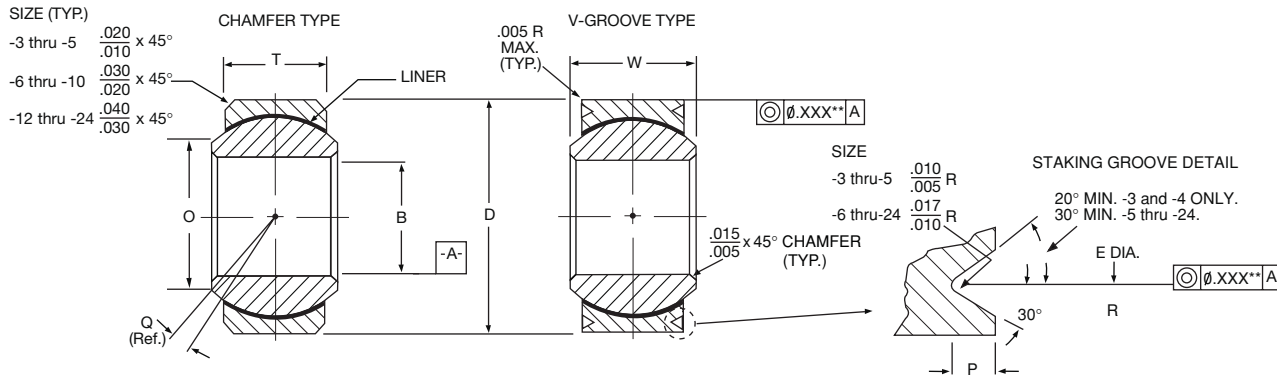


SPHERICAL BEARINGS – Self-Lubricating

AS81820 Narrow



| Part Number | MS Dash No. | (B) Bore Diameter | (D) Outside Diameter | (W) Ball Width | (T) Race Width | (O) Shoulder Diameter | Ball Diameter | (E) Pitch Diameter | (P) Groove Depth | (Q°) Misalignment | Limit Static Radial Load | Limit Static Axial Load | Dynamic Osc. Radial Load | Weight |
|----------------|-------------|-------------------|----------------------|----------------|----------------|-----------------------|---------------|--------------------|------------------|-------------------|--------------------------|-------------------------|--------------------------|--------|
| V-Grooved* | | Inch | Inch | Inch | Inch | Inch | Inch | Inch | Inch | Degree | lbs. | lbs. | lbs. | lbs. |
| MS14101 | | +0.000 | +0.000 | +0.000 | ±.005 | Min. | Ref. | +0.000 | +0.000 | Ref. | | | | Ref. |
| MS14104 | | -0.005 | -0.005 | -0.002 | | | | -0.008 | -0.010 | | | | | |
| ADB3V(L) | -3 | .1900 | .5625 | .281 | .218 | .293 | .406 | .500 | .025 | 10° | 3975 | 150 | 1500 | .020 |
| ADB4V(L) | -4 | .2500 | .6562 | .343 | .250 | .364 | .500 | .594 | .025 | 10° | 6040 | 430 | 3320 | .020 |
| ADB5V(L) | -5 | .3125 | .7500 | .375 | .281 | .419 | .562 | .650 | .035 | 10° | 8750 | 700 | 5460 | .030 |
| ADB5VA(L) | -5A | .3125 | .7500 | .375 | .281 | .419 | .562 | .660 | .035 | 10° | 8750 | 700 | 5460 | .030 |
| ADB6V(L) | -6 | .3750 | .8125 | .406 | .312 | .475 | .656 | .712 | .035 | 9° | 10540 | 1100 | 6600 | .040 |
| ADB7V(L) | -7 | .4375 | .9062 | .437 | .343 | .530 | .718 | .806 | .035 | 8° | 13200 | 1400 | 8050 | .050 |
| ADB8V(L) | -8 | .5000 | 1.0000 | .500 | .390 | .600 | .813 | .876 | .055 | 8° | 17900 | 2100 | 10400 | .070 |
| ADB9V(L) | -9 | .5625 | 1.0937 | .562 | .437 | .670 | .875 | .970 | .055 | 8° | 23200 | 3680 | 13000 | .090 |
| ADB10V(L) | -10 | .6250 | 1.1875 | .625 | .500 | .739 | .968 | 1.063 | .055 | 8° | 30500 | 4720 | 16450 | .120 |
| ADB12V(L) | -12 | .7500 | 1.4375 | .750 | .593 | .920 | 1.187 | 1.313 | .055 | 8° | 46400 | 6750 | 23600 | .210 |
| ADB14V(L) | -14 | .8750 | 1.5625 | .875 | .703 | .980 | 1.312 | 1.438 | .055 | 8° | 62200 | 9350 | 30250 | .270 |
| ADB16V(L) | -16 | 1.0000 | 1.7500 | 1.000 | .797 | 1.118 | 1.500 | 1.626 | .055 | 8° | 82200 | 12160 | 38000 | .390 |
| ADB18V(L) | - | 1.1250 | 2.1250 | 1.125 | .900 | 1.334 | 1.750 | 2.003 | .055 | 8° | 105880 | 13500 | 42350 | .720 |
| ADB20V(L) | - | 1.2500 | 2.3125 | 1.250 | 1.000 | 1.473 | 1.937 | 2.190 | .055 | 8° | 131230 | 16930 | 52490 | .930 |
| ADB22V(L) | - | 1.3750 | 2.5625 | 1.375 | 1.100 | 1.654 | 2.156 | 2.440 | .055 | 8° | 161700 | 20750 | 64680 | 1.280 |
| ADB24V(L) | - | 1.5000 | 2.8125 | 1.500 | 1.200 | 1.794 | 2.344 | 2.690 | .055 | 8° | 191973 | 24950 | 77110 | 1.670 |

