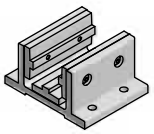
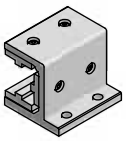
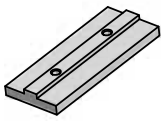
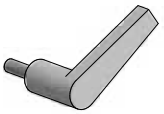
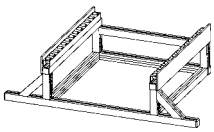
Section 8
Linear Applications









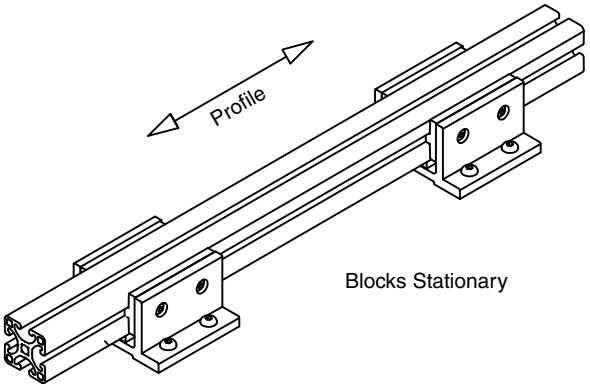


Slide Blocks

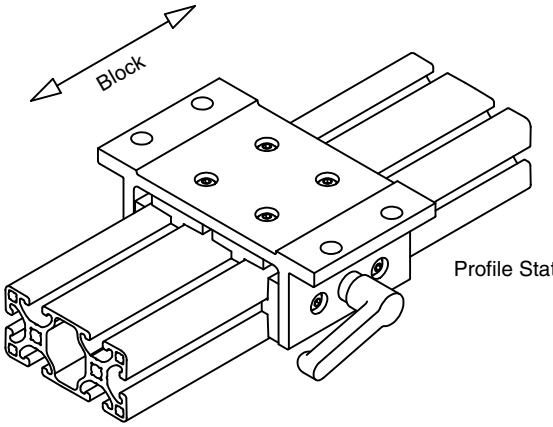
Application

Profile Slide Blocks are a versatile, cost efficient concept to build a multitude of adjustable slides and movable rail systems with 40mm and 80mm wide profiles. UMHW slide pads engage directly into the T-slots. Shims provide adjustment for a variety of assembly tolerances. Slide blocks are designed for a compression load – do not hang a load from the pad.

The slide blocks attach to any surface with M8 button head screws. The block slides along a profile when the profile is stationary, or a profile slides in the block, when the block is mounted. Clamping mechanism can be added to lock slide block in place.



Blocks Stationary



Profile Stationary

UHMW-PE Design Information

UHMW-PE has one of the highest impact strengths of any thermoplastic. It is abrasion resistant, has high tensile strength, displays resistance to stress cracking, and has a low coefficient of friction. It is well-suited where durability and low friction are of paramount importance. Its high resistance to corrosive chemicals, with the exception of oxidizing acids, make it an ideal choice for a wide variety of corrosive environment applications. Maximum operating temperature is 210°F. UHMW-PE can also operate successfully at temperatures as low as -375°F, making it an excellent material for cryogenic applications.

Engineering Specifications of UHMW-Polyethylene

General Properties	Temp.	ASTM Units	Typical Test	Value
Physical				
Specific Gravity	73°F	gms/cc	D792	.830-.934
Water Absorption				
24 hours	73°F	%	D670	
Mechanical				
Tensile Strength				
Yield	73°F	10^3 psi	D638	3.1
Break	73°F	10^3 psi	D638	7.0
Tensile Elongation				
Yield	73°F	%	D638	—
Break	73°F	%	D638	350
Izod Impact Strength				
Notched	-40°F	ft-lbs/in	D256	21.0
Notched	73°F	ft-lbs/in	D256	30.0
Shore Hardness	73°F		D2240	D62-66
Thermal				
Deflection Temp: 68 psi		°F	D648	203
Coef. of Thermal Exp.		in/in/°F	D698	$1.11x10^{-5}$
Thermal Conductivity		BTU-in/Hr/Ft/°F		2.92
Flammability Rating, UL94				HB
Electrical				
Diel. Strength (short time)		V/mil	D146	2,300
Dielectric Constant, 50% RH	73°F		D160	2.3
Dissipation Fact., 50% RH	73°F	50 Hz	D160	1.0×10^{-5}
		100 Hz		2.5×10^{-5}
Volume Resis. Dry	73°F	ohm/cm	D287	$>5.0 \times 10^{-5}$

Bearing Pad Properties

UHMW-PE Deformation under Compression (%)

Temp	PSI Compression	Initial Loading					Permanent Deformation After Removal of Load	
		10 Min.	100 Min.	1000 Min.	1 Day	55 Days	After 1 Min.	After 24 Hrs.
68° F	282	1.5	1.7	1.8	1.9	2.4	0.9	0.8
	570	2.4	2.5	2.7	3.0	4.0	1.8	1.2
	850	3.0	4.0	4.5	5.0	5.1	2.7	1.8
	1140	4.0	5.0	6.0	7.0	7.5	3.6	2.4
	1420	5.0	6.6	7.5	8.0	9.0	4.5	2.8
	1700	7.0	7.5	8.0	10.0	11.0	5.4	3.5
122° F	282	1.6	1.8	2.0	2.5	2.6	1.3	0.8
	570	2.6	3.0	3.5	4.0	5.0	2.7	1.5
	850	4.5	5.0	5.5	6.0	7.5	4.1	2.3
	1140	6.0	7.0	8.0	9.0	11.0	5.5	3.1
	1420	7.6	9.0	10.0	11.0	14.0	6.9	3.9
	1700	9.0	11.0	12.0	13.0	16.0	8.2	4.7
176° F	282	2.6	3.0	3.5	4.0	4.5	1.8	1.1
	570	5.0	5.5	6.0	6.5	8.0	3.2	2.3
	850	7.5	8.0	9.0	10.0	12.0	4.8	3.5
	1140	10.0	11.0	12.5	14.0	15.5	6.4	4.6
	1420	12.5	14.0	15.5	17.0	20.0	8.1	5.8
	1700	15.0	17.0	18.0	20.5	24.0	9.7	6.9

Coefficient of Friction

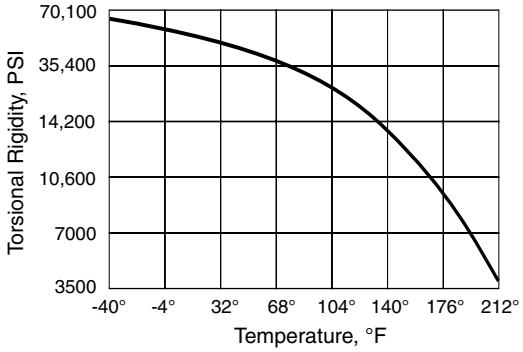
UHMW-PE polymer has a lower coefficient of friction than glass. Together with its self-lubricating characteristics, it is an ideal material for bearings, bushings, valves, wear strips or any application where sliding contact is encountered.

Materials	Static	Kinetic
Aluminum vs. UHMW-PE	0.12	0.016

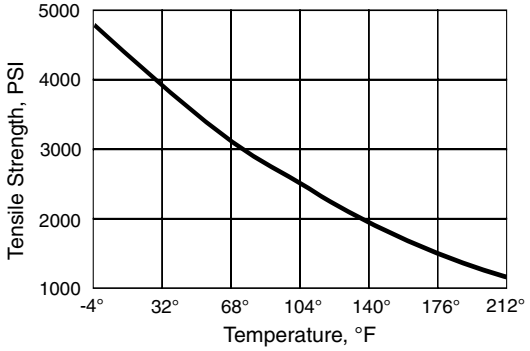
Anodized 204 R1 spec on extruded aluminum.

Load Bearing Properties

Torsional Rigidity as a Function of Temperature
(measured on compression molded sheets)



Tensile Strength at the Yield Point as a Function of Temperature
(measured at the feed rate of 99mm/min)



Chemical Resistance of UHMW-PE

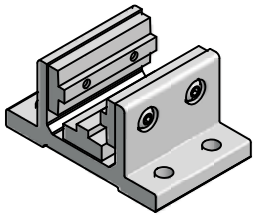
	Test specimens	Dumb-bell type
	Duration of Test	30 days
+	Resistant	Mechanical properties not appreciably affected
/	Limited Resistance	Decreases in yield stress and ultimate tensile strength less than 20%
-	Not Resistant	Decreases in yield stress and ultimate tensile strength greater than 20%

Reagent	20°C	50°C	80°C
I. Inorganic Acids			
Chromic acid (80%)	+	+	/
Hydrochloric acid (conc)	+	+	+
Hydrocyanic acid	+	+	-
Hydrofluoric acid	-	-	-
Nitric acid (conc)	/	-	-
Nitric acid (50%)	+	+	/
Nitric acid (20%)	+	+	+
Phosphoric acid (85%)	+	-	-
Sulphuric acid (conc)	+	-	-
Sulphuric acid (50%)	+	+	+
II. Alkalis			
Aqueous ammonia	+	+	-
Potassium Hydroxide solution	+	+	+
Sodium Hydroxide solution	+	+	+
III. Aqueous Solutions of Inorganic Salts			
Aluminum Chloride	+	+	-
Aluminum Nitrate	+	+	+
Bleaching powder	+	+	+
Calcium Chloride	+	+	+
Sodium Carbonate	+	+	+
Sodium Chloride	+	+	+
Sodium Hypochlorite	+	+	+
Zinc Chloride	+	+	+
IV. Organic Acids			
Acetic acid (99%)	+	+	/
Acetic acid (10%)	+	+	+
Butyric acid	+	+	-
Citric acid	+	+	+
Formic acid	+	+	-
Oleic acid	+	+	/

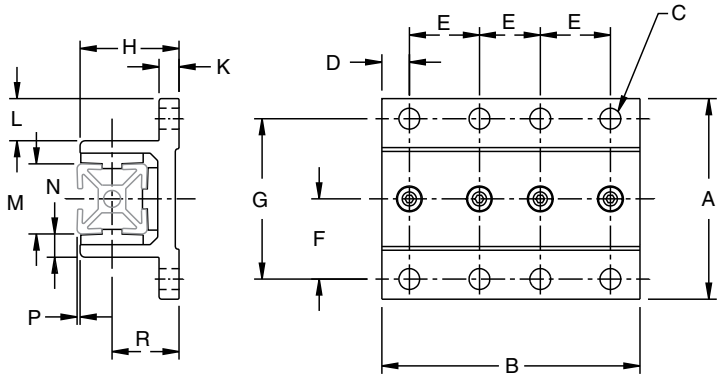
Reagent	20°C	50°C	80°C
V. Hydrocarbons			
Benzene	/	/	-
Carbon Tetrachloride	/	-	-
Cyclohexane	+	+	-
Dichloroethylene	-	-	-
Diesel oil	+	+	/
n-Heptane	+	+	-
Petroleum ether	+	-	-
Trichloroethylene	/	-	-
Toluene	/	-	-
White spirit	+	/	-
Xylene	/	/	-
VI. Alcohols, Ketones, Ester and Amines			
Acetone	+	+	-
Aniline	+	+	/
Benzyl alcohol	+	+	+
Butyl alcohol	+	+	+
Cyclohexanol	+	+	+
Ethanol	+	+	-
Ethyl acetate	+	+	-
Ethylene glycol	+	+	+
Glycene	+	+	+
Lauryl alcohol	+	+	+
Propyl alcohol	+	+	+
VII. Miscellaneous			
Beer	+	+	+
Detergents in aqueous solution	+	+	+
Distilled water	+	+	+
Hydrogen peroxide 30%	+	+	-
Linseed oil	+	+	+
Milk	+	+	+
Olive Oil	+	+	+
Sea water	+	+	+
Wine	+	+	+

Parker Hannifin Corporation
Industrial Profile Systems
Wadsworth, Ohio USA

Double Flange
28 x 28 and 1" x 1"

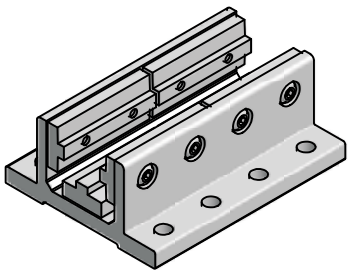


30-2801
30-1002



Part #	A	B	C	D	E	F	G
30-2801	80	50	4xØ8.3	11	28	32	64
30-2808	80	100	8xØ8.3	8	28	32	64
Part #	**H**	**K**	**L**	**M**	**N**	**P***	**R**
30-2801	39.5	8	16.75	28	9.25	1.1	26.9
30-2808	39.5	8	16.75	28	9.25	1.1	26.9

* Add 28mm (1.102") when using 12-248 profile.



30-2808
30-1004

Part #	A	B	C	D	E	F	G
30-1002	3.15"	2.00"	4xØ0.28"	0.50"	1.00"	1.25"	2.50"
30-1004	3.15"	4.00"	8xØ0.28"	0.50"	1.00"	1.25"	2.50"
Part #	**H**	**K**	**L**	**M**	**N**	**P**	**R**
30-1002	1.56"	0.31"	0.66"	1.03"	0.40"	0.06"	1.11"
30-1004	1.56"	0.31"	0.66"	1.03"	0.40"	0.06"	1.11"

Application

These double flange units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device. You provide the power – pneumatic, electro-mechanical or manual.

Shims are available to provide a more precise fit. See page 201 for optional clamping mechanism and page 202 for machining details.

Technical Data

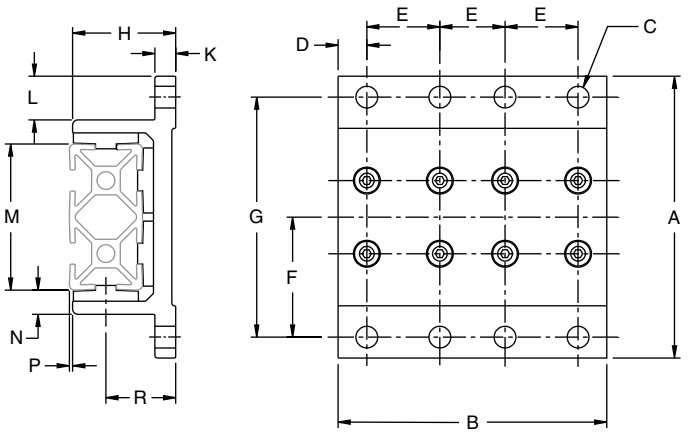
Aluminum, Clear Anodized

UHMW glide pads

Ordering Information

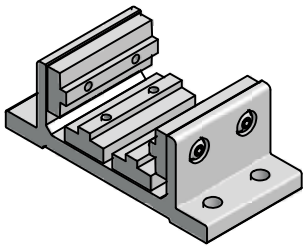
Description	Unit	Weight	Part #
Slide Block 28, 50mm Long	Each	0.14 kg	30-2801
Slide Block 28, 100mm Long	Each	0.58 kg	30-2808
Slide Block 1, 2" Long	Each	0.14 kg	30-1002
Slide Block 1, 4" Long	Each	0.25 kg	30-1004

Double Flange
56 x 28 and 2" x 1"



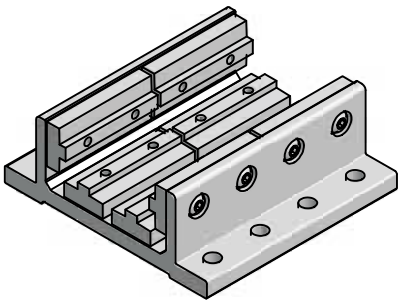
Part #	A	B	C	D	E	F	G
30-5601	108	50	4xØ8.3	11	28	46	92
30-5608	108	100	8xØ8.3	8	28	46	92
Part #	**H**	**K**	**L**	**M**	**N**	**P***	**R**
30-5601	39.5	8	16.75	56	9.25	1.125	26.75
30-5608	39.5	8	16.75	56	9.25	1.125	26.75

* Add 28mm (1.102") when using 12-056 profile.



30-5601
30-2002

Part #	A	B	C	D	E	F	G
30-2002	4.25"	2.00"	4xØ0.28"	0.50"	1.00"	1.75"	3.50"
30-2004	4.25"	4.00"	8xØ0.28"	0.50"	1.00"	1.75"	3.50"
Part #	**H**	**K**	**L**	**M**	**N**	**P**	**R**
30-2002	1.56"	0.31"	0.66"	2.03"	0.45"	0.06"	1.11"
30-2004	1.56"	0.31"	0.66"	2.03"	0.45"	0.06"	1.11"



30-5608
30-2004

Application Data

These double flange units offer low cost linear guidance. They utilize glide pads oriented within T-slots. You make your own guidance device. You provide the power – pneumatic, electro-mechanical, or manual.

Shims are available to provide a more precise fit. See page 201 for optional clamping mechanism and page 202 for machining details.

