



## Drive technology 2017 | 2018

Motor overview

**Nidec**  
All for dreams



## Innovation today, for mobility tomorrow

As a subsidiary of the Japanese Nidec Corporation, we pursue ambitious goals. With the development of innovative direct current motors and drives for industry and the automotive sector, we want to be the one setting the trends of the future. Our focus: Strong, optimally designed electric motors that can be used in a wide variety of ways thanks to their compact design.

The European headquarters of Nidec Motors & Actuators in Bietigheim-Bissingen can already

look back on 75 years of history as a production and technology centre, and call upon the comprehensive expertise and experience gained over all those years.

We come up with and achieve individual solutions and the highest quality standards thanks to our high-performance and fully-automatic production lines with a comprehensive final inspection and in this way ensure the efficiency and safety of our motors when used by our customers.



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## Direct current motors without transmission

|                  |    |
|------------------|----|
| GMK / GML series | 8  |
| GMP series       | 10 |

## Motors with spur gear transmission

|             |    |
|-------------|----|
| GMAG series | 12 |
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## Motors with worm gear transmission

|              |    |
|--------------|----|
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| GMPD series  | 20 |
| GMPG series  | 24 |
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|                                                |    |
|------------------------------------------------|----|
| NIDEC Group – defined by our quest to be no. 1 | 54 |
|------------------------------------------------|----|

### Nidec in facts

|                             |                                   |
|-----------------------------|-----------------------------------|
| Nidec Corporation           | Turnover 2016<br>JPY 1.2 trillion |
| Employees                   | ~ 100,000<br>globally             |
| Nidec<br>Motors & Actuators | Turnover 2016<br>~ €170 million   |
| Employees                   | 1,097 globally                    |



# Strong development for the highest product quality



Our globally networked Nidec know-how not only ensures the highest quality in our standard programme, but also makes us reliable partners for special solutions in different areas of application.

Our development team develops motors and transmissions in accordance with our customers' specifications and which we examine in great detail in our own test centres and laboratories. Our own sample and prototype construction makes us particularly flexible.

Beyond this, the high automobile-industry standards ISO 9001, ISO TS 16949, ISO 14001 and

ISO 5001, as well as our completely automatic inspection ensure the security and reliability of services. Not least because our motors are characterised by their high smoothness of running, long service life, robust design as well as electrical safety thanks to low voltage.

## **Nidec test centre and laboratory**

- Noise and vibration measurement devices
- 3D measurement
- EMC measuring room
- Service-life test centre with climate chambers



# Areas of application

## Direct current motors without transmission

- Seat and furniture adjustment
- Logistics automation
- Office machines
- Bed adjustment



## Motors with spur gear transmission

- Roller shutter motors / building technology
- Spoiler adjustments
- Trailer adjustments
- Curtain adjustments
- Medical devices



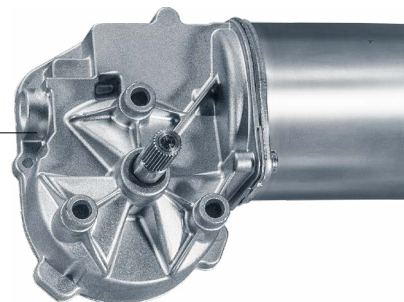
## Motors with worm gear transmission (special solutions)

- Door motors
- Seat adjustments / furniture adjustments
- Antenna adjustment systems (SAT system)
- Laboratory devices
- Rehabilitation equipment (patient lifts)
- Window adjustment systems



## Motors with worm gear transmission

- Coffee machines / vending machines
- Garage door motors
- Central lubrication units
- Stair lifts
- Barriers and traffic systems
- Solar-panel adjustments



## Technical explanations

Changes and mistakes, also of a technical nature, are reserved. Please only use the quotation drawings as the construction basis for this reason. You receive this from your responsible representative. Some of the images in the catalogue do not comply with the DIN regulations! The indicated operating parameters refer to an ambient temperature of 20°C.

The motors included in the catalogue are not intended for the end consumer. In accordance with EU directives, these products do not require a CE Mark. Some motors could be customer-specific in design, and for this reason, are only available to be delivered under reservation and upon request.

## Terms, symbols and units in accordance with DIN

| Symbols                   | Symbols / Example / Explanation                                    |
|---------------------------|--------------------------------------------------------------------|
| Art. no.                  | 404 854                                                            |
| Nominal voltage           | V ( $U_n$ )                                                        |
| Max. torque               | Nm <sub>max</sub>                                                  |
| Idle speed                | N <sub>0</sub> [min <sup>-1</sup> ] U/min                          |
| Nominal power             | W ( $P_n$ )                                                        |
| Nominal current           | A ( $I_n$ )                                                        |
| No-load current           | A ( $I_0$ )                                                        |
| Max. power                | A ( $I_{max}$ )                                                    |
| Hall sensors              | N = no hall sensor / 1 = single hall sensor / 2 = dual hall sensor |
| Reduction                 | Transmission gear reduction in ratio                               |
| Gearwheel material        | P = plastic / M = Metal                                            |
| Thermal switch            | Y = Yes / N = No                                                   |
| Interference suppression  | Y = Yes / N = No                                                   |
| Transmission housing      | lh = left transmission housing / rh = right transmission housing   |
| Characteristic curve      | Characteristic curve in accordance with quotation drawing          |
| Shaft                     | Shaft drawing in accordance with quotation drawing                 |
| Electric power connection | Electrical contacts in accordance with quotation drawing           |

Please note that you can find detailed information on our quotation drawings.



Rotation direction  
when looking at  
the motor shaft

The characteristic curve shows the rotation speed and the power depending on the torque. It entails medium values at room temperature. Deviations of  $\pm 10\%$  are possible in the series.



left



right

### Preferred rotation direction:

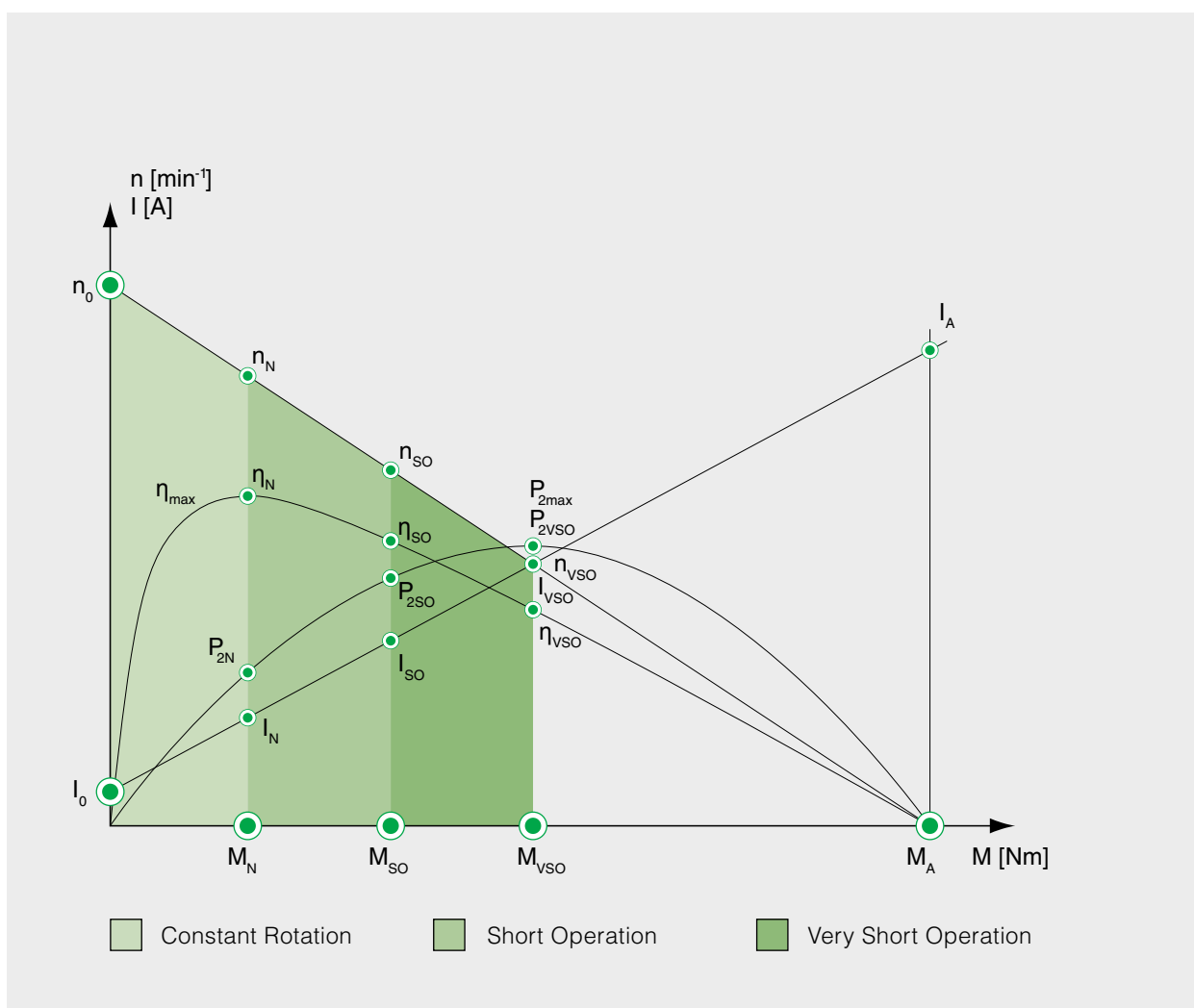
Motors with worm gear transmission have a preferred rotation direction that is illustrated with a large arrow in the drawings. If the motor turns in the opposite direction of the preferred rotation direction, the power output falls by approximately 10%.

## Characteristic curves

|            |                                              |
|------------|----------------------------------------------|
| CR         | Constant Rotation                            |
| SO         | Short Operation                              |
| VSO        | Very Short Operation                         |
| P          | Power output in Watt                         |
| $P_{2N}$   | Nominal power output in Watt                 |
| $P_{2max}$ | Maximum power output in Watt                 |
| $P_{2SO}$  | Power output in short operation in Watt      |
| $P_{2VSO}$ | Power output in very short operation in Watt |
| M          | Torque in Nm                                 |
| $M_A$      | Starting torque in Nm                        |
| $M_N$      | Nominal output torque in Nm                  |
| $M_{SO}$   | Output torque in short operation in Nm       |
| $M_{VSO}$  | Output torque in very short operation in Nm  |
| n          | Rotation speed in $\text{min}^{-1}$          |

|              |                                                             |
|--------------|-------------------------------------------------------------|
| $n_0$        | Idle speed in $\text{min}^{-1}$                             |
| $n_N$        | Nominal rotation speed in $\text{min}^{-1}$                 |
| $n_{SO}$     | Rotation speed in short operation in $\text{min}^{-1}$      |
| $n_{VSO}$    | Rotation speed in very short operation in $\text{min}^{-1}$ |
| I            | Current in A                                                |
| $I_0$        | No-load current in A                                        |
| $I_A$        | Starting current in A                                       |
| $I_N$        | Nominal current in A                                        |
| $I_{SO}$     | Current in short operation in A                             |
| $I_{VSO}$    | Current in very short operation in A                        |
| $\eta$       | Efficiency in %                                             |
| $\eta_N$     | Nominal efficiency in %                                     |
| $\eta_{SO}$  | Efficiency in short operation in %                          |
| $\eta_{VSO}$ | Efficiency in very short operation in %                     |

## Working area





# GMK · GML

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                   |
|--------------------------|-----------------------------------|
| Motor housing            | deep drawn & corrosion protection |
| Magnetic field           | Permanent magnet                  |
| Type of transmission     | –                                 |
| Transmission housing     | –                                 |
| Gearwheel material       | –                                 |
| Transmission lubrication | –                                 |
| Mechanical interface     | Drive shaft                       |
| Electrical interface     | Stranded wires with plug          |
| Sensor                   | –                                 |
| Thermal protection       | Optional                          |
| Interference suppression | Optional                          |

## Applications

### Industry

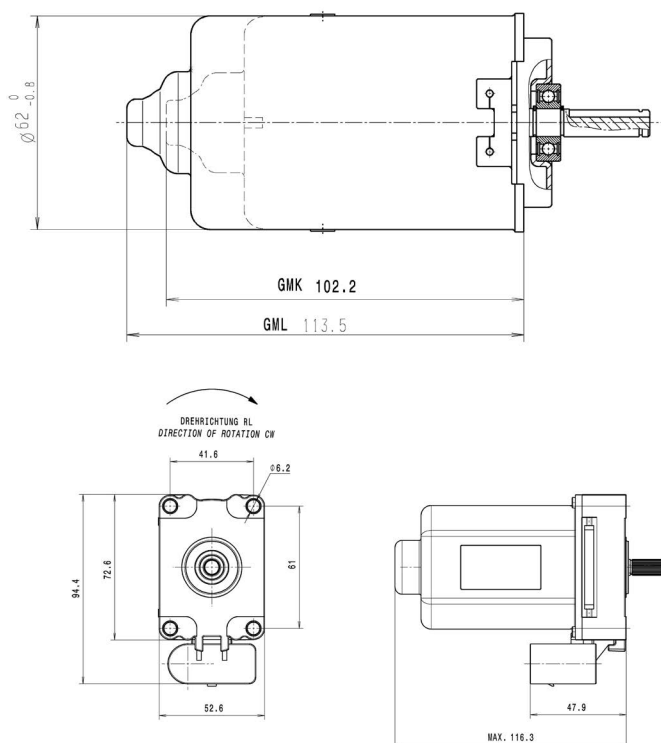
### Linear drives

### Automobile

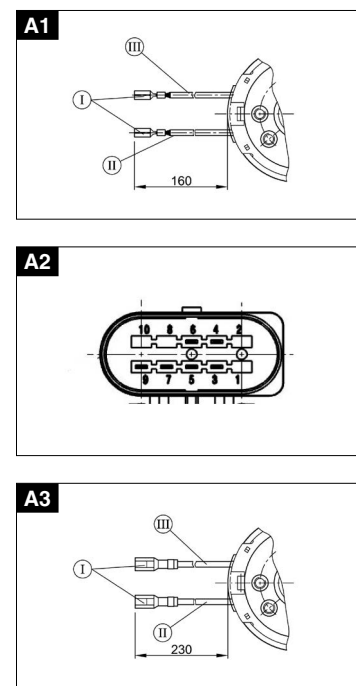
**Electric torque management,  
automated manual transmission**

GMK / GML

405 084



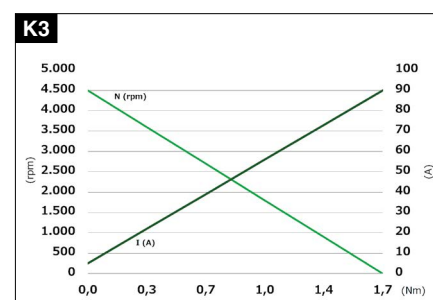
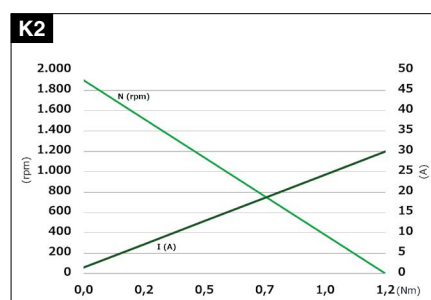
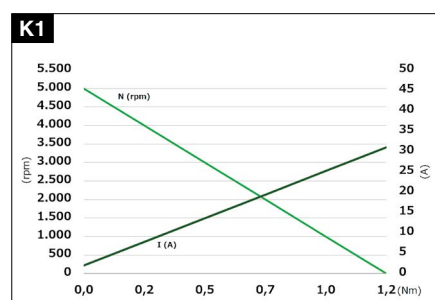
## Connections



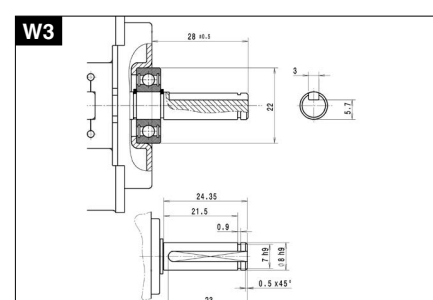
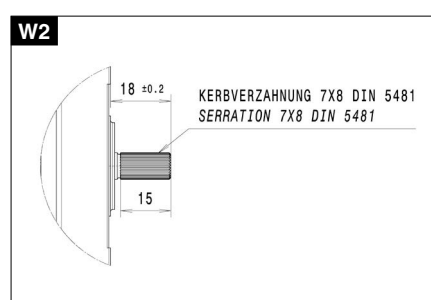
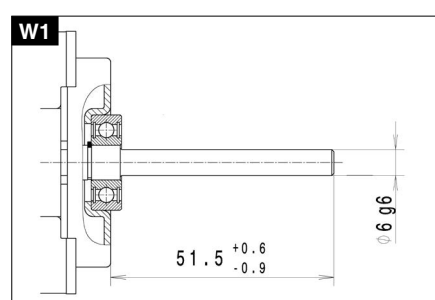
## Overview

| Type    |     | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
|         |     | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 404 382 | GMK | 24.0            | 1.2         | 5000.0            | 199.0          | 8.3             | 2.0             | 31.3       | N            | ---            | ---                | N              | J                        | ---                  | K1                   | W1    | A1                    |
| 405 084 | GMK | 12.0            | 1.7         | 4500.0            | 269.0          | 22.4            | 5.0             | 89.5       | 2            | ---            | ---                | N              | J                        | ---                  | K3                   | W2    | A2                    |
| 404 621 | GML | 12.0            | 1.2         | 1900.0            | 148.0          | 12.3            | 1.5             | 29.8       | N            | ---            | ---                | N              | J                        | ---                  | K2                   | W3    | A3                    |

## Characteristic curves



## Shafts



# GMP

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                            |
|--------------------------|--------------------------------------------|
| Motor housing            | Sheet steel, rolled & corrosion protection |
| Magnetic field           | Permanent magnet                           |
| Type of transmission     | –                                          |
| Transmission housing     | –                                          |
| Gearwheel material       | –                                          |
| Transmission lubrication | –                                          |
| Mechanical interface     | Drive shaft                                |
| Electrical interface     | Plug or stranded wires                     |
| Sensor                   | Optional                                   |
| Thermal protection       | Optional                                   |
| Interference suppression | Optional                                   |

## Applications

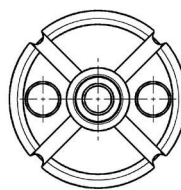
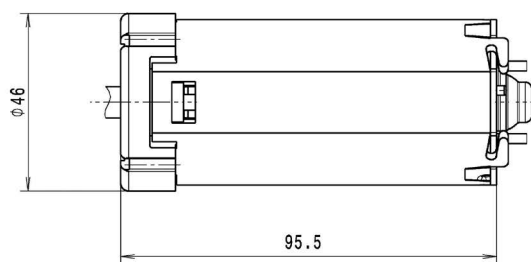
### Industry

Linear drives, mechanical engineering

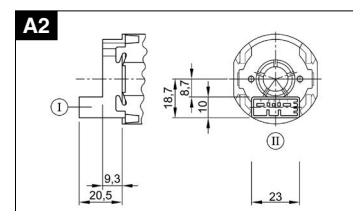
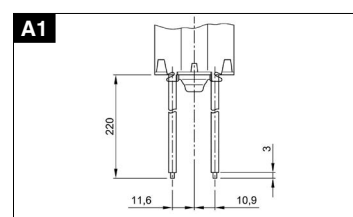
### Automobile

Longitudinal seat adjustment

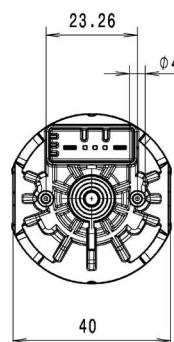
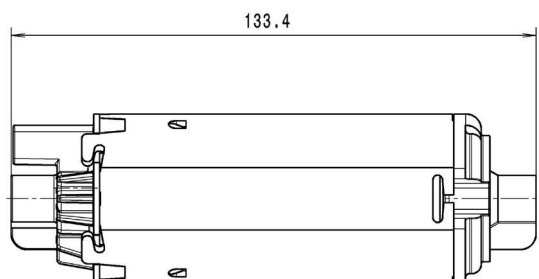
402 944 / 403 187



