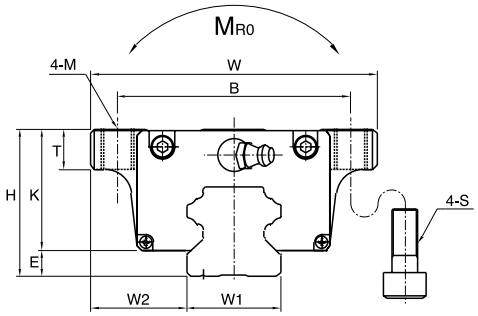
# LINEAR RAIL SYSTEM

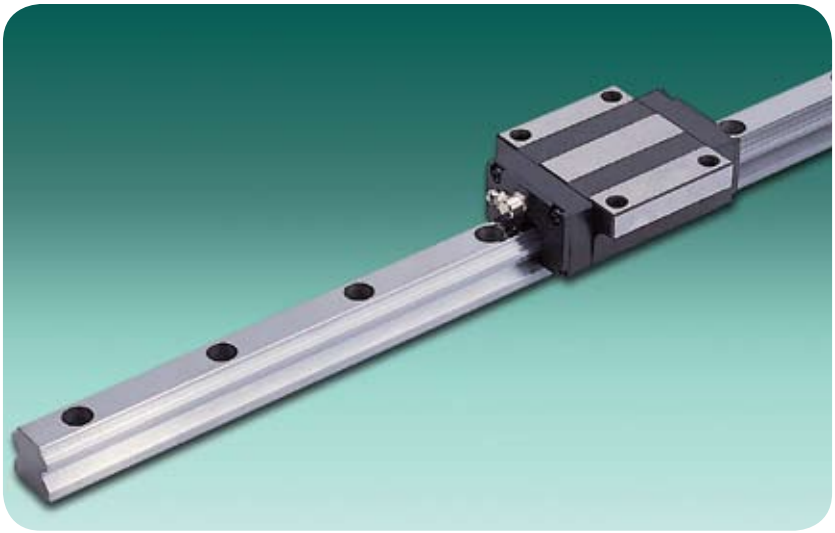
ROLLCO

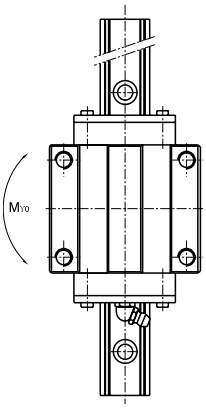
SPECIALIZED
ON LINEAR MOTION

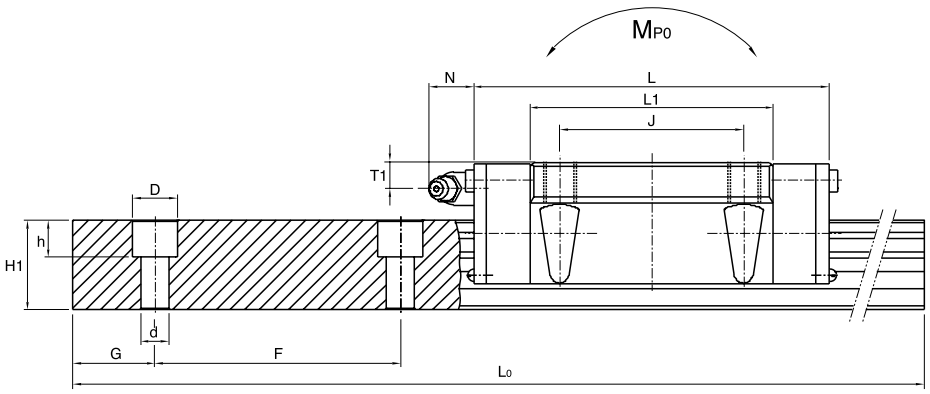
# Index

# FL-Type






Dimension: mm

| Type | Mounting Dimension: Height H | E | W2 | Width W | Length L | Block Dimensions: Mounting tab hole BxJ | M | S | L1 | K | T | Nipple: Mounting hole | T1 | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SBG 15FL | 24 | 2.65 | 16 | 47 | 58.8 | 38x30 | M5 | M4 | 38.8 | 21.35 | 7.2 | Ø3.5 | 4 | 5 |
| SBG 20FL | 30 | 3.5 | 21.5 | 63 | 77.2 | 53x40 | M6 | M5 | 50.8 | 26.5 | 9 | M6x0.75 | 7 | 9.8 |
| SBG 25FL | 36 | 5 | 23.5 | 70 | 86.9 | 57x45 | M8 | M6 | 59.5 | 31 | 10 | M6x0.75 | 6.5 | 9.8 |
| SBG 30FL | 42 | 6.5 | 31 | 90 | 98 | 72x52 | M10 | M8 | 70.4 | 35.5 | 12 | M6x0.75 | 8.5 | 10.7 |
| SBG 35FL | 48 | 7.5 | 33 | 100 | 109.5 | 82x62 | M10 | M8 | 80.4 | 40.5 | 13 | M6x0.75 | 9.5 | 10.7 |
| SBG 45FL | 60 | 7.3 | 37.5 | 120 | 136 | 100x80 | M12 | M10 | 98 | 52.7 | 15 | PT 1/8 | 10.5 | 11 |
| SBG 55FL | 70 | 9.8 | 43.5 | 140 | 160 | 116x95 | M14 | M12 | 118 | 60.2 | 17 | PT 1/8 | 12 | 11 |
| SBG 65FL | 90 | 17.5 | 53.5 | 170 | 189 | 142x110 | M16 | M14 | 147 | 72.5 | 23 | PT 1/8 | 15 | 11 |

# Order code SBG-FL-Type

**Rail example:** **SBG 25 - 820 - 20 - 20**

Type

Size

Length of rail

Distance from end of rail to center of first hole

Distance from center of last hole to rail end

**Block example:** **SBG 25FL - N - MF - ZZ - K1**

Type

Type of block

Option: Side nipple. No letter = standard

Option: Lubrication set (available sizes: 20, 25, 30, 35). No letter = standard

Option: Steel scraper. No letter = standard

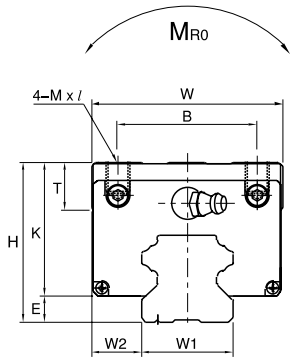
Standard preload

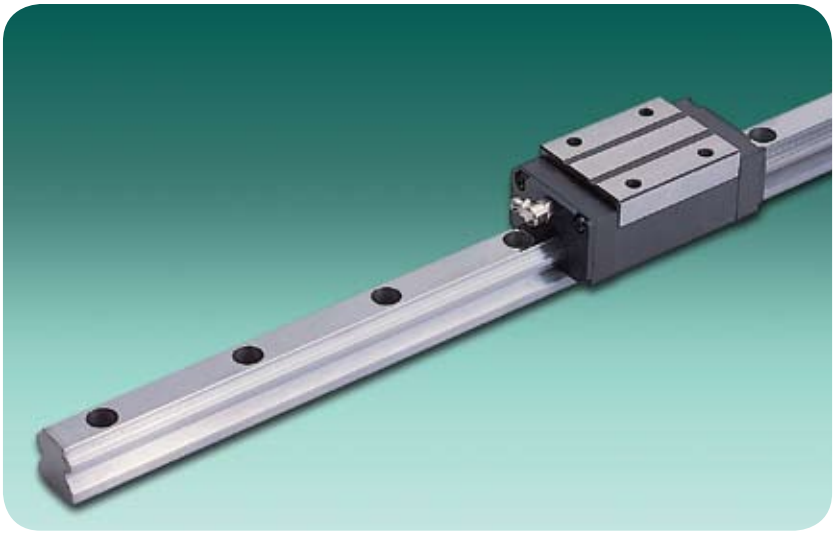
## EXAMPLE OF DESIGNATION FOR STANDARD BLOCK WITHOUT ANY OPTIONS: SBG 25FL - K1

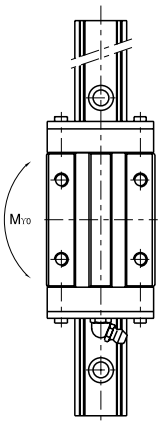
Dimension: mm

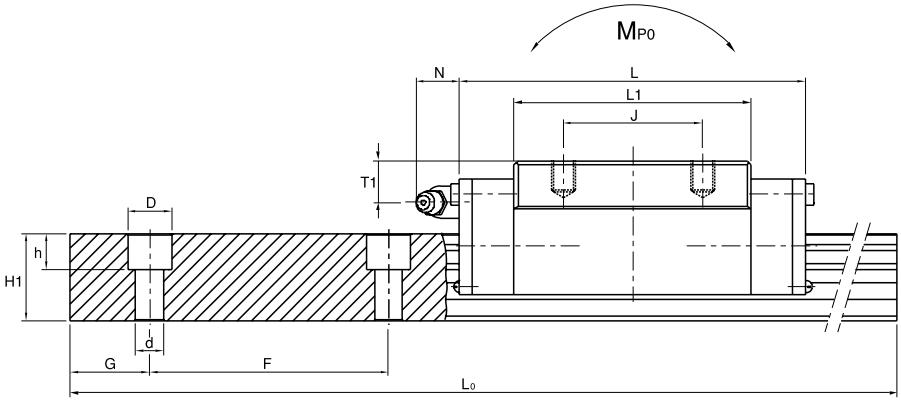
| Rail size | | | | | Load capacity | | | | | Weight | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Width W1 | Height H1 | Pitch F | Bolt Hole dxDxh | Max.length of rail $L_{omax}$ | Dynamic C(N) | Static $C_o$(N) | Static moment (Nm) $M_{RO}$ | $M_{PO}$ | $M_{YO}$ | Bearing (kgf) | Rail (kgf/m) | Type |
| 15 | 15 | 60 | 4.5x7.5x5.3 | 3.000 | 8500 | 13700 | 70 | 50 | 50 | 0.18 | 1.45 | SBG 15FL |
| 20 | 17.5 | 60 | 6x9.5x8.5 | 4.000 | 14500 | 25600 | 220 | 180 | 180 | 0.42 | 2.20 | SBG 20FL |
| 23 | 21.8 | 60 | 7x11x9 | 4.000 | 21400 | 40000 | 360 | 320 | 310 | 0.58 | 3.10 | SBG 25FL |
| 28 | 25 | 80 | 9x14x12 | 4.000 | 29800 | 54900 | 600 | 500 | 490 | 1.10 | 4.45 | SBG 30FL |
| 34 | 29 | 80 | 9x14x12 | 4.000 | 39600 | 70100 | 960 | 750 | 730 | 1.57 | 6.40 | SBG 35FL |
| 45 | 38 | 105 | 14x20x17 | 4.000 | 62900 | 112920 | 2020 | 1590 | 1570 | 2,96 | 11.25 | SBG 45FL |
| 53 | 45 | 120 | 16x23x20 | 4.000 | 93070 | 160120 | 3440 | 2740 | 2700 | 4.49 | 15.25 | SBG 55FL |
| 63 | 58.5 | 150 | 18x26x22 | 3.000 | 151000 | 245000 | 6290 | 4950 | 4840 | 6.70 | 23.90 | SBG 65FL |

