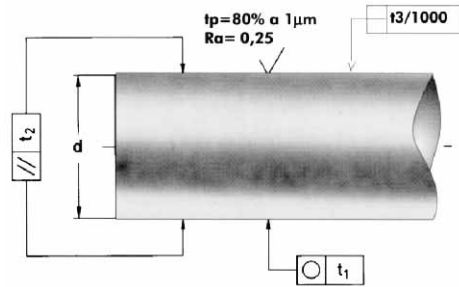


# Precision Round Shaft



Ra = Average roughness value  
It identifies a mean arithmetic value of all distances of the roughness diagram points, referred to a mean line and a given length.

Tp = Supporting surface  
The ratio between the actual contact area of the surface examined and a perfectly smooth surface, and the ideal contact area that can be reached if the two surfaces were perfectly smooth.

## Series W - Hardened & Ground

Material: CK60 (1.1221) Surface Hardness:  $62 \pm 2$  HRC Tensile Strength: 550-750 N/mm<sup>2</sup>

Part No.	Shaft Diam.* d mm	Weight per mtr. kg.	Standard Length** mm	Hardening Depth Rht (max) DIN6773 mm	Standard Tolerance ISO h6 µm	Special Tolerances		Roundness (circular) T <sub>1</sub> µm	Parallelism (cylindric) T <sub>2</sub> µm	Straightness T <sub>3</sub> µm
						ISO j6 µm	ISO g6 µm			
W 6	6	0.22	3000	0.8	0 -8	+6 -2	-4 -12	4	6	300
W 8	8	0.39	3000	1.0	0 -9	+7 -2	-5 -14	4	6	300
W10	10	0.61	3000	1.0	0 -9	+7 -2	-5 -14	4	6	300
W12	12	0.89	3000	1.3	0 -11	+8 -3	-6 -17	5	8	200
W15	15	1.37	3000	1.3	0 -11	+8 -3	-6 -17	5	8	200
W16	16	1.57	3000	1.6	0 -11	+8 -3	-6 -17	5	8	200
W20	20	2.45	3000	1.6	0 -13	+9 -4	-7 -20	6	9	100
W25	25	3.83	3000	1.8	0 -13	+9 -4	-7 -20	6	9	100
W30	30	5.51	3000	2.0	0 -13	+9 -4	-7 -20	6	9	100
W40	40	9.80	3000	2.5	0 -16	+11 -5	-9 -25	7	11	100
W50	50	15.3	3000	3.0	0 -16	+11 -5	-9 -25	7	11	100

\* Other sizes available on request

All dimensions are subject to change without notice.

## Precision Round Shaft

Series WV - Hardened, Ground and Chromium Plated

Material: CK60(1.1221) CF53(1.1213) Surface Hardness: 800-1100 HV Chrome

Part No.	Shaft Diam.*		Weight per mtr. kg.	Standard Length** mm	Hardening Depth Rht (max) DIN6773 mm	Standard Tolerance ISO h7 $\mu\text{m}$	Special Tolerance ISO h6 $\mu\text{m}$	Roundness (circular)	Parallelism (cylindric)	Straightness
	d mm							T <sub>1</sub> $\mu\text{m}$	T <sub>2</sub> $\mu\text{m}$	T <sub>3</sub> $\mu\text{m}$
WV12	12		0.89	3000	1.3	0 -18	0 -11	8	12	200
WV16	16		1.58	3000	1.6	0 -18	0 -11	8	12	200
WV20	20		2.47	3000	1.6	0 -21	0 -13	9	12	100
WV25	25		3.85	3000	1.8	0 -21	0 -13	9	12	100
WV30	30		5.55	3000	2.0	0 -21	0 -13	9	12	100

Series WRB - Hardened and Ground Stainless Steel

Material: X46Cr13 (1.4034) Tensile Strength: 650-800N/mm<sup>2</sup>  
Surface hardness: 55±2 HRC

