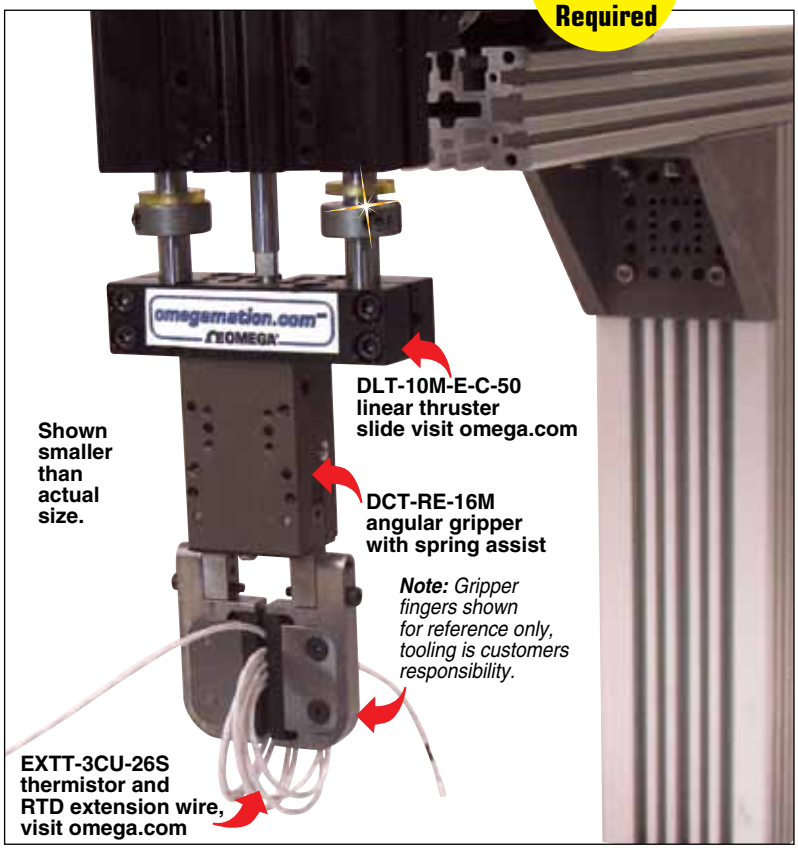
ANGULAR PNEUMATIC GRIPPERS 180° SERIES DIRECTCONNECT™
WITH SPRING ASSIST

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**

No Adaptor Plates Required



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.*

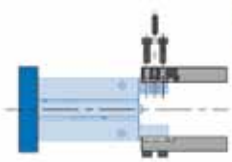
MOUNTING INFORMATION

Grippers Can be Mounted and Operated in Any Orientation

Gripper is located from the top with 2 dowel pins and assembled with 2 screws.

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.



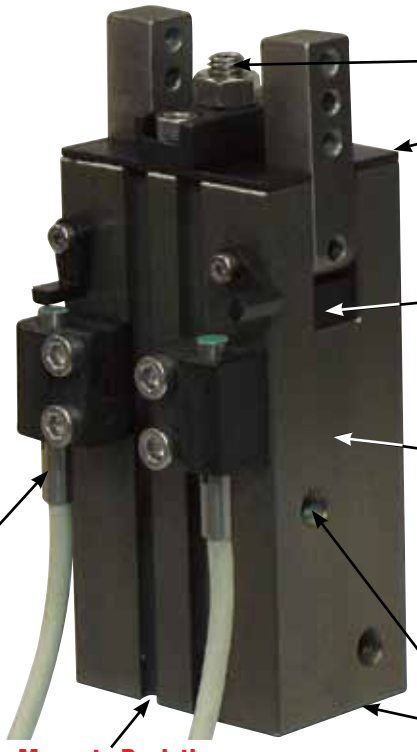
Fingers are centered over the jaws, located with 1 dowel pin and assembled with 2 screws.

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.



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

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).

