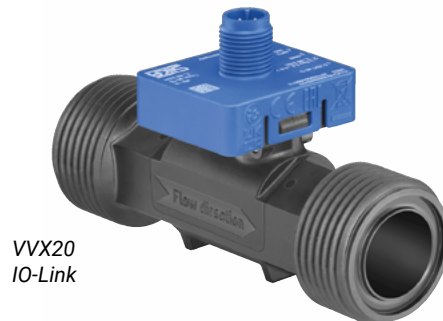


Vortex flow sensors // VVX with IO-Link

for fluids

US version available

Note: The US versions are separate products.
The units are not converted, but pre-configured at the factory for the respective variants.



100 %

- Final water flow test
- Adjustment of output signal and calibration at 3 test points
→ Traceable measurement performance
- Recording of the test data
→ Test protocols available for customers
- Traceability via serial number

Reliable

- Piezoceramic sensor element completely encapsulated
→ no direct medium contact
→ dirt-resistant and fail-safe
- CE Marking
- Developed and produced in Germany

encapsulated piezoceramic sensor element

µController

- Customer-specific adaptation through approx. 60 software parameters
- Software filter (optional)
→ exact flow measurement even with vibrations




Test reports for customers

- SIKA test labs - many qualification tests
→ Temperature shock
→ Contamination
→ and many other tests
- Test SIKA VVX in provided customer hydraulics
→ Optimization of the measurement performance in real installation situation
- Sample devices can be supplied with works test certificate

Reliable partnership with SIKA

- More than 45 years of experience with flow sensors in heaters

Technical data

Technical data	VVX15	VVX20	VVX25
Nominal diameter	DN 15	DN 20	DN 25
Nominal pipe size	½"	¾"	1"
Process connection	G¾-ISO 228 male, incl. O-rings	G1-ISO 228 male, incl. O-rings	G 1¼-ISO 228 male, incl. O-rings
Process connection	½" NPT	¾" NPT	1" NPT
Inner diameter [mm]	Ø 13	Ø 19	Ø 25
Inner diameter [inch]	0.5	0.75	1
Medium	Water and aqueous solution		
Pressure rating	PN 10		
Pressure rating	Max. 145 psi		
Degree of protection EN 60529 with attached cable socket	IP65 and IP67		
Flow measuring			
Flow range*	2...40 l/min 120...2,400 l/h	5...80 l/min 300...4,800 l/h	7...150 l/min 420...9,000 l/h
Flow range*	0.5...10 US gpm 30...600 US gph	1.3...21 US gpm 78...1,260 US gph	2...40 US gpm 120...2,400 US gph
Accuracy* → at < 50 % of range → at > 50 % of range	±2 % of range ±2 % of range	±0.75 % of range ±1.5 % of reading	±2 % of range ±2 % of range
Repeatability	±1 % at -20...5 °C ambient temperature ±0.5 % at 5...70 °C ambient temperature		
Repeatability	±1 % at -4...41 °F ambient temperature ±0.5 % at 41...158 °F ambient temperature		
Temperature measuring			
Measuring range	0...90 °C		
Measuring range	32...194 °F		
Accuracy	±1 k		
Response time → t ₅₀ → t ₉₀	approx. 10 s approx. 21 s		
Temperature ranges			
Medium	-20...90 °C (non-freezing)		
Medium	-4...194 °F (non-freezing)		
Ambient	-20...70 °C		
Ambient	-4...158 °F		
Electrical data			
Electrical connection	4-pin plug connector M12 x 1		
Power supply for output signal	24 V DC (±10 %)		
Current consumption	< 15 mA		
Approvals			
			

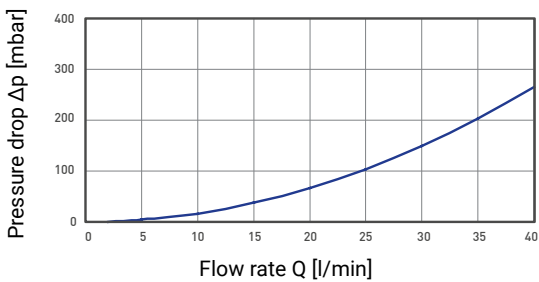
- * Test conditions:
 → Test medium water
 → Media temperature 20...30 °C / 68...86 °F
 → Defined inlet and outlet pipes (see operating manual)
 Deviations with media of higher viscosity

