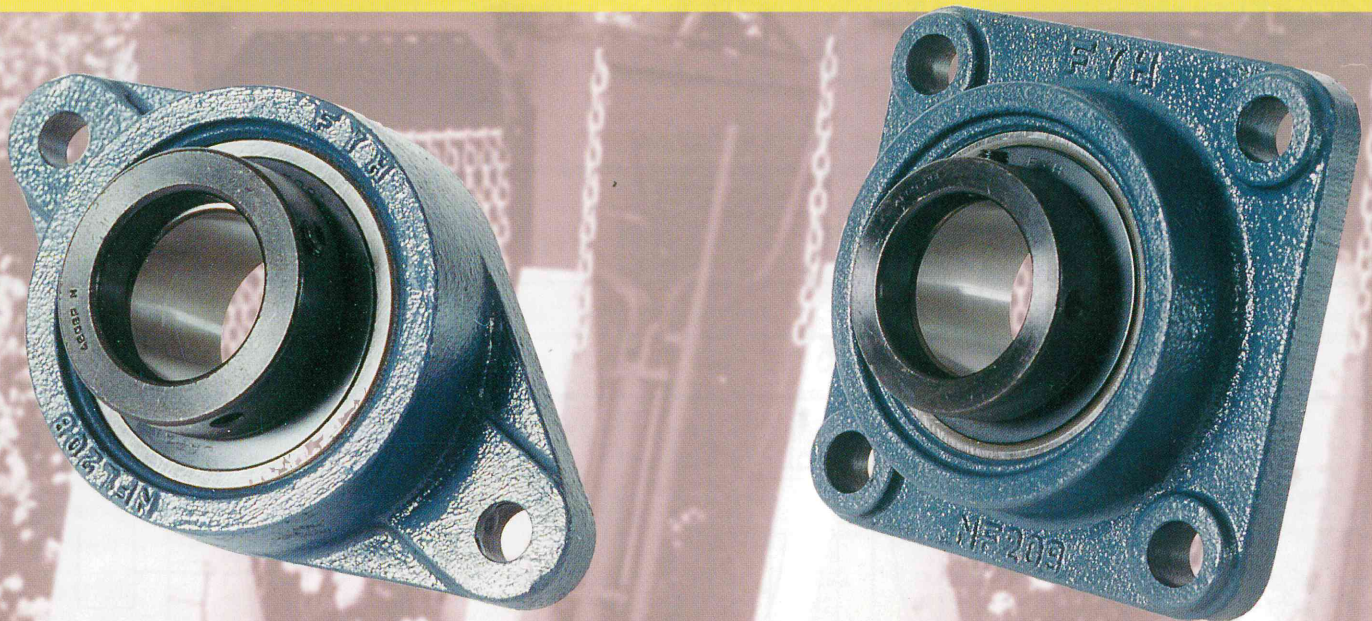
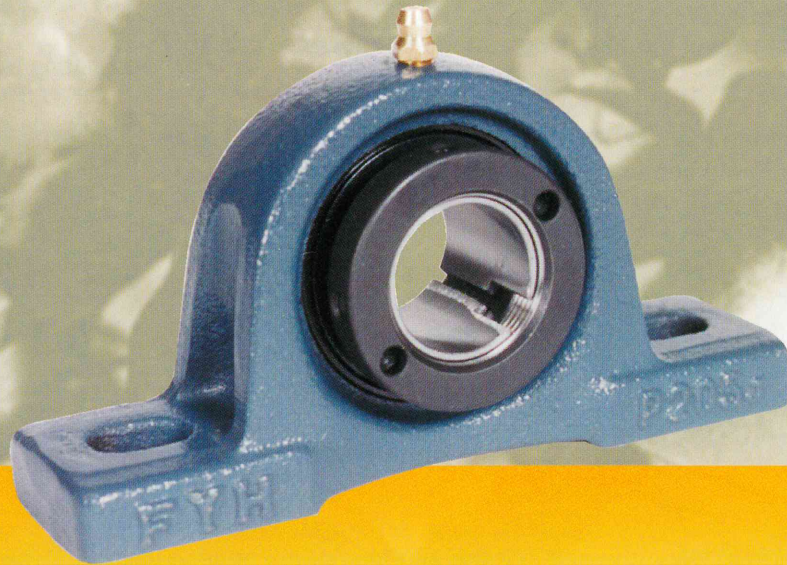


FYH

Cotton Gin Series



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Mounting of Ball Bearing Units with Adapter Assemblies Instruction

Ball bearing units with adapter assemblies can withstand shock and vibration since the shaft and inner ring are firmly clamped by a sleeve and nut. Therefore, it is not necessary to use a special-shaped shaft. A h9 tolerance will normally be sufficient (IT6 for roundness and cylindricality).

