

G110 Series - OEM Pneumatic Parallel Grippers

The G110 series family of grippers include 20 model sizes with varying stroke options. An extended jaw option is offered that is finger compatible with competing products for easier upgrades.

Size	Total Rated Grip Force	Stroke Availability											
		5mm	6mm	10mm	12mm	15mm	18mm	20mm	24mm	25mm	30mm	40mm	50mm
08M	56N [13 lbf]	•		•		•		•		•			
11M	104N [23 lbf]	•		•		•		•		•			
18M	260N [58 lbf]		•		•		•		•		•		
25M	558N [125 lbf]			•				•			•	•	•

T110 Series - OEM Pneumatic Linear Slides

The T110 series family of slide tables include 44 model sizes with varying stroke options. The units follow industry standard footprint for direct drop-in replacement of competing models.

Size	Thrust Force at 7 bar [100 psi]	Stroke Availability								
		10mm	20mm	30mm	40mm	50mm	075mm	100mm	125mm	150mm
06M	29N [7 lbf]	•	•	•	•	•				
08M	53N [12 lbf]	•	•	•	•	•	•			
12M	119N [27 lbf]	•	•	•	•	•	•	•		
16M	211N [47 lbf]	•	•	•	•	•	•	•	•	
20M	330N [74 lbf]	•	•	•	•	•	•	•	•	•
25M	529N [119 lbf]	•	•	•	•	•	•	•	•	•

G110 SERIES

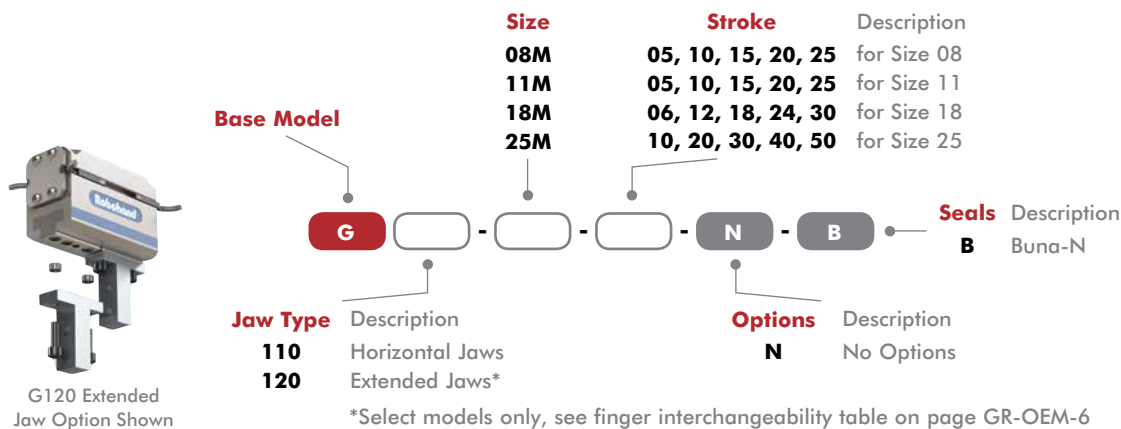
OEM Parallel Grippers | Features and Benefits | How To Order

Features:

- 20 different models sized to match your application needs
- Fast actuations from 60mS
- Multiple stroke options from 5mm to 50mm
- High grip force, small package from 56N to 558N [13 to 125 lbf]
- Shielded design for clean to moderate manufacturing environments
- Interchangeable gripper fingers with competitive units using extended jaw option
- Locating sleeves for precise finger mounting included with gripper



How To Order



Accessories

G110 Common Accessories	Model Numbers	Part Number	Qty/Unit
Sensor, NPN magneto resistive type, 4mm Barrel	All Models	OHSN-021	1-4
Sensor, PNP magneto resistive type, 4mm Barrel	All Models	OHSP-021	1-4
Cable straight, quick disconnect, socket, 3 conductor, 2M length	All Models	CABL-010	1-4

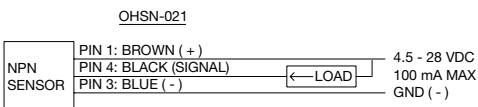
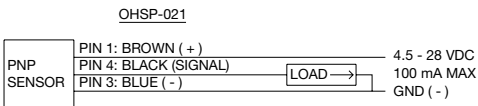
*Sensor and cable sold separately.



Cable Straight, Quick Disconnect, Socket, 3 Conductor, 2M Length



Long Barrel 4mm Straight Sensor



G110-08M, G120-08M	Part Number	Qty/Unit
Pneumatic air fitting, straight M3 screw to 3mm tube push-in	PLFT-021	2
Jaw locating sleeve for precise finger mounting	20961-11	4
Seal Kit (includes): End gasket G110-08M (Qty 2) Seal: U-cup Buna replacement seal (Qty 4) Button head socket cap screws (Qty 8)	SLKT-244	1
G110-11M, G120-11M	Part Number	Qty/Unit
Pneumatic air fitting, straight M3 screw to 3mm tube push-in	PLFT-021	2
Jaw locating sleeve for precise finger mounting	20961-11	4
Seal Kit (includes): End gasket G110-11M (Qty 2) Seal: U-cup Buna replacement seal (Qty 4) Button head socket cap screws (Qty 8)	SLKT-245	1
G110-18M, G120-18M	Part Number	Qty/Unit
Pneumatic air fitting, right angle, M5 screw to 6mm tube push-in	PLFT-041	2
Valve kit, failsafe, M5 ports	OFSV-004	1
Jaw locating sleeve for precise finger mounting	20962-11	4
Seal Kit (includes): End gasket G110-18M (Qty 2) Seal: U-cup Buna replacement seal (Qty 4) Button head socket cap screws (Qty 8)	SLKT-246	1
G110-25M, G120-25M	Part Number	Qty/Unit
Pneumatic air fitting, right angle, M5 screw to 6mm tube push-in	PLFT-041	2
Valve kit, failsafe, M5 ports	OFSV-004	1
Jaw locating sleeve for precise finger mounting	20963-11	4
Seal Kit (includes): End gasket G110-25M (Qty 2) Seal: U-cup Buna replacement seal (Qty 4) Button head socket cap screws (Qty 8)	SLKT-247	1



Pneumatic Air Fittings



End Gasket



Jaw Locating Sleeve for
Precise Finger Mounting



Valve Kit, Failsafe, M5 Ports



U-cup Buna Replacement Seal



Button Head Socket Cap Screws

G110 SERIES

OEM Parallel Grippers | Quick Installation Kits

Commissioning Kits for Easy Ordering

- Includes just what you need for easy installation
- One quick installation kit required per gripper
- Fast, simple convenient ordering



2 Sensors



2 Air Fittings



4 Jaw Locating Finger Sleeves



4 Finger Mounting Screws

G110-08M, G120-08M	Includes	Part Number	Qty/Kit
Sensor, PNP magneto resistive type, 4mm barrel	OHSP-021	G110-QKST-101	2
Pneumatic air fitting, M3 screw to 3mm tube push-in	PLFT-021		2
Jaw locating sleeve for precise finger mounting	20961-11		4
Finger mounting screws	SHSM025C10		4
G110-11M, G120-11M	Includes	Part Number	Qty/Kit
Sensor, PNP magneto resistive type, 4mm barrel	OHSP-021	G110-QKST-102	2
Pneumatic air fitting, M3 screw to 3mm tube push-in	PLFT-021		2
Jaw locating sleeve for precise finger mounting	20961-11		4
Finger mounting screws	SHSM03C10		4
G110-18M, G120-18M	Includes	Part Number	Qty/Kit
Sensor, PNP magneto resistive type, 4mm barrel	OHSP-021	G110-QKST-103	2
Pneumatic air fitting, right angle, M5 screw to 6mm tube push-in	PLFT-041		2
Jaw locating sleeve for precise finger mounting	20962-11		4
Finger mounting screws	SHSM04C12		4
G110-25M, G120-25M	Includes	Part Number	Qty/Kit
Sensor, PNP magneto resistive type, 4mm barrel	OHSP-021	G110-QKST-104	2
Pneumatic air fitting, right angle, M5 screw to 6mm tube push-in	PLFT-041		2
Jaw locating sleeve for precise finger mounting	20963-11		4
Finger mounting screws	SHSM05C16		4

G110 Series Interchangeable Fingers with Extended Gripper Jaw Option. Fast Gripper Commissioning

- Re-use your existing gripper fingers
- Same finger mounting hole pattern as competitive units
- G110 Series Grippers Deliver:
 - Low Maintenance Shielded Design
 - Smooth Rack and Pinion Operation
 - Fast actuations from 60mS
 - Low height profile
 - All-in-one Commissioning Kits

G120 Extended Jaw Option: 100% Finger Compatible



G120 Extended Jaw Option, Finger Interchangeability Table*

(G120 units ship with extended jaw option installed)

Extended Jaw Option Part Number	Mounts to G110 Series Part Number	Compatible with SMC Part Number	Application Notes
G110-FNGR-08M-05	G110-08M-05-N-B	MHZ2-10	G110 has 1mm extra stroke, 9N extra force
G110-FNGR-08M-10	G110-08M-10-N-B	MHZL2-10	G110 has 2mm extra stroke, 10N extra force
G110-FNGR-11M-05	G110-11M-05-N-B	MHZ2-16	G110 has 1mm extra stroke, 13N less force
G110-FNGR-11M-10	G110-11M-10-N-B	MHZL2-16	G110 has 2mm extra stroke, 11N less force
G110-FNGR-18M-12	G110-18M-12-N-B	MHZ2-25	G110 has 2mm extra stroke, 24N extra force
G110-FNGR-18M-24	G110-18M-24-N-B	MHZL2-25	G110 has 2mm extra stroke, 46N extra force
G110-FNGR-25M-20	G110-25M-20-N-B	MHZ2-32	G110 has 2mm extra stroke, 20N less force

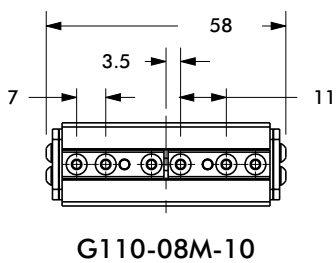
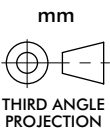
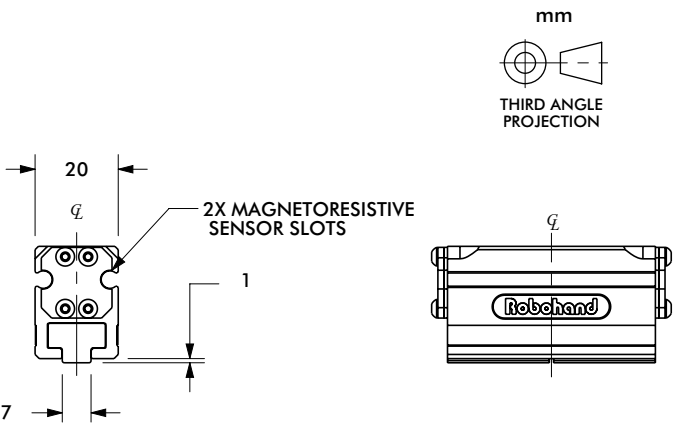
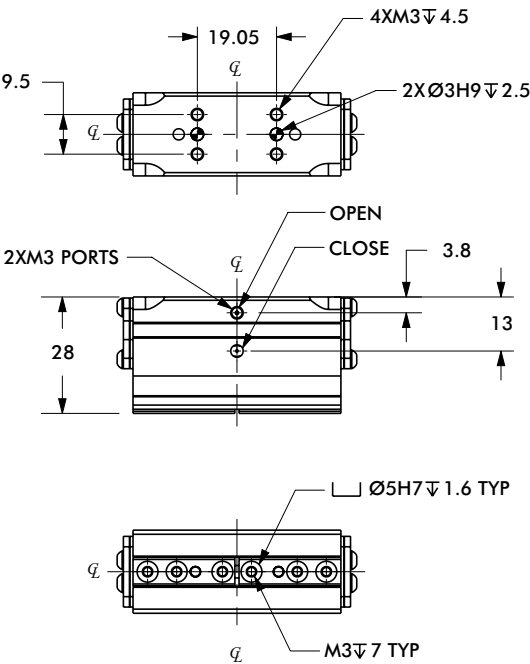
*Verify acceptable stroke and force changes in the table above for your application.
 G120 units are shipped with the extended jaw option mounted from factory.
 SMC is a registered trademark of SMC Corporation.

G110-08M

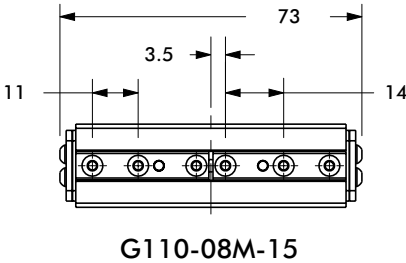
OEM Parallel Grippers | Dimensions and Technical Specifications



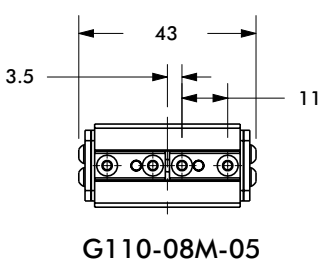
Specifications	Units	08M
Total Rated Grip Force	N [lbf]	56 [13]
Pressure Range	bar [psi]	3-7 [40-100]
Cylinder Bore Diameter	mm [in]	8 [0.31]
Temperature Range (Buna-N Seals)	°C [°F]	-35°~80° [-30°~180°]
Accuracy	mm [in]	±.05 [0.002]
Repeatability	mm [in]	±.05 [0.002]
Valve Required to Actuate		4 way 2 position



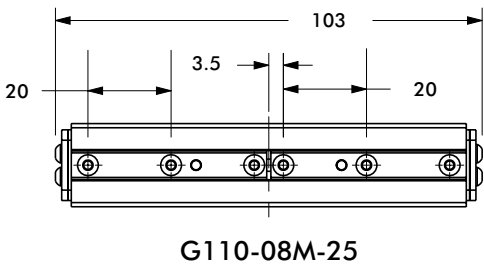
G110-08M-10



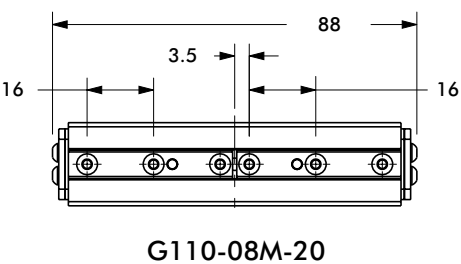
G110-08M-15



G110-08M-05

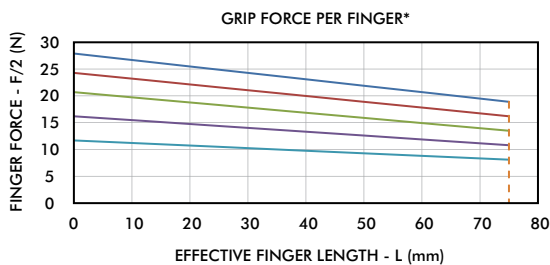
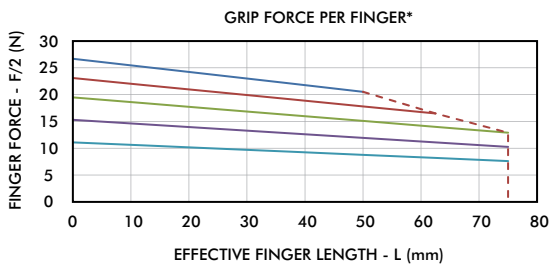
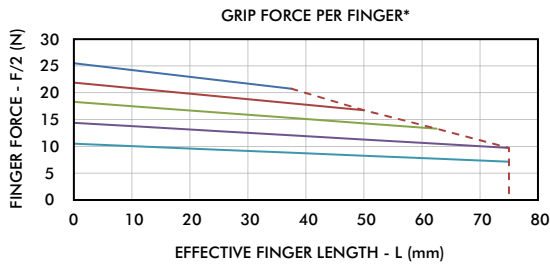
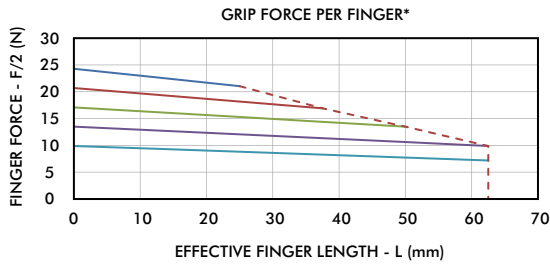
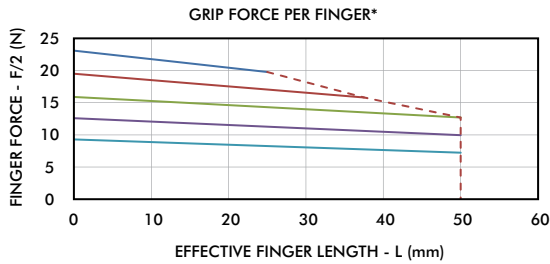


