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.

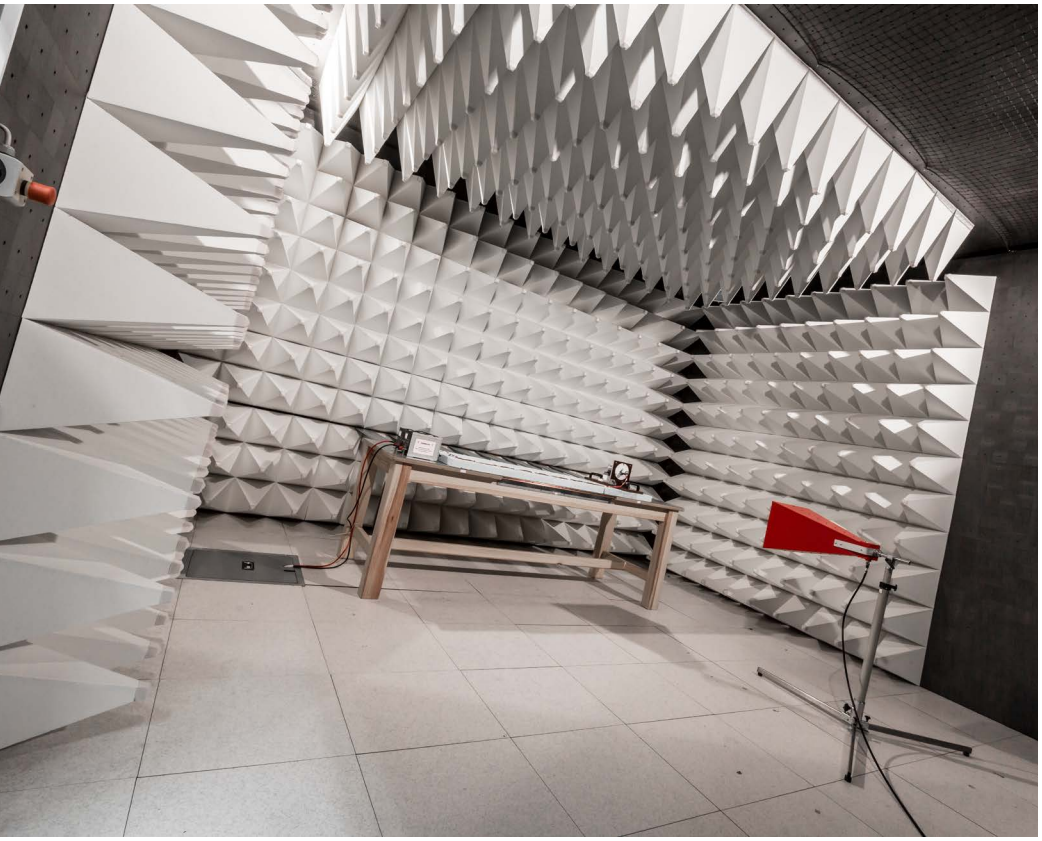
We come up with and achieve individual solutions and the highest quality standards thanks to our high-performance and fully-automatic production lines with a comprehensive final inspection and in this way ensure the efficiency and safety of our motors when used by our customers.

Contents

Nidec in facts

Nidec Corporation	Turnover 2016 JPY 1.2 trillion
Employees	~ 100,000 globally
Nidec Motors & Actuators	Turnover 2016 ~ €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

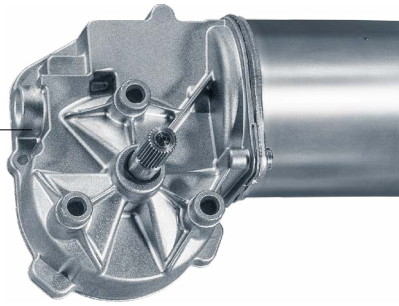
Motors with spur gear transmission

- → 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_{max}
Idle speed	N_0 [min^{-1}] 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 ± 10% are possible in the series.

left

right

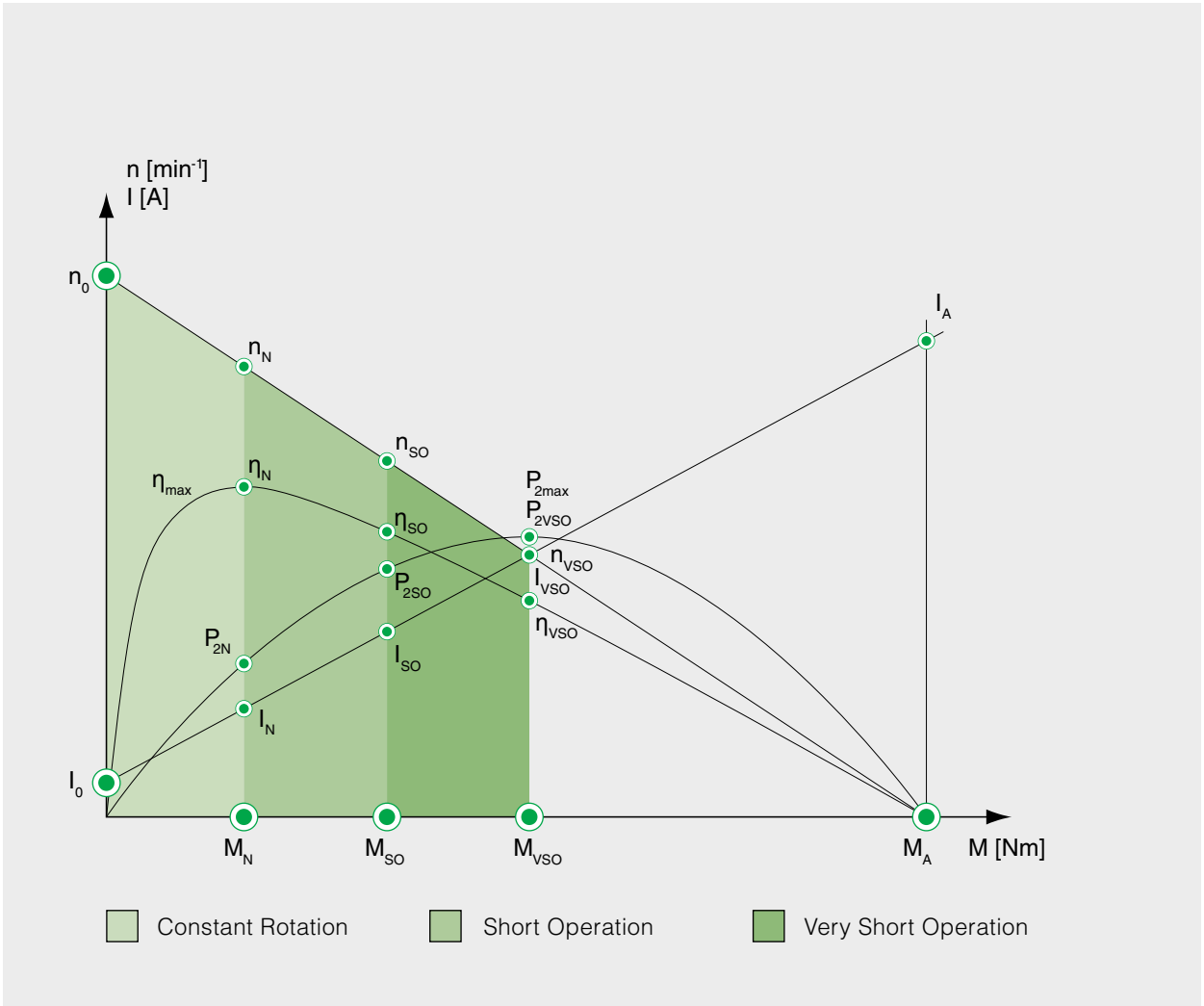
Preferred rotation direction:
Motors with worm gear transmission have a preferred rotation direction that is illustrated with a large arrow in the drawings. If the motor turns in the opposite direction of the preferred rotation direction, the power output falls by approximately 10%.

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 min^{-1}

n_0	Idle speed in min^{-1}
n_N	Nominal rotation speed in min^{-1}
n_{SO}	Rotation speed in short operation in min^{-1}
n_{VSO}	Rotation speed in very short operation in 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
η	Efficiency in %
η_N	Nominal efficiency in %
η_{SO}	Efficiency in short operation in %
η_{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

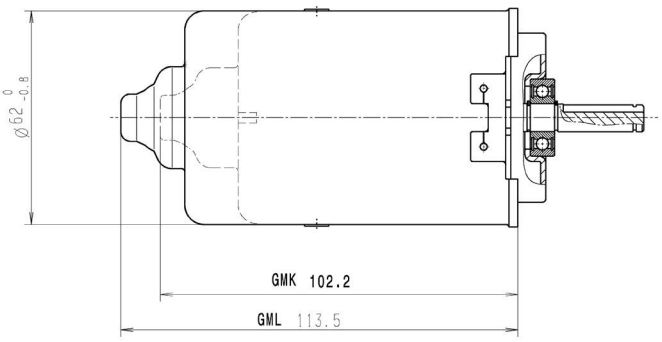
Industry

Linear drives

Automobile

Electric torque management, automated manual transmission

GMK / GML



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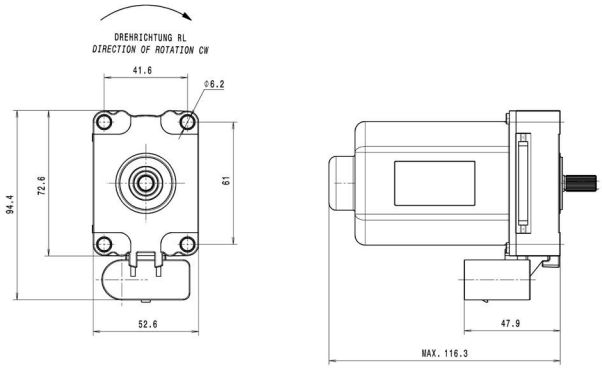
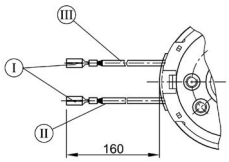


Connections

A1



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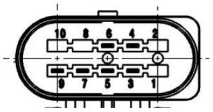

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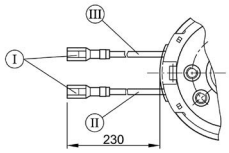
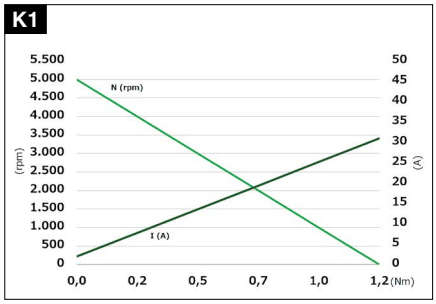


Overview

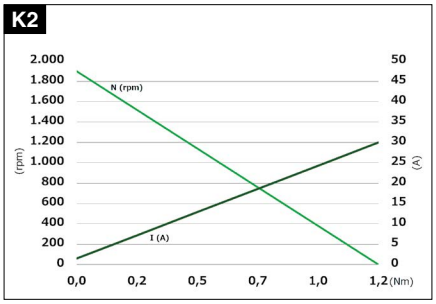
Type		Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interfer-ence sup-pression	Trans-mission housing	Character-istic curve	Shaft	Electrical connection
		V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	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

K1



K2



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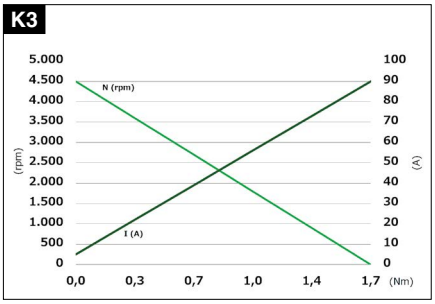
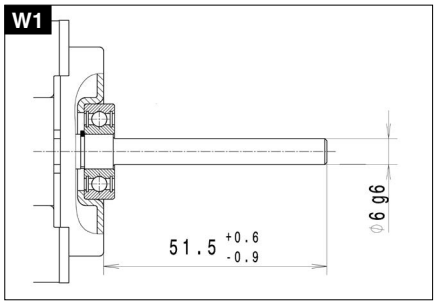


Shafts

W1



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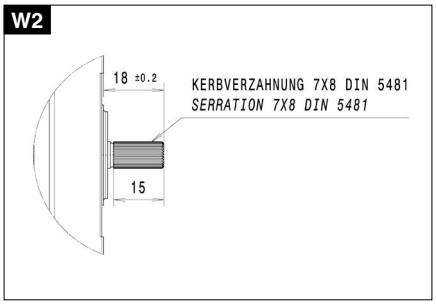

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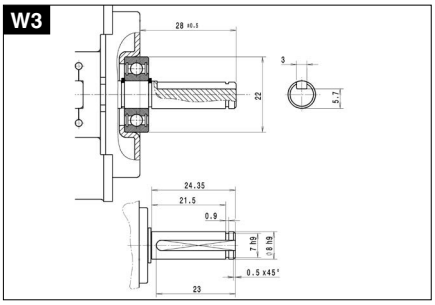


GMP

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

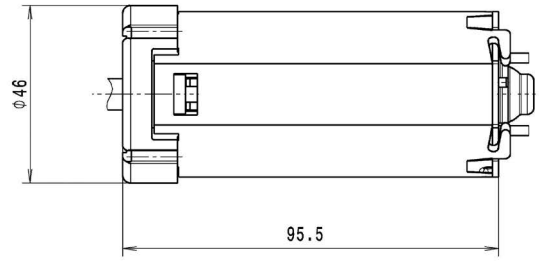
Industry

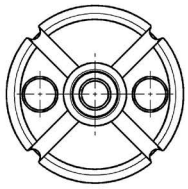
Linear drives, mechanical engineering

Automobile

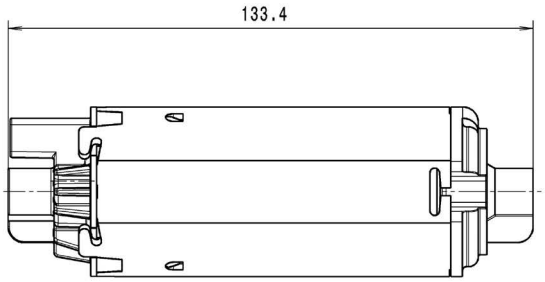
Longitudinal seat adjustment

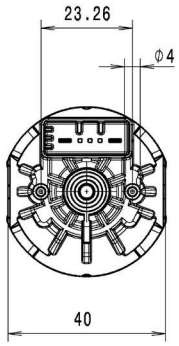
402 944 / 403 187





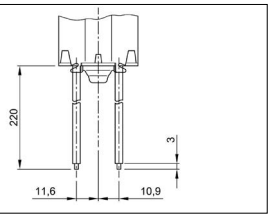
404 743 / 404 744



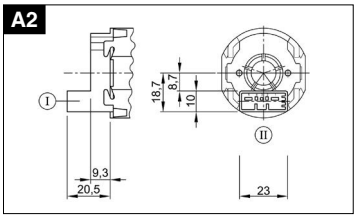


Connections

A1



A2

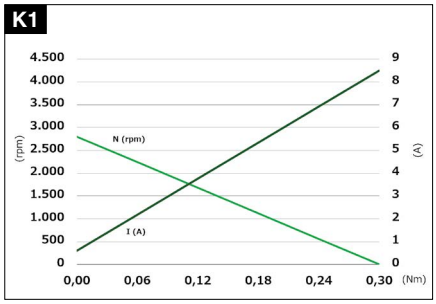


Overview

Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interfer-ence sup-pression	Trans-mission housing	Character-istic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	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

K1



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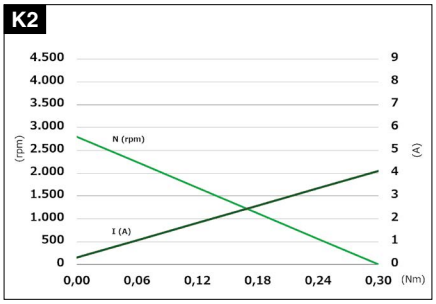

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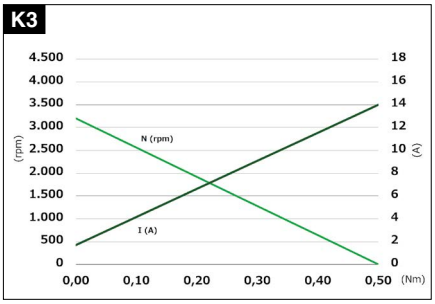
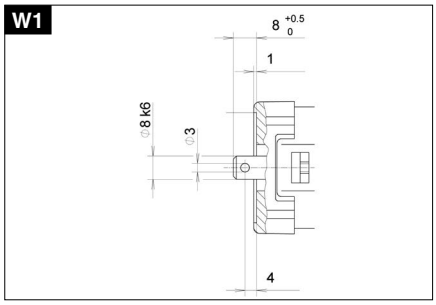
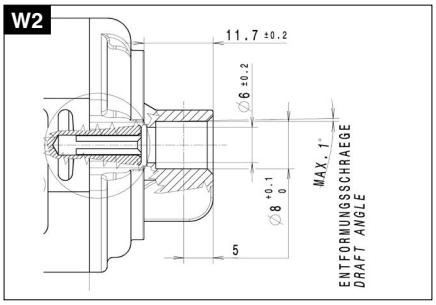


Shafts

W1



W2



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

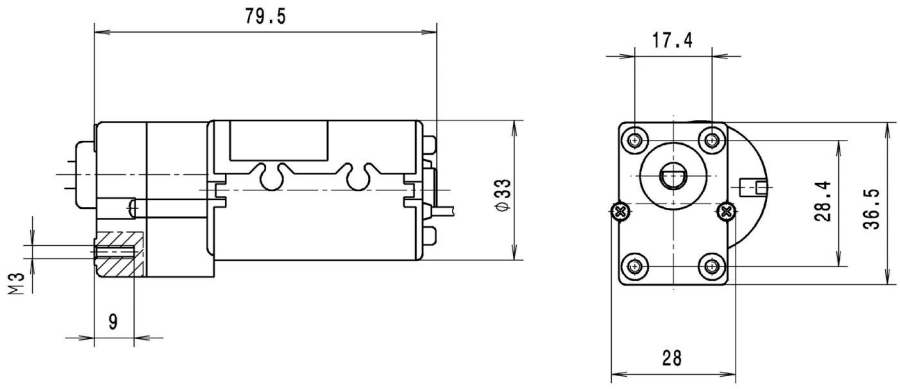
Applications

Industry

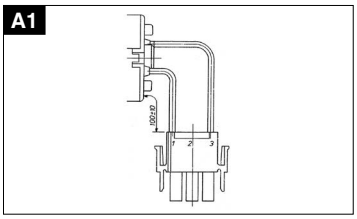
Linear drives, general mechanical engineering, medical technology

