

# 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

- Information
- GMK · GML
- GMP
- GMAG
- GMP1
- GMPS
- GMPD
- GMPG
- SWMP
- DCK31**
- DCK35
- SW2L
- SWNV
- SWMG
- SW3K

Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A:ball - B:sleeve

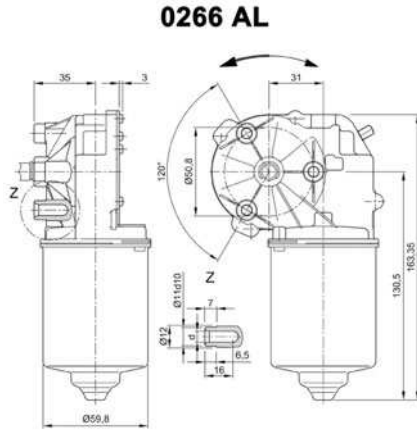
Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	4.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	65.0
Nominal power [W]	$P_N$	25.0
Nominal current [A]	$I_N$	4.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

Sensor data	
Pulses	69
Output channels	1

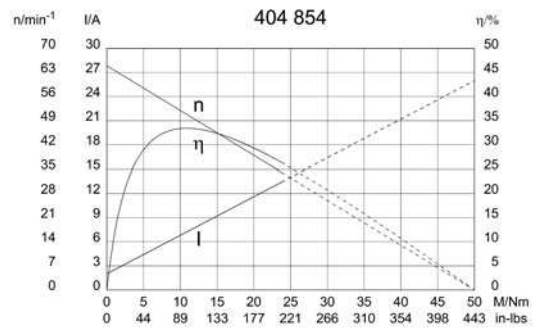
Other data	
Gear ratio	69/1
Gear wheel material	plastic
Suppression components	6 $\mu\text{H}$
Enclosure class	IP 30
Weight [kg]	1.250

Remarks: d=for selftapping screw M6 DIN ISO 965-2

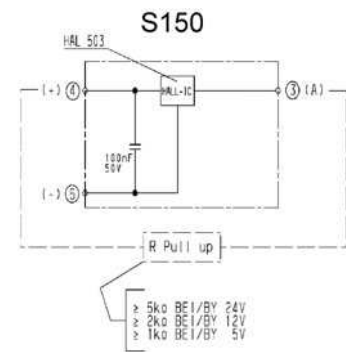
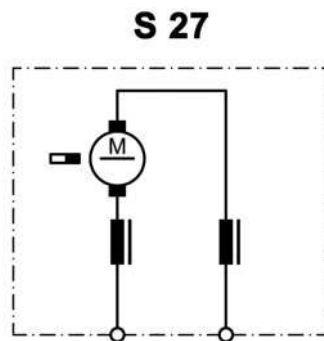
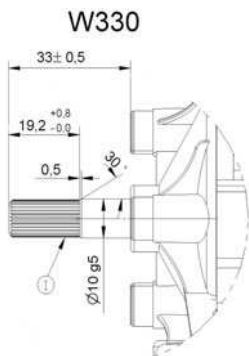
### Characteristic curves



### Motor picture



### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



I serration (rolled): no of teeth 28, pitch circle dia 9 mm, tip circle dia 9.6 mm, root circle dia 8.26 mm space width angle 60° - go/no go gauge Frenco 33906 - www.frenco.de



Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A: ball - B:sleeve

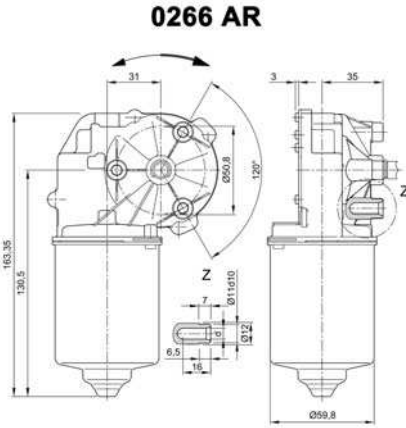
Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	4.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	66.0
Nominal power [W]	$P_N$	25.4
Nominal current [A]	$I_N$	4.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

Sensor data	
Pulses	0
Output channels	0

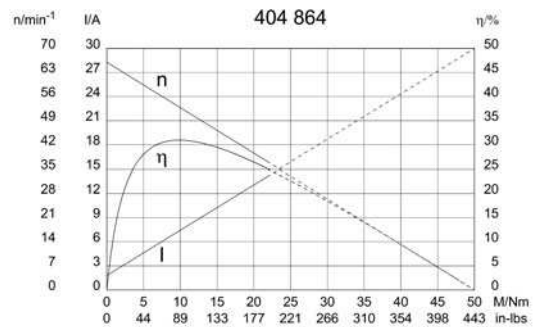
Other data	
Gear ratio	69/1
Gear wheel material	plastic
Suppression components	3,5 $\mu$ H, 1 $\mu$ F
Enclosure class	IP 30
Weight [kg]	1.210