G110-08M-25



G110-08M-20

OEM Parallel Grippers | Technical Specifications



Specifications	Units	08M-05
Stroke	mm [in]	5 [0.20]
Weight	kg [lbs]	0.06 [0.13]
Displacement	cc [cu-in]	0.3 [0.02]
Actuation (open/close)	sec.	0.06
Max Tensile Load on Jaws	N [lbf]	156 [35]
Max Compressive Load on Jaws	N [lbf]	356 [80]
Max Moment on Jaws	Nm [in-lbs]	3.4 [30]

Specifications	Units	08M-10
Stroke	mm [in]	10 [0.39]
Weight	kg [lbs]	0.09 [0.20]
Displacement	cc [cu-in]	0.5 [0.03]
Actuation (open/close)	sec.	0.07
Max Tensile Load on Jaws	N [lbf]	178 [40]
Max Compressive Load on Jaws	N [lbf]	378 [86]
Max Moment on Jaws	Nm [in-lbs]	4 [35]

Specifications	Units	08M-15
Stroke	mm [in]	15 [0.59]
Weight	kg [lbs]	0.11 [0.24]
Displacement	cc [cu-in]	0.7 [0.05]
Actuation (open/close)	sec.	0.08
Max Tensile Load on Jaws	N [lbf]	200 [45]
Max Compressive Load on Jaws	N [lbf]	400 [90]
Max Moment on Jaws	Nm [in-lbs]	4.6 [40]

Specifications	Units	08M-20
Stroke	mm [in]	20 [0.79]
Weight	kg [lbs]	0.14 [0.31]
Displacement	cc [cu-in]	1.0 [0.06]
Actuation (open/close)	sec.	0.09
Max Tensile Load on Jaws	N [lbf]	222 [50]
Max Compressive Load on Jaws	N [lbf]	423 [95]
Max Moment on Jaws	Nm [in-lbs]	5.0 [45]

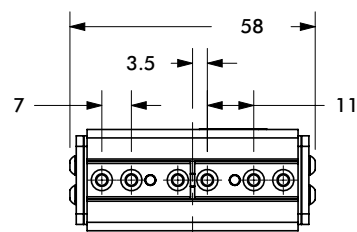
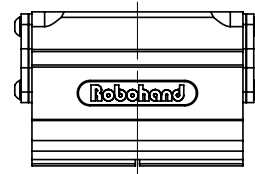
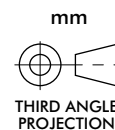
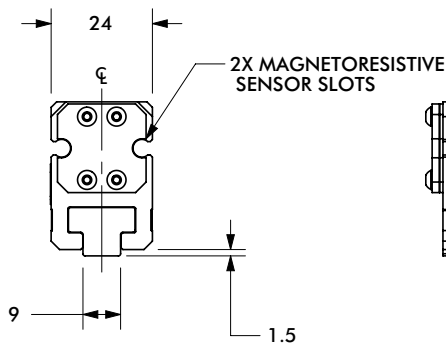
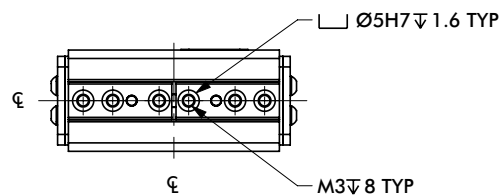
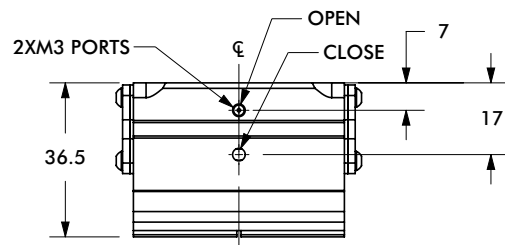
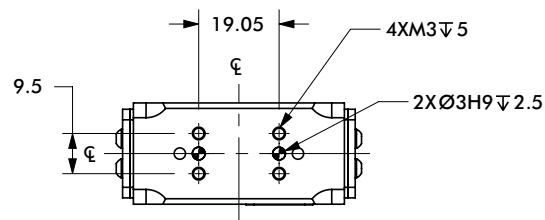
Specifications	Units	08M-25
Stroke	mm [in]	25 [0.98]
Weight	kg [lbs]	0.17 [0.37]
Displacement	cc [cu-in]	1.2 [0.08]
Actuation (open/close)	sec.	0.10
Max Tensile Load on Jaws	N [lbf]	245 [55]
Max Compressive Load on Jaws	N [lbf]	445 [100]
Max Moment on Jaws	Nm [in-lbs]	5.6 [50]

G110-11M

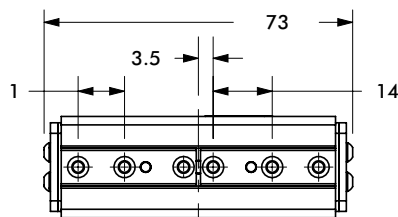
OEM Parallel Grippers | Dimensions and Technical Specifications



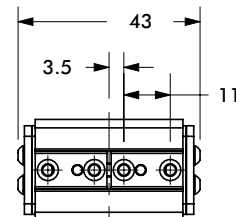
Specifications	Units	11M
Total Rated Grip Force	N [lbf]	104 [23]
Pressure Range	bar [psi]	3-7 [40-100]
Cylinder Bore Diameter	mm [in]	11 [0.44]
Temperature Range (Buna-N Seals)	°C [°F]	-35°~80° [-30°~180°]
Accuracy	mm [in]	±.05 [0.002]
Repeatability	mm [in]	±.05 [0.002]
Valve Required to Actuate		4 way 2 position



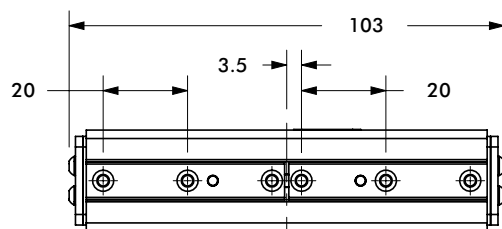
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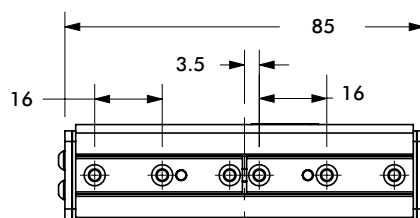
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G110-11M-05

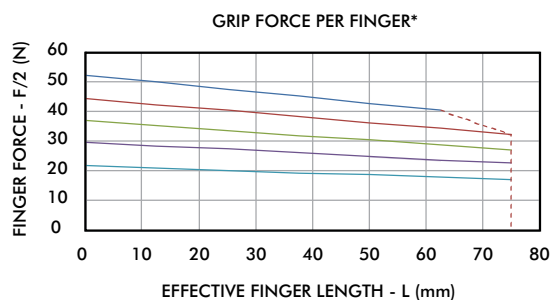
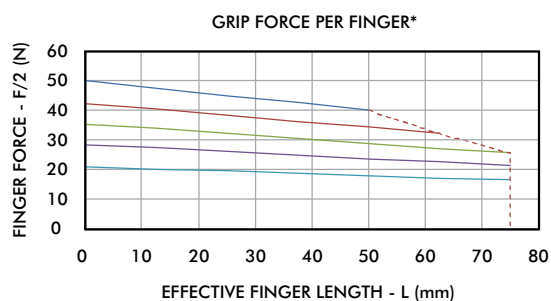
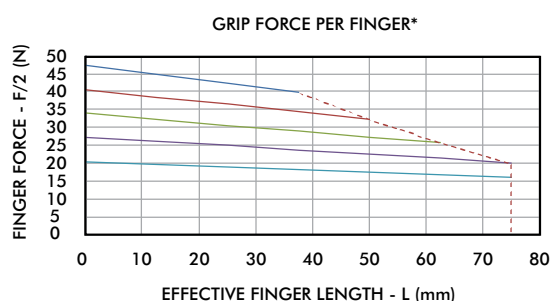
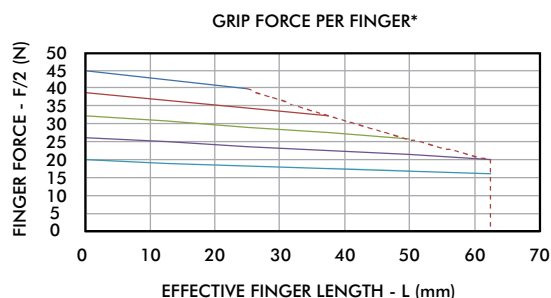
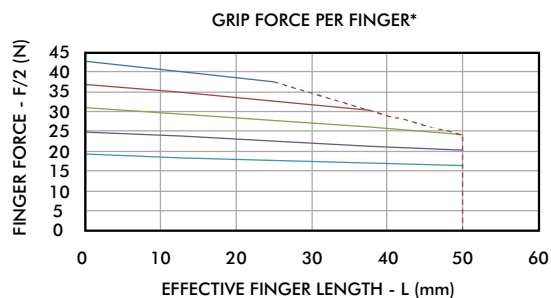


G110-11M-25



G110-11M-20

OEM Parallel Grippers | Technical Specifications



Specifications	Units	11M-05
Stroke	mm [in]	5 [0.20]
Weight	kg [lbs]	0.09 [0.20]
Displacement	cc [cu-in]	0.5 [0.03]
Actuation (open/close)	sec.	0.08
Max Tensile Load on Jaws	N [lbf]	311 [70]
Max Compressive Load on Jaws	N [lbf]	712 [160]
Max Moment on Jaws	Nm [in-lbs]	7 [60]

Specifications	Units	11M-10
Stroke	mm [in]	10 [0.39]
Weight	kg [lbs]	0.13 [0.29]
Displacement	cc [cu-in]	1.0 [0.06]
Actuation (open/close)	sec.	0.09
Max Tensile Load on Jaws	N [lbf]	350 [80]
Max Compressive Load on Jaws	N [lbf]	750 [170]
Max Moment on Jaws	Nm [in-lbs]	8 [70]

Specifications	Units	11M-15
Stroke	mm [in]	15 [0.59]
Weight	kg [lbs]	0.17 [0.37]
Displacement	cc [cu-in]	1.5 [0.09]
Actuation (open/close)	sec.	0.10
Max Tensile Load on Jaws	N [lbf]	400 [90]
Max Compressive Load on Jaws	N [lbf]	800 [180]
Max Moment on Jaws	Nm [in-lbs]	9 [80]

Specifications	Units	11M-20
Stroke	mm [in]	20 [0.79]
Weight	kg [lbs]	0.21 [0.46]
Displacement	cc [cu-in]	1.9 [0.12]
Actuation (open/close)	sec.	0.11
Max Tensile Load on Jaws	N [lbf]	445 [100]
Max Compressive Load on Jaws	N [lbf]	845 [190]
Max Moment on Jaws	Nm [in-lbs]	10 [90]

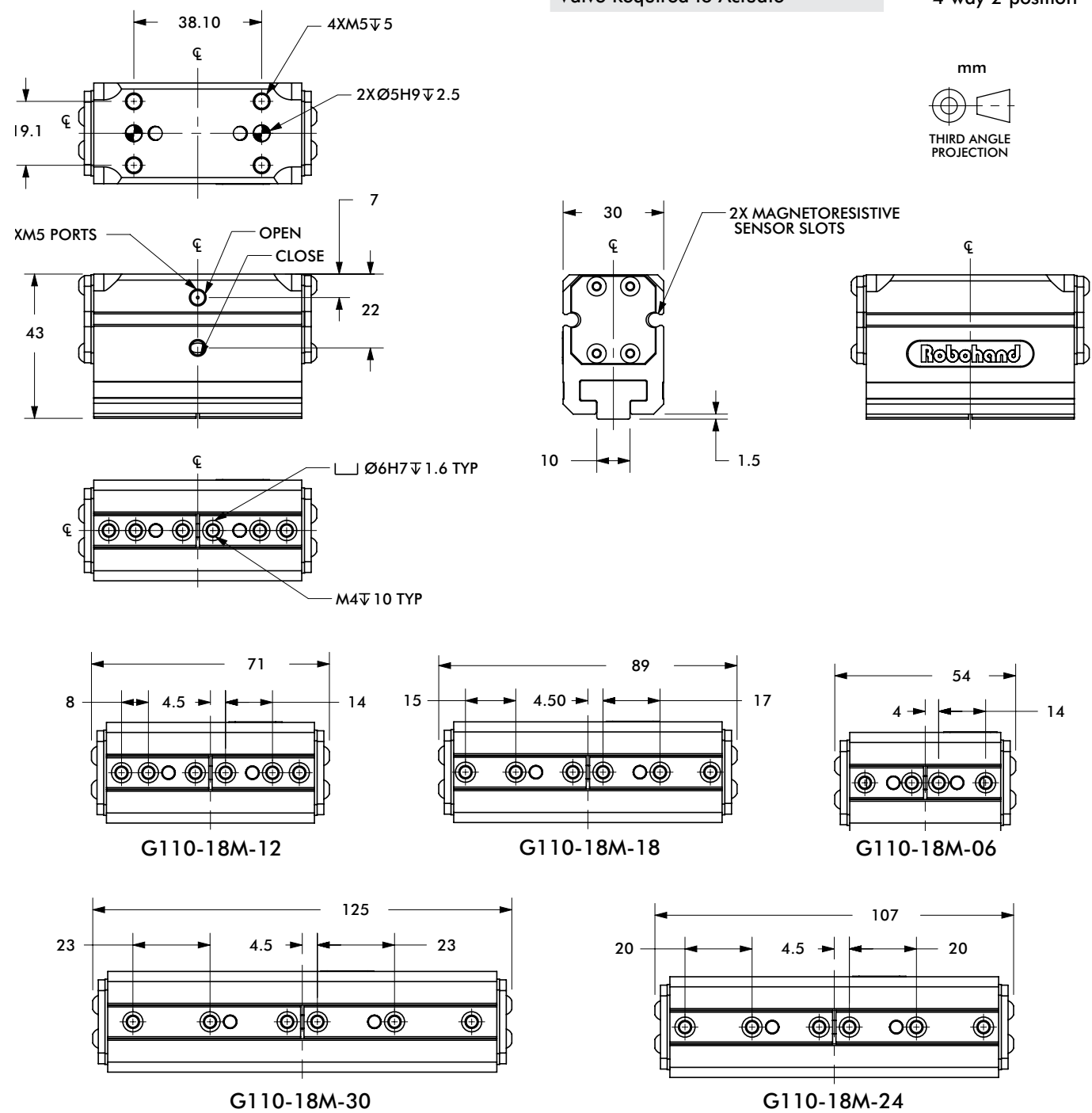
Specifications	Units	11M-25
Stroke	mm [in]	25 [0.98]
Weight	kg [lbs]	0.25 [0.55]
Displacement	cc [cu-in]	1.2 [0.15]
Actuation (open/close)	sec.	0.12
Max Tensile Load on Jaws	N [lbf]	490 [110]
Max Compressive Load on Jaws	N [lbf]	890 [200]
Max Moment on Jaws	Nm [in-lbs]	11 [100]

