DC Motors

GEFEG – NECKAR ANTRIEBSSYSTEME

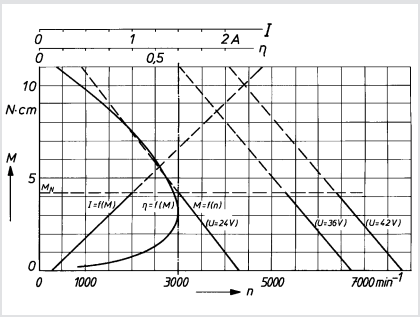
DC motor with permanent magnet

Properties:

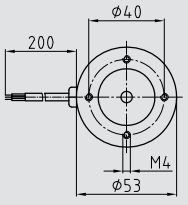
Connection:	Connection to the power supply, battery, PWM controller or control amplifier, residual ripple of the operating voltage max. 5% Cable connection, optional plug-in connector
Commutation:	Mechanical commutation using a 12-part commutator
Magnetic system:	2-pole permanent ferrite magnet
Service life:	5,000 h, S1 duty
Insulation mat. class:	B, optional F
System of protection:	IP 40, optional IP 65
Special model:	Design for short-time operation with high performance, additional voltages and speeds upon request
Options:	Special shafts, custom designed

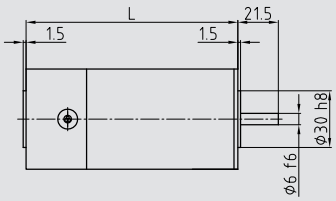
	Name			G 525	G 545	G 565
Type	Nominal voltages	U	DC voltage	24	24	24
Rate	Nominal power	P_2	W	14	26	29
	Nominal speed	n_{nom}	rpm	3000	3000	3000
	Nominal torque	T_{nom}	Ncm	4.2	8	9
	Nominal current	I_{nom}	A	1.0	1.5	1.6
	Starting torque	T_S	Ncm	13.5	39	43
	Idling speed	n_{idle}	rpm	3800	3650	3750
	No-load current	I_0	A	0.2	0.2	0.2
Characteristics	Gradient speed torque curve	1 / k	mNm / rpm		0.12	0.14
	Speed constant	c_n	rpm / V		121	141
	Torque constant	c_T	Ncm / A		4.71	4.76
	Nominal efficiency	η		0.73	0.60	0.71
Connection	Terminal resistance	R	Ohm		4.0	2.6
	Rated input power	P_1	W	24	36	39
Dynamics	Weight	m	kg	0.47	0.6	0.8
	Moment of inertia	J	gcm^2	158	205	295
	Mech. time constant	τ_M	ms		18	22
Thermal	Adm. ambient temperature	T	°C	-20 to +40	-20 to +40	-20 to +40
	Max. adm. rotor temperature	T_{max}	°C	+120	+120	+120
Coupling	Shaft diameter	d	mm	6	6	6
	Max. axial force	F_a	N	8	8	8
	Max. radial force	F_r	N	100	100	100

Dimensions - Characteristics



Type	L / mm
G 525	72
G 545	92
G 565	112





System technology

Recommended combinations
other gears and extensions upon request

Worm gear	S 567	
Spur gear	Z 6	Z 5
Planetary gear	PM 40	PM 50
Rotary encoder		
Brake	BFK 457	
Electronics	UCE 24	

Last modified: 10/2016

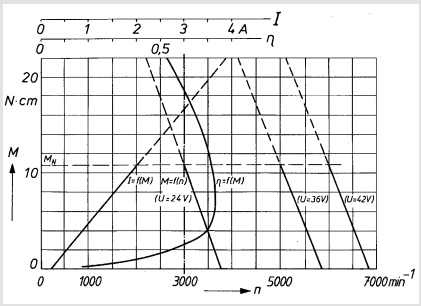
DC motor with permanent magnet

Properties:

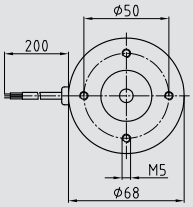
Connection:	Connection to the power supply, battery, PWM controller or control amplifier, residual ripple of the operating voltage max. 5% Cable connection, optional plug-in connector
Commutation:	Mechanical commutation using a 12-part commutator
Magnetic system:	2-pole permanent ferrite magnet
Service life:	5,000 h, S1 operation
Insulation mat. class:	B, optional F
System of protection:	IP 40, optional IP 65
Special model:	Design for short-time duty with high performance, additional voltages and speeds upon request
Options:	Special shafts, custom designed

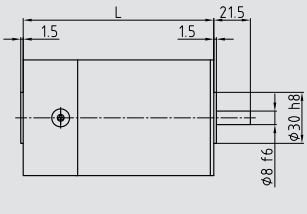
Type	Name			G 645	G 665	G 665 S
	Nominal voltage	U	DC voltage	24	24	24
Rate	Nominal power	P_2	W	34	58.1	74.4
	Nominal speed	n_{nom}	rpm	3000	3000	3000
	Nominal torque	T_{nom}	Ncm	10.8	18.5	24.5
	Nominal current	I_{nom}	A	2	3.2	4.3
	Starting torque	T_A	Ncm	48	114	130
	Idling speed	n_{idle}	rpm	3700	3550	3600
	No-load current	I_0	A	0.3	0.3	0.4
Characteristics	Gradient speed torque curve	1 / k	mNm / rpm		0.47	0.67
	Speed constant	c_n	rpm / V		135	123
	Torque constant	c_T	Ncm / A		5.33	6.04
	Nominal efficiency	η		0.71	0.76	0.78
Connection	Terminal resistance	R	Ohm		0.8	0.8
	Rated input power	P_1	W	48	77	103
Dynamics	Weight	m	kg	1.2	1.5	1.6
	Moment of inertia	J	gcm²	400	665	850
	Mech. time constant	τ_M	ms		15	13
Thermal	Adm. ambient temperature	T	°C	-20 to +40	-20 to +40	-20 to +40
	max. adm. rotor temperature	T_{max}	°C	+120	+120	+120
Coupling	Shaft diameter	d	mm	8	8	8
	Max. axial force	F_a	N	20	20	20
	Max. radial force	F_r	N	220	220	220

Dimensions - Characteristics



Type	L / mm
G 645	92
G 665	112
G 665 S	112





System technology

Recommended combinations other gears and extensions upon request	Worm gear	**GS 3**	S 668	S 567
	Spur gear	**Z 6**	Z 8	M 7
	Planetary gear	**PM 50**		
	Rotary encoder	RV 30	RI 30	
	Brake	B 77		
	Electronics	UCE 24		

Last modified: 10/2016

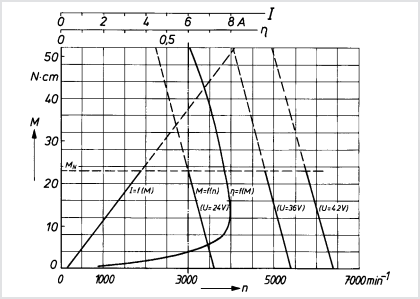
DC motor with permanent magnet

Properties:

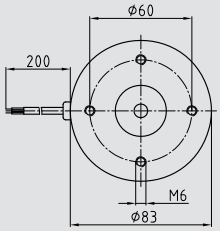
Connection:	Connection to the power supply, battery, PWM controller or control amplifier, residual ripple of the operating voltage max. 5% Cable connection, optional plug-in connector
Commutation:	Mechanical commutation using a 12-part commutator
Magnetic system:	2-pole permanent ferrite magnet
Service life:	5,000 h, S1 duty
Insulation mat. class:	B, optional F
System of protection:	IP 40, optional IP 65
Special model:	Design for short-time operation with high performance, additional voltages and speeds upon request
Options:	Special shafts, custom designed

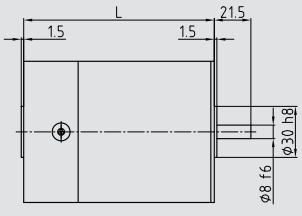
Type	Name			G 865	G 865 S		
	Nominal voltages	U	DC voltage	24	24		
Rate	Nominal power	P_2	W	72.0	95		
	Nominal speed	n_{nom}	rpm	3000	3000		
	Nominal torque	T_{nom}	Ncm	23	30.2		
	Nominal current	I_{nom}	A	3.9	5		
	Starting torque	T_A	Ncm	130	160		
	Idling speed	n_{idle}	rpm	3600	3700		
	No-load current	I_0	A	0.4	0.4		
Characteristics	Gradient speed torque curve	1 / k	mNm / rpm	0.58	0.63		
	Speed constant	c_n	rpm / V	129	129		
	Torque constant	c_T	Ncm / A	5.32	5.47		
	Nominal efficiency	η		0.72	0.75		
Connection	Terminal resistance	R	Ohm	0.7	0.7		
	Rated input power	P_1	W	113	127		
Dynamics	Weight	m	kg	2.1	2.2		
	Moment of inertia	J	gcm^2	1325	1725		
	Mech. time constant	τ_M	ms	24	29		
Thermal	Adm. ambient temperature	T	°C	-20 to +40	-20 to +40		
	Max. adm. rotor temperature	T_{max}	°C	+120	+120		
Coupling	Shaft diameter	d	mm	8	8		
	Max. axial force	F_a	N	20	20		
	Max. radial force	F_r	N	220	220		

Dimensions - Characteristics



Type	L / mm
G 865	112
G 865 S	112





System technology

Recommended combinations
other gears and extensions upon request

Worm gear	**S 668**	S 769	SC 401
Spur gear	**Z 8**	M 7	M 10
Planetary gear	**PM 60**	PM 80	
Rotary encoder	RV 30	RI 30	
Brake	B 77		
Electronics	UCE 24		

Last modified: 10/2016

GEFEG –
NECKAR
ANTRIEBSSYSTEME

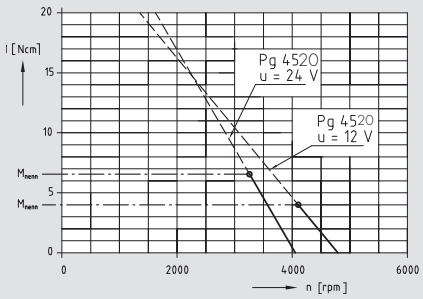
DC motor with permanent magnet

Properties:

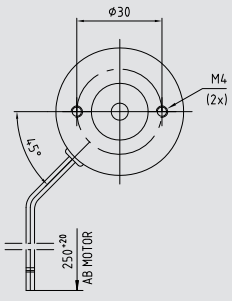
Connection:	Connection to the power supply, battery, PWM controller or control amplifier, residual ripple of the operating voltage max. 5% Cable connection
Commutation:	Mechanical commutation using a 12-part commutator
Magnetic system:	2-pole Samarium-Cobalt permanent magnet
Service life:	2,000 h, S1 duty
Insulation mat. class:	B
System of protection:	IP 41
Special model:	Design for short-time operation with high performance, additional voltages and speeds upon request
Options:	Special shafts

