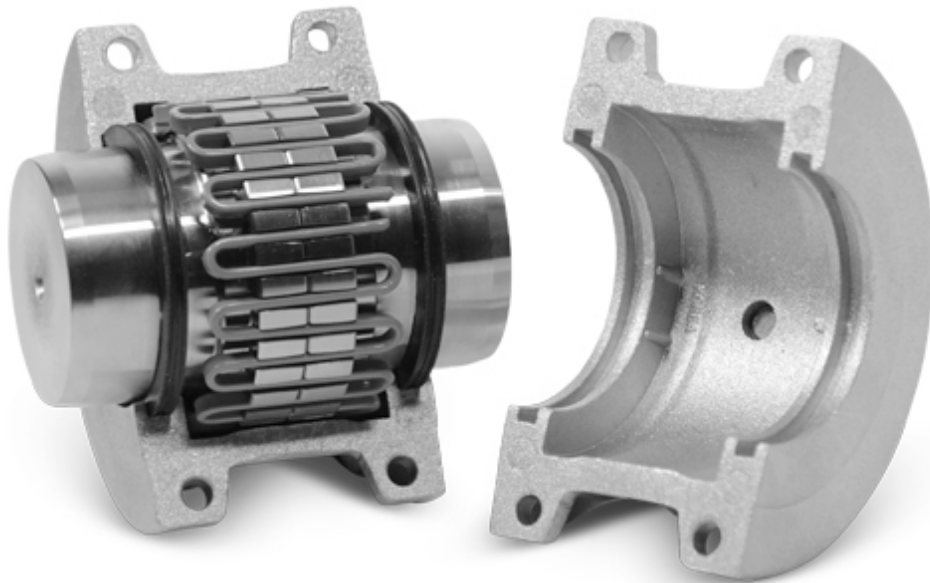


Guardian Taper Grid Shaft Coupling

Service & Installation Instructions

P-8608-GC
GUA-MRK-DOC-025



 **Guardian Couplings**[®]
Altra Industrial Motion

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IMPORTANT READ ALL NOTICES & WARNINGS BEFORE ATTEMPTING ANY INSTALLATION!

NOTICES:

- PLEASE CAREFULLY READ OVER AND UNDERSTAND INSTRUCTIONS BEFORE ATTEMPTING ANY MAINTENANCE. IF ADDITIONAL ASSISTANCE IS NEEDED PLEASE CONTACT GUARDIAN BEFORE SERVICING/INSTALLING THE PRODUCT.
- WHILE GUARDIAN MAKES EVERY EFFORT TO ENSURE THE ACCURACY OF THE INFORMATION PROVIDED, WE MAKE NO WARRANTY AS TO THE ACCURACY OR COMPLETENESS OF SAID INFORMATION. THE INFORMATION PROVIDED CORRESPONDS TO THE INSTALLATION STANDARDS AT THE TIME OF PRINTING.
- THESE INSTALLATION INSTRUCTIONS ACT AS GENERAL GUIDELINES, AND DO NOT COVER EVERY SCENARIO. IF YOUR INSTALLATION DOES NOT APPLY, PLEASE CONTACT GUARDIAN TO FURTHER REVIEW YOUR APPLICATION TO ENSURE PROPER INSTALLATION IS COMPLETED.
- ENSURE PROPER SIZING AND OFFSETS TO AVOID CAUSING DAMAGE TO THE MACHINERY AND/OR COUPLING.
- KEEP COUPLINGS FREE OF DUST AND GRIME TO ENSURE LONG LIFE.
- VERIFY APPLICATION DATA AND REVIEW TORQUE SPECIFICATIONS, MIS-ALIGNMENT, AND APPLICATION SERVICE FACTORS. IF FURTHER ASSISTANCE IS NEEDED PLEASE CONTACT GUARDIAN COUPLINGS.
- CHECK TO MAKE SURE MAXIMUM ALLOWABLE BORE DIAMETERS ON HUBS ARE NOT EXCEEDED. SEE CATALOG SPECIFICATIONS FOR MORE DETAILS.
- HUBS THAT ARE MODIFIED OR MACHINED BY THE CUSTOMER ARE NOT COVERED UNDER THE STANDARD WARRANTY TERMS. IF MODIFICATIONS ARE MADE BY THE CUSTOMER IT IS RECOMMENDED THAT THE CUSTOMER ADHERES TO GUARDIAN MACHINING STANDARDS TO ENSURE PROPER OPERATION.

