

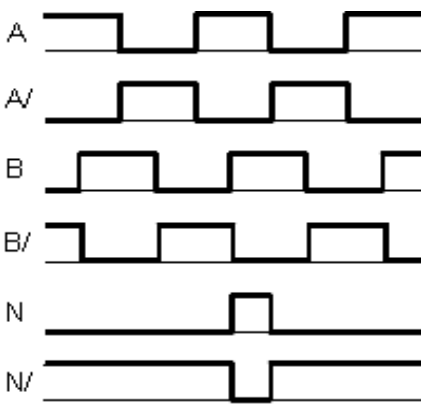
stepper motor



- 2-phase hybrid stepper motor (bipolar)
- high protection class
- with plug or stranded wires
- optional with encoder / brake

part number													
MOT	AN - S - 060 - 020 - 056 - M - A - AAAA												
	<table border="1"> <thead> <tr> <th colspan="2">specifics</th> </tr> </thead> <tbody> <tr> <td>AAAA</td> <td>standard</td> </tr> <tr> <td>AAAC</td> <td>encoder</td> </tr> <tr> <td>AAAD</td> <td>encoder and brake</td> </tr> </tbody> </table>	specifics		AAAA	standard	AAAC	encoder	AAAD	encoder and brake				
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MOT	motor												

technical data						
flange dimension		28(NEMA11)	42(NEMA17)	56(NEMA23)	60(NEMA23XL)	86(NEMA34)
motor						
max voltage	[VDC]	60	60	60	60	60
nominal voltage	[VDC]	24-48	24-48	24-48	24-48	24-48
nominal current	[A]	1,0	1,8	4,2	4,2	6,4
holding torque	[Nm]	0,12	0,5	2,0	3,5	5,9
detent torque	[Nm]	0,004	0,022	0,068	0,075	0,210
step angle	[°]	1,8 ±5%	1,8 ±5%	1,8 ±5%	1,8 ±5%	1,8 ±5%
resistance / phase	[Ω]	2,30 ±10%	1,75 ±10%	0,50 ±10%	0,65 ±10%	0,33 ±10%
inductance / phase	[mH]	1,80 ±20%	3,30 ±20%	2,20 ±20%	3,20 ±20%	3,00 ±20%
moment of inertia / rotor	[kgcm ²]	0,018	0,082	0,48	0,84	2,70
max. shaft load axial	[N]	7	7	15	15	65
max. shaft load radial	[N]	20	20	52	63	200

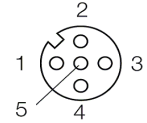
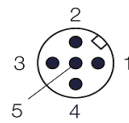
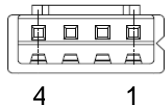
encoder		
operating voltage	[VDC]	5
impulse / turn		500
zero impulse / index		yes
line-driver		RS422 protocol
signal sequence (motor rotation clockwise)	CW	

brake						
operating voltage	[VDC]	-	24 ±10%	24 ±10%	24 ±10%	24 ±10%
wattage	[W]	-	8	10	10	11
holding torque	[Nm]	-	0,4	1,0	1,0	2,0
moment of inertia	[kgcm ²]	-	0,01	0,02	0,02	0,07
operating condition		The brake may closed not till then the motor idleness.				

weight						
stranded wires	[kg]	0,20	0,38	1,04	1,45	-
plug	[kg]	0,25	0,43	1,12	1,56	3,20
encoder	[kg]	0,27	0,45	1,14	1,58	3,30
encoder and brake	[kg]	-	0,58	1,36	1,82	3,60

operating data		
ambient temperature	[°C]	-10 ...+50
max temperature rise	[°C]	80
insulation class		B
humidity (not condensing)	[%]	85
protection class engine case		IP65 (shaft seal IP52), motor with stranded wires IP40
CE		EMV guideline

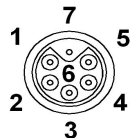
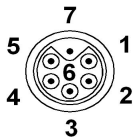
pin assignment stepper motor
 flange dimension 28(NEMA11) flange dimension 42,56,60(NEMA17,23,23XL)



motor bipolar			
JST XHP-4			wires
pin	signal	phase	color
1	A	1	white
2	A/		brown
3	B	2	blue
4	B/		black

