

NAME: TI - 320 - X.XX - XX

TORQUE Nm
- 0.50
- 0.75
- 1.00
- 1.25
- 1.50

SHAFT-END TYPE
-01 - KNURLED SHAFT
-02 - KNURLED ADAPTER
-03 - ONE WAY FORWARD
-04 - ONE WAY REVERSE
-05 - DUAL ENDED KNURLED SHAFT

NOTES:

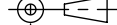
- APPLICATION CONDITIONS REFERENCE (USER MUST DETERMINE FITNESS FOR USE IN APPLICATION).
- PRODUCT TORQUE SPECIFICATION:
±20% DYNAMIC
- LIFE: 50,000 CYCLES.
ONE CYCLE CONSISTS OF 120° CW AND 120° CCW AT 10% DUTY CYCLE FOR SPEEDS LESS THAN 100 RPM.
- MATERIALS:
PLATED POWDERED METAL HOUSINGS
HARDENED STEEL TORQUE ELEMENT
DIECAST KNURLED ZINC SHAFT END
MINERAL OIL BASED LUBRICANT
HARDENED STEEL SHAFT
HARDENED STEEL BEARING
STEEL RETAINING RINGS
- FINISH:
NON-COSMETIC.
- TORQUE INSERT DESIGNED FOR USE IN PLASTIC OR METAL. SEE INDIVIDUAL CONFIGURATION DRAWINGS FOR ADDITIONAL DETAIL.
- [7] HINGE DESIGNED TO SUPPORT A MINIMAL AXIAL FORCE IN DIRECTION SHOWN, NOT DESIGNED TO SUPPORT AXIAL FORCE IN THE OPPOSITE DIRECTION.
- CUSTOMER IS RESPONSIBLE FOR CHECKING COMPATIBILITY OF REELL LUBRICANTS WITH PLASTICS USED.
- ENVIRONMENTAL CONDITIONS:
-20°C TO +80°C UP TO 10% OF LIFE CYCLES AT HOT AND COLD CONDITIONS.
- [10] NUMBER OF TORQUE ELEMENTS MAY VARY.

FOR PATENTS SEE Pat.reell.com

SPECIFICATION SUBJECT TO CHANGE

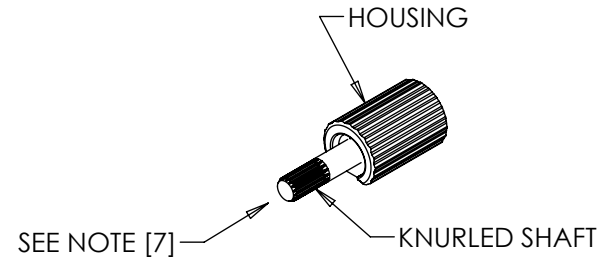
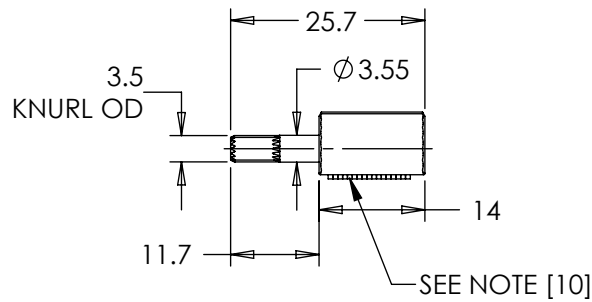
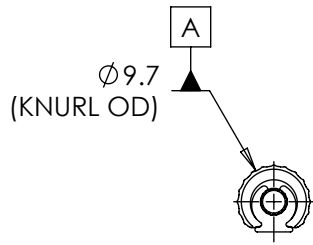
UNLESS SPECIFIED
TOLERANCE ±0.15
INTERPRET PRINT PER
ASME Y14.5M-1994
THIS PRINT IS THE
CONFIDENTIAL PROPERTY
OF REELL PRECISION MFG.

