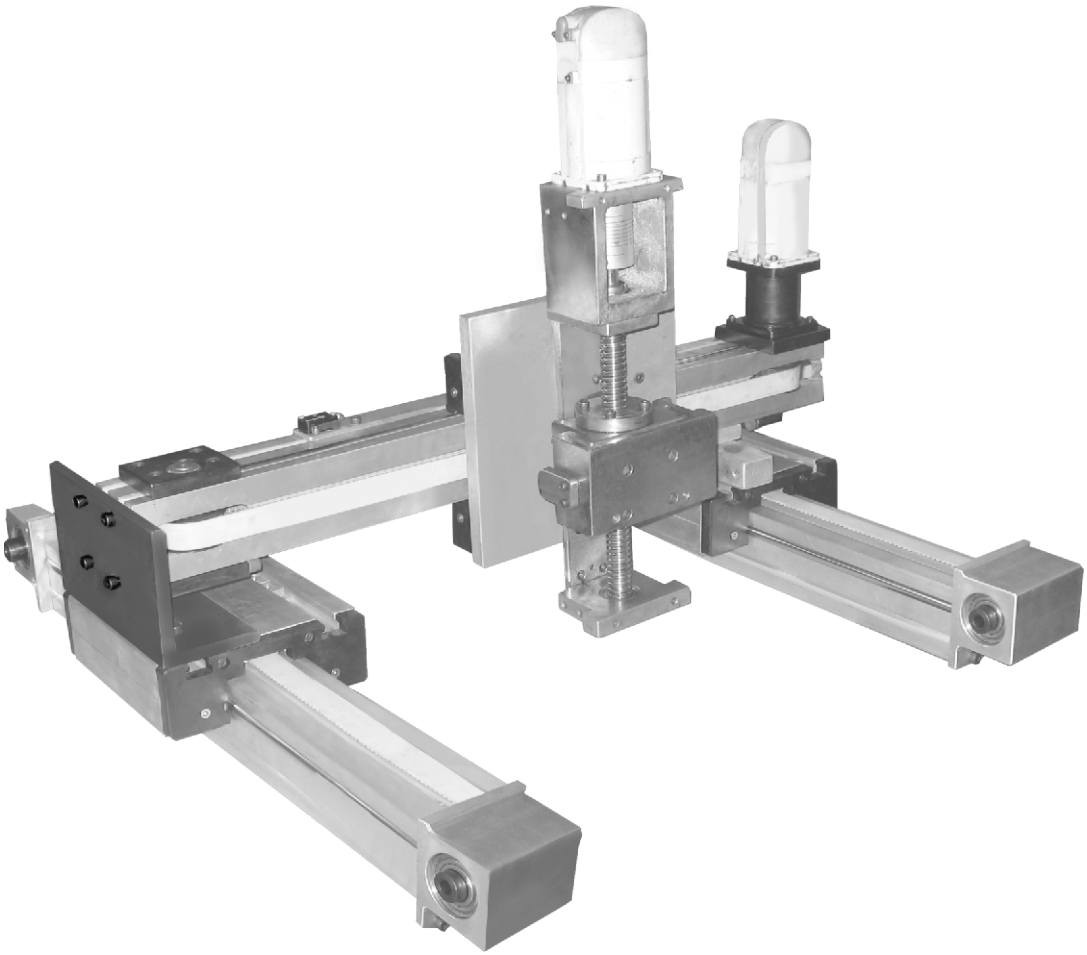
LFR MODULES

LINEAR MODULES WITH DRIVE SYSTEMS

Linear guidance system is manufactured using Aluminum extrusions, Precision linear shafts, LFR Track Rollers. The aluminum-extruded profile is stabilized and anodized. Aluminum extrusion forms the main support element, and the hardened steel rods inserted in the raceway forms the guiding surface. Guide rods are induction hardened, ground and hard chrome plated. The complete system is strong, lightweight and compact design. The combined features of the two materials and the relevant working technologies enable the system to be used in many applications as carrying structures.

The features include track rollers life lubrication and continuous lubricated on shafts through oil, felt at both ends of carriage plate.

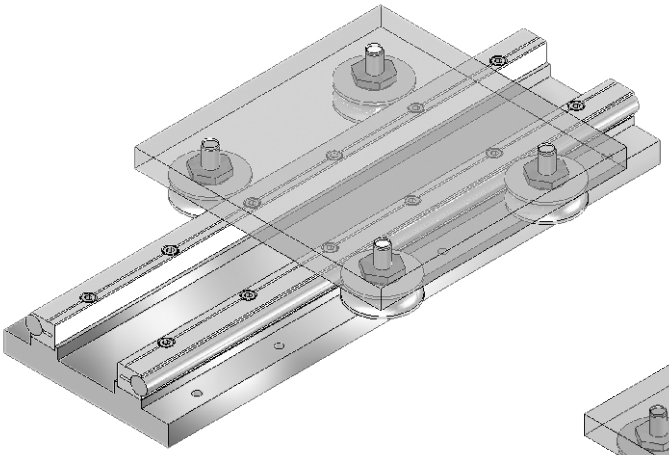
Linear accuracy can be achieved within 0.100mm and most of the systems have no stroke limitations, maximum stroke up to 50mts in length have been executed so far. These sliding systems can be driven by ball screw, timing belts, rack & pinion, lead screw, pneumatic/hydraulic cylinders, chains, etc. The construction is modular; gantry and bridge construction can be easily achieved for multi axis applications with maximum speed of 2m/s for tooth belt drive and 1 m/s for ball screw.



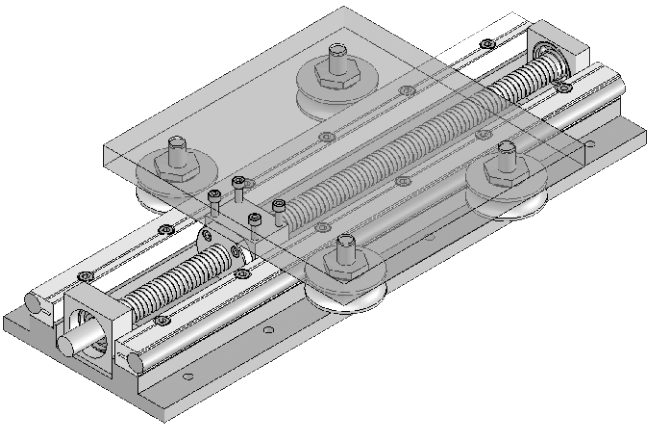
DRUPE
AUTOMATION SIMPLIFIED

LFI SERIES EXAMPLES

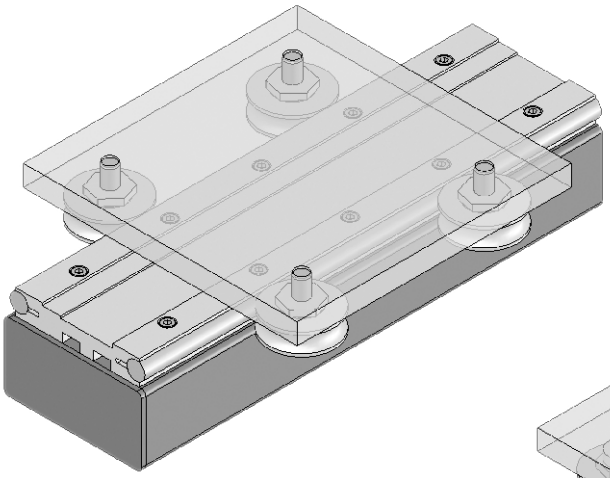
LFI 20 S
Track roller assembly



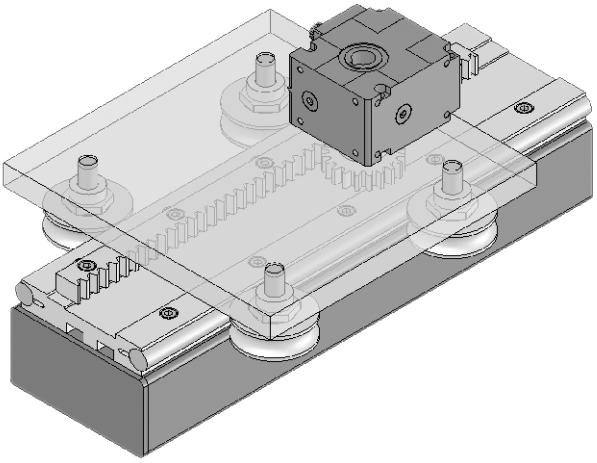
LFI 20 S
Ball screw assembly



LFI 20 D
Track roller assembly

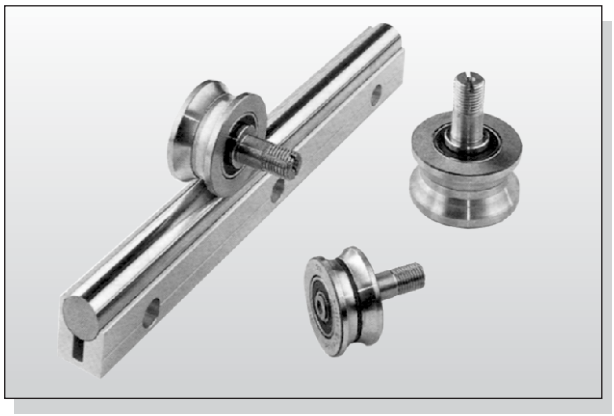


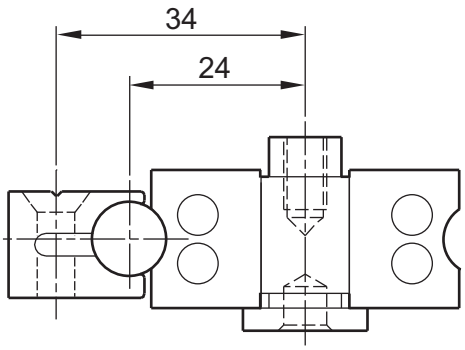
LFI 20 D
Rack & Pinion with
Gear Box Drive



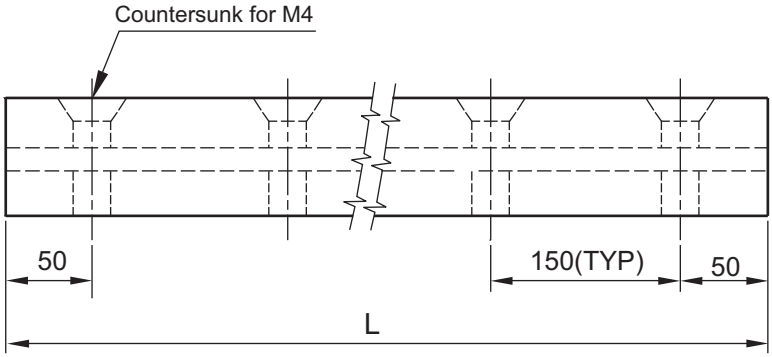
LFI SERIES - LFI 10 S

LFI 10 S Accessories

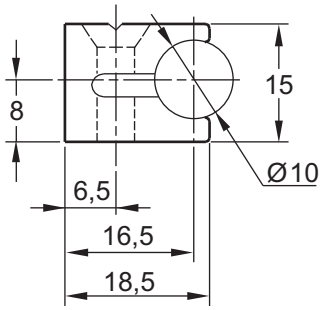




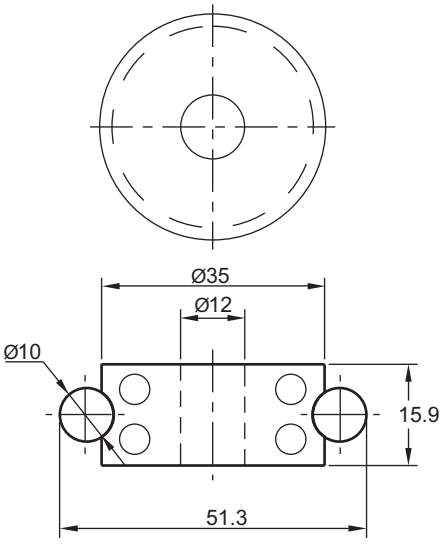
LFI 10 S Assembly



Max. Length in single element = 2000 mm.

