

V-Flow Line product information



**Variable area flowmeters and
high-precision control valves
for gases and liquids**

Suitable devices for your flow application: The V-Flow Line of Vögtlin Instruments AG

Variable area flowmeters Q-Flow

- Compact and slender design
- Glass measuring tubes in 3 sizes
- Body in aluminium or stainless steel
- Panel mounting design (plug-in)
- 15-turn control valve for smooth and accurate adjustment



Q-Flow Page 4 to 7



Variable area flowmeters V-100

- Highly modular, customizable for any mounting position
- Connections on the rear, lateral or axial
- Glass measuring tubes in 3 sizes
- Body in aluminium or stainless steel
- Variety of options: Limit switch, front panel mounting-kit, etc.

V-100 Page 8 to 11

High-precision control valves M-Flow

- High-precision flow rate setting
- Leak-proof when closed
- Flow adjustable from 0.5 mln/min
- 15 turn spindle, no hysteresis
- Digital display for reproducible settings

M-Flow Page 12 to 15



Contact us for more information:

+41 61 756 63 00 or www.voegtlin.com

Instrument and setup overview

		Body material	Aluminium/nickel brass	Stainless steel 1.4305		
		Seals material	FKM	FKM	EPDM	FFKM
Variable area flowmeters Q-Flow Type 55/80/140						
	Setup S (standard)		●	●	●	
	<i>Other versions on request</i>					
Variable area flowmeters V-100 Type 55/80/140						
	Setup S (standard)		●	●	●	●
	Setup L			●	●	●
	Setup R			●	●	●
	Setup A			●	●	●
	Setup T			●	●	●
	Setup O			●	●	●
	V-100 options:	Laboratory base, limit switches, etc.				
<i>Other versions on request</i>						
Control valves M-Flow Type 25/35/V-Stack						
	Straight valve (Type 25)		●	●	●	●
	Corner valve (Type 25)		●	●	●	●
	Valve insert (Type 25)		●	●	●	●
	Straight valve (Type 35)		●			
	Valve insert (Type 35)		●			
	Distributor (Type V-Stack)		●			
	Knob options M-Flow:	Standard knob, digi knob, digiturn, locking nut				
<i>Other versions on request</i>						

VA-Meter or Mass Flow Meter?



Variable area flow meters are suitable for a wide range of measuring tasks. However, the measuring principle strongly depends on the **pressure** and **temperature**.

As an alternative we offer a **mains-independent** solution with a **battery-powered** mass flow meter. The thermal measuring principle has several advantages compared with variable area devices:

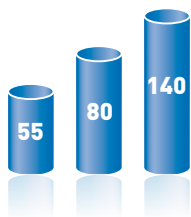
- **Large dynamic range**
- **High accuracy** (insensitive to pressure and temperature changes)
- **With limit contact**

More informationen at www.voegtlin.com

Attractive design and price: Variable area flowmeters Q-Flow

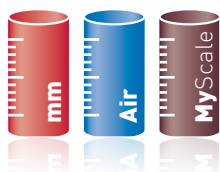
The proven variable area flowmeter with compact, intelligent and attractive design.

Measuring tubes in 3 sizes

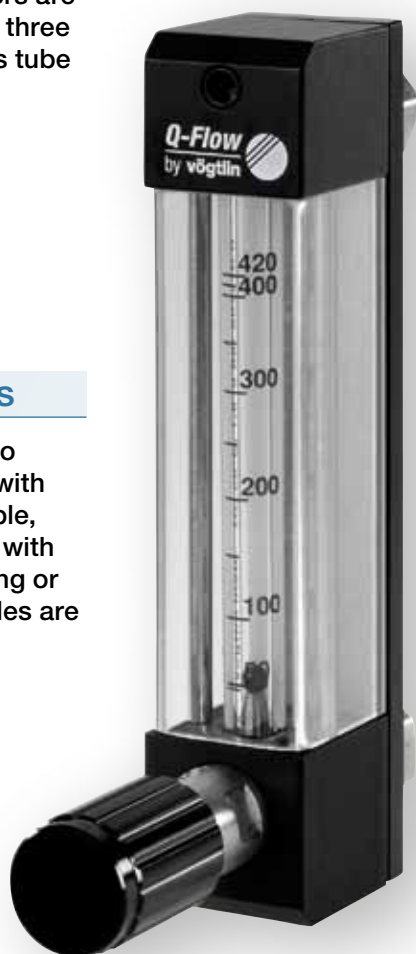


The flow meters are available with three different glass tube lengths

Measuring tube scales



In addition to mm scales with flow rate table, glass tubes with direct reading or custom scales are available



