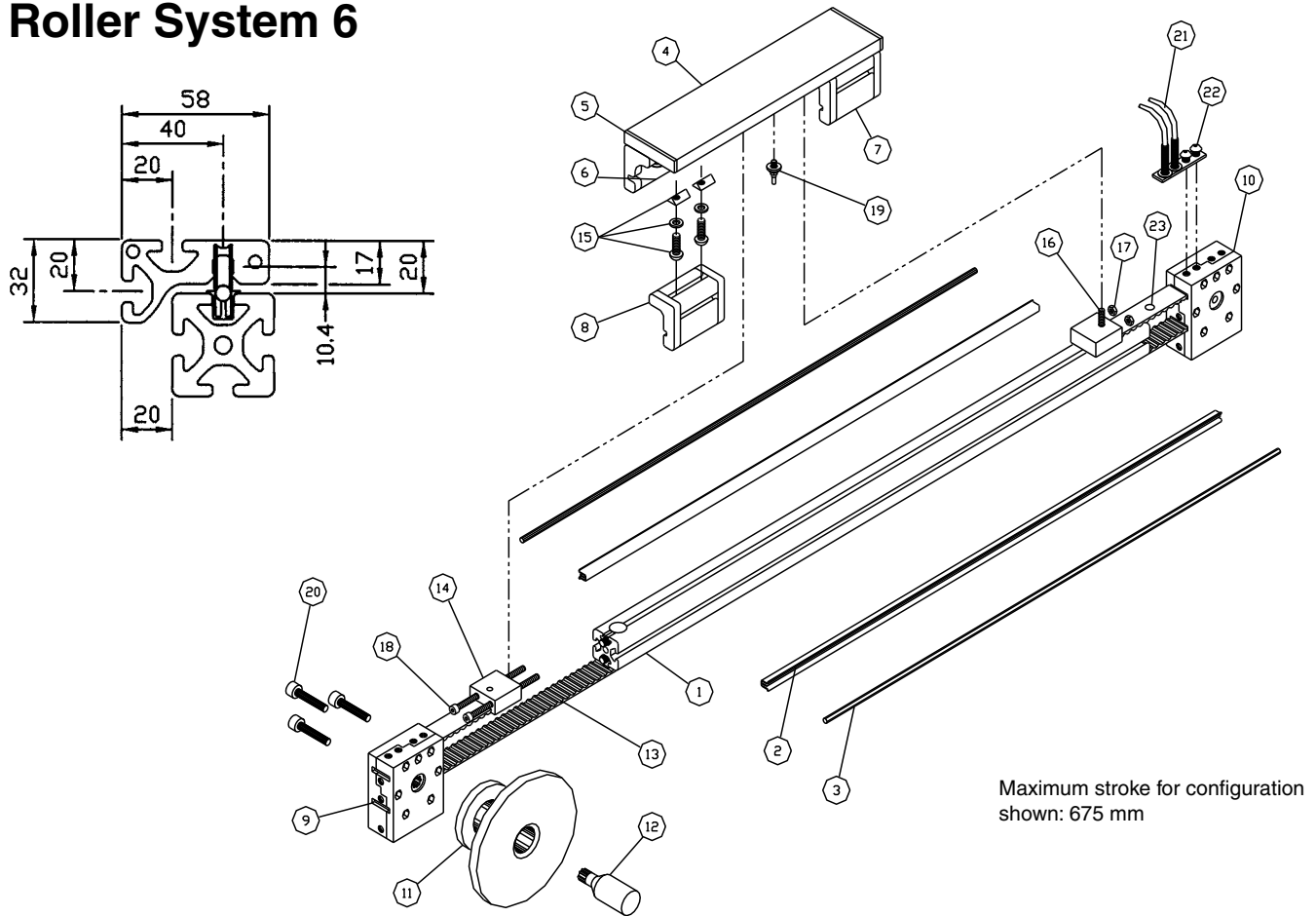


Roller System 6



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

Technical Data

Linear Shaft: Cf53 high grade carbon steel (AISI 1050)
 Precision ground to ISO h6 tolerance $^{+0}_{-8}\mu\text{m}$
 Roundness: $4\mu\text{m}$
 Parallelism: $5\mu\text{m}/1000\text{mm}$
 Surface quality: Ra $0.3\mu\text{m}$ (Rz $1.6\mu\text{m}$)
 Hardness depth: minimum 0.4 mm
 Surface hardness: 670 to 840 HV (RC 59 to 65)

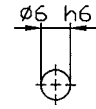
Shaft clamp: Al, anodized

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

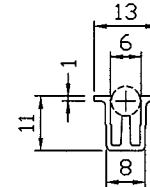
Preload range for eccentric bearing units $\pm 0.45\text{ mm}$