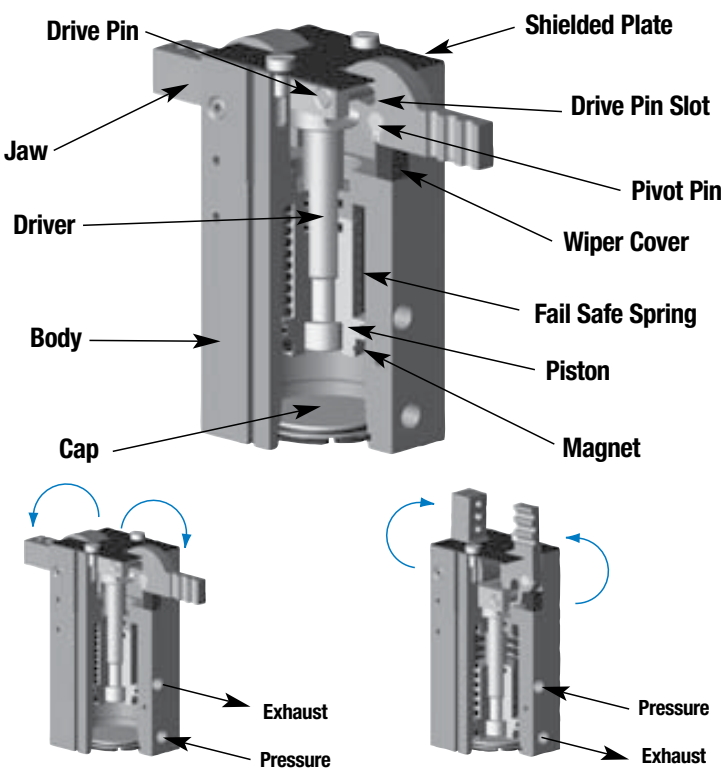
Magneto Resistive Sensor Mounting Kit
The gripper comes with adjustable slots for the 2 magnetic sensors (to control jaw position)

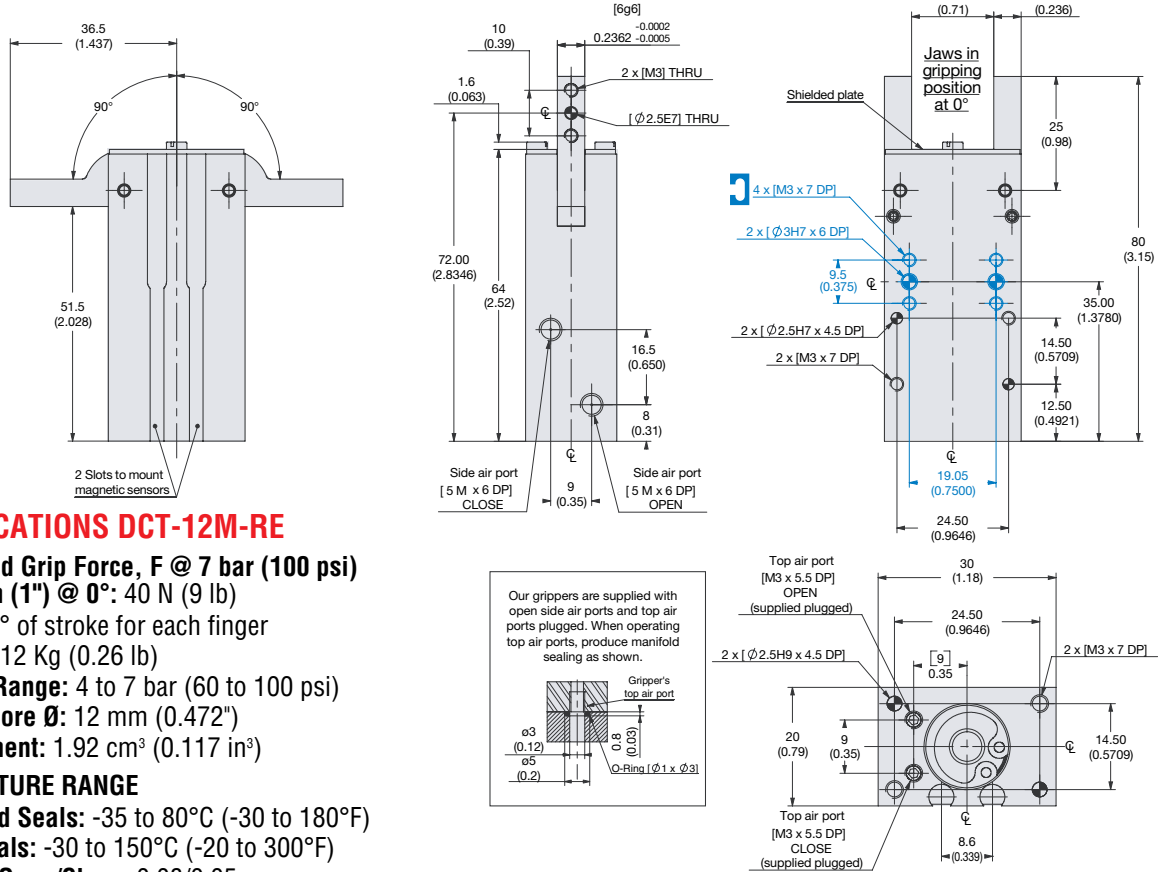
Multiple Air Ports
Side or top air ports (top ports require O-ring)