## Connections



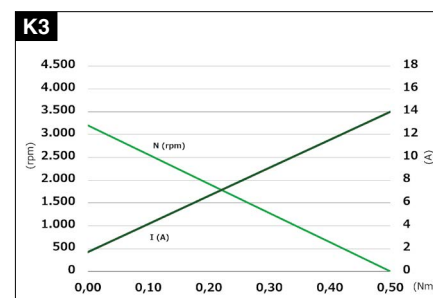
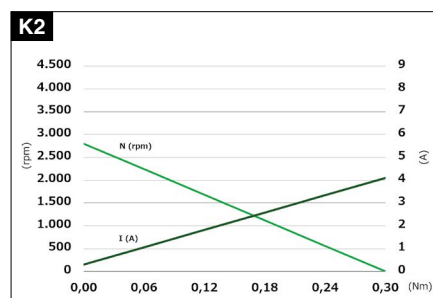
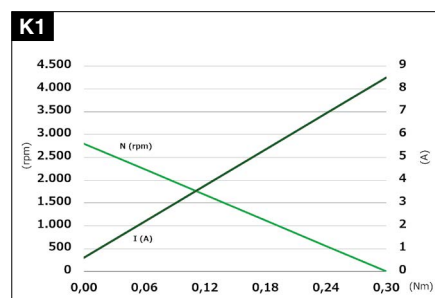
404 743 / 404 744



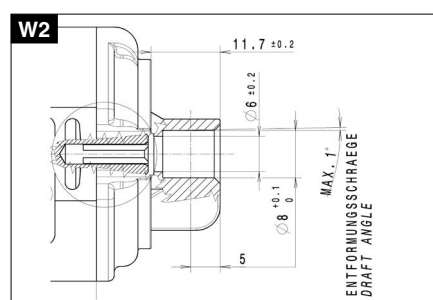
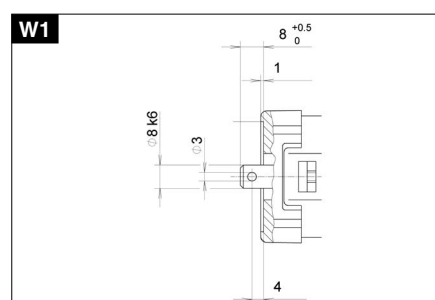
## Overview

|         | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| Type    | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 402 944 | 12.0            | 0.3         | 2800.0            | 32.6           | 2.7             | 0.6             | 8.5        | N            | --             | --                 | N              | J                        | ---                  | K1                   | W1    | A1                    |
| 403 187 | 24.0            | 0.3         | 2800.0            | 25.7           | 1.1             | 0.3             | 4.1        | N            | --             | --                 | N              | J                        | ---                  | K2                   | W1    | A1                    |
| 404 743 | 12.0            | 0.5         | 3200.0            | 44.0           | 3.3             | 1.7             | 14.0       | N            | ---            | ---                | J              | J                        | ---                  | K3                   | W2    | A2                    |
| 404 744 | 12.0            | 0.5         | 3200.0            | 44.0           | 3.3             | 1.7             | 14.0       | 1            | ---            | ---                | J              | J                        | ---                  | K3                   | W2    | A2                    |

## Characteristic curves



## Shafts





# GMAG

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                                                    |
|--------------------------|--------------------------------------------------------------------|
| Motor housing            | Galvanised sheet steel                                             |
| Magnetic field           | Permanent magnet                                                   |
| Type of transmission     | SPUR gear transmission                                             |
| Transmission housing     | Plastic                                                            |
| Gearwheel material       | Plastic, metal                                                     |
| Transmission lubrication | Grease, permanent lubrication                                      |
| Mechanical interface     | Drive shaft                                                        |
| Electrical interface     | Stranded wires with blade receptacles or tin-plated stranded wires |
| Sensor                   | Optional                                                           |
| Thermal protection       | –                                                                  |
| Interference suppression | Optional                                                           |

## Applications

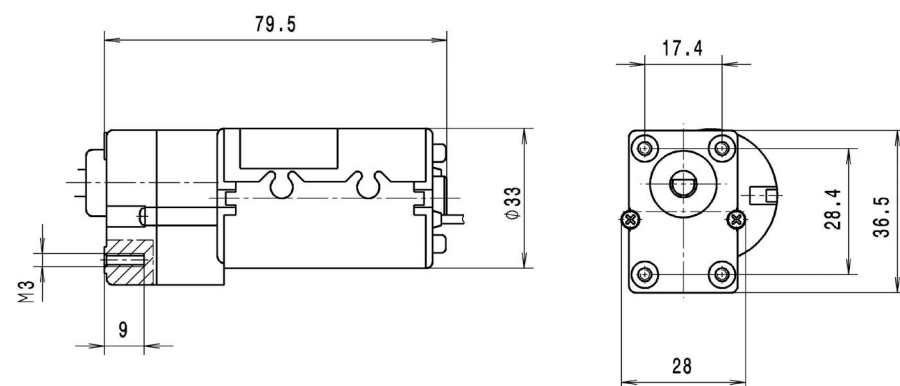
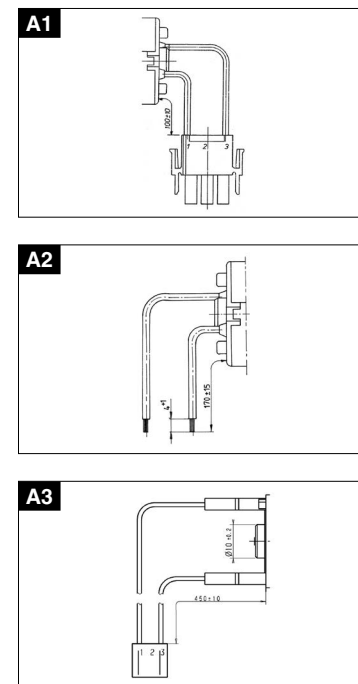
### Industry

Linear drives, general mechanical engineering, medical technology

### Automobile

Spoiler adjustment

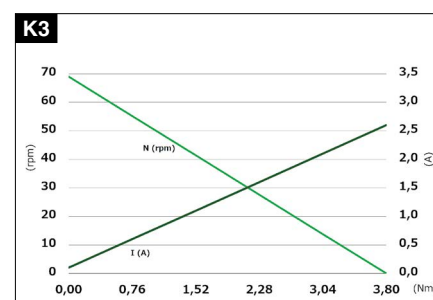
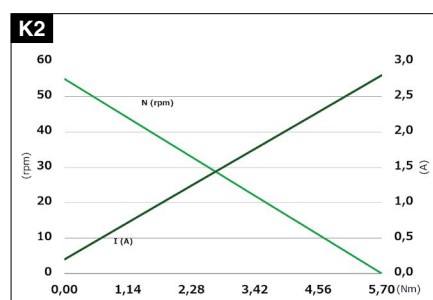
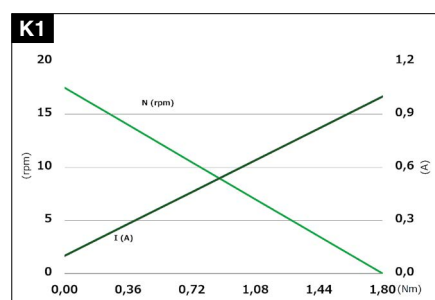
## Connections



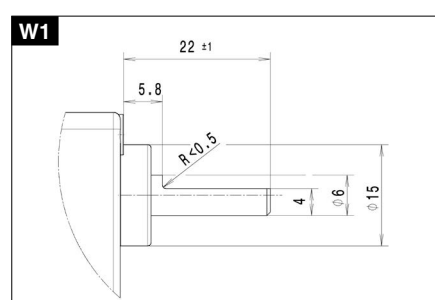
## Overview

| Type    | Nominal voltage | Max. torque | Idle speed | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| 402 757 | 12.0            | 1.8         | 17.5       | 2.2            | 0.2             | 0.1             | 1.0        | N            | 109:1          | ---                | N              | J                        | ---                  | K1                   | W1    | A1                    |
| 402 781 | 24.0            | 5.7         | 55.0       | 7.8            | 0.3             | 0.2             | 2.8        | N            | 109:1          | ---                | N              | J                        | ---                  | K2                   | W1    | A2                    |
| 404 327 | 24.0            | 3.8         | 69.0       | 10.7           | 0.4             | 0.1             | 2.6        | N            | 109:1          | ---                | N              | J                        | ---                  | K3                   | W1    | A3                    |

## Characteristic curves



## Shafts



# GMPI

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                                    |
|--------------------------|----------------------------------------------------|
| Motor housing            | Sheet steel, rolled<br>protected against corrosion |
| Magnetic field           | Permanent magnet                                   |
| Type of transmission     | Spur gear transmission                             |
| Transmission housing     | Plastic                                            |
| Gearwheel material       | Plastic                                            |
| Transmission lubrication | Grease, permanent lubrication                      |
| Mechanical interface     | Drive shaft                                        |
| Electrical interface     | Plug or stranded wires with<br>plug                |
| Sensor                   | Optional                                           |
| Thermal protection       | Optional                                           |
| Interference suppression | Optional                                           |

## Applications

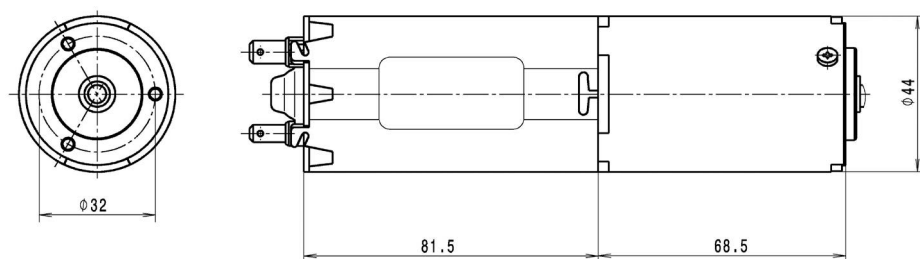
### Industry

Linear drives,  
building technology

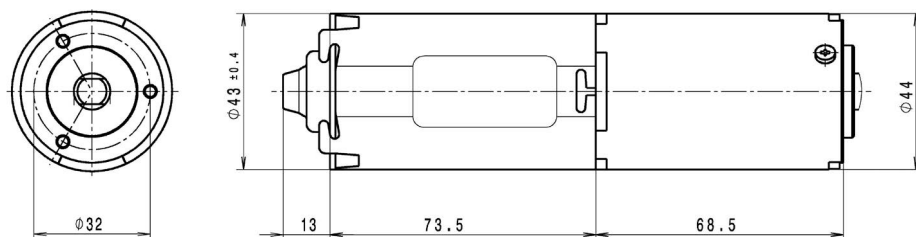
### Automobile

Rear spoiler adjustment

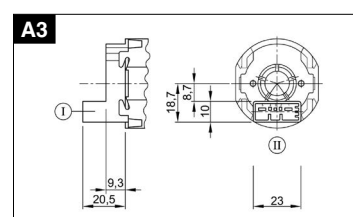
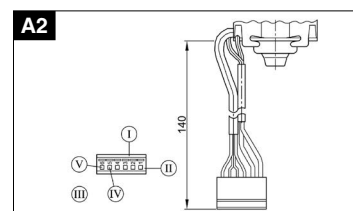
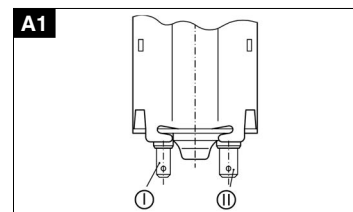
A1



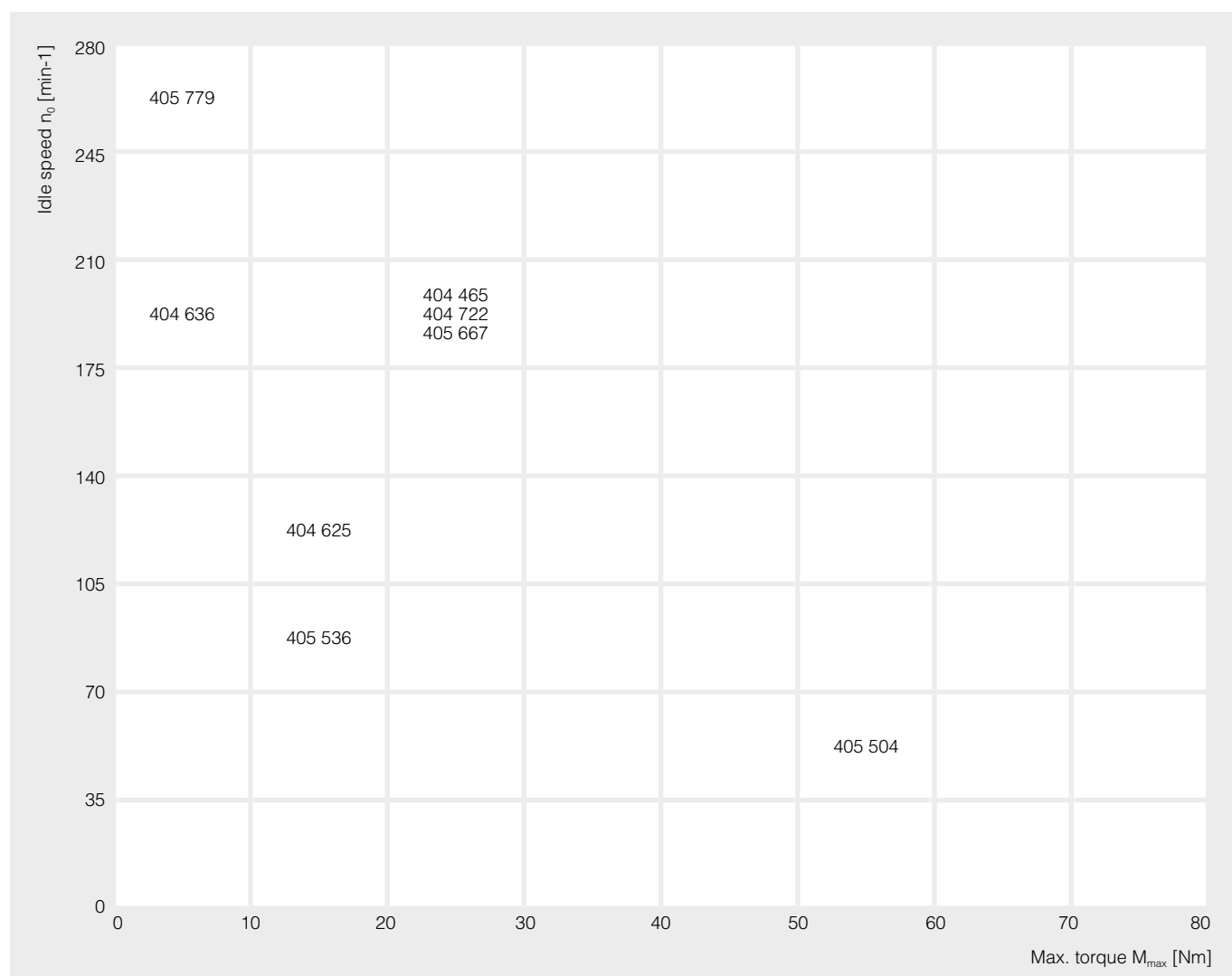
A2 + A3



## Connections



## Product matrix

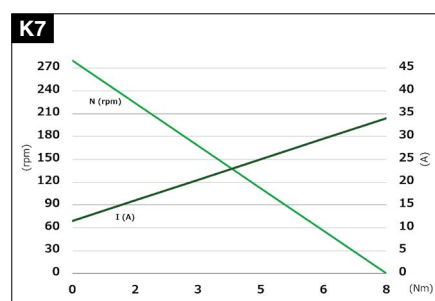
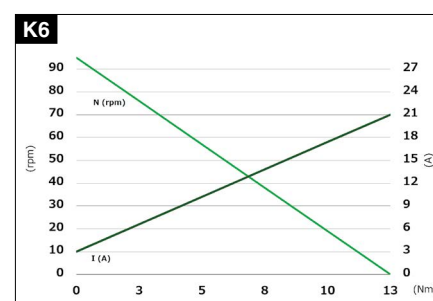
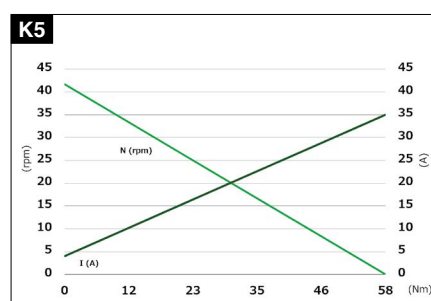
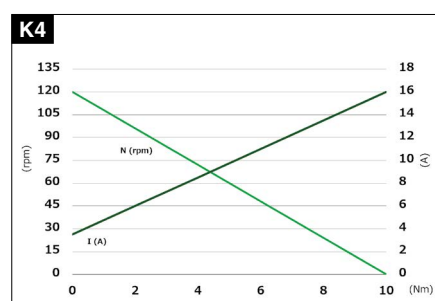
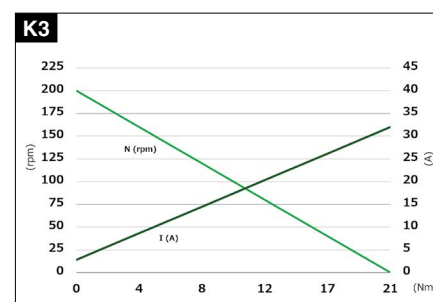
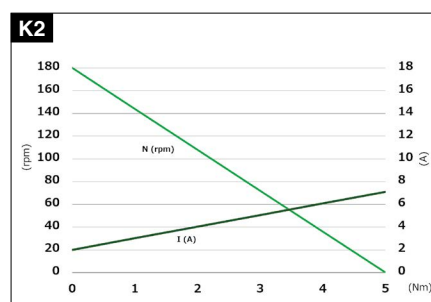
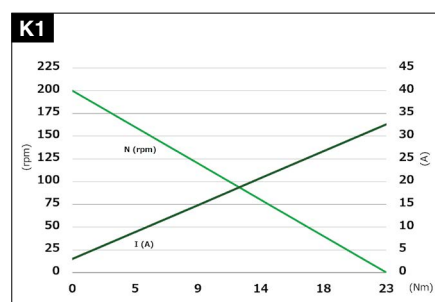




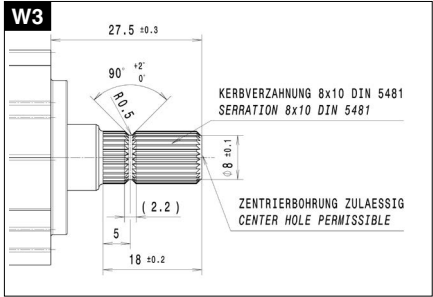
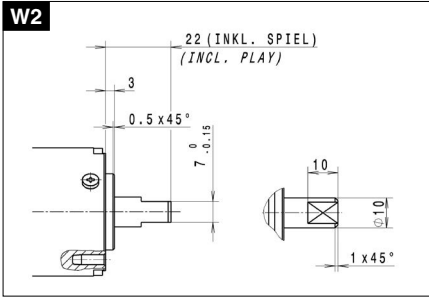
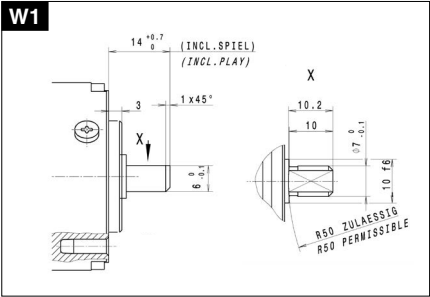
## Overview

|         | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| Type    | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 404 465 | 24.0            | 22.8        | 200.0             | 160.8          | 6.7             | 3.0             | 32.6       | N            | 40:1           | K                  | N              | J                        | ---                  | K1                   | W1    | A1                    |
| 404 625 | 12.0            | 10.2        | 120.0             | 57.5           | 4.3             | 3.5             | 16.1       | N            | 40:1           | K                  | J              | J                        | ---                  | K4                   | W1    | A1                    |
| 404 636 | 24.0            | 5.3         | 180.0             | 70.2           | 2.9             | 2.0             | 7.1        | 2            | 20:1           | K                  | N              | J                        | ---                  | K2                   | W2    | A2                    |
| 404 722 | 24.0            | 23.1        | 200.0             | 160.8          | 6.7             | 3.0             | 33.0       | 2            | 40:1           | K                  | N              | J                        | ---                  | K1                   | W2    | A2                    |
| 405 504 | 12.0            | 58.0        | 41.7              | 120.0          | 10.0            | 4.0             | 34.9       | 1            | 116:1          | K                  | N              | J                        | ---                  | K5                   | W3    | A3                    |
| 405 536 | 12.0            | 12.5        | 95.0              | 35.3           | 2.9             | 3.0             | 21.1       | 2            | 40:1           | K                  | N              | J                        | ---                  | K6                   | W2    | A3                    |
| 405 667 | 24.0            | 20.7        | 200.0             | 168.0          | 7.0             | 2.8             | 32.0       | N            | 40:1           | K                  | N              | J                        | ---                  | K3                   | W2    | A1                    |
| 405 779 | 12.0            | 7.7         | 280.0             | 173.6          | 14.5            | 11.5            | 34.1       | N            | 40:1           | K                  | N              | J                        | ---                  | K7                   | W2    | A1                    |

