S.M. GAUGE COMPANY

sales@pressuregauge.co.uk
www.pressuregauge.co.uk

308-312 Lodge Causeway, Fishponds, Bristol, BS16 3RD
0117 9654615 0117 9583660

FILLED SYSTEM RIGID STEM DIAL THERMOMETERS

Nominal Sizes 63mm, 80mm, 100mm, 160mm and 250mm

Should you have any questions or are unsure of any of the information provided below, please do not hesitate to contact us using the details above. We are able to provide instrumentation to suit almost any application, our sales team will be happy to discuss your requirement or answer any questions or queries you may have.

Operating Principle

Filled-system thermometers use the phenomenon of thermal expansion of matter to measure temperature change.

The measurement system consists of a primary element that takes the form of a bulb, and a hollow Bourdon tube. The filling fluid, either liquid or gas, expands as temperature increases. This causes the Bourdon tube to uncoil and indicate the temperature on a calibrated dial.

Description

Case
Bayonet lock, Stainless Steel - AISI304/1.4301

Stem & Bulb
Stainless Steel - AISI321/1.4541

Available Sizes (face diameter in mm)
63mm, 80mm, 100mm, 160mm and 250mm

Ingress Protection
IP65

Window
Mineral glass 4 mm

Dial
Aluminium, black figures on white

Pointer
Aluminium, black

Movement
Brass

Temperature Ranges
From -200 upto +800°C,

Overload
30% of full scale (to a maximum of 800 C)

Accuracy
±1% F.S. / class 1

Repair, Calibration and Certification

- **Free uk collection service.**
- All areas of instrumentation covered.
- Complete repair service available
- Calibration and Certification to National Standards
- Paper, digital and online - streamline your record keeping

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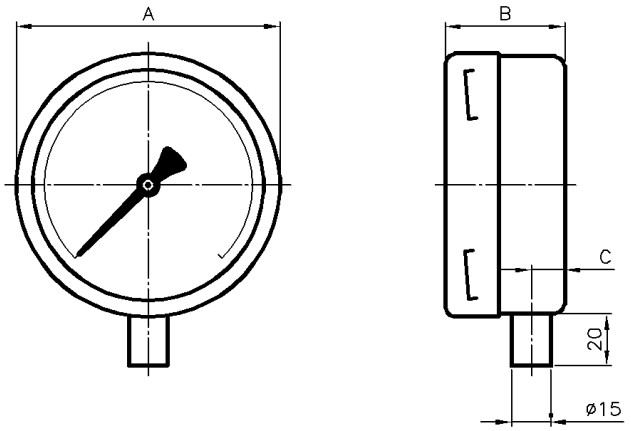
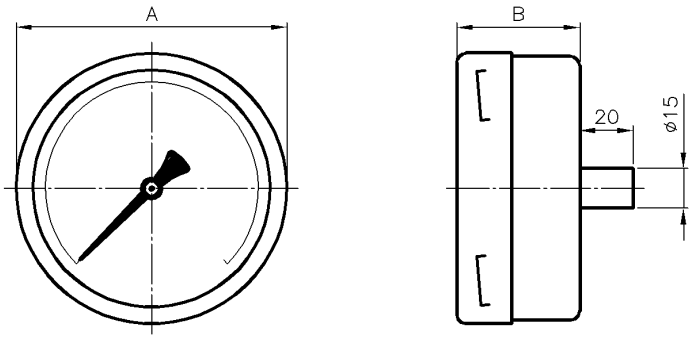
Mounting Options



Direct Bottom Mounting

The stem and process connection are located at the bottom of the dial face.

