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FULL-COVER TYPE BALLSCREW ACTUATORS/SC SERIES

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VARIATIONS

Model No.		SC23	SC30	SC45
Performance grade		H: Repeated positioning accuracy ±3μm(Note 1) (Note 2) U: Repeated positioning accuracy ±5μm(Note 2) W: Repeated positioning accuracy ±10μm(Note 2)		
Screw shaft dia. (mm)		8	10	15
Lead (mm)	2	◎	●	
	4	●	◎	
	5	◎	◎	◎
	6		◎	
	8	●		
	10		◎	◎
	20		◎	◎

◎: In-stock items ●: Manufactured by order

(Note 1) There is no Performance Grade H in SC30 leads 6mm and 20mm.

(Note 2) Performance may be different from the values shown above, depending on applied options and usage.

HOW TO INTERPRET MODEL NO.

SC30	05	A	-	150	U	-	A1	N	N	-	N	N	-	PR
①	②	③		④	⑤		⑥	⑦	⑧		⑨	⑩		⑪

① Model ② Lead

① Model	② Lead	② Sub guide rail
SC23	2, 5	SB
SC30	4, 5, 6, 10, 20	SB
SC45	5, 10, 20	SB

③ Slide block

Model	Slide block
SC23 SC30 SC45	A: With 1 long block E: With 1 long block (LUBSEAL)

④ Guide rail length (Note 1) (Note 2)

Model	Guide rail length (mm)
SC23	150, 200, 250, 300
SC30	150, 200, 300, 400, 500, 600, 700*, 750*
SC45	540, 640, 740, 840, 940

⑤ Performance grade (Note 3)

H	Repeated positioning accuracy±3μm
U	Repeated positioning accuracy±5μm
W	Repeated positioning accuracy±10μm
L	Sub guide rail

⑥ Motor bracket configuration

Model	Motor bracket configuration	Sub guide rail
SC23	A0, A1, A2, A3, A5, A6, A7	NN
SC30	A0, A1, A2, A3, A4, A5, A7, B1, RN, E□, F□	NN
SC45	A0, A1, A2, A3, A4, A5, A6, RN, E□, F□, G□	NN

⑦ Type of cover

N	Standard cover
G	With grease nipple
S	With wiper
D	With grease nipple and wiper

⑧ Sensor

Model	Sensor
SC23	N: Without sensor S: Photo-microsensor K, E: Proximity sensor 1: For sensor rails only
SC30 SC45	N: Without sensor M, Y, C, P: Photo-microsensor K, E: Proximity sensor 1: For sensor rails only

⑨ Surface treatment (Note 4)

N	Standard treatment
L	Anti corrosive black coating

⑩ Grease (Note 5)

Model	Grease
SC23 SC30 SC45	N: Standard grease S: Dust preventive KURODA S grease

⑪ Additional options

Blank	No dowel pin hole
PR	For guide rail only
ML	For reversed guide rail reference surface
MPR	For both reversed guide rail reference surface and guide rail

(Note 1) For specifications of guide rail with long rails or intermediate stroke with non-standard length, consult KURODA.

(Note 2) The SC30 rail lengths marked with "*" are not available in Performance Grade H.

(Note 3) There is no Performance Grade H in SC30 leads 6mm and 20mm.

(Note 4) With standard specifications of surface treatment (Symbol: N), only guide rails are treated with black coating.

(Note 5) With standard grease (Symbol: N), Multemp PS No.2 Grease (KYODO YUSHI CO., LTD.) is contained in slide block and ball screw components.

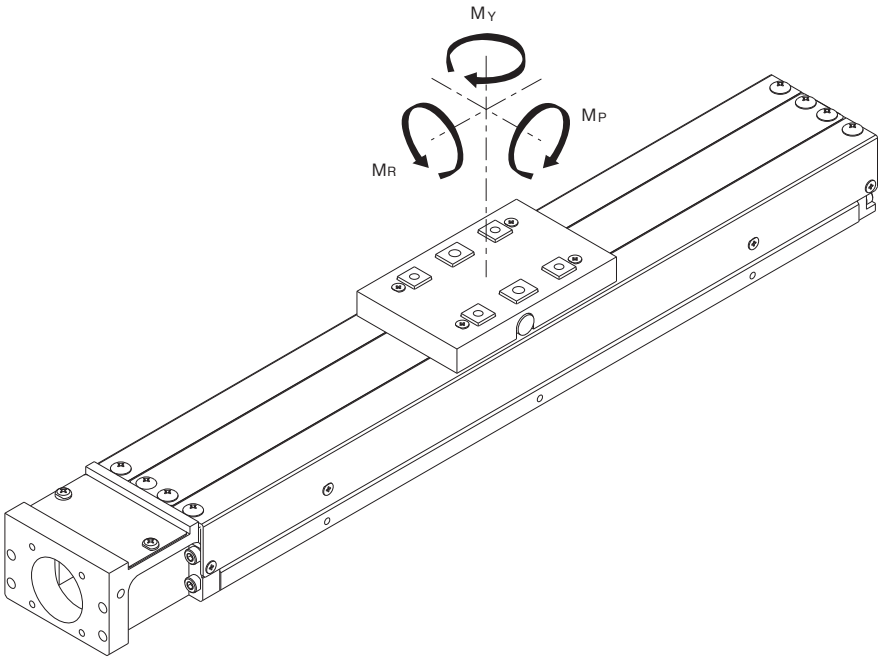
(Note 6) With Lubrication unit LUBSEAL specifications refer to Front matters 14 to 15.

SPECIFICATIONS

Model no.					SC2302		SC2305		SC3004		SC3005		SC3006		SC3010		SC3020		SC4505		SC4510		SC4520	
Performance grade					W	U	W	U	W	U	W	U	W	U	W	U	W	U	W	U	W	U	W	U
Guide	Radial clearance			μm	−3～0				−3～0										−5～0					
	Long block	Basic dynamic load rating	C	kN	4.3				7										27					
		Basic static load rating	C_0	kN	7.0				11.8										45.0					
		Static permissible moment	M_P	N·m	29				43										68					
			M_Y		51				107										194					
			M_R		61				84										250					
Ball screw	Shaft diameter			mm	8				10										15					
	Lead			mm	2		5		4		5		6		10		20		5		10		20	
	Basic dynamic load rating		C_a	kN	1.8		1.9		3.0		3.0		3.0		2.0		2.2		5.1		5.1		3.1	
	Basic static load rating		C_{0a}	kN	3.2		3.1		5.3		5.3		5.3		3.2		3.5		10.5		10.5		6.6	
Fixed side bearing	Model No. of bearing				AC6-16DF or equivalent				708DFP5 or equivalent										5201A or equivalent					
	Basic dynamic load rating		C_b	kN	1.79				4.40										5.90					
	Basic static load rating		C_{0b}	kN	1.76				4.36										3.20					

(Note 1) Static permissible moment shows rigidity value based on dimensions and material of table.
(Note 2) There is no Performance Grade H in SC30 leads 6mm and 20mm.

DIRECTION OF MOMENT



ACCURACY

Model No.	Guide rail length (mm)	Repeated positioning accuracy (μm)			Positioning accuracy (μm)			Travelling parallelism B (μm)			Backlash (μm)			Starting torque (Note 2) (N・m)		
		W	U	H	W	U	H	W	U	H	W	U	H	W	U	H
SC23	150	±10	±5	±3	70		60	15		15	20	5	5	0.03	0.06	0.06
	200				75											
	250				85											
	300				90											
SC30	150	±10	±5	±3 (±5)	70		60	15		15	20	5	5	0.07	0.15	0.15
	200				80											
	300				90											
	400				95											
	500				100		100	25		25						
	600				110											
	700			—	120		—			—			—			—
	750				130											
SC45	540	±10	±5	±3 (±5)	110		100	40		40	20	5	5	0.1	0.2	0.2
	640				120											
	740				130		120									
	840				150		150	50		50						
	940				170											

(Note 1) Measurement is to be performed with KURODA's specified motor mounted.