Technical Data

Aluminum, Clear Anodized

UHMW glide pads

Ordering Information

Description	Unit	Weight	Part #
Slide Block 28, 50mm Long	Each	0.34 kg	30-5601
Slide Block 28, 100mm Long	Each	0.72 kg	30-5608
Slide Block 2, 2" Long	Each	0.23 kg	30-2002
Slide Block 2, 4" Long	Each	0.42 kg	30-2004

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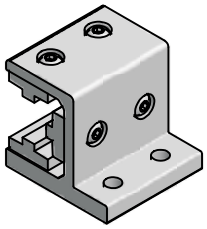
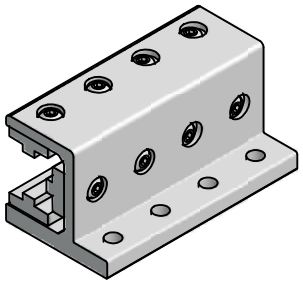
Industrial Profile Systems
Wadsworth, Ohio USA

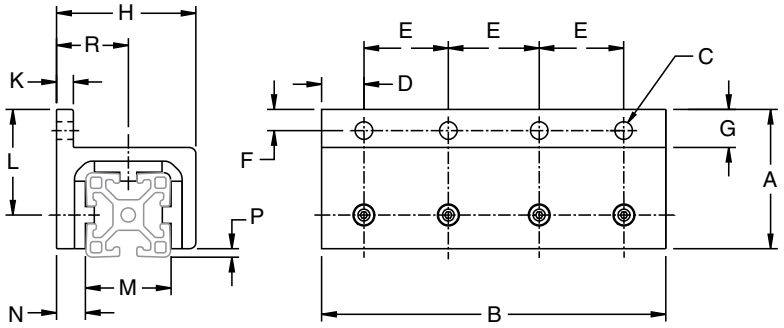
Side Flange
28 x 28 and 1" x 1"



30-2821
30-1012



30-2828
30-1014



Part #	A	B	C	D	E	F	G
30-2821	54	50	2xØ8.3	11	28	10	18
30-2828	54	100	4xØ8.3	8	28	10	18
Part #	**H**	**K**	**L**	**M**	**N**	**P***	**R**
30-2821	49.5	8	41	28	11.9	1.2	26.3
30-2828	49.5	8	41	28	11.9	1.2	26.3

* Add 28mm (1.102") when using 12-428 profile.

Part #	A	B	C	D	E	F	G
30-1012	2.13"	2.00"	2xØ0.28"	0.50"	1.00"	0.375"	0.71"
30-1014	2.13"	4.00"	4xØ0.28"	0.50"	1.00"	0.375"	0.71"
Part #	**H**	**K**	**L**	**M**	**N**	**P**	**R**
30-1012	1.95"	0.31"	1.68"	1.03"	0.52"	0.06"	1.03"
30-1014	1.96"	0.31"	1.68"	1.03"	0.52"	0.06"	1.03"

Application

Used with 28x28 profiles for low cost linear applications where one side is not available for mounting. Delrin slide pads engage directly into the profile T-slots.

Shims are available to provide a more precise fit. See page 201 for optional clamping mechanism and page 202 for machining details.

Technical Data

Aluminum, Clear Anodized

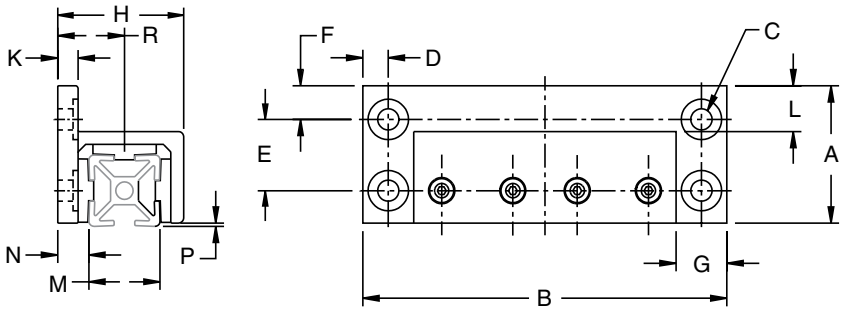
UHMW glide pads

Ordering Information

Description	Unit	Weight	Part #
Slide Block 28, 50mm Long	Each	0.34 kg	30-2821
Slide Block 28, 100mm Long	Each	0.39 kg	30-2828
Slide Block 1", 2" Long	Each	0.14 kg	30-1012
Slide Block 1", 4" Long	Each	0.25 kg	30-1014

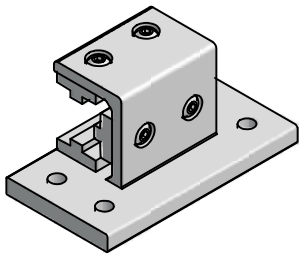
Note: All dimensions in mm (in)

Side Flange Extended 28 x 28 and 1" x 1"



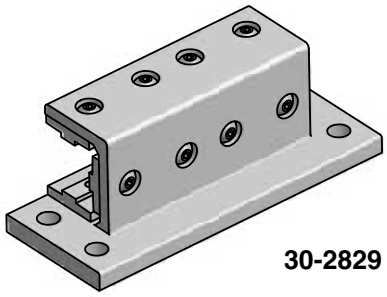
Part #	A	B	C	D	E	F	G
30-2822	54	90	4xØ8.3	10	28	13.2	20
30-2829	54	140	4xØ8.3	10	28	13.2	20
Part #	**H**	**K**	**L**	**M**	**N**	**P***	**R**
30-2822	49.5	8	18	28	12	11.9	26.3
30-2829	49.5	8	18	28	12	11.9	26.3

* Add 28mm (1.102") when using 12-428 profile.



30-2822
30-1024

Part #	A	B	C	D	E	F	G
30-1024	2.13"	4.00"	4xØ0.28"	0.50"	1.00"	0.56"	1.00"
Part #	**H**	**K**	**L**	**M**	**N**	**P**	**R**
30-1024	1.95"	0.31"	0.71"	1.03"	0.52"	0.06"	1.03"



30-2829

Application

Used with 28x28 profiles for low cost linear applications where one side is not available for mounting. Delrin slide pads engage directly into the profile T-slots.

Shims are available to provide a more precise fit. See page 201 for optional clamping mechanism and page 202 for machining details.

Technical Data

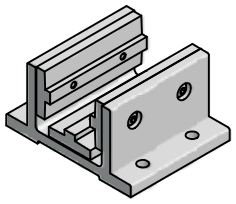
Aluminum, Clear Anodized

UHMW glide pads

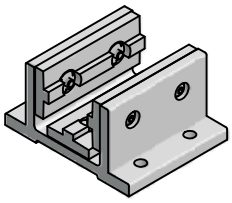
Ordering Information

Description	Unit	Weight	Part #
Slide Block 28, 90mm Long	Each	0.34 kg	30-2822
Slide Block 28, 140mm Long	Each	0.72 kg	30-2829
Slide Block 1" Extended, 4" Long	Each	0.26 kg	30-1024

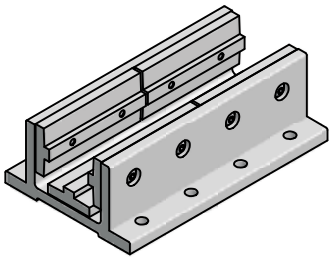
Double Flange
40 x 40 and 1.5" x 1.5"



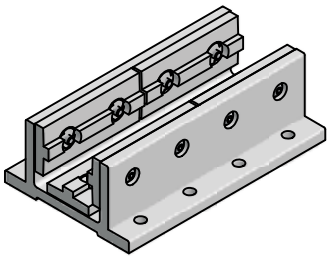
30-4001
30-1503



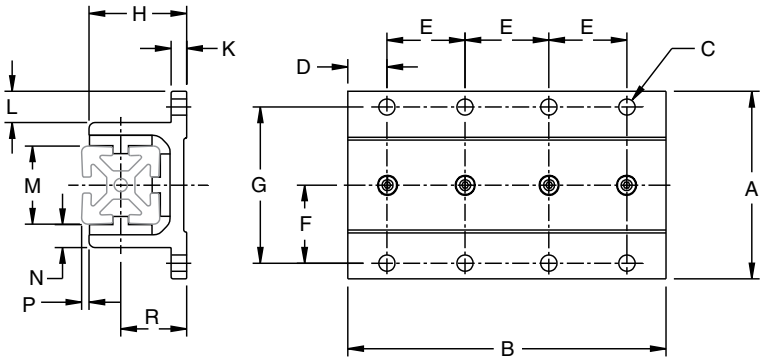
30-4001HC
30-1503HC



30-4008
30-1506



30-4008HC
30-1506HC



Part #	A	B	C	D	E	F	G
30-4001	96	80	4xØ8.3	20	40	40	80
30-4008	96	160	8xØ8.3	20	40	40	80
Part #	**H**	**K**	**L**	**M**	**N**	**P***	**R**
30-4001	50	8	16	40	12	4	34
30-4008	50	8	16	40	12	4	34

* Add: 40mm (1.575") when using 10-080, 10-680 or 11-080 profile.
80mm (3.15") when using 10-120 profile.
120mm (4.72") when using 10-164 or 11-140 profile.

Part #	A	B	C	D	E	F	G
30-1503	3.78"	3.00"	4xØ0.28"	0.75"	1.50"	1.50"	3.00"
30-1506	3.78"	6.00"	8xØ0.28"	0.75"	1.50"	1.50"	3.00"
Part #	**H**	**K**	**L**	**M**	**N**	**P**	**R**
30-1503	1.97"	0.31"	0.63"	1.52"	0.50"	0.12"	1.34"
30-1506	1.97"	0.31"	0.63"	1.52"	0.50"	0.12"	1.34"

Application

Bearing block for slides and movable rail applications requiring very cost efficient construction. This block can be used on 40 series Standard or Heavy profiles. High cycle (HC) units utilize a steel threaded insert to mount the pad to the unit. These specially designed slide block units are used in high cycle applications where rapid acceleration and deceleration takes place.

Shims are available to provide a more precise fit. See page 201 for optional clamping mechanism and page 202 for machining details.

Technical Data

Aluminum, Clear Anodized

UHMW glide pads

Safe load:
30-4001 or 30-1503 = 1,000 N (225 lbs)
30-4008 or 30-1506 = 2,000 N (450 lbs)

Ordering Information

Description	Unit	Weight	Part #
Slide Block 40, 80mm Long	1 pc	0.31 kg	30-4001
Slide Block 40, 160mm Long	1 pc	0.62 kg	30-4008
Slide Block 40 HC, 80mm Long	1 pc	0.31 kg	30-4001HC
Slide Block 40 HC, 160mm Long	1 pc	0.62 kg	30-4008HC
Slide Block 1.5, 3" Long	1 pc	0.31 kg	30-1503
Slide Block 1.5, 6" Long	1 pc	0.62 kg	30-1506
Slide Block 1.5 HC, 3" Long	1 pc	0.31 kg	30-1503HC
Slide Block 1.5 HC, 6" Long	1 pc	0.62 kg	30-1506HC

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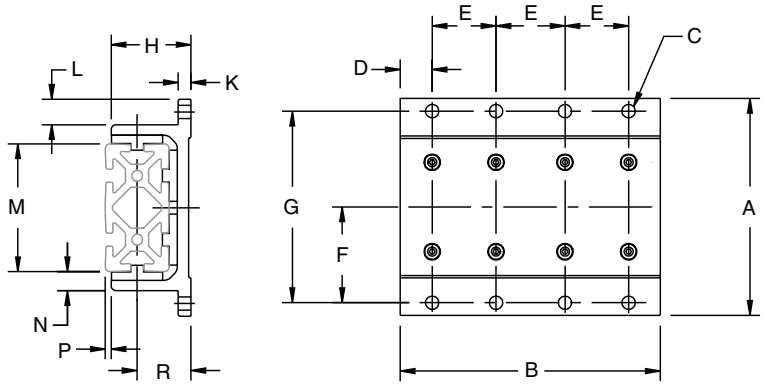
Industrial Profile Systems
Wadsworth, Ohio USA

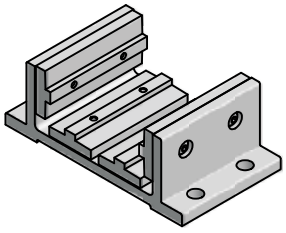
Double Flange
80 x 40 and 3" x 1.5"



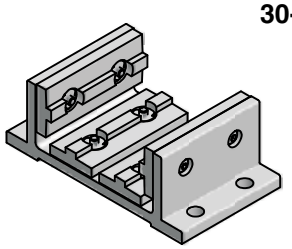
Part #	A	B	C	D	E	F	G
30-8001	136	80	4xØ8.3	20	40	60	120
30-8008	136	160	8xØ8.3	20	40	60	120
Part #	**H**	**K**	**L**	**M**	**N**	**P***	**R**
30-8001	50	8	16	80	12	3.7	34
30-8008	50	8	16	80	12	3.7	34

* Add: 40mm (1.575") when using 10-088 or 11-088 profile.
120mm (4.72") when using 10-160 or 11-160 profile.

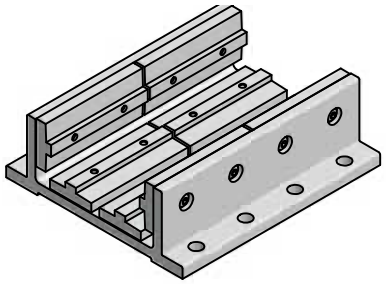
Part #	A	B	C	D	E	F	G
30-3003	5.35"	3.00"	4xØ0.34"	0.75"	1.50"	2.35"	4.69"
30-3006	5.35"	6.00"	8xØ0.34"	0.75"	1.50"	2.35"	4.69"
Part #	**H**	**K**	**L**	**M**	**N**	**P**	**R**
30-3003	1.97"	0.31"	0.63"	3.02"	0.54"	0.12"	1.34"
30-3006	1.93"	0.31"	0.63"	3.02"	0.54"	0.12"	1.34"



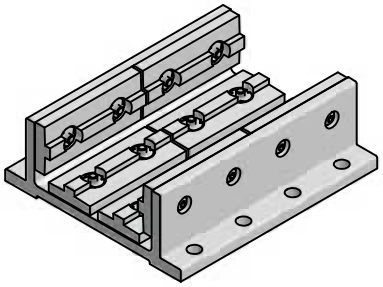
30-8001
30-3003



30-8001HC
30-3003HC



30-8008
30-3006



30-8008HC
30-3006HC

Application

Bearing block for slides and movable rail applications requiring very cost efficient construction. This block can be used on the 80mm side of 40 series Standard or Heavy profiles. High cycle (HC) units utilize a steel threaded insert to mount the pad to the unit. These specially designed slide block units are used in high cycle applications where rapid acceleration and deceleration takes place.

Shims are available to provide a more precise fit. See page 201 for optional clamping mechanism and page 202 for machining details.

Technical Data

Aluminum, Clear Anodized

UHMW glide pads

Safe load:
30-8001 or 30-3003 = 2,000 N (450 lb)
30-8008 or 30-3006 = 4,000 N (900 lb)

Ordering Information

Description	Unit	Weight	Part #
Slide Block 80, 80mm Long	1 pc	0.38 kg	30-8001
Slide Block 80, 160mm Long	1 pc	0.76 kg	30-8008
Slide Block 80 HC, 80mm Long	1 pc	0.38 kg	30-8001HC
Slide Blolck 80 HC, 160mm Long	1 pc	0.76 kg	30-8008HC
Slide Block 3, 3" Long	1 pc	0.38 kg	30-3003
Slide Block 3, 6" Long	1 pc	0.76 kg	30-3006
Slide Block 3 HC, 3" Long	1 pc	0.38 kg	30-3003HC
Slide Block 3 HC, 6" Long	1 pc	0.76 kg	30-3006HC

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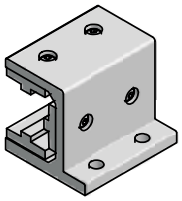
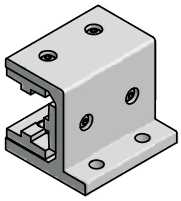
Wadsworth, Ohio USA

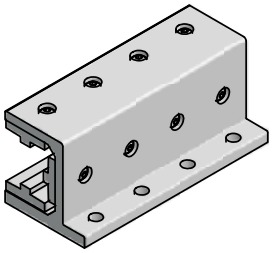
Side Flange 40 x 40 and 1.5" x 1.5"



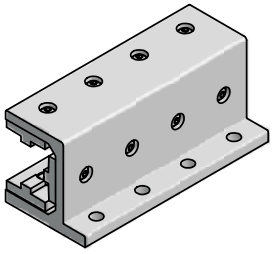
30-4021
30-1513



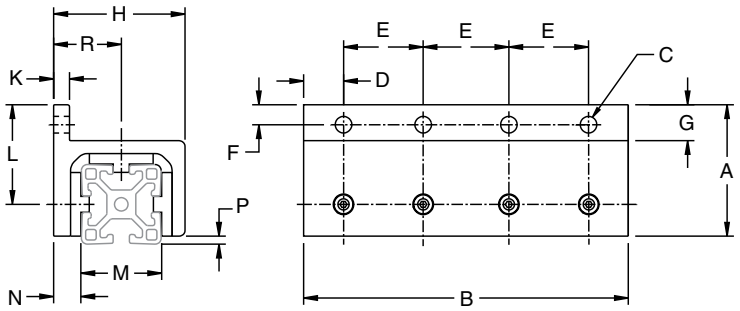
30-4021HC
30-1513HC



30-4028
30.1523



30-4028HC
13-1523HC



Part #	A	B	C	D	E	F	G
30-4021	66	80	2xØ8.3	20	40	10	18
30-4028	66	160	4xØ8.3	20	40	10	18
Part #	**H**	**K**	**L**	**M**	**N**	**P***	**R**
30-4021	66	8	50	40	14	4	34
30-4028	66	8	50	40	14	4	34

* Add: 40mm (1.575") when using 10-080, 10-680 or 11-080 profile.
80mm (3.15") when using 10-120 profile.
120mm (4.72") when using 10-164 or 11-140 profile.

Part #	A	B	C	D	E	F	G
30-1513	2.60"	3.00"	2xØ0.34"	0.75"	1.50"	0.38"	0.71"
30-1523	2.60"	6.00"	4xØ0.34"	0.75"	1.50"	0.38"	0.71"
Part #	**H**	**K**	**L**	**M**	**N**	**P**	**R**
30-1513	2.60"	0.31"	1.97"	1.61"	0.58"	0.12"	1.34"
30-1523	2.60"	0.31"	1.97"	1.61"	0.58"	0.12"	1.34"

Application

Used with 40x40 or 1.5"x1.5" profiles for low cost linear applications where one side is not available for mounting. Slide pads engage directly into the profile T-slots. Shims are available to provide a more precise fit. High cycle (HC) units utilize a steel threaded insert to mount the pad to the unit. These specially designed slide block units are used in high cycle applications where rapid acceleration and deceleration takes place.

