



New Hampshire Ball Bearings, Inc.

— *A Minebea Company* —

Corrosion Resistant Self-Lubricating Rod End Bearings



ASTRO DIVISION





Corrosion Resistant Self-Lubricating Rod End Bearings

Customers are searching for alternatives to cadmium-plated products and that's why NHBB has become the first industry-qualified source for stainless steel rod ends.

Our stainless steel (CRES), cadmium-free, self-lubricating rod end series is the first to meet the new industry standard, AS81935/6, /7, /8 and /9. This series offers equivalent dimensions and performance to cadmium-plated AS81935/1, /2, /4, and /5 rod ends without the potential risks and regulatory burdens—including European Union environmental regulations—associated with cadmium.

The CRES rod end series is manufactured from corrosion-resistant PH13-8Mo[®] stainless steel. PH13-8Mo[®] combines a high level of corrosion resistance and strength, coupled with superior toughness and transverse mechanical properties. For more corrosion resistance, the ball component can also be made of PH13-8Mo[®] stainless steel.

At NHBB's Astro Division, we manufacture products to our customers' exacting requirements. While we are well-positioned to provide standard CRES self-lubricating rod end bearings at a competitive price, we are dedicated to supporting our customers through the design and production of custom bearings, next-up assemblies, and machined parts. Please contact Astro's sales or engineering teams for assistance with your specific requirements.

NHBB Part Numbering Cross Reference Examples

| NEW STANDARD | CURRENT STANDARD |
|--------------|------------------|
| AS81935/6 | AS81935/1 |
| ADNEC03 | ADNE3J |
| ADNEC16 | ADNE16J |
| AS81935/7 | AS81935/2 |
| ADNC03 | ADN3J |
| ADNC16 | ADN16J |
| AS81935/8 | AS81935/4 |
| ADNEC03-382 | ADNE3-382 |
| ADNEC16-382 | ADNE16-382 |
| AS81935/9 | AS81935/5 |
| ADNC03-345 | ADN3-345 |
| ADNC16-345 | ADN16-345 |

DESIGNING WITH STAINLESS STEEL:

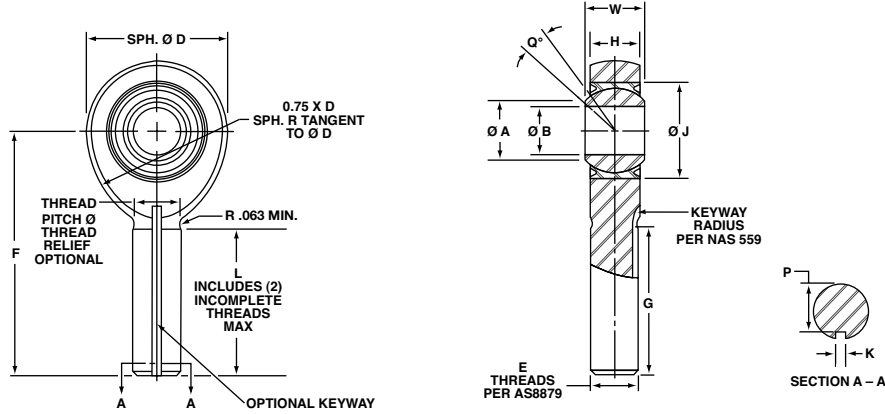
When specifying stainless steel rod ends, we recommend paying careful attention to the material composition of mating components in order to prevent the potential development of galvanic corrosion resulting from contact of the corrosion resistant steel directly with more active (anodic) materials. If you have any questions about galvanic compatibility, please contact Astro's Product Engineering Group at 603.524.0004.

PH13-8Mo[®] stainless steel is a registered trademark of Armco Inc.



Corrosion Resistant (CRES) – AS81935/6

Wide—Male Thread

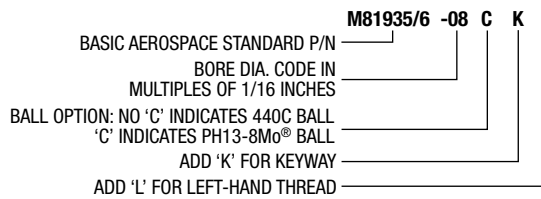
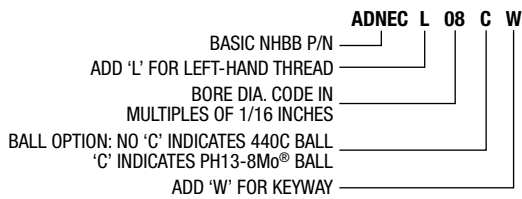


Optional Keyway:

- 03 through -08 sizes per AS81935/3
- 10 through -16 sizes per NAS 559

| PART NUMBER | AS DASH NO. | (B) BORE DIA. | (D) SPH. DIA. | (W) BALL WIDTH | (H) BODY WIDTH | (A) SHOULDER DIA. | BALL DIA. | (F) BALL C/L TO END | (E) THREAD SIZE | (L) THREAD LENGTH | (J) HOUSING I.D. | (G) KEYWAY FLAT | (K) KEYWAY WIDTH | (P) KEYWAY | (Q) MIS-ALIGNMENT |
|-------------|-------------|------------------|------------------|------------------|------------------|-------------------|-----------|---------------------|-----------------|-------------------|------------------|------------------|------------------|------------------|-------------------|
| M81935/6 | | +0.000 -0.005 | +0.010 -0.010 | +0.000 -0.002 | +0.005 -0.005 | MIN. | REF. | +0.010 -0.010 | UNJF-3A | +0.031 -0.031 | MAX. | +0.000 -0.020 | +0.005 -0.000 | +0.000 -0.005 | MIN. |
| ADNEC03 | -03 | .1900 | .806 | .437 | .337 | .300 | .531 | 1.562 | .3125-24 | .968 | .6250 | .980 | .062 | .268 | 15° |
| ADNEC04 | -04 | .2500 | .806 | .437 | .337 | .300 | .531 | 1.562 | .3125-24 | .968 | .6250 | .980 | .062 | .268 | 15° |
| ADNEC05 | -05 | .3125 | .900 | .437 | .327 | .360 | .593 | 1.875 | .3125-24 | 1.187 | .6875 | 1.270 | .062 | .268 | 14° |
| ADNEC06 | -06 | .3750 | 1.025 | .500 | .416 | .470 | .687 | 1.938 | .3750-24 | 1.187 | .8125 | 1.235 | .093 | .319 | 8° |
| ADNEC07 | -07 | .4375 | 1.150 | .562 | .452 | .540 | .781 | 2.125 | .4375-20 | 1.281 | .9062 | 1.402 | .093 | .383 | 10° |
| ADNEC08 | -08 | .5000 | 1.337 | .625 | .515 | .610 | .875 | 2.438 | .5000-20 | 1.468 | 1.0000 | 1.589 | .093 | .445 | 9° |
| ADNEC10 | -10 | .6250 | 1.525 | .750 | .577 | .750 | 1.062 | 2.625 | .6250-18 | 1.562 | 1.1875 | 1.683 | .125 | .541 | 12° |
| ADNEC12 | -12 | .7500 | 1.775 | .875 | .640 | .850 | 1.250 | 2.875 | .7500-16 | 1.687 | 1.3750 | 1.808 | .125 | .663 | 13° |
| ADNEC14 | -14 | .8750 | 2.025 | .875 | .765 | 1.000 | 1.375 | 3.375 | .8750-14 | 2.000 | 1.6250 | 2.121 | .156 | .777 | 6° |
| ADNEC16 | -16 | 1.0000 | 2.775 | 1.375 | 1.015 | 1.270 | 1.875 | 4.125 | 1.2500-12 | 2.343 | 2.1250 | 2.464 | .187 | 1.136 | 12° |

Part Number Coding:



Notes:

- Bearings listed in the tables are approved for procurement to AS81935.
- Operating temperature range per AS81935: -65 to 325 °F. Broader temperature capabilities are achievable.
- All dimensions are in inches unless otherwise specified.

| MATERIALS | | | | |
|--------------------------|--|--------------------------------------|--|------------------------------------|
| Part No. | Ball | Race | Liner | Body |
| Catalog No. | CRES 440C◆ AMS 5630 55-62 HRC | CRES 17-4PH AMS 5643 28-37 HRC | TEFLON®/Fabric Bonded to Race I.D. No Lub. Required | PH13-8Mo® AMS 5629 40-44 HRC |
| ◆Optional ball material: | | | | |
| Catalog No. + C* | PH13-8Mo® AMS 5629 43 HRC minimum hardness | | | |

*See part number coding above.

