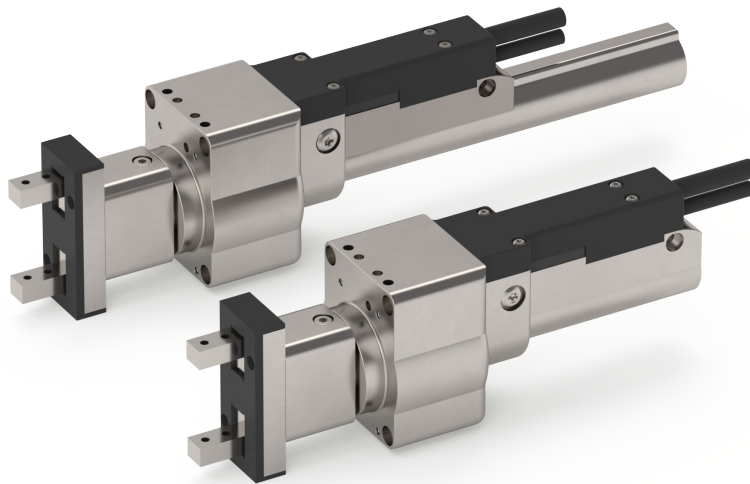


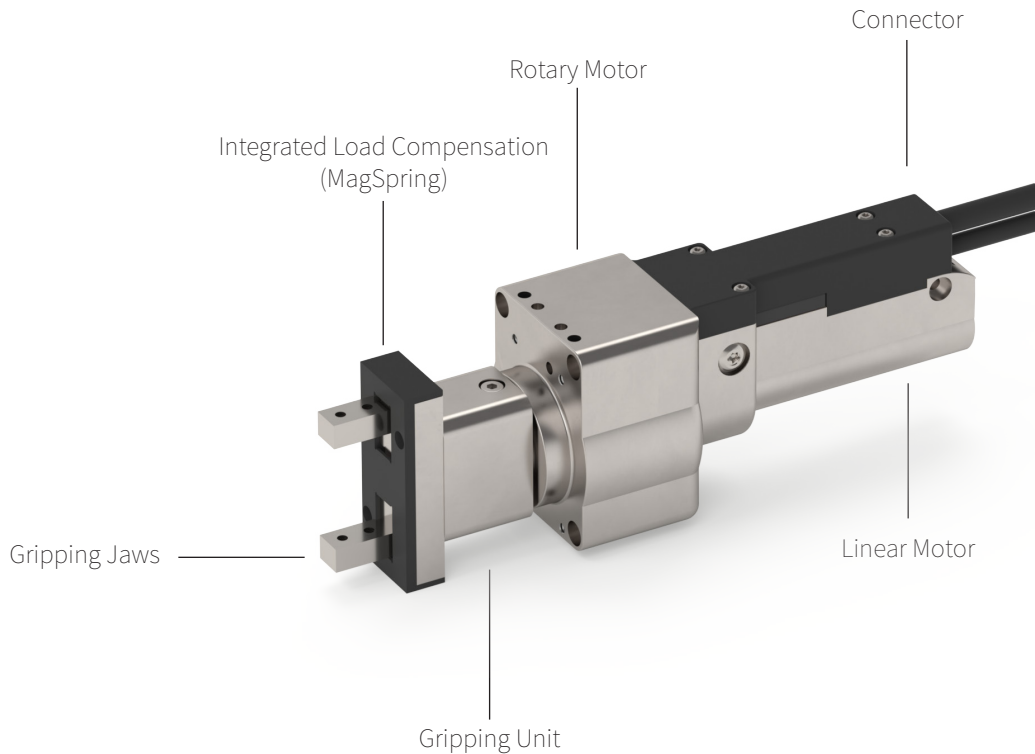
ROTARY GRIPPER GM51



- ✓ Electric rotary gripper with additional magnetic holding force
- ✓ Highly dynamic gripping, closing and opening times of less than 20 ms
- ✓ Smooth gripping thanks to freely programmable motion profiles
- ✓ Free finger positioning and force control via servo motor
- ✓ Maintains MagSpring in case of power failure, easy manual opening
- ✓ Clever design for neat cable routing directly with trailing chain connection
- ✓ Low power consumption in open and closed position
- ✓ Compatible with all common fieldbuses

ROTARY GRIPPER GM51

Description	3
Technical Data	4
Accessories	15



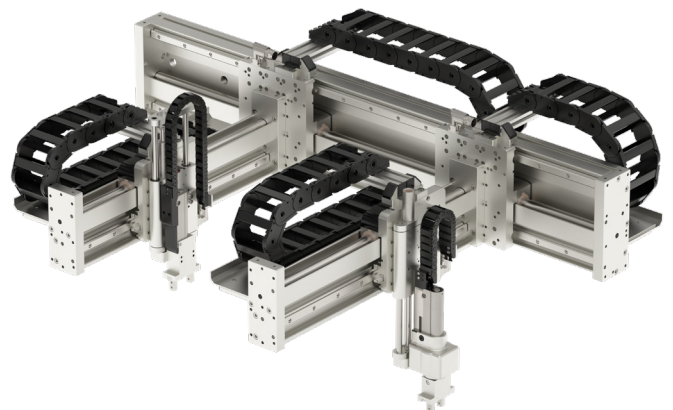
Rotary Gripper GM51

The LinMot GM51 rotary gripper is a highly dynamic solution for demanding applications. With extremely fast closing and opening times of less than 20 milliseconds, it enables efficient and reliable gripping. Freely programmable motion profiles can be used to make the gripping process particularly gentle, making it easier to handle sensitive objects. The gripper's servo motor allows individual finger positioning and adjustable force control, so gripping can be customised.

The GM51 has an integrated rotary motor with endless rotation. This makes the gripper particularly suitable for dynamic positioning, assembly and screwing tasks, and the accuracy of the absolute encoder provides high precision angular positioning. In addition, the position of the gripper fingers is monitored by the linear motor, eliminating the need for external sensors and cables that interfere with rotation. The GM51 has an integrated adapter for drag chains and cables.

Combination with guides and modules

The combination of the GM51 rotary gripper with the FM01 and EM01 guides and the DM01 and DM03 modules enables complete pick-and-place and pick-rotate-and-place applications thanks to the simple coupling and modular design of the LinMot components. The GM51 is also available with passive load compensation (MagSpring). A combination that offers maximum precision, speed and safety even under the most demanding conditions.



