



MANN+HUMMEL PreLine Pre-filter for diesel fuel



PreLine — The protection system for diesel injection systems

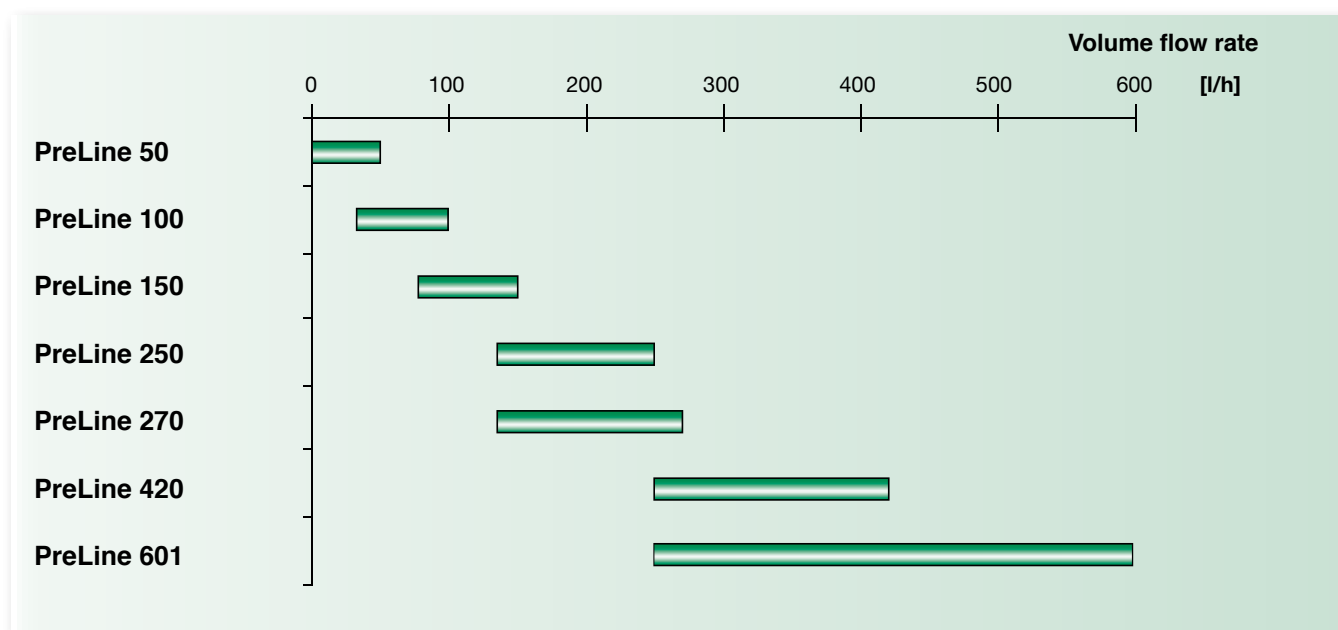
Modern diesel engines use a higher injection pressure due to advanced performance requirements. The injection systems used have very high requirements regarding cleanliness of the fuel. This means the fuel should contain hardly any particles and practically no water (condensate).

MANN+HUMMEL uses high performance multigrade media for the filtration of the fuel. The MANN+HUMMEL PreLine series separates more than 93 % according to ISO/TR 16 332 of water present in the fuel and so fulfils the requirements of leading injection system producers.



The perfectly matched interaction between the PreLine pre-filter and the MANN+HUMMEL main filter offers maximum protection for the sensitive injection system and contributes to the economic running of your engine.

Volume flow coverage



Note:

- A number of PreLine pre-filters of the same design and size can be fitted in parallel to enable a corresponding increase in the volume flow rate.
- Use in series and/or different sizes is not foreseen.

Contents

	Page
PreLine – The protection system for diesel injection systems	2
Why filtration – Why PreLine?	4
MANN+HUMMEL – Filtration with system	5
PreLine – Flexible in the system and application	6
PreLine – Modular system for 15 to 250 l/h	8
PreLine 50	10
PreLine 100 and 150	12
PreLine 250	14
PreLine – Modular system for 200 to 600 l/h	16
PreLine 270	18
PreLine 420	20
PreLine 601	22
PreLine – Accessories	24
Notes	26
PreLine – Technical overview	fold-out page
Selection of MANN+HUMMEL product catalogues	fold-out page

Important information for our customers

We are continually developing our range of filters to further improve our high performance, economic filtration products. For this reason we expressly reserve the

right to make changes to our products and product range after this catalogue has been printed. This includes technical changes and the discontinuation of products,

especially in the case of old products. Information about changes and general availability is available from your MANN+HUMMEL contact person.

Why Filtration — Why PreLine?

The MANN+HUMMEL PreLine system exclusively uses multigrade high performance filter media which effectively protect modern common rail injection systems.

This applies to all suitable main filters which are also fitted with this high performance media.

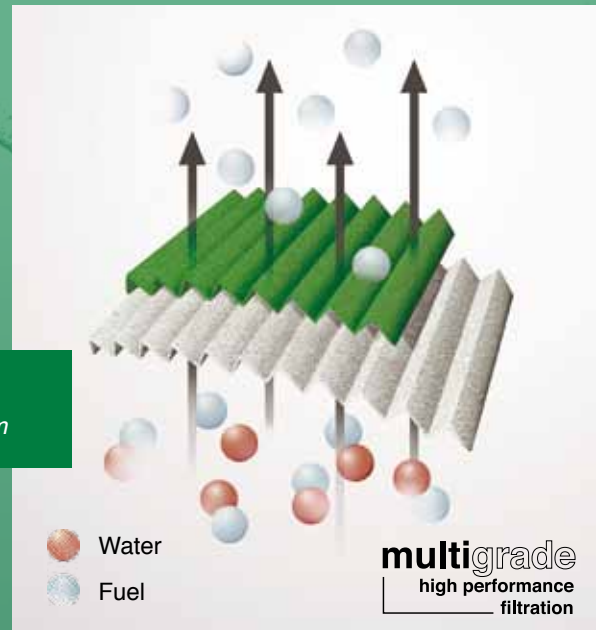
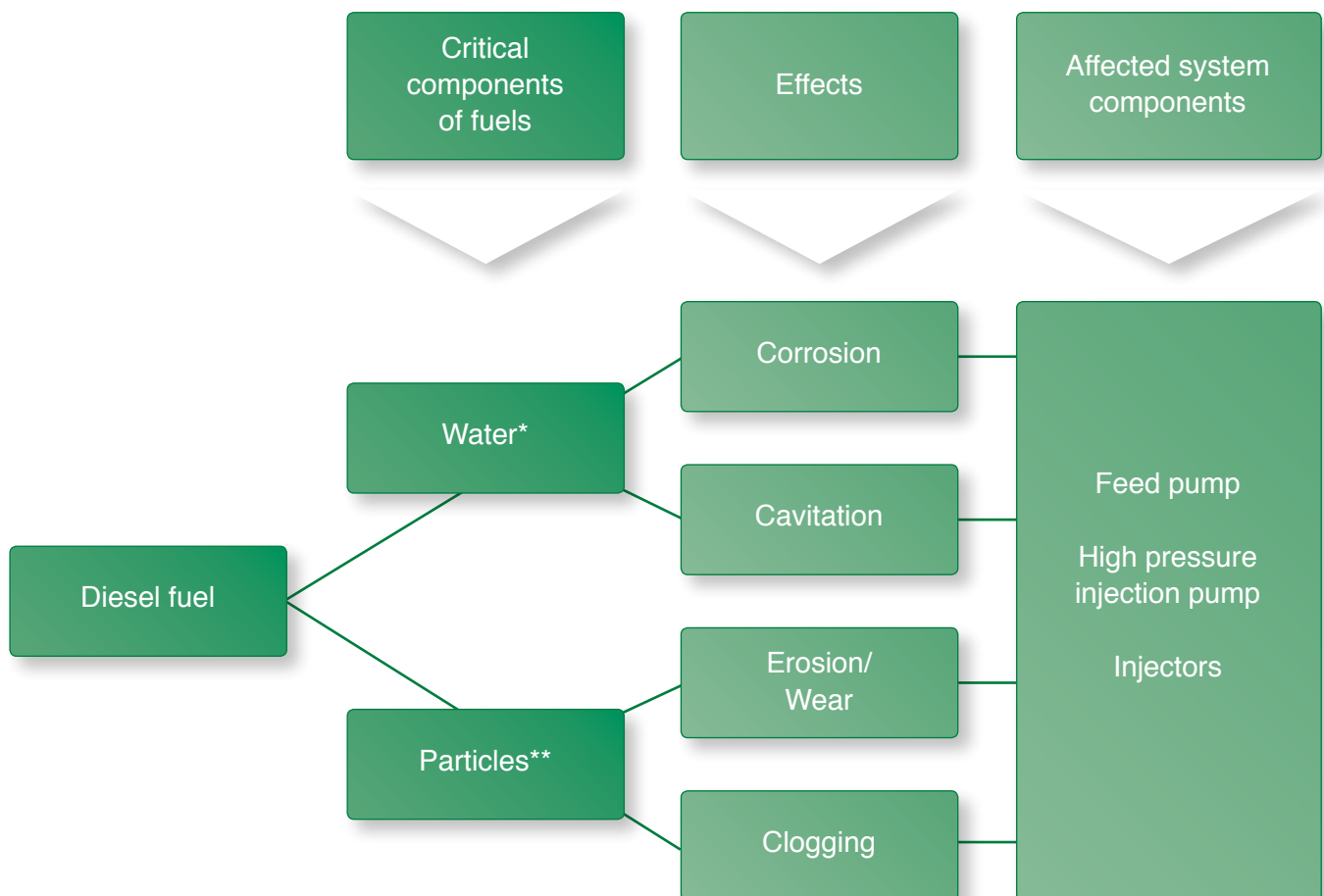


