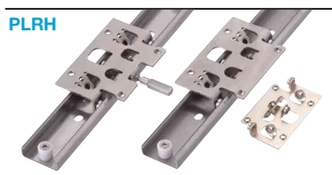
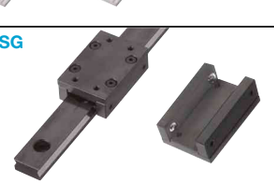
Simplified Slide Rails - Overview

■Features of Simplified Slide Rails

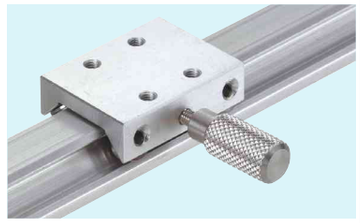
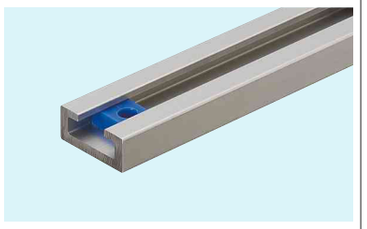
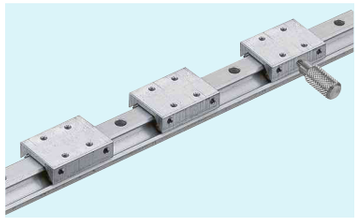
・Lightweight and compact with Simplified Slider & Rail structure.
・Suitable for light load transfer, manual operation and non-precise positioning.

■Features of Each Product

Photo/TYPE	Page	Features	Load Rating (N)	Rail Length (mm)	Block Structure	Rails Material
SROM 	P.641	・Sliders are made of resin excellent in sliding property, and is maintenance-free.	28/110	90~1040	Lubrication-Free Copper Alloy Plastic	Aluminum Alloy
KSRM 	P.642	・Corrosion resistant since made of stainless steel. ・Tapped Hole Type products can be installed in/ removed from the Slider Surfaces.	65/120	160~1200	Retainer	Stainless Steel
RSR 	P.643	・Enables smooth sliding with little play. ・For No. 40, length of rails can be extended with Connecter Rails.	80/150 (For Dynamic Load Rating)	160~1800	Roller Bearing	Steel/ Aluminum Alloy
PLRH 	P.644	・Applied preload enables smooth sliding. ・Corrosion resistant since made of stainless steel.	80 (For Dynamic Load Rating)	160~1200	Bearing	Stainless Steel
KSRL 	P.645	・Lightweight since made of aluminum.	79	70~1030	Bearing	Aluminum Alloy
KSR 	P.646	・Corrosion resistant since made of stainless steel.	380/460	70~1030	Bearing	Stainless Steel
JKSG 	P.647	・Lightweight since made of aluminum. Sliders are Four Mounting Screw Type. ・Height, length and mounting pitches are in common with Linear Guides.	49~99	55~760	Bearing	Aluminum Alloy
BJKSG 	P.648	・Linear Rail made of carbon steel. ・Height, length and mounting pitches are in common with Linear Guides.	68/147	70~790	Ball Roller	Steel

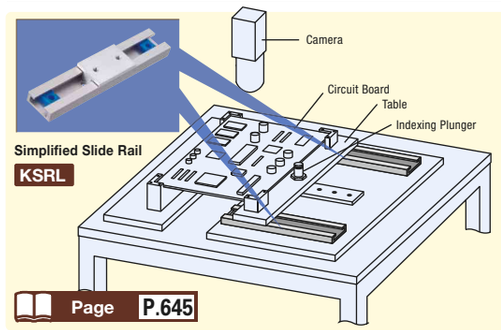
Options

● Including Position Retaining Locks and Retaining Stoppers, many options have been released in response to customers' request!

①Position Retaining Lock	②Retaining Stopper	③Additional Sliders
Can retain a slider to any position!	Prevents a slider from being fallen off when it is installed or operated!	Additional sliders become available just by specifying the relevant alteration code!
		
Applicable Types * Typical Types on each relevant page	Applicable Types * Typical Types on each relevant page	Applicable Types * Typical Types on each relevant page
PLRC・KSRLC KSRC・JKSC	PLRH・KSRM・KSRLST KSRST・SROMST・RSR	KSRL・KSR・JKSG・BJKSG SROM・RSR

■App. Example

Guide for Circuit Board Inspection Unit ● Economical ● Lightweight ○ Long



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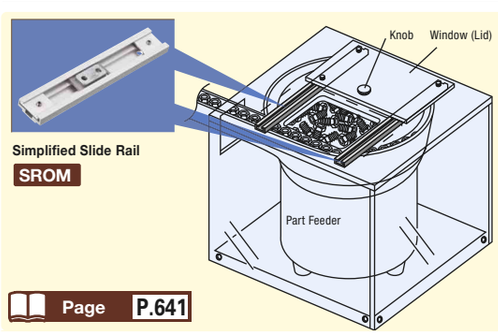
Work Supplying Window of Part Feeder ● Economical ● Lightweight ○ Long



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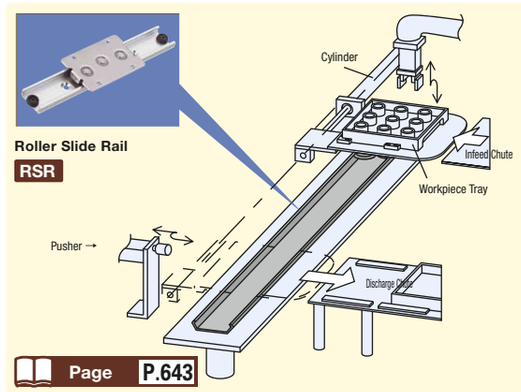
Guide between Processes ● Economical ○ Lightweight ● Long



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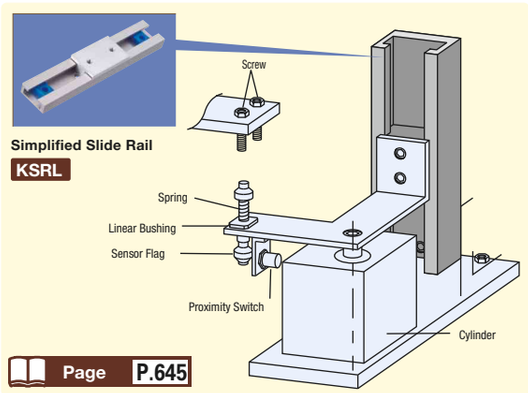
Detection Unit ● Economical ○ Lightweight ○ Long



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Simplified Slide Rails
Aluminum, Lubrication-Free

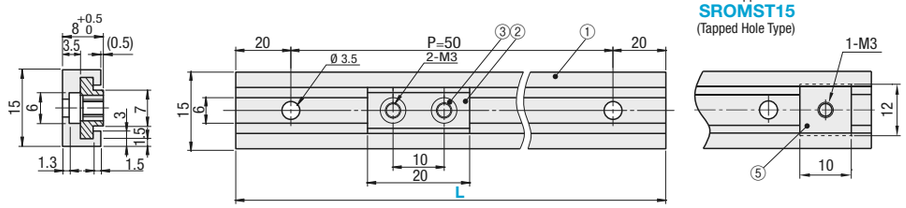
Load Rating: 28N~110N/pc

■**Features:** Sliders are made of polyacetal resin excellent in sliding property, and is maintenance-free.

Type: Set (Slider 1 pc. + Rail 1 pc.)		Part Name		Material	Surface Treatment
No Stopper	With Stopper				
SROM (Tapped Hole Type) **SROZ** (Counterbored Type)	**SROMST** (Tapped Hole Type) **SROZST** (Counterbored Type)	①	Rail	Aluminum Alloy	Clear Anodize
		②	Slider	Polyacetal	-
		③		EN CW614N Equiv.	-
		④		Aluminum Alloy	-
		⑤	Stopper	Aluminum Alloy	Clear Anodize
		⑥	Set Screw	Stainless Steel	-

To prevent the slider fall-off, select with-stopper type.

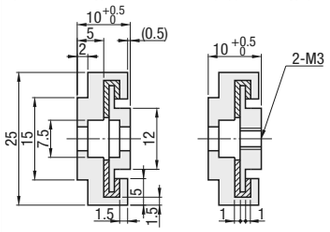
SROM15
(Tapped Hole Type)



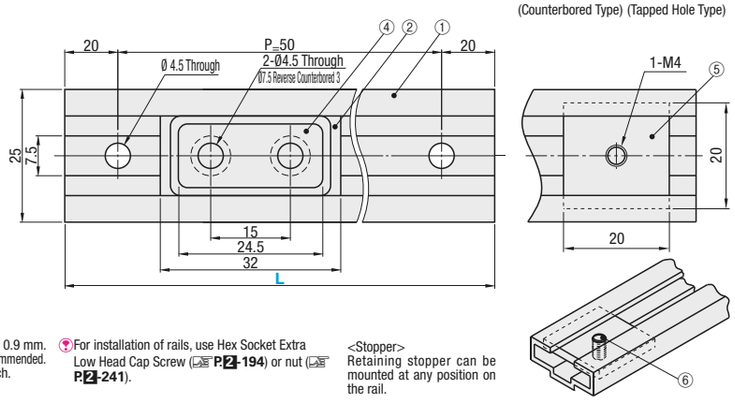
With Stopper
SROMST15
(Tapped Hole Type)

SROZ25
(Counterbored Type)

SROM25
(Tapped Hole Type)



With Stopper
SROZST25 (Counterbored Type) **SROMST25** (Tapped Hole Type)



Clearance between a rail and a slider is approximately 0.3 to 0.9 mm.
Use in places where guides are subjected to moment load is not recommended.
SROMST and SROZST (with stoppers) include 2 stoppers each.