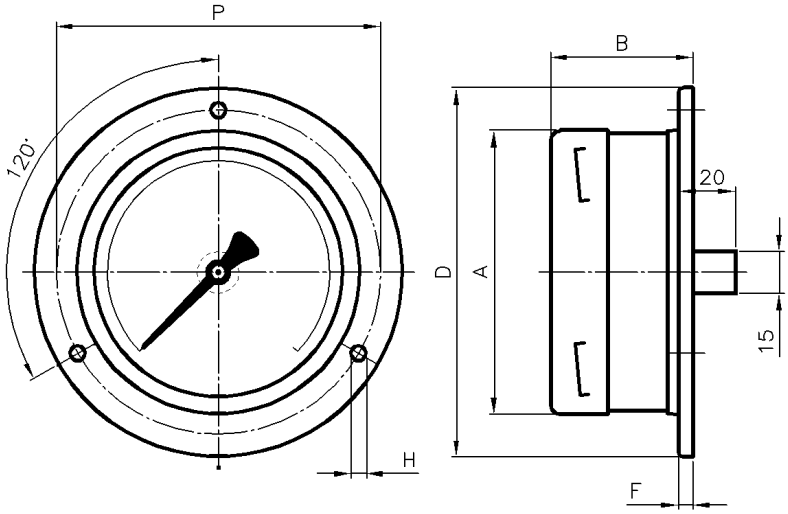
DIM.	CASE DIAMETER				
	63	80	100	160	250
A	65	83	101	161	252
B	38	37	45	45	55
C	13	13	13	13	13



Direct Rear Mounting

The stem and process connection are located at the rear of the gauge head.

DIM.	CASE DIAMETER				
	63	80	100	160	250
A	65	83	101	161	252
B	38	37	45	45	55



Rear Entry, Panel Mounted

The stem and process connection are located at the rear of the gauge head. A flange is fitted to the rear of the case providing a secure method of installation.

DIM.	CASE DIAMETER				
	63	80	100	160	250
A	65	83	101	161	252
B	41	40	51	51	57
D	86	110	132	196	285
F	5	5	5	5	2
H	3.5	4	5.5	6	6
P	75	95	116	178	270

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FILLED SYSTEM RIGID STEM DIAL THERMOMETERS - STEM/BULB DIMENSIONS

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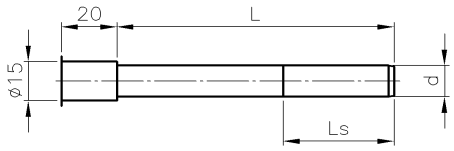
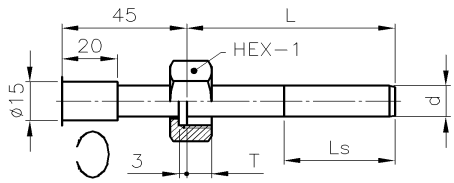
TYPE	STANDARD MODEL	BULB DIAMETER, Ø d
A PLAIN STEM		9, 10, 12 mm 6, 6. 35, 8, 11, 12.5, 13, 14 mm 7, 15, 16, 17, 18, 20 mm

TYPE — **B** — COUPLING NUT STANDARD MODEL

COUPLING NUT (STANDARD MODEL)

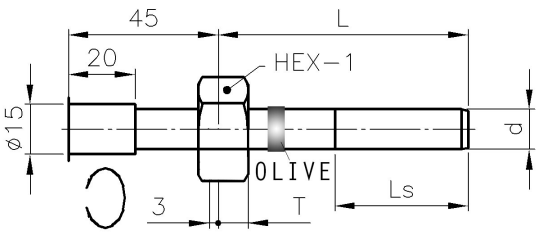


BULB DIAMETER, Ø d

connection	HEX-1	HEX-2	T	d max
1/4"BSP	22	-	7	Ø 8
3/8"BSP	27	-	9	Ø 11
1/2"BSP	27	-	9	Ø 15
3/4"BSP	32	-	9	Ø 20
1"BSP	41	-	13	Ø 20
M18x1.5	27	-	8	Ø 12
M20x1.5	27	-	9	Ø 14
M24x1.5	32	-	9	Ø 18

TYPE — **NO** — NUT AND OLIVE

NUT AND OLIVE

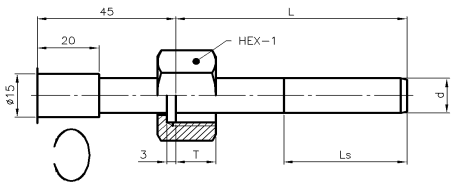


BULB DIAMETER, Ø d

connection	HEX-1	HEX-2	T	d max
1/4"BSP	22	-	7	Ø 8
3/8"BSP	27	-	9	Ø 11
1/2"BSP	27	-	9	Ø 15
3/4"BSP	32	-	9	Ø 20
1"BSP	41	-	13	Ø 20
M18x1.5	27	-	8	Ø 12
M20x1.5	27	-	9	Ø 14
M24x1.5	32	-	9	Ø 18