Diagram of water separation with the multigrade high performance filter medium

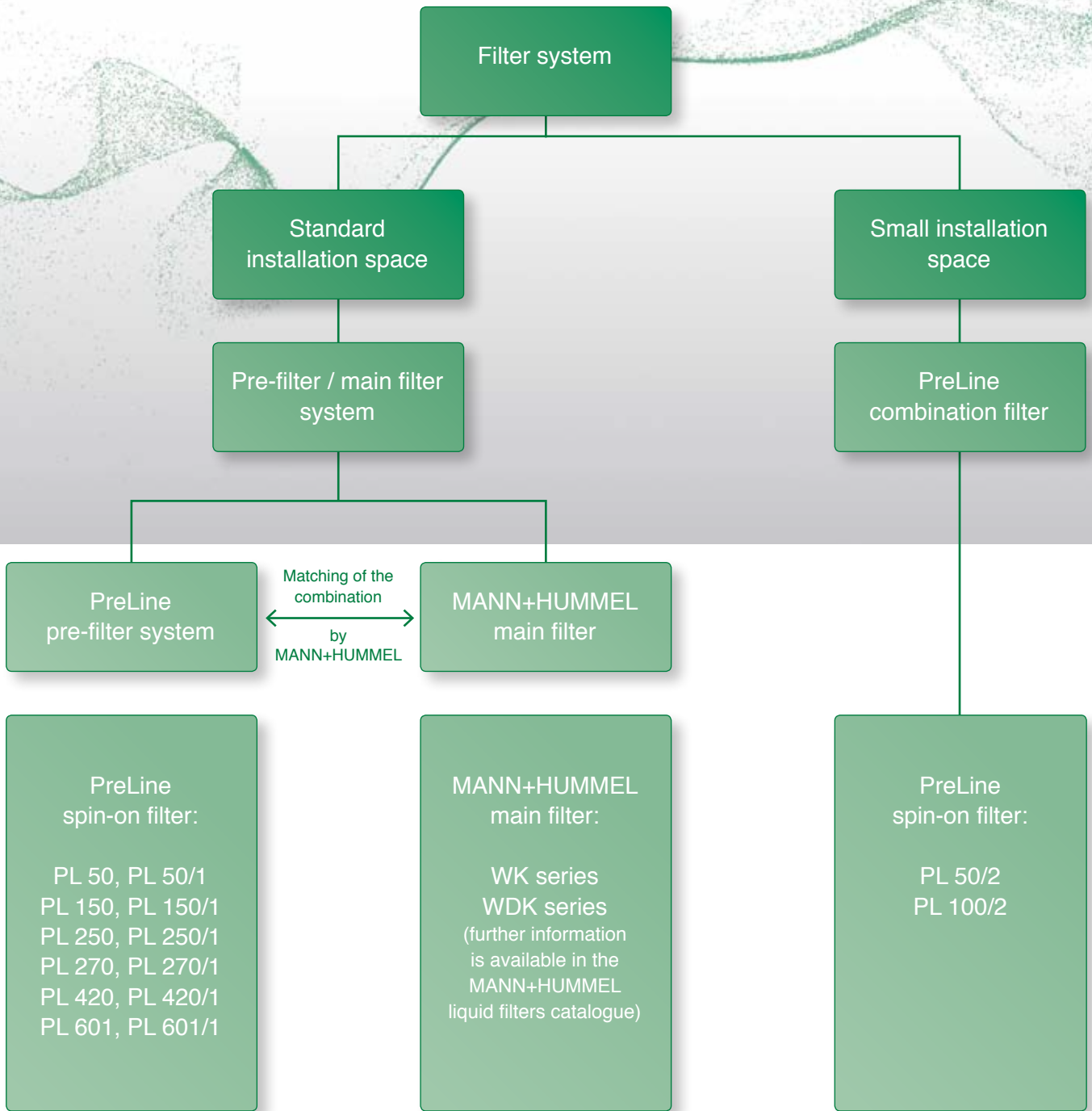
Cause and effect of contamination



* Free water

** Critical particle size: $\geq 4 \mu\text{m}$

MANN+HUMMEL — Filtration with system



PreLine pre-filter system

Matching of the combination
by MANN+HUMMEL

MANN+HUMMEL main filter

PreLine spin-on filter:

PL 50, PL 50/1
PL 150, PL 150/1
PL 250, PL 250/1
PL 270, PL 270/1
PL 420, PL 420/1
PL 601, PL 601/1

MANN+HUMMEL main filter:

WK series
WDK series
(further information is available in the MANN+HUMMEL liquid filters catalogue)

PreLine spin-on filter:

PL 50/2
PL 100/2

PreLine – the modular system for pre-filtration

Main task:

- Water separation
- Separation of coarse particles
- Extended service life for the main filter

MANN+HUMMEL main filter

Main task:

- Separation of fine particles

PreLine – combination filter from modular range

Main task:

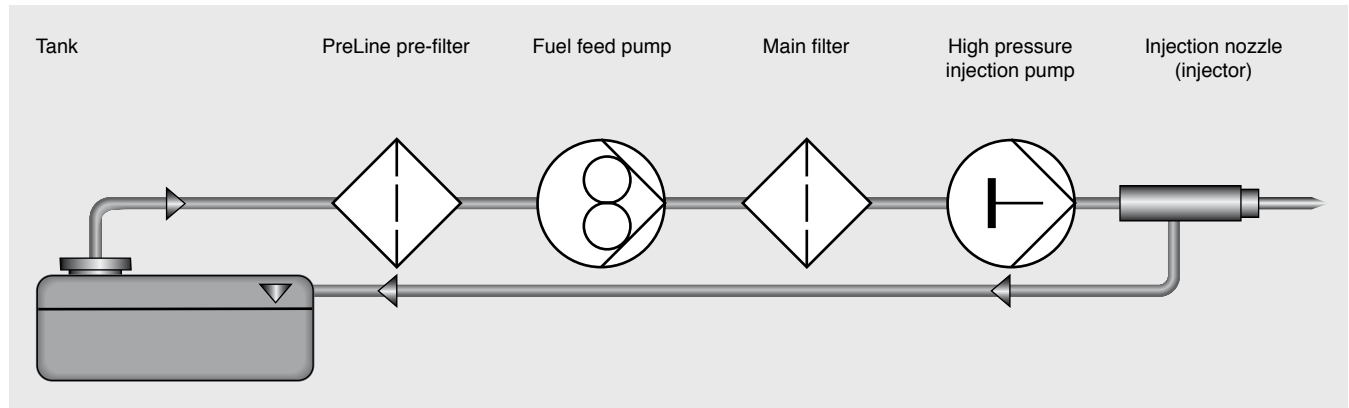
- Water separation
- Separation of coarse particles
- Separation of fine particles

MANN+HUMMEL supports you with the configuration of the filter system

PreLine — Flexible in the system and application

Case 1

PreLine before the feed pump (suction side), main filter after the feed pump (delivery side)



Advantage

The PreLine system protects the feed pump against ingress of water and coarse particles and extends the service life of the main filter

Disadvantage

–

The flow resistance increases as the filter retains more contaminants. Given the delivery head of the fuel in the tank, there is a relatively small negative pressure available on the suction side of the feed pump.

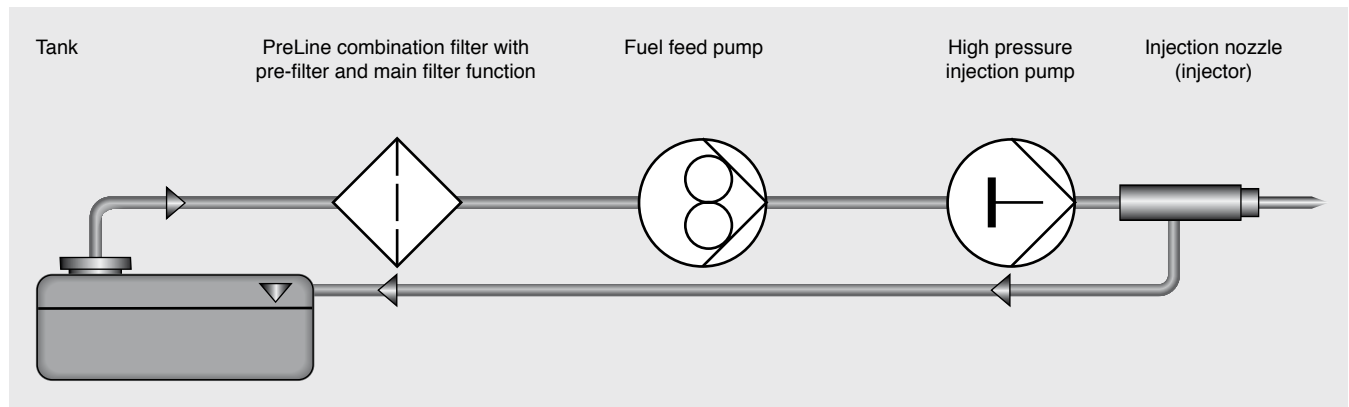
Due to extremely low initial resistance, **case 1 provides the best solution for most applications** on the market. In addition, PreLine protects the feed pump system.

Recommendation:

Maintain the suction height as low as possible. Integrate a non-return valve in the feed line

Case 2

PreLine combination filter before the feed pump (suction side)



Advantage

The PreLine combination filter saves installation space

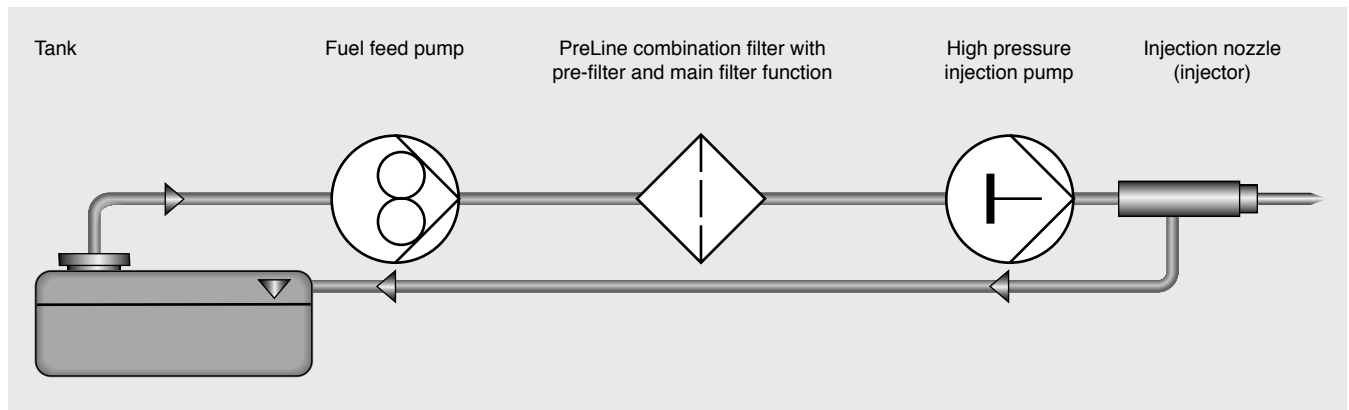
Disadvantage

Tight installation space leads to reduced service life

PreLine — Flexible in the system and application

Case 3

PreLine combination filter after the feed pump (delivery side)



