



One-way flow control valves, NPT



# One-way flow control valves, NPT

Product range overview and type codes

Product range overview									
Version	Valve function	Design	Type	Connection direction	Pneumatic connection 1	Pneumatic connection 2	qnN <sup>1)</sup> [cfm]	Adjusting element	→ Page/ Internet
<b>Standard</b>	Exhaust air one-way flow control function		GRLA	Elbow outlet	QB-1/8, QB-5/32, QB-3/16, QB-1/4, QB-5/16, QB-3/8, QB-1/2	UNF10-32, NPT3/8-27, NPT1/4-18, NPT3/8-18, NPT1/2-14	1.7 ... 48.1	Slotted head screw	3
<b>In-line installation</b>	One-way flow control function		GR	Straight	QB-5/32, QB-3/16, QB-1/4, QB-5/16, QB-3/8, QB-1/2	QB-5/32, QB-3/16, QB-1/4, QB-5/16, QB-3/8, QB-1/2	1.7 ... 14	Slotted head screw	7

1) Standard nominal flow rate in direction of flow control.

## Type code GRLA

GRLA - 1/2 - QB - 3/8 - U

Type	
GRLA	One-way flow control valve

Pneumatic connection 2	
10-32-UNF	Male thread UNF
1/8, 1/4, 3/8, 1/2	Male thread NPT

Pneumatic connection 1	
Connection type	
QB	Push-in connector for tubing O.D.
Tubing O.D.	
1/8, 5/32, 3/16, 1/4, 5/16, 3/8, 1/2	

Generation	
U	U series

## Type code GR

GR - QB - 1/2 - U

Type	
GR	One-way flow control valve, in-line installation

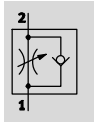
Pneumatic connection 1 and 2	
Connection type	
QB	Push-in connector for tubing O.D.
Tubing O.D.	
5/32, 3/16, 1/4, 5/16, 3/8, 1/2	

Generation	
U	U series

# One-way flow control valves GRLA, NPT

Technical data

One-way flow control function  
Exhaust air



- - Temperature range  
32 ... 140 °F
- - Operating pressure  
-13.8 ... +116 psi



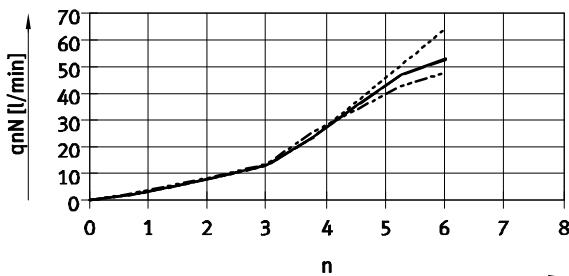
- Push-in connector QB
- Swivel connection can be rotated around installation axis after mounting

General technical data					
Valve function	Exhaust air one-way flow control function				
Pneumatic connection 2	UNF10-32	NPT $\frac{1}{8}$ -27	NPT $\frac{1}{4}$ -18	NPT $\frac{3}{8}$ -18	NPT $\frac{1}{2}$ -14
Pneumatic connection 1	QB- $\frac{1}{8}$ , QB- $\frac{5}{32}$ , QB- $\frac{3}{16}$ , QB- $\frac{1}{4}$	QB- $\frac{5}{32}$ , QB- $\frac{3}{16}$ , QB- $\frac{1}{4}$ , QB- $\frac{5}{16}$	QB- $\frac{5}{32}$ , QB- $\frac{3}{16}$ , QB- $\frac{1}{4}$ , QB- $\frac{5}{16}$ , QB- $\frac{3}{8}$	QB- $\frac{3}{16}$ , QB- $\frac{1}{4}$ , QB- $\frac{5}{16}$ , QB- $\frac{3}{8}$ , QB- $\frac{1}{2}$	QB- $\frac{5}{16}$ , QB- $\frac{3}{8}$ , QB- $\frac{1}{2}$
Adjusting element	Slotted head screw				
Actuation type	Manual				
Type of mounting	Screw-in with male thread				
Mounting position	Any				
Max. tightening torque [ft-lbf]	1.1	5.2	8.9	16.2	20.7

