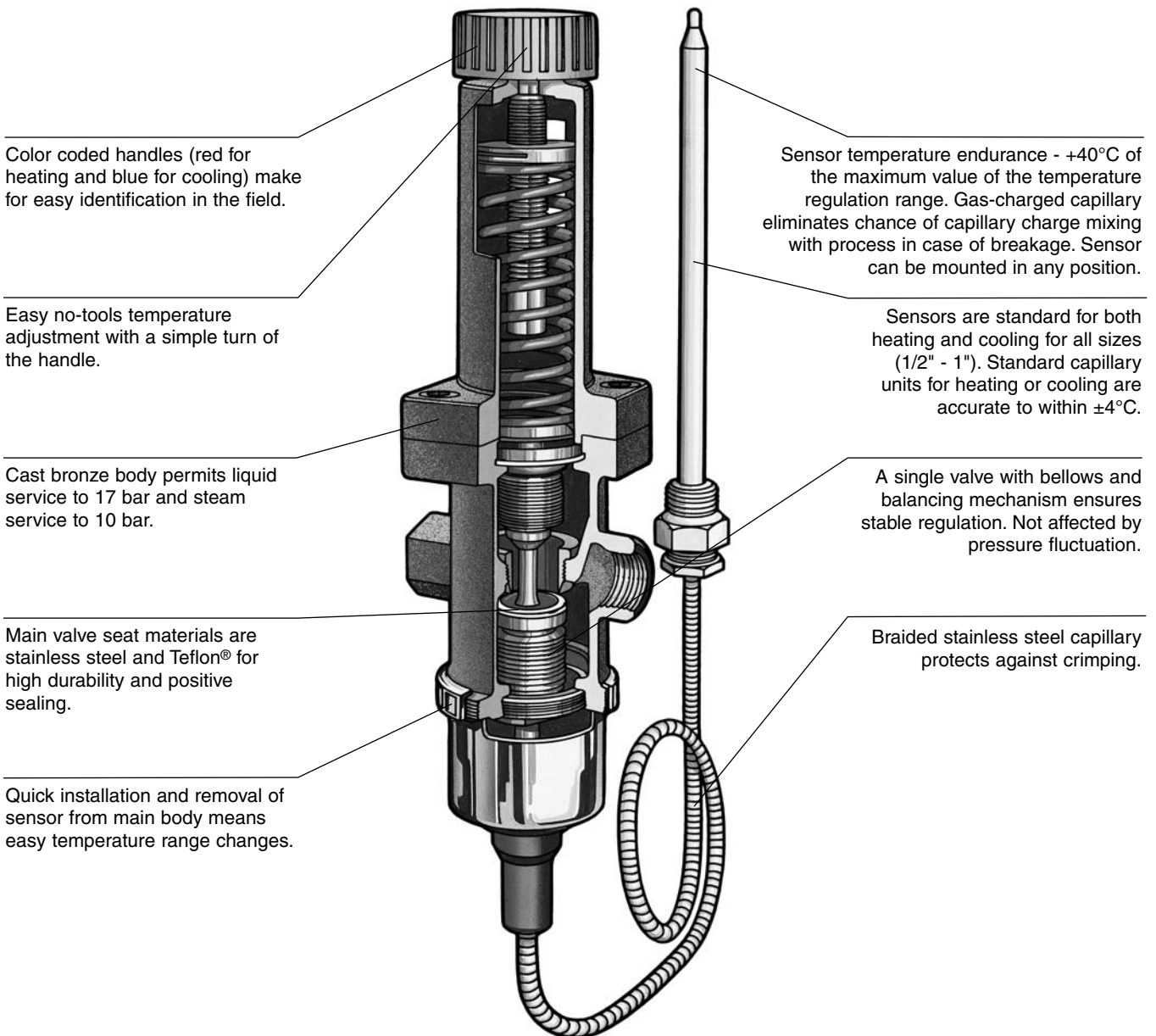


Temperature Regulators

For Steam, Water and Non-Corrosive Liquid Service

Armstrong self-actuated externally piloted temperature regulators are compact, high performance units that are simple in design and operation - and suitable for a wide variety of applications. Features including flexible mounting positions of

the sensor, interchangeable capillaries and varied temperature ranges make installation, adjustment and maintenance quick and easy.



Color coded handles (red for heating and blue for cooling) make for easy identification in the field.

Easy no-tools temperature adjustment with a simple turn of the handle.

Cast bronze body permits liquid service to 17 bar and steam service to 10 bar.

Main valve seat materials are stainless steel and Teflon® for high durability and positive sealing.

