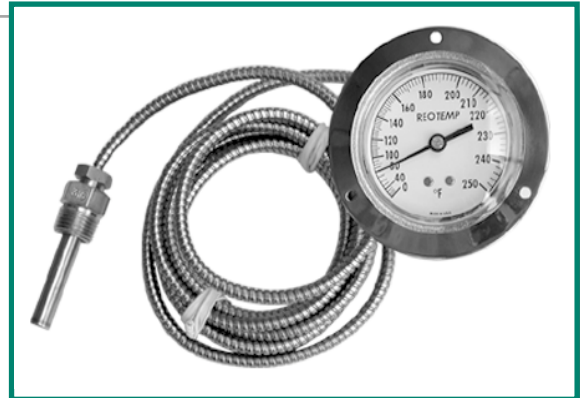


REOTEMP Remote Vapor Actuated Thermometers are manufactured to the highest standards for a wide range of uses and may be fitted into almost any temperature indicating application. These instruments are ideal for remote reading, such as panel installations, with capillary lengths of 1 to 100 feet. Being vapor actuated, they are not subject to indicator error due to ambient temperature variations along the capillary tube system, and will give excellent readings provided the temperature being measured is above or below ambient temperature.



Vapor instruments have progressive graduations, and are best read in the upper 2/3 of the dial range. Many ranges are available between -40°F and $+450^{\circ}\text{F}$, and care should be exercised to select a range that will locate the operating temperatures within the upper 2/3 of the dial range (see ranges on back page.)

To order vapor-configured thermometers, with gas actuation (for higher temperature:)

1. Precede vapor P/N with "G" (e.g. GV20 UR)
2. Choose gas range code from p. 23, table 4
3. Specify SS capillary and bulb (e.g. D05-L2)

Specifications:

Dial Sizes: 2", 2 1/2", 3 1/2", 4 1/2"

Dial: Aluminum with white finish and black markings, other colors available.

Pointer: Standard adjustable.

Movement: Brass with precision gearing.

Bourdon Tube: Phosphor bronze.

Accuracy: Plus or minus one scale division. (upper 2/3 scale)

Case: All stainless steel, except: VA45FL (Aluminum) VA45TB (Phenolic).

Process Connection: Plain Bulb, 1/2" NPT Union, 1/2" NPT sliding union on 12" bendable extension, or Thermowell. NOTE: Thermowells must be used whenever the bulb would be exposed to pressure, fluid velocity, or corrosive media

Window: Polycarbonate, or Glass.

Bulb: Stainless Steel or copper. Bulb O.D. 7/16" (threaded), 3/8" (plain). Bulb lengths vary from 2 1/2" to 9 1/4" depending on capillary length.

Capillary: Copper, copper with bronze braid armor, stainless steel, stainless steel with stainless steel armor. Capillary lengths 1 to 100 feet (standard length 5 feet).

Ranges: Over twenty $^{\circ}\text{F}$ and $^{\circ}\text{F}/^{\circ}\text{C}$ ranges available, from -40° to $+450^{\circ}\text{F}$ (see illustration, back page).

Applications: Control panels, chemical processing, pipelines, food processing, OEM applications, ovens, solar heating, refrigeration, etc.

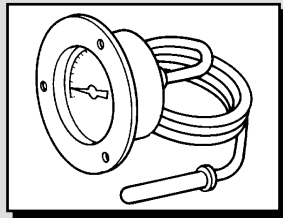
Filled System Thermometers

Vapor Actuated - How to Order

Model V Vapor Actuated	Case Style & Size (Table 1)	Temperature Range (Table 2)	Capillary & Bulb (Table 3)	Capillary Length (in Ft.) (Table 4)	Process Connection (Table 5)
V	20FR	21	D	05	L2

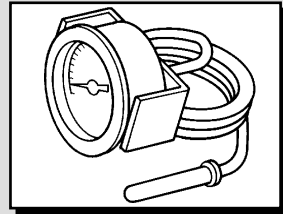
Table 1 - Case Style

Front Flanged (Panel Mount)



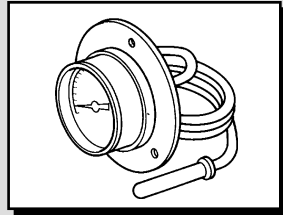
Code	Dial	Case	Lens	Connection Location
20FR	2"	SS	Polycarbonate*	Rear
25FR	2 1/2"	SS	Polycarbonate*	Rear
35FR	3 1/2"	SS	Polycarbonate*	Rear
45FR	4 1/2"	SS	Polycarbonate*	Rear
45FL	4 1/2"	Black Aluminum (hinge ring type)	Glass	Rear

U-Clamp (Panel Mount)



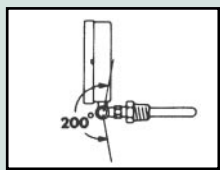
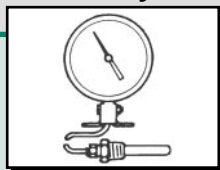
Code	Dial	Case	Lens	Connection Location
20UR	2"	SS	Polycarbonate*	Rear
25UR	2 1/2"	SS	Polycarbonate*	Rear
35UR	3 1/2"	SS	Polycarbonate*	Rear

