

FAG



Sealed Spherical Roller Bearings

With reliable protection against contamination

SCHAEFFLER

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Sealed spherical roller bearings

Features Spherical roller bearings are double row, self-retaining units comprising solid outer rings with a concave raceway, solid inner rings and barrel rollers with cages. The inner rings have cylindrical or tapered bores.

The symmetrical barrel rollers orient themselves freely on the concave outer ring raceway. As a result, shaft flexing and misalignment of the bearing seats are compensated.

Sealed spherical roller bearings are characterised by:

- very high basic dynamic and static load ratings
- lower frictional torque compared to the competition
- environmentally friendly characteristics
- lower grease consumption and disposal costs
- no requirement for expensive relubrication systems
- reduced maintenance outlay
- simple reconditioning of series 240 and 241
- longer operating life of the bearing.

Sealed spherical roller bearings are suitable for areas of operation such as continuous casting plant, conveyor belts, elevator plant or the food industry.

X-life

Spherical roller bearings of the X-life design have improved kinematics and optimised surfaces, are made from higher performance materials and do not have a rigid central rib. As a result, the basic dynamic and static load ratings and, under identical operating conditions, the basic rating life of the bearings are significantly improved. In certain applications, this means that a smaller bearing arrangement can be designed.

X-life spherical roller bearings have the suffix E1.

Sealing concepts

The sealed spherical roller bearings are fitted, depending on the series, with different sealing concepts.

Spherical roller bearings of series 222, 223

Features of the sealing concept of sealed spherical roller bearing series 222, 223, *Figure 1*:

- bearings with an oversize width identified by the prefix WS (WS = Wide Size). As standard, this affects the series 222 and 223. Example: WS22215-E1-2RSR
- solid brass cage or sheet steel cage
- greasing with a lubricant KP2K-20 in accordance with DIN 51825 for a temperature range of -20 °C to +130 °C; other greases are available by agreement
- 25% to 40% grease fill level of the bearing interior; different grease fill levels are available by agreement
- dimensional stabilisation up to +200 °C (standard)
- radial internal clearance Group N
- self-alignment facility 0,5° from the central position
- limiting speed n_g dependent on the grease and grease fill level
- standard design with a circumferential groove and three lubrication holes in the outer ring for simple relubrication
- bearings also available with a completely closed outer ring, suffix H40, see table, page 5
- contact seals made from nitrile rubber (NBR), suitable for temperatures of -30 °C to +100 °C; other sealing washer materials such as FKM available by agreement.



Seals made from fluoro rubber (FKM, FPM) comprise particularly high performance materials that may release vapour when heated to approx. +300 °C. This may occur if, for example, a welding torch is used in the dismantling of a bearing. In such cases, the appropriate safety data sheet must be observed and this is available upon request.



Figure 1
Example:
WS22212-E1-2RSR

Sealed spherical roller bearings

Spherical roller bearings of series 240 and 241

Features of the sealing concept of sealed spherical roller bearing series 240 and 241:

- main dimensions identical to those of the open bearing, allowing simple interchange
- basic load ratings identical to those of an open bearing
- X-life design
- sealing washers interchangeable
- internal bearing design with sheet steel cage and loose central rib
- greasing with a lubricant KP2R-30 in accordance with DIN 51825 for a temperature range of -30 °C to $+180\text{ °C}$; other greases are available by agreement
- radial internal clearance Group N
- dimensional stabilisation up to $+200\text{ °C}$
- 60% grease fill level of the bearing interior; different grease fill levels are available by agreement
- limiting speed n_g dependent on the grease and grease fill level
- self-alignment facility $0,5^\circ$ from the central position
- standard design as a completely sealed bearing with a closed outer ring, suffix H40, see table and *Figure 2*, page 5
- for simple relubrication, design available with a circumferential groove and three lubrication holes in the outer ring, see table and *Figure 3*, page 5
- contact seals made from fluoro rubber, suitable for temperatures of -20 °C bis $+200\text{ °C}$; other sealing washer materials such as NBR available by agreement.



Seals made from fluoro rubber (FKM, FPM) comprise particularly high performance materials that may release vapour when heated to approx. $+300\text{ °C}$. This may occur if, for example, a welding torch is used in the dismounting of a bearing. In such cases, the appropriate safety data sheet must be observed and this is available upon request.