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

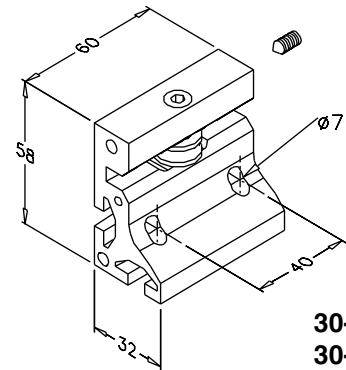
Fastening Set (one required per bearing unit): two M8x16 BHCS, two M8 T-slot nuts, and two M8 flat washers



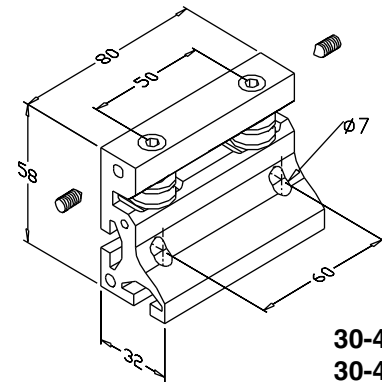
13-505



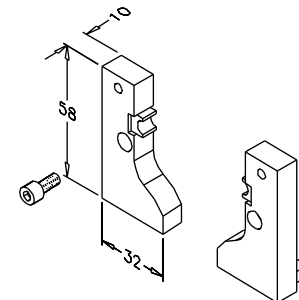
13-106



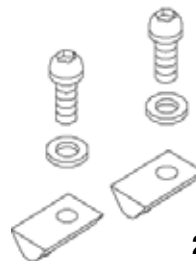
30-401
 30-403



30-402
 30-404



30-407



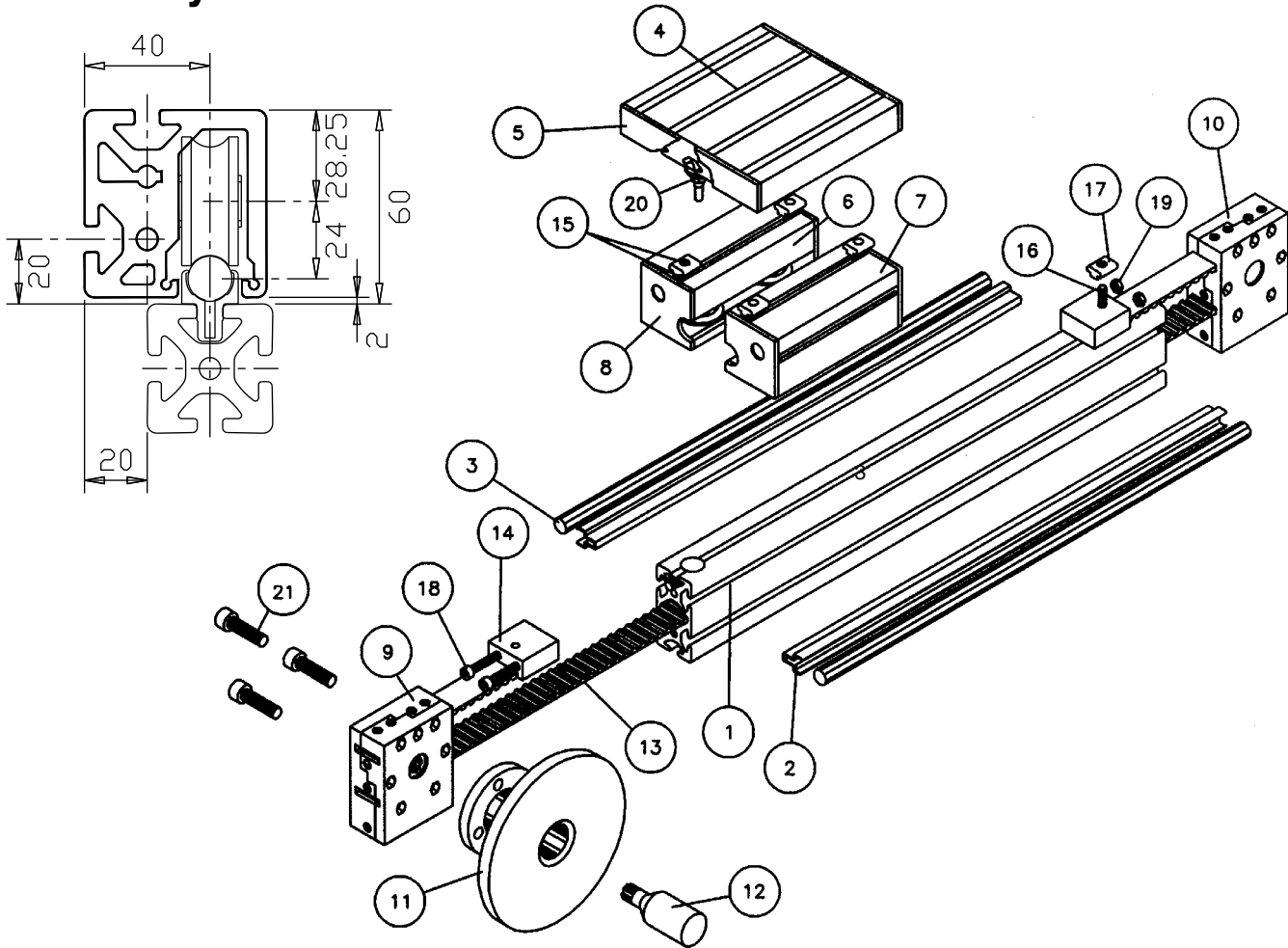
20-007

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

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 $^{+0}_{-11} \mu\text{m}$
 Roundness: $5 \mu\text{m}$
 Parallelism: $8 \mu\text{m}/1000\text{mm}$
 Surface quality: Ra $0.3 \mu\text{m}$ (Rz $1.6 \mu\text{m}$)
 Hardness depth: minimum 0.6 mm
 Surface hardness: 670 to 840 HV (RC 59 to 65)

