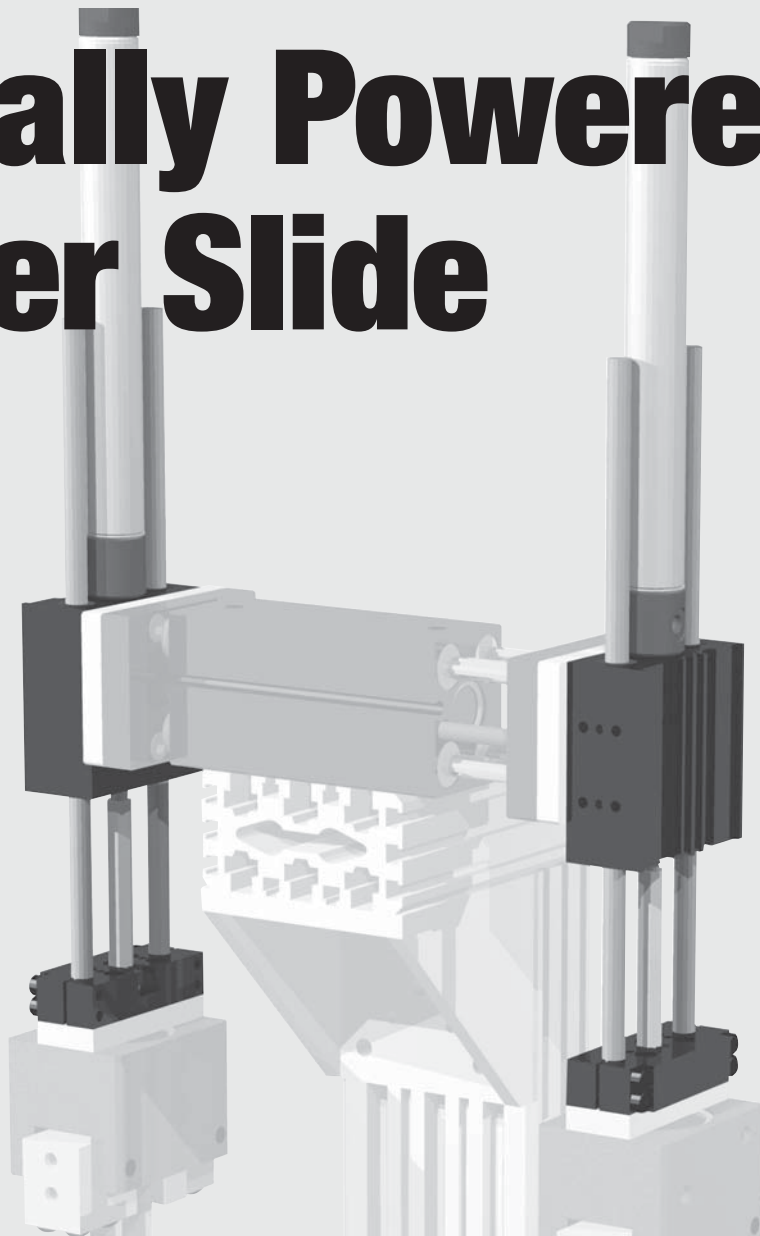


Externally Powered Thruster Slide



DLT SERIES

4.56

Cylinder options:

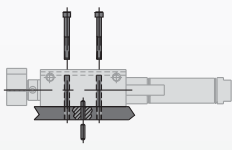
Externally powered thruster slides are available in a wide range of cylinder options. Choose from replaceable/disposable, replaceable with adjustable cushions, NFPA with adjustable cushions, ISO/metric, VDMA, Locking VDMA, or non-powered for customer supplied cylinders.

DIRECTCONNECT mounting patterns:

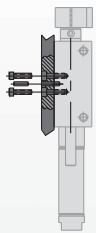
These slides have DIRECTCONNECT mounting patterns that connect to other slides without the need for adapter plates.

Mounting Information:

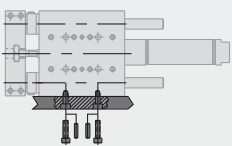
Mounts and operates in any orientation



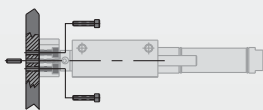
Body can be back mounted with screws from the front using the clearance and counterbored DIRECTCONNECT pattern and located with dowel holes.



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:

Pneumatic Specifications

Pressure Operating Range*
Cylinder Type
Dynamic Seals
Valve Required to Operate

Imperial	Metric
40-100 psi	3-7 bar
Double Acting	
Internally Lubricated Buna-N	
4-way, 2-position	

Air Quality Requirements

Air Filtration
Air Lubrication
Air Humidity

40 Micron or Better
Not Necessary**
Low Moisture Content (dry)

Temperature Operating Range

Buna-N Seals (standard)
Viton® Seals (optional)

-30°~180° F	-35°~80° C
-20°~300° F	-30°~150° C

Maintenance Specifications†

Expected Life
Normal Application
w/ Preventative Maintenance
Field Repairable
Seal Repair Kits Available

5 million cycles
10+ million cycles†
No
No

Application Restrictions

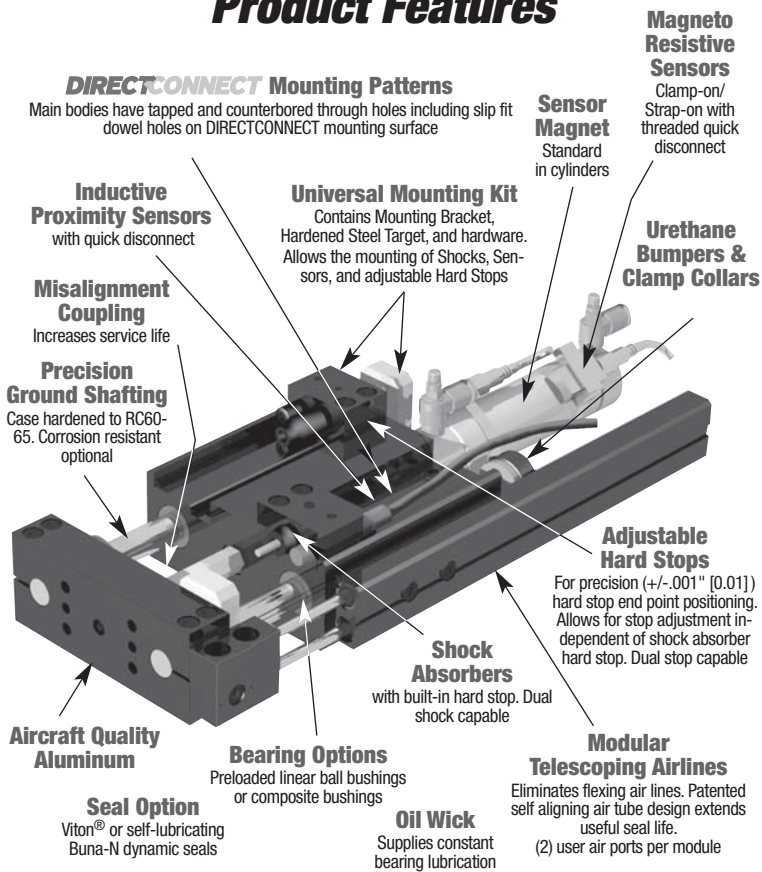
Flow controls, shock absorbers and urethane bumpers recommended for nearly all applications.
Use composite bushing in dirty or gritty environments.
Never use silicone based lubricants with composite bushings.

*Higher pressure possible. Consult factory with application details.

