TOX®-Handheld Tongs
TOX®-Mini-Handheld Tongs / TOX®-Mini Machine Mount Tongs
with Hydraulic drive – C-frame type
Type: CMH 03.45  $F_{\text{max}} = 45\,\text{kN}$ at 470 bar (5 tons at 6800 psi)

**Model 10:**

**Model 11:**

**Model 12:**
Pneumatic controls with 1-hand cycle initiation. Only available with 6 mm tool opening for operator safety. Handle with integrated trigger. Includes rotary feed through for supply and control lines. Drive: BES 125.10.

**TOX®-Machine Tongs:**
Stationary integration.

**Model 40:**
C-frame body with hydraulic cylinder from the CMH handheld program.

**Model 42:**
Includes indexing slide.

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**Tool area dimensions for clinching applications**

<table>
<thead>
<tr>
<th>Version 01</th>
<th>Version 05</th>
<th>Version 10</th>
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<tbody>
<tr>
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<td>Height H</td>
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**Dimensions for version 05**
TOX®-Mini-Machine Mount Tongs
for stationary applications or robot guided tongs

Model 51:
Machine mount tongs with integrated punch stripper type CSR for clinch- 
ing applications. Many options are available for the machine mount 
tongs. Please order separately.

Model 52:
Tongs including compensating slide 
with stroke adjustment and pneuma- 
tic cylinder. The slide moves tongs 
back to clear the TOX®-Point or any 
embossment on the parts. Includes 
end position sensor. Optional end 
position damping for slider available.

Special version of CMH 03 avail- 
able with 40 mm stroke. See data 
sheet 15.01 for drive details.

Technical data:
Type: CMH 03.45
TOX®-Point Ø 3, 4, 5, 6, 8 mm 
Weight of model 40 approx. 3.8 kg 
(8.4 lbs) 
Hydraulic cylinder Ø 35 mm, with 
spring return. 
Operating pressure 470 bar max. 
(6800 psi)

Scope of delivery:
C-frame, hydraulic cylinder, strip- 
er. Handles, compensating slides 
according to model. Without TOX®- 
Clinching Tools, without pneumo- 
hydraulic unit.

Additional equipment:
Gimbal CZS 20.05 or gimbal with 
hanger CZS 20.08. The handles for 
2- or 1-hand cycle initiation can also 
be mounted on the frame. A special 
mounting adapter allows the hand- 
le to be rotated 360° and swiveled 
± 35°.

Ordering example:
CMH 03.45.25.14.01.40

Available combinations:

<table>
<thead>
<tr>
<th>Type</th>
<th>Force (kN)</th>
<th>Stroke (mm)</th>
<th>Version</th>
<th>Model</th>
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</tbody>
</table>

*CMH 03.20.06.10 and CMH 03.30.14.10 are only available with 14 mm throat depth as standard.
**TOX®-Handheld Tongs** with hydraulic drive – C-frame type

Type: CHH 03.45  \( F_{\text{max}} = 45 \text{kN at 250 bar (5 tons at 3600 psi)} \)

Type: CHH 03.75  \( F_{\text{max}} = 75 \text{kN at 250 bar (8 tons at 3600 psi)} \)

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**Flat plate die**

**Stepped flat plate die**

Optional see table on next page for corresponding type of tongs.

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**Model 10:**

With 1-hand controls. Tool opening of 6 mm for operator safety. Suspension and electric cabling to be provided by customer. Trigger switch is included.

Special C-frames and special drives on request.

**Model 11:**

Including rotating handle. 50 mm stroke with 2-hand safety cycle initiation. Suspension and electric cabling provided by customer. Trigger switch is included.

**Model 12:**

Including rotary feed through CZS 21.04 and suspension shackle. 50 mm stroke. With 2-hand safety cycle initiation. Electric cabling up to terminal box. This model is not available for special large dimensions. The TOX®-Tongs can be equipped with a gimbal CZS 20.00 and suspension shackle CZS 21.06.

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**Dimensions for CHH 03.75**
### Technical data:
#### Type CHH 03.45
**TOX®-Point Ø 3, 4, 5, 6 and 8 mm**
- Weight of model 12 approx. 26 kg (57 lbs)
- Hydraulic cylinder Ø 50 mm.

#### Type CHH 03.75
**TOX®-Point Ø 3, 4, 5, 6 and 8 mm**
- Weight of model 12 approx. 32 kg (70 lbs)
- Hydraulic cylinder Ø 63 mm.

