

Description

Microcontroller operated Flow Meter to monitor and display flow rates and temperature.
 Suitable for use with calorimetric or turbine-type monitoring heads.
 Either factory-preset or to be set by customer on site (various media possible, suitable for gear or lubricating oil up to viscosity class ISOVG220).

Features

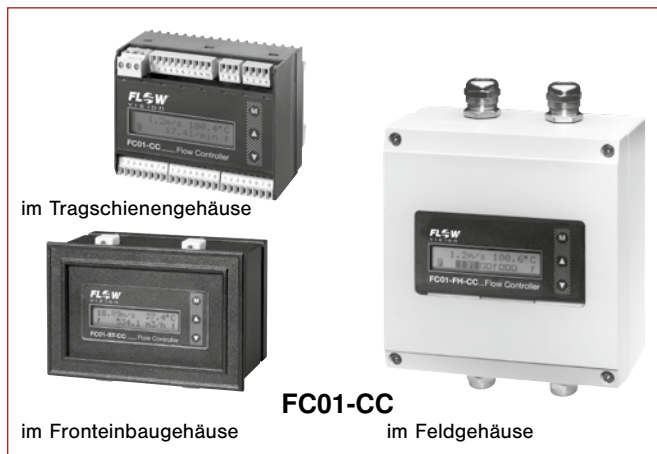
- Menu driven (keypads)
- LC display (2 x 16 digits) of:
 - actual flow rate, volume flow or mass flow, medium temperature
 - bargraph status indication of limit contacts, actual flow rate/quantity or medium temperature
 - directions for parameter assignment, configuration, diagnosis and error correction
 - base value indication
- Two scalable analogue outputs
- Peak memory (MIN + MAX)
- Two freely selectable limit contacts
- Quantity-related pulse output
- Versions for rail, front panel and surface mounting
- Higher accuracy as the exact characteristic curve of the connected calorimetric monitoring head is recorded in the software (= medium classification)

Ordering information FC01-CC

Type	
FC01-CC	Flow Meter, rail-mounted housing
FC01-FH-CC	Flow Meter, surface mounted housing
FC01-ST-CC	Flow Meter, front panel mounted housing
Input voltage	
U1	DC 19 ... 32 V
Signal outputs	
R2	2 relay outputs (2 limit values)
T4	4 transistor outputs (2 limit value + 2 status, or 2 limit value + 1 status + 1 pulse output (menu-selected))
Analogue outputs	
C1	0/4-20 mA (self-powered, galvanically isolated)
Specification of medium	
xxx	
FC01-CC - U1 R2 C1 - ...	ordering example

The characteristic curve for water (CST and CSF) has been stored as standard.
 Please specify when ordering if we shall store a different curve (e. g. for air or a turbine-head curve).

This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)



im Tragschienegehäuse

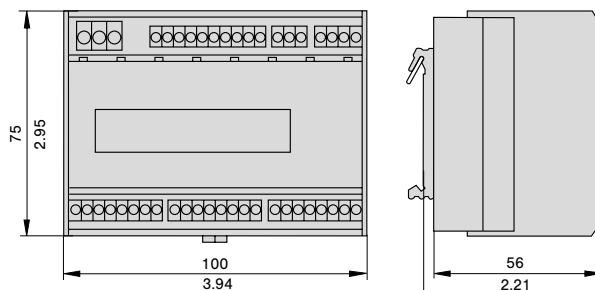
im Fronteinbaugeschäuse

FC01-CC

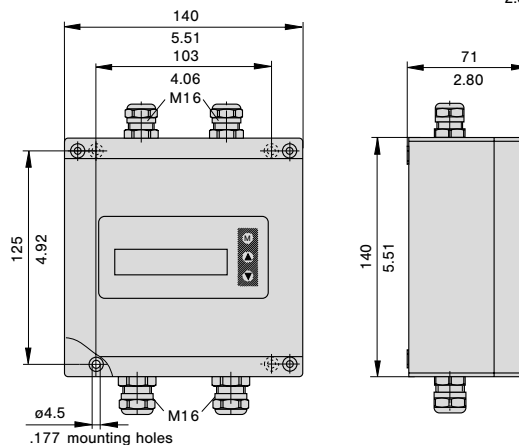
im Feldgehäuse

Dimensions

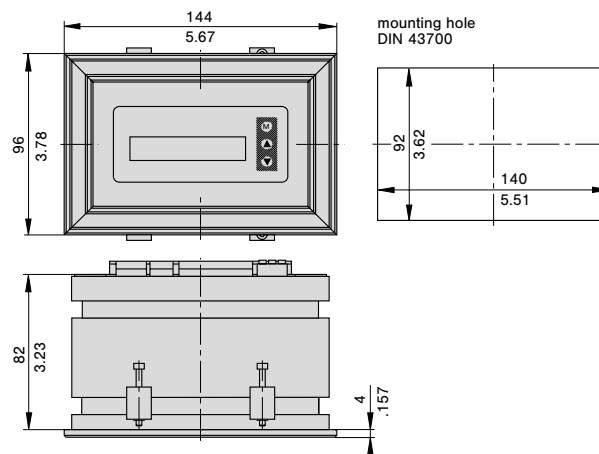
FC01-CC (rail-mounted housing)



FC01-FH-CC (surface mounted housing)



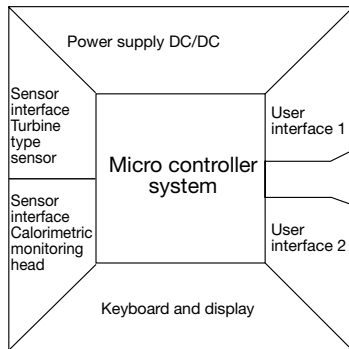
FC01-ST-CC (front panel mounted housing)



TECHNICAL DATA

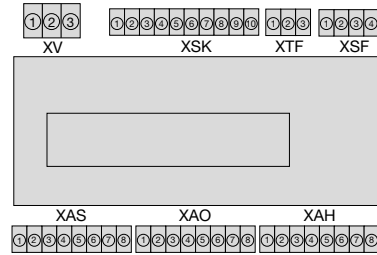
Flow Meter FC01-CC		with CST/CSF/CSP calorimetric monitoring heads	with TST Flügelradaufnehmer
General data			
Media	gases, liquids (water, oil etc.)		gases, clean and particle-free
Measuring functions	flow velocity, volume flow/mass flow, temperature		flow velocity/volume flow
Display	2 x 16-digit LC display		
Parameter assignment, calibration by	keypads		
Temperature range (electronic control unit in circulating air)	+10 ... +50 °C/+50 ... +122 °F *)		
Electrical data			
Input voltage	DC 24 V (18 ... 32 V)		
Power consumption	200 mA **)	110 mA	
Analogue outputs	flow and temperature (temperature N/A with TST heads)	0/4-20 mA or 0/2-10 V or 0/1-5 V	
Signal outputs	2 relay outputs (2 limit values)	2 SPDT contacts AC/DC 50 V/1 A/50 W	
	4 transistor outputs (2 limit values + 2 status, or 2 limits values + 1 status + 1 pulse output)	open collector outputs DC 36 V/150 mA/1,5 W	
Flow measurement			
Measuring range (please specify)	limit values if factory-preset	water	0,05 ... 3 m/s / .164 ... 9.84 fps
		oil	please enquire
		air	0,1 ... 20 m/s / .328 ... 65.6 fps standard flow speed referred to 20 °C and 1,01325 bar
Display range	final value of span +10%		
Accuracy ⁽⁵⁾	Accuracy is a function of that of the reference meter, of repeatability and the number of setpoints. Accuracy also depends on the temperature and measuring range.	typically approx. 2 % of measured value (e. g. in the measuring ranges indicated for FC01)	typically approx. 2 % of measured value (e. g. in the measuring ranges indicated for FC01)
Repeatability ⁽¹⁾ (5 % MBE to 100 % MBE)	water	≤ 1 % of measured value	≤ 1 % of measured value
	air	≤ 1 % of measured value	≤ 1 % of measured value
Temperature drift (electronic control unit) ⁽⁴⁾	water	0,35 %/°K/of final value	N/A
	air	0,1 %/°K/of final value	N/A
Response delay	water ⁽²⁾	2,5 s	1 s
	air ⁽³⁾	3 s	1 s
Temperature measurement			
measuring range	-40 ... +130 °C/-40 ... +266 °F		N/A
accuracy	±1 % of measuring range		
Mechanical data (electronic control unit)			
Degree of protection	rail-mounted	IP20	
	surface mounted	IP66	
	front panel mounted	IP65	
Materials	rail-mounted	acrylic vinyl/styrene/polycarbonate; heat sink aluminium	
	surface mounted	aluminium/acrylic	
	front panel mounted	aluminium black coated; display polyester foil	
Housing dimensions (LxWxH)	see dimension diagrams (overleaf)		
Mass	rail-mounted	485 g/1.07 lb	
	surface mounted	1250 g/2.76 lb	
	front panel mounted	900 g/1.98 lb	
Cables	voltage supply	3x0,75 mm ²	
	to monitoring head	LifYCY 4x2x0,2 mm ² (AWG 24)	LifYCY 4x2x0,2 mm ² (AWG 24)
	analogue outputs	2 x LifYCY 2x0,25 mm ² (AWG 24)	2 x LifYCY 2x0,25 mm ² (AWG 24)
	limit value output	2 x LifYCY 3x0,38 mm ² (AWG 24)	2 x LifYCY 3x0,38 mm ² (AWG 24)
Max. cable length to monitoring head	200 m/656 ft		200 m/656 ft
<p>*) With output C1 the max. admissible ambient temperature for the rail-mounted version is limited to +40 °C/+104 °F. **) With output C1, power consumption may be up to 300 mA ± 10 %. (1) Of the set value, at constant temperature and flow conditions, and stable thermal conductivity. (2) Delay with the switch point set to 1 m/s / 3.28 fps and the flow at 2 m/s / 6.56 fps, after a sudden complete stop. (3) Delay with the switch point set to 10 m/s / 32.8 fps and the flow at 20 m/s / 65.6 fps, after a sudden complete stop. (4) Warm-up time to full accuracy: 15 minutes. (5) The accuracy values were determined under ideal conditions: - symmetrical complete flow profile - correct mounting in the pipe - inlets and outlets according to EN ISO 5167-1</p>			