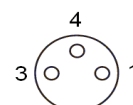
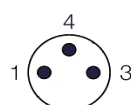
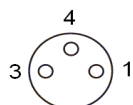
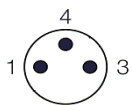
motor bipolar				motor cable
M12 5-pole			wires	M12 5-pole
pin	signal	phase	color	color
1	A/	1	brown	brown
2	A		white	white
3	B	2	blue	blue
4	B/		black	black
5	PE	-	-	green/yellow
housing	shielding	-	-	-

pin assignment stepper motor
 flange dimension 86(NEMA34)



motor bipolar			motor cable
M17 7-pole			M17 7-pole
pin	signal	phase	number
1	A/	1	1
2	A		2
3	B	2	3
4	B/		4
5	brake 24V	-	5
6	brake 0V	-	6
7	PE	-	green/yellow
housing	shielding	-	shielding

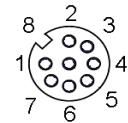
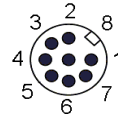
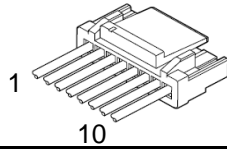
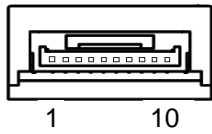
pin assignmen brake/initiator
 flange dimension 42,56,60(NEMA17,23,23XL) flange dimension 86(NEMA34)



brake		brake cable
M8 3-pole		M8 3-pole
pin	signal	color
1	brake (24V)	brown
3	0V	blue
4	-	black

initiator		initiator cable
M8 3-pole		M8 3-pole
pin	signal	color
1	VDC	brown
3	0V	blue
4	switching signal	black

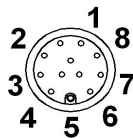
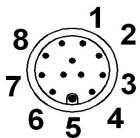
pin assignmen encoder
 flange dimension 28(NEMA11) flange dimension 42,56,60(NEMA17,23,23XL)



encoder connector		encoder plug
JST / SM10B-GHS-TB		JST / GHR-10V-S
pin	signal	color
1	shielding	-
2	A	-
3	A/	-
4	B/	-
5	B	-
6	N/	-
7	N	-
8	GND	-
9	5VDC	-
10	shielding	-

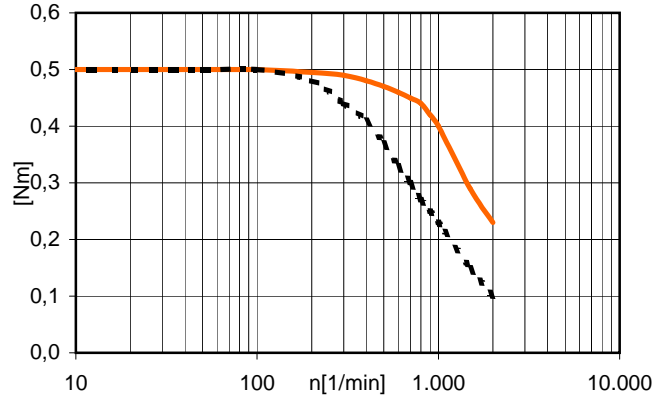
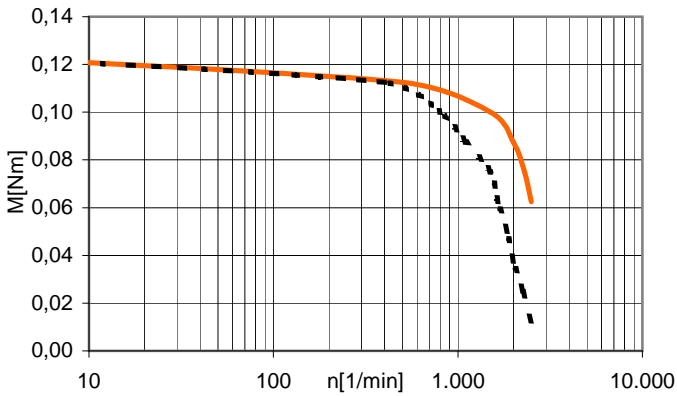
encoder		encoder cable
M12 8-pole		M12 8-pole
pin	signal	color
1	A	white
2	A/	brown
3	B	green
4	B/	yellow
5	0V	grey
6	N/	pink
7	N	blue
8	5V DC	red
housing	shielding	shielding

pin assignmen encoder
 flange dimension 86(NEMA34)