| PERFORMANCE PROPERTIES – WIDE | | | | | | |
|-------------------------------|-------------|-------------------------------------|-----------------------------|-------------------------|--------------|----------------|
| M81935/6 | AS Dash No. | No Load Rotational Breakaway Torque | Ultimate Static Radial Load | Axial Static Proof Load | Fatigue Load | Approx. Weight |
| | | In-lbs. | lbs. | lbs. | lbs. | lbs. |
| ADNEC03 | -03 | .5-6 | 2,360 | 1,000 | 1,470* | .072 |
| ADNEC04 | -04 | .5-6 | 4,860 | 1,000 | 2,380 | .072 |
| ADNEC05 | -05 | 1-15 | 7,180 | 1,100 | 2,770 | .087 |
| ADNEC06 | -06 | 1-15 | 8,550 | 1,660 | 3,570 | .136 |
| ADNEC07 | -07 | 1-15 | 12,000 | 1,850 | 4,800 | .183 |
| ADNEC08 | -08 | 1-15 | 19,500 | 2,040 | 7,680 | .278 |
| ADNEC10 | -10 | 1-15 | 21,900 | 2,430 | 9,180 | .424 |
| ADNEC12 | -12 | 1-15 | 29,300 | 2,810 | 11,600 | .639 |
| ADNEC14 | -14 | 1-24 | 34,500 | 3,320 | 13,100 | .963 |
| ADNEC16 | -16 | 1-24 | 80,300 | 4,340 | 30,400 | 2.546 |

*Based on bolt bending fatigue strength 180,000 psi.

• Shank limitation

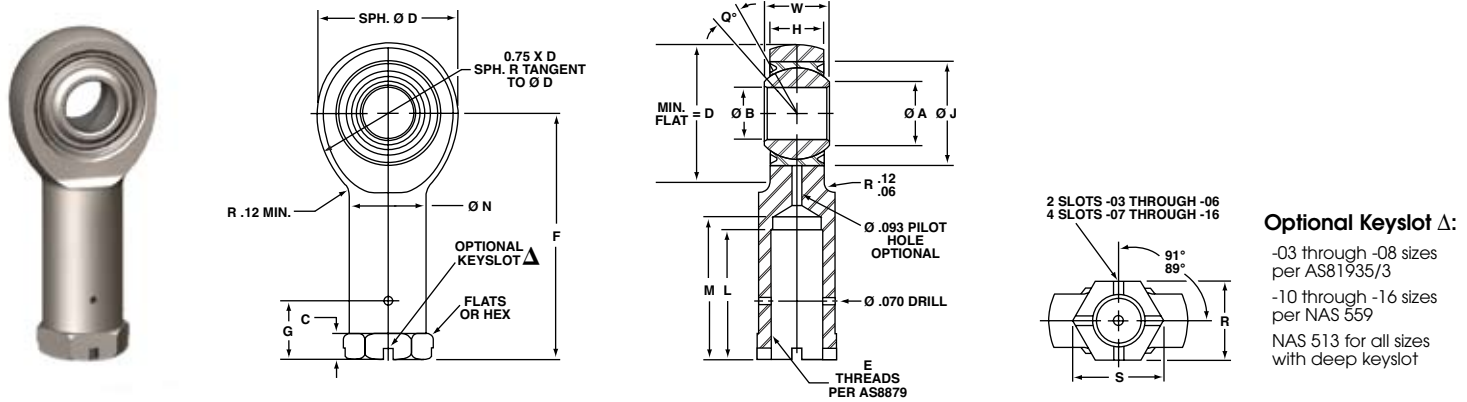
PH13-8Mo® stainless steel is a registered trademark of Armco Inc.

Teflon® is a registered trademark of E.I. DuPont de Nemours and Company.



Corrosion Resistant (CRES) – AS81935/7

Wide—Female Thread



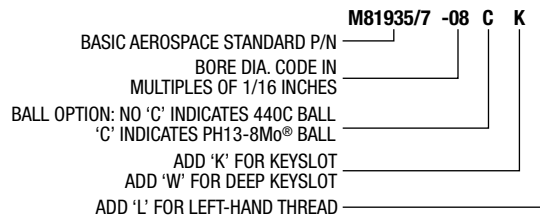
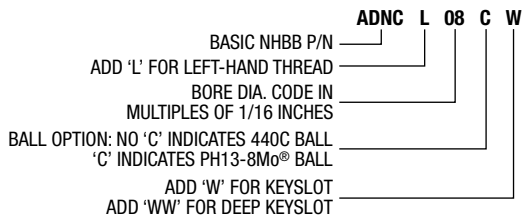
Optional Keyslot Δ:

- 03 through -08 sizes per AS81935/3
- 10 through -16 sizes per NAS 559
- NAS 513 for all sizes with deep keyslot

Δ For keyslot details, contact Astro's Product Engineering Group.

