- High vacuum of up to 93%
- Easy connection of holders and suction cups
- Lightweight and compact design
- No wearing parts
- Long service life
- Vacuum monitoring with vacuum switch
- Lightweight and compact design thanks to plastic housing
- Functional:
  6 nominal sizes
  (0.45 ... 3.0 mm), two operating principles, two housing types
- Minimal environmental pollution thanks to silencers
- VN-20/30, VN-P, VN-M/B:

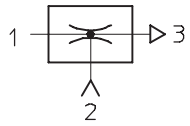
reddot design award
winner 2007

Vacuum generators

Key features

Product overview

Vacuum generator



All Festo vacuum generators have a single-stage design and operate according to the venturi principle. The product families described below have been designed for a wide range of applications. The different performance classes of the individual product families make it possible to select vacuum generators tailored to suit specific requirements.

Standard and inline ejectors

VN-... ➔ 6 / 1.1-13

- Nominal size 0.45 ... 3 mm
- Max. vacuum 93%
- Temperature range 0 ... +60 °C

- A range of extremely effective generators suitable for use directly in the workplace
- Available as straight or T-shaped housing
- Low space requirement

- Low-cost
- No wearing parts
- Extremely fast evacuation time
- Vacuum switch (optional)

- Optional with additional functions:
  - integrated eject pulse
  - electric control for vacuum ON/OFF
  - combination of eject pulse and control

VAD-.../VAK-... ➔ 6 / 1.1-54

- Nominal size 0.5 ... 1.5 mm
- Max. vacuum 80%
- Temperature range –20 ...+80 °C

- Range of vacuum generators with sturdy aluminium casing
- VAK-...: Built-in reservoir
  VAD-...: Connection for additional external reservoir

- Maintenance-free
- VAK-...: Reliable setting down of workpieces

Vacuum generators

Key features

Compact ejectors

VADM-...VADMI-... ➔ 6 / 1.2-8

- Nominal size
  0.45 ... 3 mm
- Max. vacuum
  84%
- Temperature range
  0 ... +60 °C
- Compact design
- Minimal installation work required
- Short response times
- Built-in solenoid valve (on/off)
- VADMI-...: Additional built-in solenoid valve for ejector pulse
- Filter with display
- Air-saving circuit (optional)
- Vacuum switch (optional)
- Reliable setting down of workpieces

VAD-M-.../VAD-M...-I-... ➔ 6 / 1.2-28

- Nominal size
  0.7 ... 2 mm
- Max. vacuum
  85%
- Temperature range
  0 ... +40 °C
- Compact design
- Minimal installation work required
- Short response times
- Built-in solenoid valve (on/off)
- VAD-M-I-...: Additional built-in solenoid valve for ejector pulse
- Reliable setting down of workpieces

Vacuum generators VN

Features

At a glance

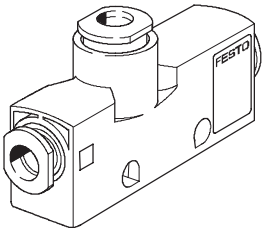
- Vacuum generators for high vacuum levels of up to 93%
- Laval nozzles in six nominal sizes:
  - 0.45 mm
  - 0.7 mm
  - 0.95 mm
  - 1.4 mm
  - 2.0 mm
  - 3.0 mm
- Vacuum generators for high suction rates resulting in very short evacuation times
- Low space requirement
- Compact and sturdy design
- Wear-resistant and maintenance-free
- Modular system: Large selection of different types
- Can be used directly in the workplace, making them very effective
- Plastic housing
- Versatile connection options:
  - Push-in connector QS
  - Screw-in thread
  - Push-in sleeve
  - Screw-in silencer
- Easy mounting thanks to the double-sided latching function of the mounting plate
- With or without integrated vacuum switch to monitor the vacuum with PNP output

Two housing types

Standard T-type

Connection options:
- QS push-in connectors
- Female thread
- Male thread
- Silencers

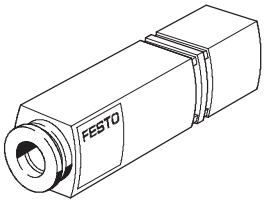
Mounting options:
- Direct mounting with screws
- Indirect mounting by latching onto a mounting plate. This plate is suitable for H-rails 35x7.5 to DIN EN 50 022.



In-line version

Connection options:
- QS push-in connectors
- Push-in sleeve

Mounting options:
Extremely compact housing with supply and vacuum port arranged in a line and with unducted exhaust air. As a result, this housing type can be installed directly into the tubing line.

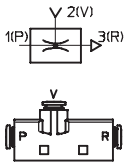


Two operating principles

Standard

- T-type housing

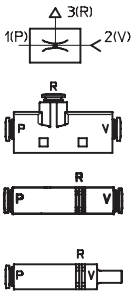
Design:
Supply port at 90° to vacuum port. The drawn-in flow is diverted 90° from V to R.



Inline

- T-type housing with exhaust port
- Straight housing without exhaust port for space-saving assembly in a tubing line or directly in the suction cup holder

Design:
Supply and vacuum ports arranged in-line.



Vacuum generators VN

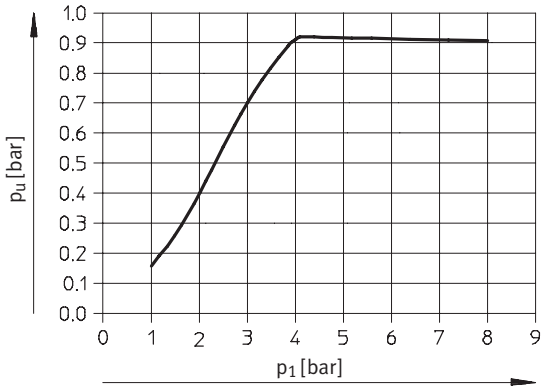
Features

Two variants

High vacuum

up to 93%

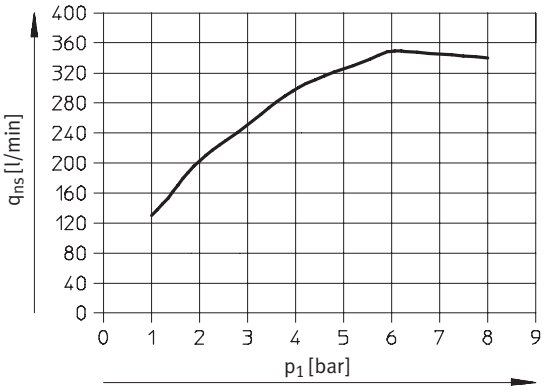
Vacuum p_u as a function of operating pressure p_1



High suction volume

up to 339 l/min which results in very short evacuation times

Suction rate q_{ns} as a function of operating pressure p_1

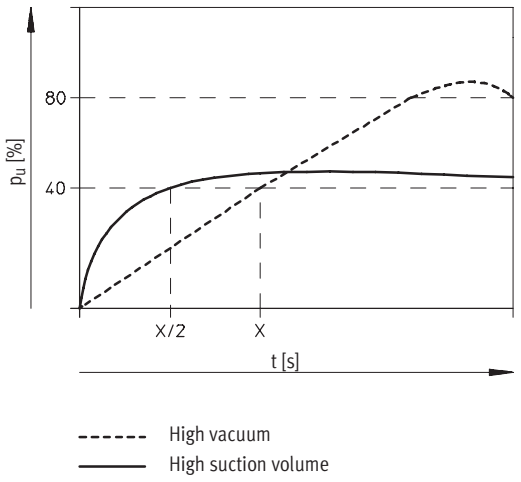


System comparison

High vacuum – high suction volume

The first type of generator has been optimised for the generation of high vacuum at comparatively lower suction flow rates.

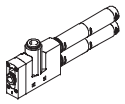
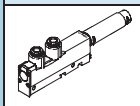
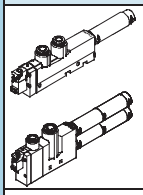
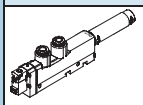
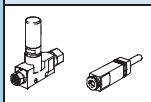
The second type of generator, on the other hand, can achieve very short evacuation times because of the high suction flow rate at relatively low vacuum.



Vacuum generators VN

Product range overview

FESTO

Function	Version	Type	Nominal size	Housing width								Supply port (1)	
				T-type					Inline			Push-in connector	Female thread
				10	14	16	18	24	10	13	14.5	PQ	PI
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		
High vacuum	**Standard H**												
		VN-05-H	0.45	■	–	–	–	–	–	–	–	■	■
				–	■								
		VN-07-H	0.7	■	–	–	–	–	–	–	–	■	■
				–	■								
		VN-10-H	0.95	–	■	–	–	–	–	–	–	■	■
					–		■						–
		VN-14-H	1.4	–	–	–	■	–	–	–	–	■	■
		VN-20-H	2.0	–	–	–	–	■	–	–	–	■	■
		VN-30-H	3.0	–	–	–	–	■	–	–	–	■	■
	Standard H with integrated vacuum switch												
		VN-05-H-...-P	0.45	–	–	■	–	–	–	–	–	■	–
		VN-07-H-...-P	0.7										
		VN-10-H-...-P	0.95										
	Standard H with ejector pulse												
		VN-05-H-...-A	0.45	–	■	–	–	–	–	–	–	■	■
		VN-07-H-...-A	0.7										
		VN-10-H-...-A	0.95										
		VN-14-H-...-A	1.4	–	–	–	■	–	–	–	–	■	■
	Standard H with solenoid valve												
		VN-05-H-...-M	0.45	–	■	–	–	–	–	–	–	■	–
		VN-07-H-...-M	0.7										
		VN-10-H-...-M	0.95										
		VN-14-H-...-M	1.4	–	–	–	■	–	–	–	–	■	–
		VN-20-H-...-M	2.0	–	–	–	–	■	–	–	–	■	–
		VN-30-H-...-M	3.0										
	Standard H with solenoid valve and ejector pulse												
		VN-05-H-...-B	0.45	–	■		–	–	–	–	–	■	–
		VN-07-H-...-B	0.7										
		VN-10-H-...-B	0.95										
		VN-14-H-...-B	1.4	–	–		■	–	–	–	–	■	–
	Inline M												
		VN-05-M	0.45	■	–	–	–	–	–	–	–	■	■
				–	■								
				–	–	–	–	–	■	–	–	■	–
									–	■	–		
		VN-07-M	0.7	■	–	–	–	–	–	–	–	■	■
				–	■								
				–	–	–	–	–	■	–	–	■	–
									–	■	–		
		VN-10-M	0.95	–	–	–	–	–	–	■	–	■	–
	Inline M with ejector pulse												
		VN-05-M-...-A	0.45	–	–		–	–	–	–	■	■	–
		VN-07-M-...-A	0.7										

Vacuum generators VN

Product range overview

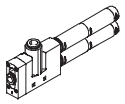
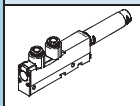
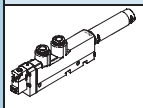
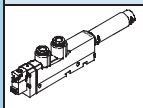
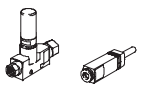
FESTO

Type	Vacuum port (2)				Exhaust port (3)			Switching function		→ Page
	Push-in connector VQ	Female thread VI	Male thread VA	Push-in sleeve VT	Push-in connector RQ	Female thread RI	Silencer RO	Fixed hysteresis O1	Variable hysteresis O2	
Standard H										
VN-05-H	■	■	– ■	–	■	■	■	–	–	6 / 1.1-11
VN-07-H	■	■	– ■	–	■	■	■	–	–	
VN-10-H	■	■ –	■	–	■	■ –	■	–	–	
VN-14-H	■	■	■	–	■	■	■	–	–	
VN-20-H	■	■	■	–	–	–	■	–	–	
VN-30-H	■	■	■	–	–	–	■	–	–	
Standard H with integrated vacuum switch										
VN-05-H-...-P VN-07-H-...-P VN-10-H-...-P	■	–	–	–	–	–	–	■	■	6 / 1.1-27 www.festo.com
Standard H with ejector pulse										
VN-05-H-...-A VN-07-H-...-A VN-10-H-...-A VN-14-H-...-A	■	■	–	–	–	–	■	–	–	6 / 1.1-33 www.festo.com
Standard H with solenoid valve										
VN-05-H-...-M VN-07-H-...-M VN-10-H-...-M VN-14-H-...-M VN-20-H-...-M VN-30-H-...-M	■	–	–	–	–	–	■	–	–	6 / 1.1-33 www.festo.com
Standard H with solenoid valve and ejector pulse										
VN-05-H-...-B VN-07-H-...-B VN-10-H-...-B VN-14-H-...-B	■	–	–	–	–	–	■	–	–	6 / 1.1-33 www.festo.com
Inline M										
VN-05-M	■	■	–	–	■	■	■	–	–	6 / 1.1-11
	■	–	–	■	–	–	–	–	–	
VN-07-M	■	■	–	–	■	■	■	–	–	
	■	–	–	■	–	–	–	–	–	
VN-10-M	■	–	–	–	–	–	–	–	–	
Inline M with ejector pulse										
VN-05-M-...-A VN-07-M-...-A	■	–	–	–	–	–	–	–	–	6 / 1.1-33 www.festo.com

Vacuum generators VN

Product range overview

FESTO

Function	Version	Type	Nominal size	Housing width								Supply port (1)	
				T-type					Inline			Push-in connector	Female thread
				10	14	16	18	24	10	13	14.5	PQ	PI
			[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		
High suction rate	**Standard L**												
		VN-05-L	0.45	■	–	–	–	–	–	–	–	■	■
				–	■								
		VN-07-L	0.7	–	■	–	–	–	–	–	–	■	■
		VN-10-L	0.95	–	■	–	–	–	–	–	–	■	■
					–		■						–
		VN-14-L	1.4	–	–	–	■	–	–	–	–	■	■
		VN-20-L	2.0	–	–	–	–	■	–	–	–	■	■
		VN-30-L	3.0	–	–	–	–	■	–	–	–	■	■
	Standard L with integrated vacuum switch												
		VN-05-L-...-P	0.45	–	–	■	–	–	–	–	–	■	–
		VN-07-L-...-P	0.7										
		VN-10-L-...-P	0.95										
	Standard L with ejector pulse												
		VN-05-L-...-A	0.45	–	■	–	–	–	–	–	–	■	■
		VN-07-L-...-A	0.7										
		VN-10-L-...-A	0.95										
		VN-14-L-...-A	1.4	–	–	–	■	–	–	–	–	■	■
	Standard L with solenoid valve												
		VN-05-L-...-M	0.45	–	■	–	–	–	–	–	–	■	–
		VN-07-L-...-M	0.7										
		VN-10-L-...-M	0.95										
		VN-14-L-...-M	1.4	–	–	–	■	–	–	–	–	■	–
	Standard L with solenoid valve and ejector pulse												
		VN-05-L-...-B	0.45	–	■		–	–	–	–	–	■	–
		VN-07-L-...-B	0.7										
		VN-10-L-...-B	0.95										
		VN-14-L-...-B	1.4	–	–		■	–	–	–	–	■	–
	Inline N												
		VN-05-N	0.45	–	■	–	–	–	–	–	–	■	■
				–	–	–	–	–	–	■	–	■	–
	Inline N with ejector pulse												
		VN-05-N-...-A	0.45	–	–		–	–	–	–	■	■	–
		VN-07-N-...-A	0.7										

Vacuum generators VN

Product range overview

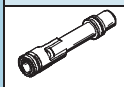
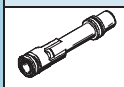
FESTO

Type	Vacuum port (2)				Exhaust port (3)			Switching function		→ Page
	Push-in connector VQ	Female thread VI	Male thread VA	Push-in sleeve VT	Push-in connector RQ	Female thread RI	Silencer RO	Fixed hysteresis O1	Variable hysteresis O2	
Standard L										
VN-05-L	■	■	– / ■	–	■	■	■	–	–	6 / 1.1-11
VN-07-L	■	■	■	–	■	■	■	–	–	
VN-10-L	■	■ / –	■	–	■	■ / –	■	–	–	
VN-14-L	■	■	■	–	■	■	–	–	–	
VN-20-L	■	■	■	–	–	–	■	–	–	
VN-30-L	–	■	■	–	–	–	■	–	–	
Standard L with integrated vacuum switch										
VN-05-L-...-P VN-07-L-...-P VN-10-L-...-P	■	–	–	–	–	–	–	■	■	6 / 1.1-27 www.festo.com
Standard L with ejector pulse										
VN-05-L-...-A VN-07-L-...-A VN-10-L-...-A VN-14-L-...-A	■	■	–	–	–	–	■	–	–	6 / 1.1-33 www.festo.com
Standard L with solenoid valve										
VN-05-L-...-M VN-07-L-...-M VN-10-L-...-M VN-14-L-...-M	■	–	–	–	–	–	■	–	–	6 / 1.1-33 www.festo.com
Standard L with solenoid valve and ejector pulse										
VN-05-L-...-B VN-07-L-...-B VN-10-L-...-B VN-14-L-...-B	■	–	–	–	–	–	■	–	–	6 / 1.1-33 www.festo.com
Inline N										
VN-05-N	■	■	–	–	■	■	■	–	–	6 / 1.1-11
	■	–	–	■	–	–	–	–	–	
Inline N with ejector pulse										
VN-05-N-...-A VN-07-N-...-A	■	–	–	–	–	–	–	–	–	6 / 1.1-33 www.festo.com

