M2G-NL

Parker

Servo - planet gear motor



Product Manual

06-02-01-E-V0509.doc.doc

Additional Supporting Documentation

UL: 03-05-03 	**Product - Manual - AC M2n**
UL: 12-01 	**Product - Manual - Plugs**
UL: 12-02-01 	**Product - Manual - Cable**
UL: 12-02-02 	**Product - Manual - Cable - sets**

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Made in Germany, 2009

Table of Contents

Page

The Most Important Thing First 4

1 General 5
1.1 Product Code 6

2 General Technical Data 7
2.1 General technical data motor 7
2.2 General technical data gear box 8

3 Technical Data 9
3.1 Servo motor size 0 + planet gear NL40 + 60 9
3.2 Servo motor size 1 + planet gear NL60 + 80 11
3.3 Servo motor size 2 + planet gear NL80 13

4 Dimension 14
4.1 Standard design 14
4.1.1 Connections via connectors (≙ standard) 14

5 Connector Assignment 15
5.1 Assignment Power connector / compact drive 15
5.2 Assignment X50–connector strip / drive (plug in module) 16
5.3 Assignment resolver 17
5.4 Plug designation 18
5.4.1 Mating plugs for motor- and brake connections 18
5.4.2 Mating plugs for resolver- and thermal connections 18
5.5 Cable designation 18
5.5.1 Motor-cable 18
5.5.2 Resolver-cable 18
5.6 Wiring Instructions 19

6 Technical Data of the Holding Brake 20

7 Shaft Loads gear box output side 21
7.1 Notation of definition 21
7.2 Technical data of the max. radial FR (N) and axial F_A (N) shaft load 21

8 Notes 22

9 Modification Record 23

The Most Important Thing First

Thank you for your confidence in choosing our products.

These operating instructions are intended to provide an overview of the technical data and features of our products.

Please read the operating instructions completely before operating the product.

Should you have any questions, please contact your nearest service representative.



Improper application of this product in combination with dangerous high voltage can lead to serious injury or death.



Damage can also occur to motors or other products. Therefore, we request that you strictly observe our safety and installation instructions.

Safety Precautions

We assume that as an expert, you are familiar with and will observe all of the relevant safety regulations, especially in accordance with VDE 0100, VDE 0113, VDE 0160, EN 50178, the accident prevention regulations of the employer's liability insurance company and the DIN regulations.

Additionally, it is imperative that all relevant European Union Safety Directives be observed.

Depending on the type and location of the installation, additional regulations, e.g. UL, DIN, must also be fully observed.

If our products are operated in connection with components from other manufacturers, their operating instructions are also subject to be strictly observed.

The AC **servo** - **planet gear motor series** M2G with the integrated planetary gear PG NL is a complete **compact unit**.

Because the sun wheel of the planetary gear is fixed onto the motor shaft **directly**, could be save up the coupling and moment of inertia.
Moreover the complete drive unit is appr. shorter about the length of the coupling.

This drive unit **coordinated ideally** one on the other is universally applicable.

Notes:
The technical data (motor side) were reduced in this documentation to the essential features. If you need more information about the motor, then you find these in the documentation:
03-05-03-E-V… AC M2n.
The ACM2n motor series electric, is the same as the M2G series.

