



The Waveguide Solution
a global **invacom** company

Waveguide
Pressure Windows



The Waveguide Solution have developed a range of pressure windows to suit most applications.

- The kapton range has extremely good electrical performance over the full waveguide band.
- The glass reinforced PTFE range typically has higher power handling and pressure differential.

- The quartz range is usually tailored to a particular customer requirements or a standard band. Very high power, very low loss and high pressure differential can be achieved.

Standard frames are made from brass or aluminium and a range of finishes can be applied. The pressure windows can be supplied to mate with most flange outlines.

TWS is approved to ISO 9001:2008

Pressure windows enable the waveguide to be pressurised - to eliminate moisture or dust, and to improve power handling.

TWS pressure windows meet the requirements of RoHS – non approved finishes and materials may be available for certain legacy applications please contact the factory for details.

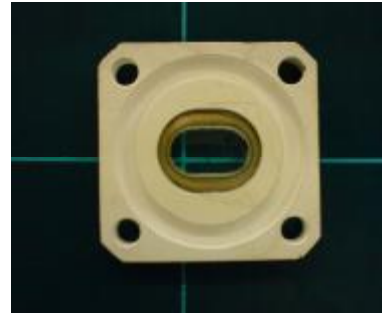
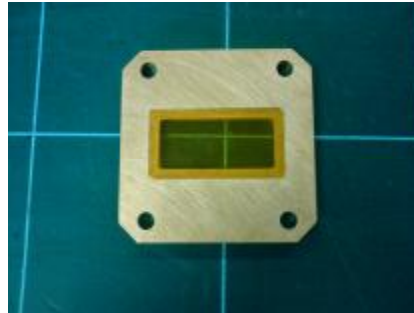
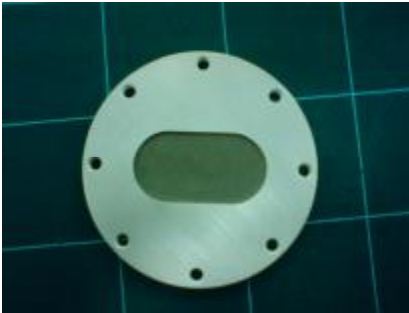
Standard products for use or integration with pressure windows include Inlet Sections, Air Inlet Flanges, Dessicants and hardware kits.

Fitting considerations

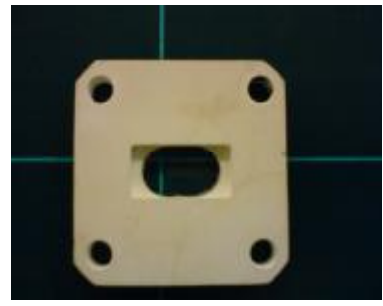
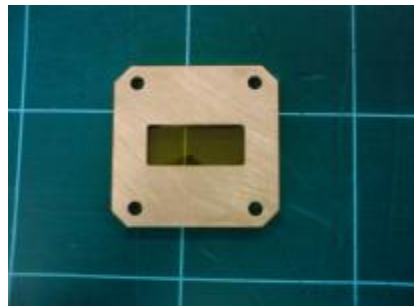
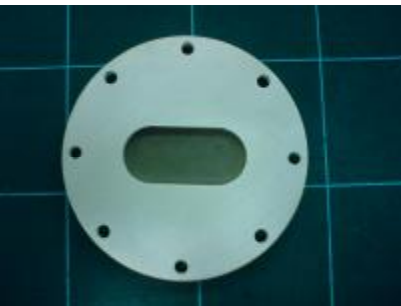
Most TWS pressure windows have one side matched to the waveguide, and on the other side an iris which compensates for the electrical effect of the window material. The window material is normally fitted into the iris side. Although it doesn't matter which way the windows are fitted into the waveguide run from an electrical viewpoint, for best pressure performance the window should be fitted with the side that the window material has been fitted from towards the high pressure side.

The pressure then pushes the window material into the frame. It is also important not to fit additional gasket material on the iris side as it may exude into the iris cavity and detune the window.

