of 0,03 cm³, closed

Order example

342-400-2V000-BB

- Two-port single-line distributor for oil
- NBR design
- Lubrication point line connection per DIN 3862 for pipe ø 4 mm,
- Metered quantity for port 1 = 0,03 cm³
- Metered quantity for port 2 = 0,03 cm³, closed
- Main line fitting left and right = straight adapter (DIN 3862) with flat washer for pipe ø 6 mm

Fittings for main line connection

Description	ø main line [mm]	Code
Straight adapter	6	B
DIN 3862 with flat washer ¹⁾	8	C
	10	D
Banjo fitting DIN 3862 with flat washer, lockable ^{1) 2)}	6	F
Screw plug with flat washer	-	H
Straight adapter with EO-2 functional nut	6	M
	8	N
	10	P
Straight adapter with SKF quick connector	6	T
	8	U
Banjo fitting with SKF quick connectors, not lockable	6	V
Vent plug with profile sealing ring	-	Y
Without fitting; for solderless pipe connection ¹⁾	6	Z

¹⁾ Solderless pipe connection according to DIN 3862 (operating pressure max. 45 bar)
²⁾ Banjo bolt only inserted in delivery condition, not tightened



3.14.1 Single Piston Distributor 351; Metering up to 0.60 ccm

Order code

3	5	1	-			-		0	0	0	0	-	0	0
---	---	---	---	--	--	---	--	---	---	---	---	---	---	---

Product series

Number of metering points (1)

Design code

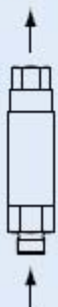
Design of lubrication point/line connection (VS = SKF quick connectors, ∞ = solderless pipe connection)

Metered quantity code

Design code	0	8	4	1	7	2	3	6
Lubricant	Oil	Oil	Oil	Fluid grease	Fluid grease	Oil	Fluid grease	Oil
∅ lubrication point line (mm)	4	4	4	4	4	4	4	4
Distributor body material	Aluminum	Aluminum	Stainless steel (1.4305)	Aluminum	Aluminum	Aluminum	Aluminum	Stainless steel (1.4305)
Metering nipple material	Brass	Brass	Stainless steel (1.4305)	Brass nickel-plated	Brass nickel-plated	Brass	Brass nickel-plated	Stainless steel (1.4305)
Elastomer material	NBR	FKM (FPM)	FKM (FPM)	NBR	FKM (FPM)	NBR	NBR	FKM (FPM)
Threaded seal material	Flat washer ¹⁾	Flat washer ¹⁾	Stainless steel ring ²⁾ (1.4571)	Flat washer ¹⁾	Flat washer ¹⁾	O-ring ³⁾	O-ring ³⁾	O-ring ³⁾
Lubrication point line connection	VS 00	VS 00	00	VS 00	VS 00	VS 00	VS 00	00
Metered quantity code	0,05 3 3	3 3	-	-	-	-	-	-
	0,10 4 4	4 4	4	4	4	4	4	4
	0,20 5 5	5 5	5	5	5	5	5	5
	0,30 -	-	-	6	6	6	6	-
	0,40 6 6	6 6	6	-	-	6	6	6
	0,60 7 7	7 7	7	-	7	7	7	7

¹⁾ Flat washer must be ordered separately. Order number: 504-019
²⁾ Stainless steel ring must be ordered separately. Order number: 99-1033-7 603
³⁾ O-ring is part of the shipment

Order example



351-100-70000-00

- Single-port single-line distributor for fluid grease
- NBR design
- Lubrication point line connection per DIN 3862 for pipe ∅ 4 mm
- Metered quantity 0,60 cm³
- With flat washer seal on internal thread



3.14.2 Manifolds for Single Piston Distributor 351

Order code

Product series

Number of ports

01 = 1 screw-in point 04 = 4 screw-in points
02 = 2 screw-in points 05 = 5 screw-in points
03 = 3 screw-in points 06 = 6 screw-in points
(other numbers of ports available on request)

Design of distributor pipe thread

B = Normal profile, M10x1 with counterbore for flat washer or O-ring
E = Small profile, M10x1 with counterbore for flat washer

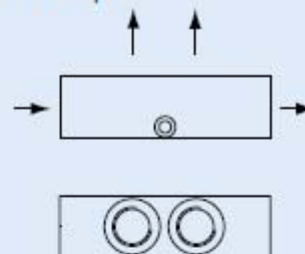
Material

A = Aluminium
E = Stainless steel (1.4305) (can only be selected for normal profile)

Design of main line connection

G1 = G1/8 per DIN 3852-2, Form X, schmal
G2 = G1/4 per DIN 3852-2, Form X, schmal
M3 = M10x1 with counterbore for solderless pipe connection per DIN 3862 (→ page 14)
M4 = M14x1,5 with counterbore for solderless pipe connection per DIN 3862 (→ page 14)
(can only be selected for normal profile)

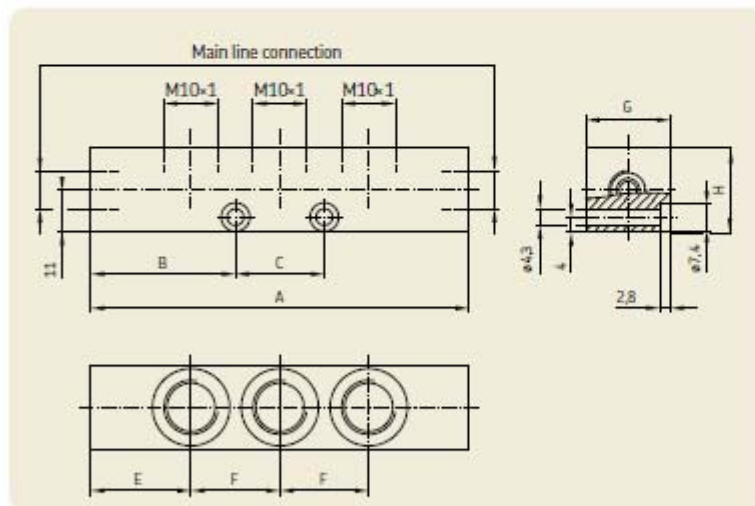
Order example



VL-02BAM3

- Product series VL
- 2 ports
- Normal profile made of aluminium
- M10x1 internal thread with counterbore for flat washer or O-ring
- M10x1 main line connection with counterbore for solderless pipe connection per DIN 3862

Dimensions



Normal profile B

Main line connection M10x1

Number of ports	Dimensions [mm]						
	A	B	C	E	F	G	H
1	40	20	—	20	—	22	22
2	57	28,5	—	20	1x17	22	22
3	74	28,5	17	20	2x17	22	22
4	91	28,5	34	20	3x17	22	22
5	108	28,5	51	20	4x17	22	22
6	125	28,5	60	20	5x17	22	22

Normal profile B

Main line connection M14x1,5

Number of ports	Dimensions [mm]						
	A	B	C	E	F	G	H
1	52	26	—	26	—	22	22
2	69	34,5	—	26	1x17	22	22
3	86	34,5	17	26	2x17	22	22
4	103	34,5	34	26	3x17	22	22
5	128	34,5	51	26	4x17	22	22
6	137	34,5	68	26	5x17	22	22

Small profile E

Main line connection M10x1

Number of ports	Maße [mm]						
	A	B	C	E	F	G	H
1	41	20,5	—	20,5	—	18	20
2	58	29	—	20,5	1x17	18	20
3	75	37,5	—	20,5	2x17	18	20
4	92	29	34	20,5	3x17	18	20
5	109	29	51	20,5	4x17	18	20
6	126	29	68	20,5	5x17	18	20

Normal profile B

Main line connection G1/8

Number of ports	Dimensions [mm]						
	A	B	C	E	F	G	H
1	34	17	—	17	—	22	22
2	51	25,5	—	17	1x17	22	22
3	68	25,5	17	17	2x17	22	22
4	85	25,5	34	17	3x17	22	22
5	102	25,5	51	17	4x17	22	22
6	119	25,5	68	17	5x17	22	22

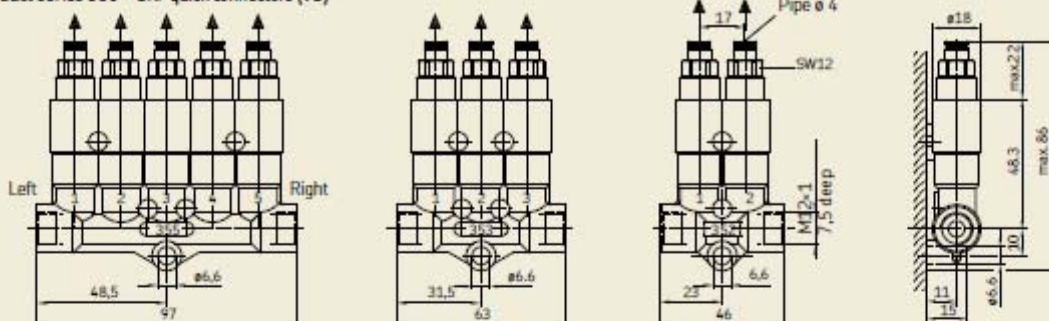
Normal profile B

Main line connection G1/4

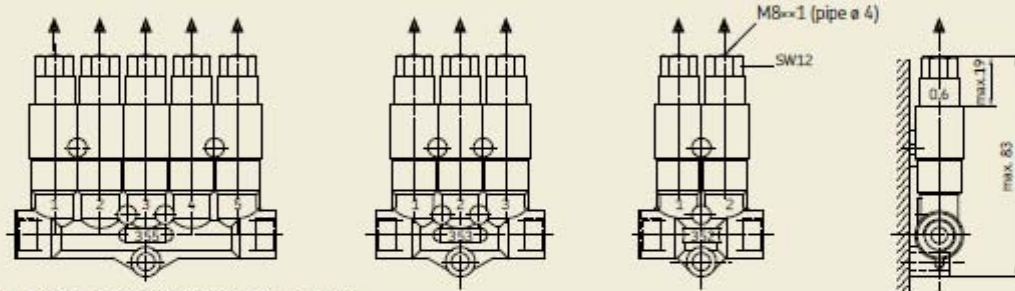
Number of ports	Dimensions [mm]						
	A	B	C	E	F	G	H
1	46	23	—	23	—	22	22
2	63	31,5	—	23	1x17	22	22
3	80	31,5	17	23	2x17	22	22
4	97	31,5	34	23	3x17	22	22
5	114	31,5	51	23	4x17	22	22
6	131	31,5	68	23	5x17	22	22

3.15 Piston Distributor 352,353,355 Series; Metering up to 0.60 ccm Dimensions

Product series 350 + SKF quick connectors (VS)



Product series 350 + solderless pipe connection (00)



For missing dimensions, → product series 350 + SKF quick connector (VS).

Fittings for main line connection

(→ page 34 for exact designation)

B, C, D

E

F

H

M, N, P, R

S, T

W

X

Widths across flats and lengths											
Code	B	C	D	E	F	M	N	P	R	S	T
ø main line [mm]	6	8	10	6	8	6	8	10	12	6	8
WAF A	17	17	19	17	17	14	17	19	22	14	14
WAF B	-	-	-	-	-	19	19	19	19	-	-
Length L [mm]	10	20	22	25	27	32	32	31	31	21	26



Piston Distributor 352, 353, 355 Series

Technical data

Product series 350

Lubricant	Metered quantity [cm ³]	Metering nipple	Operating pressure [bar] min. max.	Relief pressure [bar]	Operating temperature [°C]
Mineral and synthetic oil 20 – 2 000 mm ² /s; compatible with zinc die-cast, FKM (FPM)/ NBR, brass, steel	0,05 – 0,60	00 VS	6 45 6 80	≤ 1 ≤ 1	0 – 80 0 – 80
Fluid grease of NLGI Grade 000, 00; compatible with zinc die-cast, NBR, brass, steel	0,10 – 0,60	00 VS	12 45 12 80	max. 3 max. 3	0 – 80 0 – 80

Mark on metering nipple

Metered quantity [cm ³]	Mark
0,05	0,05
0,10	0,1
0,20	0,2
0,30	0,3
0,40	0,4
0,60	0,6

Accessories

Order numbers for metering nipples for oil* (replaceable)

ø lubrication point line [mm]	Elastomer material	Metering nipple	Metered quantity [cm ³] 0,05 0,10	0,20	0,40	0,60
4	NBR	00	352-005-K	352-010-K	352-020-K	352-040-K
4	NBR	VS	352-005-VS	352-010-VS	352-020-VS	352-040-VS
4	FKM (FPM)	00	352-005-K-S8	352-010-K-S8	352-020-K-S8	352-040-K-S8
4	FKM (FPM)	VS	352-005-S8-VS	352-010-S8-VS	352-020-S8-VS	352-040-S8-VS

* Metering nipples are made of brass.

Order numbers for metering nipples for fluid grease* (replaceable)

ø lubrication point line [mm]	Elastomer material	Metering nipple	Metered quantity [cm ³] 0,10 0,20	0,30	0,60
4	NBR	00	995-993-610	995-993-620	995-993-630
4	NBR	VS	995-993-610-VS	995-993-620-VS	995-993-630-VS
4	FKM (FPM)	00	352-010-K-S82	352-020-K-S82	352-030-K-S82
4	FKM (FPM)	VS	352-010-S82-VS	352-020-S82-VS	352-030-S82-VS

* Metering nipples are made of nickel-plated brass.

Fittings for metering nipples

Description	ø lubrication point line [mm]	Pipe thread	Order number A	B	C
Screw plug with flat washer for solderless pipe connection	4	M8x1	404-011.U1	–	–
Locking pin (A) for SKF quick connectors	4	–	450-204-002	–	–
Solderless pipe connection for metal pipeline* consisting of socket union (A) and double cone sleeve (B)	4	M8x1	404-002	404-001	–
Solderless pipe connection for plastic pipe* consisting of socket union (A), reinforcing socket (B), and tapered sleeve (C)	4	M8x1	404-612	404-603	404-611



Piston Distributor 352, 353, 355 Series

Order code

3

5

-

-

-

Product series

Number of metering points (2, 3, 5)

Design and metered quantity

Design key	0	8	1	7
Design	Oil	Oil	Fluid grease	Fluid grease
Lubricant	Oil	Oil	Fluid grease	Fluid grease
ø lubrication point line [mm]	4	4	4	4
Distributor body material	Zinc die-cast	Zinc die-cast	Zinc die-cast	Zinc die-cast
Metering nipple material	Brass	Brass	Brass nickel-plated	Brass nickel-plated
Elastomer material	NBR	FKM (FPM)	NBR	FKM (FPM)
Lubrication point line connection	VS 00	VS 00	VS 00	VS 00
Metered quantity code [cm ³]	0,05 0,10 0,20 0,30 0,40 0,60 closed *	3 3 4 4 5 5 - - 6 6 7 7 V V	3 3 4 4 5 5 - - 6 6 7 7 V V	3 3 4 4 5 5 - - 6 6 7 7 V V

* V = Metered quantity of 0,20 cm³, closed

Code

Design of lubrication point line connection
(VS = SKF quick connectors, 00 = solderless pipe connection)

Metering point 1
Metering point 2
Metering point 3
(0 = not present, on 352)
Metering point 4
(0 = not present, on 352, 353)
Metering point 5
(0 = not present, on 352, 353)

Metered quantity code

Code for fittings for main line connection on left
Code for fittings for main line connection on right

Order example

352-800-5V000-CC

- Two-port single-line distributor for oil
- NBR design
- Lubrication point line connection per DIN 3862 for pipe ø 4 mm,
- Metered quantity for port 1 = 0,20 cm³
- Metered quantity for port 2 = 0,20 cm³ closed
- Main line fitting left and right = straight adapter (DIN 3862) with flat washer for pipe ø 8 mm

Fittings for main line connection

Description	Main line [mm]	Code
Straight adapter	6	B
DIN 3862 with flat washer ¹⁾	8	C
	10	D
Banjo fitting DIN 3862 with flat washer, lockable ^{1) 2)}	6	E
	8	F
Screw plug with flat washer	-	H
Straight adapter with EO-2 functional nut	6	M
	8	N
	10	P
	12	R
Straight adapter with SKF quick connector	6	S
	8	T
Banjo fitting with SKF quick connectors	6	W
	8	X
Without fitting (M12x1 thread)	-	Z

¹⁾ Solderless pipe connection according to DIN 3862 (operating pressure max. 45 bar)
²⁾ Banjo bolt only inserted in delivery condition, not tightened

1234



3.16.1 Single Piston Distributor 391; Metering up to 1.5 ccm

Order code: 3 9 1 - 0 0 - 0 0 0 0 - 0 0

Product series: 3 9 1

Number of metering points (1): 1

Design code: 0 0

Design of lubrication point line connection (VS = SKF quick connectors, 00 = solderless pipe connection): 0 0

Metered quantity code: 0 0

Design and metered quantity			
	0	8	1
Design code	0	8	1
Lubricant	Oil	Oil	Fluid grease
ø lubrication point line (mm)	4	4	4
Distributor body material	Aluminum	Aluminum	Aluminum
Metering nipple material	Brass	Brass	Brass, nickel-plated
Elastomer material	NBR	FKM (FPM)	NBR
Threaded seal material	Flat washer*	Flat washer*	Flat washer*
Lubrication point line connection	00	00	00
Metered quantity code			
0,10	-	-	4
0,20	5	5	5
0,30	-	-	6
0,40	6	6	-
0,60	7	7	-
1,00	8	8	-
1,50	9	9	-

* Flat washer must be ordered separately. Order number: DIN7603-A14x18-CU

Order example



391-100-60000-00

- Single-port single-line distributor for fluid grease
- NBR design
- Lubrication point line connection per DIN 3862 for pipe ø 4 mm
- Metered quantity 0,30 cm³
- Flat washer seal on internal thread



3.16.2 Manifolds for Single Piston Distributor 391

Order code

V L - C A

Product series

Number of ports

01 = 1 screw-in point
02 = 2 screw-in points
03 = 3 screw-in points
04 = 4 screw-in points
05 = 5 screw-in points
06 = 6 screw-in points
(other numbers of ports available on request)

Design of distributor pipe thread

C = Normal profile, M14x1,5 with counterbore for flat washer

Material

A = Aluminum

Design of main line connection

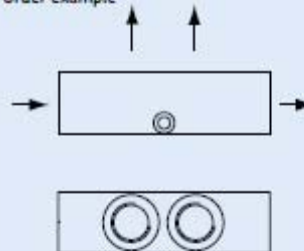
G1 = G1/8 per DIN 3852-2, Form X, schmal

G2 = G1/4 per DIN 3852-2, Form X, schmal

M3 = M10x1 with counterbore for solderless pipe connection per DIN 3862 (→ page 14)

M4 = M14x1,5 with counterbore for solderless pipe connection per DIN 3862 (→ page 14)

