

For Steam or Water

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 which can be used for Steam, Hot Water, Cold Water and Non Corrosive Liquids.

For a fully detailed certified drawing, refer to CDY #1036.

OB-30/31 Specifications								
Model	Application	Service	Max. Inlet Pressure psig (barg)	Maximum Diff. psig (barg)	Temperature Ranges °F (°C)	Max. Temp. °F (°C)	Temperature Accuracy °F (°C)	Capillary Lengths feet (meters)
OB-30	Heating	Steam and Water	Steam 150 (10)	140 (9.6)	32 - 95 (0 - 35) 77 - 158 (25 - 70)	366 (185)	±7 (±3) From Set Point	*6-1/2 (2) 9-1/2 (3) 16-1/2 (5)
OB-31	Cooling	Steam and Water	Liquid 250 (17)		104 - 212 (40 - 100) 140 - 266 (60 - 130) 158 - 302 (70 - 150)			

*Standard length.

NOTES: Capillary can withstand a maximum of 72°F (40°C) above rated range. If desired set temperature is in temperature range overlap, select lower range.

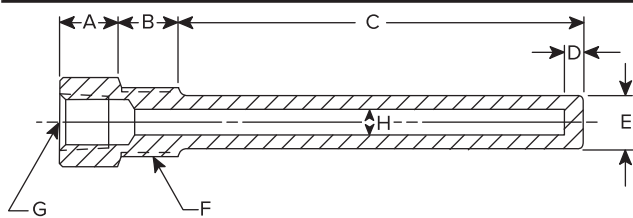
OB-30/31 Materials					
Body Material	Seat Type & Material	Valve Material	Capillary Material	Bulb Material	Thermal Well Material
Bronze ASTM B584	Single Seat 304 Stainless Steel	Teflon	304 Stainless Steel Armor Shielded Capillary	Copper-Nickel Plated	*304 Stainless Steel or Brass

*Other materials available upon request.

OB-30/31 Dimensions and Weights																
Size		L		H ₁		H		T		K		R		Weight		C _v
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
1/2	15	3	80	5-1/8	130	12-1/2	315	3/8	10	8	200	1/2	15	6	2.8	3.7
3/4	20	3-1/8	85	5-1/8	130	12-1/2	315	3/8	10	8	200	1/2	15	6	2.8	4.6
1	25	3-1/2	95	5-1/8	130	12-1/2	315	3/8	10	8	200	1/2	15	6-1/2	3.0	5.8

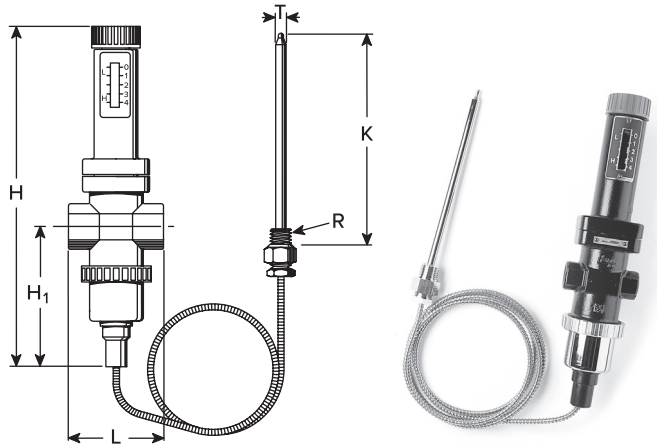
Thermal Well Dimensions																
Model	A		B		C		D		E		F		G		H	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
OB-30/31	3/4	20	1	25	7-1/2	204	1/4	7	.765	20	3/4	20	1/2	15	.380	10
OB-2000/2000PT	1	25	3/4	20	7-3/4	197	1/4	7	.89	23	1	25	3/4	20	.630	16
OBK-2000	1	25	3/4	20	12-1/2	318	1/4	7	.765	20	3/4	20	1/2	15	.515	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.



Designs, materials, weights and performance ratings are approximate and subject to change without notice. visit armstronginternational.com for up-to-date information.