WARNINGS:

- DISENGAGE ALL POWER TO NECESSARY MACHINERY BEFORE PERFORMING ANY WORK ON THE ASSEMBLY. MAKE SURE NO ACCIDENTAL ENGAGEMENT CAN OCCUR.
- IMPROPER USE OR INSTALLATION MAY RESULT IN SERIOUS INJURY OR DEATH. GUARDIAN COUPLINGS WILL NOT BE LIABLE FOR IMPROPER USE/INSTALLATION OF THE PRODUCTS. THE PURCHASER/INSTALLER IS RESPONSIBLE FOR PROPER INSTALLATION, SAFEGUARDS, MAINTENANCE AND OPERATION OF THE PRODUCT AND EQUIPMENT.
- ANY MODIFICATIONS TO INSTRUCTIONS AND/OR COUPLING CHARACTERISTICS MAY RESULT IN A PREMATURE FAILURE.
- MAKE SURE THAT COUPLINGS ARE NOT IN CONTACT WITH ANY NON-ROTATING SURFACES.
- IF ANY PROBLEMS OCCUR DURING ASSEMBLY, CONTACT GUARDIAN COUPLINGS IMMEDIATELY.
- THIS PRODUCT CONTAINS WEAR ELEMENTS THAT WILL EVENTUALLY FAIL. MAKE SURE THE ASSEMBLY IS ADEQUATELY COVERED/ENCLOSED TO AVOID INJURY IN CASE OF A FAILURE.
- WARNING: THIS PRODUCT MAY CONTAIN CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND/OR BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

SECTION 1 – COUPLING OVERVIEW

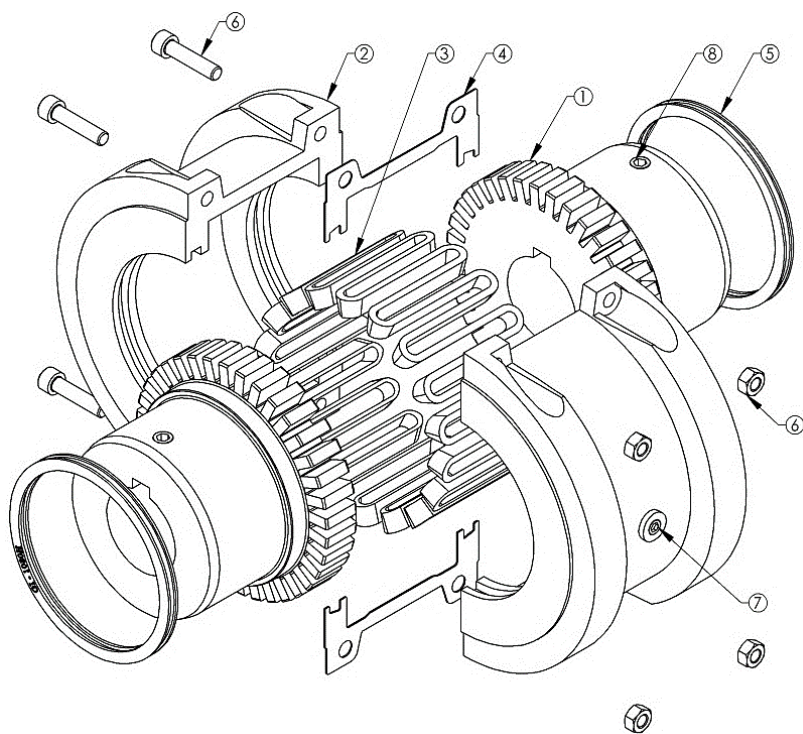


FIGURE 1.1 HORIZONTAL (T10) TAPER GRID COUPLING (EXPLODED VIEW)

ITEM NUMBER	ITEM DESCRIPTION
1	TAPER GRID COUPLING HUB
2	HORIZONTAL TAPER GRID COVER
3	TAPER GRID
4	HORIZONTAL COVER GASKET
5	HORIZONTAL HUB SEAL
6	HORIZONTAL COVER HARDWARE
7	LUBE PLUG
8	SETSCREW

