Super Smart Ball Bushing Bearings

Thomson Super Smart Ball Bushing Bearing products offer:

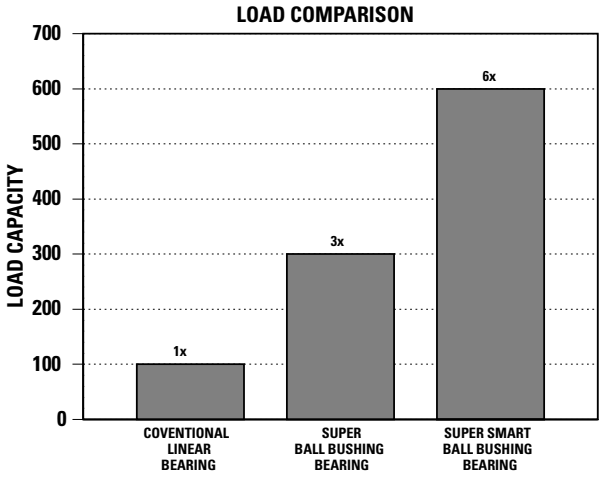
- Up to six times the load capacity or 216 times the travel life of conventional linear bearings.
- Twice the load capacity or eight times the travel life of industry standard Thomson Super Ball Bushing Bearings.
- Universal self-alignment feature, that compensates for misalignment of housing bores and 60 Case LinearRace shaft deflection, optimizes load distribution between ball tracks and assures uniform ball loading over the entire length of the bearing plate. Installation time and cost is minimized while bearing performance and life is maximized.
- Technologically advanced design that allows the bearing to maintain its diametral fit-up when installed in a housing that is slightly out-of-round.
- Up to 400% longer LinearRace shaft life and minimal machine downtime when replacing conventional linear bearings or the standard Super Ball Bushing Bearing.
- RoundRail Advantage combined with universal self-alignment eliminating the need for derating factors commonly required when using linear guides.
- Coefficient of friction as low as 0,001. This allows the use of smaller less expensive motors, belts, gears and ball screws, when replacing high friction, plain bearings.
- Closed and open configurations.
- Double lip integral wipers that keep out dirt while retaining lubrication. Travel life is maximized.
- Worldwide availability from over 1800 authorized distributors.

ООО "БИБУС" - www.bibus.ru

The Super Smart Advantage

Advantage: Load Capacity

The Super Smart Ball Bushing Bearing provides twice the load capacity of the industry standard Thomson Super Ball Bushing Bearing and six times the load capacity of conventional linear bearings.

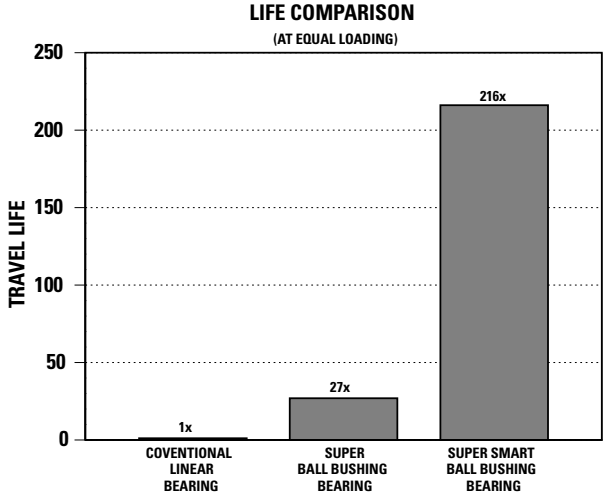


Downsizing

The photograph above shows a conventional Ball Bushing bearing, Super Ball Bushing Bearing and Super Smart Ball Bushing Bearing, all of which have the same load capacity.

Advantage: Travel Life

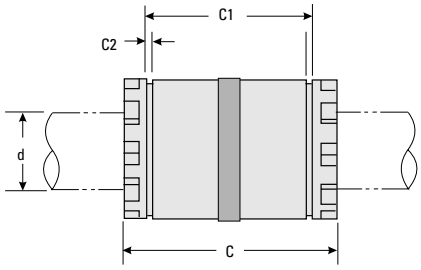
The Super Smart Ball Bushing Bearing provides eight times the travel life of the industry standard Thomson Super Ball Bushing Bearing and 216 times the travel life of conventional linear bearings.

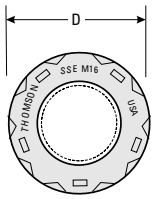


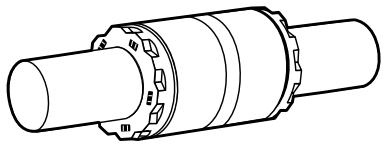
ООО "БИБУС" - www.bibus.ru

Metric – Super Smart Ball Bushing Bearings

Super Smart Ball Bushing Bearings
(Closed Type)



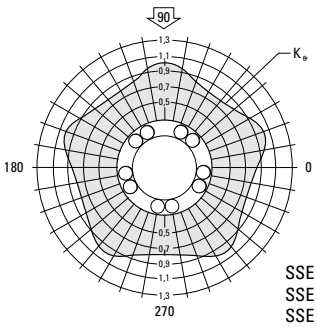




Super Smart Ball Bushing Bearings (Closed Type) (Dimensions in mm)

Part Number			d[4]	D	C h14	C1 H13	C2 min.	Number of Ball Tracks	Mass (kg)	Dynamic Load W[1][3] (N)	Load Limit W_0[2][3] (N)
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers									
SSE M16	SSE M16 W	SSE M16 WW	16	26	36	24,6	1,30	10	0,030	2200	2400
SSE M20	SSE M20 W	SSE M20 WW	20	32	45	31,2	1,60	10	0,066	4000	4400
SSE M25	SSE M25 W	SSE M25 WW	25	40	58	43,7	1,85	10	0,135	6700	7300
SSE M30	SSE M30 W	SSE M30 WW	30	47	68	51,7	1,85	10	0,206	8300	9100
SSE M40	SSE M40 W	SSE M40 WW	40	62	80	60,3	2,15	10	0,392	13700	15000

