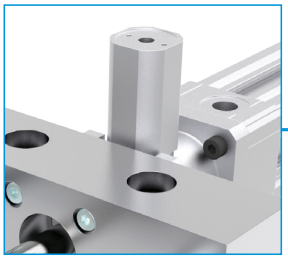
# SCV

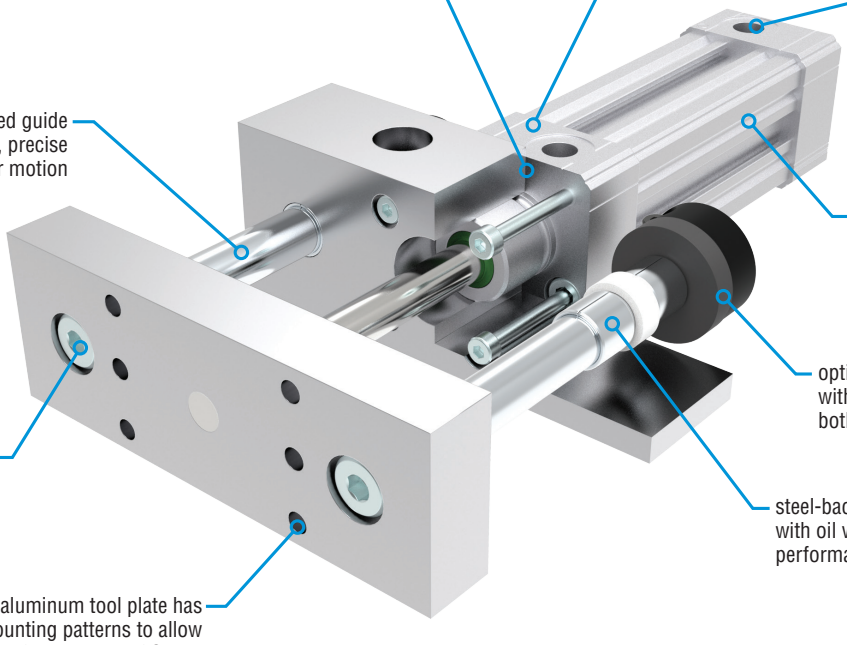
## Major Benefits

- Oversized guide rods
- Simple design
- Ideal for vertical or non-rotating applications
- Easy tooling mounting to tool plate
- Eight bore sizes to fit a wide range of applications
- Units are powered by PHD's rugged Series CV Cylinder



Rodlok can be added to securely hold a static tool plate in place at any point of travel desired

ideal for applications where rod drift due to system leakage, air line rupture, or electric power loss is unacceptable



anodized aluminum alloy body is supplied with counterbored holes for easy mounting of tooling and fixturing

optional cushions and port controls available

precision ground hardened guide shafts provide smooth, precise linear motion

PHD's Series CV Cylinder powers this unit for extra long life with a wide range of control and switch options

optional stroke adjustment collars with shock pads are available on both extend and retract

corrosion-resistant zinc-plated fasteners

steel-backed composite bearings with oil wick for improved performance and load capacities

anodized aluminum tool plate has modular mounting patterns to allow the attachment of other sizes of Series SCV Slides for 2-axis movement

# ORDERING DATA: Series SCV Slides

**TO ORDER, SPECIFY:**
Product, Cylinder, Type, Design No., Slide Size, Slide Travel, Tool Plate Extension, and Options

**SLIDE TRAVEL**

| SIZE | TRAVEL in | TRAVEL mm |
|---|---|---|
| 2 | 1-6 | 25-150 |
| 3 | 1-6 | 25-150 |
| 4 | 1-8 | 25-200 |
| 5 | 1-8 | 25-200 |
| 6 | 1-10 | 25-250 |
| 7 | 1-10 | 25-250 |
| 8 | 1-12 | 25-300 |
| 9 | 1-12 | 25-300 |

Available in 1" [25 mm] increments. Minimum travel required for all Series SCV Slides is 1" [25 mm]. Consult PHD for other stroke lengths.

**SLIDE OPTIONS**
AE - Travel adjustment and shock pads on extension (see Note 1)
AR - Travel adjustment and shock pads on retraction (see Note 1)
Z1 - Corrosion-resistant; guide shafts are hard chrome-plated stainless steel

**PRODUCT**
S - Slide

**DESIGN NO.**
3 - Imperial
7 - Metric

**TOOL PLATE EXTENSION**
Additional distance between tool plate and bearing body in 1" [25 mm] increments. Leave blank if additional extension is not required.

**S C V 7 3 x 25 x 25 - DB-M - AR-Z1 - SAxxx**

**CYLINDER**
C - CV Series Compatible

**SLIDES WITH LIGHT DUTY BUSHINGS**

| TYPE | SLIDE SIZE | BORE in | BORE mm | SHAFT SIZE in | SHAFT SIZE mm |
|---|---|---|---|---|---|
| V | 2 | 0.787 | 20 | 0.394 | 10 |
| V | 3 | 0.984 | 25 | 0.472 | 12 |
| V | 4 | 1.260 | 32 | 0.630 | 16 |
| V | 5 | 1.575 | 40 | 0.787 | 20 |
| V | 6 | 1.969 | 50 | 0.984 | 25 |
| V | 7 | 2.480 | 63 | 0.984 | 25 |
| V | 8 | 3.150 | 80 | 1.181 | 30 |
| V | 9 | 3.937 | 100 | 1.181 | 30 |

**WITH CYLINDER OPTIONS**
DB - Cushion controls on both ends (locations 1 & 5) (see Note 6)
DE - Cushion controls on extend only (location 1) (see Note 6)
DR - Cushion control retract only (location 5) (see Note 6)
H4 - Slide ready cylinder (CVxS cylinder only) replacement (see Notes 4 & 5)
H47 - Rodlok unit includes Rodlok, adaptor, cylinder, and slide preassembled (see Notes 4 & 5)
L7 - BSPP ports on imperial units
L9 - NPT ports on metric units
M - Magnetic piston for use with PHD Switches
PB - Port Controls® on both ends (locations 1 & 5) (see Note 6)
PE - Port Controls® on extend only (location 1) (see Note 6)
PR - Port Controls® on retract only (location 5) (see Note 6)
UBxx - Optional port location

**WITHOUT CYLINDER OPTIONS**
H1 - No cylinder, slide section only
Sizes 2 and 3 require a Series CVB Cylinder only. Sizes 4 through 9 use an ISO 6432/VDMA 24562 compliant cylinder.

**NOTES:**
1) Affects unit length. See option drawings for complete details. Options may decrease effective cushion length depending on position of stop collars.
2) -Z1 option may reduce cylinder performance due to chrome-plated stainless steel rod in place of chrome-plated alloy steel.
3) -H4 and -H47 are not available in -Z1.
4) Rodlok lock device is not available with -Z1.
5) Rodlok must be ordered separately when a replacement cylinder (-H4) is ordered with -H47 unit.
6) Standard ports, cushion controls, and port controls are in locations 1 & 5. Sizes 2 and 3 use 10-32 [M5] ports when combined with port controls on the same surface.
7) -M option must be included when specifying -SAxxx option.
8) Switch(es) included, but not installed. Cordsets for Quick Connect are ordered separately.
9) Replacement switches are available. See charts below.

**SWITCH OPTIONS** (see Notes 7 & 8)

**SAPK2**

**SWITCH CIRCUITRY**
B - AC/DC Reed
N - NPN (Sink) DC Solid State
P - PNP (Source) DC Solid State

**CABLE TYPE**
K - Quick Connect
2 - 2 Meter Cable

**QUANTITY**
1 - 1 Switch
2 - 2 Switches
3 - 3 Switches
4 - 4 Switches
5 - 5 Switches
6 - 6 Switches
7 - 7 Switches
8 - 8 Switches
9 - 9 Switches

## CORDSETS WITH QUICK CONNECT

| PART NO. | CABLE LENGTH |
|---|---|
| 61397-02 | 2 meter, 3 wire |
| 61397-05 | 5 meter, 3 wire |

**NOTE:** This cordset is used for both 3-wire and 2-wire applications. When used in 2-wire applications, refer to the schematic and disregard the black wire.

## SERIES 6250 REED SWITCHES

| PART NO. | DESCRIPTION | COLOR |
|---|---|---|
| 62507-1-02 | AC/DC Reed, 2 meter cable | Silver |
| 62517-1 | AC/DC Reed, Quick Connect | Silver |

## SERIES 6250 SOLID STATE SWITCHES

| PART NO. | DESCRIPTION | COLOR |
|---|---|---|
| 62505-1-02 | NPN (Sink) DC Solid State, 2 meter cable | Brown |
| 62506-1-02 | PNP (Source) DC Solid State, 2 meter cable | Tan |
| 62515-1 | NPN (Sink) DC Solid State, Quick Connect | Brown |
| 62516-1 | PNP (Source) DC Solid State, Quick Connect | Tan |

⚠ Options may affect unit length. See dimensional pages and option information details.

## CAD & Sizing Assistance

Use PHD's free online Product Sizing and CAD Configurator at **phdinc.com/myphd**

| SPECIFICATIONS | SERIES SCV |
|---|---|
| OPERATING PRESSURE | 35 psi min to 150 psi max [2.4 bar min to 10 bar max] air |
| OPERATING TEMPERATURE | -20° to +180°F [-29° to +82°C] |
| TRAVEL TOLERANCE | See table below |
| REPEATABILITY | ±0.001 in [±0.025 mm] of original position |
| VELOCITY | 80 in/sec [2 m/sec] max., zero load at 87 psi [6.9 bar] |
| LUBRICATION | Factory lubricated for rated life |
| MAINTENANCE | Field repairable |

| UNIT SIZE | GUIDE SHAFT DIAMETER | | BORE DIAMETER | | CYLINDER ROD DIAMETER | | SLIDE DIRECTION | EFFECTIVE AREA | | BASE WEIGHT | | TYPICAL DYNAMIC LOAD | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in | mm | in | mm | in | mm | | in² | mm² | lb | kg | lb | N |
| 2 | 0.394 | 10 | 0.787 | 20 | 0.315 | 8 | EXTEND | 0.49 | 314 | 1.65 + (0.17 x T) | 0.75 + (0.003 x T) | 9 | 40 |
| | | | | | | | RETRACT | 0.41 | 264 | | | | |
| 3 | 0.472 | 12 | 0.984 | 25 | 0.394 | 10 | EXTEND | 0.76 | 491 | 2.22 + (0.22 x T) | 1.01 + (0.004 x T) | 17 | 74 |
| | | | | | | | RETRACT | 0.64 | 412 | | | | |
| 4 | 0.630 | 16 | 1.260 | 32 | 0.472 | 12 | EXTEND | 1.25 | 804 | 3.70 + (0.35 x T) | 1.68 + (0.006 x T) | 27 | 122 |
| | | | | | | | RETRACT | 1.07 | 691 | | | | |
| 5 | 0.787 | 20 | 1.575 | 40 | 0.630 | 16 | EXTEND | 1.95 | 1257 | 5.80 + (0.50 x T) | 2.63 + (0.009 x T) | 38 | 171 |
| | | | | | | | RETRACT | 1.64 | 1056 | | | | |
| 6 | 0.984 | 25 | 1.969 | 50 | 0.787 | 20 | EXTEND | 3.04 | 1963 | 10.62 + (0.75 x T) | 4.82 + (0.013 x T) | 55 | 244 |
| | | | | | | | RETRACT | 2.56 | 1649 | | | | |
| 7 | 0.984 | 25 | 2.480 | 63 | 0.787 | 20 | EXTEND | 4.83 | 3117 | 13.49 + (0.79 x T) | 6.12 + (0.014 x T) | 83 | 367 |
| | | | | | | | RETRACT | 4.34 | 2803 | | | | |
| 8 | 1.181 | 30 | 3.150 | 80 | 0.984 | 25 | EXTEND | 7.79 | 5027 | 25.26 + (1.14 x T) | 11.46 + (0.020 x T) | 110 | 490 |
| | | | | | | | RETRACT | 7.03 | 4536 | | | | |
| 9 | 1.181 | 30 | 3.937 | 100 | 0.984 | 25 | EXTEND | 12.17 | 7854 | 34.39 + (1.22 x T) | 15.60 + (0.022 x T) | 165 | 734 |
| | | | | | | | RETRACT | 11.41 | 7363 | | | | |