| PART NUMBER | AS DASH NO. | (B) BORE DIA. | (D) SPH. DIA. | (W) BALL WIDTH | (H) BODY WIDTH | (A) SHOULDER DIA. | BALL DIA. | (F) BALL C/L TO END | (E) THREAD SIZE | (L) THREAD LENGTH | (N) SHANK DIA. | (M) DRILL DEPTH | (C) HEIGHT WRENCH SURFACE | (R) WIDTH ACROSS FLATS | (S) ACROSS CORNERS OR DIA. | (G) DRILL C/L TO END | (J) HOUSING I.D. | (O°) MIS-ALIGNMENT |
|-------------|-------------|------------------|------------------|------------------|------------------|-------------------|-----------|---------------------|-----------------|-------------------|------------------|-----------------|---------------------------|------------------------|----------------------------|----------------------|------------------|--------------------|
| M81935/7 | | +0.000 -0.005 | +0.010 -0.010 | +0.000 -0.002 | +0.005 -0.005 | MIN. | REF. | +0.010 -0.010 | UNJF-3B | MIN. | +0.010 -0.010 | MAX. | +0.010 -0.062 | +0.010 -0.010 | REF. | +0.020 -0.020 | MAX. | MIN. |
| ADNC03 | -03 | .1900 | .806 | .437 | .337 | .300 | .531 | 1.375 | .3125-24 | .750 | .422 | .875 | .188 | .437 | .500 | .375 | .6250 | 15° |
| ADNC04 | -04 | .2500 | .806 | .437 | .337 | .300 | .531 | 1.469 | .3125-24 | .750 | .422 | .875 | .188 | .437 | .500 | .375 | .6250 | 15° |
| ADNC05 | -05 | .3125 | .900 | .437 | .327 | .360 | .593 | 1.625 | .3750-24 | .875 | .485 | 1.000 | .250 | .500 | .580 | .437 | .6875 | 14° |
| ADNC06 | -06 | .3750 | 1.025 | .500 | .416 | .470 | .687 | 1.812 | .3750-24 | 1.000 | .547 | 1.125 | .250 | .562 | .660 | .437 | .8125 | 8° |
| ADNC07 | -07 | .4375 | 1.150 | .562 | .452 | .540 | .781 | 2.000 | .4375-20 | 1.125 | .610 | 1.250 | .250 | .625 | .720 | .500 | .9062 | 10° |
| ADNC08 | -08 | .5000 | 1.337 | .625 | .515 | .610 | .875 | 2.250 | .5000-20 | 1.250 | .735 | 1.375 | .250 | .750 | .880 | .562 | 1.0000 | 9° |
| ADNC10 | -10 | .6250 | 1.525 | .750 | .577 | .750 | 1.062 | 2.500 | .6250-18 | 1.375 | .860 | 1.500 | .375 | .875 | 1.020 | .687 | 1.1875 | 12° |
| ADNC12 | -12 | .7500 | 1.775 | .875 | .640 | .850 | 1.250 | 2.875 | .7500-16 | 1.625 | .985 | 1.750 | .375 | 1.000 | 1.160 | .812 | 1.3750 | 13° |
| ADNC14 | -14 | .8750 | 2.025 | .875 | .765 | 1.000 | 1.375 | 3.375 | .8750-14 | 1.875 | 1.110 | 2.062 | .500 | 1.125 | 1.300 | .937 | 1.6250 | 6° |
| ADNC16 | -16 | 1.0000 | 2.775 | 1.375 | 1.015 | 1.270 | 1.875 | 4.125 | 1.2500-12 | 2.125 | 1.688 | 2.312 | .563 | 1.750 | 2.020 | 1.312 | 2.1250 | 12° |

Part Number Coding:



Notes:

- Bearings listed in the tables are approved for procurement to AS81935.
- Operating temperature range per AS81935: -65 to 325 °F. Broader temperature capabilities are achievable.
- All dimensions are in inches unless otherwise specified.

MATERIALS

| Part No. | Ball | Race | Liner | Body |
|---------------------------|--|--------------------------------------|--|------------------------------------|
| Catalog No. | CRES 440C AMS 5630 55-62 HRC | CRES 17-4PH AMS 5643 28-37 HRC | TEFLON®/Fabric Bonded to Race I.D. No Lub. Required | PH13-8Mo® AMS 5629 40-44 HRC |
| ♦ Optional ball material: | | | | |
| Catalog No. + C* | PH13-8Mo® AMS 5629 43 HRC minimum hardness | | | |

*See part number coding above.

PH13-8Mo® stainless steel is a registered trademark of Armco Inc.
Teflon® is a registered trademark of E.I. DuPont de Nemours and Company.