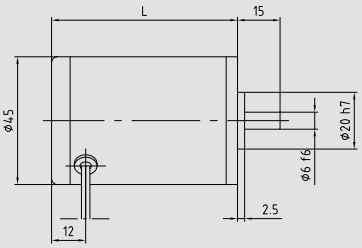
Type	Name Nominal voltage	U	DC voltage	Pg 4520 12	Pg 4520 24	Pg 4525 12	Pg 4525 24
Rate	Nominal power	P_2	W	17.5	22.5	30,5	32
	Nominal speed	n_{nom}	rpm	4200	3250	4750	3400
	Nominal torque	T_{nom}	Ncm	4.0	6.6	6,2	9,0
	Nominal current	I_{nom}	A	2.5	1.5	3,9	2,0
	Starting torque	T_S	Ncm	35	38	38	54
	Idling speed	n_{idle}	rpm	4800	4050	5350	4150
	No-load current	I_0	A	0.6	0.2	0,8	0,3
Characteristics	Gradient speed torque curve	1 / k	mNm / rpm	0.08	0.10	0,07	0,13
	Speed constant	c_n	rpm / V	348	136	394	142
	Torque constant	c_T	Ncm / A	1.63	4.34	1,57	4,5
	Nominal efficiency	η		0.59	0.62	0.65	0.67
Connection	Terminal resistance	R	Ohm	1.2	3.8	1,2	1,9
	Rated input power	P_1	W	29.5	36.5	47,5	48
Dynamics	Weight	m	kg	0.4	0.4	0,5	0,5
	Moment of inertia	J	gcm^2	120	120	135	135
	Mech. time constant	τ_M	ms	14	14	11	11
Thermal	Adm. ambient temperature	T	°C	-20 to +40	-20 to +40	-20 to +40	-20 to +40
	Max. adm. rotor temperature	T_{max}	°C	+120	+120	+120	+120
Coupling	Shaft diameter	d	mm	6	6	6	6
	Max. axial force	F_a	N	8	8	8	8
	Max. radial force	F_r	N	100	100	100	100

Dimensions - Characteristics



Type	L / mm
Pg 4520	65,5
Pg 4525	75,5





System technology

Recommended combinations
other gears and extensions upon request

Worm gear	S 345
Spur gear	
Planetary gear	PM 40
Rotary encoder	
Brake	
Electronics	UCE 24

Last modified: 10/2016

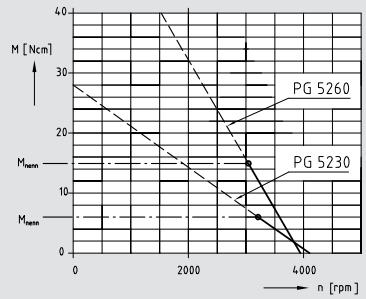
DC motor with permanent magnet

Properties:

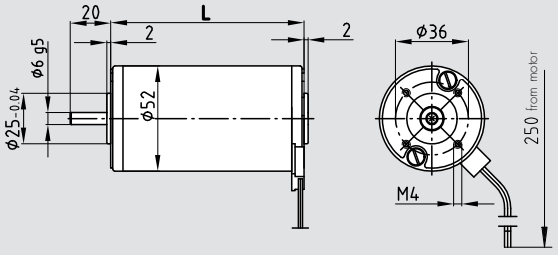
Connection:	Connection to the power supply, battery, PWM controller or control amplifier, residual ripple of the operating voltage max. 5% Cable connection, optional plug-in connector
Commutation:	Mechanical commutation using a 12-part commutator
Magnetic system:	2-pole permanent ferrite magnet
Service life:	3,000 h, S1 duty
Insulation mat. class:	B, optional F
System of protection:	IP 40, optional IP 54
Special model:	Design for short-time operation with high performance, additional voltages and speeds upon request
Options:	Special shafts, custom designed

Type	Name Nominal voltage	U	Volt DC	**Pg 5230** 12	**Pg 5230** 24	**Pg 5260** 12	**Pg 5260** 24
Rate	Nominal power	P_2	W	28.0	28	54.0	54.0
	Nominal speed	n_{nom}	rpm	3000	3000	3000	3000
	Nominal torque	T_{nom}	Ncm	9	9	17	17
	Nominal current	I_{nom}	A	3.6	1.6	6.0	3.0
	Starting torque	T_S	Ncm	45	45	90	90
	Idling speed	n_{idle}	rpm	3930	3680	3650	3510
	No-load current	I_0	A	0.58	0.26	0.61	0.30
Characteristics	Gradient speed torque curve	1 / k	mNm / rpm	0.13	0.13	0.24	0.28
	Speed constant	c_n	rpm / V	250	133.3	244	127
	Torque constant	c_T	Ncm / A	2.42	4.62	2.76	5.28
	Nominal efficiency	η		0.65	0.72	0.75	0.75
Connection	Terminal resistance	R	Ohm	0.5	3.4	0.5	3.9
	Rated input power	P_1	W	43	39	72	72
Dynamics	Weight	m	kg	0.7	0.7	1.0	1.0
	Moment of inertia	J	gcm²	257	257	442	442
	Mech. time constant	τ_M	ms	22	22	17	17
Thermal	Adm. ambient temperature	T	°C	-20 to +40	-20 to +40	-20 to +40	-20 to +40
	Max. adm. rotor temperature	T_{max}	°C	+120	+120	+120	+120
Coupling	Shaft diameter	d	mm	6	6	6	6
	Max. axial force	F_a	N	8	8	8	8
	Max. radial force	F_r	N	100	100	100	100

Dimensions - Characteristics



Type	L / mm
Pg 5230	95.5
Pg 5230	95.5
Pg 5260	125.5
Pg 5260	125.5



System technology

Recommended combinations other gears and extensions upon request			
	Worm gear	GS 1	S 567
	Spur gear	Z 5	
	Planetary gear	PM 40	
	Rotary encoder		
	Brake	BFK 457	
	Electronics	UCE 24	

Last modified: 10/2016

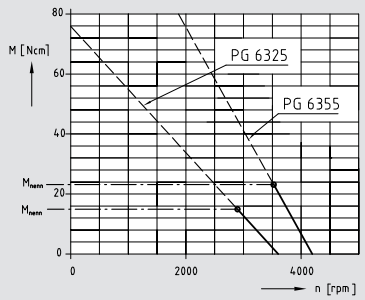
DC motor with permanent magnet

Properties:

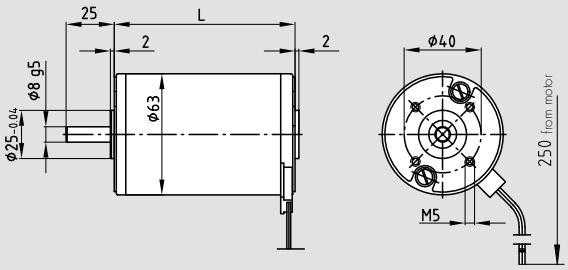
Connection:	Connection to the power supply, battery, PWM controller or control amplifier, residual ripple of the operating voltage max. 5% Cable connection, optional plug-in connector
Commutation:	Mechanical commutation using a 12-part commutator
Magnetic system:	2-pole permanent ferrite magnet
Service life:	3,000 h, S1 duty
Insulation mat. class:	B, optional F
System of protection:	IP 40, optional IP 54
Special model:	Design for short-time operation with high performance, additional voltages and speeds upon request
Options:	Special shafts, custom designed

Type	Name Nominal voltage		U	Volt DC	Pg 6325 12	Pg 6325 24	Pg 6355 12	Pg 6355 24
Rate	Nominal power		P_2	W	44	44	85	85
	Nominal speed		n_{nom}	rpm	3000	3000	3000	3000
	Nominal torque		T_{nom}	Ncm	14	14	27	27
	Nominal current		I_{nom}	A	5.1	2.75	10.0	5
	Starting torque		T_S	Ncm	80	90	180	230
	Idling speed		n_{idle}	rpm	3590	3750	3600	3300
	No-load current		I_0	A	1.0	0.6	1.1	0.5
Characteristics	Gradient speed torque curve		1 / k	mNm / rpm	0.23	0.28	0.54	0.63
	Speed constant		c_n	rpm / V	256.6	121	245.4	147.4
	Torque constant		c_T	Ncm / A	2.45	5.48	2.67	5.0
	Nominal efficiency		η		0.72	0.67	0.71	0.71
Connection	Terminal resistance		R	Ohm	1.3	1.7	0.8	0.7
	Rated input power		P_1	W	61	66	120	120
Dynamics	Weight		m	kg	1.1	1.1	1.6	1.6
	Moment of inertia		J	gcm^2	563	563	1020	1020
	Mech. time constant		τ_M	ms	27	27	20	20
Thermal	Adm. ambient temperature		T	°C	-20 to +40	-20 to +40	-20 to +40	-20 to +40
	Max. adm. rotor temperature		T_{max}	°C	+120	+120	+120	+120
Coupling	Shaft diameter		d	mm	8	8	8	8
	Max. axial force		F_a	N	20	20	20	20
	Max. radial force		F_r	N	220	220	220	220

Dimensions - Characteristics



Type	L / mm
Pg 6325	94
Pg 6325	94
Pg 6355	124
Pg 6355	124



System technology

Recommended combinations
other gears and extensions upon request

Worm gear	GS 3		
Spur gear	Z 6	Z 8	M 7
Planetary gear	PM 50		
Rotary encoder	RV 30	RI 30	
Brake	B 77		
Electronics	UCE 24		

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GEFEG –
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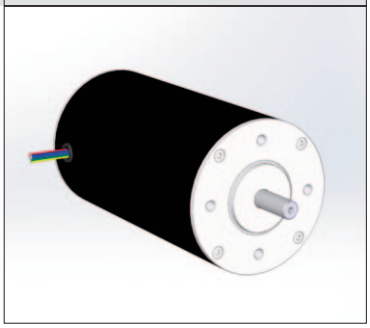
ANTRIEBSSYSTEME

PN 68

DC motor with permanent magnet



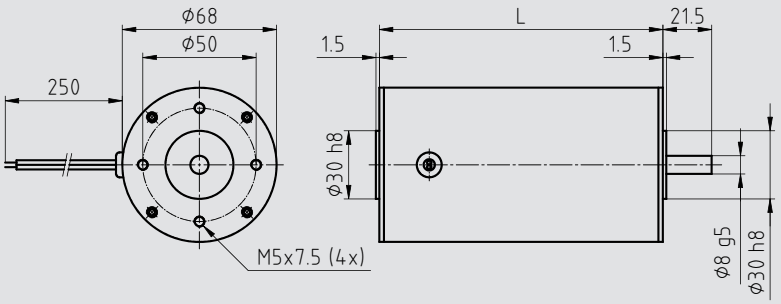
Properties:

Connection:	Connection to the power supply, battery, PWM controller or control amplifier, residual ripple of the operating voltage max. 5% Cable connection, optional plug-in connector
Commutation:	Mechanical commutation using a 12-part commutator
Magnetic system:	2-pole permanent ferrite magnet
Service life:	3,000 h, S1 duty
Insulation mat. class:	F
System of protection:	IP 40, optional IP 54
Special model:	Design for short-time duty with high performance, additional voltages and speeds upon request
Options:	Special shafts, custom designed

Type	Name			PN6830	PN6860	PN6890	
	Nominal voltage	U	Volt DC	24	24	24	
Rate	Nominal power	P_2	W	68	104	130	
	Nominal speed	n_{nom}	rpm	3250	3300	3100	
	Nominal torque	T_{nom}	Ncm	20	30	40	
	Nominal current	I_{nom}	A	4.0	5.6	6.9	
	Starting torque	T_S	Ncm				
	Idling speed	n_{idle}	rpm	3750	3700	3400	
	No-load current	I_0	A	0.35	0.4	0.5	
Characteristics	Gradient speed torque curve	1 / k	mNm / rpm				
	Speed constant	c_n	rpm / V				
	Torque constant	c_T	Ncm / A				
	Nominal efficiency	η		0.72	0.78	0.79	
Connection	Terminal resistance	R	Ohm				
	Rated input power	P_1	W				
Dynamics	Weight	m	kg				
	Moment of inertia	J	gcm^2				
	Mech. time constant	τ_M	ms				
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40	-20 to +40	
	Max. adm. rotor temperature	T_{max}	°C	+155	+155	+155	
Coupling	Shaft diameter	d	mm				
	Max. axial force	F_a	N				
	Max. radial force	F_r	N				

Dimensions

Type	L / mm
PN 6830	95
PN 6860	125
PN 6890	155

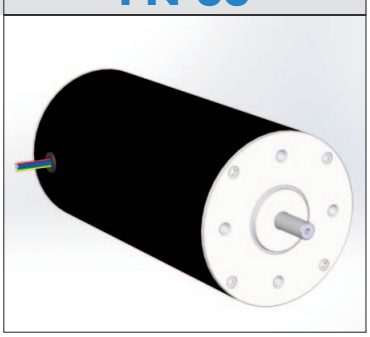


System technology

Recommended combinations other gears and extensions upon request	Worm gear	S 668	GS 3
	Spur gear	M 7	
	Planetary gear	PM 50	
	Rotary encoder	RV 30	
	Brake	B 77	
	Electronics	UCE 24	

Last modified: 10/2016

DC motor with permanent magnet



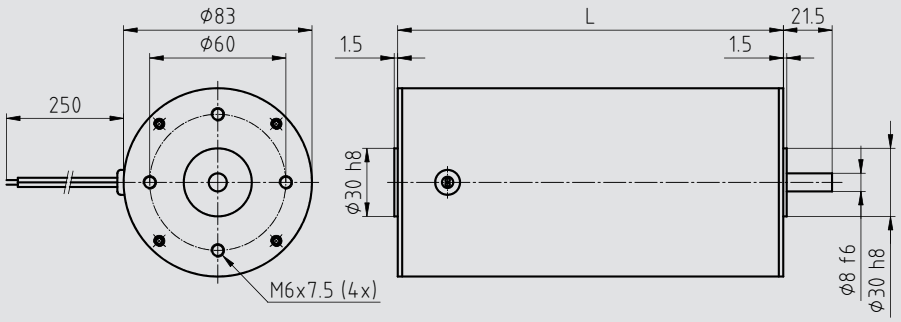
Properties:

Connection:	Connection to the power supply, battery, PWM controller or control amplifier, residual ripple of the operating voltage max. 5% Cable connection, optional plug-in connector
Commutation:	Mechanical commutation using a 12-part commutator
Magnetic system:	2-pole permanent ferrite magnet
Service life:	3,000 h, S1 duty
Insulation mat. class:	F
System of protection:	IP 40, optional IP 54
Special model:	Design for short-time duty with high performance, additional voltages and speeds upon request
Options:	Special shafts, custom designed

Type	Name			**PN 8340**	**PN 8390**		
	Nominal voltage	U	Volt DC	24	24		
Rate	Nominal power	P_2	W	126	190		
	Nominal speed	n_{nom}	rpm	3000	3000		
	Nominal torque	T_{nom}	Ncm	40	60		
	Nominal current	I_{nom}	A	6.75	9.85		
	Starting torque	T_S	Ncm				
	Idling speed	n_{idle}	rpm	3300	3200		
	No-load current	I_0	A	0.45	0.5		
Characteristics	Gradient speed torque curve	1 / k	mNm / rpm				
	Speed constant	c_n	rpm / V				
	Torque constant	c_T	Ncm / A				
	Nominal efficiency	η		0.78	0.80		
Connection	Terminal resistance	R	Ohm				
	Rated input power	P_1	W	162	236		
Dynamics	Weight	m	kg	3.32	3.8		
	Moment of inertia	J	gcm²				
	Mech. time constant	τ_M	ms				
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40		
	Max. adm. rotor temperature	T_{max}	°C	+155	+155		
Coupling	Shaft diameter	d	mm				
	Max. axial force	F_a	N				
	Max. radial force	F_r	N				

Dimensions

Type	L / mm
PN 8340	116
PN 8390	170



System technology

Recommended combinations other gears and extensions upon request	Worm gear	S 769	S 668	GS 3
	Spur gear	M 10		
	Planetary gear	PM 60		
	Rotary encoder	RV 30	RI 30	
	Brake	B 77		
	Electronics	UCE 24		

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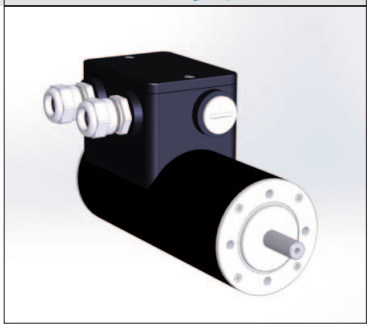
Brushless DC motor

MQ 5



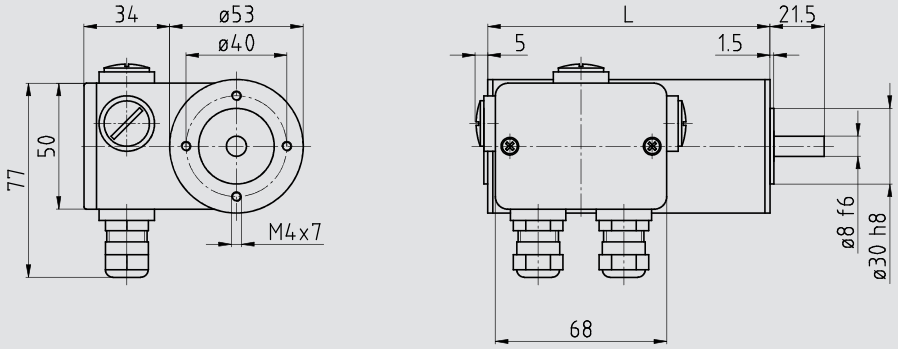
Properties:

Operation:	on the external standard controller (block commutation); Rotor position sensing by 3 hall sensors
Connection:	K4 terminal box for power supply and sensors
Rotor:	4-pole neodymium magnet, low cogging torque due to continuous angular magnetization
Service life:	20,000 h, S1 duty
Insulation mat. class:	F (155°C)
System of protection:	IP 44, optional up to IP 65 (IP 69)
Special Versions:	Design for short-time duty with higher performance, additional voltages and speeds upon request
Options:	Thermal protection, special shafts, special flanges, stainless steel

				MQ 543	**MQ 563**		
Type	Name						
	Nominal voltage	U	Volt DC	24	24		
Rate	Nominal power	P_2	W	70	114		
	Nominal speed	n_{nenn}	rpm	2890	3110		
	Nominal torque	M_{nenn}	Nm	0.23	0.35		
	Nominal current	I_{nennDC}	A	4.6	6.9		
	Nominal efficiency	η		0.64	0.69		
	Input power	P_1	W	110	166		
	Torque constant	k_M	Ncm/A	4.9	5.1		
	Max. current (2sec)	I_{max}	A	3 x I_{nennDC}	3 x I_{nennDC}		
	Max. torque	M_{max}	Nm	3 x M_{nenn}	3 x M_{nenn}		
	Cogging torque		mNm	-	-		
Idling	Idling speed	n_0	rpm	4000	4100		
	Idling current	I_0	A	0.7	0.7		
Short-time duty (S2 5min)	Speed	n_{nenn}	rpm	2400	2500		
	Torque	M_{nenn}	Nm	0.35	0.55		
	Current	I_{nennDC}	A	6.4	10.05		
Connection	Terminal resistance	R	mOhm	1040	600		
	Terminal inductance	L	µH	765	495		
Dynamics	Weight	m	kg	1.2	1.4		
	Moment of inertia	J	gcm^2	180	260		
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40		
	Max. adm. stator temperature	T_{max}	°C	+155 „ISO F"	+155 „ISO F"		
Coupling	Shaft diameter	d	mm	10	10		
	Max. axial force	F_a	N	40	40		
	Max. radial force	F_r	N	400	400		

Dimensions

Type	L / mm
MQ 543	112
MQ 563	132



System technology

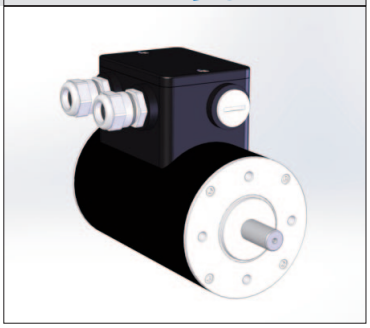
Recommended combinations
other gears and extensions upon request

Worm gear	S 668
Spur gear	M 7
Planetary gear	PM 50
Rotary encoder	RV 30 RI 30
Brake	B 77
Electronics	mcDSA-E45 or mcDSA-E65

Last modified: 10/2016

Brushless DC motor

MQ 6



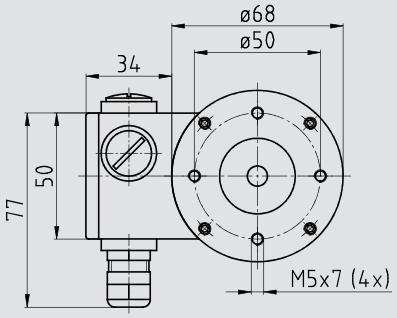
Properties:

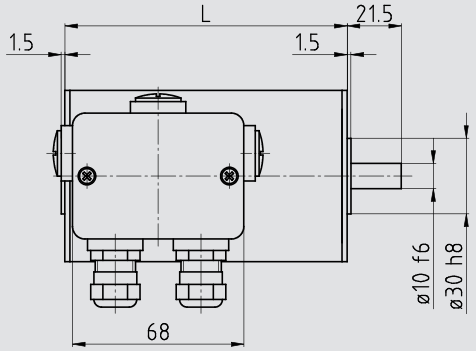
Operation:	on the external standard controller (block commutation); Rotor position sensing by 3 hall sensors
Connection:	K4 terminal box for power supply and sensors
Rotor:	8-pole neodymium magnet, low cogging torque due to continuous angular magnetization
Service life:	20,000 h, S1 duty
Insulation mat. class:	F (155°C)
System of protection:	IP 44, optional up to IP 65 (IP 69)
Special Versions:	Design for short-time duty with higher performance, additional voltages and speeds upon request
Options:	Thermal protection, special shafts, special flanges, stainless steel

	Name			MQ 637	MQ 667		
Type	Nominal voltage	U	Volt DC	24	24		
Rate	Nominal power	P_2	W	171	259		
	Nominal speed	n_{nenn}	rpm	3270	3090		
	Nominal torque	M_{nenn}	Nm	0.5	0.8		
	Nominal current	I_{nennDC}	A	9.1	13.5		
	Nominal efficiency	η		0.79	0.8		
	Input power	P_1	W	218	324		
	Torque constant	k_M	Ncm/A	5.2	5.5		
	Max. current (2sec)	I_{max}	A	3 x I_{nennDC}	3 x I_{nennDC}		
	Max. torque	M_{max}	Nm	3 x M_{nenn}	3 x M_{nenn}		
	Cogging torque		mNm	-	-		
Idling	Idling speed	n_0	rpm	4300	3850		
	Idling current	I_0	A	0.5	0.8		
Short-time duty (S2 5min)	Speed	n_{nenn}	rpm	2750	2350		
	Torque	M_{nenn}	Nm	0.8	1.5		
	Current	I_{nennDC}	A	13.8	23.8		
Connection	Terminal resistance	R	mOhm	195	130		
	Terminal inductance	L	µH	660	425		
Dynamics	Weight	m	kg	1.0	1.6		
	Moment of inertia	J	gcm^2	450	750		
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40		
	Max. adm. stator temperature	T_{max}	°C	+155 „ISO F"	+155 „ISO F"		
Coupling	Shaft diameter	d	mm	10	10		
	Max. axial force	F_a	N	40	40		
	Max. radial force	F_r	N	400	400		

Dimensions

Type	L / mm
MQ 637	82
MQ 667	112





System technology

Recommended combinations
other gears and extensions upon request

Worm gear	S 769	S 668	GS 3
Spur gear	M 10		
Planetary gear	PM 60		
Rotary encoder	RV 30	RI 30	
Brake	B 77		
Electronics	mcDSA-E25 or mcDSA-E45 (HC)		

Last modified: 10/2016

Brushless DC motor

with enhanced cooling

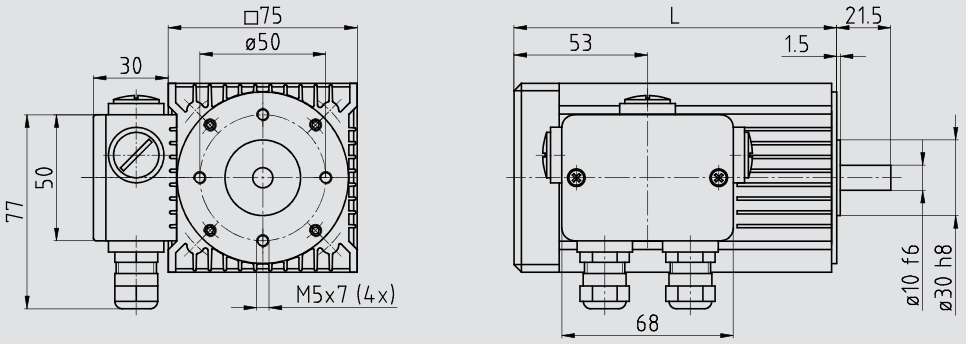
Properties:

Connection:	Operation on the external standard controller (block commutation)
	Rotor position sensing using 3 hall sensors.
	K4 terminal box for power supply and sensors
Rotor:	8-pole neodymium magnet, slight detent torque due to continual angular magnetization (no grades)
Service life:	20,000 h, S1 duty
Insulation mat. class:	F
System of protection:	IP 44, optional up to IP 65
Special model:	Design for short-time duty with high performance, additional voltages and speeds upon request
Options:	Thermal protection, special shafts, special flanges, custom

	Name			MQ 737	MQ 767		
Type	Nominal voltage	U	Volt DC	24	24		
Rate	Nominal power	P_2	W	185	277		
	Nominal speed	n_{nom}	rpm	2850	2600		
	Nominal torque	T_{nom}	Nm	0.62	1.02		
	Nominal current	I_{nom}	A	12.2	17.7		
	Nominal efficiency	η		0.70	0.74		
Short-time duty (S2 5 min)	Torque	M_{S2}	Nm	0.8	1.02		
	Speed	n_{S2}	rpm	2500	2500		
	Current	I_{S2}	A	15.6	17.7		
Idling	Idling speed	n_{i0}	rpm	4150	3800		
	Idling current	I_0	A	0.8	0.8		
Connection	Terminal resistance Phase – Phase	R	Ohm	0.24	0.11		
Dynamics	Weight	m	kg	1.0	1.6		
	Moment of inertia	J	gcm^2	450	750		
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40		
	Max. adm. stator temperature	T_{max}	°C	+155	+155		
Coupling	Shaft diameter	d	mm	10	10		
	Max. axial force	F_a	N	40	40		
	Max. radial force	F_r	N	400	400		

Dimensions

Type	L / mm
MQ 737	98
MQ 767	128



System technology

Recommended combinations
other gears and extensions upon request

Worm gear	S 769	S 668	GS 3
Spur gear	M 10		
Planetary gear	PM 60		
Rotary encoder	RV 30	RI 30	
Brake	B 77		
Electronics	UCE 24		

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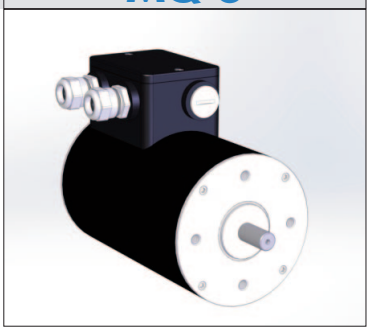
Brushless DC motor



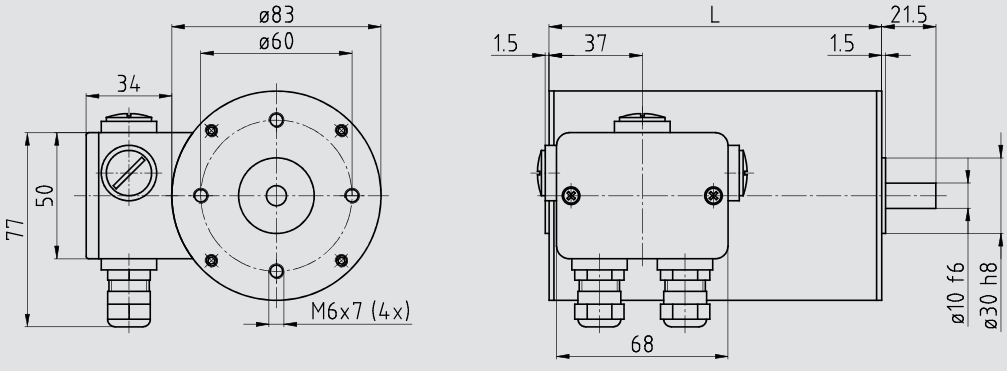
Properties:

Operation:	on the external standard controller (block commutation); Rotor position sensing by 3 hall sensors
Connection:	K4 terminal box for power supply and sensors
Rotor:	8-pole neodymium magnet, low cogging torque due to continuous angular magnetization
Service life:	20,000 h, S1 duty
Insulation mat. class:	F (155°C)
System of protection:	IP 44, optional up to IP 65 (IP 69)
Special Versions:	Design for short-time duty with higher performance, additional voltages and speeds upon request
Options:	Thermal protection, special shafts, special flanges, stainless steel

Type	Name			**MQ 847**	**MQ 867**	**MQ 887**
	Nominal voltage	U	Volt DC	48	48	48
Rate	Nominal power	P_2	W	337	450	562
	Nominal speed	n_{nenn}	rpm	3070	3310	3465
	Nominal torque	M_{nenn}	Nm	1.05	1.3	1.55
	Nominal current	I_{nennDC}	A	8.25	10.86	13.52
	Nominal efficiency	η		0.85	0.86	0.87
	Input power	P_1	W	396	521	650
	Torque constant	k_M	Ncm/A	12.6	11.8	11.2
	Max. current (2sec)	I_{max}	A	3 x I_{nennDC}	3 x I_{nennDC}	3 x I_{nennDC}
	Max. torque	M_{max}	Nm	3 x M_{nenn}	3 x M_{nenn}	3 x M_{nenn}
	Cogging torque		mNm	max. 40	max. 44	max. 70
Idling	Idling speed	n_0	rpm	3600	3850	3950
	Idling current	I_0	A	0.4	0.7	0.9
Short-time duty (S2 5min)	Speed	n_{nenn}	rpm	2700	2800	2800
	Torque	M_{nenn}	Nm	1.7	2.4	3.1
	Current	I_{nennDC}	A	13	18.7	24.5
Connection	Terminal resistance	R	mOhm	295	194	147
	Terminal inductance	L	µH	863	617	367
Dynamics	Weight	m	kg	1.9	2.4	3
	Moment of inertia	J	gcm^2	1291.5	1873.3	2512.9
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40	-20 to +40
	Max. adm. stator temperature	T_{max}	°C	+155 „ISO F"	+155 „ISO F"	+155 „ISO F"
Coupling	Shaft diameter	d	mm	10	10	10
	Max. axial force	F_a	N	40	40	40
	Max. radial force	F_r	N	400	400	400

