

# MANN+HUMMEL Filters for compressors





**Full program.  
Highest quality.  
Best service.**

Achieve higher sales with MANN-FILTER

29 NOVEMBER 2018

**MANN  
FILTER**

# AGENDA

**01**

MANN+HUMMEL  
company

**02**

Perfect  
parts

**03**

Perfect  
service

**01**

**MANN+HUMMEL**  
company

**02**

Perfect  
parts

**03**

Perfect  
service

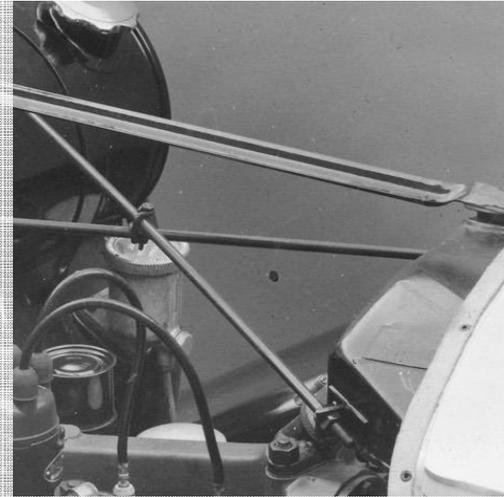
**MANN  
FILTER**

We look forward.  
Because we know where we have come from!

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## Founded in January 1941

Filterwerk  
MANN+HUMMEL



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## Internationalization

International offices  
from the outset

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## Founders

Adolf Mann and  
Dr. Erich Hummel

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## Tradition

Sense of responsibility  
and community of a  
family-led company

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## 75 years

Pioneers with inventive  
genius

Our  
filtration solutions?  
Simply clean.

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## Our vision

Leadership in Filtration



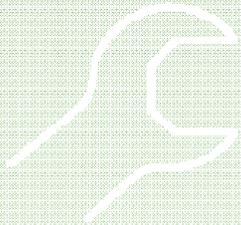
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Automotive  
Original Equipment



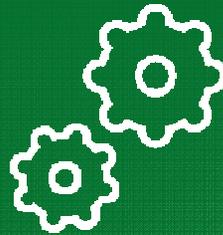
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Automotive  
Aftermarket



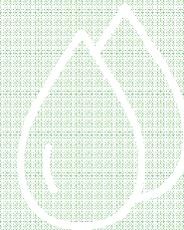
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Industrial Filtration



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Water Filtration



# The MANN+HUMMEL company

## MANN+HUMMEL brands



# The MANN+HUMMEL company

## Industrial Filtration – MANN+HUMMEL Speyer



# The MANN+HUMMEL company

## Industrial Filtration – business segments

Heavy Duty

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**MANN +  
HUMMEL**

Industry and Special Applications

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**MANN +  
HUMMEL**

Compressors

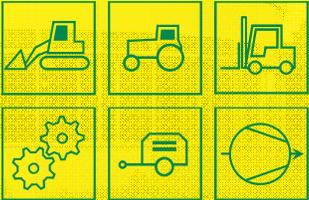
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**MANN +  
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Independent Aftermarket

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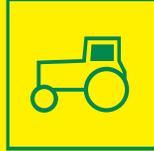


# The MANN+HUMMEL company

## Industrial Filtration – applications



**Construction  
machines**



**Agricultural  
machines**



**Compressors**



**Gensets**

# The MANN+HUMMEL company

MANN+HUMMEL brands



## The MANN+HUMMEL company MANN+HUMMEL brands

**MANN+  
HUMMEL**



**2016**

MANN+HUMMEL employs  
around 20,000 staff worldwide

*“The addition of WIX FILTERS to MANN+HUMMEL strengthens our global presence with an expanded product portfolio and access to new markets. Our joint 150 years of experience, 20,000 employees and 70 locations worldwide ensure that we will continue to serve our customers with the best in filtration solutions.”*

*Alfred Weber, President and Chief Executive Officer of MANN+HUMMEL*

# The MANN+HUMMEL company

## WIX – business segments

### Wix's products are used in applications such as

- Light-duty vehicles
- Medium-duty vehicles
- On-highway trucks
- Severe service vehicles
- Construction, agricultural, mining, forestry equipment
- Industrial applications
- Marine applications



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**MANN  
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## The MANN+HUMMEL company Industrial Filtration – Compressor