THIRD ANGLE PROJECTION



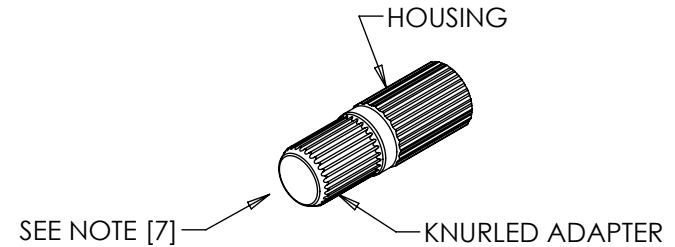
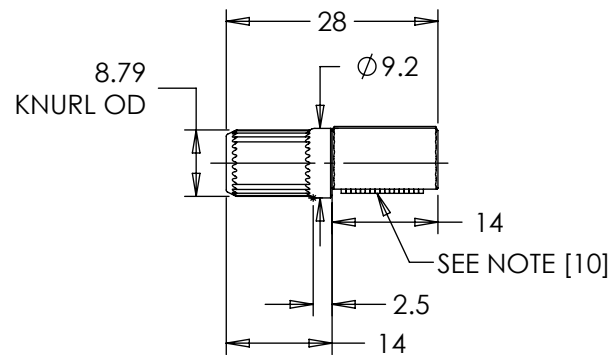
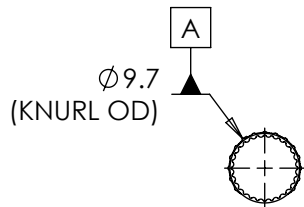
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DRAWN:	HMA	DATE:	16APR12	REFERENCE:
CHECKED:	WJW	DATE:	23AUG13	83560-XXX, 84090-0XX
APPROVED:	WJW	DATE:	23AUG13	TITLE:
REVISED:	27FEB19	DIMS:	mm	TORQUE INSERT SALES DRAWING
REELL PRECISION MANUFACTURING 1259 WILLOW LAKE BOULEVARD SAINT PAUL, MINNESOTA 55110-5103, USA		PART NO:	TI-320-X.XX-XX	REV: H
SCALE: 1:1		DO NOT SCALE DRAWING		SHEET 1 OF 8

TI-320-X.XX-01 (KNURLED SHAFT)



- INTENDED FOR PRESS FIT INTO METALS. CONTACT REELL FOR OTHER MOUNTING OPTIONS.
- APPROXIMATE WEIGHT: 6.5 GRAMS

TI-320-X.XX-02 (KNURLED ADAPTER)



- INTENDED FOR PRESS FIT INTO PLASTICS. CONTACT REELL FOR OTHER MOUNTING OPTIONS.
- APPROXIMATE WEIGHT: 11.85 GRAMS

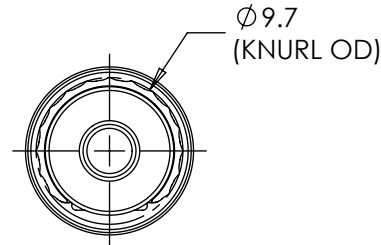
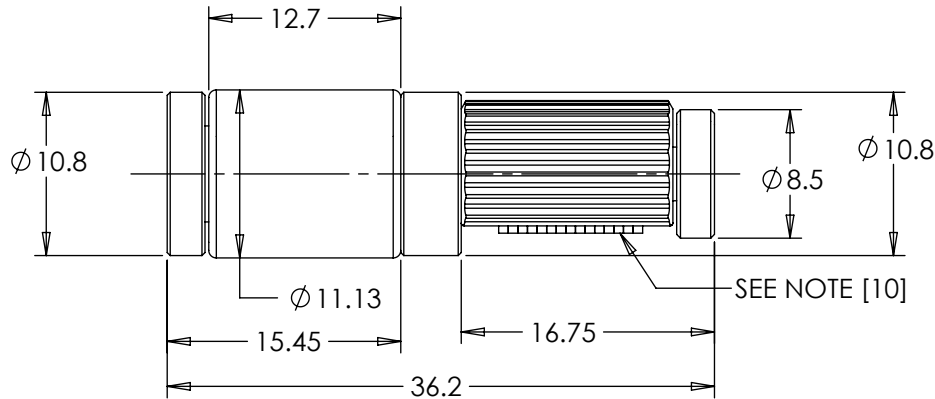
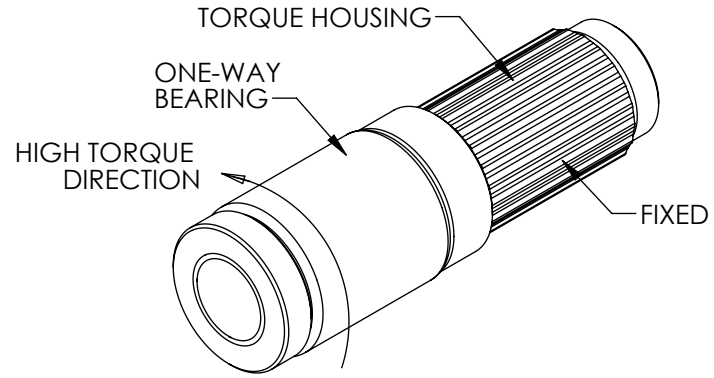
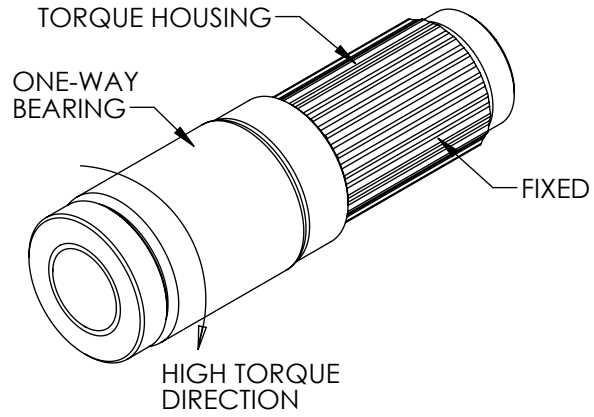
ALL DIMENSIONS ARE REFERENCE, SEE CAD MODEL FOR UNSPECIFIED FEATURES.

