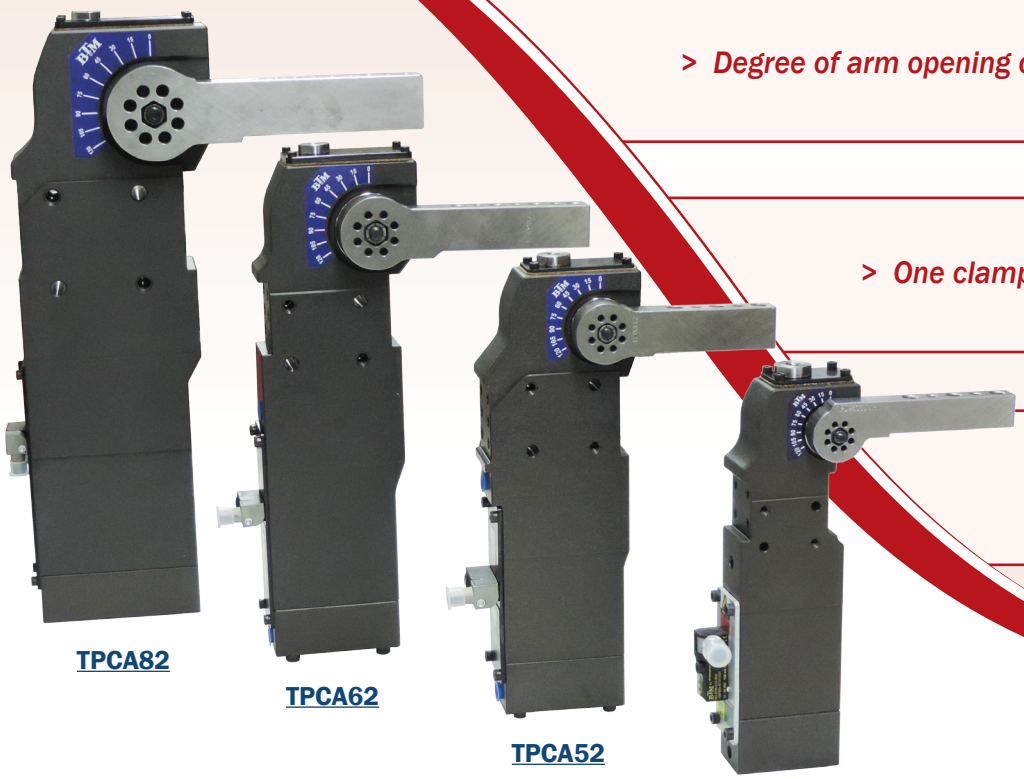
# TPCA Power Clamps Catalog

*Pneumatically Operated, Weld-Contamination Sealed, Heavy Duty Power Clamps*



TPCA82

TPCA62

TPCA52

TPCA42

> *Degree of arm opening can be adjusted from 0-120°*

> *One clamp for both dual or single arms*

> *Uses TRILOK mechanism*

*... and more.*

**Contains information on TPCA-82, 62, 52, and 42's!**

**http://www.btmcomp.com/tpca-power-clamps.html**

BTM® COMPANY

www.btmcomp.com

810-364-4567

# TPCA POWER CLAMPS

## SAFETY NOTE

*It is the customer and/or user's responsibility to provide proper safety controls and/or guarding when a pinch point is present.*

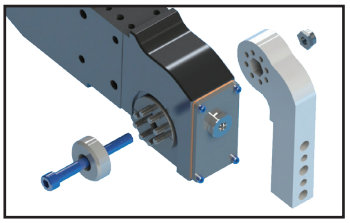
## ONE CLAMP DOES IT ALL!

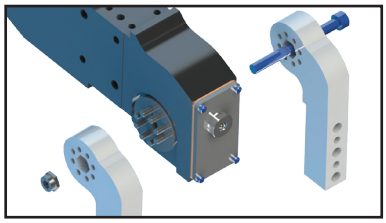
BTM's TPCA series of adjustable clamps are NAAMS compliant pneumatically operated sealed precision power clamps available in four standard sizes: 42, 52, 62, 82mm. Each clamp is constructed using a one-piece body, and each has been designed to be rugged, yet economical, making them ideal for a range of industrial applications. These clamps utilize patented TRILOK technology- a three point locking mechanism designed to keep a locked clamp locked, even if air pressure is lost. This allows the TPCA to have the flexibility to be used as a toggle clamp, a precision back up, or as a part trap.

## SAVE MONEY! BUY LESS CLAMPS!

**One TPCA clamp can have single or dual arms!**

With BTM's TPCA Clamps, you can reduce your spare inventory by keeping less clamps on the shelf.



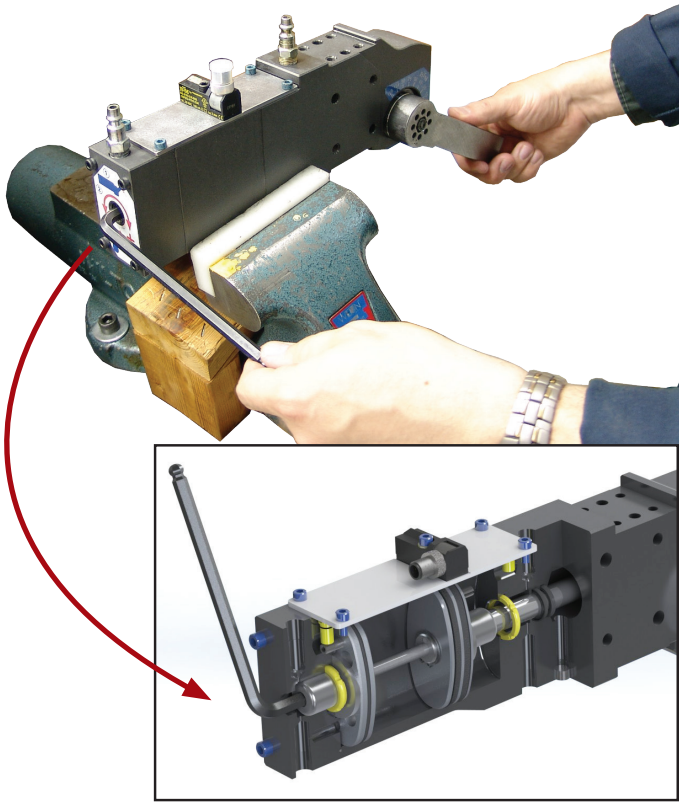


## ADDITIONAL TPCA CLAMP FEATURES

- One clamp model for single and dual arm clamps - No need to change internal parts.
- Pin Arm Drive for versatile arm positioning & simplified arm change.
- 0 - 120 degree of arm opening adjustability.
- Integrated proximity switch. No need to be adjusted for opening change.
- Top and Bottom porting.
- TPCA52, 62, and 82 complies to Global Standard Components NAAMS Spec.
- One Piece Body with Integrated Cylinder.
- Body is constructed of Aircraft Aluminum, Hard coated to a Rockwell C-70 for Excellent Wear Characteristics.
- Sealed Mechanism - Lubricated for Life of Clamp.
- Self Pumping Slide Rod Lubrication.
- Cushions Standard on Both Advance and Retract Motions.
- Access to manually unlock clamp linkage.
- Patented Precision TriLok Mechanism.

## CHANGING THE DEGREE OF ARM OPENING IS EASY!

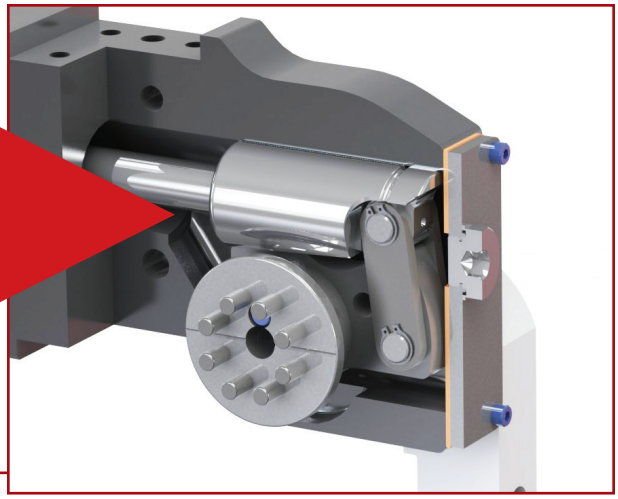
**A TPCA Clamp is Adjustable using a Hex Wrench!**

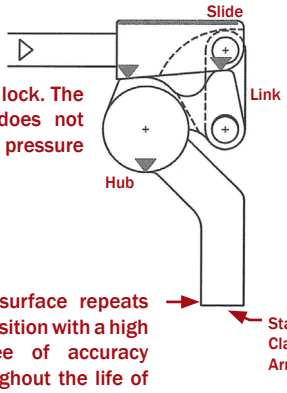


BTM reserves the right to make changes to its literature without any prior notice.
Go to www.btmcomp.com for latest version.

## TPCA CLAMPS UTILIZE PATENTED TRILOK TECHNOLOGY

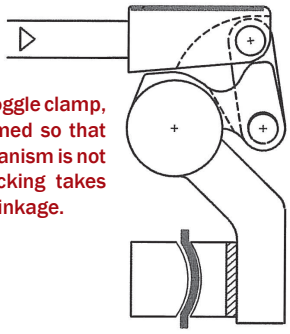
BTM's patented TRILOK mechanism can be used as a clamp or as a precision back up and eliminates "over center" clamps.



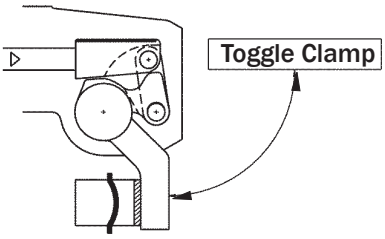


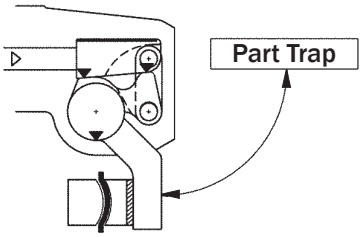

A three point lock. The Mechanism does not unlock if air pressure is lost.

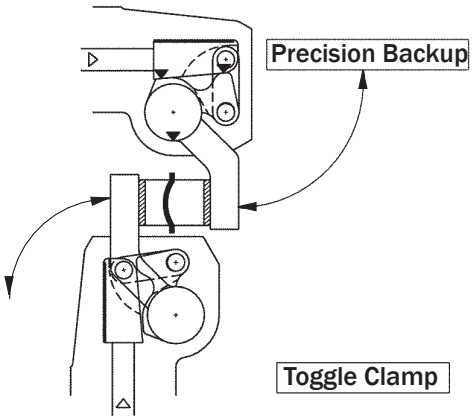
This surface repeats its position with a high degree of accuracy throughout the life of the clamp.



When used as a toggle clamp, the arm is shimmed so that the TRILOK mechanism is not engaged. The locking takes place within the linkage.

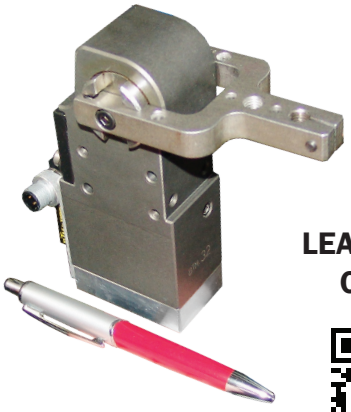


## NEED A SMALLER CLAMP? CHECK OUT BTM'S TPC-32!

BTM's TPC-32 is weld-contamination sealed, light weight, features a 32mm bore, and a three point locking mechanism.



