

## LAIPALLINEN TERMOELEMENTTI

TC10-F

TC10F-14369122

K Tyyppi -40-1200°C 250x12mm DN40 form 2F



- Mittaelementti tyypille K, J, E, N ja T
- Mitta-alue -40-1200°C
- Hitsattu putki laipalla
- Vaihdeettava mittaosa

### TUOTEKUVAUS

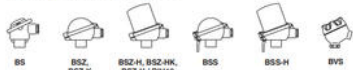
TC10-F-sarjan termoelementit on saatavilla standardien DIN EN ja ASME mukaisia laippoja. Nämä lämpötilamittapääät sopivat nestemäisille ja kaasumaisille väliaineille, joita käytetään kohtalaisella mekaanisella kuormalla. Mukana putkimateriaalista valmistettu TW40-mallinen suojatasku.

### TEKNISET TIEDOT

<b>Aineen kanssa kosketuksissa olevien osien materiaali</b>	Ruostumaton teräs 316Ti
<b>Asennussyvyys</b>	250 mm
<b>IP-luokka</b>	IP65
<b>Kaulan pituus</b>	0,065 m
<b>Kytinkotelon materiaali</b>	Inconel - 600
<b>Max. käyttölämpötila</b>	1200 °C
<b>Max. painealue</b>	16 bar
<b>Max. termostaatin käyttölämpötila</b>	80 °C
<b>Min. käyttölämpötila</b>	-40 °C
<b>Min. termostaatin käyttölämpötila</b>	-40 °C
<b>Pistokkeen halkaisija</b>	12 mm
<b>Rungon materiaali</b>	Alumiini
<b>Sisähalkaisija</b>	7 mm

### Connection head

■ European designs per EN 50446 / DIN 43735



Model	Material	Cable entry thread size	Ingress protection (IP)	Cap	Surface	Connection to neck tube
BS	Aluminum	M20 x 1.5 or 1/2 NPT	IP65, IP68	Flat cap with 2 screws	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSZ	Aluminum	M20 x 1.5 or 1/2 NPT	IP65, IP68	Spherical hinged cover with cylinder head screw	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSZ-H	Aluminum	M20 x 1.5 or 1/2 NPT	IP65, IP68	Raised hinged cover with cylinder head screw	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSZ-H (2x cable outlet)	Aluminum	2 x M20 x 1.5 or 1/2 NPT	IP65, IP68	Raised hinged cover with cylinder head screw	Blue, lacquered	M24 x 1.5
BSZ-H / DIN19	Aluminum	M20 x 1.5 or 1/2 NPT	IP65	Raised hinged cover with cylinder head screw	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSS	Aluminum	M20 x 1.5 or 1/2 NPT	IP65	Spherical hinged cover with clamping lever	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSS-H	Aluminum	M20 x 1.5 or 1/2 NPT	IP65	Raised hinged cover with clamping lever	Blue, lacquered	M24 x 1.5, 1/2 NPT
BVS	Stainless steel	M20 x 1.5	IP65	Precision-cast screw-on lid	Black, electropolished	M24 x 1.5
BSZ-K	Plastic	M20 x 1.5 or 1/2 NPT	IP65	Spherical hinged cover with cylinder head screw	Black	M24 x 1.5
BSZ-HK	Plastic	M20 x 1.5 or 1/2 NPT	IP65	Raised hinged cover with cylinder head screw	Black	M24 x 1.5

Model	Explosion protection				
	without	Ex (gas) Zone 5, 1, 2	Ex (dust) Zone 20, 21, 22	Ex nA (gas) Zone 2	Ex (dust) Zone 22
BS	x	x	x	x	x
BSZ	x	x	x	x	x
BSZ-H	x	x	x	x	x
BSZ-H (2x cable outlet)	x	x	x	x	x
BSZ-H / DIN19	x	x	x	x	x
BSS	x	x	x	x	x
BSS-H	x	x	x	x	x
BVS	x	x	x	x	x
BSZ-K	x	x	x	x	x
BSZ-HK	x	x	x	x	x

### Protection tube designs in accordance with DIN 43772

Protection tube	Material	Protection tube Ø	Suitable for measuring insert Ø	Connection to head
Straight, form 2F DIN 43772	Stainless steel 1.4571	9 x 1 mm	6 mm	M24 x 1.5 (standard threaded connection, male nut)
		11 x 2 mm	6 mm with sleeve Ø 8 mm / 8 mm	
Tapered, form 2F DIN 43772	Stainless steel 1.4571	14 x 2.5 mm		6 mm
		12 x 2.5 mm, tapered to 9 mm	6 mm	

Protection tube	Material	Protection tube Ø	Suitable for measuring insert Ø	Connection to head
Tapered, weld-on solid tip, in line with DIN 43772, non-standard design	Stainless steel 1.4571	9 x 1 mm, tapered to 6 mm 11 x 2 mm, tapered to 6 mm 12 x 2.5 mm, tapered to 6 mm	3 mm	M24 x 1.5 (standard threaded connection, male nut)