# SL-Type






Dimension: mm

| Type | Mounting Dimension Height H | E | W2 | Width W | Length L | Block Dimensions Mounting tab hole BxJ | Mxl | L1 | K | T | Nipple Mounting hole | T1 | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SBG 15SL | 28 | 2.65 | 9.5 | 34 | 58.8 | 26x26 | M4x5 | 38.8 | 25.35 | 8 | ø3.5 | 8 | 5 |
| SBG 20SL | 30 | 3.5 | 12 | 44 | 77.2 | 32x36 | M5x8 | 50.8 | 26.5 | 8 | M6x0.75 | 7 | 9.8 |
| SBG 25SL | 40 | 5 | 12.5 | 48 | 86.9 | 35x35 | M6x8 | 59.5 | 35 | 12 | M6x0.75 | 10.5 | 9.8 |
| SBG 30SL | 45 | 6.5 | 16 | 60 | 98 | 40x40 | M8x10 | 70.4 | 38.5 | 12 | M6x0.75 | 11.5 | 10.7 |
| SBG 35SL | 55 | 7.5 | 18 | 70 | 109.5 | 50x50 | M8x12 | 80.4 | 47.5 | 15 | M6x0.75 | 16.5 | 10.7 |
| SBG 45SL | 70 | 7.3 | 20.5 | 86 | 136 | 60x60 | M10x17 | 98 | 62.7 | 15 | PT 1/8 | 20.5 | 11 |
| SBG 55SL | 80 | 9.8 | 23.5 | 100 | 160 | 75x75 | M12x18 | 118 | 70.2 | 18 | PT 1/8 | 22 | 11 |
| SBG 65SL | 90 | 17.5 | 31.5 | 126 | 189 | 76x70 | M16x20 | 147 | 72.5 | 23 | PT 1/8 | 15 | 11 |

# Order code SBG-SL-Type

**Rail example:** **SBG 25 - 820 - 20 - 20**

Type

Size

Length of rail

Distance from end of rail to center of first hole

Distance from center of last hole to rail end

**Block example:** **SBG 25SL - N - MF - ZZ - K1**

Type

Type of block

Option: Side nipple. No letter = standard

Option: Lubrication set (available sizes: 20, 25, 30, 35). No letter = standard

Option: Steel scraper. No letter = standard

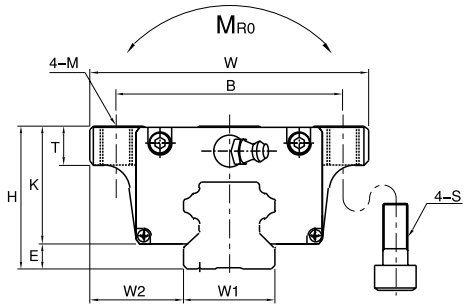
Standard preload

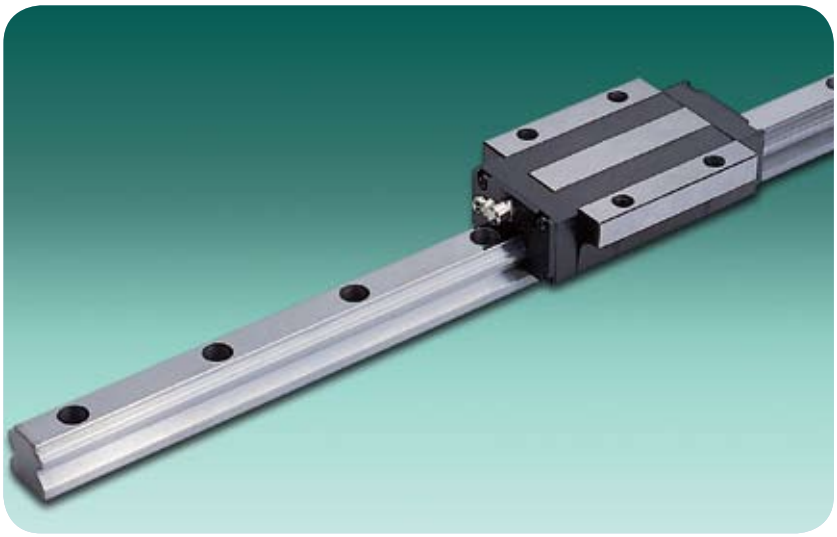
## EXAMPLE OF DESIGNATION FOR STANDARD BLOCK WITHOUT ANY OPTIONS: SBG 25SL - K1

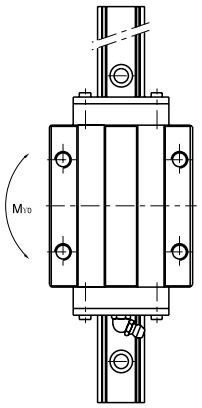
Dimension: mm

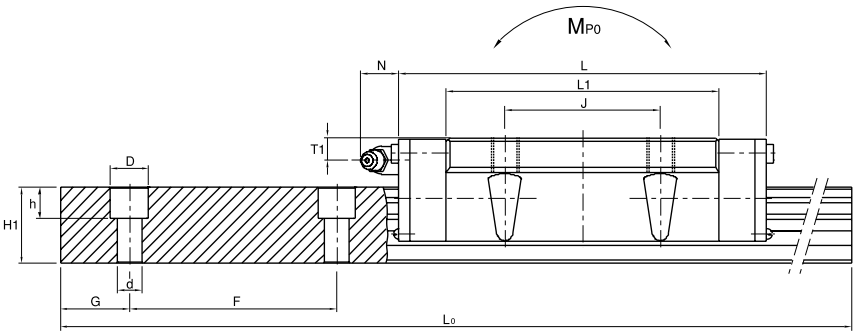
| Rail size | | | | | Load capacity | | | | | Weight | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Width W1 | Height H1 | Pitch F | Bolt Hole dxDxh | Max.length of rail $L_{omax}$ | Dynamic C(N) | Static $C_o$(N) | Static moment (Nm) $M_{RO}$ | $M_{PO}$ | $M_{YO}$ | Bearing (kgf) | Rail (kgf/m) | Type |
| 15 | 15 | 60 | 4.5x7.5x5.3 | 3.000 | 8500 | 13700 | 70 | 50 | 50 | 0.2 | 1.45 | SBG 15SL |
| 20 | 17.5 | 60 | 6x9.5x8.5 | 4.000 | 14500 | 25600 | 220 | 180 | 180 | 0.33 | 2.20 | SBG 20SL |
| 23 | 21.8 | 60 | 7x11x9 | 4.000 | 21400 | 40000 | 360 | 320 | 310 | 0.56 | 3.10 | SBG 25SL |
| 28 | 25 | 80 | 9x14x12 | 4.000 | 29800 | 54900 | 600 | 500 | 490 | 0.98 | 4.45 | SBG 30SL |
| 34 | 29 | 80 | 9x14x12 | 4.000 | 39600 | 70100 | 960 | 750 | 730 | 1.63 | 6.40 | SBG 35SL |
| 45 | 38 | 105 | 14x20x17 | 4.000 | 62900 | 112920 | 2020 | 1590 | 1570 | 2,96 | 11.25 | SBG 45SL |
| 53 | 45 | 120 | 16x23x20 | 4.000 | 93070 | 160120 | 3440 | 2740 | 2700 | 4.52 | 15.25 | SBG 55SL |
| 63 | 58.5 | 150 | 18x26x22 | 3.000 | 151000 | 245000 | 6290 | 4950 | 4840 | 6.55 | 23.90 | SBG 65SL |

# FLL-Type






Dimension: mm

| Type | Mounting Dimension Height H | E | W2 | Width W | Length L | Block Dimensions Mounting tab hole BxJ | M | S | L1 | K | T | Nipple Mounting hole | T1 | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SBG 20FLL | 30 | 3.5 | 21.5 | 63 | 93.2 | 53x40 | M6 | M5 | 66.8 | 26.5 | 9 | M6x0.75 | 7 | 9.8 |
| SBG 25FLL | 36 | 5 | 23.5 | 70 | 106.4 | 57x45 | M8 | M6 | 79 | 31 | 10 | M6x0.75 | 6.5 | 9.8 |
| SBG 30FLL | 42 | 6.5 | 31 | 90 | 120,5 | 72x52 | M10 | M8 | 92.9 | 35.5 | 12 | M6x0.75 | 8.5 | 10.7 |
| SBG 35FLL | 48 | 7.5 | 33 | 100 | 135 | 82x62 | M10 | M8 | 105.9 | 40.5 | 13 | M6x0.75 | 9.5 | 10.7 |
| SBG 45FLL | 60 | 7.3 | 37.5 | 120 | 168 | 100x80 | M12 | M10 | 130 | 52.7 | 15 | PT 1/8 | 10.5 | 11 |
| SBG 55FLL | 70 | 9.8 | 43.5 | 140 | 198 | 116x95 | M14 | M12 | 156 | 60.2 | 17 | PT 1/8 | 12 | 11 |
| SBG 65FLL | 90 | 17.5 | 53.5 | 170 | 249 | 142x110 | M16 | M14 | 207 | 72.5 | 23 | PT 1/8 | 15 | 11 |

# Order code SBG-FLL-Type

**Rail example:** **SBG 25 - 820 - 20 - 20**

Type

Size

Length of rail

Distance from end of rail to center of first hole

Distance from center of last hole to rail end

**Block example:** **SBG 25FLL - N - MF - ZZ - K1**

Type

Type of block

Option: Side nipple. No letter = standard

Option: Lubrication set (available sizes: 20, 25, 30, 35). No letter = standard

Option: Steel scraper. No letter = standard

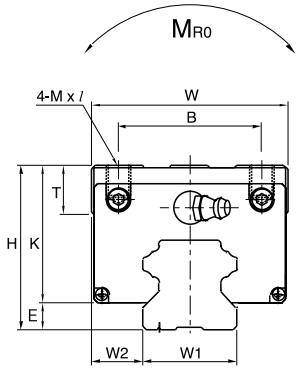
Standard preload

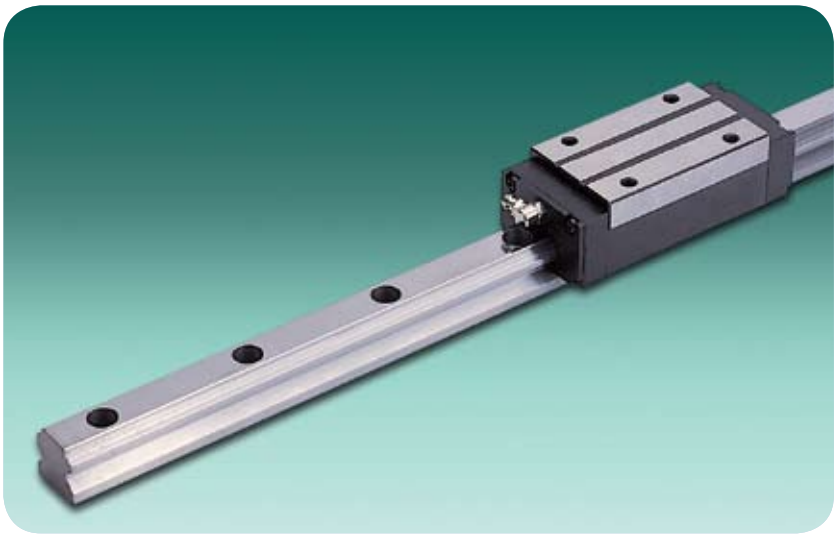
## EXAMPLE OF DESIGNATION FOR STANDARD BLOCK WITHOUT ANY OPTIONS: SBG 25FLL - K1