Advantage

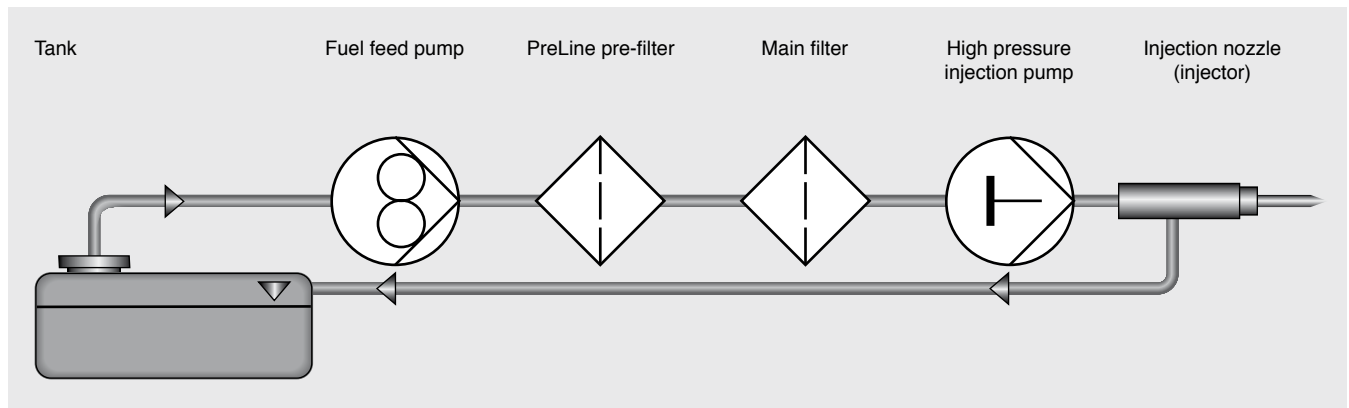
The PreLine combination filter saves installation space

Disadvantage

Tight installation space leads to reduced service life

Case 4

PreLine and main filter after the feed pump (delivery side)



Advantage

Usable with high delivery heads

Disadvantage

No protection for the feed pump

If technical considerations or a very high delivery head prevent use according to case 1 and an additional pump in the tank is not possible, the PreLine system can be used

as in case 4. It must be taken into account that in this case it is not possible to protect the feed pump with the PreLine system.

Service life of filters

MANN+HUMMEL tests filters according to the prevailing international standards. The service life of a filter is a function of:

- the size of the filter
- the fuel consumption
- the filter medium (separation efficiency)
- in particular the real contamination level of the fuel

An exact definition of the service life of a filter in the field is therefore not possible.

In practice, fluctuations between 250 to 1,000 operational hours are possible. MANN+HUMMEL offers support in the development phase with the exact configuration of the filter and with tests.

PreLine modular system (15 to 250 l/h)

MANN+HUMMEL offers a compact modular system for diesel engines with outputs between 15 to approx. 250 l/h.

This PreLine-series includes the following sizes:

PreLine 50
PreLine 50/1
PreLine 50/2
PreLine 100/2
PreLine 150
PreLine 150/1
PreLine 250
PreLine 250/1

Application areas

High performance filtration for all diesel aggregates from approx. 15 l/h to 250 l/h with less installation space.

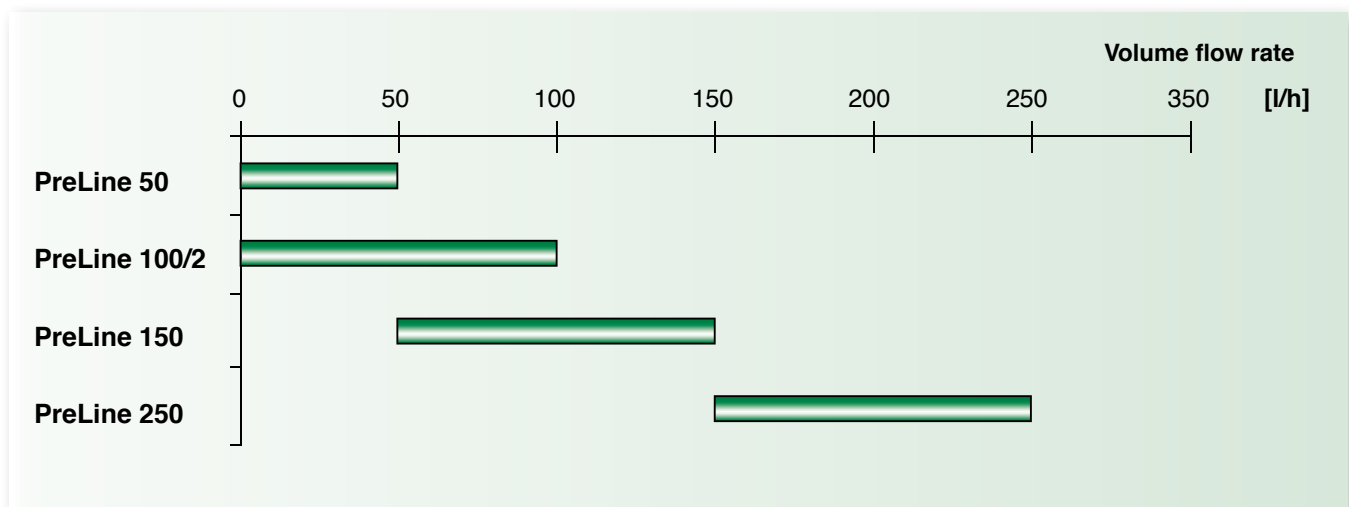
The PreLine pre-filter offers reliable protection against water and particles for modern common rail injection systems, in-line injection pumps and distribution injection pumps.

PreLine also perfectly protects every diesel engine under difficult conditions in construction machines and many other applications such as skid steer loaders, backhoe loaders, tractors, forklifts, mobile and stationary compressors.

The advantages at a glance:

- Flexible modular system
- Compatible to 100 % of FAME fuels
- High performance Filtration for a tight installation space
- Integrated water collector in filter
- Easy to service
- 45° positioned hand pump
- Extremely stable design for all application conditions
- High water separation (e.g. ≥ 93 % acc. to ISO/TR 16 332)
- High particle separation (e.g. ≥ 95 % for 4 μm (c) particles)
- Diesel heater (option)
- Water level sensor (option)

Volume flow coverage



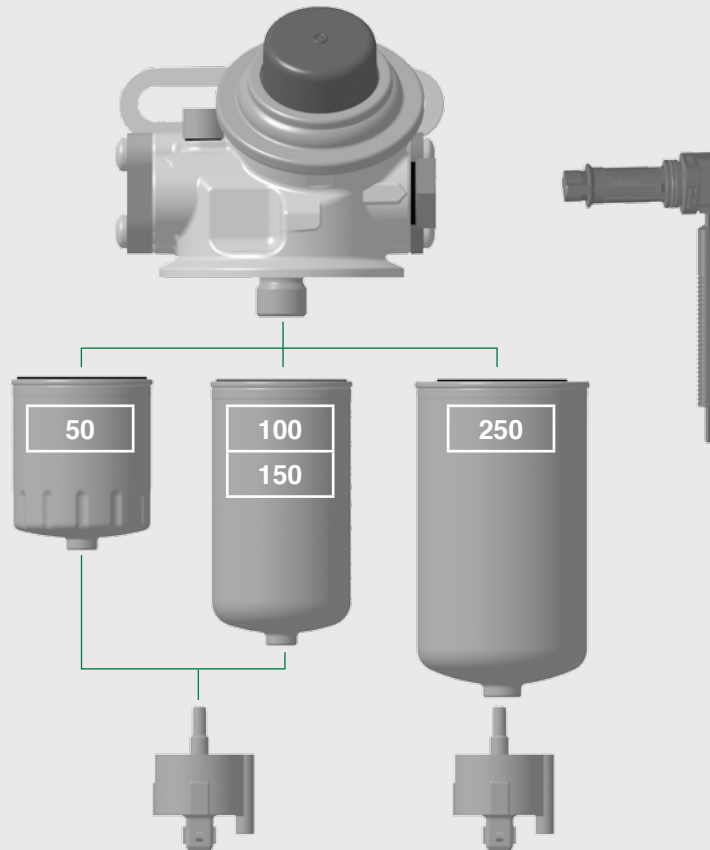
PreLine modular system (15 to 250 l/h)

Filter head with hand pump

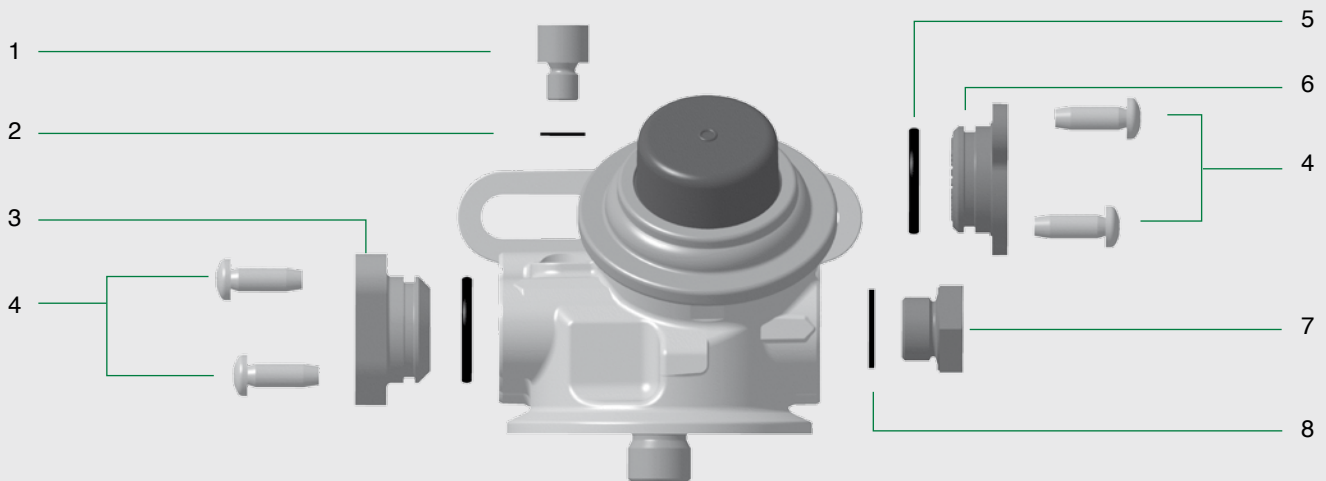
Diesel heater with 12 or 24 volt

Spin-on filter
 PL 50 or PL 50/1
 or PL 50/2
 PL 100/2
 PL 150 or PL 150/1
 PL 250 or PL 250/1

