

# QualPLAST black low density polyethylene water service pipes

## Scope

QualPLAST normal gauge (NG) and heavy gauge (HG) pipe is a black low density polyethylene (LDPE) type 32 pipe sold in 150M coils suitable for cold water services. To ensure the integrity and functionality of the pipe in service it is critical the following guidelines are strictly adhered to.

## Frost damage

Generally, in a lot of end-use applications, LDPE pipe is not adequately protected against frost damage. The pipes should be protected against frost and semi freezing conditions. During very cold conditions, water partially freezes in the pipe bore, increases in volume and can physically cause the pipe to split or crack in service. As temperatures begins to rise, the ice will melt resulting in water leakages. During cold weather spells, appropriate measures such as burying the pipe to a minimum depth of 600mm should be taken to ensure that the pipes are suitably protected against frost, thus preventing water leakages.

## Exposure to sharp objects / traffic during service

The pipes should not be exposed to any form of external pressure sources (for example sharp object's like large stones, heavy vehicle traffic) during laying, installation and whilst in service. Pipe exposure to any form of external pressures can result in stress induced cracks and splits in the pipe wall. Whilst the functional integrity of the pipe can sustain itself, in such an environment, in the short term, it is to be expected that leakage situations will arise in the medium/longer term.

## Working pressures – cold water

The maximum working pressures that may be continuously applied to NG and HG pipes at temperatures not exceeding 20C, i.e. cold water services only, are outlined in the table below. If the maximum working pressure ratings of the pipes are exceeded (system overload) during service, there is a serious risk of the pipe physically bursting and/or cracking in service with resultant water leakages.

Pipe Diameter	Material & Colour	Pressure rating (PSI)
½" NG	LDPE type 32 black	131
¾" NG	LDPE type 32 black	115
1" NG	LDPE type 32 black	90
1 1/4" NG	LDPE type 32 black	76
1 1/2" NG	LDPE type 32 black	70
2" NG	LDPE type 32 black	70
½" HG	LDPE type 32 black	212
¾" HG	LDPE type 32 black	150
1" HG	LDPE type 32 black	121

## Working pressures – temperature consideration

The maximum working pressures that may be continuously applied to NG & HG pipes at temperatures not exceeding 20C, i.e. cold water services only, are outlined in the table above. Note as the temperature of the water increases from 20C to say 30C the maximum allowable operating pressure must be reduced to allow for the increase in temperature as detailed in the table below.

Temperature of water	Maximum allowed working pressure (PSI)								
	½" NG	¾" NG	1" NG	1 1/4" NG	1 1/2" NG	2" NG	½" HG	¾" HG	1" HG
0 – 20C	131	115	90	76	70	70	212	150	121
20 – 25C	104	92	72	60	56	56	169	120	96
25 – 30C	78	69	54	45	42	42	127	90	72
30 – 35C	65	57	45	38	35	35	106	75	60
35 – 40C	52	46	36	30	28	28	84	60	48
40 – 45C	39	34	27	23	21	21	63	45	36
45 – 50C	26	23	18	15	14	14	42	30	24