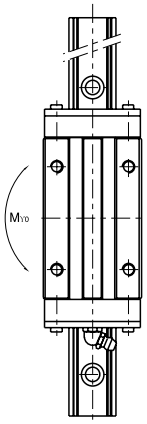
Dimension: mm

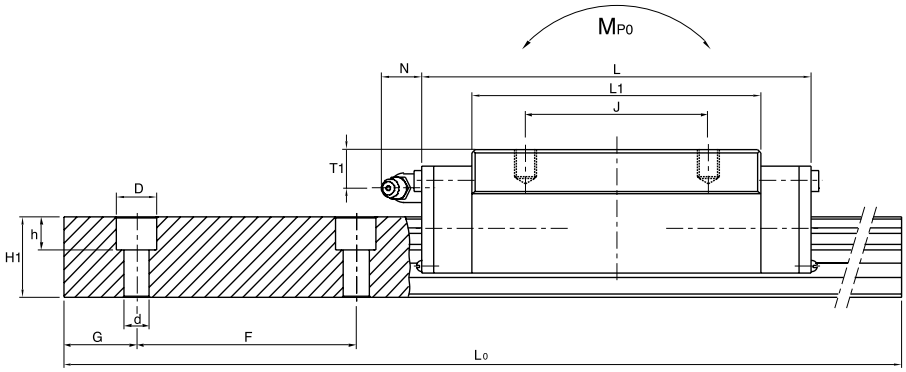
| Rail size | | | | | Load capacity | | | | | Weight | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Width W1 | Height H1 | Pitch F | Bolt Hole dxDxh | Max.length of rail $L_{omax}$ | Dynamic C(N) | Static $C_o$(N) | Static moment (Nm) $M_{RO}$ | $M_{PO}$ | $M_{YO}$ | Bearing (kgf) | Rail (kgf/m) | Type |
| 20 | 17.5 | 60 | 6x9.5x8.5 | 4.000 | 17250 | 37300 | 290 | 320 | 320 | 0.54 | 2.20 | SBG 20FLL |
| 23 | 21.8 | 60 | 7x11x9 | 4.000 | 25170 | 49050 | 440 | 500 | 490 | 0.78 | 3.10 | SBG 25FLL |
| 28 | 25 | 80 | 9x14x12 | 4.000 | 36020 | 69290 | 750 | 810 | 800 | 1.44 | 4.45 | SBG 30FLL |
| 34 | 29 | 80 | 9x14x12 | 4.000 | 47010 | 92250 | 1260 | 1330 | 1310 | 2.14 | 6.40 | SBG 35FLL |
| 45 | 38 | 105 | 14x20x17 | 4.000 | 77140 | 141380 | 2500 | 2380 | 2350 | 3,75 | 11.25 | SBG 45FLL |
| 53 | 45 | 120 | 16x23x20 | 4.000 | 114130 | 200680 | 4270 | 4130 | 4050 | 5.68 | 15.25 | SBG 55FLL |
| 63 | 58.5 | 150 | 18x26x22 | 3.000 | 193000 | 327000 | 8340 | 8500 | 8300 | 9.5 | 23.90 | SBG 65FLL |

# SLL-Type






Dimension: mm

| Type | Mounting Dimension Height H | E | W2 | Width W | Length L | Block Dimensions Mounting tab hole BxJ | M | L1 | K | T | Nipple Mounting hole | T1 | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SBG 20SLL | 30 | 3.5 | 12 | 44 | 93.2 | 32x50 | M5x8 | 66.8 | 26.5 | 8 | M6x0.75 | 7 | 9.8 |
| SBG 25SLL | 40 | 5 | 12,5 | 48 | 106.4 | 35x50 | M6x8 | 79 | 35 | 12 | M6x0.75 | 10.5 | 9.8 |
| SBG 30SLL | 45 | 6.5 | 16 | 60 | 120,5 | 40x60 | M8x10 | 92.9 | 38.5 | 12 | M6x0.75 | 11.5 | 10.7 |
| SBG 35SLL | 55 | 7.5 | 18 | 70 | 135 | 50x72 | M8x12 | 105.9 | 47.5 | 15 | M6x0.75 | 16.5 | 10.7 |
| SBG 45SLL | 70 | 7.3 | 20,5 | 86 | 168 | 60x80 | M10x17 | 130 | 62.7 | 15 | PT 1/8 | 20.5 | 11 |
| SBG 55SLL | 80 | 9.8 | 23,5 | 100 | 198 | 75x95 | M12x18 | 156 | 70.2 | 18 | PT 1/8 | 22 | 11 |
| SBG 65SLL | 90 | 17.5 | 31,5 | 126 | 249 | 76x120 | M16x20 | 207 | 72.5 | 23 | PT 1/8 | 15 | 11 |

# Order code SBG-SLL-Type

**Rail example:** **SBG 25 - 820 - 20 - 20**

Type

Size

Length of rail

Distance from end of rail to center of first hole

Distance from center of last hole to rail end

**Block example:** **SBG 25SLL - N - MF - ZZ - K1**

Type

Type of block

Option: Side nipple. No letter = standard

Option: Lubrication set (available sizes: 20, 25, 30, 35). No letter = standard

Option: Steel scraper. No letter = standard

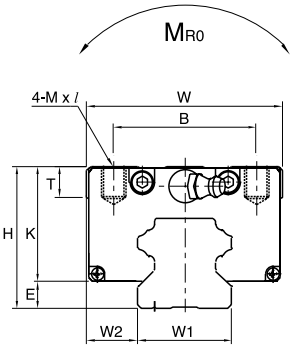
Standard preload

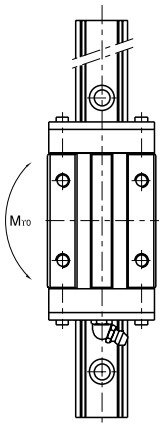
## EXAMPLE OF DESIGNATION FOR STANDARD BLOCK WITHOUT ANY OPTIONS: SBG 25SLL - K1

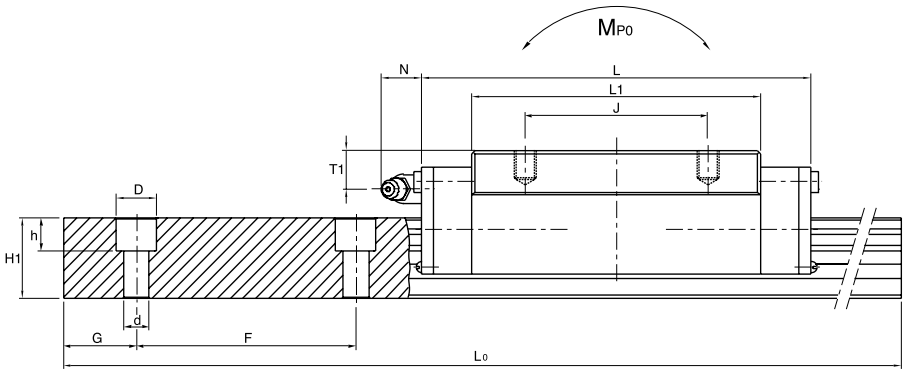
Dimension: mm

| Rail size | | | | | Load capacity | | | | | Weight | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Width W1 | Height H1 | Pitch F | Bolt Hole dxDxh | Max.length of rail Lomax | Dynamic C(N) | Static Co(N) | Static moment (Nm) MRO | MPO | MYO | Bearing (kgf) | Rail (kgf/m) | Type |
| 20 | 17.5 | 60 | 6x9.5x8.5 | 4.000 | 17250 | 37300 | 290 | 320 | 320 | 0.45 | 2.20 | SBG 20SLL |
| 23 | 21.8 | 60 | 7x11x9 | 4.000 | 25170 | 49050 | 440 | 500 | 490 | 0.73 | 3.10 | SBG 25SLL |
| 28 | 25 | 80 | 9x14x12 | 4.000 | 36020 | 69290 | 750 | 810 | 800 | 1.28 | 4.45 | SBG 30SLL |
| 34 | 29 | 80 | 9x14x12 | 4.000 | 47010 | 92250 | 1260 | 1330 | 1310 | 2.12 | 6.40 | SBG 35SLL |
| 45 | 38 | 105 | 14x20x17 | 4.000 | 77140 | 141380 | 2500 | 2380 | 2350 | 3,75 | 11.25 | SBG 45SLL |
| 53 | 45 | 120 | 16x23x20 | 4.000 | 114130 | 200680 | 4270 | 4130 | 4050 | 5.68 | 15.25 | SBG 55SLL |
| 63 | 58.5 | 150 | 18x26x22 | 3.000 | 193000 | 327000 | 8340 | 8500 | 8300 | 9.40 | 23.90 | SBG 65SLL |

# SL-Type




Dimension: mm

| Type | Mounting Dimension Height H | E | $W_2$ | Width W | Length L | Block Dimensions Mounting tab hole BxJ | M | $L_1$ | K | T | Nipple Mounting hole | $T_1$ | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SBS 15SL | 24 | 2.65 | 9.5 | 34 | 58.8 | 26x26 | M4x5 | 38.8 | 21.35 | 6 | ø3.5 | 4 | 5 |
| SBS 20SL | 28 | 3.5 | 12 | 44 | 77.2 | 32x32 | M5x7 | 50.8 | 24.5 | 7.5 | M6x0.75 | 5 | 9.8 |
| SBS 25SL | 33 | 5 | 12.5 | 48 | 86.9 | 35x35 | M6x8 | 59.5 | 28 | 8 | M6x0.75 | 5.2 | 9.8 |
| SBS 25HL | 36 | 5 | 12.5 | 48 | 86.9 | 35x35 | M6x8 | 59.5 | 31 | 11 | M6x0.75 | 8.2 | 9.8 |
| SBS 30SL | 42 | 6.5 | 16 | 60 | 98 | 40x40 | M8x10 | 70.4 | 35.5 | 12 | M6x0.75 | 8.5 | 10.7 |
| SBS 35SL | 48 | 7.5 | 18 | 70 | 109.5 | 50x50 | M8x12 | 80.4 | 40.5 | 15 | M6x0.75 | 9.5 | 10.7 |
| SBS 45SL | 60 | 7.3 | 20.5 | 86 | 136 | 60x60 | M10x10 | 98 | 52 | 15 | PT1/8 | 20.5 | 11 |