Designs

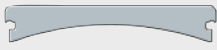

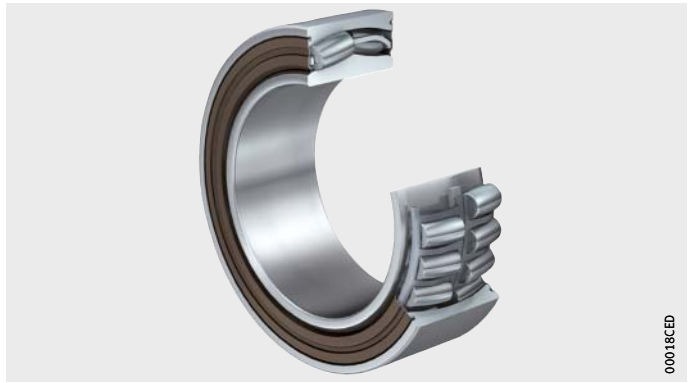
| Description | | Example |
|---|---|--------------------------|
|  | Closed outer ring | 24028-E1-2VSR-H40 |
|  | Circumferential groove and three lubrication holes, with relubrication facility | 24028-E1-2VSR |

Figure 2
Sealing concept of series 240 and 241, closed outer ring



00018CED

Figure 3
Sealing concept of series 240 and 241



00017CCD

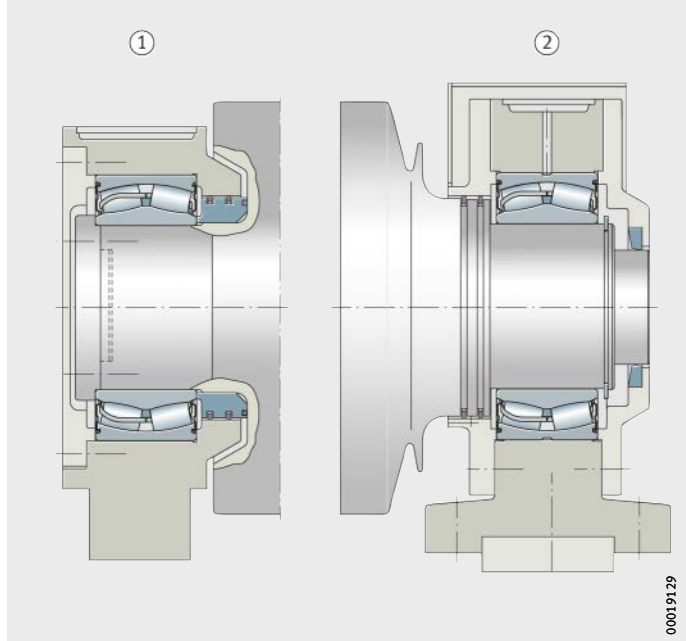
Sealed spherical roller bearings

Potential savings

In continuous slab casting plants, sealed spherical roller bearings are mounted as locating bearings and as non-locating bearings, *Figure 4.*

- ① Locating bearing
- ② Non-locating bearing

Figure 4
Mounting example



The following comparison from the continuous casting sector shows the savings that are possible by the use of sealed spherical roller bearings instead of open bearings.

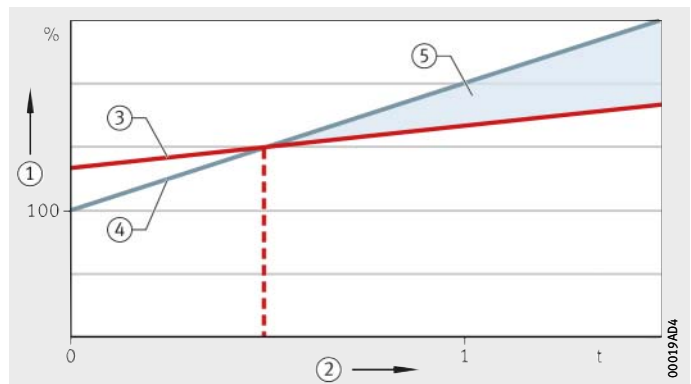
The grease costs for relubrication of an open bearing and a sealed bearing (seal lubrication of the housing) were taken into consideration along with the specific disposal and separation of the grease from the cooling circuit.

