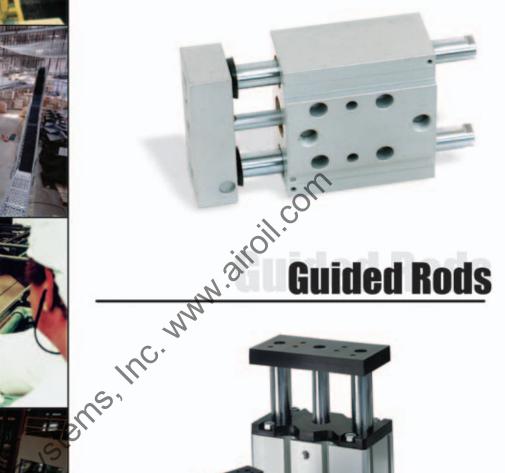


Guided Slides





Answer Engineering

COMPACT

AUTOMATION PRODUCTS LLC

An EMC Company

Guided Slides & Guided Rods: Table of Contents

Guided Slides & Guided Rods

			•	
Gui				
Gui	ıu		ш	

Product Features	g 2
Quick Reference	_
How to Order	_
Dimensional Data	_
	9

Engineering Data

GS Series	^	pa 5
Deflection vs. Load		
Design Consideration		
Sensor Specifications/Solid State Specifications	(0)	pg 12
	7.0.	
Guided Rods	· W	
Due dont Englisher	1/2	

Guided Rods

B. L. E.	· Ma	
Product Features		pg 1 <i>2</i>
How to Order	~C· ·	pg 1 <i>5</i>
Options & Mounting	100	pg 16
	~ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
Deflection & Force	W ₂	pg 18
Sensor		na 18





Guided Rod Series Pg. 14

GS Series: Product Features

GUIDED SLIDES:

- Slim, Compact design
- High load capacity, long life
- 5 bore sizes
- Stroke lengths up to 75mm (3")
- Longer strokes available upon request
- Imperial and metric mounting styles
- Self-lubricating composite bearings
- External urethane pads (retract stroke)

 Internal urethane cushions (extend stroke), standard on 20mm and 32mm bores

• Close fit dowel pin holes, standard on all bores

Competitively priced

• Wide range of applications

• Accessories include:

- Adjustable stroke collars and pads

- Sensor ready kits

Sensor Sold Separately
(Shown with Quick Disconnect
Option, pg. 12 & 13)

Barb Fittings – Standard on 8mm, 10mm, 12mm

Corrosion Resistant - Frame and Tooling Plate

Optional Sensor · · · Ready Kit (See Accessories, pg. 3)

Quick Reference

Series Bore				naft meter		de Rod meter		ective P	iston Aı Retı	
	mm	[inch]	mm	[inch]	mm	[inch]	mm²	[inch²]	mm²	[inch²]
GS_8	8	[0.315]	4	[0.157]	6	[0.236]	50,27	[0.078]	37,70	[0.058]
GS_10	10	[0.394]	5	[0.197]	6	[0.236]	78,54	[0.122]	58,90	[0.091]
GS_12	12	[0.472]	6	[0.236]	10	[0.394]	113,10	[0.175]	84,82	[0.131]
GS_20	20	[0.787]	8	[0.315]	12	[0.472]	314,16	[0.487]	263,89	[0.409]
GS_32	32	[1.260]	12	[0.472]	20	[0.787]	804,25	[1.247]	691,15	[1.071]

How to Order: GS Series Slides

SERIES	NOUNTING STYLE	BORE	ı	MOUNTING PATTERN	STROKE LENGTH	OPTIONS
GS	T	20	X	I	2	- J2
1	2	3		4	5	6

1		Series
	GS	Guided Slide

2		Mounting Style
	S	Standard
	Т	Transition

3		Bore
	8	8 Millimeter
	10	10 Millimeter
	12	12 Millimeter
	20	20 Millimeter
	32	32 Millimeter

	Mounting Pattern
-	Imperial
M	Metric

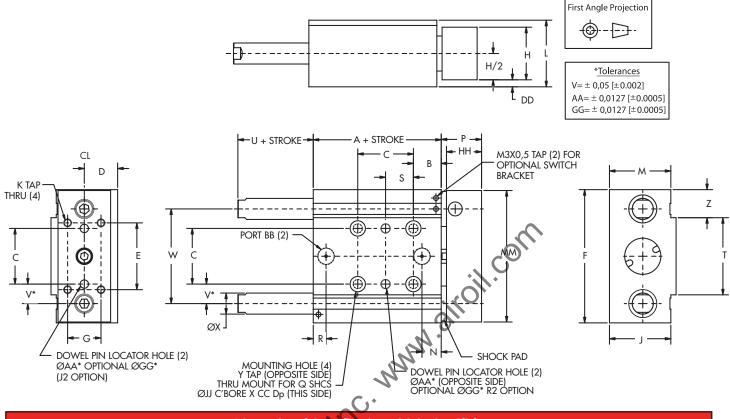
	Stroke Lengths								
Bore Size (millimeter)	Size (Mounting			Strokes g Pattern Metric)					
Description	Stroke	Code	Stroke	Code					
8, 10, 12	1/2"	12	12mm	12					
8, 10, 12, 20, 32	1"	1	25mm	25					
8, 10, 12	1-1/2"	112	40mm	40					
20, 32	2"	2	50mm	50					
20, 32	3"	3	75mm	75					

	N	Options
3	J2	Dowel Pin holes in Tooling Plate - Normal Fit
		(Imperial only)
	R2	Dowel Pin holes in Body - Normal Fit
		(Imperial only)
	Q6	Corrosion Resistant Coating - Guide Rods

NOTE: Close fit dowel pin holes in tooling plate and body are standard.

