Bimetal dial thermometer // version for industrial applications

Type 621 // 631 // 681



Type 631

Highlights

- Suitable for outdoor use - closed system (IP65)
- Completely stainless steel - high-quality industrial design
- Without electrical auxiliary power
- Independent of ambient temperature influences

Technical data			
Type	**621**	**631**	**681**
Version	Rigid connection with neck tube		Universally adjustable
Nominal size	Ø 63. 80. 100. 125 or 160 mm		
Display ranges according to EN 13190	Temperature differences 60...600 K		
Accuracy according to EN 13190	Class 1		
Medium / Application area	Liquid and gaseous media		
Immersion tube connection	Central back	Bottom	Universally adjustable
Immersion tube length	Between 63...800 mm		
Immersion tube diameter	Ø 6 or 8 mm		
Process connection	Connection types: A, AK, B, Da, Dc, SN		
Nominal pressure	Max. 25 bar		
Measuring system	Bimetal coil		
Degree of protection according to EN 60529	IP65		
Medium temperature	See selected display range		
Ambient temperature	-20...60 °C (only indoors)		
Storage temperature	-40...60 °C		
Nominal service temperature (EN 13190)	23 °C ±2 °C		

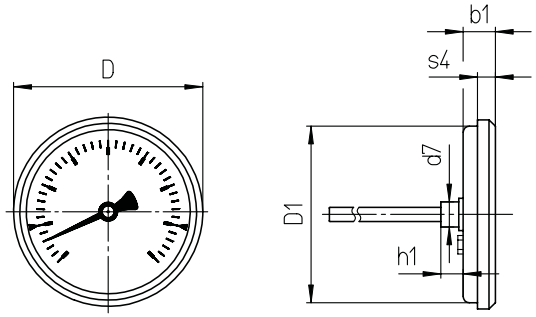
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Options

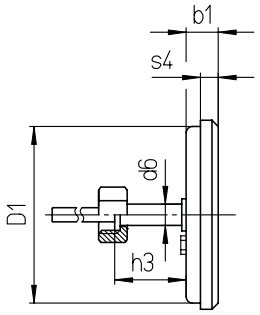
Options	
For Type	**On request**
621/ 631 / 681	Filled (silicone oil) Other connection types. Other display ranges and / or special scales, e.g. double scale °C / °F.
621	Immersion tube connection optional central back connection, without neck tube at connection type A, AK and B

Technical drawings // Dimensions

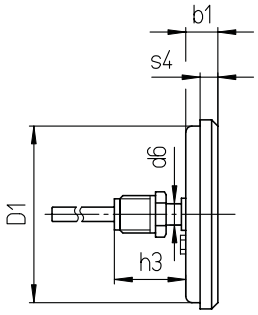
Type 621



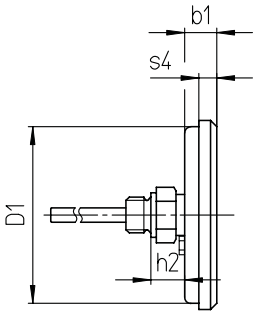
Connection type A + AK



Connection types Da / Dc



Connection type SN



Connection type B
without neck tube (standard)

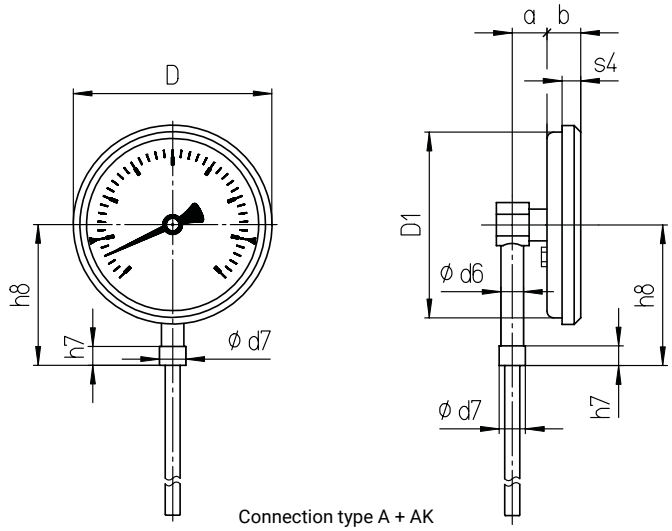
Dimensions [mm]										Weight [kg]	
NS	**b1**	**D**	**D1**	**d6**	**d7**	**h1****	**h2****	**h3*/****	**s4**	**unfilled**	**filled**
63	17	67	62	12	14	12.5	19	40	8	0.18	0.20
80	18	86	79	12	14	12.5	19	40	8	0.22	0.27
100	18	106	98	12	14	12.5	19	40	10	0.29	0.37
125	20	136	125	12	14	12.5	19	40	11	0.36	0.47
160	21	167	159	12	14	12.5	19	40	11	0.46	0.66

