



SBS - SINGA BEARINGS SOLUTIONS

SBS MINING BEARINGS

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| | | | | |
|---|-------------------|-------------------------|--------------------------|---------------------|
|  | | Parts Compatible With : | Model : | |
| | | CATERPILLAR® | CAT 777 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 5J-9451 | GE259-8413072-s | Hoist Cylinder | SPB |
| | 8J-8906 | GE259-82158101-s | Rear Suspension Cylinder | SPB |

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|--|-------------------|-------------------------|----------------------------|---------------------|
|  | | Parts Compatible With : | Model : | |
| | | CATERPILLAR® | CAT 789 CAT 793 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 129-0899 | GE259-127203127-si | Rear Suspension Cylinder | SPB |
| | 6Y9379 | GE259-114177100-si | Hoist Cylinder-Barrel Eye | SPB |
| | 1888697 | GE259-127203127-si | Rear Suspension Cylinder | SPB |
| | 6Y9380 | GE259-14021090-s | Hoist Cylinder-Rod Eye | SPB |



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|---|-------------------|-------------------------|------------------|---------------------|
|  | | Parts Compatible With : | Model : | |
| | | CATERPILLAR® | CAT D8R | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 6E-1108 | FSZ 204-576538-i | Lift Cylinder | FER-MAS® |
| | 8E-6752 | FSZ 204-708244-i | Connector Blade | FER-MAS® |
| | 3G-9598 | FSZ 204-708259-i | Push Arm | FER-MAS® |
| | 1U-2182 | FSZ 204-708344-i | Tilt Cylinder | FER-MAS® |
| | 104-1844 | FSZ 210-668145-si | Lift Cylinder | FER-MAS® |



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|---|-------------------|-------------------------|-------------------------------|---------------------|
|  | | Parts Compatible With : | Model : | |
| | | CATERPILLAR® | CAT D10 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 117-3006 | GE259-9514983-si | Blade Lift Hydraulic Cylinder | SPB |



SPB : Spherical Plain Bearing | FER-MAS® : Hardened Steel Bush | FER-MAN® : Hardened Manganese Steel | TEF-MET® : PTFE Coated Bush
 BRO-MAS® : High Strength Bronze Bush

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| | | | | |
|---|------------|--------------------|-------------------------|-----------------|
|  | | | Parts Compatible With : | Model : |
| | | | CATERPILLAR® | CAT 6015 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | - | FNB259-150166123-s | Idler Bush | FER-MAN® |
| | - | FSP214-150524-s | Idler Pin | FER-MAS® |



| | | | | |
|--|------------|--------------------|-------------------------|-----------------|
|  | | | Parts Compatible With : | Model : |
| | | | CATERPILLAR® | CAT 6020 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 436-5365 | FSB206-190215190-s | Bucket Hinge | FER-MAS® |
| | 468-4111 | FSB206-170190165-s | Bucket Hinge | FER-MAS® |



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|---|------------|--------------------|-------------------------|-----------------|
|  | | | Parts Compatible With : | Model : |
| | | | CATERPILLAR® | CAT 6030 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 465-8484 | FSZ206-8510554-s | Traklink Bush | FER-MAS® |
| | 465-8485 | FSZ206-85105106-s | Traklink Bush | FER-MAS® |
| | 465-8460 | FSP214-99241-s | Traklink Pin | FER-MAS® |
| | 465-8349 | FNB259-185205140-s | Idler Bush | FER-MAS® |
| | - | FSP214-185640-s | Idler Pin | FER-MAS® |

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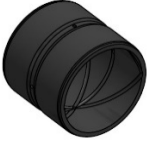
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|---|------------|-------------------------|-----------------|--------------|
|  | | Parts Compatible With : | Model : | |
| | | CATERPILLAR® | CAT 6040 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | - | FSP214-96 | Traklink Pin | FER-MAN® |
| | | FSP214-200730 | Idler Pin | FER-MAN® |
| | | FSB206-9612048-s | Traklink Bush | FER-MAN® |



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|  | | Parts Compatible With : | Model : | |
| | | CATERPILLAR® | CAT 6060 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | - | BSB108-12013585-s | Clam Cylinder (Rod) | BRO-MAS® |
| | | BSZ108-180195105-s | Bucket Cylinder (Rod) | BRO-MAS® |
| | | BSB108-180245130-s | Bucket Cylinder (Barrel) | BRO-MAS® |
| GE259-120180108 | | Clam Cylinder (Barrel Eye) | SPB | |



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|  | | | Parts Compatible With : | Model : |
| | | | HITACHI® | ZX 350H |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | - | FSZ201-9010552.5-s | Bucket Cylinder | FER-MAS® |
| | - | FSZ201-10011551.5-s | Bucket Cylinder | FER-MAS® |

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|--|-----------------|--------------------|-------------------------|----------------|
|  | | | Parts Compatible With : | Model : |
| | | | HITACHI® | EX 1200 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 0336306 | GE259-180275155-s | Arm Cylinder | SPB |
| | 0257521/0859301 | GE259-160240120-s | Boom Cylinder | SPB |
| | 4392649 | FSZ201-160175165-s | Boom Cylinder | FER-MAS® |



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|  | | | Parts Compatible With : | Model : |
| | | | HITACHI® | EX 1800 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 0257521 | GE259-160240120-s | Bucket Cylinder (L/R), Loader | SPB |
| | 0336306 | GE259-180275155-s | Arm Cylinder | SPB |



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| | | | | |
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|  | | Parts Compatible With : | Model : | |
| | | HITACHI® | EX 1900 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 0257521 | GE259-160240120-s | Bucket Cylinder (L/R), Loader | SPB |
| | 0336306 | GE259-180275155-s | Arm Cylinder | SPB |



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|--|------------|-------------------------|-----------------|--------------|
|  | | Parts Compatible With : | Model : | |
| | | HITACHI® | EX 2500 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 3069959 | BSB108-185205152-s | Idler | BRO-MAS® |
| | 4379184 | FSZ201-200220200 | Arm Cylinder | FER-MAS® |
| | 4392648 | FSZ201-200220200 | Boom Cylinder | FER-MAS® |
| | 4392649 | FSZ201-160185150 | Bucket Cylinder | FER-MAS® |
| | 0257521 | GE259-160240120-s | Bucket Cylinder | SPB |
| | 0317321 | GE259-200325200-s | Boom Cylinder | SPB |
| | 0336306 | GE259-180275155-s | Arm Cylinder | SPB |

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|---|------------|-------------------------|-----------------|--------------|
|  | | Parts Compatible With : | Model : | |
| | | HITACHI® | EX 2600 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 4379184 | FSZ201-200220200 | Arm Cylinder | FER-MAS® |
| | 4392648 | FSZ201-200220200 | Boom Cylinder | FER-MAS® |
| | 4392649 | FSZ201-160185150 | Bucket Cylinder | FER-MAS® |
| | 0257521 | GE259-160240120-s | Bucket Cylinder | SPB |
| | 0317321 | GE259-200325200-s | Boom Cylinder | SPB |
| | 0336306 | GE259-180275155-s | Arm Cylinder | SPB |

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| | | | | |
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|  | | Parts Compatible With : | Model : | |
| | | HITACHI® | EX 3600 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 4392648 | FSZ201-200220200 | Boom Cylinder | FER-MAS® |
| | 0317228 | GE259-230365210-s | Boom Cylinder | SPB |
| | 0317321 | GE259-200325200-s | Bucket Cylinder | SPB |
| | 0336306 | GE259-180275155-s | Arm Cylinder | SPB |

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| | | | | |
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|  | Parts Compatible With : | | Model : | |
| | KOMATSU® | | HD 465 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 566 50 11180 | TFZ 16090 | Front Susp. Cyl. Inner Part | TEF-MET® |
| | 07137 04507 | GE259-4510072-s | Steering Cylinder | SPB |
| | 566 52 41920 | GE259-609044-s | | SPB |
| | 569 52 41920 | GE259-701104258-s | Rear Susp. Cylinder | SPB |
| 205 63 56480 | GE259-7011058-s | Hoist Cylinder | SPB | |



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|---|-------------------------|---------------------------|---------------------------|--------------|
|  | Parts Compatible With : | | Model : | |
| | KOMATSU® | | HD 785 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 561 40 41120 | FSB210-607550-s | Steering connection | FER-MAS® |
| | 561 40 41130 | FSB210-607565-s | Steering connection | FER-MAS® |
| | 561 40 61160 | FSB210-607562-s | Undercarriage link bush | FER-MAS® |
| | 561 40 61330 | FSB210-506465-s | Undercarriage link bush | FER-MAS® |
| | 561 52 81170 | FSB210-9010453-s | Rear Axle connection | FER-MAS® |
| | 561 52 8A180 | FSB210-9010463-s | Rear Axle connection | FER-MAS® |
| | 568 46 11472 | FSZ210-91105160-s | Vessel Pivot Hinge | FER-MAS® |
| | 561 50 82340 | TFZ 21020 | Rear Suspension Cylinder | TEF-MET® |
| | 561 50 82341 | | | |
| | 561 50 82330 | TFZ 21075 | Rear Suspension Cylinder | TEF-MET® |
| | 561 50 82331 | | | |
| | 581 63 22291 | TFZ 20050 | Hoist Cylinder | TEF-MET® |
| | 707 52 10701 | TFZ 7035 | Steering Cylinder | TEF-MET® |
| | 707 52 11320 | TFZ 13040 | Hoist Cylinder | TEF-MET® |
| | 707 52 11321 | | | |
| | - | TFZ 180120 | Front Suspension Cylinder | TEF-MET® |
| | 07137 05008 | GE259-5011080-s | Steering Cylinder | SPB |
| | 07137 06010 | GE259-6013598-s | Front Axle Lever | SPB |
| | 561 50 82310 | GE259-9014082-s | Rear Suspension Cylinder | SPB |
| 561 50 82311 | | | | |
| 566 52 41920 | GE259-609044-s | Front Suspension Cylinder | SPB | |
| 561 50 62310 | GE259-8013070-s | Front Suspension Cylinder | SPB | |
| 569 63 22880 | GE259-8013070-sa | Hoist Cylinder | SPB | |



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| | | | | |
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|  | | | Parts Compatible With : | Model : |
| | | | KOMATSU® | HD 1500 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 07137 06010 | GE259-6013598-s | Steering Cylinder | SPB |
| | 581 50 21450 | GE259-100190105-s | Rear Suspension Cylinder | SPB |



| | | | | |
|--|--------------|------------------|-------------------------|-----------------|
|  | | | Parts Compatible With : | Model : |
| | | | KOMATSU® | PC 400LC |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 707 76 10140 | FSZ201-10011596 | Bucket Cylinder | FER-MAS® |
| | 707 76 11220 | FSZ201-110125116 | Boom Cylinder | FER-MAS® |
| | 707 76 11130 | | | |



| | | | | |
|---|--------------|-------------------|-------------------------|------------------------------|
|  | | | Parts Compatible With : | Model : |
| | | | KOMATSU® | PC 750SE PC 800SE |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 707 76 11130 | FSZ201-110125116 | Arm Cylinder | FER-MAS® |
| | 707 46 11520 | GE259-11519598-s | Boom Cylinder | SPB |
| | 707 46 13010 | GE259-130200110-s | Boom Cylinder | SPB |
| | 707 46 14010 | GE259-140230110-s | Bucket Cylinder | SPB |

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|  | | Parts Compatible With : | Model : | |
| | | KOMATSU® | PC 1250SP | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 707 76 10130 | FSZ201-100115106 | Bucket Cylinder | FER-MAS® |
| | 707 76 10140 | FSZ201-10011596 | Bucket Cylinder | FER-MAS® |
| | 707 76 16030 | FSZ201-160180146 | Arm Cylinder | FER-MAS® |
| | 21N-70-32550 | FSB210-140175192-s | Arm-Bucket Hinge | FER-MAS® |
| | 707 46 14010 | GE259-140230110-s | Boom Cylinder | SPB |
| 707 46 16030 | GE259-160255120-s | Arm Cylinder | SPB | |



| | | | | |
|---|-------------------|-------------------------|-------------------------|--------------|
|  | | Parts Compatible With : | Model : | |
| | | KOMATSU® | PC 2000 | |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 707 76 12180 | FSZ201-120135135 | Bucket Cylinder | FER-MAS® |
| | 707 76 14050 | FSZ201-140160130 | Bucket Cylinder | FER-MAS® |
| | 707 52 91350 | TFZ 14060 | Bushing Glan Inner Part | TEF-MET® |
| | 707 52 91351 | | | |
| | 707 52 91760 | TFZ 16080 | Bushing Glan Inner Part | TEF-MET® |
| | 707 52 91761 | | | |
| | 707 52 91170 | TFZ 20080 | Bushing Glan Inner Part | TEF-MET® |
| | 707 52 91171 | | | |
| 707 46 14050 | GE259-140220110-s | Arm Cylinder | SPB | |
| 707 46 18050 | GE259-180285130-s | Arm Cylinder | SPB | |

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|---|-------------------|--------------------|-------------------------|--------------------------------|
|  | | | Parts Compatible With : | Model : |
| | | | KOMATSU® | PC 3000BH PC 4000BH |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 627 572 40 | BSZ108-170200169-s | Boom Cylinder | BRO-MAS® |
| | 909 312 40 | BSB108-170200170-s | Stick Cylinder | BRO-MAS® |
| | 909 504 40 | BSB108-26029088-s | - | BRO-MAS® |
| | 910 164 40 | BSB108-150170120-s | Stick Cylinder (LA) | BRO-MAS® |
| | 924 988 40 | BSB108-25028082-s | Bucket Cylinder | BRO-MAS® |



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|---|-------------------|--------------------|-------------------------|--------------------------------|
|  | | | Parts Compatible With : | Model : |
| | | | KOMATSU® | PC 3000SH PC 4000SH |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 430 771 40 | BSZ108-180210120-s | Boom Cylinder | BRO-MAS® |
| | 624 577 40 | BSZ108-120140102-s | Bull Clamp Cylinder | BRO-MAS® |
| | 627 572 40 | BSZ108-170200170-s | Boom Cylinder | BRO-MAS® |
| | 627 597 40 | BSZ108-11013087-s | Bull Clamp Cylinder | BRO-MAS® |
| | 882 157 40 | BSB108-140170180-s | Bucket Cylinder | BRO-MAS® |
| | 904 539 40 | BSB108-160180120-s | Bucket Cylinder | BRO-MAS® |
| | 909 343 40 | BSB108-170200185-s | Bucket Cylinder | BRO-MAS® |

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|  | | | Parts Compatible With : | Model : |
| | | | KOMATSU® | D 155A |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 175 63 12540 | FSZ201-708450 | Blade Lift Cylinder | FER-MAS® |
| | 569 40 61160 | | | |
| | 707 65 65570 | FSZ201-658088 | Blade Lift Cylinder | FER-MAS® |
| | N/A | FSZ201-10011592 | Ripper Lift Cylinder | FER-MAS® |
| N/A | FSZ201-100115150 | Ripper Lift Cylinder | FER-MAS® | |

| | | | | |
|---|--------------------|-------------------|----------------------------|---------------|
|  | | | Parts Compatible With : | Model : |
| | | | KOMATSU® | D 375A |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 195 50 22210 | BIZ 175125-s | Trackframe | BIV-MET® |
| | 195 50 22190 | BIZ 210125-s | Trackframe | BIV-MET® |
| | 195 30 34121 | FSZ211-364380410 | Cannon Bush Cylinder | FER-MAS® |
| | 707 65 65570 | FSZ201-658088 | Blade Lift Cylinder | FER-MAS® |
| | N/A | FSZ201-10011592 | Ripper Lift Cylinder | FER-MAS® |
| | N/A | FSZ201-10011592 | Ripper Lift Cylinder | FER-MAS® |
| | 195 30 62100 | FS218222-110132 | Track Frame Bogie Pin Assy | FER-MAS® |
| | 195-50-22210 | GE259-951607090-s | Equalizer Bar | SPB |
| | 195 30 31221 | TFZ 380110-s | Track Frame Cylinder | TEF-MET® |
| 195 30 62650 | BSA114-1031504.6-s | Trackframe | Washer Plate | |

SPB : Spherical Plain Bearing | FER-MAS® : Hardened Steel Bush | FER-MAN® : Hardened Manganese Steel | TEF-MET® : PTFE Coated Bush
 BRO-MAS® : High Strength Bronze Bush

Disclaimer



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| | | | | |
|---|------------|------------------|-------------------------|-----------------|
|  | | | Parts Compatible With : | Model : |
| | | | KOMATSU® | WD 600-3 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | N/A | GE259-70150110-s | Blade Lift Cylinder | SPB |



SPB : Spherical Plain Bearing | FER-MAS® : Hardened Steel Bush | FER-MAN® : Hardened Manganese Steel | TEF-MET® : PTFE Coated Bush
BRO-MAS® : High Strength Bronze Bush

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| | | | | |
|---|------------|--------------------|-------------------------|--------------|
|  | | | Parts Compatible With : | Model : |
| | | | LIEBHERR® | R 954 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | - | FNZ246-140150105-s | Boom Cylinder | FER-MAN® |



| | | | | |
|---|------------|--------------------|-------------------------|--------------|
|  | | | Parts Compatible With : | Model : |
| | | | LIEBHERR® | R 996 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | - | FNZ246-250280288-s | Boom Cylinder | FER-MAN® |



| | | | | |
|---|------------|------------------|-------------------------|---------------|
|  | | | Parts Compatible With : | Model : |
| | | | LIEBHERR® | R 9250 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 110 79 119 | FNZ246-160190188 | Bucket Cylinder | FER-MAN® |
| | 110 79 121 | FNZ246-200230208 | Stick Cylinder | FER-MAN® |
| | 110 78 606 | FNZ246-220250248 | Boom Cylinder | FER-MAN® |
| | 110 78 606 | FNZ246-220250248 | Boom Cylinder | FER-MAN® |

SPB : Spherical Plain Bearing | FER-MAS® : Hardened Steel Bush | FER-MAN® : Hardened Manganese Steel | TEF-MET® : PTFE Coated Bush
 BRO-MAS® : High Strength Bronze Bush

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| | | | | |
|---|------------|--------------------|----------------------------|---------------|
|  | | | Parts Compatible With : | Model : |
| | | | LIEBHERR® | R 9350 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 110 78 593 | FNB246-160190100-s | Bucket Cylinder-Rod Eye | FER-MAN® |
| | 110 79 119 | FNZ246-160190188-s | Bucket Cylinder-Barrel Eye | FER-MAN® |
| | 110 79 121 | FNZ246-200230208-s | Stick Cylinder | FER-MAN® |
| | - | FNZ246-220250208-s | Arm Cylinder | FER-MAN® |
| | 110 78 606 | FNZ246-220250248-s | Boom Cylinder | FER-MAN® |

| | | | | |
|---|------------|--------------------|----------------------------|---------------|
|  | | | Parts Compatible With : | Model : |
| | | | LIEBHERR® | R 9400 |
|  | Genuine PN | SBS PN | Component | Bearing Type |
| | 110 78 593 | FNB246-160190100-s | Bucket Cylinder-Rod Eye | FER-MAN® |
| | 110 79 119 | FNZ246-160190188-s | Bucket Cylinder-Barrel Eye | FER-MAN® |
| | 110 79 121 | FNZ246-200230208-s | Stick Cylinder | FER-MAN® |
| | 110 78 606 | FNZ246-220250248-s | Boom Cylinder | FER-MAN® |

SPB : Spherical Plain Bearing | FER-MAS® : Hardened Steel Bush | FER-MAN® : Hardened Manganese Steel | TEF-MET® : PTFE Coated Bush
 BRO-MAS® : High Strength Bronze Bush

