

Filter-Regulator-Lubricator, Type FRC

1/8" to 1" NPT, INCH and Metric Series

Filter-Regulator-Lubricator

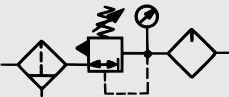
with Metal Bowl Guards,
Locking Regulator Head and Gauge

with Manual Bowl Drain

Type FRC-...-D-...-NPT

with Integrated, Automatic Bowl Drain

Type FRC-...-D-...-A-NPT



Accessories:

Mounting brackets, Type HFOE-...
(see page 67)

Note: Because of the weight offset of a
Filter-Regulator-Lubricator unit, it should
not be mounted with a Mounting Bracket
Type HR-D-...

Pressure Gauges, Type MA-.../SDE1-...
(see page 68-70)

Standard 40 micron filter cartridge,
Type LF/LFR-... (see page 67)

5 micron filter cartridge, Type LFP-...
(see page 67)

The filter-regulator-lubricator unit includes the
following:

The sintered filter equipped with water separator that
cleanses the compressed air of impurities, pipe
deposits, rust, and condensation.

For special applications, the standard 40 micron
cartridge can be replaced by a 5 micron filter cartridge.

The pressure regulator with secondary ventilation
maintains a constant operating pressure (secondary
side) despite fluctuations in line pressure (primary
side) and the amount of air consumed.

Units are available in two working pressure ranges:
174 psi / 12 bar and 102 psi / 7 bar.

The constant-density lubricator adds oil mist to the
filtered air. The amount of oil mist is proportional to the
air flow. Oil may be added under pressure during
machine operation.

The oil drip rate is controlled by the regulating screw.
Normally 1 to 12 drops per 35 cu ft / 100 l of air is sufficient.

The following oils are recommended for Festo units.



Recommended Oil Grades	Viscosity
FESTO Special Oil ARAL Vitam GF 32 BP Energol HLP 32 Esso Nuto H 32 Mobil DTE 24 Shell Hydrol DO 32	Hydraulic oil per DIN 51524 Part 2 with a viscosity of 32 mm ² /s at 40°C (HLP 32)

Festo Special Oil in 1 liter container: Order Number 152811 OFSW-32

Filter-Regulator-Lubricator Units can be ordered without pressure gauges.

Note: The Filter-Regulator-Lubricator Unit, Type FRC, consists of a combined
unit filter-regulator, Type LFR-... and a lubricator, Type LOE-... . These units
can also be purchased separately.

Note: The Pressure Signal Conversion Unit, Type
PENV-A-... can be used as a digital-readout pressure
indicator assembly on Filter-Regulator-Lubricator
Units.