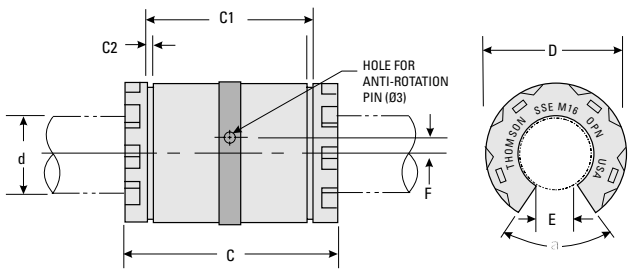
(1) For rated travel life of 100 km. For longer travel lives, reduce load to •(100/L)$^{0.33}$ where L (km) is the required travel life. Do not exceed the Dynamic Load Rating for travel life of less than 100 km.
(2) The Load Limit is the maximum load that may be applied to a bearing/shaft. It is important to analyze the application so that peak and/or shock do not exceed the Load Limit.
(3) The load capacities W and Wq are valid for a resultant load applied at 90° with the ball tracks oriented as shown in the polar graphs below. If the resultant acts along another direction, the appropriate multiplicative correction factor Kq, should be applied to W and Wq respectively. Open type bearings have reduced load capacities when used in pull-off situations.
(4) Internal bearing diameter is affected by the housing bore, see Table 1.
(5) Hole for anti-rotation pin is below centerline.
NOTE: External seals and retaining rings are available. See page 151 for specifications.
NOTE: For additional technical information, see the Engineering section beginning on page 245.
NOTE: For a corrosion resistant bearing add suffix-cr to the part number and reduce the load capacity by 30%.

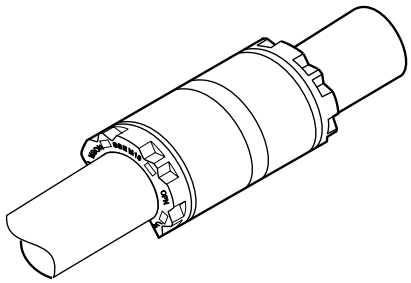


SSE M16
SSE M20
SSE M25
SSE M30
SSE M40

ООО "БИБУС" - www.bibus.ru

Super Smart Ball Bushing Bearings
(Open Type)





Super Smart Ball Bushing Bearings (Open Type) (Dimensions in mm)

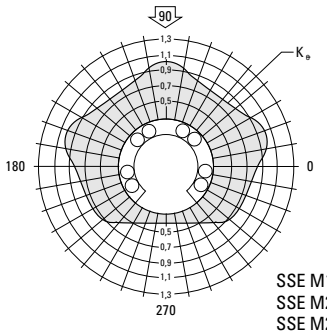
Part Number			d[4]	D	C h14	C1 H13	C2 min.	E	F	Angle α (deg)	Number of Ball Tracks	Mass (kg)	Dynamic Load W[1][3] (N)	Load Limit W_q[2][3] (N)
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers												
SSE M16 OPN	SSE M16 OPN W	SSE M16 OPN WW	16	26	36	24,6	1,30	9,0	0	70	8	0,023	2200	2400
SSE M20 OPN	SSE M20 OPN W	SSE M20 OPN WW	20	32	45	31,2	1,60	10,0	0	50	8	0,054	4000	4400
SSE M25 OPN	SSE M25 OPN W	SSE M25 OPN WW	25	40	58	43,7	1,85	12,5	1,50[5]	60	8	0,107	6700	7300
SSE M30 OPN	SSE M30 OPN W	SSE M30 OPN WW	30	47	68	51,7	1,85	13,7	2,00	55	8	0,163	8300	9100
SSE M40 OPN	SSE M40 OPN W	SSE M40 OPN WW	40	62	80	60,3	2,15	19,0	1,50	54	8	0,315	13700	15000

(1) For rated travel life of 100 km. For longer travel lives, reduce load to •(100/L)$^{0.33}$ where L (km) is the required travel life. Do not exceed the Dynamic Load Rating for travel life of less than 100 km.
(2) The Load Limit is the maximum load that may be applied to a bearing/shaft. It is important to analyze the application so that peak and/or shock do not exceed the Load Limit.
(3) The load capacities W and Wq are valid for a resultant load applied at 90° with the ball tracks oriented as shown in the polar graphs below. If the resultant acts along another direction, the appropriate multiplicative correction factor Kq, should be applied to W and Wq respectively. Open type bearings have reduced load capacities when used in pull-off situations.
(4) Internal bearing diameter is affected by the housing bore, see Table 1.
(5) Hole for anti-rotation pin is below centerline.
NOTE: External seals and retaining are available. See page 151 for specifications.
NOTE: For additional technical information, see the Engineering section beginning on page 245.

Table 1 - Standard Diametral Clearances

Nominal Shaft Diameter d (mm)	Nominal Housing Bore Diameter d (mm)	Diametral Clearance	
		Housing Bore H7 (µm)	Housing Bore H6 (µm)
16	26	+33 +4	+26 +3
20	32	+37 +6	+30 +4
25	40	+37 +6	+30 +4
30	47	+37 +6	+30 +4
40	62	+44 +7	+35 +5

For Super Smart Ball Bushing Bearings mounted in a housing and with LinearRace shafts, h6 tolerance



SSE M16 OPN
SSE M20 OPN
SSE M25 OPN
SSE M30 OPN
SSE M40 OPN

ООО "БИБУС" - www.bibus.ru

Metric – Super Smart Ball Bushing Bearings

Application

Cam-Actuated Part Transfer Mechanism for Multiple-Transfer Press

Objective

Improve production rate and increase the service life of a transfer table mechanism.