Optional clamping mechanism can be added as required. Each clamp requires a machined hole. Refer to pages 201-202 for details

Technical Data

Aluminum, Clear Anodized

UHMW glide pads

Ordering Information

Description	Unit	Weight	Part #
Slide Block 40, 80mm Long	Each	0.31 kg	30-4021
Slide Block 40, 160mm Long	Each	0.42 kg	30-4028
Slide Block 40 HC, 80mm Long	Each	0.31 kg	30-4021HC
Slide Block 40 HC, 160mm Long	Each	0.42 kg	30-4028HC
Slide Block 1.5, 3" Long	Each	0.31 kg	30-1513
Slide Block 1.5, 6" Long	Each	0.62 kg	30-1523
Slide Block 1.5 HC, 3" Long	Each	0.31 kg	30-1513 HC
Slide Block 1.5 HC, 6" Long	Each	0.62 kg	30-1523 HC

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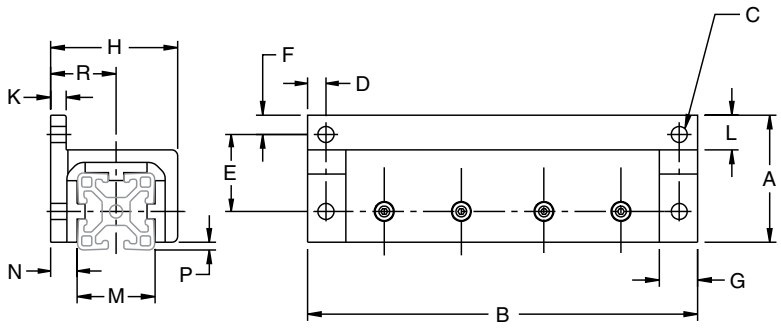
Wadsworth, Ohio USA

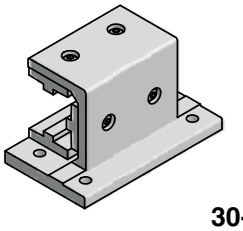
Side Flange Extended 40 x 40 and 1.5" x 1.5"



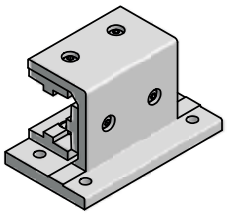
Part #	A	B	C	D	E	F	G
30-4022	66	120	4xØ8.3	10	40	10	20
30-4029	66	200	4xØ8.3	10	40	10	20
Part #	**H**	**K**	**L**	**M**	**N**	**P***	**R**
30-4022	66	8	18	40	14	4	34
30-4029	66	8	18	40	14	4	34

* Add: 40mm (1.575") when using 10-080, 10-680 or 11-080 profile.
80mm (3.15") when using 10-120 profile.
120mm (4.72") when using 10-164 or 11-140 profile.

Part #	A	B	C	D	E	F	G
30-1516	2.60"	4.50"	4xØ0.34"	0.50"	1.50"	0.47"	0.75"
Part #	**H**	**K**	**L**	**M**	**N**	**P***	**R**
30-1516	2.60"	0.31"	1.97"	1.50"	0.58"	0.12"	1.34"



30-4022
30-1516



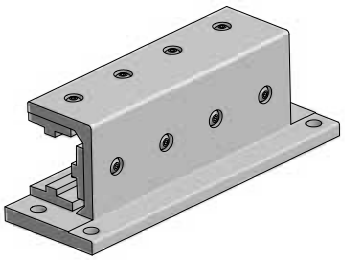
30-4022HC
30-1516HC

Application

Used with 40x40 or 1.5"x1.5" profiles for low cost linear applications where one side is not available for mounting. Slide pads engage directly into the profile T-slots. Shims are available to provide a more precise fit.

High cycle (HC) units utilize a steel threaded insert to mount the pad to the unit. These specially designed slide block units are used in high cycle applications where rapid acceleration and deceleration takes place.

Optional clamping mechanism can be added as required. Each clamp requires a machined hole. Refer to pages 201-202 for details.



30-4029

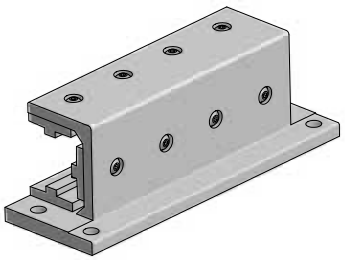
Technical Data

Aluminum, Clear Anodized

UHMW glide pads

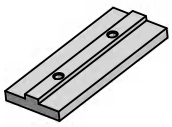
Ordering Information

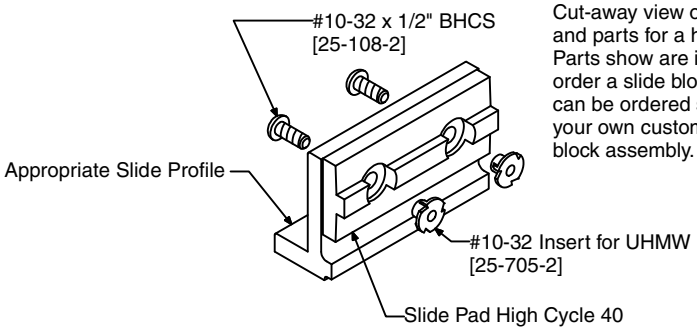
Description	Unit	Weight	Part #
Slide Block 40, 120mm Long	Each	0.34 kg	30-4022
Slide Block 40, 200mm Long	Each	0.72 kg	30-4029
Slide Block 40 HC, 120mm Long	Each	0.34 kg	30-4022HC
Slide Block 40 HC, 200mm Long	Each	0.72 kg	30-4029HC
Slide Block 1.5, 4.5" Long	Each	0.37 kg	30-1516
Slide Block 1.5 HC , 4.5" Long	Each	0.37 kg	30-1516HC



30-4029HC

Slide Pads & Shims





Cut-away view of the assembly and parts for a high cycle slide. Parts show are included when you order a slide block assembly, but can be ordered separately to make your own custom high cycle side block assembly.

Application

Glide pads let you custom design a low friction guidance unit. Slide pad can also be attached to a profile to serve as a guide in sliding door applications.

Technical Data

Slide Pad: UHMW

Shim: PET (polyethylene terephthalate), 0.005" thick

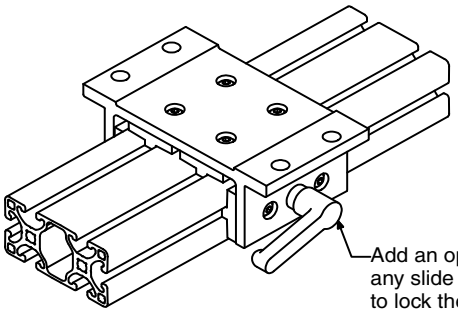
Recommended Fastener: 24-112-5

Ordering Information

Description	Unit	Part #
Slide Pad 28 Series, 80mm*	1 pc	30-2800-2
Slide Pad 40 Series, 80mm*	1 pc	30-4000-2
Slide Pad 40 Series, 300mm†	1 pc	30-4000-3
Slide Pad 40 Series, 80mm High Cycle	1 pc	30-4000-6
Shim 80	pkg of 4	30-412Z2
Shim 160	pkg of 4	30-812Z2
Slide Pad, 1" x 2" *	1 pc	30-1000
Slide Pad, 1" x 2" Top*	1 pc	30-1001
Slide Pad, 1" x 2" Top*	1 pc	30-2000
Slide Pad, 1.5" x 3" *	1 pc	30-1500
Slide Pad, 1.5" x 3" High Cycle	1 pc	30-1501
Slide Pad, 3" *	1 pc	30-3000
Slide Pad, 3" High Cycle	1 pc	30-3001

* Tapped
† Un-tapped

Clamp Accessories



Add an optional locking handle to any slide block, to provide a mechanism to lock the slide block in place anywhere on the extrusion.

30-0001

30-0005

30-0011

30-0015

Application

These clamp accessories provide positioning and adjustment for 40 Series slide units. Handles provide mechanism to lock the slide block in place anywhere on the extrusion.

Slide extrusions and pads can be drilled to accept clamp.

Ordering Information

Description	Width (mm)	Depth (mm)	Part # 40/1.5" Series	Part # 28 Series
Ratcheting L-Handle	63	32.8	**30-0011**	**30-0001**
Star Handle	40	36.7	**30-0015**	**30-0005**

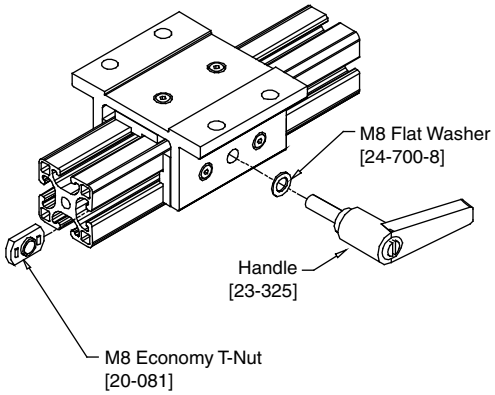
Ratchet Lever

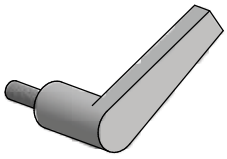
Application

For use on applications where a locking handle is desired, particularly on profile slide blocks. A 9mm hole is required to mount the ratchet lever.

Technical Data

Fiber reinforced techno-polymer plastic with metal insert. Hardware varies with application.





23-325

Ordering Information

Description	Unit	Weight	Part #
Ratchet Lever M8 x 16	Each	87 g	23-316
Ratchet Lever M8 x 20	Each	43 g	23-320
Ratchet Lever M8 x 25	Each	45 g	23-325
Ratchet Lever M8 x 40	Each	50 g	23-340
Ratchet Lever M8 x 50	Each	53 g	23-350
Ratchet Lever M8 x 63	Each	57 g	23-363

Clamp Machining

Slide blocks may be pre-drilled for mounting of the clamp. If drilling is desired, specify the machining service number and give the location of the hole(s) to be drilled according to the drawings below.

Ordering Information

Profiles	Hole Size	Machining Service No.
28, 56, 40, 80, 1.5"	Ø0.323"	19-140

Ordering Examples:

Slide block drilled for one clamp
(note the description added to the slide block part number):

30-2822 w/19-140 @ LU

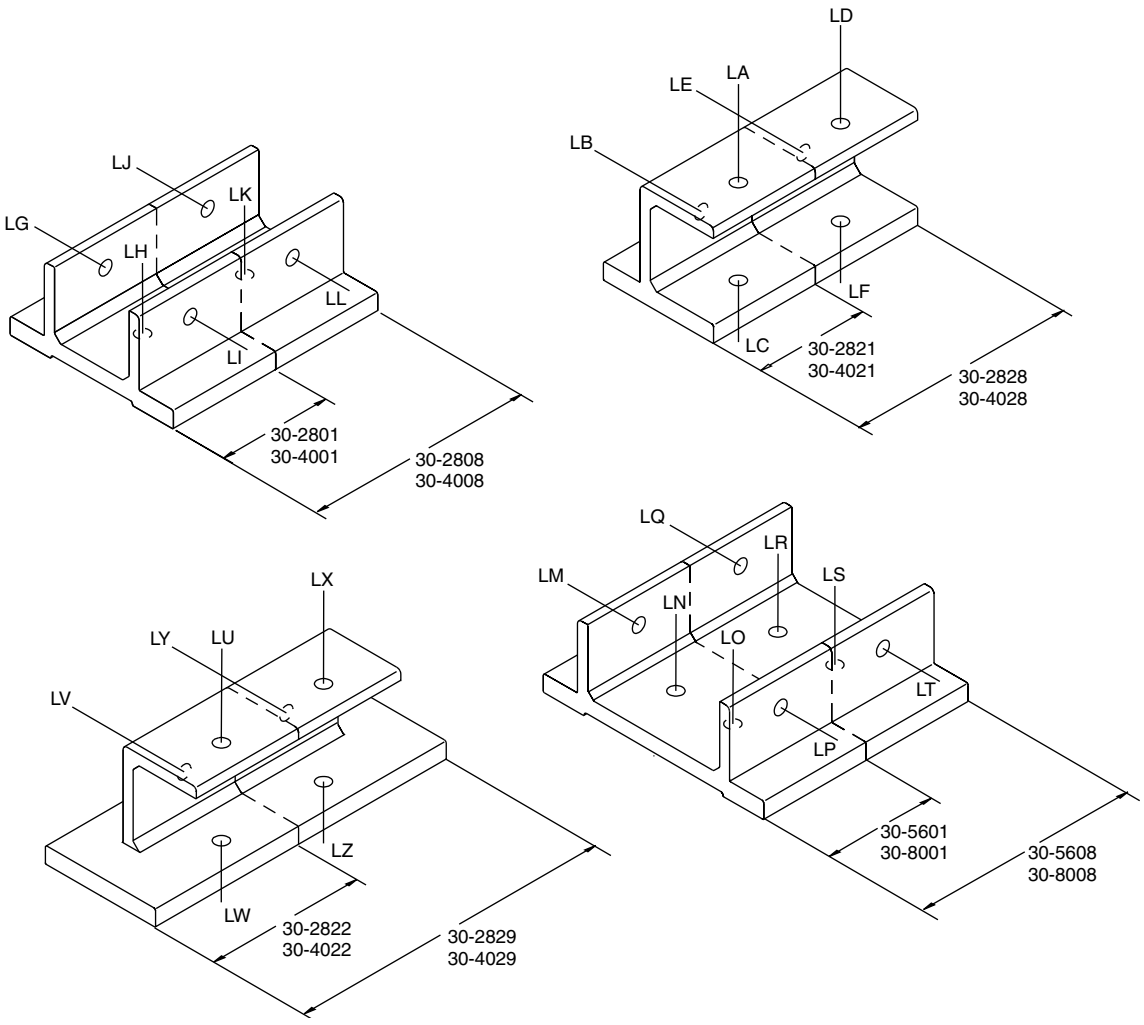
Multiple clamps may be mounted on a slide block. Each clamp requires a hole to be drilled. Note the description and the number of holes is added to the slide block part number.

Guide drilled for two clamps:

30-4008 w/19-140 @ LG and LL

Guide drilled for three clamps:

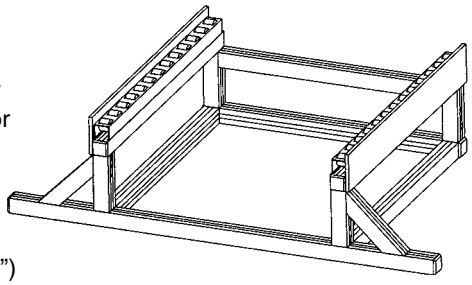
30-8008 w/19-140 @ LP, LT and LM



Roller Track

Application

Economical track for flow rack system. Usually use two tracks per runway but three of four may be used with heavy or wide loads. Can be attached to 40, 30 or 28 Series profiles.

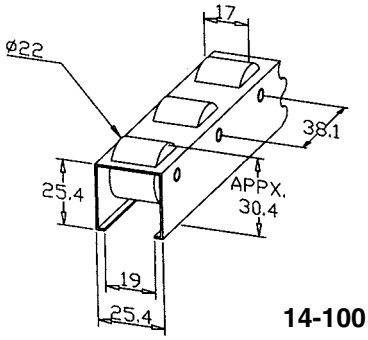


Technical Data

Channel: rolled steel, galvanized (0.028")

Roller: PE, white

Load: 22 N (5 lbs) per roller



14-100

Ordering Information

Description	Unit	Part #
Roller Track	per meter, max. 3M	14-100
Saw cut necessary for cut to length		19-007

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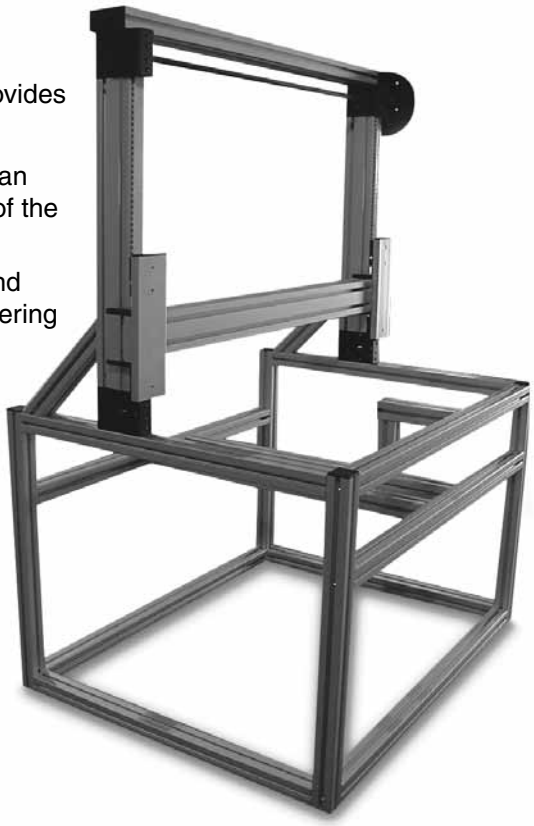
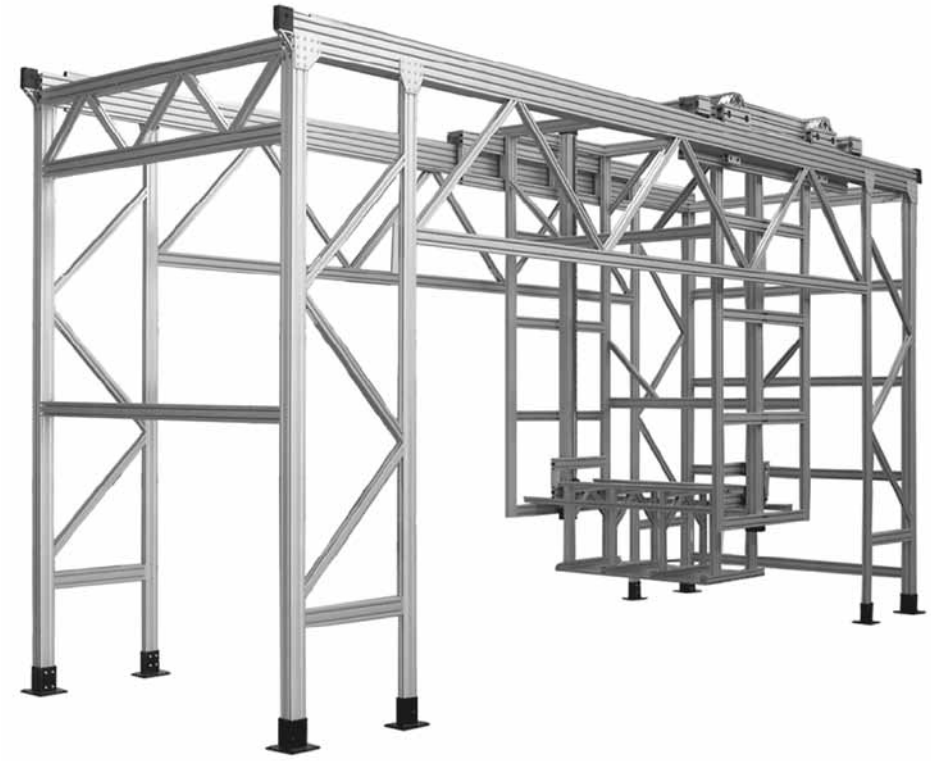
LR Series System Solutions

LR Series provides seamless integration with engineered structures from Parker IPS providing a more complete system solution.