Keep in mind that if the units are overtightened, the radial clearance of the bearing will be reduced due to the expansion of the inner ring. Heat may be generated. Recommended tightening torques for lock nuts are given in Table 4.

To mount a bearing unit with an adapter assembly, proceed as follows.

- 1) Check the rigidity and flatness of the mounting surface to ensure satisfactory operating conditions.
- 2) Use a screw driver to expand the slot. Place the sleeve onto the shaft. Move the sleeve to a point where the center of the tapered portion corresponds to the width of the bearing.
- 3) Slide the bearing unit onto the shaft and over the tapered portion of the sleeve. Use a metal ring or tube to support the entire end face of the inner ring on the side closest to the threads. Lightly tap all around the circumference of the sleeve at the larger diameter end to secure a tighter fit.
- 4) Thread the nut on to the sleeve and fasten by hand until tight.
- 5) Fix the housing to the mounting base. Set the correct distance between units, and confirm the axial clearance of the bearing before finally tightening the mounting bolts. Temporarily mount a reference ring as shown in Fig. 3 and then measure the distance between the ring and the end face of the bearing with a bar gauge or inside micrometer. This will facilitate accurate positioning over a long distance.
- 6) Use a torque wrench to tighten the nut (see Table 4) to fix the bearing and sleeve to the shaft.
- 7) To prevent the nut from loosening, tighten the socket set screws located on the O.D. of the nut.
- 8) Rotate the shaft by hand and confirm that it turns smoothly.

**Table 4 Lock Nut Tightening Torque
(Reference only)**

| <u>Bearing Number</u> | <u>Torque (lbf/inch)</u> |
|-----------------------|--------------------------|
| GIN 208-104ET | 440 |
| GIN 208-105ET | 440 |
| GINX 10-111ET | 870 |
| GIN 213-203ET | 1300 |
| GIN 215-207ET | 1500 |
| GIN 217-215ET | 2000 |

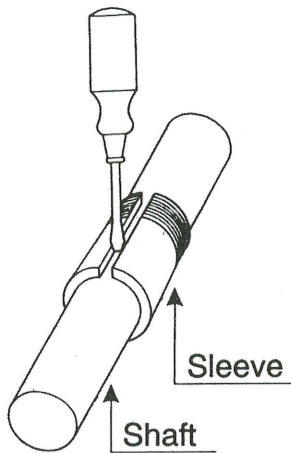


Figure 1

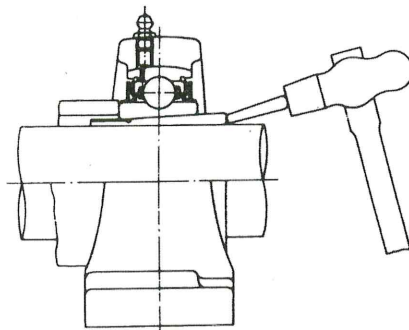


Figure 2

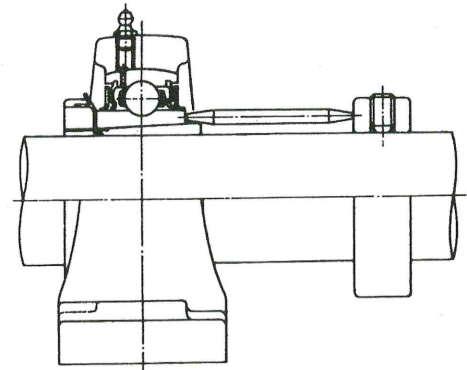
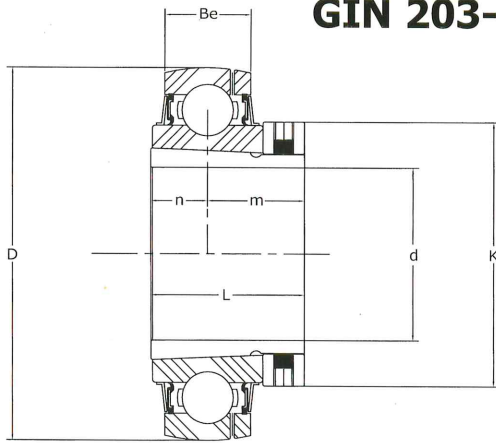


