MANN+HUMMEL NLG
The modular filter system for numerous applications

MANN+HUMMEL

NLG:flexible – robust – economic

The new NLG series developed by MANN+HUMMEL is a flexible and economic solution for the most varied applications in the field of intake air for engines and compressors.

The advantages at a glance:

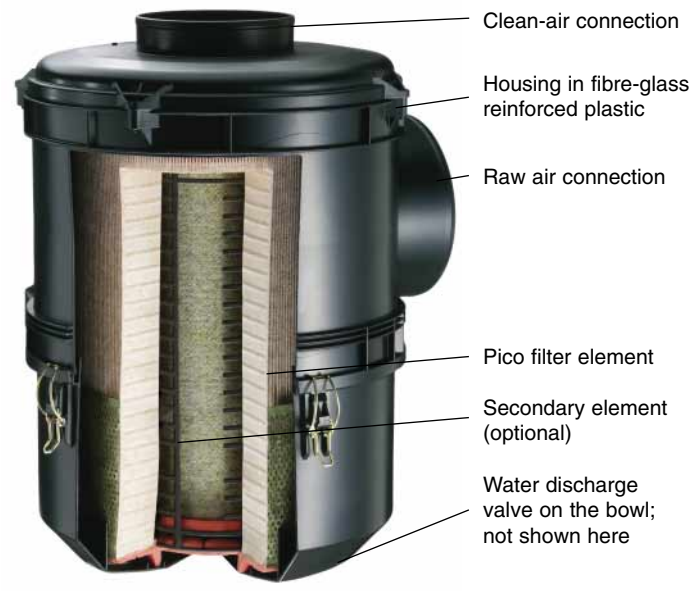
- Variable modular system enables extreme flexibility
- Cost-effective filter system through combination of standard parts
- Corrosion-free, robust housing due to fibre-glass reinforced plastic
- Easy filter element change without tools
- Piclon version with integrated dust pre-separation also suitable for average to difficult dust conditions
- As a combination filter with DualSpin® pre-separator also suitable for the most difficult dust conditions due to the particularly long service life and the design of the pre-separator which prevents clogging
- Excellent operational reliability due to filter elements with proven radial seal
- Environmentally friendly disposal through metal-free filter elements (fully incinerable)
- Variable connection positions enable easy adaptation to different units
- Quick first fitting on the vehicle due to threaded inserts in housing
- Patent-protected filter elements

NLG Pico version

Single-stage air cleaner

The Pico version is the single-stage version of the NLG, i.e. without integrated dust pre-separation. This version is especially suitable for applications where low dust loads require a filter with a low initial flow resistance.

These are, for example:
- lorries
- buses
- mobile cranes
- compressors
- stationery engines
- power generators
- cooling aggregates
- marine applications



NLG Piclon version

Two-stage air cleaner

The Piclon version is the two-stage version of the NLG with integrated dust pre-separation and an efficiency of more than 75 %. This version is particularly suitable for applications with average to heavy dust loads.

These are, for example:
- construction and agricultural machinery
- all typical Pico applications where a longer service life is required

The fact that the Pico and the Piclon versions both have the same housing dimensions and connections means that the Piclon can replace the Pico if the machine has to be used in a certain region where dust conditions are worse. The installation of the filter does not require any changes to the pipe connections or the bracket fitting.

NLG combination filter

Two-stage air cleaner

The combination filters consist of Pico versions of the NLG filters in size 37 together with DualSpin® pre-separators specially developed for these filters and offer an efficiency greater than 90 % with minimal pressure loss. The long service life and special design of the pre-separator – which nearly eliminates clogging – means that the combination filters are particularly suitable for use in very dusty environments.

These are, for example:
- combine-harvesters
- field choppers
- special harvesting machines for cotton, sugar cane or peat, etc.
- construction and agricultural machinery in very dusty environments

Our customers can select the ideal configuration for the combination air cleaner according to the service life requirements and air requirement for the machine. Three filter housing lengths are available on the filter side with two inlet distributors available on the cyclone side for flow rates from 20 m³/min to 40 m³/min.

NLG Pico version with **DualSpin®** pre-separator

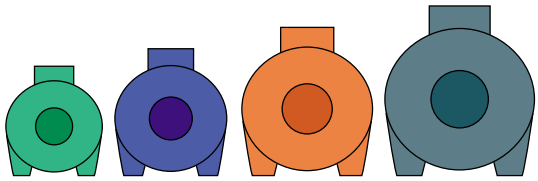
Modular concept

Modular components are combined together to allow customers to find the ideal solution from 12 base variations. In this way the respective requirements for machines operating in different regions can be fulfilled. For the standard version of a certain machine, for example, it will be sufficient for the NLG filter to have a short bowl and short elements whereas machines operating in environments with heavy dust loads can simply be equipped with a longer bowl and longer elements. The pipe connections and bracket fitting remain unchanged and so the service life can easily be adapted to many varied operating conditions in order to reach the most economic solution.

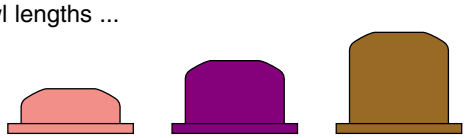
The largest and the smallest: NLG 37-42 and NLG 15-12

The NLG modular system

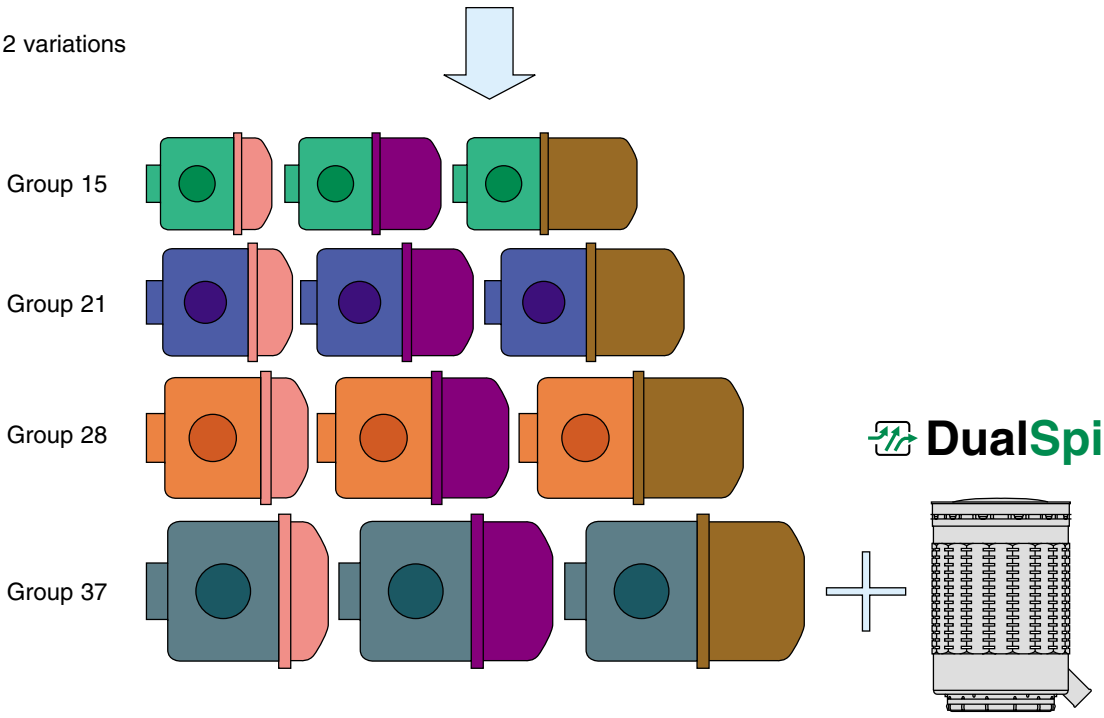
4 different filter diameters ...