Intelligent instrument design

The compact and attractive design enables quick replacement of components

Aluminium or stainless steel



The bodies are available in aluminium or stainless steel. Sealing materials FKM or EPDM



Q-Flow 80
Stainless steel version

Tightly closing precision control valves



The devices are equipped with precise, hysteresis-free 15-way control valves.

Different rotary knobs are available:

- Standard knob (see above picture)
- Standard knob and locking ring
- Hex socket and locking nut instead of standard knob


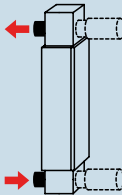
Technical specifications variable area flowmeters Q-Flow

Features	Construction	Short mounting length, 3 instrument sizes
	Connections	On the rear
	Scale	Millimetric scale, direct reading scale and customer-specific scale. The scales are highly wear-resistant
	Float type	Spherical
	Valve	Precisely adjustable, 15-turn micro valve, practically hysteresis-free The control range (Kv-value) is optimized for the full scale
	Rotary knob	3 different versions are available
	Body material	Aluminium or stainless steel
	Seals material	FKM or EPDM
	Customization	We provide customer-specific versions

Instrument versions	Setup	Standard* Installation into control panel, retractable Customer-specific versions
	Material	Anodized aluminium/Nickelized brass (valve)/FKM Stainless steel/FKM Stainless steel/EPDM
	Connection	G 1/4" female* G 1/8" female G 1/4" female for compression fittings NPT 1/4" female
	Valve at inlet* or outlet	With standard knob* With standard knob and locking ring With hex socket and locking nut Without valve

Technical data	Type	Q-Flow 55	Q-Flow 80	Q-Flow 140
	Turndown ratio	10:1	10:1	10:1
	Accuracy in % of full scale	±5%	±4%	±2%
	Measuring tube length	55 mm	80 mm	140 mm
	Scale length	40 mm	65 mm	120 mm
	Float	spherical	spherical	spherical
	Max. pressure	20 bar	20 bar	16 bar
	Max. temperature	100 °C	100 °C	100 °C
	Max. pressure drop	20 mbar	20 mbar	30 mbar

Options	Calibration report (factory certificate)
	Additional flow rate table for mm-scale
	Panel mounting kit
	Locking ring (for standard knob)
	Locking nut (instead of standard knob)
	Customized measuring tube scale

Setup	Standard setup without valve	Standard setup with valve	
			

*Standard – Subject to technical alterations

Measuring ranges variable area flowmeters Q-Flow

The measuring tubes are available with three different scales:

1. Measuring range for direct reading scales – Standard scales						
Medium	Air					
Reference conditions	ln/h / 1.21 bara / 20 °C			mln/min / 1.013 bara / 20 °C		
	Q-Flow 55	Q-Flow 80	Q-Flow 140	Q-Flow 55	Q-Flow 80	Q-Flow 140
	0.12 – 1.2	0.12 – 1.2	–	–	10 – 120	10 – 100
	0.2 – 2	0.2 – 2	0.2 – 2	–	20 – 240	40 – 220
	0.3 – 3	0.3 – 3	0.3 – 3	–	60 – 640	50 – 540
	0.5 – 5	0.5 – 5	0.5 – 5			
	0.8 – 8	0.8 – 8	0.8 – 8	ln/min / 1.013 bara / 20 °C		
	1.6 – 16	1.6 – 16	1.6 – 16	Q-Flow 55	Q-Flow 80	Q-Flow 140
	4 – 40	4 – 40	4 – 40	–	0.1 – 1	0.1 – 1
	6 – 60	6 – 60	6 – 60	–	0.3 – 2.2	0.2 – 2.2
	10 – 100	10 – 100	10 – 100	–	0.5 – 5	0.5 – 6.0
	25 – 250	25 – 250	25 – 250	–	0.2 – 10	1.5 – 10.5
	50 – 500	50 – 500	50 – 500	–	2 – 20	2 – 26
	80 – 800	80 – 800	80 – 800	–	4 – 32	6 – 51
	120 – 1200	120 – 1200	120 – 1200			
Medium	Water					
Reference conditions	l/h / 20 °C					
	Q-Flow 55		Q-Flow 80		Q-Flow 140	
	0.25 – 2.5		–		0.25 – 2.5	
	0.5 – 5		–		0.5 – 5	
	–		–		1.2 – 12	
	2.5 – 25		–		2.5 – 25	
	4 – 40		–		4 – 40	
	–		–		6 – 60	
	–		–		7 – 70	

