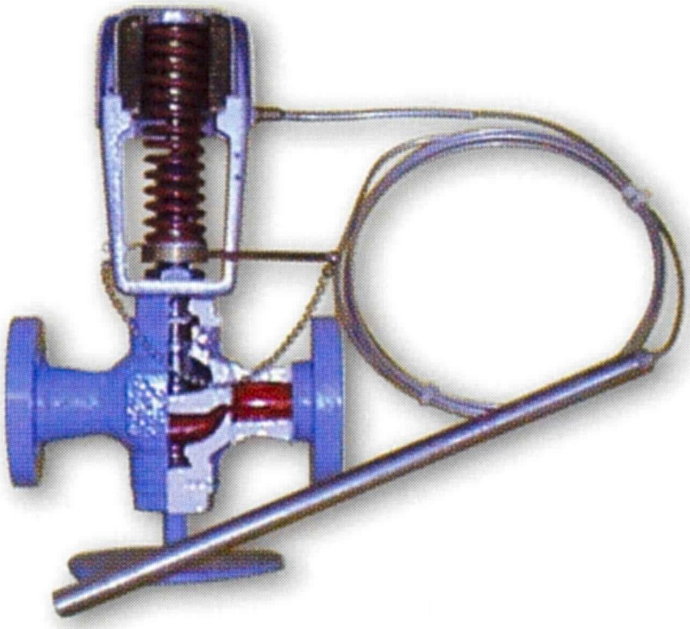
mar-in Controls b.v.

TEMPERATURE REGULATOR VALVE

TYPE AT / S2 / D

TECHNICAL MANUAL
TEMPERATURE REGULATOR



TYPE AT / S2 / D

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INSTALLATION AND OPERATING INSTRUCTIONS

VALVE AND STRAINER CONNECTIONS

The valve should be placed so that the heating or cooling medium will flow through it in the direction of the arrow cast on the valve body. A strainer “S” should be placed ahead of the valve (see Fig. 1)

To avoid stresses on the valve or unions, the connecting pipes should be cut to exact length required and should be in correct alignment.

To connect the valve, remove the unions “U” from the valve body and attach them to the nipples on each side of the valve. When tightening the unions to the Regulator Valve use two wrenches. Never use the Regulator Frame “F” for leverage.

Hand valves “X” and “Y” with by-pass and hand valve “Z” are found convenient on some installations.

BULB CONNECTION

The location of the bulb should be chosen carefully so that the temperature of the medium around the bulb or well will be representative of the entire body of fluid being heated or cooled.

When large volumes of oil are being heated it may be necessary to place the place the bulb near the heating coils to avoid dangerous hot spots which would result if the bulb was remote from the heating coils.

Plain bulb, without the unions fittings, are used in open tanks, ovens, drying rooms, kilns, etc. The bulb on these installations should be suspended vertically, pointing downward, and held securely by suitable straps or clamps. If the application requires that the bulb be held in a horizontal position, the free end of the bulb must not be higher than the fixed end, and the red dot must be upward. If the free end of the bulb must be above the fixed end, a special bulb connection must be required.

Union connected bulbs should have their entire effective length totally immersed in the medium to be regulated. This length is set at the factory, as shown in figure 2. and should be maintained during installation and use.

When a well is used the bulb should be coated with a heat conducting medium such as a mixture of graphite and glycerine or high temperature grease. This improves the speed of response of the regulator.

To assemble union connected or well type bulbs, remove the union bushing or well “W” from the bulb by releasing the jam nut “N”. Attach the union bushing or well tightly to the equipment.

Insert the bulb into the bushing or well making sure first that the insertion depth corresponds to figure 2. After the bulb is inserted, position it so that the red dot on the bulb is upward, then tighten the jam nut ”N” to secure the bulb to the union bushing or well.

