

## Filter elements for liquid filters

### Degree of filtration 2 $\mu\text{m}$ up to 500 $\mu\text{m}$

Nominal size 5 up to 1800  
Differential pressure resistant up to 210 bar (3045 psi)

#### 1. Features

##### High performance elements for nearly all fluids

- PS: new MAHLE Premium Select high performance disposal filter elements with innovativ design for hydraulic oils and lubricants, fuels, aqueous media and synthetic media
- Sm-N: disposal deep filtration elements with highest degree of filtration and dirt holding capacity
- Sm-x: standard disposal glass fibre filter elements for various applications
- Mic: inexpensive disposable filter elements
- Drg: cleanable surface filter element, made of wire mesh
- KS-Mic: high efficient disposable depth filter elements for cooling emulsions
- WS-Mic WS-PS and WS-Sm-x: Filter elements with additional water absorption ability
- Designed for MAHLE filter housings, as alternative elements in the dimensions of other manufacturers and according to a customized specification
- Complete product range according DIN 24550
- Beta rated elements according to ISO 16889 multipass test
- Elements with high differential pressure stability and dirt holding capacity
- Worldwide distribution

## 2. Preface

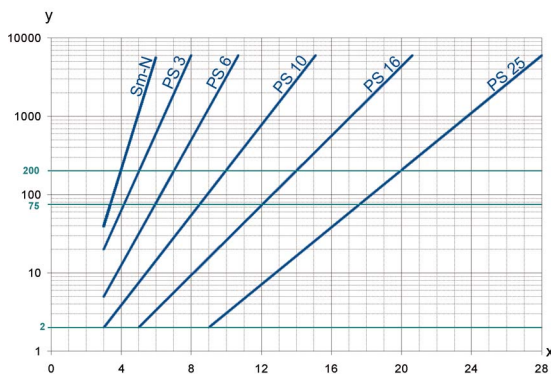
Filter elements are the virtual part of a filter through which the filtration process is realised. For the different liquids and applications MAHLE developed different filter materials. Therefore a variety of elements are available which would fit into the same housing, but would suit different applications.

### 3.1 Filter material PS and Sm-N

Depth filters consisting of several layers of glass fibre (progressive design) to filter hydraulic oils and lubricants, flame resistant liquids, fuels and synthetic liquids.

- PS is available in ratings of 5 µm (c), 7 µm (c), 10 µm (c), 15 µm (c) and 20 µm (c) according to ISO 16889 (3µm, 6 µm, 10 µm, 16 µm and 25 µm according to ISO 4572) with a very high dirt holding capacity and simultaneous very low flow resistance.
- Sm-N 2 is available in ratings of 4 µm (c) according to ISO 16889 (2 µm according to ISO 4572) with an extremely high dirt holding capacity for very demanding requirements in regards to the filtration quality, for off-line filtration and for single-pass applications.

#### Separation grade characteristics



y = beta-value

x = particle size [µm]

determined by multipass tests (ISO 16889)  
calibration according to ISO 11171 (NIST)

In a hydraulic or lubrication system a filter has the task to reduce the contamination to the accepted cleanliness level and to keep it for as long as possible. For the identification of solid particles in industrial hydraulics it is common practice to count particles according to ISO 4406. Subsequently the achievable cleanliness classes of the Sm-x and Sm-N. These values mirror our longtime experience in designing hydraulic filters and could be considered as guide values.

#### Filter performance data

tested according to ISO 16889 (multipass test)

Sm-x/Sm-N elements with max. Δp 10 bar

Sm-N	2	$\beta_{4(C)}$	$\geq 200$
PS	3	$\beta_{5(C)}$	$\geq 200$
PS	6	$\beta_{7(C)}$	$\geq 200$
PS	10	$\beta_{10(C)}$	$\geq 200$
PS	16	$\beta_{15(C)}$	$\geq 200$
PS	25	$\beta_{20(C)}$	$\geq 200$

values guaranteed up to 10 bar differential pressure.

The filter element Sm-N2 is an element with very high dirt holding capacity and is preferred to be used in off-line filtration.

#### Cleanliness classes

Filter material	Cleanliness classes according to ISO 4406 (1999), > 4 µm(c)/ > 6 µm (c)/ >14 µm (c)
Sm-N 2	13/11/08
PS 3	14/12/09
PS 6	16/13/10
PS 10	17/15/11
PS 16	20/17/12
PS 25	23/19/13

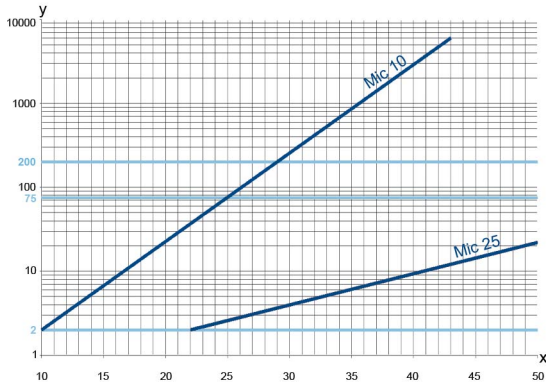
### 3.2 Filter material Sm-x

Deep filters with glasfibre filter material for all purposes. Filter performance, retention rates and the achievable cleanliness classes are fully corresponding to the new PS filter material.

### 3.3 Filter material Mic

Depth filters made of cellulose or glass fibre layers with a high dirt holding capacity and a low flow resistance. Degree of filtration 10 µm and 25 µm according to MAHLE norm. Use in hydraulic oil and lubricants filtration as suction filter as well as low cost filtration in plants with minor demands in regards to the filtrat quality.

#### Separation grade characteristics



y = beta-value  
x = particle size [µm]

#### Filter performance data

tested according to ISO 16889 (multipass test)

Mic	10	$\beta_{10}$	$\geq 2$
Mic	25	$\beta_{25}$	$\geq 2$

determined by multipass tests (ISO 16889)  
calibration according to ISO 11171 (NIST)

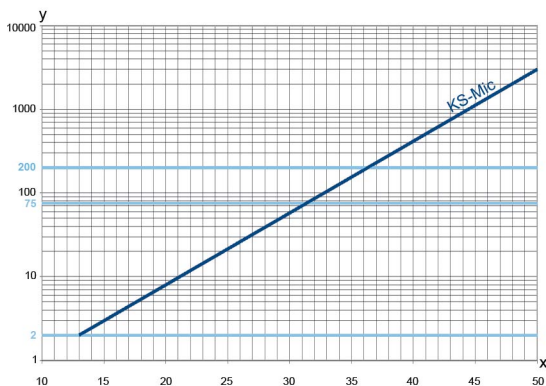
### 3.4 Filter material Drg

Surface filters made of stainless steel wire mesh with a very low flow resistance designed in the following weaves: plait, twill and linen. Degree of filtration 10 µm, 25 µm, 40 µm, 60 µm, 100 µm, 200 µm, 300 µm and 500 µm. For a wire mesh filter element the degree of filtration is determined by the largest diameter of a globular particle which would be able to pass the fabric. Wire mesh filter elements are used in hydraulic oil and lubricants filtration as suction or coarse filters, for high viscose fluids as well as safety filters for coolant filtration. Wire mesh elements possess a defined removal size as surface filter and a low dirt holding capacity as depth filter.

### 3.5 Filter material KS-Mic

Depth filter consisting of several, coordinated, binder-free polyester materials with a very high dirt holding capacity and low flow resistance. Degree of filtration: 25 µm according to MAHLE norm. Use as disposable filter in coolant filtration.

