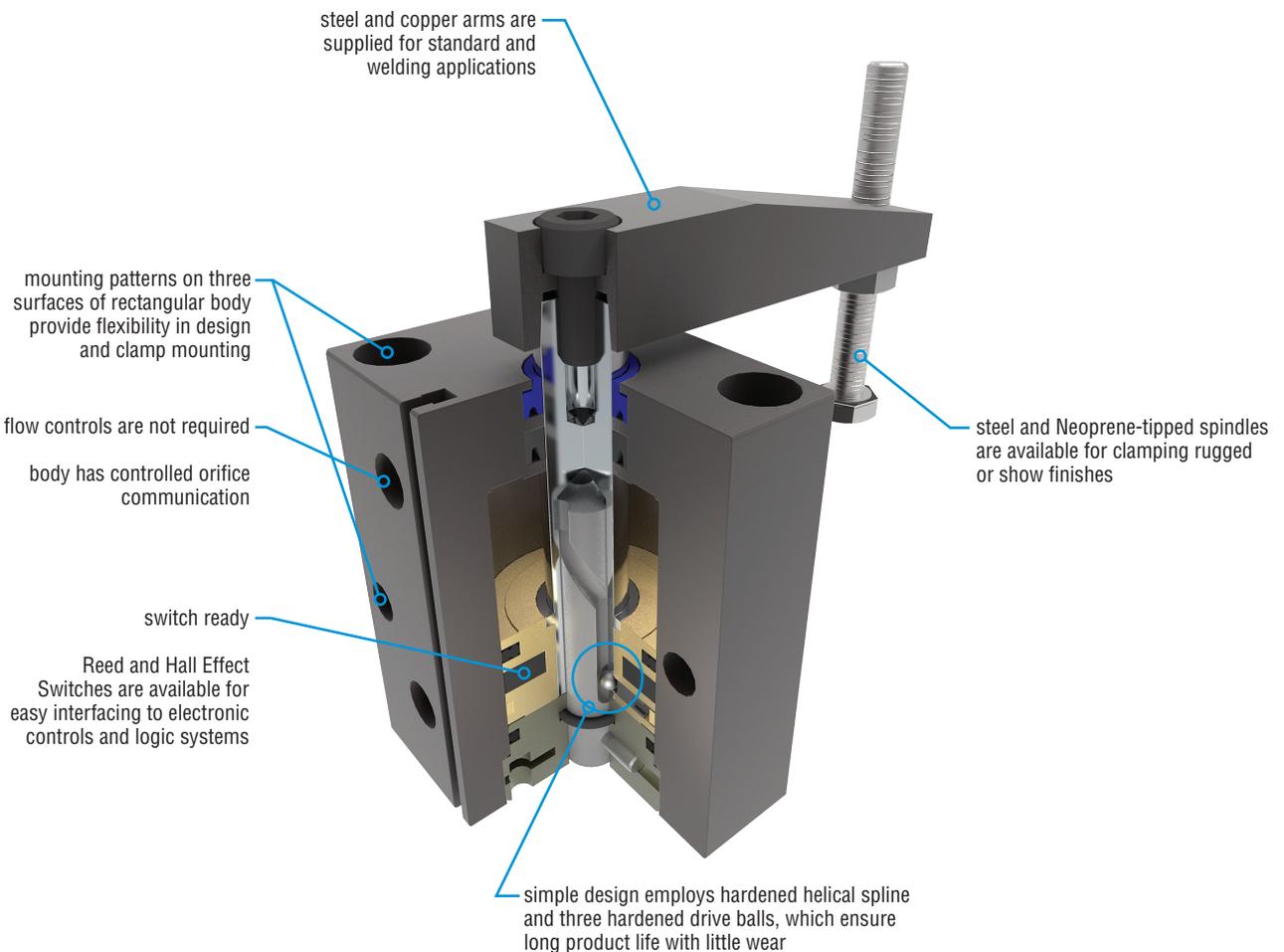
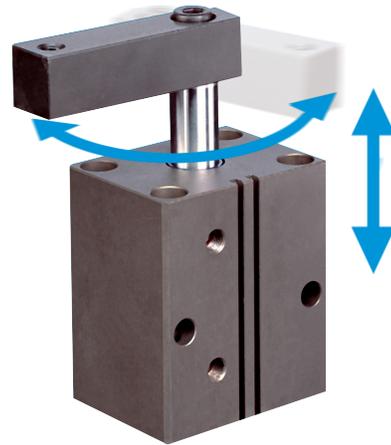