LEVEL	DESCRIPTION		DRAWN	DATE	APPROVED
DRAWN:	HMA	DATE: 16APR12	REFERENCE: 83560-XXX, 84090-0XX		
CHECKED:	WJW	DATE: 23AUG13	TITLE: TORQUE INSERT SALES DRAWING		
APPROVED:	WJW	DATE: 23AUG13	PART NO: TI-320-X.XX-XX		
REVISED:	27FEB19	DIMS: mm	REV: H		
UNLESS SPECIFIED TOLERANCE ±0.15 INTERPRET PRINT PER ASME Y14.5M-1994 THIS PRINT IS THE CONFIDENTIAL PROPERTY OF REELL PRECISION MFG. THIRD ANGLE PROJECTION				REELL PRECISION MANUFACTURING 1259 WILLOW LAKE BOULEVARD SAINT PAUL, MINNESOTA 55110-5103, USA	
SCALE: 1:1		DO NOT SCALE DRAWING		SHEET 2 OF 8	

SPECIFICATION SUBJECT TO CHANGE

TI-320-X.XX-03 (ONE WAY FORWARD)

TI-320-X.XX-04 (ONE WAY REVERSE)



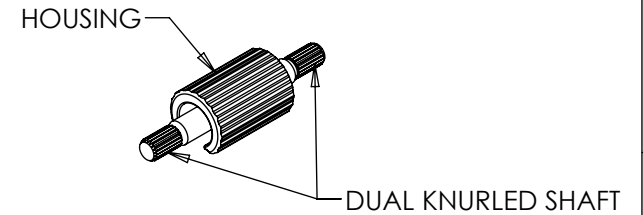
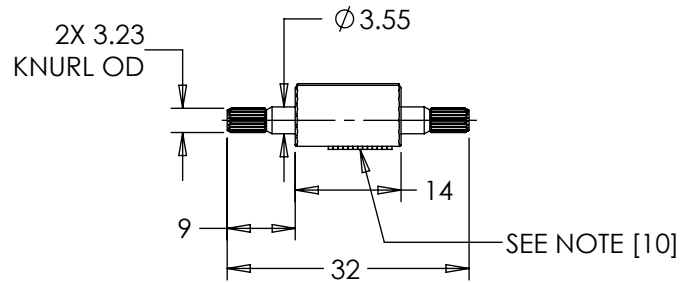
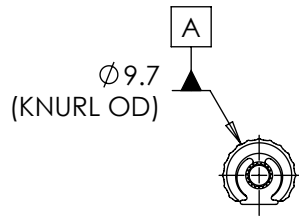
- INTENDED FOR PRESS FIT INTO METALS. CONTACT REELL FOR OTHER MOUNTING OPTIONS.
- APPROXIMATE WEIGHT: 19.2 GRAMS

ALL DIMENSIONS ARE REFERENCE, SEE CAD MODEL FOR UNSPECIFIED FEATURES.

