

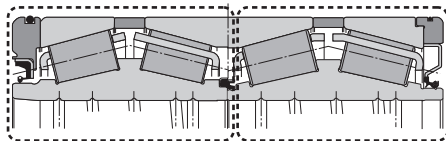


The ULTAGE series sealed four-row tapered roller bearings [CROU-LL type] are designed to provide "high load capacity," "high load resistance performance," and "high sealing performance." These traits are required for steel rolling mill roll neck applications to improve reliability with a longer operating life.

1. Features

1) High load capacity design

Higher load capacity and longer operating life are achieved by maximizing the size and number of rollers in the bearing.



Conventional
NTN product

ULTAGE
product

2) Industry leading load resistance performance

The load resistance performance has been greatly improved by making the contact stress

distribution generated between the rolling elements and the raceway surface uniform.

3) Compact seal design with high sealing performance

The ULTAGE series sealed four-row tapered roller bearing utilizes a specially designed fluorine rubber seal for high sealing performance, while minimizing the volume of the seal within the bearing.

Optimizing the tension force of the main seal lip and the overall design of the seal to minimize contamination ingress, reduces the internal water immersion by 50 % or more while preventing grease from flowing out from the sub lip.

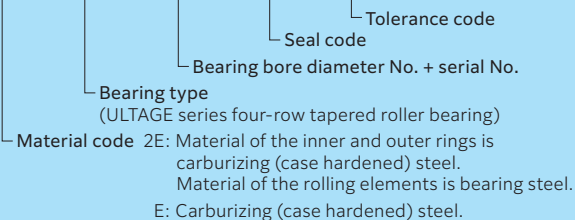
Replacement of the seal on a regular basis is recommended. For details, please contact **NTN Engineering**.

4) Standard adoption of long-life grease

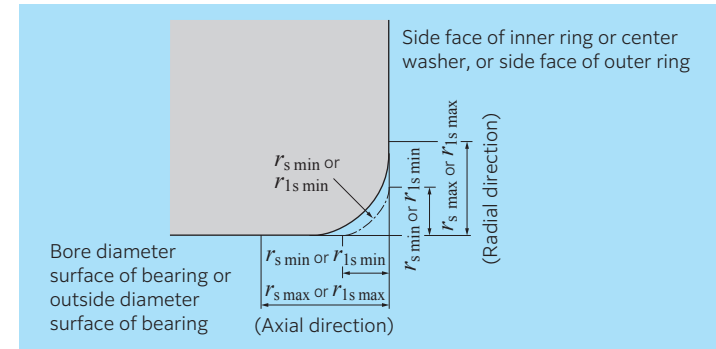
This bearing is filled with an ample amount of long-life grease to avoid the need for cleaning or filling the bearing with grease before assembling into the application.

2. Part number

2E- CROU- 6001 LLA1X PX1



3. Chamfer dimension



Unit: mm

| $r_s \text{ min or } r'_{1s} \text{ min}$ | Nominal bearing bore diameter d | | $r_s \text{ max or } r'_{1s} \text{ max}$ | |
|---|-----------------------------------|-------|---|-----------------|
| | Over | Incl. | Radial direction | Axial direction |
| 1 | 50 | — | 1.9 | 3 |
| 1.5 | 120 | 250 | 2.8 | 3.5 |
| | 250 | — | 3.5 | 4 |
| 2.5 | 120 | 250 | 4 | 5.5 |
| | 250 | — | 4.5 | 6 |
| 3 | 120 | 250 | 4.5 | 6.5 |
| | 250 | 400 | 5 | 7 |
| | 400 | — | 5.5 | 7.5 |

4. Allowable temperature range

-20 to 120 °C

5. Bearing fits (recommended)

Metric series : Shaft d_6 /housing G7
Inch series : Contact **NTN Engineering**.

