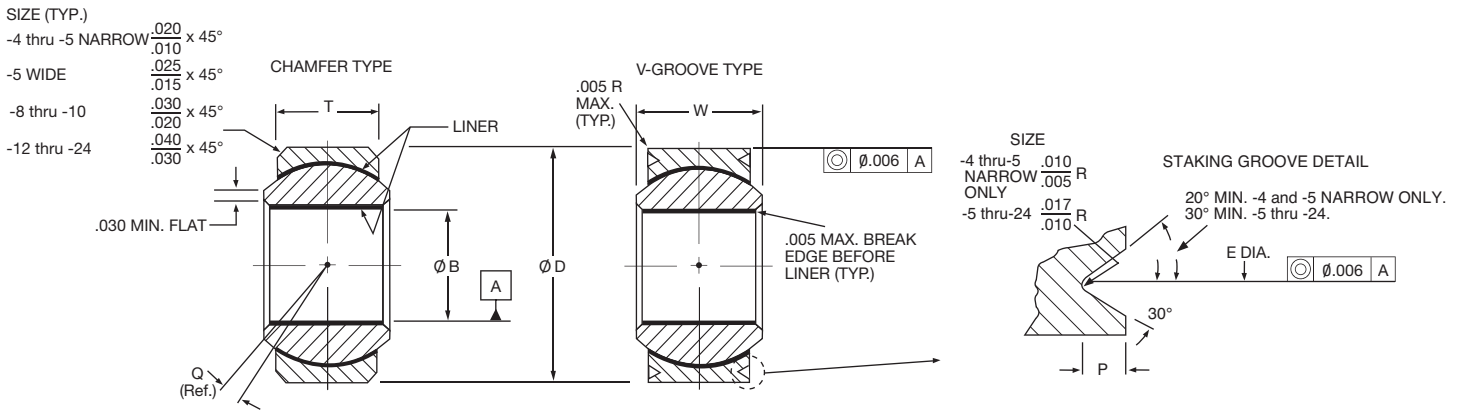


SPHERICAL BEARINGS – Self-Lubricating

AS81820 Lined Bore Series – Narrow



| Part Number | MS Dash No. | (B) Bore Diameter | (D) Outside Diameter | (W) Ball Width | (T) Race Width | Ball Diameter | (E) Pitch Diameter | (P) Groove Depth | (Q) Mis-alignment | Limit Static Radial Load | Limit Static Axial Load | Dynamic Osc. Radial Load | Weight |
|-------------|-------------|-------------------|----------------------|----------------|----------------|---------------|--------------------|------------------|-------------------|--------------------------|-------------------------|--------------------------|--------|
| V-Grooved* | | Inch | Inch | Inch | Inch | Inch | Inch | Inch | Degree | lbs. | lbs. | lbs. | lbs. |
| M81820/1 | | + .0000 | + .0000 | + .000 | ± .005 | Ref. | + .000 | + .000 | Ref. | | | | Ref. |
| M81820/4 | | - .0010 | - .0005 | - .002 | | | - .008 | - .010 | | | | | |
| ADBL4V(L) | -4 | .2510 | .6562 | .343 | .250 | .500 | .594 | .025 | 10° | 5550 | 430 | 2650 | .020 |
| ADBL5V(L) | -5 | .3135 | .7500 | .375 | .281 | .562 | .660 | .035 | 10° | 7700 | 700 | 3700 | .030 |
| ADBL6V(L) | -6 | .3760 | .8125 | .406 | .312 | .656 | .712 | .035 | 9° | 10200 | 1100 | 4900 | .040 |
| ADBL7V(L) | -7 | .4385 | .9062 | .437 | .343 | .718 | .806 | .035 | 8° | 12950 | 1400 | 6700 | .050 |
| ADBL8V(L) | -8 | .5010 | 1.0000 | .500 | .390 | .813 | .876 | .055 | 8° | 17250 | 2100 | 8250 | .070 |
| ADBL9V(L) | -9 | .5635 | 1.0937 | .562 | .437 | .875 | .970 | .055 | 8° | 22150 | 3680 | 10600 | .090 |
| ADBL10V(L) | -10 | .6260 | 1.1875 | .625 | .500 | .968 | 1.063 | .055 | 8° | 27700 | 4720 | 13250 | .120 |
| ADBL12V(L) | -12 | .7510 | 1.4375 | .750 | .593 | 1.187 | 1.313 | .055 | 8° | 40600 | 6750 | 19400 | .210 |
| ADBL14V(L) | -14 | .8760 | 1.5625 | .875 | .703 | 1.312 | 1.438 | .055 | 8° | 55950 | 9350 | 26750 | .270 |
| ADBL16V(L) | -16 | 1.0010 | 1.7500 | 1.000 | .797 | 1.500 | 1.626 | .055 | 9° | 73800 | 12160 | 35250 | .390 |
| ADBL18V(L) | - | 1.1260 | 2.1250 | 1.125 | .900 | 1.750 | 2.001 | .055 | 8° | 94080 | 13500 | 37870 | .720 |
| ADBL20V(L) | - | 1.2510 | 2.3125 | 1.250 | 1.000 | 1.937 | 2.188 | .055 | 8° | 116250 | 16930 | 46920 | .930 |
| ADBL22V(L) | - | 1.3760 | 2.5625 | 1.375 | 1.100 | 2.156 | 2.438 | .055 | 8° | 140770 | 20750 | 56950 | 1.280 |
| ADBL24V(L) | - | 1.5010 | 2.8125 | 1.500 | 1.200 | 2.344 | 2.688 | .055 | 8° | 167630 | 24950 | 67950 | 1.670 |

