Fairchild Fasteners

Santa Ana Operations

Fluid Boss Adapters - RF5000 Series for 3000, 4000 and 5000 PSI systems

INTRODUCTION

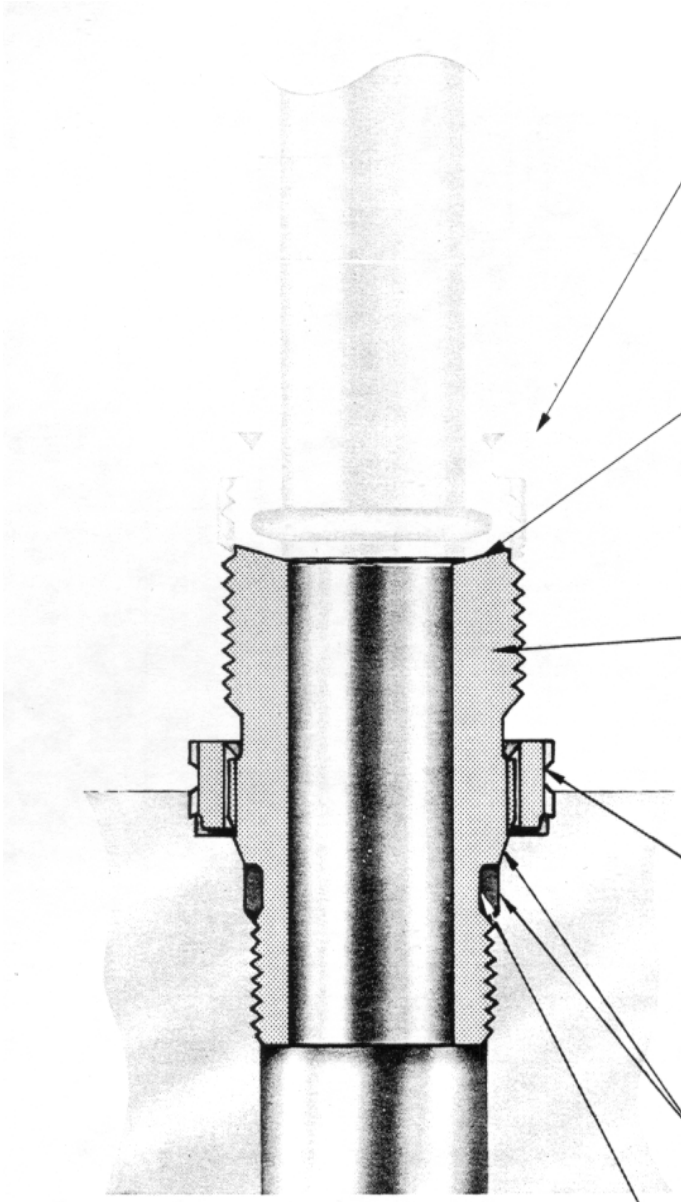
ROSÁN IS A COMPANY WITH OVER FORTY YEARS OF CREATIVE DESIGN, DEVELOPMENT AND MANUFACTURING EXPERIENCE.
OUR OBJECTIVE IS TO PROVIDE CUSTOMERS WITH PRODUCTS THAT EXHIBIT SIMPLE, RELIABLE AND MAINTENANCE FREE SOLUTIONS TO THEIR FASTENING AND FLUID SYSTEM PROBLEMS.

INDEX

TOOLING AND INSERT DIMENSIONS IN THIS CATALOG ARE PROVIDED FOR ENVELOPE AND DINSPECTION PUPOSES ONLY AND DO NOT INCLUDE DIMENSIONS NECESSARY FOR FABRICATION OF PRODUCT.

FORM 74-030-2 (REV F 92-03-15)

FEATURES AND BENEFITS OF THE ROSAN RF5000-13 SERIES ADAPTER



BEAM SEAL COUPLING NUT
ATTACHED TO
ROSÁN RF5000-13 ADAPTER

The RF5000-13 Series is qualified for 3000 PSI, 4000 PSI and 5000 PSI hydraulic systems.

ONLY ONE WRENCH is required to tighten or remove the coupling nut. This saves time when components are assembled and removed.

The RF5000-13 Series (AS1986) is made to mate with a beam seal. Metric adapters compatible with beam seals are also available (Aerospace Standard MA2111).

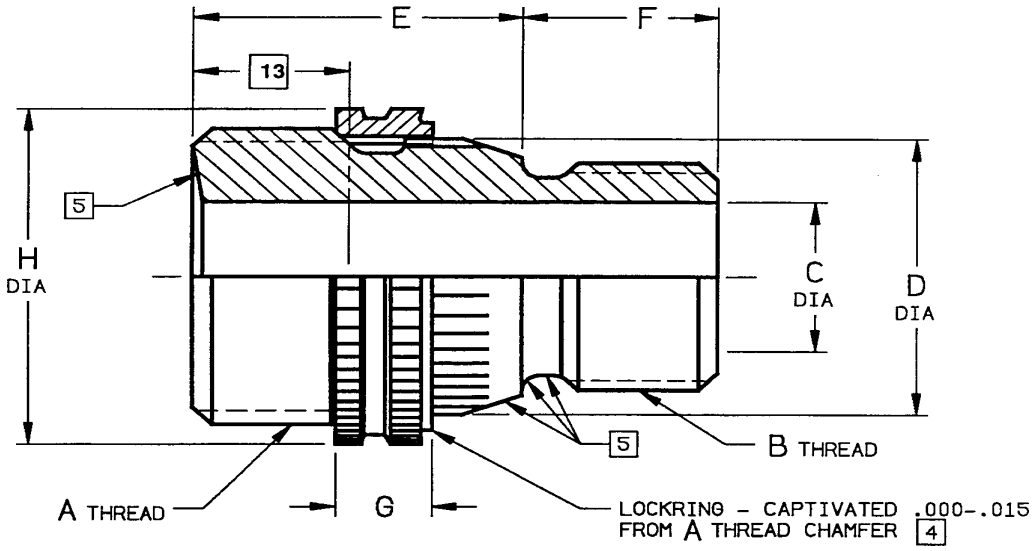
The RF5000-13 Series are the lightest boss adapters available. They are made of high strength titanium which provides more payload capability.

The captive and removable Rosan lockring provides assembly cost savings as no lock wiring is required. The lockring eliminates adapter rotation in the port and prevents port damage at tubing installation due to torquing.

Primary seal is metal to metal. Secondary seal is standard elastomeric O-ring.

The unique neck design provides dynamic tension at temperatures ranging from -65°F to +275°F which insures zero leakage. This helps keep maintenance cost at a minimum in your hydraulic system.

Also available is a RFK9800 (AS1985) and RFK9900 (AS4099) series catalog describing Rosan adapters with "MS" tube ends.



ADAPTER PART NUMBER	AS IDENT NUMBER	TUBING OD	A THREAD MIL-S-8879 CLASS 3A	B THREAD MIL-S-8879 CLASS 3A	C DIA	D DIA REF	E +.010 -.005	F +.000 -.015	G ±.007	H DIA ±.005
RF5002-13	AS1986-02	1/8	.3125-32UNJEF	.2160-28UNJF	.090-.096	. 317	.519	.300	.192	.400
RF5003-13	AS1986-03	3/16	.3750-28UNJS	.2500-28UNJF	.122-.128	. 349	.550	.355	.192	.468
RF5004-13	AS1986-04	1/4	.4375-24UNJS	.3125-24UNJF	.169-.175	. 400	.592	.355	.192	.514
RF5005-13	AS1986-05	5/16	.5000-24UNJS	.3750-24UNJF	.231-.237	. 491	.592	.381	.192	.624
RF5006-13	AS1986-06	3/8	.5625-20UNJS	.4375-20UNJF	.294-.300	. 544	.633	.395	.210	.700
RF5008-13	AS1986-08	1/2	.7188-28UNJS	.5625-18UNJF	.398-.408	. 670	.646	.430	.210	.814
RF5010-13	AS1986-10	5/8	.8438-18UNJS	.6875-24UNJEF	.493-.503	. 824	.710	.465	.210	1.040
RF5012-13	AS1986-12	3/4	1.0000-16UNJ	.8125-20UNJEF	.604-.614	. 981	.760	.527	.220	1.170
RF5014-13	AS1986-14	7/8	1.1250-16UNJ	.9375-20UNJEF	.729-.739	1.118	.778	.572	.220	1.341
RF5016-13	AS1986-16	1	1.2500-14UNJS	1.1250-18UNJEF	.839-.851	1.251	.808	.564	.220	1.456
RF5020T13	AS1986-20	1-1/4	1.5781-14UNJS	1.3125-18UNJEF	1.073-1.086	1.466	.832	.569	.240	1.782
RF5024T13	AS1986-24	1-1/2	1.6438-14UNJS	1.6250-18UNJEF	1.307-1.320	1.768	.917	.608	.240	2.031

NOTES: UNLESS OTHERWISE SPECIFIED

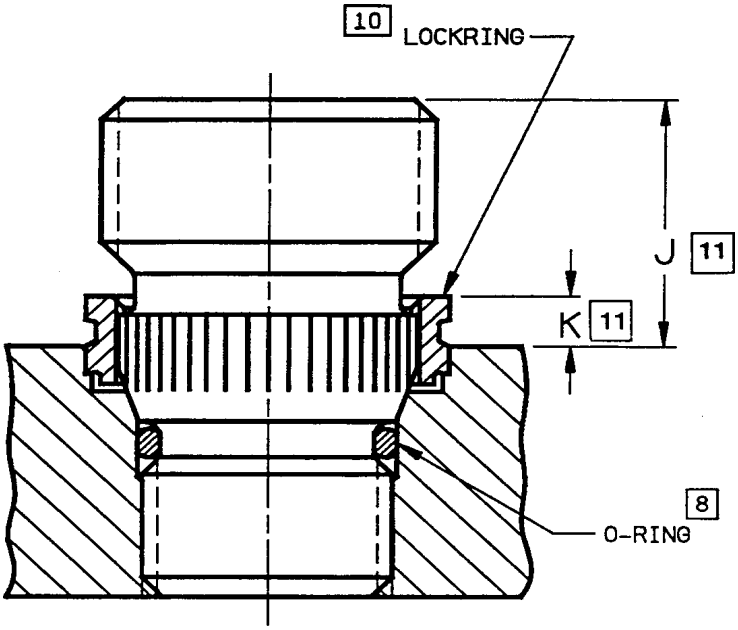
1. MATERIAL: Adapter: 6Al-4V titanium per AMS4928, AMS4965 OR AMS4967, 130 KI UTS min.
   Locking ; A286 corrosion resistant steel per AMS5731 or AMS5734m 34-40 HRC.
2. FINISH: Adapter: Anodic treatment per AMS2488, type 2.
3. All interior packages are marked per MIL-STD-129 and durably marked with the complete Rosán part number.

[4.] Lockring retained on adapter by controlled interference fit.

[5.] Sealing surface, do not mar, take care in handling.

ADAPTER - FLUID CONNECTION ASSY
BEAM SEAL
CAPTIVE LIFT-TYPE LOCKRING
5000PSI [7]

RF5000-13
SERIES



RF5000-13 ADAPTER
INSTALLED IN ROSAN PS10035 (AS1300) PORT
PER AS1301

ADAPTER PART NUMBER REF	O-RING NUMBER [8] REF	J [11] ±.020	K [11] MAX	ADAPTER WEIGHT lbs/100pcs APPROX
RF5002-13	AS568-007	.358	.124	0.72
RF5003-13	AS568-008	.389	.124	1.09
RF5004-13	AS568-010	.431	.124	1.32
RF5005-13	AS568-011	.431	.124	1.90
RF5006-13	AS568-012	.457	.130	2.44
RF5008-13	AS568-014	.470	.130	3.45
RF5010-13	AS568-016	.534	.130	5.78
RF5012-13	AS568-116	.584	.140	7.79
RF5014-13	AS568-118	.602	.140	10.03
RF5016-13	AS568-120	.632	.140	12.45
RF2020T13	AS568-123	.629	.140	17.80
RF5024T13	AS568-128	.714	.140	25.60

NOTES: (CONTINUED FROM PAGE 2)

6. The RF5000-13 series provides a semi-permanent male adapter for use in any fluid system compatible with titanium.

[7.] Adapters will qualify to a 3000PSI, 4000PSI and 5000PSI working pressure hydraulic system (-65°F to .+275° F depending on the type of O-ring selected).

[8.] O-ring sizes per AS568 must be specified separately and shall be selected based on system fluid temperature and are not supplied by Rosán.

9. These adapters are installed in standard Rosán ports per PS10035 of equivalent size in accordance with page 10 of this catalog.

[10.] The lockring is driven into the port counterbore after adapter has been torqued. The lockring eliminates adapter rotation in the port and prevents port damage at tubing installation due to torquing. One wrench is used to install or remove coupling nuts.

[11.] Dimensions are given for design purposes only; they are not to be used for installation verification.

12. Adapter removal is accomplished by lifting the lockring out of the port using a simple tool described on page 12.

[13.] Dimensions and finish of tubing end are per MIL-F-85720/1 except for RF5002-13 and flow hole diameters.

ADAPTER - FLUID CONNECTION ASSY
BEAM SEAL
CAPTIVE LIFT-TYPE LOCKRING

RF5000-13
SERIES

RF5000-13 SERIES
PORT AND SERRATION TOOLS

ADAPTER PART NUMBER REF	TUBING OD	ROSÁN PORT NUMBER PS10035	PORTING TOOL	ROSÁN BROACH TOOLS (1 REQUIRED ONLY)				
				HAND HELD	NON-IMPACT [1]	EDM	WOBBLE	CHIP REMOVAL TOOL NUMBER
RF5003-13	3/16	-03	RPT03	RFOPB5003	RFOPB5003HDB	RFOPB5003ED3 or RFOPB5003ED2	RFOPB5003WBA	RF03CR
RF5004-13	1/4	-04	RPT04	RFOPB5004	RFOPB5004HDB	RFOPB5004ED3 or RFOPB5004ED2	RFOPB5004WBA	RF04CR
RF5005-13	5/16	-05	RPT05	RFOPB5005	RFOPB5005HDB	RFOPB5005ED3 or RFOPB5005ED2	RFOPB5005WBA	RF05CR
RF5006-13	3/8	-06	RPT06	RFOPB5006	RFOPB5006HDB	RFOPB5006ED3 or RFOPB5006ED2	RFOPB5006WBA	RF06CR
RF5008-13	1/2	-08	RPT08	RFOPB5008	RFOPB5008HDB or RFOPB5008HDC	RFOPB5008ED3 or RFOPB5008ED2	RFOPB5008WBA	RF08CR
RF5010-13	5/8	-10	RPT10	RFOPB5010	RFOPB5010HDB or RFOPB5010HDC	RFOPB5010ED3 or RFOPB5010ED2	RFOPB5010WBA	RF10CR
RF5012-13	3/4	-12	RPT12	RFOPB5012	RFOPB5012HDB or RFOPB5012HDC	RFOPB5012ED3 or RFOPB5012ED2	RFOPB5012WBA	RF12CR
RF5014-13	7/8	-14	RPT14	RFOPB5014	RFOPB5014HDB or RFOPB5014HDC	RFOPB5014ED3 or RFOPB5014ED2	RFOPB5014WBA	RF14CR
RF5016-13	1	-16	RPT16	RFOPB5016	RFOPB5016HDB or RFOPB5016HDC	RFOPB5016ED3 or RFOPB5016ED2	RFOPB5016WBA	RF16CR
RF5020T13	1-1/14	-20	RPT20	RFOPB5020	RFOPB5020HDB or RFOPB5020HDC	RFOPB5020ED3 or RFOPB5020ED2	RFOPB5020WBA	RF20CR
RF5024T13	1-1/12	-24	RPT24	RFOPB5024	RFOPB5024HDB or RFOPB5024HDC	RFOPB5024ED3 or RFOPB5024ED2	RFOPB5024WBA	RF24CR

NOTES: UNLESS OTHERWISE SPECIFIED

[1] RFOPB5000HDB series recommended for use in most materials with hardness up to 40 HRC.

