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Gilman Brand Slides

Manufacturing customized solutions for linear and rotary motion since 1952.

Gilman Precision slide assemblies are designed and built from the highest quality of materials and components to promote smooth, accurate, and long-life operation. Gilman Precision standard stock slide assemblies give you substantial dollar savings wherever in-line precision movements are required in your special or semi-special mechanical equipment. Gilman Precision slide modules can be easily assembled together or with other Gilman modular components to build special production machines quickly and efficiently.

Take advantage of exclusive Gilman Precision technologies and craftsmanship. Whether your end application is a special machine or an OEM product line, Gilman Precision will provide you with responsive engineering; precision manufacturing; and prompt, efficient after-sale service. View our line of standard slides, ranging in sizes and speeds, as well as a variety of slide accessories in configuration, or discuss your customized needs with one of Gilman's application engineers for a custom-designed slide.

Complete Slide Selection

Customized solutions to increase efficiency and productivity.

DOVETAIL SLIDES

Dovetail slides provide simple and cost effective solutions for precise movement and tool positioning, whether your end application is a special machine or an OEM product line. Dovetail slides typically have a larger contact area compared to other style slide systems, which provides a high stiffness and load bearing capacity. Dovetail slides can be preloaded with gib adjustment for reduced end play.

- L & H tool slide line standard & metric:
- 2", 3", 4", 6", 8" widths
- Lead screw drives
- Off-the-shelf product
- ND line:
 - 4", 6", 8", 10" widths
 - Saddle travels of 4", 6", 8", 10"
 - Reversible screw drive end and gib side
 - Includes holes for mounting and compounding
 - Matching angle brackets
- CP line:
 - 4", 6", 8" widths
 - Air or hydraulic cylinder drives
 - Plate mounted
- DC line:
 - 2" to 20" widths
 - Travel and slide lengths built-to-order
 - Several drive styles

HARDENED STEEL WAY SLIDES

Hardened steel way slide assemblies provide substantial dollar savings for the effective and economical in-line precision movements required in your special or standard mechanical equipment. They are commonly used for high production and heavy duty applications.

- Basic and drive equipped:
 - 5" to 32" widths
- Travel and slide lengths built-to-order
- Several drive styles
- Production cycle durability
- Good for heavy machining applications

LINEAR GUIDE SLIDES

Linear guide slides are designed for precise, low-friction linear movement and are available in roller or ball designs. These linear slides can receive loads in any direction and achieve linear movement with extremely high accuracy while providing exceptionally smooth operation.

- Built-to-order
 - 7" to 24" widths
- Ball or roller styles
- Used for high-precision, high-speed applications
- High-speed drives
- Preloaded bearings
- Smooth, fast, and extremely accurate positioning performance due to low friction
- Uniform and low coefficient of friction allows smaller drives and motors

Application Engineering Data

1. Tolerances

Dovetail Slide Tolerances									
Overall he	ight		= ± .005 in						
ND Se	ction		= ± .010 in						
Vertical tra	acking: প								
Milled or	ND Section		= .001 in/ft						
Scraped			. = .0005 in/ft						
Horizontal	tracking: 🕑								
Milled or	ND Section		= .001 in/ft						
Scraped			. = .0005 in/ft						
Parallelisn	n: 🖓								
Saddle to	base		= .001 in/ft						
G 二	.0005 in/ft	н 🗖	.0005 in/ft						

Hardened Steel Way Slide Tolerances								
Overall height Vertical tracking (*) Horizontal tracking (*) Parallelism: (*) Saddle to base	= ± .005 in = .0005 in/3ft = .0005 in/3ft = .001 in/ft							
G0005 in/ft	H0005 in/ft							

Linear Roller or Ball B	earing Slide Tolerances
Overall height Vertical tracking (A) Horizontal tracking (B) Parallelism: (C)	= ± .005 in = .0003 in/ft = .0003 in/ft
Saddle to base	= .0005 in/ft
Perpendicularity: 🕩	
Base end	= .001 in
G0005 in/ft	H0005 in/ft



2. Slide Mounting

The drawings below show the most common mounting positions of Gilman slides. When slides are mounted other than horizontal, the load capacity changes, and in some cases, the lubrication holes and grooves have to be altered.

Specify if mounting is other than horizontal when ordering.





Application Engineering Data

GILMAN SLIDE SYSTEMS

3. Lubrication

Dovetail & Hardened Way Lubrication

Use these charts and formulas as a guide to determine the lube area or the amount of lubrication required for the slide. Lubrication requirements may vary depending on your application. Consult the factory for further assistance.

- SL = Saddle length (inches)
- T = Travel (inches)
- A = Number of lube points
- B = Solid side way width (inches)
- C = Gib side way width (inches)
- D = Lube factor (cc/in-hr)
- LB = Lube area/lube point solid side (in²)
- LC = Lube area/lube point gib side (in²)
- LD = Lube req. (cc/hr)

$$LB = \frac{(SL)(B)(2)}{2}$$

$$LC = \frac{(SL)(C)(2)}{A}$$

 $LD = (SL_{A}T)(D)$

Mobil Vactra #2 oil or equivalent is recommended for lubricating Dovetail and Hardened way slide ways. Do not use grease!



LG9: .20 cc. oil at 8 min. intervals, **or** .40 cc. oil at 15 min. intervals LG12: .30 cc. oil at 8 min. intervals **or** .60 cc. oil at 15 min. intervals LG15: .50 cc. oil at 8 min. intervals **or** 1.00 cc. oil at 15 min. intervals LG18: .75 cc. oil at 8 min. intervals **or** 1.50 cc. oil at 15 min. intervals LG 24: 1.00 cc. oil at 8 min. intervals **or** 2.00 cc. oil at 15 min. intervals





В

Model	В	С	D
DC2	1.0	1.0	.08
DC3	1.1	1.1	.09
DC4	1.4	1.4	.11
DC6	1.9	1.9	.15
DC8	2.2	2.2	.18
DC10	3.2	3.2	.25
DC12	3.5	3.5	.28
DC16	5.5	4.8	.44
DC20	6.2	5.5	.50

DOVETAIL LUBRICATION

HARDENED WAY LUBRICATION									
Model	В	С	D						
HWS5	.88	.50	.11						
HWS7, HWL7	1.19	.75	.16						
HWS9, HWL9	1.38	.75	.17						
HWS12, HWL12	2.12	1.12	.26						
HWS15, HWL15	2.88	1.50	.35						
HWS18, HWL18	3.25	1.75	.40						
HWS24, HWL24	3.75	1.75	.44						
HWS32	3.75	1.75	.44						

Linear Guide Lubrication

Grease (lithium-soap base) lubrication: slides operating under heavy loads are recommended to use grease containing extreme pressure additive

Oil lubrication: slides operating under heavy loads require high viscosity oil; slides operating under high speeds requires lower viscosity

Heavy loads/High moment loads: 68 cSt lubricating oil

Light loads/High operation speeds/Extremely smooth movement: 13 cSt kinematic oil lubrication



SL	А
2-12	2.0
13-24	4.0
25-36	6.0

4. Slide Thrust & Torque

The force required to power the slide assembly ($F_{_H}$ and $F_{_V}$) includes the force to overcome all external loads, as shown under "Slide Loading" (pages 8-9), plus the force required to power the saddle assembly, times a factor of safety. The factor of safety (depending on the type of drive used, see "FS" below) is applied to ensure sufficient power to move the load and overcome friction due to variables such as lubrication, machining tolerances, finish, etc.

The torque required to accelerate or decelerate the slide is dependent upon the moving weight, screw size, the force applied to the slide, and the rate of acceleration or deceleration. Please consult the motor manufacturer you selected for this analysis.

The thrust values obtained from the calculation must be checked against the maximum thrust capacities for the drive model being used. If acceleration time is critical or speeds above 350 ipm are required, please consult the factory for power requirements.

Slide Thrust & Torque Definitions

- F_{H} = Force req. to power slide horizontally (lbs)
- F_v = Force req. to power slide vertically (lbs)
- F_D = Force req. to overcome saddle drag (lbs)

10 lbs - 100 lbs Drag force is affected by several factors including gib adjustment, way wipers, way covers, lubrication, and slide size. Use lower values for smaller slides and higher values for larger slides.

- F_{SLH} = Force to power saddle weight horizontally (lbs)
- F_{SLV} = Force to power saddle weight vertically (lbs)
- F_L = Force to overcome loads L_D , L_U , L_S (lbs)
- F_{ML} = Force to overcome moment M_L, and load P (lbs)
- F_{MW} = Force to overcome moment M_w, and load P (lbs)
- F_{MT} = Force to overcome moment M_T, and load P (lbs)
- FS = Factor of safety

Manual drives = 1.5

Lead screw drives = 2

Hydraulic cylinder drives = 2.5

- Air cylinder drives = 3
- μ = Coefficient of friction with lubrication
 - Dovetail:
 - .25 milled
 - .20 scraped
 - .08 low friction bearing material
 - Hardened Way:
 - .25 cast iron on hardened steel
 - .08 low friction bearing material

Linear Rail:

- .01 for roller or ball element
- .08 low friction bearing material
- SL = Saddle length (inches)
- W_{SL} = Weight of saddle (lbs/in)
- H = Distance across dovetail or ways (inches) See Chart
- T_{H} = Torque to power slide horizontally (in-lbs)
- T_v = Torque to power slide vertically (in-lbs)
- T_D = Torque to overcome drag of screw assembly See chart (in-lbs)
- K = Screw constant .64 acme screw .20 ball screw
- L = Lead of screw (in/rev) See slide specification data

	T _p (in-lbs)						
Model	Acme screw	Ball screw non- preloaded nut	Ball screw preloaded nut				
DC4	8	5					
DC6	8	5	7				
DC8	8	5	7				
DC10	13	10	12				
DC12	15	12	14				
DC16	15	12	14				
DC20	18	15	17				
HWS5, HWL7	8	5					
HWL9	11	5	10				
HWS7, HWL12	16	10	15				
HWS9, HWL15	18	12	17				
HWS12, HWL18	19	12	17				
HWS15, HWS18, HWL24	21	15	20				
HWS24, HWS32	26	20	25				

Thrust calculations [‡] :	Torque calculations:
$\begin{split} F_{H} &= (F_{D} + F_{SLH} + F_{L} + F_{ML} + F_{MW} + F_{MT})FS \\ F_{V} &= (F_{D} + F_{SLV} + F_{L} + F_{ML} + F_{MW} + F_{MT})FS \\ F_{SLH} &= (\mu)(W_{SL})(SL) \\ F_{SLV} &= (W_{SL})(SL) \\ F_{L} &= (\mu)(L_{D} + L_{U} + L_{S}) \\ F_{ML} &= (3\mu)(M_{L} / SL) + P \\ F_{MW} &= (2\mu)(M_{W} / H) + (\mu)(P) \\ F_{MT} &= (3\mu)(M_{T} / SL) + P \end{split}$	$T_{H} = T_{D} + (K)(F_{H})(L)$ $T_{V} = T_{D} + (K)(F_{V})(L)$

‡ All forces, loads, and moments must be added using correct signs positive or negative.



Horizontal mount

Model	Н
DC4	3.03
DC6	4.50
DC8	5.81
DC10	7.19
DC12	8.59
DC16	11.06
DC20	13.56
HWS5	3.62
HWL7, HWS7	5.12
HWL9, HWS9	6.75
HWL12, HWS12	9.00
HWL15, HWS15	11.25
HWL18, HWS18,	13.50
HWL24, HWS24	18.00
HWS32	24.00

Application Engineering Data GILMAN SLIDE SYSTEMS

5. Slide Loading

Use this data as a guide to determine the size of a slide for a particular application. All values are for uniformly distributed loads and moments, and the saddle is assumed to be a rigid member. Some conditions may allow the use of higher load values (e.g. rough machining or positioning applications), while other conditions dictate the use of lower values (e.g. precision boring or grinding applications). For saddle lengths longer than two times the width, and if deflections are critical, please consult the factory for load capacity.



HARDENED WAY







5. Slide Loading Continued

	Load Factors											
Model	Ľ)	ι	J	S	\$	۷	V	-	-	L	-
	Static	Dyn.	Static	Dyn.	Static	Dyn.	Static	Dyn.	Static	Dyn.	Static	Dyn.
L2, DC2, L50	326	65	134	27	116	23	76	15	39	8	63	13
L3, DC3, L75	379	76	134	27	116	23	131	26	39	8	66	13
ND4, L4, H4, CP4, DC4	479	96	173	35	150	30	233	47	50	10	85	17
L6, L150	634	127	173	35	150	30	362	72	50	10	91	18
ND6, H6, CP6, DC6	677	135	217	43	188	38	444	89	63	13	109	22
ND8, H8, CP8, DC8	886	177	217	43	188	38	586	117	63	13	116	23
ND10, DC10	1208	242	346	69	300	60	1135	227	100	20	179	36
DC12	1388	278	346	69	300	60	1377	275	100	20	185	37
DC16	2025	405	520	104	450	90	2438	488	150	30	281	56
DC20	2475	495	520	104	450	90	3088	618	150	30	290	58
HWS5	525	105	112	22	150	30	204	41	50	10	62	12
HWS7, HWL7	712	142	187	37	225	45	480	96	75	15	99	20
HWS9, HWL9	825	165	225	45	225	45	759	152	75	15	118	23
HWS12, HWL12	1275	255	300	60	337	67	1350	270	112	22	162	32
HWS15, HWL15	1725	345	450	90	450	90	2531	506	150	30	238	47
HWS18, HWL18	1950	390	525	105	525	105	3543	708	175	35	276	55
HWS24, HWL24	2250	450	600	120	525	105	5400	1080	175	35	316	63
HWS32	2250	450	600	120	525	105	7200	1440	175	35	316	63

- A = Slide width (inches)
- D = Down load factor
- L_{D} = Vertical load down (lbs)
- $L_s =$ Horizontal load side (lbs)
- L_{u} = Vertical load up (lbs)
- L = Length moment load factor
- M_{L} = Moment about saddle length (lbs)
- M_{T} = Moment about plane of saddle top (lbs)
- $M_w =$ Moment about saddle width (lbs)
- P = Load producing moment (lbs)
- s = Side load factor
- T = Top moment load factor
- U = Up load factor
- W = Width moment load factor
- X = Distance from load P to slide way (inches)
- Y = Distance from load P to slide way (inches)
- Z = Distance from load P to center line of slide (inches)
- SL = Saddle length engaged on base (inches)

Note: Consult the factory for linear guide slide loading capacity

Maximum load calculations:

- L_{D} max. = D x SL (lbs)
- L_{U} max. = U x SL (lbs)
- L_s max. = S x SL (lbs)

Maximum moment calculations:

- $M_w max. = W \times SL (in lbs)$
- $M_T max. = T x (SL)^2 (in lbs)$
 - $M_L max. = L x (SL)^2 (in lbs)$



Dovetail Slides

For movement, tool positioning, and other linear processes.

L, H, ND, CP, DC, & METRIC SLIDE SYSTEMS

L SECTION ENGLISH & METRIC

Basic English12
Basic Metric
Lead Screw English14
Lead Screw Metric
Lead Screw Compound English16
Lead Screw Compound Metric
Lead Screw with Angle Bracket English
Lead Screw with Angle Bracket Metric

H SECTION ENGLISH & METRIC

Basic English	20
Basic Metric	21
Lead Screw English 2	22
Lead Screw Metric 2	23

ND SECTION

Dovetail Slide Basic Parts

- Lubrication fitting: For pressure gun lubrication. Fittings can be removed for manual or automatic lubrication systems. See accessories for available lubrication systems. Passages drilled in slide allow lubricant to get to vital way surfaces to reduce friction and promote long life. Lubricate with *Mobil Vactra #2* oil or equivalent. Note: Lubrication fittings are standard on all dovetail slide assemblies except the L, H and ND assemblies.
- Saddle: Moving member and female section. Manufactured from 40,000 psi close grain cast iron normalized for maximum stability.
- **3. Base:** Stationary member and male section. Made from 40,000 psi close grain cast iron, normalized for maximum stability.
- **4. Gib:** Adjustable member for setting side clearance between ways and saddle. Manufactured from low carbon steel.
- **5. Gib Screw:** Special socket head screws, properly spaced along one side of the saddle for adjusting the gib.
- 6. Gib Screw Nut: Locks the gib screw in place to maintain the adjustment on the gib.

Ordering DC Slide Systems

Manufacturing customized solutions for linear and rotary motion since 1952.

Building the Slide Model Number:

1. Select Section & Model Width

This is the width (in inches) of the slide. Refer to the data charts for specific dimensions.

2. Select Saddle Length

This is the length (in inches) of the slide saddle. Refer to the data charts for specific dimensions.

3. Select Base Length

This is the length (in inches) of the slide base. Refer to the data charts for specific dimensions.

