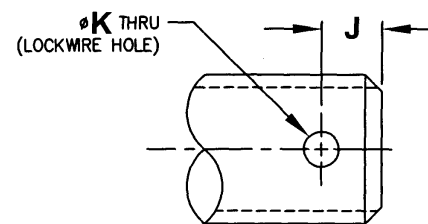
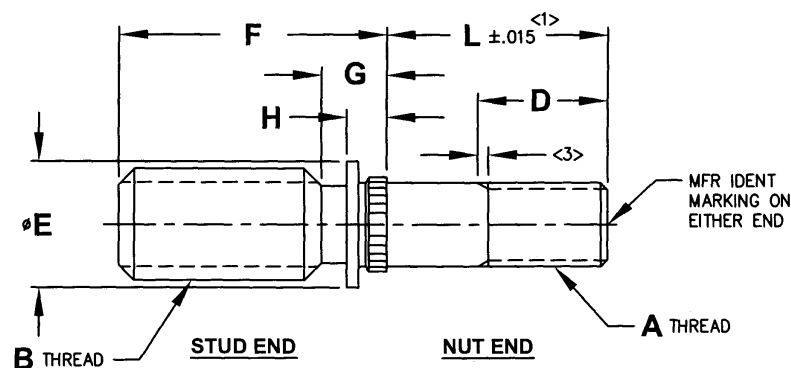


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DETAIL "Z"
HOLE IN NUT END WHEN SPECIFIED

SH F 101 - 9 SA 13 A

ROSAN HYDRAULIC STUD

FINE THREAD, NUT END

THREAD COMBINATION AND SIZE CODE

STUD END LENGTH (F) CODED IN 1/16" INCREMENTS

UNDRILLED NUT END, OMIT CODE "A" FOR DRILLED NUT END

NUT END LENGTH (L) CODED IN 1/16" INCREMENTS, (13/16 = .812)

MATERIAL, (SA = 4130 STEEL) SEE TABLE II

TABLE I

AFS PART NUMBER	LOCKRING PART NUMBER <4> REF	A NUT END THREAD UNF-3A	B STUD END THREAD <2>			C <1>	D ±.015	E +.000 -.005	F ±.015	G ±.005	H ±.005	J ±.015	K ±.015
			SIZE	PITCH DIA	MINOR DIA								
SHF101-9SA()A	RL24SB5	.2500-28	.3125-18	.2778-.2795	.2373-.2474	-10	.500	.371	.560	.221	.138	.160	.076
SHF111-11SA()A	RL28SB6	.3125-24	.3750-16	.3358-.3378	.2906-.3017	-11	.560	.433	.690	.240	.147	.160	.076
SHF121-12SA()A	RL33SB7	.3750-24	.4375-14	.3926-.3946	.3411-.3534	-12	.620	.510	.750	.283	.176	.170	.106
SHF131-13SA()A	RL38SB7	.4375-20	.5000-13	.4512-.4537	.3963-.4093	-13	.690	.588	.810	.291	.176	.170	.106
SHF144-14SA()A	RL47SB8	.5000-20	.6250-11	.5674-.5699	.5028-.5174	-15	.810	.729	.880	.327	.191	.190	.106
SHF151-16SA()A	RL47SB8	.5625-18	.6250-11	.5674-.5699	.5028-.5174	-17	.940	.729	1.000	.327	.191	.220	.141
SHF161-18SA()A	RL56SB8	.6250-18	.7500-10	.6866-.6891	.6156-.6314	-18	1.000	.870	1.120	.341	.191	.220	.141
SHF181-21SA()A	RL64SB8	.7500-16	.8750-9	.8046-.8071	.7257-.7430	-20	1.120	.995	1.310	.358	.191	.220	.141
SHF201-24SA()A	RL72SB8	.8750-14	1.0000-8	.9208-.9233	.8322-.8511	-22	1.250	1.120	1.500	.378	.191	.250	.141

NOTES:

- <1> DIMENSION "L" WILL BE THREADED ITS FULL LENGTH WHEN IT IS "C" DASH LENGTH OR SHORTER. FOR NUT END LENGTH, SEE PART NUMBER CODING.
- <2> THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A AS8879 CLASS 3B, FED-STD-H28/2 CLASS 3B, OR NATIONAL CLASS 3 TAPPED HOLE.
- <3> 2 MAX INCOMPLETE THREADS.
- <4> MATING LOCKRING IS NOT INCLUDED WITH STUD. IT MUST BE ORDERED SEPARATELY.