(Note 2) Above starting torque value is applied when the standard grease is used. The value may change depending on the properties of the grease.

(Note 3) For repeated positioning accuracy, the value in parentheses is for parallel motor mounted configurations.

INERTIA

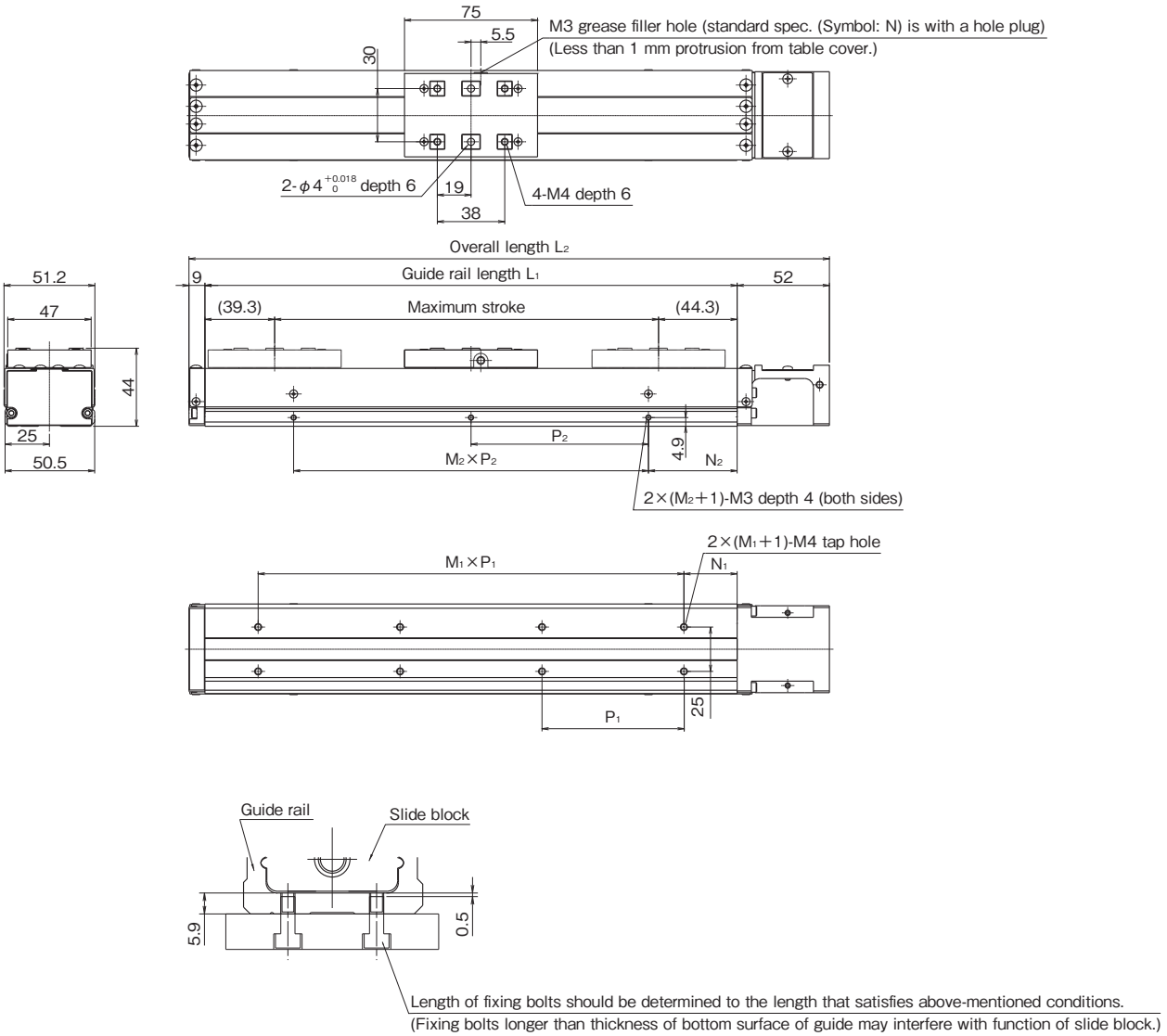
Inertia for slide block and ball screw of ballscrew actuator is shown in the following table.

(Unit : $\times 10^{-5}$kg·m^2)

Model No.	Guide rail length (mm)	Full-cover type Long block A: 1 block
SC2302	150	0.0616
	200	0.0773
	250	0.0930
	300	0.1090
SC2305	150	0.0756
	200	0.0913
	250	0.1070
	300	0.1230
SC3004	150	0.165
	200	0.204
	300	0.280
	400	0.357
	500	0.434
	600	0.510
	700	0.587
SC3005	150	0.176
	200	0.214
	300	0.291
	400	0.367
	500	0.444
	600	0.521
	700	0.597
SC3006	150	0.188
	200	0.227
	300	0.303
	400	0.380
	500	0.457
	600	0.533
	700	0.610
SC3010	150	0.261
	200	0.299
	300	0.376
	400	0.453
	500	0.529
	600	0.606
	700	0.683
	750	0.721
SC3020	150	0.602
	200	0.640
	300	0.717
	400	0.793
	500	0.870
	600	0.947
	700	1.023
SC4505	540	2.43
	640	2.81
	740	3.20
	840	3.59
	940	3.98
SC4510	540	2.68
	640	3.07
	740	3.46
	840	3.84
	940	4.23
SC4520	540	3.69
	640	4.08
	740	4.47
	840	4.86
	940	5.24

SC23

● FULL-COVER TYPE LONG BLOCK CONFIGURATIONS



● FULL-COVER TYPE LONG BLOCK DIMENSIONS

(Unit: mm)

Guide rail length L_1	Overall length L_2	N_1	$M_1 \times P_1$	N_2	$M_2 \times P_2$	Maximum stroke	
						Long block	Long block (with LUBSEAL)
						A: 1 block	E: 1 block
150	211	35	1×80	25	1×100	66	—
200	261	20	2×80	50		116	110
250	311	45		25	2×100	166	160
300	361	30	3×80	50		216	210

● PERMISSIBLE SPEED / MASS

Guide rail length L_1 (mm)	Permissible speed (mm/s)		Mass (kg)	
	Lead		Full-cover type	Mass of table (slide block + table + table cover parts)
	2mm	5mm	A: With 1 long block	
150	200	490	1.20	0.25
200			1.41	
250			1.63	
300			1.84	

(Note 1) Mass of full-cover type actuators in the above table includes mass of table.
(Note 2) For long rail configurations, please consult KURODA.