... each with 3 different bowl lengths ...



... results in 12 variations



MANN+HUMMEL system components

To complement the NLG air cleaner we recommend that customers use MANN+HUMMEL system components specifically developed for our filters.

- rain caps for protection against ingress of water and coarse dirt
- air ducts to connect the air cleaner with the engine or compressor. Available with or without connection for a service indicator/service switch
- service indicator/service switch for monitoring the dirt level in the filter
- pre-separator to lengthen the service life

You will find the complete range in our air cleaner catalogue.

Environmentally-friendly filter elements

NLG filter element

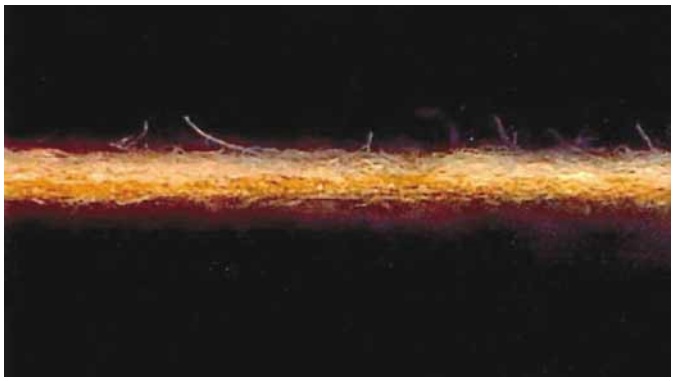
- high dust capacity through MANN+HUMMEL media with gradient structure
- robust design with plastic middle tube
- patented design
- handle on element prevents damage during servicing

NLG secondary element

- MANN+HUMMEL non-woven fabric for high separation efficiency with low pressure loss
- secure installation in housing with screwed fitting provides increased engine protection because an unintentional removal of the secondary element is not possible
- robust design due to plastic middle tube

Filter medium

MANN+HUMMEL uses media with a gradient structure in the filter element which was specially developed for these requirements. It offers a high dirt capacity with minimal pressure loss and separation levels of more than 99.98 % (ISO 5011, SAE-C). In total this makes it the ideal protection for your engine. These advantages – together with the proven MANN+HUMMEL quality – guarantee reliability, economy and a long life for your machine.



Order numbers

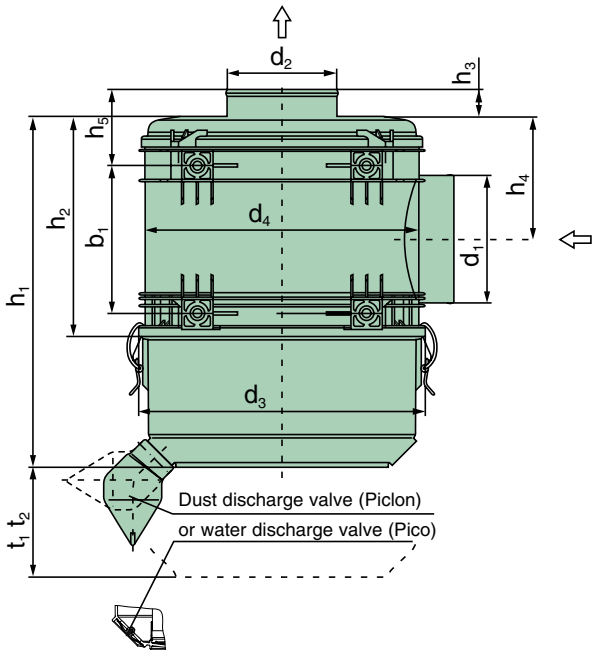
NLG Pico version – single-stage air cleaner

Nominal flow rate m³/min	Filter size	without secondary element – Connection position 3 o'clock	6 o'clock	9 o'clock	12 o'clock	with secondary element – Connection position 3 o'clock	6 o'clock	9 o'clock	12 o'clock	MANN-FILTER filter element	MANN-FILTER secondary element
15	NLG 15-12	available on request	available on request	available on request	44 513 85 900	available on request	available on request	available on request	44 513 85 952	C 23 513	CF 1240
	NLG 15-15				44 632 85 900				44 632 85 950	C 23 632/1	CF 1250
	NLG 15-18				44 750 85 901				44 750 85 952	C 23 750	CF 1260
21	NLG 21-18				44 742 85 904				44 742 85 953	C 25 740	CF 1420
	NLG 21-21				44 860 85 900				44 860 85 951	C 25 860/2	CF 1430
	NLG 21-24				44 860 85 904				44 860 85 955	C 25 990	CF 1440
28	NLG 28-24				44 920 85 916		not possible		44 920 85 956	C 27 1020	CF 1631
	NLG 28-28				44 920 85 904				44 920 85 952	C 27 1170	CF 1640
	NLG 28-32				44 920 85 918				44 920 85 959	C 27 1320	CF 1650
37	NLG 37-32				44 930 85 902		available on request		44 930 85 957	C 30 1330	CF 1820
	NLG 37-37				44 930 85 900				44 930 85 951	C 30 1530	CF 1830
	NLG 37-42				44 930 85 901				44 930 85 954	C 30 1730	CF 1840

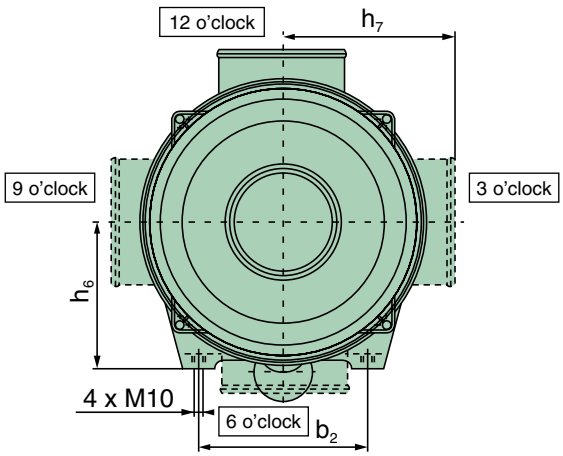
NLG PicIon version – two-stage air cleaner

Nominal flow rate m³/min	Filter size	without secondary element – Connection position 3 o'clock	6 o'clock	9 o'clock	12 o'clock	with secondary element – Connection position 3 o'clock	6 o'clock	9 o'clock	12 o'clock	MANN-FILTER filter element	MANN-FILTER secondary element
15	NLG 15-15	available on request	available on request	available on request	44 526 92 902	available on request	available on request	available on request	44 526 92 950	C 22 526	CF 1250
	NLG 15-18				44 625 92 900				44 625 92 950	C 22 625	CF 1260
21	NLG 21-21				44 722 92 904				44 722 92 950	C 24 745/1	CF 1430
	NLG 21-24				44 722 92 903				44 722 92 951	C 24 820	CF 1440
28	NLG 28-28				44 920 92 902		not possible		44 920 92 950	C 26 980	CF 1640
	NLG 28-32				44 920 92 903				44 920 92 951	C 26 1100	CF 1650
37	NLG 37-37				44 930 92 900		available on request		44 930 92 951	C 28 1275	CF 1830
	NLG 37-42				44 930 92 901				44 930 92 952	C 28 1440	CF 1840