Part No.	Diam.*		Weight per mtr. kg.	Standard Length** mm	Hardening Depth DIN50190 DIN6773 mm	Standard Tolerance ISO h6 $\mu\text{m}$	Roundness (circular)	Parallelism (cylindric)	Straightness
	d mm						T <sub>1</sub> $\mu\text{m}$	T <sub>2</sub> $\mu\text{m}$	T <sub>3</sub> $\mu\text{m}$
WRB 8	8		0.40	3000	0.9	0 -9	4	6	300
WRB 10	10		0.62	3000	1.1	0 -9	4	6	300
WRB 12	12		0.89	3000	1.3	0 -11	5	8	200
WRB 16	16		1.58	3000	1.6	0 -11	5	8	200
WRB 20	20		2.47	3000	1.8	0 -13	6	9	100
WRB 25	25		3.85	3000	2.0	0 -13	6	9	100
WRB 30	30		5.55	3000	2.4	0 -13	6	9	100

Series WZ - Hardened and Ground Inch dimensions

Material: CK60(1.1221) CF53(1.1213) Surface Hardness: 62±2 HRC

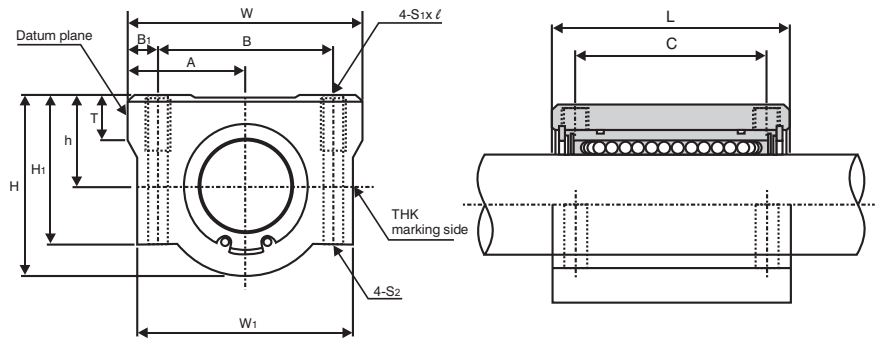
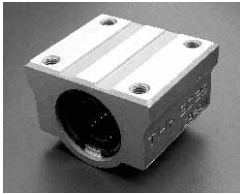
Part No.	Shaft Diam.*		Weight Per mtr. kg.	Standard Length** mm	Hardening Depth Rht (max) DIN6773 mm	Tolerance Class "L"	Standard Tolerance ISO h6 $\mu\text{m}$	Roundness (circular)	Parallelism (cylindric)	Straightness
	mm	inch						T <sub>1</sub> $\mu\text{m}$	T <sub>2</sub> $\mu\text{m}$	T <sub>3</sub> $\mu\text{m}$
WZ 9	9.525	3/8"	0.56	3000	1.0	-13 -25	0 -9	4	6	300
WZ12	12.700	1/2"	0.99	3000	1.3	-13 -25	0 -12	5	8	200
WZ15	15.875	5/8"	1.55	3000	1.3	-13 -25	0 -12	5	8	200
WZ19	19.050	3/4"	2.24	3000	1.6	-13 -25	0 -13	6	9	200
WZ25	25.400	1"	3.97	3000	1.8	-13 -25	0 -13	6	9	100
WZ31	31.750	1 1/4"	6.22	3000	2.0	-13 -25	0 -16	7	11	100
WZ50	50.800	2"	15.91	3000	3.0	-15 -33	0 -19	7	11	100

\*\* Other sizes available on request

All dimensions are subject to change without notice.