TYPE — **BL** — COUPLING NUT LONG MODEL

COUPLING NUT (LONG MODEL)



BULB DIAMETER, Ø d

connection	HEX-1	HEX-2	T	d max
1/2"BSP	27	-	14	Ø 15
3/4"BSP	32	-	16	Ø 20
1"BSP	41	-	18	Ø 20

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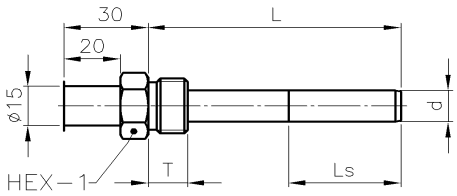
FILLED SYSTEM RIGID STEM DIAL THERMOMETERS - STEM/BULB DIMENSIONS

TYPE C

FIXED NIPPLE STANDARD TYPE

FIXED NIPPLE (STANDARD MODEL)



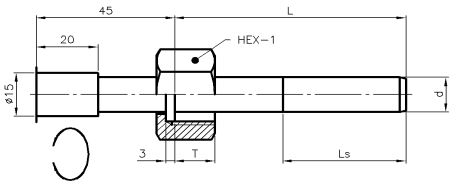
BULB DIAMETER, Ø d

connection	HEX-1	HEX-2	T	d max
1/4"BSP	17	-	12	Ø 8
3/8"BSP	22	-	12	Ø 11
1/2"BSP	22	-	14	Ø 15
3/4"BSP	30	-	16	Ø 20
1"BSP	36	-	18	Ø 20
M18x1.5	17	-	14	Ø 8
M20x1.5	22	-	20	Ø 15
M24x1.5	30	-	20	Ø 20
1/4"NPT	36	-	25	Ø 20
1/2"NPT	22	-	12	Ø 12
3/4"NPT	22	-	14	Ø 14
1"NPT	27	-	14	Ø 18

TYPE CL

FIXED NIPPLE LONG MODEL

FIXED NIPPLE (LONG MODEL)



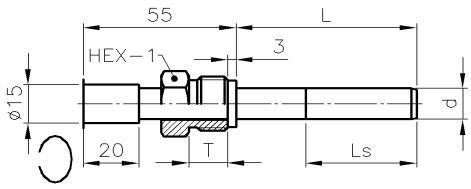
BULB DIAMETER, Ø d

connection	HEX-1	HEX-2	T	d max
1/2"BSP	22	-	20	Ø 15
3/4"BSP	30	-	20	Ø 20
1"BSP	36	-	20	Ø 20

TYPE A04

TURNING NIPPLE STANDARD MODEL

TURNING NIPPLE (STANDARD MODEL)



BULB DIAMETER, Ø d

connection	HEX-1	HEX-2	T	d max
1/4"BSP	17	-	12	Ø 8
3/8"BSP	22	-	12	Ø 11
1/2"BSP	22	-	14	Ø 15
3/4"BSP	30	-	16	Ø 20
1"BSP	36	-	18	Ø 20
M18x1.5	22	-	12	Ø 12
M20x1.5	22	-	12	Ø 14
M24x1.5	27	-	14	Ø 18

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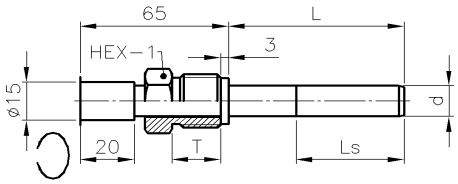
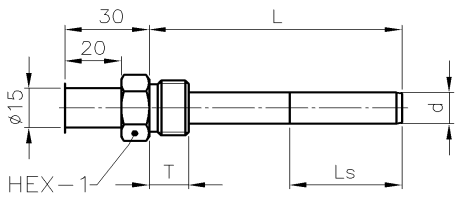
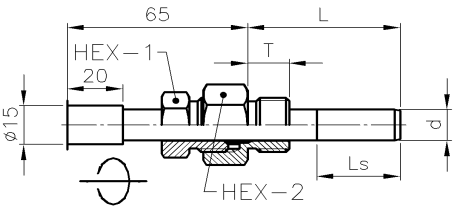
FILLED SYSTEM RIGID STEM DIAL THERMOMETERS - STEM/BULB DIMENSIONS

