

08-0072-19-912  
November 1979  
Supersedes M08613

## VACUUM LEADTHROUGHS - TYPES 6D, 7D, 9A, TL4

These electrodes are manufactured from materials specially selected for their vacuum properties. They provide a vacuum tight means of conveying electrical supplies to the interior of a vacuum chamber. A shield is provided to prevent the deposition of metallic coatings on the ceramic insulator during evaporation.

The electrodes are designed to be sealed by O-rings into the baseplate holes as shown. In addition, they may be fitted in a plain hole in a base plate of the same diameter as the smaller bores in the cut-out drawings.

### Technical data:

Type	6D	7D	9A	TL4
Maximum operating temperature	150°C	150°C	150°C	70°C
Rating: continuous	150A 10kV d.c.	15A 5kV d.c.	400A*60V d.c.	2A 250V a.c.
intermittent	-	20A	400A**	-
Weight	312g	57g	687g	181g
Leak rate	better than $10^{-9}$ torr $ls^{-1}$			

### Model 9A

\* water cooled - water consumption is negligible; the supply is normally in parallel with other water cooled components.

\*\*Uncooled

### Product description

Type 6D high voltage leadthrough  
Type 7D high voltage leadthrough  
Type 9A high current leadthrough  
Type TL4 multipin leadthrough

### Ordering number

08-0072-19-000  
08-0072-18-000  
08-0072-13-000  
08-C069-02-000

### Spares

Sealing plug for type 6 electrode aperture  
Plug nut for type 6 electrode aperture  
Pack of 'O' ring seals for type 6 aperture  
Sealing plug for type 7 electrode aperture  
Plug nut for type 7 electrode aperture  
Pack of 'O' ring seals for type 7 aperture

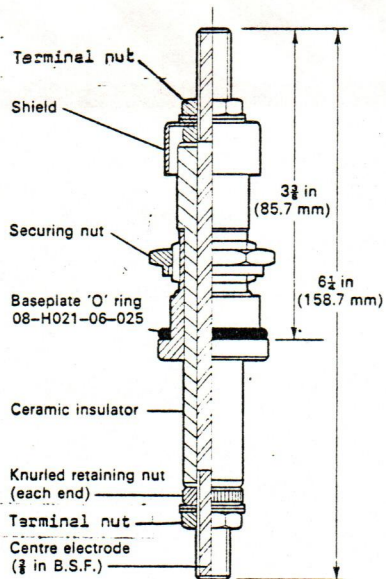
### Ordering number

14-E069-00-161  
14-E069-00-162  
08-H021-06-025  
14-E069-00-133  
14-E069-00-134  
08-H021-06-013

### **Edwards High Vacuum**

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### Type 6D

#### Mounting:

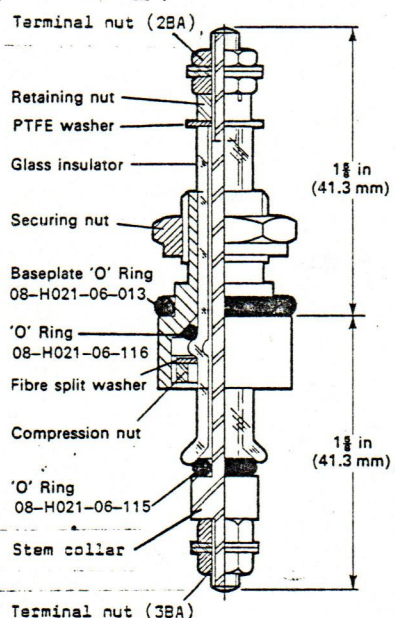
Remove the two terminal nuts and washers, the shield and the electrode securing nut from the vacuum side. Ensure that the baseplate 'O' ring is in position and pass the electrode through the baseplate from the atmospheric side. Replace and tighten the securing nut with a spanner. Replace the shield with the cup towards the baseplate. Make the chamber internal connexion.