## Characteristic curves



Shafts



# GMPS

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                                    |
|--------------------------|----------------------------------------------------|
| Motor housing            | Sheet steel, rolled<br>protected against corrosion |
| Magnetic field           | Permanent magnet                                   |
| Type of transmission     | Worm gear transmission                             |
| Transmission housing     | Zinc die casting                                   |
| Gearwheel material       | Plastic                                            |
| Transmission lubrication | Grease, permanent lubrication                      |
| Mechanical interface     | Steel worm gear                                    |
| Electrical interface     | Plug                                               |
| Sensor                   | Optional                                           |
| Thermal protection       | Optional                                           |
| Interference suppression | Optional                                           |

## Applications

### Industry

Building technology

### Automobile

Adjust seat height and  
incline

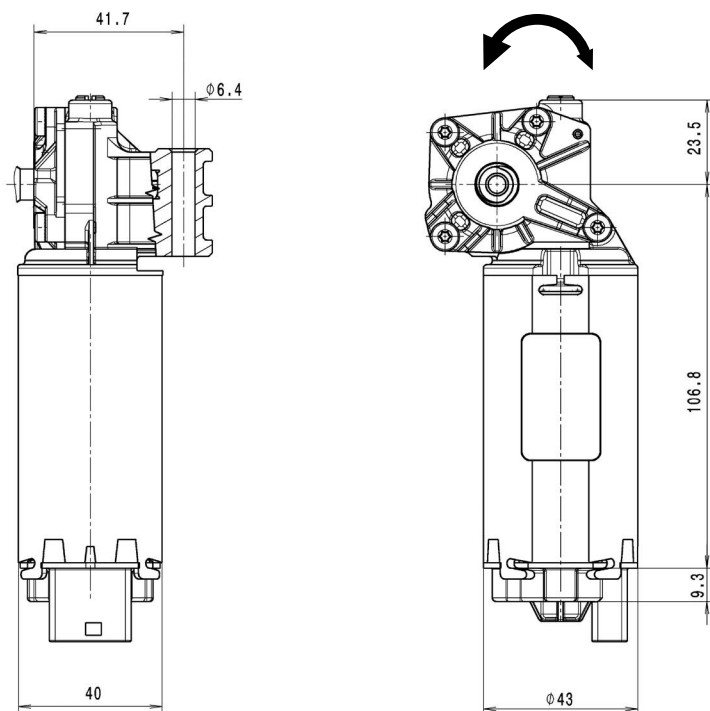
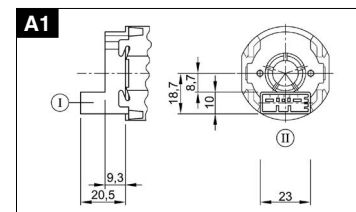


Image shows the transmission design on the left

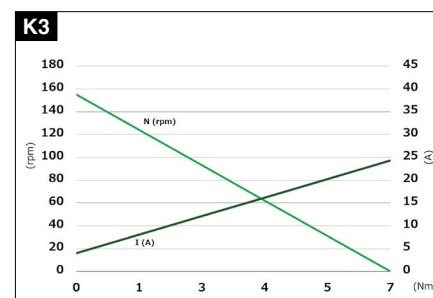
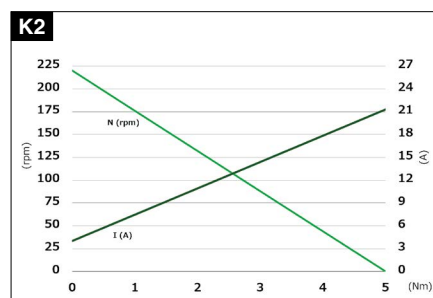
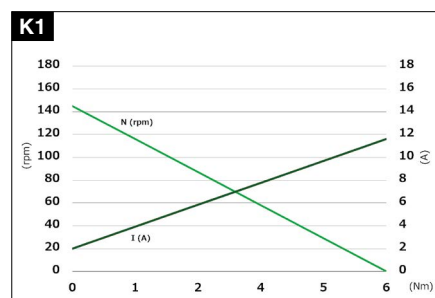
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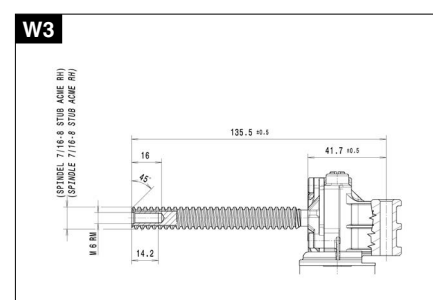
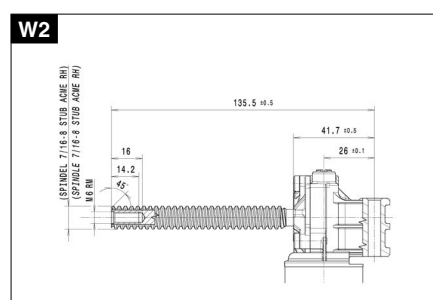
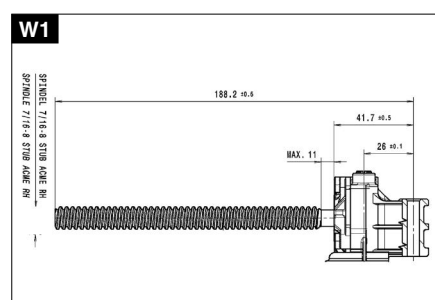
## Overview

| Type    | Nominal voltage | Max. torque | Idle speed | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| 405 237 | 24.0            | 5.9         | 145.0      | 70.3           | 2.9             | 2.0             | 11.6       | N            | 29:1           | K                  | N              | J                        | lh                   | K1                   | W1    | A1                    |
| 405 814 | 12.0            | 4.7         | 220.0      | 68.9           | 5.5             | 4.0             | 21.3       | 1            | 29:1           | K                  | J              | J                        | lh                   | K2                   | W3    | A1                    |
| 406 007 | 12.0            | 6.7         | 155.0      | 72.6           | 6.1             | 4.0             | 24.3       | 1            | 29:1           | K                  | J              | J                        | lh                   | K3                   | W2    | A1                    |
| 406 008 | 12.0            | 6.7         | 155.0      | 72.6           | 6.1             | 4.0             | 24.3       | 1            | 29:1           | K                  | J              | J                        | rh                   | K3                   | W2    | A1                    |

## Characteristic curves



## Shafts



# GMPD

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                                          |
|--------------------------|----------------------------------------------------------|
| Motor housing            | Sheet steel, rolled<br>protected against corrosion       |
| Magnetic field           | Permanent magnet                                         |
| Type of transmission     | Combination transmission:<br>Worm gear and<br>Spur gears |
| Transmission housing     | Plastic                                                  |
| Gearwheel material       | Plastic                                                  |
| Transmission lubrication | Grease, permanent lubrication                            |
| Mechanical interfaces    | Profiled hollow shaft                                    |
| Electrical interface     | Plugs or stranded wires<br>with plug                     |
| Sensor                   | Optional                                                 |
| Thermal protection       | Optional                                                 |
| Interference suppression | Optional                                                 |

## Applications

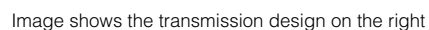
### Industry

Mechanical engineering

### Automobile

Backrest adjustment





## Information



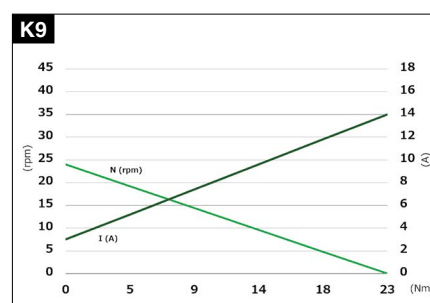
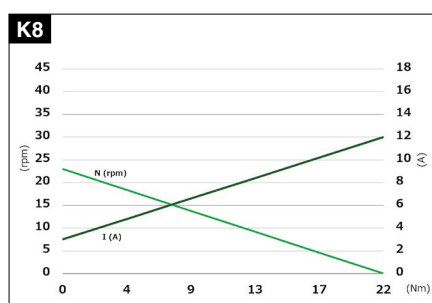
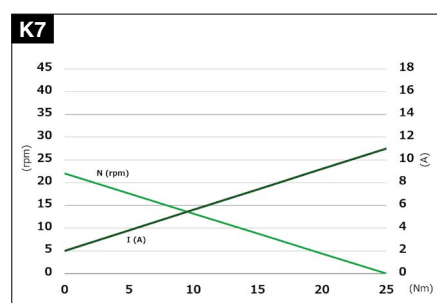
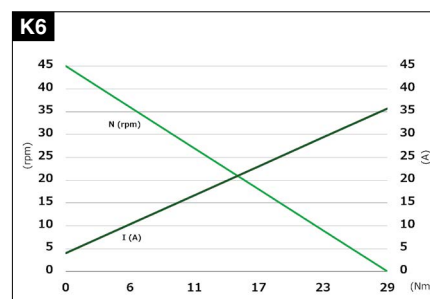
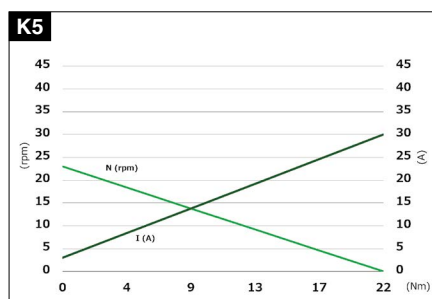
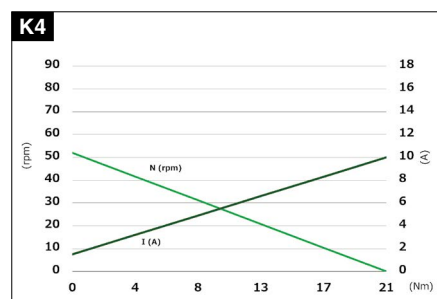
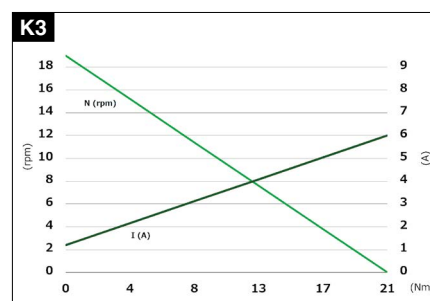
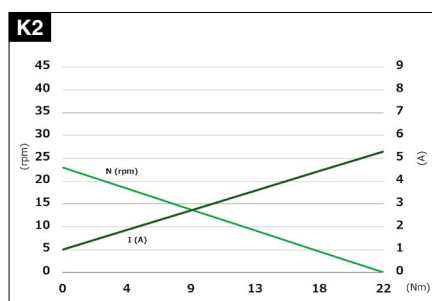
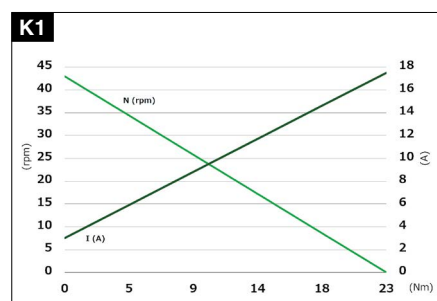
## GMPD



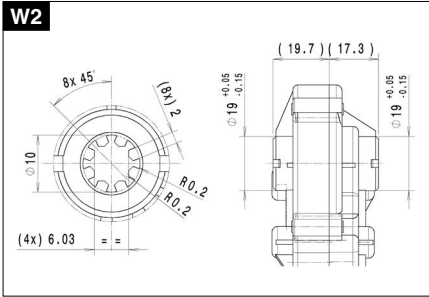
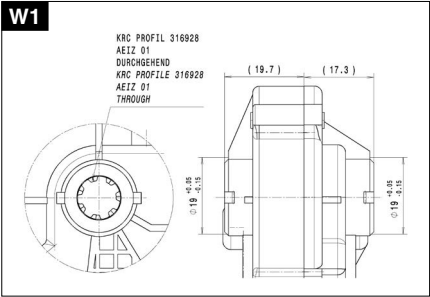
## Overview

|         | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| Type    | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 404 682 | 24.0            | 40.0        | 43.0              | 113.0          | 4.7             | 3.0             | 17.5       | N            | 210:1          | K                  | N              | J                        | ---                  | K1                   | W1    | A1                    |
| 404 764 | 24.0            | 22.0        | 23.0              | 36.3           | 1.3             | 1.0             | 5.3        | N            | 210:1          | K                  | J              | J                        | ---                  | K2                   | W1    | A2                    |
| 404 905 | 12.0            | 21.5        | 23.0              | 88.2           | 6.8             | 3.0             | 29.4       | 1            | 210:1          | K                  | J              | J                        | ---                  | K5                   | W1    | A3                    |
| 404 980 | 12.0            | 28.6        | 45.0              | 91.6           | 8.3             | 4.0             | 35.7       | N            | 210:1          | K                  | N              | J                        | ---                  | K6                   | W1    | A3                    |
| 405 030 | 12.0            | 25.0        | 22.0              | 42.3           | 3.3             | 2.0             | 11.0       | 1            | 155:1          | K                  | J              | J                        | ---                  | K7                   | W2    | A3                    |
| 405 031 | 12.0            | 21.5        | 23.0              | 42.8           | 3.3             | 3.0             | 11.9       | 1            | 210:1          | K                  | J              | J                        | ---                  | K8                   | W1    | A3                    |
| 405 228 | 24.0            | 21.0        | 19.0              | 44.6           | 1.9             | 1.2             | 6.0        | N            | 246:1          | K                  | J              | J                        | ---                  | K3                   | W1    | A2                    |
| 405 724 | 12.0            | 23.0        | 24.0              | 45.0           | 3.8             | 3.0             | 14.0       | 1            | 210:1          | K                  | J              | J                        | ---                  | K9                   | W1    | A3                    |
| 405 794 | 24.0            | 21.0        | 52.0              | 37.1           | 1.5             | 1.5             | 10.0       | 2            | 87:1           | K                  | N              | J                        | ---                  | K4                   | W1    | A3                    |
| 405 923 | 24.0            | 21.0        | 52.0              | 37.1           | 1.5             | 1.5             | 10.0       | 2            | 87:1           | M                  | N              | J                        | ---                  | K4                   | W1    | A3                    |
| 405 968 | 12.0            | 23.0        | 24.0              | 40.4           | 3.4             | 3.0             | 12.3       | N            | 210:1          | K                  | J              | J                        | ---                  | K8                   | W2    | A3                    |

## Characteristic curves



Shafts



Information

GMK · GML

GMP

GMAG

GMPI

GMPS

**GMPD**

GMPG

SWMP

DCK31

DCK35

SW2L

SWMV

SWMG

SW3K

# GMPG

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                            |
|--------------------------|--------------------------------------------|
| Motor housing            | Sheet steel, rolled & corrosion protection |
| Magnetic field           | Permanent magnet                           |
| Type of transmission     | Worm gear transmission                     |
| Transmission housing     | Zinc die casting                           |
| Gearwheel material       | Plastic                                    |
| Transmission lubrication | Grease, permanent lubrication              |
| Mechanical interface     | Drive shaft                                |
| Electrical interface     | Plug                                       |
| Sensor                   | Optional                                   |
| Thermal protection       | Optional                                   |
| Interference suppression | Optional                                   |

## Applications

### Industry

Gas-power machines, office machines, furniture adjustment, mechanical engineering

### Automobile

Adjustable sunroof

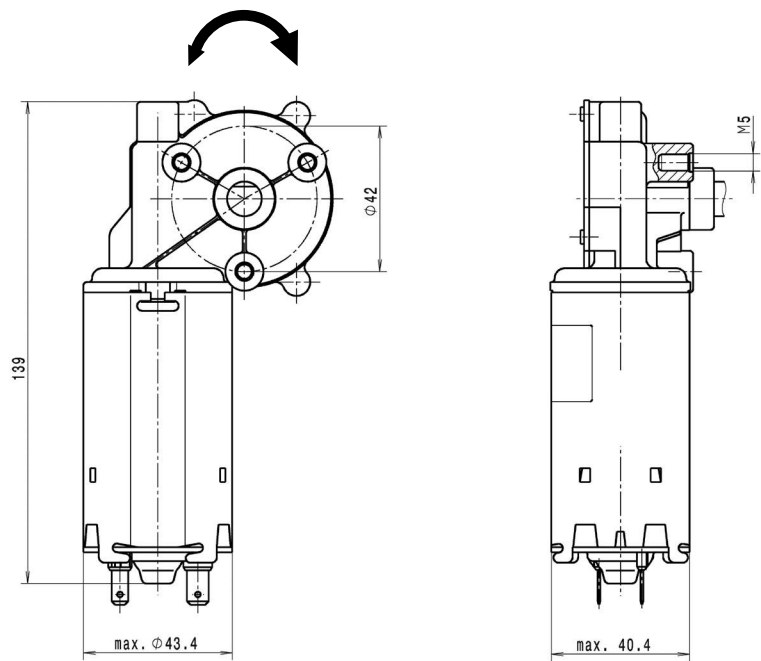
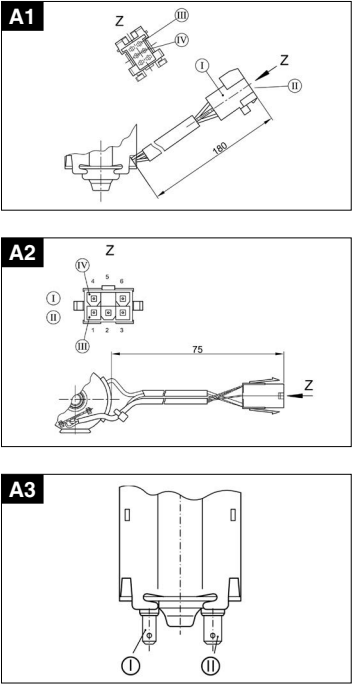
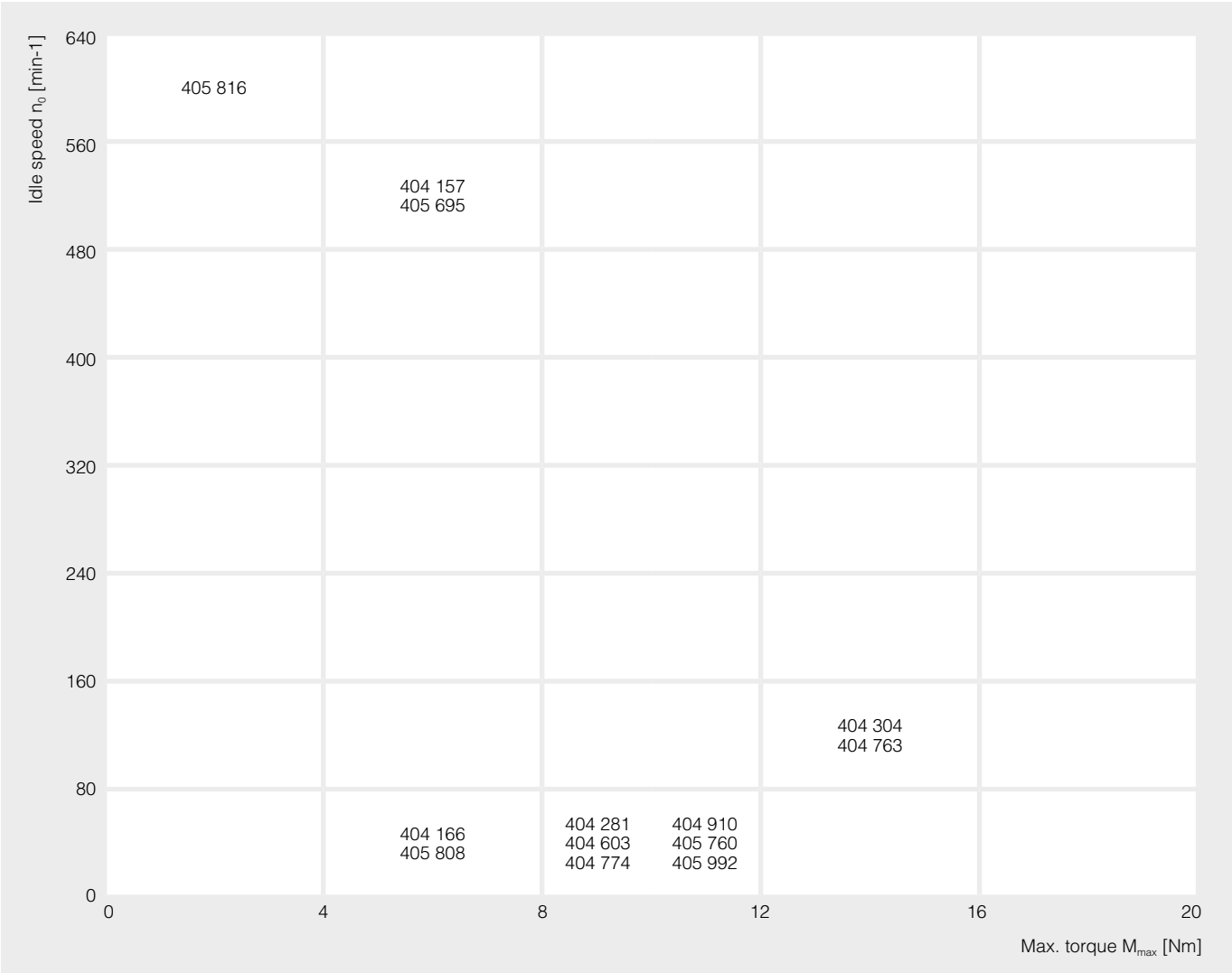


