Ridgeline

TECHNICAL DATA SHEET

Pre-Insulated Ridgeline™ + P1™

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

316L	0.0384	15 bar
Marine-grade stainless steel core	W/(m·K) insulation thermal conductivity	Working pressure, rated up to 150°C

SYSTEM DESCRIPTION

Because Ridgeline performs so well on heat pump and solar thermal work, we also offer a **pre-insulated** version across the key pipe diameters typically used in ASHP and solar thermal installations. The pre-insulated system pairs a corrugated stainless steel core and a factory-bonded insulation layer with the P1™ mechanical fitting connection system.

PIPING CONSTRUCTION

- **Primary layer:** marine-grade 316L stainless steel with engineered corrugations that provide maximum flexibility while delivering superior crush and burst performance.
- **Insulative layer:** a premium polyester weave with high recycled content, finished with a durable, waterproof and UV-stable PE outer shell that makes it suitable for outdoor use.

P1™ FITTING CONNECTION SYSTEM

- Robust metal-on-metal seal with a secondary elastomer.
- Available in a large range of fittings across all sizes.

AVAILABLE SIZES & INSULATION OPTIONS

The pre-insulated version of Ridgeline is available in **R-28**, **R-32-HP** and **R-35** only. These are the key tube diameters used in outdoor ASHP and solar thermal pipework.

Pre-insulated Ridgeline is simply there to make installation easier. Every size of uninsulated Ridgeline can still be used for ASHP and solar thermal work, and you are not obliged to use the pre-insulated version at all. You can specify standard Ridgeline and choose your preferred insulation type or manufacturer, exactly as you would with copper.

DIMENSIONS OF PRE-INSULATED RIDGELINE TUBE

	R-28	R-32-HP	R-35
Outer diameter (with insulation)	48 mm	52 mm	60 mm
Polyethylene cover thickness	0.80 mm	0.80 mm	0.80 mm
Inner diameter	23 mm	27 mm	33 mm
Tubing wall thickness	0.25 mm	0.25 mm	0.30 mm

MATERIALS

- Corrugated tubing: 1.4404 (316L) stainless steel conforming to BS EN 10088.
- Insulation layer: woven polyester fibres with high recycled content, finished with a protective PE outer layer.
- UV-stable and waterproof outer shell.
- Fire rating of insulation layer: B1 (DIN 4102).
- Thermal conductivity: 0.0384 W/(m·K).

LENGTHS, WEIGHT & HANDLING

Pre-insulated Ridgeline is supplied in coils of up to 100 m and can be cut to length on site to reduce waste. Shorter lengths are also available in 15 m and 25 m boxes.

INSULATION & LAGGING

- All ASHP and solar thermal installations should be lagged before commissioning.
- Insulation type and thickness should be tailored to the specific installation for optimal performance.
- Pre-insulated Ridgeline has been specified to suit the majority of installs; more specialised installations may require a different insulation type, in which case standard Ridgeline can be used and lagged conventionally on site.
- Pre-insulated Ridgeline insulation: thermal conductivity 0.0384 W/(m·K); thickness 20 mm; maximum working temperature 200°C.

WORKING PARAMETERS

- Suitable for indoor and outdoor use.
- Can be buried without additional protection or sleeving.
- Working pressure: 15 bar at 20°C; 10 bar at 150°C.
- Can be used at working temperatures above 150°C when a high-temperature O-ring is fitted in the P1 fittings.

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 are needed for bending.
- 90° bends are possible in place of elbow fittings.

SUPPORT SPACING

Pipe supports and clips should be installed at the recommended intervals below.

	R-28	R-32-HP	R-35
Recommended support spacing	1.8 m	2.5 m	2.5 m

REQUIRED TOOLS

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

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.

CORROSION PROTECTION & PRESSURE TESTING

- 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.

P1™ FITTINGS

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

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

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.

WRAS & KIWA REG 4

Ridgeline™ tube and P1™ fittings are approved to WRAS and KIWA Reg 4 (KUKreg4 ATS 3).

DAMAGE & REPAIR

DAMAGE TO CORRUGATED TUBE

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

DAMAGE TO OUTER INSULATION LAYER

- Any damage that creates a hole in the outer insulation cover must be repaired with waterproof tape.

SPECIALIST VARIANTS

The Ridgeline plumbing system (pipe, RidgeLock™ and P1™ fittings) is designed for a wide range of plumbing applications. We also offer specialist variants:

- **Ridgeline Underfloor:** engineered specifically for underfloor heating systems.
- **Ridgeline Flexis:** flexible connectors that replace braided rubber flexis.

These specialist variants are not directly compatible with regular Ridgeline pipe or RidgeLock™ and P1™ fittings. Please contact us for more information.

PRESSURE DROP

Correct pipe sizing is key to air source heat pump efficiency. Pressure loss per metre in corrugated tube can be two to three times higher than in copper. However, because corrugated tube is installed without elbows, total system pressure loss is typically comparable. Tools are available to calculate total system pressure loss against the equivalent copper tube diameter.

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

FLOW (L/MIN)	FLOW (L/S)	R-28		R-32-HP		R-35	
		M/S	PA	M/S	PA	M/S	PA
2.50	**0.0417**	0.10	15	0.07	7	0.05	2
5.00	**0.0833**	0.20	58	0.15	25	0.10	9
7.50	**0.1250**	0.30	128	0.22	54	0.15	19
10.00	**0.1667**	0.40	225	0.29	95	0.19	33
12.50	**0.2083**	0.50	349	0.36	147	0.24	51
15.00	**0.2500**	0.60	500	0.44	211	0.29	73
17.50	**0.2917**	0.70	679	0.51	286	0.34	98
20.00	**0.3333**	0.80	885	0.58	373	0.39	128
22.50	**0.3750**	0.90	1,118	0.65	471	0.44	161
25.00	**0.4167**	1.00	1,378	0.73	580	0.49	199
27.50	**0.4583**	1.10	1,666	0.80	701	0.54	240
30.00	**0.5000**	1.20	1,981	0.87	833	0.58	285
50.00	**0.8333**			1.46	2,301	0.97	783
100.00	**1.6667**					1.95	3,106
150.00	**2.5000**					2.92	6,969

BROCHURES, CERTIFICATIONS & TECHNICAL DOCUMENTS

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