

special stepper motor



- IP00 vacuum



- IP65 splash water

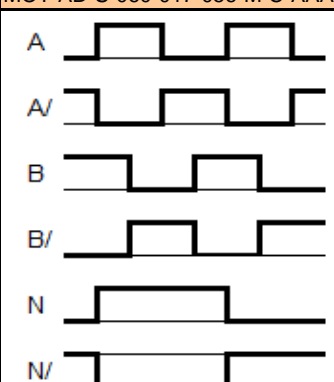
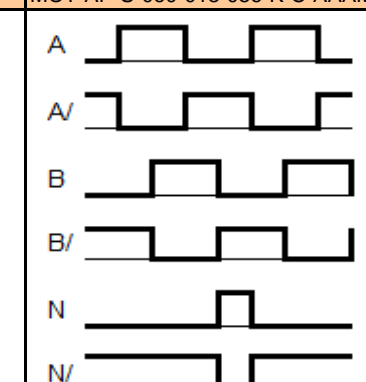


- IP68 underwater

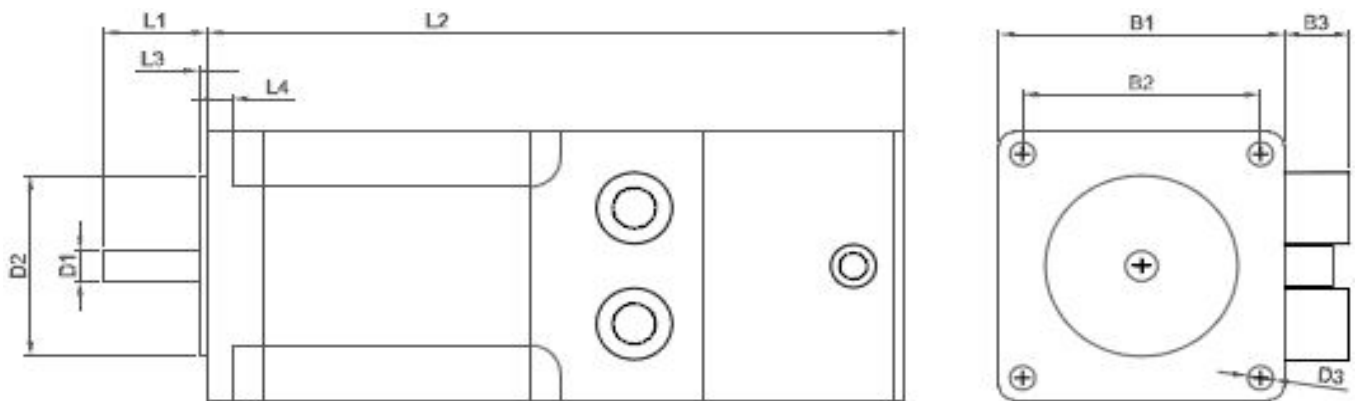
special stepper motor MOT- XX-S-...