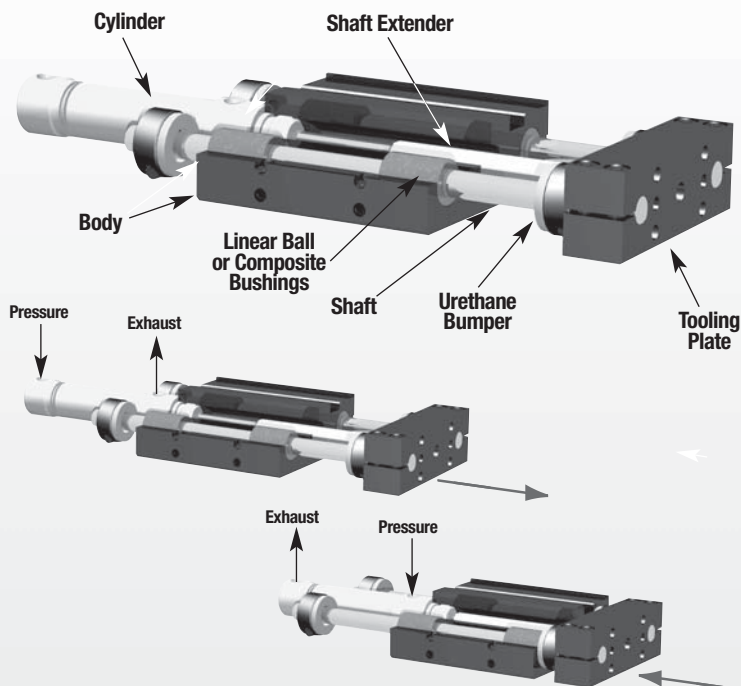
**Addition of lubrication will greatly increase service life

† 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.

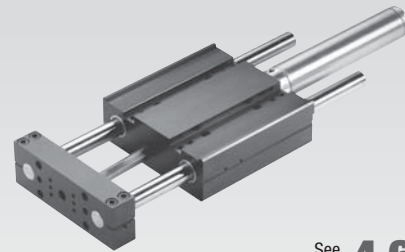
Size -10M (Metric -A only) (shown)
-12M (Metric -A only)
-16M (Metric -A only)



See Page **4.44**

Style -T, A Replaceable Cyl.

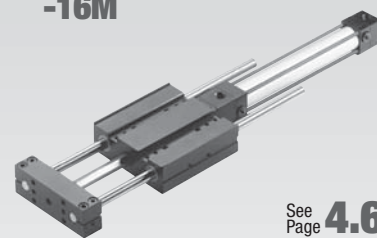
Size -20M (shown)
-25M



See Page **4.62**

Style -N, U Replaceable Cyl.

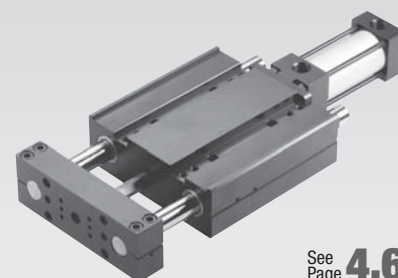
Size -10M (shown)
-12M
-16M



See Page **4.64**

Style -N, R, U Replaceable Cyl.

Size -20M (shown)
-25M



See Page **4.66**

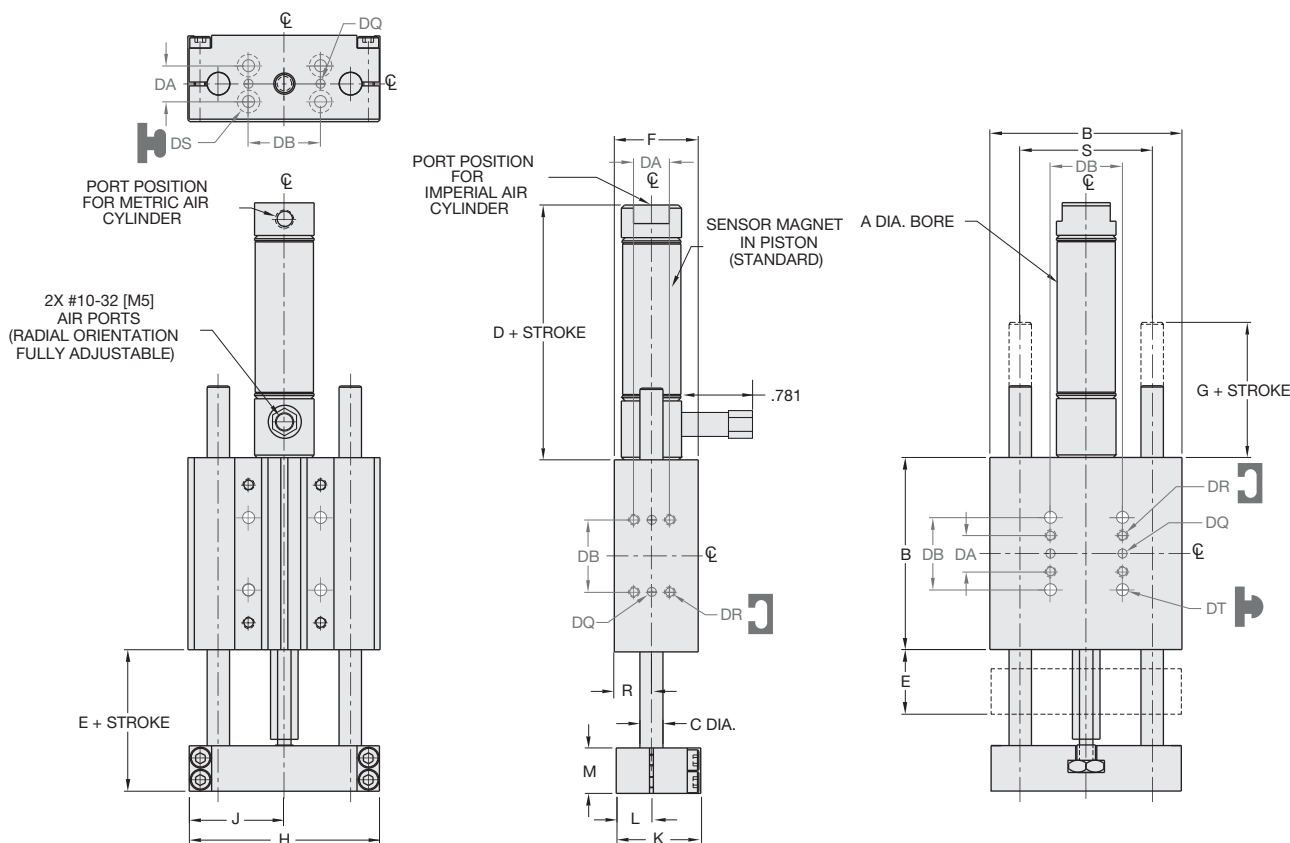
DIRECTCONNECT

DLT SERIES

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DIRECTCONNECT™

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



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

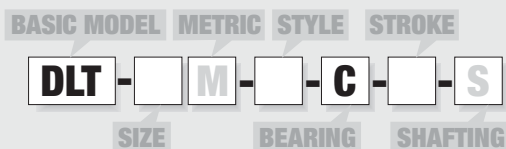
				Imperial in.	Metric [mm]
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

DIRECTCONNECT DIMENSIONS STANDARD MOUNTING PATTERN FOR ALL SIZES

MODEL #	BORE DIA.		BODY SIZE		SHAFT DIA.		BASIC UNIT DIMENSIONS										
	A	B	C	D	E	F	G	H	J	K	L	M	R	S			
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			

	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

How to Order: Basic Unit



SIZE **06, 08**

Oversized guide shafts available. Please consult factory.

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**

Custom strokes available. Please consult factory.