PERFORMANCE DATA GM51-23SX80F-XP-K_35-18_E50X08-NG_GT21(_MS03)



Performance Data Rotary Gripper GM51-23SX80F-XP-K_35-18_E50X08-NG_GT21(_MS03)

Stroke				
Max. Opening/Closing Stroke Range	mm	(in)	18	(0.71)
Force*				
Max. Clamping Force (<0.75 s) with MagSpring / without MagSpring	N	(lbf)	41 / 26	(9.22 / 5.85)
Max. Continuous Clamping Force Closing Direction with MagSpring / without MagSpring	N	(lbf)	12 / 7	(2.70 / 1.57)
Max. Continuous Clamping Force Opening Direction with MagSpring / without MagSpring	N	(lbf)	8 / 8	(1.80 / 1.80)
Max. Continuous Clamping Force Through the MagSpring (no power)	N	(lbf)	5	(1.12)
Max. Torque Rotary Motor	Nm	(lbf in)	1.03	(9.15)
Continuous Torque Rotary Motor	Nm	(lbf in)	0.32	(2.83)
Velocity				
Minimum Opening/Closing Time	s		0.02	
Max. Rotary Speed	rpm		3500**	
Position Detection				
Position Resolution	mm	(in)	0.002	(0.00008)
Repeatability Linear Motor	mm	(in)	±0.05	(±0.002)
Repeatability Rotary Motor	°	°	±0.05	(±0.002)
Max. Finger Play	mm	(in)	0.4	(0.016)
Electrical Data				
Max. Current Gripper Motor @ 48 / 72VDC	A _{pk}		7.4	
Max. Current Rotary Motor @ 48 / 72VDC	A _{pk}		20.8	
Rated Current Linear Motor	A _{pk}		1.5	
Rated Current Rotary Motor	A _{pk}		5.2	
Mechanical Data				
Gripper Width	mm	(in)	70	(2.76)
Gripper Length	mm	(in)	67.6	(2.66)
Gripper Height	mm	(in)	244.8	(9.64)
Gripper Mass	g	(lb)	1100	(2.43)
Ambient Temperature	°C		-10 bis 60	
IP Protection Class			IP 30	
Drive				
Power Supply Drive	VDC		24-72	
Number of Required Drives	Pcs.		2	
Communication Protocols			PROFINET, PROFIdrive, EtherNet/IP, EtherCAT, CANopen, sercos, Ethernet Powerlink	

*All specified gripping forces are calculated without friction. Friction reduces the maximum force.

**Theoretical speed of rotation without load at rated voltage U_r .

PERFORMANCE DATA GM51-23SX160H-XP-K_35-18_E50X08-NG_GT21(_MS03)



Performance Data Rotary Gripper GM51-23SX160H-XP-K_35-18_E50X08-NG_GT21(_MS03)				
Stroke				
Max. Opening/Closing Stroke Range	mm (in)	18	(0.71)	
Force*				
Max. Clamping Force (<0.75 s) with MagSpring / without MagSpring	N (lbf)	75 / tbd	(16.86 / tbd)	
Max. Continuous Clamping Force Closing Direction with MagSpring / without MagSpring	N (lbf)	15 / tbd	(3.37 / tbd)	
Max. Continuous Clamping Force Opening Direction with MagSpring / without MagSpring	N (lbf)	13 / tbd	(2.92 / tbd)	
Max. Continuous Clamping Force Through the MagSpring (no power)	N (lbf)	4	(0.90)	
Max. Torque Rotary Motor	Nm (lbf in)	1.03	(9.15)	
Continuous Torque Rotary Motor	Nm (lbf in)	0.32	(2.83)	
Velocity				
Minimum Opening/Closing Time	s	0.02		
Max. Rotary Speed	rpm	3500**		
Position Detection				
Position Resolution	mm (in)	0.005	(0.0002)	
Repeatability Linear Motor	mm (in)	±0.05	(±0.002)	
Repeatability Rotary Motor	° °	±0.05	(±0.002)	
Max. Finger Play	mm (in)	0.4	(0.016)	
Electrical Data				
Max. Current Gripper Motor @ 48 / 72VDC	A _{pk}	10.9		
Max. Current Rotary Motor @ 48 / 72VDC	A _{pk}	20.8		
Rated Current Linear Motor	A _{pk}	2.4		
Rated Current Rotary Motor	A _{pk}	5.2		
Mechanical Data				
Gripper Width	mm (in)	71.3	(2.81)	
Gripper Length	mm (in)	74.65	(2.94)	
Gripper Height	mm (in)	297	(11.69)	
Gripper Mass	g (lb)	1250	(2.76)	
Ambient Temperature	°C	-10 bis 60		
IP Protection Class		IP 30		
Drive				
Power Supply Drive	VDC	24-72		
Number of Required Drives	Pcs.	2		
Communication Protocols		PROFINET, PROFIdrive, EtherNet/IP, EtherCAT, CANopen, sercos, Ethernet Powerlink		

*All specified gripping forces are calculated without friction. Friction reduces the maximum force.

**Theoretical speed of rotation without load at rated voltage U_r .

DOC.-NO. 0185-0225-E / VERSION 1V2
SUBJECT TO ALTERATIONS

PERFORMANCE DATA GM51-37SX60-XP-N_48-22_E70X18-NG_GT21(_MS03)



Performance Data Rotary Gripper GM51-37Sx60-XP-N_48-22_E70x18-NG_GT21(_MS03)

Stroke				
Max. Opening/Closing Stroke Range	mm	(in)	22	(0.87)
Force*				
Max. Clamping Force (<0.75 s) with MagSpring / without MagSpring	N	(lbf)	96 / tbd	(21.58 / tbd)
Max. Continuous Clamping Force Closing Direction with MagSpring / without MagSpring	N	(lbf)	26 / tbd	(5.85 / tbd)
Max. Continuous Clamping Force Opening Direction with MagSpring / without MagSpring	N	(lbf)	13 / tbd	(2.92 / tbd)
Max. Continuous Clamping Force Through the MagSpring (no power)	N	(lbf)	17	(3.83)
Max. Torque Rotary Motor	Nm	(lbf in)	3.92	(34.69)
Continuous Torque Rotary Motor	Nm	(lbf in)	1.21	(10.71)
Velocity				
Minimum Opening/Closing Time	s		0.03	
Max. Rotary Speed	rpm		3000**	
Position Detection				
Position Resolution	mm	(in)	0.005	(0.0002)
Repeatability Linear Motor	mm	(in)	±0.05	(±0.002)
Repeatability Rotary Motor	°	°	±0.05	(±0.002)
Max. Finger Play	mm	(in)	0.4	(0.016)
Electrical Data				
Max. Current Gripper Motor @ 48 / 72VDC	A _{pk}		9.4	
Max. Current Rotary Motor @ 48 / 72VDC	A _{pk}		24.6	
Rated Current Linear Motor	A _{pk}		1.35	
Rated Current Rotary Motor	A _{pk}		TBD	
Mechanical Data				
Gripper Width	mm	(in)	103	(4.06)
Gripper Length	mm	(in)	104.8	(4.13)
Gripper Height	mm	(in)	294.2	(11.58)
Gripper Mass	g	(lb)	2770	(6.11)
Ambient Temperature	°C		-10 bis 60	
IP Protection Class			IP 30	
Drive				
Power Supply Drive	VDC		24-72	
Number of Required Drives	Pcs.		2	
Communication Protocols			PROFINET, PROFIdrive, EtherNet/IP, EtherCAT, CANopen, sercos, Ethernet Powerlink	

*All specified gripping forces are calculated without friction. Friction reduces the maximum force.