Filter dimensions



Connection positions



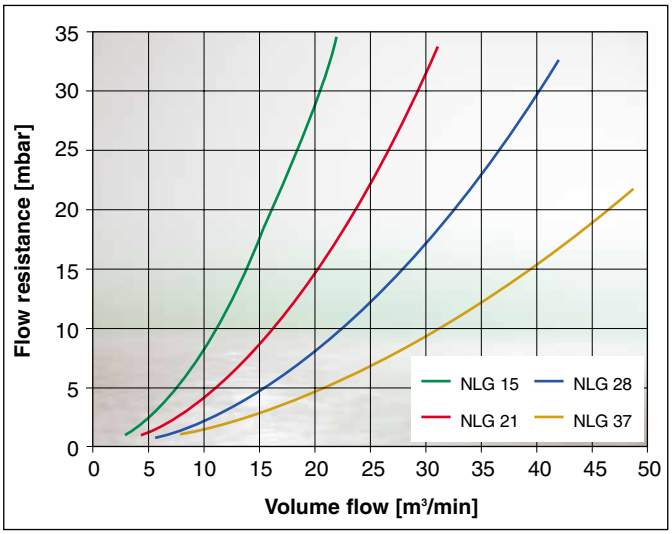
Group	Filter size	Dimensions in mm														
		d_1	d_2	d_3	d_4	b_1	b_2	h_1	h_2	h_3	h_4	h_5	h_6	h_7	t_1	t_2
	NLG 15-12							305								273
15	NLG 15-15	130	110	299	285	140	200	360	228	33	120	91	153	182	230	328
	NLG 15-18							415								383
	NLG 21-18							365								332
21	NLG 21-21	150	130	339	323	175	200	415	260	33	145,5	91	173	203	260	382
	NLG 21-24							465								432
	NLG 28-24							427								395
28	NLG 28-28	180	150	365	349	210	200	480	295	33	163	91	185	215	296	448
	NLG 28-32							533								501
	NLG 37-32							498								465
37	NLG 37-37	210	180	407	393	245	240	563	363	33	188	91	207	237	364	530
	NLG 37-42							628								595

NLG Pico version

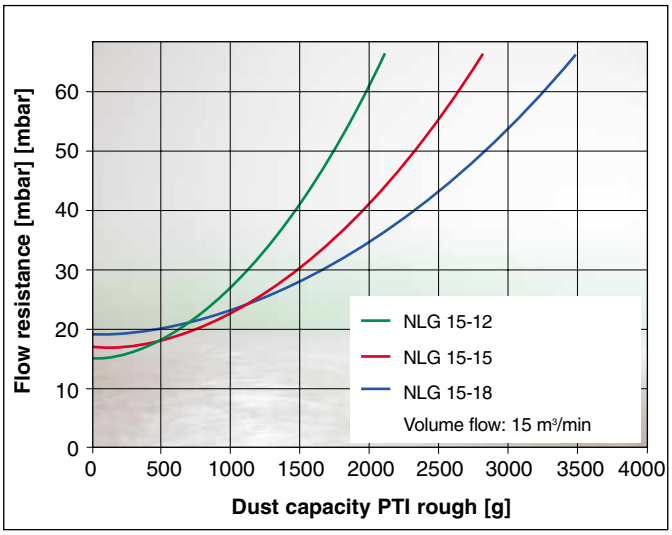
Single-stage air cleaner

Characteristic curves without secondary element ...

... for pressure loss



... for dust capacity according to ISO 5011



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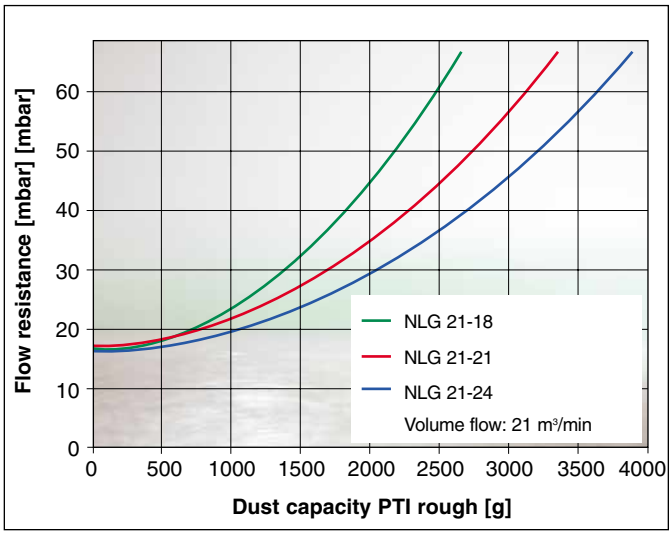

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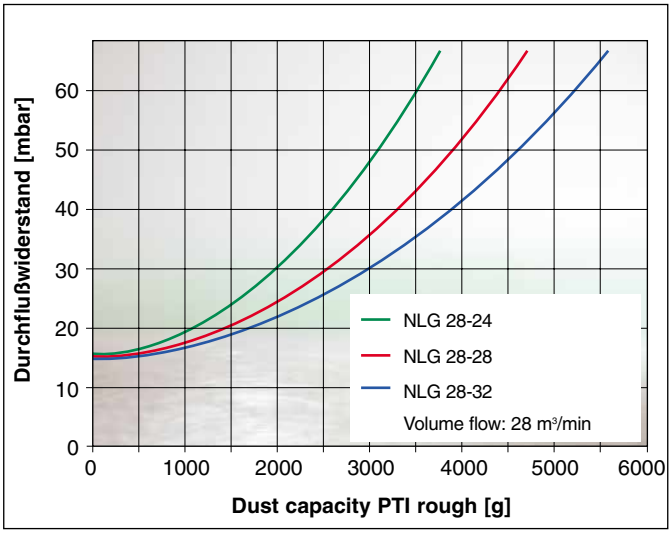

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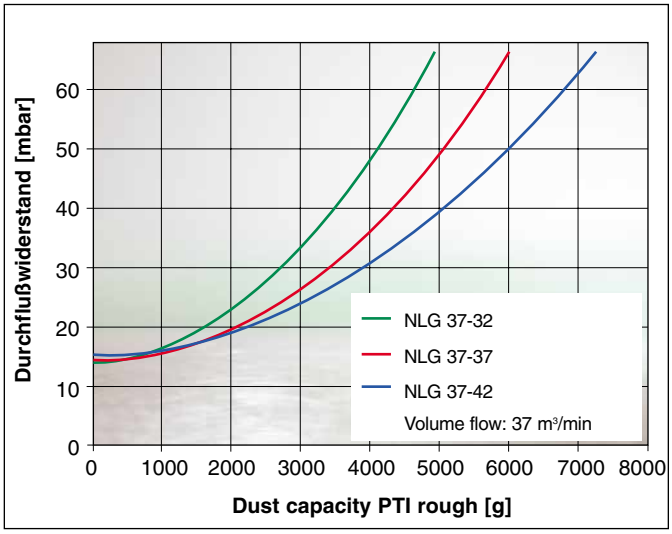
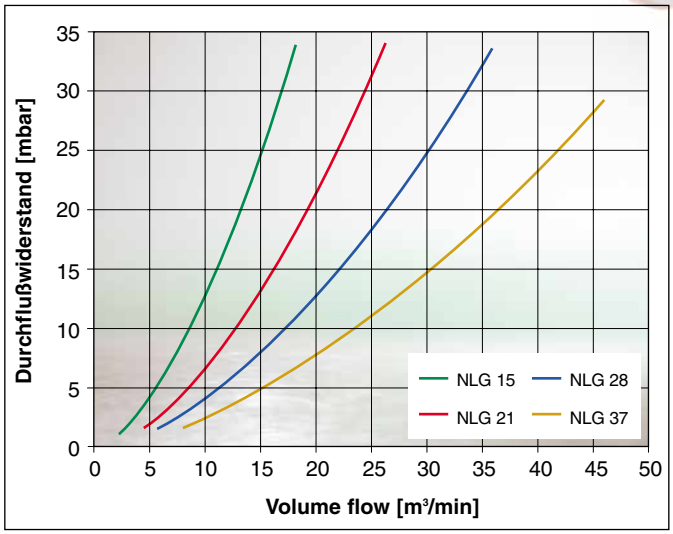