part number													
MOT	XX - S - 060 - 007 - 056 - M - A - AAAA												
	<table border="1"> <thead> <tr> <th colspan="2">specifics</th> </tr> </thead> <tbody> <tr> <td>AAAK</td> <td>IP65 splash water</td> </tr> <tr> <td>AAAL</td> <td>IP65 splash water + encoder</td> </tr> <tr> <td>AAAI</td> <td>IP68 underwater</td> </tr> <tr> <td>AAAM</td> <td>IP68 underwater + encoder</td> </tr> <tr> <td>AAAJ</td> <td>IP00 vacuum</td> </tr> </tbody> </table>	specifics		AAAK	IP65 splash water	AAAL	IP65 splash water + encoder	AAAI	IP68 underwater	AAAM	IP68 underwater + encoder	AAAJ	IP00 vacuum
specifics													
AAAK	IP65 splash water												
AAAL	IP65 splash water + encoder												
AAAI	IP68 underwater												
AAAM	IP68 underwater + encoder												
AAAJ	IP00 vacuum												
	<table border="1"> <thead> <tr> <th colspan="2">options</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>without</td> </tr> <tr> <td>C</td> <td>incremental encoder (IP65 and IP68)</td> </tr> </tbody> </table>	options		A	without	C	incremental encoder (IP65 and IP68)						
options													
A	without												
C	incremental encoder (IP65 and IP68)												
	<table border="1"> <thead> <tr> <th colspan="2">motor connection</th> </tr> </thead> <tbody> <tr> <td>M</td> <td>metric plug</td> </tr> <tr> <td>L</td> <td>stranded wire</td> </tr> <tr> <td>K</td> <td>terminal box</td> </tr> </tbody> </table>	motor connection		M	metric plug	L	stranded wire	K	terminal box				
motor connection													
M	metric plug												
L	stranded wire												
K	terminal box												
	<table border="1"> <thead> <tr> <th colspan="2">flange dimension</th> </tr> </thead> <tbody> <tr> <td>056</td> <td>56mm (NEMA23)</td> </tr> </tbody> </table>	flange dimension		056	56mm (NEMA23)								
flange dimension													
056	56mm (NEMA23)												
	<table border="1"> <thead> <tr> <th colspan="2">holding torque</th> </tr> </thead> <tbody> <tr> <td>007</td> <td>0,7Nm</td> </tr> <tr> <td>013</td> <td>1,3Nm</td> </tr> <tr> <td>017</td> <td>1,7Nm</td> </tr> </tbody> </table>	holding torque		007	0,7Nm	013	1,3Nm	017	1,7Nm				
holding torque													
007	0,7Nm												
013	1,3Nm												
017	1,7Nm												
	<table border="1"> <thead> <tr> <th colspan="2">max. voltage</th> </tr> </thead> <tbody> <tr> <td>060</td> <td>60VDC</td> </tr> </tbody> </table>	max. voltage		060	60VDC								
max. voltage													
060	60VDC												
	<table border="1"> <thead> <tr> <th colspan="2">motor type</th> </tr> </thead> <tbody> <tr> <td>S</td> <td>stepper motor</td> </tr> </tbody> </table>	motor type		S	stepper motor								
motor type													
S	stepper motor												
	<table border="1"> <thead> <tr> <th colspan="2">type</th> </tr> </thead> <tbody> <tr> <td>XX</td> <td>version</td> </tr> </tbody> </table>	type		XX	version								
type													
XX	version												
	<table border="1"> <thead> <tr> <th colspan="2">product group</th> </tr> </thead> <tbody> <tr> <td>MOT</td> <td>motor</td> </tr> </tbody> </table>	product group		MOT	motor								
product group													
MOT	motor												

technical data						
motor		MOT-AD-S-060-017-056-M-A-AAAK IP65 splash water	MOT-AD-S-060-017-056-M-C-AAAL IP65 splash water	MOT-AP-S-060-013-056-K-A-AAAI IP68 underwater	MOT-AP-S-060-013-056-K-C-AAAM IP68 underwater	MOT-AP-S-060-007-056-L-A-AAAJ IP00 vacuum
max. voltage	[VDC]	60	60	60	60	60
nominal voltage	[VDC]	24-48	24-48	24-48	24-48	24-48
nominal current	[A]	3,00	3,00	4,20	4,20	2,50
holding torque	[Nm]	1,7	1,7	1,3	1,3	0,7
detent torque	[Nm]	0,055	0,055	0,025	0,025	0,050
step angle	[°]	1,8±5%	1,8±5%	1,8±5%	1,8±5%	1,8±5%
resistance / phase	[Ω]	0,9	0,9	0,8	0,8	0,8
inductance / phase	[mH]	4,4	4,4	1,5	1,5	2,4
moment of inertia / rotor	[kgcm ²]	0,36	0,36	0,38	0,38	0,24
max. shaft load axial	[N]	15	15	80	80	40
max. shaft load radial	[N]	23	23	150	150	80
weight / material						
motor	[kg]	1,20	1,25	1,47	1,51	1,00
motor housing material		Al/St lacquered	Al/St lacquered	Al lacquered	Al lacquered	V2A
operating data						
ambient temperature	[°C]	-10 ...+50	-10 ...+50	-10 ...+50	-10 ...+50	-10 ...+50
max temperature rise	[°C]	80	80	80	80	110
humidity (not condensing)	[%]	100	100	100	100	0
protection class engine case		IP65	IP65	IP68 (10m)	IP68 (10m)	IP00
fine vacuum	[mbar]	-	-	-	-	10 ⁻³
resistant to radiation	[J/kg]	-	-	-	-	10
encoder						
operating voltage	[VDC]	5				
impulse / turn		500				
zero impulse / index		yes				
line-driver		RS422 protocol				
signal sequence		MOT-AD-S-060-017-056-M-C-AAAL			MOT-AP-S-060-013-056-K-C-AAAM	
motor rotation clockwise	CW					