# Order Code SBS-SL-Type

**Rail example:** **SBS 25 - 820 - 20 - 20**

Type

Size

Length of rail

Distance from end of rail to center of first hole

Distance from center of last hole to rail end

**Block example:** **SBS 25SL - N - MF - ZZ - K1**

Type

Type of block

Option: Side nipple. No letter = standard

Option: Lubrication set (available sizes: 20, 25, 30, 35). No letter = standard

Option: Steel scraper. No letter = standard

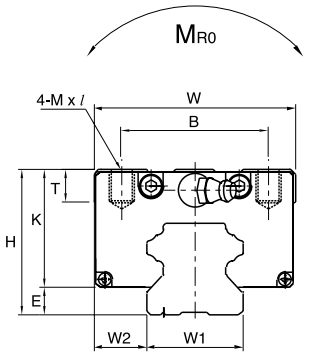
Standard preload

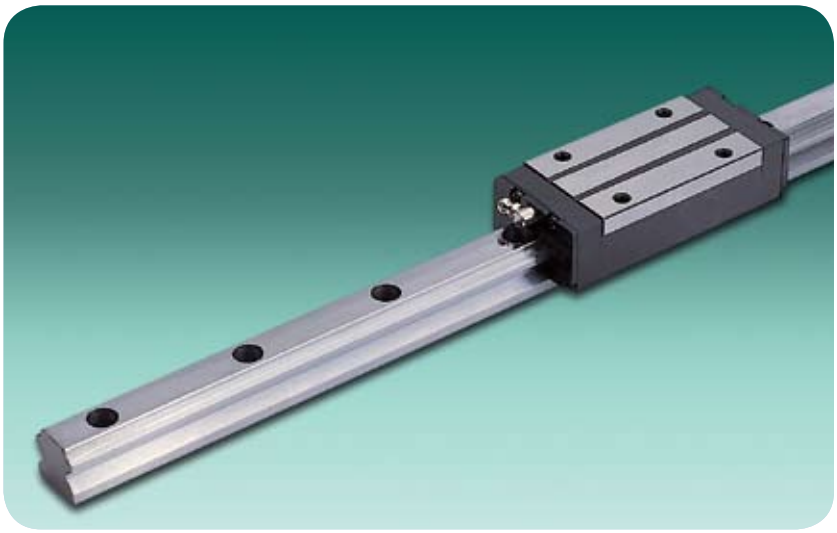
## EXAMPLE OF DESIGNATION FOR STANDARD BLOCK WITHOUT ANY OPTIONS: SBS 25SL - K1

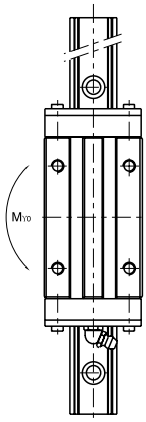
Dimension: mm

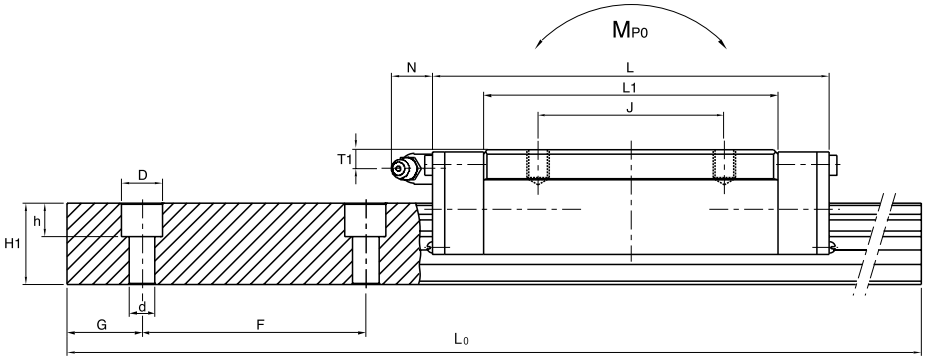
| Rail size | | | | | Load capacity | | | | | Weight | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Width W1 | Height H1 | Pitch F | Bolt Hole dxDxh | Max.length of rail $L_{omax}$ | Dynamic C(N) | Static $C_o$(N) | Static moment (Nm) $M_{RO}$ | $M_{PO}$ | $M_{YO}$ | Bearing (kgf) | Rail (kgf/m) | Type |
| 15 | 15 | 60 | 4.5x7.5x5.3 | 3.000 | 8500 | 13700 | 70 | 50 | 50 | 0.2 | 1.45 | SBS 15SL |
| 20 | 17.5 | 60 | 6x9.5x8.5 | 4.000 | 14500 | 25600 | 220 | 180 | 180 | 0.33 | 2.20 | SBS 20SL |
| 23 | 21.8 | 60 | 7x11x9 | 4.000 | 21400 | 40000 | 360 | 320 | 310 | 0.56 | 3.10 | SBS 25SL |
| 23 | 21.8 | 60 | 7x11x9 | 4.000 | 21400 | 40000 | 360 | 320 | 310 | 0.56 | 3.10 | SBS 25HL |
| 28 | 25 | 80 | 9x14x12 | 4.000 | 29800 | 54900 | 600 | 500 | 490 | 0.98 | 4.45 | SBS 30SL |
| 34 | 29 | 80 | 9x14x12 | 4.000 | 39600 | 70100 | 960 | 750 | 730 | 1.63 | 6.40 | SBS 35SL |
| 45 | 38 | 105 | 14x20x17 | 4.000 | 61642 | 110662 | 2020 | 1590 | 1570 | 2.96 | 11.25 | SBS 45SL |

# SLL-Type






Dimension: mm

| Type | Mounting Dimension Height H | E | W2 | Width W | Length L | Block Dimensions Mounting tab hole BxJ | M | L1 | K | T | Nipple Mounting hole | T1 | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SBS 20SLL | 28 | 3.5 | 12 | 44 | 93.2 | 32x50 | M5x7 | 66.8 | 24.5 | 7.5 | M6x0.75 | 5 | 9.8 |
| SBS 25SLL | 33 | 5 | 12.5 | 48 | 106.4 | 35x50 | M6x8 | 79 | 28 | 8 | M6x0.75 | 5.2 | 9.8 |
| SBS 25HLL | 36 | 5 | 12.5 | 48 | 106.4 | 35x50 | M6x8 | 79 | 31 | 11 | M6x0.75 | 8.2 | 9.8 |
| SBS 30SLL | 42 | 6.5 | 16 | 60 | 120.5 | 40x60 | M8x10 | 92.9 | 35.5 | 12 | M6x0.75 | 8.5 | 10.7 |
| SBS 35SLL | 48 | 7.5 | 18 | 70 | 135 | 50x72 | M8x12 | 105.9 | 40.5 | 15 | M6x0.75 | 9.5 | 10.7 |
| SBS 45SLL | 60 | 10 | 20,5 | 86 | 172,4 | 60x80 | M10x10 | 130 | 49,3 | 15 | PT 1/8 | 20,5 | 11 |

# Order Code SBS-SLL-Type

**Rail example:** **SBG 25 - 820 - 20 - 20**

Type

Size

Length of rail

Distance from end of rail to center of first hole

Distance from center of last hole to rail end

**Block example:** **SBS 25SLL - N - MF - ZZ - K1**

Type

Type of block

Option: Side nipple. No letter = standard

Option: Lubrication set (available sizes: 20, 25, 30, 35). No letter = standard

Option: Steel scraper. No letter = standard

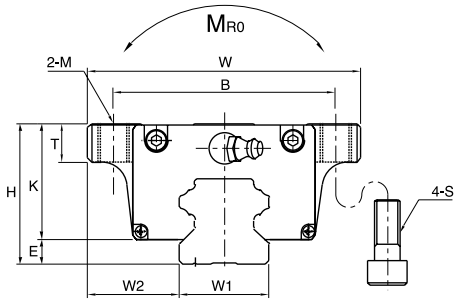
Standard preload

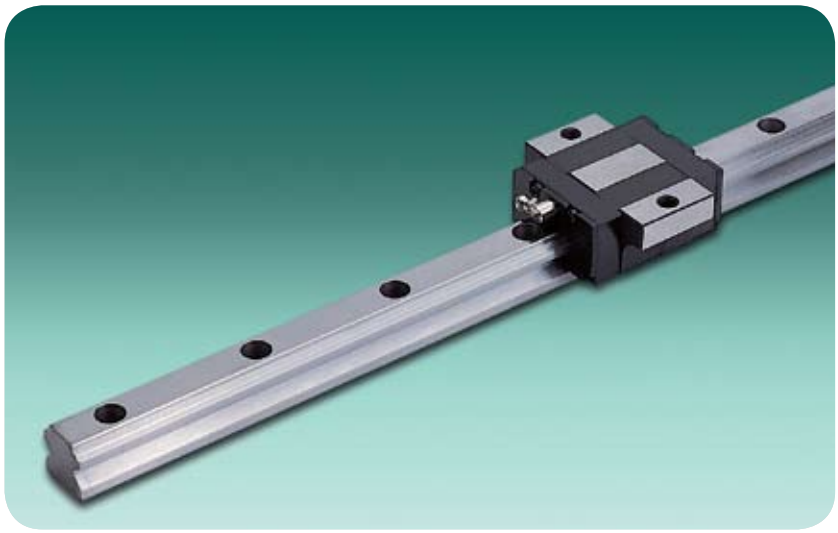
## EXAMPLE OF DESIGNATION FOR STANDARD BLOCK WITHOUT ANY OPTIONS: SBS 25SLL - K1

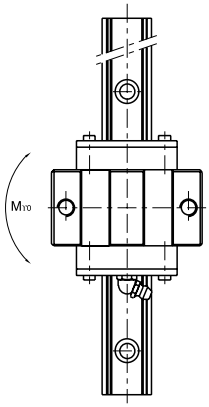
Dimension: mm

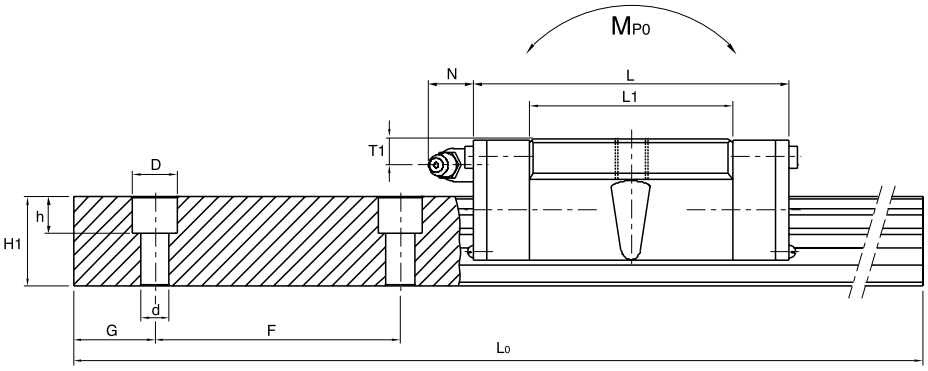
| Rail size | | | | | Load capacity | | | | | Weight | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Width W1 | Height H1 | Pitch F | Bolt Hole dxDxh | Max.length of rail $L_{omax}$ | Dynamic C(N) | Static $C_o$(N) | Static moment (Nm) $M_{RO}$ | $M_{PO}$ | $M_{YO}$ | Bearing (kgf) | Rail (kgf/m) | Type |
| 20 | 17.5 | 60 | 6x9.5x8.5 | 4.000 | 17250 | 37300 | 290 | 320 | 320 | 0.45 | 2.20 | SBS 20SLL |
| 23 | 21.8 | 60 | 7x11x9 | 4.000 | 25170 | 49050 | 440 | 500 | 490 | 0.73 | 3.10 | SBS 25SLL |
| 23 | 21.8 | 60 | 7x11x9 | 4.000 | 25170 | 49050 | 440 | 500 | 490 | 0.73 | 3.10 | SBS 25HLL |
| 28 | 25 | 80 | 9x14x12 | 4.000 | 36020 | 69290 | 750 | 810 | 800 | 1.28 | 4.45 | SBS 30SLL |
| 34 | 29 | 80 | 9x14x12 | 4.000 | 47010 | 92250 | 1260 | 1330 | 1310 | 2.12 | 6.40 | SBS 35SLL |
| 45 | 38 | 105 | 14x20x17 | 4.000 | 75590 | 138550 | 2500 | 2380 | 2350 | 3,75 | 11,25 | SBS 45SLL |

# FV-Type






Dimension: mm

| Type | Mounting Dimension Height H | E | W2 | Width W | Length L | Block Dimensions Mounting tab hole B | M | S | L1 | K | T | Nipple Mounting hole | T1 | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SBS 15FV | 24 | 2.65 | 16 | 47 | 42.9 | 38 | M5 | M4 | 22.9 | 21.35 | 7.2 | ø3.5 | 4 | 5 |
| SBS 20FV | 28 | 3.5 | 21.5 | 63 | 54.2 | 53 | M6 | M5 | 27.8 | 24.5 | 7 | M6x0.75 | 5 | 9.8 |
| SBS 25FV | 33 | 5 | 23.5 | 70 | 62.6 | 57 | M8 | M6 | 35.2 | 28 | 7 | M6x0.75 | 5.2 | 9.8 |