Water level sensor
 12/24 volt with M8x1.25
 or M12x1.5 thread



PreLine filter head (15 to 250 l/h)



Spare parts list filter head PreLine

Pos.	Description	Order number
1	Screw plug for venting	21 008 05 311
2	Seal for venting screw plug	01 901 01 008
3	Sealing cover (incl. O ring)	66 606 47 141
4	Pins for sealing cover	01 163 06 018
5	O ring for adapter	23 023 32 141
6	Adapter for line M16x1.5	66 500 47 101
7	Plug screw inlet/outlet	01 440 16 001
8	Seal for plug screw inlet/outlet	01 901 01 016

PreLine 50

Main features and advantages

- Use with diesel fuel
DIN ISO 590 (5 % FAME)
DIN 51 628 (7 % FAME)
Kerosene JET-A1
- Up to 50 l/h volume flow rate
- Use of multigrade high performance media
- 93 % water separation
- Modular system with excellent flexibility
- Easy to service
- Integrated, effective and easy to handle hand pump with 45° position to drain off water and for priming during service
- Integrated water collector
- Parallel operation possible with a number of systems
- PreLine 50/2 as a combined pre-filter and main filter usable in applications where installation space is critical



Application areas

All modern common rail diesel engines used in agricultural and construction machines and industrial aggregates.

Further specifications are listed on the fold-out pages.

Order numbers PreLine 50

Description	Medium	Order number complete filter	MANN-FILTER spin-on filter	Water level sensor M8x1.25	Hand pump	Water collector	Diesel heater with bi-metal control	
							12 volt	24 volt
PreLine 50	PFO	66 401 62 140 66 401 62 144	PL 50	yes -	yes	integrated in spin-on filter	DH 12 (option)	DH 24 (option)
PreLine 50/1	PF	66 401 62 150 66 401 62 154	PL 50/1	yes -				
PreLine 50/2	HE	66 401 62 180 66 401 62 184	PL 50/2	yes -				

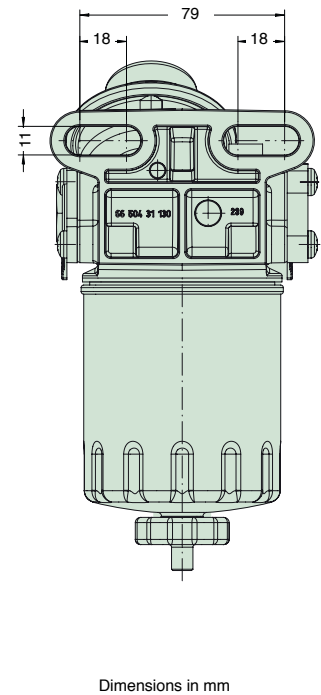
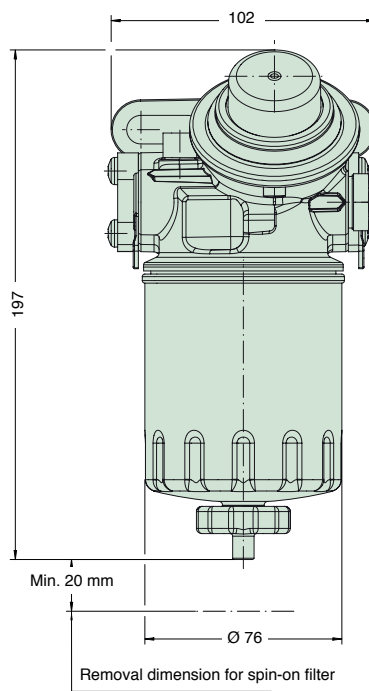
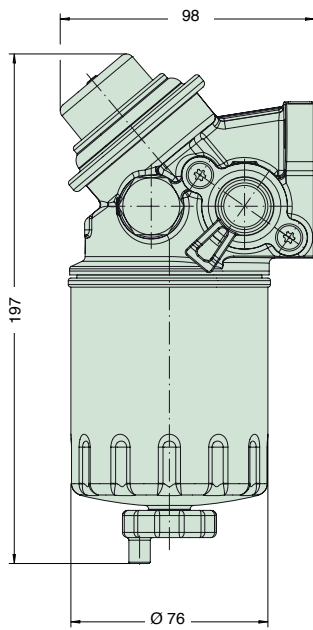
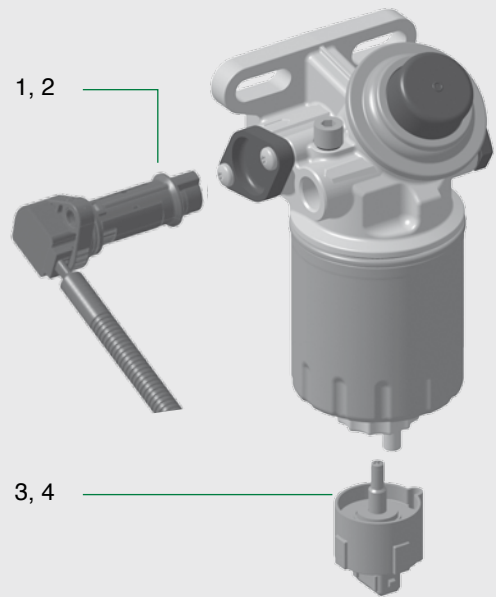
Specifications PreLine 50

Filter medium	Initial separation efficiency acc. to ISO 19 438:2003			PreLine 50	PreLine 50/1	PreLine 50/2
	Classes	4 µm (c)	6 µm (c)			
Multigrade F_PFO		≥ 10 %	≥ 30 %	X		
Multigrade F_PF		≥ 40 %	≥ 70 %		X	
Multigrade HE		≥ 95 %	≥ 99.5 %			X
Nominal volume flow rate				50 l/h		
Application	Pre-filter function with water separation			X	X	X
	Additional main filter function			-	-	X
Water separation	acc. to ISO/TR 16 332			> 93 %		
Operating pressure	Filter head and spin-on filter			4 bar		
Filter head	Connections	Inlet raw side		Right and left each with 2 x M16x1.5 Permanently installed hand pump Mounting for diesel heater right or left as required		
		Outlet clean side				

PreLine 50

Spare parts list PreLine 50

Pos.	Description	Order number
1	Heater (option, incl. seal)	DH 12
		DH 24
2	Seal for heater	23 023 32 141
3	Sensor M8x1.25	59 020 70 730
4	Seal for sensor M8x1.25	23 009 31 182



Dimensions in mm

PreLine 100 and 150

Main features and advantages

- Use with diesel fuel DIN ISO 590 (5 % FAME) DIN 51 628 (7 % FAME) Kerosene JET-A1
- Up to 100 or 150 l/h volume flow rate
- Use of multigrade high performance media
- 93 % water separation
- Modular system with excellent flexibility
- Easy to service
- Integrated, effective and easy to handle hand pump with 45° position to drain off water and for priming during service
- Integrated water collector
- Parallel operation possible with a number of systems
- PreLine 100/2 as a combined pre-filter and main filter usable in applications where installation space is critical



Application areas

All modern common rail diesel engines used in agricultural and construction machines and industrial aggregates.

Further specifications are listed on the fold-out pages.

Order numbers PreLine 100 and 150

Description	Medium	Order number complete filter	MANN-FILTER spin-on filter	Water level sensor M8x1.25	Hand pump	Water collector	Diesel heater with bi-metal control	
							12 volt	24 volt
PreLine 150	PFO	66 402 62 140 66 402 62 144	PL 150	yes -	yes	integrated in spin-on filter	DH 12 (option)	DH 24 (option)
PreLine 150/1	PF	66 402 62 150 66 402 62 154	PL 150/1	yes -				
PreLine 100/2	HE	66 402 62 180 66 402 62 184	PL 100/2	yes -				