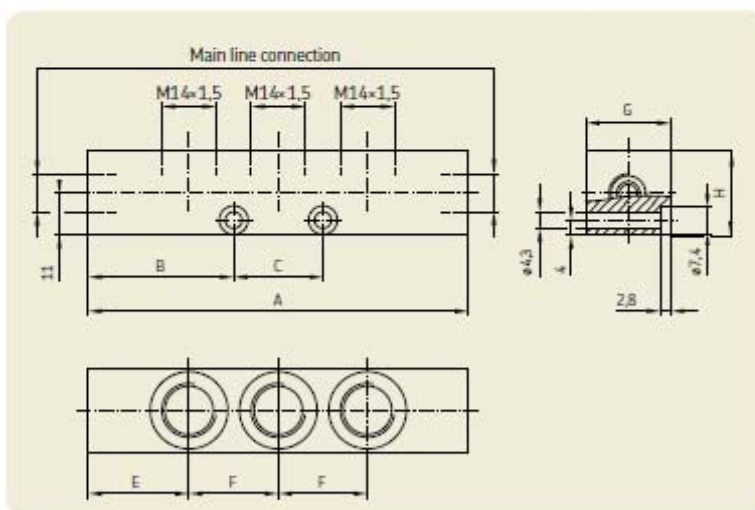
Order example



VL-02CAM3

- Product series VL
- 2 ports
- Normal profile made of aluminum
- M14x1,5 internal thread with counterbore for flat washer
- M10x1 main line connection with counterbore for solderless pipe connection per DIN 3862

Dimensions



Normal profile C

Main line connection M10x1

Number of ports	A	B	C	E	F	G	H
1	60	18	24	30	-	22	22
2	70	35	-	29	1x24	22	22
3	94	35	24	23	2x24	22	22
4	118	35	48	23	3x24	22	22
5	142	35	72	23	4x24	22	22
6	166	35	96	23	5x24	22	22

Normal profile C

Main line connection M14x1,5

Number of ports	A	B	C	E	F	G	H
1	68	22	24	34	-	22	22
2	78	39	-	27	1x24	22	22
3	102	39	24	27	2x24	22	22
4	126	39	48	27	3x24	22	22
5	150	39	72	27	4x24	22	22
6	174	39	96	27	5x24	22	22

Normal profile C

Main line connection G1/8

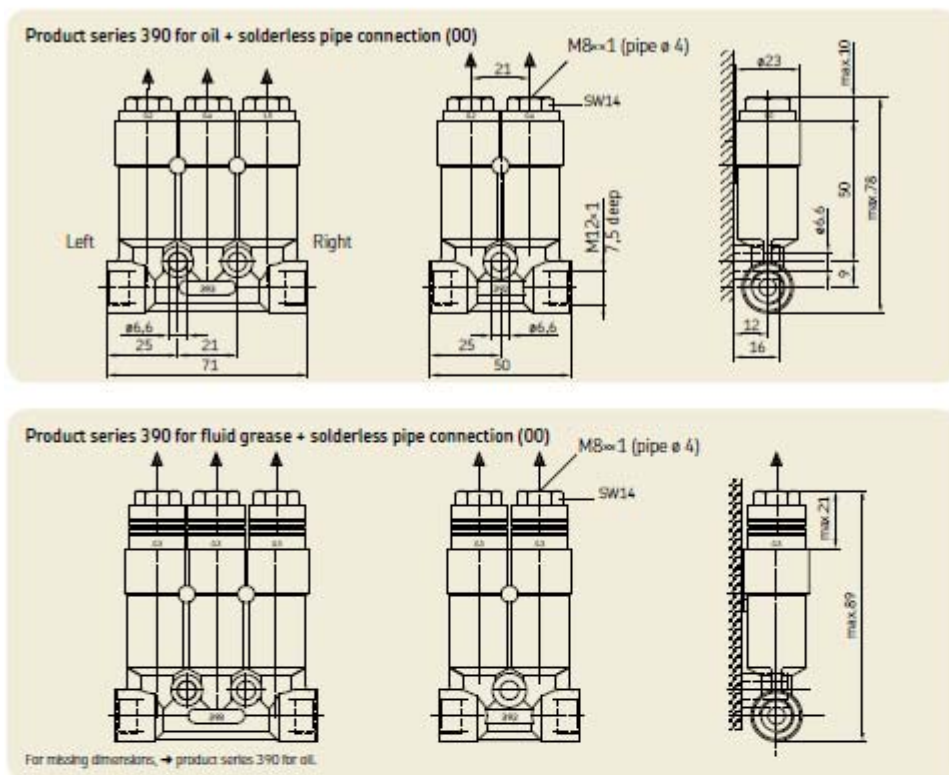
Number of ports	A	B	C	E	F	G	H
1	54	15	24	27	-	22	22
2	64	32	-	20	1x24	22	22
3	88	32	24	20	2x24	22	22
4	112	32	48	20	3x24	22	22
5	136	32	72	20	4x24	22	22
6	160	32	96	20	5x24	22	22

Normal profile C

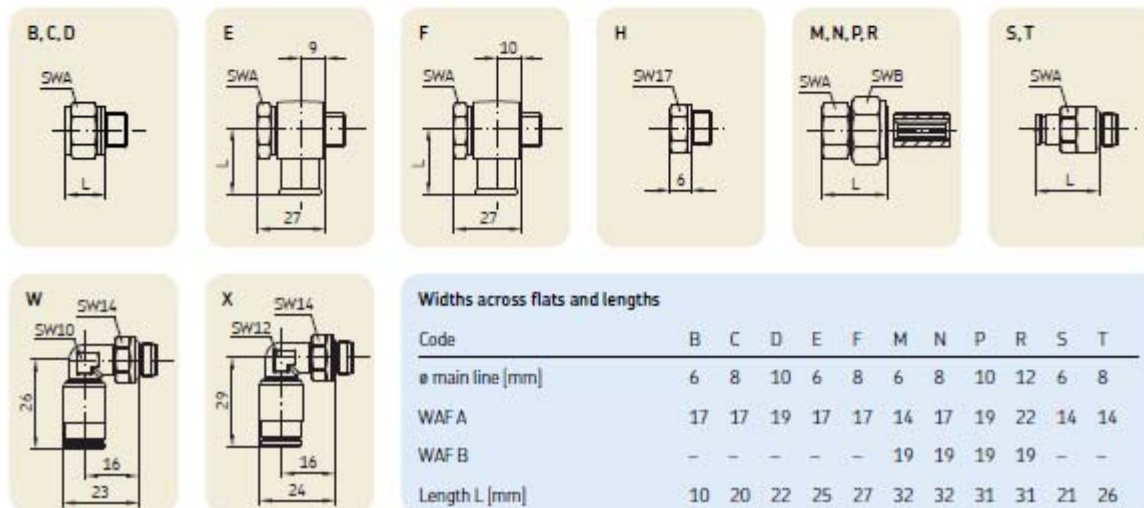
Main line connection G1/4

Number of ports	A	B	C	E	F	G	H
1	64	20	24	32	-	22	22
2	76	38	-	26	1x24	22	22
3	100	38	24	26	2x24	22	22
4	124	38	48	26	3x24	22	22
5	148	38	72	26	4x24	22	22
6	172	38	96	26	5x24	22	22

3.17 Piston Distributor 392, 393 Series; Metering up to 1.5 ccm



Fittings for main line connection
(→ page 42 for exact designation)





Piston Distributor 392, 393 Series

Technical data

Product series 390							Mark on metering nipple	
Lubricant	Metered quantity [cm ³]	Metering nipple	Operating pressure [bar]		Relief pressure [bar]	Operating temperature [°C]	Metered quantity [cm ³]	Mark
Mineral and synthetic oil 20 – 2 000 mm ² /s; compatible with zinc die-cast, FKM (FPM)/NBR, brass, steel	0,2 – 1,5	00	8	45	≤ 1	0 – 80	0,1	0,1
							0,2	0,2
							0,3	0,3
							0,4	0,4
							0,6	0,6
							1,0	1,0
							1,5	1,5
Fluid grease of NLGI Grade 000, 00, 0; compatible with zinc die-cast, NBR, brass, steel	0,1 – 0,3	00	26	45	max. 7	0 – 80		

Accessories

Order numbers for metering nipples for oil (replaceable)							
ø lubrication point line [mm]	Elastomer material	Metering nipple material	Metered quantity [cm ³]		0,6	1,0	1,5
			0,2	0,4			
4	NBR	Brass	391-020-K	391-040-K	391-060-K	391-100-K	391-150-K
4	FKM (FPM)	Brass	391-020-K-S8	391-040-K-S8	391-060-K-S8	391-100-K-S8	391-150-K-S8

Order numbers for metering nipples for fluid grease (replaceable)					
ø lubrication point line [mm]	Elastomer material	Metering nipple material	Metered quantity [cm ³]		0,3
			0,1	0,2	
4	NBR	Brass, nickel-plated	391-010-K-S1	391-020-K-S1	391-030-K-S1

Fittings for metering nipples					
Description	ø lubrication point line [mm]	Pipe thread	Order number A	B	C
Screw plug with flat washer for solderless pipe connection	4	M8x1	404-011.U1	–	–
Solderless pipe connection for metal pipeline* consisting of socket union (A) and double cone sleeve (B)	4	M8x1	404-002	404-001	–
Solderless pipe connection for plastic pipe* consisting of socket union (A), reinforcing socket (B), and tapered sleeve (C)	4	M8x1	404-612	404-603	404-611



Piston Distributor 392, 393 Series

Order code	3	9	-	0	0	-				0	0	-		
Product series														
Number of metering points (2, 3)														

Design and metered quantity			
Design code	0	8	1
Lubricant	Oil	Oil	Fluid grease
ø lubrication point line [mm]	4	4	4
Distributor body material	Aluminum	Aluminum	Aluminum
Metering nipple material	Brass	Brass	Brass, nickel-plated
Elastomer material	NBR	FKM (FPM)	NBR
Lubrication point line connection	00	00	00
Metered quantity code [cm ³]			
0,10	-	-	4
0,20	5	5	5
0,30	-	-	6
0,40	6	6	-
0,60	7	7	-
1,00	8	8	-
1,50	9	9	-
closed *	V	V	V

* V = Metered quantity of 0,20 cm³, closed

Fittings for main line connection		
Description	ø main line [mm]	Code
Straight adapter	6	B
DIN 3862 with flat washer	8	C
	10	D
Banjo fitting DIN 3862 with flat washer, lockable ¹⁾	6	E
	8	F
Screw plug with flat washer	-	H
Straight adapter with EO-2 functional nut	6	M
	8	N
	10	P
	12	R
Straight adapter with SKF quick connector	6	S
	8	T
Banjo fitting with SKF quick connector, not lockable	6	W
	8	X
Without fitting (M12x1 thread)	-	Z

¹⁾ Banjo bolt only inserted in delivery condition, not tightened

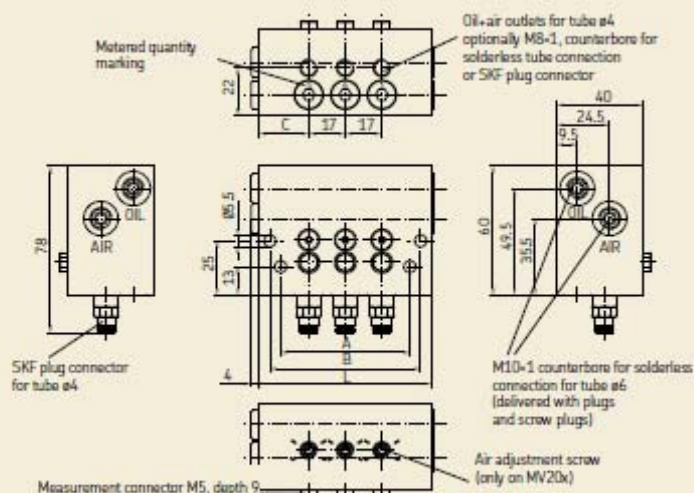
Order example

392-800-5V000-CC

- Two-port single-line distributor for oil
- NBR design
- Lubrication point line connection per DIN 3862 for pipe ø 4 mm
- Metered quantity for port 1 = 0,20 cm³
- Metered quantity for port 2 = 0,20 cm³ closed
- Main line fitting left and right = straight adapter (DIN 3862) with flat washer for pipe ø 8 mm

3.18 Oil + Air Mixing Valves, MV20x-100-xxxxxxxxxx

MV203/MV303



Dimensions of designs

	L	A	B	C
MV201-1...	40	20	22	20
MV202-1...	55	43	45	19
MV203-1...	80	60	70	23
MV204-1...	105	77	95	27
MV205-1...	130	94	120	31
MV206-1...	130	111	120	22.5
MV207-1...	155	128	145	26.5
MV208-1...	155	145	145	18
MV301-1...	40	20	22	20
MV302-1...	55	43	45	19
MV303-1...	80	60	70	23
MV304-1...	105	77	95	27
MV305-1...	130	94	120	31
MV306-1...	130	111	120	22.5
MV307-1...	155	128	145	26.5
MV308-1...	155	145	145	18



Note

Note The configurator on page 13 allows the functional specification of oil+air mixing valves with metering with associated order number.

Metered quantities

Metered quantity [cm ³ /cycle]	Metering rate marking
0,01	1
0,02	2
0,03	3
0,06	6
0,10	10
0,16	16

MV20x/ MV30x mixing valves with metering

Mounting position preferably as illustrated

Number of metering points, 1 to 8

Metered quantity per

metering point	0,01–
	0,14 mm³/m³

Actuating pressure: air	0,16 cm ³ /c 3–10 bar
-------------------------	-------------------------------------

Actuating pressure, air 3–10 bar
Actuating pressure, oil 17–40 bar

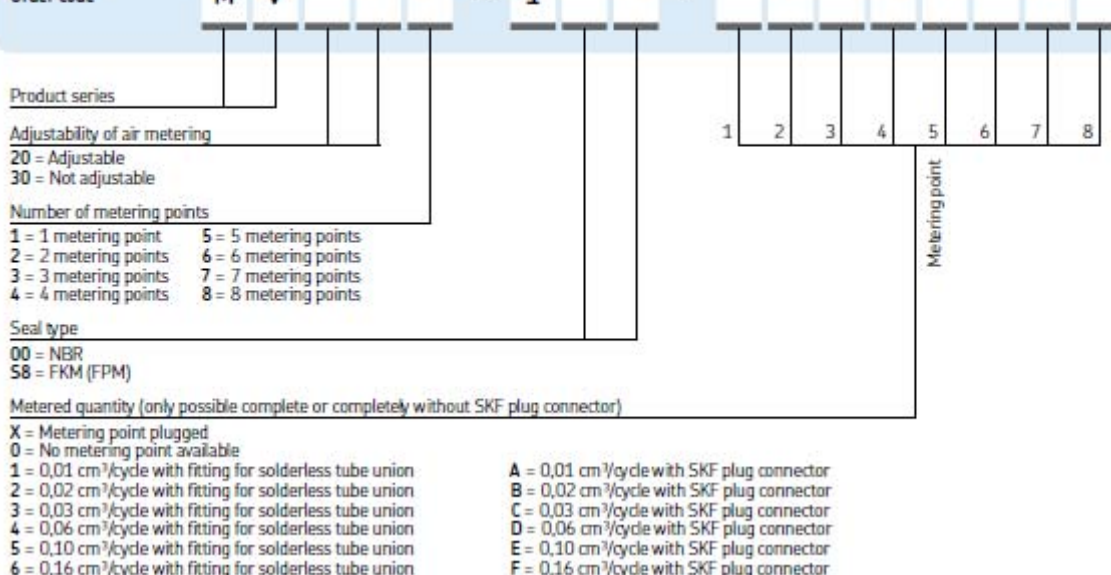
Operating temperature. . . . 5–80 °C

Sealing material NBR / FKM

Air consumption ²⁾ 1 000 to
1 500 m³/h



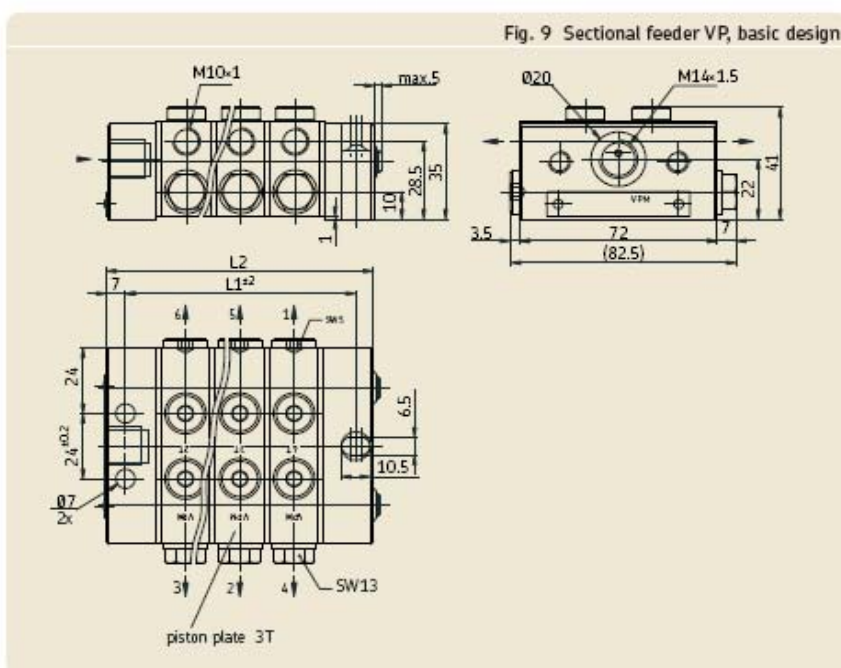
Order code



3.19 Progressive Feeder VPG Sizes

Sectional feeder VP, basic design

for oil or grease, without attachments, without monitoring



Inlet:		Thread/Dimensions		Outlet:	
VPM	VPG	= M14x1.5		VPM	VPG
		= G1/4"			= M10x1
					= G1/8"
Type	Number of Feeder sections	Number of possible outlets	L2 [mm]	L1 [mm]	
VPM-3 / VPG-3	3	6	84.0	98.0	
VPM-4 / VPG-4	4	8	104	118	
VPM-5 / VPG-5	5	10	124	138	
VPM-6 / VPG-6	6	12	144	158	
VPM-7 / VPG-7	7	14	164	178	
VPM-8 / VPG-8	8	16	184	198	
VPM-9 / VPG-9	9	18	204	218	
VPM-10/VPG-10	10	20	224	238	

Selection of the feeder sections for the required lubricant quantity		
Quantity per cycle and outlet (cm ³)	Number of Outlets	Description of the sections
0.10	2	1T
0.20	2	2T
0.30	2	3T
0.40	2	4T
0.50	2	5T
0.60	2	6T
0.20	1	1S
0.40	1	2S
0.60	1	3S
0.80	1	4S
1.00	1	5S
1.20	1	6S



Progressive Feeder VPG

Order Code

Explanation of the order codes

Structure

Example: VP M / 10 15/ P3-4L /07 A 1- 1T -1SL -2TR - 2T - 3SR -2TLR -4T -5T -5T -6T

Progressive sectional feeders	Thread-screw connection	inlet: M = M14x1.5 G = G1/4"	outlet: M10x1 G1/8"	Number of feeder sections	Number of occupied outlets	Monitoring type	Installation position of the monitoring system	Attachments
1.-				03 = for 3 sections (max. 6 outlets) 04 = for 4 sections (max. 8 outlets) 05 = for 5 sections (max. 10 outlets) 06 = for 6 sections (max. 12 outlets) 07 = for 7 sections (max. 14 outlets) 08 = for 8 sections (max. 16 outlets) 09 = for 9 sections (max. 18 outlets) 10 = for 10 sections (max. 20 outlets)	03 = 3 outlets open ↓ 20 = 20 outlets open	00 = without P2 = Piston detector, 2-pin connection P3 = Piston detector, 3-pin connection ZY = cycle indicator ¹⁾	-1R = right-hand side on the 1st section -1L = left-hand side on the 1st section -2R = right-hand side on the 2nd section ↓ -0R = right-hand side on the 10th section -0L = left-hand side on the 10th section	00 = without attachments 07 = with flow limiter 08 = with 4/2-directional solenoid valve, de-energized, continuity to feeder open 09 = with 4/2-directional solenoid valve, de-energized, continuity to feeder closed 13 = with (oil) 2/2-directional solenoid valve, de-energized feeder relieved 14 = with 3/2 directional solenoid valve, de-energized feeder relieved 15 = with (grease) 2/2-directional solenoid valve, de-energized, continuity to feeder closed

General system design/allocation of the feeder sections

Designation sections	Volume per cycle and outlet [cm ³]	Number of Outlets
1T	= 0.10	2
2T	= 0.20	2
3T	= 0.30	2
4T	= 0.40	2
5T	= 0.50	2
6T	= 0.60	2
1S	= 0.20	1
2S	= 0.40	1
3S	= 0.60	1
4S	= 0.80	1
5S	= 1.00	1
6S	= 1.20	1

Note!