TYPE	TURNING NIPPLE (LONG MODEL)	BULB DIAMETER, Ø d
AL04 *TURNING NIPPLE LONG MODEL*		

connection	HEX-1	HEX-2	T	d max
1/2"BSP	22	-	20	Ø 15
3/4"BSP	30	-	20	Ø 20
1"BSP	36	-	25	Ø 20

TYPE	COUPLING NUT + DOUBLE NIPPLE	BULB DIAMETER, Ø d
B01 *COUPLING NUT + DOUBLE NIPPLE*		

connection	HEX-1	HEX-2	T	d max
1/4"BSP	27	22	12	Ø 8
3/8"BSP	27	22	12	Ø 11
1/2"BSP	27	22	14	Ø 15
3/4"BSP	27	27	16	Ø 20
1"BSP	27	36	18	Ø 20
M18x1.5	27	22	12	Ø 12
M20x1.5	27	22	14	Ø 14
M24x1.5	27	27	14	Ø 18
1/4"NPT	27	36	14	Ø 8
1/2"NPT	27	22	20	Ø 15
3/4"NPT	27	22	20	Ø 20
1"NPT	27	27	25	Ø 20

TYPE	ADJUSTABLE CONNECTION, SLIDING ON STEM	BULB DIAMETER, Ø d
CS3 *ADJUSTABLE CONNECTION, SLIDING ON STEM*	 *THREAD BETWEEN HEX-1 and HEX-2: 1/2"BSP*	

connection	HEX-1	HEX-2	T	d max
1/4"BSP	22	27	12	Ø 8
3/8"BSP	22	27	12	Ø 11
1/2"BSP	22	27	14	Ø 15
3/4"BSP	22	32	16	Ø 20
1"BSP	22	36	18	Ø 20
M18x1.5	22	27	12	Ø 12
M20x1.5	22	27	14	Ø 14
M24x1.5	22	27	14	Ø 18
1/4"NPT	22	27	14	Ø 8
1/2"NPT	22	27	20	Ø 15
3/4"NPT	22	27	20	Ø 20
1"NPT	22	36	25	Ø 20

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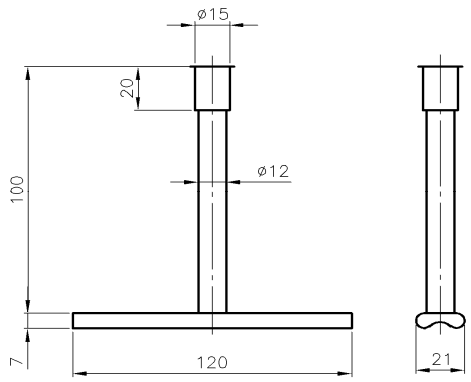
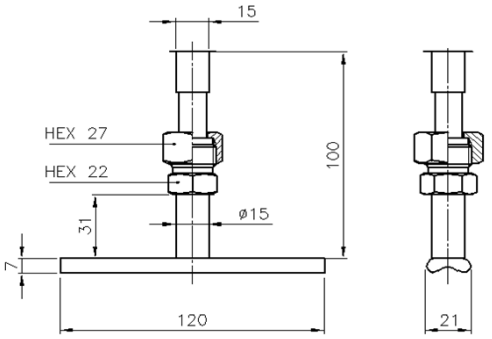
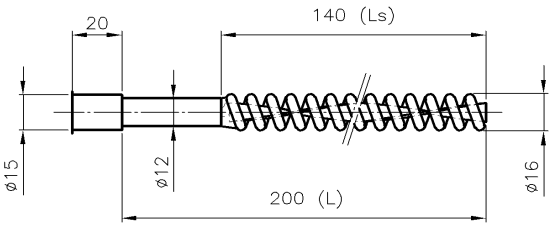
FILLED SYSTEM RIGID STEM DIAL THERMOMETERS - STEM/BULB DIMENSIONS