2. Measuring range for mm scales (with flow table) – For varying operating conditions (temperature, pressure, medium)				
Medium	Air		Water	
Reference conditions	ln/h / 1.21 bara / 20 °C		l/h / 20 °C	
Measuring range	smallest	highest	smallest	highest
Q-Flow 80	0.04 – 1.75	850 – 3000	0.001 – 0.03	0.8 – 40
Q-Flow 140	0.15 – 2.25	500 – 5000	0.002 – 0.03	12 – 150

- ### 3. Customer-specific scales
- For customer-specific scales please provide the following specifications:
- Medium, mixture if applicable and max. flow
 - Pressure in bar, absolute (only required for gases)
 - Medium temperature, if applicable medium viscosity and density

Dimensions variable area flowmeters Q-Flow

Type	Dimensions in mm		
	A	B	C
Q-Flow 55	100	70	40
Q-Flow 80	125	95	65
Q-Flow 140	185	155	125
Fittings	D		Thread depth
G1/4" female	12		7
G1/8" female	12		8
G1/4" female for compression fittings	17		12
NPT 1/4"	16		9

Find detailed dimensions in the V-Flow Line manual

Type code variable area flowmeters Q-Flow

Instrument type	Q-Flow	F	L	Q															
Instrument size	55								A										
	80								B										
	140								C										
Materials (body, seals)	Aluminium/brass, FKM								S										
	Stainless steel, FKM								E										
	Stainless steel, EPDM								T										
	Customer-specific / OEM								K										
Setup	Setup S**									S									
	Customer-specific / OEM									K									
Valve (position)	Valve at the inlet**										S								
	Valve at the outlet										A								
	Without valve										O								
	Customer-specific / OEM										K								
Process connection (in- and outlet)	G 1/4" female**													S					
	G 1/8" female													B					
	G 1/4" female (for compression fittings)													C					
	NPT 1/4" female													D					
	Customer-specific / OEM													K					
Measuring tube scale	Millimetric scale														M				
	Direct reading scale														D				
	Customer-specific / OEM														K				
Options	Additional flow rate table for mm-scale																		T
	Calibration report																		P
	Panel mounting kit																		E
	Locking ring (for standard-knob)																		A
	Locking nut (instead of standard-knob)																		B
	Hose connectors PVC, G 1/4" / 4mm																		N
	Hose connectors PVC, G 1/4" / 6mm																		O
	Hose connectors PVC, G 1/4" / 8mm																		Q
	Customized measuring tube scale																		M
	Customer-specific / OEM																		K
Type code		F	L	Q	-						-				-				

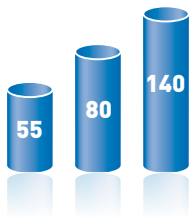
** Standard

Please contact our sales for all questions concerning configuration settings and customized versions: **+41 61 756 63 00** or **sales@voegtlin.com**

Wide-ranging and modular: Variable area flowmeters V-100

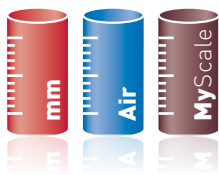
Highly modular and adaptable for almost any requirement: Variable area flow meter with a wide range of options.