Solution

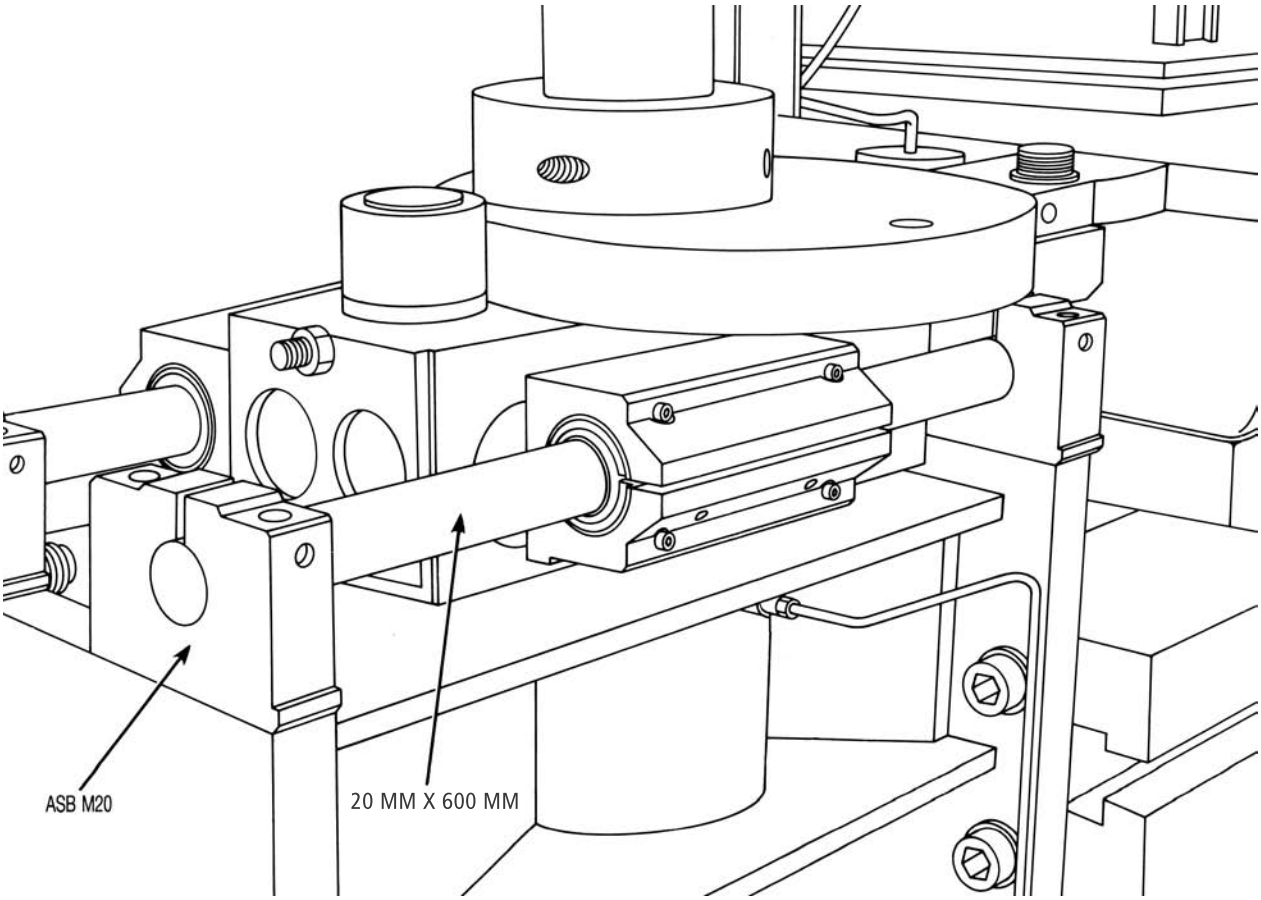
Replace the conventional linear bearings with adjustable Super Smart twin pillow blocks.

Products Specified

2 - SSE TWNA M20 DD (Super Smart Twin Pillow Blocks)
4 - ASB M20 (Shaft support blocks) Blocks
2 - 20 MM X 600 mm 60 Case LinearRace Shaft

Benefits

The table achieved maximum cycle efficiency by reducing costly downtime and improving service life. Bearing life is increased from 1 to 8 years.



ООО "БИБУС" - www.bibus.ru

X-Y Inspection System

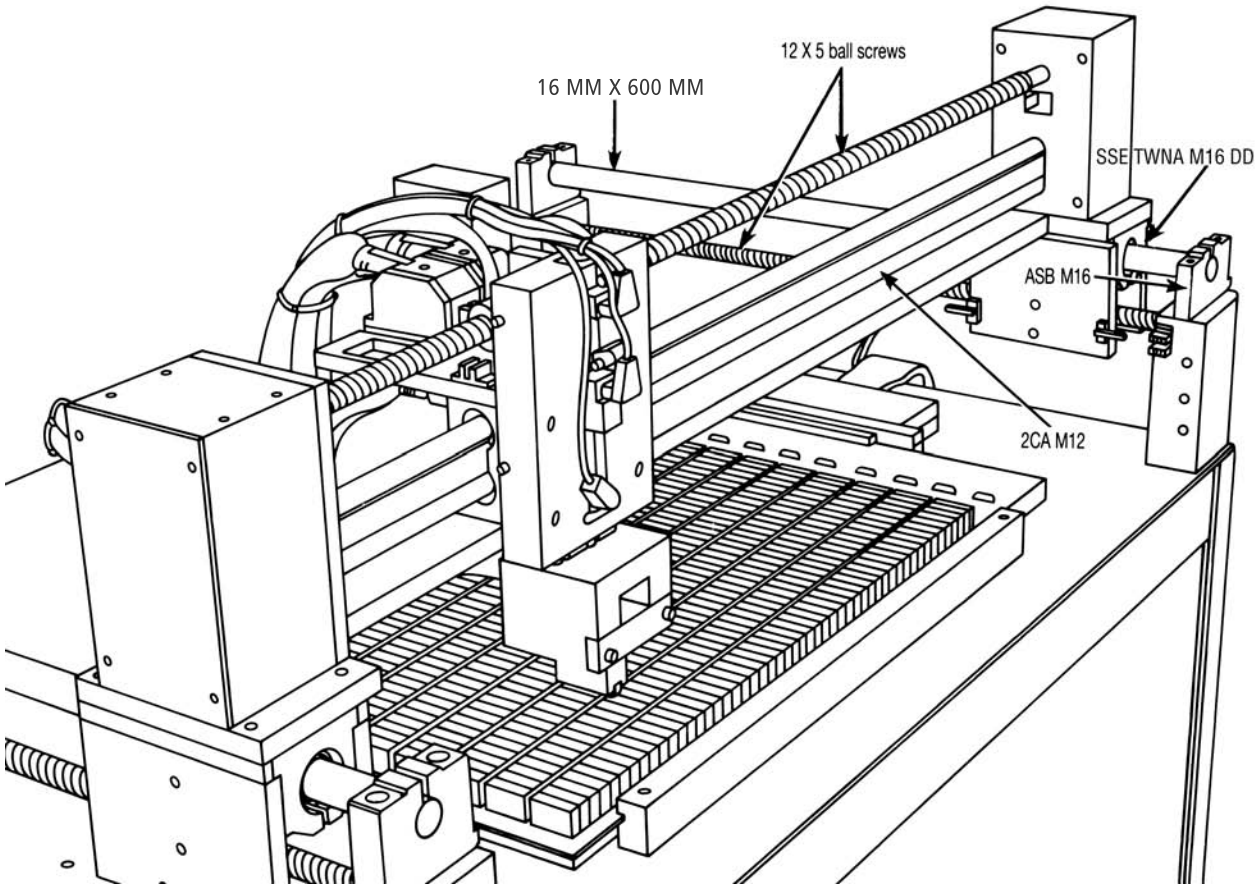
Objective
Accurately position an inspection probe of an X-Y system over small electronic components.

