

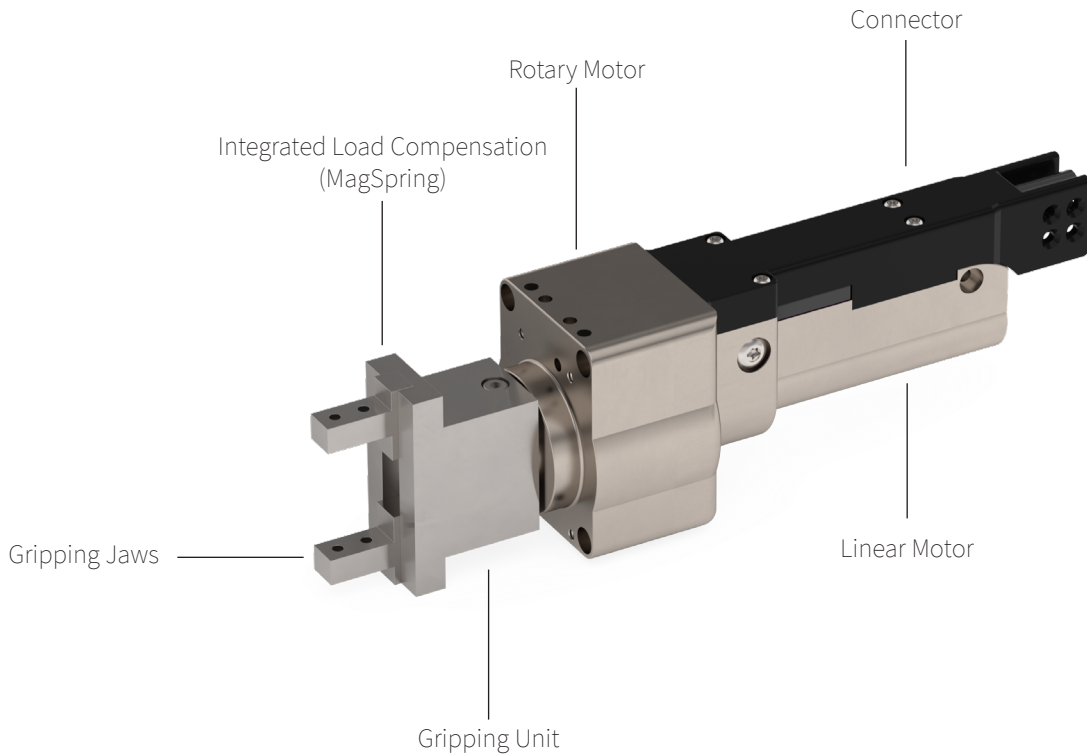
GRIPPER MODULES GM51



- ✓ Electric servo 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

GRIPPER MODULES GM51

| | |
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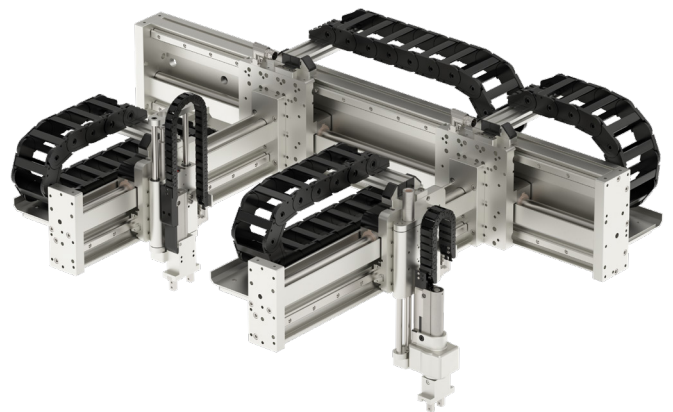
Grippers GM51

The LinMot GM51 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 servomotor enables precise finger positioning and 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 parallel 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_E50X0.8(_MS03)