Remarks: d = for thread-forming screw M6 DIN ISO 965-2

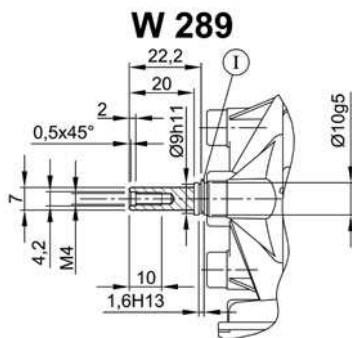
### Characteristic curves



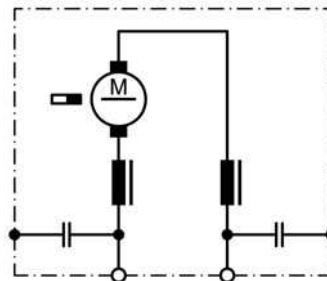
### Motor picture



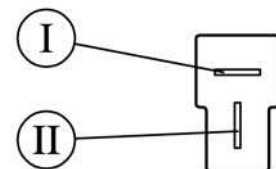
### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



### S 30



### K 320



I Circlip

Flat plug (DIN 46244) 6,3x0,8 mating with receptacle housing part#180907, drwg# C-180907& Receptacles for tabs, conductor cross section 0,5-1,5 sqmm (20-18AWG) part# 925603-x, drwg# 925603 [www.tycoelectronics.com](http://www.tycoelectronics.com)









Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A: ball - B:sleeve

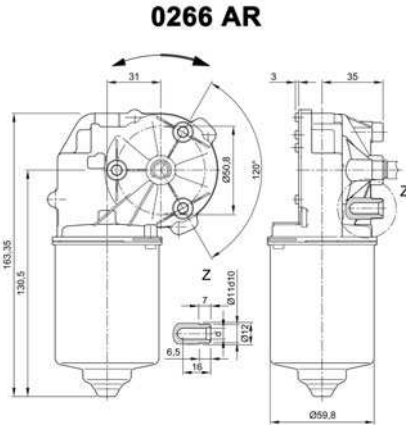
Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	6.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	35.0
Nominal power [W]	$P_N$	19.2
Nominal current [A]	$I_N$	3.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

Sensor data	
Pulses	0
Output channels	0

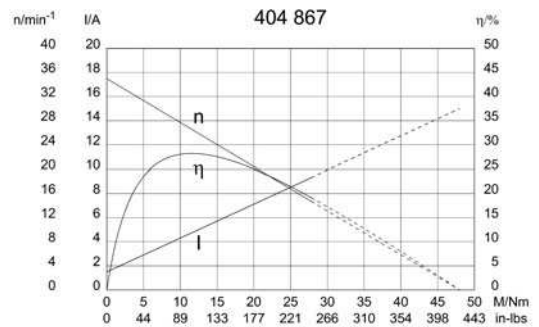
Other data	
Gear ratio	69/1
Gear wheel material	plastic
Suppression components	$6\mu\text{H}$ , $1\text{nF}$
Enclosure class	IP 30
Weight [kg]	1.210

Remarks: d = for thread-forming screw M6 DIN ISO 965-2

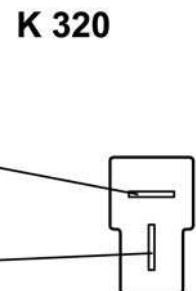
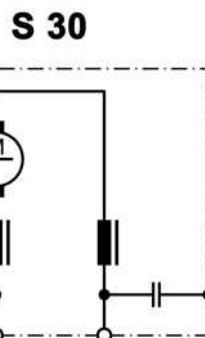
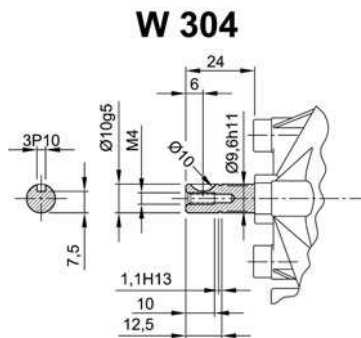
### Characteristic curves



### Motor picture



### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



Flat plug (DIN 46244) 6,3x0,8 mating with receptacle housing part#180907, drwg# C-180907& Receptacles for tabs, conductor cross section 0,5-1,5 sqmm (20-18AWG) part# 925603-x, drwg# 925603 [www.tycoelectronics.com](http://www.tycoelectronics.com)



Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A:Ball - B:Sleeve

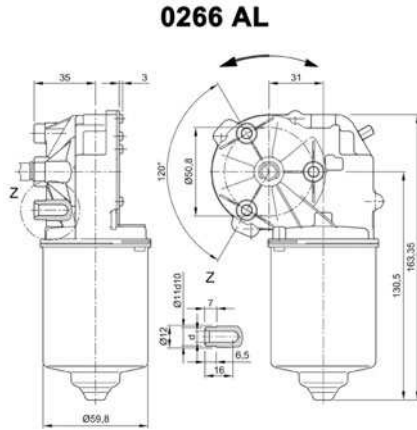
Performance data		
Rated voltage [V]	$U_N$	12
Nominal torque [Nm]	$M_N$	4.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	30.0
Nominal power [W]	$P_N$	10.8
Nominal current [A]	$I_N$	3.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

Sensor data	
Pulses	0
Output channels	0

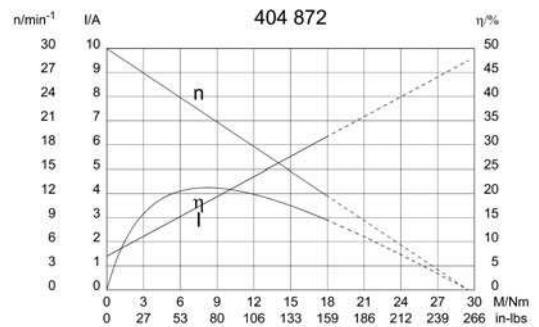
Other data	
Gear ratio	69/1
Gear wheel material	plastic
Suppression components	6 $\mu$ H
Enclosure class	IP 30
Weight [kg]	1.210