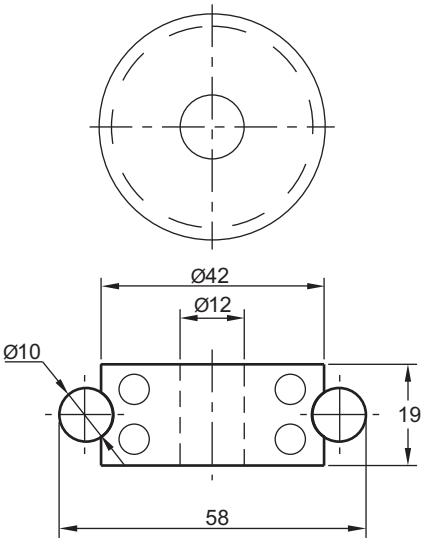


LFI 10 S



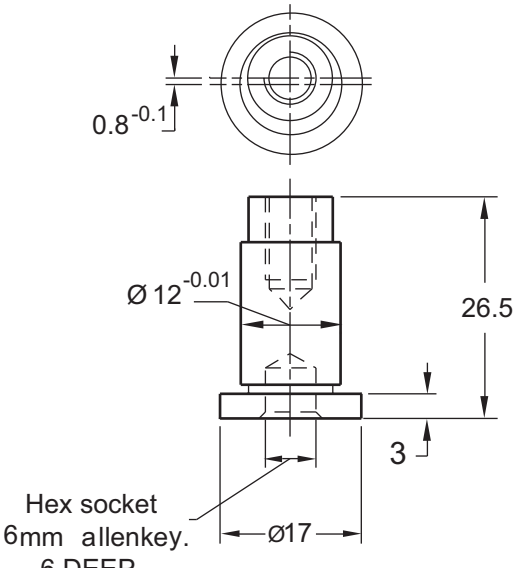
LFR 5201 KDD BEARING

BEARING RATING (KG)	
Dynamic	Static
C	C_o
1200	710



LFR 5301 KDD BEARING

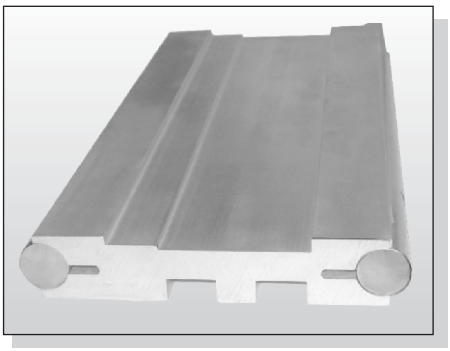
BEARING RATING (KG)	
Dynamic	Static
C	C_o
1200	710

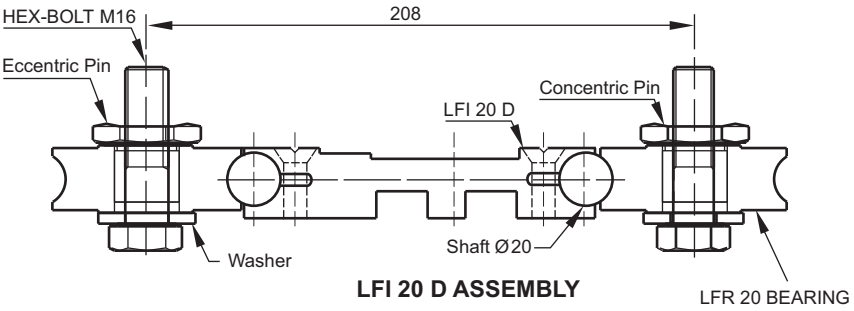


ECCENTRIC PIN

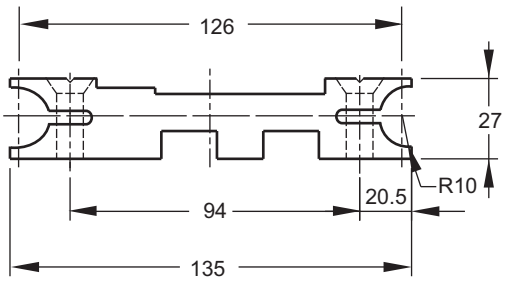
DRUPE
AUTOMATION SIMPLIFIED

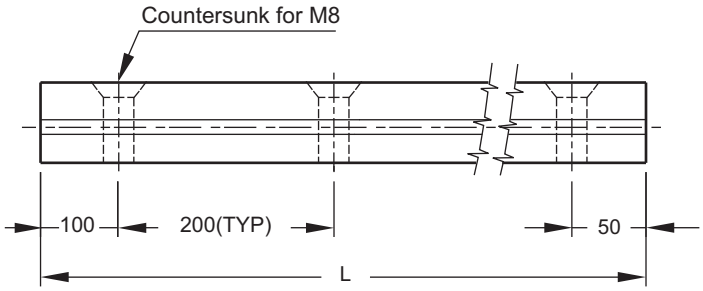
LFI SERIES - LFI 20 D





LFI 20 D ASSEMBLY

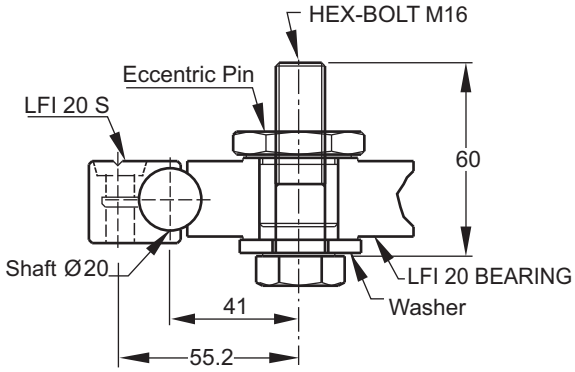




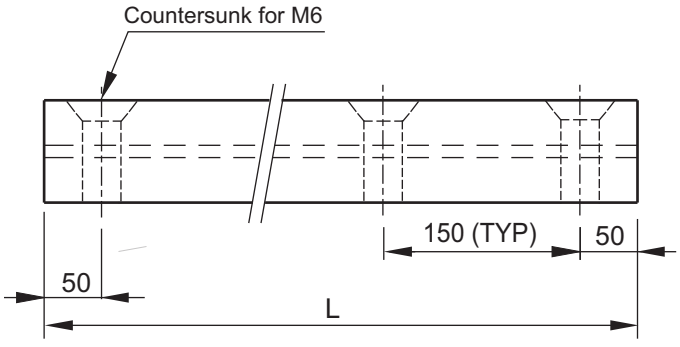
Max. Length in single element = 2500 mm.

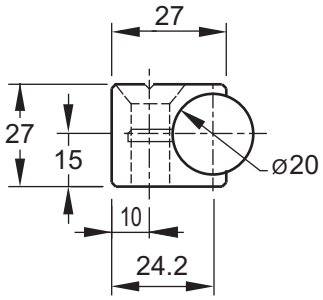
- Longer Rails are supplied in sections with ground butt joints.
- Available with hard chrome plated shafts.
- Rails with standard mounting holes and without holes are also available.

LFI SERIES - LFI 20 S

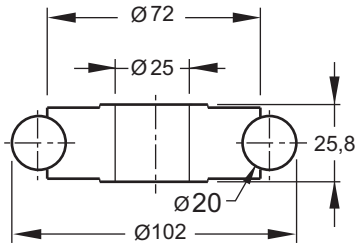


LFI 20 S ASSEMBLY

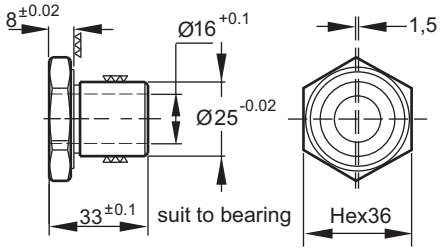




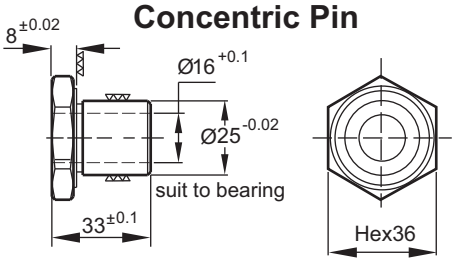
Max. Length in single element = 2000 mm.



Eccentric Pin



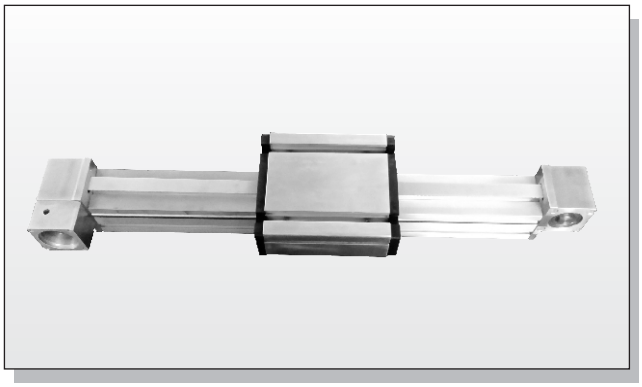
Concentric Pin

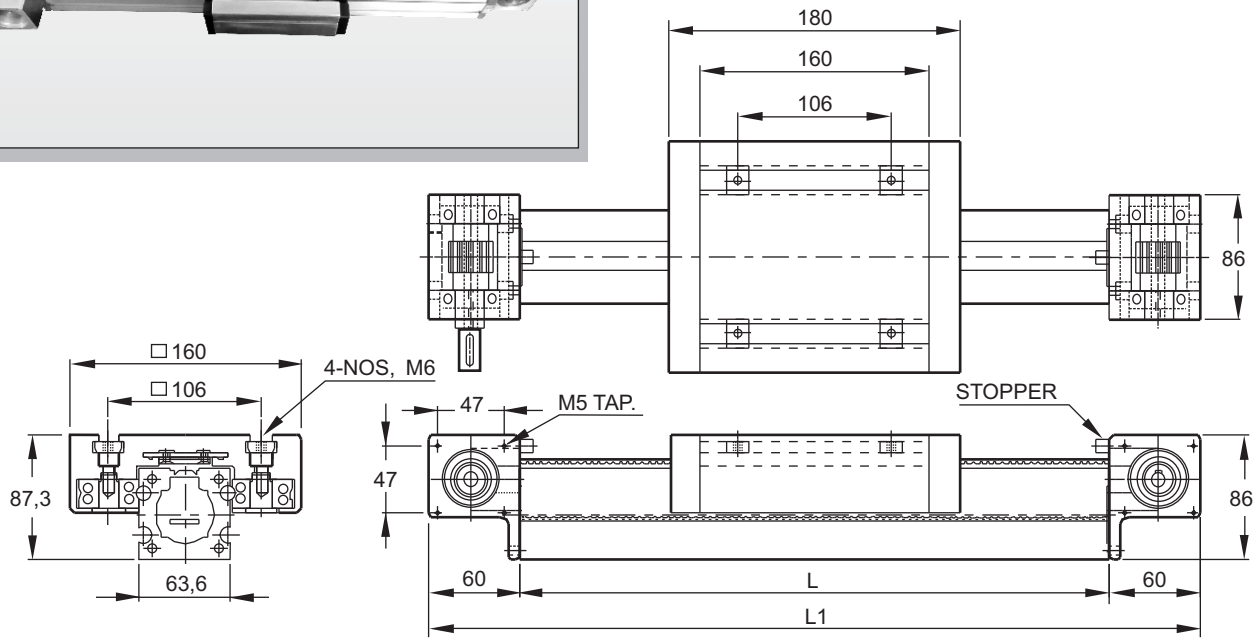


LFI/LFR 20 BEARING

BEARING RATING (KG)	
Dynamic	Static
C	C_o
2200	1200

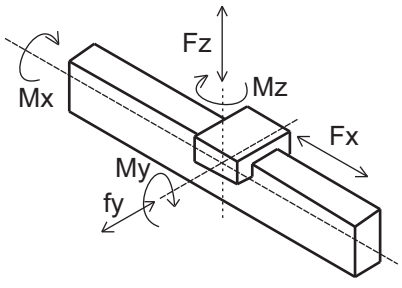
LFR-10 EXTERNAL

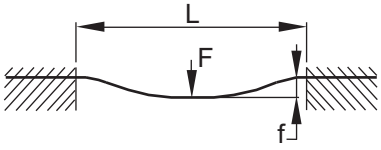




L1=END BLOCK+2 LUBRICATION PLATES+TOP PLATE+END BLOCK+STROKE.
L1= 60 + 20 + 160 + 60 + =

Size	LFR 10						
Forces/torques	state	Fx(Kg)	Fy(Kg)	Fz(Kg)	Mx (Kgm)	My (Kgm)	Mz (Kgm)
		-	200	200	6.7	13	12
Forces/torques	dyn	Fx(Kg)	Fy(Kg)	Fz(Kg)	Mx (Kgm)	My (Kgm)	Mz (Kgm)
		-	200	150	4.3	7.8	12
Speed	(m/sec)max	6					
	Area moment of inertia of aluminium profile						
Lx mm^4	$6,79x10^5$						
Ly mm^4	$6,97 \times 10^5$						
E-Modul kg/mm^2	7135						



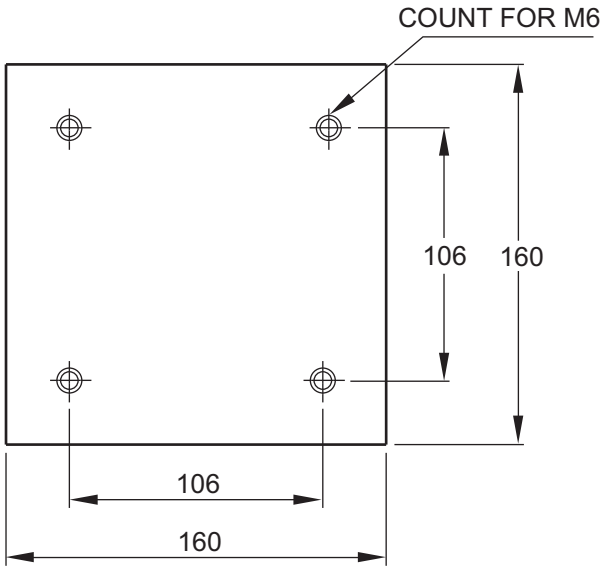


$$f=\frac{FxL^3}{ExIx192}$$

f=deflection (mm)
F=load (Kg)
L=free length (mm)
E=elastic modulus 7135 (kg/mm^2)
I=second moment of area (mm^4)

