The hydraulic connection ETP-OCTOPUS is suitable when repositioning of machine parts are going to be done frequently, fast and with high precision along the shaft, for example in machine tools for qualified machining or forming of steel. With the use of an external hydraulic pressure source one or several connections can be clamped or loosened simultaneously.
Exact positioning – low downtime
In this cold forming machine for steel tubes ETP-OCTOPUS 180 is used to fix the hydraulic pistons in these required positions. The positions depend on the size of the tubes. At the end of the piston you find the forming tools. This allows a stepless positioning of each forming roller. The set up and downtime will be minimized.

Fast changes – high flexibility
In a tablet compaction test equipment the compression tooling is often cam driven, so a change of tablet type requires a manual resetting of the machine. In this machine the tooling is locked with hydraulics, using ETP-OCTOPUS, enabling a higher flexibility and faster changes.

Frequent repositioning
ETP-OCTOPUS is suitable when repositioning of machine parts are going to be done frequently, fast and with high precision, for example in machine tools for qualified machining or forming of steel. With hydraulic pressure one or several ETP-OCTOPUS are clamped or loosened simultaneously.
ETP-OCTOPUS is available as standard for shafts 30-100 mm. Number of mountings 100 000 – 500 000. (pressure dependent). ETP-OCTOPUS is easy to build in, as no hub is required, and allows for fast, frequent and accurate positioning. Customized designs are also offered on request.

Construction
ETP-OCTOPUS is a hydraulic connection which consists of a double-walled hardened steel sleeve with a flange. In the flange there are bores for mounting of a hub and a scraper with a screw joint, threaded connection for hydraulic oil and an air relief screw. The inner diameter has spiral tracks in order to get an even friction and a defined locking force to the shaft.

Operation
The assembly of the hub is done with the screw joint. When hydraulically pressurized the inner sleeve expands uniformly against the shaft and creates a rigid joint. The sleeve does not expand to the outside.

When the pressure is released the sleeve returns to its original size and can then easily be moved along the shaft to its new position and be re-pressurized.

Benefits and features
• Easy to build in.
• Fast and accurate positioning.
• Allows up to 500 000 pressure settings
• High torsional stiffness.
• Both axial force and torque can be transmitted.

No hub is required for a design with ETP-OCTOPUS as the sleeve is thick enough to withstand the hydraulic pressure.

Pressure setting is done with an external pressure source. Several connections can be clamped/loosened simultaneously.
TOLERANCES
Shaft: f7.
Hub: H7 for clearance fit.
N7 for light press fit.
Can also be used without a hub.

OPERATING TEMPERATURE
Depends on the surrounding components within the system (connections/hoses).

PRESSURE MEDIUM
All types of hydraulic oils can be used.

SCRAPER
To prevent abnormal wear of the contact surfaces, the use of a scraper to clean the shaft is recommended. It can be mounted in a ring which is fastened with screws to the flange.

NUMBER OF PRESSURE SETTINGS
The number of cycles mainly depends on the pressure. The following guide values can be used:

For p = 300 bar: 500 000 cycles.
For p = 350 bar: 300 000 cycles.
For p = 450 bar: 100 000 cycles.
More cycles may cause the sleeve to fatigue.

HYDRAULIC PRESSURE
T and FA changes linearly between the given pressures for a certain shaft size. We do not recommend pressures above 450 bar.

LUBRICATION
The surfaces between ETP-OCTOPUS and the shaft should when moving, create a minimum amount of friction in order to avoid wear, but at the same time when clamping give enough holding force. This will also be maintained if, as we recommend, the surfaces are reasonably lubricated with mineral oil. The spiral tracks inside the sleeve ensures that any unnecessary amount of lubricant is transferred away. Grease or Molybdenisulfide based lubricants should not be used.

SPECIAL DESIGNS
For models which clamp only to the outside or in both directions there are possible solutions. For such cases please send us information and we will then send a suggestion/quotation.

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**Technical specification ETP-OCTOPUS®**

<table>
<thead>
<tr>
<th>ETP-OCTOPUS®</th>
<th>Dimensions</th>
<th>Transmittable torque or axial force</th>
<th>Screw joint for screw: DIN 912, 12.9</th>
<th>Bore (4 pcs.)</th>
<th>Weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>d mm</td>
<td>D mm</td>
<td>D1 mm</td>
<td>L mm</td>
<td>Li mm</td>
<td>Tr Nm</td>
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<tr>
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</tbody>
</table>

Tr resp. Ts = transmittable torque when axial force is 0.
Fa1 resp. Fa2 = transmittable axial force when torque is 0.

*) For these torque values the screw joint sets the upper limit for the torque.

Tt = recommended tightening torque for the screws.

Dimensions subject to alterations without notice.

Notation: ETP-OCTOPUS - XX