## PA

### Major Benefits

- Simple design, compact size, for low weight, long life, and high clamp force make these clamps ideal for part holding or transfer
- Available in five sizes
- Mounting patterns on three surfaces
- Available in left and right rotations

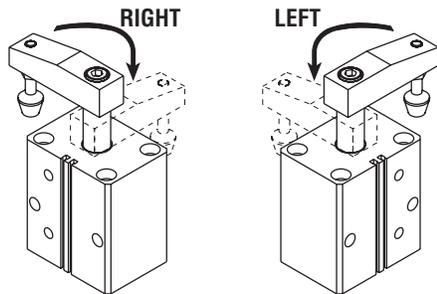
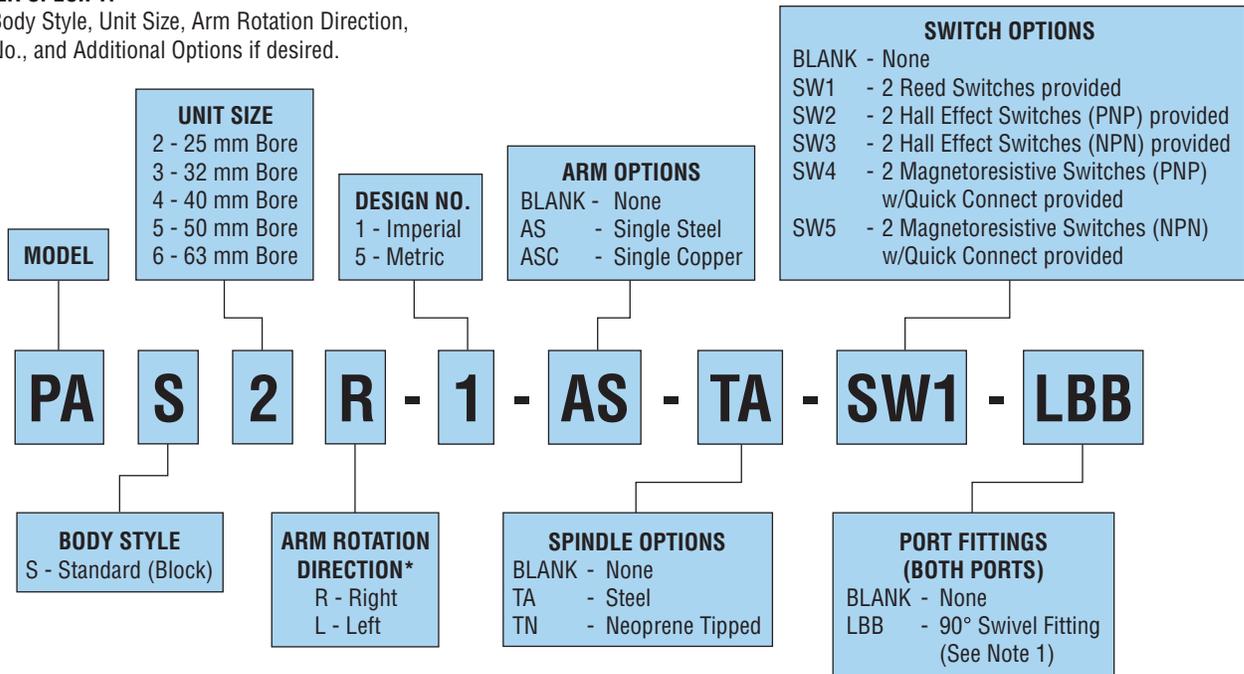


left and right rotations can be ordered to fit application

# ORDERING DATA: Series PA

## TO ORDER SPECIFY:

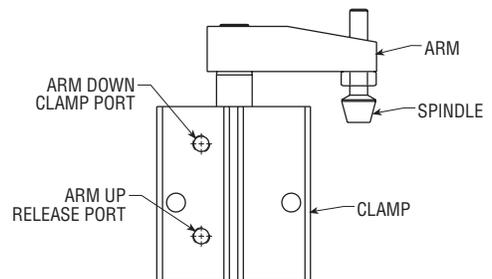
Model, Body Style, Unit Size, Arm Rotation Direction, Design No., and Additional Options if desired.



\*NOTE: Rotation is the direction the arm rotates when clamping and looking down at rod end.

### NOTE:

1) 90° Swivel fittings not available on size 2 units.