Vacuum generators VN

Product range overview

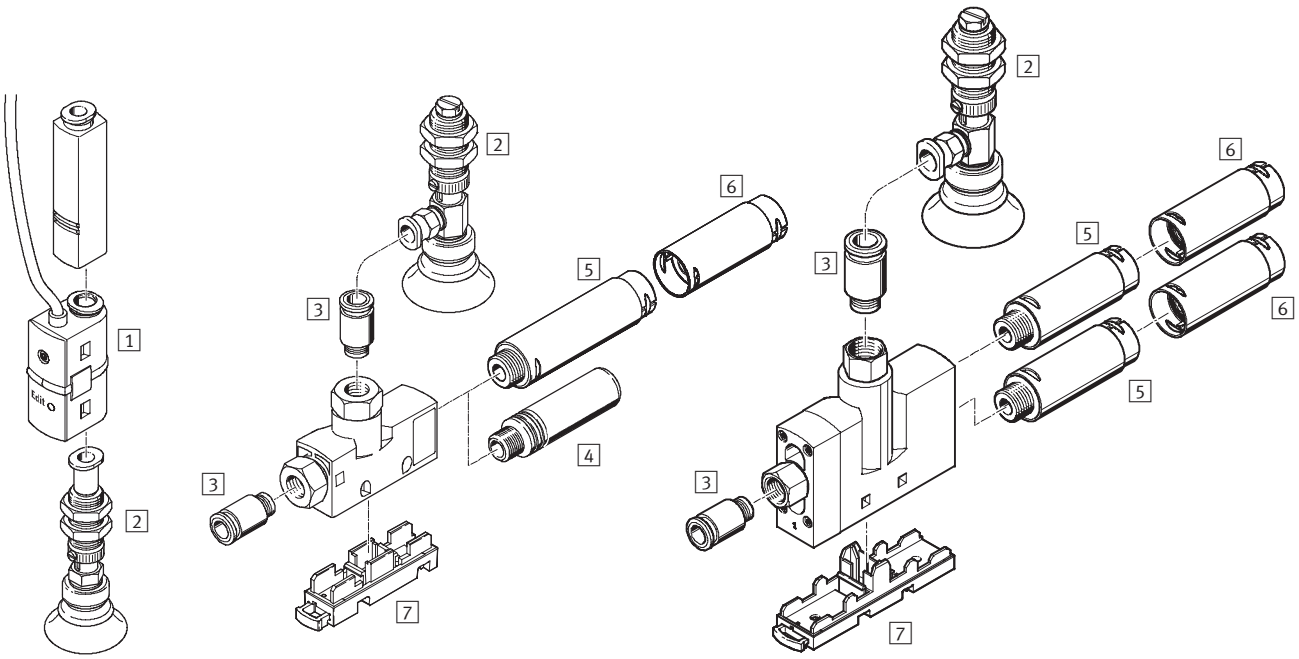
FESTO

Function	Version	Type	Nominal size [mm]	➔ Page
High vacuum	Vacuum generator cartridge, standard H			
		VN-05-H	0.45	6 / 1.1-45 www.festo.com
		VN-07-H	0.7	
		VN-10-H	0.95	
		VN-14-H	1.4	
		VN-20-H	2.0	
High suction rate	Vacuum generator cartridge, standard L			
		VN-05-L	0.45	6 / 1.1-45 www.festo.com
		VN-07-L	0.7	
		VN-10-L	0.95	
		VN-14-L	1.4	
		VN-20-L	2.0	

Vacuum generators VN

Peripherals overview

VN-05/07/10/14		VN-20/30
Inline	T-type	



Mounting attachments and accessories								
	VN-05/07/10/14					VN-20/30	➔ Page
	Inline		T-type			T-type	
	10 mm	13 mm	10 mm	14 mm	18 mm	24 mm	
1 Pressure switch SDE5	■		■			■	6 / 5.1-41 www.festo.com
2 Suction gripper ESG	■		■			■	6 / 2.1-7 www.festo.com 6 / 2.1-1
3 Push-in fitting QS	–		■			■	Volume 3 www.festo.com
4 Silencer UO	–		■	■	–	–	6 / 4.1-17
5 Silencer UOM	–		–	–	■	■	6 / 4.1-18
6 Silencer extension UOMS	–		–	–	■	■	6 / 4.1-18
7 Mounting plate VN-T	–		■			■	6 / 4.1-19
– Suction cup holder ESH	■		■			■	6 / 2.1-33 www.festo.com 6 / 2.1-33
– suction cup ESS	■		■			■	6 / 2.1-49 www.festo.com 6 / 2.1-49

Vacuum generators VN

Type codes

FESTO

VN – 05 – H – T2 – PQ1 – VQ1 – RQ1

Type	
VN	Vacuum generator

Nominal laval nozzle size [mm]	
05	0.45
07	0.7
10	0.95
14	1.4
20	2.0
30	3.0

Ejector characteristic	
H	High vacuum/Standard
L	High suction rate/Standard
M	High vacuum/Inline
N	High suction rate/Inline

Housing type	
I2	Inline, grid dimensions 10 mm
I3	Inline, grid dimensions 13 mm
T2	T-type, grid dimensions 10 mm
T3	T-type, grid dimensions 14 mm
T4	T-type, grid dimensions 18 mm
T6	T-type, grid dimensions 24 mm

Supply port (1)	
PQ1	Push-in connector QS4
PQ2	Push-in connector QS6
PQ4	Push-in connector QS10
PI2	Female thread M5
PI4	Female thread G1⁄8
PI5	Female thread G1⁄4

Vacuum connection (2)	
VQ1	Push-in connector QS4
VQ2	Push-in connector QS6
VQ3	Push-in connector QS8
VQ5	Push-in connector QS12
VI2	Female thread M5
VI4	Female thread G1⁄8
VI5	Female thread G1⁄4
VI6	Female thread G3⁄8
VA4	Male thread G1⁄8
VA5	Male thread G1⁄4
VT1	Push-in sleeve ∅ 4 mm
VT2	Push-in sleeve ∅ 6 mm

Exhaust port (3)	
RQ1	Push-in connector QS4
RQ2	Push-in connector QS6
RQ3	Push-in connector QS8
RI2	Female thread M5
RI4	Female thread G1⁄8
RI5	Female thread G1⁄4
RO1	Silencer UO, minimal resistance
RO2	Silencer UOM, minimal resistance

- - Note

Possible combinations can be found in the ordering data.

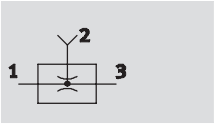
Vacuum generators VN

Technical data

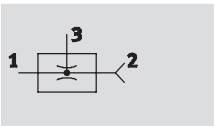
FESTO

Function

VN Standard

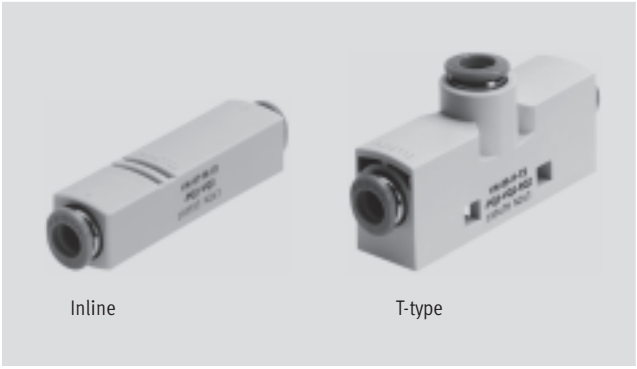


VN Inline



Temperature range
0 ... +60 °C

Operating pressure
1 ... 8 bar



General technical data – Standard										
Design		T-type								
Type		VN-05		VN-07		VN-10		VN-14	VN-20	VN-30
Grid dimension	[mm]	10	14	10	14	14	18	18	24	24
Nominal size of laval nozzle	[mm]	0.45		0.7		0.95		1.4	2.0	3.0
Ejector characteristic		High vacuum H								
		High suction rate L		–		High suction rate L				
Pneumatic connection 1	Push-in connector	QS4	QS6	QS4	QS6	QS6	QS6	QS6	QS10	QS10
	Female thread	M5	G1/8	M5	G1/8	G1/8	–	G1/8	G1/4	G1/4
Vacuum connection	Push-in connector	QS4	QS6	QS4	QS6	QS6	QS8	QS8	QS12	QS12
	Male thread	–	G1/8	–	G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
	Female thread	M5	G1/8	M5	G1/8	G1/8	–	G1/4	G3/8	G3/8
Pneumatic connection 3	Push-in connector	QS4	QS6	QS4	QS6	QS6	QS8	QS8	–	–
	Female thread	M5	G1/8	M5	G1/8	G1/8	–	G1/4	–	–
	Silencer	min. resis.	min. resis.	min. resis.	min. resis.	min. resis.	min. resis.	min. resis.	min. resis.	min. resis.
Type of mounting		Via through-holes								
		Via H-rail								
		Via wall/surface bracket								
Assembly position		Any								

General technical data – Inline										
Design		T-type				Inline				
Type		VN-05		VN-07		VN-05		VN-07		VN-10
Grid dimension	[mm]	10	14	10	14	10	13	10	13	13
Nominal size of laval nozzle	[mm]	0.45		0.7		0.45		0.7		0.95
Ejector characteristic		High vacuum M								
		–	High suction rate N	–		–	High suction rate N	–		–
Pneumatic connection 1	Push-in connector	QS4	QS6	QS4	QS6	QS4	QS6	QS4	QS6	QS6
	Female thread	M5	G1/8	M5	G1/8	–				
Vacuum connection	Push-in connector	QS4	QS6	QS4	QS6	QS4	QS6	QS4	QS6	QS6
	Female thread	M5	G1/8	M5	G1/8	–				
	Push-in sleeve	–				4	6	4	6	–
Pneumatic connection 3	Push-in connector	QS4	QS6	QS4	QS6	–				
	Female thread	M5	G1/8	M5	G1/8	–				
	Silencer	min. resis.	min. resis.	min. resis.	min. resis.	–				
Type of mounting		Via through-holes				Inline installation				
		Via H-rail								
		Via wall/surface bracket								
Assembly position		Any								

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Operating and environmental conditions			
Pneumatic connection		with push-in fitting	without push-in fitting
Operating pressure	[bar]	1 ... 8	
Nominal operating pressure	[bar]	6	
Operating medium		Dried, filtered and unlubricated compressed air	
Ambient temperature	[°C]	0 ... +60	
Temperature of medium	[°C]	0 ... +60	
Corrosion resistance class CRC[1)]		1	2

1) Corrosion resistance class 1 according to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.
Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Performance data – High vacuum										
Ejector characteristic		Standard H						Inline M		
Nominal size of laval nozzle	[mm]	0.45	0.7	0.95	1.4	2.0	3.0	0.45	0.7	0.95
Max. vacuum	[%]	88	88	89	88	92	93	86	86	86
Operating pressure for max. vacuum	[bar]	4.5	4.7	4.5	5.0	3.5	3.7	6.0	5.8	5.8
Max. suction rate with respect to atmosphere	[l/min]	6.2	16	25	51.6	98	186	6.1	13.5	28
Operating pressure for max. suction rate	[bar]	2.1	2.1	3.1	5.1	2.0	5.0	6.3	7.0	5.0
Pressurisation time[1)] for 1 l volume at p_1 = 6 bar	[s]	4.8	1.9	1.1	0.5	0.2	0.1	4.7	2.1	0.96

1) Time required to build up vacuum to –0.05 bar.

Performance data – High suction rate								
Ejector characteristic		Standard L						Inline N
Nominal size of laval nozzle	[mm]	0.45	0.7	0.95	1.4	2.0	3.0	0.45
Max. suction rate with respect to atmosphere	[l/min]	15.7	38.8	62.7	90.0	188.0	339.0	12.0
Operating pressure for max. suction rate	[bar]	5.0	6.2	4.0	8.0	3.0	6.0	6.0
Pressurisation time[1)] for 1 l volume at p_1 = 6 bar	[s]	1.7	0.5	0.46	0.25	0.15	0.1	1.57

1) Time required to build up vacuum to –0.05 bar.

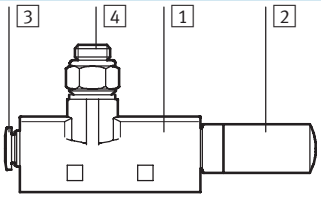
Vacuum generators VN

Technical data

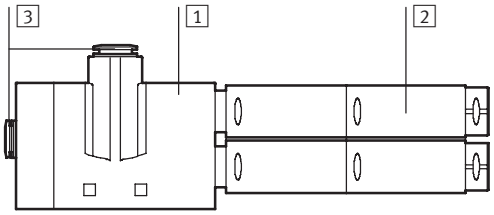
FESTO

Materials

Sectional view



Vacuum generator VN-05/07/10/14			
1	Housing		Polyacetate, reinforced
2	Silencer	RO1	Polyethylene
		RO2	Wrought aluminium alloy, polyacetate, PU foam
3	Push-in fitting		Plastic, nickel plated brass
4	Connecting thread		Wrought aluminium alloy
–	Seals		Nitrile rubber
	Note on materials		Free of copper and PTFE
			Free of paint wetting impairment substances



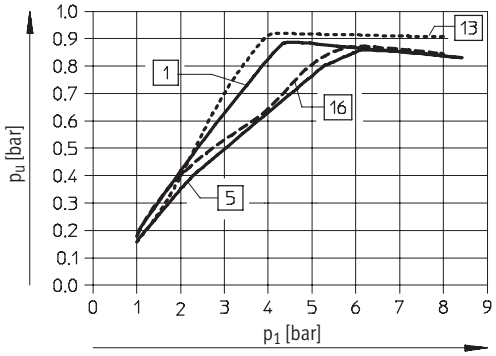
Vacuum generator VN-20/30		
1	Housing	Polyacetate, reinforced
2	Silencer	Wrought aluminium alloy, polyacetate, PU foam
3	Push-in fitting	Plastic, nickel plated brass
–	Connecting thread	Wrought aluminium alloy
–	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE
		Free of paint wetting impairment substances

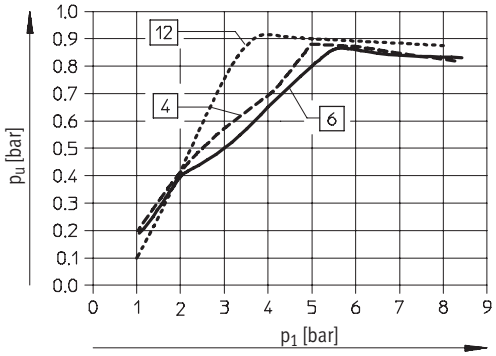
Vacuum generators VN

Technical data

Vacuum p_u as a function of operating pressure p_1

High vacuum





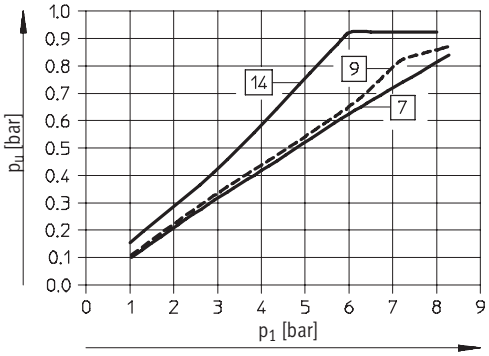
Standard:

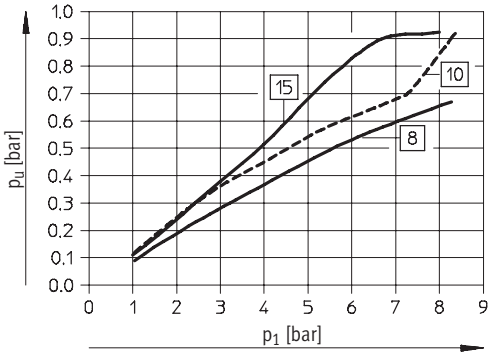
- 1 VN-05-H-...
  VN-07-H-...
  VN-10-H-...
- 4 VN-14-H-...
- 12 VN-20-H-...
- 13 VN-30-H-...

Inline:

- 5 VN-05-M-...
- 6 VN-07-M-...
- 16 VN-10-M-...

High suction rate





Standard:

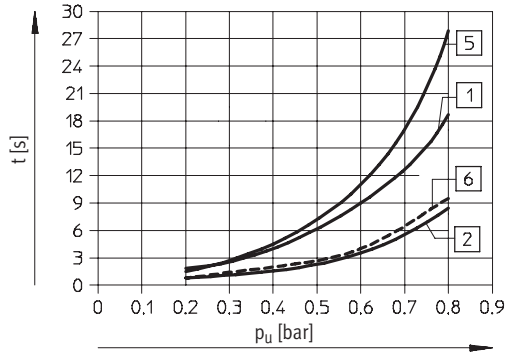
- 7 VN-05-L-...
- 8 VN-07-L-...
- 9 VN-10-L-...
- 10 VN-14-L-...
- 14 VN-20-L-...
- 15 VN-30-L-...

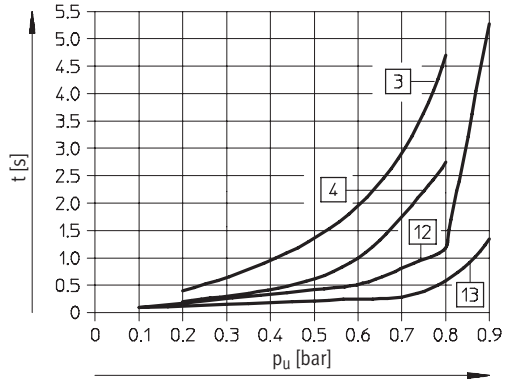
Inline:

- 8 VN-05-N-...

