

Specifications-annexure (Sheet)

Drawing No: RRCAT/AP/PHPMD/TR/HGS/17/6/RO-0(Sheet:1 to 8)

1.0	Specification: This specification lists the technical requirements for material, fabrication, welding, assembly, inspection testing and supply of SS pipe line to connect the reservoir to a tank for top up of chiller tank at ATF building, at RR CAT Indore				
2.0	Parts, quantity and material requirements and procedures: All materials and parts are in supplier/fabricator's scope as per given in the table 1 except item No. 16 (Steel reservoir tank) Table-1				
	Sl. No	Drawing No	Part No	Qty	Material: All materials are in supplier's Scope
	1.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-1 of 8)	Line lay out	01 set	SS304L pipe 1 ½" Sch-10 It will be connected to reservoir and run underground approx. 1 meter below the free floor level, TIG welded at all joints. Pressure leak test will be done at site @ 6kg/cm ² .
	2.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-2 of 8)	Item No-1 (Frame)	01 set	ISLC-75.
	3.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-3 of 8)	Item No-3(Tank nest)	01 set	ISA 50 x 50 x 5mm (MS).
	4.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-4 of 8)	Item No-4(support plate)	01 set	MS sheet 940x940x3 thick (Zinc Plated100 microns).
	5.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-5 of 8)	Item No-1A & 2	04 Nos	ISLC-75 with footing plate.
	6.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-6 of 8)	Item No-1B	02 Nos	ISLC-75 horizontal member.
	7.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-7 of 8)	Item No-1C	01 No	ISLC-75(horizontal member).
	8.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-1 of 8)	Item No-5 (Bends)	07 Nos	1 ½" SS304L(R-1.5D).
	9.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-1 of 8)	Item No-6 (Pipe)	01 set	1 ½" Sch-10 SS 304L pipe ~100meters length of 3/6 meter pieces.
	10.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-1 of 8)1 ½" & 1"	Item No-7 (Valve)	1 No	SS Flanged Ball valves
	11.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-1 of 8)	Item No-8 (Pump)	02 Nos	Magnetic coupled, centrifugal, single phase, 330W, 20meters suction, 25 meter discharge, flow rate 50 LPM, with 1" flanged pump.

				Make: SYP Pump, (NH300 PS-F series) OR equivalent
12.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-1 of 8)	Item No-9 (Tank)	02Nos	500 liters capacity, 3Layered, Virgin grade, Plastic tank of size: dia~910mm/36", Ht~960mm/38", with threaded cover Lid,
13.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-8 of 8)	Item No-10	1 No	SS threaded Ball valves
14.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-8 of 8)	Item No-11	1 No	1" NB SS 304 pipe ~6 meters length.
15.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-8 of 8)	Item No-12	2 Nos	1" SS 90°bend R-1D
16.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-8 of 8)	Item No-13	1No	1"SS Union Joint
17.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-8 of 8)	Item No-14		1"End coupling Pipe to tank
18.	RRCAT/AP/PHPMD/TR/HGS/17/06/RO-0 (Sheet-1 of 8)	Item No-15	1No	Ball valve 3/8" for air vent.
19.	All hardware, gasket, and sealing materials.			Bolts, Nuts, gasket, and sealing materials.

Welding procedure:

Submerged Arc Welding (SMAW):

- (i) ISLC-75 section should be free from Oil grease, dust and dirt. Section should be straight, Twisted, rusted and pitting material is not acceptable.
- (ii) While SMA welding E6013,E Bond electrode should be used of item no1 frame structure care should be taken, after each and every weld run slug should remove. Under cut and convex fillet is not acceptable.
- (iii) Die penetration test will be done, RRCAT representative may witness this test.If crack is observed, 'V' groove generated on crack and weld should be repeated and DP test also repeated.

TIG welding of the pipe:

- i) All ends of the pipe, edge preparation is mandatory.
- ii) Before TIG welding oxide, oil, grease, dust, dirt should remove by rubbing using wire brush, scotch bright wool and washed with Acetone.
- iii) Full penetration of weld joint made and uniform concave fillet is acceptable.
- iv) Die penetration test will perform in all weld joints.
- v) Pressure leak test @6kg/cm² will done and holding pressure for one hour with no pressure drop.

Workmanship, Testing &Quality Assurance of work:

(a)Pipe with a wall thickness up to 2.5 mm, preparation of square butt weld joint is to be considered; regarding bigger wall thickness, a preparation of single –V butt joint with an included angle of 90° is necessary.

(b)The joints area has to be clean before welding. Root gap and misalignment have to be minimized as per standard.

(c)All finished welded joints shall be checked by liquid penetration examination (DP test).

(d)The piping shall be subjected to hydrostatic pressure test.The pressure shall be raised slowly in step up to test pressure(6kg/cm²) with a close watch for leakage on all joints The

hydrostatic pressure testing shall be conducted for time duration of 15 minutes.

(e) Finished piping and equipment assemblies shall be clean and completely free from mill scale, oxide, embedded adherent and loose contaminants both inside and outside.

(f) All fabricated pipe lines should be cleaned and rinsed with water as per machine requirement.

Inspection and testing:

(a) Whole work will be carried out under the supervision of RR CAT supervisor or site engineer.

(b) Site engineer/supervisor can stop the work in case he is not satisfied with the quality of the work.

(c) Completion of work will be decided by our site supervisor only.

Acceptance criterion:

1. Full penetration of weld joint made and uniform concave fillet is acceptable.

2. Die penetration test will perform in all weld joints.

3. Pressure leak test @ 6kg/cm² will done and holding pressure for one hour.

General Terms and condition:

(a) All the work should be carried out as per standard.

(b) The work can be carried out during working days only.

(c) Work should be completed within scheduled period mentioned in work order.

(d) Technicians should be experienced persons or should have ITI certificate holders. Details procedure is to be adopted for the above work.

(e) No advance will be given along with the order.

(f) The payment will be done as per the standard account norms and procedure.

(g) Safety of persons, equipments and machines is to be taken care by the party itself during working.

(h) Any act of indiscipline, misconduct, theft, or pilferage by any employee of the contractor shall be viewed very seriously and RRCAT have right to terminate the contract, forth and clams and damages.