- T = Twin = two outlets
- S = Single = one outlet
- TL or SL = left outlet closed
- TR or SR = right outlet closed
- TLR = both outlets closed

1) The installation of the cycle indicator with or without proximity switch is only possible from feeder section 2T and feeder section 2S, respectively!

3.20 Progressive Feeder VPKG

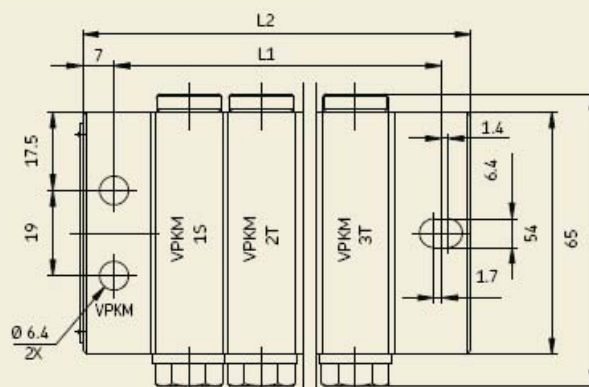
Sizes

Sectional feeder VPK, basic design

for oil or grease, without attachments, without monitoring



Fig. 8 Sectional feeder VPK, basic design



Dimensions				
Type	Number of Feeder sections	Number of possible outlets	L2 [mm]	L1 [mm]
VPKM-3 / VPKG-3 ¹⁾	3	6	81,9	68,4
VPKM-4 / VPKG-4	4	8	98,1	84,6
VPKM-5 / VPKG-5	5	10	114,3	100,8
VPKM-6 / VPKG-6	6	12	130,5	117,0
VPKM-7 / VPKG-7	7	14	146,7	133,2
VPKM-8 / VPKG-8	8	16	162,9	149,4
VPKM-9 / VPKG-9	9	18	179,1	165,6
VPKM-10 / VPKG-10	10	20	195,3	181,8

¹⁾ This progressive feeder must be installed with check valves

Selection of the feeder sections for the required lubricant quantity		
Quantity per cycle and outlet (cm ³)	Number of Outlets	Description of the sections
0,05	2	05T
0,10	2	1T
0,20	2	2T
0,30	2	3T
0,10	1	05S
0,20	1	1S
0,40	1	2S
0,60	1	3S

Technical data	
Style	hydraulically controlled
Mounting position	discretionary
Screw connection	VO: VPKM = M10x1 VPKG = G1/8"
Ambient temperature range	-25 to + 90 °C
Feeder sections	see table
Occupied outlets with internal connections ..	1 to 19
Material	
Inlet plate, separator plate and end plate ..	Steel, tinned/nitrile-butadiene rubber
Sections (piston plates)	Steel, tinned
Hydraulic	
Operating pressure max.:	Oil 200 bar, grease 300 bar
Volume per outlet and cycle	see table
Lubricant	Mineral oils, greases based on mineral oil, environmentally friendly and synthetic oils and greases
Operating viscosity	> 12 mm ² /s
Worked penetration	≥ 265 × 0.1 mm (up to NLGI grade 2)

Accessories	
Male couplings	
Designation	Order no.
Inlet for tube ø 6,	406-423
M10x1: for tube ø 8,	441-008-511
for tube ø 10,	410-443
Inlet for tube ø 6,	406-403W
G1/8": for tube ø 8,	408-423W
for tube ø 10,	410-443W
Outlets for tube ø 4,	404-403
M10x1: for tube ø 6,	406-403
for tube ø 8,	441-008-511
Outlets for tube ø 4,	404-403W
G1/8": for tube ø 6,	406-403W
for tube ø 8,	408-403W
Plug-in connector VPM for tube ø 6, M	451-006-518-VS
Plug-in connector VPM for tube ø 6, G	406-423W-VS
Screw plug for unused outlets:	
VPKM (M10x1)	466-431-001
VPKG (G1/8")	466-419-001



Progressive Feeder VPKG

Order Code

Explanation of the order codes

Structure

Example: **VPK M /10 15/ P3-4L /00 A 1 -1T -1SL -05TR - 2T - 3SR -2TLR -05T -2T -3T -3T**

Progressive sectional feeders

Thread inlet and outlet screw connection
M = M10x1
G = G 1/8"

Number of feeder sections

03 = for 3 sections (max. 6 outlets)
04 = for 4 sections (max. 8 outlets)
05 = for 5 sections (max. 10 outlets)
06 = for 6 sections (max. 12 outlets)
07 = for 7 sections (max. 14 outlets)
08 = for 8 sections (max. 16 outlets)
09 = for 9 sections (max. 18 outlets)
10 = for 10 sections (max. 20 outlets)

Number of occupied outlets

03 = 3 outlets open
↓
20 = 20 outlets open

Monitoring type

00 = without
P2 = Piston detector, 2-pin connection
P3 = Piston detector, 3-pin connection
ZY = cycle indicator ¹⁾
ZS = cycle indicator with proximity switch ¹⁾

Installation position of the monitoring system

-1R = right-hand side on the 1st section
-1L = left-hand side on the 1st section
-2R = right-hand side on the 2nd section
↓
-0R = right-hand side on the 10th section
-0L = left-hand side on the 10th section

Attachments

00 = without attachments
08 = with 4/2-directional solenoid valve, de-energized, continuity to feeder open
09 = with 4/2-directional solenoid valve, de-energized, continuity to feeder closed
13 = with (oil) 2/2-directional solenoid valve, de-energized feeder relieved ²⁾
14 = with 3/2 directional solenoid valve, de-energized feeder relieved
15 = with (grease) 2/2-directional solenoid valve, de-energized, continuity to feeder closed

A = change version
1 = basic design

1.- 2.- 3.- 4.- 5.- 6.- 7.- 8.- 9.- 10.-
1- to max. 10 feeder sections →
4.- to max. 10.- (Twin or Single) feeder sections - see table: General system design/allocation

3rd (twin) feeder section
left outlet 0.05 cm³/cycle, right outlet closed, lubricant discharge is carried out via an internal sealing disk to the 2nd feeder section, right outlet

2nd (single) feeder section
left outlet closed right outlet 0.20 cm³/cycle (plus 0.05 cm³/cycle from the 3rd feeder section, right-hand side)

1st (twin) feeder section
left outlet 0.10 cm³/cycle
right outlet 0.10 cm³/cycle

Designation sections	Volume per cycle and outlet [cm ³]	Number of Outlets
05T	= 0,05	2
1T	= 0,10	2
2T	= 0,20	2
3T	= 0,30	2
05S	= 0,10	1
1S	= 0,20	1
2S	= 0,40	1
3S	= 0,60	1

Note!

T = Twin = two outlets
S = Single = one outlet
TL or SL = left outlet closed
TR or SR = right outlet closed
TLR = both outlets closed

¹⁾ The installation of the cycle indicator with or without proximity switch is only possible from feeder section 2T and feeder section 2S, respectively!
²⁾ Only for feeder type VPKG (inlet thread G1/8)

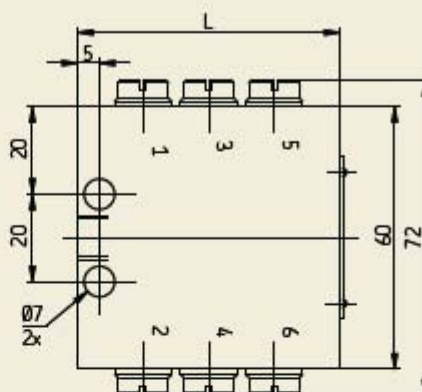
3.21 Progressive Feeder VPBG Sizes

Block feeder VPB, basic design

for oil or grease, without attachments, without monitoring



Fig. 6 Block feeder VPB, basic design



Dimensions			
Type	Number of Feeder sections	Number of possible outlets	L [mm]
VPBM-3 1) / VPBG-3 1)	3	6	60
VPBM-4 / VPBG-4	4	8	75
VPBM-5 / VPBG-5	5	10	90
VPBM-6 / VPBG-6	6	12	105
VPBM-7 / VPBG-7	7	14	120
VPBM-8 / VPBG-8	8	16	135
VPBM-9 / VPBG-9	9	18	150
VPBM-10 / VPBG-10	10	20	165

1) This progressive feeder must be installed with check valves

Technische Daten	
Style	hydraulically controlled
Mounting position	discretionary
Screw connection	VO VPBM = M10x1 VPBG = G1/8"
Umgebungstemperaturbereich	-25 bis +110 °C
Quantity of outlets	3 to 20
Material	
Inlet plate/end plate	Steel, tinned/nitrile
Hydraulic	
Operating pressure max:	Oil 200 bar, grease 300 bar
Volume per outlet and cycle	0,20 cm ³
Lubricant	Mineral oils, greases based on mineral oil, environmentally friendly and synthetic oils and greases
Operating viscosity	> 12 mm ² /s
Worked penetration	≥ 265 × 0.1 mm (up to NLGI grade 2)

Accessories		
Male couplings		
Designation		Order no.
Inlet	for tube ø 6,	406-423
M10x1:	for tube ø 8,	441-008-511
	for tube ø 10,	410-443
Inlet	for tube ø 6,	406-403W
G1/8":	for tube ø 8,	408-423W
	for tube ø 10,	410-443W
Outlets	for tube ø 4,	404-403
M10x1:	for tube ø 6,	406-403
	for tube ø 8,	441-008-511
Outlets	for tube ø 4,	404-403W
G1/8":	for tube ø 6,	406-403W
	for tube ø 8,	408-403W
Plug-in connector VPM for tube ø 6, M		451-006-518-VS
Plug-in connector VPM for tube ø 6, G		451-006-518W VS
Screw plug for unused outlets:		
VPKM (M10x1)		466-431-001
VPKG (G1/8")		466-419-001



Progressive Feeder VPBG

Order Code

Explanation of the order codes

Structure

Example: VPB M / 10 16/ P3-9L /00 A1-3V-6V -8V

Progressive block feeders

Thread inlet and outlet screw connection
M = M10x1
G = G 1/8"

Number of feeder sections

03	= for 3 sections	(max. 6 outlets)
04	= for 4 sections	(max. 8 outlets)
05	= for 5 sections	(max. 10 outlets)
06	= for 6 sections	(max. 12 outlets)
07	= for 7 sections	(max. 14 outlets)
08	= for 8 sections	(max. 16 outlets)
09	= for 9 sections	(max. 18 outlets)
10	= for 10 sections	(max. 20 outlets)

Number of occupied outlets

03 = 3 outlets open
↓
20 = 20 outlets open

Monitoring type

00 = without
P2 = Piston detector, 2-pin connection
P3 = Piston detector, 3-pin connection
ZY = cycle indicator ¹⁾

Installation position of the monitoring system

-1R = right-hand side on the 1st section
-1L = left-hand side on the 1st section
-2R = right-hand side on the 2nd section
↓
-0R = right-hand side on the 10th section
-0L = left-hand side on the 10th section

Attachments

00 = without attachments
15 = with (grease) 2/2-directional solenoid valve, de-energized, continuity to feeder closed

A = Change version

1 = Basic design
3 = stainless steel design²⁾

-8V = 8.-feeder outlet blocked lubricant discharge via 7.-feeder outlet (2 x 0.20 cm³/cycle)

-6V = 6.-feeder outlet blocked lubricant discharge via crossporting element between 5.- and 3.-feeder outlet into 4.-feeder outlet (4 x 0.20 cm³/cycle)

-3V = 3.-feeder outlet blocked lubricant discharge via 6.-feeder outlet into 5.-feeder outlet. From there via crossporting element between 5.- and 3.-feeder outlet into 4.-outlet (4 x 0.20 cm³/cycle).

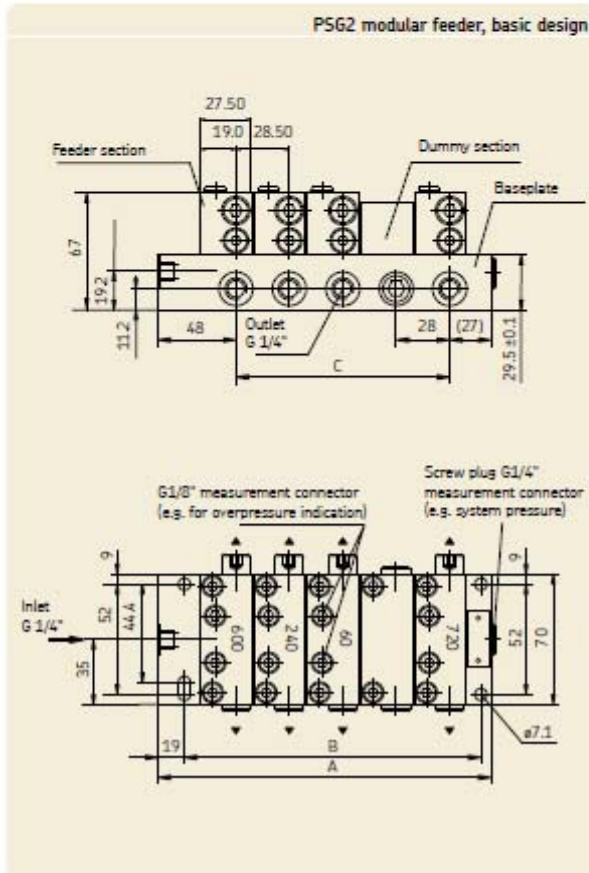
Note!
Subsequently, only blocked lubricant outlets have to be declared. With a feeder outlet blocked, the internal plug has to be removed. The double volume is discharged on the opposing side.
Order of lubricant outlets (1 to 20) - see attached feeder sketch.

1) Utilise these progressive feeders only with check valve VPKM-RV-S4!
2) Monitoring on stainless steel version only with cycle switch (ZY) possible!

3.22 Modular Feeder PSG2 for oil and grease, without attachments, without monitoring



PSG2 modular feeder, basic design



Technical Data

General information

Type hydraulically controlled
Mounting position discretionary¹⁾
Ambient temperature range - 15 to + 110 °C
Baseplate with 6, 8, 10, 12, 14, 16, 18, 20 outlets
working outlets without bridges 3 to 20
working outlets with bridges 1 to 19

Material

Baseplate Al Cu Mg Pb F 38
Sections GGC 25 ²⁾

Hydraulic

Operating pressure max. 200 bar
Inlet volume flow up to 2.5 l/min
Volume per outlet and cycle 60, 120, 240, 360,
480, 600, 720, 840 mm³

Piston stroke rate max. 200/min
Dividing ratio 1 : 1 to 1 : 14³⁾
Pressure difference 5 to 15 bar ⁴⁾
Lubricant Mineral oils, greases based on mineral oil,
environmentally friendly and
synthetic oils and greases

Operating viscosity > 12 mm²/s
Worked penetration ≥ 265 x 0.1 mm (up to NLGI Grade 2)

¹⁾ In case of attachments on movable machine parts or in case of strong vibrations (e.g. on pressing machines), the piston position of the feeder must not correspond with the direction of movement of the machine part.

²⁾ Also available in corrosion-resistant design (chemically nickel-plated).

³⁾ Larger dividing ratios are possible when consolidated.

⁴⁾ Depending on volume index and viscosity or penetration and volumetric flow.