* For connection type SN with thread G¾ B: h3 = 50 mm
** Display ranges ≥ 400 °C require an extended neck tube at small sensor lengths
This information is provided as an example and relates to the version with connection type A, Ø 8 mm and immersion tube length 100 mm.

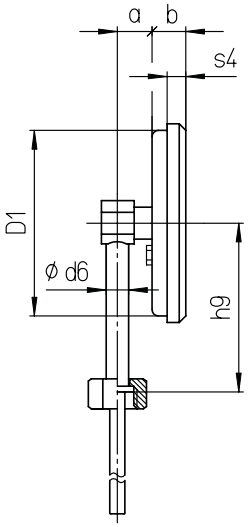
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Technical drawings // Dimensions

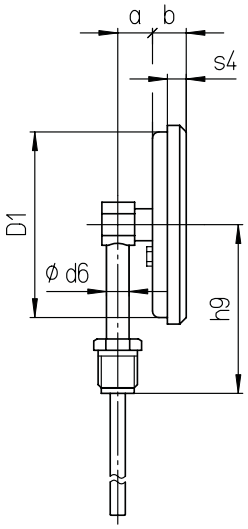
Type 631 (Bottom connection)



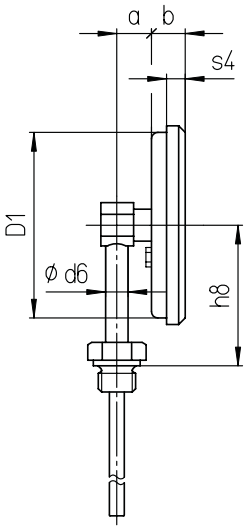
Connection type A + AK



Connection types Da / Dc



Connection type SN



Connection type B

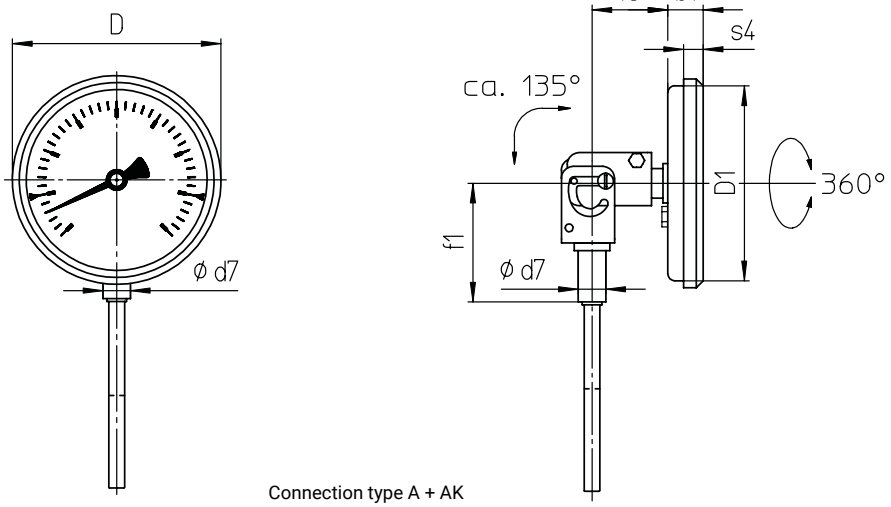
Dimensions [mm]											Weight [kg]	
NS	**a**	**b**	**D**	**D1**	**d6**	**d7**	**h7**	**h8***	**h9***	**s4**	**unfilled**	**filled**
63	18.5	17	67	62	12	14	10.5	55	70	8	0.18	0.20
80	18.5	18	86	79	12	14	10.5	65	80	8	0.22	0.27
100	18.5	18	106	98	12	14	10.5	75	90	10	0.29	0.37
125	18.5	20	136	125	12	14	10.5	85	102	11		
160			167	159	12	14				11		

*Display ranges ≥ 400 °C require an extended neck tube at small sensor lengths.