● MOTOR BRACKET CONFIGURATIONS

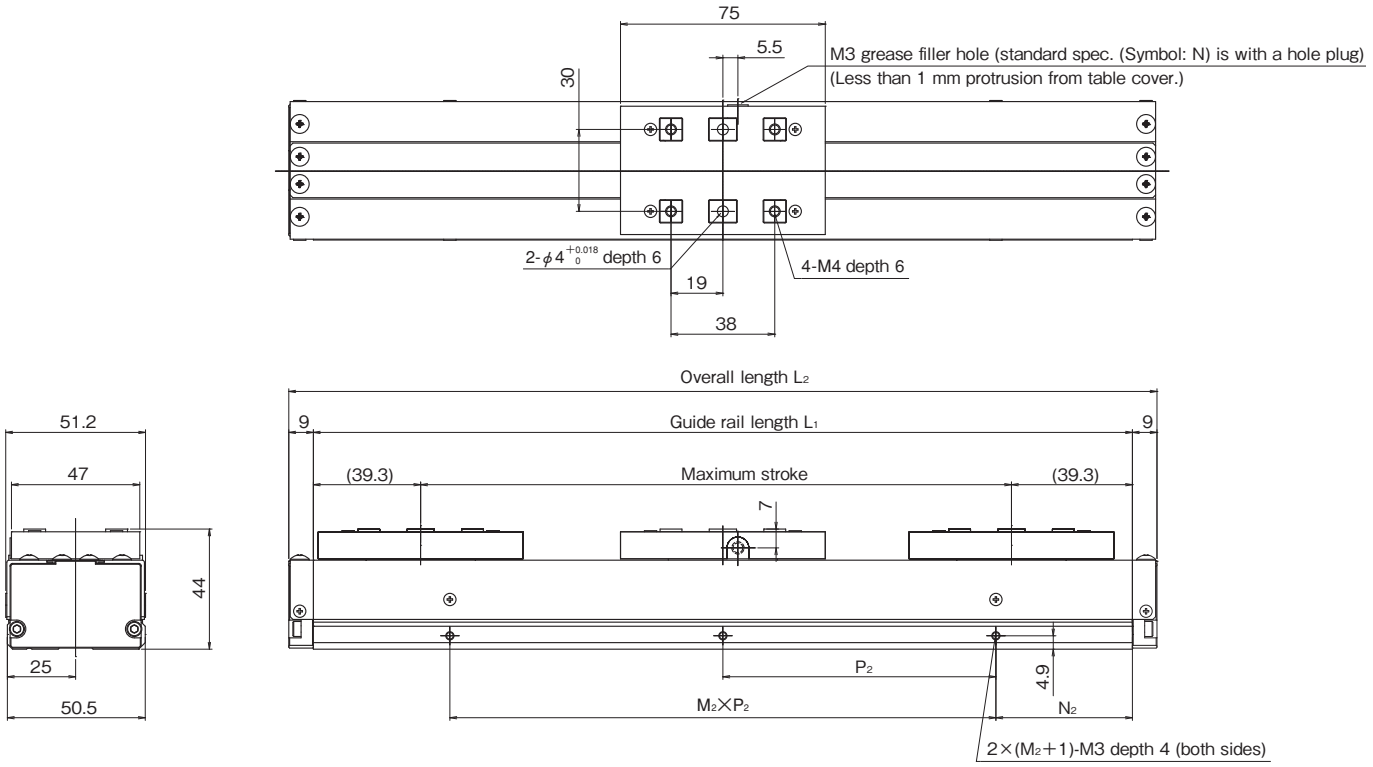
Please refer to Pages 68 to 71 of SE23 series regarding to motor bracket configurations.

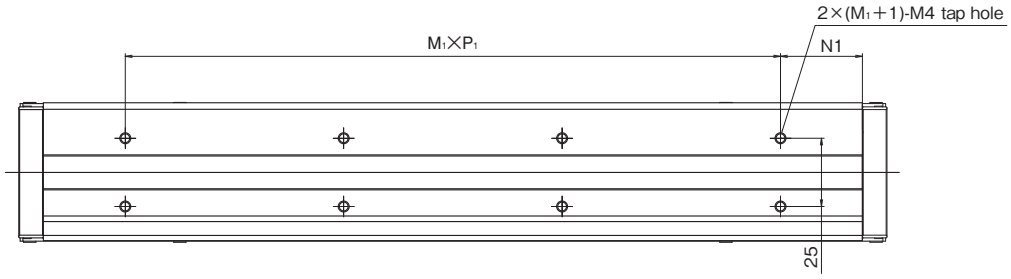
● DOWEL PIN HOLE (Guide rail only)

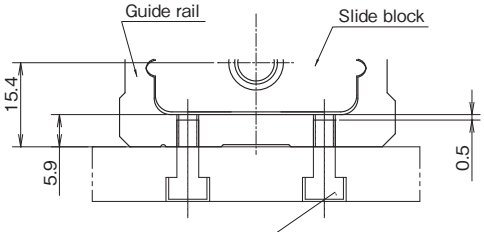
Please refer to Pages 73 of SE23 series regarding to guide rail positioning hole.

SC23

● FULL-COVER TYPE SUB GUIDE RAIL CONFIGURATIONS







Length of fixing bolts should be determined to the length that satisfies above-mentioned conditions.
(Fixing bolts longer than thickness of bottom surface of guide may interfere with function of slide block.)

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● FULL-COVER TYPE SUB GUIDE RAIL DIMENSIONS

(Unit: mm)

Guide rail length L_1	Overall length L_2	N_1	$M_1 \times P_1$	N_2	$M_2 \times P_2$	Maximum stroke	
						Long block	Long block (with LUBSEAL)
						A: 1 block	E: 1 block
150	211	35	1×80	25	1×100	71	—
200	261	20	2×80	50		121	115
250	311	45		25	2×100	171	165
300	361	30	3×80	50		221	215

● PERMISSIBLE SPEED / MASS

Guide rail length L_1 (mm)	Permissible speed (mm/s)	Mass (kg)	
		Full-cover type	Mass of table (slide block + table + table cover parts)
	Lead	A: With 1 long block	
150	490	1.12	0.25
200		1.32	
250		1.51	
300		1.71	

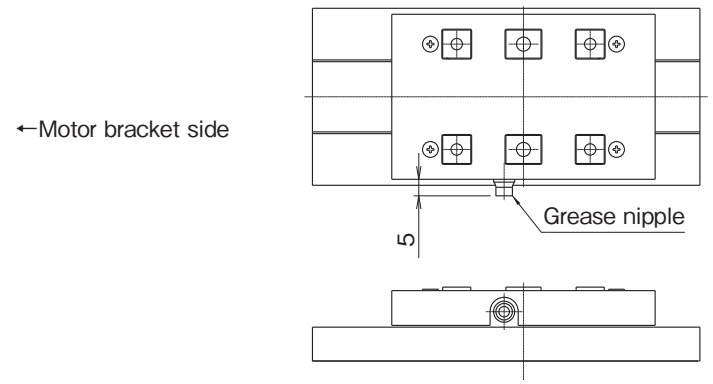
(Note 1) Mass of full-cover type actuators in the above table includes mass of table.
(Note 2) For long rail configurations, please consult KURODA.

SC23

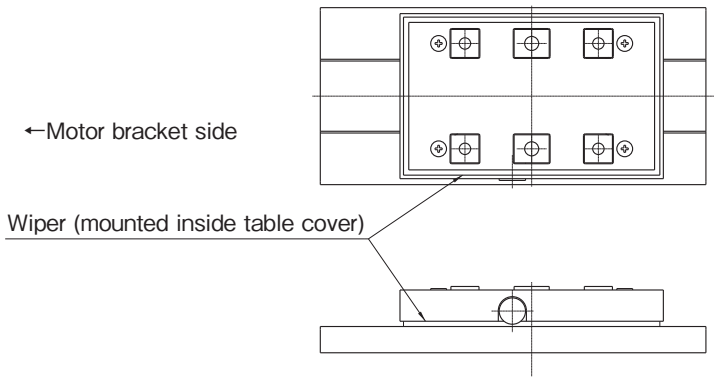
● COVER CONFIGURATION

The below-mentioned configurations with grease nipple and/or wiper are available for full-covered series. Standard specification (Symbol: N) has a plug equipped with grease filler hole.

