

Instruction Manual for Baldor•Dodge Moment Couplings

Sizes DM50-DM2100

These instructions must be read thoroughly before installation or operation. This installation manual was accurate at the time of printing. Please see www.baldor.com for updated instruction manuals.

WARNING: To ensure the drive is not unexpectedly started, turn off and lock-out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

WARNING: All products over 25 kg (55 lbs) are noted on the shipping package. Proper lifting practices are required for those products.

STEP 1: PRE-ASSEMBLY INSPECTION

All parts should be examined for any damage during the shipping and handling process. Measurements should be taken to ensure parts meet application requirements, such as hub and shaft fits, shaft separation, etc. All parts must be clean and free of any foreign material before attempting installation. Ensure that the shafts are free of burrs, grease, and other foreign material before installing hubs.

STEP 2: INSTALLATION OF KEYS

Install keys in respective shafts. Keys should be made from quenched and tempered alloy steel or similar material to ensure the same strength as that of the Moment Coupling hub. Keys should fit in the key seat with a tight fit on the sides and slight clearance over the key. Ensure key is free of burrs and break all edges.

NOTE: Moment couplings with hydraulic removal feature do not use keys and should not be installed on shafts with keyseats.

STEP 3: MOUNTING HUBS

NOTE: PPE (Personal Protective Equipment) must be used due to the high temperature of the hub.

1. Baldor•Dodge Moment Couplings are designed for tight interference fits. Recommendations for shaft tolerances is as follows: shaft diameter $+0.00/-0.001$ ". It is important to achieve the proper fit as this coupling not only transmits the torque but must also provide support for the drive system.

WARNING: Because of the possible danger to persons(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Baldor Electric Company nor are the responsibility of Baldor Electric Company. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

2. Clean hubs and shafts and inspect for any nicks, burrs or dents. Address issues as needed.
3. Heat the coupling hub to between 350°F (177°C) to 450°F (232°C). Depending upon availability of equipment and safety of processes, the following heating methods can be used (in order of preference): oven, induction heater, oil bath, and open flame. When using an open flame, be sure to apply heat evenly over the entire hub to avoid uneven heating and distortion. It is recommended that temperature sensitive crayons or stickers are used to ensure the hub reaches the proper temperature for installation.
4. In some cases it might be necessary to shrink the shaft by using dry ice.
5. Install each hub so that it is flush with the end of the shaft. Also ensure that there is full length through bore engagement with the key and shaft. Allow each hub time to cool to room temperature before assembling the halves together.

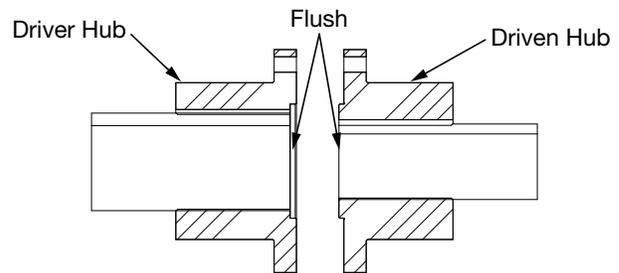


Figure 1 - Hub Installation

STEP 4: COUPLING ASSEMBLY

1. Baldor•Dodge Moment couplings are not designed to accommodate any misalignment. They are intended to be used for shaft-mounted gear drives where the assembly is free to move with the eccentricities in the driven equipment.
2. Move the drive assembly into position using properly sized lifting equipment. The output shaft of the reducer should be parallel and in line with the driven shaft. Align fastener holes and loosely tighten bolts.