TO START THE REGULATOR

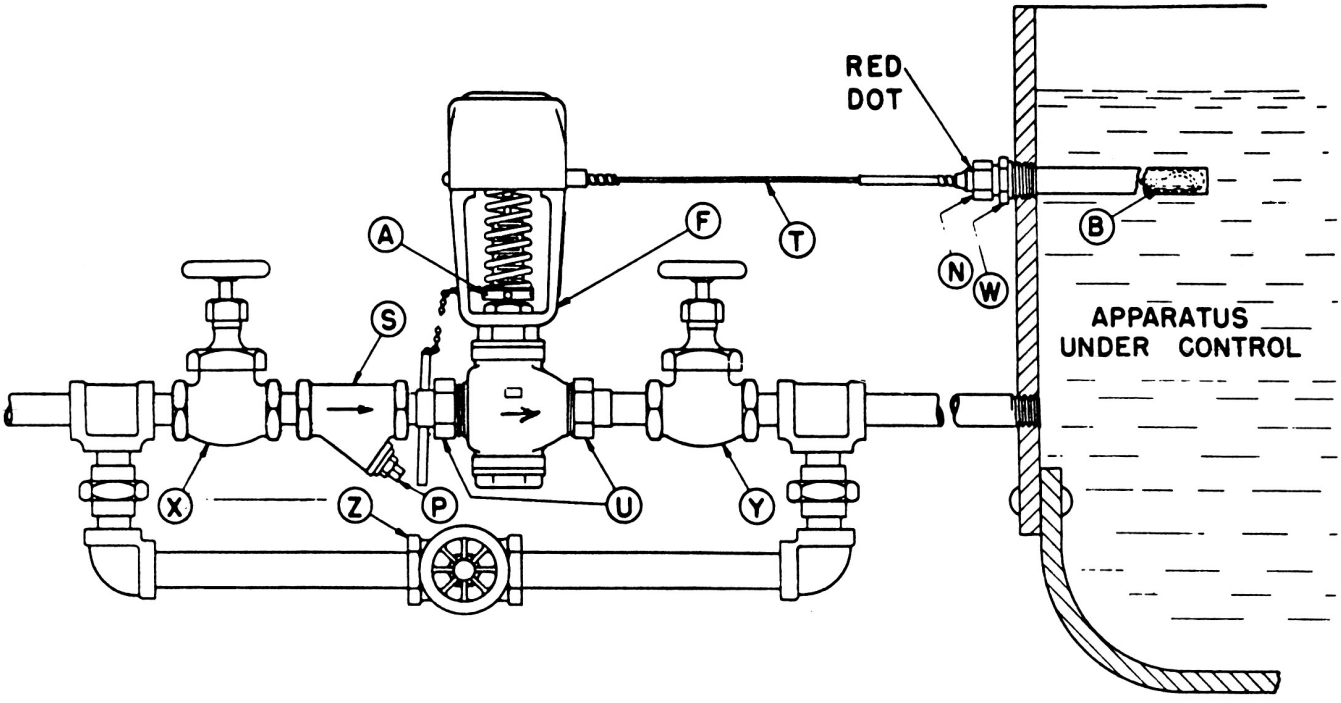
After the installation is completed, open the hand valves “X” and “Y” and close the by-pass valve “Z” (if a by-pass is used). Unless otherwise specified, the regulator is shipped from factory with the adjustment nut “A” at its lowest position and must therefore be raised to the desired control setting. When the temperature, for which the regulator has been set, is reached, it will be maintained automatically.

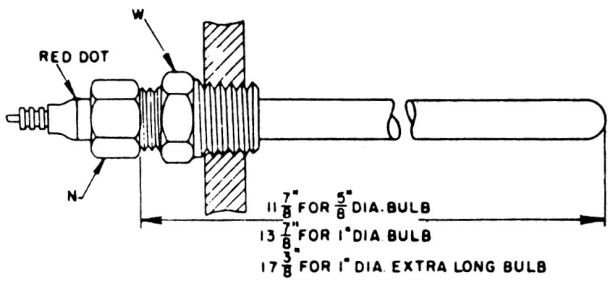
ADJUSTMENT

The operating range of the regulator is indicated on the nameplate. The setting scale is stamped on the side of the frame “F” and is graduated 0 to 10 representing the limits of the operating range. This is an arbitrary scale, since it must necessarily vary for different temperature ranges. The arm extending out from the adjusting nut “A” indicates the temperature a setting.

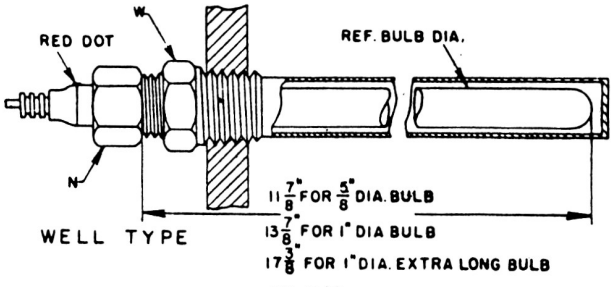
To change the temperature setting turn the adjusting nut “A” up if a higher temperature is desired and down if a lower temperature is desired. The adjusting pin needed for this purpose is chained to the end of the indicating arm.

On Regulators equipped with a temperature indicator, the orientation of the indicator may be changed by loosening the bracket retaining screws and rotate the indicator a maximum 180° in either direction.





Union Connected



Well Type

The following table gives the approximate temperature equivalent for all the scale settings of each temperature range. The values given in the table are not absolute. They will vary from one regulator to another because of manufacturing tolerances. On the initial starting the controlled temperatures may overshoot slightly then drop back. Allow sufficient time for the process to stabilize before checking the controlled temperature and making finer adjustments.