Due to the lower maintenance outlay and the generally longer life of the sealed spherical roller bearing, the higher purchase price compared to the open bearing is amortised after only a short time.

An example of the cost ratio in the life cycle of a sealed and an open bearing for a selected bearing position in a bearing position in a continuous casting plant (bearing price for the open bearing = 100%) is shown in *Figure 5*. The cost ratio and its development over time is decisively dependent on the bearing size.

- ① Cumulative costs in %
- ② Amortisation time in years
- ③ Price of sealed bearing
- ④ Price of open bearing
- ⑤ Saving

Figure 5
Cost comparison of open and sealed spherical bearing



Sealed spherical roller bearings

Design and safety guidelines Equivalent dynamic bearing load

The equivalent dynamic bearing load P is valid for bearings that are subjected to radial and axial dynamic loads. It gives the same rating life as the combined bearing load occurring in practice.

For bearings under dynamic loading, the following applies:

Load ratio and equivalent dynamic load

| Load ratio | Equivalent dynamic bearing load |
|--------------------------|--------------------------------------|
| $\frac{F_a}{F_r} \leq e$ | $P = F_r + Y_1 \cdot F_a$ |
| $\frac{F_a}{F_r} > e$ | $P = 0,67 \cdot F_r + Y_2 \cdot F_a$ |

F_a N
Axial dynamic bearing load
 F_r N
Radial dynamic bearing load
 e, Y_1, Y_2 –
Factors, see dimension tables
 P N
Equivalent dynamic bearing load for combined load.

Equivalent static bearing load

The equivalent static bearing load for combined loads P_0 is valid for bearings that are subjected to radial and axial static loads.

It induces the same load at the centre point of the most heavily loaded contact point between the rolling element and raceway as the combined bearing load occurring in practice.

For bearings under static loading, the following applies:

$$P_0 = F_{0r} + Y_0 \cdot F_{0a}$$

P_0 N
Equivalent static bearing load for combined load
 F_{0r} N
Radial static bearing load
 Y_0 –
Factor, see dimension tables
 F_{0a} N
Axial static bearing load.

Rolling bearing reconditioning

During the maintenance of machinery and plant, many rolling bearings are taken out of service and replaced by new ones as a precaution. In some cases, this safety-conscious approach blocks any appreciation of the potential cost savings. The fact is: reconditioned bearings generally give the same performance as new ones.

The reconditioning of rolling bearings and rolling bearing units is one of the core competences of the service arm of Schaeffler and is offered at several certified locations worldwide. Our services for rolling bearings of all types apply irrespective of manufacturer and are not restricted to Schaeffler products.

Schaeffler is in a position to recondition and modify rolling bearings with an outside diameter of up to 4 250 mm, *Figure 6*. It is thus an expert partner for customers from a very wide range of industrial sectors such as general and special machine building, steel and aluminium, pulp and paper production, wind power, shipbuilding, private and public railways and mining.



Figure 6
Bearing examination by Schaeffler reconditioning specialists

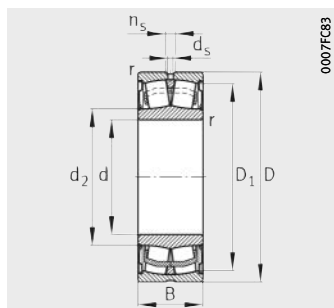
Further information

- For information on the reconditioning of rolling bearings, see Technical Product Information TPI 207, Reconditioning of Rolling Bearings.