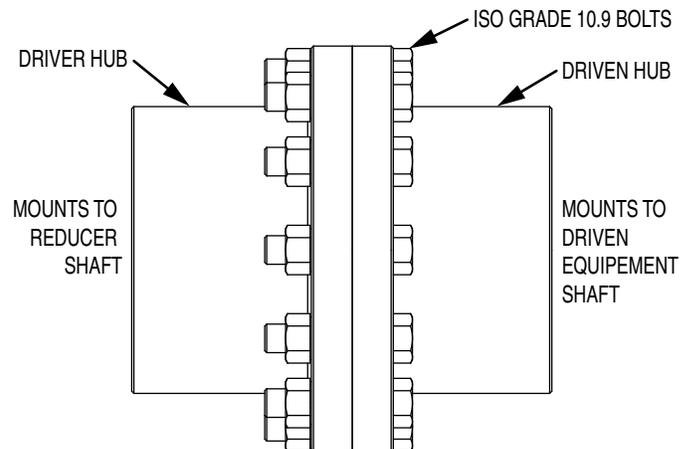


Figure 2 - Coupling Assembly

3. Tighten bolts gradually and evenly in an alternating star pattern to the recommended tightening torques displayed in Table 1 using a calibrated torque wrench. It is best to tighten each bolt to 50% of the tightening torque and then tighten to 100% of the tightening torque. Recheck each bolt to ensure that they have all maintained their torque value.
4. Fasten the torque arm to the frame per the reducer manufacturer's instructions and remove lifting equipment.

Table 1 - Tightening Torque

| Moment Coupling Size | Bolt Size | Tightening Torque | | Hardware Kit Part Numbers |
|----------------------|--------------------------|-------------------|--------|---------------------------|
| | | N-m | Ft-Lbs | |
| DM 50 | M20-2.5 x 90MM ISO 10.9 | 610 | 450 | 001561 |
| DM 75 | M20-2.5 x 90MM ISO 10.9 | 610 | 450 | 001562 |
| DM 100 | M20-2.5 x 90MM ISO 10.9 | 610 | 450 | 001563 |
| DM 150 | M20-2.5 x 90MM ISO 10.9 | 610 | 450 | 001564 |
| DM 210 | M24-3.0 x 120MM ISO 10.9 | 1055 | 778 | 001565 |
| DM 285 | M24-3.0 x 120MM ISO 10.9 | 1055 | 778 | 001566 |
| DM 390 | M30-3.5 x 140MM ISO 10.9 | 2095 | 1545 | 001567 |
| DM 525 | M30-3.5 x 140MM ISO 10.9 | 2095 | 1545 | 001568 |
| DM 700 | M30-3.5 x 140MM ISO 10.9 | 2095 | 1545 | 001569 |
| DM 920 | M30-3.5 x 140MM ISO 10.9 | 2095 | 1545 | 001570 |
| DM 1400 | M36-4.0 x 160MM ISO 10.9 | 3662 | 2701 | 001571 |
| DM 2100 | M36-4.0 x 160MM ISO 10.9 | 3662 | 2701 | 001572 |

STEP 5: Removal

1. Use appropriate lifting equipment to remove the weight of the drive assembly from the Moment Coupling and driven shaft. Ensure the swing base is properly balanced to prevent the load from swinging once the fasteners are removed.
2. Remove all fasteners from the Moment Coupling flange.
3. Follow the manufacturer's instructions for removing the tie rod and torque arm. Once the tie rod is removed lower the swing base to the ground.
4. Coupling Hub Removal – Standard Keyed Interference Fit
 - a. Clean coupling hubs of any debris or grease that might have accumulated during operation.
 - b. Connect a coupling hub puller or other removal tool to the flange and ensure both the puller and coupling hub are properly supported.
 - c. Heat the coupling hub evenly with an acetylene torch to between 350°F (177°C) to 450°F (232°C). Use temperature sensitive crayons to prevent overheating the hub. Be sure to keep the torch away from the shaft to insure that only the coupling hub is expanding.
 - d. Remove the hub from the shaft using the coupling hub puller or other removal tool.
5. Coupling Hub Removal – Hydraulic Removal
 - a. Clean coupling hub of any debris or grease that might have accumulated during operation.
 - b. Align the bolt hole of the hydraulic puller with the puller holes located on the pilot face of the Moment coupling.
 - c. Secure and support both the hydraulic puller and Moment coupling hub with cable slings during the removal process.
 - d. Connect the low pressure pump and gauge to the hydraulic puller using the supplied hydraulic hoses and fittings. The low pressure pump is rated to 10,000 psi with a pressure relief valve.
 - e. Connect the high pressure pump and gauge to the

Moment Coupling hub using the supplied hydraulic hose and fittings. The high pressure pump, hydraulic hose, and fittings are rated to a minimum 40,000 psi. If using a different hydraulic system insure that all hydraulic connections and pumps are rated to a minimum 40,000 psi. This will often require using rigid hydraulic lines and high pressure valves. Figure 3 illustrates the connections for the hydraulic removal.