Performance Data Gripper Module GM51-23SX80F-XP-K_35-18_E50x0.8(_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) | 56 / 45 | (12.59 / 10.12) |
| Max. Torque Rotary Motor | Nm (lbf) | 1.03 | (9.15) |
| Continuous Torque Rotary Motor | Nm (lbf) | 0.32 | (2.83) |
| Max. Continuous Clamping Force Closing Direction with MagSpring / without MagSpring | N (lbf) | 19 / 9 | (4.27 / 2.02) |
| Max. Continuous Clamping Force Opening Direction with MagSpring / without MagSpring | N (lbf) | 7 / 7 | (1.57 / 1.57) |
| Max. Continuous Clamping Force Through the MagSpring (no power) | N (lbf) | 11 | (2.47) |
| Velocity | | | |
| Minimum Opening/Closing Time | s | 0.02 | |
| Max. Rotary Speed | rpm | 3500* | |
| Position Detection | | | |
| Position Resolution | mm (in) | 0.002 | (0.00008) |
| Repeatability Gripper Motor | mm (in) | ±0.05 | (±0.002) |
| Repeatability Rotary Motor | ° ° | ±0.05 | (±0.002) |
| Electrical Data | | | |
| Max. Current Gripper Motor @ 48 / 72VDC | A _{pk} | 7.4 | |
| Max. Current Rotary Motor @ 48 / 72VDC | A _{pk} | 20.8 | |
| 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 | Stk. | 2 | |
| Communication Protocols | | PROFINET, PROFIdrive, EtherNet/IP, EtherCAT, CANopen, sercos, Ethernet Powerlink | |

*Theoretical no-load rotation speeds at rated voltage U_n .

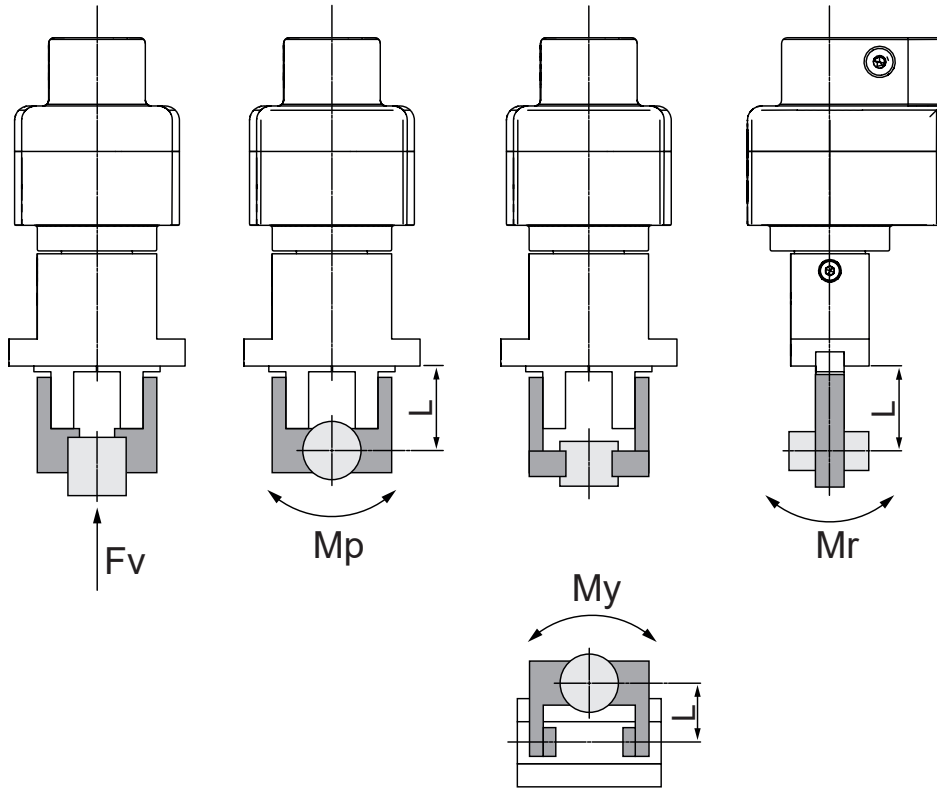
PERFORMANCE DATA GM51-37SX60-XP-N_48-26_E70X18-N(_MS03)