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

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**





Dimensions: mm (inch)

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)

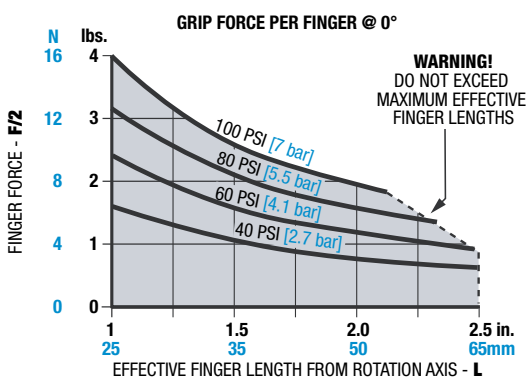
Actuation Open/Close: 0.08/0.05 sec
Accuracy: ±0.07 mm (±0.0028")
Repeatability: ±0.05 mm (±0.002")
Valve Required to Actuate Single Acting:
3-way, 2-position
Valve Required to Actuate Double Acting:
4-way, 2-position

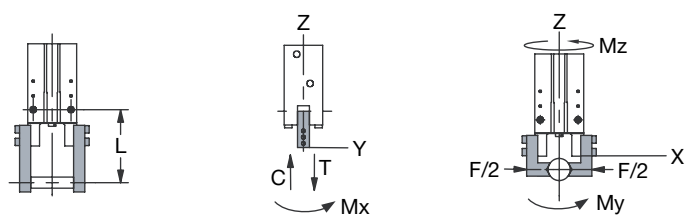
Notes: *Directconnect™ dimensions are shown in blue.*
Jaws have to be designed for a 0° gripping position (parallel jaws).
Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design jaws with minimal inertia (as light and short as possible).
Flow Controls make it possible to reduce the rotation speed and are highly recommended.

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	0.0 = ±0.25
			0.000 = ±0.005	0.0 = ±0.13
			0.0000 = ±0.0005	0.00 = ±0.013

