

# MANN micro-Top Spin-on filters for lube and hydraulic oils



# MANN micro-Top Spin-on filters

MANN Spin-on filters are fine filters used for the filtration of lube and hydraulic oils as well as in engines, machines and installations. The fineness of the MANN micro-Top filter elements (star-pleated paper) is in the  $\mu\text{m}$  range.

## Design

The MANN micro-Top filter element is fixed into the housing. The inlet and outlet for the liquid to be filtered are located in the threaded cover. The spin-on filters are simply screwed on specially provided connections on engines and machines.



## Operation

Spin-on filters are generally used as full-flow filters, i.e. they are installed in the circuit in a way ensuring that all the liquid to be cleaned passes through them every time it circulates.

Deposit of dirt particles on the paper element causes the flow resistance to increase.

When a certain differential pressure is reached (e.g. upon cold start or when the filtering element is clogged), a bypass valve in the filter opens, ensuring sufficient lubrication.

For the opening pressure of the bypass valve, please see the relevant table.

An optionally integrated non-return valve prevents the running dry of the filter. In this way the operating pressure is reached quickly after starting the engine.

# MANN micro-Top Spin-on filters

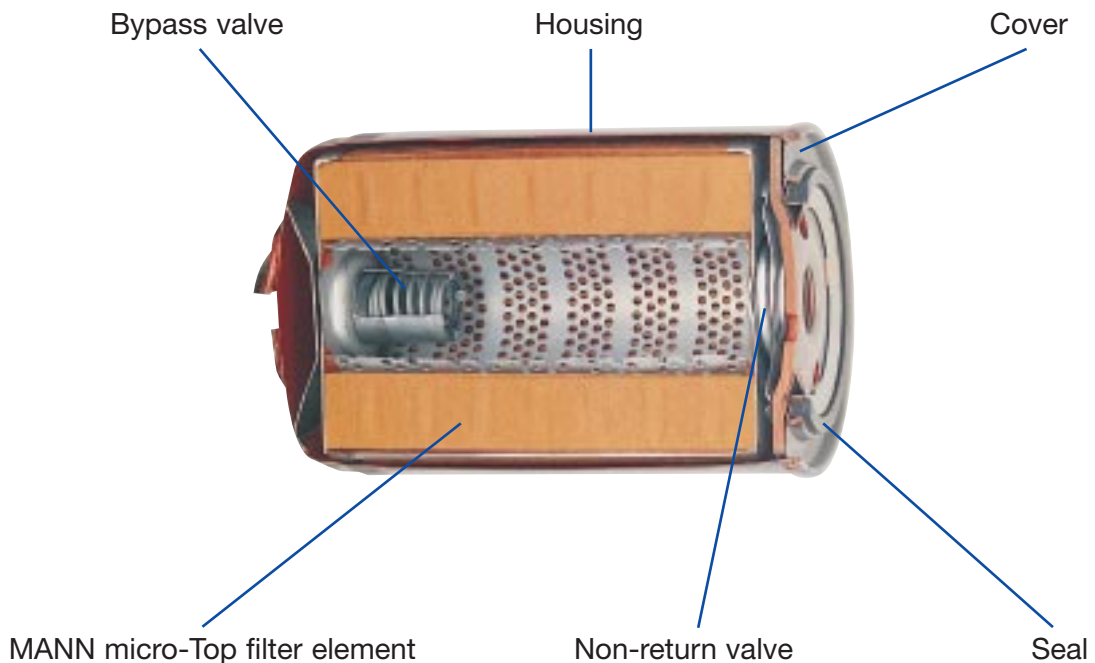
## Maintenance

Usually, the maintenance frequency is determined by the engine or machine manufacturer. The maintenance work to be performed is limited to the replacement of the complete spin-on filter. The removal tool shown on page 12 helps in loosening the filter.

On the Spin-on filters suitable for pressures up to 14 bar (1.4 MPa), an integrated non-return valve prevents oil to flow out during the servicing.

## Configuration

The stated values in the table are standard which – depending on the application – can be adjusted upwards. For further information please ask your sales engineer.