**Theoretical speed of rotation without load at rated voltage U_r .

PERFORMANCE DATA GM51-37SX120F-XP-N_48-22_E70X18-NG_GT21(_MS03)



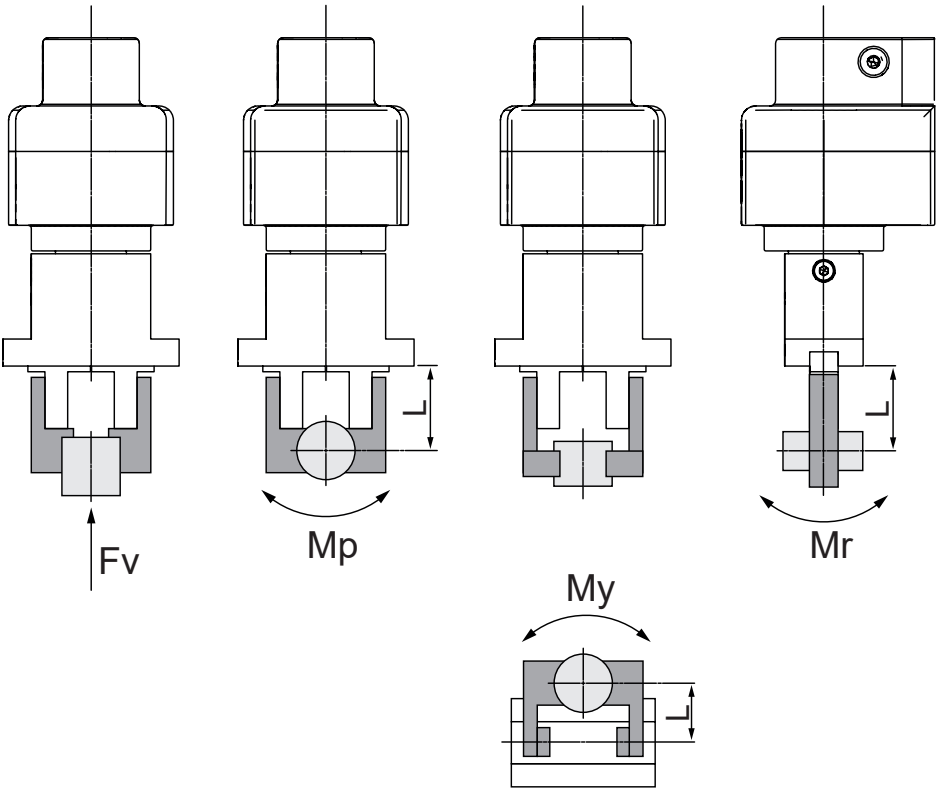
Performance Data Rotary Gripper GM51-37SX120F-XP-N_48-22_E70X18-NG_GT21(_MS03)				
Stroke				
Max. Opening/Closing Stroke Range	mm (in)		22 (0.87)	
Force				
Max. Clamping Force (<0.75 s) with MagSpring / without MagSpring	N (lbf)		160 / tbd (35.97 / tbd)	
Max. Continuous Clamping Force Closing Direction with MagSpring / without MagSpring	N (lbf)		33 / tbd (7.42 / tbd)	
Max. Continuous Clamping Force Opening Direction with MagSpring / without MagSpring	N (lbf)		21 / tbd (4.72 / tbd)	
Max. Continuous Clamping Force Through the MagSpring (no power)	N (lbf)		13 (2.92)	
Max. Torque Rotary Motor	Nm (lbf in)		3.92 (34.69)	
Continuous Torque Rotary Motor	Nm (lbf in)		1.21 (10.71)	
Velocity				
Minimum Opening/Closing Time	s		0.03	
Max. Rotary Speed	rpm		3000**	
Position Detection				
Position Resolution	mm (in)		0.005 (0.0002)	
Repeatability Linear Motor	mm (in)		±0.05 (±0.002)	
Repeatability Rotary Motor	° °		±0.05 (±0.002)	
Max. Finger Play	mm (in)		0.4 (0.016)	
Electrical Data				
Max. Current Gripper Motor @ 48 / 72VDC	A _{pk}		14.9	
Max. Current Rotary Motor @ 48 / 72VDC	A _{pk}		24.6	
Rated Current Linear Motor	A _{pk}		2.1	
Rated Current Rotary Motor	A _{pk}		6.18	
Mechanical Data				
Gripper Width	mm (in)		107.2 (4.22)	
Gripper Length	mm (in)		108.1 (4.26)	
Gripper Height	mm (in)		302.1 (11.89)	
Gripper Mass	g (lb)		3110 (6.86)	
Ambient Temperature	°C		-10 bis 60	
IP Protection Class			IP 30	
Drive				
Power Supply Drive	VDC		24-72	
Number of Required Drives	Pcs.		2	
Communication Protocols			PROFINET, PROFIdrive, EtherNet/IP, EtherCAT, CANopen, sercos, Ethernet Powerlink	

*All specified gripping forces are calculated without friction. Friction reduces the maximum force.

**Theoretical speed of rotation without load at rated voltage U_r .

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CALCULATION OF THE LOAD MOMENTS



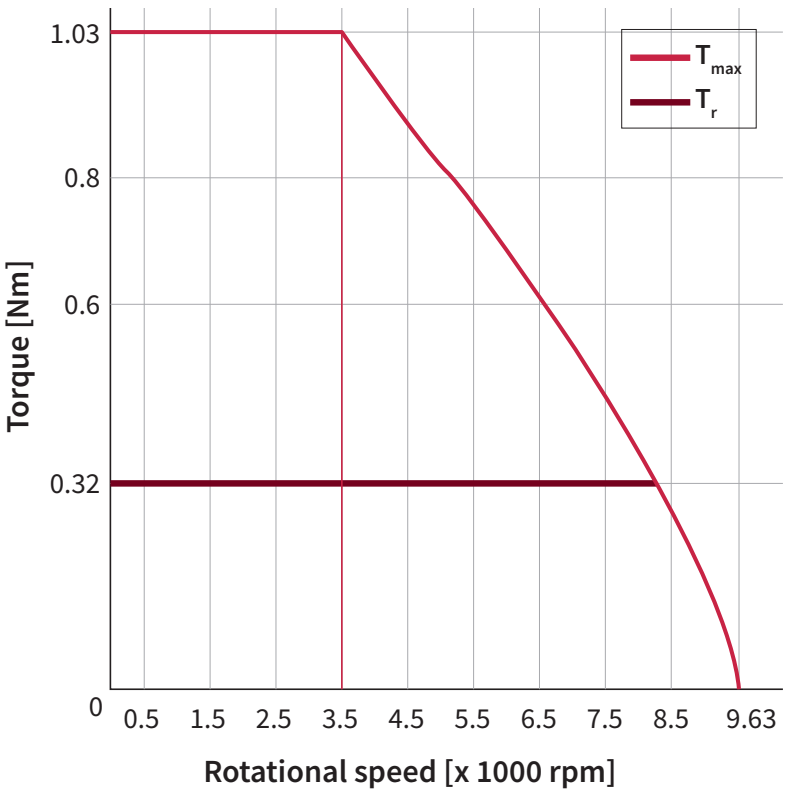
L: Distance to the point at which the load is applied (mm).