Filter-Regulator-Lubricator, Type FRC

Specifications, INCH Series

Order Number Part No. / Type Pressure Range 12 bar Filtration 40 Micron	Service Unit Manual Bowl Drain	173828 FRC-1/8-D- MINI-NPT	173836 FRC-1/4-D- MINI-NPT	173844 FRC-3/8-D- MINI-NPT	173852 FRC-3/8-D- MIDI-NPT	173860 FRC-1/2-D- MIDI-NPT	173868 FRC-3/4-D- MIDI-NPT	173876 FRC-3/4-D- MAXI-NPT	173884 FRC-1-D- MAXI-NPT
	Service Unit Automatic Bowl Drain	173829 FRC-1/8-D- MINI-A-NPT	173837 FRC-1/4-D- MINI-A-NPT	173845 FRC-3/8-D- MINI-A-NPT	173853 FRC-3/8-D- MIDI-A-NPT	173861 FRC-1/2-D- MIDI-A-NPT	173869 FRC-3/4-D- MIDI-A-NPT	173877 FRC-3/4-D- MAXI-A-NPT	173885 FRC-1-D- MAXI-A-NPT
Pressure Range 7 bar Filtration 40 Micron	Service Unit Manual Bowl Drain	173834 FRC-1/8-D-7- MINI-NPT	173842 FRC-1/4-D-7- MINI-NPT	173850 FRC-3/8-D-7- MINI-NPT	173858 FRC-3/8-D-7- MIDI-NPT	173866 FRC-1/2-D-7- MIDI-NPT	173874 FRC-3/4-D-7- MIDI-NPT	173882 FRC-3/4-D-7- MAXI-NPT	173890 FRC-1-D-7- MAXI-NPT
	Service Unit Automatic Bowl Drain	173835 FRC-1/8-D-7- MINI-A-NPT	173843 FRC-1/4-D-7- MINI-A-NPT	173851 FRC-3/8-D-7- MINI-A-NPT	173859 FRC-3/8-D-7- MIDI-A-NPT	173867 FRC-1/2-D-7- MIDI-A-NPT	173875 FRC-3/4-D-7- MIDI-A-NPT	173883 FRC-3/4-D-7- MAXI-A-NPT	173891 FRC-1-D-7- MAXI-A-NPT
Pressure Range 12 bar Filtration 5 Micron	Service Unit Manual Bowl Drain	173832 FRC-1/8-D- 5M-MINI-NPT	173840 FRC-1/4-D- 5M-MINI-NPT	173848 FRC-3/8-D- 5M-MINI-NPT	173856 FRC-3/8-D- 5M-MIDI-NPT	173864 FRC-1/2-D- 5M-MIDI-NPT	173872 FRC-3/4-D- 5M-MIDI-NPT	173880 FRC-3/4-D- 5M-MAXI-NPT	173888 FRC-1-D-5M- MAXI-NPT
	Service Unit Automatic Bowl Drain	173833 FRC-1/8-D-5M- MINI-A-NPT	173841 FRC-1/4-D-5M- MINI-A-NPT	173849 FRC-3/8-D-5M- MINI-A-NPT	173857 FRC-3/8-D-5M- MIDI-A-NPT	173865 FRC-1/2-D-5M- MIDI-A-NPT	173873 FRC-3/4-D-5M- MIDI-A-NPT	173881 FRC-3/4-D-5M- MAXI-A-NPT	173889 FRC-1-D-5M- MAXI-A-NPT
	Mounting Brackets	159638 HFOE-D-MINI			159593 HFOE-D-MIDI / MAXI				