Evacuation time t as a function of vacuum p_u for 1 l volume at 6 bar operating pressure

High vacuum

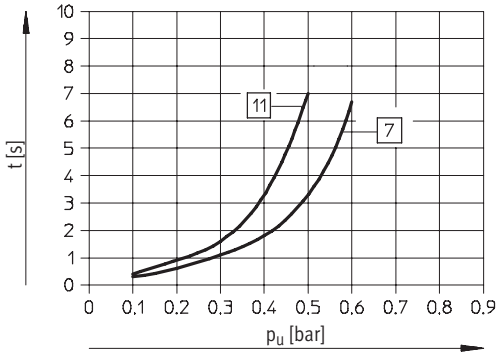


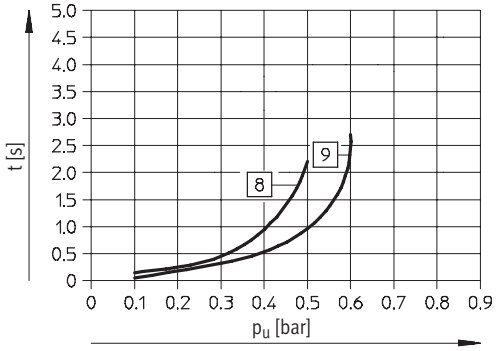


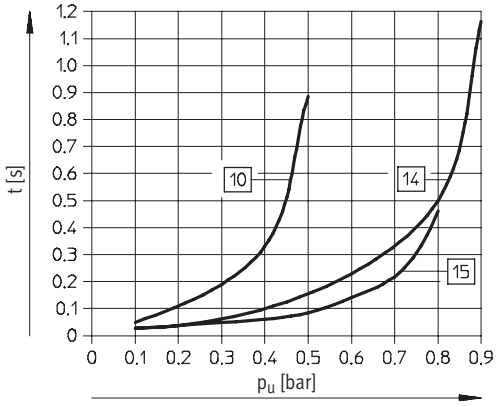
Standard:
- 1 VN-05-H-...
- 2 VN-07-H-...
- 3 VN-10-H-...
- 4 VN-14-H-...
- 12 VN-20-H-...
- 13 VN-30-H-...

Inline:
- 5 VN-05-M-...
- 6 VN-07-M-...
- 3 VN-10-M-...

High suction rate







Standard:
- 7 VN-05-L-...
- 8 VN-07-L-...
- 9 VN-10-L-...
- 10 VN-14-L-...
- 14 VN-20-L-...
- 15 VN-30-L-...

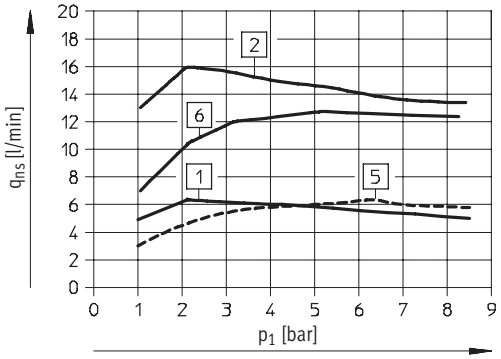
Inline:
- 11 VN-05-N-...

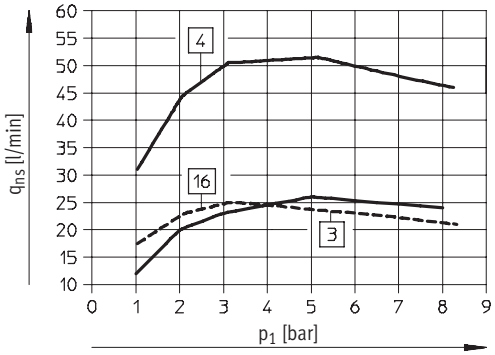
Vacuum generators VN

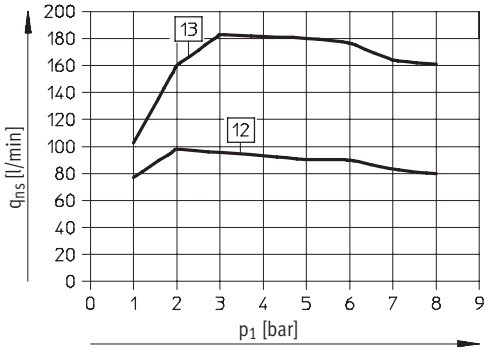
Technical data

Suction rate q_{ns} (with respect to atmosphere) as a function of operating pressure p_1

High vacuum







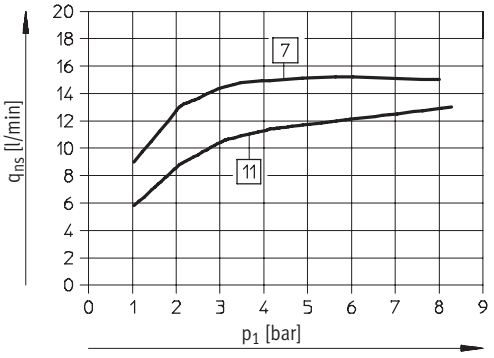
Standard:

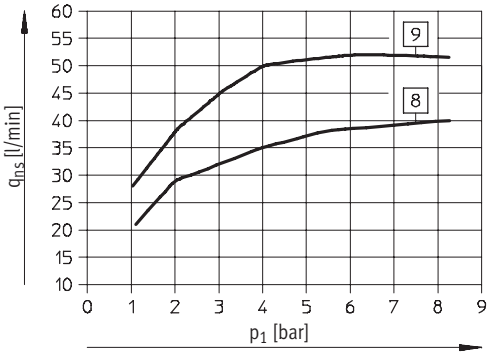
- 1 VN-05-H-...
- 2 VN-07-H-...
- 3 VN-10-H-...
- 4 VN-14-H-...
- 12 VN-20-H-...
- 13 VN-30-H-...

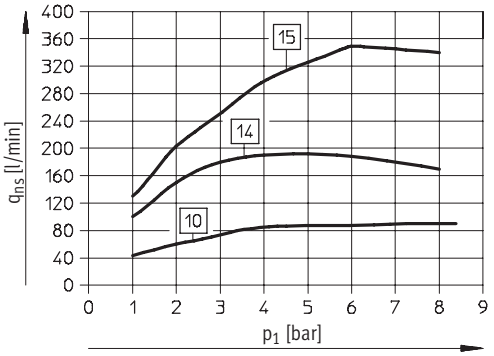
Inline:

- 5 VN-05-M-...
- 6 VN-07-M-...
- 16 VN-10-M-...

High suction rate







Standard:

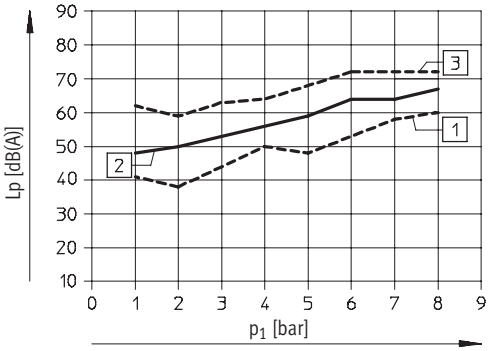
- 7 VN-05-L-...
- 8 VN-07-L-...
- 9 VN-10-L-...
- 10 VN-14-L-...
- 14 VN-20-L-...
- 15 VN-30-L-...

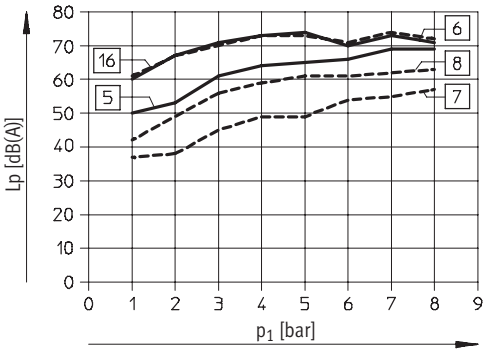
Inline:

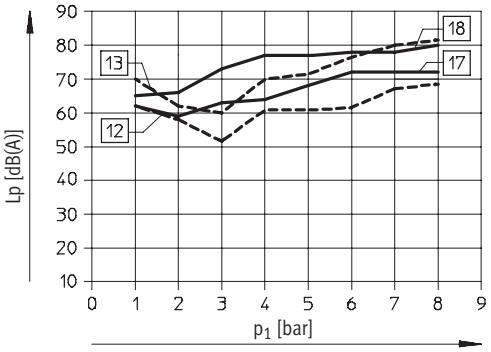
- 11 VN-05-N-...

Noise level Lp (at distance of 1 m) as a function of operating pressure p_1

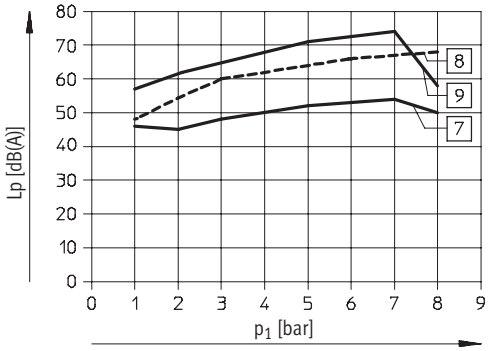
High vacuum

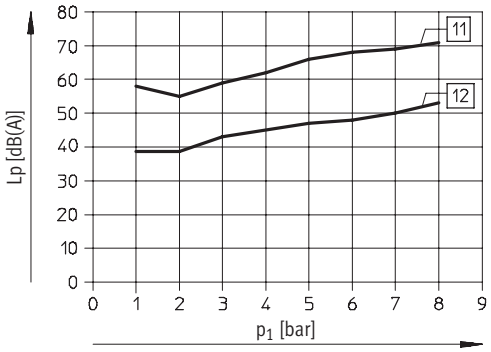


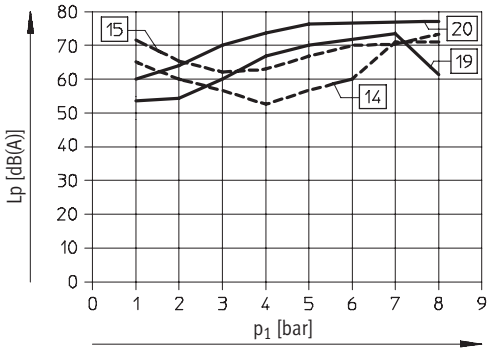




High suction rate







Standard:

- 1 VN-05-H-...-RO1
- 2 VN-07-H-...-RO1
- 3 VN-10-H-...-RO1
- 17 VN-10-H-...-RO2
- 18 VN-14-H-...-RO2
- 12 VN-20-H-...-RO2
- 13 VN-30-H-...-RO2

Inline:

T-type

- 7 VN-05-M-...-RO1
- 8 VN-07-M-...-RO1
- 16 VN-10-M-...-RO1

Inline

- 5 VN-05-M-I3-...
- 6 VN-07-M-I3-...

Standard:

- 7 VN-05-L-...-RO1
- 8 VN-07-L-...-RO1
- 9 VN-10-L-...-RO1
- 19 VN-10-L-...-RO2
- 20 VN-14-L-...-RO2
- 14 VN-20-L-...-RO2
- 15 VN-30-L-...-RO2

Inline:

T-type

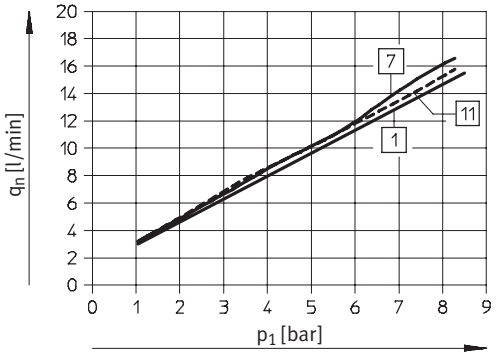
- 12 VN-05-N-...-RO1

Inline

- 11 VN-05-N-I3-...

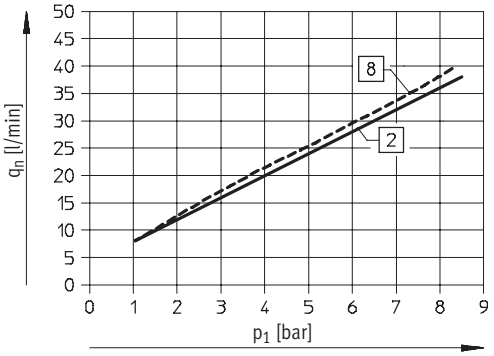
Air consumption q_n as a function of operating pressure p_1

High vacuum/high suction rate



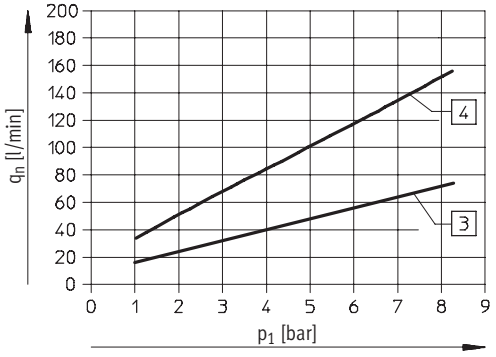
Standard:
1 VN-05-H-...
7 VN-05-L-...

Inline:
1 VN-05-M-...
11 VN-05-N-...



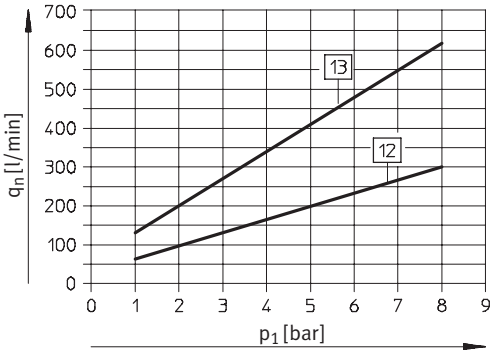
Standard:
2 VN-07-H-...
8 VN-07-L-...

Inline:
2 VN-07-M-...



Standard:
3 VN-10-H-...
VN-10-L-...
4 VN-14-H-...
VN-14-L-...

Inline:
3 VN-10-M-...

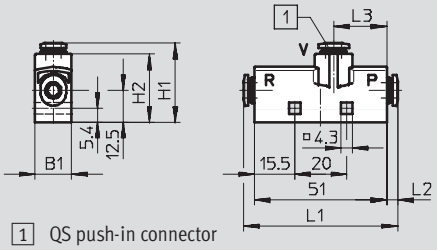


Standard:
12 VN-20-H-...
VN-20-L-...
13 VN-30-H-...
VN-30-L-...

Dimensions – T-type/Standard, VN-05/07/10/14

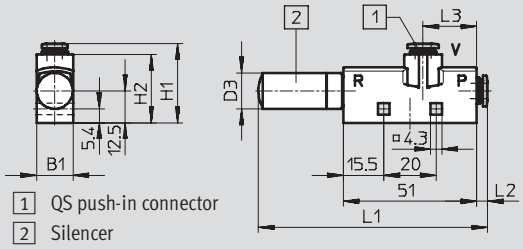
Download CAD data ➔ www.festo.com/en/engineering

VN-...-T...-PQ...-VQ...-RQ...



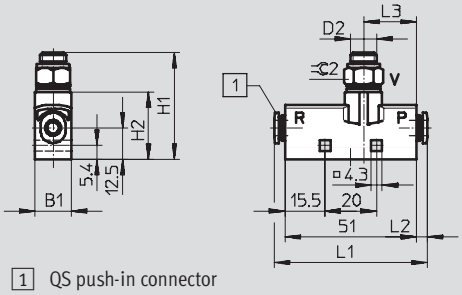
1 QS push-in connector

VN-...-T...-PQ...-VQ...-RO...



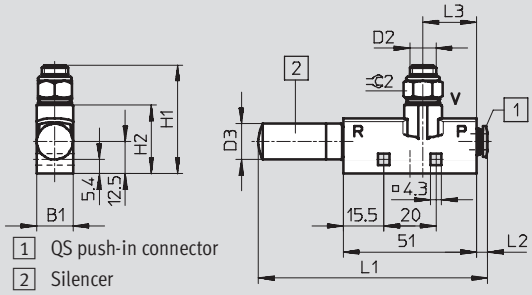
1 QS push-in connector
2 Silencer

VN-...-T...-PQ...-VA...-RQ...



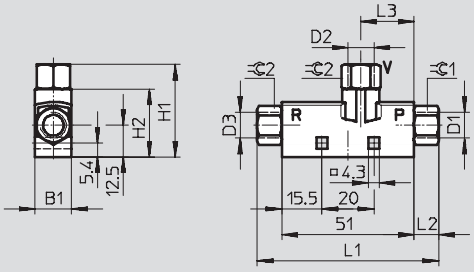
1 QS push-in connector

VN-...-T...-PQ...-VA...-RO...

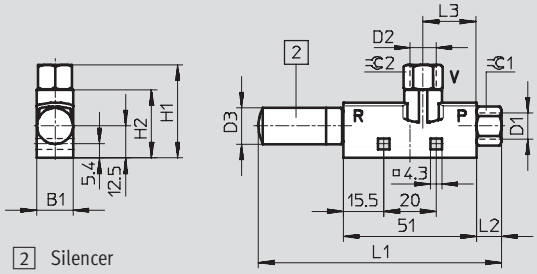


1 QS push-in connector
2 Silencer

VN-...-T...-PI...-VI...-RI...



