

## The testing program

## Annex No 3 to the Tender Terms & Conditions

The program is intended to monitor at site performance parameters of the Customized Seamer for Welding of Cones.

For that purpose, the geometry constraints test and welding parameters test will be conducted.

### 1. Geometry constraints test.

Two smaller versions of the Cone-15 and the Cone-55 will be presented:

Cone-15, slant height of the cone 1000 mm, sheet thickness- 6 mm.

Cone-55, slant height of the cone 1000 mm, sheet thickness- 6 mm.

The test is considered successfully passed when all the below listed conditions are met:

1. Cone-15 is latched in the seamer with the latch customised for the small orifices.\*
2. The closing seam of the Cone-15 has been welded with PAW process while the unreachable to weld length of the seam does not exceed 125mm (MOP\*\* mounted) and 75 mm (MOP dismounted).
3. The closing seam of the Cone-15 has been welded with GTAW process while the unreachable to weld length of the seam does not exceed 125mm (MOP mounted) and 75 mm (MOP dismounted).
4. The closing seam of the Cone-55 has been welded throughout its entire length using PAW process.
5. The closing seam of the Cone-55 has been welded with GTAW process while the unreachable to weld length of the seam does not exceed 100 mm.

\* Diameters of the orifices of the cones indicated in the drawings are "passable-through" diameters.

\*\*MOP- Magnetic oscillator probe

### 2. Welding parameters test.

The next strips of stainless steel AISI304 will be provided:

**Table 1**

| Thickness t, mm | Width B, mm | Length L, mm | Q-ty, pcs. | Joint preparation |
|-----------------|-------------|--------------|------------|-------------------|
| 2               | 300         | 2000         | 4          | Square but-but    |
| 4               | 300         | 2000         | 4          | Square but-but    |
| 6               | 300         | 2000         | 8          | Square but-but    |
| 8               | 300         | 2000         | 4          | Square but-but    |
| 10              | 300         | 2000         | 4          | Square but-but    |

Each four strips will be tack-welded into on plate so as three longitudinal seams could be performed on the seamer

Material of welding wire- AISI304 or AISI316, particular diameter is to be chosen by the Supplier.

Position of welding (ASME / AWS)- 1G.

The best one of the three welds would be considered as representative and weld parameters as well as quality will be monitored.

NDT methods: VT and RT.

Weldment assessment standard: ISO 5817, level B.

Weldment quality results interpretation: acceptable/not acceptable

During weldment of the representative weld, the next parameters should be kept and controlled:

**Table 2**

| Test No | Thickness t, mm | No of passes              | Processes used                  | Weld speed<br>cm/min to be<br>achieved |
|---------|-----------------|---------------------------|---------------------------------|--|
| 1       | 2               | 1                         | TIG                             | ≥25                                    |
| 2       | 4               | 1                         | PAW                             | ≥25                                    |
| 3       | 6               | 1                         | PAW with wire                   | ≥20                                    |
| 4       | 6               | 1 PAW 1 TIG<br>(Total: 2) | PAW+TIG                         | ≥25 PAW keyhole<br>≥25 TIG             |
| 5       | 8               | 1                         | PAW with wire                   | ≥15                                    |
| 6       | 10              | 2                         | PAW<br>keyhole+PAW<br>with wire | ≥15 PAW keyhole<br>≥15 PAW wire        |

The welding parameters test program is considered successfully passed when all 6 tests meet the next 2 conditions:

1. At least one complete seam of each thickness gets evaluation after RT: acceptable (100% of all length of the seam is to be tested )  
and
2. the RT passed weld was performed under conditions set in the Table 2.