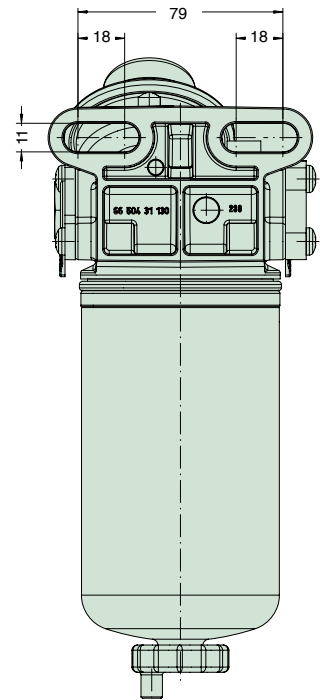
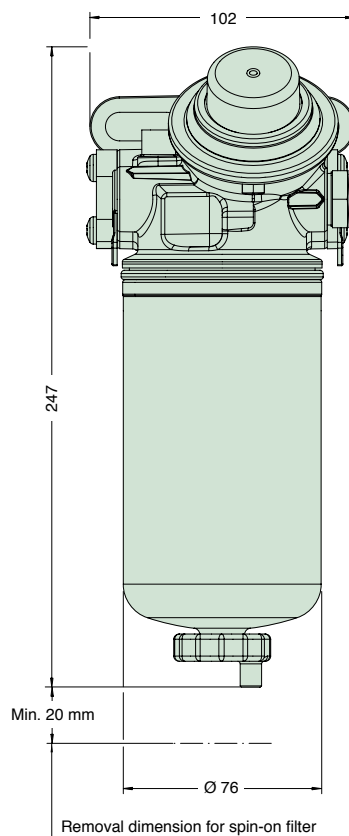
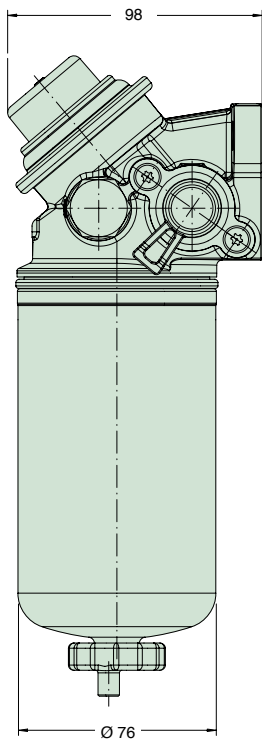
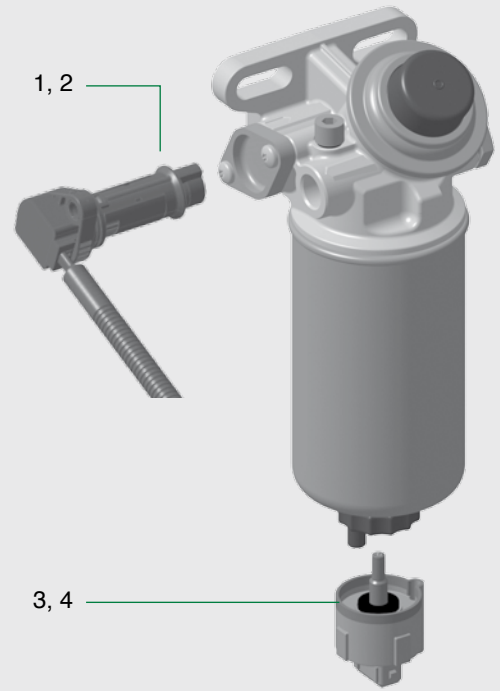
Specifications PreLine 100 and 150

Filter medium	Initial separation efficiency acc. to ISO 19 438:2003			PreLine 150	PreLine 150/1	PreLine 100/2
	Classes	4 µm (c)	6 µm (c)			
	Multigrade F_PFO	≥ 10 %	≥ 30 %	X		
	Multigrade F_PF	≥ 40 %	≥ 70 %		X	
Multigrade HE	≥ 95 %	≥ 99.5 %			X	
Nominal volume flow rate				150 l/h		100 l/h
Application	Pre-filter function with water separation			X	X	X
	Additional main filter function			-	-	X
Water separation	acc. to ISO/TR 16 332			> 93 %		
Operating pressure	Filter head and spin-on filter			4 bar		
Filter head	Connections	Inlet raw side		Right and left each with 2 x M16x1.5 Permanently installed hand pump Mounting for diesel heater right or left as required		
		Outlet clean side				

PreLine 100 and 150

Spare parts list PreLine 100 and 150

Pos.	Description	Order number
1	Heater (option, incl. seal)	DH 12
		DH 24
2	Seal for heater	23 023 32 141
3	Sensor M8x1.25	59 020 70 730
4	Seal for sensor M8x1.25	23 009 31 182



PreLine 250

Main features and advantages

- Use with diesel fuel
DIN ISO 590 (5 % FAME)
DIN 51 628 (7 % FAME)
Kerosene JET-A1
- Up to 250 l/h volume flow rate
- Use of multigrade high performance media
- 93 % water separation
- Modular system with excellent flexibility
- Easy to service
- Integrated, effective and easy to handle hand pump with 45° position to drain off water and for priming during service
- Integrated water collector
- Parallel operation possible with a number of systems

Application areas

All modern common rail diesel engines used in agricultural and construction machines and industrial aggregates.

Further specifications are listed on the fold-out pages.



Order numbers PreLine 250

Description	Medium	Order number complete filter	MANN-FILTER spin-on filter	Water level sensor M12x1.5	Hand pump	Water collector	Diesel heater with bi-metal control	
							12 volt	24 volt
PreLine 250	PFO	66 504 62 140 66 504 62 144	PL 250	yes -	yes	integrated in spin-on filter	DH 12 (option)	DH 24 (option)
PreLine 250/1	PF	66 504 62 150 66 504 62 154	PL 250/1	yes -				

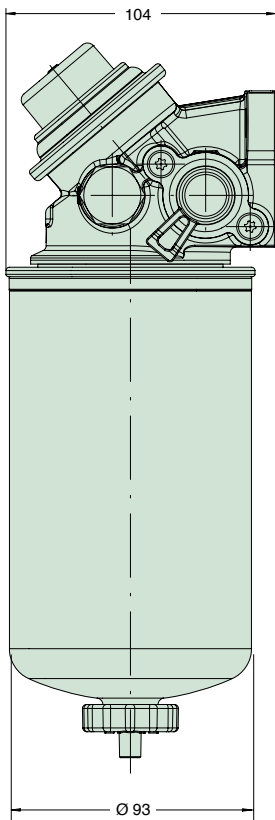
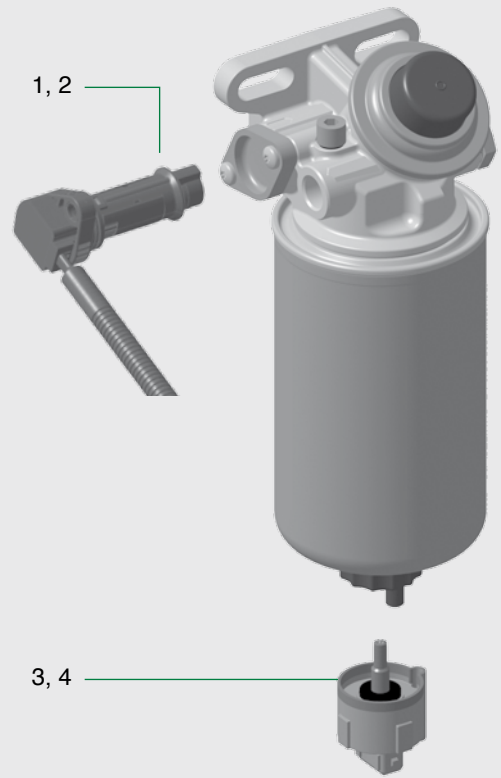
Specifications PreLine 250

Filter medium	Initial separation efficiency acc. to ISO 19 438:2003			PreLine 250	PreLine 250/1
	Classes	4 µm (c)	6 µm (c)		
	Multigrade F_PFO	≥ 10 %	≥ 30 %	X	
	Multigrade F_PF	≥ 40 %	≥ 70 %		X
Nominal volume flow rate	250 l/h				
Application	Pre-filter function with water separation			X	X
	Additional main filter function			-	-
Water separation	acc. to ISO/TR 16 332			> 93 %	
Operating pressure	Filter head and spin-on filter			4 bar	
Filter head	Connections	Inlet raw side		Right and left each with 2 x M16x1.5 Permanently installed hand pump Mounting for diesel heater right or left as required	
		Outlet clean side			

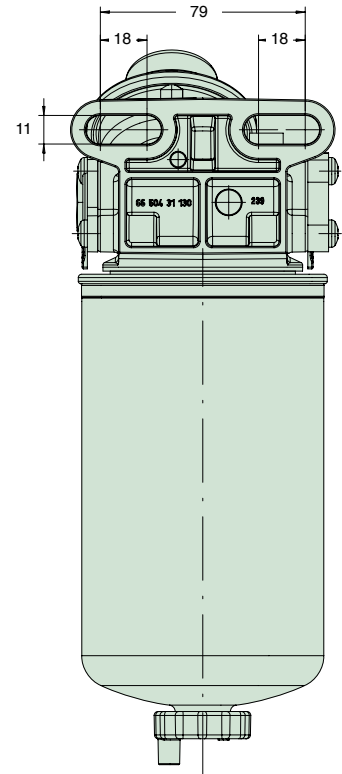
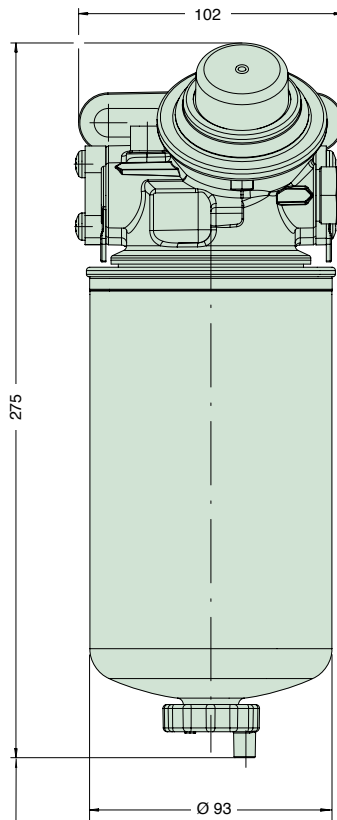
PreLine 250

Spare parts list PreLine 250

Pos.	Description	Order number
1	Heater (option, incl. seal)	DH 12
		DH 24
2	Seal for heater	23 023 32 141
3	Sensor M12x1.5	59 020 70 731
4	Seal for sensor M12x1.5	23 012 31 242



Removal dimension for spin-on filter approx. 20 mm



Dimensions in mm

PreLine modular system (200 to 600 l/h)

MANN+HUMMEL offers an especially compact modular system for diesel engines with outputs between 200 to approx. 600 l/h.