Model	Allowable vertical load Fv (N)	Maximum allowable moment		
		Pitch moment Mp (Nm)	Yaw moment My (Nm)	Roll moment Mr (Nm)
GM51-23	147	1.32	1.32	2.65
GM51-37	343	3.0	3.0	6.0

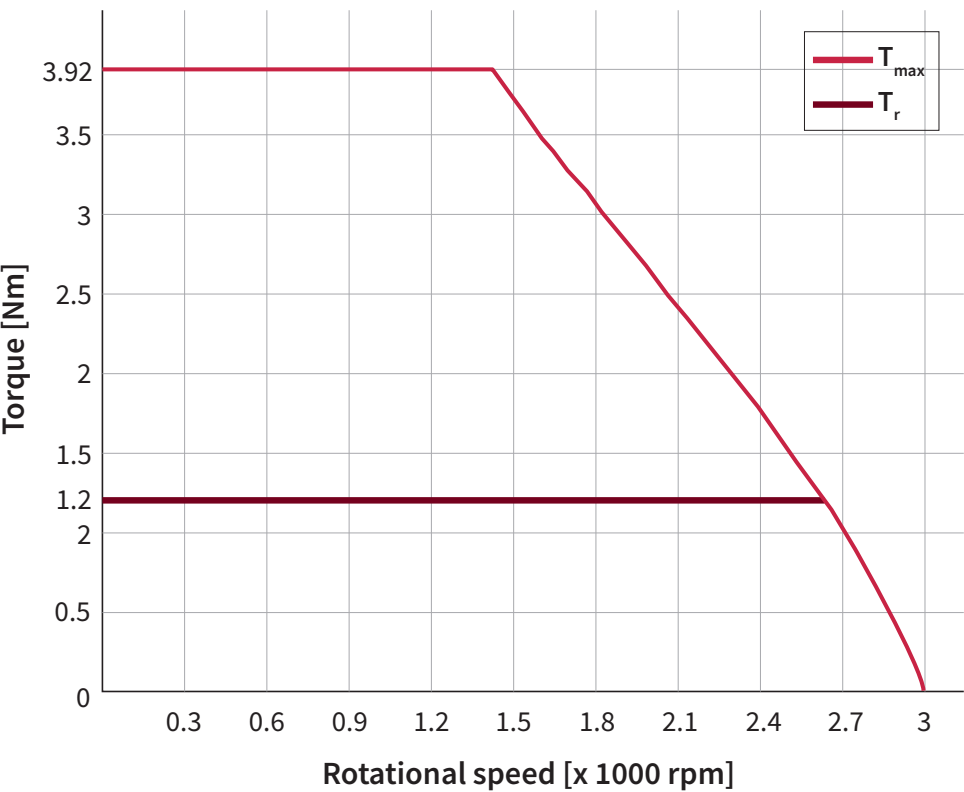
Values for load and moment in the table indicate static values.

Calculation of allowable external force (when moment load is applied)	Calculation example
$\text{Allowable load } F \text{ (N)} = \frac{M \text{ (maximum allowable moment) (N} \cdot \text{m)}}{L \times \frac{10^{-3}}{*}}$ (*Unit conversion constant)	When a static load of = 10N is operating, which applies pitch moment to point L = 30mm from the GM51-23 guide. $\text{Allowable load } F \text{ (N)} = \frac{1.32}{30 \times 10^{-3}} = 44.0 \text{ (N)}$ Load f = 10 (N) < 44.0 (N) Therefore, it can be used.

T/N-DIAGRAM ROTARY MOTOR E50X08



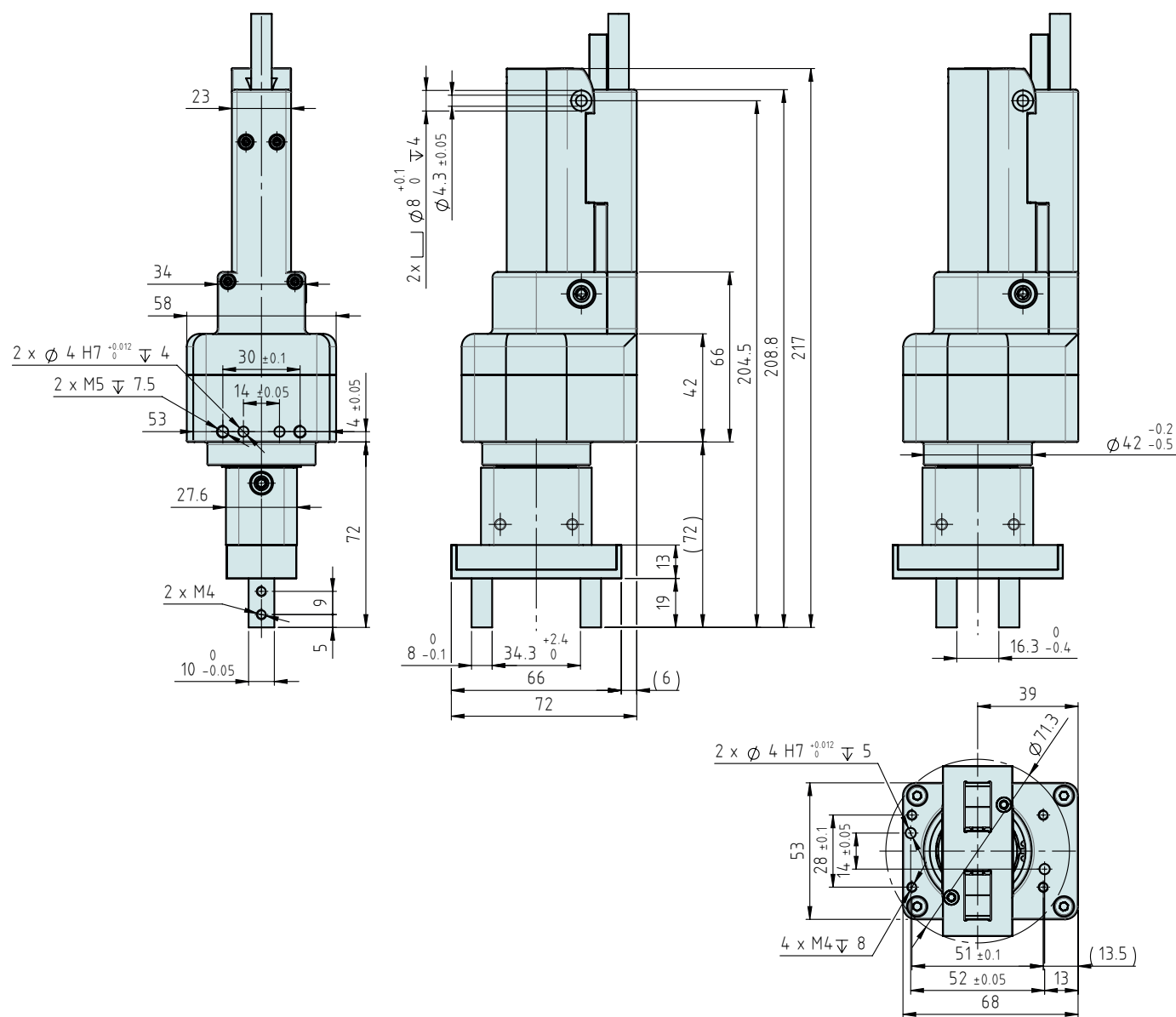
T/N-DIAGRAM ROTARY MOTOR E70X18



ROTARY GRIPPER GM51-23SX80F-XP-K_35-18_E50X08-NG_GT21(_MS03)