ACCESSORIES

ASSEMBLY PLATE FOR X AND Y AXIS



Mat :-Aluminium.
Thickness:-15

SUPPORT & MOUNTING BLOCKS

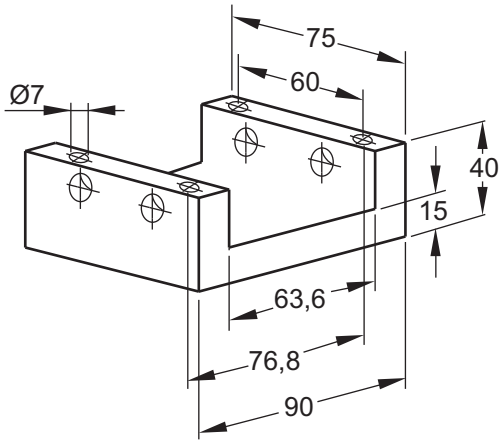
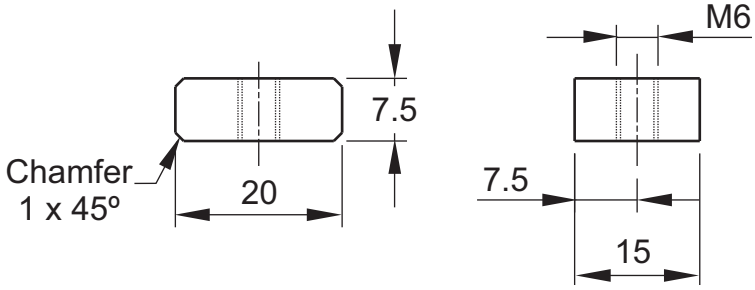
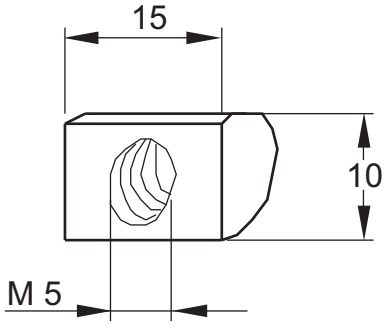


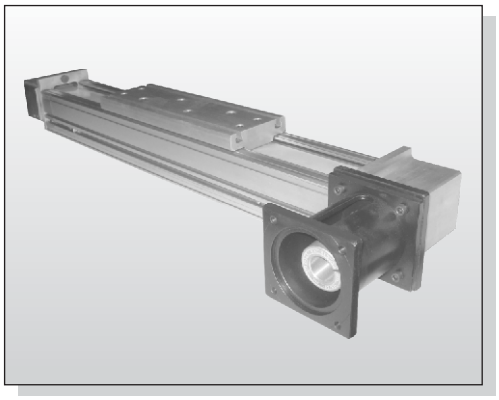
PLATE MOUNTING NUT FOR TOP PLATE

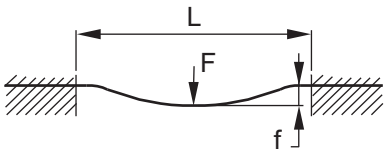


HALF ROUND NUT FOR MOUNTING BLOCK.



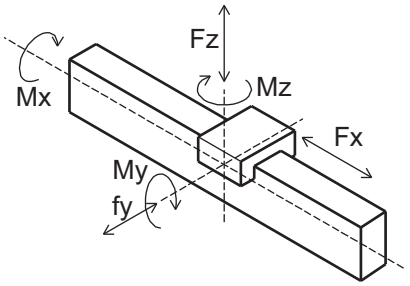
LFR-10 INTERNAL

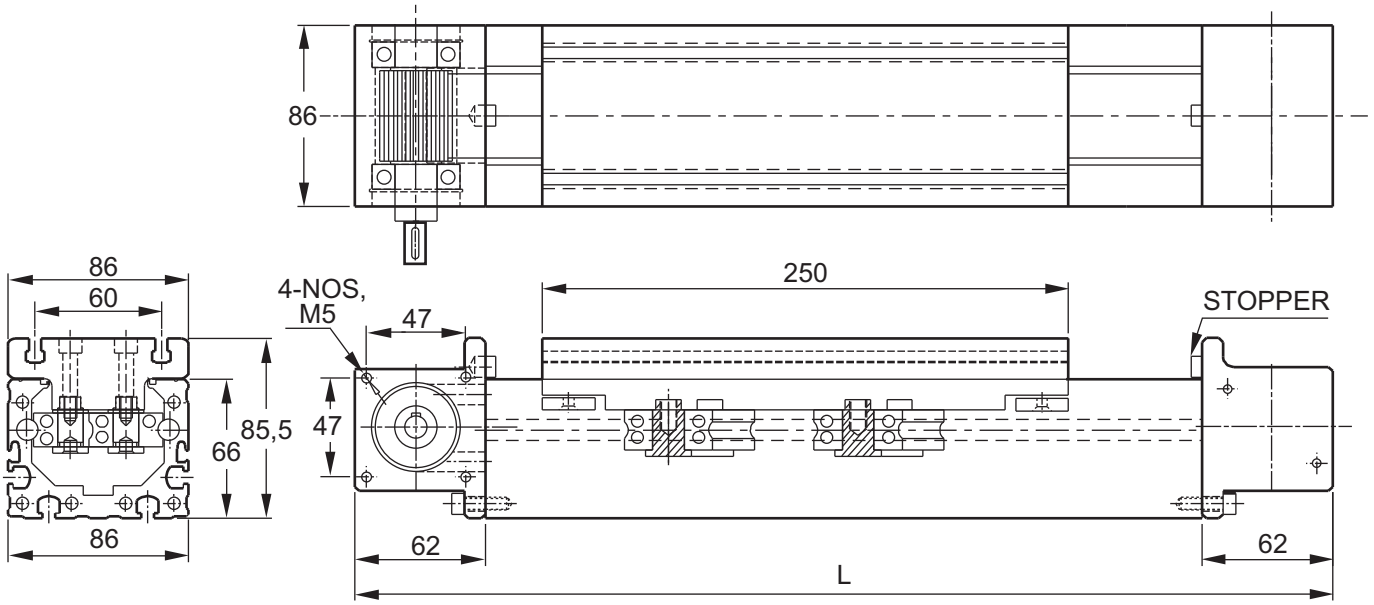




$f=\frac{FxL^3}{ExIx192}$

f=deflection	(mm)
F=load	(kg)
L=free length	(mm)
E=elastic modulus 7135	(kg/mm^2)
I=second moment of area	(mm^4)





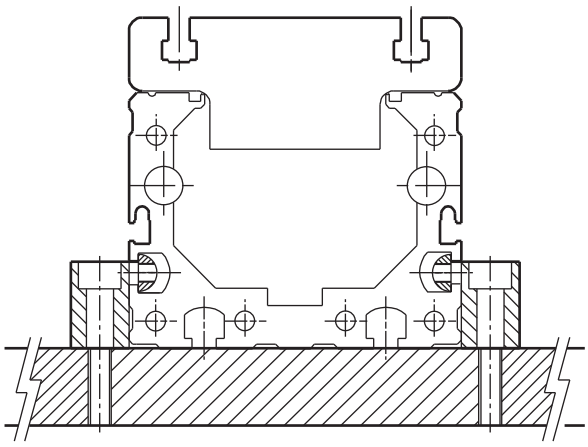
L=END BLOCK+TOP PLATE+STROKE+G.STROKE+END BLOCK

L= 62 + 250 + + 25 + 62

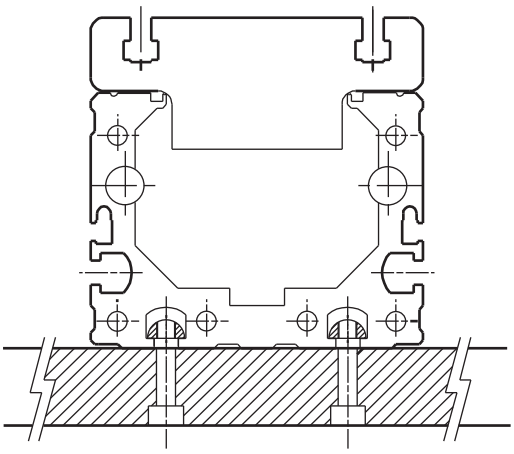
Size	LFR 10						
Forces/torques	state	Fx(kg)	Fy(kg)	Fz(kg)	Mx (kgm)	My (kgm)	Mz (kgm)
		-	204	204	6.7	13	12
Forces/torques	dyn	Fx(kg)	Fy(kg)	Fz(kg)	Mx (kgm)	My (kgm)	Mz (kgm)
		-	204	153	4.3	7.8	12
Speed	(m/sec)max	6					
	Area moment of inertia of aluminium profile						
Lx mm^4	$6,79x10^5$						
Ly mm^4	$6,97x10^5$						
E-Modul N/mm^2	7135						