Operating and environmental conditions	
Operating pressure for entire temperature range [psi]	-13.8 ... +116
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature [°F]	32 ... 140
Temperature of medium [°F]	32 ... 140

Standard nominal flow rate  $q_{nN}$  [l/min] at 6 bar  $\rightarrow$  5 bar as a function of turns of the flow control screw  $n$

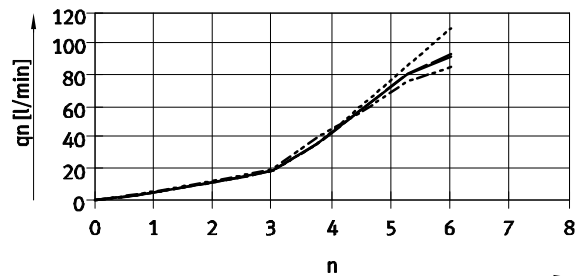
Pneumatic connection UNF10-32



- QB-1/8
- - - QB-5/32
- · - QB-3/16
- · · QB-1/4

Standard flow rate  $q_n$  in non-return direction at 6 bar  $\rightarrow$  0 bar as a function of turns of the flow control screw  $n$

Pneumatic connection UNF10-32



- QB-1/8
- - - QB-5/32
- · - QB-3/16
- · · QB-1/4

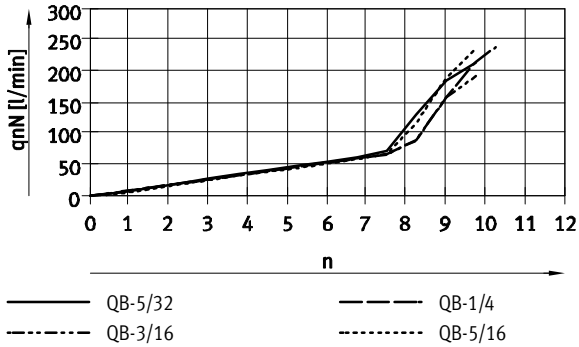
# One-way flow control valves GRLA, NPT

Technical data

FESTO

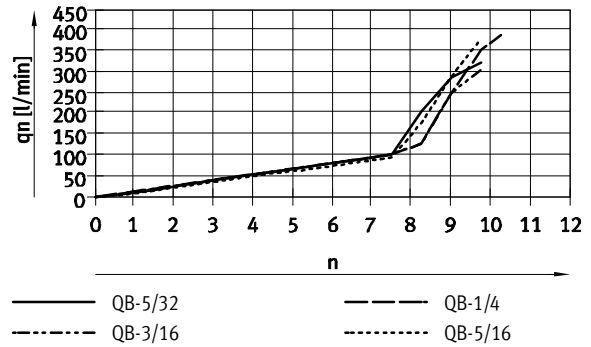
Standard nominal flow rate  $q_{nN}$  [l/min] at 6 bar  $\rightarrow$  5 bar  
as a function of turns of the flow control screw  $n$

Pneumatic connection NPT $\frac{1}{8}$ -27

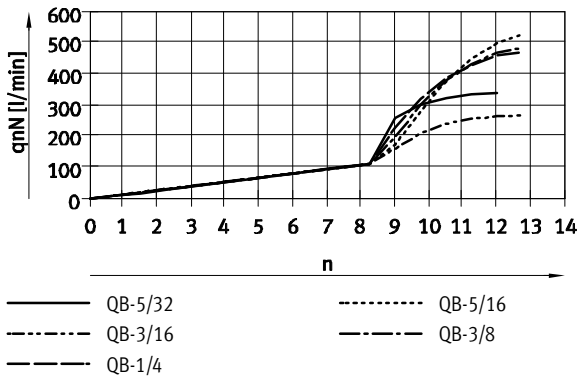


Standard flow rate  $q_n$  in non-return direction at 6 bar  $\rightarrow$  0 bar  
as a function of turns of the flow control screw  $n$