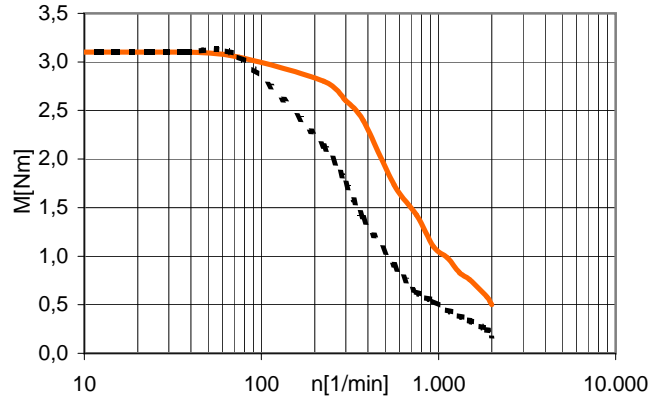
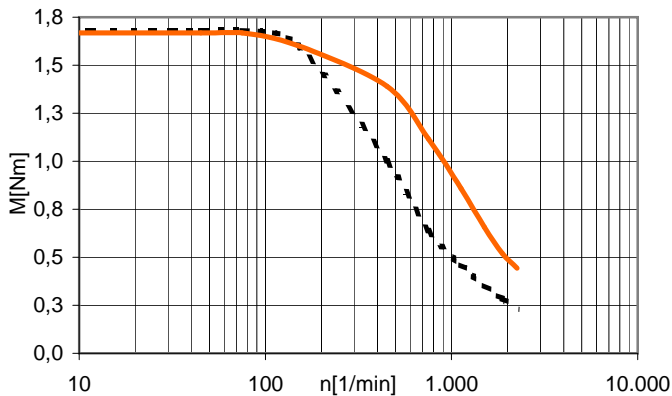


encoder		encoder cable
M17 12-pole		M17 12-pole
pin	signal	color
1	A	brown
2	A/	green
3	B	blue
4	B/	violet
5	0V	white 0,5 [□]
6	N/	grey
7	N	pink
8	5V DC	brown 0,5 [□]
9	-	-
10	-	-
11	-	-
12	-	-
housing	shielding	shielding

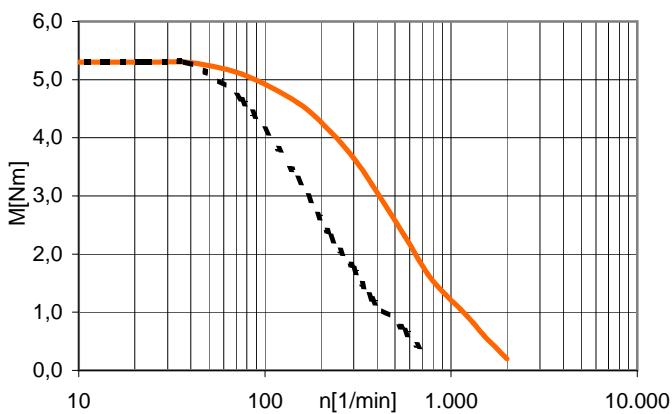
characteristic flange dimension 28 (NEMA11) MOT-AN-S-060-001-028-...	flange dimension 42 (NEMA17) MOT-AN-S-060-005-042-...
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flange dimension 56 (NEMA23) MOT-AN-S-060-020-056-...	flange dimension 60 (NEMA23XL) MOT-AN-S-060-035-060-...
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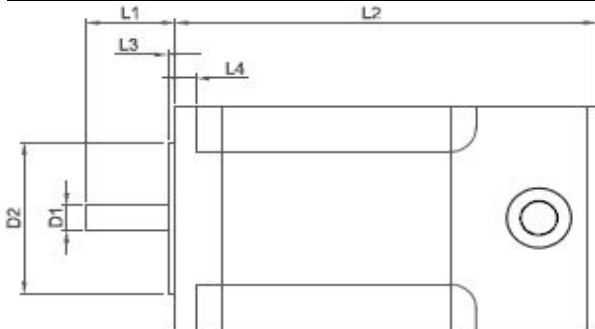