Integrating LR Series products with Parker IPS structural systems provides clear advantages over welded steel construction.

- Welding distortion is eliminated producing a highly accurate finished product
- Anodized aluminum is corrosion resistent and does not require painting or maintenance.
- Shorter delivery lead times than other fabrication techniques
- Modifications and changes can be made through all stages of the project
- Integrating motion, control and structure streamlines engineering and supply chain channels.
- Fast, accurate 3D system drawings





LR Series and Parker IPS provide solutions to a wide variety of industries and applications including:

- Automotive
- Industrial Manufacturing
- Life-Sciences
- Packaging
- Material Handling
- Machine Building
- Aerospace
- Textiles
- Pulp & Paper
- Semi-conductor

The LR Series Belt Drive Roller System from Parker IPS

Linear Roller Series products from Parker IPS provide a high level of accuracy, load-bearing strength, and flexibility in a modular, low-cost package. These products utilize standard components and can adapt to a wide range of applications.

The foundation of the LR product line is the 40 Series of structural profiles that offer numerous mounting configurations. Profiles allowing maximum unsupported spans can be selected, saving valuable space and reducing overall system costs. Standard lengths of 6m and the ability to splice multiple sections allow configuration of nearly infinite stroke.

LR Roller Bearings are made of 100 Cr6, ground and hardened steel, and provide low friction, long life, high speed, and heavy load capabilities. Bearing units are available as single and double roller types. Custom carriage configurations using multiple bearing units can be set up to meet off-the-shelf lead times.

The modular design allows for easy assembly, fast engineering, and a flexible platform capable of meeting even the most demanding application.

Market Applications

- ***Material Handling***
- ***Gantry Systems***
- ***Visual Inspection***
- ***Assembly and Transfer Lines***

- ***Carriage loads to 2597 lbs***
- ***Custom carriage options***
- ***Speeds up to 5m/sec***
- ***Easy mounting to AC motors***
- ***Stroke lengths over 6m***
- ***Instant motor/gearbox approval***

Performance Overview

	LR 6	LR 14	LR 14HD	LR 25
Maximum Carriage Load N (lbs)	649 (146)	2,669 (600)	3,350 (753)	11,552 (2,597)
Pully Diameter (mm): Reversing Unit 40	47.75	47.75	47.75	47.75
Pully Diameter (mm): Reversing Unit 80	89.12	89.12	89.12	89.12
Pully Lead (mm/rev): Reversing Unit 40	150	150	150	150
Pully Lead (mm/rev): Reversing Unit 80	280	280	280	280
Maximum Travel Without Splice (mm)*	5900	5850	5840	5680
Minimum Travel (mm)	300	250	240	80
Maximum Drive Torque (Nm): Reversing Unit 40	20	20	20	20
Maximum Drive Torque (Nm): Reversing Unit 80	37	37	37	37
Maximum Belt Traction (lbs/belt)	575	575	575	575
Maximum Number of Belts	1	2	2	4
Maximum Speed (m/s)	5	5	5	5
Maximum Acceleration at No Load (m/s2)	10	10	10	10
Repeatability (mm)	± .10	± .10	± .10	± .10

* Consult factory for long travel lengths.

Parker Hannifin Corporation
Industrial Profile Systems
Wadsworth, Ohio USA

Order Example

LR | B | 5 | 2 | S0150 | B | 2000 | R1 | S1 | F1 | – | A22A34

✔ System Size
LR 6	A
LR 14	B
LR 14HD	C
LR 25	D

✔ Extrusion Selection***
40x80 Standard	3
40x80 Heavy	4
80x80 Standard	5
80x80 Heavy	6
80x80 Super Heavy	7
80x160 Standard	8
160x80 Heavy	9
120x80 Heavy	0

✔ Profile Orientation
Tall Side (see example figures)	1
Narrow Side (see example figures)	2

✔ Bearing Configuration
Double Bearing (xxxx is standard carriage length)	Dxxxx
Single Bearing (see page 200 for min.) (enter total carriage length in mm)	Sxxxx

✔ Type
Belt Drive	B
Manual	M

✔ Travel
Travel Length (mm)	xxxx

✔ Reversing Unit Combinations
None (Manual Option Only)	R1
Spline/Idler	R2
Spline/Spline	R3
Spline/8mm Bore	R4
Idler/Idler	R5
Idler/8mm Bore	R6
8mm Bore/8mm Bore	R7

✔ Adapter Shafts *(couplers)*†
Blank – No Servicing	S1
Special Servicing*	S2
Shaft Type A, 0.375 in (9.525 mm)	S3
Shaft Type B, 0.433 in (11mm)	S4
Shaft Type C, 0.5 in (12.7mm)	S5
Shaft Type D, 0.551 in (14mm)	S6
Shaft Type E, 0.625 in (15.875mm)	S7
Shaft Type F, 0.63" (16mm)	S8

*** All profiles do not fit with all system sizes. Contact factory for application assistance.

✔ Accessories *(Replace # with Quantity Required)*
A1#	Bumpers
A2#	Proximity Switch
A3#	Exciter Cam
A5#	Hand Crank Assembly**
A6#	Carriage Locking Mechanism**
A7	Reversing Unit 80
A8	Extra Bearing

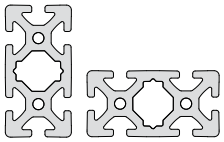
✔ Adapter Flange† *(See Dim. Table)*
F1	Blank, No Servicing
F2	Universal Adapter Special Servicing*
F3	Mounting Type A
F4	Mounting Type B
F5	Mounting Type C
F6	Mounting Type D
F7	Mounting Type E
F8	Mounting Type F
F9	Mounting Type G**

* Contact customer service for technical assistance

**Manual systems only

† See page 204 for instant motor/gearbox approval selection

Profile Orientation



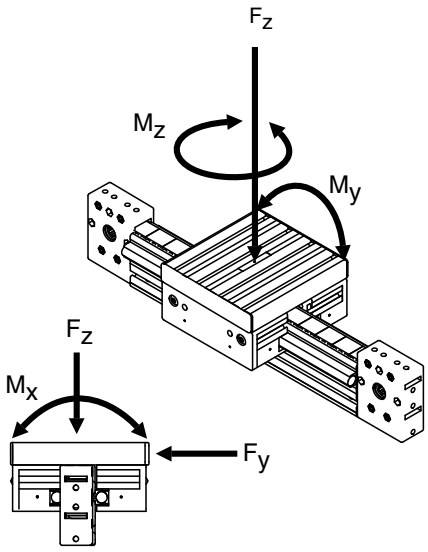
Tall Side | Narrow Side

Adapter Flange Mount Type	Bolt Circle	Bolt Size	Pilot Dia.	Pilot Depth
A	98.40	M5	73.02	3.5
B	66.70	M4	38.10	2.0
C	75.00	M5	60.00	3.0
D	98.40	M6	73.02	3.5
E	100.00	M6	80.00	4.0
F	70.00	M4	50.00	3.5
G	90.00	M5	70.00	3.5

Note: All flange data in mm

Parker Hannifin Corporation
Industrial Profile Systems
Wadsworth, Ohio USA

Loading Capacity



Static Moment Loads

Determine which moment loads are induced by the static load. Locate the center of gravity of the load and the length of the moment arm.

Moment Arm Lengths

Determine the moment arm lengths associated with each moment load by measuring the distance from the center of the load to the center of the carriage in each moment load direction.

Pitch Moment

When determining the pitch moment arm, it is necessary to consider the distance from the top of the load attachment plate to the center of the carriage bearings.

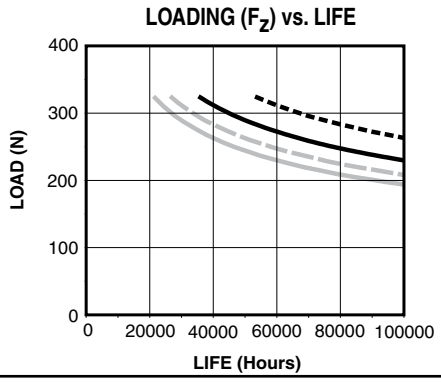
Operating Condition	Load Factor
Steady Load	1
Fluctuating Load	–
Low	1.4
Average	1.7
High	2