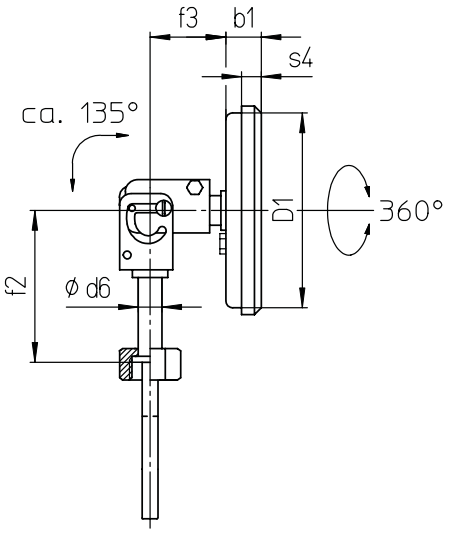
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Technical drawings // Dimensions

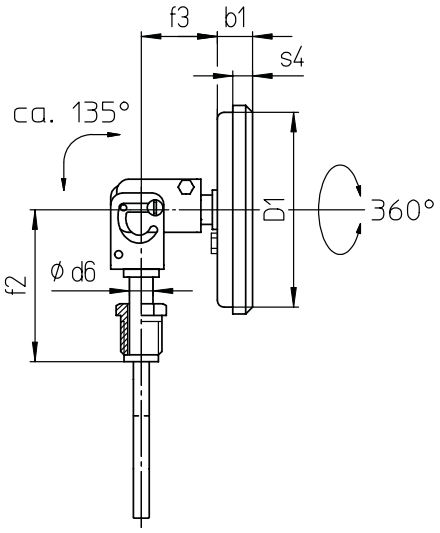
Type 681



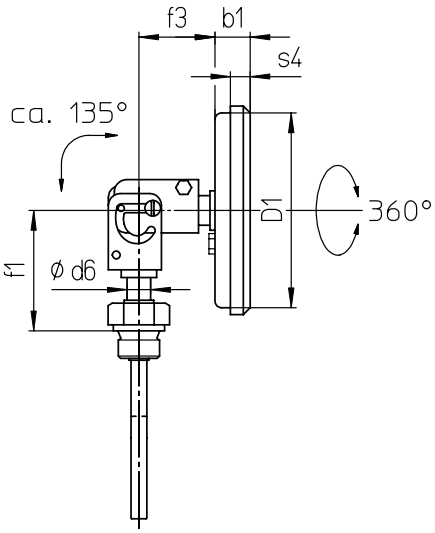
Connection type A + AK



Connection types Da / Dc



Connection type SN



Connection type B

Dimensions [mm]										Weight [kg]	
NS	**b1**	**D**	**D1**	**d6**	**d7**	**f1***	**f2***	**f3**	**s4**	**unfilled**	**filled**
63	17	67	62	12	14	63	80	40	8	0.28	0.31
80	18	86	79	12	14	63	80	40	8	0.32	0.37
100	18	106	98	12	14	63	80	40	10	0.39	0.46
125	20	136	125	12	14	63	80	40	11	0.49	0.65
160	21	167	159	12	14	63	80	40	11	0.64	0.84

*Display ranges ≥ 400 °C require an extended neck tube at small sensor lengths
This information is provided as an example and relates to the version with connection type A, Ø 8 mm, and immersion tube length 100 mm.

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Standard connection types // Immersion tube // for type 621/ 631 / 681

Connection type A

Plain immersion tube, universally usable

Connection type AK* [mm]

With adjustable compression fitting, for direct installation or use with protection tubes compliant with DIN 43772, form 4. 5 and 6 or DIN 16179

G	SW1	SW2	i	Lk
G½ B	27	22	14	42
G¾ B	32	22	16	42
½ NPT	27	22	19	42
¾ NPT	27	22	19	42
M20 x 1.5	27	22	14	42

Connection type B* [mm]

Fixed male thread for direct installation or use with protection tubes compliant with DIN 43772, form 4. 5 and 6 and DIN 16179.

G	SW	i
G½ B	27	14
G¾ B	32	16
½ NPT	27	19
¾ NPT	27	19
M20 x 1.5	27	14

Connection type Da* [mm]

Union nut, for use with protection tubes compliant with DIN 43772, form 8, 9 or DIN 16179 CS

G	SW	i
G½ B	27	10
G¾ B	32	12
M20 x 1.5	27	10
M27 x 2	32	12

Connection type Dc [mm]

Union nut, specifically for use with weld-in protection tubes compliant with DIN 43772, form 4 (in combination with neck tube or double threaded adapter).