RF5000-13 SERIES
INSTALLATION AND REMOVAL TOOLS

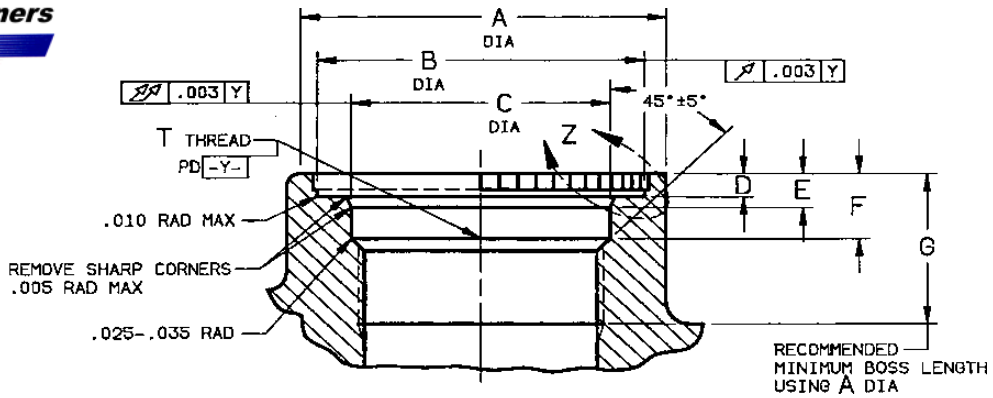
ADAPTER PART NUMBER REF	INSTALLATION TOOLS				LOCKRING REMOVAL TOOL NUMBER [4]
	O-RING INSTALLATION TOOL NUMBER	COMBINATION WRENCH AND DRIVE TOOL NUMBER [3]	WRENCH PART NUMBER	LOCKRING DRIVE TOOL NUMBER [2]	
RF5002-13	ORT216	RF5002DW	RF6902W	RF9802DEK	RFO2LPDE
RF5003-13	ORT250	RF5003DW	RF6903W	RF9803DEK	RF03LPDE
RF5004-13	ORT312	RF5004DW	RF6904W	RF9804DEK	RF04LPDE
RF5005-13	ORT375	RF5005DW	RF6905W	RF9805DEK	RF05LPDE
RF5006-13	ORT437	RF5006DW	RF6906W	RF9806DEK	RF06LPDE
RF5008-13	ORT562	RF5008DW	RF6908W	RF9808DEK	RF08LPDE
RF5010-13	ORT687	RF5010DW	RF6910W	RF9810DEK	RF10LPDE
RF5012-13	ORT812	RF5012DW	RF6912W	RF9812DEK	RF12LPDE
RF5014-13	ORT937	RF5014DW	RF6914W	RF9814DEK	RF14LPDE
RF5016-13	ORT1125	RF5016DW	RF6916W	RF9816DEK	RF16LPDE
RF5020T13	ORT1312	RF5020TDW	RF6920W	RF9820DEK	RF20LPDE
RF5024T13	ORT1625	RF5024DW	RF6924W	RF9824DEK	RF24LPDE

NOTES: CONTINUED

[2] Lockring drive tool RF9800dek series supersedes the RF9800D and RF9800DE series.

[3] The combination wrench and lockring drive tool RF5000DW series may be used in place of the wrench and lockring drive tool shown for basic RF5000 series adapters but not on reducers, restrictors, filters or quick disconnects.

[4] Lockring removal tool RF()LPDE series supersedes RF5000LPD series and will remove all basic adapters, reducers, filters, and quick disconnects.



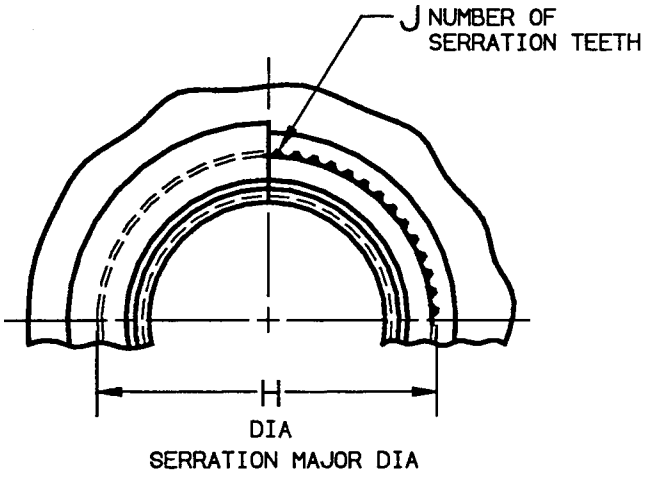
PORT NUMBER	AS IDENT NUMBER	T THREAD, MIL-S-8879 CLASS 3B		A MIN BOSS [1] DIA	B DIA +.003 -.000	C DIA +.002 -.000	D +.010 -.000	E +.005 -.000	F +.005 - .000	G MIN FULL THD DEPTH [1]
		THREAD SIZE	CONTROLLED MINOR DIA							
PS10035-02	AS1300-02	.2160-28	.1857	.50	.381	.254	.088	.153	.296	.507
		UNJF	.1827							
PS10035-03	AS1300-03	.2500-28	.2197	.62	.448	.286	.088	.153	.296	.568
		UNJF	.2167							
PS10035-04	AS1300-04	.3125-24	.2764	.68	.495	.339	.088	.153	.296	.568
		UNJF	.2734							
PS10035-05	AS1300-05	.3750-24	.3389	.79	.601	.401	.088	.153	.296	.594
		UNJF	.3359							
PS10035-06	AS1300-06	.4375-20	.3933	.85	.675	.464	.103	.168	.311	.631
		UNJF	.3903							
PS10035-88	AS1300-08	.5625-18	.5129	1.04	.784	.582	.103	.168	.311	.673
		UNJF	.5099							
PS10035-10	AS1300-10	.6875-24	.6514	.1.17	1.015	.725	.103	.168	.311	.693
		UNJEF	.6484							
PS10035-12	AS1300-12	.8125-20	.7683	1.42	1.139	.899	.103	.168	.343	.763
		UNJEF	.7653							
PS10035-14	AS1300-14	.9375-20	.8933	1.54	1.311	1.030	.103	.168	.343	.800
		UNJEF	.8903							
PS10035-16	AS1300-16	1.1250-18	1.0744	1.67	1.427	1.162	.103	.168	.343	.806
		UNJEF	1.0714							
PS10035-20	AS1300-20	1.3125-18	1.2629	1.98	1.750	1.387	.130	.195	.375	.838
		UNJEF	1.2599							
PS10035-24	AS1300-24	1.6250-18	1.5754	2.23	2.005	1.664	.130	.195	.375	.877
		UNJEF	1.5724		2.000					
PS10035-32	AS1300-32	2.1250-16	2.0657	2.86	2.521	2.202	.130	.236	.416	1.050
		UNJ	2.0627		2.516					

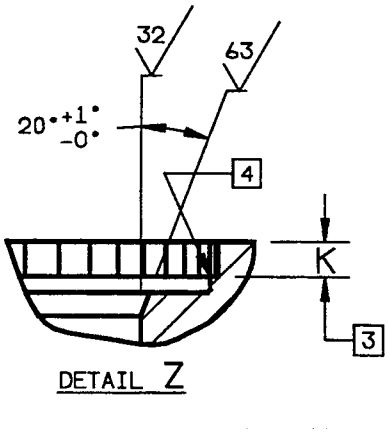
NOTES: UNLESS OTHERWISE SPECIFIED

[1] The minimum boss dia “A” and boss length “G” shown are satisfactory for use in materials that exhibit a minimum shear strength of 26ksi. The recommended design practices on page 8 and 9 should also be considered to resist axial loads developed by the system burst pressure requirements.

PORT, ROSÁN FLUID CONNECTION TYPE INTERNAL STRAIGHT THREAD

PS10035





PORT NUMBER	H DIA MIN	J NUMBER OF TEETH	K MIN
PS10035-02	.408	24	.061
PS10035-03	.478	26	.061
PS10035-04	.524	30	.061
PS10035-05	.635	36	.061
PS10035-06	.710	36	.073
PS10035-08	.826	40	.073
PS10035-10	1.052	38	.073
PS10035-12	1.182	40	.073
PS10035-14	1.354	50	.073
PS10035-16	1.471	36	.073
PS10035-20	1.795	56	.093
PS10035-24	2.045	81	.093
PS10035-32	2.561	102	.093

NOTES: CONTINUED:

2. Use of porting tool and broach tool specified on page 4 is mandatory to provide the required port. Drill .015-.030 smaller than thread controlled minor dia specified. The porting tool will size the minor dia and provide balance of cavity configuration ready for broaching serrations. The broach tool specified will provide the proper serrations to complete the port.

[3] Ros n broach tools described on pages 21 through 26 must be used to produce proper serrations.
NOTE: When broaching into hard materials (40HRC and above) please contact Ros n Engineering Department or request Bulletin TSB91-0130.

[4] After serrations are broached, chip removal is required; refer to page 27.

PORT, ROSÁN FLUID CONNECTION TYPE INTERNAL STRAIGHT THREAD

PS10035

RECOMMENDED DESIGN PRACTICES
3000 PSI, 4000 PSI AND 5000 PSI SYSTEMS

The boss material must have a minimum shear strength (at maximum system temperature) per Table II to resist burst pressure (based on thread minimum shear engagement area shown in Table I). Also consider note [1] on page 6 when selecting boss material.

TABLE I

ADAPTER PORT END SIZE NUMBER REF [1]	A MIN SHEAR ENGAGEMENT AREA (IN[2]) [2]	B PORT C MAX PER PS10035 (PAGE 6)
-02	.0417	.256
-03	.0802	.288
-04	.0989	.341
-05	.1406	.403
-06	.1734	.466
-08	.2610	.584
-10	.3807	.727
-12	.4550	.901
-14	.6132	1.032
-16	.7312	1.164
-20	.8559	1.389
-24	1.2328	1.666

NOTES: UNLESS OTHERWISE SPECIFIED

[1] The port and size number refers to that part of the adapter number as follows: RF5006-13 and/or RF5006-04-13.
NOTE: In the reducer part number, the second group of numbers defines the tube end size of the adapter (see part number coding on page 14).

[2] Minimum Shear Engagement Area shown is the assembled dimensional value for the overall engaged area of port threads and the adapter threads. It does not represent a dimension of either of the members in an unassembled condition.

TABLE II

ADAPTER PORT END SIZE NUMBER REF [1]	C [3] AXIAL LOAD ON ADAPTER DEVELOPED BY 12,000 PSI HYDR PRESSURE (lbf)	D BOSS MATERIAL MIN Fsu(PSDI) REQUIRED AT SYSTEM MAX TEMP TO RESIST AXIAL LOAD C [6]	C [4] AXIAL LOAD ON ADAPTER DEVELOPED BY 16,000 PSI HYDR PRESSURE (lbf)	D BOSS MATERIAL MIN Fsu(PSI) REQUIRED AT SYSTEM MAX TEMP TO RESIST AXIAL LOAD C [6]	C [5] AXIAL LOAD ON ADAPTER DEVELOPED BY 20,000 PSI HYDR PRESSURE (lbf)	D BOSS MATERIAL MIN Fsu(PSI) REQUIRED AT SYSTEM MAX TEMP TO RESIST AXIAL LOAD C [6]
	3000 PSI SYSTEM		4000 PSI SYSTEM		5000 PSI SYSTEM	
-02	618	14,821	824	19,760	1,029	24,676
-03	782	9,751	1,043	13,005	1,303	16,247
-04	1,096	11,082	1,461	14,773	1,827	18,473
-05	1,531	10,889	2,041	14,517	2,551	18,143
-06	2,047	11,805	2,729	15,739	3,411	19,671
-08	3,214	12,315	4,286	16,422	5,357	20,525
-10	4,981	13,084	6,642	17,447	8,302	21,807
-12	7,651	16,816	10,201	22,420	12,752	28,026
-14	10,037	16,369	13,384	21,827	16,729	27,281
-16	12,770	17,465	17,026	23,285	21,283	29,107
-20	18,183	21,245	24,245	28,327	—	—
-24	26,159	21,220	34,879	28,293	—	—

NOTES: CONTINUED
[3] C = Area X Burst pressure = (.7854)($B^{[2]}$)(12,000)
[4] C = Area X Burst pressure = (.7854)($B^{[2]}$)(16,000)
[5] C = Area X Burst pressure = (.7854)($B^{[2]}$)(20,000)
[6] D = C/A

INSTALLATION AND REMOVAL (REF: AS1301) RF5000-13 SERIES

TABLE I: RF5000-13 SERIES ADAPTER INSTALLATION TORQUE VALUES

TUBING OD REF	ADAPTER BASIC NUMBER REF	ROSAN PORT NUMBER REF	O-RING NUMBER REF	INSTALLATION TORQUE lbf-in	
				MIN	MAX
1/8	RF5002	PS10035-02	AS568-007	15	20
3/16	RF5003	PS10035-03	AS568-008	29	36
1/4	RF5004	PS10035-04	AS568-010	50	65
5/16	RF5005	PS10035-05	AS568-011	100	125
3/8	RF5006	PS10035-06	AS568-012	140	200
1/2	RF5008	PS10035-08	AS568-014	270	375
5/8	RF5010	PS10035-10	AS568-016	620	700
3/4	RF5012	PS10035-12	AS568-116	855	945
7/8	RF5014	PS10035-14	AS568-118	995	1105
1	RF5016	PS10035-16	AS568-120	1140	1260
1-1/4	RF5020T	PS10035-20	AS568-123	1520	1680
1-1/2	RF5024T	PS10035-24	AS568-128	1900	210

PORT PREPARATION

1. Prepare boss and port per PS10035, pages 6 and 7. Drill thruor to depth specified on applicable drawing. Use a drill with a diameter .015-.030 smaller than that specified as the minor diameter on PS10035 standard. This will allow the Rosan RPT porting tool to finish the minor diameter of the port thread to the sizes required for piloting of the broach tool.

O-RING INSTALLATION

2. Place the O-ring installation tool over the port end thread of the adapter. Submerge the tool and O-ring in the fluid to be used in the working system, or a lubricant compatible with the system fluid. Slide the O-ring over the tool and onto the adapter. Insure that the O-ring is not twisted and is properly seated in the groove of the adapter. See figure 1.

3. Remove the O-ring installation tool.

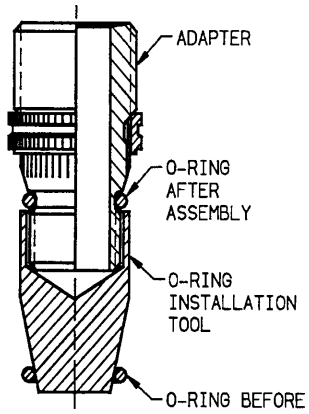


FIGURE 1

ADAPTER INSTALLATION

4. Lubricate the internal surfaces of the port and the entire adapter assembly using same fluid or lubricant as in note 2. Scratches, nicks or rough spots are allowed in O-ring contact area on the adapter or in the port.

5. Insert the O-ring end of the adapter into port by hand in a clockwise direction until the adapter is seated. To avoid possible O-ring damage, the adapter should not be rotated in a counterclockwise direction.

6. Using the applicable combination wrench and drive tool on page 5, engage the serrations of the tool with the external serrations of the adapter lockring per Figure 2. Place a torque wrench of the proper size over the hex of the wrench and apply a torque equal to the minimum value specified by the size in TABLE I. Note the relationship of the serration of the lockring with respect to the prebroached serrations in the port. If they match, proceed to 7. If the serrations do not match, continue to slowly torque the adapter toward the maximum value allowed in TABLE I until the serration of the lockring match the port serrations. This will normally take between 3ø and 8ø of turning and the maximum torque value need not to be reached if the serrations align themselves prior to that value. Do not exceed maximum torque values.

(NOTE: WHEN USING SEPARATE WRENCH AND DRIVE TOOL, SEE ALTERNATE INSTALLATION PROCEDURE ON PAGE 13 FOR SIZES SHOWN IN TABLE I)

7. Degrease and apply enough zinc chromate primer (TT-P-1757) with a brush or small syringe to the counterbore area of the port and below the adapter lockring so primer will be extruded out between external serrations of the lockring and the serrations in the port when lockring is installed. Note: Using design activity may specify another primer in place of or in addition to zinc chromate.