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

Accessories: (Order Separately)

SHOCK/STOP ACCESSORIES

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

INDUCTIVE SENSOR ACCESSORIES†

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

MAGNETIC SENSOR ACCESSORIES**

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

PNEUMATIC ACCESSORIES

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

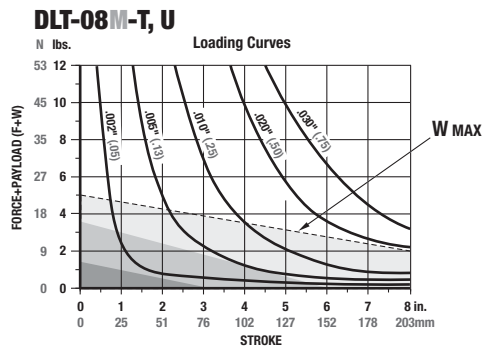
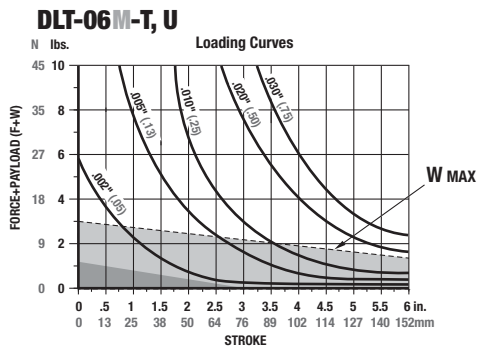
†Sensor and cable sold separately *Piston magnet standard ††Requires Port Standoff

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

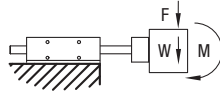
Exc Thruster, Size 8 Metric, Replaceable Cylinder, Linear Ball Bushings, 25mm Stroke



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



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)



Shock Absorbers and Flow Controls are recommended for nearly all applications

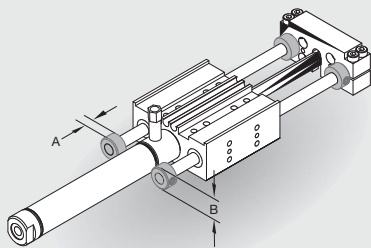
Use **Double Shocks** in both directions Use **Single Shock** in both directions Use **Bumpers or Cushioned Cylinder**

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

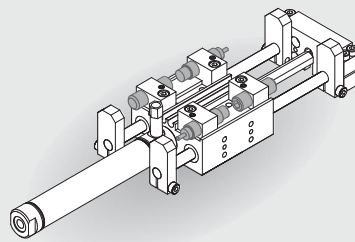
Specifications	DLT-08	DLT-08M
Maximum Air Pressure	100 psi	7 bar
Thrust Force @ 80psi/ 5.5 bar	20 lbs.	89 N
Weight (Basic Unit)	0.88 lbs.	0.40 kg
Additional Weight Per Stroke	0.07 lb/in	1.43 g/mm
Cylinder Bore Diameter	0.563"	16 mm
Shaft Diameter	0.315"	8.0 mm
Max (M) Vertical Motion	10 in.-lbs.	1.3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

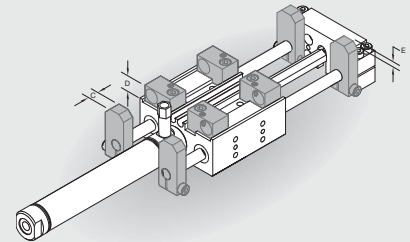


Adjustable Hard Stops

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

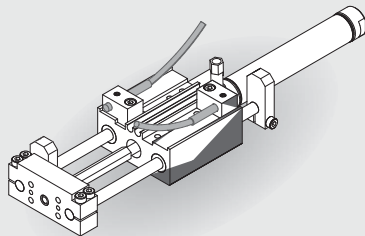
Shock Absorbers

- 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

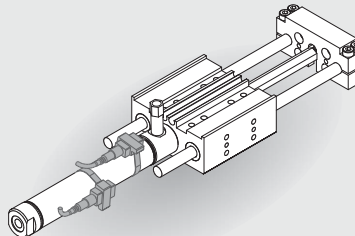


Inductive Proximity Sensors

- 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

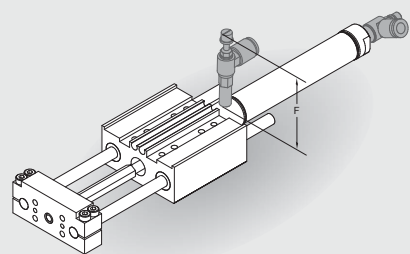


Magneto Resistive Sensors

- 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

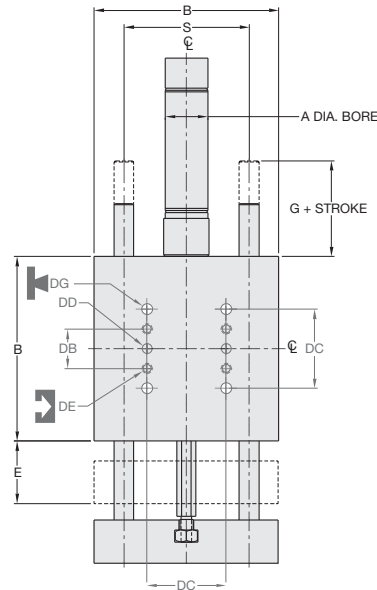
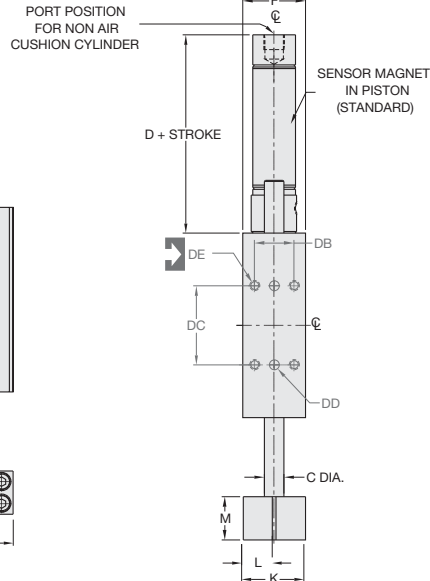
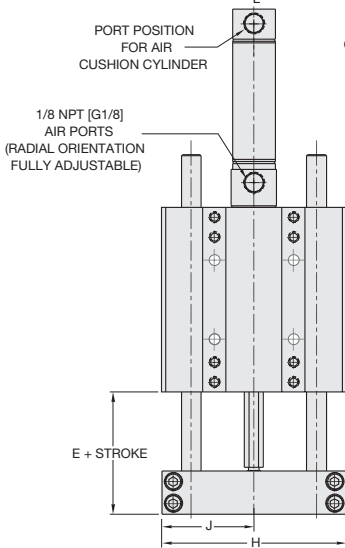
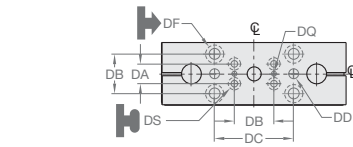
DIRECTCONNECT™

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

DLT SERIES

4.60

DIRECTCONNECT



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

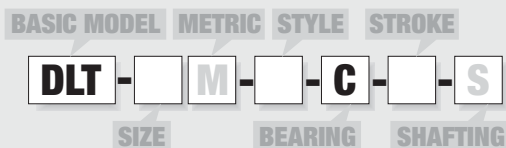
				Imperial in.	Metric [mm]
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or ±.013mm	Metric Threads Course Pitch	0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

DIRECTCONNECT DIMENSIONS STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	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.		BASIC UNIT DIMENSIONS									
	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	1/16	4.00	.472	2.88	1.313	1.63	.82	3.985	1.985	1.615	.802	.813	2.750			
DLT-16	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)** Custom strokes available. Please consult factory.
DLT-10 **1-12** @ 1" increments
DLT-12 **1-16** @ 1" increments
DLT-16 **1-20** @ 1" increments
- 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)

SHOCK/STOP ACCESSORIES

	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
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†

	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
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† **

	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
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