Measuring tubes in 3 sizes



The flow meters are available with three different glass tube lengths

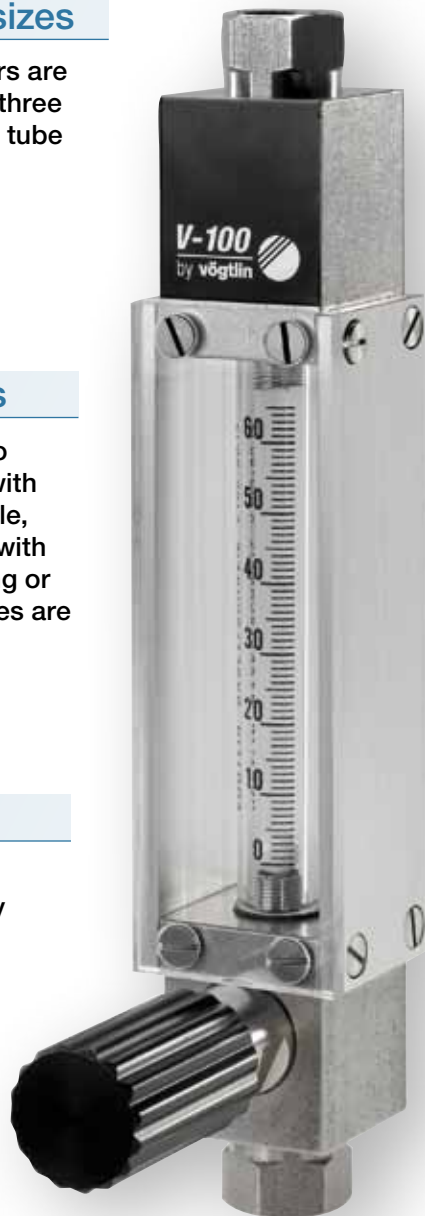
Measuring tube scales



In addition to mm scales with flow rate table, glass tubes with direct reading or custom scales are available

Precise control valves

The devices are equipped with precise, hysteresis-free 15-way control valves.
The valves are tightly closing



Different device setups



In addition to standard rear ports, devices with lateral and vertical ports are available

Aluminium or stainless steel



The bodies are available in aluminium or stainless steel.
Sealing materials FKM or EPDM

Various instruments options

We offer a range of options for the flow meters:

- Laboratory base
- Limit contact (inductive)
- Adaptation to customized gas line routing



Variable area flowmeters V-100 140 with laboratory base

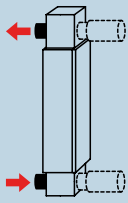
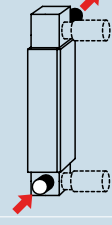
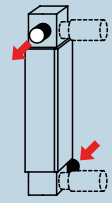
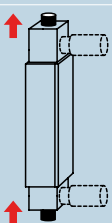
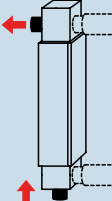
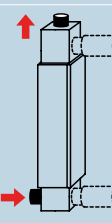
Technical specifications variable area flowmeters V-100

Features	Construction	Short mounting length, 3 instrument sizes
	Connections	Rear, lateral or axial
	Scale	Millimetric scale, direct reading scale and customer-specific scale. The scales are highly wear-resistant
	Float type	Spherical
	Valve	Precisely adjustable, 15-turn micro valve, practically hysteresis-free The control range (Kv-value) is optimized for the full scale
	Body material	Aluminium or stainless steel
	Seals material	FKM, EPDM or FFKM
	Customization	We provide customer-specific versions

Instrument versions	Setup	Type S* (Standard setup) Setup L, R, A, T and O (see below)
	Material	Anodized aluminium/Nickelized brass (valve)/FKM Stainless steel/FKM Stainless steel/EPDM Stainless steel /FFKM
	Connection	G 1/4" female* G 1/8" female G 1/4" female for compression fittings NPT 1/4" female
	Valve at inlet* or outlet	With standard knob* Without valve

Technical data	Type	V-100 55	V-100 80	V-100 140
	Turndown ratio	10:1	10:1	10:1
	Accuracy in % of full scale	±5%	±4%	±2%
	Measuring tube length	55 mm	80 mm	140 mm
	Scale length	40 mm	65 mm	120 mm
	Float	spherical	spherical	spherical
	Max. pressure	20 bar	20 bar	16 bar
	Max. temperature	100 °C	100 °C	100 °C
	Max. pressure drop	20 mbar	20 mbar	30 mbar