**NOTES:**
1) T = Travel length inches [mm]
2) Thrust capacity, allowable mass, and dynamic moment capacity must be considered when selecting a slide.
3) For additional speed information, see Series CV Cylinders.

## TOTAL TRAVEL TOLERANCES

Tolerance on nominal travel length is shown in the following table:

| UNIT SIZE | NOMINAL TRAVEL | | NOMINAL TRAVEL TOLERANCE* | |
|---|---|---|---|---|
| | in | mm | in | mm |
| 2, 3 | L ≤ 4 | L ≤ 100 | +0.059/-0.000 | +1.50/-0.000 |
| | L > 4 | L > 100 | +0.079/-0.000 | +2.00/-0.000 |
| 4, 5, 6 | L ≤ 20 | L ≤ 500 | +0.079/-0.000 | +2.00/-0.000 |
| | L > 20 | L > 500 | +0.126/-0.000 | +3.20/-0.000 |
| 7, 8, 9 | L ≤ 20 | L ≤ 500 | +0.098/-0.000 | +2.50/-0.000 |
| | L > 20 | L > 500 | +0.157/-0.000 | +4.00/-0.000 |

**NOTE:** *Travel tolerance values measured at 60 ±4 psi due to impact seal design.

**CYLINDER FORCE CALCULATIONS**

| | Imperial F = P x A | Metric F = 0.1 x P x A |
|---|---|---|
| F = Cylinder Force | lbs | N |
| P = Operating Pressure | psi | bar |
| A = Effective Area (Extend or Retract) | in² | mm² |

## Application & Sizing Assistance

Use PHD's free online Product Sizing and Application at **www.phdinc.com/apps/sizing**

## SLIDE SELECTION

There are four major factors to consider when selecting a slide.

**1** **MAXIMUM ROLLING LOAD (Horizontal Applications Only)**

The Maximum Rolling Load Graphs (pages 98 to 100) are based on the load capacity of the bearings. These graphs show total travel (see definition below), attached load, and speed. By plotting any two of these three parameters it is possible to determine the maximum allowable value of the third for a specific slide.

**2** **MAXIMUM KINETIC ENERGY**

To determine the appropriate type of deceleration for the application, first, calculate total moving load.

a) Determine guide shaft and tool plate moving load $W_M$ from the table below.

b) Total Moving Load = $W_M$ + Attached Load

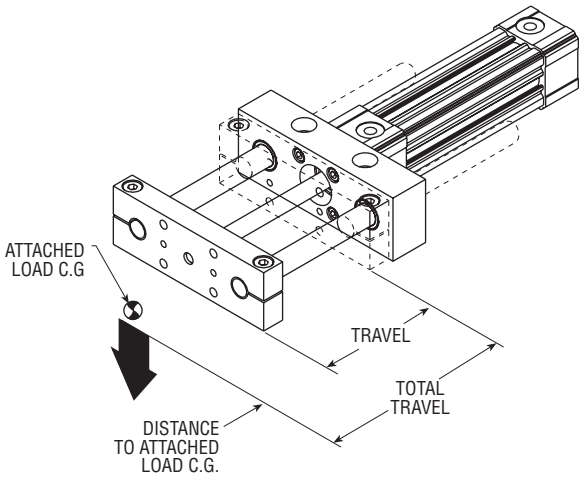
Next, plot the total moving load and impact velocity on the Kinetic Energy Graphs (pages 98 to 100). The line(s) above the point represent the acceptable means of decelerating the load. If the point falls above all three lines, choose a larger slide or modify the application parameters.

**3** **SHAFT DEFLECTION**

Use the Deflection Graphs (page 101) to determine if the deflection of the slide is within acceptable limits for the application. The Deflection Graphs for horizontal applications account for bearing and shaft clearances, tool plate and guide shaft weight, and are based on representative loads within the range of each slide. The graphs for vertical applications account for bearing and shaft clearances only.

**4** **AIR CYLINDER THRUST**

Use the effective piston area (see cylinder thrust calculation and specifications on previous page) to determine if the cylinder has sufficient thrust to move the total moving load as calculated at left. Maintain a minimum ratio of thrust to total moving load of 2 to 1.




## DEFINITION OF TOTAL TRAVEL:

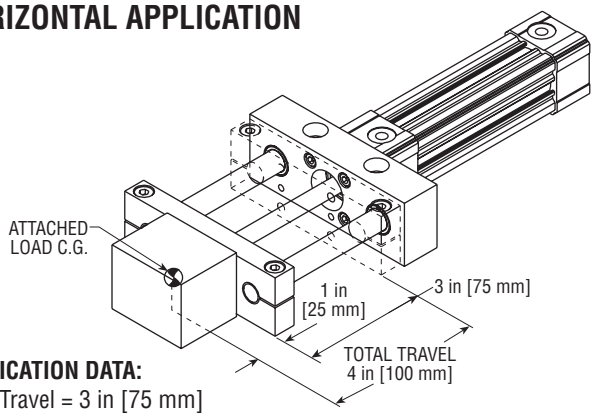
When the center of gravity (c.g.) of the attached load is located at a distance in front of the face of the slide tool plate, this distance should be added to the slide stroke length and any tool plate extension to establish the total travel. This total travel should be used in the Maximum Rolling Load Graphs.

Total Travel = Slide Travel + Tool Plate Extension + Distance to Attached Load c.g.

### GUIDE SHAFT AND TOOL PLATE MOVING LOAD ($W_M$) lb [kg]

| MODEL | TRAVEL in [mm] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 [25] | 2 [50] | 3 [75] | 4 [100] | 5 [125] | 6 [150] | 7 [175] | 8 [200] | 9 [225] | 10 [250] | 11 [275] | 12 [300] |
| SCVx2 | 0.53 [0.24] | 0.60 [0.27] | 0.67 [0.3] | 0.74 [0.34] | 0.81 [0.37] | 0.88 [0.4] | — | — | — | — | — | — |
| SCVx3 | 0.71 [0.32] | 0.81 [0.37] | 0.91 [0.41] | 1.01 [0.46] | 1.11 [0.5] | 1.21 [0.55] | — | — | — | — | — | — |
| SCVx4 | 1.1 [0.5] | 1.3 [0.6] | 1.5 [0.7] | 1.7 [0.8] | 1.8 [0.8] | 2.0 [0.9] | 2.2 [1] | 2.4 [1.1] | — | — | — | — |
| SCVx5 | 2.0 [0.9] | 2.3 [1.1] | 2.6 [1.2] | 2.9 [1.3] | 3.1 [1.4] | 3.4 [1.6] | 3.7 [1.7] | 4.0 [1.8] | — | — | — | — |
| SCVx6 | 3.9 [1.8] | 4.3 [2] | 4.8 [2.2] | 5.2 [2.4] | 5.6 [2.6] | 6.1 [2.8] | 6.5 [2.9] | 6.9 [3.1] | 7.4 [3.3] | 7.8 [3.5] | — | — |
| SCVx7 | 4.6 [2.1] | 5.0 [2.3] | 5.4 [2.5] | 5.9 [2.7] | 6.3 [2.9] | 6.7 [3.1] | 7.2 [3.3] | 7.6 [3.4] | 8.0 [3.6] | 8.5 [3.8] | — | — |
| SCVx8 | 9.1 [4.1] | 9.7 [4.4] | 10.3 [4.7] | 10.9 [5] | 11.6 [5.2] | 12.2 [5.5] | 12.8 [5.8] | 13.4 [6.1] | 14.1 [6.4] | 14.7 [6.7] | 15.3 [6.9] | 15.9 [7.2] |
| SCVx9 | 11.5 [5.2] | 12.1 [5.5] | 12.7 [5.8] | 13.4 [6.1] | 14.0 [6.3] | 14.6 [6.6] | 15.2 [6.9] | 15.9 [7.2] | 16.5 [7.5] | 17.1 [7.8] | 17.7 [8] | 18.3 [8.3] |

## HORIZONTAL APPLICATION




**APPLICATION DATA:**
Slide Travel = 3 in [75 mm]
Required Speed = 20 in/sec [0.51 m/sec]
Attached Load = 12 lb [5.4 kg], c.g. of load is 1 in [25 mm] from face of tool plate (c.g. location is needed to calculate total travel)
Operating Pressure = 60 psi [4 bar]

### SLIDE SIZING

**1. Determine Maximum Rolling Load**

a) Calculate Total Travel = Slide Travel + Distance to Load c.g. = 3 in + 1 in = 4 in [= 75 mm + 25 mm = 100 mm]

b) Plot total travel and required speed on Maximum Rolling Load Graphs (next three pages). The SCVx6 is acceptable, because for these parameters the slide can carry an attached load of 19 lb [8.6 kg] larger than the actual 12 lb [5.4 kg] load for this application.

**2. Determine Maximum Kinetic Energy**

a) Guide shaft and tool plate moving load is 4.8 lb [2.2 kg] (from table on previous page for SCVx6 with 3 in [75 mm] travel)

b) Total Moving Load = 4.8 lb + 12 lb (attached load) = 16.8 lb [= 2.2 kg + 5.4 kg = 7.6 kg]

c) Plot total moving load and velocity on the Kinetic Energy Graph for the SCVx6 (page 99). Since the point falls above the line for the cylinder only, appropriate deceleration methods would be either travel adjustment with shock pads or a cylinder with cushions.