Dimensions

Type	L / mm
MQ 847	92
MQ 867	112
MQ 887	132



System technology

Recommended combinations
other gears and extensions upon request

Worm gear	S 769	
Spur gear	M 10	
Planetary gear	PM 80	
Rotary encoder	RV 30	RI 30
Brake	B 77	
Electronics	mcDSA-E25 or mcDSA-E45-HC	

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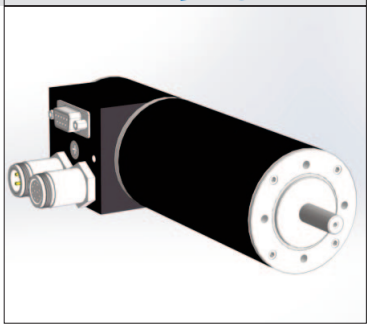
Brushless DC motor

MQC 5



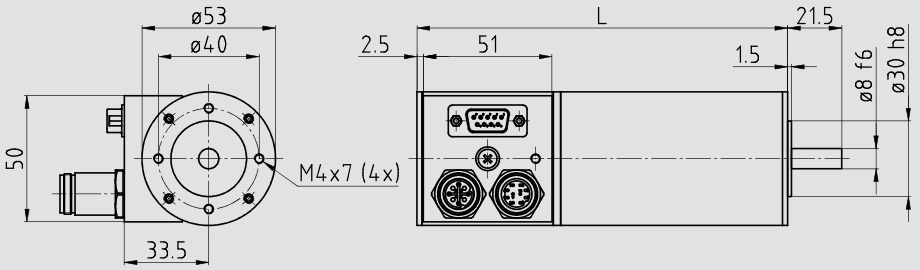
Properties:

Operation:	on the external standard controller (block commutation); Rotor position sensing by 3 hall sensors
Connection:	K4 terminal box for power supply and sensors
Rotor:	4-pole neodymium magnet, low cogging torque due to continuous angular magnetization
Service life:	20,000 h, S1 duty
Insulation mat. class:	B (120°C)
System of protection:	IP 44, optional up to IP 65 (IP 69)
Special Versions:	Design for short-time duty with higher performance, additional voltages and speeds upon request
Options:	Thermal protection, special shafts, special flanges, stainless steel

				MQC 543	MQC 563		
Type	Name						
	Nominal voltage	U	Volt DC	24	24		
Rate	Nominal power	P_2	W	58	81		
	Nominal speed	n_{nenn}	rpm	3240	3515		
	Nominal torque	M_{nenn}	Nm	0.17	0.22		
	Nominal current	I_{nennDC}	A	3.50	4.50		
	Nominal efficiency	η		0.69	0.75		
	Input power	P_1	W	84	108		
	Torque constant	k_M	Ncm/A	4.7	4.8		
	Max. current (2sec)	I_{max}	A	3 x I_{nennDC}	3 x I_{nennDC}		
	Max. torque	M_{max}	Nm	3 x M_{nenn}	3 x M_{nenn}		
	Cogging torque		mNm	-	-		
Idling	Idling speed	n_0	rpm	4000	4100		
	Idling current	I_0	A	0.6	0.7		
Short-time duty (S2 5min)	Speed	n_{nenn}	rpm	2700	2900		
	Torque	M_{nenn}	Nm	0.28	0.42		
	Current	I_{nennDC}	A	5.3	7.95		
Connection	Terminal resistance	R	mOhm	-	-		
	Terminal inductance	L	µH	-	-		
Dynamics	Weight	m	kg	1.1	1.3		
	Moment of inertia	J	gcm²	180	260		
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40		
	Max. adm. stator temperature	T_{max}	°C	+120 „ISO B"	+120 „ISO B"		
Coupling	Shaft diameter	d	mm	8	8		
	Max. axial force	F_a	N	40	40		
	Max. radial force	F_r	N	400	400		

Dimensions

Type	L / mm
MQC 543	147
MQC 563	167



System technology

Recommended combinations
other gears and extensions upon request

Worm gear	S 668	
Spur gear	M 7	
Planetary gear	PM 50	
Rotary encoder	RV 30	RI 30
Brake	B 77	
Electronics		

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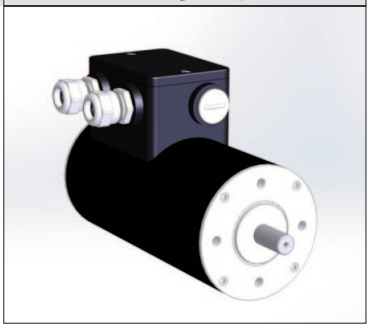
Brushless DC drive

with integrated commutation



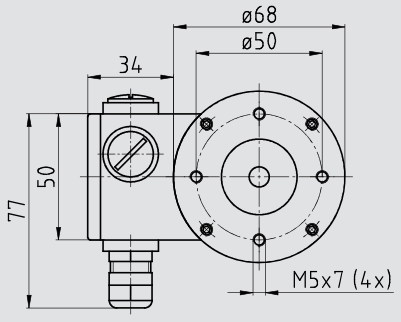
Properties:

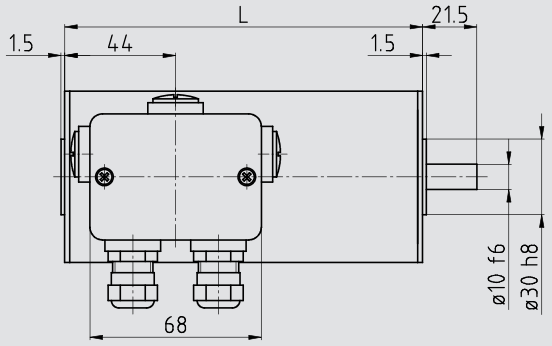
Operation:	Rotor position sensing by 3 hall sensors
Connection:	K4 terminal box for power supply and sensors
Rotor:	8-pole neodymium magnet
Controlling:	by CAN-Bus (CANopen, Drive Profile DSP-402) or digital/analogue I/O
Service life:	20,000 h, S1 duty
Insulation mat. class:	F (155°C)
System of protection:	IP 44, optional up to IP 65 (IP 69)
Special Versions:	Design for short-time duty with higher performance, additional voltages and speeds upon request
Options:	Thermal protection, special shafts, special flanges, stainless steel

Type	Name			**MQC 637**	**MQC 667**	**MQC 667**
	Nominal voltage	U	Volt DC	24	24	48
Rate	Nominal power	P_2	W	147	165	205
	Nominal speed	n_{nenn}	rpm	3500	3350	3550
	Nominal torque	M_{nenn}	Nm	0.4	0.47	0.55
	Nominal current	I_{nennDC}	A	7.3	8.1	4.7
	Nominal efficiency	η		0.84	0.85	0.91
	Input power	P_1	W	175	194	226
	Torque constant	k_M	Ncm/A	5.4	5.8	11.5
	Max. current (2sec)	I_{max}	A	20	20	20
	Max. torque	M_{max}	Nm	3 x M_{nenn}	3 x M_{nenn}	3 x M_{nenn}
	Cogging torque		mNm	-	-	-
Idling	Idling speed	n_0	rpm	4300	3700	4050
	Idling current	I_0	A	0.4	0.6	0.3
Short-time duty (S2 5min)	Speed	n_{nenn}	rpm	2650	2900	-
	Torque	M_{nenn}	Nm	0.88	0.95	-
	Current	I_{nennDC}	A	14.9	15.0	-
Connection	Terminal resistance	R	mOhm	-	-	-
	Terminal inductance	L	µH	-	-	-
Dynamics	Weight	m	kg	1.1	1.7	1.7
	Moment of inertia	J	gcm^2	450	750	750
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40	-20 to +40
	Max. adm. stator temperature	T_{max}	°C	+155 „ISO F"	+155 „ISO F"	+155 „ISO F"
Coupling	Shaft diameter	d	mm	10	10	10
	Max. axial force	F_a	N	40	40	40
	Max. radial force	F_r	N	400	400	400

Dimensions

Type	L / mm
MQC 637	112
MQC 667	142





System technology

Recommended combinations
other gears and extensions upon request

Worm gear	S 769	S 668	GS 3
Spur gear	M 10		
Planetary gear	PM 60		
Rotary encoder	RV 30	RI 30	
Brake	B 77		
Electronics	integrated		

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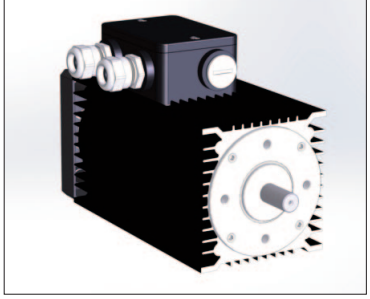
Brushless DC drive

with integrated commutation, enhanced cooling



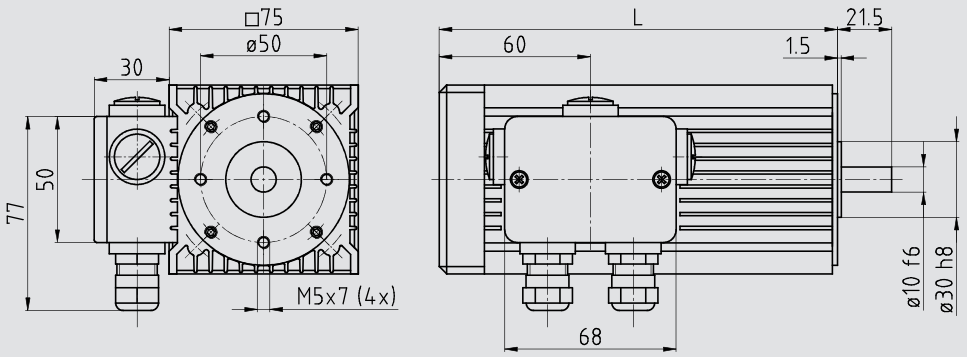
Properties:

Drive:	Brushless DC motor with integrated commutation electronic K4 terminal box for power supply and sensors
Controlling:	by CAN-Bus (CANopen, Drive Profile DSP-402) or digital/analogue I/O
Rotor:	8-pole neodymium magnet, slight detent torque
Service life:	20,000 h, S1 duty
Insulation mat. class:	F
System of protection:	IP 44, optional up to IP 65
Supply voltage:	24 ... 48 V
Special model:	additional voltages and speeds upon request
Options:	Special shafts, special flanges, custom connection technology