Dimensions

Number of Sections	dimension A [mm]	dimension B [mm]	dimension C [mm]	complete weight [kg]
3	131	103	2 x 28 = 56	2.24
4	159	131	3 x 28 = 84	2.85
5	187	159	4 x 28 = 112	3.49
6	215	187	5 x 28 = 140	4.10
7	243	215	6 x 28 = 168	4.78
8	271	243	7 x 28 = 196	5.42
9	299	271	8 x 28 = 224	6.06
10	327	299	9 x 28 = 252	6.73



Modular Feeder PSG (continued)

Example: PSG 2 / 10 15 / P3-4R / 07 A 1 - 600 - 480L - X - 240 - 120L - 360 - 480

PSG2 Progressive modular feeder on baseplate

Size 2:
max. 2.5 l/min

Baseplate size

- 03 = for 3 sections (max. 6 outlets)
- 04 = for 4 sections (max. 8 outlets)
- 05 = for 5 sections (max. 10 outlets)
- 06 = for 6 sections (max. 12 outlets)
- 07 = for 7 sections (max. 14 outlets)
- 08 = for 8 sections (max. 16 outlets)
- 09 = for 9 sections (max. 18 outlets)
- 10 = for 10 sections (max. 20 outlets)

Number of occupied outlets

03 = 3 outlets open

↓
20 = 20 outlets open (1 outlet usable with bridges)

Monitoring type

- 00 = without
- P3 = piston detector, 3-pin connection
- ZY = cycle indicator ¹⁾ ³⁾
- ZS = cycle indicator with proximity switch ¹⁾ ³⁾

Installation position of the monitoring system

- 1R = right side on first section
- 1L = left side on first section
- 2R = right side on second section

↓
-OR = right side on 10th section
-OL = left side on 10th section

1- to max. 10 sections →

4th section ²⁾
-240 mm³/stroke
left outlet: 240 mm³/cycle
right outlet: 240 mm³/cycle

Dummy section (reserve position)
left and right outlet closed

2nd Segment ²⁾
Baseplate:
480 mm³/stroke
left outlet: 2x480 mm³/cycle
right outlet: closed

1st section ²⁾
Baseplate:
600 mm³/stroke
left outlet: 600 mm³/cycle
right outlet: 600 mm³/cycle

- 1 = Basic design: Inlet/outlet - G 1/4" thread
- 2 = Basic design: Inlet/outlet - 9/16-18UNF - thread

A = change version

Attachments

- 00 = without attachments
- 02 = with flow regulator, 2.5 l/min
- 07 = with SP/SM-B8 flow limiter; please order plug-in nozzle separately
- 08 = with 4/2-directional solenoid valve, (NO)
- 09 = with 4/2-directional solenoid valve, (NC)
- 10 = with gear-type flow indicator
- 11 = with flow limiter and gear-type flow indicator
- 12 = with flow regulator and gear-type flow indicator
- 13 = with 2/2-directional solenoid valve for grease, (NC)

1) PSG2 sections from 120 mm³/stroke

2) The sections are available in volumes per outlet and cycle of 60, 120, 240, 360, 480, 600, 720 and 840 mm³ (volume index).

3) Attachment is made on the left or right from the second to second-to-last section.

Description of the example

Progressive feeder, type PSG2 (PSG2), baseplate for 10 sections (10), with 15 occupied outlets (15), with monitoring by 3-pin piston detector (P3), installed on the right side of the 4th section (4R), with upstream flow limiter (07), change version A (A), G1/4" inlet thread (1), 1st section with 600 mm³/stroke (600), 2nd section 480 mm³/stroke, right outlet closed (480L), dummy section (X), 4th section with 240 mm³/stroke (240), 5th section with 120 mm³/stroke, right outlet closed (120L), 6th section with 360 mm³/stroke (360), the further sections (section 7 to 10) with 480, 600, 60 and 360 mm³/stroke (-480-600-60-360). The following bridges, check valves, screw unions as well as test or measurement connector have been allocated to the progressive feeder, as seen from the inlet (see page 19).



Modular Feeder PSG (continued)

Key to order codes

Attachments and screw unions

Test and measurement connector (pressure in inflow)
Measurement connector MA or
Pressure gauge max. pressure indication [bar] 160

Connections - left feeder side
Outlet open ← / outlet closed →
Bridge B
Check valve RV
Overpressure indicator [bar] 50 / 100 / 150 / 200
Outlet screw union
Outlet-Ø mm 6 / 8 / 10 / 12
customer-specific screw unions or bridges

Connections - right feeder side
Outlet open → / outlet closed ←
Bridge B
Check valve RV
Overpressure indicator [bar] 50 / 100 / 150 / 200
Outlet screw union
Outlet-Ø mm 6 / 8 / 10 / 12
customer-specific screw unions or bridges

Order No.

Section	10	9	8	7	6	5	4	3	2	1
10	8									
9	8									
8	8									
7	12									
6					B					
5	24-2151-3394				RV	B				
4		6								
3										
2		12								
1		10							RV	10

Comments

Attachments

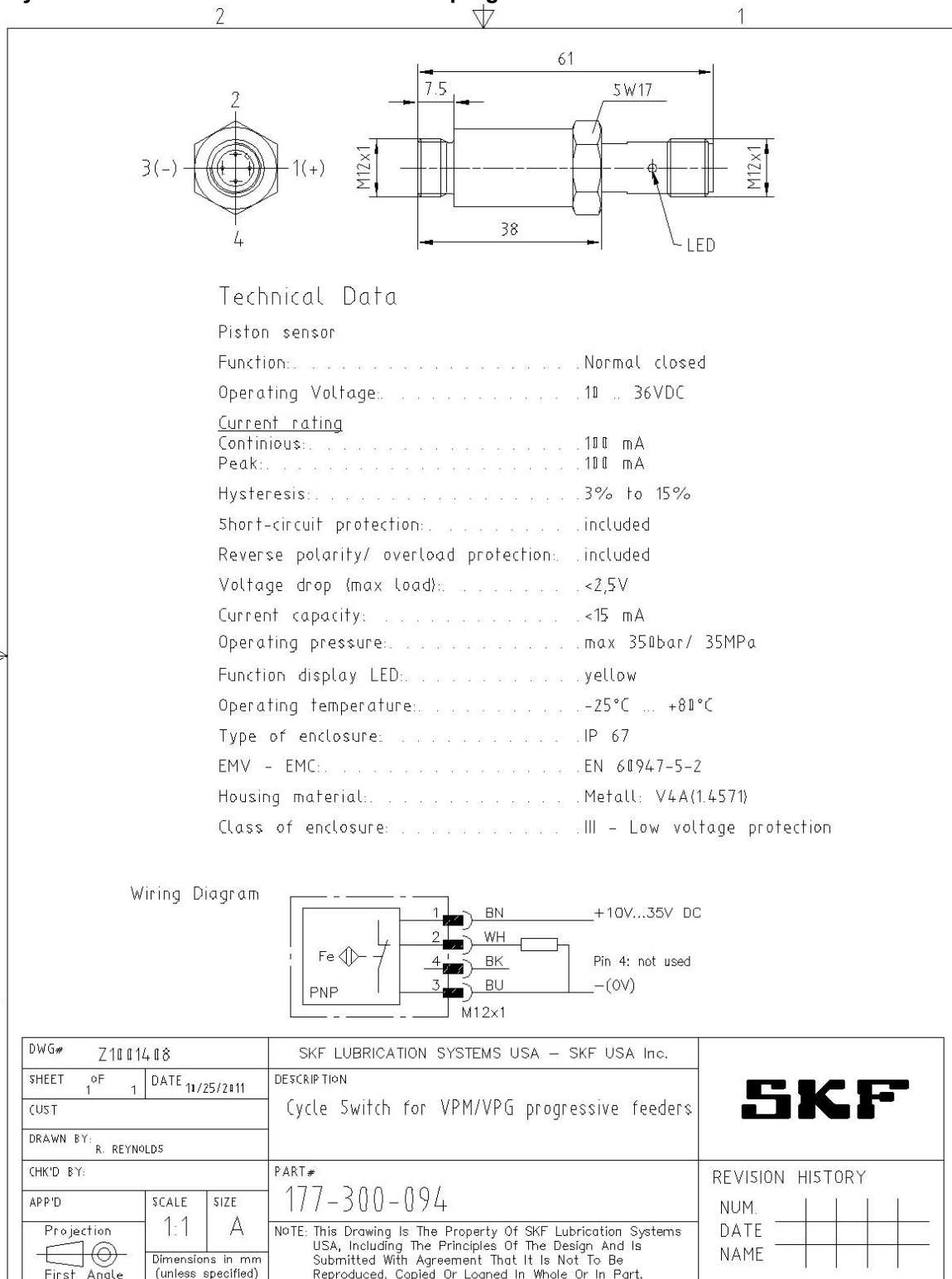
Note!
When attaching a flow limiter, add the part number of the plug-in nozzle (see page 12)
e.g. for Q = 2.09 l/min
Order no. 24-0455-2596

12 Inlet screw union
Inlet - Ø mm 6 / 8 / 10 / 12
customer-specific screw unions

Description of the example
Inlet screw union = with Ø 12 mm (12),
Attachments = with plug-in nozzle for the flow limiter for a volumetric flow of 2.09 l/min (24-0455-2596)
1st section = outlet screw union on both sides with Ø 10 mm (10), right side with additional check valve (RV)
2nd section = outlet screw union on left with Ø 12 mm (12), right side closed (480L),
3rd section = dummy section (X), closed on both sides,
4th section = outlet screw union on both sides with Ø 6 mm (6),
5th section = outlet left bridge (B) and check valve (RV) (bridge between 5th (120L) and 6th section (360) (24-2151-3394) - see page 17, outlet right closed (120L),
6th section = outlet left bridge (B), outlet screw union with Ø 12 mm (12),
7th section = outlet screw union on both sides with Ø 12 mm (12),
8th section = outlet screw union on both sides with Ø 8 mm (8), right with overpressure indicator max. 100 bar (100),
9th-10th section = screw unions on both sides Ø 8 mm (8).
On baseplate outlet, pressure gauge with max. pressure indication 160 bar (160).

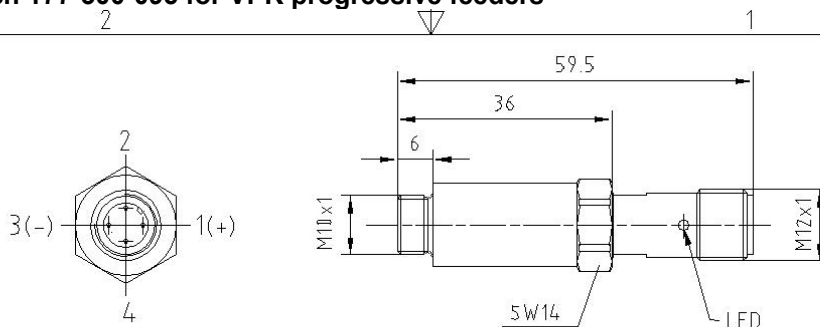


3.23 Cycle Switch 177-300-094 for VP and PSG progressive feeders





3.24 Cycle Switch 177-300-095 for VPK progressive feeders



Technical Data

Piston sensor

Function: Normal closed

Operating Voltage: 10 ... 36VDC

Current rating

Continuous: 100 mA

Peak: 100 mA

Hysteresis: 3% to 15%

Short-circuit protections: included

Reverse polarity/ overload protections: included

Voltage drop (max load): <2,5V

Current capacity: <15 mA

Operating pressure: max 35bar/ 35MPa

Function display LED: yellow

Operating temperatures: -25°C ... +80°C

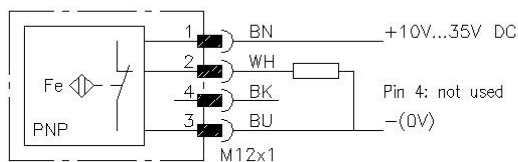
Type of enclosure: IP 67

EMV - EMC: EN 60947-5-2

Housing material: Metall: V4A(1.4571)

Class of enclosure: III - Low voltage protection

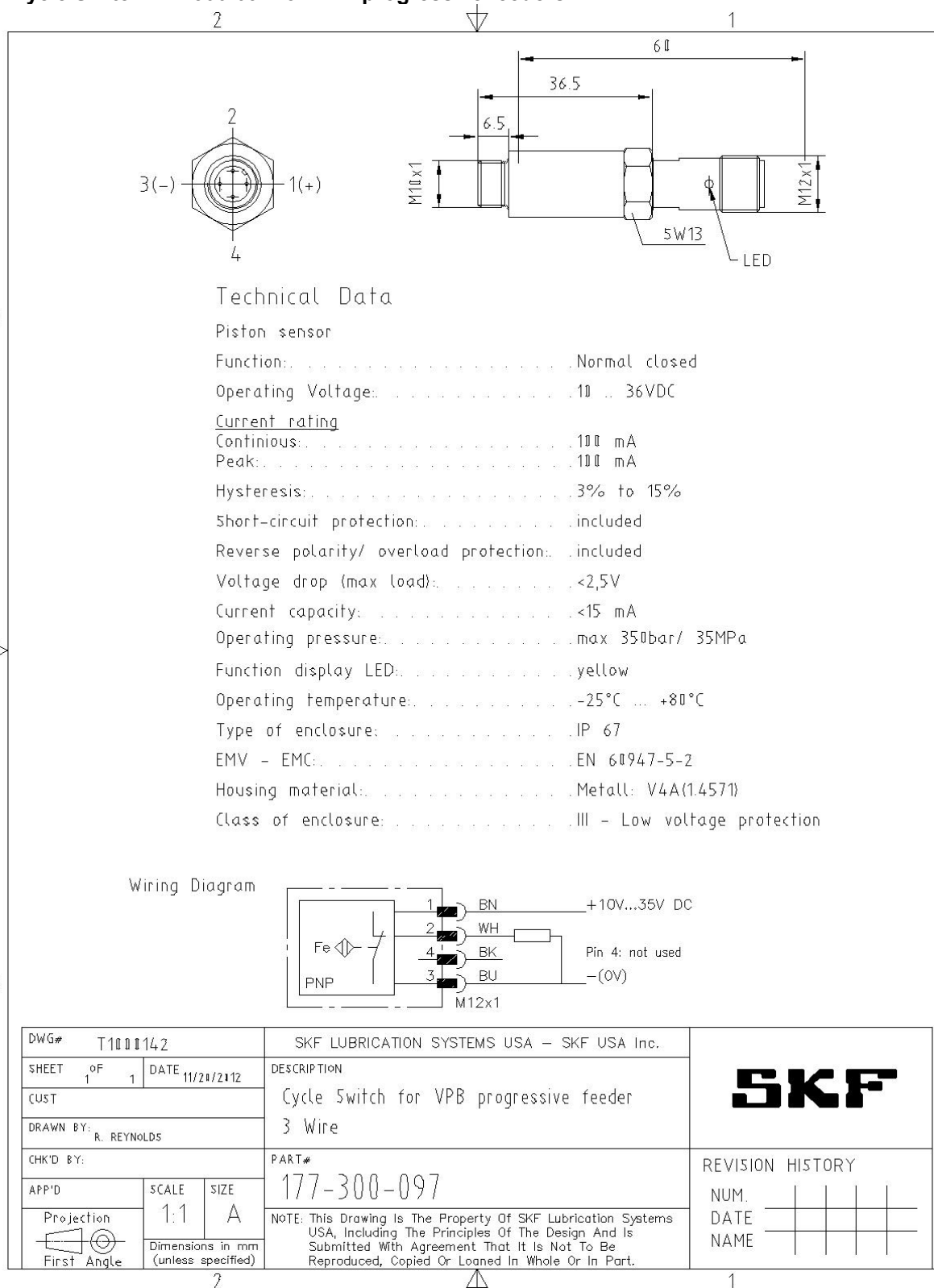
Wiring Diagram



DWG# T1000141			SKF LUBRICATION SYSTEMS USA – SKF USA Inc.			SKF				
SHEET 1 OF 1	DATE 11/21/2012		DESCRIPTION							
CUST			Cycle Switch for VPK progressive feeder							
DRAWN BY: R. REYNOLDS			3 Wire							
CHK'D BY:			PART#			REVISION HISTORY				
APP'D		SCALE 1:1	SIZE A	177-300-095		NUM. <table><tr><td></td><td></td><td></td><td></td></tr></table>				
Projection  First Angle		Dimensions in mm (unless specified)		NOTE: This Drawing Is The Property Of SKF Lubrication Systems USA, Including The Principles Of The Design And Is Submitted With Agreement That It Is Not To Be Reproduced, Copied Or Loaned In Whole Or In Part.		DATE <table><tr><td></td><td></td><td></td><td></td></tr></table>				
						NAME <table><tr><td></td><td></td><td></td><td></td></tr></table>				

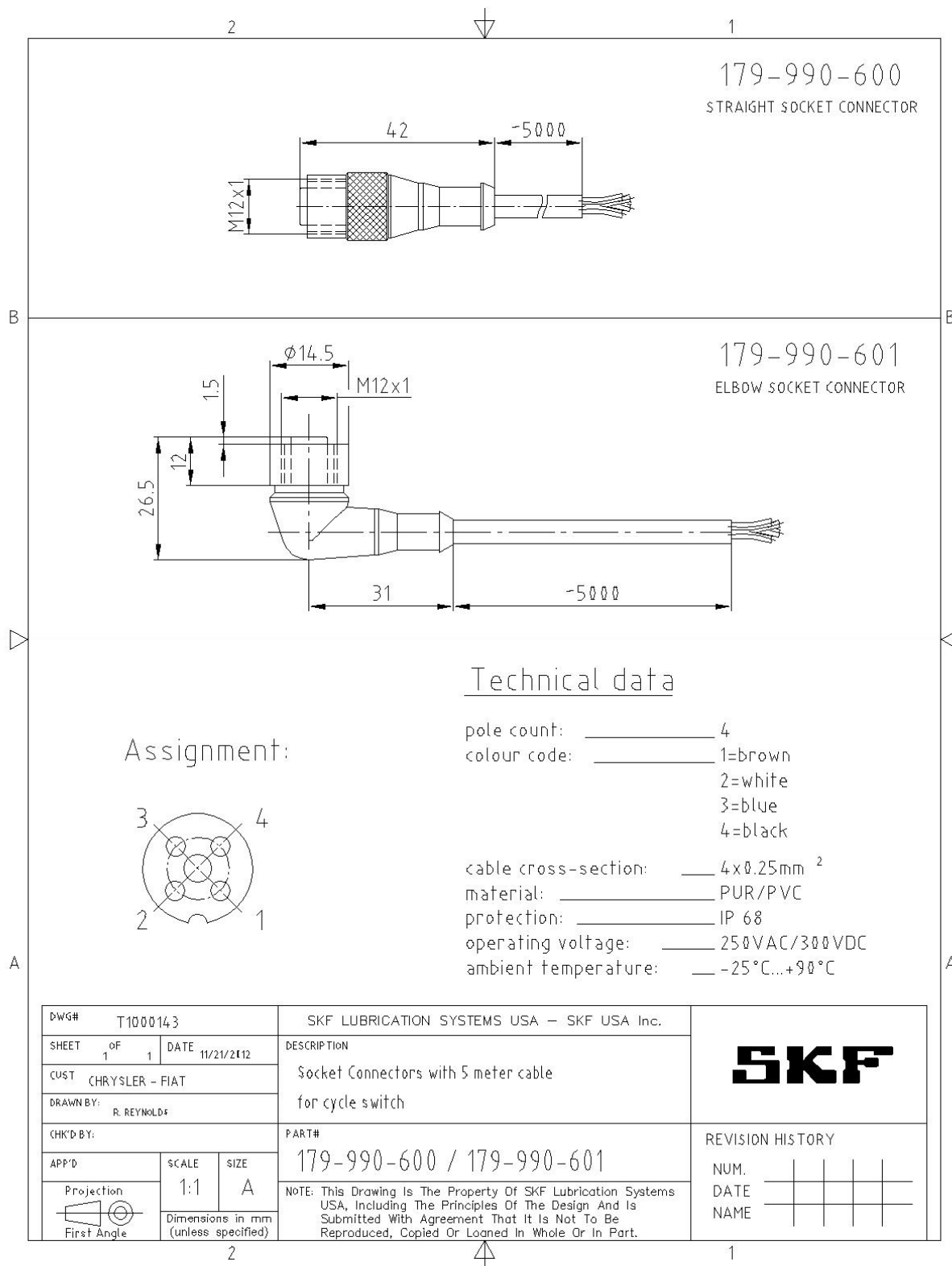


3.25 Cycle Switch 177-300-097 for VPB progressive feeders





3.26 Cycle Switch Connectors for Progressive Feeders





3.27 Overpressure Indicators for Progressive Feeders

Overpressure indicators on progressive feeders make it easier to localize malfunctions when they occur. They are screwed into the upper alternative outlet ports. If the specified lubricant pressure is exceeded in an outlet port equipped with an overpressure indicator, a pin emerges from the front of the indicator, thus pointing out the overpressure.