# Bearing Block Type SC

- Aluminium alloy housing
- Standard ball bushing
- Sealed



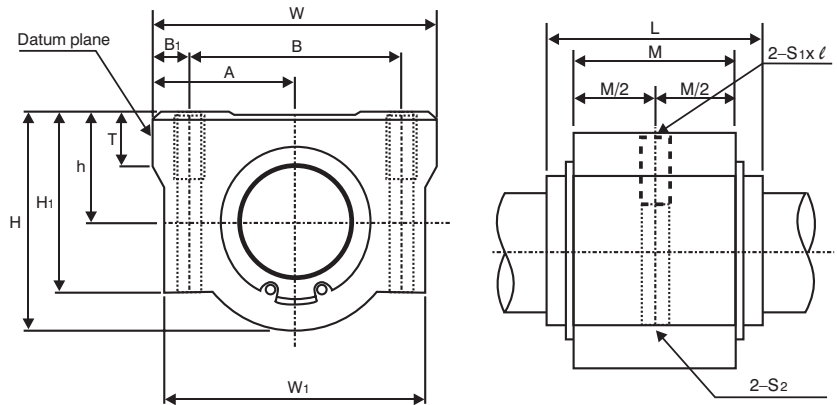
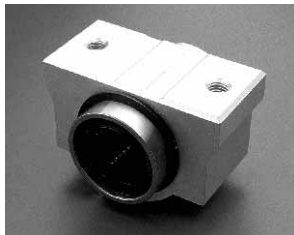
Dimensions in mm

Part No.	Shaft size	Height	Width	Length	Mounting hole position			TAP		±0.02	±0.02				Basic load rating		Unit Weight
	∅	H	W	L	B	B1	C	S1xℓ	S2	h	A	H1	W1	T	c N	co N	g
SC 12UU	12	29	42	36	30.5	5.75	26	M5x12	M4	15	21	25	39	8	412	598	102
SC 16UU	16	38.5	50	44	36	7	34	M5x12	M4	19	25	35	46	9	775	1180	189
SC 20UU	20	42	54	50	40	7	40	M6x12	M5	21	27	36	52	11	863	1370	237
SC 25UU	25	51.5	76	67	54	11	50	M8x18	M6	26	38	41	68	12	980	1570	555
SC 30UU	30	59.5	78	72	58	10	58	M8x18	M6	30	39	49	72	15	1570	2750	685
SC 40UU	40	78	102	90	80	11	60	M10x25	M8	40	51	62	96	20	2160	4020	1600
SC 50UU	50	102	122	110	100	11	80	M10x25	M8	52	61	80	116	25	3820	7940	3350

1N=0.102kgf

# Bearing Block Type SC-V

- Compact aluminium housing
- 2 mounting holes
- Standard ball bushing
- Sealed



Dimensions in mm

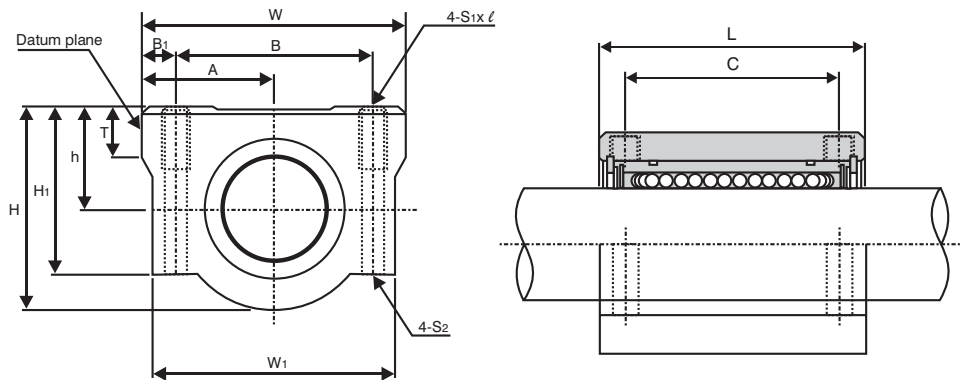
Part No.	Shaft size	Height	Width	Length	Mounting hole position			TAP		±0.02	±0.02				Basic load rating		Unit Weight
	∅	H	W	L	B	B1	M	S1xℓ	S2	h	A	H1	W1	T	c N	co N	g
SC 12VUU	12	30	44	30	33	5.5	20.5	M5x10	M4	15	22	26	41	8	411	598	74
SC 16VUU	16	38.5	50	37	36	7	23.5	M5x12	M4	19	25	35	46	9	774	1176	132
SC 20VUU	20	42	54	42	40	7	27.4	M6x12	M5	21	27	36	52	11	862	1372	170
SC 25VUU	25	51.5	76	59	54	11	37.4	M8x10	M6	26	38	41	68	12	990	1568	405
SC 30VUU	30	59.5	78	64	58	10	40.9	M8x18	M6	30	39	49	72	15	1568	2794	495
SC 40VUU	40	78	102	80	80	11	56.4	M10x25	M8	40	51	62	96	20	2156	4019	1220
SC 50VUU	50	102	122	100	100	11	68.9	M10x25	M8	52	61	80	116	25	3823	7941	2300