VN-...-T...-PI...-VI...-RO...



2 Silencer

Type	B1	Connections			H1	H2	L1	L2	L3	⌀C1	⌀C2
		P D1	V D2	R D3							
VN-...-T2-PQ1-VQ1-RQ1	10	QS4	QS4	QS4	31.3	27.7	58.2	3.6	24.3	–	–
VN-...-T2-PQ1-VQ1-RO1				9.8[1]			86.8				
VN-...-T2-PI2-VI2-RI2		M5	M5	M5	32.7		61	5		9	9
VN-...-T2-PI2-VI2-RO1				9.8[1]			88.2				
VN-...-T3-PQ2-VQ2-RQ2	14	QS6	QS6	QS6	30.4	26.2	59.4	4.2	25.5	–	–
VN-...-T3-PQ2-VQ2-RO1				13.8[1]			97.6				
VN-...-T3-PQ2-VA4-RQ2			G1/8	QS6	41.5		59.4				13
VN-...-T3-PQ2-VA4-RO1				13.8[1]			97.6				
VN-...-T3-PI4-VI4-RI4		G1/8		G1/8	35.7		70	9.5		13	
VN-...-T3-PI4-VI4-RO1				13.8[1]			102.9				
VN-...-T4-PQ2-VQ3-RQ3	18	QS6	QS8	QS8	35.9	30.7	63.8	4.2	25.5	–	–
VN-...-T4-PQ2-VQ3-RO2				17.8[1]			125.5				
VN-...-T4-PQ2-VA5-RQ3			G1/4	QS8	50.5		63.8				17
VN-...-T4-PQ2-VA5-RO2				17.8[1]			125.5				
VN-...-T4-PI4-VI5-RI5		G1/8		G1/4	48.15		81.4	9.5		13	
VN-...-T4-PI4-VI5-RO2				17.8[1]			128.8				

1) ∅ Silencer

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Vacuum generators VN

Technical data

Dimensions – T-type/Standard, VN-10

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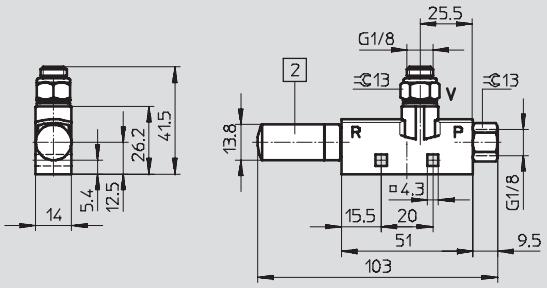
VN-10-L-T3-PI4-VA4-RO1



2 Silencer

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – T-type/Standard, VN-20/30

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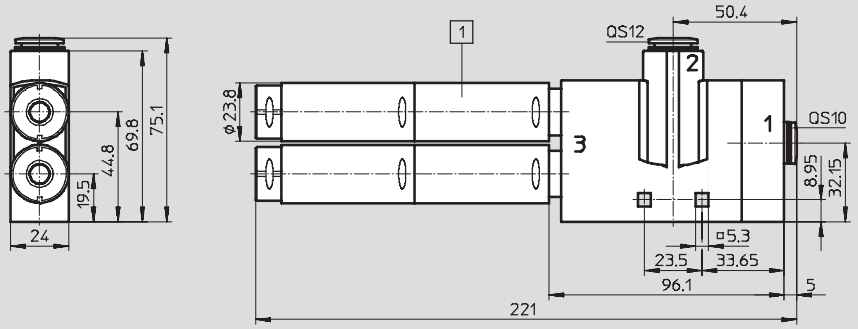
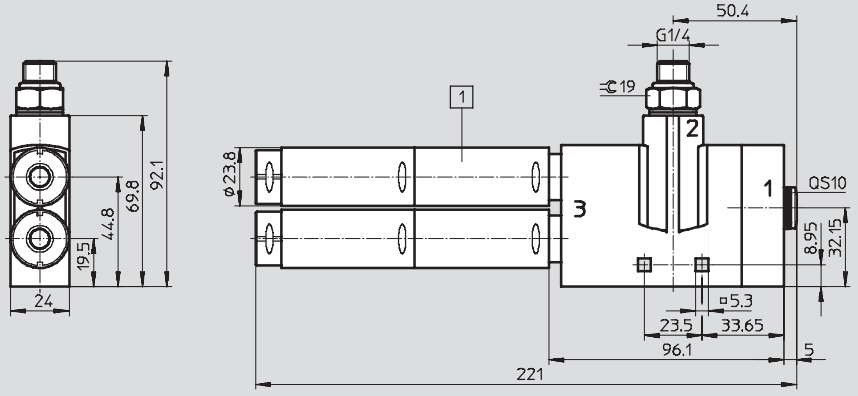
VN-...-T6-PQ4-VQ5-RO2



1 Silencer

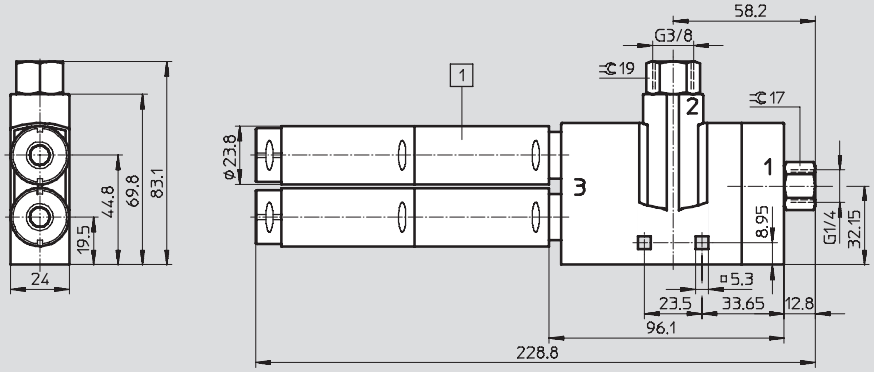
VN-...-T6-PQ4-VA5-RO2



1 Silencer

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

VN-...-T6-PI5-VI6-RO2



1 Silencer

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Vacuum generators VN

Technical data

Dimensions – T-type/Inline, VN-05/07

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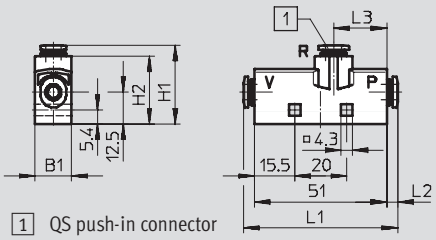
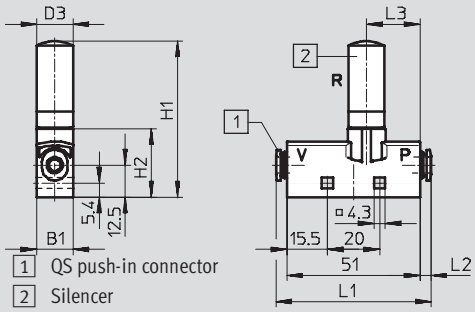
VN-...-T...-PQ...-VQ...-RQ...



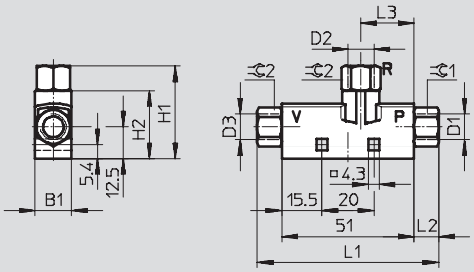
1 QS push-in connector

VN-...-T...-PQ...-VQ...-RO1

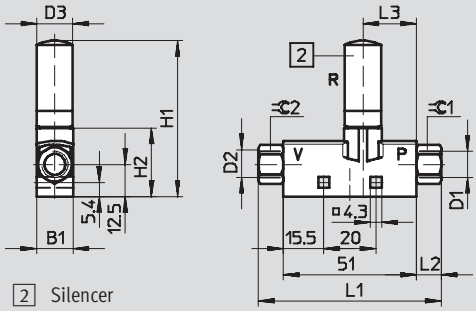


1 QS push-in connector
2 Silencer

VN-...-T...-PI...-VI...-RI...



VN-...-T...-PI...-VI...-RO1



2 Silencer

Type	B1	Connections			H1	H2	L1	L2	L3	⊂1	⊂2
		P D1	V D2	R D3							
VN-...-T2-PQ1-VQ1-RQ1	10	QS4	QS4	QS4	31.3	27.7	58.2	3.6	24.3	–	–
VN-...-T2-PQ1-VQ1-RO1				9.8[1]	59.9						
VN-...-T2-PI2-VI2-RI2		M5	M5	M5	32.7		61	5		9	9
VN-...-T2-PI2-VI2-RO1				9.8[1]	59.9						
VN-...-T3-PQ2-VQ2-RQ2	14	QS6	QS6	QS6	30.4	26.2	59.4	4.2	25.5	–	–
VN-...-T3-PQ2-VQ2-RO1				13.8[1]	68.6						
VN-...-T3-PI4-VI4-RI4		G1⁄8	G1⁄8	G1⁄8	35.7		70	9.5		13	13
VN-...-T3-PI4-VI4-RO1				13.8[1]	68.6						

1) ∅ Silencer

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Inline, VN-05/07/10

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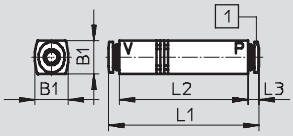
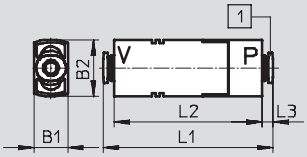
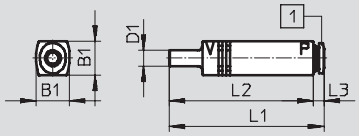
VN-05/07-...-I...-PQ...-VQ...



VN-10-M-I3-PQ2-VQ2



VN-05/07-...-I...-PQ...-VT...



1 QS push-in connector

Type	B1	B2	Connections		D1	L1	L2	L3
			P	V	∅			
VN-05/07-...-I2-PQ1-VQ1	10	–	QS4	QS4	–	57.4	50.2	3.6
VN-05/07-...-I2-PQ1-VT1				–	4	61.6	58	
VN-05/07-...-I3-PQ2-VQ2	13	–	QS6	QS6	–	58.6	50.2	4.2
VN-10-M-I3-PQ2-VQ2		22				66.1	57.7	
VN-05/07-...-I3-PQ2-VT2		–		–	6	60.2	56	

Vacuum generators VN

Technical data

Ordering data and weights – Standard

T-type

Housing width [mm]	Nominal size [mm]	Weight [g]	High vacuum H Part No.	Type		Weight [g]	High suction rate L Part No.	Type	
with push-in connector									
10	0.45	15.1	**526 100**	**VN-05-H-T2-PQ1-VQ1-RQ1**		15.1	**526 114**	**VN-05-L-T2-PQ1-VQ1-RQ1**	
	0.7	15.4	**526 101**	**VN-07-H-T2-PQ1-VQ1-RQ1**		–	–	–	
14	0.45	22	**193 478**	**VN-05-H-T3-PQ2-VQ2-RQ2**		22	**193 561**	**VN-05-L-T3-PQ2-VQ2-RQ2**	
	0.7	22	**193 479**	**VN-07-H-T3-PQ2-VQ2-RQ2**		22	**193 562**	**VN-07-L-T3-PQ2-VQ2-RQ2**	
	0.95	22	**193 480**	**VN-10-H-T3-PQ2-VQ2-RQ2**		22	**193 563**	**VN-10-L-T3-PQ2-VQ2-RQ2**	
18	0.95	26.9	**526 147**	**VN-10-H-T4-PQ2-VQ3-RQ3**		26.4	**526 157**	**VN-10-L-T4-PQ2-VQ3-RQ3**	
	1.4	27	**193 482**	**VN-14-H-T4-PQ2-VQ3-RQ3**		27	**193 565**	**VN-14-L-T4-PQ2-VQ3-RQ3**	
with push-in connector and silencer									
10	0.45	14.3	**193 569**	**VN-05-H-T2-PQ1-VQ1-RO1**		14.3	**193 595**	**VN-05-L-T2-PQ1-VQ1-RO1**	
	0.7	14.6	**193 570**	**VN-07-H-T2-PQ1-VQ1-RO1**		–	–	–	
14	0.45	23	**193 488**	**VN-05-H-T3-PQ2-VQ2-RO1**		22.8	**193 571**	**VN-05-L-T3-PQ2-VQ2-RO1**	
	0.7	23	**193 489**	**VN-07-H-T3-PQ2-VQ2-RO1**		23.1	**193 572**	**VN-07-L-T3-PQ2-VQ2-RO1**	
	0.95	23	**193 490**	**VN-10-H-T3-PQ2-VQ2-RO1**		23.3	**193 573**	**VN-10-L-T3-PQ2-VQ2-RO1**	
18	0.95	35.3	**549 251**	**VN-10-H-T4-PQ2-VQ3-RO2**		35.7	**549 253**	**VN-10-L-T4-PQ2-VQ3-RO2**	
	1.4	35.4	**547 707**	**VN-14-H-T4-PQ2-VQ3-RO2**		35.1	**547 710**	**VN-14-L-T4-PQ2-VQ3-RO2**	
24	2.0	182	**193 495**	**VN-20-H-T6-PQ4-VQ5-RO2**		182	**193 578**	**VN-20-L-T6-PQ4-VQ5-RO2**	
	3.0	182	**193 497**	**VN-30-H-T6-PQ4-VQ5-RO2**		–	–	–	
with push-in connector, vacuum connection with male thread									
14	0.45	24	**193 516**	**VN-05-H-T3-PQ2-VA4-RQ2**		24	**193 599**	**VN-05-L-T3-PQ2-VA4-RQ2**	
	0.7	23	**193 517**	**VN-07-H-T3-PQ2-VA4-RQ2**		24	**193 600**	**VN-07-L-T3-PQ2-VA4-RQ2**	
	0.95	24	**193 518**	**VN-10-H-T3-PQ2-VA4-RQ2**		24	**193 601**	**VN-10-L-T3-PQ2-VA4-RQ2**	
18	0.95	32.5	**526 153**	**VN-10-H-T4-PQ2-VA5-RQ3**		32.5	**526 163**	**VN-10-L-T4-PQ2-VA5-RQ3**	
	1.4	33	**193 520**	**VN-14-H-T4-PQ2-VA5-RQ3**		33	**193 603**	**VN-14-L-T4-PQ2-VA5-RQ3**	
with push-in connector, vacuum connection with male thread and silencer									
14	0.45	24	**193 526**	**VN-05-H-T3-PQ2-VA4-RO1**		24.5	**193 609**	**VN-05-L-T3-PQ2-VA4-RO1**	
	0.7	25	**193 527**	**VN-07-H-T3-PQ2-VA4-RO1**		24.8	**193 610**	**VN-07-L-T3-PQ2-VA4-RO1**	
	0.95	25	**193 528**	**VN-10-H-T3-PQ2-VA4-RO1**		25	**193 611**	**VN-10-L-T3-PQ2-VA4-RO1**	
18	0.95	41.4	**549 252**	**VN-10-H-T4-PQ2-VA5-RO2**		41.5	**549 254**	**VN-10-L-T4-PQ2-VA5-RO2**	
	1.4	41.2	**547 706**	**VN-14-H-T4-PQ2-VA5-RO2**		40.9	**547 709**	**VN-14-L-T4-PQ2-VA5-RO2**	
24	2.0	189	**526 145**	**VN-20-H-T6-PQ4-VA5-RO2**		189	**526 135**	**VN-20-L-T6-PQ4-VA5-RO2**	
	3.0	189	**526 146**	**VN-30-H-T6-PQ4-VA5-RO2**		189	**526 136**	**VN-30-L-T6-PQ4-VA5-RO2**	

Vacuum generators VN

Technical data

FESTO

Ordering data and weights – Standard								
T-type								
Housing width [mm]	Nominal size [mm]	Weight [g]	High vacuum H			Weight [g]	High suction rate L	
			Part No.	Type			Part No.	Type
with female thread								
10	0.45	12.9	**526 102**	**VN-05-H-T2-PI2-VI2-RI2**		13	**526 116**	**VN-05-L-T2-PI2-VI2-RI2**
	0.7	13.2	**526 103**	**VN-07-H-T2-PI2-VI2-RI2**		–	–	–
14	0.45	21	**193 498**	**VN-05-H-T3-PI4-VI4-RI4**		21	**193 581**	**VN-05-L-T3-PI4-VI4-RI4**
	0.7	21	**193 499**	**VN-07-H-T3-PI4-VI4-RI4**		21	**193 582**	**VN-07-L-T3-PI4-VI4-RI4**
	0.95	22	**193 500**	**VN-10-H-T3-PI4-VI4-RI4**		22	**193 583**	**VN-10-L-T3-PI4-VI4-RI4**
18	1.4	36	**193 502**	**VN-14-H-T4-PI4-VI5-RI5**		36	**193 585**	**VN-14-L-T4-PI4-VI5-RI5**
with female thread and silencer								
10	0.45	12.9	**526 104**	**VN-05-H-T2-PI2-VI2-RO1**		12.9	**526 118**	**VN-05-L-T2-PI2-VI2-RO1**
	0.7	13.2	**526 105**	**VN-07-H-T2-PI2-VI2-RO1**		–	–	–
14	0.45	22	**193 507**	**VN-05-H-T3-PI4-VI4-RO1**		22.3	**193 590**	**VN-05-L-T3-PI4-VI4-RO1**
	0.7	23	**193 508**	**VN-07-H-T3-PI4-VI4-RO1**		22.6	**193 591**	**VN-07-L-T3-PI4-VI4-RO1**
	0.95	23	**193 509**	**VN-10-H-T3-PI4-VI4-RO1**		22.8	**193 592**	**VN-10-L-T3-PI4-VI4-RO1**
18	1.4	39.8	**547 705**	**VN-14-H-T4-PI4-VI5-RO2**		39.5	**547 708**	**VN-14-L-T4-PI4-VI5-RO2**
24	2.0	183	**526 141**	**VN-20-H-T6-PI5-VI6-RO2**		183	**526 131**	**VN-20-L-T6-PI5-VI6-RO2**
	3.0	183	**526 142**	**VN-30-H-T6-PI5-VI6-RO2**		183	**526 132**	**VN-30-L-T6-PI5-VI6-RO2**
with female thread, vacuum connection with male thread and silencer								
14	0.95	–	–	–		25.9	**543 315**	**VN-10-L-T3-PI4-VA4-RO1**