Block diagram



Input voltage:	DC 19...32 V
Keyboard/display:	keypads LC display 2 x 16 digits
User interface 1:	relay outputs: 2 limit values transistor outputs: 2 limit values + 1 error indication + 1 busy or pulse output (software selected)
User interface 2:	analogue outputs current or voltage
Controller system:	signal processing I/O - controlling monitoring parameter memory
Sensor interfaces:	calorimetric monitoring head and turbine type sensor

Connection diagram



Wire size: 0.14 mm² to 1.5 mm² single or stranded conductor
 Strip length: 6.5 mm
 Clamping screw: M2 (nickel-plated brass)
 Contact material: pre-tinned tin bronze

XV: power supply
 XSK: calorimetric monitoring head
 XTF: keyboard release
 XSF: turbine-type sensor
 XAS: not released for user
 XAO: analogue outputs
 XAH: signal outputs

A

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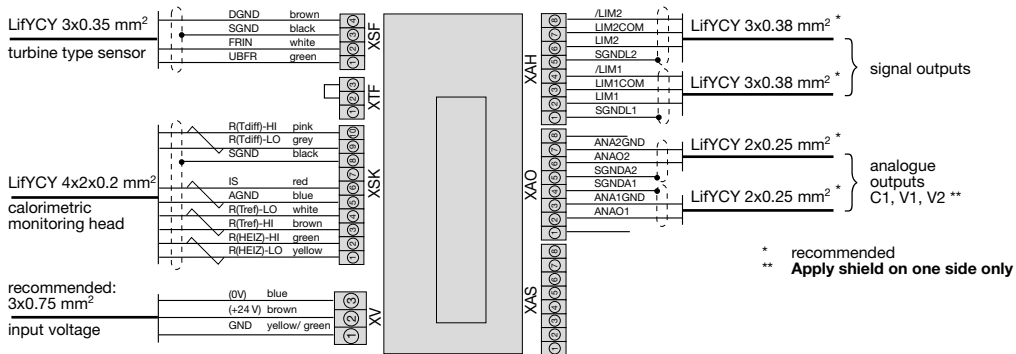
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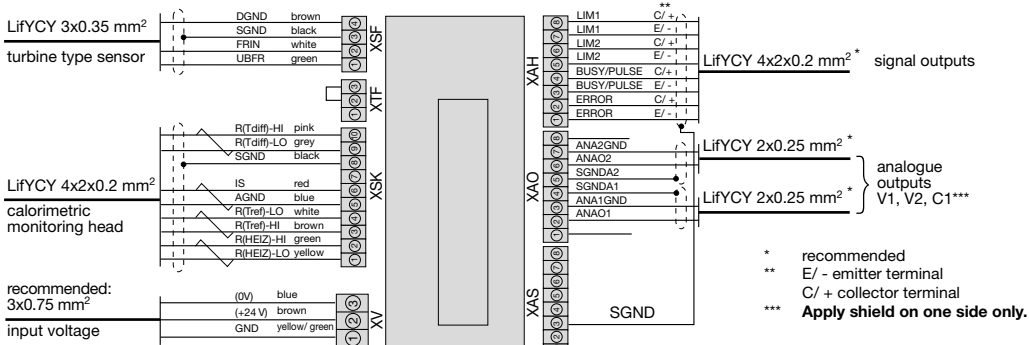
B

Connection diagrams

FC01-CC with relay outputs

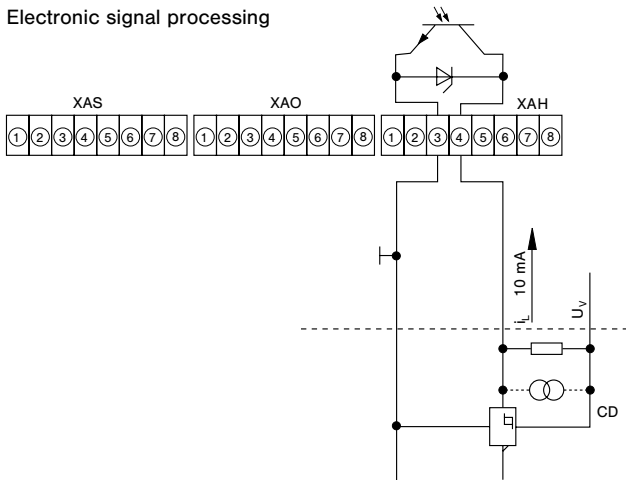


FC01-CC with transistor outputs

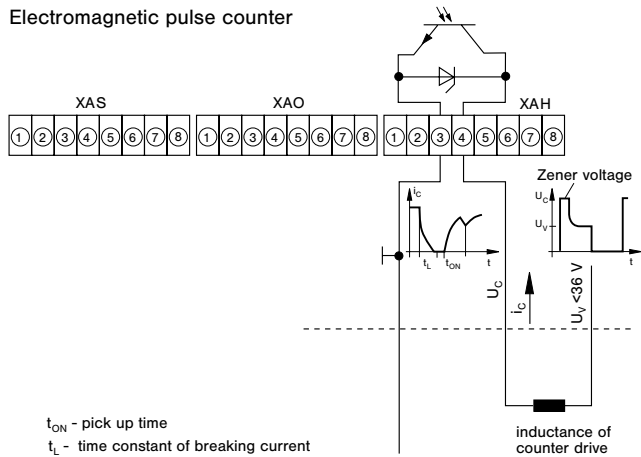


FC01-CC - Recommended connection of pulse output

Electronic signal processing



Electromagnetic pulse counter



All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Description

Thread-mounted calorimetric monitoring head for Flow Meter FC01-CC, suitable for general industry applications.

Features

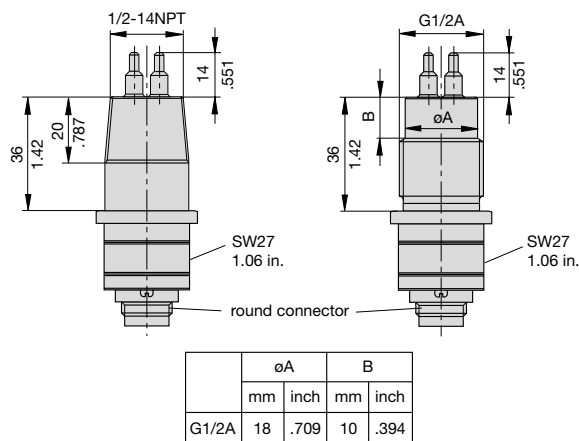
- Suitable for installation in welding bushes
- Medium temperature -40 ... +130 °C/-40 ... +266 °F
- Material: stainless steel 1.4571/AISI 316 Ti or Hastelloy alloy C4 2.4610

Ordering information

Type No.	
CST	Thread-mounted monitoring head with calorimetric sensors
Process connection	
01	thread size G1/2A (FC01-CC-standard)
03	thread size 1/2"-14NPT
Medium	
A	air
W	water
S	other media, e.g. oil (please enquire)
Material of areas exposed to medium	
M1	stainless steel 1.4571/AISI 316 Ti (standard)
M2	nickel-based alloy Hastelloy alloy C4 2.4610
Length of shank/thread	
L10	36 mm (standard)
Electrical connection	
E10	round connector with tinned contacts (plug and cable to order separately)
Certification	
T0	without certificate (standard) *)
Specification of medium	xxx
CST - 01 W M1 L10 E10 T0 - ...	ordering example

*) for detailed information please see section 0.