Image shows the transmission design on the right

Connections



Product matrix

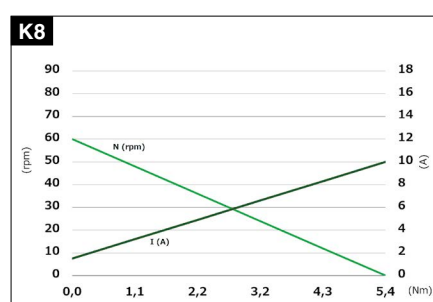
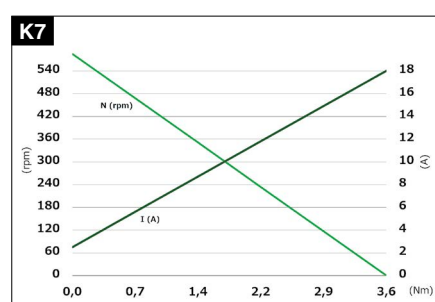
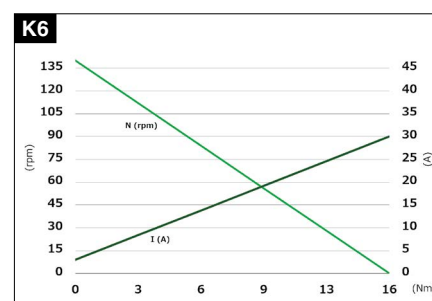
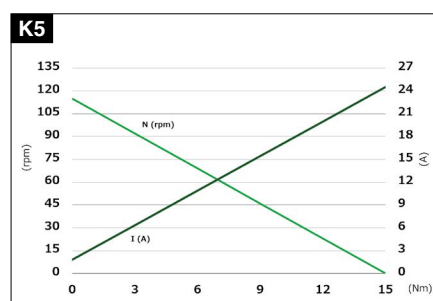
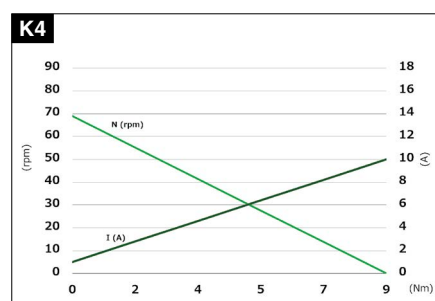
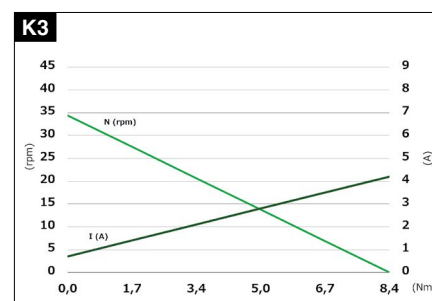
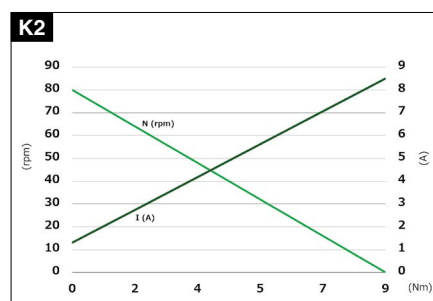
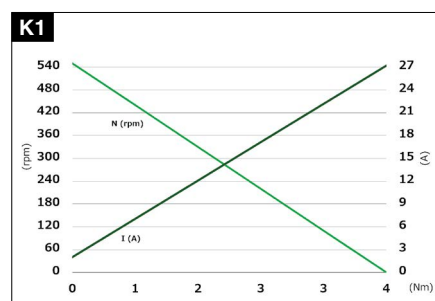




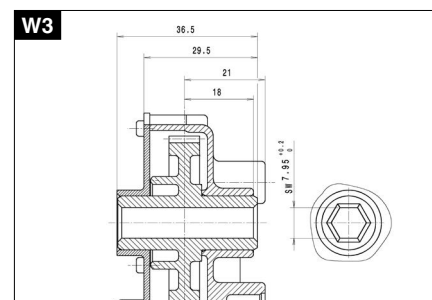
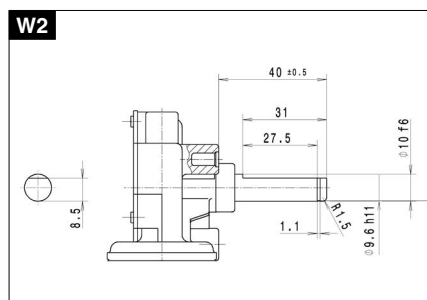
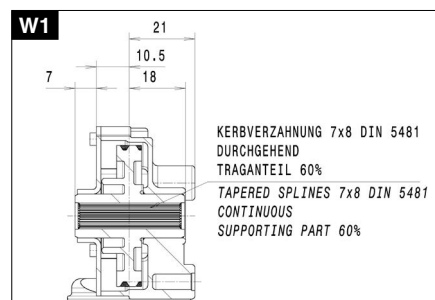
## Overview

|         | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| Type    | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 404 157 | 24.0            | 4.2         | 550.0             | 145.0          | 6.0             | 2.0             | 27.2       | N            | 56:4           | K                  | J              | J                        | lh                   | K1                   | W1    | A3                    |
| 404 166 | 12.0            | 5.4         | 60.0              | 27.6           | 2.3             | 0.8             | 8.4        | N            | 62:1           | K                  | N              | N                        | lh                   | K8                   | W1    | A3                    |
| 404 281 | 24.0            | 9.1         | 69.0              | 55.5           | 2.3             | 1.0             | 10.1       | N            | 62:1           | K                  | N              | J                        | rh                   | K4                   | W1    | A3                    |
| 404 304 | 24.0            | 15.0        | 115.0             | 130.0          | 5.4             | 1.8             | 24.5       | N            | 62:1           | K                  | N              | J                        | rh                   | K5                   | W1    | A3                    |
| 404 603 | 24.0            | 9.0         | 80.0              | 61.0           | 2.5             | 1.3             | 8.5        | N            | 62:1           | K                  | J              | J                        | rh                   | K2                   | W2    | A3                    |
| 404 763 | 24.0            | 15.8        | 140.0             | 162.0          | 6.8             | 3.0             | 29.3       | 2            | 62:1           | K                  | N              | J                        | rh                   | K6                   | W1    | A1                    |
| 404 774 | 24.0            | 8.4         | 34.4              | 28.3           | 1.2             | 0.7             | 4.2        | N            | 72:1           | K                  | N              | J                        | lh                   | K3                   | W3    | A3                    |
| 404 910 | 24.0            | 8.4         | 35.0              | 30.7           | 1.2             | 0.7             | 5.1        | 1            | 72:1           | K                  | N              | J                        | lh                   | K3                   | W3    | A2                    |
| 405 695 | 24.0            | 4.1         | 550.0             | 166.5          | 6.9             | 2.0             | 26.5       | N            | 56:4           | K                  | J              | J                        | rh                   | K1                   | W1    | A3                    |
| 405 760 | 24.0            | 9.0         | 80.0              | 61.0           | 3.0             | 1.3             | 9.0        | 2            | 62:1           | K                  | J              | J                        | rh                   | K2                   | W2    | A3                    |
| 405 808 | 12.0            | 5.3         | 60.0              | 29.5           | 2.5             | 1.5             | 10.1       | N            | 62:1           | K                  | N              | J                        | lh                   | K8                   | W1    | A3                    |
| 405 816 | 24.0            | 3.6         | 585.0             | 153.0          | 6.4             | 2.5             | 18.0       | N            | 56:4           | K                  | J              | J                        | lh                   | K7                   | W1    | A3                    |
| 405 992 | 24.0            | 9.0         | 34.0              | 27.4           | 1.1             | 0.7             | 4.3        | N            | 72:1           | K                  | N              | J                        | rh                   | K3                   | W3    | A3                    |

## Characteristic curves



## Shafts



# SWMP

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                                       |
|--------------------------|-------------------------------------------------------|
| Motor housing            | Sheet steel, rolled & corrosion protection            |
| Magnetic field           | Permanent magnet                                      |
| Type of transmission     | Worm gear transmission                                |
| Transmission housing     | Zinc die casting                                      |
| Gearwheel material       | Plastic, metal                                        |
| Transmission lubrication | Grease, permanent lubrication                         |
| Mechanical interface     | Drive shaft                                           |
| Electrical interface     | Stranded wires with plug or tin-plated stranded wires |
| Sensor                   | Optional                                              |
| Thermal protection       | Optional                                              |
| Interference suppression | Optional                                              |

## Applications

### Industry

General mechanical engineering, machines, agricultural technology, office machines, laboratory devices, medical technology, traffic and communication technology, photo/optics

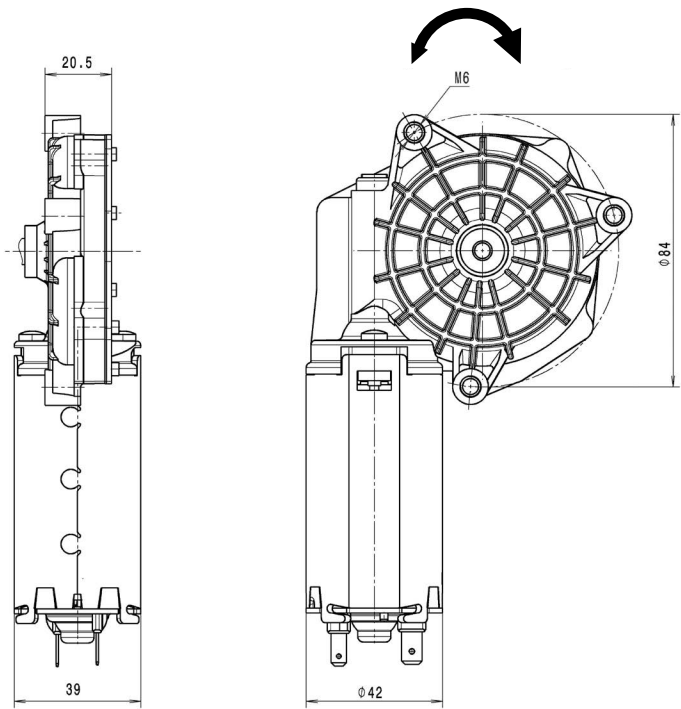
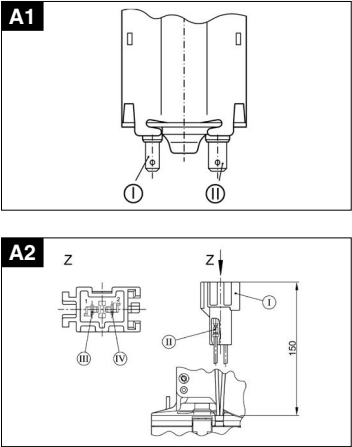
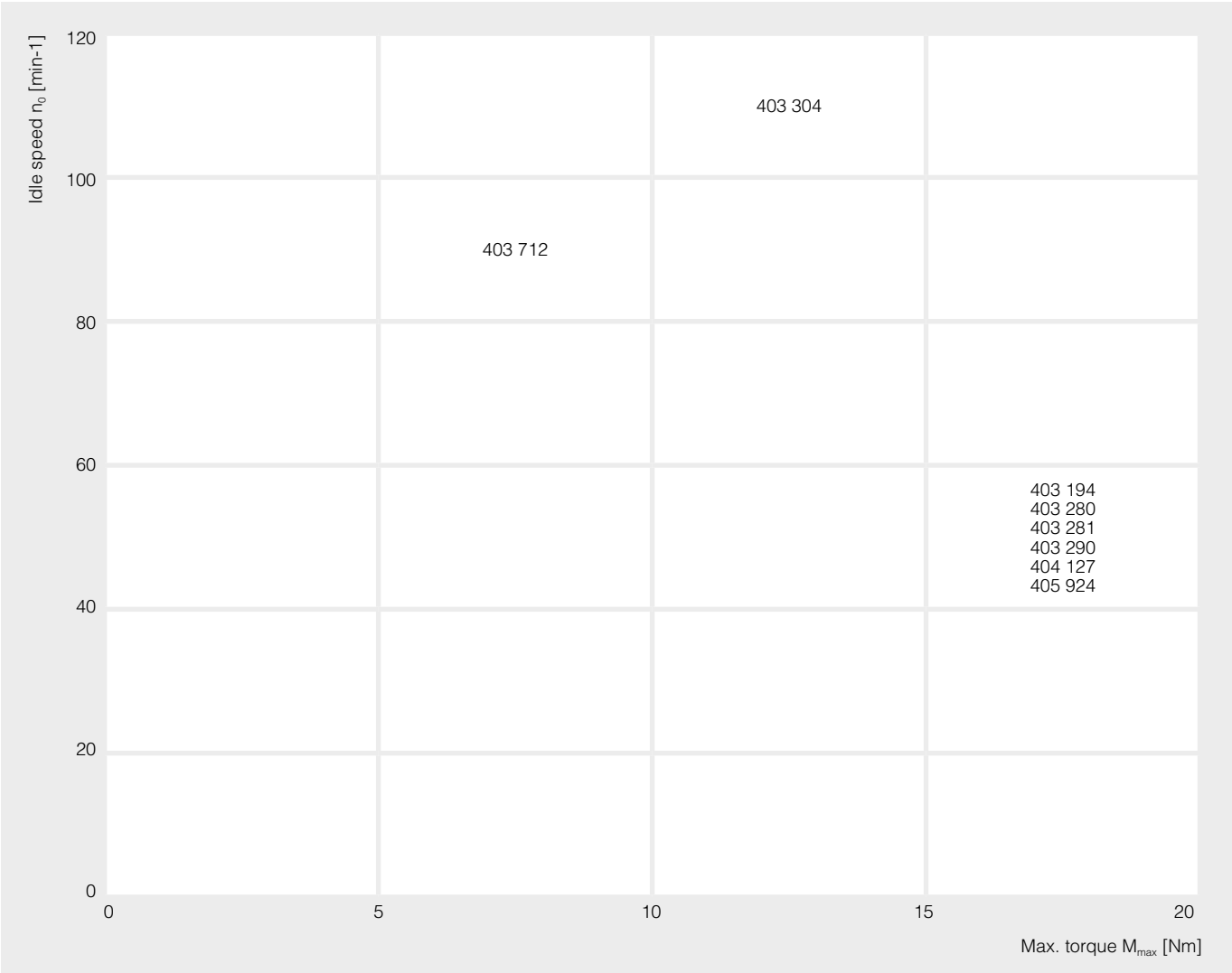


Image shows the transmission design on the right

Connections



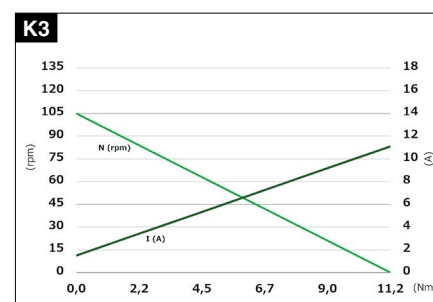
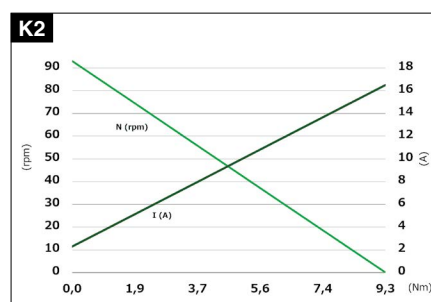
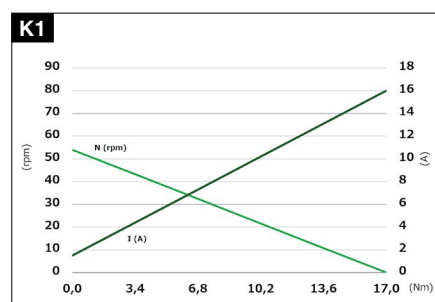
Product matrix



## Overview

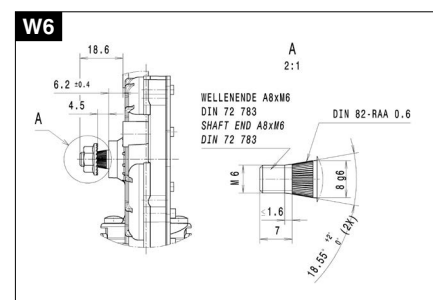
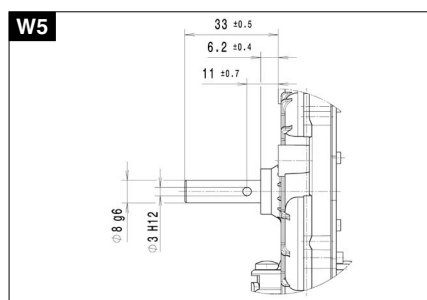
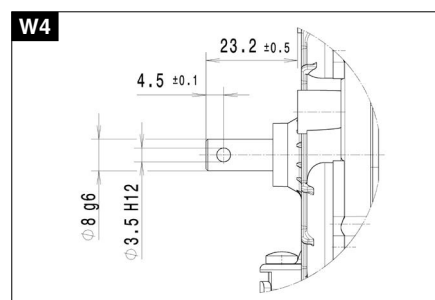
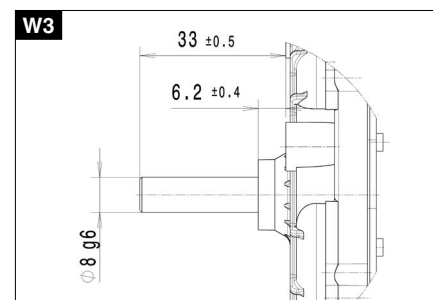
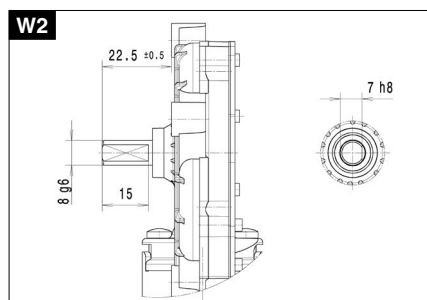
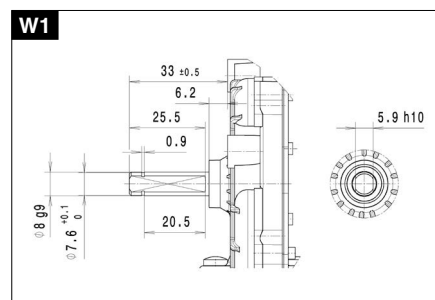
| Type           | Nominal voltage | Max. torque | Idle speed | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|----------------|-----------------|-------------|------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| <b>403 194</b> | 24.0            | 17.0        | 54.0       | 85.0           | 3.5             | 1.5             | 16.0       | N            | 85:1           | K                  | N              | N                        | rh                   | K1                   | W1    | A1                    |
| <b>403 280</b> | 24.0            | 17.0        | 54.0       | 85.0           | 3.5             | 1.5             | 16.0       | N            | 85:1           | K                  | N              | J                        | rh                   | K1                   | W2    | A1                    |
| <b>403 281</b> | 24.0            | 17.3        | 54.0       | 85.0           | 3.5             | 1.5             | 16.2       | N            | 85:1           | K                  | N              | N                        | rh                   | K1                   | W3    | A1                    |
| <b>403 290</b> | 24.0            | 17.3        | 54.0       | 85.0           | 3.5             | 1.5             | 16.2       | N            | 85:1           | K                  | N              | J                        | rh                   | K1                   | W4    | A1                    |
| <b>403 304</b> | 24.0            | 11.2        | 105.0      | 58.8           | 2.5             | 1.5             | 11.1       | N            | 83:2           | K                  | N              | J                        | lh                   | K3                   | W2    | A1                    |
| <b>403 712</b> | 12.0            | 9.3         | 93.0       | 22.9           | 1.9             | 2.3             | 16.5       | N            | 83:2           | K                  | N              | N                        | rh                   | K2                   | W5    | A1                    |
| <b>404 127</b> | 24.0            | 17.3        | 54.0       | 85.0           | 3.5             | 1.5             | 16.2       | N            | 85:1           | K                  | N              | N                        | rh                   | K1                   | W6    | A1                    |
| <b>405 924</b> | 24.0            | 17.0        | 54.0       | 85.0           | 3.5             | 1.5             | 16.0       | 2            | 85:1           | K                  | N              | J                        | rh                   | K1                   | W1    | A2                    |