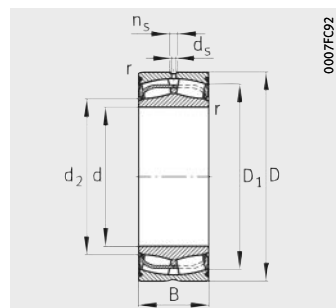
Sealed spherical roller bearings

Cylindrical bore

X-life



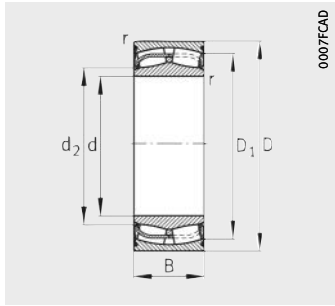
222, 223



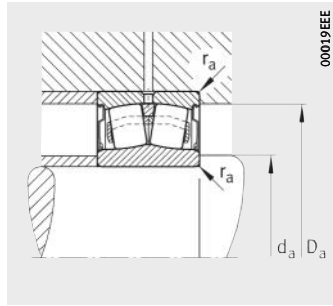
240, 241

Dimension table · Dimensions in mm

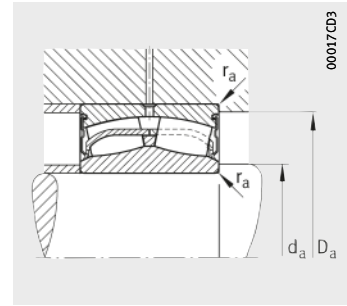
| Designation | | | Mass m ≈kg | Dimensions | | | | | | | |
|-----------------|--------|------|------------------|------------|-----|----|------------------|----------------|----------------|----------------|----------------|
| Sealed | X-life | Open | | d | D | B | r _{min} | D ₁ | d ₂ | n _s | d _s |
| WS22205-E1-2RSR | XL | – | 0,235 | 25 | 52 | 23 | 1 | 46,1 | 29,8 | 4,8 | 3,2 |
| WS22206-E1-2RSR | XL | – | 0,4 | 30 | 62 | 25 | 1 | 55,5 | 35 | 4,8 | 3,2 |
| WS22207-E1-2RSR | XL | – | 0,6 | 35 | 72 | 28 | 1,1 | 64,2 | 40,1 | 4,8 | 3,2 |
| WS22208-E1-2RSR | XL | – | 0,7 | 40 | 80 | 28 | 1,1 | 72,6 | 45,9 | 4,8 | 3,2 |
| WS22308-E1-2RSR | XL | – | 1,16 | 40 | 90 | 38 | 1,5 | 78,1 | 48,9 | 6,5 | 3,2 |
| WS22209-E1-2RSR | XL | – | 0,67 | 45 | 85 | 28 | 1,1 | 77,8 | 51,4 | 4,8 | 3,2 |
| WS22210-E1-2RSR | XL | – | 0,8 | 50 | 90 | 28 | 1,1 | 83,1 | 56 | 4,8 | 3,2 |
| WS22211-E1-2RSR | XL | – | 1,1 | 55 | 100 | 31 | 1,5 | 91,9 | 63,5 | 4,8 | 3,2 |
| WS22311-E1-2RSR | XL | – | 2,9 | 55 | 120 | 49 | 2 | 104,1 | 64,8 | 6,5 | 3,2 |
| WS22212-E1-2RSR | XL | – | 1,5 | 60 | 110 | 34 | 1,5 | 100,7 | 67,6 | 6,5 | 3,2 |
| WS22312-E1-2RSR | XL | – | 3,4 | 60 | 130 | 53 | 2,1 | 110,1 | 74,8 | 6,5 | 3,2 |
| WS22213-E1-2RSR | XL | – | 2 | 65 | 120 | 38 | 1,5 | 110,2 | 76,2 | 6,5 | 3,2 |
| WS22214-E1-2RSR | XL | – | 2,1 | 70 | 125 | 38 | 1,5 | 113,5 | 82,5 | 6,5 | 3,2 |
| WS22314-E1-2RSR | XL | – | 5,4 | 70 | 150 | 60 | 2,1 | 128 | 86,7 | 9,5 | 4,8 |
| WS22215-E1-2RSR | XL | – | 2,2 | 75 | 130 | 38 | 1,5 | 120,2 | 85,6 | 6,5 | 3,2 |
| WS22216-E1-2RSR | XL | – | 2,7 | 80 | 140 | 40 | 2 | 128,6 | 91,3 | 6,5 | 3,2 |
| WS22217-E1-2RSR | XL | – | 3,4 | 85 | 150 | 44 | 2 | 137,1 | 96,5 | 6,5 | 3,2 |
| WS22218-E1-2RSR | XL | – | 4,3 | 90 | 160 | 48 | 2 | 146,7 | 101,4 | 6,5 | 3,2 |