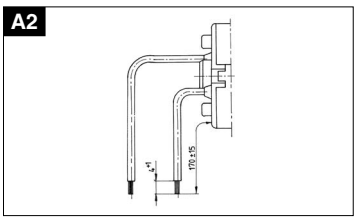
Automobile

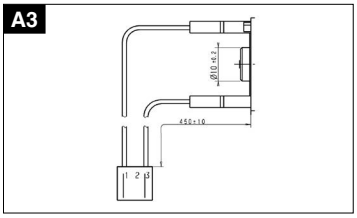
Spoiler adjustment



Connections



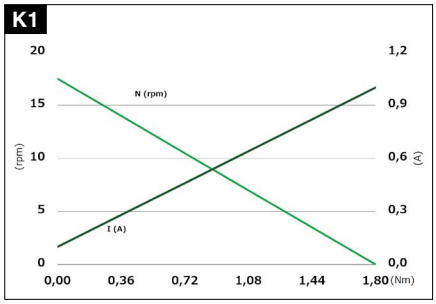


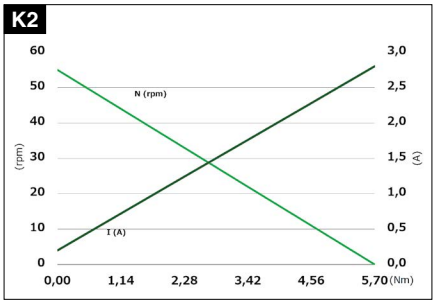


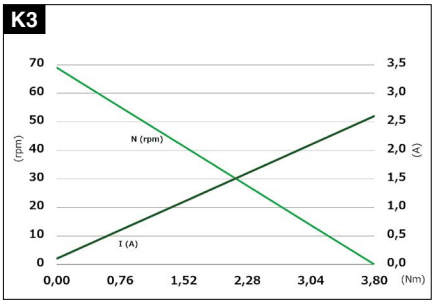
Overview

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
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	J/N	lh/rh	K	W	A
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

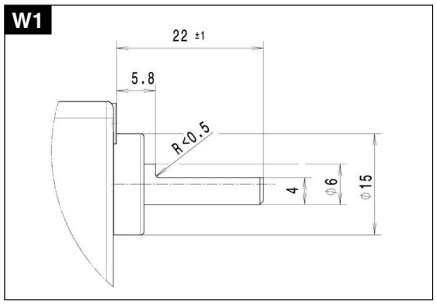
Characteristic curves







Shafts



GMPI

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

Technical description

Motor housing	Sheet steel, rolled 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 plug
Sensor	Optional
Thermal protection	Optional
Interference suppression	Optional

Applications

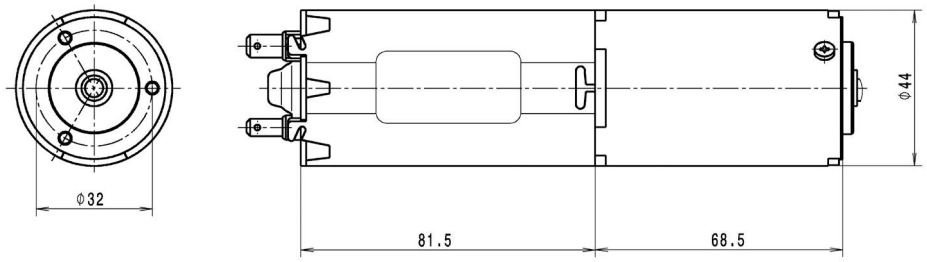
Industry

Linear drives,
building technology

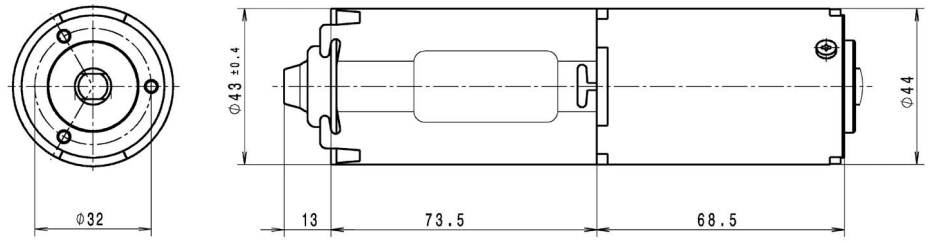
Automobile

Rear spoiler adjustment

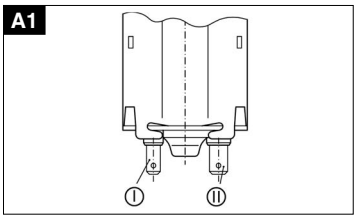
A1

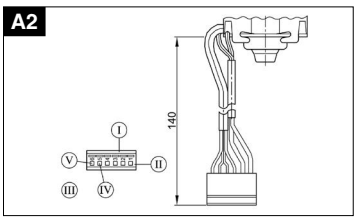


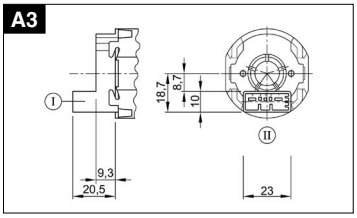
A2 + A3



Connections







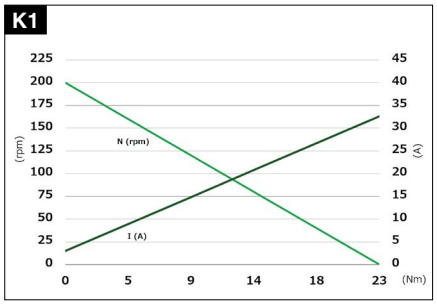
Product matrix

Overview

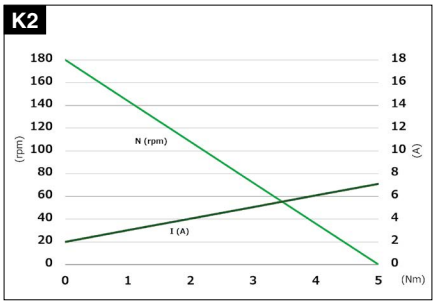
Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interference suppression	Transmission housing	Characteristic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	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

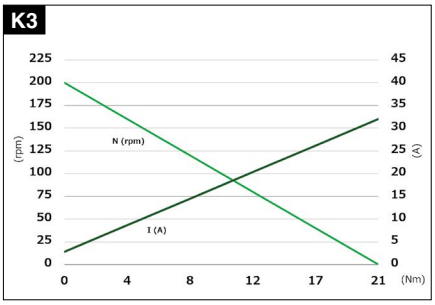
K1



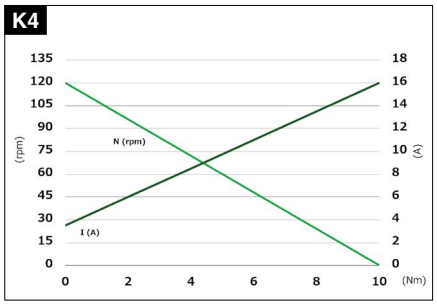
K2



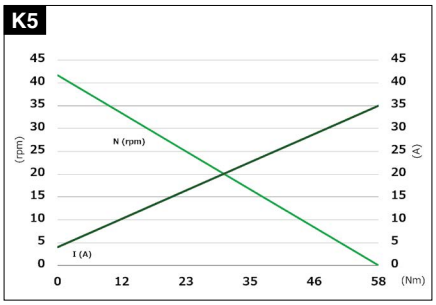
K3



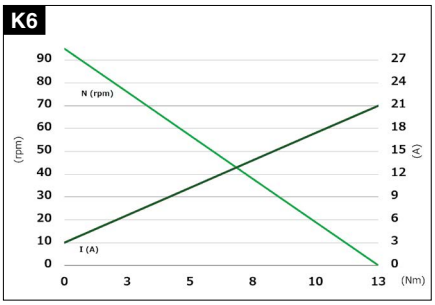
K4



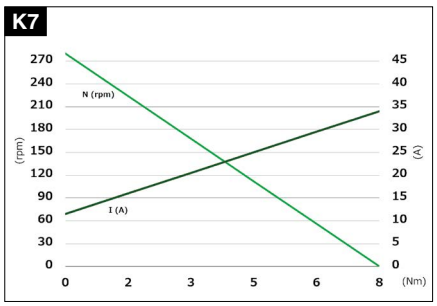
K5



K6

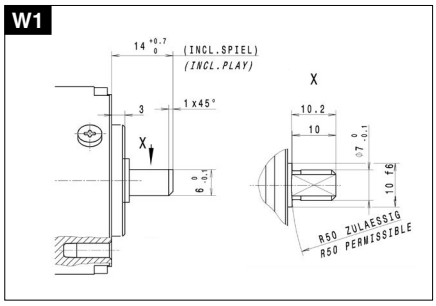


K7

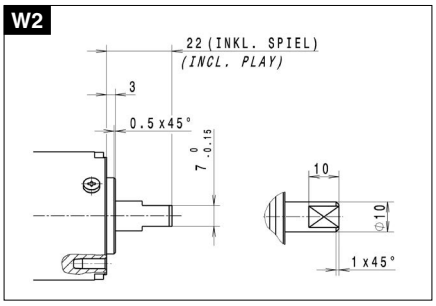


Shafts

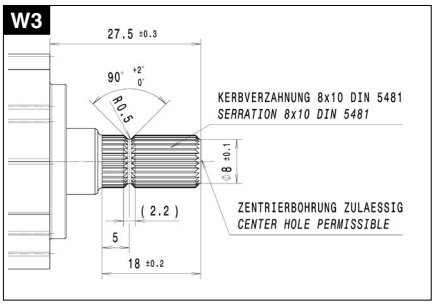
W1



W2



W3



GMPS

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

Technical description

Motor housing	Sheet steel, rolled 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

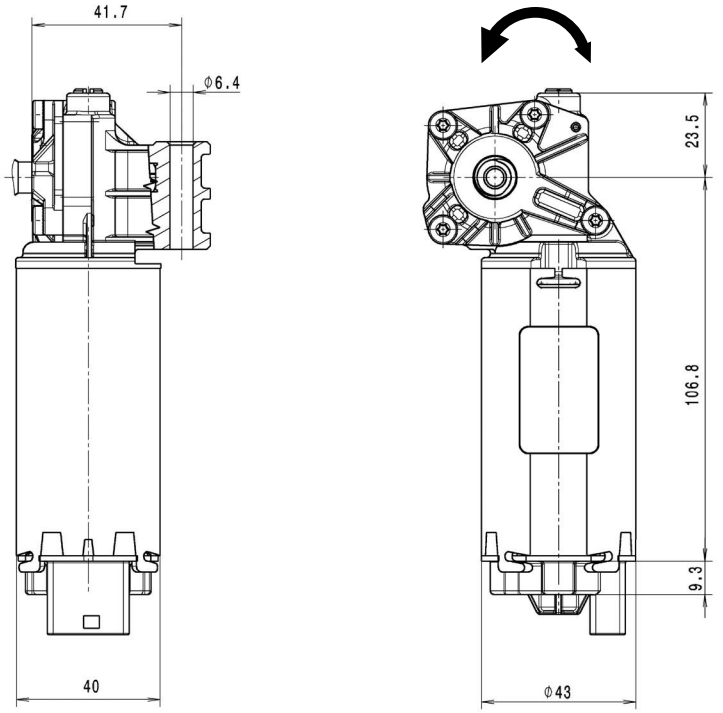
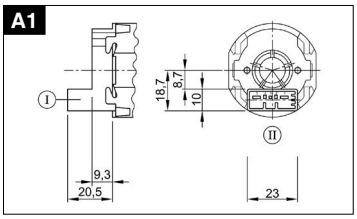


Image shows the transmission design on the left

Connections

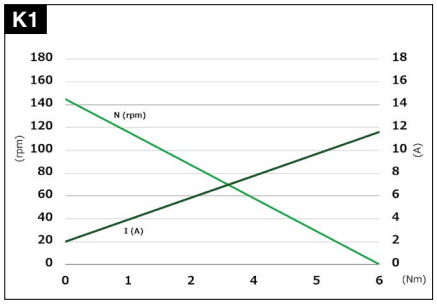


Overview

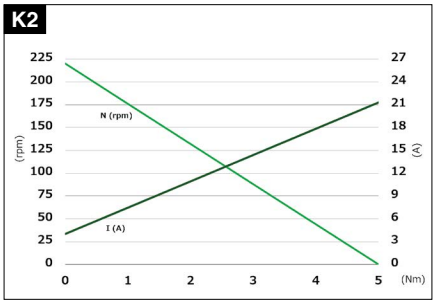
Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interfer-ence sup-pression	Trans-mission housing	Character-istic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	J/N	lh/rh	K	W	A
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

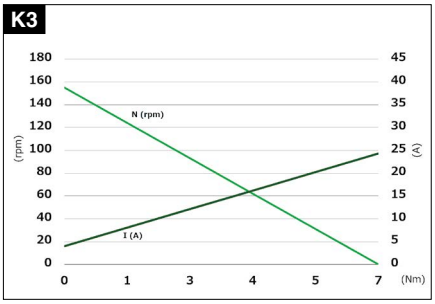
K1



K2

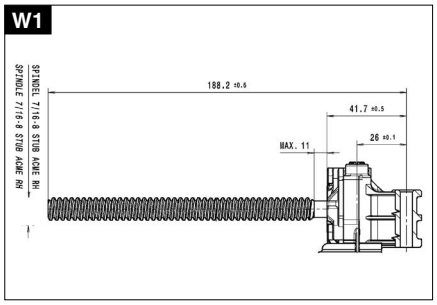


K3

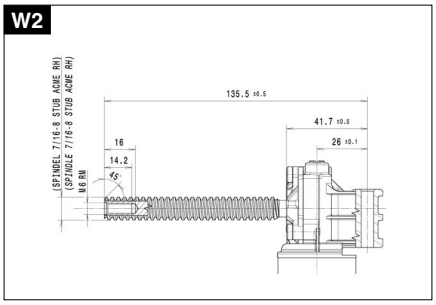


Shafts

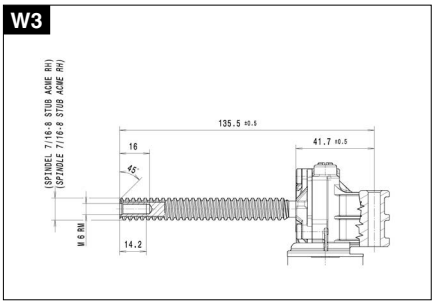
W1



W2



W3



GMPD

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

Technical description

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

Applications

Industry

Mechanical engineering

Automobile

Backrest adjustment

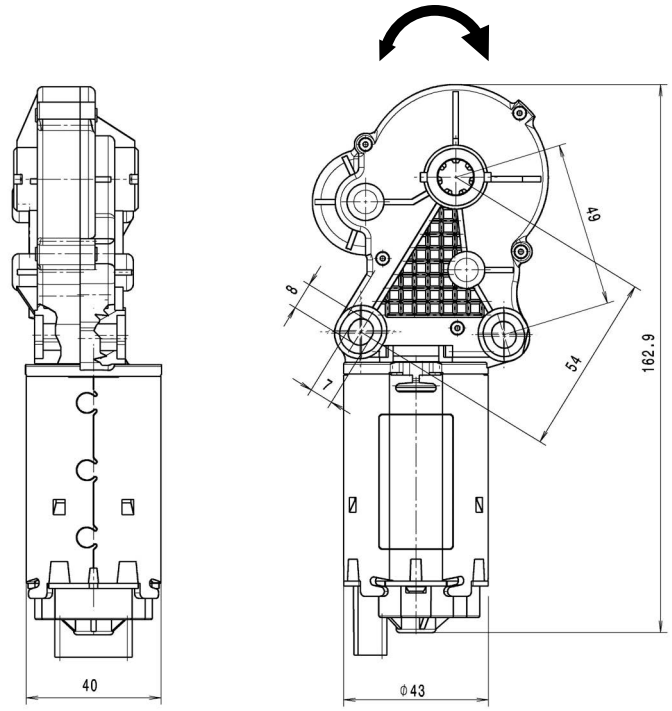
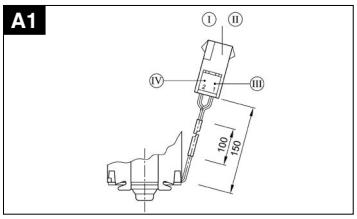
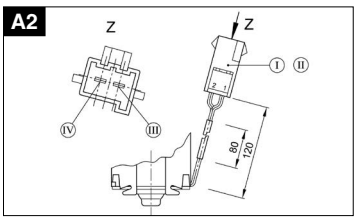
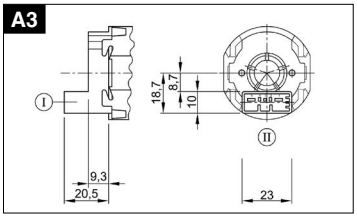