6. Standard grease fill

Grease brand : Palmax RBG (L373)
Grease amount : Space volume ratio 35 %

7. Allowable speed

$d_m \cdot n$ value $\leq 30 \times 10^4$

d_m : Roller pitch diameter (mm) $\approx (d+D)/2$

d : Bearing bore diameter (mm)

D : Bearing outside diameter (mm)

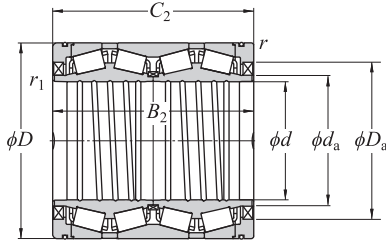
n : Rotational speed (min^{-1})

The above are approximate standard values and may not be appropriate depending on the usage condition. For details, please contact **NTN Engineering**.

8. Material

Inner and outer rings : Carburizing (case hardened) steel

Rolling elements : Bearing steel
[* mark in the dimension table indicates carburizing (case hardened) steel.]



| Series | Boundary dimensions | | | | | | (approx.) Standard radial clearance ²⁾ | Standard axial clearance ²⁾ |
|---------------|---------------------|----------|-----------------------|-----------------------|--|---|---|--|
| | mm | | | | | | | |
| | <i>d</i> | <i>D</i> | <i>B</i> ₂ | <i>C</i> ₂ | <i>r</i> _{1s min} ¹⁾ | <i>r</i> _{s min} ¹⁾ | | |
| Metric series | 220 | 295 | 315 | 315 | 1 | 2.5 | 0.093-0.106 | 0.420-0.480 |
| | 225 | 320 | 230 | 230 | 1 | 2.5 | 0.099-0.115 | 0.360-0.420 |
| | 240 | 338 | 248 | 248 | 1 | 2.5 | 0.104-0.118 | 0.450-0.510 |
| | 240 | 338 | 340 | 340 | 1 | 2.5 | 0.107-0.123 | 0.400-0.460 |
| | 250 | 365 | 270 | 270 | 1 | 2.5 | 0.113-0.129 | 0.420-0.480 |
| | 260 | 365 | 340 | 340 | 1 | 2.5 | 0.115-0.131 | 0.430-0.490 |
| | 300 | 420 | 310 | 310 | 1 | 2.5 | 0.131-0.147 | 0.490-0.550 |
| | 310 | 430 | 350 | 350 | 1 | 2.5 | 0.136-0.154 | 0.520-0.590 |
| | 410 | 546 | 400 | 400 | 1.5 | 2.5 | 0.173-0.188 | 0.780-0.850 |
| | 440 | 590 | 480 | 480 | 1.5 | 2.5 | 0.188-0.204 | 0.850-0.920 |
| | 440 | 620 | 454 | 454 | 3 | 2.5 | 0.195-0.211 | 0.880-0.950 |
| | 530 | 780 | 570 | 570 | 3 | 2.5 | 0.244-0.259 | 1.100-1.170 |
| Inch series | 220.662 | 314.325 | 239.712 | 239.712 | 1 | 2.5 | 0.098-0.111 | 0.450-0.510 |
| | 254.000 | 358.775 | 269.875 | 269.875 | 1 | 2.5 | 0.111-0.127 | 0.430-0.490 |
| | 304.902 | 412.648 | 266.700 | 266.700 | 1 | 2.5 | 0.130-0.150 | 0.450-0.520 |
| | 343.052 | 457.098 | 254.000 | 254.000 | 1 | 2.5 | 0.136-0.158 | 0.430-0.500 |
| | 343.052 | 457.098 | 299.000 | 299.000 | 1 | 2.5 | 0.143-0.163 | 0.500-0.570 |
| | 501.650 | 711.200 | 520.700 | 520.700 | 3 | 2.5 | 0.206-0.226 | 0.730-0.800 |
| | 595.312 | 844.550 | 615.950 | 615.950 | 3 | 2.5 | 0.266-0.282 | 1.200-1.270 |

1) Smallest allowable dimension for chamfer dimension *r* or *r*₁.
2) Consult with NTN Engineering because the appropriate value may change depending on the use conditions.