- Driven machine, which sucks in ambient air and compresses it to a higher pressure level.
- Compressors are driven by driving machines (e.g. electric motors or combustion engines)



# The MANN+HUMMEL company

## Industrial Filtration – Type of Compressor

Generally one differs between

**Mobile compressors**  
(mobile)

and

**Stationary compressors** (connected to the compressed air network of a building in a fixed position)

Mobile compressors



Stationary compressors

# The MANN+HUMMEL company

## Industrial Filtration – Type of Compressor

Further differences:

**Screw type compressors**

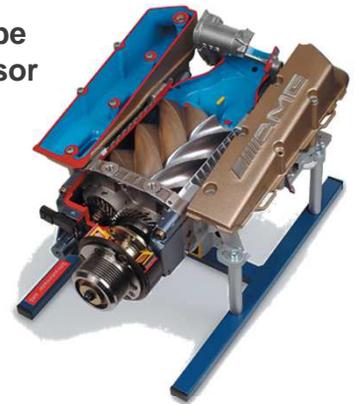
and

**Piston compressors**

less expensive with a more compact design

**Industrial compressors are generally screw-type compressors**

Screw-type  
compressor  
(section)

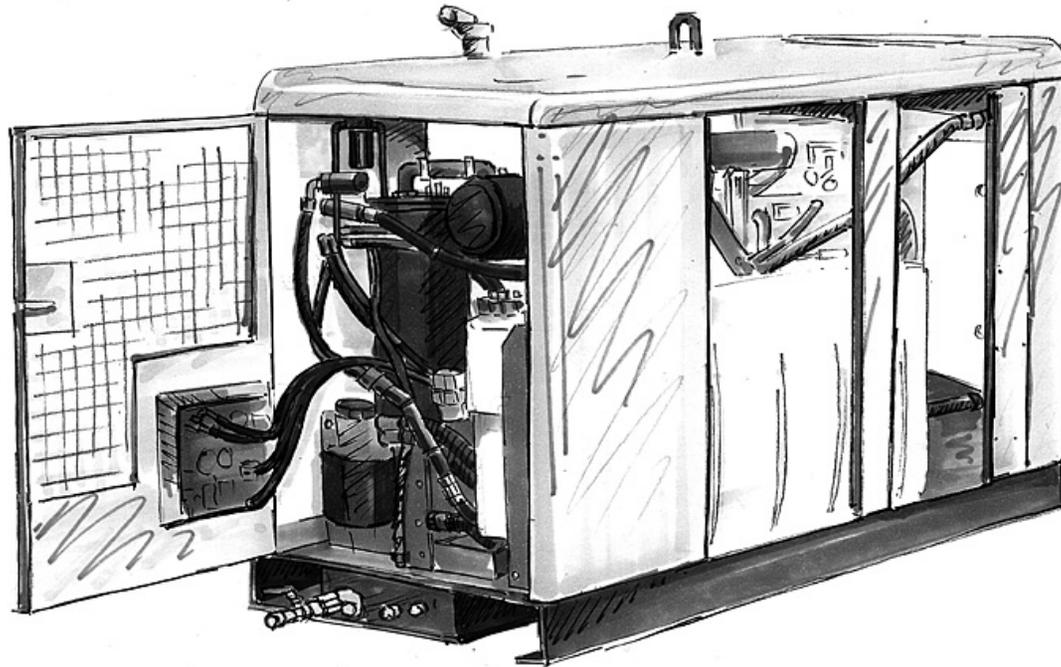


Piston  
compressor



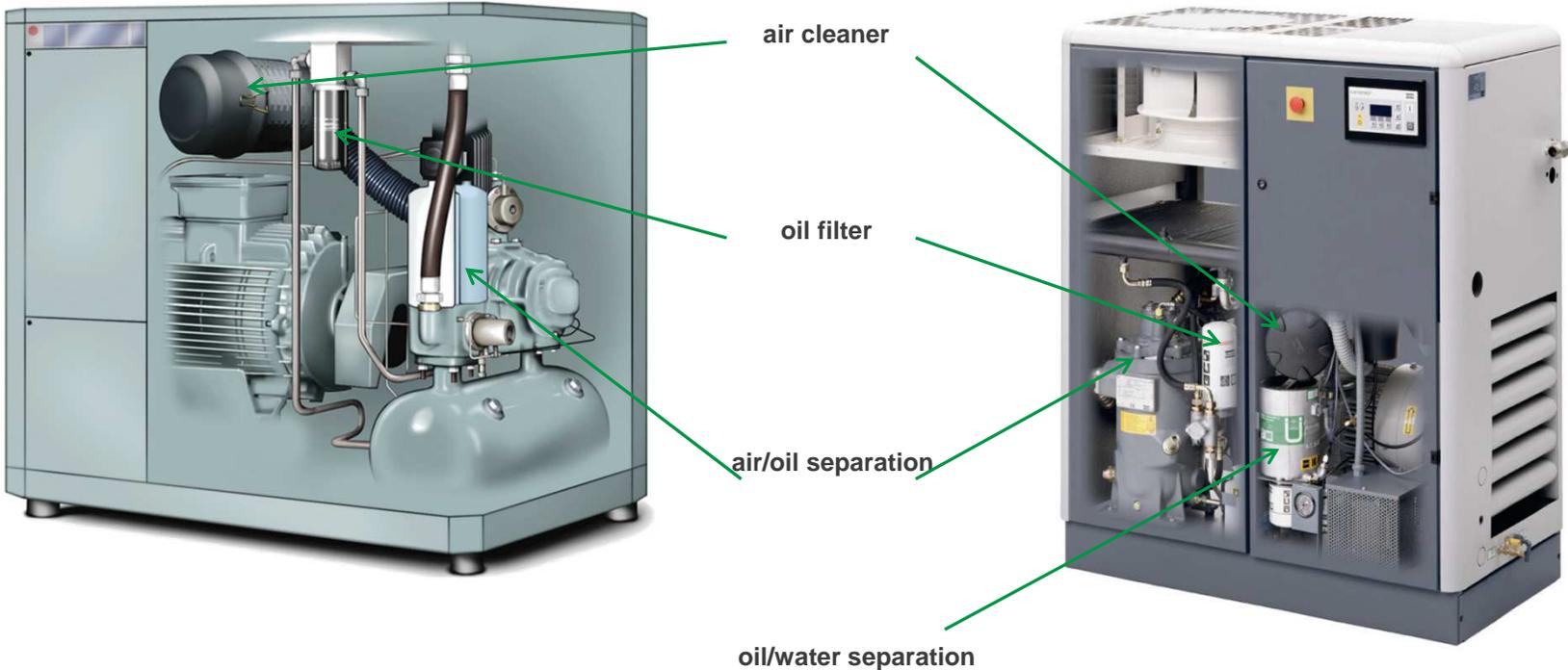
## The MANN+HUMMEL company

### Industrial Filtration – Compressor components and their function



# The MANN+HUMMEL company

## Industrial Filtration – Compressor components and their function



# The MANN+HUMMEL company

## Air Cleaner

### Air cleaners



Volume flow range	0,15 m <sup>3</sup> /min to 45 m <sup>3</sup> /min