#### Separation grade characteristics



y = beta-value  
x = particle size [µm]

#### Filter performance data

tested according to ISO 16889 (multipass test)

KS-Mic	25	$\beta_{25}$	$\geq 5$
--------	----	--------------	----------

determined by multipass tests (ISO 16889)  
calibration according to ISO 11171 (NIST)

### 3.6 Filter materials WS-Mic, WS-Sm-x and WS-Sm-N

MAHLE WS-elements for water removal are available as water absorber elements WS-Mic 25 with a low filter efficiency for particles or in combination with the highly efficient Sm-N 2 and Sm-x 10 configuration. A super absorber will change its chemical structure while absorbing water and indicates the amount of absorbed free water by an increase of flow resistance. The free water will be absorbed until the saturation limit is reached. WS-elements are applicable for all common lubrication and hydraulic fluids. The filter property complies with the corresponding Mic-, Sm-x- and Sm-N 2 element. The flow resistance of a water-free liquid would be insignificantly higher.

## 4. Quality assurance

MAHLE filters and filter elements are produced according to the following international standards:

Norm	Designation
DIN ISO 2941	Hydraulic fluid power filter elements; verification of collapse/burst resistance
DIN ISO 2942	Hydraulic fluid power filter elements; verification of fabrication integrity
DIN ISO 2943	Hydraulic fluid power filter elements; verification of material compatibility with fluids
DIN ISO 3723	Hydraulic fluid power filter elements; method for end load test
DIN ISO 3724	Hydraulic fluid power filter elements; verification of flow fatigue characteristics
ISO 3968	Hydraulic fluid power-filters-evaluation of pressure drop versus flow characteristics
ISO 10771.1	Fatigue pressure testing of metal containing envelopes in hydraulic fluid applications
ISO 16889	Hydraulic fluid power filters-multipass method for evaluation filtration performance of a filter element

## 5. Technical specifications

Pleated filter elements

Flow direction from outside to inside

Corrosion protected, chrome VI free, end caps and support tube

Burst pressure resistance up to 210 bar

Filter material and filter area see table

Temperature range of application: -10 °C to +120 °C

Possible applications see description „Filter material“ chapter 3.1

Standard sealings for DIN elements: NBR, other sealing materials available on request

Elements with stainless steel parts available on request

## 6.1 Type number key and order numbers filter elements for in-line filters

### 6.1.1 Type number key filter elements for in-line filters

#### Type

Pi in-line filter

#### Filter material and degree of filtration

<b>01</b>	Sm-N 2
<b>10</b>	Mic 25
<b>11</b>	Mic 10
<b>21</b>	PS 3
<b>22</b>	PS vst 3
<b>31</b>	PS 10
<b>32</b>	PS vst 10
<b>41</b>	PS 25
<b>42</b>	PS vst 25
<b>51</b>	PS 6
<b>52</b>	PS vst 6
<b>81</b>	Drg 10
<b>82</b>	Drg 25
<b>83</b>	Drg 40
<b>84</b>	Drg 60
<b>85</b>	Drg 100
<b>86</b>	Drg 200
<b>87</b>	Drg 300
<b>88</b>	Drg 500
<b>89</b>	Drg special version
<b>91</b>	Drg vst 10
<b>92</b>	Drg vst 25
<b>93</b>	Drg vst 40
<b>94</b>	Drg vst 60
<b>95</b>	Drg vst 100
<b>96</b>	Drg vst 200
<b>97</b>	Drg vst 300
<b>98</b>	Drg vst 500
<b>99</b>	metal edge

#### Nominal size

<b>05</b>	NG 50
<b>08</b>	NG 80
<b>11</b>	NG 110
<b>15</b>	NG 150
<b>30</b>	NG 300
<b>45</b>	NG 450

Pi      **10**      **05**      Selection example

**6.1.2 Filter elements\* for in-line filters**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	
50	77576630	Pi 1105 Mic 10	Mic 10	20	640	
	77718620	Pi 1005 Mic 25	Mic 25		640	
	77680135	Pi 2105 PS 3	PS 3		590	
	77943509	Pi 5105 PS 6	PS 6		590	
	77680325	Pi 3105 PS 10	PS 10		590	
	77680440	Pi 4105 PS 25	PS 25		590	
	77680192	Pi 2205 PS vst 3	PS vst 3	210	470	
	77943533	Pi 5205 PS vst 6	PS vst 6		470	
	77680382	Pi 3205 PS vst 10	PS vst 10		470	
	77680507	Pi 4205 PS vst 25	PS vst 25		470	
	77680895	Pi 8105 Drg 10	Drg 10	20	590	
	77680911	Pi 8205 Drg 25	Drg 25		590	
	77680960	Pi 8305 Drg 40	Drg 40		590	
	77576648	Pi 8405 Drg 60	Drg 60		365	
	77681067	Pi 8505 Drg 100	Drg 100		590	
	77718687	Pi 8605 Drg 200	Drg 200		365	
	77718703	Pi 8705 Drg 300	Drg 300		365	
	77718695	Pi 8805 Drg 500	Drg 500		590	
	77689102	Pi 9105 Drg vst 10	Drg vst 10		210	470
	77689128	Pi 9205 Drg vst 25	Drg vst 25			470
	77689169	Pi 9305 Drg vst 40	Drg vst 40	470		
	77689219	Pi 9405 Drg vst 60	Drg vst 60	470		
	77689276	Pi 9505 Drg vst 100	Drg vst 100	470		
	77740921	Pi 9605 Drg vst 200	Drg vst 200	470		
	77740939	Pi 9705 Drg vst 300	Drg vst 300	470		
	77740947	Pi 9805 Drg vst 500	Drg vst 500	470		
	on request	on request	KS-Mic25	20	-	
	on request	on request	Sm-N 2		-	
	80	77680085	Pi 1108 Mic 10	Mic 10	20	1250
		77657174	Pi 1008 Mic 25	Mic 25		1250
77680143		Pi 2108 PS 3	PS 3	1150		
77943517		Pi 5108 PS 6	PS 6	1150		
77680341		Pi 3108 PS 10	PS 10	1150		
77680457		Pi 4108 PS 25	PS 25	1150		
77680200		Pi 2208 PS vst 3	PS vst 3	210	900	
77943541		Pi 5208 PS vst 6	PS vst 6		900	
77681190		Pi 3208 PS vst 10	PS vst 10		900	
77680515		Pi 4208 PS vst 25	PS vst 25		900	
77718737		Pi 8108 Drg 10	Drg 10	20	1150	
77680929		Pi 8208 Drg 25	Drg 25		1150	
77680978		Pi 8308 Drg 40	Drg 40		1150	
77681018		Pi 8408 Drg 60	Drg 60		725	

\* A wider range of element types is available on request.