| Performance Data Gripper Module GM51-37SX60-XP-N_48-26_E70x18-N(_MS03) | | | | |
|--|----------|--|--|--|
| Stroke | | | | |
| Max. Opening/Closing Stroke Range | mm (in) | | 22 (0.87) | |
| Force | | | | |
| Max. Clamping Force (<0.75 s) | N (lbf) | | 128 / 97 (28.78 / 21.81) | |
| Max. Torque Rotary Motor | Nm (lbf) | | 3.92 (34.69) | |
| Continuous Torque Rotary Motor | Nm (lbf) | | 1.21 (10.71) | |
| Max. Continuous Clamping Force Closing Direction | N (lbf) | | 42 / 12 (9.44 / 2.70) | |
| Max. Continuous Clamping Force Opening Direction | N (lbf) | | 10 / 10 (2.25 / 2.25) | |
| Max. Continuous Clamping Force Through the MagSpring (no power) | N (lbf) | | 31 (6.97) | |
| Velocity | | | | |
| Minimum Opening/Closing Time | s | | 0.03 | |
| Max. Rotary Speed | rpm | | 3000* | |
| Position Detection | | | | |
| Position Resolution | mm (in) | | 0.005 (0.0002) | |
| Repeatability Gripper Motor | mm (in) | | ±0.05 (±0.002) | |
| Repeatability Rotary Motor | ° ° | | ±0.05 (±0.002) | |
| Electrical Data | | | | |
| Max. Current Gripper Motor @ 48 / 72VDC | A_{pk} | | 9.4 | |
| Max. Current Rotary Motor @ 48 / 72VDC | A_{pk} | | 24.6 | |
| 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 | Stk. | | 2 | |
| Communication Protocols | | | PROFINET, PROFIdrive, EtherNet/IP, EtherCAT, CANopen, sercos, Ethernet Powerlink | |

*Theoretical no-load rotation speeds at rated voltage U_r .

CALCULATION OF THE LOAD MOMENTS



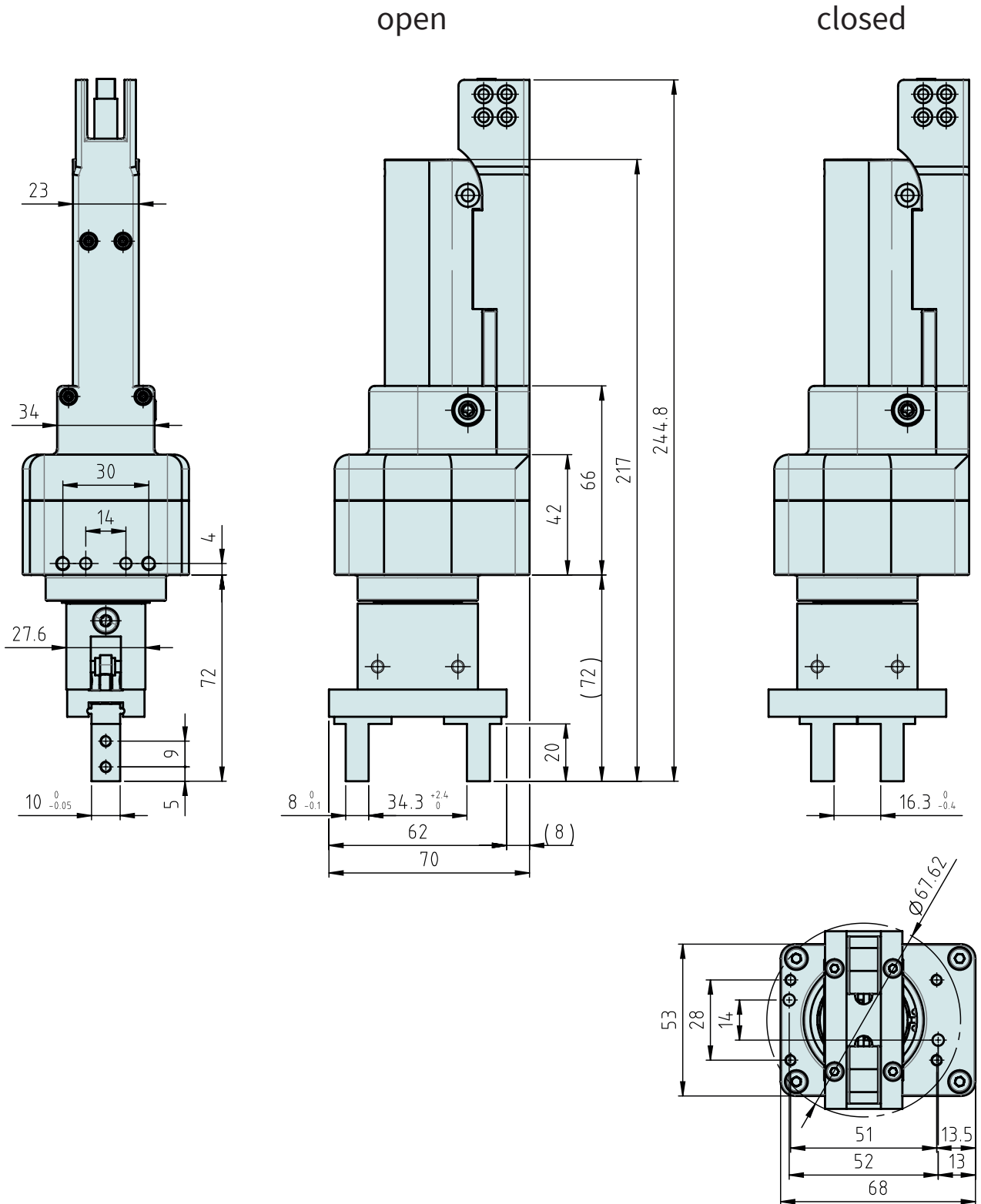
L: Distance to the point at which the load is applied (mm).