#### Dismantling:

Disconnect and withdraw the electrode from the baseplate. Remove the terminal nut and the two washers from the atmospheric side. Remove the lower knurled nut (the upper knurled nut is fixed) and the baseplate 'O' ring. Use a mild abrasive to remove deposits from the ceramic surfaces and then wash and dry the insulator.

#### Assembly:

Screw on the lower knurled nut, finger-tight only, then fit the two washers and terminal nut. Fit the baseplate 'O' ring on the electrode.



### Type 7D

#### Mounting:

Remove the upper terminal nut and washer and the securing nut from the vacuum chamber end of the electrode. Ensure that the baseplate 'O' ring is in position and pass the electrode through the baseplate from the outside. Replace and tighten the securing nut with a spanner. Make the chamber internal connexion.

#### Dismantling:

Disconnect and withdraw the electrode from the baseplate. Remove the upper terminal nuts and washers, also the retaining nut and the PTFE washer. Slide the electrode stem downwards and withdraw it from the borosilicate glass insulator. Unscrew the compression nut from the electrode body and slide out the insulator, the split red fibre washer and the 'O' ring in the electrode body. Use a mild abrasive to remove deposits from the glass surfaces; wash and dry. Renew 'O' rings if damaged or deteriorated.

#### Assembly:

Seat the 'O' ring in the lower end of the electrode body and slide the red fibre washer over the flared end of the insulator to seat against the insulator collar. Seat the insulator in the electrode and tighten the compression nut firmly, but do not use excessive force. Place the 'O' ring against the stem collar and slide the stem into the insulator. Replace the PTFE washer and the retaining nut. Ensure the stem, insulator and nylon washer are concentric, then tighten the retaining nut until the 'O' ring is compressed against the stem collar.

### Type 9A

#### Mounting:

Remove the nuts, washer and solder lug from the atmospheric end, then remove the terminal nuts, washers, shield washer locknut, shield washer and securing nut from the vacuum side. Ensure that the baseplate 'O' ring is in position and pass the electrode through the baseplate from the atmospheric side. Replace and tighten the securing nut with a spanner. Replace the shield-washer and locknut and make the internal chamber connexion. Solder the cable to the solder lug then replace the lug washer, lug securing nut and terminal nut. Connect the water pipes.

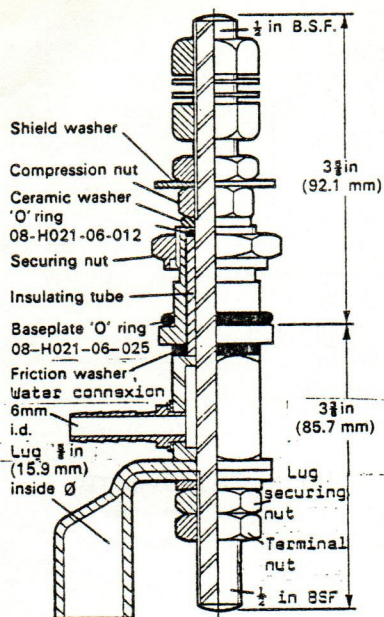
#### Dismantling:

Disconnect and withdraw the electrode from the baseplate. Remove the compression nut and the ceramic washer, then slide the main bush off the stem. Remove the 'O' ring, insulating tube and friction washer.

#### Assembly:

Slide the insulating tube and 'O' ring over the stem and the friction washer over the insulating tube ensuring that the washer is seated on but not nipped by the tube. Slide the main bush with 'O' ring over the insulating tube then the ceramic washer and the compression nut.

Tighten the compression nut sufficiently to prevent the electrode stem twisting when making the terminal connexions.