Solution
Design an X-Y system with Super Smart Ball Bushing pillow blocks to provide accurate and repeatable movement of the test probe. Utilize Thomson Industries linear motion systems on the Y-axis to reduce cost and installation time.

Benefits
Outstanding positioning accuracy and repeatability was provided by the adjustable pillow blocks and ball screws. The use of a pre-engineered, pre-assembled linear motion system on the Y-axis saved valuable design and assembly time.

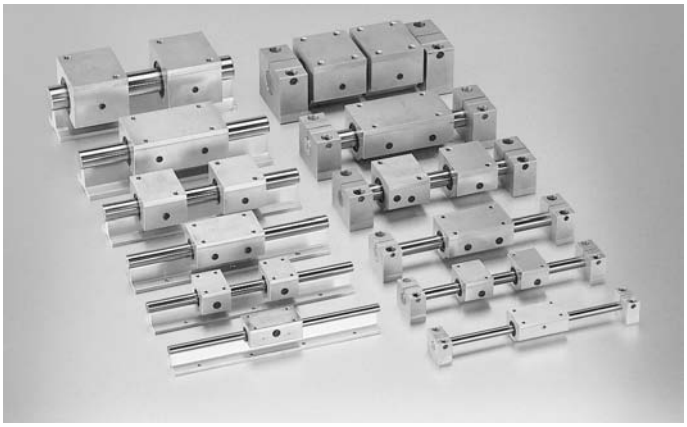
Products Specified
X–axis
2 - SSE TWNA M16 DD (Super Smart Twin pillow blocks)
4 - ASB M16 (Shaft support blocks)
2 - 16 MM X 600 MM (60 Case LinearRace shaft)
2 - 12 x5 Thomson ball screw assemblies

Y-axis
1 - 2CA M12 (pre-assembled linear motion system)
1 - 12 x5 Thomson ball screw assembly



ООО "БИБУС" - www.bibus.ru

Super Smart Pillow Blocks



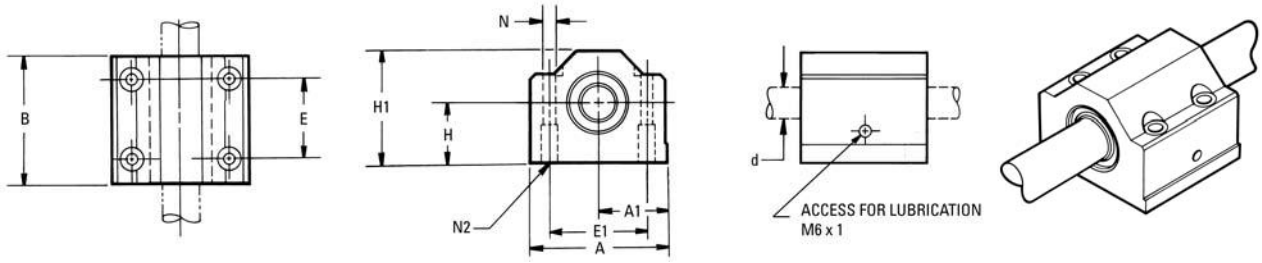
Thomson Pillow Blocks with factory-installed Super Smart Ball Bushing Bearings offer:

- Up to 6 times the load capacity or 216 times the travel life and 5 times the LinearRace shaft life when replacing conventional linear bearing pillow blocks.
- Accelerations as high as 150 m/s^2 and steady state travel speeds up to 3 m/s without the derating factors commonly required with linear guides.
- Replaceable bearing components for quick, cost effective machine maintenance and minimal downtime.
- Standard, double-acting, integral seals at both ends which keep out dirt, grit and other contaminants, retain lubrication and maximize bearing life.
- Adjustable, closed, and open styles.
- Lubrication hole for easy maintenance.
- Tapped or thru hole mounting configuration for ease of installation.
- Twin version with two Super Smart Ball Bushing Bearings providing twice the load capacity or 8 times more travel life than the single version.
- A single bearing version that self aligns in all directions, minimizing installation time and cost.

Note: See page 120 for information on Thomson Super Smart Ball Bushing Bearings.