Dimensions



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Thread-mounted calorimetric monitoring head



CST-...

Technical data

Type of head	thread-mounted
Nominal thread dia.	G1/2A, 1/2"NPT
Length of shank	36 mm/1.42 in.
Length of sensor	14 mm/.551 in.
Suitable for	all media, depending on material resistance
Temperature range *)	-40 ... +130 °C/-40 ... +266 °F
(of medium)	
Temperature drift of monitoring head	± < 0.05 %/°K/measuring range (T = +20 ... +80 °C/+68 ... +176 °F)
Measuring ranges	air: 0 ... 20 m/s / 0 ... 65.6 fps water: 0 ... 3 m/s / 0 ... 9.84 fps
Pressure resistance ⁽¹⁾	100 bar/1450 psi
Degree of protection	connector ⁽²⁾ : IP67
Material	stainless steel 1.4571/AISI 316 Ti Hastelloy alloy C4 2.4610
Cable to electronic control unit	LifCY 4x2x0.2 mm ² (AWG 24)

⁽¹⁾ Admissible operating pressure DIN 2401, measured at max. temperature (= max. medium temperature)

⁽²⁾ with mating connector

¹⁾ max. +85 °C/+185 °F in the connector area

Cable types 15/18 with connectors



Do + Ka type 15
Do + Ka type 18

Do + Ka type 15-ST
Do + Ka type 18-ST

Technical data

Cable type 15 and 15-ST

Features: highly flexible, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F

Conductor resistance:	92 Ω/km
Insulation resistance:	20 MΩ x km
Operating voltage:	250 V
Withstand voltage:	500 V
Max. load:	2 A
Temperature range:	-10 °C ... +80 °C/+14 °F ... +176 °F (processing and operation) -30 °C ... +80 °C/-22 °F ... +176 °F (transport and storage)

Cable type 18 and 18-ST

Features: non-halogenous, highly flexible, cold- and heat resistant, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F

Conductor resistance:	80 Ω/km
Insulation resistance:	1200 MΩ x km
Operating voltage:	300 V
Withstand voltage:	1500 V
Max. load:	3 A
Temperature range:	-50 °C ... +180 °C/-58 °F ... +356 °F

Ordering information

Typ between calorimetric monitoring heads **CST** and **FC01-CC, FC01-FH-CC**

Do + Ka type 15	PVC insulated cable, type LiFYCY 4x2x0.2 mm ² (AWG 24) 8-pole round connector + 10-pole clamping connector
Do + Ka type 18	silicone insulated cable, type 4x2x0.2 mm ² (AWG 24) 8-pole round connector + 10-pole clamping connector

Available cable lengths

...m	2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max 656 ft)
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Do + Ka type 15 - 2 m ordering example

Typ between calorimetric monitoring heads **CST** and **FC01-ST-CC**

Do + Ka type 15-ST	PVC insulated cable, type LiFYCY 4x2x0.2 mm ² (AWG 24) 8-pole round connector + 10-pole clamping connector
Do + Ka type 18-ST	silicone insulated cable, type 4x2x0.2 mm ² (AWG 24) 8-pole round connector + 10-pole clamping connector

Available cable lengths

...m	2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max 656 ft)
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Do + Ka type 15-ST -2 m ordering example

Description

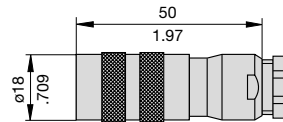
Cable between Flow Meter FC01-xxx and calorimetric monitoring head type CST.

- Connection to monitoring head by means of 8-pole round connector
- Connection to FC01-xxx by means of 10-pole clamping connector (XSK)

Accessories

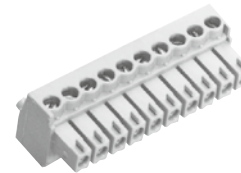
8-pole round connector

(without cable, for individual wiring by customer)
OZ112Z003124



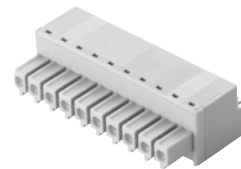
10-pole clamping connector for cable types 15 and 18

(without cable, for individual wiring by customer)
OZ112Z000167



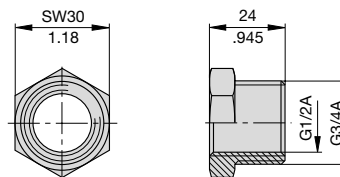
10-pole clamping connector for cable types 15-ST and 18-ST

(without cable, for individual wiring by customer)
OZ112Z000205



Reducing piece

from G3/4 to G1/2
Material: stainless steel 1.4571/AISI Ti 316
OZ032Z000149



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Caution: Standard warranty cover will be invalidated if the correct FlowVision monitoring head/control unit connecting cable is not used.

Description

Extended calorimetric monitoring head for Flow Meter FC01-CC, suitable for use in air-conditioning systems (variable immersion depth).

Caution: Fix with locking set 01 (see accessories).

Features

- Medium temperature range: -40 ... +130 °C/-40 ... +266 °F
- Material: stainless steel 1.4571/AISI 316 Ti

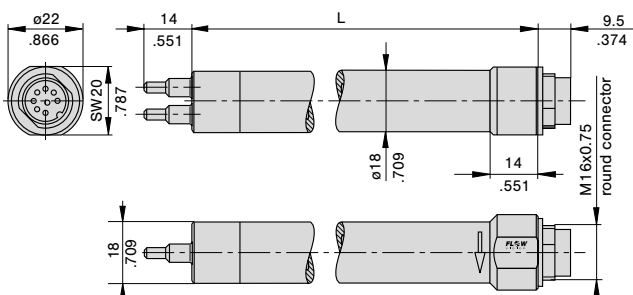
Ordering information

Type	
CSF	Extended monitoring head with calorimetric sensors
Monitoring head design	
01	Monitoring head with variable immersion depth
Medium	
A	air
W	water
Material of areas exposed to medium	
M1	stainless steel 1.4571/AISI 316 Ti
Process connection	
00	without flange; see accessories for cable gland **)
Length of shank/thread	
L43	188 mm (standard with process connection 00) other lengths upon request
Electrical connection	
E10	round connector with tinned contacts (plug and cable to separate order)
Certification	
T0	without certificate standard *)
Specification of medium	
xxx	
CSF - 01 A M1 00 L43 E10 T0 - ... ordering example	

*) for detailed information please see section 0.

***) see next page.

Dimensions



Type	L	
	mm	inch
CSF-...L43...	188	7.40
CSF-...L30...	300	11.81
CSF-...L40...	400	15.75

monitoring head should be aligned in direction of flow (see arrow)

Only CSF-...L30... and CSF-...L40...:
Additional wetted o-ring (FKM)

This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Kalorimetrischer Messkopf



CSF-01
variable Eintauchtiefe

Technical data

Type of head	push-in
Nominal shank dia.	18 mm/.709 in.
Length of shank	188 mm/7.40 in. (standard)
Length of sensor	14 mm/.551 in.
Suitable for	air (please enquire for other gases)
Temperature range*)	-40 ... +130 °C/-40 ... +266 °F (of medium)
Temperature drift of sensor	± < 0.05 %/°K/measuring range (T = +20 ... +80 °C/+68 ... +176 °F)
Measuring ranges:	air: 0 ... 20 m/s / 0 ... 65.6 fps atmospheric pressure water: 0 ... 3 m/s / 0 ... 9.84 fps
Pressure resistance (1) of sensor DIN 2401	100 bar/1450 psi
Pressure resistance of installation	depending on threaded installation bush 2 bar/16 bar (29.0 psi/232 psi)
Degree of protection	connector (2): IP67
Material	stainless steel 1.457/AISI 316 Ti
Cable to electronic unit	LifYCY 4x2x0.2 mm ² (AWG 24)

(1) Admissible operating pressure DIN 2401, measured at max. temperature (= max. medium temperature)

(2) with mating connector

*) max. +85 °C/+185 °F in the connector area

Dose und Kabel Typen



Do + Ka type 15
Do + Ka type 18

Do + Ka type 15-ST
Do + Ka type 18-ST

Technical data

Cable type 15 and 15-ST

Features: highly flexible, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F

Conductor resistance:	92 Ω/km
Insulation resistance:	20 MΩ x km
Operating voltage:	250 V
Withstand voltage:	500 V
Max. load:	2 A
Temperature range:	-10 °C ... +80 °C/+14 °F ... +176 °F (processing and operation) -30 °C ... +80 °C/-22 °F ... +176 °F (transport and storage)

Cable type 18 and 18-ST

Features: non-halogenous, highly flexible, cold- and heat resistant, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F

Conductor resistance:	80 Ω/km
Insulation resistance:	1200 MΩ x km
Operating voltage:	300 V
Withstand voltage:	1500 V
Max. load:	3 A
Temperature range:	-50 °C ... +180 °C/-58 °F ... +356 °F

Description

Cable between Flow Meter FC01-xxx and calorimetric monitoring head type CSF.