1N=0.102kgf

## Bearing Block Type SC-TK

Also available with: Stainless steel or ceramic bearings  
or Tandem version (2 bearings per housing)

- Aluminium alloy housing
- Super ball bushing
- Self-aligning capability
- Sealed



Dimensions in mm

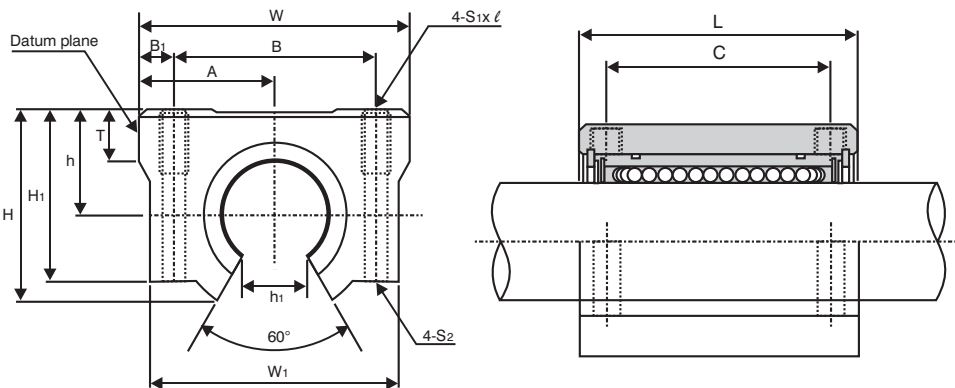
Part No.	Shaft size	Height	Width	Length	Mounting hole position			TAP		±0.02	±0.02				Basic load rating		Unit Weight
	∅	H	W	L	B	B <sub>1</sub>	C	S <sub>1</sub> xℓ	S <sub>2</sub>	h	A	H <sub>1</sub>	W <sub>1</sub>	T	<sup>c</sup> <sub>N</sub>	<sup>co</sup> <sub>N</sub>	g
SC 12TKUU	12	30	44	39	33	5.5	26	M 5x10	M4	15	22	26	41	8	1020	1290	100
SC 16TKUU	16	38.5	50	44	36	7	34	M 5x12	M4	19	25	35	46	9	1250	1550	160
SC 20TKUU	20	42	54	53	40	7	40	M 6x12	M5	21	27	36	52	11	2090	2630	230
SC 25TKUU	25	51.5	76	67	54	11	50	M 8x18	M6	26	38	41	68	12	3780	4720	460
SC 30TKUU	30	59.5	78	76	58	10	58	M 8x18	M6	30	39	49	72	15	5470	6810	630
SC 40TKUU	40	78	102	90	80	11	60	M10x25	M8	40	51	62	96	20	6590	8230	1270
SC 50TKUU	50	102	122	110	100	11	80	M10x25	M8	52	61	80	116	25	8600	7100	2450