G	SW	i
M24 x 1.5	32	12

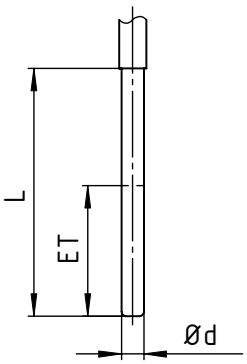
Connection type SN** [mm]

Rotatable male thread, for use with protection tubes compliant with DIN 43772, form 4. 5 and 6 or DIN 16179

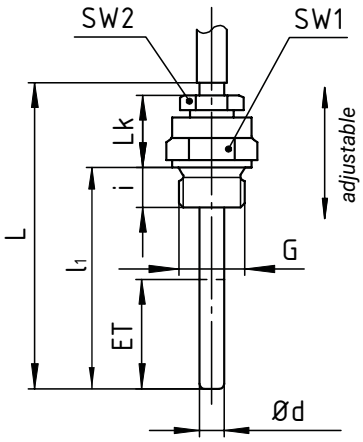
G	SW	i
G½ B	27	20
G¾ B	32	23
M20 x 1.5	27	20
M27 x 2	32	23

* Other threads on request.
** Non-sealing, protection tube necessary.

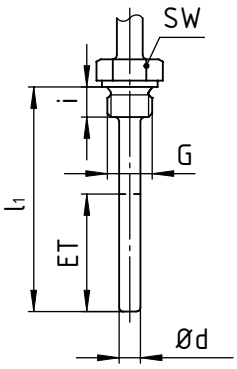
Connection type A



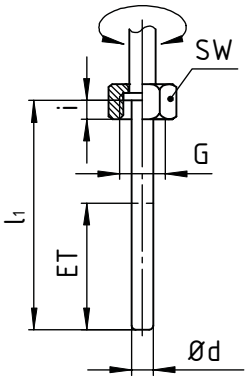
Connection type AK



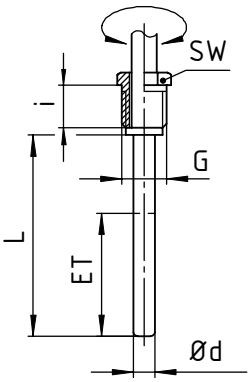
Connection type B



Connection type Da / Dc



Connection type SN*



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Connection type	Length	Thread	Immersion tube diameter Ø d = 6 mm Measuring range ΔT			Immersion tube diameter Ø d = 8 mm Measuring range ΔT	
			≥ 100 K	= 80 K	= 60 K	≥ 80 K	= 60 K
All types	ET		40	60	70	40	60
A	Lmin		45	65	75	45	65
AK	l1min	All standard threads	53	73	83	53	73
B	l1min	All standard threads	60	80	90	60	80
Da	l1min	All standard threads	52	72	82	52	72
Dc	l1min	All standard threads	52	72	82	Not available	
SN*	Lmin	All standard threads	45	65	75	45	65

The minimum length Lmin / l1min of the immersion tube is the shortest possible immersion tube length for a given active length ET (bulb) and connection type. The active length ET of the immersion tube (bulb) must be fully immersed in the substance to be measured in order to obtain measurements corresponding to the stated accuracy class. The maximum realisable stem length is 2.5 m.

Material

Material	
Housing	Crimped-on ring, Stainless steel 1.4301
Window	Instrument glass
Dial	Aluminium white with black scale markings
Pointer	Aluminium black
Material in contact with media	
Process connection	Stainless steel 1.4571
Immersion tube	Stainless steel 1.4571

Article numbers

Order code							
Immersion tube connection							
Bottom		Z	631				
Central back		Z	621				
Universally adjustable		Z	681				
Nominal size							
63 mm	Unfilled			1			
	Filled*			A			
80 mm	Unfilled			2			
	Filled*			B			
100 mm	Unfilled			3			
	Filled*			C			
125 mm	Unfilled			5			
	Filled*			E			
160 mm	Unfilled			4			
	Filled*			D			
Material housing							
Stainless steel 1.4301					2		
Display range							
-40...40 °C						44	
-40...60 °C						46	
-30...50 °C						35	
-30...70 °C						37	
-20...40 °C						24	
-20...60 °C						26	
-20...80 °C						28	
0...60 °C						06	
0...80 °C						08	
0...100 °C						10	
0...120 °C						12	
0...160 °C						16	
0...200 °C						20	
0...250 °C						25	
0...300 °C						30	
0...400 °C						40	
0...500 °C						50	
0...600 °C						60	
Connection type / Immersion tube length							
Please see next page and insert here							xxxxxxx
Example order number		**Z**	**631**	**1**	**2**	**44**	**0631032**