0	o /viiiimeter		
10	10 Millimeter		
12	12 Millimeter		
20	20 Millimeter		
32	32 Millimeter		
	Mounting Pattern		Ms,
П	Imperial		
м	Metric	1	20°
		-150	
	Accessories (Sold Sep	oarately)	
	Accessories (Sold Sep	Bore Size	Part No.
		odrately)	ı
Ad		Bore Size	Part No.
Ad	Description justable Stroke Collars and Pads Note: All collars supplied with	Bore Size	Part No. W8ADJE
Ad	Description justable Stroke Collars and Pads	Bore Size 8mm 10mm	Part No. W8ADJE W10ADJE
Ad	Description justable Stroke Collars and Pads Note: All collars supplied with	Bore Size 8mm 10mm 12mm	Part No. W8ADJE W10ADJE W12ADJE
	Description justable Stroke Collars and Pads Note: All collars supplied with	Bore Size 8mm 10mm 12mm 20mm	Part No. W8ADJE W10ADJE W12ADJE W20ADJE
Se	Description justable Stroke Collars and Pads Note: All collars supplied with hex key wrench	Bore Size 8mm 10mm 12mm 20mm 32mm	Part No. W8ADJE W10ADJE W12ADJE W20ADJE W32ADJE
Se (2	iustable Stroke Collars and Pads Note: All collars supplied with hex key wrench	8mm 10mm 12mm 20mm 32mm	Part No. W8ADJE W10ADJE W12ADJE W20ADJE W32ADJE W8SK
Se (2	justable Stroke Collars and Pads Note: All collars supplied with hex key wrench nsor Ready Kit: 2) Socket head cap screws	8mm 10mm 12mm 20mm 32mm 8mm 10mm	Part No. W8ADJE W10ADJE W12ADJE W20ADJE W32ADJE W8SK W10SK
Se (2	justable Stroke Collars and Pads Note: All collars supplied with hex key wrench nsor Ready Kit: 2) Socket head cap screws 2) Sensor mounting brackets	8mm 10mm 12mm 20mm 32mm 10mm 12mm	Part No. W8ADJE W10ADJE W12ADJE W20ADJE W32ADJE W8SK W10SK W12SK
Se (2	justable Stroke Collars and Pads Note: All collars supplied with hex key wrench nsor Ready Kit: 2) Socket head cap screws 2) Sensor mounting brackets 1) Tooling plate magnet	8mm 10mm 12mm 20mm 32mm 10mm 12mm 20mm 32mm 8mm 10mm 10mm	Part No. W8ADJE W10ADJE W12ADJE W20ADJE W32ADJE W8SK W10SK W12SK W20SK

Dimensional Data - GS Series

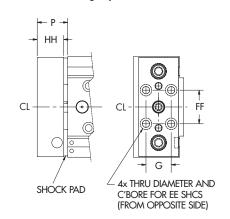


	Dimensional Specifications GS Series Slide																								
	Bore	Α	В	С	D	E	F	G	Н	J	(B) h	L	М	N	Р	Q	R	S	Т	U	V*	w	х	Y	z
,	8	30	[.562]	[.562]	[.276]	[.625]	36	[.25]	12		[3-48]	14	-	6	11.5	[#2]	5.25	[.281]	-	12	[.231]	26	6	[4-40x.25Dp]	-
(Imperial	10	30	[.562]	[.625]	[.394]	[.75]	44	[.375]	164	ĸ P	[4-40]	21	-	11.5	11.5	[#4]	6.5	[.312]	-	12	[.278]	30	6	[6-32x.375Dp]	_
mounting	12	35	[.562]	[.875]	[.512]	[1]	57	[.5]	21	D -	[6-32]	26	_	13	15.5	[#6]	5.2	[.438]	_	14.5	[.370]	41	10	[10-24x.5Dp]	_
pattern)	20	48	[.625]	[1.25]	[.748]	[1.5]	76	[75]	30	35	[10-24]	38	35	11	23	[#10]	7.3	[.625]	44	18	[.438]	54	12	[1/4-20x.625Dp]	16
	32	54	[.812]	[1.688]	[.984]	[2]	100	Ξ	44	46.5	[1/4-20]	49.5	48.5	14	31	[1/4]	10	[.844]	66	22	[.593]	73	20	[5/16-18x.875Dp]	18
	8	30	14	14	7	16	36	8	12	_	M2,5x0,45	14	-	6	11,5	M2	5,25	7	_	12	6	26	6	M3x0,5x8Dp	_
М	10	30	14	16	10	20	44	10	16	_	M3x0,5	21	_	11,5	11,5	M3	6,5	8	-	12	7	30	6	M4x0,7x10Dp	_
(Metric	12	35	14	22	13	26	57	14	21	-	M4x0,7	26	-	13	15,5	M4	5,2	11	-	14,5	9,5	41	10	M5x0,8x12,5Dp	_
mounting	20	48	18	30	19	40	76	20	30	35	M5x0,8	38	35	11	23	M5	7,3	15	44	18	12	54	12	M6x1x16Dp	16
pattern)	32	54	22	42	25	52	100	26	44	46,5	M6x1	49,5	48,5	14	31	M6	10	21	66	22	15,5	73	20	M8x1,25x20Dp	18