Remarks: d = for thread-forming screw M6 DIN ISO 965-2

### Characteristic curves

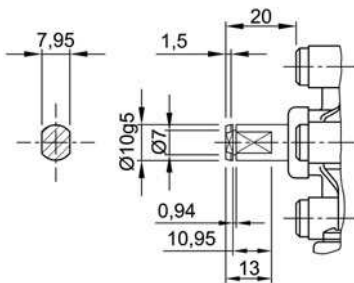


### Motor picture

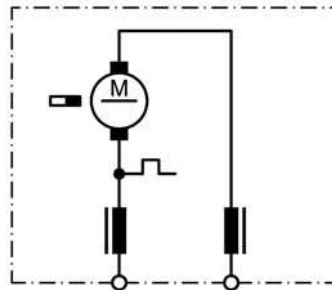


### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)

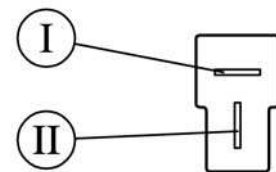
#### W 252



#### S 25



#### K 320



Flat plug (DIN 46244) 6,3x0,8 mating with receptacle housing part#180907, drwg# C-180907& Receptacles for tabs, conductor cross section 0,5-1,5 sqmm (20-18AWG) part# 925603-x, drwg# 925603 [www.tycoelectronics.com](http://www.tycoelectronics.com)

Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A:Ball - B:Sleeve

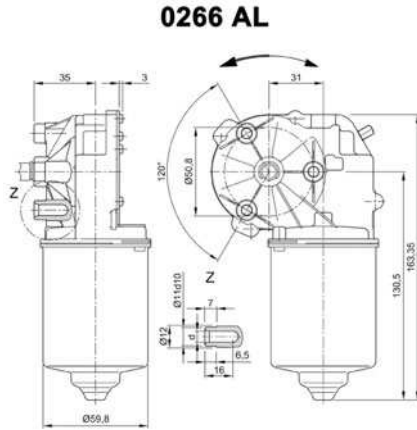
Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	2.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	160.0
Nominal power [W]	$P_N$	30.9
Nominal current [A]	$I_N$	4.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

Sensor data	
Pulses	1
Output channels	2

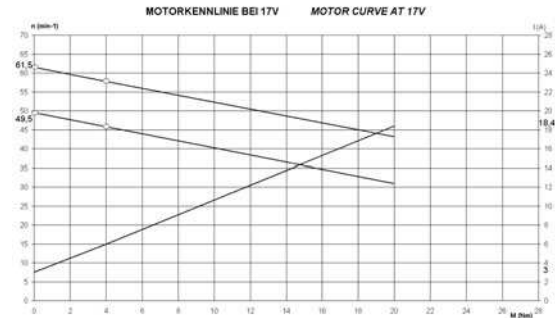
Other data	
Gear ratio	53/2
Gear wheel material	plastic
Suppression components	$6\mu\text{H}, 1\text{nF}$
Enclosure class	IP 30
Weight [kg]	1.210

Remarks: d= for thread forming screw M6 DIN ISO 965-2

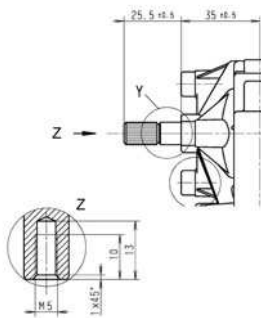
### Characteristic curves



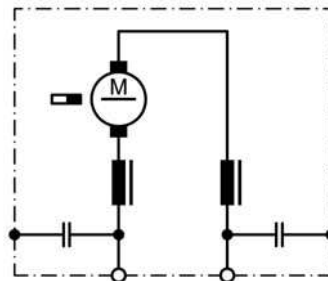
### Motor picture



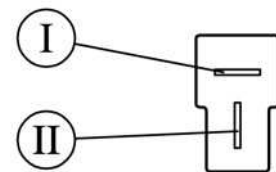
### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



### S 30



### K 320



I serration (rolled): **No teeth 28, pitch circle dia 9 mm, tip circle dia 9.6 mm, root circle dia 8.26 mm space width angle 60° - go/no go gauge** Frenco 33906 - [www.frenco.de](http://www.frenco.de)

Flat plug (DIN 46244) 6,3x0,8 mating with receptacle housing part#180907, drwg# C-180907& Receptacles for tabs, conductor cross section 0,5-1,5 sqmm (20-18AWG) part# 925603-x, drwg# 925603 [www.tycoelectronics.com](http://www.tycoelectronics.com)

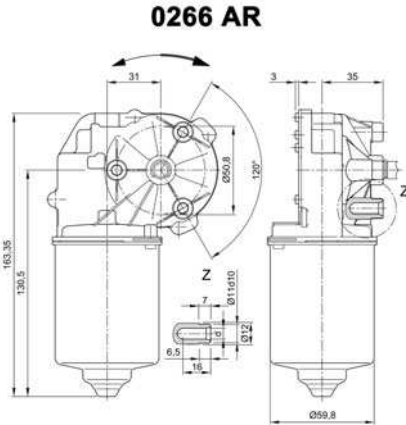
Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A: Ball - B:Sleeve

Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	3.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	14.0
Nominal power [W]	$P_N$	3.60
Nominal current [A]	$I_N$	1.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