Shaft Clamp: Al, anodized

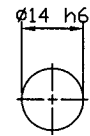
Bearing Units:

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

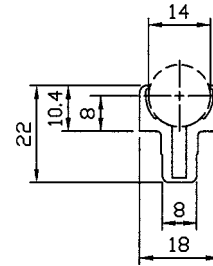
Preload range for eccentric bearing units $\pm 1.0 \text{ mm}$

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

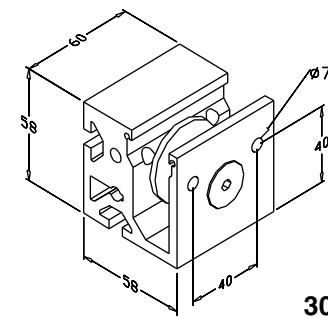
Fastening set (one required per bearing unit):
 two M8x18 BHCS, two M8 T-slot nuts HD, and two M8 safety spring washers



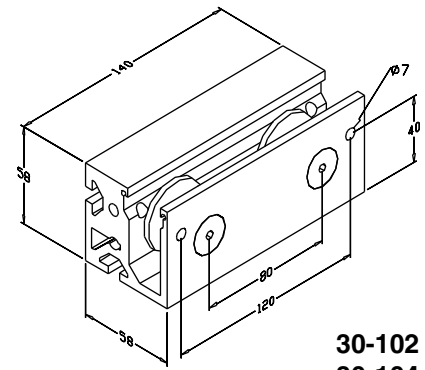
13-513



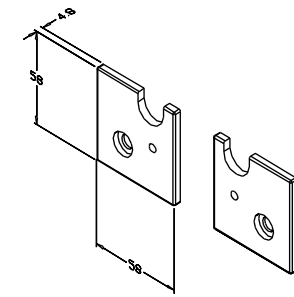
13-114



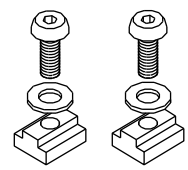
30-101
30-103



30-102
30-104



30-107



20-030

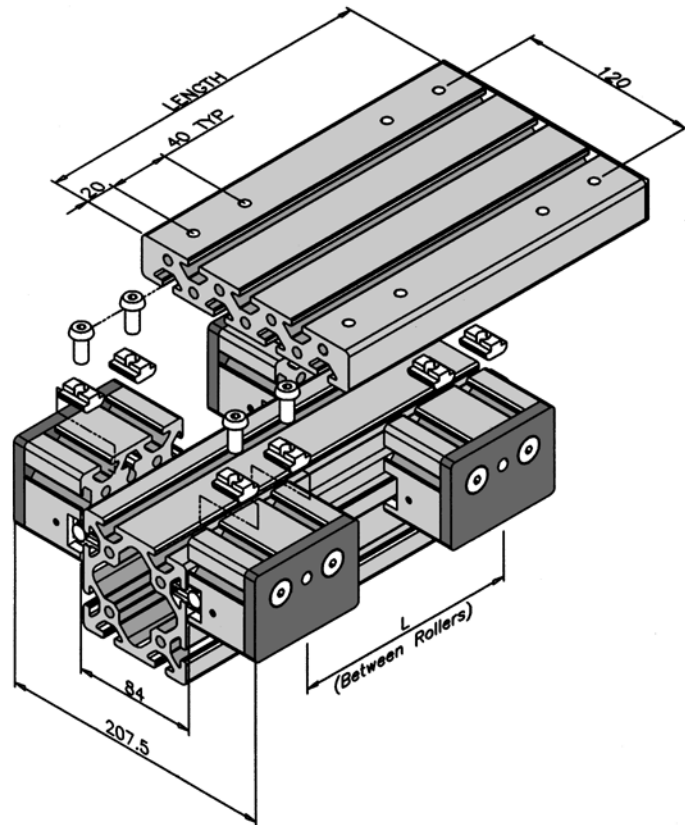
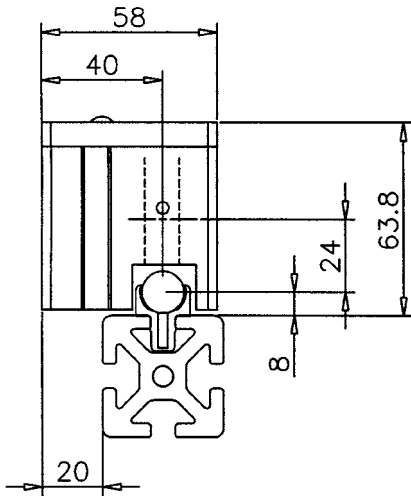
Ordering Information