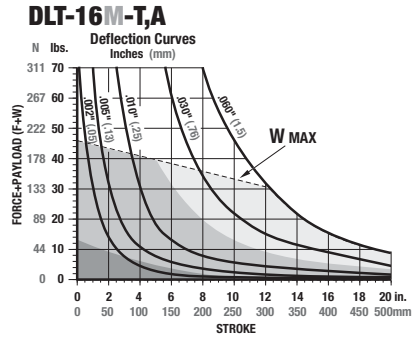
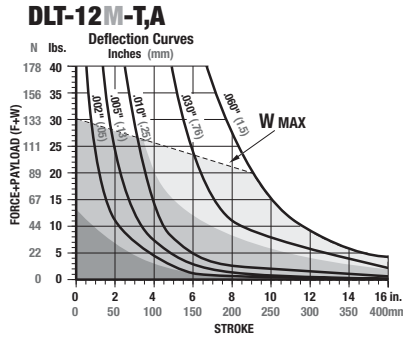
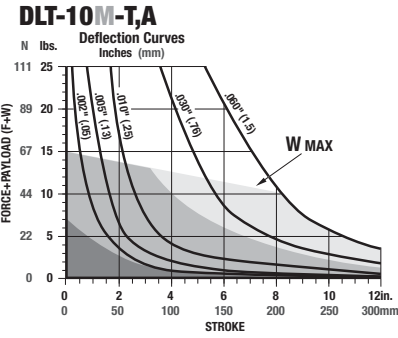
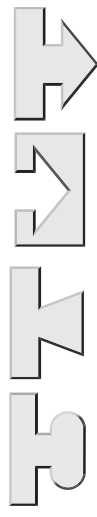
PNEUMATIC ACCESSORIES

	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
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

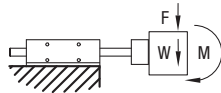
*Requires Universal Mounting Kit †Sensor and cable sold separately **Piston magnet standard



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



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**

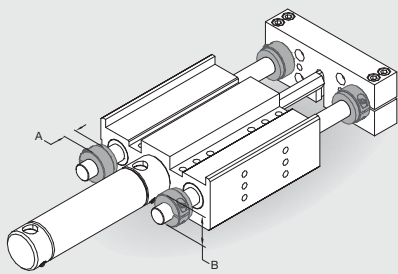
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional acceleration effect of gravity.

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

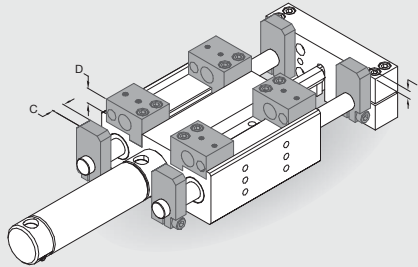
Specifications	DLT-16	DLT-16M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar..	70 lbs.	270 N
Weight (Basic Unit -T, -A)	4.47 lbs.	2.11 kg
Additional Weight per Stroke ..	0.23 lbs./in.	4.2g/mm
Cylinder Bore Diameter	1-1/16"	25mm
Shaft Diameter	0.630"	16mm

Accessory Mounting Technical Data



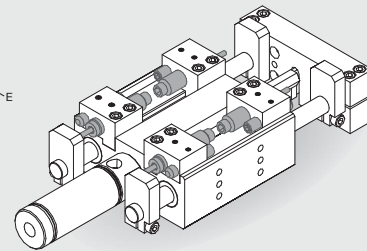
Urethane Bumpers & Clamp Collars

- 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

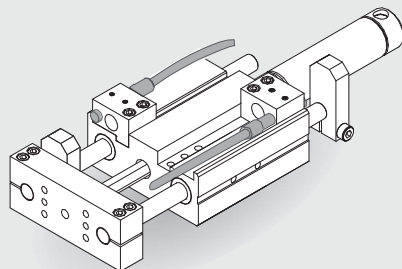


Adjustable Hard Stops

- 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

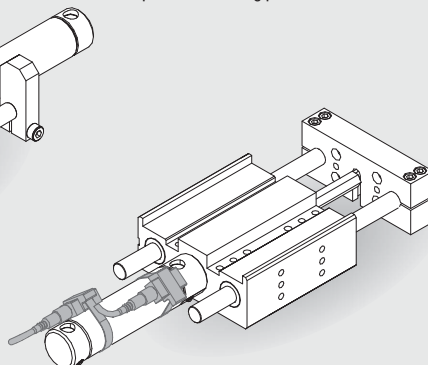


Inductive Proximity Sensors

- 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

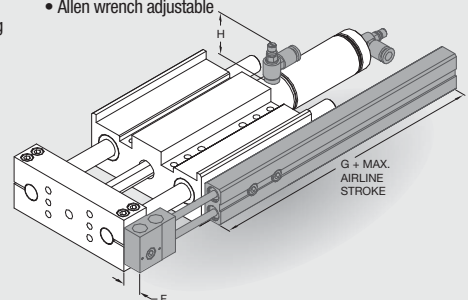


Magneto Resistive Sensors

- 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 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
- 1/8 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

DLT SERIES

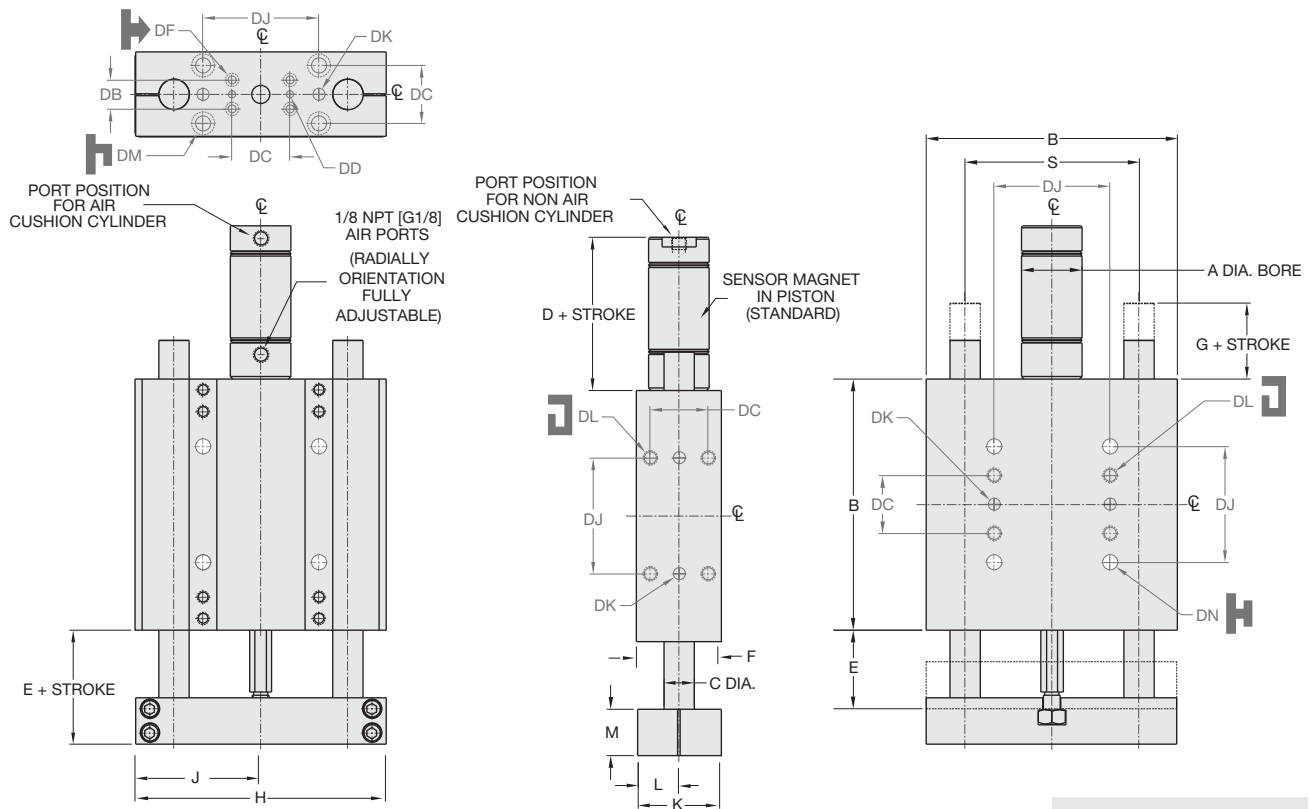
4.61

DIRECTCONNECT™

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

DLT SERIES

4.62



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

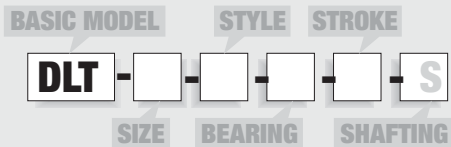
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	Imperial in. 0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	Metric [mm] [0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]
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DIRECTCONNECT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