Image shows the transmission design on the right

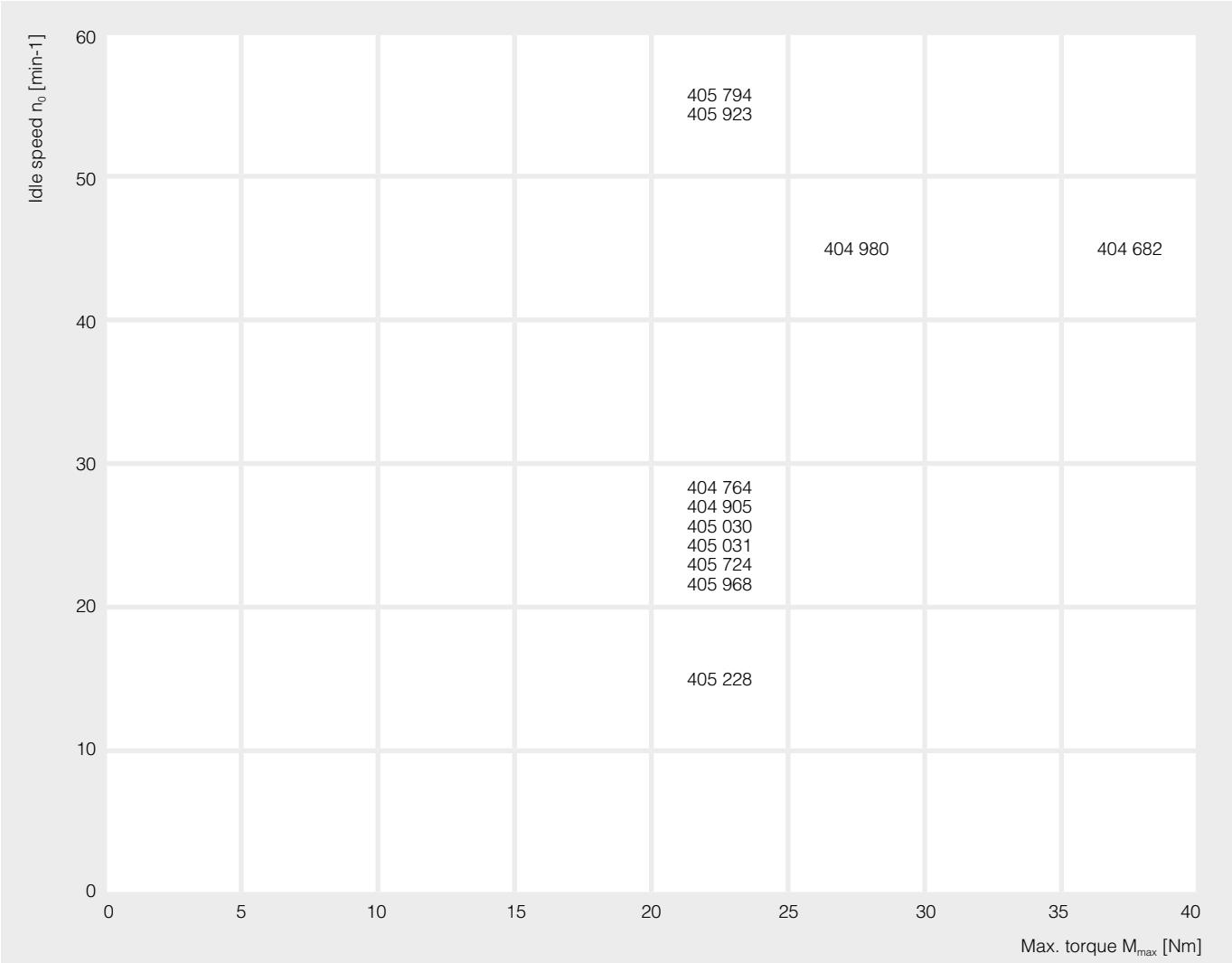
Connections







Product matrix

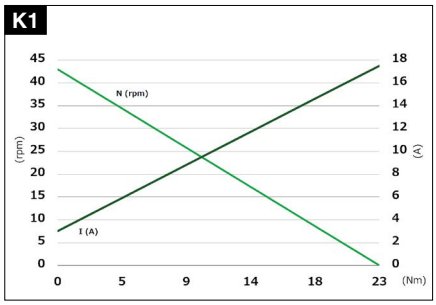


Overview

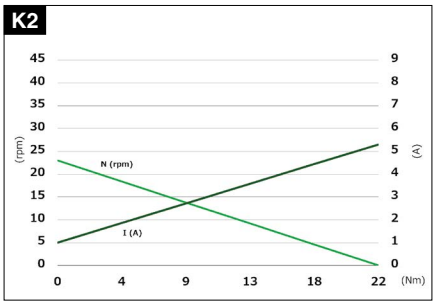
Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interference suppression	Transmission housing	Characteristic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	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

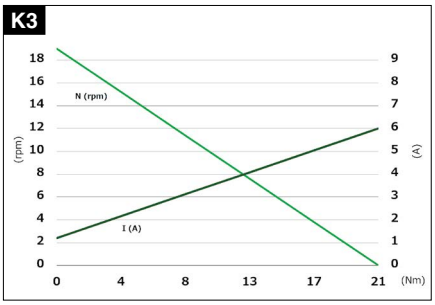
K1



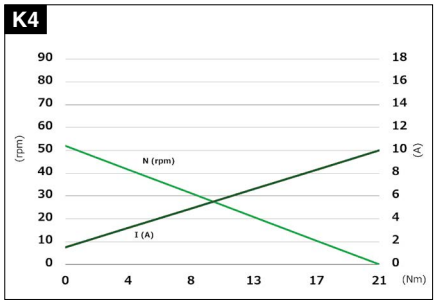
K2



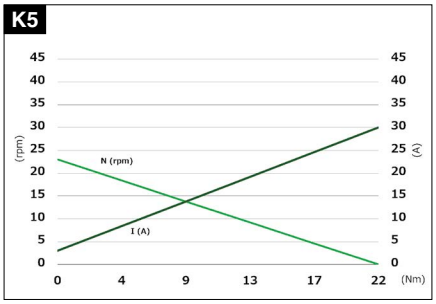
K3



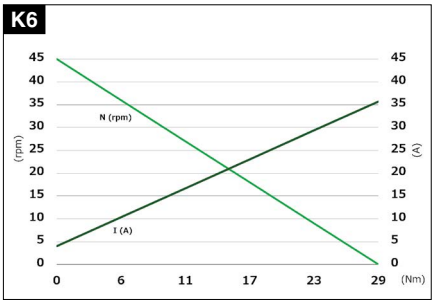
K4



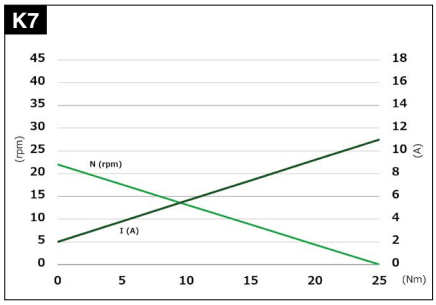
K5



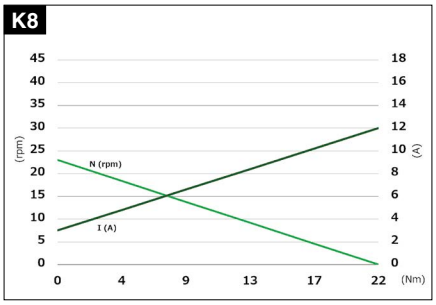
K6



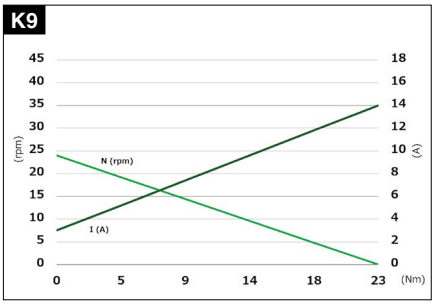
K7



K8

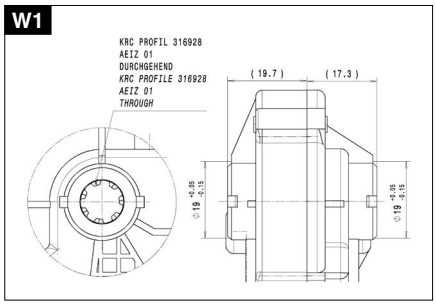


K9

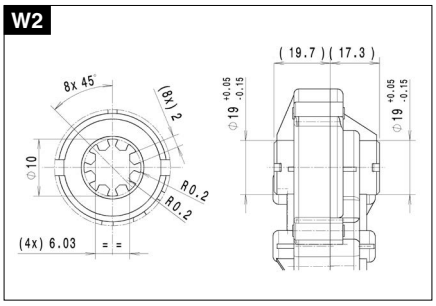


Shafts

W1


KRC PROFIL 316928
AEIZ 01
DURCHGEHEND
KRC PROFILE 316928
AEIZ 01
THROUGH
(19.7)
(17.3)

W2


8x 45°
(8x) 2
Ø10
R0.2
R0.2
(4x) 6.03
(19.7) (17.3)

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

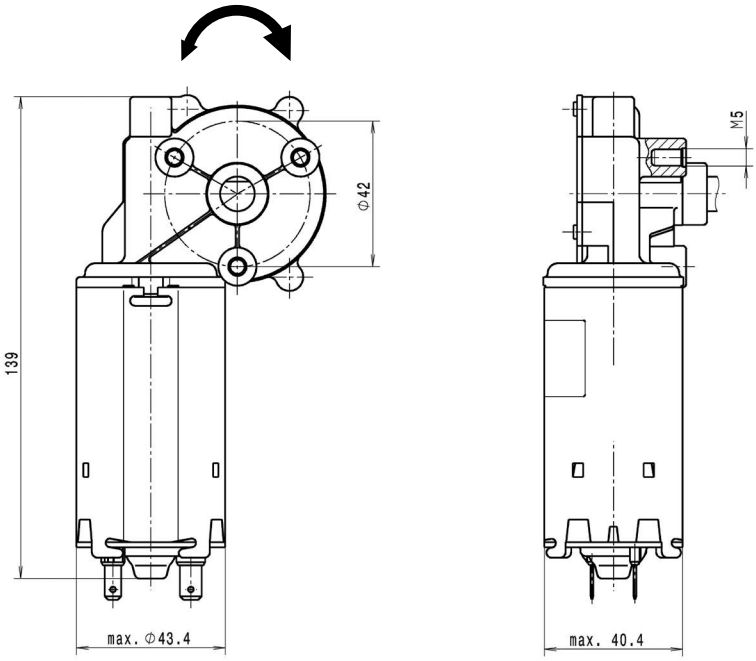
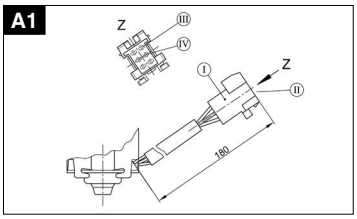
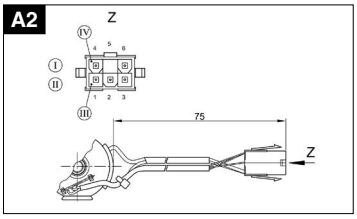
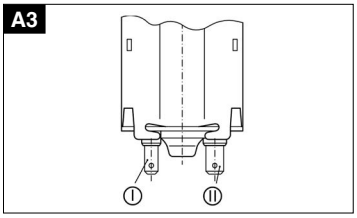


Image shows the transmission design on the right

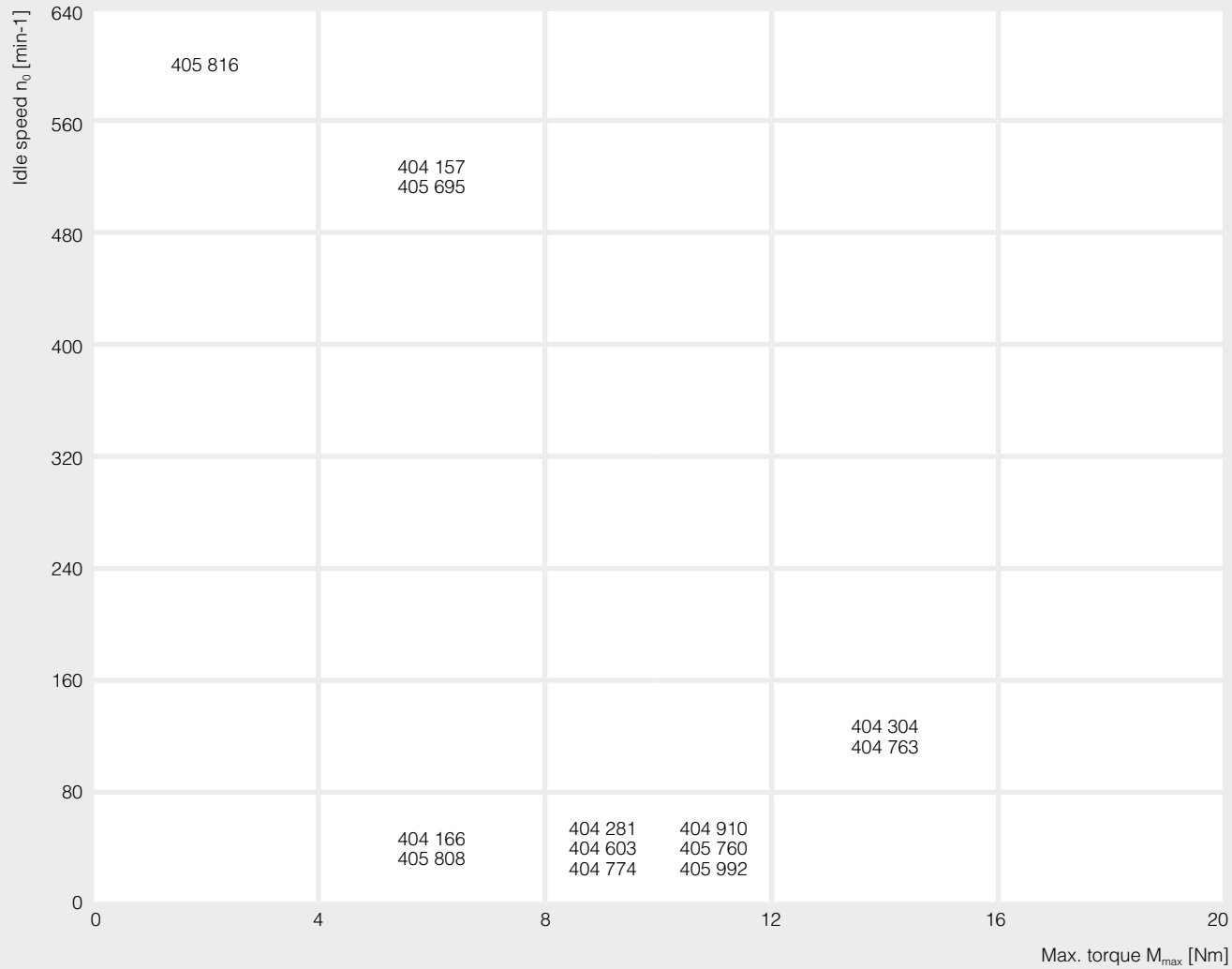
Connections







Product matrix

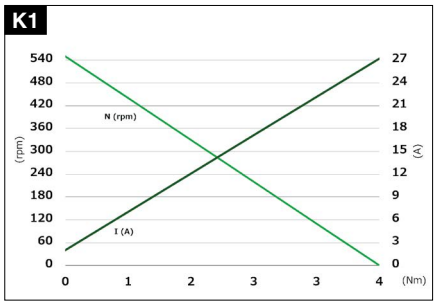


Overview

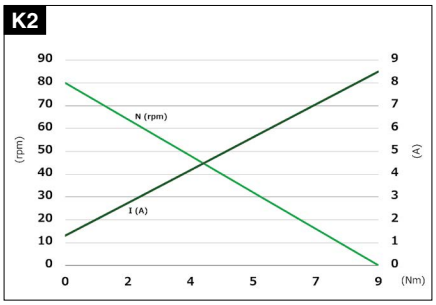
Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interference suppression	Transmission housing	Characteristic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	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