# Order Code SBS-FV-Type

**Rail example:** **SBG 25 - 820 - 20 - 20**

Type

Size

Length of rail

Distance from end of rail to center of first hole

Distance from center of last hole to rail end

**Block example:** **SBS 25FV - N - MF - ZZ - K1**

Type

Type of block

Option: Side nipple. No letter = standard

Option: Lubrication set (available sizes: 20, 25, 30, 35). No letter = standard

Option: Steel scraper. No letter = standard

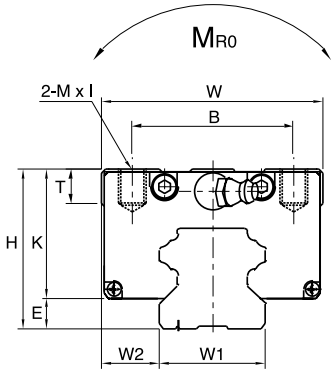
Standard preload

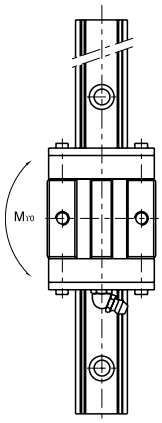
## EXAMPLE OF DESIGNATION FOR STANDARD BLOCK WITHOUT ANY OPTIONS: SBS 25FV - K1

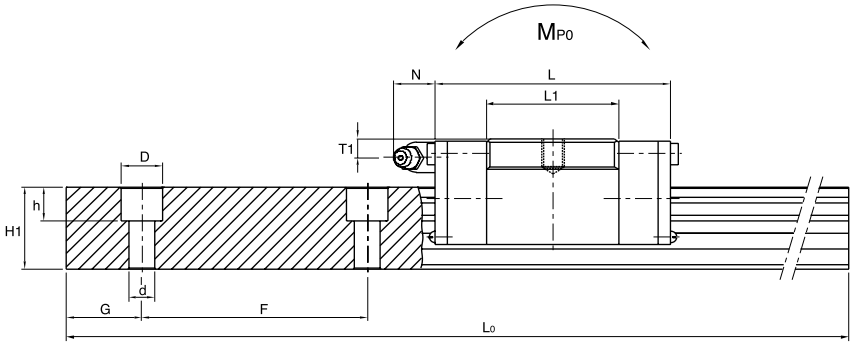
Dimension: mm

| Rail size | | | | | Load capacity | | | | | Weight | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Width W1 | Height H1 | Pitch F | Bolt Hole dxDxh | Max.length of rail $L_{omax}$ | Dynamic C(N) | Static $C_o$(N) | Static moment (Nm) $M_{RO}$ | $M_{PO}$ | $M_{YO}$ | Bearing (kgf) | Rail (kgf/m) | Type |
| 15 | 15 | 60 | 4.5x7.5x5.3 | 3.000 | 4580 | 7380 | 40 | 30 | 30 | 0.10 | 1.45 | SBS 15FV |
| 20 | 17.5 | 60 | 6x9.5x8.5 | 4.000 | 7810 | 13780 | 120 | 100 | 100 | 0.24 | 2.20 | SBS 20FV |
| 23 | 21.8 | 60 | 7x11x19 | 4.000 | 11520 | 21540 | 190 | 170 | 170 | 0.37 | 3.10 | SBS 25FV |

# SV-Type




Dimension: mm

| Mounting Dimension | | | | | | Block Dimensions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mounting tab hole | | | | | Nipple | | |
| Type | Height H | E | $W_2$ | Width W | Length L | BxJ | M | $L_1$ | K | T | Mounting hole | $T_1$ | N |
| SBS 15SV | 24 | 2.65 | 9.5 | 34 | 42.9 | 26 | M4x5 | 22.9 | 21.35 | 6 | ø3.5 | 4 | 5 |
| SBS 20SV | 28 | 3.5 | 12 | 44 | 54.2 | 32 | M5x7 | 27.8 | 24.5 | 7.5 | M6x0.75 | 5 | 9.8 |
| SBS 25SV | 33 | 5 | 12.5 | 48 | 62.6 | 35 | M6x8 | 35.2 | 28 | 8 | M6x0.75 | 5.2 | 9.8 |

# Order Code SBS-SV-Type

**Rail example:** **SBG 25 - 820 - 20 - 20**

- Type
- Size
- Length of rail
- Distance from end of rail to center of first hole
- Distance from center of last hole to rail end

**Block example:** **SBS 25SV - N - MF - ZZ - K1**

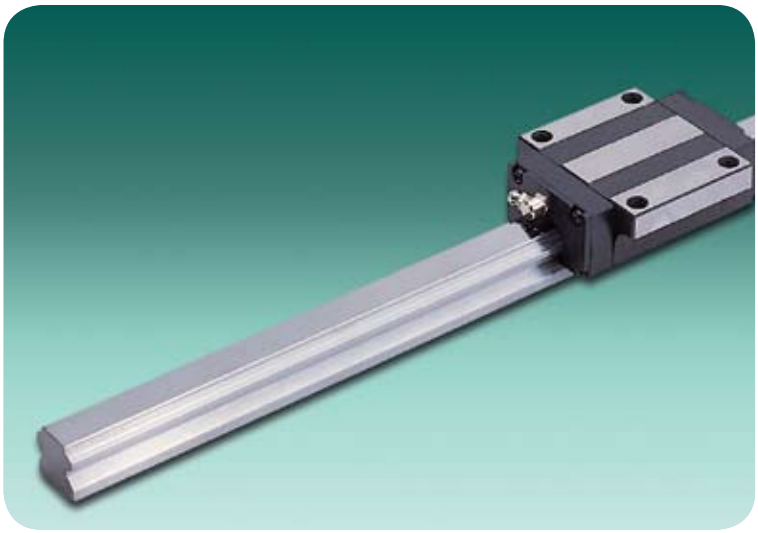
- Type
- Type of block
- Option: Side nipple. No letter = standard
- Option: Lubrication set (available sizes: 20, 25, 30, 35). No letter = standard
- Option: Steel scraper. No letter = standard
- Standard preload

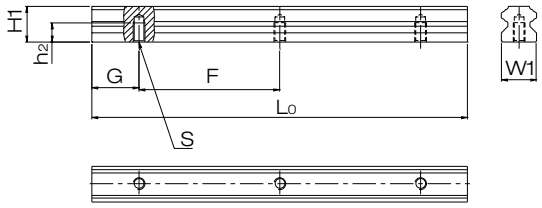
## EXAMPLE OF DESIGNATION FOR STANDARD BLOCK WITHOUT ANY OPTIONS: SBS 25SV - K1

Dimension: mm

| Rail size | | | | | Load capacity | | Static moment (Nm) | | | Weight | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Width W1 | Height H1 | Pitch F | Bolt Hole dxDxh | Max.length of rail $L_{omax}$ | Dynamic C(N) | Static $C_o$(N) | $M_{RO}$ | $M_{PO}$ | $M_{YO}$ | Bearing (kgf) | Rail (kgf/m) | Type |
| 15 | 15 | 60 | 4.5x7.5x5.3 | 3.000 | 4580 | 7380 | 40 | 30 | 30 | 0.11 | 1.45 | SBS 15SV |
| 20 | 17.5 | 60 | 6x9.5x8.5 | 4.000 | 7810 | 13780 | 120 | 100 | 100 | 0.19 | 2.20 | SBS 20SV |
| 23 | 21.8 | 60 | 7x11x19 | 4.000 | 11520 | 21540 | 190 | 170 | 170 | 0.32 | 3.10 | SBS 25SV |

# Bottom Mounting Rail






# Order Code Bottom Mounting Rail

**Rail example:** **SBG 25 - 820 - 20 - 20 - B**

- Type
- Size
- Length of rail
- Distance from end of rail to center of first hole
- Distance from center of last hole to rail end
- Bottom mounting rail

Dimension: mm

| Type | Width | Height | h2 | G | Bolt | Pitch | Max. lenght of rail | Weight |
|---|---|---|---|---|---|---|---|---|
| | W1 | H1 | | | S | F | Lomax | kgf/m |
| 15 | 15 | 15 | 8 | 20 | M5x0.8 | 60 | 3000 | 1.53 |
| 20 | 20 | 17.5 | 10 | 20 | M6 | 60 | 4000 | 2.28 |
| 25 | 23 | 21.8 | 12 | 20 | M6 | 60 | 4000 | 3.21 |
| 30 | 28 | 25 | 15 | 20 | M8 | 80 | 4000 | 4.58 |
| 35 | 34 | 29 | 17 | 20 | M8 | 80 | 4000 | 6.62 |
| 45 | 45 | 38 | 24 | 22.5 | M12 | 105 | 4000 | 11.43 |

# Raydent Linear Rail and Block

## Order Code Raydent Rail

**Rail example:** **SBG 25 - 820 - 20 - 20 - R**

- Type
- Size
- Length of rail
- Distance from end of rail to center of first hole
- Distance from center of last hole to rail end
- Raydent treatment

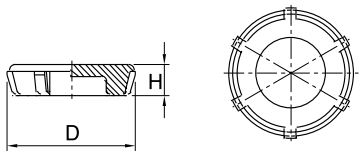
Raydent rails and blocks are produced in size 15, 20, 25, 30, 35 and 45.
Dimensions are the same as for the standard types.
Please contact Rollco for availability.

## Features

- Resisting to corrosion caused by chemicals, sea water, etc.
- No dimensional change after treatment
- Applied models-SBG, SBS Series

# Hole Cap

Sometimes, alien substances invade into the hole of the rail and pollute the inside of the bearing.
In this case, you can use hole caps made from anti-abrasive hardened rubber.




| Model number | Applied model | D | H |
|---|---|---|---|
| RC15 | SBS/SBG15 | 7.7 | 2 |
| RC20 | SBS/SBG20 | 9.7 | 3.2 |
| RC25 | SBS/SBG25 | 11.3 | 2.7 |
| RC30 | SBS/SBG30,35 | 14.4 | 3.5 |
| RC45 | SBS/SBG45 | 20.4 | 4.5 |
| RC55 | SBG55 | 23.5 | 5.7 |
| RC65 | SBG65 | 26.5 | 5.7 |

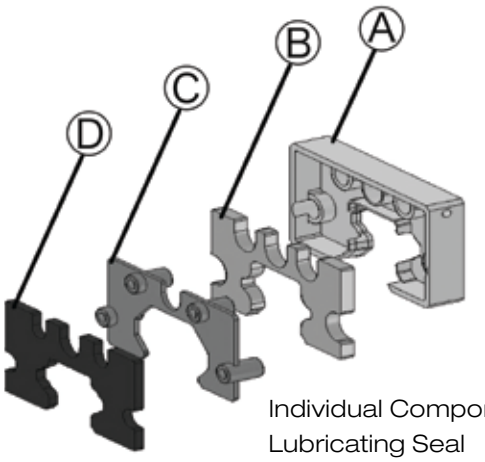
# Bolt Mounting Torque

Unit: Nm

| Bolt | M4 | M5 | M6 | M8 | M10 | M12 | M14 | M16 |
|---|---|---|---|---|---|---|---|---|
| Mounting Torque (steel) | 4 | 8 | 13 | 30 | 69 | 120 | 160 | 200 |
| Mounting Torque (cast iron) | 2,8 | 6 | 9,4 | 20 | 46 | 80 | 107 | 134 |
| Mounting Torque (aluminium) | 2,1 | 4,5 | 7 | 15 | 34 | 60 | 80 | 100 |

# MF Lubricating Seal

MF Lubricating Seal now offers longer life for SBC Linear Rail Systems, eliminating the necessity for periodical greasing. The MF Unit contains high quality, grease filled fiber seals which will guarantee total surface lubrication and long maintenance free bearing life. The polymer housing containing the surface contact seals are tolerance matched to the guide rail to ensure perfect sealing and smooth motion.



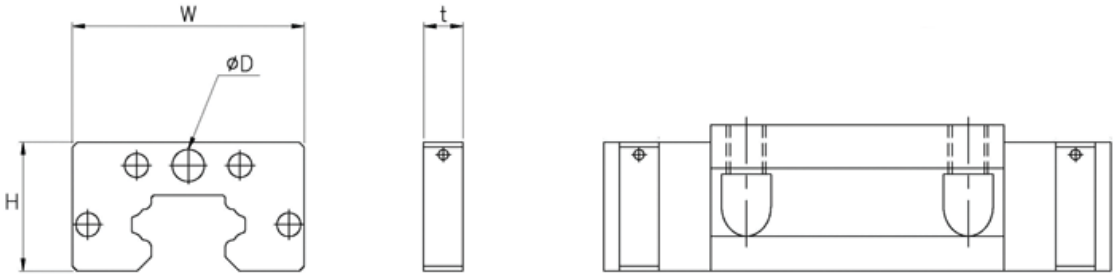

Individual Components of MF Lubricating Seal

MF Seal Polymer Housing

MF Lubricating Seal contains 4 Key elements which will guarantee total surface lubrication and long maintenance free bearing life.