ООО "БИБУС" - www.bibus.ru

Super Smart Pillow Blocks
(Closed Type)



Super Smart Pillow Blocks (Closed Type) (Dimensions in mm)

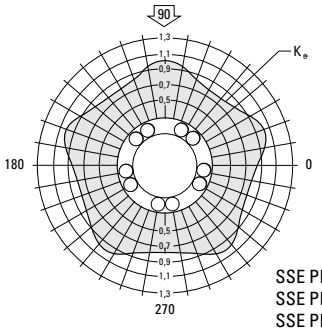
Part Number	d[5]	H ± 0,020	H1	A	A1 ± 0,020	B	E ± 0,1	E1 ± 0,1	N Dia.	N2	Mass (kg)	Dynamic Load W[1][3] (N)	Load Limit W_0[2][3] (N)
SSE PB M16 DD	16	22	42	53	26,5	43	26	40	5,3	M6	0,21	2200	2400
SSE PB M20 DD	20	25	50	60	30,0	54	32	45	6,6	M8	0,35	4000	4400
SSE PB M25 DD	25	30	60	78	39,0	67	40	60	8,4	M10	0,67	6700	7300
SSE PB M30 DD	30	35	71	87	43,5	79	45	68	8,4	M10	0,99	8300	9100
SSE PB M40 DD	40	45	91	108	54,0	91	58	86	10,5	M12	1,84	13700	15000

(1) For rated travel life of 100 km. For longer travel lives, reduce load to $W \bullet (100/L)^{0.33}$ where L (km) is the required travel life. Do not exceed the Dynamic Load Rating for travel life of less than 100km.
(2) The Load Limit is the maximum load that may be applied to a bearing/shaft. It is important to analyze the application so the peak and/or shock loads do not exceed the Load Limit.
(3) For bearing diametral clearances, see Table 1.
NOTE: For additional technical information, see the Engineering section beginning on page 245.

Table 1- Standard Diametral Clearances (Closed Type)

Nominal Size d (mm)	Diametral Clearance (µm)
16	+26 +3
20	+30 +4
25	+30 +4
30	+30 +4
40	+35 +5

For Pillow Blocks used with LinearRace Shaft, h6 tolerance

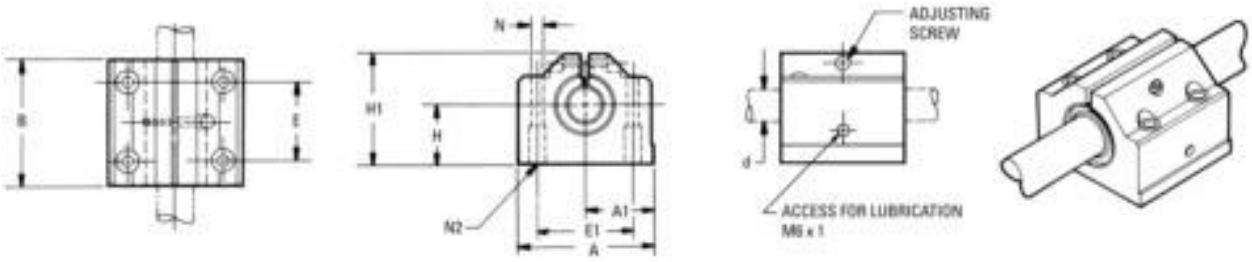


SSE PB M16 DD
SSE PB M20 DD
SSE PB M25 DD
SSE PB M30 DD
SSE PB M40 DD

ООО "БИБУС" - www.bibus.ru

Metric – Super Smart Pillow Blocks

Super Smart Pillow Blocks
(Closed Adjustable Type)

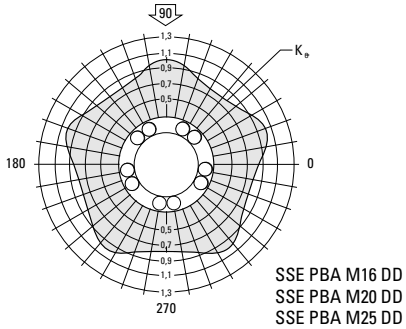


Super Smart Pillow Blocks (Closed Adjustable Type) (Dimensions in mm)

Part Number	d[5]	H ± 0,020	H1	A	A1 ± 0,020	B	E ± 0,1	E1 ± 0,1	N Dia.	N2	Mass (kg)	Dynamic Load W[1][2] (N)	Load Limit W_0[2][4] (N)
SSE PBA M16 DD	16	22	42	53	26,5	43	26	40	5,3	M6	0,21	2200	2400
SSE PBA M20 DD	20	25	50	60	30,0	54	32	45	6,6	M8	0,35	4000	4400
SSE PBA M25 DD	25	30	60	78	39,0	67	40	60	8,4	M10	0,67	6700	7300
SSE PBA M30 DD	30	35	71	87	43,5	79	45	68	8,4	M10	0,99	8300	9100
SSE PBA M40 DD	40	45	91	108	54,0	91	58	86	10,5	M12	1,84	13700	15000

(4) The load capacities W and W_0 are valid for a resultant load applied at 90° with the ball tracks oriented as shown in the polar graphs below. If the resultant acts along another direction, the appropriate multiplicative correction factor, Kq, should be applied to W and W_0 respectively. Open type bearings have reduced load capacities when used in pull-off situations.
(5) Adjusted to nominal.

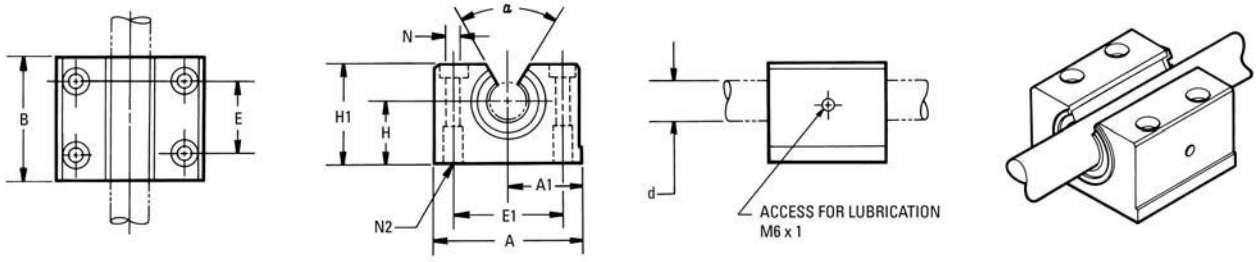
NOTE: For additional technical information, see the Engineering section beginning on page 245.