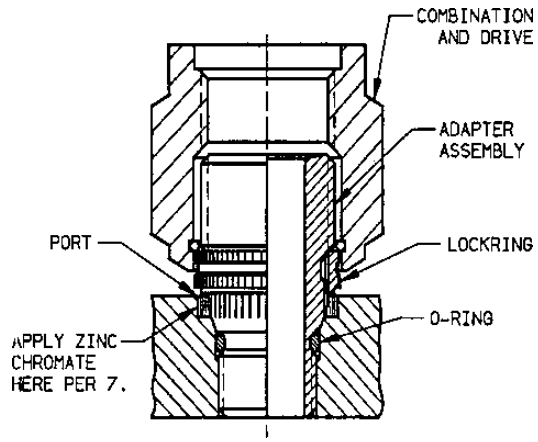


FIGURE 2
TORQUING ADAPTER ASSEMBLY

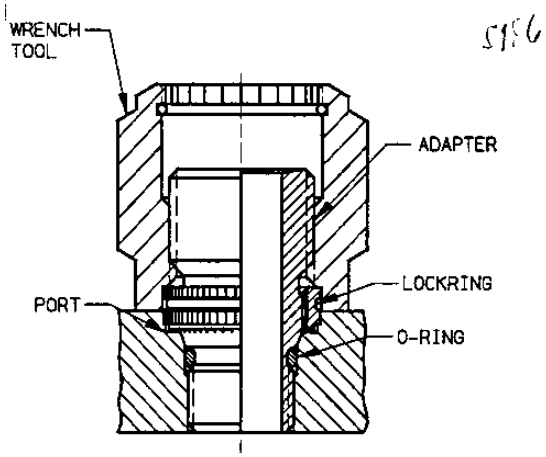


FIGURE 3
LOCKRING INSTALLATION

8. While the zinc chromate or sealant applied per 7 is still wet, install the lockring by rotating the thread end of the combination wrench and drive tool clockwise onto the adapter assembly until it touches the lockring. Place an open end or socket wrench on the tool, turn the tool in a clockwise direction until it bottoms on the boss surface as shown in Figure 3. Observe that the tool has bottomed. (DO NOT OVER TORQUE - PORT DAMAGE AN RESULT!)

CAUTION: Any sudden increase in torque prior to bottoming may indicate that the lockring serrations and the port serrations are not aligned. If this occurs, remove wrench and drive tool by turning counterclockwise. Lift the lockring (per paragraphs 11, 12 and 13 on page 12). Torque adapter clockwise per paragraph 6 until serrations in port and the external serrations on the lockring are aligned. Again attempt to install lockring. Remove excess sealant on surface of boss and lockring.

PRESSURE TESTING

9. A proof pressure test of the unit may be conducted at this point. Place a pressure cap on the adapter. Pressurize the unit from another location on the unit to 1.5 times the operating pressure for three (3) minutes. There shall be no leakage
NOTE: Using design activity may require testing other than shown.

ADAPTER REMOVAL

10. If a sealant has been used to cover lockring, carefully remove sealant to expose lockring.

11. Select the proper size lockring removal tool from page 5.

12. Spread the puller halves apart by retracting the sleeve from the tool until the pin bottoms in the groove of the sleeve per Figure 4. Holding the puller halves apart, place tool over protruding adapter. Release the puller halves and locate in the groove of the lockring. Adjustment up or down is achieved by turning the bolt head. Slide the sleeve over the puller halves and check for proper engagement of the puller halves in the lockring groove.

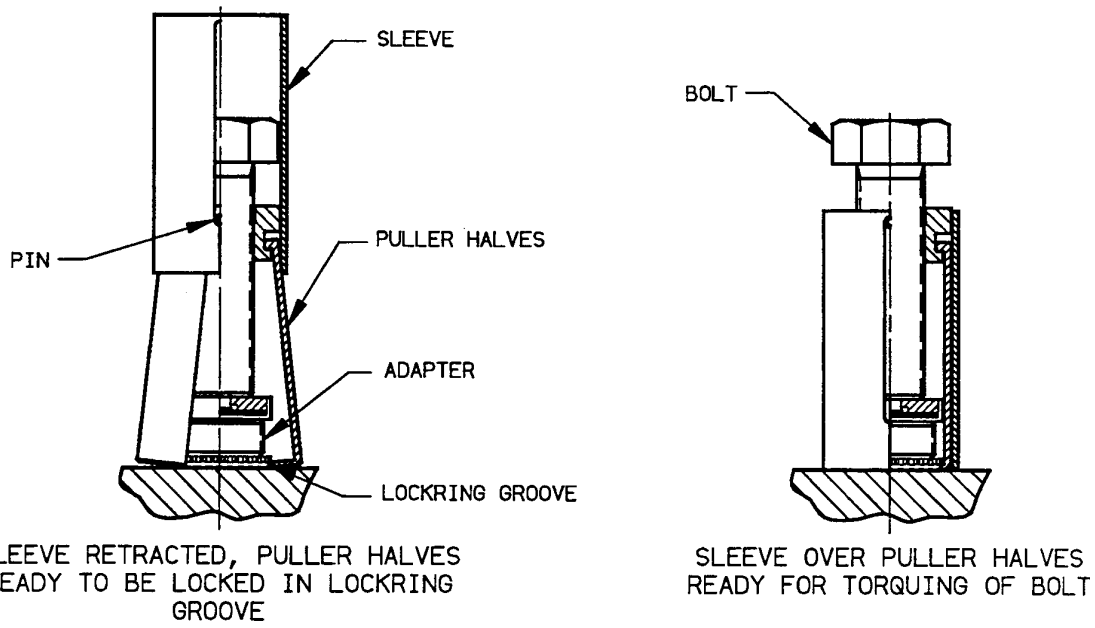


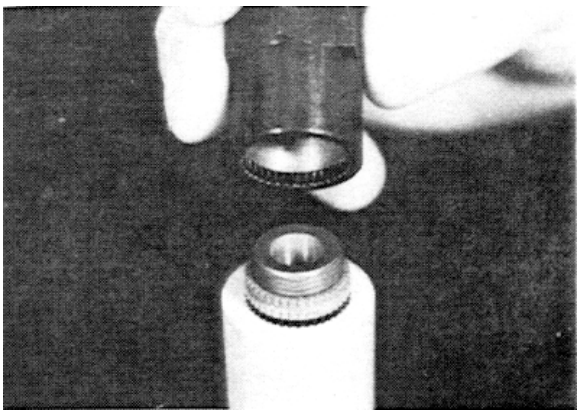
FIGURE 4
LOCKRING RETRACTION

13. Place wrench on the bolt head of the removal tool and turn in a clockwise direction while holding the sleeve with other hand. This action will cause the lockring to be jacked out of the port counterbore. When the external serrations of the lockring are clear of the boss surface, the turning may be stopped. Remove the tool from the adapter by loosening the bolt and lifting the sleeve to free the puller halves.

14. Select the proper size combination wrench and drive tool from page 5. Engage the serrations of the wrench with those of the lockring. Using an open end or socket wrench over wrench hex, turn in a counterclockwise direction to disengage the adapter from the boss port. Plug the port minor diameter when cleaning out the cavity to avoid contamination of the fluid system.

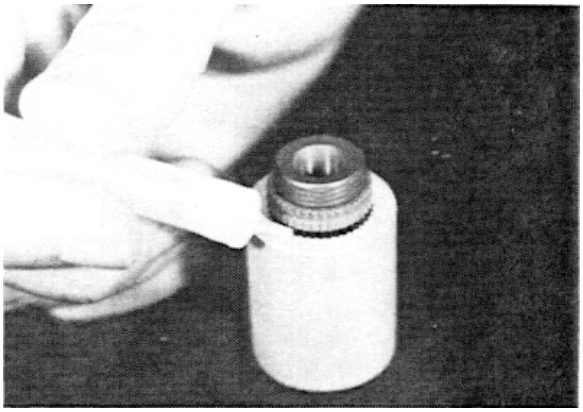
ALTERNATE INSTALLATION PROCEDURE RF5000-13 WHEN USING SEPARATE WRENCH AND DRIVE TOOL

A. Install O-ring and lubricate port per paragraph 1 thru 5 (page 10).

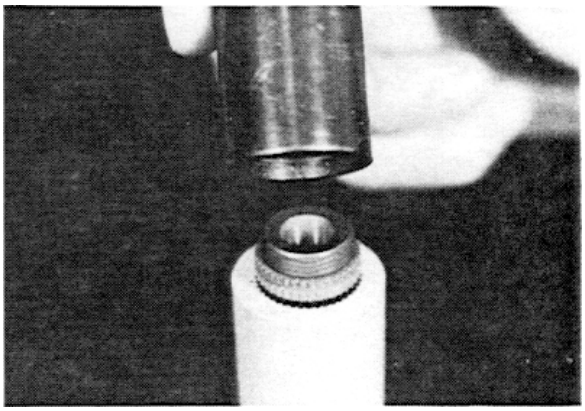


B. Using the RF6900W wrench in place of the RF9800DW combination wrench, install adapter per paragraph 6 (page 11).

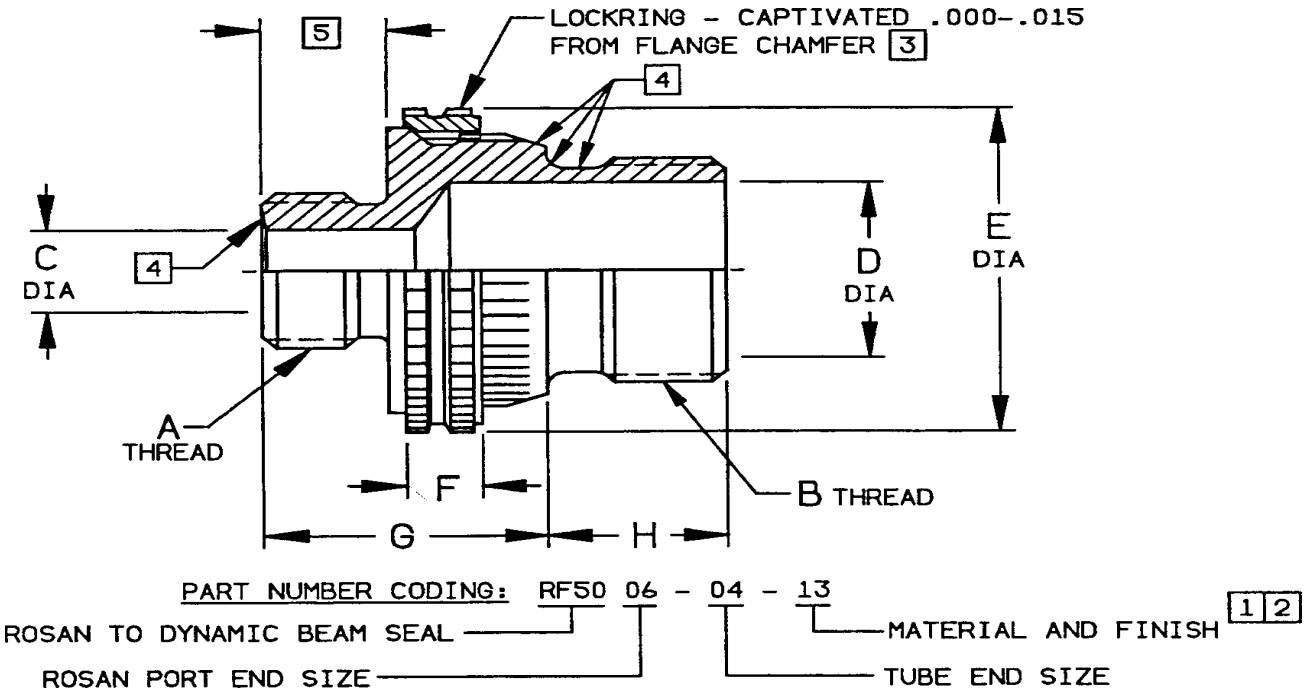
C. Prior to driving lockring, brush zinc chromate primer into cavity and around top of boss per paragraph 7 (page 11).



D. To drive the lockring, place the proper RF9800DEK tool over the adapter until it touches the lockring surface. A hammer, arbor or hydraulic press may be used to press the lockring into the boss. Installation is complete when the tool bottoms on the surface of the boss.



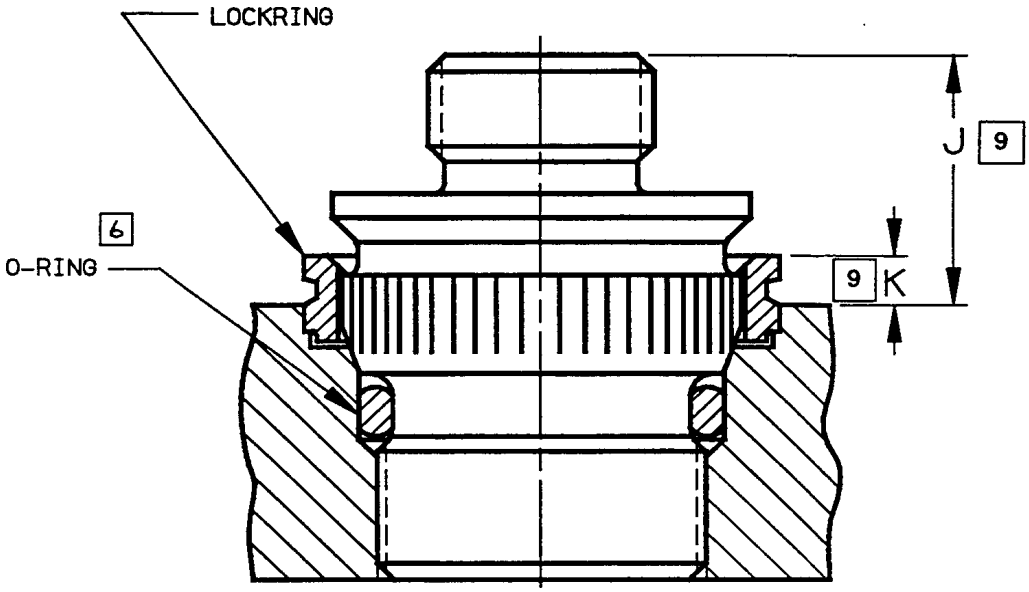
NOTE:
All check valves, quick disconnects, and most other special adapter configurations must use the RF6900W and RF9800DEK series tools for installation.