SECTION 1 – COUPLING OVERVIEW (CONTINUED)

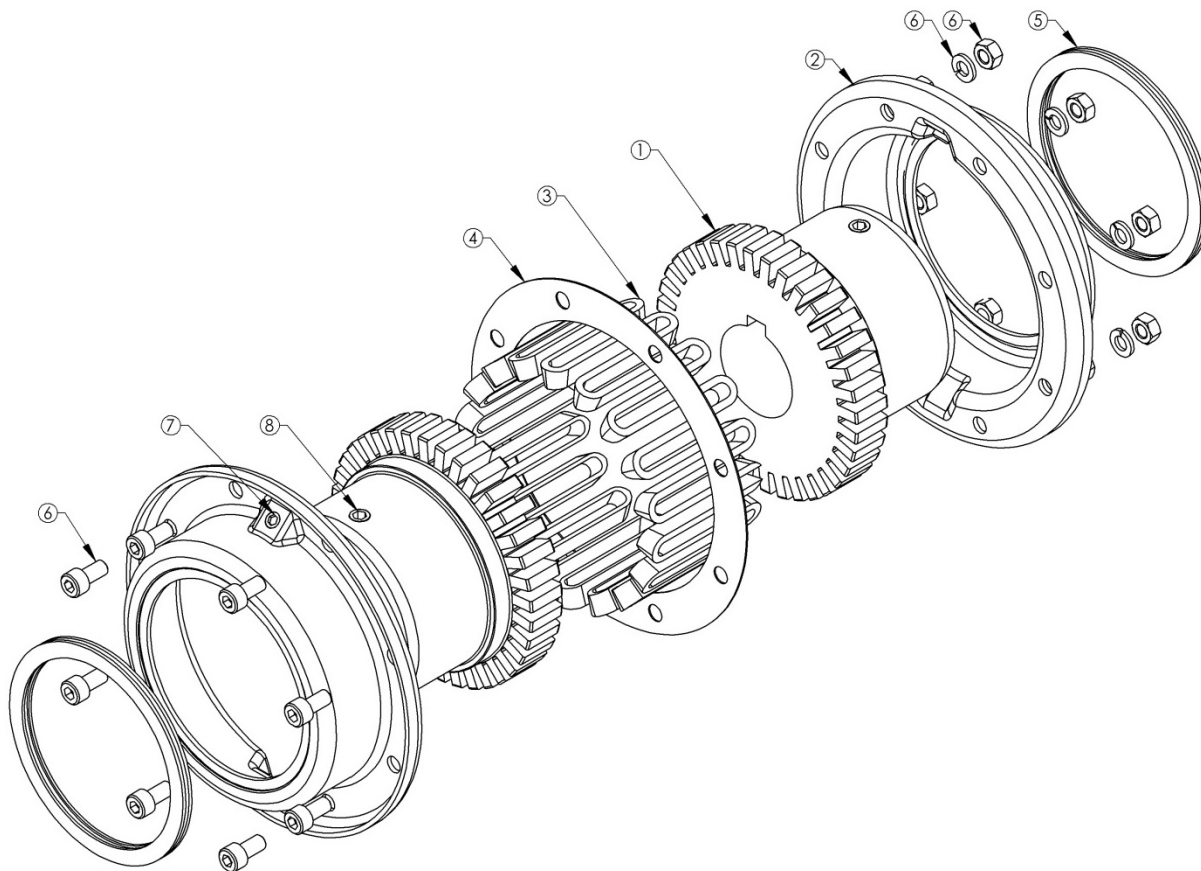


FIGURE 1.2 VERTICAL (T20) TAPER GRID COUPLING (EXPLODED VIEW)

ITEM NUMBER	ITEM DESCRIPTION
1	TAPER GRID COUPLING HUB
2	VERTICAL TAPER GRID COVER
3	TAPER GRID
4	VERTICAL COVER GASKET
5	VERTICAL HUB SEAL
6	VERTICAL COVER HARDWARE
7	LUBE PLUG
8	SETSCREW