For installation of rails, use Hex Socket Extra Low Head Cap Screw (☞P.2-194) or nut (☞P.2-241).

<Stopper>
Retaining stopper can be mounted at any position on the rail.

Part Number Type	No.	L Select	Mounting Number of Holes	Effective Stroke: No Stopper*1	Slider 1 pc.: With Stopper*2	Load Rating N(kgf)	Unit Price: SROM15	SROMST15
Tapped Hole Type **SROM** (No Stopper) **SROMST** (With Stopper)	15	90	2	64	44	28(3) * It varies depending on conditions.		
		140	3	114	94			
		190	4	164	144			
		240	5	214	194			
		290	6	264	244			
		340	7	314	294			
		390	8	364	344			
		440	9	414	394			
		490	10	464	444			
		540	11	514	494			
		590	12	564	544			
		640	13	614	594			
		690	14	664	644			
		740	15	714	694			
		790	16	764	744			
		840	17	814	794			
		890	18	864	844			
		940	19	914	894			
		990	20	964	944			
		1040	21	1014	994			

Part Number Type	No.	L Select	Mounting Number of Holes	Effective Stroke: No Stopper*1	Slider 1 pc.: With Stopper*2	Load Rating N(kgf)	Unit Price: SROM25	SROZ25	SROMST25	SROZST25
Tapped Hole Type **SROM** (No Stopper) **SROMST** (With Stopper) Counterbored **SROZ** (No Stopper) **SROZST** (With Stopper)	25	90	2	52	-	110(11) * It varies depending on conditions.			-	-
		140	3	102	62					
		190	4	152	112					
		240	5	202	162					
		290	6	252	212					
		340	7	302	262					
		390	8	352	312					
		440	9	402	362					
		490	10	452	412					
		540	11	502	462					
		590	12	552	512					
		640	13	602	562					
		690	14	652	612					
		740	15	702	662					
		790	16	752	712					
		840	17	802	762					
		890	18	852	812					
		940	19	902	862					
		990	20	952	912					
		1040	21	1002	962					

*1 Effective stroke (No Stopper) is the dimension value with a margin of approx. 3mm set from each end to avoid dropout of sliders.
*2 Effective stroke (With Stopper) is the dimension value with a margin of approx. 3mm set from contacts of sliders and stoppers to avoid conflict between them.
Maximum Allowable Speed is 0.85m/sec

Ordering Example: Part Number - L
SROM15 - 1040
SROZ25 - 540

Alterations: Part Number - L - (T, Z)
SROM25 - 540 - T2

Alterations		Code	Spec.
Additional Slider	Tapped Hole Type	T	Sliders are added. Please specify additional slider quantity after T and Z. ■Selection Example
	Counterbored Type	Z	

Additional Slider Qty.		Ordering Code	Slider Total Qty.
Tapped Hole	Counterbored		
5	0	SROM25-540-T5	6
1	2	SROM25-540-T1-Z2	4

Added sliders are the same size as that of the original part number model.
No.15 L≥20 x Slider Total Qty.
No.25 L≥32 x Slider Total Qty.
Possible to add up to 10 pcs.

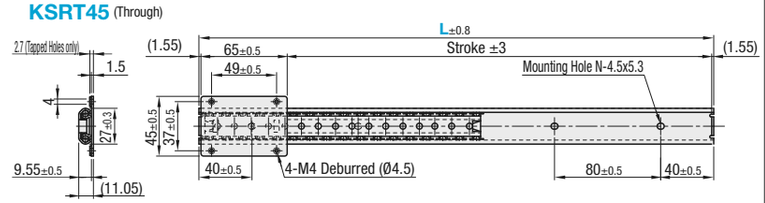
Simplified Slide Rails
Stainless Steel, Retainer

Load Rating: 65N~120N/pc

■**Features**: Corrosion resistant since made of stainless steel.

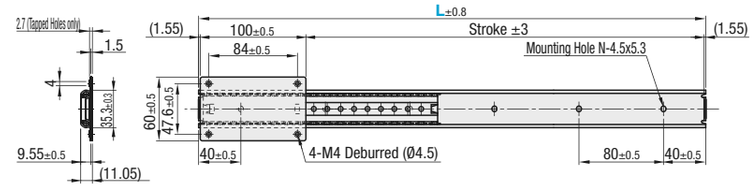
Part Name	Material
Slider	EN 1.4301 Equiv.
Ball	EN 1.4125 Equiv.
Rail	EN 1.4301 Equiv.

KSRM45 (Tapped Hole)
KSRT45 (Through)



Drawing indicates KSRM Type. (Ø4.5) is dimension for KSRT.

KSRM60 (Tapped Hole)
KSRT60 (Through)



Drawing indicates KSRM Type. (Ø4.5) is dimension for KSRT.

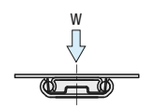
Use in places where guides are subjected to moment load is not recommended.

Part Number Type	No.	L	Stroke: KSRM45 KSRT45	Stroke: KSRM60 KSRT60	Mounting Hole Qty.: KSRM45 KSRT45	Mounting Hole Qty.: KSRM60 KSRT60	Unit Price: KSRM45	KSRM60	KSRT45	KSRT60
KSRM **KSRT**	45	160	91.9	56.9	2	2				
		240	171.9	136.9	3	3				
		320	251.9	216.9	4	4				
		400	331.9	296.9	5	5				
		480	411.9	376.9	6	6				
		560	491.9	456.9	7	7				
	60	640	571.9	536.9	8	8				
		720	651.9	616.9	9	9				
		800	-	696.9	-	10	-	-	-	
		880	-	776.9	-	11	-	-	-	
		960	-	856.9	-	12	-	-	-	
		1040	-	936.9	-	13	-	-	-	
		1200	-	1096.9	-	15	-	-	-	

Use M4 Recessed Truss Machine Screws (☞P.2-186) or Cross Recessed Pan Head Screws (☞P.2-226) to mount rails.

Ordering Example: Part Number - L
KSRM45 - 400

■**Load Rating**

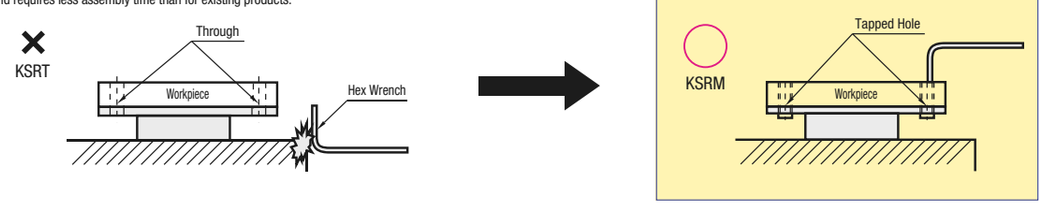


(Reference Value)

No.	45	60
Load Rating	65N	120N

* Values above are for one slider.
* Values above are loads per 1 rail when 2 rails are used.

■**Features of Tapped Hole Type**
This enables installation in / removal from slider surfaces, and requires less assembly time than for existing products.



Roller Slide Rails

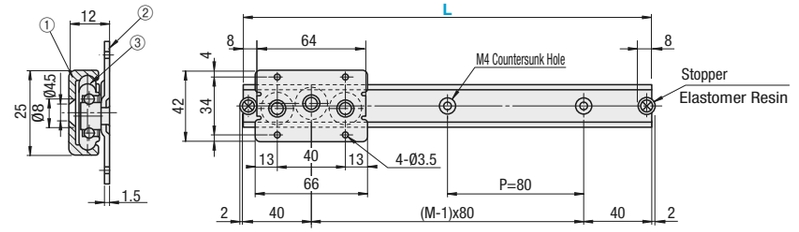
Load Rating: 80N, 150N/pc

Features: No.25 is maintenance-free and low-noise. No.40 enables relatively smooth sliding with little clearance.

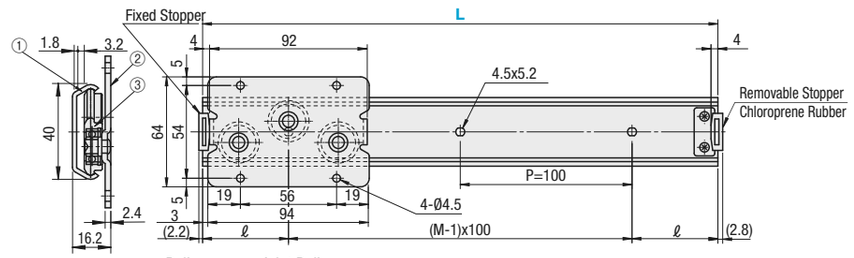
RoHS

Type		Part Name		Material	Surface Treatment
Set	Rail				
RSR25 (Slider 1 pc.)	RSRR25	①	Rail	Aluminum Alloy	Clear Anodize
		②	Slider Plate	EN 1.4301 Equiv.	-
		③	Roller	Polyacetal	-
RSR40 (Slider 1 pc.)	RSRR40 RSRT40 (Connector Rail)	①	Rail	EN 1.0330 Equiv.	Trivalent Chromate
		②	Slider Plate	EN 1.0330 Equiv.	Trivalent Chromate
		③	Roller	JIS-SMF5040	-

Set
RSR25 (Slider 1 pc.)
Rail only
RSRR25

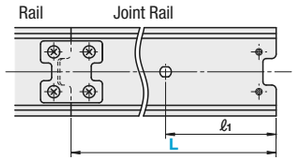


Set
RSR40 (Slider 1 pc.)
Rail only
RSRR40



Connecter Rail
RSRT40

With connecting brackets and screws
The stopper is screw mounted and can be removed.