PERFORMANCE PROPERTIES – WIDE

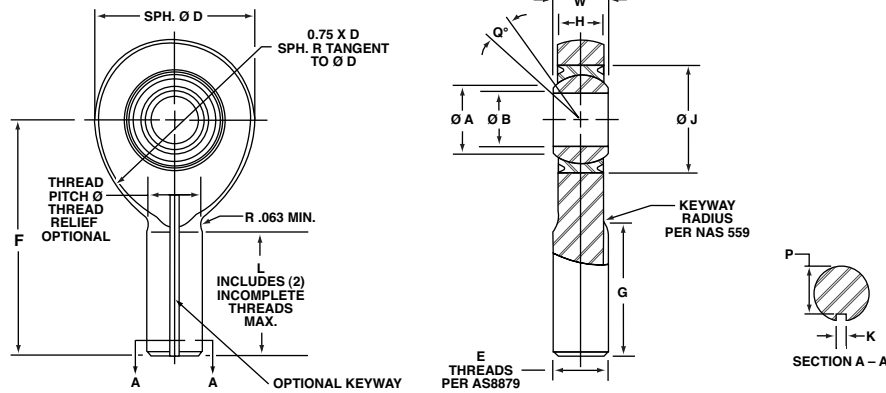
| AS Dash No. | AS Dash No. | No Load Rotational Breakaway Torque | Ultimate Static Radial Load | Axial Static Proof Load | Fatigue Load | Approx. Weight |
|-------------|-------------|-------------------------------------|-----------------------------|-------------------------|--------------|----------------|
| | | In-lbs. | lbs. | lbs. | lbs. | lbs. |
| M81935/7 | | | | | | |
| ADNC03 | -03 | .5-6 | 2,360 | 1,000 | 1,470* | .080 |
| ADNC04 | -04 | .5-6 | 4,860 | 1,000 | 2,380 | .084 |
| ADNC05 | -05 | 1-15 | 7,180 | 1,100 | 3,020 | .102 |
| ADNC06 | -06 | 1-15 | 8,550 | 1,660 | 3,570 | .161 |
| ADNC07 | -07 | 1-15 | 12,000 | 1,850 | 4,800 | .212 |
| ADNC08 | -08 | 1-15 | 19,500 | 2,040 | 8,260 | .325 |
| ADNC10 | -10 | 1-15 | 21,900 | 2,430 | 9,180 | .481 |
| ADNC12 | -12 | 1-15 | 29,300 | 2,810 | 11,600 | .673 |
| ADNC14 | -14 | 1-24 | 34,500 | 3,320 | 13,100 | .959 |
| ADNC16 | -16 | 1-24 | 80,300 | 4,340 | 30,400 | 2.717 |

*Based on bolt bending fatigue strength 180,000 psi.



Corrosion Resistant (CRES) – AS81935/8

Narrow—Male Thread



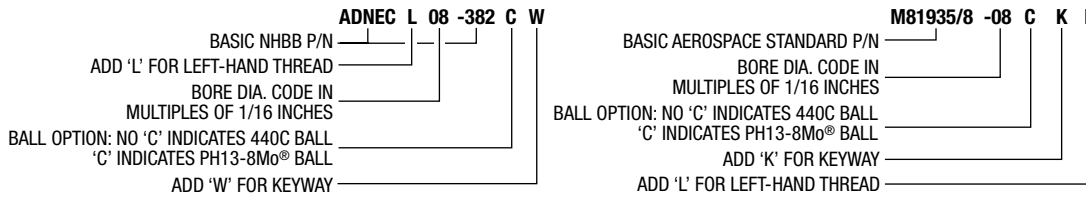
Optional Keyway:

- 03 through -08 sizes per AS81935/3
- 10 through -16 sizes per NAS 559

| PART NUMBER | AS DASH NO. | (B) BORE DIA. | (D) SPH. DIA. | (W) BALL WIDTH | (H) BODY WIDTH | (A) SHOULDER DIA. | BALL DIA. | (F) BALL C/L TO END | (E) THREAD SIZE | (L) THREAD LENGTH | (J) HOUSING I.D. | (G) KEYWAY FLAT | (K) KEYWAY WIDTH | (P) KEYWAY | (Q) MIS-ALIGNMENT |
|-------------|-------------|------------------|------------------|------------------|------------------|-------------------|-----------|---------------------|-----------------|-------------------|------------------|------------------|------------------|------------------|-------------------|
| M81935/8 | | +0.000 -0.005 | +0.010 -0.010 | +0.000 -0.002 | +0.005 -0.005 | MIN. | REF. | +0.010 -0.010 | UNJF-3A | +0.031 -0.031 | MAX. | +0.000 -0.020 | +0.005 -0.000 | +0.000 -0.005 | MIN. |
| ADNEC03-382 | -03 | .1900 | .680 | .281 | .228 | .293 | .437 | 1.315 | .2500-28 | .775 | .5625 | .896† | .062 | .207 | 10° |
| ADNEC04-382 | -04 | .2500 | .827 | .343 | .260 | .364 | .531 | 1.443 | .2500-28 | .775 | .6562 | .896 | .062 | .207 | 10° |
| ADNEC05-382 | -05 | .3125 | .984 | .375 | .291 | .419 | .562 | 1.948 | .3125-24 | 1.187 | .7500 | 1.308 | .062 | .268 | 10° |
| ADNEC06-382 | -06 | .3750 | 1.131 | .406 | .322 | .475 | .656 | 2.030 | .3750-24 | 1.187 | .8125 | 1.308 | .093 | .319 | 9° |
| ADNEC07-382 | -07 | .4375 | 1.294 | .437 | .353 | .530 | .718 | 2.250 | .4375-20 | 1.281 | .9062 | 1.402 | .093 | .383 | 8° |
| ADNEC08-382 | -08 | .5000 | 1.459 | .500 | .400 | .600 | .813 | 2.544 | .5000-20 | 1.468 | 1.0000 | 1.589 | .093 | .445 | 8° |
| ADNEC10-382 | -10 | .6250 | 1.763 | .625 | .510 | .739 | .968 | 2.832 | .6250-18 | 1.562 | 1.1875 | 1.683 | .125 | .541 | 8° |
| ADNEC12-382 | -12 | .7500 | 2.140 | .750 | .603 | .920 | 1.187 | 3.193 | .7500-16 | 1.687 | 1.4375 | 1.808 | .125 | .663 | 8° |
| ADNEC14-382 | -14 | .8750 | 2.372 | .875 | .713 | .980 | 1.312 | 3.677 | .8750-14 | 2.000 | 1.5625 | 2.121 | .156 | .777 | 8° |
| ADNEC16-382 | -16 | 1.0000 | 2.681 | 1.000 | .807 | 1.118 | 1.500 | 3.968 | 1.0000-12 | 2.100 | 1.7500 | 2.221 | .156 | .900 | 9° |

† Keyway Flat (G) tolerance for ADNEC03-382 is +.000/-0.060.

Part Number Coding:



Notes:

- Bearings listed in the tables are approved for procurement to AS81935.
- Operating temperature range per AS81935: -65 to 325 °F. Broader temperature capabilities are achievable.
- All dimensions are in inches unless otherwise specified.

| MATERIALS | | | | |
|----------------------------------|--|--------------------------------------|--|------------------------------------|
| Part No. | Ball | Race | Liner | Body |
| Catalog No. | CRES 440C◆ AMS 5630 55-62 HRC | CRES 17-4PH AMS 5643 28-37 HRC | TEFLON®/Fabric Bonded to Race I.D. No Lub. Required | PH13-8Mo® AMS 5629 40-44 HRC |
| ◆ Optional ball material: | | | | |
| Catalog No. + C* | PH13-8Mo® AMS 5629 43 HRC minimum hardness | | | |

*See part number coding above.

| PERFORMANCE PROPERTIES – NARROW | | | | | | |
|---------------------------------|-------------|-------------------------------------|-----------------------------|-------------------------|--------------|----------------|
| M81935/8 | AS Dash No. | No Load Rotational Breakaway Torque | Ultimate Static Radial Load | Axial Static Proof Load | Fatigue Load | Approx. Weight |
| | | In-lbs. | lbs. | lbs. | lbs. | lbs. |
| ADNEC03-382 | -03 | .5-6 | 3,000 | 150 | 1,100 | .045 |
| ADNEC04-382 | -04 | .5-6 | 5,300 | 430 | 1,500 | .060 |
| ADNEC05-382 | -05 | 1-15 | 8,600 | 700 | 2,400 | .100 |
| ADNEC06-382 | -06 | 1-15 | 13,000 | 1,100 | 3,600 | .135 |
| ADNEC07-382 | -07 | 1-15 | 17,800 | 1,400 | 5,000 | .200 |
| ADNEC08-382 | -08 | 1-15 | 24,200 | 2,040 | 6,800 | .285 |
| ADNEC10-382 | -10 | 1-15 | 38,500 | 2,430 | 10,800 | .505 |
| ADNEC12-382 | -12 | 1-15 | 56,600 | 2,940 | 16,000 | .830 |
| ADNEC14-382 | -14 | 1-24 | 77,400 | 3,190 | 21,900 | 1.235 |
| ADNEC16-382 | -16 | 1-24 | 101,400 | 3,570 | 28,600 | 1.725 |