Quick installation and removal of sensor from main body means easy temperature range changes.

Sensor temperature endurance - +40°C of the maximum value of the temperature regulation range. Gas-charged capillary eliminates chance of capillary charge mixing with process in case of breakage. Sensor can be mounted in any position.

Sensors are standard for both heating and cooling for all sizes (1/2" - 1"). Standard capillary units for heating or cooling are accurate to within ±4°C.

A single valve with bellows and balancing mechanism ensures stable regulation. Not affected by pressure fluctuation.

Braided stainless steel capillary protects against crimping.

Pressure and Temperature Controls

Table PTC-275-1. Temperature Regulator Valve Selection							
If the Service is	If the Inlet Pressure is	Type of Control	Temperature Ratings (°C)	Temperature Accuracy (°C)	If Maximum Capacity is Less Than	Look for Model	Find on Page
Heating	1 - 10 barg	Self-Contained Direct Acting	0 - 150°C (5 ranges)	± 3°C	792 kg/h	OB-30	PTC-276
	0,5 - 20 barg	Self-Contained Pilot Operated	-8 - 183°C (6 ranges)	± 1°C	29 754 kg/h	OB-2000 OB-2000PT	PTC-278 PTC-280
Cooling	0,34 - 17 barg	Self-Contained Reverse Acting	0 - 150°C (5 ranges)	± 3°C	16 m³/h	OB-31	PTC-276

For Steam, Water and Non-Corrosive Liquids

The Armstrong OB-30/31 is a direct acting temperature regulator that requires no external source for operation. Simple and compact, the unit is suitable for a wide variety of heating/cooling applications. Installing, adjusting or maintaining the OB-30/31 is quick and easy because interchangeable

capillaries mount in any position and disconnect by simply loosening the union nut. No stem packing so there's no leakage. Single composition seat for tight shutoff. The OB-30/31 comes in 1/2", 3/4" or 1" sizes and is available with a choice of five temperature ranges and three capillary lengths.

Table PTC-276-1. OB-30/31 Specifications

Model	Application	Service	Maximum Inlet Pressure (barg)	Maximum Differential (barg)	Temperature Ranges (°C)	Maximum Temperature (°C)	Temperature Accuracy (°C)	Capillary Lengths (m)
OB-30	Heating	Steam, Water	Steam: 10 barg	10	0 - 35	185	± 3 From Set Point	2
					25 - 70			3
					40 - 100			5*
OB-31	Cooling	Water, Non-Corrosive Liquids	Liquid: 17 barg		60 - 130			
					70 - 150			

* Standard length.

Note: Capillary can withstand a maximum of 40°C above rated range. If desired set temperature is in temperature range overlap, select lower range.

Table PTC-276-2. OB-30/31 Materials

Body	Seat	Valve	Capillary	Bulb	Thermal Well
Bronze ASTM B584	Single Seat 304 Stainless Steel	Teflon	Armor Shielded 304 Stainless Steel	Copper-Nickel Plated	304 Stainless Steel or Brass*

* Other materials available upon request

Table PTC-276-3. OB-30/31 Dimensions and Weights

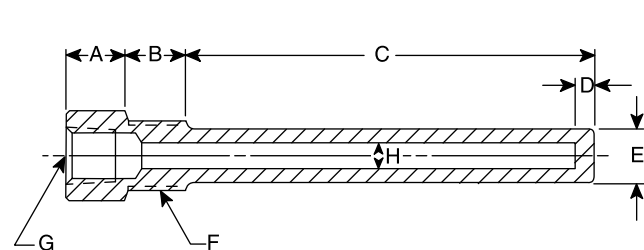
Size	L (mm)	H ₁ (mm)	H (mm)	T (mm)	K (mm)	R (inch)	Weight (kg)	Cv
15 - 1/2"	75	130	320	10	203	1/2"	2,7	3,7
20 - 3/4"	80	130	320	10	203	1/2"	2,8	4,6
25 - 1"	90	130	320	10	203	1/2"	3,0	5,8

All sizes comply with the article 3.3 of the PED (97/23/EC).