flange dimension 86 (NEMA34) MOT-AN-S-060-059-086-...

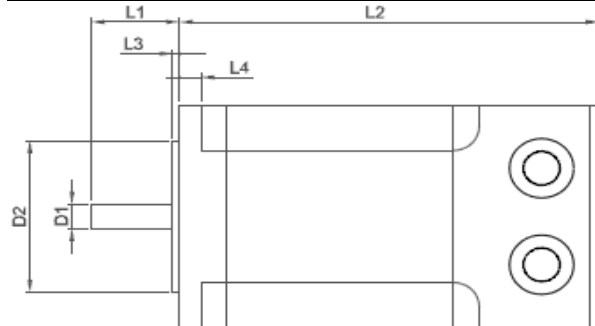


- - - - - 24VDC	— 48 VDC	characteristic based on quarter step mode
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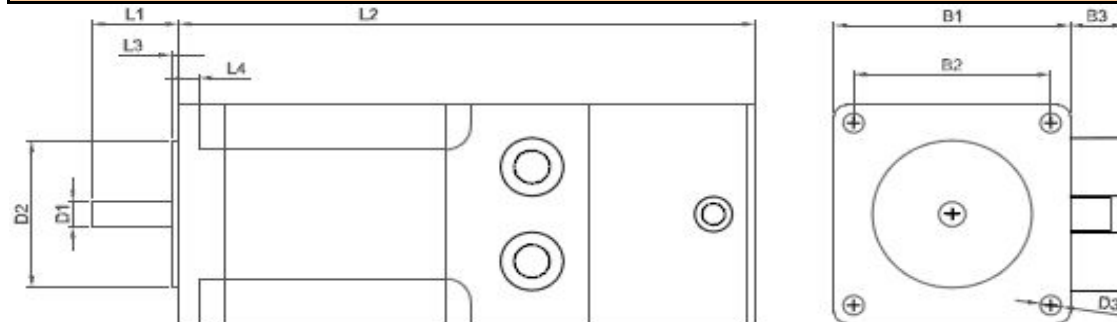
dimension
MOT-AN-S-060-...-L-A-AAAA / MOT-AN-S-060-...-M-A-AAAA