LOADING INFORMATION

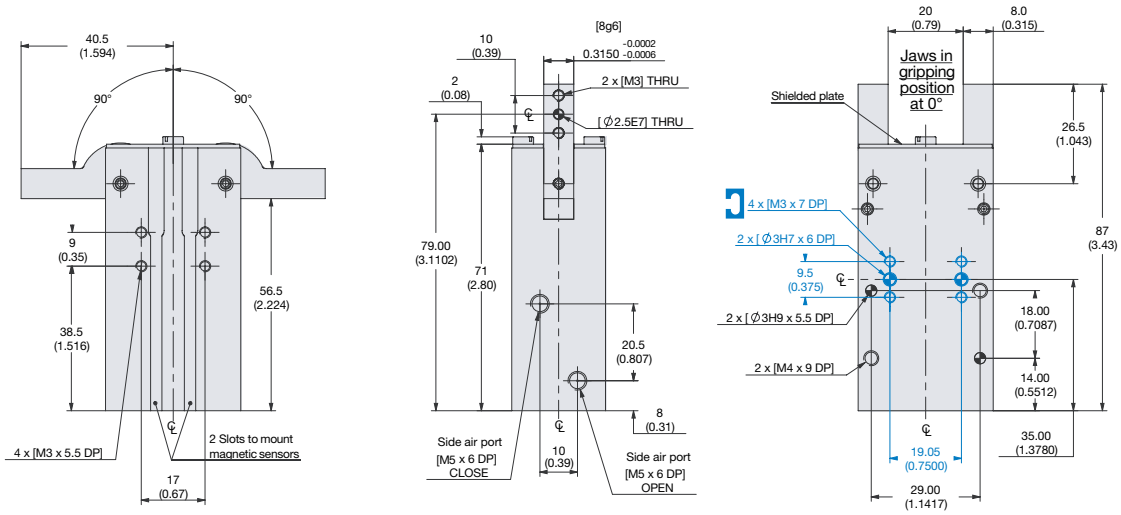




LOADING CAPACITY†	STATIC	DYNAMIC
DCT-12M-RE		
Maximum Tensile **T**	47 N (11 lb)	9.4 N (2 lb)
Maximum Compressive **C**	47 N (11 lb)	9.4 N (2 lb)
Maximum Moment **Mx**	1.1 Nm (10 in-lb)	0.3 Nm (3 in-lb)
Maximum Moment **My**	1.1 Nm (10 in-lb)	0.3 Nm (3 in-lb)
Maximum Moment **Mz**	1.1 Nm (10 in-lb)	0.3 Nm (3 in-lb)

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

DCT-16M-RE DIRECTCONNECT™

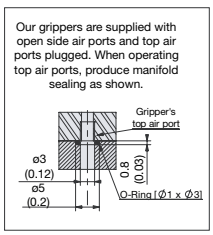


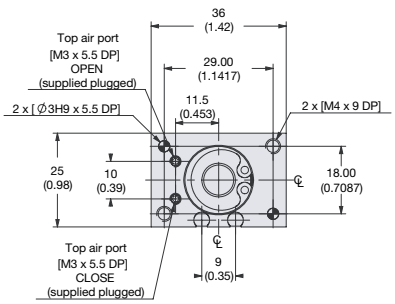
SPECIFICATIONS DCT-16M-RE

Total Rated Grip Force, F @ 7 bar (100 psi) L = 25 mm (1") @ 0°: 87 N (19 lb)
Stroke: 90° of stroke for each finger
Weight: 0.20 Kg (0.44 lb)
Pressure Range: 4 to 7 bar (60 to 100 psi)
Cylinder Bore Ø: 16 mm (0.630")
Displacement: 4.12 cm³ (0.251 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: 0.15/0.12 sec
Accuracy: ±0.07 mm (±0.0028")
Repeatability: ±0.05 mm (±0.002")
Valve Required to Actuate Single Acting: 3-way, 2-position
Valve Required to Actuate Double Acting: 4-way, 2-position





Dimensions: mm (inch)

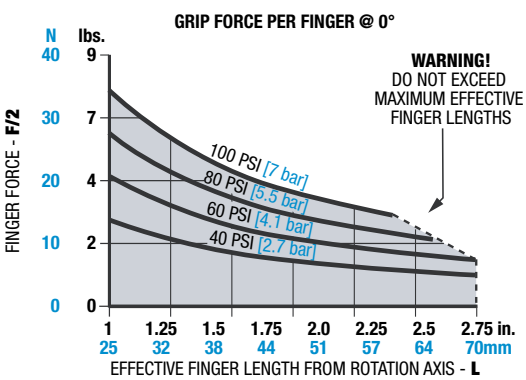
UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

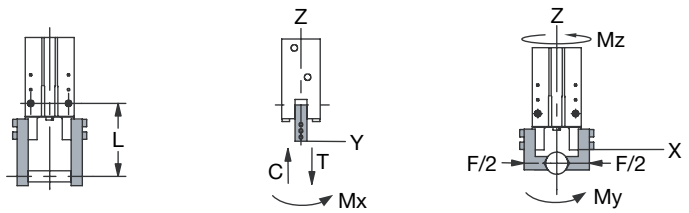
Dimensions are symmetrical about centerline | Third Angle Projection | Metric Threads Course Pitch

Imperial inch	Metric mm
0.00 = ±0.0	0.0 = ±0.25
0.000 = ±0.005	0.0 = ±0.13
0.0000 = ±0.0005	0.00 = ±0.013

Notes: *Directconnect™ dimensions are shown in blue.*
Jaws have to be designed for a 0° gripping position (parallel jaws).
Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design jaws with minimal inertia (as light and short as possible).
Flow Controls make it possible to reduce the rotation speed and are highly recommended.