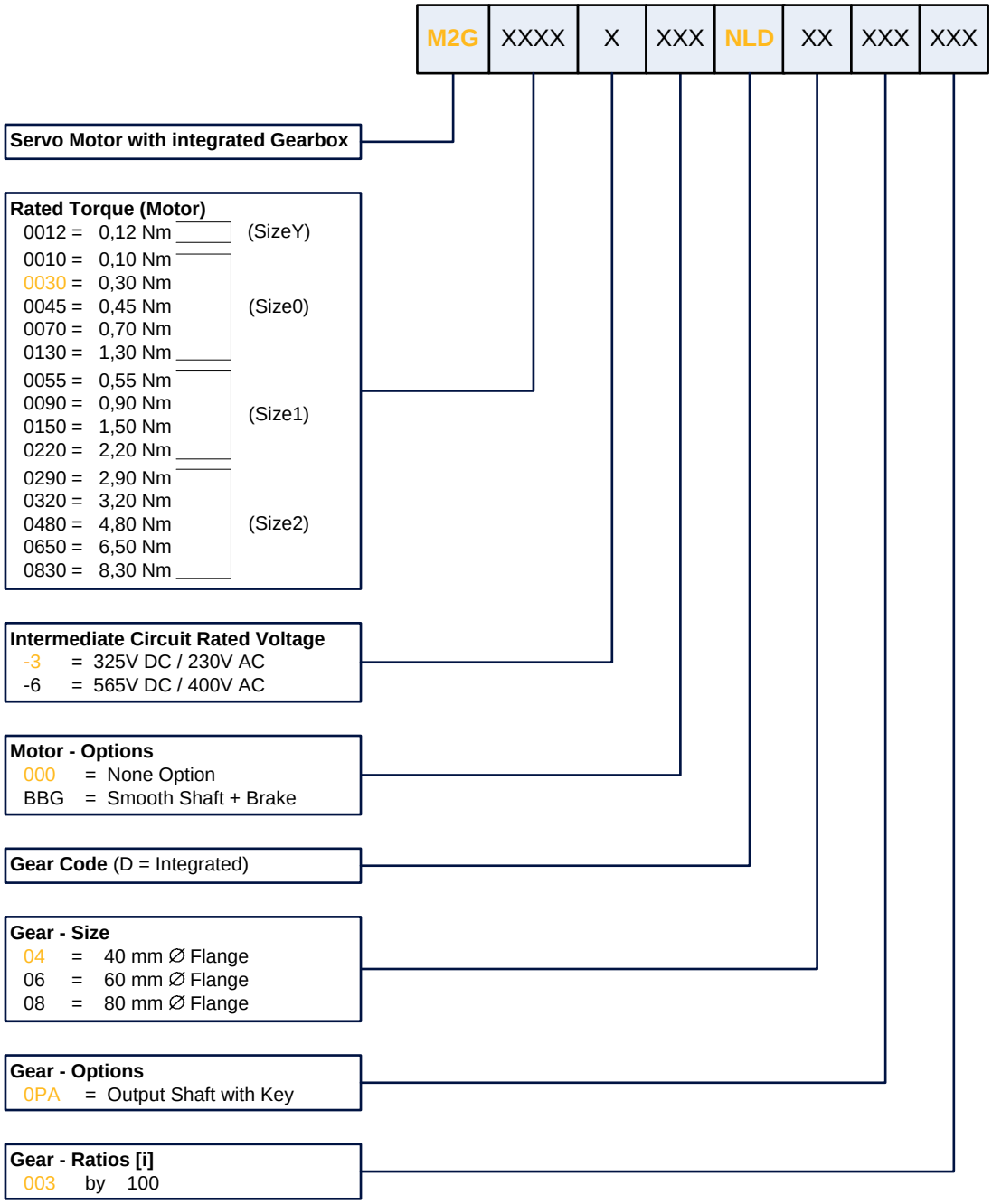


Caution !

PLEASE NOTE ABSOLUTELY WITH THE SELECTION OF THE SERVO-PLANET GEAR MOTOR
The nominal and max. currents provided from the controller must be so dimensioned that no damage at the Servo-planet gear motor can occur by too high torques!

1 General

1.1 Product Code



Ordering Example: M2G00303000NLD040PA003

2.1 General technical data motor

		M2
Degree of protection: With mounted mating connectors / built-on motors	IP54	●
	IP65	☐
Magnetice material:	NdFeB	●
Electrical connections:	rotatable 90° angled for motor-, resolver- thermal connection-flanged sockets	●
	couplings with cable ends	☐
Thermal protection of motor:	Thermal detector PTC	●
Power:	In accordance with DIN VDE 0530 installation site: 1000 ASL T = 100K, Tu 40°C measured with attached cooling surface	●
Voltage:	325 V DC	●
	565 V DC	●
	Other windings are possible.	☐
Cooling:	Self cooling	●
	Separate cooling	☐
Operating mode:	Continuous operation S1	●
Bearings:	Ball bearings, service life approx. 15.000 h	●
Motor shaft:	Special for Gearbox mounting	●
Rotational accuracy:	N, in acc. with DIN ISO 2373	●
Number of pole pairs:	3	●
	other Number of pole pairs are possible	☐
Resolver type:	2 pole SSD Drives – transmitter resolver	●
Insulation class:	F (VDE 0530) 155° C, heating 100° K	●
Varnish: (standard)	Similar RAL 9005 (black)	●

design

● standard

⊙ optional

☐ not possible

2 General Technical Data

2.2 General technical data gear box

➢ Rated output torque		0,4...100	**Nm**
➢ Backlash • Standard 1-stage • Standard 2-stage • Standard 3-stage		<30, 20, 12 <35, 25, 17 <40, 30, 22	**arcmin**
➢ Ratios	**i**	003...100	**-**
➢ Efficiency (optimal) at 1-stage gear at 2-stage gear at 3-stage gear	**-**	96 94 90	**%**
➢ Lifetime: at rated operation	**-**	ca. 15.000	**h**
➢ Standard flange		B14 Round - flange	**-**
➢ Standard shaft • output side (gear shaft)		with key way and feather key	**-**
➢ Temperature • Ambient temperature • Operating temperature	**-**	0 ...+40 -25 ...+90	**°C**
➢ Degree of protection	**-**	**IP 54**	**-**
➢ Mounting position • Standard	**-**	any	**-**
➢ Noise level at input speed 3000 min^{-1}	**-**	1-stage = ca. 55 2-stage = ca. 58 3-stage = ca. 60	**dB(A)**
➢ Lubrication	**-**	lubricated for life (grease)	**-**
➢ Varnishing (standard)	**-**	partial black (similarly RAL 9005)	**-**

3.1 Servo motor size 0 + planet gear NL40 + 60

rated powe	rated current 325 V DC	rated current 565 V DC	stage		backlash	ratio	mass	rated speed	moment of inertia	rated torque t	max. acceleration torque t
P_N (KW)	I_{N325} (A)	I_{N565} (A)	(-)		φ (')	i (-)	mG (kg)	n_{Nab} (min^{-1})	J_G ($10^{-4}kgm^2$)	M_{Nab} (Nm)	M_{maxab} (Nm)
M2G0010...NL40..											
0,04	0,20	-	1		<30	4	1,2	1000	0,060	0,4	1,5
			1		**<30**	**5**	**1,2**	**800**	**0,058**	**0,5**	**1,9**
			1		<30	8	1,2	500	0,056	0,8	3,0
			2		<35	15	1,3	267	0,069	1,4	5,6
			2		<35	16	1,3	250	0,060	1,5	6,0
			2		**<35**	**20**	1,3	**200**	**0,058**	**1,9**	**7,5**
			2		<35	25	1,3	160	0,058	2,4	9,4
			2		<35	32	1,3	125	0,056	3,0	12,0
			2		<35	40	1,3	100	0,055	3,8	15,0
			2		<35	64	1,3	63	0,055	6,0	7,5
			3		<40	80	1,4	50	0,058	7,2	20,0
			3		<40	100	1,4	40	0,058	9,0	20,0
M2G0030...NL40..											
0,17	0,80	-	1	Q	<30	3	1,7	1333	0,127	0,9	3,4
			1		<30	4	1,7	1000	0,110	1,2	4,6
			1		<30	5	1,7	800	0,108	1,4	5,8
			1	Q	<30	8	1,7	500	0,106	2,3	5,0
			2		<35	9	1,8	444	0,126	2,5	10,2
			2		<35	12	1,8	333	0,125	3,4	13,5
			2		<35	15	1,8	267	0,119	4,2	16,9
			2		<35	16	1,8	250	0,110	4,5	18,0
			2		<35	20	1,8	200	0,108	5,6	20,0
			2		<35	25	1,8	160	0,108	7,0	18,0
			2		<35	32	1,8	125	0,106	9,0	20,0
			2		<35	40	1,8	100	0,105	11,3	18,0
			3		<40	60	1,9	67	0,125	16,2	20,0
M2G0045...NL40..											
0,19	1,08	0,60	1		<30	3	2,0	1333	0,177	1,3	4,5
			1		<30	4	2,0	1000	0,160	1,7	6,0
			1	Q	<30	5	2,0	800	0,158	2,2	6,0
			1		<30	8	2,0	500	0,156	3,5	5,0
			2		<35	9	2,1	444	0,176	3,8	14,3
			2	Q	<35	12	2,1	333	0,175	5,1	20,0
			2		<35	15	2,1	267	0,169	6,4	18,0
			2		<35	16	2,1	250	0,160	6,8	20,0
			2		<35	20	2,1	200	0,158	8,5	20,0
			2		<35	25	2,1	160	0,158	11,3	18,0
			2		<35	32	2,1	125	0,156	13,5	20,0
			2		<35	40	2,1	100	0,155	16,9	18,0
M2G0045...NL60..											
0,19	1,08	0,60	1	Q	<20	5	2,5	800	0,186	2,2	8,6
			1	Q	<20	8	2,5	500	0,175	3,5	13,8
			2		<25	20	2,7	200	0,183	8,5	33,8
			2	Q	<25	25	2,7	160	0,185	10, 8	40,0
			2		<25	32	2,7	125	0,174	13,5	44,0
			2	Q	<25	40	2,7	100	0,174	16,9	40,0
			3		<30	60	2,9	67	0,184	24,3	44,0
			3	Q	<30	80	2,9	50	0,183	32,4	44,0