Operating temperature	Continuous: -40 °C to +80 °C For short periods: +100 °C
Advantages	<ul style="list-style-type: none"><li>• High power density</li><li>• Compact design</li><li>• Long service life</li></ul>
Typical applications	Compressors
Accessories	Hoses, elbows, service switches, service indicators, and rain caps

# The MANN+HUMMEL company

## Air Cleaner



### Filter Element Description

- Main Filter  
C XX XXX
  
- Secondary Filter  
CF XXX

Size EUROPICLON	Order no.		Fig.	Nominal flow rate [m³/min]	Replacement filter element	
	without secondary element	with secondary element			MANN-FILTER main element	MANN-FILTER secondary element
100	45 100 92 910	45 100 92 911	1a	1 - 3	C 11 100	CF 100
	45 100 92 940	45 100 92 941	1b			
200	45 200 92 910	45 200 92 911	2a	2 - 4.5	C 14 200	CF 200
	45 200 92 920	45 200 92 921	2b			
	45 200 92 940	45 200 92 941	2c			
300	45 300 92 910	45 300 92 911	2a	3 - 6	C 15 300	CF 300
	45 300 92 920	45 300 92 921	2b			
	45 300 92 940	45 300 92 941	2c			
400	45 400 92 910	45 400 92 911	2a	4 - 8	C 16 400	CF 400
	45 400 92 920	45 400 92 921	2b			
	45 400 92 940	45 400 92 941	2c			
500	45 500 92 910	45 500 92 911	2a	6 - 12	C 20 500	CF 500
	45 500 92 920	45 500 92 921	2b			
	45 500 92 940	45 500 92 941	2c			