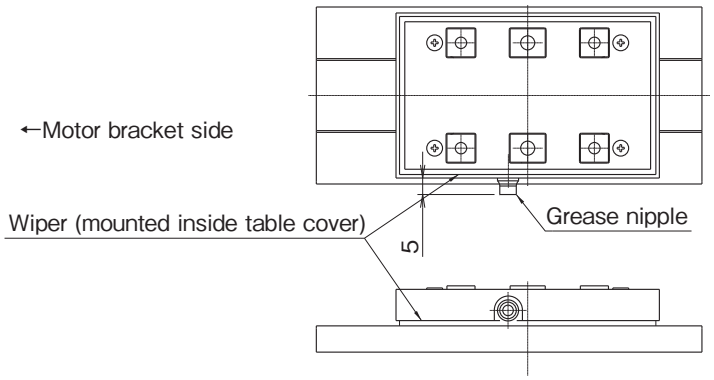
Full-cover type with grease nipple (Symbol: G)



Full-cover type with wiper (Symbol: S)



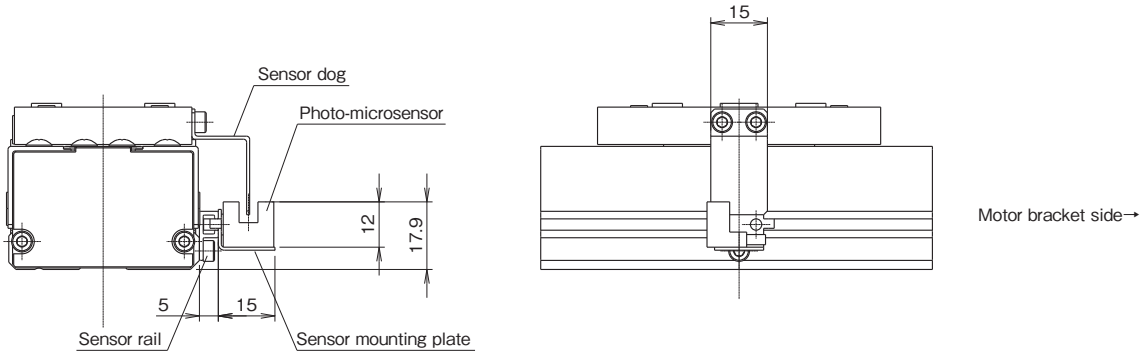
Full-cover type with grease nipple and wiper (Symbol: D)



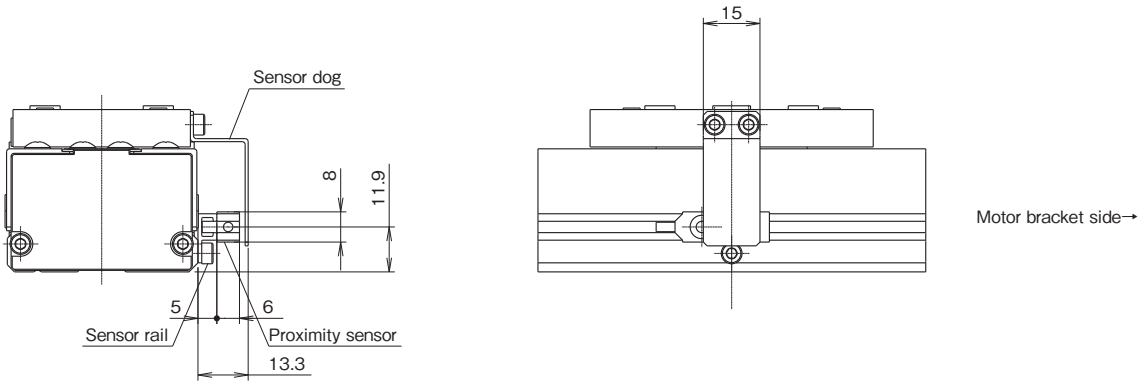
SC23

● SENSOR

Symbol S (NPN): Photo-microsensor (Panasonic Industrial Devices SUNX)



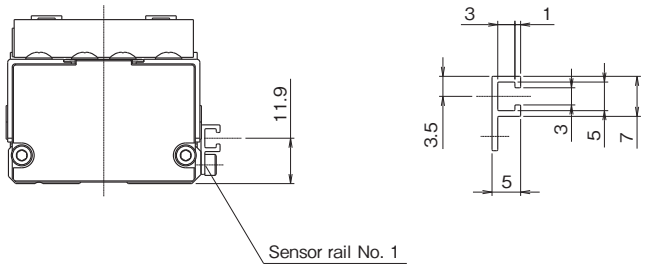
Symbol K (NPN) / E (PNP): Proximity sensor (Azbil)



● SENSOR RAIL

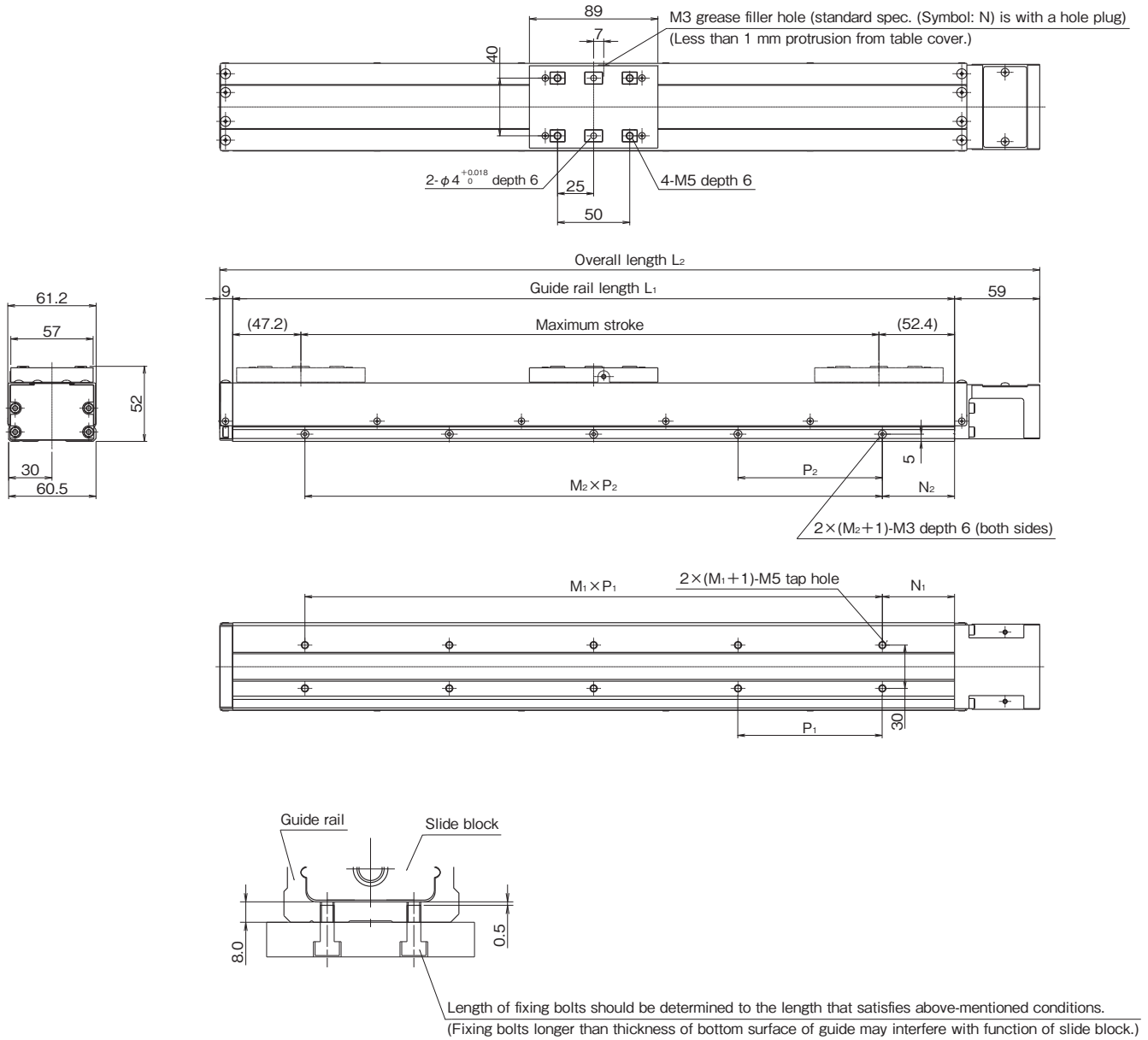
Sensor rails only available with no sensors.