- Connection to monitoring head by means of 8-pole round connector
- Connection to FC01-xxx by means of 10-pole clamping connector (XSK)

Ordering information

Type between calorimetric monitoring heads **CSF** and **FC01-CC, FC01-FH-CC**

Do + Ka type 15 PVC insulated cable, type LiFYCY 4x2x0.2 mm² (AWG 24) 8-pole round connector + 10-pole clamping connector

Do + Ka type 18 silicone insulated cable, type 4x2x0.2 mm² (AWG 24) 8-pole round connector + 10-pole clamping connector

Available cable lengths

...m	2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max 656 ft)
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Do + Ka type 15 - 2 m ordering example

Type between calorimetric monitoring heads **CSF** and **FC01-ST-CC**

Do + Ka type 15-ST PVC insulated cable, type LiFYCY 4x2x0.2 mm² (AWG 24) 8-pole round connector + 10-pole clamping connector

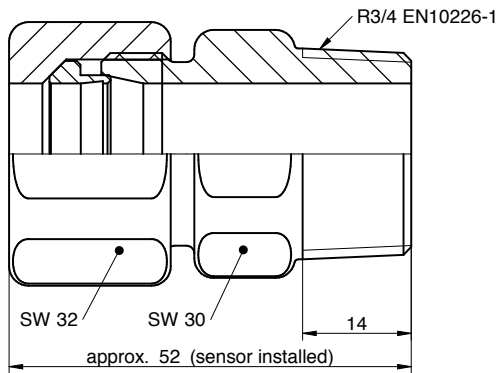
Do + Ka type 18-ST silicone insulated cable, type 4x2x0.2 mm² (AWG 24) 8-pole round connector + 10-pole clamping connector

Available cable lengths

...m	2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max 656 ft)
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Do + Ka type 15-ST -2 m ordering example

Compression fitting



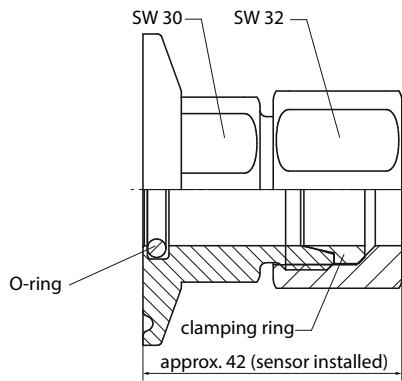
Description and ordering information

Compression fitting for push-in sensors with R3/4 thread

Compression fitting for push-in sensors

EEF	Compression fitting		
	Process connection		
	04	Thread R3/4	
		Material double nipple and cap nut	
		M1	Stainless steel 1.4571
		M2	Hastelloy C4 2.4610
		Material clamping ring	
		CR1	Stainless steel 1.4571 PN 25 bar abs.
		CR2	PTFE PN 5 bar abs.
		CR3	Hastelloy C4 2.4610 PN 25 bar abs.
EEF -	04 -	M1 -	CR1 ordering example

Hygiene flange

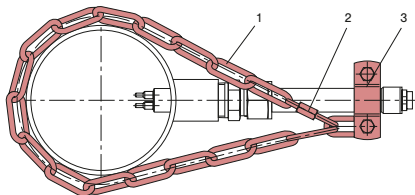


Description and ordering information

Hygiene flange for push-in sensors with front-flush o-ring with FDA approval

HEF	Hygiene flange		
	Process connection		
	TF1	Triclamp DIN 32676	
		Material flange and cap nut	
		M1	Stainless steel 1.4571
		M2	Hastelloy C4 2.4610
		O-ring	
		R1	VMQ (Silicone) blue FDA (standard)
		R2	VMQ (Silicone) white FDA
		Material clamping ring	
		CR1	Stainless steel 1.4571 PN 25 bar abs.
		CR2	PTFE PN 5 bar abs.
		CR3	Hastelloy C4 2.4610 PN 25 bar abs.
HEF -	TF1 -	M1 -	R1 - CR1 ordering example

Locking set



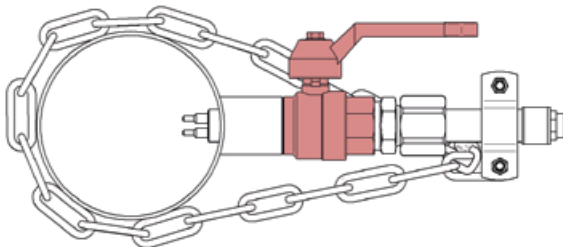
Description and ordering information

Locking set for push-in sensors.

- 1 Chain 4 x 32 DIN 5685 (approx. 1 m)
- 2 Catch for chain NG 5
- 3 Clip with screw and nuts DN15 to DIN 11850

Ordering no.: 0Z122Z000204

Ball valve for installation under pressure



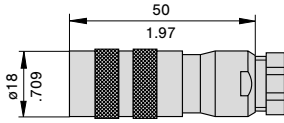
Description and ordering information

Material (body, ball): Brass nickel plated	Material (body, ball): Stainless steel 1.4408, 1.4401
Material (ball seal): PTFE	Material (ball seal): PTFE
Length: 65 mm	Length: 78 mm
Outside thread: G3/4", L = 13 mm	Outside thread: R3/4", L = 17 mm
Inside thread: G3/4", L = 15 mm	Inside thread: Rp3/4", L = 13 mm
Fluid temperature: -20...120 °C	Fluid temperature: -30...180 °C
Ambient temperature: 0...80 °C	Ambient temperature: 0...80 °C
Pressure: PN 25 bar (up to 80 °C)	Pressure: PN 64 bar (up to 80 °C)
Ordering number: BV-02M3-PI	Ordering number: BV-02M15-PI

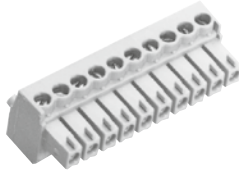
Further accessories

A

8-pole round connector
(without cable, for individual wiring by customer)
OZ112Z003124



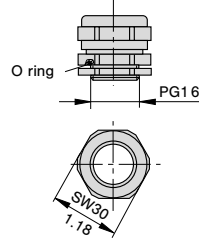
10-pole clamping connector for cable types 15 and 18
(without cable, for individual wiring by customer)
OZ112Z000167



10-pole clamping connector for cable types 15-ST and 18-ST
(without cable, for individual wiring by customer)
OZ112Z000205

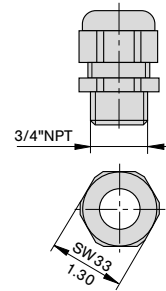


PG16 nickel-plated brass
(standard)
OZ122Z000128



pressure resistant up to 2 bar/29.0 psi

NPT3/4" moulded, black
OZ122Z000131



pressure resistant up to 2 bar/29.0 psi

This is a metric design and millimeter dimensions take precedence ($\frac{\text{mm}}{\text{inch}}$)

Caution: Standard warranty cover will be invalidated if the correct FlowVision monitoring head/control unit connecting cable is not used.

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B

Flange-mounted calorimetric monitoring head



CSF-03
Tri-Clamp

Technical data

Type of head	flange-mounted monitoring head
Process connection	DIN 32676 Tri-Clamp® DN 1
Shank dia.	18 mm/.709 in.
Length of shank	15 mm/.591 in.
Length of sensor	14 mm/.551 in.
Suitable for	all media, depending on material resistance
Temperature range *) (of medium)	-40 ... +130 °C/-40 ... +266 °F
Temperature drift of monitoring head	± < 0.05 %/°K/measuring range (T = +20 ... +80 °C/+68 ... +176 °F)
Measuring range	water: 0 ... 3 m/s / 0 ... 9.84 fps
Pressure resistance ⁽¹⁾	40 bar/580 psi
Degree of protection	connector ⁽²⁾ IP67
Material	stainless steel 1.4571/AISI 316 Ti
Cable to electronic control unit	LifYCY 4x2x0.2 mm²(AWG 24)

⁽¹⁾ Admissible operating pressure DIN 2401, measured at max. temperature

(= max. medium temperature)

⁽²⁾ with mating connector

³⁾ max. +85 °C/+185 °F in the connector area

Description

Flange-mounted calorimetric monitoring head for Flow Meter FC01-CC. Recommended for food-processing (Tri-Clamp®).