Rear Flanged (Surface Mount)



Code	Dial	Case	Lens	Connection Location
20RR	2"	SS	Polycarbonate*	Rear
35RR	3 1/2"	SS	Polycarbonate*	Rear
35RB	3 1/2"	SS	Polycarbonate*	Bottom
45RR	4 1/2"	SS	Polycarbonate*	Rear
45RB	4 1/2"	SS	Polycarbonate*	Bottom
45TB	4 1/2"	Phenolic	Glass**	Bottom (Turret Mount)

Other Case Styles



Code	Dial	Case	Lens	Connection Location*
35SB	3 1/2"	SS	Polycarbonate	Adjustable Bracket Mount
45SB	4 1/2"	SS	Polycarbonate	Mount
35DA	3 1/2"	SS	Polycarbonate	"Direct" adj. Mount w/3.4 Cu bulb, 1/2" NPT
45DA	4 1/2"	SS	Polycarbonate	"Direct" adj. Mount w/3.4 Cu bulb, 1/2" NPT

*Glass lens available, specify "Glass Lens"

**Polycarbonate, lens available, specify "Poly Lens"

*Specify Model & Range Only.
Example: **V45DA-80**

Table 2 -- Temperature Ranges *Ranges over 350°F come with 316SS Capillary only.

Code	°F Range	Code	°F and °C Ranges
20	-40 TO 60°F	21	-40 TO 60°F & -40 TO 15°C
30	-40 TO 110°F	31	-40 TO 110°F & -40 TO 40°C
32	-20 TO 120°F	33	-20 TO 120°F & -30 TO 50°C
72	0 TO 180°F	73	0 TO 180°F & -20 TO 80°C
49	0 TO 150°F	79	0 TO 150°F & -15 TO 65°C
80	20 TO 220°F	81	20 TO 220°F & 0 TO 105°C
50	40 TO 240°F	51	40 TO 240°F & 0 TO 115°C
56	0 TO 250°F	57	0 TO 250°F & -20 TO 120°C
60	30 TO 300°F	61	30 TO 300°F & 0 TO 150°C
68*	100 TO 350°F	66	100 TO 350°F & 40 TO 175°C
70*	200 TO 450°F	71*	200 TO 450°F & 100 TO 230°C

Table 3 -- Capillary & Bulbs

Code	Capillary & Bulb Material	Capillary Protection
A	Copper	None
C	Copper	Bronze Braid
D	316 SS	None
E	316 SS	S.S. Armor

Table 4 -- Capillary Length

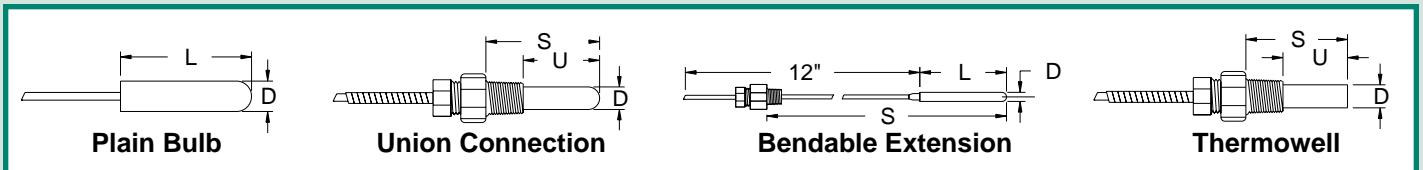
Specify Length in feet.
Standard Length = 5 Ft.
Available Capillary Length: 1-100Ft.
 Note: Capillary Lengths over 5 feet affect bulb length.
 See table at bottom of page.

Table 5 -- Process Connection

Code	Connection Type	Material	
J1	None (Plain Bulb)	Brass - (For Existing Brass Well) 316 SS - (For Existing Stainless Well)	
J2	Jam Nut Only		
J3	Jam Nut Only		
K2	1/2" NPT Union	Brass	
L2	1/2" NPT Union	316 SS	
M2	1/2" NPT Sliding Union on Bendable Extension	316 SS - (Only Avail. with 316 SS Capillary)	
		Brass	
		316 SS	
		1/2 NPT	3/4 NPT
		1/2 NPT	3/4 NPT
For 1-10 ft. Capillary (bulb #1)		12B	13B
For 11-25 ft. Capillary (bulb #2)		22B	23B
For 26-50 ft. Capillary (bulb #3)		32B	33B
For 51-75 ft. Capillary (bulb #4)		42B	43B
For 76-100 ft. Capillary (bulb #5)		52B	53B

Thermowells For Vapor Actuated Bulbs (except M2)

Bulb Configurations



Standard Bulb Dimensions (inches)