| Model | Allowable vertical load Fv (N) | Maximum allowable moment | | |
|---|-----------------------------------|--------------------------|-----------------------|------------------------|
| | | Pitch moment Mp (Nm) | Yaw moment My (Nm) | Roll moment Mr (Nm) |
| GM51-23Sx80F-XP-K_35-18_E50x0.8(_MS03) | 147 | 1.32 | 1.32 | 2.65 |
| GM51-37Sx60-XP-N_48-26_E70x18-N(_MS03) | 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 |
|--|---|
| $\text{Allowable load } F \text{ (N)} = \frac{M \text{ (maximum allowable moment) (N} \cdot \text{m)}}{L \times \frac{10^{-3}}{*}}$ <p>(*Unit conversion constant)</p> | <p>When a static load of = 10N is operating, which applies pitch moment to point L = 30mm from the GM51-23 guide.</p> $\text{Allowable load } F \text{ (N)} = \frac{1.32}{30 \times 10^{-3}} = 44.0 \text{ (N)}$ <p>Load f = 10 (N) < 44.0 (N) Therefore, it can be used.</p> |

GRIPPER GM51-23SX80F-XP-K_35-18_E50X0.8(_MS03)

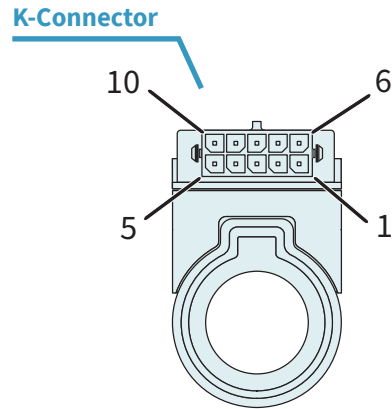


Dimensions in mm

| Item | Description | Item-No. |
|--------------------------------------|---|---------------------------|
| GM51-23Sx80F-XP-K_35-18_E50x0.8 | Gripper Module, max. stroke 18 mm, max. Force 45 N | 0150-6599 |
| GM51-23Sx80F-XP-K_35-18_E50x0.8_MS03 | Gripper Module with MagSpring, max. stroke 18 mm, max. force 56 N | 0150-6302 |

CONNECTOR GM51-23 LINEAR MOTOR

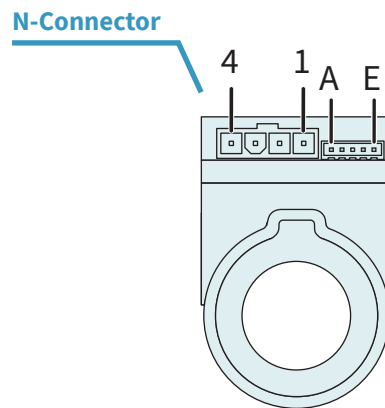
| Motor connector wiring | | Wire color motor cable |
|------------------------|-------------|------------------------|
| Pin 1 | Phase 1+ | red |
| Pin 2 | Phase 2+ | blue |
| Pin 3 | n.c. | n.c. |
| Pin 4 | Phase 1- | pink |
| Pin 5 | Phase 2- | grey |
| Pin 6 | Sensor Sin | yellow |
| Pin 7 | Sensor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