	Filter Cartridge (5 micron)	159640 LFP-D-MINI-5M			159594 LFP-D-MIDI-5M			159641 LFP-D-MAXI-5M	
	Adapter for Pressure Signal Conversion Unit	161207 PENV-A-H-1/8-D			161208 PENV-A-H-3/8-D				
	Threaded Bolt Set	159642 FRB-D-MINI			159595 FRB-D-MIDI			159643 FRB-D-MAXI	
Medium		Compressed air							
Design		Sintered filter with water separator, MINI, MIDI: Diaphragm-type regulator / MAXI: Piston regulator, direct constant-density lubricator							
Mounting		In line assembly or mounting brackets							
Assembly Position		Vertical ± 5°							
Connection		1/8" NPT	1/4" NPT	3/8" NPT	3/8" NPT	1/2" NPT	3/4" NPT	3/4" NPT	1" NPT
Nominal Flow*	FRC-...-D-...	25 scfm / 700 l/min	35 scfm / 1000 l/min	42 scfm / 1200 l/min	71 scfm / 2000 l/min	92 scfm / 2600 l/min	92 scfm / 2600 l/min	293 scfm / 8300 l/min	300 scfm / 8500 l/min
	FRC-...-D-7-..	28 scfm / 800 l/min	46 scfm / 1300 l/min	53 scfm / 1500 l/min	88 scfm / 2500 l/min	99 scfm / 2800 l/min	99 scfm / 2800 l/min	300 scfm / 8500 l/min	307 scfm / 8700 l/min
	FRC-...-D-5M-...	21 scfm / 600 l/min	30 scfm / 850 l/min	37 scfm / 1050 l/min	60 scfm / 1700 l/min	64 scfm / 1800 l/min	74 scfm / 2100 l/min	247 scfm / 7000 l/min	254 scfm / 7200 l/min
Primary Pressure Range	Manual Bowl Drain	15 to 240 psi / 1 to 16 bar							
	Automatic Bowl Drain**	22 to 180 psi / 1.5 to 12 bar							
Working Pressure Range		7.5 to 180 psi / 0.5 to12 bar or 7.5 to 105 psi / 0.5 to 7 bar							
Lubricator Operation Range Minimum		0.11 scfm / 3 l/min			0.21 scfm / 6 l/min			0.35 scfm / 10 l/min	
Filter Pore Size		Standard: 40 micron; cartridge Type LFP: average pore size: 5 micron							
Max. Bowl Capacity		13 cu in / 22 ml			26 cu in / 43 ml			49 cu in / 80 ml	
Temperature Range		14 to 140°F / -10 to +60°C							
Materials		Housing: GD-Zn; Filter and lubricator bowl: Polycarbonate; Metal bowl guards: Al; Seals: Buna N; Adjustment knob: PA 6							
Weight		1.543 lb / 0.700 kg			3.086 lb / 1.400 kg			5.291 lb / 2.400 kg	5.512 lb / 2.500 kg