				MQC 737	MQC 767		
Type	Name						
	Nominal voltage	U	Volt DC	24	24		
Rate	Nominal power	P_2	W	195	267		
	Nominal speed	n_{nom}	rpm	3000	3000		
	Nominal torque	T_{nom}	Nm	0.62	0.85		
	Nominal current	I_{nom}	A	11	14.2		
	Nominal efficiency	η		0.74	0.77		
Short-time duty (S2 5 min)	Torque	M_{S2}	Nm	0.85	1.00		
	Speed	n_{S2}	rpm	2600	2500		
	Current	I_{S2}	A	15.3	18.2		
Idling	Idling speed	n_{i0}	rpm	4300	4000		
	Idling current	I_0	A	0.5	0.75		
Dynamics	Weight	m	kg	1.5	2.2		
	Moment of inertia	J	gcm^2	450	750		
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40		
	Max. adm. stator temperature	T_{max}	°C	+155	+155		
Coupling	Shaft diameter	d	mm	10	10		
	Max. axial force	F_a	N	40	40		
	Max. radial force	F_r	N	400	400		

Dimensions

Type	L / mm
MQC737	128
MQC767	158



System technology

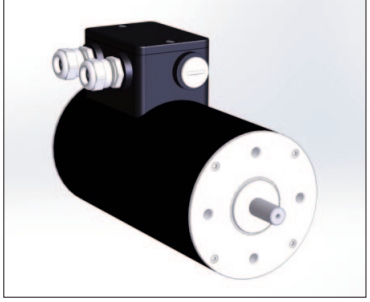
Recommended combinations
other gears and extensions upon request

Worm gear	S 769	S 668	GS 3
Spur gear	M 10		
Planetary gear	PM 60		
Rotary encoder	RV 30	RI 30	
Brake	B 77		
Electronics	integrated		

Last modified: 10/2016

Brushless DC drive

with integrated commutation



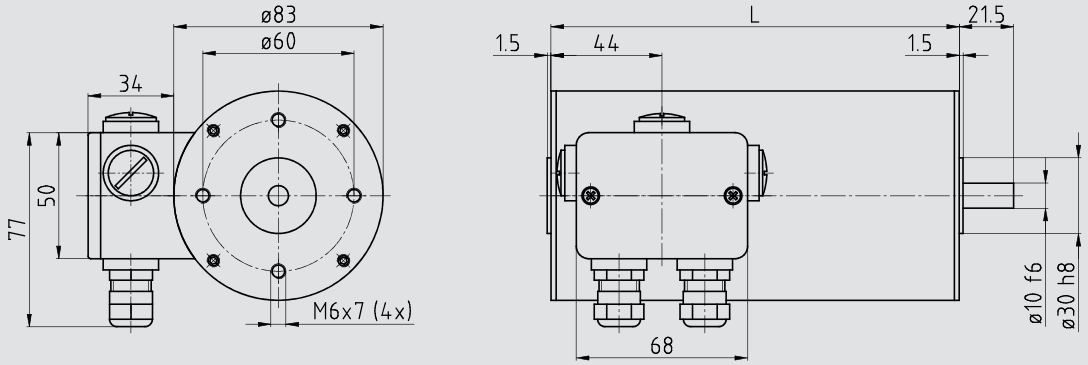
Properties:

Drive:	Brushless DC motor with integrated commutation electronic Rotor position sensing using 3 hall sensors K4 terminal box for power supply and sensors
Controlling:	by CAN-Bus (CANopen, Drive Profile DSP-402) or digital/analogue I/O
Rotor:	8-pole neodymium magnet
Service life:	20,000 h, S1 duty
Insulation mat. class:	F (155°C)
System of protection:	IP 44, optional up to IP 65 (IP 69)
Special model:	additional voltages and speeds upon request
Options:	Special shafts, special flanges, custom design, stainless steel

Type	Name			**MQC 847**	**MQC 867**	**MQC 887**
	Nominal voltage	U	Volt DC	48	48	48
Rate	Nominal power	P_2	W	235	274	326
	Nominal speed	n_{nenn}	rpm	3200	3490	3660
	Nominal torque	M_{nenn}	Nm	0.7	0.75	0.85
	Nominal current	I_{nennDC}	A	5.5	6.4	7.7
	Nominal efficiency	η		0.89	0.89	0.88
	Input power	P_1	W	265	307	369
	Torque constant	k_M	Ncm/A	12.3	11.2	10.8
	Max. current (2sec)	I_{max}	A	20	20	20
	Max. torque	M_{max}	Nm	2.5	2.6	2.6
	Cogging torque		mNm	max. 40	max. 44	max. 70
Idling	Idling speed	n_0	rpm	3600	3800	3950
	Idling current	I_0	A	0.4	0.7	0.85
Short-time duty (S2 5min)	Speed	n_{nenn}	rpm	2750	3000	3220
	Torque	M_{nenn}	Nm	1.6	1.9	1.8
	Current	I_{nennDC}	A	12.6	14.7	14.5
Connection	Terminal resistance	R	mOhm	295	194	147
	Terminal inductance	L	µH	863	617	367
Dynamics	Weight	m	kg			
	Moment of inertia	J	gcm²	1291.5	1873.3	2512.9
Thermal	Adm. ambient temperature	T_u	°C	-20 to +40	-20 to +40	-20 to +40
	Max. adm. stator temperature	T_{max}	°C	+155 „ISO F"	+155 „ISO F"	+155 „ISO F"
Coupling	Shaft diameter	d	mm	10	10	10
	Max. axial force	F_a	N	40	40	40
	Max. radial force	F_r	N	400	400	400

Dimensions

Type	L / mm
MQC 847	122
MQC 867	142
MQC 887	162



System technology

Recommended combinations
other gears and extensions upon request

Worm gear	S 769	
Spur gear	M 10	
Planetary gear	PM 80	
Rotary encoder	RV 30	RI 30
Brake	B 77	
Electronics	integrated	

Last modified: 10/2016

DC motor with integrated CANopen interface

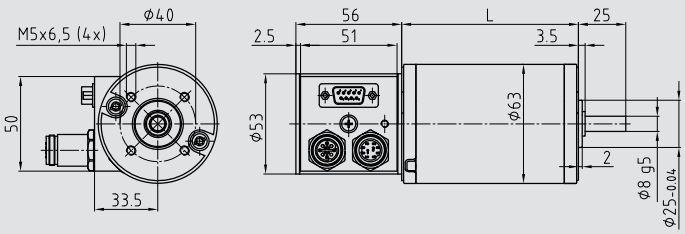
Properties:

	Integrated speed controller, control via analog nominal value or CAN bus (CANopen, Drive Profile DSP-402)
Commutation:	Mechanical commutation using a 12-part commutator
Magnetic system:	2-pole permanent ferrite magnet
Service life:	3,000 h, S1 duty
Insulation mat. class:	B, optional F
System of protection:	IP 40, optional IP 54
Special model:	Design for short-time operation with high performance, additional speeds upon request
Options:	Special shafts, custom designed

				PC 6325	PC 6355		
Type	Name						
	Nominal voltage	U	Volt DC	24	24		
Rate	Nominal power	P_2	W	44	85		
	Nominal speed	n_{nom}	rpm	3000	3000		
	Nominal torque	T_{nom}	Ncm	14	27		
	Starting torque	T_S	Ncm	30	60		
	Nominal current	I_{nom}	A	2.6	4.7		
Characteristics	Nominal efficiency	η		0.67	0.71		
Connection	Terminal resistance	R	Ohm				
	Rated input power	P_1	W	62	113		
Dynamics	Weight	m	kg	1.1	1.6		
	Moment of inertia	J	gcm^2	563	1020		
	Mech. time constant	τ_M	ms	27	20		
Thermal	Adm. ambient temperature	T	°C	-20 to +40	-20 to +40		
	Max. adm. rotor temperature	T_{max}	°C	+120	+120		
Coupling	Shaft diameter	d	mm	8	8		
	Max. axial force	F_a	N	20	20		
	Max. radial force	F_r	N	220	220		

Dimensions

Type	L / mm
PC 6325	93,5
PC 6355	123,5



System technology

Recommended combinations other gears and extensions upon request	Worm gear	GS 3	
	Spur gear	Z 6	Z 8 M 7
	Planetary gear	PM 50	
	Rotary encoder	upon request	
	Brake	upon request	

Last modified: 04/2013

Brushless Positioning drive

Features:

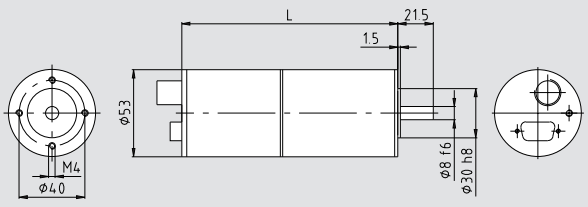
CANopen
Profibus-DP
Integrated 4 Q controller
Sinus commutation
Absolute multi-turn encoder, Run records programmable

Rotor:	4-pole neodym magnet, low cogging
Life time:	20,000 h, S1 duty
Isolation class:	B, optional F
Protection class:	IP 44, optional up to IP 65
Ambient temperature:	-15°C ... 40°C
Protection:	Overtemperature protection, current limitation

Type				MSA 523	MSA 543	MSA 563	
	Nominal voltage	U	V_{DC}	24	24	24	
Technical data	Power output	P_2	W	26	40	70	
	Nominal speed	n_{nom}	rpm	4150	3800	3800	
	Nominal torque	M_{nom}	cNm	6.0	10	18	
	Starting torque	T_S	Ncm	18	30	60	
	Nominal current	I	A	1.7	2.4	3.75	
	Nominal power input	P_1	W	40.8	57.6	90	
	Positioning resolution			0.02°	0.02°	0.02°	
	Positioning accuracy			+/-1°	+/-1°	+/-1°	
Characteristics	Gradient torque-speed	1 / K	mNm / rpm	0.14			
	Max. torque	M	cNm	35			
	Nominal efficiency	η		0.58			
Dynamics	Weight	m	kg	0.9	1.1	1.3	
	Moment of inertia	J	gcm^2	60	160	260	
Thermal cond.	Ambient temperature	T_u	°C	-20 to +40	-20 to +40		
	Max. stator temperature	T_{max}	°C	+120	+120		
Mechanical data	Shaft diameter	d	mm	8	8		
	Max. axial force	F_a	N	40	40		
	Max. radial force	F_r	N	400	400		
Communication	Fieldbus	CANopen v. 2.0B		Profibus			
	Profile	DS-301 v. 4.02 DSP-305 v. 1.0		Profibus Nr. 3 version 2.0			
	Max. baud rate	1 Mbit/s		12 Mbit/s			
	Connector			see chapter connector			

Dimension

Type	L / mm
MSA 523	138
MSA 543	158
MSA 563	178



Recommended gear - combinations
other gears and extensions upon request

Worm gear	S 567	
Spur gear	Z 6	
Planetary gear	PM 40	PM 50

Last modified: 04/2013

Brushless Positioning drive

Features:

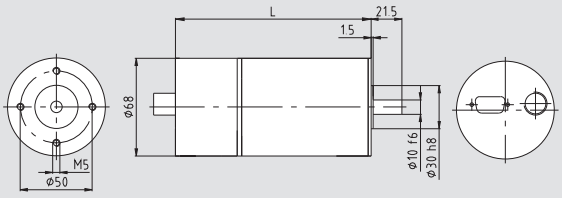
CANopen
Profibus-DP
Integrated 4 Q controller
Sinus commutation
Absolute multi-turn encoder, Run records programmable

Rotor:	4-pole neodym magnet, low cogging
Life time:	20,000 h, S1duty
Isolation class:	B, optional F
Protection class:	IP 44, optional up to IP 65
Ambient temperature:	-15°C ... 40°C
Protection:	Overtemperature protection, current limitation

Type				**MSA 643**	**MSA 663**		
	Nominal voltage	U	V_{DC}	24	24		
Technical data	Power output	P_2	W	80	100		
	Nominal speed	n_{nom}	rpm	3500	3300		
	Nominal torque	M_{nom}	cNm	22	29		
	Starting torque	T_S	Ncm	60	90		
	Nominal current	I	A	5.8	5.7		
	Nominal power input	P_1	W	139	137		
	Positioning resolution			0.02°	0.02°		
	Positioning accuracy			+/-1°	+/-1°		
Characteristics	Gradient torque-speed	1 / K	mNm / rpm	0.61			
	Max. torque	M	cNm	65			
	Nominal efficiency	η	%	73			
Dynamics	Weight	m	kg	1.6	2.3		
	Moment of inertia	J	gcm^2	588	760		
Thermal cond.	Ambient temperature	T_u	°C	-20 to +40	-20 to +40		
	Max. stator temperature	T_{max}	°C	+120	+120		
Mechanical data	Shaft diameter	d	mm	10	10		
	Max. axial force	F_a	N	40	40		
	Max. radial force	F_r	N	400	400		
Communication	Fieldbus	CANopen v. 2.0B		Profibus			
	Profile	DS-301 v. 4.02 DSP-305 v. 1.0		Profibus Nr. 3 version 2.0			
	Max. baud rate	1 Mbit/s		12 Mbit/s			
	Connector			see chapter connector			

Dimension - Characteristics

Type	L / mm
MSA 643	136
MSA 663	156

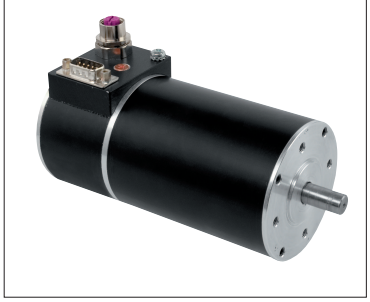


Recommended gear - combinations
other gears and extensions upon request

Worm gear	S 668	
Spur gear	Z 8	M 7
Planetary gear	PM 50	PM 60

MSA 8

Brushless Positioning drive



Features:

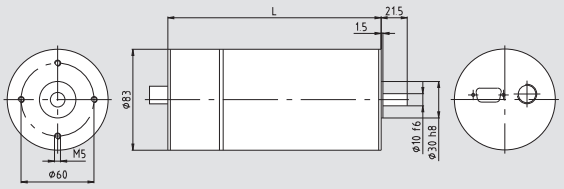
CANopen
Profibus-DP
Integrated 4 Q controller
Sinus commutation
Absolute multi-turn encoder, Run records programmable

Rotor:	4-pole neodym magnet, low cogging
Life time:	20,000 h, S1duty
Isolation class:	B, optional F
Protection class:	IP 44, optional up to IP 65
Ambient temperature:	-15°C ... 40°C
Protection:	Overtemperature protection, current limitation

Type	Nominal voltage	U	V_{DC}	**MSA 863** 24			
Technical data	Power output	P_2	W	144			
	Nominal speed	n_{nom}	rpm	3600			
	Nominal torque	M_{nom}	cNm	38			
	Starting torque	T_S	Ncm	100			
	Nominal current	I	A	7.8			
	Nominal power input	P_1	W	187			
	Positioning resolution			0.02°			
	Positioning accuracy			+/-1°			
Characteristics	Gradient torque-speed	1 / K	mNm / rpm	1.24			
	Max. torque	M	cNm	74			
	Nominal efficiency	η		0.75			
Dynamics	Weight	m	kg	3.1			
	Moment of inertia	J	gcm^2	1330			
Thermal cond.	Ambient temperature	T_u	°C	-20 to +40			
	Max. stator temperature	T_{max}	°C	+120			
Mechanical data	Shaft diameter	d	mm	10			
	Max. axial force	F_a	N	40			
	Max. radial force	F_r	N	400			
Communication	Fieldbus	CANopen v. 2.0B		Profibus			
	Profile	DS-301 v. 4.02 DSP-305 v. 1.0		Profibus Nr. 3 version 2.0			
	Max. baud rate	1 Mbit/s		12 Mbit/s			
	Connector			see chapter connector			

Dimension

Type	L / mm
MSA 863	168



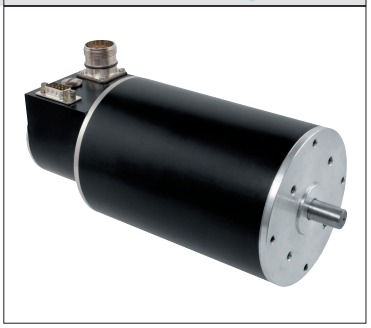
Recommended gear - combinations
other gears and extensions upon request

Worm gear	S 769		
Spur gear	Z 8	M 7	M 10
Planetary gear	PM 80		

Last modified: 04/2013

MSA 95

Brushless Positioning drive



Features:

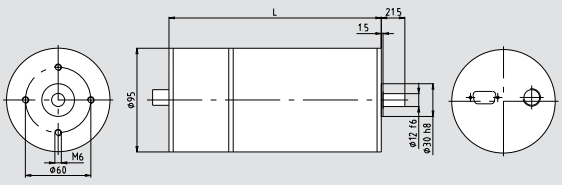
CANopen
Profibus-DP
Integrated 4 Q controller
Sinus commutation
Absolute multi-turn encoder, Run records programmable

Rotor:	4-pole neodym magnet, low cogging
Life time:	20,000 h, S1duty
Isolation class:	B, optional F
Protection class:	IP 44, optional up to IP 65
Ambient temperature:	-15°C ... 40°C
Protection:	Overtemperature protection, current limitation

Type				**MSA 9567**			
	Nominal voltage	U	V_{DC}	24			
Technical data	Power output	P_2	W	86			
	Nominal speed	n_{nom}	rpm	550			
	Nominal torque	M_{nom}	cNm	150			
	Starting torque	T_S	Ncm	300			
	Nominal current	I	A	5.5			
	Nominal power input	P_1	W	132			
	Positioning resolution			0.02°			
	Positioning accuracy			+/-1°			
Characteristics	Gradient torque-speed	1 / K	mNm / rpm	7.74			
	Max. torque	M	cNm	310			
	Nominal efficiency	η	%	63			
Dynamics	Weight	m	kg	4			
	Moment of inertia	J	gcm^2	3700			
Thermal cond.	Ambient temperature	T_u	°C	-20 to +40			
	Max. stator temperature	T_{max}	°C	+120			
Mechanical data	Shaft diameter	d	mm	12			
	Max. axial force	F_a	N	65			
	Max. radial force	F_r	N	700			
Communication	Fieldbus	CANopen v. 2.0B		Profibus			
	Profile	DS-301 v. 4.02 DSP-305 v. 1.0		Profibus Nr. 3 version 2.0			
	Max. baud rate	1 Mbit/s		12 Mbit/s			

Dimension - Characteristics

Type	L / mm
MSA 9567	204



Recommended gear - combinations
other gears and extensions upon request

Worm gear	SC 401
Spur gear	M 10
Planetary gear	PM 80

Positioning drive

PSA 45

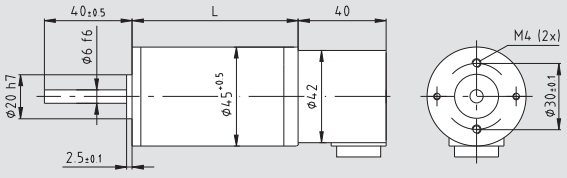
Features:

CANopen
Integrated 1Q controller
Integrated power electronics
DC permanent magnet motor
Absolute multi-turn encoder
Life time: 2,000 h
Isolation class: B, optional F
Protection class: IP 42, optional up to IP 65
Ambient temperature: -15°...40°C

Type	Description			**PSA 4520**			
	Nominal voltage	U	V_{DC}	24			
Technical data	Nominal power output	P_2	W	22.5			
	Nominal speed	n_{nom}	rpm	3250			
	Nominal torque	M_{nom}	cNm	6.6			
	Nominal current	I	A	1.50			
	Stall torque	M	cNm	38.0			
	No load speed	n	rpm	4050			
	No load current	I	A	0.20			
	Positioning resolution			45°			
	Ascertainable revolutions			500 Mio			
Characteristics	Gradient speed-torque	1 / K	mNm / rpm	0.1			
	Speed constant	k_n	rpm / V	136			
	Torque constant	kt	cNm / A	4.34			
	Nominal efficiency	η		0.62			
Dynamics	Weight	m	kg	0.4			
	Moment of inertia	J	gcm^2	120			
Thermal conditions	Ambient temperature	T_a	°C	-20 to +40			
	Max stator temperature	T_{max}	°C	+120			
Mechanical data	Shaft diameter	d	mm	6			
	Max. axial force	F_a	N	8			
	Max. radial force	F_r	N	100			
Communication	Fieldbus	CANopen v. 2.0B					
	Profile	DS-301 v. 4.02 DSP-305 v. 1.0					
	Max. baud rate	1 Mbit/s					

Dimensions

Type	L / mm
PSA 4520	65.5



Gear - combinations

other gears and extensions upon request

Worm gear	S 345
Spur gear	upon request
Planetary gear	PM 40

Last modified: 04/2013

Positioning drive

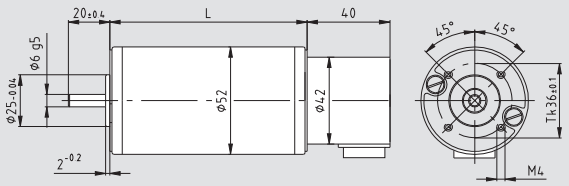
PSA 52

Features:
CANopen
Integrated 1Q controller
Integrated power electronics
DC permanent magnet motor
Absolute multi-turn encoder
Life time: 2,000 h
Isolation class: B, optional F
Protection class: IP 42, optional up to IP 65
Ambient temperature: -15°...40°C