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| | | | | |
|--|------------|-------------------------|---------------|--------------|
|  | | Parts Compatible With : | Model : | |
| | | KOBELCO® | SK 200 | |
|   | Genuine PN | SBS PN | Component | Bearing Type |
| | - | FSZ201-100115120 | Boom Cylinder | FER-MAN® |
| | | LMZ806-110125114 | Boom Cylinder | LUB-MET® |

SPB : Spherical Plain Bearing | FER-MAS® : Hardened Steel Bush | FER-MAN® : Hardened Manganese Steel | TEF-MET® : PTFE Coated Bush
 BRO-MAS® : High Strength Bronze Bush

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TEF-MET®



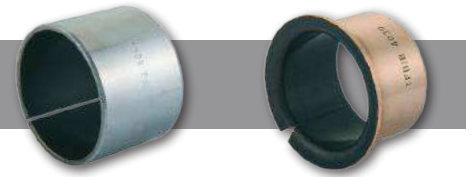
wrapped composite dry sliding bearing, steel/PTFE, maintenance-free

TEF-MET®/B



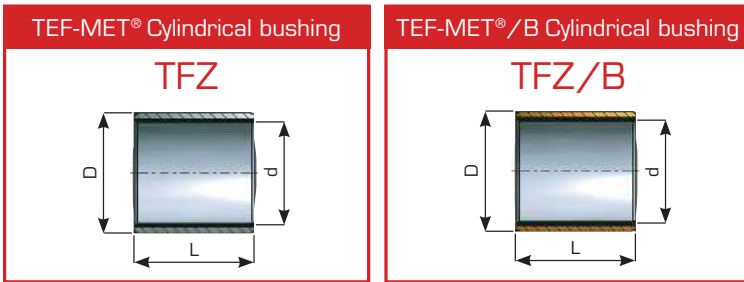
wrapped composite sliding bearing, bronze/PTFE, maintenance-free

Wrapped composite bearing with PTFE sliding layer •
 Maintenance-free • DIN 1494 / ISO 3547



| | | |
|----------------------------|--------------------------------|---|
| | PROPERTIES | Excellent sliding and wear behaviour, for all types of movement, high load capacity. |
| TEF-MET® | MATERIALS | |
| Cylindrical bushing | Support material | TEF-MET®: Steel tin-plated TEF-MET®/B: Bronze |
| TFZ | Intermediate layer | Sintered bronze |
| Flange bushing | Sliding layer | PTFE |
| TFB | MATERIAL PROPERTIES | |
| Thrust washer | Specific load capacity static | ≤ 250 [N/mm ²] |
| TFA | Specific load capacity dynamic | ≤ 140 [N/mm ²] at low sliding speeds |
| Strips | Sliding speed | ≤ 2.5 [m/s] |
| TFS | Friction value | 0,03 – 0,25 [μ] |
| TEF-MET®/B | Temperature strain | -200 – +280 [°C] |
| Cylindrical bushing | Max. p _v - value | 1.8 [N/mm ² x m/s] for a short time 3.6 |
| TFZ/B | TOLERANCE DETAILS | |
| Flange bushing | Housing Ø | H7 |
| TFB/B | Bushing Inner Ø after mounting | H9 |
| Thrust washer | Shaft tolerance | f7 or h8 |
| TFA/B | SHAFT MATERIAL | Steel, hardened or untempered, surface roughness R _a < 0.8 μm |
| Strips | MOUNTING ADVICE | |
| TFS/B | Housing | Mounting chamfer, min. 1.5 mm x 15-45° |
| | Shaft | Mounting chamfer, 5 mm x 15°, edges rounded |
| | Force fitting mandrel | Application of an adequate force fitting mandrel is advisable. Grease lubrication of the outer surface may be necessary when mounting. |
| | Glueing | Adhesive should not contact the sliding surface. |
| | MAINTENANCE | TEF-MET® is a dry sliding bearing with a PTFE sliding layer. Lubrication is therefore not necessary, but basically possible! |

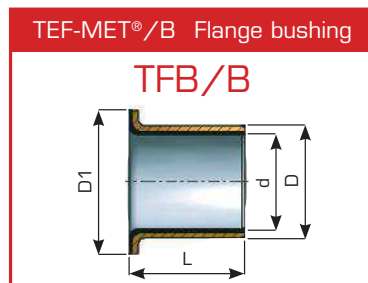
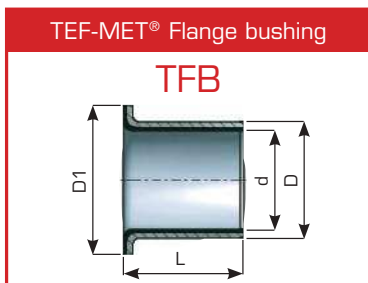
We produce all special designs at short notice! Cylindrical and flange bushings, thrust washer, strips are standard fabrication. Punchings and moldings are produced on customer's requirement.



| | L | 03 | 04 | 06 | 08 | 10 | 12 | 15 | 20 | 25 | 30 | 35 | 40 | 50 |
|----|-----|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| d | D | | | | | | | | | | | | | |
| 03 | 4.5 | 0303 | 0304 | | | | | | | | | | | |
| 04 | 5.5 | | 0404 | 0406 | | | | | | | | | | |
| 06 | 08 | | 0604 | 0606 | 0608 | 0610 | | | | | | | | |
| 07 | 09 | | | 0706 | 0708 | 0710 | | 0715 | | | | | | |
| 08 | 10 | | | 0806 | 0808 | 0810 | 0812 | 0815 | | | | | | |
| 10 | 12 | | | 1006 | 1008 | 1010 | 1012 | 1015 | 1020 | | | | | |
| 12 | 14 | | | 1206 | 1208 | 1210 | 1212 | 1215 | 1220 | 1225 | | | | |
| 13 | 15 | | | | | 1310 | 1312 | 1315 | | | | | | |
| 14 | 16 | | | | | 1410 | 1412 | 1415 | 1420 | 1425 | | | | |
| 15 | 17 | | | | 1508 | 1510 | 1512 | 1515 | 1520 | 1525 | | | | |
| 16 | 18 | | | | 1608 | 1610 | 1612 | 1615 | 1620 | 1625 | | | | |
| 17 | 19 | | | | 1708 | 1710 | 1712 | 1715 | 1720 | 1725 | | | | |
| 18 | 20 | | | | 1808 | 1810 | 1812 | 1815 | 1820 | 1825 | 1830 | | | |
| 20 | 22 | | | | | 2010A | 2012A | 2015A | 2020A | 2025A | 2030A | 2035A | 2040A | |
| 20 | 23 | | | | 2008B | 2010B | 2012B | 2015B | 2020B | 2025B | 2030B | 2035B | 2040B | |
| 22 | 25 | | | | 2208 | 2210 | 2212 | 2215 | 2220 | 2225 | 2230 | 2235 | 2240 | 2250 |
| 24 | 27 | | | | | 2410A | 2412A | 2415A | 2420A | 2425A | 2430A | 2435A | 2440A | 2450A |
| 24 | 28 | | | | | 2410B | 2412B | 2415B | 2420B | 2425B | 2430B | 2435B | 2440B | 2450B |
| 25 | 28 | | | | | 2510 | 2512 | 2515 | 2520 | 2525 | 2530 | 2535 | 2540 | 2550 |
| 26 | 30 | | | | | 2610 | 2612 | 2615 | 2620 | 2625 | 2630 | 2635 | 2640 | 2650 |
| 28 | 32 | | | | | 2810 | 2812 | 2815 | 2820 | 2825 | 2830 | 2835 | 2840 | 2850 |
| 30 | 34 | | | | | 3010 | 3012 | 3015 | 3020 | 3025 | 3030 | 3035 | 3040 | 3050 |
| 32 | 36 | | | | | 3210 | 3212 | 3215 | 3220 | 3225 | 3230 | 3235 | 3240 | 3250 |
| 35 | 39 | | | | | 3510 | 3512 | 3515 | 3520 | 3525 | 3530 | 3535 | 3540 | 3550 |

| | L | 12 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-----|-----|------|------|------|------|-------|------|-------|-------|-------|-------|-------|-------|--------|
| d | D | | | | | | | | | | | | | |
| 38 | 42 | 3812 | 3815 | 3820 | 3825 | 3830 | 3835 | 3840 | 3850 | 3860 | | | | |
| 40 | 44 | 4012 | 4015 | 4020 | 4025 | 4030 | 4035 | 4040 | 4050 | 4060 | | | | |
| 42 | 46 | 4212 | 4215 | 4220 | 4225 | 4230 | 4235 | 4240 | 4250 | 4260 | | | | |
| 45 | 50 | | 4515 | 4520 | 4525 | 4530 | 4535 | 4540 | 4550 | 4560 | | | | |
| 50 | 55 | | 5015 | 5020 | 5025 | 5030 | 5035 | 5040 | 5050 | 5060 | 5070 | | | |
| 55 | 60 | | 5515 | 5520 | 5525 | 5530 | 5535 | 5540 | 5550 | 5560 | 5570 | | | |
| 60 | 65 | | 6015 | 6020 | 6025 | 6030 | 6035 | 6040 | 6050 | 6060 | 6070 | 6080 | 6090 | |
| 65 | 70 | | 6515 | 6520 | 6525 | 6530 | 6535 | 6540 | 6550 | 6560 | 6570 | 6580 | 6590 | |
| 70 | 75 | | | 7020 | | 7030 | | 7040 | 7050 | 7060 | 7070 | 7080 | 7090 | |
| 75 | 80 | | | 7520 | | 7530 | | 7540 | 7550 | 7560 | 7570 | 7580 | 7590 | |
| 80 | 85 | | | | | 8030 | | 8040 | 8050 | 8060 | 8070 | 8080 | 8090 | 80100 |
| 85 | 90 | | | | | 8530 | | 8540 | 8550 | 8560 | 8570 | 8580 | 8590 | 85100 |
| 90 | 95 | | | | | 9030 | | 9040 | 9050 | 9060 | 9070 | 9080 | 9090 | 90100 |
| 95 | 100 | | | | | 9530 | | 9540 | 9550 | 9560 | 9570 | 9580 | 9590 | 95100 |
| 100 | 105 | | | | | 10030 | | 10040 | 10050 | 10060 | 10070 | 10080 | 10090 | 100100 |

| | L | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 115 | 120 | 130 | 140 | 150 |
|-----|-----|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| d | D | | | | | | | | | | | | |
| 105 | 110 | 10550 | 10560 | 10570 | 10580 | 10590 | 105100 | | 105115 | | | | |
| 110 | 115 | 11050 | 11060 | 11070 | 11080 | 11090 | 110100 | | 110115 | | | | |
| 115 | 120 | 11550 | 11560 | 11570 | 11580 | 11590 | 115100 | | 115115 | | | | |
| 120 | 125 | 12050 | 12060 | 12070 | 12080 | 12090 | 120100 | | | 120120 | | | |
| 125 | 130 | 12550 | 12560 | 12570 | 12580 | 12590 | 125100 | | 125115 | | | | |
| 130 | 135 | | 13060 | 13070 | 13080 | 13090 | 130100 | | | 130120 | | | |
| 135 | 140 | | 13560 | 13570 | 13580 | 13590 | 135100 | | | 135120 | | | |
| 140 | 145 | | 14060 | 14070 | 14080 | 14090 | 140100 | | | | | | |
| 150 | 155 | | 15060 | 15070 | 15080 | 15090 | 150100 | | | | | | |
| 160 | 165 | | 16060 | 16070 | 16080 | 16090 | 160100 | 160110 | | 160120 | 160130 | 160140 | 160150 |
| 170 | 175 | | 17060 | 17070 | 17080 | 17090 | 170100 | 170110 | | 170120 | 170130 | 170140 | 170150 |
| 180 | 185 | | 18060 | 18070 | 18080 | 18090 | 180100 | 180110 | | 180120 | 180130 | 180140 | 180150 |
| 200 | 205 | | 20060 | 20070 | 20080 | 20090 | 200100 | 200110 | | 200120 | 200130 | 200140 | 200150 |
| 220 | 225 | | 22060 | 22070 | 22080 | 22090 | 220100 | 220110 | | 220120 | 220130 | 220140 | 220150 |
| 250 | 255 | | 25060 | 25070 | 25080 | 25090 | 250100 | 250110 | | 250120 | 250130 | 250140 | 250150 |
| 300 | 305 | | 30060 | 30070 | 30080 | 30090 | 300100 | 300110 | | 300120 | 300130 | 300140 | 300150 |



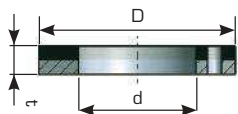
| d | D | L | 04 | 05 | 05,5 | 06 | 07 | 07,5 | 08 | 09 | 09,5 | 10 |
|----|-----|----|------------------|------|------|--------|------|--------|------|------|--------|------|
| d | D | D1 | Flange thickness | | | | | | | | | |
| 03 | 4.5 | 7 | 0.75 | 0304 | | | | | | | | |
| 04 | 5.5 | 9 | 0.75 | 0404 | | | | | | | | 0410 |
| 05 | 07 | 10 | 1 | | 0505 | 0506 | | | | | | |
| 06 | 08 | 12 | 1 | 0604 | | 0606 | 0607 | | 0608 | | | 0610 |
| 08 | 10 | 15 | 1 | | | 0805,5 | | 0807,5 | | | 0809,5 | 0810 |
| 10 | 12 | 18 | 1 | | | | 1007 | | | 1009 | | 1010 |
| 12 | 14 | 20 | 1 | | | 1206 | 1207 | | | 1209 | | 1210 |
| 14 | 16 | 22 | 1 | | | | | | | | | 1410 |
| 15 | 17 | 23 | 1 | | | | | | | 1509 | | 1510 |

| d | D | L | 11 | 11.5 | 12 | 15 | 16 | 16.5 | 17 | 20 | 21.5 | 22 |
|----|----|----|------------------|------|--------|------|------|------|--------|------|------|--------|
| d | D | D1 | Flange thickness | | | | | | | | | |
| 10 | 12 | 18 | 1 | 1011 | | 1012 | 1015 | | | 1017 | | |
| 12 | 14 | 20 | 1 | | | 1212 | 1215 | | | 1217 | 1220 | |
| 13 | 15 | 21 | 1 | | | | 1315 | | | | 1320 | |
| 14 | 16 | 22 | 1 | | | 1412 | 1415 | | | 1417 | 1420 | |
| 15 | 17 | 23 | 1 | 1511 | | 1512 | 1515 | | | 1517 | 1520 | |
| 16 | 18 | 24 | 1 | | | 1612 | 1615 | | | 1617 | | 1622 |
| 18 | 20 | 26 | 1 | | | 1812 | 1815 | | | 1817 | | 1822 |
| 20 | 23 | 30 | 1.5 | | 2011,5 | | 2015 | | 2016.5 | | 2020 | 2021.5 |
| 22 | 25 | 33 | 1.5 | | 2211.5 | | | | 2216.5 | | | 2221.5 |
| 25 | 28 | 35 | 1.5 | | 2511.5 | 2512 | | | 2516.5 | | | 2521.5 |
| 30 | 34 | 42 | 2 | | | | 3016 | | | 3020 | | 3022 |
| 32 | 36 | 46 | 2 | | | | | | | | | 3222 |
| 35 | 39 | 47 | 2 | | | | 3516 | | | 3520 | | 3522 |
| 40 | 44 | 53 | 2 | | | | | | | 4020 | | |
| 45 | 50 | 58 | 2.5 | | | | 4516 | | | | | 4522 |
| 50 | 55 | 65 | 2.5 | | | | 5016 | | | 5020 | | 5022 |

| | | | L | 25 | 26 | 26.5 | 30 | 40 | 50 | 60 | 70 | 80 | 100 |
|-----|-----|-----|------------------|------|------|--------|------|------|------|-------|-------|-------|--------|
| d | D | D1 | Flange thickness | | | | | | | | | | |
| 20 | 23 | 30 | 1.5 | 2025 | | 2026.5 | | | | | | | |
| 22 | 25 | 33 | 1.5 | | | 2226.5 | | | | | | | |
| 25 | 28 | 35 | 1.5 | | | 2526.5 | | | | | | | |
| 30 | 34 | 42 | 2 | | 3026 | | 3030 | 3040 | | | | | |
| 32 | 36 | 46 | 2 | | | | 3230 | | | | | | |
| 35 | 39 | 47 | 2 | | 3526 | | 3530 | 3540 | 3550 | | | | |
| 40 | 44 | 53 | 2 | | 4026 | | 4030 | 4040 | | | | | |
| 45 | 50 | 58 | 2.5 | | 4526 | | 4530 | 4540 | | | | | |
| 50 | 55 | 65 | 2.5 | 5025 | 5026 | | 5030 | 5040 | 5050 | 5060 | | | |
| 55 | 60 | 70 | 2.5 | | | | | 5540 | | | | | |
| 60 | 65 | 75 | 2.5 | | | | 6030 | 6040 | 6050 | 6060 | | | |
| 70 | 75 | 85 | 2.5 | | | | 7030 | 7040 | 7050 | | 7070 | | |
| 75 | 80 | 90 | 2.5 | | | | | | | 7560 | | 7580 | |
| 80 | 85 | 95 | 2.5 | | | | | 8040 | 8050 | 8060 | | 8080 | 80100 |
| 85 | 90 | 100 | 2.5 | | | | | | | | | | 85100 |
| 90 | 95 | 110 | 2.5 | | | | | 9040 | | 9060 | | 9090 | 90100 |
| 100 | 105 | 120 | 2.5 | | | | | | | 10060 | 10070 | | 100100 |
| 110 | 115 | 130 | 2.5 | | | | | | | 11060 | | | |
| 120 | 125 | 150 | 2.5 | | | | | | | 12060 | 12070 | | 120100 |
| 130 | 135 | 155 | 2.5 | | | | | | | | | | 130100 |
| 140 | 145 | 165 | 2.5 | | | | | | | 14060 | | 14080 | |
| 160 | 165 | 190 | 2.5 | | | | | | | | | 16080 | 160100 |
| 220 | 225 | 235 | 2.5 | | | | | | | | | | 220100 |
| 250 | 255 | 290 | 2.5 | | | | | | | | | | 250100 |

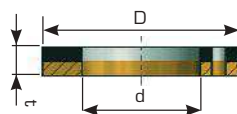
TEF-MET® Thrust washer

TFA



TEF-MET®/B Thrust washer

TFA/B

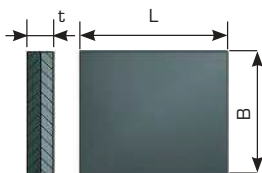


| Art. Nr. | d | D | t |
|----------|----|----|-----|
| TFA 10/1 | 10 | 20 | 1.5 |
| TFA 12/1 | 12 | 24 | 1.5 |
| TFA 14/1 | 14 | 26 | 1.5 |
| TFA 16/1 | 16 | 30 | 1.5 |
| TFA 18/1 | 18 | 32 | 1.5 |
| TFA 20/1 | 20 | 36 | 1.5 |
| TFA 22/1 | 22 | 38 | 1.5 |
| TFA 24/1 | 24 | 42 | 1.5 |
| TFA 26/1 | 26 | 44 | 1.5 |
| TFA 28/1 | 28 | 48 | 1.5 |
| TFA 32/1 | 32 | 54 | 1.5 |
| TFA 38/1 | 38 | 62 | 1.5 |
| TFA 42/1 | 42 | 66 | 1.5 |
| TFA 48/2 | 48 | 74 | 2.0 |
| TFA 52/2 | 52 | 78 | 2.0 |
| TFA 62/2 | 62 | 90 | 2.0 |

| Art. Nr. | d | D | t |
|------------|----|----|-----|
| TFA/B 10/1 | 10 | 20 | 1.5 |
| TFA/B 12/1 | 12 | 24 | 1.5 |
| TFA/B 14/1 | 14 | 26 | 1.5 |
| TFA/B 16/1 | 16 | 30 | 1.5 |
| TFA/B 18/1 | 18 | 32 | 1.5 |
| TFA/B 20/1 | 20 | 36 | 1.5 |
| TFA/B 22/1 | 22 | 38 | 1.5 |
| TFA/B 24/1 | 24 | 42 | 1.5 |
| TFA/B 26/1 | 26 | 44 | 1.5 |
| TFA/B 28/1 | 28 | 48 | 1.5 |
| TFA/B 32/1 | 32 | 54 | 1.5 |
| TFA/B 38/1 | 38 | 62 | 1.5 |
| TFA/B 42/1 | 42 | 66 | 1.5 |
| TFA/B 48/2 | 48 | 74 | 2 |
| TFA/B 52/2 | 52 | 78 | 2 |
| TFA/B 62/2 | 62 | 90 | 2 |

