

Maximum Safe Working Pressures

Medium and Heavy Pressure Pipe

Specification: AS 1074



AustubeMills
SHAPING POSSIBILITIES

Nominal Size (DN)	Quality	Outside Diameter d _o mm	Thickness t mm	Mass per Metre Black Plain Ends kg/m	Material Design Minimum Temperature °C	Recommended Test Pressure at 20°C		Maximum Design Pressure									
								Maximum Metal Temperature - °C									
								50		100		150		200		250	
MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI	MPa	PSI						
20	Medium	26.9x	2.6CHS	1.56	-48.3	22.1	3210	14.7	2140	13.5	1960	12.2	1780	11.0	1600	9.75	1420
	Heavy		3.2CHS	1.87	-45.6	27.8	4040	18.5	2690	17.0	2460	15.4	2240	13.8	2010	12.3	1780
25	Medium	33.7x	3.2CHS	2.41	-45.6	21.7	3150	14.5	2100	13.2	1920	12.0	1740	10.8	1570	9.56	1390
	Heavy		4.0CHS	2.94	-42.0	27.8	4030	18.5	2690	16.9	2460	15.4	2230	13.8	2000	12.2	1780
32	Medium	42.4x	3.2CHS	3.10	-45.6	16.9	2450	11.3	1640	10.3	1500	9.37	1360	8.41	1220	7.46	1080
	Heavy		4.0CHS	3.80	-42.0	21.5	3120	14.4	2080	13.1	1910	11.9	1730	10.7	1550	9.50	1380
40	Medium	48.3x	3.2CHS	3.57	-45.6	14.7	2140	9.81	1420	8.98	1300	8.15	1180	7.32	1060	6.49	942
	Heavy		4.0CHS	4.38	-42.0	18.7	2710	12.5	1810	11.4	1660	10.4	1500	9.30	1350	8.24	1200
50	Medium	60.3x	3.6CHS	5.03	-43.8	13.2	1910	8.78	1270	8.04	1170	7.30	1060	6.55	951	5.81	843
	Heavy		4.5CHS	6.19	-39.8	16.7	2420	11.1	1620	10.2	1480	9.25	1340	8.31	1210	7.37	1070
65	Medium	76.1x	3.6CHS	6.43	-43.8	13.2	1910	6.88	998	6.30	914	5.72	829	5.13	745	4.55	661
	Heavy		4.5CHS	7.93	-39.8	13.0	1890	8.70	1260	7.96	1160	7.22	1050	6.49	942	5.75	835
80	Medium	88.9x	4.0CHS	8.37	-42.0	11.5	1670	6.53	948	5.98	867	5.42	787	4.87	707	4.32	627
	Heavy		5.0CHS	10.3	-37.5	12.4	1800	8.25	1200	7.55	1100	6.85	995	6.15	893	5.46	792
90	Medium	101.6x	4.0CHS	9.63	-42.0	11.5	1670	5.68	825	5.20	755	4.72	685	4.24	615	3.76	546
	Heavy		5.0CHS	11.9	-37.5	10.8	1560	7.17	1040	6.56	953	5.96	864	5.35	776	4.74	688
100	Medium	114.3x	4.5CHS	12.2	-39.8	8.52	1240	5.68	825	5.20	755	4.72	685	4.24	615	3.76	546
	Heavy		5.4CHS	14.5	-35.7	10.3	1500	6.87	997	6.29	913	5.71	828	5.13	744	4.54	660
125	Medium	139.7x	5.0CHS	16.6	-37.5	7.72	1120	5.15	747	4.71	684	4.28	621	3.84	558	3.41	494
	Heavy		5.4CHS	17.9	-35.7	8.36	1210	5.58	809	5.10	741	4.63	672	4.16	604	3.69	535
150	Medium	165.1x	5.0CHS	19.7	-37.5	6.50	944	4.33	629	3.97	576	3.60	523	3.23	469	2.87	416
	Heavy		5.4CHS	21.3	-35.7	7.04	1020	4.69	681	4.29	623	3.90	566	3.50	508	3.10	450

Notes:

- The above maximum test and design pressures are applicable only to the pipe, if and only if:
 - The applied loads are only from internal pressure in straight pipe. The pipeline should be supported so that bending and external loads are avoided. The pipeline must also be set up with suitable freedom of angular movement at joints and bends and with provision to accommodate thermal expansion.
 - The pipe is limited to class 2 and 3 piping systems in accordance with AS 4041:2006. Refer to AS 4041:2006, Table 1.4 for Pressure Limits applied to these classes of piping.
 - Uncoated pipe may not be suitable for the conveyance of some fluids due to the fluid reacting with the steel.
 - AS 4343 - Pressure equipment - Hazard levels, provides information on fluid types and classes.
- Material Design Minimum Temperature has been determined in accordance with AS 4041:2006 Table 2.11.2(A) for product not impact tested, using the +20°C curve of AS 4041:2006, Figure 2.11.1.
- Pressures have been calculated in accordance with AS 4041:2006

$$p = 2 f e M t_f / (d_o - t_f)$$
 where p = maximum recommended design pressure
 f = Design tensile stress
 = values specified in Table D2 of AS 4041 for AS 1074
 = 195 MPa for test pressure
 e = 0.85 weld joint factor from table D12 of AS 4041 for AS 1074 ERW pipe
 M = 0.7 Class design factor from table 3.12.3 of AS 4041 for Class 3 piping
 t_f = 0.9 x nominal wall thickness - mm
 d_o = outside diameter - mm
- No allowance has been made for corrosion, threading, grooving or machining.
- The piping system working pressures can be limited by the type of couplings or the welding class used in the design of the pipeline.