* Only available up to scale range 0...250 °C

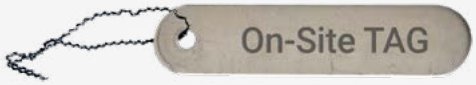
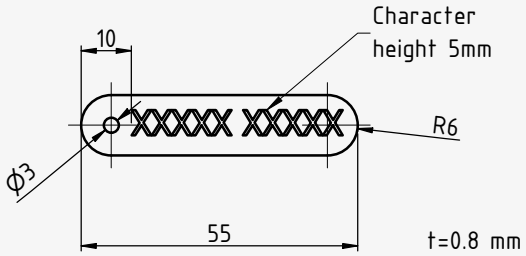
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Article numbers // Connection type // Immersion tube length

Connection types	Add article number into order code				
Connection type A, Plain immersion tube Ø 8 mm					
Immersion tube length L [mm]	**Plain**				
108	0631032				
145	1001032				
205	1601032				
295	2501032				
445	4001032				
Connection type AK, adjustable compression fitting with immersion tube Ø 8 mm					
Immersion tube length l1 [mm]	**G½**	**G¾**	**M20 x 1.5**	**½ NPT**	**¾ NPT**
63	0639232	0639332	0639732	0639B32	0639C32
100	1009232	1009332	1009732	1009B32	1009C32
160	1609232	1609332	1609732	1609B32	1609C32
250	2509232	2509332	2509732	2509B32	2509C32
400	4009232	4009332	4009732	4009B32	4009C32
Connection type B, fixed male thread with immersion tube Ø 8 mm					
Immersion tube length l1 [mm]	**G½**	**G¾**	**M20 x 1.5**	**½ NPT**	**¾ NPT**
63	0632232	0632332	0632732	0632B32	0632C32
100	1002232	1002332	1002732	1002B32	1002C32
160	1602232	1602332	1602732	1602B32	1602C32
250	2502232	2502332	2502732	2502B32	2502C32
400	4002232	4002332	4002732	4002B32	4002C32
Connection type Da, union nut with immersion tube Ø 8 mm					
Immersion tube length l1 [mm]	**G½**	**G¾**	**M20 x 1.5**	**M27 x 2**	
89* / 93**	0893232	0933332	0893732	0933932	
126* / 130**	1263232	1303332	1263732	1303932	
186* / 190**	1863232	1903332	1863732	1903932	
276* / 280**	2763232	2803332	2763732	2803932	
426* / 430**	4263232	4303332	4263732	4303932	
Connection type Dc, union nut with immersion tube Ø 6 mm					
Immersion tube length l1 [mm]	**M24 x 1.5**				
155	1555831				
215	2155831				
275	2755831				
295	2955831				
355	3555831				
415	4155831				
Connection type SN, rotatable male thread with immersion tube Ø 8 mm					
Immersion tube length L [mm]* **	**G½**	**G¾**	**M20 x 1.5**	**M27 x 2**	
80 / 86 / 77	0806232	0776332	0806732	0776932	
140 / 146 / 137	1406232	1376332	1406732	1376932	
230 / 236 / 227	2306232	2276332	2306732	2276932	
380 / 386 / 377	3806232	3776332	3806732	3776932	

* With G½ or M20 x 1.5 ** With G¾ or M27 x 2 *** Installation length L depends on thread

Accessories

Accessories	Article number
Measuring point designation Laser-inscribed stainless steel plate with fixing wire for easy attachment to measuring points → **Scope of delivery:** Designation plate inscribed according to specification and enclosed fixing wire (sealing wire) → **Fastening:** Wire (included in delivery), alternatively sealing, cable ties or similar (not included in delivery) → **Materials:** Plate stainless steel 1.4571, wire stainless steel → **Dimensions:** Plate 55 x 10 x 0.8 mm, wire length 180 mm → **Inscription:** one-sided, single-line, max. 11 characters, character height 5 mm, designation width max. 40 mm, letters, numbers, symbols, barcodes, QR codes → **Transmission of designations:** digital list, file formats Excel, Word or CSV  	**ONSITETAG**