LEARN MORE ONLINE!

www.btmcorp.com/tpc-32-clamp.html

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bore Size | 31.8 [1.25] DIA. = 791.7mm² [1.23in²] | | | | | | |
| Arm Rotation (Deg.) | 35 | 50 | 65 | 80 | 95 | 110 | 120 |
| Cylinder Stroke (mm) | 11.5 | 14.1 | 16.6 | 19.2 | 21.8 | 24.4 | 24.6 |
| Maximum Full Cycle Cylinder Volume | 38.5 cm³ [2.35in³] | | | | | | |
| Recommended Operating Pressure | 2.75 to 7 BAR [40 to 100 PSI] (Lubricated or Non-Lubricated Compressed Air) | | | | | | |
| Weight | 1.0 kg [2.21 lbs] Without Arm | | | | | | |
| Holding Torque | 30 Nm [22 lbf] | | | | | | |
| Clamping Torque | 12.4 Nm @ 5.5 BAR [9.16 lbf-ft @ 80 PSI] | | | | | | |
| Cycle Time (based on a 120° opening at 5.5 BAR [80PSI]) | 1.0 second closing cycle 1.25 second opening cycle | | | | | | |

## BTM ALSO OFFERS OTHER CLAMP SOLUTIONS INCLUDING:

### GENERAL CLAMPING

#### PC SERIES POWER CLAMPS

Rugged & Reliable, BTM's PC series of clamps are designed to provide high clamping forces and long work life within a compact, lightweight unit. The one-piece body eliminates premature wear due to misalignment; and binding.

### LIGHT DUTY CLAMPING

#### 100 SERIES CLAMPS

These cost-effective 25mm bore clamps are designed for high production. Most models feature a manually positionable rotating head which locks into place when mounting screws are tightened, eliminating the need for angled mounting surfaces.

### SPECIALTY CLAMPING

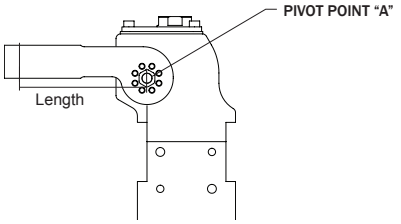
#### ASK ABOUT OUR ROTARY-LINEAR CLAMPS!

www.btmcorp.com/clamp-solutions.html

## TABLE OF CONTENTS

# TPCA42

| CLAMPING FORCE | |
|---|---|
| BARS | 7910 x Line Pressure (BAR) / Length (mm) from POINT "A" to the center line of clamping contact area on clamp arm |
| PSI | 4.8 x Line Pressure (PSI) / Length (in) from POINT "A" to the center line of clamping contact area on clamp arm |



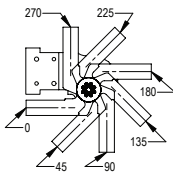

***For TPCA42 Arm Information See Pages 8-9.***

## HOW TO ORDER

| CLAMP | | | | - | LEFT ARM | | | | - | RIGHT ARM | | | | - | SWITCH | - | PRESET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPCA | 42 | G | P | - | PD253304H | 180 | A | L | - | PD253304H | 180 | A | R | - | BDC | - | 90 |
| CLAMP SERIES | CLAMP SIZE | PORT OPTION | HUB CONNECTION TYPE | | BTM ARM NUMBER (See p. 9) | ARM POSITION | ARM ORIENTATION | ARM SIDE | | BTM ARM NUMBER (See p. 9) | ARM POSITION | ARM ORIENTATION | ARM SIDE | | SWITCH STYLE (See p. 22) | | PRESET ARM OPENING (DEFAULT IS 90°) |

| PORT OPTION | |
|---|---|
| | BTM No. |
| N = 1/8 NPT | PD253300A |
| G = G1/8 | PD253500A |
| HUB CONNECTION TYPE | |
| P = PIN HUB | |

### STANDARD ARM POSITION (WHEN CLOSED) - CONTACT BTM FOR SPECIALS



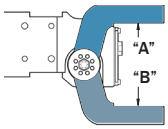

Clamp is shown in the closed position.

The maximum counter-clockwise arm opening value is noted in degrees for the specified arm positions to the right.

| STANDARD ARM ORIENTATION (A) | | | | INVERTED ARM ORIENTATION (B) | | | |
|---|---|---|---|---|---|---|---|
| Arm Mounting Position Code | Offset Arm | | | Arm Mounting Position Code | Offset Arm | | |
| | Straight | 15 | 45 | | Straight | 15 | 45 |
| 0 | N/A | 120° | 120° | 0 | N/A | N/A | N/A |
| 45 | 120° | 120° | 120° | 45 | 120° | N/A | N/A |
| 90 | 120° | 120° | 120° | 90 | 120° | 120° | 120° |
| 135 | 120° | 120° | 90° | 135 | 120° | 120° | 120° |
| 180 | 105° | 90° | 45° | 180 | 120° | 120° | 120° |
| 225 | 60° | 45° | N/A | 225 | 75° | 90° | 120° |
| 270 | N/A | N/A | N/A | 270 | 30° | 45° | 75° |

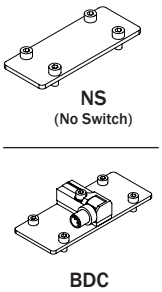
### ARM ORIENTATION

**A = Standard**
**B = Inverted**




### ARM SIDE


### SWITCH




### PRESET

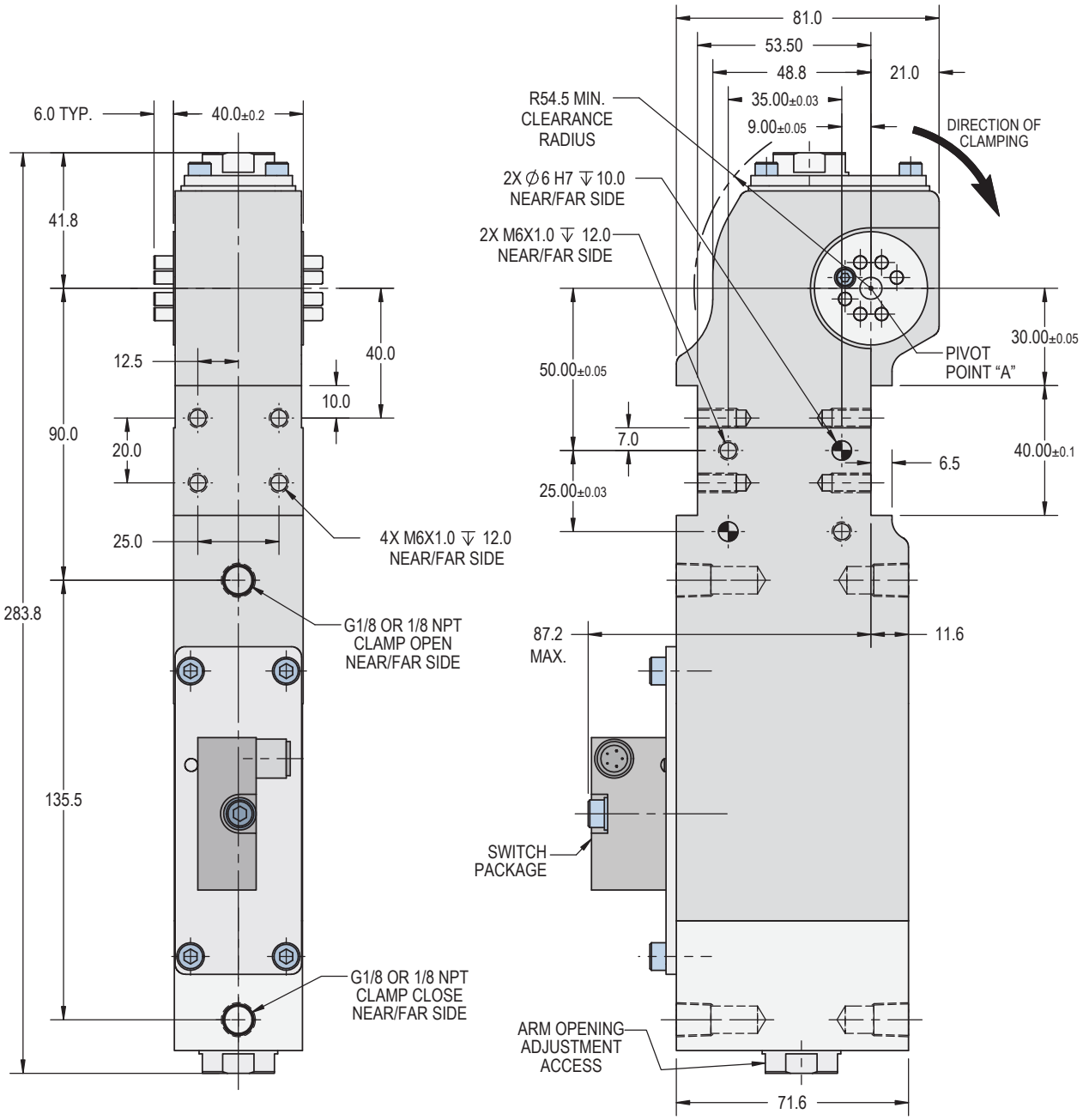
30°
45°
60°
75°
90°
105°
120°

## TPCA42

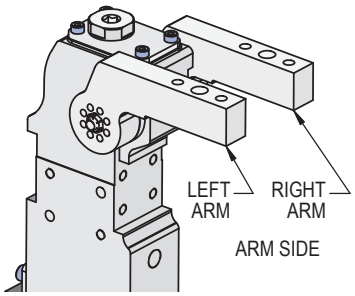
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Equivalent Bore Size** | 42.0 [1.65"] DIA. = 1395mm² [2.16in²] | | | | | | |
| **Arm Rotation (Deg.)** | 30 | 45 | 60 | 75 | 90 | 105 | 120 |
| **Cylinder Stroke (mm)** | 19.7 | 25.1 | 30.4 | 35.9 | 41.8 | 47.6 | 52.9 |
| **Recommended Operating Pressure** | 2.75 to 7 BAR [40 to 100 PSI] (Lubricated or Non-Lubricated Compressed Air) | | | | | | |
| **Weight** | 2.0 kg [4.5 lbs] Without Arm | | | | | | |
| **Holding Torque** | 165 Nm [122 lbf-ft] (No Air & Maintaining Rated Repeatability) | | | | | | |

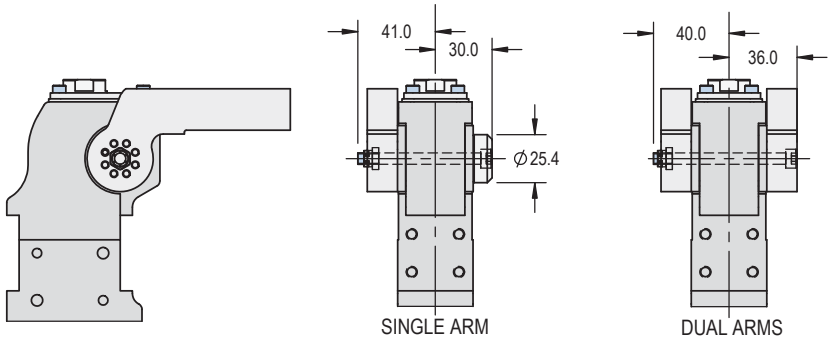
| | |
|---|---|
| **Clamping Torque** | 43.4 Nm @ 5.5 BAR [32 lbf-ft @ 80 PSI] |
| **Arm to Mount Accuracy** | ± 0° 15' (Clamp to Clamp) |
| **Repeatability** | ± 0° 3' |
| **Cycle Time** | 1.0 second Clamp Closing Cycle<br>1.0 second Clamp Opening Cycle |
| **Permissible Clamp Off-Set Distance** | 30.0mm [1.18"] (See p. 8) |

