

Table 1. Calculation of heat conductivity coefficients of liquid ceramic heat insulation

Heat emission coefficient  $\alpha = 1.38 \text{ W/m}^2\text{°C}$ Ambient air temperature =  $20\text{°C}$ 

Raw material in the pipeline. part coated with insulation	Description of temperature measurement points				Surface temperature					Calculation of heat conductivity coefficient $\lambda$ , $\text{W/m}^* \text{°C}$			
	No.	Presence of Bronya insulation. insulation type	Number of insulation layers	Insulation thickness. mm	Flir i5 device, °C		Elcometer 319 device, °C	Flir i5 device, °C		Elcometer 319 device. °C	Flir i5 device, °C		Elcometer 319 device, °C
					Without tape	With tape		Without tape	With tape		Without tape	With tape	
Heating water gate valve	1	No	-	-	80	-	80	-	-	-	-	-	-
	2	Yes		1	72	68	52	0.0090	0.0055	0.0016	9.0	5.5	1.6
	3	Yes		1.5	62	55	47	0.0048	0.0029	0.0017	4.8	2.9	1.7
	4	Yes		2	59	51	37	0.0051	0.0030	0.0011	5.1	3.0	1.1
	5	Yes		2.5	58	49	34	0.0060	0.0032	0.0011	6.0	3.2	1.1
	6	No	-	-	80	-	80						
	7	Yes		1	72	68	52	0.0090	0.0055	0.0016	9.0	5.5	1.6
	8	Yes		1.5	66	60	45	0.0068	0.0041	0.0015	6.8	4.1	1.5
	9	Yes		2	60	53	42	0.0055	0.0034	0.0016	5.5	3.4	1.6
Steam pipeline	10	Yes		3	103	84	55	0.0052	0.0031	0.0013	5.2	3.1	1.3
	11	Yes		2.5	106	92.5	62.1	0.0047	0.0033	0.0014	4.7	3.3	1.4
	12	Yes		2	107	93.5	64.1	0.0039	0.0027	0.0012	3.9	2.7	1.2
	13	Yes		1.5	121	119	75	0.0044	0.0041	0.0012	4.4	4.1	1.2
	14	Yes		1	130.1	122	84	0.0039	0.0030	0.0010	3.9	3.0	1.0
	15	No	-	-	169	-	165						
Steam gate valve (cover)	21	No	-	-	164	-	155						
	22	Yes		1.5	122.5	118.5	64.7	0.0051	0.0045	0.0009	5.1	4.5	0.9
	23	Yes		2	-	-	61.4			0.0011			1.1
Steam gate valve (casing)	24	No	-	-	173	-	163						
	25	Yes		2	130	111	71.6	0.0071	0.0041	0.0014	7.1	4.1	1.4
	26	Yes		2.5	125.5	126	62.3	0.0077	0.0078	0.0013	7.7	7.8	1.3
	27	Yes		3	-	-	60.2			0.0015			1.5
Steam heat exchanger cover	28	No	-	-	106	-	100						
	29	Yes		1	86.5	83	56	0.0047	0.0038	0.0010	4.7	3.8	1.0
	30	Yes		1.5	76	75	46.5	0.0039	0.0037	0.0009	3.9	3.7	0.9
	31	Yes		2	69.5	70.5	42	0.0037	0.0039	0.0009	3.7	3.9	0.9
					<b>Average value</b>		<b>0.0056</b>	<b>0.0040</b>	<b>0.0013</b>	<b>5.6</b>	<b>4.0</b>	<b>1.3</b>	