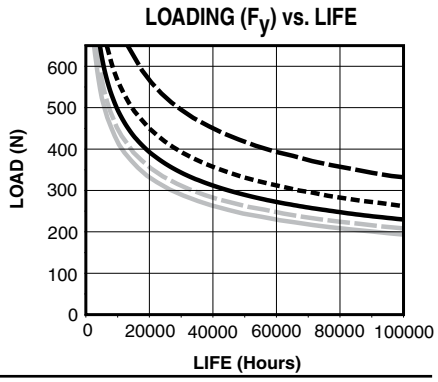
Load Capacity = Load * Load Factor

1 m/sec
2 m/sec
3 m/sec
4 m/sec
5 m/sec

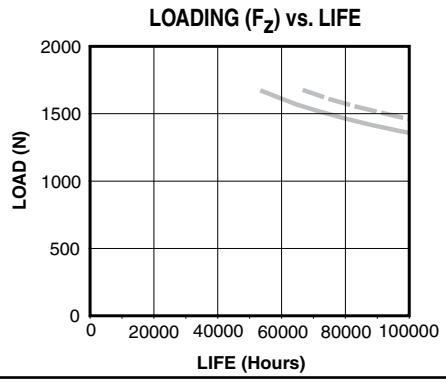
Key for charts on pages 4 and 5

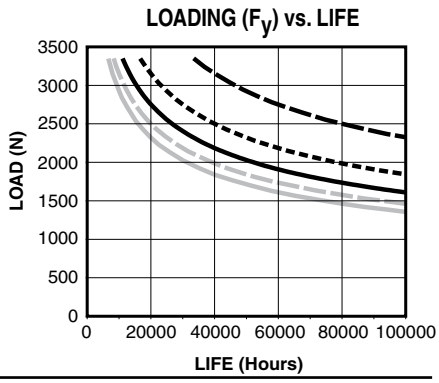
LR6 Series



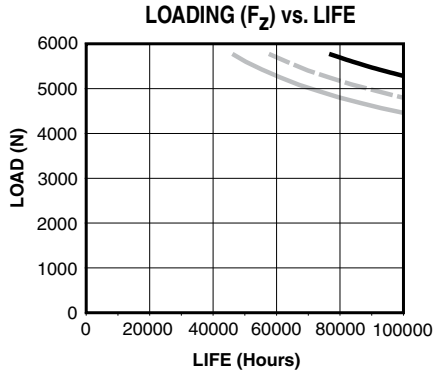


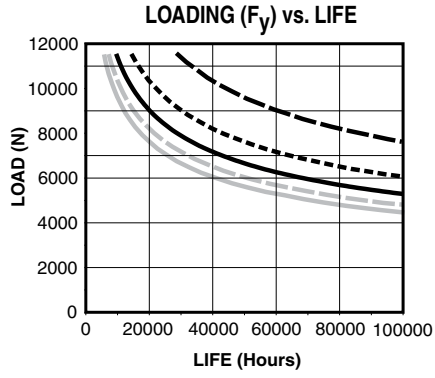
LR14/14HD Series





LR25 Series

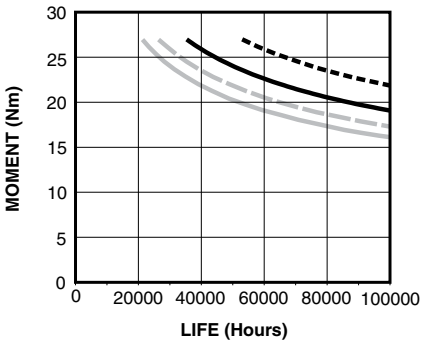




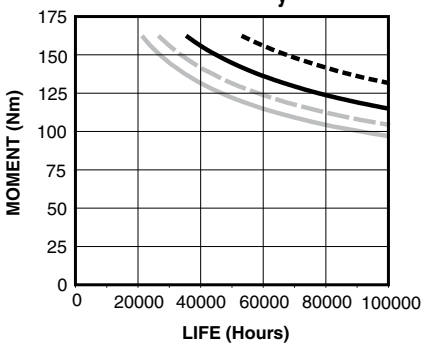
Loading Capacity

LR6 Series

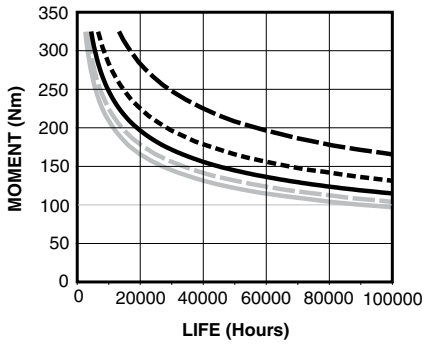
ROLL MOMENT (M_X) vs. LIFE



PITCH MOMENT (M_y) vs. LIFE

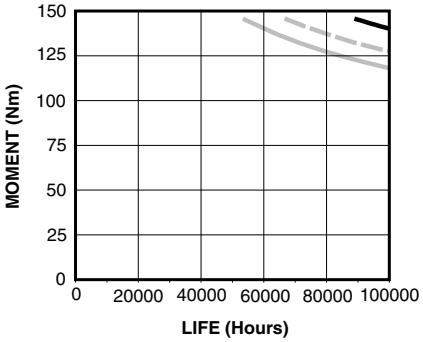


YAW MOMENT (M_Z) vs. LIFE

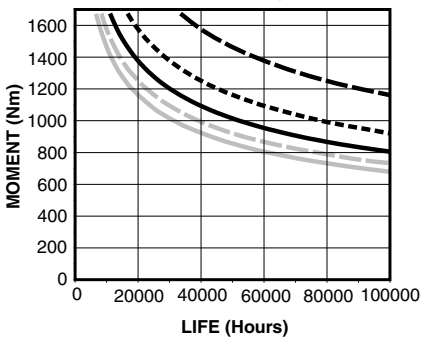


LR14 Series

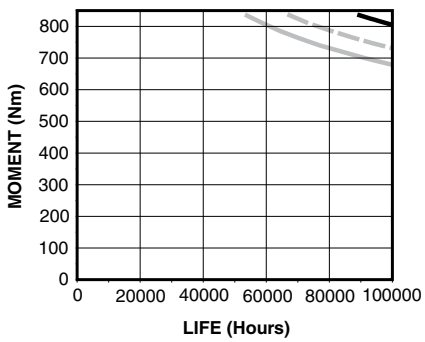
ROLL MOMENT (M_X) vs. LIFE



PITCH MOMENT (M_y) vs. LIFE

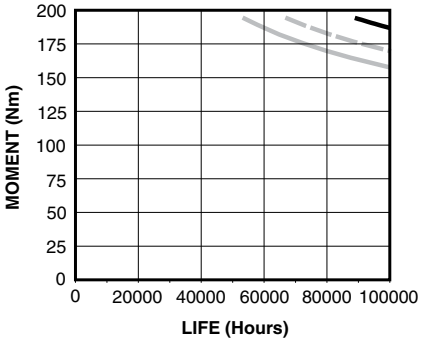


YAW MOMENT (M_Z) vs. LIFE

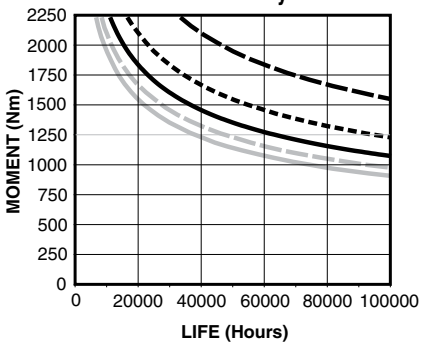


LR14HD Series

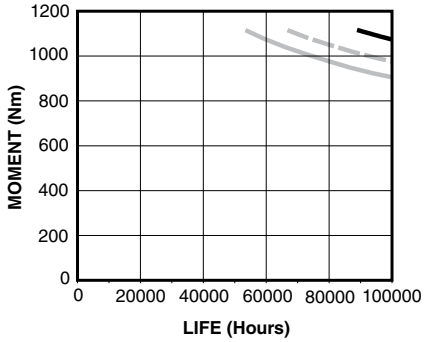
ROLL MOMENT (M_X) vs. LIFE



PITCH MOMENT (M_y) vs. LIFE

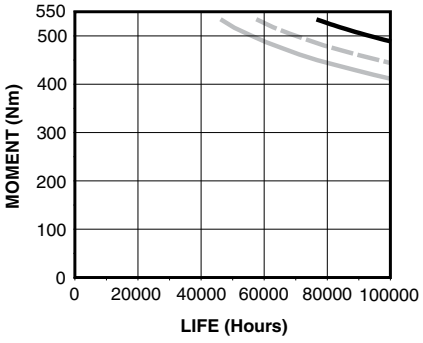


YAW MOMENT (M_Z) vs. LIFE

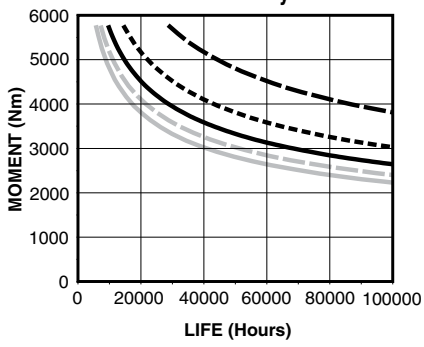


LR25 Series

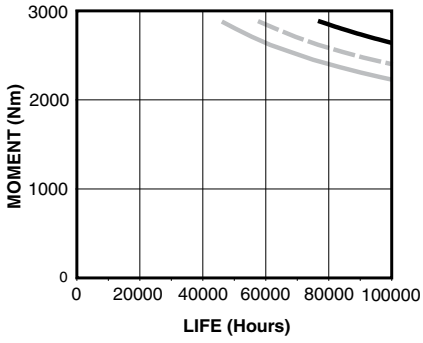
ROLL MOMENT (M_X) vs. LIFE



PITCH MOMENT (M_y) vs. LIFE



YAW MOMENT (M_Z) vs. LIFE



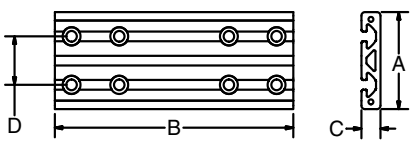
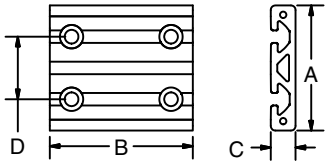
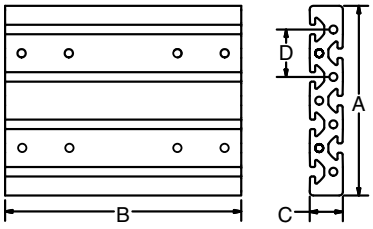
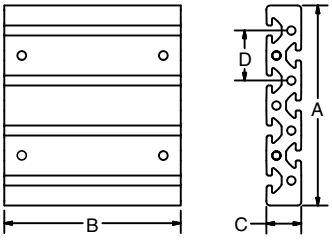
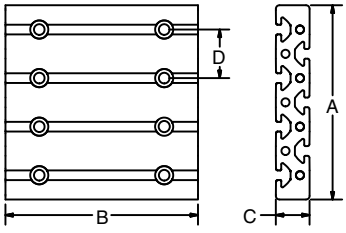
Carriage Information

Carriage Mounting Detail

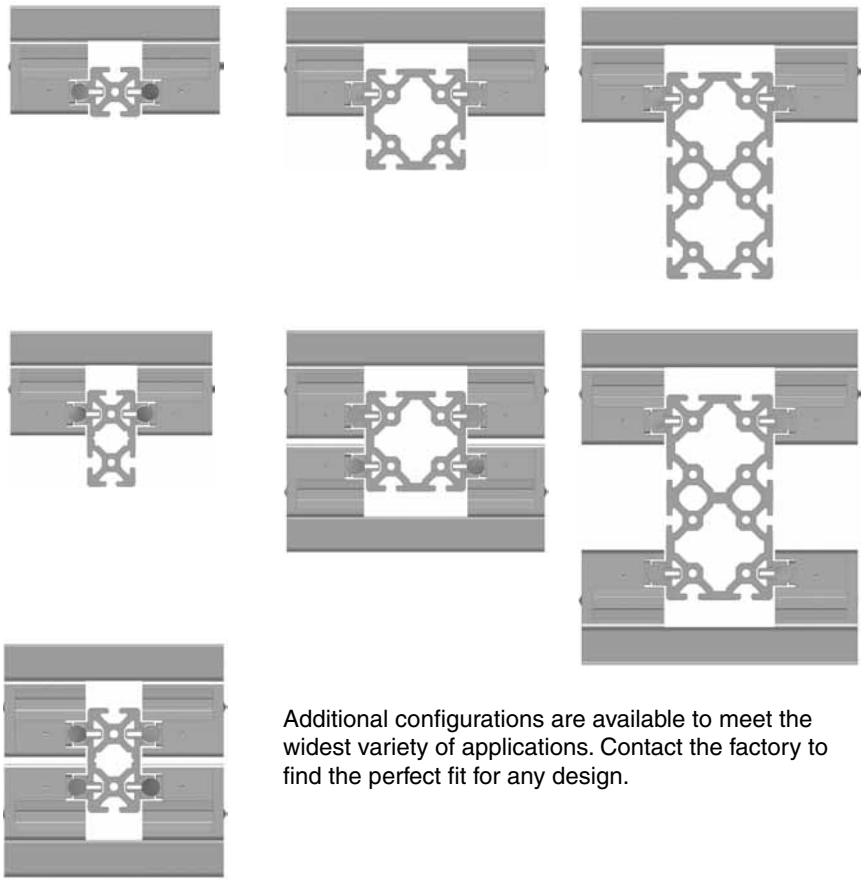
LR Series actuators offer unmatched carriage flexibility. Available in fixed length double bearing units or adjustable length single bearing units, the carriage can be tailored to meet specific load requirements.

Series	Carriage	Width A	Length B	Thickness C	T-Slot D	Weight (kg)
LR6*	Single	80	300 min.	16	39	Variable
	Double	80	242	16	39	0.8
LR14*	Single	160	140 min.	28	40	Variable
	Double	160	141.6	28	40	3.24
LR14HD*	Single	159.5	160 min.	28	40	Variable
LR25	Single	Consult Factory				

* Based on 40 mm Profile Width for LR6, LR14, and LR14HD

	Single Bearing Carriage	Double Bearing Carriage
LR6 Series		
LR14 Series		
LR14HD Series		**Consult Factory**
LR25 Series	**Consult Factory**	**Consult Factory**

Carriage Information



Additional configurations are available to meet the widest variety of applications. Contact the factory to find the perfect fit for any design.

Carriage Orientation

A variety of carriage orientations are available due to the LR Series' modular design.

Options include multiple linked and multiple independent carriages on a single actuator and custom carriage lengths.

Selecting the proper profile for load support, and configuring the carriage to suit the specific load and application provides the benefits of a custom product without the additional costs and lead times.

Inertia Values

Linear Inertia (oz-in²) vs Stroke (mm)

Series	100	200	300	500	750	1000	1500	3000	4000	6000
6	25.87	26.12	26.38	26.89	27.53	28.17	29.45	33.29	35.85	40.96
14	63.95	64.20	64.46	64.97	65.61	66.25	67.53	71.37	73.93	79.04
14HD	73.09	73.35	73.60	74.12	74.76	75.40	76.68	80.51	83.07	88.19
25	293.45	293.71	293.96	294.48	295.12	295.76	297.04	300.87	303.43	308.55

Linear Inertia (kg-cm²) vs Stroke (mm)

Series	100	200	300	500	750	1000	1500	3000	4000	6000
6	4.73	4.78	4.82	4.92	5.04	5.15	5.39	6.09	6.56	7.49
14	11.70	11.74	11.79	11.88	12.00	12.12	12.35	13.05	13.52	14.46
14HD	13.37	13.42	13.46	13.56	13.67	13.79	14.02	14.73	15.19	16.13
25	53.67	53.72	53.77	53.86	53.98	54.09	54.33	55.03	55.50	56.43

Data calculated using a Reversing Unit 40 & Double Bearing Carriage

Choosing Profiles

Deflection Calculation

Parker IPS structural profiles are the foundation of the LR Series, providing unmatched flexibility and allowing for seamless integration of motion and structure. After selecting the LR Series type for appropriate carriage load capacity, the following formula will identify the profile configuration that is best suited for the application.

Deflection formula for length supported at both ends:

$$f = \frac{F * L^3}{48\ E * I * 10^4}$$

Where:

f = deflection in mm

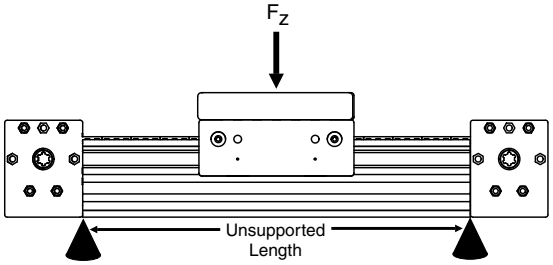
F = load in N

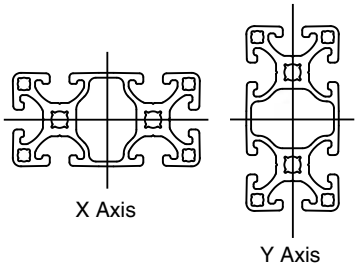
L = free profile length in mm

E = Modulus of Elasticity in N/mm^2

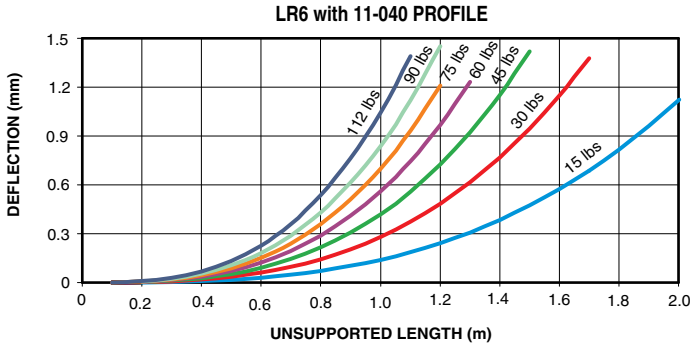
E_{AL} = 70,000 N/mm^2

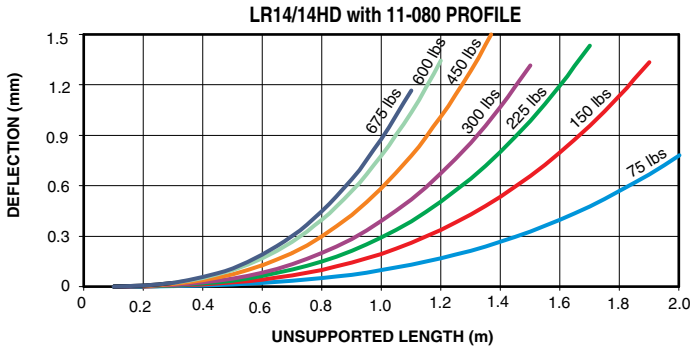
I = Moment of inertia in cm^4

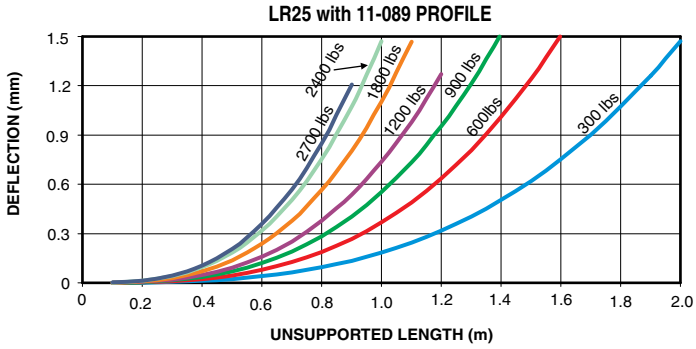




Deflection at Various Loads







	Series Compatibility			Moment of Inertia		Section Modulus	
Profile Type	**6**	**14/14hd**	**25**	**I_x[cm^4]**	**I_y[cm^4]**	**W_x[cm^3]**	**W_y[cm^3]**
40x40 Standard	X			9.46	9.46	4.73	4.73
40x40 Heavy	X			14.18	14.18	7.09	7.09
40x80 Standard	X	X		71.79	17.23	17.99	8.62
40x80 Heavy	X	X		102	26.73	25.5	13.37
80x80 Heavy		X	X	185.2	185.2	46.3	46.3
80x80 Extra Heavy		X	X	215.85	215.85	53.96	53.96
80x160 Standard		X	X	922.5	271.1	115.3	67.8
80x160 Heavy		X	X	1106.92	343.37	138.37	85.84

Additional configurations are available for specific applications.

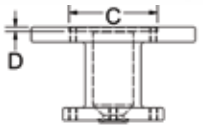
Parker Hannifin Corporation
Industrial Profile Systems
Wadsworth, Ohio USA

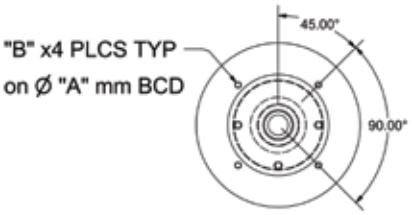
Motor/Gearbox Mounting

Motor/Gearbox Mounting

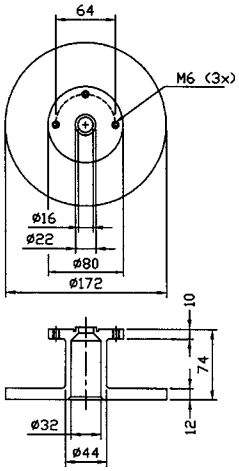
LR Series offers effortless motor and gearbox mounting and can accommodate a wide range of Servo and AC motors up to NEMA 56C as well as gearboxes. Connections are made using an Adapter Flange and Shaft.

These coupling components are available in preconfigured styles or as machinable blanks to accommodate connections not listed in the Motor/ Gearbox Quick Selector on the following pages.





Flange Part # Code	Bolt Circle "A"	Bolt Size "B"	Pilot Diameter "C"	Pilot Depth "D"	P/N
A	98.40	M5	73.02	3.5	31-014AD
B	66.70	M4	38.10	2.0	31-014B
C	75.00	M5	60.00	3.0	31-014C
D	98.40	M6	73.02	3.5	31-014AD
E	100.00	M6	80.00	4.0	31-014E
F	70.00	M4	50.00	3.5	31-014F
G	90.00	M5	70.00	3.5	31-014G
Blank	–	–	–	–	31-014

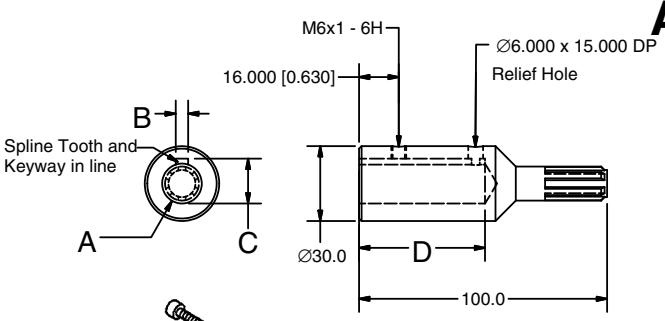


Adapter Shaft Type	Shaft Diameter (in/mm) "A"	Key Width (mm) "B"	Shaft Height Over Key (mm) "C"	Shaft Diameter Depth (mm) "D"	P/N
A	0.375" (9.525)	2.39	10.60	50.80	31-001
B	0.433" (11)	4	12.50	50.80	31-002
C	0.500" (12.7)	3.18	14.22	50.80	31-003
D	0.551" (14)	5	16.00	50.80	31-004
E	0.625" (5.875)	4.76	18.00	50.80	31-005
F	0.630" (16)	5	18.00	50.80	31-006
Blank	–	–	–	–	31-010

Adapter Shaft

Application

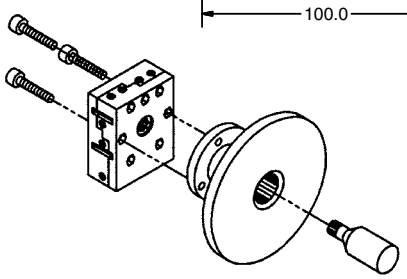
Adapter element between Reversing Unit 40 and various drive motors. Surface hardening permits machining for appropriate adapting configuration. For rigid connection of Reversing Units 40 in parallel, when distance between them exceeds 1m (3 ft).



Universal Adapter Flange

Application

Transition element for connecting drive motors to the Reversing Unit 40. Can be serviced to customer needs. Design accommodates hole pattern of NEMA motors up to size 56.



