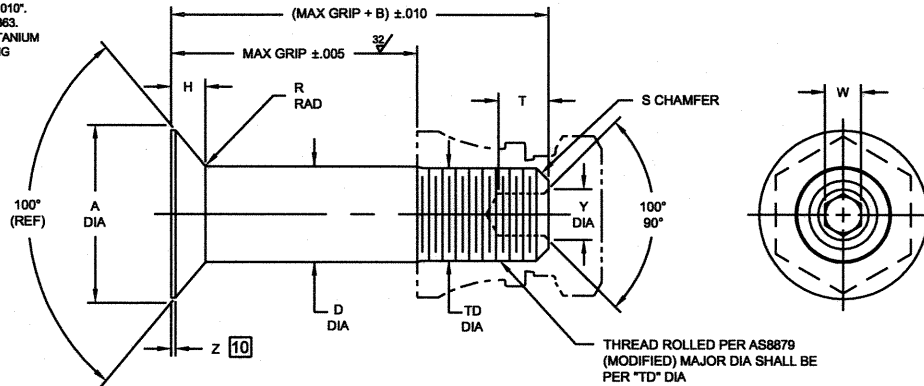
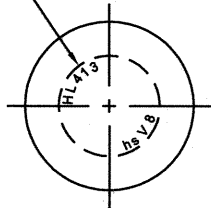
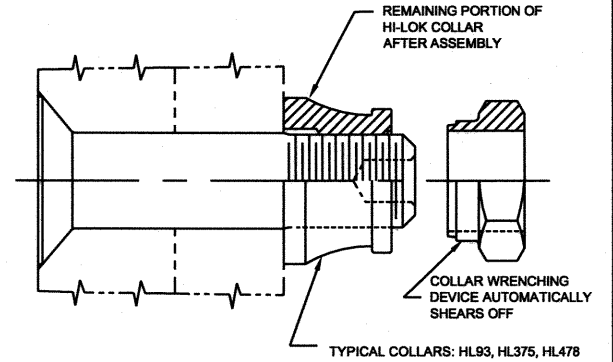


HI-SHEAR CORPORATION, U.S.A. (Patent Holder) CAGE No. 73197 a LISI AEROSPACE Company	HI-SHEAR FASTENERS EUROPE, LTD., U.K. (Licensee) CAGE No. OLB88 a LISI AEROSPACE Company
AIR INDUSTRIES CO., INC., U.S.A. (Licensee - U.S.A. & Canada) CAGE No. 06725	HUCK S.A. France (Licensee - ECC Countries)
HUCK INTERNATIONAL, INC., U.S.A. (Licensee) CAGE No. 97828	BLANC AERO S.A. France (Licensee - ECC Countries)
SPS TECHNOLOGIES, U.S.A. (Licensee) CAGE No. 59378	a LISI AEROSPACE Company
FAIRCHILD Aerospace Fastener Division (Licensee) CAGE No. 92215	TOKYO SCREW COMPANY, Japan (Licensee - Japan)
WEST COAST AEROSPACE INC., U.S.A. (Licensee) CAGE No. 60516 (Pins & Steel Collars)	

INDENTED HEAD MARKING MAXIMUM DEPTH .010".
 MANUFACTURER'S TRADEMARK PER hs SPEC 363.
 "V" AFTER TRADEMARK INDICATES 6AL-4V TITANIUM
 ALLOY MATERIAL. THE NUMBER(S) FOLLOWING
 THE "V" INDICATES FIRST DASH NUMBER.
 ARRANGEMENT OPTIONAL.