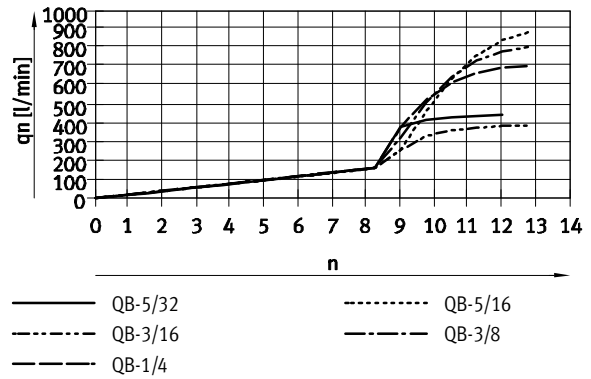
Pneumatic connection NPT $\frac{1}{8}$ -27



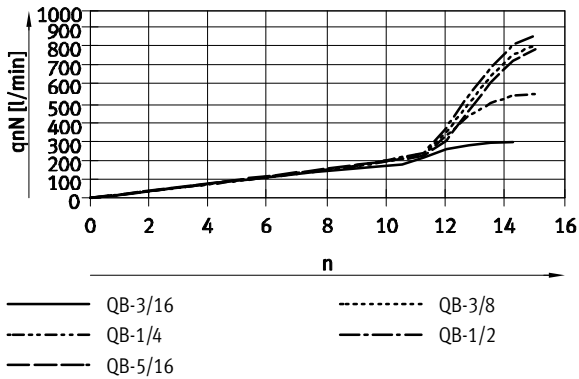
Pneumatic connection NPT $\frac{1}{4}$ -18



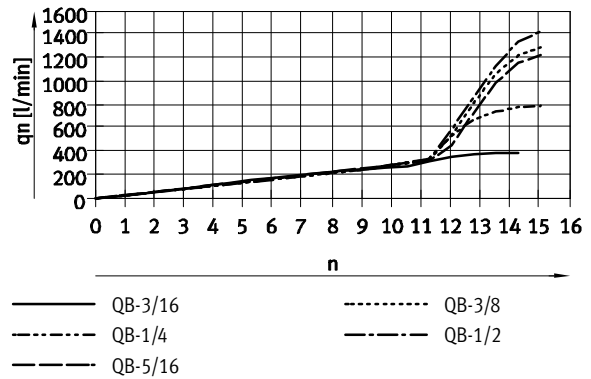
Pneumatic connection NPT $\frac{1}{4}$ -18



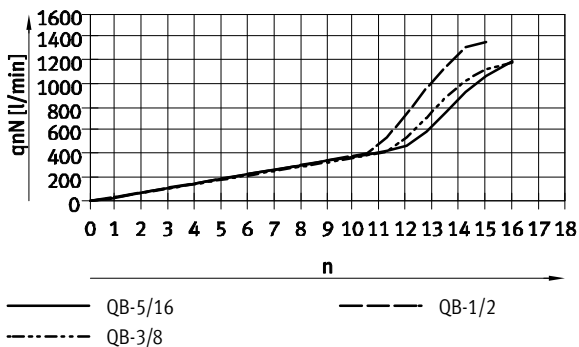
Pneumatic connection NPT $\frac{3}{8}$ -18



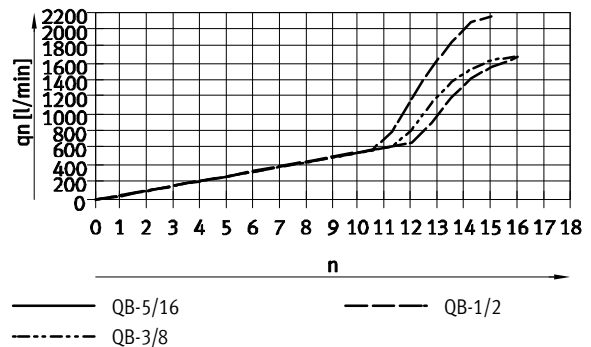
Pneumatic connection NPT $\frac{3}{8}$ -18