240-H40, 241-H40



Mounting dimensions
222, 223



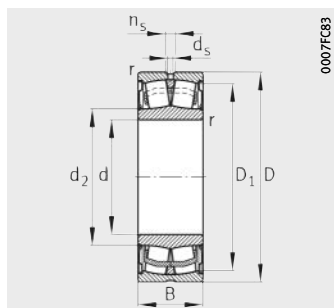
Mounting dimensions
240, 241

| Mounting dimensions | | | Basic load ratings | | Calculation factors | | | | Fatigue limit load C_{ur} N | Limiting speed n min^{-1} |
|---------------------|---------------------|---------------------|--------------------|---------------|---------------------|------|------|-------|-------------------------------------|--|
| $d_{a \text{ min}}$ | $D_{a \text{ max}}$ | $r_{a \text{ max}}$ | dyn. | stat. | dyn. | | | stat. | | |
| | | | C N | C_{or} N | e | Y1 | Y2 | Y0 | | |
| 29,8 | 46,4 | 1 | 48 500 | 42 500 | 0,33 | 2,07 | 3,09 | 2,03 | 4 800 | 3 600 |
| 35 | 56,4 | 1 | 64 000 | 57 000 | 0,3 | 2,26 | 3,37 | 2,21 | 6 900 | 3 130 |
| 40,1 | 65 | 1,1 | 89 000 | 81 000 | 0,31 | 2,21 | 3,29 | 2,16 | 9 400 | 2 680 |
| 45,9 | 73 | 1 | 101 000 | 91 000 | 0,27 | 2,49 | 3,71 | 2,43 | 11 800 | 2 630 |
| 48,9 | 81 | 1,5 | 156 000 | 149 000 | 0,36 | 1,86 | 2,77 | 1,82 | 13 100 | 1 900 |
| 51,4 | 78 | 1 | 104 000 | 99 000 | 0,25 | 2,74 | 4,08 | 2,68 | 12 700 | 2 530 |
| 56 | 83,1 | 1 | 109 000 | 107 000 | 0,23 | 2,95 | 4,4 | 2,89 | 14 300 | 2 450 |
| 63,5 | 91,9 | 1,5 | 129 000 | 130 000 | 0,21 | 3,17 | 4,72 | 3,1 | 17 300 | 2 250 |
| 64,8 | 109 | 2 | 265 000 | 260 000 | 0,36 | 1,89 | 2,81 | 1,84 | 23 900 | 1 450 |
| 67,6 | 101 | 1,5 | 160 000 | 155 000 | 0,23 | 2,98 | 4,44 | 2,92 | 20 200 | 2 030 |
| 72 | 118 | 2,1 | 310 000 | 310 000 | 0,35 | 1,91 | 2,85 | 1,87 | 28 000 | 1 350 |
| 76,2 | 111 | 1,5 | 202 000 | 210 000 | 0,24 | 2,81 | 4,19 | 2,75 | 25 500 | 1 750 |
| 82,5 | 116 | 1,5 | 211 000 | 226 000 | 0,23 | 2,95 | 4,4 | 2,89 | 28 000 | 1 680 |
| 82 | 138 | 2,1 | 390 000 | 390 000 | 0,34 | 2 | 2,98 | 1,96 | 36 500 | 1 200 |
| 84 | 121 | 1,5 | 216 000 | 237 000 | 0,22 | 3,1 | 4,62 | 3,03 | 29 500 | 1 630 |
| 91 | 129 | 2 | 250 000 | 270 000 | 0,22 | 3,14 | 4,67 | 3,07 | 33 500 | 1 550 |
| 96 | 139 | 2 | 305 000 | 325 000 | 0,22 | 3,04 | 4,53 | 2,97 | 38 000 | 1 430 |
| 101 | 149 | 2 | 345 000 | 375 000 | 0,23 | 2,9 | 4,31 | 2,83 | 42 500 | 1 300 |