Hub Removal Equipment

1. Hydraulic Hub Puller: Hydraulic ram threaded into puller plate
2. Low Pressure Pump: 10000 psi maximum pressure rating
3. Low Pressure Gage: 10000 psi maximum pressure rating
4. Low Pressure Flex Line and Fitting: 10000 psi maximum pressure rating
5. High Pressure Pump: 40000 psi maximum pressure rating
6. High Pressure Gage: 40000 psi maximum pressure rating
7. High Pressure Flex Line and Fitting: 40000 psi maximum pressure rating
8. High Pressure Valve: Used to cut off pressure as the hub slides off the shaft
9. Puller Rods: Fully threaded rods to connect puller plate and hub

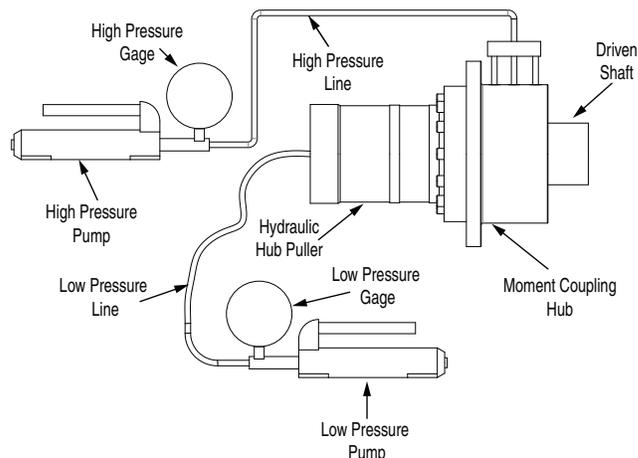


Figure 3 - Hydraulic Removal Connections

- f. After all hydraulic connections are secured, begin pumping hydraulic fluid into the coupling hub. Pressurize the hub to shaft connection until oil begins seeping out from between the shaft and hub, or until the removal pressure specified in Table 2 is reached.

WARNING: Extremely high pressures are required for coupling hub removal. If pressures exceed 30,000 psi stop pressurizing the hub and allow the hub to sit. Oil will distribute around the shaft and the pressure should decrease. Hitting the coupling hub with a rubber mallet can also help distribute the oil around the shaft. If the pressure does not decrease then remove all pressure from the hub and ensure the hub is clean and all hydraulic fittings are fixed.

Table 2 - Hydraulic Removal Pressure

| Moment Coupling Size | High Pressure Fitting Size | Min Removal Pressure (PSI) | Max Removal Pressure (PSI) | Absolute Max Pressure (PSI) | Hydraulic Puller Max Pressure (PSI) |
|-----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|--|
| DM 50 | 1/4 | 27000 | 29000 | 30000 | 10000 |
| DM 75 | 1/4 | 22000 | 25000 | 30000 | 10000 |
| DM 100 | 3/8 | 25000 | 27000 | 30000 | 10000 |
| DM 150 | 3/8 | 26000 | 28000 | 30000 | 10000 |
| DM 210 | 9/16 | 24000 | 26000 | 30000 | 10000 |
| DM 285 | 9/16 | 26000 | 28000 | 30000 | 10000 |
| DM 390 | 9/16 | 25000 | 27000 | 30000 | 10000 |
| DM 525 | 9/16 | 23000 | 25000 | 30000 | 10000 |
| DM 700 | 9/16 | 22000 | 24000 | 30000 | 10000 |
| DM 920 | 9/16 | 22000 | 24000 | 30000 | 10000 |
| DM 1400 | 1 | 19000 | 21000 | 30000 | 10000 |
| DM 2100 | 1 | 19000 | 22000 | 30000 | 10000 |

NOTE: High pressure hydraulic components should have a minimum 40,000 PSI rating.

- g. Apply axial force at the same time as applying pressure to the hub to shaft interface. As the hub begins to move continue monitoring the high pressure gauge to make sure pressure stays below 30,000 psi.
- h. Shut off pressure prior to each groove being exposed beyond the shaft end.
- i. Continue applying pressure to the hydraulic puller until the hub is completely removed from the shaft.



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