Part Number Type	No.	L Selection	Effective Stroke* Slider 1 pc.	Number of Mounting Holes M	ℓ	Rail Mass (g)	Unit Price RSR25	Unit Price RSRR25
Set RSR Rail RSRR	25	160	74	2	40	32		
		240	154	3	40	48		
		320	234	4	40	64		
		400	314	5	40	80		
		480	394	6	40	96		
		560	474	7	40	112		
		640	554	8	40	128		
		720	634	9	40	144		
		800	714	10	40	160		
		880	794	11	40	176		
		960	874	12	40	192		
		1040	954	13	40	208		
		1200	1114	15	40	240		

* Effective stroke is the dimension value with a margin of approx. 3mm set from contacts of sliders and stoppers to avoid conflict between them.

Part Number - L
RSR25 - 640
RSRR40 - 800

Part Number Type	No.	L Selection	Effective Stroke* Slider 1 pc.	Number of Mounting Holes M	ℓ	Rail Mass (g)	Unit Price RSR40	Unit Price RSRR40
Set RSR Rail RSRR	40	300	194	3	50	400		
		350	244	4	25	440		
		400	294	4	50	480		
		450	344	5	25	520		
		500	394	5	50	560		
		550	444	6	25	590		
		600	494	6	50	630		
		650	544	7	25	670		
		700	594	7	50	700		
		750	644	8	25	740		
		800	694	8	50	770		
		900	794	9	50	850		
		1000	894	10	50	920		
		1200	1094	12	50	1070		
		1500	1394	15	50	1280		
		1800	1694	18	50	1490		

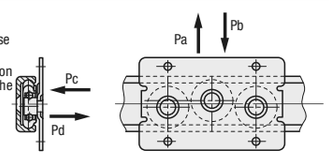
Part Number	L	Number of Mounting Holes M	ℓ1	Rail Mass (g)	Unit Price
Connecter Rail RSRT40	800	8	50	600	

Alteration: Part Number - L - (S)
RSR25 - 640 - S5

Alterations	Code	Spec.
Additional Slider	S	Sliders are added. Please specify additional slider quantity after S. ■Selection Example Additional Slider Qty. 5 / Ordering Code RSR25-640-S5 / Slider Total Qty. 6 Added sliders are the same size as that of the original part number model. When ordering 50 or more identical sliders at a time, please request a quotation. Not applicable when ordering rails only.

■Features

Newly adopted Roller Bearings (grease filled) allow low-noise motion.
Load-induced elastic deformation of Ball Bearings may increase the clearance.



■Load Rating

Type No.	25				40			
Load Direction	Pa	Pb	Pc	Pd	Pa	Pb	Pc	Pd
Static Load Rating	120N	240N	100N		250N	500N	165N	
Dynamic Load Rating	40N	80N	30N		75N	150N	50N	
Clearance (mm)	0.1 or less		0.15 or less		0		0	

<Cautions> When using in wall mounting arrangements, please properly place workpiece so that no moment load is applied on the slides that may cause damages.

*Values above are for one slider upon testing based on 2 rails.

High-Precision Simplified Slide Rails - Preloaded

Load Rating: 80N/pc

Stainless Steel, With Ball Bearing, With Lock

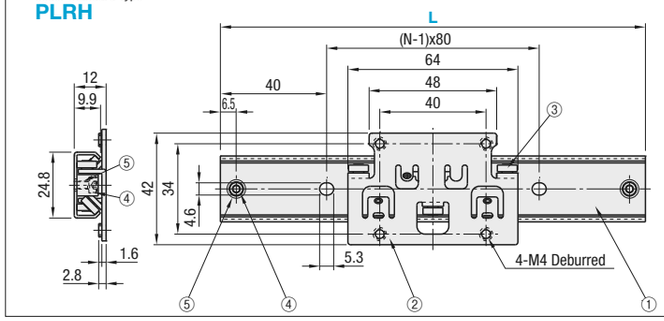
Features: Corrosion resistant since made of stainless steel. Applied preload stops gap between rails and bearings, and enables smooth driving without vibration.

RoHS

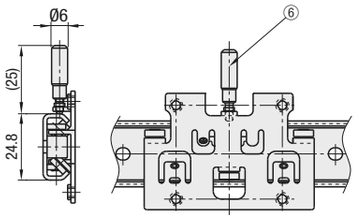
Type Set: Slider Standard Type	Slider with Lock Type	Standard Type 1 pc. + With Lock Type 1 pc.	Part Name		Material	Surface Treatment
PLRH (Slider 1 pc.) PLR2H (Slider 2 pcs.)	PLRC (Slider 1 pc.) PLR2C (Slider 2 pcs.)	PLR2HC (Slider 2 pcs.)	①	Rail	EN 1.4016 Equiv.	-
			②	Slider Plate	EN 1.0330 Equiv.	Electroless Nickel Plating
			③	Bearing	EN 1.4125 Equiv.	-
			④	M3x6 Hex Socket Head Cap Screw	EN 1.4567 Equiv.	-
			⑤	Fall-Off Prevention Stopper	Polyacetal	-
			⑥	Lock (Tip: Polyacetal)	EN 1.4305 Equiv.	-

Preload is adjusted with a rail and a slider in a set. Allowable Temperature: -10 ~ 60°C
Rails and sliders are non-interchangeable. Slider and rail are not sold separately; sold as a pair only.

Slider Standard Type
PLRH



Slider with Lock Type
PLRC



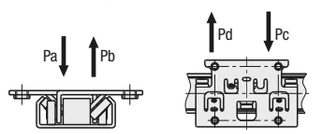
*When clamp screw tip comes in contact with rail side surfaces.
*To mount rails, use Cross Recessed Pan Head Screws (P.2-226)

Part Number Type	No.	L Selection	Number of Mounting Holes N	Effective Stroke*	Unit Price PLRH25	PLRC25	PLR2H25	PLR2C25	PLR2HC25
Slider Standard Type PLRH (Slider 1 pc.) PLR2H (Slider 2 pcs.) Slider with Lock Type PLRC (Slider 1 pc.) PLR2C (Slider 2 pcs.) Standard Slider 1 pc. + With Lock 1 pc. PLR2HC (Slider 2 pcs.)	25	160	2	88					
		240	3	168					
		320	4	248					
		400	5	328					
		480	6	408					
		560	7	488					
		640	8	568					
		720	9	648					
		800	10	728					
		880	11	808					
		960	12	888					
		1040	13	968					
		1200	15	1128					

* Effective stroke is the dimension value with a margin of approx. 3mm set from contacts of sliders and stoppers to avoid conflict between them.
Selecting Slider 2 pcs. Type reduces the effective stroke by the slider length.

Ordering Example
Part Number - L
PLRH25 - 640
PLRC25 - 640

■Load Rating



No.	25			
Load Direction	Pa	Pb	Pc	Pd
Static Load Rating	200N	100N	100N	50N
Dynamic Load Rating	80N	30N	20N	10N
Clearance (mm)	0		0	

* Values above are for one slider.
* Allowable Moment Load (N・cm) = Load Rating x 30% (Reference Value)
* Clearance values are at the time of shipping.
* Load-induced elastic deformation of Ball Bearings may increase preload to 0 or more. For load and displacement information, please access our web site.

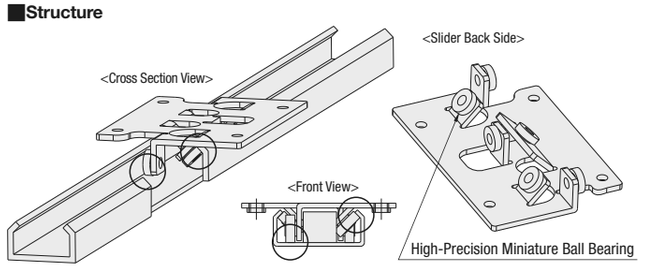
■ Slider with LockSliders can be secured to desired

position by tightening Clamp Screws. Retaining Force (Reference Value): 1.8kg, Tightening Torque: 0.2N・m
* Note In the event that tightening torque exceeds 0.2N・m, resin screw tip can deform.

■ Cautions

- Please properly place workpiece so that no moment load is applied on the slides used in wall-hanging that may cause damages.
- To use linear rails in vertical or inclined states, provide them with external structures to prevent blocks from falling off.
- Maintenance
  Rails are greased before shipment. Please lubricate them with urea-based grease meeting usage conditions, as needed.
  *When at a low speed and for low precision applications, this can be used with no grease applied.

■Structure



Simplified Slide Rails

Aluminum, With Ball Bearing

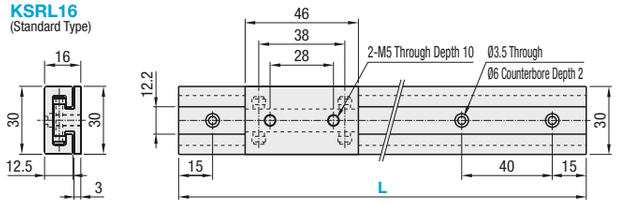
Load Rating: 79N/pc

■**Features:** Lightweight since made of aluminum.

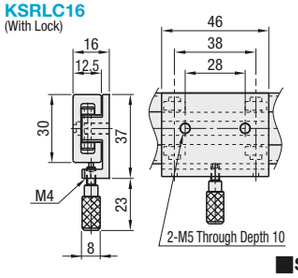
	Type: Set (Slider 1 pc. + Rail 1 pc.) Standard Type	Type: Set (Slider 1 pc. + Rail 1 pc.) With Lock	Type: Rail	Part Name	Material	Surface Treatment
No Stopper	KSRL	KSRLC	KSRLR	Slider	① Aluminum Alloy	Hard Clear Anodize
					② Polyacetal	-
				Rail	Aluminum Alloy	Hard Clear Anodize
With Stopper	KSRLST	KSRLCST	-	Stopper	MC Nylon	-
				Lock	Thread: EN 1.4301 Equiv.	-
					Tip: Polyacetal	-

To prevent the slider fall-off, select with-stopper type.

