

**N.B.:**

Please contact NUPI AMERICAS Technical Office for heat loss values according to different water velocities, pipe SDR, thermal conductivity of the insulation layer and ambient temperatures.

## 4.4 HEAT LOSS

Many places require that the hot water temperature at the point of use is maintained at a certain level and requires the insulation of all piping. The thickness of the insulation layer depends on its thermal conductivity and the pipe diameter. NIRON pipes, both insulated and non-insulated, have very low heat loss which allows NIRON to meet the required values in most jurisdictions. The following tables provide insulation guidelines for hot water systems that allow NIRON to maintain water minimum required water temperatures at the point of use in most jurisdictions.

**HEAT LOSS NIRON PIPE (BARE AND INSULATED)**  
Water Temp. 120°F – Ambient Temp. 70°F (DT = 50°F)

Nom Ø	SDR	Insulation Thickness (in.)		
		0	0.5	1
Heat loss (Btu/h ft.)				
1/2	7.4	30.79	7.80	5.41
3/4	7.4	36.52	8.99	6.11
1	7.4	43.92	10.62	7.07
1-1/4	7.4	51.06	12.40	8.11
1-1/2	7.4	58.61	14.54	9.36
2	7.4	67.25	17.24	10.95
2-1/2	7.4	73.40	19.59	12.36
3	7.4	80.31	22.44	14.08
3-1/2	7.4	87.29	25.59	16.28
4	7.4	91.97	28.56	17.89
6	7.4	100.16	34.10	21.46
8	7.4	106.90	39.82	25.30
10	7.4	113.22	46.23	29.78
12	7.4	118.86	53.48	35.12
14	7.4	121.67	57.48	38.19
16	7.4	124.00	61.53	41.42

**HEAT LOSS NIRON PIPE (BARE AND INSULATED)**  
Water Temp. 120°F – Ambient Temp. 70°F (DT = 50°F)

Nom Ø	SDR	Insulation Thickness (in.)		
		0	0.5	1
Heat loss (Btu/h ft.)				
1	11	49.54	10.92	7.20
1-1/4	11	58.49	12.80	8.28
1-1/2	11	68.87	15.10	9.59
2	11	80.52	18.00	11.26
2-1/2	11	90.48	20.63	12.77
3	11	100.59	23.78	14.60
3-1/2	11	112.35	27.84	16.98
4	11	119.63	30.77	18.73
6	11	133.88	37.30	22.68
8	11	146.65	44.29	27.03
10	11	158.77	52.36	32.21
12	11	170.15	61.86	38.56
14	11	175.74	67.25	42.27
16	11	180.80	72.90	46.27
18	11	185.30	78.71	50.52

**HEAT LOSS NIRON PIPE (BARE AND INSULATED)**  
Water Temp. 120°F – Ambient Temp. 70°F (DT = 50°F)

Nom Ø	SDR	Insulation Thickness (in.)		
		0	0.5	1
Heat loss (Btu/h ft.)				
1	9	46.83	10.78	7.19
1-1/4	9	55.05	12.63	8.26
1-1/2	9	64.15	14.86	9.57
2	9	73.95	17.65	11.20
2-1/2	9	82.04	20.16	12.68
4	9	105.61	29.76	18.50
6	9	116.69	35.83	22.32

Nom Ø	SDR	Insulation Thickness (in.)		
		0	0.5	1
Heat loss (Btu/h ft.)				
6	17	170.25	39.7	23.7
8	17	190.76	47.6	28.5
10	17	211.96	57.1	34.2
12	17	232.30	68.5	41.4
14	17	242.37	75.2	45.7
16	17	252.83	82.4	50.4
18	17	261.94	89.9	55.4
20	17	269.72	97.0	60.2
22	17	278.34	105.2	65.9
24	17	286.10	114.0	72.2