Armstrong® OB-30/31

OB-30 Capacities—Steam									
Inlet	Outlet	lb/hr			kg/hr				
		Connection Size			Connection Size				
		in			mm				
psig	1/2	3/4	1	barg	15	20	25		
C _v Factors	3.7	4.6	5.8	C _v Factors	3.7	4.6	5.8		
5	3	67	83	105	.35	.20	30	38	48
	2	81	100	127		.14	37	45	58
	0	101	126	159		0	46	57	72
10	8	75	94	118	.7	.55	34	43	54
	6	104	130	164		.41	47	59	75
	4	125	155	196		.28	57	70	89
	0	154	191	241		0	70	87	110
15	12	101	125	158	1.0	.83	46	57	72
	9	139	172	218		.62	63	78	99
	6	165	205	259		.41	75	93	118
20	0-5	200	249	314	1.38	0-.35	91	113	143
	15	139	173	218		1.0	63	79	99
	10	181	235	296		.7	82	107	135
25	5	221	275	347	1.72	.35	100	125	158
	0-2	234	290	367		0-.14	106	132	167
	20	149	186	234		1.38	68	85	106
30	15	204	254	320	2.0	1.0	93	115	145
	10	241	300	378		.7	110	136	172
	0-5	268	333	420		0-.35	122	151	191
40	25	159	198	250	2.76	1.72	72	90	114
	15	258	322	406		1.0	117	146	185
	0-7	302	375	473		0-.48	137	170	215
50	30	244	304	384	3.45	2.0	111	138	175
	20	328	408	515		1.38	149	185	234
	0-12	369	459	579		0-.83	168	209	263
60	40	268	333	420	4.0	2.76	122	151	191
	30	383	451	569		2.0	174	205	259
	0-17	437	543	685		0-1.2	199	247	311
70	50	290	360	454	4.83	3.45	132	164	206
	40	395	491	619		2.76	180	223	281
	0-22	504	627	791		0-1.5	229	285	360
80	60	310	385	486	5.52	4.0	141	175	221
	50	328	424	665		3.45	149	193	302
	40	502	624	787		2.76	228	284	358
90	0-27	572	711	897	6.0	0-1.9	260	323	408
	70	329	409	616		4.83	150	186	280
	60	452	562	708		4.0	205	255	322
100	50	537	668	842	6.9	3.45	244	304	383
	0-32	640	795	1003		0-2.2	291	361	456
	80	346	431	543		5.52	157	196	247
125	70	478	694	749	8.62	4.83	217	315	340
	60	570	708	893		4.0	259	322	406
	50	639	795	1002		3.45	290	361	455
150	0-37	707	879	1109	10.0	0-2.6	321	400	504
	90	363	452	570		6.0	165	205	259
	80	502	625	788		5.52	228	284	358
175	70	600	747	942	13.0	4.83	273	340	428
	60	676	840	1060		4.0	307	382	482
	0-42	776	963	1215		0-2.9	353	438	552
200	110	489	608	767	16.0	7.59	222	276	349
	100	619	770	971		6.9	281	350	441
	80	798	992	1250		5.52	363	451	568
225	70	863	1073	1353	19.0	4.83	392	488	615
	0-55	944	1174	1480		0-3.8	429	534	673
	130	611	759	958		8.97	278	345	435
250	120	736	915	1154	22.0	8.28	335	416	525
	100	918	1141	1439		6.9	417	519	654
	0-63	1113	1384	1745		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 100 psig
 Outlet pressure 90 psig
 Maximum flow rate 500 lbs/hr
 Temperature required 150°F
 Distance from regulator to sensing point 5'

To Locate Proper Model:

Enter inlet column at 100 psig
 Move to outlet pressure of 90 psig
 Locate capacity of 570 lbs/hr under
 connection size 1"
 Find capillary temperature range 77-158°F
 Select capillary length 6-1/2'

Application Will Require:

**OB-30, 1" with 77-158°F Temp. Range,
 Capillary Length 6-1/2'**

OB-30/31 Capacities—Water							
Δ P	gpm			l/min			
	Connection Size			Connection Size			
	in			mm			
psig	1/2	3/4	1	barg	15	20	25
5	8.1	10.1	12.3	.35	30	38	47
10	11.9	14.3	18.5	.70	45	55	70
15	14.3	17.6	22.0	1.00	55	67	83
20	16.7	20.7	26.4	1.40	63	78	100
25	18.5	22.0	28.2	1.80	70	83	107
30	20.3	25.6	31.7	2.00	77	97	120
50	26.4	33.5	41.4	3.50	100	127	157
75	32.6	39.6	49.3	5.20	123	150	187
100	37.9	46.2	57.2	7.00	143	175	217
125	42.2	52.0	65.6	8.70	160	197	248
150	46.3	57.25	70.5	10.00	175	217	267

Capillary Temperature Ranges

Temperature Ranges °F (°C)
32 - 95 (0 - 35)
77 - 158 (25 - 70)
104 - 212 (40 - 100)
140 - 266 (60 - 130)
158 - 302 (70 - 150)

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