Options	Calibration report (factory certificate)
	Additional flow rate table for mm-scale
	Laboratory base
	Back cover (milky plexiglass)
	Limit switch: min. limit switch, max. limit switch
	Relays 24 Vdc for limit switch, relays 230 Vac for limit switch
	Hose connectors PVC
Customized measuring tube scale	

Setup	Setup S (standard)	Setup L (stainless-steel only)	Setup R (stainless-steel only)
			
	Setup A (stainless-steel only)	Setup T (stainless-steel only)	Setup O (stainless-steel only)
			

*Standard – Subject to technical alterations

Measuring ranges variable area flowmeters V-100

The measuring tubes are available with three different scales:

1. Measuring range for direct reading scales – Standard scales						
Medium	Air					
Reference conditions	ln/h / 1.21 bara / 20 °C			mln/min / 1.013 bara / 20 °C		
	V-100 55	V-100 80	V-100 140	V-100 55	V-100 80	V-100 140
	0.12 – 1.2	0.12 – 1.2	–	–	10 – 120	10 – 100
	0.2 – 2	0.2 – 2	0.2 – 2	–	20 – 240	40 – 220
	0.3 – 3	0.3 – 3	0.3 – 3	–	60 – 640	50 – 540
	0.5 – 5	0.5 – 5	0.5 – 5			
	0.8 – 8	0.8 – 8	0.8 – 8			
	1.6 – 16	1.6 – 16	1.6 – 16	ln/min / 1.013 bara / 20 °C		
	4 – 40	4 – 40	4 – 40	V-100 55	V-100 80	V-100 140
	6 – 60	6 – 60	6 – 60	–	0.1 – 1	0.1 – 1
	10 – 100	10 – 100	10 – 100	–	0.3 – 2.2	0.2 – 2.2
	25 – 250	25 – 250	25 – 250	–	0.5 – 5	0.5 – 6.0
	50 – 500	50 – 500	50 – 500	–	2 – 10	1.5 – 10.5
	80 – 800	80 – 800	80 – 800	–	2 – 20	2 – 26
	120 – 1200	120 – 1200	120 – 1200	–	4 – 32	6 – 51
	140 – 1400	–	140 – 1400			
	–	–	200 – 2000			
Medium	Water					
Reference conditions	l/h / 20 °C					
	V-100 55	V-100 80	V-100 140			
	0.25 – 2.5	–	0.25 – 2.5			
	0.5 – 5	–	0.5 – 5			
	–	–	1.2 – 12			
	2.5 – 25	–	2.5 – 25			
	4 – 40	–	4 – 40			
	6 – 60	–	6 – 60			
	7 – 70	–	7 – 70			

2. Measuring range for mm scales (with flow table) – For varying operating conditions (temperature, pressure, medium)				
Medium	Air		Water	
Reference conditions	ln/h / 1.21 bara / 20 °C		l/h / 20 °C	
Measuring range	smallest	highest	smallest	highest
V-100 80	0.04 – 1.75	100 – 5000	0.0005 – 0.015	10 – 100
V-100 140	0.15 – 2.25	500 – 5000	0.001 – 0.018	12 – 150

- ### 3. Customer-specific scales
- For customer-specific scales please provide the following specifications:
- Medium, mixture if applicable and max. flow
 - Pressure in bar, absolute (only required for gases)
 - Medium temperature, if applicable medium viscosity and density

Dimensions variable area flowmeters V-100

Type	Dimensions in mm		
	A	B	C
V-100 55	120.5	89.5	61.5
V-100 80	145.5	114.5	86.5
V-100 140	205.5	174.5	146.5
Fittings		D	Thread depth
G1/4" female		12	7
G1/8" female		12	8
G1/4" female for compression fittings		17	12
NPT 1/4"		16	9
Blind nipple (setup L & R only)		5.5	–