This PreLine - series includes the following sizes:

PreLine 270
PreLine 270/1
PreLine 420
PreLine 420/1
PreLine 601
PreLine 601/1

Application areas

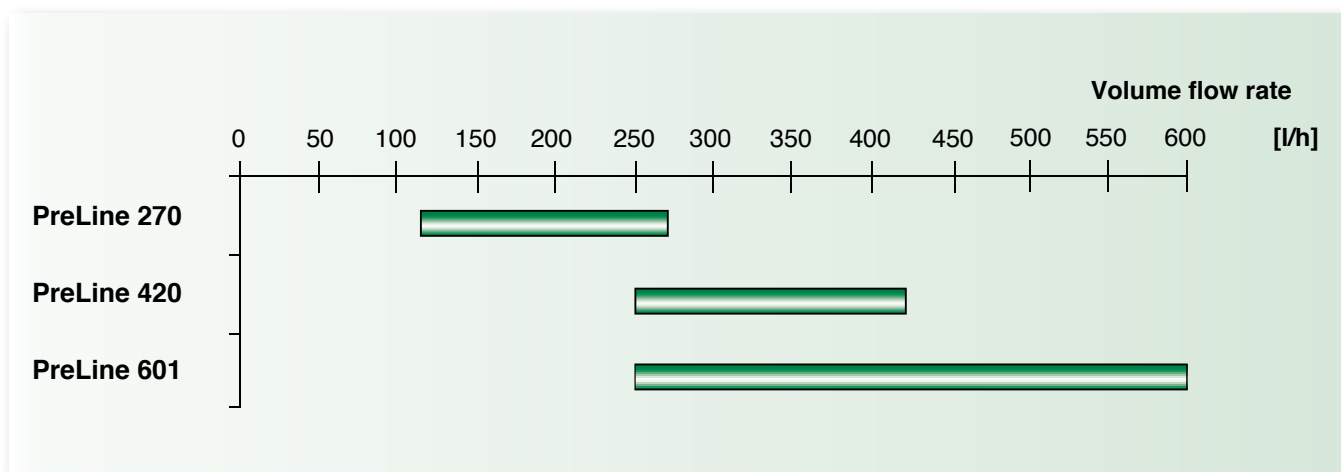
High performance filtration for all diesel aggregates from approx. 200 l/h to 600 l/h. PreLine offers reliable protection against wear and corrosion caused by particles and water in modern common rail injection systems, in-line injection pumps and distribution injection pumps.

PreLine also perfectly protects every diesel engine under difficult conditions in construction machines and many other applications such as skid steer loaders, backhoe loaders, tractors, forklifts, mobile and stationary compressors.

The advantages at a glance:

- High performance filtration in a small installation space
- Easy handling
- 45° positioned hand pump
- Extremely stable design
- High water separation (e.g. ≥ 93 % acc. to ISO/TR 16 332)
- Up to 40 % particle separation for 4 μm (c) particles
- Diesel heater in 12 or 24 volt with up to 350 watt output (option)
- 12 and 24 volt compatible water sensors (option)
- Available with the external or integrated water collector

Volume flow coverage



PreLine modular system (200 to 600 l/h)

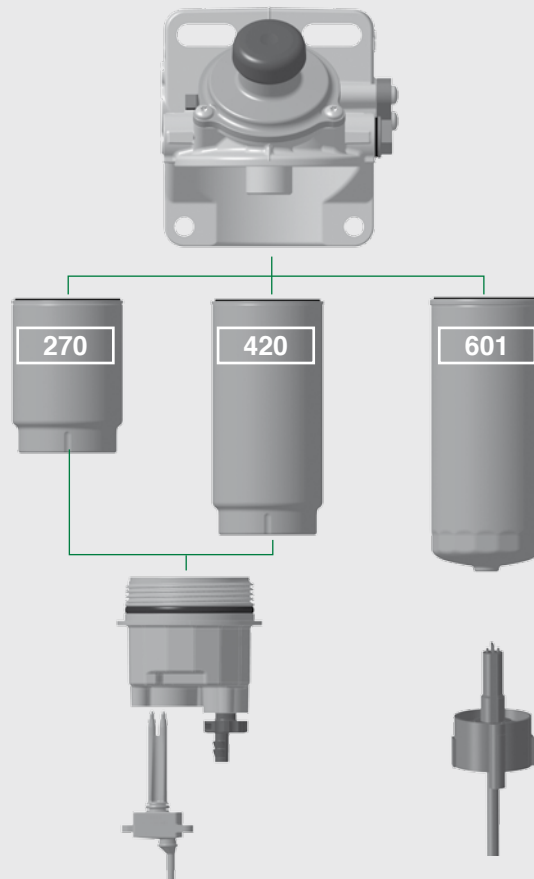
Filter head
with hand pump

Diesel heater
12 or 24 volt

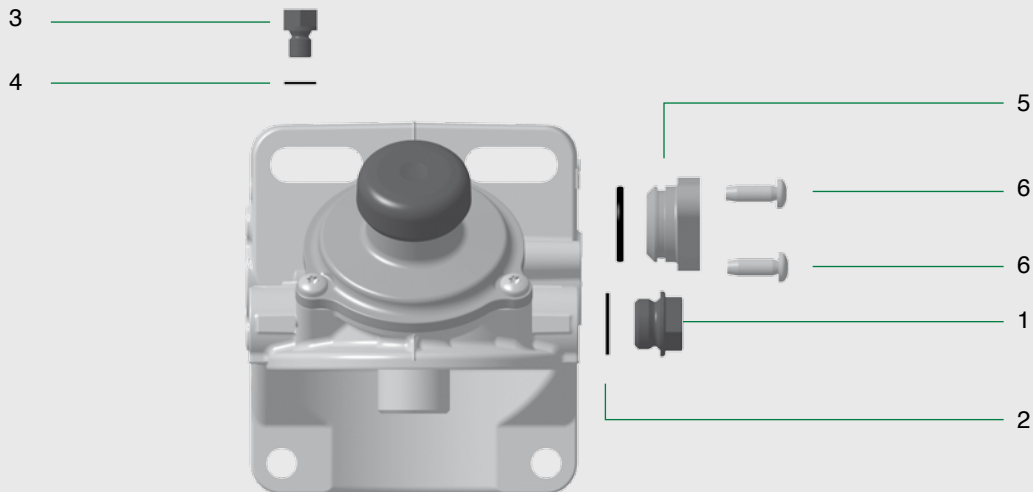
Spin-on filter
PL 270 or PL 270/1
PL 420 or PL 420/1
PL 601 or PL 601/1

Water collector

Water level sensor
12/24 volt



PreLine filter head (200 to 600 l/h)



Spare parts list filter head PreLine

Pos.	Description	Order number
1	Screw plug inlet/outlet M16x1.5	01 440 16 001
1	Screw plug inlet/outlet M18x1.5	01 440 18 001
2	Seal for screw plug inlet/outlet M16	01 901 01 016
2	Seal for screw plug inlet/outlet M18	01 901 01 018
3	Screw plug for venting	21 008 05 271
4	Seal for venting screw plug	01 901 01 008
5	Sealing cover (incl. O ring)	66 606 47 141
6	Pins for sealing cover	01 163 06 018

PreLine 270

Main features and advantages

- Use with diesel fuel
DIN ISO 590 (5 % FAME)
DIN 51 628 (7 % FAME)
- Up to 270 l/h volume flow rate

- Use of multigrade high performance media
- 93 % water separation
- Modular system with excellent flexibility
- Easy to service

- Integrated, effective and easy to handle hand pump with 45° position to drain off water and for priming during service
- Large external water collector
- Parallel operation possible with a number of systems



Application areas

All modern common rail diesel engines used in agricultural and construction machines and industrial aggregates.

Further specifications are listed on the fold-out pages.

Order numbers PreLine 270

Description	Medium	Order number complete filter	MANN-FILTER spin-on filter	Water level sensor	Hand pump	Water collector	Diesel heater with bi-metal control	
							12 volt	24 volt
PreLine 270	PFO	66 604 62 261	PL 270 X	yes	yes	yes	DH 12 (option)	DH 24 (option)
		66 604 62 263		-	-			
		66 604 62 265		-	yes			
		66 604 62 267		yes	-			
PreLine 270/1	PF	66 604 62 251	PL 270/1 X	yes	yes	yes	DH 12 (option)	DH 24 (option)
		66 604 62 253		-	-			
		66 604 62 255		-	yes			
		66 604 62 257		yes	-			

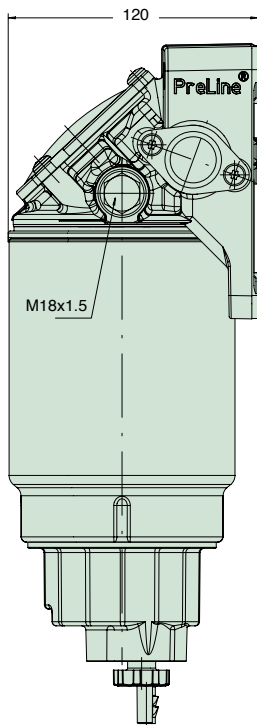
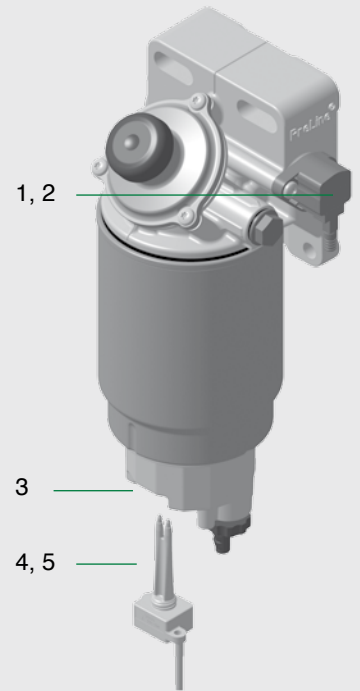
Specifications PreLine 270

Filter medium	Initial separation efficiency acc. to ISO 19 438:2003			PreLine 270	PreLine 270/1
	Classes	4 µm (c)	6 µm (c)		
	Multigrade F_PFO	≥ 10 %	≥ 30 %	X	
	Multigrade F_PF	≥ 40 %	≥ 70 %		X
Nominal volume flow rate				270 l/h	
Application	Pre-filter function with water separation			X	X
	Additional main filter function			-	-
Water separation	acc. to ISO/TR 16 332			> 93 %	
Operating pressure	Filter head and spin-on filter			4 bar	
Filter head	Connections	Inlet raw side		Only left 1 x M18x1.5 With or without hand pump Mounting for diesel heater on right	
		Outlet clean side			

