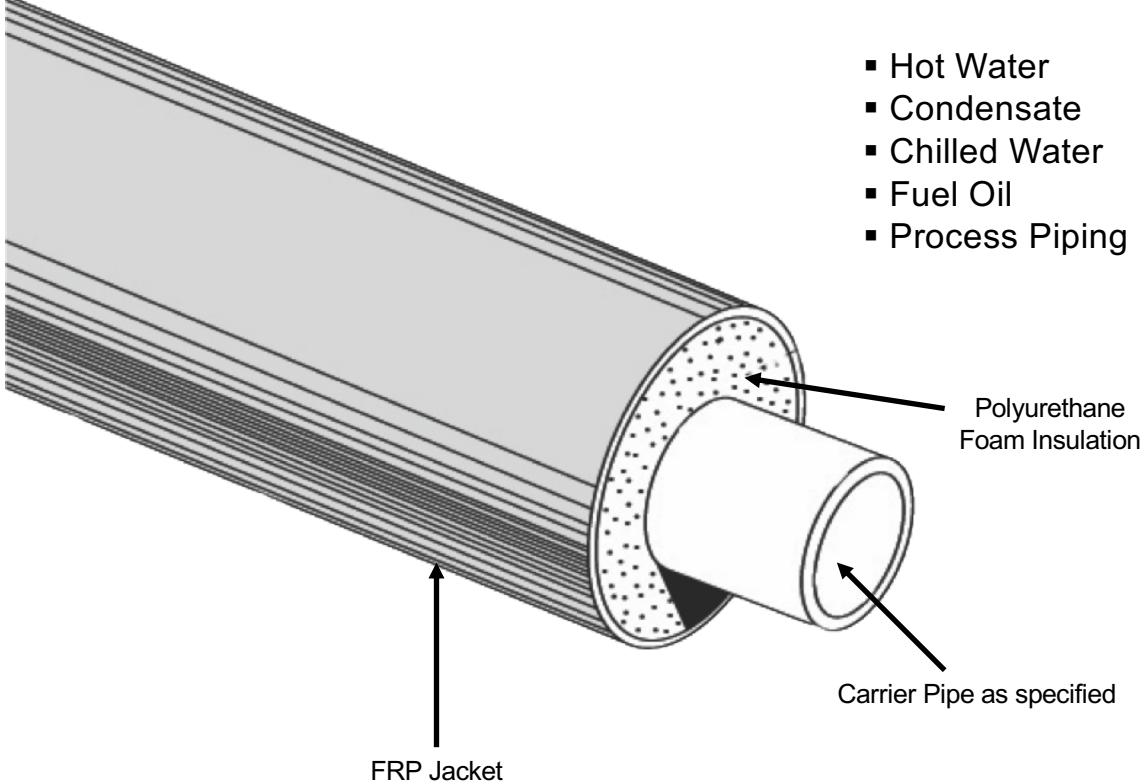


Rovanco FRP Jacketed Systems

For Temperatures to 210°F Below Ground



- Hot Water
- Condensate
- Chilled Water
- Fuel Oil
- Process Piping

Rovanco's FRP Jacketed System is designed for piping systems above and below ground suitable for indoor and outdoor applications. High quality polyurethane foam insulation combined with a durable watertight jacket supplied in 20' or 40' random lengths, means an economical, high-quality system.

Rovanco's System is provided with a jacketing of FRP, which can be supported from the outside with maximum supports spans. Fittings can be either field insulated or factory fabricated as specified.

The FRP System comes complete with the carrier pipe of your choice, joint insulation materials and jacketing to make the installation completely watertight for applications of process fluids, hot water, pumped condensate, chilled water, etc.

To find out more about Rovanco's FRP System, you can visit our factory, phone us (815) 741-6700, visit our website at www.rovanco.com or e-mail us at marketing@rovanco.com.