**6.1.2 Filter elements\* for in-line filters**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	
80	77681075	Pi 8508 Drg 100	Drg 100	20	1150	
	77718711	Pi 8608 Drg 200	Drg 200		725	
	77668528	Pi 8708 Drg 300	Drg 300		725	
	77718729	Pi 8808 Drg 500	Drg 500		1150	
	77689110	Pi 9108 Drg vst 10	Drg vst 10	210	950	
	77740954	Pi 9208 Drg vst 25	Drg vst 25		950	
	77740970	Pi 9308 Drg vst 40	Drg vst 40		950	
	77689227	Pi 9408 Drg vst 60	Drg vst 60		950	
	77740962	Pi 9508 Drg vst 100	Drg vst 100		950	
	77740988	Pi 9608 Drg vst 200	Drg vst 200		950	
	77740996	Pi 9708 Drg vst 300	Drg vst 300		950	
	77741002	Pi 9808 Drg vst 500	Drg vst 500		950	
	on request	on request	KS-Mic 25		20	-
	on request	on request	SM-N 2			-
110	77680093	Pi 1111 Mic 10	Mic 10	20	1840	
	77657182	Pi 1011 Mic 25	Mic 25		1840	
	77680150	Pi 2111 PS 3	PS 3		1700	
	77943525	Pi 5111 PS 6	PS 6		1700	
	77680333	Pi 3111 PS 10	PS 10		1700	
	77680465	Pi 4111 PS 25	PS 25		1700	
	77680218	Pi 2211 PSvst 3	PS vst 3	210	1275	
	77943558	Pi 5211 PS vst 6	PS vst 6		1275	
	77680390	Pi 3211 PS vst 10	PS vst 10		1275	
	77680523	Pi 4211 PS vst 25	PS vst 25		1275	
	77680903	Pi 8111 Drg 10	Drg 10	20	1700	
	77680937	Pi 8211 Drg 25	Drg 25		1700	
	77680986	Pi 8311 Drg 40	Drg 40		1700	
	77681026	Pi 8411 Drg 60	Drg 60		1080	
	77718778	Pi 8511 Drg 100	Drg 100		1700	
	77718760	Pi 8611 Drg 200	Drg 200		1080	
	77718752	Pi 8711 Drg 300	Drg 300		1080	
	77718745	Pi 8811 Drg 500	Drg 500		1700	
	77741010	Pi 9111 Drg vst 10	Drg vst 10		210	1410
	77689136	Pi 9211 Drg vst 25	Drg vst 25			1410
	77689177	Pi 9311 Drg vst 40	Drg vst 40	1410		
	77689235	Pi 9411 Drg vst 60	Drg vst 60	1410		
	77689284	Pi 9511 Drg vst 100	Drg vst 100	1410		
	77668544	Pi 9611 Drg vst 200	Drg vst 200	1410		
	77668551	Pi 9711 Drg vst 300	Drg vst 300	1410		
	77741028	Pi 9811 Drg vst 500	Drg vst 500	1410		
	76182067	Pi 1011 KS-Mic 25	KS-Mic 25	20		1240
	on request	on request	Sm-N 2			-

\* A wider range of element types is available on request.

### 6.1.2 Filter elements\* for in-line filters

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	
150	77680101	Pi 1115 Mic 10	Mic 10	20	2565	
	77657190	Pi 1015 Mic 25	Mic 25		2565	
	77680168	Pi 2115 PS 3	PS 3		2425	
	77955099	Pi 5115 PS 6	PS 6		2425	
	77680358	Pi 3115 PS 10	PS 10		2425	
	77680473	Pi 4115 PS 25	PS 25		2425	
	77680226	Pi 2215 PS vst 3	PS vst 3	210	2010	
	77955123	Pi 5215 PS vst 6	PS vst 6		2010	
	77680408	Pi 3215 PS vst 10	PS vst 10		2010	
	77680531	Pi 4215 PS vst 25	PS vst 25		2010	
	77711120	Pi 8115 Drg 10	Drg 10	20	2250	
	77680945	Pi 8215 Drg 25	Drg 25		2250	
	77680994	Pi 8315 Drg 40	Drg 40		2250	
	77681034	Pi 8415 Drg 60	Drg 60		1575	
	77681083	Pi 8515 Drg 100	Drg 100		2250	
	77711138	Pi 8615 Drg 200	Drg 200		1575	
	77711146	Pi 8715 Drg 300	Drg 300		1575	
	77711153	Pi 8815 Drg 500	Drg 500		2250	
	77741036	Pi 9115 Drg vst 10	Drg vst 10		210	1800
	77689144	Pi 9215 Drg vst 25	Drg vst 25			1800
	77689185	Pi 9315 Drg vst 40	Drg vst 40	1800		
	77689243	Pi 9415 Drg vst 60	Drg vst 60	1800		
	77689292	Pi 9515 Drg vst 100	Drg vst 100	1800		
	77741044	Pi 9615 Drg vst 200	Drg vst 200	1800		
	77741051	Pi 9715 Drg vst 300	Drg vst 300	1800		
	77741069	Pi 9815 Drg vst 500	Drg vst 500	1800		
	on request	on request	KS-Mic 25	20	-	
	76373112	Pi 0115 SM-N 2	Sm-N 2		2150	
	300	77680119	Pi 1130 Mic 10	Mic 10	20	4885
		77657208	Pi 1030 Mic 25	Mic 25		4885
77680176		Pi 2130 PS 3	PS 3	4620		
77955107		Pi 5130 PS 6	PS 6	4620		
77680366		Pi 3130 PS 10	PS 10	4620		
77680481		Pi 4130 PS 25	PS 25	4620		
77680234		Pi 2230 PS vst 3	PS vst 3	210	3800	
77955131		Pi 5230 PS vst 6	PS vst 6		3800	
77680416		Pi 3230 PS vst 10	PS vst 10		3800	
77680549		Pi 4230 PS vst 25	PS vst 25		3800	
77718810		Pi 8130 Drg 10	Drg 10	20	4280	
77680952		Pi 8230 Drg 25	Drg 25		4280	
77718802		Pi 8330 Drg 40	Drg 40		4280	
77681042		Pi 8430 Drg 60	Drg 60		2975	

\* A wider range of element types is available on request.



**6.1.2 Filter elements\* for in-line filters**

Nominal size NG [l/min]	Order number	Type	Filter material	max. Δ p [bar]	Filter surface [cm <sup>2</sup> ]	
300	77689078	Pi 8530 Drg 100	Drg 100	20	4280	
	77668510	Pi 8630 Drg 200	Drg 200		2975	
	77718786	Pi 8730 Drg 300	Drg 300		2975	
	77718794	Pi 8830 Drg 500	Drg 500		4280	
	77741077	Pi 9130 Drg vst 10	Drg vst 10	210	3400	
	77689151	Pi 9230 Drg vst 25	Drg vst 25		3400	
	77689193	Pi 9330 Drg vst 40	Drg vst 40		3400	
	77689250	Pi 9430 Drg vst 60	Drg vst 60		3400	
	77689300	Pi 9530 Drg vst 100	Drg vst 100		3400	
	77741085	Pi 9630 Drg vst 200	Drg vst 200		3400	
	77741093	Pi 9730 Drg vst 300	Drg vst 300		3400	
	77741101	Pi 9830 Drg vst 500	Drg vst 500		3400	
	78268625	Pi 1030 KS-Mic 25	KS-Mic 25	20	4190	
	77879877	Pi 0130 Sm-N 2	Sm-N 2		4215	
450	77680127	Pi 1145 Mic 10	Mic 10	20	7265	
	77711161	Pi 1045 Mic 25	Mic 25		7265	
	77680184	Pi 2145 PS 3	PS 3		6865	
	77955115	Pi 5145 PS 6	PS 6		6865	
	77680374	Pi 3145 PS 10	PS 10		6865	
	77680499	Pi 4145 PS 25	PS 25		6865	
	77680242	Pi 2245 PS vst 3	PS vst 3	210	5600	
	77955149	Pi 5245 PS vst 6	PS vst 6		5600	
	77680424	Pi 3245 PS vst 10	PS vst 10		5600	
	77680556	Pi 4245 PS vst 25	PS vst 25		5600	
	77711179	Pi 8145 Drg 10	Drg 10	20	6370	
	77711187	Pi 8245 Drg 25	Drg 25		6370	
	77681000	Pi 8345 Drg 40	Drg 40		6370	
	77681059	Pi 8445 Drg 60	Drg 60		4410	
	77689094	Pi 8545 Drg 100	Drg 100		6370	
	77725534	Pi 8645 Drg 200	Drg 200		4410	
	77725559	Pi 8745 Drg 300	Drg 300		4410	
	77725542	Pi 8845 Drg 500	Drg 500		6370	
	77741119	Pi 9145 Drg vst 10	Drg vst 10		210	5020
	77741127	Pi 9245 Drg vst 25	Drg vst 25			5020
	77689201	Pi 9345 Drg vst 40	Drg vst 40	5020		
	77689268	Pi 9445 Drg vst 60	Drg vst 60	5020		
	77689318	Pi 9545 Drg vst 100	Drg vst 100	5020		
	77741135	Pi 9645 Drg vst 200	Drg vst 200	5020		
	77741143	Pi 9745 Drg vst 300	Drg vst 300	5020		
	77741150	Pi 9845 Drg vst 500	Drg vst 500	5020		
	79359746	Pi 1045 KS-Mic 25	KS-Mic 25	20	6230	
	79337130	Pi 0145 Sm-N 2	Sm-N 2		6260	

