

BRIEF INFORMATION

Linear actuators

- › Electrical locking / unlocking and closing
- › High actuating force
- › Dustproof or waterproof
- › With or without manual adjustment
- › Thermal overload protection through PTC (PolySwitch)
- › Various connecting elements available

PRODUCT FEATURES

Application

The linear actuator is used for the electrical locking, unlocking or shutting function of the closing and flap systems in automotive and industrial applications.

Examples of applications in mechanisms include:

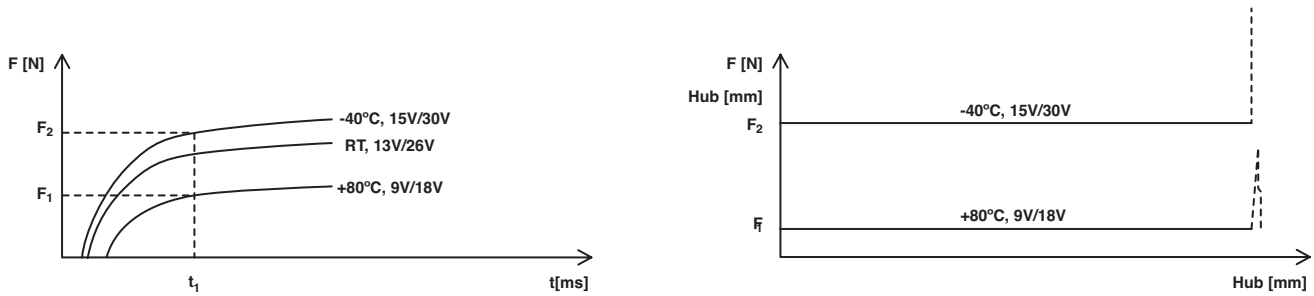
- Electrical locking / unlocking
- Electrical closing
- Electrical opening and closing of all doors (locking systems), flaps, sunroofs, seats, covers, bonnets, glove compartments, etc.

Design and function

There is an electric motor installed in the two laser-welded polyamide housing halves. As a result of the electric motor being supplied with current via pin 1 and pin 2, it moves a spindle gear, which causes the tappet to retract or extend depending on the direction of rotation. The current supply with plus at pin 1 and minus at pin 2 causes the tappet to extend.

The current supply with minus at pin 1 and plus at pin 2, causes the plunger to retract. The stability of the retracted / extended locking positions is achieved by the short-circuited motor following successful actuation. A PolySwitch (PTC) integrated in the motor provides thermal overload protection. In addition, it is possible to equip the actuators with an automatic return function (retracting or extending) by way of a mainspring.

DEPENDENCIES OF ACTUATING FORCE CHARACTERISTIC CURVES



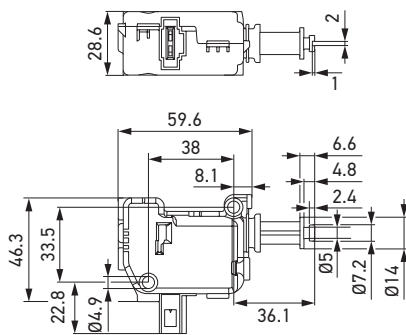
With a controller time of t_1 , the actuator has an actuating force of $F_1 < F < F_2$. The constant actuating force on the tappet over the rated stroke depends on the operating voltage and ambient temperature. If the actuator has no load to move over the stroke, the actuator power is converted into a higher actuator speed, resulting in the dynamic impact pulse becoming a multiple of the constant actuating force.

TECHNICAL DETAILS

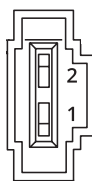
6NW 009 203-607 | 6NW 009 203-411 / 417

| Technical data | | |
|---|--|-----------------------------|
| | -607 | -411/417 |
| Operating voltage range | Single-voltage (9 - 15 V) | Single-voltage (9 - 15.5 V) |
| Rated voltage | 12 V | |
| No-load current | 350 ± 200 mA | 350 mA |
| Maximum current consumption (stall current) | 6.7 A | |
| Actuating time for 18 mm stroke ¹⁾ | Max. 400 ms | |
| Temperature range | -40 °C to +80 °C | |
| Storage temperature | -40 °C to +90 °C | |
| Vibration resistance | 2.7 g _{eff.} | |
| Protection class | IP 5K0 | |
| Approved | ECE-R10 | |
| Weight | 90 g | |
| Material | Housing: Polyamide 6 GF15 (top side), Polyamide 6 M25 GF15 (bottom side) | |
| Pin coating | Tin | |
| Mating connector ²⁾ | 1355390-1 | |
| Lifetime | 100,000 switching cycles | |
| Protection | Thermal overload protection (via PTC - PolySwitch) | |
| Conducted interference | < 75 V | |
| Interference suppression (in all ranges) | Intensity level 1 + 10 dB μV | |
| Position when delivered | Retracted | |
| Mainspring reset | None | |
| Actuating force for ram stroke over operating voltage range and operating temperature range | 30 - 130 N | 30 - 140 N |
| Manual adjustment | ≤ 15 N | None |
| Functional stroke | ≤ 18 mm | |