LEVEL	DESCRIPTION		DRAWN	DATE	APPROVED
DRAWN:	HMA	DATE: 16APR12	PART NO: 83560-XXX, 84090-0XX		
CHECKED:	WJW	DATE: 23AUG13	TITLE: TORQUE INSERT SALES DRAWING		
APPROVED:	WJW	DATE: 23AUG13	DESCRIPTION: TI-320-X.XX-XX		
REVISED:	27FEB19	DIMS: mm	REV: H		
INTERPRET PRINT PER ASME Y14.5M-1994 THIS PRINT IS THE CONFIDENTIAL PROPERTY OF REELL PRECISION MFG. THIRD ANGLE PROJECTION				REELL PRECISION MANUFACTURING 1259 WILLOW LAKE BOULEVARD SAINT PAUL, MINNESOTA 55110-5103, USA	
SCALE: 2:1		DO NOT SCALE DRAWING		SHEET 3 OF 8	

SPECIFICATION SUBJECT TO CHANGE

TI-320-X.XX-05 (DUAL ENDED KNURLED SHAFT)



- INTENDED FOR PRESS FIT INTO METALS. CONTACT REELL FOR OTHER MOUNTING OPTIONS.
- APPROXIMATE WEIGHT: 7.25 GRAMS

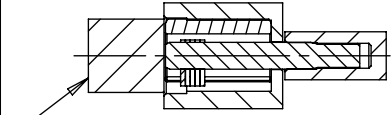
ALL DIMENSIONS ARE REFERENCE,
SEE CAD MODEL FOR UNSPECIFIED FEATURES.

LEVEL	DESCRIPTION		DRAWN	DATE	APPROVED
DRAWN:	HMA	DATE: 16APR12	PART NO: 83560-XXX, 84090-0XX		
CHECKED:	WJW	DATE: 23AUG13	TITLE: TORQUE INSERT DUAL SALES DRAWING		
APPROVED:	WJW	DATE: 23AUG13	REV: H		
REVISED:	27FEB19	DIMS: mm	DESCRIPTION: TI-320-X.XX-XX		
UNLESS SPECIFIED TOLERANCE ± 0.15 INTERPRET PRINT PER ASME Y14.5M-1994 THIS PRINT IS THE CONFIDENTIAL PROPERTY OF REELL PRECISION MFG. THIRD ANGLE PROJECTION				REELL PRECISION MANUFACTURING 1259 WILLOW LAKE BOULEVARD SAINT PAUL, MINNESOTA 55110-5103, USA	
SCALE: 1:1		DO NOT SCALE DRAWING		SHEET 4 OF 8	