G110-18M

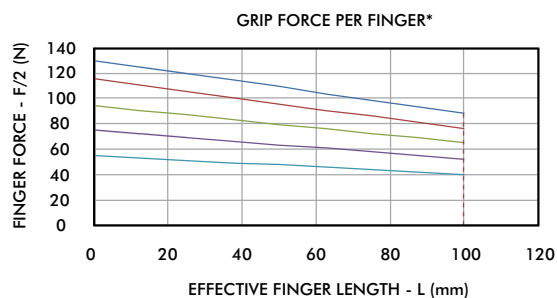
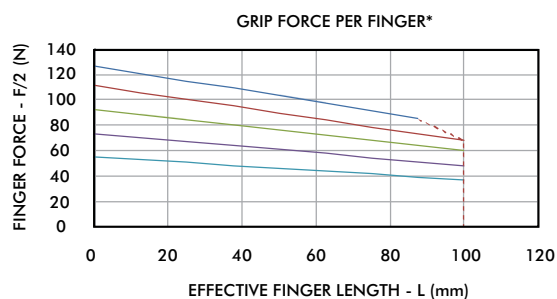
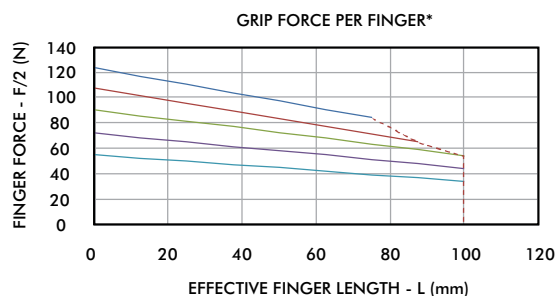
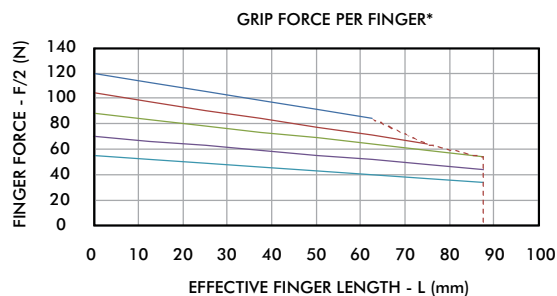
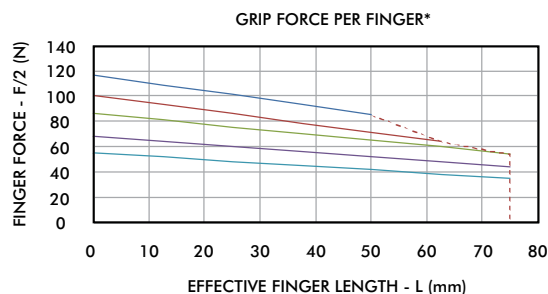
OEM Parallel Grippers | Dimensions and Technical Specifications



Specifications	Units	18M
Total Rated Grip Force	N [lbf]	260 [58]
Pressure Range	bar [psi]	3-7 [40-100]
Cylinder Bore Diameter	mm [in]	17.5 [0.69]
Temperature Range (Buna-N Seals)	°C [°F]	-35°~80° [-30°~180°]
Accuracy	mm [in]	±.05 [0.002]
Repeatability	mm [in]	±.05 [0.002]
Valve Required to Actuate		4 way 2 position



OEM Parallel Grippers | Technical Specifications



Specifications	Units	18M-06
Stroke	mm [in]	6 [0.24]
Weight	kg [lbs]	0.20 [0.44]
Displacement	cc [cu-in]	1.5 [0.09]
Actuation (open/close)	sec.	0.09
Max Tensile Load on Jaws	N [lbf]	778 [175]
Max Compressive Load on Jaws	N [lbf]	1779 [400]
Max Moment on Jaws	Nm [in-lbs]	17 [150]

Specifications	Units	18M-12
Stroke	mm [in]	12 [0.47]
Weight	kg [lbs]	0.22 [0.48]
Displacement	cc [cu-in]	2.9 [0.18]
Actuation (open/close)	sec.	0.13
Max Tensile Load on Jaws	N [lbf]	890 [200]
Max Compressive Load on Jaws	N [lbf]	1890 [425]
Max Moment on Jaws	Nm [in-lbs]	20 [175]

Specifications	Units	18M-18
Stroke	mm [in]	18 [0.71]
Weight	kg [lbs]	0.28 [0.62]
Displacement	cc [cu-in]	4.3 [0.26]
Actuation (open/close)	sec.	0.17
Max Tensile Load on Jaws	N [lbf]	1000 [225]
Max Compressive Load on Jaws	N [lbf]	2000 [450]
Max Moment on Jaws	Nm [in-lbs]	23 [200]

Specifications	Units	18M-24
Stroke	mm [in]	24 [0.94]
Weight	kg [lbs]	0.34 [0.75]
Displacement	cc [cu-in]	5.8 [0.35]
Actuation (open/close)	sec.	0.21
Max Tensile Load on Jaws	N [lbf]	1112 [250]
Max Compressive Load on Jaws	N [lbf]	2113 [475]
Max Moment on Jaws	Nm [in-lbs]	25 [225]

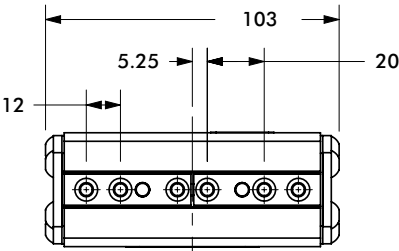
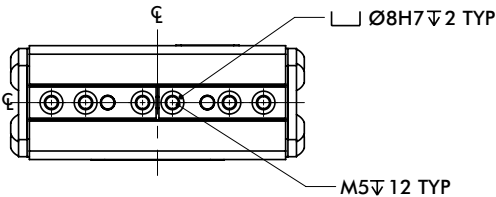
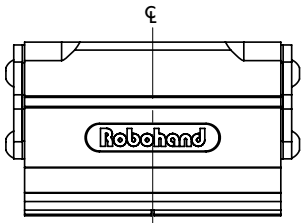
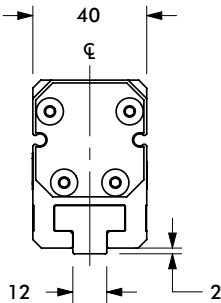
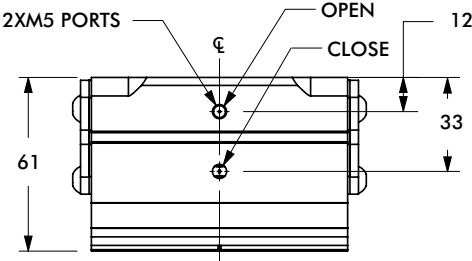
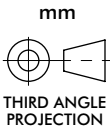
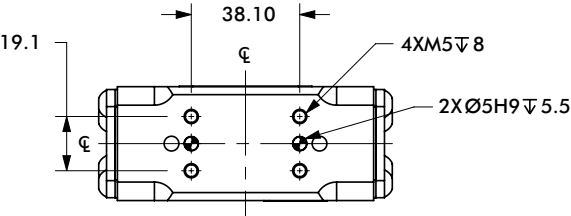
Specifications	Units	18M-30
Stroke	mm [in]	30 [1.18]
Weight	kg [lbs]	0.41 [0.90]
Displacement	cc [cu-in]	7.2 [0.44]
Actuation (open/close)	sec.	0.25
Max Tensile Load on Jaws	N [lbf]	1223 [275]
Max Compressive Load on Jaws	N [lbf]	2225 [500]
Max Moment on Jaws	Nm [in-lbs]	28 [250]

G110-25M

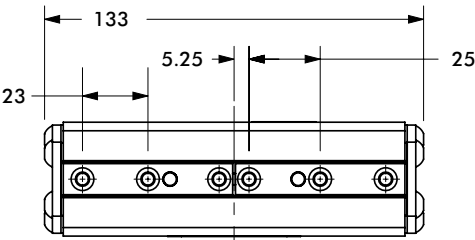
OEM Parallel Grippers | Dimensions and Technical Specifications



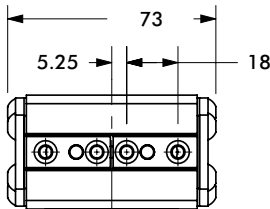
Specifications	Units	25M
Total Rated Grip Force	N [lbf]	558 [125]
Pressure Range	bar [psi]	3-7 [40-100]
Cylinder Bore Diameter	mm [in]	25 [1.00]
Temperature Range (Buna-N Seals)	°C [°F]	-35°~80° [-30°~180°]
Accuracy	mm [in]	±.05 [0.002]
Repeatability	mm [in]	±.05 [0.002]
Valve Required to Actuate		4 way 2 position



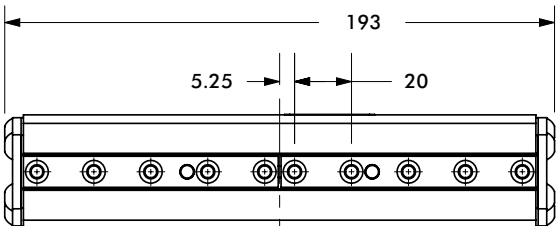
G110-25M-20



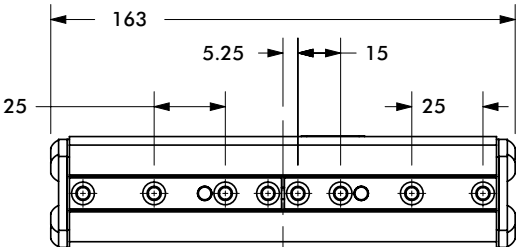
G110-25M-30



G110-25M-10

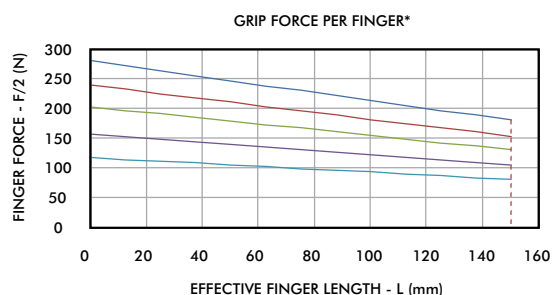
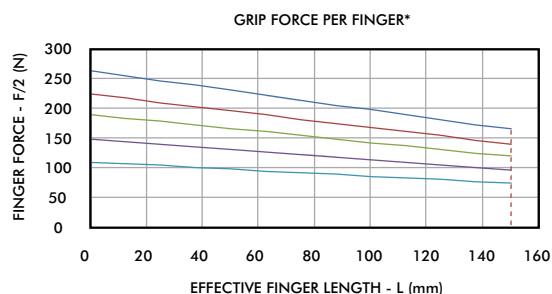
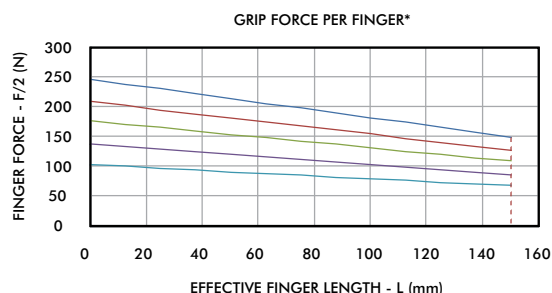
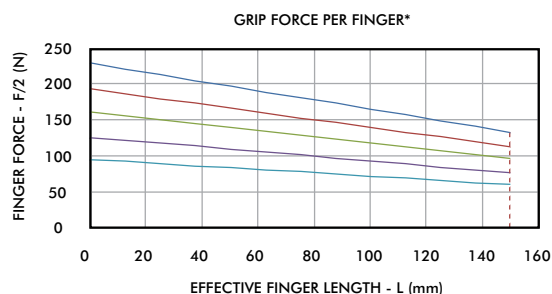
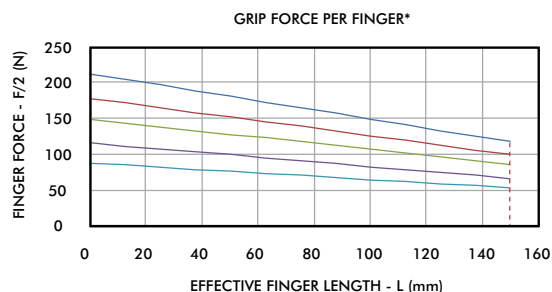


G110-25M-50



G110-25M-40

OEM Parallel Grippers | Technical Specifications



Specifications	Units	25M-10
Stroke	mm [in]	10 [0.39]
Weight	kg [lbs]	0.42 [0.92]
Displacement	cc [cu-in]	5.06 [0.31]
Actuation (open/close)	sec.	0.28
Max Tensile Load on Jaws	N [lbf]	1550 [350]
Max Compressive Load on Jaws	N [lbf]	3550 [800]
Max Moment on Jaws	Nm [in-lbs]	35 [300]

Specifications	Units	25M-20
Stroke	mm [in]	20 [0.79]
Weight	kg [lbs]	0.64 [1.41]
Displacement	cc [cu-in]	10.12 [0.62]
Actuation (open/close)	sec.	0.36
Max Tensile Load on Jaws	N [lbf]	1750 [400]
Max Compressive Load on Jaws	N [lbf]	3775 [850]
Max Moment on Jaws	Nm [in-lbs]	40 [350]

Specifications	Units	25M-30
Stroke	mm [in]	30 [1.18]
Weight	kg [lbs]	0.85 [1.87]
Displacement	cc [cu-in]	15.19 [0.93]
Actuation (open/close)	sec.	0.44
Max Tensile Load on Jaws	N [lbf]	2000 [450]
Max Compressive Load on Jaws	N [lbf]	4000 [900]
Max Moment on Jaws	Nm [in-lbs]	45 [400]

Specifications	Units	25M-40
Stroke	mm [in]	40 [1.57]
Weight	kg [lbs]	1.03 [2.27]
Displacement	cc [cu-in]	20.3 [1.24]
Actuation (open/close)	sec.	0.52
Max Tensile Load on Jaws	N [lbf]	2225 [500]
Max Compressive Load on Jaws	N [lbf]	4225 [950]
Max Moment on Jaws	Nm [in-lbs]	50 [450]

Specifications	Units	25M-50
Stroke	mm [in]	50 [1.97]
Weight	kg [lbs]	1.22 [2.68]
Displacement	cc [cu-in]	25.31 [1.55]
Actuation (open/close)	sec.	0.61
Max Tensile Load on Jaws	N [lbf]	2450 [550]
Max Compressive Load on Jaws	N [lbf]	4450 [1000]
Max Moment on Jaws	Nm [in-lbs]	55 [500]

T110 SERIES

OEM Linear Slide | Features and Benefits | How To Order

Features:

- Cost effective precision slide tables
- Designed for OEM machine builders
- 44 models with various stroke lengths
- Bore sizes: 6, 8, 12, 16, 20, 25mm
- Smooth operation with cross roller bearings
- Stroke adjust with shock absorbers or rubber stops
- High payload capacity
- Drop-in replacement



How To Order

	Size	Stroke	Description
	06M	010, 020, 030, 040, 050	for Size 06M
	08M	010, 020, 030, 040, 050, 075	for Size 08M
	12M	010, 020, 030, 040, 050, 075, 100	for Size 12M
	16M	010, 020, 030, 040, 050, 075, 100, 125	for Size 16M
	20M	010, 020, 030, 040, 050, 075, 100, 125, 150	for Size 20M
	25M	010, 020, 030, 040, 050, 075, 100, 125, 150	for Size 25M

Base Model	Style	Options	Seals	Description
T	110	0	0	Standard Seals

Accessories

T110 Common Accessories	Model Numbers	Part Number	Qty/Unit
Sensor, NPN magneto resistive type, 4mm Barrel	All Models	OHSP-021	1-2
Sensor, PNP magneto resistive type, 4mm Barrel	All Models	OHSP-021	1-2
Cable straight, quick disconnect, socket, 3 conductor, 2M length	All Models	CABL-010	1-2

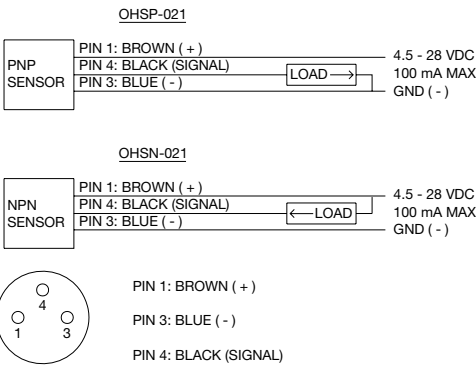
* Sensor and cable sold separately.