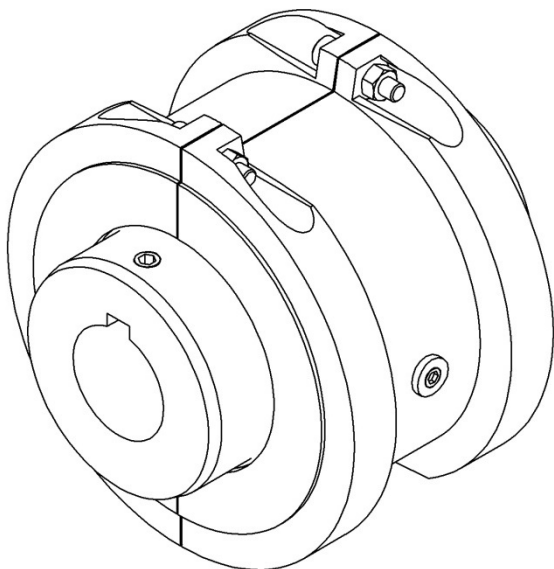


FIGURE 1.3 HORIZONTAL (T10) TAPER GRID COUPLING (ASSEMBLED)

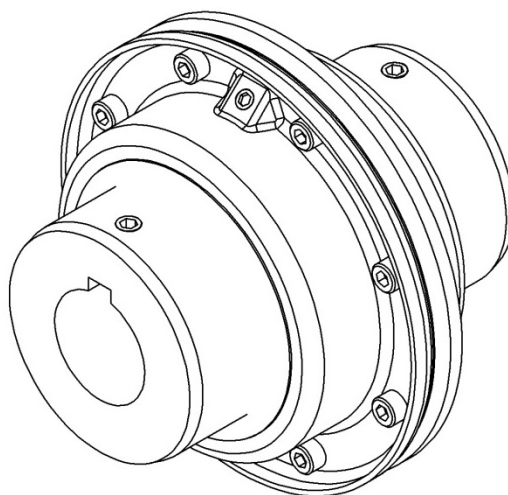


FIGURE 1.4 VERTICAL (T20) TAPER GRID COUPLING (ASSEMBLED)

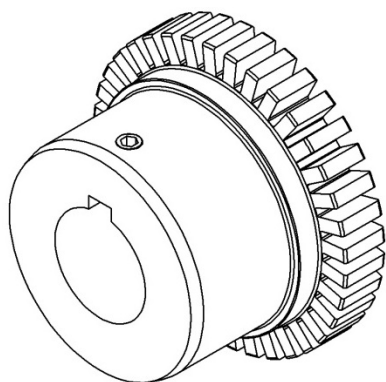


FIGURE 1.5 TAPER GRID COUPLING HUB (BODY SIDE)

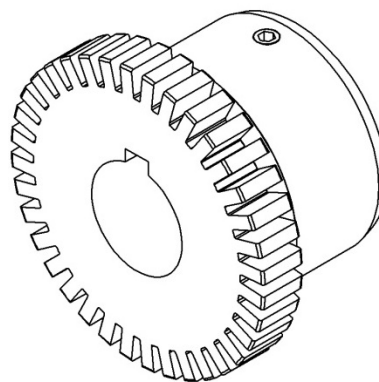


FIGURE 1.6 TAPER GRID COUPLING HUB (TEETH SIDE)

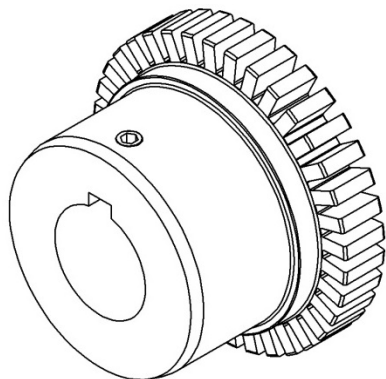


FIGURE 1.7 BORE & KEYWAY

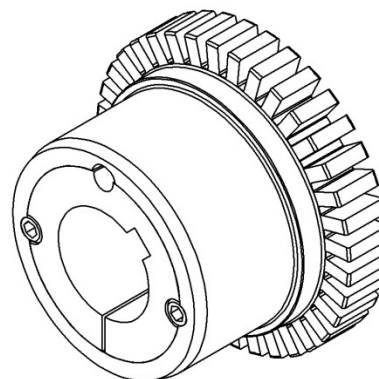


FIGURE 1.8 TAPER-LOCK BUSHING

SECTION 2 - TOOLS/MATERIAL REQUIRED

- TORQUE WRENCH
- ALLEN SOCKETS
- MEDIUM STRENGTH REMOVABLE LOCTITE
- CALIPERS / FEELER GAGE(S)
- TAPER GRID COUPLING GREASE (SUPPLIED WITH COUPLING)
- ALIGNMENT TOOLS (IE: STRAIGHT EDGE, DIAL INDICATOR, SHIMS... ETC.)