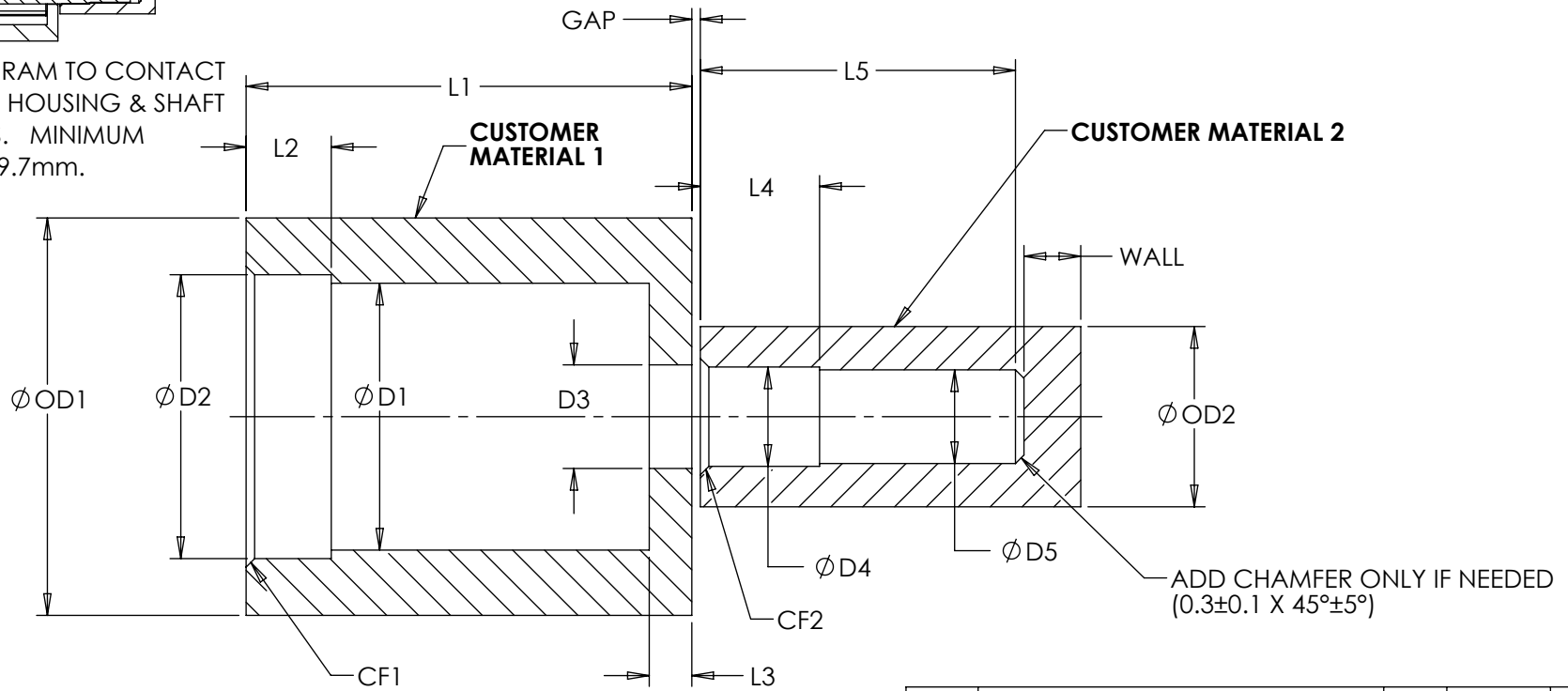
SPECIFICATION SUBJECT TO CHANGE

TI-320-X.XX-01 CUSTOMER INSTALLATION GEOMETRY

CUSTOMER MATERIAL	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	CF1	CF2	OD1	OD2	WALL	GAP
DIE CAST ZINC	9.55±0.05	10±0.03	3.65±0.03	3.5±0.03	3.3±0.03	15.7±0.1	3±0.1	1.5±0.1	4.2±0.1	12.5 MIN	0.3±0.1 X 45°±5°	0.3±0.1 X 45°±5°	12 MIN	6 MIN	2 MIN	(0.3)
DIE CAST ALUMINUM	9.55±0.05			3.5±0.03	3.3±0.03											
MILD STEEL	9.6 +/- 0.025			3.63±0.03	3.38+/- 0.015											
WROUGHT ALUMINUM	9.6 +/- 0.025			3.63±0.03	3.38+/- 0.015											



INSTALLATION RAM TO CONTACT BOTH TORQUE HOUSING & SHAFT DURING PRESS. MINIMUM DIAMETER OF 9.7mm.