SSE PBA M16 DD
SSE PBA M20 DD
SSE PBA M25 DD
SSE PBA M30 DD
SSE PBA M40 DD

ООО "БИБУС" - www.bibus.ru

Super Smart Pillow Blocks
(Open Type)



Super Smart Pillow Blocks (Open Type) (Dimensions in mm)

Part Number	d[5]	H ± 0,020	H1	A	A1 ± 0,020	B	E ± 0,1	E1 ± 0,1	N Dia.	N2	Angle α (deg)	Mass (kg)	Dynamic Load W[1][2] (N)	Load Limit W_0[2][4] (N)
SSE PBO M16 DD	16	22	35	53	26,5	43	26	40	5,3	M6	70	0,19	2200	2400
SSE PBO M20 DD	20	25	42	60	30,0	54	32	45	6,6	M8	50	0,30	4000	4400
SSE PBO M25 DD	25	30	51	78	39,0	67	40	60	8,4	M10	60	0,60	6700	7300
SSE PBO M30 DD	30	35	60	87	43,5	79	45	68	8,4	M10	55	0,93	8300	9100
SSE PBO M40 DD	40	45	77	108	54,0	91	58	86	10,5	M12	54	1,66	13700	15000

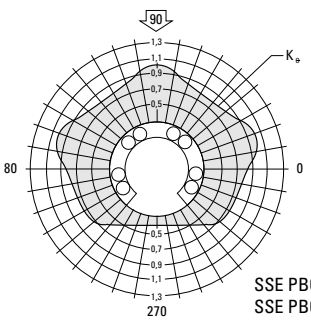
(1) For rated travel life of 100 km. For longer travel lives, reduce load to $W \bullet (100/L)^{0.33}$ where L (km) is the required travel life. Do not exceed the Dynamic Load Rating for travel life of less than 100km.
(2) The Load Limit is the maximum load that may be applied to a bearing/shaft. It is important to analyze the application so that peak and/or shock loads do not exceed the Load Limit.
(3) For bearing diametral clearances, see Table 2.

NOTE: For additional technical information, see the Engineering section beginning on page 245.

Table 2 - Standard Diametral Clearances (Open Type)

Nominal Size d (mm)	Diametral Clearance (µm)
16	+26 +3
20	+30 +4
25	+30 +4
30	+30 +4
40	+35 +5

For Pillow Blocks used with LinearRace Shaft, h6 tolerance

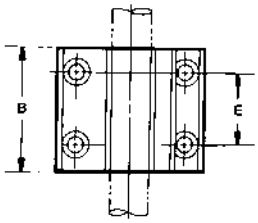


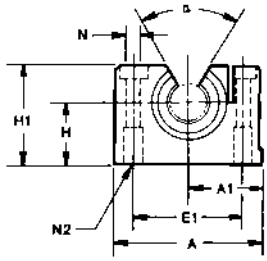
SSE PBO M16 DD
SSE PBO M20 DD
SSE PBO M25 DD
SSE PBO M30 DD
SSE PBO M40 DD

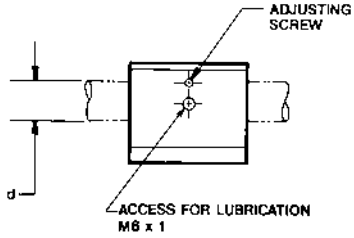
ООО "БИБУС" - www.bibus.ru

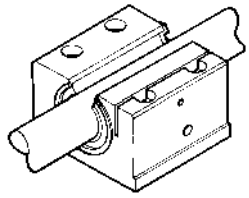
Metric – Super Smart Pillow Blocks

Super Smart Pillow Blocks
(Open Adjustable Type)







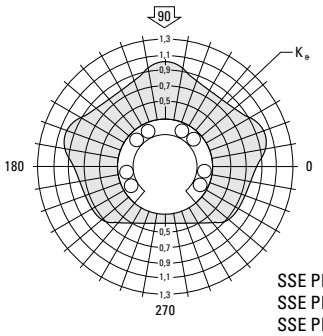


Super Smart Pillow Blocks (Open Adjustable Type) (Dimensions in mm)

Part Number	d[5]	H ± 0,020	H1	A	A1 ± 0,020	B	E ± 0,1	E1 ± 0,1	N Dia.	N2	Angle α (deg)	Mass (kg)	Dynamic Load W[1][2] (N)	Load Limit W_0[2][4] (N)
SSE PBOA M16 DD	16	22	35	53	26,5	43	26	40	5,3	M6	70	0,19	2200	2400
SSE PBOA M20 DD	20	25	42	60	30,0	54	32	45	6,6	M8	50	0,30	4000	4400
SSE PBOA M25 DD	25	30	51	78	39,0	67	40	60	8,4	M10	60	0,60	6700	7300
SSE PBOA M30 DD	30	35	60	87	43,5	79	45	68	8,4	M10	55	0,93	8300	9100
SSE PBOA M40 DD	40	45	77	108	54,0	91	58	86	10,5	M12	54	1,66	13700	15000

(4) The load capacities W and W_0 are valid for a resultant load applied at 90° with the ball tracks oriented as shown in the polar graphs below. If the resultant acts along another direction, the appropriate multiplicative correction factor, Kq, should be applied to W and W_0 respectively. Open type bearings have reduced load capacities when used in pull-off situations.
(5) Adjusted to nominal.

NOTE: For additional technical information, see the Engineering section beginning on page 245.