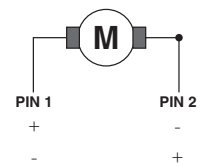
Dimensional sketch



Pin assignment / electrical connection



Electrical extension
Electrical retraction



¹⁾ At the tappet over operating voltage range and operating temperature range.

²⁾ This accessory is not included in the scope of delivery. Available from TE Connectivity.

TECHNICAL DETAILS

6NW 009 203-627 | 6NW 009 203-637

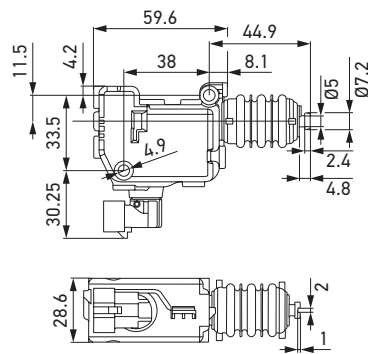
Technical data

| | -627 | -637 |
|--|---|------------|
| Operating voltage range | Single-voltage (9 – 15.5 V) | |
| Rated voltage | 12 V | |
| No-load current | 350 mA | |
| Maximum current consumption (stall current) | 6.7 A | |
| Actuating time for 18 mm stroke ¹⁾ | Max. 400 ms | |
| Temperature range | - 40 °C to +80 °C | |
| Storage temperature | - 40 °C to +90 °C | |
| Vibration resistance | 2,7 g _{eff.} | |
| Protection class | IP 5K4 | |
| Approved | ECE-R10 | |
| Weight | 90 g | |
| Material | Housing: Polyamide 6 GF15 (top side), Polyamide 6 M25 GF15 (bottom side) | |
| Pin coating | Tin | |
| Mating connector ²⁾ | 282080-1 | |
| Lifetime | 100,000 switching cycles | |
| Protection | Thermal overload protection (via PTC – PolySwitch) | |
| Conducted interference | < 75 V | |
| Interference suppression (in all ranges) | Intensity level 1 + 10 dB μ V | |
| Position when delivered | Extended | |
| Mainspring reset | None | |
| Actuating force for ram stroke over operating voltage range and operating temperature range | 20 – 130 N | 30 – 160 N |
| Manual adjustment | \leq 15 N | None |
| Functional stroke | \leq 18 mm | |

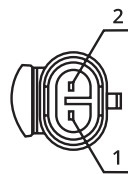
¹⁾ At the tappet over operating voltage range and operating temperature range.

²⁾ This accessory is not included in the scope of delivery.
Available from TE Connectivity.

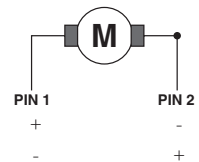
Dimensional sketch



Pin assignment / electrical connection



Electrical extension
Electrical retraction



TECHNICAL DETAILS

6NW 009 203-461 / -467 | 6NW 009 203-471 / -477

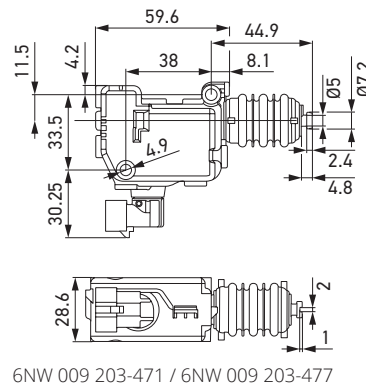
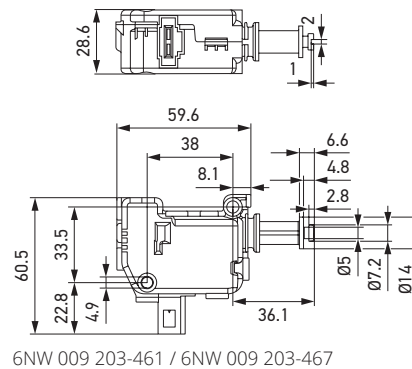
Technical data