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## Oil Filters

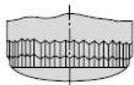
### Oil filters



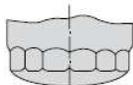
Application	Oil-lubricated and oil-cooled compressors
Operating temperature	Up to 120 °C
Max. operating pressure	14 to 35 bar
Available nominal flow rates	20 to 200 l/min
Advantages	<ul style="list-style-type: none"><li>• Process reliability through use of high quality media</li><li>• Easy, space-saving fitting and removal</li><li>• Thoroughly tried and tested and reliable</li></ul>
Accessories	Heads, service switches, service indicators

# The MANN+HUMMEL company Oil Filters

Standard oil filters for compressors  
Dimensions and order numbers



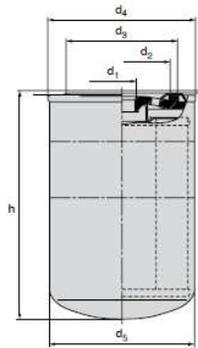
Design B



Design C



Design E



## Filter Element Description

W XXX  
W XXX/X  
WD XXX  
WD XXX/XX

MANN-FILTER	Nominal flow	Dimensions in mm ( <i>Dimensions in inches</i> )						Bypass valve		Permissible operating pressure		Design
	[l/min] [gpm]	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	h	[bar]	[MPa]	[bar]	[MPa]	
WD 940/2	50 [13]	1"-12 UNF	62 (2.44)	71 (2.80)	96 (3.78)	93 (3.66)	144 (5.67)	2.5	0.25	25	2.5	E
W 950/31	60 [16]	1"-12 UNF	62 (2.44)	71 (2.80)	96 (3.78)	93 (3.66)	170 (6.69)	2.0	0.2	14	1.4	B
WD 962/8	75 [20]	1"-12 UNF	62 (2.44)	71 (2.80)	96 (3.78)	93 (3.66)	210 (8.27)	2.5	0.25	25	2.5	E
W 962/14	75 [20]	1"-12 UNF	62 (2.44)	71 (2.80)	96 (3.78)	93 (3.66)	210 (8.27)	2.5	0.25	14	1.4	B
W 11 102/16	100 [26]	1 1/8"-16 UNF	93 (3.66)	104 (4.09)	110 (4.33)	108 (4.25)	260 (10.24)	2.5	0.25	14	1.4	C
WD 13 145/4	180 [48]	1 1/2"-16 UN	100 (3.94)	111 (4.37)	140 (5.51)	136 (5.35)	302 (11.89)	2.5	0.25	20	2.0	E

Filter fineness acc. to ISO 16889 [µm (c)], 50 % = 14 / 99 % = 38, service life approx. 2,000 hrs. Real operating conditions can shorten the service life of the filter.

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## Air / Oil Separators

### Air/oil separators



Application	Oil-injected screw-type and sliding-vane compressors
Installation site	In pressure reservoir
Residual oil content	1 to 3 mg/m <sup>3</sup>
Operating temperature	Up to 100 °C (120 °C)
Pressure drop for a given nominal flow rate	0.17 bar
Available nominal flow rates	0.8 to 76 m <sup>3</sup> /min
Advantages	<ul style="list-style-type: none"><li>• Process reliability through use of high quality media</li><li>• Low oil consumption through low residual oil content</li><li>• Thoroughly tried and tested and reliable</li><li>• Space-saving achieved through compact design</li></ul>

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## Spin-on Separators



Application	Oil-Injected screw-type and sliding-vane compressors
Installation site	Upright on pressure reservoir
Residual oil content	1 to 3 mg/m <sup>3</sup>
Operating temperature	Up to 100 °C (120 °C)
Pressure drop for a given nominal flow rate	0.25 bar
Available nominal flow rates	0.1 to 7.5 m <sup>3</sup> /min
Advantages	<ul style="list-style-type: none"> <li>• Process reliability through use of high quality media</li> <li>• Easy, space-saving fitting and removal</li> <li>• Lower maintenance costs compared to conventional air/oil separators</li> <li>• Lower oil consumption through lower residual oil content</li> </ul>
Accessories	Screw-on connectors and heads with connections for oil extraction