$\frac{\text{DC8}}{1.} - \frac{12}{2.} - \frac{22}{3.} - \frac{\text{S}}{4.} - \frac{\text{H2}}{5.} - \frac{7}{6.}$ With way wipers

4. Determine the Way Surface Slide surfaces can be either milled or scraped. Indicate the

surface type you prefer with either an "M" or "S" designation.

5. Choose a Slide Drive Type

Select a slide drive type to fit your variety of applications. Omit if ordering a slide without a drive.

6. Select the Travel

Specify the distance (in inches) that the saddle will travel.

7. Select Accessories

Accessories must be specified when ordering. Be sure to include any additional information required when ordering.

1.	Slic	le Se	ectio	n &	Mode	el Wi	dth			
DC2	DC3	DC4	DC6	DC8	DC10	DC12	DC16	DC20	Description	Code
2.	& 3.								Saddle &	Base Length
									See catalog for min. & max. lengths	‡
4.										Way Surface*
									Milled	М
									Scraped	S
5.									Slide	Drive Type ∆
									Acme screw in-line hand-wheel	A1
									Acme screw in-line keyed shaft	B1
									Acme screw in-line hex. shaft	C1
									Acme screw right angle hand-wheel	E1
									Acme screw right angle keyed shaft	F1
									Acme screw right angle hex. shaft	G1
									Rolled ball screw non-preloaded nut	D11
									Precision rolled ball screw preloaded nut (metric)	D12
									Ground ball screw preloaded nut (metric)	D14
									Rolled ball screw non-preloaded nut w/ motor mount	M11
									Precision rolled ball screw preloaded nut (metric) w/ moto	r mount M12
									Ground ball screw preloaded nut (metric) w/ motor mount	M14
									Hydraulic Cylinder	H1
		\bullet		ullet				•	Hydraulic cylinder stop rod	H2
									Hydraulic cylinder two position	H3
									Air cylinder	P1
		•		•	•		lacksquare		Air cylinder stop rod	P2
					•				Air cylinder two position	P3
									Air cylinder hydraulic check stop rod	P4
6.										Travel
									See catalog for min. & max. lengths	‡

‡ Specify saddle length, base length, and travel in inches. Δ Specify maximum traverse rate for ball screw slides. Saddle in (imp) or ball screw in (rpm). * Specify scraped way surface for all ball screw and cylinder powered slides.

Check to see that each code symbol in the model number is indicated under the size selected and to the left in the column under the assembly selected. These are the slide assemblies that are available. We can give prompt, accurate service if complete information is provided with the order. If you have any questions, please telephone our Sales Engineering Department: (800) 455-6267. L Section

LOW PROFILE BASIC

Basic slide assemblies consist of a saddle, base, gib, and gib adjusting screws. They are designed for installations where the means of movement, mounting, and all other details are provided by the customer.

Applications

• Load induced into assembly is moderate

• Compact design is essential

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

Low profile basic dovetail slide assemblies are offered in 12 standard sizes as shown in the chart below. Base lengths other than shown are available. Consult the factory for larger sizes.

BASIC

Mc	del	Dimens	Dimensions (inches)								
Milled	Scraped	А	В	С	D	Е	(lbs)				
L2-3- ³ / ₄ -M	L2-3- ³ / ₄ -S	2	3	³ / ₄	7/ ₈	5/8	1 ¹ / ₄				
L2-4-1-M	L2-4-1-S	2	4	1	7/ ₈	⁵ /8	1 ³ / ₄				
L2-6-2-M	L2-6-2-S	2	6	2	7/ ₈	5/8	2 ¹ / ₄				
L3-4-1-M	L3-4-1-S	3	4	1	1	¹¹ / ₁₆	2 ³ / ₄				
L3-5-1-M	L3-5-1-S	3	5	1	1	11/16	3 ¹ / ₂				
L3-6-2-M	L3-6-2-S	3	6	2	1	11/ ₁₆	3 ³ / ₄				
L4-6-1-M	L4-6-1-S	4	6	1	1 ¹ / ₂	³¹ / ₃₂	8 ¹ / ₂				
L4-8-2-M	L4-8-2-S	4	8	2	1 ¹ / ₂	³¹ / ₃₂	10 ¹ / ₂				
L4-12-3-M	L4-12-3-S	4	12	3	1 ¹ / ₂	31/32	16 ¹ / ₂				
L6-8-2-M	L6-8-2-S	6	8	2	1 ³ / ₄	1 ³ / ₃₂	19				
L6-12-4-M	L6-12-4-S	6	12	4	1 ³ / ₄	1 ³ / ₃₂	27				
L6-16-4-M	L6-16-4-S	6	16	4	1 ³ / ₄	1 ³ / ₃₂	38				

Gib lock handle available at additional cost (two on 16" long saddle).

LOW PROFILE BASIC









METRIC LOW PROFILE BASIC

Basic slide assemblies consist of a saddle, base, gib, and gib adjusting screw. They are designed for installations where the means of movement, mounting, and all other details are provided by the customer.

Applications

- Load induced into the assembly is moderate
- Compact design is essential

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

Low profile basic dovetail slide assemblies are offered in 12 standard sizes as shown in the chart below. Base lengths other than shown are available. Consult the factory for larger sizes.

METRIC BASIC

Mc	odel	Dimens	Dimensions (millimeters)							
Milled	Scraped	А	В	С	D	Е	(kgs)			
L50-75-20-M	L50-75-20-S	50	75	20	22	16	0.6			
L50-100-25-M	L50-100-25-S	50	100	25	22	16	0.8			
L50-150-50-M	L50-150-50-S	50	150	50	22	16	1.0			
L75-100-25-M	L75-100-25-S	75	100	25	25	17	1.2			
L75-125-25-M	L75-125-25-S	75	125	25	25	17	1.6			
L75-150-50-M	L75-150-50-S	75	150	50	25	17	1.7			
L100-150-25-M	L100-150-25-S	100	150	25	38	25	3.9			
L100-200-50-M	L100-200-50-S	100	200	50	38	25	4.8			
L100-300-75-M	L100-300-75-S	100	300	75	38	25	7.5			
L150-200-50-M	L150-200-50-S	150	200	50	44	28	8.6			
L150-300-100-M	L150-300-100-S	150	300	100	44	28	12.2			
L150-400-100-M	L150-400-100-S	150	400	100	44	28	17.2			

Gib lock handle available at additional cost (two on 400 mm long saddle).







DOVETAIL SLIDE

Section

LOW PROFILE LEAD SCREW

These slide assemblies feature a precision lead screw, a graduated micrometer dial measuring in .001 inch of saddle travel, and a selection of drive ends.

"Style A" has a balanced crank handle for ease and speed in advancing or retracting the saddle. "Style B" is ideal where space is limited and a knurled knob is sufficient for adjustment.

Applications

Accurate manual positioning or feeding

Way Surfaces

Milled

Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

"Style A" will be furnished unless otherwise specified.

	odel										
Milled	Scraped	А	В	С	D	F†	G	Х	(lbs)		
L2-3- ³ / ₄ -M-L	L2-3-3/4-S-L	2	3	³ / ₄	7/8	5 ¹³ / ₁₆	3 ⁷ / ₈	⁵ / ₁₆ - 40 Vee	1 ³ / ₄		
L2-4-1-M-L	L2-4-1-S-L	2	4	1	7/ ₈	6 ¹³ / ₁₆	4 ⁷ / ₈	⁵ / ₁₆ - 40 Vee	2 ¹ / ₄		
L2-6-2-M-L	L2-6-2-S-L	2	6	2	7/8	8 ¹³ / ₁₆	6 ⁷ / ₈	⁵ / ₁₆ - 40 Vee	2 ³ / ₄		
L3-4-1-M-L	L3-4-1-S-L	3	4	1	1	6 ¹³ / ₁₆	4 ⁷ / ₈	⁵ / ₁₆ - 40 Vee	3 ¹ / ₄		
L3-5-1-M-L	L3-5-1-S-L	3	5	1	1	7 ¹³ / ₁₆	5 ⁷ /8	⁵ / ₁₆ - 40 Vee	4		
L3-6-2-M-L	L3-6-2-S-L	3	6	2	1	8 ¹³ / ₁₆	6 ⁷ / ₈	⁵ / ₁₆ - 40 Vee	4 ¹ / ₄		
L4-6-1-M-L	L4-6-1-S-L	4	6	1	1 ¹ / ₂	10 ¹ / ₈	7 ⁵ / ₈	¹ / ₂ - 20 Vee or ¹ / ₂ - 10 Acme*	9 ¹ / ₂		
L4-8-2-M-L	L4-8-2-S-L	4	8	2	1 ¹ / ₂	12 ¹ / ₈	9 ⁵ / ₈	¹ / ₂ - 20 Vee or ¹ / ₂ - 10 Acme*	11 ¹ / ₂		
L4-12-3-M-L	L4-12-3-S-L	4	12	3	1 ¹ / ₂	16 ¹ / ₈	13 ⁵ / ₈	$^{1}/_{2}$ - 20 Vee or $^{1}/_{2}$ - 10 Acme*	16 ³ / ₄		
L6-8-2-M-L	L6-8-2-S-L	6	8	2	1 ³ / ₄	12 ¹ / ₈	9 ⁵ / ₈	¹ / ₂ - 20 Vee or ¹ / ₂ - 10 Acme*	22		
L6-12-4-M-L	L6-12-4-S-L	6	12	4	1 ³ / ₄	16 ¹ / ₈	13 ⁵ / ₈	¹ / ₂ - 20 Vee or ¹ / ₂ - 10 Acme*	29		
L6-16-4-M-L	L6-16-4-S-L	6	16	4	1 ³ / ₄	20 ¹ / ₈	17 ⁵ / ₈	$1/_{2}$ - 20 Vee or $1/_{2}$ - 10 Acme*	40		

*Acme thread lead screw available at additional cost.

Gib lock handle available at additional cost (two on 16" long saddle).

†Dimensions are approximate.

LOW PROFILE LEAD SCREW



LEAD SCREW



METRIC LOW PROFILE LEAD SCREW

These slide assemblies feature a precision lead screw, needle thrust bearings, a graduated micrometer dial, and a selection of drive ends.

"Style A" has a balanced crank handle for ease and speed in advancing or retracting the saddle. "Style B" is ideal where space is limited and a knurled knob is sufficient for adjustment.

Applications

Accurate manual positioning or feeding

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

"Style A" will be furnished unless otherwise specified.

METRIC LEAD SCREW

Мс	odel	Dimens	ions (mill	imeters)					Approx.
Milled	Scraped	А	В	С	D	F†	G	Х	(kgs)
L50-75-20-M-L	L50-75-20-S-L	50	75	20	22	146	97	M8-1 Vee	0.8
L50-100-25-M-L	L50-100-25-S-L	50	100	25	22	171	122	M8-1 Vee	1.0
L50-150-50-M-L	L50-150-50-S-L	50	150	50	22	221	172	M8-1 Vee	1.2
L75-100-25-M-L	L75-100-25-S-L	75	100	25	25	171	122	M8-1 Vee	1.5
L75-125-25-M-L	L75-125-25-S-L	75	125	25	25	196	147	M8-1 Vee	1.8
L75-150-50-M-L	L75-150-50-S-L	75	150	50	25	221	172	M8-1 Vee	1.9
L100-150-25-M-L	L100-150-25-S-L	100	150	25	38	255	192	M12-1 Vee	4.3
L100-200-50-M-L	L100-200-50-S-L	100	200	50	38	305	242	M12-1 Vee	5.2
L100-300-75-M-L	L100-300-75-S-L	100	300	75	38	405	342	M12-1 Vee	7.6
L150-200-50-M-L	L150-200-50-S-L	150	200	50	44	305	242	M12-1 Vee	10.0
L150-300-100-M-L	L150-300-100-S-L	150	300	100	44	405	342	M12-1 Vee	13.2
L150-400-100-M-L	L150-400-100-S-L	150	400	100	44	505	442	M12-1 Vee	18.1

Gib lock handle available at additional cost (two on 400 mm long saddle).

†Dimensions are approximate.







METRIC LOW PROFILE LEAD SCREW



LOW PROFILE LEAD SCREW COMPOUND

These compound slide assemblies are made from standard lead screw assemblies which are accurately bolted together with the travel 90° to each other. All the features pertaining to the standard lead screw assemblies apply to the compounds. For ease of installation, mounting holes are provided in the base of the "X-axis" slide.

Applications

• Two-axis

Accurate manual positioning or feeding

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. On special request, where practical, other slide combinations can be provided besides those shown.

Consult the factory for other special drives to suit your particular application.

"Style A" will be furnished unless otherwise specified.

Мс	odel	Dimens	ions (incl	nes)									
Z axis	X axis	А	С	E	F	G	Н	J	K	L	М	AA	СС
L2-3-3/4-*-L	L2-6-2-*-L	2	3/4	2	1 ³ / ₄	1/8	1/4	2 ³ / ₄	#8	11/16	15/32	2	2
L2-4-1-*-L	L2-4-1-*-L	2	1	1	1 ³ / ₄	1/ ₂	1/4	1 ³ / ₄	#8	¹¹ / ₁₆	¹⁵ / ₃₂	2	1
L2-6-2-*-L	L3-6-2-*-L	2	2	2	1 ⁷ / ₈	1/2	3/8	3 ¹ / ₄	#10	31/32	1 ¹ / ₁₆	3	2
L3-4-1-*-L	L3-6-2-*-L	3	1	1 ¹ / ₂	2	0	³ / ₈	3 ¹ / ₄	#10	³¹ / ₃₂	1 ¹ / ₁₆	3	2
L3-5-1-*-L	L3-5-1-*-L	3	1	1	2	1/2	³ / ₈	3 ¹ / ₄	#10	31/32	1 ¹ / ₁₆	3	1
L3-6-2-*-L	L4-12-3-*-L	3	2	4 ¹ / ₂	2 ¹ / ₂	0	1	7	1/4	1 ⁵ / ₁₆	1 ³ / ₈	4	3
L4-6-1-*-L	L4-12-3-*-L	4	1	4	3	1/2	1	7	1/4	1 ⁵ / ₁₆	1 ³ / ₈	4	3
L4-8-2-*-L	L4-8-2-*-L	4	2	2	3	1	⁵ /8	4 ³ / ₄	1/4	1 ⁵ / ₁₆	1 ³ / ₈	4	2
L4-12-3-*-L	L6-12-4-*-L	4	3	4	3 ¹ / ₄	1 ¹ / ₂	3/4	6 ¹ / ₂	⁵ / ₁₆	1 ⁵ / ₈	2 ³ / ₄	6	4
L6-8-2-*-L	L6-12-4-*-L	6	2	3	3 ¹ / ₂	0	3/4	6 ¹ / ₂	5/ ₁₆	1 ⁵ / ₈	2 ³ / ₄	6	4
L6-12-4-*-L	L6-12-4-*-L	6	4	3	3 1/2	1	3/4	6 ¹ / ₂	5/ ₁₆	1 ⁵ / ₈	2 ³ / ₄	6	4
L6-16-4-*-L	H8-18-6-*-L	6	4	6	4 ³ / ₄	2	1 ¹ / ₂	9	³ / ₈	2 ¹ / ₈	3 ³ / ₄	8	6

LEAD SCREW COMPOUND

*Add "M" for milled or "S" for scraped slide assemblies. Gib lock handle available at additional cost (two on 16" and 18" long saddles). See page 12 for base lengths and saddle lengths.

LEAD SCREW COMPOUND







METRIC LOW PROFILE LEAD SCREW COMPOUND

These compound slide assemblies are made from standard lead screw assemblies which are accurately bolted together with the travel 90° to each other. All the features pertaining to the standard lead screw assemblies apply to the compounds. For ease of installation, mounting holes are provided in the base of the "X-axis" slide.

Applications

- Two-axis
- Accurate manual positioning feeding

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. On special request, where practical, other slide combinations can be provided besides those shown.

Consult the factory for other special drives to suit your particular application.

"Style A" will be furnished unless otherwise specified.