Dynamic equivalent radial load
 $P_r = XF_r + YF_a$

| $\frac{F_a}{F_r} \leq e$ | | $\frac{F_a}{F_r} > e$ | |
|--------------------------|-----------------------|-----------------------|-----------------------|
| <i>X</i> | <i>Y</i> | <i>X</i> | <i>Y</i> |
| 1 | <i>Y</i> ₁ | 0.67 | <i>Y</i> ₂ |

Static equivalent radial load

$$P_{0r} = F_r + Y_0 F_a$$

For values of *e*, *Y*₁, *Y*₂
and *Y*₀ see the table below.

| Basic load rating | | Bearing number ³⁾ | Installation-related dimensions | | Constant <i>e</i> | Axial load factors | | |
|-----------------------|------------------------|------------------------------|------------------------------------|-----------------------|----------------------|-----------------------|-----------------------|-----------------------|
| dynamic | static | | <i>d</i> _a | <i>D</i> _a | | <i>Y</i> ₁ | <i>Y</i> ₂ | <i>Y</i> ₀ |
| <i>C</i> _r | <i>C</i> _{0r} | | | | | | | |
| 1 890 | 4 650 | 2E-CROU-4401LLA1X | 235 | 267 | 0.33 | 2.03 | 3.02 | 1.98 |
| 1 870 | 3 700 | 2E-CROU-4501LLA1X | 241 | 294 | 0.41 | 1.64 | 2.44 | 1.60 |
| 2 320 | 4 600 | 2E-CROU-4801LLA1X | 257 | 309 | 0.35 | 1.95 | 2.90 | 1.91 |
| 2 970 | 6 850 | 2E-CROU-4802LLA1X | 257 | 309 | 0.40 | 1.68 | 2.50 | 1.64 |
| 2 760 | 5 300 | 2E-CROU-5001LLA1X | 272 | 333 | 0.40 | 1.68 | 2.50 | 1.64 |
| 3 350 | 7 450 | 2E-CROU-5201LLA1X | 275 | 327 | 0.40 | 1.68 | 2.50 | 1.64 |
| 3 600 | 7 650 | 2E-CROU-6001LLA1X | 318 | 382 | 0.40 | 1.68 | 2.50 | 1.64 |
| 4 050 | 8 900 | 2E-CROU-6201LLA1X | 329 | 388 | 0.39 | 1.72 | 2.56 | 1.68 |
| 5 500 | 13 300 | 2E-CROU-8201LLA1X | 434 | 504 | 0.33 | 2.03 | 3.02 | 1.98 |
| 6 600 | 16 200 | 2E-CROU-8801LLA1X | 462 | 540 | 0.33 | 2.03 | 3.02 | 1.98 |
| 7 650 | 16 700 | 2E-CROU-8802LLA1X | 473 | 570 | 0.33 | 2.03 | 3.02 | 1.98 |
| 13 500 | 29 400 | E-CROU-10601LLA1X* | 581 | 710 | 0.33 | 2.03 | 3.02 | 1.98 |
| 2 240 | 4 350 | 2E-CROU-4402LLA1X | 240 | 290 | 0.33 | 2.07 | 3.09 | 2.03 |
| 2 770 | 5 700 | 2E-CROU-5101LLA1X | 274 | 328 | 0.39 | 1.74 | 2.59 | 1.70 |
| 2 810 | 5 850 | 2E-CROU-6101LLA1X | 323 | 379 | 0.43 | 1.56 | 2.32 | 1.52 |
| 2 830 | 5 950 | 2E-CROU-6901LLA1X | 364 | 423 | 0.47 | 1.43 | 2.12 | 1.40 |
| 3 500 | 8 150 | 2E-CROU-6902LLA1X | 364 | 423 | 0.43 | 1.57 | 2.34 | 1.53 |
| 10 100 | 23 900 | E-CROU-10001LLA1X* | 542 | 642 | 0.42 | 1.60 | 2.38 | 1.56 |
| 14 000 | 33 000 | 2E-CROU-11901LLA1X | 638 | 770 | 0.33 | 2.03 | 3.02 | 1.98 |

3) Bearing numbers marked "*" use rolling elements made of carburizing (case hardened) steel.