## Technical data

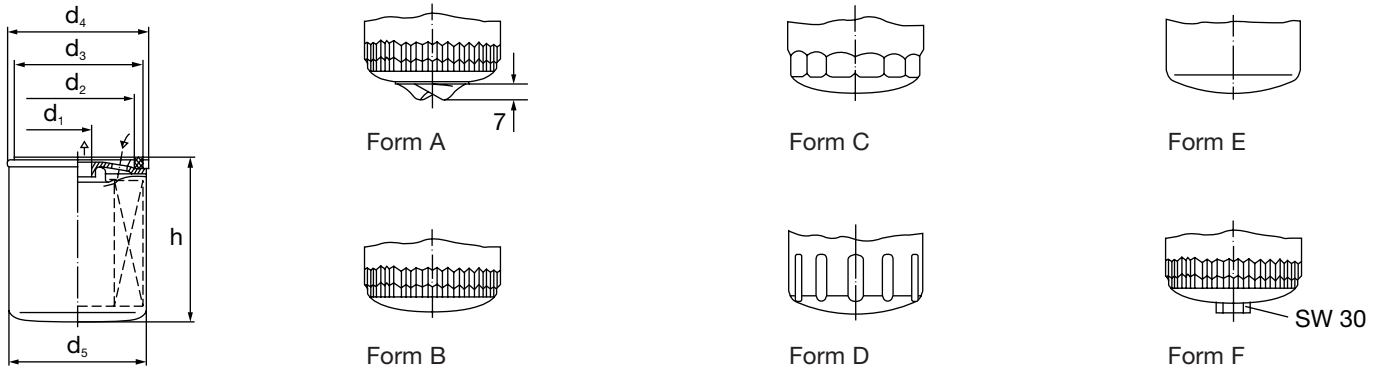
Filter fineness:	12 µm 50 % fractional separation efficiency (single pass) 30 µm 99 % fractional separation efficiency (single pass) Other filter fineness upon request
Nominal flow rate:	25 to 540 l/min.
Operating pressure:	14; 20; 25 or 35 bar (1.4; 2; 2.5 or 3.5 MPa)
Operating temperature:	Max. 120 °C
Bypass valve:	Opens at differential pressures of 0.8 to 2.5 / 3.5 bar with or without non-return valve

# MANN micro-Top Spin-on filters

## Nominal pressure 14 bar (1.4 MPa)

Spin-on filters for this pressure range are used primarily for the filtration of lube oils. Applications for other liquids upon request.

- Opening pressure of bypass: 0.8 to 2.5 bar (80 to 250 kPa).
- With non-return valve.



### Filter mounting: metric thread

Part No.	Form	Nominal flow rate [l/min]	Dimensions in mm and inches						Non-return valve [bar] [KPa]		Bypass valve [bar] [KPa]	
			d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	h				
W 712/15	D	15	M 18x1.5	62	71	80	76	94	0.12	12	1.0	100
W 815	D	20	M 20x1.5	62	71	90	86	89	0.12	12	1.5	150
W 920/25	B	20	M 20x1.5	62	71	96	93	95	0.12	12	0.8	80

### Filter mounting: unified thread in inches

Part No.	Form	Nominal flow rate [l/min]	Dimensions in mm and inches						Non-return valve [bar] [KPa]		Bypass valve [bar] [KPa]		Short designation to DIN ISO 71457
			d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	h					
W 712/1	C	12	3/4 – 16 UNF	62	71	80	76	79	0.12	12	–	–	–
W 712/4	C	15	3/4 – 16 UNF	62	71	80	76	93	0.12	12	2.5	250	A 0.4
W 719/4	C	20	3/4 – 16 UNF	62	71	80	76	123	0.12	12	2.5	250	–
W 920	A	25	3/4 – 16 UNF	62	71	96	93	95	0.12	12	2.5	250	B 0.5
W 920/7	B	25	3/4 – 16 UNF	62	71	96	93	95	0.12	12	1.2	120	–
W 930	A	25	3/4 – 16 UNF	62	71	96	93	114	0.12	12	2.5	250	B 0.6
W 940	A	40	3/4 – 16 UNF	62	71	96	93	142	0.12	12	2.5	250	B 0.8
W 940/1	B	40	3/4 – 16 UNF	62	71	96	93	142	0.12	12	1.2	120	–
W 940/13	F	40	3/4 – 16 UNF	62	71	96	93	142	0.12	12	2.5	250	–
W 940/18	B	40	1 – 12 UNF	62	71	96	93	142	0.12	12	2.5	250	A 0.8x1
W 950	B	45	1 – 12 UNF	62	71	96	93	170	0.12	12	2.5	250	A 1
W 950/1	B	45	1 – 12 UNF	62	71	96	93	170	0.12	12	1.2	120	–
W 962	B	70	1 – 12 UNF	62	71	96	93	210	0.12	12	2.5	250	A 1.2
W 962/2	A	70	1 – 12 UNF	62	71	96	93	210	0.12	12	2.5	250	B 1.2
W 1130	C	30	3/4 – 16 UNF	62	71	110	108	115	0.12	12	1.0	100	–
W 1140	C	45	3/4 – 16 UNF	62	71	110	108	135	0.12	12	1.2	120	–
W 1170	C	70	1 – 12 UNF	62	71	110	108	227	0.12	12	1.2	120	–
W 11 102	C	100	1 1/8 – 16 UN	93	104	110	108	260	0.12	12	2.5	250	–
W 1374/2	E	85	G 1 1/4	100	111	140	136	177	–	–	–	–	–
W 1374/4	E	85	1 1/2 – 16 UN – 2 B	100	111	140	136	177	–	–	0.2	20	–

