

# MADDEN MANUFACTURING, INC.

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## MADDEN ORIFICE METER HOT TORQUE INSTRUCTIONS

The Madden Orifice Meter is assembled and tested for leaks at the factory before shipment. However, when the metal material of the Orifice Meter is placed in service and warms up to operating temperature, leaks may develop. To help prevent leaks, use the "Hot Torque" procedure that follows.

1. Retorque the six flange nuts while the unit is at operating temperature - 12-24 hours after the unit is placed in service.
2. Close the isolation valve to remove the boiler pressure from the Orifice Meter.
3. Retorque the nuts in a star pattern.  
first at 1/3 torque  
then at 2/3 torque  
finally at full torque per the following torque specifications.

Model	1/3 Torque	2/3 Torque	Full Torque
OM250	20 ft. lbs.	40 ft. lbs.	60 ft. lbs.
OM650	40 ft. lbs.	80 ft. lbs.	120 ft. lbs.

4. After full torque is applied to all the flange nuts, open the isolation valve to put the Orifice Meter back into service.
5. If the Orifice Meter is taken out of service for repairs, the reassembly must include a heavy graphite filled oil lubricant for the nuts and the threaded studs. For "cold" bench assembly, hand tighten the nuts and then torque the nuts per the specifications above. Hot torque after 12-24 hours of service.
6. If leaks develop from under the geared index head, (part number OM258), remove the index head by removing the acorn nut, (part number OM260). Tighten the packing nut, (part number OM257), until the leak is stopped. Replace the index head, key and nut. If a leak continues, remove the Orifice Meter from service and replace the stem packing (part number OM255).