Ⓐ Housing : Oil impregnated polymer housing which provides sealing contact with rails
Ⓑ Full contact grease filled fiber seal : Wipes and coats all other exposed guide way surface
Ⓒ Adjusting plate : Adjusts the volume of grease between fiber seals
Ⓓ Raceway fiber seal : Coats the raceway tracking profile with grease

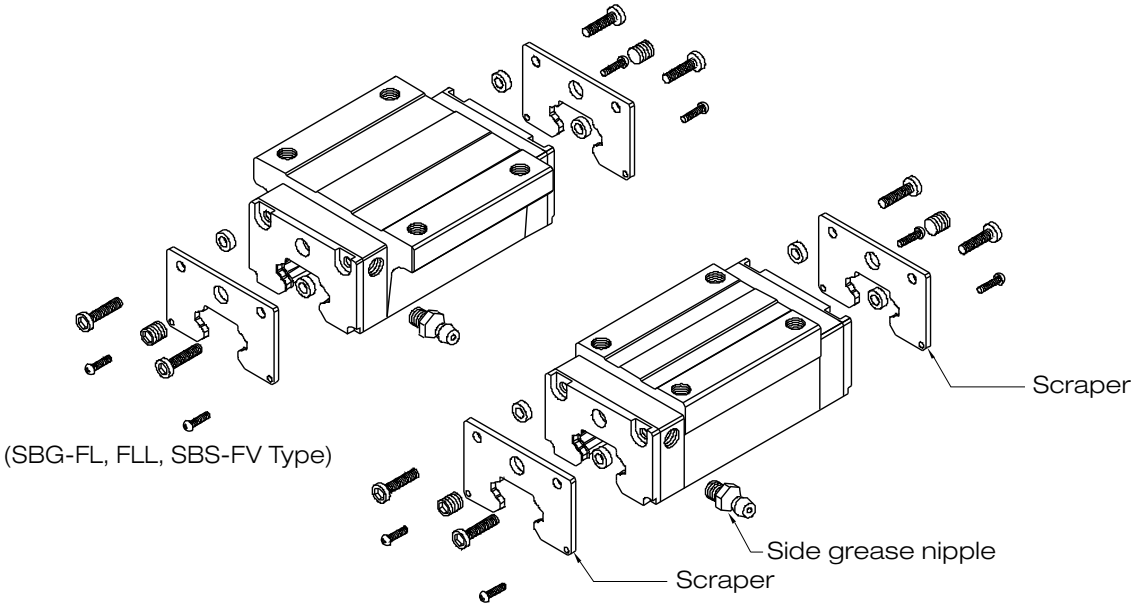
# Dimensions




| Reference | MF dimension (unit:mm) | | | |
|---|---|---|---|---|
| | W | t | H | D |
| SBG 20MF | 43 | 8 | 24 | 6.5 |
| SBG 25MF | 47 | 8 | 26.1 | 6.5 |
| SBG 30MF | 59 | 8 | 34.5 | 6.5 |
| SBG 35MF | 68 | 8 | 40 | 6.5 |

# Steel Scrapers and Side Nipple

Steel scrapers can be added to the additional rubber-seals. Blocks with side-nipple can be supplied. For all blocks ordered with both MF lubrication system and the steel scraper, the blocks will be supplied with side nipple. Please contact Rollco for more information.

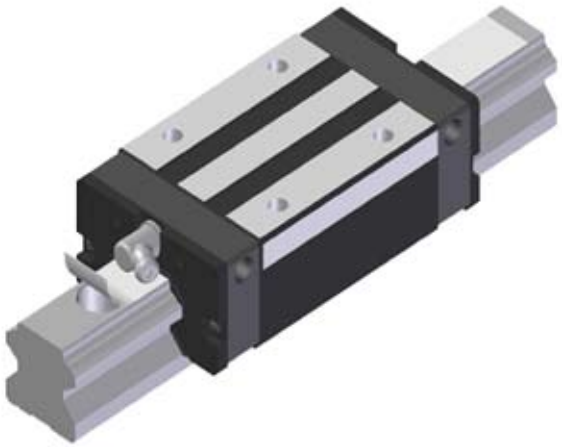



(SBG-FL, FLL, SBS-FV Type)

(SBG-SL, SLL, SBS-SL, HL, SLL, HLL, SV Type)

# Stainless Steel Dustproof Tape

ST dustproof tape improves rail face sealing and works in conjunction with guide block seals.



## Features

- Simple to tape the ST band onto the rail
- Remove conventional plug (hole cap) problems (plugs drop out under vibration, not as effective in dust proofing)
- ST strip is made of stainless steel (SUS304) for anti-corrosion
- ST strip is resistant to hot welding chips or hot cutting chips
- A special silicone adhesive is applied to ST tape, it is resistant to machining coolants or oils.
- The bonding strength of the adhesive increases as time goes by

## Installation

**(1)** After assembling a rail to the bed, clean the surface of the rail and remove any oil
**(2)** Attach the ST tape slowly over the rail length to within 2 or 3 mm from each end of the rail
**(3)** It is strongly recommended to wear safety gloves, the edge of this tape is sharp and can cut as you attach to rail
**(4)** After attachment to the rail, pressure wipe with dry cloth 3 or 4 times
**(5)** Tape should be applied 4 to 6 hours prior to rail usage to allow initial bonding

## Order Code

**Example:** **ST 20 - 2000**

Stainless dustproof tape

Linear rail model

Length

# Selecting Preload Class

| | Standard K1 | Medium Preload K2 | Heavy preload K3 |
|---|---|---|---|
| Conditions | When the load direction is constant, low impact and vibration are little, and two rails are parallel. | For over hanging or alternating load. | When very high rigidity and stiffnes is required. Applicatons with big vibrations |
| Examples | Beam welding machinery binding machinery, automatic wrapping machinery, X and Y axis for general machinery, automatic chassis cutters welding machinery, heat cutters tool-change equipment, and material handling equipment. | Grinder table transmission axis, industrial robots high speed material supplying equipment, NC drilling machinery. Z for general industrial equipment, printer puncher, discharge processors, precise X,Y tables. | Machining center, NC shelves low-speed transmission axis, main axis leading section on the boring machinery, Z axis for engineering machinery. |

# SBG/SBS Radial Clearance

Unit:μm

| Type | Type | Standard K1 | Medium preload K2 | Heavy preload K3 |
|---|---|---|---|---|
| SBG15 | SBS15 | -4 ~ +2 | -12 ~ -4 | -20 ~ -12 |
| SBG20 | SBS20 | -5 ~ +2 | -14 ~ -5 | -23 ~ -14 |
| SBG25 | SBS25 | -6 ~ +4 | -16 ~ -6 | -26 ~ -16 |
| SBG30 | SBS30 | -7 ~ +4 | -19 ~ -7 | -31 ~ -19 |
| SBG35 | SBS35 | -10 ~ +5 | -22 ~ -8 | -35 ~ -22 |
| SBG45 | SBS45 | -12 ~ +5 | -25 ~ -10 | -40 ~ -25 |
| SBG55 | | -12 ~ +5 | -29 ~ -12 | -46 ~ -29 |
| SBG65 | | -14 ~ +7 | -32 ~ -16 | -50 ~ -32 |

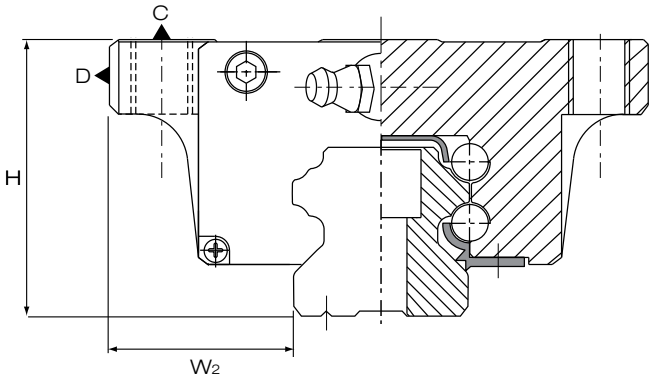
# Precision Classes (µm)

Precision classes are divided into three levels.

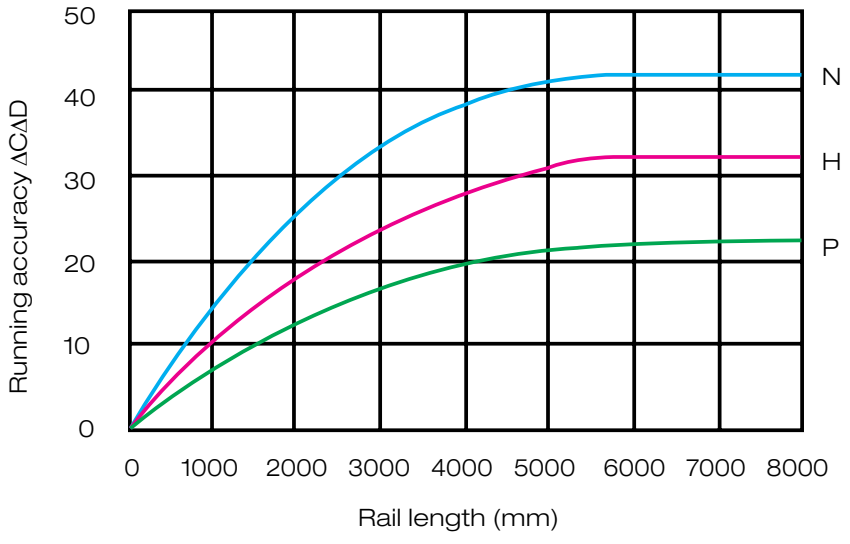
Unit:µm

| | Grade levels | | |
|---|---|---|---|
| | N (standard) | H | P |
| 1) Measurement of H and W2 | ±100 | ±40 | ±20 |
| 2) Mutual maximum difference between H and W2 on each block of the same rail | 30 | 15 | 7 |
| 3) Running accuracy ΔCΔD | (Refer to diagram below) | | |

Standard is N-grade - contact Rollco for H- and P-grade




# Running Accuracy



# Frictional Resistance

The static and dynamic friction of SBC linear rail is so small that it can minimize the lost motion and temperature increase.
Frictional resistance depends on load, preload, velocity and lubrication.
In general, light load with high speed is affected by the lubricant characteristic, and medium or heavy load with low speed.

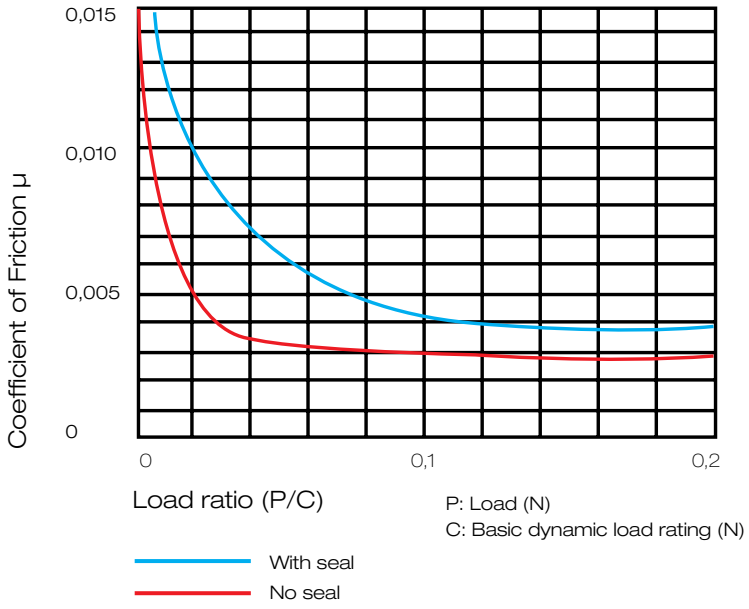
$$F = \mu P + f$$

F : Frictional resistance(N)
μ : Coefficient of friction
P : load(N)
f : resistance with seal(N)

If a seal is applied, seal resistance has to be added to the frictional resistance. The seal resistance varies according to its contact area, pressure and lubrication. When heavy load or preload is given to the block, the frictional resistance increases consequently.
The above coefficient of friction doesn't include the seal resistance.