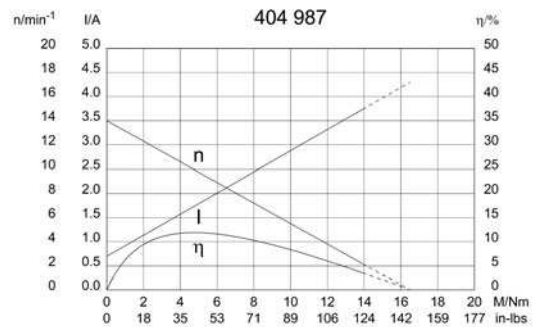
Sensor data	
Pulses	234
Output channels	1

Other data	
Gear ratio	78/1
Gear wheel material	bronze
Suppression components	$6\mu\text{H}, 1\text{nF}$
Enclosure class	IP 30
Weight [kg]	1.210

Remarks: d = for thread-forming screw M6 DIN ISO 965-2

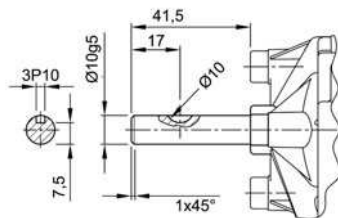


### Motor picture

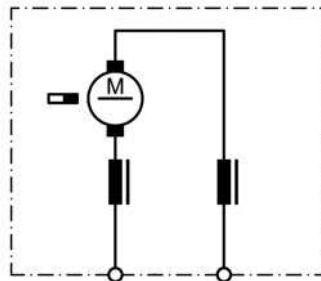


### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)

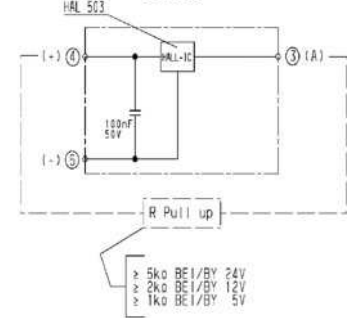
#### W 327



#### S 27



#### S150





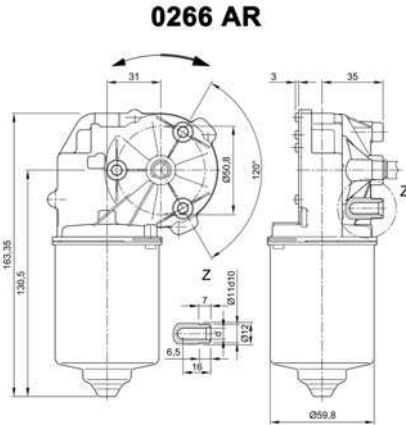
Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A: ball - B: sleeve

Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	4.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	36.0
Nominal power [W]	$P_N$	12.9
Nominal current [A]	$I_N$	3.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

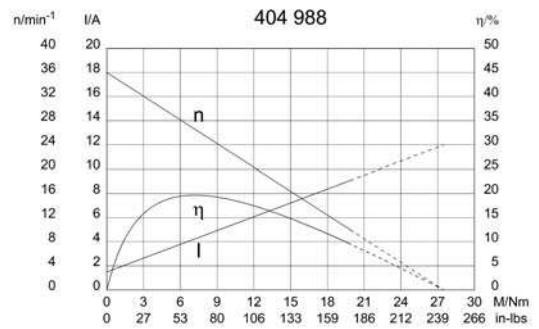
Sensor data	
Pulses	207
Output channels	1

Other data	
Gear ratio	69/1
Gear wheel material	plastic
Suppression components	$6\mu\text{H}$ , $1\text{nF}$
Enclosure class	IP 30
Weight [kg]	1.210

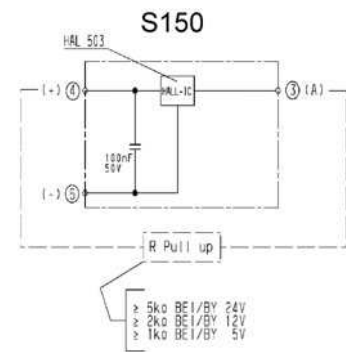
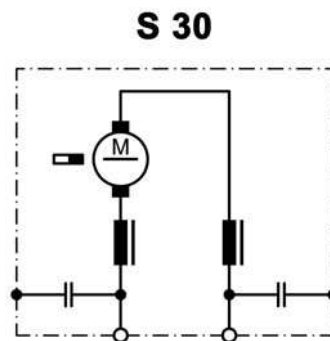
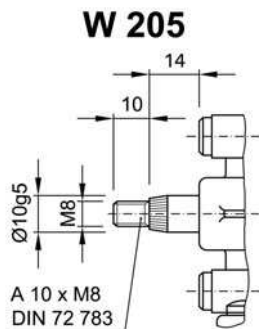
Remarks: d = for thread-forming screw M6 DIN ISO 965-2



### Motor picture



### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)









Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A:Ball- B:Sleeve

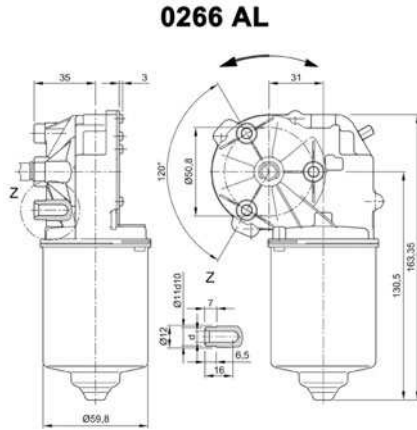
Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	1.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	270.0
Nominal power [W]	$P_N$	24.5
Nominal current [A]	$I_N$	3.0
Nominal force [kN]	$F_N$	0.00
Duty cycle		s1