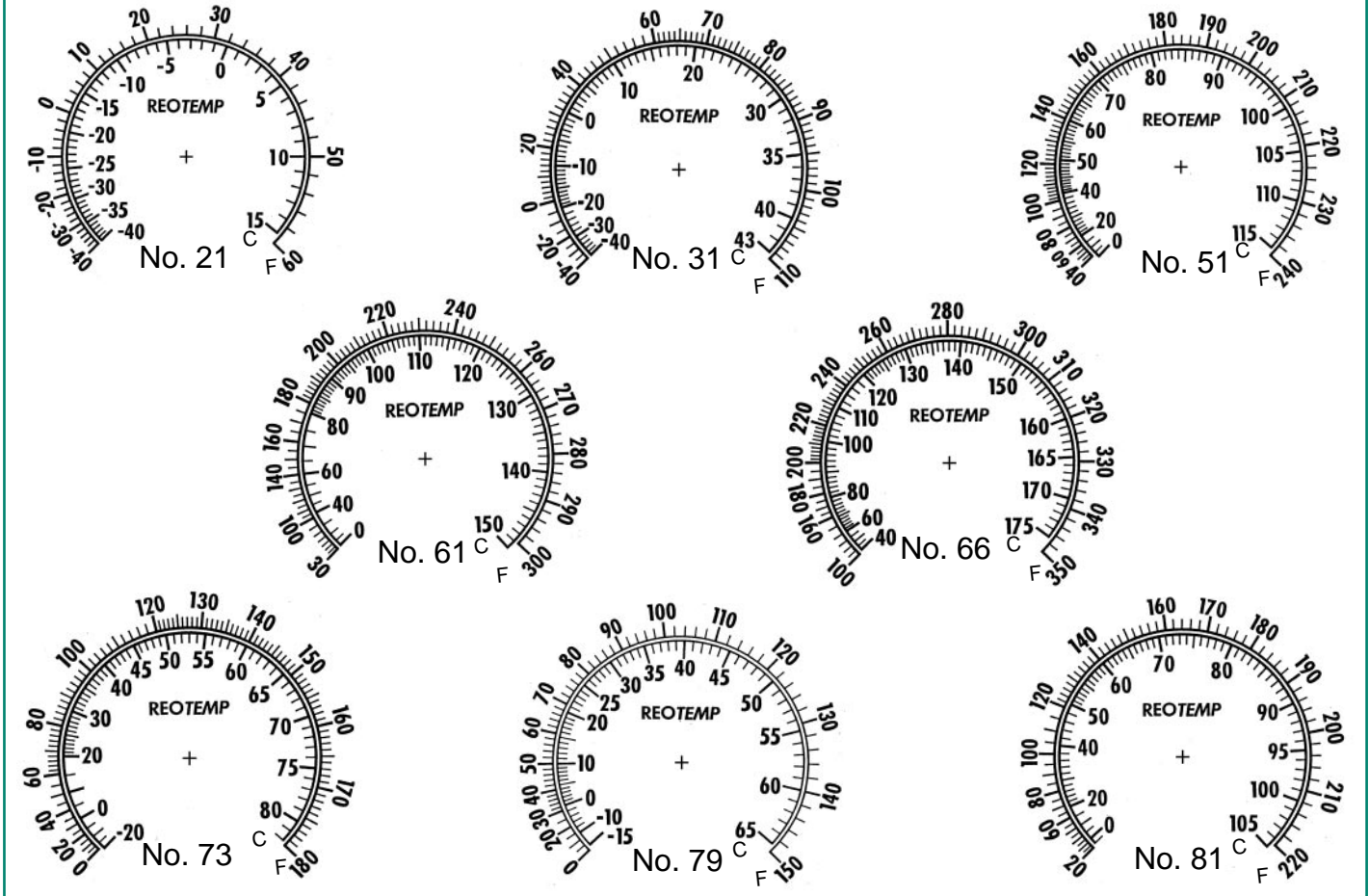
CAPILLARY LENGTH	PLAIN BULB		UNION CONNECTION			THERMOWELL			BENDABLE EXT.		
	L	D	U	S	D	U	S	D	L	S	D
1-10 ft. (bulb #1)	2 ¹ / ₂ (1-5ft.) 3 ⁷ / ₁₆ (6-10ft)	3/8	1 ¹³ / ₁₆	2 ³ / ₈	7/16	1 ¹⁵ / ₁₆	2 ¹ / ₂	9/16	2 ¹ / ₂ (1-5ft.) 3 ⁷ / ₁₆ (6-10ft)	3 - 13 4 - 14	3/8
11-25 ft. (bulb #2)	3 ⁷ / ₁₆	3/8	2 ¹ / ₂	3 ¹ / ₄	7/16	2 ⁵ / ₈	3 ³ / ₈	9/16	3 ⁷ / ₁₆	4 - 14	3/8
26-50 ft. (bulb #3)	4 ⁷ / ₈	3/8	4 ¹ / ₂	5 ¹ / ₄	7/16	4 ⁵ / ₈	5 ³ / ₈	9/16	4 ⁷ / ₈	5 - 15	3/8
51-75 ft. (bulb #4)	7 ⁷ / ₈	3/8	6 ¹ / ₂	7 ¹ / ₄	7/16	6 ⁵ / ₈	7 ³ / ₈	9/16	7 ⁷ / ₈	8 - 18	3/8
76-100 ft. (bulb #5)	10 ⁷ / ₈	3/8	8 ¹ / ₂	9 ¹ / ₄	7/16	8 ⁵ / ₈	9 ³ / ₈	9/16	10 ⁷ / ₈	11 - 21	3/8