**USE FLOW CONTROLS TO REDUCE IMPACT**



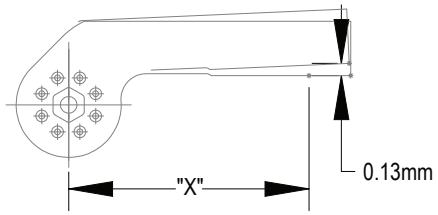
## TPCA42 CLAMP ARM INFORMATION



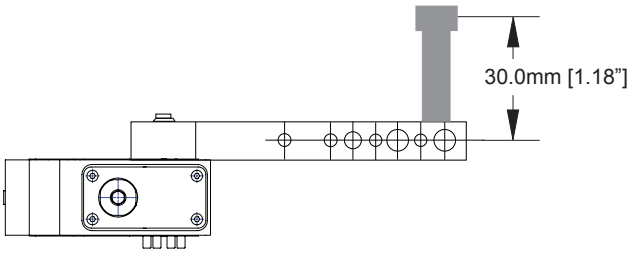

ARM MOUNTING WITH HARDWARE

### CLAMP ARM DEFLECTION UNDER LOAD




| ARM DEFLECTION UNDER LOAD | |
|---|---|
| Force on arm at "X" distance from pivot resulting in 0.13mm Maximum deflection. | |
| "X" (mm) | Force (N) |
| 125 | 88 |
| 100 | 144 |
| 75 | 200 |

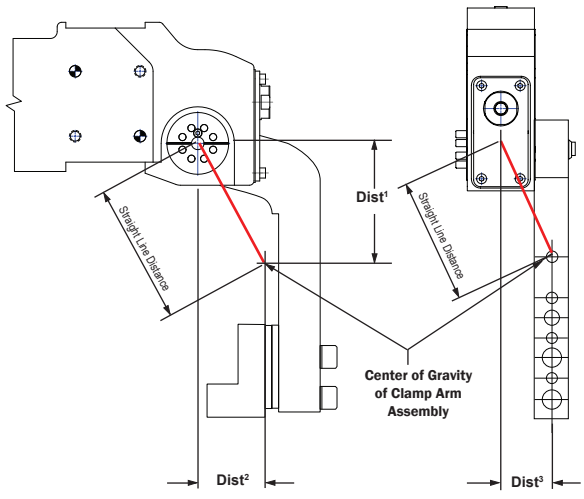
### PERMISSIBLE CLAMP OFFSET DISTANCE




### MAXIMUM ALLOWABLE WEIGHT ON CLAMP ARM ASSEMBLY

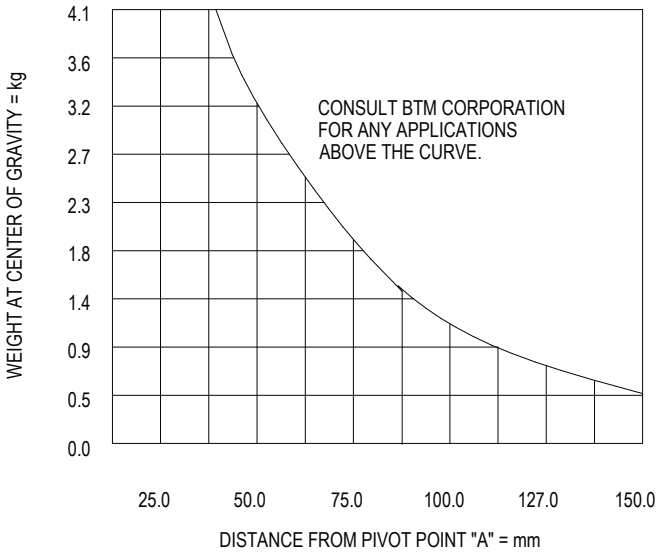
Refer to the charts below for model specific information regarding the recommended allowable weight on the arm at given distances from the pivot. The distance from Pivot Point is the straight line distance from the centerline of the clamp at the pivot point to the center of gravity of the clamp arm assembly. The center of gravity is figured using the weight of the arm plus the total weight mounted on the arm. When using dual arms, add the weight of the second arm to the total weight.

### CENTER OF GRAVITY OF CLAMP ARM ASSEMBLY



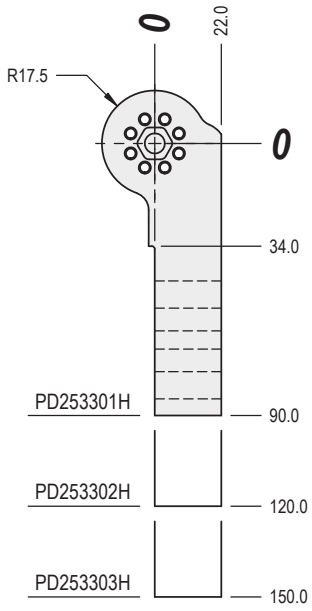

Mass @ Center of Gravity = ____

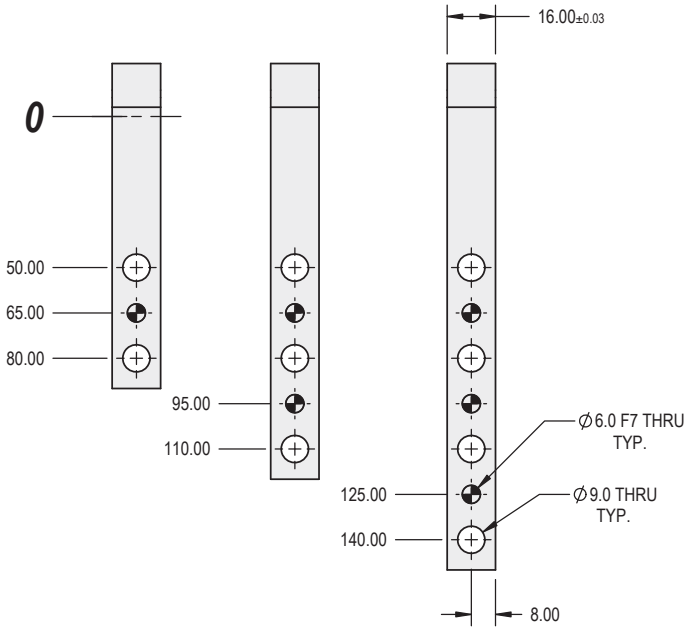
### CLAMP ARM MAXIMUM WEIGHT



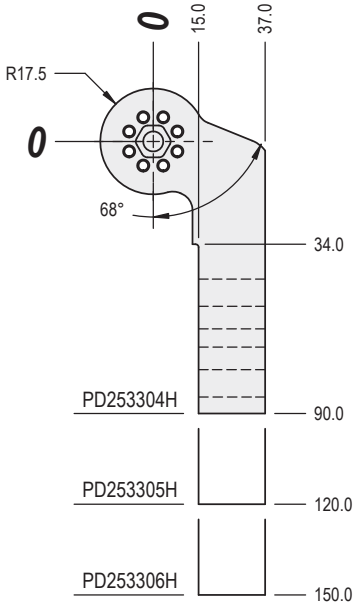
## TPCA42 CLAMP ARMS

### STRAIGHT ARM

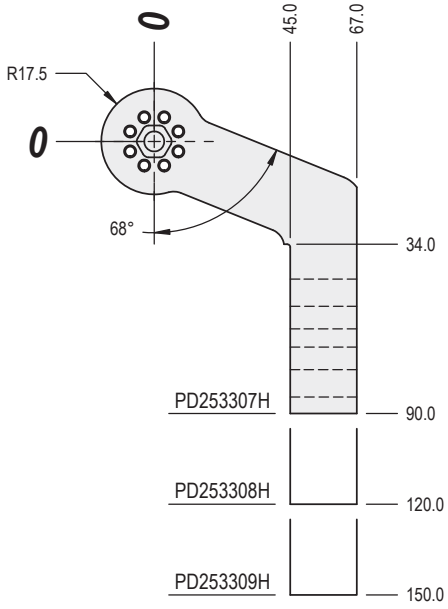



### 15 OFFSET

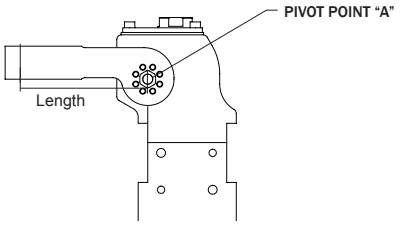


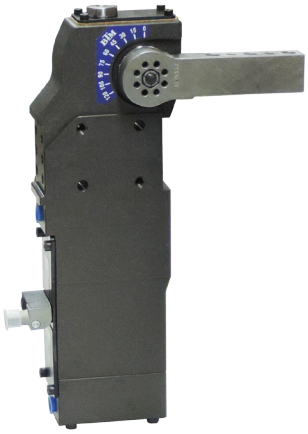

### 45 OFFSET



# TPCA52

| CLAMPING FORCE | |
|---|---|
| BARS | 16500 x Line Pressure (BAR) / Length (mm) from POINT "A" to the center line of clamping contact area on clamp arm |
| PSI | 10 x Line Pressure (PSI) / Length (in) from POINT "A" to the center line of clamping contact area on clamp arm |



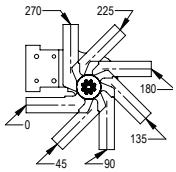
***For TPCA52 Arm Information See Pages 12-13.***

## HOW TO ORDER

| CLAMP | | | | - | LEFT ARM | | | | - | RIGHT ARM | | | | - | SWITCH | - | PRESET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPCA | 52 | G | P | | 733216H | 180 | A | L | | 733216H | 180 | A | R | | TDC | | 90 |
| CLAMP SERIES | CLAMP SIZE | PORT OPTION | HUB CONNECTION TYPE | | BTM ARM NUMBER (See p. 13) | ARM POSITION | ARM ORIENTATION | ARM SIDE | | BTM ARM NUMBER (See p. 13) | ARM POSITION | ARM ORIENTATION | ARM SIDE | | SWITCH STYLE (See p. 13) | | PRESET ARM OPENING (DEFAULT IS 90°) |

| PORT OPTION | |
|---|---|
| | BTM No. |
| N = 1/4 NPT | PD250500A |
| G = G1/4 | PD251300A |
| HUB CONNECTION TYPE | |
| P = PIN HUB | |

### STANDARD ARM POSITION (WHEN CLOSED) - CONTACT BTM FOR SPECIALS




Clamp is shown in the closed position.

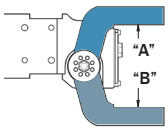
The maximum counter-clockwise arm opening value is noted in degrees for the specified arm positions to the right.

| STANDARD ARM ORIENTATION (A) | | | |
|---|---|---|---|
| Arm Mounting Position Code | Offset Arm | | |
| | Straight | 25 | 50 |
| 0 | N/A | 120° | 120° |
| 45 | N/A | 120° | 120° |
| 90 | 120° | 120° | 120° |
| 135 | 120° | 90° | 75° |
| 180 | 90° | 45° | 30° |
| 225 | 45° | N/A | N/A |
| 270 | N/A | N/A | N/A |

| INVERTED ARM ORIENTATION (B) | | | |
|---|---|---|---|
| Arm Mounting Position Code | Offset Arm | | |
| | Straight | 25 | 50 |
| 0 | N/A | N/A | N/A |
| 45 | N/A | N/A | N/A |
| 90 | 120° | N/A | N/A |
| 135 | 120° | 120° | 120° |
| 180 | 90° | 120° | 120° |
| 225 | 45° | 90° | 105° |
| 270 | N/A | 45° | 60° |

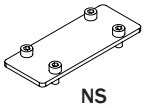
### ARM ORIENTATION

**A = Standard**
**B = Inverted**

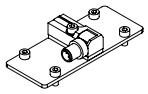



### ARM SIDE


### SWITCH



**NS**
(No Switch)



**TDC**
(Turck DC)
*[Standard]*

See p.22 for additional switch options.

