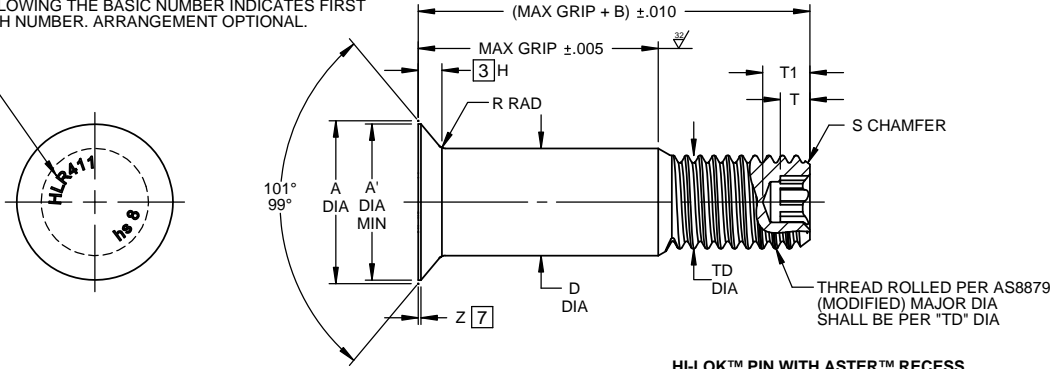
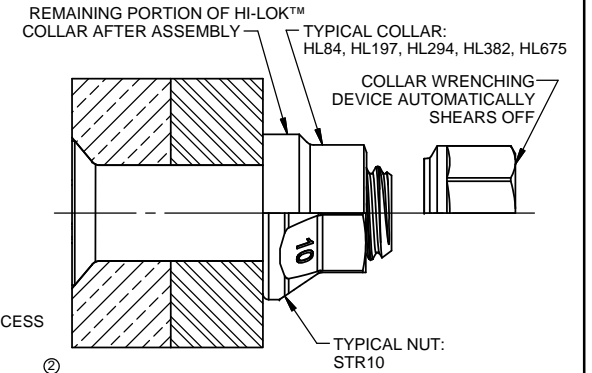


② For the current list of licensed manufacturers, please visit the LISI AEROSPACE website at:  
[HTTP://WWW.LISI-AEROSPACE.COM/LICENSES](http://www.lisi-aerospace.com/licenses)

INDENTED HEAD MARKING MAXIMUM DEPTH .010". MANUFACTURER'S IDENTIFICATION "hs". THE NUMBER(S) FOLLOWING THE BASIC NUMBER INDICATES FIRST DASH NUMBER. ARRANGEMENT OPTIONAL.



HI-LOK™ PIN WITH ASTER™ RECESS



RECOMMENDED COLLAR OR NUT FOR ASSEMBLY

SEE COLLAR/NUT STANDARDS FOR COLLAR/NUT STRENGTHS. LOWER STRENGTH (PIN OR COLLAR/NUT) DETERMINES SYSTEM STRENGTH.

