MVA GmbH • Mess- und Verfahrenstechnik
Lochhamer Schlag 6 • D-82166 Gräfelfing

Fon: +49/89-85 83 69 -0 • Fax: +49/89-85 83 69 -70
info@mva-valves.com • www.mva-valves.com

Self-actuated control elements

Element series 050

Element series 020 (kanigen plated)

The power creating medium utilizes the expansion of a special thermostatic wax material which remains in a semi-solid form and which is highly sensitive to temperature changes. The wax material is in the upper capsule, which dips in the medium that has to be controlled. Installation in any position; the pressure of the monitored liquid is at max. PN 63. Higher pressures on request. The max. delta p is 1,37 bar (20 p.s.i.) in the standard version.

In normal operation (nominal temperature), the sliding valve is normally in about the mid-position. When the unit operates, the expansion of the thermostatic material forces a molded rubber plug into a reduced diameter in the piston guide, which multiplies the movement of the piston by an extruding action. In the piston guide the piston moves back and forth. That movement causes the movement of the sliding sleeve.

The operating range is determined by the chemical composition of the wax material. Construction is simple and rugged, the unit is very sensitive to changes in temperature. Changes in pressure do not affect the element and as a result, they do not act on stability of the control behavior and the stability of the entire temperature control loop.

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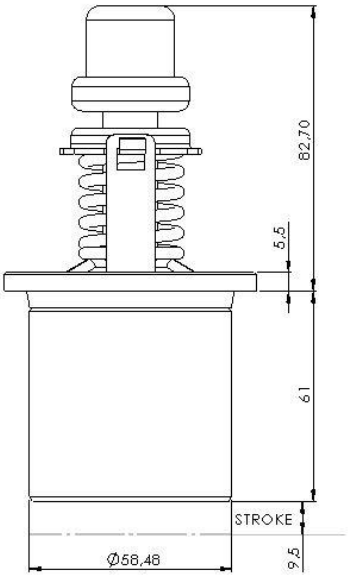
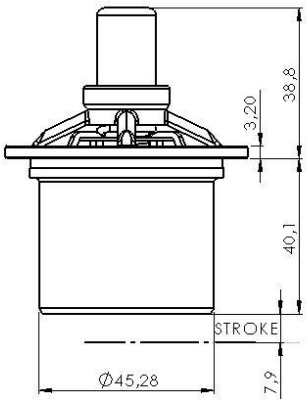
Self-actuated control elements

Dimensions of the elements

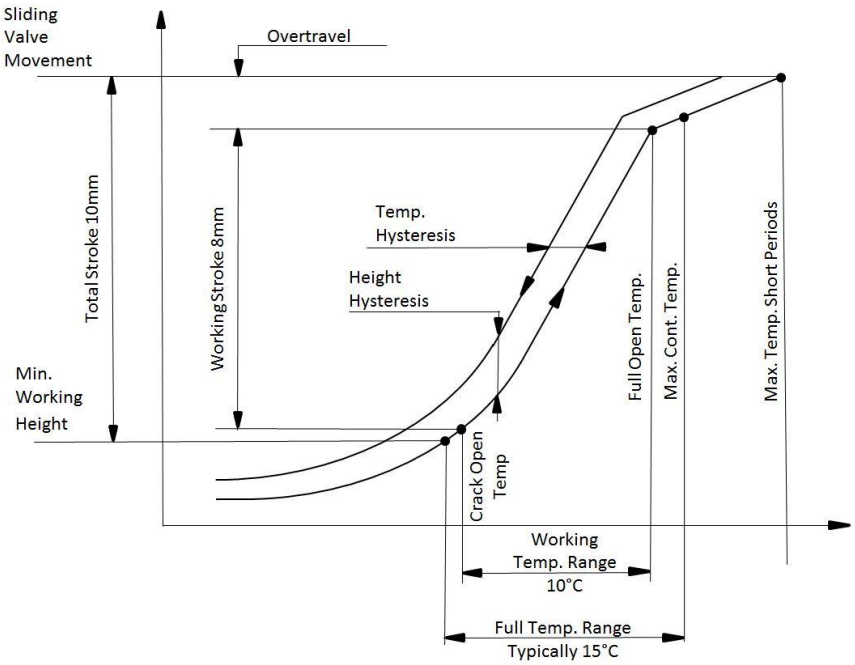
Elements series 050



Elements series 020



Hysteresis diagramm series 020



Hysteresis: The gap between upstroke and downstroke curve describes the element hysteresis. The hysteresis is caused of volume change delay of the wax material by temperature change.

Curve: The curve illustrates the movement of the element assembly respectively the slider sleeve in dependence to the change of the temperature.

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Übersicht der Temperaturbereiche der Regelelemente:

Element series 050

Type of elements
2001A Standard for water und oil
2030P kanigen plated
Used in MVA temperature control-valves
DN50...DN150

Nominal temperature of the element no.

No.		"cold"		"warm"
075 °F	= 24°C	21 °C	-	29 °C
090	= 32	27	-	35
095	= 35	30	-	41
100	= 38	35	-	43
105	= 41	35	-	45
110	= 43	38	-	47
115	= 46	40	-	50
120	= 49	44	-	54
130	= 55	52	-	60
135	= 57	54	-	63
140	= 60	57	-	66
145	= 63	60	-	69
150	= 66	63	-	71
155	= 68	66	-	74
160	= 71	68	-	77
165	= 74	71	-	79
170	= 77	74	-	82
175	= 79	77	-	85
180	= 82	79	-	88
185	= 85	82	-	91
195	= 91	87	-	98
205	= 96	93	-	102
215	= 102	99	-	107
225	= 108	102	-	113
230	= 110	104	-	115
240	= 116	108	-	122

Element series 020

Type of elements
2040A Standard for water and oil
P2040A kanigen plated
Used in MVA temperature control-valves
DN20...DN40

Nominal temperature of the element no.

No. / control range °F / °C	„cold“		„warm“
065/18	15	-	25°C
075/24	20	-	30
085/30	26	-	34
095/34	30	-	40
100/38	33	-	42
110/43	38	-	47
120/49	44	-	55
130/55	49	-	60
140/60	55	-	66
150/66	60	-	71
160/71	66	-	77
170/77	73	-	82
175/79	77	-	85
180/82	79	-	88
190/88	85	-	93
205/96	93	-	103
237/114	107	-	123