

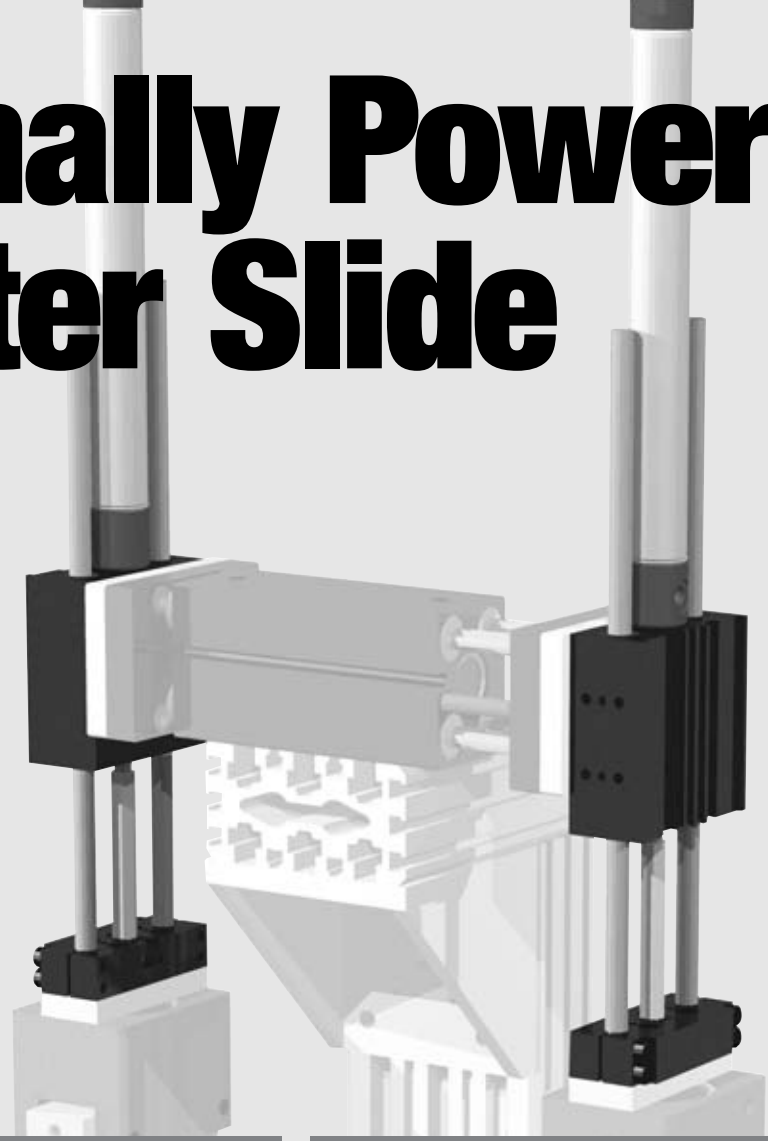
# Externally Powered Thruster Slide

DLT SERIES

4.56



DIRECTCONNECT™

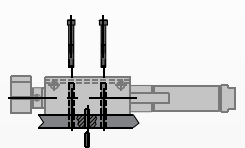


**Cylinder options:**  
Externally powered thruster slides are available in a wide range of cylinder options. Choose from replaceable/disposable, replaceable with adjustable cushions, NFPA with adjustable cushions, ISO/metric, VDMA, Locking VDNA, or non-powered for customer supplied cylinders.

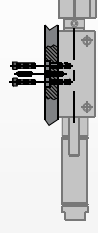
**DIRECTCONNECT mounting patterns:**  
These slides have DIRECTCONNECT mounting patterns that connect to other slides without the need for adapter plates.

## Mounting Information:

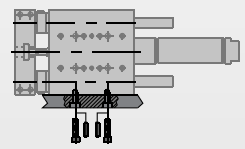
### Mounts and operates in any orientation



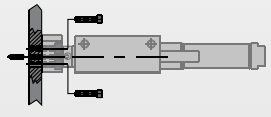
Body can be back mounted with screws from the front using the clearance and counterbored DIRECTCONNECT pattern and located with dowel holes.



Body can be mounted from the back using the DIRECTCONNECT pattern of threaded mounting and dowel pin holes.



Body mounts with screws and locate with slip fit dowel pin holes on side using DIRECTCONNECT mounting patterns.



Payload attaches to tooling plate DIRECTCONNECT mounting pattern with screws and locates using slip fit dowel pin holes.

## Technical Specifications:

<b>Pneumatic Specifications</b>	<b>Imperial</b>	<b>Metric</b>
Pressure Operating Range*	40-100 psi	3-7 bar
Cylinder Type	Double Acting	
Dynamic Seals	Internally Lubricated Buna-N	
Valve Required to Operate	4-way, 2-position	

<b>Air Quality Requirements</b>	
Air Filtration	40 Micron or Better
Air Lubrication	Not Necessary**
Air Humidity	Low Moisture Content (dry)

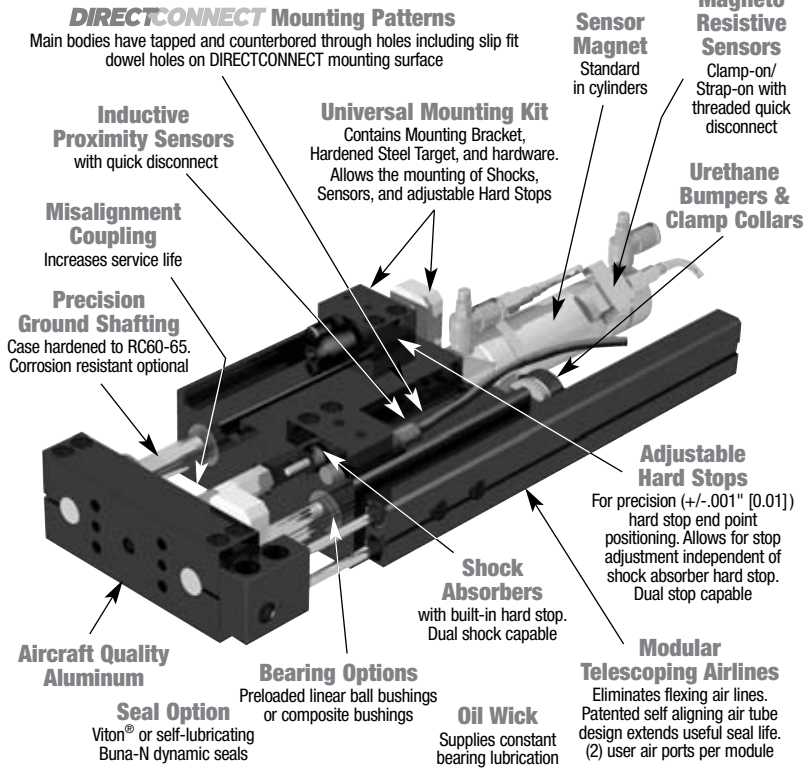
<b>Temperature Operating Range</b>		
Buna-N Seals (standard)	-30°~180° F	-35°~80° C
Viton® Seals (optional)	-20°~300° F	-30°~150° C

<b>Maintenance Specifications†</b>	
Expected Life	
Normal Application w/ Preventative Maintenance	5 million cycles
Field Repairable	10+ million cycles†
Seal Repair Kits Available	No

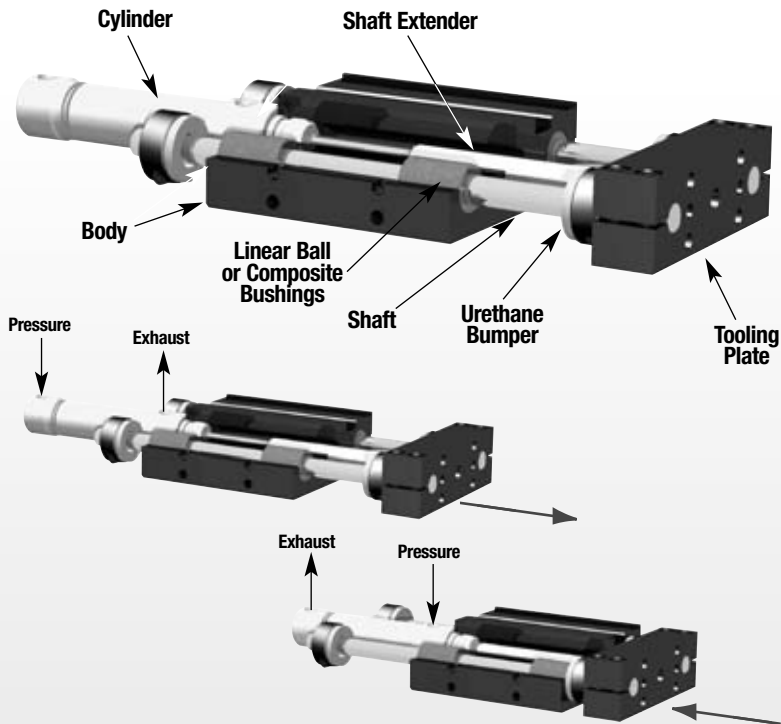
**Application Restrictions**  
Flow controls, shock absorbers and urethane bumpers recommended for nearly all applications. Use composite bushing in dirty or gritty environments. Never use silicone based lubricants with composite bushings.

\*Higher pressure possible. Consult factory with application details.  
\*\*Addition of lubrication will greatly increase service life  
†See Maintenance Section

# Product Features



## Operating Principle



- A double acting cylinder drives a shaft extender that connects to the tooling plate with a misalignment coupling.
- The tooling plate is attached to two hardened steel shafts which are supported by and move in four linear bushings located in the body.

**Designed and manufactured in the USA**

### Style-T, U Replaceable Cyl.

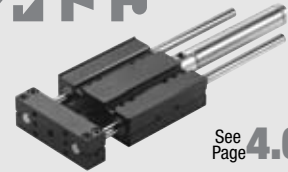
**Size** -06M -T, U only  
-08M -T, U only



See Page **4.58**

### Style-T, A Replaceable Cyl.

-10M (Metric -A only) (shown)  
-12M (Metric -A only)  
-16M (Metric -A only)