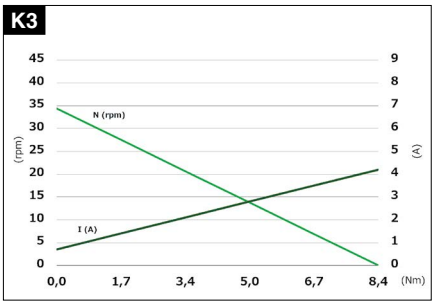
K1



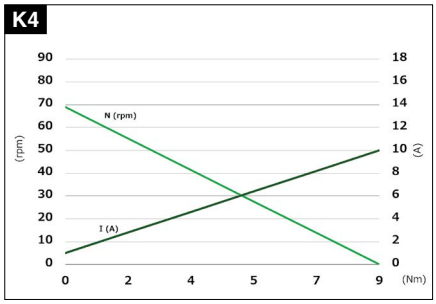
K2



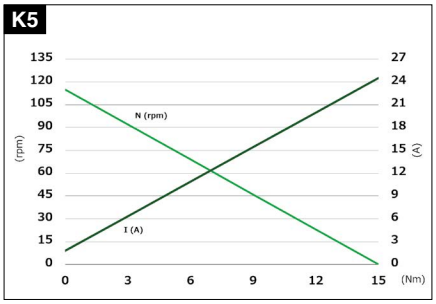
K3



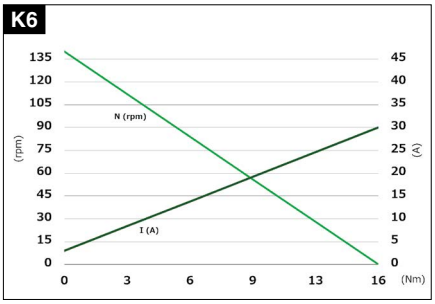
K4



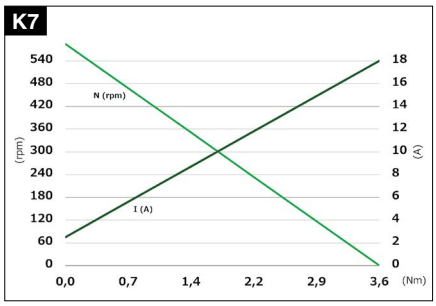
K5



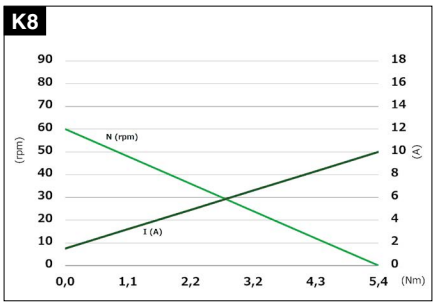
K6



K7

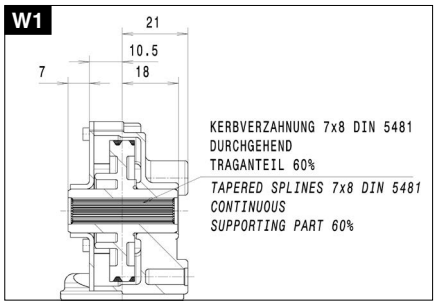


K8

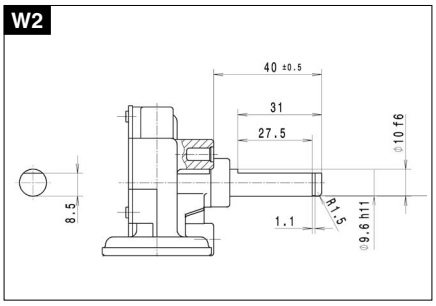


Shafts

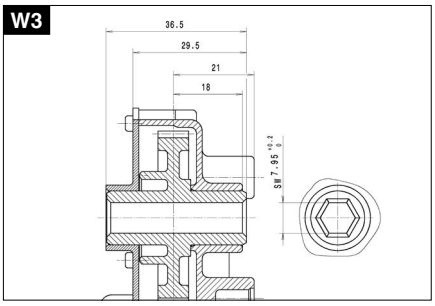
W1



W2



W3



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

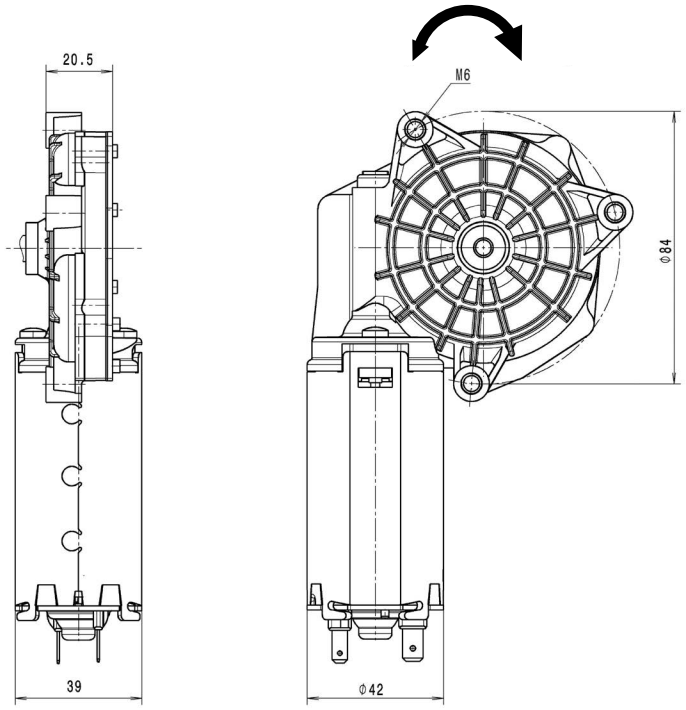
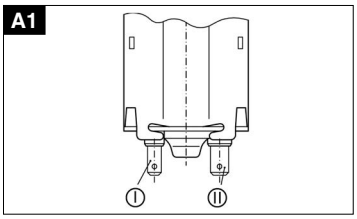
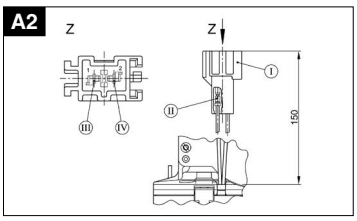


Image shows the transmission design on the right

Connections





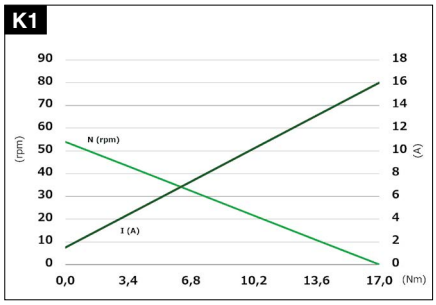
Product matrix

Overview

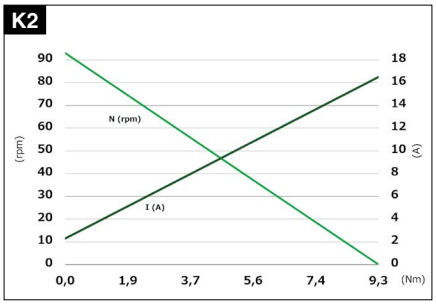
Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interference suppression	Transmission housing	Characteristic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N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

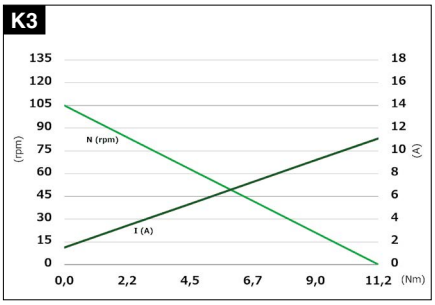
K1



K2

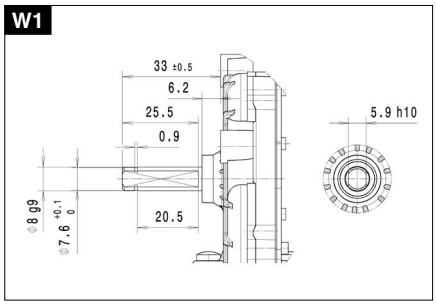


K3

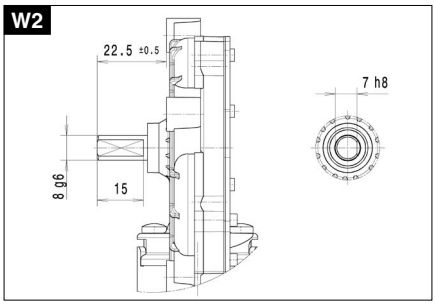


Shafts

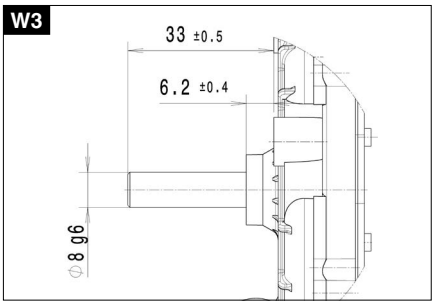
W1



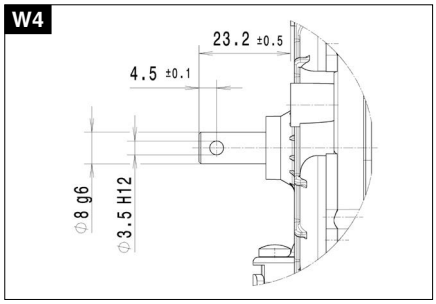
W2



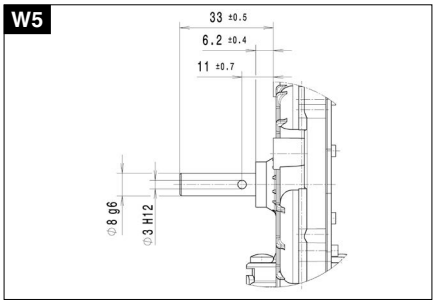
W3



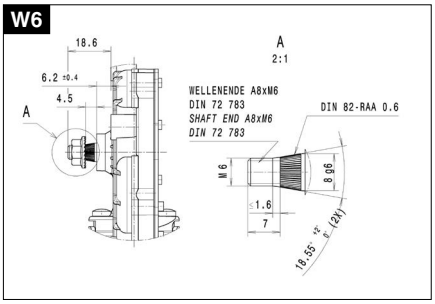
W4



W5



W6



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

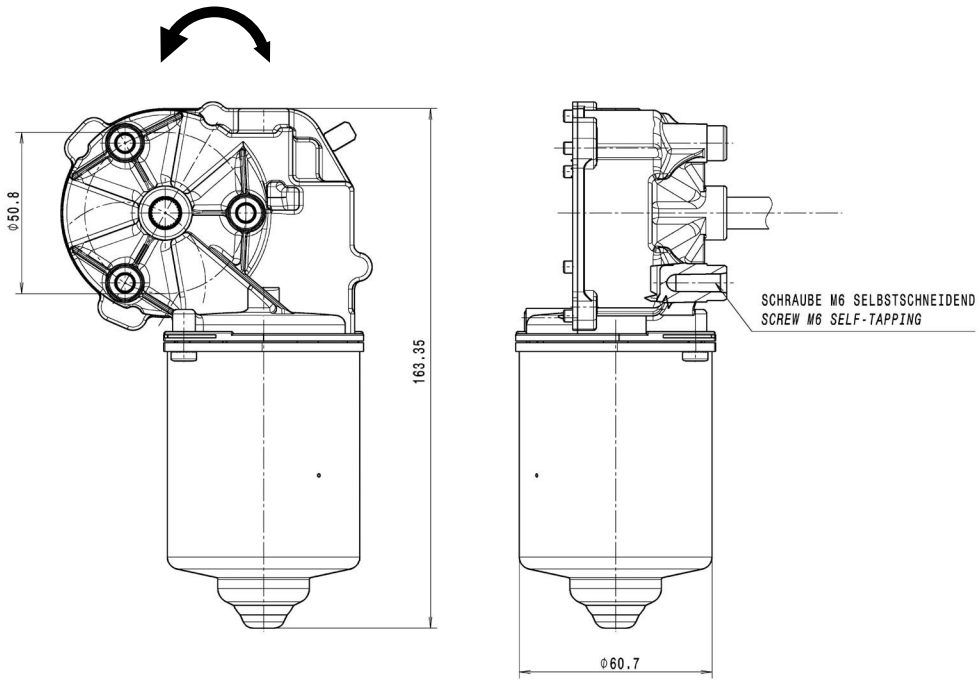
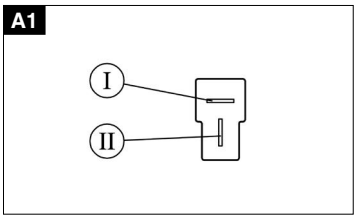
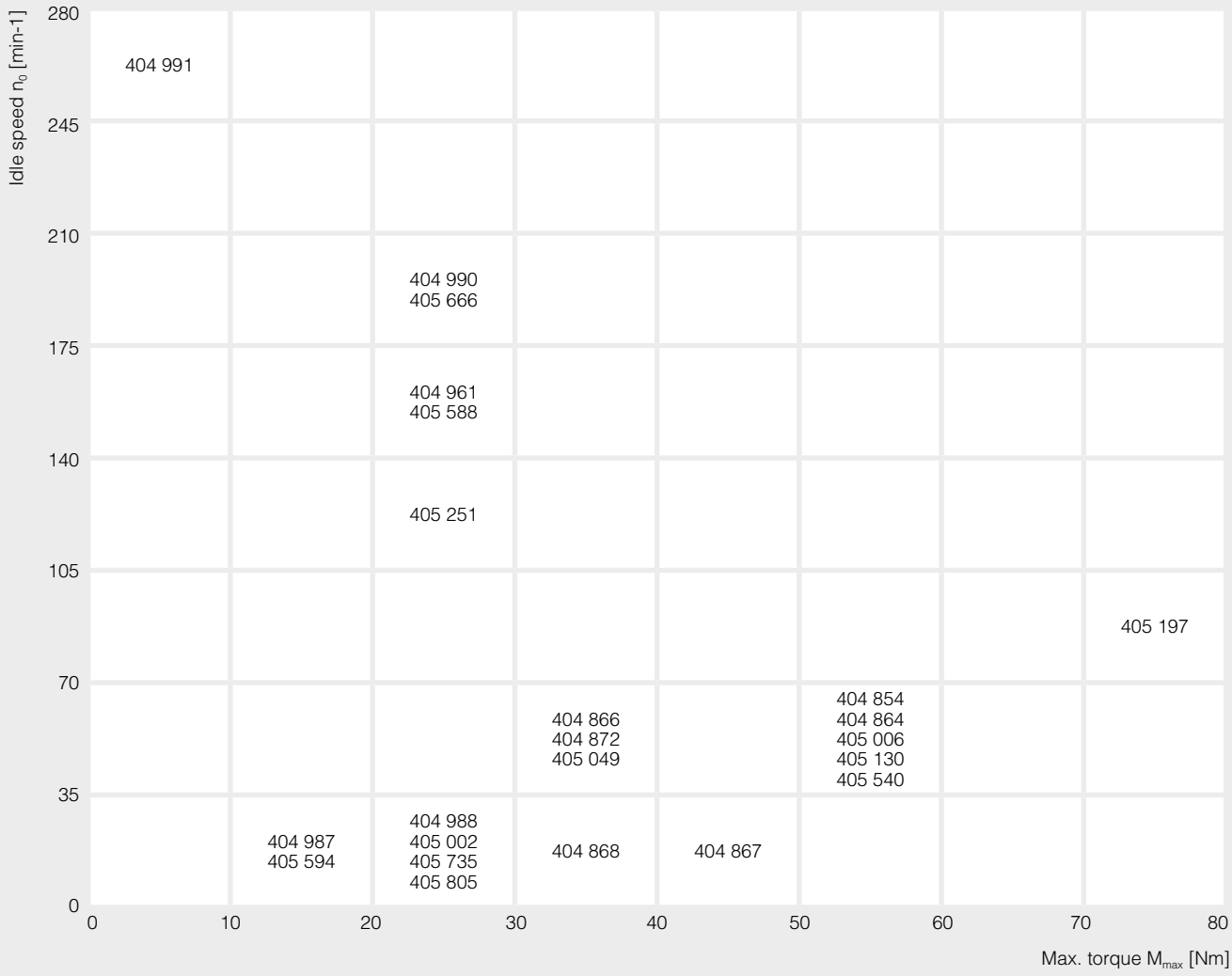


Image shows the transmission design on the left

Connections



Product matrix

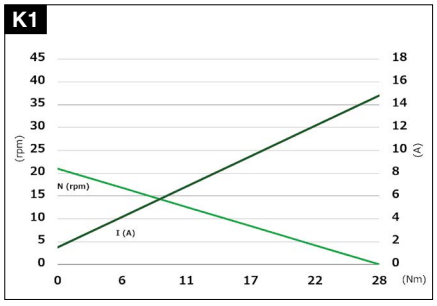


Overview

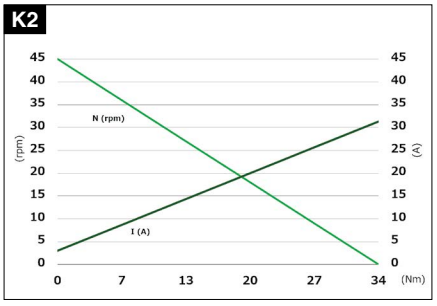
Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interference suppression	Transmission housing	Characteristic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	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

