XPC PIN CLAMPS & XFC HOOK CLAMPS

Proven locking pin clamp in a new cost saving design

Enhanced locking pin clamp for airless transfer pallets

Easy pin location adjustment using the XYZ shim box

Built in pin riser for improved weld gun access

3mm locking range

See the BTM Pin & Hook Clamp Line of Products

www.btmcomp.com
810-364-4567
HOW BTM XPC LOCKING PIN CLAMPS WORK

**STEP ONE**
With the clamp finger retracted, the part is loaded over the locating pin.

**STEP TWO**
The material rests on the clamp Rest Block ("Donut")

**STEP THREE**
The finger swings out of the locating pin over the first 5mm of travel.

**STEP FOUR**
The finger then has up to 10mm of straight line travel to the clamped position. The last 3mm is locking range for a BTM locking pin clamp. (No adjustments required.)
**OVERVIEW OF COST SAVINGS**

The XYZ Shim Box mount allows easy, accurate and stable adjustment of the pin location during setup or if the pin clamp location is compromised. XPC Pin Clamps can be side or bottom mounted with the XYZ Shim Box mount.

The built in pin riser allows weld gun arms to easily clear the clamp mechanism & mounting brackets, and to reach the area around the pin and into deeper cross sections reducing the need for complex brackets and risers.

The proven Locking Pin Clamp maintains clamping force with air removed for the accurate and inexpensive transfer of parts in moving tooling and fixtures.

The 3mm clamp locking range accommodates multiple part thicknesses and/or the tolerance in material thickness.

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**WHAT IS THE ADVANTAGE OF A PIN CLAMP?**

Pin Clamps utilize precisely located datum holes which are controlled for accurate and easy assembly.

Pin Clamps combine a locator pin with a power clamp to reduce the number of components required to locate and hold parts being assembled.
OTHER ADVANTAGES OF THE XPC LOCKING PIN CLAMP

SAVE MONEY ON CLAMP FIXTURES!
Reduces cost and improves clearance and rigidity with direct to pallet or base mounting.
Multiple extension lengths are available for access into difficult to reach areas.
Mounts to standard risers or direct to base.

OFFSET CLAMP FINGER DESIGN
ALLOWS LOCATING ACROSS SLOTS OR IN SQUARE HOLES!

NEED TO ROTATE THE FINGER AWAY FROM FLANGES, OBSTRUCTIONS, OR WELDING OPERATIONS?
Finger can be rotated to 90° positions to avoid flanges, obstructions or weld contamination.
Simply remove four screws and rotate the upper assembly in any one of four directions.
MORE ADVANTAGES

- Improved resistance to weld contamination.
- Symmetric design allows accessibility to fasteners, proximity switches or camera sensing from any side.
- XPCs use a small volume of air to generate a high clamping force.
- The XPC Pin Clamp maintains its locked clamp position when air pressure is removed.
- When the air is removed, XPC's can be manually unlocked by simply pulling on the rod end of the cylinder to release the work piece, or to retract the unit when fitting the work piece to a new fixture.

XPC PIN CLAMP COMPONENTS

**LOCATING PIN (XPC)**
Locates through a hole in the part. Standard 25mm and 40mm pin sizes.

**REST BLOCK “DONUT”**
Where the material rests. Special pins and rest blocks (donuts) available for slots or part clearance accommodation.

**EXTENSION SUB-ASSEMBLY**
Available in 350mm and 650mm standard sizes.

**OPTIONAL CAMERA SENSING FLAG**
For verification of extend and retract position.

**POWER CYLINDER SUB-ASSEMBLY**

**FINGER**
3mm clamp locking range accommodates multiple part thicknesses and or the tolerance in material thickness.
10mm straight line finger pull down stroke permits clamping over flanged holes.

**FINGER POSITION ADJUSTMENT**
Rotate Extension Assembly to desired finger position in 90° increments.

**OPTIONAL PROXIMITY SWITCH**
For verification of extend and retract position.

**SHIM BOX ASSEMBLY**
Allows multiple mounting positions and precise shim positioning. Uses standard NAAMS shims.
**XPC SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Standard Hole/Slot Size</th>
<th>24.8, 25, 39.8, 40mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamping Force</td>
<td>890 - 1334N @ 5.5BAR (200-300lbf @ 80PSI)</td>
</tr>
<tr>
<td>Finger Travel</td>
<td>15mm Total. Consists of:</td>
</tr>
<tr>
<td></td>
<td>• 5mm rotational</td>
</tr>
<tr>
<td></td>
<td>• 10mm straight line pull down stroke</td>
</tr>
<tr>
<td></td>
<td>• 3.0mm Locking Range (from clamping surface)</td>
</tr>
<tr>
<td>Bore Diameter</td>
<td>38.1mm - 1140mm²</td>
</tr>
<tr>
<td>Cylinder Stroke</td>
<td>38.5mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clamp Weight</th>
<th>Clamp Height</th>
<th>Pin Diameter</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>350</td>
<td>24.8 &amp; 25</td>
<td>7.3kg [16.1lbs]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>39.8 &amp; 40</td>
<td>8.2kg [18.1lbs]</td>
<td></td>
</tr>
<tr>
<td>650</td>
<td>24.8 &amp; 25</td>
<td>10.8kg [23.7lbs]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>39.8 &amp; 40</td>
<td>11.6kg [25.6lbs]</td>
<td></td>
</tr>
</tbody>
</table>

