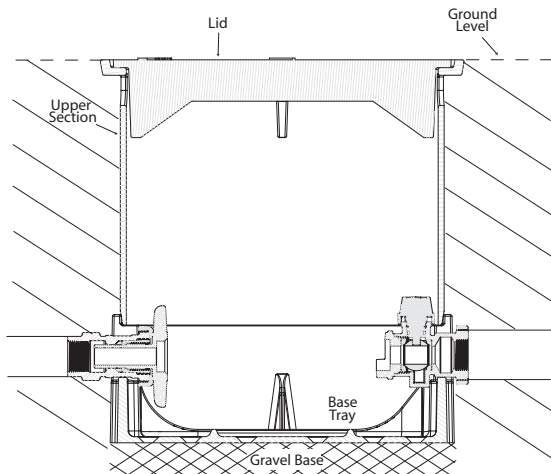




IMPORTANT NOTICE - READ CAREFULLY

Self-Priming Centrifugal Pumps



1. CR boxes should be installed with the top of the box at ground level.
2. Use proper box depth for freezing conditions.
3. Install on a gravel base for proper drainage.

Operating Ball Valves with Turning Restraints (Checks)

1. Ball valves generally require low operating torques.
2. If valve turns hard, check turning direction before using excess force. Excess force can damage or destroy the turning restraints (checks) in the ball valve cap and body assembly.
3. If the valve cap or stop box handle is perpendicular to the water line the valve is closed and should be turned counter-clockwise to open.
4. If the valve cap or stop box handle is in line with the water line the valve is open and should be turned clockwise to close.

CAUTIONS

A.Y. McDonald waterworks products are designed for reliable service.
Like all brass products, however, they can be damaged by improper handling and use.

1. Protect threads. Avoid loose fitting wrenches. Do not drop or impact.
2. Use extra care with high water pressures (over 100 PSIG) and pipe or tubing over 1". Consult factory if desired.
3. Inspect and test all joints, valves and fittings before backfilling.
4. Backfill carefully so as to avoid damage to the service line and connections. Looping of the service lines is recommended to minimize strain.
5. DO NOT use Vaseline®, plumber's grease, or any other petroleum based product on seals or o-rings.

Damage caused by improper use and/or handling will void our warranty.

1. Use a tube or pipe cutter to assure a square end. Make sure pipe is round. On copper tubing, use a rounding tool, if necessary. Surface should be clean.
2. Service tubing should always be snaked in the ditch.

✱ **3. INSERT STIFFENERS MUST BE USED ON FLEXIBLE PLASTIC SERVICE TUBE OR PIPE.**

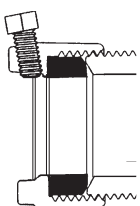
4. Stab tube or pipe through the nut and into the socket of the valve or fitting until it bottoms out (some fittings may or may not have a stop).
5. If the nut or socket appears too large or small, a check should be made to be sure you are using the correct fitting and pipe/tube.

6. PRESSURE TEST FOR LEAKS BEFORE BACKFILLING.

7. USE ONLY ON COLD WATER SERVICES.

Compression Connectors | General Information

Steel Pipe Size "55" Compression Connectors



Tighten the "55" Compression nut onto the valve or fitting to the following minimum torques.

3/4" size.....	30 ft-lbs.
1" size.....	35 ft-lbs.
1 1/2" size.....	40 ft-lbs
2" size.....	45 ft-lbs.

This compresses the gasket for watertight connections.
Overtorquing nut by 10-20 ft-lbs. will not affect connections.

Lock the pipe onto the nut by tightening the cup-point set screw(s) as follows (NOTE UNIT CHANGE).

3/4" size.....	3/4 - 1 turns (approx. 50 in-lbs.)
1" size.....	1 1/2 - 2 turns (approx. 180 in-lbs.)
1 1/2" size.....	1 1/2 - 1 3/4 turns (approx. 210 in-lbs.)
2" size.....	1 1/2 - 1 3/4 turns (approx. 210 in-lbs.)

(OVER)



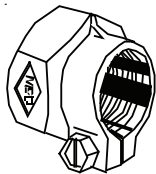
IMPORTANT NOTICE - READ CAREFULLY

Installation Instructions

Self-Priming Centrifugal Pumps

Compression Connectors | General Information

Mac-Pak Compression Connectors (22, 33, 44)



Tighten the Mac-Pak nut onto the valve or fitting to the following minimum torques. Overtorquing nut by 10-20 ft.-lbs. will not affect connections.