<div>1</div>																			<div>7</div>																		
FIRST DASH NO.	PIN NOM DIA	A DIA	A' DIA MIN	B REF	D DIA		TD DIA	F	H	R RAD	Z MAX	S CHAMFER REF	THREAD MODIFIED	ASTER™ RECESS			DOUBLE SHEAR POUNDS MINIMUM	TENSION POUNDS MINIMUM																			
					WITHOUT ALUMINUM COATING	WITH ALUMINUM COATING								RECESS SIZE CODE	T1 DEPTH MAX	T DEPTH MIN																					
5	NOTE: USE HLR111( )6(-)																																				
6	7/32	.3303 .3253	.299	.325	.2182 .2177	.2182 .2172	.1840 .1810	.005	.0470 .0450	.030 .020	.015	1/32 X 37°	.1900-32 UNJF-3A	A5L-06	.116	.069	7,100	2,000																			
7	NOTE: USE HLR11( )8(-)																																				
8	9/32	.4260 .4210	.395	.395	.2807 .2802	.2807 .2797	.2440 .2410	.006	.0610 .0590	.030 .020	.015	1/32 X 37°	.2500-28 UNJF-3A	A5L-08	.118	.069	11,800	3,700																			
10	11/32	.5051 .5001	.474	.500	.3432 .3427	.3432 .3422	.3060 .3020	.007	.0680 .0660	.040 .030	.015	3/64 X 37°	.3125-24 UNJF-3A	A5L-10	.127	.070	17,600	5,000																			
12	13/32	.5916 .5866	.560	.545	.4057 .4052	.4057 .4047	.3680 .3640	.008	.0780 .0760	.040 .030	.015	3/64 X 37°	.3750-24 UNJF-3A	A5L-12	.147	.087	24,600	7,200																			
14	15/32	.6992 .6932	.651	.635	.4682 .4677	.4682 .4672	.4310 .4260	.009	.0970 .0945	.050 .040	.022	3/64 X 37°	.4375-20 UNJF-3A	A5L-14	.196	.116	32,700	10,000																			
16	17/32	.7852 .7792	.737	.685	.5307 .5302	.5307 .5297	.4930 .4880	.010	.1070 .1045	.050 .040	.022	3/64 X 37°	.5000-20 UNJF-3A	A5L-16	.236	.139	42,000	13,200																			

②

HLR411

"HI-LOK", "HLR", AND "HI-KOTE", ARE TRADEMARKS OF HI-SHEAR CORPORATION. ASTER™ IS A TRADEMARK OF LISI AEROSPACE.		
DRAWN BY F.CARINGELLA	DATE 2016-07-07	TITLE HI-LOK™ PIN, ASTER™ RECESS 100° FLUSH SHEAR HEAD TITANIUM 1/16 GRIP VARIATION, 1/32 OVERSIZE
APPROVED C.REITZ	DATE 2016-07-07	
REVISION ②	DATE M.BEARD 2017-12-05	DRAWING NUMBER <b>HLR411</b>

**GENERAL NOTES:**

- 1 Head edge out of roundness shall not exceed "F".
- 2 Concentricity: Conical surface of head to "D" diameter within .003 FIM.
- 3 "H" is dimensioned from maximum "D" diameter.
- 4 Dimensions are in inches and to be met after finish.
- ② 5 Surface texture per ASME B46.1.
- 6 Hole preparation per NAS618.
- 7 Curved or flat edge manufacturer's option.
- 8 US patent 6632057; other US & foreign patents granted and pending property of LISI AEROSPACE.
- 9 Oversize replacement replacement for HLR111.
- 10 Broach petals removed.
- ② 11 Identification colorant is not allowed in the ASTER™ Recess.

**MATERIAL:** 6Al-4V titanium alloy per AMS4928 or AMS4967.

**HEAT TREAT:** 160,000 psi tensile minimum (95,000 psi shear minimum). ②

**FINISH:** HLR411NKJ( )-( ) = HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294 with color silver on thread end and cetyl alcohol lube per Hi-Shear Spec. 305.

HLR411NKK( )-( ) = Sulfuric acid anodizing per ISO8080 and HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294 on threads only with color silver on thread end and cetyl alcohol lube per Hi-Shear Spec. 305.

HLR411NKL( )-( ) = HI-KOTE™ 1 NC aluminum pigmented coating per Hi-Shear Spec. 294 on threads only with color silver on thread end and cetyl alcohol lube per Hi-Shear Spec. 305.

**SPECIFICATION:**

HI-LOK™ Product Specification 409.  
 ASTER™ Recess per A5L-QA02.

**CODE:**

First dash number indicates nominal diameter in 1/32nds of the pin which HLR411 oversize pin replaces.  
 Second dash number indicates maximum grip in 1/16ths.  
 See Finish note for explanation of code letters.

**HOW TO ORDER**

② **EXAMPLES:**

Pin Part Number  
 HLR411 NKJ 8-8

8/16 or 1/2 Maximum Grip Length  
 8/32 or 1/4 Nominal Diameter Pin  
 Finish Code  
 Pin Basic Part Number

HLR411

DRAWING NUMBER

**HLR411**

2 OF 2