\* A wider range of element types is available on request.

## 6.2 Type number key and order numbers filter elements for DIN filters

### 6.2.1 Type number key filter elements acc. DIN 24550 part 3 and part 4

#### Typ

**Pi** in-line filter

#### Filter material

- 1** Mic
- 2** Sm-x
- 3** Drg
- 7** Sm-x vst
- 8** Drg vst

#### Degree of filtration

- 1** 3 µm
- 2** 6 µm
- 3** 10 µm
- 4** 16 µm
- 5** 25 µm
- 6** 40 µm
- 7** 60 µm
- 8** 100 µm
- 9** 250 µm
- S** optionall

#### Nominal size

- 004** NG 40
- 006** NG 60
- 010** NG 100
- 016** NG 160
- 025** NG 250
- 040** NG 400
- 063** NG 630
- 100** NG 1000

#### Version

- D** pressure filter
- R** return line filter

#### Seal material

- N** NBR
- E** EPDM
- F** FPM
- P** PTFE or PTFE coated
- C** CR

**Pi 2 5 006 D N Selection example**

Optional degree of filtration: the degree of filtration (µm) will be added to the corresponding type designation, e.g. Pi 3S 004 DN 500

**6.2.2 Filter elements for in-line filters acc. DIN 24550 part 3**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	
<b>40</b>	77929698	Pi 13004 DN Mic 10	Mic 10	<b>20</b>	475	
	78260911	Pi 15004 DN Mic 25	Mic 25		475	
	78260929	Pi 21004 DN Sm-x 3	Sm-x 3		475	
	77960859	Pi 22004 DN Sm-x 6	Sm-x 6		475	
	77925571	Pi 23004 DN Sm-x 10	Sm-x 10		475	
	78260937	Pi 24004 DN Sm-x 16	Sm-x 16		475	
	78260945	Pi 25004 DN Sm-x 25	DN Sm-x 25		475	
	78216079	Pi 71004 DN Sm-x vst 3	Sm-x vst 3		<b>210</b>	445
	77960156	Pi 72004 DN Sm-x vst 6	Sm-x vst 6	445		
	77925654	Pi 73004 DN Sm-x vst 10	DN Sm-x vst 10	445		
	78216087	Pi 74004 DN Sm-x vst 16	DN Sm-x vst 16	445		
	78216095	Pi 75004 DN Sm-x vst 25	Sm-x vst 25	445		
	70317774	Pi 33004 DN Drg 10	Drg 10	<b>20</b>		475
	79769308	Pi 35004 DN Drg 25	Drg 25			475
	79704461	Pi 36004 DN Drg 40	Drg 40			475
	76116909	Pi 37004 DN Drg 60	Drg 60		475	
	79703802	Pi 38004 DN Drg 100	Drg 100		475	
	70314654	Pi 39004 DN Drg 250	Drg 250		475	
	76371090	Pi 83004 DN Drg vst 10	Drg vst 10		<b>210</b>	445
	79737461	Pi 85004 DN Drg vst 25	Drg vst 25			445
	78266587	Pi 86004 DN Drg vst 40	Drg vst 40	445		
	79713942	Pi 87004 DN Drg vst 60	Drg vst 60	445		
		on request	Pi 88004 DN Drg vst 100	Drg vst 100		-
	<b>63</b>	77929706	Pi 13006 DN Mic 10	Mic 10	<b>20</b>	835
78260952		Pi 15006 DN Mic 25	Mic 25	835		
78260960		Pi 21006 DN Sm-x 3	Sm-x 3	835		
77960867		Pi 22006 DN Sm-x 6	Sm-x 6	835		
77925589		Pi 23006 DN Sm-x 10	Sm-x 10	835		
78260978		Pi 24006 DN Sm-x 16	Sm-x 16	835		
78260986		Pi 25006 DN Sm-x 25	Sm-x 25	835		
78216137		Pi 71006 DN Sm-x vst 3	Sm-x vst 3	<b>210</b>		780
77960149		Pi 72006 DN Sm-x vst 6	Sm-x vst 6		780	
77925662		Pi 73006 DN Sm-x vst 10	Sm-x vst 10		780	
78216145		Pi 74006 DN Sm-x vst 16	Sm-x vst 16		780	
78216152		Pi 75006 DN Sm-x vst 25	Sm-x vst 25		780	
76362586		Pi 33006 DN Drg 10	Drg 10		<b>20</b>	835
70307615		Pi 35006 DN Drg 25	Drg 25			835
on request		Pi 36006 DN Drg 40	Drg 40			-
on request		Pi 37006 DN Drg 60	Drg 60	-		
76132369		Pi 38006 DN Drg 100	Drg 100	835		
on request		Pi 83006 DN Drg vst 10	Drg vst 10	<b>210</b>		-
on request		Pi 85006 DN Drg vst 25	Drg vst 25			-
on request		Pi 86006 DN Drg vst 40	Drg vst 40			780
70318732		Pi 87006 DN Drg vst 60	Drg vst 60		525	
on request		Pi 88006 DN Drg vst 100	Drg vst 100		780	
76940050		Pi 89006 DN Drg vst 200	Drg vst 250		525	