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

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

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

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

INDUCTIVE SENSOR ACCESSORIES†

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

MAGNETIC SENSOR ACCESSORIES† **

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

PNEUMATIC ACCESSORIES

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

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

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

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

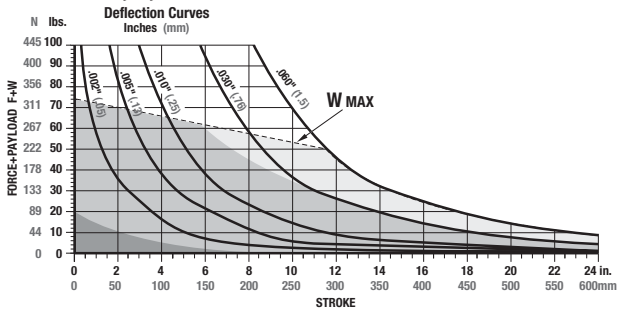
DIRECTCONNECT



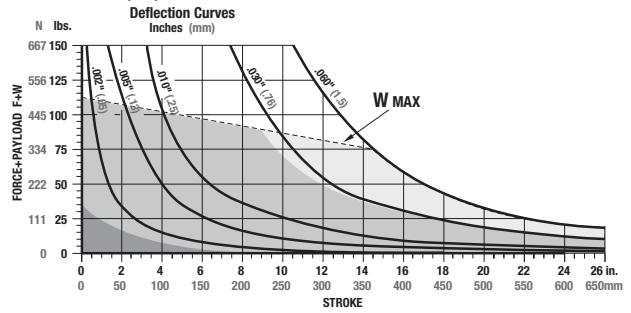
LINEAR THRUSTER DLT-20, 25 -T, A, U REPLACEABLE CYLINDER WITH OR W/O ADJ. AIR CUSHIONS



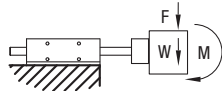
DLT-20-T, A, U



DLT-25-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)



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.

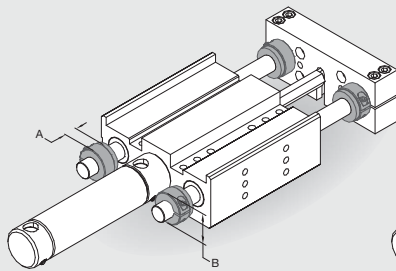
Specifications

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

Specifications

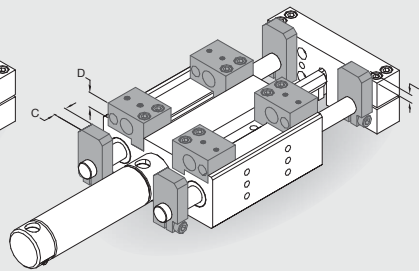
	DLT-25
Maximum Air Pressure.....	100 psi
Thrust Force @ 80psi/5.5bar.....	140 lbs.
Weight (Basic Unit -T, -A).....	17.6 lbs.
Additional Weight per Stroke.....	0.53 lbs./in.
Cylinder Bore Diameter.....	1-1/2"
Shaft Diameter.....	0.984"

Accessory Mounting Technical Data



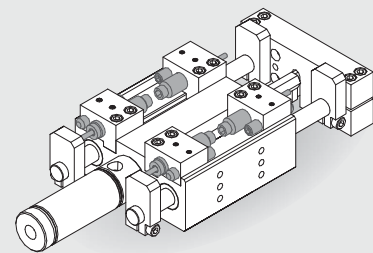
Urethane Bumpers & Clamp Collars

- 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

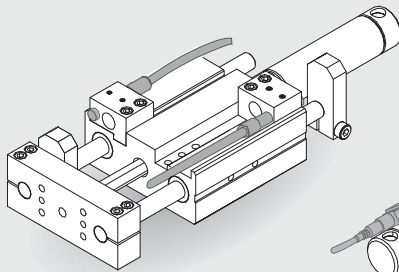


Adjustable Hard Stops

- 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

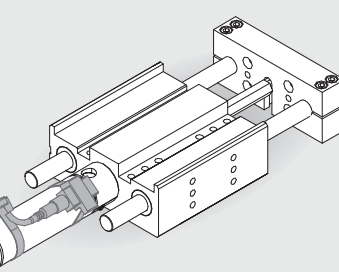


Inductive Proximity Sensors

- 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

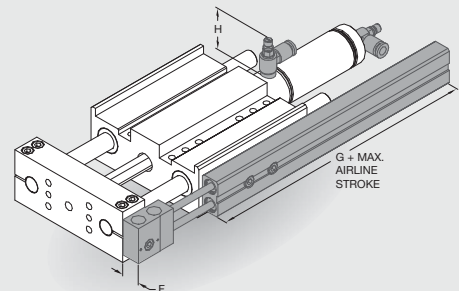


Magneto Resistive Sensors

- 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™

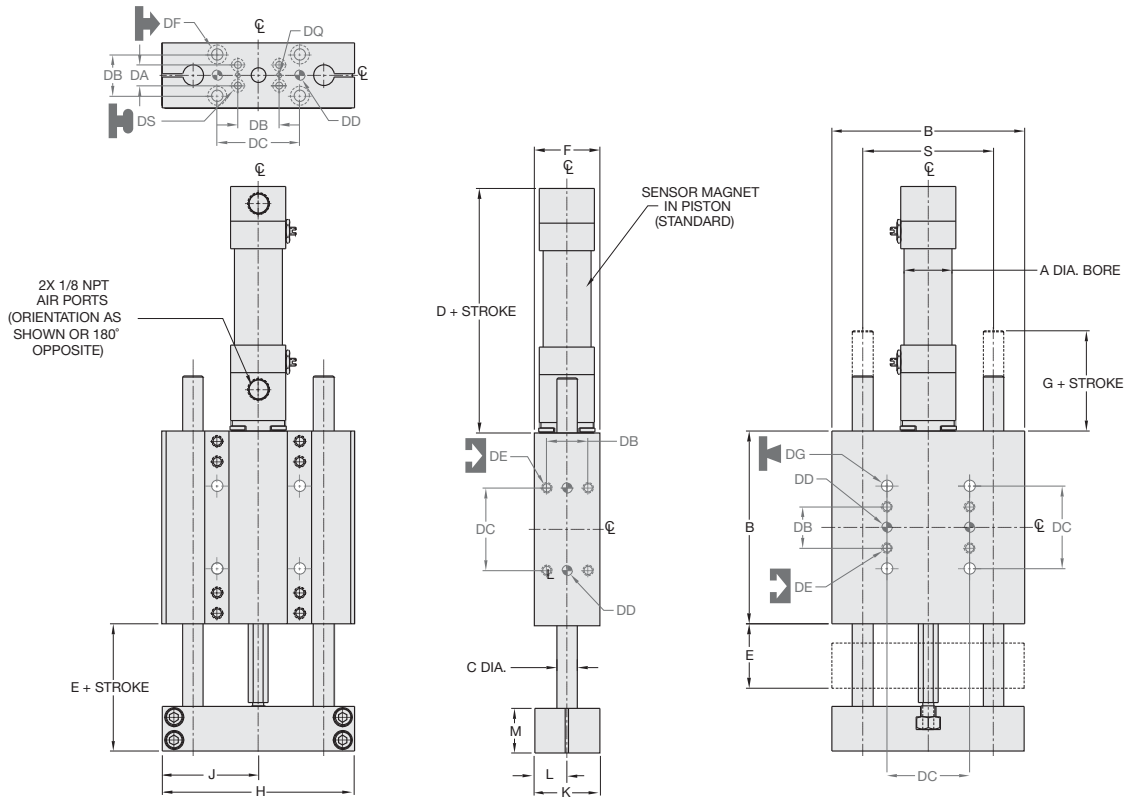


LINEAR THRUSTER DLT -10M, 12M, 16M -N, U REPAIRABLE (NFPA STYLE) CYLINDER w/FIXED AIR CUSHIONS

DLT SERIES

DLT SERIES

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UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