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N/R1	10/8/2018	117431

APPROVED DATE 10/24/07	CURRENT DESIGN ACTIVITY: ARCONIC Arconic Fastening Systems	TITLE: STUD, RINGLOCKED, HYDRAULIC, 150 PSI	CURRENT DESIGN ACTIVITY: CAGE CODE: 83324
REV. LETTER AND DATE N/R 10/24/07	Rosan Products 3018 W. Lomita Blvd. Torrance, California 90505-5103	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	SALES DRAWING NO.
DAF NUMBER 80369		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHF() SERIES
			SHEET 1 OF 5

MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE
WITHOUT WRITTEN CONSENT IS ABSOLUTELY PROHIBITED

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TABLE II


CODE	MATERIAL	SPECIFICATION	HEAT TREAT	FINISH
SA <5>	4130 STEEL	AMS-S-6758	125 KSI UTS MIN	CAD PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3
SB	1117 STEEL	ASTM A108	NONE	
SM	303 Se CRES	ASTM A582 OR AMS 5640	NONE	PASSIVATE PER AMS 2700
SN	4340 STEEL	AMS 6415 OR AMS 6484	160-180 KSI UTS	CAD PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3
	4140 STEEL	AMS 6382		
SU <5>	A286 CRES	AMS 5731, AMS 5732, AMS 5734, OR AMS 5737	130 KSI UTS MIN	PASSIVATE PER AMS 2700
S3	718 CRES	AMS 5662	180 KSI UTS MIN	PASSIVATE PER AMS 2700, TYPE 2
TA	6Al-4V TITANIUM	MIL-T-9047, COND A OR AMS 4967	130 KSI UTS MIN	NONE <6>
TB	6Al-4V TITANIUM	AMS 4967	160 KSI UTS MIN	
A	8740 STEEL	AMS 6322	160 KSI UTS MIN	CAD PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3
B	8740 STEEL		180 KSI UTS MIN	CAD PLATE PER AMS 2401-1
C	A286 CRES	AMS 5731, AMS 5732, AMS 5734, OR AMS 5737	140 KSI UTS MIN	CLEAN AND DESCALE PER ASTM A380 PASSIVATE PER AMS 2700 OR ASTM A380
D	INCONEL 718	AMS 5662	180 KSI UTS MIN	CLEAN AND DESCALE PER ASTM A380 PASSIVATE PER AMS 2700 OR ASTM A380

NOTES: (CONTINUED)

<5> NOTED CODES INDICATE STANDARD MATERIALS.

<6> FOR TITANIUM WITH ANODIC TREATMENT PER AMS 2488, TYPE 2, ADD SUFFIX E0301 TO STUD PART NUMBER.

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REV. LETTER AND DATE N/R 10/24/07			SALES DRAWING NO.
DAF NUMBER 80369		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	SHF () SERIES
		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHEET 2 OF 5

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TABLE III

STUD PART NUMBER REF	COUNTERBORE TOOL PART NUMBER	BASIC TAP SIZE <7> REF	WRENCH PART NUMBER	LOCKRING DRIVE TOOL PART NUMBER	REMOVAL TOOL PART NUMBER
SHF101-9SA()A	RC24-257	.3125-18UNC	R1105W	S101D12	BT309
SHF111-11SA()A	RC28-312	.3750-16UNC	R1106W	S111D12	BT1436
SHF121-12SA()A	RC33-368	.4375-14UNC	R1107XW	S121D12	BT308
SHF131-13SA()A	RC38-422	.5000-13UNC	R1108W	S131D14	BT1567
SHF144-14SA()A	RC47-535	.6250-11UNC	R1110W	S141D14	BT1568
SHF151-16SA()A	RC47-535	.6250-11UNC	R1110W	S151D16	BT1569
SHF161-18SA()A	RC56-656	.7500-10UNC	R1111W	S161D16	BT8063
SHF181-21SA()A	RC64-765	.8750-9UNC	R1112W	S181D18	BT8064
SHF201-24SA()A	RC72-875	1.0000-8UNC	R1113W	S201D20	BT8065

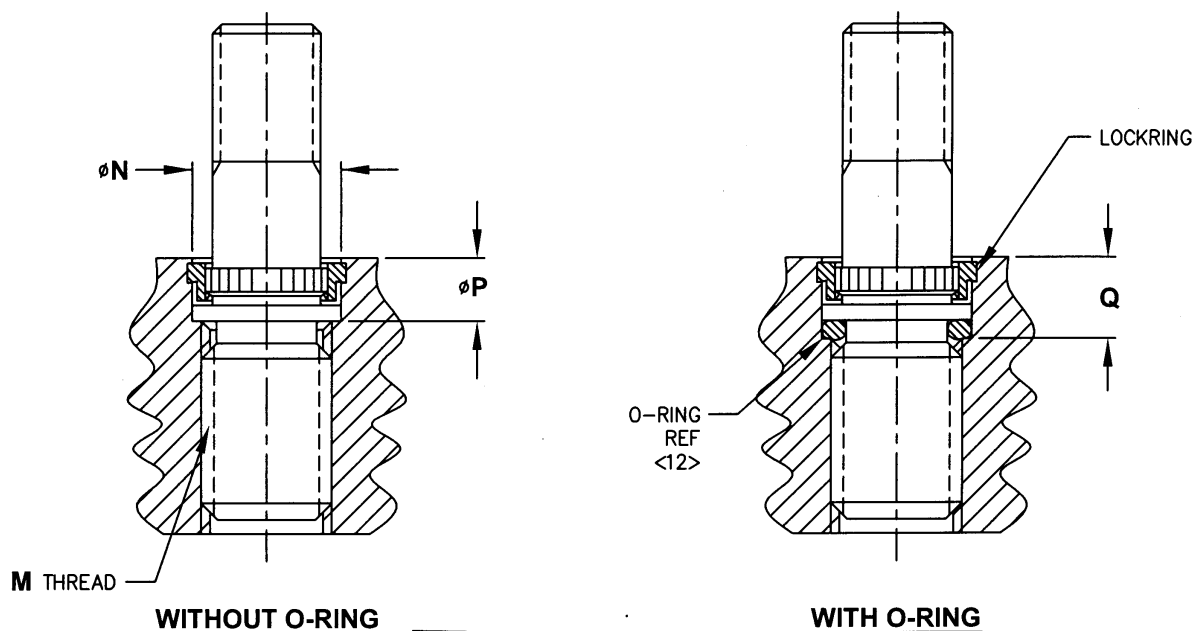
NOTES: (CONTINUED)