Find detailed dimensions in the V-Flow Line manual

Type code variable area flowmeters V-100

Instrument type	V-100	F	L	V																	
Instrument size	55								A												
	80								B												
	140								C												
Materials (body, seals)	Aluminium/brass, FKM								S												
	Stainless steel, FKM								E												
	Stainless steel, EPDM								T												
	Stainless steel, FFKM								W												
	Customer-specific / OEM								K												
Setup	Setup S**								S												
	Setup L (stainless steel only)								L												
	Setup R (stainless steel only)								R												
	Setup A (stainless steel only)								A												
	Setup T (stainless steel only)								T												
	Setup O (stainless steel only)								O												
	Customer-specific / OEM								K												
Valve (position)	Valve at the inlet**								S												
	Valve at the outlet								A												
	Without valve								O												
	Customer-specific / OEM								K												
Process connection (in- and outlet)	G 1/4" female**																		S		
	G 1/8" female																		B		
	G 1/4" female (for compression fittings)																		C		
	NPT 1/4" female																		D		
	Customer-specific / OEM																		K		
Measuring tube scale	Millimetric scale																			M	
	Direct reading scale																			D	
	Customer-specific / OEM																			K	
Options	Additional flow rate table for mm-scale																				T
	Calibration report																				P
	Laboratory base																				F
	Back cover, plexiglass, milky																				R
	Min. limit switch																				G
	Max. limit switch																				I
	Relays 24 Vdc for limit switch																				J
	Relays 230 Vac for limit switch																				H
	Hose connectors PVC, G 1/4" / 4mm																				N
	Hose connectors PVC, G 1/4" / 6mm																				O
	Hose connectors PVC, G 1/4" / 8mm																				Q
	Customized measuring tube scale																				M
	Customer-specific / OEM																				K
Type code		F	L	V	-																

** Standard

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Precise setting and tightly closing:

High-precision control valves M-Flow

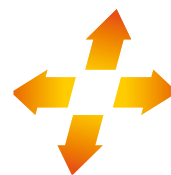
The high-precision control valves allow an accurate flow adjustment and V-Stack offers a scalable gas distribution system.

Tightly closing valves



The valves are tight-closing

Different device setups



The valves are available as straight valves, corner valves, or valve cartridges for self-mounting

Direction of closing



Cw- or ccw-closing versions are available



Various knobs

Different rotary knobs are available:

- Standard knob
- Standard knob with locking ring (see picture)
- Digi knob, 100 divisions
- Locking nut (instead of standard knob)
- Digiturn with display, 100 division

Gas distribution system V-Stack

The compact gas distribution system V-Stack is capable of metering up to 12 outlets individually



- 1 inlet (G 1" female)
- Up to 12 outlets with one valve per outlet (G 1/2" female)
- Can be easily expanded by the customer (up to 12 outlets)
- Type 35 instrument size only