Pneumatic connection NPT $\frac{1}{2}$ -14



Pneumatic connection NPT $\frac{1}{2}$ -14



# One-way flow control valves GRLA, NPT

Technical data

Materials	
Stud end connector	Nickel-plated brass
Hollow bolt	Nickel-plated brass
Releasing ring	POM
Knurled head	Nickel-plated brass
Regulating screw	Nickel-plated brass
Swivel connection	PBT, reinforced
Seals	NBR
Note on materials	Contains paint-wetting impairment substances RoHS compliant

**Dimensions** Download CAD data → [www.festo.com](http://www.festo.com)

Type	Connection D1	Tubing O.D. D2	D5	H1		H2	H3	L1	T1	⌀
				Min.	Max.					
GRLA-10-32-UNF	UNF10/32	1/8	7.8	26.9	29.1	3.6	10.3	16.5	11.4	5/16
		5/32	10.5				10.3	20.3	14.9	
		3/16	11.5				10.4	21.6	15.9	
		1/4	13.0				10.6	23.7	16.8	
GRLA-1/8	NPT1/8	5/32	10.5	34.9	39.8	8.2	15.1	23.7	14.9	7/16
		3/16	11.5				15.1	24.3	15.9	
		1/4	13.0				15.2	24.9	16.8	
		5/16	14.5				16.2	26.6	18.7	
GRLA-1/4	NPT1/4	5/32	10.5	40.6	47.0	11.0	18.4	25.6	14.9	19/32
		3/16	11.5				18.4	26.2	15.9	
		1/4	13.0				18.4	26.8	16.8	
		5/16	14.5				19.2	28.5	18.7	
		3/8	17.5				20.7	30.9	20.1	
GRLA-3/8	NPT3/8	1/4	13.0	47.9	54.9	13.1	21.9	28.4	16.8	3/4
		3/16	11.5				21.9	27.8	15.9	
		5/16	14.5				21.9	29.6	18.7	
		3/8	17.5				22.6	30.7	20.1	
		1/2	20.8				24.1	34.0	22.9	
GRLA-1/2	NPT1/2	5/16	14.5	53.9	61.3	16.5	26.5	32.4	18.7	15/16
		3/8	17.5				26.5	33.2	20.1	
		1/2	20.8				27.7	36.5	22.9	