ACCESSORIES

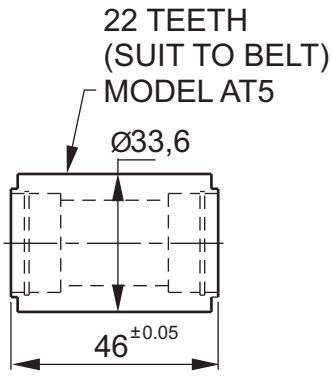
Mounting from above

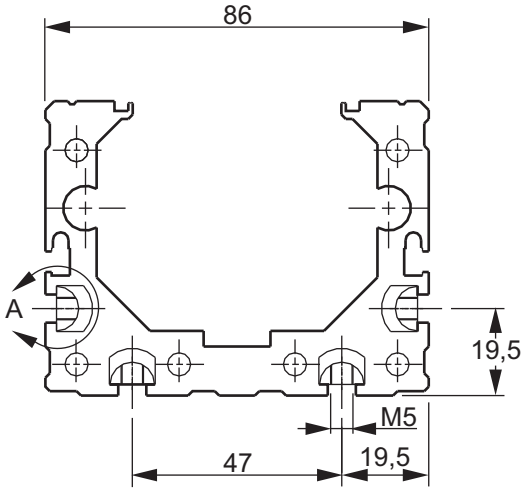


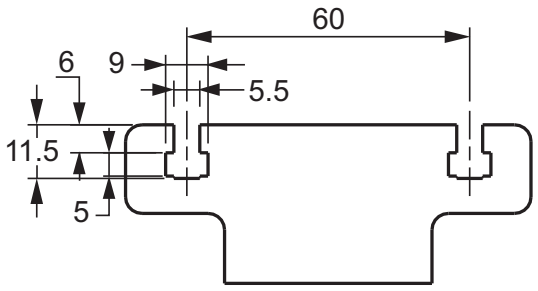
Mounting from below

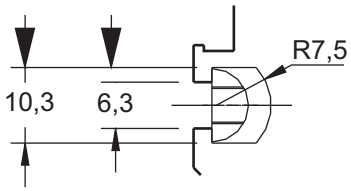


IDLER PULLEY



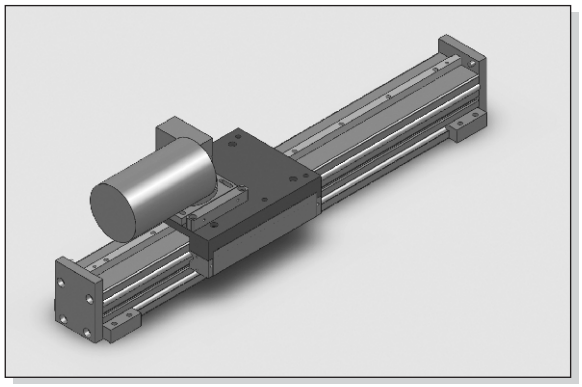


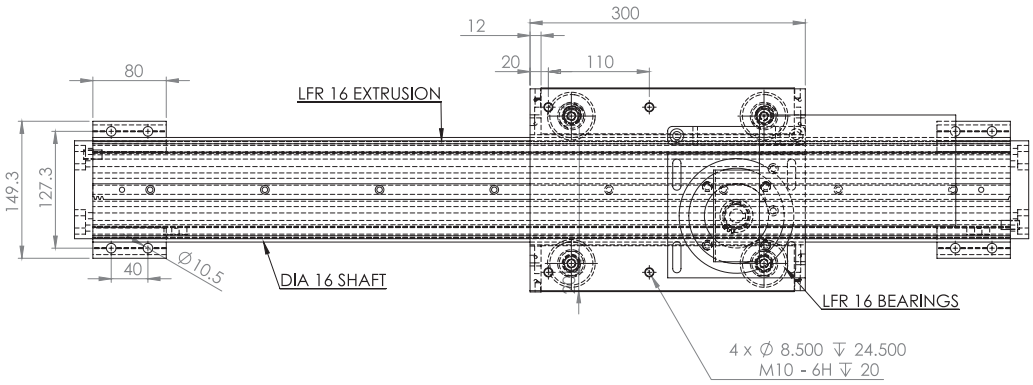


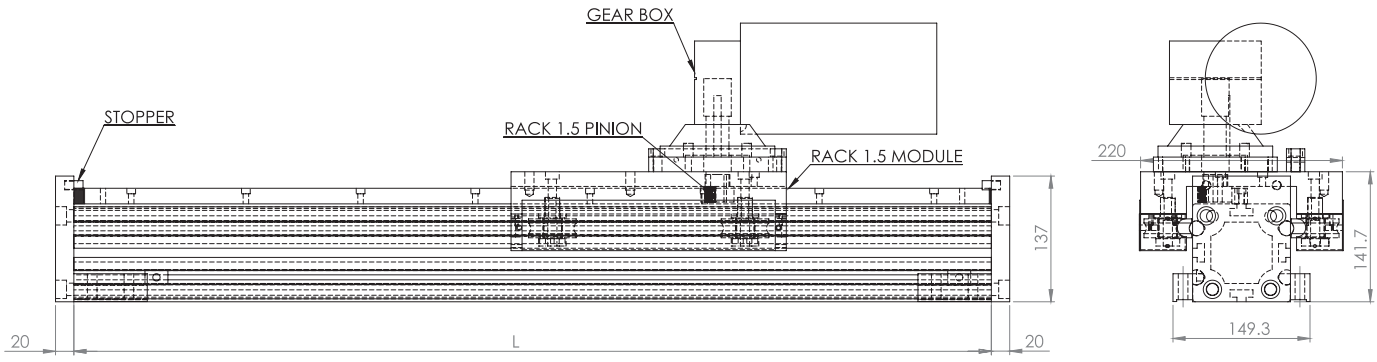


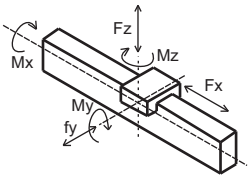
Detail : A

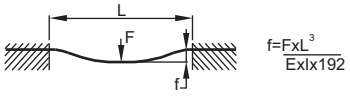
LFR-16 WITH RACK AND PINION











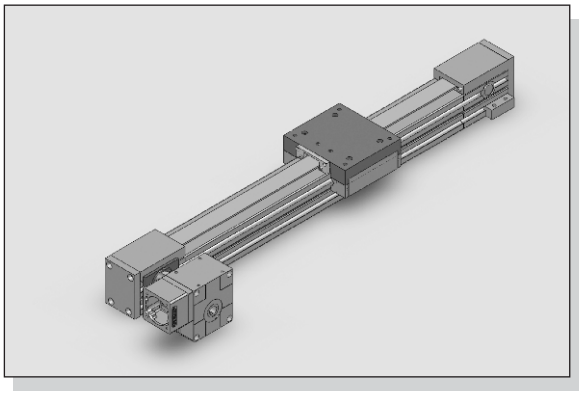
f=deflection
F=load
L=free length
E=elastic modulus 7135
I=second moment of area

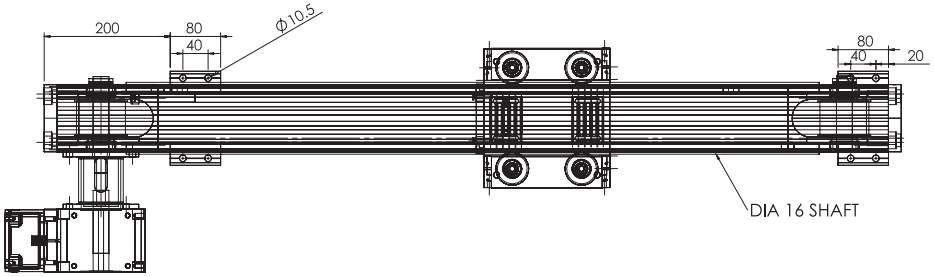
(mm)
(Kg)
(mm)
(kg/mm^2)
(mm^4)

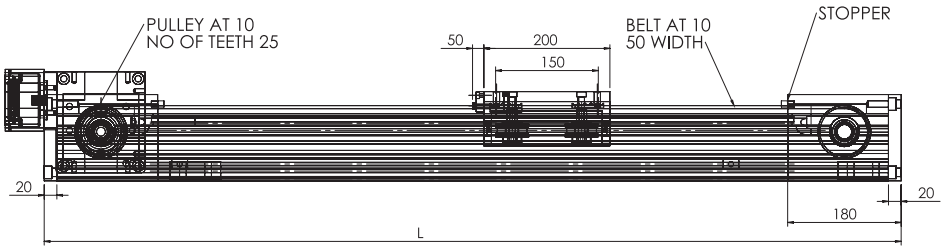
Size	LFR 16						
Forces/torques	state	Fx(Kg)	Fy(Kg)	Fz(Kg)	Mx (Kgm)	My (Kgm)	Mz (Kgm)
		-	300	300	6.7	13	12
Forces/torques	dyn	Fx(Kg)	Fy(Kg)	Fz(Kg)	Mx (Kgm)	My (Kgm)	Mz (Kgm)
		-	300	200	4.3	7.8	12
Speed	(m/sec)max	6					
Area moment of inertia of aluminium profile							
Lx mm^4	6,79x10^5						
Ly mm^4	6,97 x 10^5						
E-Modul kg/mm^2	7135						

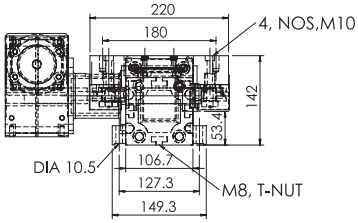
DRUPE
AUTOMATION SIMPLIFIED

LFR-16 WITH TIMER BELT

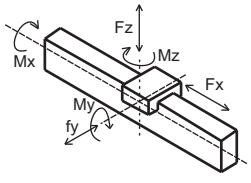


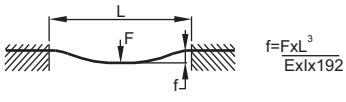






L=PULLEY BRACKET + TOP PLATE + STROKE + PULLEY BRACKET + BELT TENSIONER+ STOPPER + SAFETY
L= 200 + 200 + STROKE + 200 + 50 + 20 + 30

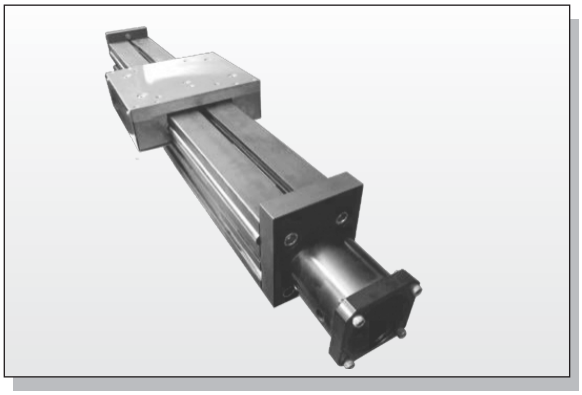


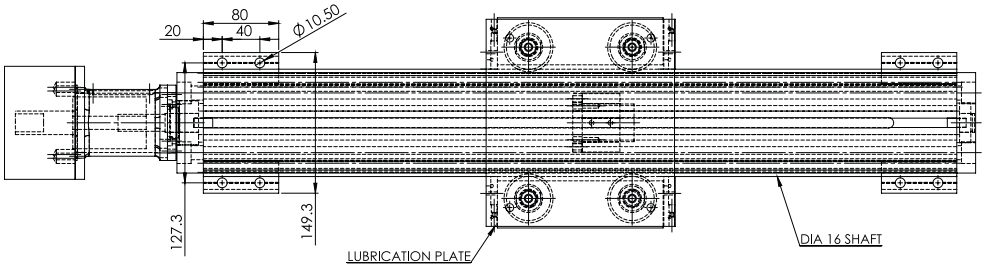


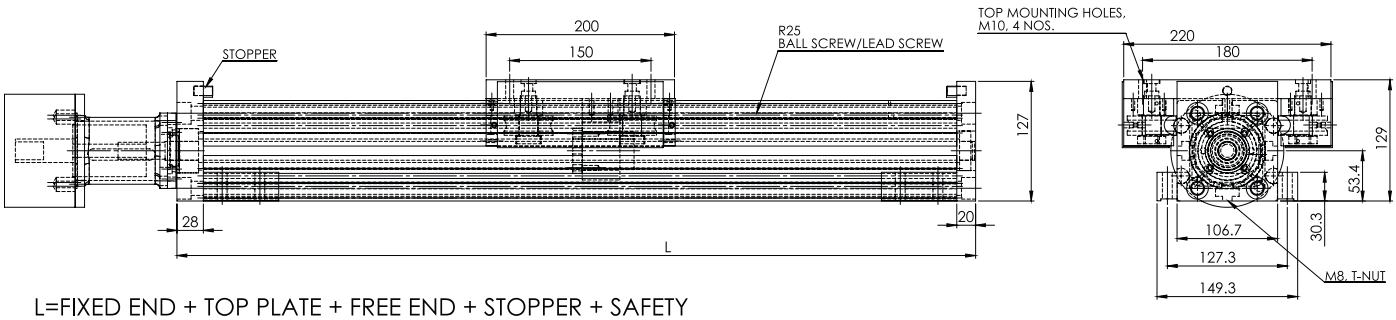
f=deflection (mm)
F=load (Kg)
L=free length (mm)
E=elastic modulus 7135 (kg/mm²)
I=second moment of area (mm⁴)

Size	LFR 16						
Forces/torques	state	Fx(Kg)	Fy(Kg)	Fz(Kg)	Mx (Kgm)	My (Kgm)	Mz (Kgm)
		-	300	300	6.7	13	12
Forces/torques	dyn	Fx(Kg)	Fy(Kg)	Fz(Kg)	Mx (Kgm)	My (Kgm)	Mz (Kgm)
		-	300	200	4.3	7.8	12
Speed	(m/sec)max	6					
Area moment of inertia of aluminium profile							
Lx mm^4	$6{,}79x10^5$						
Ly mm^4	$6{,}97 \times 10^5$						
E-Modul kg/mm^2	7135						

LFR-16 WITH BALL SCREW

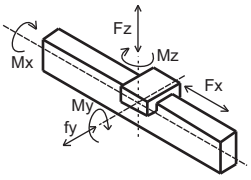


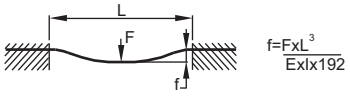




L=FIXED END + TOP PLATE + FREE END + STOPPER + SAFETY

L= 28 + 200 + 20 + 20 + 20



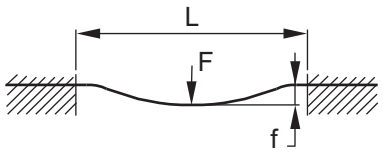


f=deflection (mm)
F=load (Kg)
L=free length (mm)
E=elastic modulus 7135 (kg/mm^2)
I=second moment of area (mm^4)

Size	LFR 16						
Forces/torques	state	Fx(Kg)	Fy(Kg)	Fz(Kg)	Mx (Kgm)	My (Kgm)	Mz (Kgm)
		-	300	300	6.7	13	12
Forces/torques	dyn	Fx(Kg)	Fy(Kg)	Fz(Kg)	Mx (Kgm)	My (Kgm)	Mz (Kgm)
		-	300	300	4.3	7.8	12
Speed	(m/sec)max	6					
Area moment of inertia of aluminium profile							
Lx mm^4	6,79x10^5						
Ly mm^4	6,97 x 10^5						
E-Modul kg/mm^2	7135						

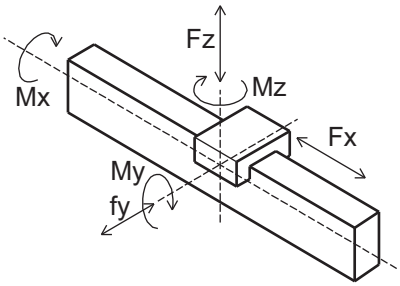
DRUPE
AUTOMATION SIMPLIFIED

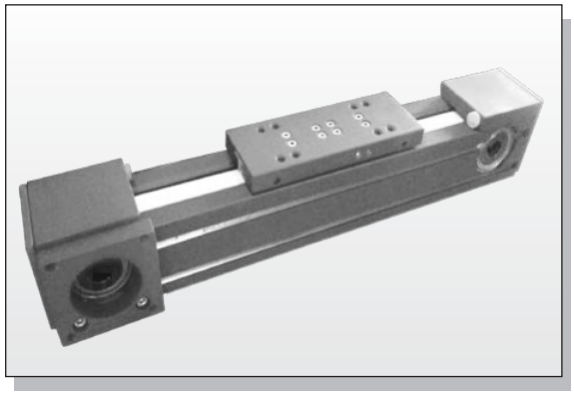
LFR-6 WITH TIMER BELT

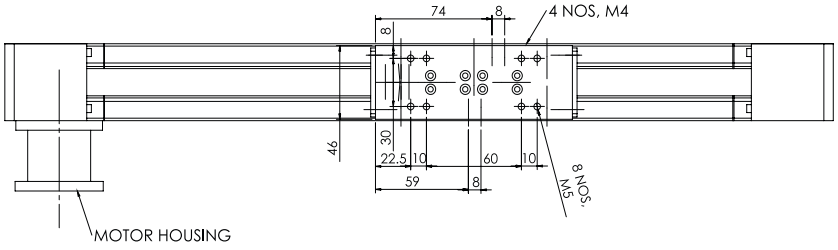


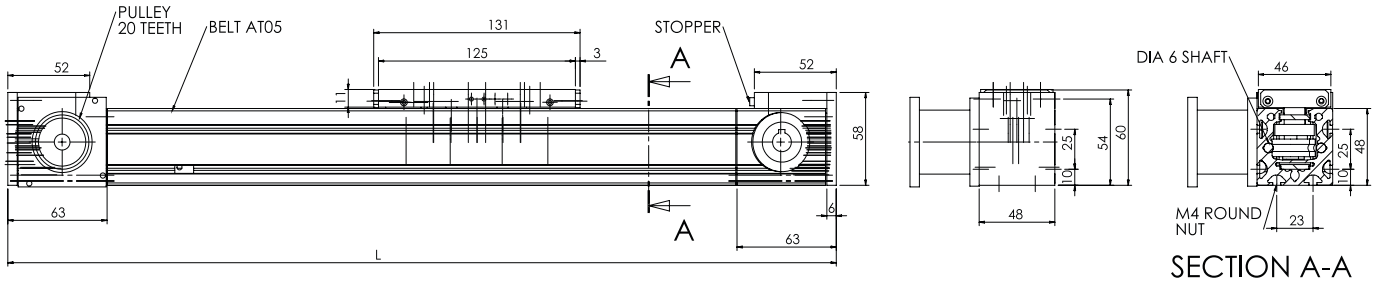
$$f=\frac{FxL^3}{ExIx192}$$

f=deflection (mm)
F=load (kg)
L=free length (mm)
E=elastic modulus 7135 (kg/mm^2)
I=second moment of area (mm^4)