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



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 $^{+0}_{-11} \mu\text{m}$

Roundness: $5 \mu\text{m}$

Parallelism: $8 \mu\text{m}/1000\text{mm}$

Surface quality: Ra $0.3 \mu\text{m}$ (Rz $1.6 \mu\text{m}$)

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

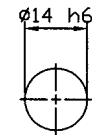
Preload range for eccentric bearing units $\pm 1.0 \text{ mm}$

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

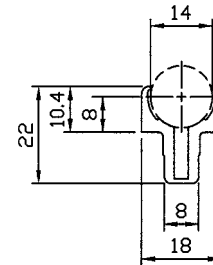
Ordering Information

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

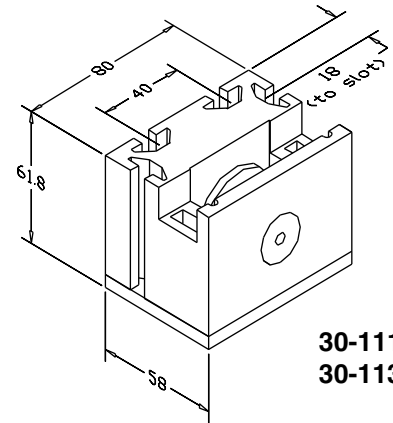
* Call for standard lengths in stock



13-513

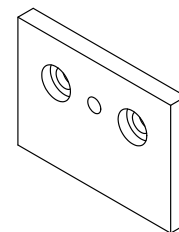


13-114



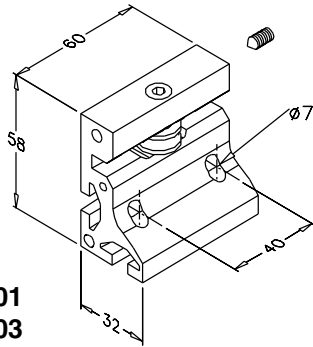
30-111
30-113

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

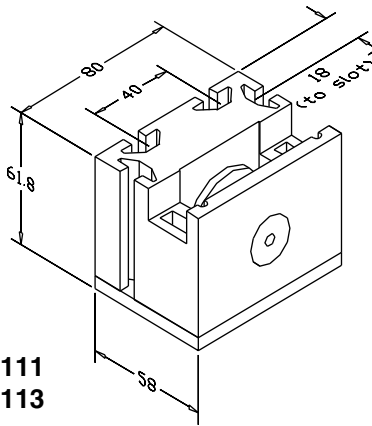


30-503z6

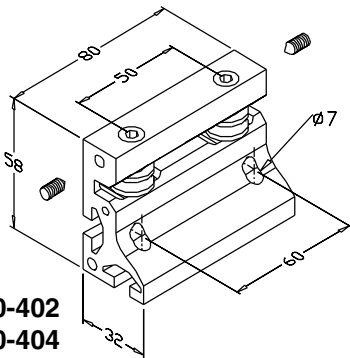
Bearing Unit



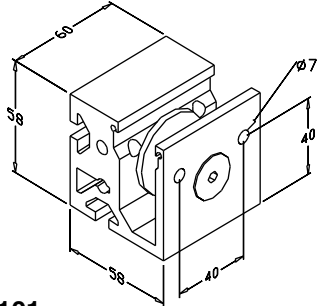
30-401
30-403



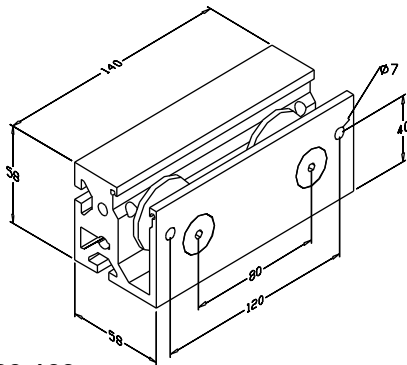
30-111
30-113



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

Technical Data

