



Technical Specification for IGV mechanism components.

Ref.: 003-TML- 2017-IGV-Comp

Dt. : 24.02.2017

Rev. no.: 01

1.0 Description:

An IGV mechanism to be manufactured and assembled to construct a test set up at BHEL, R & D, Hyderabad. General arrangement of IGV mechanism along with various components are shown in the Fig. 1. In the setup, guide vanes are mounted in between the hub & shroud casing and pinion gears are mounted on the spindle of these vanes. Rack gear is fixed on the carrier ring which slides in the groove of the shroud casing. Thus, all the guide vanes are rotated via pinion gears by rotating the carrier ring along with the rack gear. Hub casing is made in 7 sectors which are fixed on the IGV inner ring by bolting arrangement. The entire hub assembly is connected to the shroud casing using 4 hub support flanges. The carrier ring is connected to the hydraulic actuator fixed on the base of the test setup. The entire assembly is supported by vertical support structure at four locations.

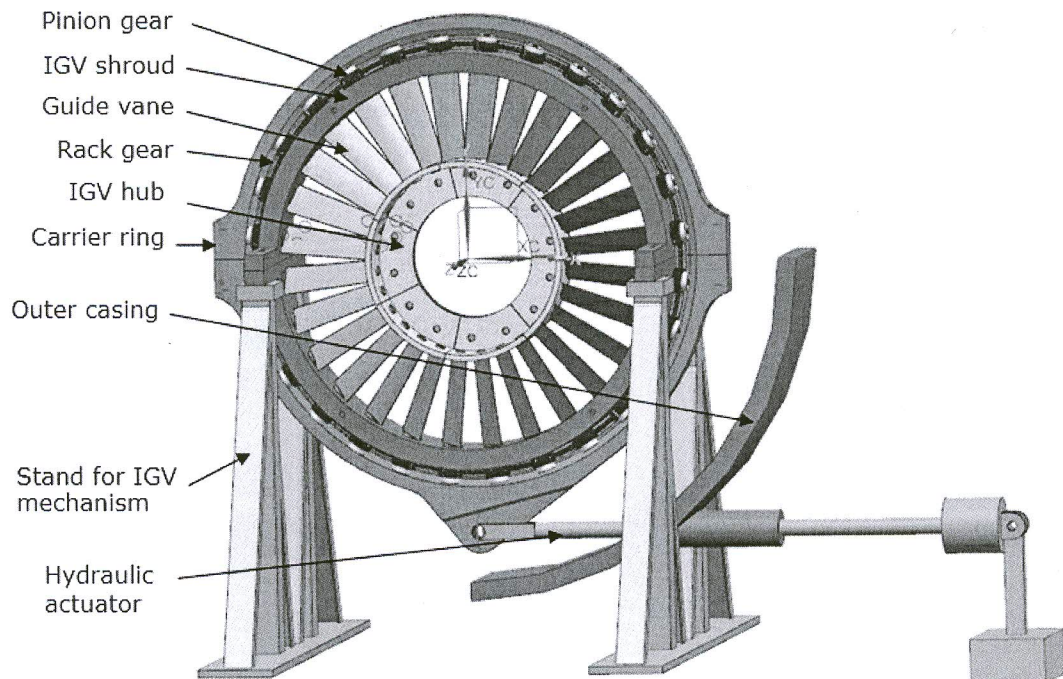


Fig.1 General arrangement of IGV mechanism components

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2.0 Scope of work:

The scope of work includes manufacturing and supply of various components of IGV mechanism for axial flow compressor as per the attached manufacturing drawings listed in Table-1. Items in Table-1 are indicated in the bill of material given in the assembly drawing titled 'IGV mechanism assembly' (drawing no. RD DG 3 TM 1600). Assembly of sub components which are in the vendor's scope, should be done by the vendor as per the assembly drawing to ensure compatibility of the items. Delivery, packing forwarding and unloading of the components at BHEL R & D, Hyderabad, are also included in the scope of work.

Table - 1 : List of the items to be manufactured & supplied

Sl.No	DESCRIPTION	DRAWING NO.	MATERIAL	No.
1	IGV shroud	RDDG3TM 1603	IS : 2062 FE 410 W	1 set
2	IGV Hub	RDDG3TM 1604	IS : 2062 FE 410 W	1 set
3	IGV inner ring	RDDG3TM 1605	IS : 2062 FE 410 W	1 set
4	Carrier ring	RDDG3TM 1606	IS : 2062 FE 410 W	1 set
5	Hub support	RDDG3TM 1607	IS : 2062 FE 410 W	4 no.s
6	Stand for IGV mechanism	RDDG3TM 1608	IS : 2062 FE 410 W	1 set

3.0 Inspection:

BHEL will conduct inspection/ witness tests for checking of dimensions and tolerances of the components. Components shall be dispatched only after clearance from BHEL. Vendor need to carry the following tests.

- Dye penetration test for the welding part.
- Dimension and tolerance check-up of machined components.
- Vendor should submit the material test certificate along with the finished product.
- Vendor must submit dimensional report along with all the finished product.

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4.0 General:

- Attached drawings of the components are tentative, which are subjected to minor changes during execution.
- Rust preventive coating to be provided on all the surfaces of components of the IGV mechanism.
- Vendor should get clarified from BHEL, for any ambiguity found in the drawing before proceeding further.
- Vendor should assemble top and bottom halves of item no. 1 & 4 of Table-1 for blue matching. Blue matching of 75 percent of the contact area in the parting plane must be ensured and parting plane gap and any other mismatching should be checked and rectified. Vendor has to ensure smooth rotation of "Carrier ring" (item no. 4) in the groove of "IGV hub" (item no. 4) after assembly of these items.
- Vendor has to ensure complete circular shape of assembled "IGV hub" (item no. 2) after assembly of this components with "IGV inner ring" (item no. 3).
- Dowel pin provisions at suitable locations are to be made by the vendor for ease of assembly and disassembly of the components.
- Any stress relieving as required after machining of the components has to be done by the vendor.
- Any defect in the manufacturing/ fabrication of the components identified during assembly, shall be rectified by the vendor and associated disassembly, transport, machining, rework and re-assembly shall also be done by the vendor without any cost to BHEL.

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