Q = internal Info
Bold print = preferred type

3 Technical Data

Servo motor size 0 + planet gear NL40 + 60

rated powe	rated current 325 V DC	rated current 565 V DC	stage		backlash	ratio	mass	rated speed	moment of inertia	rated torque t	max. acceleration torque t
P_N (KW)	I_{N325} (A)	I_{N565} (A)	(-)		φ (')	i (-)	mG (kg)	n_{Nab} (min^{-1})	J_G ($10^{-4}kgm^2$)	M_{Nab} (Nm)	M_{maxab} (Nm)
M2G0070...NL40..											
0,29	1,46	0,82	1		<30	3	2,3	1333	0,227	2,0	4,5
			1		<30	4	2,3	1000	0,210	2,7	6,0
			1		**<30**	**5**	2,3	**800**	**0,208**	**3,4**	**6,0**
			2		<35	9	2,4	444	0,226	5,9	20,0
			2		<35	12	2,4	333	0,225	7,9	20,0
			2		**<35**	**15**	2,4	**267**	**0,219**	**9,9**	**18,0**
			2		<35	16	2,4	250	0,210	10,5	20,0
			2		<35	20	2,4	200	0,208	13,2	20,0
			2		<35	25	2,4	160	0,208	16,5	18,0
M2G0070...NL60..											
0,29	1,46	0,82	1	Q	<20	4	2,8	1000	0,247	2,7	10,8
			1	Q	<20	5	2,8	800	0,236	3,4	13,4
			1	Q	<20	8	2,8	500	0,206	5,4	15,0
			2	Q	<25	15	3,0	267	0,235	9,9	39,5
			2		<25	16	3,0	250	0,242	10,5	42,1
			2	Q	<25	20	3,0	200	0,233	13,2	44,0
			2		<25	25	3,0	160	0,235	16,5	40,0
			2		<25	32	3,0	125	0,224	21,1	44,0
			2	Q	<25	40	3,0	100	0,224	26,3	40,0
			3	Q	<30	60	3,2	67	0,234	37,8	44,0
M2G0130...NL40..				*							
0,55	2,80	1,40	1		<30	3	3,2	1333	0,357	3,7	4,5
			1		<30	4	3,2	1000	0,340	5,0	6,0
			2		<35	9	3,3	444	0,356	11,0	20,0
			2		<35	12	3,3	333	0,355	14,7	20,0
M2G0130...NL60..				*							
0,55	2,80	1,40	1		<20	3	3,7	1333	0,449	3,7	12,0
			1	Q	<20	4	3,7	1000	0,377	5,0	16,0
			1	Q	<20	5	3,7	800	0,366	6,2	16,0
			1		<20	8	3,7	500	0,355	10,0	15,0
			2		<25	9	3,9	444	0,445	11,0	44,0
			2	Q	<25	12	3,9	333	0,441	14,7	44,0
			2		<25	15	3,9	267	0,365	18,3	44,0
			2		<25	16	3,9	250	0,372	19,6	44,0
			2		<25	20	3,9	200	0,363	24,4	44,0
			2		<25	32	3,9	125	0,354	39,1	44,0

Q = internal Info
Bold print = preferred type
* = not with standstill brake equip !