METRIC LEAD SCREW COMPOUND

Model	Dimensions (millimeters)											
Z axis / X axis	А	С	Е		G	Н	J	К		М	AA	СС
L50-75-20-*-L / L50-150-50-*-L	50	20	50	44	2.5	7	60	M4	17	12	50	50
L50-100-25-*-L / L50-100-25-*-L	50	25	25	44	12.5	7	35	M4	17	12	50	25
L50-150-50-*-L / L75-150-50-*-L	50	50	50	47	12.5	10	80	M5	24	27	75	50
L75-100-25-*-L / L75-150-50-*-L	75	25	37.5	50	0	10	80	M5	24	27	75	50
L75-125-25-*-L / L75-125-25-*-L	75	25	25	50	12.5	10	80	M5	24	27	75	25
L75-150-50-*-L / L100-300-75-*-L	75	50	112.5	63	0	25	175	M6	33	34	100	75
L100-150-25-*-L / L100-300-75-*-L	100	25	100	76	12.5	25	175	M6	33	34	100	75
L100-200-50-*-L / L100-200-50-*-L	100	50	50	76	25	15	120	M6	33	34	100	50
L100-300-75-*-L / L150-300-100-*-L	100	75	100	82	37.5	20	160	M8	40	70	150	100
L150-200-50-*-L / L150-300-100-*-L	150	50	75	88	0	20	160	M8	40	70	150	100
L150-300-100-*-L / L150-300-100-*-L	150	100	75	88	25	20	160	M8	40	70	150	100
L150-400-100-*-L / H200-450-150-*-L	150	100	150	120	50	40	220	M10	52	96	200	150

*Add "M" for milled or "S" for scraped slide assemblies.

Gib lock handle available at additional cost (two on 400 mm and 450 mm long saddles).

See page 12 for base lengths and saddle lengths.

METRIC LEAD SCREW COMPOUND



L Section

LOW PROFILE LEAD SCREW ANGLE BRACKET

These slide assemblies are bolted to a 90° angle bracket. The units can be floor mounted to give vertical travel or wall mounted to provide horizontal travel. It is easy to make a three-axis slide assembly by mounting one of these units to one of the compound slide assemblies as shown on page 16.

Applications

Accurate manual positioning or feeding

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

All the features pertaining to the standard lead screw assemblies apply to these. For ease of installation, mounting holes are provided in the angle bracket.

"Style A" will be furnished unless otherwise specified.

LEAD SCREW ANGLE BRACKET Model Approx weight (lbs) Milled L2-3-3/4-M-T 1 1/₈ L2-3-3/4-2-P 3 $^{3}/_{4}$ 2 2 7/8 6 ⁹/₁₆ 3 ⁵/₈ #8 ³/₁₆ 1 5/8 3 2 7 13/16 L2-4-1-M-LA L2-4-1-S-LA 2 4 1 2 $2^{7}/_{8}$ 4 ⁵/8 1 ¹/₈ #8 ³/₁₆ 1 ⁵/₈ 3 5/8 L2-6-2-M-LA L2-6-2-S-LA 2 6 2 2 2 7/8 10 13/16 6 ⁵/₈ 1 ¹/₈ #8 ³/₁₆ 1 5/8 $4^{3}/_{4}$ L3-4-1-M-LA L3-4-1-S-LA 3 7 13/16 4 2 #10 1/4 $2^{1/_{2}}$ 3 4 1 4 3/4 6 1/4 L3-5-1-M-LA L3-5-1-S-LA 3 5 3 8 13/16 5 3/4 2 #10 2 ¹/₂ 7 ³/ 1 4 1/4 2 1/2 L3-6-2-M-LA L3-6-2-S-LA 3 10 13/16 2 8¹/₂ 3 6 2 4 6 $^{3}/_{4}$ #10 ⁵/₁₆ L4-6-1-M-LA L4-6-1-S-LA 6 4 5¹/₂ 11 7/8 2 5/8 1/4 3 ³/₈ 17 ¹/₄ 4 1 6 1 L4-8-2-M-LA L4-8-2-S-LA 4 8 2 4 $5^{1}/_{2}$ 14⁷/₈ 8 1 2 5/8 1/4 ⁵/₁₆ 3³/₈ 22 L4-12-3-M-LA L4-12-3-S-LA 4 12 4 19 ⁷/₈ 12 1 ⁵/₁₆ 3 5¹/₂ 2⁵/₈ 1/4 $3^{3}/_{8}$ 32 L6-8-2-M-LA L6-8-2-S-LA 8 2 6 $7^{3}/_{4}$ 14 ¹/₈ 8 11/4 $4^{1}/_{4}$ 5/16 ³/8 5 ¹/₄ 41 6 7 ³/₄ L6-12-4-M-LA L6-12-4-S-LA ³/8 57 12 4 20 ¹/₈ 12 $1^{1}/_{4}$ $4^{1}/_{4}$ ⁵/₁₆ 5 ¹/₄ 6 6 24 1/8 ³/8 L6-16-4-M-LA 4 6 7 ³/4 16 11/4 $4^{1}/_{4}$ 5 ¹/₄ 74 L6-16-4-S-LA 6 16 5/16

Gib lock handle available at additional cost (two on 16" long saddle).

†Dimensions are approximate

LEAD SCREW ANGLE BRACKET





METRIC LOW PROFILE LEAD SCREW ANGLE BRACKET

These slide assemblies are bolted to a 90° angle bracket. The units can be floor mounted to give vertical travel or wall mounted to provide horizontal travel. It is easy to make a three-axis slide assembly by mounting one of these units to one of the compound slide assemblies as shown on page 17.

Applications

Accurate manual positioning or feeding

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

All the features pertaining to the standard lead screw assemblies apply to these. For ease of installation, mounting holes are provided in the angle bracket.

"Style A" will be furnished unless otherwise specified.

METRIC LEAD SCREW ANGLE BRACKET

Мо	del	Dimensi	ons (milli	meters)										Approx.
Milled	Scraped	А	В	С	D	Е	F†	G	Н	J	K	L	М	(kgs)
L50-75-20-M-LA	L50-75-20-S-LA	50	75	20	50	72	166	75	16	29	M4	5	40	1.4
L50-100-25-M-LA	L50-100-25-S-LA	50	100	25	50	72	196	100	16	29	M4	5	40	1.6
L50-150-50-M-LA	L50-150-50-S-LA	50	150	50	50	72	271	150	16	29	M4	5	40	2.2
L75-100-25-M-LA	L75-100-25-S-LA	75	100	25	75	100	196	100	19	50	M5	7.5	60	2.7
L75-125-25-M-LA	L75-125-25-S-LA	75	125	25	75	100	221	125	19	50	M5	7.5	60	3.5
L75-150-50-M-LA	L75-150-50-S-LA	75	150	50	75	100	271	150	19	50	M5	7.5	60	3.9
L100-150-25-M-LA	L100-150-25-S-LA	100	150	25	100	138	280	150	25	67	M6	7.5	85	7.8
L100-200-50-M-LA	L100-200-50-S-LA	100	200	50	100	138	355	200	25	67	M6	7.5	85	10
L100-300-75-M-LA	L100-300-75-S-LA	100	300	75	100	138	480	300	25	67	M6	7.5	85	14.5
L150-200-50-M-LA	L150-200-50-S-LA	150	200	50	150	194	355	200	32	105	M8	10	130	18.6
L150-300-100-M-LA	L150-300-100-S-LA	150	300	100	150	194	505	300	32	105	M8	10	130	25.9
L150-400-100-M-LA	L150-400-100-S-LA	150	400	100	150	194	605	400	32	105	M8	10	130	33.6

Gib lock handle available at additional cost (two on 400 mm long saddle).

†Dimensions are approximate.





METRIC LEAD SCREW ANGLE BRACKET

H Section

HIGH PROFILE BASIC

High profile slide assemblies have increased thickness of the saddle and base to accomplish greater stability and capacity. The increased height of the saddle also allows greater flexibility for machine mounting requirements.

Basic slide assemblies consist of a saddle, base, gib, and gib adjusting screw. They are designed for installations where the means of movement, mounting, and all other details are provided by the customer.

Applications

• Rugged construction (greater than "L" section slide assemblies)

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

High profile basic dovetail slide assemblies are offered in six standard sizes as shown in the chart below. Base lengths other than shown are available. Consult the factory for larger sizes.

BASIC

Mc	odel	Dimens	Dimensions (inches)								
Milled	Scraped	A	В	С	D	Е	(lbs)				
H4-8-2-M	H4-8-2-S	4	8	2	1 ³ / ₄	1 ¹ / ₈	13				
H4-12-4-M	H4-12-4-S	4	12	4	1 ³ / ₄	1 ¹ / ₈	19				
H6-12-4-M	H6-12-4-S	6	12	4	2 ¹ / ₄	1 ¹ / ₂	44				
H6-16-6-M	H6-16-6-S	6	16	6	2 ¹ / ₄	1 ¹ / ₂	58				
H8-18-6-M	H8-18-6-S	8	18	6	3	2	95				
H8-24-8-M	H8-24-8-S	8	24	8	3	2	122				

Gib lock handle available at additional cost (two on 16", 18" and 24" long saddles).

HIGH PROFILE BASIC









METRIC HIGH PROFILE BASIC

High profile slide assemblies have increased thickness of the saddle and base to accomplish greater stability and capacity. The increased height of the saddle also allows greater flexibility for machine mounting requirements.

Basic slide assemblies consist of a saddle, base, gib, and gib adjusting screw. They are designed for installations where the means of movement, mounting, and all other details are provided by the customer.

Applications

• Rugged construction (greater than "L" section slide assemblies)

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

High profile basic dovetail slide assemblies are offered in six standard sizes as shown in the chart below. Base lengths other than shown are available. Consult the factory for larger sizes.

METRIC BASIC

Мо	odel	Dimens	ions (mill	imeters)			Approx.
Milled	Scraped	А	В	С	D	Е	(kgs)
Н100-200-50-М	H100-200-50-S	100	200	50	44	28	5.9
H100-300-100-M	H100-300-100-S	100	300	100	44	28	8.6
H150-300-100-M	H150-300-100-S	150	300	100	57	38	20
H150-400-150-M	H150-400-150-S	150	400	150	57	38	26.3
H200-450-150-M	H200-450-150-S	200	450	150	76	51	43.1
H200-600-200-M	H200-600-200-S	200	600	200	76	51	55.3

Gib lock handle available at additional cost (two on 400 mm, 450 mm and 600 mm long saddles).

METRIC HIGH PROFILE BASIC



www.gilmanprecision.com Telephone: (800) 445-6267

H Section

HIGH PROFILE LEAD SCREW

These slide assemblies feature a precision lead screw, a graduated micrometer dial measuring in .001 inch of saddle travel, and a selection of drive ends.

"Style A" has a balanced crank handle for ease and speed in advancing or retracting the saddle. "Style B" is ideal where space is limited and a knurled knob is sufficient for adjustment.

Applications

- Heavy service applications
- Accurate manual positioning or feeding

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

"Style A" will be furnished unless otherwise specified.

LEAD SCREW

Mc	odel	Dimens	ions (inch	nes)					Approx.
Milled	Scraped	A	В	С	D	F†	G	Х	(lbs)
H4-8-2-M-L	H4-8-2-S-L	4	8	2	1 ³ / ₄	12 ¹ / ₈	9 ⁵ / ₈	¹ / ₂ - 20 Vee or ¹ / ₂ - 10 Acme*	15
H4-12-4-M-L	H4-12-4-S-L	4	12	4	1 ³ / ₄	16 ¹ / ₈	13 ⁵ / ₈	¹ / ₂ - 20 Vee or ¹ / ₂ - 10 Acme*	21
H6-12-4-M-L	H6-12-4-S-L	6	12	4	2 ¹ / ₄	16 ¹ / ₈	13 ⁵ / ₈	$1/_{2}$ - 20 Vee or $1/_{2}$ - 10 Acme*	48
H6-16-6-M-L	H6-16-6-S-L	6	16	6	2 ¹ / ₄	20 ¹/ ₈	17 ⁵ / ₈	¹ / ₂ - 20 Vee or ¹ / ₂ - 10 Acme*	62
H8-18-6-M-L	H8-18-6-S-L	8	18	6	3	24 ¹ / ₁₆	20 ⁷ / ₈	³ / ₄ - 10 Acme	100
H8-24-8-M-L	H8-24-8-S-L	8	24	8	3	30 ¹ / ₁₆	26 ⁷ / ₈	³ / ₄ - 10 Acme	128

*Acme thread lead screw available at additional cost. Gib lock handle available at additional cost (two on 16", 18" and 24" long saddles).

Dimensions are approximate.

HIGH PROFILE LEAD SCREW



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METRIC HIGH PROFILE LEAD SCREW

These slide assemblies feature a precision lead screw, needle thrust bearings, a graduated micrometer dial measuring in .001 inch of saddle travel, and a selection of drive ends.

"Style A" has a balanced crank handle for ease and speed in advancing or retracting the saddle. "Style B" is ideal where space is limited and a knurled knob is sufficient for adjustment.

Application

- Heavy service applications
- Manual positioning or feeding

Way Surfaces

- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

"Style A" will be furnished unless otherwise specified.

METRIC LEAD SCREW

Мо	del	Dimensi	ions (milli	meters)					Approx.
Milled	Scraped	А	В	С	D	F†	G	Х	(kgs)
H100-200-50-M-L	H100-200-50-S-L	100	200	50	44	305	241	M12-1 Vee	6.8
H100-300-100-M-L	H100-300-100-S-L	100	300	100	44	405	341	M12-1 Vee	9.5
H150-300-100-M-L	H150-300-100-S-L	150	300	100	57	405	341	M12-1 Vee	21.8
H150-400-150-M-L	H150-400-150-S-L	150	400	150	57	505	441	M12-1 Vee	28.1
H200-450-150-M-L	H200-450-150-S-L	200	450	150	76	604	523	M20-2.5 Vee	45.4
H200-600-200-M-L	H200-600-200-S-L	200	600	200	76	754	673	M20-2.5 Vee	58.1

Gib lock handle available at additional cost (two on 400 mm, 450 mm, and 600 mm long saddles). †Dimensions are approximate.

METRIC HIGH PROFILE LEAD SCREW



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ND Section

SELF-COMPOUNDING DESIGN

This heavy-duty slide is a precision ground dovetail slide featuring a low-profile, saddle/base design. The product line is engineered for a variety of user compoundable configurations. An angle bracket is available for a vertical mount application. Slide width, saddle length, and saddle travel all have proportional relationships in this building block concept.



2-axis compound (X-Y table)



3-axis compound

Includes:

- "Zero reset dial" adjustable .001" micrometer dial and locking thumb screw to adjust the zero setting
- Adjustable anti-backlash drive block and take-up nut
- Heavy duty end plate with thrust bearing
- Saddle lock, adjustable gib lock handle
- Steel gib adjustment screws
- Alternate drive position
- Steel gib
- Way Wipers
- Base Mounting Holes

The Complete Application Package

- Pre-engineered base, saddle, and angle plate
- Self-compounding structure
- Precision ground
- Cast iron base and saddle
- Low maintenance lubricating
- Product lifting holes for ND8 and ND10

Reconfigure ND Slides

Assemble compound axes by using the holes provided in the base, saddle, and angle bracket.

ND S	SELF	-COM	IPOU	NDI	NG

Model	Dimensio	ns (inches)											Acme
Wodet	А	D	E†	F†	G	н	I.	J	К	L	М	N	0	Screw
NDA4/ND4	4	2.25	1.31	5.12	10	.5	3	1/4-20	4	4.5	.28	1.25	1.5	¹ / ₂ - 10
NDA6/ND6	6	3	1.31	5.12	14	1	4	⁵ / ₁₆ - 18	4	6.5	.34	1.75	2.5	¹ / ₂ - 10
NDA8/ND8	8	4	1.31	7.81	18	1.5	5	³ / ₈ - 16	6	8.5	.41	2.12	3.75	³ / ₄ - 10
NDA10/ND10	10	5	1.69	7.81	22	2	6	1/ ₂ - 13	6	10.5	.53	3	4	³ / ₄ - 10

†Dimensions are approximate.

ND SELF-COMPOUNDING DESIGN









NDA ANGLE BRACKETS

ND angle brackets allow two Gilman Precision ND slides of the same size to be mounted at 90-degree angles to each other. The base of the angle bracket is the same size as the saddle of the ND slide. The base of the angle bracket has eight mounting holes so that bracket can align with any of the four sides of the saddle. The mounting face of the angle bracket is the same size as the base of the respective ND slide and has tapped holes that correspond to the slide base mounting holes.

Notes

Gilman Precision ND angle brackets are painted or black-oxide coated for corrosion resistance.



^{90°, 180°, 270°} or 360° - It's your choice.

NDA ANGLE BRACKETS





CYLINDER-POWERED AIR OR HYDRAULIC

The cylinder is mounted in-line with the saddle to a base casting to minimize height requirements. Adjustable stops are provided to regulate the length of travel. Either an air or a hydraulic cylinder is available. Cylinders are of standard square-head, medium pressure type.

It is recommended that a hydraulic cylinder be used when part or all of the travel cycle requires a smooth, controlled feed. If an air powered slide assembly with a controlled feed is desired, we recommend one of the models with a hydraulic check, such as shown on page 32.

Way surfaces are oil grooved and scraped to ensure adequate lubrication and precision operation.

Applications

• Efficient positioning and feeding to the piece part or the machining head

Way Surfaces

Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

For limit switches and lubrication system, see pages 33-34.