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

Ordering Information

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

Technical Data

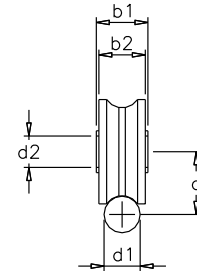
St, black oxide

Ordering Information

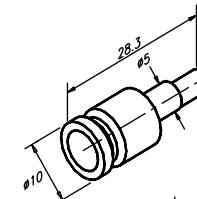
Type	Eccentricity (mm)	Used in Bearing Units	Weight (g)	Part #
6-Centric	N/A	30-401, 30-402	6	30-006
6-Eccentric	0.45	30-403, 30-404	6	30-007
14-Centric	N/A	30-101, 30-102, 30-111	48	30-105
14-Eccentric	1.0	30-103, 30-104, 30-113	46	30-106

Components for Bearing Units

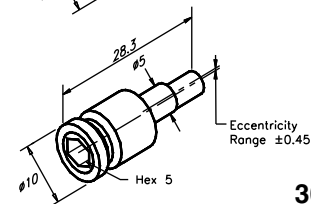
Track Rollers



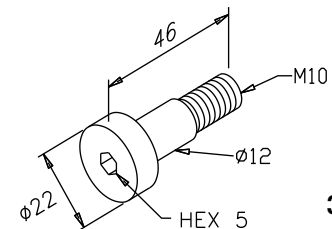
Bolts



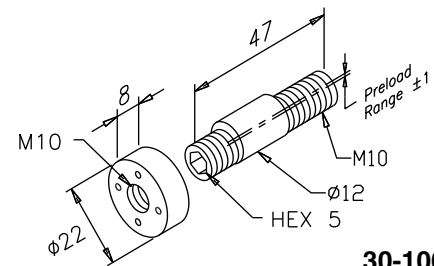
30-006



30-007



30-105



30-106

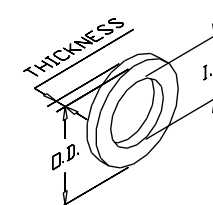
Technical Data

St, black oxide

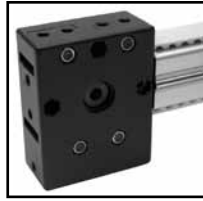
Ordering Information

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

Spacers



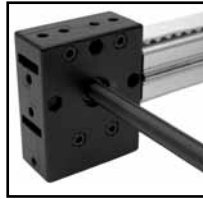
Linear Drive Components



1

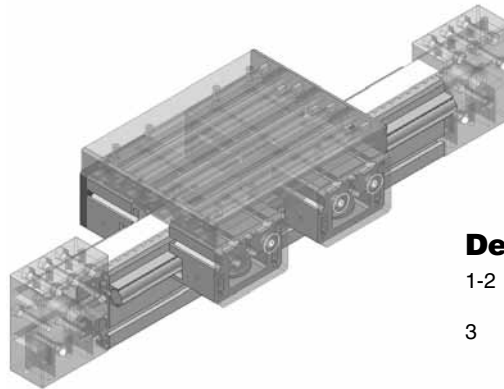


2



3

- 1 Timing Belt Reversing Unit 40 for driving or reversing the timing belt
- 2 Timing Belt Clamp and Tensioner
- 3 Multi-Spline Shaft

