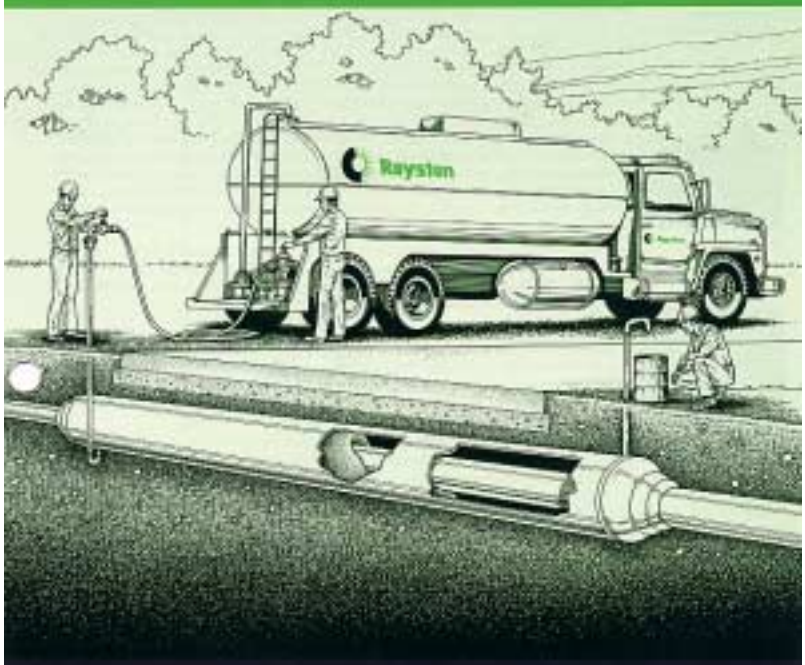
Royston

CASING FILLER TURN-KEY INSTALLATION



ROYFILL CASING FILLER...

- Formulated with one-step inhibitor
- Effectively mitigates corrosion
- Often overcomes casing shorts
- Offers a long-life, low-maintenance method to meet DOT Requirements

...FROM ROYSTON

- Complete turn-key service
- Technical professionals in corrosion control since 1940
- Support and dependability you've come to expect
- Competitive pricing

Royston

Royfill 406 Hot-Injected Casing Filler

ONE-STEP PROTECTION — FORMULATED WITH CORROSION INHIBITORS

What It Is:

ROYSTON ROYFILL 406 Casing Filler is a petroleum-based, corrosion-resistant compound used to fill the annular space between the pipe and the casing which surrounds it. The corrosion inhibitors present in ROYFILL 406 assure corrosion protection to both the exterior pipe surface and the interior casing surface.

What It Does:

ROYFILL 406 prevents further infiltration and accumulation of water or moisture in the annulus, thereby eliminating a source of galvanic corrosion. It corrects electrolyte shorts, and many metallic shorts have been reported cleared through the natural bouyancy action of the filler.

Where To Use It:

Casings are commonly used to surround and protect pipelines where the lines cross highways, railroads and similar locations. The Federal DOT Code of Regulations (Title 49, Part 192, Sub-part I, Para. C, Sec. 192.467) requires these pipelines to be electrically isolated from metallic casings that are a part of the underground system. If isolation is impractical, other measures must be taken to minimize corrosion of the pipeline inside the casing. Casing filler is an acceptable measure for compliance with the regulation. Installed from hot tankers, hot casing filler is ideally suited for multi-casing projects where economics, time, labor and pipe-casing sizes are factors.

How To Use It:

ROYSTON ROYFILL 406 is installed from insulated, heated tankers into the low end casing vent. The flow of filler will displace water through the high vent, filling the annular space between the casing and carrier pipe with ROYFILL 406. As the unctuous filler cools, it will set to a firm thixotropic gel. It will remain pliable should the carrier pipe require removal at some later date.

Ordering Information:

Shipped in insulated, heated tankers. Quotations available by contacting the Pittsburgh Sales Office, toll free, at 1-800-245-3209. Pennsylvania firms call 412-828-1500.