# The MANN+HUMMEL company

## Air / Oil Separators

Standard wrap element  
depth filter element



AOS for Vacuum pumps



Filter Element Description

LE XXXX  
LB XXX/X

AOS filter

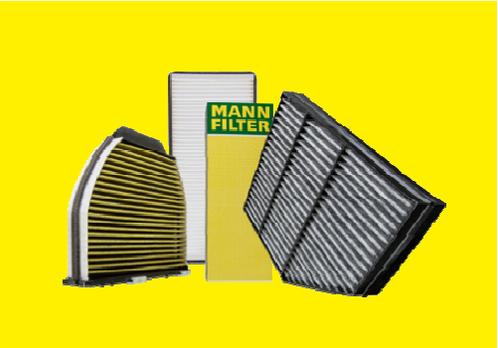


AOS boxes



# MANN-FILTER – Perfect parts

Our products at a glance



**01**

MANN+HUMMEL  
company

**02**

Perfect  
parts

**03**

Perfect  
service

**MANN  
FILTER**

**MANN-FILTER – Perfect service**  
Unequaled product range

MORE THAN 6,500  
**FILTERS**

**FOR 160,000**  
COMPARISON NUMBERS

AND FOR MORE THAN 150,000  
**APPLICATIONS**



# MANN-FILTER – Perfect service

## Smart search for quicker results: Our catalog system

ผลิตภัณฑ์ Product	สั่งซื้อ Buy	โปรโมชั่น Promotion	วิธีการสั่งซื้อ How to buy	ร่วมงานกับเรา Career
<ul style="list-style-type: none"><li>&gt; Fuel filters</li><li>&gt; Crankcase ventilation</li><li>&gt; Cooling water compensation tanks</li><li>&gt; Cabin filters</li><li>&gt; Air-oil separator elements</li><li>&gt; Spark erosion filters</li><li>&gt; Gensets</li></ul>	<p>Donaldson Clean Solutions can help you deliver clean fluids into your equipment and keep you running.</p> <p><b>Additional information:</b></p> <ul style="list-style-type: none"><li> Catalogue: MANN+HUMMEL Air cleaners</li><li> Catalogue: MANN+HUMMEL Air-oil separators</li><li> MANN Air Cleaner Accessories</li></ul>			
<p>ค้นหาไส้กรองเพิ่มเติม...</p> <p>กดสั่งซื้อสินค้าไส้กรอง MANN</p>	 <p>Air cleaner NLG Pico</p>	 <p>Air cleaner Europiclone</p>	 <p>Air cleaner IGORON</p>	
				

