

## Welding, Metallurgy & HT Capability

As on 1<sup>st</sup> Jan 2020

*Precision Gasification Services Pvt Ltd, is accredited with ASME "U" & "R" Stamp, ISO 9001:2015. Facility for Fabrication, Machining is available at Metoda, Rajkot*

### **Welding Process:**

Welding Process regularly carried out are GTAW, SMAW, FCAW, SAW.

Autogenous TIG, Machine FCAW and Custom-made Welding Automation is being carried out In-House

### **Material Welded, WPS-PQR:**

More than 55 Procedure Qualification available covering various Base metal and Welding Process combination.

PQRs Reviewed / Witness by Customer Representative as well as TPIA like BVIL, TUV, TPL, LRA etc

Refer Annex-1 for the list, details of Welding Procedure Qualifications Available

### **Welding Machines, Equipment:**

State of the Art welding machines available for carrying out various welding processes in workshop as well as at Site

Welding machines of known brands like Miller, Kemppi etc (Pulsed MIG, AC/DC-TIG etc) available

Total Welding Machines available are 16 Nos, Special Torch and Trailing Shields available

Track Mounted Trolley (Koike make), Positioner, Tank Rotators etc available for welding automation

### **Welding Technique:**

Flange ID FCAW, Pipe ID FCAW, GTAW Process

Autogenous TIG Welding

Weld Overlay of Stainless Steel, Inconel, Monel, Stellite etc

Tube to Tube sheet Welding

### **Qualified Staff:**

Welding Department is part of Quality Team at Precision Gasification

As on Jan 2020, Quality Team consist of 6 Engineers. Two Engineers taking care of Welding Activity exclusively

International Welding Engineer (IWE) as per ISO 14731, available full time for coordination of Welding activities

**Highly Skilled, Experienced Welders:**

More than 8 Welders (Permanent) available for executing various Welding activities

Contract welders are augmented in short notice as per the job requirement

Welders have experience on working on Inconel, Hastelloy, Stellite apart from CS, LAS and SS

Welding Operators are trained for ID Overlay (FCAW and GTAW), Use of automated process equipment and working in Clean Room



*FCAW Overlay on Flange ID*



*Autogenous TIG Weld*



*FCAW Overlay on Flange Face*



*Titanium Welding Carried out using Trailing*



*FCAW Overlay Welding Work Station*



*Clean Room available for Welding of Exotic and Non-Ferrous metals fabrication*



*Automatic TIG Welding Station*

**Heat Treatment:**

Precision has experience of fabricating Heavy Wall thickness jobs and jobs which need Post-Heating and De-hydrogenation Treatment & Post Weld Heat Treatment

Carbon steel as high as 120 mm thk, Low Alloy Steel (P-No 5B : 45 mm thk) etc handled

Pre-Heating being carried out using Gas Fired Burners. Candle burners, Custom made burners available to ensure uniform heating

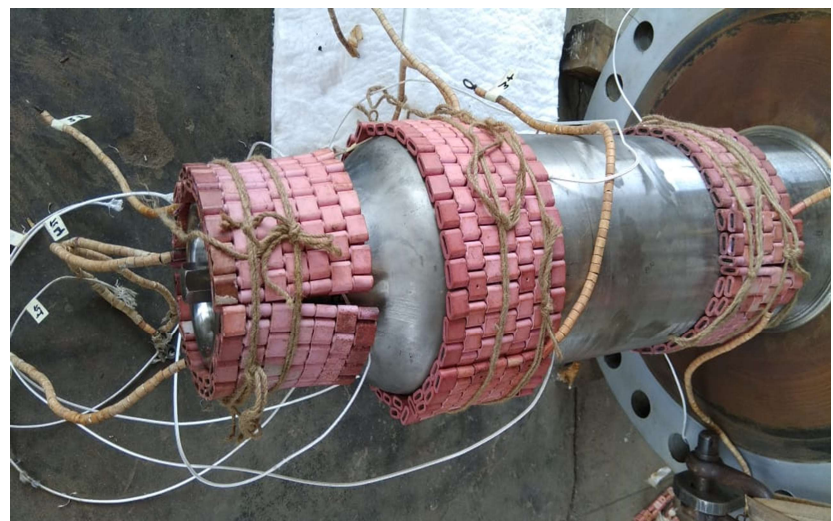
Post-Heating, DHT is done using either electric resistance heating method or by Gas burners

Post-Weld Heat treatment can be done using Local Furnace In-house or We have practice to send Jobs to our Approved Heat Treatment Vendor. Refer Table below for Furnace Sizes (Out-sourced)

Size of Furnace	Weight (Max)	Max Temp	Type of Heating
15 m long x 5.7m wide x 2.5 m Height	20 Ton	750	Natural Gas, Oil Fired
6.9 m long x 4m wide x 1.8 m Height	10 Ton	1120	Natural Gas, Oil Fired
2.7 m long x 2.7 wide x 0.7 m Height	4 Ton	1120	Electric Fired



*Heavy thickness Job (5Cr, 1Mo) being welded with electrical Pre-heating, Local Furnace for Refractory Drying*



*Channel Head before firing, On Furnace bed*

*Electrical Heating Coil wrapped on SS-Inconel Job as preparation for HT*