	Dimensional Specifications GS Series Slide											
	Bore	AA*	ВВ	СС	DD	EE	FF	GG*	нн	IJ	мм	
,	8	[.0634]	[3-56 w/barb fitting]	[.28]	1	[#3]	[.375]	[.0645]	10	[.20]	35	
//i/	10	[.0947]	[10-32 w/barb fitting]	[.31]	2	[#4]	[.5]	[.0958]	10	[.24]	43	
(Imperial mounting	12	[.1259]	[10-32 w/barb fitting]	[.25]	2.5	[#6]	[.75]	[.1270]	14	[.30]	56	
pattern)	20	[.1884]	[1/8-27NPT)	[.35]	4	[#10]	[1]	[.1895]	20	[.34]	75	
	32	[.2509]	[1/8-27NPT]	[.43]	3	[1/4]	[1.5]	[.2520]	26	[.44]	99	
	8	2	M3x0,5 w/barb fitting	6	1	M2	10	-	10	5	35	
М	10	2,5	M5x0,8 w/barb fitting	7	2	МЗ	10	-	10	6	43	
(Metric	12	3	M5x0,8 w/barb fitting	6	2,5	M4	18	-	14	7,5	56	
mounting	20	4	G1/8BSP	10	4	M5	24	_	20	9,5	75	
pattern)	32	6	G1/8BSP	11	3	M6	38	-	26	11,1	99	

GST Series

T - Mounting Style

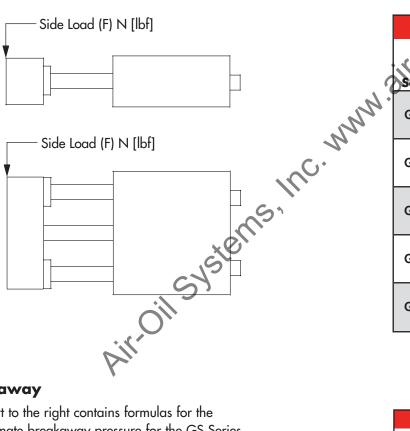


Engineering Data – GS Series

Cylinder Weight KG [lb]

	Cylinder Weight KG [lb]												
	Stroke mm [inch]												
Series	12	[1/2]	25	[1]	40	[1-1/2]	50	[2]	75	[3]			
GS_8	0,86	[0.19]	1,13	[0.26]	1,41	[0.32]	1	-	-	-			
GS_10	1,37	[0.31]	1,80	[0.41]	2,23	[0.50]	1	-	-	-			
GS_12	2,92	[0.66]	3,42	[0.77]	3,89	[0.88]	-	-	_	-			
GS_20	_	-	7,28	[1.64]	_	-	9,87	[2.22]	12,45	[2.80]			
GS_32	-	_	15,54	[3.49]	_	-	21,26	[4.78]	27,02	[6.07]			

Maximum Static Loads

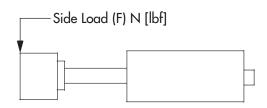


Ma	Maximum Static Side Loads									
.011.	Str	oke								
	M	ax.	Side Loads							
Series	mm	[inch]	N	[lbf]						
	12	[0.5]	180	[40.5]						
GS_8	25	[1]	133	[29.9]						
	40	[1.5]	110	[24.7]						
	12	[0.5]	410	[92.2]						
GS_10	25	[1]	290	[65.2]						
	40	[1.5]	230	[51.7]						
	12	[0.5]	950	[213.6]						
GS_12	25	[1]	700	[157.4]						
	40	[1.5]	560	[125.9]						
	25	[1]	1580	[355.2]						
GS_20	50	[2]	1080	[242.8]						
	75	[3]	820	[184.3]						
	25	[1]	4350	[977.9]						
GS_32	50	[2]	2600	[584.5]						
	75	[3]	2250	[505.8]						

3

Breakaway

The chart to the right contains formulas for the approximate breakaway pressure for the GS Series based on the load applied at the tooling plate as shown.



Maximum										
	Breakaway Pressure									
Series	bar	psi								
GS_8	(F x 0,136) + 1,38	(F x 8.9) + 20								
GS_10	(F x 0,127) + 1,38	(F x 8.3) + 20								
GS_12	(F x 0,091) + 1,38	(F x 6.0) + 20								
GS_20	(F x 0,017) + 1,38	(F x 1.2) + 20								
GS_32	(F x 0,006) + 1,38	(F x 0.4) + 20								

Engineering Data - GS Series

Operating Pressures

- GS Slides are rated for pneumatic use only.
- Maximum operating pressure is 10,3 bar [150 psi].
- Minimum operating pressure is 1,4 bar [20 psi].

Seals

- Guided Slides utilize low friction Nitrile seals for low breakaway and long life.
- Alternative seal materials are available to meet special application needs.

- Normal operating temperature range is from -20 degrees to 80 degrees Celsius [-4° to 176° F].
 For temperatures outside this range, consult the factory.

 Stroke Tolerance

 Tolerance of nominal stroke is +2/-0 mm [+0.08/-0 in].

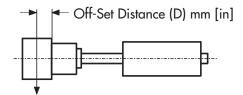
Lubrication

- Guided Slides are lubricated at the factory for service under normal operating conditions.
- Lubricated air that is compatible with petroleum based grease containing Teflon® will enhance the life of the cylinder. Non-Lubricated air is acceptable to operate the cylinder.
- The guide rod composite bearings are lubricated with light oil. Periodic relubrication will enhance the life of the bearings. Silicon based lubricants are NOT compatible with the composite bearings and are not recommended for use.

Engineering Data - Deflection vs. Load

Off-Set Load

GS Slide performance data is based on a force acting at the face of the tooling plate. For a load attached to the front of the tooling plate, the formula and chart to the right is to be used to calculate the off-set load that is being applied to the cylinder. This off-set load must be used when considering all load based performance.