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](http://phdinc.com/myphd)

SPECIFICATIONS	SERIES PA
WORKING PRESSURE	40 psi min. - 100 psi max. [2.9 bar min. - 7 bar max.]
BODY	Hardcoated Aluminum
PISTON ROD	Chrome Plated Steel
SEALS	Urethane Wiper and Rod Seal Nitrile Pistons and Static Seals
LUBRICATION	Permanent for Non-Lube Air
TEMPERATURE LIMITS	-20° to 180°F [-30° to 82°C]

MODEL SIZE	BORE	CLAMP FORCE FACTOR Cf		TOTAL STROKE	ROTARY STROKE	CLAMP STROKE	STROKE TOLERANCE	ROTARY CLEARANCE (including backlash)	CLAMP WEIGHT	
		mm	Imperial						Metric	lb
PAx2	25	0.38	24.5	26.5	10	16.5	- 0, + 2	± 3	0.88	400
PAx3	32	0.69	44.5	30	14	16			1.45	600
PAx4	40	1.21	77.9	30	13	17			1.94	880
PAx5	50	1.90	122.4	29.5	14.5	15			3.48	1580
PAx6	63	3.22	207.6	30	13	17			4.84	2200

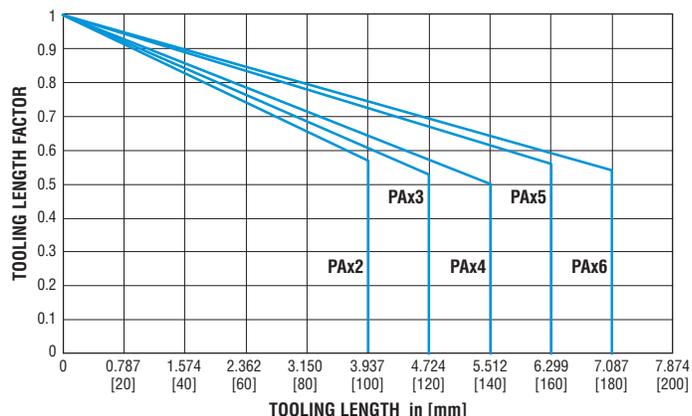
## CLAMP FORCE CALCULATION EQUATIONS:

### IMPERIAL:

Clamp Force [lb] = (Pressure [psi] x Cf) x Tooling Length Factor

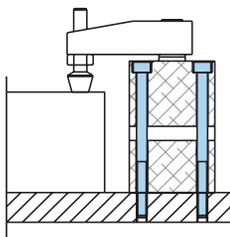
### METRIC:

Clamp Force [N] = (Pressure [bar] x Cf) x Tooling Length Factor

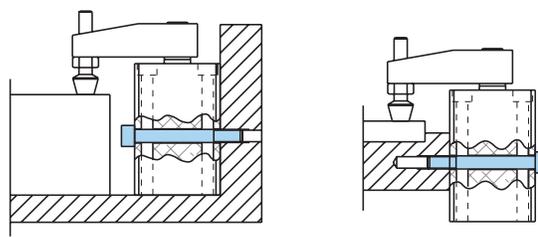


## CLAMP MOUNTING KITS

**End mounting** kit includes four alloy socket head cap screws for end mounting.



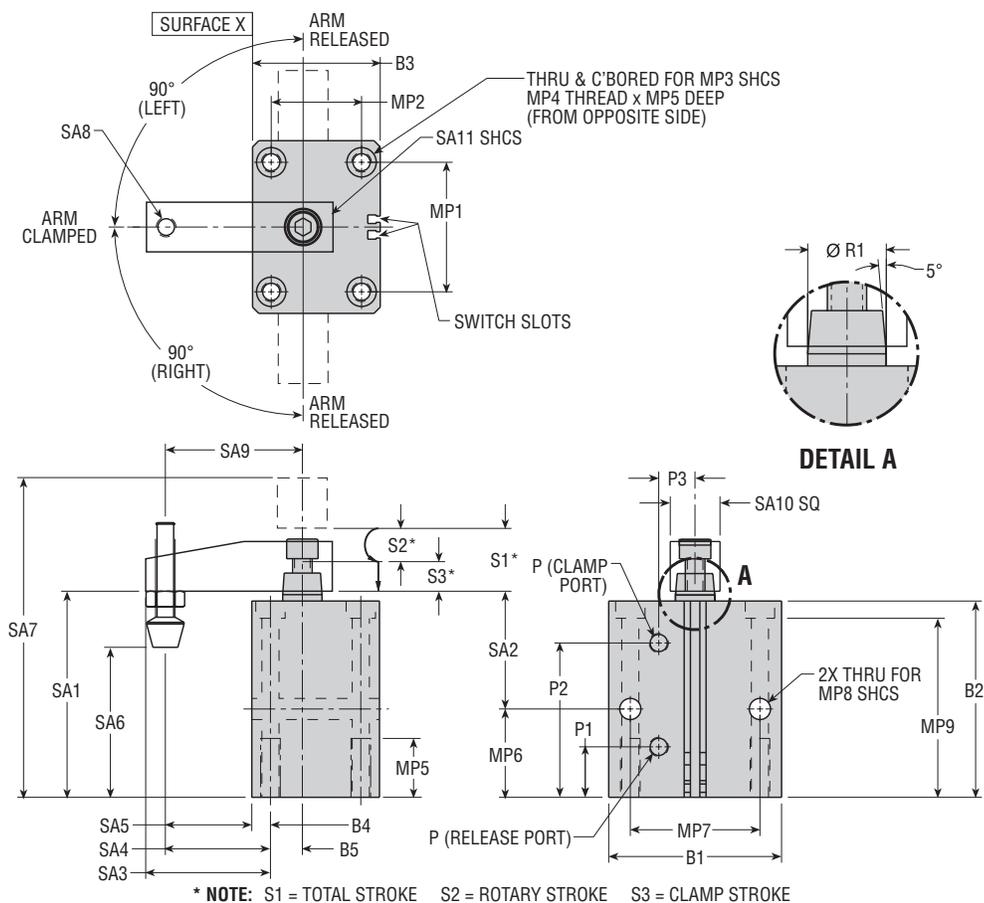
**Side mounting** kit includes two alloy socket head cap screws for side mounting.



DESCRIPTION	KIT NUMBER				
	PAS2x	PAS3x	PAS4x	PAS5x	PAS6x
END MOUNTING KIT - INCLUDES 4 SCREWS	71110-02 M6 x 90 mm LG SHCS	71110-03 M6 x 100 mm LG SHCS	71110-04 M8 x 100 mm LG SHCS	71110-05 M8 x 110 mm LG SHCS	71110-06 M10 x 110 mm LG SHCS
SIDE MOUNTING KIT - INCLUDES 2 SCREWS	71111-02 M8 x 50 mm LG SHCS	71111-03 M8 x 60 mm LG SHCS	71111-04 M8 x 70 mm LG SHCS	71111-05 M10 x 90 mm LG SHCS	71111-06 M10 x 100 mm LG SHCS

All dimensions are reference only unless specifically toleranced.

# DIMENSIONS: Series PA



LETTER DIM	MODEL NUMBER									
	PAS2x		PAS3x		PAS4x		PAS5x		PAS6x	
	in	mm	in	mm	in	mm	in	mm	in	mm
B1	2.165	55.0	2.362	60.0	2.756	70.0	3.346	85.0	3.937	100.0
B2	3.071	78.0	3.543	90.0	3.543	90.0	3.937	100.0	3.937	100.0
B3	1.378	35.0	1.772	45.0	2.165	55.0	2.559	65.0	3.150	80.0
B4	0.295	7.5	0.295	7.5	0.354	9.0	0.374	9.5	0.394	10.0
B5	0.295	7.5	0.492	12.5	0.610	15.5	0.846	21.5	1.083	27.5
MP1	1.575	40.0	1.772	45.0	2.047	52.0	2.598	66.0	3.150	30.0
MP2	0.787	20.0	1.181	30.0	1.457	37.0	1.811	46.0	2.362	60.0
MP3	M6		M6		M8		M8		M10	
MP4	M8 x 1.25		M8 x 1.25		M10 x 1.5		M10 x 1.5		M12 x 1.75	
MP5	0.787	20.0	0.787	20.0	0.984	25.0	1.181	30.0	1.181	30.0
MP6	1.260	32.0	1.693	43.0	1.575	40.0	1.772	45.0	1.417	36.0
MP7	1.575	40.0	1.772	45.0	2.047	52.0	2.598	66.0	3.150	80.0
MP8	M8		M8		M8		M10		M10	
MP9	2.795	71.0	3.268	83.0	3.189	81.0	3.583	91.0	3.504	89.0
P	10-32	M5	1/8 NPT	1/8 BSPP	1/8 NPT	1/8 BSPP	1/8 NPT	1/8 BSPP	1/8 NPT	1/8 BSPP
P1	0.669	17.0	0.827	21.0	0.787	20.0	0.984	25.0	1.102	28.0
P2	2.421	61.5	2.854	72.5	2.854	72.5	3.091	78.5	3.150	80.0
P3	0.374	9.5	0.492	12.5	0.551	14.0	0.669	17.0	0.787	20.0
R1	0.551	14.0	0.630	16.0	0.630	16.0	0.787	20.0	0.787	20.0
S1*	1.043	26.5	1.181	30.0	1.181	30.0	1.161	29.5	1.181	30.0
S2*	0.394	10.0	0.551	14.0	0.512	13.0	0.571	14.5	0.512	13.0
S3*	0.650	16.5	0.630	16.0	0.669	17.0	0.591	15.0	0.669	17.0
SA1	3.209	81.5	3.780	96.0	3.740	95.0	4.193	106.5	4.193	106.5
SA2	1.969	50.0	0.551	14.0	0.512	13.0	0.571	14.5	0.512	13.0
SA3	1.969	50.0	2.283	58.0	2.520	64.0	2.756	70.0	2.913	74.0
SA4	1.673	42.5	1.870	47.5	2.146	54.5	1.929	49.0	2.067	52.5
SA5	1.378	35.0	1.575	40.0	1.791	45.5	1.929	49.0	2.067	52.5
SA6	2.24-2.56	57.0-65.0	2.36-2.87	60.0-73.0	2.36-2.87	60.0-73.0	2.17-2.95	55.0-75.0	2.17-2.95	55.0-75.0
SA7	4.882	124.0	5.709	145.0	5.670	144.0	6.339	161.0	6.358	161.5
SA8	M6 x 1.0 thru		M8 x 1.25 thru		M8 x 1.25 thru		M12 x 1.75 thru		M12 x 1.75 thru	
SA9	1.969	50.0	2.362	60.0	2.756	70.0	3.150	80.0	3.543	90.0
SA10	0.630	16.0	0.748	19.0	0.748	19.0	0.984	25.0	0.984	25.0
SA11	M8		M8		M8		M10		M10	