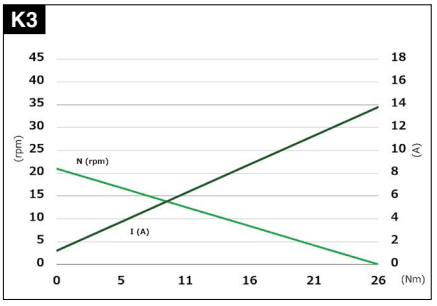
K1



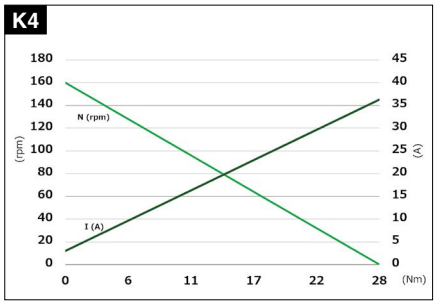
K2



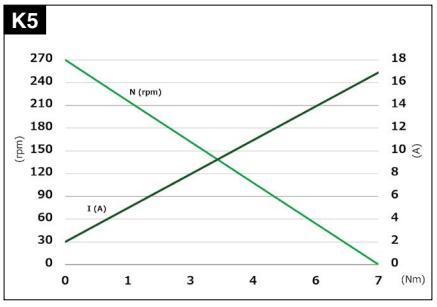
K3



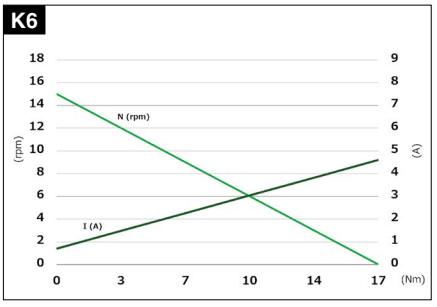
K4



K5

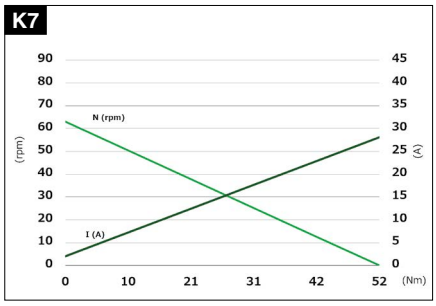


K6

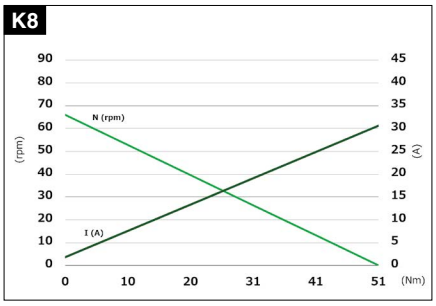


Characteristic curves

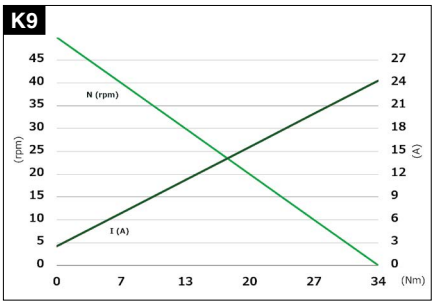
K7



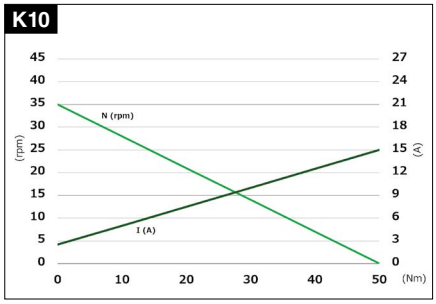
K8



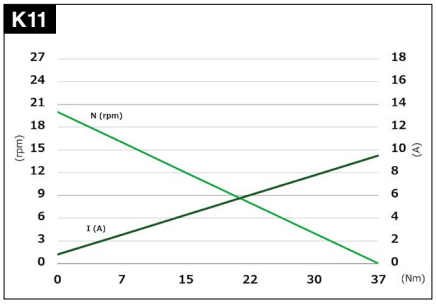
K9



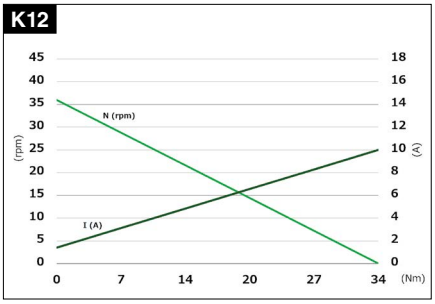
K10



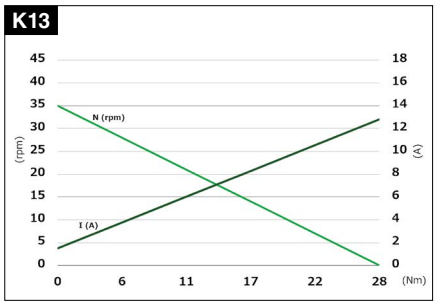
K11



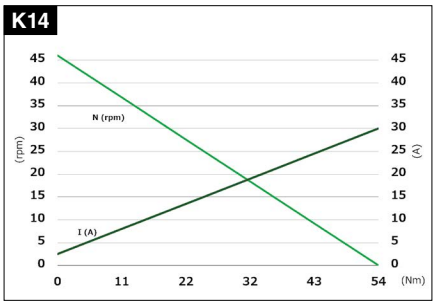
K12



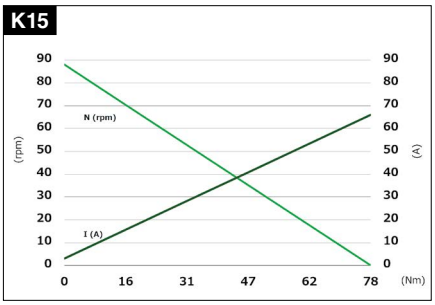
K13



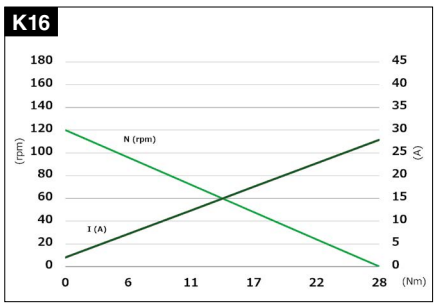
K14



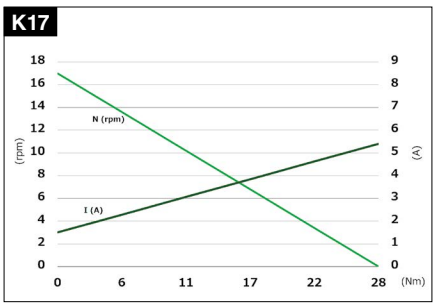
K15



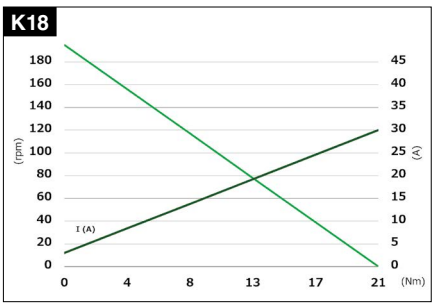
K16



K17

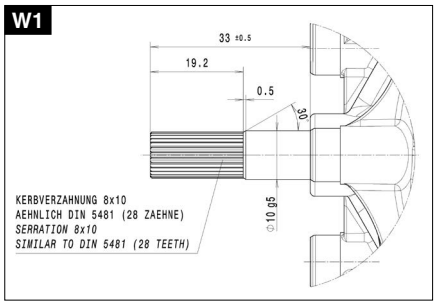


K18

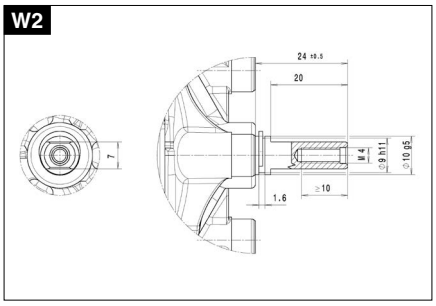


Shafts

W1



W2



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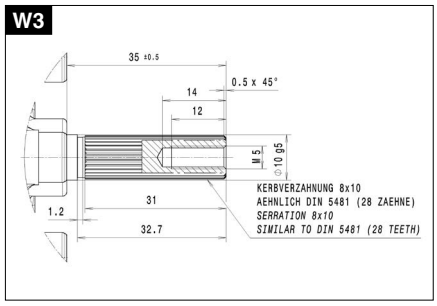

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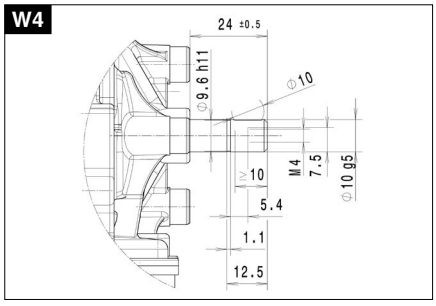

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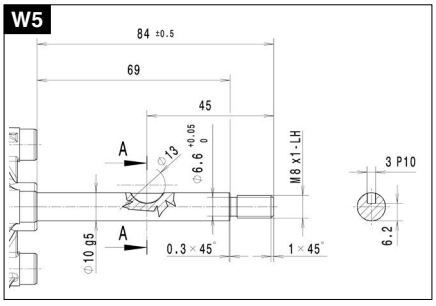

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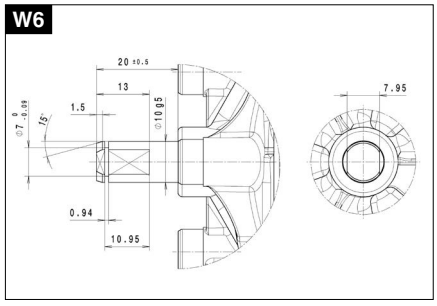
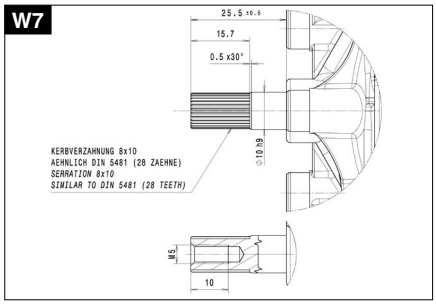


W7



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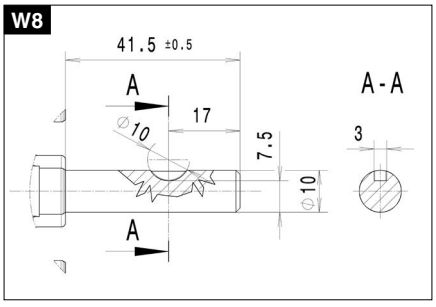

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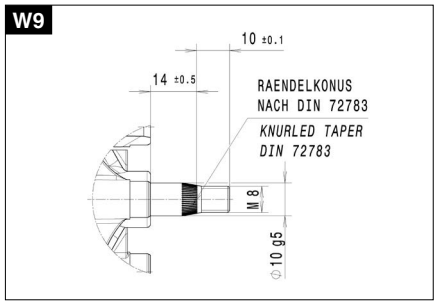

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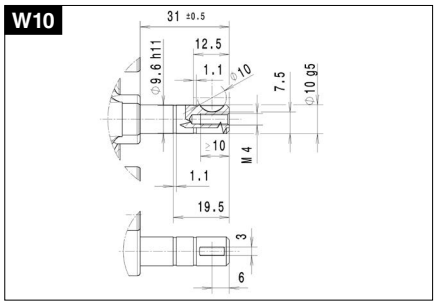

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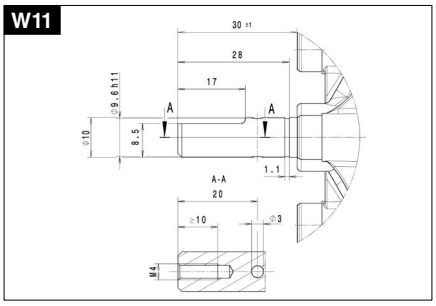

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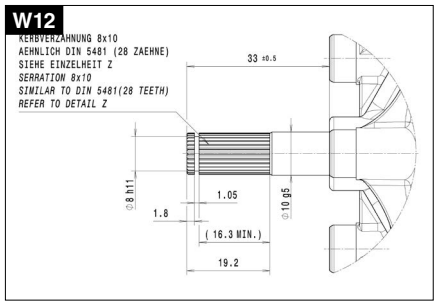

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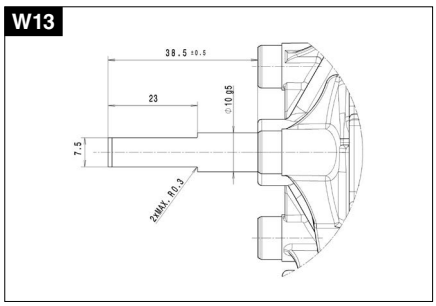
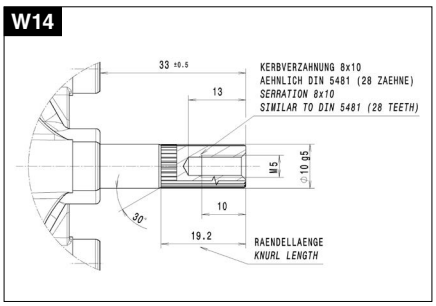


W14



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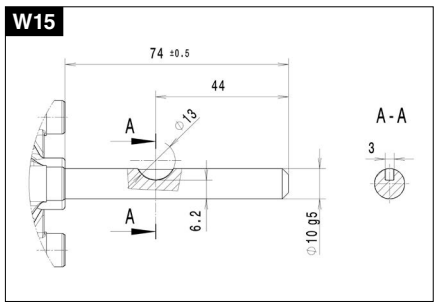
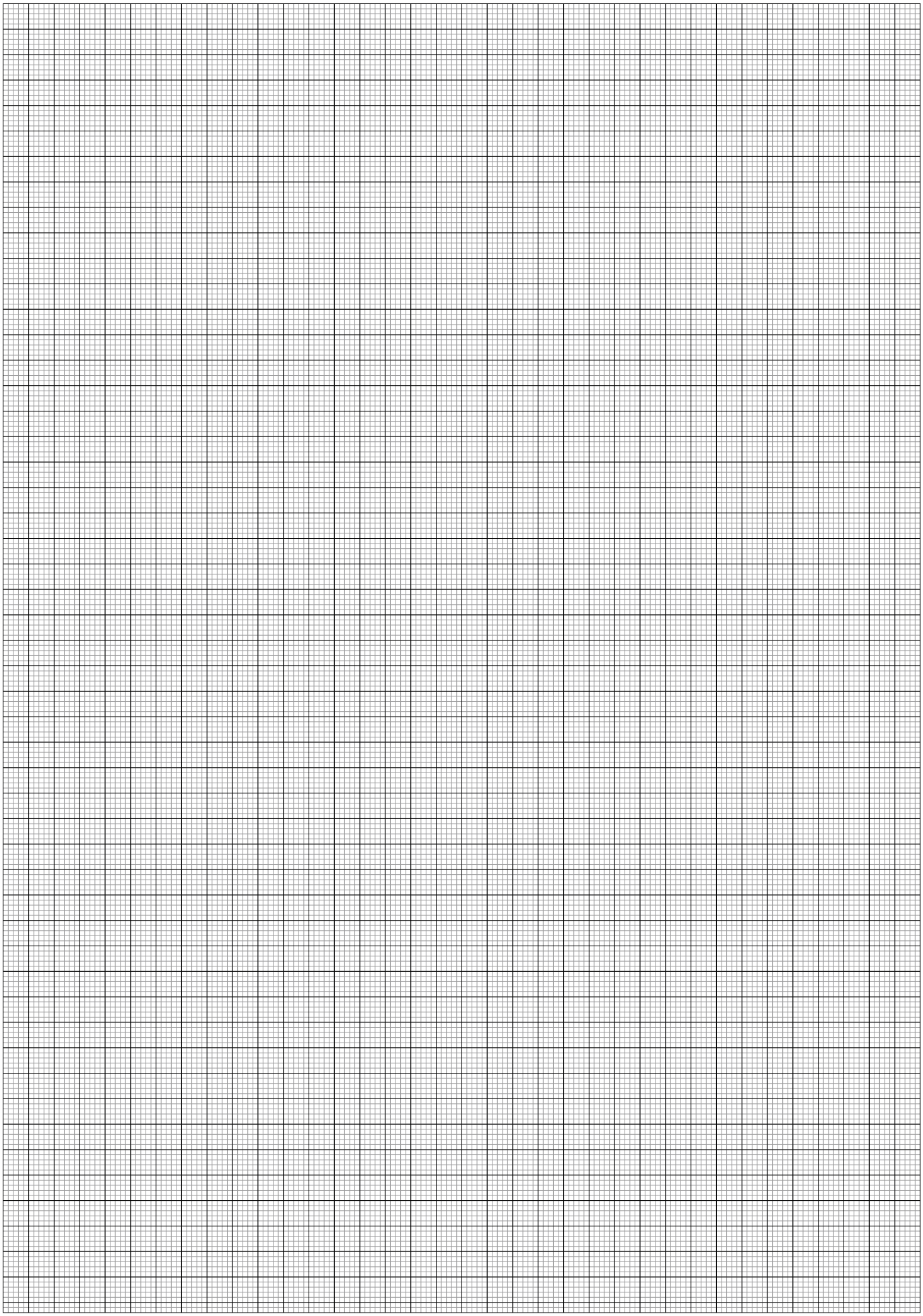


Notes



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

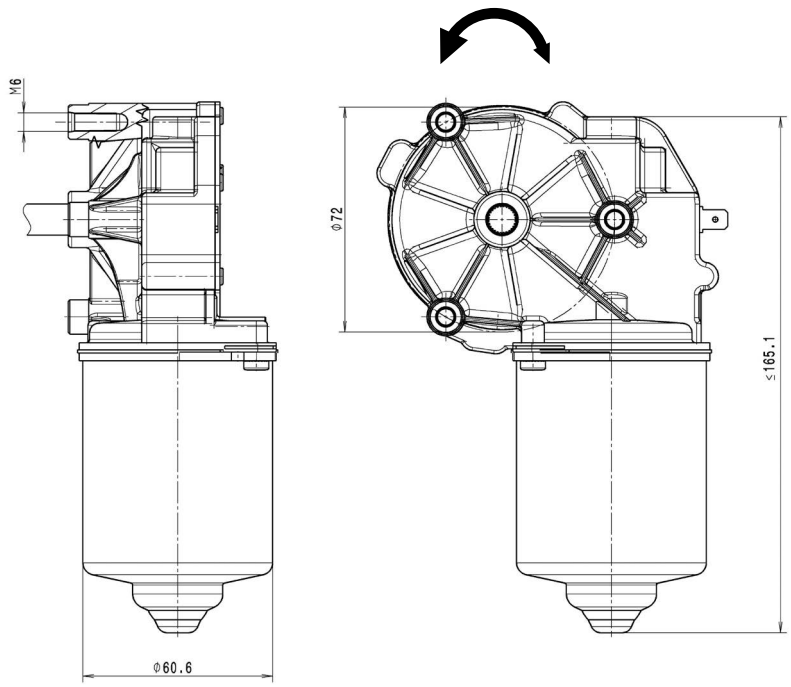
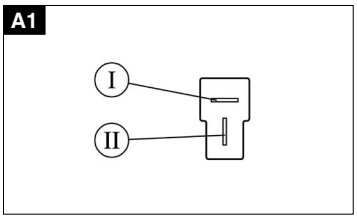
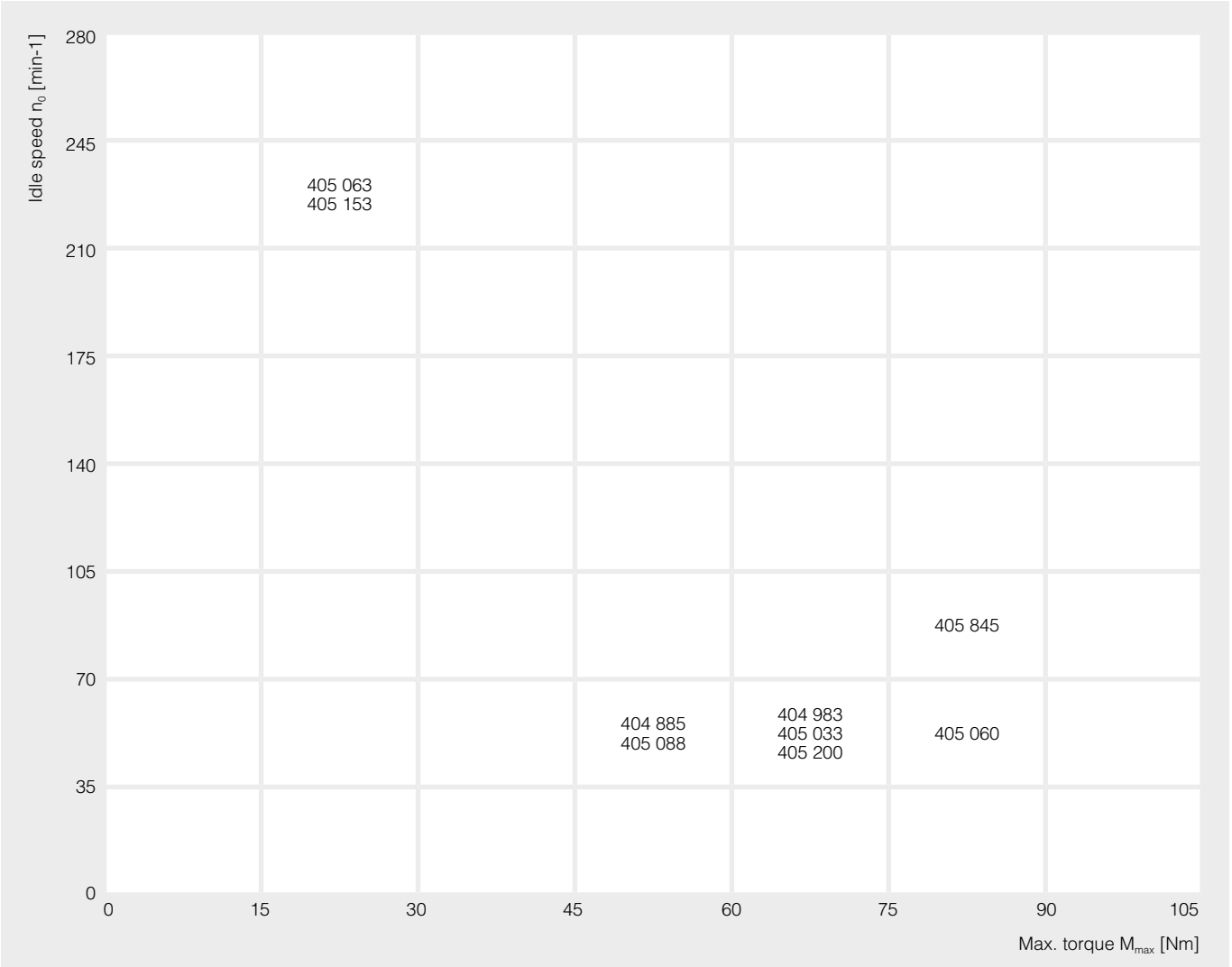