Sensor rail No. 1



SC30

● FULL-COVER TYPE LONG BLOCK CONFIGURATIONS



● FULL-COVER TYPE LONG BLOCK DIMENSIONS

(Unit: mm)

Guide rail length L_1	Overall length L_2	N_1	$M_1 \times P_1$	N_2	$M_2 \times P_2$	Maximum stroke	
						Long block	Long block (with LUBSEAL)
						A: 1 block	E: 1 block
150	218	25	1×100	25	1×100	50	—
200	268	50		50		100	94
300	368		2×100		2×100	200	194
400	468		3×100		3×100	300	294
500	568		4×100		4×100	400	394
600	668		5×100		5×100	500	494
700	768		6×100		6×100	600	594
750	818	25	7×100	25	7×100	650	644

● PERMISSIBLE SPEED / MASS

Guide rail length L_1 (mm)	Permissible speed (mm/s)					Mass (kg)	
	Lead					Full-cover type	Mass of table (slide block + table + table cover parts)
	4mm	5mm	6mm	10mm	20mm	A: With 1 long block	
150	320	400	480	810	1200	1.9	0.43
200						2.2	
300						2.9	
400						3.5	
500						4.2	
600	240	300	360	600		4.9	
700	170	210	250	430	910	5.5	
750	—	—	—	380	790	5.8	

(Note 1) Guide rail length of 750 mm is available only for SC3010.

(Note 2) Mass of full-cover type actuators in the above table includes mass of table.

(Note 3) For long rail configurations, please consult KURODA.

● MOTOR BRACKET CONFIGURATIONS

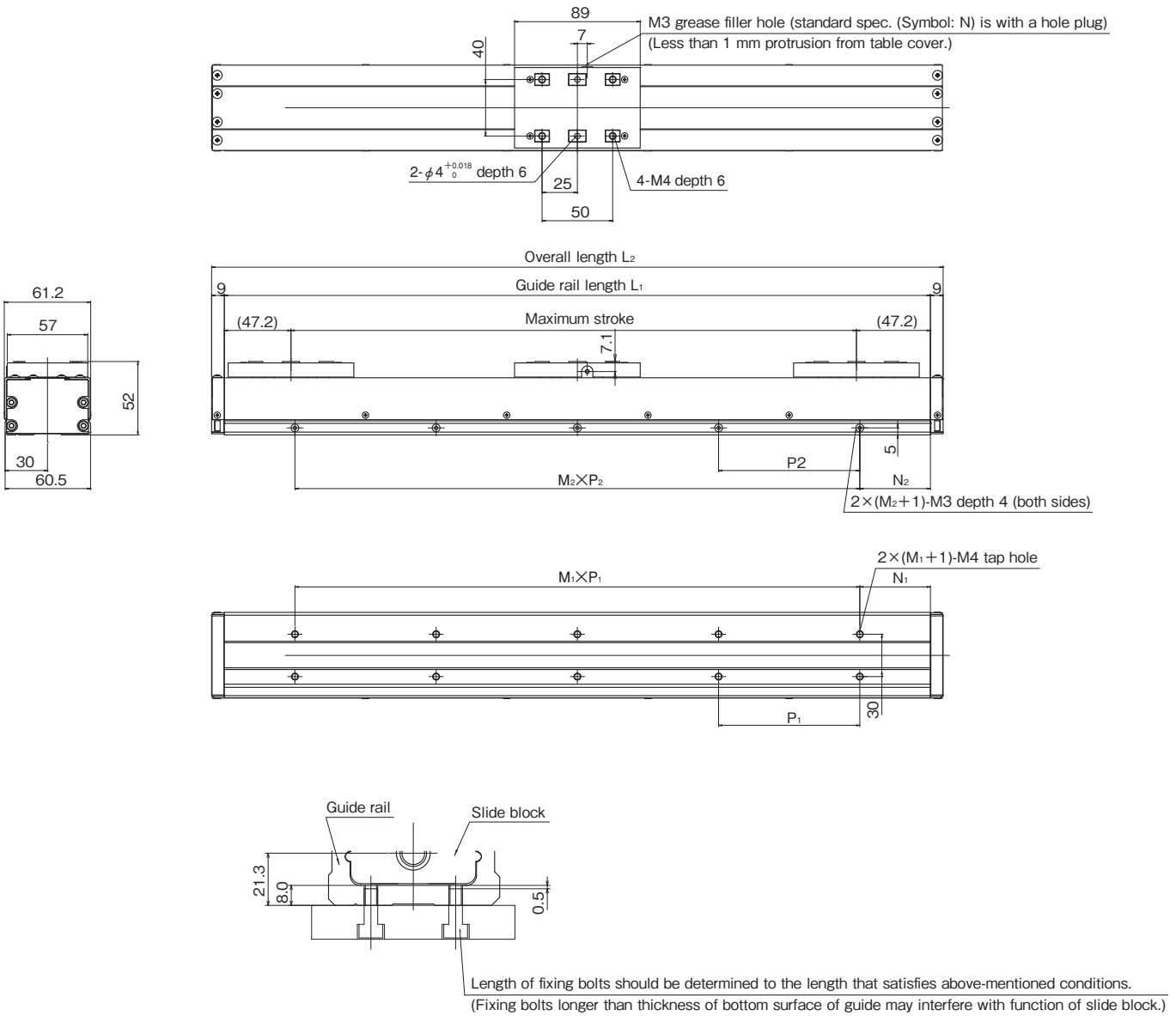
Please refer to Pages 78 to 81 of SE30 series regarding to motor bracket configurations and parallel motor mounting.

● DOWEL PIN HOLE (Guide rail only)

Please refer to Pages 83 of SE30 series regarding to guide rail positioning hole.

SC30

● FULL-COVER TYPE SUB GUIDE RAIL CONFIGURATIONS



● FULL-COVER TYPE SUB GUIDE RAIL DIMENSIONS

(Unit: mm)

Guide rail length L_1	Overall length L_2	N_1	$M_1 \times P_1$	N_2	$M_2 \times P_2$	Maximum stroke	
						Long block	Long block (with LUBSEAL)
						A: 1 block	E: 1 block
150	218	25	1×100	25	1×100	55	—
200	268	50		50		105	99
300	368		2×100		2×100	205	199
400	468		3×100		3×100	305	299
500	568		4×100		4×100	405	399
600	668		5×100		5×100	505	499
700	768		6×100		6×100	605	599
750	818	25	7×100	25	7×100	655	649

● PERMISSIBLE SPEED / MASS

Guide rail length L_1 (mm)	Permissible speed (mm/s)	Mass (kg)	
		Full-cover type	Mass of table (slide block + table + table cover parts)
	Lead	A: With 1 long block	
150	1200	1.80	0.43
200		2.09	
300		2.69	
400		3.28	
500		3.87	
600		4.46	
700		5.05	
750		5.35	

(Note 1) Guide rail length of 750 mm is available only for SC3010.

(Note 2) Mass of full-cover type actuators in the above table includes mass of table.

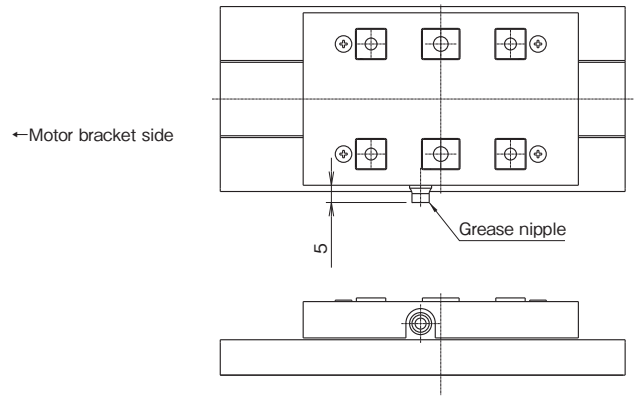
(Note 3) For long rail configurations, please consult KURODA.