SECTION 3A – INSTALLATION INSTRUCTIONS (HORIZONTAL COUPLING – T10)

- 1) **PLEASE READ & FOLLOW ALL NOTICES & WARNINGS PRIOR TO INSTALLATION OF THIS PRODUCT**
DISENGAGE ALL POWER TO NECESSARY MACHINERY BEFORE PERFORMING ANY WORK ON THE ASSEMBLY
MAKE SURE NO ACCIDENTAL ENGAGEMENT CAN OCCUR
- 2) INSTALL HORIZONTAL HUB SEALS ON BODY OF BOTH HUBS
- 3) INSTALL AND MATE COUPLING HUB BORE WITH DRIVING SHAFT
HUB SHOULD BE INSTALLED WITH THE HUB BODY TOWARD THE DRIVING UNIT
(SEE FIGURE 1.7 THRU 1.8 FOR TYPICAL MOUNTING OPTIONS)
- 4) POSITION HUB ON MATING SHAFT
IDEAL HUB POSITION IS WITH THE TOOTH END OF THE HUB FLUSH WITH THE END OF MATING SHAFT
OVERHUNG HUBS SHOULD HAVE A MINIMUM SHAFT ENGAGEMENT EQUAL TO THE HUB BORE DIAMETER
- 5) WITH HUB PROPERLY POSITIONED, TORQUE CLAMPING FASTENER TO RECOMMENDED SEATING TORQUE
GUARDIAN RECOMMENDS USING MEDIUM STRENGTH REMOVABLE LOCTITE FOR BORE & KEYWAY SETSCREW
(SEE TABLE 4.1 FOR PROPER BORE & KEYWAY SETSCREW SEATING TORQUES)
FOR TAPER-LOCK BUSHINGS, REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS
- 6) REPEAT STEPS 3 THRU STEPS 5 FOR THE DRIVEN SHAFT HUB
- 7) MOVE DRIVEN AND DRIVING EQUIPMENT TOGETHER UNTIL PROPER ASSEMBLY GAP IS ACHIEVED
(SEE FIGURE 4.1 AND TABLE 4.2 FOR PROPER ASSEMBLY GAP)
- 8) ENSURE DRIVEN UNIT IS ALIGNED TO DRIVING UNIT, WITHIN COUPLINGS ALLOWABLE MISALIGNMENT
ANGULAR ALIGNMENT
MEASURE THE ASSEMBLY GAP BETWEEN HUBS IN (4) LOCATIONS 90° APART
THE MEASUREMENT RANGE SHOULD NOT EXCEED THE ANGULAR LIMIT LISTED IN TABLE 4.3
PARALLEL ALIGNMENT
PLACE A STRAIGHT EDGE SQUARE ON THE OUTER DIAMETER OF BOTH HUBS IN (4) LOCATIONS 90° APART
THE MAXIMUM GAP SHOULD NOT EXCEED THE OFFSET LIMIT LISTED IN TABLE 4.3
- 9) APPLY COUPLING GREASE TO THE PERIMETER AND GROOVES OF BOTH COUPLING HUBS TEETH
- 10) BEGIN MATING THE FIRST TAPER GRID SECTION WITH THE TEETH OF BOTH COUPLING HUBS
A SOFT Mallet CAN BE USED FOR SEATING THE GRID
- 11) GRADUALLY SEAT THE GRID, WORKING TOWARD THE NEXT WINDING UNTIL FULLY SEATED IN GROOVES
- 12) REPEAT FOR ADDITIONAL TAPER GRID SECTIONS
- 13) WITH ALL GRID SECTIONS INSTALLED, GENEROUSLY APPLY COUPLING GREASE TO ALL GRID CAVITIES
WIPE OFF EXCESS GREASE FLUSH WITH THE TOP OF THE GRID
- 14) ADJUST THE HUB SEAL LOCATIONS TO ALIGN WITH MATING GROOVES ON HORIZONTAL GRID COVER HALF
- 15) MATE HORIZONTAL GRID COVER HALVES, WITH GASKETS POSITIONED BETWEEN HALVES
- 16) INSTALL COVER MOUNTING HARDWARE AND TIGHTEN TO RECOMMEND SEATING TORQUES
(SEE TABLE 4.4 FOR PROPER TIGHTENING TORQUES FOR COVER HARDWARE)