After the fault is remedied, the pin has to be pressed back in again by hand.

Rated pressure [bar]	Order No. with metric threads	d	Order No. with Whitworth tubing threads	d	Fig.
16	VP-UE16-2		VPG-UE16-2		
32	VP-UE32-2		VPG-UE32-2		
63	VP-UE63-2		VPG-UE63-2		
80	VP-UE80-2	M10×1	VPG-UE80-2	G 1/8A	1
100	VP-UE100-2		VPG-UE100-2		
140	VP-UE140-2		VPG-UE140-2		
180	VP-UE180-2		VPG-UE180-2		
50	VPM-UE50-3		VPG-UE50-3		
100	VPM-UE100-3	M10×1	VPG-UE100-3	G 1/8A	2
150	VPM-UE150-3		VPG-UE150-3		
200	VPM-UE200-3		VPG-UE200-3		

Overpressure indicators are supplied detached.

Fig. 1

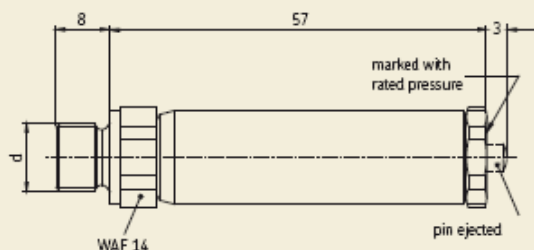
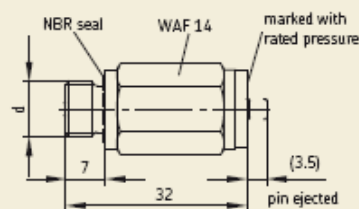
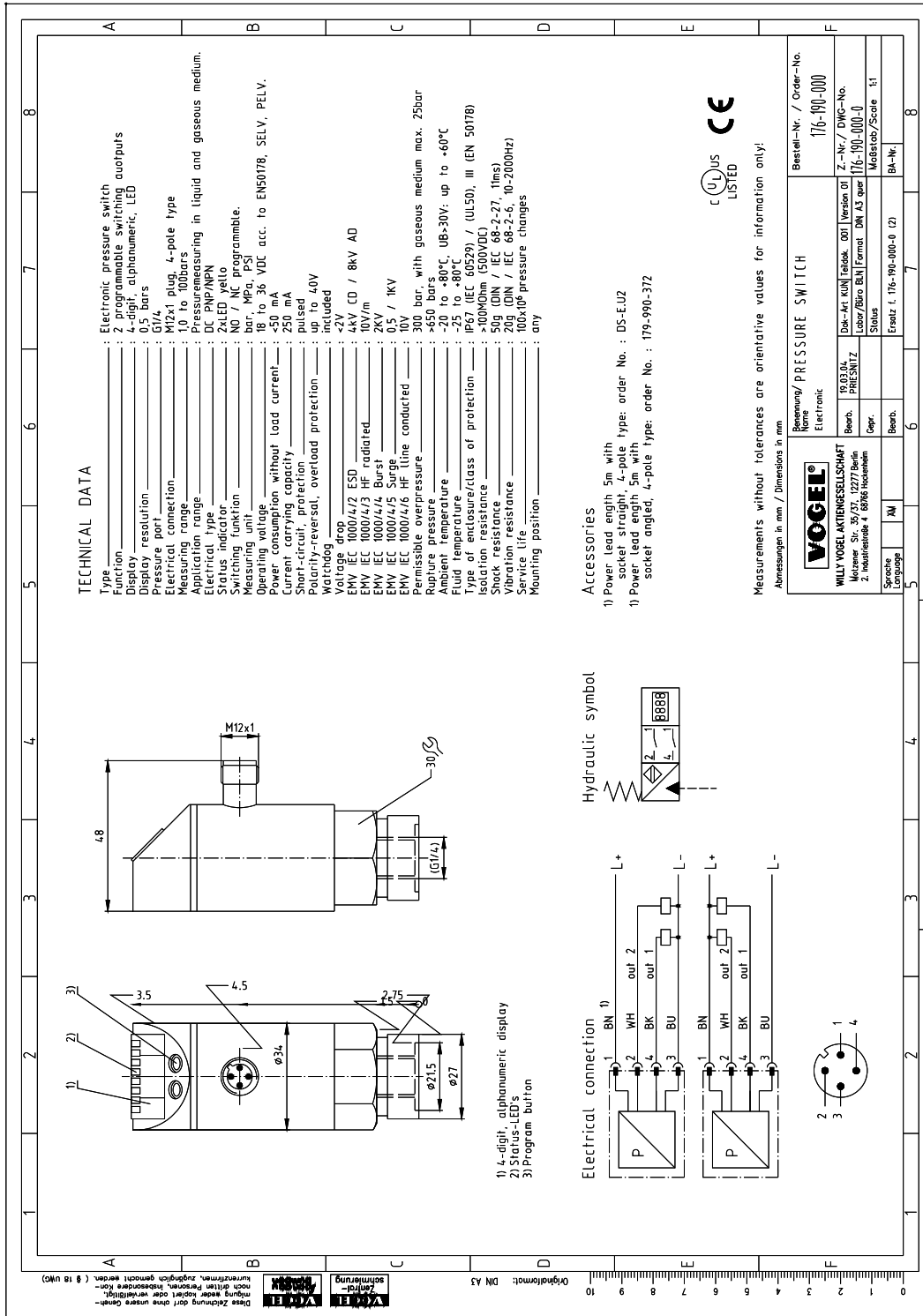


Fig. 2



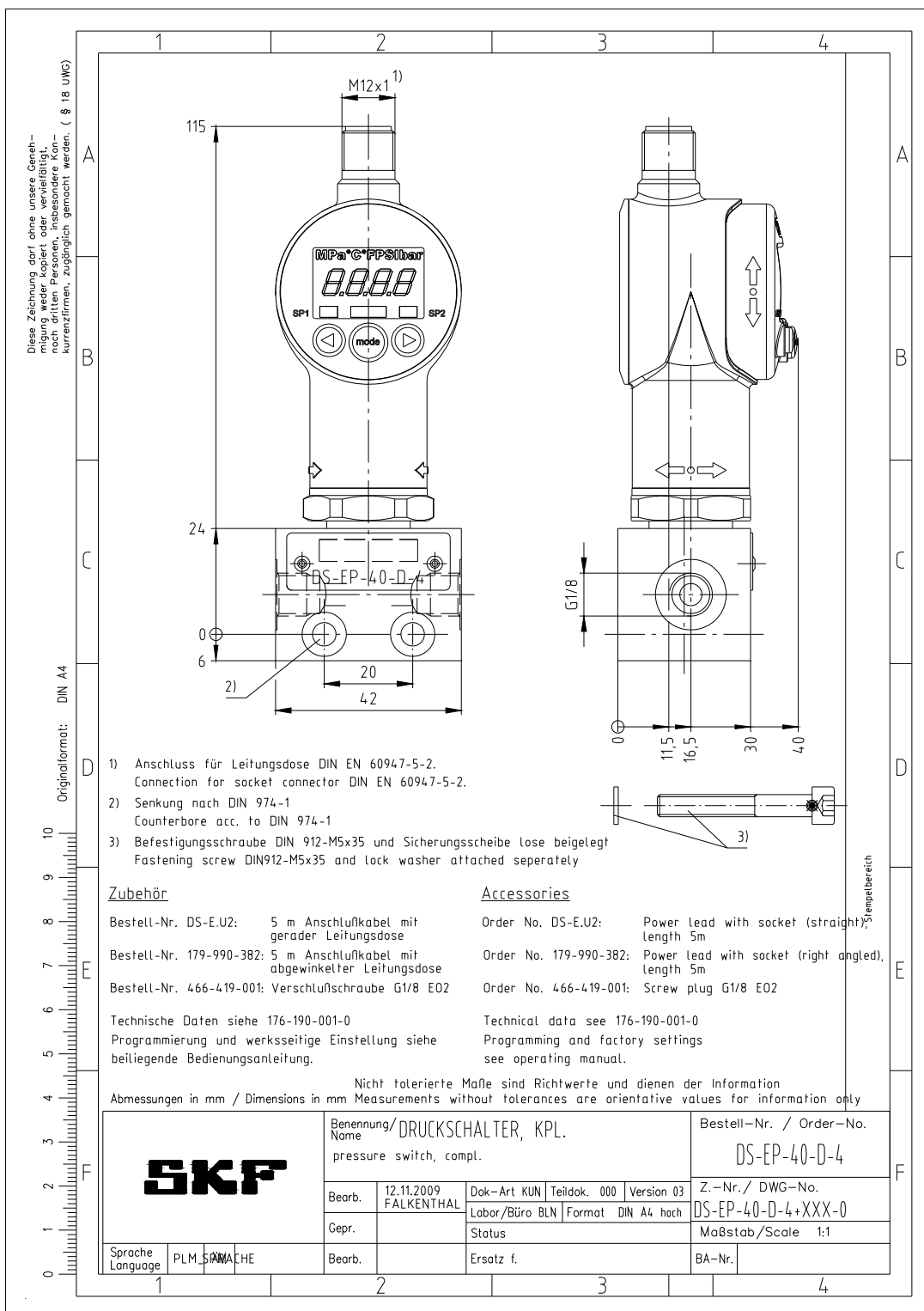


3.28 Pressure Switches - 176-190-001



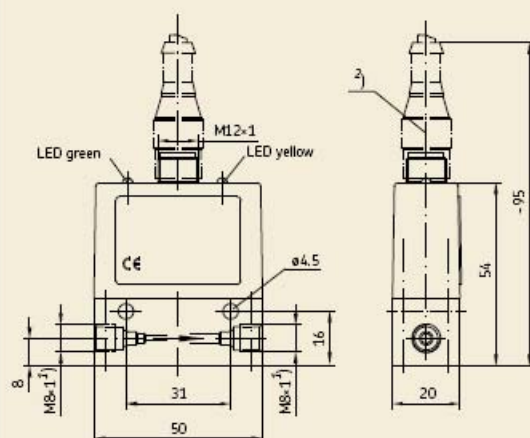


3.29 Pressure Switches - DS-EP-40-D-4



3.30 Flow Monitor GS300

Fig. 4

¹⁾ Port tapped for solderless 4 mm diam. tube connection

2) Accessories

GS300: 5 m connection cable, order No. GS200.U4
GS304P / GS304N: 5 m connection cable with straight line socket, 4-pole type,
order No. DS-E.U2

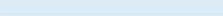
Technical data

Measuring principle	calorimetric
Suitable metered quantities	from 0.01 to 0.6 cm ³ /pulse
Clock frequency ³⁾	max. 4 pulse/min
Lubricant	oil (10 to 2000 mm ² /s)
Max. operating pressure	40 bars
Operating temperature	+10 °C to +50 °C
Installation	directly upstream of lube point
Vibration resistance	20 g (DIN/IEC 68-2-27, 10-2000 Hz)
Impact resistance	50 g (DIN/IEC 68-2-27, 11 ms)

³⁾ Sensor needs 30 sec. of warmup time.

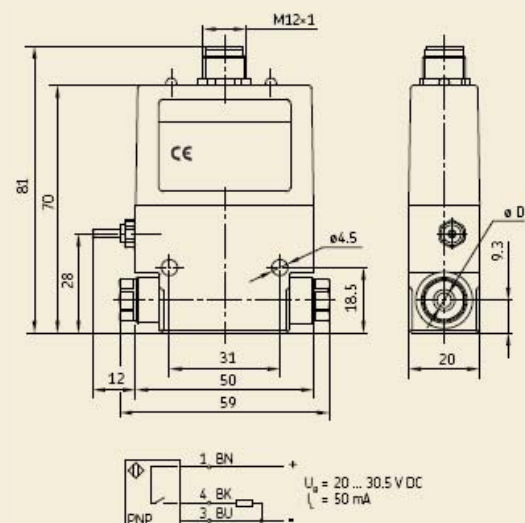
Electrical data

Rated voltage U_N	24 V DC
Residual ripple	10%
Working range U_a	18 to 30 V DC
Max. power consumption I_E	25 mA
Pulse output	3 s
Load current I_L for GS300	max. 10 mA
for GS304	max. 500 mA per output
Output protection	short-circuit protection
Built-in plug	circular connector with M12x1 screw plug

Order No.	Switching function	Electrical connection
GS300 	Pin 1 (BN - brown): + 24 V Pin 3 (BU - blue): 0 V Pin 4 (BK - black): PNP/N0 – closes in event of flow	

3.31 Oil + Air Streak Sensor GS4011-S...

Fig. 5



Technical data

Measuring principle optical
Fluid oil+air
Max. operating pressure 10 bars
Operating temperature 0 to +60 °C
Mounting position any

Electrical data

Rated voltage U_N 24 V DC ¹⁾
Operating range U_0 20 to 30.5 V DC
Max. power consumption I_e 40 mA
Type of enclosure IP54
Outputs pnp type
closes when oil streaks detected, opens when there are none

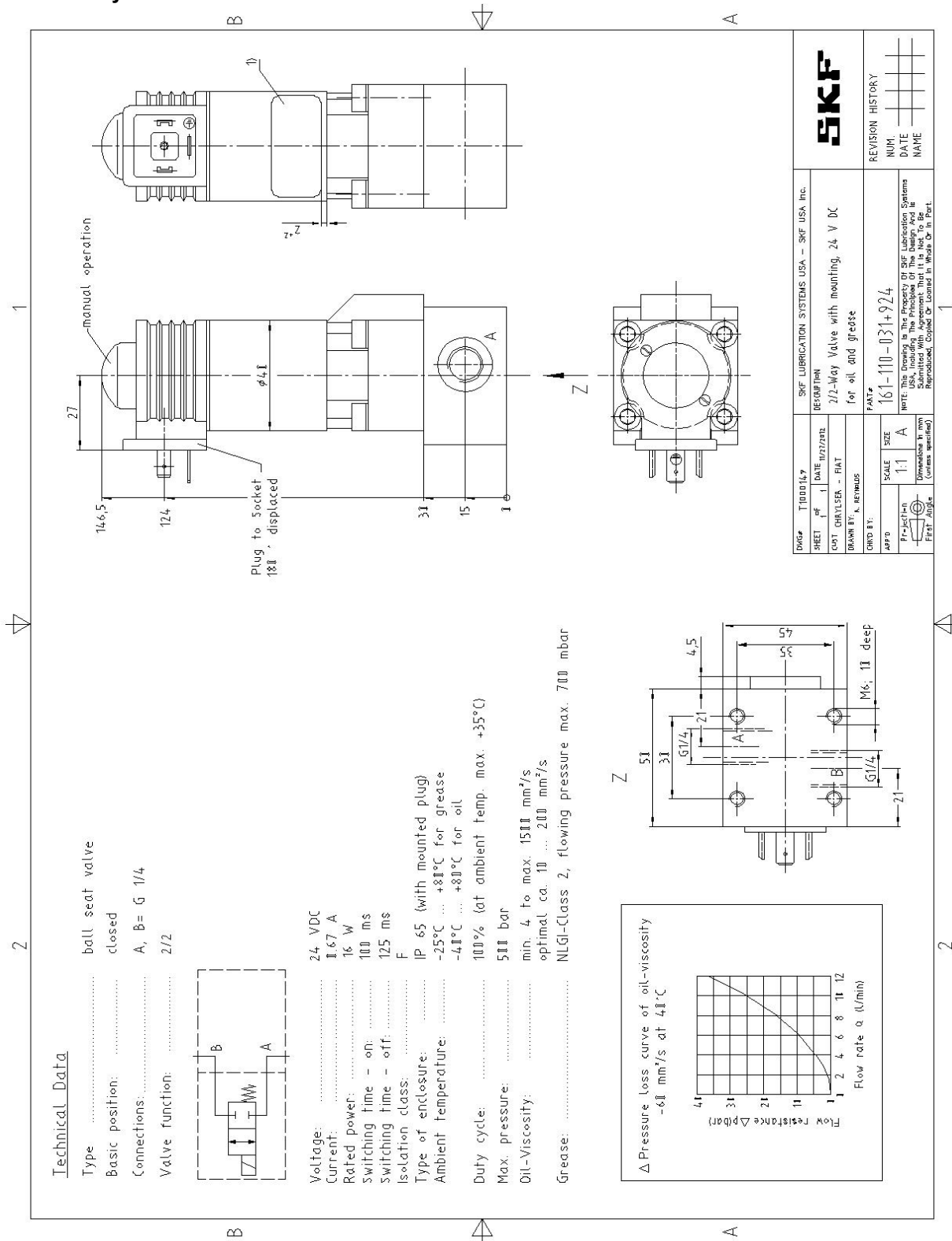
Color coding with standard sensor cables:
brown (BN) +24 V
blue (BU) GND
black (BK) make contact
white (WH) break contact

¹⁾ Protective measure to be taken for operation in conformity with
"Functional Extra-Low Voltage with Safety Separation"
(PELV = Protective Extra-Low Voltage)