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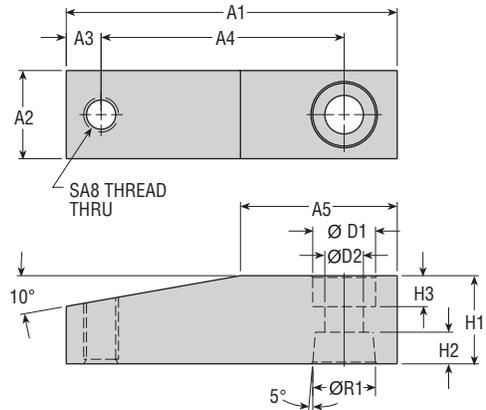
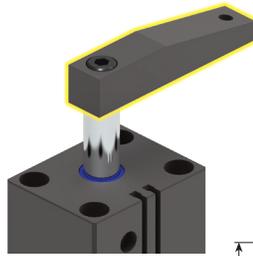
**AS**

## SINGLE ARM - STEEL

**ASC**

## SINGLE ARM - COPPER

Single arms are made of steel or copper, one alloy socket head cap screw included.



LETTER	MODEL NUMBER									
	PAx2x		PAx3x		PAx4x		PAx5x		PAx6x	
DIM	in	mm	in	mm	in	mm	in	mm	in	mm
A1	2.598	66.0	3.150	80.0	3.543	90.0	4.134	105.0	4.528	115.0
A2	0.630	16.0	0.748	19.0	0.748	19.0	0.984	25.0	0.984	25.0
A3	0.236	6.0	0.354	9.0	0.354	9.0	0.394	10.0	0.394	10.0
A4	1.969	50.0	2.362	60.0	2.756	70.0	3.150	80.0	3.543	90.0
A5	0.787	20.0	0.984	25.0	1.378	35.0	1.378	35.0	1.772	45.0
D1	0.551	14.0	0.551	14.0	0.551	14.0	0.669	17.0	0.669	17.0
D2	0.335	8.5	0.335	8.5	0.335	8.5	0.413	10.5	0.413	10.5
H1	0.630	16.0	0.748	19.0	0.748	19.0	0.984	25.0	0.984	25.0
H2	0.236	6.0	0.354	9.0	0.354	9.0	0.472	12.0	0.472	12.0
H3	0.236	6.0	0.276	7.0	0.276	7.0	0.354	9.0	0.354	9.0
R1	0.551	14.0	0.630	16.0	0.630	16.0	0.787	20.0	0.787	20.0
SA8	M6 x 1.0		M8 x 1.25		M8 x 1.25		M12 x 1.75		M12 x 1.75	
KIT NO.	AS-PAS2-1		AS-PAS3-1		AS-PAS4-1		AS-PAS5-1		AS-PAS6-1	
STEEL	ASC-PAS2-1		ASC-PAS3-1		ASC-PAS4-1		ASC-PAS5-1		ASC-PAS6-1	
COPPER	ASC-PAS2-1		ASC-PAS3-1		ASC-PAS4-1		ASC-PAS5-1		ASC-PAS6-1	