Image shows the transmission design on the left

Connections



Product matrix

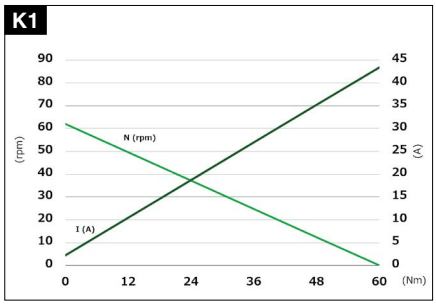


Overview

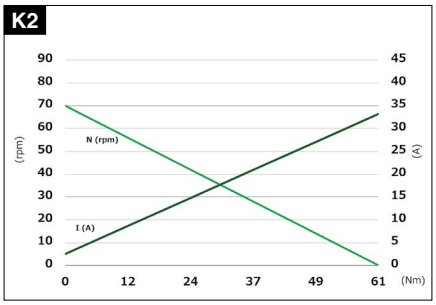
Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interference suppression	Transmission housing	Characteristic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	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

K1



K2



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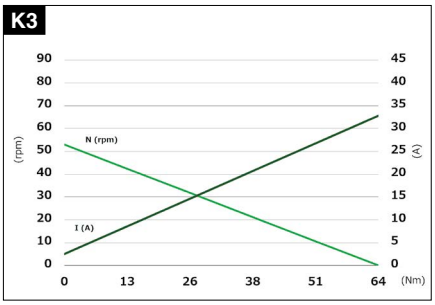
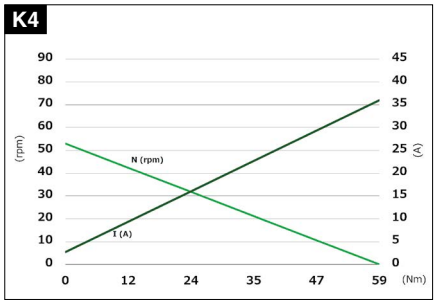
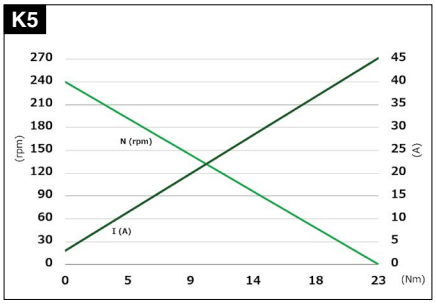


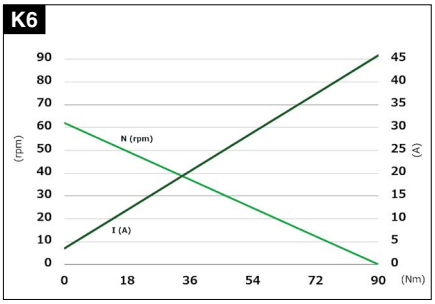
K4



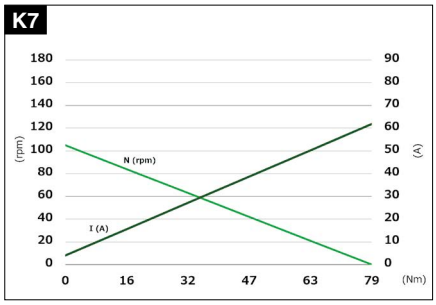
K5



K6

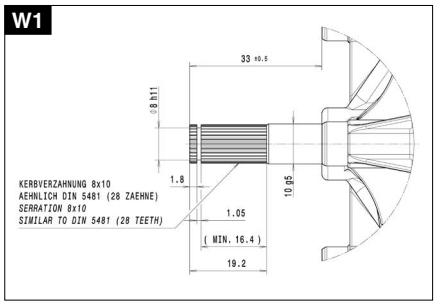


K7

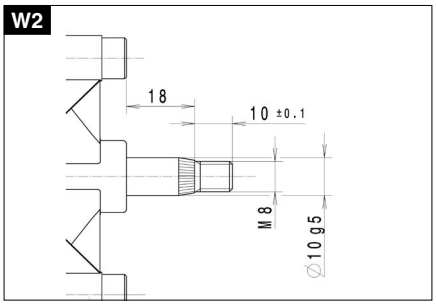


Shafts

W1



W2



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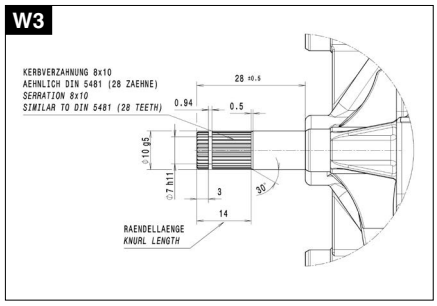
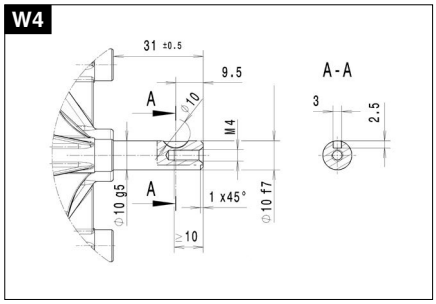
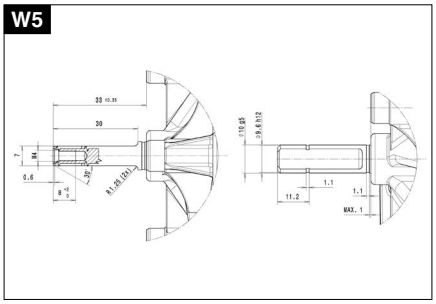


W4



W5



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

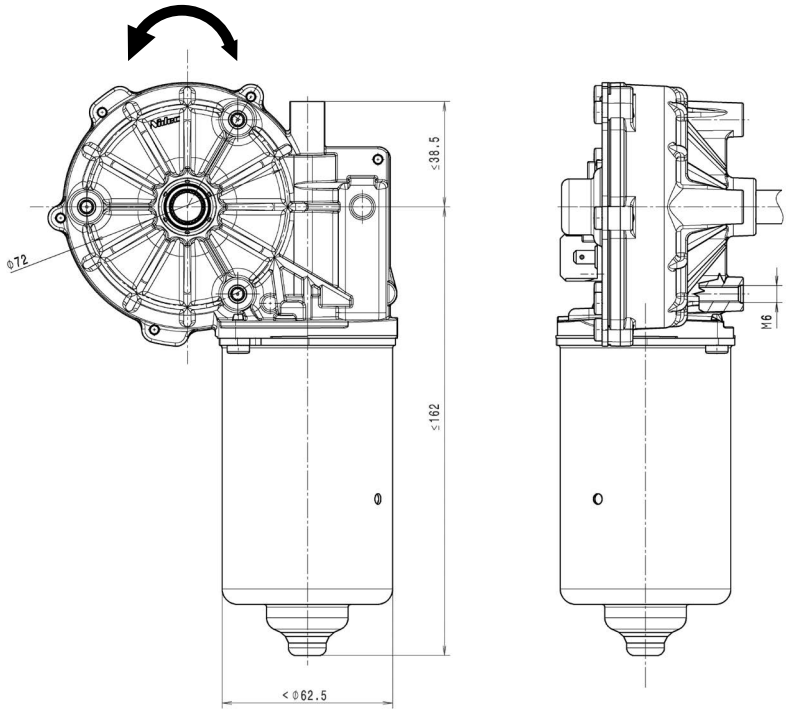
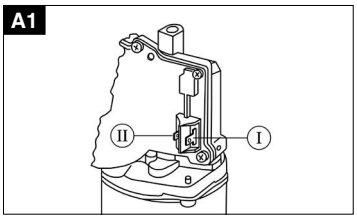
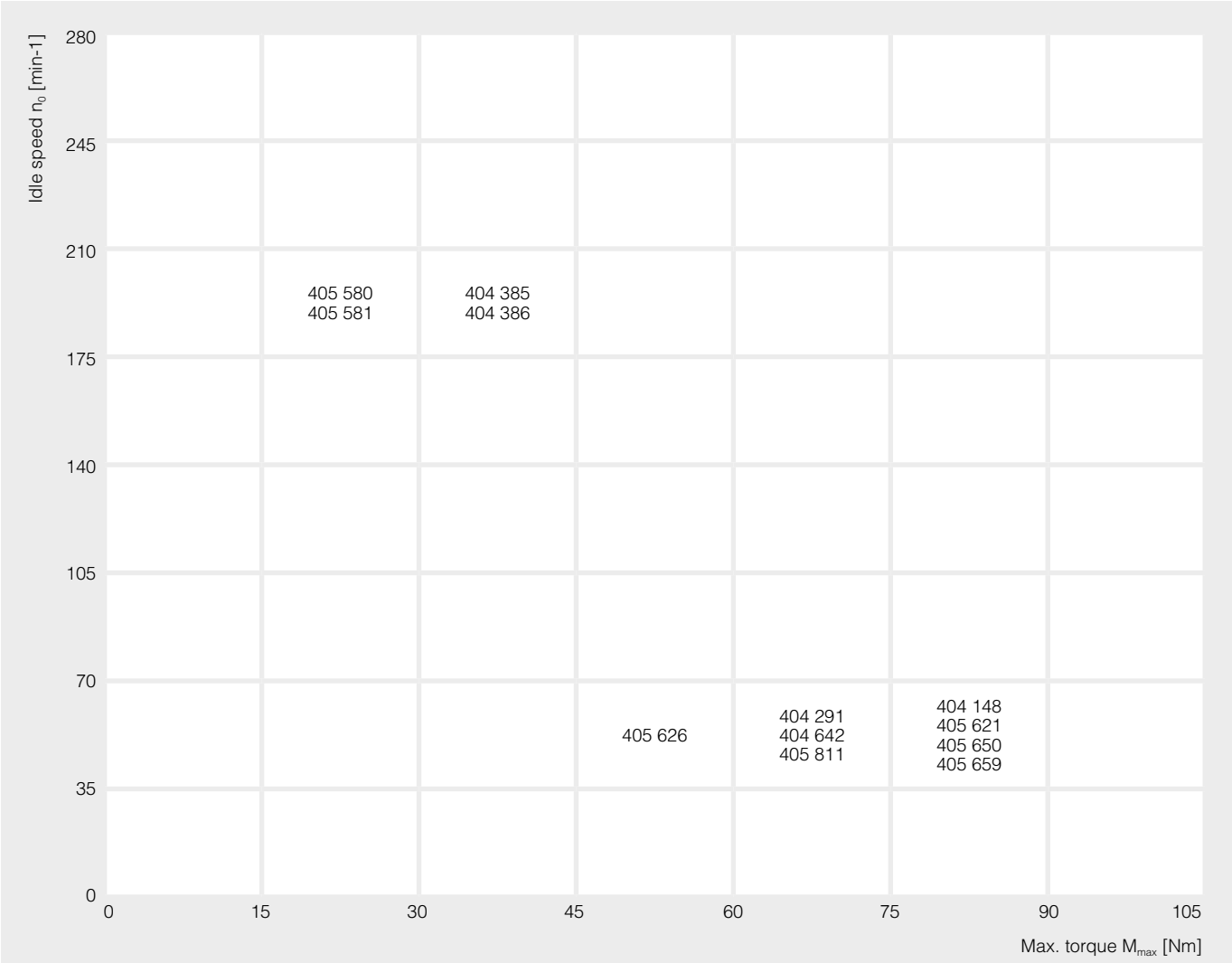


Image shows the transmission design on the left

Connections



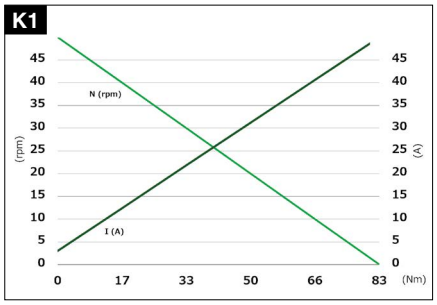
Product matrix

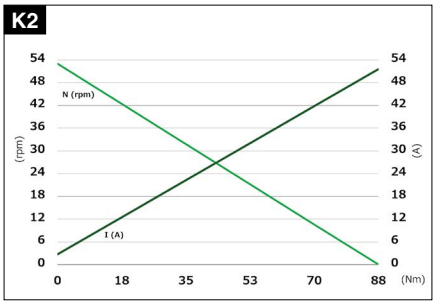


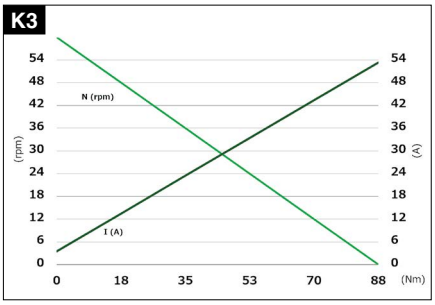
Overview

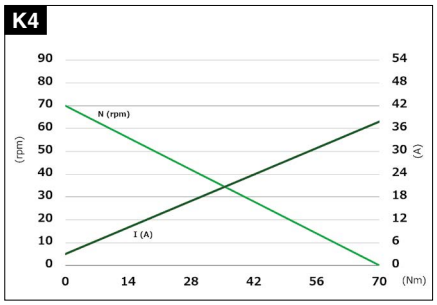
Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interference suppression	Transmission housing	Characteristic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	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

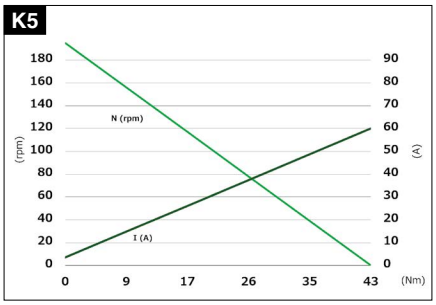
Characteristic curves

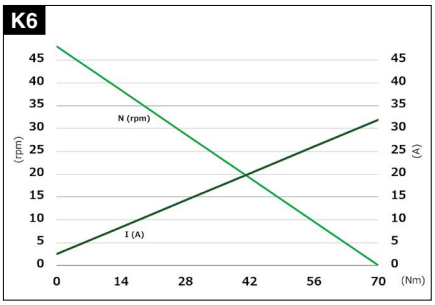


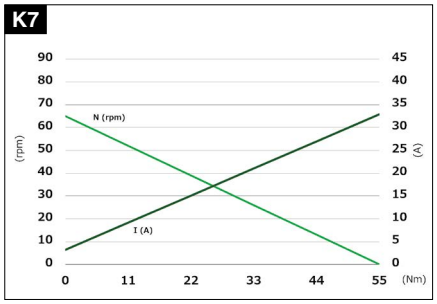


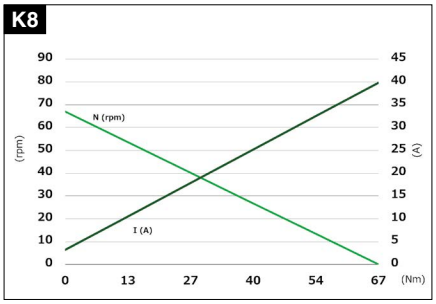


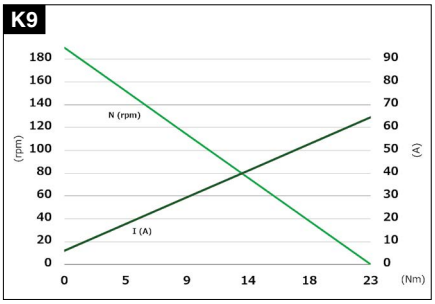






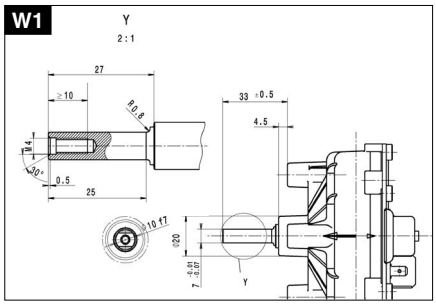




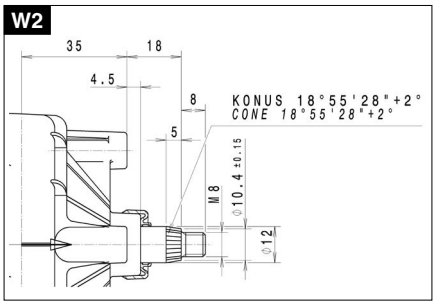


Shafts

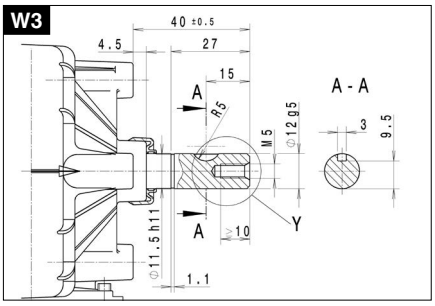
W1



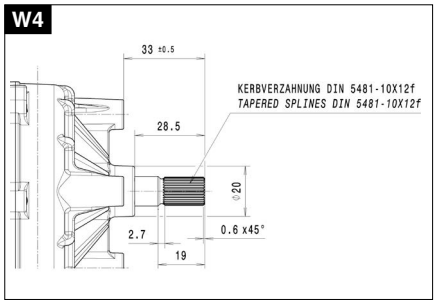
W2



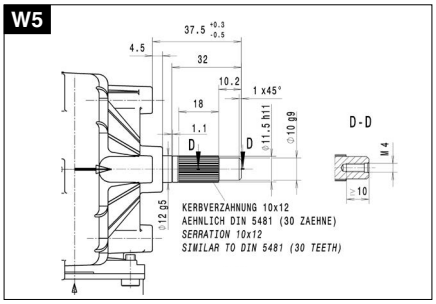
W3



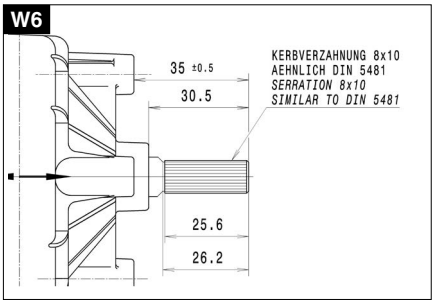
W4



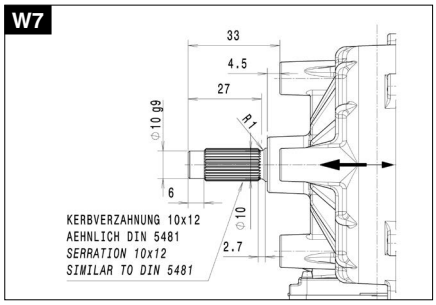
W5



W6



W7



SWMV

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, laminated fabric, metal
Transmission lubrication	Grease, permanent lubrication
Mechanical interface	Drive shaft
Electrical interface	Plugs or stranded wires with plugs or tin-plated stranded wires
Sensor	–
Thermal protection	Optional
Interference suppression	Optional