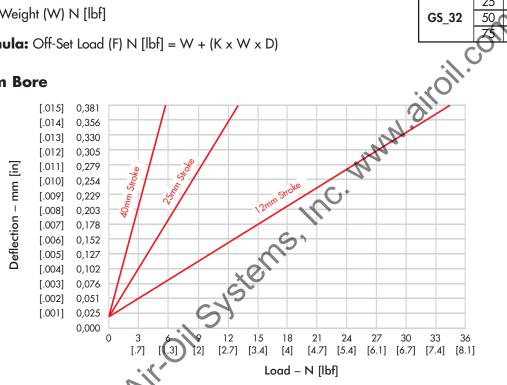


Load Weight (W) N [lbf]

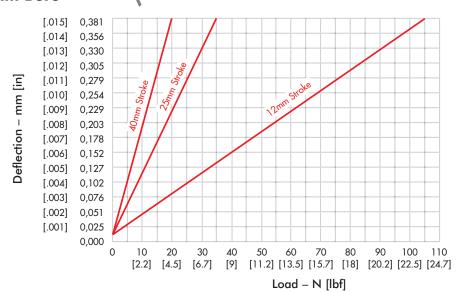
Formula: Off-Set Load (F) N [lbf] = $W + (K \times W \times D)$

Maximum Static Side Loads										
	Str	oke	Constant (K)							
Series	mm	[inch]	mm	[inch]						
GS 8	12	[0.5]	0,042	[1.067]						
03_0	25	[1]	0,027	[0.696]						
GS_10	40	[1.5]	0,020	[0.516]						
	12	[0.5]	0,037	[0.942]						
GS_12	25	[1]	0,025	[0.640]						
	40	[1.5]	0,019	[0.485]						
	25	[1]	0,021	[0.533]						
GS_20	50	[2]	0,014	[0.348]						
	75	[3]	0,010	[0.258]						
	25	[1]	0,018	[0.457]						
GS_32	50	[2]	0,012	[0.314]						
	Z 5	[3]	0,009	[0.239]						

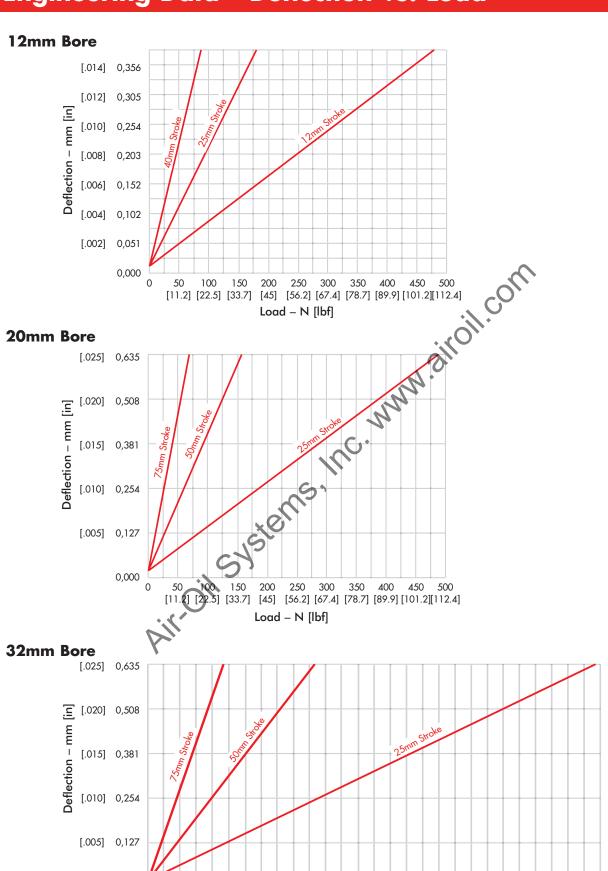
8mm Bore



10mm Bore



Engineering Data - Deflection vs. Load



0,000

150

200

250

300

350

Load - N [lbf]

400

 $[11.2] \ [22.5] \ [33.7] \ [45] \ [56.2] \ [67.4] \ [78.7] \ [89.9] \ [101.2] \ [123.6] \ [112.4] \ [134.9] \ [146.1] \ [157.4]$

450 500 550

Engineering Data - Design Considerations

Design Suggestions:

Flow Controls

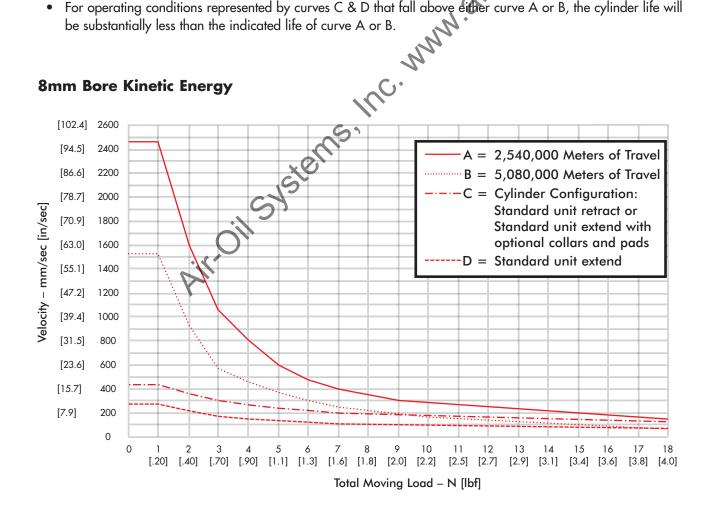
Flow controls are strongly suggested on all GS Series Slides to control speed and increase life expectancy.