| | -461 / -467 | -471 / -477 |
|---|--|-------------|
| Operating voltage range | Single-voltage (9 – 15 V) | |
| Rated voltage | 12 V | |
| No-load current | 545 mA | |
| Maximum current consumption (stall current) | 10.5 A | |
| Actuating time for 18 mm stroke ¹⁾ | Max. 400 ms | |
| Temperature range | - 40 °C to +80 °C | |
| Storage temperature | - 40 °C to +90 °C | |
| Vibration resistance | 2.7 g _{eff.} | |
| Protection class | IP 5K0 | IP 5K4 |
| Approved | ECE-R10 | |
| Weight | 90 g | |
| Material | Housing: Polyamide 6 GF15 (top side), Polyamide 6 M25 GF15 (bottom side) | |
| Pin coating | Tin | |
| Mating connector ²⁾ | 1355390-1 | 282080-1 |
| Lifetime | 50,000 switching cycles | |
| Protection | Thermal overload protection (via PTC – PolySwitch) | |
| Conducted interference | < 75 V | |
| Interference suppression (in all ranges) | Intensity level 1 + 10 dB µV | |
| Position when delivered | Extended | |
| Mainspring reset | Extend | |
| Actuating force for ram stroke over operating voltage range and operating temperature range | 30 – 170 N | |
| Manual adjustment | None | |
| Functional stroke | ≤ 18 mm | |

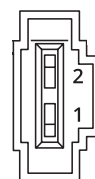
¹⁾ At the tappet over operating voltage range and operating temperature range.

²⁾ This accessory is not included in the scope of delivery. Available from TE Connectivity.

Dimensional sketch

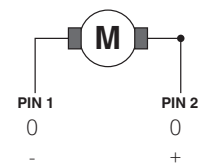


Pin assignment / electrical connection



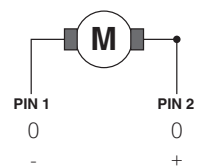
Electrical extension
Electrical retraction

6NW 009 203-461 / 6NW 009 203-467



Electrical extension with mainspring
Electrical retraction

6NW 009 203-471 / 6NW 009 203-477



TECHNICAL DETAILS

6NW 009 203-501

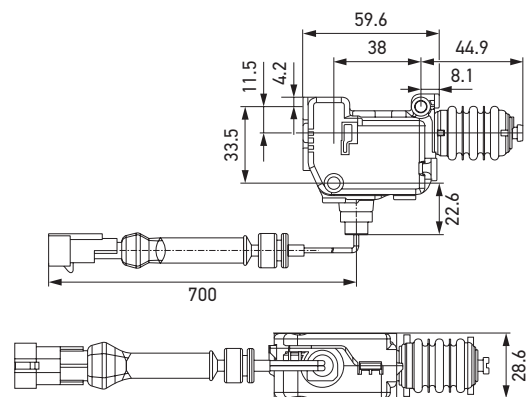
Technical data

| | |
|---|--|
| Operating voltage range | Single-voltage (9 – 15 V) |
| Rated voltage | 12 V |
| No-load current | 577 mA |
| Maximum current consumption (stall current) | 10.5 A |
| Actuating time for 18 mm stroke ¹⁾ | Max. 400 ms |
| Temperature range | - 40 °C to +80 °C |
| Storage temperature | - 40 °C to +90 °C |
| Vibration resistance | 2.7 g _{eff.} |
| Protection class | IP 5K4 |
| Approved | ECE-R10 |
| Weight | 90 g |
| Material | Housing: Polyamide 6 GF15 (top side), Polyamide 6 M25 GF15 (bottom side) |
| Pin coating | Tin |
| Mating connector ²⁾ | 282080-1 |
| Lifetime | 50,000 switching cycles |
| Protection | Thermal overload protection (via PTC – PolySwitch) |
| Conducted interference | < 75 V |
| Interference suppression (in all ranges) | Intensity level 1 + 10 dB µV |
| Position when delivered | Retracted |
| Mainspring reset | Retract |
| Actuating force for ram stroke over operating voltage range and operating temperature range | 30 – 170 N |
| Manual adjustment | None |
| Functional stroke | ≤ 18 mm |

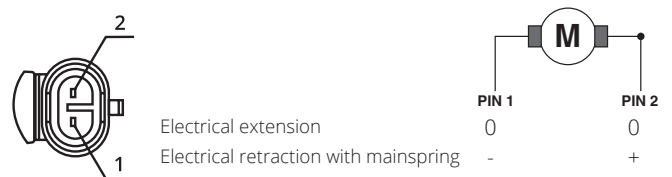
¹⁾ At the tappet over operating voltage range and operating temperature range.

