

MANDREL DRIVES

Taper Shank - Interchangeable Female Square

Morse Taper No.	Square Size	Model No.	Insert Square Size	Insert Model No.
2	3/8"	MM/2/95	3/8"	MDT/95
	1/2"	MM/2/127	1/2"	MDT/127
3	3/8"	MM/3/95	3/8"	MDT/95
	1/2"	MM/3/127	1/2"	MDT/127
	3/4"	MM/3/190	3/4"	MDT/190
	1"	MM/3/254	1"	MDT/254
4	3/8"	MM/4/95	3/8"	MDT/95
	1/2"	MM/4/127	1/2"	MDT/127
	3/4"	MM/4/190	3/4"	MDT/190
	1"	MM/4/254	1"	MDT/254
5	3/8"	MM/5/95	3/8"	MDT/95
	1/2"	MM/5/127	1/2"	MDT/127
	3/4"	MM/5/190	3/4"	MDT/190
	1"	MM/5/254	1"	MDT/254



Use - Mandrel drives serve the purpose of adapting tube expander mandrels to existing air or electric drills. Loosening the knurled nut, releases the square insert type of socket for the introduction of another size of insert to couple to other size of mandrel square.

Taper Shank - Male Square



Morse Taper No.	Square Size	Model No.
1	3/8"	MTM/1/95
	1/2"	MTM/1/127
2	3/8"	MTM/2/95
	1/2"	MTM/2/127
3	3/4"	MTM/3/190
	1"	MTM/3/254
4	3/4"	MTM/4/190
	1"	MTM/4/254

Taper Shank - Female Square



Morse Taper No.	Square Size	Model No.
1	3/8"	MTF/1/95
	1/2"	MTF/1/127
2	3/8"	MTF/2/95
	1/2"	MTF/2/127
3	3/4"	MTF/3/190
	1"	MTF/3/254
4	3/4"	MTF/4/190
	1"	MTF/4/254

Triangle Shank - Female Square



Square Size	Chuck Size	Model No.
3/8"	1/4"	MTC/95/63
3/8"	3/8"	MTC/95/95
3/8"	1/2"	MTC/95/127
1/2"	1/2"	MTC/127/127

Reversible Ratchet Wrench



Square Size	Length	Model No.
3/8"	8"	HR/95
1/2"	10"	HR/127
3/4"	20"	HR/195
1"	24"	HR/254

Note : Ratchets are also available with hexagonal female openings for driving one revolution tube cutters and other items.

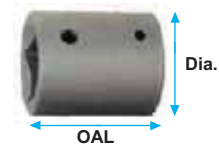
ACCESSORIES

Male x Male Drive Extensions



Square Sizes	Model No.	OAL	Dia.
3/8"	EB/95/6	6"	1/2"
	EB/95/9	9"	
	EB/95/12	12"	
	EB/95/18	18"	
1/2"	EB/127/6	6"	5/8"
	EB/127/9	9"	
	EB/127/12	12"	
	EB/127/18	18"	
	EB/127/24	24"	
3/4"	EB/195/6	6"	1"
	EB/195/9	9"	
	EB/195/12	12"	
	EB/195/18	18"	
	EB/195/24	24"	
1"	EB/254/6	6"	1.1/4"
	EB/254/12	12"	
	EB/254/14	14"	
	EB/254/18	18"	
	EB/254/24	24"	

Female x Female Extension Couplings



Square Sizes	Model No.	OAL	Dia.
3/8" x 3/8"	EC/95/95	1.7/16"	13/16"
3/8" x 1/2"	EC/95/127	1.9/16"	1.1/16"
3/8" x 5/8"	EC/95/158	1.1/2"	1.1/4"
1/2" x 1/2"	EC/127/127	1.11/16"	1.1/16"
1/2" x 5/8"	EC/127/158	1.5/8"	1.1/4"
1/2" x 3/4"	EC/127/195	1.5/8"	1.3/8"
1/2" x 7/8"	EC/127/222	1.5/8"	1.5/8"
1/2" x 1"	EC/127/254	1.5/8"	1.7/8"
5/8" x 3/4"	EC/158/195	1.9/16"	1.3/8"
5/8" x 7/8"	EC/158/222	2"	1.5/8"
5/8" x 1"	EC/158/254	1.13/16"	1.7/8"
3/4" x 3/4"	EC/195/195	1.5/8"	1.7/16"
3/4" x 7/8"	EC/195/222	1.5/8"	1.3/4"
3/4" x 1"	EC/195/254	1.13/16"	1.7/8"
7/8" x 7/8"	EC/222/222	1.11/16"	1.3/4"
7/8" x 1"	EC/222/254	2.1/8"	2.1/8"
1" x 1"	EC/254/254	2.1/16"	1.7/8"