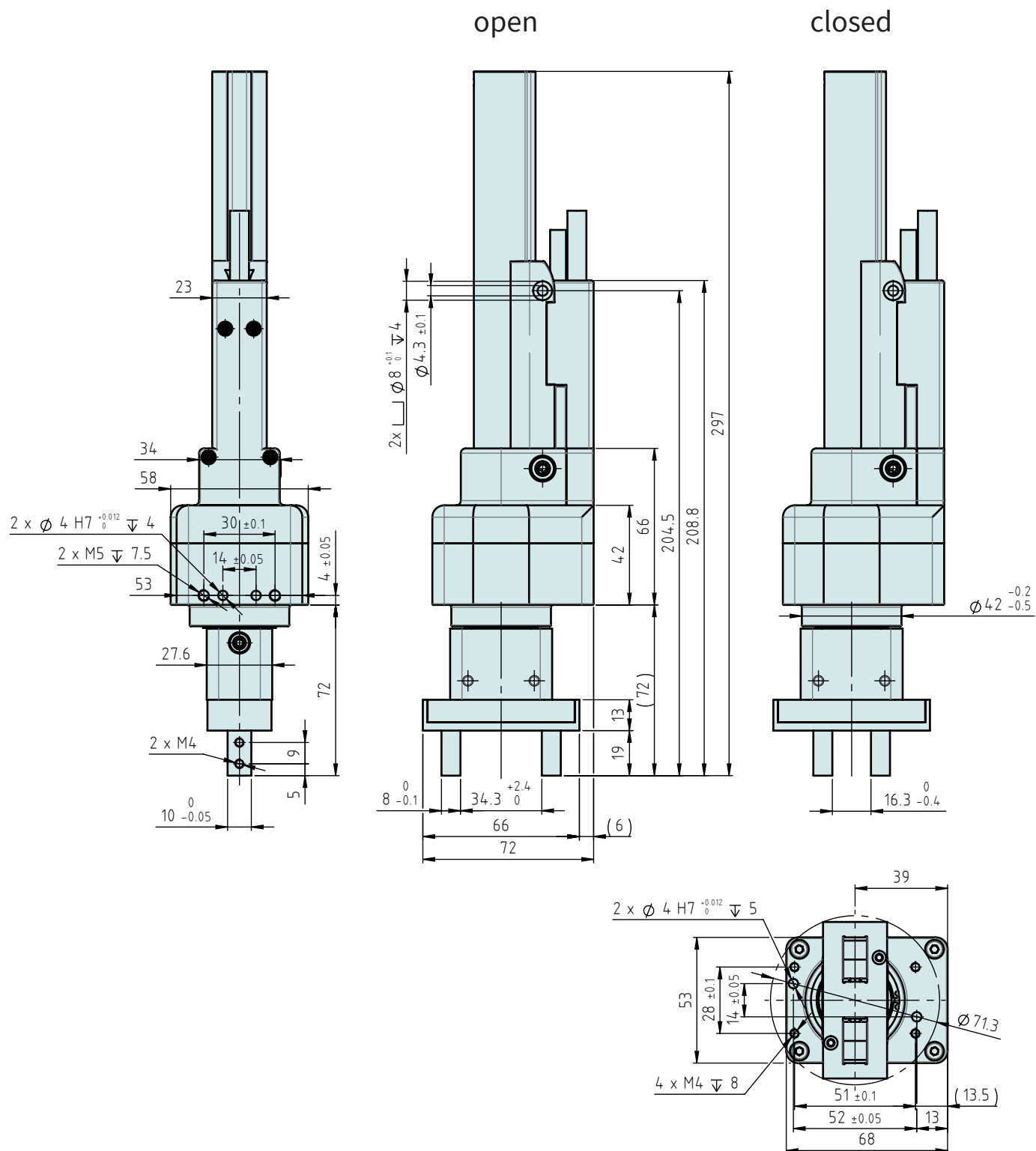
open

closed



Dimensions in mm

Item	Description	Item-No.
GM51-23Sx80F-XP-K_35-18_E50x08-NG_GT21	Rotary Gripper, 2-finger parallel, stroke 18 mm	0150-6599
GM51-23Sx80F-XP-K_35-18_E50x08-NG_GT21_MS03	Rotary Gripper, 2-finger parallel, stroke 18 mm with holding force	0150-6302

ROTARY GRIPPER GM51-23SX160H-XP-K_35-18_E50X08-NG_GT21(_MS03)


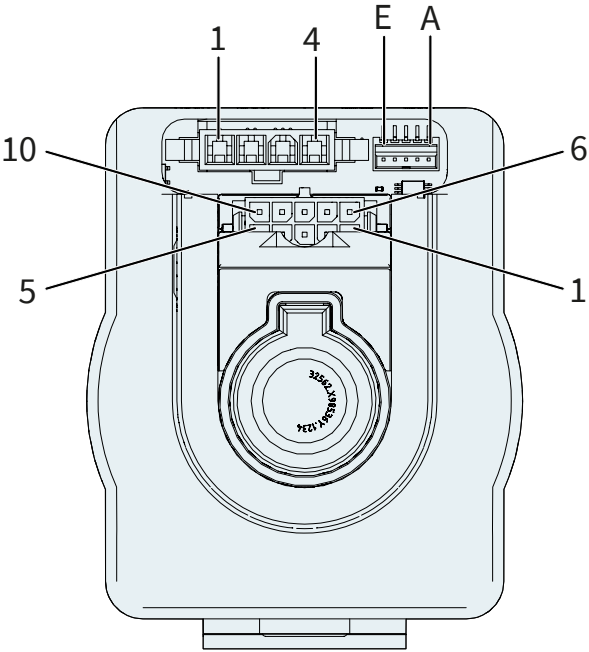
Dimensions in mm

Item	Description	Item-No.
GM51-23Sx160H-XP-K_35-18_E50x08-NG_GT21	Rotary Gripper, 2-finger parallel, stroke 18 mm	0150-6668
GM51-23Sx160H-XP-K_35-18_E50x08-NG_GT21_MS03	Rotary Gripper, 2-finger parallel, stroke 18 mm with holding force	0150-6665

CONNECTOR GM51-23 LINEAR MOTOR / ROTARY MOTOR

NG-connector rotary motor (top)