3.2 Servo motor size 1 + planet gear NL60 + 80

rated powe	rated current 325 V DC	rated current 565 V DC	stage		backlash	ratio	mass	rated speed	moment of inertia	rated torque t	max. acceleration torque t
P_N (KW)	I_{N325} (A)	I_{N565} (A)	(-)		φ (')	i (-)	mG (kg)	n_{Nab} (min^{-1})	J_G ($10^{-4}kgm^2$)	M_{Nab} (Nm)	M_{maxab} (Nm)
M2G0055...NL60..											
0,23	1,40	0,76	1		<20	3	2,9	1333	0,419	1,6	6,3
			1		<20	4	2,9	1000	0,347	2,1	8,4
			1		<20	5	2,9	800	0,336	2,6	10,6
			1	Q	<20	8	2,9	500	0,325	4,2	15,0
			2		<25	9	3,1	444	0,415	4,7	18,6
			2		<25	12	3,1	333	0,411	6,2	24,8
			2		<25	15	3,1	267	0,335	7,8	31,0
			2		<25	16	3,1	250	0,342	8,3	33,0
			2		<25	20	3,1	200	0,333	10,3	41,4
			2	Q	<25	25	3,1	160	0,335	12,9	40,0
			2		<25	32	3,1	125	0,324	16,5	44,0
			2		<25	40	3,1	100	0,324	20,7	40,0
			3		<30	60	3,3	67	0,334	29,7	44,0
			3		<30	80	3,3	50	0,333	39,6	44,0
M2G0090...NL60..											
0,38	1,80	1,10	1		<20	3	3,8	1333	0,799	2,6	10,4
			1		<20	4	3,8	1000	0,727	3,5	13,8
			1		<20	5	3,8	800	0,716	4,3	16,0
			1		<20	8	3,8	500	0,705	6,9	15,0
			2		<25	9	4,0	444	0,795	7,6	30,4
			2		<25	12	4,0	333	0,791	10,2	40,6
			2		<25	15	4,0	267	0,715	12,7	44,0
			2		<25	16	4,0	250	0,722	13,5	44,0
			2		<25	20	4,0	200	0,713	16,9	44,0
			2		<25	32	4,0	125	0,704	27,0	40,0
			2	Q	<25	40	4,0	100	0,704	33,8	40,0
M2G0090...NL80..											
0,38	1,80	1,10	1	Q	<12	5	5	800	0,876	4,3	17,2
M2G0150...NL60..											
0,63	3,00	1,90	1	Q	<20	3	4,6	1333	1,119	4,3	12,0
			1		<20	4	4,6	1000	1,047	5,8	16,0
			1		**<20**	**5**	**4,6**	**800**	**1,036**	**7,2**	**16,0**
			1	Q	<20	8	4,6	500	1,025	11,5	15,0
			2		<25	9	4,8	444	1,115	12,7	44,0
			2		<25	12	4,8	333	1,111	16,9	44,0
			2		**<25**	**15**	4,8	**267**	**1,035**	**21,2**	**44,0**
			2		<25	16	4,8	250	1,042	22,6	44,0
			2	Q	<25	20	4,8	200	1,033	28,2	44,0
M2G0150...NL80..											
0,63	3,00	1,90	**1**	**Q**	**<12**	**5**	**5,8**	**800**	**1,196**	**7,2**	**28,8**
			1		<12	8	5,8	500	1,148	11,5	46,1
			2		<17	16	6,3	250	1,223	22,6	90,2
			2	**Q**	**<17**	**20**	6,3	**200**	**1,186**	**28,2**	**112,8**
			2	Q	<17	25	6,3	160	1,186	35,3	110,0
			2		<17	32	6,3	125	1,148	45,1	120,0
			2	Q	<17	40	6,3	100	1,148	56,4	110,0
			3	Q	<22	80	6,8	50	1,246	108,0	120,0

Q = internal Info
Bold print = preferred type

3 Technical Data

Servo motor size 1 + planet gear NL60 + 80

rated powe	rated current 325 V DC	rated current 565 V DC	stage		backlash	ratio	mass	rated speed	moment of inertia	rated torque t	max. acceleration torque t
P_N (KW)	I_{N325} (A)	I_{N565} (A)	(-)		φ (')	i (-)	mG (kg)	n_{Nab} (min^{-1})	J_G ($10^{-4}kgm^2$)	M_{Nab} (Nm)	M_{maxab} (Nm)
M2G0220...NL60..											
0,92	4,70	2,80	1		<20	3	5,2	1333	1,519	6,3	12,00
			1		<20	4	5,2	1000	1,447	8,5	16,00
			1		**<20**	**5**	**5,2**	**800**	**1,436**	**10,6**	**16,00**
			2		<25	9	5,4	444	1,515	18,6	44,00
			2		<25	12	5,4	333	1,511	24,8	44,00
			2		**<25**	**15**	**5,4**	**267**	**1,435**	**31,0**	**44,00**
			2		<25	16	5,4	250	1,442	33,1	44,00
			2	Q	<25	20	5,4	200	1,433	41,4	44,00
M2G0220...NL80..											
0,92	4,70	2,80	1		<12	4	6,4	1000	1,643	8,5	33,8
			1		**<12**	**5**	**6,4**	**800**	**1,596**	**10,6**	**42,3**
			1	Q	<12	8	6,4	500	1,548	16,9	50,0
			2		<17	12	6,9	333	2,011	24,8	99,2
			2		<17	16	6,9	250	1,623	33,1	120,0
			2		**<17**	**20**	**6,9**	**200**	**1,586**	**41,4**	**120,0**
			2		<17	25	6,9	160	1,586	51,7	110,0
			2	Q	<17	32	6,9	125	1,548	66,2	120,0
			2	Q	<17	40	6,9	100	1,548	82,7	110,0
M2G0290...NL60..											
1,22	6,0	3,0	1		<20	3	6,2	1333	1,919	8,4	12,0
			1		<20	4	6,2	1000	1,847	11,1	16,0
			1	Q	<20	5	6,2	800	1,836	13,9	16,0
			2		<25	9	6,4	444	1,915	25,5	44,0
			2		<25	12	6,4	333	1,911	32,7	44,0
			2		<25	15	6,4	267	1,835	40,9	44,0
M2G0290...NL80..											
1,22	6,0	3,0	1		<12	3	7,4	1333	2,461	8,4	33,4
			1		<12	4	7,4	1000	2,043	11,1	44,6
			1	Q	<12	5	7,4	800	1,996	13,9	50,0
			1		<12	8	7,4	500	1,948	22,3	50,0
			2	Q	<17	9	7,9	444	2,431	24,5	98,1
			2		<17	12	7,9	333	2,411	32,7	130,0
			2	Q	<17	15	7,9	267	2,401	40,9	110,0
			2		<17	16	7,9	250	2,023	43,6	120,0
			2	Q	<17	20	7,9	200	1,986	54,5	120,0
			2		<17	25	7,9	160	1,986	68,2	110,0
			2		<17	32	7,9	125	1,948	87,2	120,0

