

BEARING INSTALLATION AND RETENTION

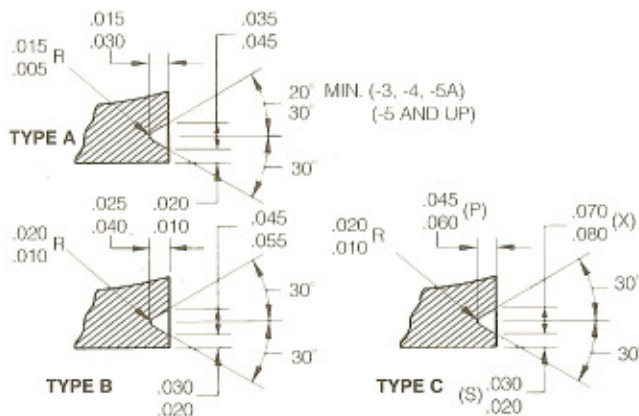


FIGURE 35 - STANDARD V-GROOVE TYPES & SIZES

TABLE 8 - V-GROOVE STAKING FORCE

GROOVE TYPE*	A	B	C
CONSTANT (lbs)	7,700	12,000	17,700
CONSTANT [N]	34,250	53,376	78,730
*SEE FIGURE 35 FOR GROOVE SIZES			

STAKING FORCE

The force required to stake V-groove bearing is approximately equal to the product of the O.D. and a constant for each groove size. For example, a 1.500" (38.10 mm) O.D. bearing having a "B" size groove should require a staking force of approximately 18,000 lbs (80064 N). Constants shown in Table 8 are based on outer race material having an ultimate tensile strength of 140,000 psi (984.6 N/mm²). Staking force constants for other materials are proportional to the ultimate tensile of those materials as compared to 140,000 psi (984.6 N/mm²). Staking forces derived by this formula should be used as a reference guide only to establish a starting point. Please refer to STAKING PROCEDURE steps outlined on page 22.

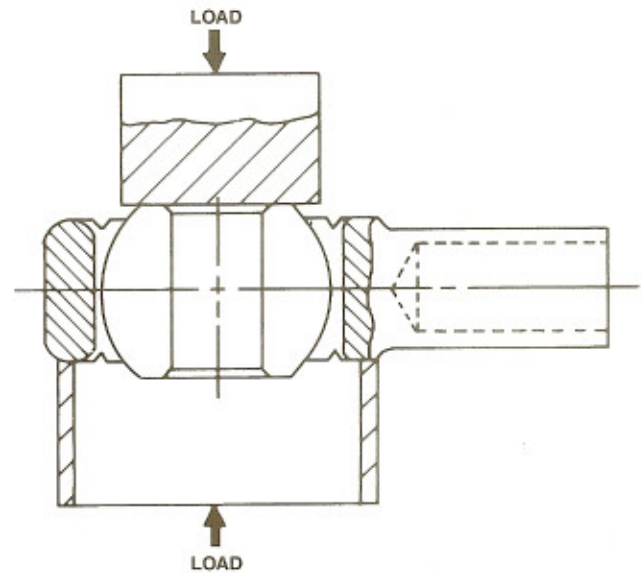


FIGURE 36 - STAKING BEARING PROOF LOAD TEST METHOD

PROOF LOADING

Figure 36 shows the test set-up specified in MIL-B-81935 for axial static proof load testing of rod ends with V-groove staked inserts. This is the generally accepted method used by spherical bearing and airframe manufactures for checking axial retention of the stake. The rod end assembly is mounted on a rigid ring which clears the flared O.D. of the insert and supports the rod end body only. The axial proof load is applied to the ball face, the bearing is then reversed 180° and the axial load is repeated on the opposite side.

The approximate proof load can be estimated from Figure 37.

FIGURE 37 - THRUST LOADS BASED ON FIGURE 35 GROOVE TYPES AND MATERIALS SPECIFIED

V-Groove Type	X		P		S		Axial Static Proof Load	
	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	lbs (N)	
	+0.00	+0.00	+0.00	+0.000	+0.00	+0.00	Steel Race (HRC 30 ~ 35)	Al-Bz Race
	-0.10	-0.25	-0.015	-0.038	-0.010	-0.25		
A	.045	1.14	.030	0.76	.020	0.51	1,700 × D" (298 × D mm)	1,100 × D" (193 × D mm)
B	.055	1.40	.040	1.02	.030	0.76	2,090 × D" (367 × D mm)	1,360 × D" (239 × D mm)
C	.080	2.03	.060	1.52	.030	0.76	2,340 × D" (411 × D mm)	1,520 × D" (267 × D mm)