Sensor data	
Pulses	10.25
Output channels	1

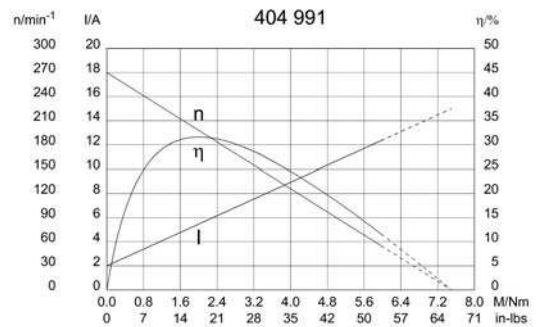
Other data	
Gear ratio	41/4
Gear wheel material	plastic
Suppression components	$6\mu\text{H}$ , $1\text{nF}$
Enclosure class	IP 30
Weight [kg]	1.250

Remarks: d = for thread-forming screw M6 DIN ISO 965-2

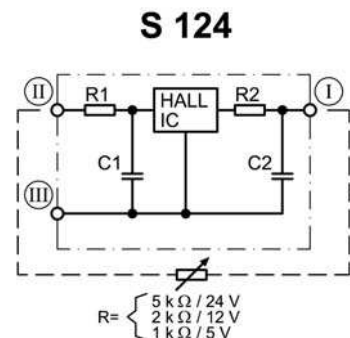
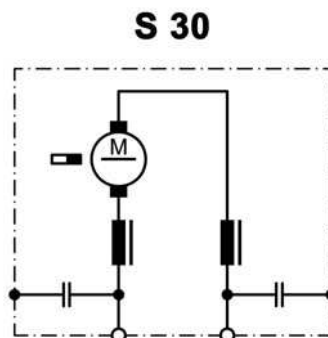
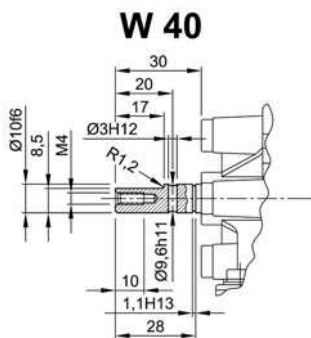
### Characteristic curves



### Motor picture



### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



- I Terminal 3, A
- II Terminal 4, +
- III Terminal 5, -



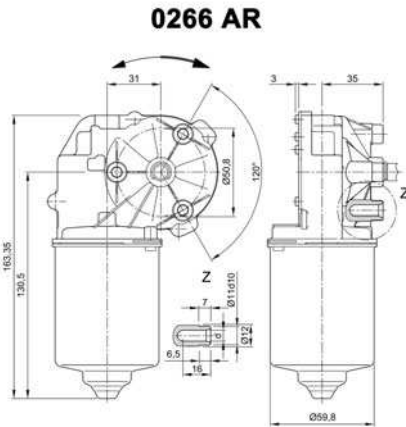
Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A:Ball - B:Sleeve

Performance data		
Rated voltage [V]	$U_N$	12
Nominal torque [Nm]	$M_N$	4.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	21.0
Nominal power [W]	$P_N$	7.79
Nominal current [A]	$I_N$	3.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

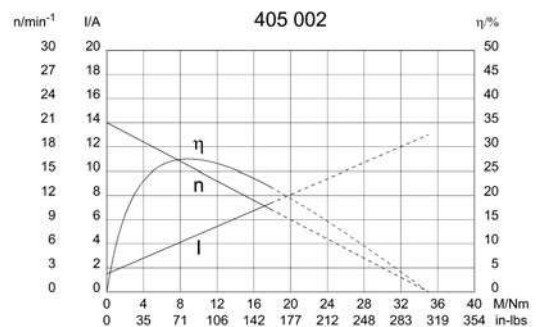
Sensor data	
Pulses	0
Output channels	0

Other data	
Gear ratio	69/1
Gear wheel material	plastic
Suppression components	3,5 $\mu$ H, 1 $\mu$ F
Enclosure class	IP 30
Weight [kg]	1.210

Remarks: d = for thread-forming screw M6 DIN ISO 965-2

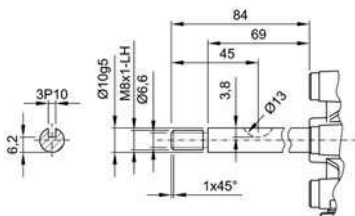


### Motor picture

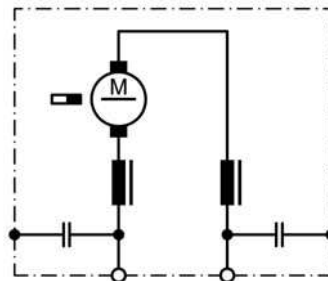


### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)

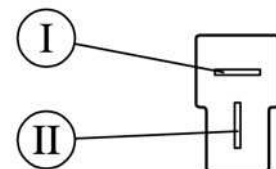
#### W 120



#### S 30



#### K 320



Flat plug (DIN 46244) 6,3x0,8 mating with receptacle housing part#180907, drwg# C-180907& Receptacles for tabs, conductor cross section 0,5-1,5 sqmm (20-18AWG) part# 925603-x, drwg# 925603 [www.tycoelectronics.com](http://www.tycoelectronics.com)

Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A:Ball - B:Sleeve

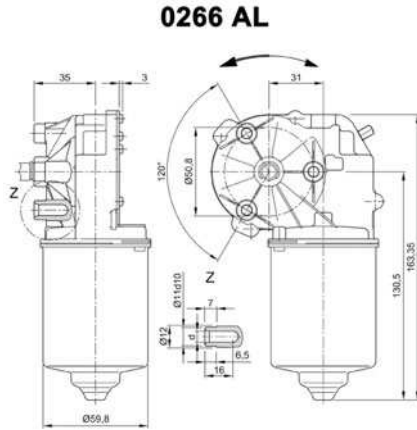
Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	4.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	65.0
Nominal power [W]	$P_N$	25.0
Nominal current [A]	$I_N$	3.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

Sensor data	
Pulses	69
Output channels	2

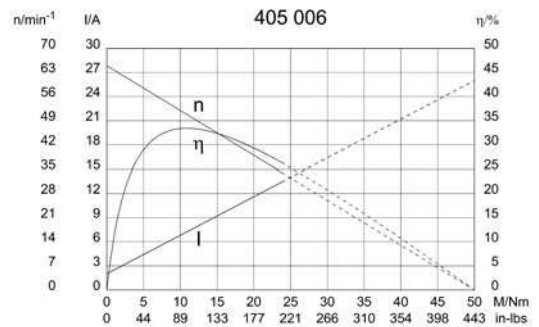
Other data	
Gear ratio	69/1
Gear wheel material	plastic
Suppression components	6 $\mu$ H
Enclosure class	IP 30
Weight [kg]	1.250

Remarks: d = for thread-forming screw M6 DIN ISO 965-2

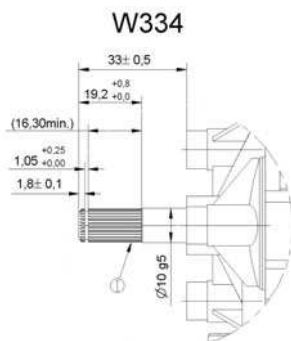
### Characteristic curves



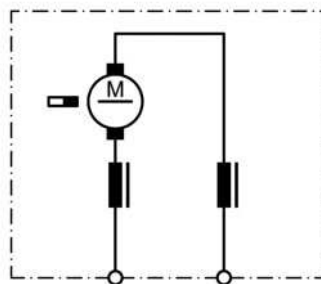
### Motor picture



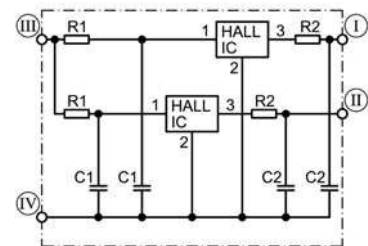
### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



### S 27



### S 141



I serration (rolled): no of teeth 28, pitch circle dia 9 mm, tip circle dia 9.6 mm, root circle dia 8.26 mm space width angle 60° - go/no go gauge Frenco 33906 - www.frenco.de

I Hall-IC A1, terminal 3  
 II Hall-IC A2, terminal 4  
 III Hall-IC +, terminal 5  
 IV Hall-IC -, terminal 6



Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A: Ball - B: Sleeve

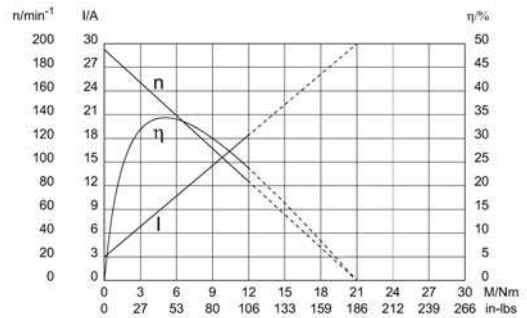
Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	4.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	195.0
Nominal power [W]	$P_N$	59.9
Nominal current [A]	$I_N$	8.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

Sensor data	
Pulses	26.5
Output channels	2

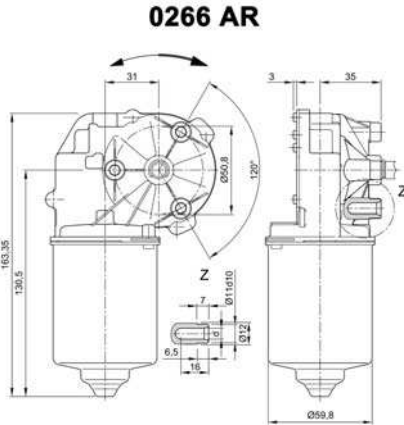
Other data	
Gear ratio	53/2
Gear wheel material	Plastic
Suppression components	6.0 $\mu\text{H}$ , 1nF
Enclosure class	IP30
Weight [kg]	1.210

Remarks: d = for thread-forming screw M6 DIN ISO 965-2

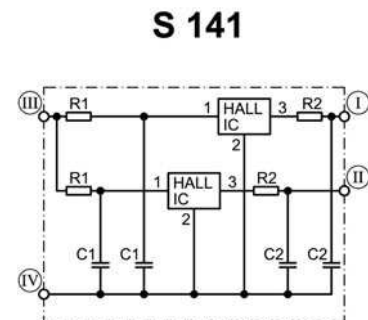
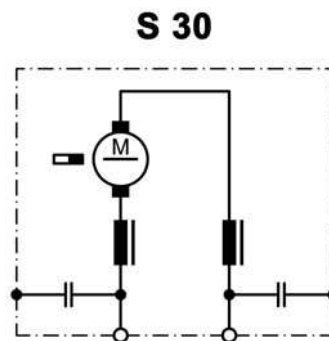
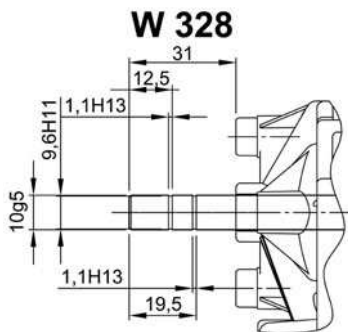
### Characteristic curves



