

Mark 82 Series

Internal Piloted Temperature Regulators

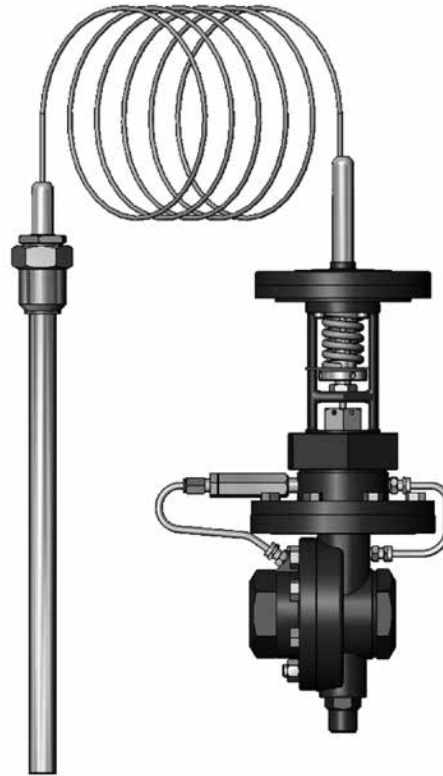
OPERATION

Reverse Acting MK82 – The internal pilot valve seats and the main valve seats are up and closed. As the process temperature rises, the fluid in the sensing bulb vaporizes to apply pressure to the pilot diaphragm, thus opening the pilot valve. The upstream pressure passes through the pilot valve, through the pilot port opening the main valve to provide the required cooling action.

As the temperature sensed at the bulb drops, the pilot valve tends to close, shutting off pressure to the main valve's diaphragm. The lower spring closes the main valve as the pressure on the main diaphragm is bled off through the downstream port.

Direct Acting MK82 – operates as above except that the pilot valve is normally open and closes on an increase in temperature.

MK82FS – features a controlled failure option which allows you to predetermine the position of the valve in the event of thermal system failure. It utilizes a vacuum to insure that, if the thermal system fails, the spring pulls down the pilot diaphragm to open the main valve seats on reverse acting valves and close the main valve seats on direct acting valves.



FEATURES

- Sliding Gate Seats – All of Jordan Valve's pilot-operated temperature regulators feature advanced sliding gate seat technology
 - Straight-through flow for reduced turbulence, longer life and quiet operation
 - Short stroke for fast response and accurate regulation
 - Easily interchangeable Cv's
 - Extended tight shutoff due to wear resistant coatings and overlap of seat closure area



Jordan Valve a division of Richards Industries
3170 Wasson Road • Cincinnati, OH 45209
513.533.5600 • 800.543.7311 • 513.871.0105 (f)
info@richardsind.com • www.jordanvalve.com

SPECIFICATIONS

Sizes: 1/2" through 2" (DN15 through DN50)

End Connections

- Threaded
- Flanged Ends

Body Materials

- Ductile Iron
- Bronze

Trim Materials

- Stainless Steel
- Bronze

Seat Materials

- Jorcote on SST – Standard
- Jorcote/Jordanic on SST – For severe service
- Chrome Plated SST – Optional

Yoke: Cast Iron

Stem Packing: Spring-loaded Teflon (500°F max /260°C)

Thermal System

- Actuator: MK82 – Cast Iron 506
- Actuator: MK82FS – Cast Iron 715
- Standard Capillary: 8' (2,4m) Copper

Armor: Brass

Sensing Bulb

- Copper – standard
- Other materials upon request

Shutoff: ANSI Class IV

Service: Steam, oil, gas, air, water, chemicals

Temperature Span: 4°F will stroke valve from closed to full open. A 20% load change results in 3/4°F change

Overheat Protection

- MK82: 100°F (37,8°C)
- MK82FS: 130°F (54,4°C) above top end of control range

Body Rating: Ductile Iron up to 700 psi (48,3 bar); Bronze up to 500 psi (34,5 bar) and 500°F (260°C) depending upon specific construction. Temperature limit of -20°F (-28,9°C) on all materials; for other temperatures, consult factory

Pressure Differential: For proper operation, a minimum ΔP of 25 psig (1-1/2" & 2"), 20 psig (1" & 1-1/4"), or 15 psig (1/2" & 3/4") is required from inlet to outlet