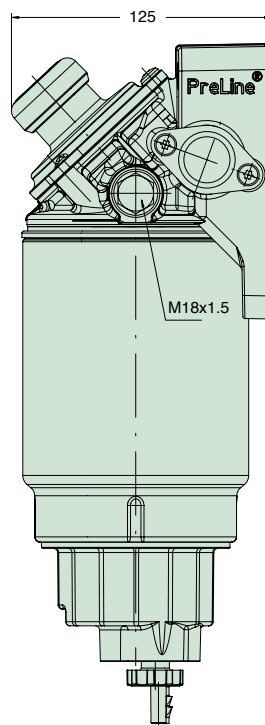
PreLine 270

Spare parts list PreLine 270

Pos.	Description	Order number
1	Heater (option, incl. seal)	DH 12
		DH 24
2	Seal for heater	23 023 32 141
3	Service kit (plastic water collector with drain screw incl. seals)	66 606 49 200
	Service kit suitable for PreLine with water level sensor (plastic water collector with drain screw incl. seals)	66 606 12 919
	Service kit suitable for PreLine without water level sensor (plastic water collector with drain screw incl. seals)	66 606 12 949
	Sealing ring for water collector is delivered with each new element with an "X". Example: PL 270 X	not available separately
4	Sensor 70 mm (option, retrofit not possible)	59 020 70 772
5	Sensor screw (2x)	01 381 04 016

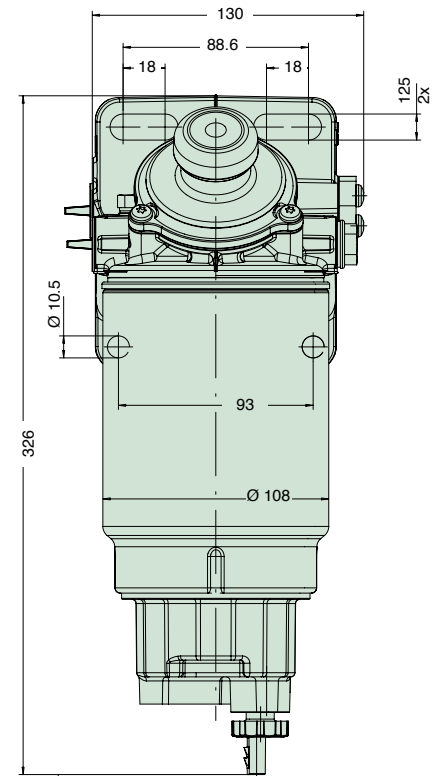


PreLine without hand pump



PreLine with hand pump

Dimensions in mm



Removal dimension for spin-on filter
min. 22 mm

PreLine 420

Main features and advantages

- Use with diesel fuel
DIN ISO 590 (5 % FAME)
DIN 51 628 (7 % FAME)
- Up to 420 l/h volume flow rate
- Use of multigrade high performance media
- 93 % water separation
- Modular system with excellent flexibility
- Easy to service
- Integrated, effective and easy to handle hand pump with 45° position to drain off water and for priming during service
- Large external water collector
- Parallel operation possible with a number of systems

Application areas

All modern common rail diesel engines used in agricultural and construction machines and industrial aggregates.

Further specifications are listed on the fold-out pages.



Order numbers PreLine 420

Description	Medium	Order number complete filter	MANN-FILTER spin-on filter	Water level sensor	Hand pump	Water collector	Diesel heater with bi-metal control	
							12 volt	24 volt
PreLine 420	PFO	66 606 62 261	PL 420 X	yes	yes	yes	DH 12 (option)	DH 24 (option)
		66 606 62 263		-	-			
		66 606 62 265		-	yes			
		66 606 62 267		yes	-			
PreLine 420/1	PF	66 606 62 251	PL 420/1 X	yes	yes	yes	DH 12 (option)	DH 24 (option)
		66 606 62 253		-	-			
		66 606 62 255		-	yes			
		66 606 62 257		yes	-			

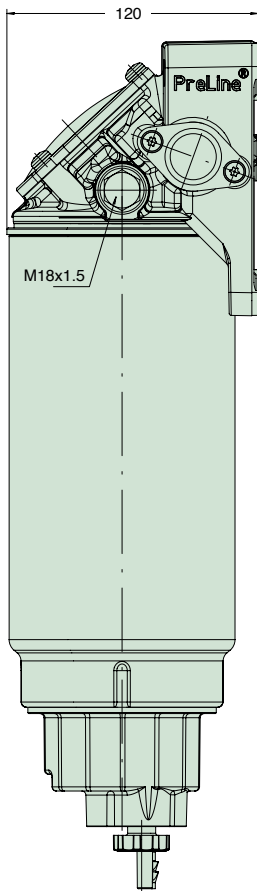
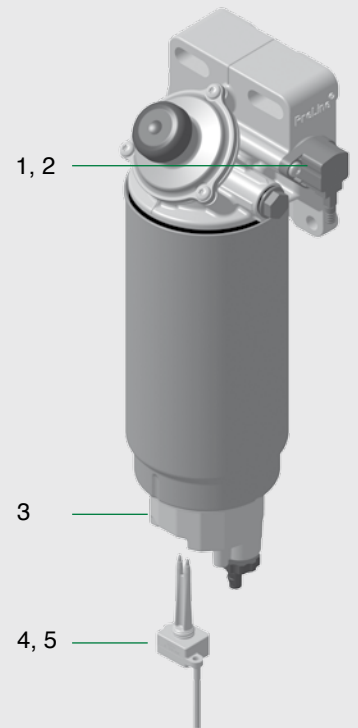
Specifications PreLine 420

Filter medium	Initial separation efficiency acc. to ISO 19 438:2003			PreLine 420	PreLine 420/1
	Classes	4 µm (c)	6 µm (c)		
	Multigrade F_PFO	≥ 10 %	≥ 30 %	X	
	Multigrade F_PF	≥ 40 %	≥ 70 %		X
Nominal volume flow rate				420 l/h	
Application	Pre-filter function with water separation			X	X
	Additional main filter function			-	-
Water separation	acc. to ISO/TR 16 332			> 93 %	
Operating pressure	Filter head and spin-on filter			4 bar	
Filter head	Connections	Inlet raw side		Only left 1 x M18x1.5 With or without hand pump Mounting for diesel heater on right	
		Outlet clean side			

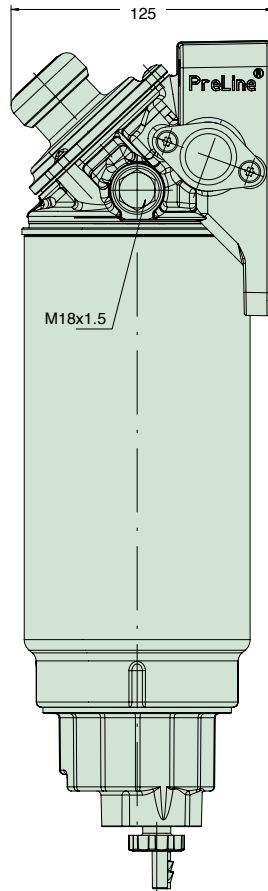
PreLine 420

Spare parts list PreLine 420

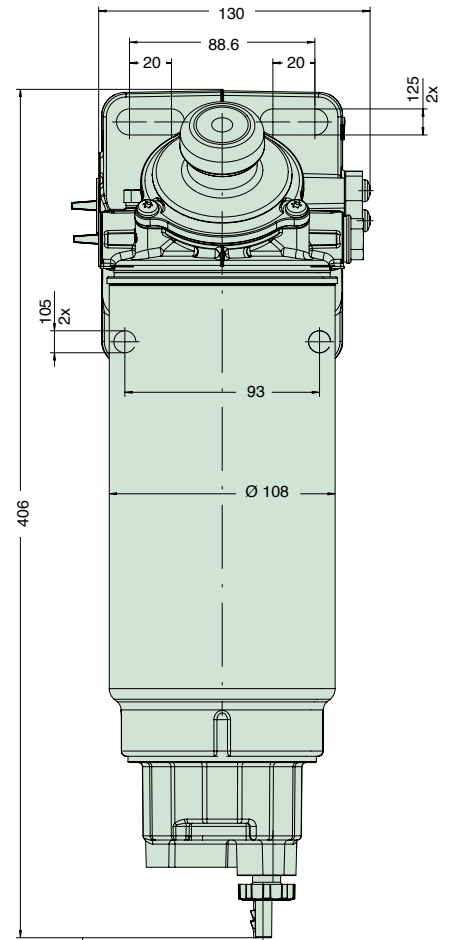
Pos.	Description	Order number
1	Heater (option, incl. seal)	DH 12
		DH 24
2	Seal for heater	23 023 32 141
3	Service kit (plastic water collector with drain screw incl. seals)	66 606 49 200
	Service kit suitable for PreLine with water level sensor (plastic water collector with drain screw incl. seals)	66 606 12 919
	Service kit suitable for PreLine without water level sensor (plastic water collector with drain screw incl. seals)	66 606 12 949
	Sealing ring for water collector is delivered with each new element with an "X". Example: PL 420 X	not available separately
4	Sensor 70 mm (option, retrofit not possible)	59 020 70 772
5	Sensor screw (2x)	01 381 04 016



PreLine without hand pump



Dimensions in mm PreLine with hand pump



Removal dimension for spin-on filter min. 22 mm

PreLine 601

Main features and advantages

- Use with diesel fuel
DIN ISO 590 (5 % FAME)
DIN 51 628 (7 % FAME)
- Up to 600 l/h volume flow rate
- Use of multigrade high performance media
- 93 % water separation
- Modular system with excellent flexibility
- Easy to service
- Integrated, effective and easy to handle hand pump with 45° position to drain off water and for priming during service
- Integrated water collector
- Parallel operation possible with a number of systems

Application areas

All modern common rail diesel engines used in agricultural and construction machines and industrial aggregates.

Further specifications are listed on the fold-out pages.