UNIVERSAL JOINTS

Universal Joint Female-Female

Square Sizes	Model No.	OAL	Major Dia.
3/8"	UJ/95	2.1/4"	7/8"
1/2"	UJ/127	2.5/8"	1"
3/4"	UJ/195	3"	1.1/2"
1"	UJ/254	3.3/4"	1.3/4"



Universal Joint Male-Female

Square Sizes	Model No.	OAL	Major Dia.
3/8"	UC/95	2.1/4"	7/8"
1/2"	UC/127	2.19/32"	1"
3/4"	UC/195	3.9/32"	1.1/2"
1"	UC/254	4"	1.3/4"



Double Universal Joint Female-Female

Square Sizes	Model No.	OAL	Major Dia.
3/8"	DUJ/95	3.15/16"	1.1/8"
1/2"	DUJ/127	4"	1.5/16"
3/4"	DUJ/195	4.11/16"	1.5/8"
1"	DUJ/254	6.1/32"	2.1/4"



UNIVERSAL JOINTS

Extension Universal Joint Female - Male



Square Size Female	Square Size Male	Model No.	OAL	Major Dia.	Square Size Female	Square Size Male	Model No.	OAL	Major Dia.		
3/8"	3/8"	UE/95/6	6"	1.1/8"	3/4"	3/4"	UE/195/9	9"	1.3/4"		
		UE/95/9	9"				UE/195/12	12"			
		UE/95/12	12"				UE/195/16	16"			
3/8"	1/2"	UE/95S/9	9"	UE/195/20			20"				
		UE/95S/12	12"	1"			1"	UE/254/9		9"	2.1/4"
		UE/95S/16	16"					UE/254/12		12"	
1/2"	1/2"	UE/127/6	6"	1.5/16"			UE/254/16	16"			
		UE/127/9	9"								
		UE/127/12	12"								
		UE/127/16	16"								
		UE/127/20	20"								

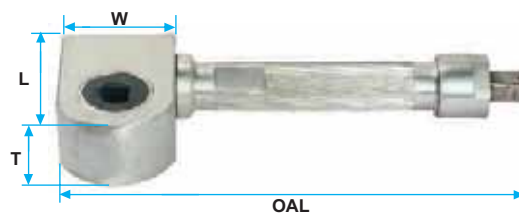
GEAR DRIVES

Parallel Gear Train Drive



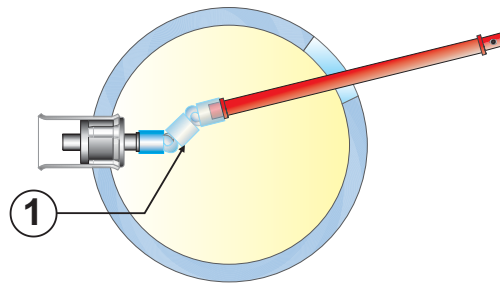
Square Size	Number of Openings	Model No.	Replacement Parts				Dimensions	
			Double Hub Gear		Center Gear		OAL	Width (W)
			Model No.	Nos. Reqd.	Model No.	Nos. Reqd.		
3/8"	3	BG/3/95	BGH/3/95	3	BGC/3/95	4	8.1/2"	2"
1/2"	3	BG/3/127	BGH/3/127	3	BGC/3/127	4	8.1/2"	2"
	4	BG/4/127	BGH/4/127	4	BGC/4/127	3		
3/4"	3	BG/3/195	BGH/3/195	3	BGC/3/195	4	9"	2.1/2"
	4	BG/4/195	BGH/4/195	4	BGC/4/195	3		
1"	4	BG/4/254	BGH/4/254	4	BGC/4/254	3	9"	2.1/2"