Features

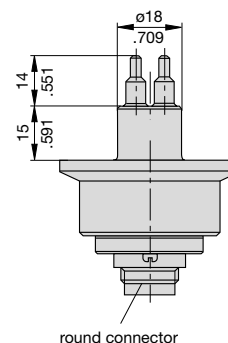
- Medium temperature range: -40...+130 °C/-40 ... +266 °F
- Material: stainless steel 1.4571/AISI 316 Ti

Ordering information

Type	flange-mounted monitoring head with calorimetric sensors
CSF	flange-mounted monitoring head with calorimetric sensors
Monitoring head design	
03	monitoring head with flange DIN 32676
Medium	
W	water
S	other media
Material of areas exposed to medium	
M1	stainless steel 1.4571/AISI 316 Ti
Process connection	
91	flange DIN 32676-Tri-Clamp® DN1
Length of shank/thread	
L90	15 mm (standard)
Electrical connection	
E10	round connector with tinned contacts (plug and cable to separate order)
Certification	
T0	without certificate (standard) *)
Specification of medium	
xxx	
CSF - 03 W M1 91 L90 E10 T0 - ...	ordering example

*) for detailed information please see section 0.

Dimensions



This is a metric design and millimeter dimensions take precedence ($\frac{\text{mm}}{\text{inch}}$)

Description

Cable between Flow Meter FC01-xxx and calorimetric monitoring head type CSF-03.

- Connection to monitoring head by means of 8-pole round connector
- Connection to FC01-xxx by means of 10-pole clamping connector (XSK)

Cable types 15/18 with connectors

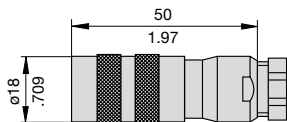


Do + Ka type 15
Do + Ka type 18

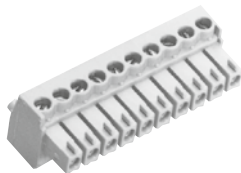
Do + Ka type 15-ST
Do + Ka type 18-ST

Accessories

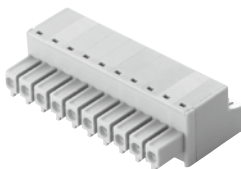
8-pole round connector
(without cable, for individual wiring by customer)
OZ112Z003124



10-pole clamping connector for cable types 15 and 18
(without cable, for individual wiring by customer)
OZ112Z000167



10-pole clamping connector for cable types 15-ST and 18-ST
(without cable, for individual wiring by customer)
OZ112Z000205



This is a metric design and millimeter dimensions take precedence ($\frac{\text{mm}}{\text{inch}}$)

Caution: Standard warranty cover will be invalidated if the correct FlowVision monitoring head/control unit connecting cable is not used.

Technical data

Cable type 15 and 15-ST

Features: highly flexible, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F

Conductor resistance: 92 Ω/km

Insulation resistance: 20 MΩ x km

Operating voltage: 250 V

Withstand voltage: 500 V

Max. load: 2 A

Temperature range: -10 °C ... +80 °C/+14 °F ... +176 °F (processing and operation)
-30 °C ... +80 °C/-22 °F ... +176 °F (transport and storage)

Cable type 18 and 18-ST

Features: non-halogenous, highly flexible, cold- and heat resistant, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F

Conductor resistance: 80 Ω/km

Insulation resistance: 1200 MΩ x km

Operating voltage: 300 V

Withstand voltage: 1500 V

Max. load: 3 A

Temperature range: -50 °C ... +180 °C/-58 °F ... +356 °F

Ordering information

Typ between calorimetric monitoring heads **CSF** and **FC01-CC, FC01-FH-CC**

Do + Ka type 15 PVC insulated cable, type LiFYCY 4x2x0.2 mm² (AWG 24)
8-pole round connector + 10-pole clamping connector

Do + Ka type 18 silicone insulated cable, type 4x2x0.2 mm² (AWG 24)
8-pole round connector + 10-pole clamping connector

Available cable lengths

...m 2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max 656 ft)

Do + Ka type 15 - 2 m ordering example

Typ between calorimetric monitoring heads **CSF** and **FC01-ST-CC**

Do + Ka type 15-ST PVC insulated cable, type LiFYCY 4x2x0.2 mm² (AWG 24)
8-pole round connector + 10-pole clamping connector

Do + Ka type 18-ST silicone insulated cable, type 4x2x0.2 mm² (AWG 24)
8-pole round connector + 10-pole clamping connector

Available cable lengths

...m 2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max 656 ft)

Do + Ka type 15-ST -2 m ordering example

Monitoring head CSP



CSP-01

Technical data

Type of head	plug-in type for sensor adapter TP
Shank diameter	18 mm/.709 in.
Length of shank	18.2 mm/.717 in.
Length of sensor	14 mm/.551 in.
Suitable for	water, oil, air, compressed air, nitrogen, oxygen and other media (please enquire)
Temperature range *) (of medium)	-40 ... +130 °C/-40 ... +266 °F
Temperature drift of monitoring head	±< 0.05 %/°K/measuring range (T = +20 ... +80°C/+68 ... +176 °F)
Measuring ranges	air: 0 ... 20 m/s / 0 ... 65.6 fps water: 0 ... 3 m/s / 0 ... 9.84 fps oil: 0 ... 5 m/s / 0 ... 16.4 fps
Pressure resistance ⁽¹⁾	100 bar/1450 psi
Degree of protection	connector ⁽²⁾ IP67
Material housing	stainless steel 1.4571
O-ring	Viton
Cable to electronic control unit	LifYCY 4x2x0,2 mm ² (AWG 24)

⁽¹⁾ Admissible operating pressure DIN 2401, measured at max. temperature (= max. medium temperature)

⁽²⁾ with mating connector

³⁾ max. +85 °C/+185 °F in the connector area

Description

Calorimetric plug-in type monitoring head for sensor adapter TP and flow meter FC01-CC, suitable for use in technical plants for monitoring flow of various liquids and gases.

Features

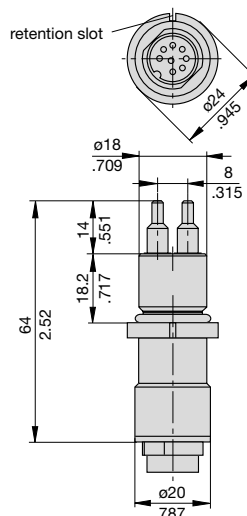
- Ease of installation
- Small physical size
- Medium temperature range -40 ... +130 °C/-40 ... +266 °F
- Material: stainless steel 1.4571/AISI 316 Ti
- Sealing: Viton O ring

Ordering information

Type	CSP	plug-in type monitoring head with calorimetric sensors
Process connection	01	plug-in type
Medium	S	all media, e.g. water (please enquire)
Material of areas exposed to medium	M1	stainless steel 1.4571/AISI 316 Ti (standard)
Length of shank/thread	L05	18.2 mm (standard)
Electrical connection	E10	round connector with tinned contacts (plug and cable to separate order)
Certification	T0	without certificate (standard)*)
Specification of medium	xxx	
Ordering example	CSP - 01 S M1 L05 E10 T0 - ...	

*) for detailed information please see section 0.

Dimensions



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Description

A Cable between Flow Meter FC01-xxx and calorimetric monitoring head type CSP.

- Connection to monitoring head by means of 8-pole round connector
- Connection to FC01-xxx by means of 10-pole clamping connector (XSK)

Cable types 15/18 with connectors

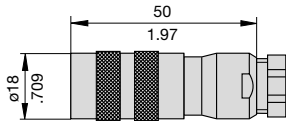


Do + Ka type 15
Do + Ka type 18

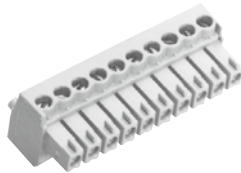
Do + Ka type 15-ST
Do + Ka type 18-ST

Accessories

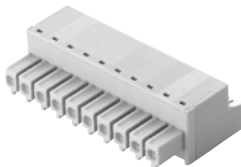
8-pole round connector
(without cable, for individual wiring by customer)
0Z112Z003124



10-pole clamping connector for cable types 15 and 18
(without cable, for individual wiring by customer)
0Z112Z000167



10-pole clamping connector for cable types 15-ST and 18-ST
(without cable, for individual wiring by customer)
0Z112Z000205



Technical data

Cable type 15 and 15-ST

Features: highly flexible, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F

Conductor resistance: 92 Ω/km

Insulation resistance: 20 MΩ x km

Operating voltage: 250 V

Withstand voltage: 500 V

Max. load: 2 A

Temperature range: -10 °C ... +80 °C/+14 °F ... +176 °F
(processing and operation)
-30 °C ... +80 °C/-22 °F ... +176 °F
(transport and storage)

Cable type 18 and 18-ST

Features: non-halogenous, highly flexible, cold- and heat resistant, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F

Conductor resistance: 80 Ω/km

Insulation resistance: 1200 MΩ x km

Operating voltage: 300 V

Withstand voltage: 1500 V

Max. load: 3 A

Temperature range: -50 °C ... +180 °C/-58 °F ... +356 °F

Ordering information

Typ between calorimetric monitoring heads **CSP** and **FC01-CC, FC01-FH-CC**

Do + Ka type 15 PVC insulated cable, type LifYCY 4x2x0.2 mm² (AWG 24)

8-pole round connector + 10-pole clamping connector

Do + Ka type 18 silicone insulated cable, type 4x2x0.2 mm² (AWG 24)

8-pole round connector + 10-pole clamping connector

Available cable lengths

...m 2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max 656 ft)

Do + Ka type 15 - 2 m ordering example

Typ between calorimetric monitoring heads **CSP** and **FC01-ST-CC**

Do + Ka type 15-ST PVC insulated cable, type LifYCY 4x2x0.2 mm² (AWG 24)

8-pole round connector + 10-pole clamping connector

Do + Ka type 18-ST silicone insulated cable, type 4x2x0.2 mm² (AWG 24)

8-pole round connector + 10-pole clamping connector

Available cable lengths

...m 2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max 656 ft)

Do + Ka type 15-ST -2 m ordering example

This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Caution: Standard warranty cover will be invalidated if the correct FlowVision monitoring head/control unit connecting cable is not used.

