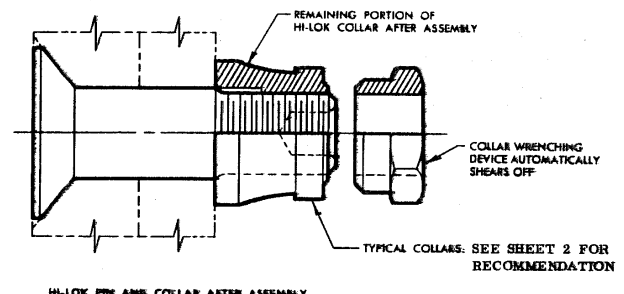
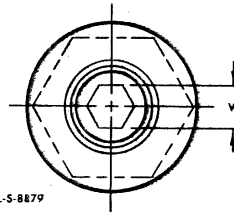
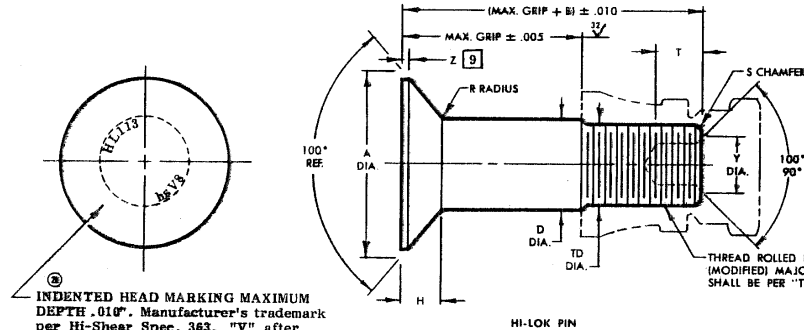


**STANDARDS COMMITTEE  
FOR HI-LOK® PRODUCTS**  
2500 SKYPARK DRIVE, TORRANCE, CALIFORNIA 90503

② HI-SHEAR CORPORATION, U.S.A. (Patent Number) U.S. Patent Code I.R. No. 73787  
 Division of HI-Shear Industries Inc., U.S.A. (Licensee)  
 AGRIUMET FRICTIONER (Pompey Plant) LTD., U.K. (Licensee)  
 Division of HI-Shear Industries Inc., U.S.A. (Licensee)  
 HI-SHEAR, Division of HI Corp., U.S.A. (Licensee) U.S. Patent Code I.R. No. 82275  
 SPS TECHNOLOGIES, U.S.A. (Licensee) U.S. Patent Code I.R. No. 36678

ST. CHAMOND-GRAMAT, S.A. France (Lic. — EEC Countries)  
 KAMMG-WEHRE, Germany (Lic. — EEC Countries)  
 Rudolf Wettersheim GmbH & Co. (Licensee — EEC Countries — Collars)  
 SHIMADZU, S.A. France (Licensee — EEC Countries — Collars)  
 TOKYO SCREW COMPANY, Japan (Licensee — Japan)  
 WEST COAST AEROSPACE INC., U.S.A. (Licensee — Operator Pins & Stud Collars)  
 U.S. Patent Code I.R. No. 84828



③ INDENTED HEAD MARKING MAXIMUM DEPTH .010". Manufacturer's trademark per HI-Shear Spec. 363. "V" after trademark indicates 6Al-4V titanium alloy material. The number or numbers following the "V" indicate first dash number. Arrangement optional.