Applications

Industry

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

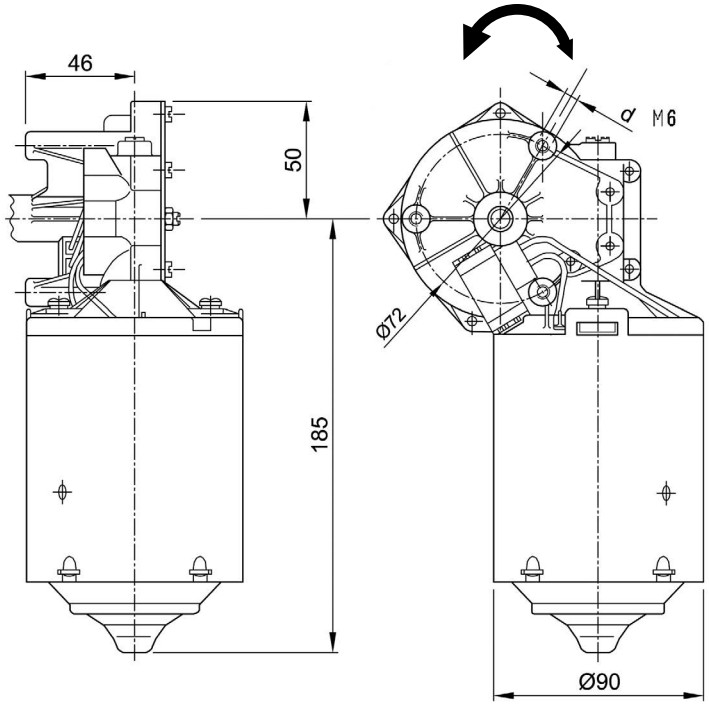
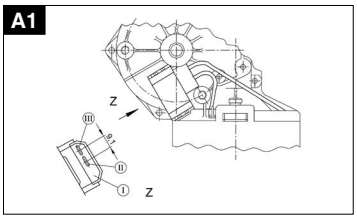
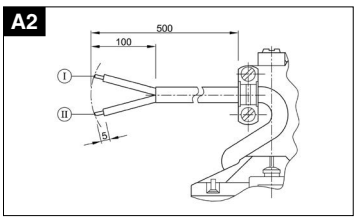


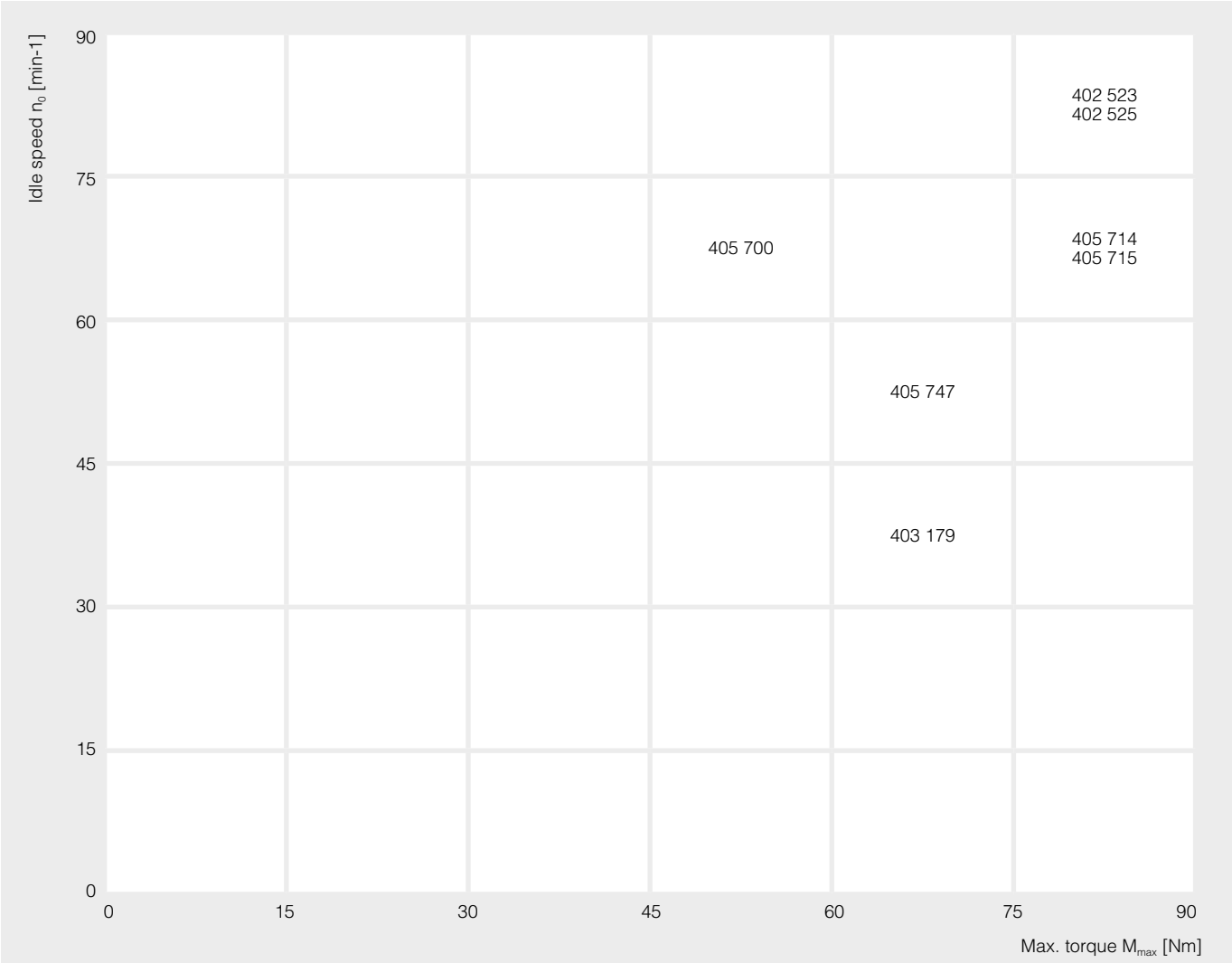
Image shows the transmission design on the left

Connections





Product matrix

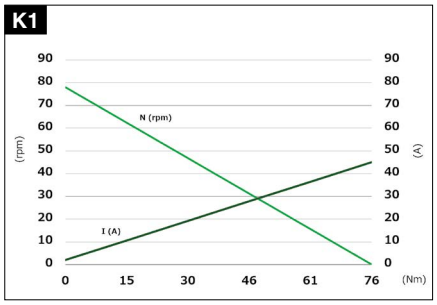


Overview

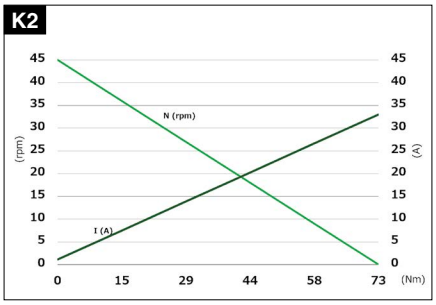
Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interference suppression	Transmission housing	Characteristic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	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

K1



K2



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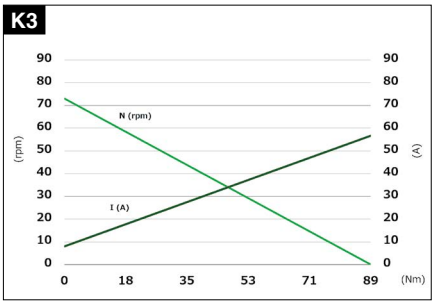

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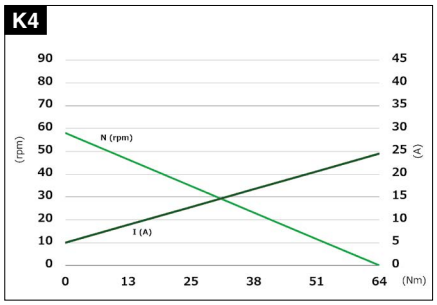
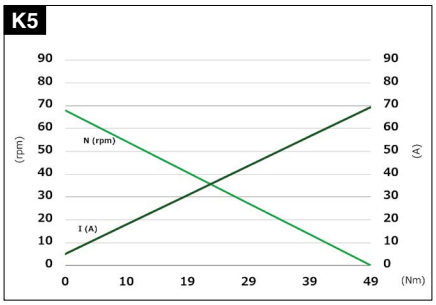
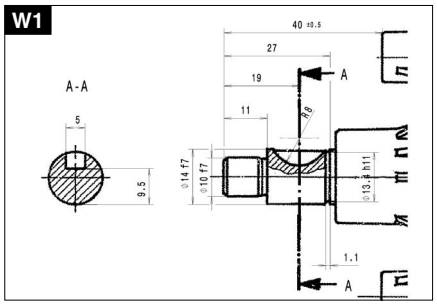


K5

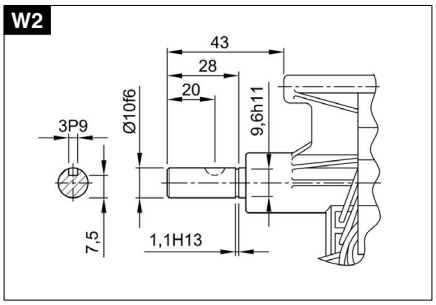


Shafts

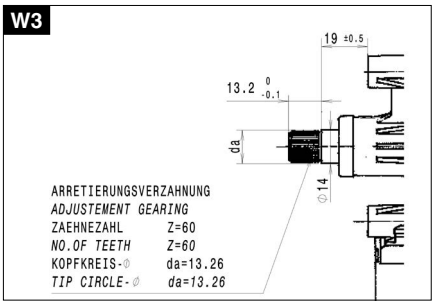
W1



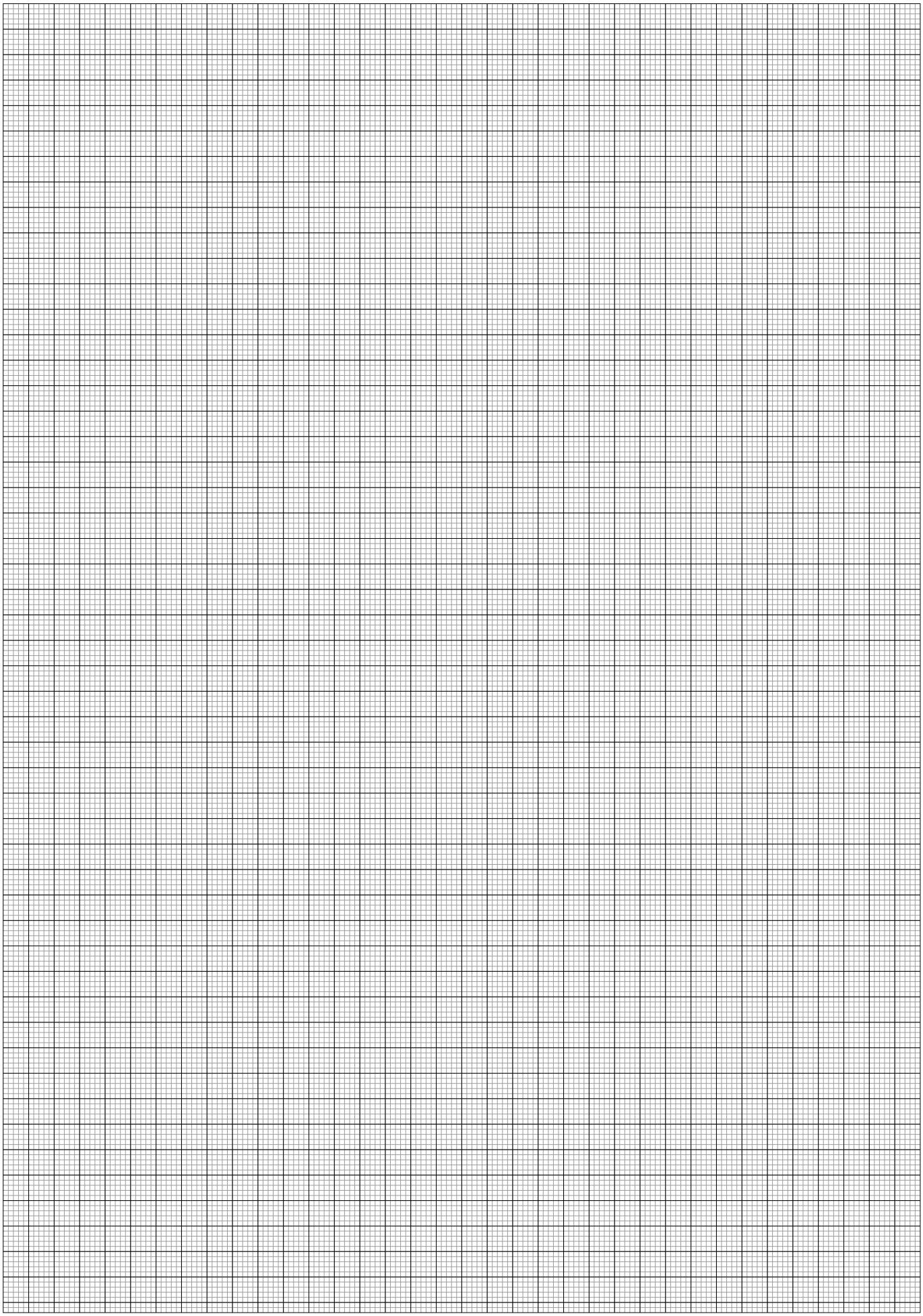
W2



W3



Notes



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

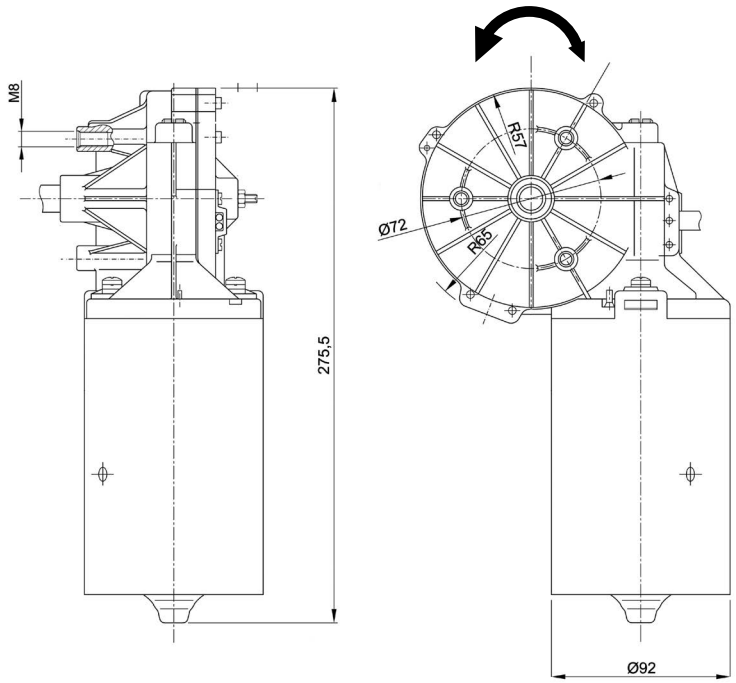
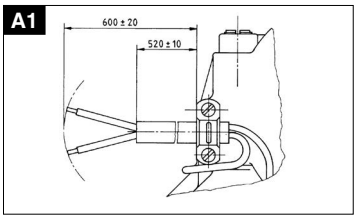
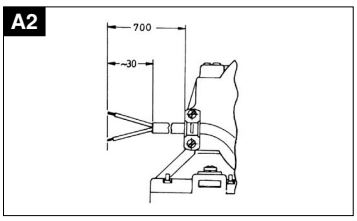