Ordering data and weights – Inline								
T-type								
Housing width [mm]	Nominal size [mm]	Weight [g]	High vacuum M			Weight [g]	High suction rate N	
			Part No.	Type			Part No.	Type
with push-in connector								
10	0.45	14.5	**526 106**	**VN-05-M-T2-PQ1-VQ1-RQ1**		–	–	–
	0.7	15.4	**526 107**	**VN-07-M-T2-PQ1-VQ1-RQ1**				
14	0.45	21	**193 536**	**VN-05-M-T3-PQ2-VQ2-RQ2**		22	**193 619**	**VN-05-N-T3-PQ2-VQ2-RQ2**
	0.7	22	**193 537**	**VN-07-M-T3-PQ2-VQ2-RQ2**		–	–	–
with push-in connector and silencer								
10	0.45	13.7	**526 108**	**VN-05-M-T2-PQ1-VQ1-RO1**		–	–	–
	0.7	14.6	**526 109**	**VN-07-M-T2-PQ1-VQ1-RO1**				
14	0.45	22	**193 540**	**VN-05-M-T3-PQ2-VQ2-RO1**		22.8	**193 623**	**VN-05-N-T3-PQ2-VQ2-RO1**
	0.7	23	**193 541**	**VN-07-M-T3-PQ2-VQ2-RO1**		–	–	–
with female thread								
10	0.45	12.4	**526 110**	**VN-05-M-T2-PI2-VI2-RI2**		–	–	–
	0.7	13.3	**526 111**	**VN-07-M-T2-PI2-VI2-RI2**				
14	0.45	21	**193 544**	**VN-05-M-T3-PI4-VI4-RI4**		21	**193 627**	**VN-05-N-T3-PI4-VI4-RI4**
	0.7	21	**193 545**	**VN-07-M-T3-PI4-VI4-RI4**		–	–	–
with female thread and silencer								
10	0.45	12.3	**526 112**	**VN-05-M-T2-PI2-VI2-RO1**		–	–	–
	0.7	13.2	**526 113**	**VN-07-M-T2-PI2-VI2-RO1**				
14	0.45	22	**193 548**	**VN-05-M-T3-PI4-VI4-RO1**		22.3	**193 631**	**VN-05-N-T3-PI4-VI4-RO1**
	0.7	22	**193 549**	**VN-07-M-T3-PI4-VI4-RO1**		–	–	–

Ordering data and weights – Inline

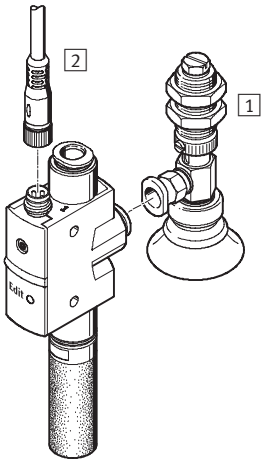
Inline

Housing width [mm]	Nominal size [mm]	Weight [g]	High vacuum M Part No.	Type		Weight [g]	High suction rate N Part No.	Type
with push-in connector								
10	0.45	10.2	**193 580**	**VN-05-M-I2-PQ1-VQ1**		–	–	–
	0.7	10.5	**193 586**	**VN-07-M-I2-PQ1-VQ1**				
13	0.45	15	**193 552**	**VN-05-M-I3-PQ2-VQ2**		16	**193 635**	**VN-05-N-I3-PQ2-VQ2**
	0.7	16	**193 553**	**VN-07-M-I3-PQ2-VQ2**		–	–	–
	0.95	23.5	**193 554**	**VN-10-M-I3-PQ2-VQ2**				
with push-in connector and push-in sleeve								
10	0.45	7.1	**193 587**	**VN-05-M-I2-PQ1-VT1**		–	–	–
	0.7	8	**193 588**	**VN-07-M-I2-PQ1-VT1**				
13	0.45	12	**193 555**	**VN-05-M-I3-PQ2-VT2**		12	**193 637**	**VN-05-N-I3-PQ2-VT2**
	0.7	13	**193 556**	**VN-07-M-I3-PQ2-VT2**		–	–	–

Vacuum generators VN-P, with integrated vacuum switch

Peripherals overview and type codes

Peripherals overview



Mounting attachments and accessories		→ Page
1	Suction gripper ESG	6 / 2.1-7 www.festo.com
2	Plug socket with cable SIM-M8	6 / 4.1-26
–	Suction cup holder ESH	6 / 2.1-33 www.festo.com
–	suction cup ESS	6 / 2.1-49 www.festo.com

Type codes

VN – 05 – H – T4 – PQ2 – VQ2 – O2 – P

Type	
VN	Vacuum generator

Nominal size [mm]	
05	0.45
07	0.7
10	0.95

Ejector characteristic	
H	High vacuum/Standard
L	High suction rate/Standard

Housing type	
T4	T-type, grid dimensions 16 mm

Supply port (1)	
PQ2	Push-in connector QS6

Vacuum connection (2)	
VQ2	Push-in connector QS6

Switching function	
O1	Threshold value with fixed hysteresis, 2 teach-in points, NO contact
O2	Threshold value with variable hysteresis, NO contact

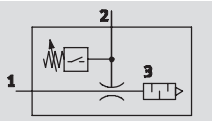
Electrical output	
P	Switch output PNP

Vacuum generators VN-P, with integrated vacuum switch

Technical data

FESTO

Function
VN Standard



Temperature range
0 ... +60 °C

Operating pressure
1 ... 8 bar

- Threshold value comparator with fixed or variable hysteresis
- Teach-in setting option for threshold value and hysteresis

General technical data				
Design		T-type		
Type		VN-05	VN-07	VN-10
Grid dimension	[mm]	16	16	16
Nominal size	[mm]	0.45	0.7	0.95
Ejector characteristic		High vacuum/Standard H		
		High suction rate/Standard L		
Pneumatic connection 1		QS6		
Vacuum connection		QS6		
Pneumatic connection 3		Silencer, minimal resistance		
Measuring principle		Piezoresistive		
Measured variable		Relative pressure		
Pressure measuring range	[bar]	–1 ... 0		
Type of mounting		Via through-holes		
Assembly position		Any[1)]		
Cleaning recommendation		Soap suds		
Product weight	[g]	33	36	36

1) The collection of condensate in the sensor should be prevented.

Operating and environmental conditions		
Operating pressure	[bar]	1 ... 8
Nominal operating pressure	[bar]	6
Operating medium		Dried, filtered and unlubricated compressed air
Ambient temperature	[°C]	0 ... +50
Temperature of medium	[°C]	0 ... +60
Corrosion resistance class CRC[1)]		1

1) Corrosion resistance class 1 according to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Performance data							
Ejector characteristic		High vacuum/Standard H			High suction rate/Standard L		
Nominal size	[mm]	0.45	0.7	0.95	0.45	0.7	0.95
Max. vacuum	[%]	92	92	93	–	–	–
Operating pressure for max. vacuum	[bar]	4.9	4.4	3.5	–	–	–
Max. suction rate with respect to atmosphere	[l/min]	7.2	16.2	21.8	13.6	30.9	41.5
Operating pressure for max. suction rate	[bar]	3	3	3	5	4	5

Vacuum generators VN-P, with integrated vacuum switch

Technical data

FESTO

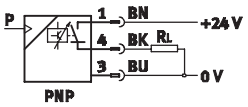
Electrical data		
Operating voltage range	[V DC]	15 ... 30
Residual ripple	[%]	10
Electrical connection		M8x1, 3-pin
Switch-on/switch-off times	[ms]	≤ 4
Switch output		PNP
Max. output current	[mA]	100
Residual current	[mA]	≤ 0.3
Voltage drop	[V]	≤ 1.5
Switching element function		NO contact
Switching function		Threshold value comparator with fixed hysteresis
		Threshold value comparator with variable hysteresis
Threshold value setting range	[bar]	–1 ... 0
Accuracy	[% FS][1)]	1.5
Hysteresis	[% FS][1)]	2 (threshold value comparator with fixed hysteresis)
Long-term drift	[% FS][1)]	Max. ±0.5
Temperature coefficient of switching point	[%/K]	0.05
Type of display/switching status display		LED
Inductive protective circuit		Adapted to MZ, MY, ME coils
Protection against short circuit		Pulsed
Protection against polarity reversal		For all electrical connections
Protection against overloading		Yes
Protection class		IP40 (to EN 60 529)
CE symbol		EU conformity in accordance with the directive 89/336/EEC (EMC)

1) % FS = % of the measuring range final value (full scale)

Electrical outputs[1)]

1 switch output PNP

Plug M8x1



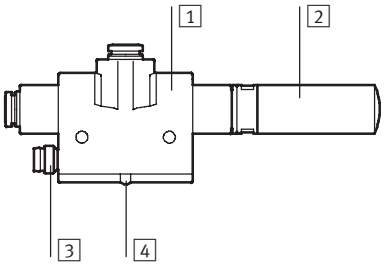
Pin allocations

1 = +24 V
3 = 0 V
4 = Output A

1) Core colours indicated apply when using plug sockets with cable SIM-M8-3... → 6 / 4.1-26

Materials

General view



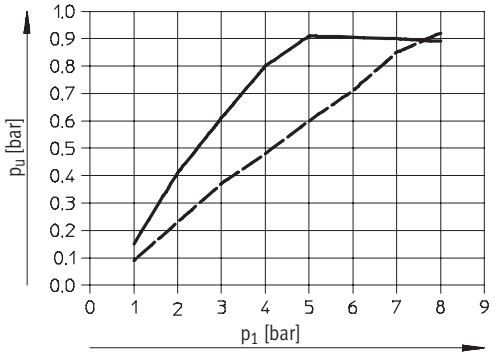
Vacuum generator		
1	Housing	Polyacetate, reinforced
2	Silencer	Polyethylene
3	Plug housing	Polyamide, nickel and chrome plated brass
4	Fibre optics	Polycarbonate
–	Key pad	Silicone rubber
–	Seals	Nitrile rubber
	Note on materials	Contains paint-wetting impairment substances

Vacuum generators VN-P, with integrated vacuum switch

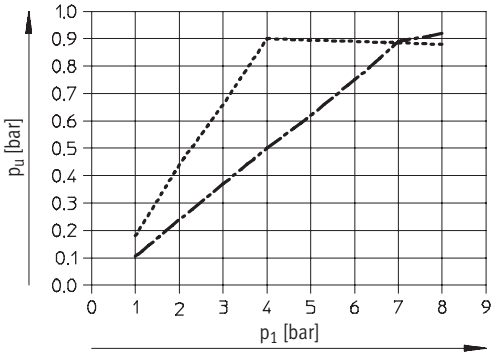
Technical data

Vacuum p_u as a function of operating pressure p_1

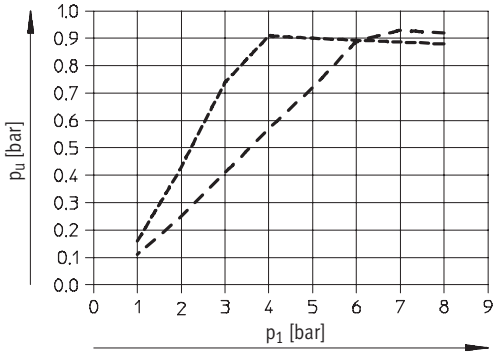
High vacuum/high suction rate



VN-05-H
VN-05-L



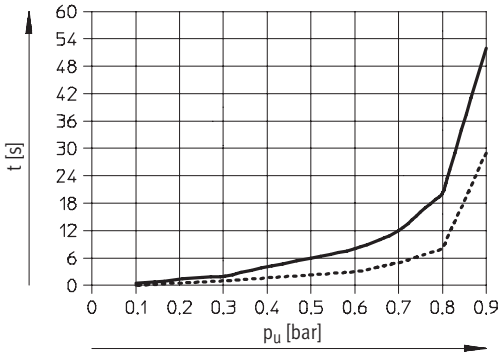
VN-07-H
VN-07-L



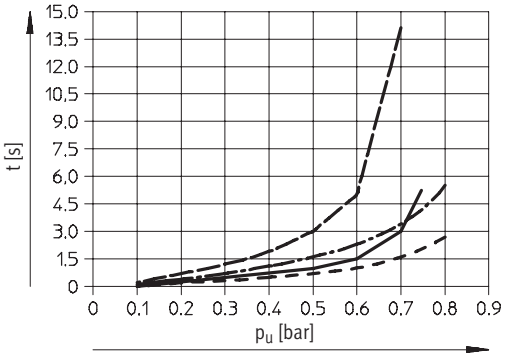
VN-10-H
VN-10-L

Evacuation time t as a function of vacuum p_u for 1 l volume at 6 bar operating pressure

High vacuum/high suction rate



VN-05-H
VN-07-H



VN-05-L
VN-07-L
VN-10-H
VN-10-L

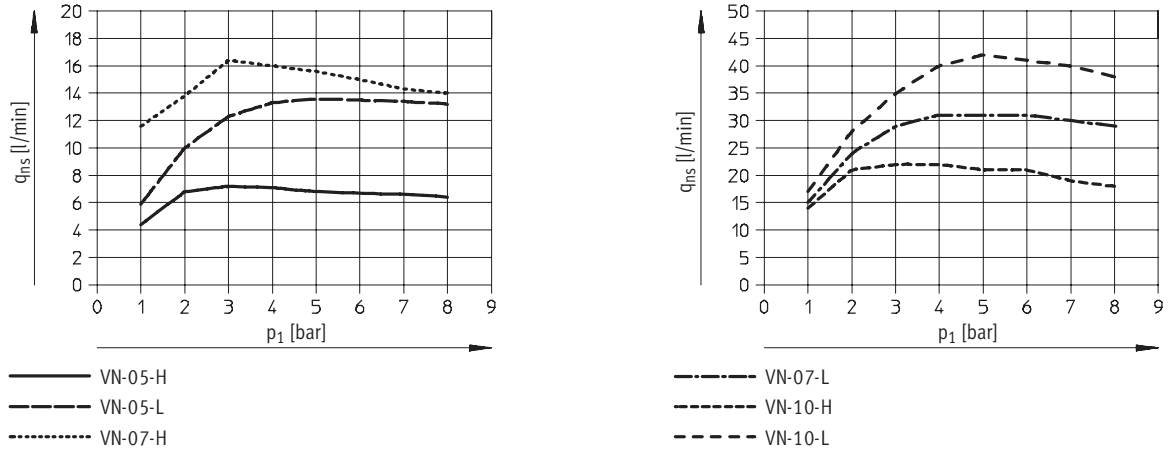
Vacuum generators VN-P, with integrated vacuum switch

Technical data

FESTO

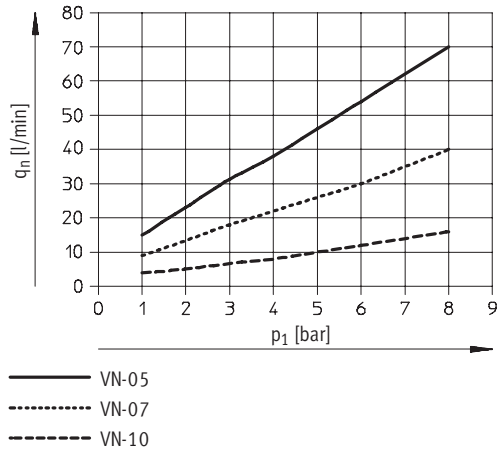
Suction rate q_{ns} (with respect to atmosphere) as a function of operating pressure p_1