FIRST DASH NO.	NOM. DIA.	A DIA.	B REF.	D DIA.		TD DIA.	F	H	R RAD.	Z MAX.	S CHAMFER REF.	THREAD	SOCKET			** DOUBLE SHEAR POUNDS MINIMUM	TENSION POUNDS MINIMUM		
				WITHOUT COATING OR SOLID FILM LUBE	WITH COATING OR SOLID FILM LUBE								W HEL.	T DEPTH	Y DIA.				
-5				④ NOTE: USE HL13V-6															
-6	13/64	.3813 .3765	.325	.2026 .2021	.2026 .2016	.1840 .1810	.005	.0750 .0730	.030 .020	.015	1/32" x 37°	10-32UNJF-3A Modified	.0806 .0791	.135 .115	.119 .104	6,130	3,180		
-8	17/64	.5066 .5018	.395	.2651 .2646	.2651 .2641	.2440 .2410	.006	.1013 .0993	.030 .020	.015	1/32" x 37°	1/4-28UNJF-3A Modified	.0967 .0947	.150 .130	.142 .122	10,480	5,820		
-10	21/64	.6335 .6287	.500	.3276 .3271	.3276 .3266	.3060 .3020	.007	.1283 .1263	.040 .030	.015	3/64" x 37°	5/16-24UNJF-3A Modified	.1295 .1270	.170 .150	.180 .160	16,000	9,200		
-12	25/64	.7604 .7556	.545	.3901 .3896	.3901 .3891	.3680 .3640	.008	.1553 .1533	.040 .030	.015	3/64" x 37°	3/8-24UNJF-3A Modified	.1617 .1582	.200 .180	.217 .197	22,700	14,000		
-14	29/64	.8894 .8812	.635	.4528 .4521	.4526 .4516	.4310 .4260	.009	.1828 .1798	.050 .040	.022	3/64" x 37°	7/16-20UNJF-3A Modified	.1930 .1895	.230 .210	.253 .233	30,600	18,900		
-16	33/64	1.0139 1.0068	.685	.5151 .5146	.5151 .5141	.4930 .4890	.010	.2093 .2063	.050 .040	.022	3/64" x 37°	1/2-20UNJF-3A Modified	.2242 .2207	.260 .240	.289 .269	39,600	25,600		
-18	37/64	1.1408 1.1337	.770	.5771 .5766	.5771 .5761	.5550 .5500	.010	.2365 .2335	.050 .040	.025	1/16" x 37°	9/16-18UNJF-3A Modified	.2555 .2520	.290 .270	.326 .306	49,700	32,400		
-20	41/64	1.2723 1.2651	.825	.6396 .6391	.6396 .6386	.6180 .6120	.010	.2654 .2624	.050 .040	.025	1/16" x 37°	5/8-18UNJF-3A Modified	.2555 .2520	.330 .305	.326 .306	61,000	41,000		
-24	49/64	1.5308 1.5226	1.050	.7646 .7641	.7646 .7636	.7430 .7370	.012	.3214 .3184	.050 .040	.025	1/16" x 37°	3/4-16UNJF-3A Modified	.3185 .3150	.330 .300	.390 .378	87,200	59,500		

SEE COLLAR STAMPS FOR COLLAR STRENGTHS. LOWER STRENGTHS (PIN OR COLLAR) DETERMINES SYSTEM STRENGTH.

\*\* The Double Shear Values shown are based on cross sectional area for nominal pin diameter.

Patented internationally. "Hi-Lok" and "HL" are internationally registered trademarks of Hi-Shear Corporation.

DRAWN	DATE	
D. P. S.	11-4-63	
APPROVED	DATE	100° FLUSH MS24694 TENSION HEAD TITANIUM 1/16" GRIP VARIATION - 1/64" OVERSIZE
M. C.	11-5-63	
REVISION	DATE	DRAWING NUMBER
②	D. P. S. 5-28-86	HL113 SHEET 1 OF 2

HL113

- GENERAL NOTES:
1. Head edge out of roundness shall not exceed ".F."
  2. Concentricity: Conical surface of head to "D" diameter within .005 FIR.
  3. "H" is dimensioned from maximum "D" diameter.
  4. Dimensions to be met after finish.
  5. Surface texture per ANSI B46.1.
  6. Hole preparation per NAS618.
  7. Use HL413 for oversize replacement.
  8. Maximum "D" diameter may be increased by .0002 to allow for solid film or aluminum coating application.
  9. Curved or flat edge manufacturer's option.