SPECIFICATION FOR FRP Jacketed SYSTEM

Steel Piping Systems for Low Pressure Steam, Condensate, Chilled or Hot Water, Fuel Oil, and Process Piping Applications

Carrier Pipe Types: HDPE

The pipe shall be made of polyethylene resin compound with a minimum cell classification by PE445474C for PE4710 materials per ASTM P3350 and D2837. Shall contain 2% dispersed carbon black. Piping and fittings are available in 10 different pressure classes as designated by dimensional ratios (DR) from 32.5 at 50 psi through 6.3 at 300 psi for water service at 73°. Assembly is by thermal butt fusion for a fast, economical; and long-term performance installation.

PVC

Sch 40/80 solvent weld. Other classes and schedule of PVC pipe are available.

Type (K) or (L)

Hard Drawn Copper Tubing conforming to ASTM M-88.

Steel

A-53 Grade B ERW in Schedule (40) or (80). Pipe 10" and above will be standard weight .375 wall or extra heavy .500 wall.

Fiberglass

Green Thread HP 16 bar filament wound fiberglass reinforced epoxy, bell and spigot, designed to withstand 230°F. ID of pipe shall contain a resin-rich liner. All 1" through 42 pipe to be in 20' random lengths. Pipe to be in conformance with ASTM D-2996.

Red Thread HP 16 pipe filament wound fiberglass reinforced epoxy, bell and spigot, designed to withstand 210°F. ID of pipe to be 20' random lengths. Pipe to be in conformance with ASTM D-2996.

Red Thread IIA (for fuels) – Pipe is manufactured by filament winding process using amine-cured epoxy thermosetting resin to impregnate strands of continuous glass filaments with a resin-rich interior surface. The operating pressure of the pipe is up to 250 psig (17.2 bar) with continuous operating temperature to 150°F (66°C). Red Thread IIA is Listed with UL Standard 971-2004 for non-metallic underground piping for motor vehicle, high blend, concentrated and aviation and marine fuels. ID of pipe to be 20' random lengths. Pipe to be in conformance with ASTM D-2996.

Insulation:

Insulation shall be a polyurethane foam injected with one shot into the annular space between carrier pipe and jacket. Insulation shall be rigid, minimum 90% closed cell polyurethane with a minimum 2.0 lbs per foot³ density, compressive strength of 30 psi @ 75°F and a thermal conductivity K factor no higher than 0.180 @ 75°F per ASTM C-518. Maximum operating temperature of urethane foam shall not exceed 250°F.

Jacketing Material:

All straight lengths of pipe shall be filament wound fiberglass reinforced epoxy based on the specifications outlined for one of the 3 materials shown for fiberglass carrier pipe. Jacket size based on Table 1.

Table 1:

Nominal Pipe Size In Inches	Minimum Insulation Thickness In Included	Jacket Size In Inches	Minimum Jacket Thickness In Mils
1-1/2	2.15	6.60	100
2	1.91	6.6	100
2-1/2	1.66	6.60	100
3	1.35	6.60	100
4	1.57	8.00	100
5	2.04	10.00	100
6	1.51	10.00	100
8	1.72	12.43	100
10	1.48	14.06	100
12	1.38	15.87	100
14	1.74	17.83	100
16	1.7	19.80	100
18	1.89	22.17	100
20	1.86	24.17	100

* Larger Pipe Sizes are available upon request.

Fitting:

All fittings will conform to pipe type and will be insulated and jacketed with materials supplied by the system supplier as per manufacturers' standard procedures.

End Seals:

Each length of pre-insulated pipe will be fitted with a watertight mastic end seal at jacket and pipe surfaces. All field cuts will be sealed with a field applied end seal.

Insulation of Straight Joints:

After welding and testing, all joints shall be insulated and sealed as per manufacturers' standard procedures.

Backfill: (if below ground)

Should be tamped compactly in place so as to assure a stable surface. No rock should be used in the first foot of backfill. 24 inches, top to pipe to grade, of compacted fill shall meet H-20 Highway Loading.

Manufacturer's Assistance:

Rovanco will provide a field service man on-site to properly train the installing personnel in all phases of installation, (if required).

Approved Vendors:

FRP Piping Systems by Rovanco, Joliet, Illinois or approved equal. Any alternate supplier must be ISO 9001 Certified and submit their technical data to the engineer ten days prior to bid date to be approved in writing as an equal.

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