ANGULAR PNEUMATIC GRIPPERS 180° SERIES
DIRECTCONNECT™ WITH SPRING ASSIST

DCT-RE Series

- Highly Configurable Modular Construction, Exclusive DIRECTCONNECT™ Technology
- Full Jaw Opening (180°) Allows Part to be Direct Fed into Gripper, Eliminating One Additional Motion
- Fail Safe Operation-Internal Spring to Maintain Gripper Force if Gripper Loses Air Pressure
- Compact Design for Use in Confined Spaces
- Shielding to Repel Chips for Use in Harsh Environments
- Repeatability ±0.05 mm (0.002") and Accuracy of ±0.07 mm (0.0028")
- Up to 5 Million Cycles in Typical Applications and 10 Million with Maintenance
- Temperature Rating from -35 to 80°C (-30 to 180°F)
- System Requires 4 to 7 bar (60 to 100 psi) Dry Filtered (40 Microns or Better) Air Supply
- Accessory Equipment Required—4-Way 2-Position Pneumatic Control Valve

PNEUMATIC SPECIFICATIONS

IMPERIAL METRIC
Pressure Operating Range: 4 to 7 bar (60 to 100 psi)
Cylinder Type: Double acting
Dynamic Seals: Internally lubricated Buna-N
Valve Required to Operate: 4-way, 2-position

AIR QUALITY REQUIREMENTS
Air Filtration: 40 Micron or better
Air Lubrication: Not necessary*
Air Humidity: Low moisture content (dry)

TEMPERATURE OPERATING RANGE
Buna-N Seals (Standard): -35 to 80°C (-30 to 180°F)
FKM Seals (Optional): -30 to 150°C (-20 to 300°F)

MAINTENANCE SPECIFICATIONS
Expected Life Normal Application: 5 million cycles w/preventative maintenance
10+ million cycles*
Field Repairable: Yes
Seal Repair Kits Available: Yes
* Addition of lubrication will greatly increase service life.

MOUNTING INFORMATION
Grippers Can be Mounted and Operated in Any Orientation
DIRECTCONNECT mounting pattern: Gripper is located with 2 dowel pins and assembled with 4 screws. Alternative pattern: Gripper is located with 2 dowel pins and assembled with 2 screws.

The gripper is protected from falling debris when it is mounted and operated upside down.

Gripper can be operated utilizing top manifold air ports.
**Gripper Attachment**
Gripper mounting from side or bottom

**FKM Seals**
FKM seals for high temperatures -30 to 150°C (-20 to 300°F) are optional

**Quality Components**
Made from aluminum alloy anodized with PTFE impregnation. The gripper’s main components are made of heat treated steel.

**Inductive Sensor Mounting Kit**
Accessory (SD) in order to sense jaw position. Comes with 2 holders for tubular sensors and 2 adjustable flags (except size -12).

**Magneto Resistive Sensor Mounting Kit**
The gripper comes with adjustable slots for the 2 magnetic sensors (to control jaw position)

**Multiple Air Ports**
Side or top air ports (top ports require O-ring)

**Adjustable Stop**
Accessory (BR) in order to adjust the opening of jaws, between 0° to 180°

**Shielded Plate and Wiper Covers**
Gripper body is shielded to repel chips and other particulate from internal drive mechanism

**Fail Safe Spring**
Internal spring allows the gripper to hold onto part with loss of air pressure

**DIRECTCONNECT Mounting Patterns**
DIRECTCONNECT™ mounting surface on back of body (sizes 12-25)

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**OPERATING PRINCIPLE**

- A Double Acting Piston, with a Ring Magnet for Magneto Resistive Sensing, is Connected to a Fork Driver on Which 2 Drive Pins are Fixed
- Jaw Rotation is Synchronized with the Drive Pin-Jaw Assembly
- Sliding in These Slots, Drive Pins Convert Vertical Motion of the Piston into Rotating Opposite Synchronous Motion of Both Jaws
- Each Jaw Has a Useful Rotation Stroke of 90°, Between the 90° Open Position and the 0° Gripping Position, Plus a Gripping Over-Stroke of Approximately 1.5° Before Reaching the Fully Gripped Position; Jaws Have to be Designed for a 0° Gripping Position (Parallel Jaws)
- The Fail Safe Spring Allow the Gripper to Retain the Component Should the Air Supply Fail or for the Gripper to be Used in Single Acting Mode
SPECIFICATIONS DCT-12M-RE