Protection tube	Material	Protection tube Ø	Suitable for measuring insert Ø	Connection to head
Straight, in line with form 2F DIN 43772, non-standard design	2.400 (MonelK05) / stainless steel	13.7 x 2.2 mm	6 mm with sleeve Ø 8 mm / 8 mm	M24 x 1.5 (standard threaded connection, male nut)
	2.4019 (Hastelloy C276) / stainless steel			
	2.4610 (Hastelloy C4) / stainless steel			
Tapered, in line with form 2F DIN 43772, non-standard design	3.7026 (Titan Grade 2) / stainless steel	12 x 2.5 mm, tapered to 9 mm	6 mm	M24 x 1.5 (standard threaded connection, male nut)

Protection tube	Material	Protection tube Ø	Suitable for measuring insert Ø	Connection to head
Straight, in line with form 2F DIN 43772, non-standard design	Titanium / stainless steel	11 x 2 mm, tantalum cover 12 x 0.4 mm	6 mm	M24 x 1.5 (standard threaded connection, male nut)
		15 x 3 mm, tantalum cover 16 x 0.4 mm	8 mm	
Tapered, in line with form 2F DIN 43772, non-standard design	Titanium / stainless steel	12 x 2.5 mm, tantalum cover 13 x 0.4 mm	6 mm	M24 x 1.5 (standard threaded connection, male nut)

### Cable entry



Cable entry	Cable entry thread size
Standard cable entry	M20 x 1.5 or 1/2 NPT
Plastic cable gland (cable Ø ≤ 10 mm)	M20 x 1.5 or 1/2 NPT
Nickel-plated brass cable gland (cable Ø ≤ 12 mm)	M20 x 1.5 or 1/2 NPT
Stainless steel cable gland (cable Ø ≤ 12 mm)	M20 x 1.5 or 1/2 NPT
Plain threaded	M20 x 1.5
2 x M20 x 1.5	M20 x 1.5
Junction box M12 x 1 (4-pin)	M20 x 1.5
Sealing plugs for transport	M20 x 1.5 or 1/2 NPT

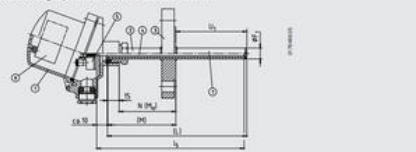
### Cable entry



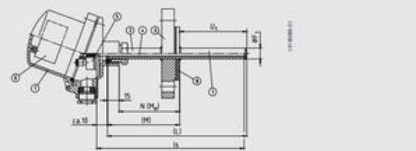
Cable entry	Cable entry thread size
Standard cable entry	M20 x 1.5 or 1/2 NPT
Plastic cable gland (cable Ø ≤ 10 mm)	M20 x 1.5 or 1/2 NPT
Nickel-plated brass cable gland (cable Ø ≤ 12 mm)	M20 x 1.5 or 1/2 NPT
Stainless steel cable gland (cable Ø ≤ 12 mm)	M20 x 1.5 or 1/2 NPT
Plain threaded	M20 x 1.5
2 x M20 x 1.5	M20 x 1.5
Junction box M12 x 1 (4-pin)	M20 x 1.5
Sealing plugs for transport	M20 x 1.5 or 1/2 NPT

Model	Explosion protection				
	without	Ex (gas) Zone 5, 1, 2	Ex (dust) Zone 20, 21, 22	Ex nA (gas) Zone 2	Ex (dust) Zone 22
BS	x	x	x	x	x
BSZ	x	x	x	x	x
BSZ-H	x	x	x	x	x
BSZ-H (2x cable outlet)	x	x	x	x	x
BSZ-H / DIN19	x	x	x	x	x
BSS	x	x	x	x	x
BSS-H	x	x	x	x	x
BVS	x	x	x	x	x
BSZ-K	x	x	x	x	x
BSZ-HK	x	x	x	x	x

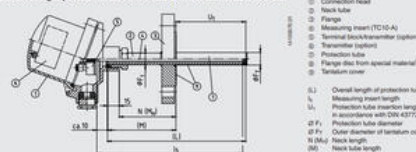
### Version: Flanged protection tube from standard material



### Version: Flange from standard material, protection tube and flange disc from special materials



### Version: Flanged protection tube from standard material with tantalum cover



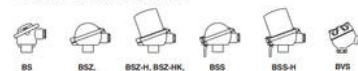
- Legend:
- ① Connection head
- ② Neck tube
- ③ Flange
- ④ Measuring insert (TC10-A)
- ⑤ Terminal block/transmitter (optional)
- ⑥ Terminal (optional)
- ⑦ Protection tube
- ⑧ Flange disc from special material
- ⑨ Tantalum cover
- ⑩ Overall length of protection tube
- ⑪ Measuring insert length
- ⑫ Protection tube insertion length in accordance with DIN 43772
- ⑬ Flange diameter
- ⑭ Flange diameter of tantalum cover
- N, M, Ø Neck length
- Ø Neck tube length