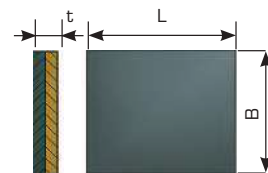
TEF-MET® Strips

TFS



TEF-MET®/B Strips

TFS/B



| Art. Nr. | B | L | t |
|-----------|-----|-----|-----|
| TFS 10240 | 245 | 500 | 1.0 |
| TFS 15240 | 245 | 500 | 1.5 |
| TFS 20240 | 245 | 500 | 2.0 |
| TFS 25240 | 245 | 500 | 2.5 |
| TFS 30240 | 245 | 500 | 3.0 |

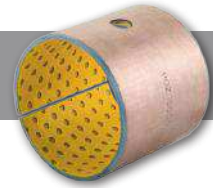
| Art. Nr. | B | L | t |
|-------------|-----|-----|-----|
| TFS/B 10240 | 245 | 500 | 1.0 |
| TFS/B 15240 | 245 | 500 | 1.5 |
| TFS/B 20240 | 245 | 500 | 2.0 |
| TFS/B 25240 | 245 | 500 | 2.5 |
| TFS/B 30240 | 245 | 500 | 3.0 |

POM-MET®



wrapped composite sliding bearing, steel/acetal resin (POM),
lubrication pockets, low-maintenance

Wrapped composite sliding bearing, steel / POM, with lubrication pockets • Low-maintenance • DIN 1494 / ISO 3547

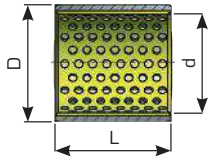


| | |
|--|--|
| <p>POM-MET®</p> <p>Cylindrical bushing</p> <p>POZ</p> <p>Thrust washer</p> <p>POA</p> <p>Strips</p> <p>POS</p> | <p>PROPERTIES</p> <p>Suitable for grease or oil lubrication and all kinds of movements, good load capacity, robust and insensible to dirt.</p> |
| | <p>MATERIALS</p> <p>Support material: Steel copper plated / tinplated</p> <p>Intermediate layer: Sintered bronze</p> <p>Sliding layer: Acetal resin / POM</p> |
| | <p>MATERIAL PROPERTIES</p> <p>Specific load capacity static: ≤ 250 [N/mm²]</p> <p>Specific load capacity dynamic: ≤ 140 [N/mm²] at low sliding speeds</p> <p>Sliding speed: ≤ 2.5 [m/s]</p> <p>Friction value: 0.04 – 0.12 [μ] depending on lubrication</p> <p>Temperature strain: -40 – +130 [°C] for a short time up to +130 °C</p> <p>Max. p_v - value: 2.8 [N/mm² x m/s]</p> |
| | <p>TOLERANCE DETAILS</p> <p>Housing Ø: H7</p> <p>Bushing Inner Ø after mounting: D9</p> <p>Shaft tolerance: h8</p> |
| | <p>SHAFT MATERIAL</p> <p>Steel, hardened or untempered, surface roughness R_a < 4 μm</p> |
| | <p>MOUNTING ADVICE</p> <p>Housing: Mounting chamfer, min. 1.5 mm x 15-45°</p> <p>Shaft: Mounting chamfer, 5 mm x 15°, edges rounded</p> <p>Force fitting mandrel: Application of an adequate force fitting mandrel is advisable. Grease lubrication of the outer surface may be necessary when mounting.</p> <p>Glueing: Adhesive should not contact the sliding surface.</p> |
| <p>MAINTENANCE</p> <p>POM-MET® is a low-maintenance composite bearing with a POM sliding layer. Primary lubrication is necessary. Oil or grease lubrication is possible. Because of lubrication pockets lubrication intervals are reduced to a minimum!</p> | |

We produce all special designs at short notice! Additional lubrication slots or lubrication drills on demand! Cylindrical bushings, thrust washer and strips are standard fabrication.

POM-MET® Cylindrical bushing

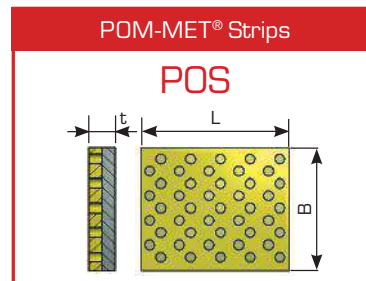
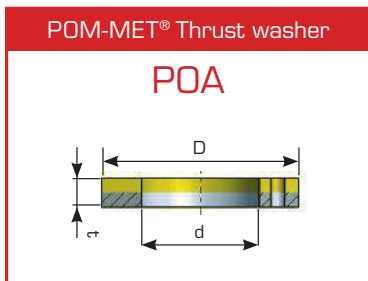
POZ



| | L | 05 | 06 | 08 | 10 | 12 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 60 |
|----|----|------|------|------|-------|-------|-------|-------|-------|-------|-------|------|------|------|
| d | D | | | | | | | | | | | | | |
| 05 | 7 | 0505 | | | | | | | | | | | | |
| 06 | 08 | | 0606 | 0608 | 0610 | | | | | | | | | |
| 07 | 09 | | | | 0710 | | | | | | | | | |
| 08 | 10 | 0805 | 0806 | 0808 | 0810 | 0812 | | | | | | | | |
| 10 | 12 | | 1006 | 1008 | 1010 | 1012 | 1015 | 1020 | | | | | | |
| 12 | 14 | | | 1208 | 1210 | 1212 | 1215 | 1220 | 1225 | | | | | |
| 13 | 15 | | | | 1310 | | | | | | | | | |
| 14 | 16 | | | | 1410 | 1412 | 1415 | 1420 | 1425 | | | | | |
| 15 | 17 | | | | 1510 | 1512 | 1515 | 1520 | 1525 | | | | | |
| 16 | 18 | | | 1608 | 1610 | 1612 | 1615 | 1620 | 1625 | | | | | |
| 17 | 19 | | | | | | 1715 | 1720 | | | | | | |
| 18 | 20 | | | | 1810 | 1812 | 1815 | 1820 | 1825 | | | | | |
| 20 | 22 | | | | 2010A | | 2015A | 2020A | | | | | | |
| 20 | 23 | | | | 2010B | 2012B | 2015B | 2020B | 2025B | 2030B | 2040B | | | |
| 22 | 25 | | | | | | 2215 | 2220 | 2225 | 2230 | 2240 | | | |
| 24 | 27 | | | | | 2412 | 2415 | 2420 | 2425 | 2430 | 2440 | 2450 | | |
| 25 | 28 | | | | 2510 | 2512 | 2515 | 2520 | 2525 | 2530 | 2540 | 2550 | | |
| 26 | 30 | | | | | | | | | 2630 | 2640 | 2650 | | |
| 28 | 31 | | | | | | | | 2825A | 2830A | | | | |
| 28 | 32 | | | | | | 2815B | 2820B | 2825 | 2830 | 2840 | | | |
| 30 | 34 | | | | 3010 | 3012 | 3015 | 3020 | 3025 | 3030 | 3040 | 3050 | | |
| 32 | 36 | | | | | | | 3220 | 3225 | 3230 | 3240 | 3250 | | |
| 35 | 39 | | | | | | 3515 | 3520 | 3525 | 3530 | 3540 | 3550 | | |
| 38 | 42 | | | | | | 3815 | 3820 | 3825 | 3830 | 3835 | 3840 | 3850 | 3860 |
| 40 | 44 | | | | 4010 | | | 4020 | 4025 | 4030 | 4035 | 4040 | 4050 | 4060 |
| 45 | 50 | | | | | | | 4520 | | 4530 | 4535 | 4540 | 4550 | 4560 |

| | L | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|-----|-----|------|------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|--------|
| d | D | | | | | | | | | | | | | |
| 50 | 55 | | 5015 | 5020 | 5025 | 5030 | 5035 | 5040 | 5050 | 5060 | 5070 | | | |
| 55 | 60 | 5510 | 5515 | 5520 | 5525 | 5530 | 5535 | 5540 | 5550 | 5560 | 5570 | | | |
| 60 | 65 | 6010 | 6015 | 6020 | 6025 | 6030 | 6035 | 6040 | 6050 | 6060 | 6070 | 6080 | 6090 | |
| 65 | 70 | | 6515 | 6520 | 6525 | 6530 | 6535 | 6540 | 6550 | 6560 | 6570 | 6580 | | |
| 70 | 75 | | | 7020 | 7025 | 7030 | 7035 | 7040 | 7050 | 7060 | 7070 | 7080 | 7090 | |
| 75 | 80 | | | 7520 | | 7530 | | 7540 | 7550 | 7560 | 7570 | 7580 | | |
| 80 | 85 | | | | | 8030 | | 8040 | 8050 | 8060 | 8070 | 8080 | | 80100 |
| 85 | 90 | | | 8520 | | 8530 | | 8540 | 8550 | 8560 | 8570 | 8580 | 8590 | 85100 |
| 90 | 95 | | | | | 9030 | | 9040 | 9050 | 9060 | 9070 | 9080 | 9090 | 90100 |
| 95 | 100 | | | | | 9530 | | 9540 | 9550 | 9560 | 9570 | 9580 | 9590 | 95100 |
| 100 | 105 | | | | | 10030 | | 10040 | 10050 | 10060 | 10070 | 10080 | 10090 | 100100 |
| 105 | 110 | | | | | | | 10540 | 10550 | 10560 | 10570 | 10580 | 10590 | 105100 |
| 110 | 115 | | | | | | | 11040 | 11050 | 11060 | 11070 | 11080 | 11090 | 110100 |
| 120 | 125 | | | 12020 | | | | 12040 | 12050 | 12060 | 12070 | 12080 | 12090 | 120100 |

| | L | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 115 | 120 | 130 | 140 | 150 |
|-----|-----|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| d | D | | | | | | | | | | | | |
| 105 | 110 | | | | | | | 105110 | 105115 | | | | |
| 110 | 115 | | | | | | | 110110 | 110115 | | | | |
| 115 | 120 | 11550 | 11560 | 11570 | 11580 | 11590 | 115100 | 115110 | 115115 | | | | |
| 120 | 125 | | | | | | | 120110 | 120115 | 120120 | | 120140 | |
| 125 | 130 | 12550 | 12560 | 12070 | 12580 | 12590 | 125100 | 125110 | 125115 | 125120 | | | |
| 130 | 135 | 13050 | 13060 | 13070 | 13080 | 13090 | 130100 | 130110 | | 130120 | | 130140 | |
| 135 | 140 | 13550 | 13560 | 13570 | 13580 | 13590 | 135100 | 135110 | | 135120 | | | |
| 140 | 145 | 14050 | 14060 | 14070 | 14080 | 14090 | 140100 | 140110 | | 140120 | | | |
| 150 | 155 | 15050 | 15060 | 15070 | 15080 | 15090 | 150100 | 150110 | | 150120 | | | 150150 |
| 160 | 165 | 16050 | 16060 | 16070 | 16080 | 16090 | 160100 | 160110 | | 160120 | 160130 | 160140 | 160150 |
| 170 | 175 | 17050 | 17060 | 17070 | 17080 | 17090 | 170100 | 170110 | | 170120 | 170130 | 170140 | 170150 |
| 180 | 185 | 18050 | 18060 | 18070 | 18080 | 18090 | 180100 | 180110 | | 180120 | 180130 | 180140 | 180150 |
| 200 | 205 | 20050 | 20060 | 20070 | 20080 | 20090 | 200100 | 200110 | | 200120 | 200130 | 200140 | 200150 |
| 220 | 225 | 22050 | 22060 | 22070 | 22080 | 22090 | 220100 | 220110 | | 220120 | 220130 | 220140 | 220150 |
| 250 | 255 | | 25060 | 25070 | 25080 | 25090 | 250100 | 250110 | | 250120 | 250130 | 250140 | 250150 |
| 300 | 305 | | 30060 | 30070 | 30080 | 30090 | 300100 | 300110 | | 300120 | 300130 | 300140 | 300150 |



| Art. Nr. | d | D | t |
|----------|----|----|-----|
| POA 10/1 | 10 | 20 | 1.5 |
| POA 12/1 | 12 | 24 | 1.5 |
| POA 14/1 | 14 | 26 | 1.5 |
| POA 16/1 | 16 | 30 | 1.5 |
| POA 18/1 | 18 | 32 | 1.5 |
| POA 20/1 | 20 | 36 | 1.5 |
| POA 22/1 | 22 | 38 | 1.5 |
| POA 24/1 | 24 | 42 | 1.5 |
| POA 26/1 | 26 | 44 | 1.5 |
| POA 28/1 | 28 | 48 | 1.5 |
| POA 32/1 | 32 | 54 | 1.5 |
| POA 38/1 | 38 | 62 | 1.5 |
| POA 42/1 | 42 | 66 | 1.5 |
| POA 48/2 | 48 | 74 | 2 |
| POA 52/2 | 52 | 78 | 2 |
| POA 62/2 | 62 | 90 | 2 |

| Art. Nr. | B | L | t |
|-----------|-----|-----|-----|
| POS 10240 | 245 | 500 | 1.0 |
| POS 15240 | 245 | 500 | 1.5 |
| POS 20240 | 245 | 500 | 2.0 |
| POS 25240 | 245 | 500 | 2.5 |
| POS 30240 | 245 | 500 | 3.0 |

LUB-MET®



solid bronze sliding bearing, solid lubricant, maintenance-free

Solid bronze sliding bearing with solid lubricant inserts • Maintenance-free



| | | | |
|----------------------------|--------------------------------|---|---|
| LUB - MET® | PROPERTIES | | For high operational demands (also impact load), oscillating movements, wear-resistant, unsusceptible to dirt, corrosion resistant, long life capability. For more details, see Bearing properties (page 8). |
| Cylindrical bushing | MATERIAL PROPERTIES | | Standard material CuZn25Al5 / ASTM C86300. For additional metal alloys, see LUB-MET® material list (page 8). |
| LMZ | SOLID LUBRICANTS | | Our solid lubricants are high density compounds of graphite, PTFE and metals. Lubricants are oriented to motion direction. Direction to be specified with order. |
| Flange bushing | SL 1 | | Application for temperature up to 350°C , NOT for water and vapour |
| LMB | SL 4 | | Use for temp. up to 80°C. Designed for use in water and humidity. Very low coefficient of friction |
| Thrust washer | TOLERANCE DETAILS | | |
| LMA | Housing Ø | H7 | |
| | Bushing Inner Ø after mounting | Standard tolerances: r6/E7 | Different tolerances on customer request. |
| Strips | Shaft tolerance | f7 / h6 | |
| LMS | SHAFT MATERIAL | | The hardness difference to the bearing should be at least 100HB, preferably hardened and ground to size. Surface roughness Ra 0.2 – 0.8 µm |
| | MOUNTING ADVICE | | |
| | Housing | Mounting chamfer; min. 1,5 mm x 15-45° | |
| | Shaft | Mounting chamfer; 5 mm x 15°, edges rounded | |
| | Force fitting mandrel | Using a force fitting mandrel is advisable. Grease lubrication of outer surface may be necessary before assembly. | |
| | Freeze fitting | For diameter > 130mm, the use of dry ice is advisable | |
| | MAINTENANCE | | LUB-MET® is a maintenance-free sliding bearing, but primary lubrication is necessary! Therefore, an ageing resistant lithium-stiffened grease should be used. |

We produce all special designs at short notice! Custom sizes are manufactured in a short time!

MATERIAL LIST

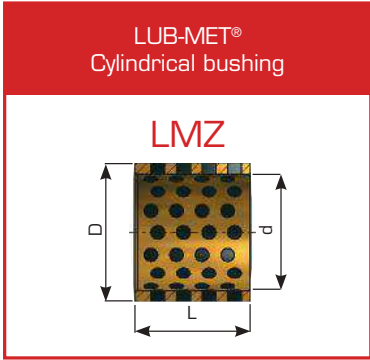
| Material description | | | | Analysis | Physical properties | | | | | Application |
|--|----------------|------------------------|-------------------|---|---------------------|-------------------|----------------|-------------------|-------------------|--|
| DIN Alloy No. | ASTM Alloy No. | Scandinavian Alloy No. | British Alloy No. | Chemical Composition | Yield Strength | Tensile Strength | Elongation | E-module | Hardness | |
| | | | | % | N/mm ² | N/mm ² | % | x 10 ³ | HB | |
| CuSn7ZnPb ₁ CuSn7ZnPb ₂ CuSn7ZnPb ₃ | C932 00 | JM1 | 1400 LG2 | Cu 81-85 Sn 5-6 Zn 3-5 Pb 5-7 Ni 2 max Sb 3,3 max | 120 130 120 | 240 270 270 | 15 13 16 | 106 106 106 | 65 75 70 | Medium-hard bearing alloy Good anti-friction properties Seawater resistant Applicable for light edgeloads |
| CuSn12Pb ₁ CuSn12Pb ₂ CuSn12Pb ₃ | C925 00 | JM3 | 1400 PB2 | Cu 84-88 Sn 11-13 Pb 1-2 Ni 2 max Sb 0,2 max P 0,2 max | 140 150 140 | 260 280 280 | 10 5 7 | 112 112 112 | 80 90 85 | Material for high loads Seawater resistant |
| CuAl10Ni ₁ CuAl10Ni ₂ CuAl10Ni ₃ | C955 00 | JM7 | 1400 AB2 | Cu 75 min Al 8,5-11 Ni 2-8,5 Fe 3,5-5,5 Mn 3,3 max | 270 300 300 | 600 700 800 | 12 13 13 | 122 122 122 | 140 160 160 | Hard Ni-Al bronze Very high strength Excellent wear resistance Corrosion-resistant Seawater resistant High temperature strength |
| CuZn25Al5 ₁ CuZn25Al5 ₂ CuZn25Al5 ₃ | C863 00 | JM18 | | Cu 60-67 Al 3-7 Fe 1,5-4 Mn 2,5-5 Zn balance Ni 3 max | 450 480 480 | 750 750 750 | 8 8 5 | 115 115 115 | 200 220 220 | Water resistant High strength bearing alloy High fatigue resistance Not applicable for seawater applications |

₁ Sand casting ₂ Centrifugal casting ₃ Continuous casting

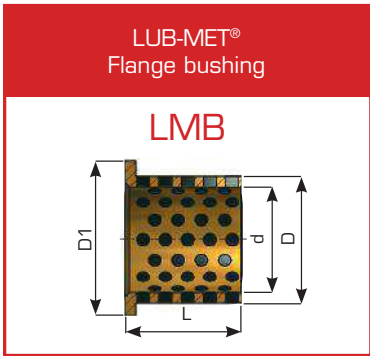
BEARING PROPERTIES *

| Bronze Material | Solid Lubricant | p static (N/mm ²) | p dynamic (N/mm ²) | Friction dry | Friction wet | v (m/s) max. | max p _v value N/mm ² x m/s | Temp. °C max. | Shaft Hardness HB (min) | Shaft Finish R _a (µm) |
|-----------------|-----------------|-------------------------------|--------------------------------|----------------------------|------------------------------|--------------|--|---------------|-------------------------|----------------------------------|
| CuSn7ZnPb | SL 4 SL 1 | 80 80 | 40 30 | 0.11 - 0.13 0.12 - 0.14 | 0.07 - 0.12 Not available | 0.4 0.5 | 1.2 1.0 | 80 250 | 180 | 0.2 - 0.8 |
| CuSn12PB | SL 4 SL 1 | 100 100 | 70 25 | 0.11 - 0.13 0.12 - 0.14 | 0.07 - 0.12 Not available | 0.4 0.15 | 2.0 1.6 | 80 250 | 180 | 0.2 - 0.8 |
| CuAl10Ni | SL 4 SL 1 | 150 150 | 90 80 | 0.13 - 0.15 0.14 - 0.16 | 0.07 - 0.12 Not available | 0.4 0.4 | 1.5 1.5 | 80 350 | 300 | 0.2 - 0.8 |
| CuZn25Al5 | SL 4 SL 1 | 150 150 | 100 90 | 0.13 - 0.15 0.14 - 0.16 | 0.07 - 0.12 Not available | 0.4 0.15 | 1.5 1.0 | 80 300 | 300 | 0.2 - 0.8 |

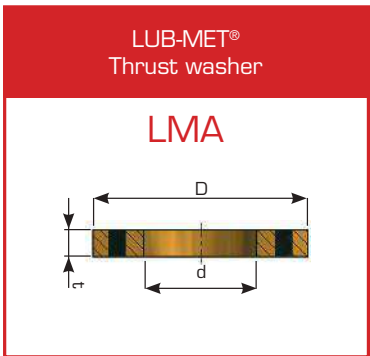
* The above stated bearings properties are valid for optimal operating conditions. Through changes of the application conditions as e.g. higher sliding speed or shaft roughness, these values are subject to change.