1N=0.102kgf

## Bearing Block Set Type SC-TKOPN

Also available with: Stainless steel or ceramic bearings  
or Tandem version (2 bearings per housing)

- Aluminium alloy housing
- Super ball bushing
- Self-aligning capability
- Sealed



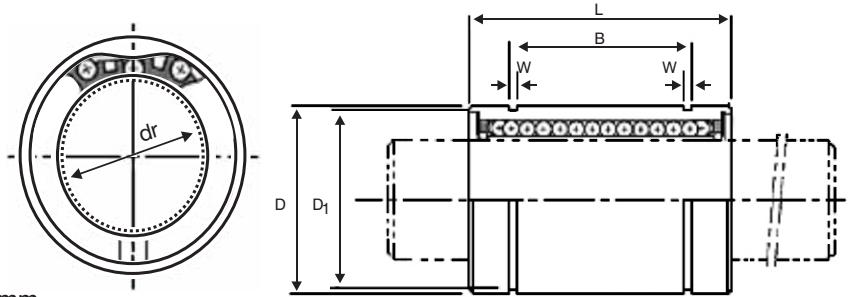
Dimensions in mm

Part No.	Shaft size	Height	Width	Length	Mounting hole position			TAP		±0.02	±0.05				Basic load rating		Unit Weight	
	∅	H	W	L	B	B <sub>1</sub>	C	h <sub>1</sub>	S <sub>1</sub> xℓ	S <sub>2</sub>	h	A	H <sub>1</sub>	W <sub>1</sub>	T	<sup>c</sup> <sub>N</sub>	<sup>co</sup> <sub>N</sub>	g
SC 12TKUUOPN	12	28	44	39	33	5.5	26	7	M5x10	M4	15	22	26	41	8	816	1032	90
SC 16TKUUOPN	16	35	50	44	36	7	34	9	M5x12	M4	19	25	35	46	9	1000	1240	140
SC 20TKUUOPN	20	39	54	53	40	7	40	9	M6x12	M5	21	27	36	52	11	1672	2104	200
SC 25TKUUOPN	25	47	76	67	54	11	50	12	M6x18	M6	26	38	41	68	12	3024	3776	420
SC 30TKUUOPN	30	55	78	76	58	10	58	14	M8x18	M6	30	39	49	72	15	4376	4126	580
SC 40TKUUOPN	40	74	102	90	80	11	60	20	M10x25	M8	40	51	62	96	20	5232	6554	1210
SC 50TKUUOPN	50	98	122	110	100	11	80	23	M10x25	M8	52	61	80	116	25	8940	7380	2380

1N=0.102kgf

## Standard Ball Bushings Also available: Stainless steel version

- All steel outer
- Resin retainer
- Sealed both ends
- Standard ball bushing dimensions
- Available as open or closed series



Dimensions in mm

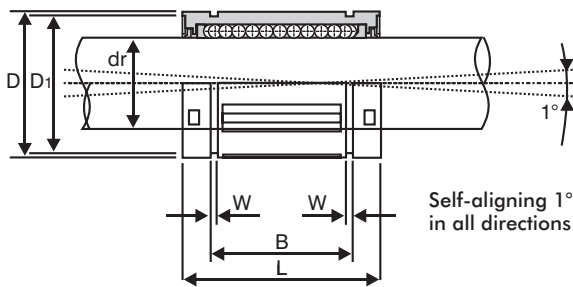
Part No.	dr	No. of ball circuits	D	Tolerance			W	D <sub>1</sub>	Basic load rating		Unit Weight	
	ø			L	tol	B			tol	c N		co N
KB 5GUU	5	4	12	22	0 -0.12	14.5	0 -0.2	1.1	11.5	206	265	11
KB 8GUU	8	4	16	25	0 -0.2	16.5	0 -0.2	1.1	15.2	265	402	22
KB 12GUU	12	4	22	32	0 -0.2	22.9	0 -0.2	1.3	21	510	784	45
KB 16GUU	16	4	26	36	0 -0.2	24.9	0 -0.2	1.3	24.9	578	892	60
KB 20GUU	20	5	32	45	0 -0.2	31.5	0 -0.2	1.6	30.3	862	1370	102
KB 25GUU	25	6	40	58	0 -0.2	44.1	0 -0.3	1.85	37.5	980	1570	235
KB 30GUU	30	6	47	68	0 -0.3	52.1	0 -0.3	1.85	44.5	1570	2740	360
KB 40GUU	40	6	62	80	0 -0.3	60.6	0 -0.3	2.15	59	2160	4020	770
KB 60GUU	60	6	90	125	0 -0.4	101.7	0 -0.4	3.15	86.5	4700	9800	2220
*KB 80UU	80	6	120	165	0 -0.4	133.7	0 -0.4	4.15	116	7350	16000	5140