NLG Pico version

Single-stage air cleaner

Characteristic curves with secondary element ...

... for pressure loss



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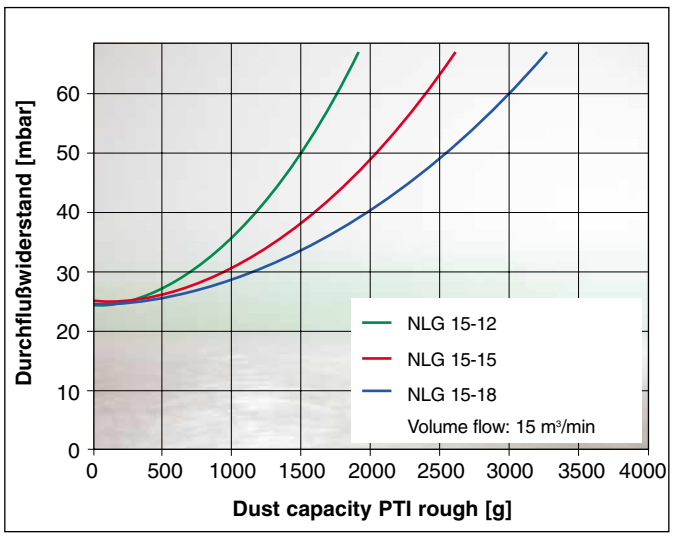

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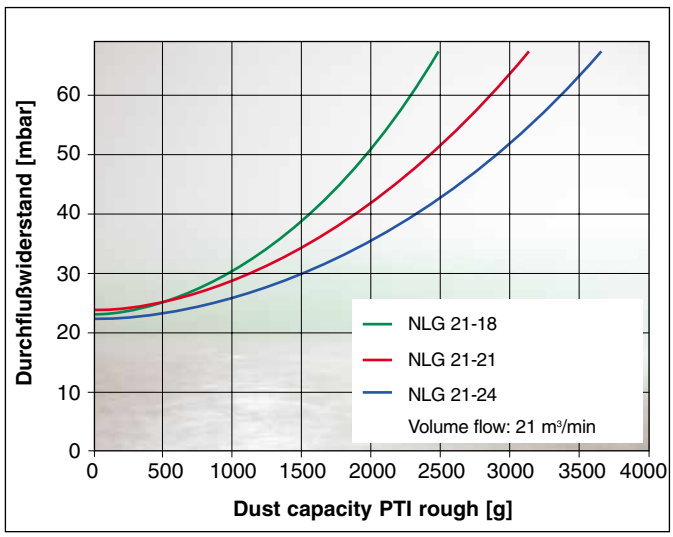

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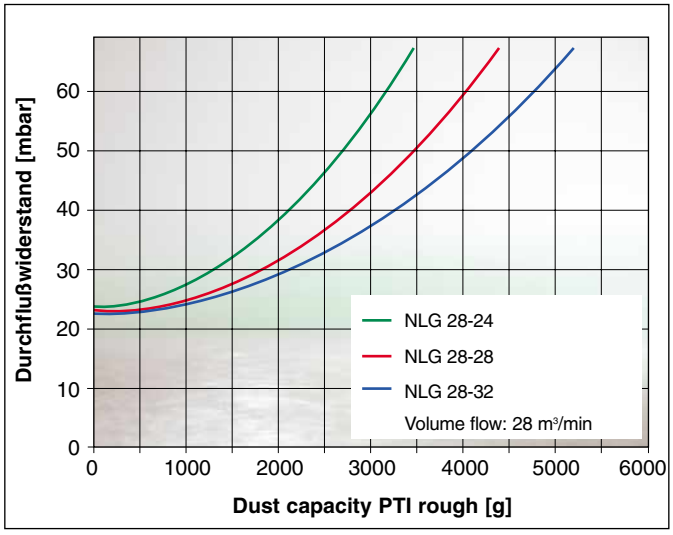

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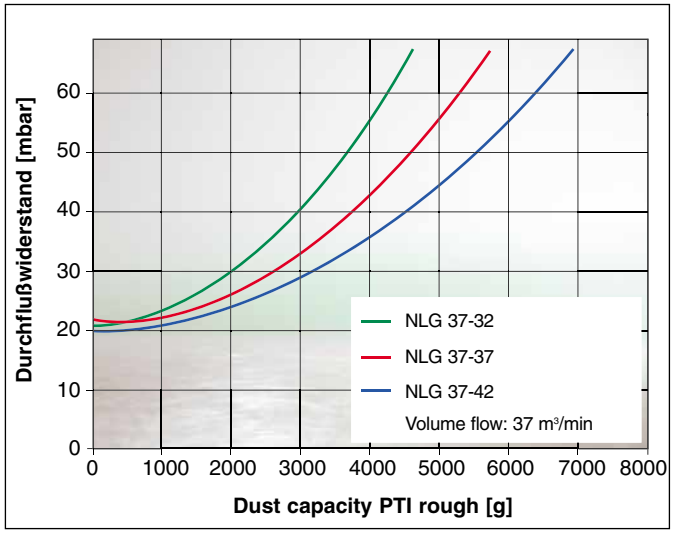
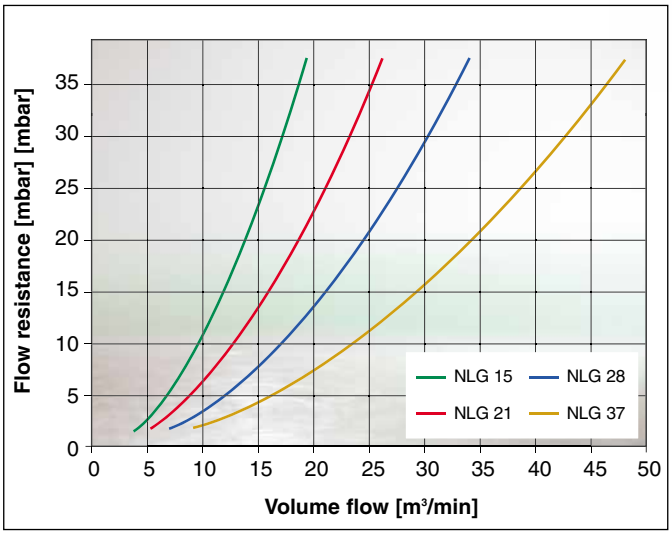


NLG Piclon version

Two-stage air cleaner

Characteristic curves without secondary element ...