1/2" size..... 20 ft.-lbs.
3/4" size..... 25 ft.-lbs.
1" size..... 30 ft.-lbs.
1 1/4" size..... 35 ft.-lbs.
1 1/2" size..... 40 ft.-lbs.
2" size..... 45 ft.-lbs.

Lock the tube or pipe into the nut by securely tightening the split clamp side screw (use a box end or socket wrench, not a screwdriver). The torques to which the clamp side screw should be tightened are as follows (NOTE CHANGE IN UNITS).

1/2" size.....70-80 in.-lbs.
3/4" size.....80-90 in.-lbs.
1" size.....90-100 in.-lbs.
1 1/4" size.....120-140 in.-lbs.
1 1/2" size.....160-180 in.-lbs.
2" size.....200-220 in.-lbs.

A.Y. McDonald Mac-Pak Coding System

All A.Y. McDonald Mac-Pak fittings are coded to identify which type of service material they are designed to fit. Lettering is on the hex of the Mac-Pak nut.

*** INSERT STIFFENERS MUST BE USED ON FLEXIBLE PLASTIC SERVICE TUBE OR PIPE.**

CTS

- Copper tube (Type K or L)
- PE tube per ASTM D2737 SDR 9 ONLY
- PB tube per ASTM D2666 SDR 9 Class 250 ONLY

PVC

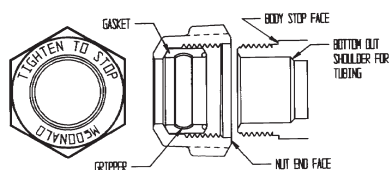
- PVC pipe per ASTM D1785
- Steel pipe
- Brass pipe

*PEP

- PE pipe per ASTM D2239 SDR 7 ONLY
- PB pipe per ASTM D2662 SDR 7 Class 250 ONLY

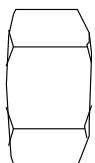
*Was marked IPS until 2/02

CTS McQuik ("Q") Series and PEP McQuik ("-3Q") Series Compression Connectors



Tighten the CTS McQuik "Q" Series nut or the PEP McQuik "3Q" nut to the stop. The end face of the nut is to contact the stop face of the body.

T-Series (CTS) and -3T Series (PEP) Compression Connectors



Tighten the compression nut onto the valve or fitting to the following minimum torques. Overtorquing nut by 5-10 ft.-lbs. will not affect connections.

T-Series

3/4" size..... 50 ft.-lbs.
1" size..... 55 ft.-lbs.
1 1/4" size..... 65 ft.-lbs.
1 1/2" size..... 85 ft.-lbs.
2" size..... 100 ft.-lbs.

-3T Series

3/4" size..... 55 ft.-lbs.
1" size..... 65 ft.-lbs.

Types of Pipe/Tubing for use with

A.Y. McDonald Fittings (Outside Diameters listed)

NOMINAL SIZE	TYPE K or L COPPER TUBE	POLYETHYLENE ASTM D2737 SDR 9 TUBE SIZE *	POLYBUTYLENE ASTM D2666 SDR 9 TUBE SIZE CLASS 250 *	POLYETHYLENE ASTM D2239 SDR 7 PIPE SIZE *	POLYBUTYLENE ASTM D2662 SDR 7 CLASS 250 *
3/4"	.872 .878	.871 .879	.875 .883	1.045 1.110 (1.089)	1.045 1.110 (1.089)
1"	1.121 1.129	1.120 1.130	1.125 1.135	1.329 1.399 (1.384)	1.329 1.399 (1.384)
1 1/4"	1.371 1.379	1.370 1.380	1.375 1.385	1.754 1.832 (1.804)	1.754 1.832 (1.804)
1 1/2"	1.621 1.630	1.619 1.631	1.625 1.637	2.050 2.141 (2.109)	2.050 2.141 (2.109)
2"	2.120 2.130	2.119 2.131	2.125 2.137	2.637 2.742 (2.709)	2.637 2.742 (2.709)

() • Maximum pipe O.D. that will work with A.Y. McDonald fittings.



WARNING: It is unlawful in **CALIFORNIA & VERMONT** (effective 1/1/2010); **MARYLAND** (effective 1/1/2012); **LOUISIANA** (effective 1/1/2013) and the **UNITED STATES OF AMERICA** (effective 1/4/2014) to use any product in the installation or repair of any public water system or any plumbing in a facility or system that provides water for human consumption if the wetted surface area of the product has a weighted average lead content greater than 0.25%. This prohibition does not extend to service saddles used in California, Louisiana or under USA Public Law 111-380.

(OVER)