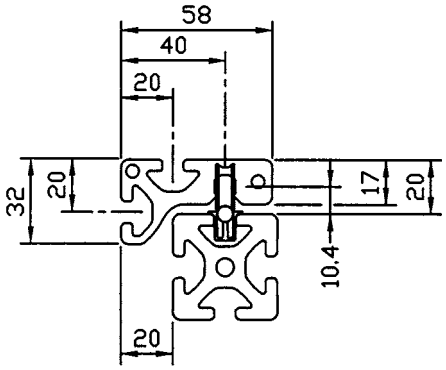
Motor/Gearbox Quick Selector

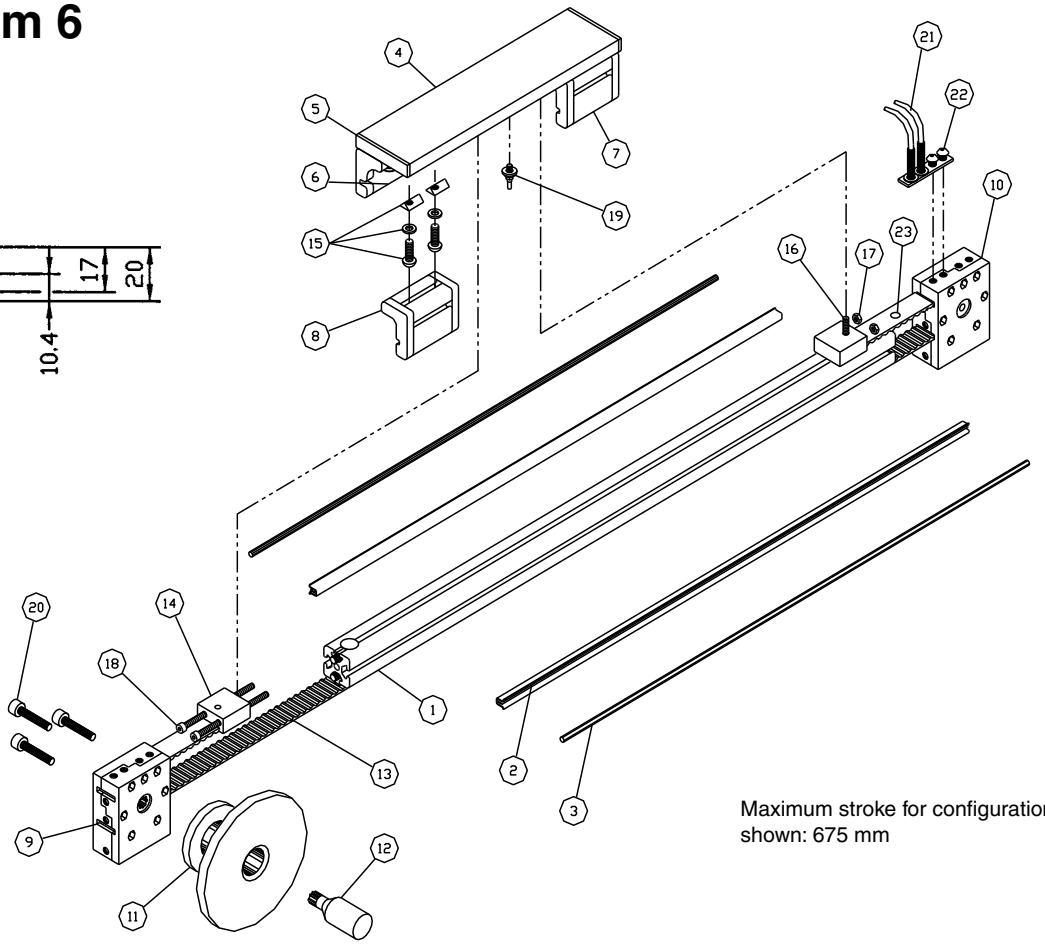
Manufacturer	Motor/Gearbox Model #	Adapter Code	Flange Code
Allen-Bradley	1326Ax-B3, H-3xxx	D	E
	MPL-A45x, MPL-B45x	C	D
	MPL-x 310,320,330	E	E
	N-34xx	C	A
	Y-2xxx	D	F
AMP	HT34-486	C	A
Animatics	SM34xx	A	A
Baldor	All NEMA 48	C	–
	All NEMA 56	E	–
Bayside	PX34, RX34, NE34, NR34	C	A
ElectroCraft	N-34xx	C	A
	H-3xxx	D	E
Emerson	DXE208	A	B
	DXM-316, 340	D	E
	MGE 205, 208, 208CONS	A	B
	MGE-316, DXE-316	C	A
	MGM-340	D	E
	NTE-212-x, NTE-207-x	A	B
	NTE-3xx	C	A
GE Fanuc	STM13xx	C	A
Giddings & Lewis	HSM 307, 320	D	E
	NSM34xx	C	A
	YSM2xx	D	F
IDC	BN 31, 32	A	A
	P33x	E	A
Kollmorgen	MT(x)302 (NEMA 34)	A	A
	MT(x)304 (NEMA 34)	A	A
	MT(x)308 (NEMA 34)	C	A
	MTx 306, 308 (NEMA 100)	D	E
	MTx306 (NEMA-34)	C	A
MCG	AB34x	C	A
	ID34004	C	A
Mitsubishi	HC-KFS23(B), MF(S)23(B)	D	F
	HC-KFS43(B), MF(S)43(B)	D	F
	HC-PQ23, HC-PQ43	D	F
Motion Solutions	SLM075	E	A
MRV	MRV 31, 32, 33	C	A
Omron	R88M-U40030x	D	F
	R88M-W20030, R88M-W40030	D	F
	R88M-WP4xxx	D	G

Manufacturer	Motor/Gearbox Model #	Adapter Code	Flange Code
Pacific Scientific	H3xNR	A	A
	N31HR, N32HR	C	A
	N33HR, N33HR	C	A
	R30 (English & Metric)	C	A
	R30P (Metric)	C	A
Parker	APEX 603 ,605 ,606 ,610	D	E
	BE23x	A	B
	SM/SE 231, 232, 233 - L	A	B
	BE34x	C	A
	ES3xB	A	A
	J034x, N034x	C	A
	J092x, N092x, HDY92, HDX92	D	E
	MPM89x***6***	C	A
	MPM89x***7***	D	E
	MPP092x	E	E
	OEM-83-xxx, QM83	A	A
	PTN060	D	H
	RS 31, 32, 33	A	A
	S, SX, SXF 83	A	A
	SMN082	D	E
	TS 31, 32	C	A
	TS33	E	A
	VS31, VS32	C	D
	ZETA83	A	A
QuickSilver	QCI-34H-1, -2	C	A
	QCI-34H-3, -4	E	A
	QCI-34N-x	C	A
Slo-Syn	KML-09x, KMT-09x	C	A
Superior Electric	KML-09x, KMT-09x	C	A
Warner Electric	HIS35xx	C	A
	KML-09x, KMT-09x	C	A
Yaskawa	SGM-02, -03, -04	D	F
	SGMAH-02**F**	D	F
	SGMAH-04A**F**	D	F
	SGML-04A	D	F
	SGMP-02, -03, -04	D	G
	SGMPH-02, SGMP-02	D	G
	SGMPH-04A(B)	D	G

The adapter flange will accommodate motors through NEMA size 56. Additional mounting configurations are available. Contact Customer Service if your Motor or Gearbox is not listed.

Roller System 6





Maximum stroke for configuration shown: 675 mm

Note
Configuration shown: 80x16 plate with smooth top surface; bottom surface is tapped M8 for the limit stop and M6 for clamping block mount.

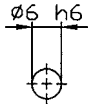
Alternative option: 80x16 plate with T-slots on top counterbored for M8 screws for attaching bearing units and clamping block; bottom of the plate is tapped M8 for the limit stop.

#	Description	Part #	Qty
1	40x40 Heavy Profile @ 1000mm	11-040	1
2	Shaft Clamp 6 @ 998mm	13-106	2
3	Linear Shaft 6 @ 998mm	13-505	2
4	80x16 Profile @ 300mm	10-081	1
5	End Cap 80x16	18-812	2
6	Single Bearing Unit 6 Centric	30-401	2
7	Single Bearing Unit 6 Eccentric	30-403	2
8	End Cap/Lubricating System 6	30-407	4
9	Reversing Unit 40 Spline	31-122	1
10	Reversing Unit 40 w/8mm Bore	31-124	1
11	Universal Adapter Flange	31-014	1
12	Adapter Shaft, Blank	31-010	1
13	Timing Belt 25T10 @ 2300mm	31-052-1	1
14	Clamping Block for Belt 25T10	31-030	2
15	Fastening Set for Bearing Units 6	20-007	4
16	M6x20 Socket Head Cap Screw	24-320-6	1
17	M6 Lock Nut	24-716-6	2
18	M6x120 Socket Head Cap Screw	24-3120-6	2
19	Limit Stop, Bi-Directional	31-038	1
20	M6x45 Socket Head Cap Screw	24-345-6	3
21	Proximity Switch	31-035	2
22	Mounting Plate for Proximity Switch	31-036	1
23	Exciter Cam	31-033	2

Roller System 6

Application

Components for constructing Roller System 6 for light duty applications

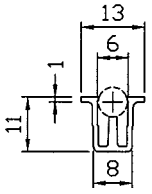


13-505

Technical Data

Linear Shaft: Cf53 high grade carbon steel (AISI 1050)

Precision ground to ISO h6 tolerance $^{+0}_{-8}$µm
Roundness: 4 µm
Parallelism: 5 µm/1000mm
Surface quality: Ra 0.3µm (Rz 1.6µm)
Hardness depth: minimum 0.4 mm
Surface hardness: 670 to 840 HV (RC 59 to 65)



13-106

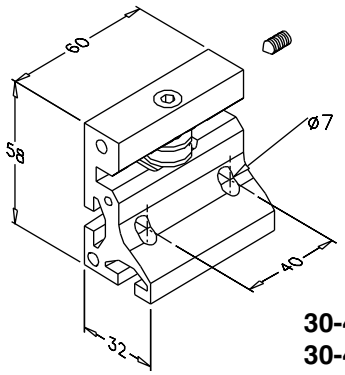
Shaft clamp: Al, anodized

Bearing Units: Aluminum anodized housing, Roller 6 (30-008), Bolt 6 Centric (30-006) or Eccentric (30-007), and M6x8 cone point set screw

Preload range for eccentric bearing units ± 0.45 mm

End Cap/ Lubricating System (set of left and right): glass-filled nylon, black; includes felt, spring and M4x10 SHCS

Fastening Set (one required per bearing unit): two M8x16 BHCS, two M8 T-slot nuts, and two M8 flat washers

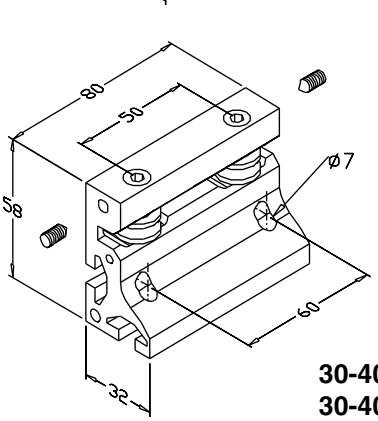


30-401
30-403

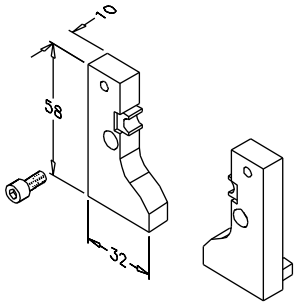
Ordering Information

Description	Unit	Weight	Part #
Linear Shaft 6, Hard Chrome Coated	per meter*	0.22 kg/m	13-505
Saw Cut for Linear Shaft			19-007
Shaft Clamp 6	per meter	0.12 kg/m	13-106
Saw Cut for Shaft Clamp			19-001
Single Bearing Unit 6, Centric	1 pc	0.18 kg	30-401
Single Bearing Unit 6, Eccentric	1 pc	0.18 kg	30-403
Double Bearing Unit 6, Centric	1 pc	0.22 kg	30-402
Double Bearing Unit 6, Eccentric	1 pc	0.22 kg	30-404
End Cap/ Lubricating System 6	1 set	20 g	30-407
Replacement Felt 6	1 pc		30-407Z5
Fastening Set for Bearing Unit 6	1 set	40 g	20-007

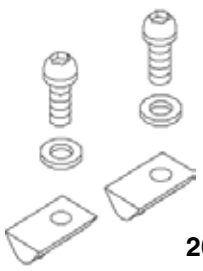
* Call for standard lengths in stock



30-402
30-404



30-407



20-007

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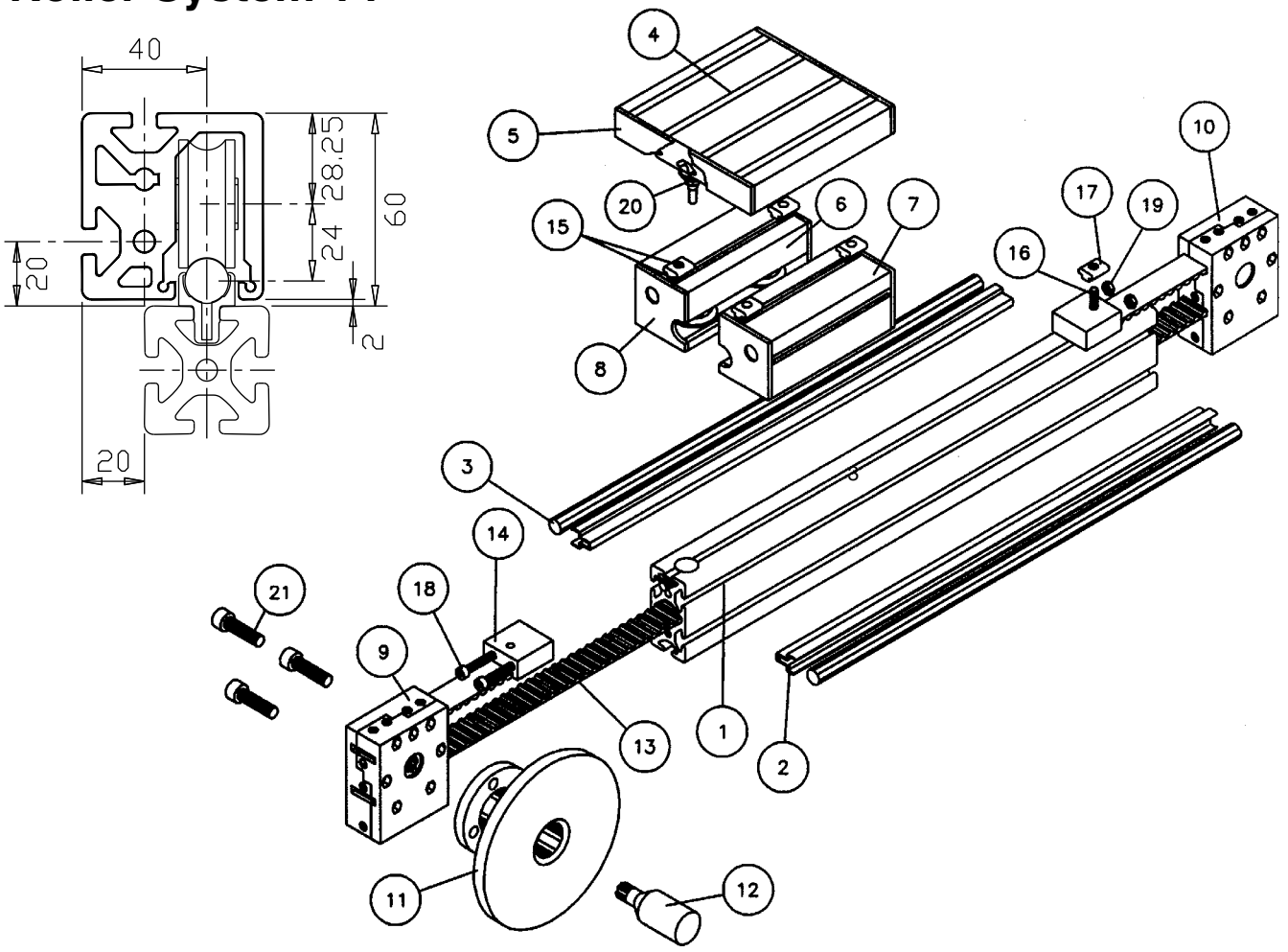
Roller System 14



Maximum stroke for configuration shown:
with limit stop (31-038) - 765 mm
without limit stop - 850 mm

#	Description	Part #	Qty
1	80x40 Heavy Profile @ 1000mm	11-080	1
2	Shaft Clamp 14 @ 998mm	13-114	2
3	Linear Shaft 14 @ 998mm	13-514	2
4	160x28 Profile @ 140mm	11-128	1
5	End Cap 160x28	18-816	2
6	Double Bearing Unit 14 Eccentric	30-104	1
7	Double Bearing Unit 14 Centric	30-102	1
8	End Cap/Lubricating System 14	30-107	2
9	Reversing Unit 40 Spline	31-122	1
10	Reversing Unit 40 Idler	31-126	1
11	Universal Adapter Flange	31-014	1
12	Adapter Shaft, Blank	31-010	1
13	Timing Belt 25T10 @ 2300mm	31-052-1	1
14	Clamping Block for Belt 25T10	31-030	2
15	Fastening Set HD for Bearing Units	20-030	2
16	M6x20 Socket Head Cap Screw	24-320-6	1
17	HD T-Slot Nut St, M6	20-060	1
18	M6x120 Socket Head Cap Screw	24-3120-6	2
19	M6 Lock Nut	24-716-6	2
20	Limit Stop, Bi-Directional	31-038	1
21	M6x45 Socket Head Cap Screw	24-345-6	3

Roller System 14

Application

Components for constructing Roller System 14 for medium duty applications

Technical Data

Linear Shaft: Cf53 high grade carbon steel (AISI 1050)

Precision ground to ISO h6 tolerance $^{+0}_{-11}$ µm
Roundness: 5 µm
Parallelism: 8 µm/1000mm
Surface quality: Ra 0.3µm (Rz 1.6µm)
Hardness depth: minimum 0.6 mm
Surface hardness: 670 to 840 HV (RC 59 to 65)

Shaft Clamp: Al, anodized

Bearing Units:

Al, anodized housing, Roller 14 (30-108),
Bolt 14 Centric (30-105) or Eccentric (30-106), and spacer (30-108z1)

Preload range for eccentric bearing units ± 1.0 mm

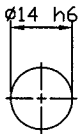
End Cap/ Lubricating System (set of left and right):
glass-filled nylon, black; includes felt, spring, M8x10 BHCS

Fastening set (one required per bearing unit):
two M8x18 BHCS, two M8 T-slot nuts HD, and two M8 safety spring washers

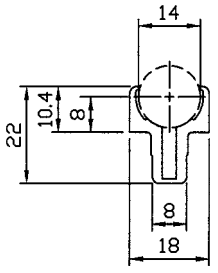
Ordering Information

Description	Unit	Weight	Part #
Linear Shaft 14, (Hard chrome coated)	per meter*	1.21 kg/m	13-513
Saw Cut for Linear Shaft			19-007
Shaft Clamp 14	per meter	0.26 kg/m	13-114
Saw Cut for Shaft Clamp			19-001
Single Bearing Unit 14, Centric	1 pc	0.40 kg	30-101
Single Bearing Unit 14, Eccentric	1 pc	0.40 kg	30-103
Double Bearing Unit 14, Centric	1 pc	0.88 kg	30-102
Double Bearing Unit 14, Eccentric	1 pc	0.88 kg	30-104
End Cap/ Lubricating System 14	1 set	50 g	30-107
Replacement Felt 14	1 pc		30-107z1
Fastening Set HD for Bearing Unit	1 set	40 g	20-030