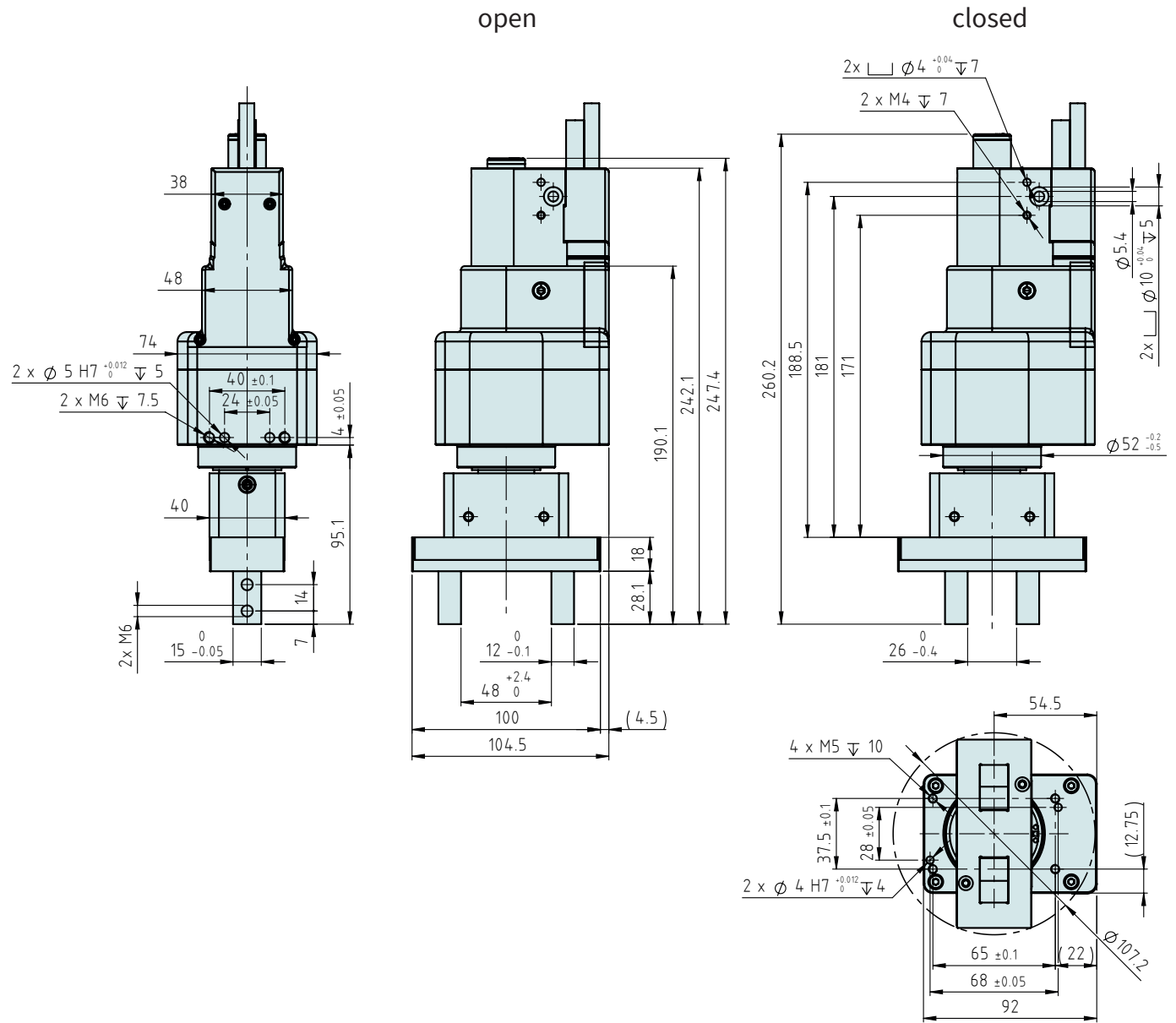
Motor connector wiring	NG-connector	Wire color motor cable
Phase 2-	Pin 1	grey
Phase 2+	Pin 2	blue
Phase 1-	Pin 3	pink
Phase 1+	Pin 4	red
Temp Sensor	Pin E	black
Sensor Cos	Pin D	green
Sensor Sin	Pin C	yellow
GND	Pin B	Inner Shield
+5V	Pin A	white
Housing		Outer Shield



Ansicht: Motorstecker, steckseitig
Oben: NG-Stecker Drehmotor
Unten: K-Stecker Linearmotor

K-connector linear motor (bottom)

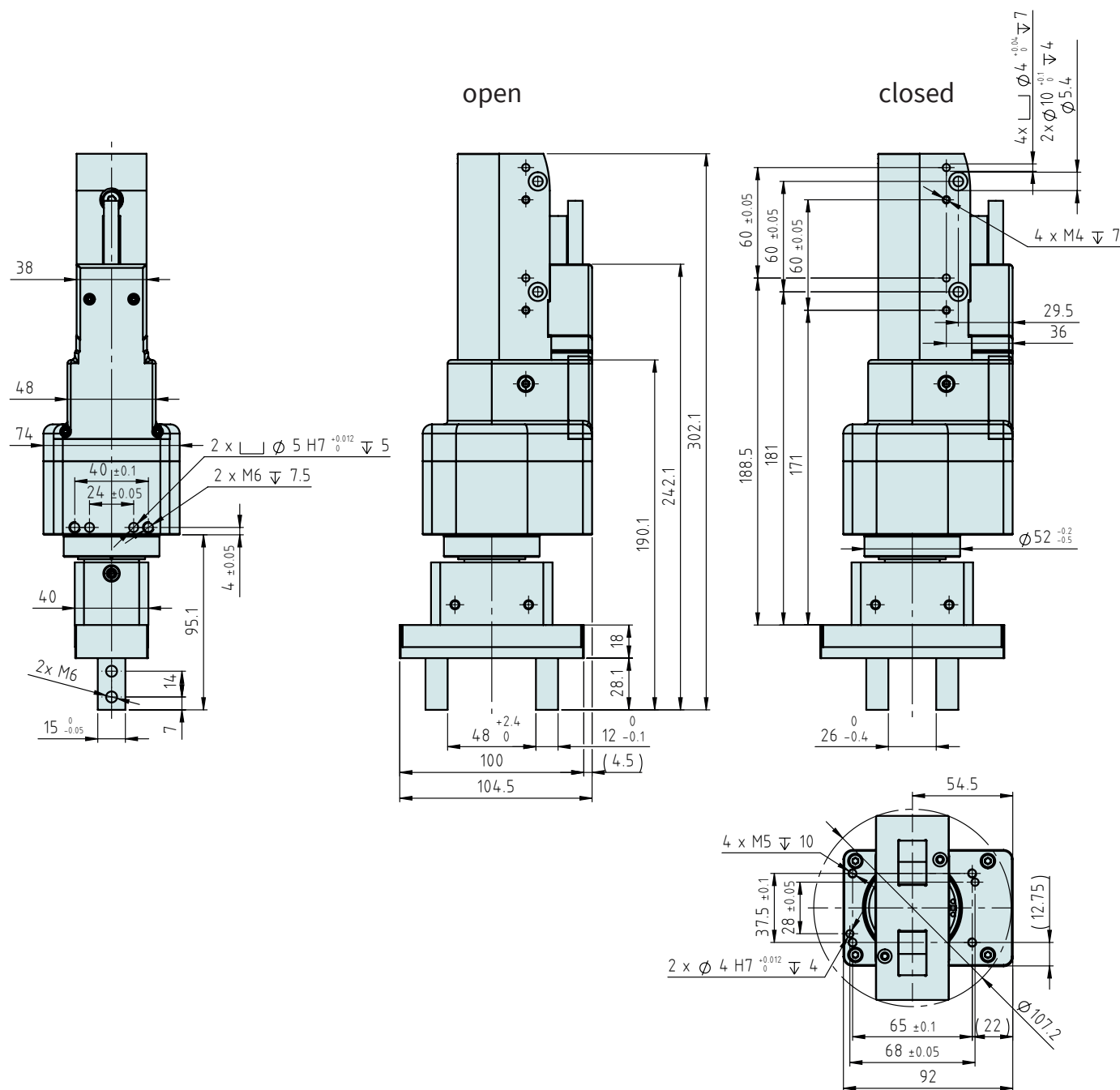
Motor connector wiring K-connector		Wire color motor cable
Pin 1	Phase 1+	red
Pin 2	Phase 2+	blue
Pin 3	n.c.	n.c.
Pin 4	Phase 1-	pink
Pin 5	Phase 2-	grey
Pin 6	Sensor Sin	yellow
Pin 7	Sensor Cos	green
Pin 8	GND	brown
Pin 9	+5V	white
Pin 10	Temp sensor	black
	Housing	Shield

ROTARY GRIPPER GM51-37SX60-XP-N_48-22_E70X18-NG_GT21(_MS03)


Dimensions in mm

Item	Description	Item-No.
GM51-37Sx60-XP-N_48-22_E70x18-NG_GT21	Rotary Gripper, 2-finger parallel, stroke 22 mm	0150-6609
GM51-37Sx60-XP-N_48-22_E70x18-NG_GT21_MS03	RRotary Gripper, 2-finger parallel, stroke 22 mm with holding force	0150-6437