SECTION 3B – INSTALLATION INSTRUCTIONS (VERTICAL COUPLING – T20)

- 17) PLEASE READ & FOLLOW ALL NOTICES & WARNINGS PRIOR TO INSTALLATION OF THIS PRODUCT
 DISENGAGE ALL POWER TO NECESSARY MACHINERY BEFORE PERFORMING ANY WORK ON THE ASSEMBLY
 MAKE SURE NO ACCIDENTAL ENGAGEMENT CAN OCCUR**
- 18) INSTALL VERTICAL HUB SEALS ON VERTICAL GRID COVER HALVES
- 19) PLACE ONE COVER AND SEAL ASSEMBLY ON DRIVING SHAFT
- 20) INSTALL AND MATE COUPLING HUB BORE WITH DRIVING SHAFT
 HUB SHOULD BE INSTALLED WITH THE HUB BODY TOWARD THE DRIVING UNIT
 (SEE FIGURE 1.7 THRU 1.8 FOR TYPICAL MOUNTING OPTIONS)
- 21) POSITION HUB ON MATING SHAFT
 IDEAL HUB POSITION IS WITH THE TOOTH END OF THE HUB FLUSH WITH THE END OF MATING SHAFT
 OVERHUNG HUBS SHOULD HAVE A MINIMUM SHAFT ENGAGEMENT EQUAL TO THE HUB BORE DIAMETER
- 22) WITH HUB PROPERLY POSITIONED, TORQUE CLAMPING FASTENER TO RECOMMENDED SEATING TORQUE
 GUARDIAN RECOMMENDS USING MEDIUM STRENGTH REMOVABLE LOCTITE FOR BORE & KEYWAY SETSCREW
 (SEE TABLE 4.1 FOR PROPER BORE & KEYWAY SETSCREW SEATING TORQUES)
 FOR TAPER-LOCK AND QD BUSHINGS, REFER TO MANUFACTURER’S INSTALLATION INSTRUCTIONS
- 23) REPEAT STEPS 3 THRU STEPS 6 FOR THE DRIVEN SHAFT HUB
- 24) PLACE VERTICAL COVER GASKET ON DRIVING SHAFT
- 25) MOVE DRIVEN AND DRIVING EQUIPMENT TOGETHER UNTIL PROPER ASSEMBLY GAP IS ACHIEVED
 (SEE FIGURE 4.1 AND TABLE 4.2 FOR PROPER ASSEMBLY GAP)
- 26) ENSURE DRIVEN UNIT IS ALIGNED TO DRIVING UNIT, WITHIN COUPLINGS ALLOWABLE MISALIGNMENT
- ANGULAR ALIGNMENT**
 MEASURE THE ASSEMBLY GAP BETWEEN HUBS IN (4) LOCATIONS 90° APART
 THE MEASUREMENT RANGE SHOULD NOT EXCEED THE ANGULAR LIMIT LISTED IN TABLE 4.3
- PARALLEL ALIGNMENT**
 PLACE A STRAIGHT EDGE SQUARE ON THE OUTER DIAMETER OF BOTH HUBS IN (4) LOCATIONS 90° APART
 THE MAXIMUM GAP SHOULD NOT EXCEED THE OFFSET LIMIT LISTED IN TABLE 4.3
- 27) APPLY COUPLING GREASE TO THE PERIMETER AND GROOVES OF BOTH COUPLING HUBS TEETH
- 28) BEGIN MATING THE FIRST TAPER GRID SECTION WITH THE TEETH OF BOTH COUPLING HUBS
 A SOFT Mallet CAN BE USED FOR SEATING THE GRID
- 29) GRADUALLY SEAT THE GRID, WORKING TOWARD THE NEXT WINDING UNTIL FULLY SEATED IN GROOVES
- 30) REPEAT FOR ADDITIONAL TAPER GRID SECTIONS
- 31) WITH ALL GRID SECTIONS INSTALLED, GENEROUSLY APPLY COUPLING GREASE TO ALL GRID CAVITIES
 WIPE OFF EXCESS GREASE FLUSH WITH THE TOP OF THE GRID
- 32) MATE GRID COVER HALVES, WITH GASKET POSITIONED BETWEEN HALVES
- 33) INSTALL COVER MOUNTING HARDWARE AND TIGHTEN TO RECOMMEND SEATING TORQUES
 (SEE TABLE 4.4 FOR PROPER TIGHTENING TORQUES FOR COVER HARDWARE)