### Electrical connection



### Connection head

■ European designs per EN 50446 / DIN 43735



Model	Material	Cable entry thread size	Ingress protection (IP)	Cap	Surface	Connection to neck tube
BS	Aluminum	M20 x 1.5 or 1/2 NPT	IP65, IP68	Flat cap with 2 screws	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSZ	Aluminum	M20 x 1.5 or 1/2 NPT	IP65, IP68	Spherical hinged cover with cylinder head screw	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSZ-H	Aluminum	M20 x 1.5 or 1/2 NPT	IP65, IP68	Raised hinged cover with cylinder head screw	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSZ-H (2x cable outlet)	Aluminum	2 x M20 x 1.5 or 1/2 NPT	IP65, IP68	Raised hinged cover with cylinder head screw	Blue, lacquered	M24 x 1.5
BSZ-H / DIN19	Aluminum	M20 x 1.5 or 1/2 NPT	IP65	Raised hinged cover with cylinder head screw	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSS	Aluminum	M20 x 1.5 or 1/2 NPT	IP65	Spherical hinged cover with clamping lever	Blue, lacquered	M24 x 1.5, 1/2 NPT
BSS-H	Aluminum	M20 x 1.5 or 1/2 NPT	IP65	Raised hinged cover with clamping lever	Blue, lacquered	M24 x 1.5, 1/2 NPT
BVS	Stainless steel	M20 x 1.5	IP65	Precision-cast screw-on lid	Black, electropolished	M24 x 1.5
BSZ-K	Plastic	M20 x 1.5 or 1/2 NPT	IP65	Spherical hinged cover with cylinder head screw	Black	M24 x 1.5
BSZ-HK	Plastic	M20 x 1.5 or 1/2 NPT	IP65	Raised hinged cover with cylinder head screw	Black	M24 x 1.5

Model	Explosion protection				
	without	Ex (gas) Zone 5, 1, 2	Ex (dust) Zone 20, 21, 22	Ex nA (gas) Zone 2	Ex (dust) Zone 22
BS	x	x	x	x	x
BSZ	x	x	x	x	x
BSZ-H	x	x	x	x	x
BSZ-H (2x cable outlet)	x	x	x	x	x
BSZ-H / DIN19	x	x	x	x	x
BSS	x	x	x	x	x
BSS-H	x	x	x	x	x
BVS	x	x	x	x	x
BSZ-K	x	x	x	x	x
BSZ-HK	x	x	x	x	x

### Protection tube designs in accordance with DIN 43772

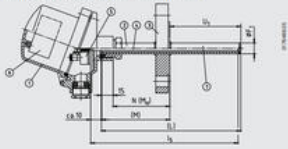
Protection tube	Material	Protection tube Ø	Suitable for measuring insert Ø	Connection to head
Straight, form 2F DIN 43772	Stainless steel 1.4571	9 x 1 mm	6 mm	M24 x 1.5 (standard threaded connection, male nut)
		11 x 2 mm	6 mm with sleeve Ø 8 mm / 8 mm	
Tapered, form 2F DIN 43772	Stainless steel 1.4571	14 x 2.5 mm		6 mm
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Protection tube	Material	Protection tube Ø	Suitable for measuring insert Ø	Connection to head
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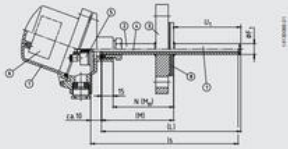
Protection tube	Material	Protection tube Ø	Suitable for measuring insert Ø	Connection to head	
Straight, in line with form 2F DIN 43772, non-standard design	2.400 (MonelK05) / stainless steel 2.4019 (Hastelloy C276) / stainless steel 2.4610 (Hastelloy C4) / stainless steel 3.7026 (Titan Grade 2) / stainless steel	13.7 x 2.2 mm	6 mm with sleeve Ø 8 mm / 8 mm	M24 x 1.5 (standard threaded connection, male nut)	
					15 x 3 mm, tantalum cover 16 x 0.4 mm
					12 x 2.5 mm, tantalum cover 13 x 0.4 mm

Protection tube	Material	Protection tube Ø	Suitable for measuring insert Ø	Connection to head
Straight, in line with form 2F DIN 43772, non-standard design	Titanium / stainless steel	11 x 2 mm, tantalum cover 12 x 0.4 mm	6 mm	M24 x 1.5 (standard threaded connection, male nut)
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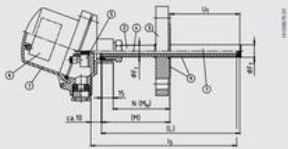
Version: Flanged protection tube from standard material



Version: Flange from standard material, protection tube end flange disc from special material



Version: Flanged protection tube from standard material with tantalum cover



- Legend:
- 1 Connection head
  - 2 Neck tube
  - 3 Flange
  - 4 Measuring insert (TC10-A)
  - 5 Terminal block/terminator (up/down)
  - 6 Transmitter (up/down)
  - 7 Protection tube
  - 8 Flange disc from special material
  - 9 Tantalum cover
- L1 Overall length of protection tube  
 L2 Measuring insert length  
 L3 Protection tube insertion length  
 as accordance with DIN 43772  
 D.F. Protection tube diameter  
 D.F. Outer diameter of tantalum cover  
 N Neck length  
 N1 Neck hole length