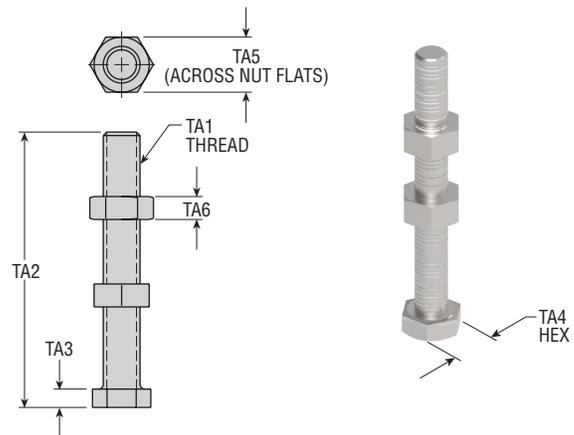
	MODEL NUMBER									
	PAx2x		PAx3x		PAx4x		PAx5x		PAx6x	
WEIGHT	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
STEEL	0.20	0.090	0.34	0.153	0.43	0.193	0.85	0.387	0.91	0.414
COPPER	0.22	0.100	0.37	0.170	0.47	0.215	0.95	0.430	1.01	0.460

**TA**

## STEEL SPINDLE

Steel spindles are plated steel with two hex nuts included.

LETTER	MODEL NUMBER					
	PAx2x		PAx3x & PAx4x		PAx5x & PAx6x	
DIM	in	mm	in	mm	in	mm
TA1	M6 x 1.0		M8 x 1.25		M12 x 1.75	
TA2	2.362	60.0	2.953	75.0	3.937	100.0
TA3	0.157	4.0	0.236	6.0	0.315	8.0
TA4	0.433	11.0	0.591	15.0	0.866	22.0
TA5	0.394	10.0	0.472	12.0	0.748	19.0
TA6	0.197	5.0	0.217	5.5	0.394	10.0
KIT NO.	71200-02		71200-03		71200-05	

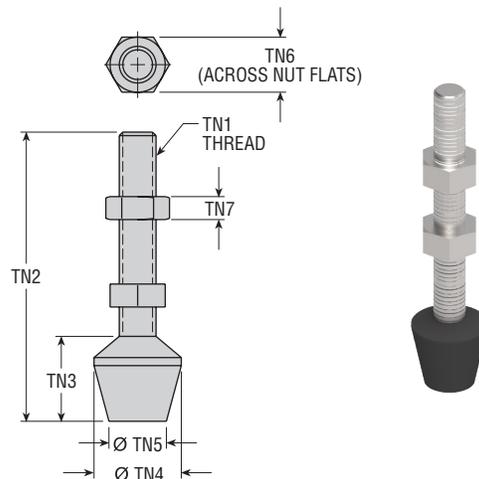


**TN**

## NEOPRENE TIPPED SPINDLE

Neoprene tipped spindles are plated threaded steel with 65 Durometer Neoprene molded onto the end. Two hex nuts are included.

LETTER	MODEL NUMBER					
	PAx2x		PAx3x & PAx4x		PAx5x & PAx6x	
DIM	in	mm	in	mm	in	mm
TN1	M6 x 1.0		M8 x 1.25		M12 x 1.75	
TN2	2.008	51.0	2.480	63.0	3.937	100.0
TN3	0.551	14.0	0.728	18.5	1.339	34.0
TN4	0.630	16.0	0.748	19.0	1.260	32.0
TN5	0.394	10.0	0.492	12.5	0.866	22.0
TN6	0.394	10.0	0.512	13.0	0.748	19.0
TN7	0.197	5.0	0.256	6.5	0.394	10.0
KIT NO.	71100-02		71100-03		71100-05	

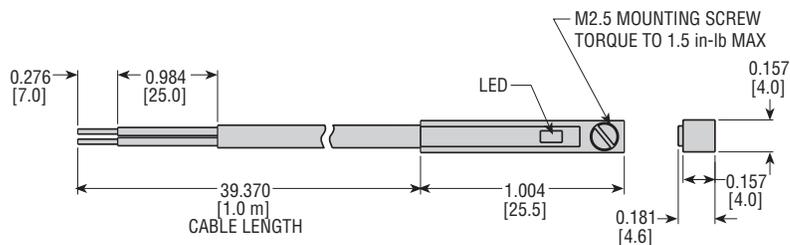


All dimensions are reference only unless specifically tolerated.