View: motor connector, plug side

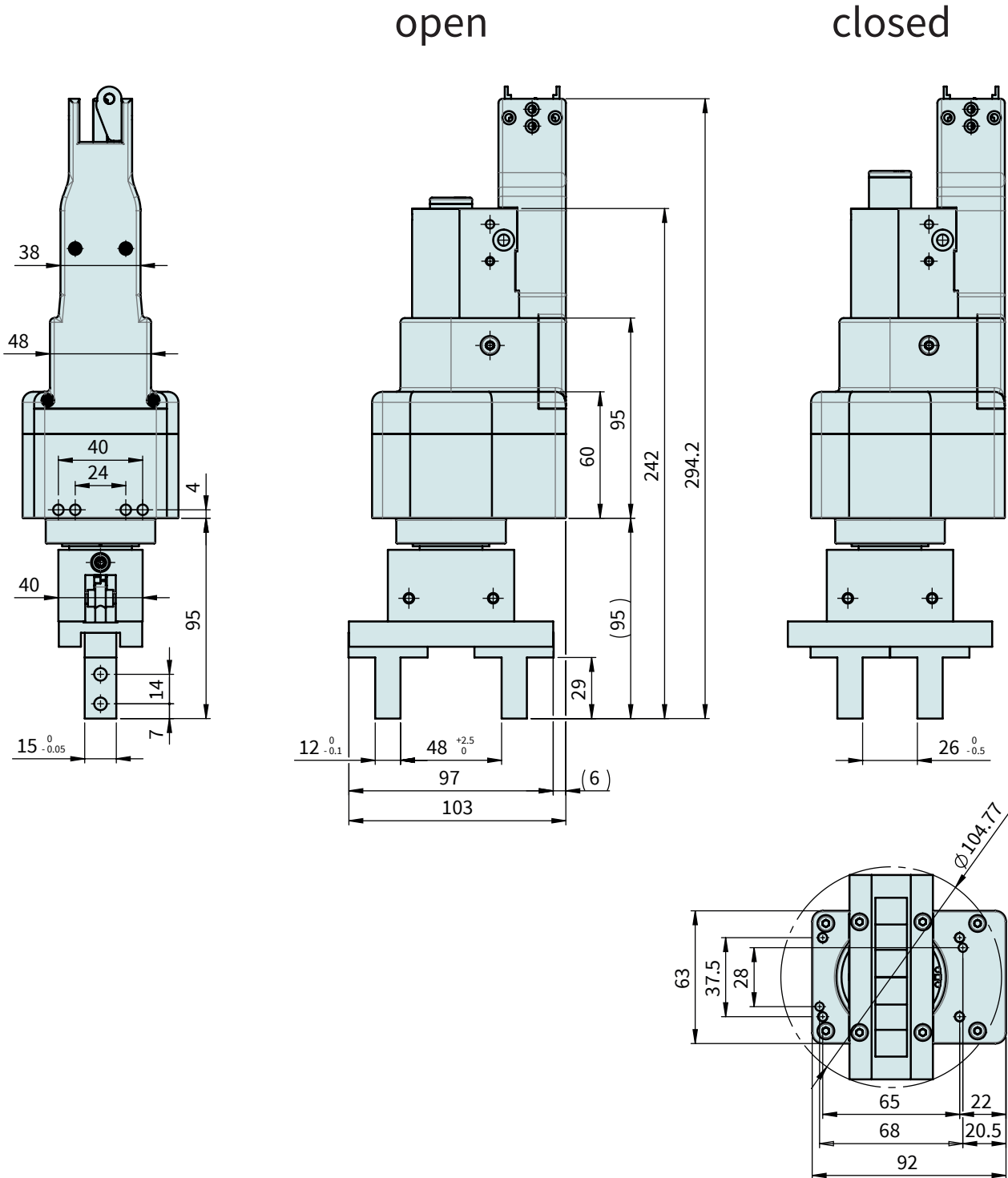
CONNECTOR GM51-37 ROTARY MOTOR

| 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 |



View: motor connector, plug side

GRIPPER GM51-37SX60-XP-N_48-26_E70X18-N(_MS03)