... for pressure loss



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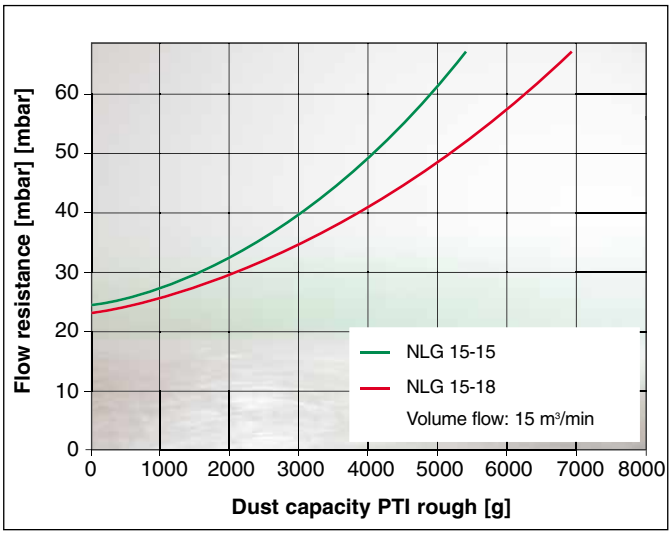

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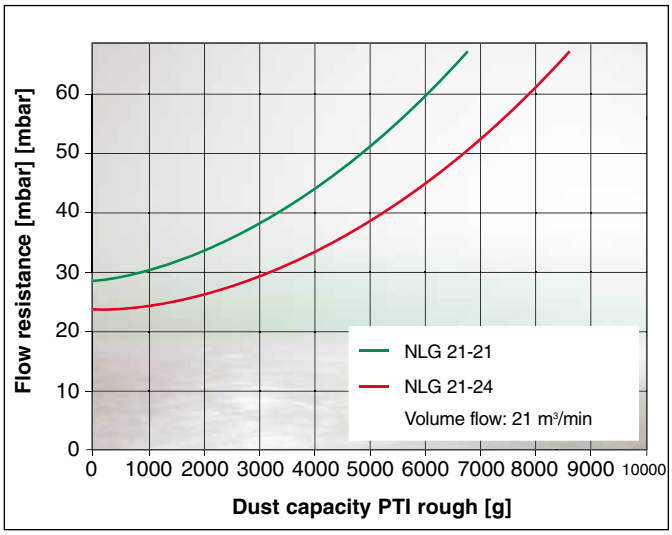

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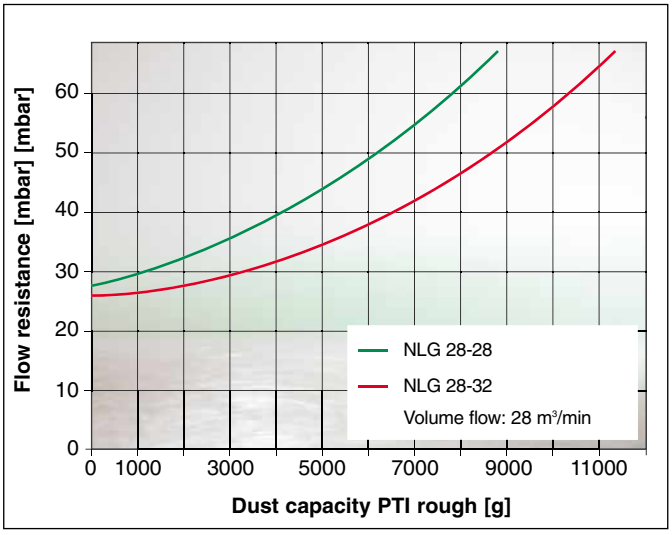

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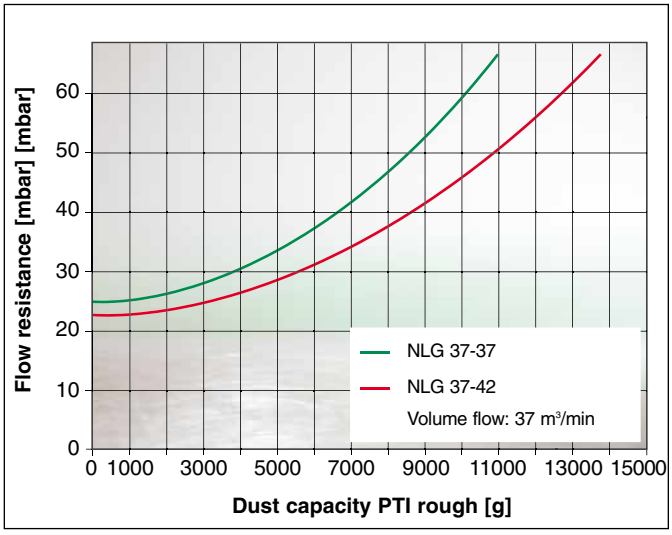
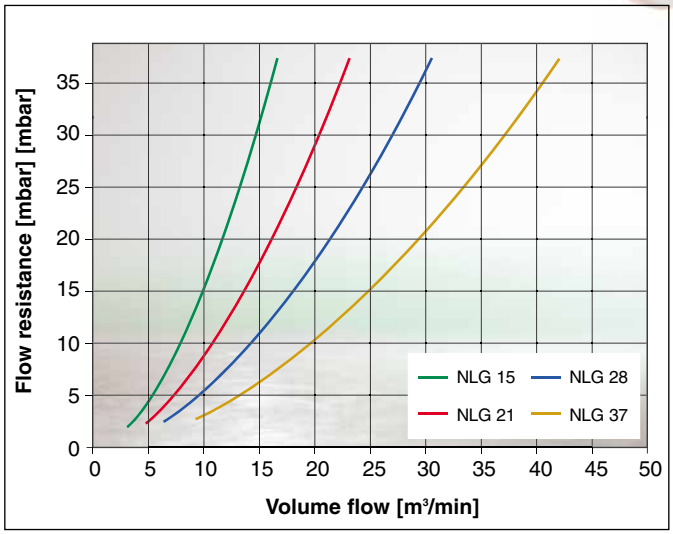


NLG Piclon version

Two-stage air cleaner

Characteristic curves with secondary element ...