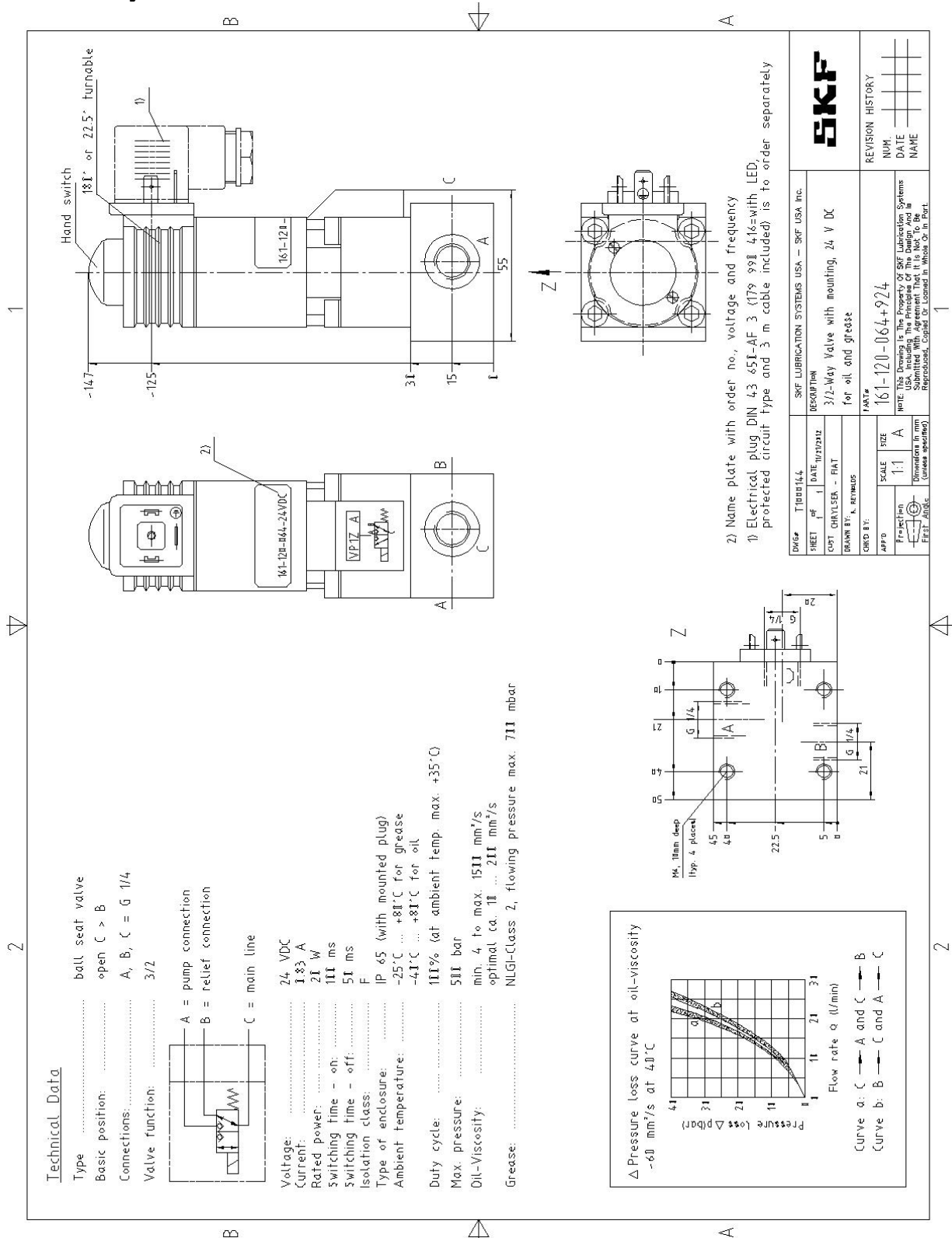
Accessories:
Connection cable with straight cable socket, 4-pole type, length 5 m,
order No. DS-E.U2
Socket, 90° angled,
order No. 179-990-372

Order No.	Plastic tubing ø D	Flow rate
GS4011-S20	4	120 – 600 mm ³ /h
GS4011-S50	4	60 – 120 mm ³ /h
GS6011-S20	6	120 – 600 mm ³ /h
GS6011-S50	6	60 – 120 mm ³ /h
GS4011-S300	4	from 2 mm ³ /pulse
GS6011-S300	6	from 2 mm ³ /pulse

3.32 2/2 Way Directional Valve for Oil and Grease - 161-110-031+924

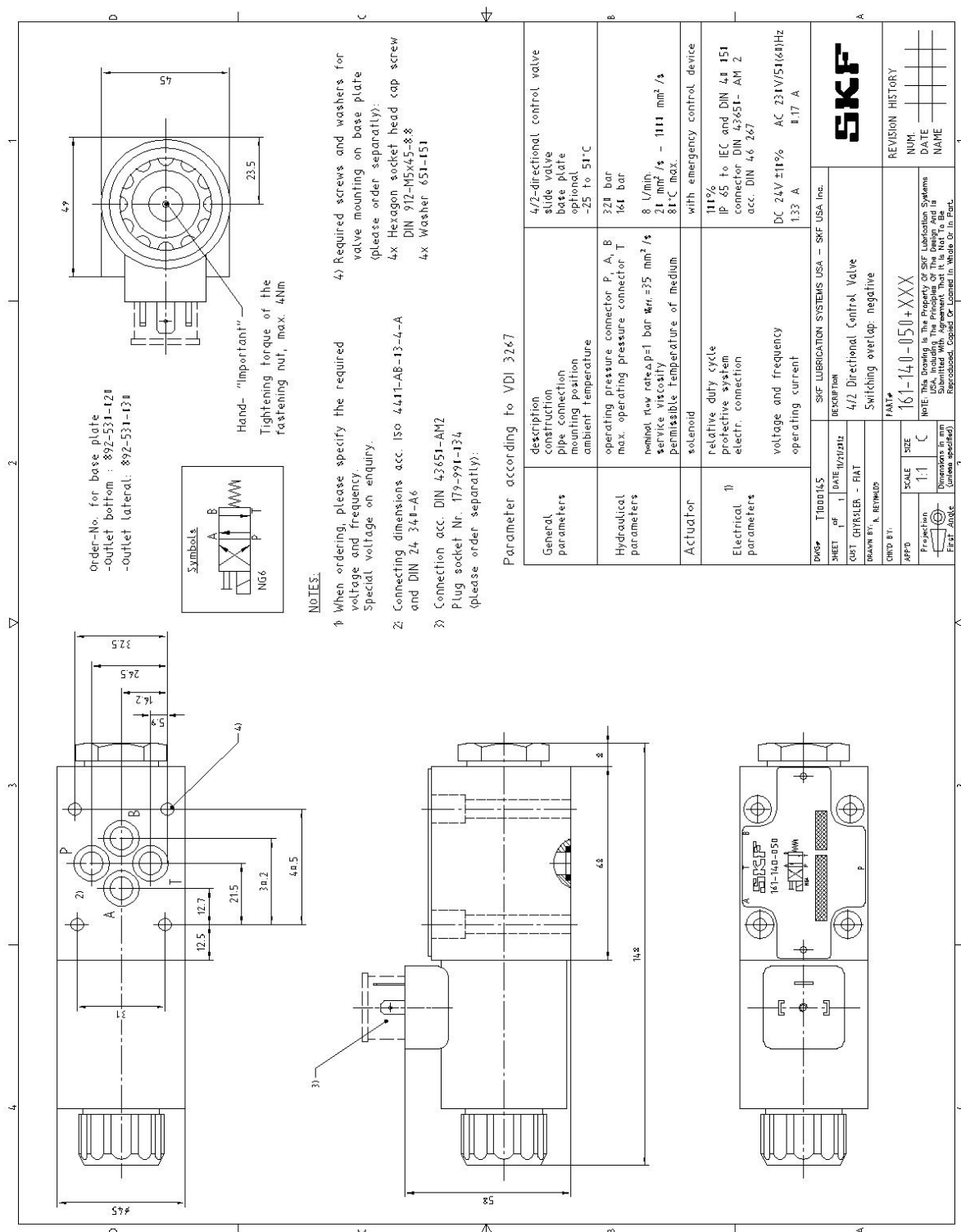


3.33 3/2 Way Directional Valve for Oil and Grease - 161-120-064+924



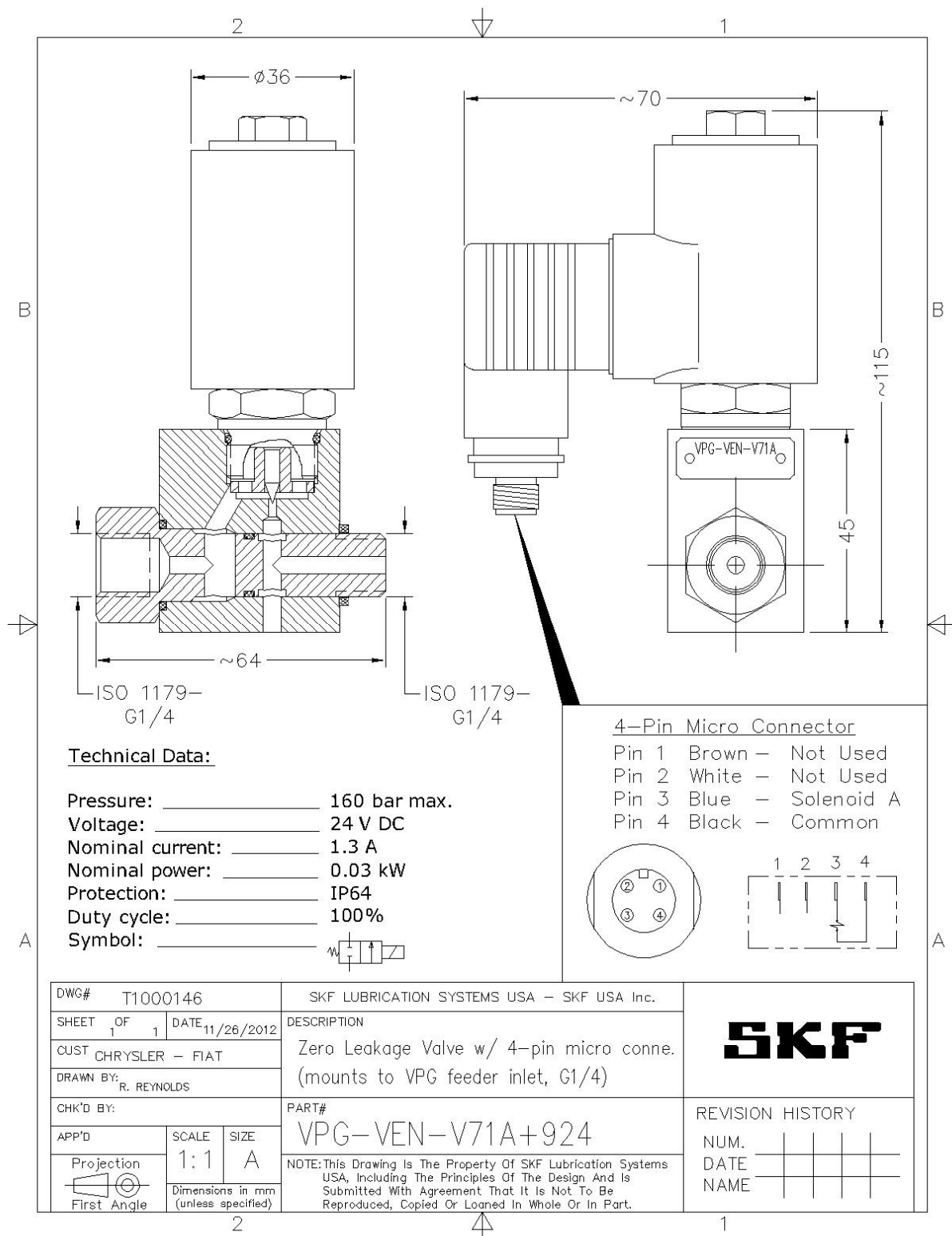


3.34 4/2 Way Directional Valve for Oil - 161-140-050+924



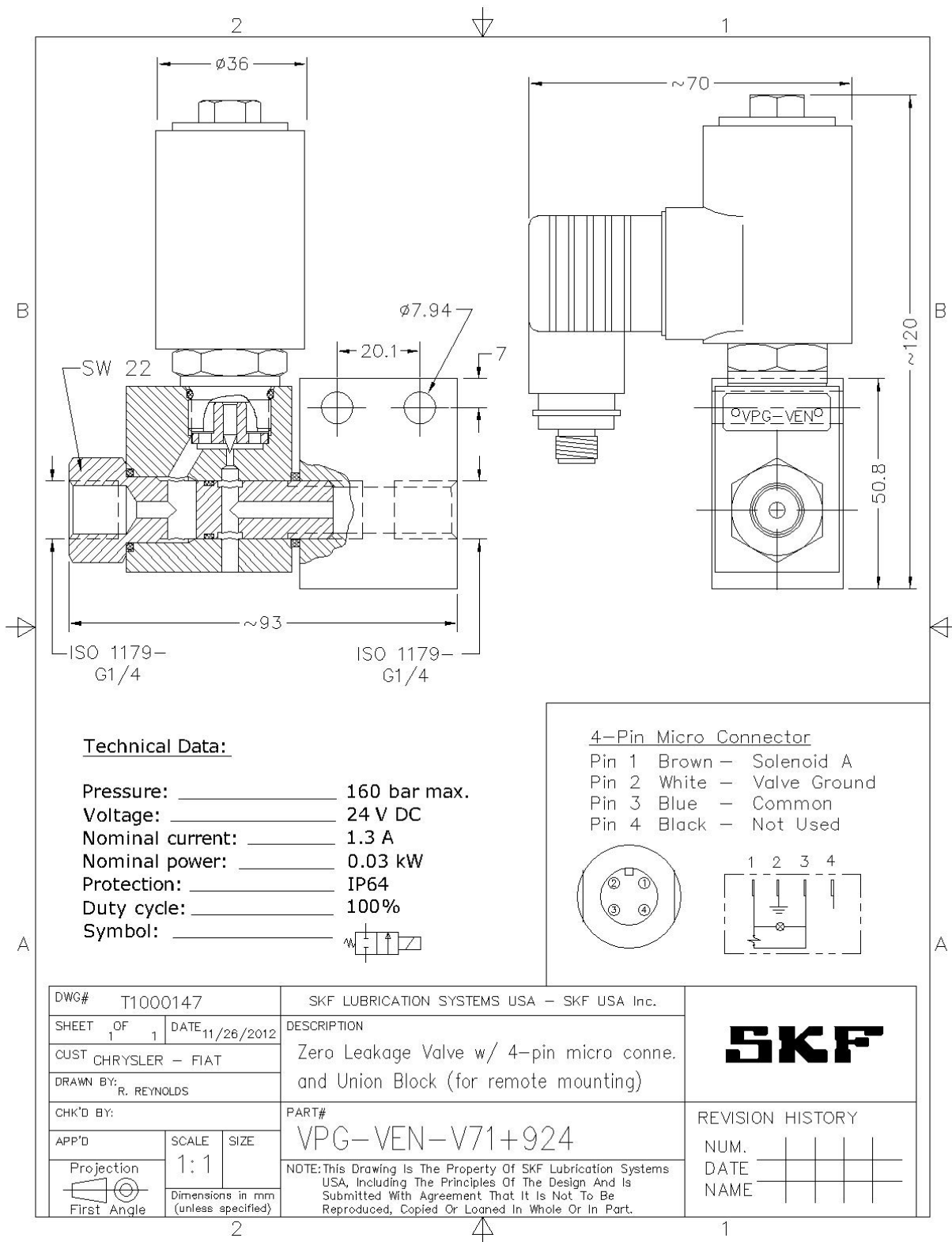


3.35 Zero Leakage 2/2 Way Valve for Oil - VPG-VEN-V71A+924





3.36 Zero Leakage 2/2 Way Valve with Union Block - VPG-VEN-V71+924



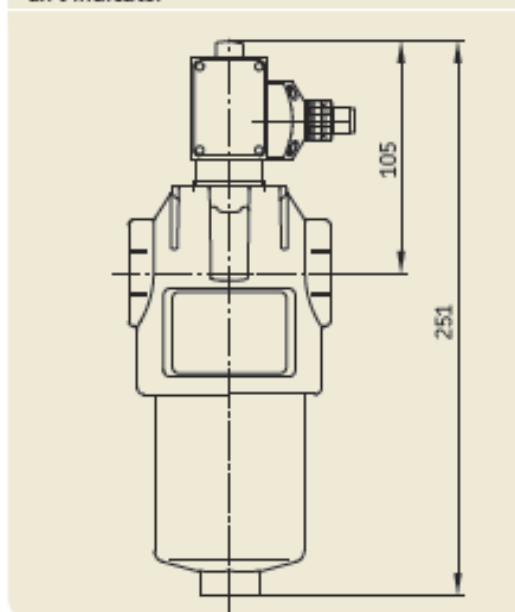


3.37 Pressure filter NG63 acc. to DIN24550

Technical data

Pressure stage up to: _____ 100 _____ bar
 Operating temperature: _____ -10 - +100 _____ °C
 Flows: _____ up to 63 _____ l/min
 Differential pressure switch
 Switching pressure: _____ 5bar -10%
 Perm. operating pressure: _____ 420 _____ bar
 Type of contact: _____ 1 NO-contact (75%) / 1 NC-contact (100%)
 Max. switching voltage: _____ 24 _____ V
 Electrical connector: _____ 4pin connector; M12x1 ICE 60947-5-2
 Max. switching output at resistive load: _____ max. 15 _____ VA/W AC/DC
 Type of enclosure: (DIN40050): _____ IP 65
 Type of indication: _____ 1 electrical switching contact at 75% and
 at 100% of the cracking pressure.