## Characteristic curves





## Shafts



# DCK31

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                                      |
|--------------------------|------------------------------------------------------|
| Motor housing            | Sheet steel deep drawn & protected against corrosion |
| Magnetic field           | Permanent magnet                                     |
| Type of transmission     | Worm gear transmission                               |
| Transmission housing     | Zinc die casting                                     |
| Gearwheel material       | Plastic, metal                                       |
| Transmission lubrication | Grease, permanent lubrication                        |
| Mechanical interface     | Drive shaft                                          |
| Electrical interface     | Plug                                                 |
| Sensor                   | Optional                                             |
| Thermal protection       | Optional                                             |
| Interference suppression | Optional                                             |

## Applications

### Industry

Garage door and door opener, pumps, lubricating technology, household devices, linear drives

### Automobile

Tailgate adjustment

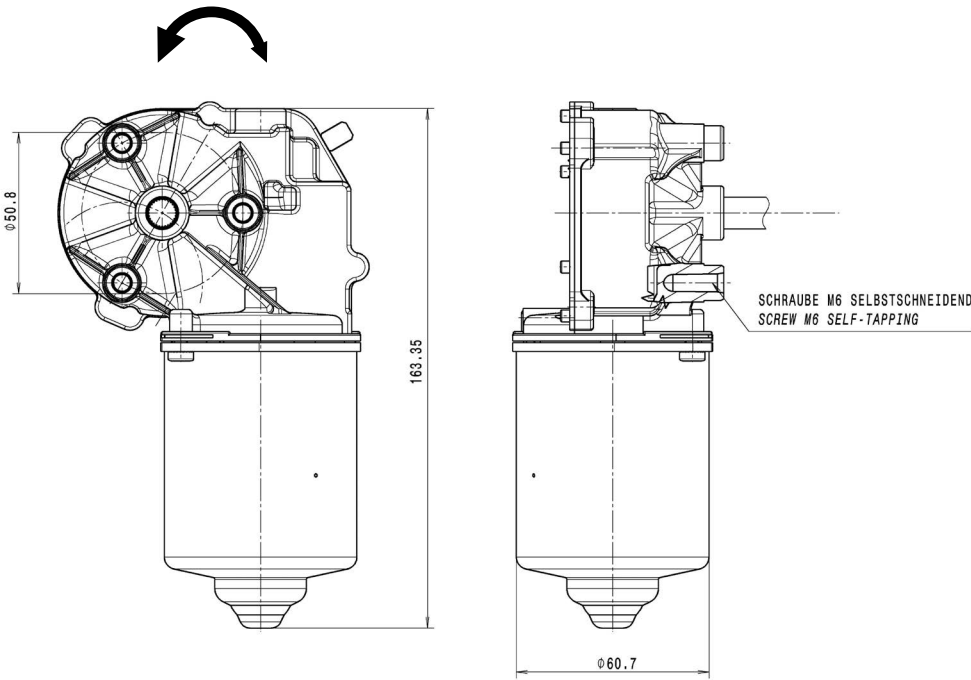
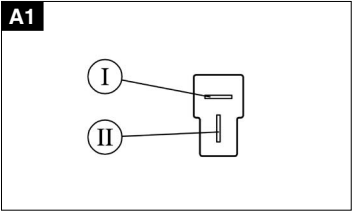
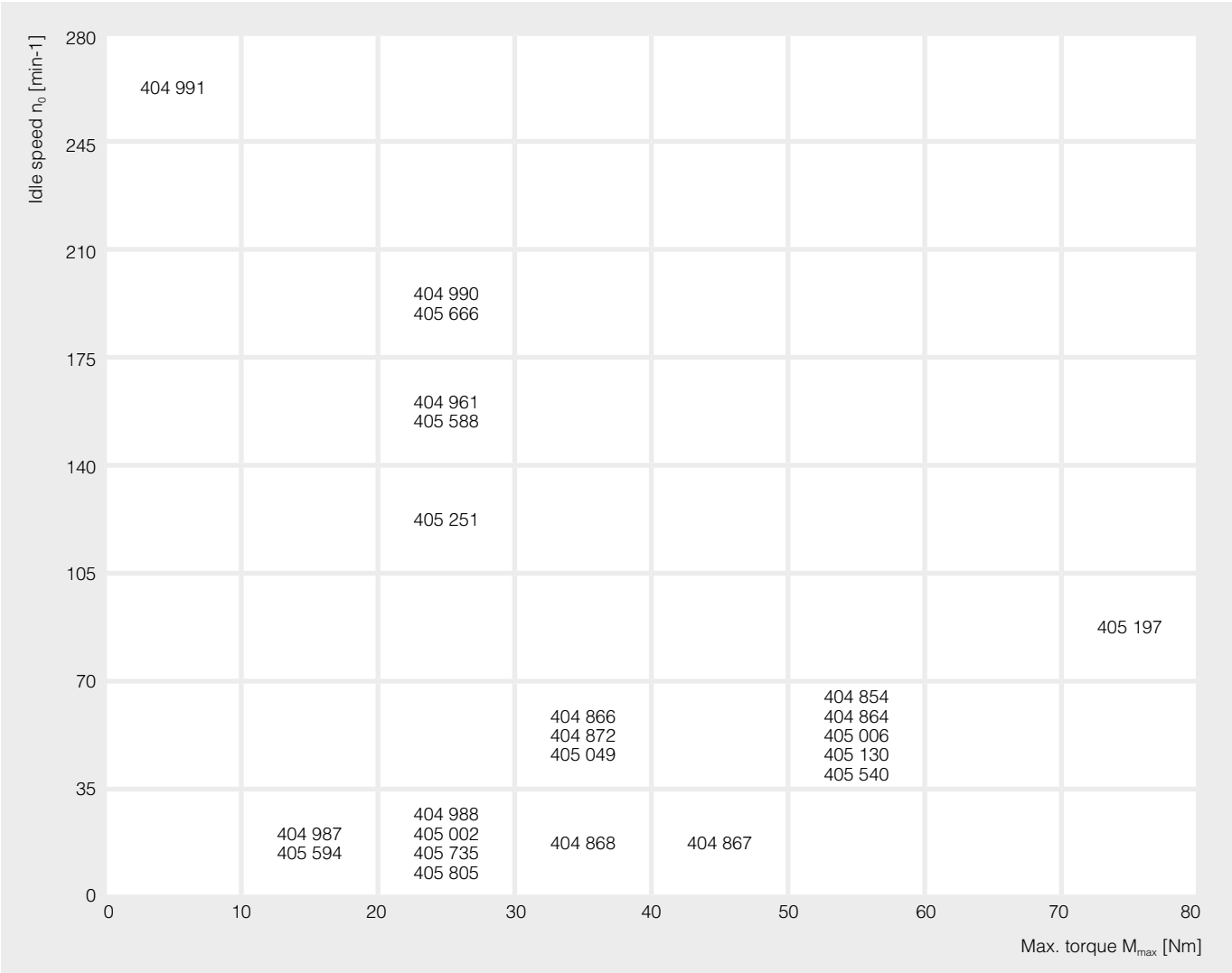


Image shows the transmission design on the left

Connections



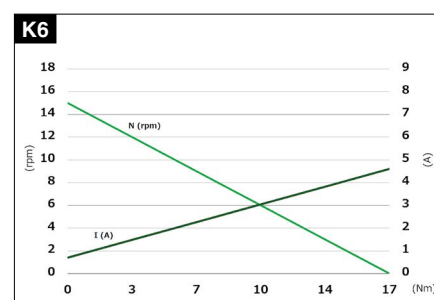
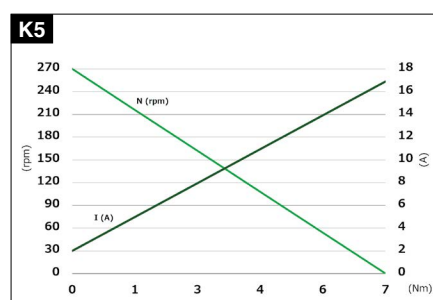
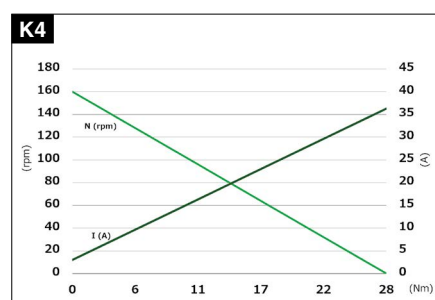
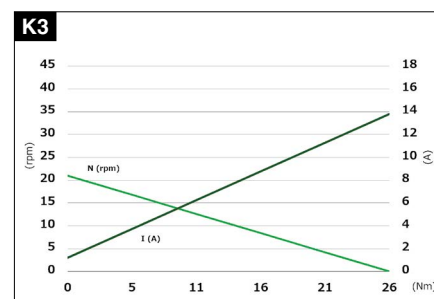
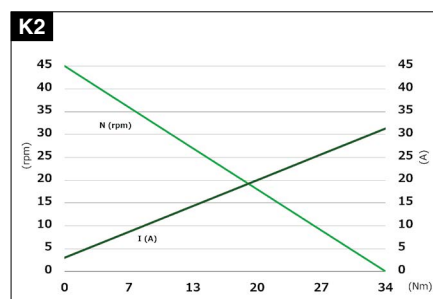
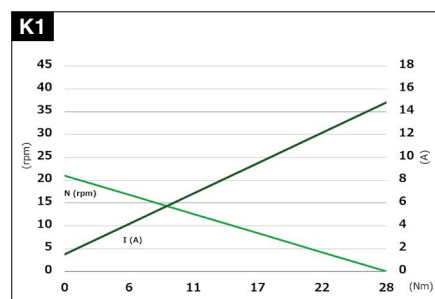
Product matrix



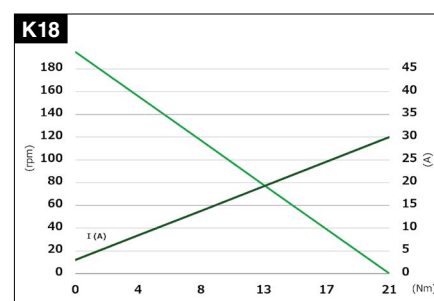
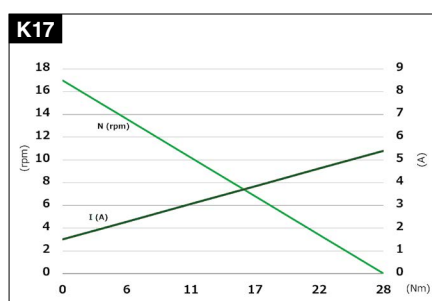
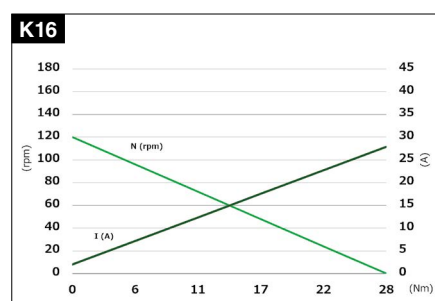
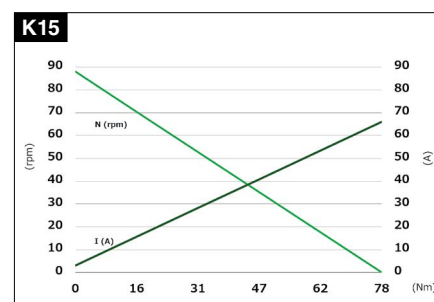
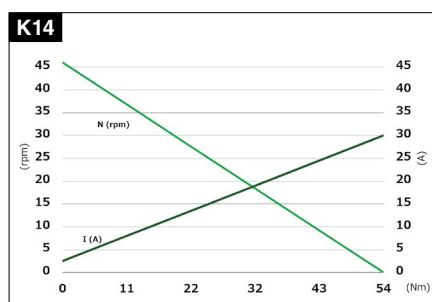
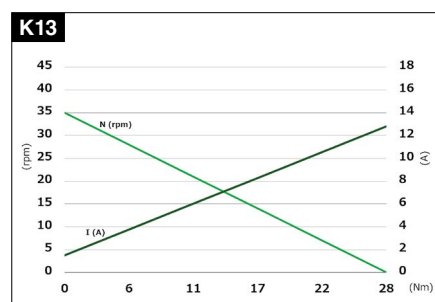
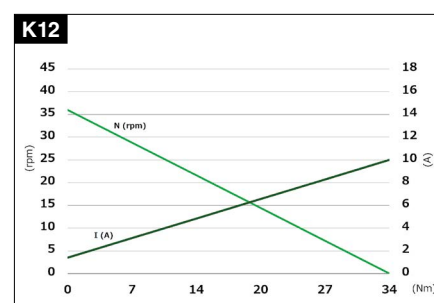
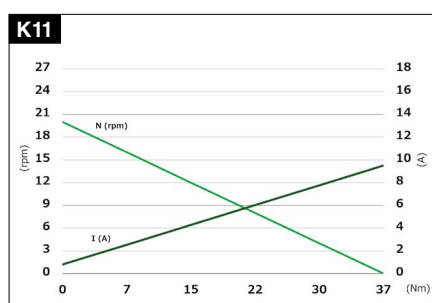
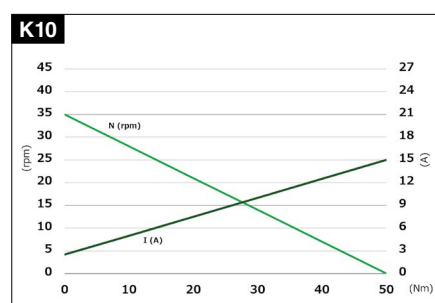
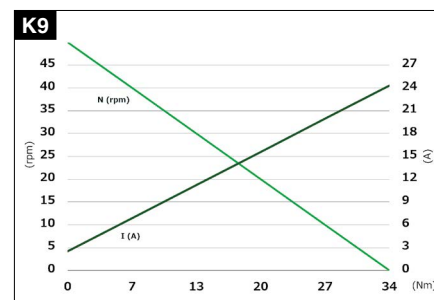
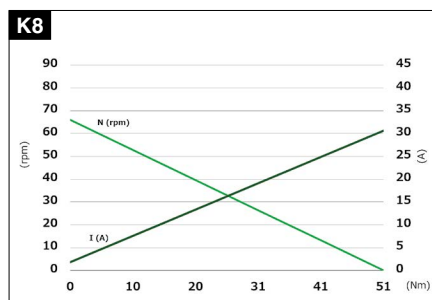
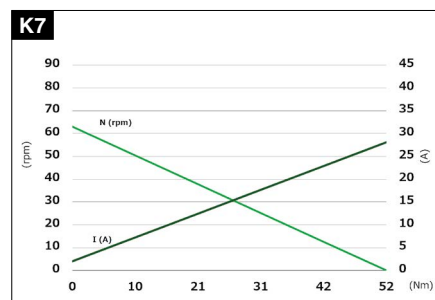
## Overview

|         | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| Type    | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 404 854 | 24.0            | 52.0        | 63.0              | 74.0           | 3.1             | 2.0             | 28.1       | 1            | 69:1           | K                  | N              | J                        | lh                   | K7                   | W1    | A1                    |
| 404 864 | 24.0            | 51.1        | 66.0              | 75.0           | 3.1             | 1.8             | 30.6       | N            | 69:1           | K                  | N              | J                        | rh                   | K8                   | W2    | A1                    |
| 404 866 | 24.0            | 33.7        | 50.0              | 139.0          | 7.7             | 2.5             | 24.3       | N            | 69:1           | K                  | N              | J                        | rh                   | K9                   | W3    | A1                    |
| 404 867 | 24.0            | 49.9        | 35.0              | 65.0           | 2.7             | 2.5             | 14.8       | N            | 69:1           | K                  | N              | J                        | rh                   | K10                  | W4    | A1                    |
| 404 868 | 24.0            | 37.0        | 20.0              | 32.2           | 1.3             | 0.8             | 9.5        | N            | 69:1           | K                  | N              | J                        | rh                   | K11                  | W5    | A1                    |
| 404 872 | 24.0            | 34.0        | 36.0              | 36.0           | 1.5             | 1.4             | 10.0       | N            | 69:1           | K                  | J              | J                        | lh                   | K12                  | W6    | A1                    |
| 404 961 | 24.0            | 28.0        | 160.0             | 92.0           | 3.8             | 3.0             | 36.3       | 2            | 53:2           | K                  | N              | J                        | lh                   | K4                   | W7    | A1                    |
| 404 987 | 24.0            | 17.0        | 15.0              | 31.0           | 1.3             | 0.7             | 4.6        | 1            | 78:1           | M                  | N              | J                        | rh                   | K6                   | W8    | A1                    |
| 404 988 | 24.0            | 28.0        | 35.0              | 55.0           | 2.3             | 1.5             | 12.8       | 1            | 69:1           | K                  | N              | J                        | rh                   | K13                  | W9    | A1                    |
| 404 990 | 24.0            | 21.0        | 195.0             | 160.0          | 6.7             | 3.0             | 30.0       | 1            | 53:2           | K                  | N              | J                        | rh                   | K18                  | W10   | A1                    |
| 404 991 | 24.0            | 7.4         | 270.0             | 120.0          | 5.0             | 2.0             | 16.9       | 1            | 41:4           | K                  | N              | J                        | lh                   | K5                   | W11   | A1                    |
| 405 002 | 12.0            | 28.0        | 21.0              | 25.1           | 2.1             | 1.5             | 14.8       | N            | 69:1           | K                  | N              | J                        | rh                   | K1                   | W5    | A1                    |
| 405 006 | 24.0            | 52.3        | 63.0              | 74.0           | 3.1             | 2.2             | 28.0       | 2            | 69:1           | K                  | N              | J                        | lh                   | K7                   | W12   | A1                    |
| 405 049 | 12.0            | 33.5        | 45.0              | 79.0           | 6.6             | 3.0             | 31.3       | N            | 69:1           | K                  | N              | J                        | rh                   | K2                   | W1    | A1                    |
| 405 130 | 24.0            | 54.0        | 46.0              | 102.0          | 4.3             | 2.5             | 29.9       | 1            | 69:1           | K                  | N              | J                        | lh                   | K14                  | W13   | A1                    |
| 405 197 | 24.0            | 78.0        | 88.0              | 113.0          | 4.7             | 3.0             | 66.0       | 1            | 69:1           | K                  | N              | J                        | lh                   | K15                  | W1    | A1                    |
| 405 251 | 24.0            | 27.6        | 120.0             | 137.0          | 5.7             | 2.0             | 27.9       | 1            | 53:2           | K                  | N              | J                        | lh                   | K16                  | W7    | A1                    |
| 405 540 | 24.0            | 51.8        | 63.5              | 74.0           | 3.1             | 2.2             | 27.6       | 1            | 69:1           | K                  | N              | J                        | lh                   | K7                   | W1    | A1                    |
| 405 588 | 24.0            | 28.4        | 160.0             | 92.0           | 3.9             | 3.0             | 36.4       | 2            | 53:2           | K                  | N              | J                        | lh                   | K4                   | W10   | A1                    |
| 405 594 | 24.0            | 17.0        | 14.5              | 31.0           | 1.3             | 0.8             | 5.2        | 1            | 78:1           | M                  | N              | J                        | rh                   | K6                   | W14   | A1                    |
| 405 666 | 24.0            | 21.2        | 195.0             | 160.0          | 6.7             | 3.0             | 30.4       | 2            | 53:2           | K                  | N              | J                        | rh                   | K18                  | W10   | A1                    |
| 405 735 | 12.0            | 26.3        | 21.0              | 30.0           | 2.5             | 1.2             | 13.8       | N            | 78:1           | M                  | N              | J                        | rh                   | K3                   | W8    | A1                    |
| 405 805 | 24.0            | 27.8        | 17.0              | 36.0           | 1.5             | 1.5             | 5.4        | 2            | 69:1           | K                  | N              | J                        | rh                   | K17                  | W1    | A1                    |