Table PTC-276-4. Thermal Well Dimensions

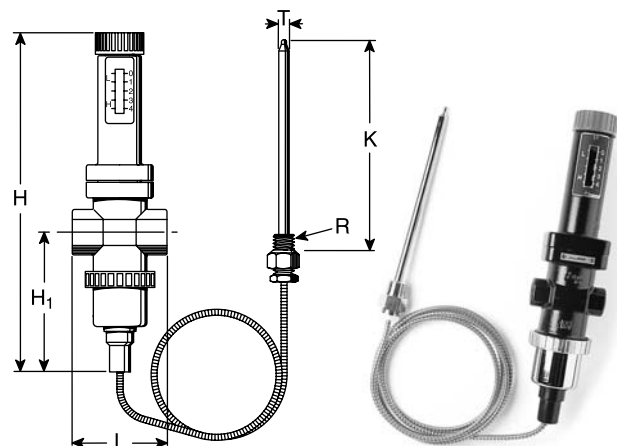
Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (inch)	H (mm)
OB-30/31	20	25	200	6	20	3/4"	1/2"	10
OB-2000/2000PT	25	20	195	6	23	1"	3/4"	16
OBK-2000	25	20	320	6	20	3/4"	1/2"	13

OB-30/31, OBK-2000 and OB-2000/2000PT Thermal Well



Standard Material: 304 stainless steel or brass. Other materials available upon request.

Note: When inserting sensor into thermal well, for best results, it is recommended that heat transfer medium be applied to sensor before installation.



All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.

Table PTC-277-1. OB-30/31 Capacities for steam in kg/h				
Inlet Pressure (barg)	Outlet Pressure (barg)	Connection Size		
		1/2"	3/4"	1"
		15	20	25
0,35	0,20	30	38	48
	0,14	37	45	58
	0,00	46	57	72
0,7	0,55	34	43	54
	0,41	47	59	75
	0,28	57	70	89
1,0	0,00	70	87	110
	0,83	46	57	72
	0,62	63	78	99
1,4	0,41	75	93	118
	0 - 0,35	91	113	143
	1,00	63	79	99
1,7	0,70	82	107	135
	0,35	100	125	158
	0 - 0,14	106	132	167
2,0	1,38	68	85	106
	1,00	93	115	145
	0,70	110	136	172
2,8	0 - 0,35	122	151	191
	1,72	72	90	114
	1,00	117	146	185
3,5	0 - 0,48	137	170	215
	2,00	111	138	175
	1,38	149	185	234
4,0	0 - 0,83	168	209	263
	2,76	122	151	191
	2,00	174	205	259
4,8	0 - 1,2	199	247	311
	3,45	132	164	206
	2,76	180	223	281
5,5	0 - 1,5	229	285	360
	4,00	141	175	221
	3,45	149	193	302
6,0	0 - 1,9	260	323	408
	2,76	228	284	358
	4,83	150	186	280
6,9	4,00	205	255	322
	3,45	244	304	383
	0 - 2,2	291	361	456
8,6	5,52	157	196	247
	4,83	217	315	340
	4,00	259	322	406
10,0	3,45	290	361	455
	0 - 2,6	321	400	504
	6,00	165	205	259
10,0	5,52	228	284	358
	4,83	273	340	428
	4,00	307	382	482
10,0	0 - 2,9	353	438	552
	7,59	222	276	349
	6,90	281	350	441
10,0	5,52	363	451	568
	4,83	392	488	615
	0 - 3,8	429	534	673
10,0	8,97	278	345	435
	8,28	335	416	525
	6,90	417	519	654
0 - 4,3	506	629	793	

Note: Where it is not possible to calculate pressure drop, 35% - 40% of gauge supply pressure can be used as a reasonable approximation.

Temperature Regulator Selection Example

Parameters:

Fluid Steam
 Maximum inlet pressure 7 bar
 Outlet pressure 6 bar
 Maximum flow rate 227 kg/h
 Temperature required 82°C
 Distance from regulator to sensing point..... 1,5 m

To Locate Proper Model:

Enter inlet column at 7 bar
 Move to outlet pressure of 6 bar
 Locate capacity of 227 kg/h under
 connection size 1"
 Find capillary temperature range 25-70°C
 Select capillary length 5 m

Application Will Require:

**OB-30, 1" with 25-70°C Temperature Range,
 Capillary Length 5m**

Table PTC-277-2. OB-30/31 Capacities for water in l/mn			
Differential Pressure (bar)	Connection Size		
	1/2"	3/4"	1"
	15	20	25
0,35	30	38	47
0,70	45	55	70
1,00	55	67	83
1,40	63	78	100
1,70	70	83	107
2,00	77	97	120
3,50	100	127	157
5,00	123	150	187
7,00	143	175	217
8,50	160	197	248
10,00	175	217	267

Table PTC-277-3. Capillary Temperature Ranges (°C)	
	0 - 35
	25 - 70
	40 - 100
	60 - 130
	70 - 150

Note: If desired set temperature is in temperature range overlap, select lower range.

Pressure and Temperature Controls