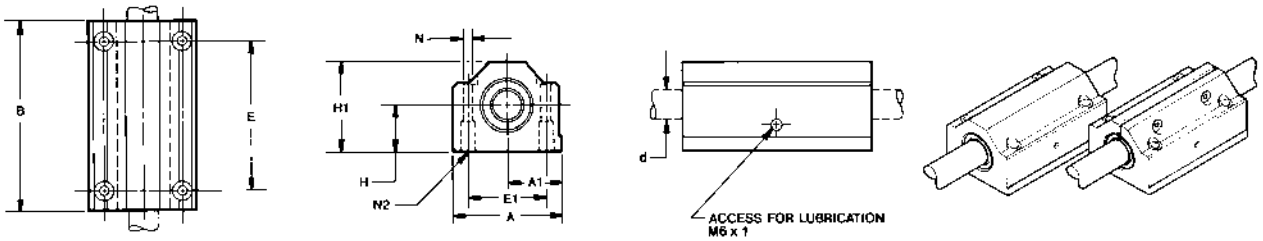


SSE PBOA M16 DD
SSE PBOA M20 DD
SSE PBOA M25 DD
SSE PBOA M30 DD
SSE PBOA M40 DD

ООО "БИБУС" - www.bibus.ru

Super Smart Twin Pillow Blocks

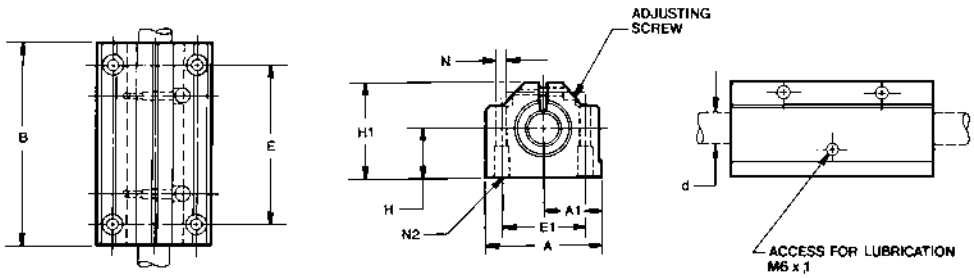
(Closed Type)



Super Smart Twin Pillow Blocks (Closed Type) (Dimensions in mm)

Part Number	d(5)	H ± 0,020	H1	A	A1 ± 0,020	B	E ± 0,1	E1 ± 0,1	N Dia.	N2	Mass (kg)	Dynamic Load W(1)(2) (N)	Load Limit $W_0^{(2)(4)}$ (N)
SSE TWN M16 DD	16	22	42	53	26,5	84	64	40	5,3	M6	0,41	4400	4800
SSE TWN M20 DD	20	25	51	60	30,0	104	76	45	6,6	M8	0,67	8000	8800
SSE TWN M25 DD	25	30	60	78	39,0	130	94	60	8,4	M10	1,24	13400	14600
SSE TWN M30 DD	30	35	71	87	43,5	152	106	68	8,4	M10	1,94	16600	18200
SSE TWN M40 DD	40	45	91	108	54,0	176	124	86	10,5	M12	3,63	27400	30000

(Closed Adjustable Type)



Super Smart Twin Pillow Blocks (Closed Adjustable Type) (Dimensions in mm)

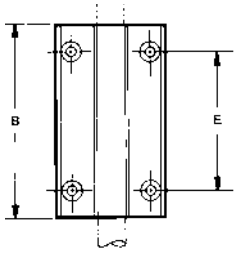
Part Number	d(5)	H ± 0,020	H1	A	A1 ± 0,020	B	E ± 0,1	E1 ± 0,1	N Dia.	N2	Mass (kg)	Dynamic Load W(1)(2) (N)	Load Limit $W_0^{(2)(4)}$ (N)
SSE TWNA M16 DD	16	22	42	53	26,5	84	64	40	5,3	M6	0,41	4400	4800
SSE TWNA M20 DD	20	25	50	60	30,0	104	76	45	6,6	M8	0,67	8000	8800
SSE TWNA M25 DD	25	30	60	78	39,0	130	94	60	8,4	M10	1,24	13400	14600
SSE TWNA M30 DD	30	35	71	87	43,5	152	106	68	8,4	M10	1,94	16600	18200
SSE TWNA M40 DD	40	45	91	108	54,0	176	124	86	10,5	M12	3,63	27400	30000

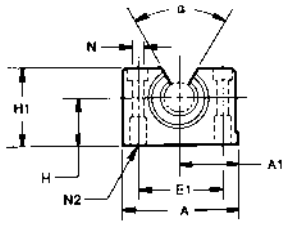
See footnotes (1) (2) (3) (4) (5) on pages 129-130. For diametral clearances, see single versions of pillow block.

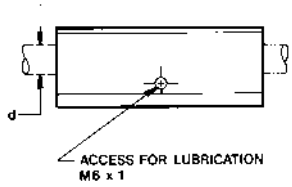
ООО "БИБУС" - www.bibus.ru

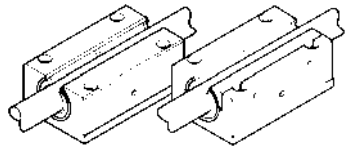
Metric – Super Smart Pillow Blocks

Super Smart Twin Pillow Blocks
(Open Type)





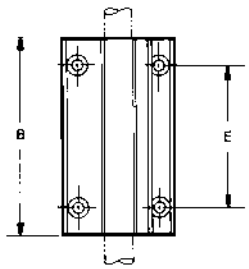


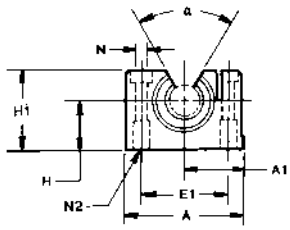


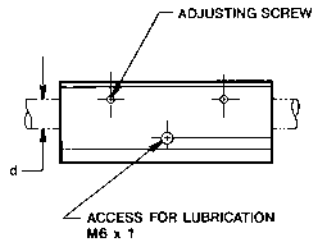
Super Smart Twin Pillow Blocks (Open Type) (Dimensions in mm)

Part Number	d[5]	H ± 0,020	H1	A	A1 ± 0,020	B	E ± 0,1	E1 ± 0,1	N Dia.	N2	Angle α (deg)	Mass (kg)	Dynamic Load W[1][2] (N)	Load Limit W_0[2][4] (N)
SSE TWNO M16 DD	16	22	35	53	26,5	84	64	40	5,3	M6	70	0,37	4400	4800
SSE TWNO M20 DD	20	25	41	60	30,0	104	76	45	6,6	M8	50	0,58	8000	8800
SSE TWNO M25 DD	25	30	50	78	39,0	130	94	60	8,4	M10	60	1,16	13400	14600
SSE TWNO M30 DD	30	35	60	87	43,5	152	106	68	8,4	M10	55	1,78	16600	18200
SSE TWNO M40 DD	40	45	77	108	54,0	176	124	86	10,5	M12	54	3,25	27400	30000