Cable Straight, Quick Disconnect, Socket, 3 Conductor, 2M Length



Long Barrel 4mm Straight Sensor



T110-06M	Part Number	Qty/Unit
M5 Adjustable Flow Control, 6mm OD Tube	VLVF-008	1-2
Stop Kit, Adjustable, Extend	OSAK-088	1
Stop Kit, Adjustable, Retract	OSAK-094	1
Seal Repair Kit (includes: Piston Seal, Retainer C-clip, Rod Seal, O-ring, Bumper)	SLKT-248	1
T110-08M	Part Number	Qty/Unit
M5 Adjustable Flow Control, 6mm OD Tube	VLVF-008	1-2
Stop Kit, Adjustable, Extend	OSAK-089	1
Stop Kit, Adjustable, Retract	OSAK-095	1
Shock Absorber Kit, Extend	OSAK-123	1
Shock Absorber Kit, Retract	OSAK-128	1
Spare Shock Absorber	SHOK-057	1
Seal Repair Kit (includes: Piston Seal, Retainer C-clip, Rod Seal, O-ring, Bumper)	SLKT-249	1
T110-12M	Part Number	Qty/Unit
M5 Adjustable Flow Control, 6mm OD Tube	VLVF-008	1-2
Stop Kit, Adjustable, Extend	OSAK-090	1
Stop Kit, Adjustable, Retract	OSAK-096	1
Shock Absorber Kit, Extend	OSAK-124	1
Shock Absorber Kit, Retract	OSAK-129	1
Spare Shock Absorber	SHOK-057	1
Seal Repair Kit (includes: Piston Seal, Retainer C-clip, Rod Seal, O-ring, Bumper)	SLKT-250	1
T110-16M	Part Number	Qty/Unit
M5 Adjustable Flow Control, 6mm OD Tube	VLVF-008	1-2
Stop Kit, Adjustable, Extend	OSAK-091	1
Stop Kit, Adjustable, Retract	OSAK-097	1
Shock Absorber Kit, Extend	OSAK-125	1
Shock Absorber Kit, Retract	OSAK-130	1
Spare Shock Absorber	SHOK-059	1
Seal Repair Kit (includes: Piston Seal, Retainer C-clip, Rod Seal, O-ring, Bumper)	SLKT-251	1
T110-20M	Part Number	Qty/Unit
G1/8 Adjustable Flow Control, 6mm OD Tube	VLVF-005	1-2
Stop Kit, Adjustable, Extend	OSAK-092	1
Stop Kit, Adjustable, Retract	OSAK-098	1
Shock Absorber Kit, Extend	OSAK-126	1
Shock Absorber Kit, Retract	OSAK-131	1
Spare Shock Absorber	SHOK-060	1
Seal Repair Kit (includes: Piston Seal, Retainer C-clip, Rod Seal, O-ring, Bumper)	SLKT-252	1
T110-25M	Part Number	Qty/Unit
G1/8 Adjustable Flow Control, 6mm OD Tube	VLVF-005	1-2
Stop Kit, Adjustable, Extend	OSAK-093	1
Stop Kit, Adjustable, Retract	OSAK-099	1
Shock Absorber Kit, Extend	OSAK-127	1
Shock Absorber Kit, Retract	OSAK-132	1
Spare Shock Absorber	SHOK-061	1
Seal Repair Kit (includes: Piston Seal, Retainer C-clip, Rod Seal, O-ring, Bumper)	SLKT-253	1

T110 SERIES

OEM Linear Slide | Quick Installation Kits

Commissioning Kits for Easy Ordering

- Includes just what you need for easy installation
- One quick installation kit required per slide
- Fast, simple convenient ordering



Sensors



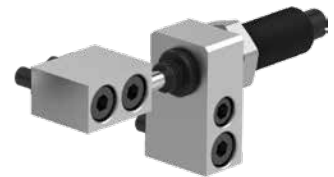
Cables



Adjustable Flow Controls



Shock Kit, Retract



Shock Kit, Extend

T110-06M	Includes	Part Number	Qty/Kit
Sensors, PNP Magneto Resistive Type, 4mm Barrel	OHSP-021	T110-QKST-101	2
Quick Disconnect 2 Meter Cable Length	CABL-010		2
Adjustable Flow Control, M5, 6mm OD Tube	VLVF-008		2

T110-08M	Includes	Part Number	Qty/Kit
Sensors, PNP Magneto Resistive Type, 4mm Barrel	OHSP-021	T110-QKST-102	2
Quick Disconnect 2 Meter Cable Length	CABL-010		2
Adjustable Flow Control, M5, 6mm OD Tube	VLVF-008		2
Shock Absorber Kit, Extend	OSAK-123		1
Shock Absorber Kit, Retract	OSAK-128		1

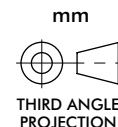
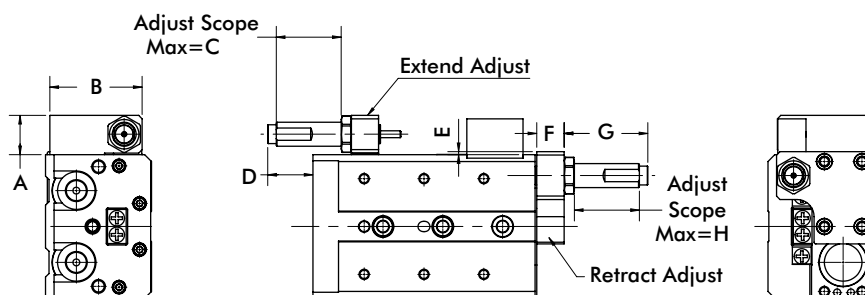
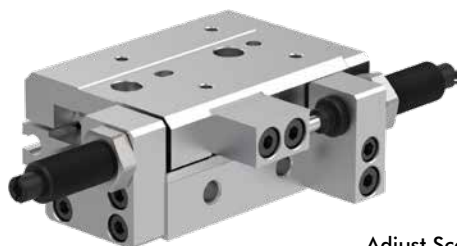
T110-12M	Includes	Part Number	Qty/Kit
Sensors, PNP Magneto Resistive Type, 4mm Barrel	OHSP-021	T110-QKST-103	2
Quick Disconnect 2 Meter Cable Length	CABL-010		2
Adjustable Flow Control, M5, 6mm OD Tube	VLVF-008		2
Shock Absorber Kit, Extend	OSAK-124		1
Shock Absorber Kit, Retract	OSAK-129		1

T110-16M	Includes	Part Number	Qty/Kit
Sensors, PNP Magneto Resistive Type, 4mm Barrel	OHSP-021	T110-QKST-104	2
Quick Disconnect 2 Meter Cable Length	CABL-010		2
Adjustable Flow Control, M5, 6mm OD Tube	VLVF-008		2
Shock Absorber Kit, Extend	OSAK-125		1
Shock Absorber Kit, Retract	OSAK-130		1

T110-20M	Includes	Part Number	Qty/Kit
Sensors, PNP Magneto Resistive Type, 4mm Barrel	OHSP-021	T110-QKST-105	2
Quick Disconnect 2 Meter Cable Length	CABL-010		2
Adjustable Flow Control, G1/8, 6mm OD Tube	VLVF-005		2
Shock Absorber Kit, Extend	OSAK-126		1
Shock Absorber Kit, Retract	OSAK-131		1

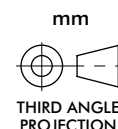
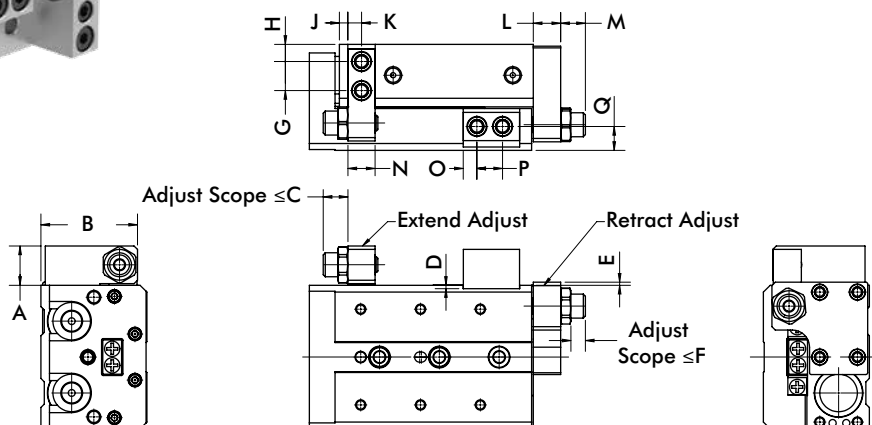
T110-25M	Includes	Part Number	Qty/Kit
Sensors, PNP Magneto Resistive Type, 4mm Barrel	OHSP-021	T110-QKST-106	2
Quick Disconnect 2 Meter Cable Length	CABL-010		2
Adjustable Flow Control, G1/8, 6mm OD Tube	VLVF-005		2
Shock Absorber Kit, Extend	OSAK-127		1
Shock Absorber Kit, Retract	OSAK-132		1

Shock Absorbers



For Model No.	A	B	C	D	E	F	G	H
T110-08M	13	22.5	18.5	18.5	0.1	8.5	28.5	19.5
T110-12M	14.5	29.5	17.5	15	0.5	11	26	17
T110-16M	16.5	37.7	25	18.5	1.5	12	35	26
T110-20M	21	46.5	23.5	14.5	0.5	15	34	25
T110-25M	23	56.5	37.5	26	1.8	16	49	38

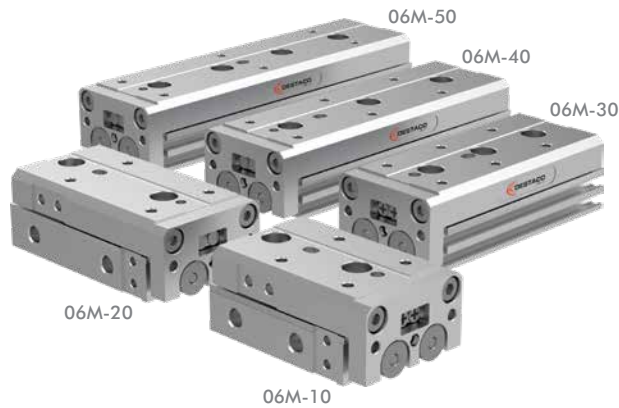
Stop Kits



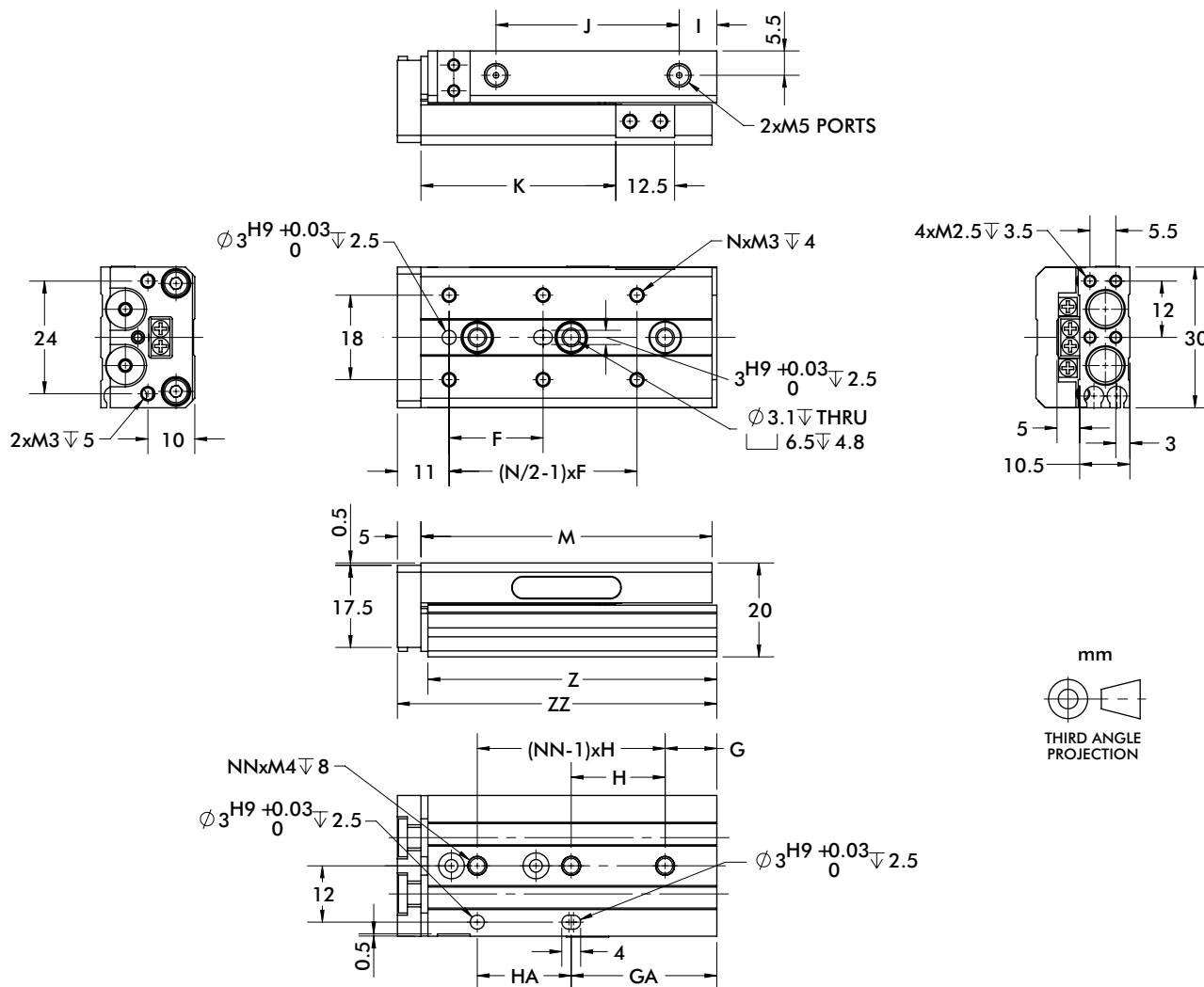
For Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q
T110-06M	10	20	5	0.5	--	10	5.5	3	2	3.5	7	13.5	7	3	6.5	5
T110-08M	13	22.5	7	0.5	--	7.5	6.5	4	2	4.5	8.5	11	8.5	4	7	5.5
T110-12M	14.5	30	6	1	1.4	5	8	5.5	2	5.5	11	9.5	11	6	8.5	7
T110-16M	16.5	37.5	6	--	1.5	6.5	11	6.5	3	6	12	11	12	6.5	10	7.5
T110-20M	21	46.5	6.5	1.5	1	7.5	13.5	8	3	7.5	15	12	15	6.5	12	12
T110-25M	23	56.5	8.5	2	1.8	8.5	17	10	5	8	16	15	16	8	15	14

T110-06M

OEM Linear Slide | Dimensions and Technical Specifications



Specifications	Units	06M
Thrust Force at 7 bar [100 psi]	Retract	29 [6.51]
	Extend	40 [9.0]
Pressure Range	bar [psi]	1.5-7 [22-100]
Cylinder Bore Diameter [x2]	mm [in]	6 [0.23]
Speed Range	mm/sec [in/sec]	50-500 [2-20]
End Stop Repeatability, Basic Unit	mm [in]	±0.5 [±0.02]
End Stop Repeatability, Stop Kit	mm [in]	±0.2 [±0.01]
End Stop Repeatability, Shock Kit	mm [in]	±0.02 [±0.001]
Valve Required to Actuate		4 Way 2 Position

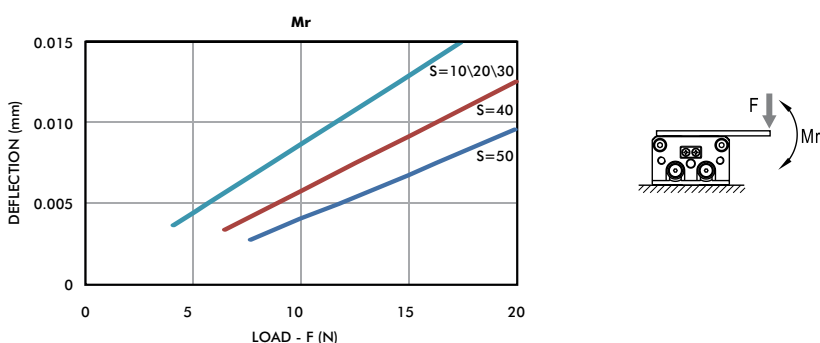
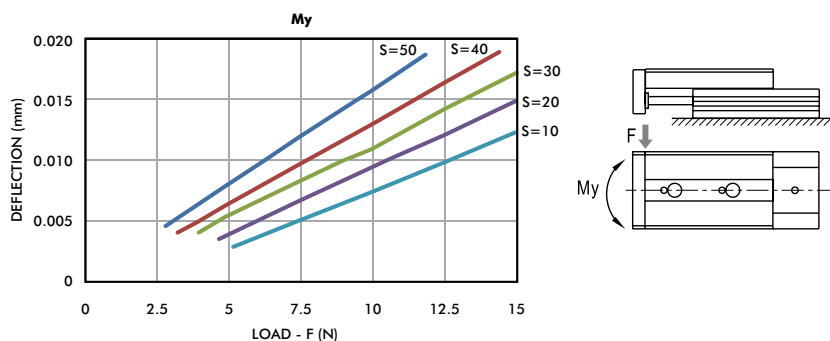
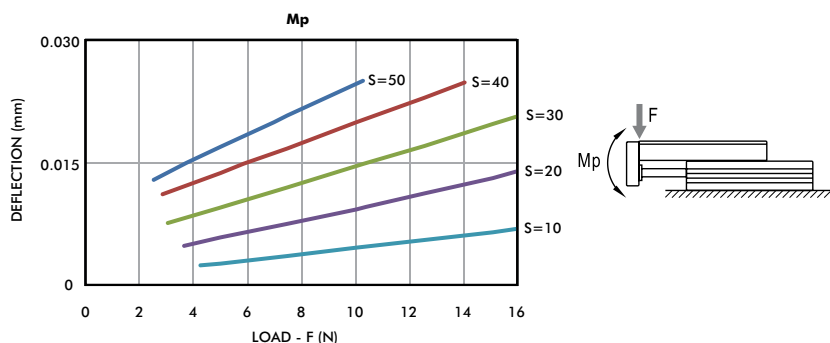


Stroke\Item	F	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
10	20	4	6	25	2	11	20	8	19	21.5	42	41.5	48
20	30	4	6	35	2	21	20	9	28	31.5	52	51.5	58
30	20	6	11	20	3	31	20	8	39	41.5	62	61.5	68
40	28	6	13	30	3	43	30	18	51	51.5	84	83.5	90
50	38	6	17	24	4	41	48	24	61	61.5	100	99.5	106

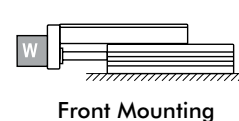
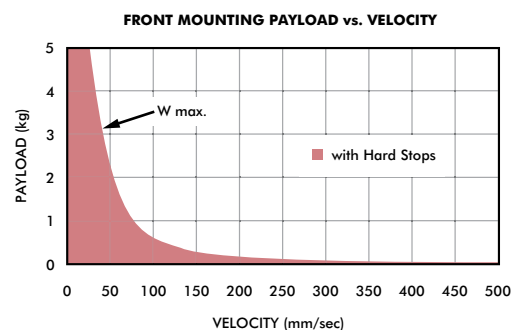
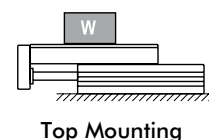
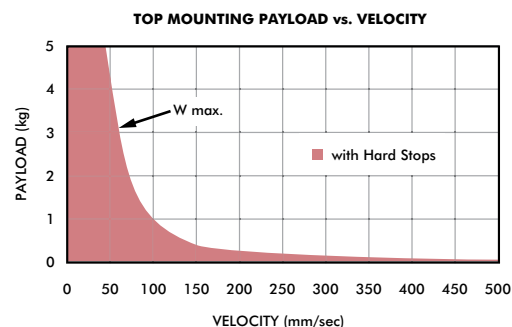
Specifications	Units	06M-10	06M-20	06M-30	06M-40	06M-50
Stroke	mm (in)	10 [0.39]	20 [0.79]	30 [1.18]	40 [1.57]	50 [1.97]
Weight	kg (lb)	0.08 [0.178]	0.1 [0.222]	0.12 [0.256]	0.16 [0.344]	0.18 [0.4]
Displacement	cc (cu-in)	0.57 [0.035]	1.13 [0.069]	1.70 [0.104]	2.26 [0.138]	2.83 [0.173]
Max. Applied Load	N (lbf)	5 [1.124]	5 [1.124]	5 [1.124]	5 [1.124]	5 [1.124]

Deflection

(Note: Moment calculations located on page 31)



Payload vs. Velocity

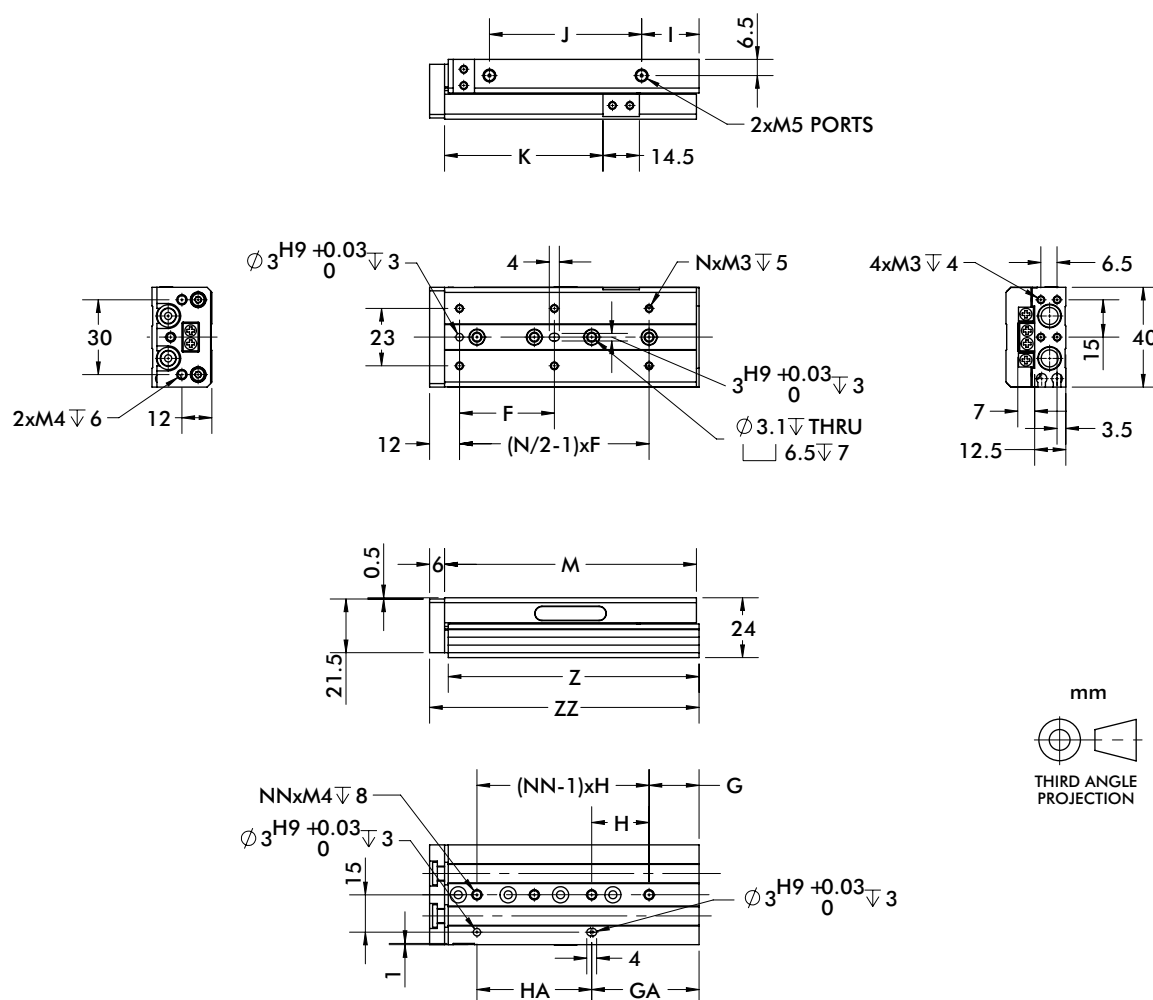


T110-08M

OEM Linear Slide | Dimensions and Technical Specifications



Specifications	Units	08M
Thrust Force at 7 bar [100 psi]	Retract	53 [11.9]
	Extend	71 [16.0]
Pressure Range	bar [psi]	1.5-7 [22-100]
Cylinder Bore Diameter [x2]	mm [in]	8 [0.31]
Speed Range	mm/sec [in/sec]	50-500 [2-20]
End Stop Repeatability, Basic Unit	mm [in]	±0.5 [±0.02]
End Stop Repeatability, Stop Kit	mm [in]	±0.2 [±0.01]
End Stop Repeatability, Shock Kit	mm [in]	±0.02 [±0.001]
Valve Required to Actuate		4 Way 2 Position



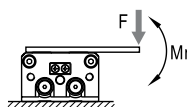
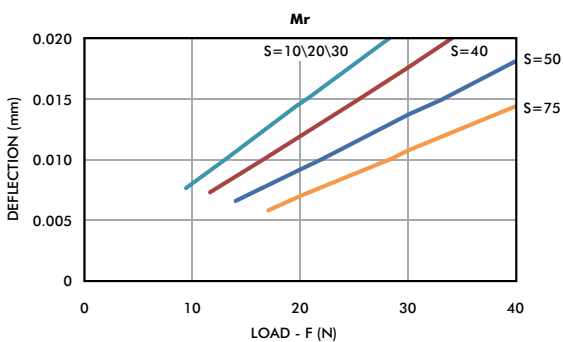
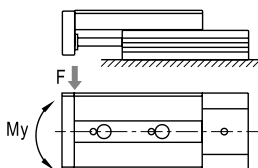
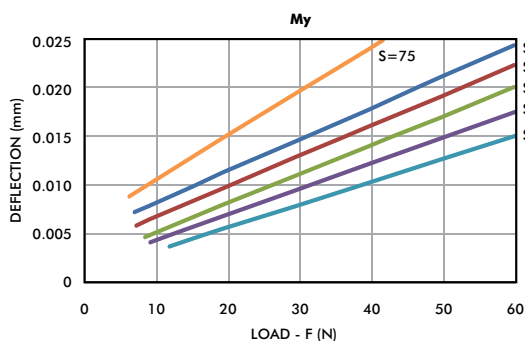
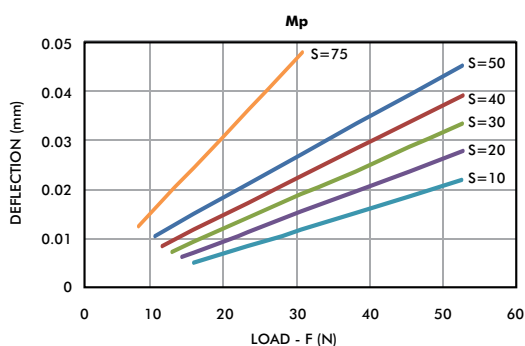
Stroke\Item	F	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
10	25	4	9	28	2	17	20	12	20	23.5	49	48.5	56
20	25	4	12	30	2	12	30	7	30	33.5	54	53.5	61
30	40	4	13	20	3	33	20	7	41	43.5	65	64.5	72
40	50	4	15	28	3	43	28	10	56	53.5	83	82.5	90
50	38	6	20	23	4	43	46	23	61	63.5	101	100.5	108
75	50	6	27	28	5	83	56	40	94	88.5	151	150.5	158

Specifications	Units	08M-10	08M-20	08M-30
Stroke	mm (in)	10 [0.39]	20 [0.79]	30 [1.18]
Weight	kg (lb)	0.15 [0.333]	0.16 [0.356]	0.19 [0.422]
Displacement	cc (cu-in)	1.01 [0.061]	2.01 [0.123]	3.02 [0.184]
Max. Applied Load	N (lbf)	10 [2.248]	10 [2.248]	10 [2.248]

Specifications	Units	08M-40	08M-50	08M-75
Stroke	mm (in)	40 [1.57]	50 [1.97]	75 [2.95]
Weight	kg (lb)	0.24 [0.522]	0.29 [0.633]	0.41 [0.911]
Displacement	cc (cu-in)	4.02 [0.245]	5.03 [0.307]	7.54 [0.460]
Max. Applied Load	N (lbf)	10 [2.248]	10 [2.248]	10 [2.248]

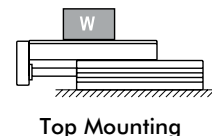
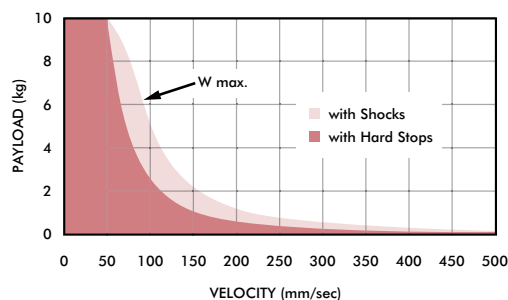
Deflection

(Note: Moment calculations located on page 31)

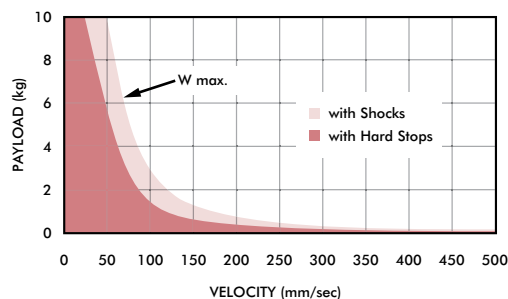


Payload vs. Velocity

TOP MOUNTING PAYLOAD vs. VELOCITY



FRONT MOUNTING PAYLOAD vs. VELOCITY

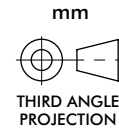
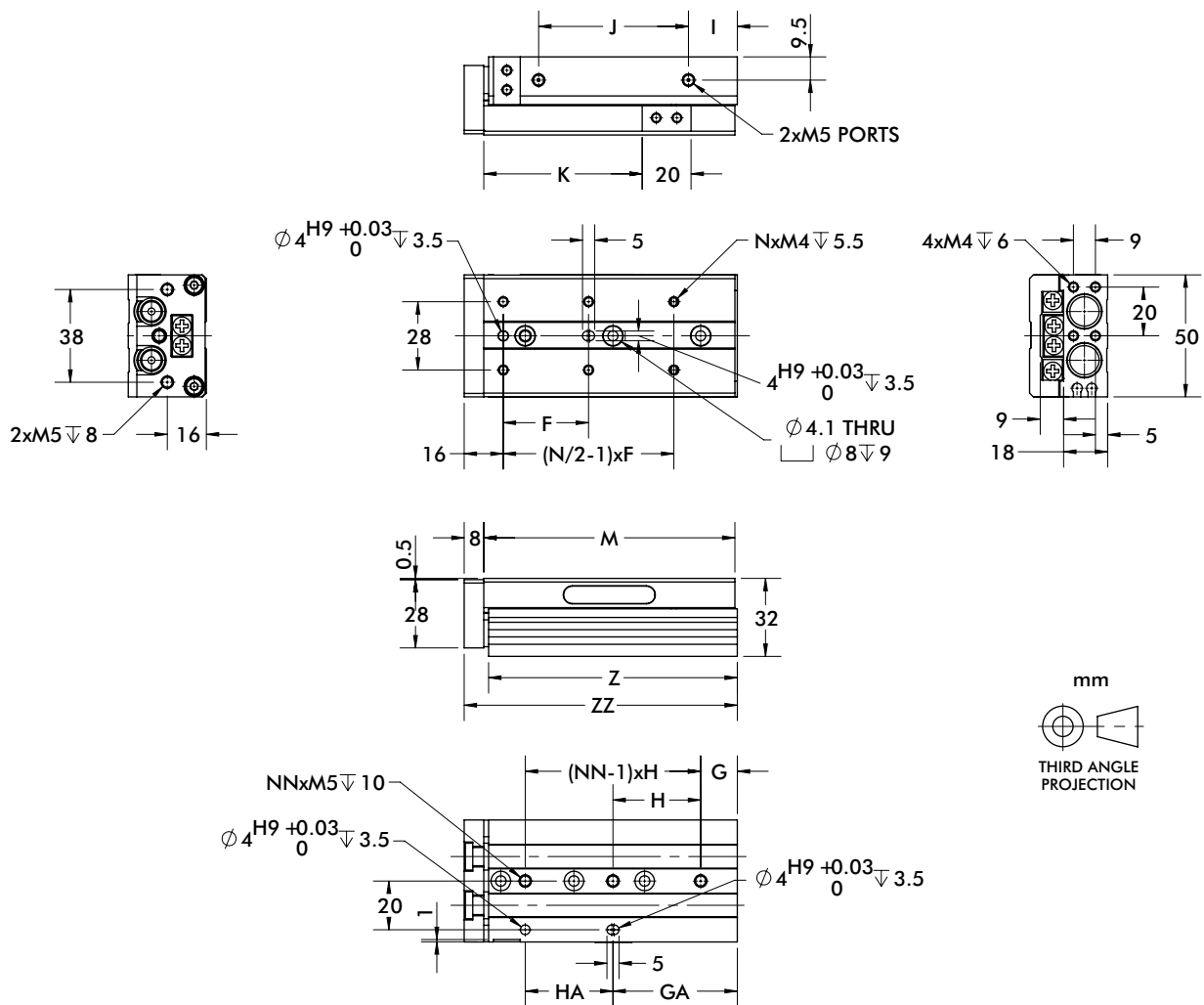