### PRESET

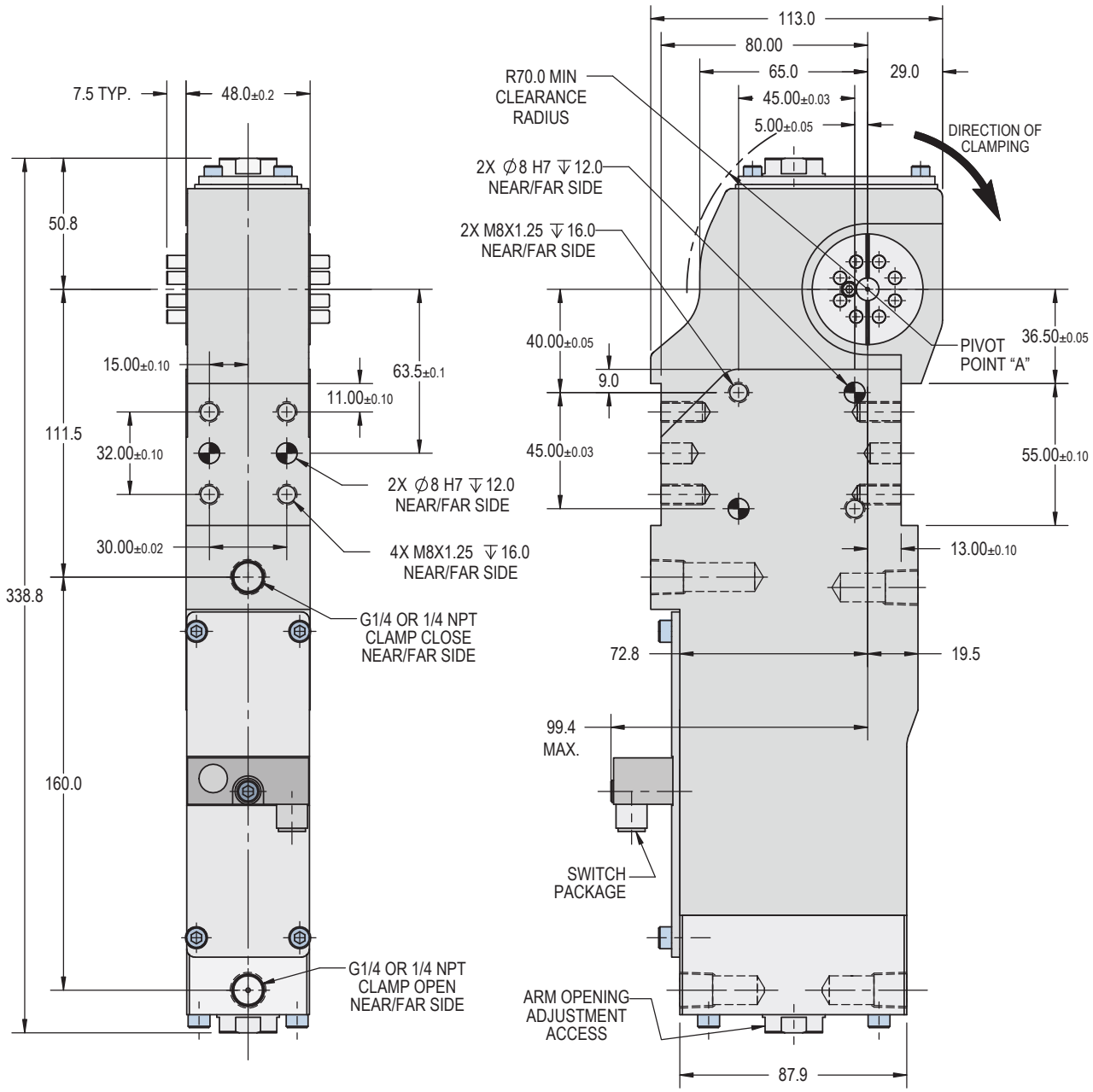
30°
45°
60°
75°
90°
105°
120°

## TPCA52

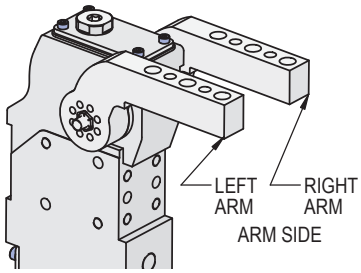
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Equivalent Bore Size** | 52.0 [2.00] DIA. = 2026mm² [3.14in²] | | | | | | |
| **Arm Rotation (Deg.)** | 30 | 45 | 60 | 75 | 90 | 105 | 120 |
| **Cylinder Stroke (mm)** | 25.99 | 33.17 | 40.24 | 47.63 | 55.40 | 63.20 | 70.28 |
| **Recommended Operating Pressure** | 2.75 to 7 BAR [40 to 100 PSI] (Lubricated or Non-Lubricated Compressed Air) | | | | | | |
| **Weight** | 3.8 kg [8.4 lbs] Without Arm | | | | | | |
| **Holding Torque** | 290 Nm [214 lbf-ft] (No Air & Maintaining Rated Repeatability) | | | | | | |

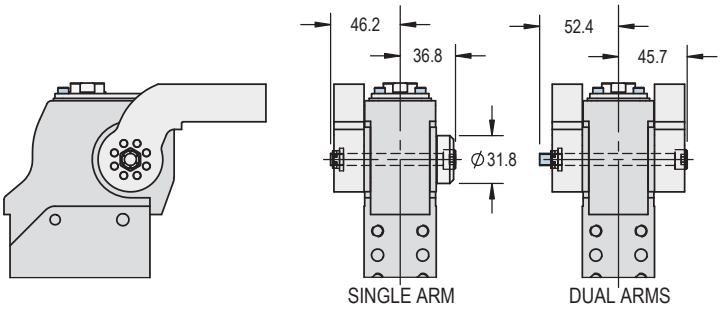
| | |
|---|---|
| **Clamping Torque** | 89.5 Nm @ 5.5 BAR [66 lbf-ft @ 80 PSI] |
| **Arm to Mount Accuracy** | ± 0° 15' (Clamp to Clamp) |
| **Repeatability** | ± 0° 3' |
| **Cycle Time** | 1.0 second Clamp Closing Cycle<br>1.0 second Clamp Opening Cycle |
| **Permissible Clamp Off-Set Distance** | 37.5mm [1.48"] (See p. 12) |

USE FLOW CONTROLS TO REDUCE IMPACT



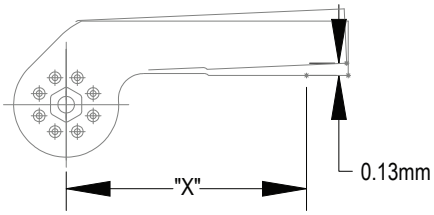
## TPCA52 CLAMP ARM INFORMATION



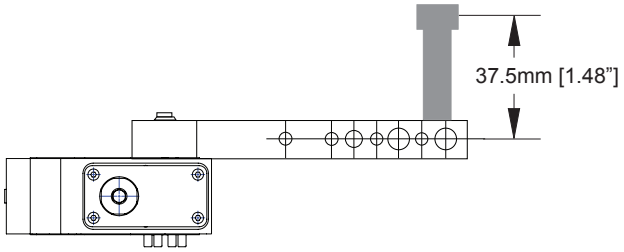

ARM MOUNTING WITH HARDWARE

### CLAMP ARM DEFLECTION UNDER LOAD




| ARM DEFLECTION UNDER LOAD | |
|---|---|
| Force on arm at "X" distance from pivot resulting in 0.13mm Maximum deflection. | |
| "X" (mm) | Force (N) |
| 125 | 113 |
| 100 | 165 |
| 75 | 290 |

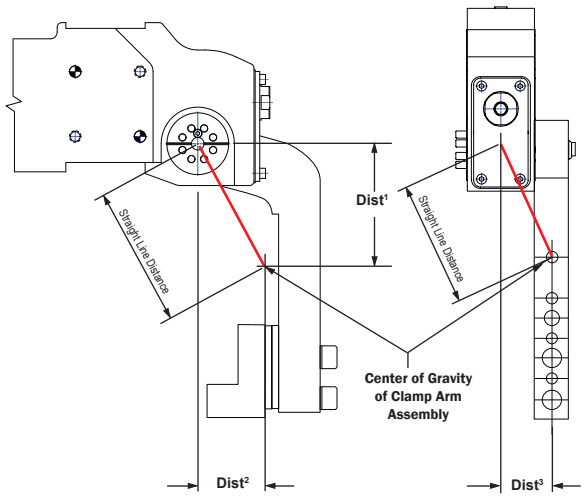
### PERMISSIBLE CLAMP OFFSET DISTANCE




### MAXIMUM ALLOWABLE WEIGHT ON CLAMP ARM ASSEMBLY

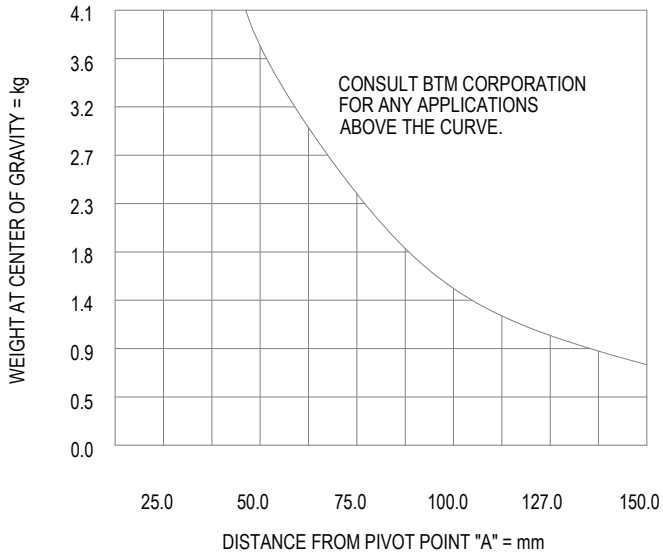
Refer to the charts below for model specific information regarding the recommended allowable weight on the arm at given distances from the pivot. The distance from Pivot Point is the straight line distance from the centerline of the clamp at the pivot point to the center of gravity of the clamp arm assembly. The center of gravity is figured using the weight of the arm plus the total weight mounted on the arm. When using dual arms, add the weight of the second arm to the total weight.