**3. Shaft Deflection**

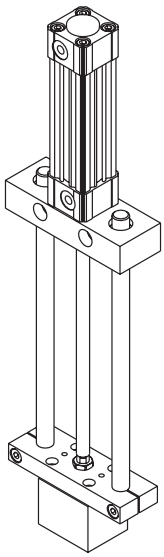
a) Using the Deflection Graphs for horizontal applications (page 101), verify that for the total travel of the selected slide the deflection is acceptable.

**4. Air Cylinder Thrust**

a) Using the effective piston area and the operating pressure, verify that the cylinder has sufficient thrust for the application.
Effective Piston Area = 2.56 $in^2$ [1649 $mm^2$] (from page 95)
Cylinder Thrust = 2.56 $in^2$ x 60 psi = 154 lb
[= 0.1 x 1649 $mm^2$ x 4 = 660 N]
Total Moving Weight = 16.8 lb [7.6 kg x 9.8 $m/sec^2$ = 75 N]

The cylinder thrust is significantly more than the total moving weight and is therefore acceptable.

## VERTICAL APPLICATION



**APPLICATION DATA:**
Slide Travel = 10 in [250 mm]
Required Speed = 40 in/sec [1 m/sec]
Attached Load = 5 lb [2.3 kg]
Operating Pressure = 60 psi [4 bar]

### SLIDE SIZING

The required slide travel is 10 in [250 mm], and therefore an SCVx6 or larger slide must be used.

**1. Determine Maximum Rolling Load**

a) Since the application is vertical, this step is not necessary.

**2. Determine Maximum Kinetic Energy**

Without knowing which specific slide is going to be used, this step may require some iterations. Start with the SCVx6 since it is the smallest Series SCV Slide with the necessary travel.

a) The guide shaft and tool plate moving load is 7.8 lb [3.5 kg] (from table on previous page for SCVx6 with 10 in [250 mm] travel).

b) Total Moving Load = 7.8 lb + 5 lb = 12.8 lb [= 3.5 kg + 2.3 kg = 5.8 kg]

c) Plot total moving load and velocity on the kinetic energy graph for the SCVx6 (page 99).

d) The point is below the "cylinder with cushion" curve but above the other two curves. Therefore to use the SCVx6, a cylinder with cushions would be required to decelerate the load. (A larger slide could be used if desired but the total moving load would need to be adjusted to determine the appropriate deceleration method using the kinetic energy graphs.)

**3. Shaft Deflection**

a) Using the vertical application Deflection Graphs (page 101), verify that for the total travel of the selected slide the deflection is acceptable. Note that the deflection shown on this graph represents the total side play of the slide with no load applied.

**4. Air Cylinder Thrust**

a) Using the effective piston area and the operating pressure, verify that the cylinder has sufficient thrust for the application.
Effective Piston Area = 2.56 $in^2$ [1649 $mm^2$] (from page 95)
Cylinder Thrust = 2.56 $in^2$ x 60 psi = 154 lb
[= 0.1 x 1649 $mm^2$ x 4 = 660 N]
Total Moving Weight = 12.8 lb [5.8 kg x 9.8 $m/sec^2$ = 57 N]

The cylinder thrust is significantly more than the total moving weight and is therefore acceptable.

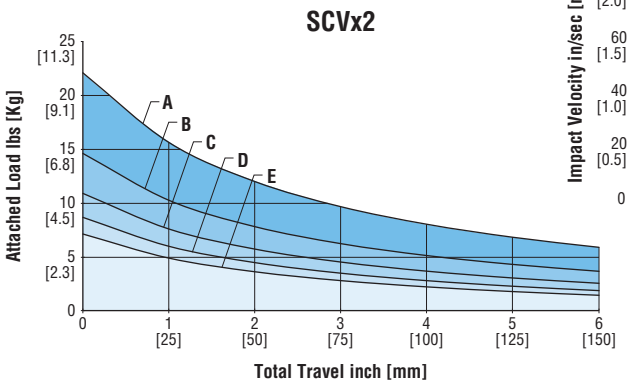
## MAXIMUM ROLLING LOAD GRAPHS

A = 10 in/sec [0.25 m/sec]
B = 15 in/sec [0.38 m/sec]
C = 20 in/sec [0.51 m/sec]
D = 25 in/sec [0.64 m/sec]
E = 30 in/sec [0.76 m/sec]

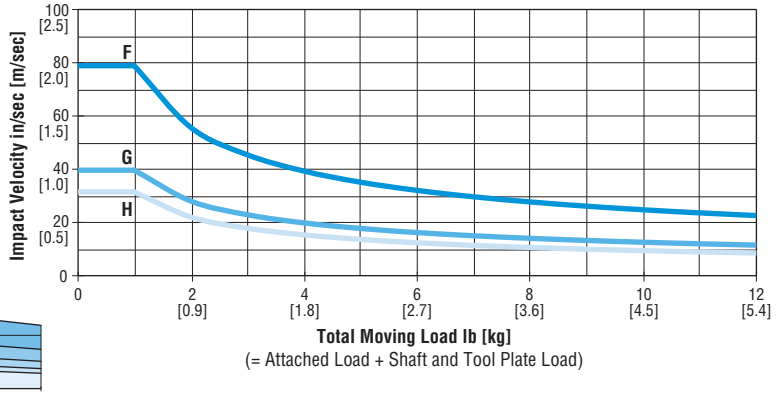
## KINETIC ENERGY GRAPHS

F = Cylinder with cushion
G = Travel adjustment and shock pad
H = Cylinder only

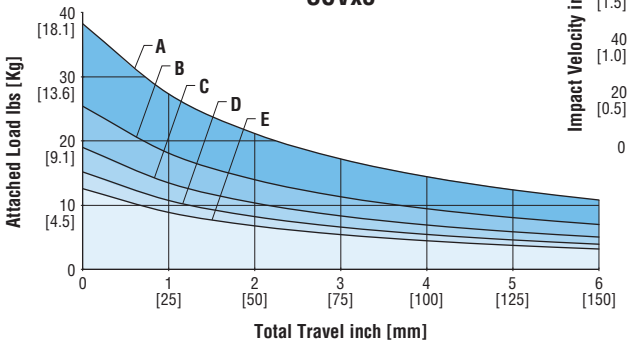
### SCVx2



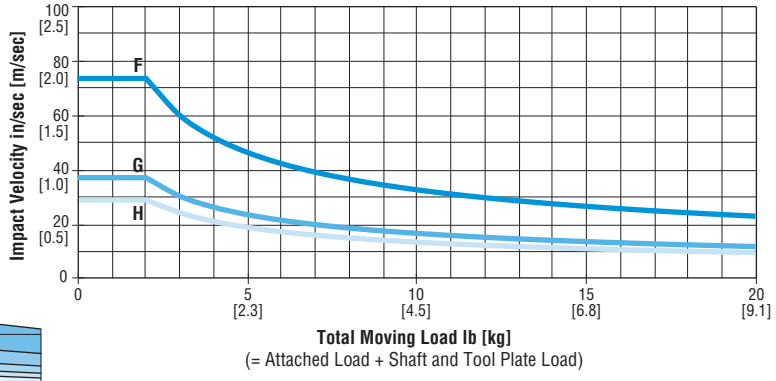

### SCVx2



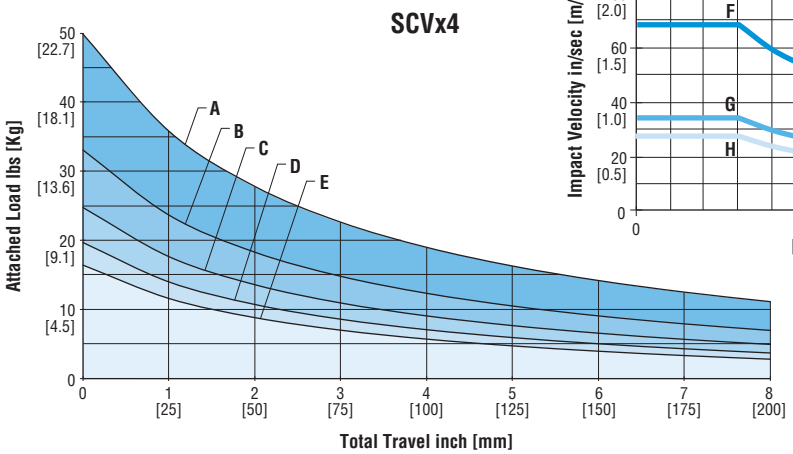

### SCVx3



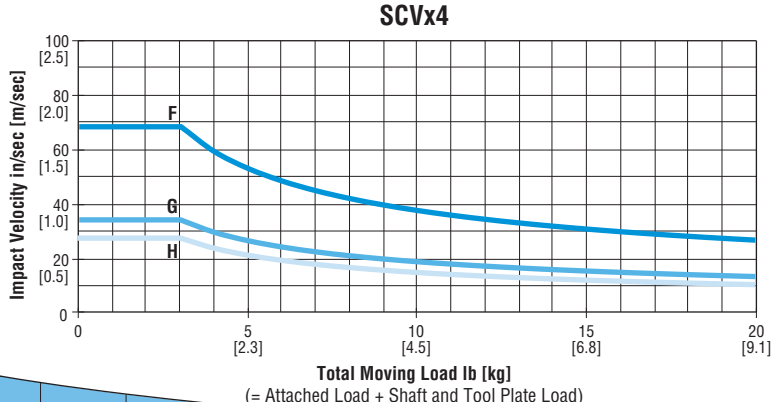

### SCVx3




### SCVx4




### SCVx4



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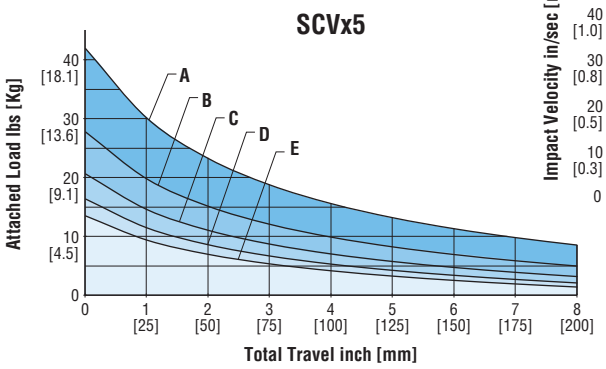
## MAXIMUM ROLLING LOAD GRAPHS

