

## HEAT LOSSES FROM HORIZONTAL BARE STEEL PIPE

(BTU per hour per linear foot at 70°F room temperature)

PIPE NOM. PIPE SIZE	HOT WATER (180°F)	STEAM 5 PSIG (20 PSIA)
1/2	60	96
3/4	73	118
1	90	144
1 1/4	112	179
1 1/2	126	202
2	155	248
2 1/2	185	296
3	221	355
3 1/2	244	401
4	279	448

## TOTAL THERMAL EXPANSION OF PIPING MATERIAL (INCHES PER 100 FT. ABOVE 32°F)

TEMP °F	CARBON AND CARBON MOLLY STEEL	CAST IRON	COPPER	BRASS AND BRONZE	WROUGHT IRON
32	0.0	0.0	0.0	0.0	0.0
100	0.5	0.5	0.8	0.8	0.5
150	0.8	0.8	1.4	1.4	0.9
200	1.2	1.2	2.0	2.0	1.3
250	1.7	1.5	2.7	2.6	1.7
300	2.0	1.9	3.3	3.2	2.2
350	2.5	2.3	4.0	3.9	2.6
400	2.9	2.7	4.7	4.6	3.1
450	3.4	3.1	5.3	5.2	3.6
500	3.8	3.5	6.0	5.9	4.1
550	4.3	3.9	6.7	6.5	4.6
600	4.8	4.4	7.4	7.2	5.2
650	5.3	4.8	8.2	7.9	5.6
700	5.9	5.3	9.0	8.5	6.1
750	6.4	5.8	—	—	6.7
800	7.0	6.3	—	—	7.2
850	7.4	—	—	—	—
900	8.0	—	—	—	—
950	8.5	—	—	—	—
1000	9.1	—	—	—	—