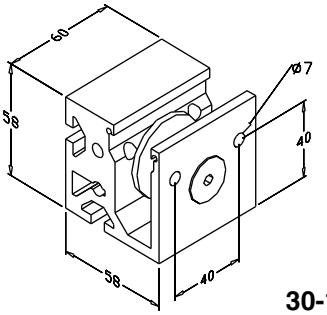
* Call for standard lengths in stock



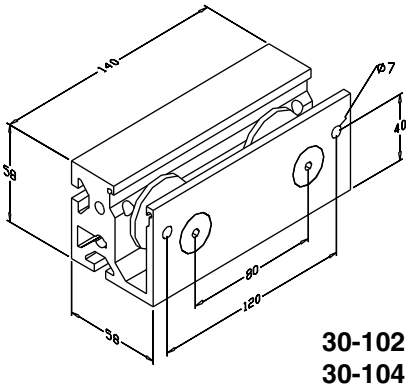
13-513



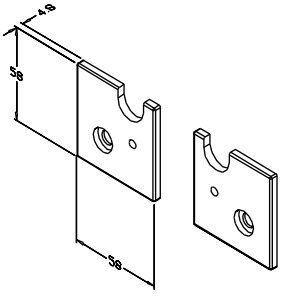
13-114



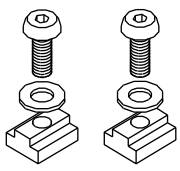
30-101
30-103



30-102
30-104



30-107



20-030

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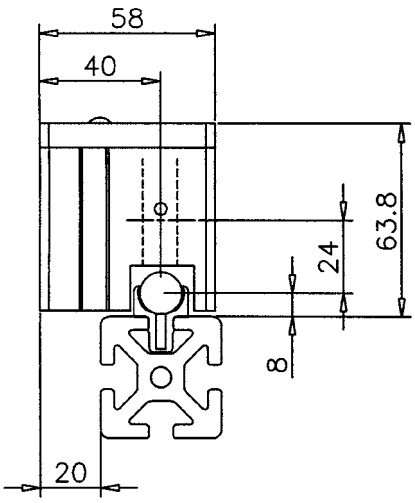
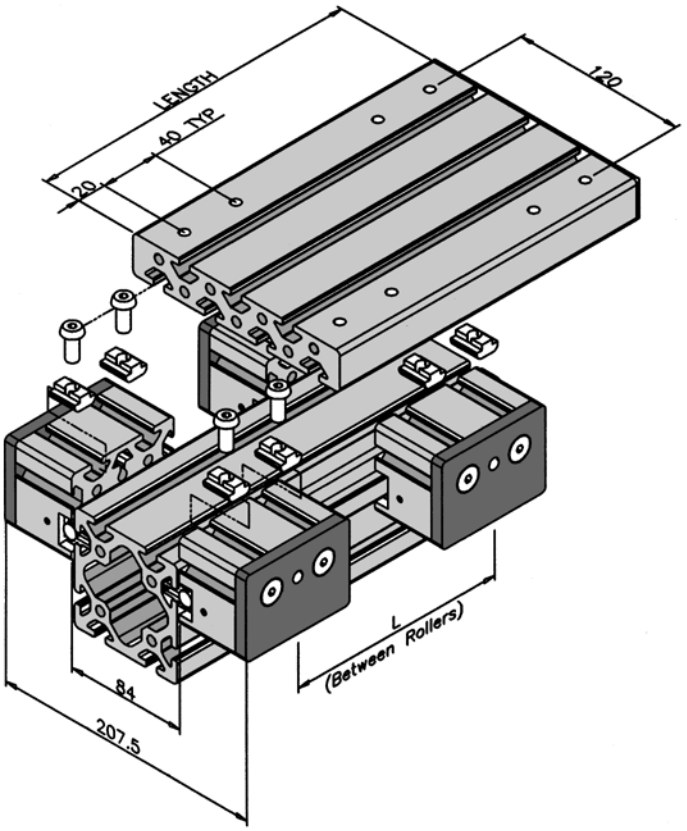
Roller System 14 HD





Single Bearing Units 14HD on 80x80 Profile

Carriage Plate: Length = L + 80

(T-slots parallel to 80x80 rail)

Recommended hardware: four fastening sets HD for bearing units (20-030). Required machining - eight access holes through 160x28 profile.

Required tools for assembly of Roller System 14HD:
5mm hexagon wrench (40-014), spanner wrench (40-032-14)

Roller System 14 HD

Application

Components for constructing Roller System 14 HD for medium and heavy duty applications

Technical Data

Linear Shaft: Cf53 high grade carbon steel (AISI 1050)

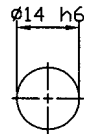
Precision ground to ISO h6 tolerance $^{+0}_{-11}$ µm
Roundness: 5 µm
Parallelism: 8 µm/1000mm
Surface quality: Ra 0.3µm (Rz 1.6µm)
Hardness depth: minimum 0.6 mm
Surface hardness: 670 to 840 HV (RC 59 to 65)

Shaft Clamp: Al, anodized

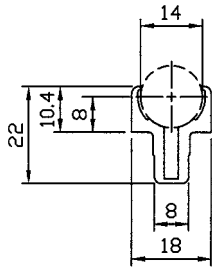
Bearing Units:
Al, anodized housing, Roller 14 (30-108),
Bolt 14 Centric (30-105) or Eccentric (30-106),
one spacer per roller (30-114z3), M8x12 nylon tipped set screw (24-689) for eccentric only, End Cap/ Lubricating System

Preload range for eccentric bearing units ± 1.0 mm

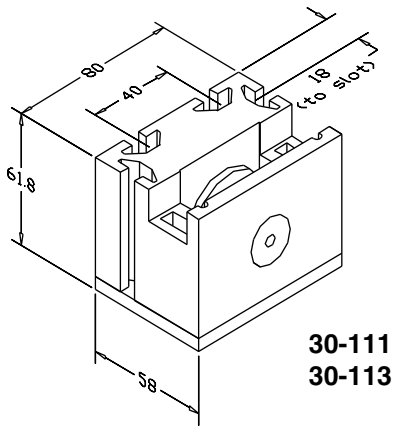
End Cap/ Lubricating System: Trespa cap with pin, felt, spring, M8x10 BHCS, M4x10 set screw, and access plug



13-513



13-114



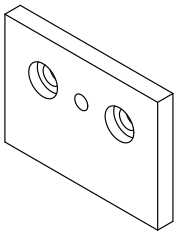
30-111
30-113

Note: T-slot on top are 40 series, on two sides are 28 series

Ordering Information

Description	Unit	Weight	Part #
Linear Shaft 14, Hard Chrome Coated	per meter*	1.21 kg/m	13-513
Saw Cut for Linear Shaft			19-007
Shaft Clamp 14	per meter	0.25 kg/m	13-114
Saw Cut for Shaft Clamp			19-001
Single Bearing Unit 14 HD, Centric	1 pc	0.58 kg	30-111
Single Bearing Unit 14 HD, Eccentric	1 pc	0.58 kg	30-113
End Cap, LR14 HD, Single	1 pc		30-503z6
Replacement Felt 14HD	1 pc		30-114z5

* Call for standard lengths in stock



30-503z6

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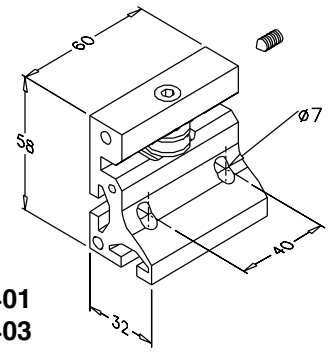
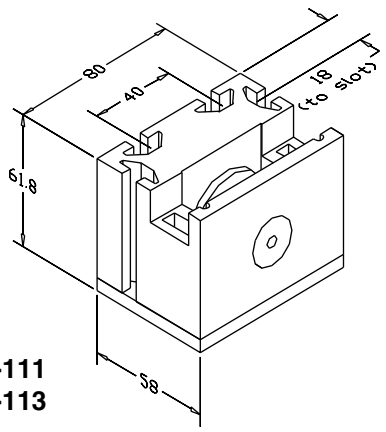
Wadsworth, Ohio USA

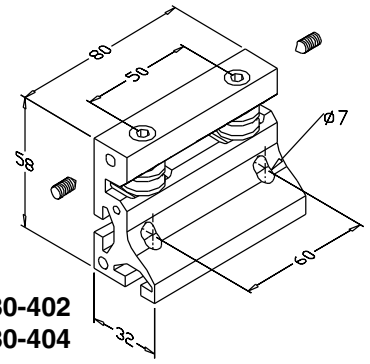
Bearing Unit



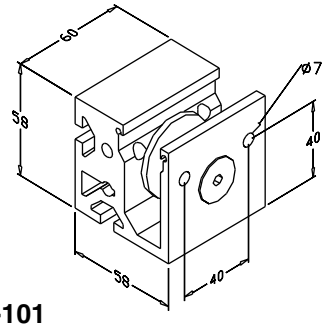
30-401
30-403



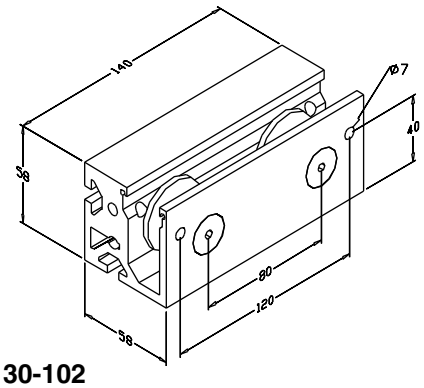
30-111
30-113



30-402
30-404



30-101
30-103



30-102
30-104

Ordering Information

Description	Unit	Weight (kg)	Part #
Bearing Unit, Double 6, Centric	each	0.22	30-402
Bearing Unit, Double 6, Eccentric	each	0.22	30-404
Bearing Unit, Single 6, Centric	each	0.18	30-401
Bearing Unit, Single 6, Eccentric	each	0.18	30-403
Bearing Unit, Double 14, Centric	each	0.88	30-102
Bearing Unit, Double 14, Eccentric	each	0.88	30-104
Bearing Unit, Single 14, Centric	each	0.40	30-101
Bearing Unit, Single 14, Eccentric	each	0.40	30-103
Bearing Unit, Single 14HD, Centric	each	0.58	30-111
Bearing Unit, Single 14HD, Eccentric	each	0.58	30-113

Components for Bearing Units

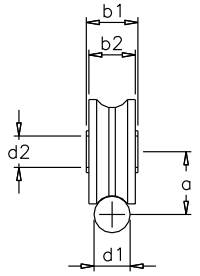
Track Rollers

Technical Data

St, 100 Cr6, ground and hardened, double ball bearing with two shields, maintenance free

Ordering Information

Dimensions (mm)					Load (N)		Maximum	Weight	
Shaft Dia	d2	a	b1	b2	Dynamic	Static	RPM	(g)	Part #
6	5	10.5	8	7	1600	900	5000	7	**30-008**
14	12	24	20	18	10800	6400	2500	88	**30-108**



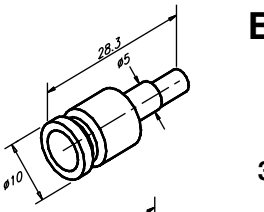
Bolts

Technical Data

St, black oxide

Ordering Information

Type	Eccentricity (mm)	Used in Bearing Units	Weight (g)	Part #
6-Centric	N/A	30-401, 30-402	6	**30-006**
6-Eccentric	0.45	30-403, 30-404	6	**30-007**
14-Centric	N/A	30-101, 30-102, 30-111	48	**30-105**
14-Eccentric	1.0	30-103, 30-104, 30-113	46	**30-106**



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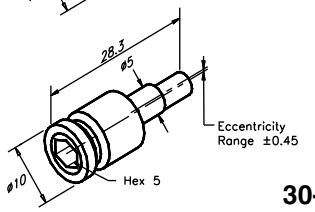

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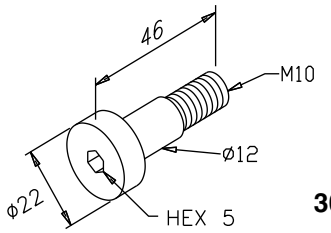
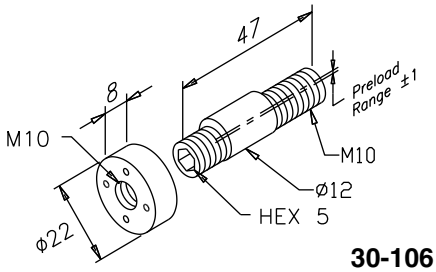


30-105



30-106

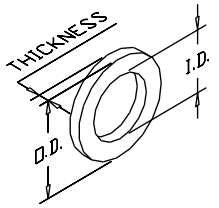
Spacers

Technical Data

St, black oxide

Ordering Information

Dimensions (mm)			Used with	Qty Required per Roller	Part #
I.D.	O.D.	Thickness			
12	18	1.0	Bolt 14 Centric & Eccentric	1	**30-108Z1**
10.2	19	1.1	Bolt 14 HD Centric & Eccentric	1	**30-114Z3**



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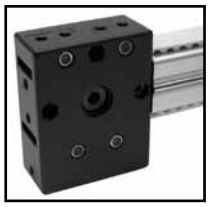
Linear Drive Components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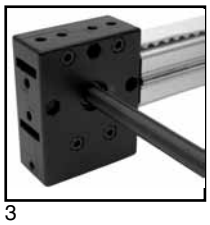
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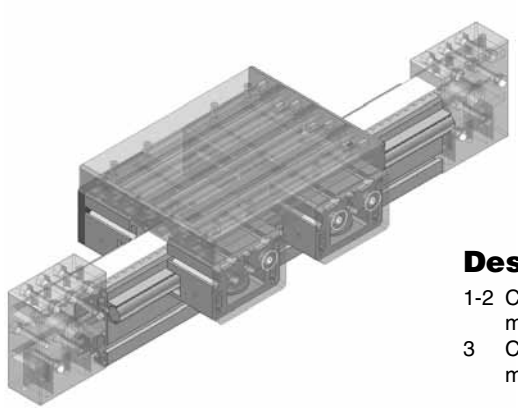
1 Timing Belt Reversing Unit 40 for driving or reversing the timing belt

2 Timing Belt Clamp and Tensioner

3 Multi-Spline Shaft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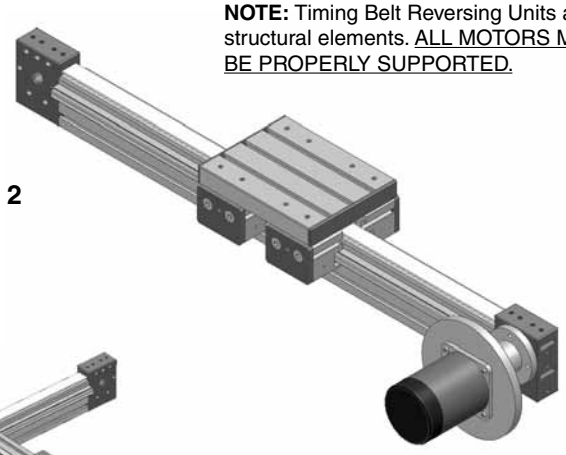
Design Examples

1-2 Construction with one axis of movement

3 Construction with two axes of movement.

NOTE: Timing Belt Reversing Units are not structural elements. ALL MOTORS MUST BE PROPERLY SUPPORTED.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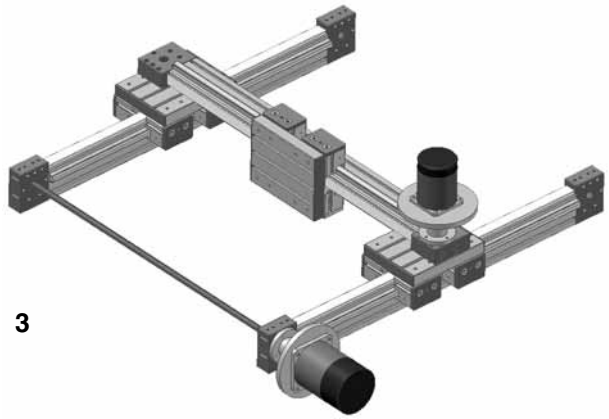
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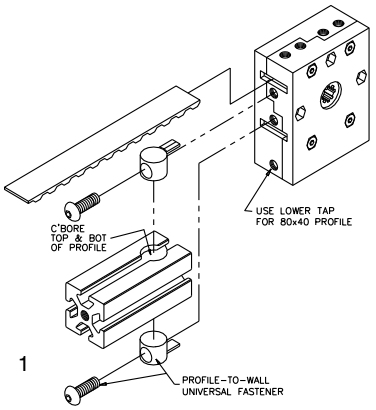
Reversing Unit 40



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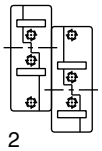
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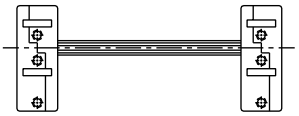
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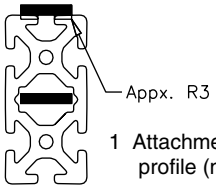

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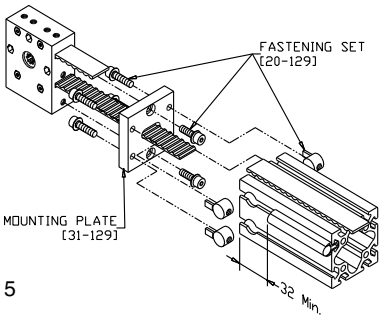


5

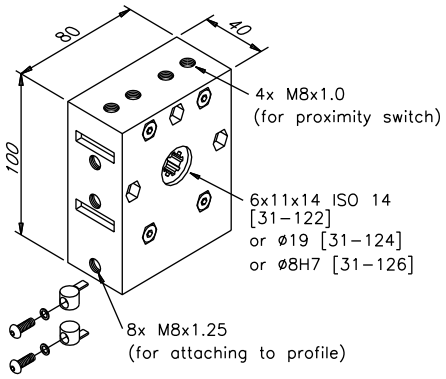
1 Attachment of Reversing Unit 40 to a profile (mounting hardware included).