SC30

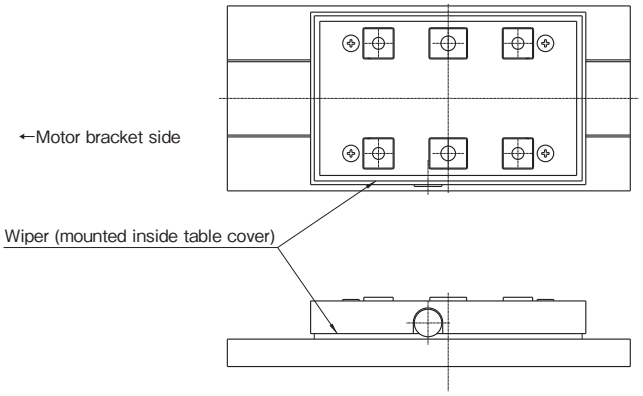
● COVER CONFIGURATION

The below-mentioned configurations with grease nipple and/or wiper are available for full-covered series. Standard specification (Symbol: N) has a plug equipped with grease filler hole.

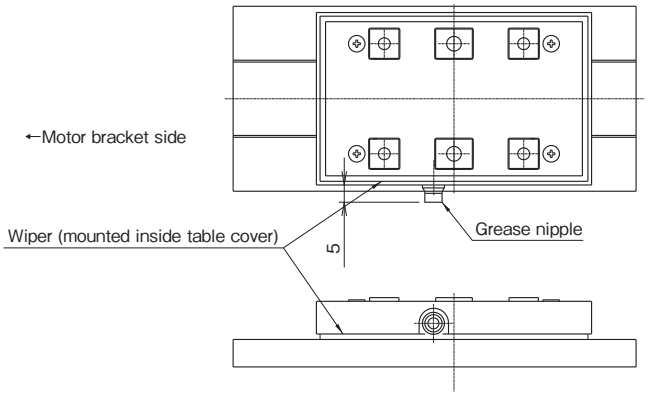
Full-cover type with grease nipple (Symbol: G)



Full-cover type with wiper (Symbol: S)



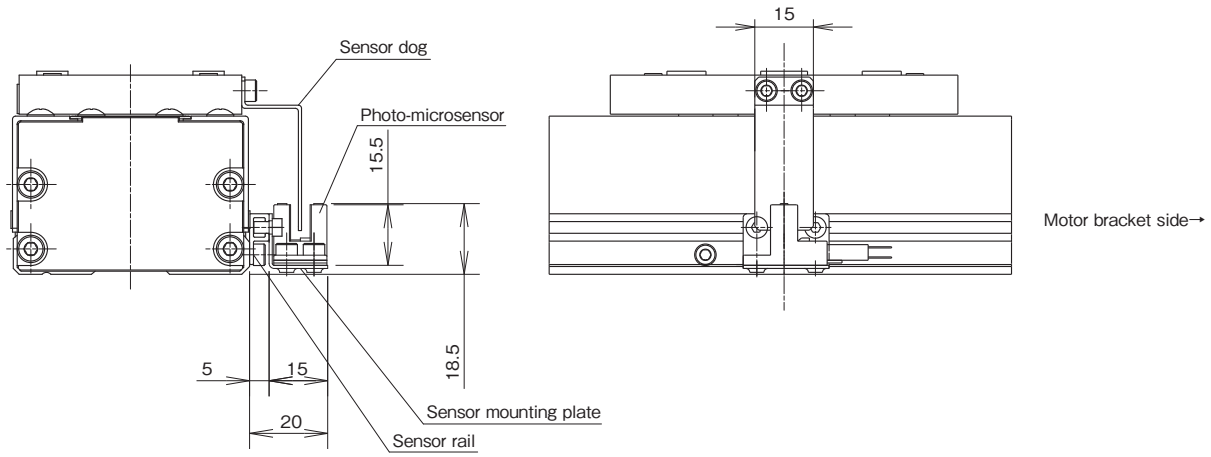
Full-cover type with grease nipple and wiper (Symbol: D)



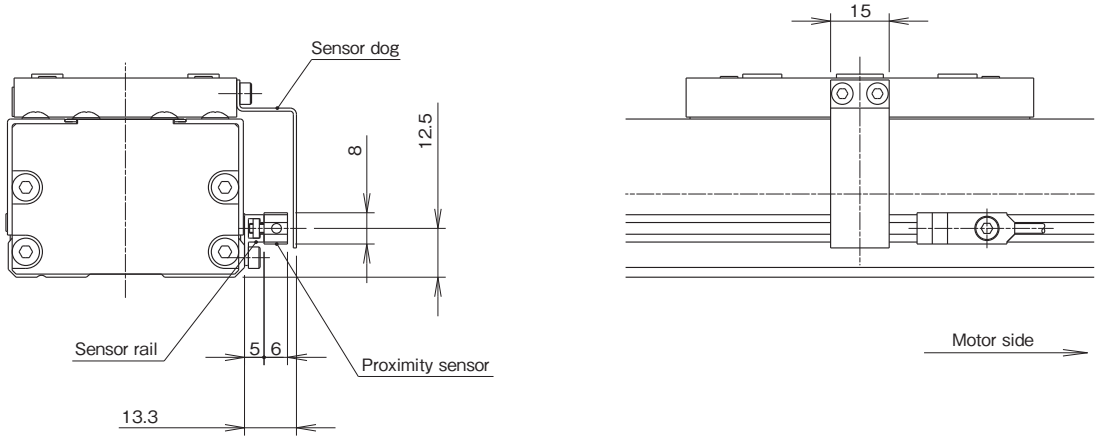
SC30

● SENSOR

Symbol C (NPN) / P (PNP), M (NPN) / Y (PNP): Photo-microsensor (OMRON, Panasonic Industrial Devices SUNX)



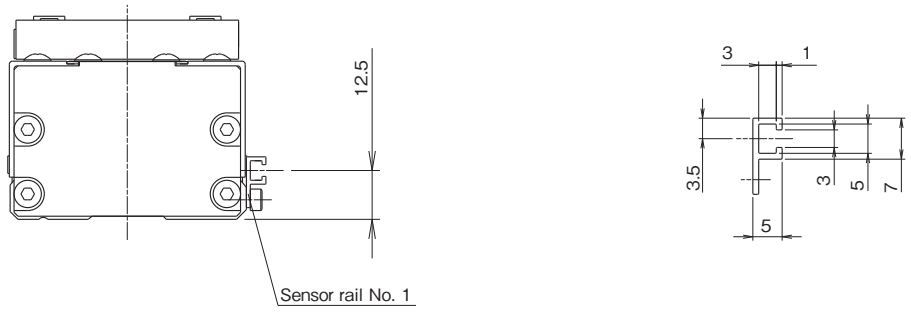
Symbol K (NPN) / E (PNP): Proximity sensor (Azbil)