# One-way flow control valves GRLA, NPT

FESTO

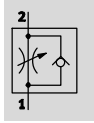
Technical data

Ordering data								
Pneumatic connection		Standard nominal flow rate qnN at 6 bar $\rightarrow$ 5 bar		Standard flow rate qn at 6 bar $\rightarrow$ 0 bar		Weight	Part No.	Type
		In direction of flow control	In non-return direction	In direction of flow control	In non-return direction			
2	1	[cfm]	[cfm]	[cfm]	[cfm]	[oz]		
Slotted head screw								
UNF10-32	QB-1/8	1.87	1.45 ... 1.91	3.3	3.23 ... 3.4	0.3	564839	GRLA-10-32-UNF-QB-1/8-U
	QB-5/32	1.7	1.31 ... 1.73	3	3 ... 3.14	0.35	564840	GRLA-10-32-UNF-QB-5/32-U
	QB-3/16	1.87	1.41 ... 1.911	3.3	3.32 ... 3.43	0.34	564841	GRLA-10-32-UNF-QB-3/16-U
	QB-1/4	2.26	1.73 ... 2.3	3.9	3.92 ... 4.1	0.38	564842	GRLA-10-32-UNF-QB-1/4-U
NPT1/8-27	QB-5/32	7.56	5.83 ... 7.7	11.5	11.4 ... 11.9	0.66	534656	GRLA-1/8-QB-5/32-U
	QB-3/16	6.78	5.23 ... 6.92	10.9	10.9 ... 11.3	0.66	534657	GRLA-1/8-QB-3/16-U
	QB-1/4	8.44	6.5 ... 8.62	13.8	13.8 ... 14.3	0.7	534658	GRLA-1/8-QB-1/4-U
	QB-5/16	8.37	6.43 ... 8.55	13.5	13.5 ... 14	0.77	534659	GRLA-1/8-QB-5/16-U
NPT1/4-18	QB-5/32	12	9.25 ... 12.25	15.7	15.7 ... 16.4	1.2	564843	GRLA-1/4-QB-5/32-U
	QB-3/16	9.5	7.31 ... 9.68	13.6	13.6 ... 14.2	1.2	534660	GRLA-1/4-QB-3/16-U
	QB-1/4	16.6	12.78 ... 16.91	25	25 ... 26	1.26	534661	GRLA-1/4-QB-1/4-U
	QB-5/16	18.7	14.37 ... 19.1	31.4	31.4 ... 32.6	1.33	534662	GRLA-1/4-QB-5/16-U
	QB-3/8	17.13	13.2 ... 17.5	28.5	28.5 ... 29.6	1.38	534663	GRLA-1/4-QB-3/8-U
NPT3/8-18	QB-3/16	10.6	8.1 ... 10.8	13.7	13.7 ... 14.3	2.35	534664	GRLA-3/8-QB-1/4-U
	QB-1/4	19.7	15.2 ... 20.1	28.1	28.1 ... 29.2	2.31	564844	GRLA-3/8-QB-3/16-U
	QB-5/16	28.1	21.65 ... 28.7	43.5	43.5 ... 45.2	2.46	534665	GRLA-3/8-QB-5/16-U
	QB-3/8	29	22.3 ... 29.5	45.8	45.8 ... 47.6	2.48	534666	GRLA-3/8-QB-3/8-U
	QB-1/2	30.7	23.6 ... 31.3	50.5	50.5 ... 52.5	2.61	534667	GRLA-3/8-QB-1/2-U
NPT1/2-14	QB-5/16	42.4	32.6 ... 43.2	59.3	59.6 ... 61.6	3.66	564845	GRLA-1/2-QB-5/16-U
	QB-3/8	41.8	32.2 ... 42.7	59.7	59.7 ... 62.1	3.85	564846	GRLA-1/2-QB-3/8-U
	QB-1/2	48.1	37.1 ... 49.1	76.1	76.1 ... 79.1	4.2	564847	GRLA-1/2-QB-1/2-U