Description

Sensor adapters TP and BV facilitate correct positioning and exchange of CSP monitoring heads, FC03 or FS10 in pipes with process connection DN 15...DN 50.

Ball valve BV enables pressure-free installation and removal of CSP monitoring heads, Flow Meter FC03 and Flow Monitor FS10 simply by closing the input and output pipe. The measuring points are suited to temporary measurements; after completion of the measuring cycle they can be closed by means of blanking plugs.

Sensor adapter TP-... / Ball valve BV-...



TP-...

BV-...

Features

- Correct positioning of the sensor
- Ease of sensor replacement
- Measuring point can be closed if not used
- Sensor adapter available as screw-in or welding type
- Ball valve also serves as a shutoff valve (both input and output)
- Carbon dioxide (CO₂) and argon (Ar): only approved for TP-01 ... 04

Ordering information

Type	
BV	ball valve with internal thread
Process connection/Nominal size	
03	DN 25 G1 internal thread length: 88 mm/3.46 in.
04	DN 32 G1 1/4 internal thread length: 100 mm/3.94 in.
05	DN 40 G1 1/2 internal thread length: 110 mm/4.33 in.
06	DN 50 G2 internal thread length: 131 mm/5.16 in.
Material of the area exposed to medium	
M3	nickel plated brass, Delrin seal
BV - 03	M3 ordering example

Ordering information

Type	
TP	Sensor adapter with internal thread
Process connection/Nominal size	
01	DN 15 G1/2 internal thread length: 50 mm/1.97 in.
02	DN 20 G3/4 internal thread length: 64 mm/2.52 in.
03	DN 25 G1 internal thread length: 78 mm/3.07 in.
04	DN 32 G1 1/4 internal thread length: 94 mm/3.70 in.
05	DN 40 G1 1/2 internal thread length: 110 mm/4.33 in.
06	DN 50 G2 internal thread length: 138 mm/5.43 in.
Material of the area exposed to medium	
M1	stainless steel 1.4571/AISI 316Ti PN 315 bar/4570 psi
M3	brass (not TP-03..) PN 25 bar/363 psi
M5	red brass (only TP-03..) PN 16 bar/232 psi
TP - 01	M3 ordering example

Accessories

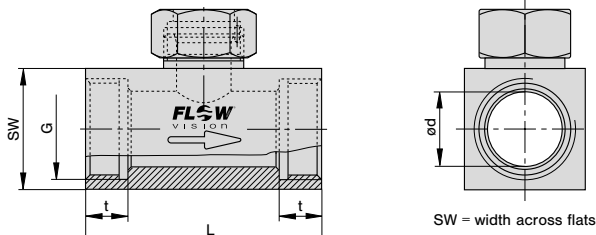
Description	Ref. No.
Blanking plug, brass, with O ring	0Z121Z000186
Union nut, brass	Y 306 901 01
Blanking plug, stainless steel 1.4571/AISI 316 Ti, with viton O ring	0Z121Z000187
Union nut, stainless steel	Y 306 901 03

Ordering information

Type	
TP	Sensor adapter with welding nipples
Process connection/Nominal size	
01	DN 15 dia.d: 16 mm/.630 in. length: 80 mm/3.15 in.
02	DN 20 dia.d: 20 mm/.787 in. length: 70 mm/2.76 in.
03	DN 25 dia.d: 25 mm/.984 in. length: 80 mm/3.15 in.
04	DN 32 dia.d: 32 mm/1.26 in. length: 100 mm/3.94 in.
05	DN 40 dia.d: 40 mm/1.57 in. length: 110 mm/4.33 in.
06	DN 50 dia.d: 50 mm/1.97 in. length: 140 mm/5.51 in.
Material of the area exposed to medium	
M1	stainless steel 1.4571/AISI 316Ti
Process connection	
SA	welded connection
TP - 01	M1 - SA ordering example

Dimensions

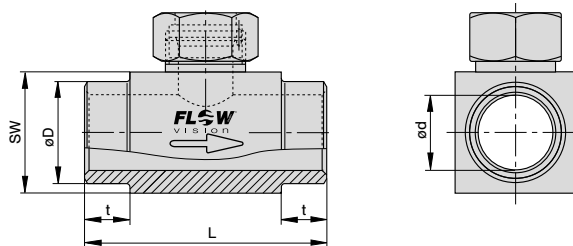
TP... Sensor adapter with internal thread



Material stainless steel (-M1): PN 315 bar / 4570 psi
 Material brass (-M3): PN 25 bar / 363 psi
 Material red brass (-M5): PN 16 bar / 232 psi

Type	DN		dia. d		G	t		L		SW	
	mm	in.	mm	in.	in.	mm	in.	mm	in.	mm	in.
TP-01 ...	15	.591	16	.630	1/2"	11	.433	50	1.97	27	1.06
TP-02 ...	20	.787	20	.787	3/4"	12	.472	64	2.52	32	1.26
TP-03 ...	25	.984	25	.984	1"	14	.551	78	3.07	40	1.57
TP-04 ...	32	1.26	32	1.26	1 1/4"	15	.591	94	3.70	50	1.97
TP-05 ...	40	1.57	40	1.57	1 1/2"	15	.591	110	4.33	55	2.16
TP-06 ...	50	1.97	50	1.97	2"	19	.748	138	5.43	70	2.76

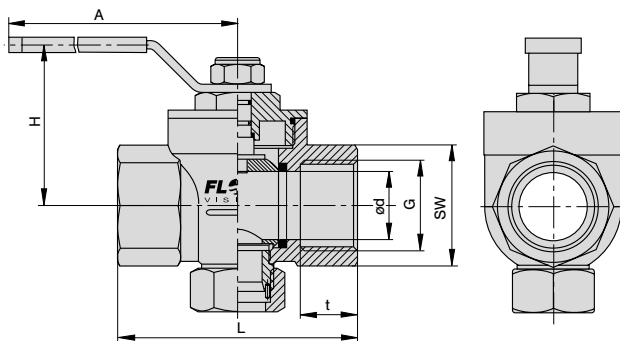
TP...M1-SA Sensor adapter with welding nipples



PN 315 bar / 4570 psi

Type	DN		dia. d		dia. D		t		L		SW	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
TP-01M1-S A	15	.591	16	.630	21.3	.839	15	.591	80	3.15	27	1.06
TP-02M1-S A	20	.787	20	.787	26.9	1.06	15	.591	70	2.76	32	1.26
TP-03M1-S A	25	.984	25	.984	33.7	1.33	15	.591	80	3.15	40	1.57
TP-04M1-S A	32	1.26	32	1.26	42.4	1.67	15	.591	100	3.94	50	1.97
TP-05M1-S A	40	1.57	40	1.57	48.3	1.90	15	.591	110	4.33	55	2.16
TP-06M1-S A	50	1.97	50	1.97	60.3	2.37	15	.591	140	5.51	70	2.76

BV...M3 Ball valve with internal thread



PN 25 bar / 363 psi

Type	DN		dia. d		G	t		L		SW		H		A	
	mm	in.	mm	in.	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
BV-03M3	25	.984	25	.984	1"	21	.827	88	3.46	41	1.61	59	2.32	115	4.53
BV-04M3	32	1.26	32	1.26	1 1/4"	24	.945	100	3.94	50	1.97	65	2.56	115	4.53
BV-05M3	40	1.57	40	1.57	1 1/2"	24	.945	110	4.33	54	2.13	77	3.03	150	5.91
BV-06M3	50	1.97	50	1.97	2"	28	1.10	131	5.16	70	2.76	85	3.35	150	5.91

This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Monitoring head with turbine-type sensor



TST-..HM2

Technical data

Type of head	thread-mounted monitoring head
Nominal thread dia.	G1/2A
Length of shank	36 mm/1.42 in.
Length of sensor	19 mm/0.75 in.
Suitable for	water, oil, air
Temperature range	
Medium:	0 ... +250 °C/+32 ... +482 °F air *)
Monitoring head:	0 ... +250 °C/+32 ... +482 °F
Preamplifier:	-10 ... +50 °C/+14 ... +122 °F
Measuring range	
air:	1 ... 20 m/s / 3.28 ... 65.6 fps
water:	0.1 ... 5 m/s / 0.328 ... 16.4 fps
Pressure resistance ⁽¹⁾	10 bar/145 psi (please enquire for higher pressure)
Degree of protection	
Monitoring head/cable:	IP68
Monitoring head/cable connector:	IP67
Preamplifier:	IP65
Material	
fitting:	stainless steel 1.4571/AISI 316 Ti
housing and turbine:	chrome nickel/molybdenum steel VUA
bearings	
jewel bearing:	sapphire
pivot bearing:	nivadur
Cable to electronic control unit	LifYCY 3 x 0.35 mm ² (AWG 24)

⁽¹⁾ Admissible operating pressure to DIN 2401, measured at max. temperature (= max. medium temperature)

*) Please observe that ice build up on the sensor at water temperatures ≤ 0 °C/+32 °F will destroy the sensor.