Adjustable Stroke Collars and Pads

Optional adjustable stroke collars and pads increase load and speed capacity.

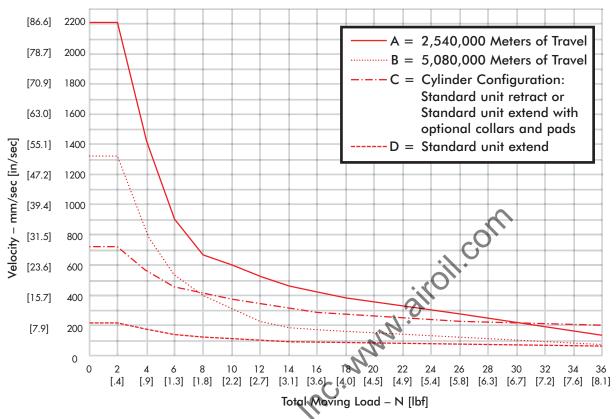
Kinetic Energy Guide

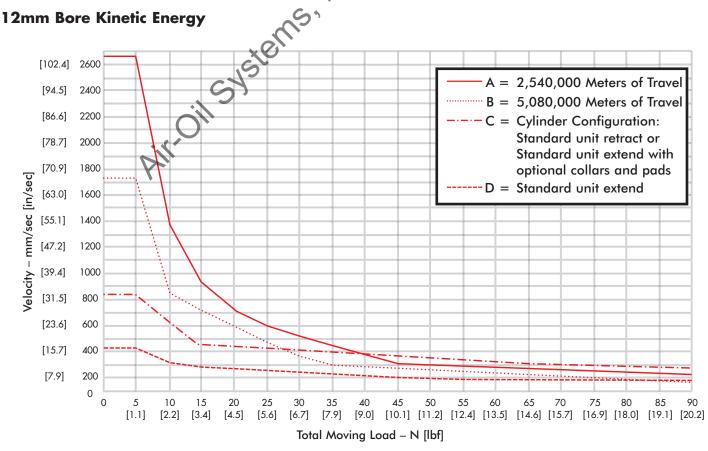
- Curves A & B represent the travel life expectancy for the GS cylinders.
- Curves C & D represent the maximum kinetic energy allowable for the specific cylinder configurations.
- For operating conditions represented by curves C & D that fall under either curve A or B, the cylinder can be expected to achieve indicated life of Curve A or B.
- Operating conditions greater than those represented by curves C & D for the stated cylinder configurations will require external load stops to accommodate the excessive kinetic energy.
- For operating conditions represented by curves C & D that fall above either curve A or B, the cylinder life will be substantially less than the indicated life of curve A or B.



Engineering Data

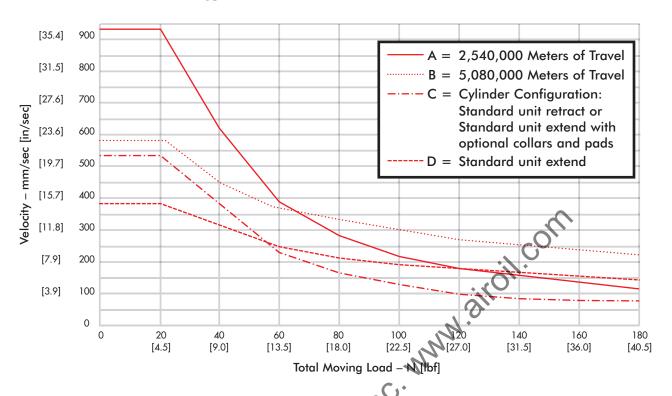
10mm Bore Kinetic Energy

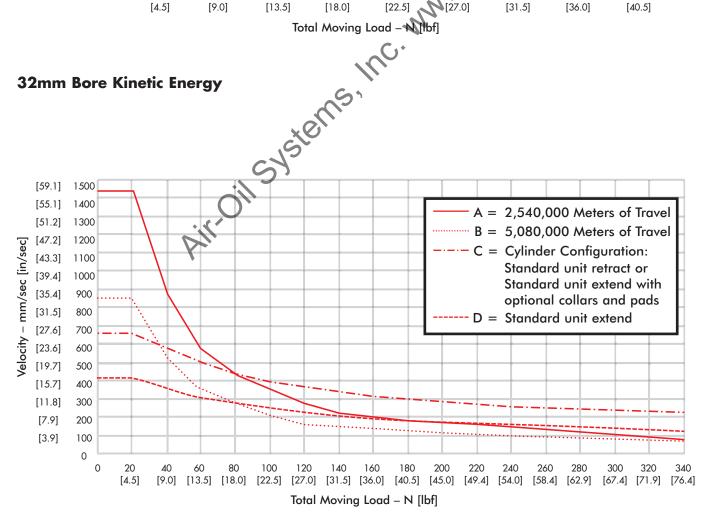




Engineering Data

20mm Bore Kinetic Energy





Sensor Specifications

Compact Round Series:

- Low cost and compact size.
- Single LED indicator for signal.
- Circuit protection (surge and polarity).
- High-flex robotic grade cable.
- CE compliant IP67 and NEMA 6 rated.