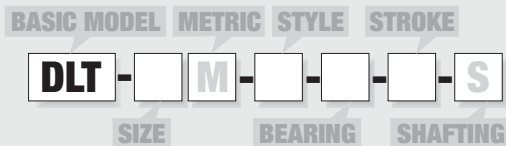
				Imperial in.	Metric [mm]
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or [±.013mm]	Metric Threads Course Pitch	0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

DIRECTCONNECT DIMENSIONS STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)
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

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	

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

Accessories: (Order Separately)

SHOCK/STOP ACCESSORIES

	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
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†

	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
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† **

	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
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

	DLT-10M	DLT-12M	DLT-16M	QTY/THRUSTER
NFPA Cylinder Mounting Kit (-U only)	ODLT-001	ODLT-002	ODLT-002	1
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

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

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

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

DIRECTCONNECT



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

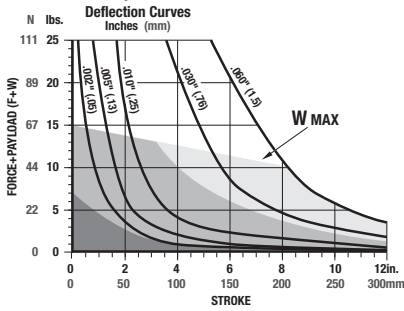


DLT SERIES

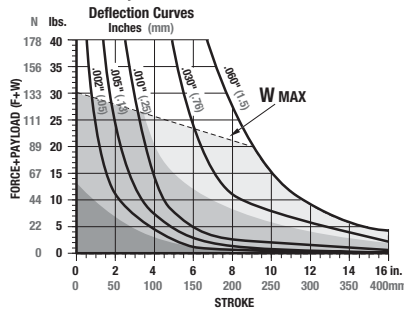
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DIRECTCONNECT™

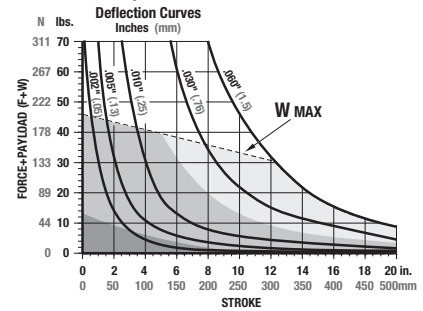
DLT-10-N, U



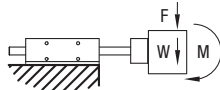
DLT-12-N, U



DLT-16-N, U



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**

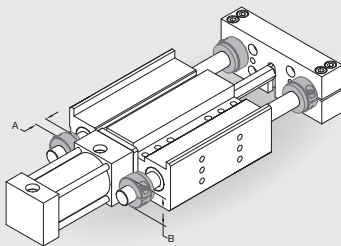
Shaded shock absorption ranges of horizontal payload (W) @ 80psi, flow controls fully open. For vertical applications do not exceed 1/2 of the recommended payload due to the additional acceleration effect of gravity.

Specifications	DLT-10
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	35 lbs.
Weight (Basic Unit -N)	2.2 lbs.
Additional Weight per Stroke	0.08 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"

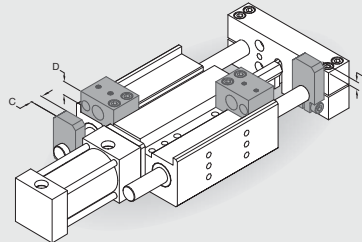
Specifications	DLT-16
Maximum Air Pressure	100 psi
Thrust Force @ 80psi/5.5bar	79 lbs.
Weight (Basic Unit -N)	4.5 lbs.
Additional Weight per Stroke	0.24 lbs./in.
Cylinder Bore Diameter	1-1/8"
Shaft Diameter	0.630"

Accessory Mounting Technical Data



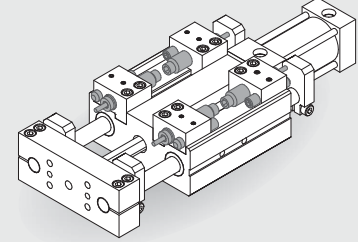
Urethane Bumpers & Clamp Collars

- 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

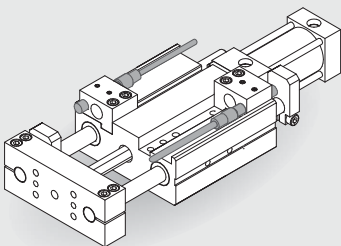


Adjustable Hard Stops

- 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

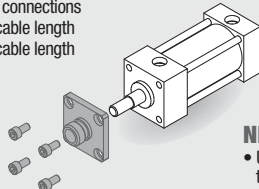


Inductive Proximity Sensors

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

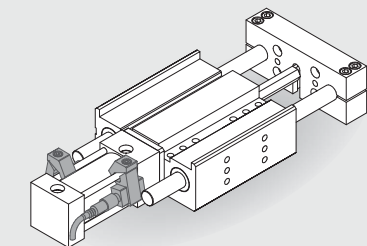
Quick Disconnect Cable

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



NFPA Cylinder Mounting Kit

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

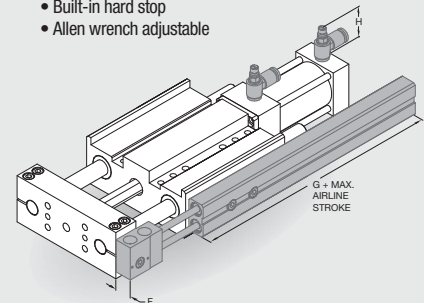


Magneto Resistive Sensors

- 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

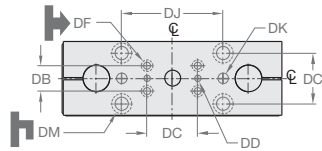
- Thumb screw adjust with locking nut for adjusting cylinder speed
- 1/8 NPT pipe threads

	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



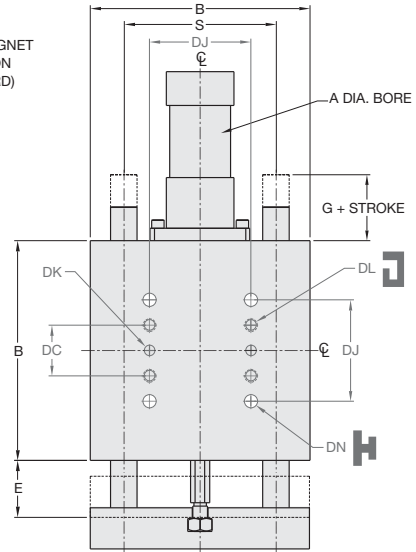
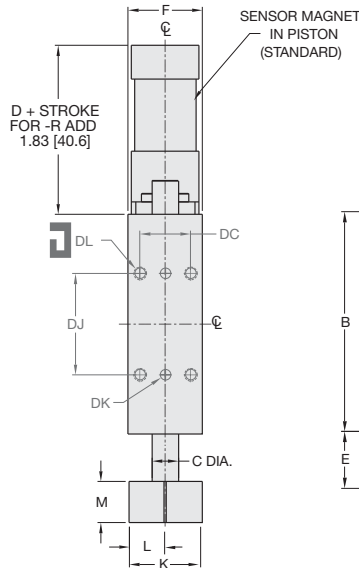
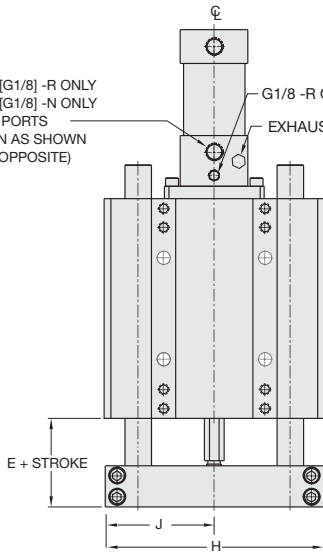
LINEAR THRUSTER DLT -20M, 25M -N, R, U REPAIRABLE (NFPA/VDMA) CYLINDER W/ADJ. AIR CUSHIONS

