System/Product | ATLAS/Globe  
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Model/Module | BOV, Oil Pipes, Reaction Vessel  
Subject Type | Atlas and Globe O-RING seal Information.  
Subject Version | 1.0  
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**Atlas and Globe O-RING seal Information.**

The following sizes (i/d x cross section) are used on the Atlas and Globe batch reactor systems.

**9mm Bottom Outlet Valve**

6 x 2 - 9mm B.O.V. Top O-ring (1 off per valve) - Part No.1802042  
10.82 x 1.78 (BS 013) – 9mm B.O.V. Stem seals (2 off per valve) - Part No.1802152

**20mm Bottom Outlet Valve**

17 x 3 - 20mm B.O.V. Top O-ring (1 off per valve) – Part No.2102273  
19 x 3 - 20mm B.O.V. Stem seals (2 off per valve) – Part No.2102275

**Oil Connector**

22.23 x 2.62 - face seal (1 off per connector) – Part No.1801989  
28.3 x 1.78 (BS024) – radial seal (1 off per connector) – Part No.1802010

**Main Reactor Vessel Seal**

89 x 4.5 FEP encapsulated Silicon – Part No. 2101016  
89 x 3.8 FFKM – Part No. 2101543

**Notes**

Selection of suitable Bottom outlet valve seal material is limited to its requirement for a wide variety of chemical compatibility and so an FFKM material will obviously be first choice for the majority of applications. However FFKM is limited to its low temperature range of typically -15/-20°C.

Suitable Oil Connector seal choice is currently FKM, however for extreme temperature coverage other more suitable materials should be selected.

The vessel flange seal material choice is covered adequately at present and depends mainly whether the vessel is being used under vacuum conditions.
Syrris Ltd.

Syrris field data

Atlas Low Temperature Test

Omar carried out a low temperature test using an Atlas vessel and Huber circulator to achieve a low temperature of -80°C. Seal materials used on site where Klingerseal material fitted to the oil pipe connections and FKM (Viton) fitted to the bottom outlet valve stem.

Astra Zeneca – India - Globe

Syrri supplied both 20mm and 9mm B.O.V. seal kits manufactured from FKM (Viton) to the customer who requested that he needed a set of seals to operate at temperatures down to -80°C. The customer was however informed that the chemical compatibility of this material was severely limited.

Aseptic – Malaysia

Shameer gave the distributor a set of oversize oil connector face seal (1801989) o-rings to solve a customer’s issue of leaking circulator fluid at 150°C from one of the oil connections. It is suspected that the customer’s originally supplied seal had been damaged or possibly even lost.

Other Info

During the initial development of Atlas a material was selected for low temperature operation and for use as a Face Seal on the oil pipe connections. This material referenced as ASTRA was supplied by Precision Polymer. Visually it appears to be a PFA encapsulated metal spring type O-ring.

Selection of Oil Pipe connection seals for High and Low Temperatures.
The ideal material points towards a Silicon Grade S60R that has a temperature range of -60°C to +250°C. based on a media selection of Silicon Oil and Ethanol using PPE’s o-ring compatibility wizard.