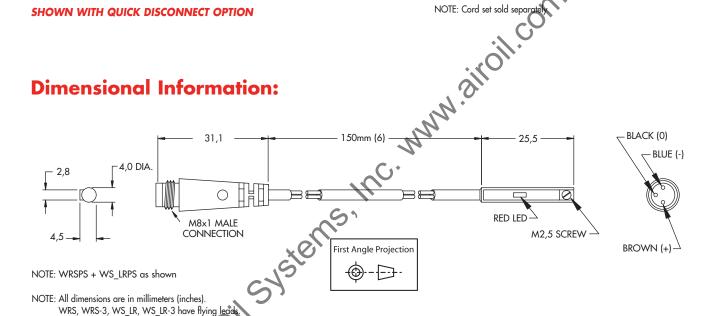


SHOWN WITH QUICK DISCONNECT OPTION

		Cord Type	Lead		
Part No.	Sensor Type	Quick Disconnect	1m	3m	
WSKLRPS	NPN (sinking)	✓			
WSKLR	NPN (sinking)		1		
WSKLR-3	NPN (sinking)			/	
WSCLRPS	PNP (sourcing)	✓			
WSCLR	PNP (sourcing)		1		
WSCLR-3	PNP (sourcing)			1	
WRSPS	REED	✓			
WRS	REED		1		
WRS-3	REED			1	

NOTE: PS denotes 150mm lead. -3 denotes 3m flying lead NOTE: Cord set sold separately

Dimensional Information:



Solid State Sensor Specifications

	Compact Ro	und Sensors			
Parameters	NPN (sinking)	PNP (sourcing)			
Part Number	WSKLR_	WSCLR_			
Operating Voltage	5-24 VDC				
Current Consumption	7 mA max @ 24V	9 mA max @ 24V			
Switching Current	50 mA max				
Voltage Drop	.5 V max @ 25 mA	1.2 V max @ 25 mA			
Operating Frequency	1 KH	z max			
Switch Logic	Sinking Normally Open	Sourcing Normally Open			
LED Function	RED (Sw	ritch Active)			
Operating Temperature	-20° to 70° C				

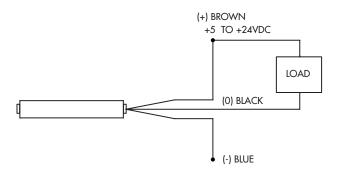
Parameters						
	NPN (sinking)	PNP (sourcing)				
Part Number	WSKLR_	WSCLR_				
Circuit Protection	Surge Suppression, Reverse Polarity					
Environmental Certifications	IP67, NEMA 6					
Wire Type	Black Polyurethane Jacket, PVC Insulation					
Housing Material	Plastic					
Housing Color	Blac	:k				
Shock Resistance	50 G	max				
Vibration Strength	9 G	max				

Compact Round Sensors

Warning: Never Exceed Power Rating of 1.5 Watts (Watts = Volts x Amps) or permanent damage to sensor will occur.

Wiring Diagrams and Definitions for units with flying leads

NPN OUTPUT Sinking (K)

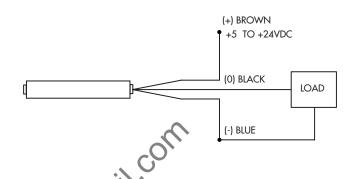


 Ideal for complex controls utilizing multiple power supplies.

A "sinking" output sensor completes a circuit by connecting the load to the ground. Sinking output sensors in a sequence can have different supply voltages. The ground is their common factor.

PNP OUTPUT

Sourcing (C)



• Ideal for single power supply applications.

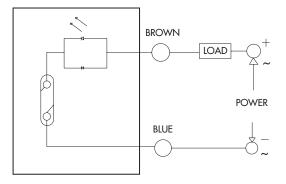
A "sourcing" output sensor completes a circuit by connecting the load to the supply current. All sourcing output sensors must have the same supply voltage.

Reed Sensor Specifications

Parameters	Compact Round Sensors
i di dilicicio	Reed Switch
Part Number	WRS_
Operating Voltage	5-120 V DC/AC 50/60 Hz
Switching Current	50 mA max (Resistive)
Voltage Drop	2.5 V max
Operating Frequency	200 Hz max
Switch Logic	SPST Normally Open
LED Indicator	Red
Circuit Protection	None
Environmental Certifications	IP67, NEMA6
Cable	Black/Grey
Magnet Requirement	50 Gauss Parallel
Temperature Range	14° to 158° F (-10° to +70° C)
Shock / Vibration	30 G / 9 G
Power Rating*	6 Watts

^{*} Warning: Never Exceed Rating (Watts = Volts x Amps) or permanent damage to sensor will occur.

Schematic and Wiring Diagram



GR Series: Product Features

Guided Rod Cylinder combines high strength with light weight and can be customized to fit your specific needs. Our exclusive Enersorb™ piston is self-lubricating, up to 50% quieter than regular pistons and provides unparalleled repeatable stroke.

Standard Options

- Stop Collars
- Magnetic Piston for sensors

Patented ENERSORB™

• High energy absorption

applications

repeatable stroke

extruded aluminum

 Anodized internal bore for longer cylinder life

Sensors

• Reed, PNP and

• Integral LED

NPN electronic

Low profile mounting

below body surface

Unparalleled

Body

blend of urethane material

Piston

- Bridge Plate
- Clean Room Option (Consult factory)

Temperature Range -20°F to 180°F. Consult factory for higher temperature. Rated Pressure 150 PSIG Air

Rod Seal

Nitrile seal

Tooling Plate Black anodized aluminum Available with tapped or counter bored holes and dowel locators Blank or custom plates also available **Piston and Guide Rods** • High strength, precision • Innovative design integrates chrome-plated steel seal, wear band, magnet and • Superior wear resistance bumpers into one component Stainless steel rods available • Reduces noise more than 50% • Extended cycle life from unique Rod Wiper (Optional) • Excellent for non-lubrication • Durable urethane construction provides secondary seal Piston and **Guide Rod Bearings** Durable and selflubricating, providing rigid support • High strength, light weight Other bearing materials available