LOADING INFORMATION

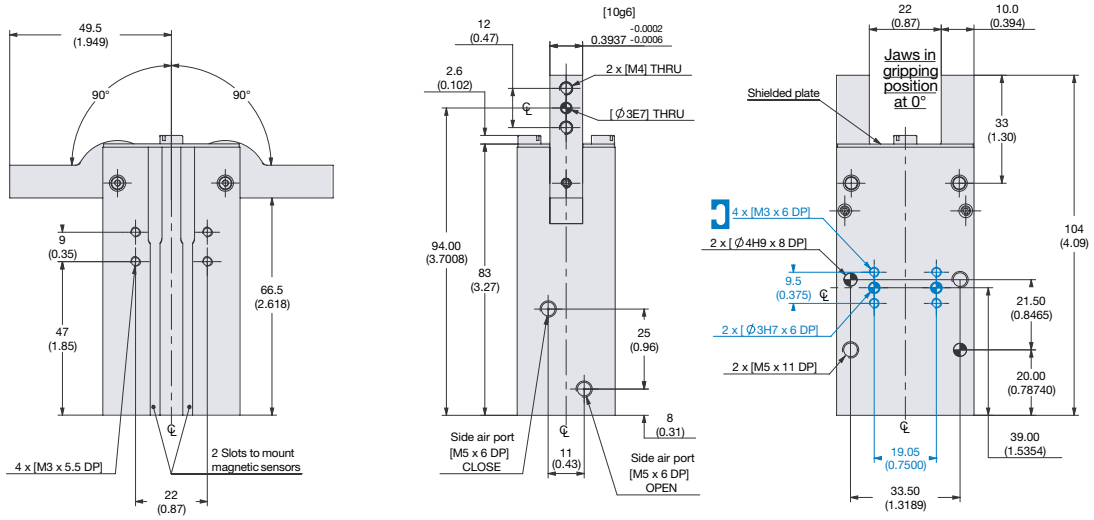




LOADING CAPACITY†	STATIC	DYNAMIC
DCT-16M-RE		
Maximum Tensile **T**	90 N (20 lb)	18 N (4 lb)
Maximum Compressive **C**	90 N (20 lb)	18 N (4 lb)
Maximum Moment **Mx**	2.9 Nm (26 in-lb)	0.7 Nm (6 in-lb)
Maximum Moment **My**	2.9 Nm (26 in-lb)	0.7 Nm (6 in-lb)
Maximum Moment **Mz**	2.9 Nm (26 in-lb)	0.7 Nm (6 in-lb)

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

DCT-20M-RE DIRECTCONNECT™



Dimensions: mm (inch)

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
Standard Seals: -35 to 80°C (-30 to 180°F)
FKM Seals: -30 to 150°C (-20 to 300°F)

Actuation Open/Close: 0.20/0.14 sec
Accuracy: ±0.08 mm (±0.003")
Repeatability: ±0.05 mm (±0.002")
Valve Required to Actuate Single Acting:
3-way, 2-position
Valve Required to Actuate Double Acting:
4-way, 2-position

Notes: *Directconnect™ dimensions are shown in blue.*
Jaws have to be designed for a 0° gripping position (parallel jaws).
Jaws will close 1.5° past parallel. To limit shocks at the end of an opening or closing stroke, it is highly recommended to design jaws with minimal inertia (as light and short as possible).
Flow Controls make it possible to reduce the rotation speed and are highly recommended.