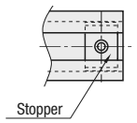
Set
KSRL16
(Standard Type)



Set
KSRLC16
(With Lock)

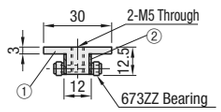


Set: With Stopper
KSRLST16
(Standard Type)
KSRLCST16
(With Lock)

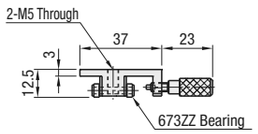


■**Stopper Part**

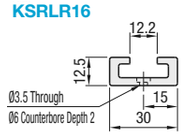
Slider
(Standard Type)

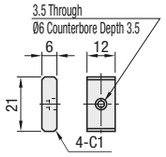


Slider
(With Lock)



Rail
KSRLR16





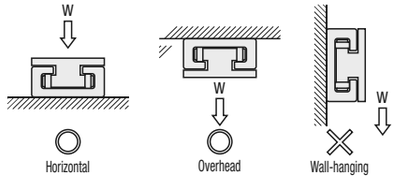
Use in places where guides are subjected to moment load is not recommended.
For installation of rails, use Hex Socket Extra Low Head Cap Screw (☞P.**2**-194)

KSRLST and KSRLCST (with stoppers) include 2 stoppers each.
Fasten the stopper together with the rail.

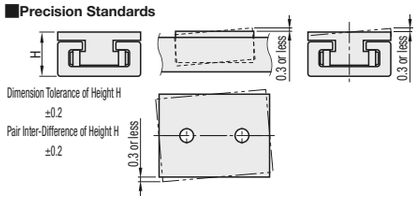
Part Number Type	No.	L	Mounting Hole Qty.	Effective Stroke Slider 1 pc. No Stopper *1	Effective Stroke Slider 1 pc. With Stopper *2	Load Rating N (kgf): Slider 1 pc.	Unit Price KSRL	KSRLST	KSRLC	KSRLCST	KSRLR	Addable Slider Qty. No Stopper	Addable Slider Qty. With Stopper
Set Standard Type **KSRL** (With Stopper) **KSRLST**	16	70	2	18	-	79(8)		-		-		-	-
		110	3	58	16							1	
		150	4	98	56							1~2	
		190	5	138	96							1~3	1~2
		230	6	178	136								1~3
		270	7	218	176								
		310	8	258	216							1~5	1~4
		350	9	298	256							1~6	1~5
		390	10	338	296							1~7	1~6
		430	11	378	336							1~8	1~7
		470	12	418	376							1~9	1~8
With Lock Type **KSRLC** (With Stopper) **KSRLCST**		510	13	458	416								1~9
		550	14	498	456								
		590	15	538	496								1~10
		630	16	578	536								
		670	17	618	576								
		710	18	658	616								
		750	19	698	656							1~10	
Rail only **KSRLR**		790	20	738	696								1~10
		830	21	778	736								
		870	22	818	776								
		910	23	858	816								
		950	24	898	856								
		990	25	938	896								
		1030	26	978	936								

*1 Effective stroke (No Stopper) is the dimension value with a margin of approx. 3mm set from each end to avoid dropout of sliders.
*2 Effective stroke (With Stopper) is the dimension value with a margin of approx. 3mm set from contacts of sliders and stoppers to avoid conflict between them.

■**Load Direction**
Please install the rail in horizontal or overhead position as shown below.
Wall-hanging is not applicable.



■**Precision Standards**

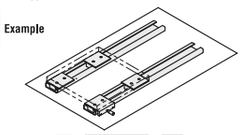


<KSRLC with Lock>
Simply push rail side surfaces with clamp screws to hold a slider position manually. Retaining force is 1.8kg (Reference Value).
(Tightening torque is 0.2N・m. If tightening torque exceeds 0.2N・m, screw tip can be broken.)
*When external force more than retaining force is applied, retaining position will change.
*To use simplified slide rails in vertical or inclined states, provide them with external structures to prevent blocks from falling off.

Ordering Example

Part Number	-	L
KSRL16	-	310 (Set)
KSRLC16	-	910 (Set with Lock)
KSRLST16	-	390 (Set With Stopper)
KSRLR16	-	630 (Rail only)

Example



Alterations

Part Number	-	L	-	(S, C)
KSRL16	-	550	-	S1

Alterations		Code	Spec.
Additional Slider	Standard Slider	S	Sliders are added. Please specify additional slider quantity after S and C. Please refer to the price list for maximum quantity of addable sliders. ■Selection Example

Additional Slider Qty. Standard	Additional Slider Qty. With Lock	Ordering Code	Slider Total Qty.
5	0	KSRL16-550-S5	6
1	2	KSRL16-550-S1-C2	4

Alterations		Code	Spec.
Additional Slider	With Lock Slider	C	Added sliders are the same size as that of the original part number model. When ordering 50 or more identical sliders at a time, please request a quotation. Not applicable when ordering rails only.

Simplified Slide Rails

Stainless Steel, With Ball Bearing, With Lock

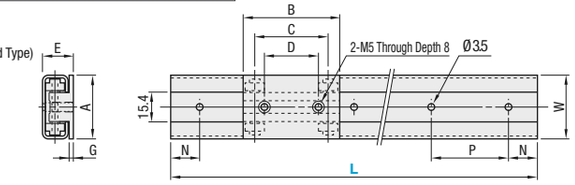
Load Rating: 380N, 460N/pc

■**Features:** Corrosion resistant since made of stainless steel.

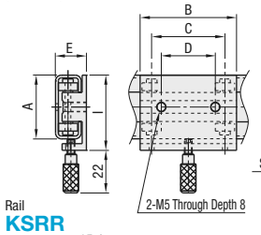
	Type: Set (Slider 1 pc. + Rail 1 pc.) Standard Type	Type: Set (Slider 1 pc. + Rail 1 pc.) With Lock	Type: Rail	Part Name	Material
No Stopper	KSR	KSRC	KSRR	Slider	EN 1.4301 Equiv.
				Rail	EN 1.4301 Equiv.
With Stopper	KSRST	KSRCST	-	Stopper	MC Nylon
				Clamp Screw	EN 1.4301 Equiv.

To prevent the slider fall-off, select with-stopper type.

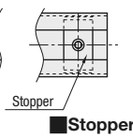
Set
KSR
(Standard Type)



Set
KSRC
(With Lock)

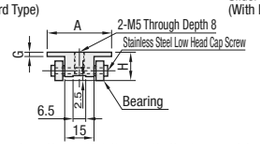


Set: With Stopper
KSRST
(Standard Type)
KSRCST
(With Lock)

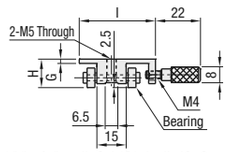


■**Stopper Part**

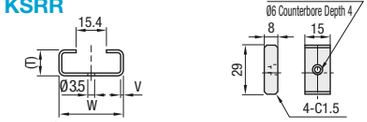
Slider
(Standard Type)



Slider
(With Lock)



Rail
KSRR



Use in places where guides are subjected to moment load is not recommended.
For installation of rails, use Hex Socket Extra Low Head Cap Screw (☞P.**2**-194)

KSRST and KSRCST (with stoppers) include 2 stoppers each.
Fasten the stopper together with the rail.

No.	Slider A	B	C	D	E	G	H	I	Rail W	P	N	(T)	V	Bearing
13	32	40	30	20	13	1.8	11.8	38	32	50	10	10.7	1.2	SUS693ZZ Bearing
16	33	50	38	28	16	2.2	14.55	39	33	40	15	13.3	1.5	SUS623ZZ Bearing

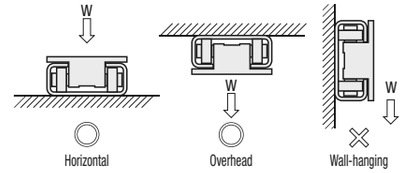
Part Number Type	No.	L	Mounting Hole Qty.	Effective Stroke Slider 1 pc. No Stopper *1	Effective Stroke Slider 1 pc. With Stopper *2	Load Rating N (kgf): Slider 1 pc.	Unit Price KSR	KSRST	KSRC	KSRCST	KSRR	Addable Slider Qty. No Stopper	Addable Slider Qty. With Stopper
Set Standard Type **KSR** (With Stopper) **KSRST**	13	70	2	24	-	380(39)		-		-		-	-
		120	3	74	39							1	
		170	4	124	89							1~3	1~2
		220	5	174	139							1~4	1~3
		270	6	224	189							1~5	1~4
		320	7	274	239							1~6	1~5
		370	8	324	289							1~8	1~7
		420	9	374	339							1~9	1~8
With Lock **KSRC** (With Stopper) **KSRCST**		470	10	424	389								1~9
		520	11	474	439							1~10	
		570	12	524	489								1~10
		620	13	574	539								
		670	14	624	589								
		720	15	674	639								
Rail only **KSRR**		770	16	724	689								
	16	70	2	14	-	460(47)		-		-		-	-
		110	3	54	9							1	
		150	4	94	49								
		190	5	134	89							1~2	
		230	6	174	129							1~3	1~2
		270	7	214	169							1~4	1~3
		310	8	254	209							1~5	1~4
		350	9	294	249								
		390	10	334	289							1~6	1~5
		430	11	374	329							1~7	1~6
		470	12	414	369							1~8	1~7
		510	13	454	409							1~9	1~8
		550	14	494	449								1~9
		590	15	534	489							1~10	
		630	16	574	529								1~10
		670	17	614	569								
		710	18	654	609								
		750	19	694	649								
		790	20	734	689								
		830	21	774	729								
		870	22	814	769								
		910	23	854	809								
		950	24	894	849								
		990	25	934	889								
		1030	26	974	929								

*1 Effective stroke (No Stopper) is the dimension value with a margin of approx. 3mm set from each end to avoid dropout of sliders.
*2 Effective stroke (With Stopper) is the dimension value with a margin of approx. 3mm set from contacts of sliders and stoppers to avoid conflict between them.