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

Notes:

- All dimensions, materials and configurations of sizes 4 through 16 conform to requirements of Aerospace Standards. Consult QPL for NHBB approvals to P/N series AS81820/1 through AS81820/4.
- Bearing sizes 18 thru 24 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.

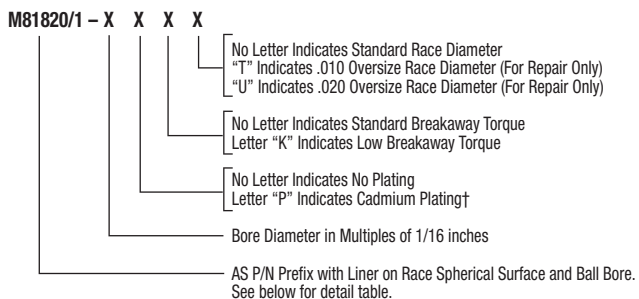
Materials

| Part No. | Ball | Race | Liner |
|-------------|--|------------------------------------|---|
| Catalog No. | CRES PH13-8Mo AMS 5629 Cond. H-1000 (Rc43 min.) | CRES 17-4PH AMS 5643 Rc28-37 | PTFE/Fabric Bonded to Race I.D. & Ball Bore No Lub. Required |

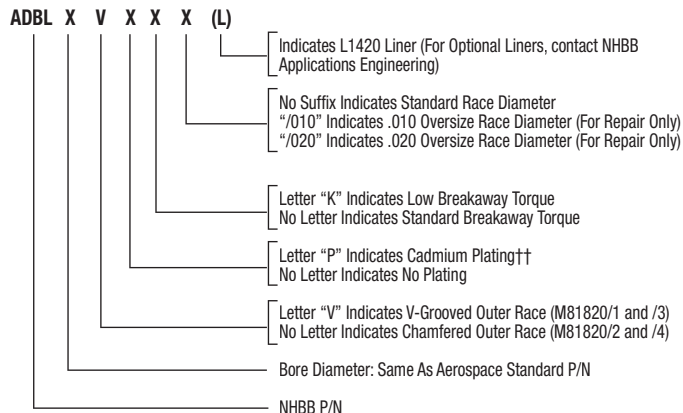


AS81820 Lined Bore Series – Wide

Aerospace Standard P/N



NHBB P/N



† Cadmium plate M81820/1 & M81820/3 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.