Output signals

Frequency output	VVX15	VVX20	VVX25
Output signal flow for power supply	Frequency signal, square wave, pulse duty ratio 50:50, signal current max. 20 mA Push Pull		
Pulse rate [1/l]	500 (optional 3...1000)	200 (optional 2...800)	100 (optional 1...500)
Pulse rate [pulses/US Gallon]	2000 (optional 12...4000)	750 (optional 8...3000)	400 (optional 4...2000)
IO-Link			
IO-Link specification	Version 1.1		
IO-Link Device ID:	2		
Transmission type	COM2 (38.4 kBaud)		
Ready for operation	2 seconds after supply voltage is applied		
Min. cycle time	103 ms		
SIO mode:	Yes		
Profiles:	Smart Sensor, Device Identification, Device Diagnosis		
SDCI standard:	IEC 61131-9		
Required master port:	Class A		
Process data analog:	3		
Download IODD device description	https://www.sika.net or https://ioddfinder.io-link.com		

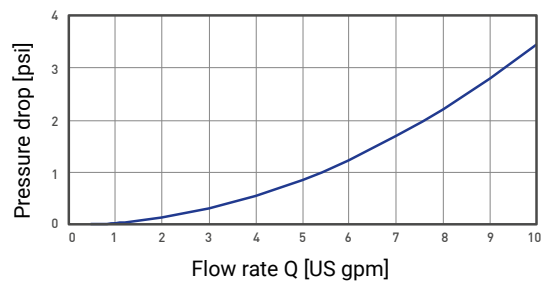
Typical pressure drop

Typical pressure drop VVX15

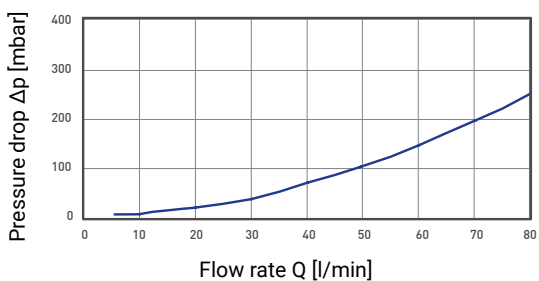


Typical pressure drop VVX15

US version

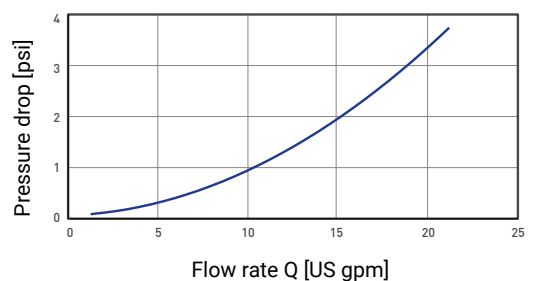


Typical pressure drop VVX20

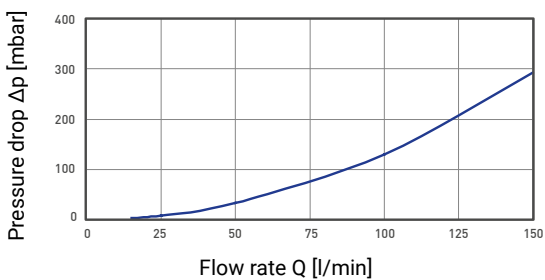


Typical pressure drop VVX20

US version

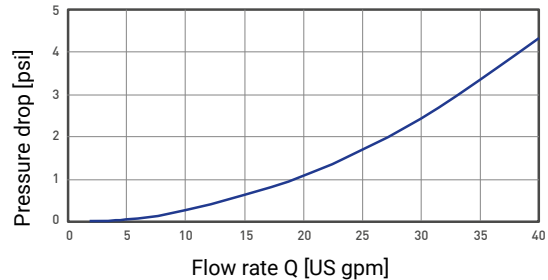


Typical pressure drop VVX25



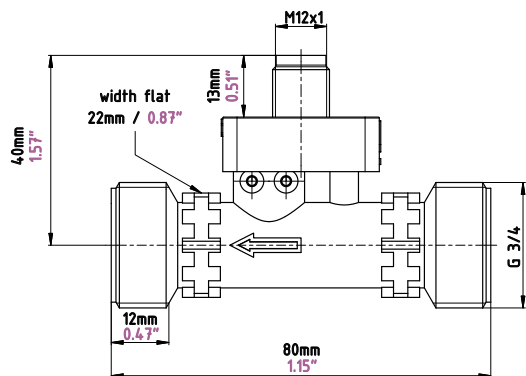
Typical pressure drop VVX25

US version



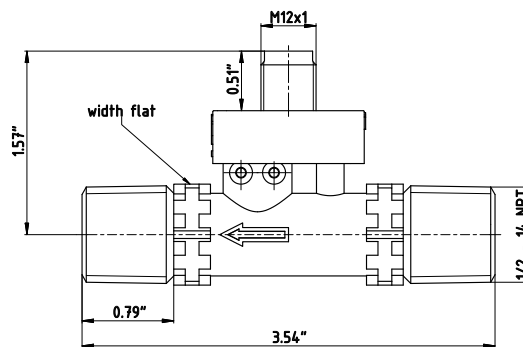
Technical drawings

VVX15 threaded versions



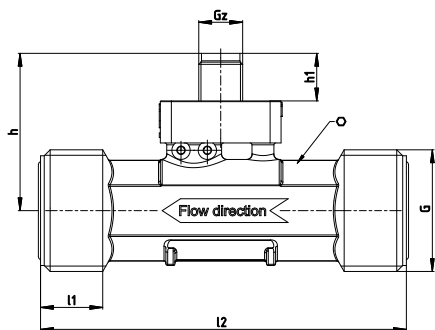
Flow direction

VVX15 NPT versions



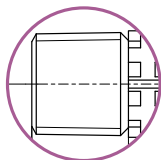
Flow direction

VVX20 and VVX25 threaded versions



Flow direction

NPT version



Dimensions

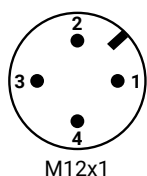
Dimensions [mm]	h	h1	D1	D2	l1	l2	G	Gz	○ Width across flats
Threaded version									
VVX20	43	13			16.5	100	G 1	M12 x 1	24
VVX25	46	13			16.5	95	G 1¼	M12 x 1	30
Dimensions [inch]									
Threaded version									
VVX20	1.69	0.51			0.81	3.94	¾ - 14 NPT	M12 x 1	9.45 and 1½"