²⁾ This accessory is not included in the scope of delivery. Available from TE Connectivity.

Dimensional sketch



Pin assignment / electrical connection



TECHNICAL DETAILS

6NW 009 203-717

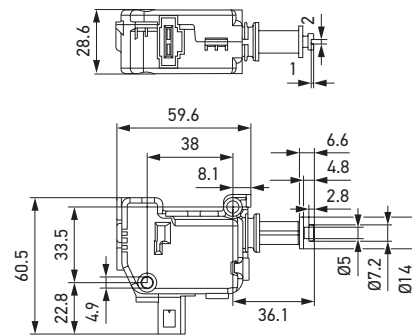
Technical data

| | |
|---|--|
| Operating voltage range | Single-voltage (9 – 15 V) |
| Rated voltage | 12 V |
| No-load current | 500 mA ± 200 mA |
| Maximum current consumption (stall current) | 6.7 A |
| Actuating time for 18 mm stroke ¹⁾ | Max. 110 ms |
| Temperature range | - 40 °C to +80 °C |
| Storage temperature | - 40 °C to +90 °C |
| Vibration resistance | 2.7 g _{eff.} |
| Protection class | IP 5K0 |
| Approved | ECE-R10 |
| Weight | 90 g |
| Material | Housing: Polyamide 6 GF15 (top side), Polyamide 6 M25 GF15 (bottom side) |
| Pin coating | Tin |
| Mating connector ²⁾ | 1355390-1 |
| Lifetime | 50,000 switching cycles |
| Protection | Thermal overload protection (via PTC – PolySwitch) |
| Conducted interference | < 75 V |
| Interference suppression (in all ranges) | Intensity level 1 + 10 dB µV |
| Position when delivered | Extended |
| Mainspring reset | Extend |
| Actuating force for ram stroke over operating voltage range and operating temperature range | 40 – 110 N |
| Manual adjustment | ≤ 40 N |
| Functional stroke | ≤ 18 mm |

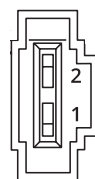
¹⁾ At the tappet over operating voltage range and operating temperature range.

²⁾ This accessory is not included in the scope of delivery. Available from TE Connectivity.

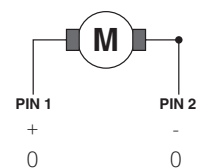
Dimensional sketch













Pin assignment / electrical connection



Electrical extension with mainspring
Electrical retraction with mainspring









PROGRAM OVERVIEW

| Product picture | Function | Actuating force* | Manual adjustment | Protection class | Part number | VPE** |
|---|---|------------------|-------------------|------------------|------------------------|-------|
|  | Electrical retraction and extension | 25 – 130 N | Yes | IP 5K0 | 6NW 009 203-607 | 128 |
|  | | 30 – 140 N | No | | 6NW 009 203-411 | 1 |
|  | | 20 – 130 N | Yes | IP 5K4 | 6NW 009 203-417 | 128 |
|  | | 30 – 160 N | No | | 6NW 009 203-627 | 100 |
|  | Electrical retraction, extension by mainspring | 30 – 170 N | No | IP 5K0 | 6NW 009 203-461 | 1 |
|  | | | | | 6NW 009 203-467 | 110 |
|  | | | | IP 5K4 | 6NW 009 203-471 | 1 |
|  | | | | | 6NW 009 203-477 | 100 |
|  | Electrical extension, retraction by mainspring | 30 – 170 N | No | IP 5K4 | 6NW 009 203-501 | 1 |
|  | Electrical retraction and extension with mainspring | 40 – 110 N | Yes | IP 5K0 | 6NW 009 203-717 | 110 |

* Depending on the operating voltage and ambient temperature.

** Packaging unit

ACCESSORIES

| Product picture | For actuator function | Storage temperature | Material | Part number | VPE* |
|---|-----------------------------------|---------------------|-----------|------------------------|------|
|  | Retraction and extension | -40 °C to +90 °C | POM white | 9XD 860 912-001 | 1 |
|  | | | | 9XD 862 354-001 | 1 |
|  | Extension | -40 °C to +90 °C | POM black | 9XD 861 450-001 | 1 |
|  | Retraction and extension with rod | -40 °C go +90 °C | POM white | 9XD 861 771-001 | 1 |
|  | | | | 9XD 862 516-001 | 1 |
|  | | | | 9XD 860 913-001 | 1 |

* Packaging unit