ROTARY GRIPPER GM51-37SX120F-XP-N_48-22_E70X18-NG_GT21(_MS03)



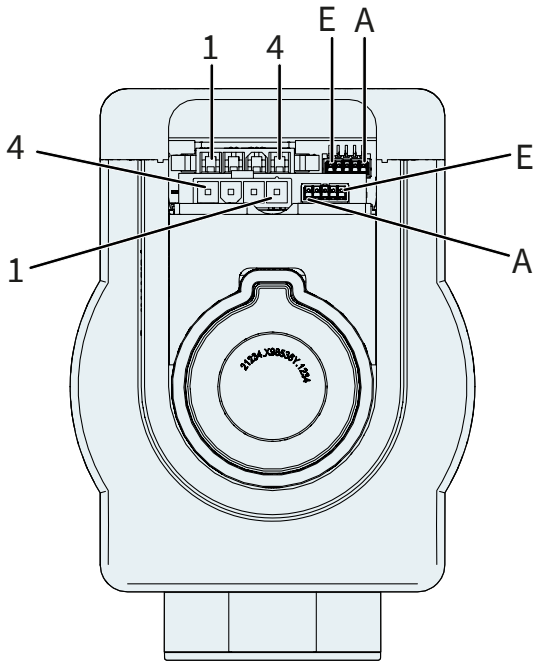
Dimensions in mm

Item	Description	Item-No.
GM51-37Sx120F-XP-N_48-22_E70x18-NG_GT21	Rotary Gripper, 2-finger parallel, stroke 22 mm	0150-6673
GM51-37Sx120F-XP-N_48-22_E70x18-NG_GT21_MS03	Rotary Gripper, 2-finger parallel, stroke 22 mm with holding force	0150-6670

CONNECTOR GM51-37 LINEAR MOTOR / ROTARY MOTOR

NG-connector rotary motor (top)

Motor connector wiring	NG-connector	Wire color motor cable
Phase 2-	Pin 1	grey
Phase 2+	Pin 2	blue
Phase 1-	Pin 3	pink
Phase 1+	Pin 4	red
Temp Sensor	Pin E	black
Sensor Cos	Pin D	green
Sensor Sin	Pin C	yellow
GND	Pin B	Inner Shield
+5V	Pin A	white
Housing		Outer Shield



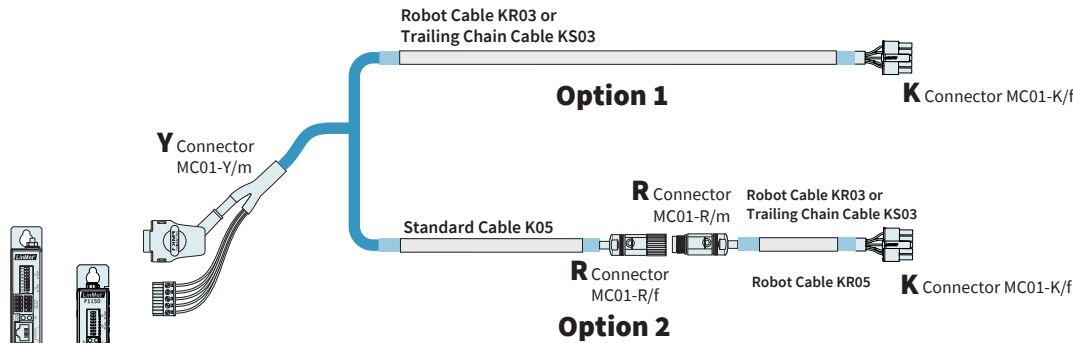
View: motor connector, plug side
Top: NG-connector rotary motor
Bottom: N-connector linear motor

N-connector linear motor (bottom)

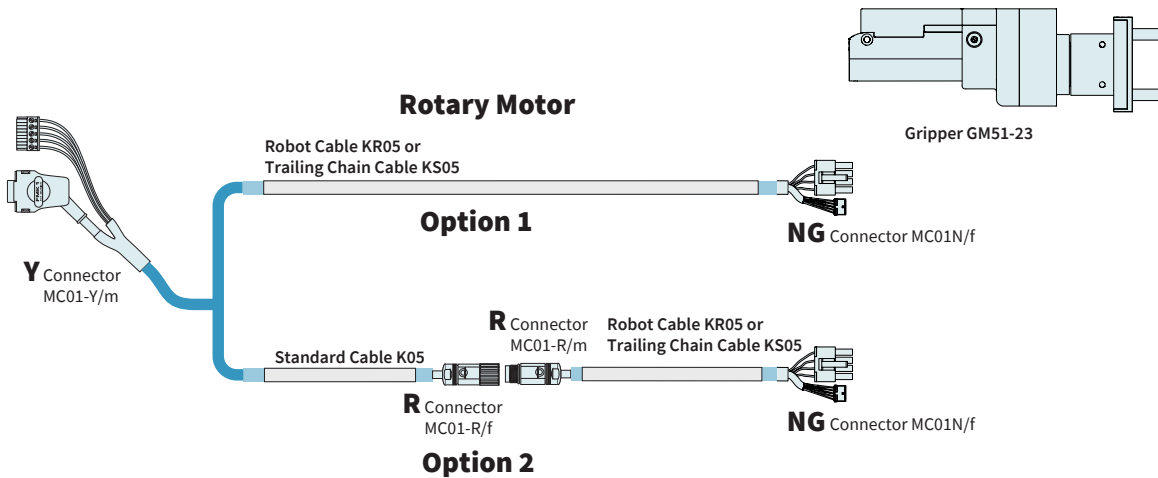
Motor connector wiring	N-connector	Wire color motor cable
Phase 1+	Pin 4	red
Phase 1-	Pin 3	pink
Phase 2+	Pin 2	blue
Phase 2-	Pin 1	grey
+5V	Pin A	white
GND	Pin B	Inner Shield
Sensor Sin	Pin C	yellow
Sensor Cos	Pin D	green
Temp Sensor	Pin E	black
Housing		Outer Shield