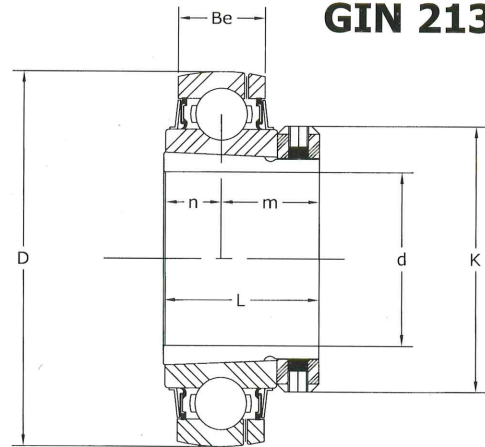
Figure 3

FYH Cotton Gin Units

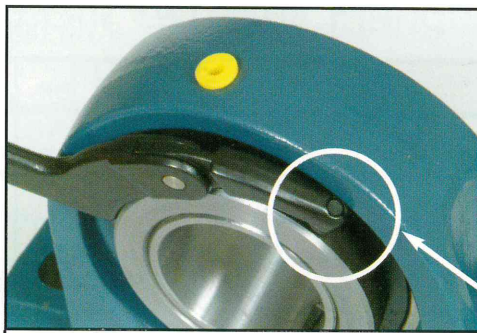
GIN 203-213ET



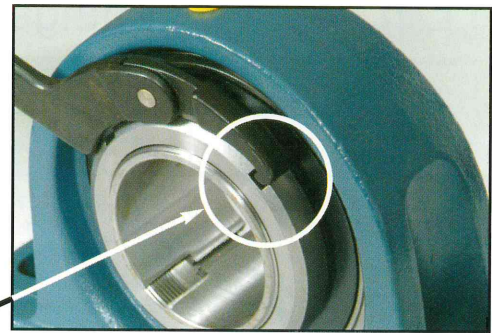
GIN 213-203ET2



Pin Type



Hook Type

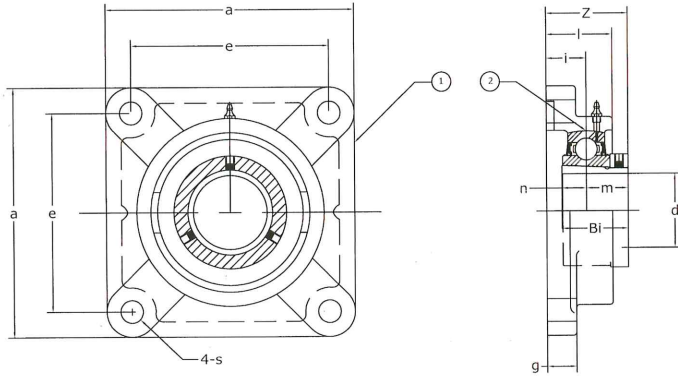


Cotton Gin Insert

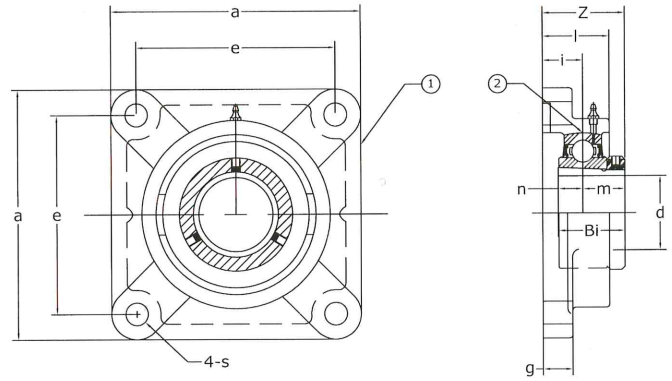
| Unit No. | Shaft Diameter <i>d</i> (inches) | Dimensions (in/mm) | | | | | | Bolt Used (in.) | Bearing No. | Basic Load Rating kg/lbs | |
|---------------|--|--------------------|--------------|---------------|----------------|--------------|---------------|--------------------|-------------|-----------------------------|---------------|
| | | <i>D</i> | <i>Be</i> | <i>n</i> | <i>m</i> | <i>L</i> | <i>K</i> | | | Dynamic | Static |
| GIN 208-104ET | 1 1/4 | 3.1496 80 | .8267 21 | .531 13.5 | .933 23.7 | 1.417 36 | 2.283 58 | 1/2 | UK 208 | 2970 6546 | 1820 4011 |
| GIN 208-105ET | 1 5/16 | 3.1496 80 | .8267 21 | .531 13.5 | .933 23.7 | 1.417 36 | 2.283 58 | 1/2 | UK 208 | 2970 6546 | 1820 4011 |
| GINX 10-111ET | 1 11/16 | 3.937 100 | .9842 25 | .6883 17.5 | 1.0834 27.5 | 1.653 42 | 2.7559 70 | 5/8 | UKX 10 | 4420 9742 | 3000 6612 |
| GIN 213-203ET | 2 3/16 | 4.244 120 | 1.1024 28 | .7283 18.5 | 1.2402 31.5 | 1.9685 50 | 3.3465 85 | 3/4 | UK 213 | 5840 12871 | 4090 9014 |
| GIN 215-207ET | 2 7/16 | 5.1181 130 | 1.2598 32 | .807 20.5 | 1.358 34.5 | 2.156 55 | 3.858 98 | 3/4 | UK 215 | 6880 15164 | 4920 10844 |
| GIN 217-215ET | 2 15/16 | 5.9055 150 | 1.4960 38 | .913 23.2 | 1.567 39.8 | 2.4803 63 | 4.3307 110 | 3/4 | UK 217 | 8560 18866 | 6310 13907 |