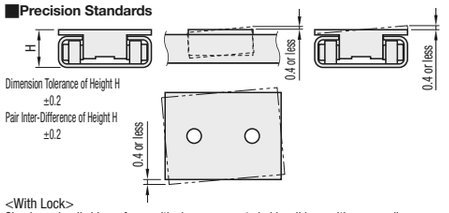
Ordering Example

Part Number	-	L
KSR13	-	520 (Set)
KSRST16	-	510 (With Stopper)
KSRR16	-	630 (Rail only)

■**Load Direction**
Please install the rail in horizontal or overhead position as shown below.
Wall-hanging is not applicable.



■**Precision Standards**



<With Lock>
Simply push rail side surfaces with clamp screws to hold a slider position manually.

Retaining Force (Reference Value)	
13	3.9kg
16	5.2kg

Retaining force is the value when Tightening Torque is 0.3N・m.

*When external force more than retaining force is applied, retaining position will change.
*When installing simplified slide rails on vertical position or slanted position, provide external devices to avoid sliders falling off.

Alterations

Part Number	-	L	-	(S・C)
KSR16	-	550	-	S1

Alterations		Code	Spec.
Additional Slider	Standard Slider	S	Sliders are added. Please specify additional slider quantity after S and C. Please refer to the price list for maximum quantity of addable sliders. ■Selection Example

Additional Slider Qty. Standard	Additional Slider Qty. With Lock	Ordering Code	Slider Total Qty.
5	0	KSR16-550-S5	6
1	2	KSR16-550-S1-C2	4

Alterations		Code	Spec.
Additional Slider	With Lock Slider	C	Added sliders are the same size as that of the original part number model. When ordering 50 or more identical sliders at a time, please request a quotation. Not applicable when ordering rails only.

Simplified Slide Rails

Load Rating: 49N~99N/pc

Aluminum, With Ball Bearing / Position Locking Type

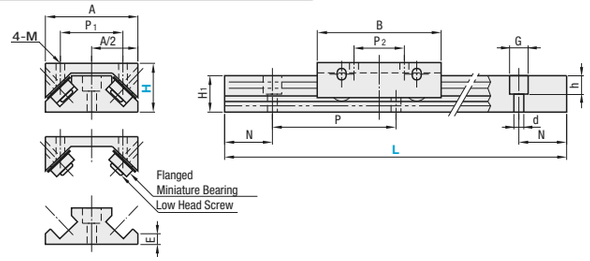
■**Features:** Lightweight since made of Aluminum. Sliders are Four Mounting Screw Type.

RoHS

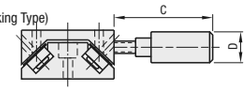
Type	
Set (Slider 1 pc. + Rail 1 pc.)	Rail
JKSG (Standard Type)	JKSGR
JKSC (Position Locking Type)	

Part Name		M Material	S Surface Treatment
Slider		Aluminum	Hard Clear Anodize
Rail		Aluminum	Hard Clear Anodize
Screw for Tentative Locking	Thread	EN 1.4301 Equiv.	-
	Tip	Polyacetal	-

Set
JKSG
(Standard Type)



Set
JKSC
(Position Locking Type)



Rail only
JKSGR

Use in places where guides are subjected to moment load is not recommended.

Part Number Type		H	A	B	P1	P2	M	C	D	H1	E	dxGxh	N	P	Load Rating N (kgf) per Slider
Set Standard Type / Position Locking Type	JKSG / JKSC	10	20	30	13	13	3	24	6	7.5	1.8	3.5x6x4	7.5	40	49(5)
		13	23	30	15	11	3	23.5	6	9	2.7	3.5×6x4	10	50	59(6)
		16	30	40	19	16	3	32	10	12	3.5	3.5x6x7	15	40	79(8)
Rail only	JKSGR	16A	30	40	20	14	5	32	10	12	3.5	3.5x6x7	15	40	79(8)
		24	40	60	28	22	5	29	10	16	4.5	6x9.5x10	20	60	99(10)

Ordering Example: Part Number - L
JKSG13 - 170 (Set)
JKSGR24 - 580 (Rail only)
JKSC13 - 370 (Position Locking Type)

H	L	Effective Stroke* Slider 1 pc.	Unit Price JKSG	JKSC	JKSGR	Addable Slider Qty.
10	55	19				-
	95	59				1~2
	135	99				1~3
	175	139				1~4
	215	179				1~6
	255	219				1~7
	295	259				1~8
	335	299				1~10
	375	339				
	415	379				
	455	419				
	495	459				
	535	499				
	575	539				
	615	579				
13	70	34				1
	120	84				1~3
	170	134				1~4
	220	184				1~6
	270	234				1~8
	320	284				1~9
	370	334				1~10
	420	384				
	470	434				
	520	484				
	570	534				
	620	584				
	670	634				

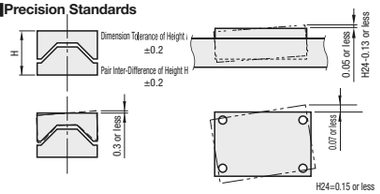
H	L	Effective Stroke* Slider 1 pc.	Unit Price JKSG	JKSC	JKSGR	Addable Slider Qty.
16 16A	70	24				-
	110	64				1
	150	104				1~2
	190	144				1~3
	230	184				1~4
	270	224				1~5
	310	264				1~6
	350	304				1~7
	390	344				1~8
	430	384				1~9
	470	424				1~10
	510	464				
	550	504				
	590	544				
	630	584				
	670	624				
	710	664				
24	100	34				-
	160	94				1
	220	154				1~2
	280	214				1~3
	340	274				1~4
	400	334				1~5
	460	394				1~6
	520	454				1~7
	580	514				1~8
	640	574				1~9
	700	634				1~10
	760	694				

* Effective stroke is the dimension value with a margin of approx. 3mm set from each end to avoid dropout of sliders.

■**Features of Simplified Slide Rails**

1. Linear mechanisms such as simplified fixtures can be built at an affordable price.
2. As many sliders and rails can be added as necessary.
3. Height (H), length (L) and mounting pitches
   (N, P) are in common with Miniature Linear Guides. However, for H13 Type, P=50 (for Miniature Slide Guides, P=25).
4. Both sliders and rails are made of aluminum (anodized) to achieve light weight.

■**Precision Standards**

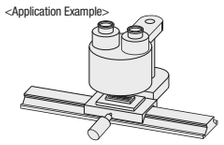


■**Position Locking Type (JKSC)**

Please use for retaining horizontally-placed Linear Rail Slider at a specified position.
(Usage Example: Quick positioning for inspected workpieces)

H	Retaining Force (kg)
10	0.5
13	0.5
16	1.0
16A	1.0
24	1.2

<Application Example>



* Refer to the table above for retaining force (reference values).
Retaining position alters when external force larger than the retaining force is applied.
* To use simplified slide rails in vertical or inclined states, provide them with external structures to prevent sliders from falling off.
* Retaining force (reference value) is the value when the tightening force of slider fixing screw for Locking Type is set to 0.1N·m. If tightening force exceeds 0.1N·m, screw tip can be broken.

Alteration: Part Number - L - (S・C)
JKSG16 - 550 - S1

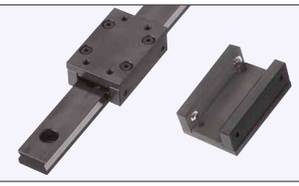
Alterations		Code	Spec.
Additional Slider	Standard Type	S	Sliders are added. Please specify additional slider quantity after S and C. Please refer to the price list for maximum quantity of addable sliders. ■Selection Example Additional Slider Qty. (Standard / Position Locking Type)	Ordering Code	Slider Total Qty. 5 / 0	JKSG16-710-S5	6 1 / 2	JKSG16-510-S1-C2	4 Added sliders are of the same H dimension as that of the original part number model. When ordering 50 or more identical sliders at a time, please request a quotation. Not applicable when ordering rails only.
	Position Locking Type	C	

Simplified Slide Rails

Load Rating: 68N, 147N/pc

Steel, With Ball Rollers

■**Features:** Linear Rail made of carbon steel.



RoHS

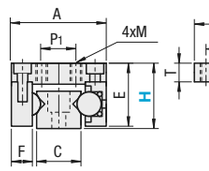
Type	
Set (Slider 1 pc. + Rail 1 pc.)	Rail
BJKSG (Standard Type)	BJKR
BJKSW (Wide Type)	

Part Name	M Material	S Surface Treatment
Slider	EN 1.1191 Equiv.	Black Oxide
Rail	EN 1.1191 Equiv.	Black Oxide*
Ball	EN 1.4125 Equiv.	-
Mounting Screw	EN 1.7220 Equiv.	Black Oxide

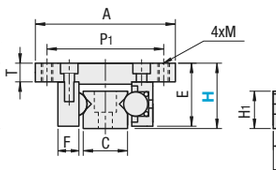
* Except Sliding Contact Surface

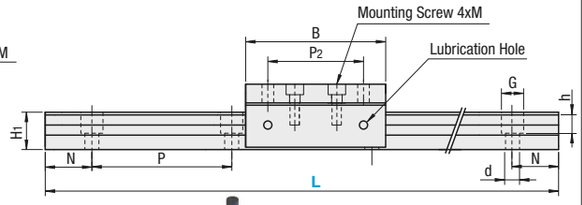
Set
(Slider 1 pc. + Rail 1 pc.)