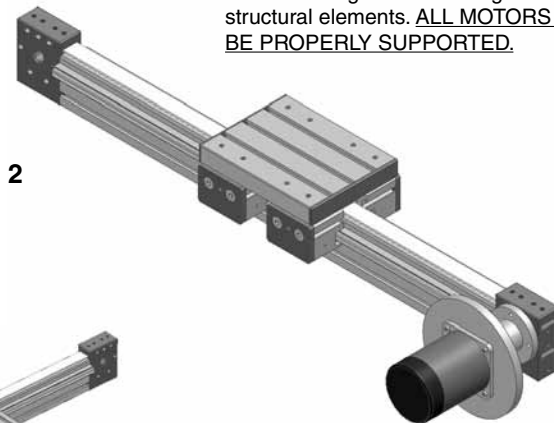


1

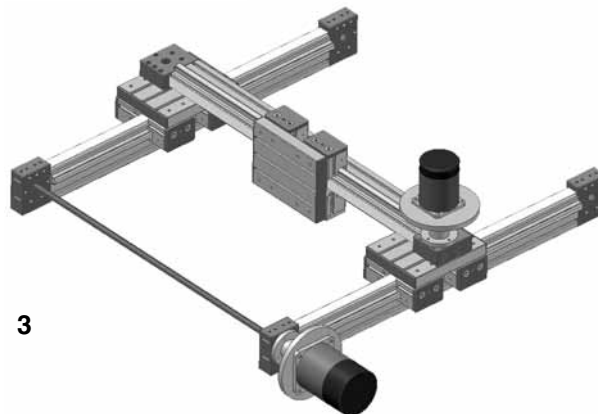
Design Examples

- 1-2 Construction with one axis of movement
- 3 Construction with two axes of movement.

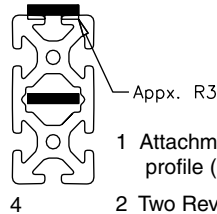
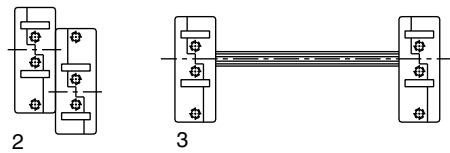
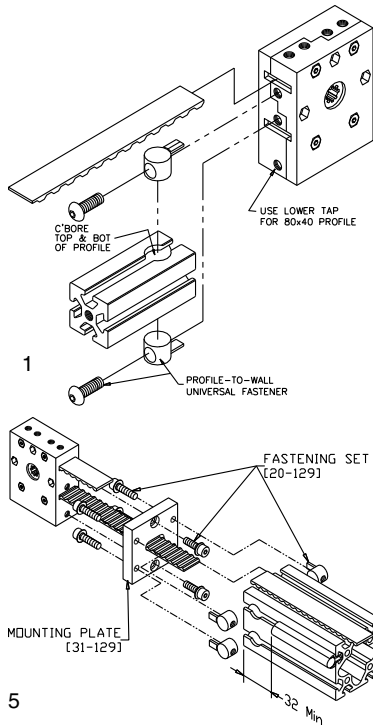
NOTE: Timing Belt Reversing Units are not structural elements. ALL MOTORS MUST BE PROPERLY SUPPORTED.



2

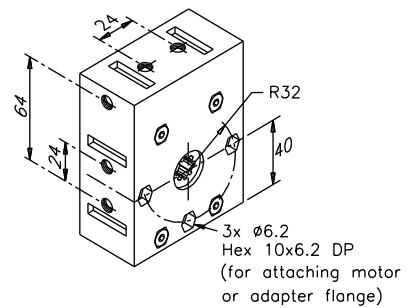
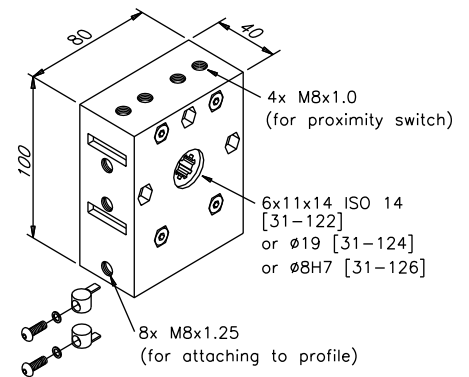


3



- 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).

Reversing Unit 40

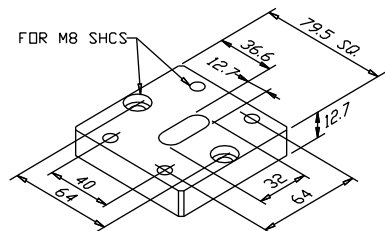


Application

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 $M_D = 20 \text{ Nm}$ (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

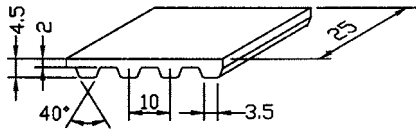
31-129

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



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

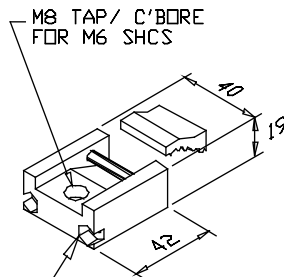
Polyurethane, steel reinforced
 Maximum tensile load: 2,400 N
 Temperature range: 0°C to +80°C
 For two pulley drives pre-tension force:
 $F_v/0.5 F_u$ (F_u - peripheral force)
 Pre-tension elongation (Δl) in mm per meter (L):