Filled System Thermometers

Vapor Actuated

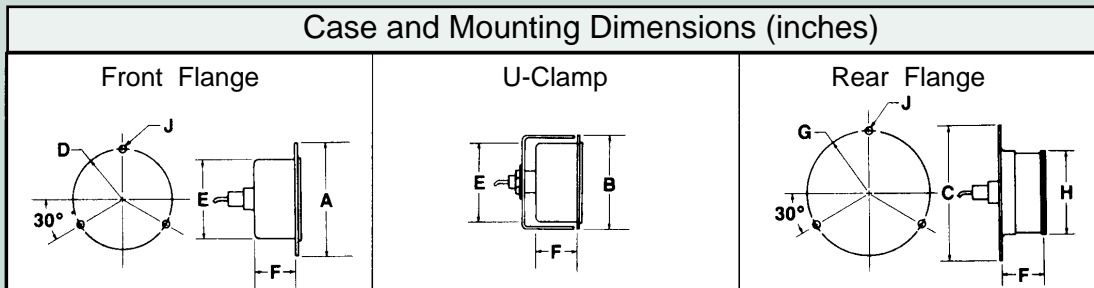
Dial Faces

Typical dial faces shown below; complete list shown on page 19.
Operating temperatures should be in upper 2/3 of selected range.



For Temperatures above or below those shown, ask for information on REOTEMP Gas Actuated Thermometers.

Case and Mounting Dimensions (inches)



Dial Sizes	A	B	C	D	E	F	G	H	J
2"	2.94	2.25	2.94	1.25R	2.05	0.98	1.28R	2.3	0.14
2 1/2"	3.69	2.81		1.66R	2.56	1			0.17
3 1/2"	4.75	3.97	4.75	2.16R	3.59	1.41RF .75UC, FF	2.16R	3.69	0.16
4 1/2"	5.88FR 6.31FL		5.88RR,RB 5.83TB	2.69R	4.59FR 47RR, RB, FL	1.41RF .75UC, FF 2.56TB 1.63FL	2.69R	4.69	0.22

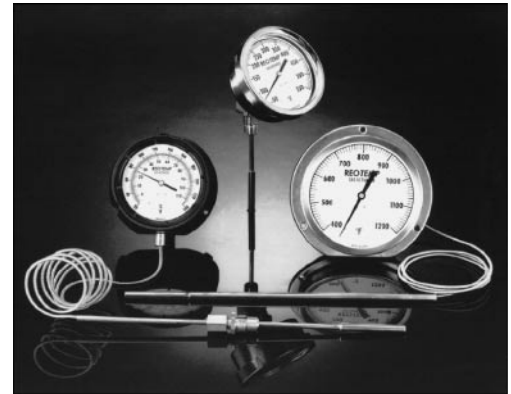
REOTEMP INSTRUMENT CORPORATION

Telephone: (800) 648-7737 FAX (858) 784-0720 • sales@reotemp.com • www.reotemp.com

REOTEMP Gas Actuated Thermometers combine advanced gas coil technology with a state-of-the-art adsorbent (Class IV) thermal system, producing a superior temperature measurement instrument that can be fitted to a wide variety of applications.

Features include high accuracy, low ambient error, no head error, and a high degree of over-range protection. The compact (3/8" dia. x 3" active length) bulb, and a wide range of case styles and thermal systems, allow great flexibility in installation.

The linear dial on all REOTEMP gas thermometers provides a consistent 1% accuracy across the full span of each range. This, combined with over twenty Fahrenheit and dual ranges, from -320 F to +1200 F, provides complete coverage of all normal temperature requirements.



Specifications

Accuracy: +/- 1 % of full scale. Calibration to NIST traceable standards.

Ranges: Twenty °F and °F & °C ranges available from -320°F to 1200°F.

Overrange: Minimum 50% of span above top of range, or 1300°F, whichever is less.

Ambient Error: 1/4% of span per 25°F change in ambient temperature at midscale.

Dial Sizes: 4 1/2" & 6". Dials are white with black markings.

Case Materials: Stainless steel, Phenolic, or Aluminum.

Case Styles: Panel Mount, Surface Mount, or Direct (stem) Mount.

Windows: Glass is standard. Shatterproof glass and acrylic are optional.

Pointers: Slotted adjustable type to permit zero-set adjustments.

Bulbs: 316 Stainless Steel, 3/8" dia. x 3" active length. Other diameters and lengths are available.

Process Connections: Plain bulb; 1/2" NPT sliding union; 1/2" NPT fixed (on All-Angle); or thermowell. *Note: Thermowells should be used whenever the bulb would be exposed to pressure, fluid velocity, or corrosive or abrasive media.*

Thermal Systems: Stainless steel capillary with stainless steel spring armor (up to 40ft). Over 40 feet, stainless steel interlock armor is standard. Direct mount stems, 316 SS, 4" to 48".