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	0.0 = ±0.25
			0.000 = ±0.005	0.0 = ±0.13
			0.0000 = ±0.0005	0.00 = ±0.013

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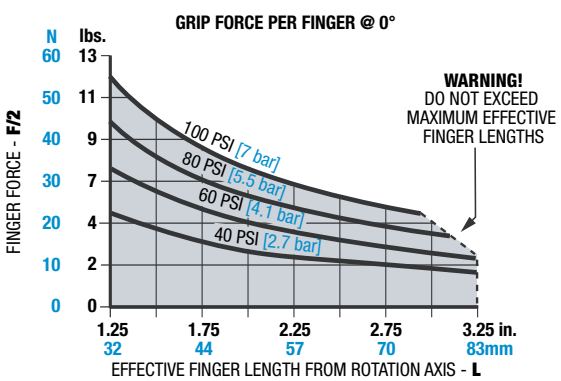
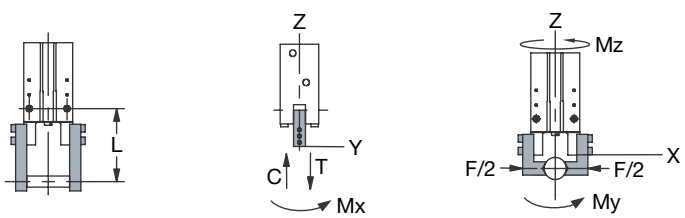
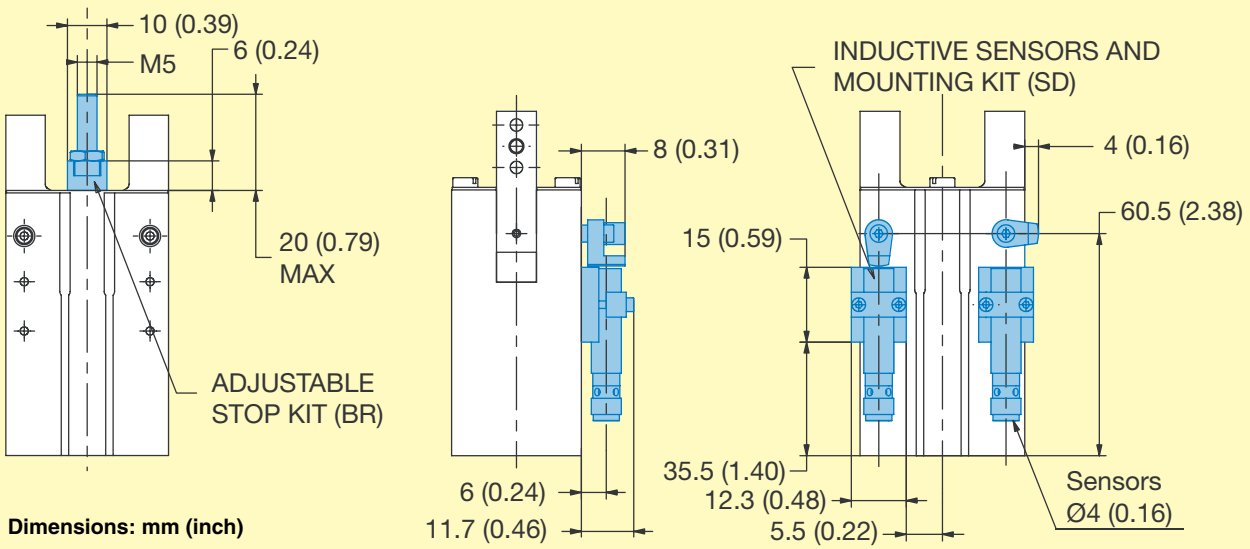




LOADING CAPACITY†	STATIC	DYNAMIC
DCT-20M-RE		
Maximum Tensile **T**	150 N (34 lb)	30 N (7 lb)
Maximum Compressive **C**	150 N (34 lb)	30 N (7 lb)
Maximum Moment **Mx**	6 Nm (53 in-lb)	1.5 Nm (13 in-lb)
Maximum Moment **My**	6 Nm (53 in-lb)	1.5 Nm (13 in-lb)
Maximum Moment **Mz**	6 Nm (53 in-lb)	1.5 Nm (13 in-lb)

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

ACCESSORIES DIAGRAM



Dimensions: mm (inch)

To Order *Visit omega.com/dct-re_series for Pricing and Details*

MODEL NO.	DESCRIPTION	FORCE N (lb)
DCT-12M-RE	180° Series angular gripper with spring assist, 18 mm (0.71") jaw opening	40 (9)
DCT-16M-RE	180° Series angular gripper with spring assist, 20 mm (0.79") jaw opening	87 (19)
DCT-20M-RE	180° Series angular gripper with spring assist, 22 mm (0.87") jaw opening	141 (32)

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

ACCESSORIES

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