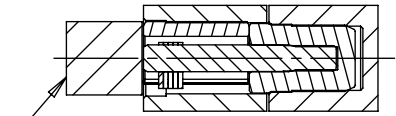
SCALE 4:1

SPECIFICATION SUBJECT TO CHANGE

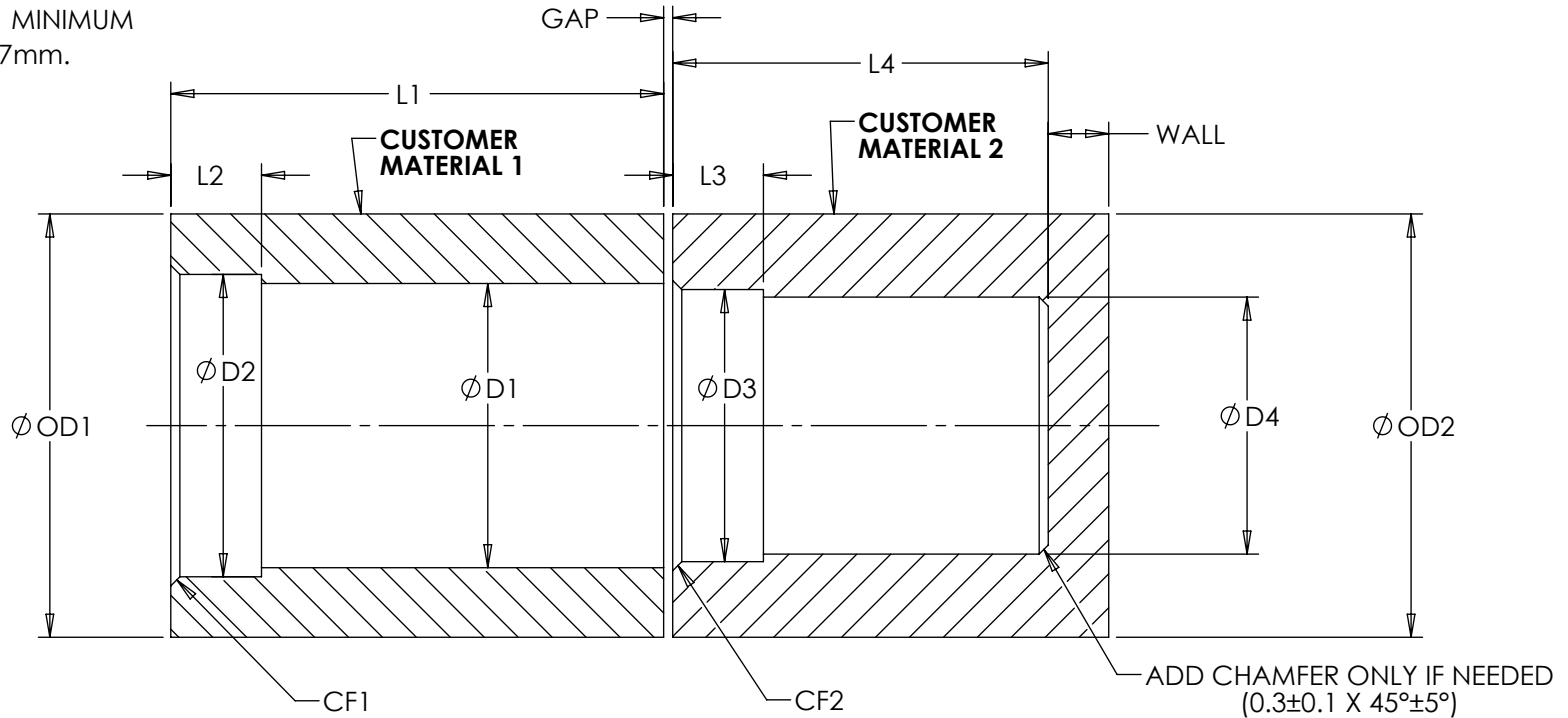
LEVEL	DESCRIPTION		DRAWN	DATE	APPROVED
DRAWN:	HMA	DATE: 16APR12	REFERENCE: 83560-XXX, 84090-0XX		
CHECKED:	WJW	DATE: 23AUG13	TITLE: TORQUE INSERT SALES DRAWING		
APPROVED:	WJW	DATE: 23AUG13			
REVISED:	27FEB19	DIMS: mm	PART NO: TI-320-X.XX-XX		
INTERPRET PRINT PER ASME Y14.5M-1994 THIS PRINT IS THE CONFIDENTIAL PROPERTY OF REELL PRECISION MFG. THIRD ANGLE PROJECTION				REV: H	
				REELL PRECISION MANUFACTURING 1259 WILLOW LAKE BOULEVARD SAINT PAUL, MINNESOTA 55110-5103, USA	
SCALE: 1:1		DO NOT SCALE DRAWING		SHEET 5 OF 8	

T1-320-X.XX-02 CUSTOMER INSTALLATION GEOMETRY

CUSTOMER MATERIAL	D1	D2	D3	D4	L1	L2	L3	L4	CF1	CF2	OD1	OD2	WALL	GAP
PLASTIC	9.3±0.03	10±0.03	9.1±0.03	8.3±0.03	16.3±0.1	3.0±0.1	3.0±0.1	12.5 MIN	0.3±0.1 X 45°±5°	0.3±0.1 X 45°±5°	13.5 MIN	13.5 MIN	2 MIN	(0.3)



INSTALLATION RAM TO CONTACT BOTH TORQUE HOUSING & SHAFT DURING PRESS. MINIMUM DIAMETER OF 9.7mm.



SCALE 4:1

SPECIFICATION SUBJECT TO CHANGE

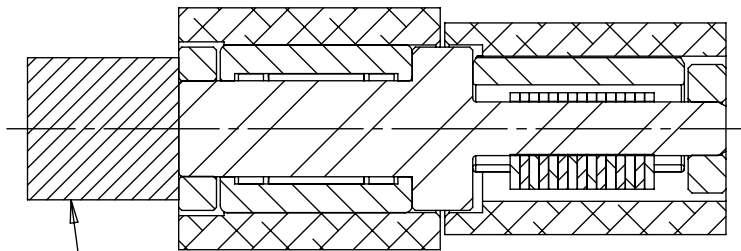
INTERPRET PRINT PER ASME Y14.5M-1994
 THIS PRINT IS THE CONFIDENTIAL PROPERTY OF REELL PRECISION MFG.
 THIRD ANGLE PROJECTION