Description

Thread mounted monitoring head with turbine-type sensor for Flow Meter FC01-CC. Recommended for high medium temperature applications. The unit consists of the turbine HM2 and a pre-amplifier which is connected with the HM2 by means of a 2 m/6.56 ft cable.

Features

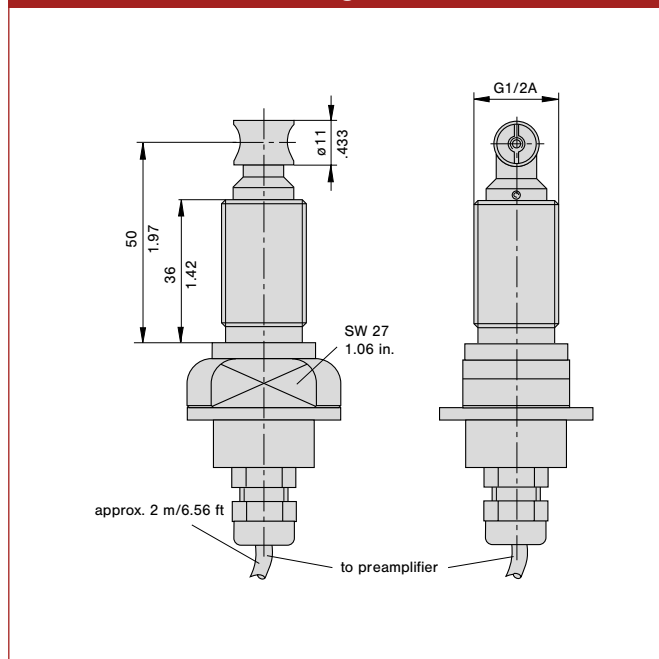
- Medium temperature 0 ... +250 °C/+32 ... +482 °F

Ordering information

Type	TST	thread-mounted monitoring head with turbine-type sensor
Process connection	01	G1/2A thread
Application range - Material of the area exposed to medium	HM2	+250 °C/+482 °F, air 20 m/s/65.6 fps, water 5 m/s/16.4 fps - stainless steel, jewel bearing, hardened tips, incl. 2 m/6.56 ft connecting cable to the pre-amplifier
Length of shank/thread	L10	36 mm/1.42 in. (standard)
Accuracy	0	±1 % of final value, ±3 % of measured value (standard)
Electrical connection to FC01	E10	round connector with tinned contacts (plug and cable to separate order)

TST - 01 HM2 L10 0 E10 ordering example

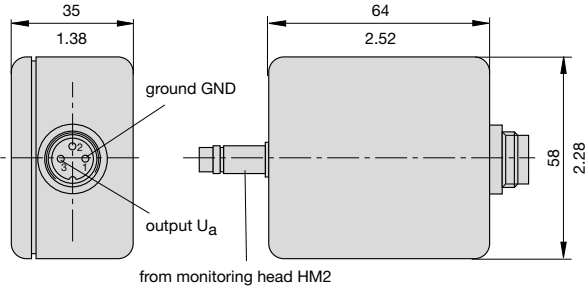
Dimensions of monitoring head TST- ... HM2



This is a metric design and millimeter dimensions take precedence (mm/inch)

A

Preamplifier for monitoring head TST- ... HM2



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Description

Electronic flow meters with mechanical sensing rely upon a turbine mounted in the pipeline. The rotational speed of the turbine in the flowstream is proportional to the flow rate. Turbine rotation is remotely measured by an inductive proximity switch and transmitted as a frequency signal to the electronic control unit.

Mechanical sensing by means of turbine-type sensors is recommended:

- where temperatures may be above the temperature range of the calorimetric heads (> +130 °C/+266 °F),
- where the media may change,
- where the properties (thermal conductivity) of the medium may vary significantly,
- for media with air bubbles,
- where an immediate response to flow rate changes is required.

7

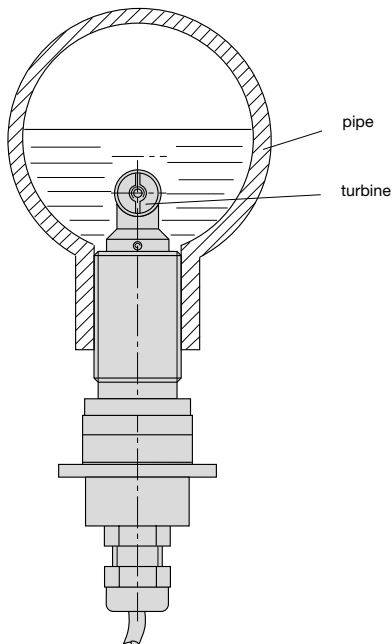
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Mind the viscosity when using with oil.

Monitoring head with turbine-type sensor



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B

Advantages and limitations of mechanical flow rate sensing

Advantages:

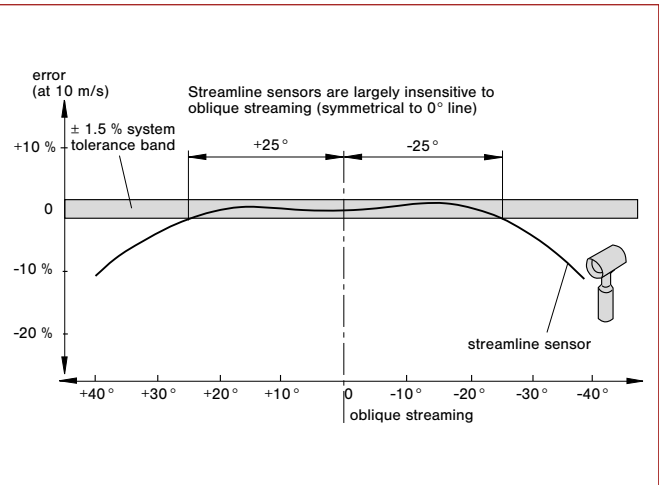
- wide medium temperature range: 0 ... +250 °C/+32 ... +482 °F
- independent of temperature variations
- short reaction time

Limitations:

- not suitable for media with solid particles
- can be overloaded only to a limited extent
- measuring signals depend on the viscosity of the medium
- shock-sensitive

Installation of monitoring head

Flow monitoring is often necessary in places that are not accessible and where practical difficulties may prevent the correct alignment of the sensors with respect to flow direction. The special aerodynamic shape of the FlowVision sensors reduces this danger. The following diagram clearly shows that the “streamlined” FlowVision sensors have a very good alignment angle.



Cable type 16 with connectors



Do + Ka type 16

Technical data

Cable type 16

Features: highly flexible, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F

Conductor resistance: < 92 Ω/km

Insulation resistance: > 200 MΩ/km

Operating voltage: max. 100 V AC

Withstand voltage: 800 V ~

Max. load: 0.5 A

Temperature range: -10 ... +80 °C/+14 ... +176 °F (processing and operation)
-30 °C...+80 °C/-22 ... +176 °F (transport and storage)

Ordering information

Type	between monitoring head TST and FC01-CC
Do + Ka type 16	PVC insulated cable, type LiFYCY 3x0.35 mm ² (AWG 22) 3-pole round connector + 4-pole clamping connector
	Available cable lengths
...m	2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max. 656 ft)

Do + Ka type 16 - 2 m/6.56 ft ordering example

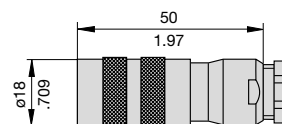
Description

Cable between turbine-type monitoring head TST and Flow Meter FC01-CC.

- Connection to monitoring head by means of 3-pole round connector
- Connection to FC01-CC by means of 4-pole clamping connector (XSK)

Accessories

3-pole round connector
(without cable, for individual wiring by customer)
OZ112Z000138



4-pole clamping connector
(without cable, for individual wiring by customer)
Y 306 245 03



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Caution: Standard warranty cover will be invalidated if the correct FlowVision monitoring head/control unit connecting cable is not used.

