Concentric Positioning and Clamping Elements
with variable range of clamping, hydraulically operated
double acting, max. operating pressure 500 bar

Description
Concentric positioning and clamping with two or
three-jaw chucks on stationary fixtures is nothing
new. In many applications, however, it is not pos­
sible to place the relatively large chuck bodies on
the fixture. Often the smaller clamping strokes
are an additional obstacle.
In our development, the individual parts can be
connected to a two or multiple-element version.
In the multiple-jaw version, each pair of jaws
clamps independently of the remaining ones,
thereby concentric clamping is obtained.
The opening can be determined by means of a
connecting bar. The clamping strokes of the sev­
eral sizes are designed such that manual or au­
tomatic loading and unloading can be effected to
clamp blanks with large tolerances. Also single­
acting elements are available on request.

Active principle
Element, left-hand
Element, right-hand
Connecting bar complete

Clamping possibilities
Exterior clamping
Interior clamping

Application example
The flexible clamping unit is used to clamp
bars which can be machined in every position,
e.g. drilled, milled, threaded, etc.
In conjunction with a pneumatic two-jaw chuck
the rotary indexing table is used to determine
the machining position of the workpiece.
The two-jaw chuck and the right-hand con­
centric clamping element keep the bars in the
exact working position.
The floating clamping element in the centre
supports the bar. For this purpose it must
work in a floating way, that means without
centrifugal function, what can be obtained by
omitting the connecting bar.
(Available on request)

Figures
① Double clamping element for concentric
interior clamping
② Double clamping element with prolonged
connecting bar for exterior clamping
③ By means of the double clamping elements
modular fixtures can be composed which
position and clamp concentrically in seve­
reral dimensions, e.g. in direction of the
x- and y-axis.
Concentric clamping elements
hydraulically operated

- Interior clamping

- Exterior clamping

Connecting bar, complete
Part no. 0432XXX Please specify when ordering:
1. Size
2. Length of connecting bar
   L2 / L3 / L4 = ____ mm

After ordering a connecting bar, you will receive an installation drawing that shows the position of the fixing screws.

Calculation of the length of connecting bar L

<table>
<thead>
<tr>
<th>Size</th>
<th>2 elements</th>
<th>3 elements + crossing for 3 elements</th>
<th>4 elements + crossing for 4 elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>D 16</td>
<td>L2 = X2 Ja - X2 min Ja + 30</td>
<td>L3 = (X3 Ja - X3 min Ja) / 2 + 24.2</td>
<td>L4 Ja/b = (X4 Ja/k Ja/b - X4 min Ja) / 2 + 20</td>
</tr>
<tr>
<td>D 25</td>
<td>L2 = X2 Ja - X2 min Ja + 30</td>
<td>L3 = (X3 Ja - X3 min Ja) / 2 + 26</td>
<td>L4 Ja/b = (X4 Ja/k Ja/b - X4 min Ja) / 2 + 20</td>
</tr>
<tr>
<td>D 32</td>
<td>L2 = X2 Ja - X2 min Ja + 30</td>
<td>L3 = (X3 Ja - X3 min Ja) / 2 + 26</td>
<td>L4 Ja/b = (X4 Ja/k Ja/b - X4 min Ja) / 2 + 25</td>
</tr>
</tbody>
</table>

Dimension X... for
Interior clamping X2 = W - 2Y - 2Z
Exterior clamping X2 = W + 2Y + 2Z

W, WJa/kJa/b = workpiece inside dimension
WJa, WJa/kJa/b = workpiece outside dimension
(a/b) = only applies to crossing for 4 elements
For rectangular section (a x b) two different lengths of connecting bars Ls and Lp are required

X2 min, X3 min, X4 min = minimum dimension interior clamping (chart)
X2 min, X3 min, X4 min = minimum dimension exterior clamping (chart)
(bolt retracted without contact bolt)

