

Instruction Manual for HMV..E Hydraulic Nut

Use with H, & OH Series Adapters or AH withdrawal sleeves

Installation

Warning: The HMV..E Hydraulic Nut is an installation tool designed to assist bearing mounting on a tapered adapter sleeve or withdrawal sleeve. After the bearing has been tightened, the HMV..E Hyd. Nut must be replaced with the standard nut supplied with the adapter.

Tools Required: Feeler Gauges, portable hydraulic pump, dial indicator to monitor axial drive up

Note: Follow the standard installation instructions provided with the bearing and or split block assembly to position the seals, bearing and adapter loosely on the shaft as close as possible to the final desired installed position. Using feeler gauges, and the steps suggested in the standard instructions, measure and verify the un-mounted internal clearance of the bearing and record this measurement. Verify this internal clearance for the bearing in the chart(s) in the standard manual. From these charts, identify the final mounted clearance recommended for the bearing. The bearing must be tightened until this final internal clearance level is reached. Record the final mounted clearance as well and keep with installation details.



Fig. 1

1. Use HMV..E Hydraulic Nut (Fig. 1) to snug the bearing into position on the adapter. A bar spanner (Fig. 2) supplied with the HMV..E Nut can be used to hand tighten the bearing into position. Install the spanner into the shallow hole shown in Fig 1. Once the nut is snug, connect the hydraulic pump to the nut as shown in Fig 3. An indicator access is provided when measuring or tracking axial displacement is needed. **Important: It is always preferred to measure and document the internal clearance during the mounting process.** Axial movement should only be used as a guide, however, beginning points are difficult to determine accurately. Chart 1 indicates the approximate axial movement to help determine the final position of the bearing. Use axial movement as a guide.



Fig. 2

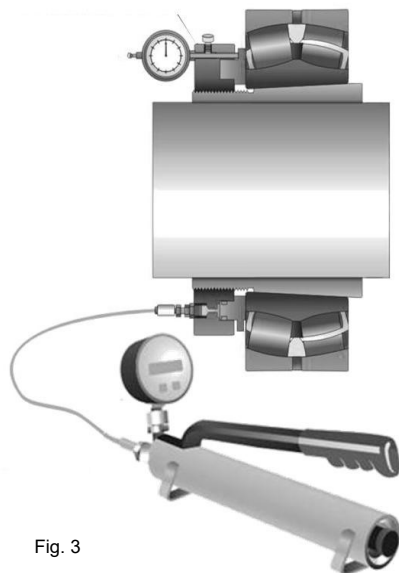


Fig. 3

2. Continue to increase pressure to the hydraulic nut and measure the internal clearance frequently until the final recommended internal clearance is reached in the bearing. The pressure listed in Chart 1 should also only be used as a guide. (The pressure to mount will vary between spherical roller bearings brands due to slight geometric and wall thickness differences.)

3. Once final clearance is reached, release the pressure and remove the hydraulic nut. Install the lock washer and nut. Tapered side of the washer against the beveled side of the nut. Tighten the nut against the bearing and bend the nearest tab of the washer into slot on the OD of the nut. See Fig 4. **Note: If a Locking Clip is used instead of a Lock Washer (Size 44 and larger) locate the nearest locking slot so the clip fits into the notch in the adapter sleeve.. This secures the Locking Clip.**

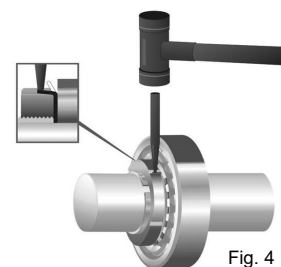


Fig. 4

4. Refer back to the Split Block installation Manual to finish installing the seals, fixing rings, housing and for required lubrication.

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Warning: Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. All instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by P.T. International, nor are the responsibility of P.T. International. This unit and associated equipment in the system must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be invoked, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