Filled System Thermometers

Gas Actuated - How to Order

Table 1
Case Size & Style

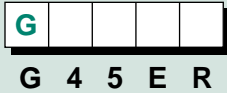


Table 2
Thermal System & Bulb



Table 3
Capillary Length (feet)



Table 4
Temperature



Table 5
Options



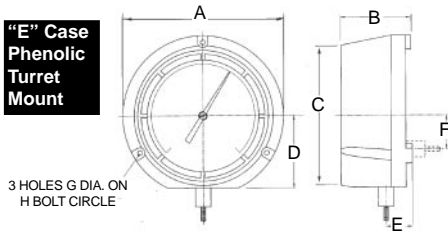
Table 1-Case Style

Wall Mount ("E" or "K" case)

CASE CODE CASE DIAMETER CONNECTION

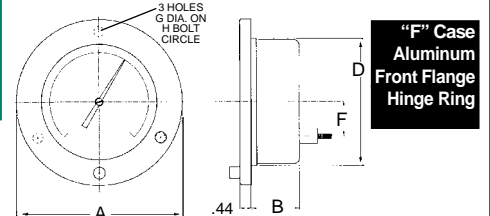
Panel Mount ("F", "S" or "U" case)

"E" Case
Phenolic
Turret
Mount



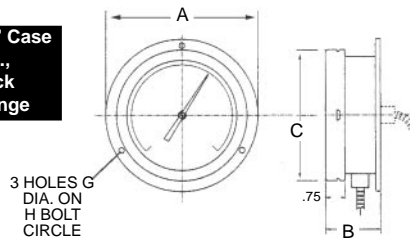
G45ER	4 1/2"	REAR
G45EL	4 1/2"	LOWER

G45FR	4 1/2"	REAR
G60FR	6"	REAR



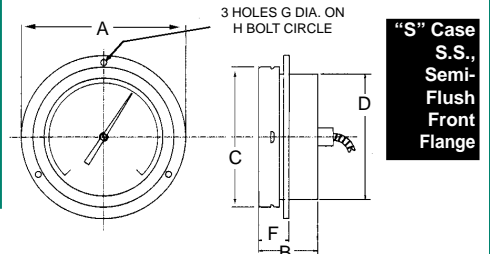
"F" Case
Aluminum
Front Flange
Hinge Ring

"K" Case
S.S.,
Back
Flange



G45KR	4 1/2"	REAR
G45KL	4 1/2"	LOWER
G60KR	6"	REAR
G60KL	6"	LOWER

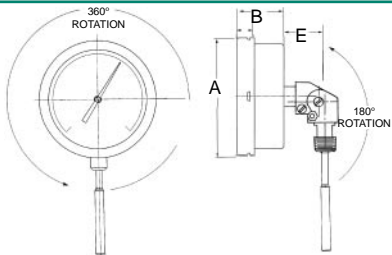
G45SR	4 1/2"	REAR
G60SR	6"	REAR



"S" Case
S.S.,
Semi-Flush
Front Flange

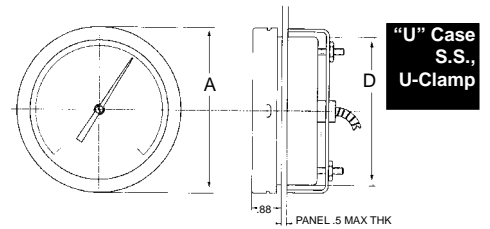
Direct Mount ("D" case)

"D" Case
S.S.,
All-Angle
Direct
Mount



G45DA	4 1/2"	ADJUST
G60DA	6"	ADJUST

G45UR	4 1/2"	REAR
G60UR	6"	REAR



"U" Case
S.S.,
U-Clamp

Case Dimensions

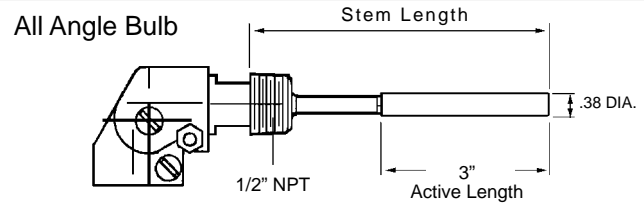
Case Size	Case	Type	A	B	C	D	E	F	G	H
4 1/2"	"E"	Turret Phenolic	5.83	2.56	5.08	2.62	1.0	.20	.24	5.39
4 1/2"	"F"	Front Flange	6.31	1.63	-	4.88	-	1.35	.19	5.38
4 1/2"	"K"	Back Flange	5.88	2.15	5.04	-	-	-	0.22	5.38
4 1/2"	"S"	Semi-Flush	5.88	2.15	5.04	4.51	-	1.00	0.22	5.38
4 1/2"	"D"	All Angle	5.04	2.00	-	-	1.70	-	-	-
4 1/2"	"U"	U-Clamp	5.04	-	-	4.51	-	-	-	-
6"	"F"	Front Flange	7.87	1.59	-	6.34	-	1.75	0.19	6.69
6"	"K"	Back Flange	7.50	2.15	6.38	-	-	-	0.25	6.84
6"	"S"	Semi-Flush	7.50	2.15	6.38	5.88	-	1.00	0.25	6.84
6"	"D"	All Angle	6.38	2.15	-	-	1.70	-	-	-
6"	"U"	U-Clamp	6.38	-	-	5.88	-	-	-	-