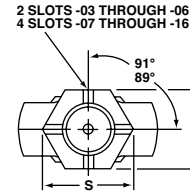
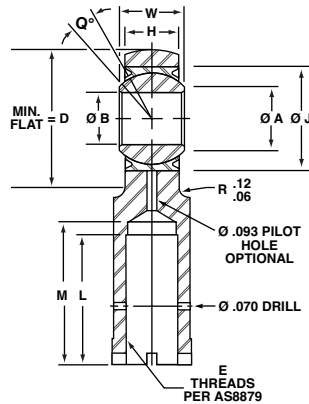
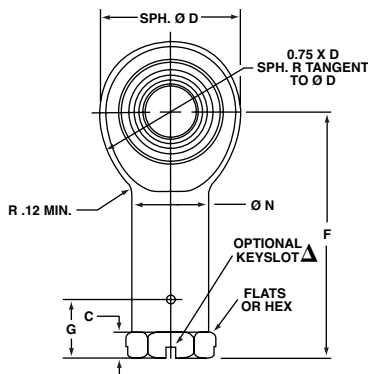
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Teflon® is a registered trademark of E.I. DuPont de Nemours and Company.



Corrosion Resistant (CRES) – AS81935/9

Narrow—Female Thread



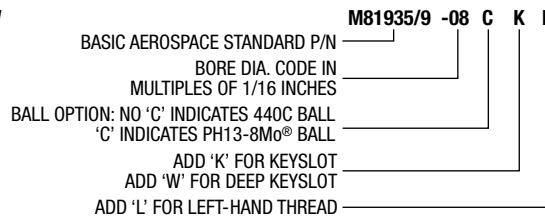
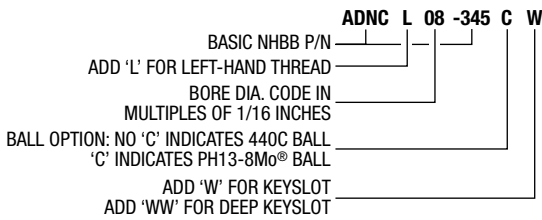
Optional Keyslot Δ:

-03 through -08 sizes per AS81935/3
 -10 through -16 sizes per NAS 559
 NAS 513 for all sizes with deep keyslot

Δ For keyslot details, contact Astro's Product Engineering Group.

| PART NUMBER | AS DASH NO. | (B) BORE DIA. | (D) SPH. DIA. | (W) BALL WIDTH | (H) BODY WIDTH | (A) SHOULDER DIA. | BALL DIA. | (F) BALL C/L TO END | (E) THREAD SIZE | (L) THREAD LENGTH | (N) SHANK DIA. | (M) DRILL DEPTH | (C) HEIGHT WRENCH SURFACE | (R) WIDTH ACROSS FLATS | (S) ACROSS CORNERS OR DIA. | (G) DRILL C/L TO END | (J) HOUSING I.D. | (0°) MIS-ALIGNMENT |
|-------------|-------------|------------------|------------------|------------------|------------------|-------------------|-----------|---------------------|-----------------|-------------------|------------------|-----------------|---------------------------|------------------------|----------------------------|----------------------|------------------|--------------------|
| M81935/9 | | +0.000 -0.005 | +0.010 -0.010 | +0.000 -0.002 | +0.005 -0.005 | MIN. | REF. | +0.010 -0.010 | UNJF-3B | MIN. | +0.010 -0.010 | MAX. | +0.010 -0.062 | +0.010 -0.010 | REF. | +0.020 -0.020 | MAX. | MIN. |
| ADNC03-345 | -03 | .1900 | .680 | .281 | .228 | .293 | .437 | 1.210 | .2500-28 | .625 | .329 | .750 | .188 | .375 | .430 | .312 | .5625 | 10° |
| ADNC04-345 | -04 | .2500 | .827 | .343 | .260 | .364 | .531 | 1.338 | .2500-28 | .625 | .329 | .750 | .188 | .375 | .430 | .312 | .6562 | 10° |
| ADNC05-345 | -05 | .3125 | .984 | .375 | .291 | .419 | .562 | 1.566 | .3125-24 | .750 | .413 | .875 | .188 | .437 | .500 | .375 | .7500 | 10° |
| ADNC06-345 | -06 | .3750 | 1.131 | .406 | .322 | .475 | .656 | 1.908 | .3750-24 | 1.000 | .501 | 1.125 | .250 | .625 | .720 | .437 | .8125 | 9° |
| ADNC07-345 | -07 | .4375 | 1.294 | .437 | .353 | .530 | .718 | 2.125 | .4375-20 | 1.125 | .584 | 1.250 | .250 | .625 | .720 | .500 | .9062 | 8° |
| ADNC08-345 | -08 | .5000 | 1.459 | .500 | .400 | .600 | .813 | 2.356 | .5000-20 | 1.250 | .672 | 1.375 | .375 | .875 | 1.020 | .562 | 1.0000 | 8° |
| ADNC10-345 | -10 | .6250 | 1.763 | .625 | .510 | .739 | .968 | 2.707 | .6250-18 | 1.375 | .845 | 1.500 | .375 | .875 | 1.020 | .687 | 1.1875 | 8° |
| ADNC12-345 | -12 | .7500 | 2.140 | .750 | .603 | .920 | 1.187 | 3.193 | .7500-16 | 1.625 | 1.017 | 1.750 | .500 | 1.125 | 1.300 | .812 | 1.4375 | 8° |
| ADNC14-345 | -14 | .8750 | 2.372 | .875 | .713 | .980 | 1.312 | 3.677 | .8750-14 | 1.875 | 1.187 | 2.062 | .500 | 1.250 | 1.375 | .937 | 1.5625 | 8° |
| ADNC16-345 | -16 | 1.0000 | 2.681 | 1.000 | .807 | 1.118 | 1.500 | 4.101 | 1.0000-12 | 2.125 | 1.356 | 2.312 | .500 | 1.375 | 1.590 | 1.062 | 1.7500 | 9° |