Temperature Control Ranges

Mark 82			
10 - 55°F (-12 - 13°C)	25 - 95°F (-4 - 35°C)	50 - 115°F (10 - 46°C)	75 - 140°F (24 - 60°C)
110 - 190°F (43 - 88°C)	145 - 225°F (63 - 107°C)	190 - 260°F (88 - 127°C)	220 - 295°F (104 - 146°C)
255 - 325°F (124 - 163°C)			
Mark 82FS			
40 - 80°F (4 - 27°C)	75 - 115°F (24 - 46°C)	100 - 135°F (38 - 57°C)	130 - 165°F (54 - 74°C)
155 - 190°F (68 - 88°C)	170 - 210°F (77 - 99°C)	190 - 230°F (88 - 110°C)	210 - 250°F (99 - 121°C)
240 - 285°F (116 - 141°C)			

Cv (Kv) Values & Maximum Differential Pressures

Valve Size		Flow Coefficient		Seat Material	Max ΔP
Inches	DN	Cv*	Kv*		PSI (BAR)
1/2"	15	2,5 or 4,4	2,2 or 3,8	SST	125 (9)
				Jorcote	250 (17)
3/4"	20	2,5 or 4,4	2,2 or 3,8	SST	125 (9)
				Jorcote	250 (17)
1"	25	6,4 or 9,5	5,5 or 8,2	SST	125 (9)
				Jorcote	250 (17)
1-1/4"	32	6,4 or 9,5	5,5 or 8,2	SST	125 (9)
				Jorcote	250 (17)
1-1/2"	40	15	12,9	SST	75 (5)
				Jorcote	250 (17)
2"	50	25 or 30	21,5 or 25,8	SST	75 (5)
				Jorcote	250 (17)

* 2.5 Cv (2,2 Kv) is the lowest permissible value

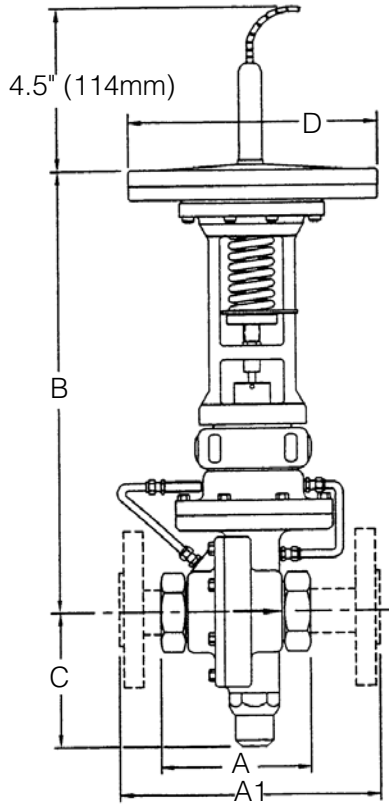
Bulb and Well Dimensions

Bulb/Well Type	Nominal Bulb Size (diameter x length)*	
	101°F (38,3°C) or above	100°F (37,7°C) or below
Bulb Type A & B	MK82: 3/4" x 8" (19mm x 203mm)	MK82: 3/4" x 14" (19mm x 356mm)
	MK82FS: 3/4" x 14" (19mm x 356mm)	MK82FS: 3/4" x 20" 19mm x 508mm
Bulb Type C	1" x 12" (SST only) (25mm x 305mm)	1" x 14" (SST only) (25mm x 356mm)
	1-1/8" x 14" (Copper only) (29mm x 356mm)	1-1/8" x 14" (Copper only) (29mm x 356mm)
Bulb Type D - E - F	MK82: 3/4" x 8" (19mm x 203mm)	MK82: 3/4" x 14" (19mm x 356mm)
	MK82FS: 3/4" x 14" (19mm x 356mm)	MK82FS: 3/4" x 20" 19mm x 508mm
Well Type A (Standard)	To fit bulb with 1" NPT tank fitting	
Well Type B (Flanged)	To fit bulb with 1-1/2" or 2" x 150/300# flange	

Consult factory for insertion length and special bulb length

MARK 82 INTERALLY PILOTED TEMPERATURE REGULATOR

DIMENSIONS



- Mark 82: Flanged Ends

Valve Size	ANSI Flange	Dimensions (inches)				Weight lbs
		A1	B	C	D	
1/2"	150#	7.50	9.50	3.00	5.00	24
	300#	7.50	9.50	3.00	5.00	26
3/4"	150#	7.63	9.50	3.00	5.00	26
	300#	7.63	9.50	3.00	5.00	28
1"	150#	7.75	9.88	3.38	5.00	29
	300#	7.75	9.88	3.38	5.00	31
1-1/4"	150#	8.38	9.88	3.38	5.00	29
	300#	8.38	9.88	3.38	5.00	33
1-1/2"	150#	9.25	10.13	3.56	5.00	33
	300#	9.25	10.13	3.56	5.00	39
2"	150#	10.50	10.25	3.75	5.00	39
	300#	10.50	10.25	3.75	5.00	43

- Mark 82: Flanged Ends (Metric)