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

Ordering Information

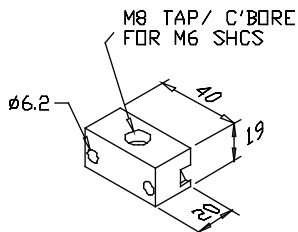
Description	Unit	Part #
Hi-Flex Timing Belt 25T10	per meter, max. 50m	31-052-1

Clamping and Tensioning Blocks

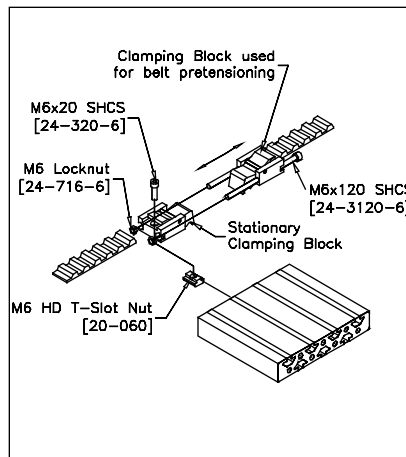
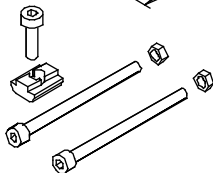


For M6 Hex Nut

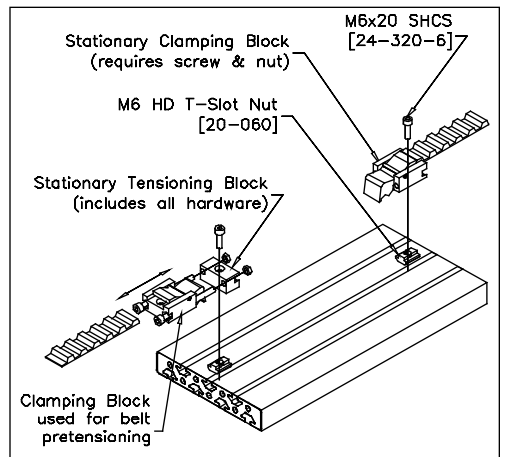
31-030



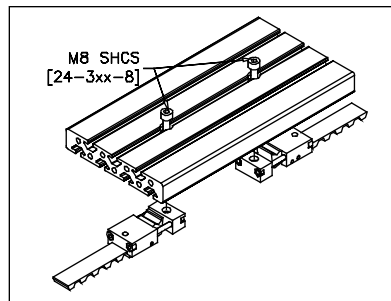
31-031



1



2



3

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

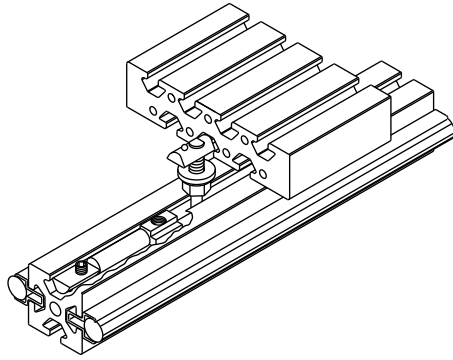
Technical Data

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





Limit Stop

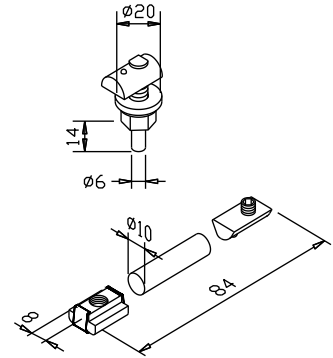
Application

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

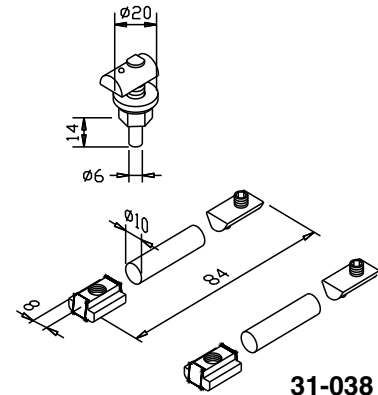
Technical Data

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



31-037



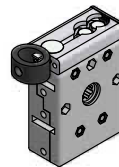
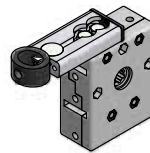
31-038

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		

Application

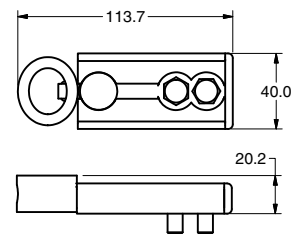
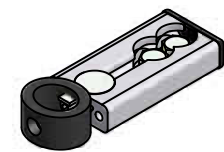
To mechanically limit the travel of a carriage. The rubber shock absorber provides for a cushioned end stop.