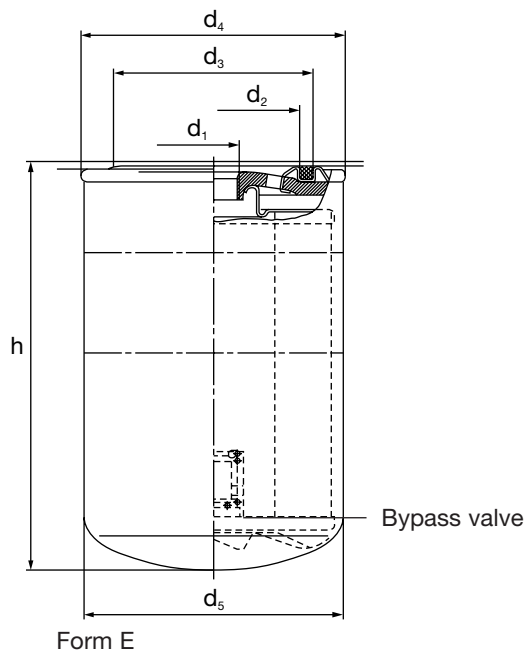
# MANN micro-Top Spin-on filters

Nominal pressure 35/25/20 bar (3.5/2.5/2.0 MPa)



Spin-on filters for this pressure range are used primarily for the filtration of hydraulic oils in compliance with DIN 51 524 and DIN 51 525. Applications for other liquids upon request.

- Opening pressure of bypass: 0.8 to 2.5 bar (80 to 350 KPa).



## Filter mounting: unified thread in inches

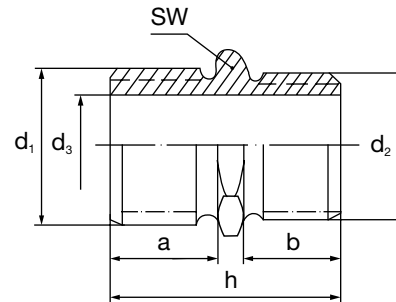
Part No.	Form	Nominal flow rate <sup>1)</sup> [l/min]	Dimensions in mm and inches						Bypass valve [bar] [KPa]		Maximum operating pressure [bar] [MPa]	
			d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	h				
<b>WD 724/3</b>	E	20	<sup>3</sup> / <sub>4</sub> – 16 UNF	62	71	80	76	140	3.5	350	35	3.5
<b>WD 920</b>	E	25	<sup>3</sup> / <sub>4</sub> – 16 UNF	62	71	96	93	97	2.5	250	25	2.5
<b>WD 940</b>	E	40	<sup>3</sup> / <sub>4</sub> – 16 UNF	62	71	96	93	144	2.5	250	25	2.5
<b>WD 940/2</b>	E	35	1 – 12 UNF	62	71	96	93	144	2.5	250	25	2.5
<b>WD 950</b>	E	40	1 – 12 UNF	62	71	96	93	172	2.5	250	25	2.5
<b>WD 950/2</b>	E	50	1 – 12 UNF	62.5	72.5	98	96	170	3.5	350	25	2.5
<b>WD 962</b>	E	70	1 – 12 UNF	62	71	96	93	212	2.5	250	25	2.5
<b>WD 1374</b>	E	95	1½ – 16 UN	100	111	140	136	177	–	–	20	2.0
<b>WD 13 145</b>	E	180	1½ – 16 UN	100	111	140	136	302	2.5	250	20	2.0

<sup>1)</sup> Flow resistance 0.3-0.6 at 36 mm<sup>2</sup>/sec.

# Accessories for MANN micro-Top Spin-on filters

## Double union

When the mounting plate is provided with a female thread, a double union is required for the assembly of the filter.

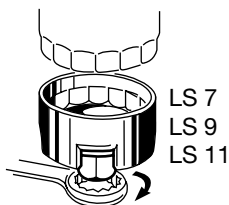


## Dimensions and part numbers

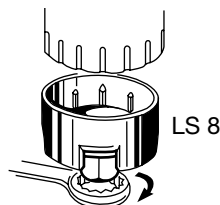
Part No.	Dimensions in mm and inches						
	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	a	b	h	SW
21 018 15 331	M 18x1.5	M 18x1.5	12	10	10	25	24
21 019 15 111	<sup>3</sup> / <sub>4</sub> – 16 UNF	M 18x1.5	13	17	14.5	35.5	24
21 025 15 101	1 – 12 UNF	M 24x1.5	18	17	15.5	37	27
21 030 15 251	1 <sup>1</sup> / <sub>8</sub> – 16 UN	M 30x1.5	22	17.5	17.5	40	32
21 039 15 101	1 <sup>1</sup> / <sub>2</sub> – 16 UN	M 38x1.5	30	19.5	15	41	46

## Removal tool

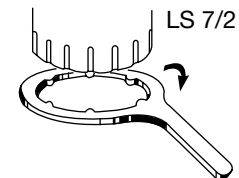
For easy disassembly of the MANN micro-Top Spin-on filters.



Form B  
Form C



Form D



Form D

Mann micro-Top Spin-on Filters	W 7 ...		W 8 ...	W 9 ...	W 11 ...
Filter form	C	D	D	B	C
Suited MANN removal tool	LS 7	LS 7/2	LS 8	LS 9	LS 11

Form A (see page 10) with loosening cam only requires a heavy screwdriver or a round bar, 8 to 10 mm thick, for disassembly.

Form E (see page 10 and 11) requires the strap-type tool commercially available.