**Sensing Option**

- Pepperl & Fuchs DC Proximity Switch:
  - P1 = Switch Position 1
  - P2 = Switch Position 2
- C = Camera Sensing
- N = No Switch

**How to Order**

Call +1-810-364-4567, or email sales@btmcorp.com to request a quote!
XPC ORDERING OPTIONS

PIN DIAMETERS

<table>
<thead>
<tr>
<th>PIN Diameters</th>
<th>Engagement</th>
<th>Donut Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Φ 25.0, Φ 24.8 h6</td>
<td>Standard (4.0) = S</td>
<td>34.5</td>
</tr>
<tr>
<td>Φ 40.0, Φ 39.8 h6</td>
<td>Flanged (10.0) = F</td>
<td>34.5</td>
</tr>
</tbody>
</table>

FINGER POSITION

<table>
<thead>
<tr>
<th>Finger Position</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
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<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

RELATIVE TO PISTON ROD

SENSING OPTIONS

<table>
<thead>
<tr>
<th>Sensing Option</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch Position 1 (Front)</td>
<td>P1</td>
</tr>
<tr>
<td>Switch Position 2 (Back)</td>
<td>P2</td>
</tr>
<tr>
<td>Camera Sensing</td>
<td>C</td>
</tr>
<tr>
<td>No Switch</td>
<td>N</td>
</tr>
</tbody>
</table>
NEED A SPECIAL PIN, DONUT, OR EVEN CLAMP FINGER?
WE SPECIALIZE IN SPECIALS!

Custom Pin Locators, Clamp Fingers, Donuts & Clamp Locking on material > 3mm are available.

Contact our sales engineering department to find out how to customize your clamp order for your unique project's needs.

CONTACT BTM TODAY!
Phone: +1-810-364-4567
Email: sales@btmcorp.com
Or visit us on the web at
www.BTMcomp.com

Scan this QR Code to call BTM!

Examples of customized donuts, and a custom length pin.
**XFC SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Specification Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Hole/Slot Size</td>
<td>25 - 40mm</td>
</tr>
<tr>
<td>Clamping Force</td>
<td>890 - 1334N @ 5.5BAR (200-300lbf @ 80PSI)</td>
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<tr>
<td>Finger Travel</td>
<td>15mm Total. Consists of:&lt;br&gt;• 5mm rotational&lt;br&gt;• 10mm straight line pull down stroke&lt;br&gt;• 2.5mm Locking Range (from clamping surface)</td>
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<tr>
<td>Bore Diameter</td>
<td>38.1mm - 1140mm²</td>
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<td>Cylinder Stroke</td>
<td>38.5mm</td>
</tr>
<tr>
<td>Clamp Weight</td>
<td></td>
</tr>
<tr>
<td>Clamp Height</td>
<td>Weight</td>
</tr>
<tr>
<td>350</td>
<td>7.48kg [16.5lbs]</td>
</tr>
<tr>
<td>650</td>
<td>10.89kg [23.6lbs]</td>
</tr>
</tbody>
</table>

**CLAMP SELECTION**

- **XFC**
- **G**
- **PORT OPTION**
  - **G** = G1/8

**PIN SELECTION**

- **Finger Size**
  - 25.0
  - 40.0
  
  See p.11

- **Clamp Height**
  - 350
  - 650
  
  See p.12

**SENSING**

- **Sensing Option**
  - Pepperl & Fuchs DC Proximity Switch:
    - P1 = Switch Position 1
    - P2 = Switch Position 2
  - C = Camera Sensing
  - N = No Switch

**HOW TO ORDER**

Call +1-810-364-4567, or email **sales@btmcorp.com** to request a quote!

**Shim Box Assembly**

- **BTM Number**
  - PD281300M

**NOTE:** Order Shim Box separately. See p. 14-15 for more information

**We Do Specials!**

BTM Pin Clamps can be ordered with custom designed (non-standard) pins, donuts, and/or fingers. In such cases, a **SPECIAL ASSEMBLY** number will be issued by BTM’s Product Engineering Department. This number must be referenced when ordering a non-standard pin clamp.