SECTION 4 - REFERENCE DATA

TABLE 4.1 TAPER GRID BORE & KEYWAY SETSCREW SEATING TORQUE									
COUPLING SERIES		1020	1030	1040	1050	1060	1070	1080	1090
SETSCREW SIZE		1/4-20	5/16-18	5/16-18	5/16-18	3/8-16	3/8-16	1/2-13	1/2-13
SEATING TORQUE	FT-LBS	7	14	14	14	23	23	50	50
	Nm	9.5	19	19	19	31	31	68	68
COUPLING SERIES		1100	1110	1120	1130	1140	1150	1160	1170
SETSCREW SIZE		1/2-13	5/8-11	3/4-10	3/4-10	3/4-10	3/4-10	1-8	1-8
SEATING TORQUE	FT-LBS	50	100	167	167	167	167	417	417
	Nm	68	136	226	226	226	226	565	565

SECTION 4 - REFERENCE DATA (continued)

TABLE 4.2 TAPER GRID COUPLING ASSEMBLY GAP (INCH +/- 10%)

COUPLING SERIES	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110
ASSEMBLY GAP	.118	.118	.118	.118	.118	.118	.118	.118	.177	.177
COUPLING SERIES	1120	1130	1140	1150	1160	1170	1180	1190	1200	
ASSEMBLY GAP	.236	.236	.236	.236	.236	.236	.236	.236	.236	

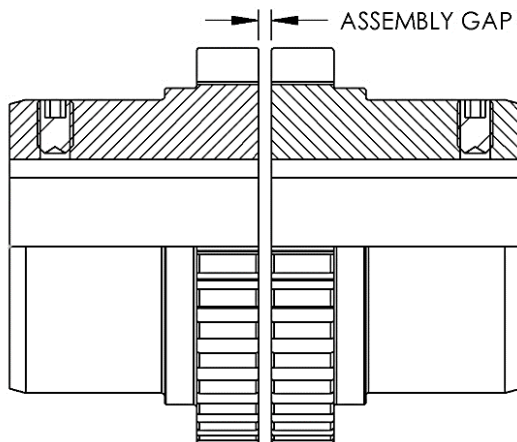


FIGURE 4.1 TAPER GRID ASSEMBLY GAP

TABLE 4.3 TAPER GRID COUPLING INSTALLATION ALIGNMENT LIMITS (INCH)

COUPLING SERIES	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110
OFFSET LIMIT	.0059	.0059	.0059	.0079	.0079	.0079	.0079	.0079	.0098	.0098
ANGULAR LIMIT	.0024	.0028	.0031	.0039	.0043	.0047	.0059	.0067	.0079	.0087
COUPLING SERIES	1120	1130	1140	1150	1160	1170	1180	1190	1200	
OFFSET LIMIT	.0110	.0110	.0110	.0118	.0118	.0188	.0150	.0150	.0150	
ANGULAR LIMIT	.0098	.0118	.0130	.0154	.0173	.0197	.0220	.0240	.0268	

TABLE 4.4 TAPER GRID COVER HARDWARE TIGHTENING TORQUE

COUPLING SERIES	1020	1030	1040	1050	1060	1070	1080	1090	1100	1110	
HARDWARE SIZE	M6	M6	M6	M8	M8	M8	M8	M8	M10	M12	
SEATING TORQUE	IN-LBS	100	100	100	200	200	200	200	200	312	312
	Nm	11.3	11.3	11.3	22.6	22.6	22.6	22.6	22.6	35	35
COUPLING SERIES	1120	1130	1140	1150	1160	1170	1180	1190	1200		
HARDWARE SIZE	M12	M12	M12	M12	M16	M16	M16	M20	M20		
SEATING TORQUE	IN-LBS	550	550	550	550	550	1300	1300	1300	2300	
	Nm	73.4	73.4	73.4	73.4	73.4	146.9	146.9	146.9	259.9	