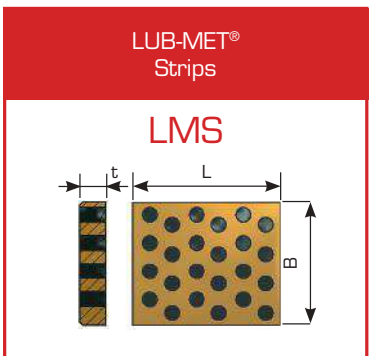
| LM | Z | 50 | 65 | 70 |
|-----------------|--------------------------------|--------------------------|--------------------------|------------------|
| Type (LUB-MET®) | Geometry (Cylindrical bushing) | Inner diameter 50 mm (d) | Outer diameter 65 mm (D) | Length 70 mm (L) |



| LM | B | 50 | 65 | 70 |
|-----------------|---------------------------|--------------------------|--------------------------|------------------|
| Type (LUB-MET®) | Geometry (Flange bushing) | Inner diameter 50 mm (d) | Outer diameter 65 mm (D) | Length 70 mm (L) |



| LM | A | 30 | 60 | 05 |
|-----------------|--------------------------|--------------------------|--------------------------|--------------------|
| Type (LUB-MET®) | Geometry (Thrust washer) | Inner diameter 30 mm (d) | Outer diameter 60 mm (D) | Thickness 5 mm (t) |



| LM | S | 30 | 70 | 10 |
|-----------------|------------------|-----------------|------------------|---------------------|
| Type (LUB-MET®) | Geometry (Strip) | Width 30 mm (B) | Length 70 mm (L) | Thickness 10 mm (t) |

All sizes and measurements can be produced to customer's specification.

BRO-MAS®



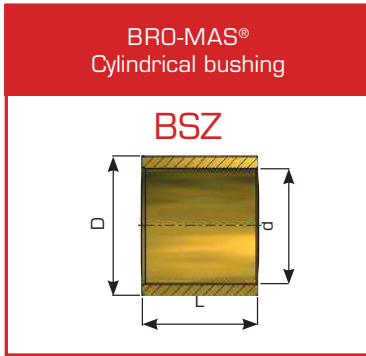
solid turned bronze sliding bearing, heavy-maintenance

Solid turned bronze sliding bearing • DIN 1850 / ISO 4379 •
Various alloys

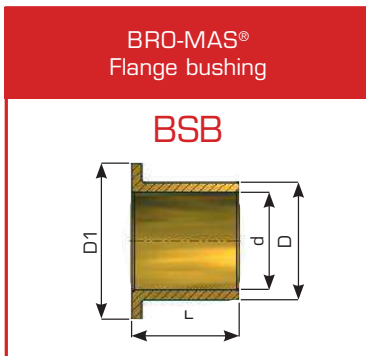


| BRO-MAS® | PROPERTIES | Maintenance-bound sliding bearing, suitable for operation in contaminated environment, good corrosion resistance, unsusceptible to impact load. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--|--|-------------------|------------------------|-------------------|----------------|------------------|------------|----------|--|--|--|--|-------------------|-------------------|---|----|-----------------|--------|-----|-----------|-----|-----|----|----|--------|--------|-----|----------|-----|-----|----|----|--------|--------|-----|----------|-----|-----|---|----|----------|--------|-----|-----------|-----|-----|---|----|----------|--------|-----|-----------|-----|-----|---|----|----------|--------|-----|----------|-----|-----|----|-----|-----------------|--------|------|-----------------|-----|-----|---|----|-----------|--------|------|--|-----|-----|---|-----|------------------|--------|--------|----------------|----|-----|----|----|--|
| | MATERIALS | Standard material CuSn12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cylindrical bushing | MATERIAL PROPERTIES | <p>Specific load capacity static ≤ 150 [N/mm²]</p> <p>Specific load capacity dynamic ≤ 60 [N/mm²]</p> <p>Sliding speed < 10 [m/s] depends on lubrication - strain</p> <p>Temperature strain -40 – +150 [°C]</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BSZ | TOLERANCE DETAILS | <p>Housing Ø According to customer's preference.</p> <p>Bushing Inner Ø after mounting According to customer's preference.</p> <p>Shaft tolerance According to customer's preference.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flange bushing | SHAFT MATERIAL | Hardened steel, surface roughness R _a < 0.8 µm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BSB | MOUNTING ADVICE | <p>Housing Mounting chamfer, min. 1,5 mm x 15-45°</p> <p>Shaft Mounting chamfer, 5 mm x 15°, edges rounded</p> <p>Freeze fitting For diameter > 130mm, dry ice or liquid nitrogen can be used</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thrust washer | MAINTENANCE | Oil or grease lubrication is necessary. Lubrication groove systems and greater clearance between shaft and bushing will reduce maintenance to a minimum. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BSA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Strips | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BSS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>DIN Alloy No.</th> <th>ASTM Alloy No.</th> <th>Scandinavian Alloy No.</th> <th>British Alloy No.</th> <th>Yield Strength</th> <th>Tensile Strength</th> <th>Elongation</th> <th>Hardness</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>N/mm²</td> <td>N/mm²</td> <td>%</td> <td>HB</td> </tr> </thead> <tbody> <tr> <td>CuSn7ZnPb (RG7)</td> <td>C93200</td> <td>JM1</td> <td>1400 LG 2</td> <td>130</td> <td>270</td> <td>13</td> <td>75</td> </tr> <tr> <td>CuSn10</td> <td>C90700</td> <td>JM2</td> <td>1400 PB1</td> <td>140</td> <td>290</td> <td>13</td> <td>80</td> </tr> <tr> <td>CuSn12</td> <td>C90800</td> <td>JM3</td> <td>1400 PB2</td> <td>150</td> <td>280</td> <td>5</td> <td>95</td> </tr> <tr> <td>CuPb15Sn</td> <td>C93800</td> <td>JM4</td> <td>1400, LB1</td> <td>100</td> <td>210</td> <td>7</td> <td>65</td> </tr> <tr> <td>CuPb10Sn</td> <td>C93700</td> <td>JM5</td> <td>1400, LB2</td> <td>100</td> <td>220</td> <td>8</td> <td>70</td> </tr> <tr> <td>CuAl10Ni</td> <td>C95500</td> <td>JM7</td> <td>1400 AB2</td> <td>300</td> <td>680</td> <td>13</td> <td>160</td> </tr> <tr> <td>CuSn10Zn (RG10)</td> <td>SAE 62</td> <td>JM12</td> <td>1400 G1-C (BC3)</td> <td>140</td> <td>260</td> <td>7</td> <td>80</td> </tr> <tr> <td>CuZn25Al5</td> <td>C86300</td> <td>JM18</td> <td></td> <td>480</td> <td>750</td> <td>8</td> <td>220</td> </tr> <tr> <td>CuSn5ZnPb (RG 5)</td> <td>C83600</td> <td>SS5204</td> <td>1400 LG2 (BC6)</td> <td>90</td> <td>250</td> <td>13</td> <td>65</td> </tr> </tbody> </table> | DIN Alloy No. | ASTM Alloy No. | Scandinavian Alloy No. | British Alloy No. | Yield Strength | Tensile Strength | Elongation | Hardness | | | | | N/mm ² | N/mm ² | % | HB | CuSn7ZnPb (RG7) | C93200 | JM1 | 1400 LG 2 | 130 | 270 | 13 | 75 | CuSn10 | C90700 | JM2 | 1400 PB1 | 140 | 290 | 13 | 80 | CuSn12 | C90800 | JM3 | 1400 PB2 | 150 | 280 | 5 | 95 | CuPb15Sn | C93800 | JM4 | 1400, LB1 | 100 | 210 | 7 | 65 | CuPb10Sn | C93700 | JM5 | 1400, LB2 | 100 | 220 | 8 | 70 | CuAl10Ni | C95500 | JM7 | 1400 AB2 | 300 | 680 | 13 | 160 | CuSn10Zn (RG10) | SAE 62 | JM12 | 1400 G1-C (BC3) | 140 | 260 | 7 | 80 | CuZn25Al5 | C86300 | JM18 | | 480 | 750 | 8 | 220 | CuSn5ZnPb (RG 5) | C83600 | SS5204 | 1400 LG2 (BC6) | 90 | 250 | 13 | 65 | |
| DIN Alloy No. | ASTM Alloy No. | Scandinavian Alloy No. | British Alloy No. | Yield Strength | Tensile Strength | Elongation | Hardness | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | N/mm ² | N/mm ² | % | HB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CuSn7ZnPb (RG7) | C93200 | JM1 | 1400 LG 2 | 130 | 270 | 13 | 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CuSn10 | C90700 | JM2 | 1400 PB1 | 140 | 290 | 13 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CuSn12 | C90800 | JM3 | 1400 PB2 | 150 | 280 | 5 | 95 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CuPb15Sn | C93800 | JM4 | 1400, LB1 | 100 | 210 | 7 | 65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CuPb10Sn | C93700 | JM5 | 1400, LB2 | 100 | 220 | 8 | 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CuAl10Ni | C95500 | JM7 | 1400 AB2 | 300 | 680 | 13 | 160 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CuSn10Zn (RG10) | SAE 62 | JM12 | 1400 G1-C (BC3) | 140 | 260 | 7 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CuZn25Al5 | C86300 | JM18 | | 480 | 750 | 8 | 220 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CuSn5ZnPb (RG 5) | C83600 | SS5204 | 1400 LG2 (BC6) | 90 | 250 | 13 | 65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

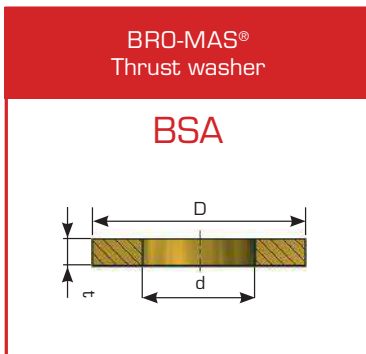
We produce all special designs at short notice!



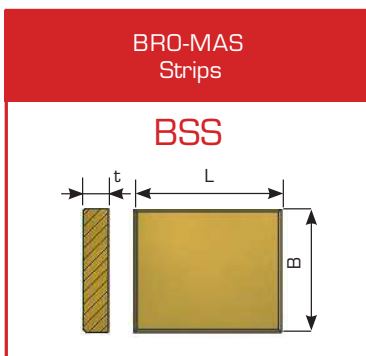
| BS | Z | 50 | 65 | 70 |
|-----------------|--------------------------------|--------------------------|--------------------------|------------------|
| Type (BRO-MAS®) | Geometry (Cylindrical bushing) | Inner diameter 50 mm (d) | Outer diameter 65 mm (D) | Length 70 mm (L) |



| BS | B | 50 | 65 | 70 |
|-----------------|---------------------------|--------------------------|--------------------------|------------------|
| Type (BRO-MAS®) | Geometry (Flange bushing) | Inner diameter 50 mm (d) | Outer diameter 65 mm (D) | Length 70 mm (L) |



| BS | A | 30 | 60 | 05 |
|-----------------|--------------------------|--------------------------|--------------------------|--------------------|
| Type (BRO-MAS®) | Geometry (Thrust washer) | Inner diameter 30 mm (d) | Outer diameter 60 mm (D) | Thickness 5 mm (t) |



| BS | S | 30 | 70 | 10 |
|-----------------|------------------|-----------------|------------------|---------------------|
| Type (BRO-MAS®) | Geometry (Strip) | Width 30 mm (B) | Length 70 mm (L) | Thickness 10 mm (t) |

All sizes and measurements can be produced to customer's specification.

FER-MAS®



turned steel sliding bearing, heavy-maintenance

Hardened and grinded steel sliding bearing •
Heavy maintenance



FER-MAS®

Cylindrical bushing

FSZ

PROPERTIES

Suitable for highest operational demands, unsusceptible, high durability.
Narrow tolerances possible.

MATERIALS

20MnV6 hardened and grinded
alternatively 100 Cr6 hardened and grinded

MATERIAL PROPERTIES*

| | |
|--------------------------------|---------------------------------|
| Specific load capacity static | ≤ 250 [N/mm ²] |
| Specific load capacity dynamic | ≤ 150 [N/mm ²] |
| Sliding speed | < 0.6 [m/s] |
| Friction value | 0.05 – 0.25 [μ] |
| Temperature strain | -100 – +250 [°C] |
| Max. p _v - value | 1.2 [N/mm ² x m/s] |
| Hardness | 58 – 62 [HRC] |

TOLERANCE DETAILS

| | |
|-----------------|----------------------------|
| Housing Ø | H7 |
| Shaft tolerance | Specified by the customer. |

SHAFT MATERIAL

Hardened steel (C45 recommended)

MOUNTING ADVICE

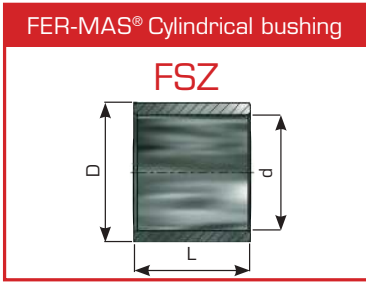
| | |
|-----------------------|--|
| Housing | Mounting chamfer, min. 1.5 mm x 15-45° |
| Shaft | Mounting chamfer, 5 mm x 15°, edges rounded |
| Force fitting mandrel | Application of an adequate force fitting mandrel is advisable. Grease lubrication of the outer surface may be necessary when mounting. |

MAINTENANCE

Sufficient lubrication is necessary.

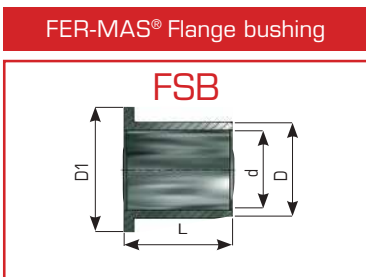
* The above stated material properties are valid for optimal operating conditions. Through changes of the application conditions e.g. higher sliding speed or strain, these values are subject to changes.

Special sizes or special lubrication slots are available on demand!



| | L | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 |
|----|-----|--------|--------|--------|--------|---------|---------|---------|---------|---------|--------|
| d | D | | | | | | | | | | |
| 20 | 30 | 203020 | 203025 | 203030 | 203035 | 203040 | 203045 | 203050 | 203055 | 203060 | 203065 |
| 25 | 35 | | | 253530 | 253535 | 253540 | 253545 | 253550 | 253555 | 253560 | 253565 |
| 30 | 38 | | | 303830 | 303835 | 303840 | 303845 | 303850 | | 303860 | 303865 |
| 30 | 40 | | | 304030 | 304035 | 304040 | 304045 | 304050 | 304055 | 304060 | 304065 |
| 35 | 45 | | | 354530 | 354535 | 354540 | 354545 | 354550 | 354555 | 354560 | 354565 |
| 40 | 50 | | | 405030 | 405035 | 405040 | 405045 | 405050 | 405055 | 405060 | 405065 |
| 45 | 55 | | | 455530 | 455535 | 455540 | 455545 | 455550 | 455555 | 455560 | 455565 |
| 50 | 60 | | | 506030 | 506035 | 506040 | 506045 | 506050 | 506055 | 506060 | 506065 |
| 55 | 65 | | | | 556535 | 556540 | 556545 | 556550 | 556555 | 556560 | 556565 |
| 60 | 70 | | | | 607035 | 607040 | 607045 | 607050 | 607055 | 607060 | 607065 |
| 65 | 75 | | | | 657535 | 657540 | 657545 | 657550 | 657555 | 657560 | 657565 |
| 70 | 80 | | | | 708035 | 708040 | 708045 | 708050 | 708055 | 708060 | 708065 |
| 75 | 85 | | | | 758535 | 758540 | 758545 | 758550 | 758555 | 758560 | 758565 |
| 80 | 90 | | | | | 809040 | 809045 | 809050 | 809055 | 809060 | 809065 |
| 85 | 95 | | | | | 859540 | 859545 | 859550 | 859555 | 859560 | |
| 90 | 100 | | | | | 9010040 | 9010045 | 9010050 | 9010055 | 9010060 | |

| | L | 70 | 75 | 80 | 85 | 90 | 95 | 100 |
|----|-----|---------|--------|---------|--------|---------|--------|----------|
| d | D | | | | | | | |
| 20 | 30 | | | | | | | |
| 25 | 35 | 253570 | 253575 | 253580 | 253585 | 253590 | 253595 | 2535100 |
| 30 | 38 | 303870 | | 303880 | | | | |
| 30 | 40 | 304070 | 304075 | 304080 | 304085 | 304090 | 304095 | 3040100 |
| 35 | 45 | 354570 | 354575 | 354580 | 354585 | 354590 | 354595 | 3545100 |
| 40 | 50 | 405070 | 405075 | 405080 | 405085 | 405090 | 405095 | 4050100 |
| 45 | 55 | 455570 | 455575 | 455580 | 455585 | 455590 | 455595 | 4555100 |
| 50 | 60 | 506070 | 506075 | 506080 | 506085 | 506090 | 506095 | 5060100 |
| 55 | 65 | 556570 | 556575 | 556580 | | 556590 | | |
| 60 | 70 | 607070 | | 607080 | | 607090 | | 6070100 |
| 65 | 75 | 657570 | | 657580 | | 657590 | | 6575100 |
| 70 | 80 | 708070 | | 708080 | | 708090 | | 7080100 |
| 75 | 85 | 758570 | | 758580 | | 758590 | | 7585100 |
| 80 | 90 | 809070 | | 809080 | | 809090 | 809095 | 8090100 |
| 85 | 95 | 859570 | | 859580 | | 859590 | | 8595100 |
| 90 | 100 | 9010070 | | 9010080 | | 9010090 | | 90100100 |



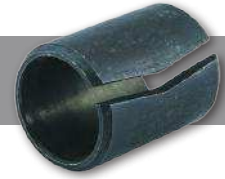
Flange bushings on customer's request.