Valve Size	Flange PN	Dimensions (mm)				Weight kgs
		A1	B	C	D	
15	10/16	130	241	76	127	10,5
	25/40	130	241	76	127	11,8
20	10/16	150	241	76	127	11,8
	25/40	150	241	76	127	12,7
25	10/16	160	251	86	127	13,2
	25/40	160	251	86	127	14,1
32	10/16	180	251	86	127	13,2
	25/40	180	251	86	127	15,0
40	10/16	200	257	90	127	15,0
	25/40	200	257	90	127	17,7
50	10/16	230	260	95	127	17,7
	25/40	230	260	95	127	19,5

- Mark 82 Threaded Ends

Valve Size	Dimensions (Inches)				Weight lbs
	A	B	C	D	
1/2"	3.75	9.50	3.00	5.00	22
3/4"	3.75	9.50	3.00	5.00	22
1"	4.13	9.88	3.38	5.00	25
1-1/4"	4.13	9.88	3.38	5.00	25
1-1/2"	4.50	10.13	3.56	5.00	27
2"	4.50	10.13	3.75	5.00	29

- Mark 82 Threaded Ends (Metric)

Valve Size	Dimensions (mm)				Weight kgs
	A	B	C	D	
15	95	241	76	127	10,0
20	95	241	76	127	10,0
25	105	251	86	127	11,3
32	105	251	86	127	11,3
40	114	257	90	127	12,2
50	114	260	95	127	13,2

ORDERING SCHEMATIC

Model No	Size	Body Mat'l	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Model	
82	Standard
82T	with Temperature Gauge
82FS	Fail Safe

Size	
050	1/2" (DN15)
075	3/4" (DN20)
100	1" (DN25)
125	1-1/4" (DN32)
150	1-1/2" (DN40)
200	2" (DN50)

Body Material	
DI	Ductile Iron
BR	Bronze

1 & 2	End Connections
PT	NPT
BT	BSPT
BP	BSPB
F5	150# FE
F3	300# FE

3 & 4	Trim Material
S3	303SS
S6	316SS
L1	303SS/LO DP 5-10
L2	316SS/LO 5-10
L3	303SS/LO DP 10-15
L4	316SS/LO DP 10-15
L5	303SS/LO DP 15-20
L6	316SS/LO DP 15-20

5	Seats
V	303SS/Jorcote
W	316SS/Jorcote
A	303 SST
B	316 SST

6	Cv (Kv)			
1	0.21 (0,18)	7	6.4 (5,5)	
2	0.42 (0,36)	8	9.5 (8,2)	
3	0.84 (0,72)	9	15 (12,9)	
4	1.6 (1,4)	A	25 (21,5)	
5	2.5 (2,2)	B	30 (25,8)	
6	4.4 (3,8)			

7 & 8	Range			
	Mark 82		Mark 82FS	
06	-20 to 20°F		20	40 to 80°F
12	10 to 55°F		32	75 to 115°F
16	25 to 95°F		40	100 to 135°F
26	50 to 115°F		51	130 to 165°F
33	75 to 140°F		55	155 to 190°F
43	110 to 190°F		59	170 to 210°F
54	145 to 225°F		61	190 to 230°F
63	190 to 260°F		67	210 to 250°F
69	220 to 295°F		74	240 to 285°F
78	255 to 325°F		82	270 to 325°F
85	300 to 405°F			
91	370 to 450°F			

9 & 10	Thermowell		
	Type, Fitting, & Mat'l	Size: For Bulb Dia x Length	
C	Type A, 3/4" NPT, Cu	H	3/4" x 8"
D	Type A, 3/4" NPT, SST	J	3/4" x 14"
E	Type B, 1-1/2"x150#, SST	K	3/4" x 20"
F	Type B, 1-1/2"x300#, SST		
G	Type B, 2"x150#, SST		
H	Type B, 2"x300#, SST		
N	None		
Tank Fitting Only			
21	3/4" NPT, Brass for 3/4" Bulb		
12	3/4" NPT SST for 3/4" Bulb		
23	1" NPT Brass for 3/4" Bulb		
24	1" NPT SST for 3/4" Bulb		
NN	None		

11 & 12	Bulb		
	Type & Material	Diameter x Length	
A	Type A, Cu	4	3/4" x 8"
G	Type A, SST	5	3/4" x 14"
H	Type B, SST	6	3/4" x 20"

13 & 14	Capillary/Armor		
	Material	Length	
A	Copper	1	8' (2,4 m)
B	SST	2	10' (3,0 m)
		3	12' (3,7 m)
		4	15' (4,6 m)
		5	20' (6,1 m)

15	Action
5D	Direct
5R	Reverse