Q = internal Info
Bold print = preferred type

3.3 Servo motor size 2 + planet gear NL80

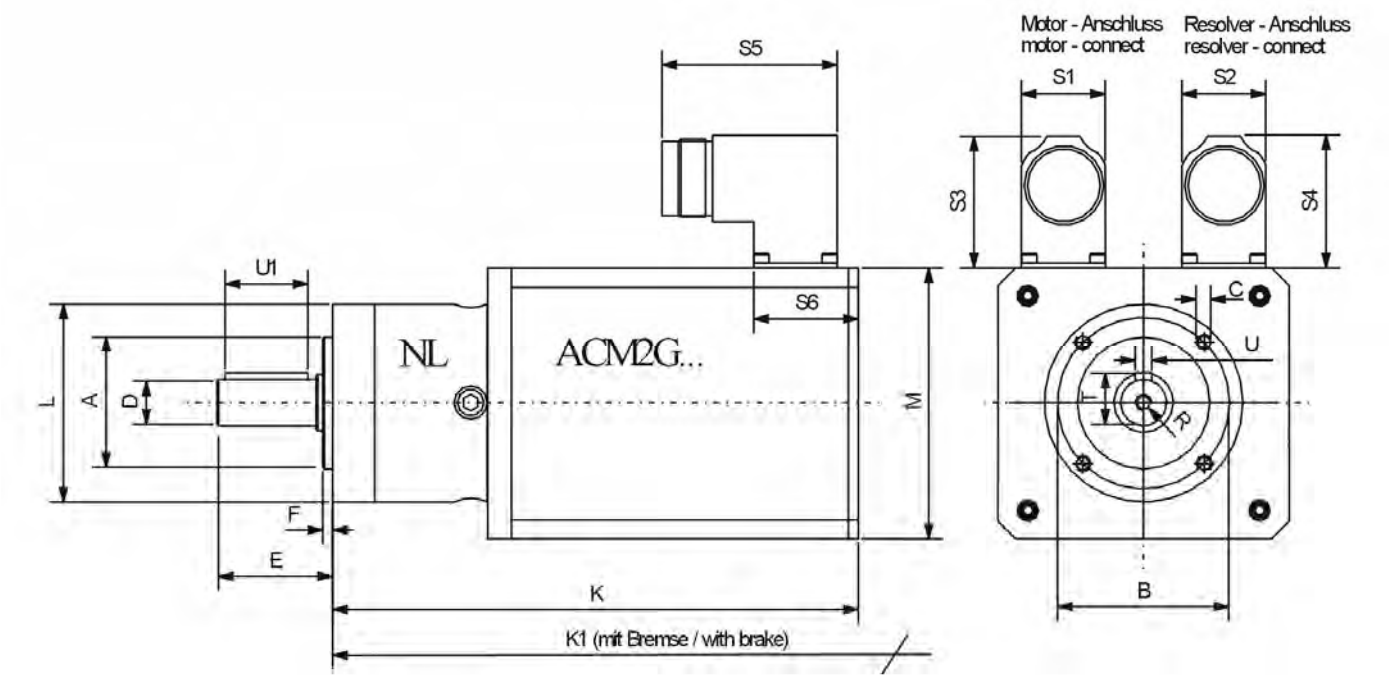
rated powe	rated current 325 V DC	rated current 565 V DC	stage		backlash	ratio	mass	rated speed	moment of inertia	rated torque t	max. acceleration torque t
P_N (KW)	I_{N325} (A)	I_{N565} (A)	(-)		φ (')	i (-)	mG (kg)	n_{Nab} (min^{-1})	J_G ($10^{-4}kgm^2$)	M_{Nab} (Nm)	M_{maxab} (Nm)
M2G0320...NL80..											
1,34	6,40	3,60	1		<12	3	8,1	1333	3,061	9,2	36,8
			1		<12	4	8,1	1000	2,643	12,3	49,2
			1	**Q**	**<12**	**5**	**8,1**	**800**	**2,596**	**15,4**	**50,0**
			1		<12	8	8,1	500	2,548	24,6	50,0
			2		<17	9	8,6	444	3,031	27,1	108,3
			2		<17	12	8,6	333	3,011	36,1	130,0
			2		**<17**	**15**	**8,6**	**267**	**3,001**	**45,1**	**110,0**
			2		<17	16	8,6	250	2,623	48,1	120,0
			2		<17	20	8,6	200	2,586	60,2	120,0
			2		<17	25	8,6	160	2,586	75,2	110,0
			2		<17	32	8,6	125	2,548	96,3	120,0
M2G0480...NL80..											
2,01	9,80	4,90	1		<12	3	10,2	1333	3,861	13,8	40,0
			1		<12	4	10,2	1000	3,443	18,4	50,0
			1		**<12**	**5**	**10,2**	**800**	**3,396**	**23,0**	**50,0**
			1	Q	<12	8	10,2	500	3,348	36,9	50,0
			2		<17	9	10,7	444	3,831	40,6	130,0
			2		<17	12	10,7	333	3,811	54,1	130,0
			2		**<17**	**15**	**10,7**	**267**	**3,801**	**67,7**	**110,0**
			2		<17	16	10,7	250	3,423	72,2	120,0
			2		<17	20	10,7	200	3,386	90,2	120,0
M2G0650...NL80..											
2,72	-	6,60	1	Q	<12	3	10,6	1333	4,261	18,7	40,0
			1		<12	4	10,6	1000	3,843	25,0	50,0
			1	**Q**	**<12**	**5**	**10,6**	**800**	**3,796**	**31,2**	**50,0**
			2		<17	9	11,1	444	4,231	55,0	130,0
			2	Q	<17	12	11,1	333	4,211	73,3	130,0
			2		**<17**	**15**	**11,1**	**267**	**4,201**	**91,7**	**110,0**
			2		<17	16	11,1	250	3,823	97,8	120,0
M2G0830...NL80..											
3,48	-	8,30	1		<12	3	18,1	1333	5,161	23,9	40,0
			1		<12	4	18,1	1000	4,743	31,9	50,0
			1		<12	5	18,1	800	4,696	39,8	50,0
			2	Q	<17	9	18,6	444	5,131	70,2	130,0
			2		<17	12	18,6	333	5,111	93,6	130,0