**6.2.2 Filter elements for in-line filters acc. DIN 24550 part 3**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	
<b>100</b>	77929714	Pi 13010 DN Mic 10	Mic 10	<b>20</b>	1375	
	78260994	Pi 15010 DN Mic 25	Mic 25		1375	
	78227472	Pi 21010 DN Sm-x 3	Sm-x 3		1375	
	77960875	Pi 22010 DN Sm-x 6	Sm-x 6		1375	
	77925597	Pi 23010 DN Sm-x 10	Sm-x 10		1375	
	78261000	Pi 24010 DN Sm-x 16	Sm-x 16		1375	
	78261018	Pi 25010 DN Sm-x 25	Sm-x 25		1375	
	78227480	Pi 71010 DN SM-x vst 3	SM-x vst 3		<b>210</b>	1275
	77960131	Pi 72010 DN Sm-x vst 6	Sm-x vst 6	1275		
	77925670	Pi 73010 DN Sm-x vst 10	Sm-x vst 10	1275		
	78261281	Pi 74010 DN Sm-x vst 16	Sm-x vst 16	1275		
	78216160	Pi 75010 DN Sm-x vst 25	Sm-x vst 25	<b>20</b>	1275	
	70305610	Pi 33010 DN Drg 10	Drg 10		1375	
	79735762	Pi 35010 DN Drg 25	Drg 25		1375	
	76329098	Pi 36010 DN Drg 40	Drg 40		1375	
	76344501	Pi 37010 DN Drg 60	Drg 60		1375	
	79394677	Pi 38010 DN Drg 100	Drg 100		1375	
	76330898	Pi 39010 DN Drg 250	Drg 250		1375	
	on request	Pi 83010 DN Drg vst 10	Drg vst 10		<b>210</b>	1275
	79755877	Pi 85010 DN Drg vst 25	Drg vst 25	1275		
	79359886	Pi 86010 DN Drg vst 40	Drg vst 40	1275		
	79714239	Pi 87010 DN Drg vst 60	Drg vst 60	1275		
	on request	Pi 88010 DN Drg vst 100	Drg vst 100	1275		
<b>160</b>	77929722	Pi 13016 DN Mic 10	Mic 10	<b>20</b>	2530	
	78261026	Pi 15016 DN Mic 25	Mic 25		2530	
	78261034	Pi 21016 DN Sm-x 3	Sm-x 3		2530	
	77960826	Pi 22016 DN Sm-x 6	Sm-x 6		2530	
	77925605	Pi 23016 DN Sm-x 10	Sm-x 10		2530	
	78261042	Pi 24016 DN Sm-x 16	Sm-x 16		2530	
	78261059	Pi 25016 DN Sm-x 25	Sm-x 25		2530	
	77940638	Pi 71016 DN Sm-x vst 3	Sm-x vst 3		<b>210</b>	1885
	77960123	Pi 72016 DN Sm-x vst 6	Sm-x vst 6	1885		
	77925688	Pi 73016 DN Sm-x vst 10	Sm-x vst 10	1885		
	78269797	Pi 74016 DN Sm-x vst 16	Sm-x vst 16	1885		
	78216178	Pi 75016 DN Sm-x vst 25	Sm-x vst 25	<b>20</b>	1885	
	on request	Pi 33016 DN Drg 10	Drg 10		2225	
	79701954	Pi 35016 DN Drg 25	Drg 25		2225	
	79363474	Pi 36016 DN Drg 40	Drg 40		2225	
	76111991	Pi 37016 DN Drg 60	Drg 60		2225	
	76371900	Pi 38016 DN Drg 100	Drg 100		2225	
	on request	Pi 83016 DN Drg vst 10	Drg vst 10		<b>210</b>	-
	76940621	Pi 85016 DN Drg vst 25	Drg vst 25			1660
	on request	Pi 86016 DN Drg vst 40	Drg vst 40	-		
	on request	Pi 87016 DN Drg vst 60	Drg vst 60	-		
	76371967	Pi 88016 DN Drg vst 100	Drg vst 100	1660		

**6.2.2 Filter elements for in-line filters acc. DIN 24550 part 3**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]
<b>250</b>	77929730	Pi 13025 DN Mic 10	Mic 10	<b>20</b>	4020
	78261067	Pi 15025 DN Mic 25	Mic 25		4020
	78227514	Pi 21025 DN Sm-x 3	Sm-x 3		4020
	77960834	Pi 22025 DN Sm-x 6	Sm-x 6		4020
	77925613	Pi 23025 DN Sm-x 10	Sm-x 10		4020
	78261075	Pi 24025 DN Sm-x 16	Sm-x 16		4020
	78261083	Pi 25025 DN Sm-x 25	Sm-x 25		4020
	77940646	Pi 71025 DN Sm- x vst 3	Sm- x vst 3	<b>210</b>	3090
	77960115	Pi 72025 DN Sm- x vst 6	Sm- x vst 6		3090
	77925696	Pi 73025 DN Sm- x vst 10	Sm- x vst 10		3090
	78269813	Pi 74025 DN Sm- x vst 16	Sm- x vst 16		3090
	78216186	Pi 75025 DN Sm- x vst 25	Sm- x vst 25		3090
	on request	Pi 33025 DN Drg 10	Drg 10	<b>20</b>	-
	76347199	Pi 35025 DN Drg 25	Drg 25		3530
	79736430	Pi 36025 DN Drg 40	Drg 40		3530
	79766882	Pi 37025 DN Drg 60	Drg 60		3530
	76370514	Pi 38025 DN Drg 100	Drg 100		3530
	on request	Pi 83025 DN Drg vst 10	Drg vst 10		-
	on request	Pi 85025 DN Drg vst 25	Drg vst 25		-
	on request	Pi 86025 DN Drg vst 40	Drg vst 40	-	
70303520	Pi 87025 DN Drg vst 60	Drg vst 60	<b>210</b>	3090	
76106504	Pi 88025 DN Drg vst 100	Drg vst 100		3090	
<b>400</b>	77929748	Pi 13040 DN Mic 10	Mic 10	<b>20</b>	6770
	78261091	Pi 15040 DN Mic 25	Mic 25		6770
	78227522	Pi 21040 DN Sm-x 3	Sm-x 3		6770
	77960842	Pi 22040 DN Sm-x 6	Sm-x 6		6770
	77925621	Pi 23040 DN Sm-x 10	Sm-x 10		6770
	78261109	Pi 24040 DN Sm-x 16	Sm-x 16		6770
	78261117	Pi 25040 DN Sm-x 25	Sm-x 25		6770
	77940653	Pi 71040 DN Sm-x vst 3	Sm-x vst 3	<b>210</b>	5240
	77960107	Pi 72040 DN Sm-x vst 6	Sm-x vst 6		5240
	77930829	Pi 73040 DN Sm-x vst 10	Sm-x vst 10		5240
	78269821	Pi 74040 DN Sm-x vst 16	Sm-x vst 16		5240
	78260903	Pi 75040 DN Sm-x vst 25	Sm-x vst 25		5240
	on request	Pi 33040 DN Drg 10	Drg 10	<b>20</b>	-
	76180749	Pi 35040 DN Drg 25	Drg 25		5900
	76344949	Pi 36040 DN Drg 40	Drg 40		5900
	76114367	Pi 37040 DN Drg 60	Drg 60		3950
	76131809	Pi 38040 DN Drg 60	Drg 100		5900
	on request	Pi 83040 DN Drg vst 10	Drg vst 10		-
	on request	Pi 85040 DN Drg vst 25	Drg vst 25		-
	76370803	Pi 86040 DN Drg vst 40	Drg vst 40	<b>210</b>	4900
78381196	Pi 87040 DN Drg vst 60	Drg vst 60	3300		
76180673	Pi 88040 DN Drg vst 100	Drg vst 100	4900		

