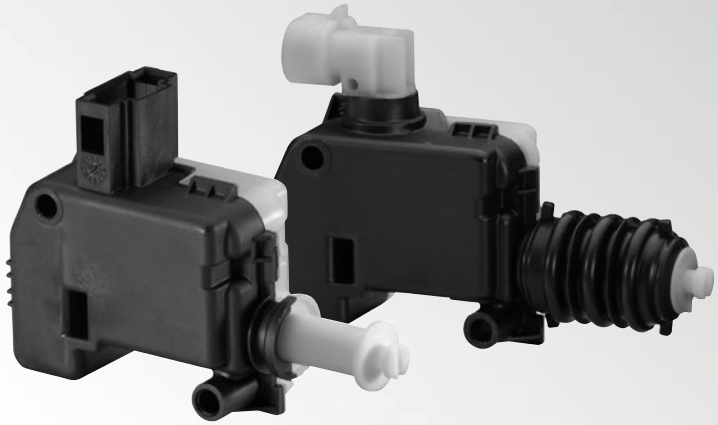


BRIEF INFORMATION

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

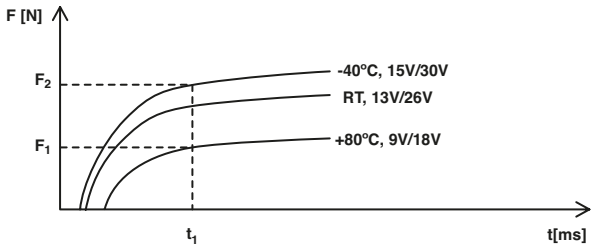
Application
The linear actuator is used for the electrical locking, unlocking or shutting function of the closing and flap systems in automotive and industrial applications.

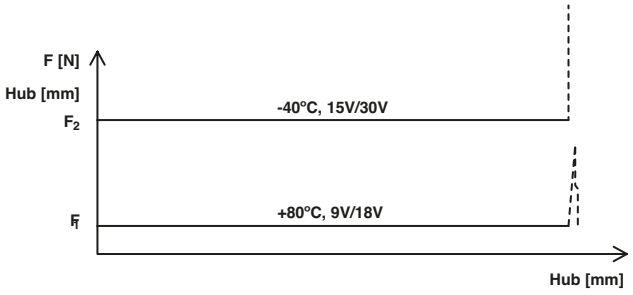
Examples of applications in mechanisms include:
- Electrical locking / unlocking
- Electrical closing
- Electrical opening and closing of all doors (locking systems), flaps, sunroofs, seats, covers, bonnets, glove compartments, etc.

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 t1, the actuator has an actuating force of F1 < F < F2. 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

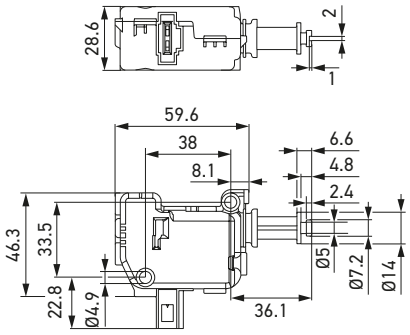
Technical data

	-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	

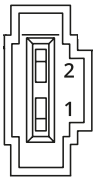
[1)] At the tappet over operating voltage range and operating temperature range.

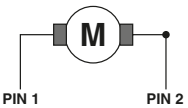
[2)] This accessory is not included in the scope of delivery. Available from TE Connectivity.

Dimensional sketch



Pin assignment / electrical connection





	PIN 1	PIN 2
Electrical extension	+	-
Electrical retraction	-	+

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

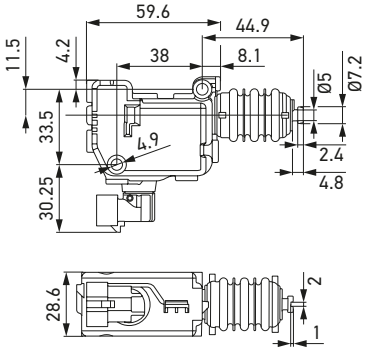
Technical data

	-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 µV	
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	≤ 15 N	None
Functional stroke	≤ 18 mm	

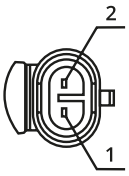
[1)] At the tappet over operating voltage range and operating temperature range.

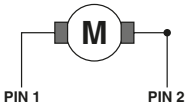
[2)] This accessory is not included in the scope of delivery. Available from TE Connectivity.