Q = internal Info
Bold print = preferred type

4 Dimension

4.1 Standard design

4.1.1 Connections via connectors (≙ standard)



Size	Motor				Resolver			
	S1	S3	S5	S6	S2	S4	S5	S6
0...3	26,0	40,0	53,0	31,6	26,0	40,0	53,3	31,6

Type		A	B	C	D	E	F	K			K1			L	M	R	T	U	U1
		(h7)	-	-	(h7)	-	-	1 -stage	2 -stage	3 -stage	1 -stage	2 -stage	3 -stage	-	-	-	(h9)	(h9)	-
M2G0010…NL40..		26	34	M4 x 6	10	26	2	137	150	162	170	183	195	40	55	M3 x 9	11,2	3	18
M2G0030…NL40..		26	34	M4 x 6	10	26	2	162	175	187	195	208	220	40	55	M3 x 9	11,2	3	18
M2G0045…NL40..		26	34	M4 x 6	10	26	2	182	195	207	215	228	240	40	55	M3 x 9	11,2	3	18
M2G0070…NL40..		26	34	M4 x 6	10	26	2	208	215	227	235	248	260	40	55	M3 x 9	11,2	3	18
M2G0130…NL40..		26	34	M4 x 6	10	26	2	273	286	298	-	-	-	40	55	M3 x 9	11,2	3	18
M2G0045…NL60..		40	52	M5 x 8	14	35	3	190	202	215	223	235	248	60	55	M5 x 12	16	5	25
M2G0070…NL60..		40	52	M5 x 8	14	35	3	210	222	235	243	255	268	60	55	M5 x 12	16	5	25
M2G0130…NL60..	*	40	52	M5 x 8	14	35	3	281	293	306	-	-	-	60	55	M5 x 12	16	5	25
M2G0055…NL60..		40	52	M5 x 8	14	35	3	159	171	184	200	212	225	60	82	M5 x 12	16	5	25
M2G0090…NL60..		40	52	M5 x 8	14	35	3	179	191	204	220	232	245	60	82	M5 x 12	16	5	25
M2G0150…NL60..		40	52	M5 x 8	14	35	3	199	224	237	240	252	265	60	82	M5 x 12	16	5	25
M2G0220…NL60..		40	52	M5 x 8	14	35	3	219	231	244	260	272	285	60	82	M5 x 12	16	5	25
M2G0290…NL60..		40	52	M5 x 8	14	35	3	249	261	274	296	308	321	60	82	M5 x 12	16	5	25
M2G0090…NL80..	Q	60	70	M6 x 10	20	40	3	188	205	223	229	246	264	80	82	M6 x 16	22,5	6	28
M2G0150…NL80..		60	70	M6 x 10	20	40	3	213	230	248	253	270	288	80	82	M6 x 16	22,5	6	28
M2G0220…NL80..		60	70	M6 x 10	20	40	3	232	249	267	273	290	308	80	82	M6 x 16	22,5	6	28
M2G0290…NL80..		60	70	M6 x 10	20	40	3	262	279	297	309	326	344	80	82	M6 x 16	22,5	6	28
M2G0320…NL80..		60	70	M6 x 10	20	40	3	238	255	273	278	295	313	80	105	M6 x 16	22,5	6	28
M2G0480…NL80..		60	70	M6 x 10	20	40	3	268	285	303	308	325	343	80	105	M6 x 16	22,5	6	28
M2G0650…NL80..		60	70	M6 x 10	20	40	3	288	305	323	328	345	363	80	105	M6 x 16	22,5	6	28
M2G0830…NL80..		60	70	M6 x 10	20	40	3	333	350	368	373	390	408	80	105	M6 x 16	22,5	6	28

Q = internal Info
* = not with standstill brake equip !

5.1 Assignment Power connector / compact drive

power plug

motor side

motor size 0...2

type: AC G;
AC M2n; ACM2G-NL;
AC MHS / MHM

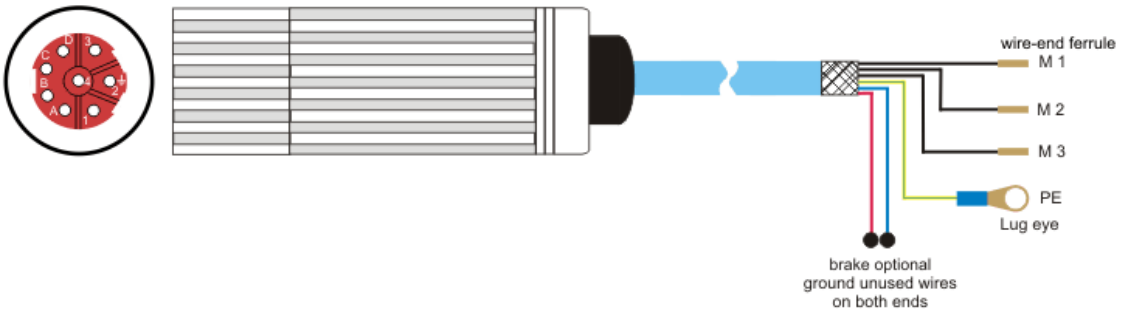
terminal strip

drive side

servo drive of the 630`series

type: in the compact enclosure

view solder / crimp connector - side



S MB GM2nRn BG0/3-C ST.0100.3001		KMB BG0/2-B KA.0003.6304			terminal strip
PIN - Nr.		colour	function		-
1		black 1	motor connection		M1 (U)
2	1)	yellow / green	ground connection		PE
3		black 2	motor connection		M2 (V)
4		black 3	motor connection		M3 (W)
A		red	brake +24V DC	2)	connection not on terminal
B		blue	brake 0V DC		
C		-	-		-
D		-	-		-
case	1)				case

1)
The screen is connected at the connector pin and also to the connector shell

2)
Attention ! Safety and insulation:
The brake must be insulated for protective separation (PELV). Otherwise the insulation class of the drive becomes reduced or the use of an additional galvanic seperation is required