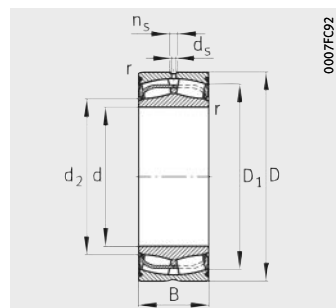
Sealed spherical roller bearings

Cylindrical bore

X-life



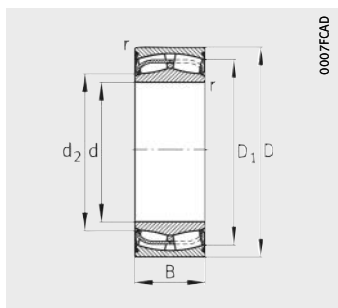
222, 223



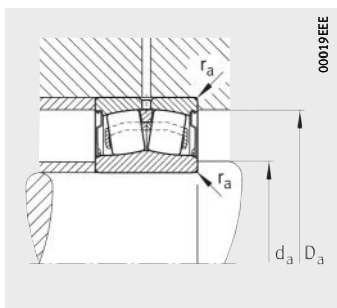
240, 241

Dimension table (continued) · Dimensions in mm

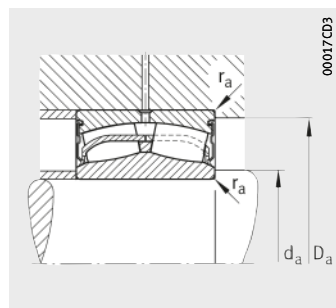
| Designation | | | Mass m ≈ kg | Dimensions | | | | | | | |
|-------------------|--------|------|-------------------|------------|-----|-----|------------------|----------------|----------------|----------------|----------------|
| Sealed | X-life | Open | | d | D | B | r _{min} | D ₁ | d ₂ | n _s | d _s |
| WS22220-E1-2RSR | XL | – | 6,3 | 100 | 180 | 55 | 2,1 | 169,1 | 115 | 9,5 | 4,8 |
| WS22222-E1-2RSR | XL | – | 9 | 110 | 200 | 63 | 2,1 | 182,6 | 124,9 | 9,5 | 4,8 |
| 24122-E1-2VSR-H40 | XL | – | 6,8 | 110 | 180 | 69 | 2 | 167,1 | 120,8 | 6,5 | 3,2 |
| WS22224-E1-2RSR | XL | – | 11,3 | 120 | 215 | 69 | 2,1 | 203,4 | 136,8 | 12,2 | 6,3 |
| 24124-E1-2VSR-H40 | XL | – | 10,4 | 120 | 200 | 80 | 2 | 184,5 | 131,1 | – | – |
| 24024-E1-2VSR-H40 | XL | – | 5,6 | 120 | 180 | 60 | 2 | 170,5 | 131 | – | – |
| WS22226-E1-2RSR | XL | – | 12,8 | 130 | 230 | 75 | 3 | 217,5 | 146,6 | 12,2 | 6,3 |
| 24126-E1-2VSR-H40 | XL | – | 11 | 130 | 210 | 80 | 2 | 196,1 | 143,1 | – | – |
| 24026-E1-2VSR-H40 | XL | – | 8,4 | 130 | 200 | 69 | 2 | 187,2 | 142,1 | – | – |
| 24128-E1-2VSR-H40 | XL | – | 13,8 | 140 | 225 | 85 | 2,1 | 209,9 | 153,5 | – | – |
| 24028-E1-2VSR-H40 | XL | – | 8,4 | 140 | 210 | 69 | 2 | 198,5 | 153,3 | – | – |
| 24130-E1-2VSR-H40 | XL | – | 20,6 | 150 | 250 | 100 | 2,1 | 228,9 | 163,1 | – | – |
| 24030-E1-2VSR-H40 | XL | – | 11,1 | 150 | 225 | 75 | 2,1 | 213,2 | 164 | – | – |
| 24132-E1-2VSR-H40 | XL | – | 25,4 | 160 | 270 | 109 | 2,1 | 245,6 | 175,5 | – | – |
| 24032-E1-2VSR-H40 | XL | – | 12,7 | 160 | 240 | 80 | 2,1 | 226,9 | 174,8 | – | – |
| 24134-E1-2VSR-H40 | XL | – | 26,4 | 170 | 280 | 109 | 2,1 | 257,3 | 186,7 | – | – |
| 24034-E1-2VSR-H40 | XL | – | 17,2 | 170 | 260 | 90 | 2,1 | 243,3 | 184,8 | – | – |
| 24136-E1-2VSR-H40 | XL | – | 33,2 | 180 | 300 | 118 | 3 | 276,3 | 196,2 | – | – |
| 24036-E1-2VSR-H40 | XL | – | 22,7 | 180 | 280 | 100 | 2,1 | 259,6 | 195,6 | – | – |
| 24138-E1-2VSR-H40 | XL | – | 41,5 | 190 | 320 | 128 | 3 | 292,6 | 208 | – | – |
| 24038-E1-2VSR-H40 | XL | – | 23,7 | 190 | 290 | 100 | 2,1 | 271,1 | 206,2 | – | – |
| 24140-E1-2VSR-H40 | XL | – | 49,5 | 200 | 340 | 140 | 3 | 309,5 | 216,2 | – | – |
| 24040-E1-2VSR-H40 | XL | – | 30,1 | 200 | 310 | 109 | 2,1 | 287,8 | 217 | – | – |
| 24144-E1-2VSR-H40 | XL | – | 64 | 220 | 370 | 150 | 4 | 338,5 | 236,2 | – | – |