SECTION 5 - STORAGE

- COUPLINGS SHOULD BE STORED IN A DRY, WELL MAINTAINED ENVIRONMENT
- HUMID STORAGE ENVIRONMENTS COULD LEAD TO SURFACE RUST ON THE HUB AND BORE (INSPECT BORE FOR RUST AND BURRS PRIOR TO INSTALLATION)

WARRANTY

Guardian Ind. Inc. warrants that the Goods will be free from defects in material and workmanship for a period of twelve (12) months from delivery, or such other period as shall be agreed upon in writing by the parties. Guardian Ind. Inc.'s limited warranty excludes remedy for damage or defect caused by abuse; failure to resist corrosion or erosion from any corrosive agent or fluid, or due to deposits of foreign material from any fluid; modifications not executed by Guardian Ind. Inc.; improper installation or operation; defects or failures arising out of, in any way related to, or as a result, either direct or indirect, of the Buyer's failure to properly advise Guardian Ind. Inc. of all normal and special operating conditions, known to or suspected by the Buyer, when Guardian Ind. Inc. is manufacturing the Product for a specific operation; or normal wear and tear under normal usage. All weights stated in Guardian Ind. Inc.'s catalog and lists are approximate and are excluded from this warranty. EXCEPT AS EXPRESSLY SET FORTH IN THIS PARAGRAPH, GUARDIAN IND. INC. MAKES NO OTHER WARRANTY WITH RESPECT TO THE GOODS DELIVERED HEREUNDER AND EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE, ARISING BY OPERATION OF LAW OR OTHERWISE.

Guardian Ind. Inc. must be notified in writing of any defect in the Goods within a reasonable period of time after discovery (not to exceed thirty (30) days) and the defective Goods must be delivered within the warranty period specified above, prepaid, to Guardian Ind. Inc.'s factory, with evidence that the Goods have been properly installed, maintained and operated in accordance with Guardian Ind. Inc.'s instructions. If Guardian Ind. Inc. determines that any such returned Goods are not in conformity with the warranty set forth herein, then Guardian Ind. Inc. shall, at its sole option and expense, either repair the same or supply replacement Goods.

The remedies of Buyer set forth herein are exclusive, and the total liability of Guardian Ind. Inc. hereunder, whether based on contract, warranty, negligence, indemnity, strict liability or otherwise, and shall not exceed the purchase price of the Goods giving rise to any such claim for liability. IN NO EVENT SHALL GUARDIAN IND. INC. OR ITS SUPPLIERS BE LIABLE TO BUYER, ANY SUCCESSORS IN INTEREST, OR ANY BENEFICIARY OF THIS CONTRACT FOR CONSEQUENTIAL, INDIRECT, INCIDENTAL, OR SPECIAL DAMAGES OR LOSSES, OR FOR ANY SECONDARY CHARGES OR ADMINISTRATIVE OR PUNITIVE DAMAGES, FINES, PENALTIES, FEES, EXPENSES AND OTHER CHARGES, ARISING OUT OF THE CONTRACT OR ANY BREACH THEREOF, WHETHER BASED UPON LOSS OF USE, LOSS OF PRODUCTION, LOST PROFITS OR REVENUE, INTEREST, LOST GOODWILL, WORK STOPPAGE, IMPAIRMENT OF OTHER GOODS, LOSS BY REASON OF SHUTDOWN OR NON-OPERATION, INCREASED EXPENSES OF OPERATION OR CLAIMS OF CUSTOMERS OF BUYER FOR SERVICE INTERRUPTION, OR ANY OTHER TYPE OF ECONOMIC LOSS OR DAMAGE, WHETHER OR NOT SUCH LOSS OR DAMAGE IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHERWISE.

Further details pertaining to TERMS AND CONDITIONS OF SALES can be found at the following link:

http://www.altramotion.com/~media/Files/Corporate/Terms%20and%20Conditions/Sales-Terms/Guardian_Sales_Terms.ashx



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