Typical Properties:

(Not to be construed as a specification)

Composition:	Petroleum-based compound with corrosive inhibitors.	Properties:	High dielectric Anti-corrosive Inert Non-toxic Water resistant Pliable Non-Flammable
Pour Point:	125 ± 5°F		
Congealing Point:	Approx. 5 to 10 degrees below Pour Point.		
Volume Weight:	7.0 to 7.3 lb/gal @ 120°F 0.1429 to 0.1370 gals/lb.	Flash Point:	275°F C.O.C. min

*These conversion factors change slightly as temperatures increase or decrease from the arbitrarily chosen 100°F, due to thermal expansion or contraction. The slight error introduced by ignoring temperature becomes significant only on very large jobs.

Royston Casing Filler Estimating Chart

FOR QUICK AND EASY ESTIMATING

To Determine Quantity of Casing Filler Required:

1. Using casing size O.D., find casing capacity.
2. Using inner pipe size O.D., find displacement value.
3. Casing capacity, minus displacement value = no. gals/lin. ft.
4. Multiply gallons/lin. ft. X length of casing for total gallons required.

Nominal Casing Size O.D.	Wall Thickness	Casing Size I.D.	Casing Capacity Gallons Per Lineal Foot	Inner Pipe Size O.D.	Displacement Value Gallons Per Lineal Foot
4½"	0.250"	4.00"	0.65	4½"	0.83
6⅝"	0.280"	6.06"	1.50	6⅝"	1.79
8⅝"	0.322"	7.98"	2.60	8⅝"	3.03
10¾"	0.344"	10.06"	4.13	10¾"	4.71
12¾"	0.344"	12.06"	5.93	12¾"	6.63
14"	⅜"	13.25"	7.16	14"	8.00
16"	⅜"	15.25"	9.49	16"	10.44
18"	⅜"	17.25"	12.14	18"	13.22
20"	⅜"	19.25"	15.12	20"	16.32
22"	⅜"	21.25"	18.42	22"	19.75
24"	⅜"	23.25"	22.05	24"	23.50
26"	⅜"	25.25"	26.01	26"	27.58
28"	⅜"	27.25"	30.29	28"	31.98
30"	⅜"	29.25"	34.90	30"	36.72
32"	⅜"	31.25"	39.84	32"	41.78
34"	⅜"	33.25"	45.10	34"	47.16
36"	⅜"	35.25"	50.69	36"	52.87
38"	⅜"	37.25"	56.61	38"	58.91
40"	⅜"	39.25"	62.85	40"	65.27
42"	½"	41.00"	68.58	42"	71.97
44"	½"	43.00"	75.43	44"	78.98
46"	½"	45.00"	82.61	46"	86.33
48"	½"	47.00"	90.12	48"	94.00
50"	½"	49.00"	97.95	50"	101.99
52"	½"	51.00"	106.11	52"	110.31
54"	½"	53.00"	114.60	54"	118.96
56"	½"	55.00"	123.41	56"	127.94
58"	½"	57.00"	132.55	58"	137.24
60"	¾"	58.50"	139.62	60"	146.87
62"	¾"	60.50"	149.33	62"	156.82
64"	¾"	62.50"	159.36	64"	167.10

Note: If wall thickness of the casing is greater or less than that shown in the table, adjust the figure accordingly.
Figures given are based on volume at 77°F. No allowances made for waste, spacers, insulators, end seals or coatings on the carrier pipe.

Royston Casing Filler Pump Operating Instructions

FOR SAFE AND EFFICIENT PUMPING

What It Is:

The GRACO—ROYSTON Casing Filler Pumping Unit is specifically designed for pumping ROYSTON ROYFILL Casing Filler from 55-gallon drums into pipe-line casings without heating, even at temperatures encountered during winter operations. It may also be used for pumping any high viscosity material of similar consistency, or for pumping liquids of lower viscosity which are usually pumped with units of lesser capability.

The assembly is designed to operate with a compressed air unit capable of at least 105 cubic feet per minute output. It is also designed to utilize readily available equipment for lifting and moving the pump assembly rather than devices designed specially for this purpose.

These instructions refer to assembly and operation of the unit as a whole. Graco Instruction Sheet and Parts List No. 306-646 contains full details of maintenance and operation of the pump, and Graco Instruction Sheet and Parts List No. 309-947 or 307-049 contains similar information for the air motor. Both sheets are furnished with the pump.