\*KB80UU has a steel retainer

1N=0.102kgf

## Super Ball Bushings Also available: Stainless steel version

- Higher load capacities
- Longer travel life
- Self-aligning capabilities
- Integral floating seals
- Standard ball bushing dimensions
- Available as open or closed series



Recommended Tolerance for Shaft O.D. and Housing Bore.

Part No.	Shaft diameter		Housing bore	
	dr mm	Tol.(h6) µm	D mm	Tol.(h7) µm
TK12	12	0	22	+21
TK16	16	-11	26	0
TK20	20	0	32	+25
TK25	25	-13	40	0
TK30	30		47	
TK40	40	0/-16	62	+30/0

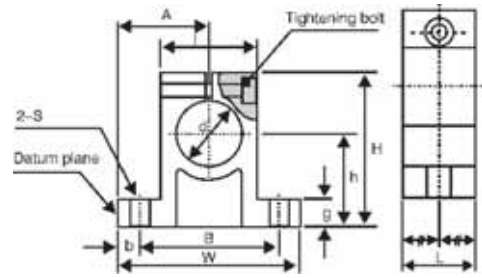
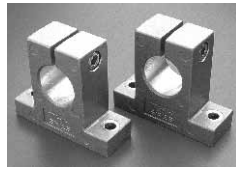


Dimensions in mm

Part No.	dr	No. of ball circuits	D	Tolerance			W	D <sub>1</sub>	Basic load rating		Unit Weight
	ø			L	tol	B			tol	c N	
TK 12UU	12	5	22	32 ±0.2	22.9	0 -0.2	1.3	21	1020	1290	21
TK 16UU	16	5	26	36 ±0.2	24.9	0 -0.2	1.3	24.9	1250	1550	43
TK 20UU	20	6	32	45 ±0.2	31.5	0 -0.2	1.6	30.3	2090	2630	58
TK 25UU	25	6	40	58 ±0.2	44.1	0 -0.2	1.85	37.5	3780	4720	123
TK 30UU	30	6	47	68 ±0.2	52.1	0 -0.2	1.85	44.5	5470	6810	216
TK 40UU	40	6	62	80 ±0.2	60.6	0 -0.2	2.15	59	6590	8230	333

# Shaft Support Blocks

## Type SK



Dimensions in mm

Part No.	Shaft size						Mounting bolt	±0.02		±0.05		Tightening bolt	Unit Weight g	
	d	H	W	L	B	S		h	A	b	l			g
SK10	10	32.8	42	14	32	5.5	M5	20	21	5	18	6	M4	24
SK12	12	37.5	42	14	32	5.5	M5	23	21	5	20	6	M4	30
SK16	16	44	48	16	38	5.5	M5	27	24	5	25	8	M4	40
SK20	20	51	60	20	45	6.6	M6	31	30	7.5	30	10	M5	70
SK25	25	60	70	24	56	6.6	M6	35	35	7	38	12	M6	130
SK30	30	70	84	28	64	9	M8	42	42	10	44	12	M6	180
SK40	40	96	114	36	90	11	M10	60	57	12	60	15	M8	420
SK50	50	120	126	40	100	14	M12	70	63	13	74	18	M12	750