ADAPTER PART NUMBER	A THREAD MIL-S-8879 CLASS 3A	B THREAD MIL-S-8879 CLASS 3A	C DIA	D DIA ±.005	E DIA ±.005	F ±.007	G +.010 -.005	H +.000 -.01
RF5005-04-13	.4375-24UNJS	.3750-24UNJF	.184-.190	.232	.624	.192	.701	.381
RF5006-04-13	.4375-24UNJS	.4375-20UNJF	.184-.190	.295	.700	.210	.733	.395
RF5006-05-13	.500-24UNJS		.231-.237				.733	
RF5008-04-13	.4375-24UNJS		.184-.190				.734	
RF5008-05-13	.5000-24UNJS	.5625-18UNJF	.231-.237	.412	.814	.210	.734	.430
RF5008-06-13	.5625-20UNJS		.294-.300				.754	
RF5010-04-13	.4375-24UNJS		.184-.190				.738	
RF5010-06-13	.5625-20UNJS	.6875-24UNJEF	.294-.300	.498	1.040	.210	.758	.465
RF5010-08-13	.7188-20UNJS		.398-.408				.771	
RF5012-04-13	.4375-24UNJS		.184-.190				.731	
RF5012-05-13	.5000-24UNJS		.231-.237				.731	
RF5012-06-13	.5625-20UNJS	.8125-20UNJEF	.294-.300	.633	1.170	.220	.751	.527
RF5012-08-13	.7188-20UNJS		.398-.408				.764	
RF5012-10-13	.8438-18UNJS		.493-.503				.828	
RF5016-04-13	.4375-24UNJS		.184-.190				.744	
RF5016-10-13	.8438-18UNJS	1.1250-18UNJEF	.493-.503	.861	1.456	.220	.841	.564
RF5016-12-13	1.0000-16UNJ		.604-.614				.881	
RF5020-04-13	.4375-24UNJS		.184-.190				.751	
RF5020-12-13	1.0000-16UNJ	1.3125-18UNJEF	.604-.614	1.057	1.782	.240	.888	.569
RF5020-16-13	1.2500-14UNJS		.839-.851				.936	
RF5024-16-13	1.2500-14UNJS	1.6250-18UNJEF	.839-.851	1.297	2.031	.240	.957	.608
RF5024-20T13	1.5781-14UNJS		1.073-1.086				.954	

ADAPTER - REDUCER
ROSÁN TO BEAM SEAL
CAPTIVE LIFT-TYPE LOCKRING

RF5000-( )-13
SERIES



RF5000-()-13 ADAPTER
INSTALLED IN ROSAN PS10035 (AS1300) PORT

ADAPTER PART NUMBER REF	O-RING NUMBER [6] REF	J [9] ±.020	K [9] MAX
RF5005-04-13	AS568-011	.536	.124
RF5006-04-13 RF5006-05-13	AS568-012	.553 .553	.130
RF5008-04-13 RF5008-05-13 RF5008-06-13	AS568-014	.554 .554 .574	.130
RF5010-04-13 RF5010-06-13 RF5010-08-13	AS568-016	.558 .578 .591	.130
RF5012-04-13 RF5012-05-13 RF5012-06-13 RF5012-08-13 RF5012-10-13	AS568-116	.551 .551 .571 .584 .648	.140
RF5016-04-13 RF5016-10-13 RF5016-12-13	AS568-120	.564 .661 .701	.140
RF5020-04-13 RF5020-12-13 RF5020-16-13	AS568-123	.544 .681 .729	.140
RF5024-16-13 RF5024-20T13	AS568-128	.750 .747	.140

NOTES: UNLESS OTHERWISE SPECIFIED
[1] MATERIAL: Adapter: 6AI-4V titanium per AMS4928, AMS4965 or AMS4967,130 KSI UTS min.
Lockring: A286 corrosion resistant steel per AMS5731 or AMS5734, 34-40 HRC.
[2] FINISH: Adapter: Anodic Treatment per AMS2488, Type 2

Lockring: Passivate per QQ-P-35.
[3] Lockring retained on adapter by controlled interference fit.
[4] Sealing surface, do not mar, take care in handling.
[5] This end per MIL-F-85421 and compatible with dynamic beam seal.
[6] O-rings must be specified separately and shall be selected based on system fluid and temperature and are not supplied by Rosan. Dash numbers shown in the table conform to SAE standard (AS568) uniform dash numbering system.
7. Port preparation per Rosan PS10035 (Ref: AS1300).
8. For installation procedure see page 16 of this catalog.
[9] Dimensions are given for design purpose only; they are not to be used for installation verification.

ADAPTER - REDUCER
ROSÁN TO BEAM SEAL
CAPTIVE LIFT-TYPE LOCKRING

RF5000-( )-13
SERIES

ADAPTER - REDUCER
INSTALLATION AND REMOVAL

TABLE I

ADAPTER PART NUMBER	ROSAN PORT NUMBER REF	O-RING INSTL TOOL NUMBER	WRENCH PART NUMBER	LOCKRING DRIVE TOOL NUMBER	LOCKRING-REMOVAL TOOL NUMBER	TOOL KIT PART NUMBER REF[*]
RF5005-04-13	PS1035-05	ORT375	RF6905W	RF9805DEK	RF505LPDE	KM29
RF5006-04-13 RF5006-05-13	PS10035-06	ORT437	RF6906W	RF9806DEK	RF06LPDE	KM30
RF5008-04-13 RF5008-05-13 RF5008-06-13	PS10035-08	ORT562	RF6908W	RF9808DEK	RF08LPDE	KM13
RF5010-04-13 RF5010-06-13 RF5010-08-13	PS10035-10	ORT687	RF6910W	RF9810DEK	RF10LPDE	KM19
RF5012-04-13 RF5012-05-13 RF5012-06-13 RF5012-08-13 RF5012-10-13	PS10035-12	ORT812	RF6912W	RF9812DEK	RF12LPDE	KM31
RF5016-04-13 RF5016-10-13 RF5016-12-13	PS10035-16	ORT1125	RF6916W	RF9816DEK	RF16LPDE	KM14
RF5020-04-13 RF5020-12-13 RF5020-16-13	PS10035-20	ORT1312	RF6920W	RF9820DEK	RF20LPDE	KM15
RF5024-16-13 RF5024-20T13	PS10035-24	ORT1625	RF6924W	RF9824DEK	RF24LPDE	KM2

* KIT CONSISTS OF ONE EACH OF TOOLS SPECIFIED IN TABLE I

PORT PREPARATION

1. Prepare port per PS1035, pages 6 and 7. Drill through or to depth specified on applicable drawing. Use drill with a diameter .015-.030 smaller than that specified as the minor diameter on PS10035 standard. This will allow the Rosan RPT porting tool to finish the minor diameter of the port thread to the size required for piloting of the broach tool.

O-RING INSTALLATION

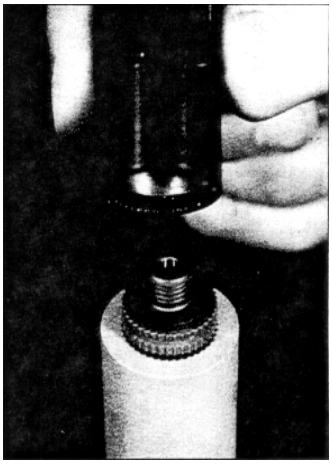
2. Assemble O-ring on the adapter. For details, see page 10.

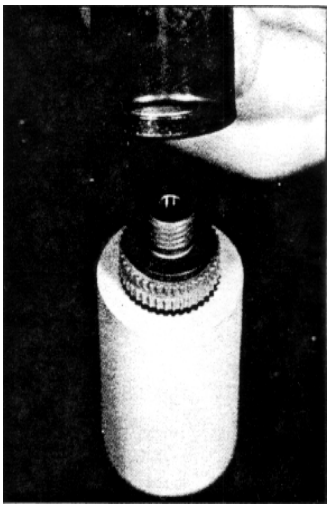
ADAPTER INSTALLATION

3. Install the adapter into PS10035 port. For details, see page 10, but use tooling per Table I above and torque values per Table II on page 17.
   Using the RF6900W wrench, engage the serrations of the tool with those on the external serrations of the adapter lockring.
4. Place a torque wrench over the hex of the RF6900W wrench. Apply torque equal to the minimum value specified in Table II on page 17.

TABLE II

ADAPTER PART NUMBER	O-RING NUMBER REF	INSTALLATION TORQUE lbf-in
RF5005-04-13	AS568-011	100-125
RF5006-04-13 RF5006-05-13	AS568-012	140-200
RF5008-04-13 RF5008-05-13 RF5008-06-13	AS568-014	270-375
RF5010-04-13 RF5010-06-13 RF5010-08-13	AS568-016	620-700
RF5012-04-13 RF5012-05-13 RF5012-06-13 RF5012-08-13 RF5012-10-13	AS568-116	855-945
RF5016-04-13 RF5016-10-13 RF5016-12-13	AS568-120	1140-1260
RF5020-04-13 RF5020-12-13 RF5020-12-13	AS568-123	1520-1680
RF5024-16-13 RF5024-20T13	AS568-128	1900-2100



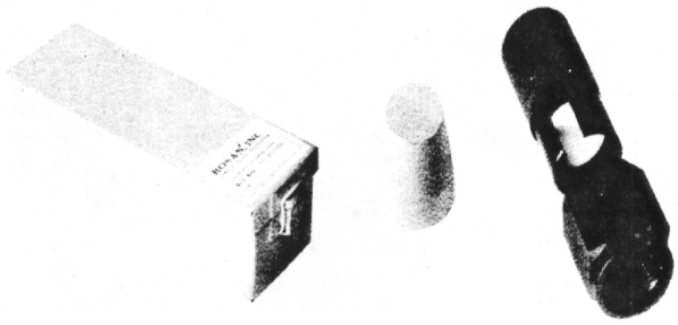


5. These adapters are specified by several prime contractors. They have released process specifications which differ from standard Rosan practice with respect to corrosion protection. It is suggested that specifications be reviewed for contract requirements. When no process specification has been specified, the following procedure should be used: apply zinc chromate primer per TT-P-1757 with a brush or small syringe to the counterbore area of the port. Do not allow the zinc chromate to dry.
6. Place the proper size RF9800DEK drive tool over the tube end of the adapter. When it is properly located it will rest on the lockring. A hammer, arbor or hydraulic press may be used to press the lockring into the boss. Installation is complete when the tool bottoms on the surface of the boss.

ADAPTER REMOVAL

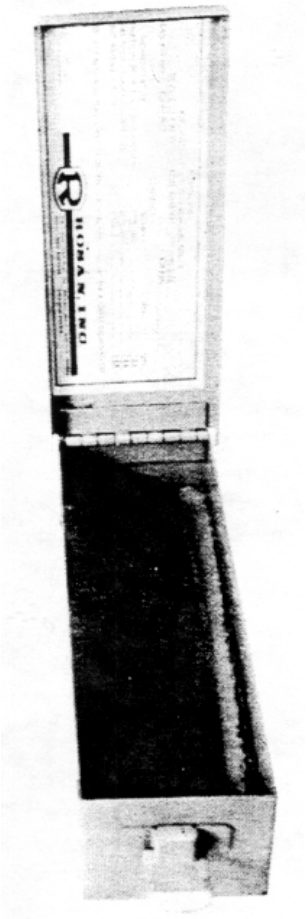
7. Choose the proper size RF()LPDE removal tool from TABLE I. Slide the sleeve up until the puller halves can be opened. Place the tool over the tube end of the adapter with the nylon pad resting on the top surface of the adapter. Locate the flange of the puller halves in the groove of the lockring and allow the sleeve to slide to its normal position. Turn the bolt head of the tool in a clockwise direction using a wrench. When the lockring serrations are clear of the boss surface the turning may be stopped.
8. Using the proper size RF6900W wrench, engage the serrations of the lockring. Place a socket or open-end wrench on the RF6900W wrench and turn in a counterclockwise direction until the adapter is free. Plug the port minor diameter when cleaning out the cavity to avoid contamination of the fluid system.

ADAPTER, TOOL KIT



KIT AND NATIONAL STOCK NUMBER

ADAPTER PART NUMBER REF	KIT PART NUMBER	KIT NATIONAL STOCK NUMBER (NSN)	KIT WEIGHT APPROX. (lbs)
RF5004-13	KM9RF5004	5180-00-785-5062	1.00
RF5005-13	KM9RF5005	————————	1.06
RF5006-13	KM9RF5006	5180-00-785-5063	1.12
RF5008-13	KM9RF5008	5180-00-785-5068	1.25
RF5010-13	KM9RF5010	5180-00-785-5069	1.50
RF5012-13	KM9RF5012	5180-00-785-5073	1.75
RF5014-13	KM9RF5014	————————	2.06
RF5016-13	KM9RF5016	5180-00-785-5080	2.25
RF5020T13	KM9RF5020T	5180-00-785-7033	3.00
RF5024T13	KM9RF5024T	————————	3.75



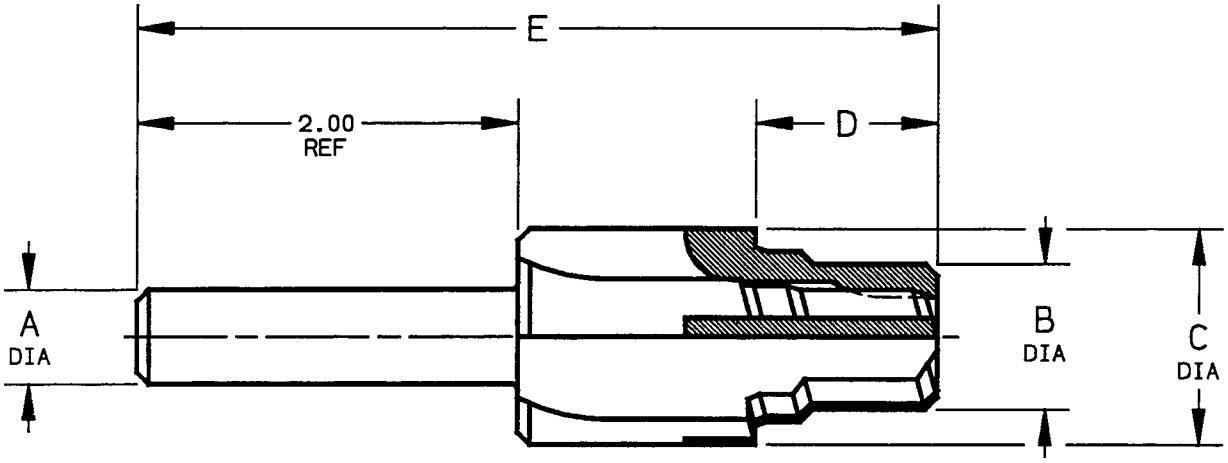
KIT CONTENTS (1 EACH)

KIT PART NUMBER	O-RING INSTL TOOL NUMBER	COMBINATION WRENCH AND DRIVE TOOL NUMBER	LOCKRING REMOVAL TOOL NUMBER
KM9RF5004	ORT312	RF5004DW	RF5004LPD
KM9RF5005	ORT375	RF5005DW	RF5005LPD
KM9RF5006	ORT437	RF5006DW	RF5006LPD
KM9RF5008	ORT562	RF5008DW	RF5008LPD
KM9RF5010	ORT687	RF5010DW	RF5010LPD
KM9RF5012	ORT812	RF5012DW	RF5012LPD
KM9RF5014	ORT937	RF5014DW	RF5014LPD
KM9RF5016	ORT1125	RF5016DW	RF5016LPD
KM9RF5020T	ORT1312	RF5020TDW	RF5020LPD
KM9RF5024T	ORT1625	RF5024TDW	RF5024LP

GENERAL USAGE TOOL KITS[2] FOR USE WITH ADAPTERS CHECK VALVES, FILTERS, QUICK DISCONNECTS AND REDUCERS

ROSAN PORT END SIZE	KIT PART NUMBER	KIT NATIONAL STOCK NUMBER	KIT CONTENTS (1 EACH)			
			O-RING INSTL TOOL NUMBER	WRENCH PART NUMBER	LOCKRING DRIVE TOOL NUMBER	LOCKRING REMOVAL TOOL NUMBER
02	KM35	5180-01-075-569	ORT216	RF6902W	RF9802DEK	RF02LPDE
03	KM36	5180-01-077-1577	ORT250	RF6903W	RF9803DEK	RF03LPDE
04	KM18	5180-00-283-6999	ORT312	RF6904W	RF9804DEK	RF04LPDE
05	KM29	5180-01-075-0765	ORT375	RF6905W	RF9805DEK	RF05LPDE
06	KM30 [1] KM22-640-2	5180-01-075-0766 5180-00-163-6640	ORT437	RF6906W	RF9806DEK	RF06LPDE
08	KM13 [1] KM22-660-2	5180-00-283-6993 5180-00-163-6637	ORT562	RF6908W	RF9808DEK	RF08LPDE
10	KM19 [1] KM22-680-2	5180-00-283-6989 5180-00-163-6633	ORT687	RF6910W	RF9810DEK	RF10LPDE
12	KM31	5180-01-077-1578	ORT812	RF6912W	RF9812DEK	RF12LPDE
14	KM32	5180-01-075-0767	ORT937	RF6914W	RF9814DEK	RF14LPDE
16	KM14 [1] KM22-612-2	5180-00-283-6992 5180-00-179-0067	ORT1125	RF6916W	RF9816DEK	RF16LPDE
20	KM15 [1] KM22-612-2	5180-00-283-6991 5180-00-163-6638	ORT1312	RF6920W	RF9820DEK	RF20LPDE
24	KM28	5180-01-075-0768	ORT1625	RF6924W	RF9824DEK	RF24LPDE
32	KM33	5180-01-075-5689	ORT2125	RF6932W	RF9832DEK	RF32LPDE
[3]	KM34	5180-01-263-917	[3]			

NOTES: UNLESS OTHERWISE SPECIFIED
[1] Kits are identical and interchangeable except for part numbers and National Stock Numbers.
[2] Tools in these kits are universal since they will install and remove RF5000, RFH5000, RF5700, RF7500, RFH7500, RF7700, RF9800, RFK9800, RF9900, RFK9900 and RFH9900 series adapters, reducers, check valves, filters and quick disconnects.
[3] KM34 is a multi use kit containing tooling for port end sizes 04 thru 32.