### CENTER OF GRAVITY OF CLAMP ARM ASSEMBLY



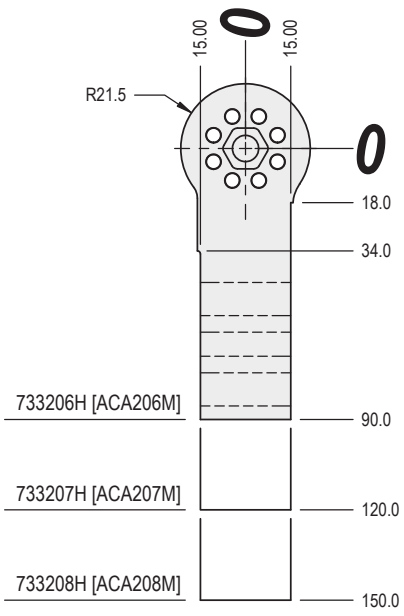

Mass @ Center of Gravity = ____

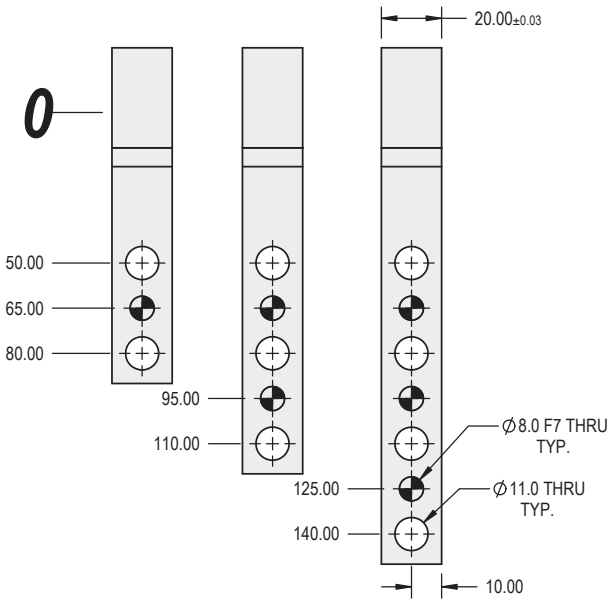
### CLAMP ARM MAXIMUM WEIGHT



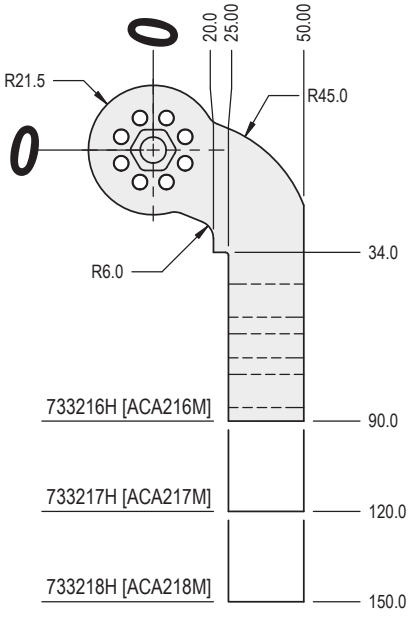
## TPCA52 CLAMP ARMS

### STRAIGHT ARM

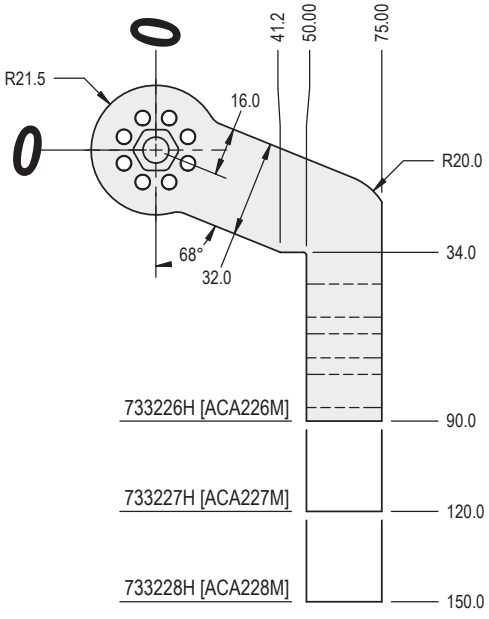



### 25 OFFSET

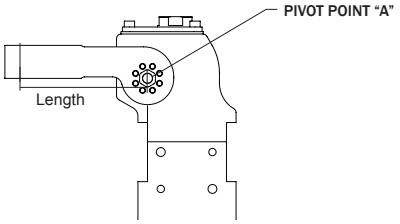


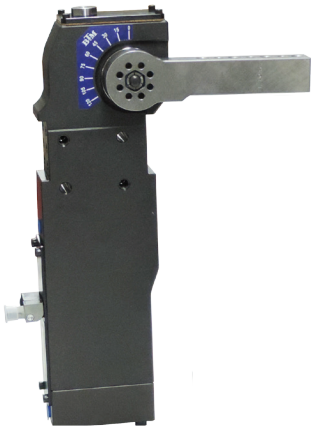

### 50 OFFSET



# TPCA62

| CLAMPING FORCE | |
|---|---|
| BARS | 46500 x Line Pressure (BAR) / Length (mm) from POINT "A" to the center line of clamping contact area on clamp arm |
| PSI | 28.5 x Line Pressure (PSI) / Length (in) from POINT "A" to the center line of clamping contact area on clamp arm |



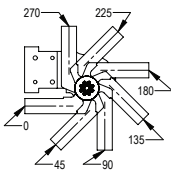
***For TPCA62 Arm Information See Pages 16-17.***

## HOW TO ORDER

| CLAMP | | | | | LEFT ARM | | | | | RIGHT ARM | | | | | SWITCH | | PRESET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPCA | 62 | G | P | - | 723119H | 180 | A | L | - | 723119H | 180 | A | R | - | TDC | - | 90 |
| CLAMP SERIES | CLAMP SIZE | PORT OPTION | HUB CONNECTION TYPE | | BTM ARM NUMBER (See p. 17) | ARM POSITION | ARM ORIENTATION | ARM SIDE | | BTM ARM NUMBER (See p. 17) | ARM POSITION | ARM ORIENTATION | ARM SIDE | | SWITCH STYLE (See p. 22) | | PRESET ARM OPENING (DEFAULT IS 90°) |

| PORT OPTION | |
|---|---|
| | BTM No. |
| N = 1/4 NPT | PD234400A |
| G = G1/4 | PD234900A |
| HUB CONNECTION TYPE | |
| P = PIN HUB | |

### STANDARD ARM POSITION (WHEN CLOSED) - CONTACT BTM FOR SPECIALS



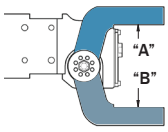

Clamp is shown in the closed position.

The maximum counter-clockwise arm opening value is noted in degrees for the specified arm positions to the right.

| | STANDARD ARM ORIENTATION (A) | | | | INVERTED ARM ORIENTATION (B) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Arm Mounting Position Code | Offset Arm | | | | Arm Mounting Position Code | Offset Arm | | | |
| | Straight | 25 | 70 | 120 | | Straight | 25 | 70 | 120 |
| 0 | N/A | 120° | 120° | 120° | 0 | N/A | N/A | N/A | N/A |
| 45 | 120° | 120° | 120° | 120° | 45 | 120° | N/A | N/A | N/A |
| 90 | 120° | 120° | 120° | 105° | 90 | 120° | N/A | N/A | N/A |
| 135 | 120° | 90° | 75° | 60° | 135 | 120° | 120° | 120° | 120° |
| 180 | 105° | 45° | 30° | N/A | 180 | 105° | 120° | 120° | 120° |
| 225 | 60° | N/A | N/A | N/A | 225 | 60° | 75° | 105° | 120° |
| 270 | N/A | N/A | N/A | N/A | 270 | N/A | 30° | 60° | 90° |

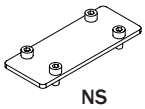
### ARM ORIENTATION

**A = Standard**
**B = Inverted**

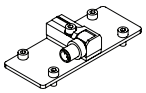



### ARM SIDE


### SWITCH



**NS**
(No Switch)



**TDC**
(Turck DC)
*[Standard]*

See p.22 for additional switch options.

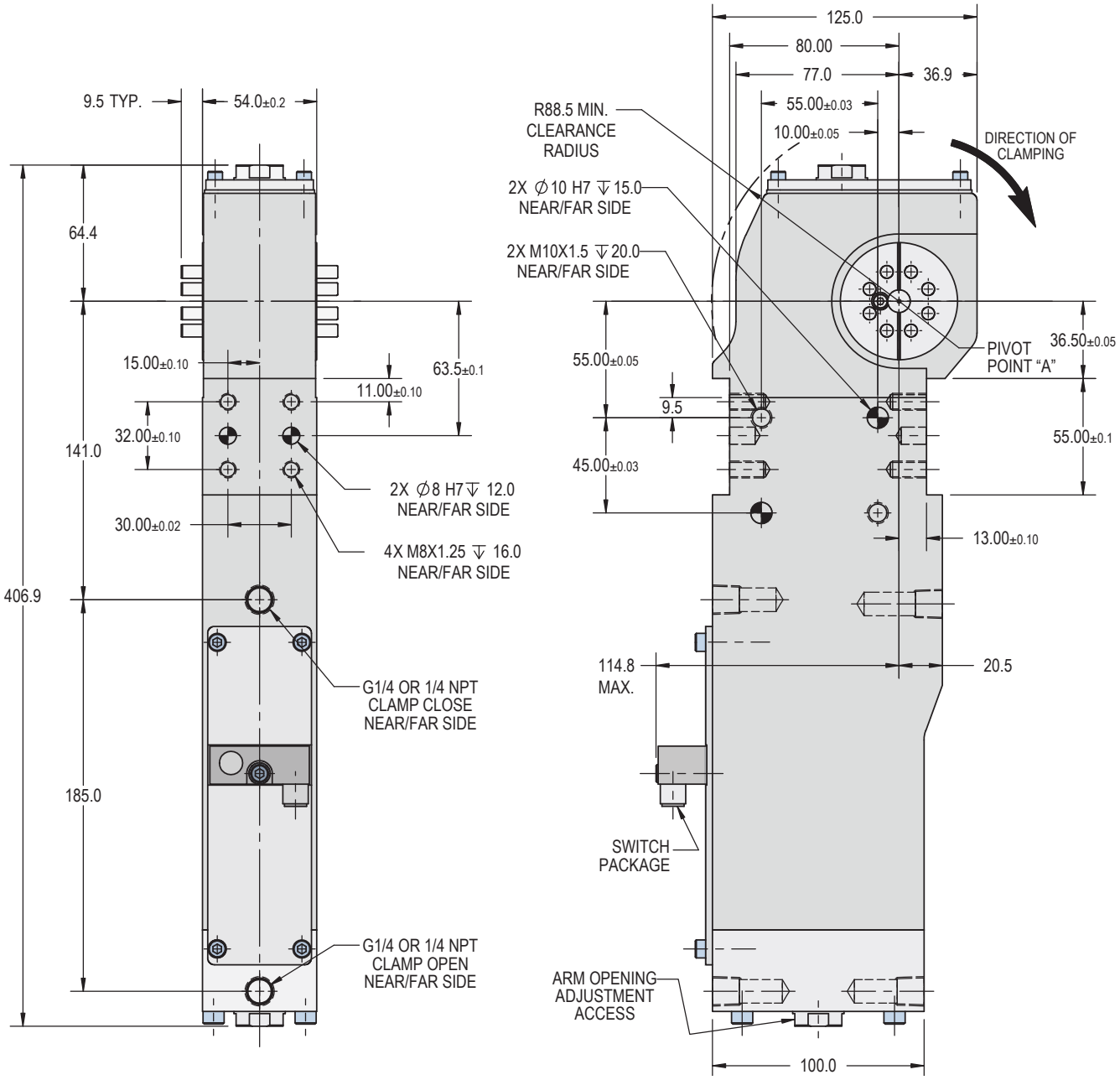
| PRESET |
|---|
| 30° |
| 45° |
| 60° |
| 75° |
| 90° |
| 105° |
| 120° |