V-Stack
with 8 outlets and Digiturn knob with display



M-Flow 25
Digi knob
100 divisions



M-Flow 25
Digiturn with display
100 divisions

Technical specifications high-precision control valves M-Flow

Instrument versions	<p>Compact, modular construction</p> <p>Aluminium/brass or stainless steel</p> <p>Seal materials: FKM, EPDM or FFKM</p> <p>Straight valve, corner valve or valve cartridges (for self-mounting)</p> <p>Leak-proof when closed</p> <p>15 turn spindle, no hysteresis</p> <p>Cw- or ccw-closing</p> <p>Different Kv-values for optimum control ranges</p> <p>Non-rotating valve needles for stable settings</p> <p>Every M-Flow valve is tested and controlled</p> <p>We provide customer-specific versions</p>
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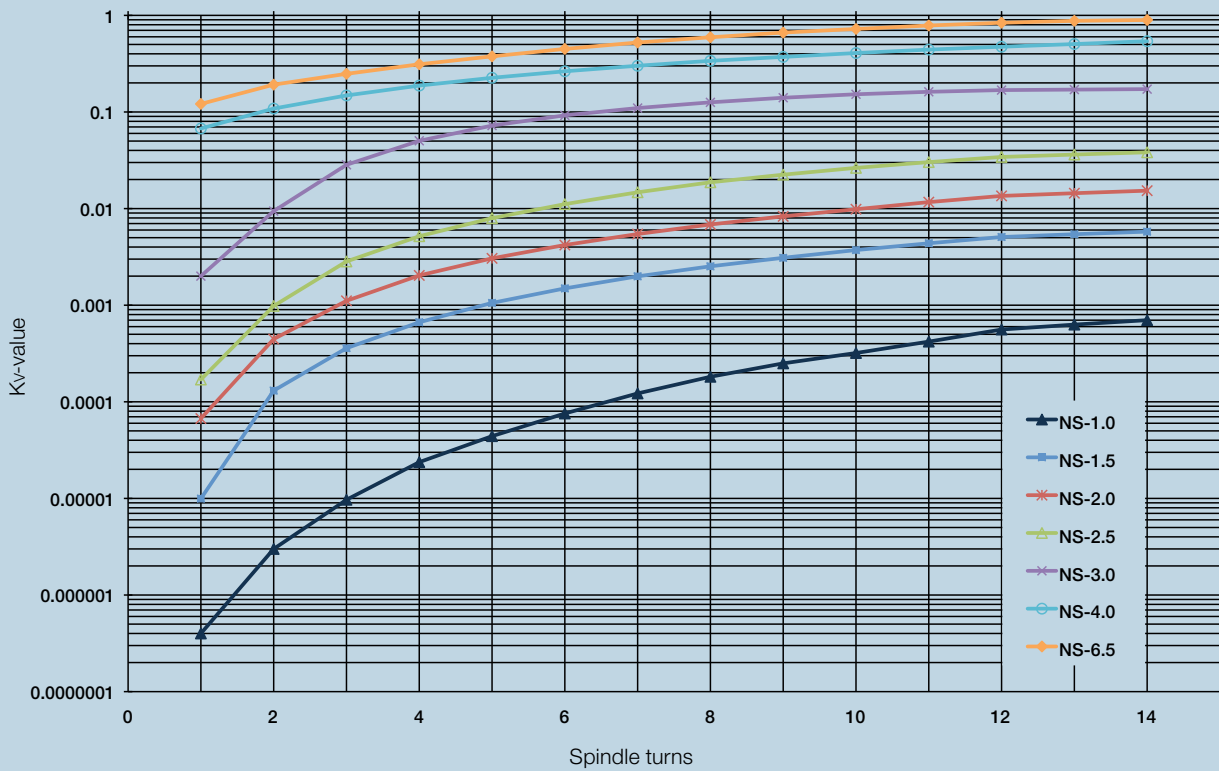
Instrument versions	Setup	<p>Straight valve</p> <p>Corner valve</p> <p>Valve cartridge</p> <p>Distributor</p>
	Material	<p>Aluminium/brass/FKM</p> <p>Stainless steel/FKM</p> <p>Stainless steel/EPDM</p> <p>Stainless steel/FFKM</p>
	Connection	<p><i>M-Flow 25</i> G 1/4" female*</p> <p>G 1/8" female</p> <p>G 1/4" female for compression fittings</p> <p>NPT 1/4" female</p> <p><i>M-Flow 35</i> G 1/2" female</p> <p><i>M-Flow V-Stack</i> Inlet: G 1", Outlet: G 1/2"</p>
	Valve rotating direction	Cw-* or ccw-closed
	Actuator	<p>Standard knob*</p> <p>Standard knob with locking ring</p> <p>Digi knob, 100 divisions, ccw-closed valve</p> <p>Locking nut (instead of standard-knob)</p> <p>Digitum, 100 divisions, cw-closed valve</p>

Technical data	Type	M-Flow 25	M-Flow 35	M-Flow V-Stack
	Straight valve	●	●	
	Corner valve	●		
	Valve cartridge	●	●	
	Gas distribution system			●
	Cw-closed	●	●	●
	Ccw-closed	●		
	Leak rate	< 1 x 10 ⁻⁵ mbar l/s He	< 1 x 10 ⁻⁵ mbar l/s He	< 1 x 10 ⁻⁵ mbar l/s He
	Max. pressure	20 bar	20 bar	20 bar
	Min. temperature	-40 °C	-40 °C	-40 °C
	Max. temperature	150 °C	150 °C	150 °C

*Standard – Subject to technical alterations

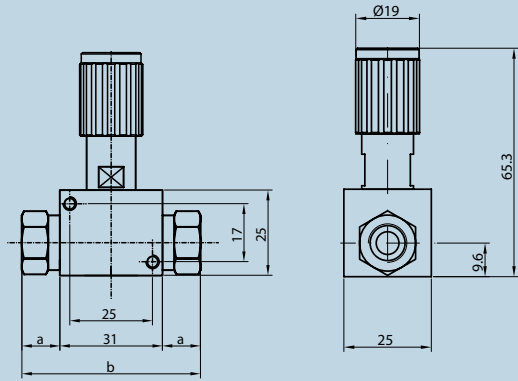
Kv-values high-precision control valves M-Flow (air)