Order numbers PreLine 601

Description	Medium	Order number complete filter	MANN-FILTER spin-on filter	Water level sensor M12x1.5	Hand pump	Water collector	Diesel heater with bi-metal control	
							12 volt	24 volt
PreLine 601	PFO	66 607 62 160	PL 601	yes	yes	integrated in spin-on filter	DH 12 (option)	DH 24 (option)
		66 607 62 164		-	yes			
PreLine 601/1	PF	66 607 62 150	PL 601/1	yes	yes			
		66 607 62 154		-	yes			

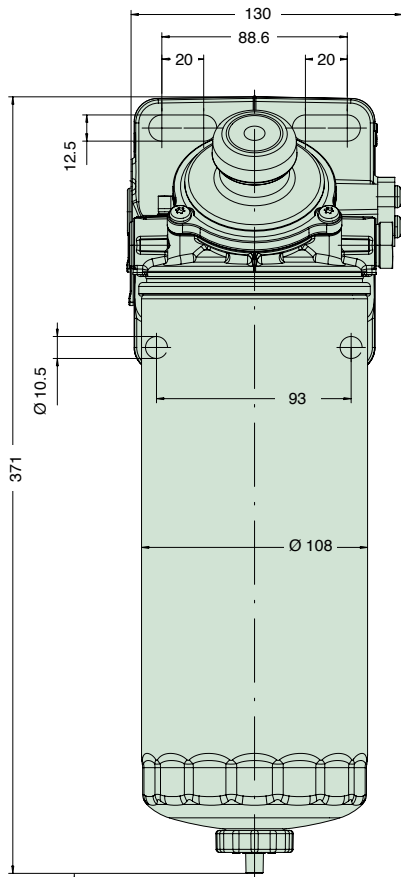
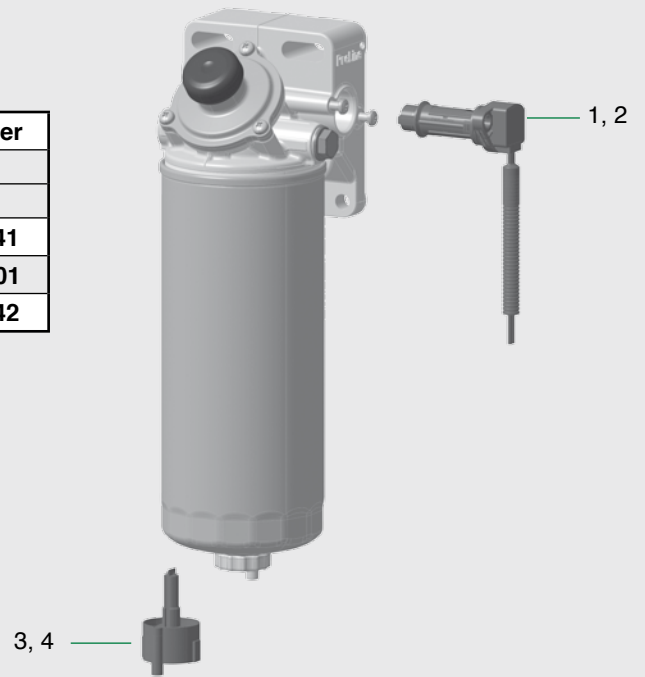
Specifications PreLine 601

Filter medium	Initial separation efficiency acc. to ISO 19 438:2003			PreLine 601	PreLine 601/1
	Classes	4 µm (c)	6 µm (c)		
	Multigrade F_PFO	≥ 10 %	≥ 30 %	X	
	Multigrade F_PF	≥ 40 %	≥ 70 %		X
Nominal volume flow rate	600 l/h				
Application	Pre-filter function with water separation			X	X
	Additional main filter function			-	-
Water separation	acc. to ISO/TR 16 332			> 93 %	
Operating pressure	Filter head and spin-on filter			4 bar	
Filter head	Connections	Inlet raw side		Only left 1 x M16x1.5 With or without hand pump Mounting for diesel heater on right	
		Outlet clean side			

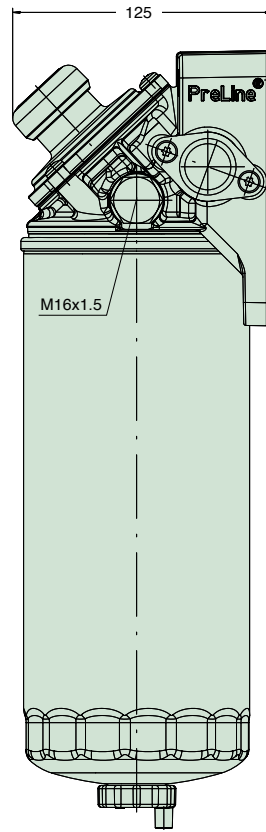
PreLine 601

Spare parts list PreLine 601

Pos.	Description	Order number
1	Heater (option, incl. seal)	DH 12
		DH 24
2	Seal for heater	23 023 32 141
3	Sensor M12x1.5	10 517 67 S01
4	Seal for sensor M12x1.5	23 012 31 242



Removal dimension
for spin-on filter min. 22 mm



Dimensions in mm

PreLine – Accessories



Diesel heaters

The two diesel heaters DH 12 and DH 24 can be used to improve the flow in the filter system under cold start conditions with the aim of improving the cold start behaviour. Their respective heating output of 250 or 350 watts positively influences the viscosity of the diesel fuel at low temperatures.

Both heaters have built-in safety mechanisms whereby the heating elements limit themselves automatically due to a physical effect and cannot exceed a given maximum temperature.

Diesel heaters		Order number	
		DH 24	DH 12
Compatible to all PreLine filter systems		X	
Control		PTC / bi-metal	
Voltage		24 V DC	12 V DC
Output at -20 °C (ambient conditions + fuel)		350 W +12 % / -35 %	250 W ± 35 %
Operating voltage		16 to 32 V DC	8 to 16 V DC
Continuous current		Max. 14.5 A at Up = 27.6 V	Max. 18.5 A at Up = 13.5 V
Switch-on current		17.2 A at Up = 27.6 V DC	25 A at Up = 13.5 V
Temperatures	Surface heat exchanger	≤ 162 °C	
	In use	-30 °C to 95 °C	
	Switch-on point	-2 °C ± 3 °C	
	Switch-off point	+9 °C ± 3 °C	
Operating pressure		6 bar	
Protection rating	DIN 40 050 part 9	6K9K	

PreLine – Accessories



Water level sensors

MANN+HUMMEL water level sensors use the difference in water and diesel line resistance to recognise the respective medium.

Depending on the respective connection, the signals can be processed by modern multi-function panels with a

display and also used by simple display lamps. The sensors described here only have a single signal status which is active when a signal is present.

This option offers considerably more comfort. It is no longer necessary to regularly drain the separated water.

Water level sensors		Order number			
		59 020 70 730	59 020 70 731	59 020 70 772	10 517 67 S01
Compatible to the following PreLine filter systems	50 / 100 / 150	X			
	250		X		
	270 / 420			X	
	601				X
Output signal	Input	200 mA	150 mA	10 mA	300 mA
	No water	no signal (<15 mA)	11.8 V (<15 mA)	70 % - 76 % of U_s / U_{s2}	
	With water	signal (<200 mA)	1.9 V (<150 mA)	17 % - 23 % of U_s / U_{s2}	
Nominal voltage		12/24 V DC	12/24 V DC	12/24 V DC	12/24 V DC
Operating voltage		9 to 12 V DC	8 to 12 V DC	8 to 16 / 16 to 36 V DC	8 to 16 / 16 to 36 V DC
Operating temperature		-30 °C to 100 °C			
Protection rating	DIN 40 050 part 9	IPX9K	IPX4K / IPX9K	IP6K9K	

Notes

A series of 20 horizontal light green bars, stacked vertically, intended for writing notes. The bars are uniform in height and width, spanning most of the page's width.

Selection of MANN+HUMMEL product catalogues

Air Cleaners

Europiclon
NLG filters
Vacuum filters

Catalogue order no.
19 941 10 100 (German)
19 941 10 101 (English)
Further languages on request.



Liquid Filters

Spin-on filters
Fuel filters
In-line filters

Catalogue order no.
19 942 10 100 (German)
19 942 10 101 (English)
Further languages on request.



ProVent

The filter series for
crankcase ventilation

Catalogue order no.
19 944 10 100 (German)
19 944 10 101 (English)
Further languages on request.



Air/oil separators for compressors and vacuum pumps

Air/oil separators
Air/oil boxes

Catalogue order no.
19 943 00 100 (German)
19 943 00 101 (English)
Further languages on request.



MANN-FILTER

Filter elements in OEM
matching quality for
construction and agricultural
machines:

- Air cleaners
- Oil filters
- Fuel filters
- Hydraulic filters
- Cabin filters

Catalogue order no.
19 939 24 600 multi-lingual



PreLine — Everything at a glance



Filter medium	Initial separation efficiency according to ISO 19 438:2003			PreLine 50	PreLine 50/1	PreLine 50/2	PreLine 100/2	PreLine 150	PreLine 150/1	PreLine 250	PreLine 250/1	PreLine 270	PreLine 270/1	PreLine 420	PreLine 420/1	PreLine 601	PreLine 601/1		
	Classes	4 µm (c)	6 µm (c)																
	Multigrade F_PFO	≥ 10 %	≥ 30 %	X				X		X		X		X		X			
	Multigrade F_PF	≥ 40 %	≥ 70 %		X				X		X		X		X		X		
	Multigrade HE	≥ 95 %	≥ 99.5 %			X	X												
Nominal volume flow rate				50 l/h			100 l/h	150 l/h		250 l/h		270 l/h		420 l/h		600 l/h			
Application	Pre-filter function with water separation			X	X	X	X	X	X	X	X	X	X	X	X	X	X		
	Additional main filter function			-	-	X	X	-	-	-	-	-	-	-	-	-	-		
Water separation	acc. to ISO/TR 16 332			> 93 %															
Water collector				80 ml				15 ml				200 ml		350 ml		600 ml		500 ml	
Hand pump	Delivered volume per stroke			15 ml															
Operating pressure				4 bar															
Filter head	Connections	Inlet raw side		Right and left each with 2 x M16x1.5										Only left 1 x M18x1.5		Only left 1 x M16x1.5			
		Outlet clean side		Permanently installed hand pump Mounting for diesel heater right or left as required										With and without hand pump Mounting for diesel heater on right					



MANN+HUMMEL Group

The MANN+HUMMEL Group is an international company and employs over 14,700 people at 50 locations worldwide.

The group develops, produces and distributes innovative technical components and systems for the automotive industry and many other industrial fields.

A key area is high quality filtration products for vehicles, engines and industrial applications. The OEM business with global market leaders and producers of vehicles, machines and installations defines the quality and performance of the products. Filters for the international aftermarket are sold under numerous international brands as well as under the MANN-FILTER brand.

MANN+HUMMEL Industrial Filtration

The Industrial Filtration Business Unit with its headquarters in Speyer, Germany, specialises in meeting the requirements of off-highway vehicle and engine applications, compressed air and vacuum technology, mechanical engineering and plant construction. For these and other industrial fields MANN+HUMMEL Industrial Filtration offers high performance products for the filtration and separation of air, gases and liquids.



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