... for pressure loss



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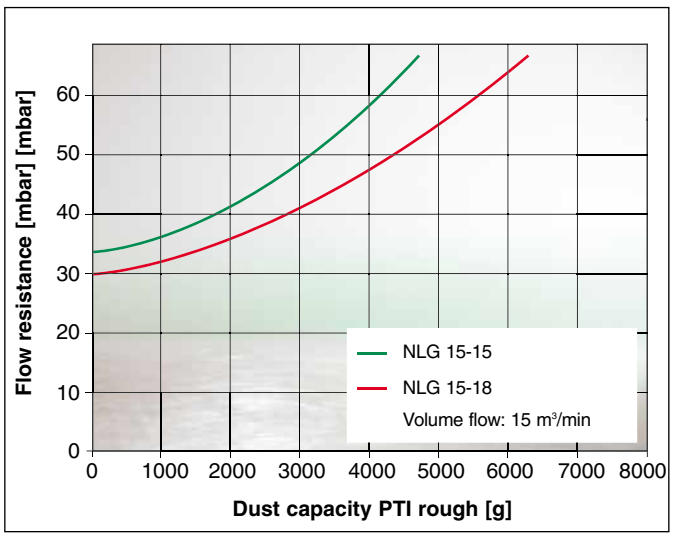

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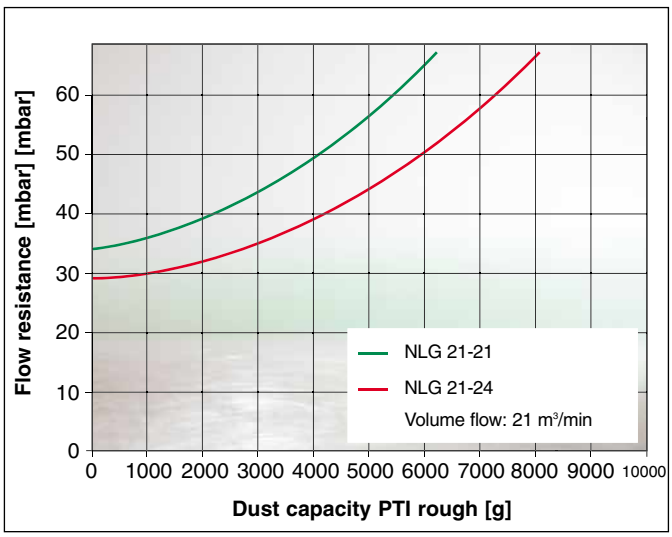

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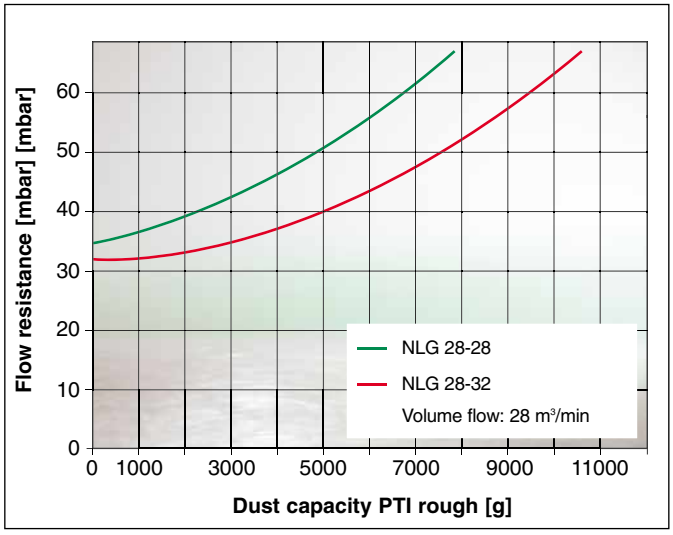

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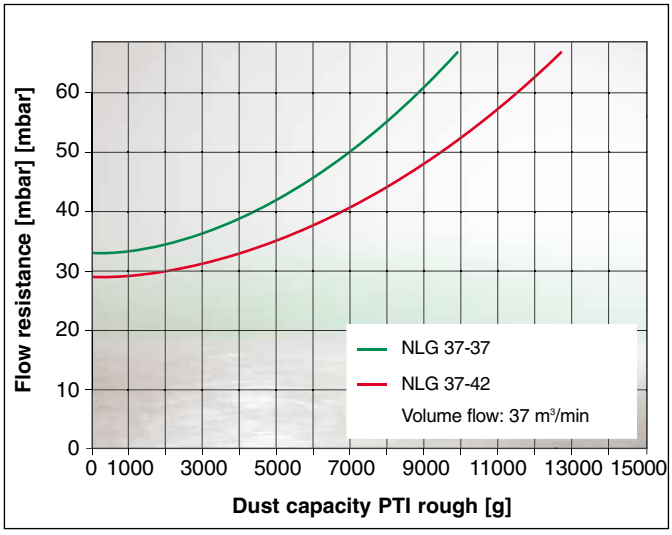
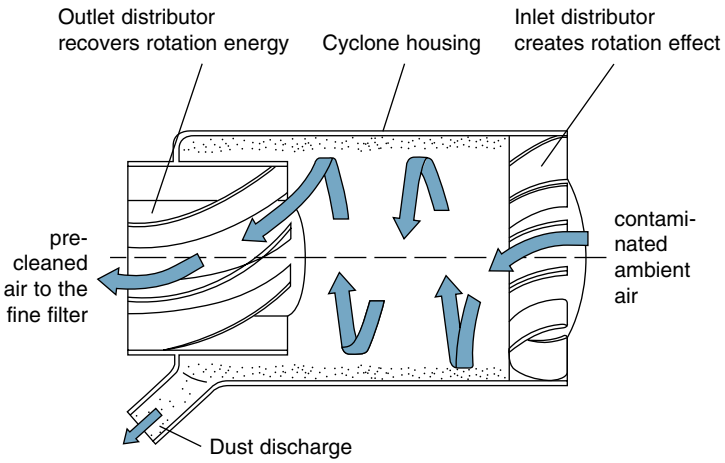


DualSpin® pre-separator

The DualSpin® technology developed by MANN+HUMMEL with a patent pending is based on the principle of energy recovery through dual spin. First of all, the incoming air – as with every cyclone – is made to rotate by an inlet distributor. As a result dust is carried to the sides where it is separated.

DualSpin® means that the outlet pipe where the air flows to the fine filter is fitted with a second distributor. It converts the rotation movement of the air flow into an axial movement. In this way a larger part of the rotation energy can be recovered.

The result is the DualSpin® pre-separator only consumes half as much energy as a conventional cyclone while having the same efficiency. Or, in other words: for the same pressure loss it is possible to achieve a considerably higher pre-separation efficiency and therefore a longer service life.



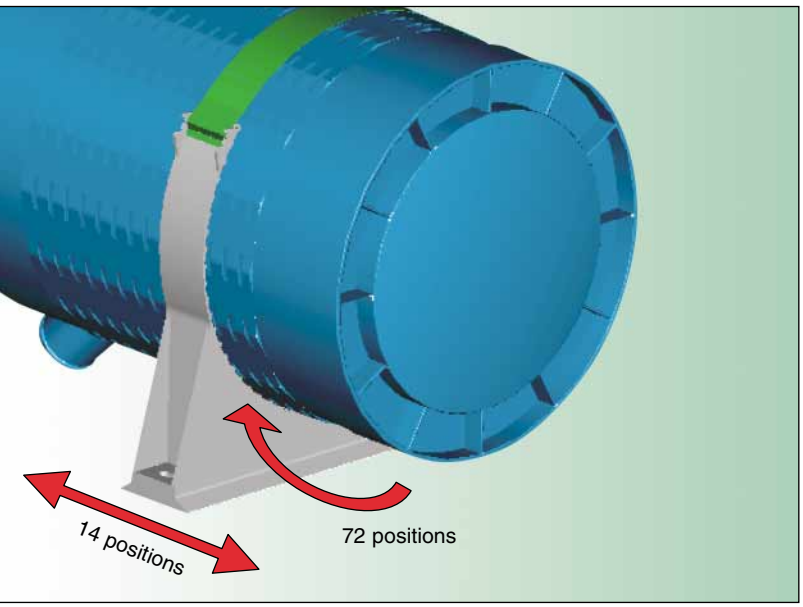
The principle of the **DualSpin®** pre-separator

The advantages of the DualSpin® pre-separator:

- High pre-separation efficiency with low pressure loss
- The special plastic used in the housing is designed to be antistatic. This avoids any loss of separation performance arising from static charge build-up in the filter through contact with organic dirt particles.
- Various distributor inserts can be used to fine-tune the pre-cyclone perfectly to meet the air requirements of the machine.
- The polygon structure of the exterior wall enables use of the proven holder Europiclon 700 from MANN+HUMMEL.