See Page **4.60**

### Style-T, A Replaceable Cyl.

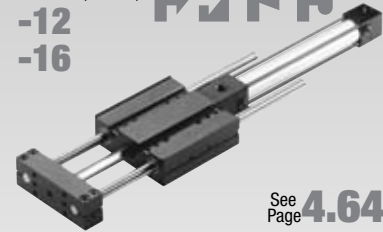
**Size** -20 (shown)  
-25



See Page **4.62**

### Style-N, U Repairable Cyl.

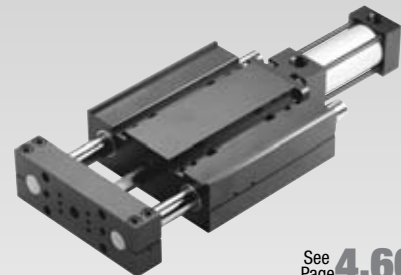
**Size** -10 (shown)  
-12  
-16



See Page **4.64**

### Style-N, R, U Repairable Cyl.

**Size** -20M (shown)  
-25M



See Page **4.66**



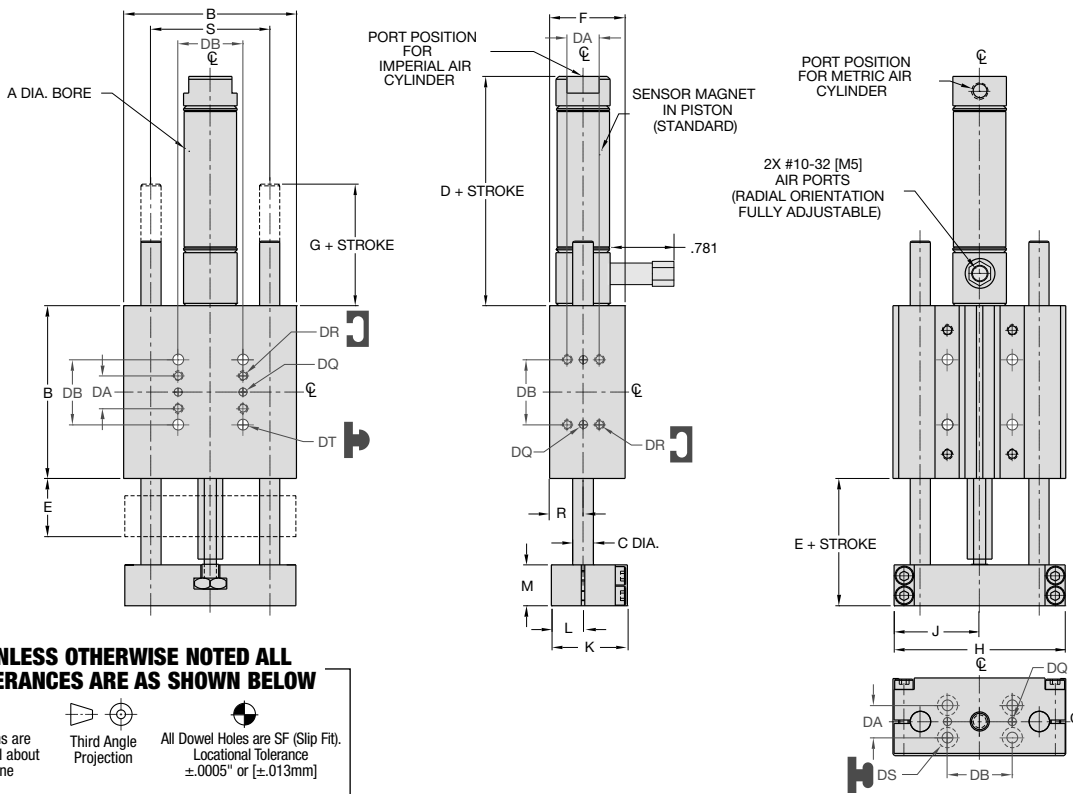
DLT SERIES

4.57



DIRECTCONNECT™

# LINEAR THRUSTER DLT -06M, 08M -T, U REPLACEABLE CYLINDER



**UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW**

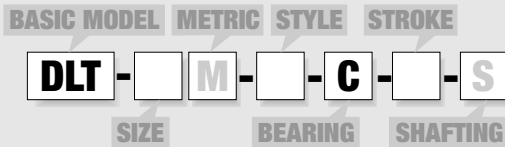
	Dimensions are symmetrical about centerline		Third Angle Projection		All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]
	Metric Threads Course Pitch	<b>Imperial in.</b>	0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	<b>Metric [mm]</b>	[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

## DIRECTCONNECT DIMENSIONS STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DQ	.0940 x .078 DP	3H7 x 2 DP
DR	#4-40 x .25 DP	M3 x 6 DP
DS	Clr & C'bore for #4	Clr & C'bore for M3
DT	Clr & C'bore for #4	Clr & C'bore for M3

MODEL #	BORE DIA.		BODY SIZE	SHAFT DIA.										
	A	B		C	D	E	F	G	H	J	K	L	M	R
DLT-06	0.563	2.00	0.236	2.16	0.783	0.88	0.66	1.980	.990	0.875	.365	0.470	.390	1.375
DLT-08	0.563	2.50	0.315	2.16	0.783	0.88	0.41	2.470	1.235	0.875	.365	0.470	.390	1.750
DLT-06M	16	50.8	6.0	54.9	19.9	22.4	16.7	50.3	25.1	22.2	9.3	11.9	9.9	34.93
DLT-08M	16	64.0	8.0	54.9	19.9	22.4	10.4	62.7	31.4	22.2	9.3	11.9	9.9	44.45

## How to Order: Basic Unit



- SIZE 06, 08**
  - METRIC M**
  - STYLE T** Replaceable cylinder  
**U** Non-powered unit (Without cylinder. Directly mounts replaceable style cylinders)
  - BEARING C** Composite bushings
  - STROKE (inches)**  
DLT-06 **.5, 1, 1.5, 2, 2.5, 3, 4, 5, 6**  
DLT-08 **.5, 1, 1.5, 2, 2.5, 3, 4, 5, 6, 7, 8**
  - STROKE (mm)**  
DLT-06M **10, 25, 40, 50, 75, 100, 125, 160**  
DLT-08M **10, 25, 40, 50, 75, 100, 125, 160, 175, 200**
  - SHAFTING S** Corrosion resistant shafting
- Oversized guide shafts available. Please consult factory.  
Custom strokes available. Please consult factory.

## Accessories: (Order Separately)

### SHOCK/STOP ACCESSORIES

	DLT-06M	DLT-08M	QTY/THRUSTER
Universal Mounting Kit (Shock or Stop)	<b>OSAK-069</b>	<b>OSAK-070</b>	<b>1, 2, 3, or 4</b>
Shock Absorber (2 Max. on -06)*	<b>SHOK-030</b>	<b>SHOK-030</b>	<b>1, 2, 3, or 4</b>
Adjustable Hard Stop*	<b>DLT-0623</b>	<b>DLT-0623</b>	<b>1, 2, 3, or 4</b>
Urethane Bumper/Stop Collar Kit	<b>OSAK-067</b>	<b>OSAK-068</b>	<b>1 or 2</b>

### INDUCTIVE SENSOR ACCESSORIES†

	DLT-06M	DLT-08M	QTY
Inductive Sensor Mounting Kit	<b>OSMK-076</b>	<b>OSMK-077</b>	<b>1</b>
Inductive Sensor PNP Qk. Disconnect †	<b>OISP-014</b>	<b>OISP-014</b>	<b>1</b>
Inductive Sensor NPN Qk. Disconnect †	<b>OISN-014</b>	<b>OISN-014</b>	<b>1</b>
Quick. Disconnect 2M Cable Length †	<b>CABL-010</b>	<b>CABL-010</b>	<b>1</b>
Quick. Disconnect 5M Cable Length †	<b>CABL-013</b>	<b>CABL-013</b>	<b>1</b>

### MAGNETIC SENSOR ACCESSORIES\*\*

	DLT-06M	DLT-08M	QTY
Magneto Resistive Sensor PNP Qk. Disc. †	<b>OHSP-005</b>	<b>OHSP-005</b>	<b>1 or 2</b>
Magneto Resistive Sensor NPN Qk. Disc. †	<b>OHSN-005</b>	<b>OHSN-005</b>	<b>1 or 2</b>
Quick. Disconnect 2M Cable Length †	<b>CABL-010</b>	<b>CABL-010</b>	<b>1 or 2</b>
Quick. Disconnect 5M Cable Length †	<b>CABL-013</b>	<b>CABL-013</b>	<b>1 or 2</b>

### PNEUMATIC ACCESSORIES

	DLT-06M	DLT-08M	QTY
#10-32 Adjustable Flow Control (Imperial)††	<b>VLVF-007</b>	<b>VLVF-007</b>	<b>1 or 2</b>
M5 Adjustable Flow Control (Metric)††	<b>VLVF-008</b>	<b>VLVF-008</b>	<b>1 or 2</b>
#10-32 Retract Port Standoff (Imperial)	<b>PLFT-070</b>	<b>PLFT-070</b>	<b>1</b>
M5 Retract Port Standoff (Metric)	<b>PLFT-071</b>	<b>PLFT-071</b>	<b>1</b>

\*Sensor and cable sold separately \*\*Piston magnet standard ††Requires Port Standoff

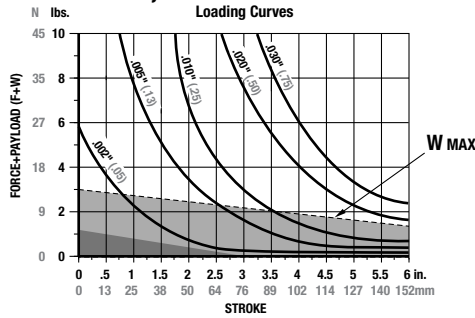
## SAMPLE ORDER: DLT-08M-T-B-25

Ex: Thruster, Size 8 Metric, Replaceable Cylinder, Linear Ball Bushings, 25mm Stroke

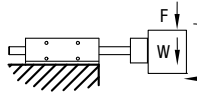


# LINEAR THRUSTER DLT -06M, 08M -T, U REPLACEABLE CYLINDER

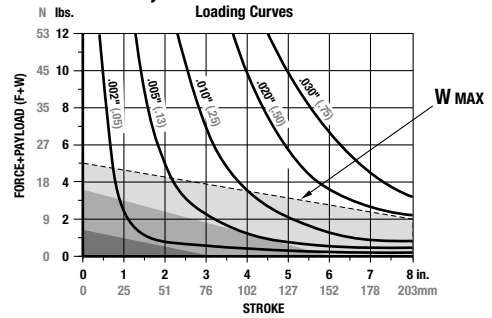
## DLT-06M-T, U



**F**=Externally applied force (lbs. or N)  
**W**=Weight of payload (lbs. or N)  
**F+W**=Total deflection force (lbs. or N)  
**M**=Maximum moment (in.-lb. or N-m)



## DLT-08M-T, U



**Shock Absorbers and Flow Controls are recommended for nearly all applications**

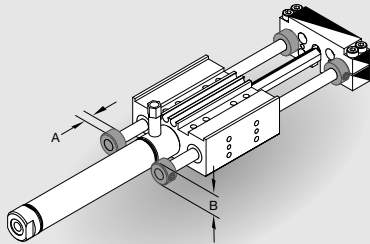
Use **Double Shocks** in both directions    Use **Single Shock** in both directions    Use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional acceleration effect of gravity.

Specifications	DLT-06	DLT-06M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/5.5 bar	20 lbs.	111 N
Weight (Basic Unit)	0.53 lbs.	0.24 kg
Additional Weight Per Stroke	0.05 lb/in	0.88 g/mm
Cylinder Bore Diameter	0.563"	16 mm
Shaft Diameter	0.236"	6 mm
Max (M) Vertical Motion	5 in.-lbs.	0.6 N-m

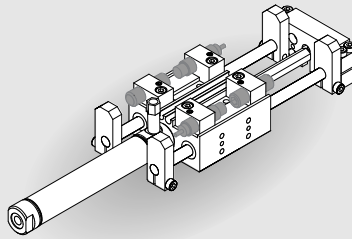
Specifications	DLT-08	DLT-08M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/ 5.5 bar	20 lbs.	89 N
Weight (Basic Unit)	0.88 lbs.	0.40 kg
Additional Weight Per Stroke	0.07 lb/in	1.43 g/mm
Cylinder Bore Diameter	0.563"	16 mm
Shaft Diameter	0.315"	8.0 mm
Max (M) Vertical Motion	10 in.-lbs.	1.3 N-m

## Accessory Mounting Technical Data



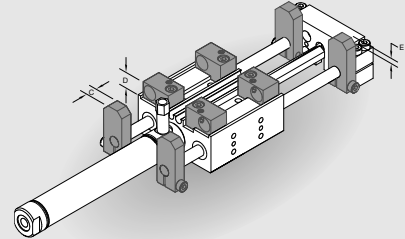
### Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock Pads for adjustment of travel in one direction



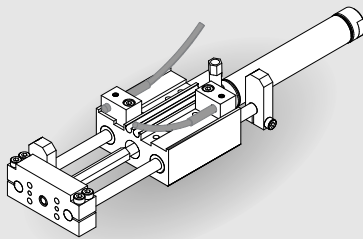
### Adjustable Hard Stops

- For precision (+/- .001") end point positioning of retract position
  - Allows for end stop position adjustment independent of shock absorber hard stop
  - Allen wrench adjustable
- ### Shock Absorbers
- Full stroking piston rod
  - Built-in hard stop
  - Position adjustable



### Universal Mounting Kit

- Kit mounts (1) Shock Absorber or (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited retract stroke adjustment (no extend position adjustment). Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions

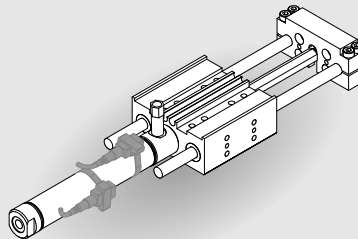


### Inductive Proximity Sensors

- 4mm diameter
- Threaded quick disconnect with built-in LED output
- PNP and NPN available

### Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

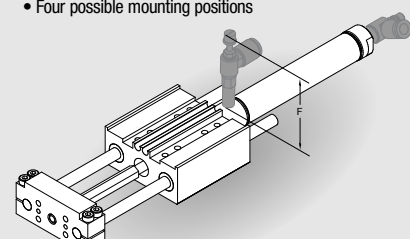


### Magneto Resistive Sensors

- No mounting kit required (slot mounted)
- Threaded quick disconnect with built-in LED output
- PNP and NPN available
- Low profile

### Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



### Flow Controls

- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT or G1/8 pipe threads

	A	B	C	D	E	F
DLT-06	.236"	.47	.250	.31	.27	1.82
DLT-08	.236"	.63	.250	.31	.27	1.82
DLT-06M	6 mm	12.0	6.4	7.9	6.9	46.2
DLT-08M	6 mm	16.0	6.4	7.9	6.9	46.2

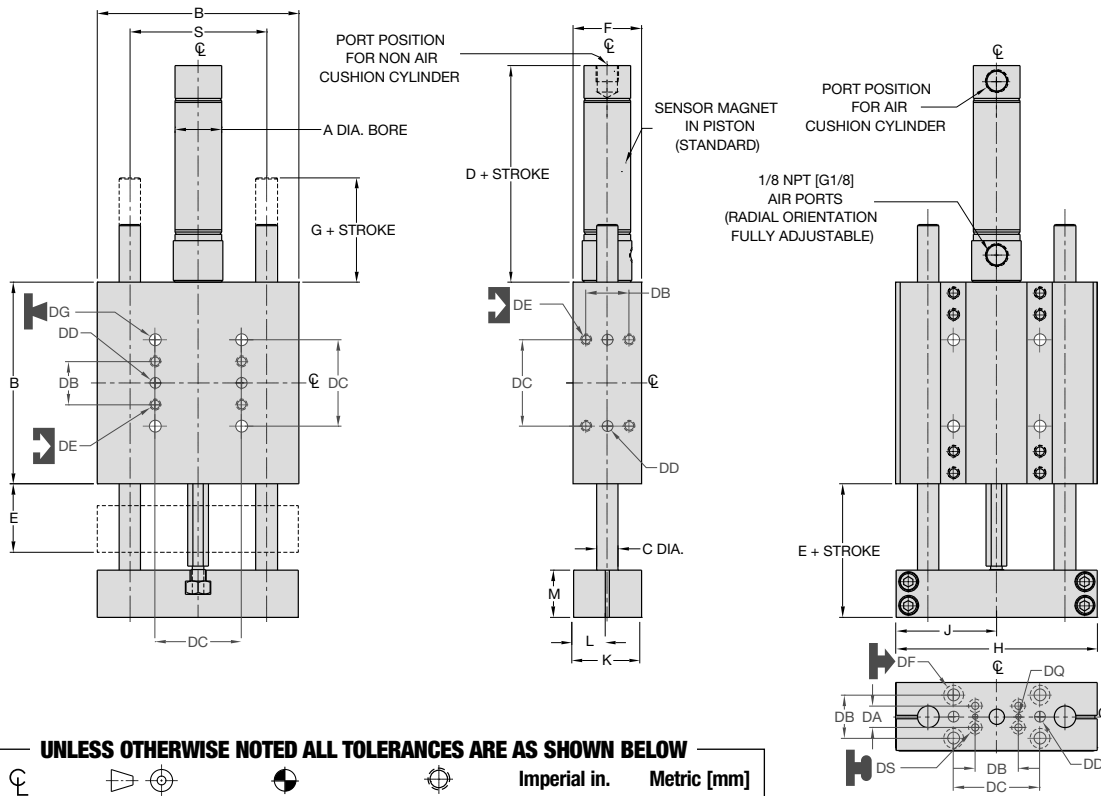


DLT SERIES  
4.59

DIRECTCONNECT™



# LINEAR THRUSTER DLT -10M, 12M, 16M -T, A REPLACEABLE CYLINDER WITH OR W/O ADJ. AIR CUSHIONS



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

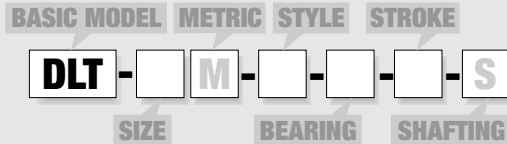
				<b>Imperial in.</b>	<b>Metric [mm]</b>
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	[0.] = [±.25] [0.] = [±.13] [0.0] = [±.013]

## DIRECTCONNECT DIMENSIONS STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DA	.375	9.5
DB	.750	19.1
DC	1.500	38.1
DD	.1880 X .25 DP	5 mm H7 X 6 DP
DE	#10-32 X .34 DP	M5 X 8.5 DP
DF	Clr & C'bore for #10	Clr & C'bore for M5
DG	Clr & C'bore for #10	Clr & C'bore for M5
DQ	.0940 x .078 DP	3H7 x 2 DP
DS	Clr & C'bore for #4	Clr & C'bore for M3

MODEL #	BORE DIA.		BODY SIZE		SHAFT DIA.									
	A	B	C	D	E	F	G	H	J	K	L	M	S	
DLT-10	3/4	3.50	.375	2.91	1.313	1.19	.82	3.490	1.740	1.178	.584	.813	2.375	
DLT-12	1 1/16	4.00	.472	2.88	1.313	1.63	.82	3.985	1.985	1.615	.802	.813	2.750	
DLT-16	1 1/16	4.75	.630	2.88	1.375	1.63	.76	4.735	2.360	1.615	.802	.813	3.250	
DLT-10M	20	88.9	9.5	88.0	33.4	30.2	20.8	88.6	44.2	29.9	14.8	20.7	60.33	
DLT-12M	25	101.6	12.0	91.5	33.4	41.4	20.8	101.2	50.4	41.0	20.4	20.7	69.85	
DLT-16M	25	120.7	16.0	91.5	34.9	41.4	19.3	120.3	59.9	41.0	20.4	20.7	82.55	

## How to Order: Basic Unit



- SIZE** 10, 12, 16  
Oversized guide shafts available. Please consult factory.
- METRIC** M
- STYLE** T Replaceable cylinder w/o adjustable air cushions (Not avail. in metric)  
A Replaceable cylinder with adjustable air cushions
- BEARING** B Linear ball bearings  
C Composite bushings
- STROKE** (inches)  
DLT-10 1-12 @ 1" increments  
DLT-12 1-16 @ 1" increments  
DLT-16 1-20 @ 1" increments  
Custom strokes available. Please consult factory.
- STROKE** (mm)  
DLT-10M 25, 50, 80, 100, 125, 160, 200, 250, 300  
DLT-12M 25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400  
DLT-16M 25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500
- SHAFTING** S Corrosion resistant shafting

### SAMPLE ORDER: DLT-10M-A-B-25

Ex: Thruster, Size 10 Metric, Replaceable Cylinder w/Adjustable Air Cushions, Linear Ball Bushings, 25mm Stroke

## Accessories: (Order Separately) DLT-10M DLT-12M DLT-16M QTY/THRUSTER

### SHOCK/STOP ACCESSORIES

Universal Mounting Kit (Shock, Stop or Sensor)	OSAK-055	OSAK-057	OSAK-059	1, 2, 3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-056	OSAK-058	OSAK-060	1 or 2
Urethane Bumper/Clamp Collar Kit (-10M)	OSAK-065			1 or 2
Urethane Bumper/Clamp Collar Kit (-12M)		OSAK-066		1 or 2
Shock Absorber*	SHOK-028	SHOK-010	SHOK-010	1, 2, 3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	DLT-1023	1, 2, 3 or 4

### INDUCTIVE SENSOR ACCESSORIES\*

Inductive Sensor PNP Qk. Disconnect*	OISP-011	OISP-011	OISP-011	1 or 2
Inductive Sensor NPN Qk. Disconnect*	OISN-011	OISN-011	OISN-011	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2

### MAGNETIC SENSOR ACCESSORIES\*\*

Magneto Resistive Sensor PNP Qk. Disc.†	OHSP-005	OHSP-005	OHSP-005	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	OHSN-005	OHSN-005	OHSN-005	1 or 2
Quick. Disconnect 2M Cable Length †	CABL-010	CABL-010	CABL-010	1 or 2
Quick. Disconnect 5M Cable Length †	CABL-013	CABL-013	CABL-013	1 or 2

### PNEUMATIC ACCESSORIES

1/8 NPT Telescopic Airlines (up to 6")	OTAL-039	OTAL-039	OTAL-039	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 12")	OTAL-040	OTAL-040	OTAL-040	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 18")	OTAL-041	OTAL-041	OTAL-041	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 24")	OTAL-042	OTAL-042	OTAL-042	1, 2, 3 or 4
1/8 NPT Adjustable Flow Control	VLVF-004	VLVF-004	VLVF-004	1 or 2
G1/8 Telescopic Airlines (up to 160mm)	OTAL-045	OTAL-045	OTAL-045	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 300mm)	OTAL-046	OTAL-046	OTAL-046	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 450mm)	OTAL-047	OTAL-047	OTAL-047	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 600mm)	OTAL-048	OTAL-048	OTAL-048	1, 2, 3 or 4
G1/8 Adjustable Flow Control	VLVF-005	VLVF-005	VLVF-005	1 or 2

\*Requires Universal Mounting Kit †Sensor and cable sold separately \*\*Piston magnet standard

Please see back cover for DE-STA-CO Global Locations. [www.destaco.com](http://www.destaco.com)

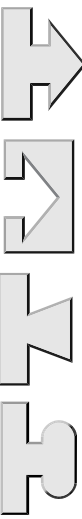
[www.comoso.com](http://www.comoso.com)

DLT SERIES 4.60 DIRECTCONNECT™



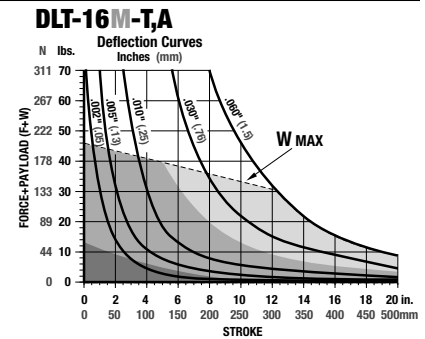
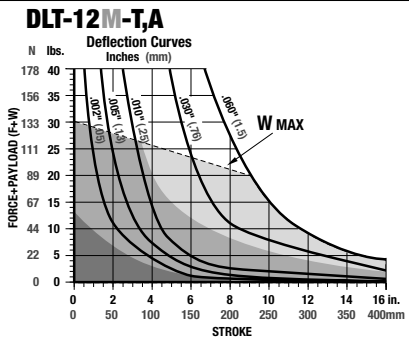
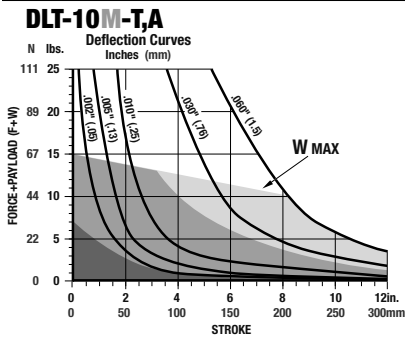


# LINEAR THRUSTER DLT -10M, 12M, 16M -T, A REPLACEABLE CYLINDER WITH OR W/O ADJ. AIR CUSHIONS

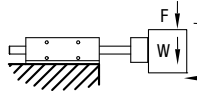


DLT SERIES  
4.61

DIRECTCONNECT™



**F**=Externally applied force (lbs. or N)  
**W**=Weight of payload (lbs. or N)  
**F+W**=Total deflection force (lbs. or N)



**Shock Absorbers and Flow Controls are recommended for nearly all applications**

Use **Double Shocks** in both directions    Use **Single Shock** in both directions    Use **Bumpers or Cushioned Cylinder**

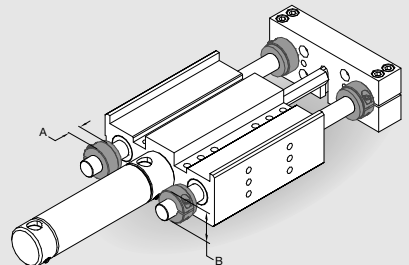
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional acceleration effect of gravity.