### Scope of delivery:
- C-frame, hydraulic cylinder, stripper. Rotary feed through depending on model. Pneumohydraulic unit and TOX®-Clinching Tools are not included.

Driven by pneumohydraulic unit PHA 160.64.

### Ordering example:
- CHH 03.45.50.04.12

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**Type: CHH 03.45**  \( F_{\text{max}} = 45 \text{kN at 250 bar (5 tons at 3600 psi)} \)

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<th>Version</th>
<th>Force kN</th>
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<th>Model</th>
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**Type: CHH 03.75**  \( F_{\text{max}} = 75 \text{kN at 250 bar (8 tons at 3600 psi)} \)

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**TOX®-Mini-Handheld Tongs** with hydraulic drive – X type
Type: CMH 04.45  \( F_{\text{max}} = 45 \text{kN at 470 bar (5 tons at 6800 psi)} \)

**Model 06:**
With 1-hand controls. Tool opening of 6 mm for operator safety.
Drive: PHA 160.99.

**Model 12:**
Tongs frame with hydraulic cylinder, pneumatic controls with 1-hand cycle initiation. 6 mm stroke only for operator safety. Handle with integrated trigger button. Includes rotary feed through for supply and control lines. Driven by pressure intensifier BES 125.10.

**Technical data:**
TOX®-Point Ø 3, 4, 5, and 6 mm
Weight of model 06 approx. 9 kg (19.8 lbs)
Hydraulic cylinder Ø 35 mm, with spring return
Operating pressure 470 bar max. (6800 psi)
Possible total material thickness 2.5 mm

**Scope of delivery:**
Tongs body, hydraulic cylinder, stripper, handle. Pneumohydraulic unit and TOX®-Clinching Tools are not included.

**Additional equipment:**
Gimbal or gimbal with hanger CZS 20.05 and CZS 20.08.

**Ordering example:**
CMH 04.45.06.00.12

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**Tool area dimensions for clinching applications**

**Flat plate die**

**Stepped flat plate die**

**Side view**

**End view**
TOX®-Handheld Tongs with hydraulic drive – X type
Type: CHH 04.45 \( F_{\text{max}} = 45 \text{kN at 250 bar} \) (5 tons at 3600 psi)

Model 10:
With 1-hand controls. Tool opening of 6mm for operator safety. Suspension and electric cabling to be provided by customer. Trigger switch is included.

Model 11:
Complete with rotating handle. Tool opening 30mm. With 2-hand safety cycle initiation. Suspension and electric cabling provided by customer. Switches supplied.

Model 12:
Complete with rotary feed through C2S 21.01 and suspension shackle. Electric cabling up to terminal box. Tool opening 30 mm.

Driven by pneumohydraulic unit PHA 160.64.

Technical data:
TOX®-Point Ø 3, 4, 5, 6, 8 mm
Weight approx. 32 kg (70 lbs)
Hydraulic cylinder Ø 50 mm,
Operating pressure 250 bar max. (3600 psi)
Stripping force 2900 N (644 lbf)
Possible total material thickness 2.5 mm

Scope of delivery:
Tongs body, hydraulic cylinder, stripper, rotary power feed and suspension shackle. Pneumohydraulic unit and TOX®-Clinching Tools are not included.

Ordering example:
CHH 04.45.30.11
Model
Tool opening
Press force (kN)
Type (X-tongs)
TOX®-Handheld Tongs hydraulic
**TOX®-Special-Handheld Tongs**

**TOX®-Handheld Tongs with hydraulic drive**
Type: CMH 01.45  \( F_{\text{max}} = 45 \text{kN} \) (5 tons)

High repeatability of the defined, adjustable stroke (adjustment of control dimension \( X \)). Long tool life.

**Scope of delivery:**
Tongs body rotates 360°, with integrated hydraulic cylinder, handle, suspension arm (version dependent).

Pneumohydraulic intensifier and TOX®-Clinching Tools are not included.

**Ordering no.:**
CMH 01.45.06.

Possible interferences and sheet metal thicknesses which can be joined with one set of tools (solid die, one piece punch).

**TOX®-Flange Tongs with hydraulic drive**
Type: CMH 02.30  \( F_{\text{max}} = 30 \text{kN} \) (3.4 tons)

Maximum flexibility with minimum weight thanks to the excellent handling and maneuverability.