CYLINDER-POWERED AIR OR HYDRAULIC

Model	Dimens	ions (incl															Approx.
Model	А	В	С	D	E	F	G	н	J	K	L	М	Ν	Р	Х	Y	(lbs)
CP4-8-2-PM-*	4	8	2	2 1/ ₈	18 ¹¹ / ₁₆	11 ⁵ / ₈	2 ³ / ₄	1/2	3	2		9 ¹ / ₄	³ / ₈	4 ⁷ / ₃₂	2	³ / ₈ - 18	31
CP4-12-4-PM-*	4	12	4	2 1/ ₈	24 ¹¹ / ₁₆	15 ⁵ / ₈	2 ³ / ₄	1/ ₂	3	2		13 ¹ / ₄	³ / ₈	4 ⁷ / ₃₂	2	³ / ₈ - 18	40
CP6-12-4-PM-*	6	12	4	2 ³ / ₄	25 ¹ / ₁₆	15 ⁷ / ₈	2 ³ / ₄	⁵ / ₈	4 ³ / ₄	2 ³ / ₄	3	12 ⁵ / ₈	³ / ₈	4 ²³ / ₃₂	2 ¹ / ₂	³ / ₈ - 18	75
CP6-16-6-PM-*	6	16	6	2 ³ / ₄	31 ¹ / ₁₆	19 ⁷ / ₈	2 ³ / ₄	⁵ / ₈	4 ³ / ₄	2 ⁷ / ₈	5	16 ¹ / ₂	3/8	4 ²³ / ₃₂	2 ¹ / ₂	³ / ₈ - 18	90

*Add "AC" for air cylinder or "HC" for hydraulic cylinder

CP4 & CP6



DC SLIDE BASIC

DC slide assemblies are versatile because of their availability in one-inch increments of saddle and base length. This means the designer can use a slide to meet his specific length requirements, often resulting in a savings of cost and space.

Basic slide assemblies (except DC2 and DC3) are manufactured with a longitudinal cavity in the base, permitting a more compact design when mounting the saddle drive. The cavity also reduces the weight of the assembly. In some applications, a base without the cavity may be advantageous because of the nature of the forces applied or certain mounting requirements.

Gib lock handles provide an easy way to lock the saddle in a desired position. For convenience, on the sizes DC4 through DC20, the lock handles may be adjusted to lock in different angular positions.

BASIC

	1-	inch in	cremer	its	Dimens	ions (incl	nes)			Approx	. weight
Model	S	SL.	E	3L	Binieno					len	gth
	Min.	Max.	Min.	Max.	А	В	С	F	М	SL	BL
DC2	2	12	3	36	2	1 ³ / ₈	3/8	5/ ₈	1 ¹ / ₆₄	3/8	1/2
DC3	3	18	4	48	3	1 ⁵ / ₈	³ / ₈	3/4	1 %/ ₆₄	1/2	7/ ₈
DC4	4	36	5	60	4	2 ¹ / ₄	1 ⁵ / ₁₆	1 ¹ / ₈	1 ⁵ / ₈	⁷ / ₈	1 ¹ / ₄
DC6	6	36	7	96	6	3	1 ⁵ / ₁₆	1 ¹ / ₂	2 ¹ / ₈	1 ³ / ₄	2 ¹ / ₄
DC8	8	36	9	96	8	4	1 ⁵ / ₁₆	2	2 ⁵ / ₈	3 ³ /8	3 ⁷ / ₈
DC10	10	36	11	96	10	5	1 ¹¹ / ₁₆	2 ¹ / ₂	3 ¹ / ₂	4 ⁷ / ₈	6 ⁵ / ₈
DC12	12	36	13	96	12	6	1 11/16	3	4	7 ³ /8	9
DC16	16	36	17	96	16	7 ¹ / ₂	2 ³ / ₈	3 ³ / ₄	5 ¹ / ₄	11 ⁷ / ₈	16
DC20	20	36	21	96	20	9	2 ³ / ₈	4 ³ / ₄	6 ¹ / ₄	17 ³ / ₈	24

Way Surfaces

MilledScraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

DC basic slide assemblies are offered in nine sizes as shown in the chart below. Base lengths other than shown are available. Consult the factory for larger sizes.

A base without a cavity is available at additional cost by specifying "with solid base section".

DC SLIDE BASIC



LEAD SCREW (D11, D12, D14, M11, M12, M14, A1, B1, C1, E1, F1, G1)

Lead-screw-powered slides are available in twelve different drive configurations. All acme screw models are furnished with gib lock handles, a micrometer dial, a needle bearing thrust assembly, an acme screw (X), and a bronze nut.

The A1 and E1 drives incorporate a balanced hand wheel. The B1 and F1 drives have a keyed shaft extension to which various types of mechanical drives can be attached (consult the factory for applications other than manual). The C1 and G1 drives have a hexagon end for wrench adjustment and are used when space is limited and adjustments are infrequent.

The ball screw drives are used for powered applications where the purchaser provides and mounts the driving source. Each slide has a thrust assembly which uses a pair of preloaded ball bearings. Preselected ball nuts with .005 maximum backlash are available on request for the D11 and M11 drive assemblies. It is highly recommended that all ball screws are protected from contaminants (chips and dirt) or accidental damage from tools or work pieces.

Way Surfaces

- Ball screw drive assemblies: oil grooved and scraped to ensure adequate lubrication and precision operation
- Acme screw drive assemblies:
- Milled
- Scraped

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

All acme screw models are used primarily for hand positioning and can be furnished with either an in-line drive as shown below or a 2:1 reduction, right-angle drive, which can be positioned eight ways as shown on page 29. Please specify position number when ordering.

Total lost motion of slide drive assembly includes backlash in ball nut, plus backlash in thrust assembly, plus deflection in the system (due to load). Consult the factory in applications where positioning is critical.

Please specify maximum traverse rate when ordering. Saddle in (ipm) or ball screw in (rpm).

LEAD SCREW

				••																		
		(T) Trav	rel	Dimer	nsions (i	nches)																
		Ма	ax.		*		-			-					-							
Model	Min.	A1 E1 B1 F1 C1 G1	D11 M11 D12 M12 D14 M14	A	в	BB	сс	E‡	EE†	н	нн	K	КК	N	NN	S	SS	U	V	vv	w	Y
DC4	1	48	17	4	2 ¹ / ₄	#10 - 24	1 ⁵ / ₈	6 ¹ / ₂	7 ¹ / ₈	4	5	1/2	3/8	3 ⁵ / ₈	4 ⁵ / ₈	7/ ₁₆	5/16	2	1	2 7/8	³ / ₈	2
DC6	1	60	35	6	3	#10 - 24	1 ⁵ / ₈	6 ³ / ₄	8 ¹¹ / ₁₆	4 ¹ / ₈	6	1/2	³ / ₈	3 ³ / ₄	5 ⁵ / ₈	⁷ / ₁₆	⁵ / ₁₆	2 ¹ / ₈	1	3	³ / ₈	2
DC8	1	72	35	8	4	¹ / ₄ - 20	2 ³ / ₈	8 ⁷ / ₈	10 ⁵ / ₈	5 1/ ₈	8 ¹ / ₈	3/4	1/2	4 ³ / ₄	7 ²¹ / ₃₂	⁵ /8	7/16	2 ³ / ₄	1 ¹ / ₄	4 ⁷ / ₁₆	1/2	2 ⁷ / ₈
DC10	1	86	46	10	5	¹ / ₄ - 20	2 ³/ ₈	9 ¹ / ₈	13 ¹⁵ / ₃₂	5 1/ ₈	9 ¹ / ₈	³ / ₄	1/2	4 ³ / ₄	8 ²¹ / ₃₂	⁵ / ₈	7/ ₁₆	2 ³ / ₄	1 ¹ / ₂	4 ⁷ / ₁₆	⁵ / ₈	2 ⁷ / ₈
DC12	1	84	60	12	6	⁵ / ₁₆ - 18	3 1/4	11 ¹ / ₄	16 7/16	7 ¹ / ₈	12 ⁵ / ₈	1 ¹ / ₈	3/4	6 1/4	12 ¹ / ₃₂	¹⁵ / ₁₆	⁵ / ₈	3 ³ / ₁₆	1 ³ / ₄	5 ¹¹ / ₁₆	⁷ / ₈	3 ¹³ / ₁₆
DC16	1	80	60	16	7 ¹ / ₂	⁵ / ₁₆ - 18	3 ¹ / ₄	12 ³ / ₈	19 ⁷ / ₁₆	7 ¹ / ₈	14 ⁵ / ₈	1 ¹ / ₈	3/4	6 ¹ / ₄	14 ¹ / ₃₂	¹⁵ / ₁₆	⁵ / ₈	3 ³ / ₁₆	1 ³ / ₄	6 ⁵ / ₈	⁷ / ₈	3 ¹³ / ₁₆
DC20	1	76	74	20	9	³ / ₈ - 16	4 ⁵ / ₈	14 ¹ / ₂	22 ³ / ₈	9 ¹ / ₈		1 ⁵ / ₈		7 ³ / ₄		1 ¹ / ₄		3 ³ / ₄	2 ³ / ₄	9 ⁵ / ₁₆	1 ³ / ₈	5 ³/ ₈

†Dimensions are approximate

See page 27 for base lengths and mounting hole locations.

		Approx. w	veight (lbs))		Х			D11, M11		D12,	M12, D14,	M14
Model	Pe	r inch len	gth	Drive	Thrust [†]	Dia.	Lead	Thrust	Dia.	Lead (in/	Thrust	Dia.	Lead
	SL	BL	Т	assy.	(lbs)	(inches)	(in/rev)	(lbs)	(inches)	rev)	(lbs)	(mm)	rev)
DC4	7/8	1 ¹ / ₄	1/16	5 ¹ / ₄	655	1/2	.100	300	3/8	.125			
DC6	1 ³ / ₄	2 ¹ / ₄	1/8	7 ¹ / ₄	850	⁵ / ₈	.100	900	⁵ / ₈	.200	900	16	5
DC8	3 ³ / ₈	3 7/8	1/8	18 ³/ ₈	1045	3/4	.100	950	3/4	.200	2000	20	5
DC10	4 ⁷ / ₈	6 ⁵ / ₈	1/4	27	1165	1	.100	2820	1	.250	2350	25	5
DC12	7 ³ / ₈	9	1/2	55	1525	1 1/4	.100	3110	11/2	.250	2800	32	5
DC16	11 ⁷ / ₈	16	1/2	68	2110	1 ¹ / ₂	.100	3110	1 ¹ / ₂	.250	3110	40	5
DC20*	17 ³/ ₈	24	7/ ₈	128	2845	2	.200	12470	2	.500	10300	50	10

†Based on 25 lb pull on hand-wheel (A1 drive).

* .250 lead Acme screw and 5:1 reduction furnished on E1 drive.

X - Acme lead screw L.H. thread

Maximum lead error .003 in/ft Maximum nut backlash .005 inch Standard on A1 and E1 drives

D14, M14 - Ground metric ball lead screw R.H. thread Maximum lead error .0003 - .0005 in/ft (.008mm/300mm - .013mm/300mm) Zero nut backlash.

D11, M11 - Rolled ball lead screw R.H. thread Maximum lead error .009 in/ft

Maximum nut backlash .010-.015 inch Depending on screw size. D12, M12 - Precision rolled metric ball lead screw R.H. thread Maximum lead error .001 in/ft (.025 mm/300 mm) Zero nut backlash.

M11, M12, M14

Drives provide a motor mount and coupler for customer supplied motor. Consult the factory for dimensions. **Customer to supply motor dimen**sional information upon placing order.

28

DC SLIDE LEAD SCREW

0 0











B1

øĸ T

† Dimensions may vary with different manufacturers











DC Section DOVETAIL SLIDE

DC AIR & HYDRAULIC CYLINDER (P1, H1), AIR & HYDRAULIC CYLINDER TWO POSITION (P3, H3)

These slide assemblies are available with adjustable stops for accurate, two-position applications or less the stops where positioning is not critical. A broad range of two-position requirements can be met because the saddle, base, and travel are available in one-inch increments.

Accurate reliable stopping is accomplished by a hardened adjustable stop screw which is located on the slide center line in each end of the saddle. This stop screw comes against a hardened rest button in the end plate. For ease in set-up, each stop screw is adjustable in either direction by 1/16 of and inch.

Way Surfaces

Oil grooved and scraped to ensure adequate lubrication and precision operation.

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

For available accessories (way covers not available on P3 and H3), see page 33-34.

There is a choice of either an air or a hydraulic cylinder mounted to the assembly. The cylinder is cushioned on both ends and is of the square-head, medium pressure type. When part or all of the travel is to be controlled feed, a hydraulic cylinder is recommended.

AIR & HYDRAULIC CYLINDER P1, H1, P3, H3

	1-inch in	crements	D:	: (: h	>						Approx	. weight (lbs)	
Model	Trav	el (T)	Dimens		ies)						Per incl	h length		Cvl.
	Min.	Max.	А	В	С	D	Е	F	Х	Y	SL	BL	Т	asśy.
DC4	2	24	4	2 ¹ / ₄	2 ³ / ₈	5	⁵ / ₈	1	1 ¹ / ₂	³ / ₈ - 18	⁷ / ₈	1 ¹ / ₄	³ / ₈	7 ³ / ₄
DC6	2	26	6	3	2 ¹⁵ / ₁₆	5 ³ / ₁₆	3/4	1	2	³ / ₈ - 18	1 ³ / ₄	2 ¹ / ₄	1/2	12 ¹ / ₂
DC8	2	28	8	4	3 15/16	5 %/ ₁₆	1	1	2 ¹ / ₂	³ / ₈ - 18	3 ³ /8	3 ⁷ / ₈	⁵ /8	23
DC10	2	30	10	5	4 ¹⁵ / ₁₆	6 ³ / ₈	1	1	3 ¹ / ₄	¹ / ₂ - 14	4 ⁷ / ₈	6 ⁵ / ₈	³ / ₄	40
DC12	2	32	12	6	5 %/ ₁₆	6 ⁵ / ₈	1 ¹ / ₄	1 ¹ / ₂	4	¹ / ₂ - 14	7 ³ /8	9	1	63
DC16	2	34	16	7 ¹ / ₂	7 ¹ / ₈	6 ¹⁵ / ₁₆	1 ¹ / ₄	1 ¹ / ₂	5	¹ / ₂ - 14	11 ⁷ / ₈	16	1 ¹ / ₂	100
DC20	2	36	20	9	8 ¹ / ₄	7 ¹³ / ₁₆	1 ¹ / ₂	1 ¹ / ₂	6	³ / ₄ - 14	17 ³ /8	24	1 7/8	164

DC AIR & HYD. CYLINDER P1, H1, P3, H3







DC HYDRAULIC CYLINDER STOP ROD (H2)

The hydraulic cylinder is cushioned on both ends for a smooth, gentle stop. Cylinders are of the standard, square-head, medium pressure type.

Adjustable stops are provided to regulate the length of travel and may be changed easily to accommodate different travel requirements.

Applications

- Smooth and powered by a hydraulic cylinder
- Flexibility in the saddle, base and travel lengths (one-inch increments)

Way Surfaces

Oil grooved and scraped to ensure adequate lubrication and precision operation.

Notes

Refer to the specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

HYDRAULIC CYLINDER STOP ROD

	1-inch ind	crements	D	·						Approx.	weight (lbs)	
Model	Trave	el (T)	Dimens		ies)					Per incl	n length		Cyl.
	Min.	Max.	А	В	С	D	Е	Х	Y	SL	BL	Т	assy.
DC4	2	20	4	2 ¹ / ₄	2 ⁵ / ₁₆	4 ¹¹ / ₁₆	2	1	¹ / ₄ - 18	7/ ₈	1 ¹ / ₄	1/4	4 ³ / ₄
DC6	2	24	6	3	3 ¹⁵ / ₃₂	5	2	1 ¹ / ₂	³ / ₈ - 18	1 ³ / ₄	2 ¹ / ₄	³ /8	9
DC8	2	26	8	4	4 ⁵ / ₃₂	5 ⁷ / ₁₆	2	2	³ / ₈ - 18	3 ³ / ₈	3 ⁷ /8	⁵ /8	14 ¹ / ₈
DC10	2	28	10	5	4 ¹⁵ / ₁₆	5 %/ ₁₆	2	2 ¹ / ₂	³ / ₈ - 18	4 ⁷ / ₈	6 ⁵ / ₈	³ / ₄	24
DC12	2	30	12	6	5 ⁵ / ₈	6 ⁵ / ₈	2	3 ¹ / ₄	¹ / ₂ - 14	7 ³ / ₈	9	7/8	41
DC16	2	32	16	7 ¹ / ₂	7 ³ / ₈	6 ⁵ / ₈	3	4	¹ / ₂ - 14	11 ⁷ / ₈	16	1 ¹ / ₄	74
DC20	2	34	20	9	8 ⁹ / ₁₆	7 ³ / ₁₆	3	5	¹ / ₂ - 14	17 ³ / ₈	24	1 ⁷ / ₈	109

DC HYDRAULIC CYLINDER STOP ROD



DC Section DOVETAIL SLIDE

DC AIR CYLINDER STOP ROD (P2) & AIR CYLINDER HYDRAULIC CHECK, STOP ROD (P4)

Advantages of an air-powered unit are combined in these assemblies with the flexibility of the saddle, base, and travel lengths being available in one-inch increments.

