

RNU/ROOT PASS TECHNIQUES



This is a basic set-up and technique guide to welding the root pass on pipe with the Miller PipeWorx 400 System or the PipeWorx 350 FieldPro[™] System using RMD[®] (Regulated Metal Deposition).

RMD® Root Pass Welding

A precisely controlled short-circuit metal transfer that provides a calm, stable arc and weld puddle. This provides less chance of cold lap or lack of fusion, less spatter and a higher quality root pass on pipe. The stability of the weld process lessens the weld puddle manipulation required by the welder and is more tolerant to hi-lo conditions, reducing training requirements. Weld bead profiles are thicker than conventional root pass welds which can eliminate the need for a hot pass, improving weld productivity. In some stainless steel application, it may be possible to eliminate the backing (purge) gas to further improve productivity and reduce welding costs.

- Ideally suited to root pass welding
- Consistent side wall fusion
- Less weld spatter
- Tolerant to hi-lo fit-up conditions
- More tolerant of tip-to-work distance
- Less welder training time
- Thicker root passes can eliminate hot pass
- Eliminate backing gas on some stainless steel applications











Bevel pipe end to 37.5° (standard pipe bevel) leaving a knife edge to 1/16 in. (1.6 mm) root face.

Align pipe ends together leaving a minimum of 1/8 in. (3.2 mm) root opening.



Start welds on a tack or side wall to help establish the weld puddle.

Stop welding on a tack or side wall to avoid pin hole porosity.



Tack pipe ends together in four locations approximately 90° apart and 1 in. (25.4 mm) long on pipe that is 6 in. (152.4 mm) or larger diameter. Use appropriate sized tack welds on smaller pipe.



Start welds on a tack or side wall to help establish the weld puddle. Stop welding on a tack or side wall to avoid pin hole porosity in the weld crater.





Use a tapered nozzle and a tapered contact tip for proper gas coverage and better visibility of the weld pool.



Start and Stop the arc on a tack at the 1:30 position.

Position

Arc

Rotate pipe away while maintaining the arc at the 1:30 to 2:00 position.

Hold the arc in the center of the weld pool.



Start the weld on a tack or side wall

Hold the arc in the center of the weld puddle (A slight weave can be used to achieve a flatter bead)

Maintain a 10 to 15° drag angle



Start on the tack at 12:00 position.
12:00 to 1:00 - Weave quickly side to side.
1:00 to 5:00 - Hold arc in center of joint.
5:00 to 6:00 - Weave quickly side to side.
Stop on a tack at 6:00.



Start the weld on a tack or side wall

Hold the arc in the center of the weld puddle (A slight weave can be used to achieve a flatter bead)

Maintain a 10 to 15° drag angle





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