T110-12M

OEM Linear Slide | Dimensions and Technical Specifications



Specifications	Units	12M
Thrust Force at 7 bar [100 psi]	Retract	119 [26.8]
	Extend	158 [35.6]
Pressure Range	bar [psi]	1.5-7 [22-100]
Cylinder Bore Diameter [x2]	mm [in]	12 [0.47]
Speed Range	mm/sec [in/sec]	50-500 [2-20]
End Stop Repeatability, Basic Unit	mm [in]	±0.5 [±0.02]
End Stop Repeatability, Stop Kit	mm [in]	±0.2 [±0.01]
End Stop Repeatability, Shock Kit	mm [in]	±0.02 [±0.001]
Valve Required to Actuate		4 Way 2 Position



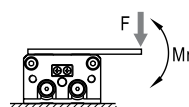
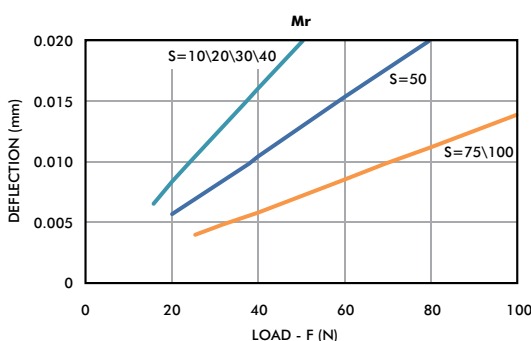
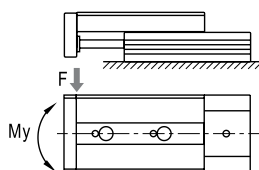
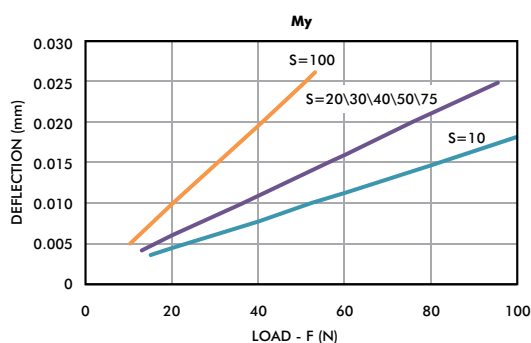
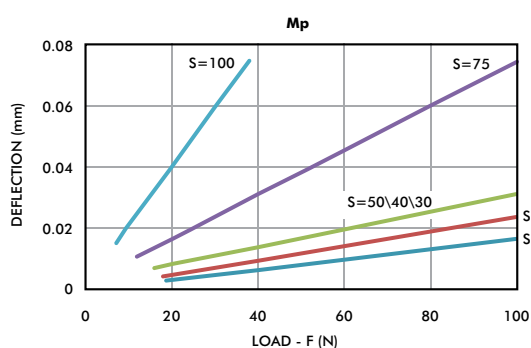
Stroke\Item	F	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
10	35	4	15	40	2	15	40	10	39.5	25	71	70	80
20	35	4	15	40	2	15	40	10	39.5	35	71	70	80
30	35	4	15	40	2	15	40	10	39.5	45	71	70	80
40	50	4	17	25	3	42	25	10	51.5	55	83	82	92
50	35	6	15	36	3	51	36	20	61.5	65	103	102	112
75	55	6	25	36	4	61	72	40	87.5	90	149	148	158
100	65	6	35	38	5	111	76	50	131.5	115	203	202	212

Specifications	Units	12M-10	12M-20	12M-30	12M-40
Stroke	mm (in)	10 [0.39]	20 [0.79]	30 [1.18]	40 [1.57]
Weight	kg (lb)	0.33 [0.722]	0.33 [0.722]	0.33 [0.722]	0.39 [0.856]
Displacement	cc (cu-in)	2.26 [0.138]	4.52 [0.276]	6.79 [0.414]	9.05 [0.552]
Max. Applied Load	N (lbf)	20 [4.496]	20 [4.496]	20 [4.496]	20 [4.496]

Specifications	Units	12M-50	12M-75	12M-100
Stroke	mm (in)	50 [1.97]	75 [2.95]	100 [3.94]
Weight	kg (lb)	0.48 [1.067]	0.66 [1.467]	0.89 [1.978]
Displacement	cc (cu-in)	11.31 [0.690]	16.97 [1.035]	22.62 [1.381]
Max. Applied Load	N (lbf)	20 [4.496]	20 [4.496]	20 [4.496]

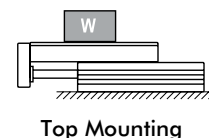
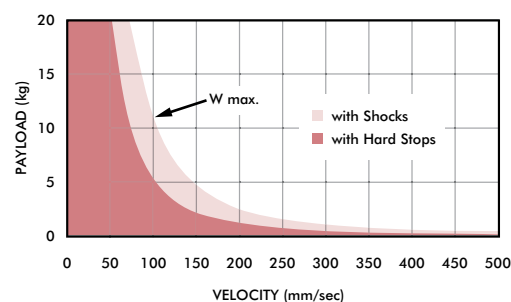
Deflection

(Note: Moment calculations located on page 31)

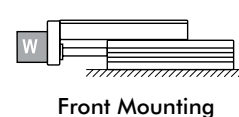
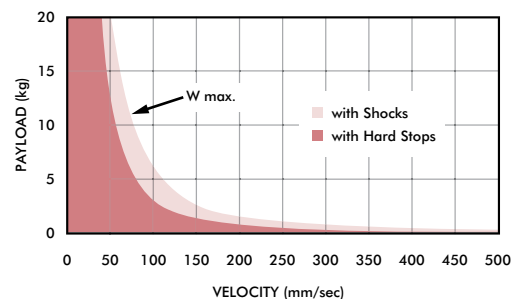


Payload vs. Velocity

TOP MOUNTING PAYLOAD vs. VELOCITY

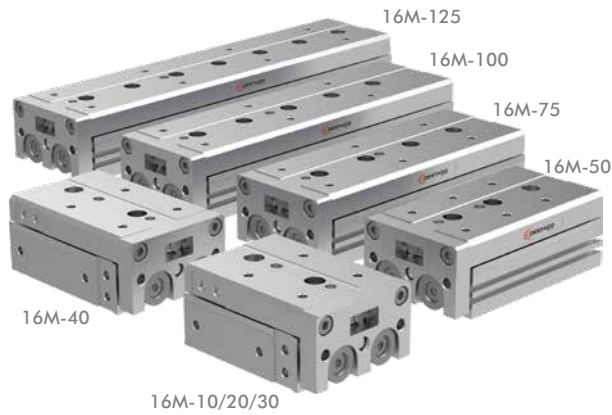


FRONT MOUNTING PAYLOAD vs. VELOCITY

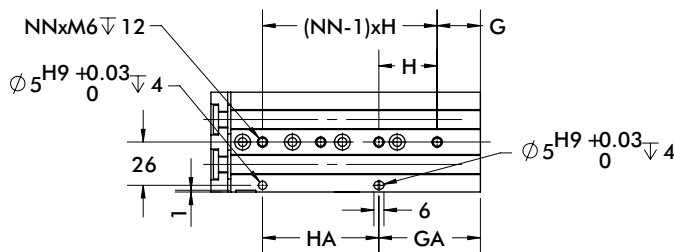
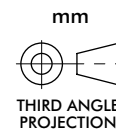
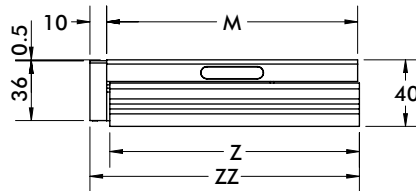
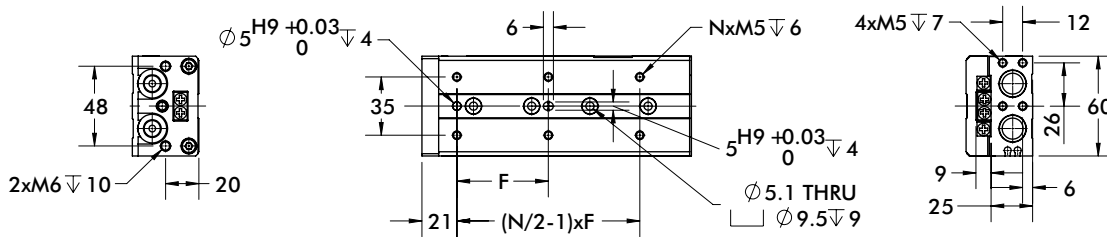
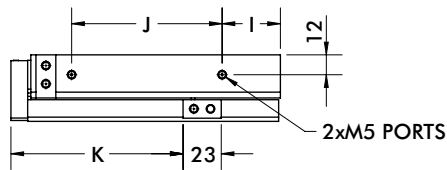


T110-16M

OEM Linear Slide | Dimensions and Technical Specifications



Specifications	Units	16M
Thrust Force at 7 bar [100 psi]	Retract	211 [47.4]
	Extend	281 [63.2]
Pressure Range	bar [psi]	1.5-7 [22-100]
Cylinder Bore Diameter [x2]	mm [in]	16 [0.63]
Speed Range	mm/sec [in/sec]	50-500 [2-20]
End Stop Repeatability, Basic Unit	mm [in]	±0.5 [±0.02]
End Stop Repeatability, Stop Kit	mm [in]	±0.2 [±0.01]
End Stop Repeatability, Shock Kit	mm [in]	±0.02 [±0.001]
Valve Required to Actuate		4 Way 2 Position



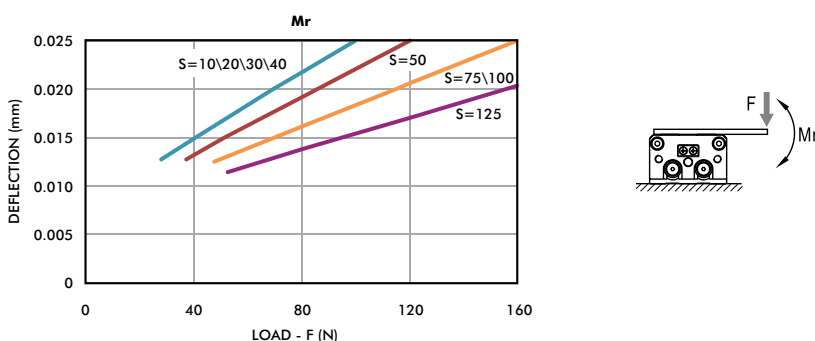
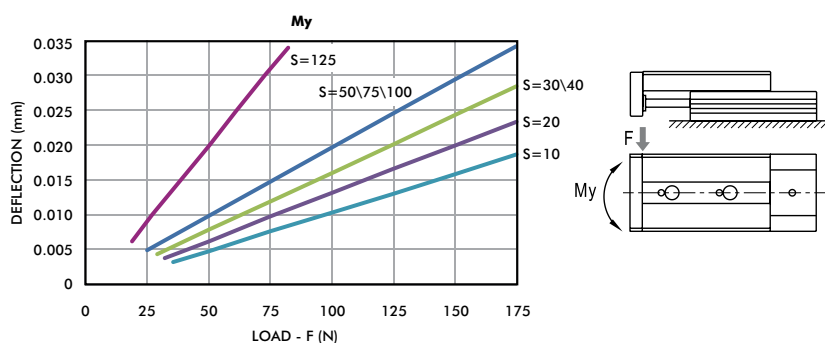
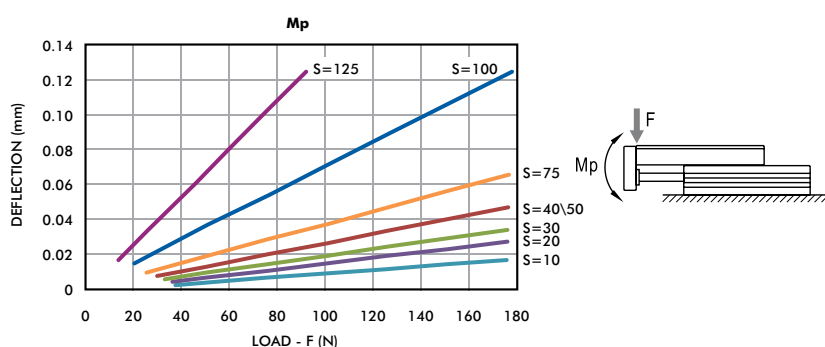
Stroke\Item	F	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
10	35	4	16	40	2	16	40	8	42.5	28.5	76	75	87
20	35	4	16	40	2	16	40	8	42.5	38.5	76	75	87
30	35	4	16	40	2	16	40	8	42.5	48.5	76	75	87
40	40	4	16	50	2	16	50	8	52.5	58.5	86	85	97
50	30	6	21	30	3	51	30	12	63.5	68.5	101	100	112
75	55	6	26	35	4	61	70	35	90.5	93.5	151	150	162
100	65	6	39	35	5	109	70	55	118.5	118.8	199	198	210
125	70	8	19	35	7	159	70	70	153.5	143.5	249	248	260

Specifications	Units	16M-10	16M-20	16M-30	16M-40
Stroke	mm (in)	10 [0.39]	20 [0.79]	30 [1.18]	40 [1.57]
Weight	kg (lb)	0.57 [1.267]	0.57 [1.267]	0.58 [1.289]	0.64 [1.422]
Displacement	cc (cu-in)	4.02 [0.245]	8.04 [0.491]	12.07 [0.736]	16.09 [0.982]
Max. Applied Load	N (lbf)	35 [7.868]	35 [7.868]	35 [7.868]	35 [7.868]

Specifications	Units	16M-50	16M-75	16M-100	16M-125
Stroke	mm (in)	50 [1.97]	75 [2.95]	100 [3.94]	125 [4.92]
Weight	kg (lb)	0.76 [1.689]	1.09 [2.422]	1.37 [3.044]	1.70 [3.778]
Displacement	cc (cu-in)	20.11 [1.227]	30.16 [1.841]	40.22 [2.454]	50.27 [3.068]
Max. Applied Load	N (lbf)	35 [7.868]	35 [7.868]	35 [7.868]	35 [7.868]