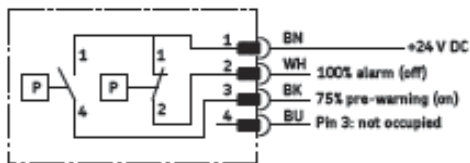
With electrical/optical
dirt indicator



Description	Order-No	Filter rating:
Pressure filter	169-460-099-V57	3 µm
Pressure filter	169-460-087-V70	10 µm
Pressure filter	169-460-185	25 µm
Spare parts		
Filter element	169-400-257	3 µm
Filter element	169-400-252	10 µm
Filter element	169-400-253	25 µm
Repair set seals	995-901-056	
Pressure switch	176-200-012	

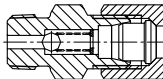
Wiring diagram dirt indicator

176-200-009 – NO-contact – NC contact – M12x1

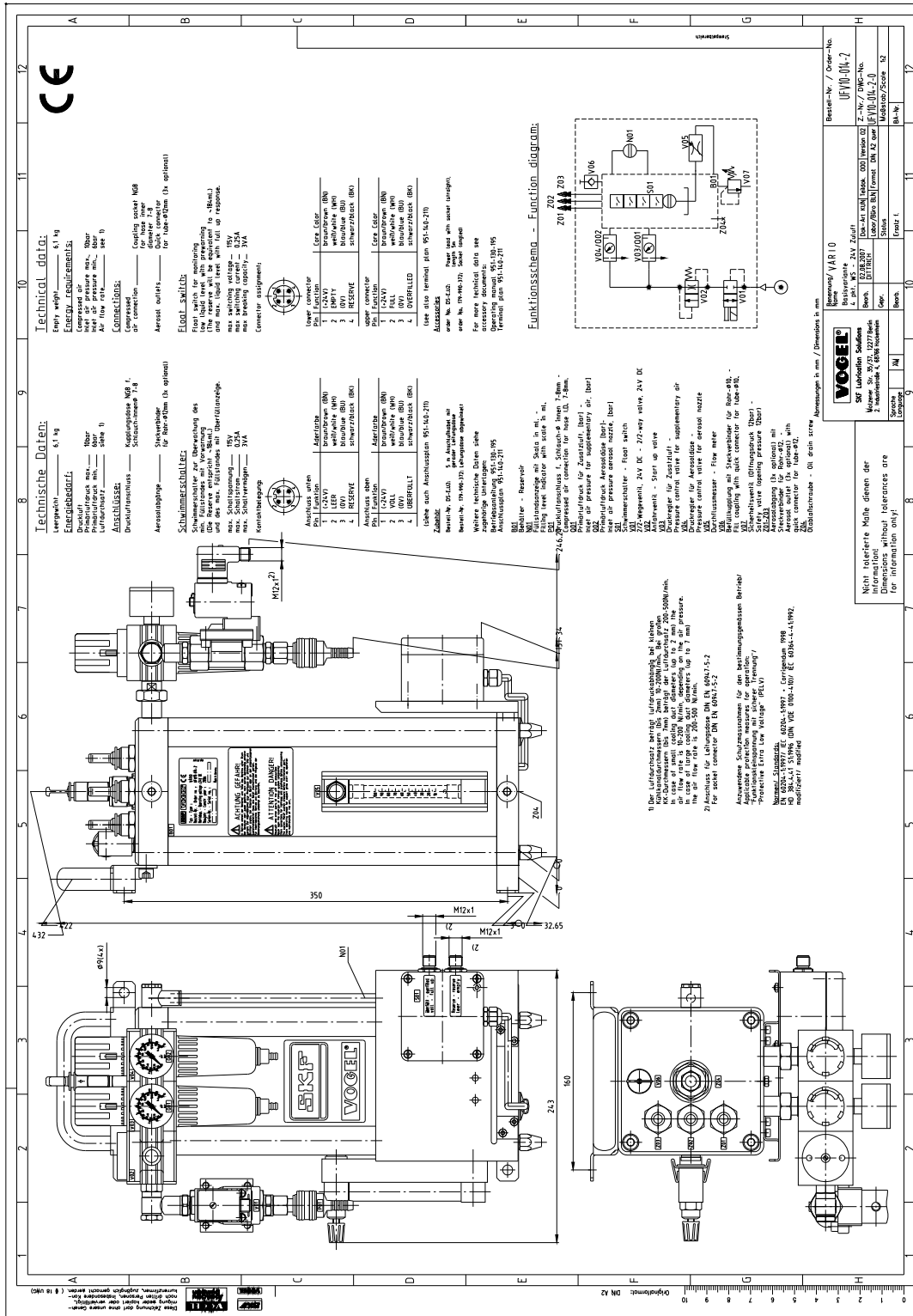




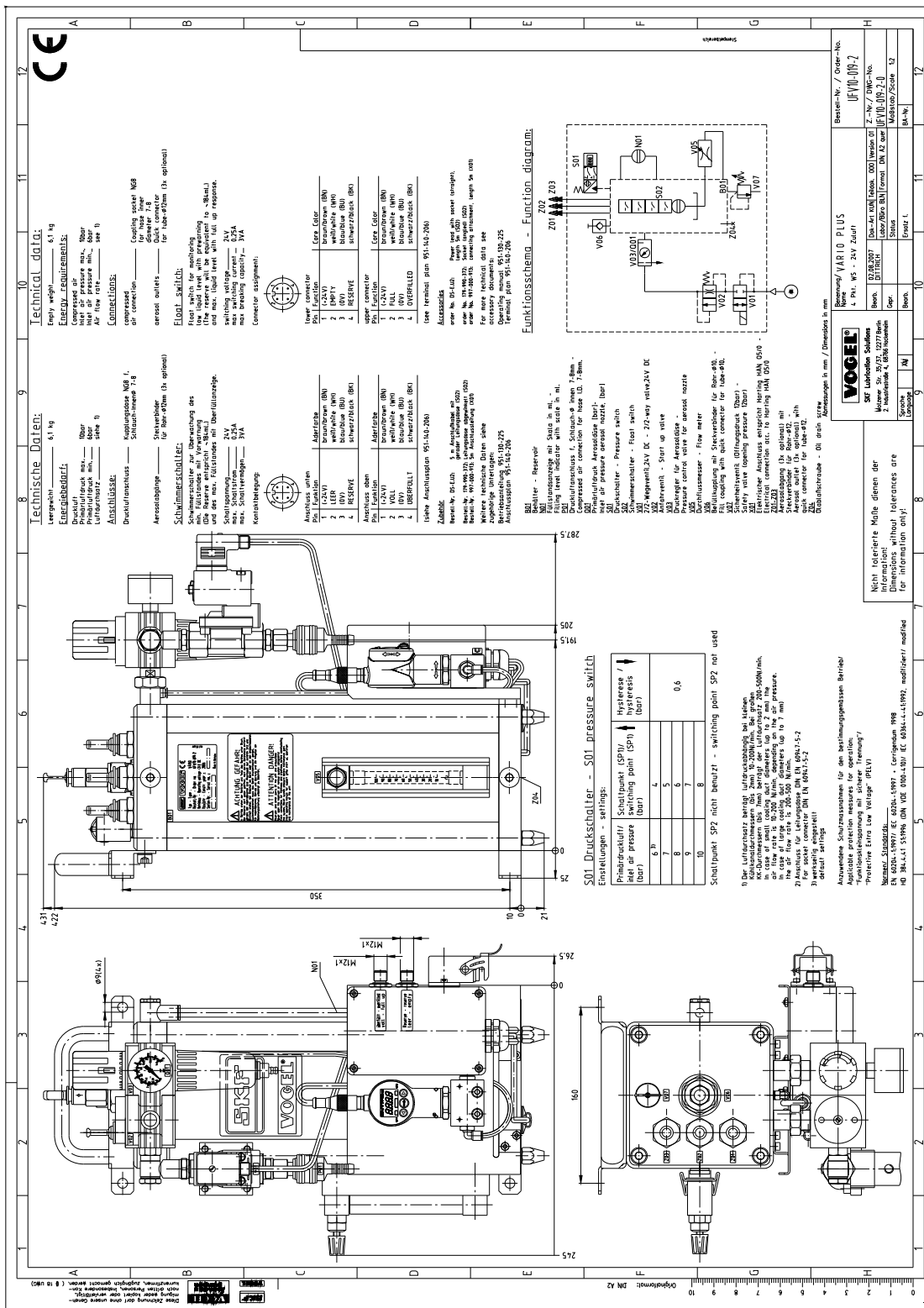
3.38 Check valves for progressive feeders

Part Number	Thread d ₁	Tubing size	Opening Pressure (bar)	Notes	Image
VPG-RV	G1/8 tapered	ø 4	10 bar		
VPG-RV6	G1/8 tapered	ø 6	10 bar		
VPG-RV8	G1/8 tapered	ø 8	10 bar		
VPKG-RV	G1/8 tapered	ø 6	3 bar	With sleeve fitting + compression nut	

3.39 Lubrilean VARIO UFV10-014-2

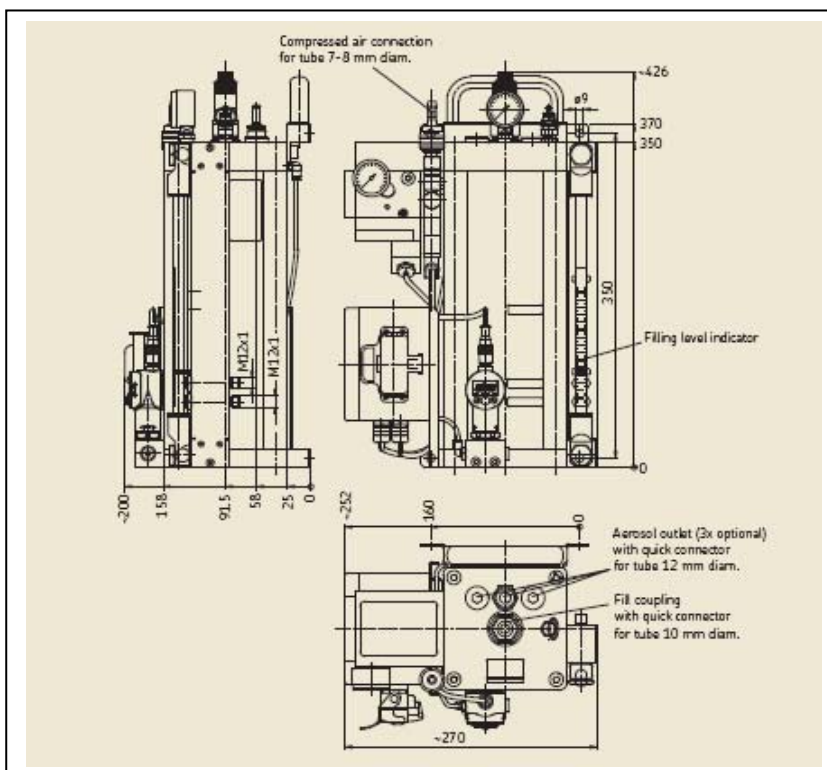


3.40 Lubrilean VARIOPLUS UFV10-019-2





3.41 Lubrilean VARIOSUPER



3.42 Lubrilean DigitalSuper

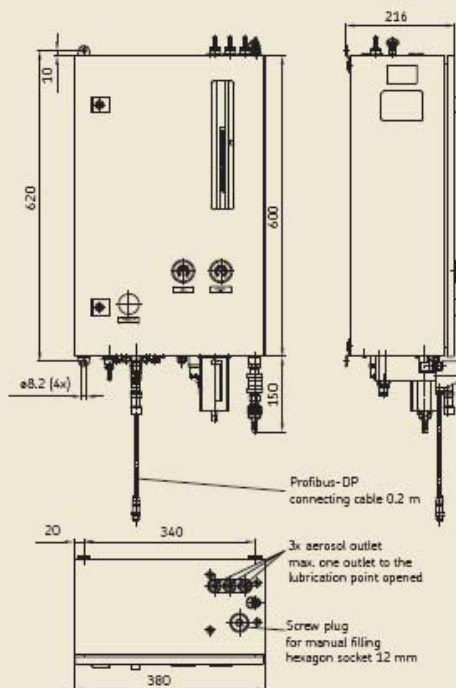


DigitalSuper 1

Order No. UFD10-020

Further technical information
see leaflet 1-5109-EN

DigitalSuper 1

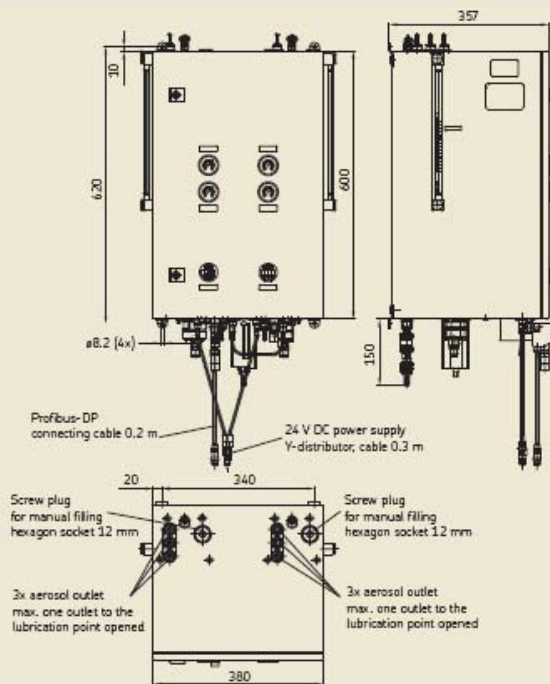


DigitalSuper 2

Order No. UFD20-020

Further technical information
see leaflet 1-5109-EN

DigitalSuper 2





3.43 Lubrilean Aerosol Monitor AM1000

Technical data

Aerosol

Medium _____ Aerosol for MOL
Typical droplet- ϕ _____ 0.5...5.0 μ m
Permissible pressure _____ max. 10 bar
Throughout _____ max. 800 NL/min
Tubing connection 1) _____ for tube ϕ 12 mm

Mounting and environment

Ambient temperature _____ 0...+60 °C
Mounting position _____ upright, as drawn
Degree of protection by enclosure _____ IP 54 (DIN EN 60529)
Approximate weight _____ 0.5 kg

Electrical connection

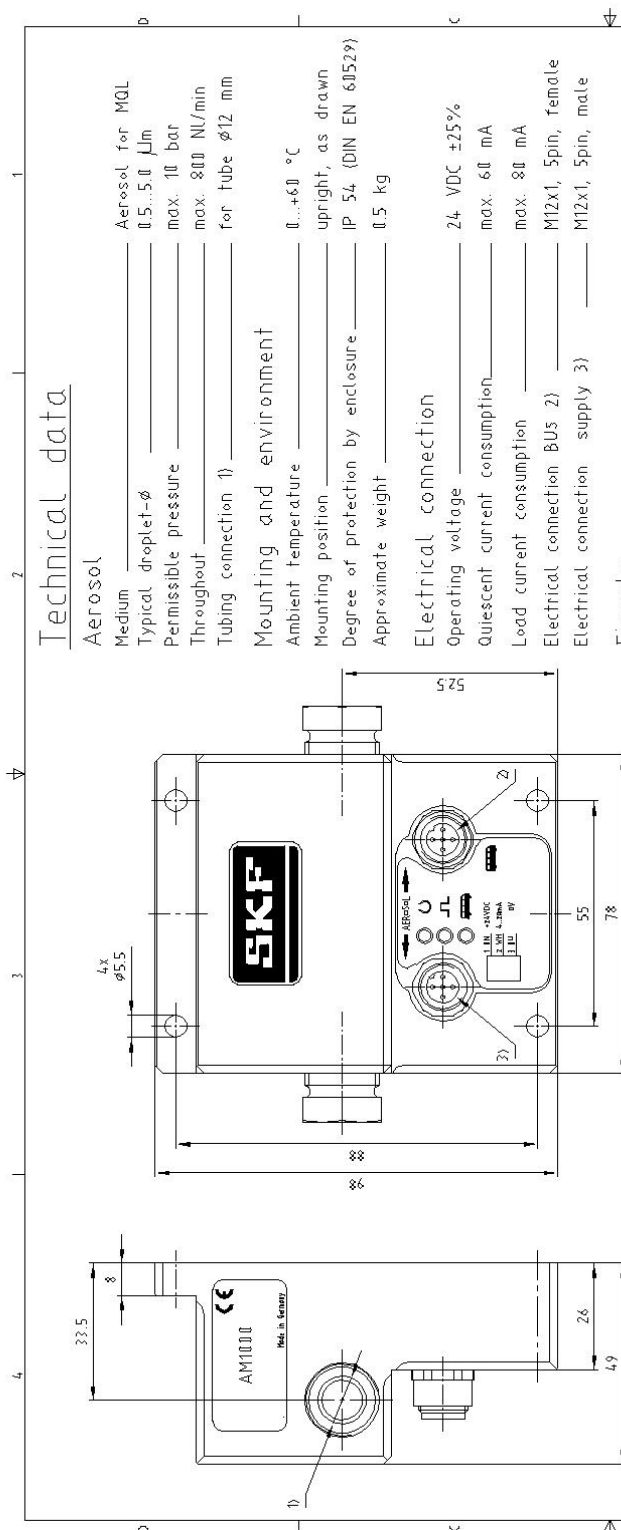
Operating voltage _____ 24 VDC $\pm$ 25%
Quiescent current consumption _____ max. 60 mA
Load current consumption _____ max. 80 mA
Electrical connection BUS 2) _____ M12x1, 5pin, female
Electrical connection supply 3) _____ M12x1, 5pin, male

Signals

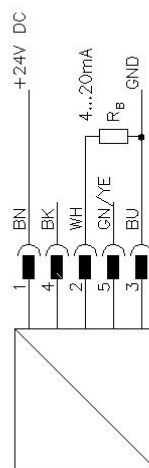
Analogue signal via 3) _____ 4...20 mA
Burden for analogue signal _____ max. 400 Ω
Communication via BUS-system 2) with DigitalSuper units by SKF

Appliance parts

Adapter _____ UFZ U00-137
BUS-Cable 10m _____ UFZ 0370
BUS-Cable 8m _____ UFZ 0369
BUS-Cable 4m _____ UFZ 0375
BUS-Cable 2m _____ UFZ 0368
BUS-Cable 1m _____ UFZ 0374
T-connector M12x1 _____ UFZ 0373
Cordset, 5m, single-ended M12x1 female connector and molded cable _____ 179-990-600
Cordset, 5m, single-ended M12x1 female right angle connector and molded cable _____ 179-990-601



3) voltage supply & signal output



Pin	Function	Core color
1	+Vb 24V	brown
2	4...20mA	white
3	GND	blue
4	-	black
5	-	green

Dwg# T188814.8		SKF LUBRICATION SYSTEMS USA - SKF USA Inc.	
SHEET 1	DATE 10/24/2012	DESCRIPTION	
CUST CHRYSLER - FIAT		Aerosol Monitor	
DRAWN BY: A. REYNOLDS		PART#	
CHKD BY:		AM1000	
APPD	SCALE 1:1	SIZE	REVISION HISTORY
Pr-jction	Drawn in mm	Drawn in mm	NUM. _____
First Asst	(unless specified)	(unless specified)	DATE _____
			NAME _____



CPT ONLY COMPONENTS						
Section	Order Code	Description	Notes	Order Code	Qty.	Delivery Plant
2.1.1	MFE5-KW3-C100+1FV	Gear pump for oil, 3L plastic reservoir	Quick fill sold separately. See page 33.			
	MFE5-KW6-C100+1FV	Gear pump for oil, 6L plastic reservoir				
2.1.2	MFE5-BW3-C100+1FV	Gear pump for oil, 3L metal reservoir				
	MFE5-BW7-C100+1FV	Gear pump for oil, 6L metal reservoir				
	MFE5-BW16-C100+1FV	Gear pump for oil, 15L metal reservoir				
	MFE5-BW30-C100+1FV	Gear pump for oil, 30L metal reservoir				
	MFE5-BW50-C100+1FV	Gear pump for oil, 50L metal reservoir				
2.1.5	P-886-BWW7-C100	Pneumatic piston pump for oil, 7L metal reservoir				
	P-886-BWW16-C100	Pneumatic piston pump for oil, 16L metal reservoir				
2.2.1	MFE2-KW3F-C100+1FV	Gear pump for fluid grease, 3L plastic reservoir				
	MFE2-KW6F-C100+1FV	Gear pump for fluid grease, 6L plastic reservoir				
2.2.3	KFB1-M-W+924	Gear pump for fluid grease, 1.4L plastic reservoir				
2.3.1	MFE5-KW3-C100+1FV	Gear pump for oil, 3L plastic reservoir	Quick fill sold separately. See page 33.			
2.4.1	MFE1-BW7-C100+1FV	For intermittent oil systems, 6L metal reservoir				
2.4.2	MF1-BW7-C100+1FV	For circulating oil systems, 6L metal reservoir				
2.5.3	KFA1-M-WA-V71+924	Compact unit for grease, Q= 2,0cm³/min				
	KFA1-M-WB-V71+924	Compact unit for grease, Q= 1,5cm³/min				
	KFA1-M-WC-V71+924	Compact unit for grease, Q= 1,0cm³/min				