Specifications	DLT-10	DLT-10M
Maximum Air Pressure.....	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar .	35 lbs.	173 N
Weight (Basic Unit -T, -A).....	2.12 lbs.	1.05 kg
Additional Weight per Stroke..	0.09 lbs./in.	1.2g/mm
Cylinder Bore Diameter .....	3/4"	20mm
Shaft Diameter .....	0.375"	9.5mm

Specifications	DLT-12	DLT-12M
Maximum Air Pressure.....	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar .	70 lbs.	270 N
Weight (Basic Unit -T, -A).....	3.42 lbs.	1.64 kg
Additional Weight per Stroke..	0.15 lbs./in.	2.9g/mm
Cylinder Bore Diameter .....	1-1/16"	25mm
Shaft Diameter .....	0.472"	12mm

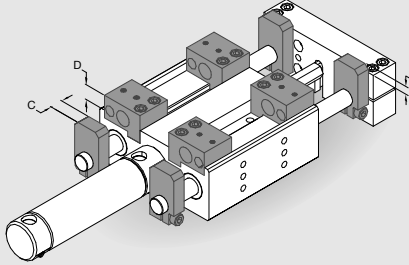
Specifications	DLT-16	DLT-16M
Maximum Air Pressure.....	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar .	70 lbs.	270 N
Weight (Basic Unit -T, -A).....	4.47 lbs.	2.11 kg
Additional Weight per Stroke..	0.23 lbs./in.	4.2g/mm
Cylinder Bore Diameter .....	1-1/16"	25mm
Shaft Diameter .....	0.630"	16mm

## Accessory Mounting Technical Data



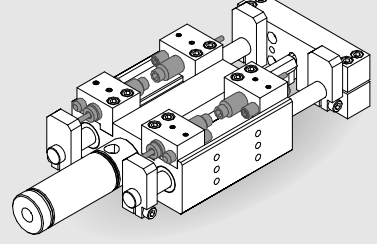
### Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock Pads for adjustment of travel in one direction



### Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions

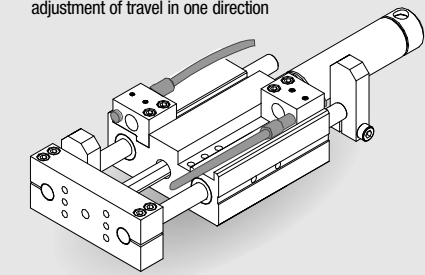


### Adjustable Hard Stops

- For precision (+/- .001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

### Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Allen wrench adjustable

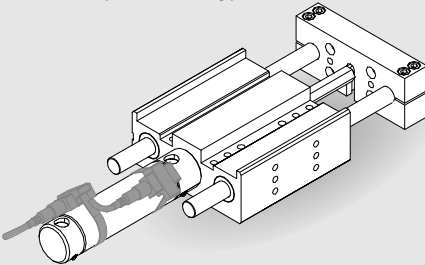


### Inductive Proximity Sensors

- 8mm diameter
- Threaded Quick Disconnect with built-in LED output
- PNP and NPN available

### Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

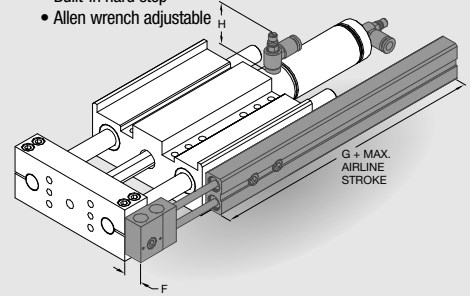


### Magneto Resistive Sensors

- Quick Disconnect with built-in LED output
- Strap-on Mounting Kit included
- PNP and NPN available

### Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



### Telescoping Airlines

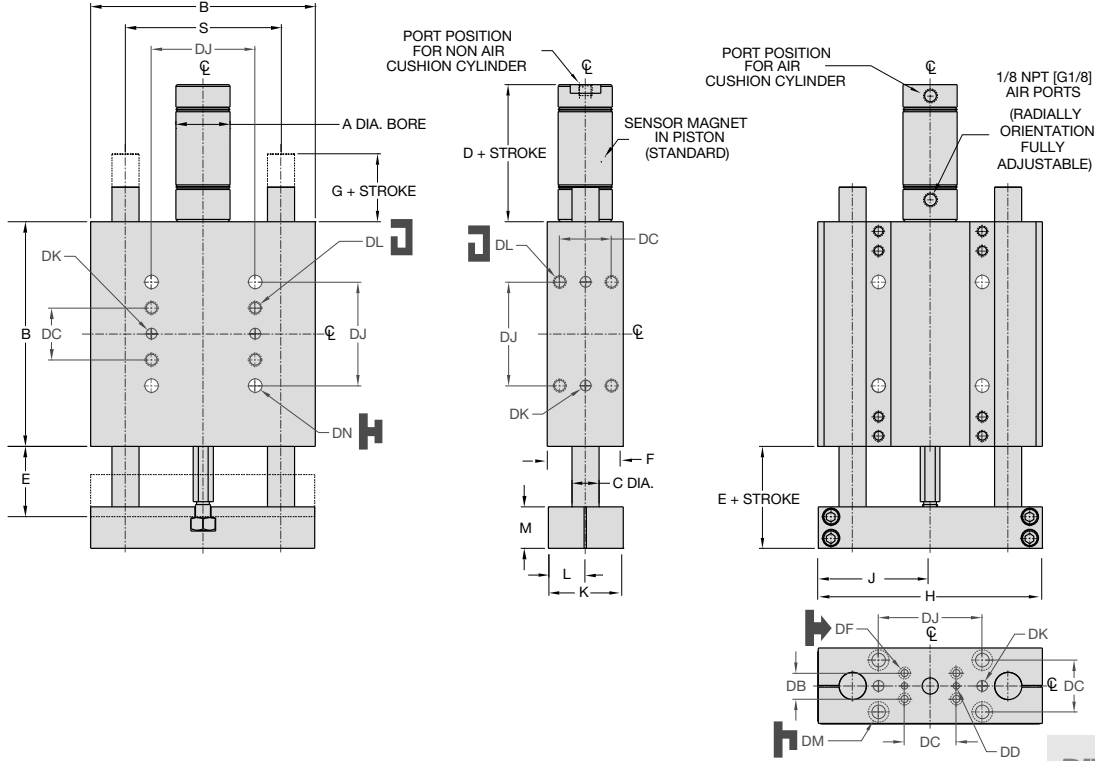
- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

### Flow Controls

- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT or G1/8 pipe threads

	A	B	C	D	E	F	G	H
DLT-10	.343"	.87	.375	.480	.320	.577	3.60	1.12
DLT-12	.375"	.95	.375	.450	.230	.577	3.60	1.12
DLT-16	.437"	1.31	.437	.450	.340	.577	3.60	1.12
DLT-10M	8.7mm	22.1	9.5	12.2	8.1	14.7	91.4	28.4
DLT-12M	9.5mm	23.9	9.5	11.4	5.8	14.7	91.4	28.4
DLT-16M	11.1mm	33.3	11.1	11.4	8.6	14.7	91.4	28.4

# LINEAR THRUSTER DLT -20, 25 -T, A REPLACEABLE CYLINDER WITH OR W/O ADJ. AIR CUSHIONS



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

				<b>Imperial in.</b>	<b>Metric [mm]</b>
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

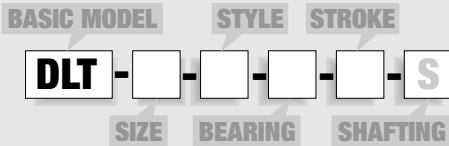
## DIRECTCONNECT

### DIMENSIONS STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)
DB	.750
DC	1.500
DD	.1880 x .25 DP
DF	Clearance for #10
DJ	3.000
DK	.3130 x .37 DP
DL	3/8 -16 x .56 DP
DM	Clearance for 3/8
DN	Clearance for 3/8

MODEL #	BORE DIA.		BODY SIZE		SHAFT DIA.		BASIC UNIT DIMENSIONS							
	A	B	C	D	E	F	G	H	J	K	L	M	S	
DLT-20	1 1/2	6.50	.787	3.00	1.960	2.20	.960	6.480	3.230	2.180	1.080	1.210	4.500	
DLT-25	1 1/2	7.50	.984	3.00	2.170	2.20	1.170	7.480	3.730	2.180	1.080	1.420	5.250	

## How to Order: Basic Unit



SIZE **20, 25**

Oversized guide shafts available. Please consult factory.

STYLE **T** Replaceable cylinder w/o adjustable air cushions  
**A** Replaceable cylinder with adjustable air cushions

BEARING **B** Linear ball bearings  
**C** Composite bushings

Custom strokes available. Please consult factory.

STROKE (inches)  
DLT-20 **1-24** @ 1" increments  
DLT-25 **1-26** @ 1" increments

SHAFTING **S** Corrosion resistant shafting

### SAMPLE ORDER: DLT-20-A-B-8

Ex: Thruster, Size 20, Replaceable Cylinder w/Adjustable Air Cushions, Linear Ball Bushings, 8 inch Stroke

## Accessories: (Order Separately)

### SHOCK/STOP ACCESSORIES

	DLT-20	DLT-25	QTY/THRUSTER
Universal Mounting Kit			
(Shock, Stop or Sensor)	<b>OSAK-061</b>	<b>OSAK-063</b>	<b>1,2,3 or 4</b>
Urethane Bumper/Clamp Collar Kit	<b>OSAK-062</b>	<b>OSAK-064</b>	<b>1 or 2</b>
Shock Absorber (adjustable dampening)*	<b>SHOK-029</b>	<b>SHOK-029</b>	<b>1,2,3 or 4</b>
Adjustable Hard Stop*	<b>DLT-1023</b>	<b>DLT-1023</b>	<b>1,2,3 or 4</b>

### INDUCTIVE SENSOR ACCESSORIES<sup>†</sup>

	DLT-20	DLT-25	QTY/THRUSTER
Inductive Sensor PNP Qk. Disconnect*	<b>OISP-011</b>	<b>OISP-011</b>	<b>1 or 2</b>
Inductive Sensor NPN Qk. Disconnect*	<b>OISN-011</b>	<b>OISN-011</b>	<b>1 or 2</b>
Quick. Disconnect 2M Cable Length <sup>†</sup>	<b>CABL-010</b>	<b>CABL-010</b>	<b>1 or 2</b>
Quick. Disconnect 5M Cable Length <sup>†</sup>	<b>CABL-013</b>	<b>CABL-013</b>	<b>1 or 2</b>

### MAGNETIC SENSOR ACCESSORIES<sup>†</sup> \*\*

	DLT-20	DLT-25	QTY/THRUSTER
Magneto Resistive Sensor PNP Qk. Disc. <sup>†</sup>	<b>OHSP-005</b>	<b>OHSP-005</b>	<b>1 or 2</b>
Magneto Resistive Sensor NPN Qk. Disc. <sup>†</sup>	<b>OHSN-005</b>	<b>OHSN-005</b>	<b>1 or 2</b>
Quick. Disconnect 2M Cable Length <sup>†</sup>	<b>CABL-010</b>	<b>CABL-010</b>	<b>1 or 2</b>
Quick. Disconnect 5M Cable Length <sup>†</sup>	<b>CABL-013</b>	<b>CABL-013</b>	<b>1 or 2</b>

### PNEUMATIC ACCESSORIES

	DLT-20	DLT-25	QTY/THRUSTER
1/8 NPT Telescopic Airlines (up to 6")	<b>OTAL-039</b>	<b>OTAL-039</b>	<b>1,2,3 or 4</b>
1/8 NPT Telescopic Airlines (up to 12")	<b>OTAL-040</b>	<b>OTAL-040</b>	<b>1,2,3 or 4</b>
1/8 NPT Telescopic Airlines (up to 18")	<b>OTAL-041</b>	<b>OTAL-041</b>	<b>1,2,3 or 4</b>
1/8 NPT Telescopic Airlines (up to 24")	<b>OTAL-042</b>	<b>OTAL-042</b>	<b>1,2,3 or 4</b>
1/8 NPT Adjustable Flow Control	<b>VLVF-004</b>	<b>VLVF-004</b>	<b>1 or 2</b>