FER-MET®



wrapped steel bearing, inner and outer tension bushing,
heavy-maintenance

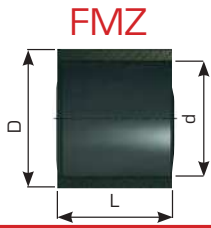
Wrapped steel bearing • Inner and outer tension bushing •
DIN 1498 / 1499



| | |
|--|---|
| <p>FER-MET®</p> <p>Cylindrical bushing</p> <p>FMZ</p> | <p>PROPERTIES</p> <p>Extremely high load capacity, very wear-resistant, also suitable for heavy operational demands with impact load.</p> |
| | <p>MATERIALS</p> <p>Spring steel 55Si7, alternatively C67 or similar.</p> |
| | <p>GEOMETRY</p> <p>Form E Without chamfer at inner diameter</p> <p>Form F With chamfer at inner diameter</p> <p>Form G Straight slot</p> <p>Form P Arrowheaded slot</p> <p>Form S Slant slot</p> |
| | <p>TOLERANCE DETAILS</p> <p>Housing Ø H8</p> <p>Bushing Inner Ø after mounting According to DIN 1498/1499</p> <p>Shaft tolerance Specified by the customer.</p> |
| | <p>SHAFT MATERIAL</p> <p>Hardened steel (C45 recommended)</p> <p>Hardness +- 48 HRC</p> |
| <p>MOUNTING ADVICE</p> <p>Housing Mounting chamfer, min. 1.5 mm x 15-45°</p> <p>Shaft Mounting chamfer, 5 mm x 15°, edges rounded</p> <p>Force fitting mandrel Application of an adequate force fitting mandrel is advisable. Grease lubrication of the outer surface may be necessary when mounting.</p> | |
| <p>MAINTENANCE</p> <p>Sufficient lubrication is necessary.</p> | |

FER-MET® is available only as cylindrical bushing! All special designs are available at short notice! Additional lubrication slots or lubrication drills on demand!

FER-MET® Cylindrical bushing



| | L | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 25 | 28 | 36 | 40 | 45 | 50 | 60 | 70 | 80 | 100 |
|----|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|--------|--------|--------|--------|---------|
| d | D | | | | | | | | | | | | | | | | | |
| 10 | 14 | 101410 | | 101414 | | | 101420 | | | | | | | | | | | |
| 10 | 16 | 101610 | | 101614 | | | 101620 | | | | | | | | | | | |
| 12 | 16 | 121610 | | 121614 | | | 121620 | | | | | | | | | | | |
| 12 | 18 | 121810 | | 121814 | | | 121820 | | | | | | | | | | | |
| 14 | 18 | 141810 | | 141814 | | | 141820 | | | | | | | | | | | |
| 14 | 20 | 142010 | | 142014 | | | 142020 | | | | | | | | | | | |
| 16 | 20 | | 162012 | | 162016 | | 162020 | | | | | | | | | | | |
| 16 | 22 | | 162212 | | 162216 | | 162220 | | | | | | | | | | | |
| 18 | 24 | | | 182414 | | | 182420 | | | 182428 | | | | | | | | |
| 20 | 26 | | | 202614 | | 202618 | | | | 202628 | | | | | | | | |
| 20 | 28 | | | 202814 | | 202818 | | | | 202828 | | | | | | | | |
| 22 | 28 | | | 222814 | | | 222820 | | | 222828 | | | | | | | | |
| 25 | 32 | | | 253214 | | | 253220 | | | 253228 | | 253240 | | | | | | |
| 25 | 35 | | | 253514 | | | 253520 | | | 253528 | | 253540 | | | | | | |
| 28 | 35 | | | 283514 | | | 283520 | | | 283528 | | 283540 | | | | | | |
| 30 | 38 | | | | | 303818 | | | 303825 | | 303836 | | | 303850 | | | | |
| 30 | 40 | | | | | 304018 | | | 304025 | | 304036 | | | 304050 | | | | |
| 32 | 40 | | | | | 324018 | | | 324025 | | 324036 | | | 324050 | | | | |
| 36 | 45 | | | | | 364518 | | | 364525 | | 364536 | | | 364550 | | | | |
| 40 | 50 | | | | | | 405020 | | | | | 405040 | | | 405060 | | 405080 | |
| 45 | 55 | | | | | | | 455522 | | | | 455540 | | | 455560 | | 455580 | |
| 50 | 60 | | | | | | | | 506025 | | | | | 506050 | | 506070 | | 5060100 |
| 55 | 65 | | | | | | | | 556525 | | | | | 556550 | | | 556580 | 5565100 |
| 60 | 70 | | | | | | | | 607025 | | | | | 607050 | | 607070 | | 6070100 |
| 65 | 75 | | | | | | | | 657525 | | | | | 657550 | | 657570 | | 6575100 |
| 65 | 80 | | | | | | | | 658025 | | | | | 658050 | | 658070 | | 6580100 |
| 70 | 85 | | | | | | | | 708525 | | | | | 708550 | | 708570 | | 7085100 |
| 75 | 90 | | | | | | | | 759025 | | | | | 759050 | | 759070 | | 7590100 |

| | L | 40 | 45 | 50 | 60 | 70 | 80 | 100 | 110 | 120 | 140 | 160 | 200 |
|-----|-----|---------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 80 | 95 | 809540 | | | 809560 | | | 8095100 | | 8095120 | | | |
| 85 | 100 | 8510040 | | | 8510060 | | | 85100100 | | 85100120 | | | |
| 90 | 105 | | 9010545 | | 9010560 | | | 90105100 | | 90105120 | | | |
| 95 | 110 | | 9511045 | | 9511060 | | | 95110100 | | 95110120 | | | |
| 100 | 115 | | 10011545 | | 10011560 | | | 100115100 | | 100115120 | | | |
| 105 | 120 | | | 10512050 | | | 10512080 | 105120100 | | | 105120140 | | |
| 110 | 125 | | | 11012550 | | | 11012580 | 110125100 | | | 110125140 | | |
| 115 | 130 | | | 11513050 | | | 11513080 | 115130100 | | | 115130140 | | |
| 120 | 135 | | | 12013550 | | | 12013580 | 120135100 | | | 120135140 | | |
| 125 | 140 | | | 12514050 | | | 12514080 | 125140100 | | | 125140140 | | |
| 130 | 145 | | | 13014550 | | | 13014580 | 130145100 | | | 130145140 | | |
| 135 | 150 | | | | 13515060 | | 13515080 | | 135150110 | | | 135150160 | |
| 140 | 155 | | | | 14015560 | | 14015580 | | 140155110 | | | 140155160 | |
| 145 | 160 | | | | 14516060 | | 14516080 | | 145160110 | | | 145160160 | |
| 150 | 165 | | | | | 15016570 | | 150165100 | | | | 150165160 | 150165200 |
| 155 | 175 | | | | | 15517570 | | 155175100 | | | | 155175160 | 155175200 |
| 160 | 180 | | | | | 16018070 | | 160180100 | | | | 160180160 | 160180200 |
| 170 | 190 | | | | | | 17019080 | | 170190110 | | | 170190160 | 170190200 |
| 175 | 195 | | | | | | 17519580 | | 175195110 | | | 175195160 | 175195200 |
| 180 | 200 | | | | | | 18020080 | | 180200110 | | | 180200160 | 180200200 |

FER-MAN®246



low maintenance impact-resistance steel sliding bearing with very high surface hardness

FER-MAN®259



Maintenance-free steel bushing, impact resistant, high breaking strength, able to absorb shock loadings

Impact-resistant steel sliding bearing with very high surface hardness •
Heat and corrosion resistant • Low maintenance



| | | | | | | | | | | | | | | | |
|---|---|--|-----------------------------|---|-----------------------------|---|---------------|----------------|-------------------|--------------------|--------------|------------------|------------------|---------------|------------------|
| FER-MAN®246 Cylindrical bushing FNZ | <h3>PROPERTIES</h3> <p>Applicable for higher loads, heat and corrosion resistant, non-seizing, restricted abrasion-resistance, long-life bushing. Typical applications: e.g. replacement of bronze bearings which need to be lubricated intensively for dirt repellence. Very good for applications for minimum or initial lubricated bearing points with mechanical or/and thermal stress. Areas of applications: Crane bearings assemblies, front and rocker bearings, lifting devices, mining machinery.</p> | | | | | | | | | | | | | | |
| | <h3>MATERIAL</h3> <p>Ferrous metal base, specially thermochemically treated, with lubrication patterns</p> | | | | | | | | | | | | | | |
| | <h3>MATERIAL PROPERTIES*</h3> <table border="0"> <tr> <td>Specific load capacity static</td> <td>≤ 400 [N/mm²]</td> </tr> <tr> <td>Specific load capacity dynamic</td> <td>≤ 100 [N/mm²]</td> </tr> <tr> <td>Sliding speed</td> <td>< 0.4 [m/s]</td> </tr> <tr> <td>Friction value</td> <td>0.12 – 0.16 [μ]</td> </tr> <tr> <td>Temperature strain</td> <td>< 400 [C°]</td> </tr> <tr> <td>Surface hardness</td> <td>550 – 650 [HV]</td> </tr> <tr> <td>Core hardness</td> <td>150 – 180 [HB]</td> </tr> </table> | Specific load capacity static | ≤ 400 [N/mm ²] | Specific load capacity dynamic | ≤ 100 [N/mm ²] | Sliding speed | < 0.4 [m/s] | Friction value | 0.12 – 0.16 [μ] | Temperature strain | < 400 [C°] | Surface hardness | 550 – 650 [HV] | Core hardness | 150 – 180 [HB] |
| | Specific load capacity static | ≤ 400 [N/mm ²] | | | | | | | | | | | | | |
| Specific load capacity dynamic | ≤ 100 [N/mm ²] | | | | | | | | | | | | | | |
| Sliding speed | < 0.4 [m/s] | | | | | | | | | | | | | | |
| Friction value | 0.12 – 0.16 [μ] | | | | | | | | | | | | | | |
| Temperature strain | < 400 [C°] | | | | | | | | | | | | | | |
| Surface hardness | 550 – 650 [HV] | | | | | | | | | | | | | | |
| Core hardness | 150 – 180 [HB] | | | | | | | | | | | | | | |
| <h3>TOLERANCE DETAILS</h3> <table border="0"> <tr> <td>Housing Ø</td> <td>H7</td> </tr> <tr> <td>Shaft tolerance</td> <td>Specified by the customer (recommended f7)</td> </tr> </table> | Housing Ø | H7 | Shaft tolerance | Specified by the customer (recommended f7) | | | | | | | | | | | |
| Housing Ø | H7 | | | | | | | | | | | | | | |
| Shaft tolerance | Specified by the customer (recommended f7) | | | | | | | | | | | | | | |
| <h3>SHAFT MATERIAL</h3> <p>16 MnCr5 case-hardened or 42 CrMo4V inductive hardened</p> | | | | | | | | | | | | | | | |
| <h3>MOUNTING ADVICE</h3> <table border="0"> <tr> <td>Housing</td> <td>Mounting chamfer, min. 1.5 mm x 15-45°</td> </tr> <tr> <td>Shaft</td> <td>Mounting chamfer, 5 mm x 15°, edges rounded</td> </tr> <tr> <td>Force fitting mandrel</td> <td>Application of an adequate force fitting mandrel is advisable. Grease lubrication of the outer surface may be necessary when mounting.</td> </tr> </table> | Housing | Mounting chamfer, min. 1.5 mm x 15-45° | Shaft | Mounting chamfer, 5 mm x 15°, edges rounded | Force fitting mandrel | Application of an adequate force fitting mandrel is advisable. Grease lubrication of the outer surface may be necessary when mounting. | | | | | | | | | |
| Housing | Mounting chamfer, min. 1.5 mm x 15-45° | | | | | | | | | | | | | | |
| Shaft | Mounting chamfer, 5 mm x 15°, edges rounded | | | | | | | | | | | | | | |
| Force fitting mandrel | Application of an adequate force fitting mandrel is advisable. Grease lubrication of the outer surface may be necessary when mounting. | | | | | | | | | | | | | | |
| <h3>MAINTENANCE</h3> <p>Initial and periodical lubrication is necessary.</p> | | | | | | | | | | | | | | | |
| <p>* The above stated material properties are valid for optimal operating conditions. Through changes of the application conditions e.g. higher sliding speed or strain, these values are subject to change.</p> | | | | | | | | | | | | | | | |

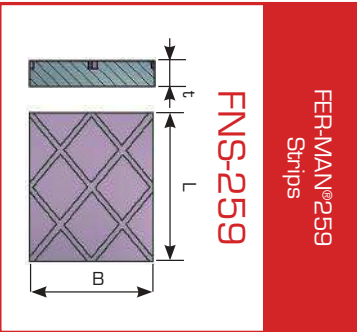
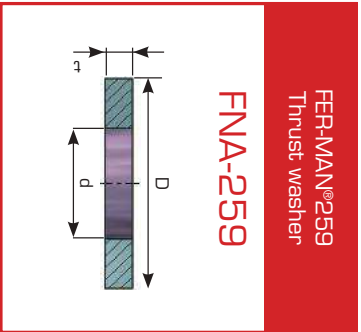
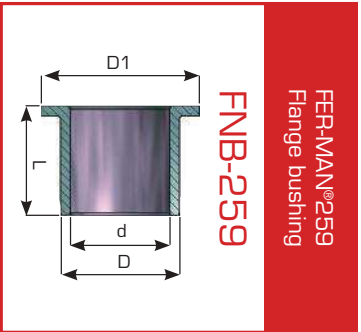
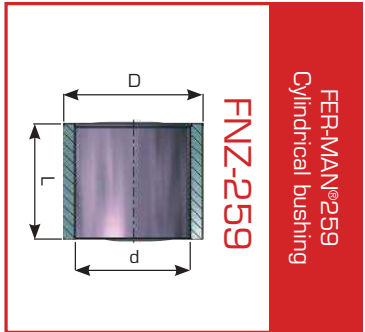
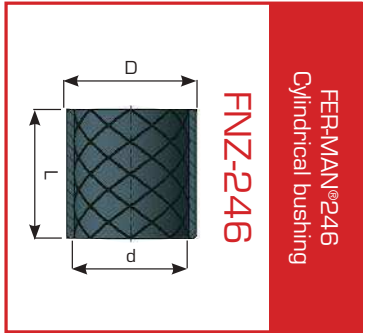
We produce all special designs at short notice! All sizes will be produced according to customer's request. Special dimensions possible.

Maintenance-free steel bushing • Impact resistant •
High breaking strength • Able to absorb shock loadings



| | | | |
|----------------------------|---|--|---|
| FER-MAN®259 | PROPERTIES | | Excellent resistance to abrasion in heavily contaminated applications. Even under high temperatures, adhesion does not occur. The material has a very high load carrying capacity and shows a great resistance to shock loads and impacts. Typical applications are in steel mills for ladles trunnion and grabs, but also in dredging for clamshells buckets and excavators. |
| Cylindrical bushing | MATERIAL | | Fe-C-Mn base material, treated with thermochemical process under vacuum conditions |
| FNZ | MATERIAL PROPERTIES* | | |
| Flange bushing | Specific load capacity static | | ≤ 460 [N/mm ²] |
| FNB | Specific load capacity dynamic | | ≤ 100 [N/mm ²] |
| Thrust washer | Sliding speed | | < 0.2 [m/s] |
| FNA | Friction value | | 0.2 – 0.28 (lubricated 0.12) [μ] |
| Strips | Temperature strain | | < 200 (temporary up to 400) [°C] |
| FNS | Surface hardness | | up to 950 [HV] (depending on application demands) |
| | Core hardness | | 150 – 180 [HB] |
| | TOLERANCE DETAILS | | |
| | Housing Ø | | H7 |
| | Shaft tolerance | | Specified by the customer (recommended h9) |
| | SHAFT MATERIAL | | 42 CrMo4V induction hardened, 54-57 HRC, 2-4 mm deep |
| | MOUNTING ADVICE | | |
| | Housing | | Mounting chamfer, min. 1.5 mm x 15-45° |
| | Shaft tolerance | | Mounting chamfer, 5 mm x 15°, edges rounded |
| | Force fitting mandrel | | Application of an adequate force fitting mandrel is advisable. Grease lubrication of the outer surface may be necessary when mounting. |
| | MAINTENANCE | | |
| | | | FER-MAN®259 exhibits very good wear behavior without lubrication. However, at higher p _v values (>0.2), lubrication is required. |
| | * The above stated material properties are valid for optimal operating conditions. Through changes of the application conditions e.g. higher sliding speed or strain, these values are subject to change. | | |

We produce all special designs at short notice! All sizes will be produced according to customer's request. Special dimensions possible.



| | | | | |
|----|-------|----|----|----|
| FN | Z-246 | 50 | 65 | 70 |
| FN | Z-259 | 50 | 65 | 70 |

| | | | | |
|--|--|--|--|--|
| Type (FER-MAN®246) Type (FER-MAN®259) | Geometry (Cylindrical bushing) | | | |
| | Inner diameter FER-MAN®246 50 mm (d) FER-MAN®259 50 mm (d) | | | |
| | Outer diameter FER-MAN®246 65 mm (D) FER-MAN®259 65 mm (D) | | | |
| | Length FER-MAN®246 70 mm (L) FER-MAN®259 70 mm (L) | | | |

| | | | | |
|----|-------|----|----|----|
| FN | B-259 | 50 | 65 | 70 |
|----|-------|----|----|----|

| | | | | |
|--------------------|---|--|--|--|
| Type (FER-MAN®259) | Geometry (Flange bushing) | | | |
| | Inner diameter FER-MAN®259 50 mm (d) | | | |
| | Outer diameter FER-MAN®259 65 mm (D) | | | |
| | Length FER-MAN®259 70 mm (L) | | | |

| | | | | |
|----|-------|----|----|----|
| FN | A-259 | 30 | 60 | 05 |
|----|-------|----|----|----|

| | | | | |
|--------------------|---|--|--|--|
| Type (FER-MAN®259) | Geometry (Thrust washer) | | | |
| | Inner diameter FER-MAN®259 30 mm (d) | | | |
| | Outer diameter FER-MAN®259 60 mm (D) | | | |
| | Thickness FER-MAN®259 5 mm (t) | | | |

| | | | | |
|----|-------|----|----|----|
| FN | S-259 | 30 | 70 | 10 |
|----|-------|----|----|----|

| | | | | |
|--------------------|------------------------------------|--|--|--|
| Type (FER-MAN®259) | Geometry (Strip) | | | |
| | Width FER-MAN®259 30 mm (B) | | | |
| | Length FER-MAN®259 70 mm (L) | | | |
| | Thickness FER-MAN®259 10 mm (t) | | | |

COM-KU[®]/D



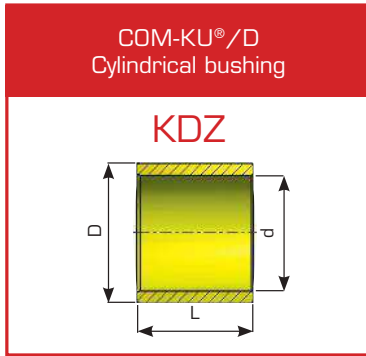
fibre-reinforced plastic composite sliding bearing, maintenance-free