High vacuum/high suction rate



Air consumption q_n as a function of operating pressure p_1

High vacuum/high suction rate

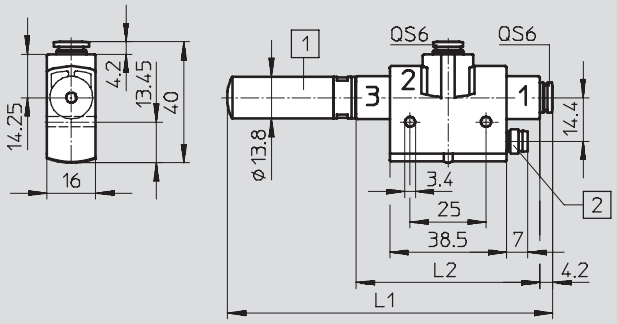


Vacuum generators VN-P, with integrated vacuum switch

Technical data

FESTO

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



1 Silencer
2 Plug, M8x1, 3-pin

Type	L1	L2
VN-05	93.6	44.2
VN-07	107	60.5
VN-10		

Ordering data

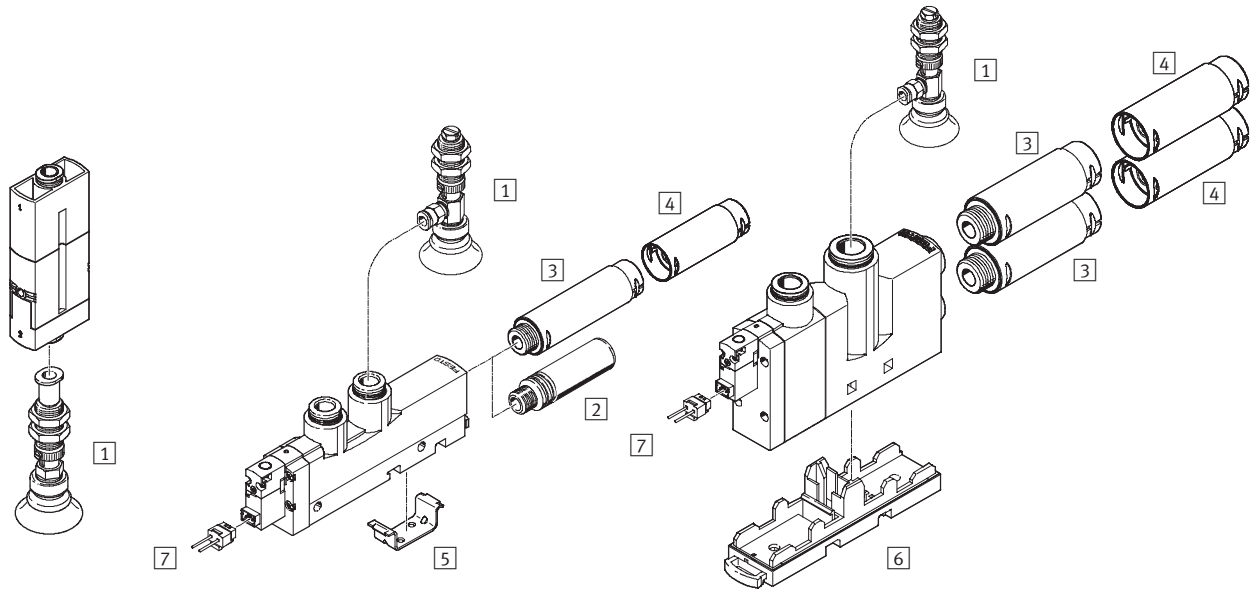
with push-in connector and silencer

Nominal size [mm]	Switching function		High vacuum/Standard H		High suction rate/Standard L	
	Threshold value with fixed hysteresis	Threshold value with variable hysteresis	Part No.	Type	Part No.	Type
0.45	■	–	**536 796**	**VN-05-H-T4-PQ2-VQ2-O1-P**	**536 798**	**VN-05-L-T4-PQ2-VQ2-O1-P**
	–	■	**536 797**	**VN-05-H-T4-PQ2-VQ2-O2-P**	**536 799**	**VN-05-L-T4-PQ2-VQ2-O2-P**
0.7	■	–	**536 800**	**VN-07-H-T4-PQ2-VQ2-O1-P**	**536 802**	**VN-07-L-T4-PQ2-VQ2-O1-P**
	–	■	**536 801**	**VN-07-H-T4-PQ2-VQ2-O2-P**	**536 803**	**VN-07-L-T4-PQ2-VQ2-O2-P**
0.95	■	–	**536 804**	**VN-10-H-T4-PQ2-VQ2-O1-P**	**536 806**	**VN-10-L-T4-PQ2-VQ2-O1-P**
	–	■	**536 805**	**VN-10-H-T4-PQ2-VQ2-O2-P**	**536 807**	**VN-10-L-T4-PQ2-VQ2-O2-P**

Vacuum generators VN-A/M/B, with additional functions

Peripherals overview

Inline	T-type	
VN-05/07-...-A	VN-05/07/10/14-...-A/M/B	VN-20/30-...-M



Mounting attachments and accessories

		Inline	T-type							→ Page
		VN-05/07	VN-05/07/10			VN-14			VN-20/30	
		A	A	M	B	A	M	B	M	
1	Suction gripper ESG	■	■			■			■	6 / 2.1-7 www.festo.com
2	Silencer UO	–	■			–			–	6 / 4.1-17
3	Silencer UOM	–	–			■			■	6 / 4.1-18
4	Silencer extension UOMS	–	–			■			■	6 / 4.1-18
5	Mounting bracket VN-T3/T4	–	■			■			–	6 / 4.1-20
6	Mounting plate VN-T6-BP-NRH	–	–			–			■	6 / 4.1-19
7	Plug socket KMH	–	–	■	■	–	■	■	■	6 / 4.1-25
–	Suction cup holder ESH	■	■			■			■	6 / 2.1-33 www.festo.com
–	Suction cup ESS	■	■			■			■	6 / 2.1-49 www.festo.com

Vacuum generators VN-A/M/B, with additional functions

Type codes

VN	–	05	–	H	–	T3	–	PQ2	–	VQ2	–	RO1	–	M

Type	
VN	Vacuum generator

Nominal size of laval nozzle [mm]	
05	0.45
07	0.7
10	0.95
14	1.4
20	2.0
30	3.0

Ejector characteristic	
H	High vacuum/Standard T-type
L	High suction rate/Standard T-type
M	High vacuum/Inline
N	High suction rate/Inline

Housing type	
I3	Inline, grid dimension 14.5 mm
T3	T-type, grid dimension 14 mm
T4	T-type, grid dimension 18 mm
T6	T-type, grid dimension 24 mm

Supply port (1)	
PQ2	Push-in connector QS6
PQ3	Push-in connector QS8
PQ4	Push-in connector QS10
PI4	Female thread G1⁄8
PI5	Female thread G1⁄4

Vacuum port (2)	
VQ2	Push-in connector QS6
VQ3	Push-in connector QS8
VQ5	Push-in connector QS12
VI4	Female thread G1⁄8
VI5	Female thread G1⁄4

Exhaust port (3)	
RO1	Silencer UO, minimal resistance
RO2	Silencer UOM, minimal resistance

Additional functions	
A	Ejector pulse
M	Solenoid valve for vacuum ON/OFF
B	Solenoid valve for vacuum ON/OFF and ejector pulse

Note

Possible combinations can be found in the ordering data.

Vacuum generators VN-A/M/B, with additional functions

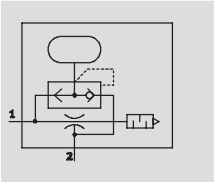
Technical data

FESTO

Function

VN-A

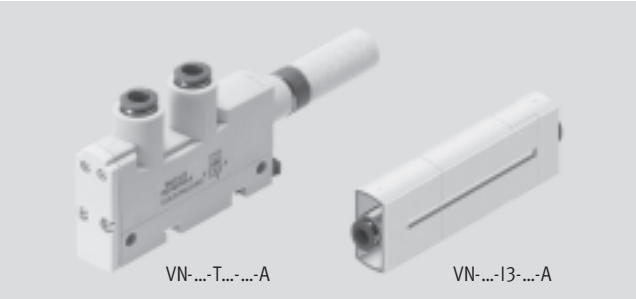
Pneumatic ejector pulse



VN-A

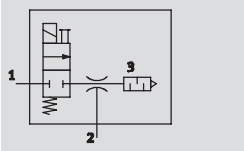
Temperature range
0 ... +60 °C

Operating pressure
1 ... 8 bar



VN-M

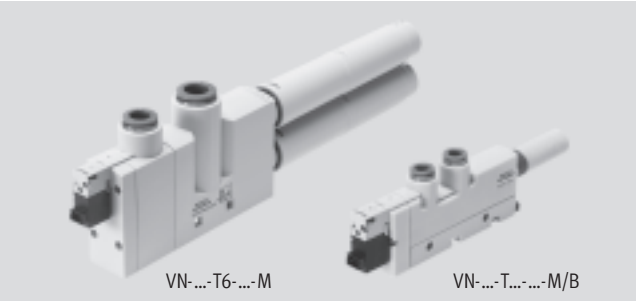
Electrical solenoid valve



VN-M / VN-B

Temperature range
0 ... +50 °C

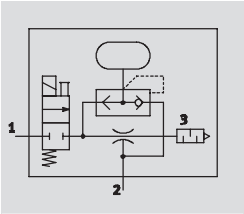
Operating pressure
2 ... 8 bar



VN-B

Pneumatic ejector pulse

Electrical solenoid valve



General technical data – Standard																
Constructional design		T-type														
Type		VN-05			VN-07			VN-10			VN-14			VN-20	VN-30	
Grid dimension	[mm]	14			14			14			18			24	24	
Integrated function		A	M	B	A	M	B	A	M	B	A	M	B	M	M	
Nominal size of laval nozzle	[mm]	0.45			0.7			0.95			1.4			2.0	3.0	
Ejector characteristic		High vacuum/Standard H (T-type)														
		High suction rate/Standard L (T-type)												–		
Pneumatic port 1	Push-in connector	QS6	QS6	QS6	QS6	QS6	QS6	QS6	QS6	QS6	QS8	QS8	QS8	QS10	QS10	
	Female thread	G⅛	–	–	G⅛	–	–	G⅛	–	–	G¼	–	–	–	–	
Vacuum port	Push-in connector	QS6	QS6	QS6	QS6	QS6	QS6	QS6	QS6	QS6	QS8	QS8	QS8	QS12	QS12	
	Female thread	G⅛	–	–	G⅛	–	–	G⅛	–	–	G¼	–	–	–	–	
Pneumatic port 3		Silencer, minimal resistance														
Type of mounting		Via through-holes														
		Via H-rail												–		
Mounting position		Any														
Cleaning recommendation		Soapy water														

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Vacuum generators VN-A/M/B, with additional functions

Technical data

General technical data – Inline			
Constructional design		Inline	
Type		VN-05	VN-07
Grid dimension	[mm]	14.5	14.5
Integrated function		A	A
Nominal size of laval nozzle	[mm]	0.45	0.7
Ejector characteristic		High vacuum/Inline M	
		High suction rate/Inline N	
Pneumatic port 1		QS6	
Vacuum port		QS6	
Type of mounting		Via through-holes	
Mounting position		Any	
Cleaning recommendation		Soapy water	

Operating and environmental conditions					
Pneumatic connection		Via push-in fitting			Via female threads
Integrated function		A	M	B	A
Operating pressure	[bar]	1 ... 8	2 ... 8		1 ... 8
Nominal operating pressure	[bar]	6			
Operating medium		Dried, filtered and unlubricated compressed air			
Ambient temperature	[°C]	0 ... +60	0 ... +50		0 ... +60
Temperature of medium	[°C]	0 ... +60	0 ... +50		0 ... +60
Corrosion resistance class CRC[1)]		1			2

1) Corrosion resistance class 1 to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.
Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Performance data – High vacuum																	
Ejector characteristic		Standard H														Inline M	
Nominal size of laval nozzle	[mm]	0.45			0.7			0.95			1.4			2.0	3.0	0.45	0.7
Integrated function		A	M	B	A	M	B	A	M	B	A	M	B	M	M	A	A
Max. vacuum	[%]	92			92			93			92			92	93	93	93
Operating pressure for max. vacuum	[bar]	4.9			4.4			3.5			3.5			3.5	3.7	4.3	4.3
Max. suction rate with respect to atmosphere	[l/min]	7.2			16.2			21.8			48.8			98	186	7.2	16.6
Operating pressure for max. suction rate	[bar]	3			3			3			2			2	2	2	2
Pressurisation time[1)] for 1 l volume, at p_1 = 6 bar	[s]	3.63	3.9		1.5	1.69		0.96	1.06		0.43	0.5		0.24	0.13	4.1	1.69
Pressurisation time with test volume[2)], at p_1 = 6 bar	[ms]	20	116	41	16	91	32	13	62	30	8	49	31	–	–	–	–

1) Time required to build up vacuum to –0.05 bar.
2) Test volume at the vacuum port: VN-05 = 15 cm^3, VN-07/10 = 30 cm^3, VN-14 = 45 cm^3

Vacuum generators VN-A/M/B, with additional functions

Technical data

FESTO

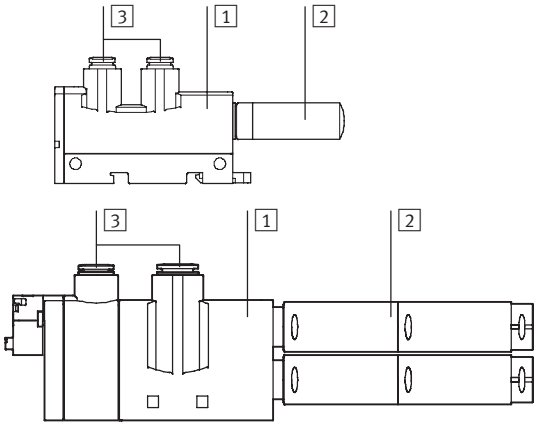
Performance data – High suction rate																
Ejector characteristic		Standard L													Inline N	
Nominal size of laval nozzle	[mm]	0.45			0.7			0.95			1.4				0.45	0.7
Integrated function		A	M	B	A	M	B	A	M	B	A	M	B		A	A
Max. suction rate with respect to atmosphere	[l/min]	13.6			30.9			40.5			92.6				13.3	32.6
Operating pressure for max. suction rate	[bar]	5			4			5			5				5	4
Pressurisation time[1] for 1 l volume, at p_1 = 6 bar	[s]	1.93	1.97		0.79	0.83		0.62	0.67		0.28	0.32			2.24	0.89
Pressurisation time with test volume[2], at p_1 = 6 bar	[ms]	16	76	37	14	59	31	12	48	28	8	40	32		–	–

1) Time required to build up vacuum to –0.05 bar.
2) Test volume at the vacuum port: VN-05 = 15 cm^3, VN-07/10 = 30 cm^3, VN-14 = 45 cm^3

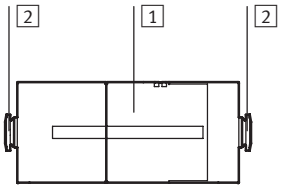
Technical data – Solenoid valve		
Operating voltage range	[V DC]	21.6 ... 26.4
Duty cycle	[%]	100
Protection class		IP40 (to EN 60 529)
Valve function		2/2-way valve
Manual override		By pushing

Materials

Sectional view



Vacuum generator VN – Standard			
1	Housing		Reinforced polyacetate Reinforced polyamide
2	Silencer	RO1	Polyethylene
		RO2	Wrought aluminium alloy, polyacetate, PU foam
3	Push-in fitting		Plastic, nickel plated brass
–	Jet nozzle		Wrought aluminium alloy
–	Receiver nozzle		Polyacetate
–	Seals		Nitrile rubber
	Note on materials		Free of copper and PTFE
			Free of paint wetting impairment substances



Vacuum generator VN – Inline		
1	Housing	Reinforced polyacetate Reinforced polyamide
2	Push-in fitting	Plastic, nickel plated brass
–	Jet nozzle	Wrought aluminium alloy
–	Receiver nozzle	Polyacetate
–	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE
		Free of paint wetting impairment substances

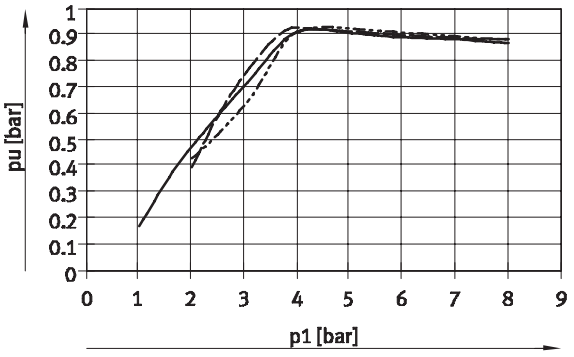
Vacuum generators VN-A/M/B, with additional functions

Technical data

FESTO

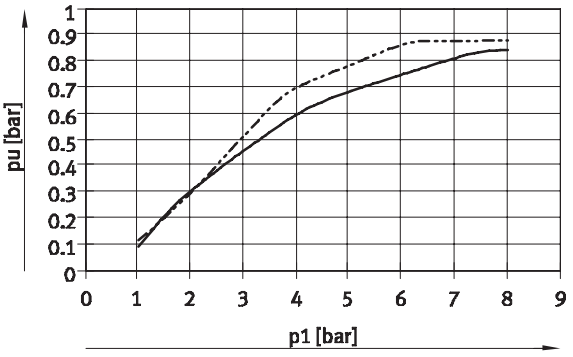
Vacuum p_u as a function of operating pressure p_1