• If there is a pair of seals, 2~35(N) must be added according to each model number.

# Coefficient of Friction

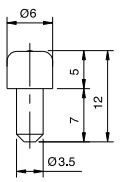


# Lubrication

The main purpose of lubrication is to prevent overheating by reducing friction and wear.
To make the bearing efficient, the lubricant and lubricating method as well as load and velocity must be considered before hand. Regreasing for every 50.000 cycles, 50.000 meters or every 6 month is needed.
In most cases, Alvania grease (AV2) is recommended.
If a heavy load is applied, anti-pressure grease is suitable. A high load requires higher viscosity grease.
In general, 13csT is proper to normal speed or light load, and 68csT to heavy load.

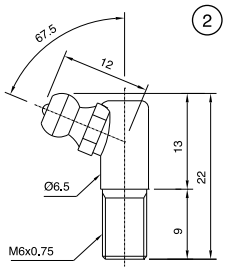
# Grease Fitting and Applied Model

① Standard



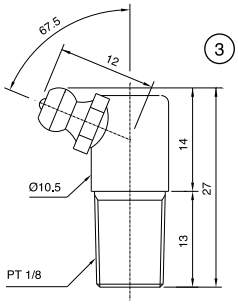

SBG15SL, FL

② Standard & for scraper



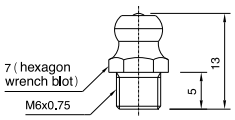

SBG20SL, FL
SBG25SL, FL
SBG30SL, FL
SBG35SL, FL
SBG20SLL, FLL
SBG25SLL, FLL
SBG30SLL, FLL
SBG35SLL, FLL

③ Standard & for scraper



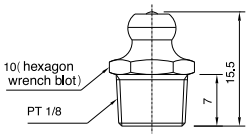

SBG45SL, FL
SBG55SL, FL
SBG65SL, FL
SBG45SLL, FLL
SBG55SLL, FLL
SBG65SLL, FLL

④ Side nipple



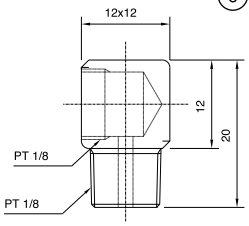

SBG20SL, FL
SBG25SL, FL
SBG30SL, FL
SBG35SL, FL
SBG20SLL, FLL
SBG25SLL, FLL
SBG30SLL, FLL
SBG35SLL, FLL

⑤ Side nipple



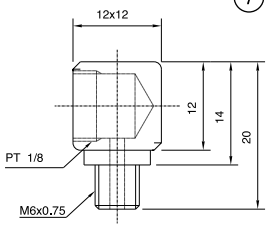

SBG45SL, FL
SBG55SL, FL
SBG65SL, FL
SBG45SLL, FLL
SBG55SLL, FLL
SBG65SLL, FLL

⑥ for joint of a copper pipe $\phi$ 4




SBG45SL, FL
SBG55SL, FL
SBG65SL, FL
SBG45SLL, FLL
SBG55SLL, FLL
SBG65SLL, FLL

⑦ for joint of a copper pipe $\phi$ 4

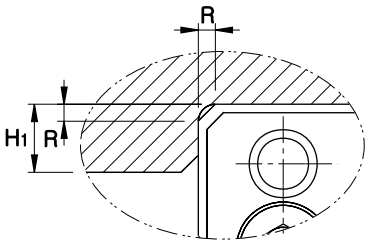



SBG20SL, FL
SBG25SL, FL
SBG30SL, FL
SBG35SL, FL
SBG20SLL, FLL
SBG25SLL, FLL
SBG30SLL, FLL
SBG35SLL, FLL

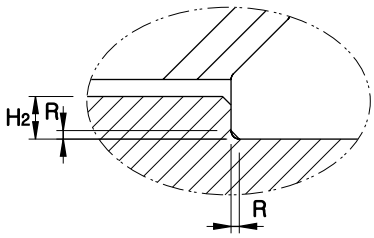
*SBS in identical with SBG

# Shoulders Height and Fillet Radius R

When the bearing and rail are installed on the table and bed, the shoulder's height of the installation side is needed. When you work, you should be careful of the fillet radius dimension of the installation part.




Contact part of bearing




Contact part of rail

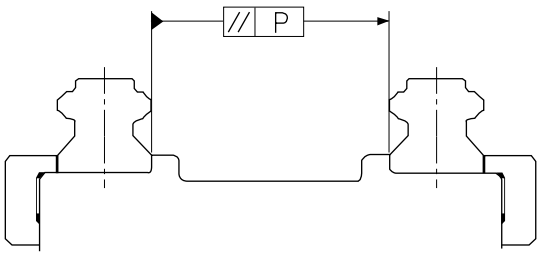
| Model number | Fillet radius R | Shoulders height H1 | Shoulders height H2 | E |
|---|---|---|---|---|
| 15 | 0.5 | 4 | 2 | 2.65 |
| 20 | 0.5 | 5 | 2.5 | 3.5 |
| 25 | 1.0 | 5 | 3.5 | 5 |
| 30 | 1.0 | 5 | 4.5 | 6.5 |
| 35 | 1.0 | 6 | 6 | 7.5 |
| 45 | 1.0 | 6 | 6 | 7.3 |
| 55 | 1.5 | 8 | 8 | 9.8 |
| 65 | 1.5 | 10 | 10 | 17.5 |

# Permissible Tolerance (P) in Parallelism of two Rails

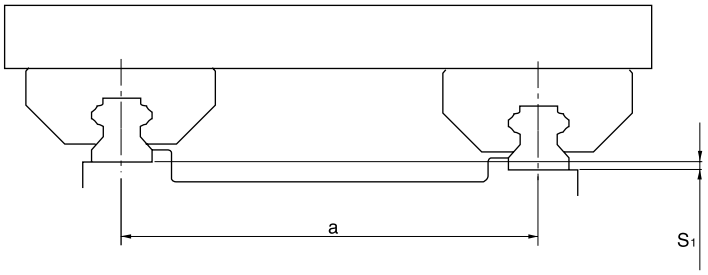
Normally, errors of mounting surface can cause rolling resistance or light increase of clearance. Due to the self-adjusting factor of SBC linear rail, rolling resistance or life-time is not affected as long as the permissible tolerance is observed as in the following tables.

Permissible Tolerance (P) for Parallelism (μm)

| Size/ Preload class | K1 | K2 | K3 |
|---|---|---|---|
| 15 | 25 | 18 | |
| 20 | 25 | 20 | 18 |
| 25 | 30 | 22 | 20 |
| 30 | 40 | 30 | 27 |
| 35 | 50 | 35 | 30 |
| 45 | 60 | 40 | 35 |
| 55 | 70 | 50 | 45 |
| 65 | 80 | 60 | 55 |



# Permissible Tolerance (S1) of two Level Offset




| Constant/preload class | K1 | K2<br>0.05C | K3<br>0.08C |
|---|---|---|---|
| Y | 0.0004 | 0.00026 | 0.00017 |

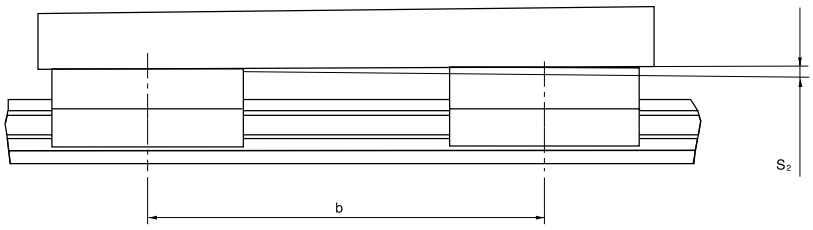
**$S_1 = a \times Y$**

$S_1$ : Permissible Tolerance of two level offset (mm)

a : Rail to Rail Distance (mm)

Y : Constant

# Permissible Tolerance (S2) of two Level Offset




**$S_2 = b \times 0.00004$**

$S_2$ : Permissible Vertical (mm)

b : Block (Carrier) to block distance on the same rail (mm)

# Calculating the Applied Loads

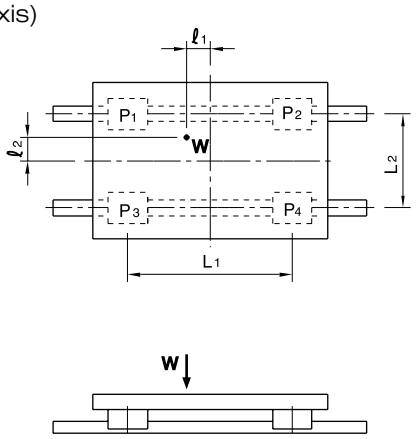
Loads exerted on a linear rail system vary according to the location of gravity, line of force, changes of speed, etc. So it is important to consider the above conditions before selecting the type of linear rail system and model.
Refer to the below examples when calculating the loads.

W: Load (N)
F: Thrust force (N)
g: Gravitational acceleration(m/s2)
Ln: distance (m)
Pn: Radial or reverse radial load (N)
R: reaction force (N)

Pnt: Lateral load (N)
Vn: velocity (m/s)
Pm: mean load (N)

| Position of Linear Rail System | Load Calculation formulas of Linear Rail System |
|---|---|

(Horizontal axis)



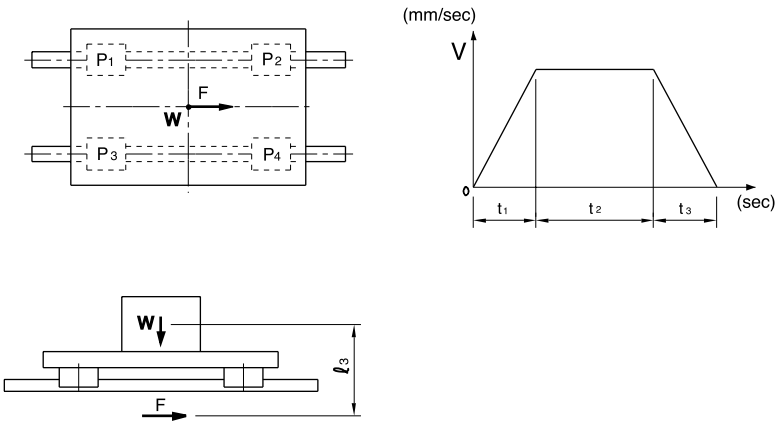

$$P_1 = \frac{W}{4} + \frac{W\ell_1}{2L_1} + \frac{W\ell_2}{2L_2}$$

$$P_2 = \frac{W}{4} - \frac{W\ell_1}{2L_1} + \frac{W\ell_2}{2L_2}$$

$$P_3 = \frac{W}{4} + \frac{W\ell_1}{2L_1} - \frac{W\ell_2}{2L_2}$$

$$P_4 = \frac{W}{4} - \frac{W\ell_1}{2L_1} - \frac{W\ell_2}{2L_2}$$

(Horizontal axis with inertial forces)




$$P_1 = P_2 = P_3 = P_4 = \frac{W}{4}$$

$$P_1 = P_3 = \frac{W}{4} + \frac{VW\ell_3}{2L_1gt}$$

$$P_2 = P_4 = \frac{W}{4} - \frac{VW\ell_3}{2L_1gt}$$

$$P_1 = P_3 = \frac{W}{4} - \frac{VW\ell_3}{2L_1gt}$$

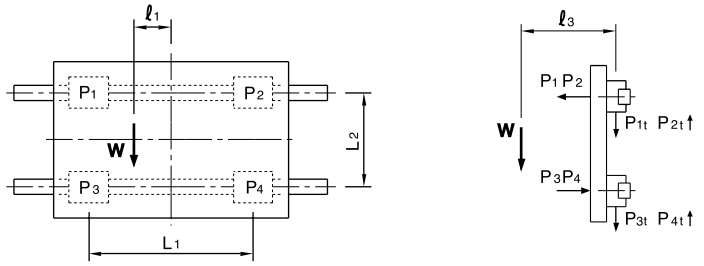
$$P_2 = P_4 = \frac{W}{4} + \frac{VW\ell_3}{2L_1gt}$$