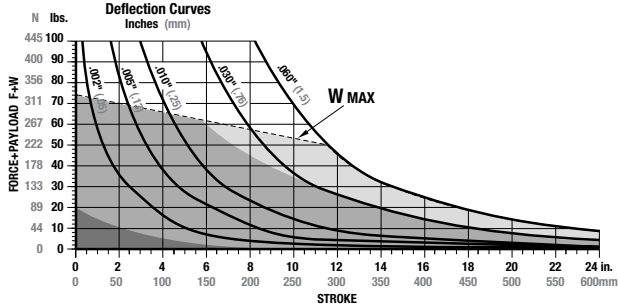
\*Requires Universal Mounting Kit †Sensor and cable sold separately \*\*Piston magnet standard



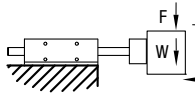
# LINEAR THRUSTER DLT -20, 25 -T, A REPLACEABLE CYLINDER WITH OR W/O ADJ. AIR CUSHIONS



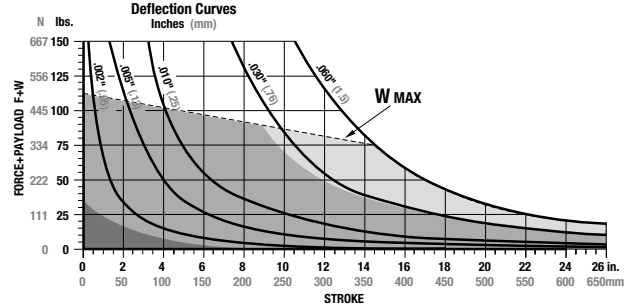
## DLT-20-T, A, U



**F**=Externally applied force (lbs. or N)  
**W**=Weight of payload (lbs. or N)  
**F+W**=Total deflection force (lbs. or N)



## DLT-25-T, A, U



Shock Absorbers and Flow Controls are recommended for nearly all applications

Use **Double Shocks** in both directions    Use **Single Shock** in both directions    Use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional acceleration effect of gravity.

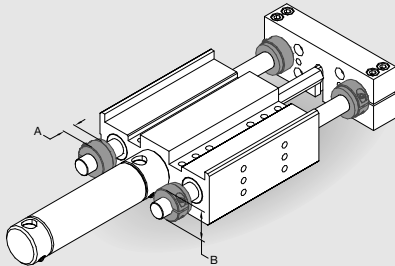
### Specifications

	DLT-20
Maximum Air Pressure .....	100 psi
Thrust Force @ 80psi/5.5bar .....	140 lbs.
Weight (Basic Unit <b>-T, -A</b> ) .....	12.7 lbs.
Additional Weight per Stroke .....	0.38 lbs./in.
Cylinder Bore Diameter .....	1-1/2"
Shaft Diameter .....	0.787"

### Specifications

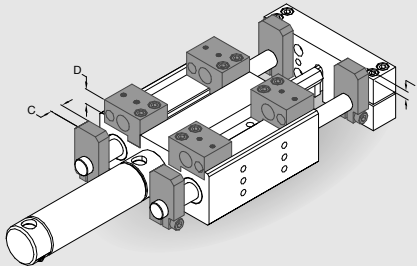
	DLT-25
Maximum Air Pressure .....	100 psi
Thrust Force @ 80psi/5.5bar .....	140 lbs.
Weight (Basic Unit <b>-T, -A</b> ) .....	17.6 lbs.
Additional Weight per Stroke .....	0.53 lbs./in.
Cylinder Bore Diameter .....	1-1/2"
Shaft Diameter .....	0.984"

## Accessory Mounting Technical Data



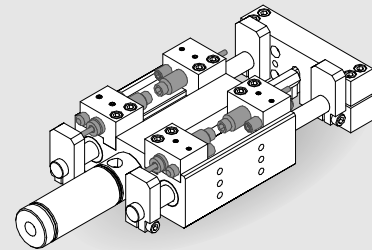
### Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock Pads for adjustment of travel in one direction



### Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes Mounting Bracket, Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions

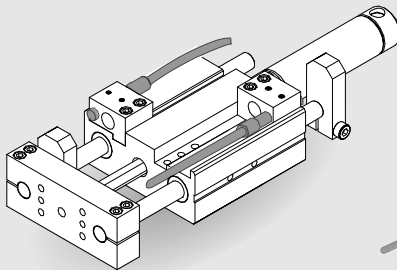


### Adjustable Hard Stops

- For precision (+/- .001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

### Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable dampening

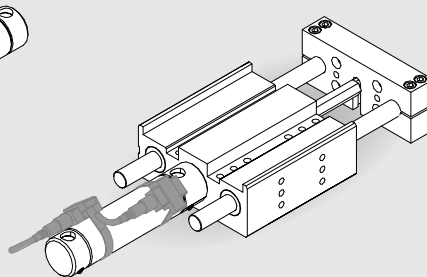


### Inductive Proximity Sensors

- 8mm diameter
- Threaded Quick Disconnect with built-in LED output
- PNP and NPN available

### Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

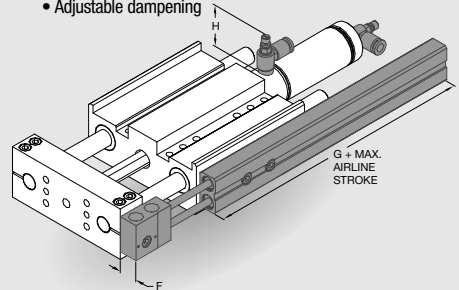


### Magneto Resistive Sensors

- Quick Disconnect with built-in LED output
- Strap-on Mounting Kit included
- PNP and NPN available

### Straight Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



### Telescoping Airlines

- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

### Flow Controls

- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT or G1/8 pipe threads

	A	B	C	E	F	G	H
DLT-20	.500"	1.50	.500	.67	.577	3.60	1.12
DLT-25	.500"	1.75	.500	.67	.577	3.60	1.12

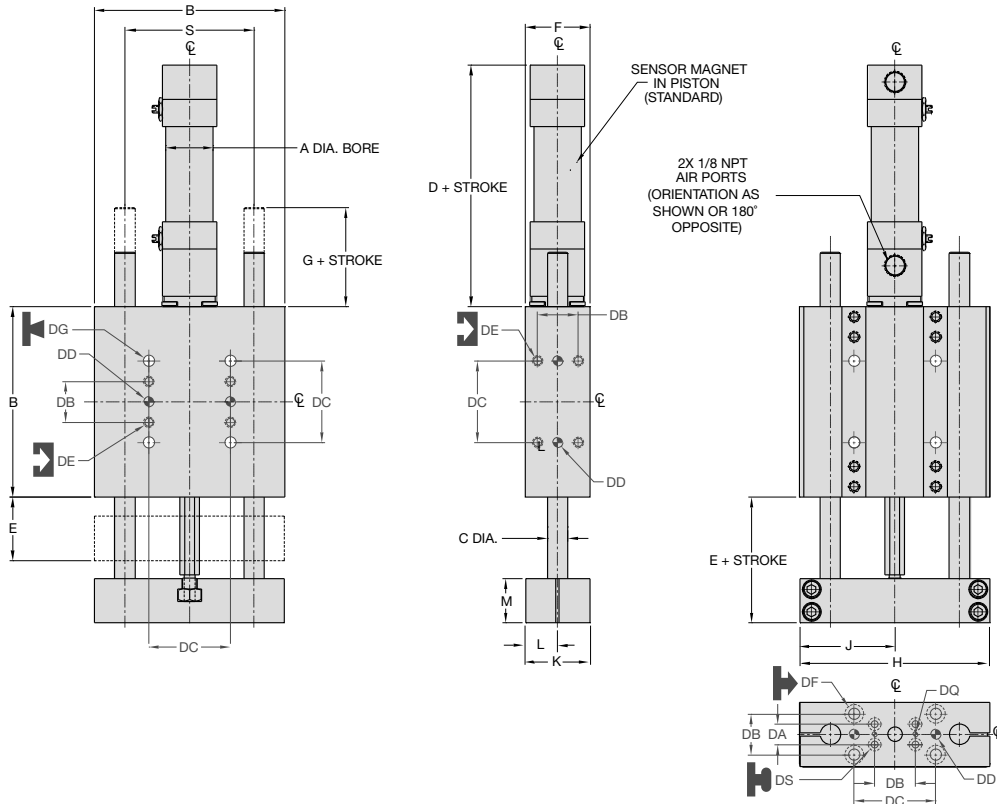
DLT SERIES

4.63

DIRECTCONNECT™



# LINEAR THRUSTER DLT -10M, 12M, 16M -N, U REPAIRABLE (NFPA STYLE) CYLINDER w/FIXED AIR CUSHIONS



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	<b>Imperial in.</b> 0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	<b>Metric [mm]</b> [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]
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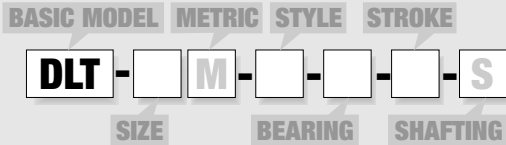
MODEL #	BORE DIA.		BODY SIZE		SHAFT DIA.		BASIC UNIT DIMENSIONS									
	A	B	C	D	E	F	G	H	J	K	L	M	S			
DLT-10	3/4	3.50	.375	3.44	1.313	1.19	.82	3.490	1.740	1.178	.584	.813	2.375			
DLT-12	1 1/8	4.00	.472	3.44	1.313	1.63	.82	3.985	1.985	1.615	.802	.813	2.750			
DLT-16	1 1/8	4.75	.630	3.44	1.375	1.63	.76	4.735	2.360	1.615	.802	.813	3.250			

## DIRECTCONNECT

### DIMENSIONS STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)
DA	.375
DB	.750
DC	1.500
DD	.1880 x .25 DP
DE	#10-32 x .34 DP
DF	Clearance for #10
DG	Clearance for #10
DQ	.0940 x .078 DP
DS	Clr & C'bore for #4

## How to Order: Basic Unit



SIZE **10, 12, 16**

STYLE **N** Repairable NFPA cylinder w/ fixed air cushions  
(Not available in Metric)  
**U** Non-powered unit (Without cylinder. NFPA cylinder mounting kits available)

BEARING **B** Linear ball bearings  
**C** Composite bushings

Oversized guide shafts available.  
Please consult factory.

STROKE (inches)  
DLT-10 **1-12 @ 1"** increments  
DLT-12 **1-16 @ 1"** increments  
DLT-16 **1-20 @ 1"** increments

Custom strokes available.  
Please consult factory.