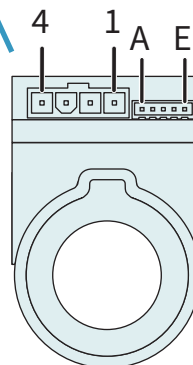
Dimensions in mm

| Item | Description | Item-No. |
|--------------------------------------|--|---------------------------|
| GM51-37Sx60-XP-N_48-26_E70x18-N | Gripper Module, max. stroke 22 mm, max. Force 97 N | 0150-6596 |
| GM51-37Sx60-XP-N_48-26_E70x18-N_MS03 | Gripper Module with MagSpring, max. stroke 22 mm, max. force 128 N | 0150-6255 |

CONNECTOR GM51-37 LINEAR MOTOR / ROTARY MOTOR

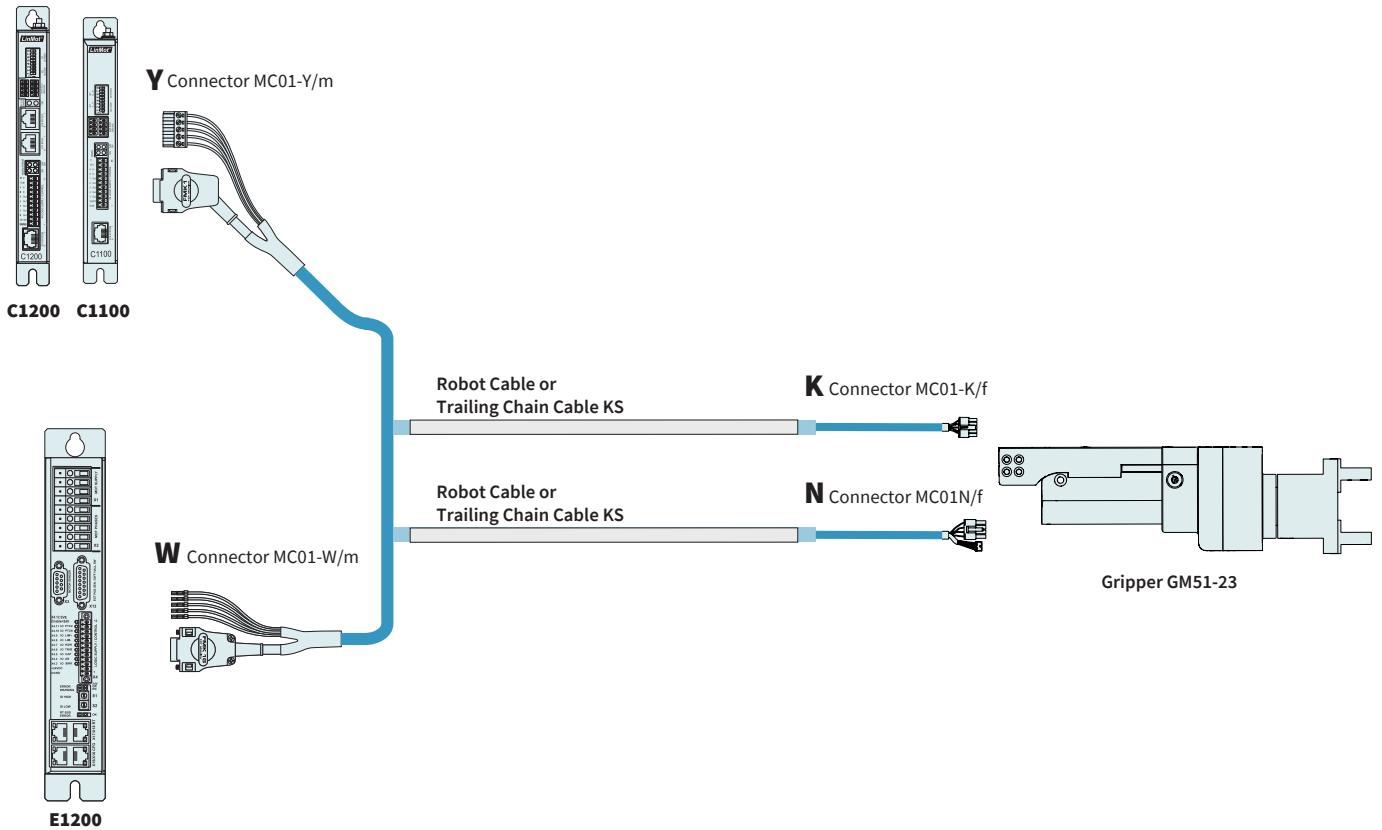
| Motor connector wiring | N-Connector | Wire color motor cable |
|------------------------|-------------|------------------------|
| Phase 1+ | Pin 4 | red |
| Phase 1- | Pin 3 | pink |
| Phase 2+ | Pin 2 | blue |
| Phase 2- | Pin 1 | grey |
| | | |
| +5V | Pin A | white |
| GND | Pin B | Inner Shield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