Parker						**Maßstab / scale:**	
						Typ / type:	KK MB GM2nRn 0/2.K - XX.X / B KK MB GM2nRn 0/2.638 - XX.X / B
				Bear.	28.03.07	DL	**Bezeichnung / designation:** Blue motor cable for standard motors (size 0 - 2) and servo drives (compact enclosure)
				Gep.	02.04.07	EH	
				Norm			
						Zeichnungsnummer / drawing No:	Z-MK.6400.xxxx — Blatt / sheet 1
Zust.	Änderung	Datum	Name	Ursprung		**Dateiname / File name:**	Z-MK-6400-E.cdr

5 Connector Assignment

5.2 Assignment X50–connector strip / drive (plug in module)

power plug

motor side

motor size 0...2

type: AC G;
AC M2n; ACM2G-NL;
AC MHS / MHM

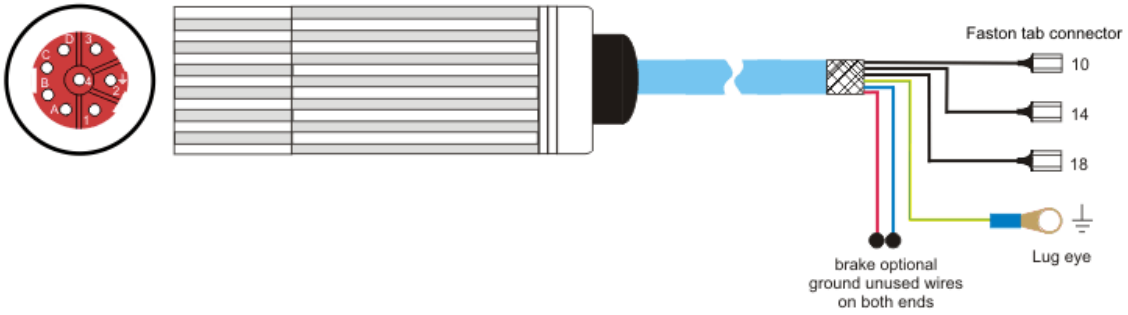
X50 - terminal strip

rack side / drive side

servo drive of the 630`series

type: rack version

view solder / crimp connector - side



S MB GM2nRn BG 0/3-C+L ST.0100.3001		K MB BG 0/2-B KA.0003.6304		X50 connector strip 3)
PIN - Nr.		colour	Funktion	-
1		black 1	motor connection	10
				12
2	1)	yellow / green	ground connection	case
3		black 2	motor connection	14
				16
4		black 3	motor connection	18
				20
A		red	brake +24V DC 2)	-
B		blue	brake 0V DC	-
C		-	-	-
D		-	-	-
case	1)		screen	case

1)
The screen is connected at the connector pin and also to the connector shell

2)
Attention ! Safety and insulation:
The brake must be insulated for protective separation (PELV). Otherwise the insulation class of the drive becomes reduced or the use of an additional galvanic seperation is required

3)
not in the scope of delivery

Parker					**Maßstab / scale:**	
					Typ / type: KK MB GM2nRn 0/2.R - XX.X / B	
				Bear. 28.03.07 DL	**Bezeichnung / designation:** Blue motor cable (plug/terminal strip) for standard motors and servo drives (rack version)	
				Gep. 02.04.07 EH		
				Norm		
					Zeichnungsnummer / drawing No: Z-MK.0400.xxxx	Blatt sheet 1
Zust.	Änderung	Datum	Name	Ursprung	**Dateiname / File name:** Z-MK-0400-E.cdr	

5.3 Assignment resolver

resolver plug

motor side

motor size all

type: AC G;
AC M2n; ACM2G-NL;
AC R / AC RL

X30-resolver plug

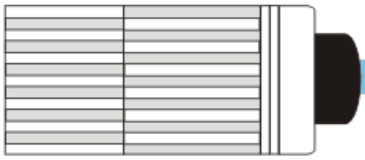
drive side

servo drives of the 630'series

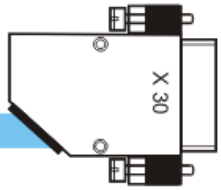
type: all

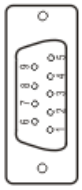
view solderside





view solderside





SIR ST.0200.0001	KIR -B KA.0003.6301		SUB - D 09 S/M ST.1002.2001
PIN - Nr.	colour	function	PIN - Nr.
1	white	sin +	4
2	brown	sin -	8
3	green	cos +	3
4	yellow	cos -	7
5	red	PTC optional	2
6	blue	PTC optional	6
7	pink	carrier -	9
8	gray	carrier +	5
case		screen	case

Parker						Maßstab / scale:	
						Typ / type: KK RT GMR-xx.x/B	
				Bear.	28.03.07	DL	Bezeichnung / designation: Blue resolver cable for standard motors and servo drives (not for NX and EX)
				Gep.	02.04.07	EH	
				Norm			
							Zeichnungsnummer / drawing No: Z-RK.6300.xxxx — Blatt sheet 1
Zust.	Änderung	Datum	Name	Ursprung			Dateiname / File name: Z-RK-6300-E.cdr

5 Connector Assignment

5.4 Plug designation

5.4.1 Mating plugs for motor- and brake connections

	Plug designation	
Type:	S MB G M2nRn 0/3	

5.4.2 Mating plugs for resolver- and thermal connections

	Plug designation	
Typ:	SIR	

5.5 Cable designation

5.5.1 Motor-cable

	Cable designation	
Type:	K MB R BG 0/2 – B	
	K MB R BG 0/2 – B – LC	*

5.5.2 Resolver-cable

	Cable designation	
Type:	K IR – B	
	K IR – B – LC	*

* LC = low cost cable

5.6 Wiring Instructions

Important rules when operating servo drives and servo motors:

Before any connections are made, it is necessary to make certain that the power to cabinet is off.
It is necessary to explicitly follow the connection directions as outlined in the product documentation
and to employ the prescribed type and quality of cable that is recommended there.