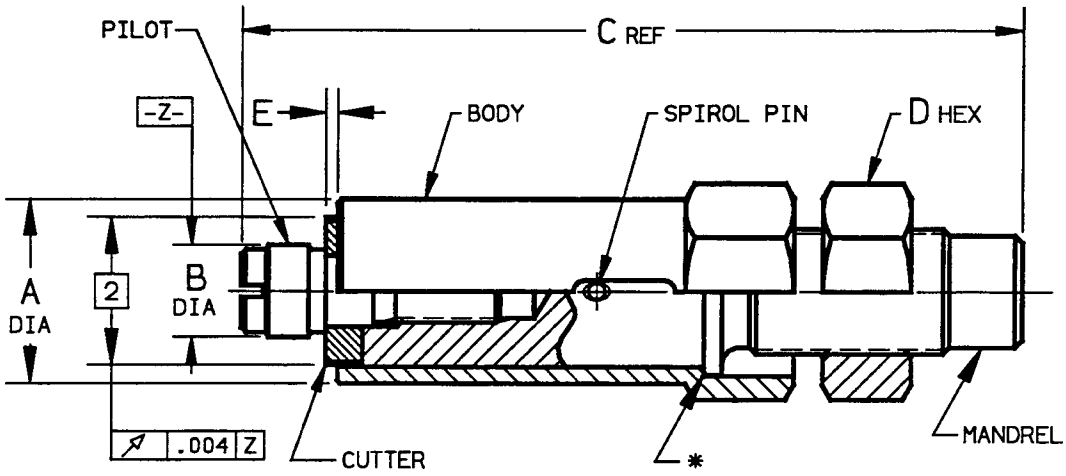
PORTING TOOL NUMBER	TUBING OD REF	A DIA +.0000 ±-.0003	B ±.0005	C ±0.0003	D ±.005	E ±.030	PORT THREAD MIL-S-8879 CLASS 3B REF	TO PRODUCE CONTOUR FOR PORT NUMBER
RPT02*	1/8	.3748	.1842	.3818	.610	4.000	.2160-28UNJF	PS10035.02
RPT3*	3/16	.3748	.2182	.4488	.670	4.000	.2500-28UNJF	PS10035-03
RPT04*	1/4	.4998	.2749	.4958	.700	4.000	.3125-24UNJF	PS10035-04
RPT05	5/16	.4998	.3374	.6018	.275	3.475	.3750-24UNJF	PS10035-05
RPT06	3/8	.4998	.3918	.6758	.785	3.535	.4375-20UNJF	PS10035-06
RPT08	1/2	.4998	.5114	.7848	.850	3.850	.5625-18UNJF	PS10035-08
RPT10	5/8	.4998	.6499	1.0158	.810	3.810	.6875-24UNJFEF	PS10035.10
RPT12	3/4	.4998	.7668	1.1398	.950	4.200	.8125-20UNJEF	PS10035-12
RPT14	7/8	.7498	.8918	1.3118	.987	4.240	.9375-20UNJEF	PS10035-14
RPT16	1	.7498	1.0729	1.4278	1.015	4.265	1.1250-18UNJFEF	PS10035-16
RPT20	1-1/4	.7498	1.2614	1.7508	1.090	4.520	1.3125-18UNJEF	PS10035-20
RPT24	1-1/2	.7498	1.5739	2.0008	1.205	4.560	1.6250-18UNJEF	PS10035-24
RPT32	2	.9998	2.0642	2.5185	1.480	4.765	2.1250-16UNJ	PS10035-32

***SOLID CARBIDE**

APPLICATION:
This tool counterbores, countersinks, provides a radius and produces a tap drill diameter in one pass. Contours are ground to insure concentricity. Cuter geometry permits the use of these tools with most common materials.

STANDARD PORT CONTOUR CUTTER
SHORT SERIES - CARBIDE TIPPED
PS10035 (AS1300) PORT

RPT( )
SERIES



BROACH TOOL NUMBER	CUTTER NUMBER [1]	A DIA ±.015	B DIA +.0000 -.0010	C REF	D HEX REF	E +.015 -.000	TO PRODUCE SERRATIONS FOR PORT NUMBER
RFOPB5002	RFOPB5002-3	.600	.1822	5.32	.62	.063	PS10035-02
RFOPB5003	RFOPB5003-3	.730	.2162	5.32	.75	.063	PS10035.03
RFOPB5004	RFOPB5004-3	.790	.2729	5.32	.81	.063	PS10035-04
RFOPB5005	RFOPB5005-3	.920	.3354	5.34	.94	.063	PS10035-05
RFOPB5006	RFOPB5006-3	.980	.3898	5.42	1.00	.075	PS0035-06
RFOPB5008	RFOPB5008-3	1.070	.5094	5.46	1.12	.075	PS10035-08
RFOPB5010	RFOPB5010-3	1.290	.6479	5.48	1.31	.075	PS10035-10
RFOPB5012	RFOPB5012-3	1.420	.7648	5.54	1.44	.075	PS10035-12
RFOPB5014	RFOPB5014-3	1.600	.8898	5.61	1.62	.075	PS10035-14
RFOPB5016	RFOPB5016-3	1.730	1.0719	5.62	1.75	.075	PS10035-16
RFOPB5020	RFOPB5020-3	2.040	1.2594	5.64	2.25	.095	PS10035-20
RFOPB5024	RFOPB5024-3	2.300	1.5719	5.65	2.50	.095	PS10035-24
RFOPB5032	RFOPB5032-3	2.810	2.0647	5.65	2.88	.095	PS10035-32

NOTES: UNLESS OTHERWISE SPECIFIED

[1] Replacement cutters may be purchased individually.

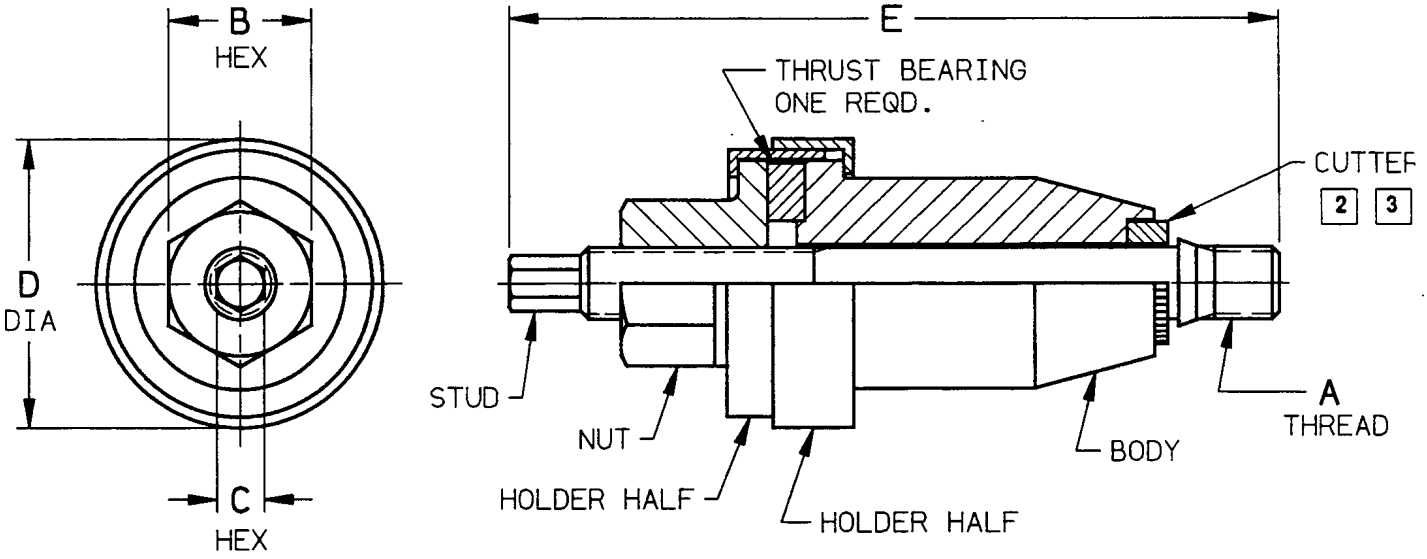
[2] Inspection of noted runout and use of controlled minor diameter per Rosan PS10035 port specification will provide an allowable maximum runout of .009 between serration major diameter and controlled minor diameter after broaching.

APPLICATION: This broach tool, when used in arbor, hydraulic presses or manually, is designed to produce serrations in the counterbore wall of ports prepared per PS10035. The tool will broach aluminum, magnesium, and many steels with hardnesses of 32 HRC or less. Successful broaching of harder or tougher material may be accomplished, but tool cutter wear is to be expected.

METHOD: The pilot is inserted into the tap drill hole of PS10035 port, and sufficient force applied to the top of the mandrel to allow the cutter to broach into the counterbore. When the external shoulder of the mandrel contacts the internal shoulder of the body*, broaching is complete. If cutter sticks in counterbore, turn the nut in a clockwise direction to extract the cutter. Caution: nut is for cutter removal only and is not a stop. Always back off nut when broaching. Hole can be tapped before or after broaching.

BROACH TOOL
HAND HELD
PS10035 PORT SERRATIONS

RFOPB5000
SERIES



BROACH TOOL NUMBER	CUTTER PART NUMBER [2] [3]	STUD PART NUMBER [4]	THRUST BEARING PART NUMBER	A THREAD MIL-S-8879 CLASS 3A	B HEX REF	C HEX REF	D DIA MAX	E ±.03	TO PRODUCE SERRATIONS FOR PORT NUMBER
RFOPB5002HDB	RFOPB5002HDB5	RFOPB5002HDB4	AXK0619TN	.2160-28UNJF	.500	.125	1.04	3.10	PS10035-2
RFOPB5003HDB	RFOPB5003HDB5	RFOPB5003HDB4	AXK0821TN	.2500-28UNJF	.625	.172	1.14	3.58	PS10035-3
RFOPB5004HDB	RFOPB5004HDB5	RFOPB5004HDB4	K81102TN	.3125-24UNJF	.750	.218	1.41	3.86	PS10035-4
RFOPB5005HDB	RFOPB5005HDD5	RFOPB5005HDB4	K81103TN	.3750-24UNJF	.750	.250	1.53	4.00	PS10035-5
RFOPB5006HDB	RFOPB5006HDB5	RFOPB5006HDB4	K81104TN	.4375-20UNJF	1.000	.312	1.85	4.71	PS10035-6
RFOPB5008HDB	RFOPB5008HDB5	RFOPB5008HDB4	K81105TN	.5625-18UNJF	1.000	.375	2.04	4.96	PS10035-8
RFOPB5010HDB	RFOPB5010HDB5	RFOPB5010HDB4	K81206TN	.6875-24UNJEF	1.000	.500	2.32	4.54	PS10035-10
RFOPB5012HDB	RFOPB5012HDB5	RFOPB5012HDB4	K81206TN	.8125-20UNJEF	1.125	.625	2.32	4.73	PS10035-12
RFOPB5014HDB	RFOPB5014HDB5	RFOPB5014HDB4	K81208TN	.9375-20UNJEF	1.250	.750	3.01	5.51	PS10035-14
RFOPB5016HDB	RFOPB5016HDB5	RFOPB5016HDB4	K81208TN	1.1250-18UNJEF	1.500	.875	3.01	5.76	PS10035-16
RFOPB5020HDB	RFOPB5020HDB5	RFOPB5020HDB4	K81208TN	1.3125-18UNJEF	1.625	1.062	3.01	5.94	PS10035-20
RFOPB5024HDB	RFOPB5024HDB5	RFOPB5024HDB4	K89407TN	1.6250-18UNJEF	1.750	1.000	3.44	6.11	PS10035-24
RFOPB5032HDB	RFOPB5032HDB5	RFOPB5032HDB4	K89408TN	2.1250-16UNJ	2.000	1.125	3.88	6.61	PS10035-32

NOTES: UNLESS OTHERWISE SPECIFIED

1. **Usage of tool is described in TSB52273. This tool will broach serrations into most materials with hardness up to 40HRC.**

[2] 2 extra cutters are provided with each tool.

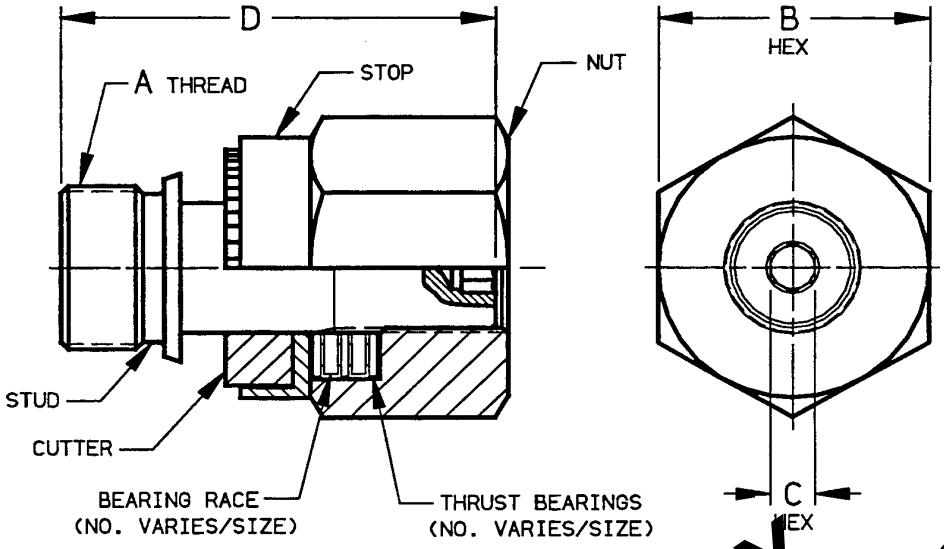
[3] Replacement cutters may be purchased individually.

[4] Replacement studs may be purchased individually.

5. **Use of this tool will provide an allowable maximum runout of .009 between serration major diameter and controlled minor diameter (REF:PS10035) after broaching.**

BROACH TOOL, NON-IMPACT PS10035 PORT SERRATIONS (FOR MATERIAL UP TO 40 HRC)

RFOPB5000HDB SERIES



BROACH TOOL NUMBER	CUTTER PART NUMBER [3] [4]	A THREAD MIL-S-8879 CLASS 3A	B HEX REF	C HEX .040	D .040	THRUST BEARING PART NUMBER [6]	BEARING RACE PART NUMBER [7]	TO PRODUCE SERRATIONS FOR PORT NUMBER
RFOPB5008HDC	RFOPB5008HDC3	.5625-18UNJF	1.000	.188	1.110	NTA-613	RFOPB5008HDC5	PS10035-08
RFOPB5010HDC	RFOPB5010HDC3	.6875-24UNJEF	1.250	.250	2.380	NTA-916	RFOPB5010HDC5	PS10035-10
RFOPB5012HDC	RFOPB5012HDC3	.8125-20UNJF	1.625	.250	2.410	NTA-1018	RFOPB5012HDC5	PS10035-12
RFOPB5014HDC	RFOPB5014HDC3	.9375-20UNJEF	1.500	.250	2.420	NTA-1220	RFOPB5014HDC5	PS10035-14
RFOPB5016HDC	RFOPB5016HDC3	1.1250-18UNJEF	1.625	.250	2.265	NTA-1423	RFOPB5016HDC5	PS10035-16
RFOPB5020HDC	RFOPB5020HDC3	1.3125-18UNJEF	2.000	.375	2.525	NTA-1828	RFOPB5020HDC5	PS10035-20
RFOPB5024HDC	RFOPB5024HDC3	1.6250-18UNJEF	2.250	.375	2.750	NTA-2233	RFOPB5024HDC5	PS10035-24

NOTES: UNLESS OTHERWISE SPECIFIED

1. **Usage of tool is described in bulletin TSB76-310. This tool is primarily designed for extended usage in aluminum and mild steel not exceeding 20 HRC. When used in harder materials, bearing damage may occur.**
2. **When broaching parent materials harder than 20 HRC, use RFOPB( )HDB broach tools.**

[3] 2 extra cutters are provided with each tool.

[4] Replacement cutters may be purchased individually.