Y = height contact bolt
Z = ideal stroke per clamping bolt up to the workpiece (clamping stroke)
<table>
<thead>
<tr>
<th>Size</th>
<th>Clamping force per pair of elements [kN]</th>
<th>at max. operating pressure [bar]</th>
<th>A centre height [mm]</th>
<th>Larger centre height on request</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions - Part numbers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crossing for 3 elements</td>
<td>D16 5</td>
<td>D25 12</td>
<td>D32 20</td>
<td></td>
</tr>
<tr>
<td>Piston/bolt Ø d</td>
<td>M 8 x 18</td>
<td>M 12 x 30</td>
<td>M 16 x 22</td>
<td></td>
</tr>
<tr>
<td>E Ø pin hole</td>
<td>8 H7</td>
<td>10 H7</td>
<td>12 H7</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>28</td>
<td>37</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>66</td>
<td>89</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>h1</td>
<td>27</td>
<td>38</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>h2</td>
<td>41</td>
<td>56</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>i clamping stroke</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>k</td>
<td>18.5</td>
<td>19</td>
<td>22.5</td>
<td></td>
</tr>
<tr>
<td>k1 ± 0.05</td>
<td>58.5</td>
<td>73</td>
<td>81.5</td>
<td></td>
</tr>
<tr>
<td>k2</td>
<td>83.5</td>
<td>105</td>
<td>117.5</td>
<td></td>
</tr>
<tr>
<td>k3</td>
<td>22</td>
<td>30</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>k4</td>
<td>32</td>
<td>40</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>117</td>
<td>134</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td>l1</td>
<td>82</td>
<td>104</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>o Ø</td>
<td></td>
<td>9</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>p ± 0.02 (only Ø e)</td>
<td></td>
<td>45</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>p1</td>
<td></td>
<td>40</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>p2</td>
<td></td>
<td>68</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>q</td>
<td></td>
<td>14</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>s</td>
<td></td>
<td>8</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>t</td>
<td></td>
<td>92</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>u (counterbore for)</td>
<td></td>
<td>238/66</td>
<td>284/64</td>
<td>316/64</td>
</tr>
<tr>
<td>X2min. / X2min.A</td>
<td></td>
<td>238/66</td>
<td>284/64</td>
<td>316/64</td>
</tr>
<tr>
<td>X3min. / X3min.A</td>
<td></td>
<td>320/4</td>
<td>148.4</td>
<td>386/166</td>
</tr>
<tr>
<td>X4min. / X4min.A</td>
<td></td>
<td>310/138</td>
<td>369/149</td>
<td>422/170</td>
</tr>
<tr>
<td>L2min.</td>
<td></td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>L3min.</td>
<td></td>
<td>24.2</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>L4min.</td>
<td></td>
<td>20</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Weight [kg]</td>
<td></td>
<td>2.2</td>
<td>4.5</td>
<td>9</td>
</tr>
</tbody>
</table>

**Element, right-hand**
- Part no. 4311 221
- Part no. 4311 222
- Part no. 4311 223

**Element, left-hand**
- Part no. 4311 241
- Part no. 4311 242
- Part no. 4311 243

**Crossing for 3 elements**
- Part no. 0432 300
- Part no. 0432 301
- Part no. 0432 302

**Crossing for 4 elements**
- Part no. 0432 400
- Part no. 0432 401
- Part no. 0432 402

**Accessories**
- Contact bolt (y = 10 mm) Part no. 3614 001
- Dowel pin DIN 6325 Part no. 3614 028
- Dowel pin DIN 6325 Part no. 3614 003

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**Crossing for 3 elements**

**Crossing for 4 elements**

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**Required elements for Exterior clamping**
- 2 elements 4311 22X
- 1 element 4311 24X
- 1 crossing for 3 elements 0432 30X
- 3 connecting bars L3 0432 XXX

**Required elements for Interior clamping**
- 1 element 4311 22X
- 2 elements 4311 24X
- 1 crossing for 3 elements 0432 30X
- 3 connecting bars L3 0432 XXX

The 3 connecting bars must have the same length.

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**Required elements for Exterior or interior clamping**
- 2 elements 4311 22X
- 2 elements 4311 24X
- 1 crossing for 4 elements 0432 40X
- 4 connecting bar L4(a/b) 0432 XXX

For a rectangular section, always 2 connecting bars have the same length.

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**Lubrication nipple**

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**Required elements for Exterior clamping**

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**Required elements for Interior clamping**

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**Required elements for Exterior or interior clamping**

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Röhmheld GmbH
Actual issue see www.roemheld-group.com

Subject to modifications