Total Rated Grip Force, F @ 7 bar (100 psi)
L = 25 mm (1") @ 0°: 40 N (9 lb)
Stroke: 90° of stroke for each finger
Weight: 0.12 Kg (0.26 lb)
Pressure Range: 4 to 7 bar (60 to 100 psi)
Cylinder Bore Ø: 12 mm (0.472")
Displacement: 1.92 cm³ (0.117 in³)

TEMPERATURE RANGE

- Standard Seals: -35 to 80°C (-30 to 180°F)
- FKM Seals: -30 to 150°C (-20 to 300°F)
Actuation Open/Close: 0.08/0.05 sec
Accuracy: ±0.07 mm (±.0028")
Repeatability: ±0.05 mm (±.002")
Valve Required to Actuate Single Acting: 3-way, 2-position
Valve Required to Actuate Double Acting: 4-way, 2-position

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline
Third Angle Projection
Metric Threads
Course Pitch
Imperial inch
Metric mm
0.00 = ±0.0
0.000 = ±0.005
0.0000 = ±0.0005
0.0 = ±0.25
0.0 = ±0.13
0.0 = ±0.073

LOADING INFORMATION

GRIP FORCE PER FINGER @ 0°

WARNING! DO NOT EXCEED MAXIMUM EFFECTIVE FINGER LENGTHS

LOADING CAPACITY† STATIC DYNAMIC

DCT-12M-RE

Maximum Tensile T 47 N (11 lb) 9.4 N (2 lb)
Maximum Compressive C 47 N (11 lb) 9.4 N (2 lb)
Maximum Moment Mx 1.1 Nm (10 in-lb) 0.3 Nm (3 in-lb)
Maximum Moment My 1.1 Nm (10 in-lb) 0.3 Nm (3 in-lb)
Maximum Moment Mz 1.1 Nm (10 in-lb) 0.3 Nm (3 in-lb)

† Capacities are per set of jaws and are not simultaneous.
**LOADING INFORMATION**

**LOADING CAPACITY**

<table>
<thead>
<tr>
<th></th>
<th>STATIC</th>
<th>DYNAMIC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCT-16M-RE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Tensile T</td>
<td>90 N (20 lb)</td>
<td>18 N (4 lb)</td>
</tr>
<tr>
<td>Maximum Compressive C</td>
<td>90 N (20 lb)</td>
<td>18 N (4 lb)</td>
</tr>
<tr>
<td>Maximum Moment Mx</td>
<td>2.9 Nm (26 in-lb)</td>
<td>0.7 Nm (6 in-lb)</td>
</tr>
<tr>
<td>Maximum Moment My</td>
<td>2.9 Nm (26 in-lb)</td>
<td>0.7 Nm (6 in-lb)</td>
</tr>
<tr>
<td>Maximum Moment Mz</td>
<td>2.9 Nm (26 in-lb)</td>
<td>0.7 Nm (6 in-lb)</td>
</tr>
</tbody>
</table>

* Capacities are per set of jaws and are not simultaneous.
SPECIFICATIONS DCT-20M-RE

Total Rated Grip Force, F @ 7 bar (100 psi)
L = 25 mm (1") @ 0°: 141 N (32 lb)
Stroke: 90° of stroke for each finger
Weight: 0.33 Kg (0.73 lb)
Pressure Range: 4 to 7 bar (60 to 100 psi)
Cylinder Bore Ø: 20 mm (0.787")
Displacement: 7.92 cm³ (0.483 in³)

TEMPERATURE RANGE
-30 to 150°C (-20 to 300°F)
-35 to 80°C (-30 to 180°F)

LOADING INFORMATION

LOADING CAPACITY†

DCT-20M-RE

<table>
<thead>
<tr>
<th>Maximum Tensile T</th>
<th>150 N (34 lb)</th>
<th>30 N (7 lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Compressive C</td>
<td>150 N (34 lb)</td>
<td>30 N (7 lb)</td>
</tr>
<tr>
<td>Maximum Moment Mx</td>
<td>6 Nm (53 in-lb)</td>
<td>1.5 Nm (13 in-lb)</td>
</tr>
<tr>
<td>Maximum Moment My</td>
<td>6 Nm (53 in-lb)</td>
<td>1.5 Nm (13 in-lb)</td>
</tr>
<tr>
<td>Maximum Moment Mz</td>
<td>6 Nm (53 in-lb)</td>
<td>1.5 Nm (13 in-lb)</td>
</tr>
</tbody>
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To Order Visit omega.com/dct-re_series for Pricing and Details