High vacuum – Standard

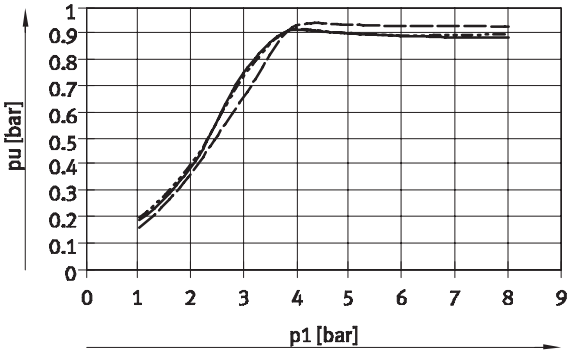


VN-05-H
VN-07-H
VN-10-H

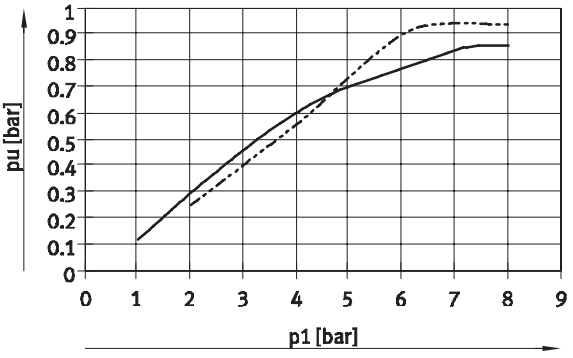
High suction rate – Standard



VN-05-L
VN-10-L

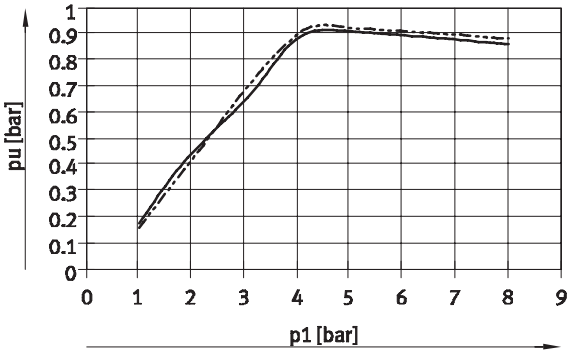


VN-14-H
VN-20-H
VN-30-H



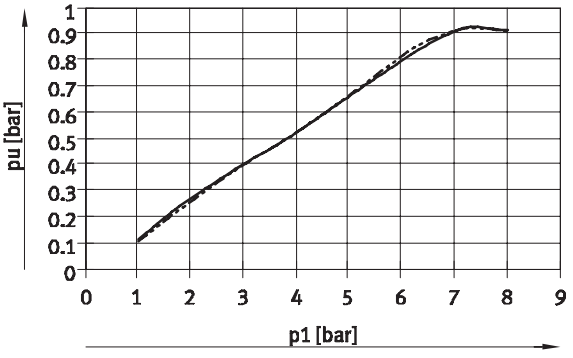
VN-07-L
VN-14-L

High vacuum – Inline



VN-05-M
VN-07-M

High suction rate – Inline



VN-05-N
VN-07-N

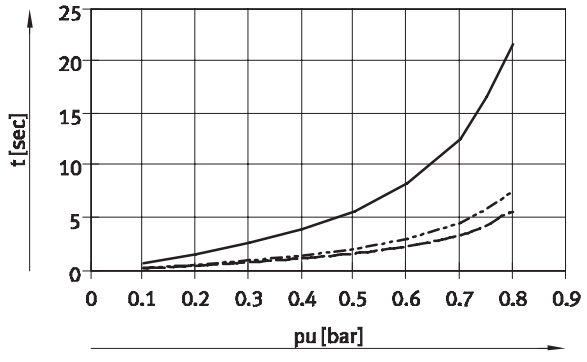
Vacuum generators VN-A/M/B, with additional functions

Technical data

FESTO

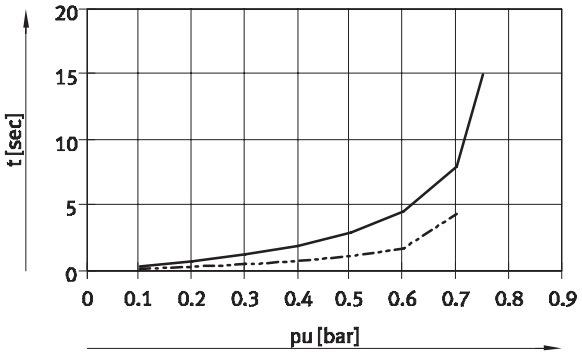
Evacuation time t as a function of vacuum p_u for 1 l volume at 6 bar operating pressure

High vacuum – Standard

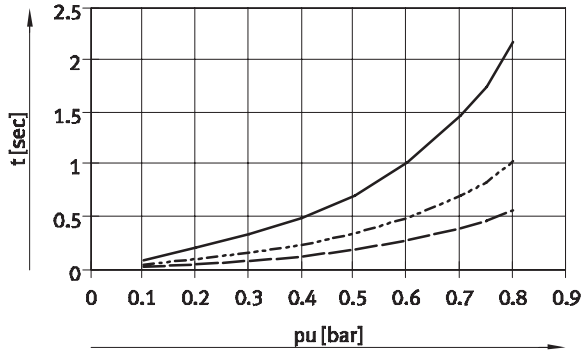


VN-05-H
VN-07-H
VN-10-H

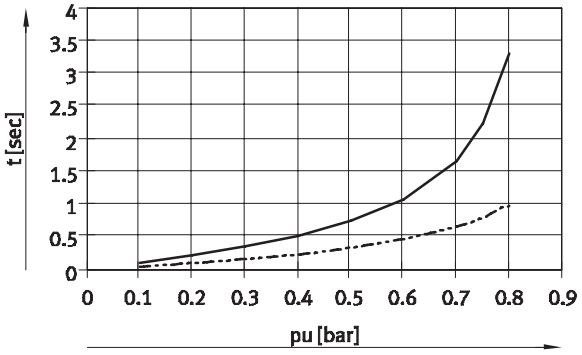
High suction rate – Standard



VN-05-L
VN-07-L

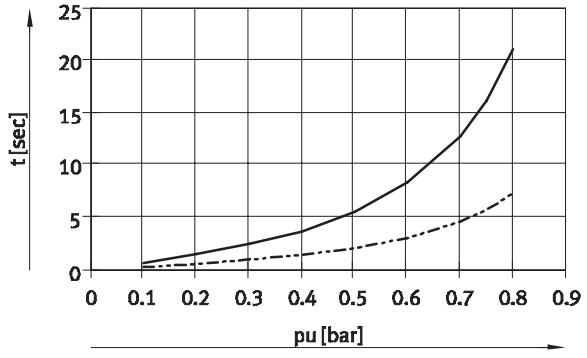


VN-14-H
VN-20-H
VN-30-H



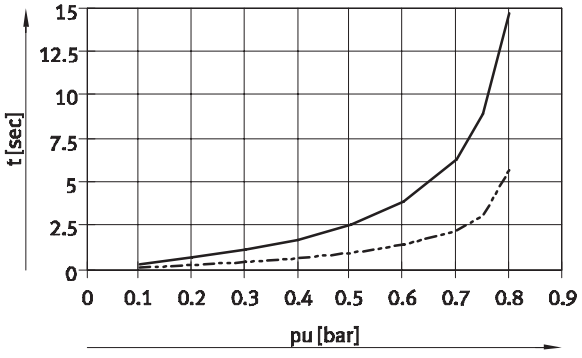
VN-10-L
VN-14-L

High vacuum – Inline



VN-05-M
VN-07-M

High suction rate – Inline



VN-05-N
VN-07-N

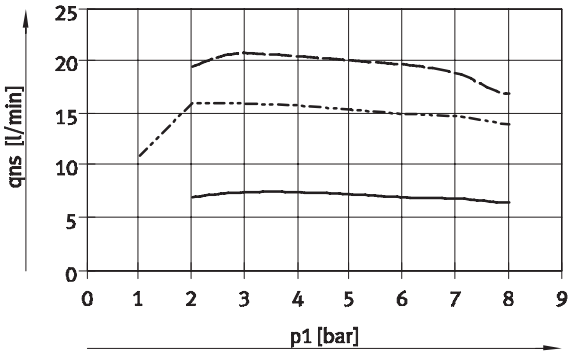
Vacuum generators VN-A/M/B, with additional functions

Technical data

FESTO

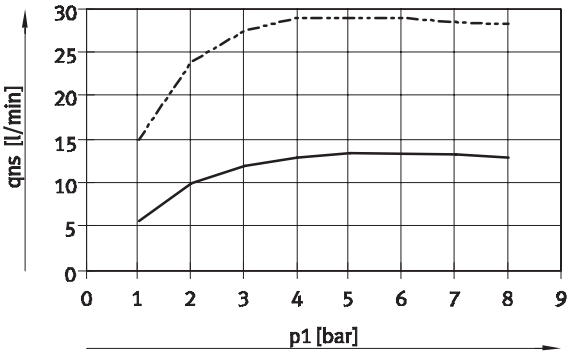
Suction rate q_{ns} (with respect to atmosphere) as a function of operating pressure p_1

High vacuum – Standard

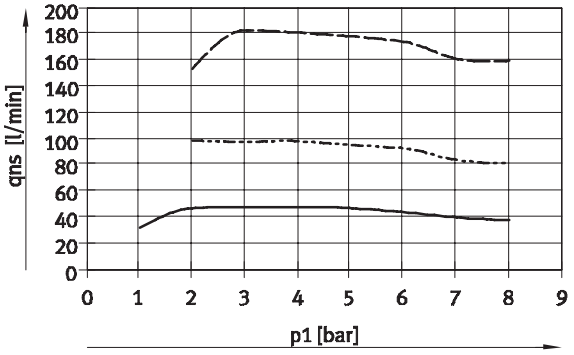


VN-05-H
VN-07-H
VN-10-H

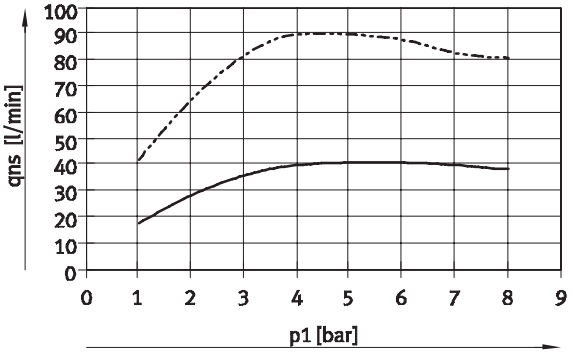
High suction rate – Standard



VN-05-L
VN-07-L

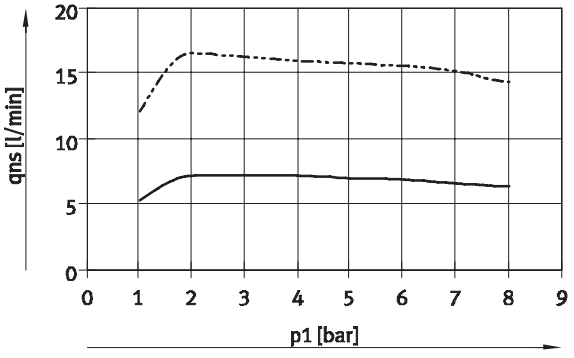


VN-14-H
VN-20-H
VN-30-H



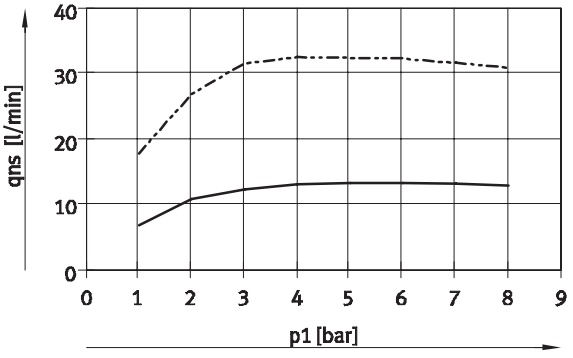
VN-10-L
VN-14-L

High vacuum – Inline



VN-05-M
VN-07-M

High suction rate – Inline



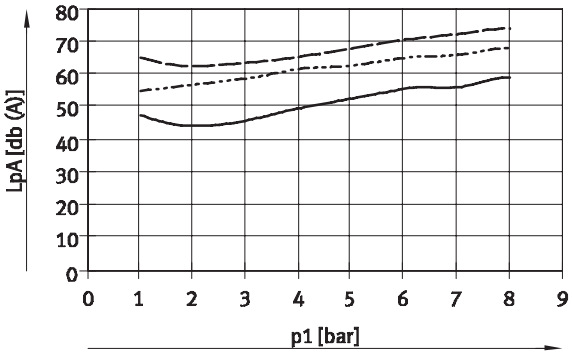
VN-05-N
VN-07-N

Vacuum generators VN-A/M/B, with additional functions

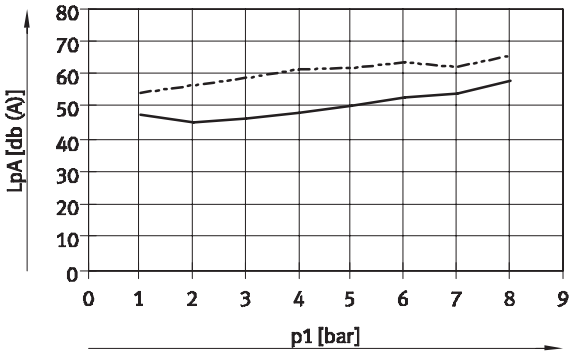
Technical data

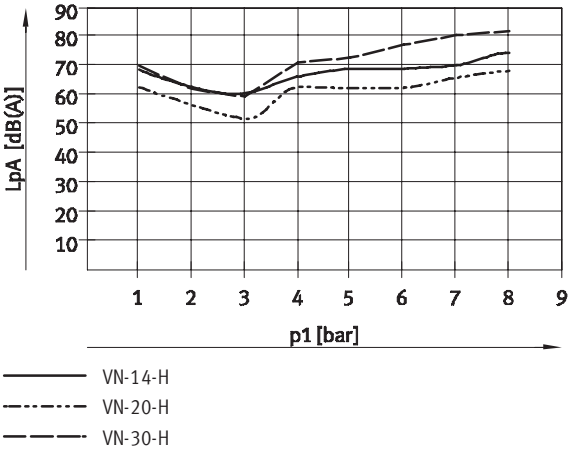
Noise level Lp (at distance of 1 m) as a function of operating pressure p_1

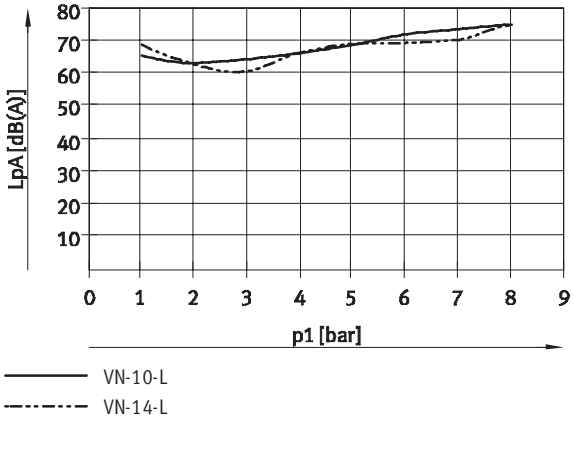
High vacuum – Standard



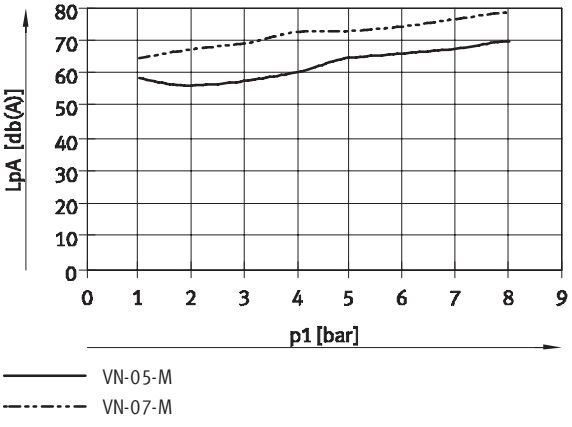
High suction rate – Standard



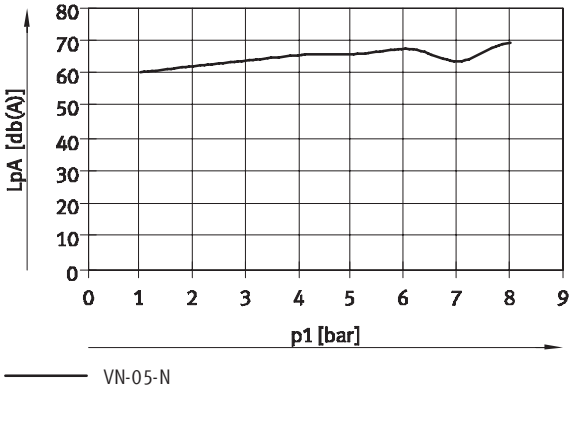




High vacuum – Inline



High suction rate – Inline

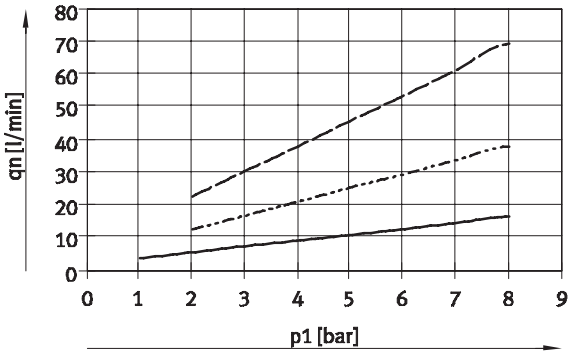


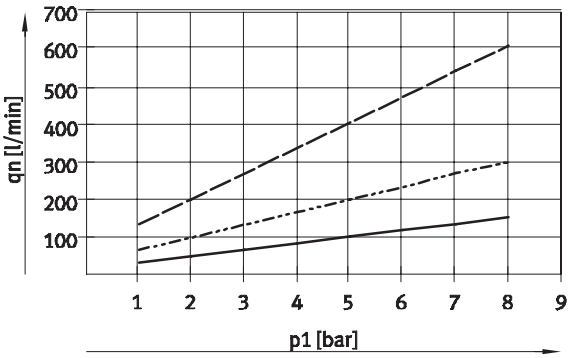
Vacuum generators VN-A/M/B, with additional functions