dimension

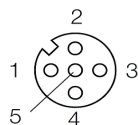
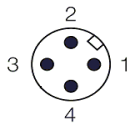


type	B1 [mm]	B2 [mm] ±0,2	B3 [mm] ±0,1	D1 Ø [mm] -0,013	D2 Ø [mm] ±0,025	D3 Ø [mm]	L1 [mm] ±1	L2 [mm] ±1	L3 [mm]	L4 [mm]
MOT-AD-S-060-017-056-M-A-AAAK	56,4	47,14	13	6,35	38,1	5,0	20,6	106,0	1,6	5
MOT-AD-S-060-017-056-M-C-AAAL	56,4	47,14	24	6,35	38,1	5,0	20,6	106,0	1,6	5
MOT-AP-S-060-013-056-K-A-AAAI	56,4	47,14	21	6,35	38,1	5,4	17,0	134,0	1,6	5
MOT-AP-S-060-013-056-K-C-AAAM	56,4	47,14	21	6,35	38,1	5,4	17,0	154,0	1,6	5
MOT-AP-S-060-007-056-L-A-AAAJ	56,4	47,14	-	6,35	38,1	5,0	20,6	74,0	1,6	5

special stepper motor MOT- XX-S-...



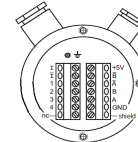
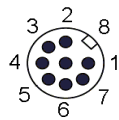
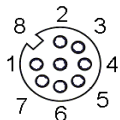
pin assignment motor
 MOT-AD-S-060-017-056-M-... MOT-AP-S-060-013-056-K-A-AAAI



motor bipolar			motor cable	
M12 4-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
-	-	-	-	green/yellow
housing	shielding	-	-	-

motor	
cable inlet M16	
pin	signal
1	A/
2	A
5	B
6	B/
⊥	PE

pin assignment encoder / motor + encoder
 MOT-AD-S-060-017-056-M-C-AAAL MOT-AP-S-060-013-056-K-C-AAAM



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	N	grey
6	N/	pink
7	5V DC	blue
8	0V	red
housing	shielding	shielding

encoder		motor		
cable inlet M16		cable inlet M16		
pin	signal	pin	signal	phase
+5V	+5V	1	A/	1
A	A	2	A	
A/	A/	3	B	2
B	B	4	B/	
B/	B/	⊥	PE	
GND	0V	nc	no connection	
I/	N/	-	-	
I	N	-	-	
shield	shielding	-	-	

wire assignment
 MOT-AP-S-060-007-056-L-A-AAAJ

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

special stepper motor MOT- XX-S-...



cable				
part number	outer jacket	type	cable length	plug
MOT-AD-S-060-017-056-M-...				
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
MOT-AP-S-060-013-056-K-...				
motor - cable Ø: 7,5 mm / bending radius moved < 10m travel distance: min. 5 x d				
-	TPE	CF9.10.05	no minimum order quantity	-
MOT-AP-S-060-013-056-K-C-AAAM				
encoder - cable Ø: 8,5 mm / bending radius moved < 10m travel distance: min. 6,8 x d				
-	TPE	CF11.02.04.02	no minimum order quantity	-

Note: By underwater applications should be used TPE cable.