Extruded Mounting Slots

Integrated for flexible mounting

How to Order: Guided Rod (GR) Cylinders

SERIES	BORE	BEARING TYPE	GUIDE TYPE	STROKE	TOOLING PLATE OPTION	OPTIONS	OPTIONS
GR -	12	- C -	SE	- 3.00 -	- N23	- N30	- N50
1	2	3	4	5	6	6	6

1		Model
	GR	Guided Rod Cylinder

2		Bore
	05	1/2"
	07	3/4"
	12	1 1/4"
	25	2 1/2"

3		Bearing Type
	C	Composite Bearing
	Р	Pacific Bearings
	В	Linear Ball Bearing

1	c	ertain stroke	Jide Type e lengths ma se of "SL"	y require										
	SE	Single End												
	SG	SE, 1/8" Tooling Plate Gap												
	DE	Double End												
	DG	DE, 1/8" Tooling Plate Gap												
	SL	For Strokes	Exceeding											
		Bore	Stroke											
		1/2" 2"												
		3/4"	4″											
		1 1/4"	6"	1/2										
		1 1/2"	8″	N										

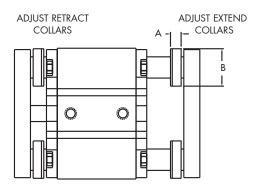
		*					
5	Stroke (example 2" = 2.00) Certain stroke lengths may require use of "SL" in "Guide Type"						
	X.XX	Single End					
	X,XX	Double End					

6		Options
	N10	Stop Collar Retract
	NII	Stop Collar Extend
	N22	Bridge Plate
	N23	Tapped Tooling Plate (STD)
	N24	Counterbored Tooling Plate
• 1	N26	Blank Tooling Plate
C	N30	Magnetic Piston
		(Order Sensors Separately)
	N40	Stainless Steel
		Piston Rod & Guide Rods*
	N50	Body Through Hole Mtg.
	N51	Body Threaded Hole Mtg.
		(Not available on 2 1/2" bore C.F.)
	150	Front Flange
	151	Rear Flange

*NOTE: Not available with Linear Ball Bearing.

Options & Mounting

Stop Collars										
Bore	A	В								
1/2	.44	.69								
3/4	.50	.88								
1 1/4	.55	1.13								
2 1/2	.75	1.75								



ı	Mounting Nut Dimensions (Included*)													
Bore	A	В	С	D	E									
1/2	.75	.44	.38	.16	#8-32									
3/4	1.13	.63	.56	.25	1/4-20									
1 1/4	1.13	.63	.56	.25	1/4-20									
2 1/2	1.75	1.25	.88	.25	5/16-18									

POSITION LOCKING

SCREW

TAP E

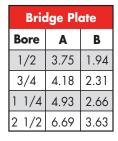
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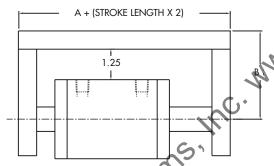
- C -

THRU TYP. 2 PLCS

*NOTE: Reference table below for quantity of nuts.

NOTE: Adjustable collars may interfere when collar is wider than tooling plate gap.





NOTE: Bridge plate width is the same as the standard teeling plate.								
Bore	Kit Part Number (1 Each)							
1/2" Bore	GRNUTSØ5KIT							
3/4" & 1-1/4" Bore	GRNUTSØ7KIT							
2-1/2" Bore	GRNUTS25KIT							

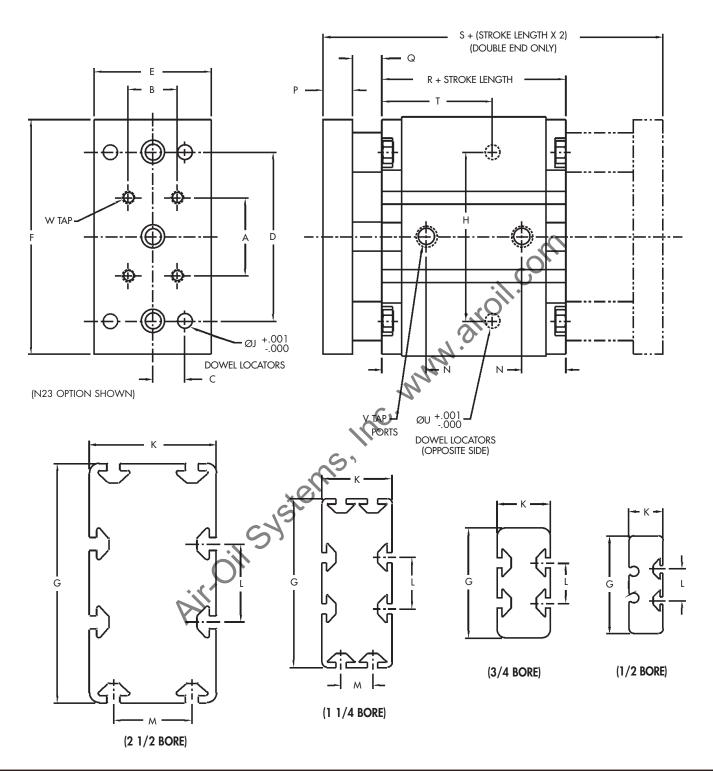
Bore	Kit Part Number (1 Each)
1/2" Bore	GRNUTSØ5KIT
3/4" & 1-1/4" Bore	GRNUTSØ7KIT
2-1/2" Bore	GRNUTS25KIT

	Quantity of Mounting Nuts											
Bore Size												
Stroke 1/2" 3/4" 1-1/4" 2-1/2												
1-3	4	4	4	4								
4-6	8	6	8	6								
<i>7</i> -10	12	10	12	10								
10+	12	12	12	12								

NOTE: Mounting nuts are included.