**Scope of delivery:**
Tongs body rotates 360°, with integrated hydraulic cylinder, swiveling handle.

Pneumohydraulic intensifier and TOX®-Clinching Tools are not included.

**Ordering no.:**
CMH 02.30
Spacer plate for adjusting the control dimension X for clinching

The tongs drive has an internal positive stop which ensures that the control dimension X is always the same. If different material thicknesses or punch and die combinations are used, the control dimension X will change (see TOX®-Test Report). This dimension can be modified by parallel grinding the spacer plate to the required thickness.

TOX®-Pneumohydraulic Unit

Type BES 125.10 for TOX®-Tongs CMH

Pressure intensifier including 1/2" pneumatic controls. Process reliability is provided by the automatically activated return stroke. Includes pressure relief valve. Weight: approx. 15 kg (33 lbs)

Hose package 3 m (approx. 10 ft) long. Please order separately. Order No. BZS 01-3000 G3/8", including quick disconnect

Mounting brackets on pressure intensifier

Note:

BES 125.10.18.108 applies to version 12 for CMH 03.45 and CMH 04.45 as well as CMH 01.45. BES 125.10.21.39 applies to CMH 02.30.
TOX®-Pneumohydraulic Unit

The Pneumohydraulic Units are equipped with various controls.

| PHA 160.64 for Hydraulic Cylinder HZL and RHZL. Fast approach and return stroke pneumatically |
| PHA 160.64.00.00 (without hood)* For TOX®-Robot Tongs/TOX®-Machine Tongs. Activated via external electrical impulse. The changeover control mechanism from fast approach to power stroke is a standard feature of the system and is initiated automatically. Automatic return stroke activated when the adjustable press force is reached. If this press force is not reached, e.g. due to insufficient air pressure, the return stroke has to be activated via the watchdog timer of the line control system. |
| PHA 160.64.01.00 For TOX®-Tongs with 1-hand control. Max. 6 mm stroke for operator safety. Return stroke activated automatically when the adjustable press force is reached. |
| PHA 160.64.02.00 For TOX®-Tongs with 2-hand safety control according to UVV accident prevention regulations. The changeover control mechanism from fast approach to power stroke is a standard feature of the system and is initiated automatically. Return stroke activated automatically when the adjustable press force is reached. |

PHA 160.64.01.(02).00 = ca. 1303

Weight: approx 87 kg (192 lbs)

| PHA 160.99 for Hydraulic Cylinder HZ 40. No fast approach, return stroke via mechanical spring in hydraulic cylinder. |
| PHA 160.99.00.00 (without hood)* For TOX®-Robot Tongs/TOX®-Machine Tongs. Activated via external electrical impulse. Return stroke impulse by pressure switch when the adjustable press force is reached. If this press force is not reached, e.g. due to insufficient air pressure the return stroke has to be activated via the watchdog timer of the line control system. |
| PHA 160.99.01.00 For TOX®-Hand Tongs with 1-hand control. Max. 6 mm stroke for operator safety. Return stroke activated automatically by press switch when the adjustable press force is reached. |
| PHA 160.99.02.00 For TOX®-Hand Tongs with 2-hand safety control according to UVV accident prevention regulations. Return stroke activated automatically by press switch when the adjustable press force is reached. |

All controls feature a pressure relief valve for the drive.

Weight: approx 65 kg (143 lbs)

Scope of delivery: supplied complete and ready for operation in conjunction with our TOX®-Tongs, including a stroke counter. Air servicing units and options are not included.

Options, please order separately:
- Hose package 5 m (16 ft) or 7 m (23 ft)
- PHA 03.160.64.01.00 caster kit for horizontal mounting
- PHA 05.160.64.01.00 pedal mount
- PHA 04.160.64.01.00 caster kit for pedestal mounting
- ZU 05.00.00 oil level monitor, complete. Optical warning signal for low oil level.

Technical data:
- Supply voltage: 115-230 V/AC
- Driving voltage: 24 V/DC
- Connected load: 100 VA
- Pneumatic connection: G 3/4

PHA 160.64
- Working pressure pneumatic: min. 3 bar, max. 4.5 bar
- Working pressure hydraulic: 250 bar

PHA 160.99
- Working pressure pneumatic: min. 3 bar, max. 5.5 bar
- Working pressure hydraulic: 470 bar

Ordering no.:
- PHA 160.99.01.00.

* Electrical equipment not contained in scope of delivery