Kv-values for valves NS 1.0 to NS 3.0 (M-Flow 25) and NS 4.0 to NS 6.5 (M-Flow 35)



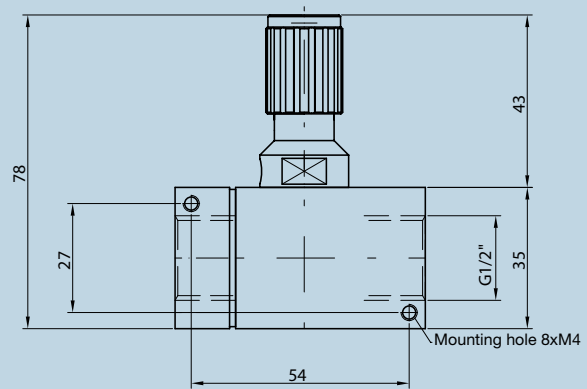
Dimensions high-precision control valves M-Flow

M-Flow 25 (dimensions in mm)



Find detailed dimensions for fittings, knobs and corner valve in the V-Flow Line manual

M-Flow 35 (dimensions in mm)



Find detailed dimensions for fittings and knobs in the V-Flow Line manual

Type code high-precision control valves M-Flow

Instrument type	M-Flow	F	L	M																
Instrument size	25									A										
	35									B										
	V-Stack									C										
Materials (body, seals)	Aluminium/brass, FKM									S										
	Stainless steel, FKM									E										
	Stainless steel, EPDM									T										
	Stainless steel, FFKM									W										
	Customer-specific / OEM									K										
Setup	Straight valve**									S										
	Corner valve									E										
	Valve cartridge (without body)									O										
	V-Stack, 1 valve/outlet									B										
	V-Stack, 2 valves/outlets									C										
	V-Stack, 3 valves/outlets									D										
	V-Stack, 4 valves/outlets									F										
	V-Stack, 5 valves/outlets									G										
	V-Stack, 6 valves/outlets									H										
	V-Stack, 7 valves/outlets									I										
	V-Stack, 8 valves/outlets									J										
	V-Stack, 9 valves/outlets									M										
	V-Stack, 10 valves/outlets									N										
	V-Stack, 11 valves/outlets									P										
	V-Stack, 12 valves/outlets									Q										
	Customer-specific / OEM									K										
Valve (rotating direction)	Valve cw-closed**									S										
	Valve ccw-closed									L										
	Customer-specific / OEM									K										
Process connection (in- and outlet)	G 1/4" female** (Type 25)																			S
	G 1/8" female (Type 25)																			B
	G 1/4" female, compression fittings (Type 25)																			C
	NPT 1/4" female (Type 25)																			D
	G 1/2" female (Type 35)																			S
	Inlet: G 1", Outlet: G 1/2" (Type V-Stack)																			S
	Customer-specific / OEM																			K
Valve size	NS 1.0 (Type 25)																			A
	NS 1.5 (Type 25)																			B
	NS 2.0 (Type 25)																			C
	NS 2.5 (Type 25)																			D
	NS 3.0 (Type 25)																			E
	NS 4.0 (Type 35 / V-Stack)																			F
	NS 6.5 (Type 35 / V-Stack)																			G
	Customer-specific / OEM																			K
Options	Locking ring (for standard knob)																			A
	Locking nut (instead of standard knob)																			B
	Digiturn (cw-closed valve only)																			C
	Star grip for digiturn																			D
	Digi knob, 100 divisions (ccw-closed valve only)																			L
	Hose connectors PVC, G 1/4" / 4mm																			N
	Hose connectors PVC, G 1/4" / 6mm																			O
	Hose connectors PVC, G 1/4" / 8mm																			Q
	Customer-specific / OEM																			K
Type code		F	L	M	-															

** Standard

Please contact our sales for all questions concerning configuration settings and customized versions: **+41 61 756 63 00** or **sales@voegtlin.com**

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