STROKE (mm)  
DLT-10M **25, 50, 80, 100, 125, 160, 200, 250, 300**  
DLT-12M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400**  
DLT-16M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**

SHAFTING **S** Corrosion resistant shafting

### SAMPLE ORDER: DLT-10-N-B-6

Ex: Thruster, Size 10, Repairable Cylinder w/Fixed Air Cushions, Linear Ball Bushings, 6 Inch Stroke

## Accessories: (Order Separately) DLT-10 DLT-12 DLT-16 QTY/THRUSTER

### SHOCK/STOP ACCESSORIES

Universal Mounting Kit (Shock, Stop or Sensor)	<b>OSAK-055</b>	<b>OSAK-057</b>	<b>OSAK-059</b>	<b>1, 2, 3 or 4</b>
Urethane Bumper/Clamp Collar Kit	<b>OSAK-056</b>	<b>OSAK-058</b>	<b>OSAK-060</b>	<b>1 or 2</b>
Urethane Bumper/Clamp Collar Kit (-10M)	<b>OSAK-065</b>			<b>1 or 2</b>
Urethane Bumper/Clamp Collar Kit (-12M)		<b>OSAK-066</b>		<b>1 or 2</b>
Shock Absorber*	<b>SHOK-028</b>	<b>SHOK-010</b>	<b>SHOK-010</b>	<b>1, 2, 3 or 4</b>
Adjustable Hard Stop*	<b>DLT-1023</b>	<b>DLT-1023</b>	<b>DLT-1023</b>	<b>1, 2, 3 or 4</b>

### INDUCTIVE SENSOR ACCESSORIES:

Inductive Sensor PNP Qk. Disconnect*	<b>OISP-011</b>	<b>OISP-011</b>	<b>OISP-011</b>	<b>1 or 2</b>
Inductive Sensor NPN Qk. Disconnect*	<b>OISN-011</b>	<b>OISN-011</b>	<b>OISN-011</b>	<b>1 or 2</b>
Quick. Disconnect 2M Cable Length †	<b>CABL-010</b>	<b>CABL-010</b>	<b>CABL-010</b>	<b>1 or 2</b>
Quick. Disconnect 5M Cable Length †	<b>CABL-013</b>	<b>CABL-013</b>	<b>CABL-013</b>	<b>1 or 2</b>

### MAGNETIC SENSOR ACCESSORIES† \*\*

Magneto Resistive Sensor PNP Qk. Disc.†	<b>OHSP-005</b>	<b>OHSP-005</b>	<b>OHSP-005</b>	<b>1 or 2</b>
Magneto Resistive Sensor NPN Qk. Disc.†	<b>OHSN-005</b>	<b>OHSN-005</b>	<b>OHSN-005</b>	<b>1 or 2</b>
Quick. Disconnect 2M Cable Length †	<b>CABL-010</b>	<b>CABL-010</b>	<b>CABL-010</b>	<b>1 or 2</b>
Quick. Disconnect 5M Cable Length †	<b>CABL-013</b>	<b>CABL-013</b>	<b>CABL-013</b>	<b>1 or 2</b>

### PNEUMATIC ACCESSORIES

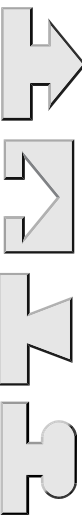
NFPA Cylinder Mounting Kit (-U only)	<b>ODLT-001</b>	<b>ODLT-002</b>	<b>ODLT-002</b>	<b>1</b>
1/8 NPT Telescopic Airlines (up to 6")	<b>OTAL-039</b>	<b>OTAL-039</b>	<b>OTAL-039</b>	<b>1, 2, 3 or 4</b>
1/8 NPT Telescopic Airlines (up to 12")	<b>OTAL-040</b>	<b>OTAL-040</b>	<b>OTAL-040</b>	<b>1, 2, 3 or 4</b>
1/8 NPT Telescopic Airlines (up to 18")	<b>OTAL-041</b>	<b>OTAL-041</b>	<b>OTAL-041</b>	<b>1, 2, 3 or 4</b>
1/8 NPT Telescopic Airlines (up to 24")	<b>OTAL-042</b>	<b>OTAL-042</b>	<b>OTAL-042</b>	<b>1, 2, 3 or 4</b>
1/8 NPT Adjustable Flow Control	<b>VLVF-004</b>	<b>VLVF-004</b>	<b>VLVF-004</b>	<b>1 or 2</b>

\*Requires Universal Mounting Kit †Sensor and cable sold separately \*\*Piston magnet standard

DLT SERIES 4.64 DIRECTCONNECT



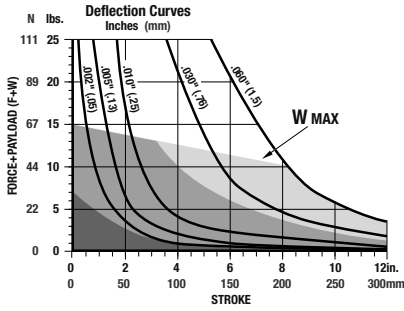
# LINEAR THRUSTER DLT-10, 12, 16 -N, U REPAIRABLE (NFPA STYLE) CYLINDER w/FIXED AIR CUSHIONS



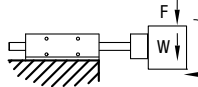
DLT SERIES  
4.65

DIRECTCONNECT™

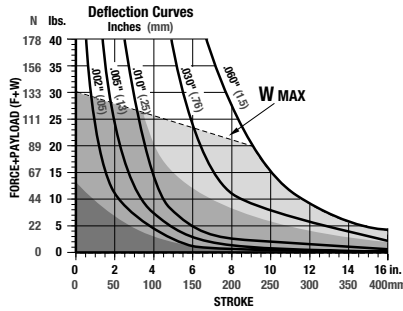
## DLT-10-N, U



**F**=Externally applied force (lbs. or N)  
**W**=Weight of payload (lbs. or N)  
**F+W**=Total deflection force (lbs. or N)



## DLT-12-N, U



**Shock Absorbers and Flow Controls are recommended for nearly all applications**

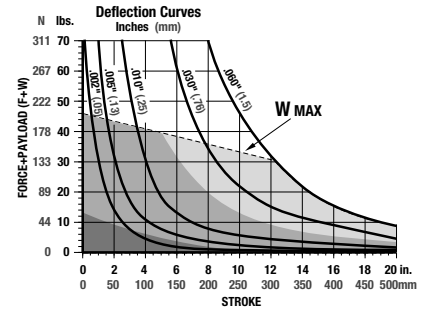
Use **Double Shocks** in both directions

Use **Single Shock** in both directions

Use **Bumpers or Cushioned Cylinder**

Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional acceleration effect of gravity.

## DLT-16-N, U

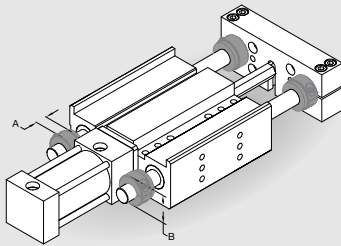


Specifications	DLT-10
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	35 lbs.
Weight (Basic Unit -N)	2.2 lbs.
Additional Weight per Stroke	00.08 lbs./in.
Cylinder Bore Diameter	3/4"
Shaft Diameter	0.375"

Specifications	DLT-12
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	79 lbs.
Weight (Basic Unit -N)	3.5 lbs.
Additional Weight per Stroke	0.16 lbs./in.
Cylinder Bore Diameter	1-1/8"
Shaft Diameter	0.472"

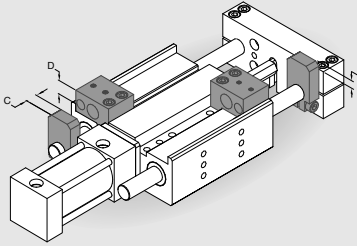
Specifications	DLT-16
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	79 lbs.
Weight (Basic Unit -N)	4.5 lbs.
Additional Weight per Stroke	0.24 lbs./in.
Cylinder Bore Diameter	1-1/8"
Shaft Diameter	0.630"

## Accessory Mounting Technical Data



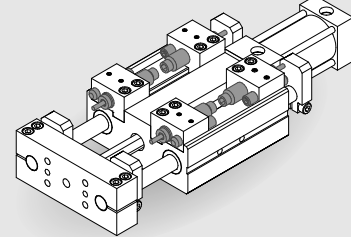
### Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock Pads for adjustment of travel in one direction



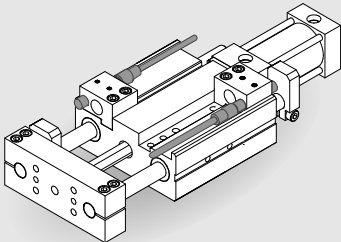
### Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions



### Adjustable Hard Stops

- For precision (+/- .001") end point positioning
  - Allows for end stop position adjustment independent of shock absorber hard stop
  - Allen wrench adjustable
- ### Shock Absorbers
- Full stroking piston rod
  - Built-in hard stop
  - Allen wrench adjustable

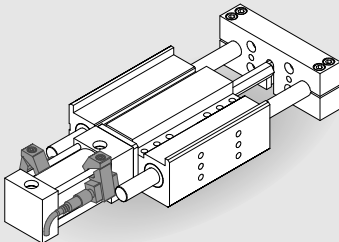
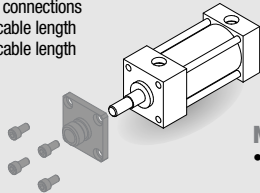


### Inductive Proximity Sensors

- 8mm diameter
- Threaded Quick Disconnect with built-in LED output
- PNP and NPN available

### Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length

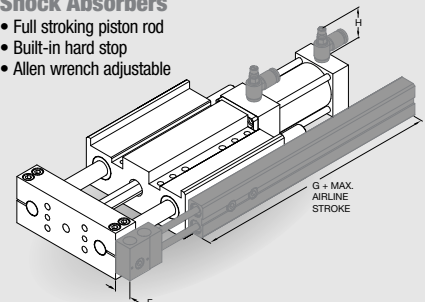


### Magneto Resistive Sensors

- Quick Disconnect with built-in LED output
- Clamp-on Mounting Kit included
- PNP and NPN available

### Straight Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length



### Telescoping Airlines

- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked.
- 1/8 NPT pipe threads
- (2) user air ports per module

### Flow Controls

- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT pipe threads

### NFPA Cylinder Mounting Kit

- Used to mount standard face mounted NFPA cylinders to non-powered units (-U)

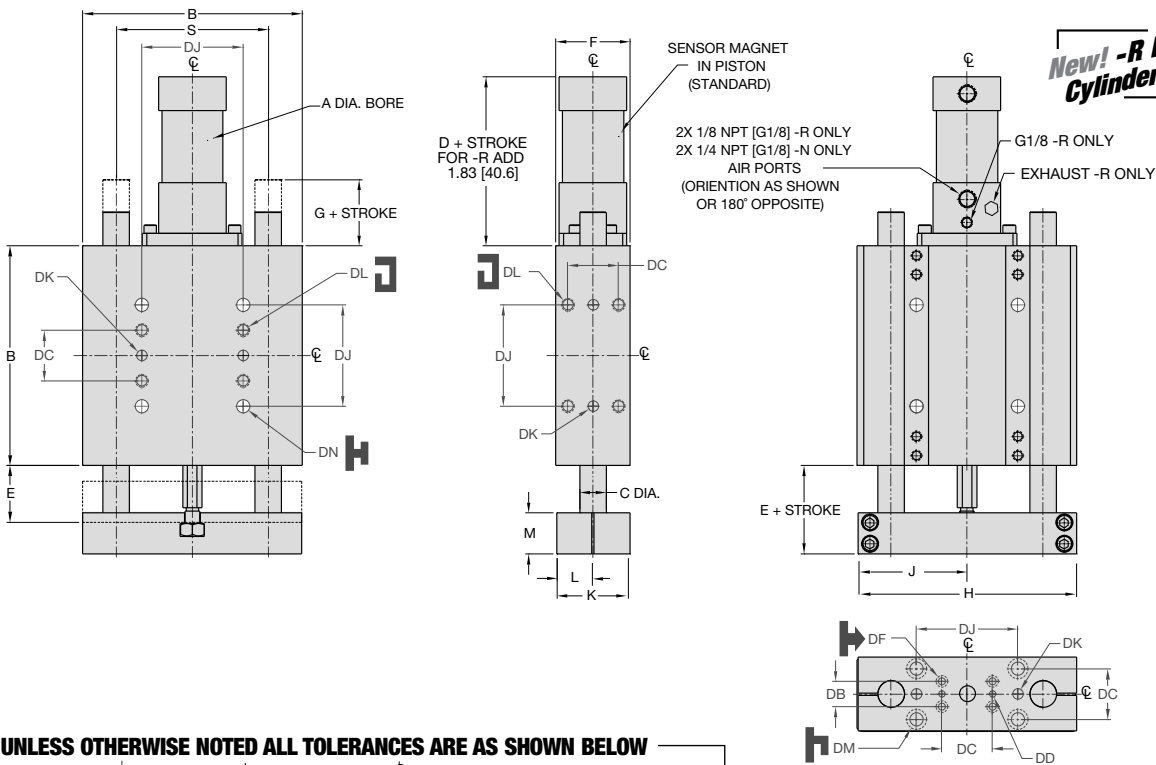
	A	B	C	D	E	F	G	H
DLT-10	.343"	.87	.375	.480	.320	.577	3.60	1.12
DLT-12	.375"	.95	.375	.450	.230	.577	3.60	1.12
DLT-16	.437"	1.31	.437	.450	.340	.577	3.60	1.12
DLT-10M	8.7mm	22.1	9.5	12.2	8.1	14.7	91.4	28.4
DLT-12M	9.5mm	23.9	9.5	11.4	5.8	14.7	91.4	28.4
DLT-16M	11.1mm	33.3	11.1	11.4	8.6	14.7	91.4	28.4