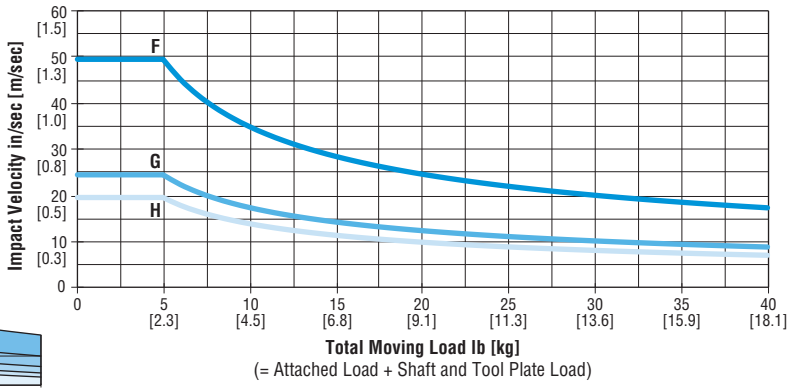
A = 10 in/sec [0.25 m/sec]
B = 15 in/sec [0.38 m/sec]
C = 20 in/sec [0.51 m/sec]
D = 25 in/sec [0.64 m/sec]
E = 30 in/sec [0.76 m/sec]

## KINETIC ENERGY GRAPHS

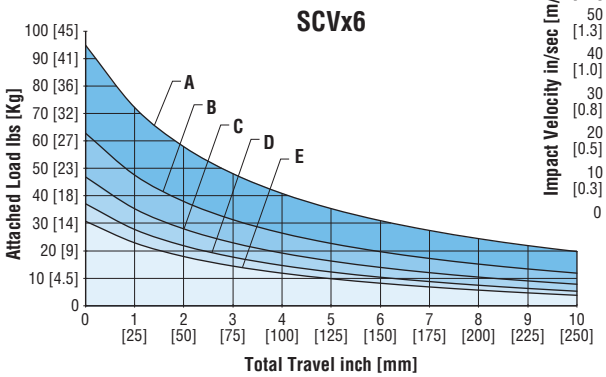
F = Cylinder with cushion
G = Travel adjustment and shock pad
H = Cylinder only

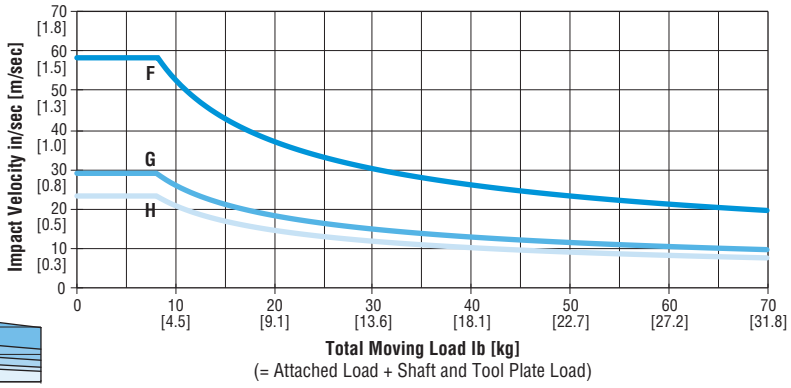
### SCVx5



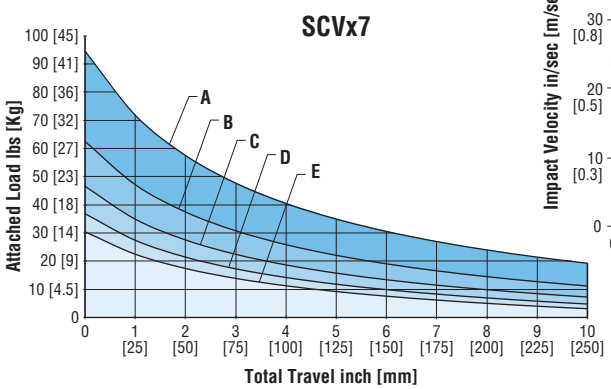



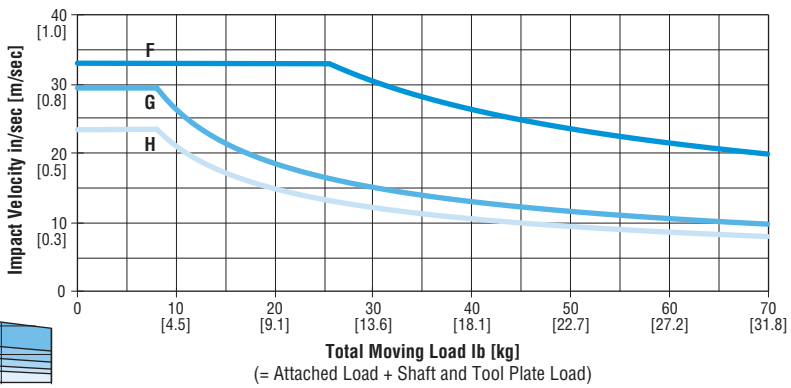

### SCVx6




### SCVx7



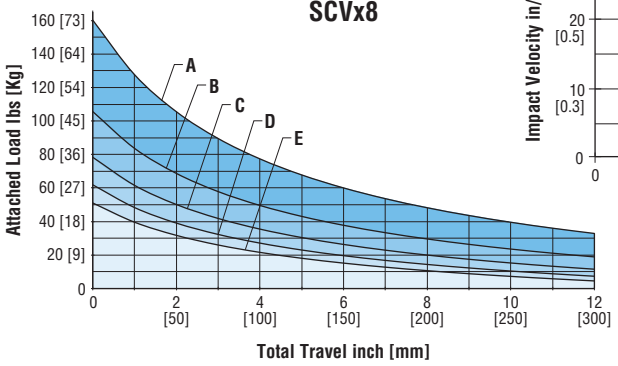



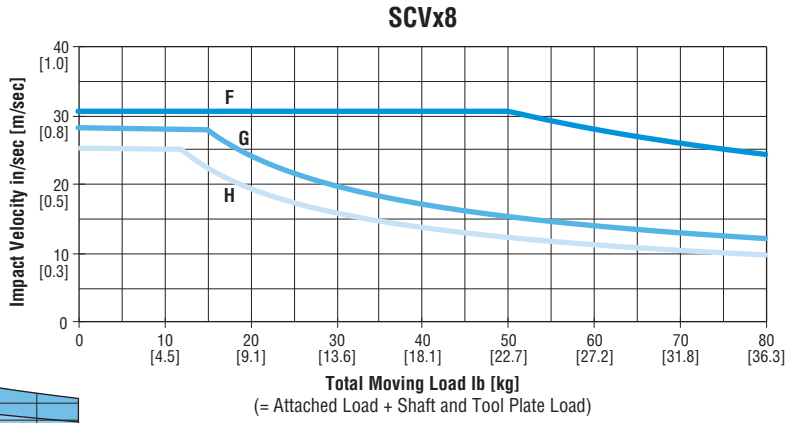
## MAXIMUM ROLLING LOAD GRAPHS

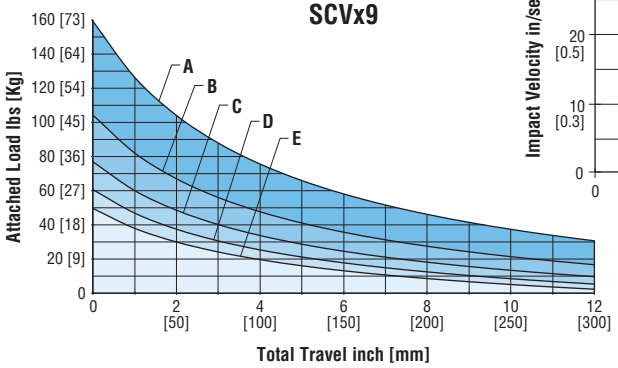
A = 10 in/sec [0.25 m/sec]
B = 15 in/sec [0.38 m/sec]
C = 20 in/sec [0.51 m/sec]
D = 25 in/sec [0.64 m/sec]
E = 30 in/sec [0.76 m/sec]

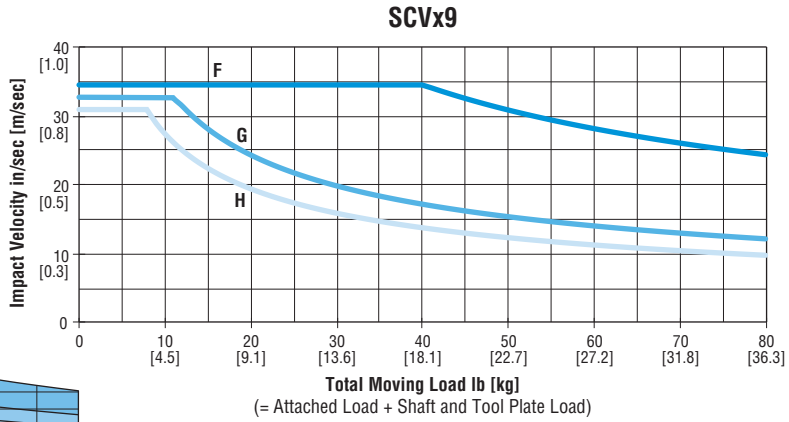
## KINETIC ENERGY GRAPHS

F = Cylinder with cushion
G = Travel adjustment and shock pad
H = Cylinder only



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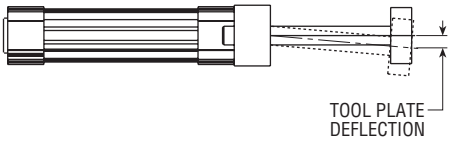
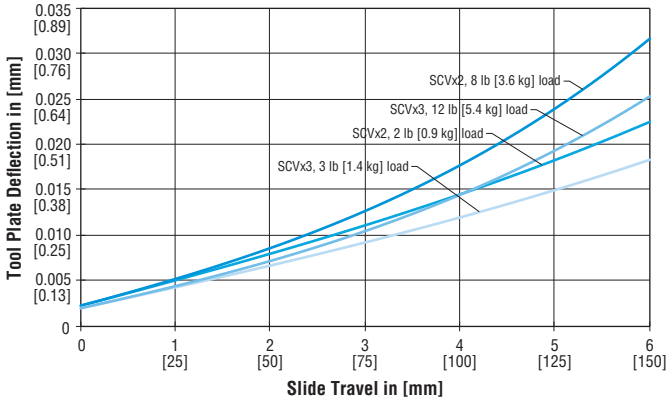
## DEFLECTION GRAPHS: HORIZONTAL APPLICATIONS

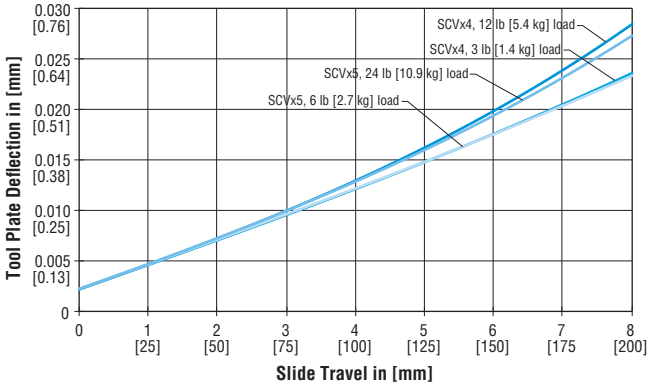
Deflections shown below are for representative light and heavy loads for each size slide.