Fibre-reinforced plastic composite sliding bearing •
Maintenance-free

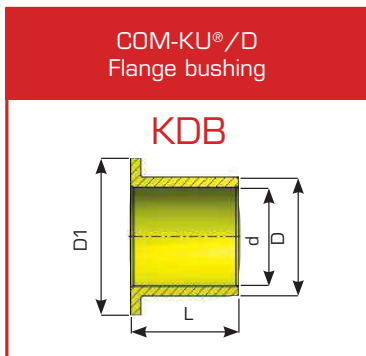


| | | | | | | |
|--|---|---|---------------------------|-------------|-------------|---|
| COM-KU®/D | PROPERTIES | | | | | Good sliding properties, suitable for high load capacity (as well as impact and edge loads), good chemical resistance, long life span, good damping features. Recommended as replacement for lubricated bushings e.g. bronze. Maintenance-free. |
| | MATERIAL | | | | | Compound plastic with friction modifiers, produced in a winding technique. |
| | MATERIAL PROPERTIES* | | | | | |
| | Cylindrical bushing | Unit | D400 | D402 | D406 | |
| | KDZ | Compressive strength (Flatwise) | [N/mm ²] | >320 | >300 | >280 |
| | | Compressive strength (Edgewise) | [N/mm ²] | >100 | >90 | >90 |
| | | Safe Maximum Static Load | [N/mm ²] | <150 | <140 | <120 |
| | | Safe Maximum Dynamic Load | [N/mm ²] | <60 | <60 | <50 |
| | | Flexural Strength | [N/mm ²] | >80 | >70 | >70 |
| | Flange bushing | Shear strength | [N/mm ²] | >90 | >80 | >80 |
| Tensile strength | | [N/mm ²] | >65 | >60 | >60 | |
| Tensile Modulus | | [N/mm ²] | 3200 | 3200 | 3200 | |
| KDB | Coefficient of friction (dry) | | 0.13 – 0.15 | 0.10 – 0.12 | 0.06 – 0.09 | |
| | Coefficient of friction (lubricated H ₂ O / Oil) | [N/mm ²] | 0.02 – 0.04 | 0.02 – 0.04 | 0.01 – 0.03 | |
| | Hardness - Rockwell M | | 80 | 80 | 80 | |
| | Density | gms/cc | 1.3 | 1.3 | 1.3 | |
| Thrust washer | Water Absorption (volumetric) | % | <0.1 | <0.1 | <0.1 | |
| | Short term temperature (min./max.) | °C | -70 / 100 | -70 / 100 | -70 / 100 | |
| KDA | Temperature range (long term) | °C | -30 to 75 | -30 to 75 | -30 to 75 | |
| | Colour | | Dark grey | Yellow | Light grey | |
| | Other material grades e.g. for high-temperature or extreme wear-resistance are available on request. Existing material grades can be fine-tuned to specific application requirements. | | | | | |
| Strips | TOLERANCE DETAILS | | | | | |
| | Housing Ø | | H7 | | | |
| KDS | Bushing Inner Ø after mounting** | | Specified by the customer | | | |
| | MOUNTING ADVICE | | | | | |
| Housing | | Mounting chamfer, min. 1.5 mm x 15-45° | | | | |
| Shaft | | Mounting chamfer, 5 mm x 15°, edges rounded | | | | |
| Force fitting mandrel | | Application of an adequate force fitting mandrel is advisable | | | | |
| Freeze fitting | | For diameter > 130mm, use of liquid nitrogen is preferred | | | | |
| MAINTENANCE | | | | | | |
| No maintenance required if shaft is corrosion resistant. Otherwise, periodical greasing of the shaft is advised. | | | | | | |
| COM-KU®/D is a maintenance-free composite sliding bearing. | | | | | | |
| * The above stated material properties are valid for optimal operating conditions. Through changes of the application conditions e.g. higher sliding speed or strain, these values are subject to change. | | | | | | |
| ** Please note, that fitting dimensions and tolerances have to be "plastic-tailored" considering the larger expansion coefficient compared to metal sliding bearings. As a result, larger tolerance ranges and clearances can occur. | | | | | | |

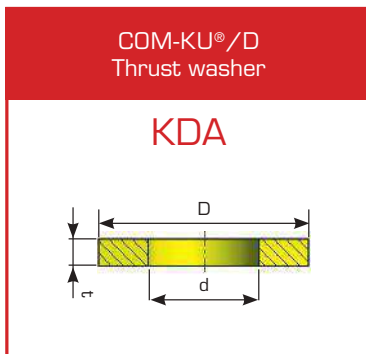
We produce all special designs at short notice!



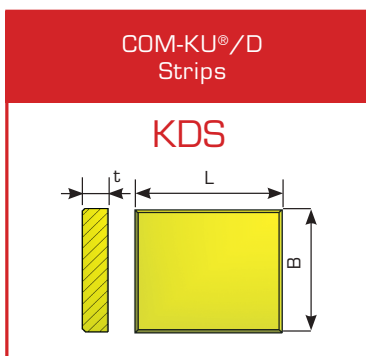
| KD | Z | 50 | 65 | 70 |
|------------------|--------------------------------|--------------------------|--------------------------|------------------|
| Type (COM-KU®/D) | Geometry (Cylindrical bushing) | Inner diameter 50 mm (d) | Outer diameter 65 mm (D) | Length 70 mm (L) |



| KD | B | 50 | 65 | 70 |
|------------------|---------------------------|--------------------------|--------------------------|------------------|
| Type (COM-KU®/D) | Geometry (Flange bushing) | Inner diameter 50 mm (d) | Outer diameter 65 mm (D) | Length 70 mm (L) |



| KD | A | 30 | 60 | 05 |
|------------------|--------------------------|--------------------------|--------------------------|--------------------|
| Type (COM-KU®/D) | Geometry (Thrust washer) | Inner diameter 30 mm (d) | Outer diameter 60 mm (D) | Thickness 5 mm (t) |



| KD | S | 30 | 70 | 10 |
|------------------|------------------|-----------------|------------------|---------------------|
| Type (COM-KU®/D) | Geometry (Strip) | Width 30 mm (B) | Length 70 mm (L) | Thickness 10 mm (t) |

All sizes and measurements can be produced to customer's specification.

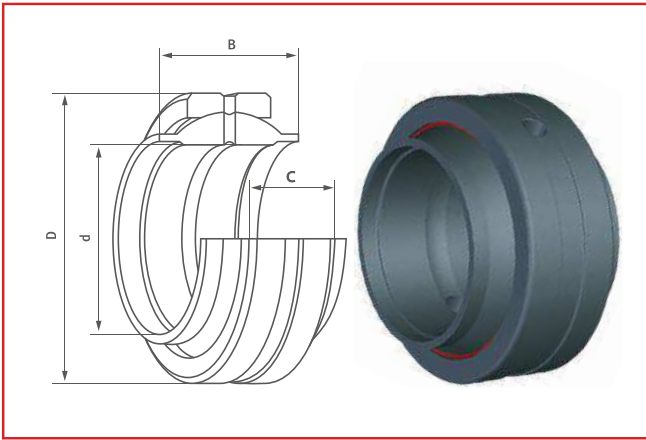
SPHERICAL PLAIN BEARINGS & ROD ENDS



ball joint ends - spherical plain bearings
maintenance-free and heavy-maintenance

Spherical plain bearings

Requiring maintenance



Spherical plain bearings, steel/steel, with wider inner ring

| Art. Nr. | | d | D | B | C | C | C ₀ | Load ratings [kN] |
|------------|-----------|-----|-----|-----|-----|--------|----------------|-------------------|
| GEG 12 ES | GE 12 LO | 12 | 22 | 12 | 7 | 10.368 | 51.84 | |
| GEG 16 ES | GE 16 LO | 16 | 28 | 16 | 9 | 16.896 | 84.48 | |
| GEG 20 ES | GE 20 LO | 20 | 35 | 20 | 12 | 29 | 140 | |
| GEG 25 ES | GE 25 LO | 25 | 42 | 25 | 16 | 46 | 230 | |
| GEG 30 ES | GE 30 LO | 30 | 47 | 30 | 18 | 60 | 298 | |
| GEG 32 ES | GE 32 LO | 32 | 52 | 32 | 18 | 65.5 | 312 | |
| GEG 35 ES | GE 35 LO | 35 | 55 | 35 | 20 | 77 | 384 | |
| GEG 40 ES | GE 40 LO | 40 | 62 | 40 | 22 | 96 | 480 | |
| GEG 45 ES | GE 45 LO | 45 | 68 | 40 | 25 | 122 | 614 | |
| GEG 50 ES | GE 50 LO | 50 | 75 | 50 | 28 | 150 | 749 | |
| GEG 60 ES | GE 60 LO | 60 | 90 | 54 | 36 | 235 | 1171 | |
| GEG 63 ES | GE 63 LO | 63 | 95 | 63 | 36 | 244.8 | 1219.2 | |
| GEG 70 ES | GE 70 LO | 70 | 105 | 65 | 40 | 302 | 1498 | |
| GEG 80 ES | GE 80 LO | 80 | 120 | 80 | 45 | 384 | 1920 | |
| GEG 90 ES | GE 90 LO | 90 | 130 | 90 | 50 | 470.4 | 2352 | |
| GEG 100 ES | GE 100 LO | 100 | 150 | 100 | 55 | 585.6 | 2928 | |
| GEG 110 ES | GE 110 LO | 110 | 160 | 110 | 55 | 628.8 | 3120 | |
| GEG 125 ES | GE 125 LO | 125 | 180 | 125 | 70 | 912 | 4560 | |
| GEG 160 ES | GE 160 LO | 160 | 230 | 160 | 80 | 1315.2 | 6528 | |
| GEG 200 ES | GE 200 LO | 200 | 290 | 200 | 100 | 2035.2 | 10176 | |
| GEG 250 ES | GE 250 LO | 250 | 400 | 250 | 120 | 3408 | 17280 | |
| GEG 320 ES | GE 320 LO | 320 | 520 | 320 | 160 | 5856 | 29280 | |

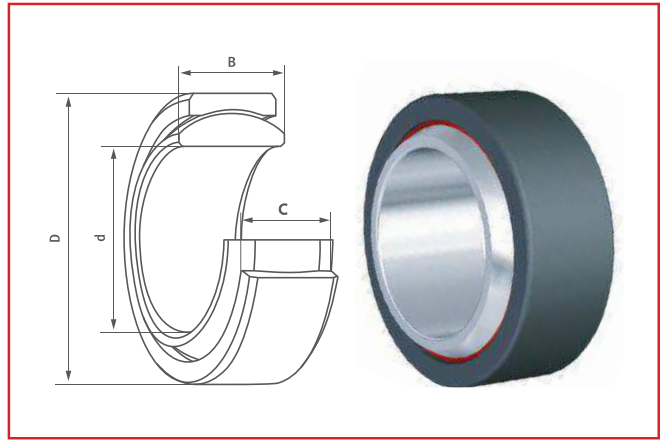
Spherical plain bearings, steel/steel, with wider inner ring and sealing

| Art. Nr. | | d | D | B | C | C | C ₀ | Load ratings [kN] |
|---------------|--------------|----|-----|----|----|-----|----------------|-------------------|
| GEM 20 ES 2RS | GE 20 HO 2RS | 20 | 35 | 24 | 12 | 29 | 140 | |
| GEM 25 ES 2RS | GE 25 HO 2RS | 25 | 42 | 29 | 16 | 46 | 230 | |
| GEM 30 ES 2RS | GE 30 HO 2RS | 30 | 47 | 30 | 18 | 60 | 298 | |
| GEM 35 ES 2RS | GE 35 HO 2RS | 35 | 55 | 35 | 20 | 77 | 384 | |
| GEM 40 ES 2RS | GE 40 HO 2RS | 40 | 62 | 38 | 22 | 96 | 480 | |
| GEM 45 ES 2RS | GE 45 HO 2RS | 45 | 68 | 40 | 25 | 122 | 614 | |
| GEM 50 ES 2RS | GE 50 HO 2RS | 50 | 75 | 43 | 28 | 150 | 749 | |
| GEM 60 ES 2RS | GE 60 HO 2RS | 60 | 90 | 54 | 36 | 235 | 1171 | |
| GEM 70 ES 2RS | GE 70 HO 2RS | 70 | 105 | 65 | 40 | 302 | 1498 | |
| GEM 80 ES 2RS | GE 80 HO 2RS | 80 | 120 | 74 | 45 | 384 | 1920 | |

Permissible working temperature: -60°C - +130°C (Applications up to +200°C without sealings and from 150°C with possible losses of length of life). Further restrictions through lubricant should be kept in mind.

Spherical plain bearings

Requiring maintenance



Spherical plain bearings, hard chrome plated/PTFE

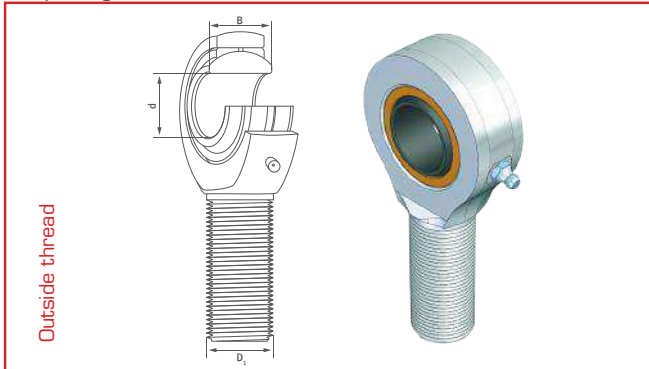
| Art. Nr. | | d | D | B | C | C | C ₀ | Load ratings [kN] |
|----------|---------|----|----|----|----|------|----------------|-------------------|
| GE 6 UK | GE 6 C | 6 | 14 | 6 | 4 | 3.5 | 8.6 | |
| GE 8 UK | GE 8 C | 8 | 16 | 8 | 5 | 5.6 | 14 | |
| GE 10 UK | GE 10 C | 10 | 19 | 9 | 6 | 8.3 | 21 | |
| GE 12 UK | GE 12 C | 12 | 22 | 10 | 7 | 10.9 | 27 | |
| GE 15 UK | GE 15 C | 15 | 26 | 12 | 9 | 17.3 | 43 | |
| GE 17 UK | GE 17 C | 17 | 30 | 14 | 10 | 21.5 | 54 | |
| GE 20 UK | GE 20 C | 20 | 35 | 16 | 12 | 30 | 75 | |
| GE 25 UK | GE 25 C | 25 | 42 | 20 | 16 | 49 | 122 | |
| GE 30 UK | GE 30 C | 30 | 47 | 22 | 18 | 63 | 159 | |

Spherical plain bearings, hard chrome plated/PTFE with sealing

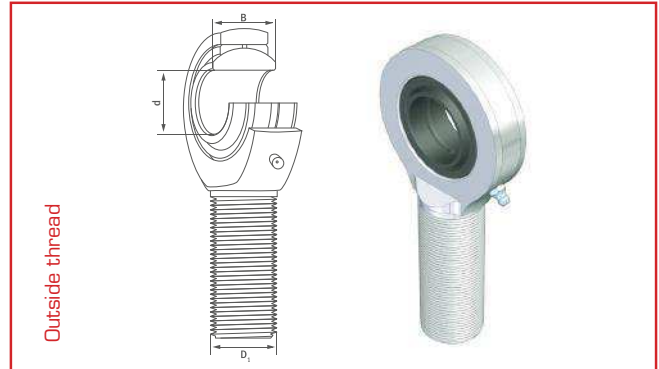
| Art. Nr. | | d | D | B | C | C | C ₀ | Load ratings [kN] |
|---------------|---------------|-----|-----|-----|-----|-------|----------------|-------------------|
| GE 20 UK 2RS | GE 20 TE 2RS | 20 | 35 | 16 | 12 | 67.5 | 112 | |
| GE 25 UK 2RS | GE 25 TE 2RS | 25 | 42 | 20 | 16 | 127 | 212 | |
| GE 30 UK 2RS | GE 30 TE 2RS | 30 | 47 | 22 | 18 | 165 | 275 | |
| GE 35 UK 2RS | GE 35 TE 2RS | 35 | 55 | 25 | 20 | 210 | 350 | |
| GE 40 UK 2RS | GE 40 TE 2RS | 40 | 62 | 28 | 22 | 277 | 462 | |
| GE 45 UK 2RS | GE 45 TE 2RS | 45 | 68 | 32 | 25 | 360 | 600 | |
| GE 50 UK 2RS | GE 50 TE 2RS | 50 | 75 | 35 | 28 | 442 | 737 | |
| GE 60 UK 2RS | GE 60 TE 2RS | 60 | 90 | 44 | 36 | 690 | 1150 | |
| GE 70 UK 2RS | GE 70 TE 2RS | 70 | 105 | 49 | 40 | 885 | 1475 | |
| GE 80 UK 2RS | GE 80 TE 2RS | 80 | 120 | 55 | 45 | 1125 | 1875 | |
| GE 90 UK 2RS | GE 90 TE 2RS | 90 | 130 | 60 | 50 | 1380 | 2300 | |
| GE 100 UK 2RS | GE 100 TE 2RS | 100 | 150 | 70 | 55 | 1717 | 2862 | |
| GE 110 UK 2RS | GE 110 TE 2RS | 110 | 160 | 70 | 55 | 1845 | 3075 | |
| GE 120 UK 2RS | GE 120 TE 2RS | 120 | 180 | 85 | 70 | 2685 | 4475 | |
| GE 140 UK 2RS | GE 140 TA 2RS | 140 | 210 | 90 | 70 | 3015 | 5025 | |
| GE 160 UK 2RS | GE 160 TA 2RS | 160 | 230 | 105 | 80 | 3840 | 6400 | |
| GE 180 UK 2RS | GE 180 TA 2RS | 180 | 260 | 105 | 80 | 4320 | 7200 | |
| GE 200 UK 2RS | GE 200 TA 2RS | 200 | 290 | 130 | 100 | 6000 | 10000 | |
| GE 220 UK 2RS | GE 220 TA 2RS | 220 | 320 | 135 | 100 | 6600 | 11000 | |
| GE 240 UK 2RS | GE 240 TA 2RS | 240 | 340 | 140 | 100 | 7200 | 12000 | |
| GE 260 UK 2RS | GE 260 TA 2RS | 260 | 370 | 150 | 110 | 8550 | 14250 | |
| GE 280 UK 2RS | GE 280 TA 2RS | 280 | 400 | 155 | 120 | 10050 | 16750 | |
| GE 300 UK 2RS | GE 300 TA 2RS | 300 | 430 | 165 | 120 | 10080 | 18000 | |

Permissible working temperature: -50°C - +95°C (Applications up to +200°C with possible losses of length of life).