The air cylinder is mounted in-line with the rest of the slide assembly to give a compact overall height. Adjustable stops are provided to regulate the length of travel.

There is a choice of models, one having a hydraulic check "P4" and one without "P2". If any part of the saddle's travel is to have a smooth, controlled rate of feed, a hydraulic check is recommended.

Way Surfaces

Oil grooved and scraped to ensure adequate lubrication and precision operation.

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

On P4 models, needle valve adjustment permits easy feed rate control. The approximate available feed rate at 80 psi air line pressure is 4 to 300 ipm. Hydraulic checks to meet other requirements are available upon request.

AIR CYLINDER P2 & P4

	1-inch in	crements	Dimono	ione (incl								Approx.	. weight (lbs)	
Model	Trav	el (T)	Dimens		1857							Per incl	h length		CvL
	Min.	Max.	А	В	С	D	Е	F	G	Х	Y	SL	BL	Т	assy.
DC4	2	18	4	2 ¹ / ₄	3 ¹ / ₄	4 ⁷ / ₈	7 ¹ / ₈	3	2 ³ / ₈	1 ¹ / ₂	³ / ₈ - 18	7/ ₈	1 ¹ / ₄	1/2	9 ⁵ / ₈
DC6	2	18	6	3	4 ¹³ / ₁₆	5 ¹ / ₁₆	8 ⁷ / ₈	4 ¹ / ₄	3	2	³ / ₈ - 18	1 ³ / ₄	2 ¹ / ₄	3/4	16 ¹ / ₄
DC8	2	18	8	4	5 ¹³ / ₁₆	5 ⁷ / ₁₆	9	4 ¹ / ₄	3 15/16	2 ¹ / ₂	³ / ₈ - 18	3 ³ /8	3 ⁷ / ₈	1	28
DC10	2	18	10	5	4 ¹⁵ / ₁₆	6 ¹ / ₄	9	3 ⁷ / ₁₆	4 ¹⁵ / ₁₆	3 ¹ / ₄	¹ / ₂ - 14	4 ⁷ / ₈	6 ⁵ / ₈	1 ³ / ₄	47
DC12	2	18	12	6	5 ⁷ / ₁₆	6 ¹ / ₂	9	3 ⁷ / ₁₆	5 ⁷ / ₁₆	4	¹ / ₂ - 14	7 ³/ ₈	9	1 ³ / ₄	52
DC16	2	18	16	7 ¹ / ₂	6 ⁷ / ₈	6 ¹³ / ₁₆	9	3 ⁷ / ₁₆	7 ¹ / ₈	5	¹ / ₂ - 14	11 ⁷ / ₈	16	1 ³ / ₄	62

Hydraulic check strokes available in 2, 4, 6, 9, 12, 15 & 18 inches. Check supplied with stroke equal or greater than travel.

DC AIR CYLINDER P2 & P4









1. Limit Switch Side Mount

Heavy-duty, oil-tight, plug-in limit switches are available on all DC6 through DC20 models that do not require way covers. Five types of arrangements are most commonly used:

Please specify switch arrangement number and length of feed stroke when ordering.

Configuration	Arrangement	Saddle Length
SA1	One neutral position switch for signal at each end of travel.	SL ≥ T + 2"
SA2	Two standard switches for signal at each end of travel.	SL < T + 2"
SA3	One neutral position switch for signal at each end of travel and one standard switch to signal a portion of travel in feed (specify feed length).	SL ≥ T + 2"
SA4	Three standard switches. Two used for signal at each end of travel and one used to signal a portion of travel in feed (specify feed length).	SL < T + 2"
SA5	Three standard switches. Two used for signal at each end of travel and one used for home position.	SL (T + 2"

2. Limit Switch Stop Rod

A heavy-duty, oil-tight, plug-in neutral position switch gives a signal at each end of the travel and does not require resetting when the travel limits are adjusted.

Available on all stop rod dovetail slide models.



3. Low Friction Way Bearing Material

Bearing material is bonded to the mating surfaces of the saddle and gib. This material reduces the friction by approximately two-thirds (with lubrication) and provides smooth way motion with reduced stick-slip due to similar values for static and dynamic friction.

Available on all DC slide models except DC2 & DC3.

Recommended for:

- High cycle applications
- Fit between saddle and base require little or no clearance
- Reduced friction is required for accuracy
- Lubrication is prohibitive

4. Acme Screw Take-Up Nut

By means of a simple adjustment, the backlash in the acme screw nut assembly can be appreciably reduced. This adjustment can also be used to compensate for eventual wear in the lead screw nut.

Available on all acme lead screw Dovetail slide models, except DC4. When ordering this accessory, 1" should be added to the base length.

ccessories DOVETAIL SLIDE SYSTEMS

5. Mounting Holes

Two types of mounting holes are offered on DC model slides: Style #1 or Style #2, as shown below. Both hole styles have the advantage of not interfering with the mating way surfaces. Please specify longitudinal location when ordering.

Style #1	Style #2	Madal	Dimensions (inches)									
		Model	A (Min.)	В	С	D	Е	F	G	Н	J	
		DC2	1/4	1 ¹ / ₂	1/4	#10 - 24	³ / ₈		1	³ / ₄	#10	
		DC3	1/4	2 ¹ / ₂	1/4	#10 - 24	³ / ₈	1	1	¹⁵ / ₁₆	#10	
		DC4	7/ ₈	3	1/2	¹ / ₄ - 20	1/2	1 ¹ / ₂	1 ¹ / ₄	7/ ₈	1/4	
	J SUC. HD. C.S. ——	DC6	1	4 ¹ / ₂	³ / ₄	⁵ / ₁₆ - 18	⁵ / ₈	2 ¹ / ₂	1 ³ / ₄	1 ¹ / ₂	⁵ / ₁₆	
		DC8	1 ¹ / ₄	6 ¹ / ₄	7/ ₈	³ / ₈ - 16	³ / ₄	3 ³ / ₄	2 ¹ / ₈	2 ³ / ₁₆	³ / ₈	
		DC10	1 ³ / ₈	7 ³ / ₄	1 ¹ / ₈	¹ / ₂ - 13	1	4	3	2 ¹ / ₂	1/2	
		DC12	1 ³ / ₈	9 ¹ / ₂	1 ¹ / ₄	⁵ / ₈ - 11	1 ¹ / ₄	5 ¹ / ₄	3 ³/ ₈	3	⁵ / ₈	
	A -	DC16	1 ³ / ₄	13 ¹ / ₄	1 ³ / ₈	⁵ / ₈ - 11	1 ¹ / ₄	7 ¹ / ₄	4 ³ / ₈	4 ⁹ / ₁₆	⁵ / ₈	
		DC20	2	17	1 1/2	³ / ₄ - 10	1 ³ / ₈	9 ¹ / ₂	5 ¹ /	5 ³ / ₈	3/4	

6. Way Wipers

The wipers on both ends of the saddle provide protection to way surfaces from chips, dirt, and other contaminants. Way wipers should remain engaged with the slide base.

To ensure this engagement, base lengths should increase as shown in chart.

Model	Adjustment
DC2 - DC8	BL + 1"
DC10 - DC20	BL + 2"

7. Accordion Way Covers

When way wipers are not adequate, coated fabric covers are recommended in applications where there are chips, dirt, dust, or other contaminants that might harm the way surface or dive mechanism in the base cavity.

Available on <u>all</u> slide models except:

- DC2 & DC3
- Two-position DC models
- Cylinder end of stop rod models





	Dimens	Dimensions											
Model	K	L	T (Max.)	Y*									
DC4	¹⁵ / ₁₆	1	20	.100T + .47									
DC6	¹⁵ / ₁₆	1	25	.100T + .47									
DC8	1 ¹ / ₁₆	1 ¹ / ₈	30	.080T + .47									
DC10	1 ³ / ₁₆	1 ⁵ / ₁₆	35	.067T + .47									
DC12	1 ⁵ / ₁₆	1 ⁷ / ₁₆	40	.056T + .52									
DC16	1 ⁷ / ₁₆	1 %/ ₁₆	45	.051T + .47									
DC20	1 %/16	1 11/16	50	.045T + .47									

*Round up to 1/2" increment, "Y" minimum = 1".

8. Lubrication System - Manual or Automatic

Either system provides a convenient method of supplying a metered quantity of oil to the slide assembly with the inherent advantages of safety, cleanliness, and savings in both time and lubricant. The manual system uses a pull handle pump lubricator, while the automatic system uses an electric gear motor pump lubricator with a built in time control that can be set to provide lubrication at proper time intervals. Either lubrication system can be supplied with nylon tubing or steel tubing (please specify). The lubricator will be supplied unmounted with six feet of additional nylon tubing.

Available on all slide models.



Hardened-Way Slides

Heavy machining applications for durable linear processes.

HWS, HWL, & METRIC SLIDE SYSTEMS

HWS SECTION

Basic
Lead Screw
Hydraulic Cylinder, Stop Rod 40
Air Cylinder, Stop Rod, & Air Cylinder Hydraulic Check, Stop Rod
Air Cylinder, Internal
HW METRIC SECTION

Basic	. 44
-------	------

HWL SECTION

Basic
Lead Screw
Hydraulic Cylinder, Stop Rod48
Hydraulic Cylinder, Adjustable End Stops
Air Cylinder, Stop Rod, & Air Cylinder Hydraulic-Check, Stop Rod50

Hardened Way Slide Basic Parts

- Lubrication fitting: For pressure gun lubrication. Fittings can be removed for manual or automatic lubrication systems. See accessories for available lubrication systems. Passages drilled in slide allow lubricant to get to vital way surfaces to reduce friction and promote long life. Lubricate with Mobil Vactra #2 oil or equivalent.
- Saddle*: Moving member and female section. Manufactured from 40,000 psi close grain cast iron normalized for maximum stability. Wear surfaces are lined with low-friction bearing material, accurately ground, and oil grooved to ensure adequate lubrication.
- 3. Retainer*: Retains the saddle to the base. Manufactured from finish ground, low-carbon steel with wear surfaces lined with low friction bearing material.
- 4. **Way:** Saddle tracking wear surface. Manufactured from high-carbon steel and hardened. Bonded and fastened to base before finish grinding.
- 5. **Base:** Stationary member and male section. Made from 40,000 psi close grain cast iron, normalized for maximum stability.
- 6. Gib*: Adjustable member for setting side clearance between ways and saddle. Manufactured from low carbon steel lined with low-friction bearing material.

- 7. Gib Screw: Special socket head screws properly spaced along one side of the saddle for adjusting the gib.
- 8. Gib Screw Nut: Locks the gib screw in place to maintain the adjustment on the gib.
- 9. Wiper: Provides protection to way surfaces from chips, dirt, and other contaminants. Made from molded neoprene with a steel retainer.
- 10. Gib Positioning Pin: For linear positioning of gib. Hollow pin mounted in lubrication hole.

*Low-friction bearing material has a coefficient of friction 1/3 that of cast iron on steel and similar dynamic and static coefficients, which minimizes the stick-slip condition. Closer fits between the saddle and base can be obtained, which improves saddle tracking and positioning accuracy. Bearing material is standard on all HWS and HWL models. Slides without bearing material are available on request.

Caution: Low friction bearing material is not recommended in temperatures less that -60° F or greater than 150° F, and when fluorine-based coolants or chlorinated cutting oils are used.

Ordering HW Slide Systems

Manufacturing customized solutions for linear and rotary motion since 1952.

Building the Slide Model Number:

1. Select Section & Model Width

This is the width (in inches) of the slide. Refer to the data charts for specific dimensions.

2. Select Saddle Length

This is the length (in inches) of the slide saddle. Refer to the data charts for specific dimensions.

3. Select Base Length

This is the length (in inches) of the slide base. Refer to the data charts for specific dimensions.

$\frac{HWS9}{1.} = \frac{12}{2.} = \frac{24}{3.} = \frac{H5}{4.} = \frac{9}{5.}$ With Side Porting 6.

4. Choose a Slide Drive Type Select a slide drive type to fit your variety of applications. Omit if ordering a slide without a drive.

5. Select the Travel

Specify the distance (in inches) that the saddle will travel.

6. Select Accessories

Accessories must be specified when ordering. Be sure to include any additional information required when ordering.

1.			S	Slide	Sect	tion a	& Mo	del \	Nidth						
HWS5	HWL7	HWS7	HWL9	HWS9	HWL12	HWS12	HWL15	HWS15	HWL18	HWS18	HWL24	HWS24	HWS32	Description	Code
2.	& 3.		,		,									Saddle & Base	Length
														See catalog for min. & max. lengths	‡
4.														Slide Drive	Туре ∆
														Acme screw in-line hand-wheel	A1
														Acme screw right angle hand-wheel	E1
														Rolled ball screw non-preloaded nut	D11
														Precision rolled ball screw preloaded nt (metric)	D12
														Ground ball screw preloaded nut (metric)	D14
														Rolled ball screw non-preloaded nut w/ motor mount	M11
														Precision rolled ball screw preloaded nut (metric) w/ motor mount	M12
														Ground ball screw preloaded nut (metric) w/ motor mount	M14
														Hydraulic cylinder stop rod	H2
														Hydraulic cylinder internal	H4
														Hydraulic cylinder internal adjustable end stops	H5
														Hydraulic cylinder partially internal	H6
														Hydraulic cylinder partially internal adjustable end tops	H7
														Air cylinder stop rod	P2
														Air cylinder hydraulic check stop rod	P4
														Air cylinder stop rod in-line hydraulic check	P5
5.															Travel
														See catalog for min. & max. lengths	‡

‡ Specify saddle length, base length and travel in inches.

 Δ Specify maximum traverse rate for ball screw slides. Saddle in (imp) or ball screw in (rpm).

Check to see that each code symbol in the model number is indicated under the size selected and to the left in the column under the assembly selected. These are the slide assemblies that are available. We can give prompt, accurate service if complete information is provided with the order. If you have any questions, please telephone our Sales Engineering Department: (800) 455-6267.

STANDARD PROFILE BASIC

HWS basic hardened steel way slide assemblies are an economical, compact machine package. The saddle, retainer, and gib wear surfaces are lined with low-friction bearing material to reduce sliding friction.

A cavity is machined in the center of the base to provide space for a drive mechanism such as a lead screw or cylinder.

Available Lengths

- Saddle: one-inch increments up to 60 inches
- Base: one-inch increments
- Base length = Saddle length + 2" for way wipers + travel (BL = SL + 2 +T)
- The saddle is generally shorter than the base.

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

HWS basic hardened steel way slide assemblies are offered in eight sizes as shown in the chart below. Base lengths other than shown are available. Consult the factory for larger sizes.

BASIC

Model	SL 1 increi	-inch ments	В	L*		Dime	Approx. weight (lbs) per inch length				
	Min. Max.		Min.	Max.	А	В	Р	R	S	SL	BL
HWS5	5	21	9	24	5	3 ¹ / ₂	3/8	4 ¹ / ₄	5/16	1 ⁵ / ₈	1 ³ / ₄
HWS7	7	36	12	72	7	5	1/2	6	³ /8	3 ¹ / ₄	3 ⁷ /8
HWS9	9	60	12	84	9	6 ³ / ₈	1/2	8	3/8	5	6 ¹ / ₂
HWS12	12	60	15	96	12	7 ¹ / ₂	⁵ /8	10 ³ / ₄	1/2	8 ¹ / ₈	10 ¹ / ₂
HWS15	15	60	18	96	15	8 ¹ / ₂	3/4	13 ¹ / ₂	⁵ / ₈	11 ³ / ₄	15
HWS18	18	60	21	120	18	10 ¹ / ₂	1 ⁵ / ₈	14 ³ / ₄	3/4	17	19 ³ / ₄
HWS24	24	60	27	120	24	12	2 ¹ / ₄	19 ¹ / ₂	3/4	29 ¹ / ₈	28 ¹ / ₄
HWS32	32	60	36	120	32	12 ¹ / ₂	2 ¹ / ₄	27 ¹ / ₂	³ / ₄	41 ¹ / ₄	36 ¹ / ₄

*Base leng	Base lengths and mounting hole locations - dimensions (inches)																		
BL	9	12	15	18	21	24	27	30	36	42	48	54	60	72	84	96	108	120	132 through 240
U	4	4	6	6	6	8	8	8	8	8	10	10	10	10	12	12	12	14	Available in
V	6	9	6	7 ¼	9	7	8	9	11	13	11	12 ¹ / ₂	14	17	16	18	20	19	12-inch increments. Consult the factory for
W	1 ¹ / ₂	1 ¹ / ₂	1 1/2	1 ¹ / ₂	2	2	2	2	2	3	4	3	mounting locations.						