DualSpin®

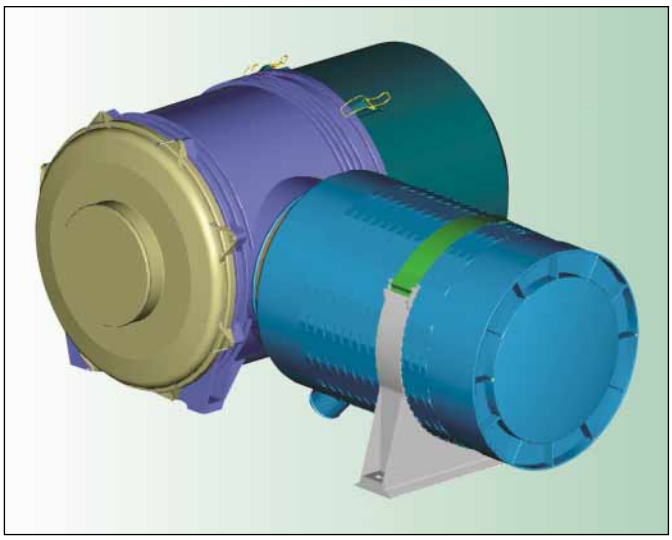
Installation possibilities



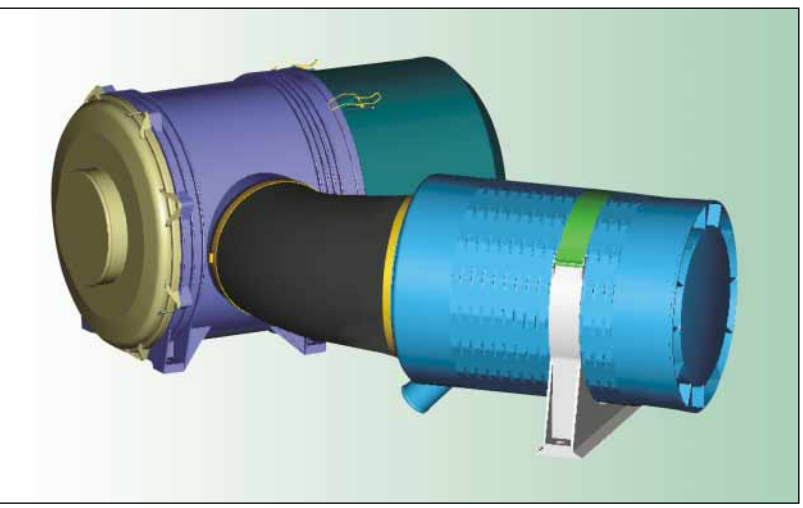
A polygon structure is integrated in the exterior wall of the DualSpin® pre-separator and this enables use of the proven MANN+HUMMEL holder if the installation requires this.

The polygon structure has 14 locking positions in the radial direction and 72 different orientations on the circumference.

The DualSpin® pre-separator can be directly fitted onto the air cleaner housing. There is also the possibility, however, to fit the pre-separator in a different position and connect it to the air cleaner using an air duct. This is referred to as a remote design.

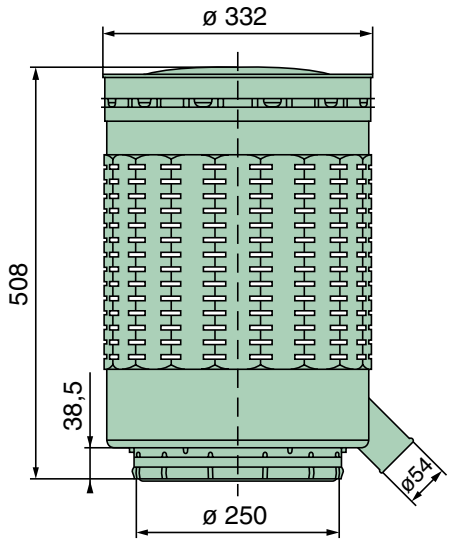


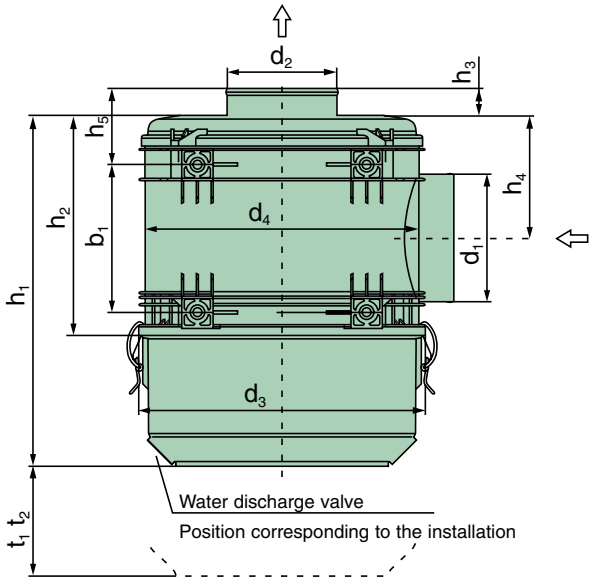
DualSpin® fitted directly onto the air cleaner housing



Remote design

Filter dimensions





See page 7 for all filter dimensions.
For fitting directly to the housing d_1 = 250 mm

Order numbers

NLG Air filter

NLG Pico version			for direct fitting (with secondary element) connection pipe position	for remote design (with secondary element) connection pipe position				MANN-FILTER filter element	MANN-FILTER secondary element
Group	Filter size	Nominal flow rate	3 o'clock	3 o'clock	6 o'clock	9 o'clock	12 o'clock		
37	NLG 37-32	up to 32 m³/min	available on request	available on request	available on request	available on request	44 930 85 957	C 30 1330	CF 1820
	NLG 37-37	up to 37 m³/min	44 930 85 953				44 930 85 951	C 30 1530	CF 1830
	NLG 37-42	up to 42 m³/min	44 930 85 960				44 930 85 954	C 30 1730	CF 1840

DualSpin® pre-separator

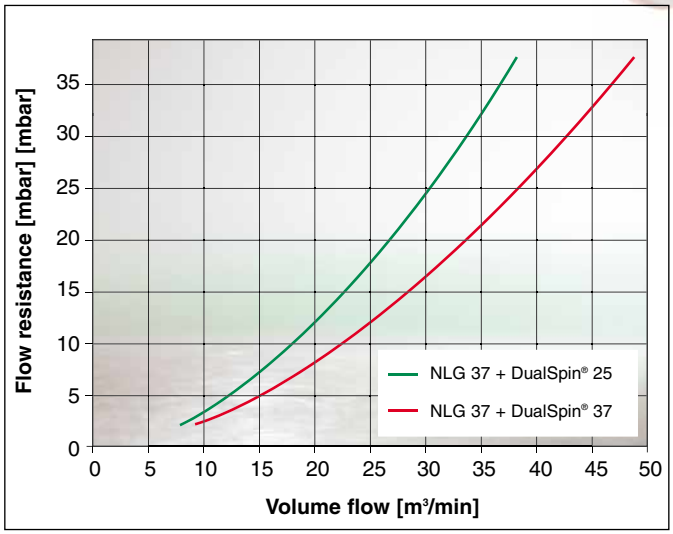
Pre-separator Nominal flow rate		Bracket suitable for pre-separator *
up to 25 m³/min	48 025 75 900	39 700 40 999 (wide holder)
up to 40 m³/min	48 037 75 910	39 700 40 999 (wide holder)