Rod ends Requiring maintenance



Rod ends Maintenance-bound

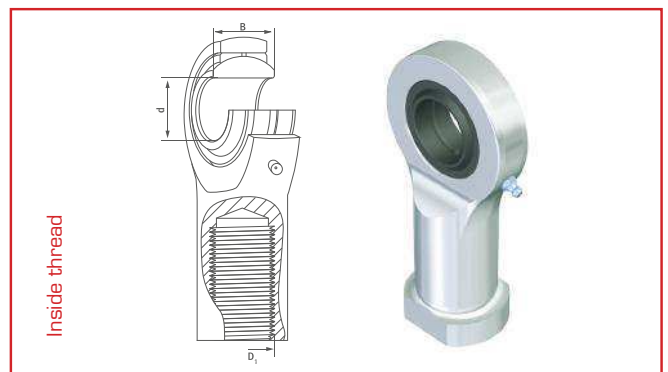
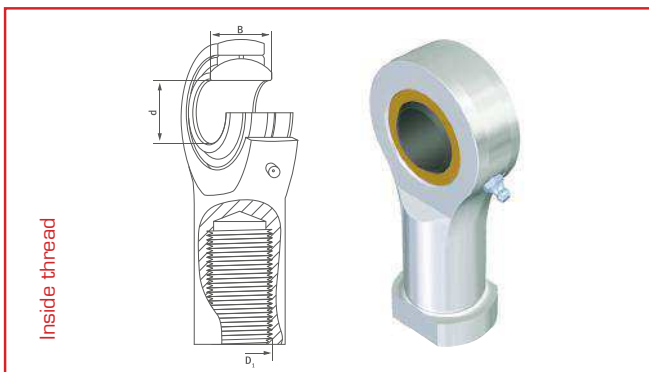


Rod end, steel / bronze with outside thread

| Art. Nr. | | d | B | D ₁ |
|-------------|--------------|----|----|----------------|
| GAKFR 5 PB | (SAKAC 5 M) | 5 | 8 | M5 |
| GAKFR 6 PB | (SAKAC 6 M) | 6 | 9 | M6 |
| GAKFR 8 PB | (SAKAC 8 M) | 8 | 12 | M8 |
| GAKFR 10 PB | (SAKAC 10 M) | 10 | 14 | M10 |
| GAKFR 12 PB | (SAKAC 12 M) | 12 | 16 | M12 |
| GAKFR 14 PB | (SAKAC 14 M) | 14 | 19 | M14 |
| GAKFR 16 PB | (SAKAC 16 M) | 16 | 21 | M16 |
| GAKFR 17 PB | (SAKAC 17 M) | 17 | 22 | M17 |
| GAKFR 18 PB | (SAKAC 18 M) | 18 | 23 | M18 x 1,5 |
| GAKFR 20 PB | (SAKAC 20 M) | 20 | 25 | M20 x 1,5 |
| GAKFR 22 PB | (SAKAC 22 M) | 22 | 28 | M22 x 1,5 |
| GAKFR 25 PB | (SAKAC 25 M) | 25 | 31 | M24 x 2 |
| GAKFR 28 PB | (SAKAC 28 M) | 28 | 35 | M27 x 2 |
| GAKFR 30 PB | (SAKAC 30 M) | 30 | 37 | M30 x 2 |

Rod end, steel / steel with outside thread

| Art. Nr. | | d | B | D ₁ |
|-----------|-------------|----|----|----------------|
| GAR 6 DO | (SA 6 ES) | 6 | 6 | M6 |
| GAR 8 DO | (SA 8 ES) | 8 | 8 | M8 |
| GAR 10 DO | (SA 10 ES) | 10 | 9 | M10 |
| GAR 12 DO | (SA 12 ES) | 12 | 10 | M12 |
| GAR 15 DO | (SA 15 ES) | 15 | 12 | M14 |
| GAR 17 DO | (SA 17 ES) | 17 | 14 | M16 |
| GAR 20 DO | (SA 20 ES) | 20 | 16 | M20 x 1,5 |
| GAR 25 DO | (SA 25 ES) | 25 | 20 | M24 x 2 |
| GAR 30 DO | (SA 30 ES) | 30 | 22 | M30 x 2 |
| GAR 35 DO | (SAA 35 ES) | 35 | 25 | M36 x 3 |
| GAR 40 DO | (SAA 40 ES) | 40 | 28 | M39 x 3 |
| GAR 45 DO | (SAA 45 ES) | 45 | 32 | M42 x 3 |
| GAR 50 DO | (SAA 50 ES) | 50 | 35 | M45 x 3 |
| GAR 60 DO | (SAA 60 ES) | 60 | 44 | M52 x 3 |
| GAR 70 DO | (SAA 70 ES) | 70 | 49 | M56 x 4 |
| GAR 80 DO | (SAA 80 ES) | 80 | 55 | M64 x 4 |



Rod end, steel / bronze with inside thread

| Art. Nr. | | d | B | D ₁ |
|-------------|--------------|----|----|----------------|
| GIKFR 5 PB | (SIKAC 5 M) | 5 | 8 | M5 |
| GIKFR 6 PB | (SIKAC 6 M) | 6 | 9 | M6 |
| GIKFR 8 PB | (SIKAC 8 M) | 8 | 12 | M8 |
| GIKFR 10 PB | (SIKAC 10 M) | 10 | 14 | M10 |
| GIKFR 12 PB | (SIKAC 12 M) | 12 | 16 | M12 |
| GIKFR 14 PB | (SIKAC 14 M) | 14 | 19 | M14 |
| GIKFR 16 PB | (SIKAC 16 M) | 16 | 21 | M16 |
| GIKFR 17 PB | (SIKAC 17 M) | 17 | 22 | M17 |
| GIKFR 18 PB | (SIKAC 18 M) | 18 | 23 | M18 x 1,5 |
| GIKFR 20 PB | (SIKAC 20 M) | 20 | 25 | M20 x 1,5 |
| GIKFR 22 PB | (SIKAC 22 M) | 22 | 28 | M22 x 1,5 |
| GIKFR 25 PB | (SIKAC 25 M) | 25 | 31 | M24 x 2 |
| GIKFR 28 PB | (SIKAC 28 M) | 28 | 35 | M27 x 2 |
| GIKFR 30 PB | (SIKAC 30 M) | 30 | 37 | M30 x 2 |

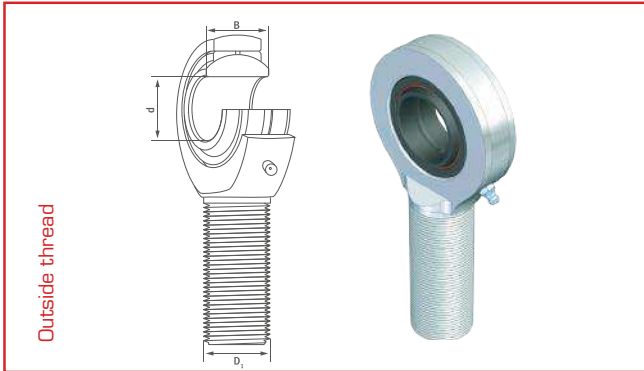
Rod end, steel / steel with inside thread

| Art. Nr. | | d | B | D ₁ |
|-----------|-------------|----|----|----------------|
| GIR 6 DO | (SI 6 ES) | 6 | 6 | M6 |
| GIR 8 DO | (SI 8 ES) | 8 | 8 | M8 |
| GIR 10 DO | (SI 10 ES) | 10 | 9 | M10 |
| GIR 12 DO | (SI 12 ES) | 12 | 10 | M12 |
| GIR 15 DO | (SI 15 ES) | 15 | 12 | M14 |
| GIR 17 DO | (SI 17 ES) | 17 | 14 | M16 |
| GIR 20 DO | (SI 20 ES) | 20 | 16 | M20 x 1,5 |
| GIR 25 DO | (SI 25 ES) | 25 | 20 | M24 x 2 |
| GIR 30 DO | (SI 30 ES) | 30 | 22 | M30 x 2 |
| GIR 35 DO | (SIA 35 ES) | 35 | 25 | M36 x 3 |
| GIR 40 DO | (SIA 40 ES) | 40 | 28 | M39 x 3 |
| GIR 45 DO | (SIA 45 ES) | 45 | 32 | M42 x 3 |
| GIR 50 DO | (SIA 50 ES) | 50 | 35 | M45 x 3 |
| GIR 60 DO | (SIA 60 ES) | 60 | 44 | M52 x 3 |
| GIR 70 DO | (SIA 70 ES) | 70 | 49 | M56 x 4 |
| GIR 80 DO | (SIA 80 ES) | 80 | 55 | M64 x 4 |

Permissible working temperature: -60°C - +150°C
(Applications up to +250°C with possible losses of length of life).
Further restrictions through lubricant should be kept in mind.

Permissible working temperature: -60°C - +150°C
(Applications up to +250°C with possible losses of length of life).
Further restrictions through lubricant should be kept in mind.

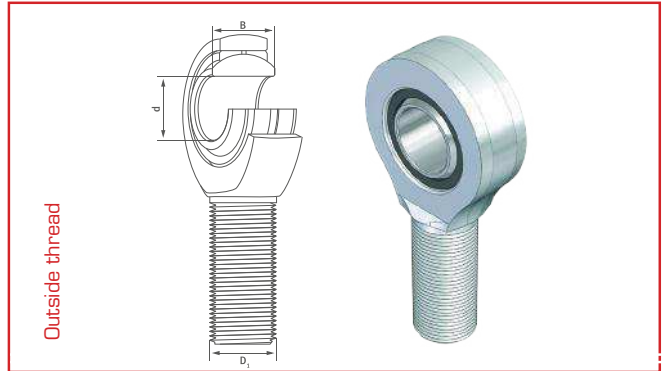
Rod ends Requiring maintenance



Rod end, steel / steel with outside thread and sealing

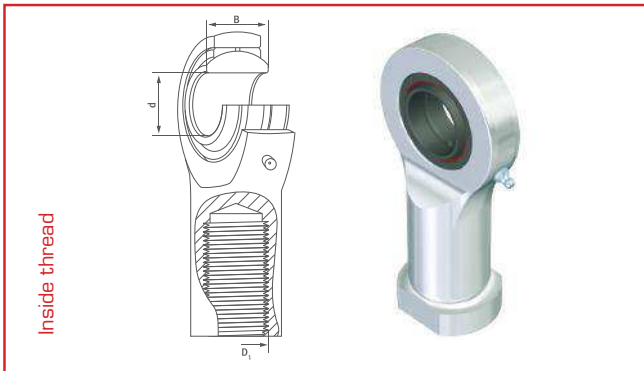
| Art. Nr. | | d | B | D ₁ |
|---------------|-----------------|----|----|----------------|
| GAR 15 DO 2RS | (SA 15 ES 2RS) | 15 | 12 | M14 |
| GAR 17 DO 2RS | (SA 17 ES 2RS) | 17 | 14 | M16 |
| GAR 20 DO 2RS | (SA 20 ES 2RS) | 20 | 16 | M20 x 1,5 |
| GAR 25 DO 2RS | (SA 25 ES 2RS) | 25 | 20 | M24 x 2 |
| GAR 30 DO 2RS | (SA 30 ES 2RS) | 30 | 22 | M30 x 2 |
| GAR 35 DO 2RS | (SAA 35 ES 2RS) | 35 | 25 | M36 x 3 |
| GAR 40 DO 2RS | (SAA 40 ES 2RS) | 40 | 28 | M39 x 3 |
| GAR 45 DO 2RS | (SAA 45 ES 2RS) | 45 | 32 | M42 x 3 |
| GAR 50 DO 2RS | (SAA 50 ES 2RS) | 50 | 35 | M45 x 3 |
| GAR 60 DO 2RS | (SAA 60 ES 2RS) | 60 | 44 | M52 x 3 |
| GAR 70 DO 2RS | (SAA 70 ES 2RS) | 70 | 49 | M56 x 4 |
| GAR 80 DO 2RS | (SAA 80 ES 2RS) | 80 | 55 | M64 x 4 |

Rod ends Maintenance-free



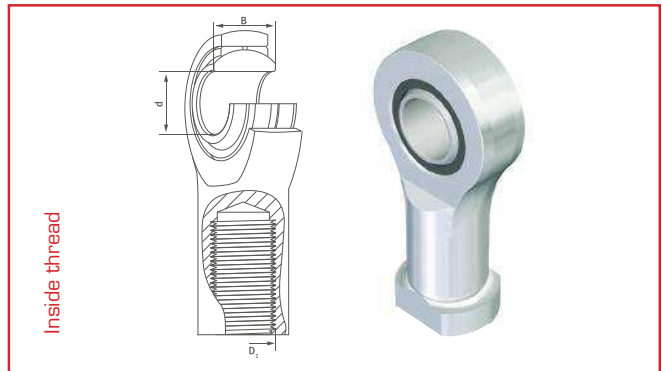
Rod end, steel / PTFE with outside thread

| Art. Nr. | | d | B | D ₁ |
|-------------|--------------|----|----|----------------|
| GAKFR 5 PW | (SAKAC 5 F) | 5 | 8 | M5 |
| GAKFR 6 PW | (SAKAC 6 F) | 6 | 9 | M6 |
| GAKFR 8 PW | (SAKAC 8 F) | 8 | 12 | M8 |
| GAKFR 10 PW | (SAKAC 10 F) | 10 | 14 | M10 |
| GAKFR 12 PW | (SAKAC 12 F) | 12 | 16 | M12 |
| GAKFR 14 PW | (SAKAC 14 F) | 14 | 19 | M14 |
| GAKFR 16 PW | (SAKAC 16 F) | 16 | 21 | M16 |
| GAKFR 17 PW | (SAKAC 17 F) | 17 | 22 | M17 |
| GAKFR 18 PW | (SAKAC 18 F) | 18 | 23 | M18 x 1,5 |
| GAKFR 20 PW | (SAKAC 20 F) | 20 | 25 | M20 x 1,5 |
| GAKFR 22 PW | (SAKAC 22 F) | 22 | 28 | M22 x 1,5 |
| GAKFR 25 PW | (SAKAC 25 F) | 25 | 31 | M24 x 2 |
| GAKFR 28 PW | (SAKAC 28 F) | 28 | 35 | M27 x 2 |
| GAKFR 30 PW | (SAKAC 30 F) | 30 | 37 | M30 x 2 |



Rod end, steel / steel with inside thread and sealing

| Art. Nr. | | d | B | D ₁ |
|---------------|-----------------|----|----|----------------|
| GIR 15 DO 2RS | (SI 15 ES 2RS) | 15 | 12 | M14 |
| GIR 17 DO 2RS | (SI 17 ES 2RS) | 17 | 14 | M16 |
| GIR 20 DO 2RS | (SI 20 ES 2RS) | 20 | 16 | M20 x 1,5 |
| GIR 25 DO 2RS | (SI 25 ES 2RS) | 25 | 20 | M24 x 2 |
| GIR 30 DO 2RS | (SI 30 ES 2RS) | 30 | 22 | M30 x 2 |
| GIR 35 DO 2RS | (SIA 35 ES 2RS) | 35 | 25 | M36 x 3 |
| GIR 40 DO 2RS | (SIA 40 ES 2RS) | 40 | 28 | M39 x 3 |
| GIR 45 DO 2RS | (SIA 45 ES 2RS) | 45 | 32 | M42 x 3 |
| GIR 50 DO 2RS | (SIA 50 ES 2RS) | 50 | 35 | M45 x 3 |
| GIR 60 DO 2RS | (SIA 60 ES 2RS) | 60 | 44 | M52 x 3 |
| GIR 70 DO 2RS | (SIA 70 ES 2RS) | 70 | 49 | M56 x 4 |
| GIR 80 DO 2RS | (SIA 80 ES 2RS) | 80 | 55 | M64 x 4 |



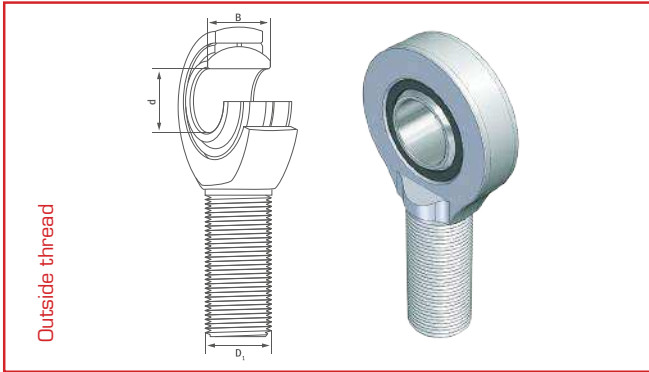
Rod end, steel / PTFE with inside thread

| Art. Nr. | | d | B | D ₁ |
|-------------|--------------|----|----|----------------|
| GIKFR 5 PW | (SIKAC 5 F) | 5 | 8 | M5 |
| GIKFR 6 PW | (SIKAC 6 F) | 6 | 9 | M6 |
| GIKFR 8 PW | (SIKAC 8 F) | 8 | 12 | M8 |
| GIKFR 10 PW | (SIKAC 10 F) | 10 | 14 | M10 |
| GIKFR 12 PW | (SIKAC 12 F) | 12 | 16 | M12 |
| GIKFR 14 PW | (SIKAC 14 F) | 14 | 19 | M14 |
| GIKFR 16 PW | (SIKAC 16 F) | 16 | 21 | M16 |
| GIKFR 17 PW | (SIKAC 17 F) | 17 | 22 | M17 |
| GIKFR 18 PW | (SIKAC 18 F) | 18 | 23 | M18 x 1,5 |
| GIKFR 20 PW | (SIKAC 20 F) | 20 | 25 | M20 x 1,5 |
| GIKFR 22 PW | (SIKAC 22 F) | 22 | 28 | M22 x 1,5 |
| GIKFR 25 PW | (SIKAC 25 F) | 25 | 31 | M24 x 2 |
| GIKFR 28 PW | (SIKAC 28 F) | 28 | 35 | M27 x 2 |
| GIKFR 30 PW | (SIKAC 30 F) | 30 | 37 | M30 x 2 |

Permissible working temperature: -60°C - +130°C (Applications up to +200°C without sealings and from 150°C with possible losses of length of life). Further restrictions through lubricant should be kept in mind.

Permissible working temperature: -60°C - +100°C (Applications up to +200°C with possible losses of length of life).