# MANN-FILTER – Perfect service

Smart search for quicker results: Our catalog system



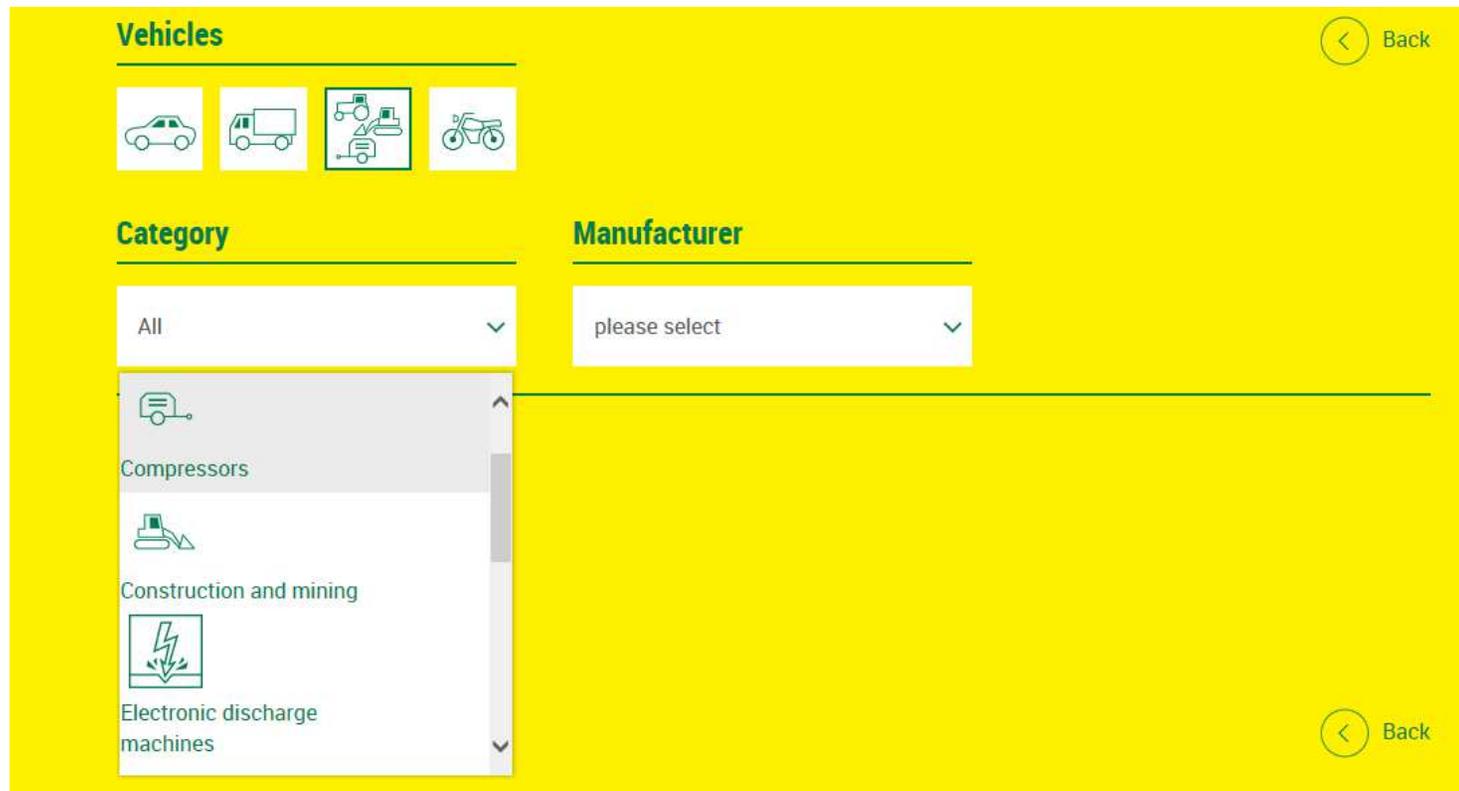
# MANN-FILTER – Perfect service

Smart search for quicker results: Our catalog system

The screenshot shows the MANN-FILTER catalog website interface. At the top, there is a navigation bar with a hamburger menu icon, the text "Start Favorites (0) Language Login", and the MANN-FILTER logo. Below the navigation bar is a large search bar with the placeholder text "Search catalog..." and a magnifying glass icon. Underneath the search bar, there are three main sections: "Vehicles", "Products", and "Cross reference". The "Vehicles" section features four icons representing different vehicle types: a car, a truck, a tractor, and a motorcycle. The "Products" and "Cross reference" sections each have a search bar with the placeholder text "Search..." and a magnifying glass icon. Below each of these search bars is a circular icon with a right-pointing arrow and the text "Multiple search".