List Of Components:

1. Graco Bulldog 10:1 Pump—as furnished by Graco, with 1½-inch street ell and hose clamp attached by Royston Laboratories, Inc.
2. Royston Inductor Plate Assembly—fabricated unit with gasketed flange connection to pump and threaded connection to release pipe.
3. Royston Air Intake Assembly—consists of air regulator, anti-freeze unit and inductor plate release hose.
4. Inductor Plate Release Assembly—half-inch pipe with half-inch gate valve attached.
5. Output Hose—high pressure 2-inch ID hose, 25 feet long with fittings attached.

Assembly Of Unit:

Check to be sure that all components are available and in good condition.

Place inductor plate assembly on floor or ground.

Remove bolts from connecting flange but leave gasket in place.

Place pump assembly on gasketed flange and bolt in place.

Attach inductor plate release assembly to fitting on inductor plate. Use clamp attached to pump to hold top of pipe securely in place.

Attach air intake assembly to ¾-inch opening in top of pump.

Attach hose from air intake assembly to release pipe.

Attach 1½-inch output pipe assembly to street ell on pump.

Fill the glass bowl with a 50/50 mixture of water and permanent antifreeze.

Preparations For Operating:

Before beginning operations, be sure that a compressor of proper capacity is available and that provisions are made for lifting the pumping unit and transferring it from drum to drum.

The required number of drums should be on hand and conveniently located for pumping. They need not be removed from the truck bed if the truck can be brought sufficiently close to the casing vent. In extremely cold weather it is desirable to use drums which have been stored at moderate temperatures for a few days. Tests have shown satisfactory pumping with the material at 29°F., the lowest temperature tested.

The lower casing vent should be checked to be sure the output hose can be attached and the upper vent should be accessible for observation.

Casing seals should be checked to be sure they are firm and tight and can withstand the pressure developed during pumping. This is particularly important at low temperatures when pressures are unusually high. Defective or doubtful seals should be replaced.
To prepare the pumping unit, begin by attaching the output hose to the output pipe assembly and to the casing vent. Attach the hose from the compressed air unit to the ½-inch tee on the air intake assembly.
To protect the packing, pour motor oil into the cup over the pump piston to a level about an inch lower than that marked on the cup.

Operating Instructions:

Lift the pumping unit into position with a crane, hoist, backhoe or similar piece of equipment attached to the bull ring at the top of the pump. Position it with the inductor plate resting on the casing filler inside the top of the drum. Allow the weight of the unit to bear on the filler, and provide for the lowering of the unit into the drum as pumping progresses.
Start the pump by opening the air regulator to the proper pressure. Because of varying temperature and viscosity conditions, a starting pressure of 40 pounds is suggested with adjustment as required to attain adequate output.
If the inductor plate does not immediately begin to lower in the drum, the pump requires priming. Open the bleeder valve slightly until some material comes out. If none comes out, place finger over hole at bottom of bleeder valve intermittently until flow begins. Close bleeder valve. Adjust air pressure to the lowest required for adequate flow.
Regulate the antifreeze flow by turning the knob at the top of the bowl to deliver about one drop per minute.
A sharp increase in pump speed indicates that the drum is empty. Turn off the air at once and, if possible, anticipate to prevent loss of prime in the pump.
To remove the unit from the drum, lift the unit and drum a few inches off the ground, then slowly open the ½-inch valve in the release pipe assembly. This will blow the drum to the ground and allow lifting of the unit as the air forces the inductor plate out of the drum.
The inductor plate will practically wipe the drum sides clean, but a small quantity of filler may gather on top of the plate. Scrape the excess into the next drum when positioning the unit.
Transfer the unit to the next drum and continue pumping. It may not be necessary to prime the pump for each drum, particularly if the prime is not lost by operation of the pump after the drum is empty.
When the filler rises in the upper casing vent, the annular space is filled and pumping may be discontinued.
Any difficulties encountered in the use and operation of the pumping unit should be reported to your Royston representative. He will help you keep the unit operating at a high level of efficiency.