* At upstream pressure 150 psi / 10 bar, operating pressure 90 psi / 6 bar, and $\Delta p = 15$ psi / 1 bar. With 5 micron filter cartridge, flow is approx. 20% less.

** A minimum flow of 4 scfm / 125 l/min is required for the proper result.

Filter-Regulator-Lubricator, Type FRC

Specifications, Metric Series

Order Number Part No. / Type Pressure Range 12 bar Filtration 40 Micron	Service Unit Manual Bowl Drain	159604 FRC-1/8-D-MINI	159605 FRC-1/4-D-MINI	162734 FRC-3/8-D-MINI	159588 FRC-3/8-D-MIDI	159590 FRC-1/2-D-MIDI	162735 FRC-3/4-D-MIDI	159606 FRC-3/4-D-MAXI	159607 FRC-1-D-MAXI
	Service Unit Automatic Bowl Drain	159608 FRC-1/8-D-MINI-A	159609 FRC-1/4-D-MINI-A	162736 FRC-3/8-D-MINI-A	159589 FRC-3/8-D-MIDI-A	159591 FRC-1/2-D-MIDI-A	162737 FRC-3/4-D-MIDI-A	159610 FRC-3/4-D-MAXI-A	159611 FRC-1-D-MAXI-A
Pressure Range 7 bar Filtration 40 Micron	Service Unit Manual Bowl Drain	162754 FRC-1/8-D-7-MINI	162755 FRC-1/4-D-7-MINI	162756 FRC-3/8-D-7-MINI	162757 FRC-3/8-D-7-MIDI	162758 FRC-1/2-D-7-MIDI	162579 FRC-3/4-D-7-MIDI	162760 FRC-3/4-D-7-MAXI	162761 FRC-1-D-7-MAXI
	Service Unit Automatic Bowl Drain	162762 FRC-1/8-D-7-MINI-A	162763 FRC-1/4-D-7-MINI-A	162764 FRC-3/8-D-7-MINI-A	162765 FRC-3/8-D-7-MIDI-A	162766 FRC-1/2-D-7-MIDI-A	162767 FRC-3/4-D-7-MIDI-A	162768 FRC-3/4-D-7-MAXI-A	162769 FRC-1-D-7-MAXI-A
Pressure Range 12 bar Filtration 5 Micron	Service Unit Manual Bowl Drain	162770 FRC-1/8-D-5M-MINI	162771 FRC-1/4-D-5M-MINI	162772 FRC-3/8-D-5M-MINI	162773 FRC-3/8-D-5M-MIDI	162774 FRC-1/2-D-5M-MIDI	162775 FRC-3/4-D-5M-MIDI	162776 FRC-3/4-D-5M-MAXI	162777 FRC-1-D-5M-MAXI
	Service Unit Automatic Bowl Drain	162778 FRC-1/8-D-5M-MINI-A	162779 FRC-1/4-D-5M-MINI-A	162780 FRC-3/8-D-5M-MINI-A	162781 FRC-3/8-D-5M-MIDI-A	162782 FRC-1/2-D-5M-MIDI-A	162783 FRC-3/4-D-5M-MIDI-A	162784 FRC-3/4-D-5M-MAXI-A	162785 FRC-1-D-5M-MAXI-A
	Mounting Brackets	159638 HFOE-D-MINI			159593 HFOE-D-MIDI / MAXI				
	Filter Cartridge (5 micron)	159640 LFP-D-MINI-5M			159594 LFP-D-MIDI-5M			159641 LFP-D-MAXI-5M	
	Adapter for Pressure Signal Conversion Unit	161207 PENV-A-H-1/8-D			161208 PENV-A-H-3/8				
	Threaded Bolt Set	159642 FRB-D-MINI			159595 FRB-D-MIDI			159643 FRB-D-MAXI	
Medium		Compressed air							
Design		Sintered filter with water separator, MINI, MIDI: Diaphragm-type regulator / MAXI: Piston regulator, direct constant-density lubricator							
Mounting		In line assembly or mounting brackets							
Assembly Position		Vertical ± 5°							
Connection		G 1/8 ISO	G 1/4 ISO	G 3/8 ISO	G 3/8 ISO	G 1/2 ISO	G 3/4 ISO	G 3/4 ISO	G 1 ISO
Nominal Flow*	FRC-...-D-...	25 scfm / 700 l/min	35 scfm / 1000 l/min	42 scfm / 1200 l/min	71 scfm / 2000 l/min	92 scfm / 2600 l/min	92 scfm / 2600 l/min	293 scfm / 8300 l/min	300 scfm / 8500 l/min
	FRC-...-D-7-..	28 scfm / 800 l/min	46 scfm / 1300 l/min	53 scfm / 1500 l/min	88 scfm / 2500 l/min	99 scfm / 2800 l/min	99 scfm / 2800 l/min	300 scfm / 8500 l/min	307 scfm / 8700 l/min
	FRC-...-D-5M-...	21 scfm / 600 l/min	30 scfm / 850 l/min	37 scfm / 1050 l/min	60 scfm / 1700 l/min	64 scfm / 1800 l/min	74 scfm / 2100 l/min	247 scfm / 7000 l/min	254 scfm / 7200 l/min
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Lubricator Operation Range Minimum		0.11 scfm / 3 l/min			0.21 scfm / 6 l/min			0.35 scfm / 10 l/min	
Filter Pore Size		Standard: 40 micron; cartridge Type LFP: average pore size: 5 micron							
Max. Bowl Capacity		13 cu in / 22 ml			26 cu in / 43 ml			49 cu in / 80 ml	
Temperature Range		14 to 140°F / -10 to +60°C							
Materials		Housing: GD-Zn; Filter and lubricator bowl: Polycarbonate; Metal bowl guards: Al; Seals: Buna N; Adjustment knob: PA 6							
Weight		1.543 lb / 0.700 kg			3.086 lb / 1.400 kg			5.291 lb / 2.400 kg	5.512 lb / 2.500 kg