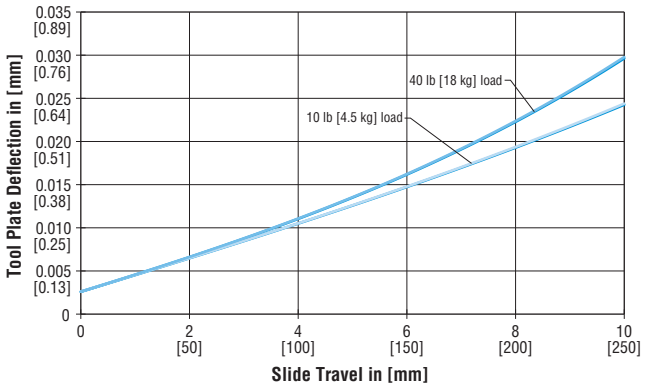

### SCVx2 & SCVx3



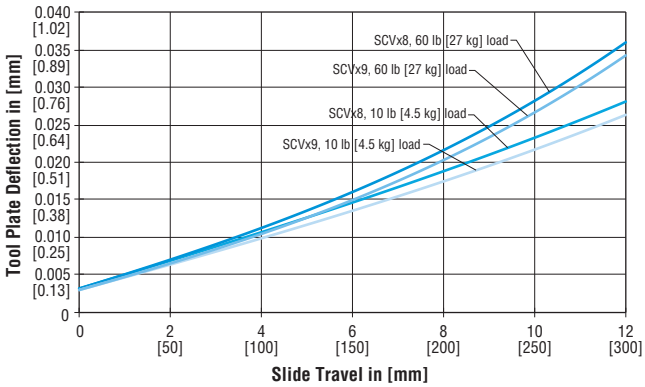

### SCVx4 & SCVx5




### SCVx6 & SCVx7

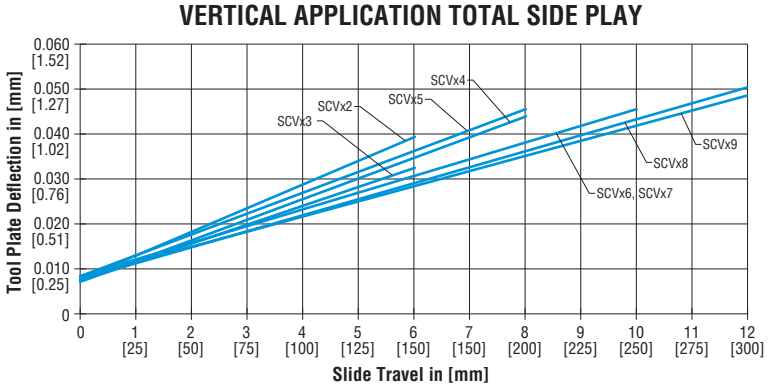


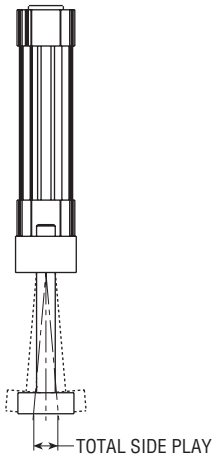

### SCVx8 & SCVx9



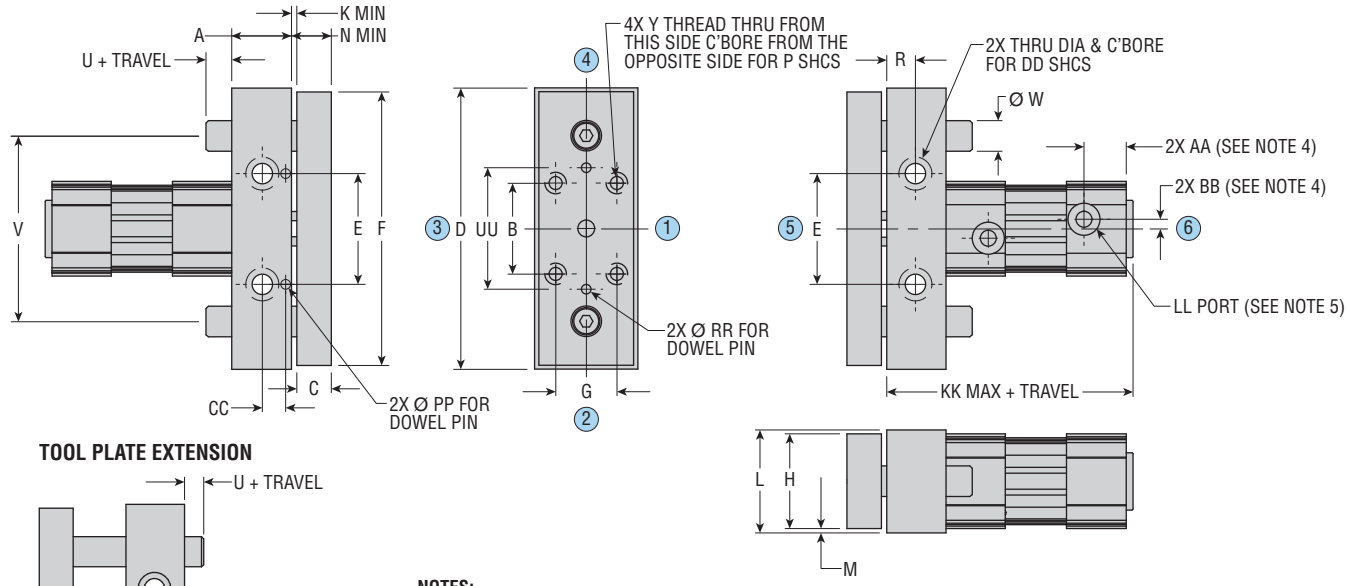

## DEFLECTION GRAPHS: VERTICAL APPLICATIONS

### VERTICAL APPLICATION TOTAL SIDE PLAY

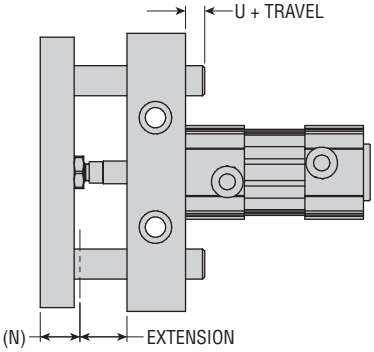


# DIMENSIONS: Series SCV Slides




### TOOL PLATE EXTENSION




**NOTES:**

1) FOR OPTION DIMENSIONS AND DETAILS, SEE OPTIONS PAGES.
2) ALL DIMENSIONS ARE CENTERED ON CENTERLINE OF UNIT UNLESS OTHERWISE SPECIFIED.
3) UNIT TRAVEL = STROKE + TOOL PLATE EXTENSION. THE TOTAL UNIT TRAVEL SHOULD NOT EXCEED THE MAXIMUM RECOMMENDED TRAVEL.
4) PORTS MAY APPEAR ON EITHER SIDE OF THE SLIDE CENTERLINE BASED ON OPTION COMBINATIONS.
5) ALL UNITS, EXCEPT PORT WTH PORT CONTROL ON SAME SIDE, COMPLY WITH DIN 3852 PART 2 PORT SPECIFICATIONS FOR SHORT STUD AND LARGE SEALING SURFACE.

### DOWEL HOLE TOLERANCES

| PP & RR Ø HOLE | DOWEL HOLE TOLERANCE |
|---|---|
| 0.1976 [5] | +0.0005/-0.0005 [+0.032/+0.006] |
| 0.3156 [8] | +0.0005/-0.0005 [+0.029/+0.004] |