# Flanged Shaft Support Blocks

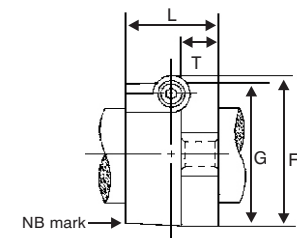
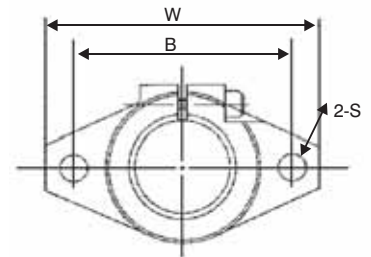
## Type SHF - Aluminium Alloy



Dimensions in mm

Part No.	Shaft diameter	W	L	T	F	G	B	S (bolt size)	Adjusting bolt size	Unit Weight g
SHF10	10	43	10	5	24	20	32	5.5 (M5)	M4	13
SHF12	12	47	13	7	28	25	36	5.5 (M5)	M4	20
SHF13	13	47	13	7	28	25	36	5.5 (M5)	M4	20
SHF16	16	50	16	8	31	28	40	5.5 (M5)	M4	27
SHF20	20	60	20	8	37	34	48	7 (M6)	M5	40
SHF25	25	70	25	10	42	40	56	7 (M6)	M5	60
SHF30	30	80	30	12	50	46	64	9 (M8)	M6	110
SHF35*	35	92	35	14	58	50	72	12 (M10)	M8	380
SHF40*	40	102	40	16	67	56	80	12 (M10)	M10	510
SHF50*	50	122	50	19	83	70	96	14 (M12)	M12	890
SHF60*	60	140	60	23	95	82	112	14 (M12)	M12	1500

\* Cast iron

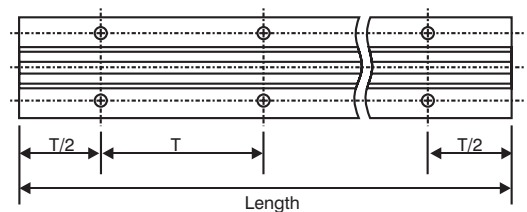


# Shaft Support Rails

- High rigidity
- Low overall height
- Light weight aluminium alloy

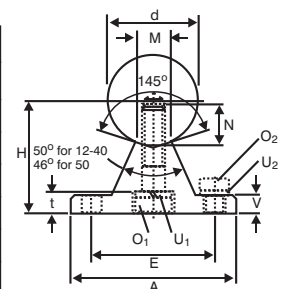


Shaft support Rails are designed to support the shafts on which ball bushings run to prevent them from bending under load. Shaft Support Rails are delivered in ready sections of high dimensional accuracy and are designed to give high rigidity. Their low overall height allows the construction of extra compact linear motion assemblies.



Dimensions in mm

Part No.	±0.01													
	d	H	A	V	M	O <sub>1</sub>	U <sub>1</sub>	N	E	t	O <sub>2</sub>	U <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>
1050-512-00	12	22	40	5	5.8	M 4x20	4	8	29	4.5	M 4x12	4	75	120
1050-516-00	16	26	45	5	7	M 5x20	5	9	33	7.5	M 5x16	5	100	150
1050-520-00	20	32	52	6	8.3	M 6x25	6	11	37	8	M 6x16	6	100	150
1050-525-00	25	36	57	6	10.8	M 8x30	8	15	42	7.5	M 6x16	6	120	200
1050-530-00	30	42	69	7	11	M10x35	10	17	51	9.5	M 8x25	8	150	200
1050-540-00	40	50	73	8	15	M10x40	10	19	55	9.5	M 8x25	8	200	300
1050-550-00	50	60	84	9	19	M12x45	12	21	63	11.5	M10x30	10	200	300





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