Advantage of Polyester braid hose

Corrosion Resistant Braided Water Connectors

TAQ PEX ACB

MATERIAL SPECIFICATIONS	
Inliner	Cross-linked Polyethylene (PEX), free from halogens and vulcanization chemicals, Chlorine and Chloramine resistant
Braiding	UV-resistant Polymer fibers
Sleeve	AISI 304 Stainless Steel
Fitting (wetted surface)	CW617N Brass (Lead free on demand)
Washer, O-ring	EPDM

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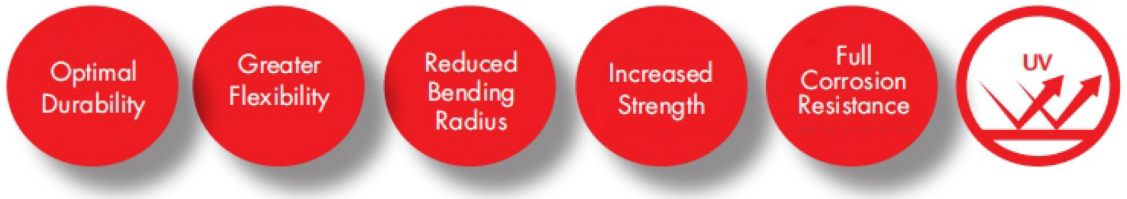
1. Unique Characteristics and advantages of Ployester briad hose

Unique characteristics and advantages

Innovative construction with highly engineered polymer fibre braid delivers.



Mechanical Performance

Polymer braided connectors exceed the mechanical performance test requirements of EN 13618:

Burst pressure
(31.5 bar/60 min)

Water hammer
(200 cycles 5/50 bar)

Alternate pressure thermal cycling test
(20°C - 90°C) (10 bar)

UV-RESISTANCE TEST:
Exposed to 3,5 GJ (1620 hours in UV artificial test rig). After UV ageing, hose assemblies shall resist the water hammer test in the same manner as if the product was new.

CHARACTERISTICS	
OD	0.386"
ID	0.236"
Hole of fitting	0.177"
Flow Rate (3bar-42 psi)	4.2 gpm
Bending Radius	0.984"
Nominal Pressure	145 psi
Max Temperature	158°F

APPLICATIONS

UV-Resistance

UV-Resistance requirements for hose assemblies are fixed to prove the product keeps the same resistance before and after the UV light exposure.

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Corrosion

Although Stainless Steel braiding seems to be the best option for corrosion resistance, some applications may need more. Under certain conditions, even a high quality AISI 304 Stainless Steel grade braid that covers the inner tube is prone to pitting corrosion and can cause the premature burst, as a consequence of:

· its exposure to household cleaning products that happen to be stored below the sink, close to the braided flexible connectors,
· its exposure to saline environment (coastal areas) or,
· when used in typical hot water applications combined with some specific tensile strength and corrosive chemicals producing Stress Corrosion Cracking (SCC).

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2.High Pressure resistance

single wire grey polymer

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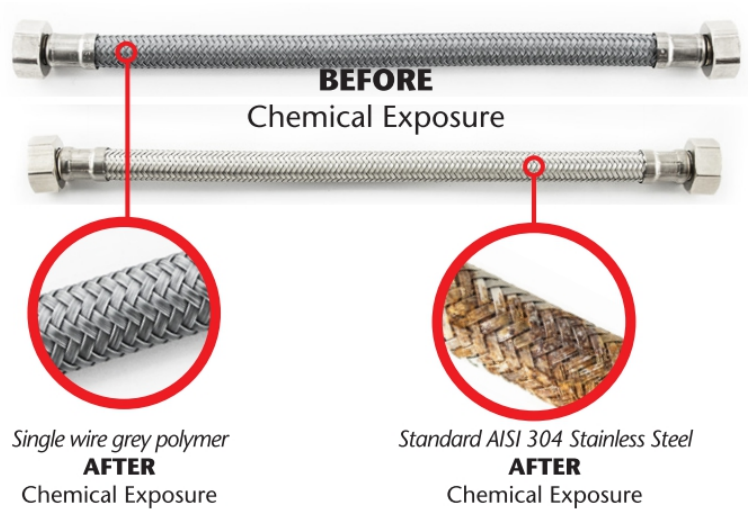
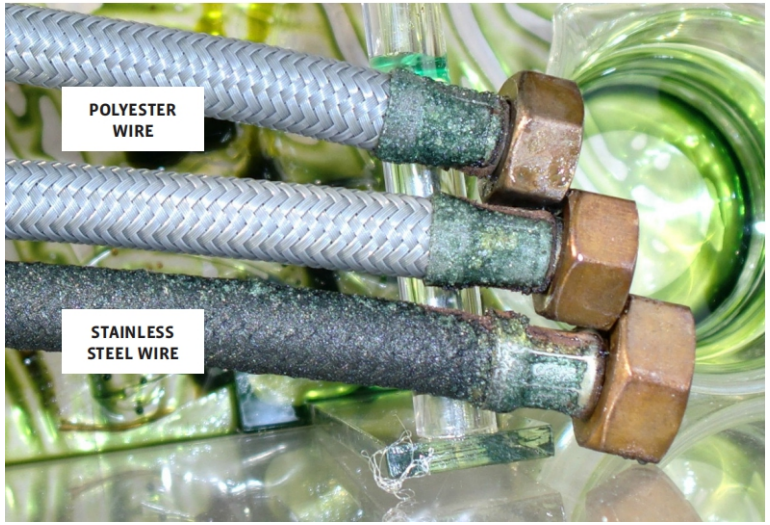
Standard AISI 304 stainless steel