240-H40, 241-H40



Mounting dimensions
222, 223



Mounting dimensions
240, 241

| Mounting dimensions | | | Basic load ratings | | Calculation factors | | | | Fatigue limit load | Limiting speed |
|---------------------|--------------------|--------------------|--------------------|----------------------|---------------------|------|------|-------|----------------------|------------------------|
| d _{a min} | D _{a max} | r _{a max} | dyn. | stat. | dyn. | | | stat. | C _{ur} N | n min ⁻¹ |
| | | | C N | C _{Or} N | e | Y1 | Y2 | Y0 | | |
| 112 | 169,1 | 2,1 | 430 000 | 475 000 | 0,24 | 2,84 | 4,23 | 2,78 | 52 000 | 1 140 |
| 122 | 188 | 2,1 | 550 000 | 600 000 | 0,25 | 2,71 | 4,04 | 2,65 | 62 000 | 1 030 |
| 120,8 | 169 | 2 | 530 000 | 750 000 | 0,34 | 1,96 | 2,92 | 1,92 | 84 000 | 840 |
| 132 | 203,4 | 2,1 | 640 000 | 740 000 | 0,25 | 2,71 | 4,04 | 2,65 | 71 000 | 910 |
| 131 | 189 | 2 | 680 000 | 950 000 | 0,37 | 1,84 | 2,74 | 1,8 | 101 000 | 740 |
| 129 | 171 | 2 | 450 000 | 690 000 | 0,29 | 2,33 | 3,47 | 2,28 | 84 000 | 860 |
| 144 | 217,5 | 2,5 | 760 000 | 890 000 | 0,26 | 2,62 | 3,9 | 2,56 | 79 000 | 780 |
| 141 | 199 | 2 | 710 000 | 1 050 000 | 0,34 | 1,98 | 2,94 | 1,93 | 109 000 | 700 |
| 139 | 191 | 2 | 570 000 | 860 000 | 0,31 | 2,21 | 3,29 | 2,16 | 101 000 | 780 |
| 152 | 213 | 2,1 | 800 000 | 1 190 000 | 0,34 | 1,99 | 2,96 | 1,94 | 124 000 | 660 |
| 149 | 201 | 2 | 590 000 | 930 000 | 0,28 | 2,37 | 3,53 | 2,32 | 109 000 | 740 |
| 162 | 238 | 2,1 | 1 050 000 | 1 520 000 | 0,37 | 1,83 | 2,72 | 1,79 | 148 000 | 590 |
| 160 | 215 | 2,1 | 680 000 | 1 090 000 | 0,29 | 2,32 | 3,45 | 2,26 | 123 000 | 690 |
| 172 | 258 | 2,1 | 1 220 000 | 1 800 000 | 0,37 | 1,8 | 2,69 | 1,76 | 168 000 | 550 |
| 170 | 230 | 2,1 | 770 000 | 1 240 000 | 0,29 | 2,32 | 3,45 | 2,26 | 137 000 | 640 |
| 182 | 268 | 2,1 | 1 260 000 | 1 900 000 | 0,36 | 1,9 | 2,83 | 1,86 | 179 000 | 530 |
| 180 | 250 | 2,1 | 940 000 | 1 480 000 | 0,31 | 2,2 | 3,27 | 2,15 | 158 000 | 600 |
| 194 | 286 | 2,5 | 1 460 000 | 2 170 000 | 0,36 | 1,86 | 2,77 | 1,82 | 203 000 | 500 |
| 190 | 270 | 2,1 | 1 130 000 | 1 770 000 | 0,32 | 2,1 | 3,13 | 2,06 | 180 000 | 550 |
| 204 | 306 | 2,5 | 1 680 000 | 2 550 000 | 0,37 | 1,82 | 2,7 | 1,78 | 226 000 | 460 |
| 200 | 280 | 2,1 | 1 160 000 | 1 860 000 | 0,31 | 2,2 | 3,27 | 2,15 | 192 000 | 540 |
| 214 | 326 | 2,5 | 1 880 000 | 2 800 000 | 0,39 | 1,71 | 2,54 | 1,67 | 250 000 | 450 |
| 210 | 300 | 2,1 | 1 350 000 | 2 150 000 | 0,32 | 2,13 | 3,17 | 2,08 | 216 000 | 500 |
| 236,2 | 353 | 3 | 2 190 000 | 3 250 000 | 0,39 | 1,74 | 2,59 | 1,7 | 290 000 | 410 |