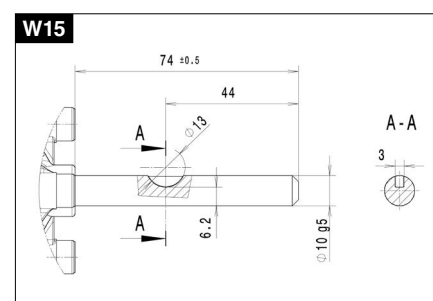
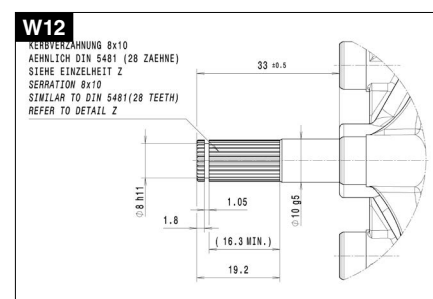
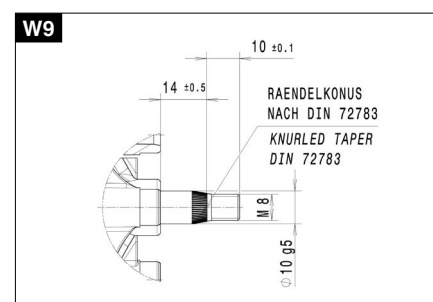
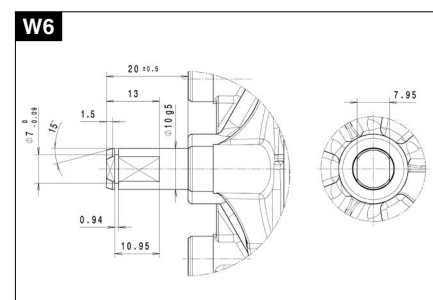
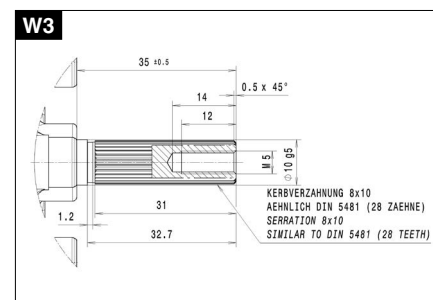
## Characteristic curves



## Characteristic curves







## This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are no margins, text, or other markings on the page.

# DCK35

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                                      |
|--------------------------|------------------------------------------------------|
| Motor housing            | Sheet steel deep drawn & protected against corrosion |
| Magnetic field           | Permanent magnet                                     |
| Type of transmission     | Worm gear transmission                               |
| Transmission housing     | Zinc die casting                                     |
| Gearwheel material       | Plastic                                              |
| Transmission lubrication | Grease, permanent lubrication                        |
| Mechanical interface     | Drive shaft                                          |
| Electrical interface     | Plug                                                 |
| Sensor                   | Optional                                             |
| Thermal protection       | Optional                                             |
| Interference suppression | Optional                                             |

## Applications

### Industry

Building technology,  
mechanical engineering

### Automobile

Sliding door adjustment,  
tailgate adjustment

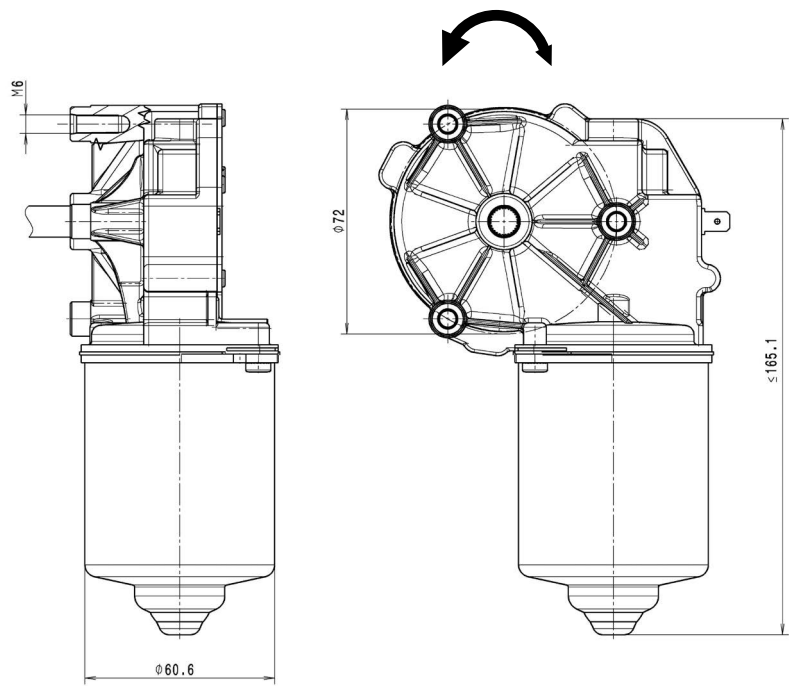
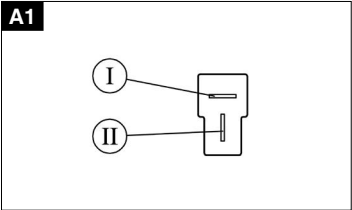
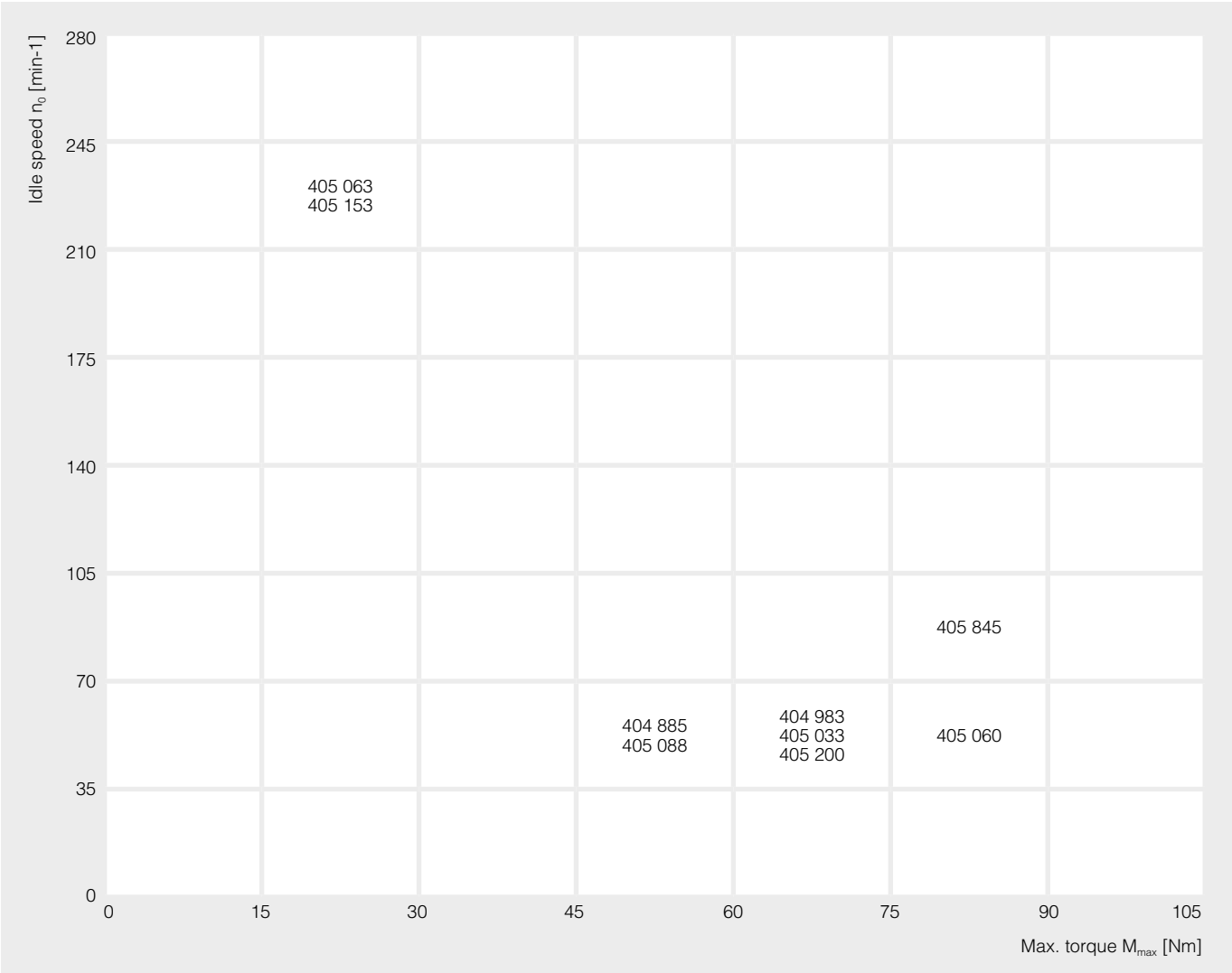


Image shows the transmission design on the left

Connections



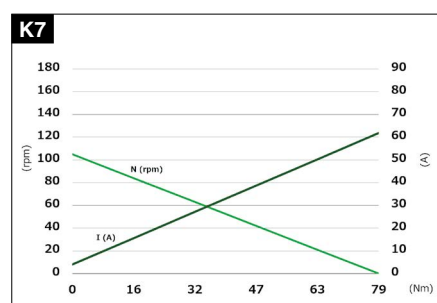
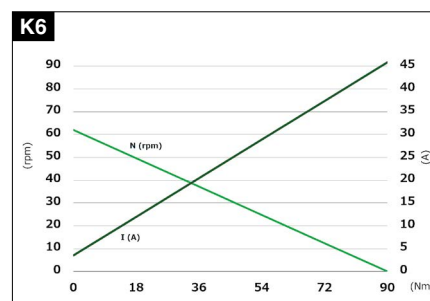
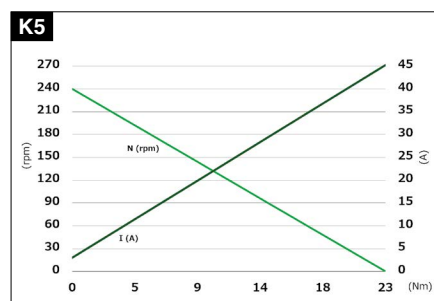
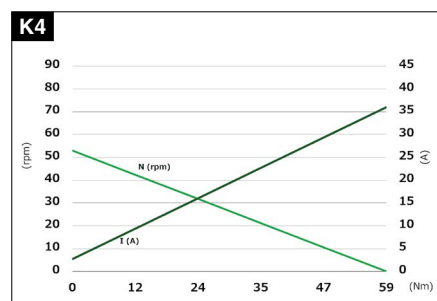
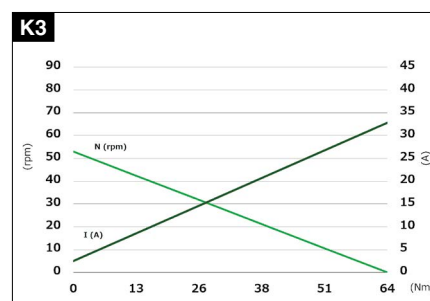
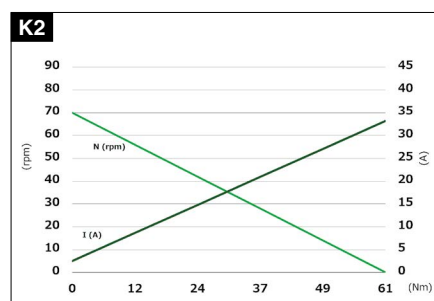
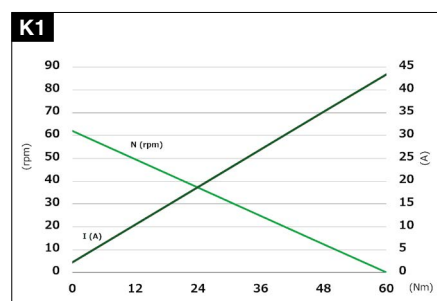
Product matrix



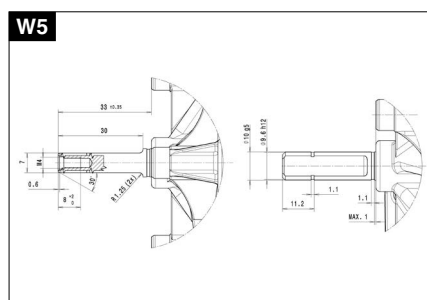
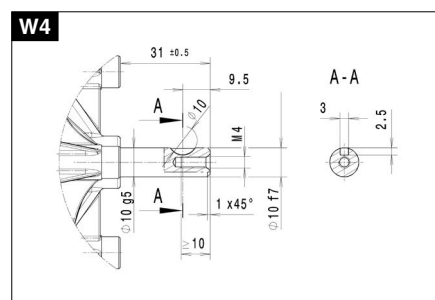
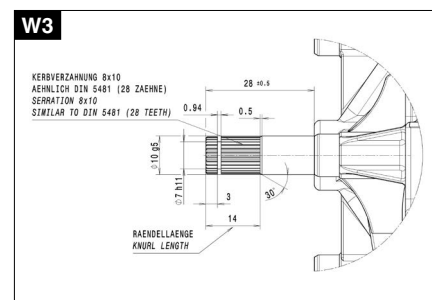
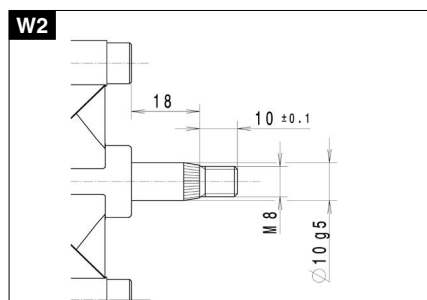
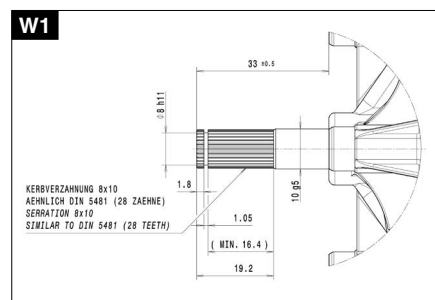
## Overview

| Type    | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
|         | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 404 885 | 24.0            | 60.0        | 62.0              | 158.0          | 6.6             | 2.2             | 43.4       | 2            | 63:1           | K                  | N              | J                        | lh                   | K1                   | W1    | A1                    |
| 404 983 | 24.0            | 61.0        | 70.0              | 178.0          | 7.4             | 2.5             | 33.2       | N            | 55:1           | K                  | N              | J                        | lh                   | K2                   | W2    | A1                    |
| 405 033 | 24.0            | 64.0        | 53.0              | 122.0          | 5.1             | 2.5             | 32.8       | 1            | 91:1           | K                  | N              | J                        | lh                   | K3                   | W3    | A1                    |
| 405 060 | 24.0            | 90.0        | 62.0              | 110.0          | 4.6             | 3.5             | 45.8       | 2            | 91:1           | K                  | N              | J                        | rh                   | K6                   | W3    | A1                    |
| 405 063 | 24.0            | 23.0        | 240.0             | 382.0          | 15.9            | 3.0             | 45.2       | 2            | 70:4           | K                  | N              | J                        | rh                   | K5                   | W4    | A1                    |
| 405 088 | 24.0            | 59.0        | 53.0              | 113.0          | 4.7             | 2.7             | 36.0       | 2            | 91:1           | K                  | N              | J                        | lh                   | K4                   | W5    | A1                    |
| 405 153 | 24.0            | 23.0        | 240.0             | 240.0          | 10.0            | 3.0             | 45.4       | 2            | 70:4           | K                  | N              | J                        | rh                   | K5                   | W1    | A1                    |
| 405 200 | 24.0            | 60.0        | 62.0              | 158.0          | 6.6             | 2.2             | 43.4       | 1            | 63:1           | K                  | N              | J                        | lh                   | K1                   | W1    | A1                    |
| 405 845 | 24.0            | 78.8        | 105.0             | 326.0          | 13.6            | 4.0             | 61.8       | 2            | 63:1           | K                  | N              | J                        | lh                   | K7                   | W1    | A1                    |

## Characteristic curves



## Shafts





# SW2L

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                                      |
|--------------------------|------------------------------------------------------|
| Motor housing            | Sheet steel deep drawn & protected against corrosion |
| Magnetic field           | Permanent magnet                                     |
| Type of transmission     | Worm gear transmission                               |
| Transmission housing     | Aluminium die casting                                |
| Gearwheel material       | Plastic                                              |
| Transmission lubrication | Grease, permanent lubrication                        |
| Mechanical interface     | Drive shaft                                          |
| Electrical interface     | Plug                                                 |
| Sensor                   | Optional                                             |
| Thermal protection       | –                                                    |
| Interference suppression | Optional                                             |