| LETTER DIM | MODEL NUMBER | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SCVx2 | | SCVx3 | | SCVx4 | | SCVx5 | | SCVx6 | | SCVx7 | | SCVx8 | | SCVx9 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm |
| PHD CYL. BORE | 0.787 | 20.0 | 0.984 | 25.0 | 1.260 | 32.0 | 1.575 | 40.0 | 1.969 | 50.0 | 2.480 | 63.0 | 3.150 | 80.0 | 3.937 | 100.0 |
| A | 1.102 | 28.0 | 1.299 | 33.0 | 1.220 | 31.0 | 1.417 | 36.0 | 1.772 | 45.0 | 1.772 | 45.0 | 2.205 | 56.0 | 2.402 | 61.0 |
| B | 1.516 | 38.5 | 1.969 | 50.0 | 1.870 | 47.5 | 2.283 | 58.0 | 2.559 | 65.0 | 3.150 | 80.0 | 3.543 | 90.0 | 4.724 | 120.0 |
| C | 0.630 | 16.0 | 0.669 | 17.0 | 0.709 | 18.0 | 0.906 | 23.0 | 1.220 | 31.0 | 1.220 | 31.0 | 1.732 | 44.0 | 1.732 | 44.0 |
| D | 4.409 | 112.0 | 4.783 | 121.5 | 5.787 | 147.0 | 6.929 | 176.0 | 8.563 | 217.5 | 8.563 | 217.5 | 10.748 | 273.0 | 11.339 | 288.0 |
| E | 1.969 | 50.0 | 1.870 | 47.5 | 2.283 | 58.0 | 2.559 | 65.0 | 3.150 | 80.0 | 3.543 | 90.0 | 4.724 | 120.0 | 5.315 | 135.0 |
| F | 4.252 | 108.0 | 4.626 | 117.5 | 5.630 | 143.0 | 6.772 | 172.0 | 8.406 | 213.5 | 8.406 | 213.5 | 10.591 | 269.0 | 11.181 | 284.0 |
| G | 0.906 | 23.0 | 1.181 | 30.0 | 1.260 | 32.0 | 1.417 | 36.0 | 1.772 | 45.0 | 1.417 | 36.0 | 1.496 | 38.0 | 1.969 | 50.0 |
| H | 1.417 | 36.0 | 1.614 | 41.0 | 1.890 | 48.0 | 2.283 | 58.0 | 2.717 | 69.0 | 3.386 | 86.0 | 3.937 | 100.0 | 4.921 | 125.0 |
| K | 0.098 | 2.5 | 0.099 | 2.5 | 0.118 | 3.0 | 0.118 | 3.0 | 0.118 | 3.0 | 0.118 | 3.0 | 0.118 | 3.0 | 0.118 | 3.0 |
| L | 1.575 | 40.0 | 1.772 | 45.0 | 2.047 | 52.0 | 2.441 | 62.0 | 2.874 | 73.0 | 3.543 | 90.0 | 4.331 | 110.0 | 5.315 | 135.0 |
| M | 0.079 | 2.0 | 0.079 | 2.0 | 0.079 | 2.0 | 0.079 | 2.0 | 0.079 | 2.0 | 0.079 | 2.0 | 0.197 | 5.0 | 0.197 | 5.0 |
| N | 0.728 | 18.5 | 0.768 | 19.5 | 0.827 | 21.0 | 1.024 | 26.0 | 1.338 | 34.0 | 1.338 | 34.0 | 1.850 | 47.0 | 1.850 | 47.0 |
| P | #6 | M4 | #10 | M4 | 1/4 | M6 | 5/16 | M8 | 3/8 | M10 | 3/8 | M10 | 1/2 | M12 | 1/2 | M12 |
| R | 0.630 | 16.0 | 0.709 | 18.0 | 0.709 | 18.0 | 0.906 | 23.0 | 1.063 | 27.0 | 1.063 | 27.0 | 1.299 | 33.0 | 1.299 | 33.0 |
| U | 0.394 | 10.0 | 0.394 | 10.0 | 0.394 | 10.0 | 0.394 | 10.0 | 0.394 | 10.0 | 0.394 | 10.0 | 0.394 | 10.0 | 0.394 | 10.0 |
| V | 2.992 | 76.0 | 3.189 | 81.0 | 3.819 | 97.0 | 4.606 | 117.0 | 5.630 | 143.0 | 5.630 | 143.0 | 7.283 | 185.0 | 7.874 | 200.0 |
| W | 0.394 | 10.0 | 0.472 | 12.0 | 0.630 | 16.0 | 0.787 | 20.0 | 0.984 | 25.0 | 0.984 | 25.0 | 1.181 | 30.0 | 1.181 | 30.0 |
| Y | 10-32 | M5 x 0.8 | 1/4-20 | M6 x 1 | 5/16-24 | M8 x 1.25 | 3/8-24 | M10 x 1.5 | 7/16-20 | M12 x 1.75 | 7/16-20 | M12 x 1.75 | 5/8-18 | M16 x 2.0 | 5/8-18 | M16 x 2.0 |
| AA | 0.354 | 9.0 | 0.354 | 9.0 | 0.630 | 16.0 | 0.728 | 18.5 | 0.728 | 18.5 | 0.787 | 20.0 | 0.709 | 18.0 | 0.866 | 22.0 |
| BB | 0.167 | 4.2 | 0.177 | 4.5 | 0.197 | 5.0 | 0.236 | 6.0 | 0.236 | 6.0 | 0.394 | 10.0 | 0.394 | 10.0 | 0.472 | 12.0 |
| CC | 0.355 | 9.0 | 0.374 | 9.5 | 0.472 | 12.0 | 0.630 | 16.0 | 0.709 | 18.0 | 0.748 | 19.0 | 0.984 | 25.0 | 0.984 | 25.0 |
| DD | 1/4 | M6 | 5/16 | M8 | 3/8 | M10 | 7/16 | M12 | 7/16 | M12 | 5/8 | M16 | 3/4 | M20 | 3/4 | M20 |
| KK | 3.819 | 97.0 | 4.134 | 105.0 | 5.079 | 129.0 | 5.709 | 145.0 | 6.102 | 155.0 | 6.693 | 170.0 | 7.402 | 188.0 | 7.992 | 203.0 |
| LL | 1/8 | G 1/8 | 1/8 | G 1/8 | 1/8 | G 1/8 | 1/4 | G 1/4 | 1/4 | G 1/4 | 3/8 | G 3/8 | 3/8 | G 3/8 | 1/2 | G 1/2 |
| PP | 0.1976 | 5.0 | 0.1976 | 5.0 | 0.1976 | 5.0 | 0.3156 | 8.0 | 0.3156 | 8.0 | 0.3156 | 8.0 | 0.3156 | 8.0 | 0.3156 | 8.0 |
| RR | 0.1976 | 5.0 | 0.1976 | 5.0 | 0.1976 | 5.0 | 0.3156 | 8.0 | 0.3156 | 8.0 | 0.3156 | 8.0 | 0.3156 | 8.0 | 0.3156 | 8.0 |
| UU | 1.929 | 49.0 | 1.969 | 50.0 | 1.870 | 47.5 | 2.953 | 75.0 | 3.543 | 90.0 | 3.150 | 80.0 | 3.543 | 90.0 | 4.724 | 120.0 |

## CAD & Sizing Assistance

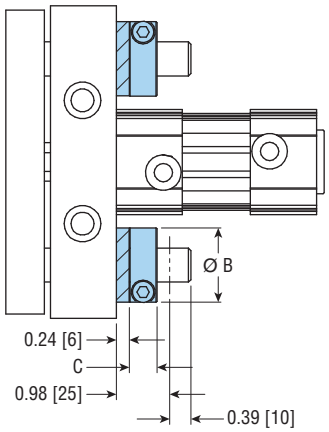
Use PHD's free online Product Sizing and CAD Configurator at **phdinc.com/myphd**

All dimensions are reference only unless specifically toleranced.

## AE TRAVEL ADJUSTMENT AND SHOCK PADS ON EXTENSION

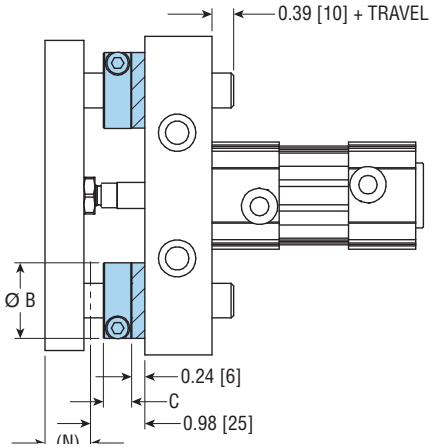
Two travel adjustment stop collars with polyurethane shock pads are used for adjustment of slide extension. The travel adjustment stop collars allow precise adjustment while the shock pads eliminate metal to metal contact, thereby reducing noise levels.

(SHOWN WITH ZERO TRAVEL)




## AR TRAVEL ADJUSTMENT AND SHOCK PADS ON RETRACTION

Two travel adjustment stop collars with polyurethane shock pads are used for adjustment of slide retraction. The travel adjustment stop collars allow precise adjustment while the shock pads eliminate metal to metal contact, thereby reducing noise levels.




| LETTER DIM | MODEL NUMBER | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SCVx2 | | SCVx3 | | SCVx4 | | SCVx5 | | SCVx6 | | SCVx7 | | SCVx8 | | SCVx9 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm |
| Ø B | 0.984 | 25 | 1.102 | 28 | 1.378 | 35 | 1.654 | 42 | 1.890 | 48 | 1.890 | 48 | 2.165 | 55 | 2.165 | 55 |
| C | 0.394 | 10 | 0.433 | 11 | 0.512 | 13 | 0.591 | 15 | 0.591 | 15 | 0.591 | 15 | 0.591 | 15 | 0.591 | 15 |
| N | 0.728 | 18.5 | 0.768 | 19.5 | 0.827 | 21 | 1.024 | 26 | 1.339 | 34 | 1.339 | 34 | 1.850 | 47 | 1.850 | 47 |

**NOTE:** -AE and -AR options may decrease effective cushion length depending on position of stop collars.

## Z1 CORROSION RESISTANT

This option provides a stainless steel piston rod with hard chrome plating in place of the standard hard chrome plated steel material. Guide shafts are hard chrome plated stainless steel. An appropriate corrosion resistant treatment is applied to ferrous parts.

## L7 BSPP PORTS (On imperial units)

This option provides G (BSPP) ports on imperial (SCV3x) units instead of the standard NPT ports. The G (BSPP) ports are located in the same location as the NPT ports.

## L9 NPT PORTS (On metric units)

This option provides NPT ports on metric (SCV7x) units instead of the standard BSPP ports. The NPT ports are located in the same location as the BSPP ports.

| MODEL | NPT PORT | BSPP PORT |
|---|---|---|
| SCVx2 | 1/8* | G 1/8* |
| SCVx3 | 1/8* | G 1/8* |
| SCVx4 | 1/8 | G 1/8 |
| SCVx5 | 1/4 | G 1/4 |
| SCVx6 | 1/4 | G 1/4 |
| SCVx7 | 3/8 | G 3/8 |
| SCVx8 | 3/8 | G 3/8 |
| SCVx9 | 1/2 | G 1/2 |

**NOTE:** *When port controls are specified on the same face as ports, the metric port is M5 and the imperial port is a 10-32 port.

All dimensions are reference only unless specifically toleranced.

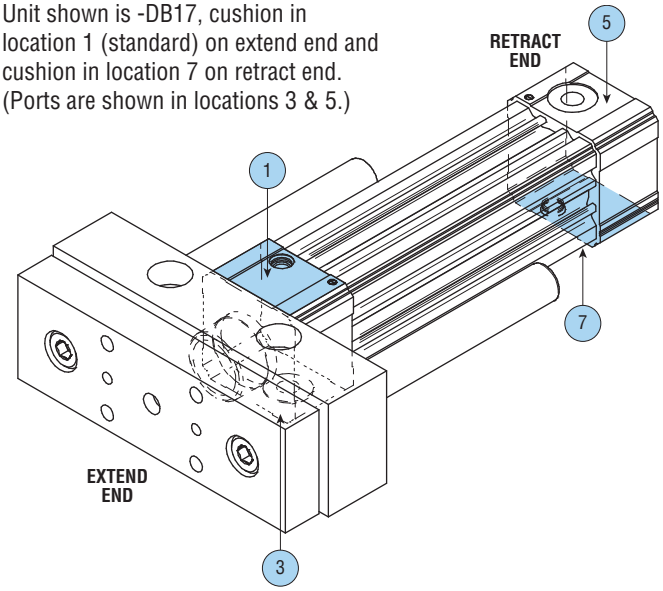
**DB** **CUSHION CONTROL IN BOTH DIRECTIONS**
**(Standard location 1 & 5)**

**DE** **CUSHION CONTROL ON EXTEND ONLY**
**(Standard location 1)**

**DR** **CUSHION CONTROL ON RETRACT ONLY**
**(Standard location 5)**

PHD cushions are designed for smooth deceleration at the ends of cylinder stroke. When the cushion is activated, the remaining volume in the cylinder must exhaust past an adjustable needle valve which controls the amount of deceleration. The effective cushion length for each bore size is shown in the table below. To specify alternative cushion control locations on the head or cap, see the option code below right.