*For chamfered version, delete 'V' from part number.

Notes:

- Bearing sizes 3 through 16 listed in the tables are approved for procurement to AS81820 and Aerospace Standards AS14101 through AS14104.
 - Bearing sizes 18 through 24 listed are not included in current Aerospace Standards, but are offered as NHBB catalog items only.
 - Temperature: Operating temperature range per AS81820 is -65° to 325°F. Broader temperature capabilities are achievable.
- **Concentricity .XXX is .003 for sizes -3 through -5. Concentricity .XXX is .005 for sizes -6 and up.

Materials

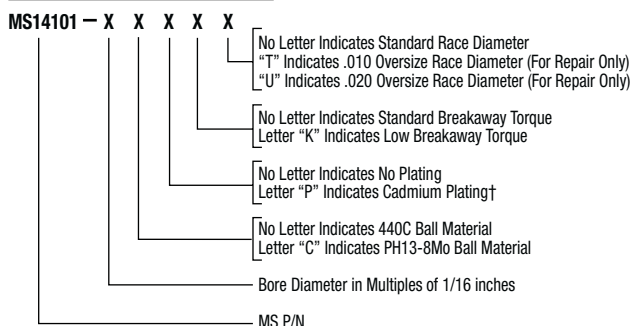
| Part No. | Ball | Race | Liner |
|-----------------------|--------------------------------------|------------------------------------|---|
| Catalog No. | CRES 440C AMS 5630 Rc55-62 | CRES 17-4PH AMS 5643 Rc28-37 | TEFLON®/Fabric Bonded to Race I.D. No Lub. Required |
| Catalog No. + 13-8 | CRES PH13-8Mo AMS 5629 Rc43-47 | CRES 17-4PH AMS 5643 Rc28-37 | TEFLON®/Fabric Bonded to Race I.D. No Lub. Required |

TEFLON® is a Du Pont registered trademark

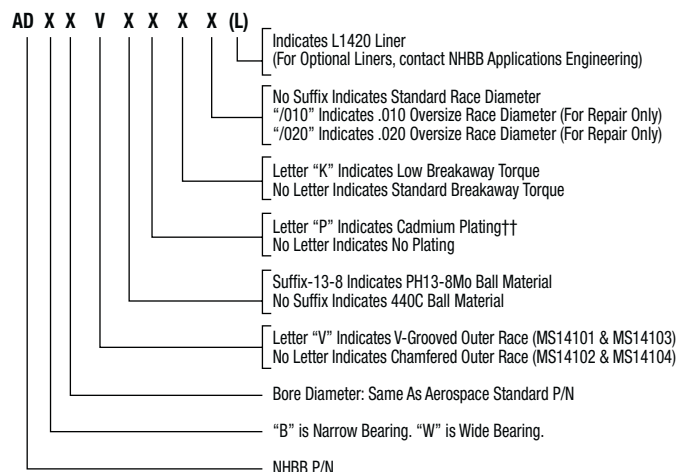


AS81820 Wide

Aerospace Standard P/N



NHBB P/N



| P/N Series | NHBB P/N | Description |
|------------|----------|------------------|
| MS14101 | ADB V | Narrow Grooved |
| MS14102 | ADW | Wide Chamfered |
| MS14103 | ADW V | Wide Grooved |
| MS14104 | ADB | Narrow Chamfered |

† Cadmium plate MS14102 & MS14104 O.D. and O.D. chamfers per AMS-QQ-P-416, Type II, Class 2. Dimensions apply after plating.