N-Connector



View: motor connector, plug side

MOTOR CABLES FOR GM51-23



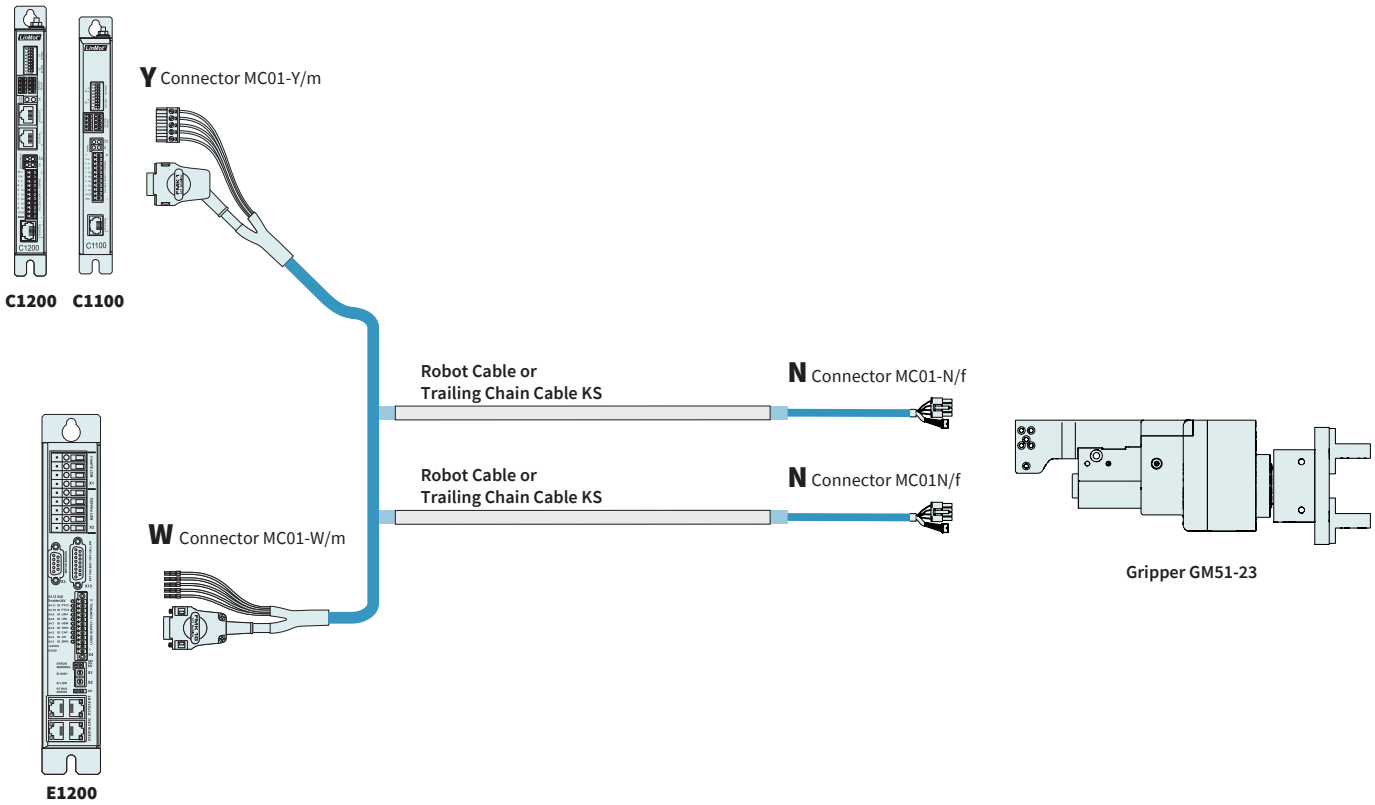
TRAILING CHAIN CABLES

| Item | Description | Item-No. |
|-------------------|---|---------------------------|
| KS03-W/K-2 | Trailing Chain Cable W/K, 2 m | 0150-2187 |
| KS03-W/K-4 | Trailing Chain Cable W/K, 4 m | 0150-2369 |
| KS03-W/K-6 | Trailing Chain Cable W/K, 6 m | 0150-2370 |
| KS03-W/K- | Special Cable W/K, Custom length | 0150-3357 |
| KS03-Y/K-2 | Trailing Chain Cable Y/K, 2 m | 0150-2446 |
| 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- | Special Cable Y/K, Custom length | 0150-3516 |
| KS03-R/K-1 | Trailing Chain Cable R/K, 1 m | 0150-2185 |
| KS03-R/K-2 | Trailing Chain Cable R/K, 2 m | 0150-2186 |
| KS03-R/K- | Special Cable R/K, Custom length | 0150-3530 |
| KS03-A/K- | Special Cable A/K, Custom length | 0150-3542 |
| KS03-C/K- | Special Cable C/K, Custom length | 0150-3577 |
| KS03-OE/K- | Special Cable OE/K, Open end, Custom length | 0150-4764 |

ROBOT CABLES

| Item | Description | Item-No. |
|------------------|----------------------------------|---------------------------|
| KR03-R/K- | Special Cable R/K, Custom length | 0150-3754 |
| KR03-Y/K- | Special Cable Y/K, Custom length | 0150-3718 |
| KS03-W/K- | Special Cable W/K, Custom length | 0150-3755 |

MOTOR CABLES FOR GM51-37



TRAILING CHAIN CABLES