(7) TAPS ARE NOT SUPPLIED BY ALCOA.

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REV. LETTER AND DATE N/R 10/24/07	Rosan Products 3018 W. Lomita Blvd. Torrance, California 90505-5103	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	SALES DRAWING NO.
DAF NUMBER 80369		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHF() SERIES
			SHEET 3 OF 5

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TABLE IV

STUD PART NUMBER REF	M THREAD CLASS-3B <9>	ϕN <8> +.003 -.000	P CBORE DEPTH <10>	Q CBORE DEPTH <11>	TAP DRILL SIZE REF	O-RING SIZE REF <12>
SHF101-9SA()A	.3125-18UNJC	.375	.148	.195	.257	AS568-010
SHF111-11SA()A	.3750-16UNJC	.437	.157	.205	.312	AS568-011
SHF121-12SA()A	.4375-14UNJC	.515	.186	.230	.368	AS568-012
SHF131-13SA()A	.5000-13UNJC	.593	.186	.255	.422	AS568-110
SHF144-14SA()A	.6250-11UNJC	.734	.201	.274	.535	AS568-112
SHF151-16SA()A	.6250-11UNJC	.734	.201	.274	.535	AS568-112
SHF161-18SA()A	.7500-10UNJC	.875	.201	.274	.656	AS568-115
SHF181-21SA()A	.8750-9UNJC	1.000	.201	.305	.765	AS568-210
SHF201-24SA()A	1.0000-8UNJC	1.125	.201	.305	.875	AS568-212

APPROVED DATE
10/24/07

REV. LETTER AND DATE

N/R 10/24/07

DAF NUMBER

80369

CURRENT DESIGN ACTIVITY:

**ARCONIC**

Arconic Fastening Systems

Rosan Products3018 W. Lomita Blvd.
Torrance, California 90505-5103

TITLE:

**STUD, RINGLOCKED,
HYDRAULIC, 150 PSI**UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES &
ASME Y14.5M TOLERANCES:ANGLES = $\pm 3^\circ$
DECIMALS .XX = $\pm .02$
.XXX = $\pm .010$

CURRENT DESIGN ACTIVITY:

CAGE CODE: 83324

SALES DRAWING NO.

SHF() SERIES

SHEET 4 OF 5


MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE
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NOTES:

- <8> "B" DIAMETER AND MINOR DIAMETER OF THREAD TO BE CONCENTRIC WITHIN .003 FIM.
- <9> THREAD AS SHOWN PER AS8879 IS PREFERRED. ALTERNATE THREAD PER FED-STD-H28/2 CLASS-3B OR NATIONAL CLASS 3 IS APPLICABLE WHEN SPECIFIED BY DESIGN ACTIVITY.
- <10> WITHOUT O-RING: USE FOR DUST AND FOREIGN MATTER EXCLUSION. INSTALL PART UNTIL FLANGE IS SEATED IN COUNTERBORE. DO NOT USE EXCESSIVE WRENCH TORQUE.
- <11> WITH O-RING: USE TO EFFECT FLUID SEAL FOR PRESSURES UP TO 150 PSI. SEE NOTE 13. INSTALL PART UNTIL TOP SERRATED FLANGE IS .010 TO .020 BELOW SURFACE.
- <12> O-RING MUST BE SPECIFIED SEPARATELY AND SHALL BE SELECTED BASED ON SYSTEM FLUID AND TEMPERATURE AND ARE NOT SUPPLIED BY ALCOA. O-RING SIZES PER AS 568. WITH PROPER INSTALLATION AND PROPER CHOICE OF O-RING, FLUID SEAL UP TO 150 PSI WILL BE EFFECTED.
13. DRIVE LOCKRING FROM .005 TO .010 BELOW MATERIAL SURFACE.

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REV. LETTER AND DATE N/R 10/24/07 N/R			SALES DRAWING NO.
DAF NUMBER 80369	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHF() SERIES SHEET 5 OF 5