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Description

Thread-mounted monitoring head with turbine-type sensor for Flow Meter FC01-CC.

Features

- Medium temperature range:
TST...WM1 (water): +5 ... +80 °C/+41 ... +176 °F
TST...AM1 (air): -30...+140 °C/-22 ... +284 °F

Ordering information

Type	TST	thread-mounted monitoring head with turbine-type sensor
Process connection	01	G1/2A thread
Application range - Material of the area exposed to medium	AM1	+140 °C/+284 °F, air 20 m/s / 65.6 fps; PSU, beryllium support, hardened tips
	WM1	+80 °C/+176 °F, water 5 m/s / 16.4 fps; PSU, beryllium support, hardened tips
Length of shank/thread	L10	36 mm/1.42 in. (standard)
Accuracy	0	±1 % of final value, ±3 % of measured value (standard)
Electrical connection	E10	round connector with tinned contacts (plug and cable to separate order)
Ordering example	TST - 01 AM1 L10 0 E10	

Monitoring head with turbine-type sensors



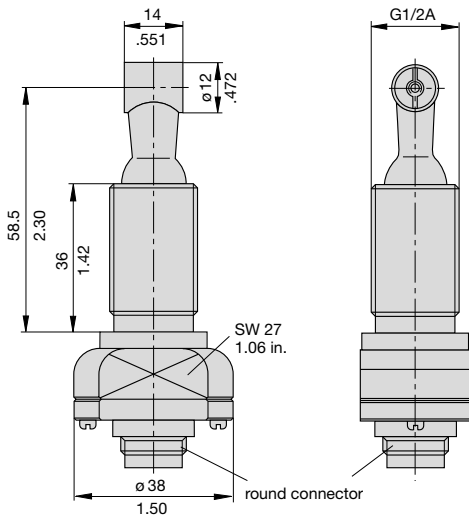
TST...-AM1/WM1

Technical data

Type of head	thread-mounted	
	TST-AM1	TST-WM1
Length of shank	36 mm/1.42 in.	
Length of sensor	28.5 mm/1.12 in.	
Suitable for	air	water
Temperature range *) (of medium)	-30 ... +140 °C -22 ... +284 °F	+5 ... +80 °C +41 ... +176 °F
Measuring range	air: 1 ... 20 m/s / 3.28 ... 65.6 fps water: 0,1 ... 5 m/s / 0.328 ... 16.4 fps	
Pressure resistance ⁽¹⁾	10 bar/145 psi	
Degree of protection (connector) ⁽²⁾	IP67	
Material	fitting: stainless steel 1.4571/AISI 316 turbine housing PSU: TK-PSU, polysulfone, udel turbine: aluminium bearings jewel bearing: berivac (bronze-beryllium-alloy) pivot bearing: nivadur	
Cable to electronic unit	LifYCY 3 x 0.35 mm ² (AWG 24)	

⁽¹⁾ Admissible operating pressure DIN 2401, measured at max. temperature (= max. medium temperature)
⁽²⁾ with mating connector
*) max. +85 °C/+185 °F in the connector area

Dimensions of monitoring heads TST...-AM1/WM1



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Description

Electronic flow meters with mechanical sensing rely upon a turbine mounted in the pipeline. The rotational speed of the turbine in the flow stream is proportional to the flow rate. Turbine rotation is remotely measured by an inductive proximity switch and transmitted as a frequency signal to the electronic control unit.

Mechanical sensing by means of turbine-type sensors is recommended:

- where temperatures may be above the temperature range of the calorimetric heads (> +130 °C/+266 °F),
- where the media may change,
- where the properties (thermal conductivity) of the medium may vary significantly,
- for media with air bubbles,
- where an immediate response to flow rate changes is required.

Advantages and limitations of mechanical flow rate sensing

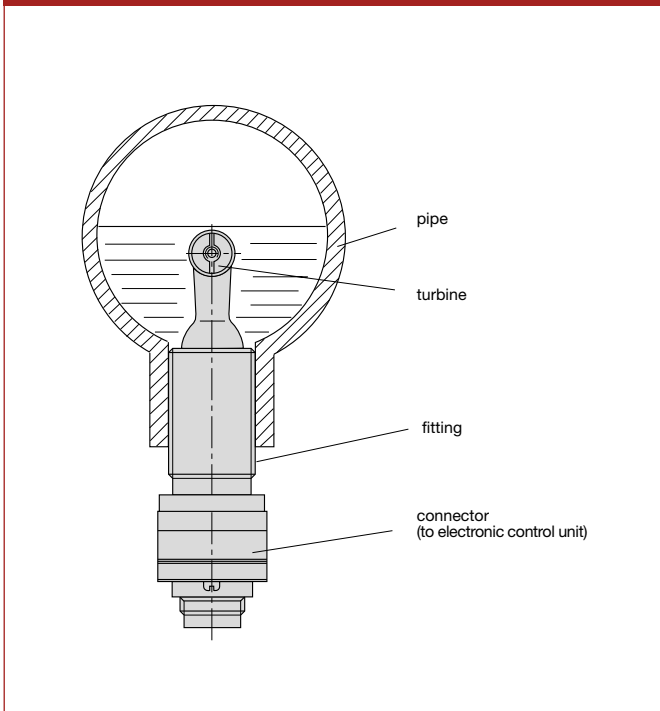
Advantages:

- wide medium temperature range:
 water: +5 ... +80 °C/+41 ... +176 °F
 air: -30 ... +140 °C/-22 ... +284 °F
- independent of temperature variations
- short reaction time

Limitations:

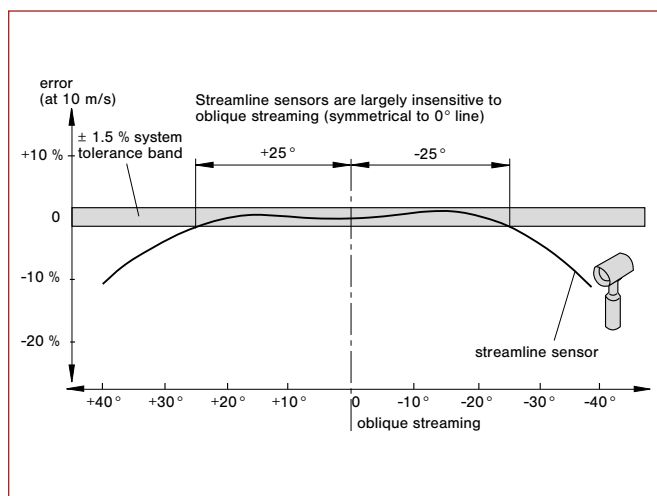
- not suitable for media with solid particles
- can be overloaded only to a limited extent
- measuring signals depend on the viscosity of the medium
- shock-sensitive

Monitoring head with turbine-type sensor



Installation of monitoring head

Flow monitoring is often necessary in places that are not accessible and where practical difficulties may prevent the correct alignment of the sensors with respect to flow direction. The special aerodynamic shape of the FlowVision sensors reduces this danger. The following diagram clearly shows that the “streamlined” FlowVision sensors have a very good alignment angle.



Cable type 16 with connectors



Do + Ka type 16

Technical data

Cable type 16

Features:	highly flexible, paired, fully shielded, electrical and thermal properties at +20 °C/+68 °F
Conductor resistance:	< 92 Ω/km
Insulation resistance:	> 200 MΩ/km
Operating voltage:	max. 100 V AC
Withstand voltage:	800 V ~
Max. load:	0.5 A
Temperature range:	-10 ... +80 °C/+14 ... +176 °F (processing and operation) -30 °C...+80 °C/-22 ... +176 °F (transport and storage)

Ordering information

Type	between monitoring head TST and FC01-CC
Do + Ka type 16	PVC insulated cable, type LifYCY 3x0.35 mm ² (AWG 22) 3-pole round connector + 4-pole clamping connector
	Available cable lengths
...m	2 m, 3 m, 5 m, 8 m, 10 m, 15 m, 20 m, 25 m, 30 m, 40 m, 50 m, 60 m, 70 m, 80 m, 90 m, 100 m, 110 m, 120 m, 130 m, 140 m, 150 m, 160 m, 170 m, 180 m, 190 m, 200 m (up to max. 656 ft)
Do + Ka type 16	- 2 m/6.56 ft ordering example

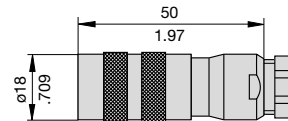
Description

Cable between turbine-type monitoring head TST and Flow Meter FC01-CC.

- Connection to monitoring head by means of 3-pole round connector
- Connection to FC01-CC by means of 4-pole clamping connector (XSK)

Accessories

3-pole round connector
(without cable, for individual wiring by customer)
OZ112Z000138



4-pole clamping connector
(without cable, for individual wiring by customer)
Y 306 245 03



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Caution: Standard warranty cover will be invalidated if the correct FlowVision monitoring head/control unit connecting cable is not used.