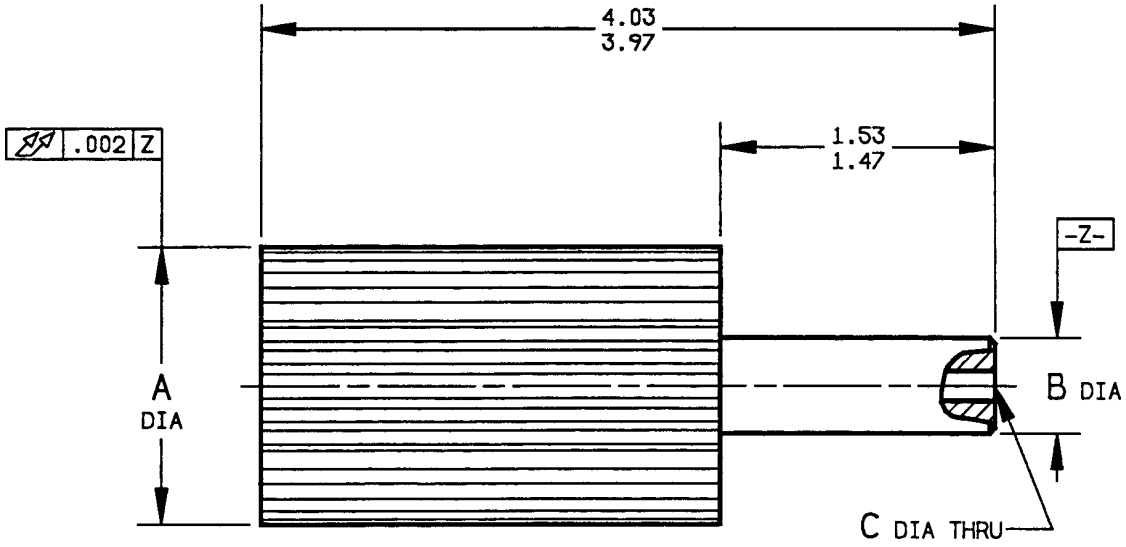
5. **Use of this tool will provide an allowable maximum runout of .009 between serration major dia and controlled minor dia (REF: PS10035) after broaching.**

[6] Quantity of bearings required: -For RFOPB5008HDC, RFOPB5012HDC and RFOPB5014HDC: 3 Bearings
-For RFOPB5010HDC and RFOPB5016HDC thru RFOPB5024HDC: 2 Bearings

[7] Quantity of bearing races required: -For RFOPB5008HDC, RFOPB5012HDC and RFOPB5014HDC: 2 Bearing Races
-For RFOPB5010HDC and RFOPB5016HDC thru RFOPB5024HDC: 1 Bearing Race

BROACH TOOL, NON-IMPACT PS10035 PORT SERRATIONS (FOR SOFT MATERIALS)

RFOPB5000HDC SERIES



BROACH TOOL NUMBER	A DIA +.002 -.004	NUMBER OF TEETH	B DIA ±.002	C DIA ±.010	TO PRODUCE SERRATIONS FOR PORT NUMBER
RFOPB5002ED3	.411	24	.312	.109	PS10035-02
RFOPB5003ED3	.480	26	.375	.125	PS10035-03
RFOPB5004ED3	.526	30	.375	.125	PS10035-04
RFOPB5005ED3	.637	36	.500	.156	PS10035-05
RFOPB5006ED3	.712	36	.500	.156	PS10035-06
RFOPB5008ED3	.826	40	.500	.156	PS10035-08
RFOPB5010ED3	1.054	38	.500	.156	PS10035-10
RFOPB5012ED3	1.184	40	.500	.156	PS10035-12
RFOPB5014ED3	1.356	50	.500	.156	PS10035-14
RFOPB5016ED3	1.473	36	.500	.156	PS10035-16
RFOPB5020ED3	1.797	56	.500	.156	PS10035-20
RFOPB5024ED3	2.047	81	.500	.156	PS10035-24
RFOPB5032ED3	2.563	102	.500	.156	PS10035-32

NOTES: UNLESS OTHERWISE SPECIFIED

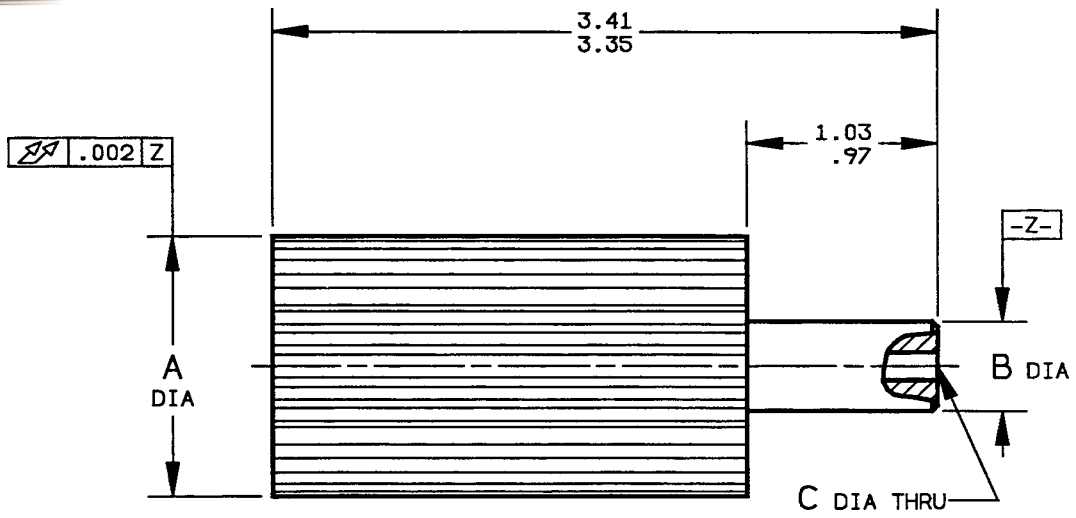
1. MATERIAL: COPPER TUNGSTEN, with option of alloy steel shank.

2. When using this tool, the machine should be set to produce a burn which is .002 to .003 larger on the diameter than "A" Dia. This will allow the lockring to fit into the serration produced with about .004 to .005 clearance. The applicable lockring may be used to gage the port serration.

CAUTION: Care must be taken when machining to provide the following requirements: A maximum runout of .009 must be maintained between serration major dia and controlled minor dia (specified in Rosan PS10035 port specification) after machining.

BROACH TOOL, COPPER TUNGSTEN ELECTRICAL DISCHARGE MACHINING PS10035 PORT SERRATIONS

RFOPB5000ED3 SERIES



BROACH TOOL NUMBER	A DIA +.004 -.003	NUMBER OR TEETH	B DIA ±.002	C DIA ±.010	TO PRODUCE SERRATIONS FOR PORT NUMBER
RFOPB5002ED2	.399	24	.312	.109	PS10035-02
RFOPB5003ED2	.468	26	.375	.125	PS10035-03
RFOPB5004ED2	.514	30	.375	.125	PS10035-04
RFOPB5005ED2	.624	36	.500	.156	PS10035-05
RFOPB5006ED2	.699	36	.500	.156	PS10035-06
RFOPB5008ED2	.814	40	.500	.156	PS10035-08
RFOPB5010ED2	1.040	38	.500	.156	PS10035-10
RFOPB5012ED2	1.170	40	.750	.156	PS10035-12
RFOPB5014ED2	1.341	50	.750	.156	PS10035-14
RFOPB5016ED2	1.456	36	.750	.156	PS10035-16
RFOPB5020ED2	1.782	56	1.000	.156	PS10035-20
RFOPB5024ED2	2.032	81	1.500	.156	PS10035-24
RFOPB5032ED2	2.548	102	1.500	.156	PS10035-32

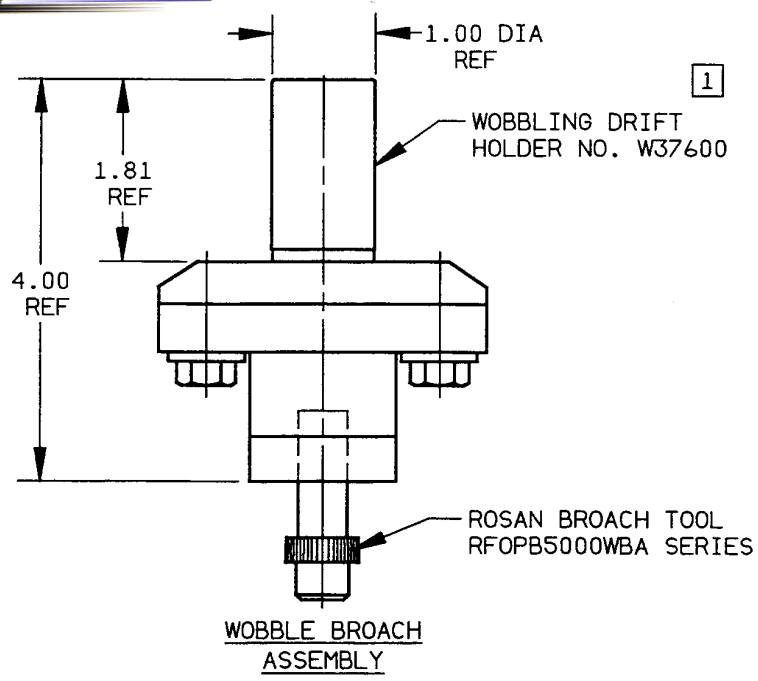
NOTES: UNLESS OTHERWISE SPECIFIED

1. **MATERIAL: UNION POCO GRADE EDM-3 GRAPHITE, with option of alloy steel shank.**
2. **This tool is designed to provide approximately 10 times the life of tools made from brass (RFOPB5000ED Series).**
3. **When using this tool, the machine should be set to produce a burn which is .009 to .011 larger on the diameter than "A" Dia. This will allow the lockring to fit into the serration produced with about .004 to .005 clearance. The applicable lockring may be used to gage the port serration.**

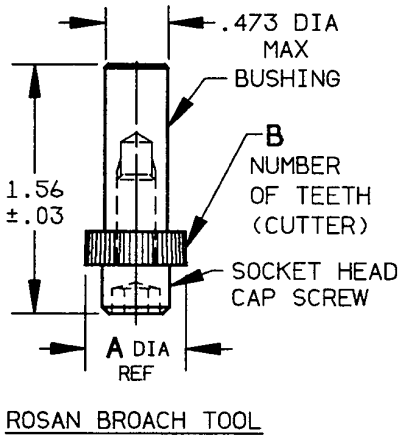
CAUTION: Care must be taken when machining to provide the following requirements: A maximum runout of .009 must be maintained between serration major dia and controlled minor dia (specified in Rosan PS10035 port specification) after machining.

BROACH TOOL, POCO GRAPHITE ELECTRICAL DISCHARGE MACHINING PS10035 PORT SERRATIONS

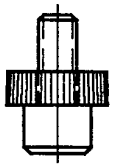
RFOPB5000ED2 SERIES



WOBBLE BROACH ASSEMBLY



ROSAN BROACH TOOL



2

CUTTER AND SCREW COMBINATION

BROACH TOOL NUMBER	CUTTER AND SCREW COMBINATION NUMBER [2]	A NUMBER OF TEETH	B DIA REF	TO PRODUCE SERRATIONS FOR PORT NUMBER [3]
RFOPB5002WBA	RFOPB5002WBA23	24	.412	PS10035-02
RFOPB5003WBA	RFOPB5003WBA23	26	.481	PS10035-03
RFOPB5004WBA	RFOPB5004WBA23	30	.527	PS10035-04
RFOPB5005WBA	RFOPB5005WBA23	36	.638	PS10035-05
RFOPB5006WBA	RFOPB5006WBA23	36	.713	PS10035-06
RFOPB5008WBA	RFOPB5008WBA23	40	.827	PS10035-08
RFOPB5010WBA	RFOPB5010WBA23	38	1.055	PS10035-10
RFOPB5012WBA	RFOPB5012WBA23	40	1.185	PS10035-12
RFOPB5014WBA	RFOPB5014WBA23	50	1.357	PS10035-14
RFOPB5016WBA	RFOPB5016WBA23	36	1.474	PS10035-16
RFOPB5020WBA	RFOPB5020WBA23	56	1,798	PS10035-20
RFOPB5024WBA	RFOPB5024WBA23	81	2.048	PS10035-24
RFOPB5032WBA	RFOPB5032WBA28	102	2.564	PS10035-32

NOTES: UNLESS OTHERWISE SPECIFIED

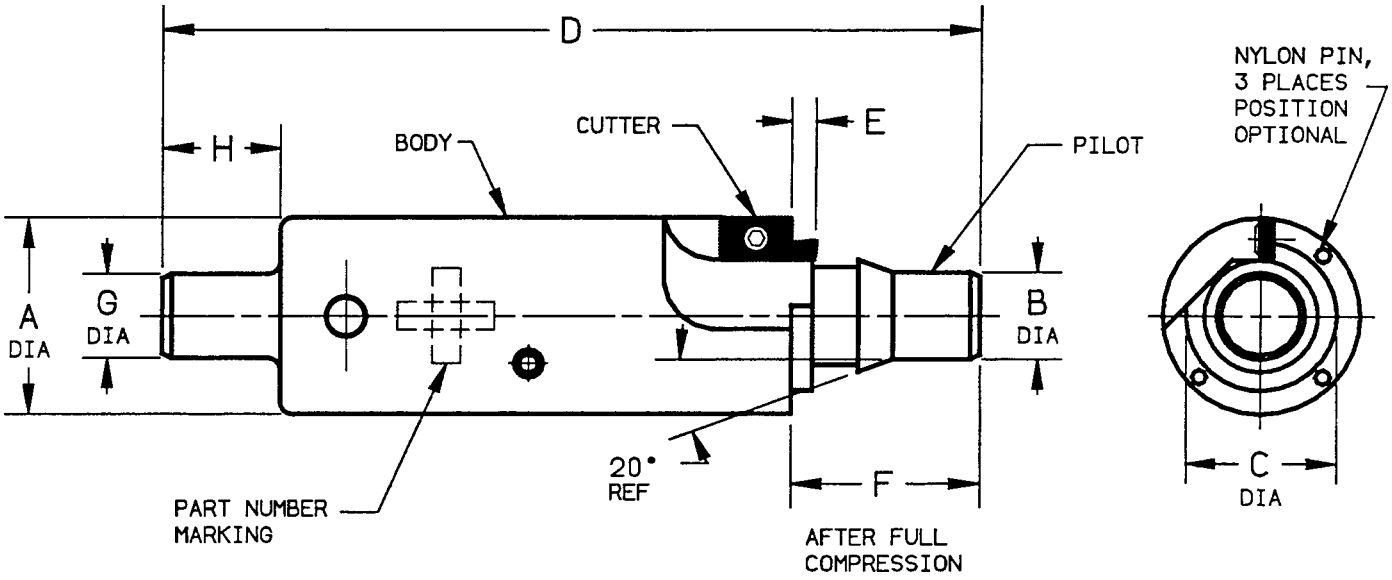
[1] This holder is not supplied by Rosán Products. Obtain from
WICKMAN CORP. 10325 CAPITAL AVE., OAK PARK, MI 48237, USA, or
INDEX-WERKE KG HAHN & TESKY, 73 ESSLINGEN, PO BOX 809, GERMANY.

[2] Cutter and screw combination can be ordered separately for spares or replacements.

[3] USAGE
These tools are designed to broach serrations into counterbore of ports PS10035 (AS1300) and PS10048 with parent material hardness up to 40HRC. For harder materials, electrical discharge broach tools are available.

