LINEAR MOTORS PD03-37SX120F-HP

- High-performance linear motor with integrated drive
- Compact form factor
- Highly dynamic
- Suitable for daisy-chain linkages
- Integrated mounting flange
- Low cabling effort

LINEAR MOTORS PD03-37Sx120F-HP

Technical Data ____ **731**

Motor Specifications

PD03-37Sx120F/40-HP **734**

PD03-37Sx120F/100-HP **735**

PD03-37Sx120F/160-HP **736**

PD03-37Sx120F/200-HP **737**

PD03-37Sx120F/300-HP **738**

PD03-37Sx120F/400-HP **739**

Accessories ____ **740**

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SUBJECT TO ALTERATIONS

Product Description

The PD03 drive unit consists of a compact linear motor and an integrated drive. This innovative concept will allow the controller to be eliminated from the electrical enclosure for linear direct drives, thus greatly reducing installation time and effort.

In addition, this opens up the possibility to efficiently couple several devices in a daisy chain linkage. This new generation of motors can be used to implement modular machine concepts easily.

TUBULAR LINEAR MOTOR

Inside the PD03 is a series 37Sx120F-HP linear motor. This short style motor can produce a peak force 255 N and peak speed of 3.8 m/s. Together with the high-resolution slider program, the stroke range is up to 1480 mm.

Like all LinMot motors, this model can also be positioned freely and has high process stability and long service life, with no wear components.

INTEGRATED DRIVE

The drive supplies the motor with a peak phase current of up to 25 A and has an industrial Ethernet interface. EtherCAT with device profiles CoE, CiA402 and SoE is available.
ProfiNet with device profile PROFIdrive, Ethernet IP, Sercos III, and Powerlink are available upon request. The RS232 configuration interface and the DIP switch are accessible behind a protective cover, which guarantees that leak tightness requirements are met. The complete motor with integrated drive thus meets protection class IP 64 to prevent dust and water spray infiltration.

MOTOR FAMILY PD03-37Sx120F-HP

Technical Data				
Stroke				
Max. Stroke	mm	(in)	400	(15.75)
Force				
Max. Force @ 48VDC	N	(lbf)	255	(57.3)
Max. Force @ 72VDC	N	(lbf)	255	(57.3)
Max. Cont. Force [Passive cooling/ Fan / Fluid]	N	(lbf)	48 / - / -	(11 / - / -)
Force Constant	N/A_{pk}	(lbf/A_{pk})	17	(3.82)
Velocity				
Max. Velocity @ 48VDC	m/s	(in/s)	2.5	(99.9)
Max. Velocity @ 72VDC	m/s	(in/s)	3.8	(149.9)
Position Detection				
Position Resolution	mm	(in)	0.005	(0.0002)
Repeatability	mm	(in)	±0.05	(±0.002)
Electrical Data				
Max. Current @ 48VDC	A_{pk}		14.9	
Max. Current @ 72VDC	A_{pk}		14.9	
Max. Cont. Current [Passive cooling /Fan / Fluid]	A_{pk}		2.8 / - / -	
Terminal Resistance 25 °C / 150 °C	Ohm		2.4 / 3.5	
Terminal Inductivity	mH		1.6	
Magnetic Period	mm	(in)	40	(1.57)
Thermal Data				
Max. Winding Temperature (Sensor)	°C		120	
Thermal Resistance [Passive cooling / Fan / Fluid]	°K/W		2.9 / - / -	
Thermal Time Constant [Passive cooling / Fan / Fluid]	s		1200 / - / -	
Mechanical Data				
Stator Width	mm	(in)	42	(1.65)
Stator Height	mm	(in)	145	(5.71)
Stator Length	mm	(in)	170	(6.7)
Stator Mass	g	(lb)	1900	(4.18)
Slider Diameter	mm	(in)	20	(0.79)
Slider Length	mm	(in)	240 - 600	(9.4 - 24)
Slider Mass	g	(lb)	490 - 1330	(0.88 - 2.4)
IP Code			IP 64*	
Integrated Servo Drive				
Nominal Voltage Power	VDC		72 (24 -85)	
Nominal Voltage Signal	VDC		24 (22 -26)	
Nominal Current Signal	mA		150	
Internal Fuse Signal			Fuse 3 A-T	
Field Bus			EtherCAT	
Configuration Interface			RS232	