STANDARD PROFILE BASIC







LEAD SCREW (D11, D12, D14, M11, M12, M14, A1, E1)

Lead-screw-powered slides are available in eight different drive configurations. All acme screw models are furnished with a micrometer dial, a needle bearing thrust assembly, an acme screw (X), and a bronze nut.

The A1 and E1 drives incorporate a balanced hand wheel (Not available on the HWS 24 or the HWS32).

The ball screw drives are used for powered applications where the purchaser provides and mounts the driving source. Each slide has a thrust assembly, which uses a pair of preloaded ball bearings (Quad set on HWS24 & HWS32). Preselected ball nuts with .005 maximum backlash are available on request for the D11 and M11 drive assemblies. It is highly recommended that all ball screws are protected from contaminants (chips and dirt) or accidental damage from tools or work pieces.

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for you requirements. Consult the factory for other special drives to suit your particular application.

All acme screw models are used primarily for hand positioning and can be furnished with either an in-line drive as shown below or a 2:1 reduction, right-angle drive, which can be positioned eight ways as shown on page 39. Please specify position number when ordering.

Total lost motion of slide drive assembly includes backlash in ball nut, plus backlash in thrust assembly, plus deflection in the system (due to load). Consult the factory in applications where positioning is critical.

Please specify maximum traverse rate when ordering. Saddle in (ipm) or ball screw in (rpm).

	1 -i	inch inc	cremer	nts		1*	Dimon	Dimensions (inches)										Appro	Approx. weight (lbs)				
Model	S	L	Т				Dimen		Illes)									Per inch length			Drives		
	Min.	Max.	Min.	•Max.	Min.	Max.	A	В	E	EE	J	N	Р	S	V	w	Y	SL	BL	т	All Except E1	E1	
HWS5	6	21	1	17	9	24	5	3 1/2	6 ⁵ / ₈	8 ³ / ₁₆	3	2 ¹ / ₈	1	3/8	2	#10-24	1 ⁵ / ₈	1 ⁵ / ₈	1 ³ / ₄	1/8	7	7 ¹ / ₄	
HWS7	7	36	1	63	12	72	7	5	8 ⁷ / ₈	10 ¹ / ₈	4 ⁹ / ₁₆	2 ³ / ₄	1 ¹ / ₂	⁵ / ₈	2 ⁷ / ₈	¹ / ₄ - 20	2 ³/ ₈	3 ¹ / ₄	3 ⁷ / ₈	³ / ₁₆	10	19	
HWS9	9	60	1	73	12	84	9	6 ³ / ₈	9 1/ ₈	13	4 ⁹ / ₁₆	2 ¹⁵ / ₁₆	1 ³ / ₄	7/8	3 ¹³ / ₁₆	⁵ / ₁₆ - 18	3 ¹ / ₄	5	6 ¹ / ₂	⁵ / ₁₆	20	27	
HWS12	12	60	1	81	15	96	12	7 ¹ / ₂	11 ¹ / ₄	16 ⁷ / ₁₆	5 ⁷ / ₈	3 ³ / ₁₆	1 ³ / ₄	⁷ / ₈	3 ¹³ / ₁₆	⁵ / ₁₆ - 18	3 ¹ / ₄	8 ¹ / ₈	10 ¹ / ₂	⁵ / ₈	38	55	
HWS15	15	60	1	79	18	96	15	8 ¹ / ₂	12 ³ / ₈	18 15/16	6 ⁵ / ₈	3 1/2	2 ³ / ₄	1 ³ / ₈	5 ³/ ₈	³ / ₈ - 16	4 ⁵ / ₈	11 ³ / ₄	15	¹³ / ₁₆	45	68	
HWS18	18	60	1	100	21	120	18	10 ¹ / ₂	14 ¹ / ₈	21 ³ / ₈	9 ⁵ / ₁₆	3 ³ / ₄	2 ³ / ₄	1 ³ / ₈	5 ³ / ₈	³ / ₈ - 16	4 ⁵ / ₈	17	19 ³ / ₄	1 ⁵ / ₁₆	102	128	
HWS24	24	60	1	94	27	120	24	12				5 %/ ₃₂	3 1/4	1 ⁵ / ₈	6 ⁵ / ₈	¹ / ₂ - 13	5 ⁵ / ₈	29 ¼	28 ¹ / ₄	1 ³ / ₄	125		
HWS32	32	60	1	86	36	120	32	12 ¹ / ₂				6 ¹ / ₃₂	3 ¹ / ₄	1 ⁵ / ₈	6 ⁵ / ₈	¹ / ₁ - 13	5 ⁵ / ₈	41 ¹ / ₄	36 ¹ / ₄	1 ³ / ₄	125		

•Maximum travel based on 350 ipm saddle traverse.

See page 37 for base lengths and mounting hole locations.

		х			D11, M11		D12, M12, D14, M14				
Model	Thrust [†] capacity (lbs)	Dia. (inches)	Lead (in/rev)	Thrust capacity (lbs)	Dia. (inches)	Lead (in/rev)	Thrust capacity (lbs)	Dia. (mm)	Lead (mm/rev)		
HWS5	850	5/8	.100	900	5/8	.200					
HWS7	925	1	.100	2820	1	.250	2000	20	5		
HWS9	1085	1 ¹ / ₄	.100	3110	1 ¹ / ₂	.250	2800	32	5		
HWS12	1460	1 ¹ / ₂	.100	3110	1 ¹ / ₂	.250	3110	40	5		
HWS15	1010	2	.200	12470	2	.500	10300	50	10		
HWS18∆	1205	2	.200	12470	2	.500	10300	50	10		
HWS24				21350	2 ¹ / ₂	.500	12100	63	10		
HWS32				21350	2 ¹ / ₂	.500	12100	63	10		

t Based on 25 pound pull on hand-wheel (A1 drive).

 Δ .250 lead Acme and 5:1 reduction furnished with E1 drive.

X - Acme lead screw L.H. thread

Maximum lead error .003 in/ft Maximum nut backlash .005 inch Standard on A1 and E1 drives

D14, M14 - Ground metric ball lead screw R.H. thread Maximum lead error .0003 - .0005 in/ft (.008mm/300mm - .013mm/300mm) Zero nut backlash.

D11, M11 - Rolled ball lead screw R.H. thread Maximum lead error .009 in/ft

Maximum lead error .009 in/ft Maximum nut backlash .010-.015 inch Depending on screw size. D12, M12 - Precision rolled metric ball lead screw R.H. thread Maximum lead error .001 in/ft (.025 mm/300 mm) Zero nut backlash.

M11, M12, M14

Drives provide a motor mount and coupler for customer supplied motor. Consult the factory for dimensions. **Customer to supply motor dimen**sional information upon placing order.

LEAD SCREW

HW LEAD SCREW









† Dimensions may vary with different manufacturers





HWS Section

HYDRAULIC CYLINDER, STOP ROD (H2)

The hydraulic cylinder is cushioned on both ends for a smooth stop. Cylinders are of the standard, rectangular flange mount, medium pressure type on HWS5 through HWS15 slides and high pressure type on HWS18 through HWS32 slides.

Stops are provided to regulate the length of travel and may be adjusted easily to accommodate different requirements. This feature, when used with a controlled dwell, ensures depth accuracy.

Applications

- Even feed rate is required
- End limits of travel have to be accurate

Available Lengths

- Base: BL = C + SL + T + 1
- Base: one-inch increments

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

HYDRAULIC CYLINDER, STOP ROD

	1.	-inch in	cremen	its	Б	۱ *	Dimono	iana (inch	cc)					ļ	Approx. w	eight (lbs)
Model	S	iL		Т	Ь	L	Dimens		es/					Pe	r inch len	gth	Cyl.
	Min.	Max.	Min.	Max.	Min.	Max.	A	В	С	D	Х	Y	Z	SL	BL	Т	drive
HWS5	5	21	2	16	12	24	5	3 1/2	2	5	1 ¹ / ₂	750	³ / ₈ - 18	1 ⁵ / ₈	1 ³ / ₄	3/8	9
HWS7	7	36	2	30	12	72	7	5	2	5 ⁷ / ₁₆	2	750	³ / ₈ - 18	3 ¹ / ₄	3 ⁷ / ₈	⁵ / ₈	15
HWS9	9	60	2	30	15	84	9	6 ³ / ₈	2	5 %/ ₁₆	2 ¹ / ₂	750	³ / ₈ - 18	5	6 ¹ / ₂	3/4	22
HWS12	12	60	2	30	18	96	12	7 ¹ / ₂	2	6 ⁵ / ₈	3 ¹ / ₄	750	¹ / ₂ - 14	8 ¹ / ₈	10 ¹ / ₂	7/ ₈	41
HWS15	15	60	2	36	21	96	15	8 ¹ / ₂	3	6 ⁵ / ₈	4	750	1/2 - 14	11 ³ / ₄	15	1 ¹ / ₄	60
HWS18	18	60	2	36	24	120	18	10 ¹ / ₂	3	8 ⁵ / ₈	4	1250	³ / ₄ - 14	17	19 ³ / ₄	2 ⁷ / ₈	108
HWS24	24	60	2	36	36	120	24	12	4	9 ⁵ / ₈	5	1250	³ / ₄ - 14	29 ¹ / ₈	28 ¹ / ₄	4 ¹ / ₂	158
HWS32	32	60	2	36	42	120	32	12 ¹ / ₂	4	10 ¹ / ₈	5	1250	³ / ₄ - 14	41 ¹ / ₄	36 ¹ / ₄	4 ¹ / ₂	158

See page 37 for base lengths and mounting hole locations.

HYDRAULIC CYLINDER STOP ROD







AIR CYLINDER STOP ROD (P2) & AIR CYLINDER HYDRAULIC-CHECK, STOP ROD (P4, P5)

Advantages of an air-powered unit are combined in these assemblies with the flexibility of the saddle, base, and travel lengths being available in one-inch increments.

P2 drives are used for two-position applications that do not require an even feed rate. P4 parallel mount and P5 in-line mount drives use a hydraulic check with the cylinder to provide a smooth, adjustable rate of feed. P5 is not available on the HWS5 model.

Applications

- Light to moderate loads
- End limits of travel have to be accurate

Available Lengths

- Base: BL = SL + T + 3
- Base: one-inch increments
- Adjustable stops are provided to regulate the length of travel. This feature, when used with a controlled dwell, ensures accuracy.

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

Forward acting hydraulic checks with a feed rate control of 4 to 300 ipm are standard. Reverse-acting, double-acting, skip, stop, or precision (feed rate 1 to 50 ipm) hydraulic checks are available on request.

AIR CYLINDER P2,P4 & P5 1-inch increments Approx. weight (lbs) BL* Dimensions (inches) SL Per inch length Model Cyl. drive Max Min Max Min Min Max A В SL BL ٧ P2 P4 P5 HWS5 5 21 2 16 16 ---12 24 5 3 1/2 $4^{15}/_{16}$ 2 250 ³/₈ - 18 $1^{5}/_{8}$ $1^{3}/_{4}$ $^{3}/_{4}$ 17 5 7/16 7 2 9 7 5 $2^{1}/_{2}$ ³/₈ - 18 3 ¹/₄ HWS7 24 30 18 12 60 250 3 7/8 1 27 HWS9 9 24 2 30 18 9 15 60 9 $6^{3}/_{8}$ 6 1/4 3 1/4 250 ¹/₂ - 14 5 6 1/2 1 1/4 39 4 HWS12 12 30 2 30 18 9 18 72 12 $7^{1}/_{2}$ $6^{1}/_{2}$ 200 $\frac{1}{2} - 14$ 8¹/₈ $10^{1}/_{2}$ $1^{1}/_{2}$ 61 HWS15 15 30 2 36 18 9 21 72 15 8 1/2 6¹³/₁₆ 5 150 $\frac{1}{2} - 14$ 11³/4 15 2 89

‡Hydraulic check strokes available in 2, 4, 6, 9, 12, 15, and 18 inches. Check supplied with stroke equal to or greater than travel. See page 37 for base lengths and mounting hole locations.

AIR CYLINDER P2, P4, P5







HWS Section

HYDRAULIC CYLINDER, INTERNAL (H4, H5, H6, H7)

Slides with hydraulic-cylinder drives mounted internal or partially internal are more compact than end-mounted drives shown on page 43. These slides can be used whenever the cylinder size provides proficient thrust.

On H4 & H5 drives, both cylinder ports are accessible through the slide base. On H6 and H7 drives, the front port is accessible through the slide base, and the rear port is external to the slide base. H5 & H7 drives are furnished with an adjustable end stop. The travel can be adjusted $\pm 1/8$ inch on each end.

The hydraulic cylinder is cushioned on both ends for a smooth stop. Cylinders are of the standard, square-head-mediumpressure type on HWS7 through HWS15 slides and high pressure type on HWS18 & HWS24 slides.

Drive Selection Procedure

- A) Select the slide width, "A" dimension
- B) Check thrust requirements (see page 7) against the thrust capacity of slide selected using "X" bore and line pressure. Do not exceed the maximum line pressure "Y".
- C) Determine your needs, adjustable end stop drives (H5 & H7) or drive without stops (H4 & H6)
- D) Determine saddle length (SL), travel (T), and the base length,
 (BL = SL + T + 2) for drives H4 & H6 or (BL = SL + T + 3) for drives H5 & H7. If the base does not calculate to a standard length, adjust the saddle length or travel to suit a standard base length.
- E) Now follow through the six-step procedure listed under "Drive Selection" (chart shown below). It may not be necessary to complete all six steps. Proceed until the formulated requirements are met. (Internal cylinder port locations are determined by the "G" dimension, step 1; partially internal cylinder port locations by the "H" dimension, step 4).

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

HYDRAULIC CYLINDER, INTERNAL

	1.	-inch in	cremen	ts		1*	Dimensi)						Аррго	x. weight	(lbs)	
Model	S	SL.		Г		L	Dimensi	ions (inch	les)					Pe	r inch len	gth	Cyl.	Stope
	Min.	Max.	Min.	Max.	Min.	Max.	A	В	D	E	Х	Y	Z	SL	BL	Т	drive	Stops
HWS7	7	36	2	24	12	72	7	5	2 1/4	7/8	1 1/2	750	³ / ₈ - 18	3 1/4	3 ⁷ / ₈	3/ ₈	12	5
HWS9	9	60	2	45	15	84	9	6 ³ / ₈	2 ¹ / ₄	7/ ₈	2	750	³ / ₈ - 18	5	6 ¹ / ₂	⁵ / ₈	19	7
HWS12	12	60	2	50	18	96	12	7 ¹ / ₂	2 ³ / ₈	7/8	2 ¹ / ₂	750	³ / ₈ - 18	8 ¹ / ₈	10 ¹ / ₂	7/8	33	13
HWS15	15	60	2	55	21	96	15	8 ¹ / ₂	2 ⁵ / ₈	1	3 ¹ / ₄	750	¹ / ₂ - 14	11 ³ / ₄	15	1	50	17
HWS18	18	60	2	60	24	120	18	10 ¹ / ₂	3 ¹⁹ / ₃₂	1 ¹ / ₄	3 ¹ / ₄	1250	³ / ₄ - 14	17	19 ³ / ₄	2	92	31
HWS24	24	60	2	70	30	120	24	12	3 ⁷ / ₈	1 ¹ / ₄	4	1250	³ / ₄ - 14	29 1/ ₈	28 ¹ / ₄	2 ³ / ₄	124	38

See page 37 for base lengths and mounting hole locations.

	Drive Se	election‡		
Model	G	н		К
	Min.	Min.	H4 H6	H5 H7
HWS7	2	3	7	6 ¹¹ / ₁₆
HWS9	2	4	8	7 11/16
HWS12	2	4	9	8 11/16
HWS15	2	4 ¹ / ₂	10	9 ¹¹ / ₁₆
HWS18	3	5 ¹ / ₂	12	11 ¹¹ / ₁₆
HWS24	3	5 ¹ / ₂	14	13 11/16

•H > 2/3T Cylinder furnished with cap-end foot mount; customer to provide support. \$See illustrations on page 45.

Side porting accessory

When cylinder ports are not accessible through the bottom of the base, hydraulic cylinder slides can be furnished with the ports piped out either side of the base for ease of piping. (*Must be specified when ordering.*) "G or H" dimension may vary with side and bottom porting

HYDRAULIC CYLINDER INTERNAL





H6







www.gilmanprecision.com Telephone: (800) 445-6267

HW Metric Section

HARDENED WAY SLIDE

METRIC STANDARD PROFILE BASIC

Metric basic hardened steel way slide assemblies are an economical, compact machine package. The saddle, retainer, and gib wear surfaces are lined with low-friction bearing material to reduce sliding friction.