## Applications

### Industry

Door opener, patient lifter, mechanical engineering

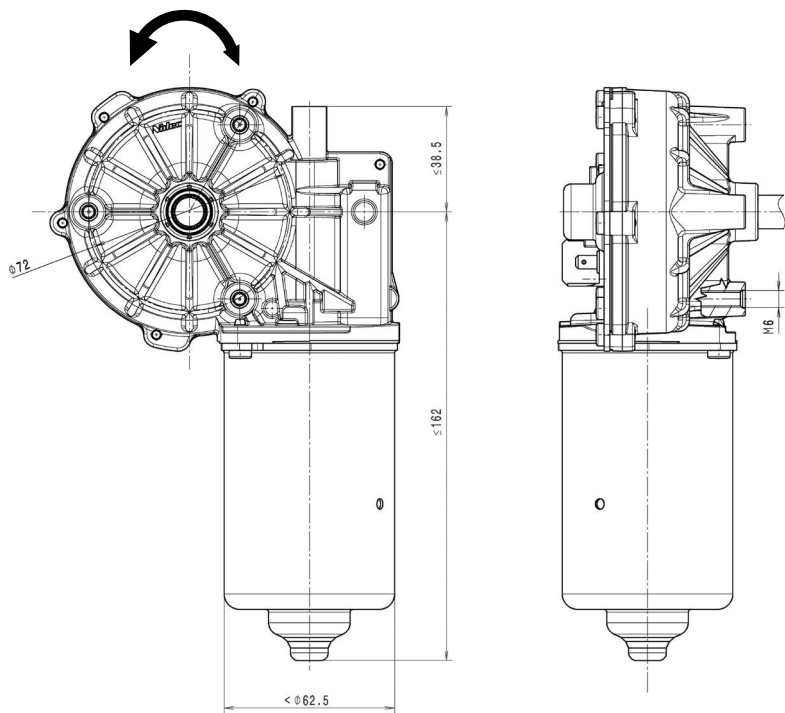
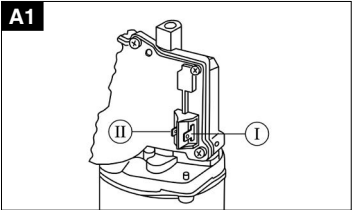
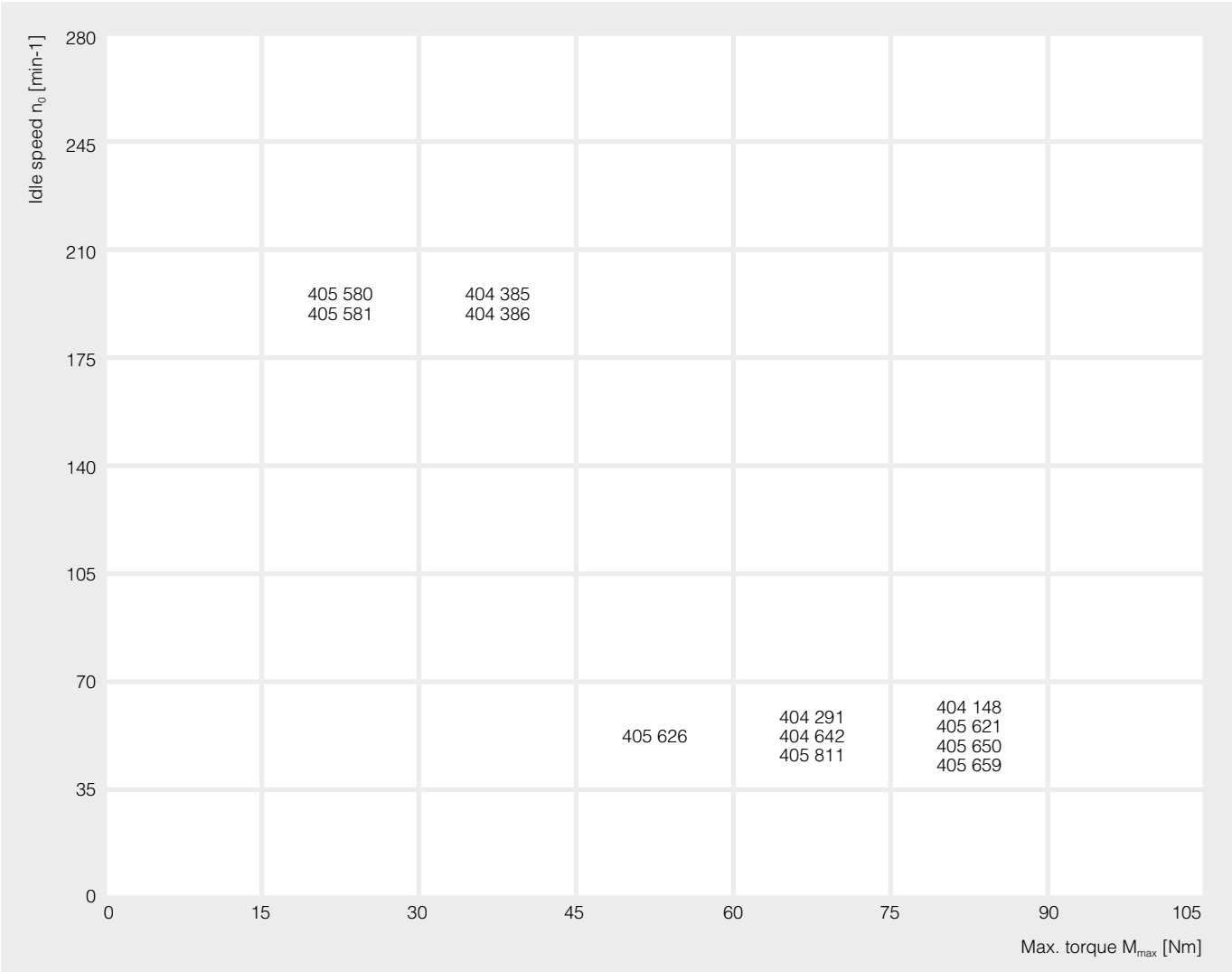


Image shows the transmission design on the left

Connections



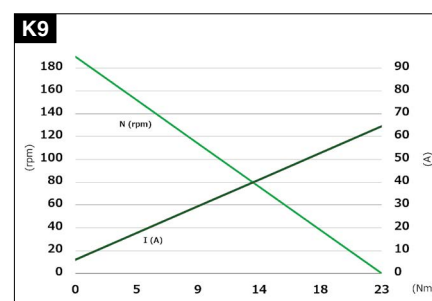
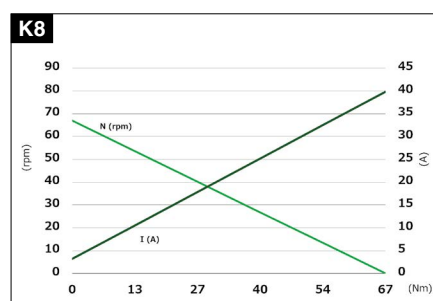
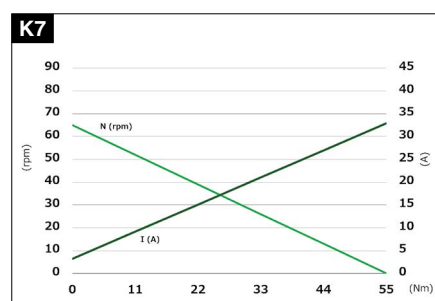
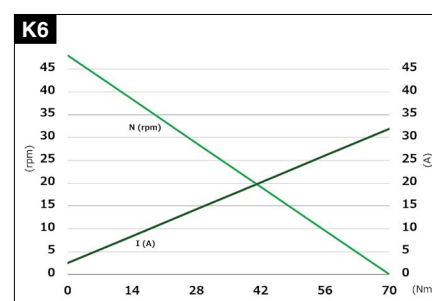
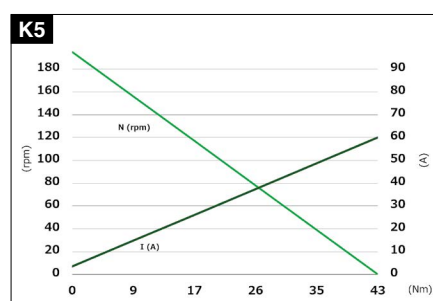
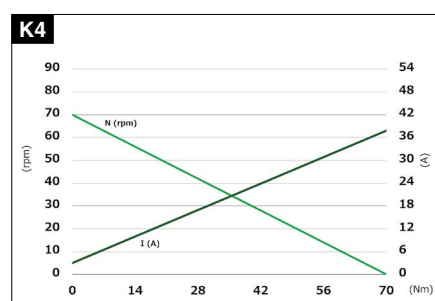
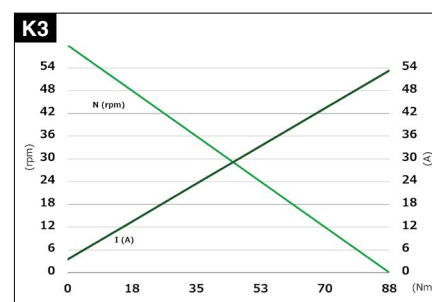
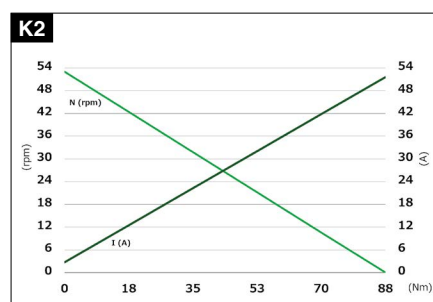
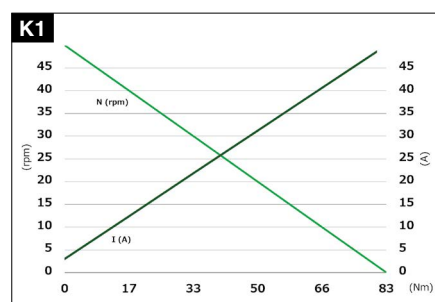
Product matrix



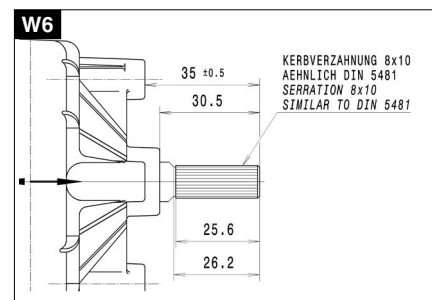
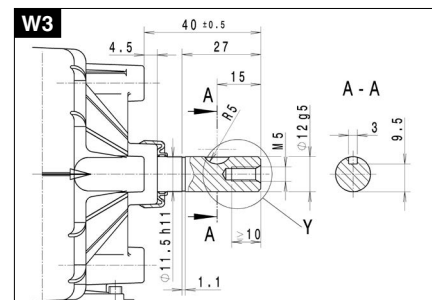
## Overview

|         | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| Type    | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 404 148 | 24.0            | 83.0        | 50.0              | 103.0          | 4.3             | 3.0             | 49.0       | N            | 74:1           | K                  | N              | J                        | rh                   | K1                   | W1    | A1                    |
| 404 291 | 24.0            | 69.6        | 70.0              | 203.0          | 8.5             | 3.0             | 37.8       | N            | 55:1           | K                  | N              | J                        | lh                   | K4                   | W2    | A1                    |
| 404 385 | 24.0            | 43.4        | 195.0             | 166.4          | 6.9             | 3.5             | 59.7       | N            | 103:4          | K                  | N              | J                        | lh                   | K5                   | W3    | A1                    |
| 404 386 | 24.0            | 43.4        | 195.0             | 166.4          | 6.9             | 3.5             | 59.7       | N            | 103:4          | K                  | N              | J                        | rh                   | K5                   | W3    | A1                    |
| 404 642 | 24.0            | 70.2        | 48.0              | 130.3          | 5.4             | 2.5             | 31.9       | 1            | 74:1           | K                  | J              | J                        | lh                   | K6                   | W4    | A1                    |
| 405 580 | 12.0            | 22.5        | 190.0             | 160.8          | 13.4            | 6.0             | 64.5       | N            | 103:4          | K                  | N              | J                        | lh                   | K9                   | W3    | A1                    |
| 405 581 | 12.0            | 22.5        | 190.0             | 160.8          | 13.4            | 6.0             | 64.5       | N            | 103:4          | K                  | N              | J                        | rh                   | K9                   | W3    | A1                    |
| 405 621 | 24.0            | 88.3        | 53.0              | 165.2          | 6.9             | 2.7             | 51.6       | 2            | 74:1           | K                  | N              | J                        | lh                   | K2                   | W5    | A1                    |
| 405 626 | 24.0            | 54.8        | 65.0              | 168.4          | 7.0             | 3.2             | 32.9       | 1            | 74:1           | K                  | N              | J                        | lh                   | K7                   | W6    | A1                    |
| 405 650 | 24.0            | 87.8        | 60.0              | 123.6          | 5.2             | 3.5             | 53.3       | 2            | 74:1           | K                  | N              | J                        | lh                   | K3                   | W4    | A1                    |
| 405 659 | 24.0            | 85.7        | 50.0              | 344.0          | 4.3             | 3.0             | 53.0       | N            | 74:1           | K                  | N              | J                        | rh                   | K1                   | W7    | A1                    |
| 405 811 | 24.0            | 67.0        | 67.0              | 169.4          | 7.1             | 3.2             | 39.8       | 2            | 74:1           | K                  | N              | J                        | lh                   | K8                   | W6    | A1                    |

## Characteristic curves



## Information



# SWMV

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

Motor housing

Magnetic field

Type of transmission

Transmission housing

Gearwheel material

Transmission lubrication

Mechanical interface

Electrical interface

Sensor

Thermal protection

Interference suppression

Sheet steel deep drawn & protected against corrosion  
Permanent magnet

Worm gear transmission

Zinc die casting

Plastic, laminated fabric, metal

Grease, permanent lubrication

Drive shaft

Plugs or stranded wires with plugs or tin-plated stranded wires

–

Optional

Optional

## Applications

### Industry

General mechanical engineering, machines, agricultural technology, office machines, laboratory devices, medical technology, photo/optics, cleaning devices, printing machines



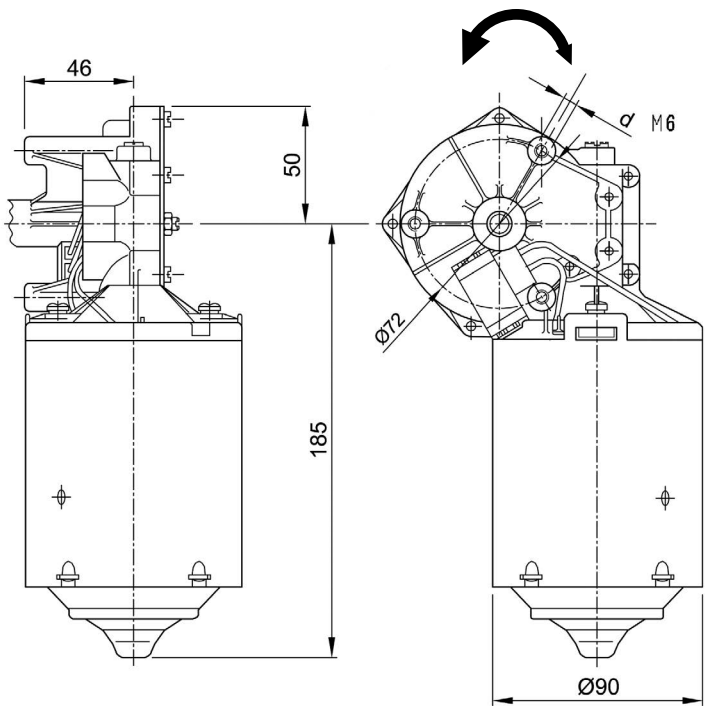
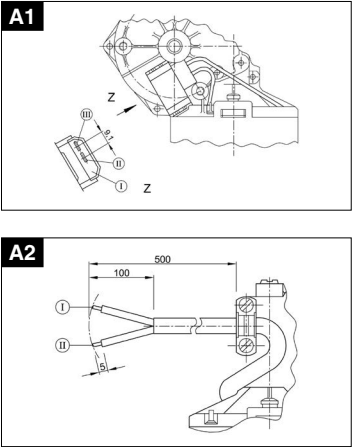
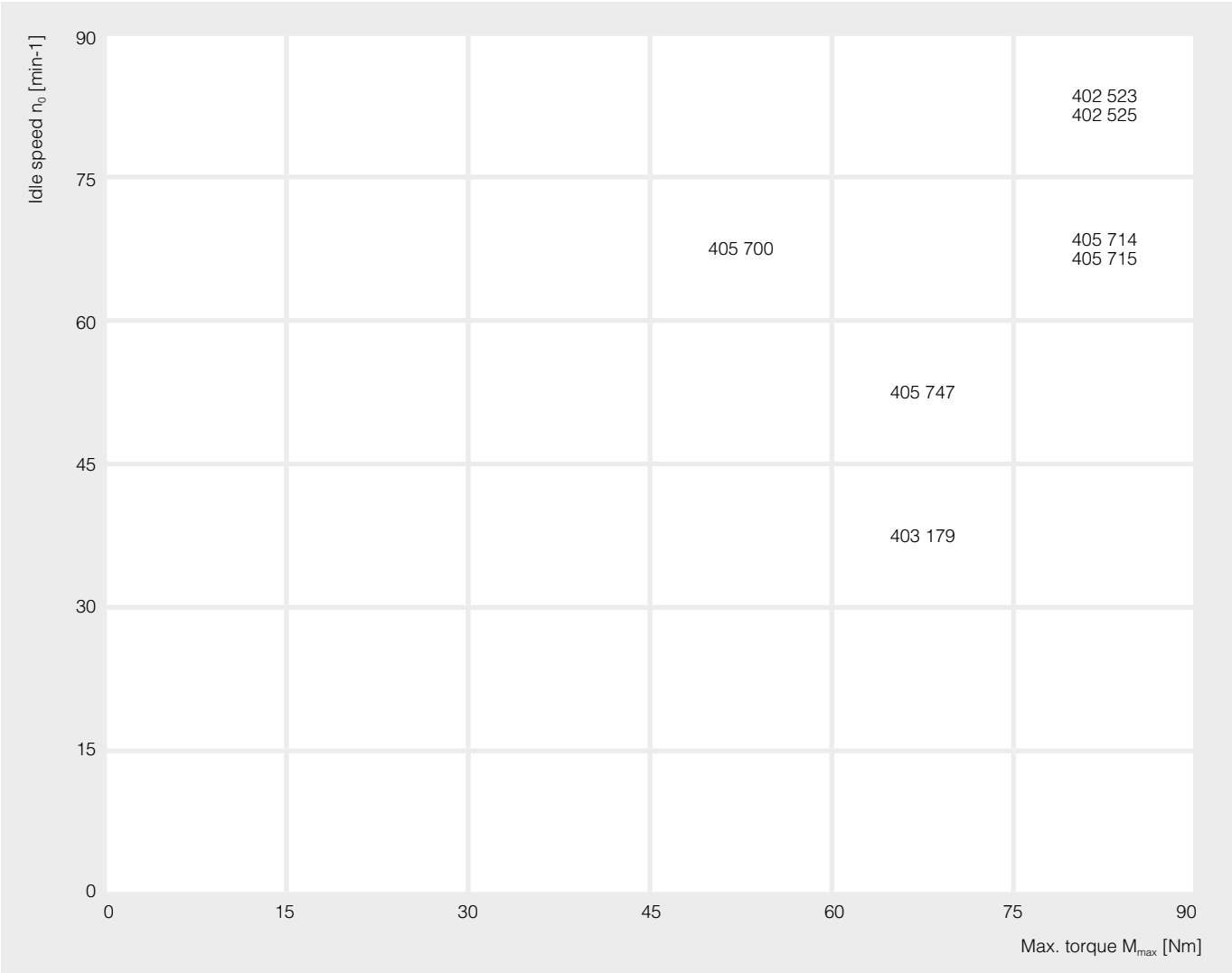


Image shows the transmission design on the left

Connections



Product matrix

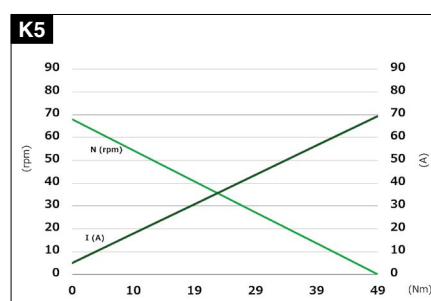
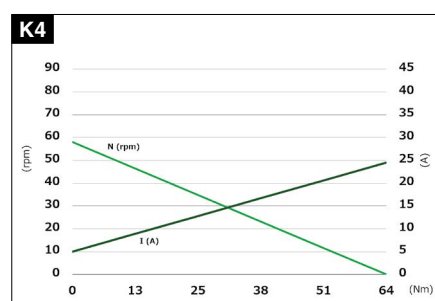
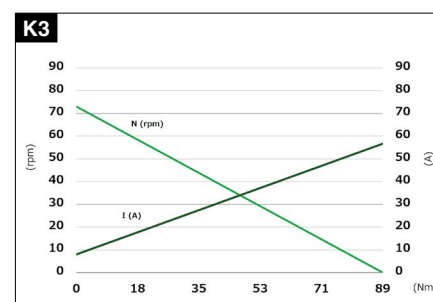
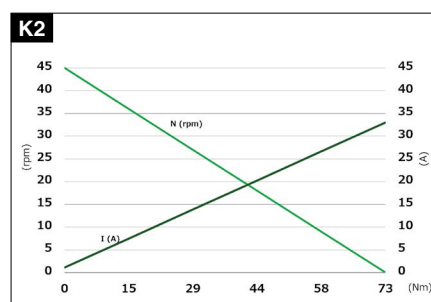
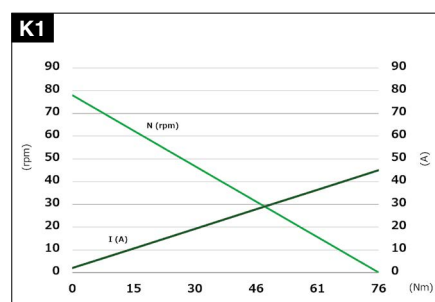