## SW1 REED SWITCHES PROVIDED

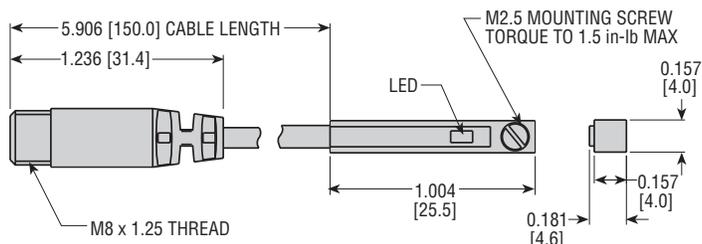
## SW2 HALL EFFECT SWITCHES (PNP) PROVIDED

## SW3 HALL EFFECT SWITCHES (NPN) PROVIDED



## SW4 MAGNETORESISTIVE SWITCHES (PNP) PROVIDED WITH QUICK CONNECT

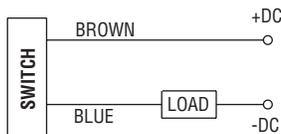
## SW5 MAGNETORESISTIVE SWITCHES (NPN) PROVIDED WITH QUICK CONNECT



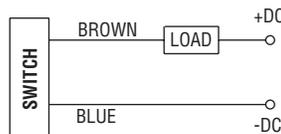
SPECIFICATIONS	SW1 71115-01-01	SW2 71125-01-01	SW3 71125-02-01	SW4 71125-04-01	SW5 71125-03-1
ACTUATED BY	Moving Magnet	Moving Magnet	Moving Magnet	Moving Magnet	Moving Magnet
POWER CAPACITY	6 Watt Max.	6 Watt Max.	6 Watt Max.	1.5 Watt	1.5 Watt
OUTPUT STATE	Normally Open	Normally Open	Normally Open	Normally Open	Normally Open
OPERATING PRINCIPLE	Magnetic Reed	Magnetic Hall Effect	Magnetic Hall Effect	Magnetoresistive	Magnetoresistive
OUTPUT TYPE	SPST Contact Closure	Solid State PNP	Solid State NPN	PNP Current Sourcing	NPN Current Sinking
OPERATING VOLTAGE	5 - 120 VAC/VDC	5 - 28 VDC	5 - 28 VDC	5 - 30 VDC	5 - 30 VDC
CURRENT RATING (RES.)	50 mA Max.	200 mA Max.	200 mA Max.	50 mA Max.	50 mA Max.
BURDEN CURRENT	—	20 mA Max. @ 24 VDC (Switch Active)	20 mA Max. @ 24 VDC (Switch Active)	15 mA Max. @ 24 VDC Max.	12 mA Max. @ 24 VDC Max.
VOLTAGE DROP	2.5 V Max.	0.5 V @ 200 mA Max.	0.5 V @ 200 mA Max.	1.5 V @ 25 mA Max.	0.5 V @ 25 mA Max.
CIRCUIT PROTECTION	None	Power Source Reverse, Surge Suppression	Power Source Reverse, Surge Suppression	Reverse Polarity, Surge Suppression	Reverse Polarity, Surge Suppression
LED COLOR	Red	Green	Red	Green	Red
OPERATING TEMPERATURE	-10° to +70° C	-10° to +70° C	-10° to +70° C	-10° to +70° C	-10° to +70° C
ENVIRONMENTAL	IP67	IP67	IP67	IP67	IP67
CABLE TYPE	PVC	PVC	PVC	PVC	PVC

### 71115-xx-xx

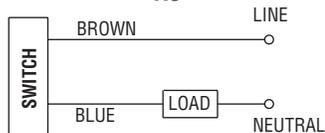
#### DC PNP (SOURCING)