Table of Approximate Temperature Equivalents for various Scale Settings of Regulators

Regulator Scale Setting	CENTIGRADE RANGES													
	-25/10	-25/20	10/45	10/60	20/60	20/75	35/70	35/90	55/90	55/110	70/115	70/135	115/155	115/170
0	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1	-26	-24	7	10	18	21	32	34	*	*	71	72	113	116
2	-19	-15	14	21	27	33	39	46	53	64	78	86	121	131
3	-13	-6	22	31	33	42	47	56	62	75	88	95	129	138
4	-8	2	27	39	39	52	53	64	71	84	94	106	135	147
5	-3	7	33	46	46	58	59	71	76	92	100	114	141	153
6	1	13	38	51	51	64	63	77	81	98	106	121	146	159
7	4	17	42	57	55	70	67	82	86	105	111	127	151	165
8	8	25	46	62	59	75	71	87	91	111	115	133	154	169
9	12	27	50	67	63	81	76	92	96	116	119	139	158	175
10	14	30	54	70	69	84	78	97	100	121	124	143	161	178

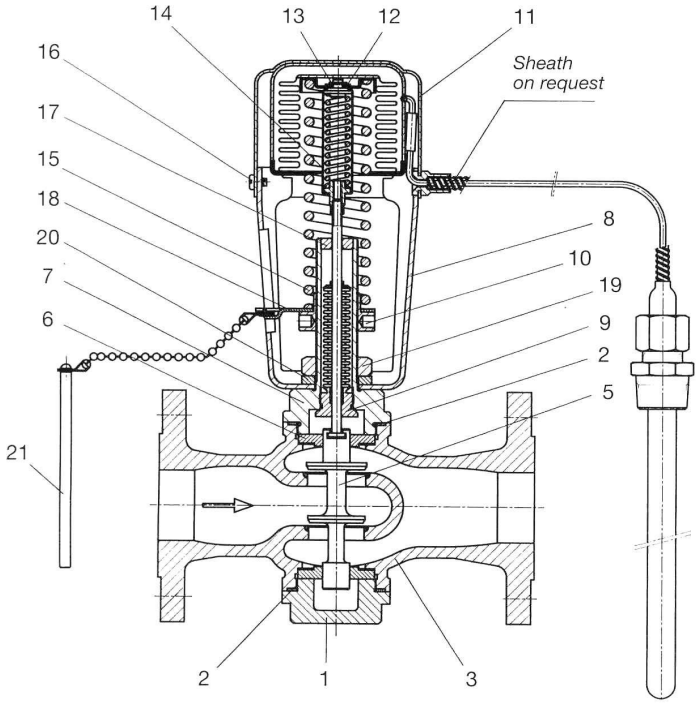
Maintenance

The adjusting nut “A” of each regulator is permanently lubricated before leaving the factory, and the valve stem is equipped with a spring loaded Teflon packing gland assembly so that no maintenance should be required for the life of the regulator.

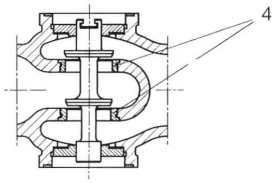
The valve stem is set and locked at the factory in a permanent position to give the valve its proper travel. No adjustment should ever be made on the valve stem after the regulator leaves the factory.

The strainer “S” protects the valve disc and seat of the regulator valve from the destructive effects of scale, etc. The strainer should be blown out at regular intervals by removing the plug “P”. For quick blowouts, a hand valve may be installed on the strainer in place of the plug “P”.

The strainer screen should be removed occasionally for inspection, cleaning, or renewal.

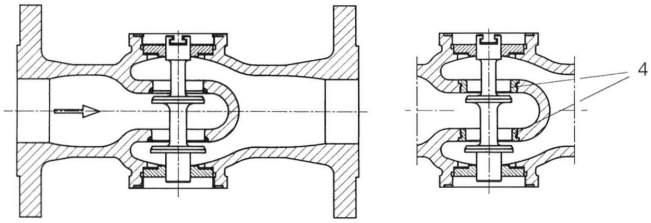


DN 32-40-50



DN 15-20-25

Reverse action



DN 32-40-50 DN 15-20-25

Partslist

1	Valve body cover
2*	Gasket
3	Valve body
4	Seat
5*	Plug
6*	Plug guide
7	Sleeve
8	Frame
9*	Stem with bellows
10	Spring adjusting ring
11*	Sensitive element Bellows Bulb + Capillary assembly
12	Washer
13	"Seeger" ring
14	Load limiting device assembly
15	Set spring
16	Screw
17	Stem guide bushing
18	Spring adjusting pointer
19	Frame nut
20	Washer
21	Adjusting pin

* Recommended spare parts