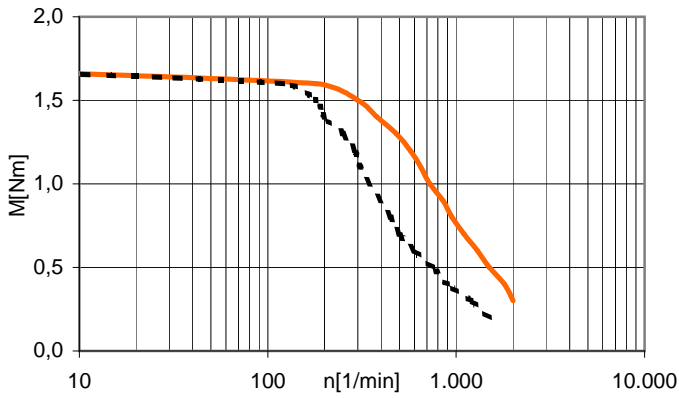
plug straight



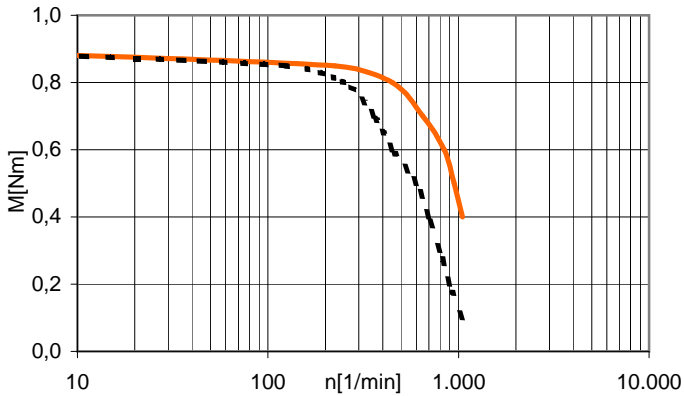
plug angulate



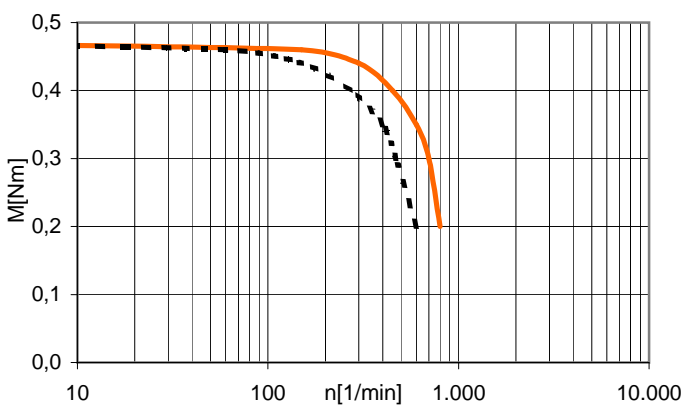
characteristic
flange dimension 56 (NEMA23)
 MOT-AD-S-060-017-056-M-... (IP65 splash water)



flange dimension 56 (NEMA23)
 MOT-AP-S-060-013-056-K-... (IP68 underwater)



flange dimension 56 (NEMA23)
 MOT-AP-S-060-007-056-L-A-AAAJ (IP00 vacuum)



----- 24VDC ——— 48 VDC characteristic based on quarter step mode

MOT-AP-S-060-013-056-K-... (IP68 underwater)	
+	= resistant
0	= conditionally resistant
-	= not resistant

chemical resistance		
substance	residence time	
	1h	24h
formic acid (10%)	+	+
acetic acid (10%)	+	+
lactic acid (10%)	+	+
phosphoric acid (25%)	+	+
sulphur acid (25%)	+	+
hydrochloric acid (10%)	+	+
caustic soda (50%)	+	+
ammoniac (10%)	+	+
salinde solution (10%)	+	+

solvent-, fuel- and detergent resistance		
substance	residence time	
	1h	24h
ethanol	+	0
methylated spirit	+	0
isopropanol	+	+
ethyl acetate	0	0
butyl acetate	+	0
acetone	0	0
methylisobutylketone	+	0
white spirit	+	+
xylene	+	0
unleaded petrol	+	+
diesel oil	+	+
gear oil	+	+
hydraulic oil	+	+
brake fluid	+	+
cooling liquid (4%ig)	+	+
Sidolin (konz.)	+	+
Meister Proper (konz.)	+	+
Microzid Liquid (konz.)	+	+
Pril (1%ig)	+	+
chlorine blech Domestos	+	+