Type	Description			**PSA 5230**			
	Nominal voltage	U	V_{DC}	24			
Technical data	Nominal power output	P_2	W	20.5			
	Nominal speed	n_{nom}	rpm	3200			
	Nominal torque	M_{nom}	cNm	6.0			
	Nominal current	I	A	1.3			
	Stall torque	M	cNm	45.0			
	No load speed	n	rpm	3500			
	No load current	I	A	0.30			
	Positioning resolution			45°			
	Ascertainable revolutions			500 Mio			
Characteristics	Gradient speed-torque	1 / K	mNm / rpm	0.13			
	Speed constant	k_n	rpm / V	133			
	Torque constant	kt	cNm / A	4.62			
	Nominal efficiency	η	%	65			
Dynamics	Weight	m	kg	0.7			
	Moment of inertia	J	gcm^2	257			
Thermal conditions	Ambient temperature	T_a	°C	-20 to +40			
	Max stator temperature	T_{max}	°C	+120			
Mechanical data	Shaft diameter	d	mm	6			
	Max. axial force	F_a	N	8			
	Max. radial force	F_r	N	100			
Communication	Fieldbus	CANopen v. 2.0B					
	Profile	DS-301 v. 4.02 DSP-305 v. 1.0					
	Max. baud rate	1 Mbit/s					

Dimensions

Type	L / mm
PSA 5230	95.5



Gear - combinations

	Worm gear	S 567	GS 1
	Spur gear	Z 5	
other gears and extensions upon request	Planetary gear	PM 40	

Positioning drive

PSA 63

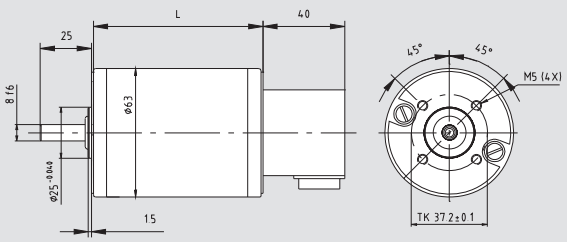
Features:

CANopen
Integrated 1Q controller
Integrated power electronics
DC permanent magnet motor
Absolute multi-turn encoder
Life time: 2,000 h
Isolation class: B, optional F
Protection class: IP 42, optional up to IP 65
Ambient temperature: -15°...40°C

Type	Description			PSA 6325			
	Nominal voltage	U	V_{DC}	24			
Technical data	Nominal power output	P_2	W	43.5			
	Nominal speed	n_{nom}	rpm	2900			
	Nominal torque	M_{nom}	cNm	14.5			
	Nominal current	I	A	2.6			
	Stall torque	M	cNm	92.0			
	No load speed	n	rpm	3250			
	No load current	I	A	0.60			
	Positioning resolution			45°			
	Ascertainable revolutions			500 Mio			
Characteristics	Gradient speed-torque	1 / K	mNm / rpm	0.28			
	Speed constant	k_n	rpm / V	121			
	Torque constant	kt	cNm / A	5.48			
	Nominal efficiency	η		0.70			
Dynamics	Weight	m	kg	1.1			
	Moment of inertia	J	gcm^2	563			
Thermal conditions	Ambient temperature	T_a	°C	-20 to +40			
	Max stator temperature	T_{max}	°C	+120			
Mechanical data	Shaft diameter	d	mm	8			
	Max. axial force	F_a	N	20			
	Max. radial force	F_r	N	220			
Communication	Fieldbus	CANopen v. 2.0B					
	Profile	DS-301 v. 4.02 DSP-305 v. 1.0					
	Max. baud rate	1 Mbit/s					

Dimensions

Type	L / mm
PSA 6325	94



Gear - combinations

Worm gear	GS 3			
Spur gear	Z 6	Z 8	M 7	
Planetary gear	PM 50			

other gears and extensions upon request

Last modified: 04/2013

PSA 68

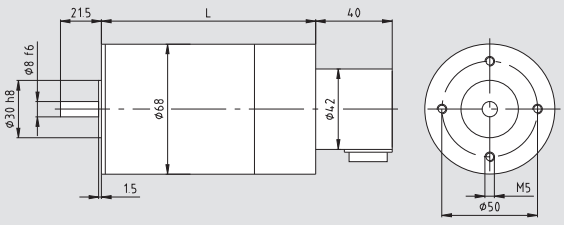
Positioning drive

Features:
CANopen
Integrated 1Q controller
Integrated power electronics
DC permanent magnet motor
Absolute multi-turn encoder
Life time: 2,000 h
Isolation class: B, optional F
Protection class: IP 42, optional up to IP 65
Ambient temperature: -15°...40°C

Type	Description			PSA 6860			
	Nominal voltage	U	V_{DC}	24			
Technical data	Nominal power output	P_2	W	63			
	Nominal speed	n_{nom}	rpm	3250			
	Nominal torque	M_{nom}	cNm	18.5			
	Nominal current	I	A	3.5			
	Stall torque	M	cNm	161.0			
	No load speed	n	rpm	3450			
	No load current	I	A	0.60			
	Positioning resolution			45°			
	Ascertainable revolutions			500 Mio			
Characteristics	Gradient speed-torque	1 / K	mNm / rpm	0.47			
	Speed constant	k_n	rpm / V	135			
	Torque constant	kt	cNm / A	5.33			
	Nominal efficiency	η	%	75.5			
Dynamics	Weight	m	kg	1.5			
	Moment of inertia	J	gcm^2	665			
Thermal conditions	Ambient temperature	T_a	°C	-20 to +40			
	Max stator temperature	T_{max}	°C	+120			
Mechanical data	Shaft diameter	d	mm	8			
	Max. axial force	F_a	N	20			
	Max. radial force	F_r	N	220			
Communication	Fieldbus	CANopen v. 2.0B		Profibus			
	Profile	DS-301 v. 4.02 DSP-305 v. 1.0		Profibus Nr. 3 version 2.0			
	Max. baud rate	1 Mbit/s		12 Mbit/s			

Dimensions

Type	L / mm
PSA 6860	112



Gear - combinations

other gears and extensions upon request

Worm gear	GS 3		
Spur gear	Z 6	Z 8	M 7
Planetary gear	PM 50		

Brushless DC motor

with integrated CANopen interface

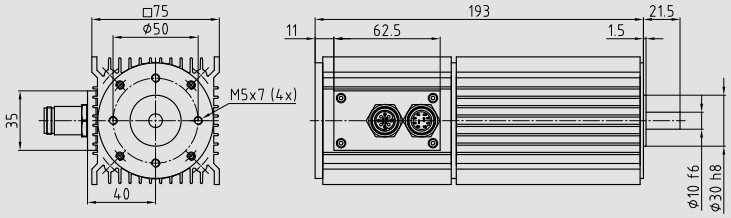
Properties:

	Integrated commutation electronics Rotor position sensing using 3 hall sensors.
Control:	Analog nominal value or CAN bus (CANopen, Drive Profile DSP-402)
Rotor:	4-pole neodymium magnet, slight detent torque due to continual angular magnetization (no grades)
Service life:	until 20,000 h, S1 duty
Insulation mat. class:	B, optional F
System of protection:	IP 44, optional up to IP 65.
Special model:	upon request
Options:	Thermal protection, special shafts, special flanges, brake, custom designed

Type	Name			**MCN 763**			
	Nominal voltage	U	Volt DC	230V/50Hz			
Rate	Nominal power	P_2	W	100			
	Nominal speed	n_{nom}	rpm	3000			
	Nominal torque	T_{nom}	Ncm	32			
	Starting torque	T_S	Ncm	64			
	Nominal current	I_{nom}	A	1.0			
Characteristics							
Connection	Rated input power	P_1	W	130			
Dynamics	Weight	m	kg	2.9			
	Moment of inertia	J	gcm^2	580			
Thermal	Adm. ambient temperature	T_a	°C	-20 to +40			
	Max. adm. stator temperature	T_{max}	°C	+120			
Coupling	Shaft diameter	d	mm	10			
	Max. axial force	F_a	N	40			
	Max. radial force	F_r	N	400			

Dimensions

Type	L / mm	❒
MCN 763	193	75



System technology

Recommended combination other gears and extensions upon request	Worm gear	S 668	
	Spur gear	M 7	
	Planetary gear	PM 60	
	Rotary encoder	RV 30	RI 30
	Brake	B 77	

Last modified: 10/2016

Brushless DC motor

with integrated CANopen interface

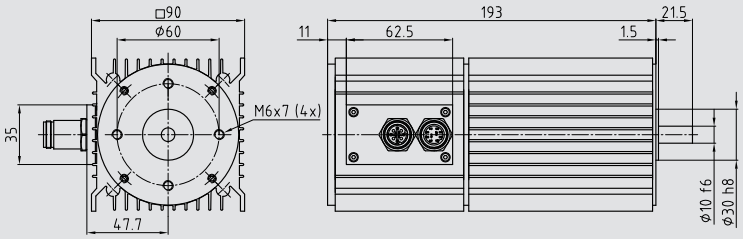
Properties:

	Integrated commutation electronics Rotor position sensing using 3 hall sensors.
Control:	Analog nominal value or CAN bus (CANopen, Drive Profile DSP-402)
Rotor:	4-pole neodymium magnet, slight detent torque due to continual angular magnetization (no grades)
Service life:	until 20,000 h, S1 duty
Insulation mat. class:	B, optional F
System of protection:	IP 44, optional up to IP 65.
Special model:	upon request
Options:	Thermal protection, special shafts, special flanges, brake, rotary encoder, custom designed

Type	Name			**MCN 963**			
	Nominal voltage	U	Volt DC	230V/50Hz			
Rate	Nominal power	P_2	W	200			
	Nominal speed	n_{nom}	rpm	3000			
	Nominal torque	T_{nom}	Ncm	64			
	Starting torque	T_S	Ncm	100			
	Nominal current	I_{nom}	A	1.9			
Characteristics							
Connection	Rated input power	P_1	W	250			
Dynamics	Weight	m	kg	3.6			
	Moment of inertia	J	gcm^2	760			
Thermal	Adm. ambient temperature	T_a	°C	-20 to +40			
	max. adm. stator temperature	T_{max}	°C	+120			
Coupling	Shaft diameter	d	mm	10			
	max. axial force	F_a	N	40			
	max. radial force	F_r	N	400			

Dimensions

Type	L / mm	❒
MCN 963	193	90



System technology

Recommended combinations other gears and extensions upon request	Worm gear	S 769	
	Spur gear	M 10	
	Planetary gear	PM 80	
	Rotary encoder	RV 30	RI 30
	Brake	B 77	

Last modified: 10/2016