BJKSG
(Standard Type)



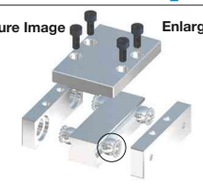
BJKSW
(Wide Type)



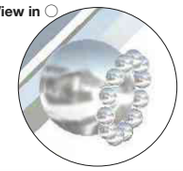


Rail only
BJKR

•Structure Image



Enlarged View in ○



Use in places where guides are subjected to moment load is not recommended.

Part Number Type		H	A Standard	A Wide	B	T	E	F	P1 Standard	P1 Wide	P2	M	H1	C	dxGxh	N	P	Mounting Low Head Screws	Load Rating N (kgf) per Slider
Set Standard Type	BJKSG	16	30	44	44	4	15	6	13	37	34	3	9	16	4.5x6x5.5	15	40	M3x6	68(7)
		20				8	19											M3x8	68(7)
Wide Type	BJKSW	24	41	60	60	4	23	9	15	50	41	4	16	19	6x9.5x9	20	60	M4x6	147(15)
Rail only	BJKR	28				8	27					5						M4x8	147(15)

Ordering Example: Part Number - L
BJKSG28 - 400 (Set)
BJKR24 - 160 (Rail only)

H	L	Effective Stroke* Slider 1 pc.	Unit Price BJKSG	BJKSW	BJKR	Addable Slider Qty.
16	70	20				-
	110	60				1
	150	100				1~2
	190	140				1~3
	230	180				1~4
	270	220				1~5
	310	260				1~6
	350	300				
	390	340				1~7
	430	380				1~8
	470	420				1~9
	510	460				1~10
	550	500				
	590	540				
	630	580				
	670	620				
	710	660				
	750	700				
	790	740				
20	70	20				-
	110	60				1
	150	100				1~2
	190	140				1~3
	230	180				1~4
	270	220				1~5
	310	260				1~6
	350	300				
	390	340				1~7
	430	380				1~8
	470	420				1~9
	510	460				1~10
	550	500				
	590	540				
	630	580				
	670	620				
	710	660				
	750	700				
	790	740				

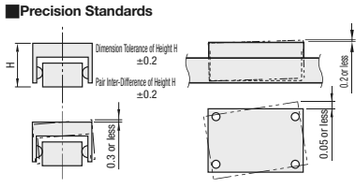
H	L	Effective Stroke* Slider 1 pc.	Unit Price BJKSG	BJKSW	BJKR	Addable Slider Qty.
24	100	34				-
	160	94				1
	220	154				1~2
	280	214				1~3
	340	274				1~4
	400	334				1~5
	460	394				1~6
	520	454				1~7
	580	514				1~8
	640	574				1~9
28	100	34				-
	160	94				1
	220	154				1~2
	280	214				1~3
	340	274				1~4
	400	334				1~5
	460	394				1~6
	520	454				1~7
	580	514				1~8
	640	574				1~9

* Effective stroke is the dimension value with a margin of approx. 3mm set from each end to avoid dropout of sliders.

■**Features of Simplified Slide Rails**

1. Linear mechanisms such as simplified fixtures can be built at an affordable price. Best suited when more secure slide rails are required than aluminum products on **P.641** and **P.647**.)
2. As many sliders and rails can be added as necessary.
3. Height (H), length (L) and mounting pitches (N, P) are in common with Linear Guides.

■**Precision Standards**



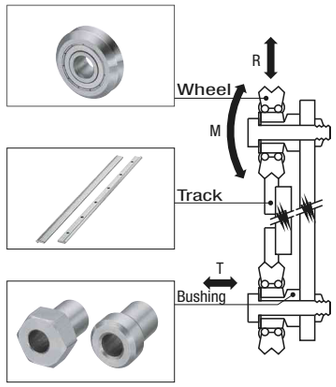
Alterations: Part Number - L - (S, W)
BJKSG16 - 550 - S1

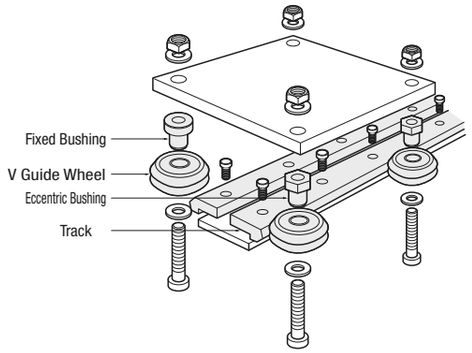
Alterations		Code	Spec.
Additional Slider	Standard Type	S	Sliders are added. Please specify additional slider quantity after S and W. Please refer to the price list for maximum quantity of addable sliders. ■Selection Example Additional Slider Qty. (Standard / Wide)	Ordering Code	Slider Total Qty. 5 / 0	BJKSG16-510-S5	6 1 / 2	BJKSG16-510-S1-W2	4 Added sliders are of the same H dimension as that of the original part number model. When ordering 50 or more identical sliders at a time, please request a quotation. Not applicable when ordering rails only.
	Wide Type	W	

V Guide Systems - Overview

90° Type

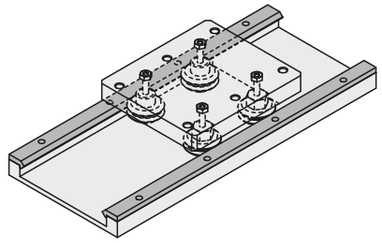
■V Guide System Structure



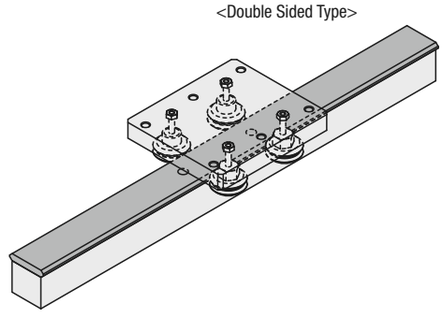


■Wheel-Rail Combination Examples

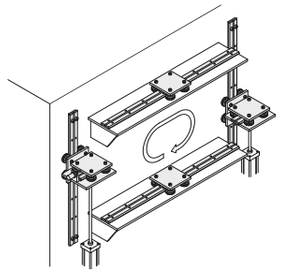
<Single Sided Type>

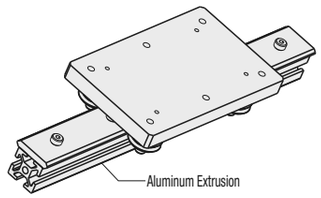


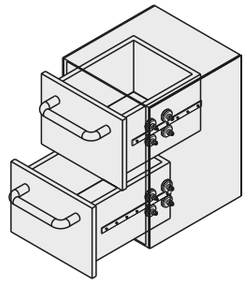
<Double Sided Type>



Example



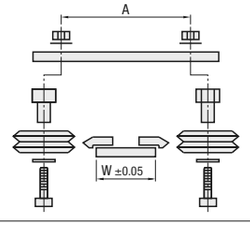




■Functions and Features

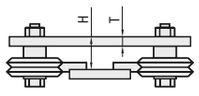
1. Bearing and V groove (90°) are integrated in a single unit.
2. When using Single Sided Tracks, there is a design freedom for the distance between tracks.
3. System construction can be achieved by using only one Double Sided Track.
4. As the wheel circumference is V shaped, they have wiping effect to clean up automatically while rotating on the track. Grease the track sliding surface for longer operational life.
5. Sized in inch dimensions.

■Mounting Dimensions



Unit: mm

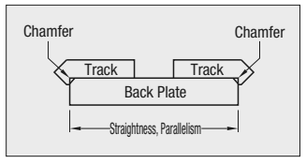
No.	A
1	2x11.104+W
2	2x17.450+W
3	2x25.399+W



Unit: mm

No.	H
1	10.787+T
2	12.790+T
3	18.567+T

■Adjusting Method



1. The accuracy of this system depends on the straightness and parallelism of the support (back plate) on which the track rails are mounted.
   The corners of the back plate to which a track rail is mounted must be chamfered 0.5mm x 0.5mm.
   The straightness of the track rail depends on the straightness of the back plate.
   When mounted on precision back plate; ±0.05
2. When jointing parallel track rails, give a slight offset to the joint locations. This enables the wheels to travel smoothly over the joints.
3. As the circumference of the wheel is V-shaped, the wheel makes wiping effect when it rotates on the track rail. Therefore, it automatically cleans itself.
4. Greasing on the sliding face of the track rails extends their service life.
5. Fixed bushings determine guide system alignment. Main load must be applied on fixed bushings.
6. Adjust the eccentric bushing by rotating so that the wheel travels on the track rail smoothly, then tighten.

■Load Calculation

Calculate the load factor (LF) of the wheel to which the biggest load is applied.
Select the wheel whose load factor is less than 1.