TYPE	SURFACE BULB, FIXED TYPE	BULB DIAMETER, Ø d		
		L	d-1	d-2
S SURFACE BULB FIXED TYPE		-	-	-

TYPE	SURFACE BULB, ADJUSTABLE TYPE	BULB DIAMETER, Ø d		
		L	d-1	d-2
SA SURFACE BULB ADJUSTABLE TYPE		-	-	-

TYPE	HELICAL AIR BULB	BULB DIAMETER, Ø d		
		L	d-1	d-2
HA HELICAL AIR BULB		-	-	-

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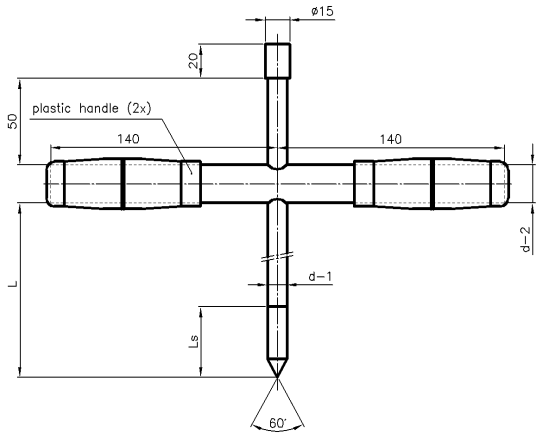
FILLED SYSTEM RIGID STEM DIAL THERMOMETERS - STEM/BULB DIMENSIONS

TYPE HP — WITH HANDLE AND POINT

HP

WITH HANDLE AND POINT

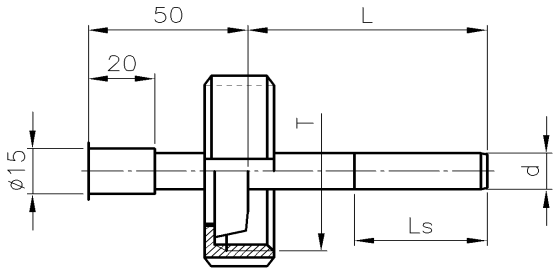


L	d-1	d-2
1000	10 12	22
1000	14 16	22
1000	18	22

TYPE CM — ACCORDING TO DIN 11851

CM

acc. to DIN 11851



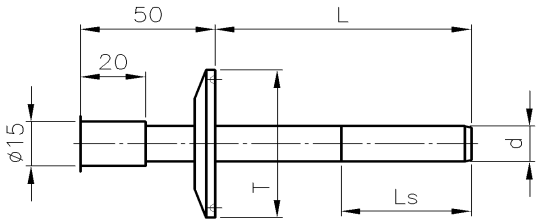
DIMENSIONS

CONNECTION	T	
1" DN25	rd 52x1/6	
1.5" DN40	rd 65x1/6	
2" DN50	rd 78x1/6	
3" DN80	rd 104 x1/6	

TYPE TC — TRI CLAMP acc. to ISO 2852

TC

TRI CLAMP acc. to ISO 2852



DIMENSIONS

CONNECTION	T	
1"	Ø 50.5	
1.5"	Ø 50.5	
2"	Ø 64	

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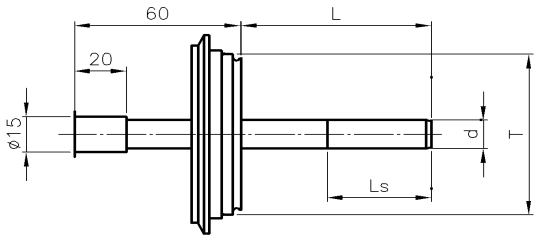
FILLED SYSTEM RIGID STEM DIAL THERMOMETERS - STEM/BULB DIMENSIONS

TYPE	VARIVENT IN-LINE	DIMENSIONS
TV *Varivent In-Line*		CONNECTION: T DN50: rd 52x1/6 — Suitable for In-Line Housing DN25 DN68: rd 65x1/6 — Suitable for In-Line Housing DN40 and up

OPTIONS FOR BULB AND STEM	
OPTION	
BULB AND STEM AISI316/1.4401	for diameter 6, 8, 9, 10, 12, 13, 14, 15, 16, 18
BULB AND STEM POLISHED (MECHANICAL)	for all diameters
BULB AND STEM PTFE® LINING (max.250°C)	MAXIMUM 1000 mm (longer: ON DEMAND)
BULB AND STEM HALAR® COATED (max.120°C)	

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