FYH GINF 4-Bolt Flange

w/ H200ET nut



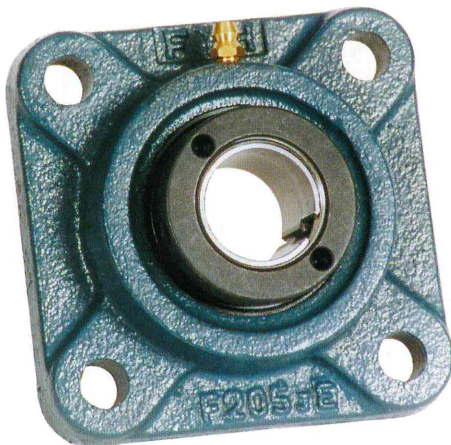
w/ H200ET2 nut



Cotton Gin Four Bolt Flange Unit

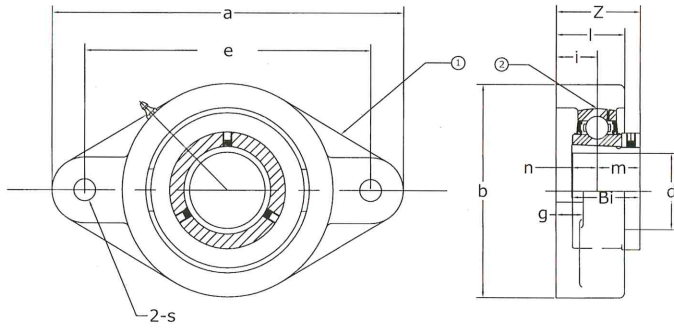
"E" style housing

| Unit No. | Shaft Dia. <i>d</i> (inches) | Dimensions (in/mm) | | | | | | | | Dynamic Load Rating <i>C</i> lbs/kg | Static Load Rating <i>C₀</i> lbs/kg | Bolt Used | |
|----------------|------------------------------------|--------------------|--------------|------------|------------|------------|---------------|---------------|------------|--|---|-----------|-----|
| | | <i>a</i> | <i>e</i> | <i>i</i> | <i>g</i> | <i>l</i> | <i>s</i> | <i>Z</i> | <i>Bi</i> | | | mm/in. | |
| GINF 208-104ET | 1 1/4 | 5.118 130 | 4.015 102 | .827 21 | .591 15 | 1.42 36 | .5156 13.1 | 2 50.8 | 1.42 36 | 6546 2970 | 4011 1820 | 14 | 1/2 |
| GINF 208-105ET | 1 5/16 | 5.118 130 | 4.015 102 | .827 21 | .591 15 | 1.42 36 | .5156 13.1 | 2 50.8 | 1.42 36 | 6546 2970 | 4011 1820 | 14 | 1/2 |
| GINFX 10-111ET | 1 11/16 | 6.378 162 | 5.118 130 | 1.02 26 | .787 20 | 1.73 44 | .656 16.7 | 2.375 60.3 | 2.16 55 | 9742 4420 | 6612 3000 | 16 | 5/8 |
| GINF 213-203ET | 2 3/16 | 7.362 187 | 5.866 149 | 1.18 30 | .866 22 | 1.97 50 | .748 19 | 2.69 68.3 | 1.97 50 | 12871 5840 | 9014 4090 | 16 | 5/8 |
| GINF 215-207ET | 2 7/16 | 7.874 200 | 6.26 159 | 1.34 34 | .866 22 | 2.20 56 | .748 19 | 2.927 74.3 | 2.16 55 | 15164 6880 | 10844 4920 | 16 | 5/8 |
| GINF 217-215ET | 2 15/16 | 8.661 220 | 6.89 175 | 1.42 36 | .945 24 | 2.48 63 | .905 23 | 3.242 82.3 | 2.48 63 | 18866 8560 | 13907 6310 | 20 | 3/4 |

