

PRODUCT ENGG/VALVES
BHEL TRICHY-620014

VL:STDC:022
REV 00
PAGE 1 OF 5

TDC FOR SUB-DELIVERY COMPONENTS (SWG)

1. Item	: Spiral wound gaskets with grafoil filler.
2. Application	: Body-Bonnet Sealing
3. Material	:) Refer Annexure
4. Inspection	:)
5. Packing	: Refer Annexure

PREPARED
[Signature]

[Signature]
CHECKED
(S. Chandra Shekar)

[Signature]
APPROVED
S. Kumar
30.1.2013

ANNEXURE

TECHNICAL DELIVERY CONDITION FOR METALLIC SPIRAL WOUND
GASKETS - GRAFOIL FILLER

1.0 SCOPE:

This technical delivery condition specifies the constructional, functional and qualitative requirements of metallic spiral wound gaskets with grafoil filler for use in valves at different pressure and temperatures.

2.0 MANUFACTURE AND WORKMANSHIP :

- 2.1 These spiral wound gaskets shall be made of alternate plies of performed metal winding and filler tightly wound spirally.
- 2.2 The filler shall protrude above the metal strip by a maximum extent of 0.125mm on either face of the gasket.
- 2.3 At the start and conclusion of the spiral form a number of metal plies can be provided without any filler material; however, the number of such plies shall not exceed 5 at each end.
- 2.4 The metal winding around the entire inside circumference of the gasket shall be suitably spot welded in equal spacing not exceeding 25mm with a minimum of 3 welds.
- 2.5 The metal winding on the outside shall be welded with a minimum of three welds out of which one weld shall be at the terminal point.
- 2.6 Gaskets are to be compression tested in a compression testing machine with a suitable load to produce a unit pressure of 10000 to 15000 psi on the gasket. The compression shall not exceed the values specified in Table-1

TABLE-1

Gasket thickness before compression	Gasket thickness after compression
3.2 mm (1.125")	2.29 to 2.54 mm (0.09" to 0.1")
4.4 mm (1.175")	3.18 to 3.43 mm (0.125" to 0.135")

2.7 GASKET DENSITY :

The ratio of the number of metal windings to the number of filler windings, winding tension etc. which govern the gasket density shall be suitably selected by the supplier such that when the gaskets are compressed as described in Para 2.6, the thickness of the gasket lie within the limits specified in Table-1.

3.0 DIMENSION :

3.1 All dimensions and style shall be in accordance with the relevant drawing. Where tolerances are not specified in the drawing, the following deviations can be allowed:

Gasket diameter ID \pm 0.4 mm OD + 0.5 mm
- 0.0

Gasket thickness \pm 0.13 mm

3.2 The thickness of the metal strip shall be between 0.18 mm and 0.23 mm.

3.3 The thickness of the grafoil used as filler shall not exceed 0.6 mm.

4.0 MATERIAL

4.1 Unless otherwise specified the material used for the metal winding shall be AISI 304 stainless steel.

4.2 The filler material shall be grafoil tapes.

- 4.3 If gaskets are required with centering rings the material shall conform to the drawing requirement.

5.0 PACKING :

Spiral wound gaskets shall be packed in Nos. of 10 in suitable card-board containers to avoid damage during transit. It should carry proper identification giving the size, type, drawing number and supplier's name.

6.0 RECEIPT INSPECTION & TESTING :

6.1 Visual Inspection :

The gasket shall be undamaged and the windings shall be intact.

- 6.2 At random few samples shall be selected and subjected to dimensional inspection. Dimensions shall conform to those given in the drawing.

- 6.3.1 The metal strip used shall be analysed for its chemical composition and it shall conform to the specification.

- 6.3.2 The filler material shall be analysed for material conformance.

6.4 Compression test :

- 6.4.1 The test shall consist of subjecting the gaskets to predetermined loads in a compression testing machine and measuring the thickness of the gaskets under the applied loads and after removal of loads.

- 6.4.2 The gasket shall be subjected to a uniform unit compressive load as described in Para 2.6

- 6.4.3 The thickness of the gasket shall be measured using dial indicators; with the applied load on the gasket, the thickness shall be within the limits specified in Table-1 under 2.6

- 6.4.4 After the load is removed the gasket shall recover atleast 0.25 mm over the compressed thickness obtained in the compression test.

- 6.4.6 The gasket shall be visually examined after the compression test.

No buckling on the inner edge of the gasket shall be allowed. The spot welds should not foil and the windings should be intact.

6.5 Hydrostatic test and steam test :

- 6.5.1 The gasket shall be assembled in the actual valve or an equivalent flange.

- 6.5.2 The bolts shall be tightened with a torque wrench and the torques applied or compressed height shall not exceed those indicated in the drawing.

- 6.5.3 Normal sequencing of bolt tightening for flanges shall be followed.

- 6.5.4 Hydrostatic test and steam test shall be carried out at the parameters mentioned in the drawing. There shall be no leakage through the gasketed joint.

7.0 Test certificates :

Supplier shall give the following Test Certificates for each item for each lot and should contain all details of the following tests.

- a. Compression Test Certificate
- b. Material Test Certificate
- c. Visual inspection and dimensional inspection