MOT-AN-S-060-...-M-C-AAAC



MOT-AN-S-060-...-M-D-AAAD



type	B1 [mm]	B2 [mm] ±0,2	B3 [mm]	D1 Ø [mm] -0,013	D2 Ø [mm] ±0,025	D3 Ø [mm]	L1 [mm] ±1	L2 [mm] ±1	L3 [mm]	L4 [mm]
MOT-AN-S-060-001-028-L-A-AAAA	28,0	23,00	-	5,00	22,00	M2,5	20,0	50	2,0	-
MOT-AN-S-060-001-028-L-C-AAAC	28,0	23,00	-	5,00	22,00	M2,5	20,0	60	2,0	-
MOT-AN-S-060-005-042-L-A-AAAA	42,3	31,00	-	5,00	22,00	M3	24,0	49	2,0	-
MOT-AN-S-060-005-042-M-A-AAAA	42,3	31,00	13	5,00	22,00	M3	24,0	70	2,0	-
MOT-AN-S-060-005-042-M-C-AAAC	42,3	31,00	13	5,00	22,00	M3	24,0	70	2,0	-
MOT-AN-S-060-005-042-M-D-AAAD	42,3	31,00	13	5,00	22,00	M3	24,0	115	2,0	-
MOT-AN-S-060-020-056-L-A-AAAA	56,4	47,14	-	6,35	38,10	5,0	20,6	76	1,6	5
MOT-AN-S-060-020-056-M-A-AAAA	56,4	47,14	13	6,35	38,10	5,0	20,6	98	1,6	5
MOT-AN-S-060-020-056-M-C-AAAC	56,4	47,14	13	6,35	38,10	5,0	20,6	98	1,6	5
MOT-AN-S-060-020-056-M-D-AAAD	56,4	47,14	13	6,35	38,10	5,0	20,6	138	1,6	5
MOT-AN-S-060-035-060-L-A-AAAA	60,0	47,14	9	8,00	38,10	4,5	20,6	88	1,6	7
MOT-AN-S-060-035-060-M-A-AAAA	60,0	47,14	13	8,00	38,10	4,5	20,6	110	1,6	7
MOT-AN-S-060-035-060-M-C-AAAC	60,0	47,14	13	8,00	38,10	4,5	20,6	110	1,6	7
MOT-AN-S-060-035-060-M-D-AAAD	60,0	47,14	13	8,00	38,10	4,5	20,6	150	1,6	7
MOT-AN-S-060-059-086-M-A-AAAA	85,8	69,50	37	14,00	73,02	6,6	37,0	118	2,0	8
MOT-AN-S-060-059-086-M-C-AAAC	85,8	69,50	37	14,00	73,02	6,6	37,0	118	2,0	8
MOT-AN-S-060-059-086-M-D-AAAD	85,8	69,50	37	14,00	73,02	6,6	37,0	188	2,0	8

cable				
part number	outer jacket	type	cable length	plug
flange dimension 42(NEMA17), 56(NEMA23), 60(NEMA23XL)				
motor - cable Ø: 5,5 mm / bending radius moved < 10m travel distance: min. 5 x d				
MAT9043737	TPE	CF9-CF.INI	3	straight
MAT9043738	TPE	CF9-CF.INI	5	straight
MAT9043740	TPE	CF9-CF.INI	10	straight
MAT9043742	TPE	CF9-CF.INI	3	angulate
MAT9043743	TPE	CF9-CF.INI	5	angulate
MAT9043745	TPE	CF9-CF.INI	10	angulate

encoder - cable Ø: 7 mm / bending radius moved < 10m travel distance: min. 10 x d				
MAT90432594-3	PVC	CF240	3	straight
MAT90432594-5	PVC	CF240	5	straight
MAT90432594-10	PVC	CF240	10	straight
MAT90436430-3	PVC	CF240	3	angulate
MAT90436430-5	PVC	CF240	5	angulate
MAT90436430-10	PVC	CF240	10	angulate

flange dimension 86(NEMA34)				
motor - cable Ø: 10,5 mm / bending radius moved < 10m travel distance: min. 6,8 x d				
MAT90439520-3	PUR	CF78.UL	3	straight
MAT90439520-5	PUR	CF78.UL	5	straight
MAT90439520-10	PUR	CF78.UL	10	straight

encoder - cable Ø: 8 mm / bending radius moved < 10m travel distance: min.. 10 x d				
MAT90439519-3	PVC	CF211	3	straight
MAT90439519-5	PVC	CF211	5	straight
MAT90439519-10	PVC	CF211	10	straight

flange dimension 42(NEMA17), 56(NEMA23), 60(NEMA23XL)				
brake/initiator - cable Ø: 4,5 mm / bending radius moved < 10m travel distance: min. 5 x d				
MAT9043716	TPE	CF9-CF.INI	3	straight
MAT9043717	TPE	CF9-CF.INI	5	straight
MAT9043719	TPE	CF9-CF.INI	10	straight
MAT9043724	TPE	CF9-CF.INI	3	angulate
MAT9043725	TPE	CF9-CF.INI	5	angulate
MAT9043727	TPE	CF9-CF.INI	10	angulate

plug straight



plug angulate



component part

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www.igus.eu/drylinE-datasheets

motor flange



spacer



coupling



initiator / initiator bracket

