

Rigid polyurethane insulation panels for metal detection equipment



CASE STUDY

Challenge

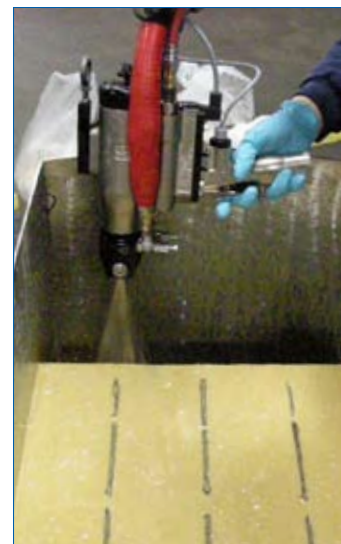
Eriez Magnetics was using 20-year-old equipment to insulate metal detection units with BASF high-density foam. The equipment had numerous available, but uninstalled upgrades which kept the equipment to consistently produce a paper foam mix, therefore foam was not mixing properly, adversely affecting final product quality. Mix-head and mixer maintenance was labor intensive, taking up to three hours a day. Replacement parts were expensive (estimated at \$18,000 to \$20,000 USD per year) with major repairs performed at OEM factory. The customer preferred to purchase a new system, but their budget did not support the \$80,000+ USD capital investment for comparable equipment as they had previously owned.

Solution

The Graco HFR Metering System™ was installed with a Graco EP™ Pour Gun at a price point that was within their allotted budget. Material was fed using a Graco T2 Transfer Pump with 3/4 in (19 mm) feed hoses and a circulation kit with 1/4 in (6.3 mm) 24 MPa (241 bar) (3500 psi) hoses at a 1:1 ratio. The machine was configured at 0.060 orifices to offer the flow rate required at a 4.1 MPa (41.3 bar) (600 psi) dispense pressure and produce the same quality foam.

Results

Eriez Magnetics was especially happy with the freedom of movement the Graco EP Pour Gun. The EP gun allows the operator to move the mold easily. This new configuration allowed the customer to eliminate the dynamic mixer on a boom and the need to move the mold while polyurethane was curing. The gun also eliminated a required solvent flush setup on the dynamic mixer for cleaning between every shot, saving substantial time and money on labor costs. The system is easy to order with locally stocked standardized parts, which reduces the overall cost of the ownership for the Graco HFR Metering System.



The Graco EP Pour Gun increased the precision of the application. It allowed the ability to aim foam into corners which were previously difficult to reach.

The gun also allowed the ability to do masking and shielding.

SPECIFICATIONS

END USER + DISTRIBUTOR

Eriez Magnetics / Foampack

INDUSTRY

Polyurethane Insulation

APPLICATION

Pour method into metal detection equipment

Material Specs

Resin is FE6318-7.0SS and the Iso is FE800A-D ISOCYANATE

Material Supplier

- BASF High-Density Foam

Typical Properties

- Ratio (B:A) by volume: 1:1
- Chemistry: Urethane

GRACO EQUIPMENT

- Graco HFR Metering System
- Graco EP Gun

CONFIGURATION

- Part number: HFRA-14AMAMDBH
- Blue pump (B): 160 cc
- Red pump (A): 160 cc
- Heat zones: 4 heat zones (two in-line heaters & dual zone hose)
- Hoses:
 - 3/8 in (9.5 mm) x 25 ft (7.6 m) heated hose,
 - 1/4 in (6.3 mm) x 10 ft (3 m) whip hose
- 0.060 orifices
- 125° F (52°C) primary heat
- 120° F (49°C) for Isocyanate
- 135° F (57°C) primary heat
- 130° F (54°C) for the resin
- 4.1 MPa (41.3 bar) (600 psi) dispense pressure

Accessories:

- Casters
- T2 feed kit with 3/4 in (19 mm) feed hoses
- Circulation kit with 1/4 in (6.3 mm) 24 MPa (241 bar) (3500 psi) hoses

Delivery Method:

- Graco EP Gun with 3/8 in (6.3 mm) purge rod



The gun and impingement mixing of the Graco HFR Metering System created perfect foam and cell structure with no voids or cracks.



The Graco distributor, Foampak and Graco were able to provide newer technology at a lower price point.