CPT ONLY COMPONENTS						
Section	Order Code	Description	Notes	Order Code	Qty.	Delivery Plant
2.5.4	ETP×WZ-xxxxx-x+924	Compact greaser, 24VDC	See page 46 for order code key.			
	FK008-x	Grease cartridge for ETP				
2.18.1	995-001-088	Male quick disconnect, female thread, G1/8				
	995-001-096	Male quick disconnect, female thread, G1/4				
	995-001-108	Male quick disconnect, female thread, G3/8				
	995-001-093	Male quick disconnect, female thread, G1/2				
	995-001-521	Male quick disconnect, female thread, G3/4				
2.18.2	995-001-517	Female quick disconnect, male thread, G1/8				
	995-001-500	Female quick disconnect, male thread, G1/4				
	995-001-518	Female quick disconnect, male thread, G3/8				
	995-001-112	Female quick disconnect, male thread, G1/2				
	995-001-519	Female quick disconnect, male thread, G3/4				
2.18.3	995-004-088	Complete quick disconnect with strainer, G1/8	NOTE: All are <u>male</u> quick disconnect.			
	995-002-096	Complete quick disconnect with strainer, G1/4				
	995-004-108	Complete quick disconnect with strainer, G3/8				
	995-004-093	Complete quick disconnect with strainer, G1/2				
	995-004-521	Complete quick disconnect with strainer, G3/4				



FPT ONLY COMPONENTS						
Section	Material Code	Description	Notes	Order Code	Qty.	Delivery Plant
2.1.3	MFE5-KW3-F100+140	Gear pump for oil, 3L plastic reservoir				
	MFE5-KW6-F100+140	Gear pump for oil, 6L plastic reservoir				
2.1.4	MFE5-BW3-F100+140	Gear pump for oil, 3L metal reservoir				
	MFE5-BW7-F100+140	Gear pump for oil, 6L metal reservoir				
	MFE5-BW16-F100+140	Gear pump for oil, 15L metal reservoir				
	MFE5-BW30-F100+140	Gear pump for oil, 30L metal reservoir				
	MFE5-BW50-F100+140	Gear pump for oil, 50L metal reservoir				
2.2.2	MFE2-KW3F-F100+140	Gear pump for fluid grease, 3L plastic reservoir				
	MFE2-KW6F-F100+140	Gear pump for fluid grease, 6L plastic reservoir				
2.3.2	MFE5-KW3-F100+140	Gear pump for oil, 3L plastic reservoir				
2.4.3	MFE1-BW7-F100+140	For intermittent oil systems, 6L metal reservoir				
2.4.4	MF1-BW7-F100+140	For circulating oil systems, 6L metal reservoir				

CPT - FPT COMMON COMPONENTS						
Section	Material Code	Description	Notes	Order Code	Qty.	Delivery plant
2.5.1	KFG1-5W1GA-V71+924	Pump for grease, Q= 2,5cm³/min	Quick fill sold separately. See page 33.			
	KFG1-5W1GB-V71+924	Pump for grease, Q= 1,8cm³/min				
	KFG1-5W1GC-V71+924	Pump for grease, Q= 1,3cm³/min				
	KFG1-5W1GD-V71+924	Pump for grease, Q= 0,8cm³/min				



CPT - FPT COMMON COMPONENTS						
Section	Material Code	Description	Notes	Order Code	Qty.	Delivery plant
2.5.2	KFG1-5W2A-V71+924	Pump for fluid grease, Q= 2,5cm³/min	Quick fill sold separately. See page 33.			
	KFG1-5W2B-V71+924	Pump for fluid grease, Q= 1,8cm³/min				
	KFG1-5W2C-V71+924	Pump for fluid grease, Q= 1,3cm³/min				
	KFG1-5W2D-V71+924	Pump for fluid grease, Q= 0,8cm³/min				
2.6.1	341-1xx-10000-00	Single piston distributor for oil, 0.01cm³	See page 50 for order code key.			
	341-100-60000-00	Single piston distributor for oil, 0.02cm³				
	341-1xx-20000-00	Single piston distributor for oil, 0.03cm³				
	341-1xx-30000-00	Single piston distributor for oil, 0.06cm³				
	341-1xx-40000-00	Single piston distributor for oil, 0.10cm³				
	341-1xx-50000-00	Single piston distributor for oil, 0.16cm³				
2.6.1	351-0xx-30000-00	Single piston distributor for oil, 0.05cm³	See page 55 for order code key.			
	351-0xx-40000-00	Single piston distributor for oil, 0.10cm³				
	351-0xx-50000-00	Single piston distributor for oil, 0.20cm³				
	351-0xx-60000-00	Single piston distributor for oil, 0.40cm³				
	351-0xx-70000-00	Single piston distributor for oil, 0.60cm³				
2.6.1	391-100-40000-00	Single piston distributor for oil, 0.10cm³	See page 60 for order code key.			
	391-100-50000-00	Single piston distributor for oil, 0.20cm³				
	391-100-60000-00	Single piston distributor for oil, 0.30cm³				
2.6.2	342-4xx-xx000-xx	Standard piston distributor for oil, 2 port	See page 54 for order code key.			
	343-4xx-xxx00-xx	Standard piston distributor for oil, 3 port				
	345-4xx-xxxxx-xx	Standard piston distributor for oil, 5 port				
2.6.3	352-0xx-xx000-xx	Standard piston distributor for oil, 2 port	See page 59 for order code key.			
	353-0xx-xxx00-xx	Standard piston distributor for oil, 3 port				
	355-0xx-xxxxx-xx	Standard piston distributor for oil, 5 port				
2.6.4	392-000-xx000-xx	Standard piston distributor for oil, 2 port	See page 64 for order code key.			
	393-000-xxx00-xx	Standard piston distributor for oil, 3 ports				



CPT - FPT COMMON COMPONENTS						
Section	Material Code	Description	Notes	Order Code	Qty.	Delivery plant
2.7.1	341-700-20000-00	Single piston distributor fluid grease, 0.03cm ³				
	341-700-30000-00	Single piston distributor fluid grease, 0.06cm ³				
	341-700-40000-00	Single piston distributor fluid grease, 0.10cm ³				
2.7.2	342-5xx-xx000-xx	Standard piston distributor for fluid grease, 2 port	See page 54 for order code key.			
	343-5xx-xxx00-xx	Standard piston distributor for fluid grease, 3 port				
	345-5xx-xxxxx-xx	Standard piston distributor for fluid grease, 5 port				
2.7.3	352-1xx-xx000-xx	Standard piston distributor for fluid grease, 2 port	See page 59 for order code key.			
	353-1xx-xxx00-xx	Standard piston distributor for fluid grease, 3 port				
	355-1xx-xxxxx-xx	Standard piston distributor for fluid grease, 5 port				
2.7.4	392-100-xx000-xx	Standard piston distributor for fluid grease, 2 port	See page 64 for order code key.			
	393-100-xxx00-xx	Standard piston distributor for fluid grease, 3 port				
2.8.1	VL-02AAG1	Manifold for single pist.dist. 341; 2-port, G1/8	Manifolds for 341 series			
	VL-03AAG1	Manifold for single pist.dist. 341; 3-port, G1/8				
	VL-05AAG1	Manifold for single pist.dist. 341; 5-port, G1/8				
	VL-02AAG2	Manifold for single pist.dist. 341; 2-port, G1/4	Manifolds for 341 series			
	VL-03AAG2	Manifold for single pist.dist. 341; 3-port, G1/4				
	VL-05AAG2	Manifold for single pist.dist. 341; 5-port, G1/4				
	VL-02-AAM1	Manifold for single pist.dist. 341; 2-port, M10x1				
	VL-03-AAM1	Manifold for single pist.dist. 341; 3-port, M10x1				
	VL-05-AAM1	Manifold for single pist.dist. 341; 5-port, M10x1				
	VL-02-AAM2	Manifold for single pist.dist. 341; 2-port, M14x1.5				
	VL-03-AAM2	Manifold for single pist.dist. 341; 3-port, M14x1.5				
	VL-05-AAM2	Manifold for single pist.dist. 341; 5-port, M14x1.5				



CPT - FPT COMMON COMPONENTS						
Section	Material Code	Description	Notes	Order Code	Qty.	Delivery plant
2.8.2	VL-02BAG1	Manifold for single pist.dist. 351; 2-port, G1/8	Manifolds for 351 series			
	VL-03BAG1	Manifold for single pist.dist. 351; 3-port, G1/8				
	VL-05BAG1	Manifold for single pist.dist. 351; 5-port, G1/8				
	VL-02BAG2	Manifold for single pist.dist. 351; 2-port, G1/4				
	VL-03BAG2	Manifold for single pist.dist. 351; 3-port, G1/4				
	VL-05BAG2	Manifold for single pist.dist. 351; 5-port, G1/4				
	VL-02-BAM1	Manifold for single pist.dist. 351; 2-port, M10x1				
	VL-03-BAM1	Manifold for single pist.dist. 351; 3-port, M10x1				
	VL-05-BAM1	Manifold for single pist.dist. 351; 5-port, M10x1				
	VL-02-BAM2	Manifold for single pist.dist. 351; 2-port, M14x1.5				
	VL-03-BAM2	Manifold for single pist.dist. 351; 3-port, M14x1.5				
	VL-05-BAM2	Manifold for single pist.dist. 351; 5-port, M14x1.5				
2.8.3	VL-02CAG1	Manifold for single pist.dist. 391; 2-port, G1/8	Manifolds for 391 series			
	VL-03CAG1	Manifold for single pist.dist. 391; 3-port, G1/8				
	VL-05CAG1	Manifold for single pist.dist. 391; 5-port, G1/8				
	VL-02CAG2	Manifold for single pist.dist. 391; 2-port, G1/4				
	VL-03CAG2	Manifold for single pist.dist. 391; 3-port, G1/4				
	VL-05CAG2	Manifold for single pist.dist. 391; 5-port, G1/4				
	VL-02-CAM1	Manifold for single pist.dist. 391; 2-port, M10x1				
	VL-03-CAM1	Manifold for single pist.dist. 391; 3-port, M10x1				
	VL-05-CAM1	Manifold for single pist.dist. 391; 5-port, M10x1				
	VL-02-CAM2	Manifold for single pist.dist. 391; 2-port, M14x1.5				
	VL-03-CAM2	Manifold for single pist.dist. 391; 3-port, M14x1.5				
	VL-05-CAM2	Manifold for single pist.dist. 391; 5-port, M14x1.5				



CPT - FPT COMMON COMPONENTS						
Section	Material Code	Description	Notes	Order Code	Qty.	Delivery plant
2.9.1	MV201-100-xx000000	Oil+Air mixing valve, 1 port	See page 65 for order code key.			
	MV202-100-xx000000	Oil+Air mixing valve, 2 port				
	MV203-100-xx000000	Oil+Air mixing valve, 3 port				
	MV204-100-xx000000	Oil+Air mixing valve, 4 port				
	MV205-100-xx000000	Oil+Air mixing valve, 5 port				
	MV206-100-xx000000	Oil+Air mixing valve, 6 port				
	MV207-100-xx000000	Oil+Air mixing valve, 7 port				
	MV208-100-xx000000	Oil+Air mixing valve, 8 port				
2.10.1	VPG/03xx/00A1-xxx	Feeder, 3 sections (max. 6 outlets)	See page 67 for order code key.			
	VPG/04xx/00A1-xxxx	Feeder, 4 sections (max. 8 outlets)				
	VPG/05xx/00A1-xxxxx	Feeder, 5 sections (max. 10 outlets)				
	VPG/06xx/00A1-xxxxxx	Feeder, 6 sections (max. 12 outlets)				
	VPG/07xx/00A1-xxxxxxx	Feeder, 7 sections (max. 14 outlets)				
	VPG/08xx/00A1-xxxxxxxx	Feeder, 8 sections (max. 16 outlets)				
	VPG/09xx/00A1-xxxxxxxxx	Feeder, 9 sections (max. 18 outlets)				
	VPG/10xx/00A1-xxxxxxxxxx	Feeder, 10 sections (max. 20 outlets)				
2.10.2	VPKG/03xx/00A1-xxx	Feeder, 3 sections (max. 6 outlets)	See page 69 for order code key.			
	VPKG/04xx/00A1-xxxx	Feeder, 4 sections (max. 8 outlets)				
	VPKG/05xx/00A1-xxxxx	Feeder, 5 sections (max. 10 outlets)				
	VPKG/06xx/00A1-xxxxxx	Feeder, 6 sections (max. 12 outlets)				
	VPKG/07xx/00A1-xxxxxxx	Feeder, 7 sections (max. 14 outlets)				
	VPKG/08xx/00A1-xxxxxxxx	Feeder, 8 sections (max. 16 outlets)				
	VPKG/09xx/00A1-xxxxxxxxx	Feeder, 9 sections (max. 18 outlets)				
	VPKG/10xx/00A1-xxxxxxxxxx	Feeder, 10 sections (max. 20 outlets)				



CPT - FPT COMMON COMPONENTS						
Section	Material Code	Description	Notes	Order Code	Qty.	Delivery plant
2.10.3	VPBG/03xx/00A1-xxx	Feeder, 3 sections (max. 6 outlets)	See page 71 order code key.			
	VPBG/04xx/00A1-xxxx	Feeder, 4 sections (max. 8 outlets)				
	VPBG/05xx/00A1-xxxxx	Feeder, 5 sections (max. 10 outlets)				
	VPBG/06xx/00A1-xxxxxx	Feeder, 6 sections (max. 12 outlets)				
	VPBG/07xx/00A1-xxxxxxx	Feeder, 7 sections (max. 14 outlets)				
	VPBG/08xx/00A1-xxxxxxxx	Feeder, 8 sections (max. 16 outlets)				
	VPBG/09xx/00A1-xxxxxxxxx	Feeder, 9 sections (max. 18 outlets)				
	VPBG/10xx/00A1-xxxxxxxxxx	Feeder, 10 sections (max.20 outlets)				
2.10.4	PSG2/03xx/00A1-xxx	Feeder, 3 sections (max. 6 outlets)	See page 73 for order code key.			
	PSG2/04xx/00A1-xxxx	Feeder, 4 sections (max. 8 outlets)				
	PSG2/05xx/00A1-xxxxx	Feeder, 5 sections (max. 10 outlets)				
	PSG2/06xx/00A1-xxxxxx	Feeder, 6 sections (max. 12 outlets)				
	PSG2/07xx/00A1-xxxxxxx	Feeder, 7 sections (max. 14 outlets)				
	PSG2/08xx/00A1-xxxxxxxx	Feeder, 8 sections (max. 16 outlets)				
	PSG2/09xx/00A1-xxxxxxxxx	Feeder, 9 sections (max. 18 outlets)				
	PSG2/10xx/00A1-xxxxxxxxxx	Feeder, 10 sections (max.20 outlets)				
2.11.1	VPG-RV	Check valve for VPKG, VPBG; 10 bar, ø 4mm	NOTE: VPG sectional feeders already have internal check valves at every outlet. However, VPKG and VPBG do not.			
	VPG-RV6	Check valve for VPKG, VPBG; 10 bar, ø 6mm				
	VPG-RV8	Check valve for VPKG, VPBG; 10 bar, ø 10mm				



CPT - FPT COMMON COMPONENTS						
Section	Material Code	Description	Notes	Order Code	Qty.	Delivery plant
2.11.2	VPKG-RV	Check valve for VPKG, VPGB; 3 bar, ø 6mm	with sleeve fitting and compression nut			
2.11.3	VPKG-RV-VS	Check valve for VPKG, VPGB; 3 bar, ø 6mm	quick connection			
2.12.1	177-300-094	Cycle switch for VPG / PSG2				
2.12.2	177-300-095	Cycle switch for VPKG				
2.12.3	177-300-097	Cycle switch for VPBG				
2.12.4	179-990-600	Straight socket connector w/ 5 meters cable				
	179-660-601	Elbow socket connector w/ 5 meters cable				
2.13.1	VPG-UE16-2	Over pressure indicator, 16 bar				
	VPG-UE32-2	Over pressure indicator, 32 bar				
	VPG-UE63-2	Over pressure indicator, 63 bar				
	VPG-UE80-2	Over pressure indicator, 80 bar				
	VPG-UE100-2	Over pressure indicator, 100 bar				
	VPG-UE50-3	Over pressure indicator, 50 bar				
	VPG-UE100-3	Over pressure indicator, 100 bar				
	VPG-UE150-3	Over pressure indicator, 150 bar				
	VPG-UE200-3	Over pressure indicator, 200 bar				
2.14.1	DS-EP-40-D-4	electronic pressure switch, M12x1, 4-pins				
2.14.2	176-190-001	electronic pressure switch,				
2.15.1	GS300	Flow monitor for piston distr. system				
2.16.1	GS4011-S20	Oil+air streak sensor, 120 - 600 mm³/hr				
	GS4011-S50	Oil+air streak sensor, 60 - 120 mm³/hr				
2.17.1	169-460-099-V57	Pressure filter w/ dirt indicator, 3 µm - Oil				
	169-460-087-V70	Pressure filter w/ dirt indicator, 10 µm - Oil				
	169-460-185	Pressure filter w/ dirt indicator, 25 µm - Oil				



CPT - FPT COMMON COMPONENTS						
Section	Material Code	Description	Notes	Order Code	Qty.	Delivery plant
2.17.2	213-900	Screen filter for grease, 25 µm				
2.19.1	169-104-015	Pressure gauge, 0-40 bar / 0-580 PSI/ 0-4 MPa				
	169-110-015	Pressure gauge, 0-100 bar/ 0-1450 PSI/ 0-10 MPa				
	169-125-015	Pressure gauge, 0-250 bar/ 0-3625 PSI/ 0-25 MPa				
2.20.1	161-110-031+924	2/2 way valve, oil and grease				
2.20.2	VPG-VEN-V71-A+924	2/2 way Zero Leakage Valve, oil				
2.20.3	VPG-VEN-V71+924	2/2 way Zero Leakage Valve, oil	with union block for remote mounting			
2.20.4	161-120-064+924	3/2 way valve, oil, oil and grease				
2.20.5	161-140-050+924	4/2 way valve, oil				
2.21.1	UFV10-014-2	Lubrilean VARIO				
2.21.2	UFV10-019-2	Lubrilean VARIOPLUS				
2.21.3	UFV30-003	Lubrilean VARIOSUPER				
2.22.1	UFD10-020	Lubrilean Digitalsuper 1				
2.22.2	UFD20-020	Lubrilean Digitalsuper 2				
2.23.1	AM1000	Aerosolmonitor				