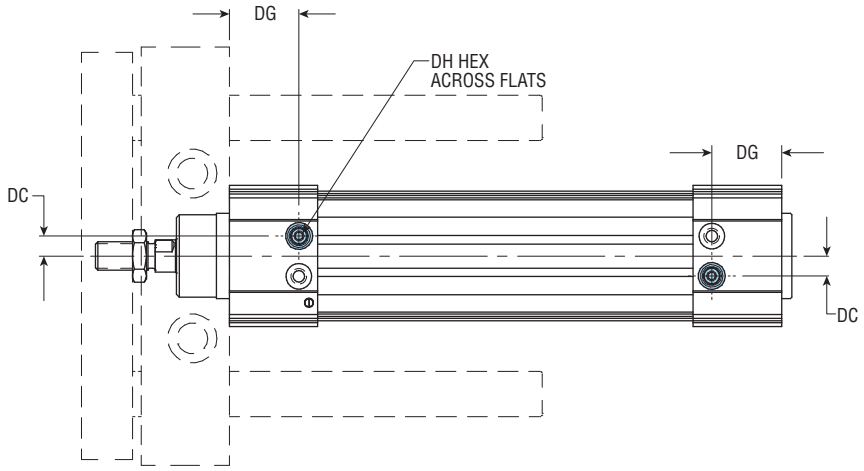
Unit shown is -DB17, cushion in location 1 (standard) on extend end and cushion in location 7 on retract end. (Ports are shown in locations 3 & 5.)




## CUSHION CONTROL OPTIONS

**-D x x x**

| CUSHION CONTROL LOCATIONS | EXTEND LOCATION | RETRACT LOCATION |
|---|---|---|
| B - Both ends<br>E - Extend end only<br>R - Retract end only | (1, 3)<br>**Omit if -DRx** | (5, 7)<br>**Omit if -DEx** |




| LETTER DIM | MODEL NUMBER | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SCVx2 | | SCVx3 | | SCVx4 | | SCVx5 | | SCVx6 | | SCVx7 | | SCVx8 | | SCVx9 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm |
| DC | 0.190 | 4.8 | 0.226 | 5.7 | 0.276 | 7.0 | 0.374 | 9.5 | 0.394 | 10.0 | 0.354 | 9.0 | 0.591 | 15.0 | 0.630 | 16.0 |
| DG | 0.581 | 14.8 | 0.561 | 14.2 | 0.965 | 24.5 | 1.083 | 27.5 | 1.043 | 26.5 | 1.201 | 30.5 | 1.181 | 30.0 | 1.339 | 34.0 |
| DH | — | 2.5 | — | 2.5 | — | 2.5 | — | 2.5 | — | 2.5 | — | 2.5 | — | 3.0 | — | 3.0 |
| EFFECTIVE CUSHION LENGTH* | 0.441 | 11.2 | 0.468 | 11.9 | 0.599 | 15.2 | 0.808 | 20.5 | 0.871 | 22.1 | 0.805 | 20.4 | 0.892 | 22.7 | 1.190 | 30.2 |

**NOTE:** -AE and -AR options may decrease effective cushion length depending on position of stop collars.

All dimensions are reference only unless specifically toleranced.

## H47 RODLOK SLIDE & RODLOK

PHD's Rodlok is ideal for locking the tool plate while in a static/ stationary position. When the pressure is removed from the port of the Rodlok, the mechanism will grip the piston rod of the cylinder and prevent it from moving. The loads are held indefinitely without power. Rodlok performance is application and environment sensitive (cleanliness of rod or Rodlok will also affect performance).

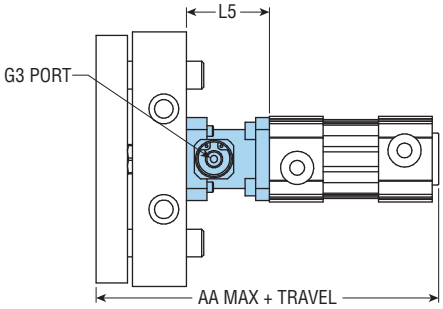
THE RODLOK IS NOT DESIGNED TO BE USED AS A PERSONAL SAFETY DEVICE.

| SIZE | STATIC LOCKING FORCE* | |
|---|---|---|
| | lb | N |
| 2 | 79 | 350 |
| 3 | 90 | 400 |
| 4 | 135 | 600 |
| 5 | 225 | 1000 |
| 6 | 337 | 1500 |
| 7 | 495 | 2200 |
| 8 | 674 | 3000 |
| 9 | 1124 | 5000 |

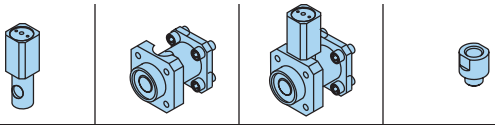
**NOTE:** *Locking force indicated above is the actual locking force with a dry, clean rod and does not include any safety factor.

## OPERATING PRESSURE

The operating pressure for the locking device is different than the operating pressure for the slide to which it is attached. The locking device of the Rodlok is designed with an operating pressure range of 60 psi minimum to 150 psi maximum [4 to 10 bar]. The Series SCV Slide with a Rodlok attached has an operating pressure range of 45 psi minimum to 150 psi maximum [3 to 10 bar].




### RODLOK KITS



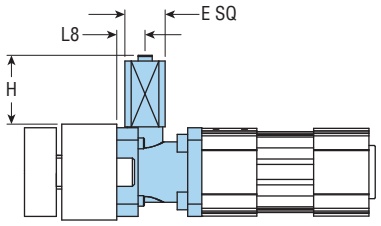
| SIZE | LOCKING DEVICE KIT | ADAPTOR KIT* | COMPLETE RODLOK* | IMPERIAL PORT ADAPTOR |
|---|---|---|---|---|
| 2 | 63459-07-1 | 63460-07-1 | 63461-07-1 | — |
| 3 | 63459-08-1 | 63460-08-1 | 63461-08-1 | — |
| 4 | 63459-01-1 | 63460-01-1 | 63461-01-1 | — |
| 5 | 63459-02-1 | 63460-02-1 | 63461-02-1 | 63465-1 |
| 6 | 63459-03-1 | 63460-03-1 | 63461-03-1 | 63465-1 |
| 7 | 63459-04-1 | 63460-04-1 | 63461-04-1 | 63465-1 |
| 8 | 63459-05-1 | 63460-05-1 | 63461-05-1 | 63465-1 |
| 9 | 63459-06-1 | 63460-06-1 | 63461-06-1 | 63465-1 |

**NOTES:**
1) *Kits ship with cylinder mounting hardware
2) Part numbers listed above are intended for replacement purposes only and are to be used specifically on slides with the -H47 option.
3) Imperial port adaptor converts port from G 1/8 to 1/8 NPT.
4) When ordering a replacement cylinder (-H4), Rodlok must be ordered separately.

| SIZE | DEVICE WEIGHT | | ADAPTOR WEIGHT | | TOTAL WEIGHT | |
|---|---|---|---|---|---|---|
| | lb | kg | lb | kg | lb | kg |
| 2 | 0.14 | 0.06 | 0.14 | 0.06 | 0.31 | 0.14 |
| 3 | 0.14 | 0.06 | 0.16 | 0.07 | 0.36 | 0.16 |
| 4 | 0.20 | 0.09 | 0.28 | 0.13 | 0.57 | 0.26 |
| 5 | 0.30 | 0.14 | 0.44 | 0.20 | 0.93 | 0.42 |
| 6 | 0.54 | 0.24 | 0.84 | 0.38 | 1.76 | 0.80 |
| 7 | 0.88 | 0.40 | 1.3 | 0.59 | 2.56 | 1.16 |
| 8 | 1.40 | 0.64 | 2.88 | 1.31 | 5.04 | 2.29 |
| 9 | 2.12 | 0.96 | 4.76 | 2.16 | 7.66 | 3.47 |

**NOTE:** Total weight includes rod adder for -H67/-H47 cylinder.

The Rodlok locking device and adaptor can be purchased separately as kits. See chart above. The locking device and adaptor are not available with a corrosion-resistant (-Z1 option) finish.




| LETTER DIM | MODEL NUMBER | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SCVx2 | | SCVx3 | | SCVx4 | | SCVx5 | | SCVx6 | | SCVx7 | | SCVx8 | | SCVx9 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm |
| H | 1.280 | 32.5 | 1.181 | 30.0 | 1.339 | 34.0 | 1.476 | 37.5 | 1.811 | 46.0 | 1.811 | 46.0 | 2.520 | 64.0 | 2.224 | 56.5 |
| E | 0.807 | 20.5 | 0.807 | 20.5 | 0.984 | 25.0 | 1.083 | 27.5 | 1.280 | 32.5 | 1.614 | 41.0 | 1.929 | 49.0 | 2.087 | 53.0 |
| G3 | M5 | M5 | M5 | M5 | 1/8 | G 1/8 | 1/8 | G 1/8 | 1/8 | G 1/8 | 1/8 | G 1/8 | 1/8 | G 1/8 | 1/8 | G 1/8 |
| L5 | 1.575 | 40 | 1.732 | 44 | 1.890 | 48 | 2.165 | 55 | 2.756 | 70 | 2.756 | 70 | 3.543 | 90 | 3.622 | 92 |
| L8 | 0.512 | 13 | 0.512 | 13 | 0.630 | 16 | 0.768 | 19.5 | 0.827 | 21 | 0.827 | 21 | 1.102 | 28 | 1.063 | 27 |
| AA | 5.394 | 137 | 5.866 | 149 | 6.969 | 177 | 7.874 | 200 | 8.858 | 225 | 9.449 | 240 | 10.945 | 278 | 11.614 | 295 |

All dimensions are reference only unless specifically toleranced.

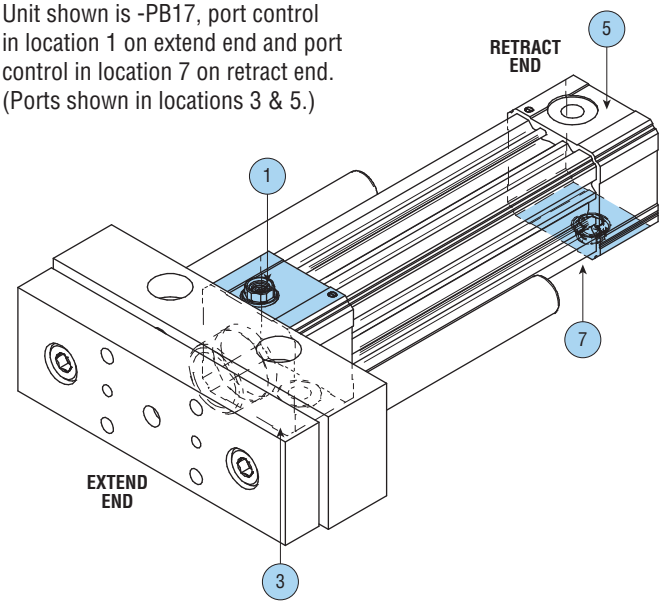
## PB PORT CONTROLS® ON BOTH ENDS
**(Standard location 1 & 5)**

## PE PORT CONTROLS® ON EXTEND ONLY
**(Standard location 1)**

## PR PORT CONTROLS® ON RETRACT ONLY
**(Standard location 5)**

PHD's Port Control® is a built-in flow control for regulating the speed of the slide through its entire stroke. The Port Control operates on the "meter-out" principle and features an adjustable needle in a cartridge with a check seal. The self-locking needle has micrometer threads and is adjustable under pressure. The needle determines the orifice size which controls the exhaust flow rate of the actuator. The check seal expands while air is exhausting from the actuator, forcing the air to exhaust past the adjustable needle. The check seal collapses to allow a free flow of incoming air. The PHD Port Control saves space and eliminates the cost of fittings and installation for external flow control valves. Refer to option code to specify port control locations.