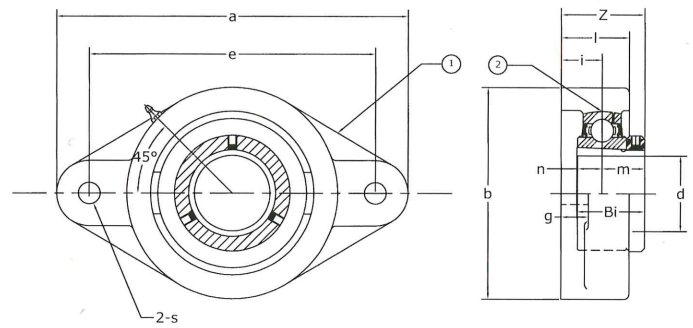


FYH GINFL 2-Bolt Flange

w/ H200ET nut



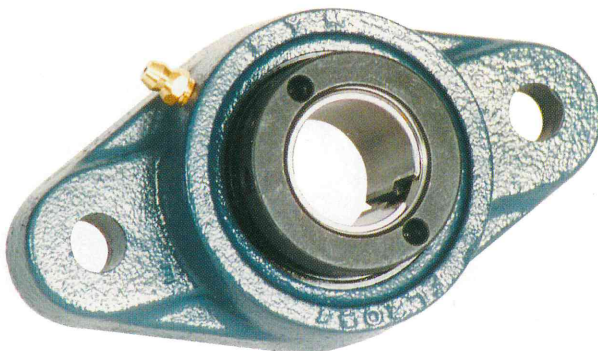
w/ H200ET2 nut



Cotton Gin Two Bolt Flange Unit

“E” style housing

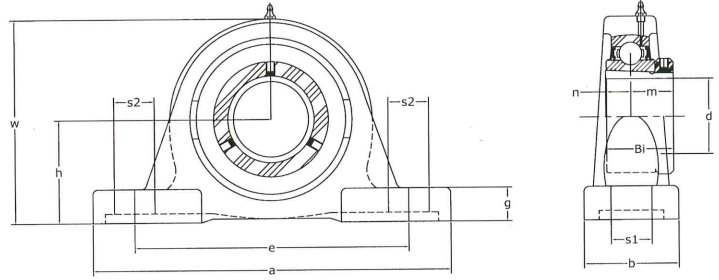
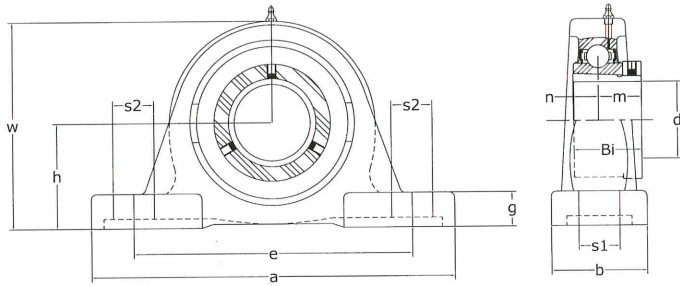
| Unit No. | Shaft Dia. <i>d</i> (inches) | Dimensions (in/mm) | | | | | | | | | Dynamic Load Rating <i>C</i> lbs/kg | Static Load Rating <i>C₀</i> lbs/kg | Bolt Used mm/in. | |
|-----------------|------------------------------------|--------------------|----------------|-------------|---------------|---------------|--------------|--------------|---------------|---------------|--|---|---------------------|-----|
| | | <i>a</i> | <i>e</i> | <i>i</i> | <i>g</i> | <i>l</i> | <i>s</i> | <i>b</i> | <i>Z</i> | <i>Bi</i> | | | | |
| GINFL 208-104ET | 1 1/4 | 6.875 174.6 | 5.656 143.6 | .828 21 | .5625 14.3 | 1.406 35.7 | .515 13.1 | 3.937 100 | 2.281 57.9 | 1.406 35.7 | 6546 2970 | 4011 1820 | 14 | 1/2 |