* IP65 or higher on request

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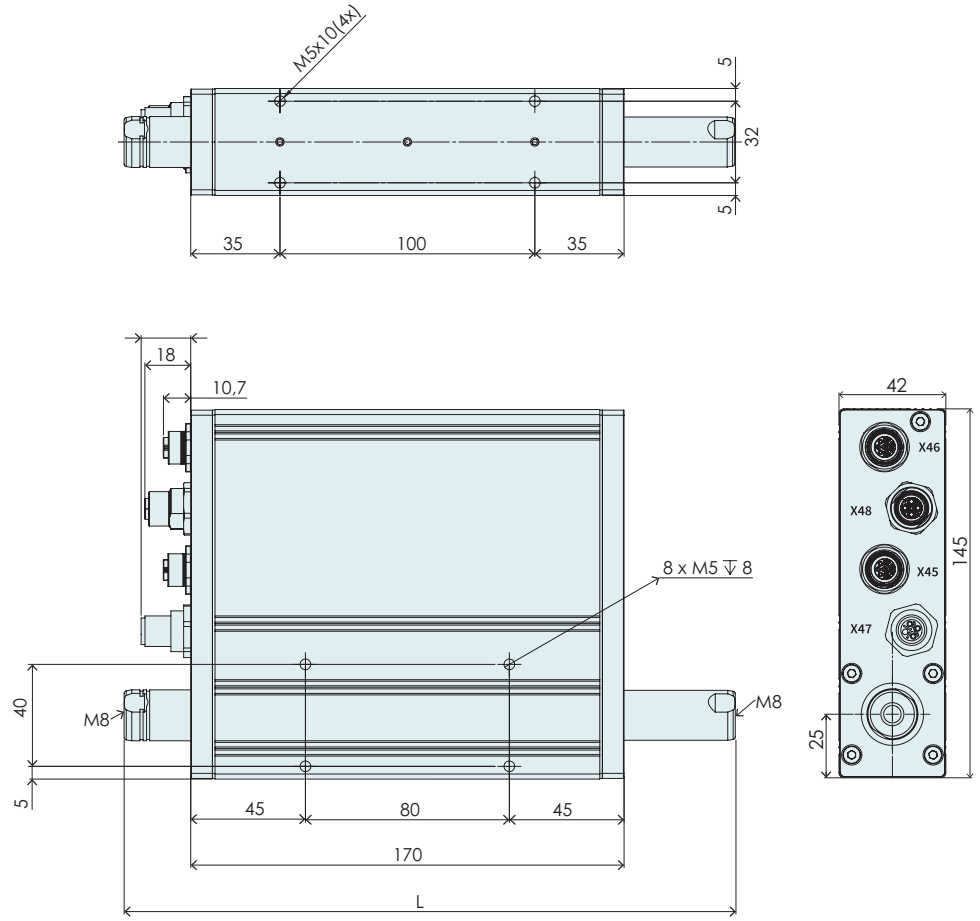
STATOR

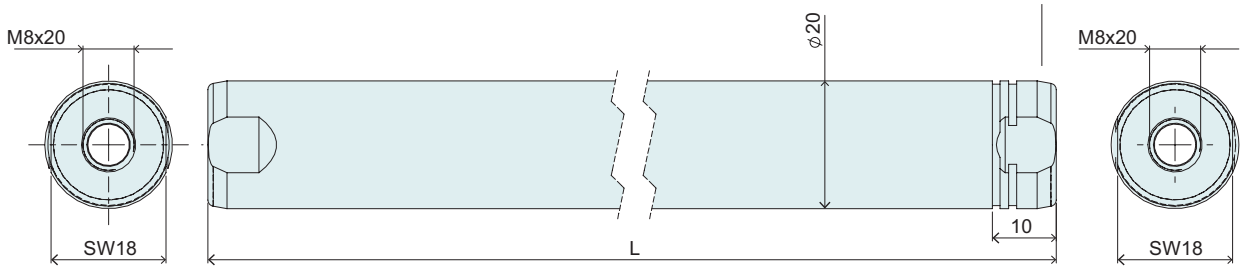


Item	Description	Item-No.
PSD03-37Sx120F-HP-I1150-EC-XC-0S-000	Stator with EtherCAT Drive (72V/15A)	0150-2806
PSD03-37Sx120F-HP-I1150-DS-XC-0S-000	Stator with EtherCAT CoE Drive (72V/15A)	0150-2807
PSD03-37Sx120F-HP-I1150-SE-XC-0S-000	Stator with EtherCAT SoE Drive (72V/15A)	0150-2808

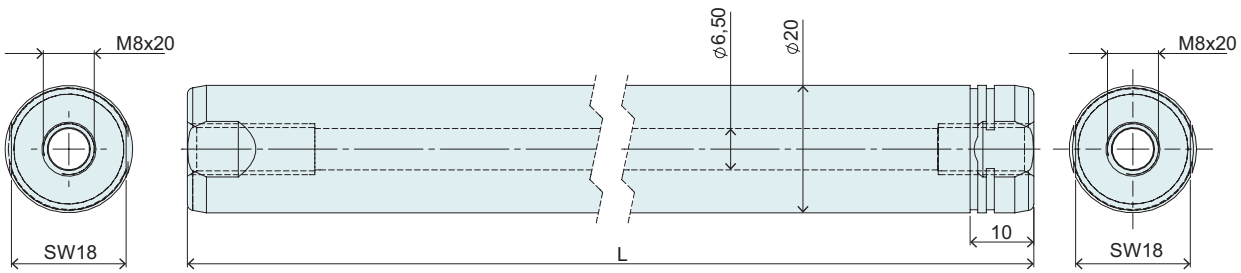
SLIDER

Slider HP / Heavy Duty HP

Number of grooves determines the slider type (see chapter 2 / slider) and marks the front end.



Hollow Slider HP



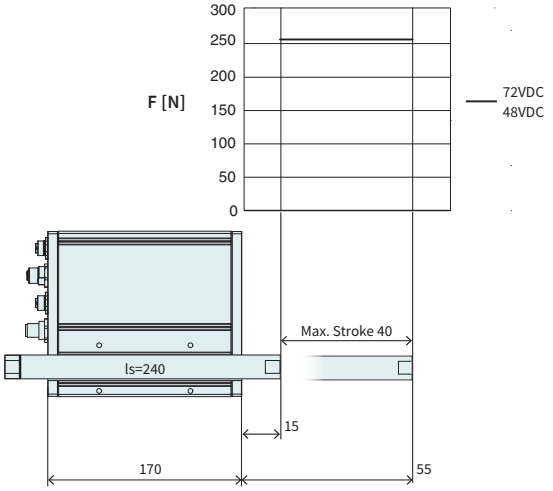
Slider High Performance			
Item	**Description**	**Max. Stroke [mm]**	**Item-No.**
PL01-20x240/180-HP	Slider 'High Performance'	40	0150-1505
PL01-20x300/240-HP	Slider 'High Performance'	100	0150-1506
PL01-20x360/300-HP	Slider 'High Performance'	160	0150-1507
PL01-20x400/340-HP	Slider 'High Performance'	200	0150-1508
PL01-20x500/440-HP	Slider 'High Performance'	300	0150-1509
PL01-20x600/540-HP	Slider 'High Performance'	400	0150-1510

Slider Heavy Duty High Performance			
Item	**Description**	**Max. Stroke [mm]**	**Item-No.**
PL02-20x240/180-HP	Slider 'heavy duty' 'High Performace'	40	0150-2162
PL02-20x300/240-HP	Slider 'heavy duty' 'High Performace'	100	0150-2163
PL02-20x360/300-HP	Slider 'heavy duty' 'High Performace'	160	0150-2164
PL02-20x400/340-HP	Slider 'heavy duty' 'High Performace'	200	0150-2165
PL02-20x500/440-HP	Slider 'heavy duty' 'High Performace'	300	0150-2166
PL02-20x600/540-HP	Slider 'heavy duty' 'High Performace'	400	0150-2167

Hollow Slider High Performance			
Item	**Description**	**Max. Stroke [mm]**	**Item-No.**
PL01-20x240/180-HP-L	Slider 'High Performance L'	40	0150-2540
PL01-20x300/240-HP-L	Slider 'High Performance L'	100	0150-3696
PL01-20x360/300-HP-L	Slider 'High Performance L'	160	0150-1537
PL01-20x400/340-HP-L	Slider 'High Performance L'	200	0150-3697
PL01-20x500/440-HP-L	Slider 'High Performance L'	300	0150-3698
PL01-20x600/540-HP-L	Slider 'High Performance L'	400	0150-3699

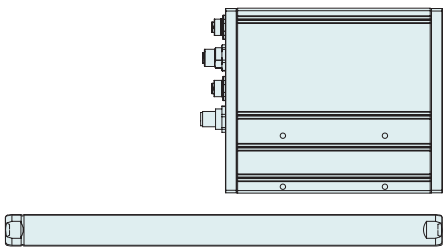
PD03-37Sx120F/40-HP

Max. Stroke: 40 mm
Peak Force: 255 N



Dimensions in mm

Technical Data PD03-37Sx120F/40-HP				
Stroke				
Max. Stroke	mm	(in)	40	(1.57)
Force				
Max. Force @ 48VDC	N	(lbf)	255	(57.3)
Max. Force @ 72VDC	N	(lbf)	255	(57.3)
Max. Cont. Force [Passive cooling/ Fan / Fluid]	N	(lbf)	48 / - / -	(11 / - / -)
Force Constant	N/A_{pk}	(lbf/A_{pk})	17	(3.82)
Velocity				
Max. Velocity @ 48VDC	m/s	(in/s)	2.5	(99.9)
Max. Velocity @ 72VDC	m/s	(in/s)	3.8	(149.9)
Position Detection				
Repeatability	mm	(in)	±0.05	(±0.002)
Linearity	%		± 0.5	
Electrical Data				
Max. Current @ 48VDC	A_{pk}		14.9	
Max. Current @ 72VDC	A_{pk}		14.9	
Max. Cont. Current [Passive cooling /Fan / Fluid]	A_{pk}		2.8 / - / -	
Thermal Data				
Max. Winding Temperature (Sensor)	°C		120	
Thermal Resistance [Passive cooling / Fan / Fluid]	°K/W		2.9 / - / -	
Thermal Time Constant [Passive cooling / Fan / Fluid]	s		1200 / - / -	
Mechanical Data				
Slider Length	mm	(in)	240	(9.4)
Slider Mass	g	(lb)	490	(1.08)
Integrated Servo Drive				
Nominal Voltage Power	VDC		72 (24 -85)	
Nominal Voltage Signal	VDC		24 (22 -26)	
Nominal Current Signal	mA		150	
Internal Fuse Signal			Sicherung 3 A-T	
Field Bus			EtherCAT	
Configuration Interface			RS232	

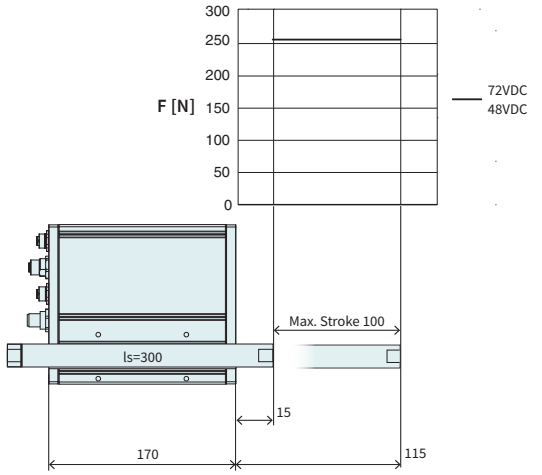


Item	Description	Item-No.
PSD03-37Sx120F-HP-I1150-EC-XC-0S-000	Stator with EtherCAT Drive (72V/15A)	0150-2806
PSD03-37Sx120F-HP-I1150-DS-XC-0S-000	Stator with EtherCAT CoE Drive (72V/15A)	0150-2807
PSD03-37Sx120F-HP-I1150-SE-XC-0S-000	Stator with EtherCAT SoE Drive (72V/15A)	0150-2808
PL01-20x240/180-HP	Slider 'High Performance'	0150-1505
PL02-20x240/180-HP	Slider 'heavy duty' 'High Performace'	0150-2162
PL01-20x240/180-HP-L*	Slider 'High Performance L'	0150-2540

*With this slider, the motor specifications above change.

PD03-37Sx120F/100-HP

Max. Stroke: 100 mm
Peak Force: 255 N



Dimensions in mm

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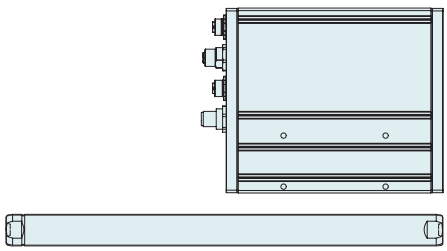
Technical Data PD03-37Sx120F/100-HP				
Stroke				
Max. Stroke	mm	(in)	100	(3.93)
Force				
Max. Force @ 48VDC	N	(lbf)	255	(57.3)
Max. Force @ 72VDC	N	(lbf)	255	(57.3)
Max. Cont. Force [Passive cooling/ Fan / Fluid]	N	(lbf)	48 / - / -	(11 / - / -)
Force Constant	N/A_{pk}	(lbf/A_{pk})	17	(3.82)
Velocity				
Max. Velocity @ 48VDC	m/s	(in/s)	2.5	(99.9)
Max. Velocity @ 72VDC	m/s	(in/s)	3.8	(149.9)
Position Detection				
Repeatability	mm	(in)	±0.05	(±0.002)
Linearity	%		± 0.4	
Electrical Data				
Max. Current @ 48VDC	A_{pk}		14.9	
Max. Current @ 72VDC	A_{pk}		14.9	
Max. Cont. Current [Passive cooling /Fan / Fluid]	A_{pk}		2.8 / - / -	
Thermal Data				
Max. Winding Temperature (Sensor)	°C		120	
Thermal Resistance [Passive cooling / Fan / Fluid]	°K/W		2.9 / - / -	
Thermal Time Constant [Passive cooling / Fan / Fluid]	s		1200 / - / -	
Mechanical Data				
Slider Length	mm	(in)	300	(12)
Slider Mass	g	(lb)	630	(1.39)
Integrated Servo Drive				
Nominal Voltage Power	VDC		72 (24 -85)	
Nominal Voltage Signal	VDC		24 (22 -26)	
Nominal Current Signal	mA		150	
Internal Fuse Signal			Sicherung 3 A-T	
Field Bus			EtherCAT	
Configuration Interface			RS232	



Item	Description	Item-No.
PSD03-37Sx120F-HP-I1150-EC-XC-0S-000	Stator with EtherCAT Drive (72V/15A)	0150-2806
PSD03-37Sx120F-HP-I1150-DS-XC-0S-000	Stator with EtherCAT CoE Drive (72V/15A)	0150-2807
PSD03-37Sx120F-HP-I1150-SE-XC-0S-000	Stator with EtherCAT SoE Drive (72V/15A)	0150-2808
PL01-20x300/240-HP	Slider 'High Performance'	0150-1506
PL02-20x300/240-HP	Slider 'heavy duty' 'High Performace'	0150-2163
PL01-20x300/240-HP-L*	Slider 'High Performance L'	0150-3696

* With this slider, the motor specifications above change.

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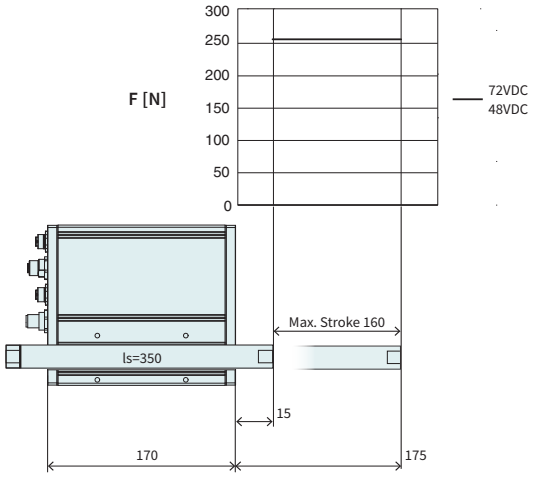
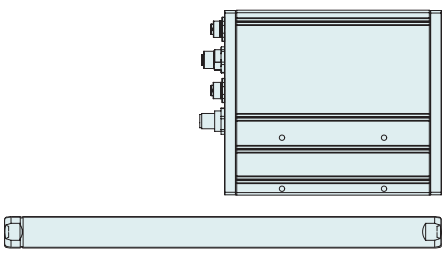
PD03-37Sx120F/160-HP

Max. Stroke: 160 mm
Peak Force: 255 N



Dimensions in mm

Technical Data PD03-37Sx120F/160-HP				
Stroke				
Max. Stroke	mm	(in)	160	(6.29)
Force				
Max. Force @ 48VDC	N	(lbf)	255	(57.3)
Max. Force @ 72VDC	N	(lbf)	255	(57.3)
Max. Cont. Force [Passive cooling/ Fan / Fluid]	N	(lbf)	48 / - / -	(11 / - / -)
Force Constant	N/A_{pk}	(lbf/A_{pk})	17	(3.82)
Velocity				
Max. Velocity @ 48VDC	m/s	(in/s)	2.5	(99.9)
Max. Velocity @ 72VDC	m/s	(in/s)	3.8	(149.9)
Position Detection				
Repeatability	mm	(in)	±0.05	(±0.002)
Linearity	%		± 0.3	
Electrical Data				
Max. Current @ 48VDC	A_{pk}		14.9	
Max. Current @ 72VDC	A_{pk}		14.9	
Max. Cont. Current [Passive cooling /Fan / Fluid]	A_{pk}		2.8 / - / -	
Thermal Data				
Max. Winding Temperature (Sensor)	°C		120	
Thermal Resistance [Passive cooling / Fan / Fluid]	°K/W		2.9 / - / -	
Thermal Time Constant [Passive cooling / Fan / Fluid]	s		1200 / - / -	
Mechanical Data				
Slider Length	mm	(in)	360	(14)
Slider Mass	g	(lb)	760	(1.67)
Integrated Servo Drive				
Nominal Voltage Power	VDC		72 (24 -85)	
Nominal Voltage Signal	VDC		24 (22 -26)	
Nominal Current Signal	mA		150	
Internal Fuse Signal			Sicherung 3 A-T	
Field Bus			EtherCAT	
Configuration Interface			RS232	

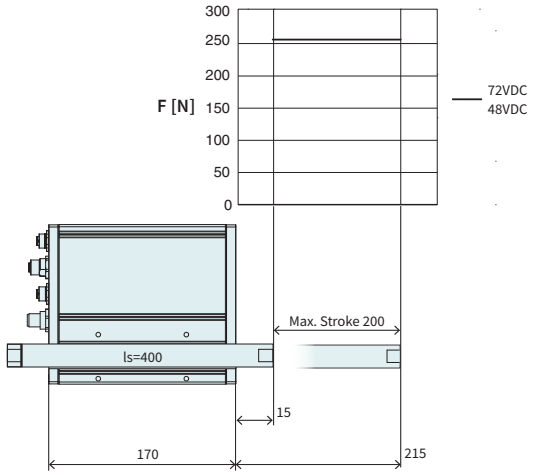


Item	Description	Item-No.
PSD03-37Sx120F-HP-I1150-EC-XC-0S-000	Stator with EtherCAT Drive (72V/15A)	0150-2806
PSD03-37Sx120F-HP-I1150-DS-XC-0S-000	Stator with EtherCAT CoE Drive (72V/15A)	0150-2807
PSD03-37Sx120F-HP-I1150-SE-XC-0S-000	Stator with EtherCAT SoE Drive (72V/15A)	0150-2808
PL01-20x360/300-HP	Slider 'High Performance'	0150-1507
PL02-20x360/300-HP	Slider 'heavy duty' 'High Performace'	0150-2164
PL01-20x360/300-HP-L*	Slider 'High Performance L'	0150-1537

* With this slider, the motor specifications above change.

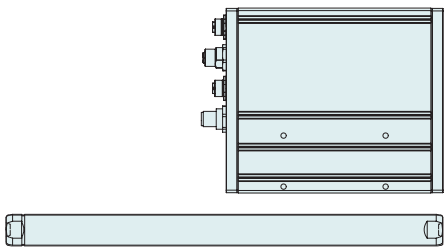
PD03-37Sx120F/200-HP

Max. Stroke: 200 mm
Peak Force: 255 N



Dimensions in mm

Technical Data PD03-37Sx120F/200-HP				
Stroke				
Max. Stroke	mm	(in)	200	(7.86)
Force				
Max. Force @ 48VDC	N	(lbf)	255	(57.3)
Max. Force @ 72VDC	N	(lbf)	255	(57.3)
Max. Cont. Force [Passive cooling/ Fan / Fluid]	N	(lbf)	48 / - / -	(11 / - / -)
Force Constant	N/A_{pk}	(lbf/A_{pk})	17	(3.82)
Velocity				
Max. Velocity @ 48VDC	m/s	(in/s)	2.5	(99.9)
Max. Velocity @ 72VDC	m/s	(in/s)	3.8	(149.9)
Position Detection				
Repeatability	mm	(in)	±0.05	(±0.002)
Linearity	%		± 0.3	
Electrical Data				
Max. Current @ 48VDC	A_{pk}		14.9	
Max. Current @ 72VDC	A_{pk}		14.9	
Max. Cont. Current [Passive cooling /Fan / Fluid]	A_{pk}		2.8 / - / -	
Thermal Data				
Max. Winding Temperature (Sensor)	°C		120	
Thermal Resistance [Passive cooling / Fan / Fluid]	°K/W		2.9 / - / -	
Thermal Time Constant [Passive cooling / Fan / Fluid]	s		1200 / - / -	
Mechanical Data				
Slider Length	mm	(in)	400	(16)
Slider Mass	g	(lb)	860	(1.9)
Integrated Servo Drive				
Nominal Voltage Power	VDC		72 (24 -85)	
Nominal Voltage Signal	VDC		24 (22 -26)	
Nominal Current Signal	mA		150	
Internal Fuse Signal			Sicherung 3 A-T	
Field Bus			EtherCAT	
Configuration Interface			RS232	



Item	Description	Item-No.
PSD03-37Sx120F-HP-I1150-EC-XC-0S-000	Stator with EtherCAT Drive (72V/15A)	0150-2806
PSD03-37Sx120F-HP-I1150-DS-XC-0S-000	Stator with EtherCAT CoE Drive (72V/15A)	0150-2807
PSD03-37Sx120F-HP-I1150-SE-XC-0S-000	Stator with EtherCAT SoE Drive (72V/15A)	0150-2808
PL01-20x400/340-HP	Slider 'High Performance'	0150-1508
PL02-20x400/340-HP	Slider 'heavy duty' 'High Performace'	0150-2165
PL01-20x400/340-HP-L*	Slider 'High Performance L'	0150-3697

* With this slider, the motor specifications above change.

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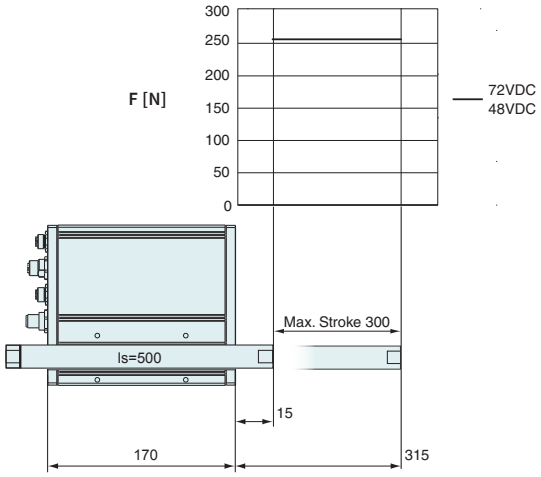
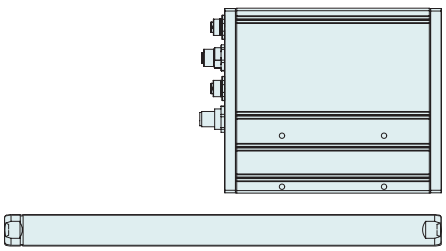
PD03-37Sx120F/300-HP

Max. Stroke: 300 mm
Peak Force: 255 N



Dimensions in mm

Technical Data PD03-37Sx120F/300-HP				
Stroke				
Max. Stroke	mm	(in)	300	(11.8)
Force				
Max. Force @ 48VDC	N	(lbf)	255	(57.3)
Max. Force @ 72VDC	N	(lbf)	255	(57.3)
Max. Cont. Force [Passive cooling/ Fan / Fluid]	N	(lbf)	48 / - / -	(11 / - / -)
Force Constant	N/A_{pk}	(lbf/A_{pk})	17	(3.82)
Velocity				
Max. Velocity @ 48VDC	m/s	(in/s)	2.5	(99.9)
Max. Velocity @ 72VDC	m/s	(in/s)	3.8	(149.9)
Position Detection				
Repeatability	mm	(in)	±0.05	(±0.002)
Linearity	%		± 0.25	
Electrical Data				
Max. Current @ 48VDC	A_{pk}		14.9	
Max. Current @ 72VDC	A_{pk}		14.9	
Max. Cont. Current [Passive cooling /Fan / Fluid]	A_{pk}		2.8 / - / -	
Thermal Data				
Max. Winding Temperature (Sensor)	°C		120	
Thermal Resistance [Passive cooling / Fan / Fluid]	°K/W		2.9 / - / -	
Thermal Time Constant [Passive cooling / Fan / Fluid]	s		1200 / - / -	
Mechanical Data				
Slider Length	mm	(in)	500	(20)
Slider Mass	g	(lb)	1090	(2.4)
Integrated Servo Drive				
Nominal Voltage Power	VDC		72 (24 -85)	
Nominal Voltage Signal	VDC		24 (22 -26)	
Nominal Current Signal	mA		150	
Internal Fuse Signal			Sicherung 3 A-T	
Field Bus			EtherCAT	
Configuration Interface			RS232	

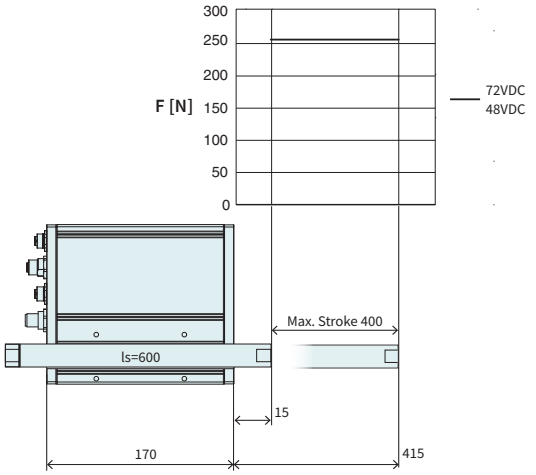


Item	Description	Item-No.
PSD03-37Sx120F-HP-I1150-EC-XC-0S-000	Stator with EtherCAT Drive (72V/15A)	0150-2806
PSD03-37Sx120F-HP-I1150-DS-XC-0S-000	Stator with EtherCAT CoE Drive (72V/15A)	0150-2807
PSD03-37Sx120F-HP-I1150-SE-XC-0S-000	Stator with EtherCAT SoE Drive (72V/15A)	0150-2808
PL01-20x500/440-HP	Slider 'High Performance'	0150-1509
PL02-20x500/440-HP	Slider 'heavy duty' 'High Performace'	0150-2166
PL01-20x500/440-HP-L*	Slider 'High Performance L'	0150-3698

* With this slider, the motor specifications above change.

PD03-37Sx120F/400-HP

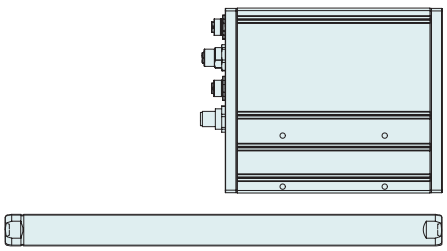
Max. Stroke: 400 mm
Peak Force: 255 N



Dimensions in mm

7

Technical Data PD03-37Sx120F/400-HP				
Stroke				
Max. Stroke	mm	(in)	400	(15.69)
Force				
Max. Force @ 48VDC	N	(lbf)	255	(57.3)
Max. Force @ 72VDC	N	(lbf)	255	(57.3)
Max. Cont. Force [Passive cooling/ Fan / Fluid]	N	(lbf)	48 / - / -	(11 / - / -)
Force Constant	N/A_{pk}	(lbf/A_{pk})	17	(3.82)
Velocity				
Max. Velocity @ 48VDC	m/s	(in/s)	2.5	(99.9)
Max. Velocity @ 72VDC	m/s	(in/s)	3.8	(149.9)
Position Detection				
Repeatability	mm	(in)	±0.05	(±0.002)
Linearity	%		± 0.2	
Electrical Data				
Max. Current @ 48VDC	A_{pk}		14.9	
Max. Current @ 72VDC	A_{pk}		14.9	
Max. Cont. Current [Passive cooling /Fan / Fluid]	A_{pk}		2.8 / - / -	
Thermal Data				
Max. Winding Temperature (Sensor)	°C		120	
Thermal Resistance [Passive cooling / Fan / Fluid]	°K/W		2.9 / - / -	
Thermal Time Constant [Passive cooling / Fan / Fluid]	s		1200 / - / -	
Mechanical Data				
Slider Length	mm	(in)	600	(24)
Slider Mass	g	(lb)	1330	(2.93)
Integrated Servo Drive				
Nominal Voltage Power	VDC		72 (24 -85)	
Nominal Voltage Signal	VDC		24 (22 -26)	
Nominal Current Signal	mA		150	
Internal Fuse Signal			Sicherung 3 A-T	
Field Bus			EtherCAT	
Configuration Interface			RS232	



Item	Description	Item-No.
PSD03-37Sx120F-HP-I1150-EC-XC-0S-000	Stator with EtherCAT Drive (72V/15A)	0150-2806
PSD03-37Sx120F-HP-I1150-DS-XC-0S-000	Stator with EtherCAT CoE Drive (72V/15A)	0150-2807
PSD03-37Sx120F-HP-I1150-SE-XC-0S-000	Stator with EtherCAT SoE Drive (72V/15A)	0150-2808
PL01-20x600/540-HP	Slider 'High Performance'	0150-1510
PL02-20x600/540-HP	Slider 'heavy duty' 'High Performace'	0150-2167
PL01-20x600/540-HP-L*	Slider 'High Performance L'	0150-3699

* With this slider, the motor specifications above change.

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SUBJECT TO ALTERATIONS

SLIDER MOUNTING

Item	Description	Item-No.
PLF01-20	Fixed Bearing Set for 19/20 mm sliders	0150-3083
PLL01-20	Floating Bearing for 20 mm sliders	0150-3084
PLM01-20-MK	Mounting Kit for 20 mm sliders	0150-3079

FIND MORE PRODUCT DETAILS IN THE CHAPTER „ACCESSORIES“.

DOC-NO. 0185-0066-E / VERSION 1V2
SUBJECT TO ALTERATIONS