Bumpers

Technical Data

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

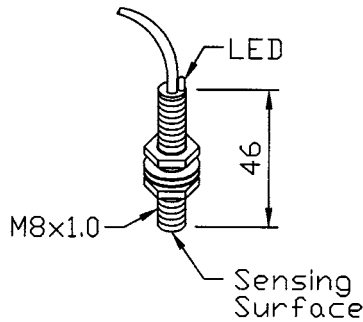


31-808

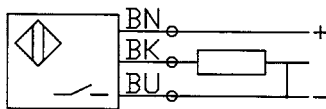
Ordering Information

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

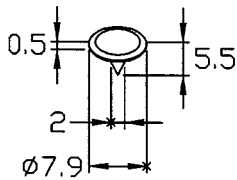
Proximity Switch



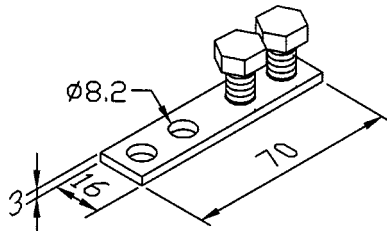
31-035



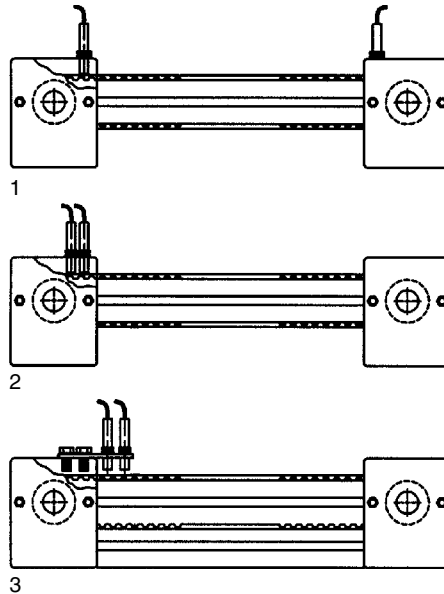
PNP Normally Open



31-033



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.

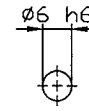
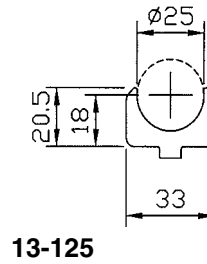
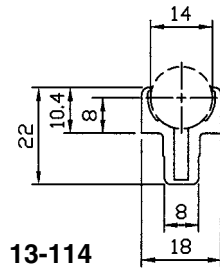
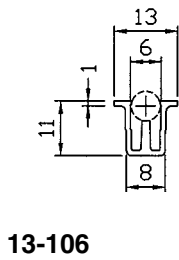
Technical Data

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]

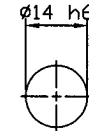
Ordering Information

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

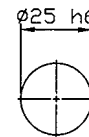
Shafts & Clamp



13-505



13-513



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

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 without bearing support: 500mm horiz.

Ordering Information

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

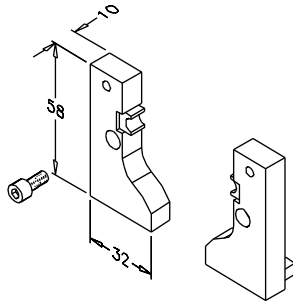
*Call for maximum lengths in stock

Spline Shaft



13-566

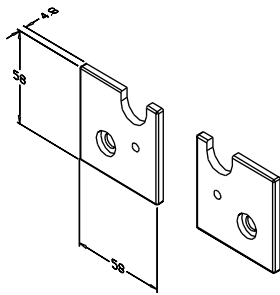
End Caps



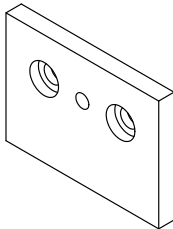
30-407

Ordering Information

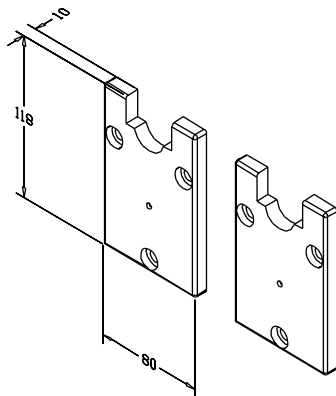
Description	Unit	Weight	Part #
End Cap, Lubricating System 6	set (R&L)	0.02 kg	30-407
End Cap, Lubricating System 14	set (R&L)	0.05 kg	30-107
End Cap, Lubricating System 14 HD			30-503z6
End Cap, Lubricating System 25	set (R&L)		30-207
Replacement Felt Insert 6	each		30-407z5
Replacement Felt Insert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



30-107



30-503z6



30-207