Chart 1 - Hydraulic Pressure & Axial Drive-Up Guidelines

222 Series Bearing	Hydraulic Pressure	Radial Clearance reduction	Axial Drive Up	223 Series Bearing	Hydraulic Pressure	Radial Clearance reduction	Axial Drive Up	230 Series Bearing	Hydraulic Pressure	Radial Clearance reduction	Axial Drive Up
	psi	in	in		psi	in	in		psi	in	in
22210 K C3	100	0.0009	0.0136	22310 K C3	250	0.0069	0.0142	23022 K C3	150	0.0019	0.0247
22211 K C3	110	0.0010	0.0145	22311 K C3	270	0.0010	0.0153	23024 K C3	150	0.0021	0.0264
22212 K C3	140	0.0011	0.0156	22312 K C3	290	0.0011	0.0161	23026 K C3	180	0.0023	0.0283
22213 K C3	160	0.0012	0.0170	22313 K C3	310	0.0012	0.0175	23028 K C3	170	0.0025	0.0303
22214 K C3	150	0.0012	0.0178	22314 K C3	330	0.0012	0.0183	23030 K C3	180	0.0027	0.0320
22215 K C3	140	0.0013	0.0186	22315 K C3	360	0.0013	0.0195	23032 K C3	180	0.0028	0.0339
22216 K C3	150	0.0014	0.0195	22316 K C3	370	0.0014	0.0206	23034 K C3	190	0.0030	0.0358
22217 K C3	160	0.0015	0.0206	22317 K C3	400	0.0015	0.0217	23036 K C3	210	0.0032	0.0381
22218 K C3	190	0.0016	0.0217	22318 K C3	410	0.0016	0.0225	23038 K C3	210	0.0034	0.0400
22219 K C3	200	0.0017	0.0225	22319 K C3	430	0.0017	0.0236	23040 K C3	230	0.0035	0.0422
22220 K C3	230	0.0018	0.0236	22320 K C3	500	0.0018	0.0250	23044 K C3	240	0.0039	0.0459
22222 K C3	270	0.0019	0.0258	22322 K C3	580	0.0019	0.0272	23048 K C3	210	0.0043	0.0495
22224 K C3	280	0.0021	0.0275	22324 K C3	630	0.0021	0.0295	23052 K C3	250	0.0046	0.0536
22226 K C3	300	0.0023	0.0295	22326 K C3	680	0.0023	0.0314	23056K C3	220	0.0050	0.0570
22228 K C3	340	0.0025	0.0317	22328 K C3	730	0.0025	0.0333	23060 K C3	250	0.0053	0.0611
22230 K C3	360	0.0027	0.0336	22330 K C3	760	0.0027	0.0356	23064 K C3	230	0.0057	0.0645
22232 K C3	370	0.0028	0.0358	22332 K C3	740	0.0028	0.0378	23068 K C3	260	0.0060	0.0689
22234 K C3	400	0.0030	0.0381	22334 CKK	760	0.0030	0.0400	23072 K C3	230	0.0064	0.0720
22236 K C3	360	0.0032	0.0397	22336 K C3	740	0.0032	0.0420	23076 K C3	230	0.0067	0.0756
22238 K C3	370	0.0034	0.0417	22338 K C3	730	0.0034	0.0439				
22240 K C3	390	0.0035	0.0439	22340 K C3	740	0.0035	0.0461				
22244 K C3	420	0.0039	0.0481	22344 K C3	810	0.0039	0.0511				
22248 K C3	470	0.0043	0.0528	22348 K C3	800	0.0043	0.0553				
22252 K C3	470	0.0046	0.0564	22352 K C3	810	0.0046	0.0595				
22256 K C3	427	0.0050	0.0600	22356 K C3	820	0.0050	0.0636				
22260 K C3	420	0.0053	0.0636								
22264 K C3	440	0.0057	0.0681								

Pressure Values are for an HMV(C) E Series nut. Nut Size = Bearing size

* Values for hydraulic pressure and axial drive up above are provided as a guide. Actual pressures may vary depending on start position. Measure internal clearances in the bearings during tightening to verify accurate mounting.

231 Series Bearing	Hydraulic Pressure	Radial Clearance reduction	Axial Drive Up
	psi	in	in
23120 K C3	200	0.0018	0.0231
23122 K C3	210	0.0019	0.0247
23124 K C3	250	0.0021	0.0270
23126 K C3	230	0.0023	0.0286
23128 K C3	240	0.0025	0.0306
23130 K C3	320	0.0027	0.0328
23132 K C3	320	0.0028	0.0350
23134 K C3	310	0.0030	0.0367
23136 K C3	330	0.0032	0.0386
23138 K C3	360	0.0034	0.0409
23140 K C3	370	0.0035	0.0431
23144 K C3	390	0.0039	0.0470
23148 K C3	380	0.0043	0.0506
23152 K C3	410	0.0046	0.0547
23156 K C3	370	0.0050	0.0581
23160 K C3	400	0.0053	0.0623
23164 K C3	450	0.0057	0.0667
23168 K C3	490	0.0060	0.0709
23172 K C3	470	0.0064	0.0748
23176 K C3	410	0.0067	0.0775

232 Series Bearing	Hydraulic Pressure	Radial Clearance reduction	Axial Drive Up
	psi	in	in
23218 K C3	240	0.0016	0.0214
23220 K C3	280	0.0018	0.0233
23222 K C3	340	0.0019	0.0256
23224 K C3	360	0.0021	0.0275
23226 K C3	370	0.0023	0.0295
23228 K C3	440	0.0025	0.0317
23230 K C3	450	0.0027	0.0336
23232 K C3	470	0.0028	0.0358
23234 K C3	490	0.0030	0.0378
23236 K C3	460	0.0032	0.0395
23238 K C3	470	0.0034	0.0417
23240 K C3	500	0.0035	0.0439
23244 K C3	540	0.0039	0.0481
23248 K C3	620	0.0043	0.0525
23252 K C3	660	0.0046	0.0570
23256 K C3	600	0.0050	0.0603
23260 K C3	630	0.0053	0.0645
23264 K C3	670	0.0057	0.0689
23268 K C3	720	0.0060	0.0731
23272 K C3	670	0.0064	0.0767
23276 K C3	680	0.0067	0.0806