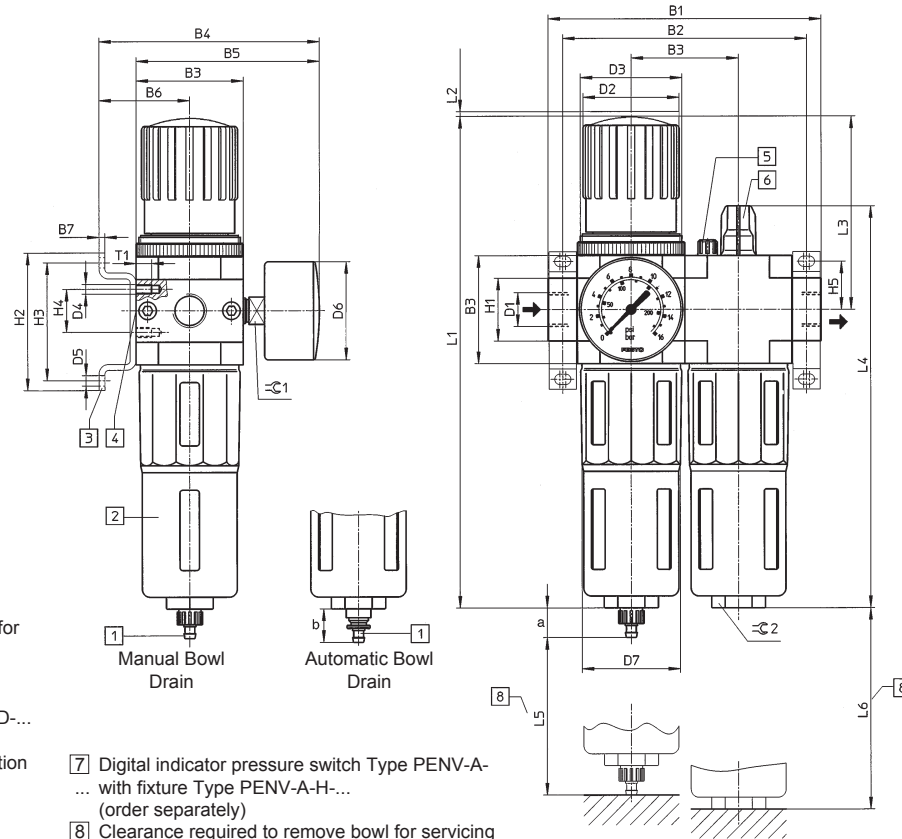
* At upstream pressure 150 psi / 10 bar, operating pressure 90 psi / 6 bar, $\Delta p = 15$ psi / 1 bar. With 5 micron filter cartridge, flow is approx. 20% less.

** A minimum flow of 4 scfm / 125 l/min is required for the proper result.

Filter-Regulator-Lubricator, Type FRC

Dimensions, INCH and Metric Series

Type FRC-...-D-...