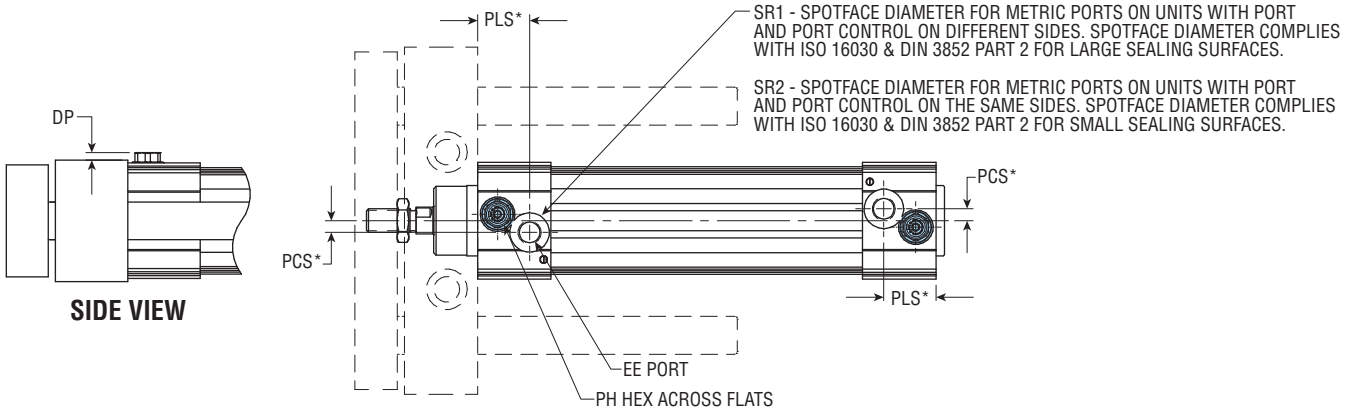
Unit shown is -PB17, port control in location 1 on extend end and port control in location 7 on retract end. (Ports shown in locations 3 & 5.)




### PORT CONTROL OPTIONS

**-P x x x**

| PORT CONTROL LOCATIONS | EXTEND LOCATION | RETRACT LOCATION |
|---|---|---|
| B - Both ends<br>E - Extend end only<br>R - Retract end only | (1, 3)<br>**Omit if -PRx** | (5, 7)<br>**Omit if -PEx** |




| LETTER DIM | MODEL NUMBER | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SCVx2 | | SCVx3 | | SCVx4 | | SCVx5 | | SCVx6 | | SCVx7 | | SCVx8 | | SCVx9 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm |
| EE* | 10-32 | M5 | 10-32 | M5 | 1/8 NPT | G 1/8 | 1/4 NPT | G 1/4 | 1/4 NPT | G 1/4 | 3/8 NPT | G 3/8 | 3/8 NPT | G 3/8 | 1/2 NPT | G 1/2 |
| PCS* | 0.276 | 7.0 | 0.276 | 7.0 | 0.197 | 5.0 | 0.236 | 6.0 | 0.236 | 6.0 | 0.450 | 11.4 | 0.512 | 13.0 | 0.906 | 23.0 |
| PH | — | 2.5 | — | 2.5 | — | 2.5 | — | 2.5 | — | 2.5 | — | 3.0 | — | 3.0 | — | 6.0 |
| PLS* | 0.571 | 14.5 | 0.571 | 14.5 | 0.867 | 22.0 | 0.925 | 23.5 | 0.925 | 23.5 | 0.984 | 25.0 | 1.024 | 26.0 | 1.142 | 29.0 |
| SR1* | — | 16.5 | — | 16.5 | — | 19.0 | — | 25.0 | — | 25.0 | — | 28.0 | — | 28.0 | — | 34.0 |
| SR2 | 0.354 | 9.0 | 0.354 | 9.0 | — | 16.5 | — | 19.0 | — | 19.0 | — | 23.0 | — | 23.0 | — | 27.0 |
| DP* | 0.066 | 1.7 | 0.026 | 0.7 | 0.209 | 5.3 | 0.122 | 3.1 | 0.024 | 0.6 | 0.004 | 0.1 | -0.201 | -5.1 | -0.189 | -4.8 |

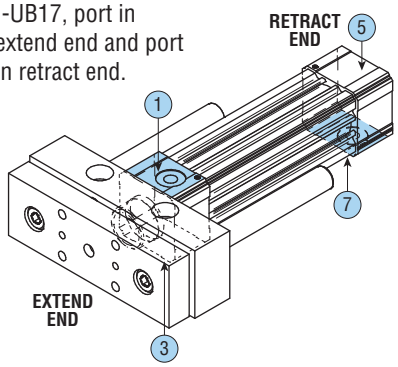
**NOTE:** *Dimensions shown are for units with port and port control in the same location. For units with other port and port control combinations, standard port location dimensions apply. Ports may be located on either side of the slide centerline depending on port control and cushion option combinations.

All dimensions are reference only unless specifically toleranced.

## UB ALTERNATE PORT LOCATION

This option offers alternate port locations that can be specified, providing increased flexibility and customer convenience. See option code to specify port locations.

Unit shown is -UB17, port in location 1 on extend end and port in location 7 on retract end.




### PORT LOCATION OPTIONS

-UB x x

| EXTEND LOCATION (HEAD) | RETRACT LOCATION (CAP) |
|---|---|
| (1, 3) | (5, 7) |

## M MAGNET FOR PHD REED AND SOLID STATE SWITCHES

This option equips the cylinder with a magnetic band on the piston for use with PHD Reed and Solid State Switches listed to the right. These switches mount easily to the cylinder using "T" slots in the body. **See the Switches section for complete switch information.**

### SERIES 6250 REED SWITCHES

| PART NO. | DESCRIPTION | COLOR |
|---|---|---|
| 62507-1-02 | AC/DC Reed, 2 meter cable | Silver |
| 62517-1 | AC/DC Reed, Quick Connect | Silver |

### SERIES 6250 SOLID STATE SWITCHES

| PART NO. | DESCRIPTION | COLOR |
|---|---|---|
| 62505-1-02 | NPN (Sink) DC Solid State, 2 meter cable | Brown |
| 62506-1-02 | PNP (Source) DC Solid State, 2 meter cable | Tan |
| 62515-1 | NPN (Sink) DC Solid State, Quick Connect | Brown |
| 62516-1 | PNP (Source) DC Solid State, Quick Connect | Tan |

## SA SWITCH INCLUDED

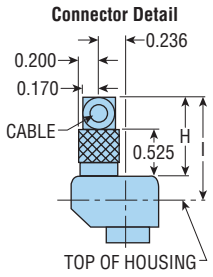
Switches are included, but not installed with this option. The -M option must be included when specifying this option. See option code to specify the switches to be included.

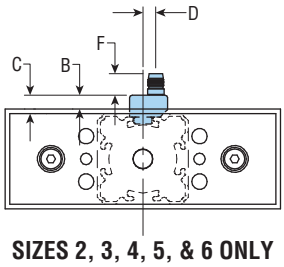
**NOTE:** Cordsets for Quick Connect are ordered separately. See page 94 and Switches section for complete ordering information.

### SWITCH INCLUDED OPTIONS

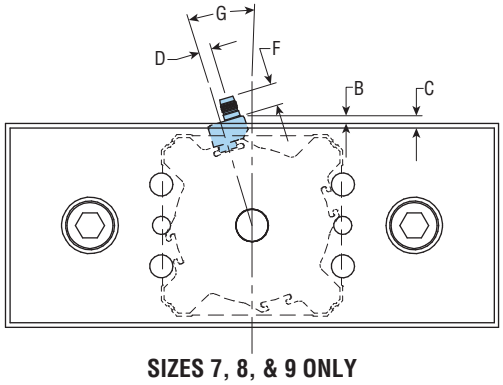
-SA x x x

| SWITCH CIRCUITRY | CABLE TYPE | QUANTITY |
|---|---|---|
| B - AC/DC Reed | K - Quick Connect | 1 - 1 Switch |
| N - NPN (Sink) DC Solid State | 2 - 2 Meter Cable | 2 - 2 Switches |
| P - PNP (Source) DC Solid State | | 3 - 3 Switches |
| | | 4 - 4 Switches |
| | | 5 - 5 Switches |
| | | 6 - 6 Switches |
| | | 7 - 7 Switches |
| | | 8 - 8 Switches |
| | | 9 - 9 Switches |

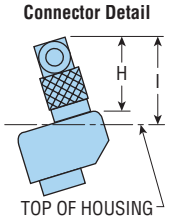



SIZES 2, 3, 4, 5, & 6 ONLY




SIZES 7, 8, & 9 ONLY




| LETTER DIM | MODEL NUMBER | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SCVx2 | | SCVx3 | | SCVx4 | | SCVx5 | | SCVx6 | | SCVx7 | | SCVx8 | | SCVx9 | |
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm |
| B | 0.223 | 5.7 | 0.223 | 5.7 | 0.187 | 4.8 | 0.138 | 3.5 | 0.187 | 4.8 | 0.138 | 3.5 | 0.059 | 1.5 | -0.079* | -2.0* |
| C | 0.302 | 7.7 | 0.302 | 7.7 | 0.266 | 6.8 | 0.217 | 5.5 | 0.266 | 6.8 | 0.217 | 5.5 | 0.256 | 6.5 | 0.000 | 0.0 |
| D | 0.228 | 5.8 | 0.228 | 5.8 | 0.228 | 5.8 | 0.228 | 5.8 | 0.228 | 5.8 | 0.228 | 5.8 | 0.228 | 5.8 | 0.228 | 5.8 |
| F | 0.373 | 9.5 | 0.373 | 9.5 | 0.373 | 9.5 | 0.373 | 9.5 | 0.373 | 9.5 | 0.373 | 9.5 | 0.373 | 9.5 | 0.373 | 9.5 |
| G | — | — | — | — | — | — | — | — | — | — | 17° | 17° | 20° | 20° | 24° | 24° |
| H | 0.870 | 22.1 | 0.870 | 22.1 | 0.870 | 22.1 | 0.870 | 22.1 | 0.870 | 22.1 | 0.831 | 21.1 | 0.819 | 20.8 | 0.795 | 20.2 |
| I | 1.113 | 28.3 | 1.113 | 28.3 | 1.077 | 27.3 | 1.008 | 25.6 | 1.037 | 26.3 | 0.969 | 24.6 | 0.878 | 22.3 | 0.717 | 18.2 |

**NOTE:** *Dimension is below the indicated surface.

All dimensions are reference only unless specifically toleranced.