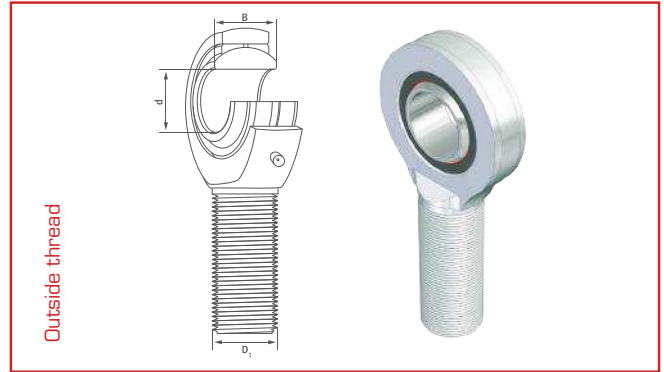
Rod ends Maintenance-free



Rod end, hard chrome plated / PTFE with outside thread

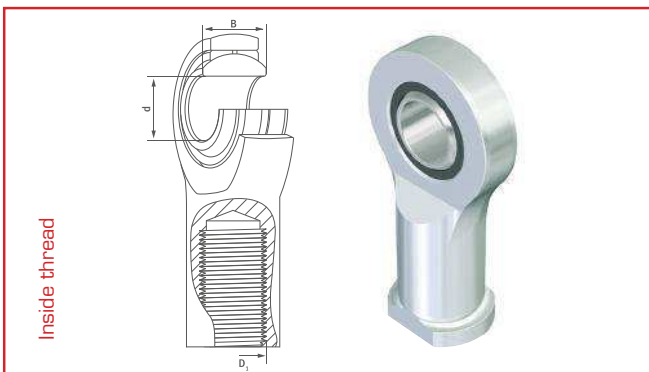
| Art. Nr. | | d | B | D ₁ |
|-----------|-----------|----|----|----------------|
| GAR 6 UK | (SA 6 C) | 6 | 6 | M6 |
| GAR 8 UK | (SA 8 C) | 8 | 8 | M8 |
| GAR 10 UK | (SA 10 C) | 10 | 9 | M10 |
| GAR 12 UK | (SA 12 C) | 12 | 10 | M12 |
| GAR 15 UK | (SA 15 C) | 15 | 12 | M14 |
| GAR 17 UK | (SA 17 C) | 17 | 14 | M16 |
| GAR 20 UK | (SA 20 C) | 20 | 16 | M20 x 1,5 |
| GAR 25 UK | (SA 25 C) | 25 | 20 | M24 x 2 |
| GAR 30 UK | (SA 30 C) | 30 | 22 | M30 x 2 |

Rod ends Maintenance-free



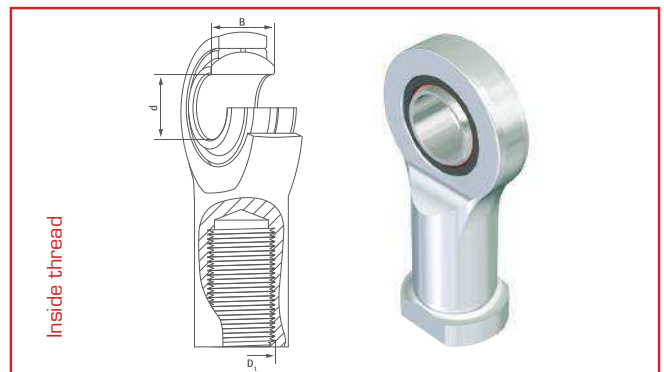
Rod end, hard chrome plated / PTFE with outside thread and sealing

| Art. Nr. | | d | B | D ₁ |
|---------------|-----------------|----|----|----------------|
| GAR 20 UK 2RS | (SA 20 TE 2RS) | 20 | 16 | M20 x 1,5 |
| GAR 25 UK 2RS | (SA 25 TE 2RS) | 25 | 20 | M24 x 2 |
| GAR 30 UK 2RS | (SA 30 TE 2RS) | 30 | 22 | M30 x 2 |
| GAR 35 UK 2RS | (SAA 35 TE 2RS) | 35 | 25 | M36 x 3 |
| GAR 40 UK 2RS | (SAA 40 TE 2RS) | 40 | 28 | M39 x 3 |
| GAR 45 UK 2RS | (SAA 45 TE 2RS) | 45 | 32 | M42 x 3 |
| GAR 50 UK 2RS | (SAA 50 TE 2RS) | 50 | 35 | M45 x 3 |
| GAR 60 UK 2RS | (SAA 60 TE 2RS) | 60 | 44 | M52 x 3 |
| GAR 70 UK 2RS | (SAA 70 TE 2RS) | 70 | 49 | M56 x 4 |
| GAR 80 UK 2RS | (SAA 80 TE 2RS) | 80 | 55 | M64 x 4 |



Rod end, hard chrome plated / PTFE with inside thread

| Art. Nr. | | d | B | D ₁ |
|-----------|-----------|----|----|----------------|
| GIR 6 UK | (SI 6 C) | 6 | 6 | M6 |
| GIR 8 UK | (SI 8 C) | 8 | 8 | M8 |
| GIR 10 UK | (SI 10 C) | 10 | 9 | M10 |
| GIR 12 UK | (SI 12 C) | 12 | 10 | M12 |
| GIR 15 UK | (SI 15 C) | 15 | 12 | M14 |
| GIR 17 UK | (SI 17 C) | 17 | 14 | M16 |
| GIR 20 UK | (SI 20 C) | 20 | 16 | M20 x 1,5 |
| GIR 25 UK | (SI 25 C) | 25 | 20 | M24 x 2 |
| GIR 30 UK | (SI 30 C) | 30 | 22 | M30 x 2 |



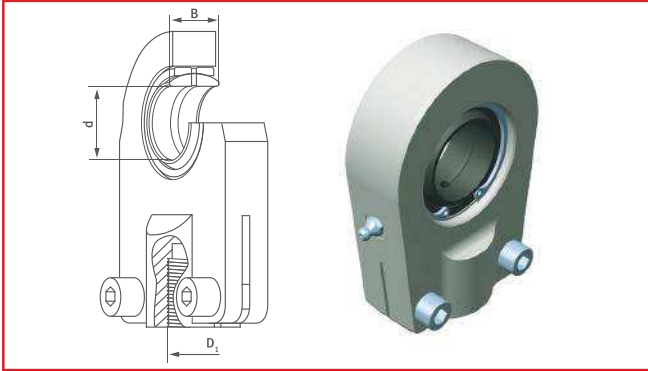
Rod end, hard chrome plated / PTFE with inside thread and sealing

| Art. Nr. | | d | B | D ₁ |
|---------------|-----------------|----|----|----------------|
| GIR 20 UK 2RS | (SA 20 TE 2RS) | 20 | 16 | M20 x 1,5 |
| GIR 25 UK 2RS | (SA 25 TE 2RS) | 25 | 20 | M24 x 2 |
| GIR 30 UK 2RS | (SA 30 TE 2RS) | 30 | 22 | M30 x 2 |
| GIR 35 UK 2RS | (SAA 35 TE 2RS) | 35 | 25 | M36 x 3 |
| GIR 40 UK 2RS | (SAA 40 TE 2RS) | 40 | 28 | M39 x 3 |
| GIR 45 UK 2RS | (SAA 45 TE 2RS) | 45 | 32 | M42 x 3 |
| GIR 50 UK 2RS | (SAA 50 TE 2RS) | 50 | 35 | M45 x 3 |
| GIR 60 UK 2RS | (SAA 60 TE 2RS) | 60 | 44 | M52 x 3 |
| GIR 70 UK 2RS | (SAA 70 TE 2RS) | 70 | 49 | M56 x 4 |
| GIR 80 UK 2RS | (SAA 80 TE 2RS) | 80 | 55 | M64 x 4 |

Permissible working temperature: -60°C - +100°C
(Applications up to +200°C with possible losses of length of life).

Permissible working temperature: -60°C - +100°C
(Applications up to +200°C with possible losses of length of life).

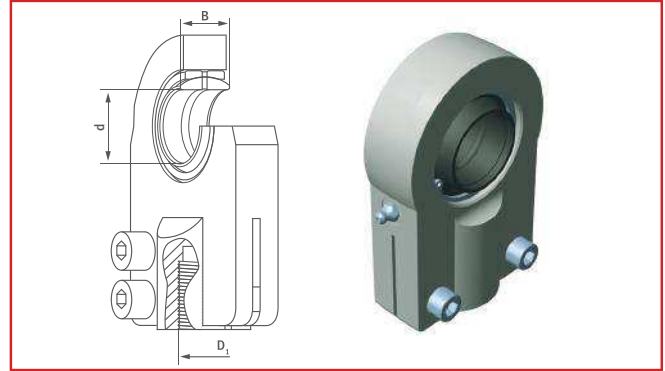
Hydraulic rod ends



Hydraulic rod end, steel / steel with inside thread clampable

| Art. Nr. | | d | B | D ₁ |
|---------------|--------------|-----|----|----------------|
| GIHR-K 20 DO | (SIR 20 ES) | 20 | 16 | M16 x 1,5 |
| GIHR-K 25 DO | (SIR 25 ES) | 25 | 20 | M16 x 1,5 |
| GIHR-K 30 DO | (SIR 30 ES) | 30 | 22 | M22 x 1,5 |
| GIHR-K 35 DO | (SIR 35 ES) | 35 | 25 | M28 x 1,5 |
| GIHR-K 40 DO | (SIR 40 ES) | 40 | 28 | M35 x 1,5 |
| GIHR-K 50 DO | (SIR 50 ES) | 50 | 35 | M45 x 1,5 |
| GIHR-K 60 DO | (SIR 60 ES) | 60 | 44 | M58 x 1,5 |
| GIHR-K 70 DO | (SIR 70 ES) | 70 | 49 | M65 x 1,5 |
| GIHR-K 80 DO | (SIR 80 ES) | 80 | 55 | M80 x 2 |
| GIHR-K 90 DO | (SIR 90 ES) | 90 | 60 | M100 x 2 |
| GIHR-K 100 DO | (SIR 100 ES) | 100 | 70 | M110 x 2 |
| GIHR-K 110 DO | (SIR 110 ES) | 110 | 70 | M120 x 2 |
| GIHR-K 120 DO | (SIR 120 ES) | 120 | 85 | M130 x 2 |

Hydraulic rod ends



Hydraulic rod end, steel / steel with inside thread clampable

| Art. Nr. | | d | B | D ₁ |
|---------------|---------------|-----|-----|----------------|
| GIHN-K 12 LO | (SIGG 12 ES) | 12 | 12 | M12 x 1,25 |
| GIHN-K 16 LO | (SIGG 16 ES) | 16 | 16 | M14 x 1,5 |
| GIHN-K 20 LO | (SIGG 20 ES) | 20 | 20 | M16 x 1,5 |
| GIHN-K 25 LO | (SIGG 25 ES) | 25 | 25 | M20 x 1,5 |
| GIHN-K 32 LO | (SIGG 32 ES) | 32 | 32 | M27 x 2 |
| GIHN-K 40 LO | (SIGG 40 ES) | 40 | 40 | M33 x 2 |
| GIHN-K 50 LO | (SIGG 50 ES) | 50 | 50 | M42 x 2 |
| GIHN-K 63 LO | (SIGG 63 ES) | 63 | 63 | M48 x 2 |
| GIHN-K 70 LO | (SIGG 70 ES) | 70 | 70 | M56 x 2 |
| GIHN-K 80 LO | (SIGG 80 ES) | 80 | 80 | M64 x 2 |
| GIHN-K 90 LO | (SIGG 90 ES) | 90 | 90 | M72 x 3 |
| GIHN-K 100 LO | (SIGG 100 ES) | 100 | 100 | M80 x 3 |
| GIHN-K 110 LO | (SIGG 110 ES) | 110 | 110 | M90 x 3 |
| GIHN-K 125 LO | (SIGG 125 ES) | 125 | 125 | M100 x 3 |
| GIHN-K 160 LO | (SIGG 160 ES) | 160 | 160 | M125x4 |
| GIHN-K 200 LO | (SIGG 200 ES) | 200 | 200 | M160x4 |

Hydraulic rod end, steel / steel with inside thread non-clampable

| Art. Nr. | | d | B | D ₁ |
|-------------|---------------|-----|----|----------------|
| GIHR 20 DO | (SIRD 20 ES) | 20 | 16 | M16 x 1,5 |
| GIHR 25 DO | (SIRD 25 ES) | 25 | 20 | M16 x 1,5 |
| GIHR 30 DO | (SIRD 30 ES) | 30 | 22 | M22 x 1,5 |
| GIHR 35 DO | (SIRD 35 ES) | 35 | 25 | M28 x 1,5 |
| GIHR 40 DO | (SIRD 40 ES) | 40 | 28 | M35 x 1,5 |
| GIHR 50 DO | (SIRD 50 ES) | 50 | 35 | M45 x 1,5 |
| GIHR 60 DO | (SIRD 60 ES) | 60 | 44 | M58 x 1,5 |
| GIHR 70 DO | (SIRD 70 ES) | 70 | 49 | M65 x 1,5 |
| GIHR 80 DO | (SIRD 80 ES) | 80 | 55 | M80 x 2 |
| GIHR 90 DO | (SIRD 90 ES) | 90 | 60 | M100 x 2 |
| GIHR 100 DO | (SIRD 100 ES) | 100 | 70 | M110 x 2 |
| GIHR 110 DO | (SIRD 110 ES) | 110 | 70 | M120 x 3 |
| GIHR 120 DO | (SIRD 120 ES) | 120 | 85 | M130 x 3 |

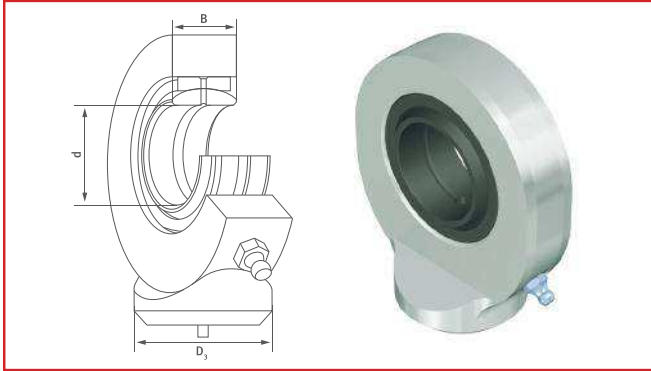
Hydraulic rod end, steel / steel with inside thread clampable

| Art. Nr. | | d | B | D ₁ |
|---------------|--------------|-----|----|----------------|
| GIHO-K 12 DO | (SIJ 12 ES) | 12 | 10 | M10 x 1,25 |
| GIHO-K 16 DO | (SIJ 16 ES) | 16 | 14 | M12 x 1,25 |
| GIHO-K 20 DO | (SIJ 20 ES) | 20 | 16 | M14 x 1,5 |
| GIHO-K 25 DO | (SIJ 25 ES) | 25 | 20 | M16 x 1,5 |
| GIHO-K 30 DO | (SIJ 30 ES) | 30 | 22 | M20 x 1,5 |
| GIHO-K 40 DO | (SIJ 40 ES) | 40 | 28 | M27 x 2 |
| GIHO-K 50 DO | (SIJ 50 ES) | 50 | 35 | M33 x 2 |
| GIHO-K 60 DO | (SIJ 60 ES) | 60 | 44 | M42 x 2 |
| GIHO-K 80 DO | (SIJ 80 ES) | 80 | 55 | M48 x 2 |
| GIHO-K 100 DO | (SIJ 100 ES) | 100 | 70 | M64 x 3 |

Permissible working temperature: -60°C - +150°C
(Applications up to +250°C with possible losses of length of life).
Further restrictions through lubricant should be kept in mind.

Permissible working temperature: -60°C - +150°C
(Applications up to +250°C with possible losses of length of life).
Further restrictions through lubricant should be kept in mind.

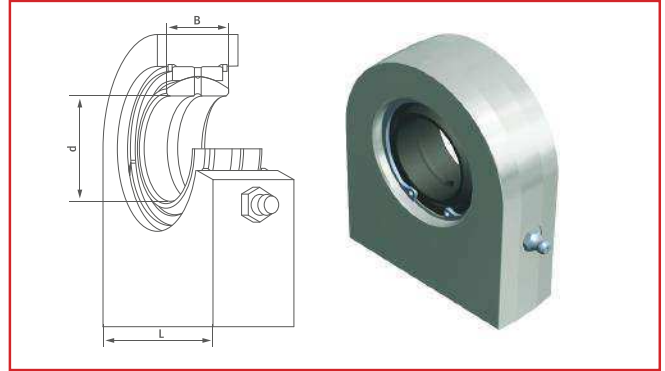
Hydraulic rod ends



Hydraulic rod end, steel / steel with round weld-on bolt

| Art. Nr. | | d | B | D ₃ |
|----------|------------|----|----|----------------|
| GK 10 DO | (SC 10 ES) | 10 | 9 | 15,0 |
| GK 12 DO | (SC 12 ES) | 12 | 10 | 17,5 |
| GK 15 DO | (SC 15 ES) | 15 | 12 | 21,0 |
| GK 17 DO | (SC 17 ES) | 17 | 14 | 24,0 |
| GK 20 DO | (SC 20 ES) | 20 | 16 | 27,5 |
| GK 25 DO | (SC 25 ES) | 25 | 20 | 33,5 |
| GK 30 DO | (SC 30 ES) | 30 | 22 | 40,0 |
| GK 35 DO | (SC 35 ES) | 35 | 25 | 47,0 |
| GK 40 DO | (SC 40 ES) | 40 | 28 | 52,0 |
| GK 45 DO | (SC 45 ES) | 45 | 32 | 58,0 |
| GK 50 DO | (SC 50 ES) | 50 | 35 | 62,0 |
| GK 60 DO | (SC 60 ES) | 60 | 44 | 70,0 |
| GK 70 DO | (SC 70 ES) | 70 | 49 | 80,0 |
| GK 80 DO | (SC 80 ES) | 80 | 55 | 95,0 |

Hydraulic rod ends



Hydraulic rod end, steel / steel with angular weld-on bolt

| Art. Nr. | | d | B | L |
|-----------|--------------|-----|----|-----|
| GF 20 DO | (SCF 20 ES) | 20 | 16 | 50 |
| GF 25 DO | (SCF 25 ES) | 25 | 20 | 55 |
| GF 30 DO | (SCF 30 ES) | 30 | 22 | 65 |
| GF 35 DO | (SCF 35 ES) | 35 | 25 | 83 |
| GF 40 DO | (SCF 40 ES) | 40 | 28 | 100 |
| GF 45 DO | (SCF 45 ES) | 45 | 32 | 110 |
| GF 50 DO | (SCF 50 ES) | 50 | 35 | 123 |
| GF 60 DO | (SCF 60 ES) | 60 | 44 | 140 |
| GF 70 DO | (SCF 70 ES) | 70 | 49 | 164 |
| GF 80 DO | (SCF 80 ES) | 80 | 55 | 180 |
| GF 90 DO | (SCF 90 ES) | 90 | 60 | 226 |
| GF 100 DO | (SCF 100 ES) | 100 | 70 | 250 |
| GF 110 DO | (SCF 110 ES) | 110 | 70 | 295 |
| GF 120 DO | (SCF 120 ES) | 120 | 85 | 360 |

Permissible working temperature: -60°C - +150°C
 (Applications up to +250°C with possible losses of length of life).
 Further restrictions through lubricant should be kept in mind.

Permissible working temperature: -60°C - +150°C
 (Applications up to +250°C with possible losses of length of life).
 Further restrictions through lubricant should be kept in mind.

DAS CERTIFICATION



Quality Management System Certificate of Approval

This is to certify that the QMS of
SBS-SINGA BEARINGS SOLUTIONS PTE LTD
50 Bukit Batok Street 23
#06-08 Midview Building
Singapore 659578

Has been assessed and found to meet the requirements of
ISO 9001:2015

This certificate is valid for the following scope of operations:

Trading of sliding bearings including technical support

Authorised by 

Ye Rouyan
Director

Date of Certificate Issue: 29 August 2016

Certificate Valid Until: 28 August 2019

Certified since 29 August 2016.

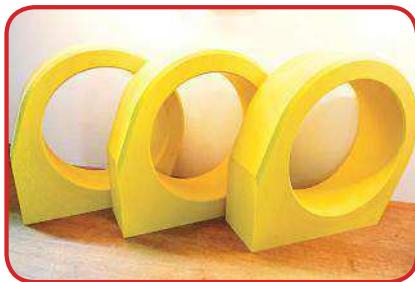
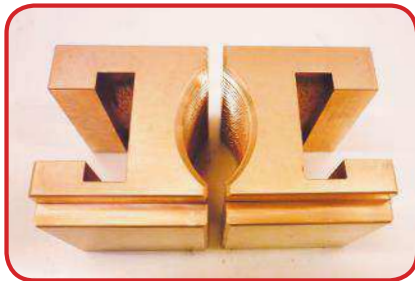
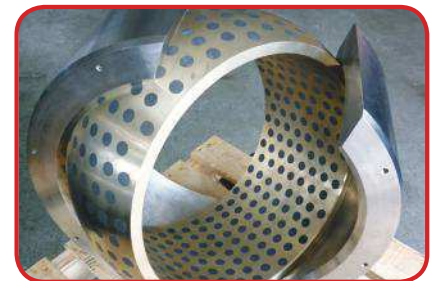
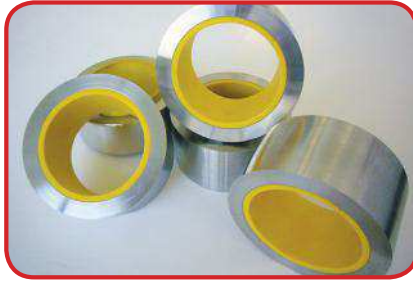
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Company number: 200720506W

Certificate Number: QS8004



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