**New! -R Locking
Cylinder Style**



2X 1/8 NPT [G1/8] -R ONLY
2X 1/4 NPT [G1/8] -N ONLY
AIR PORTS
(ORIENTATION AS SHOWN
OR 180° OPPOSITE)

G1/8 -R ONLY
EXHAUST -R ONLY



UNLESS OTHERWISE NOTED ALL TOLERANCES ARE AS SHOWN BELOW

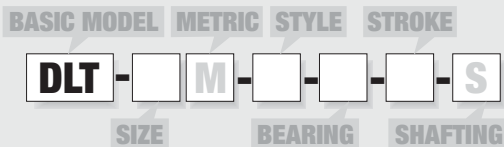
				Imperial in.	Metric [mm]
Dimensions are symmetrical about centerline	Third Angle Projection	All Dowel Holes are SF (Slip Fit). Locational Tolerance ±.0005" or ±.013mm	Metric Threads Course Pitch	0.00 = ±.01 0.000 = ±.005 0.0000 = ±.0005	[0.] = [±.25] [0.0] = [±.13] [0.00] = [±.013]

DIRECTCONNECT DIMENSIONS STANDARD MOUNTING PATTERN FOR ALL SIZES

	Imperial (inches)	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

MODEL #	BORE DIA. -N		BORE DIA. -R		BODY SIZE		SHAFT DIA.		BASIC UNIT DIMENSIONS						
	A	B	C	D	E	F	G	H	J	K	L	M	S		
DLT-20	1/2	32mm	6.50	.787	4.01	1.960	2.20	.960	6.480	3.230	2.180	1.080	1.210	4.500	
DLT-25	1/2	32mm	7.50	.984	4.01	2.170	2.20	1.170	7.480	3.730	2.180	1.080	1.420	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

Custom strokes available.
Please consult factory.

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

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)	OSAK-061	OSAK-063	1, 2, 3 or 4
Urethane Bumper/Clamp Collar Kit	OSAK-062	OSAK-064	1 or 2
Shock Absorber (adjustable dampening)*	SHOK-029	SHOK-029	1, 2, 3 or 4
Adjustable Hard Stop*	DLT-1023	DLT-1023	1, 2, 3 or 4

INDUCTIVE SENSOR ACCESSORIES†

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

MAGNETIC SENSOR ACCESSORIES† **

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

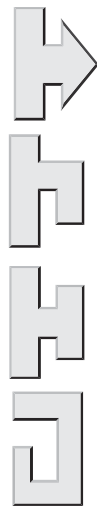
PNEUMATIC ACCESSORIES

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

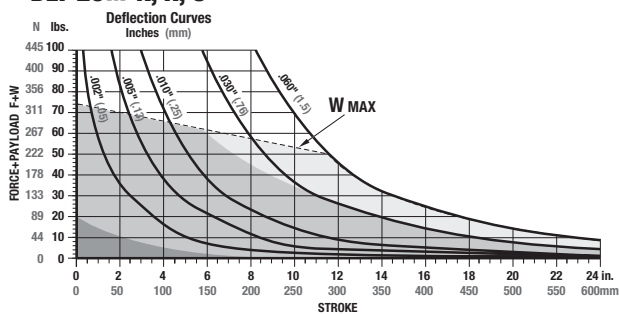
*Requires Universal Mounting Kit †Sensor and cable sold separately. **Piston magnet standard



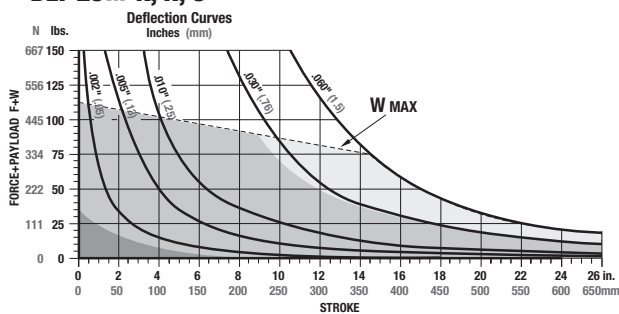
LINEAR THRUSTER DLT -20M, 25M -N, R, U REPAIRABLE (NFPA/VDMA) CYLINDER W/ADJ. AIR CUSHIONS



DLT-20M-N, R, U



DLT-25M-N, R, U

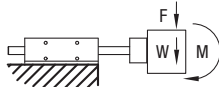


Shock Absorbers and Flow Controls are recommended for nearly all applications

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.

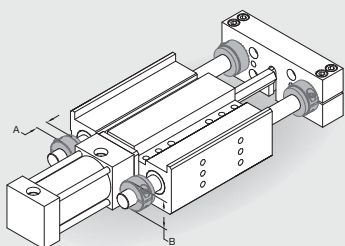
F=Externally applied force (lbs. or N)
W=Weight of payload (lbs. or N)
F+W=Total deflection force (lbs. or N)



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

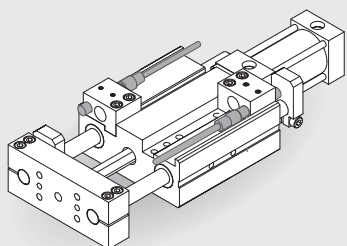
Specifications	DLT-25	DLT-25M
Maximum Air Pressure	100 psi	6.9 bar
Thrust Force @ 80psi/5.5bar	140 lbs.	443N
Weight (Basic Unit -N, -R)	19.2 lbs.	8.5 kg
Additional Weight per Stroke -N, -R	0.68 lbs./in.	10.7g/mm
Cylinder Bore Diameter -N	1-1/2"	32mm
Cylinder Bore Diameter -R	32mm	32mm
Shaft Diameter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

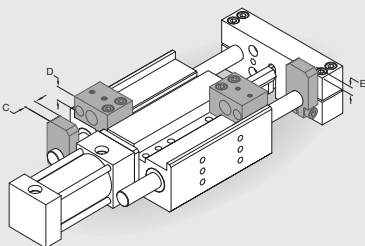
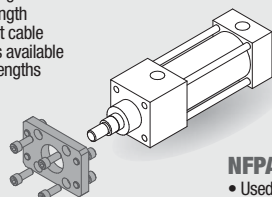


Inductive Proximity Sensors

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

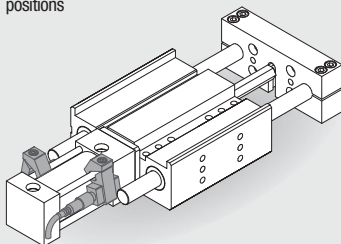
Quick Disconnect Cable

- 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

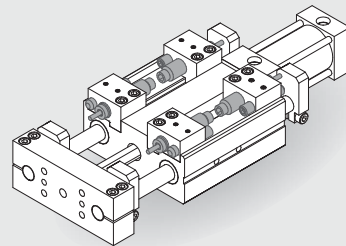


Magneto Resistive Sensors

- 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

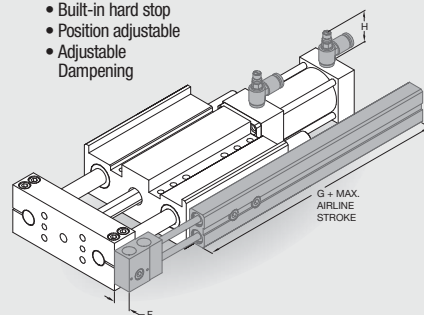


Adjustable Hard Stops

- 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 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
- 1/4 NPT, G1/8 pipe threads or 1/8 NPT