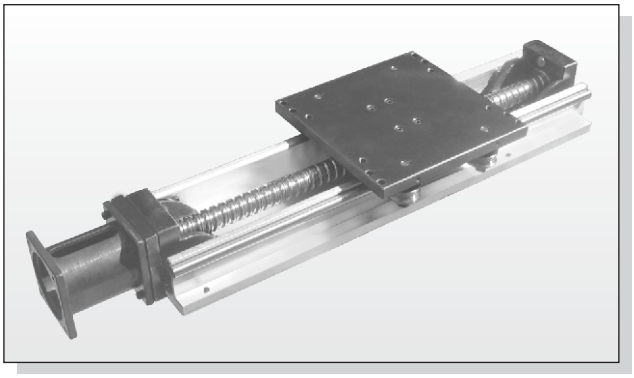
SECTION A-A
SCALE 1 : 2.2

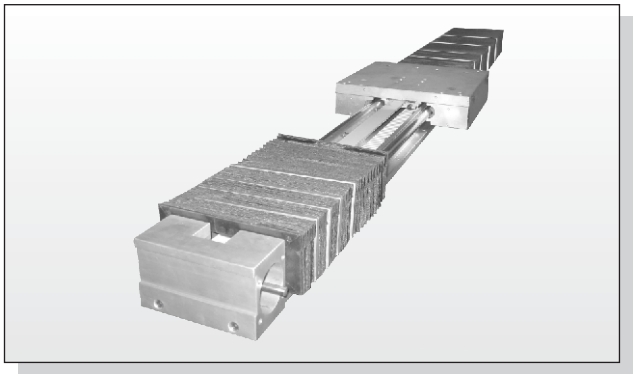
L=1 END BLOCK + TOP PLATE + 2 END BLOCK + SAFETY + STROKE

L= 63 + 131 + 63 + 20 + STROKE

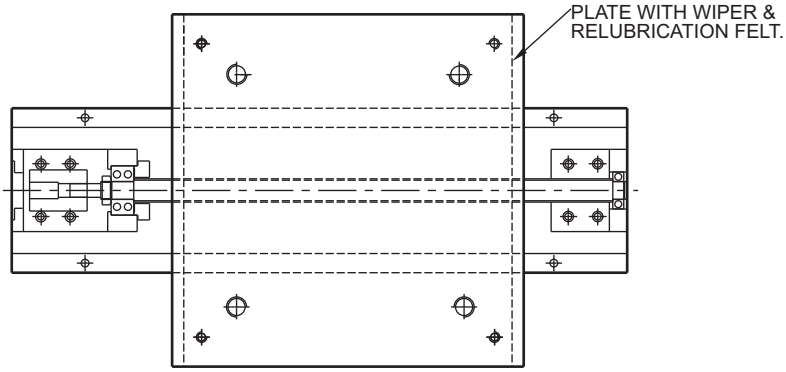
Size	LFR 6						
Forces/torques	state	Fx(kg)	Fy(kg)	Fz(kg)	Mx (kgm)	My (kgm)	Mz (kgm)
		-	100	100	1.5	2.7	5.4
Forces/torques	dyn	Fx(kg)	Fy(kg)	Fz(kg)	Mx (kgm)	My (kgm)	Mz (kgm)
		-	100	50	0.8	7.6	3
Speed	(m/sec)max	6					
	Area moment of inertia of aluminium profile						

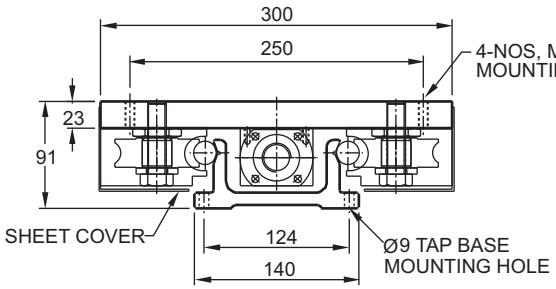
LFR-20

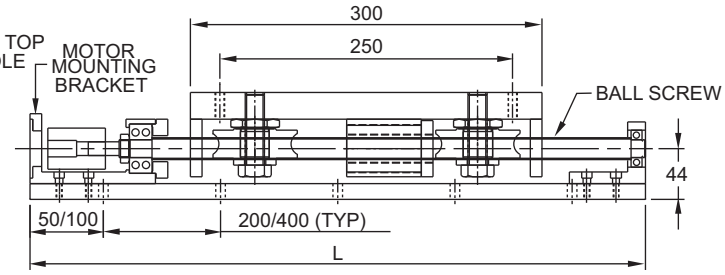




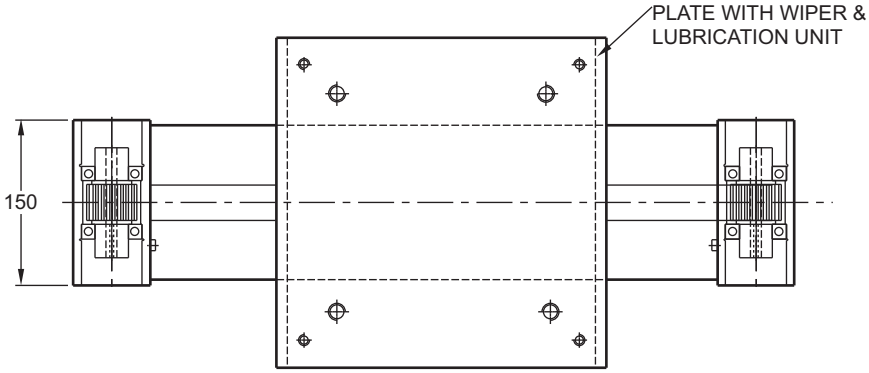
LFR20 BALLSCREW.

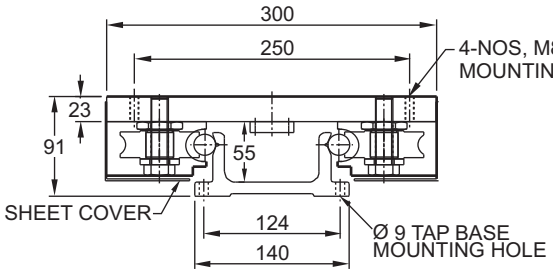


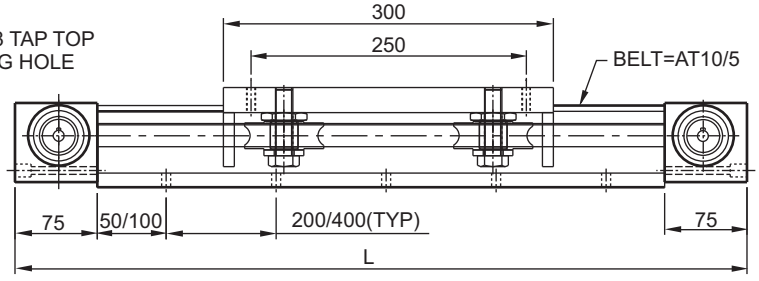




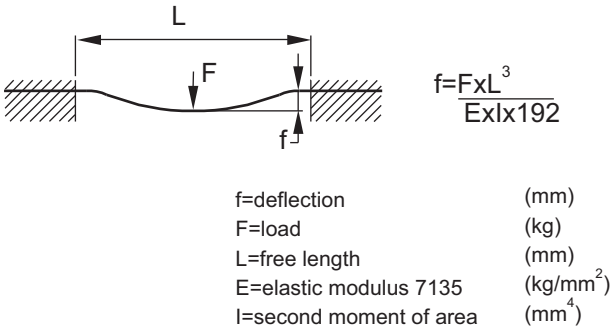
LFR20 TIMER BELT.



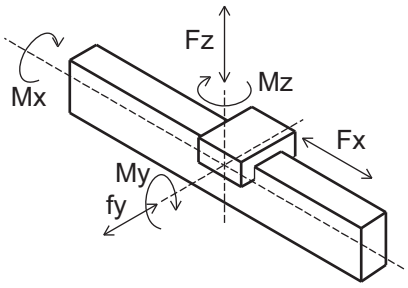


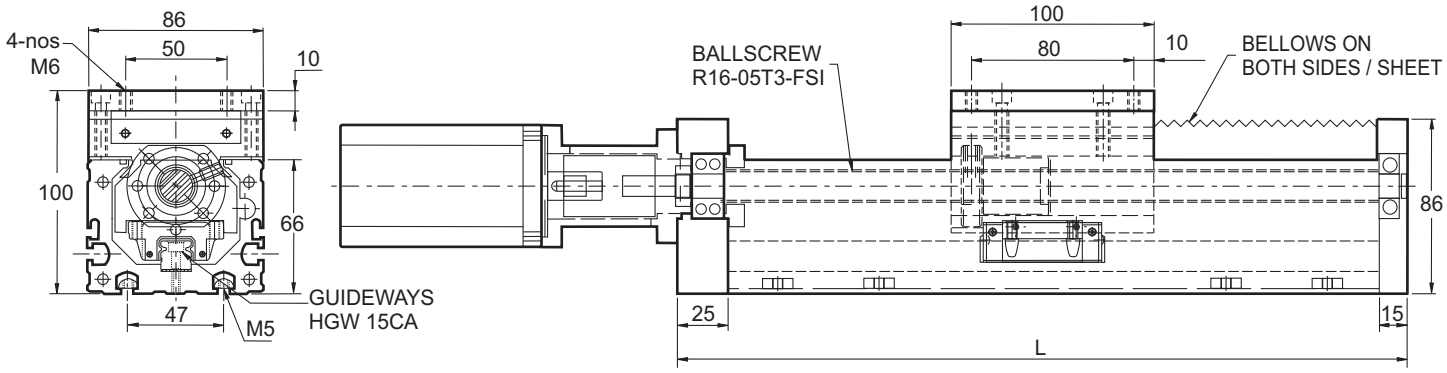


LM SLIDE UNIT- TYPE KK



f=deflection	(mm)
F=load	(kg)
L=free length	(mm)
E=elastic modulus 7135	(kg/mm^2)
I=second moment of area	(mm^4)



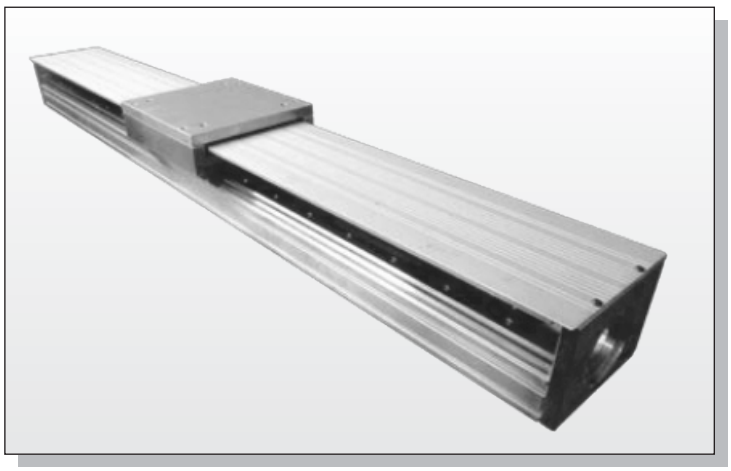


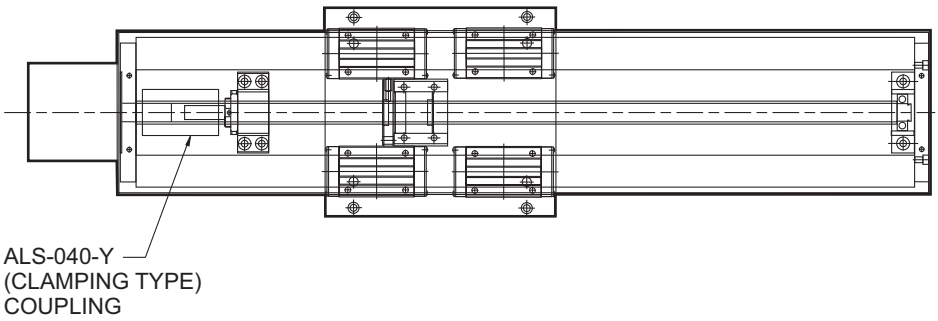
TOTAL LENGTH=END PLATE + STROKE + TOP PLATE + END PLATE + BELLOWS

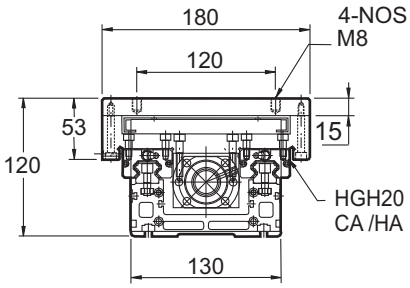
L = 25 + + 100 + 15 +

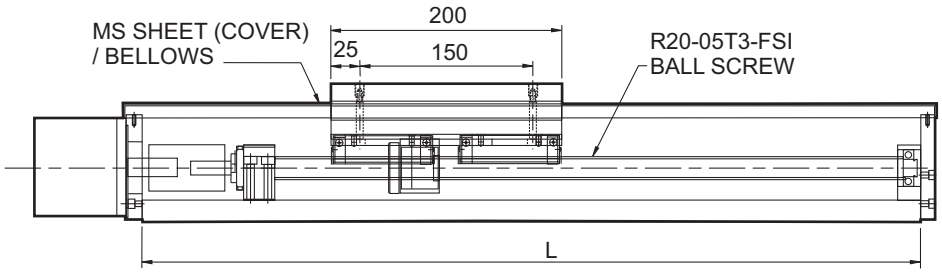
Size	KK SLIDE						
Basic static Load Rating Co (kg)	25.31	Fx(kg)	Fy(kg)	Fz(kg)	Mx (kgm)	My (kgm)	Mz (kgm)
		-	-	-	17	15	15
Basic Dynamic Load Rating C (kgf)	11.38	Weight		Block (kg)	0.17	Rail (kg/m)	1.45
Speed	(m/sec)max	3					
	Area moment of inertia of aluminium profile						
Lx mm^4	6,79x10^5						
Ly mm^4	6,97x10^5						
E-Modul kg/mm^2	7135						