THREAD ROLLED PER AS8879
 (MODIFIED) MAJOR DIA SHALL BE
 PER "TD" DIA



TYPICAL COLLARS: HL93, HL375, HL478

HI-LOK PIN

HI-LOK PIN AND COLLAR AFTER ASSEMBLY

FIRST DASH NO.	PIN NOM DIA	A DIA	B REF	D DIA		TD DIA	F REF	H	R RAD	Z MAX	S CHAMFER REF	THREAD	SOCKET			DOUBLE SHEAR POUNDS MINIMUM	TENSION POUNDS MINIMUM
				WITHOUT COATING OR SOLID FILM	WITH COATING OR SOLID FILM								W HEX	T DEPTH	Y DIA		
NOTE: USE HL113V6-() (14)																	
6	7/32	.3813 .3765	.325	.2182 .2177	.2182 .2172	.1840 .1810	.005	.0684 .0664	.030 .020	.015	1/32" x 37°	10-32UNJF-3A Modified	.0806 .0791	.135 .115	.119 .104	7,100	3,180
8	9/32	.5066 .5018	.395	.2807 .2802	.2807 .2797	.2440 .2410	.006	.0948 .0928	.030 .020	.015	1/32" x 37°	1/4-28UNJF-3A Modified	.0967 .0947	.150 .130	.142 .122	11,800	5,820
10	11/32	.6335 .6287	.500	.3432 .3427	.3432 .3422	.3060 .3020	.007	.1218 .1198	.040 .030	.015	3/64" x 37°	5/16-24UNJF-3A Modified	.1295 .1270	.170 .150	.180 .160	17,600	9,200
12	13/32	.7604 .7556	.545	.4057 .4052	.4057 .4047	.3680 .3640	.008	.1488 .1468	.040 .030	.015	3/64" x 37°	3/8-24UNJF-3A Modified	.1617 .1582	.200 .180	.217 .197	24,600	14,000
14	15/32	.8884 .8812	.635	.4682 .4677	.4682 .4672	.4310 .4260	.009	.1763 .1733	.050 .040	.022	3/64" x 37°	7/16-20UNJF-3A Modified	.1930 .1895	.230 .210	.253 .233	32,700	18,900
16	17/32	1.0139 1.0068	.685	.5307 .5302	.5307 .5297	.4930 .4880	.010	.2027 .1997	.050 .040	.022	3/64" x 37°	1/2-20UNJF-3A Modified	.2242 .2207	.260 .240	.289 .269	42,000	25,600
18	19/32	1.1408 1.1337	.770	.5927 .5922	.5927 .5917	.5550 .5500	.010	.2300 .2270	.050 .040	.025	1/16" x 37°	9/16-18UNJF-3A Modified	.2555 .2520	.290 .270	.326 .306	52,400	32,400
20	21/32	1.2723 1.2651	.825	.6552 .6547	.6552 .6542	.6180 .6120	.010	.2589 .2559	.050 .040	.025	1/16" x 37°	5/8-18UNJF-3A Modified	.2555 .2520	.330 .305	.326 .306	64,100	41,000
24	25/32	1.5308 1.5236	1.050	.7802 .7797	.7802 .7792	.7430 .7370	.012	.3149 .3119	.050 .040	.025	1/16" x 37°	3/4-16UNJF-3A Modified	.3185 .3150	.330 .300	.398 .378	90,900	59,500

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

HL413

"Hi-Lok" and "HL" are internationally registered trademark of Hi-Shear Corporation.		
DRAWN Brij	DATE 6-11-68	TITLE HI-LOK® PIN
APPROVED J.M.	DATE 6-11-68	100° FLUSH MS24694 TENSION HEAD TITANIUM 1/16" GRIP VARIATION, 1/32" OVERSIZE
REVISION (14)	DATE JO 2-1-07	DRAWING NUMBER HL413

HI-SHEAR CORPORATION, U.S.A. (Patent Holder) CAGE No. 73197 a LISI AEROSPACE Company	HI-SHEAR FASTENERS EUROPE, LTD., U.K. (Licensee) CAGE No. 0LB68 a LISI AEROSPACE Company
AIR INDUSTRIES CO., INC., U.S.A. (Licensee - U.S.A. & Canada) CAGE No. 06725	HUCK S.A. France (Licensee - ECC Countries)
HUCK INTERNATIONAL, INC., U.S.A. (Licensee) CAGE No. 97928	BLANC AERO S.A. France (Licensee - ECC Countries)
SPS TECHNOLOGIES, U.S.A. (Licensee) CAGE No. 56878	a LISI AEROSPACE Company
FAIRCHILD Aerospace Fastener Division (Licensee) CAGE No. 92215	TOKYO SCREW COMPANY, Japan (Licensee - Japan)
WEST COAST AEROSPACE INC., U.S.A. (Licensee) CAGE No. 60516 (Pins & Steel Collars)	