(Open Adjustable Type)







Super Smart Twin Pillow Blocks (Open Adjustable Type) (Dimensions in mm)

Part Number	d[5]	H ± 0,020	H1	A	A1 ± 0,020	B	E ± 0,1	E1 ± 0,1	N Dia.	N2	Angle α (deg)	Mass (kg)	Dynamic Load W[1][2] (N)	Load Limit W_0[2][4] (N)
SSE TWNOA M16 DD	16	22	35	53	26,5	84	64	40	5,3	M6	70	0,37	4400	4800
SSE TWNOA M20 DD	20	25	41	60	30,0	104	76	45	6,6	M8	50	0,58	8000	8800
SSE TWNOA M25 DD	25	30	50	78	39,0	130	94	60	8,4	M10	60	1,16	13400	14600
SSE TWNOA M30 DD	30	35	60	87	43,5	152	106	68	8,4	M10	55	1,78	16600	18200
SSE TWNOA M40 DD	40	45	77	108	54,0	176	124	86	10,5	M12	54	3,25	27400	30000

See footnotes (1) (2) (3) (4) (5) on pages 129-130. For diametral clearances, see single versions of pillow block.

ООО "БИБУС" - www.bibus.ru

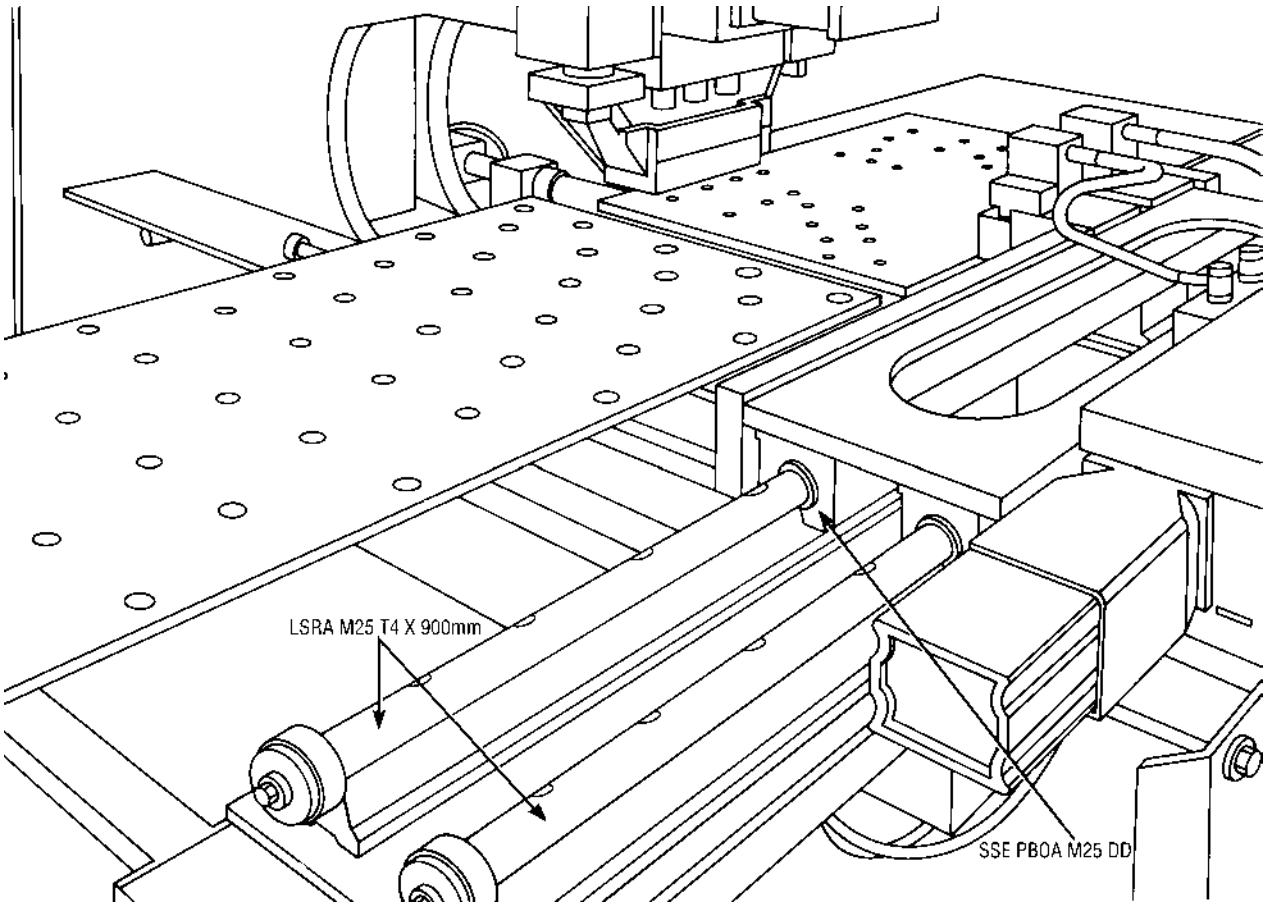
Application
Punch Press

Objective
Reduce deflection of plate loader to minimize scrap and improve cycle speed.

Solution
Replace super type linear bearings with Super Smart pillow blocks and Smart Rail assemblies to improve accuracy, load capacity, service life, efficiency and reduce downtime.

Products Specified
4 - SSE PBOA M25 DD (Super Smart Pillow Blocks)
2 - LSRA M25 T4 900 mm Smart Rail assemblies

Benefits
By retrofitting with Super Smart Pillow Blocks, machine productivity increased 700%. Smart Rail assemblies provided reduced deflection during plate loading. The retrofit required minimum downtime due to the pillow blocks' ease of installation.



ООО "БИБУС" - www.bibus.ru