#### DC NPN (SINKING)



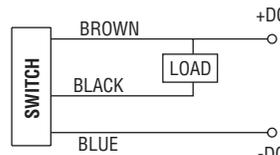
#### AC



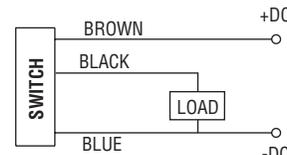
OPTION	KIT NO.	DESCRIPTION
SW1	71115-01-01	NPN (Sink) or PNP (Source), 5 - 10 VAC/VDC, 1 meter cable
SW2	71125-01-01	PNP (Source), 5 - 28 VDC, 1 meter cable
SW3	71125-02-01	NPN (Sink), 5 - 28 VDC, 1 meter cable
SW4	71125-04-01	PNP (Source), Magnetoresistive Switch with Quick Connect
SW5	71125-03-01	NPN (Sink), Magnetoresistive Switch with Quick Connect

### 71125-xx-xx

#### DC NPN (SINKING)



#### DC PNP (SOURCING)

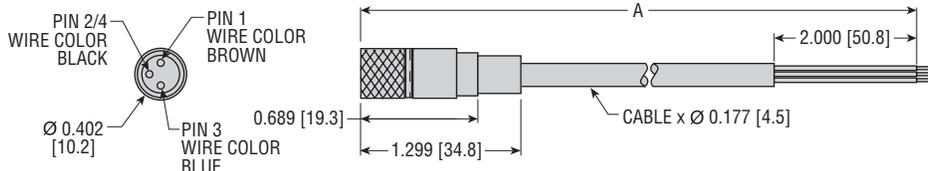


## 63549-xx CORDSET WITH FEMALE QUICK CONNECT

Provides a cordset with female quick connect and additional cable.

NUMBERS IN [ ] ARE IN mm. IMPERIAL EQUIVALENTS ARE PROVIDED FOR CONVENIENCE.

MODEL NO.	LETTER DIM.
63549-02	78.74 [2 m]
63549-05	196.85 [5 m]

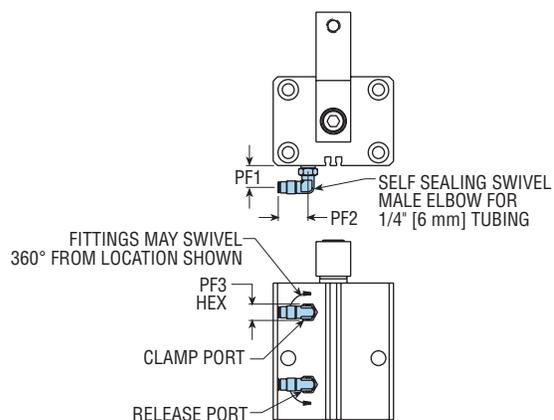


All dimensions are reference only unless specifically tolerated.

## LBB PORT FITTINGS

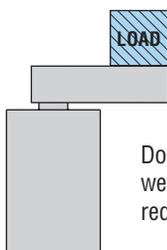
Port fitting is not available on size 2.

LETTER DIM	PORT FITTING OPTION	
	in	mm
PF1 (MIN)	0.629	12.0
PF1 (MAX)	0.748	16.0
PF2	0.885	20.0
PF3	0.472	12.0

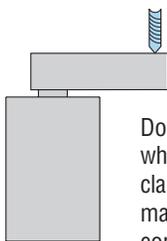


## APPLICATION CONCERNS

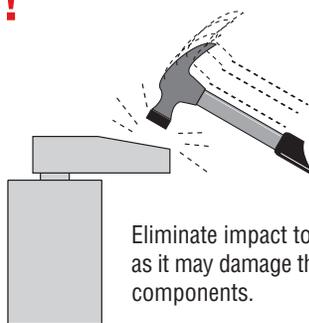
### DON'T!



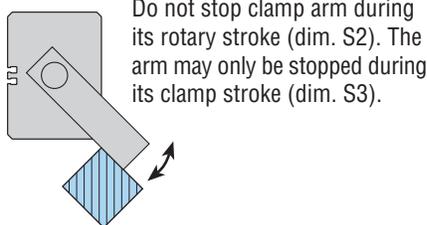
Do not attach heavy arms or weights to the clamp without reducing rotation speed.



Do not machine the arm while it is still attached to the clamp. The forces generated may damage the internal components.

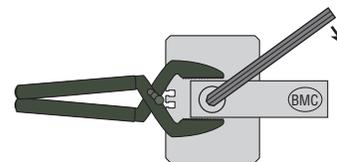


Eliminate impact to the arm as it may damage the internal components.



Do not stop clamp arm during its rotary stroke (dim. S2). The arm may only be stopped during its clamp stroke (dim. S3).

### DO!



Hold the arm (not the clamp body) when loosening or tightening the arm mounting screw.

All dimensions are reference only unless specifically toleranced.