GENERAL NOTES:

1. Head edge out of roundness shall not exceed "F".
2. Concentricity: Conical surface of head to "D" diameter within .005 FIM.
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. Oversize replacement for HL13 and HL113.
8. Maximum "D" diameter may be increased by .0002 to allow for solid film or aluminum coating application.
9. Broach petals removed.
10. Curved or flat edge manufacturer's option.
11. Non-lubed pins must be used with lubed collars or wet sealant.

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

HEAT TREAT: 95,000 psi shear minimum.

- 14 **FINISH:**
- 9 HL413K() = Solid film lube per Lubeco 905.
 - HL413V() = Cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VAP() = Hi-Kote 1 aluminum coating per Hi-Shear Spec. 294, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VAZ() = Hi-Kote 1 aluminum coating per Hi-Shear Spec. 294, with color black on thread end, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VBJ() = I.V.D. aluminum coating per MIL-DTL-83488, Type II, Class 3, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VBR() = Color code white on thread end, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - 11 HL413VBU() = I.V.D. aluminum coating per MIL-DTL-83488, Type I, Class 3, with color code yellow on thread end.
 - 11 HL413VBV() = I.V.D. aluminum coating per MIL-DTL-83488, Type II, Class 3, with color code blue on thread end.
 - HL413VCB() = I.V.D. aluminum coating per MIL-DTL-83488, Type I, Class 3, with color code black on thread end and cetyl alcohol lube per Hi-Shear Spec. 305.
 - 9 HL413VDK() = Solid film lube per Kalgard FA.
 - HL413VF() = Surface coating per Hi-Shear Spec. 306, Type I, color blue, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VLJ() = Surface coating per Hi-Shear Spec. 306, Type II, and solid film lube per AS5272.
 - HL413VLV() = Phosphate fluoride treat and Esna-Lube No. 382 (Everlube Corp).
 - HL413VR() = Surface coating per Hi-Shear Spec. 306, Type II, and solid film lube per "Electrofilm" 4396.
 - HL413VRA() = Phosphate fluoride treat with color code red on thread end and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VSY() = Phosphate fluoride treat, solid film lube per AS5272, Type I, and color red on thread end.
 - HL413VT() = Surface coating per Hi-Shear Spec. 306, Type I, color pink, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VTA() = Anodize Ti-Shield III and Hi-Kote 2 solid film lube per Hi-Shear Spec. 292, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VTB() = Hi-Kote 2 solid film lube per Hi-Shear Spec. 292, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VTF() = Hi-Kote 2 solid film lube per Hi-Shear Spec. 292.
 - HL413VTL() = Anodize per Hi-Shear Ti-Shield III, solid film lube per DAG-258 and cetyl alcohol lube per Hi-Shear Spec. 305; or anodize per Tiodize Type II, solid film lube per TI-O-LUBE TAL-58, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VUE() = Surface coating per Hi-Shear Spec. 306, Type II, and cetyl alcohol lube per Hi-Shear Spec. 305.
 - HL413VUU() = Surface coating per Hi-Shear Spec. 306, Type II, and solid film lube per "Lubeco" 2123, Type II.
 - HL413VV() = Solid film lube per "Lubeco" 2123, Type II.

SPECIFICATION: Hi-Lok Product Specification 342.

CODE: First dash number indicates nominal diameter in 1/32nds of the pin which HL413V oversize pin replaces.
 Second dash number indicates maximum grip in 1/16ths.
 See Finish note for explanation of code letters.

HOW TO ORDER EXAMPLES:

