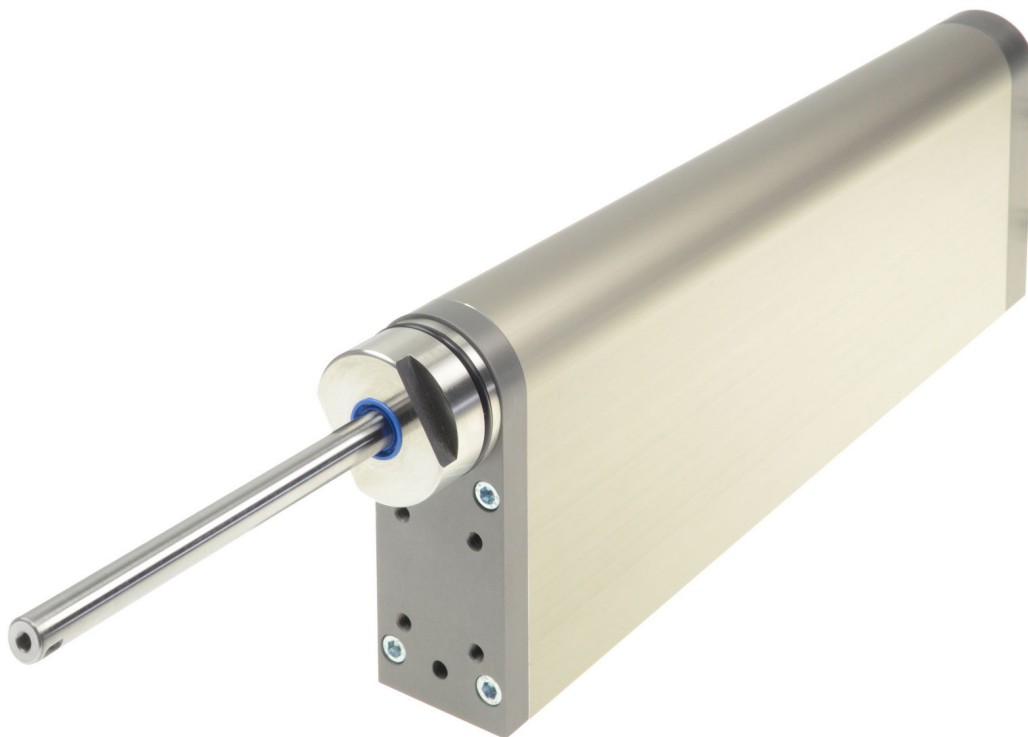


DATA SHEET

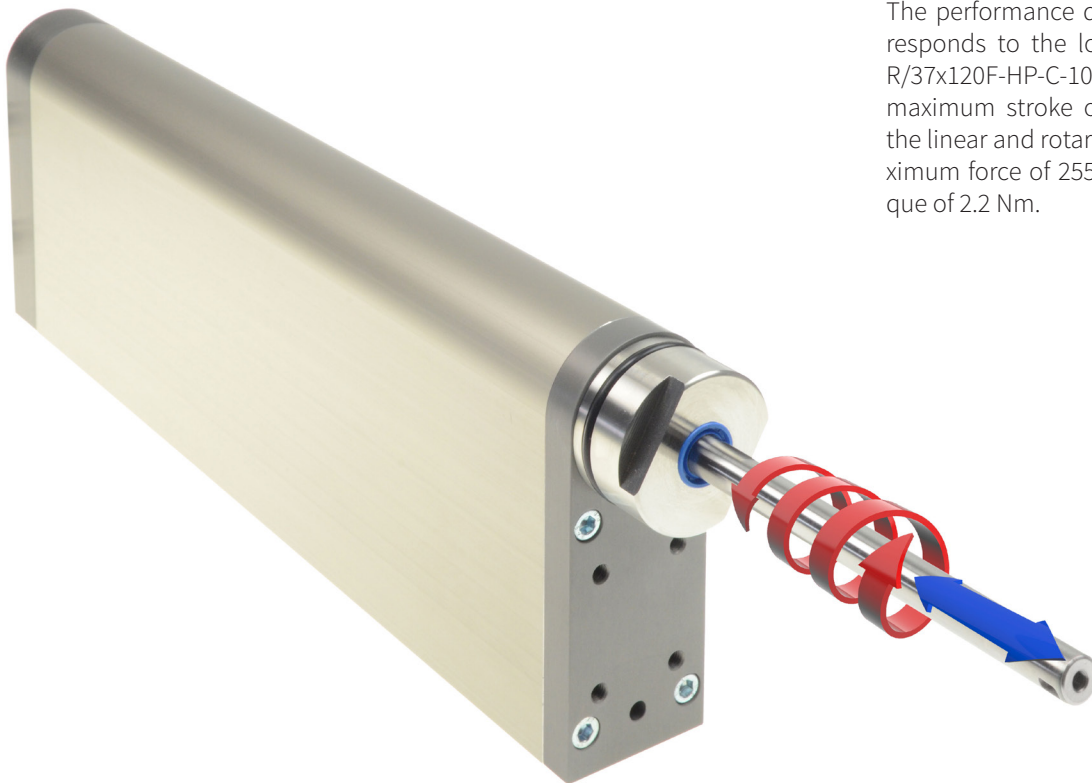
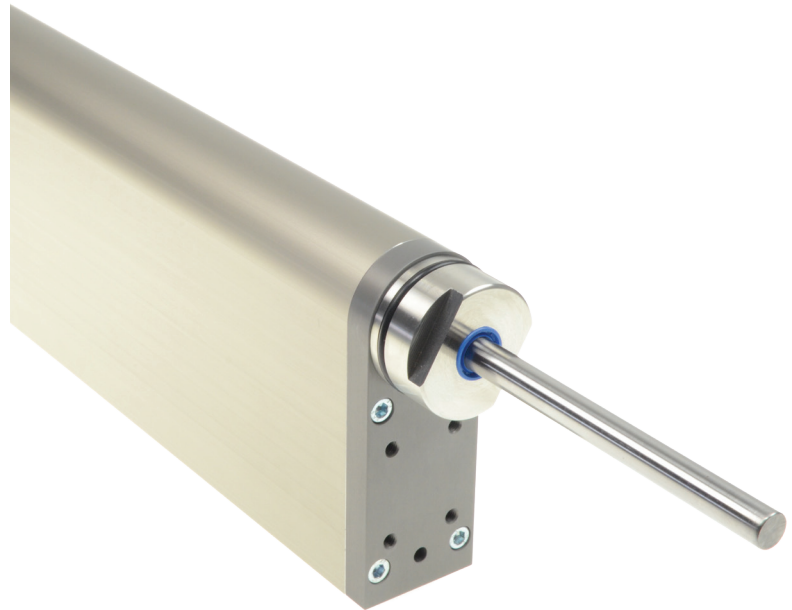
Linear Rotary Motors PR02-52



- ✓ New design principle with shorter installation length
- ✓ Option integrated MagSpring for load compensation (pushing or pulling)
- ✓ Torque measuring shaft option for high-precision torque control and process data logging
- ✓ Option front flange and lifting rotary shaft in stainless steel for the food or pharmaceutical sector with special requirement for cleaning.
- ✓ Independent linear and rotary motions
- ✓ Extensive range of strokes

Product description

LinMot expands its product range of linear motors by a further type. The new PR02 motor series is characterised by a new design in which the motors, including additional components, are integrated in a slim housing. In addition to the linear motor and the torque motor, further options such as an air passage, a magnetic spring "MagSpring", a torque sensor or force sensor can be installed. With the aid of the air feed through the hollow slider, pneumatic grippers can be actuated or vacuum applications can be easily implemented, among other things. The MagSpring ensures that the weight force of the moving load is passively compensated and also prevents the axle from lowering in the de-energized state. The torque sensor and the force sensor enable precise, reproducible and recordable capping processes, as required in the pharmaceutical industry, for example, and for applications with special cleaning requirements, the front flange and the linear rotary shaft in stainless steel design are available as an option. With the new design, the user benefits from the shorter in-

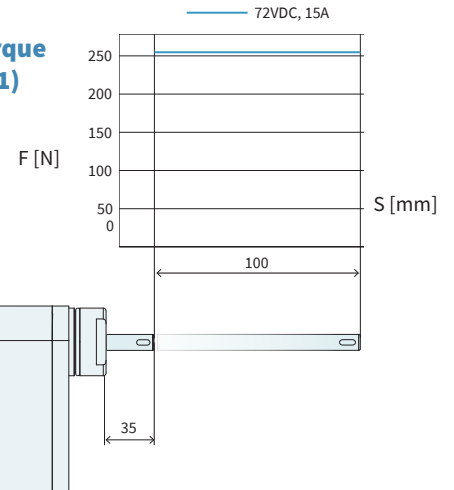


stallation length of the entire unit and the hygienic design with easy-to-clean surfaces. The performance data of the PR02-52 corresponds to the long-proven PR01-52x60-R/37x120F-HP-C-100, which guarantees a maximum stroke of 100 mm. In addition, the linear and rotary motors generate a maximum force of 255 N and a maximum torque of 2.2 Nm.

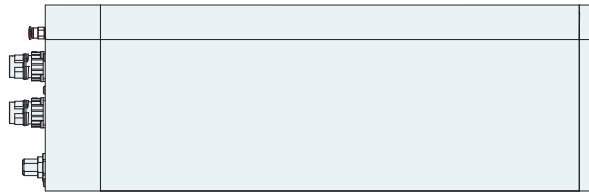
PR02-52x60(-SSC)-R_37x120F-HP-R-100(-L)_MSxx_TSxx_FSxx

Optional:
Stainless Steel Front/Shaft (-SSC); Hollow Shaft (-L); MagSpring (_MSxx); Torque Measuring Shaft (_TSxx); Force Sensor (_FSxx) Angled motor connector (_R01)

Max. Stroke:	100 mm
Peak Force:	255 N
Peak Torque:	2.2 Nm



Dimensions in mm

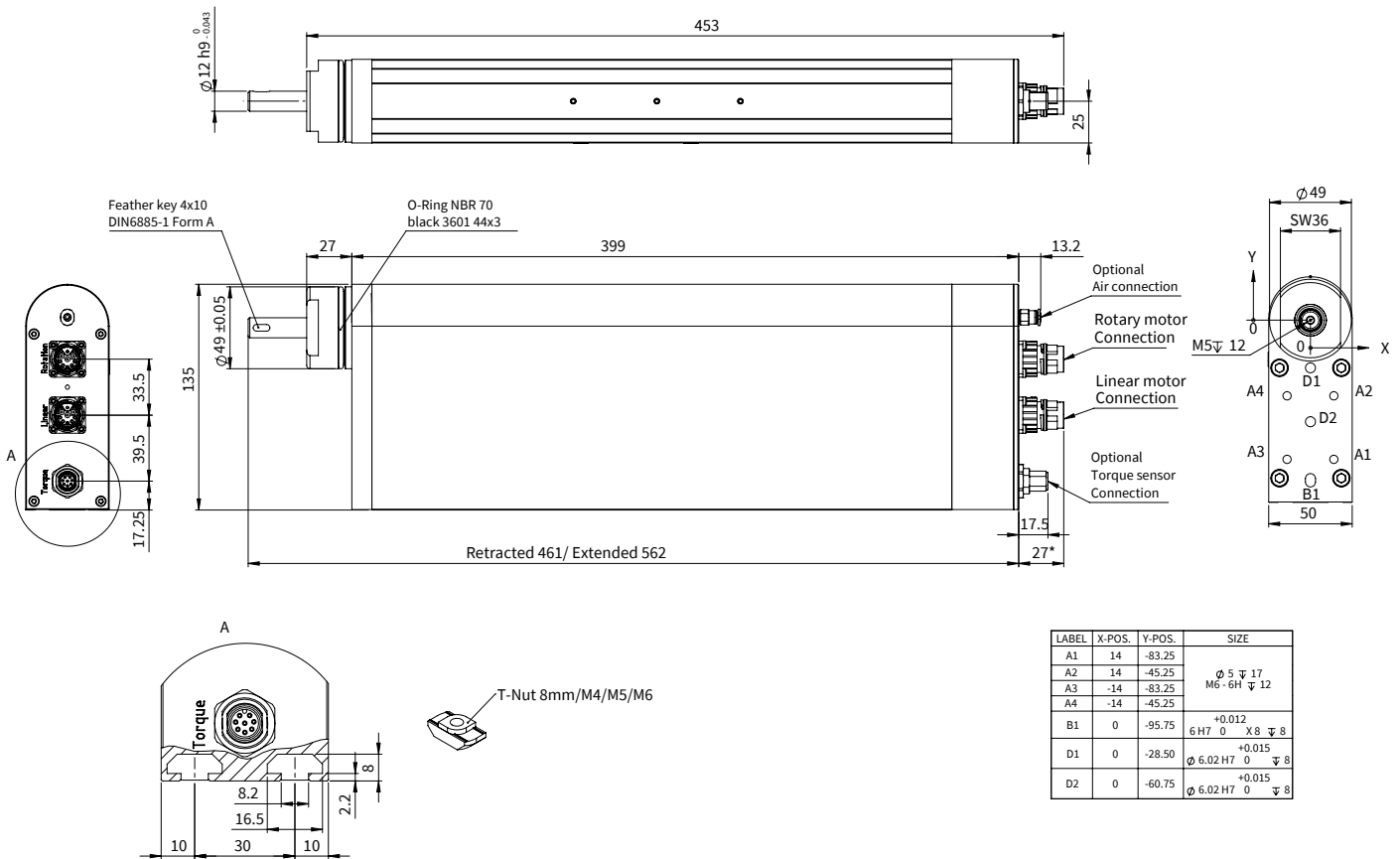


Motor Specifications			
Linear Motion			
Max. Stroke	mm (in)	100	(3.94)
Peak Forc E12x0 - UC	N (lbf)	255	(57.3)
Constant Force @25°C ¹⁾	N (lbf)	75	(16.9)
Force Constant @25°C	N/A _{pk} (lbf/A _{pk})	17	(3.8)
Max. Current @ 72VDC	A _{pk}	15	
Max. Velocity @ 72VDC	m/s (in/s)	3.9	(154)
Position Repeatability	mm (in)	±0.05	(±0.0020)
Linearity	%	±0.10	
Rotary Motion			
Peak Torque (± 10%)	Nm (lbf·in)	2.2	(19.5)
Constant Torque (Halt) @25°C ¹⁾	Nm (lbf·in)	0.55	(4.9)
Max. Number of revolutions	rpm	1500	
Torque Constant 1	Nm/A _{rpm} (lbf·in/A _{rpm})	0.16	(1.42)
Torque Constant 2	Nm/A _{rms} (lbf·in/A _{rms})	0.23	(2.04)
Max. Current @ 72VDC	A _{pk} / A _{rms}	13.5 / 9.55	
Position Repeatability	°	±0.1	
Mechanical Data			
Width	mm (in)	50	(1.97)
Height	mm (in)	135	(5.31)
Length	mm (in)	453 / 468	(17.83 / 18.43)
Mass [without MagSpring / with MagSpring]	g (lb)	5680 / 6570	(12.52 / 14.48)
Linear moving mass [without MagSpring]	g (lb)	1010	(2.23)
Linear moving mass [with MagSpring 30N / with MagSpring 60N]	g (lb)	1200 / 1200	(2.65 / 2.65)
Linear moving mass [with MagSpring -30N / with MagSpring -60N]	g (lb)	1150 / 1150	(2.54 / 2.54)
Rotary Torque of Inertia	kgcm ² (lb·ft ²)	0.26	(0.00062)
Weight Compensation [Option MS01 / Option MS04] ²⁾	N (lbf)	30 / 60	(6.74 / 13.5)
Weight Compensation [Option MS51 / Option MS54] ²⁾	N (lbf)	-30 / -60	(-6.74 / -13.5)
Axle Diameter	mm (in)	12h9	(0.47)
Through bore-hole		Option-L: Hole diameter 2.5 mm Connection (front) M5; (back) Connector M5	
Protection Class		IP64	
		Torque Sensor (Optional)	Force Sensor (Optional)
Supply Voltage	VDC	24	24
Measuring Range	Nm (lbf·in)	±2.5 (±21.9)	FS01 = ±100 (±22.5) / FS02 = ±250 (±56.2)
Boundary Frequency -3dB	kHz	1	1
Output Signal	VDC	±10	±10
Current Consumption	mA	<160	<160
Zero Offset	mV	<±100	<±100
Mechanical Overload	%	200	300
Resolution (C1200)	Bit	12	12
Linearity	Nm	±0.025 (±0.22)	±1 (±0.22) / ±2.5 (±0.56)

1) Value depends on 2nd motor (see LinMot Designer)

2) Effective load compensation dependent on module-specific friction and moving net mass & load mass.

DIMENSIONS PR02-52X60(-SSC)-R_37X120F-HP-R-100(-L)_MSXX_TSXX



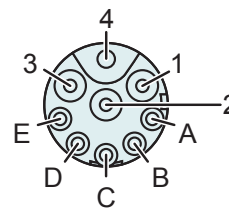
*) Dimension extends with option R01 (angled connector) by +10mm

Dimensions in mm

CONNECTORS

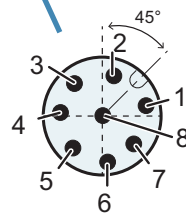
Motor Connector Wiring	Linear Unit: R-Connector	Rotary Unit: R-Connector	Wire Color Motor Cable
Ph 1+ / Ph A	1	1	red
Ph 1- / Ph B	2	2	pink
Ph 2+ / Ph C	3	3	blue
Ph 2- / (-)	4	4 (not connected)	grey
+5VDC	A	A	white
GND	B	B	inner shield
Sin	C	C	yellow
Cos	D	D	green
Temp.	E	E	black
Shield	Housing	Housing	outer shield

R-Connector



View: Motor connector, plug on

M12-Connector (A-coded)



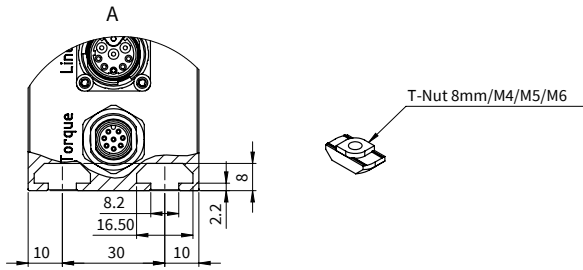
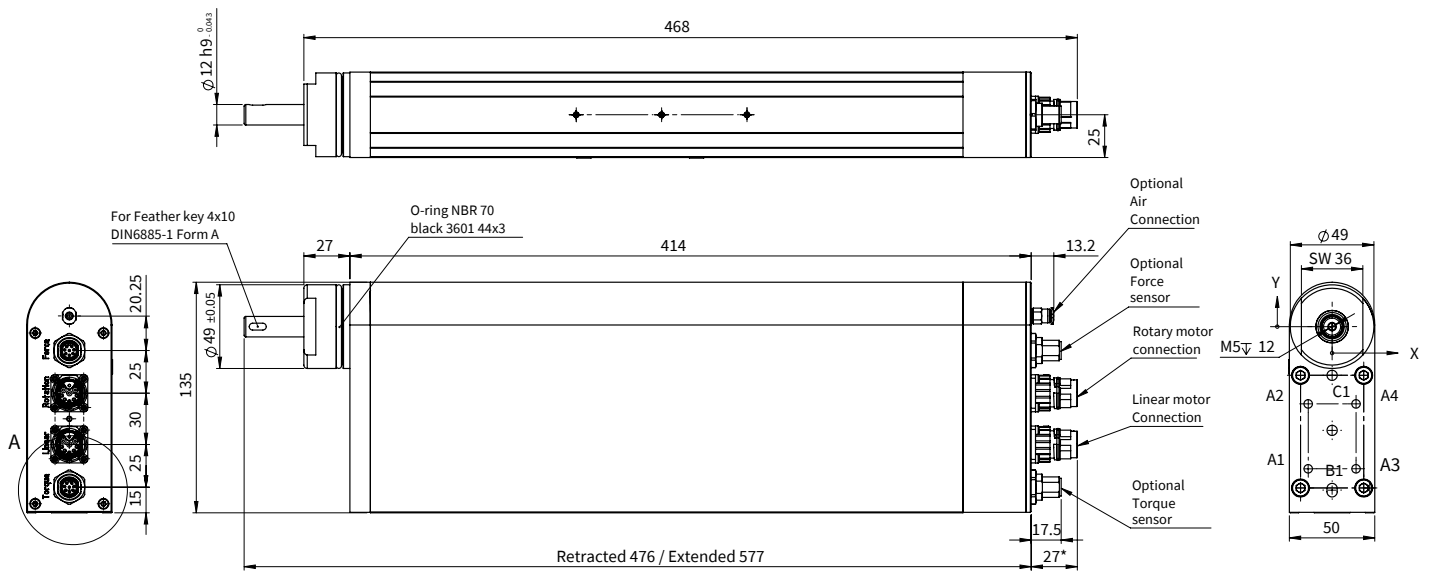
View: Motor connector, plug on

PIN 4 (torque / force -) and PIN 1 (supply GND) are internally galvanically isolated and must not be connected to each other. Please read installation guide for any exceptions.

External EMC circuitry

A ceramic capacitor 100nF / 50V can be soldered between pins 4 - 5 on the evaluation to avoid wire-bound interference.

DIMENSIONS PR02-52X60(-SSC)-R_37X120F-HP-R-100(-L)_MSXX_TSXX_FSXX



ETIKETT	X-POS.	Y-POS.	Size
A1	-14	-83.25	φ 5 ∇ 17 M6 - 6H ∇ 12
A2	-14	-45.25	
A3	14	-83.25	
A4	14	-45.25	
B1	0	-95.75	+0.012 6 H7 0 X 8 ∇ 8
C1	0	-28.50	+0.015 φ 6.020 H7 0 ∇ 8

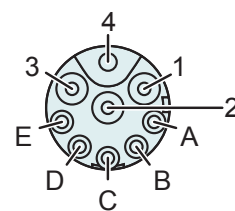
* Dimension extends with option R01 (angled connector) by +10mm

Dimensions in mm

CONNECTORS

Motor Connector Wiring	Linear Unit: R-Connector	Rotary Unit: R-Connector	Wire Color Motor Cable
Ph 1+ / Ph A	1	1	red
Ph 1- / Ph B	2	2	pink
Ph 2+ / Ph C	3	3	blue
Ph 2- / (-)	4	4 (not connected)	grey
+5VDC	A	A	white
GND	B	B	inner shield
Sin	C	C	yellow
Cos	D	D	green
Temp.	E	E	black
Shield	Housing	Housing	outer shield

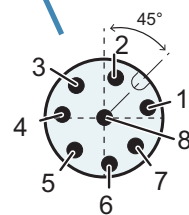
R-Connector



View: Motor connector, plug on

Connector Wiring	Torque- / Force Sensor M12 Connector (A-coded)	Wire Color Sensor Cable
Supply GND	1	white
Supply 24V (approx. 80 mA @ 24VDC)	2	brown
Do not connect	3	green
Torque / Force -	4	yellow
Torque / Force +	5	grey
AGND / Reference ground for force sensor signal (Isolated from PGND, connect to reference GND of analog input on servo drive.)	6	pink
Do not connect	7	blue
Do not connect	8	red

M12-Connector (A-coded)



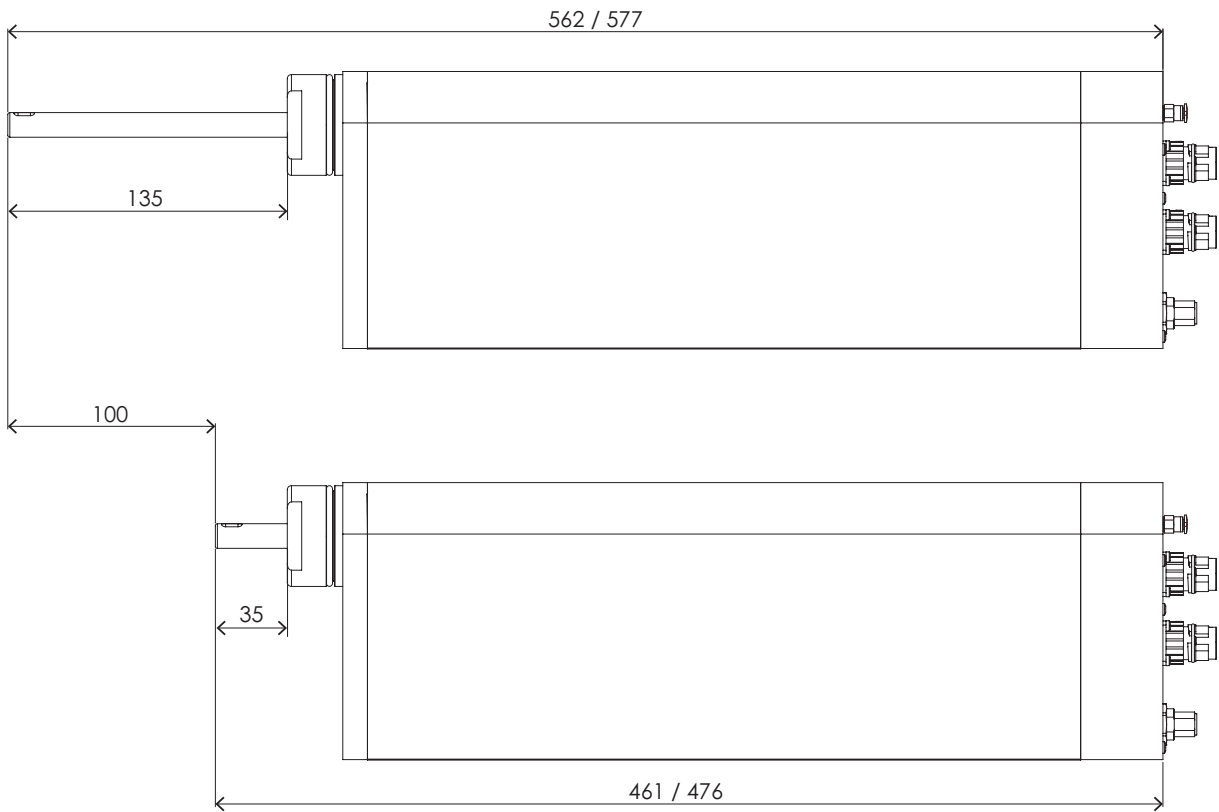
View: Motor connector, plug on

PIN 4 (torque / force -) and PIN 1 (supply GND) are internally galvanically isolated and must not be connected to each other. Please read installation guide for any exceptions.

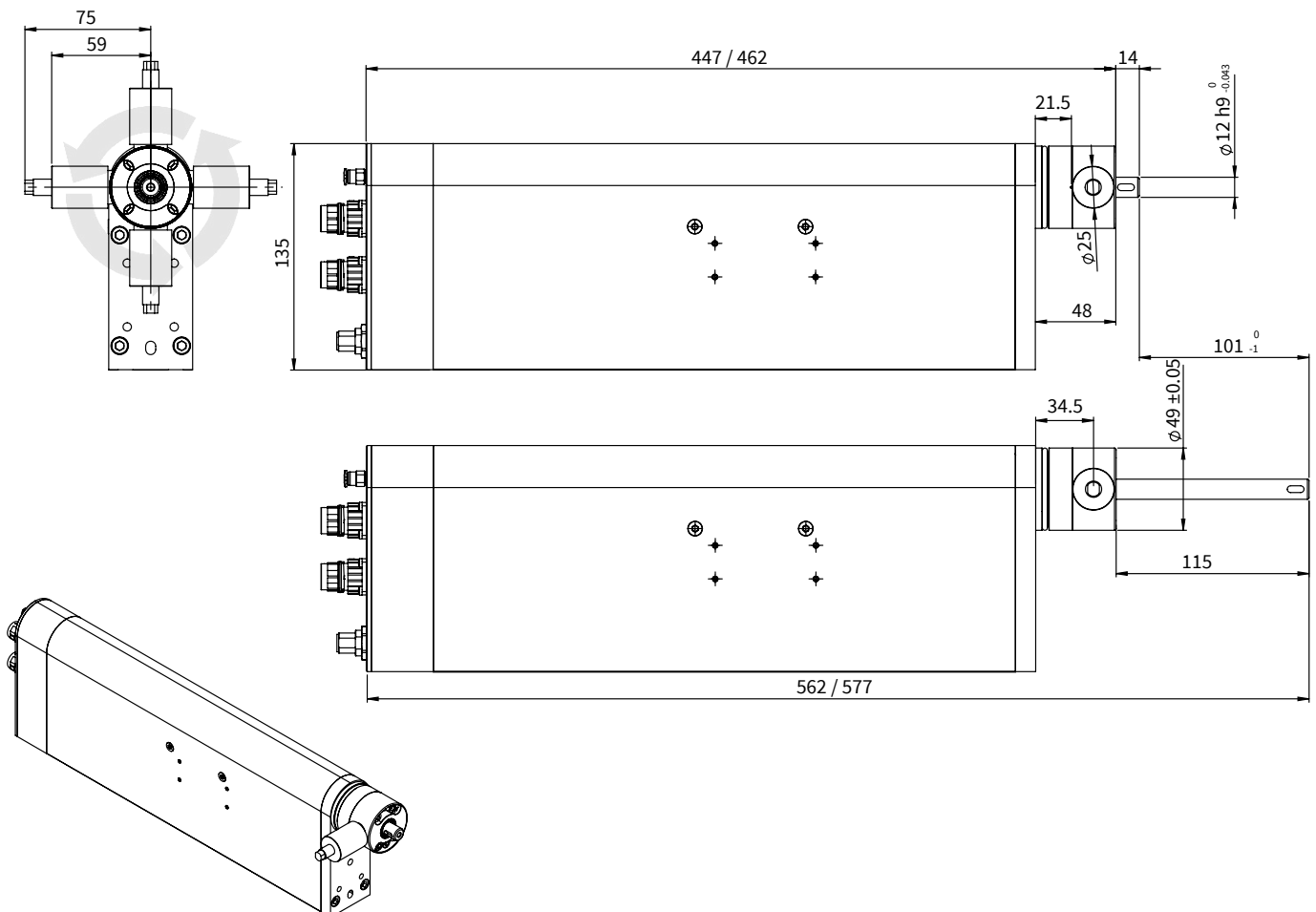
External EMC circuitry

A ceramic capacitor 100nF / 50V can be soldered between pins 4 - 5 on the evaluation to avoid wire-bound interference.

MAX. STROKE



DIMENSIONS OPTION HOLDING-BRAKE-KIT RS02-BK52



ORDERING INFORMATION

LINEAR ROTARY MOTORS PR02

Item	Description	Item-No.
PR02-52x60-R_37x120F-HP-R-100_MS00_TS00	Linear Rotary Motor	0150-2997
PR02-52x60-R_37x120F-HP-R-100_MS01_TS00	Linear Rotary Motor, MagSpring 30N	0150-3741
PR02-52x60-R_37x120F-HP-R-100_MS04_TS00	Linear Rotary Motor, MagSpring 60N	0150-2781
PR02-52x60-R_37x120F-HP-R-100-L_MS00_TS00	Linear Rotary Motor with hollow Shaft	0150-3725
PR02-52x60-R_37x120F-HP-R-100-L_MS01_TS00	Linear Rotary Motor with hollow Shaft, MagSpring 30N	0150-3742
PR02-52x60-R_37x120F-HP-R-100-L_MS04_TS00	Linear Rotary Motor with hollow Shaft, MagSpring 60N	0150-3758
PR02-52x60-R_37x120F-HP-R-100_MS51_TS00	Linear Rotary Motor, MagSpring -30N	0150-3967
PR02-52x60-R_37x120F-HP-R-100-L_MS51_TS00	Linear Rotary Motor with hollow Shaft, MagSpring -30N	0150-3968
PR02-52x60-R_37x120F-HP-R-100-L_MS54_TS00	Linear Rotary Motor with hollow Shaft, MagSpring -60N	0150-3971

LINEAR ROTARY MOTORS PR02 - WITH TORQUE MEASURING SHAFT (TS)

Item	Description	Item-No.
PR02-52x60-R_37x120F-HP-R-100_MS00_TS01	Linear Rotary Motor, TS 2.5Nm	0150-3726
PR02-52x60-R_37x120F-HP-R-100_MS01_TS01	Linear Rotary Motor, TS 2.5Nm, MagSpring 30N	0150-3743
PR02-52x60-R_37x120F-HP-R-100_MS04_TS01	Linear Rotary Motor, TS 2.5Nm, MagSpring 60N	0150-2884
PR02-52x60-R_37x120F-HP-R-100-L_MS00_TS01	Linear Rotary Motor with hollow Shaft, TS 2.5Nm	0150-3727
PR02-52x60-R_37x120F-HP-R-100-L_MS01_TS01	Linear Rotary Motor with hollow Shaft, TS 2.5Nm, MagSpring 30N	0150-3744
PR02-52x60-R_37x120F-HP-R-100-L_MS04_TS01	Linear Rotary Motor with hollow Shaft, TS 2.5Nm, MagSpring 60N	0150-2707
PR02-52x60-R_37x120F-HP-R-100_MS51_TS01	Linear Rotary Motor, MagSpring -30N, Torque Sensor	0150-3969
PR02-52x60-R_37x120F-HP-R-100-L_MS51_TS01	Linear Rotary Motor with hollow Shaft, MagSpring -30N, Torque Sensor	0150-3970
PR02-52x60-R_37x120F-HP-R-100-L_MS54_TS01	Linear Rotary Motor with hollow Shaft, MagSpring -60N, Torque Sensor	0150-3972
PR02-52x60-R_37x120F-HP-R-100_MS54_TS01	Linear Rotary Motor, MagSpring -60N, Torque Sensor	0150-3974

LINEAR ROTARY MOTORS PR02 - WITH STAINLESS STEEL FRONT (SSC)

Item	Description	Item-No.
PR02-52x60-SSC-R_37x120F-HP-R-100_MS00_TS00	Linear Rotary Motor Stainless Steel Front	0150-3745
PR02-52x60-SSC-R_37x120F-HP-R-100-L_MS00_TS00	Linear Rotary Motor Stainless Steel Front, Hollow Shaft	0150-3749
PR02-52x60-SSC-R_37x120F-HP-R-100-L_MS01_TS00	Linear Rotary Motor Stainless Steel Front, Hollow Shaft, MagSpring 30N	0150-4482
PR02-52x60-SSC-R_37x120F-HP-R-100-L_MS01_TS01	Linear Rotary Motor Stainless Steel Front, Hollow Shaft, MagSpring 30N, Torque Sensor	0150-3752
PR02-52x60-SSC-R_37x120F-HP-R-100-L_MS51_TS00	Linear Rotary Motor Stainless Steel Front, Hollow Shaft, MagSpring -30N	0150-4470
PR02-52x60-SSC-R_37x120F-HP-R-100_MS00_TS01	Linear Rotary Motor Stainless Steel Front, Torque Sensor	0150-3746
PR02-52x60-SSC-R_37x120F-HP-R-100_MS01_TS01	Linear Rotary Motor Stainless Steel Front, MagSpring 30N, Torque Sensor	0150-3748
PR02-52x60-SSC-R_37x120F-HP-R-100_MS01_TS00	Linear Rotary Motor Stainless Steel Front, MagSpring 30N	0150-3747
PR02-52x60-SSC-R_37x120F-HP-R-100-L_MS00_TS01	Linear Rotary Motor Stainless Steel Front, Hollow Shaft, Torque Sensor	0150-3750