● SENSOR RAIL

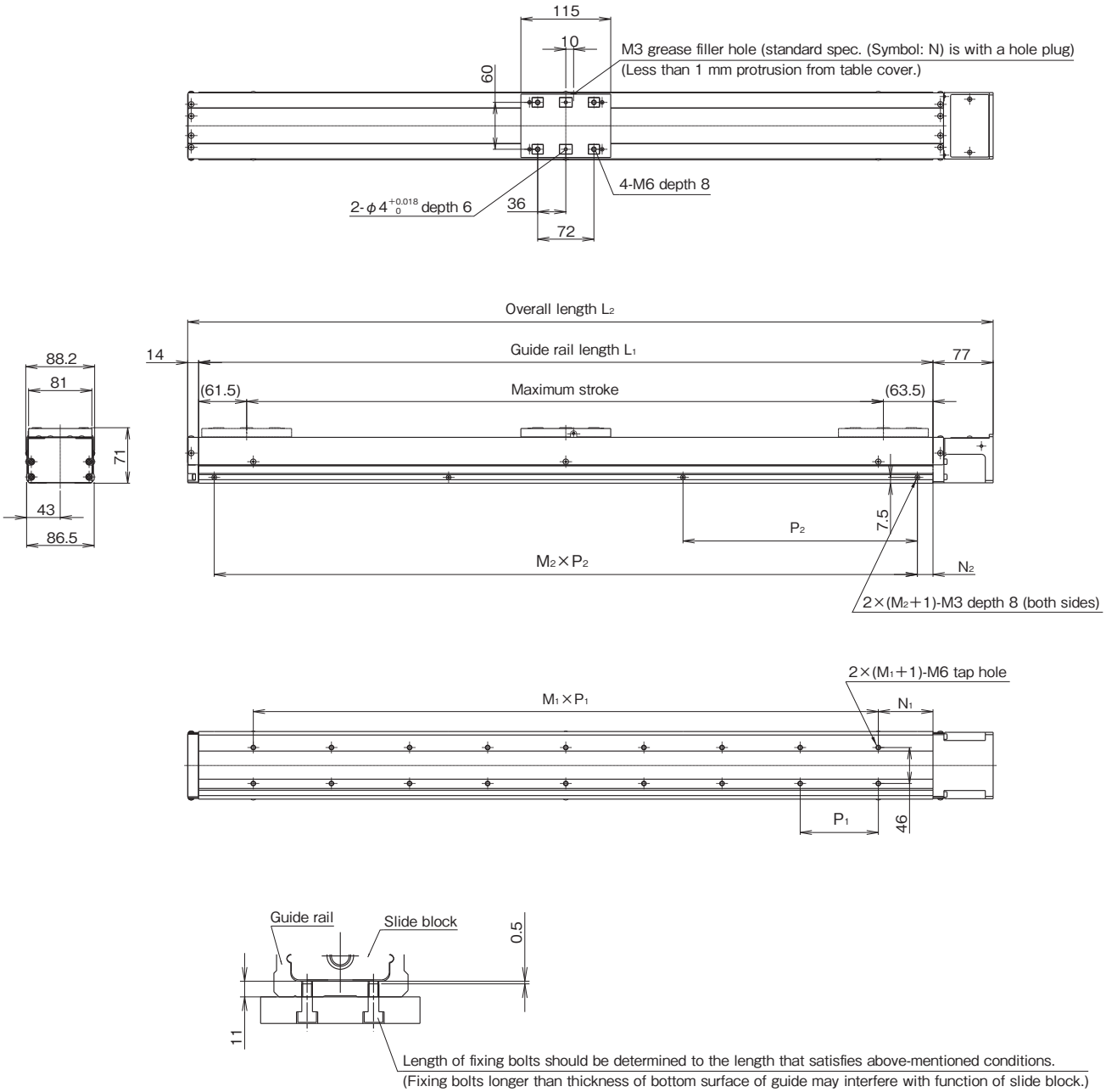
Sensor rails only available with no sensors.

Sensor rail No. 1



SC45

● FULL-COVER TYPE LONG BLOCK CONFIGURATIONS



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● FULL-COVER TYPE LONG BLOCK DIMENSIONS

(Unit: mm)

Guide rail length L_1	Overall length L_2	N_1	$M_1 \times P_1$	N_2	$M_2 \times P_2$	Maximum stroke	
						Long block	Long block (with LUBSEAL)
						A: 1 block	E: 1 block
540	631	70	4×100	20	2×250	415	407
640	731		5×100		2×300	515	507
740	831		6×100		2×350	615	607
840	931		7×100		2×400	715	707
940	1031		8×100		3×300	815	807

● PERMISSIBLE SPEED / MASS

Guide rail length L_1 (mm)	Permissible speed (mm/s)			Mass (kg)	
	Lead			Full-cover type	Mass of table (slide block + table + table cover parts)
	5mm	10mm	20mm	A: With 1 long block	
540	260	520	1040	9.2	1.27
640				10.5	
740				11.8	
840				13.0	
940	200	410	830	14.3	

(Note 1) Mass of full-cover type actuators in the above table includes mass of table.
(Note 2) For long rail configurations, please consult KURODA.

● MOTOR BRACKET CONFIGURATIONS

Please refer to Pages 92 to 95 of SE45 series regarding to motor bracket configurations and parallel motor mounting.

● DOWEL PIN HOLE (Guide rail only)

Please refer to Pages 97 of SE45 series regarding to guide rail positioning hole.

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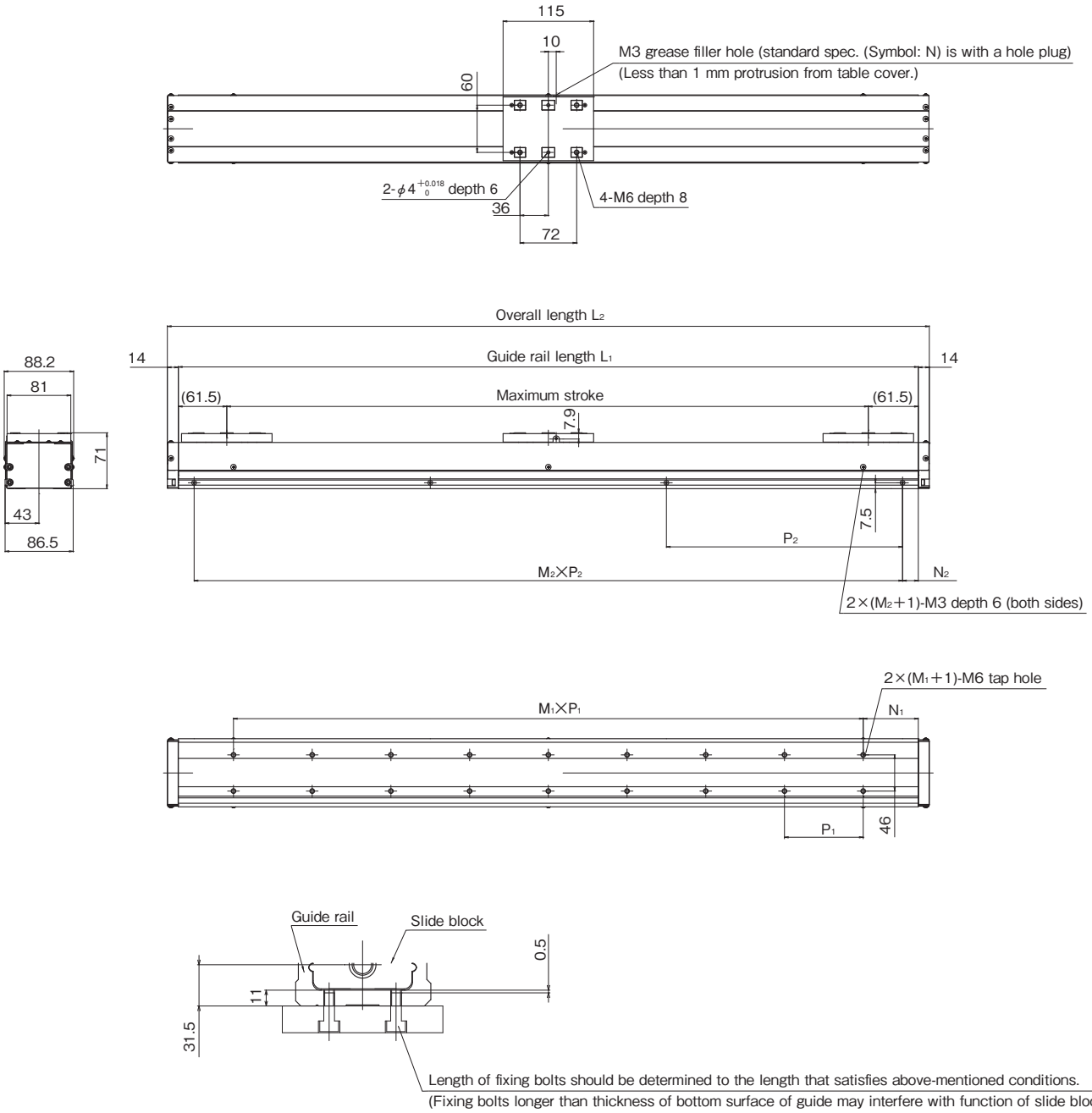
● FULL-COVER TYPE SUB GUIDE RAIL CONFIGURATIONS