**6.2.2 Filter elements for in-line filters acc. DIN 24550 part 3**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]
<b>630</b>	77929755	Pi 13063 DN Mic 10	Mic 10	<b>20</b>	9300
	77961501	Pi 15063 DN Mic 25	Mic 25		9300
	77961519	Pi 21063 DN Sm-x 3	Sm-x 3		9300
	77943699	Pi 22063 DN Sm-x 6	Sm-x 6		9300
	77925639	Pi 23063 DN Sm-x 10	Sm-x 10		9300
	77961527	Pi 24063 DN Sm-x 16	Sm-x 16		9300
	77961535	Pi 25063 DN Sm-x 25	Sm-x 25	<b>210</b>	9300
	77961543	Pi 71063 DN Sm-x vst 3	Sm-x vst 3		7230
	77960099	Pi 72063 DN Sm-x vst 6	Sm-x vst 6		7230
	77925712	Pi 73063 DN Sm-x vst 10	Sm-x vst 10		7230
	77961550	Pi 74063 DN Sm-x vst 16	Sm-x vst 16		7230
	77961568	Pi 75063 DN Sm-x vst 25	Sm-x vst 25		7230
	79308107	Pi 33063 DN Drg 10	Drg 10	<b>20</b>	8685
	77943707	Pi 35063 DN Drg 25	Drg 25		8685
	77999154	Pi 36063 DN Drg 40	Drg 40		8685
	77943715	Pi 37063 DN Drg 60	Drg 60		8685
	77963408	Pi 38063 DN Drg 100	Drg 100		8685
	79309915	Pi 39063 DN Drg 250	Drg 250		8685
<b>1000</b>	77929763	Pi 13100 DN Mic 10	Mic 10	<b>20</b>	14950
	77961600	Pi 15100 DN Mic 25	Mic 25		14950
	77961618	Pi 21100 DN Sm-x 3	Sm-x 3		14950
	77943723	Pi 22100 DN Sm-x 6	Sm-x 6		14950
	77925647	Pi 23100 DN Sm-x 10	Sm-x 10		14950
	77961626	Pi 24100 DN Sm-x 16	Sm-x 16		14950
	77961634	Pi 25100 DN Sm-x 25	Sm-x 25	14950	
	77961642	Pi 71100 DN Sm-x vst 3	Sm-x vst 3	<b>210</b>	11700
	77960081	Pi 72100 DN Sm-x vst 6	Sm-x vst 6		11700
	77925720	Pi 73100 DN Sm-x vst 10	Sm-x vst 10		11700
	77961659	Pi 74100 DN Sm-x vst 16	Sm-x vst 16		11700
	77961667	Pi 75100 DN Sm-x vst 25	Sm-x vst 25		11700
	on request	Pi 33100 DN Drg 10	Drg 10		<b>20</b>
	77943731	Pi 35100 DN Drg 25	Drg 25	14000	
	78229569	Pi 36100 DN Drg 40	Drg 40	14000	
	77943749	Pi 37100 DN Drg 60	Drg 60	14000	
	77977465	Pi 38100 DN Drg 100	Drg 100	14000	
	78264095	Pi 39100 DN Drg 250	Drg 250	14000	

**6.2.3 Filter elements for tank top return line filters acc. DIN 24550 part 4**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]
40	77925001	Pi 13004 RN Mic 10	Mic 10	10	900
	77962210	Pi 15004 RN Mic 25	Mic 25		900
	77923998	Pi 21004 RN Sm-x 3	Sm-x 3		820
	77964034	Pi 22004 RN Sm-x 6	Sm-x 6		820
	77924004	Pi 23004 RN Sm-x 10	Sm-x 10		820
	77962244	Pi 24004 RN Sm-x 16	Sm-x 16		820
	77960206	Pi 25004 RN Sm-x 25	Sm-x 25		820
	on request	Pi 33004 RN Drg 10	Drg 10		-
	77962277	Pi 35004 RN Drg 25	Drg 25		520
	77999394	Pi 36004 RN Drg 40	Drg 40		520
	77962301	Pi 37004 RN Drg 60	Drg 60		520
	on request	Pi 38004 RN Drg 100	Drg 100		-
63	77925019	Pi 13006 RN Mic 10	Mic 10	10	1585
	77962228	Pi 15006 RN Mic 25	Mic 25		1585
	77924012	Pi 21006 RN Sm-x 3	Sm-x 3		1445
	77964042	Pi 22006 RN Sm-x 6	Sm-x 6		1445
	77924020	Pi 23006 RN Sm-x 10	Sm-x 10		1445
	77962251	Pi 24006 RN Sm-x 16	Sm-x 16		1445
	77960214	Pi 25006 RN Sm-x 25	Sm-x 25		1445
	76345326	Pi 33006 RN Drg 10	Drg 10		-
	77962285	Pi 35006 RN Drg 25	Drg 25		915
	77999402	Pi 36006 RN Drg 40	Drg 40		915
	77962319	Pi 37006 RN Drg 60	Drg 60		915
	78266520	Pi 38006 RN Drg 100	Drg 100		915
100	77925027	Pi 13010 RN Mic 10	Mic 10	10	2610
	77962236	Pi 15010 RN Mic 25	Mic 25		2610
	77924038	Pi 21010 RN Sm-x 3	Sm-x 3		2380
	77940844	Pi 22010 RN Sm-x 6	Sm-x 6		2380
	77924046	Pi 23010 RN Sm-x 10	Sm-x 10		2380
	77962269	Pi 24010 RN Sm-x 16	Sm-x 16		2380
	77960222	Pi 25010 RN Sm-x 25	Sm-x 25		2380
	on request	Pi 33010 RN Drg 10	Drg 10		-
	77962293	Pi 35010 RN Drg 25	Drg 25		1510
	77999410	Pi 36010 RN Drg 40	Drg 40		1510
	77962327	Pi 37010 RN Drg 60	Drg 60		1510
	78298226	Pi 38010 RN Drg 100	Drg 100		1510
160	77925035	Pi 13016 RN Mic 10	Mic 10	10	3750
	77963598	Pi 15016 RN Mic 25	Mic 25		3750
	77924137	Pi 21016 RN Sm-x 3	Sm-x 3		3750
	77964067	Pi 22016 RN Sm-x 6	Sm-x 6		3750
	77924145	Pi 23016 RN Sm-x 10	Sm-x 10		3750
	77963648	Pi 24016 RN Sm-x 16	Sm-x 16		3750
	77960230	Pi 25016 RN Sm-x 25	Sm-x 25		3750
	on request	Pi 33016 RN Drg 10	Drg 10		-
	77963697	Pi 35016 RN Drg 25	Drg 25		2020
	77999428	Pi 36016 RN Drg 40	Drg 40		2020
	77963747	Pi 37016 RN Drg 60	Drg 60		2020
	on request	Pi 38016 RN Drg 100	Drg 100		-