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

To prevent seizing and galling, the following combinations are recommended.

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

RECOMMENDED COLLARS

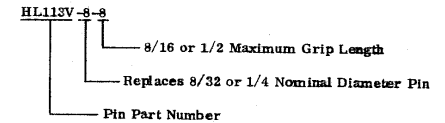
- FINISH:
- HL113V-( )-( ) = Cetyl alcohol lube per Hi-Shear Spec. 305. \_\_\_\_\_ HL75DU, HL75V, HL87DU, HL198, HL198V, HL198SY, HL280SY
  - HL113VAP-( )-( ) = Hi-Kote 1 aluminum coating per Hi-Shear Spec. 294 and cetyl alcohol lube per Hi-Shear Spec. 305. \_\_\_\_\_ HL75, HL75PB, HL87
  - HL113VAZ-( )-( ) = Hi-Kote 1 aluminum coating per Hi-Shear Spec. 294 with color code black on thread end and cetyl alcohol lube per Hi-Shear Spec. 305. \_\_\_\_\_ HL75, HL75PB, HL87
  - HL113VBJ-( )-( ) = I.V.D. aluminum coating per MIL-C-83488, Type II, Class 3, and cetyl alcohol lube per Hi-Shear Spec. 305. \_\_\_\_\_ HL75, HL87
  - HL113VF-( )-( ) = Surface coating per Hi-Shear Spec. 306, Type I, color blue, and cetyl alcohol lube per Hi-Shear Spec. 305. \_\_\_\_\_ HL75DU, HL75V, HL87DU, HL198, HL198V, HL198SY, HL280SY
  - HL113VR-( )-( ) = Surface coating per Hi-Shear Spec. 306, Type II, and solid film lube per "Electrofilm" 4396. \_\_\_\_\_ HL75, HL75PB, HL87
  - HL113VRA-( )-( ) = Phosphate fluoride treat with color code red on thread end and cetyl alcohol lube per Hi-Shear Spec. 305. \_\_\_\_\_ HL75DU, HL75V, HL87DU, HL198, HL198V, HL198SY, HL280SY
  - HL113VSY-( )-( ) = Phosphate fluoride treat, solid film lube per MIL-L-8937 and color code red on thread end. \_\_\_\_\_ HL75, HL75PB, HL87
  - HL113VT-( )-( ) = Surface coating per Hi-Shear Spec. 306, Type I, color pink, and cetyl alcohol lube per Hi-Shear Spec. 305. \_\_\_\_\_ HL75DU, HL75V, HL87DU, HL198, HL198V, HL198SY, HL280SY
  - Ⓢ HL113VTF-( )-( ) = Hi-Kote 2 solid film lube per Hi-Shear Spec. 292. \_\_\_\_\_ HL75TF, HL87DU
  - HL113VUE-( )-( ) = Surface coating per Hi-Shear Spec. 306, Type II, and cetyl alcohol lube per Hi-Shear Spec. 305. \_\_\_\_\_ HL75, HL75DU, HL75V, HL75PB, HL87, HL87DU, HL198, HL198V, HL198SY, HL280SY
  - HL113VV-( )-( ) = Solid film lube per "Lubeco" 2123, Type II. \_\_\_\_\_ HL75, HL75DU, HL75V, HL75PB, HL87, HL87DU

SPECIFICATION: Hi-Lok Product Specification 342.

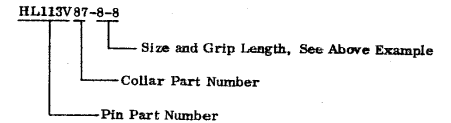
Ⓢ CODE: First dash number indicates nominal diameter in 1/32nds of the pin which HL113V oversize pin replaces. Second dash number indicates maximum grip in 1/16ths. See "Finish" note for explanation of code letters.

HOW TO ORDER

EXAMPLES: Pin Part Number Only



Pin and Collar Assembly Part Number Combination



**HL113**

SHEET 2 OF 2