Technical data

Air consumption q_n as a function of operating pressure p_1

High vacuum/high suction rate

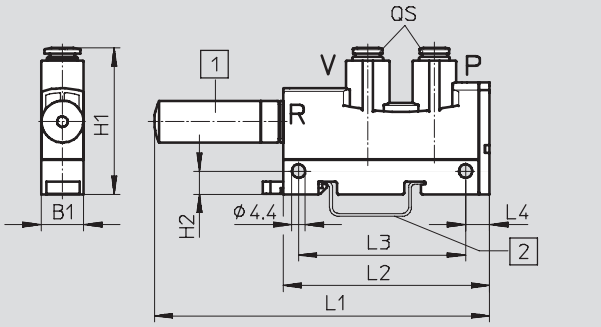




Dimensions – T-type/Standard, VN-05/07/10/14

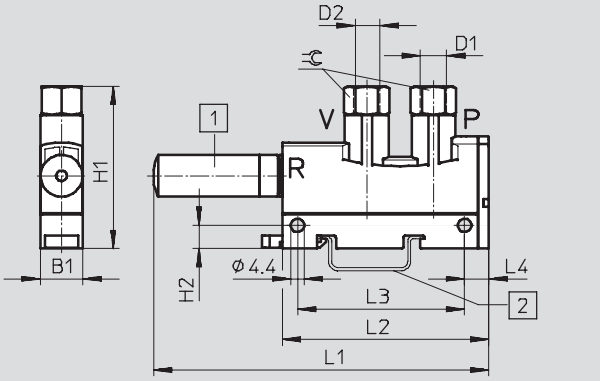
Download CAD data ➔ **www.festo.com/en/engineering**

VN-...-T...-PQ...-VQ...-RO...-A



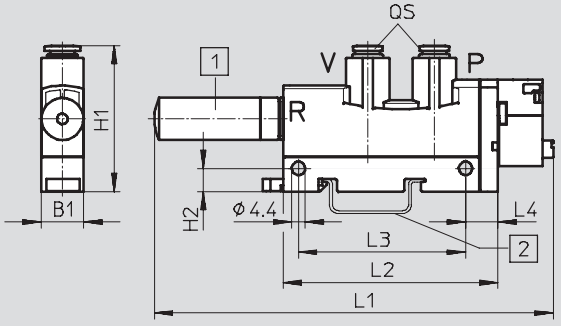
1 Silencer
2 Mounting bracket

VN-...-T...-PI...-VI...-RO...-A



1 Silencer
2 Mounting bracket

VN-...-T...-PQ...-VQ...-RO...-M/B



1 Silencer
2 Mounting bracket

Vacuum generators VN-A/M/B, with additional functions

Technical data

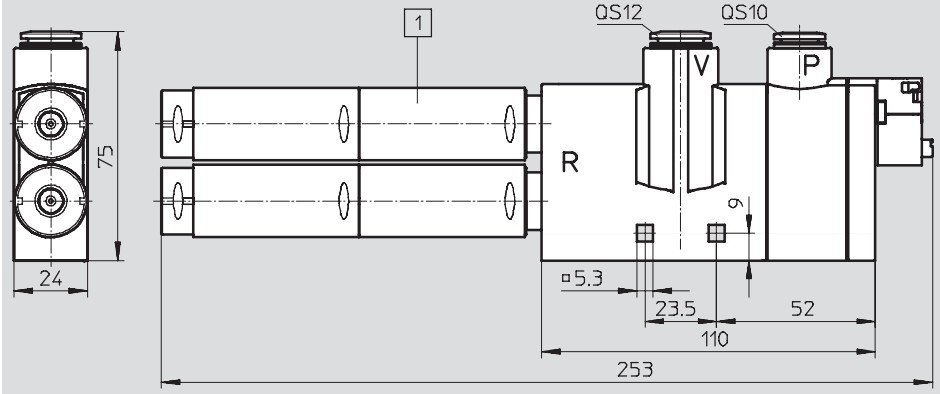
FESTO

Type	B1	Connections		H1	H2	L1	L2	L3	L4	⇐
		P D1	V D2							
VN-05-...-T3-PQ2-VQ2-RO1-A	14	QS6	QS6	48	7.6	110	68	55	8	–
VN-07-...-T3-PQ2-VQ2-RO1-A						119				
VN-10-...-T3-PQ2-VQ2-RO1-A										
VN-05-...-T3-PI4-VI4-RO1-A		G⅛	G⅛	53		110				13
VN-07-...-T3-PI4-VI4-RO1-A						119				
VN-10-...-T3-PI4-VI4-RO1-A										
VN-14-...-T4-PQ3-VQ3-RO2-A	18	QS8	QS8	50	7.5	166	98	63	8.7	–
VN-14-...-T4-PI5-VI5-RO2-A		G¼	G¼	62						17
VN-05-...-T3-PQ2-VQ2-RO1-M/B	14	QS6	QS6	48	7.6	132	71	55	10.7	–
VN-07-...-T3-PQ2-VQ2-RO1-M/B						141				
VN-10-...-T3-PQ2-VQ2-RO1-M/B										
VN-14-...-T4-PQ3-VQ3-RO2-M/B	18	QS8	QS8	50	7.5	192	106	63	16.4	–

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – T-type/Standard, VN-20/30 Download CAD data ➔ **www.festo.com/en/engineering**

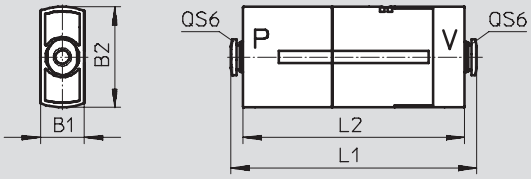
VN-...-T6-PQ4-VQ5-RO2-M



1 Silencer

Dimensions – Straight type/Inline, VN-05/07 Download CAD data ➔ **www.festo.com/en/engineering**

VN-05/07-...-I3-PQ2-VQ2-A



Type	B1	Connections		B2	L1	L2
		P	V			
VN-05-...-I3-PQ2-VQ2-A	14.5	QS6	QS6	33.1	81	73
VN-07-...-I3-PQ2-VQ2-A					97	89

Vacuum generators VN-A/M/B, with additional functions

Technical data

FESTO

Ordering data and weights – Standard

T-type

Nominal diameter	Weight	High vacuum H		Weight	High suction rate L	
[mm]	[g]	Part No.	Type	[g]	Part No.	Type
With ejector pulse and push-in connector						
0.45	49	**532 620**	**VN-05-H-T3-PQ2-VQ2-RO1-A**	49	**532 621**	**VN-05-L-T3-PQ2-VQ2-RO1-A**
0.7	50	**532 628**	**VN-07-H-T3-PQ2-VQ2-RO1-A**	50	**532 629**	**VN-07-L-T3-PQ2-VQ2-RO1-A**
0.95	50	**532 638**	**VN-10-H-T3-PQ2-VQ2-RO1-A**	50	**532 639**	**VN-10-L-T3-PQ2-VQ2-RO1-A**
1.4	85	**532 646**	**VN-14-H-T4-PQ3-VQ3-RO2-A**	85	**532 647**	**VN-14-L-T4-PQ3-VQ3-RO2-A**
With ejector pulse and female thread						
0.45	49	**537 225**	**VN-05-H-T3-PI4-VI4-RO1-A**	49	**537 226**	**VN-05-L-T3-PI4-VI4-RO1-A**
0.7	50	**532 632**	**VN-07-H-T3-PI4-VI4-RO1-A**	50	**532 633**	**VN-07-L-T3-PI4-VI4-RO1-A**
0.95	50	**532 642**	**VN-10-H-T3-PI4-VI4-RO1-A**	50	**532 643**	**VN-10-L-T3-PI4-VI4-RO1-A**
1.4	94	**532 719**	**VN-14-H-T4-PI5-VI5-RO2-A**	94	**532 720**	**VN-14-L-T4-PI5-VI5-RO2-A**
With solenoid valve and push-in connector						
0.45	60	**532 618**	**VN-05-H-T3-PQ2-VQ2-RO1-M**	60	**532 619**	**VN-05-L-T3-PQ2-VQ2-RO1-M**
0.7	61	**532 626**	**VN-07-H-T3-PQ2-VQ2-RO1-M**	61	**532 627**	**VN-07-L-T3-PQ2-VQ2-RO1-M**
0.95	61	**532 636**	**VN-10-H-T3-PQ2-VQ2-RO1-M**	61	**532 637**	**VN-10-L-T3-PQ2-VQ2-RO1-M**
1.4	98	**532 644**	**VN-14-H-T4-PQ3-VQ3-RO2-M**	98	**532 645**	**VN-14-L-T4-PQ3-VQ3-RO2-M**
2.0	215	**532 656**	**VN-20-H-T6-PQ4-VQ5-RO2-M**	–	–	–
3.0	215	**532 662**	**VN-30-H-T6-PQ4-VQ5-RO2-M**	–	–	–
With solenoid valve, ejector pulse and push-in connector						
0.45	62	**532 622**	**VN-05-H-T3-PQ2-VQ2-RO1-B**	62	**532 623**	**VN-05-L-T3-PQ2-VQ2-RO1-B**
0.7	63	**532 630**	**VN-07-H-T3-PQ2-VQ2-RO1-B**	63	**532 631**	**VN-07-L-T3-PQ2-VQ2-RO1-B**
0.95	63	**532 640**	**VN-10-H-T3-PQ2-VQ2-RO1-B**	63	**532 641**	**VN-10-L-T3-PQ2-VQ2-RO1-B**
1.4	100	**532 648**	**VN-14-H-T4-PQ3-VQ3-RO2-B**	100	**532 649**	**VN-14-L-T4-PQ3-VQ3-RO2-B**

Ordering data and weights – Inline

Inline

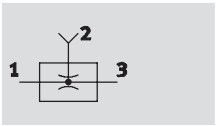
Nominal diameter	Weight	High vacuum M		Weight	High suction rate N	
[mm]	[g]	Part No.	Type	[g]	Part No.	Type
With ejector pulse and push-in connector						
0.45	38	**532 624**	**VN-05-M-I3-PQ2-VQ2-A**	38	**532 625**	**VN-05-N-I3-PQ2-VQ2-A**
0.7	41	**532 634**	**VN-07-M-I3-PQ2-VQ2-A**	41	**532 635**	**VN-07-N-I3-PQ2-VQ2-A**

Vacuum generator cartridges VN

Technical data

FESTO

Function



Temperature range
0 ... +60 °C

Operating pressure
1 ... 8 bar

General technical data						
Type		VN-05	VN-07	VN-10	VN-14	VN-20
Nominal size of laval nozzle	[mm]	0.45	0.7	0.95	1.4	2.0
Ejector characteristic		High vacuum, T-type/Standard H				
		High suction rate, T-type/Standard L				
Mounting position		Any				

Operating and environmental conditions		
Operating pressure	[bar]	1 ... 8
Nominal operating pressure	[bar]	6
Operating medium		Dried, filtered and unlubricated compressed air
Ambient temperature	[°C]	0 ... +60
Temperature of medium	[°C]	0 ... +60
Corrosion resistance class CRC[1)]		2

1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Performance data – High vacuum						
Ejector characteristic		Standard H				
Nominal size of laval nozzle	[mm]	0.45	0.7	0.95	1.4	2.0
Max. vacuum	[%]	92	92	93	92	92
Operating pressure for max. vacuum	[bar]	4.9	4.4	3.5	3.5	3.5
Max. suction rate with respect to atmosphere	[l/min]	7.2	16.2	21.8	48.8	98
Operating pressure for max. suction rate	[bar]	3	3	3	2	2
Pressurisation time[1)] for 1 l volume, at p_1 = 6 bar	[s]	4.43	1.67	1.02	0.48	0.23

1) Time required to build up vacuum to –0.05 bar.

Vacuum generator cartridges VN

Technical data

FESTO

Performance data – High suction rate						
Ejector characteristic		Standard L				
Nominal size of laval nozzle	[mm]	0.45	0.7	0.95	1.4	2.0
Max. suction rate with respect to atmosphere	[l/min]	13.6	30.9	41.5	92.6	184.4
Operating pressure for max. suction rate	[bar]	5	4	5	5	5
Pressurisation time[1] for 1 l volume, at p_1 = 6 bar	[s]	2.04	0.82	0.66	0.31	0.17

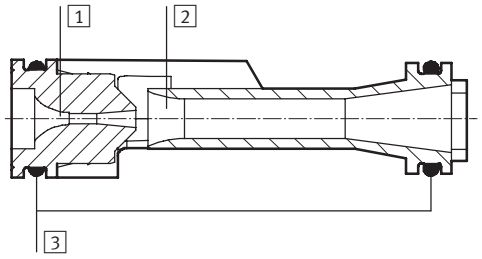
1) Time required to build up vacuum to –0.05 bar.

Note

Twice the suction rate can be generated through parallel connection of two vacuum generator cartridges. The respective suction rate then corresponds to the next highest performance level.
Example:
2x20-H corresponds to 1x30-H

Materials

Sectional view



Vacuum generator cartridge VN-05/07/10/14/20		
1	Jet nozzle	Wrought aluminium alloy
2	Receiver nozzle	Polyacetate
3	Seals	Nitrile rubber

Note

The graphs plotting the technical data for the vacuum generator cartridge are the same as those for the vacuum generator VN-A/B/M.
➔ From page 6 / 1.1-38.

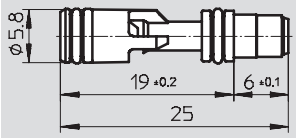
Vacuum generator cartridges VN

Technical data

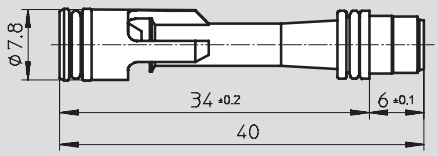
FESTO

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

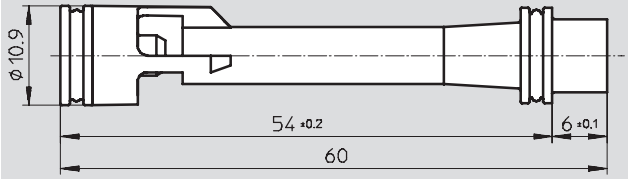
VN-05



VN-07/10

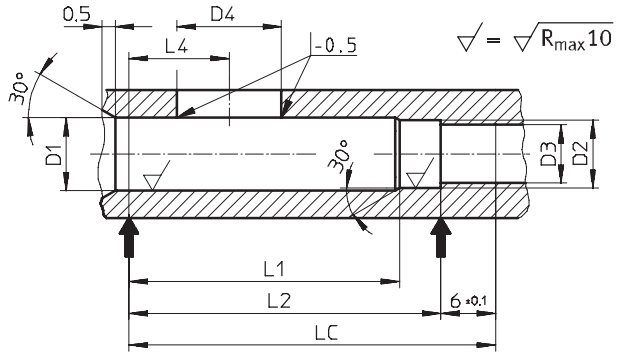


VN-14/20

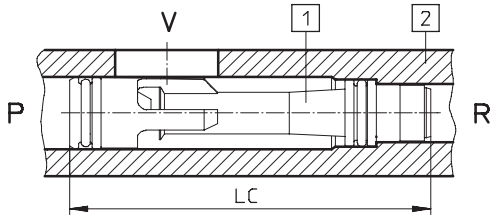


Locating hole for the vacuum generator cartridge

Dimensions



Installation of the vacuum generator cartridge



1 Vacuum generator cartridge
2 Customer-specific housing

Type	Dimensions of the locating hole						Vacuum port		
	D1[1] +0.05	D2	D3	L1	L2 ±0.2	LC[2]	L4 ±0.2	D4 min. ∅[3]	D4 max. ∅
VN-05	6	5.7 +0.05	4.9 +0.1	14	19	25	9.5	3.0	3.5
VN-07 / VN-10	8	7.5 +0.05	6.5 +0.1	29	34	40	11	6.0	7.5
VN-14 / VN-20	11.1	10.7 −0.05	9.4 ±0.1	49	54	60	13	12.8	15.6

1) For D1 with ∅ 11.1: Select a core diameter of 11.8 +0.1 for a G¼ threaded connection
2) Length of the vacuum generator cartridge
3) Minimum cross section, Festo recommends the largest possible cross section

Ordering data and weights

T-type

Nominal diameter [mm]	Weight [g]	High vacuum H Part No.	Type	Weight [g]	High suction rate L Part No.	Type
With solenoid valve						
0.45	0.65	**547 693**	**VN-05-H**	0.65	**547 694**	**VN-05-L**
0.7	1.65	**547 695**	**VN-07-H**	1.65	**547 696**	**VN-07-L**
0.95	1.65	**547 697**	**VN-10-H**	1.65	**547 698**	**VN-10-L**
1.4	3.75	**547 699**	**VN-14-H**	3.75	**547 700**	**VN-14-L**
2.0	3.75	**547 701**	**VN-20-H**	3.75	**547 702**	**VN-20-L**