PRELIMINARY

LINEAR ROTARY MOTORS PR02 - WITH FORCE MEASURING SHAFT (FS)

Item	Description	Item-No.
PR02-52x60-R_37x120F-HP-R-100_MS00_TS00_FS02	Linear Rotary Motor, Force Sensor	0150-4043
PR02-52x60-R_37x120F-HP-R-100_MS01_TS00_FS01	Linear Rotary Motor, MagSpring 30N, FS 100N	0150-3792
PR02-52x60-R_37x120F-HP-R-100-L_MS51_TS00_FS01	Linear Rotary Motor with Hollow Shaft, MagSpring -30N, Force Sensor	0150-4467
PR02-52x60-R_37x120F-HP-R-100-L_MS00_TS00_FS01	Linear Rotary Motor with Hollow Shaft, Force Sensor	0150-4221
PR02-52x60-R_37x120F-HP-R-100-L_MS01_TS00_FS01	Linear Rotary Motor with Hollow Shaft, MagSpring 30N, Force Sensor	0150-4312
PR02-52x60-R_37x120F-HP-R-100-L_MS01_TS00_FS02	Linear Rotary Motor with Hollow Shaft, MagSpring 30N, Force Sensor	0150-4534
PR02-52x60-R_37x120F-HP-R-100-L_MS01_TS01_FS01	Linear Rotary Motor with Hollow Shaft, TS 2.5Nm, FS 100N, MagSpring 30N	0150-3852
PR02-52x60-R_37x120F-HP-R-100-L_MS01_TS01_FS02	Linear Rotary Motor with Hollow Shaft, TS 2.5Nm, FS 250N, MagSpring 30N	0150-3909
PR02-52x60-R_37x120F-HP-R-100-L_MS51_TS01_FS01	Linear Rotary Motor with Hollow Shaft, MagSpring -30N, Torque Sensor, Force Sensor	0150-4468
PR02-52x60-R_37x120F-HP-R-100-L_MS51_TS01_FS02	Linear Rotary Motor with Hollow Shaft, MagSpring -30N, Torque Sensor, Force Sensor	0150-4469

ORDERING INFORMATION

ACCESSORIES		
Item	Description	Item-No.
K05-W/R-2	Motor Cable W/R, 2 m	0150-2119
K05-W/R-4	Motor Cable W/R, 4 m	0150-2120
K05-W/R-6	Motor Cable W/R, 6 m	0150-2121
K05-W/R-8	Motor Cable W/R, 8 m	0150-2122
K05-W/R-	Motor Cable K05-W/R, Custom length	0150-3262
K05-Y/R-2	Motor Cable Y/R, 2 m	0150-2421
K05-Y/R-4	Motor Cable Y/R, 4 m	0150-2422
K05-Y/R-6	Motor Cable Y/R, 6 m	0150-2423
K05-Y/R-8	Motor Cable Y/R, 8 m	0150-2424
K05-Y-Fe/R-	Motor Cable K05-Y-Fe/R, Custom length	0150-3501
KS05-W/R-4	Trailing Chain Cable W/R, 4 m	0150-2106
KS05-W/R-6	Trailing Chain Cable W/R, 6 m	0150-2131
KS05-W/R-8	Trailing Chain Cable W/R, 8 m	0150-2107
KS05-W/R-	Trailing Chain Cable KS05-W/R, Custom length	0150-3256
KS05-Y/R-4	Trailing Chain Cable Y/R, 4 m	0150-2433
KS05-Y/R-6	Trailing Chain Cable Y/R, 6 m	0150-2434
KS05-Y/R-8	Trailing Chain Cable Y/R, 8 m	0150-2435
KS05-Y-Fe/R-	Trailing Chain Cable KS05-Y-Fe/R, Custom length	0150-3507
KR05-W/R-	Robot Cable KR05-W/R, Custom length	0150-3336
KR05-Y-Fe/R-	Robot Cable KR05-Y-Fe/R, Custom length	0150-3512
KSS014-06-X4/SM	Sensor cable for PR02	0150-4610
RS01-SS12x22	Shaft-hub clamping for 12mm shaft	0230-0101
Hammer Nut N8/M6	Hammer Nut N8 / M6	0150-2558
RS02-BK52	Holding brake kit for Linear Rotary Motor PR02-52	0150-2987

ALL LINEAR MOTION FROM A SINGLE SOURCE

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