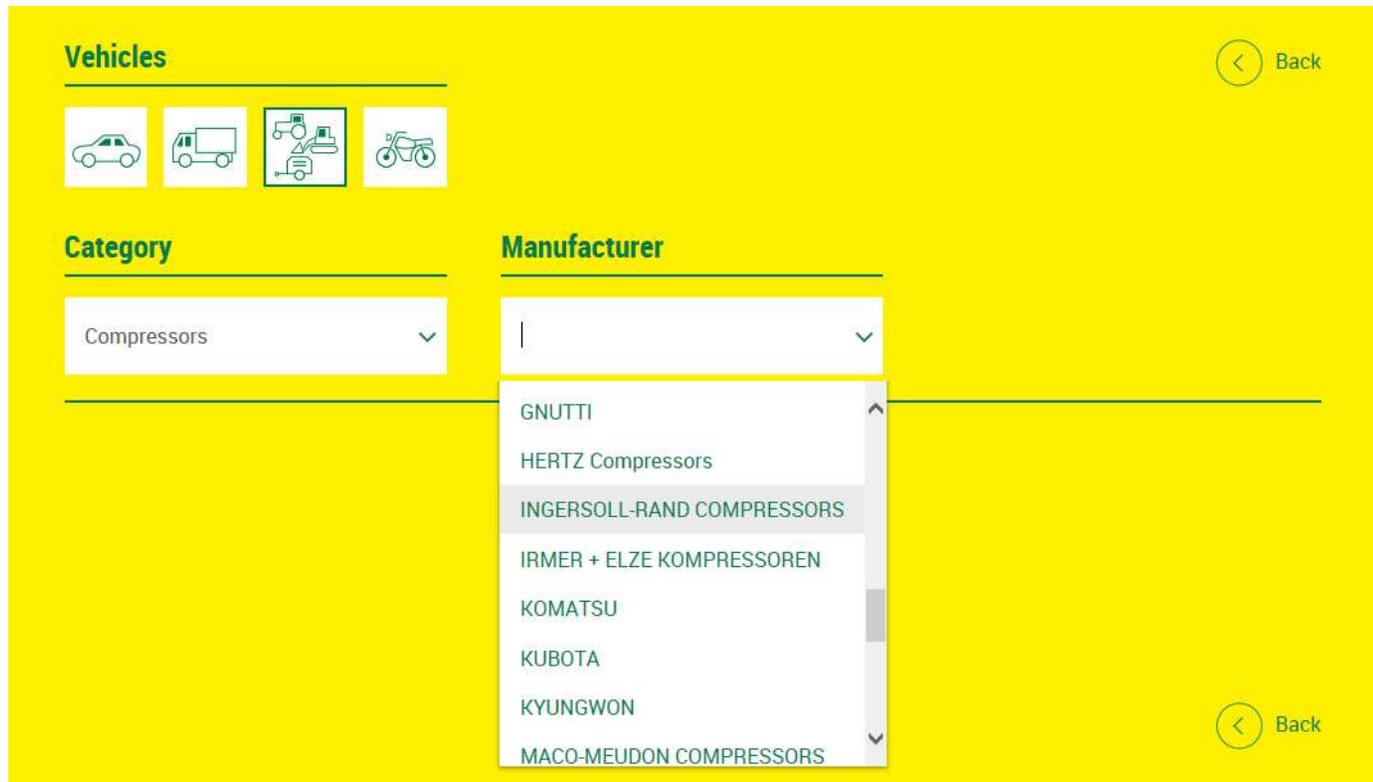
# MANN-FILTER – Perfect service

Smart search for quicker results: Our catalog system



# MANN-FILTER – Perfect service

Smart search for quicker results: Our catalog system



# MANN-FILTER – Perfect service

Smart search for quicker results: Our catalog system

The screenshot displays a search interface on a yellow background. At the top left, the word "Vehicles" is followed by four icons: a car, a truck, a tractor, and a motorcycle. In the top right corner, there is a "Back" button with a left-pointing arrow. Below the "Vehicles" section, there are three filter columns: "Category", "Manufacturer", and "Model series". The "Category" dropdown is set to "Compressors". The "Manufacturer" dropdown is set to "INGERSOLL-RAND COMPRESSORS". The "Model series" dropdown is open, showing a list of series: "XHP - Serie (Compressors)", "R - Series (Compressors)", "EP - Series (Compressors)", "NIRVANA - Series (Compressors)", "T - Series (Compressors)", "Air Blower (Compressors)", "7-Serie (Compressors)", and "CM-Serie (Compressors)". The "NIRVANA - Series (Compressors)" option is highlighted. A vertical scrollbar is visible on the right side of the dropdown list.

# MANN-FILTER – Perfect service

Smart search for quicker results: Our catalog system

Category		Manufacturer		Model series	
Compressors <span>▼</span>		INGERSOLL-RAND COMPRESSORS <span>▼</span>		NIRVANA - Series (Compressors) <span>▼</span>	
Model type	Engine code	kW	HP	Year of manufacture	
NIRVANA 100H-2S (from Serial N° NFF0118)					
NIRVANA 100H-CC (from Serial N° NV6100)					
NIRVANA 100K-CC (from Serial N° 2800008)					
NIRVANA 110K-2S (from Serial N° 2850000)					

# MANN-FILTER – Perfect service

## Smart search for quicker results: Our catalog system

Category		Manufacturer		Model series	
Compressors		INGERSOLL-RAND COMPRESSORS		NIRVANA - Series (Compressors)	
Model type	Engine code	kW	HP	Year of manufacture	
NIRVANA 100H-CC (from Serial N° NV6100)					
Air Filter	Oil Filter	Fuel Filter	Cabin Filter	Other filters	
 C 25 740	 WD 962/15			 LE 16 015 x	
 Accessories	Quantity 2			Compressed air-oil separation	
 Add to favorites	 Feedback			 Back	

**MANN+**  
**HUMMEL**

**Thank you!**

**MANN**  
**FILTER**