| Item | Description | Item-No. |
|-------------------|---|---------------------------|
| KS05-W/N-2 | Trailing Chain Cable W/N, 2 m | 0150-2296 |
| KS05-W/N-4 | Trailing Chain Cable W/N, 4 m | 0150-2297 |
| KS05-W/N-6 | Trailing Chain Cable W/N, 6 m | 0150-2298 |
| KS05-W/N-8 | Trailing Chain Cable W/N, 8 m | 0150-2299 |
| KS05-W/N- | Special Cable W/N, Custom length | 0150-3412 |
| KS05-Y/N-2 | Trailing Chain Cable Y/N, 2 m | 0150-2442 |
| 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-8 | Trailing Chain Cable Y/N, 8 m | 0150-2445 |
| KS05-Y/N- | Special Cable Y/N, Custom length | 0150-3509 |
| KS05-A/N- | Special Cable A/N, Custom length | 0150-3551 |
| KS05-C/N- | Special Cable C/N, Custom length | 0150-3517 |
| KS05-R/N- | Special Cable R/N, Custom length | 0150-3486 |
| KS03-OE/N- | Special Cable OE/N, Open end, Custom length | 0150-6071 |
| KS05-OE/N- | Special Cable OE/N, Open end, Custom length | 0150-3716 |

MOTOR CABLES FOR GM51-37

| ROBOT CABLES | | |
|------------------|----------------------------------|---------------------------|
| Item | Description | Item-No. |
| KR05-R/N- | Special Cable R/N, Custom length | 0150-3757 |
| KR05-Y/N- | Special Cable Y/N, Custom length | 0150-3514 |
| KS05-W/N- | Special Cable W/N, Custom length | 0150-3406 |

ALL LINEAR MOTION FROM A SINGLE SOURCE

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