### Type TL4

#### Mounting:

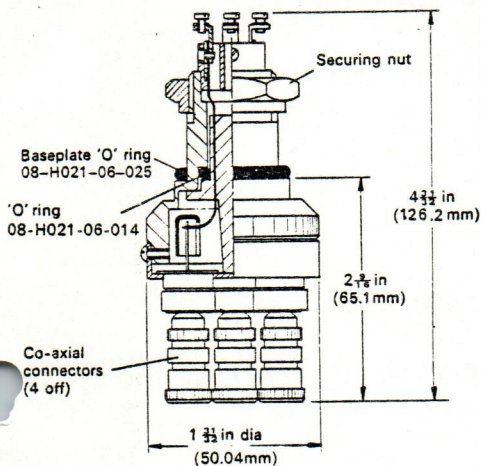
Unscrew and remove the securing nut. Ensure that the baseplate 'O' ring is correctly positioned and pass the electrode through the baseplate from the atmospheric side. Replace and tighten the securing nut. Up to three thermocouples may be connected through the leadthrough with one lead from each thermocouple to three of the terminals and a common return line using the fourth terminal.

#### Dismantling:

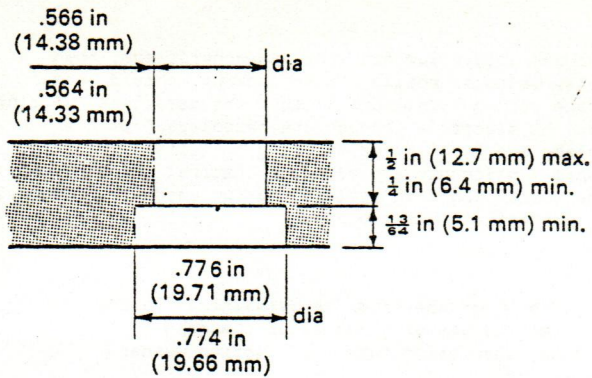
Disconnect the electrical leads from both sides of the leadthrough and remove the leadthrough from the baseplate. Remove the four 88A screws and the four wire connectors. Withdraw the PTFE bush, being careful not to lose the four connector clamp plates which may remain in the bush. Remove the three 68A screws and lift out the complete interior assembly from the body shell. The 'O' ring can now be replaced.

#### Assembly:

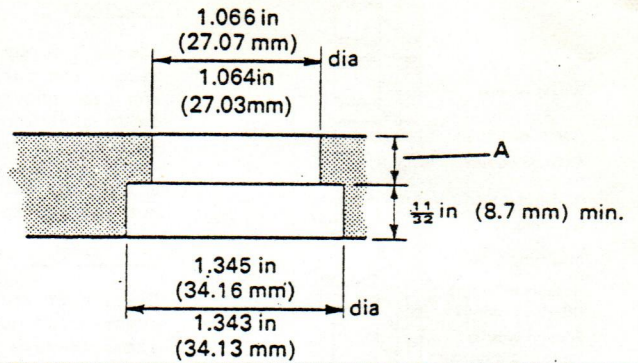
This can be carried out in the reverse order to dismantling. Assemble the baseplate 'O' ring to the interior assembly. Ensure that the rubber insulating sleeves are firmly positioned on the soldered connexions. When replacing the PTFE bush, check that each nickel leadthrough wire is clamped between the connector and its connector clamp, and that the engraved numbers correspond to those on the co-axial plugs.



Baseplate cut-out dimensions: Type 7D



Types 6D, 9A, TL4



Dimension A

Model 9A  
1 1/8 in (17.5mm) max  
7/8 in (7.9mm) min

Models 6D and TL4  
5/8 in (15.9mm) max  
1/2 in (12.7mm) min

## Communication with Edwards

Any communication relating to the subject of this instruction should be addressed to Edwards High Vacuum or to the supplier from whom it was purchased.

Please specify:

- 1) the model, serial number and code.
- 2) the date of purchase.
- 3) your order number and the suppliers sales reference.

Equipment should not be returned to the supplier without prior arrangement.

### IMPORTANT Health and Safety

Under Section 3 of the Health and Safety at Work Etc Act 1974 every employer has a duty to conduct his business so as not to expose persons not in his employment to risks to their health and safety. When goods are returned to the supplier, therefore, warning must be given if their usage is likely to render the equipment hazardous in any way.

Edwards High Vacuum and its distributors reserve the right to refuse acceptance of any equipment returned which they have reason to believe may be hazardous.

### Damage in transit

If any damage has occurred in transit, it is important to inform both the carrier and the supplier within three days of delivery.