Part Number Coding:



Notes:

- Bearings listed in the tables are approved for procurement to AS81935.
- Operating temperature range per AS81935: -65 to 325 °F. Broader temperature capabilities are achievable.
- All dimensions are in inches unless otherwise specified.

MATERIALS

| Part No. | Ball | Race | Liner | Body |
|--------------------------|--|--------------------------------------|--|------------------------------------|
| Catalog No. | CRES 440C♦ AMS 5630 55-62 HRC | CRES 17-4PH AMS 5643 28-37 HRC | TEFLON®/Fabric Bonded to Race I.D. No Lub. Required | PH13-8Mo® AMS 5629 40-44 HRC |
| ♦Optional ball material: | | | | |
| Catalog No. + C* | PH13-8Mo® AMS 5629 43 HRC minimum hardness | | | |

* See part number coding above.

PH13-8Mo® stainless steel is a registered trademark of Armco Inc.
 Teflon® is a registered trademark of E.I. DuPont de Nemours and Company.

PERFORMANCE PROPERTIES – NARROW

| AS Dash No. | M81935/9 | AS Dash No. | No Load Rotational Breakaway Torque | Ultimate Static Radial Load | Axial Static Proof Load | Fatigue Load | Approx. Weight |
|-------------|------------|-------------|-------------------------------------|-----------------------------|-------------------------|--------------|----------------|
| | | | In-lbs. | lbs. | lbs. | lbs. | lbs. |
| | ADNC03-345 | -03 | .5-6 | 3,000 | 150 | 1,100 | .080 |
| | ADNC04-345 | -04 | .5-6 | 5,500 | 430 | 1,300 | .084 |
| | ADNC05-345 | -05 | 1-15 | 8,900 | 700 | 2,000 | .102 |
| | ADNC06-345 | -06 | 1-15 | 13,400 | 1,100 | 3,100 | .161 |
| | ADNC07-345 | -07 | 1-15 | 18,200 | 1,400 | 4,200 | .212 |
| | ADNC08-345 | -08 | 1-15 | 24,600 | 2,040 | 5,700 | .325 |
| | ADNC10-345 | -10 | 1-15 | 39,500 | 2,430 | 9,200 | .481 |
| | ADNC12-345 | -12 | 1-15 | 57,200 | 2,940 | 13,500 | .673 |
| | ADNC14-345 | -14 | 1-24 | 77,800 | 3,100 | 18,400 | .959 |
| | ADNC16-345 | -16 | 1-24 | 101,000 | 3,570 | 24,000 | 2.717 |



Astro Division, Laconia, NH

PRODUCTS:

- Rod ends
- Sphericals
- Link assemblies
- Bushings
- Loader slot bearings
- Custom-lined parts
- Bearings up to 22" O.D.
- Next-up assemblies & machined parts

NMB, KARUIZAWA, JAPAN:*

- Rod ends
- Sphericals
- Spherical roller bearings
- Self-aligning roller bearings
- Next-up assemblies & machined parts

CERTIFICATIONS/APPROVALS:

- ISO 9001:2000
- AS9100, Rev B
- Boeing D6-82479
- ISO 14001:2004 – environmental management

NADCAP:

- AC7102 – Heat-treating
- AC7108 – Chemical processing
- AC7114 – Nondestructive testing
- AC7118 – Composites – self-lubricating liner adhesive bonding process



*NHBB is an integral part of Minebea Co., Ltd., a global manufacturer of bearings, machined components, and electronic devices. Astro is the North and South American sales representative for products manufactured by Minebea's facility in Karuizawa, Japan, giving customers access to a global supply of high quality commercial aerospace products, including next-up assemblies and machined parts.



New Hampshire Ball Bearings, Inc.

————— *A Minebea Company* —————

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