| GINFL 208-105ET | 1 5/16 | 6.875 174.6 | 5.656 143.6 | .828 21 | .5625 14.3 | 1.406 35.7 | .515 13.1 | 3.937 100 | 2.281 57.9 | 1.406 35.7 | 6546 2970 | 4011 1820 | 14 | 1/2 |
| GINFLX 10-111ET | 1 11/16 | 8.504 216 | 7.244 184 | 1.023 26 | .787 20 | 1.73 44 | .748 19 | 5.236 133 | 2.364 60 | 2.156 55 | 9742 4420 | 6612 3000 | 16 | 5/8 |
| GINFL 213-203ET | 2 3/16 | 10.157 258 | 8.268 210 | 1.181 30 | .787 20 | 1.968 50 | .905 23 | 6.102 155 | 2.656 67.5 | 1.968 50 | 12871 5840 | 9014 4090 | 20 | 3/4 |
| GINFL 215-207ET | 2 7/16 | 10.827 275 | 8.858 225 | 1.338 34 | .787 20 | 2.205 56 | .905 23 | 6.5 165 | 2.947 74.8 | 2.156 55 | 15164 6880 | 10844 4920 | 20 | 3/4 |
| GINFL 217-215ET | 2 15/16 | 12 305 | 9.76 248 | 1.42 36 | .866 22 | 2.48 63 | .984 25 | 7.5 190 | 3.242 82.6 | 2.48 63 | 18866 8560 | 13907 6310 | 22 | 7/8 |



FYH GINP - Pillow Block

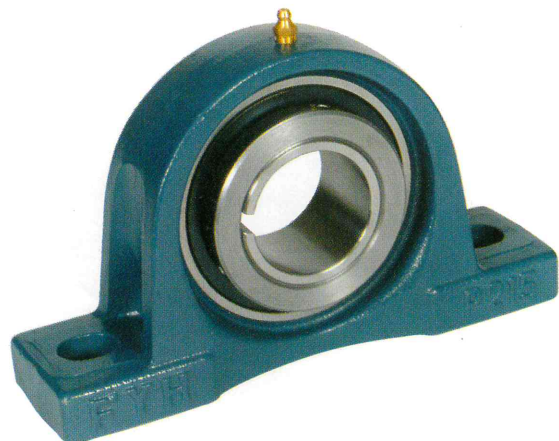
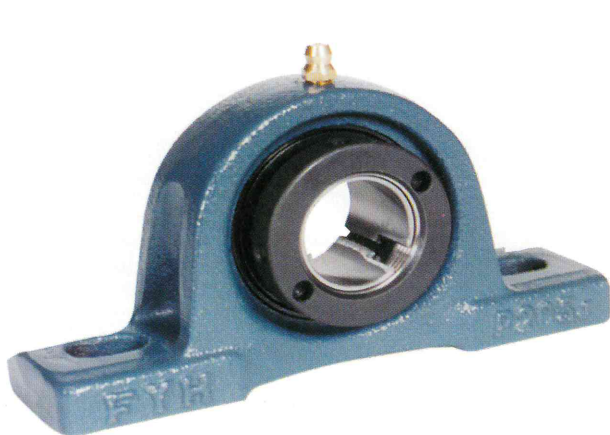
w/ H200ET nut