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# LINEAR THRUSTER DLT -20M, 25M -N, R, U REPAIRABLE (NFPA/VDMA) CYLINDER W/ADJ. AIR CUSHIONS



**New! -R Locking  
Cylinder Style**

UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

				<b>Imperial in.</b>	<b>Metric [mm]</b>
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	0.00 ± .01 0.000 ± .005 0.0000 ± .0005	[0.1 ± .25] [0.0] ± [±.13] [0.00] ± [±.013]

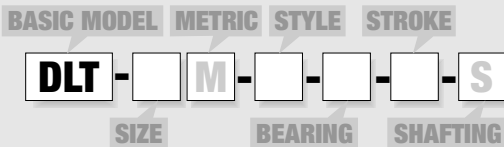
### DIRECTCONNECT DIMENSIONS STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	Metric (mm)
DB	.750	19.1
DC	1.500	38.1
DD	.1880 x .25DP	5mm H7 x 6DP
DF	Clearance for #10	Clearance for M5
DJ	3.000	76.2
DK	.3130 x .37 DP	8mm H7 x 9.4 DP
DL	3/8 -16 x .56 DP	M10 x 14.2 DP
DM	Clearance for 3/8	Clearance for M10
DN	Clearance for 3/8	Clearance for M10

### BASIC UNIT DIMENSIONS

MODEL #	BORE DIA. -N		BORE DIA. -R		BODY SIZE		SHAFT DIA.		DIMENSIONS					
	A	B	C	D	E	F	G	H	J	K	L	M	S	
DLT-20	1 1/2	32mm	6.50	.787	4.01	1.960	2.20	.960	6.480	3.230	2.180	1.210	4.500	
DLT-25	1 1/2	32mm	7.50	.984	4.01	2.170	2.20	1.170	7.480	3.730	2.180	1.080	5.250	
DLT-20M	32	32	165.1	20	107.7	49.8	55.9	24.4	164.6	82.0	55.4	27.4	30.7	114.30
DLT-25M	32	32	190.5	25	107.7	55.1	55.9	29.7	190.0	94.7	55.4	27.4	36.1	133.35

### How to Order: Basic Unit



**SIZE** 20, 25

Oversized guide shafts available. Please consult factory.

**METRIC** M

**STYLE** **N** Repairable NFPA/VDMA cylinder w/adjustable air cushions  
**R** Repairable locking VDMA cylinder w/adjustable air cushions  
**U** Non-powered unit (Without cylinder. NFPA/VDMA cylinder mounting kits available)

**BEARING** **B** Linear ball bearings  
**C** Composite bushings

**STROKE** (inches)  
DLT-20 **1-24** @ 1" increments  
DLT-25 **1-26** @ 1" increments

Custom strokes available. Please consult factory.

**STROKE** (mm)  
DLT-20M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**  
DLT-25M **25, 50, 80, 100, 125, 160, 200, 250, 300, 320, 360, 400, 500**

**SHAFTING** **S** Corrosion resistant shafting

### SAMPLE ORDER: DLT-20-N-B-12

Ex: Thruster, Size 20, Repairable NFPA Cylinder w/Adjustable Air Cushions, Linear Ball Bushings, 12 Inch Stroke

### Accessories: (Order Separately)

#### SHOCK/STOP ACCESSORIES

	DLT-20M	DLT-25M	QTY/THRUSTER
Universal Mounting Kit (Shock, Stop or Sensor)	<b>OSAK-061</b>	<b>OSAK-063</b>	1, 2, 3 or 4
Urethane Bumper/Clamp Collar Kit	<b>OSAK-062</b>	<b>OSAK-064</b>	1 or 2
Shock Absorber (adjustable dampening)*	<b>SHOK-029</b>	<b>SHOK-029</b>	1, 2, 3 or 4
Adjustable Hard Stop*	<b>DLT-1023</b>	<b>DLT-1023</b>	1, 2, 3 or 4

#### INDUCTIVE SENSOR ACCESSORIES:

	DLT-20M	DLT-25M	QTY/THRUSTER
Inductive Sensor PNP Qk. Disconnect*	<b>OISP-011</b>	<b>OISP-011</b>	1 or 2
Inductive Sensor NPN Qk. Disconnect*	<b>OISN-011</b>	<b>OISN-011</b>	1 or 2
Quick. Disconnect 2M Cable Length †	<b>CABL-010</b>	<b>CABL-010</b>	1 or 2
Quick. Disconnect 5M Cable Length †	<b>CABL-013</b>	<b>CABL-013</b>	1 or 2
Cable Extension Cord 1M Length	<b>CABL-015</b>	<b>CABL-015</b>	1 or 2
Cable Extension Cord 2M Length	<b>CABL-016</b>	<b>CABL-016</b>	1 or 2

#### MAGNETIC SENSOR ACCESSORIES: \*\*

	DLT-20M	DLT-25M	QTY/THRUSTER
Magneto Resistive Sensor PNP Qk. Disc.†	<b>OHSP-020</b>	<b>OHSP-020</b>	1 or 2
Magneto Resistive Sensor NPN Qk. Disc.†	<b>OHSN-020</b>	<b>OHSN-020</b>	1 or 2
Quick. Disconnect 2M Cable Length †	<b>CABL-010</b>	<b>CABL-010</b>	1 or 2
Quick. Disconnect 5M Cable Length †	<b>CABL-013</b>	<b>CABL-013</b>	1 or 2
Cable Extension Cord 1M Length	<b>CABL-015</b>	<b>CABL-015</b>	1 or 2
Cable Extension Cord 2M Length	<b>CABL-016</b>	<b>CABL-016</b>	1 or 2

#### PNEUMATIC ACCESSORIES

	DLT-20M	DLT-25M	QTY/THRUSTER
NFPA Cylinder Mounting Kit (-U only)	<b>ODLT-003</b>	<b>ODLT-003</b>	1
1/8 NPT Telescopic Airlines (up to 6")	<b>OTAL-039</b>	<b>OTAL-039</b>	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 12")	<b>OTAL-040</b>	<b>OTAL-040</b>	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 18")	<b>OTAL-041</b>	<b>OTAL-041</b>	1, 2, 3 or 4
1/8 NPT Telescopic Airlines (up to 24")	<b>OTAL-042</b>	<b>OTAL-042</b>	1, 2, 3 or 4
1/4 NPT Adjustable Flow Control	<b>VLVF-006</b>	<b>VLVF-006</b>	1 or 2
VDMA Cylinder Mounting Kit (-U Metric only)	<b>ODLT-004</b>	<b>ODLT-004</b>	1
G1/8 Telescopic Airlines (up to 160mm)	<b>OTAL-045</b>	<b>OTAL-045</b>	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 300mm)	<b>OTAL-046</b>	<b>OTAL-046</b>	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 450mm)	<b>OTAL-047</b>	<b>OTAL-047</b>	1, 2, 3 or 4
G1/8 Telescopic Airlines (up to 600mm)	<b>OTAL-048</b>	<b>OTAL-048</b>	1, 2, 3 or 4
G1/8 Adjustable Flow Control	<b>VLVF-005</b>	<b>VLVF-005</b>	1 or 2
1/8 NPT Adjustable Flow Control	<b>VLVF-004</b>	<b>VLVF-004</b>	1 or 2
G1/8 Male to 1/8 NPT Adapter	<b>PLFT-025</b>	<b>PLFT-025</b>	1 or 2

\*Requires Universal Mounting Kit †Sensor and cable sold separately. \*\*Piston magnet standard

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DLT SERIES

4.66

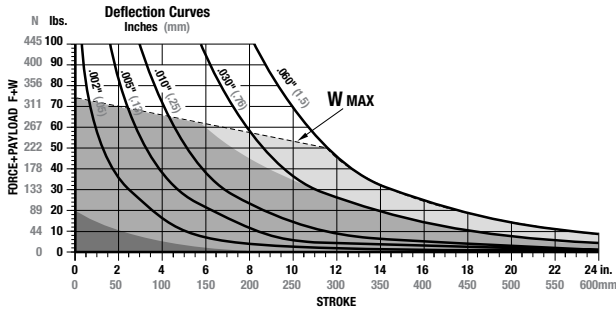
DIRECTCONNECT



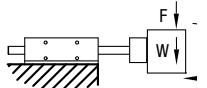
# LINEAR THRUSTER DLT -20M, 25M -N, R, U REPAIRABLE (NFPA/VDMA) CYLINDER W/ADJ. AIR CUSHIONS



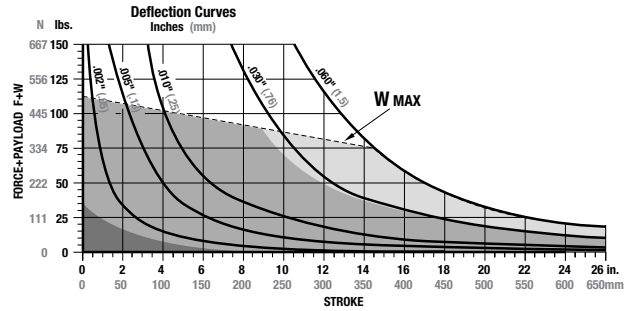
## DLT-20M-N, R, U



**F**—Externally applied force (lbs. or N)  
**W**—Weight of payload (lbs. or N)  
**F+W**—Total deflection force (lbs. or N)



## DLT-25M-N, R, U



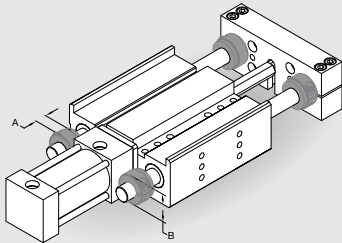
**Shock Absorbers and Flow Controls are recommended for nearly all applications**

Use **Double Shocks** in both directions    Use **Single Shock** in both directions    Use **Bumpers or Cushioned Cylinder**  
 Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional acceleration effect of gravity.

Specifications	DLT-20	DLT-20M
Maximum Air Pressure.....	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar.....	140 lbs.	443N
Weight (Basic Unit <b>-N, -R</b> ).....	14.3 lbs.	6.3 kg
Additional Weight per Stroke <b>-N, -R</b> .....	0.53 lbs./in.	7.9g/mm
Cylinder Bore Diameter <b>-N</b> .....	1-1/2"	32mm
Cylinder Bore Diameter <b>-R</b> .....	32mm	32mm
Shaft Diameter.....	0.787"	20mm
Min. Air Pressure to Release Cylinder Lock <b>-R</b> .....	60 psi	4 bar
Holding Force of Locking Mechanism <b>-R</b> .....	123 psi	550N

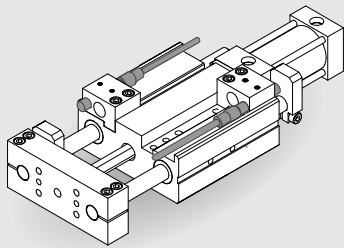
Specifications	DLT-25	DLT-25M
Maximum Air Pressure.....	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar.....	140 lbs.	443N
Weight (Basic Unit <b>-N, -R</b> ).....	19.2 lbs.	8.5 kg
Additional Weight per Stroke <b>-N, -R</b> .....	0.68 lbs./in.	10.7g/mm
Cylinder Bore Diameter <b>-N</b> .....	1-1/2"	32mm
Cylinder Bore Diameter <b>-R</b> .....	32mm	32mm
Shaft Diameter.....	0.984"	25mm
Min. Air Pressure to Release Cylinder Lock <b>-R</b> .....	60 psi	4 bar
Holding Force of Locking Mechanism <b>-R</b> .....	123 psi	550N