BROACH TOOL, WOBBLE BROACH MACHINING PS10035 PORT SERRATIONS

RFOPB5000WBA SERIES



CHIP REMOVAL TOOL NUMBER [5]	CUTTER PART NUMBER [3]	A DIA ±.010	B DIA +.000 -.005	C DIA +.002 -.010	D REF	E MIN	F MAX	G DIA ±.010	H ±.015
RF02CRP	RF02CRP-1	.688	.183	.371	5.35	.077	.490	.375	1.75
RF03CRP	RF03CRP-1	.750	.217	.438	5.35	.077	.508	.375	1.75
RF04CRP	RF04CRP-1	.750	.274	.485	5.35	.077	.535	.375	1.75
RF05CRP	RF05CRP-1	.875	.337	.591	5.40	.077	.562	.375	1.75
RF06CRP	RF06CRP-1	.875	.391	.665	5.40	.092	.606	.375	1.75
RF08CRP	RF08CRP-1	1.000	.511	.774	5.50	.092	.656	.375	1.75
RF10CRP	RF10CRP-1	1.250	.649	1.005	6.00	.092	.676	.500	2.25
RF12CRP	RF12CRP-1	1.375	.766	1.129	6.10	.092	.746	.500	2.25
RF14CRP	RF14CRP-1	1.500	.891	1.301	6.10	.092	.782	.500	2.25
RF16CRP	RF16CRP-1	1.625	1.072	1.417	6.10	.092	.788	.500	2.25
RF20CRP	RF20CRP-1	2.000	1.261	1.740	6.15	.119	.820	.500	2.25
RF24CRP	RF24CRP-1	2.250	1.573	1.990	6.20	.119	.860	.500	2.25
RF32CRP	RF32CRP-1	2.750	2.063	2.506	6.35	.119	1.032	.500	2.25

NOTES: UNLESS OTHERWISE SPECIFIED

1. MATERIAL AND HEAT TREAT:

BODY: 1144 Stressproof
PILOT: 1144 Stressproof
CUTTER: M2 Tool Steel, 60HRC min.

2. FINISH: BODY: Black oxide plus oil.

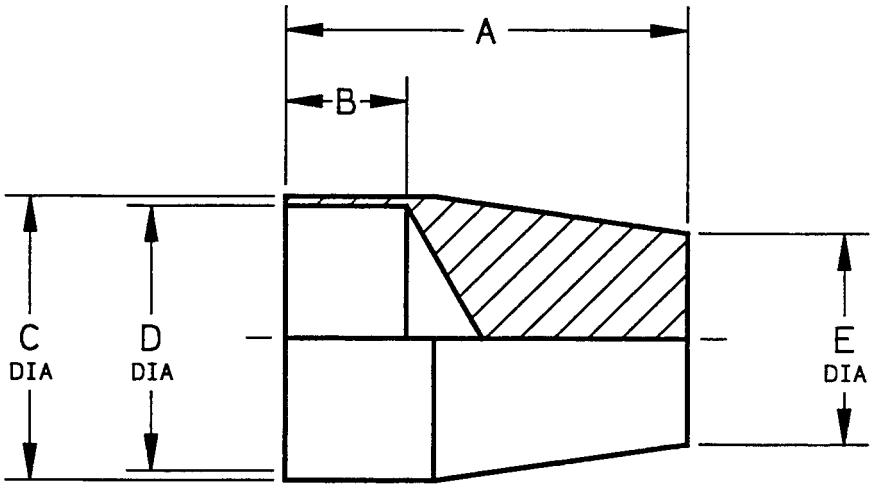
[3] Cutter is replaceable and can be ordered separately for spares. One spare cutter is supplied with each tool assembly.

4. Usage of tool is described in bulletin TSB91-0128.

[5] The RF( )CRA (sizes 04,06 and 08) or RF( )CR (sizes 02 thru 32) may also be used to clear chips from the PS10035 Port. For further information refer to bulletins TSB89-0606 (CRA SERIES) or TSB85-0228 (CR SERIES).

CHIP REMOVAL TOOL, PS10035 PORT

RF( )CRP SERIES

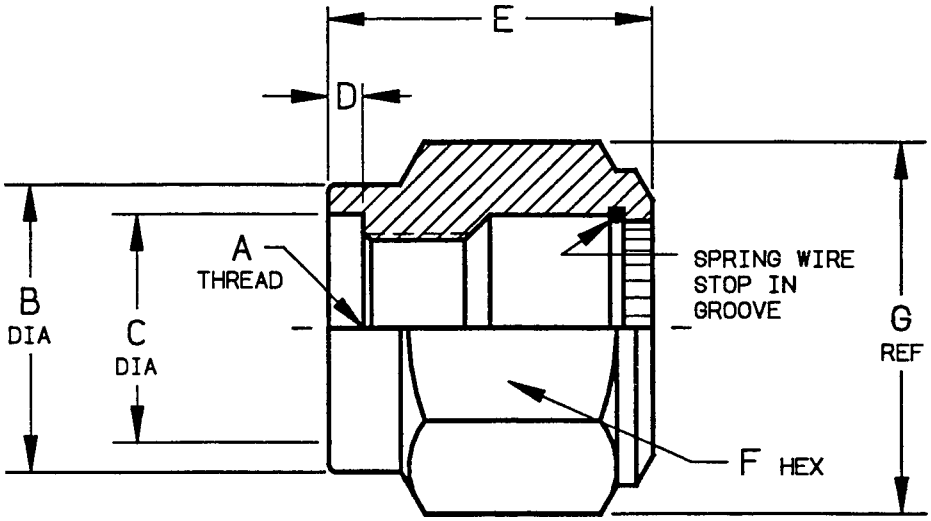


O-RING INSTALLATION TOOL NUMBER	A ±.06	B +.05 -.01	C DIA MAX	D DIA MIN	E DIA ±.040
ORT216	.71	.19	.283	.218	.100
ORT250	.79	.23	.322	.252	.130
ORT312	.83	.23	.385	.315	.190
ORT375	.86	.25	.445	.377	.250
ORT437	.90	.28	.505	.440	.310
ORT562	.98	.33	.635	.565	.435
ORT687	1.05	.39	.755	.690	.550
ORT812	1.12	.49	.885	.815	.670
ORT937	1.19	.55	1.010	.940	.795
ORT1125	1.25	.58	1.205	1.127	.920
ORT1312	1.82	.69	1.395	1.315	.920
ORT1625	1.94	.78	1.715	1.627	1.420
ORT2125	1.94	1.02	2.215	2.127	1.975

NOTES: UNLESS OTHERWISE SPECIFIED
1. MATERIAL: Teflon or Nylon.

O-RING INSTALLATION TOOL

ORT( )
SERIES



COMBINATION WRENCH AND DRIVE TOOL NUMBER	A THREAD MIL-S-8879 CLASS 3B	B DIA ±.015	C DIA ±.010	D +.007 -.002	E ±.015	F HEX REF	G ACROSS CORNERS REF
RF5002DW	.3125-32UNJEF	.680	.427	.109	1.000	.75	.866
RF5003DW	.3750-28UNJS	.750	.496	.109	1.000	.75	.866
RF504DW	.4375-24UNJS	.800	.542	.109	1.000	.81	.938
RF5005DW	.5000-24UNJS	.900	.652	.109	1.000	.94	1.082
RF5006DW	.5625-20UNJS	.980	.727	.115	1.120	1.00	1.155
RF5008DW	.7188-20UNJS	1.100	.842	.115	1.120	1.12	1.299
RF5010DW	.8438-18UNJS	1.320	1.070	.115	1.250	1.38	1.588
RF5012DW	1.0000-16UNJ	1.450	1.200	.130	1.380	1.50	1.732
RF5014DW	1.1250-16UNJ	1.580	1.373	.130	1.450	1.62	1.876
RF5016DW	1.2500-14UNJS	1.740	1.490	.130	1.500	1.75	2.021
RF5020DW	1.5156-14UNJS	2.070	1.820	.130	1.500	2.12	2.454
RF5020TDW	1.5781-14UNJS	2.070	1.820	.130	1.500	2.12	2.454
RF5024DW	1.7812-14UNJS	2.340	2.070	.130	1.600	2.50	2.886
RF5024TDW	1.8438-14UNJS	2.340	2.070	.130	1.600	2.50	2.886

NOTES: UNLESS OTHERWISE SPECIFIED

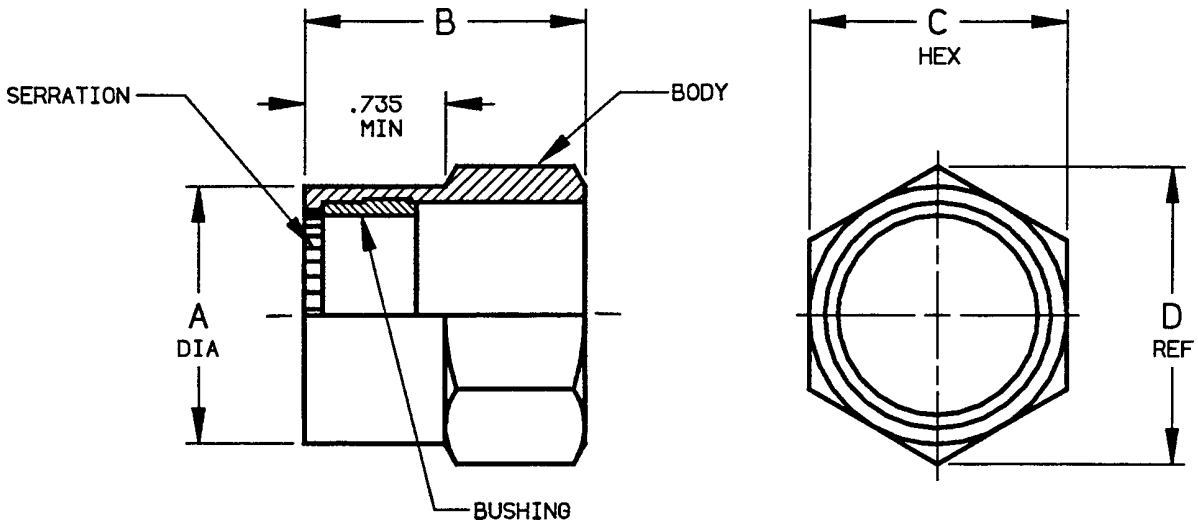
1. MATERIAL: Alloy steel.

2. FINISH: Black oxide plus oil.

3. This tool is used for standard rf5000 series adapters only.

TOOL-COMBINATION DRIVE AND WRENCH

RF5000DW SERIES



WRENCH PART NUMBER	A DIA MAX	B ±.03	C HEX	D ACROSS CORNERS REF	SERRATION NUMBER OF TEETH
RF6902W	.572	1.50	.56	.649	24
RF6903W	.698	1.50	.69	.794	26
RF6904W	.760	1.50	.75	.866	30
RF6905W	.760	1.50	.75	.866	36
RF6906W	.885	1.50	.88	1.010	36
RF6908W	1.010	1.50	1.00	1.155	40
RF6910W	1.198	1.50	1.19	1.371	38
RF6912W	1.385	1.50	1.38	1.588	40
RF6914W	1.635	1.50	1.62	1.876	50
RF6916W [3]	1.760	1.50	1.75	2.021	36
RF6920W	2.010	1.50	2.00	2.309	56
RF6924W	2.260	1.50	2.25	2.598	81
RF6932W [3]	2.885	1.75	2.88	3.320	102

NOTES: UNLESS OTHERWISE SPECIFIED

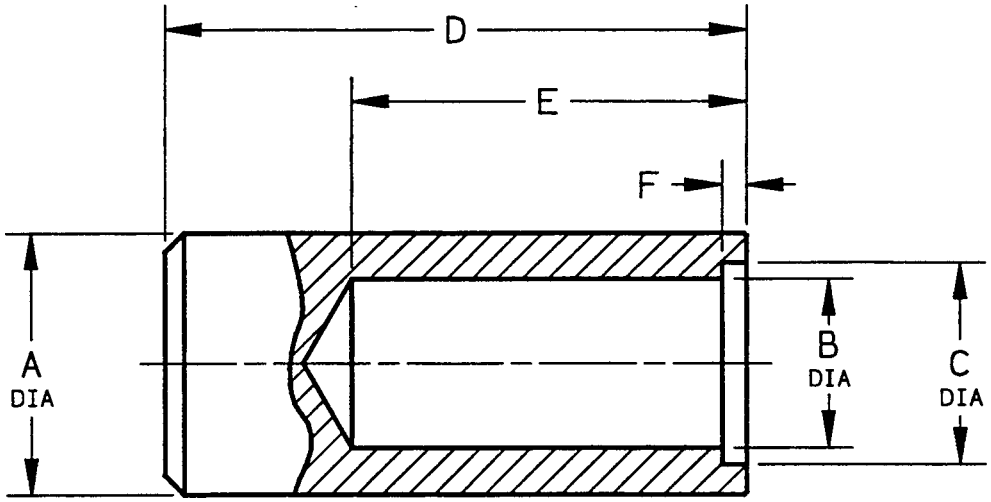
1. **MATERIAL: Body: Steel.**
   Bushing: Free cutting brass or aluminum.
2. **FINISH: Body: Black oxide plus oil.**
   Bushing: None.

[3] Part number RF5332W will also be on RF6932W wrench; part number RF6915W will also be on RF6916W wrench.

4. **These wrenches may be used to wrench in RF5000, RFH5000, RF7500, RFH7500, RF7700, RF9800, RFK9800, RF9900, RFH9900, RFK9900 series, other adapters and check valves.**

WRENCH-FLUID ADAPTER ASSEMBLY

RF6900W SERIES

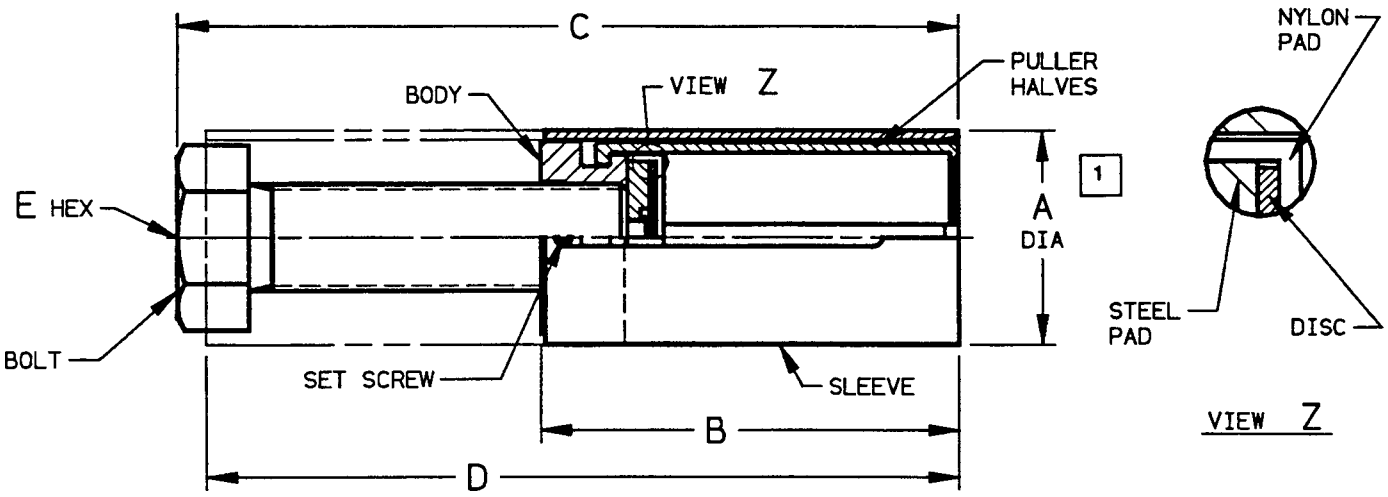


LOCKRING DRIVE TOOL NUMBER	A DIA +.010 -.020	B DIA +.007 -.001	C DIA +.006 -.001	D ±.05	E +.1 -.0	F +.007 -.002
RF9802DEK	.562	.324	.412	3.00	2.2	.109
RF9803DEK	.625	.386	.481	3.00	2.2	.109
RF9804DEK	.750	.442	.527	3.00	2.2	.109
RF9805DEK	.875	.537	.637	3.00	2.2	.109
RF9806DEK	1.000	.595	.712	3.00	2.2	.115
RF9808DEK	1.125	.755	.827	3.00	2.2	.115
RF9810DEK	1.375	.880	1.053	3.00	2.2	.115
RF9812DEK	1.500	1.067	1.183	3.00	2.2	.130
RF9814DEK	1.750	1.218	1.354	3.00	2.2	.130
RF9816DEK [4]	1.875	1.327	1.469	3.00	2.2	.130
RF9820DEK	2.125	1.630	1.795	3.00	2.2	.130
RF9824DEK	2.375	1.880	2.045	3.00	2.2	.130
RF9832DEK	2.875	2.505	2.561	4.00	3.2	.130

NOTES: UNLESS OTHERWISE SPECIFIED
1. MATERIAL: Alloy steel.
2. FINISH: Black oxide plus oil.
3. Lockring drive tool RF9800DEK supersedes RF9800D, RF9800DE and RF5000-02D.
[4] Part number RF9815DEK will also be on RF9816DEK drive tool.

