SOREX WELDING CO.,LTD.

「Wind Tower Barrel Door-Frame Welding」

SOREX®
The Professional Quality

Welding Global Link Local

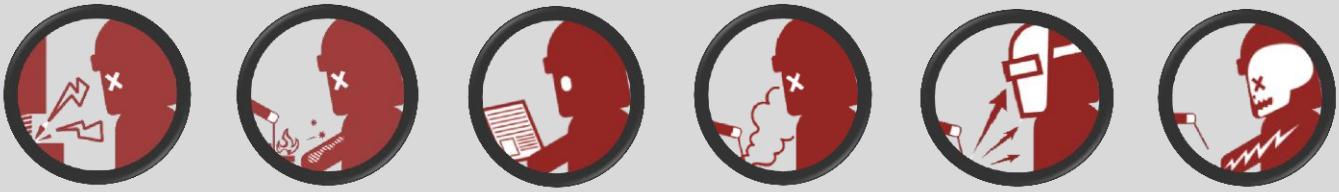
SOREX WELDING CO.,LTD.

「Wind Tower Barrel Door-Frame Welding」

Wind power is a clean source that has rapidly developed in recent years.

The steel plates are being used thicker even over 100mm and required higher welding skills according to the developing progression.

Q355 or DH36 is more use in wind power equipment, and the welding consumables selected in FCAW and SAW.



Welding Global Link Local

SOREX WELDING CO.,LTD.

「Onshore Wind Power、Offshore Wind Power」

In the manufacturing process of wind power barrel, in the position of the welding joint or the heat-affected zone of the door frame is prone to be caused with slightly fining cracks after welding, and the thicker the steel plate to the greater the tendency of cracks. The welding stress, temperature, process, and hydrogen gathering are the main reasons, and whereas, the solutions are herein, including the welding materials.

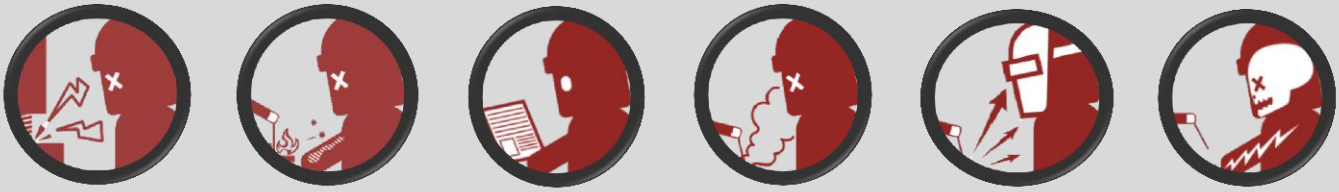
SOREX WELDING CO.,LTD.

「1.Welding Consumables Options」

It is due to the welding part crucially important, the lower content of impurity, toughness, and cracking resistance are the factors in consideration of welding consumables, for instance, SFC-71Ni (AWS A5.20 E71T-1C-J).

SFC-71Ni Product Capability: ：

- Lower content of impurity in the range of P+S≤0.012% (wt%)
- Advantage of the malleability; the elongation ≥27%
- Advantage of Impact toughness; -40℃ Absorbency ≥100J upwards
- Advantage of CTOD capability
- Hydrogen Content H5 beneath



Welding Global Link Local

「2.Welding Process Control」

(1) Preheat and Interpass Control

Reference related standard and comprehensive experiences, the recommended options：

- ●Thickness 20~38 mm, preheat temperature 75℃ upwards.
- ●Thickness 38~65 mm, preheat temperature 100℃ upwards.
- ●Thicker than 65mm, preheat temperature 125℃ upwards.

Consideration of heat loss in Winter the basic raise 30~50℃.

(2) Maintain the workpiece heating and the temperature of interpass while welding .

- ●Thickness 20~38 mm, the recommended interpass temperature 130~160℃
- ●Thickness 38~65 mm, the recommended interpass temperature 150~180℃
- ●Thicker than 65 mm, the recommended interpass temperature 170~200℃

Select the contact thermo-device or the special thermo-pen for test.

「3.Welding Spec. Control 」

Dia.	Rec. Value	Heat Input
1.2mm	220-280A/26-30V 300mm/min	1.1-2.0KJ/mm
1.4mm	230-300A/26-30V 300mm/min	1.1-2.0KJ/mm

Remark1: Smaller ampere suitable for bottom welding, the filler covering with a big ampere no excess of the recommended value.

Remark2: Singular weld width is no over 20mm according to the actual weld condition.
Groove width the wider adopts multi-pass welding for fining grain.

「4.Welding Sequence」

Girth welding is better to multi-person symmetrical welding for reducing the shrinkage stress, besides, four-person is better than two-person on symmetrical welding.

「5. Mid-welding Dehydrogenation」

Mid-dehydrogenation is a measure for the hydrogen aggregation on thicker plate welding, especially for greater than 70mm thickness from the study：

- Stop welding at 2/3 of the weld length.
- Dehydrogenating at 250-300℃ for 2-3 hours
- Welding to the end after dehydrogenating.
- Maintain the weld in room temperature with a warm blanket after welding.

「6.Precautions」

- Clean up the dirty on the groove prior to welding.
- Recommended straight welding (not waving) with multi-layer (pass) welding.
- Wire extension is no excess of 25mm at bottom welding; to choose a conical nozzle for the groove the deeper.
- Planing the root with a carbon rod and polishing the weld into the metallic color prior to welding.