# Calculating the Applied Loads

Position of Linear Rail System

Load Calculation formulas

(Horizontal axis)

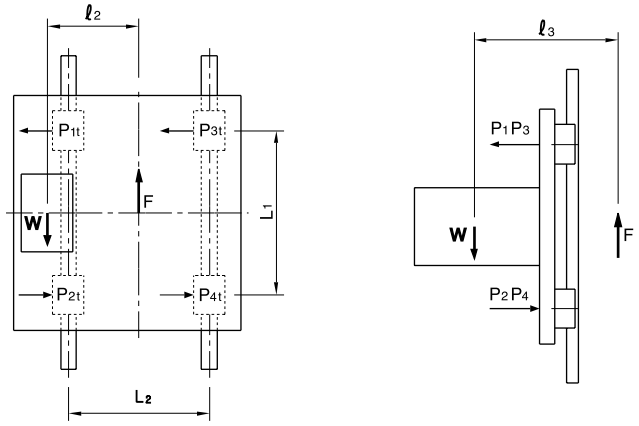



$$P_1 = P_2 = P_3 = P_4 = \frac{W}{2} \times \frac{\ell_3}{L_1}$$

$$P_{1t} = P_{3t} = \frac{W}{4} + \frac{W\ell_1}{2L_1}$$

$$P_{2t} = P_{4t} = \frac{W}{4} - \frac{W\ell_1}{2L_1}$$

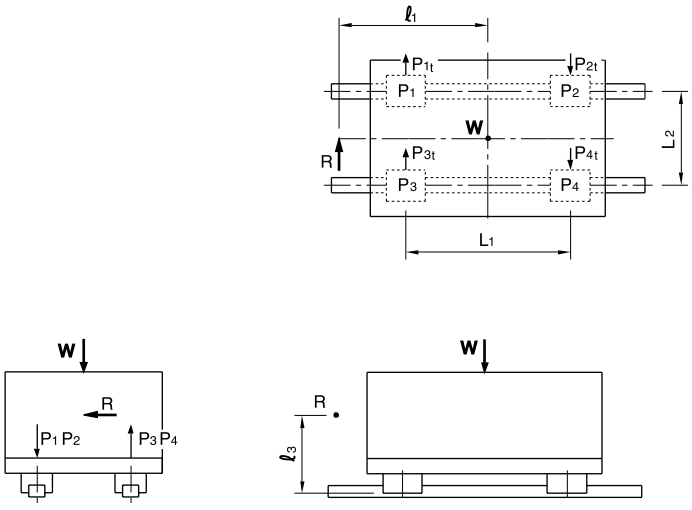
(Vertical axis)




$$P_1 = P_2 = P_3 = P_4 = \frac{W\ell_3}{2L_1}$$

$$P_{1t} = P_{2t} = P_{3t} = P_{4t} = \frac{W\ell_2}{2L_1}$$

(Horizontal axis with external force R)




$$P_1 = P_2 = P_3 = P_4 = \frac{W}{4} + \frac{R}{2} \times \frac{\ell_3}{L_2}$$

$$P_{1t} = P_{3t} = \frac{W}{4} + \frac{R}{4} + \frac{R\ell_1}{2L_1}$$

$$P_{2t} = P_{4t} = \frac{W}{4} + \frac{R}{4} - \frac{R\ell_1}{2L_1}$$

# Reference Values for Static Safety Factor (fs)

In case of calculating a load exerted on the linear rail system, both mean load and maximum load are necessary for calculating. Usually, reciprocating machines create unpredictable big load by force of inertia. When selecting the right linear rail system, check that it is suitable for the maximum load.

$$\frac{Co}{Po} \geq fs$$

fs : Static safety factor
Co : Basic static load rating (N)
Po : Impact load rating (N)

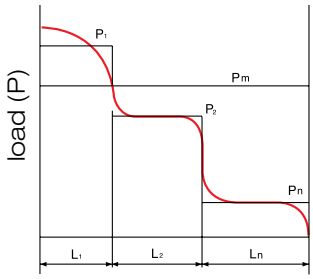
| Operating conditions | Load conditions | fs |
|---|---|---|
| Normally stationary | Impact load or shaft deflection is small | 1 ~ 1.3 |
| | Impact or twisting load is applied | 2 ~ 3 |
| Normally moving | Normal load is exerted or shaft deflection is small | 1 ~ 1.3 |
| | Impact or twisting load is applied | 2.5 ~ 5 |

Loads acting on a linear rail system vary according to various factors. So, various load conditions must be taken into account in order to calculate the life of the linear rail system.

**Step loads**

$$Pm = \sqrt[3]{\frac{1}{L}(P_1^3 \bullet L_1 + P_2^3 \bullet L_2 + \bullet\bullet\bullet\bullet + P_n^3 \bullet L^n)}$$

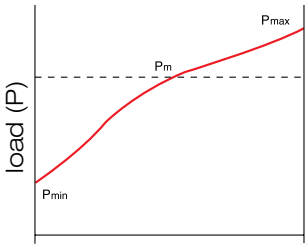
Pm : Mean load (N)
Pn : Varying load (N)
L : Total length of travel (m)
Ln : Length of travel carrying Pn (m)




**Loads that vary linearly**

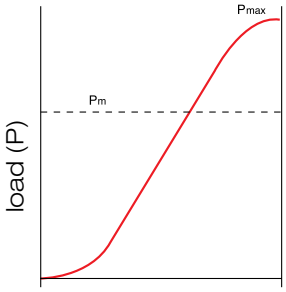
$$Pm = \frac{1}{3}(P_{min} + 2 \bullet P_{max})$$

Pmin : Minimum load (N)
Pmax : Maximum load (N)

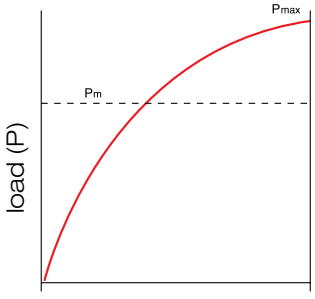



**Load varying sinusoidally**

a) Pm ≈ 0,65 Pmax




b) Pm ≈ 0,75 Pmax



# Lifetime Calculation

When using linear rail system, not only the given load but unpredictable vibrations and impacts must be taken into account. Also, hardness and heat could be the factors affecting life-time.

$$L=\left(\frac{f_H f_T f_C}{f_W}\cdot\frac{C}{P_C}\right)^3\cdot 50(km)$$

| | | | |
|---|---|---|---|
| L: | Nominal life (km) | $f_H$: | Hardness factor |
| C: | Basic dynamic load rating(N) | $f_T$: | Temperature factor |
| Pc: | Load (N) | $f_C$: | Contact factor |
| | | $f_W$: | Load factor |

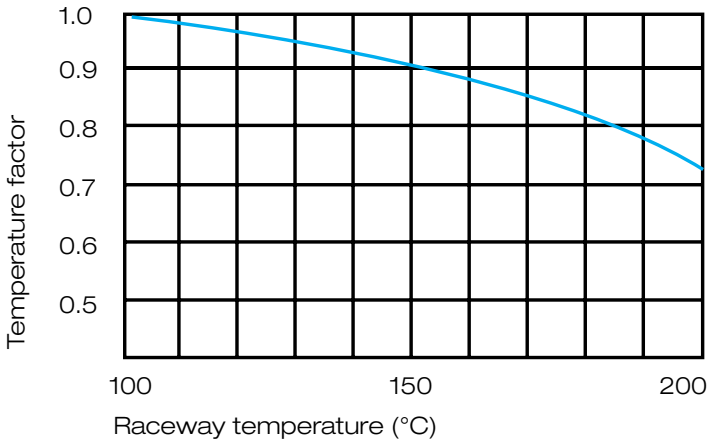
The nominal life L is calculated by the above equation. The life of linear rail system can be calculated by the following equation, if the stroke and reciprocating frequency per minutes are invariable.

$$Lh=\frac{Lx10^6}{2 \times l_s \times n_1 \times 60}$$

Lh : hour of nominal life(hr)
L : nominal life(km)
$l_s$ : stroke(m)
n1 : reciprocation frequency per minute

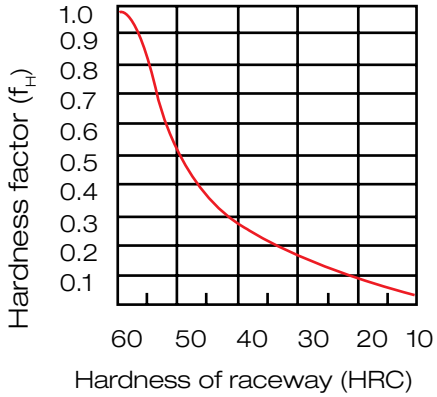
# *Temperature Factor, $f_T$

If the temperature of the linear rail system is over 100°C, the hardness of the block and raceway goes down, and as a result the temperature factor, $f_T$ should be taken into account when calculating the nominal life.



# *Hardness Factor, $f_H$

In order to optimize the load capacity of a linear rail system, the hardness of the raceway should be from HRC 58 to 62.




# *Contact Factor, $f_C$

When two or more blocks are used in close contact, it is hard to obtain a uniform load distribution because of mounting errors and moments. Basic dynamic load C and basic static load is multiplied by the contact factors shown below.

| Number of blocks in close contact | Contact factor ($f_C$) |
|---|---|
| 1 | 1.00 |
| 2 | 0.81 |
| 3 | 0.72 |
| 4 | 0.66 |
| 5 | 0.61 |

# *Load Factor, $f_W$

Usually, reciprocating machines create vibrations that occur in high-speed operations, and such vibrations are hard to be calculated precisely. So, refer to the following table experimentally obtained.

fw : load factor V : velocity (m/min)

| | Velocity (V) | Observed vibrations (G) | $f_W$ |
|---|---|---|---|
| No impact or vibrations | Low speed V ≦15m/min | G ≦0.5 | 1 ~ 1.5 |
| Small Impact or vibrations | Medium speed 15<V ≦60m/min | 0.5<G ≦1.0 | 1.5 ~ 2.0 |
| Significant impact and vibrations | High speed V>60m/min | 1.0<G ≦2.0 | 2 ~ 3.5 |

## Notes:

## Notes:

# One partner for linear components:

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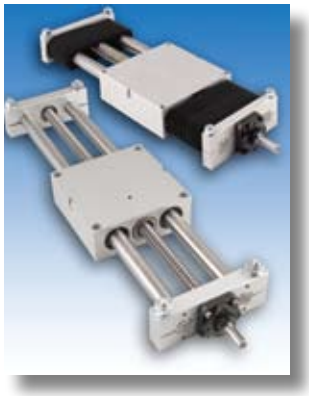

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