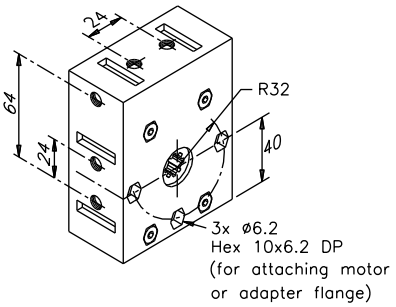
2 Two Reversing Units 40 with belts running on opposite sides of 80x80 profile

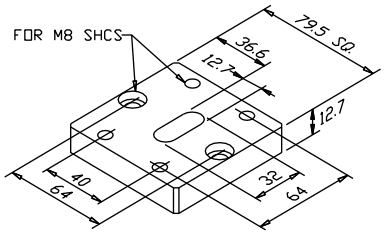
3 Reversing Units 40 with a common spline connection

4 Top of profile needs a 3mm radius to prevent belt chatter

5 Mounting the Reversing Unit 40 to an 80x80 or 160x80 profile with the belt running on the 80mm side (requires mounting plate 31-129 and fastening set 20-129).







31-129

Application

To drive and reverse timing belt 25T10 for precise linear motion using profiles and linear guides. Choice of drive pulleys with spline 6x11x14mm ISO14 with Ø8^{H7} or Ø19. Pulley with 8mm bore can be drilled to max. Ø15mm. Housing accommodates attachment of drive motor adapter flange or serial connection of multiple reversing units. Reversing Unit 40 can be mounted to the end of profile directly or with Mounting Plate [31-129]. Mounting Plate is designed for center mount of Reversing Units 40 to end of 80x80 or 160x80 Profile with belt running on 80mm side.

Technical Data

Die cast zinc, black coated

Pulley: St, black oxide, Pitch - 10 mm, Teeth - 15 (one revolution corresponds to 150mm), Pitch Dia. 47.75 mm

Maximum load M_D = 20 Nm (14.7 ft-lb)

Belt length inside reversing unit depends on type of connection:

90° connection	- 140 mm
180° connection	- 160 mm

Complete with two Profile-to-Wall fasteners and ten access hole plugs.

Mounting Plate 31-129:
Al, anodized

Ordering Information

Description	Pulley	Unit	Weight	Part #
Reversing Unit 40	Spline	1 set	1.85 kg	31-122
	8mm Bore	1 set	1.85 kg	31-124
	Idler	1 set	1.85 kg	31-126
Mounting Plate, Rev. Unit 40		1 pc	0.40 kg	31-129
Fastening Set for Mounting Plate RU40		1 set		20-129
Pulley, 8mm Bore Reversing Unit 40		each		31-125
Pulley, Idler Reversing Unit 40		each		31-127
Pulley, Spline Reversing Unit 40		each		31-123

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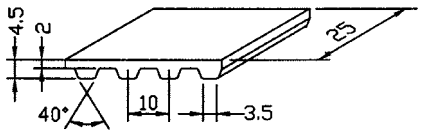
Hi-Flex Timing Belt



31-052-1

Application

Flexible, heavy duty transmission belt to convert the rotation of a drive motor into linear motion. Total length depends on profile length and amount of belt contained inside reversing unit. Pretensioning is determined by a the maximum operating peripheral force.

Technical Data

Polyurethane, steel reinforced

Maximum tensile load: 2,400 N

Temperature range: 0°C to +80°C

For two pulley drives pre-tension force:

Fv/0.5 Fu (Fu - peripheral force)

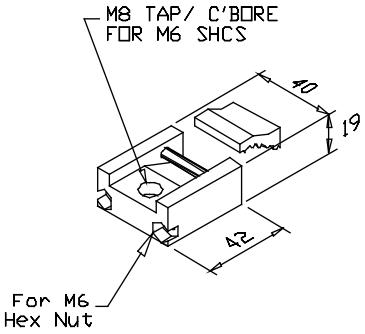
Pre-tension elongation (Δl) in mm per meter (L):

$$\frac{\Delta l}{L} = \frac{Fv}{600}$$

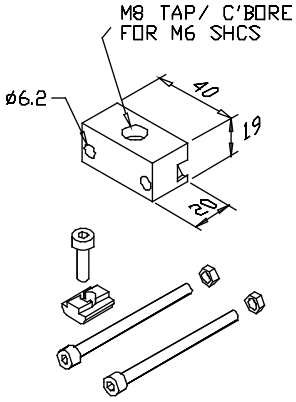
Ordering Information

Description	Unit	Part #
Hi-Flex Timing Belt 25T10	per meter, max. 50m	31-052-1

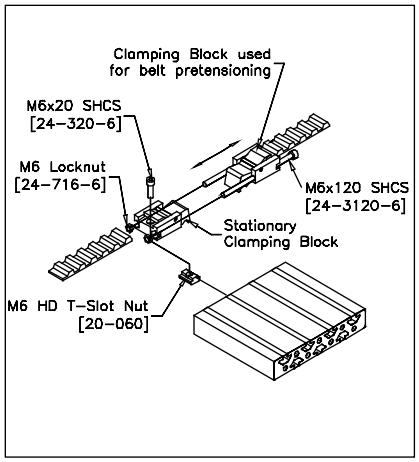
Clamping and Tensioning Blocks



31-030



31-031



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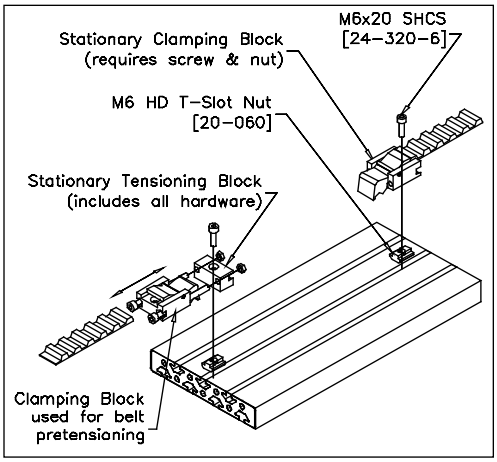

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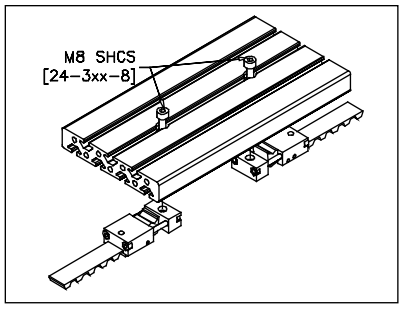

3

1 Two Clamping Blocks used for belt clamping and tensioning. Order all hardware separately.

2 Two Clamping Blocks and one Tensioner used for belt tensioning. Used when design does not permit the belt ends to come close. Tensioning block includes all hardware. Order screw and T-nut separately for attaching stationary clamping block (on the right).

3 Using two Clamping Blocks and two Tensioners is recommended for long linears (over 3.5 M) to allow proper belt tensioning. Order M8 screws separately.

Application

For attaching timing belt to a carriage slide and providing tensioning adjustment. Each end of belt requires clamping block. Tensioning block may be used on one or both ends of the belt.

Technical Data

Al, black anodized

Tensioner includes: one M6x25 SHCS and one M6 T-slot Nut HD for attachment to base plate, two M6 lock nuts and two M6x80 SHCS.

Ordering Information

Description	Unit	Weight	Part #
Clamping Block, Belt 25T10	1 set	62 g	31-030
Tensioning Block	1 set	92 g	31-031

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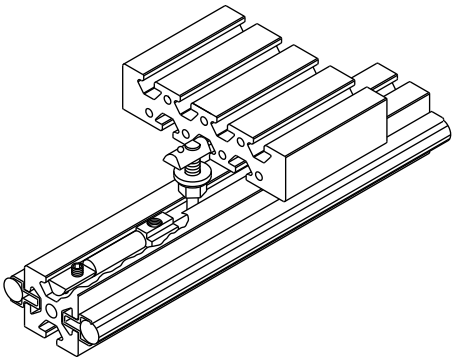
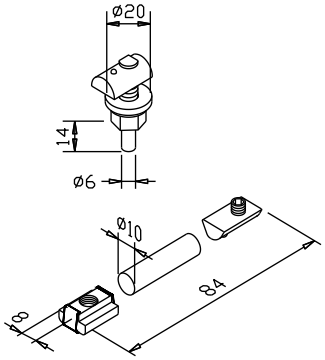
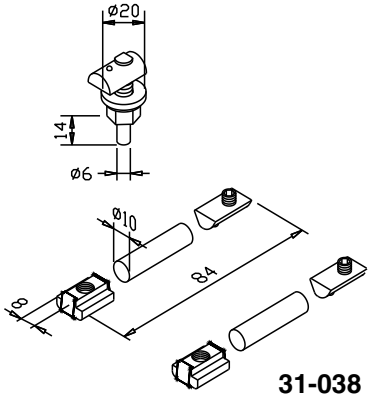
Limit Stop





31-037



31-038

Application

To define mechanically the limits of travel. The rubber shock absorber provides for a cushioned end stop.

Technical Data

31-037:
M8 T-slot nut HD w/retainer spring, M8x8 cup point set screw, rubber shock absorber, two M8 T-slot nuts, M8x44 set screw, M8 washer, M8 flange nut

31-038:
two M8 T-slot nuts HD w/retainer spring, two M8x8 cup point set screws, two rubber shock absorbers, three M8 T-slot nuts, M8x44 set screw, M8 washer, M8 flange nut

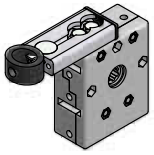
Ordering Information

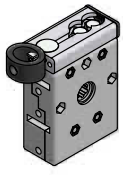
Description	Unit	Weight	Part #
Limit Stop - One Direction	1 set	65 g	31-037
Limit Stop Bi-Directional	1 set	93 g	31-038
Rubber Shock Absorber (40mm long) 31-037Z3A		each	

Bumpers

Application

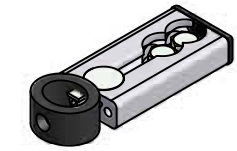
To mechanically limit the travel of a carriage. The rubber shock absorber provides for a cushioned end stop.

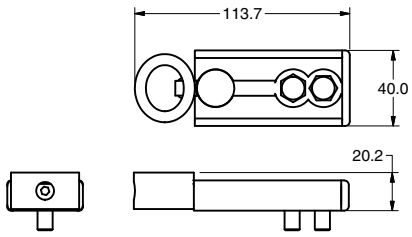




Technical Data

Bumper kit complete with all mounting hardware. Mounts directly to reversing unit.



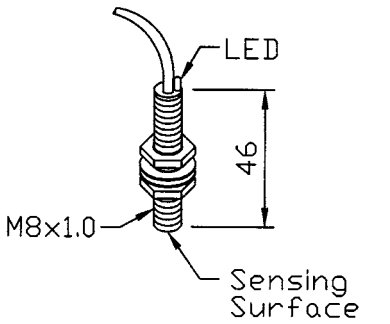


31-808

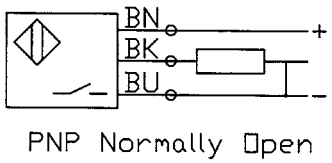
Ordering Information

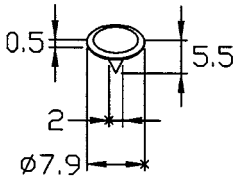
Description	Unit	Weight	Part #
Bumper	1 Set	0.15 kg	31-808

Proximity Switch



31-035





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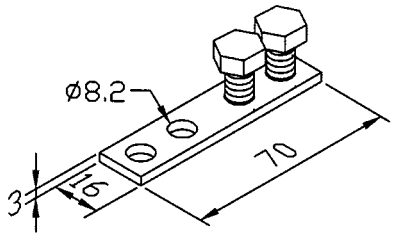
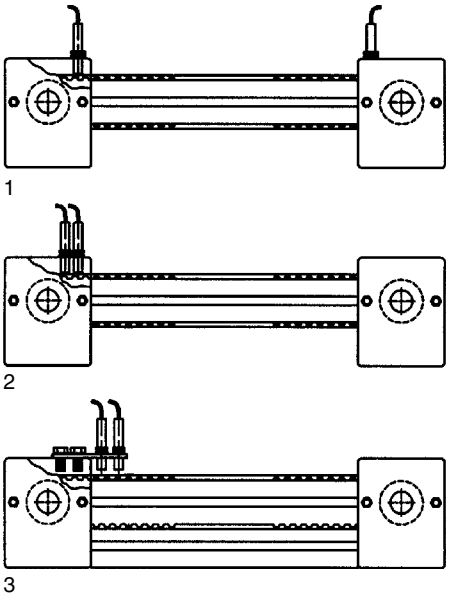


31-036



1 Attachment of proximity switches when exciter does not run through reversing unit.

2 Attachment of both proximity switches for simplified control wiring installation on drive side of platform.

3 Attachment of both proximity switches on drive side of platform using mounting element [31-036].

Application

Proximity switches determine the limits of travel or provide reference positions.

Exciter cams actuate inductive proximity switch, pressed into the flat surface of the timing belt.

Mounting element provides attachment of proximity switches on reversing unit 40.

Technical Data

Inductive proximity switch in PNP sequence with LED indicator.

Maximum sensing distance: 1.5 mm
Output function: Normally Open
Supply voltage: 10-30 VDC
Includes two lock washers (must be used) and two hex nuts

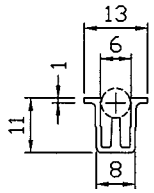
Exciter Cam: St, black

Mounting Element: St, zinc plated
Includes two hex bolts M8x1x16 [31-036z2]

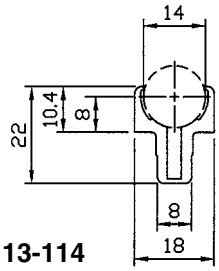
Ordering Information

Description	Unit	Weight	Part #
Proximity Switch	1 pc	65 g	31-035
Exciter Cam	1 pc	1 g	31-033
Mounting Element for Proximity Switch	1 set	43 g	31-036

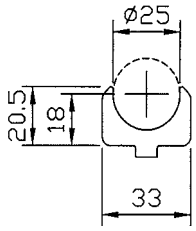
Shafts & Clamp



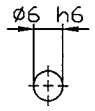
13-106



13-114



13-125



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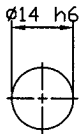

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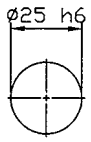


13-524

Ordering Information

Description	Unit	Weight	Part #
Shaft Clamp Profile 6	meter	0.12 kg	13-106*
Shaft Clamp Profile 14	meter	0.26 kg	13-114*
Shaft Clamp Profile 25	meter	1.01 kg	13-125*
Shaft Clamp Saw Cut To Length	each		19-001
Shaft Size 6	meter	0.22 kg	13-505**
Shaft Size 14	meter	1.21 kg	13-513**
Shaft Size 25	meter	3.83 kg	13-524**
Shaft Cut To Length	each		19-007

* Max Length = 3m
** Max Length = 6m

Spline Shaft

Application

To connect multiple reversing units 40 for generation of synchronous motion cycles such as required for gantry applications.

Technical Data

Cold drawn steel, 1045,
6x11x14 ISO 14, DIN 5463

Max. recommended length wiuthout bearing support: 500mm horiz.

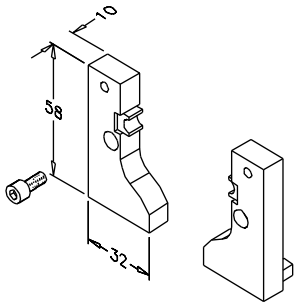
13-566

Ordering Information

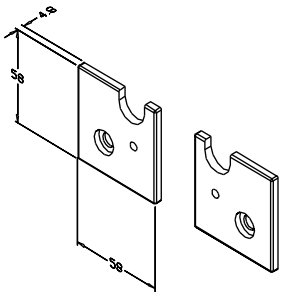
Description	Unit	Weight	Part #
LR Spline Shaft	per meter*	0.92kg/m	13-566
Saw cut necessary for cutt off			19-007

*Call for maximum lengths in stock

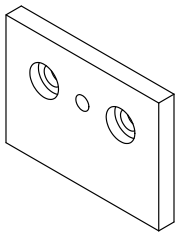
End Caps



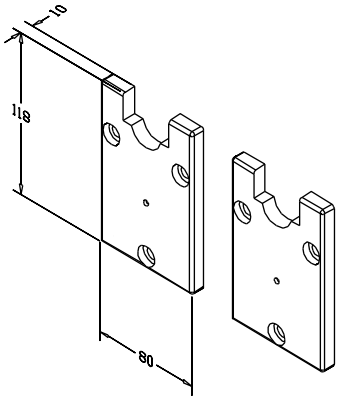
30-407



30-107



30-503z6



30-207

Ordering Information

Description	Unit	Weight	Part #
End Cap, Lubricating System 6	set (R&L)	0.02 kg	30-407
End Cap, Lubricating System 14	set (R&L)	0.05 kg	30-107
End Cap, Lubricating System 14 HD			30-503z6
End Cap, Lubricating System 25	set (R&L)		30-207
Replacement Felt Insert 6	each		30-407z5
Replacement Felt Insert 14	each		30-107z1
Replacement Felt Insert 14HD	each		30-114z5
Replacement Felt Insert 25	each		30-207z1