MOTOR CABLES FOR GM51-23

Linear Motor



Rotary Motor



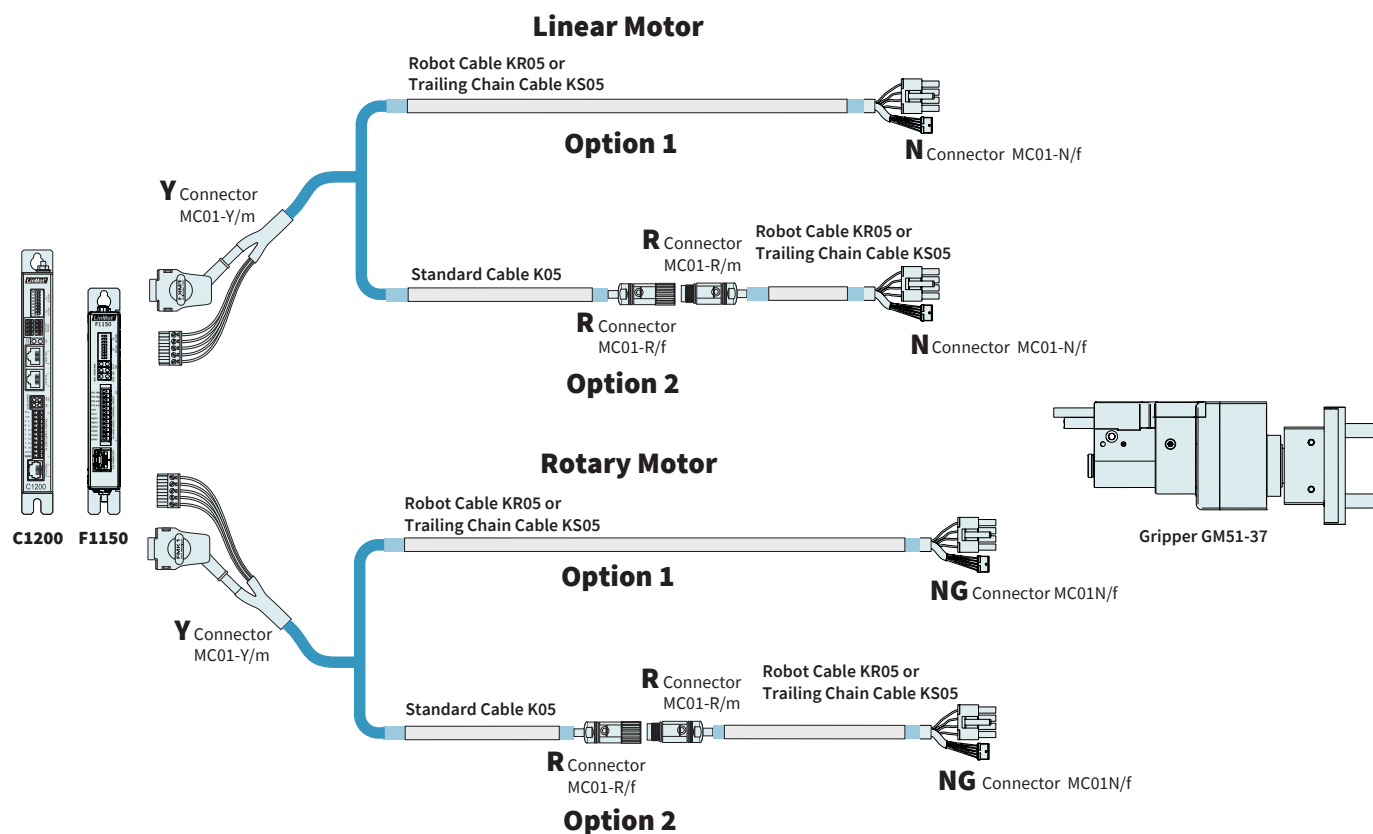
LINEAR MOTOR

Item	Description	Item-No.
KS03-Y/K-4	Trailing Chain Cable Y/K, 4 m	0150-2447
KS03-Y/K-6	Trailing Chain Cable Y/K, 6 m	0150-2448
KS03-Y/K-	Trailing Chain Cable Y/K, Custom length	0150-3516
KS03-R/K-2	Trailing Chain Cable R/K, 2 m	0150-2186
KS03-R/K-4	Trailing Chain Cable R/K, 4 m	0150-6789
KS03-R/K-6	Trailing Chain Cable R/K, 6 m	0150-6790
KS03-R/K-	Trailing Chain Cable R/K, Custom length	0150-3530
KR03-Y/K-	Robot Cable Y/K, Custom length	0150-3718
KR03-R/K-	Robot Cable R/K, Custom length	0150-3754
K05-Y/R-2	Motor Cable Y/R, 2 m	0150-2421
K05-Y/R-3	Motor Cable Y/R, 3 m	0150-4854
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/R-	Motor Cable Y/R, Custom length	0150-3501

MOTOR CABLES FOR GM50-23

ROTARY MOTOR		
Item	Description	Item-No.
KS05-09-Y/NG-4	Trailing Chain Cable Y/NG, 4 m	0150-6797
KS05-09-Y/NG-6	Trailing Chain Cable Y/NG, 6 m	0150-6798
KS05-09-Y/NG-	Trailing Chain Cable Y/NG, Custom length	0150-6799
KS05-09-R/NG-2	Trailing Chain Cable R/NG, 2 m	0150-6571
KS05-09-R/NG-4	Trailing Chain Cable R/NG, 4 m	0150-6795
KS05-09-R/NG-6	Trailing Chain Cable R/NG, 6 m	0150-6796
KR05-Y/NG-	Robot Cable Y/NG, Custom length	0150-6800
KR05-R/NG-	Robot Cable R/NG, Custom length	0150-6808
K05-Y/R-2	Motor Cable Y/R, 2 m	0150-2421
K05-Y/R-3	Motor Cable Y/R, 3 m	0150-4854
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/R-	Motor Cable Y/R, Custom length	0150-3501

MOTOR CABLES FOR GM51-37



LINEAR MOTOR

Item	Description	Item-No.
KS05-Y/N-4	Trailing Chain Cable Y/N, 4 m	0150-2443
KS05-Y/N-6	Trailing Chain Cable Y/N, 6 m	0150-2444
KS05-Y/N-	Trailing Chain Cable Y/N, Custom length	0150-3509
KS05-09-R/N-1.5	Trailing Chain Cable R/N, 1,5 m	0150-3880
KS05-09-R/N-2	Trailing Chain Cable R/N, 2 m	0150-3881
KS05-09-R/N-3	Trailing Chain Cable R/N, 3 m	0150-3881
KS05-09-R/N-4	Trailing Chain Cable R/N, 4 m	0150-6795
KS05-09-R/N-6	Trailing Chain Cable R/N, 6 m	0150-6796
KS05-09-R/N-	Trailing Chain Cable R/N, Custom length	0150-3889
KR05-Y/N-	Robot Cable Y/N, Custom length	0150-3514
KR05-R/N-	Robot Cable R/N, Custom length	0150-3757
K05-Y/R-2	Motor Cable Y/R, 2 m	0150-2421
K05-Y/R-3	Motor Cable Y/R, 3 m	0150-4854
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/R-	Motor Cable Y/R, Custom length	0150-3501

MOTOR CABLES FOR GM50-37

ROTARY MOTOR		
Item	Description	Item-No.
KS05-09-Y/NG-4	Trailing Chain Cable Y/NG, 4 m	0150-6797
KS05-09-Y/NG-6	Trailing Chain Cable Y/NG, 6 m	0150-6798
KS05-09-Y/NG-	Trailing Chain Cable Y/NG, Custom length	0150-6799
KS05-09-R/NG-1.5	Trailing Chain Cable R/NG, 1,5 m	0150-6570
KS05-09-R/NG-2	Trailing Chain Cable R/NG, 2 m	0150-6571
KS05-09-R/NG-3	Trailing Chain Cable R/NG, 3 m	0150-6572
KS05-09-R/NG-4	Trailing Chain Cable R/NG, 4 m	0150-6795
KS05-09-R/NG-6	Trailing Chain Cable R/NG, 6 m	0150-6796
KR05-Y/NG-	Robot Cable Y/NG, Custom length	0150-6800
KR05-R/NG-	Robot Cable R/NG, Custom length	0150-6808
K05-Y/R-2	Motor Cable Y/R, 2 m	0150-2421
K05-Y/R-3	Motor Cable Y/R, 3 m	0150-4854
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/R-	Motor Cable Y/R, Custom length	0150-3501

ALL LINEAR MOTION FROM A SINGLE SOURCE

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