**6.2.3 Filter elements for tank top return line filters acc. DIN 24550 part 4**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]
<b>250</b>	77925043	Pi 13025 RN Mic10	Mic 10	<b>10</b>	6050
	77963606	Pi 15025 RN Mic 25	Mic 25		6050
	77924152	Pi 21025 RN Sm-x 3	Sm-x 3		6050
	77964075	Pi 22025 RN Sm-x 6	Sm-x 6		6050
	77924160	Pi 23025 RN Sm-x 10	Sm-x 10		6050
	77963655	Pi 24025 RN Sm-x 16	Sm-x 16		6050
	77960248	Pi 25025 RN Sm-x 25	Sm-x 25		6050
	on request	Pi 33025 RN Drg 10	Drg 10		-
	77963705	Pi 35025 RN Drg 25	Drg 25		3250
	77999436	Pi 36025 RN Drg 40	Drg 40		3250
	77963754	Pi 37025 RN Drg 60	Drg 60		3250
	79335746	Pi 38025 RN Drg 100	Drg 100		3250
<b>400</b>	77925050	Pi 13040 RN Mic 10	Mic 10	<b>10</b>	9450
	77963614	Pi 15040 RN Mic 25	Mic 25		9450
	77924178	Pi 21040 RN Sm-x 3	Sm-x 3		8250
	77964083	Pi 22040 RN Sm-x 6	Sm-x 6		8250
	77924186	Pi 23040 RN Sm-x 10	Sm-x 10		8250
	77963663	Pi 24040 RN Sm-x 16	Sm-x16		8250
	77960255	Pi 25040 RN Sm-x 25	Sm-x 25		8250
	on request	Pi 33040 RN Drg 10	Drg 10		-
	77963713	Pi 35040 RN Drg 25	Drg 25		6370
	77999444	Pi 36040 RN Drg 40	Drg 40		6370
	77963762	Pi 37040 RN Drg 60	Drg 60		6370
	78267833	Pi 38040 RN Drg 100	Drg 100		6370
	79335894	Pi 39040 RN Drg 250	Drg 250		6370
	<b>630</b>	77925068	Pi 13063 RN Mic 10		Mic 10
77963622		Pi 15063 RN Mic 25	Mic 25	15550	
77924194		Pi 21063 RN Sm-x 3	Sm-x 3	13515	
77964091		Pi 22063 RN Sm-x 6	Sm-x 6	13515	
77924202		Pi 23063 RN Sm-x 10	Sm-x 10	13515	
77963671		Pi 24063 RN Sm-x 16	Sm-x 16	13515	
77960263		Pi 25063 RN Sm-x 25	Sm-x 25	13515	
on request		Pi 33063 RN Drg 10	Drg 10	-	
77963721		Pi 35063 RN Drg 25	Drg 25	10320	
77999451		Pi 36063 RN Drg 40	Drg 40	10320	
77963770		Pi 37063 RN Drg 60	Drg 60	10320	
78264459		Pi 38063 RN Drg 100	Drg 100	10320	
79309253		Pi 39063 RN Drg 250	Drg 250	10320	



### 6.2.3 Filter elements for tank top return line filters acc. DIN 24550 part 4

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]
1000	77925076	Pi 13100 RN Mic 10	Mic 10	10	18335
	77963630	Pi 15100 RN Mic 25	Mic 25		18335
	77924210	Pi 21100 RN Sm-x 3	Sm-x 3		18335
	77964109	Pi 22100 RN Sm-x 6	Sm-x 6		18335
	77924228	Pi 23100 RN Sm-x 10	Sm-x 10		18335
	77963689	Pi 24100 RN Sm-x 16	Sm-x 16		18335
	77960271	Pi 25100 RN Sm-x 25	Sm-x 25		18335
	on request	Pi 33100 RN Drg 10	Drg 10		-
	77963739	Pi 35100 RN Drg 25	Drg 25		14210
	77999469	Pi 363100 RN Drg 40	Drg 40		14210
	77963788	Pi 37100 RN Drg 60	Drg 60		9590
	78299174	Pi 38100 RN Drg 250	Drg 100		14210

### 6.3 Filter elements 852 xxx series

#### 6.3.1 Filter elements 852 xxx series

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	Field of use
5	77684566	852 149	Mic 10	20	190	Pi 4301
	77684582		Mic 25		190	
	on request		Sm-N 2		-	
	77684632		Sm-x 3		165	
	on request		Sm-x 6		-	
	77684640		Sm-x 10		165	
	77684665		Sm-x 25		165	
5	77684681	852 149	Sm-x vst 3	160	150	Pi 4301
	on request		Sm-x vst 6		-	
	77684699		Sm-x vst 10		150	
	77684715		Sm-x vst 25		150	
5	77684343	852 149	Drg 10	20	165	Pi 4301
	77684368		Drg 25		165	
	77684384		Drg 40		165	
	77684400		Drg 60		165	
	77684525		Drg 100		165	
	77856990		Drg 200		165	
	on request		Drg 250		-	
	77857014		Drg 500		165	
5	77684434	852 149	Drg vst 10	160	150	Pi 4301
	77684459		Drg vst 25		150	
	77684475		Drg vst 40		150	
	77684483		Drg vst 60		150	
	77684509		Drg vst 100		150	

**6.3.1 Filter elements 852 xxx series**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	Field of use
20	77685340	852 243	Mic 10	20	360	Pi 41002
	77685373		Mic 25		360	
	on request		Sm-N 2		-	
	77685407		Sm-x 3		305	
	78216038		Sm-x 6		305	
	77740327		Sm-x 10		305	
	78216053		Sm-x 16		305	
	77685415		Sm-x 25		305	
20	77685423	852 243	Sm-x vst 3	160	275	Pi 41002
	78216046		Sm-x vst 6		275	
	77685431		Sm-x vst 10		275	
	78216061		Sm-x vst 16		275	
	77685449		Sm-x vst 25		275	
20	77740301	852 243	Drg 10	20	305	Pi 41002
	77685316		Drg 25		305	
	on request		Drg 40		-	
	77685324		Drg 60		305	
	77740319		Drg 100		305	
	77872625		Drg 200		305	
	on request		Drg 300		-	
	on request		Drg 500		-	
20	77740822	852 243	Drg vst 10	160	275	Pi 41002
	77740830		Drg vst 25		275	
	on request		Drg vst 40		-	
	77685332		Drg vst 60		275	
	77740848		Drg vst 100		275	
35	78309387	852 939	Mic 10	5	870	Pi 53003
	78206781		Mic 25		870	
35	77699705	852 588	Mic 10	10	920	Pi 53003
	78206328		Mic 25		920	
	79312117		Sm-x 3		650	
	79355595		Sm-x 6		650	
	79312125		Sm-x 10		650	
	on request		Sm-x 16		-	
	79312133		Sm-x 25		650	
	79353509		Drg 25		590	
77696065	Drg 100	590				
50	78309205	852 940	Mic 10	5	1100	Pi 53005
	79312299		Mic 25		1100	
50	79312158	852 945	Sm-x 3	10	810	Pi 53005
	on request		Sm-x 6		-	
	79312166		Sm-x 10		810	
	on request		Sm-x 16		-	
	79312174		Sm-x 25		810	
	79362690		Drg 25		750	

**6.3.1 Filter elements 852 xxx series**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	Field of use
<b>50</b>	77675903	<b>852 275</b>	Mic 10	<b>5</b>	27000	<b>Pi 1975</b>
	77675911		Mic 25		27000	
	79735952		KS-Mic 25		18150	
	79309303		Sm-N 2		13150	
	77956220		Sm-x 3		15500	
	on request		Sm-x 6		-	
	77725583		Sm-x 10		15500	
	on request		Sm-x 16		-	
	on request		Sm-x 25		-	
	on request		Drg 10		-	
	77678048		Drg 25		14000	
	77910011		Drg 40		14000	
	on request		Drg 60		-	
	77678097		Drg 100		14000	
	on request		Drg 200		-	
	79747114		Drg 250		14000	
on request	Drg 500	-				
<b>80</b>	77729338	<b>852 753</b>	Mic 10	*	5700	<b>Pi 1607</b>
	77729429		Mic 25		5700	
	77729551		Sm-x 10		3750	
	77729577		Sm-x 25		3750	
	77998388		Drg 10		2300	
	on request		Drg 25		-	
	77729460		Drg 40		2300	
	77862345		Drg 60		2300	
	77729486		Drg 100		2300	
	on request		Drg 250		-	
	on request		Drg 500		-	
	<b>100</b>		77729387		<b>852 754</b>	
77729445		Mic 25	15850			
77730179		Sm-x 10	10400			
77730195		Sm-x 25	10400			
on request		Drg 10	-			
on request		Drg 25	-			
77729510		Drg 40	6250			
77862352		Drg 60	6250			
77729528		Drg 100	6250			
on request		Drg 250	-			
on request		Drg 500	-			