LM SLIDE UNIT - TYPE LMX WITH BALLSCREW



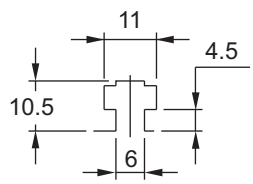




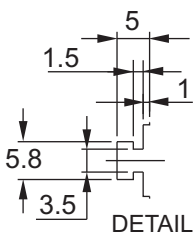


TOTAL LENGTH=1st END PLATE + STROKE + TOP PLATE + 2nd END PLATE + SAFETY

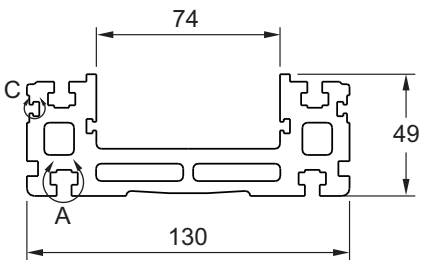
L = 120 + STROKE + 200 + 20 + 15

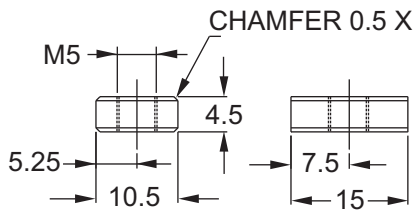


DETAIL A
SCALE 2:1



DETAIL C
SCALE 2:1



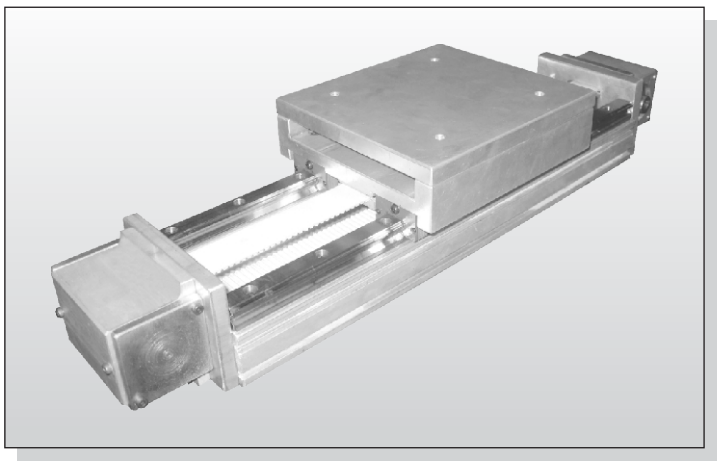


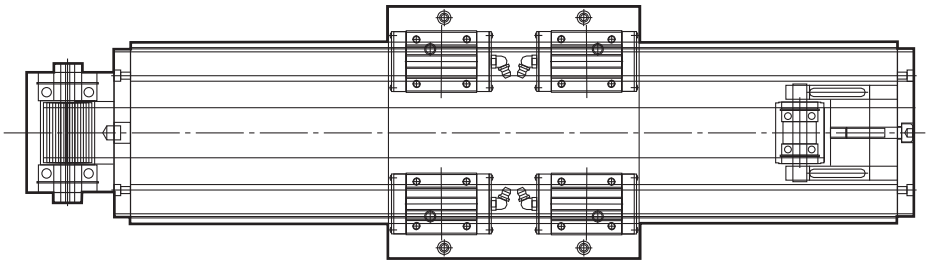
T - NUT

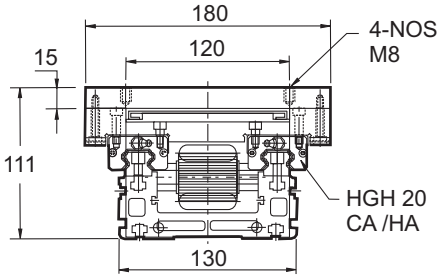
Linear Guide Wages	Basic Dynamic load rating	Basic Static load rating
	C (KN)	C_o (KN)
HGH 20CA	17.75	37.84
HGH 20HA	21.18	48.84

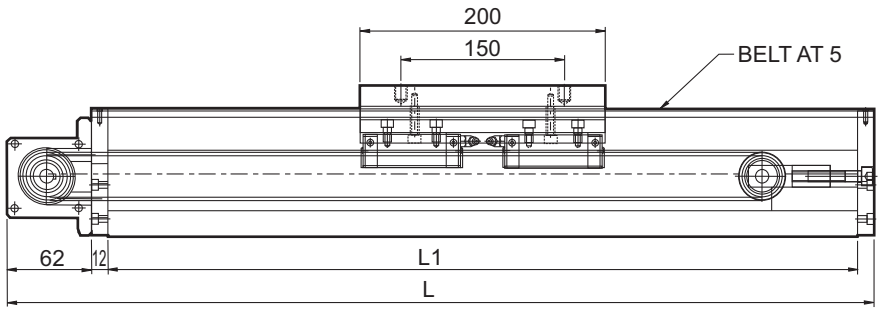
DRUPE
AUTOMATION SIMPLIFIED

LM SLIDE UNIT - TYPE LMX WITH TIMER BELT



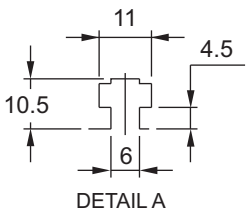




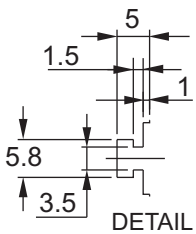


Total L = Motor Pulley End + 1st Cover End + Stroke + Top Plate + Pulley End + 2st Cover End +Safety

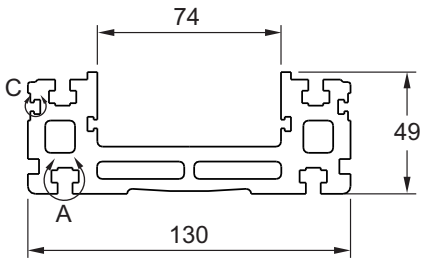
L = 62 + 12 + Stroke + 200 + 100 + 12 + 15

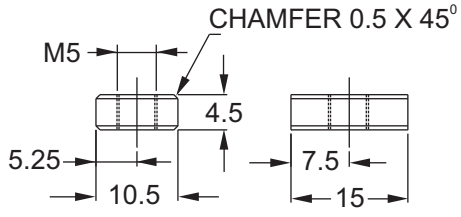


DETAIL A
SCALE 2:1



DETAIL C
SCALE 2:1

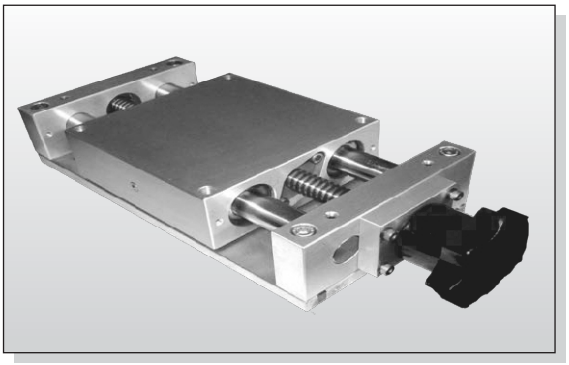


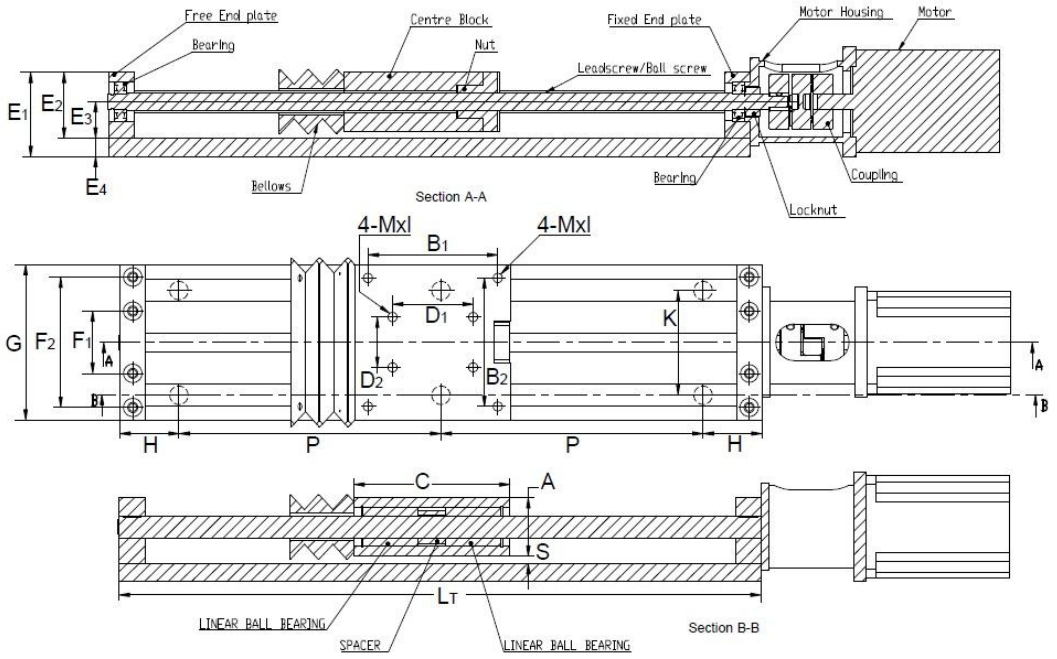


T - NUT

Linear Guide Wages	Basic Dynamic load rating	Basic Static load rating
	C (KN)	C_o (KN)
HGH 20CA	17.75	37.84
HGH 20HA	21.18	48.84

LMCB SLIDE UNITS



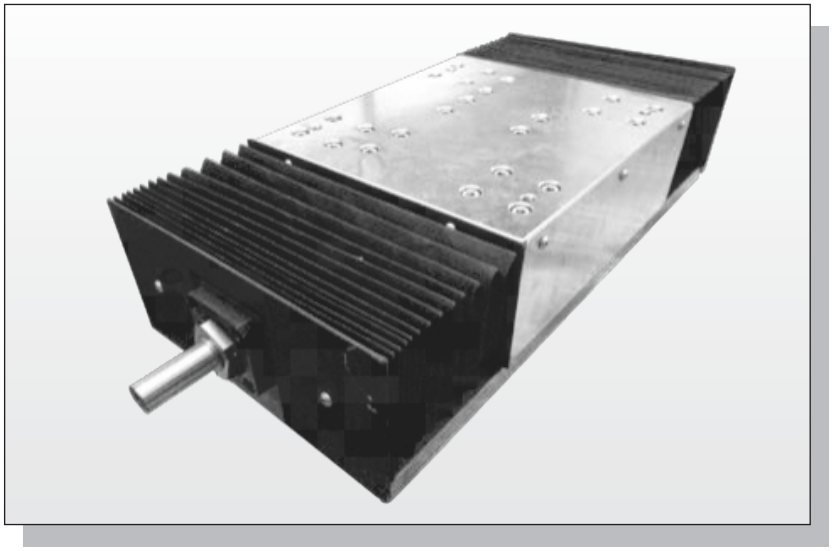


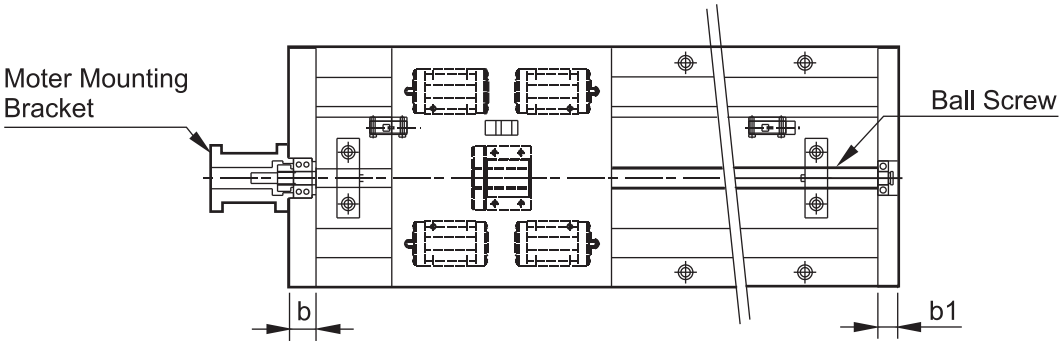
A = Height of Centre Block.
E1 = Total height from bottom of Base Plate to the top of End Plate.
E2 = Height of Fixed End Plate / Free End Plate.
E3 = Distance between Centre line of Ball Screw to the top of Base Plate.
E4 = Thickness of Base Plate.
S = Clearance between Centre Block and Base Plate.
C = Length of Centre Block.
LT = Total length of Slide.
4-MxI = Job Mounting Bolts.