A cavity is machined in the center of the base to provide space for a drive mechanism such as a lead screw or cylinder.

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

HW metric basic hardened steel way slide assemblies are offered in six sizes as shown in the chart below. Consult the factory for larger sizes. Base lengths other than shown are available.

METRIC BASIC

Model	S (25 mm) ii	L ncrements	B	L		Dir	mensions (m	m)		Approx. w per 25 m	reight (Kg) Im length
Moder	Min.	Max.	Min.	Max.	А	В	Р	R	S	SL	BL
MHW175	175	900	300	1800	175	125	12.5	150	M10	1 ¹ / ₂	1 ³ /4
MHW225	225	1500	300	2100	225	160	12.5	200	M10	2 ¹ / ₄	2 ⁷ / ₈
MHW300	300	1500	375	2400	300	190	12.5	275	M12	3 ⁵ / ₈	4 ³ / ₄
MHW375	375	1500	450	2400	375	215	17.5	340	M16	5 ¹ / ₄	6 ³ / ₄
MHW450	450	1500	525	3000	450	265	37.5	375	M20	7 ⁵ /8	8 ⁷ / ₈
MHW600	600	1500	375	3000	600	300	50	500	M20	13	12 ⁵ / ₈

METRIC STANDARD PROFILE BASIC





LOW PROFILE BASIC

HWL basic hardened-way steel way slide assemblies have a lower profile than the HWS slide assemblies. They reduce the center line height of spindles and holding fixtures mounted to the saddle which reduces the moment due to the thrust load. The saddle, retainer, and gib wear surfaces are lined with lowfriction bearing material to reduce sliding friction.

A cavity is machined in the center of the base to provide space for a drive mechanism such as a lead screw or cylinder.

Available Lengths

- Saddle: one-inch increments up to 60 inches
- Base: one-inch increments
- Base length = Saddle length + 2" for way wipers + Travel (BL = S + 2 + T)
- The saddle is generally shorter than the base.

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

HWL basic hardened steel way slide assemblies are offered in six sizes as shown in the chart below. Consult the factory for larger sizes. Base lengths other than shown are available.

LOW PROFILE BASIC

	S 1 inch	incro	Б		Dimone	ione (inch				Approx. w	eight (lbs)
Model	me	nts		·L	Dimens		1857			Per incl	h length
	Min.	Max.	Min.	Max.	А	В	Р	R	S	SL	BL
HWL7	7	36	12	60	7	3 ¹ / ₂	1/2	6	³ / ₈	2 ¹ / ₂	2 ⁷ / ₈
HWL9	9	60	12	72	9	4 ³/ ₈	1/2	8	³ /8	3 ⁷ / ₈	4 ¹ / ₂
HWL12	12	60	15	84	12	5 ¹ / ₂	⁵ /8	10 ³ / ₄	1/2	6 ³ / ₄	7 ³ / ₄
HWL15	15	60	18	96	15	6 ³ / ₄	³ / ₄	13 ¹ / ₂	⁵ / ₈	10 ¹ / ₂	12
HWL18	18	60	21	120	18	8	1 ⁵ / ₈	14 ³ / ₄	3/4	14 ³ / ₄	16 ³ /8
HWL24	24	60	27	120	24	10 ¹ / ₂	2 ¹ / ₄	19 ¹ / ₂	3/4	26	27

* Base	lengths a	nd mount	ing hole l	ocations	- dimens	ions (inch	nes)												
BL	12	15	18	21	24	27	30	36	42	48	54	60	72	84	96	108	120	132	144
U	4	6	6	6	8	8	8	8	8	10	10	10	10	12	12	12	14	16	18
V	9	6	7 ¹ / ₂	9	7	8	9	11	13	11	12 ¹ / ₂	14	17	16	18	20	19	18	17
W	1 ¹ / ₂	2	2	2	2	2	3	4	3	3	4								

LOW PROFILE BASIC







HWL Section HARDENED WAY SLIDE

LEAD SCREW (D11, D12, D14, M11, M12, M14, A1, E1)

Lead-screw powered slides are available in three different drive configurations. Manual drives are furnished with a balanced hand-wheel, micrometer dial, needle bearing thrust assembly, an acme lead screw (X_1) , and bronze nut.

The ball screw drives are used for powered applications where the purchaser provides and mounts the driving source. Each slide has a thrust assembly, which uses a pair of preloaded ball bearings. Preselected ball nuts with .005-inch-maximum backlash are available on request for the D11 and M11 drive assemblies. It is recommended that all ball screws are protected from contaminants (chips and dirt) or accidental damage from tools or work pieces.

Available Lengths

- Base: BL = SL + T + 2
- Base: one-inch increments

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

Acme adjustable nuts for reducing backlash (.001 inch minimum), or hexagon-end shaft extensions for wrench adjustments are available on request.

All acme screw models are used primarily for hand positioning and can be furnished with either an in-line drive as shown below or a 2:1 reduction, right-angle drive, which can be positioned eight ways as shown on page 39. Please specify position number when ordering.

Total lost motion of slide drive assembly includes backlash in ball nut, plus backlash in thrust assembly, plus deflection in the system (due to load). Consult the factory in applications where positioning is critical.

Please specify maximum traverse rate when ordering. Saddle in (ipm) or ball screw in (rpm).

	1-i	inch ind	cremer	nts		+	D		l)										Appro	ox. weigh	t (lbs)	
Model	S	L	٦	Г	Ы	L^	Dime	nsions (ii	ncnes)									Per	inch len	gth	Driv	res
Model	Min.	Max.	Min.	•Max.	Min.	Max.	A	В	E	EE	J	N	Р	S	v	w	Y	SL	BL	т	All Except E1	E1
HWL7	7	36	1	33	12	60	7	3 ¹ / ₂	6 ³ / ₄	9 ³ / ₁₆	3 ¹ / ₈	2 ¹ / ₈	³ / ₃₂	³ /8	2	#10-24	1 ⁵ / ₈	2 ¹ / ₂	2 ⁷ / ₈	1/8	7	7 ¹ / ₄
HWL9	9	60	1	34	12	72	9	4 ³ / ₈	8 ⁷ / ₈	11 ¹ / ₈	4 ⁹ / ₁₆	2 ³ / ₄	1 ¹ / ₄	1/2	2 ⁷ / ₈	¹ / ₈ - 20	2 ³/ ₈	3 ⁷ /8	4 ¹ / ₂	³ / ₁₆	10	19
HWL12	12	60	1	40	15	84	12	5 ¹ / ₂	8 ⁷ / ₈	12 ⁵ / ₈	4 ⁹ / ₁₆	2 ³ / ₄	1 ¹ / ₂	⁵ / ₈	2 ⁷ / ₈	¹ / ₈ - 20	2 ³ / ₈	6 ³ / ₄	7 ³ / ₄	⁵ / ₁₆	10	19
HWL15	15	60	1	52	18	96	15	6 ³ / ₄	9 ³/ ₈	15 ¹¹ / ₁₆	4 ¹³ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	7/ ₈	3 ¹³ / ₁₆	⁵ / ₁₆ - 18	3 ¹ / ₄	10 ¹ / ₂	12	⁵ / ₈	20	27
HWL18	18	60	1	59	21	120	18	8	12 ³/ ₈	20 ⁷ / ₁₆	6 ⁵ / ₈	3 ³ / ₁₆	1 ³ / ₄	7/8	3 ¹³ / ₁₆	⁵ / ₁₆ - 18	3 ¹ / ₄	14 ³ / ₄	16 ³ / ₈	¹³ / ₁₆	45	68
HWL24‡	24	60	1	99	27	120	24	10 ¹ / ₂	14 ¹ / ₈	24 ³/ ₈	9 ⁵ / ₁₆	3 ¹ / ₂	2 ³ / ₄	1 ³ / ₈	5 ³/ ₈	³ / ₈ - 16	4 ⁵ / ₈	26	27	1 ⁵ / ₁₆	102	128

Maximum travel based on 350 ipm saddle traverse

See page 45 for base lengths and mounting hole locations.

		X ₁			D11, M11		D1	2, M12, D14, N	114
Model	Thrust [†] capacity (lbs)	Dia. (inches)	Lead (in/rev)	Thrust capacity (lbs)	Dia. (inches)	Lead (in/rev)	Thrust capacity (lbs)	Dia. (mm)	Lead (mm/rev)
HWL7	850	5/8	.100	900	⁵ / ₈	.200	900	16	5
HWL9	1000	3/4	.100	950	3/4	.200	2000	20	5
HWL12	925	1	.100	2820	1	.250	2350	25	5
HWL15	1085	1 ¹ / ₄	.100	3110	1 ¹ / ₂	.250	2800	32	5
HWL18	2045	1 1/2	.100	3110	1 ¹ / ₂	.250	3110	40	5
HWL24‡	1200	2	.200	12470	2	.500	10300	50	10

+Based on 25 lbs pull on hand-wheel (Al drive).

\$0.250 lead Acme and 5:1 reduction furnished with E1 drive.

X - Acme lead screw L.H. thread

Maximum lead error .003 in/ft Maximum nut backlash .005 inch Standard on A1 and E1 drives

D14, M14 - Ground metric ball lead screw R.H. thread Maximum lead error .0003 - .0005 in/ft (.008mm/300mm - .013mm/300mm) Zero nut backlash

Maximum lead error .009 in/ft

D11, M11 - Rolled ball lead screw R.H. thread

Maximum nut backlash .010-.015 inch Depending on screw size.

D12. M12 - Precision rolled metric ball lead screw R.H. thread Maximum lead error .001 in/ft (025 mm/300 mm)Zero nut backlash.

M11, M12, M14

Drives provide a motor mount and coupler for customer supplied motor. Consult the factory for dimensions. Customer to supply motor dimensional information upon placing order.

I FAD SCRFW

HWL LEAD SCREW













HWL Section

HYDRAULIC CYLINDER, STOP ROD (H2)

The hydraulic cylinder is cushioned on both ends for a smooth stop. Cylinders are of the standard, medium-pressure type on HWL7 through HWL18 slides and high-pressure type on HWL24 slide.

Stops are provided to regulate the length of travel and may be adjusted easily to accommodate different requirements. This feature, when used with a controlled dwell, ensures depth accuracy.

Applications

- Even feed rate is required
- End limits of travel have to be accurate

Available Lengths

- Base: BL = C + SL + T + 1
- Base: one-inch increments

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

HYDRAULIC CYLINDER, STOP ROD

	1.	-inch in	cremen	ts	Б	*	Dimonoi	ana (inch	~~)					ļ	Approx. w	eight (lbs)
Model	S	۶L		Г	D		Dimensi		es)					Pe	r inch len	gth	Cyl.
	Min.	Max.	Min.	Max.	Min.	Max.	А	В	С	D	Х	Y	Z	SL	BL	Т	drive
HWL7	7	36	2	24	12	60	7	3 ¹ / ₂	2	5 1/ ₈	1 ¹ / ₂	750	³ / ₈ - 18	2 1/2	2 ⁷ / ₈	³ / ₈	9
HWL9	9	60	2	30	15	72	9	4 ³ / ₈	2	5 ⁷ / ₁₆	2	750	³ / ₈ - 18	3 ⁷ / ₈	4 ¹ / ₂	⁵ / ₈	15
HWL12	12	60	2	30	18	84	12	5 ¼	2	5 %/ ₁₆	2 ¹ / ₂	750	³ / ₈ - 18	6 ³ / ₄	7 ³ / ₄	3/4	22
HWL15	15	60	2	30	21	96	15	6 ³ / ₄	2	6 ⁵ / ₈	3 ¹ / ₄	750	¹ / ₂ - 14	10 ¹ / ₂	12	7/ ₈	41
HWL18	18	60	2	36	24	120	18	8	3	6 ⁵ / ₈	4	750	1/ ₂ - 14	14 ³ / ₄	16 ³ / ₈	1 ¹ / ₄	60
HWL24	24	60	2	36	30	120	24	10 ¹ / ₂	3	8 ⁷ / ₈	4	1250	³ / ₄ - 14	26	27	2 ⁷ / ₈	108

See page 45 for base lengths and mounting hole locations.

HYDRAULIC CYLINDER STOP ROD







HYDRAULIC CYLINDER, ADJUSTABLE END STOPS (H3)

These slides have hydraulic-cylinder drives end-mounted. The hydraulic cylinder is cushioned on both ends for a smooth stop. Cylinders are of the standard rectangular-flange mount medium-pressure type on HWL24 slide.

An adjustable, positive stop is furnished at each end of saddle that can be adjusted $\pm 1/8$ inch on each end to regulate the length of travel.

Available Lengths

- Base: BL = SL + T + 3
- Base: one-inch increments

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

HYDRAULIC CYLINDER H3

	1-	-inch in	cremen	ts		1 *	Dimonoi	ana (inch	a a)					A	Approx. w	eight (lbs)	þ
Model	S	SL.	-	Г	D		Dimensi		es)					Pe	r inch len	gth	Cyl.
	Min.	Max.	Min.	Max.	Min.	Max.	А	В	С	D	Х	Y	Z	SL	BL	Т	drive
HWL7	7	36	2	24	12	60	7	3 ¹ / ₂	³ / ₄	5 ¹ / ₈	1 ¹ / ₂	750	³ / ₈ - 18	2 ¹ / ₂	2 ⁷ / ₈	³ / ₈	9
HWL9	9	60	2	30	15	72	9	4 ³ / ₈	1	5 ⁷ / ₁₆	2	750	³ / ₈ - 18	3 ⁷ / ₈	4 ¹ / ₂	⁵ / ₈	15
HWL12	12	60	2	30	18	84	12	5 ¹ / ₂	1	5 %/ ₁₆	2 ¹ / ₂	750	³ / ₈ - 18	6 ³ / ₄	7 ³ / ₄	3/4	22
HWL15	15	60	2	30	21	96	15	6 ³ / ₄	1 ¹ / ₄	6 ⁵ / ₈	3 ¹ / ₄	750	¹ / ₂ - 14	10 ¹ / ₂	12	7/ ₈	41
HWL18	18	60	2	36	24	120	18	8	1 ¹ / ₄	6 ⁵ / ₈	4	750	¹ / ₂ - 14	14 ³ / ₄	16 ³ / ₈	1 ¹ / ₄	60
HWL24	24	60	2	36	30	120	24	10 ¹ / ₂	3 ¹ / ₂	8 ⁷ / ₈	4	1200	³ / ₄ - 14	26	27	2 ⁷ / ₈	108

See page 45 for base lengths and mounting hole locations.

HYDRAULIC CYLINDER H3



HWL Section

AIR CYLINDER STOP ROD (P2) & AIR CYLINDER HYDRAULIC-CHECK, STOP ROD (P4, P5)

Advantages of an air-powered unit are combined in these assemblies with the flexibility of the saddle, base, and travel lengths being available in one-inch increments.

P2 drives are used for two-position applications that do not require an even feed rate. P4 parallel mount and P5 in-line mount drives use a hydraulic check with the cylinder to provide a smooth, adjustable rate of feed. P5 not available on the HWL7 model.

Applications

- Light to Moderate loads
- End limits of travel have to be accurate

Available Lengths

- Base: BL = SL + T + 3
- Base: one-inch increments
- Adjustable stops are provided to regulate the length of travel. This feature, when used with a controlled dwell, ensures depth accuracy.

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements. Consult the factory for other special drives to suit your particular application.

Forward acting hydraulic checks with a feed rate control of 4 to 300 ipm are standard. Reverse-acting, double-acting, skip, stop, or precision (feed rate 1 to 50 ipm) hydraulic checks are available on request.

AIR CYLINDER P2, P4 & P5

		1-	inch in	cremen	ts				Dimono	iono (inch					A	.pprox. w	eight (lbs)
Madal	S	L		٦	Г)_	Dimens		ies)				Per	inch len	gth	
Model	N/:-		M-		Max.		NG-				_	v	V	7	0	ы	Ŧ	Cyl. drive
	Min.	мах.	Min.	P2	P4	P5	Min.	мах.	A	В	U	^	Y	۷	SL	BL	I	
HWL7	7	24	2	24	18		12	60	7	3 ¹ / ₂	4 ¹⁵ / ₁₆	2	250	³ / ₈ - 18	2 ¹ / ₂	2 ⁷ / ₈	³ / ₄	17
HWL9	9	24	2	30	18	9	15	72	9	4 ³ / ₈	5 ⁷ / ₁₆	2 ¹ / ₂	250	³ / ₈ - 18	3 ⁷ / ₈	4 ¹ / ₂	1	27
HWL12	12	30	2	30	18	9	18	84	12	5 ¼	6 ¹ / ₄	3 ¹ / ₄	250	¹ / ₂ - 14	6 ³ / ₄	7 ³ / ₄	1 ¹ / ₄	39
HWL15	15	30	2	36	18	9	21	96	15	6 ³ / ₄	6 ¹ / ₂	4	200	¹ / ₂ - 14	10 ¹ / ₂	12	1 ¹ / ₂	61

‡Hydraulic check strokes available in 2, 4, 6, 9, 12, 15, and 18 inches. Check supplied with stroke equal to or greater than travel. See page 45 for base lengths and mounting hole locations.