### Motor picture



### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



- I Hall-IC A1, terminal 3
- II Hall-IC A2, terminal 4
- III Hall-IC +, terminal 5
- IV Hall-IC -, terminal 6



Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A:Ball - B:Sleeve

Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	4.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	55.0
Nominal power [W]	$P_N$	21.5
Nominal current [A]	$I_N$	5.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

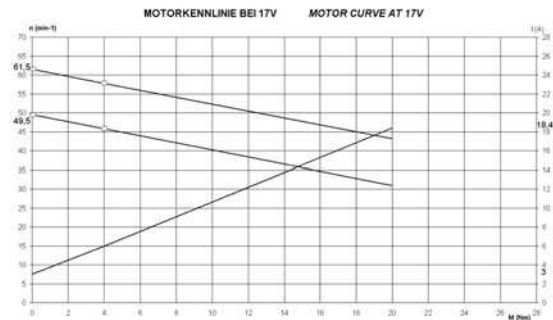
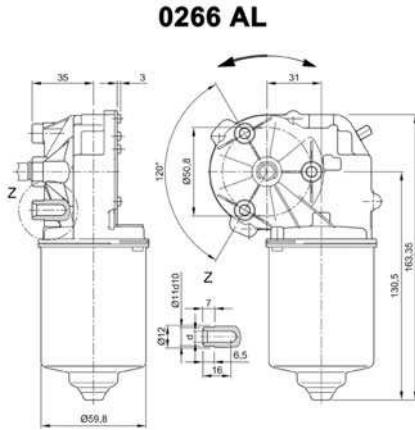
Sensor data	
Pulses	78
Output channels	1

Other data	
Gear ratio	78/1
Gear wheel material	plastic
Suppression components	$6\mu\text{H}$ , $1\text{nF}$
Enclosure class	IP 30
Weight [kg]	1.210

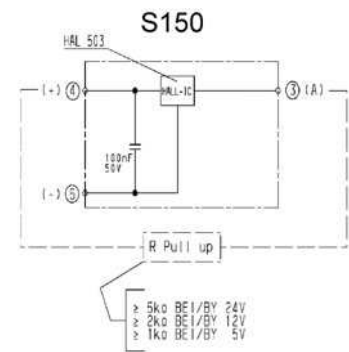
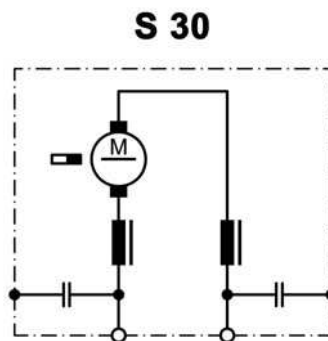
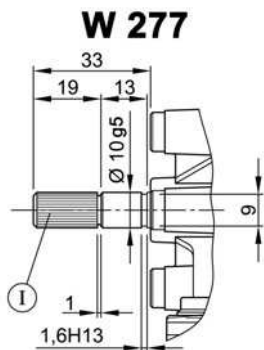
Remarks: d= for thread forming screw M6 DIN ISO 965-2

### Characteristic curves

### Motor picture



### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



I serration (rolled)  
 no of teeth 28, pitch circle dia 9 mm, tip circle dia 9.6 mm, root circle dia 8.26 mm space width angle 60°  
 goes with go/no go gauge Frenco 33906  
 www.frenco.de



Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A:Ball - B:Sleeve

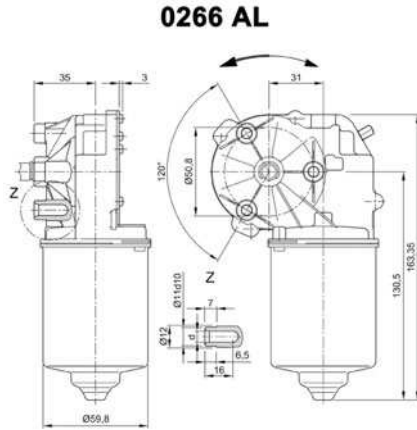
Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	4.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	90.0
Nominal power [W]	$P_N$	35.9
Nominal current [A]	$I_N$	5.0
Nominal force [kN]	$F_N$	0.00
Duty cycle	s1	

Sensor data	
Pulses	69
Output channels	1

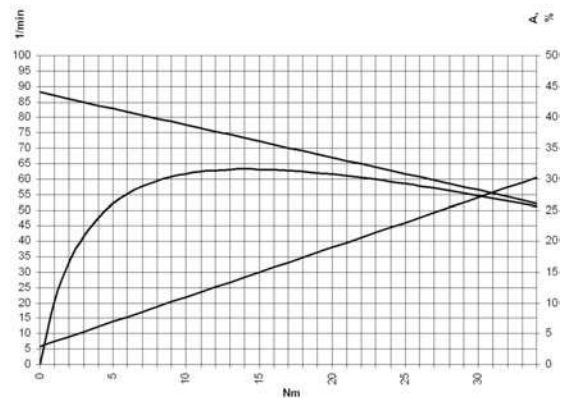
Other data	
Gear ratio	69/1
Gear wheel material	plastic
Suppression components	$6\mu\text{H}$ , $1\text{nF}$
Enclosure class	IP 30
Weight [kg]	1.210