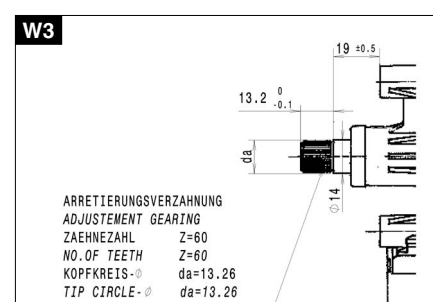
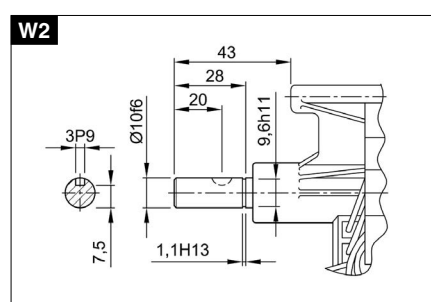
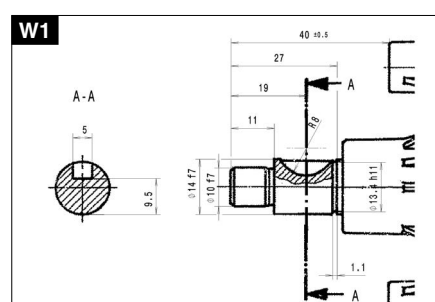
## Overview

|         | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| Type    | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 402 523 | 24.0            | 76.0        | 78.0              | 105.0          | 4.4             | 2.0             | 44.8       | N            | 46:1           | H                  | N              | N                        | lh                   | K1                   | W1    | A1                    |
| 402 525 | 24.0            | 76.0        | 78.0              | 128.0          | 5.3             | 1.5             | 45.1       | N            | 46:1           | H                  | N              | N                        | lh                   | K1                   | W2    | A1                    |
| 403 179 | 24.0            | 73.0        | 45.0              | 194.3          | 8.1             | 1.1             | 33.4       | N            | 59:1           | H                  | N              | J                        | lh                   | K2                   | W1    | A2                    |
| 405 700 | 12.0            | 48.5        | 68.0              | 186.1          | 15.5            | 5.0             | 69.4       | N            | 46:1           | K                  | N              | N                        | lh                   | K5                   | W2    | A2                    |
| 405 714 | 24.0            | 88.5        | 73.0              | 228.0          | 9.5             | 8.0             | 56.7       | N            | 59:1           | H                  | N              | J                        | lh                   | K3                   | W1    | A2                    |
| 405 715 | 24.0            | 88.5        | 73.0              | 228.0          | 9.5             | 8.0             | 56.7       | 2            | 59:1           | H                  | N              | J                        | lh                   | K3                   | W1    | A2                    |
| 405 747 | 24.0            | 63.7        | 58.0              | 172.6          | 6.4             | 5.0             | 24.5       | N            | 46:1           | K                  | J              | J                        | lh                   | K4                   | W3    | A1                    |

## Characteristic curves



## Shafts



## This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are no margins, text, or other markings on the page.

# SWMG

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                            |
|--------------------------|--------------------------------------------|
| Motor housing            | Sheet steel, rolled & corrosion protection |
| Magnetic field           | Permanent magnet                           |
| Type of transmission     | Worm gear transmission                     |
| Transmission housing     | Zinc die casting                           |
| Gearwheel material       | Plastic, laminated fabric                  |
| Transmission lubrication | Grease, permanent lubrication              |
| Mechanical interface     | Drive shaft                                |
| Electrical interface     | Stranded wires                             |
| Sensor                   | –                                          |
| Thermal protection       | –                                          |
| Interference suppression | Optional                                   |

## Applications

### Industry

Mechanical engineering

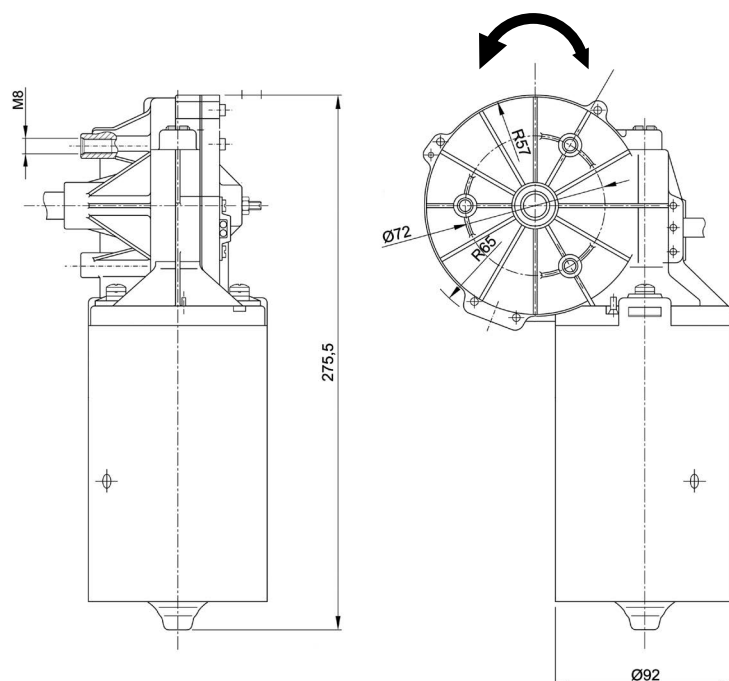
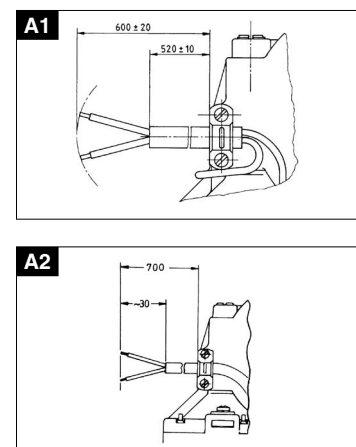


Image shows the transmission design on the left

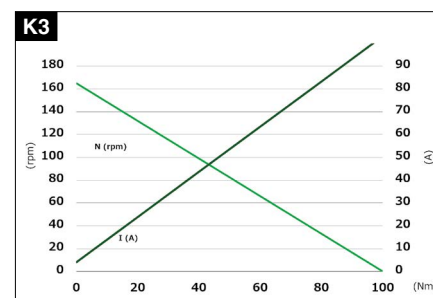
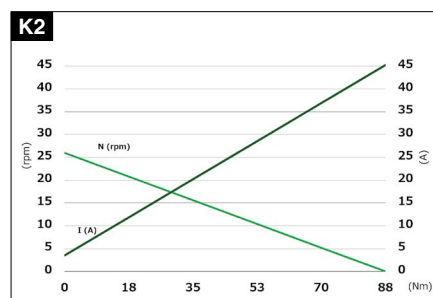
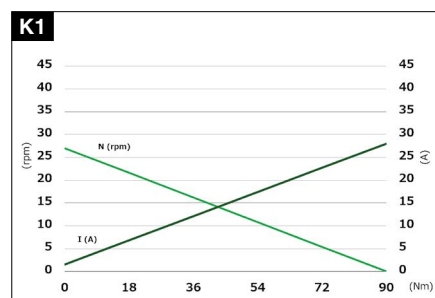
## Connections



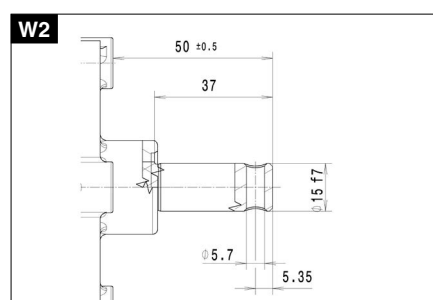
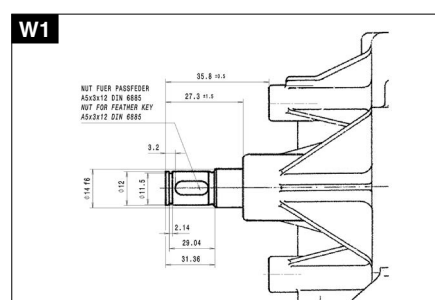
## Overview

| Type    | Nominal voltage | Max. torque | Idle speed | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| 402 853 | 24.0            | 90.0        | 27.0       | 157.0          | 6.6             | 1.5             | 28.0       | N            | 50:1           | H                  | N              | N                        | lh                   | K1                   | W1    | A2                    |
| 403 460 | 24.0            | 100.3       | 165.0      | 285.3          | 11.9            | 4.0             | 103.2      | N            | 43:3           | K                  | N              | N                        | lh                   | K3                   | W2    | A1                    |
| 405 615 | 12.0            | 87.8        | 26.0       | 120.9          | 10.1            | 3.5             | 45.2       | N            | 50:1           | H                  | N              | N                        | lh                   | K2                   | W1    | A2                    |

## Characteristic curves



## Shafts





# SW3K

As 12-volt and 24-volt motor with Interference suppression and hall sensors



## Technical description

|                          |                                                      |
|--------------------------|------------------------------------------------------|
| Motor housing            | Sheet steel deep drawn & protected against corrosion |
| Magnetic field           | Permanent magnet                                     |
| Type of transmission     | Worm gear transmission                               |
| Transmission housing     | Zinc die casting                                     |
| Gearwheel material       | Plastic, metal                                       |
| Transmission lubrication | Grease, permanent lubrication                        |
| Mechanical interface     | Drive shaft                                          |
| Electrical interface     | Plug                                                 |
| Sensor                   | Optional                                             |
| Thermal protection       | Optional                                             |
| Interference suppression | Optional                                             |

## Applications

### Industry

Garage door and door opener, pumps, lubricating technology, household devices, linear drives

### Automobile

Tailgate adjustment

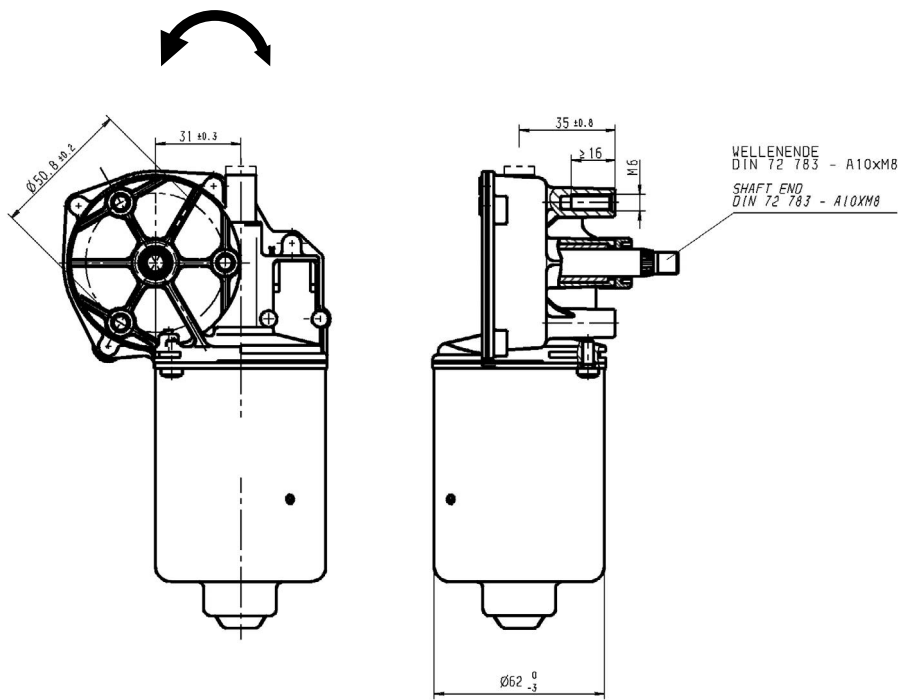
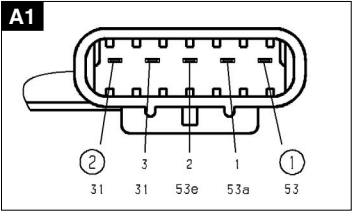


Image shows the transmission design on the left

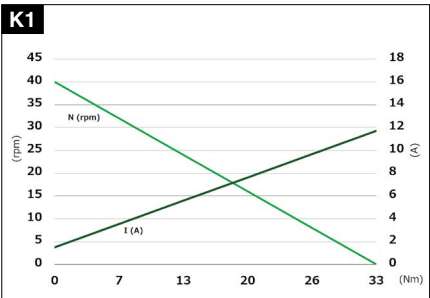
Connections



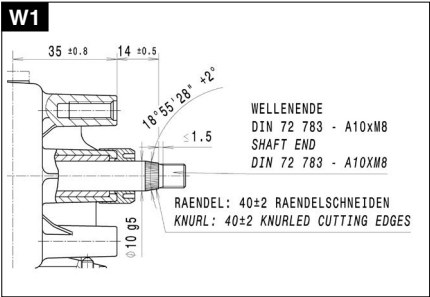
Overview

|         | Nominal voltage | Max. torque | Idle speed        | Nominal output | Nominal current | No-load current | Max. power | Hall sensors | Gear reduction | Gearwheel material | Thermal switch | Interference suppression | Transmission housing | Characteristic curve | Shaft | Electrical connection |
|---------|-----------------|-------------|-------------------|----------------|-----------------|-----------------|------------|--------------|----------------|--------------------|----------------|--------------------------|----------------------|----------------------|-------|-----------------------|
| Type    | V               | Nm          | min <sup>-1</sup> | W              | A               | A               | A          | N/1/2        | xx:x           | D/M                | J/N            | J/N                      | lh/rh                | K                    | W     | A                     |
| 404 497 | 24.0            | 33.2        | 40.0              | 47.3           | 2.0             | 1.5             | 11.7       | N            | 55:1           | K                  | N              | N                        | lh                   | K1                   | W1    | A1                    |

Characteristic curves



Shafts





# Nidec Group – Leading in the world of electric motors

Nidec is the worldwide number 1 in the manufacturing of electric motors and their application in “everything that spins and moves”.

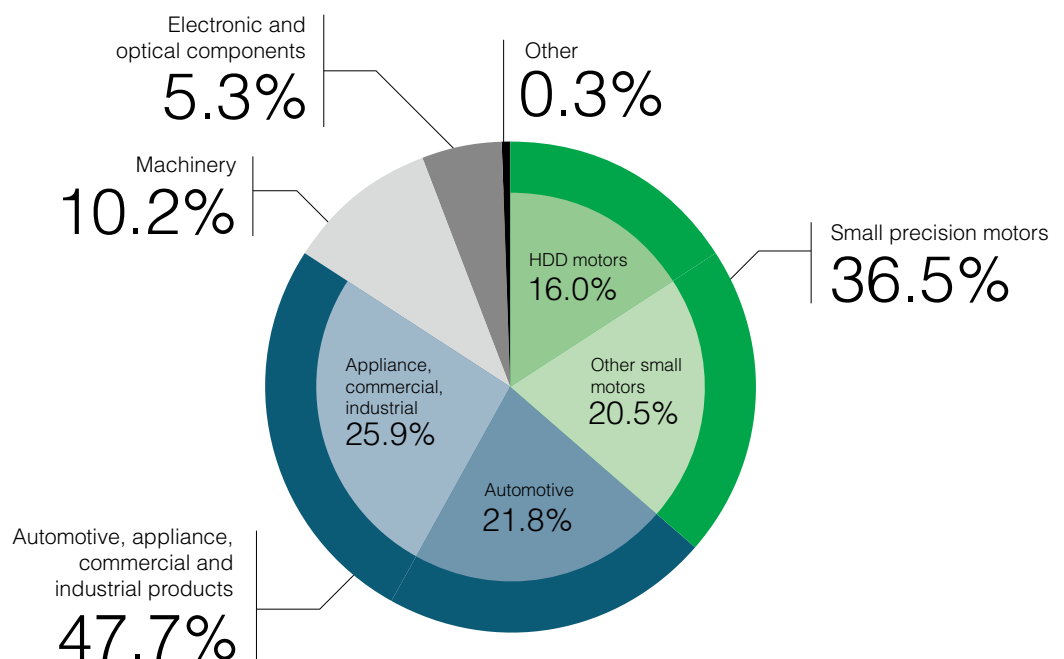
The product range consists of a massive spectrum of small precision motors through to large motors for different areas of deployment.

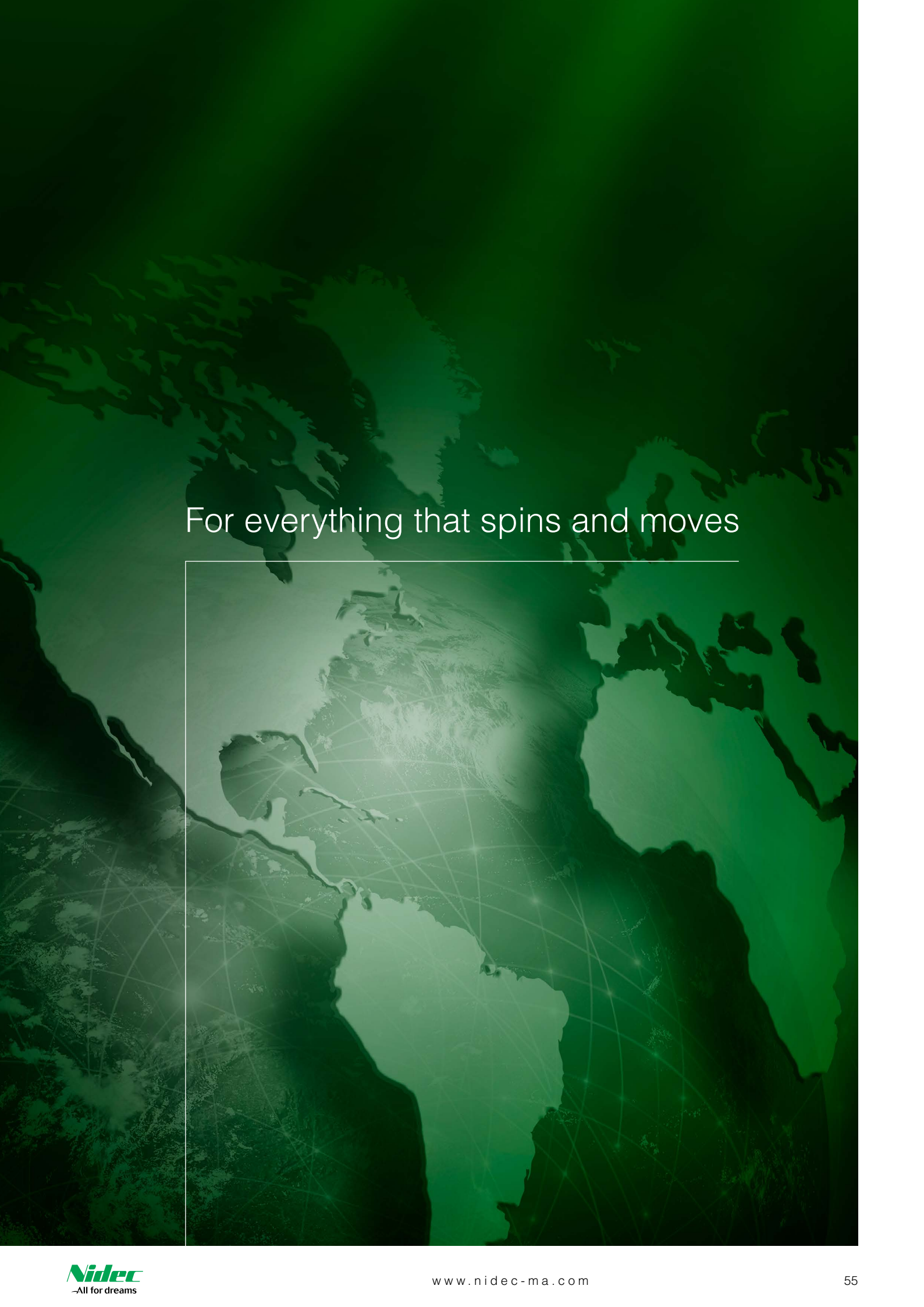
Nidec operates a network of around 300 international companies and is well connected with all relevant industries. Each member of the group contributes to the ambitious growth goals with

their high technical potential and specific competitive advantages. For the past 40 years Nidec has single-mindedly pursued the goal of being the number one on the market.

We have been able to achieve this with passion and enthusiasm for what we do, perseverance in the permanent optimisation of our products and applications, as well as a strong commercial identity that connects us throughout the globe and which is always pushing us to top performance.

## Sales figures according to product groups





For everything that spins and moves

# Global distributors

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info@eissesbv.nl  
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101 automation GmbH  
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## Germany - East

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Jakob-Baumann-Straße 5  
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www.elektromotore.eu

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www.motech-italia.com

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