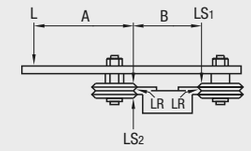
$$LF = \frac{LS}{LSmax} + \frac{LR}{LRmax}$$

LF= Load Factor
LSmax = Maximum Thrust Load
LRmax = Maximum Radial Load
LS= Thrust Load applied to wheel
LR= Radial Load applied to wheel

<Calculation Example>

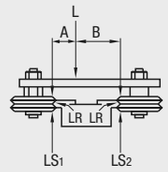
When load applied outside the wheels

$LS_1 = \frac{LxA}{B}$
$LS_2 = L + LS_1$
(Ex.) L=500 (N) A=60 (mm)
B=40(mm)
$LS_1 = \frac{500x60}{40} = 750(N)$
$LS_2 = 500+750 = 1250(N)$



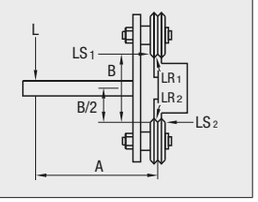
When load applied between the wheels

$LS_1 = \frac{LxB}{A+B}$
$LS_2 = L - LS_1$
(Ex.) L=500 (N) A=40 (mm)
B=60(mm)
$LS_1 = \frac{500x60}{40+60} = 300(N)$
$LS_2 = 500-300 = 200(N)$



When radial and thrust load are combined

$LS_1 = LS_2 = \frac{LxA}{B}$
$LR_1 = L + LS_1$
$LR_2 = LS_2$
(Ex.) L=500 (N) A=60 (mm)
B=100(mm)
$LS_1 = LS_2 = \frac{500x60}{100} = 300(N)$
$LR_1 = 500+300 = 800(N)$



■Life Calculation

Calculate life of the system and confirm the validation of size selection.

$$\text{Life (km)} = \frac{Lc}{(LF)^3} \times Af$$

Lc= Life Span Constant
Af = Adjustment Coefficient
LF= Load Factor

<Calculation Example>
When using BVGH3 under the conditions of LS=500 (N), LR=1000 (N) and Af=1

$$\text{Load Factor } LF = \frac{500}{1701} + \frac{1000}{5900} = 0.46$$

$$\text{Life (km)} = \frac{130}{(0.46)^3} \times 1 = 1335km$$

For LRmax, and LSmax, see **P.651**.

Lc= Life Constant

Wheel Size	Lc(km)
1	55
2	87
3	130

Af = Adjustment Factor	Application Conditions
1.0-0.7	Clean, Low Speed, Low Shock, Light Load
0.7-0.4	Medium Level Contamination, Medium Level Shock, Medium Load, Vibration
0.4-0.1	Severe Contamination, High Level Acceleration, Heavy Load, Vibration, High Cycle

V Guide

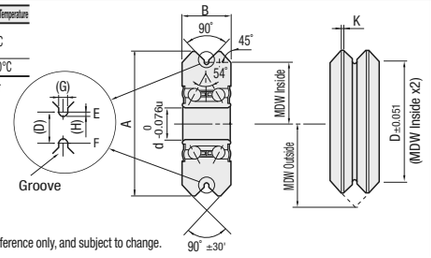
90° Type Units / Wheels

90° Type Wheel

RoHS

Type	Material	Hardness	Seal	Heat Resistance Temperature
* BVGH	EN 1.3505 Equiv.	60~62HRC	Metal Shield	0~100°C
* BVGHS	EN 1.4125 Equiv.	58~60HRC	Nitrile Rubber	
BVGHT	EN 1.4125 Equiv.	58~60HRC	Metal Shield	-30~260°C

*For BVGHS No.2 / No.3, the materials are changed to Nitrile Rubber Metal Shield.



* G and H dimensions are for reference only, and subject to change.

Part Number Type	No.	A	B	d	D Between E and F	MDW Inside	MDW Outside	(G)*	(H)*	K	Radial Load (LRmax.) (N)	Thrust Load (LSmax.) (N)	Unit Price
BVGH	1	19.557	7.874	4.762	15.848	7.924	11.861	1.0	0.5	0.229	1220	252	
	2	30.733	11.099	9.525	25.399	12.700	18.236	1.4	0.7		2650	625	
	3	45.718	15.874	11.999	38.099	19.049	26.974	2.0	1.0		5900	1701	
BVGHS	1	19.557	7.874	4.762	15.848	7.924	11.861	1.0	0.5		1220	252	
	2	30.733	11.099	9.525	25.399	12.700	18.236	1.4	0.7		2650	625	
	3	45.718	15.874	11.999	38.099	19.049	26.974	2.0	1.0		5900	1701	
BVGHT	1	19.557	7.874	4.762	15.848	7.924	11.861	0.508	0.254		1013	209	
	2	30.733	11.099	9.525	25.399	12.700	18.236	0.762	0.381		2200	519	
	3	45.718	15.874	11.999	38.099	19.049	26.974	0.889	0.432		4897	1412	

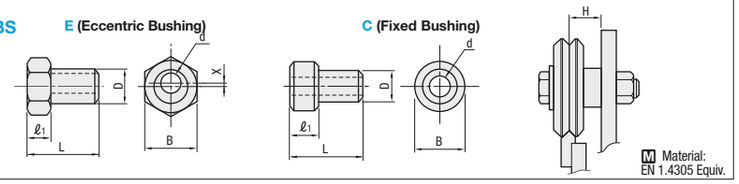
kgf=Nx0.101972

Ordering Example: Part Number BVGH3

90° Type Bushing

RoHS

BVGBS



M Material: EN 1.4305 Equiv.

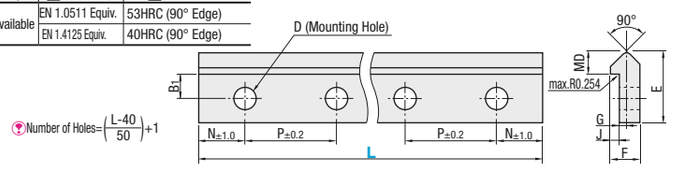
Part Number Type	No.	Spec.	L	D	B	d Tolerance	Applicable Screw	X	ℓ1	H	Unit Price
BVGBS	1	C	13.68	4.75	10	3 +0.014 0	M3	-	6.06	10	
		E						0.3			
	2	C	17.24	9.52	13	6 +0.018 0	M6	-	6.45	12	
		E						0.6			
	3	C	24.68	11.99	19	8 +0.022 0	M8	-	9.06	17	
		E						1.0			

Ordering Example: Part Number BVGBS1 - Spec. E

90° Type Single Sided Tracks

RoHS

Type	Mounting Hole	Material	Hardness
BVGTNL	Available	EN 1.0511 Equiv.	53HRC (90° Edge)
BVGTNSL		EN 1.4125 Equiv.	40HRC (90° Edge)



Number of Holes=(L-40/50)+1

Part Number Type	No.	L 50mm Increment	E ±0.38	F ±0.38	G ±0.05	J	MD ±0.05	D	B1	N ±1.0	P ±0.2
BVGTNL	1	90~1790 (For L dimensions, please refer to the price list.)	11.10	4.75	0.79	1.57	3.18	3.5	4	20	50
BVGTNSL	2		15.88	6.35		2.36	4.75	4.5	5.5		
	3		22.23	8.71	1.57	2.77	6.35	5.5	8		

Ordering Example: Part Number BVGTNL1 - L 640

Alteration Code	Surface Treatment
Spec.	MTC: Electroless nickel plating is applied. ⊗Not available for Stainless Steel Type.

Alterations

Part Number BVGTNL1 - (MTC)L MTC740

Only applicable to Single Sided Track Type BVGTNL.

Single Sided Track

L	Unit Price BVGTNL1	BVGTNL2	BVGTNL3	BVGTNSL1	BVGTNSL2	BVGTNSL3
90, 140, 190						
240, 290						
340, 390						
440, 490						
540, 590						
640, 690						
740, 790						
840, 890						
940, 990						
1040, 1090						
1140, 1190						
1240, 1290						
1340, 1390						
1440, 1490						
1540, 1590						
1640, 1690						
1740, 1790						

V Guide Systems

90° Type Bushings / Single Sided Tracks / Double Sided Tracks

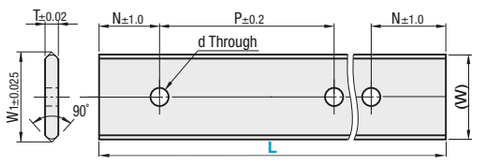
90° Type Double Sided Tracks

RoHS

Type	Material	Surface Treatment	Hardness
BVGUR	EN 1.1191 Equiv.	Black Oxide	58HRC (90° Edge)
BVGURS	EN 1.4125 Equiv.	-	52HRC (90° Edge)

W1 is the dimension at the intersection of 90°. (Both ends are R machined))

Number of Holes=(L-40/50)+1



Part Number Type	No.	L 50mm Increment	(W)	W1	T	N ±1.0	P ±0.2	d
BVGUR	25	90~1740 (For L dimensions, please refer to the price list.)	(25)	25.74	4.5	20	50	5.5
BVGURS	44		(44)	44.74	6.0			7.0

Ordering Example: Part Number BVGUR25 - L 90

Double Sided Tracks

L (Selection)	Unit Price BVGUR25	BVGURS25	BVGUR44	BVGURS44
90, 140				
190, 240				
290, 340				
390, 440				
490, 540				
590, 640				
690, 740				
790, 840				
890, 940				
990, 1040				
1090, 1140				
1190, 1240				
1290, 1340				
1390, 1440				
1490, 1540				
1590, 1640				
1690, 1740				

90° Type V Guide Units

RoHS

Type			Material	Surface Treatment	Hardness
1 - Carriage	BVGU	Carriage	Plate: EN AW-5052 Equiv.	Black Anodize	-
2 - Carriage	BV2GU	Rail	BVGUR(P.652)		

A carriage and a rail come as a set.

W1 is the dimension at the intersection of 90°. (Both ends are R machined))

Number of Holes=(L-40/50)+1

Part Number Type	No.	L 50mm Increment	W	W1	d	A	B	X1	X2	Y1	Y2	d1	d2	E	F	H	T	Wheel	Bushing Fixed Side	Bushing Adjusting Side	Screw
BVGU (1 Carriage Set)	25	90~1740 (For L dimensions, please refer to the price list.)	25	25.74	5.5	80	70	70	40	50	41.59	M5	M3	10	10	17.5	4.5	BVGH1	BVGBS1-C	BVGBS1-E	CB3-22
BV2GU (2 Carriage Sets)	25L		25	25.74	5.5	120	70	100	80	50	41.59	M5	M3	10	10	17.5	4.5				
	44		44	44.74	7	120	105	100	80	80	70.14	M6	M6	10	12	24.5	6	BVGH2	BVGBS2-C	BVGBS2-E	CB6-25

A, X1 and X2 of No. 25L are larger than those of No.25.