# One-way flow control valves GR, NPT

Technical data

One-way flow control function



- Temperature range  
32 ... 140 °F
- Operating pressure  
-13.8 ... +116 psi

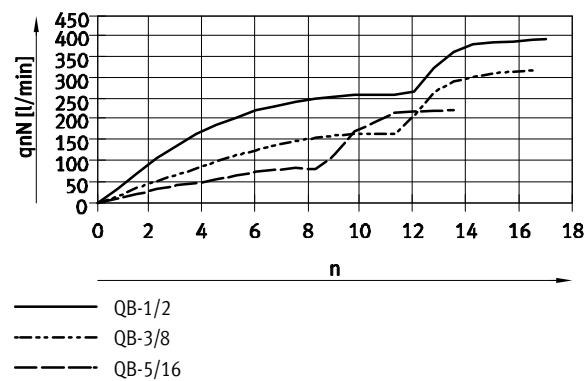


- One-way flow control valve for in-line installation
- Push-in connector QB

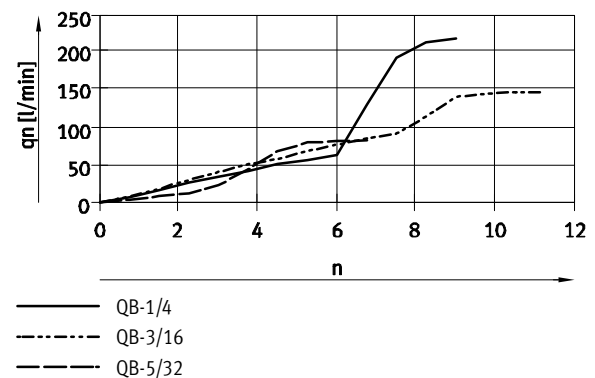
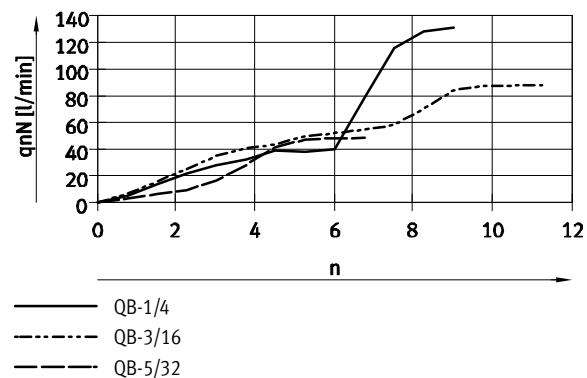
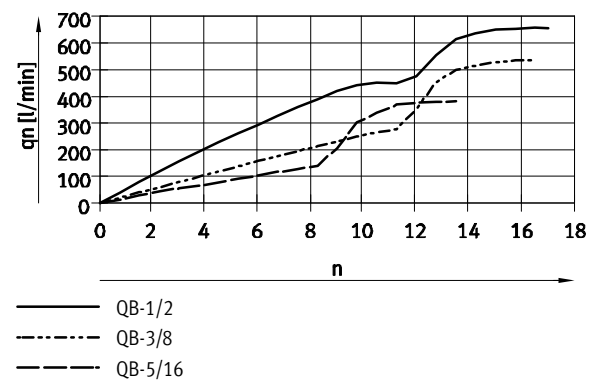
General technical data						
Valve function	One-way flow control function					
Pneumatic connection 2	QB-5/32	QB-3/16	QB-1/4	QB-5/16	QB-3/8	QB-1/2
Pneumatic connection 1	QB-5/32	QB-3/16	QB-1/4	QB-5/16	QB-3/8	QB-1/2
Adjusting element	Slotted head screw					
Actuation type	Manual					
Type of mounting	In-line installation With through-hole					
Mounting position	Any					

Operating and environmental conditions	
Operating pressure [psi]	-13.8 ... +116
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature [°F]	32 ... 140
Temperature of medium [°F]	32 ... 140

Standard nominal flow rate  $q_{nN}$  at 6 bar  $\rightarrow$  5 bar as a function of turns of the flow control screw  $n$



Standard flow rate  $q_n$  at 6 bar  $\rightarrow$  0 bar as a function of turns of the flow control screw  $n$

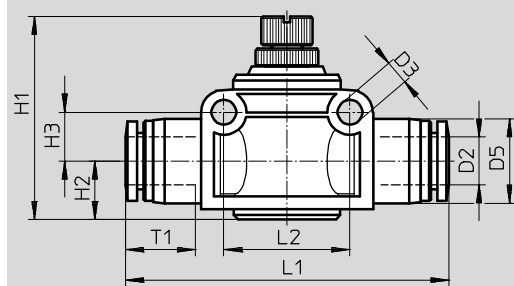


# One-way flow control valves GR, NPT

Technical data

Materials	
Housing	PBT, reinforced
Stud end connector	Nickel-plated brass
Releasing ring	POM
Knurled head	Nickel-plated brass
Regulating screw	Nickel-plated brass
Seals	NBR
Note on materials	Contains paint-wetting impairment substances RoHS-compliant

