

MANGO 1 Multi Qualification – Steps to Qualify a Welder

(These instructions are meant as a guide and do not supersede API 1104 or other applicable codes)

1. The test consist of a 12.75" butt weld in the 6G position and a 12.75" x 12.75" branch weld. The welder shall lay out, cut, fit, and weld the connection with the run pipe in the horizontal position and the branch facing down.
2. Fit up shall meet the following requirements (per MANGO Welding Procedure #1):
 - a. Coupons can be fit up on the table
 - b. Root face shall be 1/16" +/- 1/32"
 - c. Root opening shall be 1/16" +/- 1/32"
 - d. Coupon misalignment shall be less than 1/8"
 - e. Material must be properly cleaned for welding
3. Once welding has begun, all welding and grinding for this test shall be done from the outside of the coupon.
4. Welding inspection shall be completed by a MANGO approved Welding Inspector.
 - a. Prior to welding, the inspector shall verify:
 - i. Proper fit up per MANGO Welding Procedure #1
 - ii. Correct welding electrodes (Lincoln E6010 Fleetwood 5p+)
 - iii. Weather conditions are adequate
 - iv. Machine polarity is set to DCEP
 - b. The following parameters shall be verified and recorded for a minimum of one bead on each pass (at minimum Root, Hot, Cover)(per MANGO Welding Procedure #1):
 - i. Welding voltage (average reading)
 - ii. Welding amperage (average reading)
 - iii. Direction of travel
 - iv. Travel speed
5. Final weld inspection:
 - a. The inspector shall inspect the weld in accordance with API1104
 - b. If the weld is acceptable the welding test is complete and the weld shall be submitted for testing
 - c. If the weld is not acceptable the test will end.

6. After the weld passes visual inspection the MANGO approved welding inspector or test facility will destructively test welds per API 1104. The results of destructive testing shall be recorded on the MANGO 1 - Welder Qualification Form and:
 - a. Maintained at the testing facility
 - b. Provided to the welder
 - c. Submitted with Internet Permission Form to:

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2001 Maguire Blvd.
Columbia, MO 65201
(573)289-4751
cdixon2@ameren.com

To remain qualified:

Note: The welder must have engaged in the process during the preceding 6 months and be prepared to provide documentation if requested by the operator, before starting the MANGO weld requalification process.

7. Welder shall perform a fixed position butt weld on 4" -12" pipe using MANGO Welding Procedure #1 within six months not to exceed seven and one half months of the initial qualification. The welds shall be observed by a MANGO qualified welding inspector and tested by MANGO approved testing facility.
8. Fit up shall meet the following requirements (per MANGO Welding Procedure #1):
 - a. Coupons can be fit up on the table
 - b. Root face shall be $1/16"$ +/- $1/32"$
 - c. Root opening shall be $1/16"$ +/- $1/32"$
 - d. Coupon misalignment shall be less than $1/8"$
 - e. Material must be properly cleaned for welding
9. Once welding has begun, all welding and grinding for this test shall be done from the outside of the coupon.
10. Welding inspection shall be completed by a MANGO approved Welding Inspector.
 - a. Prior to welding, the inspector shall verify:
 - i. Proper fit up per MANGO Welding Procedure #1
 - ii. Correct welding electrodes (Lincoln E6010 Fleetwood 5p+)

- iii. Weather conditions are adequate
- iv. Machine polarity is set to DCEP

- b. The following parameters shall be verified and recorded for a minimum of one bead on each pass (at minimum Root, Hot, Cover)(per MANGO Welding Procedure #1):
 - i. Welding voltage (average reading)
 - ii. Welding amperage (average reading)
 - iii. Direction of travel
 - iv. Travel speed

11. Final weld inspection:

- a. The inspector shall inspect the weld in accordance with API1104
- b. If the weld is acceptable the welding test is complete and the weld shall be submitted for testing
- c. If the weld is not acceptable the test will end.

12. After the weld passes visual inspection the MANGO approved welding inspector or test facility will destructively test welds per API 1104. The results of destructive testing shall be recorded on the MANGO 1 - Welder Qualification Form and:

- a. Maintained at the testing facility
- b. Provided to the welder
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- 13. The welder's qualification will be extended to have a new expiration date twelve months not to exceed 15 months from the date of the MANGO 1 Multi Qualification test**
- 14. Prior to the expiration date the welder must perform a new MANGO 1 Multi Qualification test (MANGO 1 Multi Qualification test should be performed every 12 months).**

Feel free to contact Chris Dixon with any questions or concerns with this guide.