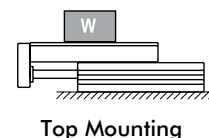
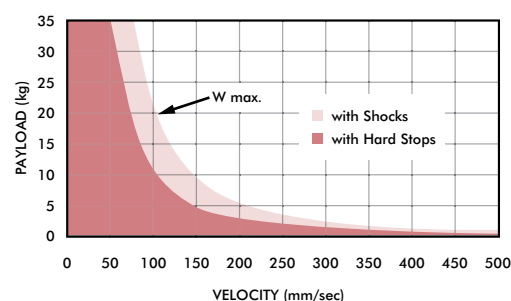
Deflection

(Note: Moment calculations located on page 31)

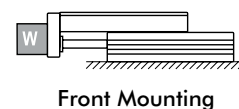
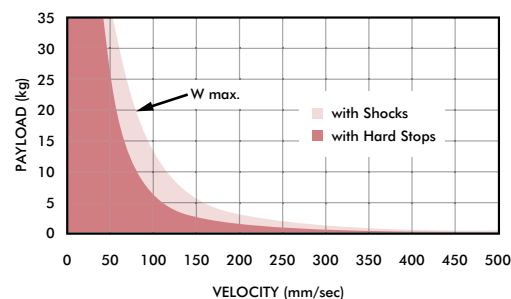


Payload vs. Velocity

TOP MOUNTING PAYLOAD vs. VELOCITY

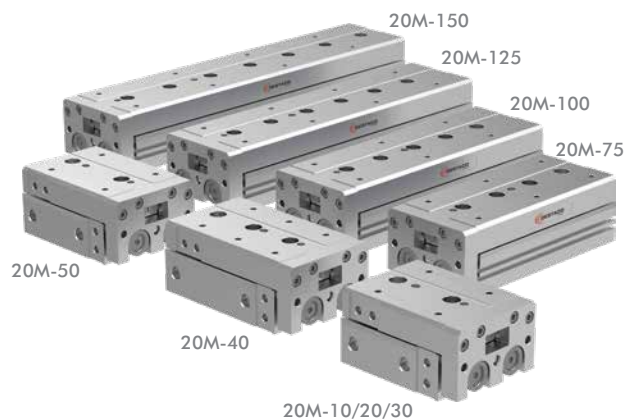


FRONT MOUNTING PAYLOAD vs. VELOCITY

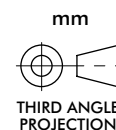
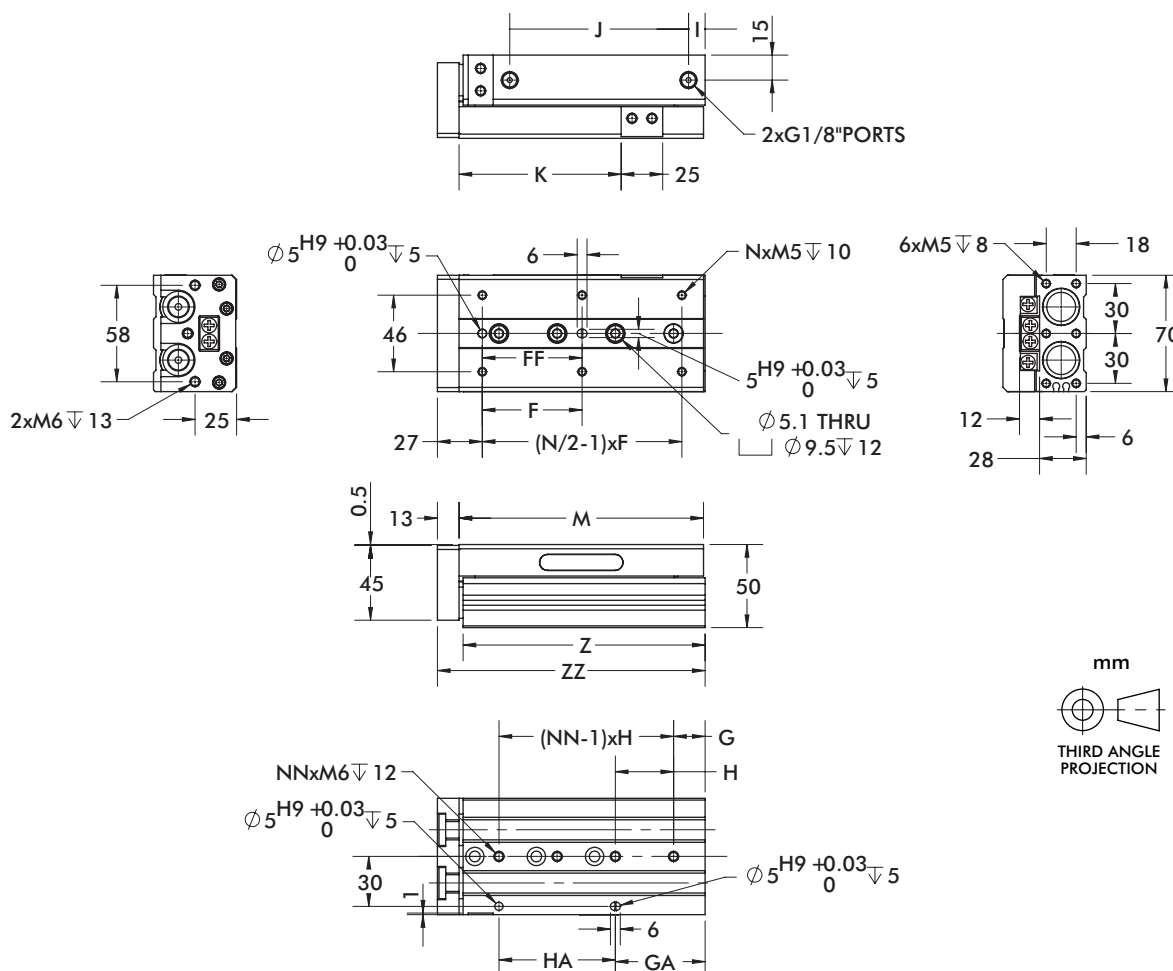


T110-20M

OEM Linear Slide | Dimensions and Technical Specifications



Specifications	Units	20M
Thrust Force at 7 bar [100 psi]	Retract	330 [74.2]
	Extend	440 [99.0]
Pressure Range	bar [psi]	1.5-7 [22-100]
Cylinder Bore Diameter [x2]	mm [in]	20 [0.78]
Speed Range	mm/sec [in/sec]	50-500 [2-20]
End Stop Repeatability, Basic Unit	mm [in]	±0.5 [±0.02]
End Stop Repeatability, Stop Kit	mm [in]	±0.2 [±0.01]
End Stop Repeatability, Shock Kit	mm [in]	±0.02 [±0.001]
Valve Required to Actuate		4 Way 2 Position



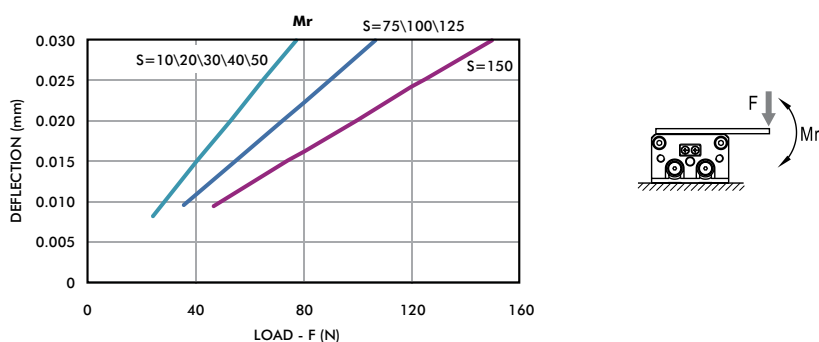
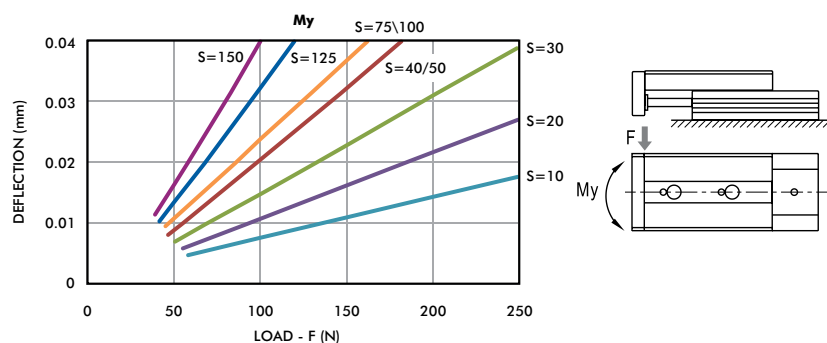
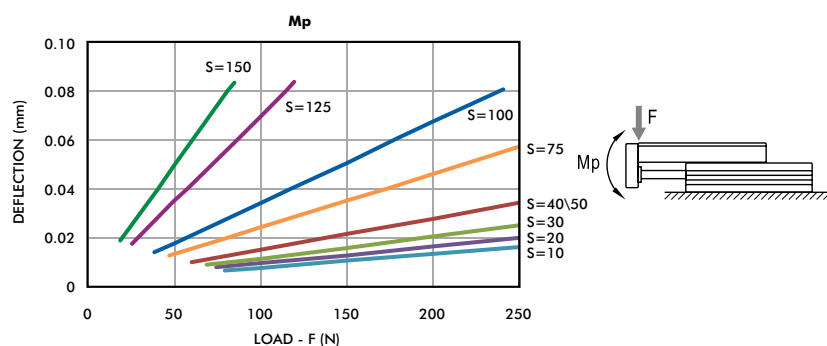
Stroke\Item	F	FF	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
10	50	40	4	15	45	2	25	35	10	43.5	32.5	83	81.5	97
20	50	40	4	15	45	2	25	35	10	43.5	42.5	83	81.5	97
30	50	40	4	15	45	2	25	35	10	43.5	52.5	83	81.5	97
40	60	50	4	15	55	2	35	35	10	53.5	62.5	93	91.5	107
50	35	35	6	15	35	3	50	35	10	68.5	72.5	108	106.5	122
75	60	60	6	19	35	4	54	70	10	107.5	97.5	147	145.5	161
100	70	70	6	37	35	5	107	70	55	115.5	122.5	200	198.5	214
125	70	70	8	41	38	6	155	76	70	154.5	147.5	254	252.5	268
150	80	80	8	19	44	7	195	88	90	186.5	172.5	306	304.5	320

Specifications	Units	20M-10	20M-20	20M-30	20M-40	20M-50
Stroke	mm (in)	10 [0.39]	20 [0.79]	30 [1.18]	40 [1.57]	50 [1.97]
Weight	kg (lb)	0.96 [2.133]	0.98 [2.178]	1.01 [2.244]	1.10 [2.44]	1.25 [2.778]
Displacement	cc (cu-in)	6.28 [0.383]	12.57 [0.767]	18.85 [1.150]	25.14 [1.534]	31.42 [1.917]
Max. Applied Load	N (lbf)	55 [12.364]	55 [12.364]	55 [12.364]	55 [12.364]	55 [12.364]

Specifications	Units	20M-75	20M-100	20M-125	20M-150
Stroke	mm (in)	75 [2.95]	100 [3.94]	125 [4.92]	150 [5.91]
Weight	kg (lb)	1.63 [3.622]	2.15 [4.778]	2.67 [5.933]	3.19 [7.089]
Displacement	cc (cu-in)	47.13 [2.876]	62.84 [3.838]	78.55 [4.793]	94.26 [5.752]
Max. Applied Load	N (lbf)	55 [12.364]	55 [12.364]	55 [12.364]	55 [12.364]

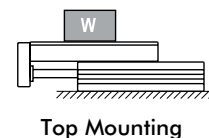
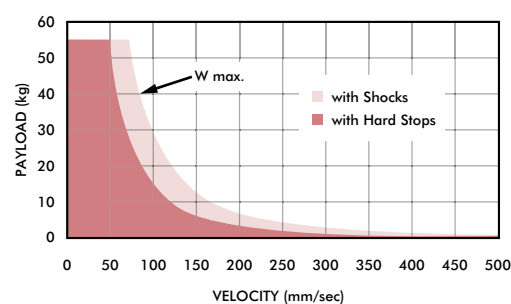
Deflection

(Note: Moment calculations located on page 31)

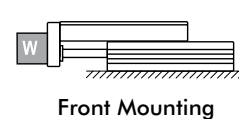
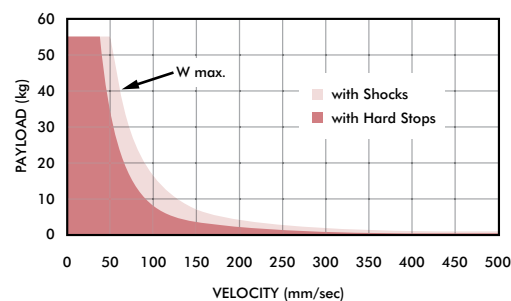


Payload vs. Velocity

TOP MOUNTING PAYLOAD vs. VELOCITY

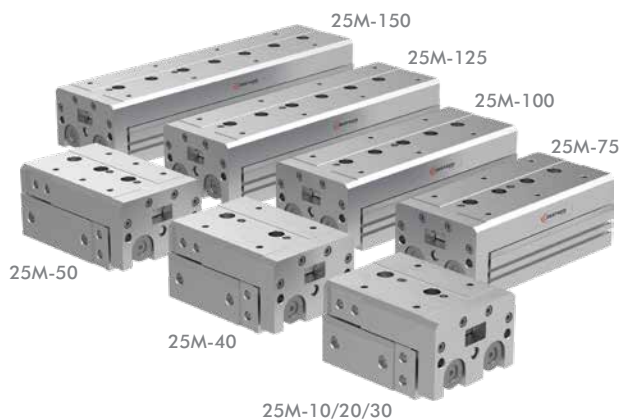


FRONT MOUNTING PAYLOAD vs. VELOCITY

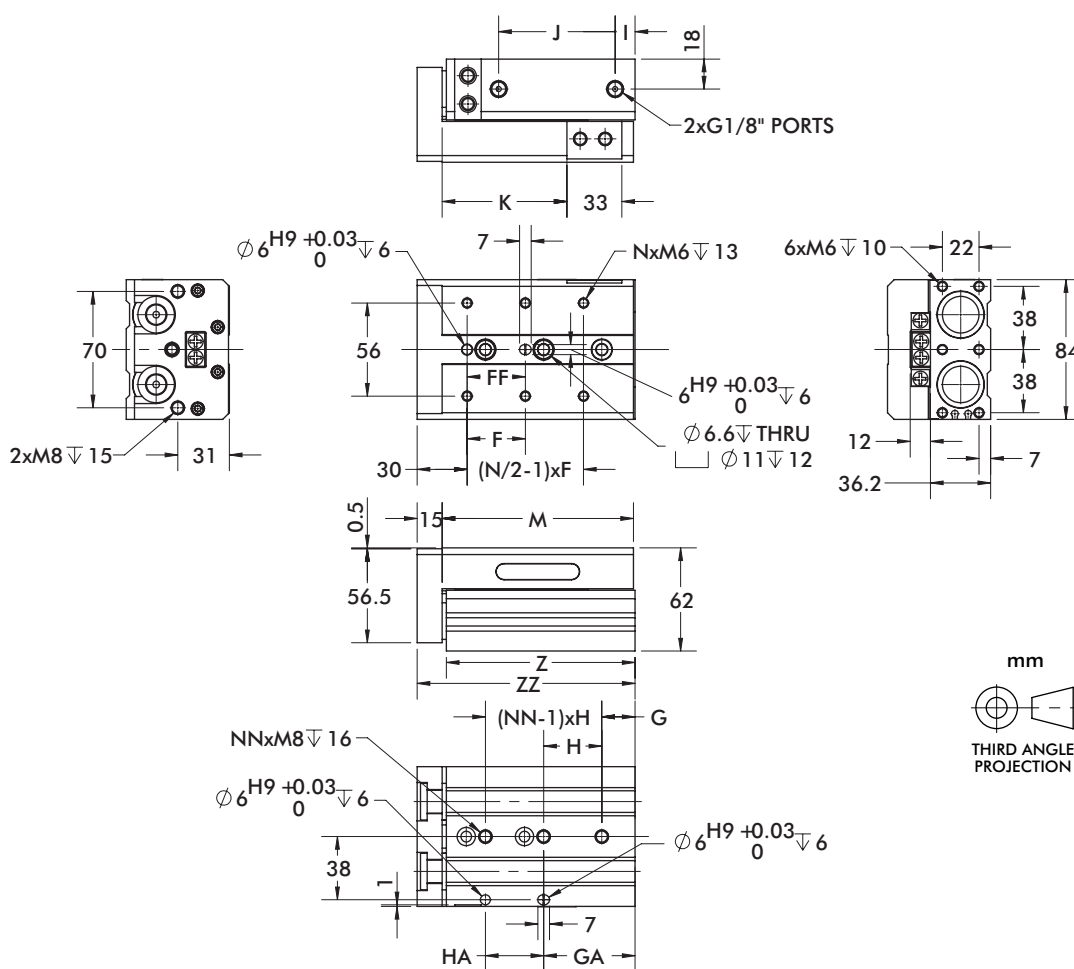


T110-25M

OEM Linear Slide | Dimensions and Technical Specifications



Specifications	Units	25M
Thrust Force at 7 bar [100 psi]	Retract	529 [119.0]
	Extend	687 [154.5]
Pressure Range	bar [psi]	1.5-7 [22-100]
Cylinder Bore Diameter [x2]	mm [in]	25 [0.98]
Speed Range	mm/sec [in/sec]	50-500 [2-20]
End Stop Repeatability, Basic Unit	mm [in]	±0.5 [±0.02]
End Stop Repeatability, Stop Kit	mm [in]	±0.2 [±0.01]
End Stop Repeatability, Shock Kit	mm [in]	±0.02 [±0.001]
Valve Required to Actuate		4 Way 2 Position



