

Ridgeline™ + P1™

Ridgeline™ is a premium corrugated stainless steel piping system engineered for all plumbing applications, including hot and cold water plumbing, central heating systems and the feed-and-return pipework of air source heat pumps and solar thermal panels.



316L

Marine-grade stainless steel core

R-15 to R-54

Seven tube sizes for the full plumbing range

15 bar

Working pressure · certified to 99 °C for potable water

SYSTEM DESCRIPTION

The Ridgeline + P1 system pairs corrugated 316L stainless steel tube with the P1™ mechanical fitting system. P1 fittings make a robust metal-on-metal seal with a secondary elastomer backup, and are available across the full range of tube sizes. Ridgeline tube is also compatible with the RidgeLock™ sealing-ring system (see separate data sheet) for the smaller sizes where a compression-style connection is preferred.

PIPING CONSTRUCTION

- **Primary layer:** marine-grade 316L stainless steel with engineered corrugations that provide maximum flexibility while delivering superior crush and burst performance.
- **Protective layer:** high-grade polyethylene (PE) outer sleeve that protects the stainless steel from building materials containing chlorides, and makes pulling the tube through concealed spaces easier. This layer makes no contact with drinking water.

P1™ FITTING CONNECTION SYSTEM

- Robust metal-on-metal seal with a secondary elastomer backup, available in a large range of fittings across all sizes (R-15, R-22, R-28, R-32-HP, R-35, R-42, R-54).
- Universal-thread interfaces for copper, plastic and brass system integration.

APPLICATIONS

- Hot and cold water plumbing
- Central heating systems
- Air source heat pump flow and return
- Solar thermal flow and return
- Compressed air
- Pre-insulated version (coming soon, entering production) for ASHP and solar thermal flow and return

DIMENSIONS OF RIDGELINE TUBE

	R-15	R-22	R-28	R-32-HP	R-35	R-42	R-54
Outer diameter (with cover)	15 mm	22 mm	28 mm	32 mm	38 mm	50 mm	61 mm
Inner diameter	11 mm	18 mm	23 mm	27 mm	33 mm	41 mm	51 mm
Tubing wall thickness	0.25 mm	0.25 mm	0.25 mm	0.25 mm	0.30 mm	0.30 mm	0.30 mm
Polyethylene cover thickness	0.80 mm	0.80 mm	0.80 mm	0.80 mm	0.80 mm	0.80 mm	0.80 mm

MATERIALS

- Corrugated tubing: 1.4404 (316L) stainless steel conforming to BS EN 10088.
- High recycled content in the stainless steel.
- Protective outer sleeve: high-grade polyethylene (PE).

LENGTHS, WEIGHT & HANDLING

- Available in lengths from 25 m up to 500 m. Long continuous lengths enable precise measurement and cutting on-site to minimise waste.
- Shorter lengths supplied in boxed coils for easy handling.
- For long spools, the Ridgeline spool roller system ensures tangle-free dispensing.
- Reduced weight per metre versus copper reduces handling effort and the risk of theft on site.

WORKING PARAMETERS

CERTIFIED SCOPE: UK POTABLE WATER

- Maximum working pressure 15 bar; maximum operating temperature 99 °C; 85 °C continuous for hygienic use.
- Certified under Kiwa Reg 4 (certificate 2604733) and WRAS Approved, across the full tube range R-15 to R-54.
- UK Water Regulations do not permit storing water above 100 °C, so potable-water certification does not extend above it.

MECHANICAL CAPABILITY: NON-POTABLE APPLICATIONS

- Working pressure 15 bar at 20 °C, derating to 10 bar at 150 °C.
- Suitable for sustained service at 150–180 °C for solar thermal and high-temperature primary circuits, with short-term spikes to 200 °C when the correct specialist gaskets are specified (at 200 °C, system pressure must not exceed 9 bar).
- Suitable for indoor and outdoor use. Can be buried in screed; for direct ground burial follow the Ridgeline installation guidance.

INSULATION & LAGGING

- For many applications insulation or lagging may be required.
- Insulation type and thickness should be tailored to the specific installation for optimal performance.
- The polyethylene cover supports smooth application of any standard insulation product.
- A pre-insulated version of Ridgeline in R-28, R-32-HP and R-35 is entering production (coming soon). See the Pre-Insulated Ridgeline + P1 Data Sheet.

INSTALLATION PARAMETERS

BEND RADIUS

- Corrugated design enables exceptional flexibility without kinking.
- Bend radius equals the diameter of the tube; adjacent (back-to-back) bends can be achieved where required.
- Full kink resistance is maintained even at extremely tight bends.
- No special tools needed for bending.
- 90° bends are possible in place of elbow fittings.

SUGGESTED PIPE CENTRES

Pipe supports and clips should be installed at the suggested pipe centres below.

TUBE	R-15	R-22	R-28	R-32-HP	R-35	R-42	R-54
Suggested pipe centres	1.2 m	1.2 m	1.2 m	1.8 m	1.8 m	1.8 m	1.8 m

REQUIRED TOOLS

- Metal wheel pipe cutter.
- Utility knife (for removing the protective cover).
- Spanner / wrench (for tightening P1 fittings).

CONNECTION ASSEMBLY

- Tighten with two spanners until resistance increases significantly. The corrugated tube self-flares against the brass seat to create the primary seal, while the O-ring abuts the collapsed tube to form a secondary seal.

PERFORMANCE PARAMETERS

CORROSION RESISTANCE

- Superior corrosion resistance compared with copper tube in UK drinking water conditions (verified through independent testing at Lancaster University).
- Engineered for domestic water systems.
- All installations must be pressure tested to the relevant standards before commissioning.
- Suitable for use with glycol and inhibitors. Compatibility with stainless steel should be checked, although most brands of glycol and inhibitor are compatible.