LEVEL	DESCRIPTION	DRAWN	DATE	APPROVED
DRAWN:	HMA	DATE:	16APR12	REFERENCE: 83560-XXX, 84090-0XX TITLE: TORQUE INSERT SALES DRAWING PART NO: TI-320-X.XX-XX
CHECKED:	WJW	DATE:	23AUG13	
APPROVED:	WJW	DATE:	23AUG13	
REVISED:	27FEB19	DIMS:	mm	
		REELL PRECISION MANUFACTURING 1259 WILLOW LAKE BOULEVARD SAINT PAUL, MINNESOTA 55110-5103, USA		REV: H
SCALE: 1:1		DO NOT SCALE DRAWING		SHEET 6 OF 8

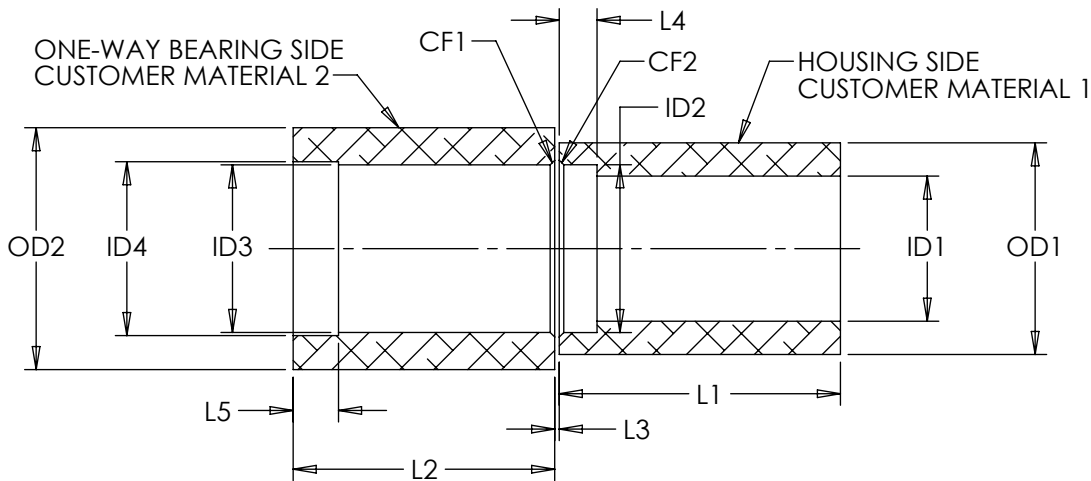
TI-320-X.XX-03/04 CUSTOMER INSTALLATION GEOMETRY

CUSTOMER MATERIAL	ID1	ID2	ID3	ID4	L1	L2	L3	L4	L5	CF1/CF2	OD1	OD2
DIE CAST ZINC	9.55±0.05	11.1±0.05	11.125/11.10	11.5±0.05	18.6±0.1	17.3±0.1	0.1 MIN	2.5±0.1	3.0±0.1	0.3±0.1 X 45° ±5°	14 MIN	16 MIN
DIE CAST ALUMINUM	9.55±0.05											
MILD STEEL	9.6 +/-0.025											
WROUGHT ALUMINUM	9.6 +/-0.025											

RECOMMENDED MOUNTING FOR TI-320-X.XX-03 (ONE WAY FORWARD) TI-320-X.XX-04 (ONE WAY REVERSE)



INSTALLATION RAM TO CONTACT BOTH RETAINING RING & SHAFT DURING PRESS. MINIMUM DIAMETER OF 9.7mm.



LEVEL	DESCRIPTION		DRAWN	DATE	APPROVED
DRAWN:	HMA	DATE: 16APR12	PART NO: 83560-XXX, 84090-0XX		
CHECKED:	WJW	DATE: 23AUG13	TITLE: TORQUE INSERT SALES DRAWING		
APPROVED:	WJW	DATE: 23AUG13	DESCRIPTION: TI-320-X.XX-XX H		
REVISED:	27FEB19	DIMS: mm	SCALE: 2:1 DO NOT SCALE DRAWING SHEET 7 OF 8		

INTERPRET PRINT PER ASME Y14.5M-1994
THIS PRINT IS THE CONFIDENTIAL PROPERTY OF REELL PRECISION MFG.
THIRD ANGLE PROJECTION