Dimensions

- a 0.59 in / 15 mm
b 0.67 in / 17 mm

Type Inch and Metric Series	B1 in / mm	B2 in / mm	B3 in / mm	B4 in / mm	B5 in / mm	B6 in / mm	B7 in / mm	B8 in / mm	D1 Thread	D2 dia in / mm
FRC-1/8-D-MINI-...	4.09 / 104	3.62 / 92	1.57 / 40	3.78 / 96	3.03 / 77	1.54 / 39	0.08 / 2	2.74 / 69.5	1/8 NPT / G 1/8 ISO	1.22 / 31
FRC-1/4-D-MINI-...	4.09 / 104	3.62 / 92	1.57 / 40	3.78 / 96	3.03 / 77	1.54 / 39	0.08 / 2	2.74 / 69.5	1/4 NPT / G 1/4 ISO	1.22 / 31
FRC-3/8-D-MINI-...	4.33 / 110	3.62 / 92	1.57 / 40	3.78 / 96	3.03 / 77	1.54 / 39	0.08 / 2	2.74 / 69.5	3/8 NPT / G 3/8 ISO	1.22 / 31
FRC-3/8-D-MIDI-...	5.51 / 140	4.92 / 125	2.17 / 55	4.45 / 113	3.70 / 94	1.85 / 47	0.12 / 3	3.33 / 84.5	3/8 NPT / G 3/8 ISO	1.97 / 50
FRC-1/2-D-MIDI-...	5.51 / 140	4.92 / 125	2.17 / 55	4.45 / 113	3.70 / 94	1.85 / 47	0.12 / 3	3.33 / 84.5	1/2 NPT / G 1/2 ISO	1.97 / 50
FRC-3/4-D-MIDI-...	5.51 / 140	4.92 / 125	2.17 / 55	4.45 / 113	3.70 / 94	1.85 / 47	0.12 / 3	3.33 / 84.5	3/4 NPT / G 3/4 ISO	1.97 / 50
FRC-3/4-D-MAXI-...	6.38 / 162	5.79 / 147	2.60 / 66	4.92 / 125	4.13 / 105	2.09 / 53	0.12 / 3	3.84 / 97.5	3/4 NPT / G 3/4 ISO	1.22 / 31
FRC-1-D-MAXI-...	7.17 / 182	6.18 / 157	2.60 / 66	4.92 / 125	4.13 / 105	2.09 / 53	0.12 / 3	3.84 / 97.5	1 NPT / G 1 ISO	1.22 / 31
Type Inch and Metric Series	D3 Mounting Nut Thread	D4 Thread	D5 dia in / mm	D6 dia in / mm	D7 dia in / mm	H1 in / mm	H2 in / mm	H3 in / mm	H4 in / mm	H5 in / mm
FRC-1/8-D-MINI-...	M36 x 1.5	M4	0.17 / 4.3	1.54 / 39	1.50 / 38	0.79 / 20	1.69 / 43	1.38 / 35	0.43 / 11	0.69 / 17.5
FRC-1/4-D-MINI-...	M36 x 1.5	M4	0.17 / 4.3	1.54 / 39	1.50 / 38	0.79 / 20	1.69 / 43	1.38 / 35	0.43 / 11	0.69 / 17.5
FRC-3/8-D-MINI-...	M36 x 1.5	M4	0.17 / 4.3	1.54 / 39	1.50 / 38	0.79 / 20	1.69 / 43	1.38 / 35	0.43 / 11	0.69 / 17.5
FRC-3/8-D-MIDI-...	M52 x 1.5	M5	0.21 / 5.3	2.01 / 51	2.05 / 52	1.26 / 32	2.76 / 70	2.36 / 60	0.87 / 22	0.96 / 24.5
FRC-1/2-D-MIDI-...	M52 x 1.5	M5	0.21 / 5.3	2.01 / 51	2.05 / 52	1.26 / 32	2.76 / 70	2.36 / 60	0.87 / 22	0.96 / 24.5
FRC-3/4-D-MIDI-...	M52 x 1.5	M5	0.21 / 5.3	2.01 / 51	2.05 / 52	1.26 / 32	2.76 / 70	2.36 / 60	0.87 / 22	0.96 / 24.5
FRC-3/4-D-MAXI-...	M36 x 1.5	M5	0.21 / 5.3	2.01 / 51	2.56 / 65	1.26 / 32	2.76 / 70	2.36 / 60	0.87 / 22	0.96 / 24.5
FRC-1-D-MAXI-...	M36 x 1.5	M5	0.21 / 5.3	2.01 / 51	2.56 / 65	1.57 / 40	2.76 / 70	2.36 / 60	0.87 / 22	0.96 / 24.5
Type Inch and Metric Series	L1 in / mm	L2 in / mm	L3 in / mm	L4 in / mm	L5 min in / mm	L6 in / mm	T1 in / mm	1 mm	2 mm	
FRC-1/8-D-MINI-...	7.64 / 194	0.08 / 2	2.76 / 70	6.65 / 169	2.36 / 60	3.94 / 100	0.28 / 7	12	22	
FRC-1/4-D-MINI-...	7.64 / 194	0.08 / 2	2.76 / 70	6.65 / 169	2.36 / 60	3.94 / 100	0.28 / 7	12	22	
FRC-3/8-D-MINI-...	7.64 / 194	0.08 / 2	2.76 / 70	6.65 / 169	2.36 / 60	3.94 / 100	0.28 / 7	12	22	
FRC-3/8-D-MIDI-...	9.84 / 250	0.08 / 2	3.86 / 98	8.11 / 206	3.15 / 80	4.72 / 120	0.31 / 8	14	24	
FRC-1/2-D-MIDI-...	9.84 / 250	0.08 / 2	3.86 / 98	8.11 / 206	3.15 / 80	4.72 / 120	0.31 / 8	14	24	
FRC-3/4-D-MIDI-...	9.84 / 250	0.08 / 2	3.86 / 98	8.11 / 206	3.15 / 80	4.72 / 120	0.31 / 8	14	24	
FRC-3/4-D-MAXI-...	9.92 / 252	0.08 / 2	3.23 / 82	8.78 / 223	3.54 / 90	5.91 / 150	0.31 / 8	14	24	
FRC-1-D-MAXI-...	9.92 / 252	0.08 / 2	3.23 / 82	8.78 / 223	3.54 / 90	5.91 / 150	0.31 / 8	14	24	