Normal Passed 100 Bar (1450PSI) burst pressure testing

High Corrosion--Polyester braid hose better than Stainless steel 304 hose after Corrosion resistance testing of 30days in same condiction





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Test Phase 1：Hydrochloric acid test for 1 week

1. Grey Polyester monofilament of 0.30 mm.: withstands 125 bar burst pressure.

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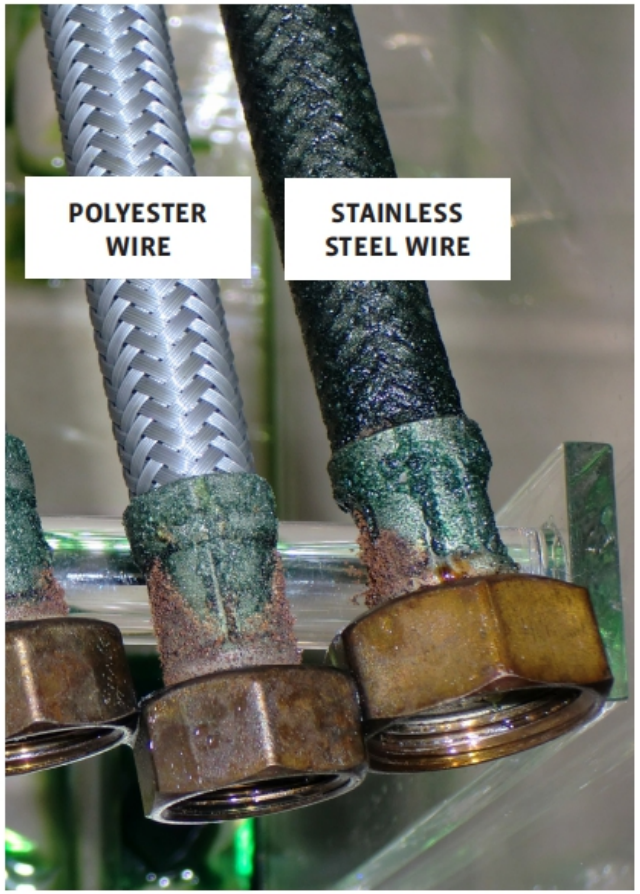

2. Standard TUCAI AISI 304 Stainless Steel braided hose: withstands 135 bar burst pressure. Braid bursts.

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Test Phase 2：Hydrochloric acid test for half a month

1. Grey Polyester monofilament of 0.30 mm.: withstands 130 bar burst pressure.

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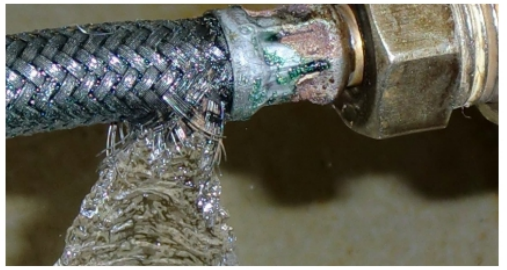
STAINLESS STEEL BRAIDED HOSE BURST PICTURE

RESULT: 20 BAR (TEST FAILS)



2. Standard TUCAI AISI 304 Stainless Steel braided hose: withstands **20 bar** burst pressure. Braid bursts close to sleeve. **TEST FAILS**

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Test Phase 3：Hydrochloric acid test for 1 month

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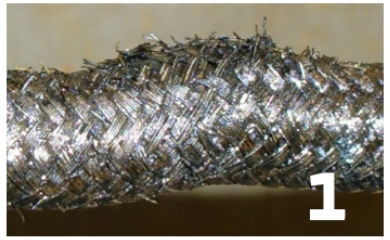
1. Grey Polyester monofilament of 0.30 mm.: withstands 130 bar burst pressure.
Properties and performance values remain unchanged.

Comments:
The visual aspect of the Polyester braided hose is very good. The different tests show that the Polyester braid has performed better than the rest of materials. Performance of this particular hose remains unchanged with respect to the first testing day.

STAINLESS STEEL BRAIDED HOSE



Magnified detail of the deteriorated braid before pressure test is run.

2. Standard TUCAI AISI 304 Stainless Steel braided hose: withstands **3 bar** burst pressure. Braid bursts due to a severe deterioration. **TEST FAILS**

Comments:
The test results show that a Stainless Steel braided hose exposed to a continuous
corrosive agent like hydrochloric acid during one month presents signs of extreme deterioration. Picture 1 shows the magnified detail of the deteriorated braid before test is run. Some broken wires (0.20 mm) can be seen.

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Bending Test

Technical requirements

a) Arrange the samples according to length so that the clamping height H is approximately half-way between the free hose assembly ends. The distance L shall be fixed so that the free hose assembly lengths are axially oriented under load. The bending radius is defined for each nominal size in Table 10.

b) Apply a tensile force in accordance with Table 10, with the hose assembly resting against half the circumference (zone A in Figure B.4) of the test specimen.

c) Determine the ovality as the smallest outside diameter De of the hose assembly in the middle area (zone B in Figure B.4) of the bending loop by intermediate bending from three measured values.

d) The ovality, in percent, shall be calculated from Formula (B.1) 0 = (Da − De) / Da · 100 (B.1) The ovality to be measured shall not exceed 15 %.

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Results

18#:4.1%
19#:5.5%
20#:5.3%

18#:6.66%
19#:9.34%
20#:10.25%