## TPCA62

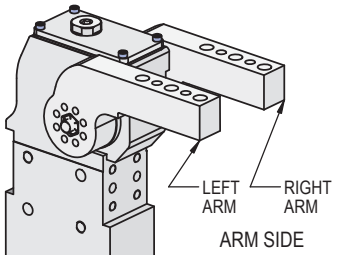
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Equivalent Bore Size** | 62.0 [2.50"] DIA. = 3161mm² [4.91in²] | | | | | | |
| **Arm Rotation (Deg.)** | 30 | 45 | 60 | 75 | 90 | 105 | 120 |
| **Cylinder Stroke (mm)** | 34.06 | 43.67 | 53.07 | 62.87 | 73.18 | 80.14 | 93.05 |
| **Recommended Operating Pressure** | 2.75 to 7 BAR [40 to 100 PSI] (Lubricated or Non-Lubricated Compressed Air) | | | | | | |
| **Weight** | 5.8 kg [12.6 lbs] Without Arm | | | | | | |
| **Holding Torque** | 450 Nm [330 lbf-ft] (No Air & Maintaining Rated Repeatability) | | | | | | |

| | |
|---|---|
| **Clamping Torque** | 257.6 Nm @ 5.5 BAR [190 lbf-ft @ 80 PSI] |
| **Arm to Mount Accuracy** | ± 0° 15' (Clamp to Clamp) |
| **Repeatability** | ± 0° 3' |
| **Cycle Time** | 1.0 second Clamp Closing Cycle<br>1.0 second Clamp Opening Cycle |
| **Permissible Clamp Off-Set Distance** | 75mm [2.95"] (see p.16) |

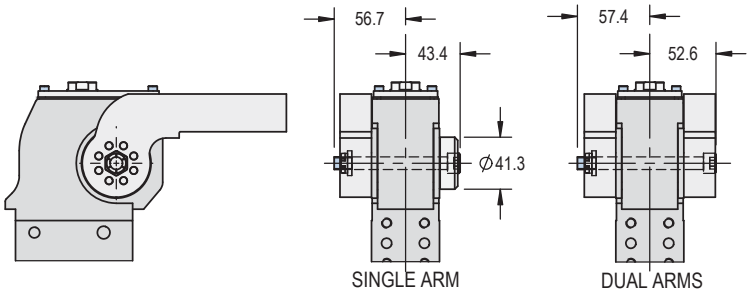
USE FLOW CONTROLS TO REDUCE IMPACT



# TPCA62 CLAMP ARM INFORMATION

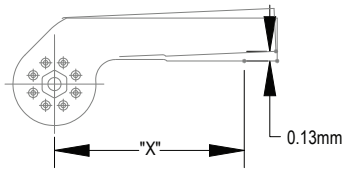


ARM SIDE



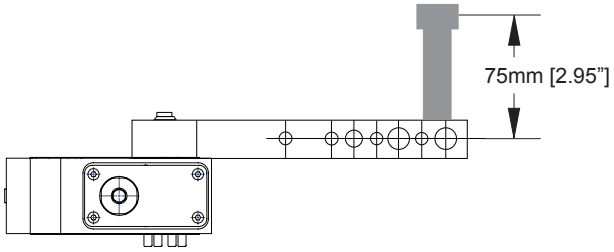
ARM MOUNTING WITH HARDWARE

## CLAMP ARM DEFLECTION UNDER LOAD




| Arm Deflection Under Load | |
|---|---|
| Force on arm at "X" distance from pivot resulting in 0.13mm Maximum deflection. | |
| "X" (mm) | Force (N) |
| 250 | 156 |
| 225 | 200 |
| 200 | 245 |
| 175 | 289 |
| 150 | 378 |
| 125 | 489 |
| 100 | 734 |

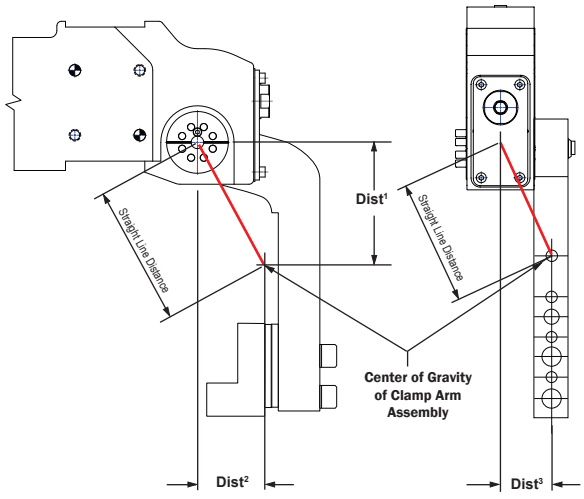
## PERMISSIBLE CLAMP OFFSET DISTANCE




## MAXIMUM ALLOWABLE WEIGHT ON CLAMP ARM ASSEMBLY

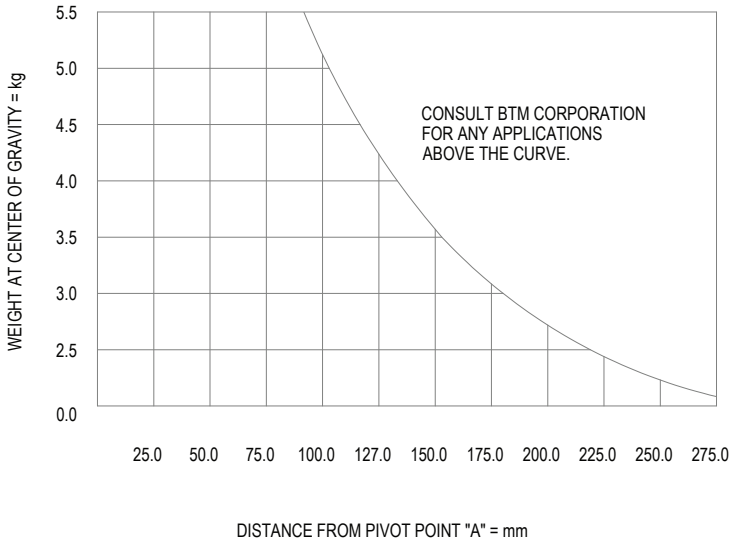
Refer to the charts below for model specific information regarding the recommended allowable weight on the arm at given distances from the pivot. The distance from Pivot Point is the straight line distance from the centerline of the clamp at the pivot point to the center of gravity of the clamp arm assembly. The center of gravity is figured using the weight of the arm plus the total weight mounted on the arm. When using dual arms, add the weight of the second arm to the total weight.

## CENTER OF GRAVITY OF CLAMP ARM ASSEMBLY



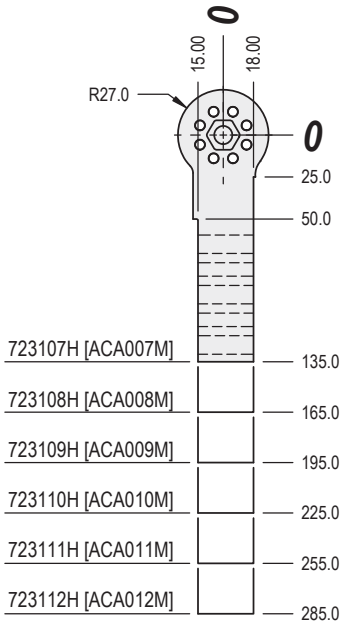

Mass @ Center of Gravity = ____

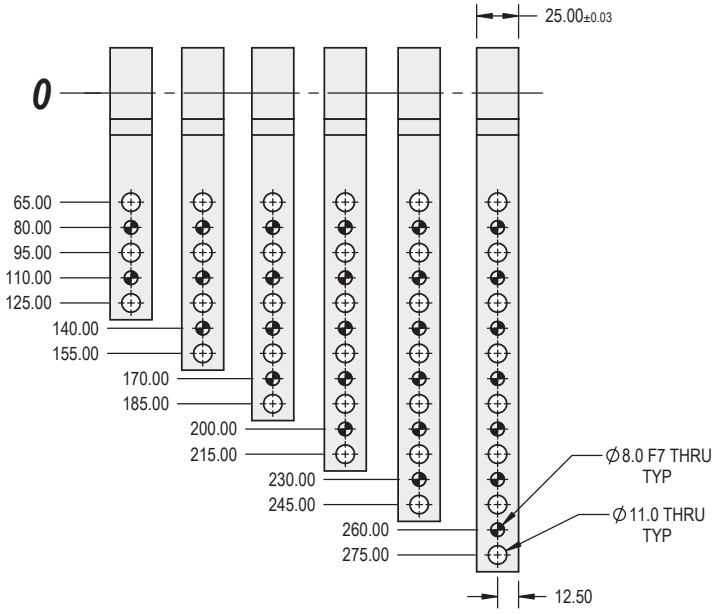
## CLAMP ARM MAXIMUM WEIGHT



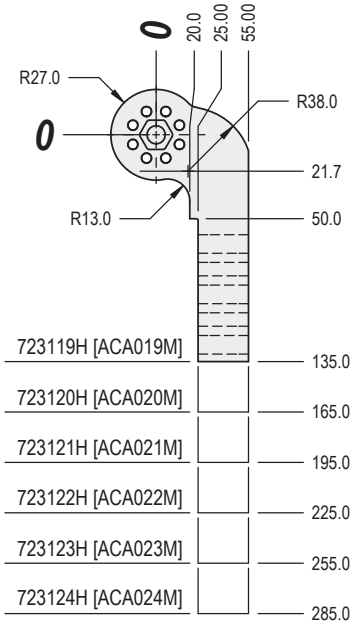
# TPCA62 CLAMP ARMS

## STRAIGHT ARM

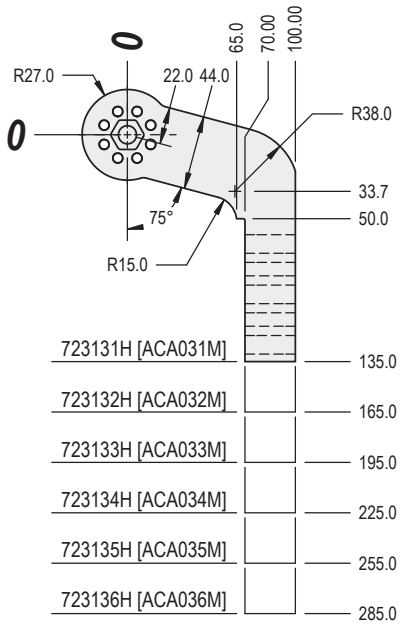


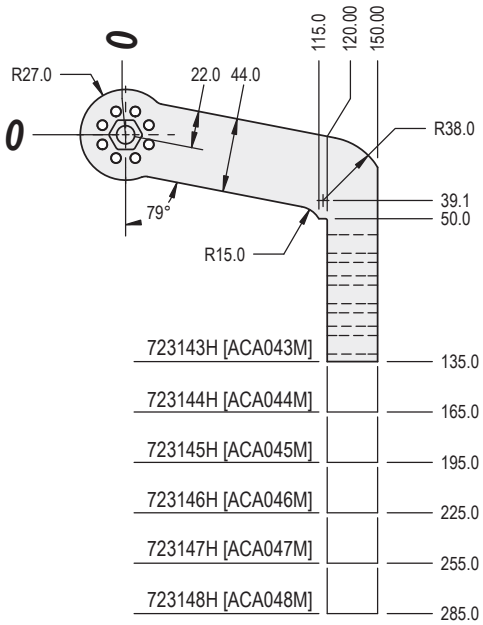

## 25 OFFSET




## 70 OFFSET

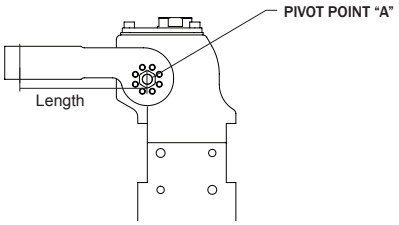


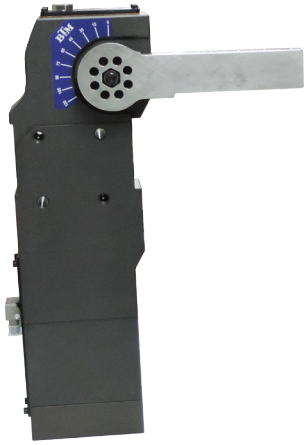

## 120 OFFSET



# TPCA82

| CLAMPING FORCE | |
|---|---|
| BARS | 92000 x Line Pressure (BAR) / Length (mm) from POINT "A" to the center line of clamping contact area on clamp arm |
| PSI | 55 x Line Pressure (PSI) / Length (in) from POINT "A" to the center line of clamping contact area on clamp arm |



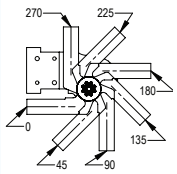
***For TPCA82 Arm Information See Pages 20-21.***

## HOW TO ORDER

| CLAMP | | | | | LEFT ARM | | | | | RIGHT ARM | | | | | SWITCH | | PRESET |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPCA | 82 | G | P | - | 7232130H | 180 | A | L | - | 7232130H | 180 | A | R | - | TDC | - | 90 |
| CLAMP SERIES | CLAMP SIZE | PORT OPTION | HUB CONNECTION TYPE | | BTM ARM NUMBER (See p. 21) | ARM POSITION | ARM ORIENTATION | ARM SIDE | | BTM ARM NUMBER (See p. 21) | ARM POSITION | ARM ORIENTATION | ARM SIDE | | SWITCH STYLE (See p. 22) | | PRESET ARM OPENING (DEFAULT IS 90°) |

| PORT OPTION | |
|---|---|
| | BTM No. |
| N = 1/4 NPT | PD254100A |
| G = G1/4 | PD254300A |
| HUB CONNECTION TYPE | |
| P = PIN HUB | |

### STANDARD ARM POSITION (WHEN CLOSED) - CONTACT BTM FOR SPECIALS



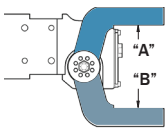

Clamp is shown in the closed position.