High pressure side



Low pressure side



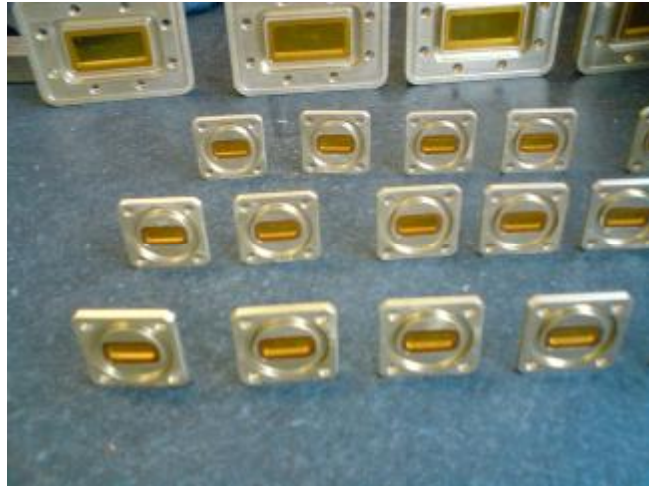
Glass reinforced PTFE

Kapton

Quartz

Kapton pressure windows

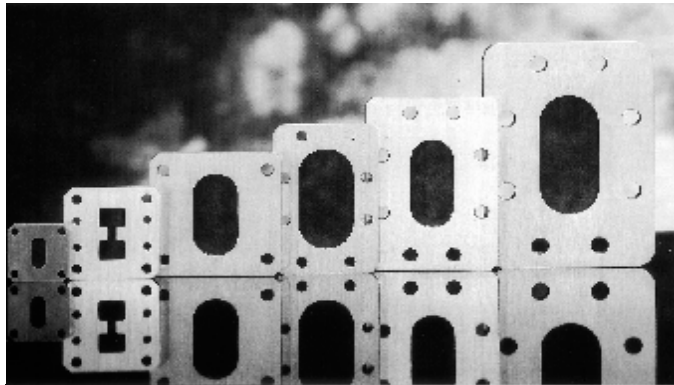
These offer the best electrical performance, with a match of better than 1.05:1 over the entire waveguide band.



Glass reinforced PTFE pressure windows

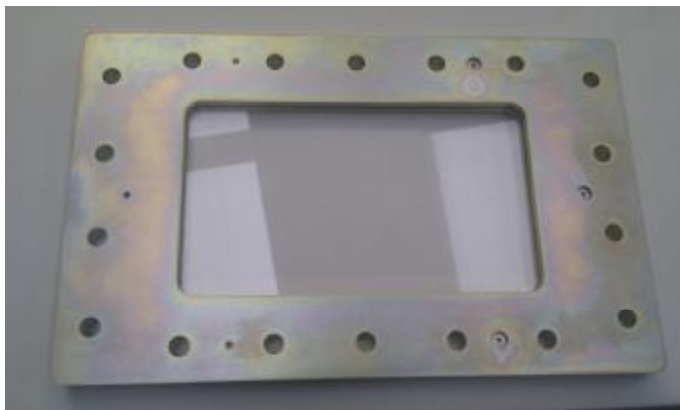
Windows for standard rectangular waveguide sizes have a VSWR better than 1.10:1 over the full waveguide bandwidth, or 1.05:1 over a 50% bandwidth.

Double Ridge sizes have a VSWR better than 1.10:1 over an octave bandwidth, or 1.15:1 over the full frequency band.



Quartz pressure windows

Quartz windows offer the highest power handling and the lowest loss. The thickness of the quartz is determined by the pressure requirement, and this is a trade-off with the bandwidth. The windows are normally designed especially for a particular application. In addition to brass and aluminium frames, other materials are available (e.g. stainless steel) for high temperature applications. Typical match is 1.1:1 e.g. for a satellite band.



Window thickness

Where a thickness is given, it is for a plain / plain flange combination. Where an "O" ring / plain or "O" ring / "O" ring combination is specified, the thickness will need to be increased to accommodate the depth of the grooves. Windows incorporating choke grooves may be possible depending on flange size, but are not recommended for electrical reasons.

Ordering Information

RW 16 — S — Z — Z — 402 — 402

WAVEGUIDE SIZE

USE THE BRITISH WG SIZE FOR RECTANGULAR WAVEGUIDE or THE MIL SPEC. WRD SIZE FOR DOUBLE RIGDE WAVEGUIDE
E.g. 16= WAVEGUIDE SIZE WG16
750 = WRD750

TYPE

S = GLASS REINFORCED PTFE
K = KAPTON
H = QUARTZ

PAINT

Z = UNPAINTED (STANDARD FOR BRASS MATERIAL)
Q = TWS BLUE
B = MATT BLACK

FINISH

Z = UNPLATED (STANDARD FOR BRASS MATERIAL)
H = CHROMATE (OPTIONAL FOR ALUMINIUM MATERIAL)
F = IRIDITE (STANDARD FOR ALUMINIUM MATERIAL)
A = TIN (OPTIONAL FOR BRASS MATERIAL)
B = SILVER (OPTIONAL FOR BRASS MATERIAL)

FLANGE X

SELECT THE REQUIRED FLANGE BY SELECTING THE LAST 3 DIGITS OF THE TWS FLANGE PART No.
E.g. 402= UBR FLANGE

MATERIAL

A= ALUMINIUM (STANDARD FOR DOUBLE RIDGE WAVEGUIDE)
B= BRASS (STANDARD FOR RECTANGULAR WAVEGUIDE)

PRODUCT CODE

RW = PRESSURE WINDOW



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Specifications shown on this document are offered as a guide only. Components may be modified to suit the mechanical or electrical parameters requested, or may be optimized to suit the operating frequency range. Frequency range of operation shall be advised when ordering.

Information provided in this brochure is for reference only. Dimensions or specifications are typical values. All designs, specifications and availabilities of products and services presented in this document may be subject to change without notice. For confirmation of details please consult your agent or manufacturer. Issue 1.0b