Remarks: d=for thread forming screws M6 DIN-ISO 965-2

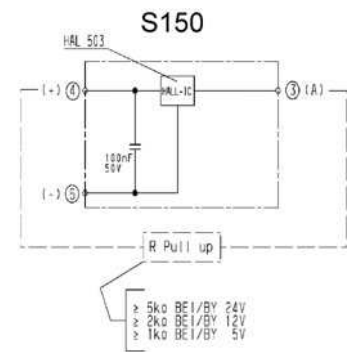
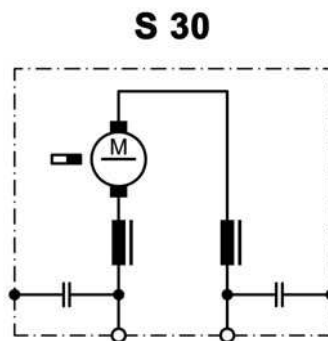
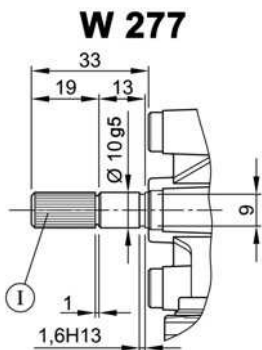
### Characteristic curves



### Motor picture



### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



I serration (rolled)  
 no of teeth 28, pitch circle dia 9 mm, tip circle dia 9.6 mm, root circle dia 8.26 mm space width angle 60°  
 goes with go/no go gauge Frenco 33906  
 www.frenco.de



Design Data	
Commutation	Brushed
Direction of rotation	Bi-directional
Bearing type	A: Ball - B: Sleeve

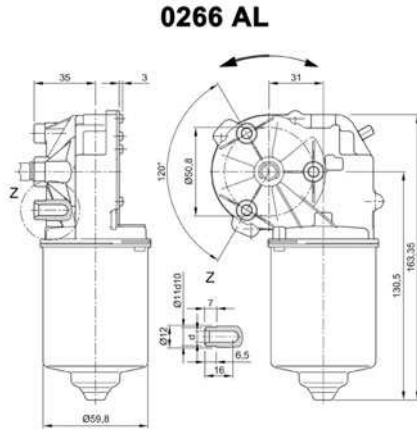
Performance data		
Rated voltage [V]	$U_N$	24
Nominal torque [Nm]	$M_N$	2.00
No-load speed [ $\text{min}^{-1}$ ]	$n_0$	120.0
Nominal power [W]	$P_N$	22.0
Nominal current [A]	$I_N$	4.0
Nominal force [kN]	$F_N$	0.00
Duty cycle		s1

Sensor data	
Pulses	79.5
Output channels	1

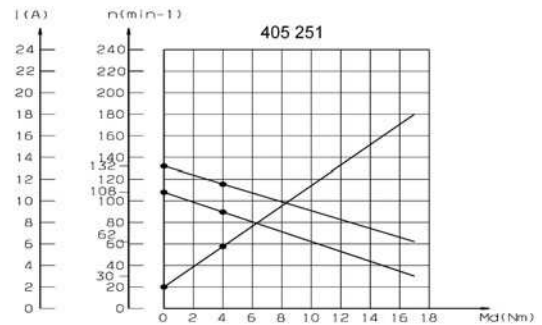
Other data	
Gear ratio	53/2
Gear wheel material	Plastic
Suppression components	6.0 $\mu$ H, 1nF
Enclosure class	IP30
Weight [kg]	1.210

Remarks: d = for thread-forming screw M6 DIN ISO 965-2

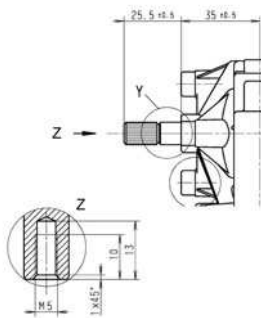
### Characteristic curves



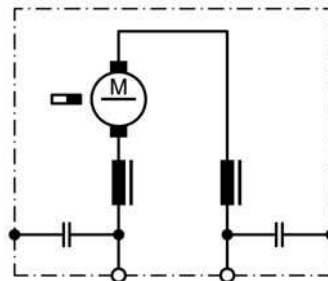
### Motor picture



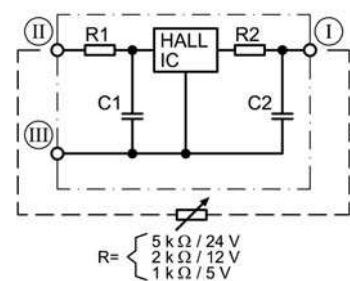
### Output shaft drawing (W), Wiring diagrams (S) and Connector layout (K)



### S 30



### S 124



I serration (rolled): **No teeth 28, pitch circle dia 9 mm, tip circle dia 9.6 mm, root circle dia 8.26 mm space width angle 60° - go/no go gauge Frenco 33906 - www.frenco.de**

I Terminal 3, A  
 II Terminal 4, +  
 III Terminal 5, -





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