**Example of a special “donut”**
# XFC ORDERING OPTIONS

## FINGER SIZES

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Finger Position 1</th>
<th>Finger Position 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FINGERTIP 4.8</td>
<td>OPEN 9.5</td>
</tr>
<tr>
<td></td>
<td>15.5</td>
<td>14.1</td>
</tr>
<tr>
<td></td>
<td>21.9</td>
<td>25.8</td>
</tr>
<tr>
<td></td>
<td>32.3</td>
<td>33.7</td>
</tr>
<tr>
<td></td>
<td>44.5</td>
<td>48.5</td>
</tr>
<tr>
<td></td>
<td>50.0</td>
<td>52.8</td>
</tr>
</tbody>
</table>

## FINGER POSITION

- **FINGER POSITION 1**: ORDER CODE = 1
  - RELATIVE TO PISTON ROD
- **FINGER POSITION 2**: ORDER CODE = 2
- **FINGER POSITION 3**: ORDER CODE = 3
- **FINGER POSITION 4**: ORDER CODE = 4

## SENSING OPTIONS

- **SWITCH POSITION 1**: (FRONT) ORDER CODE = P1
- **SWITCH POSITION 2**: (BACK) ORDER CODE = P2
- **CAMERA SENSING**: ORDER CODE = C
- **NO SWITCH**: ORDER CODE = N
**XFC DIMENSIONS**

139.5 ± 0.8 CLAMP OPEN

100.9 ± 0.8 CLAMP CLOSED

SWITCH POSITION P2

110.0 SQUARE

70.0 SQUARE

4X φ 18.0 THRU ALL

SWITCH POSITION P1

φ 38.1

STANDARD ROD END FLAG
SENSING OPTIONS
P1, P2 OR N

CAMERA SENSING FLAG
SENSING OPTION C

FINGER POSITION
OPTIONS = 1, 2, 3, 4

44.5 (DONUT HEIGHT)

φ 78.5

CLAMPING
SURFACE

3.0 LOCKING RANGE

4X φ 18.0 THRU ALL

SWITCH OPTIONS
P&F DC = P1, P2
CAMERA SENSING = C
NO SWITCH - N

70.0 SQUARE

35.0

42.5

2X M10X1.5-6H TAP \( \downarrow \) 20.0

2X φ 10 F7 \( \downarrow \) 23.0

0.5 MAX GAP BETWEEN
FINGER AND CLAMPING SURFACE
NOTE: WILL ONLY CLAMP
MATERIAL OVER 0.5MM

350mm = 350
650mm = 650

HEIGHT OPTIONS
(TO CLAMP FINGER)

3.0 LOCKING RANGE

MANUAL RELEASE
(PULL TO UNLOCK CYLINDER)

2X M10X1.5-6H TAP \( \downarrow \) 20.0

2X φ 10 F7 \( \downarrow \) 23.0

350mm = 350
650mm = 650

HEIGHT OPTIONS
(TO CLAMP FINGER)

3.0 LOCKING RANGE

MANUAL RELEASE
(PULL TO UNLOCK CYLINDER)

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2X φ 10 F7 \( \downarrow \) 23.0

350mm = 350
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HEIGHT OPTIONS
(TO CLAMP FINGER)

3.0 LOCKING RANGE

MANUAL RELEASE
(PULL TO UNLOCK CYLINDER)

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Examples of customized donuts
SHIM BOX ASSEMBLY
EQUIPPED WITH 5MM FITTING SPACERS

BTM Number
PD281300M
(Use this number when ordering.)

Use as Base or Side Mount

BASE MOUNTING

SIDE MOUNTING

More Information on next page...
SHIM BOX ASSEMBLY (CONTINUED)

NOTES FOR BASE MOUNTING:
Three way shimming simply by bolting directly to any of available mounting surfaces. Standard 70 x 70mm bolt pattern, (4) M10x1.5 tapped holes and (2) M10 dowel holes.

BASE MOUNTING

MAY BE INSTALLED ON ANY SIDE WHEN BASE MOUNTED

NOTES FOR SIDE MOUNTING:
Three way shimming simply by bolting directly to any of available mounting surfaces. Standard 70 x 70mm bolt pattern, (4) M10x1.5 tapped holes and (2) M10 dowel holes.

SIDE MOUNTING

SWITCH POSITION 1

SWITCH POSITION 2

MOUNT will be opposite proximity switch.

When no switch (N) or camera sensing (C) is chosen, either side of clamp is available for mounting.

Side Mount is NOT available on sides cylinder can is present.

MAY BE INSTALLED ON 2 SIDES AS SHOWN WHEN SIDE MOUNTED

BOTH CYLINDER CANS ARE ROTATABLE 360° TO ALLOW PORT ACCESS IF BLOCKED BY MOUNT

MAY BE INSTALLED ON ANY SIDE WHEN BASE MOUNTED
WARRANTY INFORMATION

BTM Company, LLC. warranties its Pin and Hook Clamps against defects in material and workmanship for one (1) million cycles or a period of three (3) years after the ship date from BTM, which ever 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.

OTHER PIN LOCATOR CLAMPS FROM BTM

<table>
<thead>
<tr>
<th>Model</th>
<th>Hole/Slot Range</th>
<th>Locking?</th>
<th>Manual Option Available?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC-25</td>
<td>6-12mm</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>PLC-45</td>
<td>12.5-18mm</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>PLC-63</td>
<td>18-40mm</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>RLPC-45</td>
<td>12.5-18mm</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>RLPC-63</td>
<td>18-40mm</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>LPLC-38</td>
<td>18-40mm</td>
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<td>Yes</td>
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</tbody>
</table>