**6.3.1 Filter elements 852 xxx series**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	Field of use
<b>160</b>	77874514	<b>852 821</b>	Mic 10	*	16750	<b>Pi 1620</b>
	77874522		Mic 25		16750	
	77999089		Sm-x 10		11000	
	77874530		Sm-x 25		11000	
	on request		Drg 10		-	
	on request		Drg 25		-	
	on request		Drg 40		-	
	77874548		Drg 60		6650	
	77874555		Drg 100		6650	
	78376238		Drg 250		6650	
	on request		Drg 500		-	
<b>400</b>	77774441	<b>852 760</b>	Mic 10	<b>5</b>	23800	<b>Pi 1535</b>
	77806581		Mic 25		23800	
	79364407		KS-Mic 25		19000	
	77955859		Sm-N 2		16000	
<b>400</b>	77774433	<b>852 760</b>	Sm-x 3	<b>10</b>	14500	<b>Pi 1535</b>
	78299042		Sm-x 6		14500	
	77774425		Sm-x 10		14500	
	77806565		Sm-x 25		14500	
	on request		Drg 10		-	
	77936594		Drg 25		11680	
	on request		Drg 40		-	
	78367682		Drg 60		11680	
	77914773		Drg 100		11680	
	on request		Drg 250		-	
	79336785		Drg 500		11680	
<b>630</b>	77774409	<b>852 761</b>	Mic 10	<b>5</b>	47600	<b>Pi 1560</b>
	77806599		Mic 25		47600	
	79364134		KS-Mic 25		38000	
	78375867		Sm-N 2		38000	
<b>630</b>	on request	<b>852 761</b>	Sm-N 2	<b>10</b>	-	<b>Pi 1560</b>
	77774391		Sm-x 3		29000	
	78225898		Sm-x 6		29000	
	77774383		Sm-x 10		29000	
	77806573		Sm-x 25		29000	
	on request		Drg 10		-	
	78269938		Drg 25		23360	
	79376542		Drg 40		23360	
	78264574		Drg 60		23360	
	77896913		Drg 100		23360	
	78379653		Drg 250		23360	
	77974629		Drg 500		23360	

\* Suction filters; flow direction from inside to outside

**6.3.1 Filter elements 852 xxx series**

Nominal size NG [l/min]	Order number	Type	Filter material	max. $\Delta p$ [bar]	Filter surface [cm <sup>2</sup> ]	Field of use
<b>800</b>	76113369	<b>852 014</b>	Mic 10	<b>20</b>	26440	<b>Pi 23040</b>
	76113385		Mic 25		26440	
	76113401		KS-Mic 25		22690	
	76136220		Sm-N 2		18533	
	76321830		Sm-x 3		24830	
	76321822		Sm-x 6		24830	
	76321814		Sm-x 10		24830	
	76321806		Sm-x 25		24830	
	on request		Drg 10		-	
	70367987		Drg 25		21860	
	on request		Drg 40		-	
	on request		Drg 60		-	
	on request		Drg 100		-	
	70367986		Drg 250		14350	
	on request		Drg 500		-	
<b>1250</b>	78207664	<b>852 888</b>	Mic 10	<b>10</b>	21850	<b>Pi 1907 Pi 281</b>
	78226839		Mic 25		21850	
	76111371		KS-Mic 25		20100	
	76114979		Sm-N 2		14000	
	78263295		Sm-x 3		21850	
	78354029		Sm-x 6		21850	
	78226813		Sm-x 10		21850	
	78226821		Sm-x 25		21850	
	on request		Drg 10		-	
	78228017		Drg 25		16500	
	78228025		Drg 40		16500	
	78303026		Drg 60		16500	
	78228470		Drg 100		16500	
	78382772		Drg 250		16500	
	79337148		Drg 500		16500	
<b>1400</b>	76113427	<b>852 015</b>	Mic 10	<b>20</b>	60900	<b>Pi 23080</b>
	76113443		Mic 25		60900	
	76345995		KS-Mic 25		52250	
	76136212		Sm-N 2		42275	
	76321897		Sm-x 3		57200	
	76321889		Sm-x 6		57200	
	76321871		Sm-x 10		57200	
	76321863		Sm-x 25		57200	
	on request		Drg 10		-	
	70341663		Drg 25		51450	
	76940290		Drg 40		51450	
	70360020		Drg 60		34242	
	76919666		Drg 100		51450	
	on request		Drg 200		-	
	on request		Drg 250		-	
	on request		Drg 500		-	

### 6.3.1 Filter elements 852 xxx series

Nominal size NG [l/min]	Order number	Type	Filter material	max. Δ p [bar]	Filter surface [cm <sup>2</sup> ]	Field of use
1800	70366315	852 884	Mic 10	10	-	Pi 1907 Pi 281
	78267171		Mic 25		28500	
	on request		KS-Mic 25		-	
	79715434		Sm-N 2		23450	
	78227431		Sm-x 3		28500	
	79337916		Sm-x 6		28500	
	78226797		Sm-x 10		28500	
	78375925		Sm-x 16		28500	
	78226805		Sm-x 25		28500	
	on request		Drg 10		-	
	79337460		Drg 25		23450	
	78261653		Drg 40		23450	
	79700402		Drg 60		23450	
	79327750		Drg 100		23450	
	78367393		Drg 250		23450	
	78376204		Drg 500		23450	

## 7. When should the filter element be replaced?

- Filters equipped with visual and electrical maintenance indicator:  
During cold starts, the indicator may give a warning signal. Press the red button of the visual indicator once again only after operating temperature has been reached. If the red button immediately pops up again and/or the electrical signal has not switched off after reaching operating temperature, the filter element must be replaced after the end of the shift.
- Filters without maintenance indicator:  
The filter element should be replaced after the trial run or flushing of the system. Afterwards follow instructions of the manufacturer.
- Please always ensure that you have original MAHLE spare elements in stock. Disposable elements (Mic, KS-Mic, PS and Sm-x) cannot be cleaned.

## 8. Possibilities of cleaning wire gauge elements

### 1. Ultrasonic cleaning

Immerse contaminated filter element into the ultrasonic bath for approx. 90 – 120 minutes, then flush with clean solvent. Then carefully blow out filter element from the clean side in outward direction using compressed air. As solvent, cleaning gasoline etc. may be used.

### 2. Manual cleaning

Only for degree of filtration  $\geq 40 \mu\text{m}$ .

- Remove coarse external dirt with a brush or similar tool in a separate cleaning container filled with solvent such as cleaning gasoline.
- Put filter element into a clean liquid solvent (approx. 20 minutes).
- Flush filter element with liquid solvent from inside to outside.
- Blow out filter element from the clean side in outward direction using compressed air.

With either method ascertain that no dirt can deposit on the inside (clean side) of the filterelement. Further it needs to be considered that the element will not be damaged because of proper handling. An entire cleaning (100 %) cannot be achieved (especially at a grade of filtration  $\leq 25 \mu\text{m}$ ). The service life of the element will decrease continuously per cleaning!

MAHLE Industriefiltration GmbH  
Schleifbachweg 45  
D-74613 Öhringen  
Phone +49 7941 67-0  
Fax +49 7941 67-23429  
industrialfiltration@mahle.com  
www.mahle-industrialfiltration.com  
70373334.06/2011