The maximum counter-clockwise arm opening value is noted in degrees for the specified arm positions to the right.

| STANDARD ARM ORIENTATION (A) | | | | | INVERTED ARM ORIENTATION (B) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Arm Mounting Position Code | Offset Arm | | | | Arm Mounting Position Code | Offset Arm | | | |
| | Straight | 25 | 70 | 120 | | Straight | 25 | 70 | 120 |
| 0 | N/A | N/A | 120° | 120° | 0 | N/A | N/A | N/A | N/A |
| 45 | 120° | 120° | 120° | 120° | 45 | 120° | N/A | N/A | N/A |
| 90 | 120° | 120° | 120° | 120° | 90 | 120° | N/A | N/A | N/A |
| 135 | 120° | 105° | 75° | 75° | 135 | 120° | 120° | 120° | 120° |
| 180 | 90° | 60° | 30° | 30° | 180 | 90° | 120° | 120° | 120° |
| 225 | 60° | N/A | N/A | N/A | 225 | 60° | 75° | 105° | 120° |
| 270 | N/A | N/A | N/A | N/A | 270 | N/A | 30° | 60° | 75° |

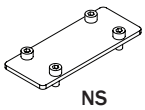
### ARM ORIENTATION

**A = Standard**
**B = Inverted**

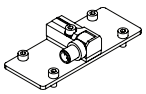



### ARM SIDE


### SWITCH



**NS**
(No Switch)



**TDC**
(Turck DC)
*[Standard]*

See p.22 for additional switch options.

### PRESET

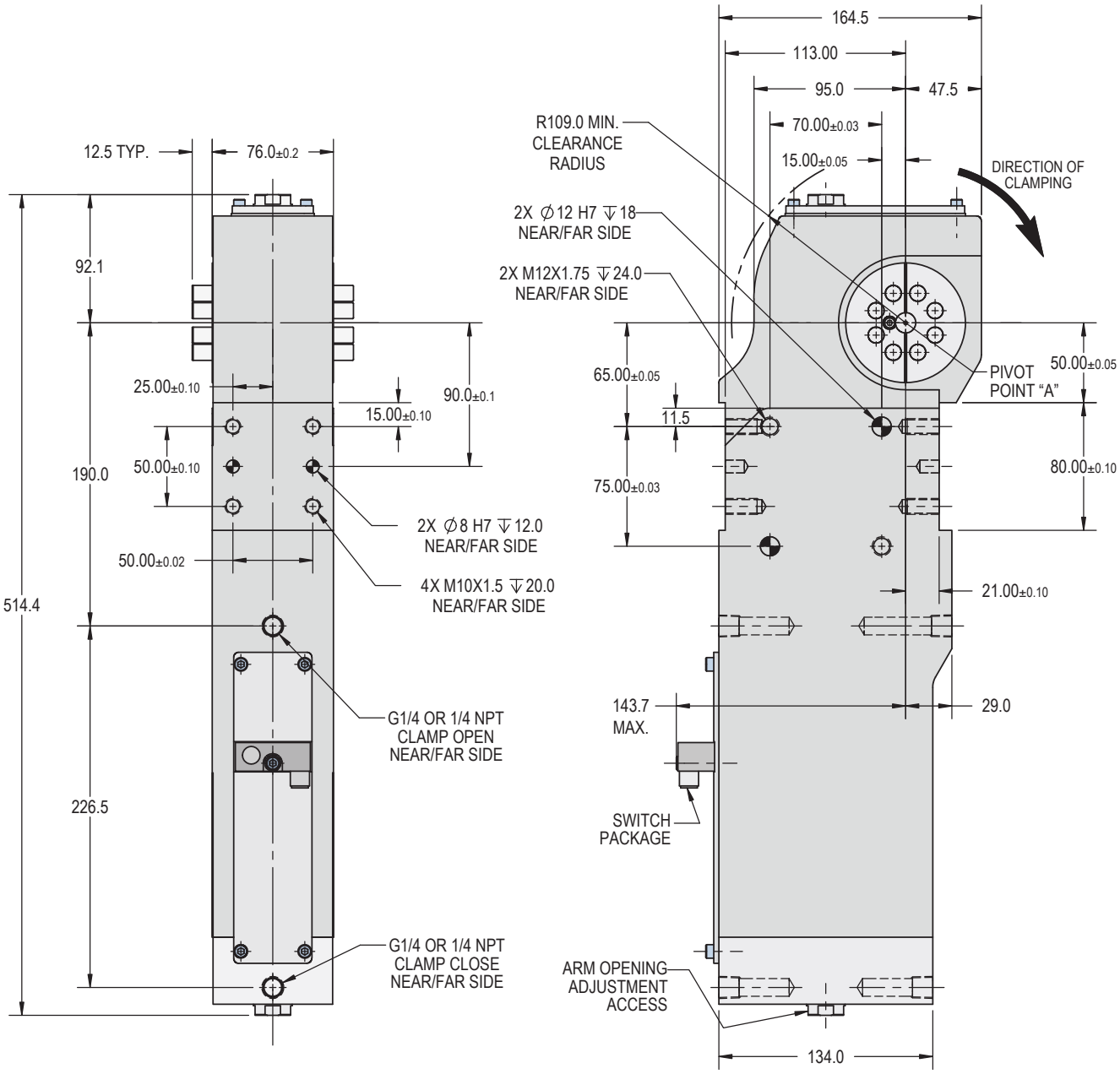
30°
45°
60°
75°
90°
105°
120°

## TPCA82

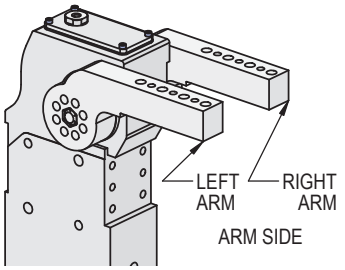
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Equivalent Bore Size** | 82.0 [3.25"] DIA. = 5352mm² [8.29in²] | | | | | | |
| **Arm Rotation (Deg.)** | 30 | 45 | 60 | 75 | 90 | 105 | 120 |
| **Cylinder Stroke (mm)** | 44.29 | 56.70 | 68.79 | 81.27 | 94.24 | 107.15 | 118.79 |
| **Recommended Operating Pressure** | 2.75 to 7 BAR [40 to 100 PSI] (Lubricated or Non-Lubricated Compressed Air) | | | | | | |
| **Weight** | 14.3 kg [31.5 lbs] Without Arm | | | | | | |
| **Holding Torque** | 745 Nm [550 lbf-ft] (No Air & Maintaining Rated Repeatability) | | | | | | |

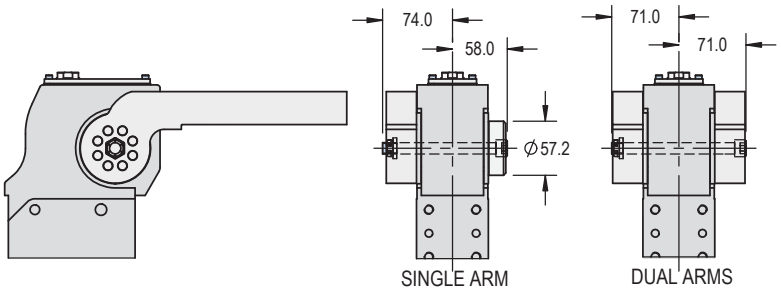
| | |
|---|---|
| **Clamping Torque** | 496.2 Nm @ 5.5 BAR [366 lbf-ft @ 80 PSI] |
| **Arm to Mount Accuracy** | ± 0° 15' (Clamp to Clamp) |
| **Repeatability** | ± 0° 3' |
| **Cycle Time** | 1.0 second Clamp Closing Cycle<br>1.0 second Clamp Opening Cycle |
| **Permissible Clamp Off-Set Distance** | 150mm [5.91"] (see p.20) |

USE FLOW CONTROLS TO REDUCE IMPACT



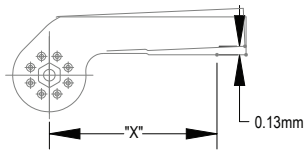
# TPCA82 CLAMP ARM INFORMATION



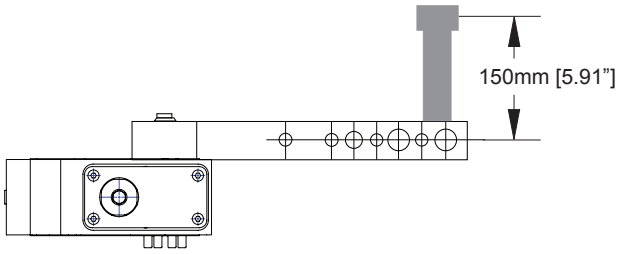

ARM MOUNTING WITH HARDWARE

## CLAMP ARM DEFLECTION UNDER LOAD




| Arm Deflection Under Load | |
|---|---|
| Force on arm at "X" distance from pivot resulting in 0.13mm Maximum deflection. | |
| "X" (mm) | Force (N) |
| 370 | 165 |
| 340 | 205 |
| 310 | 267 |
| 280 | 365 |
| 250 | 449 |
| 220 | 623 |
| 190 | 1005 |
| 160 | 1397 |
| 130 | 2073 |
| 100 | 3065 |

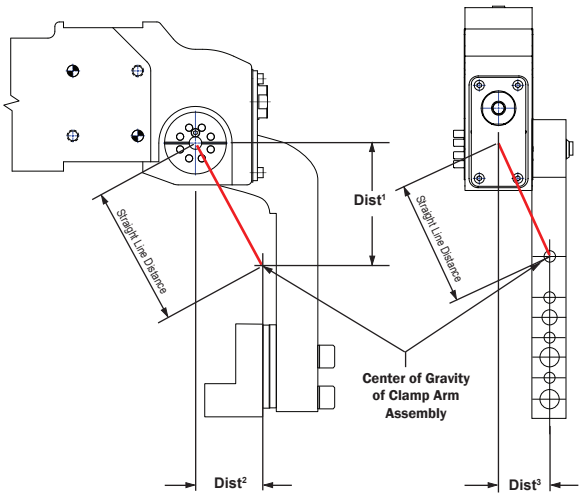
## PERMISSIBLE CLAMP OFFSET DISTANCE




## MAXIMUM ALLOWABLE WEIGHT ON CLAMP ARM ASSEMBLY

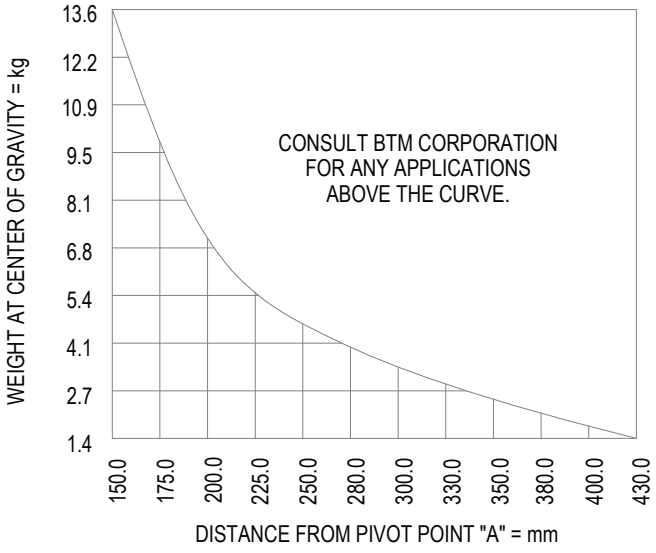
Refer to the charts below for model specific information regarding the recommended allowable weight on the arm at given distances from the pivot. The distance from Pivot Point is the straight line distance from the centerline of the clamp at the pivot point to the center of gravity of the clamp arm assembly. The center of gravity is figured using the weight of the arm plus the total weight mounted on the arm. When using dual arms, add the weight of the second arm to the total weight.