†† Cadmium plate M81820/2 & M81820/4 O.D. and O.D. chamfers per AMS-QQ-P-416, Type II, Class 2. Dimensions apply after plating.

| Aerospace Standard P/N | NHBB P/N | Description |
|------------------------|----------|------------------|
| M81820/1 | ADBL V | Narrow Grooved |
| M81820/2 | ADWL | Wide Chamfered |
| M81820/3 | ADWL V | Wide Grooved |
| M81820/4 | ADBL | Narrow Chamfered |

| Part Number | MS Dash | (B) Bore Diameter | (D) Outside Diameter | (W) Ball Width | (T) Race Width | Ball Diameter | (E) Pitch Diameter | (P) Groove Depth | (Q°) Mis-alignment | Limit Static Radial Load | Limit Static Axial Load | Dynamic Osc. Radial Load | Weight |
|-----------------|---------|-------------------|----------------------|----------------|----------------|---------------|--------------------|------------------|--------------------|--------------------------|-------------------------|--------------------------|--------|
| M81820/2 | | Inch | Inch | Inch | Inch | Inch | Inch | Inch | Degree | lbs. | lbs. | lbs. | lbs. |
| M81820/3 | | + .0000 | + .0000 | + .000 | ± .005 | Ref. | + .000 | + .000 | Ref. | | | | Ref. |
| | | - .0010 | - .0005 | - .002 | | | - .008 | - .010 | | | | | |
| ADWL5V(L) | -5 | .3135 | .6875 | .437 | .317 | .593 | .625 | .025 | 14° | 9250 | 1640 | 4450 | .035 |
| ADWL6V(L) | -6 | .3760 | .8125 | .500 | .406 | .687 | .712 | .035 | 8° | 13000 | 2630 | 6200 | .060 |
| ADWL7V(L) | -7 | .4385 | .9375 | .562 | .442 | .781 | .837 | .035 | 10° | 17300 | 3650 | 8250 | .080 |
| ADWL7V52(L) | -7A | .4385 | .9062 | .562 | .442 | .781 | .806 | .035 | 10° | 17250 | 3650 | 8250 | .080 |
| ADWL8V(L) | -8 | .5010 | 1.0000 | .625 | .505 | .875 | .900 | .035 | 9° | 21400 | 4970 | 10600 | .100 |
| ADWL9V(L) | -9 | .5635 | 1.1250 | .687 | .536 | 1.000 | 1.025 | .035 | 10° | 26600 | 5370 | 13200 | .135 |
| ADWL10V(L) | -10 | .6260 | 1.1875 | .750 | .567 | 1.062 | 1.087 | .035 | 12° | 29000 | 6130 | 16150 | .160 |
| ADWL12V(L) | -12 | .7510 | 1.3750 | .875 | .630 | 1.250 | 1.251 | .055 | 13° | 37000 | 7730 | 24800 | .240 |
| ADWL14V(L) | -14 | .8760 | 1.6250 | .875 | .755 | 1.375 | 1.501 | .055 | 6° | 56000 | 10800 | 26750 | .350 |
| ADWL16V(L) | -16 | 1.0010 | 2.1250 | 1.375 | 1.005 | 1.875 | 2.001 | .055 | 12° | 103300 | 19300 | 49300 | .970 |
| ADWL18V(L) | - | 1.1260 | 2.2500 | 1.437 | 1.067 | 1.968 | 2.126 | .055 | 14° | 120410 | 19640 | 48760 | 1.000 |
| ADWL20V(L) | - | 1.2510 | 2.3750 | 1.500 | 1.130 | 2.093 | 2.251 | .055 | 13° | 139690 | 21970 | 56620 | 1.120 |
| ADWL20-5V(L) | - | 1.2510 | 2.0000 | 1.093 | .942 | 1.781 | 1.876 | .055 | 6° | 101540 | 14890 | 40840 | .564 |
| ADWL22V(L) | - | 1.3760 | 2.5625 | 1.687 | 1.223 | 2.281 | 2.438 | .055 | 15° | 172940 | 25970 | 70250 | 1.390 |
| ADWL24V(L) | - | 1.5010 | 2.6875 | 1.687 | 1.223 | 2.390 | 2.563 | .055 | 14° | 188670 | 25970 | 76640 | 1.480 |

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

No Load Breakaway Torque

| Bore Sizes | Standard (in - lbs.) | "K" Type |
|-----------------|----------------------|----------|
| 4 (Narrow only) | 1.0 to 5.0 | 0 to 0.5 |
| 5 to 12 | 1.0 to 15.0 | 0 to 1.0 |
| 14 to 24 | 1.0 to 25.0 | 0 to 2.0 |

Radial and Axial Play

| P/N Series M81820/1 & M81820/4 | | |
|--------------------------------|------------------|-----------------|
| 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 M81820/2 & M81820/3 | | |
|--------------------------------|------------------|-----------------|
| 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 |