● FULL-COVER TYPE SUB GUIDE RAIL DIMENSIONS

(Unit: mm)

Guide rail length L_1	Overall length L_2	N_1	$M_1 \times P_1$	N_2	$M_2 \times P_2$	Maximum stroke	
						Long block	Long block (with LUBSEAL)
						A: 1 block	E: 1 block
540	631	70	4×100	20	2×250	417	409
640	731		5×100		2×300	517	509
740	831		6×100		2×350	617	609
840	931		7×100		2×400	717	709
940	1031		8×100		3×300	817	809

● PERMISSIBLE SPEED / MASS

Guide rail length L_1 (mm)	Permissible speed (mm/s)	Mass (kg)	
		Full-cover type	Mass of table (slide block + table + table cover parts)
	Lead	A: With 1 long block	
540	2000	8.5	1.27
640		9.7	
740		10.8	
840		12.0	
940		13.1	

(Note 1) Mass of full-cover type actuators in the above table includes mass of table.
(Note 2) For long rail configurations, please consult KURODA.

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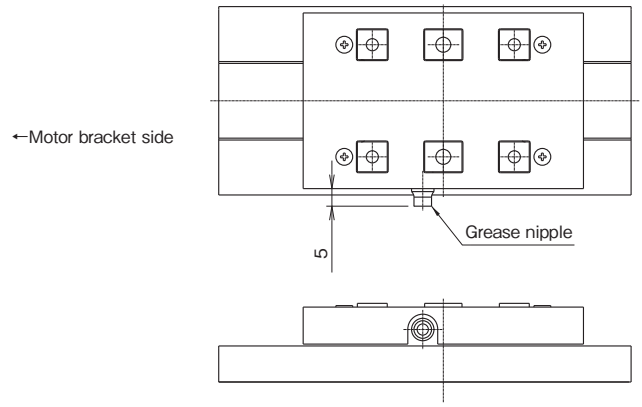
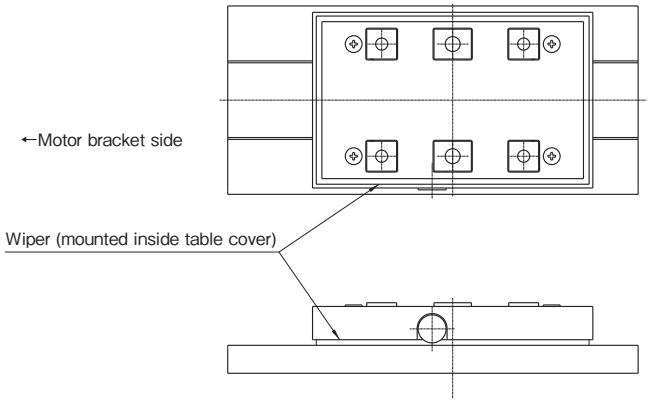
● COVER CONFIGURATION

The below-mentioned configurations with grease nipple and/or wiper are available for full-covered series. Standard specification (Symbol: N) has a plug equipped with grease filler hole.

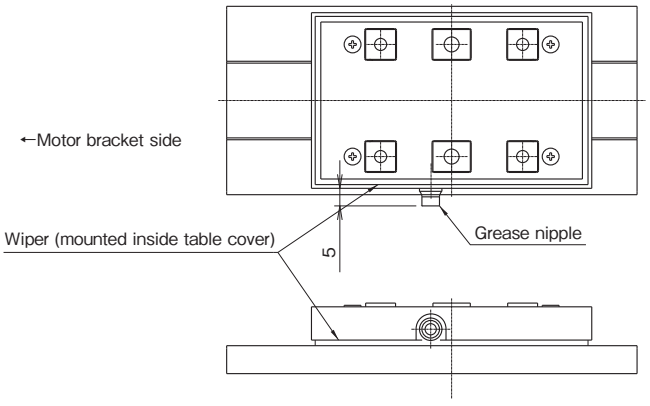
Full-cover type with grease nipple (Symbol: G)



Full-cover type with wiper (Symbol: S)



Full-cover type with grease nipple and wiper (Symbol: D)



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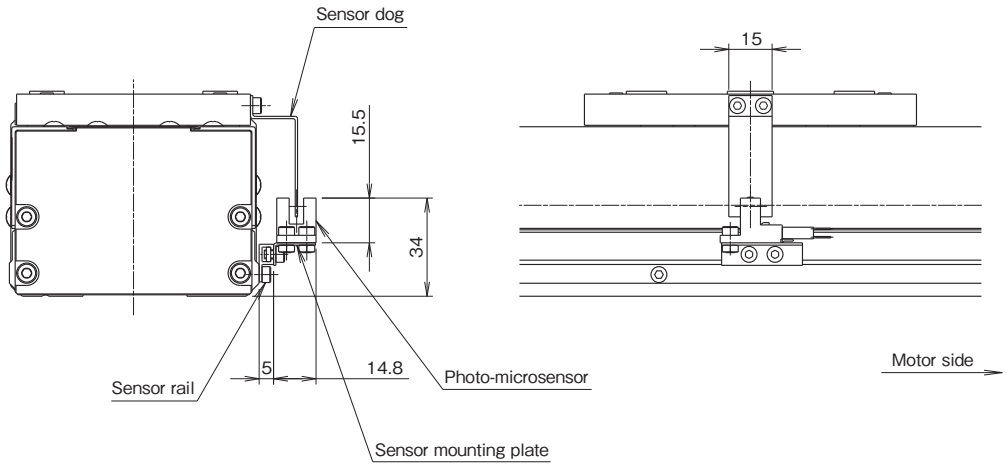
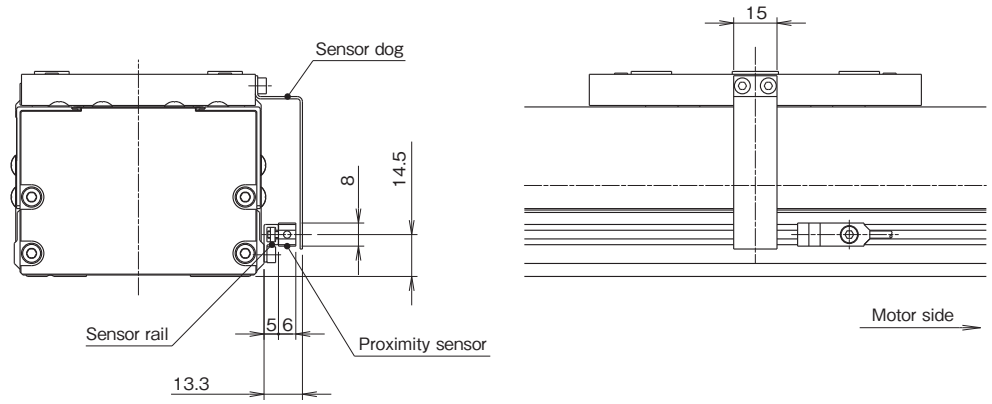
● SENSOR

Symbol C (NPN) / P (PNP), M (NPN) / Y (PNP): Photo-microsensor (OMRON, Panasonic Industrial Devices SUNX)



Symbol K (NPN) / E (PNP): Proximity sensor (Azbil)



● SENSOR RAIL

Sensor rails only available with no sensors.

Sensor rail No. 1