## CENTER OF GRAVITY OF CLAMP ARM ASSEMBLY



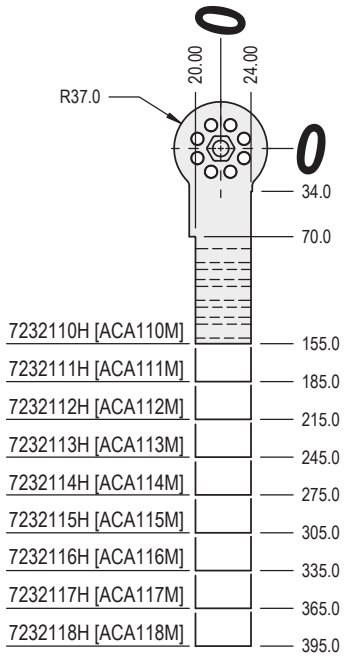

Mass @ Center of Gravity = ____

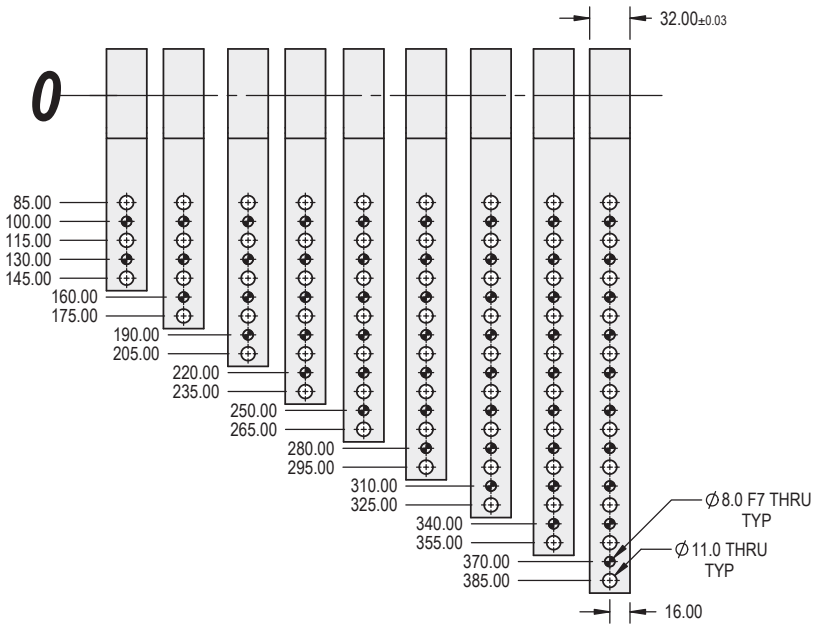
## CLAMP ARM MAXIMUM WEIGHT



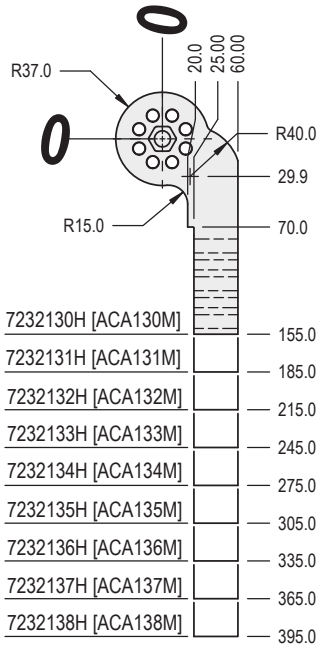
# TPCA82 CLAMP ARMS

## STRAIGHT ARM

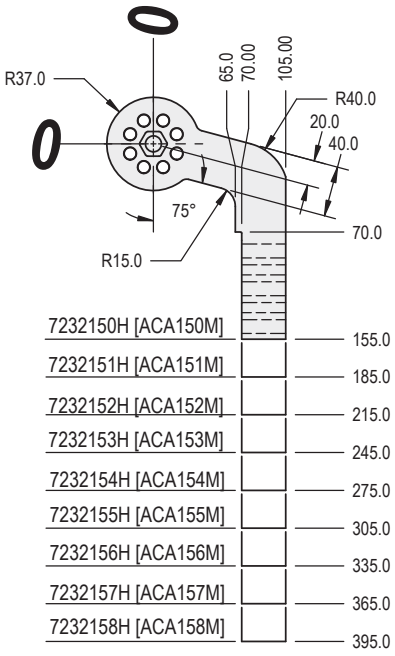


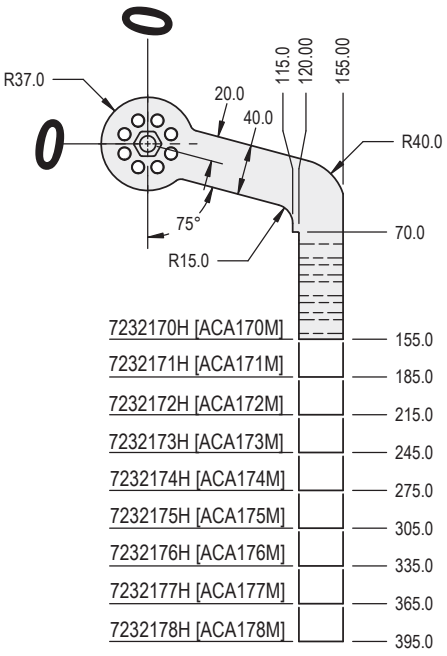

## 25 OFFSET




## 70 OFFSET




## 120 OFFSET

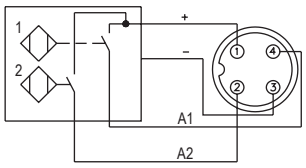


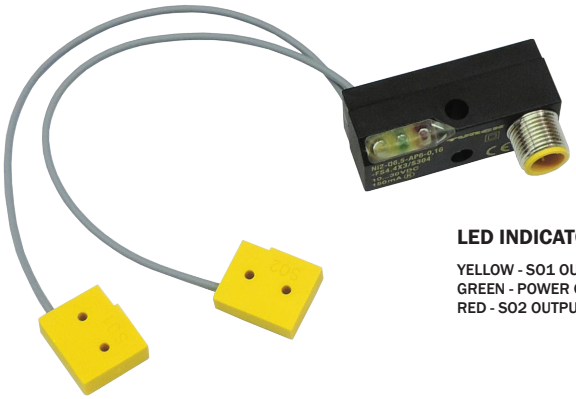
## STANDARD SWITCH - TPCA52, 62, & 82

### Turck DC [TDC]

**Ni2Q6.5AP6-0.16-FS4.4X3/S304**

SO.2 reads the closed position of the clamp.
*If SO. 2 is required for the open position (transposed), order:* TTDC



**LED INDICATORS**

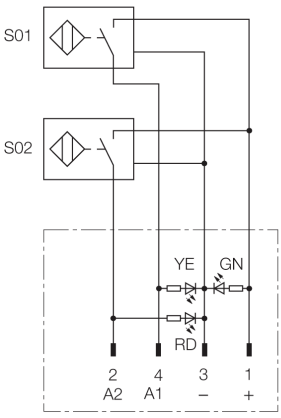
YELLOW - SO1 OUTPUT ENERGIZED
GREEN - POWER ON
RED - SO2 OUTPUT ENERGIZED

## STANDARD SWITCH - TPCA42

### Turck DC [BDC]

**Ni2-BTM-0,16-BDS-2AP6X3-H1141/S34**

SO.2 reads the closed position of the clamp.
*If SO. 2 is required for the open position (transposed), order:* TBDC




**LED INDICATORS**

YELLOW - SO1 OUTPUT ENERGIZED
GREEN - POWER ON
RED - SO2 OUTPUT ENERGIZED

***Optional switches may be available upon request (including Turck AC [TAC for TPCA52, 62, & 82] or [BAC for TPCA42]) Contact BTM for price and delivery information.***

# WARRANTY INFORMATION

BTM Company, LLC. warranties its TPCA Clamps against defects in material and workmanship for the life of the tool/program which the clamp was originally sold or 3 million cycles, whichever comes first.

This warranty is limited to replacing or repairing at BTM's option, F.O.B. BTM's factory, any part found by BTM to be defective in materials and/or workmanship. Any application of a BTM product outside the intended use of the product shall not be warranted by BTM Company, LLC.. Furthermore, BTM will not be liable for any expenses incurred for repairs or replacement made outside BTM's facilities without written consent (or damages arising out of such replacements or repairs). Under no circumstances will BTM be held responsible for any consequential damages.

The warranty is limited to the repair or replacement of the defective part(s) and does not include installation.

This warranty is the only warranty extended by the seller in connection with any sale made hereunder and is in lieu of all other warranties, express, implied or statutory including warranties of merchantability and fitness for purpose.

BTM COMPANY

## OTHER PRODUCTS FOR AUTOMATION

### Clamps

From heavy duty precision sealed locking power clamps to simple light duty OMNI models, BTM manufactures clamps in a range of styles and sizes for a wide variety of applications.

### Grippers

BTM manufactures a high quality line of grippers ranging from heavy duty models to light duty models in a variety of styles and sizes.

## OTHER QUALITY BTM PRODUCTS TO CONSIDER

### Pin Locator Clamps

BTM's Locator Clamps are ideal for locating & holding production material and are used in a variety of manufacturing areas including automotive & refrigeration.

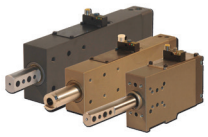
Pin Sizes range from as small as 6mm (PLC-25 Light Duty Clamp) to as large as 40mm (PLC-63 & LPLC-38 locking clamp).

Single Finger Hook Models (without the locating pin) are also available in both locking and non-locking configurations.

### Rod-Locking Pin Locator Clamps

These clamps employ a rod locking feature which allows the clamp to retain the part when air pressure is removed/lost.

### Precision Shot Pin Cylinders



BTM's Precision Shot Pin Cylinders are ideal for locating production material through precisely pierced holes - including clamping and fixturing.

For more information, or to view our other products, please visit:

**www.BTMcomp.com**