AIR CYLINDER P2, P4, P5







1. Limit Switch Side Mount

Heavy-duty, oil-tight, plug-in limit switches are offered in five commonly used arrangements and are available on all slide models.

Switch mounting configurations are shown for models HWS and HWL slides. Please specify switch arrangement number and length of feed stroke when ordering.

Configuration	Arrangement	Saddle Length
SA1	One neutral position switch for signal at each end of travel.	SL ≥ T + 2"
SA2	Two standard switches for signal at each end of travel.	SL (T + 2"
SA3	One neutral position switch for signal at each end of travel and one standard switch to signal a portion of travel in feed (specify feed length).	SL ≥ T + 2"
SA4	Three standard switches. Two used for signal at each end of travel and one used to signal a portion of travel in feed (specify feed length).	SL (T + 2"
SA5	Three standard switches. Two used for signal at each end of travel and one used for home position.	SL (T + 2"

2. Limit Switch Stop Rod

A heavy-duty, oil-tight, plug-in neutral position switch gives a signal at each end of the travel and does not require resetting when the travel limits are adjusted.

Available on all stop rod Hardened-Way slide models.

3. Limit Switch Side Mounted Multiple

Precision multiple limit switches are more compact in design and combine from two to six switches in one housing. They are most beneficial when space is limited or for numerous switching positions.

Available on all Hardened-Way model slides.

4. Accordion Way Covers

When way wipers are not adequate, coated fabric covers are recommended in applications where there are chips, dirt, dust, or other contaminants that might harm the way surface or dive mechanism in the base cavity.

Available on <u>all</u> slide models except:

- Hardened-way end stop models
- Cylinder end of Hardened-Way stop rod models

Slide	Dimensions (inches)							
width	T Max.	Y*						
5	15	.133T + .47						
7	20	.098T + .36						
9	25	.098T + .36						
12	30	.079T + .36						
15	40	.098T + .36						
18	50	.044T + .36						
24	70	.036T + .36						
32	70	.036T + .36						

*Round up to 1/2" increment, "Y" minimum = 1".

5. Telescoping Way Covers

Collapsible metal covers with durable wipers and guides protect the bearing unit, rail, and drive mechanism from contaminants such as chips and dirt. These covers also prevent accidental damage from tools or work pieces. The covers are fixed to the saddle and base support bracket.

Available on all Hardened-Way model slides except drive end on models A1 and E1. Consult the factory for specific dimensions.



6. Way Covers - Fixed

A metal cover with two side plates fixed to the saddle provides protection to the ways and base cavity from contaminants such as chips, dirt, or accidental damage from tools or work pieces. These covers are generally used for short travel slides.

Available on all Hardened-Way slides except drive end on models A1, E1, P4 and P5.



7. Cavity Wiper

A durable wiper mounted to the saddle (opposite drive end) wipes away chips, dirt, and other contaminants from the base cavity. Base or end plate holes may be necessary for chip removal.

Available on all Hardened-Way model slides with drives that do not extend beyond the front end of the saddle.

8. Cavity Covers - Fixed

A metal cover mounted between the ways and fixed to the base with a durable wiper mounted to the saddle protects the drive mechanism against chips, dirt, dust, or accidental damage from tools or work pieces. These covers are generally used for short travel slides, and their use depends on the saddle length and travel.

Available on all Hardened-Way slides. Consult the factory if applicable to your particular slide configuration.



9. Lubrication System - Manual or Automatic

Either system provides a convenient method of supplying a metered quantity of oil to the slide assembly with the inherent advantages of safety, cleanliness, and savings in both time and lubricant. The manual system uses a pull handle pump lubricator, while the automatic system uses an electric gear motor pump lubricator with a built in time control that can be set to provide lubrication at proper time intervals. Either lubrication system can be supplied with nylon tubing, steel tubing, or an internal manifold in the saddle (please specify). Both lubricators have a 1/2 gallon maximum capacity (depending on slide size). The lubricator will be supplied unmounted with six feet of additional nylon tubing.

Available on all slide models.





Linear-Guide Slides

A variety of linear processes used for high-precision, high-speed applications.

LG SLIDE SYSTEMS

LG SECTION			
Basic	 	 	56
Lead Screw	 	 	57

Linear Guide Slide Basic Parts

- 1. Saddle: Moving member and female section. Manufactured from 40,000 psi close grain cast iron normalized for maximum stability
- 2. Linear Guide Slide Unit: Preloaded ball or cylindrical roller bearing incorporated in a highly rigid casing ensuring stable operation under heavy or fluctuating loads. Each unit has a lubrication fitting for lubricating and can be supplied as long term maintenance free requiring no lubrication by user.
- 4. Linear Guide Track Rail: Saddle/Slide tracking surface. Manufactured from high-carbon steel
- Base: Stationary member and male section. Manufactured from 40,000 psi close grain cast iron, normalized for maximum stability

Ordering LG Slide Systems

Manufacturing customized solutions for linear and rotary motion since 1952.

Building the Slide Model Number:

LG9	- R -	12 -	- 24 -	M14 -	- 9	With Accordion Way Covers
1.	2.	3.	4.	5.	6.	7.

1. Select Section & Model Width

This is the width (in inches) of the slide. Refer to the data charts for specific dimensions.

2. Select Rolling Element

Specify either cylindrical roller or ball bearing.

3. Select Saddle Length

Slide Section & Model Width

This is the length (in inches) of the slide saddle. Refer to the data charts for specific dimensions.

4. Select Base Length

This is the length (in inches) of the slide base. Refer to the data charts for specific dimensions.

 Choose a Slide Drive Type Select a slide drive type to fit your variety of applications. Omit if ordering a slide without a drive.

6. Select the Travel

Specify the distance (in inches) that the saddle will travel.

7. Select Accessories

Accessories must be specified when ordering. Be sure to include any additional information required when ordering.

LG9	LG12	LG15	LG18	LG24	Description	Code
2.					Rolling Eleme	nt Type
					Cylindrical Roller Bearing	R
					Ball Bearing	В
3. 8	4 .				Saddle & Base	Length
					See catalog for min. & max. lengths	‡
5.					Slide Drive	Туре ∆
					Rolled ball screw non-preloaded nut	D11
					Precision rolled ball screw preloaded nt (metric)	D12
					Ground ball screw preloaded nut (metric)	D14
					Rolled ball screw non-preloaded nut w/ motor mount	M11
					Precision rolled ball screw preloaded nut (metric) w/ motor mount	M12
					Ground ball screw preloaded nut (metric) w/ motor mount	M14
6.						Travel
					See catalog for min. & max. lengths	‡

\$\$ Specify saddle length, base length and travel in inches.

a Specify maximum traverse rate for ball screw slides. Saddle in (imp) or ball screw in (rmp).

Check to see that each code symbol in the model number is indicated under the size selected and to the left in the column under the assembly selected. These are the slide assemblies that are available. We can give prompt, accurate service if complete information is provided with the order. If you have any questions, please telephone our Sales Engineering Department: (800) 455-6267.

LG Section

BALL SCREW DRIVE BASIC

LG basic linear guide slide assemblies are designed for speed and accuracy and at the same time high levels of loading from any direction. It is recommended that rails be protected from chips, dirt, and other contaminants.

LG slides are furnished with recirculating precision bearing element guideway units which track on hardened and precision ground track rails. They are preloaded for maximum rigidity and accuracy. Force required to move the saddle is minimal due to the low coefficient of friction.

Available Lengths

- Base: one-inch increments
- Saddle: one-inch increments up to 60 inches
- The saddle is shorter than the base

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

Basic linear-guide slide assemblies are offered in five sizes as shown in the chart below. Base lengths other than shown are available. Consult the factory for larger sizes.

BASIC

Model	SL 1- increi	-inch ments	BL*		Dimens	ions (incł	Approx. weight (lbs) per inch length				
	Min.	Max.	Min.	Max.	А	В	Р	R	S	SL	BL
LG9	12	60	15	84	9	4 ³/ ₈	1/2	8	3/ ₈	3 1/2	4 ¹ / ₈
LG12	15	60	18	96	12	5 ¹ / ₂	⁵ / ₈	10 ³ / ₄	1/2	6	6 ¹ / ₄
LG15	20	60	23	96	15	6 ³ / ₄	³ / ₄	13 ¹ / ₂	5/ ₈	9	11
LG18	24	60	27	96	18	8	1	16	³ / ₄	12	14
LG24	28	60	31	96	24	9 ¹ / ₂	1 ¹ / ₄	21 ¹ / ₂	³ / ₄	17	20

*Base leng	*Base lengths and mounting hole locations - dimensions (inches)																
BL	9	12	15	18	21	24	27	30	36	42	48	54	60	72	84	96	108 through 240
U	4	4	6	6	6	8	8	8	8	8	10	10	10	10	12	12	Available in
V	6	9	6	7 ¹ / ₂	9	7	8	9	11	13	11	12 ¹ / ₂	14	17	16	18	12-inch increments. Consult the factory for
W	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	2	2	2	2	2	3	mounting locations.

BASIC









LEAD SCREW (D11, D12, D14, M11, M12, M14)

Ball screw drives are used for powered applications where the purchaser provides and mounts the driving source. Each slide has a thrust assembly which uses a pair of preloaded ball bearings. Preselected ball nuts with .005 maximum backlash are available on request for the D11 and M11 drive assemblies. It is highly recommended that all ball screws are protected from contaminants (chips and dirt) or accidental damage from tools or work pieces.

Notes

Refer to the slide specification charts and the Application Engineering Data section to select the proper slide for your requirements.

Consult the factory for other special drives to suit your particular application.

Total lost motion of slide drive assembly includes backlash in nut, backlash in thrust assembly and deflection in the system to due to load.

Please consult the factory in applications where positioning is critical. Please specify maximum traverse rate when ordering. Saddle in (ipm) or ball screw in (rpm).

LEAD SCREW

		1-inch in	crements	5		1 *	Dimono							Approx. weight (lbs)				
Model	S	iL	-	Г	В	L	Dimensions (inches)								Per	Deius		
	Min.	Max.	Min.	*Max.	Min.	Max.	А	В	N	Р	S	V	w	Y	SL	BL	Т	Drive
LG9	12	60	1	34	15	84	9	4 ³ / ₈	2 ³ / ₄	1 ¹ / ₄	1/2	2 7/8	¹ / ₄ - 20	2 ³ / ₈	3 ¹ / ₂	4 ¹ / ₈	³ / ₁₆	10
LG12	15	60	1	40	18	96	12	5 ¹ / ₂	2 ³ / ₄	1 ¹ / ₂	⁵ / ₈	2 ⁷ / ₈	¹ / ₄ - 20	2 ³ / ₈	6	6 ¹ / ₄	⁵ / ₁₆	20
LG15	20	60	1	52	23	96	15	6 ³ / ₄	3 ³ / ₁₆	1 ³ / ₄	7/ ₈	3 ¹³ / ₁₆	⁵ / ₁₆ - 18	3 ¹ / ₄	9	11	⁵ /8	20
LG18	24	60	1	59	27	96	18	8	3 ³ / ₁₆	1 ³ / ₄	7/ ₈	3 ¹³ / ₁₆	⁵ / ₁₆ - 18	3 ¹ / ₄	12	14	¹³ / ₁₆	45
LG24	28	60	1	99	31	96	24	9 ¹ / ₂	3 ¹ / ₂	2 ³ / ₄	1 ³ / ₈	5 ³/8	³ / ₈ - 16	4 ⁵ / ₈	17	20	1 ⁵ / ₁₆	102

		D11, M11		D12, M12, D14, M14					
Model	Thrust capacity (lbs)	Dia. (inches)	Lead (in/rev)	Thrust capacity (lbs)	Dia. (mm)	Lead (mm/rev)			
LG9	950	3/4	.200	2000	20	5			
LG12	2820	1	.250	2350	25	5			
LG15	3110	1 ¹ / ₂	.250	2800	32	5			
LG18	3110	1 ¹ / ₂	.250	3110	40	5			
LG24	12470	2	.500	10300	50	10			

D11, M11 - Rolled ball lead screw R.H. thread

Maximum lead error .009 in/ft Maximum nut backlash .010-.015 inch depending on screw size.

D14, M14 - Ground metric ball lead screw R.H. thread

Maximum lead error .0003 - .0005 in/ft (.008mm/300mm - .013mm/300mm) Zero nut backlash.

D12, M12 - Precision rolled metric ball lead screw R.H. thread Maximum lead error .001 in/ft (.025 mm/300 mm) Zero nut backlash.

M11, M12, M14

Drives provide a motor mount and coupler for customer supplied motor. Consult the factory for dimensions. **Customer to supply motor dimensional information upon placing order.**

LEAD SCREW





1. Accordion Way Covers

Coated fabric covers are recommended in applications where there are chips, dirt, dust, or other contaminants that might harm the way surface or dive mechanism in the base cavity. Covers will increase the base length as room is needed for cover stack-up.

Consult the factory for specific dimensions.

2. Telescoping Way Covers

Collapsible metal covers with durable wipers and guides protect the bearing unit, rail, and drive mechanism from contaminants such as chips and dirt. These covers also prevent accidental damage from tools or work pieces. The covers are fixed to the saddle and base support bracket. Covers will extend beyond the base.

Consult the factory for specific dimensions.

3. Lubrication System - Manual or Automatic

Either system provides a convenient method of supplying a metered quantity of oil to the slide assembly with the inherent advantages of safety, cleanliness, and savings in both time and lubricant. The manual system uses a pull handle pump lubricator, while the automatic system uses an electric gear motor pump lubricator with a built in time control that can be set to provide lubrication at proper time intervals. Either lubrication system can be supplied with nylon tubing, steel tubing or an internal manifold in the saddle (please specify). Both lubricators have a 1/2 gallon maximum capacity (depending on slide size). The lubricator will be supplied unmounted with six feet of additional nylon tubing.

4. Long Term "Maintenance Free" Linear Guide Slide Unit

In most cases, the linear guide slide unit can be supplied with a self-contained lubrication system that will supply lubricant directly to the rolling element in the slide unit. This allows for over 750 million inches (20,000 km) of maintenance free operation.

Gilman Quality

Gilman prides itself on ingenuity and the ability of finding an answer to your engineering challenge. No matter how simple or complex, Gilman can design a spindle to meet your exact needs.

Gilman Precision values ingenuity in achieving even the most complex solutions. Mastering the art of engineering since 1952, Gilman specializes in dependable motion control and increased machine efficiency through designing customized slides and spindles.

With a highly skilled, dedicated, and knowledgeable team, containing years of experience, we offer high precision linear and rotary motion to the millionths of an inch. Gilman can rebuild and refurbish a slide or spindle for virtually any manufacturer's machine. To guarantee quality and ensure customer needs are met, Gilman tests the performance and accuracy of each product before leaving the facility in our temperature controlled Class 10,000-level clean room.

Gilman Precision's facility, headquartered in Grafton, WI, USA, is ISO 9001 certified. Serving a wide variety of industries, Gilman provides real world solutions for value-minded engineers, at the highest quality. Visit our website for contact information and a full listing of products and services.

WE DELIVER QUALITY PRODUCTS & SERVICES

Gilman's flexible workforce, strength in engineering, and clean workplace provides an advantage in quality customer care. Value added work is done in house to ensure quality control and help our customer's ultimately improving system efficiency while guaranteeing on-time delivery.

Take advantage of advanced precision technologies and craftsmanship.

Gilman can assure responsive engineering, precision manufacturing, and prompt, efficient after-sale service whether the end application is an exclusive machine or an OEM product line.

By keeping sufficient amounts of inventory at our facility, Gilman provides quick delivery and up-front lead times. When committing to a promised date, we keep it.

Gilman Precision's equipment creates accuracy and efficiency.

Along with drilling, milling, grinding, and turning, Gilman specializes in various types of machining operations. Our state-of-the-industry boring and grinding equipment, with millionths-of-an-inch tolerances, allows us to manufacture customized spindles.

Gilman Precision is ISO 9001 certified.



Customized Linear Motion Solutions...Since 1952.

Gilman prides itself on ingenuity and the ability of finding an answer to your engineering challenge. No matter how simple or complex, Gilman can design a slide to meet your exact needs. Call us today to discuss your challenge.

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