## Dimensions Download CAD data → [www.festo.com](http://www.festo.com)



Type	Tubing O.D. D2	D3	D5	H1		H2	H3	L1	L2	T1
				Min.	Max.					
GR-QB-5/32-U	5/32	3.2	10.5	26.4	28.9	7.6	5.6	44.8	15.4	14.9
GR-QB-3/16-U	3/16	4.3	11.6	33.1	38.5	7.6	8.0	49.9	20.4	15.9
GR-QB-1/4-U	1/4	4.3	13.1	33.5	38.9	9.4	8.0	50.1	20.4	16.8
GR-QB-5/16-U	5/16	4.4	14.8	35.5	41.5	10.2	8.5	56.4	22.0	18.7
GR-QB-3/8-U	3/8	4.3	17.5	40.7	48.6	11.4	10.3	61.4	28.1	20.1
GR-QB-1/2-U	1/2	4.4	20.5	45.5	53.4	14.0	12.1	70.7	32.0	22.9

Ordering data									
Pneumatic connection		Standard nominal flow rate qnN at 6 bar → 5 bar		Standard flow rate qn at 6 bar → 0 bar		Weight [oz]	Part No.	Type	
		In direction of flow control [cfm]	In non-return direction [cfm]	In direction of flow control [cfm]	In non-return direction [cfm]				
2	1	[cfm]	[cfm]	[cfm]	[cfm]	[oz]			
Slotted head screw									
QB-5/32	QB-5/32	1.7	0.6 ... 1.7	3	2.4 ... 3.2	0.4	534680	GR-QB-5/32-U	
QB-3/16	QB-3/16	3.1	2.6 ... 3.1	5.3	4.8 ... 5.1	1	534681	GR-QB-3/16-U	
QB-1/4	QB-1/4	4.7	5 ... 5.5	7.8	10.6 ... 10.7	1	534682	GR-QB-1/4-U	
QB-5/16	QB-5/16	8	5.7 ... 8.1	13.5	13.8 ... 13.9	1.5	534683	GR-QB-5/16-U	
QB-3/8	QB-3/8	11.4	8.1 ... 11.7	19	20.5 ... 21.8	2.7	534684	GR-QB-3/8-U	
QB-1/2	QB-1/2	14	10.8 ... 12.7	23.2	16.6 ... 20.2	4.2	534685	GR-QB-1/2-U	



## Product Range and Company Overview

### A Complete Suite and Company Overview

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



**Custom Automation Components**  
Complete custom engineered solutions



**Custom Control Cabinets**  
Comprehensive engineering support and on-site services



**Complete Systems**  
Shipment, stocking and storage services

### The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



**Electromechanical**  
Electromechanical actuators, motors, controllers & drivers



**Pneumatics**  
Pneumatic linear and rotary actuators, valves, and air supply



**PLCs and I/O Devices**  
PLC's, operator interfaces, sensors and I/O devices

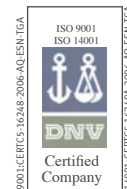
### Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 16,000 employees in 60 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

### Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

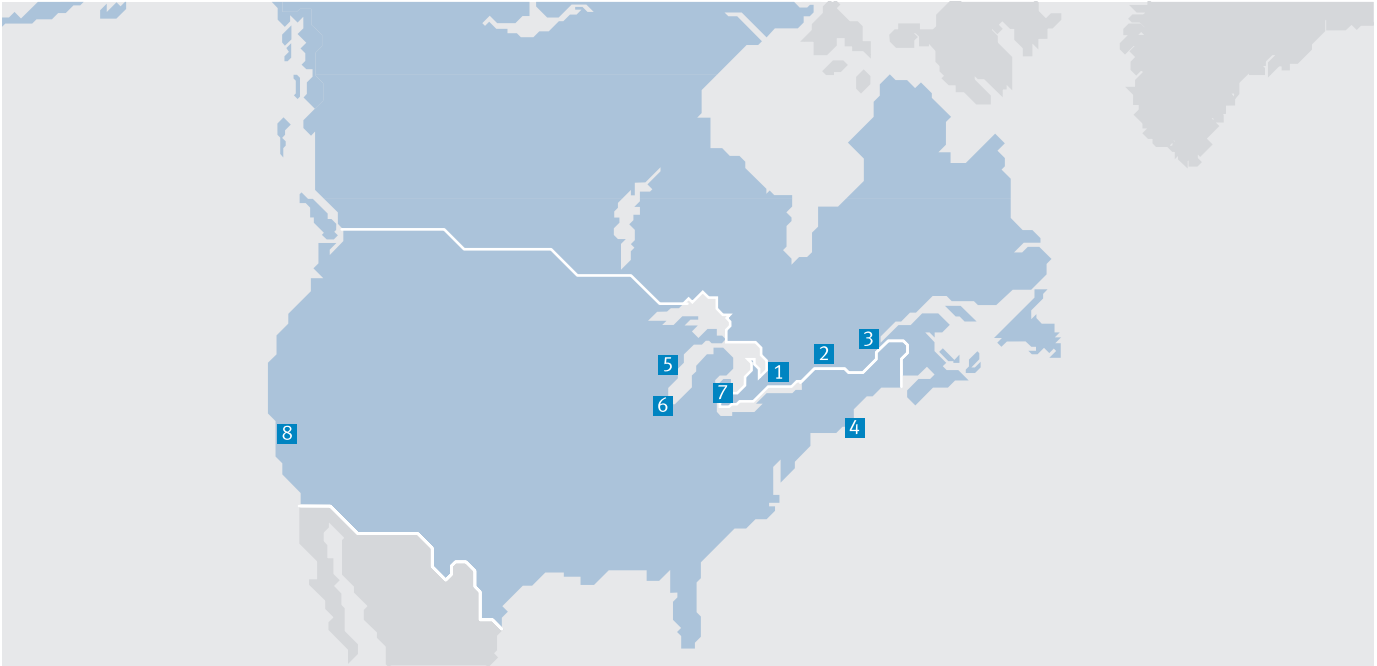


© Copyright 2013, Festo Corporation. While every effort is made to ensure that all dimensions and specifications are correct, Festo cannot guarantee that publications are completely free of any error, in particular typing or printing errors. Accordingly, Festo cannot be held responsible for the same. For Liability and Warranty conditions, refer to our "Terms and Conditions of Sale", available from your local Festo office. All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Festo. All technical data subject to change according to technical update.



Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmental friendly printing plant.

# Festo North America



**1 Festo Canada  
Headquarters  
Festo Inc.**  
5300 Explorer Drive  
Mississauga, ON  
L4W 5G4

**2 Montréal**  
5600, Trans-Canada  
Pointe-Claire, QC  
H9R 1B6

**3 Québec City**  
2930, rue Watt#117  
Québec, QC  
G1X 4G3



**4 Festo United States  
Headquarters  
Festo Corporation**  
395 Moreland Road  
Hauppauge, NY  
11788

**5 Appleton**  
North 922 Tower View Drive, Suite N  
Greenville, WI  
54942

**7 Detroit**  
1441 West Long Lake Road  
Troy, MI  
48098

**6 Chicago**  
85 W Algonquin - Suite 340  
Arlington Heights, IL  
60005

**8 Silicon Valley**  
4935 Southfront Road, Suite F  
Livermore, CA  
94550

## Festo Regional Contact Center

### Canadian Customers

Commercial Support:  
Tel: 1 877 GO FESTO (1 877 463 3786)  
Fax: 1 877 FX FESTO (1 877 393 3786)  
Email: festo.canada@ca.festo.com

Technical Support:  
Tel: 1 866 GO FESTO (1 866 463 3786)  
Fax: 1 877 FX FESTO (1 877 393 3786)  
Email: technical.support@ca.festo.com

### USA Customers

Commercial Support:  
Tel: 1 800 99 FESTO (1 800 993 3786)  
Fax: 1 800 96 FESTO (1 800 963 3786)  
Email: customer.service@us.festo.com

Technical Support:  
Tel: 1 866 GO FESTO (1 866 463 3786)  
Fax: 1 800 96 FESTO (1 800 963 3786)  
Email: product.support@us.festo.com