## Accessory Mounting Technical Data



### Urethane Bumpers & Clamp Collars

- Urethane Bumpers for shock absorption and noise dampening
- Adjustable Clamp Collars for end of stroke position adjustment
- Kit contains (2) Collars and (2) Shock Pads for adjustment of travel in one direction

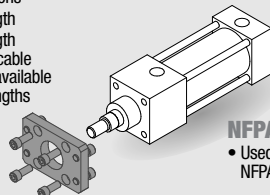


### Inductive Proximity Sensors

- 8mm diameter
- Threaded Quick Disconnect with built-in LED output
- PNP and NPN available

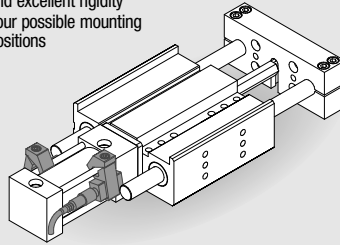
### Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length
- Quick disconnect cable extensions cords available in 1 or 2 meter lengths



### Universal Mounting Kit

- Kit mounts (1) Shock Absorber and (1) Inductive Proximity Sensor or (1) Shock and (1) Adjustable Hard Stop
- Kit includes (1) Mounting Bracket, (1) Hardened Tool Steel Target and Hardware
- Target allows for unlimited stroke adjustment. Fine adjustment is achieved using Adjustable Hard Stop or Shock Absorber
- Mounting Bracket keys into body for secure positioning and excellent rigidity
- Four possible mounting positions



### Magneto Resistive Sensors

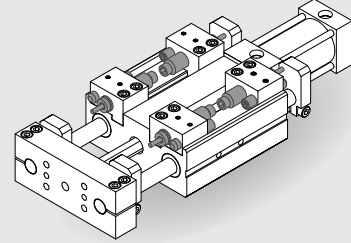
- Quick Disconnect with built-in LED output
- Clamp-on Mounting Kit included
- PNP and NPN available

### Straight Quick Disconnect Cable

- Threaded coupling with knurled head for secure electrical connections
- 2 meter cable length
- 5 meter cable length
- Quick disconnect cable extensions cords available in 1 or 2 meter lengths

### NFPA/VDMA Cylinder Mounting Kit

- Used to mount standard sleeve-nut face mounted NFPA and VDMA cylinders to non-powered units

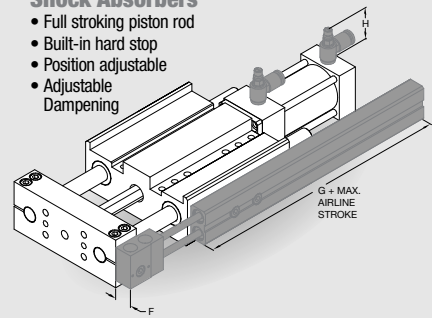


### Adjustable Hard Stops

- For precision (+/- .001") end point positioning
- Allows for end stop position adjustment independent of shock absorber hard stop
- Allen wrench adjustable

### Shock Absorbers

- Full stroking piston rod
- Built-in hard stop
- Position adjustable
- Adjustable Dampening



### Telescoping Air Lines

- Eliminate flexing air lines
- Self aligning air tube design extends useful seal life
- Modular stackable design. Up to (4) modules can be stacked
- 1/8 NPT or G1/8 pipe threads
- (2) user air ports per module

### Flow Controls

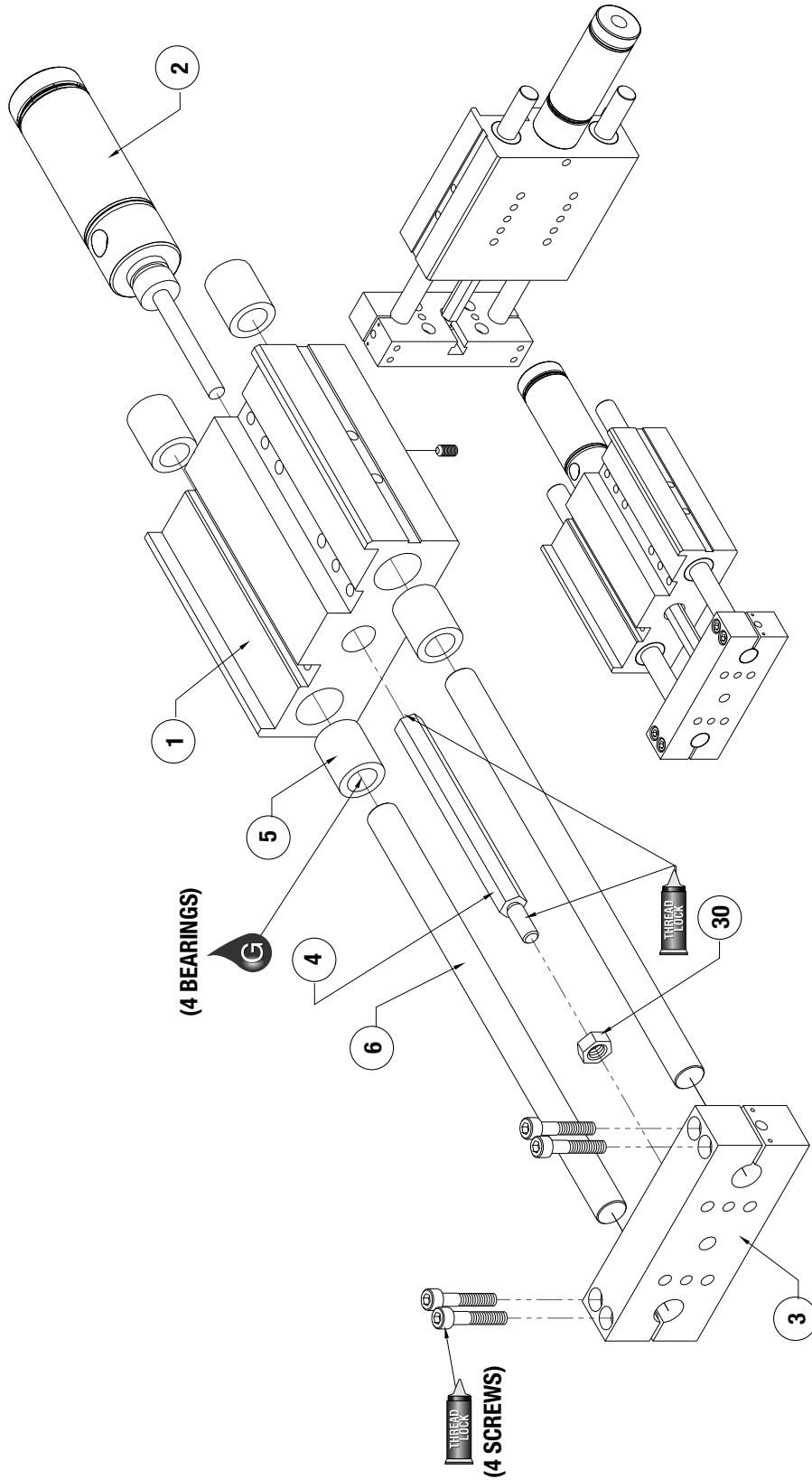
- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/4 NPT, G1/8 pipe threads or 1/8 NPT

	A	B	C	E	F	G	H
DLT-20	.500"	1.50	.500	.67	.577	3.60	1.38
DLT-25	.500"	1.75	.500	.67	.577	3.60	1.38
DLT-20M	12.7mm	38.1	12.7	17.0	14.7	91.4	35.1
DLT-25M	12.7mm	44.5	12.7	17.0	14.7	91.4	35.1

DLT SERIES  
4.67

DIRECTCONNECT™

# DLT-T, A, N, R, U Series Exploded View



Item	Qty	Name
01	1	Body, Externally Powered
02	1	Cylinder
03	1	Tooling Plate
04	1	Shaft, Extender
05	4	Bushing
06	2	Guide Shaft
30	1	Nut, Stover

**NOTE:** Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

### Assembly Procedure

- 1) Install bearings and shafts into body.
- 2) Attach shaft extender to cylinder rod and install through body.
- 3) Fasten tool plate to shaft ends.
- 4) Install shaft extender to tool plate.

**SK Seal Repair Kit Order #'s**  
**See Product Data Sheets**

DLT-T, A, N, R, U  
 SERIES  
 MAINTENANCE  
 4.68

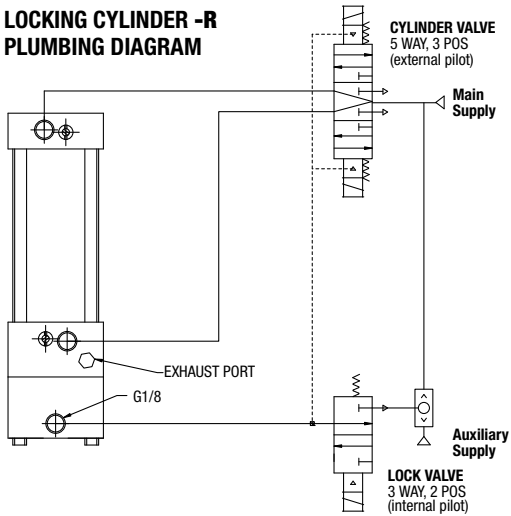
SK Seal Kit Items	Thread Locker	KRYTOX™ Lubricant	Lightweight Machine Oil	Teflon® Based Grease	Super Bonder	Third Angle Projection

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## LOCKING CYLINDER -R PLUMBING DIAGRAM

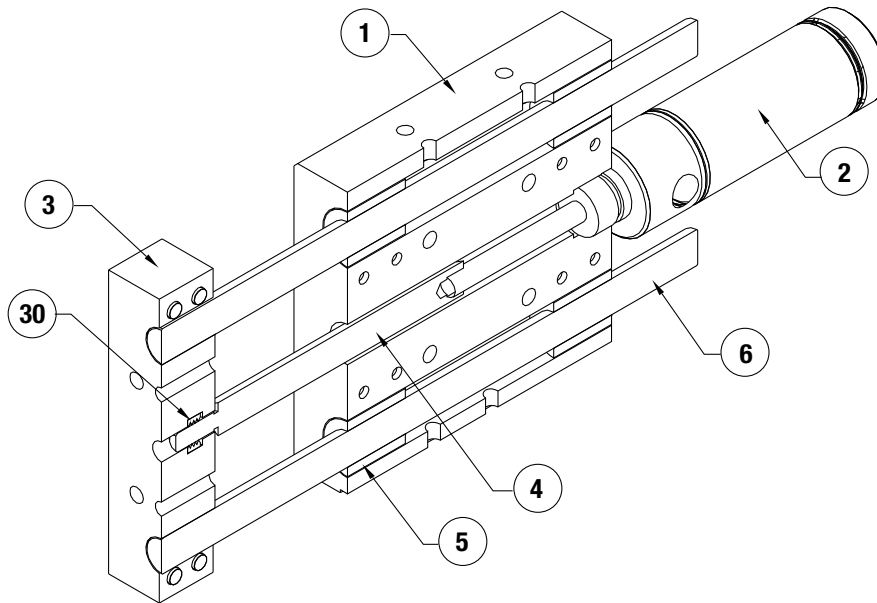


- 1) Lock valve must be maintained energized during cylinder motion, otherwise lock is engaged and cylinder valve shifts to mid position.
- 2) Cylinder valve must be maintained energized during extend or retract. Also, keep energized at end of stroke until change of direction is desired.
- 3) Mid-position of 5/3 cylinder valve may be pressurized outlets if the combination of pressure load on the cylinder and inertia effects of the attached load do not exceed the holding force rating of the locking device, including allowance for wear.
- 4) DO NOT use cylinder lines for any logic functions - pressure levels vary too much.

Item	Qty	Name
01	1	Body, Externally Powered
02	1	Cylinder
03	1	Tooling Plate
04	1	Shaft, Extender
05	4	Bushing
06	2	Guide Shaft
30	1	Nut, Stover

**NOTE:** Contact the Robohand Sales Department for a complete spare parts list with order numbers and prices.

**NOTE:** For accessory mounting, see product data sheets



Seal Kit Items



Thread Locker



Krytox™ Lubricant



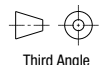
Lightweight Machine Oil



Teflon® Based Grease



Super Bonder



Third Angle Projection