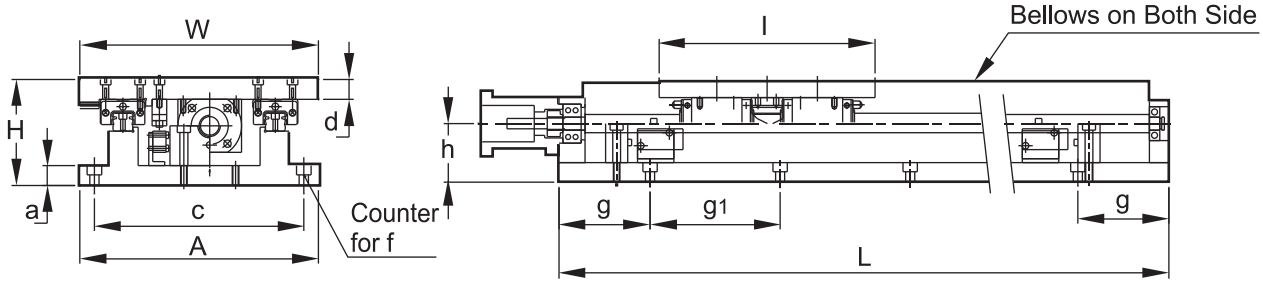
D1 / D2 = Job mounting holes.
B1 / B2 = Job mounting holes.
F1 / F2 = Mounting Holes for End Plates.
G = Width of Fixed End Plate / Free End Plate / Centre Block.
K = Pitch for mounting Base Plate.
H = Distance from both end for mounting Base Plate.
N = Number of sets.
P = Pitch.

Models	Stroke	Dimensions(mm)																			Shaft	Ball Screw	Lead Screw	Bellows		Load Capacity (kgf)	
		A	E1	E2	E3	E4	S	C	LT (roundoff)	D1	D2	B1	B2	M x l	F1	F2	G	K	H	N x P	Length			Expansion	Compress	DYN (C)	STAT (Co)
LMCB 12	100	32	46	36	20	10	4	85	285	50	28	--	--	M6 x 12	34	--	85	60	42.5	3 x 100	285	R12-2	Tr 10 x 3	125	25	130	190
	150	32	46	36	20	10	4	85	350	50	28	--	--	M6 x 12	34	--	85	60	25	4 x 100	350	R12-2	Tr 10 x 3	183	33	130	190
	200	32	46	36	20	10	4	85	415	50	28	--	--	M6 x 12	34	--	85	60	57.5	4 x 100	415	R12-2	Tr 10 x 3	240	40	130	190
	250	32	46	36	20	10	4	85	480	50	28	--	--	M6 x 12	34	--	85	60	40	5 x 100	480	R12-2	Tr 10 x 3	298	48	130	190
	300	32	46	36	20	10	4	85	545	50	28	--	--	M6 x 12	34	--	85	60	72.5	5 x 100	545	R12-2	Tr 10 x 3	355	55	130	190
LMCB 16	100	36	48	38	20	10	2	100	310	--	--	90	90	M6 x 8	--	88	100	80	55	3 x 100	310	R12-5	Tr 12 x 4	125	25	250	380
	150	36	48	38	20	10	2	100	375	--	--	90	90	M6 x 8	--	88	100	80	37.5	4 x 100	375	R12-5	Tr 12 x 4	183	33	250	380
	200	36	48	38	20	10	2	100	440	--	--	90	90	M6 x 8	--	88	100	80	70	4 x 100	440	R12-5	Tr 12 x 4	240	40	250	380
	250	36	48	38	20	10	2	100	505	--	--	90	90	M6 x 8	--	88	100	80	52.5	5 x 100	505	R12-5	Tr 12 x 4	298	48	250	380
	300	36	48	38	20	10	2	100	550	--	--	90	90	M6 x 8	--	88	100	80	75	5 x 100	550	R12-5	Tr 12 x 4	355	55	250	380
LMCB 20	100	46	58	48	25	10	2	130	340	--	--	115	115	M8 x 16	--	108	130	100	70	3 x 100	340	R16-5	Tr 16 x 4	123	23	280	440
	150	46	58	48	25	10	2	130	400	--	--	115	115	M8 x 16	--	108	130	100	50	4 x 100	400	R16-5	Tr 16 x 4	179	29	280	440
	200	46	58	48	25	10	2	130	460	--	--	115	115	M8 x 16	--	108	130	100	30	5 x 100	460	R16-5	Tr 16 x 4	235	35	280	440
	250	46	58	48	25	10	2	130	525	--	--	115	115	M8 x 16	--	108	130	100	62.5	5 x 100	525	R16-5	Tr 16 x 4	291	41	280	440
	300	46	58	48	25	10	2	130	590	--	--	115	115	M8 x 16	--	108	130	100	45	6 x 100	590	R16-5	Tr 16 x 4	348	48	280	440

LM SLIDE UNIT TYPE - LMG



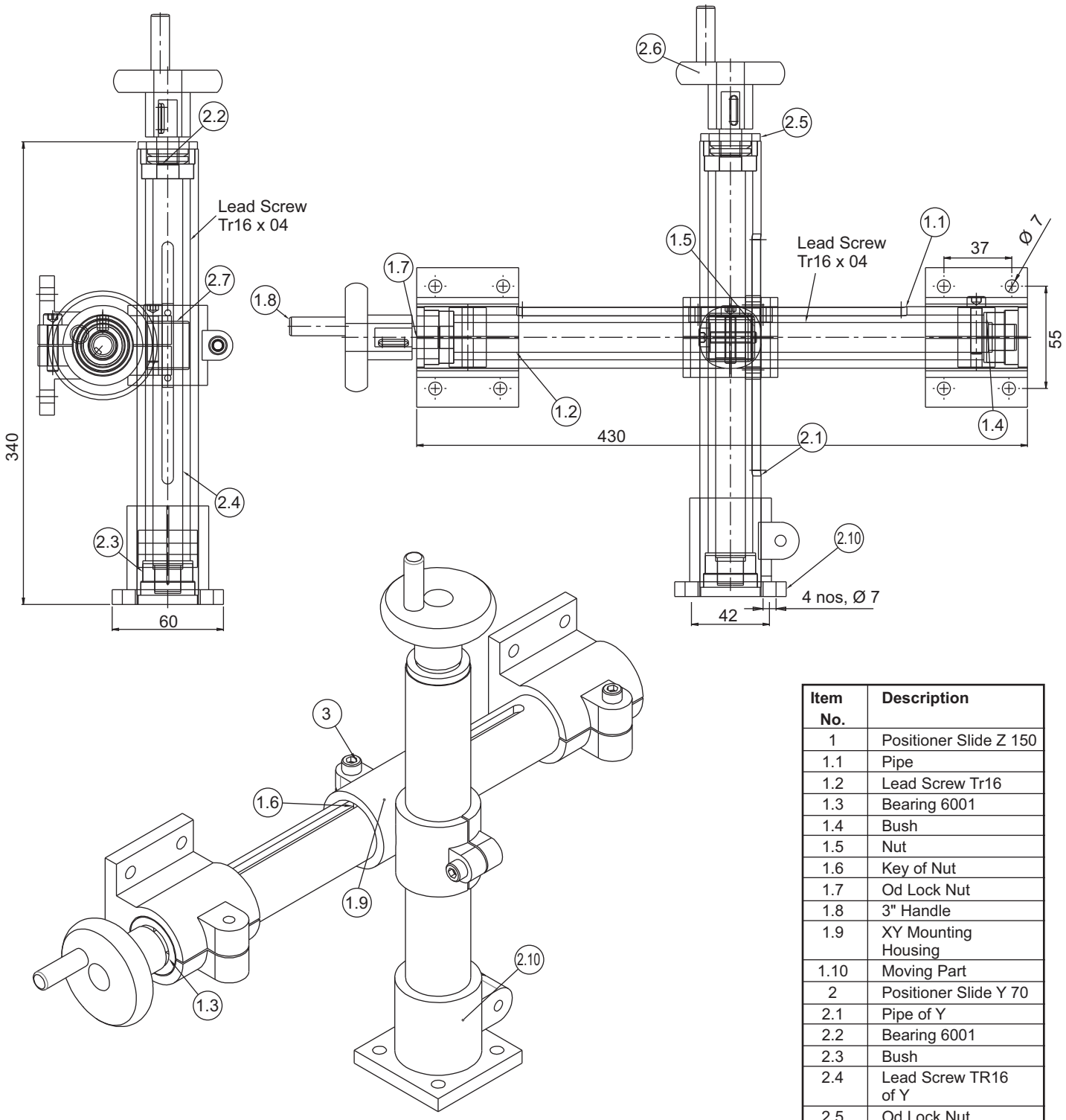




L=l+Stroke+b+b1+bellows

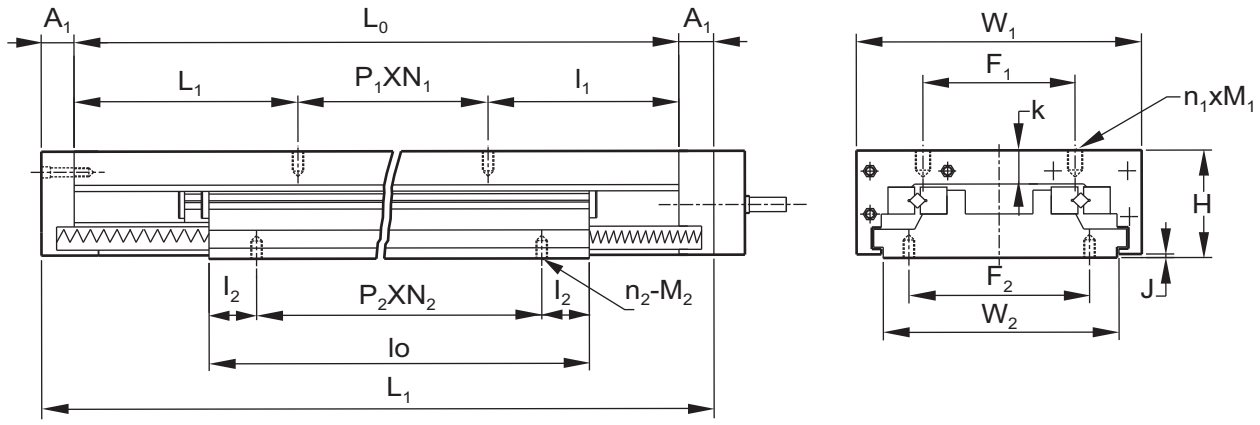
Model No.	Block & Guide	Ball Screw Dia	W	A	H	l	h	a	c	d	f	g	g1	b	b1
LMG 15	HGH 15 CA	16	205	205	83	150	45	15	175	20	M10	25	100	20	15
LMG 20	HGH 20 CA	20			84	180	47							25	20
LMG 25	HGH 25 CA	25	225	225	100	225	56	20	200	25	M12	50	150	30	
LMG 30	HGH 30 CA	32			109		58								

POSITIONER PIPE SLIDE



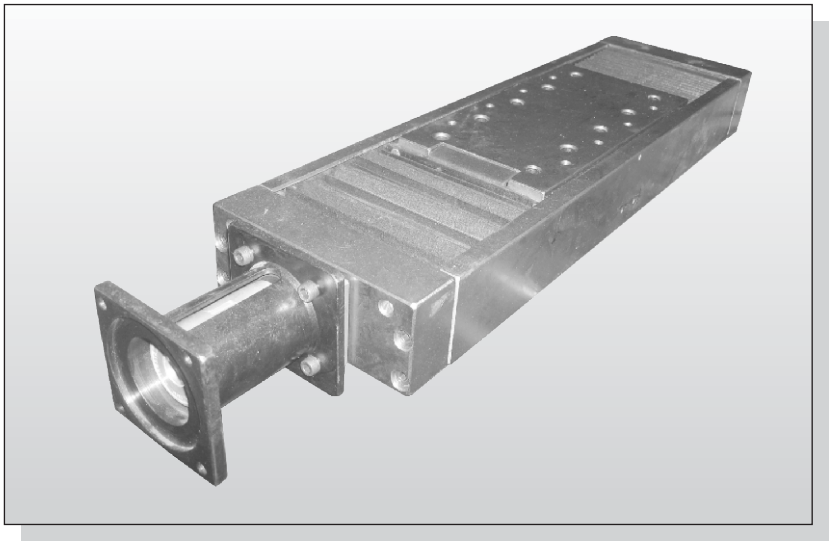
Item No.	Description
1	Positioner Slide Z 150
1.1	Pipe
1.2	Lead Screw Tr16
1.3	Bearing 6001
1.4	Bush
1.5	Nut
1.6	Key of Nut
1.7	Od Lock Nut
1.8	3" Handle
1.9	XY Mounting Housing
1.10	Moving Part
2	Positioner Slide Y 70
2.1	Pipe of Y
2.2	Bearing 6001
2.3	Bush
2.4	Lead Screw TR16 of Y
2.5	Od Lock Nut
2.6	3" Handle
2.7	Nut
2.8	Key of Nut
2.9	Km1 (m12x1)
2.10	Base
3	Allen Key Screw M6 X 25 L