Ordering Example: Part Number BVGU25 - L 840

L (Selection)	Unit Price BVGU25	BV2GU25	BVGU25L	BV2GU25L	BVGU44	BV2GU44
90		-	-	-	-	-
140		-		-		-
190, 240				-		-
290, 340						
390, 440						
490, 540						
590, 640						
690, 740						
790, 840						
890, 940						
990, 1040						
1090, 1140						
1190, 1240						
1290, 1340						
1390, 1440						
1490, 1540						
1590, 1640						
1690, 1740						

V Guide Systems - Overview

Metric Size 70° Type

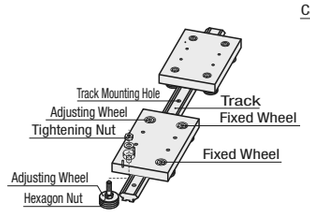
V Guide Systems

Metric Size 70° Type Wheels and Bushings / Double Sided Tracks

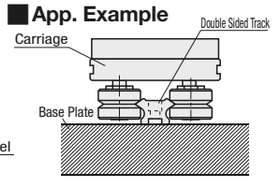
■Functions and Features

1. Bearing and V groove (70°) are integrated in a single unit.
2. System construction can be achieved by using only one Double Sided Track.
3. Sized in metric.

■Basic Structure



■App. Example



■Load Calculation

L = Load (N)
LS = Thrust load applied to wheel (N)
LR = Radial Load applied to wheel (N)
A, B = Distance (mm)

When load applied between the wheels

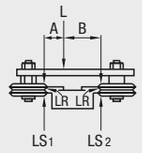
$LS_1 = \frac{LxB}{A+B}$

$LS_2 = L - LS_1$

(Ex.) L=500 (N) A=40 (mm) B=60(mm)

$LS_1 = \frac{500x60}{40+60} = 300(N)$

$LS_2 = 500-300 = 200(N)$



When load applied outside the wheels

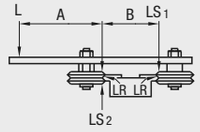
$LS_1 = \frac{LxA}{B}$

$LS_2 = L + LS_1$

(Ex.) L=500 (N) A=60 (mm) B=40(mm)

$LS_1 = \frac{500x60}{40} = 750(N)$

$LS_2 = 500+750 = 1250(N)$



When radial and thrust load are combined

$LS_1 = LS_2 = \frac{LxA}{B}$

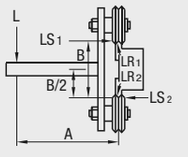
$LR_1 = L + LS_1$

$LR_2 = LS_2$

(Ex.) L=500 (N) A=60 (mm) B=100(mm)

$LS_1 = LS_2 = \frac{500x60}{100} = 300(N)$

$LR_1 = 500+300 = 800(N)$



■Load Factor Calculation

Calculate the load factor (LF) of the wheel to which the biggest load is applied.
Select the wheel whose load factor is less than 1.

$$LF = \frac{LS}{LS\ max} + \frac{LR}{LR\ max}$$

LF = Load Factor
LS = Thrust Load applied to wheel
LS max = Maximum Thrust Load applied to wheel
LR = Radial Load applied to wheel
LR max = Maximum Radial Load applied to wheel

Part Number Type	No.	W/o Lubrication LSmax.(N)	W/o Lubrication LRmax.(N)	With Lubrication LSmax.(N)	With Lubrication LRmax.(N)
MVH MVHS MVHL MVHSL	12	22.5	45	60	120
	25	100	200	320	600
	34	200	400	800	1400

■Life Calculation

Calculate life of the system and confirm the validation of size selection.

$$Life\ (km) = \frac{LC}{(LF)^3} xAf$$

LF= Load Factor
LC= Basic Life
Af = Adjustment Coefficient

Part Number Type	No.	LC Basic Life km
MVH MVHS MVHL MVHSL	12	50
	25	70
	34	100

Af = Adjustment Factor	Application Conditions
1.0-0.7	Clean, Low Speed, Low Shock, Light Load
0.7-0.4	Medium Level Contamination, Medium Level Shock, Medium Load, Vibration
0.4-0.1	Severe Contamination, High Level Acceleration, Heavy Load, Vibration, High Cycle

<Calculation Example>
When using MVH-34C under the conditions of LS=100 (N), LR=200 (N) and Af=0.7

$$Load\ Factor\ LF = \frac{100}{800} + \frac{200}{1400} = 0.268 \leq 1.0$$

$$Life\ (km) = \frac{100}{(0.268)^3} x0.7 = 3637km$$

■System Assembly and Adjustments

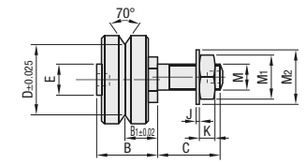
1. First, assemble the components loosely with a minimum load.
2. Fully tighten the fixed wheels.
3. Next, tighten mounting nuts of adjusting wheel tentatively in order to adjust them.
4. Turn the hex nut in the center of Adjusting Wheel gradually by wrench to set the minimum preload, and do not leave a gap between each pair of wheels facing each other.
5. Check if proper preload is applied by turning the wheels with fingers while track is fixed and carriage plate remains still. Although a slight resistance may be felt, the wheels should turn freely under a proper preload. Excessive preload results in a shorter product life.
6. Make adjustments and test all the adjustable wheels in the above manner, and fully tighten the wheel nuts to the specified torque.
7. After adjustment, check again in the same process as 5 to make sure of proper preload.

■Millimeter Size 70° Type Wheels and Bushings

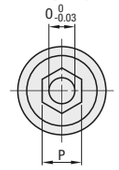
RoHS

Type	Material	Surface Hardness	Seal		Operating Temp.
MVH MVHL	EN 1.3505 Equiv.	58~62HRC	No.12	Nitrile Rubber	-20°C~120°C
			No.25 No.34	Metal Shield	
MVHS MVHSL	EN 1.4125 Equiv.		Nitrile Rubber		

E (Adjustable)



C (Fixed)



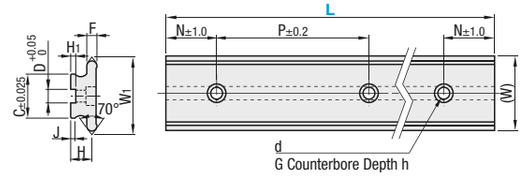
Part Number Type	No.	C=Fixed E=Adjustable	Applicable Rail No.	A	B	B1	C	D	E	M	M1	M2	J	K	L	N Eccentricity	O	P	Tightening Torque N·m	Thrust LoadLSmax. (N)	Radial LoadLRmax. (N)	Unit Price MVH MVHL	Unit Price MVHS MVHSL
MVH MVHS (C Dimension Short)	12	C	12	12.7	10.1	5.47	5.8	9.51	5	M4x0.5	7	9	0.8	2	-	-	4	7	2	22.5	45		
		E														0.5							
	25	C	25	25	16.6	9	9.8	20.27	10	M8x1.0	13	17	1	5	3	-	8	13	18	100	200		
		E														0.75							
	34	C	44	34	21.3	11.5	13.8	27.13	12	M10x1.25	17	21	1.25	6	4	-	10	15	33	200	400		
		E														1.0							
MVHL MVHSL (C Dimension Long)	12	C	12	12.7	10.1	5.47	9.5	9.51	5	M4x0.5	7	9	0.8	2	-	-	4	7	2	22.5	45		
		E														0.5							
	25	C	25	25	16.6	9	19	20.27	10	M8x1.0	13	17	1	5	3	-	8	13	18	100	200		
		E														0.75							
	34	C	44	34	21.3	11.5	22	27.13	12	M10x1.25	17	21	1.25	6	4	-	10	15	33	200	400		
		E														1.0							

No adjusting hexagon groove (L) for adjusting wheel (E) No.12. Thrust load and radial load values are those when lubricated. For values when not lubricated, see **P.653**.

■Millimeter Size 70° Type Double Sided Tracks

RoHS

Type		Material	Surface Treatment	Hardness
Double Sided Tracks	MVR	EN 1.3505 Equiv.	Black Oxide	58 ~ 62 HRC (70° Edge)
	MVRS	EN 1.4028 Equiv.	-	52HRC (70° Edge)



W1 is the dimension at the intersection of 70°. (Both ends are R machined.)
Tolerance C±0.025 is applicable to MVRS only.

Part Number Type	No.	L Selection *	(W)	W1	F	H	H1	C	J	D	dxGxh	N	P
MVR	12	120~1020	12	13.25	3.2	6.4	1.8	8.9	1.7	4	3.5x6.2x3.1	15	45
	25	240~1140	25	26.58	4.93	10.2	2.5	15.4	2.6	6	5.5x10x5.1	30	90
	44		44	45.58	6.42	12.7	3	26.4	2.3	8	7x11x6.1	30	90
MVRS	12	120~1020	12	12.37	3	6.2	1.8	8.5	1.7	4	3.5x6x3	15	45
	25	240~1140	25	25.74	4.5	10	2.5	15	2.5	6	5.5x10x5	30	90
	44		44	44.74	6	12.5	3	26	2.5	8	7x11x6	30	90

* For L dimensions, please refer to the price list.

Ordering Example: Part Number - Spec. - L
MVH12 - C - 510
MVRS25

L (Selection)		Unit Price MVR12	Unit Price MVRS12
120	165		
210	255		
300	345		
390	435		
480	525		
570	615		
660	705		
750	795		
840	885		
930	975		
1020			

L (Selection)		Unit Price MVR25	MVRS25	MVR44	MVRS44
240	330				
420	510				
600	690				
780	870				
960	1050				
1140					