Right Angle Worm Gear Drive



Male Square	Female Square	Model No.	OAL	Gear Housing			Minimum Hand Hole Diameter	Gear Ratio
				Length (L)	Width (W)	Thick (T)		
1/2"	1/2"	RW/127/127	10.3/16"	3.3/16"	2.1/4"	1.3/8"	3.3/8"	4.1/2 to 1
1/2"	3/4"	RW/127/195	10.3/16"	3.3/16"	2.1/4"	1.3/8"	3.3/8"	4.1/2 to 1
3/4"	3/4"	RW/195/195	11.9/32"	3.27/32"	2.5/8"	1.7/8"	4"	4.1/2 to 1
3/4"	1"	RW/195/254	11.9/32"	4.1/4"	3.1/16"	1.7/8"	4.1/2"	4.1/2 to 1

BOILER TUBE EXPANDING ACCESSORIES



1) Universal Joints - Female x Female are most common and are used to create flexibility in reaching hard to get to spots.

Double Universal Joints - Allow more deflection than Female x Female universal joints.

Male x Male - are suitable for use in super heater headers.

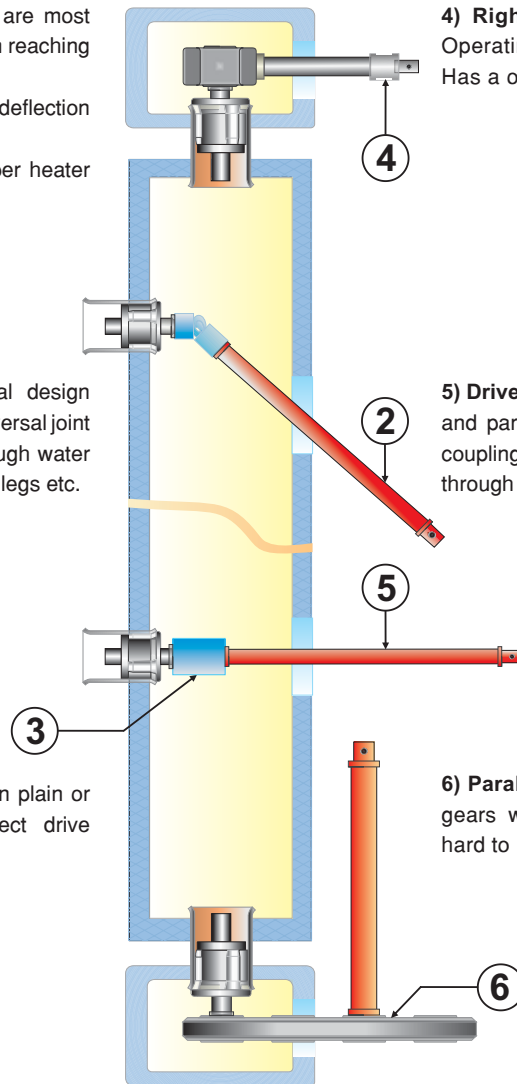
2) Extension Universal Joint - Integral design eliminates coupling an extension with a universal joint and are used when expanding tubes through water wall headers, super heater headers, water legs etc.

3) Extension Couplings - Are available in plain or reducing type and are used to connect drive extensions, mandrels, and universal joints.

4) Right Angle Worm Gear Drive - Used for Operating in very confined areas of boiler headers. Has a one piece construction for maximum life.

5) Drive Extensions - Are used with universal joints and parallel gear train drives as well as extension couplings for extending expander mandrel reach through water legs, headers etc.

6) Parallel Gear Train Drive - Have high strength gears with bronze bushings to expand tubes in hard to reach places.



LUBE-A-TUBE

For expander rolling tube ends into tube sheets.

Application : Apply directly to the inside of the tube ends by hand.

Removal : Any excess of Lube-A-Tube is removed by wiping or the residue will be completely removed during hydrotest / boil-out operations.

Features :

- Being a soft, paste lubricant, Tube-A-Tube is easy to apply and “stays put” in the tube prior to the actual rolling operation - it will not run like oil.
- No chance of entering between the tube sheet and tube end OD.
- Will not carbonize under the heat and pressure encountered during the tube rolling operation.
- Lube-A-Tube is its own indicator serving to show the operator what tubes are still to be expanded, eliminating the possibility of missed tubes.
- Lube-A-Tube keeps the expanding tool cool and prolongs tool life.
- Equally effective for rolling condenser tubes, boiler tubes and heavy wall cracking still tubes in refining equipment.



Sold in 100 ml tubes or 2 kg cans.