VVX25	1.69	0.51			0.53	3.94	1 - 11.5 NPT	M12 x 1	11.81 and 1½"

Materials

Materials in contact with media	
VVX15, VVX20, VVX25	
Body /tube	PPS GF40
Sensor	ETFE
O-rings	EPDM

Wiring

Pin assignment



Possible pin assignments:

Pin 1: $+U_B$

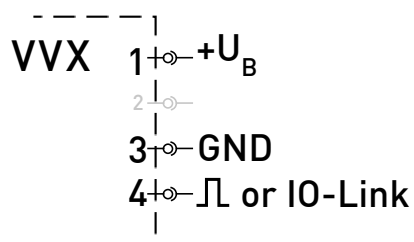
Pin 2: n.c. (not connected)

Pin 3: **GND**

Pin 4: Frequency • IO-Link

Wire the connecting cable according to your device version and the pin assignments shown on the type plate.

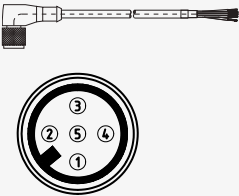
Connection



Article numbers

Order code	
Nominal diameter, flow range	Artikelnummer
VVX15, DN 15 G $\frac{3}{4}$, 2...40 l/min (120...2.400 l/h)	VVXA1SIA00004414
VVX20, DN 20 G1, 5...80 l/min (300...4.800 l/h)	VVXC9SIB00004427
VVX25, DN 25 G1 $\frac{1}{4}$, 7...150 l/min (420...9.000 l/h)	VVXB2SIB00004416
Nominal pipe size, flow range	Artikelnummer
VVX15, $\frac{1}{2}$ " NPT, 0.5...10 US gpm (30...600 US gph)	VVXAASI10000441C
VVX20, $\frac{3}{4}$ " NPT, 1.3...21 US gpm (78...1,260 US gph)	VVXCCSIK00004428
VVX25, 1" NPT, 2...40 US gpm (120...2,400 US gph)	VVXBBSI20000441E

Order code	
Service - Test in the test bench	Order number
Tests in provided customer hydraulics including a test report	
Operation with SIKA test bench pump	VVXTESTREPORT01
Operation with provided customer pump	VVXTESTREPORT02
Works calibration certificate for sample devices	VVXWPS01

Order code					
Type	Accessories		Length [m]	Length [ft]	Order number
VVX15		Connection cable with 5 pin cable socket	1		XVVX493
VVX20		M12 x 1, angle type molded lead 5 x 0.34 mm ² ,	1.5		XVVX494
VVX25		sheathing material PVC, (T _{max} = 80 °C / 176 °F),	2		XVVX482
		Pins: 1=brown, 2=white, 3=blue, 4=black, 5=grey,	3		XVVX492
		Customized plugs and cable lengths on request	5		XVVX481
			10		XVVX495
		UL approval		3	XVVX493UL
		UL approval		4.9	XVVX494UL
		UL approval		6.5	XVVX482UL
		UL approval		10	XVVX492UL
		UL approval		16	XVVX481UL
		UL approval		33	XVVX495UL