REOTEMP INSTRUMENT CORPORATION

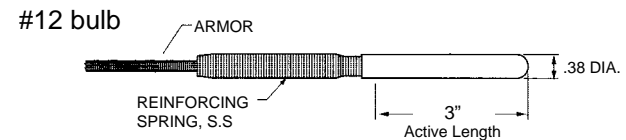
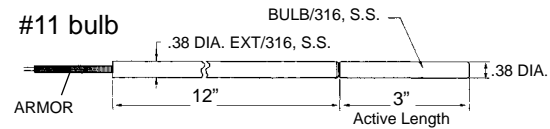
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Table 2-Thermal Systems (all bulbs & capillaries are 316 SS)

CODE	DESCRIPTION
All Angle Direct Mount with 1/2" NPT (with "D" case only)	
04	4" stem x 3/8" diameter
06	6" stem x 3/8" diameter
09	9" stem x 3/8" diameter
0X	12" or longer stem x 3/8" dia. - specify stem length EXAMPLE: G45DA - 0X - 12" FB



Plain Bulbs	
11	Plain bulb, 3/8" x 3" active, + 12" rigid extension
12	Plain bulb, 3/8" x 3" active



Sliding 1/2" NPT on Bendable Extension	
87	3/8" x 3" active, 12" bendable extension
88	3/8" x 3" active, 18" bendable extension
8X	3/8" x 3" active, over 18" bendable (Specify)

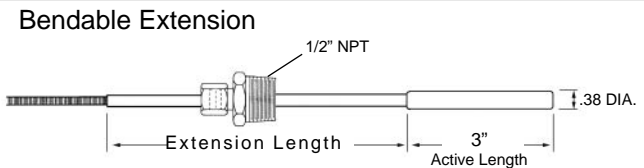


Table 3-Capillary Length

Specify Armored Capillary Length in Feet, up to 99 ft. (omit for "D" case).

L05 = 5 feet **L10** = 10 feet **L15** = 15 feet...etc.

Note: Stainless steel spring armor is standard protection on all capillary. Capillary over 40 feet requires XSI Spiral Interlock Armor option.

Table 4-Temperature Ranges

CODE	°F RANGES	DIV.
FB	-320/100°F	5°
FE	-120/120° F	2°
FG	-40/180°F	2°
FH	0/120°F	1°
FJ	60/120°F	1°
FL	20/240°F	2°
FN	0/300°F	5°
FP	50/550°F	5°
FR	50/750°F	5°
FS	200/1000°F	10°
FT	400/1200°F	10°

CODE	°F & °C RANGES	DIV.
DB	-320/100°F / -200/40°C	5°/2°
DE	-120/120°F / -85/50°C	2°/1°
DG	-40/180°F / -40/80°C	2°/2°
DH	0/120°F / -15/50°C	1°/1°
DJ	60/120°F / 15/5°0C	1° ¹ / ₂ °
DL	20/240°F / -5/110°C	2°/1°
DN	0/300°F / -10/150°C	5°/1°
DP	50/550°F / 10/290°C	5°/5°
DR	50/750°F / 0/400°C	5°/5°
DT	400/1200°F / 200/650°C	10°/5°

Note: °C Ranges available on request

Filled System Thermometers

Gas Actuated

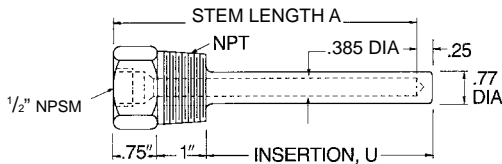
Table 5 - Accessories & Options

Code	Description
XAW	Acrylic Window (4 1/2" Cases only; not available in "F" Case).
XSG	Safety Glass Window (4 1/2" Cases only; not available in "F" Case).
XFR	Flush Mounting Ring for "E" Case.
XBF	1/2" NPT Fitting for #11 Bulb - Fits on Bulb or extension.
XCF	1/2" NPT Fitting - Fastens on spiral interlock armor (requires XSI option).
XSI	Spiral Interlock Armor (required over 40 feet).
XVD	Vibration Dampening feature (dampens vibration - available in all rear connected models).
XTW	Thermowell (see thermowell table below for order codes).

Thermowells for 3/8" dia. Elements

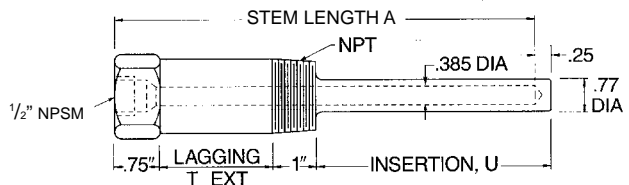
Standard Wells

External Thread P	Stem length A"	Insert Length U"	Order Code	
			304 s.s.	316 s.s.
3/4" NPT	4	2 1/2	046	146
	6	4 1/2	047	147
	9	7 1/2	048	148
	12	10 1/2	049	149
	15	13 1/2	050	150
	18	16 1/2	051	151
1" NPT	24	22 1/2	052	152
	4	2 1/2	053	153
	6	4 1/2	054	154
	9	7 1/2	055	155
	12	10 1/2	056	156
	15	13 1/2	057	157
18	16 1/2	058	158	
24	22 1/2	059	159	