NFPA/VDMA Cylinder Mounting Kit

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

	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

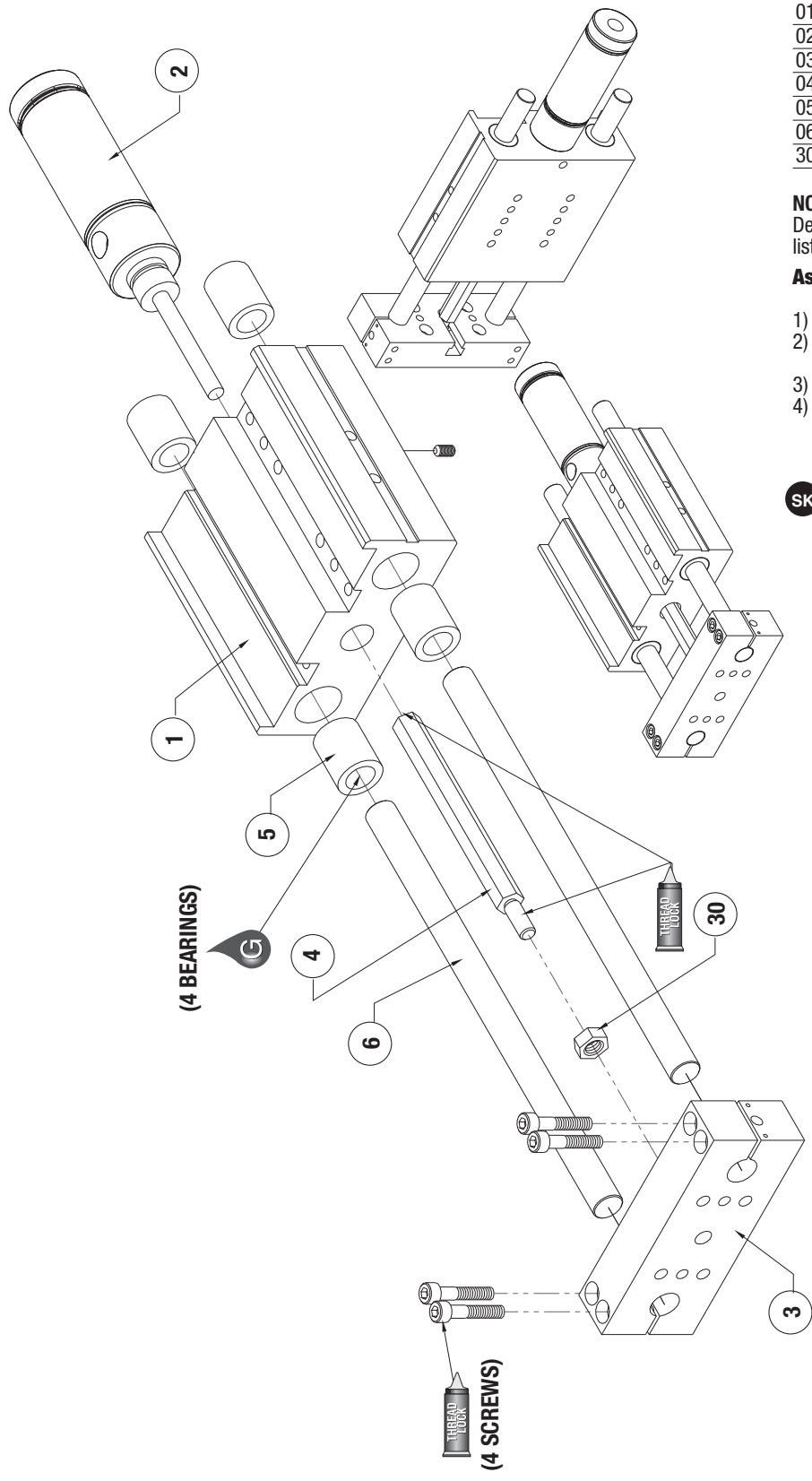
4.67

DIRECTCONNECT™

DLT-T, A, N, R, U SERIES EXPLODED VIEW



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



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.

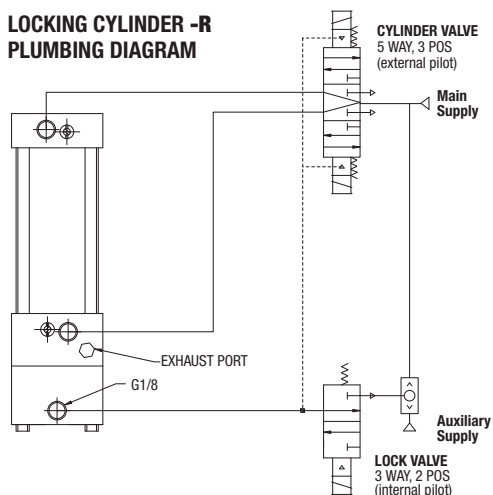
Assembly Procedure

- 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

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

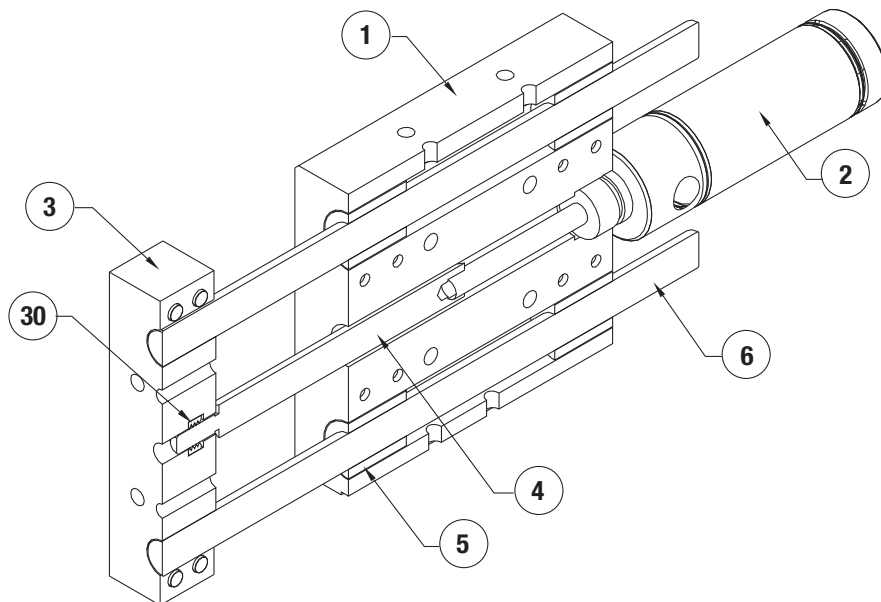


- 1) Lock valve must be maintained energized during cylinder motion, otherwise lock is engaged and cylinder valve shifts to mid position.
- 2) Cylinder valve must be maintained energized during extend or retract. Also, keep energized at end of stroke until change of direction is desired.
- 3) Mid-position 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



DLT -T, A, N, R, U
SERIES
MAINTENANCE
4.69

<p>SK Seal Kit Items</p>	<p>THREAD LOCKER Thread Locker</p>	<p>KRYTOX™ Lubricant</p>	<p>O Lightweight Machine Oil</p>	<p>G Teflon™ Based Grease</p>	<p>GLUE Super Bonder</p>	<p>Third Angle Projection</p>
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