Continuous casting plant

In continuous casting plant, the cast strand is supported by rolls. In order to restrict deflection, the rolls are supported at several points along their length by rolling bearings. These bearings are subjected to high loads, low speeds, spray water and high temperatures. Spherical roller bearings of sealed design are used to support the rolls, *Figure 1*.



Figure 1
Continuous casting plant

Requirements

The demands on the design are:

- high static load carrying capacity
- maximum resistance to the ingress of foreign matter.

Design solution

Sealed spherical roller bearings E1 offer a high standard of reliability, cost-efficiency and technical performance capacity in the metal-producing and metal-processing industry.

Due to the particularly compact bearing seals in series 240 and 241, the internal construction used can be the same as in the open type, *Figure 2*. The advantages of the field tested X-life design are now also accessible for sealed spherical roller bearings. The external dimensions of course remain identical to those of the unsealed variant. The extremely reliable sealing arrangement using a high temperature elastomer (FKM) and a special high temperature lubricant allows a longer bearing operating life, leading to higher machine availability and thus to greater added value.

The maintenance-friendly sealing concept of series 240 and 241 also contributes to rapid amortisation.

For the specific applications, the grease operating life as well as the relubrication quantity and the service life must be checked.

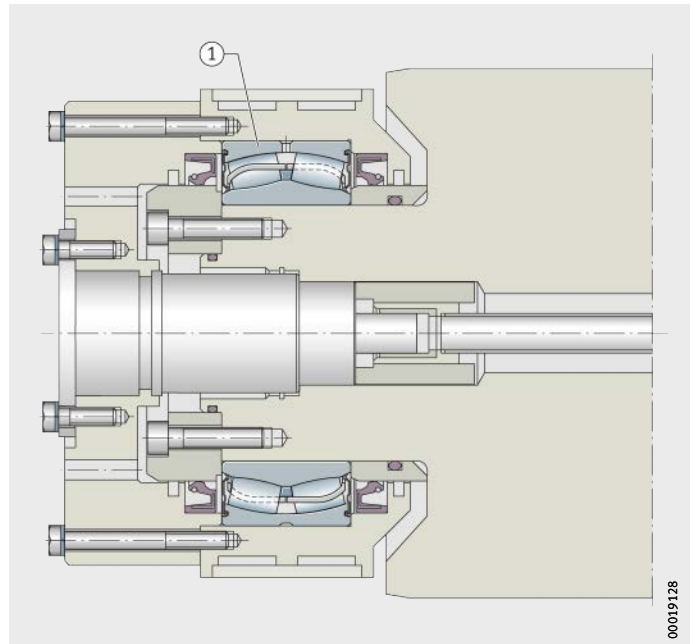


Figure 2
Strand guide roll

Products used

- ① 24028-E1-2VSR-C4.

Elevator systems

Due to their optimised bearing kinematics and minimal frictional torque, sealed spherical roller bearings are an ideal choice for use in elevator plant, *Figure 1*.



Figure 1
Elevator system

Requirements

The demands on the design are:

- a low-maintenance bearing arrangement
- maximum operating life.

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