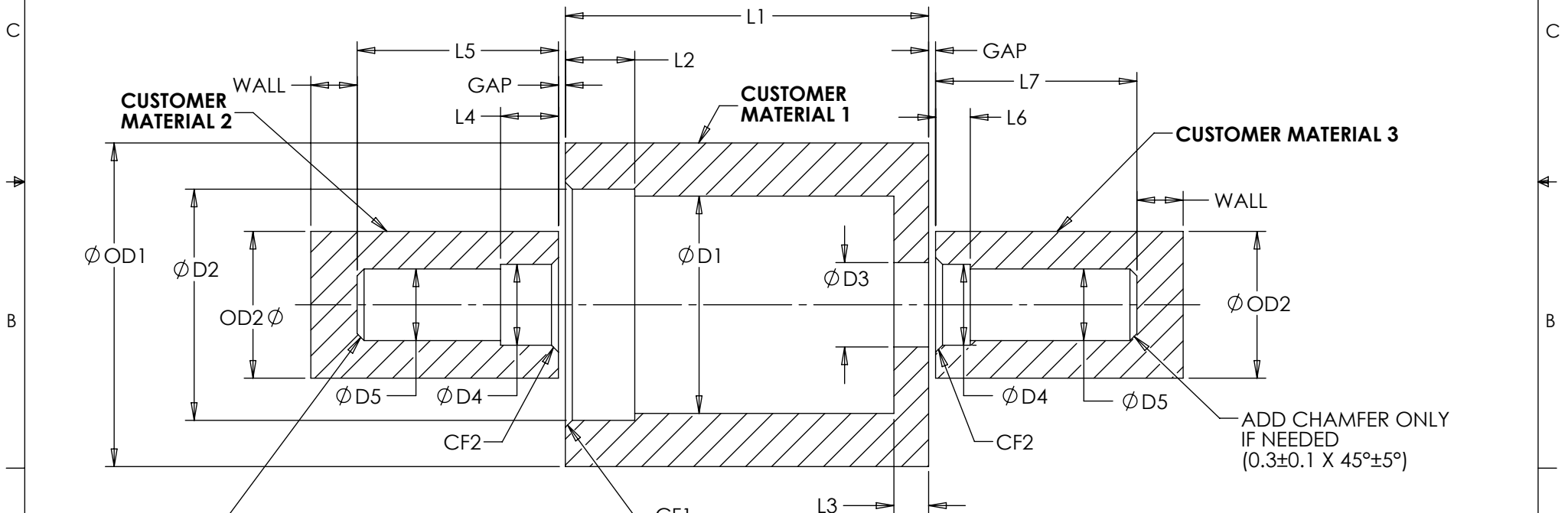


REELL PRECISION MANUFACTURING
1259 WILLOW LAKE BOULEVARD
SAINT PAUL, MINNESOTA 55110-5103, USA

SPECIFICATION SUBJECT TO CHANGE

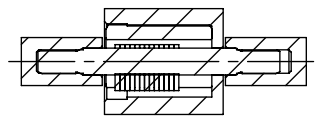
TI-320-X.XX-05 CUSTOMER INSTALLATION GEOMETRY

CUSTOMER MATERIAL	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	CF1	CF2	OD1	OD2	WALL	GAP
DIE CAST ZINC	9.55±0.05			3.5±0.03	3±0.03													
DIE CAST ALUMINUM	9.55±0.05			3.5±0.03	3±0.03													
MILD STEEL	9.6 ±0.025	10±0.03	3.65±0.03	3.63±0.03	3.08±0.015	15.7±0.1	3±0.1	1.5±0.1	4.0±0.1	10.5 MIN	2.5±0.1	7.2±0.1	0.3±0.1 X 45°±5°	0.3±0.1 X 45°±5°	12 MIN	6 MIN	2 MIN	(0.3)
WROUGHT ALUMINUM	9.6 ±0.025			3.63±0.03	3.08±0.015													



ADD CHAMFER ONLY IF NEEDED
(0.3±0.1 X 45°±5°)

ADD CHAMFER ONLY IF NEEDED
(0.3±0.1 X 45°±5°)



SPECIFICATION SUBJECT TO CHANGE

LEVEL	DESCRIPTION		DRAWN	DATE	APPROVED
DRAWN:	HMA	DATE: 16APR12	PART NO: 83560-XXX, 84090-0XX		
CHECKED:	WJW	DATE: 23AUG13	TITLE: TORQUE INSERT DUAL SALES DRAWING		
APPROVED:	WJW	DATE: 23AUG13	DESCRIPTION: TI-320-X.XX-XX		
REVISED:	27FEB19	DIMS: mm	REV: H		
		REELL PRECISION MANUFACTURING 1259 WILLOW LAKE BOULEVARD SAINT PAUL, MINNESOTA 55110-5103, USA			
THIRD ANGLE PROJECTION		SCALE: 1:1		DO NOT SCALE DRAWING	

INTERPRET PRINT PER ASME Y14.5M-1994
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THIRD ANGLE PROJECTION