w/ H200ET2 nut



Cotton Gin Pillow Block Unit

| Unit No. | Shaft Dia. <i>d</i> (inches) | Dimensions (in/mm) | | | | | | | | | Dynamic Load Rating <i>C</i> lbs/kg | Static Load Rating <i>C₀</i> lbs/kg | Bolt Used mm/in. | |
|----------------|------------------------------------|--------------------|---------------|--------------|-------------|----------------------|----------------------|-------------|--------------|----------------------|---|--|---------------------|-----|
| | | <i>h</i> | <i>a</i> | <i>e</i> | <i>b</i> | <i>S₂</i> | <i>S₁</i> | <i>g</i> | <i>w</i> | <i>B₁</i> | | | | |
| GINP 208-104ET | 1 1/4 | 1.937 49.2 | 7.244 184 | 5.393 137 | 2.126 54 | .827 21 | .669 17 | .669 17 | 3.858 98 | 1.667 42.3 | 6546 2970 | 4011 1820 | 14 | 1/2 |
| GINP 208-105ET | 1 5/16 | 1.937 49.2 | 7.244 184 | 5.393 137 | 2.126 54 | .827 21 | .669 17 | .669 17 | 3.858 98 | 1.667 42.3 | 6546 2970 | 4011 1820 | 14 | 1/2 |
| GINP 10-111ET | 1 11/16 | 2.5 63.5 | 9.488 241 | 6.732 171 | 2.874 73 | 1.417 36 | .787 20 | .866 22 | 4.961 126 | 2.415 61.3 | 9742 4420 | 6612 3000 | 16 | 5/8 |
| GINP 213-203ET | 2 3/16 | 3 76.2 | 10.433 265 | 7.992 2.3 | 2.756 70 | 1.181 30 | .984 25 | .984 25 | 5.91 150 | 2.218 56.3 | 12871 5840 | 9014 4090 | 20 | 3/4 |
| GINP 215-207ET | 2 7/16 | 3.25 82.6 | 10.827 275 | 8.543 217 | 2.913 74 | 1.181 30 | .984 25 | 1.102 28 | 6.378 162 | 2.415 61.3 | 15164 6880 | 10844 4920 | 20 | 3/4 |
| GINP 217-215ET | 2 15/16 | 3.748 95.2 | 1.22 310 | 9.724 247 | 3.268 83 | 1.575 40 | .984 25 | 1.26 32 | 7.28 185 | 2.73 69.3 | 18866 8560 | 13907 6310 | 20 | 3/4 |



Cotton Gin Bearing Interchange

| FAFNIR | FYH | FAFNIR | FYH |
|-----------|--------------|--------|-------|
| GN104KRRB | GIN 208104ET | RAK | NAPK |
| GN105KRRB | GIN208105ET | RCJ | NANF |
| GN111LRRB | GINX210111ET | RCJT | NANFL |
| GN203KRRB | GIN213203ET | RAS | NAP |
| GN207KRRB | GIN215207ET | | |
| GN215KRRB | GIN217215ET | | |

Removal of the KS and the Cotton Gin Bearing Instruction

The lock nuts used on the KS or the Cotton Gin bearing allow removal of the bearing to be more simpler than other locking devices. Unlike the set screw type, the shaft could be damaged leaving poor mounting surface or possibly cutting of the shaft. In addition, the sleeve and nut on the KS does not allow slippage that could result in seizure from shock load and high vibration applications. The length-thru-bore locking system is clearly the advantage of the KS.

For removal, it is recommended to clean the shaft wiping off any dirt or material residue that could get in the way of the adapter sleeve. In addition, it is recommended to apply a lubricant on the nut to facilitate removal.

Follow the procedure below to remove the adapter assembly of the tapered bearing:

- 1.) With an Allen wrench, loosen the set-screws from the lock nut. (See Picture #1)
- 2.) Clean the threaded portion of the adapter sleeve removing dirt and material residue. If necessary, apply a lubricant on to the thread.
- 3.) Loosen the nut from the sleeve with a spanner wrench. The KS bearing uses a Pin type while the Cotton Gin bearing uses the hook type spanner wrench. (See Picture #2)
- 4.) Do not remove the nut completely out of the threaded sleeve.
- 5.) With the nut still on the sleeve, use a mallet to strike a drift evenly around the nut. This should loosen up the interference fitting between the shaft and the adapter. (See Picture #3)
- 6.) The bearing unit can be removed after the removal of the sleeve/nut assembly.

Care should be taken not to damage the threaded portion of the sleeve. The adapter sleeve and nut can be used repeatedly with a new bearing insert. Inspect each component to make sure it is free from dirt, corrosion and other material residue.

The shaft should be clean and free from dirt and corrosion prior to installation of the bearing. Inspect the shaft for concentricity and other damages.