Dimensional sketch



Pin assignment / electrical connection





	PIN 1	PIN 2
Electrical extension	+	-
Electrical retraction	-	+

TECHNICAL DETAILS

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

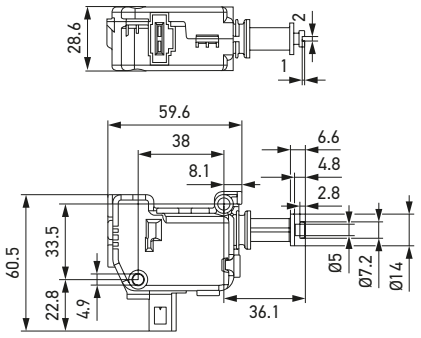
Technical data

	-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	

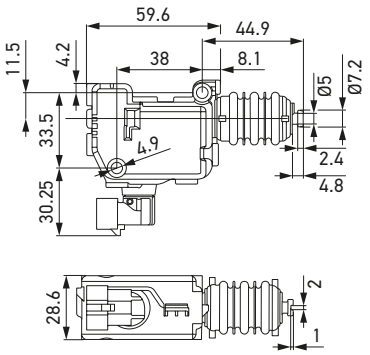
[1)] At the tappet over operating voltage range and operating temperature range.

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

Dimensional sketch

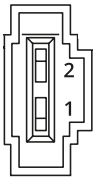


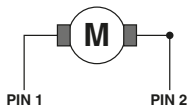
6NW 009 203-461 / 6NW 009 203-467



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

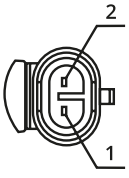
Pin assignment / electrical connection

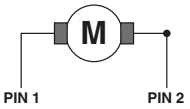




	PIN 1	PIN 2
Electrical extension	0	0
Electrical retraction	-	+

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





	PIN 1	PIN 2
Electrical extension with mainspring	0	0
Electrical retraction	-	+

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

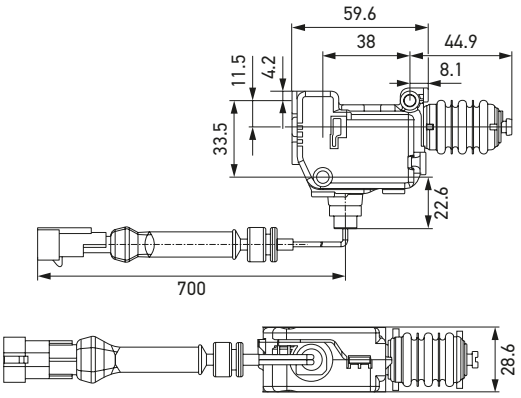
TECHNICAL DETAILS
6NW 009 203-501

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

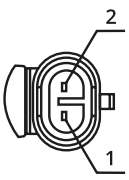
[1)] At the tappet over operating voltage range and operating temperature range.

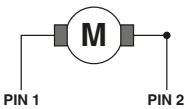
[2)] This accessory is not included in the scope of delivery. Available from TE Connectivity.

Dimensional sketch



Pin assignment / electrical connection





	PIN 1	PIN 2
Electrical extension	0	0
Electrical retraction with mainspring	-	+

TECHNICAL DETAILS
6NW 009 203-717

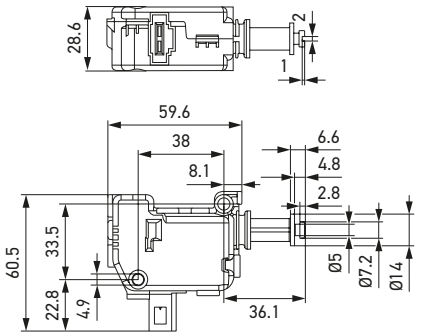
Technical data

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

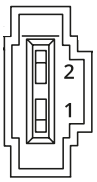
[1)] At the tappet over operating voltage range and operating temperature range.

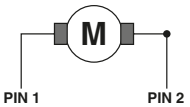
[2)] This accessory is not included in the scope of delivery. Available from TE Connectivity.

Dimensional sketch



Pin assignment / electrical connection





	PIN 1	PIN 2
Electrical extension with mainspring	+	-
Electrical retraction with mainspring	0	0

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
					6NW 009 203-417	128
		20 – 130 N	Yes	IP 5K4	**6NW 009 203-627**	100
		30 – 160 N	No		**6NW 009 203-637**	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 862 516-001**	1
				**9XD 860 913-001**	1

* Packaging unit