DRIVE TOOL-LOCKRING LIFT TYPE, ADAPTER

RF9800DEK SERIES



LOCKRING REMOVAL TOOL NUMBER	A DIA	B	C	D	E HEX	F [2]	
	MAX	MAX	MAX	MAX	NOM	MIN	MAX
RF02LPDE	.812	2.24	3.91	3.98	.438	.183	1.470
RF03LPDE	.812	2.24	3.91	3.98	.438	.183	1.470
RF04LPDE	.812	2.24	3.91	3.98	.438	.183	1.470
RF05LPDE	.937	2.41	4.31	4.31	.562	.191	1.634
RF06LPDE	1.000	2.48	4.44	4.46	.562	.209	1.705
RF08LPDE	1.125	2.63	4.73	4.72	.625	.209	1.792
RF10LPDE	1.375	2.80	5.12	4.98	.938	.214	1.875
RF12LPDE	1.500	2.93	5.47	5.26	1.125	.214	2.010
RF14LPDE	1.688	3.19	5.82	5.68	1.125	.224	2.124

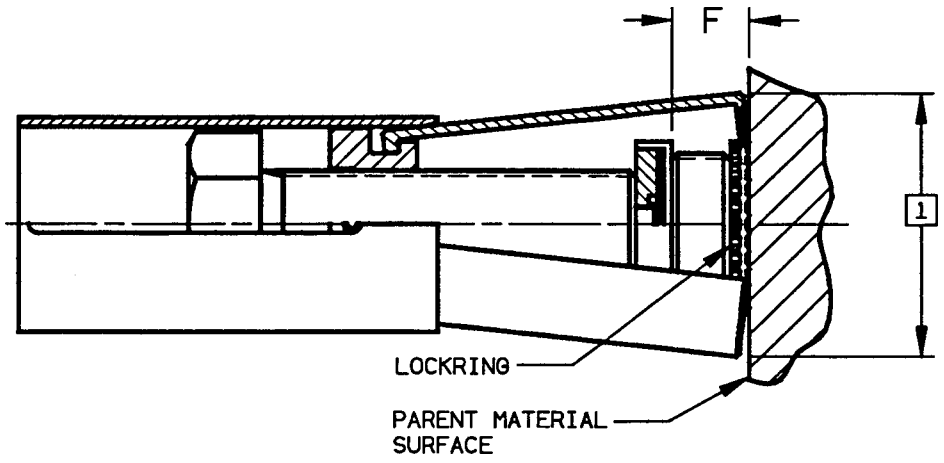
NOTES: UNLESS OTHERWISE SPECIFIED

[1] Puller halves will engage lockring groove when expanded to "A" diameter.

[2] Range of adapter stand-off that removal tool will accommodate.

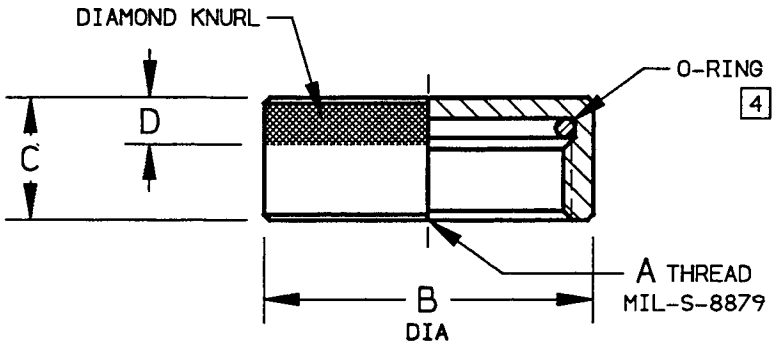
3. RF( )LPDE series supersedes RF9800LPD series and will remove all basic adapters, reducers, restrictors, filters and quick disconnects.

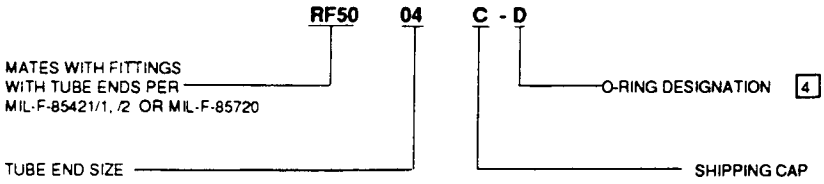
[4] Part number RF15LPDE will also be on RF16LPDE removal tool.



REMOVAL TOOL
LOCKRING LIFT TYPE

RF( )LPDE
SERIES





FITTING CAP PART NUMBER [3]	AS IDENT NUMBER [3]	TUBING OD REF	A THREAD MIL-S-8879 CLASS 3B	B DIA ±.010	C ±.010	D REF	O-RING DASH NUMBER [4] REF	FITTING CAP WEIGHT WITH O-RING lbs/100 pcs APPROX
RF5002C-( )	AS4282( )02	1/8	.3125-32UNJEF	.549	.325	.200	-009	.60
RF5003C-( )	AS4282( )03	3/16	.3750-28UNJS	.580	.350	.200	-010	.68
RF5004C-( )	AS4282( )04	1/4	.4375-24UNJS	.642	.375	.200	-011	.84
RF5005C-( )	AS4282( )05	5/16	.5000-24UNJS	.705	.375	.200	-012	.97
RF5006C-( )	AS4282( )06	3/8	.5625-20UNJS	.767	.400	.200	-013	1.20
RF5008C-( )	AS4282( )08	1/2	.7188-20UNJS	.923	.400	.200	-016	1.53
RF5010C-( )	AS4282( )10	5/8	.8438-18UNJS	1.048	.450	.300	-018	2.01
RF5012C-( )	AS4282( )12	3/4	1.0000-16UNJ	1.205	.500	.300	-020	2.90
RF5014C-( )	AS4282( )14	7/8	1.1250-16UNJ	1.330	.525	.300	-022	3.58
RF5016C-( )	AS4282( )16	1	1.2500-14UNJS	1.466	.525	.300	-024	4.04
RF5020TC-( )	AS4282( )20	1 1/4	1.5781-14UNJS	1.750	.525	.300	-219	4.95
RF5024TC-( )	AS4282( )24	1 1/2	1.8438-14UNJS	2.000	.605	.300	-223	6.11

NOTES: UNLESS OTHERWISE SPECIFIED

1. **MATERIAL:** **Cap: Aluminum**
   O-ring: See Note [4]
2. **FINISH:** **Red anodize for RF5000C-D series**
   Blue anodize for RF5000C-B series

[3] Part number coding:
Add "-D" to basic part number when used with MIL-H-5606 hydraulic fluid and fuel.
Add "-B" to basic part number when used with Skydrol and other Phosphate Esters.

[4] For "-D": O-ring per MIL-P-83461/1, compound per MIL-P-25732.
For "-B": O-ring per AS568, compound per NAS1613.

FITTING CAP - SHIPPING MALE BEAM CLOSURE

RF5000C-( )
SERIES

PARTIAL INTERCHANGEABILITY LISTS

ROSAN RF5000-13 SERIES VS COMPANY STANDARDS

ROSAN NUMBER	AEROSPACE STANDARD NUMBER	AIRESEARCH NUMBER	BELL HELICOPTER NUMBER	GENERAL DYNAMICS NUMBER	McDONNELL DOUGLAS NUMBER	NORTHROP CORP. NUMBER	ROCKWELL SPACE DIV. NUMBER
RF5004-13	AS1986-04	104-538-9004	50-060-04	C7579-4	ST7M200T4	07A051-04	ME273-0082-0004
RF5005-13	AS1986-05	104-538-9005	---	C7579-5	---	07A051-05	ME273-0082-0005
RF5006-13	AS1986-06	104-538-9006	50-060-06	C7579-6	ST7M200T6	07A051-06	ME273-0082-0006
RF5008-13	AS1986-08	104-538-9008	50-060-08	C7579-8	ST7M200T8	O7A051-08	ME273-0082-0008
RF5010-13	AS1986-10	104-538-9010	50-060-10	C7579-10	ST7M200T10	07A051-10	ME273-0082-0010
RF5012-13	AS1986-12	104-538-9012	50-060-12	C7579-12	ST7M200T12	07A051-12	ME273-0082-0012
RF5014-13	AS1986-14	---	---	---	---	07A051-14	ME273-0082-0014
RF5016-13	AS1986-16	104-538-9016	50-060-16	C7579-16	ST7M200T16	07A051-16	ME273-0082-0016
RF5020T13	AS1986-20	104-538-9020	---	C7579-20	ST7M200T20	07A051-20	ME273-0082-0020
RF5024T13	AS1986-24	104-538-9024	---	---	ST7M200T24	07A051-24	ME273-0082-0024

ROSAN PS10035 BOSS VS SAE AND COMPANY STANDARDS

ROSAN NUMBER	AEROSPACE STANDARD NUMBER	BELL HELICOPTER NUMBER	GENERAL DYNAMICS NUMBER	HUGHES HELICOPTERS DIV. NUMBER	LOCKHEED CA CO. NUMBER	McDONNELL DOUGLAS NUMBER	NORTHROP CORP. NUMBER	ROCKWELL SPACE DIV. NUMBER	SIKORSKY AIRCRAFT NUMBER
PS10035-02	AS1300-02	---	---	---	---	---	---	MP273-0001-0002	SS4065-2
PS10035-03	AS1300-03	---	---	---	---	---	---	MP273-0001-0003	SS4065-3
PS10035-04	AS1300-04	50-058-04	M265-4	HSD4470-4	DS2689-04	6M152-4	06A060-4	MP273-0001-0004	SS4065-4
PS10035-05	AS1300-05	50-058-05	M265-5	---	---	6M152-5	06A060-5	MP273-0001-0005	SS4065-5
PS10035-06	AS1300-06	50-058-06	M265-6	HSD4470-6	DS2689-06	6M152-6	06A060-6	MP273-0001-0006	SS4065-6
PS10035-08	AS1300-08	50-058-08	M265-8	HSD4470-8	DS2689-08	6M152-8	06A060-8	MP273-0001-0008	SS4065-8
PS10035-10	AS1300-10	50-058-10	M265-10	HSD4470-10	DS2689-10	6M152-10	06A060-10	MP273-0001-0010	SS4065-10
PS10035-12	AS1300-12	50-058-12	M265-12	HSD4470-12	DS2689-12	6M152-12	06A060-12	MP273-0001-0012	SS4065-12
PS10035-14	AS1300-14	---	---	---	---	---	06A060-14	MP273-0001-0014	SS4065-14
PS10035-16	AS1300-16	---	M265-16	HSD4470-16	DS2689-16	6M152-16	06A060-16	MP273-0001-0016	SS4065-16
PS10035-20	AS1300-20	---	M265-20	---	DS2689-20	6M152-20	06A060-20	MP273-0001-0020	SS4065-20
PS10035-24	AS1300-24	---	---	---	---	6M152-24	06A060-24	MP273-0001-0024	SS4065-24
PS10035-32	AS1300-32	---	---	---	---	---	---	---	---

FEATURES AND ADVANTAGES OF ROSAN ADAPTERS

APPLICATIONS

Rosan adapters were introduced in 1967 as a replacement for the AN815 and MS21902 adapters. Rosan adapters are assembled into the AS1300 boss which is used in the hydraulic and/or fuel systems of the following flight vehicles and engines:

FLIGHT VEHICLES

Lockheed S3A	General Dynamics F-16
McDonnell Douglas F-15	Sikorsky UTTAS
McDonnell Douglas AV8B	Sikorsky S-76
Grumman F-14	Boeing Vertol YCH47D
US Air Force B-1B	Boeing Vertol CH46E
Bell/Boeing V-22	Hughes Helicopter AH64A
Northrop/McDonnell F-18	Rockwell Space Shuttle
Northrop B-2	

ENGINES

Avco Lycoming ALF502	Williams International WR19-9
Garrett Engine Company GTCP660-4	Williams International WR2500
Garrett Engine Company TSCP700-4	Williams International F107-WR-100
Garrett Engine Company TFE731	Williams International F107-WR-400
Garrett Engine Company TSE231	General Electric Snecma CFM56

QUALIFICATION TESTS

Rosan Fluid Adapters have been subjected to various qualification tests for 3000 PSI, 4000 PSI, 5000 PSI and 8000 PSI operating pressure by the following labs and/or companies.

1. Naval Air Development Center, Warminster, PA
2. Lockheed California Co., Rye Canyon, Ca
3. McDonnell Douglas, St. Louis, MO
4. Southwest Research Institute, San Antonio, TX
5. Rockwell International, Los Angeles, CA
6. Rockwell International, Downey, CA
7. Rockwell International, Columbus, OH
8. Boeing Commercial Airplane Co., Seattle, WA
9. Approved Engineering Test Lab, Los Angeles, CA
10. Resistoflex Corp., Roseland, NJ
11. Rosan Test Laboratories, Newport Beach, CA
12. APT Laboratory, Inc., Buena Park, CA

ADVANTAGES

1. Titanium adapters provide up to 70% weight reduction when compared to AN815 and/or MS21902 adapters.
2. requires only one wrench to install or remove tubing “B” nuts.
3. Provides a double seal at the boss. One is metal to metal and the other is a standard O-ring.
4. Eliminates the need to lockwire fittings at the boss.
5. Provides a semi-permanent male tube end which may never need to be removed from the component.
6. Over 100 component manufacturers have extensive experience with installation which reduces prime contractors assembly cost. Adapters are normally installed by the component manufacturer and shipped in the component pre-tested.
7. The rosan boss end design has been utilized by check valve, quick disconnect, restrictor, filter and shuttle valve manufacturers since 1970. These devices are readily available in most tube sizes and with various flow and pressure ranges.
8. Over 75 special adapter configurations have been designed and manufactured by Rosan.
9. Vast tube end type, size, and material selections are available, in inch and ISO metric versions.

OUR CUSTOMERS HAVE SAID

“The decision has been made to use Rosan Boss Fittings in the hydraulic Components. Several advantages result from this selection.”
Mc Donnell Douglas F-15

“The brazed 21-6-9 CRES tubing system is very reliable and combined with the Rosan boss fitting gives a dry system.”
Lockheed S-3A

“It is recommended that the ring locked type boss configuration developed by Exibitor A be used in new designs or in new components, in connection with flareless connectors, or with fluid connectors of other designs if adapter.”
Naval Air Dev. Center

OTHER ROSÁN FLUID ADAPTERS

RFH5000-13

A 8000 PSI working pressure version of the RF5000-13 adapter.

RF7500

A titanium plug design which closes PS10035 ports.

RFH7500

A 8000 PSI working pressure version of the RF7500 plug.

RF7700

A weldable tube end adapter made of 17-4PH. It is designed to be welded using the Dimetrics Inc. in place tube torch model 1007A2, B2 or D.

RFK9800-13
(AS1985)

A titanium fluid boss adapter that provides a flared tube end per MS33656.

RFK9900-13
(AS4099)

A titanium fluid boss adapter that provides a flareless tube end per MS33514.

RFH9900-( )

A 8000 PSI working pressure version of the RFK9900-( ) adapter.

7017-490000-00
(MA2111)

A metric titanium fluid boss adapter that mates with a dynamic beam seal tue end per AECMA EN2604.

7080-490000-00

A 56,000 KPa (8000 PSI) working pressure version of the 7017-490000-00 metric adapter.

6660-490000-00
(MA2112)

A metric titanium fluid boss adapter that mates with a 24° cone tube end per AECMA EN2605.

6520-490000-00
(MA2113)

A metric titanium fluid boss adapter that mates with a 60° cone tube end per AECMA EN2606.

A variety of check valves, quick disconnects and other special boss adapters are also available in inch and ISO metric sizes.

OTHER ROSÁN FASTENERS

AVAILABLE IN INCH AND ISO METRIC SIZES

RING LOCKED STUDS

Threaded Studs resist severe vibration, tensile, and torque loads.

RING LOCKED INSERTS

Threaded inserts provide high strength threads in low strength material.

SLIMSERT INSERTS

One piece, light-weight, thin wall threaded inserts provide high strength threads in low strength materials.

PRESS-LOCK FASTENERS

FIXED TYPE

FLOATING TYPE

Threaded press nuts are used to provide a steel thread in thin materials.

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