High Temperature/Pressure Alumina Insulated Probe Model 738A

GENERAL DESCRIPTION

This special purpose, alumina insulated probe was designed for use with Robertshaw's capacitance level and bulk measuring instruments and is offered for use in special, corrosive material measurement applications involving high temperature and pressure conditions. The capacitance sensing probe is made up primarily of a pressure tight Lava seal, a 3/4" entrance gland and a stainless steel coil spring conductor surrounded by a ceramic insulator of alumina having a normal outside diameter of 3/8" with an inside diameter of 1/4".

High purity alumina is used to give the probe high compressive strength, improved resistance to chemical attack and in general allows for installation in many high temperature operations where standard, Teflon covered probes could not withstand the conditions.

APPLICATION

The alumina probe is intended for use in high temperature-high pressure applications where the product being measured is either conducting or nonconducting liquids. It can also be used in granular materials however, providing they are not excessively abrasive or have high densities which would subject the probe to extreme side forces.

The alumina probe should not be subjected to high side loads, high amplitude-low frequency vibrations or high thermal shock.

The high compressive strength of the cast alumina makes this a suitable non-porous insulator capable of withstanding very high pressures in the compressive mode. The crushed lava seal (magnesium silicate) provides a tight seal against leakage under pressure conditions and yet is resilient enough to withstand high temperature conditions; therefore, this probe can used reliably in many applications.

- **Special Electrode Design**
  Provides improved linearity and reduced gain in high pressure dielectric applications.
- **Magnesium Silicate Seal**
  Provides a tight seal against leakage under high pressure conditions.
- **Alumina Insulation** Non-porous, capable of withstanding the chemical attack of many corrosive materials.
- **High Temperature**
  High purity alumina permits operating temperatures as high as 1000°F

SPECIFICATIONS

Minimum Length .....6 inches
Maximum Length .....36" (in 6" increments)
Probe Gland ..... 3/4" NPT, 316 St. St.
Probe Insulation ..... High purity alumina
Probe Diameter ..... 3/8" O.D.
Temperature/Pressure/Rating .....3000 psi @ 300°F
2000 psi @ 500°F
1000 psi@ 1000°F
NOTE: ..... Temperature Change not to Exceed 150°C/Hour
Probe Gain ..... 60 pf per foot
Gland Capacitance ..... 29 pf

ORDERING INFORMATION

738A - A xxx - N O

Key Model
Table 1- Gland and Rod Material
Table 2 - Probe Length
Table 3 - Flange Option
Table 4 - Additional Options

KEY MODEL NUMBER

Model No.	Description
738A	High pressure/temperature alumina ceramic insulated rigid probe. Designed for use in temperatures up to 1000°F and pressure up to 3000 psi. **NOTE: Maximum pressure at 1000°F is 1000 psi.**

Table 1- GLAND AND SENSOR MATERIAL

Desig.	Description
A	316 St. St. gland with 3/8" OD ceramic insulation.

Table 2 - PROBE ACTIVE LENGTH

Desig.	Description
xxx	Specify active length in inches. NOTE: Only available in 6" increments. Maximum length is 36".

Table 3 - FLANGE OPTION

Desig.	Description
N	None
A	Flange screwed onto probe gland. See PL-FL

Table 4 - ADDITIONAL OPTIONS

Desig.	Description
O	None

Robertshaw INDUSTRIAL PRODUCTS

Robertshaw Industrial Products
1602 Mustang Drive
Maryville, Tennessee 37801
Phone: (865) 981-3100 Fax: (865) 981-3168
http://www.robertshawindustrial.com

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