**ACCESSORIES**

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OISP-014</td>
<td>1 or 2</td>
<td>4 mm PNP inductive sensor with quick disconnect</td>
</tr>
<tr>
<td>OISN-014</td>
<td>1 or 2</td>
<td>4 mm NPN Inductive sensor with quick disconnect</td>
</tr>
<tr>
<td>OHSP-017</td>
<td>1 or 2</td>
<td>PNP magneto resistive sensor long barrel with quick disconnect</td>
</tr>
<tr>
<td>OHSN-017</td>
<td>1 or 2</td>
<td>NPN magneto resistive sensor long barrel with quick disconnect</td>
</tr>
<tr>
<td>OHSP-011</td>
<td>1 or 2</td>
<td>PNP magneto resistive sensor short 90° barrel with quick disconnect</td>
</tr>
<tr>
<td>OHSN-011</td>
<td>1 or 2</td>
<td>NPN magneto resistive sensor short 90° barrel with quick disconnect</td>
</tr>
<tr>
<td>CABL-010</td>
<td>1 or 2</td>
<td>Quick disconnect cable 2 m (6.6') in length</td>
</tr>
<tr>
<td>CABL-013</td>
<td>1 or 2</td>
<td>Quick disconnect cable 5 m (16') in length</td>
</tr>
<tr>
<td>BR-CT-12</td>
<td>1</td>
<td>Adjustment stop kit (1 stop and 1 shielded plate) for DCT-12M-RE</td>
</tr>
<tr>
<td>BR-CT-16</td>
<td>1</td>
<td>Adjustment stop kit (1 stop and 1 shielded plate) for DCT-16M-RE</td>
</tr>
<tr>
<td>BR-CT-20</td>
<td>1</td>
<td>Adjustment stop kit (1 stop and 1 shielded plate) for DCT-20M-RE</td>
</tr>
<tr>
<td>SD-CT-16</td>
<td>1 or 2</td>
<td>Inductive sensor mounting kit for DCT-16M-RE</td>
</tr>
<tr>
<td>SD-CT-20</td>
<td>1 or 2</td>
<td>Inductive sensor mounting kit for DCT-20M-RE</td>
</tr>
</tbody>
</table>

Note: Sensor and cable sold separately. Inductive sensor not available on DCT-12M-RE.

**ACCESSORIES DIAGRAM**

**Dimensions: mm (inch)**

- M5
- 6 (0.24)
- 10 (0.39)
- 20 (0.79) MAX
- 11.7 (0.46)
- 35.5 (1.40)
- 12.3 (0.48)
- 5.5 (0.22)
- 60.5 (2.38)
- 4 (0.16)
- Sensors Ø4 (0.16)

**INDUCTIVE SENSORS AND MOUNTING KIT (SD)**

**ADJUSTABLE STOP KIT (BR)**

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**MODEL no. DESCRIPTION FORCE N (lb)**

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<tr>
<th>MODEL NO.</th>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
</tr>
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<tbody>
<tr>
<td>DCT-12M-RE</td>
<td>180° Series angular gripper with spring assist, 18 mm (0.71&quot;) jaw opening</td>
<td>40 (9)</td>
</tr>
<tr>
<td>DCT-16M-RE</td>
<td>180° Series angular gripper with spring assist, 20 mm (0.79&quot;) jaw opening</td>
<td>87 (19)</td>
</tr>
<tr>
<td>DCT-20M-RE</td>
<td>180° Series angular gripper with spring assist, 22 mm (0.87&quot;) jaw opening</td>
<td>141 (32)</td>
</tr>
</tbody>
</table>

**Ordering Example:** DCT-12M-RE, 180° Series pneumatic angular gripper with spring assist, 18 mm (0.71") jaw opening and gripper force of 40 N (9 lb). See air fittings for M5 threaded flow control valve, highly recommended due to jaw closing 1.5° past parallel. Suggested accessories include two PNP magneto resistive sensors with short 90° barrel, OHSP-011 and BR-CT-16, adjustable stop kit. Quick disconnect sensors will require cable CABL-013, with 5 m (16') length. See accessory table below. DCT-16M-RE, 180° Series pneumatic angular gripper with spring assist, 20 mm (0.79") jaw opening and gripper force of 87 N (19 lb). See air fittings for M5 threaded flow control valve, highly recommended due to jaw closing 1.5° past parallel. Suggested accessories include two PNP inductive quick disconnect sensors, OISP-014, each with two mounting kits, SD-CT-16 and BR-CT-16, adjustable stop kit. Quick disconnect sensors will require cable, CABL-013, with 5 m (16') length each. See accessory table below. CAD file available at omega.com.