Lagging Wells

External Thread P	Stem length A"	Insert Length U"	Lag Ext. T"	Order Code	
				304 s.s.	316 s.s.
3/4" NPT	6	2 1/2	2	247	347
	9	4 1/2	3	248	348
	12	7 1/2	3	249	349
	15	10 1/2	3	250	350
	18	13 1/2	3	251	351
	24	16 1/2	3	252	352



How to Order
 Specify "TW" Plus Order Code
 Example: **TW-146**

Available in Four styles

- 45GW**
- 45GF**
- 45GFF**
- 45GAW**

- WALL MOUNTED
- FLUSH MOUNTED
- FRONT FLANGE
- ADJUSTABLE WALL



Specifications

CASE:	Stainless Steel (SS)
DIAL FACE:	4 1/2" Satin Finish Aluminum, Black Lines and Numbers.
LENS:	Gasket Sealed Glass (Plexi Glass Optional)
POINTER:	Micrometer Adjustment Type
CAPILLARY:	SS Protected by 1/4" Dia. Flexible SS Armor or 3/16" Dia. Plain Armor
BULB:	SS Welded Construction
ACTUATION:	Nitrogen thru SS Direct Drive Bourdon Coil
ACCURACY:	+/- 1 % of Range Span

REOTEMP's Rugged Direct Drive System makes our 45G series gas actuated series the right choice for temperature indication in heavy duty or high vibration applications.



Its all-stainless steel case and internals, along with the direct drive system, result in superior instrument life in severe environments.

Temperature Ranges

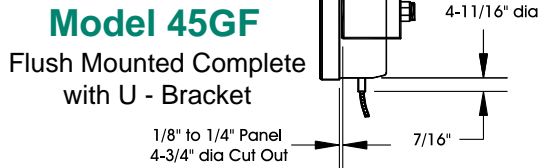
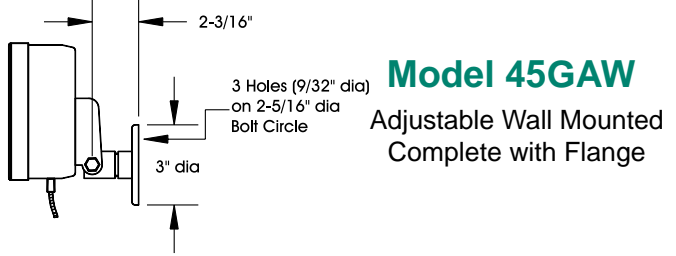
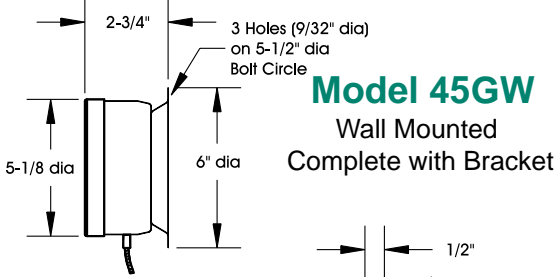
Celsius Ranges		Fahrenheit Ranges	
00	-200/100°C	16	-350/150°F
01	-100/100°C	17	-100/100°F
02	-30/60°C	19	-30/120°F
04	-10/80°C	20	-40/200°F
05	-30/120°C	21	0/100°F
06	-10/150°C	23	0/150°F
07	0/100°C	24	25/125°F
08	0/200°C	25	0/200°F
09	0/240°C	26	0/240°F
10	0/300°C	27	0/300°F
11	0/400°C	30	0/400°F
12	100/400°C	31	0/500°F
13	0/500°C	32	0/600°F
14	0/600°C	34	0/800°F
39	0/50°C	36	0/1200°F
		38	20/240°F



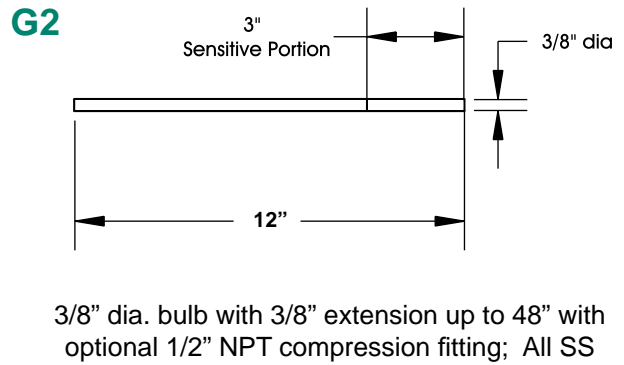
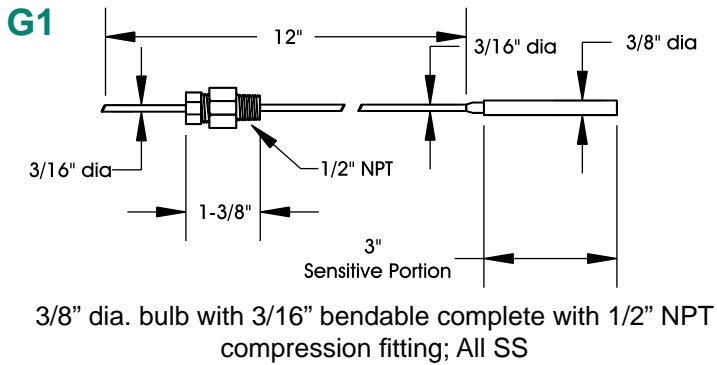
Filled Systems Thermometers