DUST PROOF SLIDE



Model No. and Stroke	Main Dimensions								
	Without Ball Screws		Lo	lo	W_1	W_2	H	J	K
	L_1	A_1							
DS3050	185	15	155	100	100	78	40	2	12
DS3075	260		230	150					
DS3100	340		310	200					
DS3125	415		385	250					
DS6050	200	20	160	100	150	118	60		20
DS6100	350		310	200					
DS6150	500		460	300					
DS6200	660		620	400					
DS9100	360	25	310	200	200	160	80	3	25
DS9150	510		460	300					
DS9200	665		615	400					
Ds9300	970		920	600					

DUST PROOF SLIDE



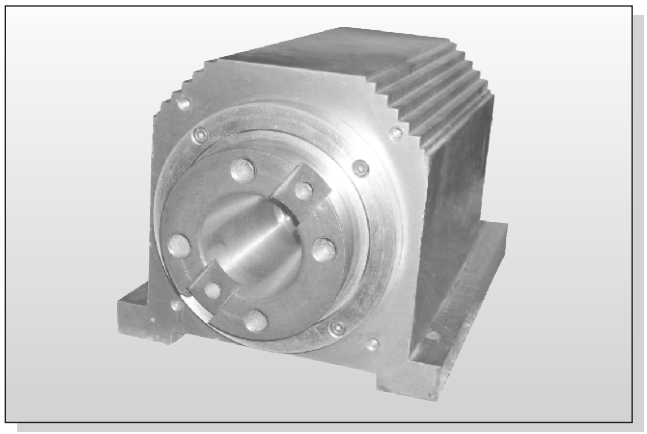
Dust Proof linear table consist of precision cross roller guides series R for smooth & precision movement. The top & bottom plates are made of low carbon steel/cast iron. The basic top plate construction & bellows make it extremely safe in adverse/stiff operating conditions. They are field proven & successfully working even in grinding applications.

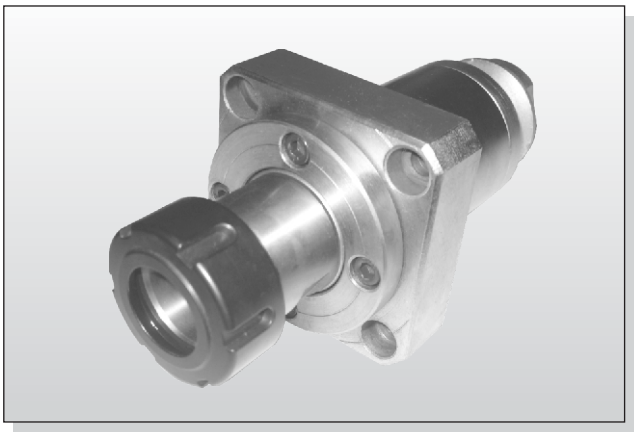
Special features upon request such as

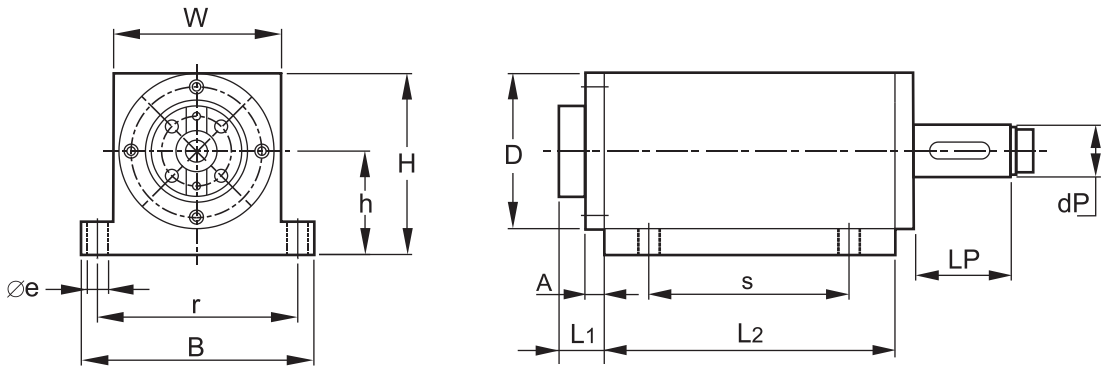
- Aluminium top & bottom for light weight.
- S.S. top & bottom for corrosive environment.
- Fitment of ball screws, pneumatic, hydraulic cylinder with respective drives.
- Surface finish Options : - blackodising, zinc plating, electroless nickel plating & powder coating etc.

Top Mounting Holes				Base Mounting Holes				Total Weight KgF
l_1	P_1 xN_1 xF_1	n_1	M_1	l_2	P_2xN_2xF_2	n_2	M_2	
52.5	50 x 1 x 50	4	M5	25	50 x 1 x 65	4	M5	4.1
65	50 x 2 x 50	6			50 x 2 x 65	6		5.7
80	50 x 3 x 50	8			50 x 3 x 65	8		7.4
92.5	50 x 4 x 50	10			50 x 4 x 65	10		9.1
30	50 x 2 x 80	6	M6		50 x 1 x 95	4	M6	10.2
105	50 x 2 x 80			50	50 x 2 x 95	6		17.6
130	50 x 4 x 80	10			50 x 4 x 95	10		25.1
160	50 x 6 x 80	14			50 x 6 x 95	14		32.8
80	50 x 3 x 100	8	M8		100 x 1 x 130	4	M8	31.6
155	50 x 3 x 100				100 x 2 x 130	6		44.4
182.5	50 x 5 x 100	12			100 x 3 x 130	8		58.4
260	100 x 4 x 100	10			100 x 5 x 130	12		83.3

SPINDLE UNITS





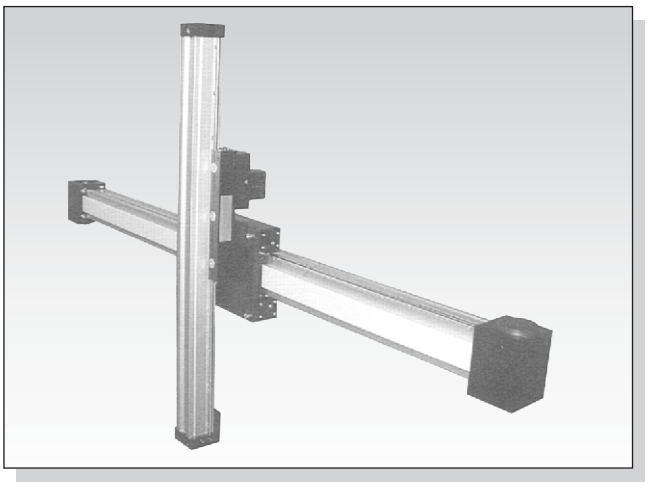


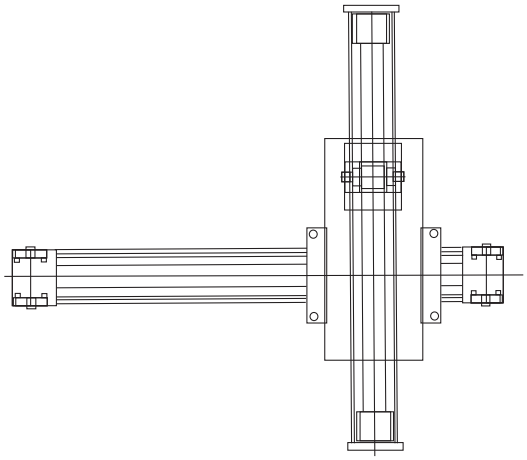
The spindles are manufactured with the intention of the requirements / demands of modern technology i.e. speed and accuracy. To meet this need of spindles it is drawing the experience of people who are working in machine tool industry for the last twenty years. The spindles are designed to meet specific requirements like running accuracies, rigidity and temperature.

The heart of spindle is shaft which is hardened, to impart strength in bending. The ends are machined to match machines like turning, milling, drilling boring etc. The housing is made of high quality cast iron which helps in reducing vibration and eases heat dissipation. Special care is taken for other parts machining with geometrical accuracy. The housing are cylindrical, flange type mounting, or rectangular base mounting.

Spindle Head No.	For Milling Nose Taper ISO	Dimensions												
		D	B	Lp	dp	A	h	H	L_1	L_2	W	r	s	∅e
3	30	120	165	60	40	15	80	140	35	225	130	105	175	11
4	30/40	150	205	75	50	20	100	175	47	285	160	130	235	
5	40/50	180	250	110	70		125	215	50	350	200	170	300	13
6	50	230	290	125	90		160	275	56	420	250	210	370	
8	60	300	370	150	110	26	200	350	75	570	315	265	520	
11	60	380	495	200	150	40	250	440	95	690	400	340	640	

APPLICATION EXAMPLES





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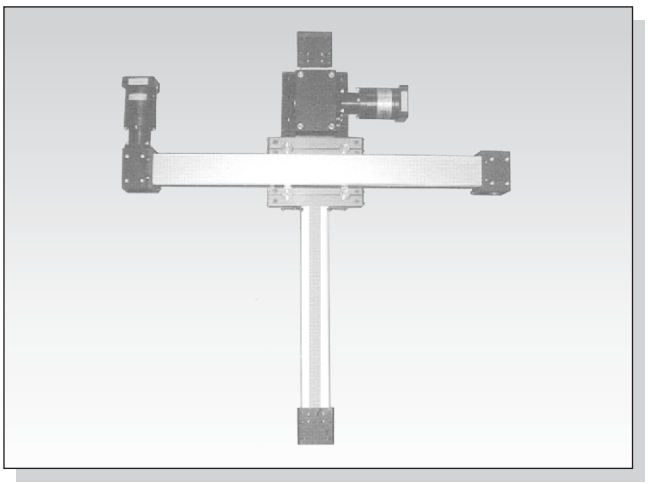

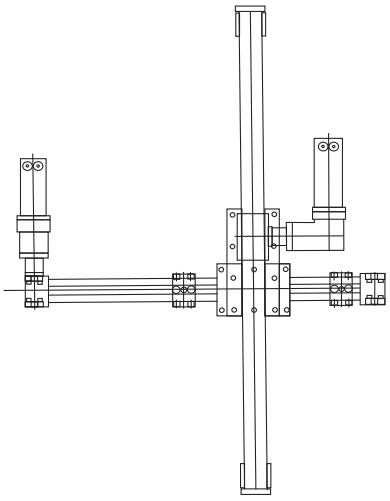

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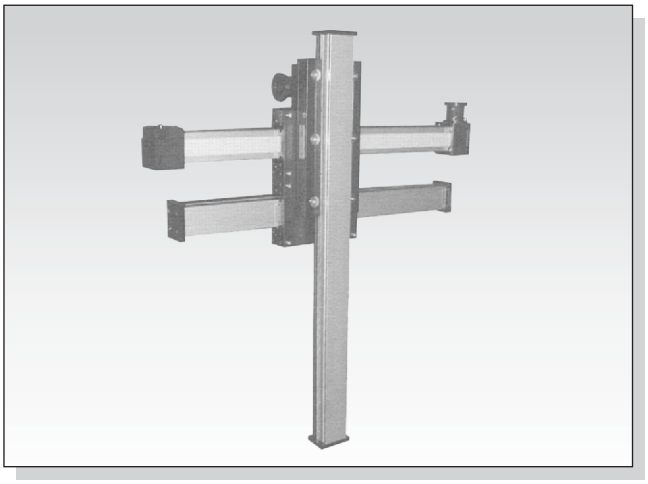

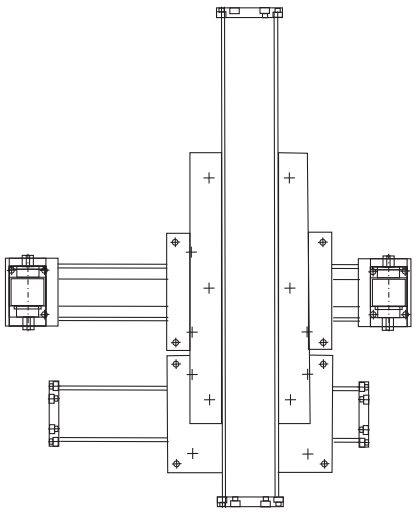

F

DRUPE
AUTOMATION SIMPLIFIED

REQUEST FORM

Request for quotation

Customer Name		Date	: .....
.....		Phone	: .....
Address		Fax	: .....
.....		Email	: .....
.....		Country	: .....
.....		Delivery Point	: .....
.....		Quantity	: .....

Desired Delivery Date:

Type of Slide
1. Horizontal
2. Vertical
3. 3 Axis (X,Y,Z)

Required Specification

1. Slide Name
2. Load
3. Stroke
4. Application
   - i) Horizontal
   - ii) Vertical
   - iii) 3 Axis (X,Y,Z)
5. Speed
6. Motor Power
7. R.P.M.
8. Acceleration
9. Gear Box
10. Accuracy
11. V.F.D.

Customer special requirements