Johnson Matthey
Noble Metals

NOBLE METALS

Thermocouple sheath of different diameter, ACT® coated with a platinum/rhodium alloy

Thermocouple Assemblies
For the glass industry

Thermocouple Wire

Glass producers can rely on the accuracy and reliability of Johnson Matthey thermocouples. Johnson Matthey is the market leader for precious metal thermocouple wires and all products conform to strict international standards.

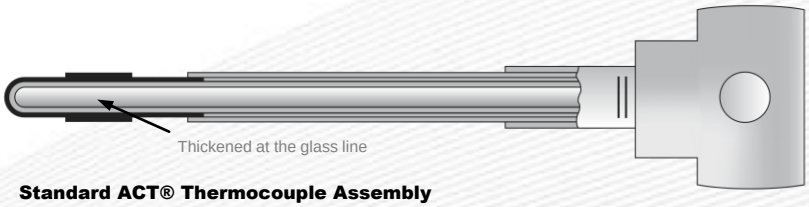
Johnson Matthey supplies type R and S thermocouple wire (class 1) and type B thermocouple wire (class 2). Tolerances are based on the International Temperature Scale of 1990 (ITS-90) or IPTS-68 on request. All thermocouple wires are tested against international standards in our UKAS (formerly NAMAS) accredited calibration laboratory. A certificate of test detailing EMF outputs will also be provided. See the thermocouple wire data sheet for details.

Thermocouple Assemblies

Temperature measurement stability and durability are two key requirements in an aggressive glass environment. Johnson Matthey propose two forms of precious metal protection for thermocouple assemblies: a drawn tube with one end closed or an ACT® coating on an alumina sheath. Both types are proven to last the full furnace campaign and withstand high temperature applications such as the crown.

Platinum/rhodium protective tubes are inert to molten glass and provide unequalled resistance to erosion. They withstand thermal cycling, ceramic cracking and several removals / insertions. For the most demanding applications, the use of platinum/rhodium alloys with dispersed zirconia particles (ZGS) can give increased mechanical strength and durability.

ACT® (Advanced Coating Technology) is our proven technology for ceramic protection, with coating thickness from 200 to 400 microns in platinum and 10% rhodium/platinum. ACT® relies strongly on the integrity of the ceramic substrate. It requires less metal and is ideal for limited thermal cycling.



Standard ACT® Thermocouple Assembly

Copies of our standard designs are available on request. Alternatively, Johnson Matthey can supply to customer drawings. Installation and removal instructions are included with every ACT® thermocouple. Different design configurations are available including thicker coating at the glass line (see drawing above). A 10% rhodium/platinum coating is recommended for applications above 1350°C.

Johnson Matthey offers full precious metal recovery of thermocouple wires and protective tube or coating. Typical metal returns are greater than 95%* for ACT® coatings and greater than 98%* for platinum/rhodium protective tubes.

* Based on estimated returned weight

Johnson Matthey
Noble Metals

NOBLE METALS

Thermocouple Assemblies
For the glass industry

Thermocouple assemblies, ACT® coated ceramic sheath

Fabricated thermocouple assembly, protective sheath made of ZGS platinum/rhodium alloy

Fabricated thermocouple sheath made from platinum/rhodium alloy

If you require more information on Johnson Matthey Noble Metals products please contact our technical support team.

Europe
Johnson Matthey, Noble Metals,
Orchard Road, Royston,
Hertfordshire, SG8 5HE UK
Tel: +44 (0) 1763 253000 Fax: +44 (0) 01763 25313
E-mail: nobleuk@matthey.com

North America
Johnson Matthey, Noble Metals,
1401 King Road
Pennsylvania 19380- 1497 USA
Tel: (1) 610 648 8000 Fax: (1) 610 648 8105
E-mail: nobleww@jmusa.com

Asia
Johnson Matthey Hong Kong Ltd
Suite 2801, Tower 6, The Gateway,
9 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: (852) 2738 0380 Fax: (852) 2736 2345
E-mail: jmhk@matthey.com

www.noble.matthey.com