Direct Drive Gas Filled Remote

Case Specifications



Bulbs



How to Order

45GW

06

08

G118

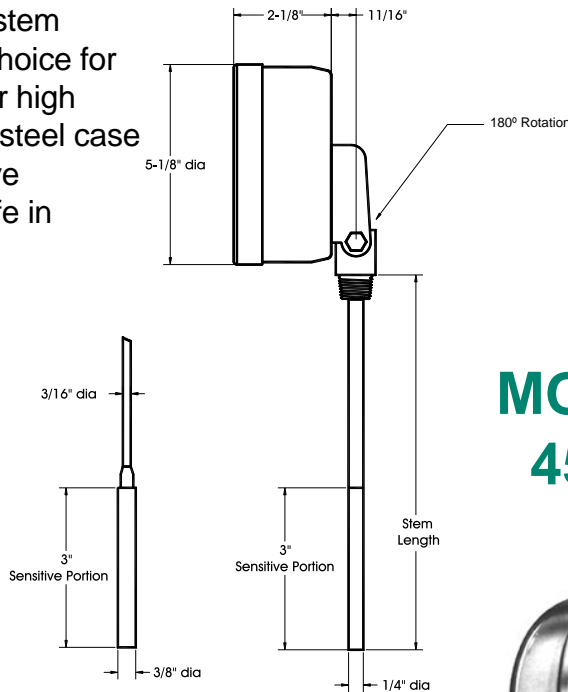
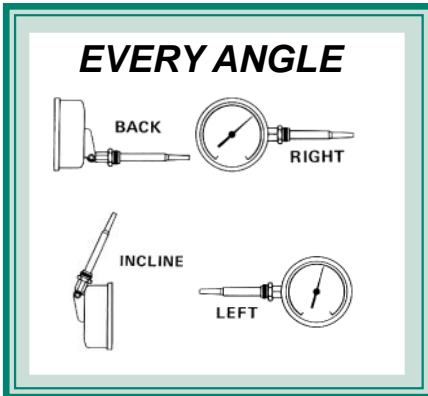
SG

Model	Armored Capillary Length	Temperature Range	Bulb Type	Accessories for Thermowells see pg. 24
45GW = Wall Mount	05 = 5 Feet	See chart on Page 25.	G112 = 12" Bendable Extension with 1/2" NPT Union	EC = Electrical Contacts
45GF = Flush Mount	06 = 6 Feet		G118 = 18" Bendable Extension with 1/2" NPT Union	MP = Max Hand Pointer
45GFF = Front Flange	10 = 10 Feet		G212 = 12" Plain Bulb with Rigid Extension	SG = Tempered Glass
45GAW = Adjustable Wall Mount	Other = Specify Length in Feet		G224 = 24" Plain Bulb with 1/2" NPT Union	PY = Polycarbonate Crystal

REOTEMP INSTRUMENT CORPORATION

Telephone: (800) 648-7737 FAX (858) 784-0720 • sales@reotemp.com • www.reotemp.com

REOTEMP's Rugged Direct Drive System makes our **45GR** and **45LR** the right choice for temperature indication in heavy duty or high vibration applications. Its all-stainless steel case and internals, along with the direct drive system, result in superior instrument life in severe environments.



MODEL 45LR



MODEL 45GR

Specifications:

CASE:	Stainless Steel (SS)
DIAL FACE:	4 1/2" Satin Finish Aluminum, Black Lines and Numbers
LENS:	Gasket Sealed Glass (Polycarbonate Optional)
POINTER:	Micrometer Adjustment Type
BULB:	SS Welded Construction
ACTUATION:	45 LR - Inert Liquid thru SS Direct Drive Bourdon Coil (For *ranges, Nitrogen thru SS), Direct Drive Bourdon Coil. 45GR - Nitrogen thru SS Direct Drive Bourdon Coil.
ACCURACY:	+/- 1 % of Range Span

How to Order

45GR

06

08

ST6 316

Model	Stem Length	Temperature Range	Accessories			
45GR = Gas Actuated 3/8" Stem	02 = 2 1/2" (LR Only)	See chart on Page 25.	Standard Thermowells (3/4"NPT, 316SS)			
	04 = 4"		Stem Length	"U" Dim.	1/4" element	3/8" element
06 = 6"	4"		2.5"	ST4316	GXTW146	
09 = 9"	6"		4.5"	ST6316	GXTW147	
12 = 12"	9"		7.5"	ST9316	GXTW148	
15 = 15"	(More wells on: p.14 p.24)					
45LR = Inert Liquid Actuated, 1/4" Stem			EC = Elec. Connection	SG = Tempered Glass		
			MP = Max Pointer	PY = Plastic Crystal		