Image shows the transmission design on the left

Connections

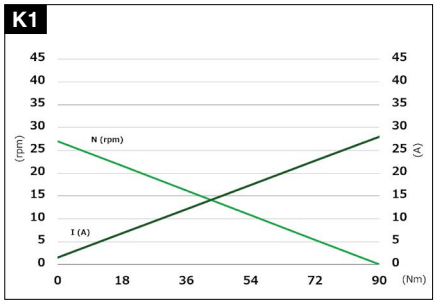


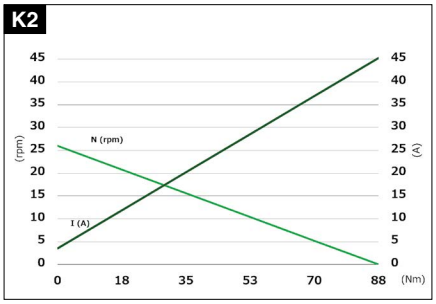


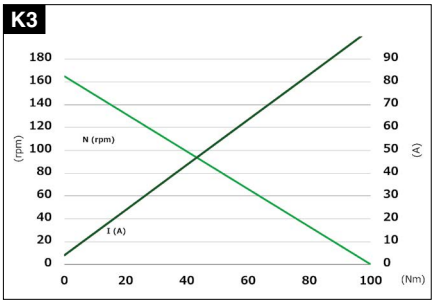
Overview

Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interfer-ence sup-pression	Trans-mission housing	Character-istic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	W	A	A	A	N/1/2	xx:x	D/M	J/N	J/N	lh/rh	K	W	A
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

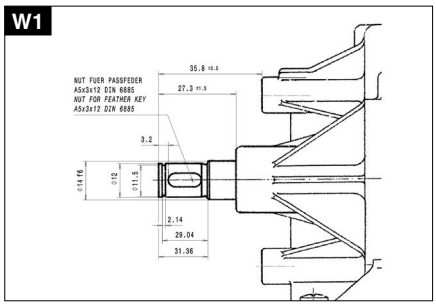
Characteristic curves

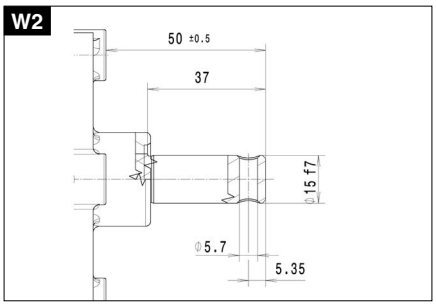






Shafts





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

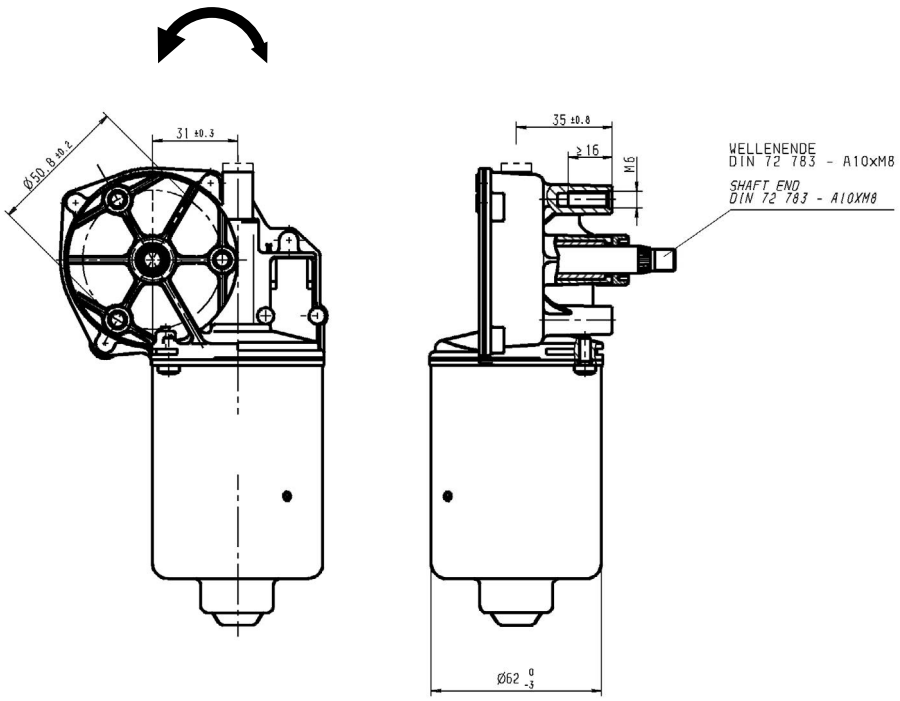
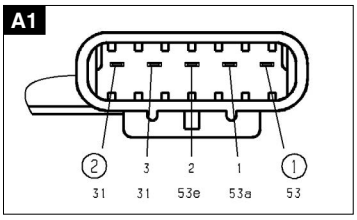


Image shows the transmission design on the left

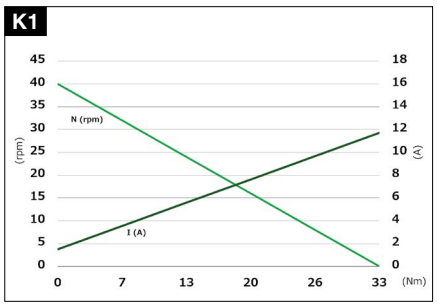
Connections



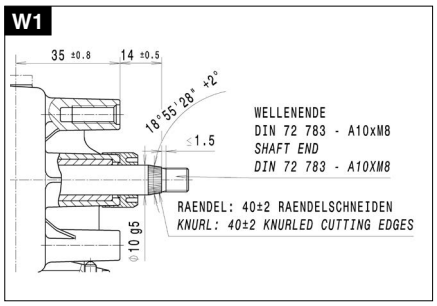
Overview

Type	Nominal voltage	Max. torque	Idle speed	Nominal output	Nominal current	No-load current	Max. power	Hall sensors	Gear reduction	Gearwheel material	Thermal switch	Interfer-ence sup-pression	Trans-mission housing	Character-istic curve	Shaft	Electrical connection
	V	Nm	min^{-1}	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



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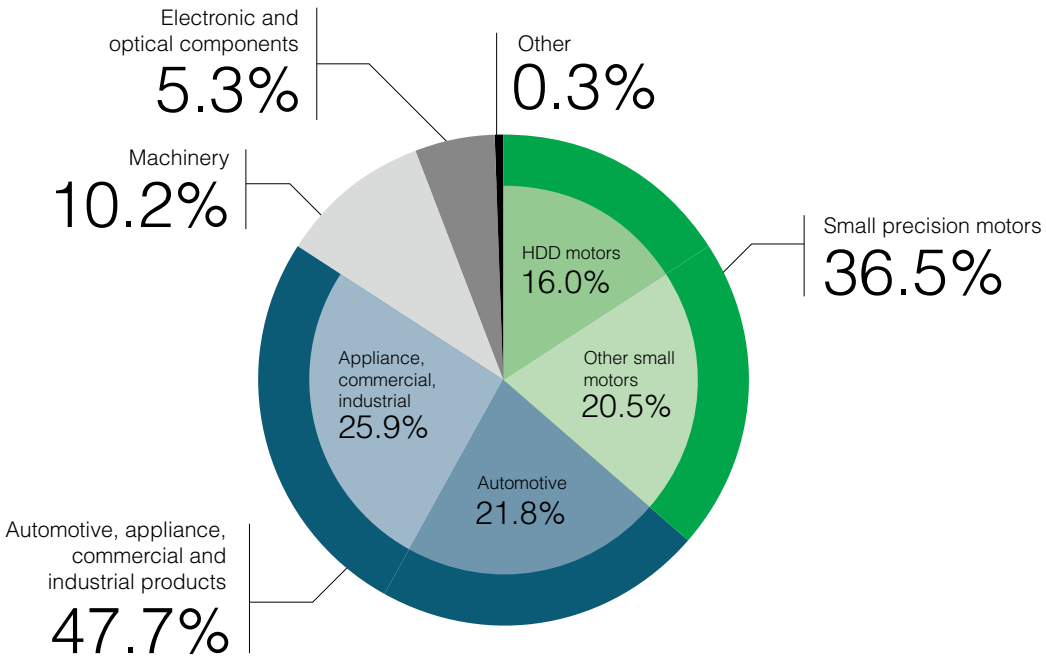

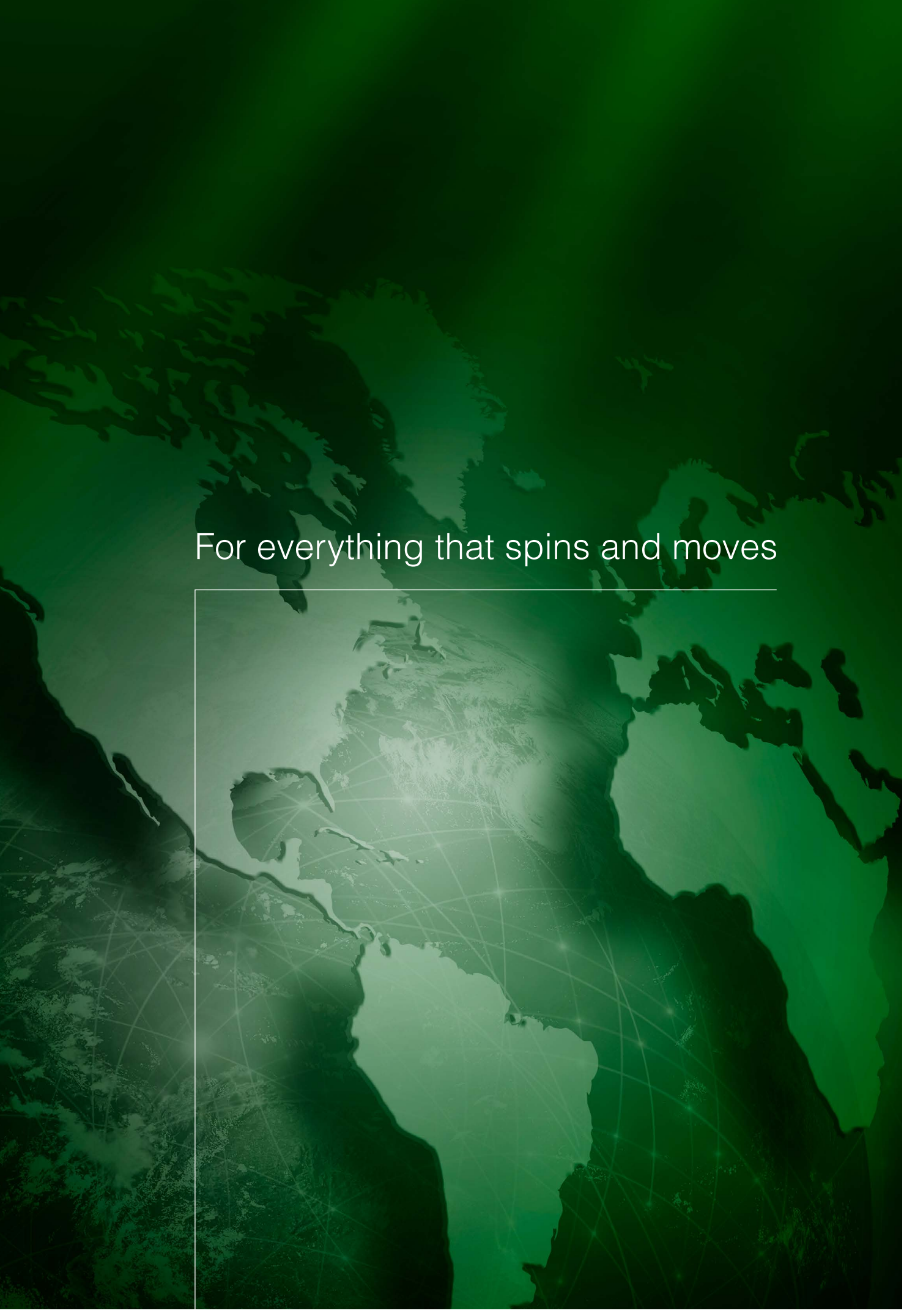
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www.eissesbv.nl

Denmark
Wald Antriebe GmbH
Hanns-Hoerbiger-Straße 1
29664 Walsrode
Tel. +49 51 61 48 63 20
Fax +49 51 61 48 63 233
info@waldantriebe.de
www.waldantriebe.de

Germany - West
101 automation GmbH
Schallbruch 19-21
42781 Haan
Tel. +49 21 29 37 63 50
Fax +49 21 29 37 63 59
sales@101automation.de
www.101automation.de

Germany - East
JBW GmbH
Jakob-Baumann-Straße 5
81249 Munich
Tel. +49 89 89 74 54 30
Fax +49 89 89 74 54 310
info@elektromotore.eu
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Germany - South
Ott GmbH & Co. KG
Baarstraße 3
78652 Deisslingen
Tel. +49 74 20 93 99 0
info@ott-antriebe.de
www.ott-antriebe.de

Germany - North
Wald Antriebe GmbH
Hanns-Hoerbiger-Straße 1
29664 Walsrode
Tel. +49 51 61 48 63 20
Fax +49 51 61 48 63 233
info@waldantriebe.de
www.waldantriebe.de

Finland
Oy Movetec Ab
Suokalliontie 9
01740 VANTAA
Tel. +35 89 52 59 23 0
Fax +358 9 5259 2333
info@movetec.fi
www.movetec. fi

France
Comotech Industries SAS
6 rue des Blonnières
CS 82441
44115 Haute Goulaine
Tel. +33 2 40 05 05 05
Fax +33 2 40 05 05 03
accueil@comotech.fr
www.comotech-industries.fr

United Kingdom
Electro Mechanical Systems Ltd
Eros House, Calleva Park, Aldermaston
Berkshire RG7 8LN
Tel. +44 11 89 81 73 91
Fax +44 11 89 81 76 13
info@ems-ltd.com
www.ems-limited.co.uk

India
Strategi Automation Solutions Pvt Ltd
Plot 25/B, Dodannakundi Indl Estate
560048 Bangalore
Tel. +91 99 80 56 38 50
Fax +91 80 41 16 30 47
arun@strategiautomation.com
www.strategiautomation.com

Israel
Mechatronics Ltd.
P.O. Box 3818
49130 Petach-Tikva
Tel. +97 2 39 28 88 88
Fax +97 2 39 28 88 80
office@mechatronics.co.il
www.mechatronics.co.il

Italy
Motech S.p.A.
Via Salvemini, 20
41122 Modena
Tel. +39 59 45 42 96
Fax +39 59 45 16 93
m.coda@motech-italia.com
www.motech-italia.com

Japan
Nidec-Shimpo Corp
1 Terada Kohtari, Nagaokakyo City
617-0833 Kyoto
Tel. +81 7 59 58 38 86
Fax +81 7 59 58 36 48
shinichi.takahashi@nidec-shimpo.co.jp
www.nidec-shimpo.co.jp

Canada
Drive Systems Group
7150 Torbram Road. Unit 1 & 2
L4T 3Z8 Mississauga, ON
Tel. +1 90 54 05 03 10
Fax +1 90 54 05 03 13
georger@drivesystemsgroup.com
www.drivesystemsgroup.com

The Netherlands
Eisses Import B.V.
Admiraal Trompstraat 11
3115 HK Schiedam
Tel. +31 1 02 46 00 18
Fax +31 1 02 46 00 19
info@eissesbv.nl
www.eissesbv.nl

Norway
Aratron AS
Bjornerudveien 17
1266 Oslo
Tel. +47 23 19 16 60
Fax +47 23 19 16 61
christer@aratron.no
www.aratron.no

Austria
Kwapil & Co GmbH
Kammelweg 9
1210 Vienna
Tel. +43 12 78 85 85
verkauf@kwapil.com
www.kwapil.com

Poland
WH Technologies Sp. z o o
ul. Pusta 3c
82-550 Prabuty
Tel. +48 58 67 75 571
Fax +48 58 67 75 574
whmotor@wh-tech.pl
www.whmotors.pl

Sweden
KG Knutsson AB
Hammarbacken 8
191 49 Sollentuna
Tel. +46 8 92 30 0
johan.nilsson@kgk.se
www.kgk.se

Switzerland
Antrimon Motion AG
Gotthardstraße 3
5630 Muri (AG)
Tel. +41 5 66 75 40 30
Fax +41 5 66 75 40 31
motion@antrimon.com
www.antrimon.com

Slovakia
Opis Engineering, s.r.o
Lucna 476
03202 Zavazna Poruba
Tel. +42 14 44 55 14 31 0
Fax +42 14 45 54 72 34
opis@opis.sk
www.opis.sk

Spain
Útiles Cerámicos, S.A.
C/ San Jaime, 198 - Ap. 118
12550 - Almazora (Castellón)
Tel. +34 96 45 03 333
Fax +34 96 45 50 712
ucersa@ucersa.com
www.ucersa.com

Czech Republic
Opis Engineering k.s.
Selská 64
61400 Brno-Malomerice
Tel. +42 05 43 33 00 55
Fax +42 05 43 24 26 53
cada@opis.cz
www.opis.cz

Turkey
S-Mİ KRON Elektronik A.S.
Nilufer Ticaret Merkezi 66. Sokak No:6-8
16120 Nilufer-BURSA
Tel. +90 22 44 43 52 33
Fax +90 22 44 43 52 42
ahmetselim@s-mikron.com.tr
www.s-mikron.com.tr

USA
Power Electric
15300 25th Ave North, Suite 400
Plymouth MN 55447
Tel. +1 76 3 383 60 07
Fax +1 76 35 53 12 42
info@powerelectric.com
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Nidec Motors & Actuators (Germany) GmbH
Seewiesenstraße 9
74321 Bietigheim-Bissingen

Tel. +49 (0) 71 42 / 508-0
Fax +49 (0) 71 42 / 508-20 10
sales@nidec-ma.com

www.nidec-ma.com