Application/Limitation

The aquatherm PP-R piping systems are type approved for application in piping systems as listed in the table below.

Approved installation locations where "0" is specified, appropriate footnotes are to be observed.

Not approved for installation locations where "NA" or "X" is indicated and not approved for installation in gas hazardous area.

References, Rules Pt.4 Ch.6, Section 2 – 1.7 Plastic pipes "Table 1- Fire endurance requirements matrix" and para. 1.7.6 (non-essential systems)

Reference to Table 1	Item	Example of piping systems
Freshwater		
Non-essential systems	22	Potable hot and cold water[1] and bunkerlines. Grey and black water, hot water heating, Potable water treatment systems (Osmosis and Evaporation) Chilled water and cooling water of air condition systems
Sanitary drains and scuppers		
Sanitary drains internal	24	Black and grey water including wastewater treatment and discharge lines to shore
Scuppers and discharges (overboard)	25	
Sounding and air		
Water tanks or dry spaces	26	Sounding and air pipes of water tanks and dry spaces, cofferdams
Sea water		
Non-essential systems	19	Piping systems of Ballast Water Management Systems (BWMS)[2]
Essential system	12, 13, 14, 15, 16, 17, 18	Bilge main and branches, Fire main and water spray, Foam Systems, Sprinkler system, Ballast water systems, Cooling water, Tank cleaning services fixed machines
Miscellaneous		
Service air (non-essential)	29	
Brine	30	
Central vacuum cleaners	32	

Notes
[1] aquatherm green pipe only
[2] For installation location where "L3 and higher fire endurance levels" is required, metallic isolation valves are to be fitted at the boundary to the ballast piping system of the ship. The isolation valves shall be remotely controlled valves from outside the space, e.g. fire control station and the valve shall be a fail-safe-closing type valve.

Table 1 Fire endurance requirements matrix

	Piping systems	A Machinery spaces of category A	B Other machinery spaces	C Cargo pump rooms	D Ro/Ro cargo holds	E Other dry cargo holds	F Cargo tanks	G Fuel oil tanks	H Ballast water tanks	I Cofferdams, void spaces, pipe tunnel and ducts	J Accommodation service and control spaces	K Open decks
Flammable cargo (flash point ≤ 60°C)												
Seawater[1)]												
12	Bilge main and branches	L1 [7)]	L1 [7)]	L1	X	X	NA	0	0	0	NA	L1
13	Fire main and water spray	L1	L1	L1	X	NA	NA	NA	0	0	X	L1
14	Foam system	L1W	L1W	L1W	NA	NA	NA	NA	NA	0	L1W	L1W
15	Sprinkler system	L1W	L1W	L3	X	NA	NA	NA	0	0	L3	L3
16	Ballast	L3	L3	L3	L3	X	0 [10)]	0	0	0	L2W	L2W
17	Cooling water, essential services	L3	L3	NA	NA	NA	NA	NA	0	0	NA	L2W
18	Tank cleaning services, fixed machines	NA	NA	L3	NA	NA	0	NA	0	0	NA	L3 [2)]
19	Non-essential systems	0	0	0	0	0	NA	0	0	0	0	0
Freshwater												
20	Cooling water, essential services	L3	L3	NA	NA	NA	NA	0	0	0	L3	L3
21	Condensate return	L3	L3	L3	0	0	NA	NA	NA	0	0	0
22	Non-essential systems	0	0	0	0	0	NA	0	0	0	0	0
Sanitary and drains and scuppers												
23	Deck drains (internal)	L1W [4)]	L1W [4)]	NA	L1W [4)]	0	NA	0	0	0	0	0
24	Sanitary drains (internal)	0	0	NA	0	0	NA	0	0	0	0	0
25	Scuppers and discharges (overboard)	0 [1)8)]	0 [1)8)]	0 [1)8)]	0 [1)8)]	0 [1)8)]	0	0	0	0	0 [1)8)]	0
Sounding and air												
26	Water tanks or dry spaces	0	0	0	0	0	0 [10)]	0	0	0	0	0
27	Oil tanks (flash point > 60°C)	X	X	X	X	X	X [3)]	0	0 [10)]	0	X	X
Miscellaneous												
28	Control air	L1 [5)]	L1 [5)]	L1 [5)]	L1 [5)]	L1 [5)]	NA	0	0	0	L1 [5)]	L1 [5)]
29	Service air (non-essential)	0	0	0	0	0	NA	0	0	0	0	0
30	Brine	0	0	NA	0	0	NA	NA	NA	0	0	0
31	Auxiliary low pressure steam (≤ 7 bar)	L2W	L2W	0 [9)]	0 [9)]	0 [9)]	0	0	0	0	0 [9)]	0 [9)]
32	Central vacuum cleaners	NA	NA	NA	0	NA	NA	NA	NA	0	0	0
33	Exhaust gas cleaning system effluent line	L3 [1)]	L3 [1)]	NA	NA	NA	NA	NA	NA	NA	L3 [1),11)]	NA
34	Urea transfer/supply system	L1 [12)]	L1 [12)]	NA	NA	NA	NA	NA	NA	0	L3 [11),12)]	0