FREEZE PROTECTION

- Corrugated design provides superior resistance to single freeze events compared with rigid tube.
- Corrugations can accommodate expanding ice.
- Protection against freezing should always be the primary approach.
- Long continuous runs without fittings are recommended in freeze-risk areas.
- Repeated freeze/thaw cycles may cause permanent deformation.

INTERRELATION WITH OTHER SYSTEMS

- **Copper integration:** a wide range of P1™ copper unions, elbows and tees is available.
- **Plastic system connection:** connect via a male / female BSP thread combination.
- **RidgeLock compatibility:** a P1-to-RidgeLock adapter is available for R-15, R-22 and R-28.

P1™ FITTINGS

P1 mechanical fittings create a metal-on-metal seal with secondary elastomer backup, and are available for all Ridgeline tube sizes in a wide range of fitting options.

P1 FITTINGS RANGE	R-15	R-22	R-28	R-32-HP	R-35	R-42	R-54
Male BSP	✓	✓	✓	✓	✓	✓	✓
Female BSP	✓	✓	✓	✓	✓	✓	✓
Female Elbow BSP	✓	✓	✓	✓	✓	✓	
Copper Union	✓	✓	✓	✓	✓	✓	✓
Copper Elbow	✓	✓	✓	✓	✓	✓	✓
Tee	✓	✓	✓	✓	✓	✓	
Reducing Tee	✓	✓	✓	✓	✓	✓	✓
P1 to RidgeLock	✓	✓	✓				

WRAS & KIWA REG 4

Ridgeline™ tube and P1™ fittings are WRAS Approved and certified under Kiwa Reg 4 (KUKreg4 ATS 3), certificate **2604733** (issued June 2026, valid to 2031). Certified scope: full tube range R-15 to R-54, maximum working pressure 15 bar, maximum operating temperature 99 °C, 85 °C continuous for hygienic use.



DAMAGE & REPAIR

DAMAGE TO CORRUGATED TUBE

- If the tube becomes damaged it can be repaired using a P1 union fitting.

DAMAGE TO OUTER SLEEVE LAYER

- Any damage that creates a hole in the protective cover must be repaired in locations where the tube may contact building materials containing chlorides (screed, plaster, cement).
- Use self-amalgamating silicone tape, available from Ridgeline.

ADDITIONAL APPLICATIONS

Beyond hot and cold water and central heating, Ridgeline + P1 is well suited to **air source heat pump** and **solar thermal** flow-and-return pipework. It is available in coils up to 500 m for long continuous runs with a connection only at each end; R-32-HP is the optimised diameter for most ASHPs, and a pre-insulated version in R-28, R-32-HP and R-35 is entering production (coming soon). For solar thermal high-temperature performance (sustained 150–180 °C, short-term spikes to 200 °C with specialist gaskets), see Working Parameters on page 2. The system is also compatible with **compressed air**: please contact us for other gases.

Ridgeline + P1 used for heat pump and solar thermal flow and return may also be referred to as Ridgeline HEAT-Connect. This is not a separate system; it is Ridgeline tube used with P1 fittings.

PRESSURE DROP

Pressure drop (Pascals) and velocity (m/s) per metre of tube run, for a range of flow rates and tube diameters.

FLOW		R-15		R-22		R-28		R-32-HP		R-35		R-42		R-54	
L/MIN	L/S	M/S	PA	M/S	PA	M/S	PA	M/S	PA	M/S	PA	M/S	PA	M/S	PA
2.50	0.0417	0.44	797	0.16	56	0.10	15	0.07	7	0.05	2	0.03	1	0.02	0
5.00	0.0833	0.88	3,137	0.33	216	0.20	58	0.15	25	0.10	9	0.07	3	0.04	1
7.50	0.1250	1.32	7,019	0.49	480	0.30	128	0.22	54	0.15	19	0.10	7	0.06	2
10.00	0.1667	1.75	12,443	0.65	847	0.40	225	0.29	95	0.19	33	0.13	12	0.08	3
12.50	0.2083	2.19	19,410	0.82	1,317	0.50	349	0.36	147	0.24	51	0.17	18	0.10	5
15.00	0.2500	2.63	27,918	0.98	1,891	0.60	500	0.44	211	0.29	73	0.20	26	0.12	7
17.50	0.2917	3.07	37,968	1.15	2,568	0.70	679	0.51	286	0.34	98	0.23	35	0.14	10
20.00	0.3333	3.51	49,560	1.31	3,349	0.80	885	0.58	373	0.39	128	0.27	46	0.16	13
22.50	0.3750	3.95	62,695	1.47	4,233	0.90	1,118	0.65	471	0.44	161	0.30	58	0.18	16
25.00	0.4167	4.38	77,371	1.64	5,221	1.00	1,378	0.73	580	0.49	199	0.33	71	0.20	20
27.50	0.4583	4.82	93,590	1.80	6,312	1.10	1,666	0.80	701	0.54	240	0.36	85	0.22	24
30.00	0.5000	5.26	111,350	1.96	7,507	1.20	1,981	0.87	833	0.58	285	0.40	101	0.24	28
50.00	0.8333							1.46	2,301	0.97	783	0.66	278	0.41	76
100.00	1.6667									1.95	3,106	1.33	1,102	0.82	300
150.00	2.5000									2.92	6,969	1.99	2,472	1.22	672
200.00	3.3333											2.65	4,387	1.63	1,191
300.00	5.0000											3.98	9,856	2.45	2,673



Brochures, certifications & technical documents

Scan the QR code to access the full Ridgeline document library, or visit www.ridgelinetubes.com · 01625 70 71 72.