* optional

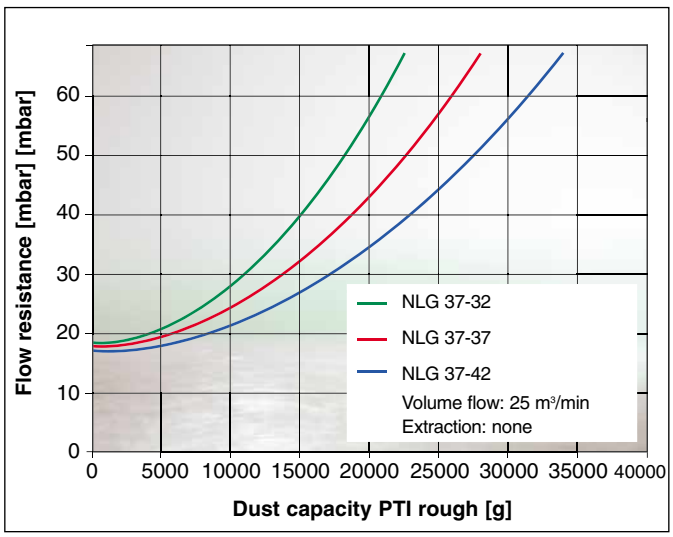
NLG combination filter

Characteristic curves with secondary element ...

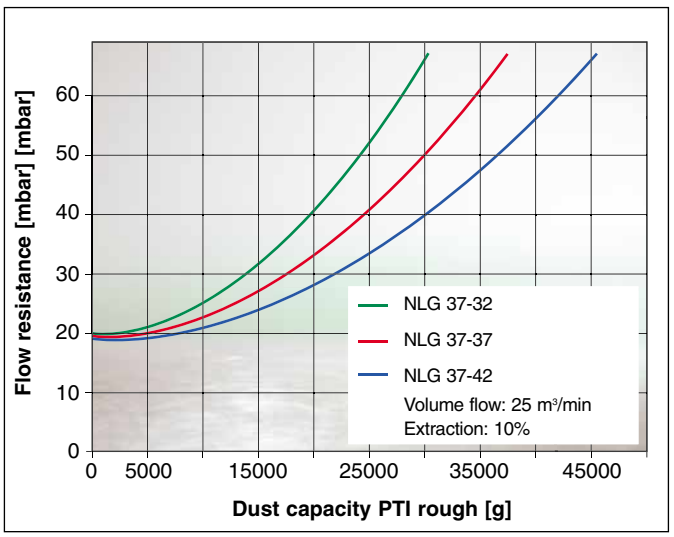
... for pressure loss



... for the dust capacity according to ISO 5011



... for the dust capacity according to ISO 5011



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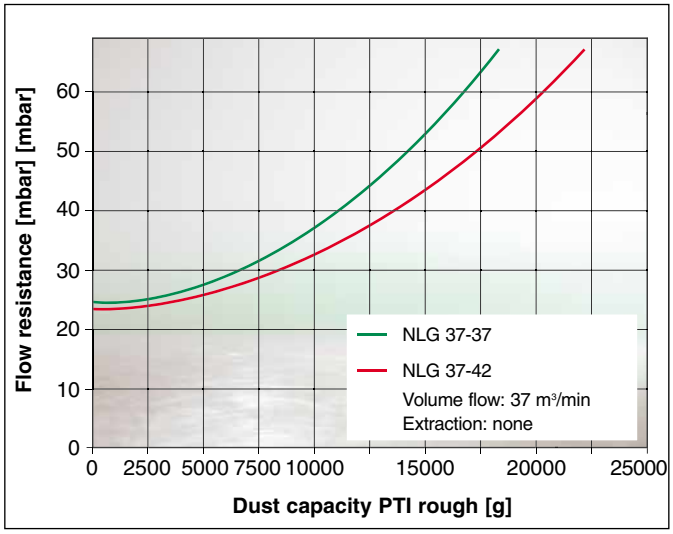

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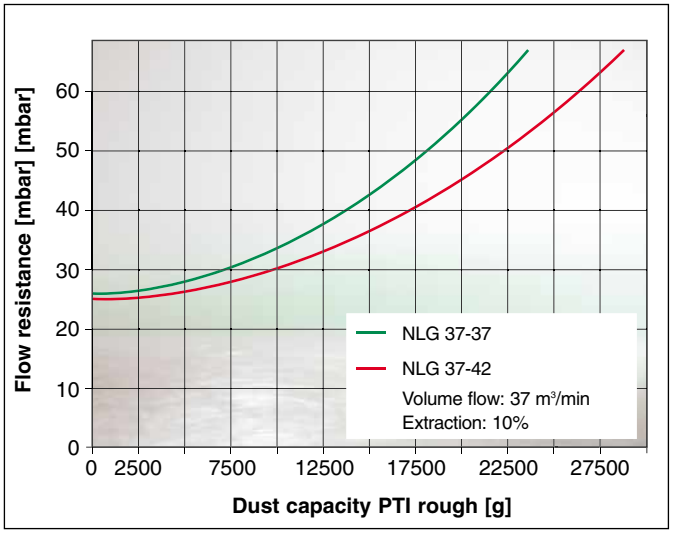

The MANN+HUMMEL Group

The MANN+HUMMEL group operates worldwide with 8,800 employees at 41 company locations around the world. The company develops, produces and distributes highly developed automotive components such as air cleaner systems and intake systems, liquid filter systems and cabin filters as well as filter elements for the servicing and repair of vehicles. Products manufactured also include industrial filters, filter systems and material handling devices for use in the fields of mechanical engineering, process technology and industrial production. MANN+HUMMEL customers operate in many fields with the emphasis on series production in the automobile industry.

Automotive OEM Division

Air filter systems

- Air filter, systems and components
- Air pipework components
- Crankcase venting systems and components
- Broadband silencer
- Symposer

Intake systems

- Intake systems and modules
- Components for swirl and tumble control
- Secondary-air charger

Fluid filter systems

- Oil filter and oil filter systems
- Centrifugal oil filters
- Fuel filter and fuel filter systems

Other important subsystems and engine-relevant components

- Cylinder head covers
- Engine compartment covers
- Fluid container
- Technical plastic components for the engine compartment

Filter elements and Systems for Industry and Trade Division

Filters for motor vehicles

- Filter elements for air and liquids
- Cabin filters
- Air-drying boxes
- Cooling-water filters
- Spin-on oil filters and fuel filters
- Elements for oil-aerosol separators

Industrial Filters

- Air and liquid filters and components for industrial engines, construction and agricultural machinery, compressors, vacuum pumps and mechanical industry
- Cabin filters
- Air-oil separators

Industrial Systems and Components Division

ProTec

- Systems and equipment for material handling and materials processing in the plastic, rubber, recycling and chemical industries

HYDROMATION

- Systems and equipment for the filtration of machining liquids in mechanical production
- Chip handling systems and chip transport systems

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