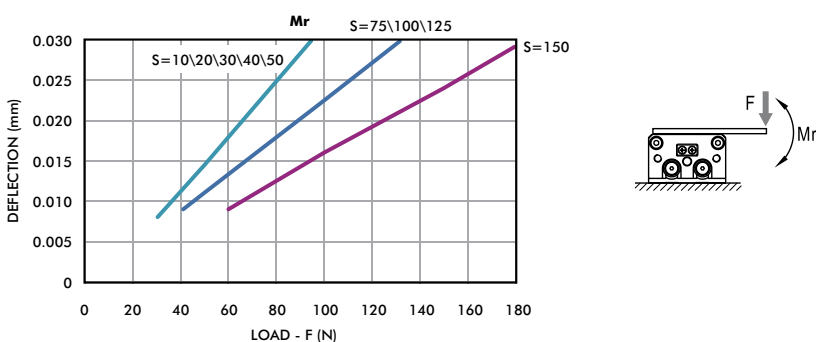
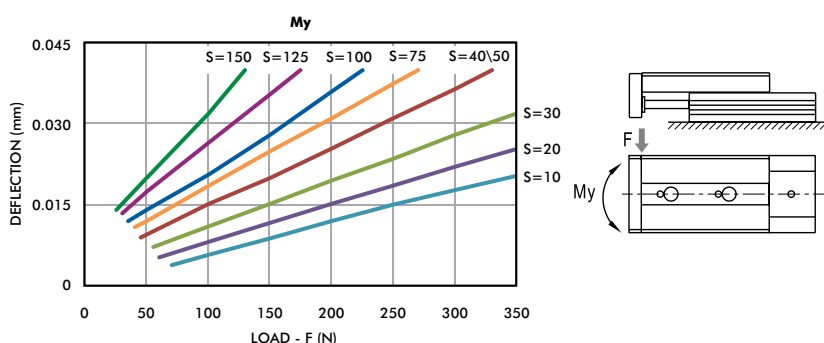
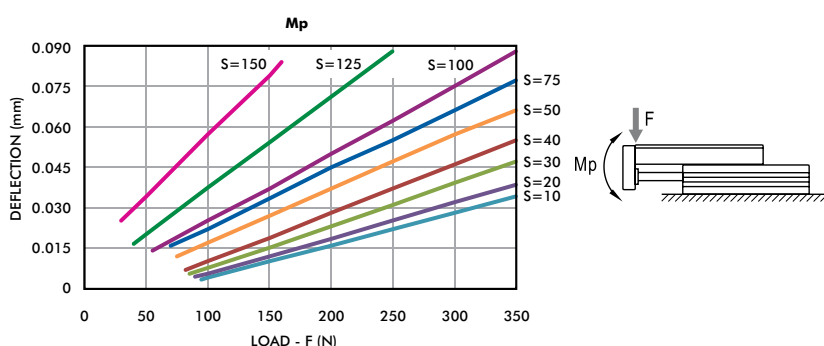
Stroke\Item	F	FF	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
10	50	40	4	22	45	2	22	45	12	47	35	92	90.5	108
20	50	40	4	22	45	2	22	45	12	47	45	92	90.5	108
30	50	40	4	22	45	2	22	45	12	47	55	92	90.5	108
40	60	50	4	22	55	2	22	55	12	57	65	102	100.5	118
50	35	35	6	20	35	3	55	35	12	70	75	115	113.5	131
75	60	60	6	26	35	4	61	70	33	90	100	156	154.5	172
100	70	70	6	32	35	5	102	70	45	119	125	197	195.5	213
125	75	75	8	40	38	6	154	76	67	155	150	255	253.5	271
150	80	80	8	30	40	7	190	80	82	180	175	295	293.5	311

Specifications	Units	25M-10	25M-20	25M-30	25M-40	25M-50
Stroke	mm (in)	10 [0.39]	20 [0.79]	30 [1.18]	40 [1.57]	50 [1.97]
Weight	kg (lb)	1.66 [3.689]	1.68 [3.733]	1.69 [3.756]	1.84 [4.089]	2.09 [4.644]
Displacement	cc (cu-in)	9.82 [0.599]	19.64 [1.198]	29.46 [1.798]	39.28 [2.397]	49.09 [2.996]
Max. Applied Load	N (lbf)	70 [15.737]	70 [15.737]	70 [15.737]	70 [15.737]	70 [15.737]

Specifications	Units	25M-75	25M-100	25M-125	25M-150
Stroke	mm (in)	75 [2.95]	100 [3.94]	125 [4.92]	150 [5.91]
Weight	kg (lb)	2.65 [5.889]	3.27 [7.267]	4.14 [9.1]	4.71 [10.467]
Displacement	cc (cu-in)	73.645 [4.494]	98.19 [5.992]	122.73 [7.490]	147.28 [8.922]
Max. Applied Load	N (lbf)	70 [15.737]	70 [15.737]	70 [15.737]	70 [15.737]

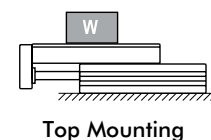
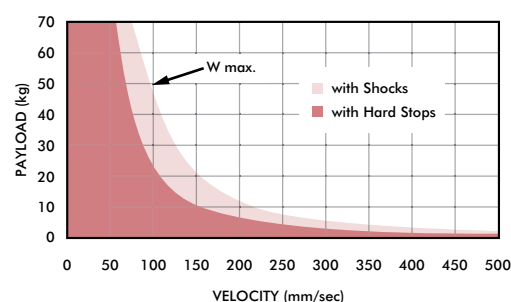
Deflection

(Note: Moment calculations located on page 31)

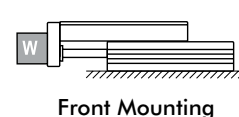
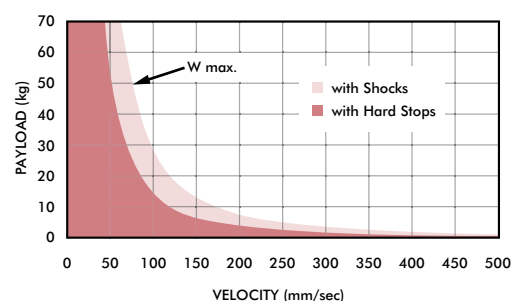


Payload vs. Velocity

TOP MOUNTING PAYLOAD vs. VELOCITY

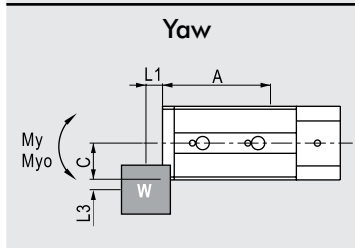
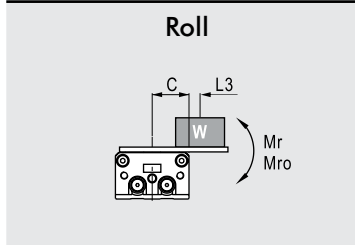
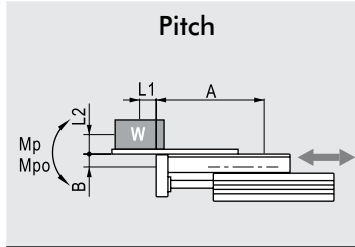
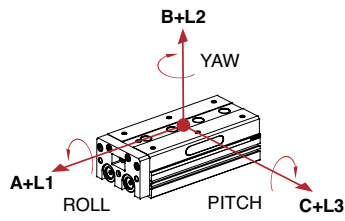


FRONT MOUNTING PAYLOAD vs. VELOCITY



T110 SERIES

OEM Linear Slide | Offset Loading Formula



	Horizontal Mounting	Side Mounting	Vertical Mounting
Pitch	Static Moment: $M_p = \frac{W \times (L1 + A)}{1000}$ Dynamic Moment: $M_{po} = \frac{W \times (L1 + A)}{1000} + \frac{W \times a \times (L2 + B)}{1000 \times g}$	Static Moment: $M_p = 0$ Dynamic Moment: $M_{po} = \frac{W \times a \times (L2 + B)}{1000 \times g}$	Static Moment: $M_p = \frac{W \times (L2 + B)}{1000}$ Dynamic Moment: $M_{po} = \frac{W \times (L2 + B)}{1000} + \frac{W \times a \times (L2 + B)}{1000 \times g}$
Roll	Static Moment: $M_r = \frac{W \times (C + L3)}{1000}$ Dynamic Moment: $M_{ro} = \text{Static Moment}$	Static Moment: $M_r = \frac{W \times (B + L2)}{1000}$ Dynamic Moment: $M_{ro} = \text{Static Moment}$	Static Moment: $M_r = 0$ Dynamic Moment: $M_{ro} = 0$
Yaw	Static Moment: $M_y = 0$ Dynamic Moment: $M_{yo} = \frac{W \times a \times (C + L3)}{1000 \times g}$	Static Moment: $M_y = \frac{W \times (A + L1)}{1000}$ Dynamic Moment: $M_{yo} = \frac{W \times a \times (C + L3)}{1000 \times g} + \frac{W \times (A + L1)}{1000}$	Static Moment: $M_y = \frac{W \times (C + L3)}{1000}$ Dynamic Moment: $M_{yo} = \frac{W \times a \times (C + L3)}{1000 \times g} + \frac{W \times (C + L3)}{1000}$

Instructions:

1. Select mounting configuration, Horizontal, Side or Vertical
2. Define position of payload center of gravity L1, L2 & L3.
A, B & C can be found in table 2
3. Calculate both static and dynamic moments for pitch, roll and yaw for your mounting configuration
4. Calculate combined moments with respect to max allowable (table 2). Must be less than or equal to 1.

$$\text{Static} \frac{M_p}{M_{p_{\max}}} + \frac{M_y}{M_{y_{\max}}} + \frac{M_r}{M_{r_{\max}}} \leq 1$$

$$\text{Dynamic} \frac{M_{po}}{M_{po_{\max}}} + \frac{M_{yo}}{M_{yo_{\max}}} + \frac{M_{ro}}{M_{ro_{\max}}} \leq 1$$

Table 1. Symbol and Unit of Measure

Symbol	Item	Unit
A, B, C	Correction value for center position distance of moment (See Table 2)	mm
a	Acceleration due to inertia (See below)	m/s ²
g	Acceleration due to gravity g=9.81	m/s ²
L1, L2, L3	Overhang (customer supplied)	mm
Mp, My, Mr	Static moment (Pitch, Yaw, Roll)	Nm
Mp _{max} , My _{max} , Mr _{max}	Maximum allowable static moment (Pitch, Yaw, Roll. See Table 2)	Nm
Mpo, Myo, Mro	Dynamic moment (Pitch, Yaw, Roll)	Nm
Mpo _{max} , Myo _{max} , Mro _{max}	Maximum allowable dynamic moment (Pitch, Yaw, Roll. See Table 2)	Nm
Va	Average speed (customer supplied)	mm/s
W	Payload (customer supplied)	N

Acceleration due to inertia: Bumper: $a = 1600 \times (Va/1000)^2$

Shock Absorber: $a = 400 \times (Va/1000)^2$

Table 2. Maximum Allowable Moments

Bore Size	Stroke (mm)	Dynamic Moment (Nm)			Static Moment (Nm)			Correction Value (mm)		
		M _{po} _{max}	M _{yo} _{max}	M _{ro} _{max}	M _p _{max}	M _y _{max}	M _r _{max}	A	B	C
06M	10	3.3	3.8	2.6	0.7	0.7	0.6	27	7.3	16
	20	3.3	3.8	2.6	0.7	0.8	0.6	42		
	30	3.3	3.8	2.6	0.7	0.8	0.6	52		
	40	7.2	7.9	3.6	1.3	1.3	0.6	72		
	50	12.4	12.7	4.7	1.8	1.8	0.6	87		
08M	10	10.1	9.1	8.8	2.5	2.5	2	32	8.5	20
	20	10.1	9.1	8.8	2.6	2.6	2	42		
	30	10.1	9.1	8.8	2.8	2.8	2	57		
	40	12.4	10.8	10.1	3.4	3.4	2.3	72		
	50	23.6	24.8	13.9	4.4	4.4	2.1	92		
	75	32.8	35.3	16.4	4.6	4.6	1.8	132		
12M	10	33	34.3	30.9	7.3	7.3	5.8	48	10	25
	20	33	34.3	30.9	7.6	7.6	5.8	58		
	30	33	34.3	30.9	7.8	7.8	5.8	68		
	40	33	34.3	30.9	8	8	5.8	78		
	50	53.4	49.6	39.7	9.8	9.8	5.8	88		
	75	78.8	71.9	48.6	14.2	14.2	6.8	125		
	100	78.8	71.9	48.6	14.7	14.7	6.8	160		
16M	10	33	34.3	30.9	8.8	8.8	7.6	43	11	30
	20	33	34.3	30.9	9.2	9.2	7.6	53		
	30	33	34.3	30.9	9.5	9.5	7.6	63		
	40	33	34.3	30.9	10	10	7.6	78		
	50	53.4	49.6	39.7	12.2	12.2	7.6	93		
	75	78.8	71.9	48.6	17.6	17.6	8.9	130		
	100	78.8	71.9	48.6	18.2	18.2	8.9	165		
	125	143.7	144.5	53.3	24.8	24.8	7.8	204		
20M	10	60.1	50.5	72.8	14.5	14.5	15.2	47	16.5	35
	20	60.1	50.5	72.8	15.2	15.2	15.2	57		
	30	60.1	50.5	72.8	15.7	15.7	15.2	67		
	40	60.1	50.5	72.8	16.3	16.3	15.2	82		
	50	60.1	50.5	72.8	16.6	16.6	15.2	92		
	75	169.3	154.3	114.4	41.2	41.2	22	136		
	100	169.3	154.3	114.4	42.8	42.8	22	176		
	125	169.3	154.3	114.4	43.6	43.6	22	205		
	150	267.5	286.6	145.6	49	49	20.5	249		
25M	10	60.1	50.5	72.8	16.3	16.3	17.6	52	20.3	42
	20	60.1	50.5	72.8	17	17	17.6	62		
	30	60.1	50.5	72.8	17.4	17.4	17.6	72		
	40	60.1	50.5	72.8	17.8	17.8	17.6	82		
	50	60.1	50.5	72.8	18.2	18.2	17.6	96		
	75	169.3	154.3	114.4	45.2	45.2	25.3	141		
	100	169.3	154.3	114.4	46.2	46.2	25.3	165		
	125	169.3	154.3	114.4	48	48	25.3	210		
	150	267.5	286.6	145.6	65	65	28.3	254		