†† Cadmium plate MS14101 & MS14103 O.D. and on the flats between the outside diameter and the grooves per AMS-QQ-P-416, Type II, Class 2. Dimensions apply after plating.

| Part Number | MS Dash No. | (B) Bore Diameter | (D) Outside Diameter | (W) Ball Width | (T) Race Width | (O) Shoulder Diameter | Ball Diameter | (E) Pitch Diameter | (P) Groove Depth | (Q°) Misalignment | Limit Static Radial Load | Limit Static Axial Load | Dynamic Osc. Radial Load | Weight |
|----------------|-------------|-------------------|----------------------|----------------|----------------|-----------------------|---------------|--------------------|------------------|-------------------|--------------------------|-------------------------|--------------------------|--------|
| V-Grooved* | | Inch | Inch | Inch | Inch | Inch | Inch | Inch | Inch | Degree | lbs. | lbs. | lbs. | lbs. |
| MS14102 | | + .0000 | + .0000 | + .000 | | Min. | Ref. | + .000 | + .000 | Ref. | | | | Ref. |
| MS14103 | | - .0005 | - .0005 | - .002 | ± .005 | | | - .008 | - .010 | | | | | |
| ADW3V(L) | -3 | .1900 | .6250 | .437 | .327 | .300 | .531 | .563 | .025 | 15° | 2500 | 1770 | 4900 | .031 |
| ADW4V(L) | -4 | .2500 | .6250 | .437 | .327 | .300 | .531 | .563 | .025 | 15° | 5500 | 1770 | 4900 | .031 |
| ADW5V(L) | -5 | .3125 | .6875 | .437 | .317 | .360 | .593 | .625 | .025 | 14° | 9400 | 1640 | 6050 | .035 |
| ADW6V(L) | -6 | .3750 | .8125 | .500 | .406 | .466 | .687 | .712 | .035 | 8° | 13700 | 2630 | 8310 | .060 |
| ADW7V(L) | -7 | .4375 | .9375 | .562 | .442 | .537 | .781 | .837 | .035 | 10° | 20700 | 3650 | 11750 | .080 |
| ADW7V52(L) | -7A | .4375 | .9062 | .562 | .442 | .537 | .781 | .806 | .035 | 10° | 19700 | 3650 | 11750 | .080 |
| ADW8V(L) | -8 | .5000 | 1.0000 | .625 | .505 | .607 | .875 | .900 | .035 | 9° | 21400 | 4970 | 14950 | .100 |
| ADW9V(L) | -9 | .5625 | 1.1250 | .687 | .536 | .721 | 1.000 | 1.025 | .035 | 10° | 26600 | 5370 | 18100 | .135 |
| ADW10V(L) | -10 | .6250 | 1.1875 | .750 | .567 | .747 | 1.062 | 1.087 | .035 | 12° | 29000 | 6130 | 20250 | .160 |
| ADW12V(L) | -12 | .7500 | 1.3750 | .875 | .630 | .845 | 1.250 | 1.251 | .055 | 13° | 37000 | 7730 | 26200 | .240 |
| ADW14V(L) | -14 | .8750 | 1.6250 | .875 | .755 | .995 | 1.375 | 1.501 | .055 | 6° | 65200 | 10800 | 33600 | .350 |
| ADW16V(L) | -16 | 1.0000 | 2.1250 | 1.375 | 1.005 | 1.269 | 1.875 | 2.001 | .055 | 12° | 104000 | 19300 | 56250 | .970 |
| ADW18V(L) | - | 1.1250 | 2.2500 | 1.437 | 1.067 | 1.338 | 1.968 | 2.128 | .055 | 14° | 142570 | 19640 | 57000 | 1.000 |
| ADW20V(L) | - | 1.2500 | 2.3750 | 1.500 | 1.130 | 1.460 | 2.093 | 2.253 | .055 | 13° | 159200 | 21970 | 63680 | 1.120 |
| ADW20-5V(L) | - | 1.2500 | 2.0000 | 1.093 | .942 | 1.406 | 1.781 | 1.878 | .055 | 6° | 112360 | 14890 | 44940 | .564 |
| ADW22V(L) | - | 1.3750 | 2.5625 | 1.687 | 1.223 | 1.535 | 2.281 | 2.440 | .055 | 15° | 190000 | 25970 | 76000 | 1.390 |
| ADW24V(L) | - | 1.5000 | 2.6875 | 1.687 | 1.223 | 1.693 | 2.390 | 2.567 | .055 | 14° | 199000 | 25970 | 79640 | 1.480 |

*For chamfered version, delete 'V' from part number.

No Load Breakaway Torque

| Bore Sizes | Standard (in - lbs.) | "K" Type |
|------------|----------------------|----------|
| 3 & 4 | .25 to 5.0 | 0 to 0.5 |
| 5 to 12 | .25 to 8.0 | 0 to 1.0 |
| 14 & 16 | .25 to 12.0 | 0 to 2.0 |
| 18 & 20 | .25 to 18.0 | 0 to 2.0 |
| 22 & 24 | .25 to 24.0 | 0 to 2.0 |

Radial and Axial Play

P/N Series MS14101 & MS14104

| Bore Size | Max. Radial Play | Max. Axial Play |
|--------------|------------------|-----------------|
| 3K Thru 12K | 0.0007 Inch | 0.0028 Inch |
| 14K Thru 16K | 0.0010 Inch | 0.0040 Inch |

P/N Series MS14102 & MS14103

| Bore Size | Max. Radial Play | Max. Axial Play |
|--------------|------------------|-----------------|
| 3K Thru 12K | 0.0007 Inch | 0.0021 Inch |
| 14K Thru 16K | 0.0010 Inch | 0.0030 Inch |