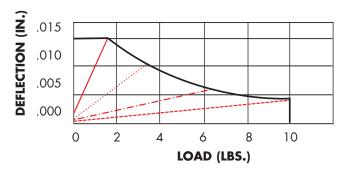


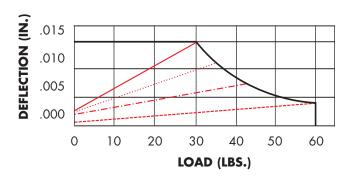
Dimensional Data

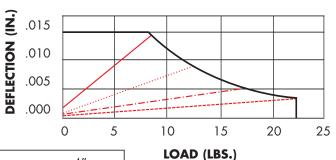


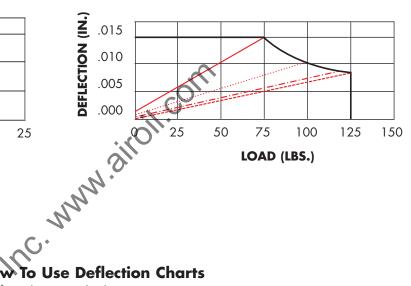
	Dimensional Specifications																				
Bore	A	В	C	D	E	F	G	Н	J	K	L	M	N	P	Q	R	S	T	U	V	W
1/2	.81	.44	.25	1.50	.75	2.47	2.50	1.50	.126	.88	.81	N/A	.63	.38	.50	2.00	3.31	.88	.126	#10-32	#8-32
3/4	1.03	.63	.38	1.88	1.13	2.75	2.81	1.88	.188	1.36	1.03	N/A	.71	.38	.50	2.43	3.93	1.31	.188	#10-32	1/4-20
1 1/4	1.31	.63	.50	2.63	1.50	3.69	4.31	2.63	.251	1.80	1.31	.81	.90	.50	.50	2.93	4.93	1.63	.251	1/8 NPT	1/4-20
2 1/2	2.00	1.25	.81	4.32	3.00	6.00	6.13	4.32	.376	3.25	2.00	2.00	1.13	.75	.75	3.69	6.69	2.81	.376	1/4 NPT	5/16-18

Deflection & Force Data







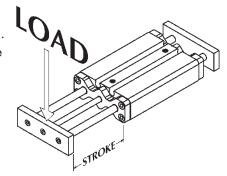


	4"
•••••	3"
	2"
	1"

Force Chart					
Bore	Theoretical Force (LBS.) at:				
		50 PSI	100 PSI	150 PSI	
1/2″	Extend	9.8	19.6	29.4	
	Retract	8.4	16.8	25.3	
3/4"	Extend	22.1	44.2	66.3	
	Retract	18.3	36.5	54.8	
1 1/4"	Extend	61.4	122.7	184.1	
	Retract	51.6	103.1	154.7	
2 1/2"	Extend	245.4	490.9	<i>7</i> 36.3	
	Retract	223.3	446.7	670.0	

How To Use Deflection Charts

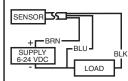
When selecting cylinder size, we recommend choosing parameters underneath the upper limit line (red). Selections above the upper limit line may adversely affect cylinder life or operation.



Sensors

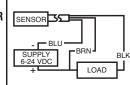
HALL EFFECT SENSOR **PNP SOURCING**

VOLTAGE 6-24 VDC CURRENT 200 ma Max



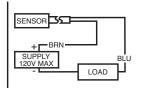
HALL EFFECT SENSOR **NPN SINKING**

VOLTAGE 6-24 VDC CURRENT 200 ma Max



AC/DC REED SENSOR

VOLTAGE 5-120 VAC/VDC CURRENT 1 ma min to 30 ma max



Special Note:

- 1. Sensors will be permanently damaged if operated without a load.
- 2. Do not exceed ratings or short circuit load.

Part Numbers						
Bore	PNP Sourcing	NPN Sinking	Reed			
1/2″	GRP-05	GRN-05	GRR-05			
3/4"	GRP-07	GRN-07	GRR-07			
1 1/4"	GRP-07	GRN-07	GRR-07			
2 1/2"	GRP-25	GRN-25	GRR-25			

NOTE: These part numbers represent one sensor and its mounting hardware.

Special Conditions and Limited Warranty

Determination of the suitability of any information or product for the application contemplated by any user or the manner of that use is the sole responsibility of the user.

Compact Automation Products, LLC reserves the right to improve or change designs without notice.

All orders are subject to acceptance by the factory sales department.

Compact Automation Products, LLC agrees to repair or replace to the original purchaser any standard parts or products for a period of 12 months from date of shipment which Compact Automation Products, LLC determines upon inspection to be defective in workmanship or material. Wear components including but not limited to seals and bearings are excluded from this warranty.

Under no circumstance may merchandise be returned without written authorization from the factory.

This warranty is void in the event the product has been tampered with, altered, or serviced by unauthorized personnel.

Compact Automation Products, LLC's total responsibility for any claims, damages, losses or liabilities related to the product covered thereunder shall not exceed the purchase price of such product. In no event shall Compact Automation Products, LLC be liable for any special, indirect, incidental or consequential damages of any character, including but not limited to loss of use of productive facilities of equipment, lost profit, property damage, transportation, installation or removal or lost production whether suffered by purchaser or third party. Compact Automation Products, LLC Inc. discaims all liability for any and all cost, claims demands, charges, expenses, and other damages, either direct or indirect, incident to all property damage arising out of any cause of action based on strict liability. This warranty gives you specific legal rights and you may have other rights, which vary from state to state.



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