1. A radio interference suppression level cannot be maintained without an interference suppression filter at the line input. Moreover, line filters increase the immunity of the system to interference.
2. The cable between the power electronics and the motor must be shielded as YCY. A SY shield is not suitable. The shield support for the power cable (motor cable) must be on both ends. **We recommend using our motor cables!**
3. Metal parts in the switching cabinet must be connected with each other having large areas of contact and must carry high frequencies very well. Avoid anodized, yellow-passivating and painted surfaces which can have very high resistance values based on the frequency! Make sure that the metals lie close together in the chemical electromotive series! Use the good conductivity and the large surface of the galvanized mounting plate as earth potential!
4. Relays, contactors and solenoid values built into the same circuit must be connected with spark-suppressing components limiting over voltage spikes. This applies also if these parts are not mounted in the same cabinet as the servo regulator.
5. The shield for the analog signal lines must be installed on one end and, if possible, in the switching cabinet. Ensure a connection which provides extensive contact and which is low - resistant! The shield for the digital signal lines must be installed on both ends, must have extensive contact and must be low resistance. An additional equalizer is to be laid parallel when there are potential differences. It is necessary to use plugs with metal enclosures with separable connections.
6. Avoid unnecessary extra loops on all connecting cables. All measures regarding filtering and shielding can be short cicuited on them with high frequency. Connect unused wires in cables on both ends to the equipment ground conductor.
7. Unshielded cables of a cicuit, the conductors going out and returning, should be twisted due to symmetrical interferences.
8. Separate physically "live" and "dead" wires even in the planning phase. Give special attention to the motor cables. The area of the common terminal strip-line input and motor output is especially endangered.
9. Relays, contactors and solenoid values. The cables should be laid in the switching cabinet as close as possible to the ground; wires hanging freely in the air are preferred EMC victims as well as active and passive aerials.
10. When operating with more than one line component in a common network, EMC problems are to be expected. From the start, the installation planner must integrate in his concept high frequency emitted interference as well as the electromagnetic susceptibilityof the components to one another and take measures against it.
11. It is absolutely necessary to run cable shields completely up to the connectors. The connection of the cable shields to ground must be near the servo regulator (10 - 50 cm). Sensitive measuring leads should be as far as possible from this area; this applies also when they are shielded!
12. It is mandatory to run the motor cables in a separate cable channel and to lay flexible cable shielding also when these are shielded. This channel must be separated at least 30 - 40 cm from the channel for the signal lines.

6 Technical Data of the Holding Brake

optional

standstill brake type:		motor size BG (-)	standstill torque M_{BrH} (Nm)	max. current I_{max} (A)	moment of inertia J_{Br} (kg cm²)	weight m_{Br} (g)
0BR M BG 0	1)	0	0,75	0,33	0,03	190
BBR M BG 1		1	5,00	0,42	1,00	445
BBR M BG 2		2	10,00	0,55	1,00	700

1) the servo - planet gear motor ACM2G00130…
is not with standstill brake equip !

Supply voltage: U_S = 24 V DC, ± 10% acc. VDE 0580

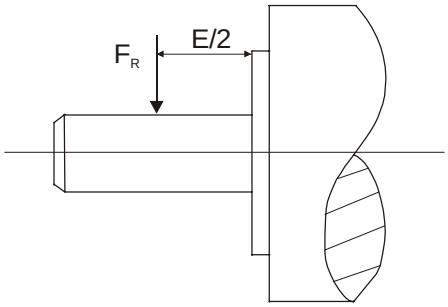
Holding brakes are integrated on A- side; therefore the planet gear motor length is changed, see dimension K1 !

The inserted brake is not characterized for the general slowing-down the drives, but is merely a standstill and/or holding brake.

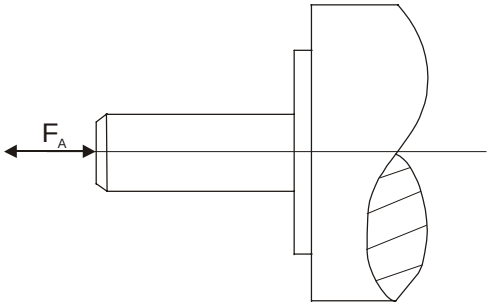
Therefore, it must become guaranteed by the customer that the drive stands, before that brake comes in. Should that brake not only become employed in the case of standing drives, so it's generally the wear and therefore the holding torque of the brake depending on:

- the speed of the drive with which the brake will be switched
- the load moment of inertia on the drive
- environmental conditions as temperature, and so forth.
- the number of braking and so forth

7.1 Notation of definition



radial



axial

7.2 Technical data of the max. radial FR (N) and axial F_A (N) shaft load

servo - planet gear motor type	max. radial shaft load	max. axial shaft load
(-)	F_R (N)	F_A (N)
M2G0010…NL40..	200	200
M2G0030…NL40..		
M2G0045…NL40..		
M2G0070…NL40..		
M2G0130…NL40..		
M2G0045…NL60..	500	600
M2G0070…NL60..		
M2G0130…NL60..		
M2G0055…NL60..		
M2G0090…NL60..		
M2G0150…NL60..		
M2G0220…NL60..		
M2G0290…NL60..		
M2G0150…NL80..	950	1200
M2G0150…NL80..		
M2G0220…NL80..		
M2G0290…NL80..		
M2G0320…NL80..		
M2G0480…NL80..		
M2G0650…NL80..		
M2G0830…NL80..		



These values refer to a lifetime of min. 10.000h by a speed of the output shaft of n = 100min^{-1} and deputy class S1 – mode for electrical machines

8 Notes

Version	Modification	Chapter	Date	Name	Comment
V0103	Preliminary version	-	03.09.03	N. Dreilich	New
V0204	Release standard - documentation	-	06.08.04	N. Dreilich	-
V0304	SSD Drives	-	21.10.2004	N. Dreilich	Logos
V0405	Moment of inertia Layout	3 -	04.08.05	N. Dreilich	
V0506	Layout Product Code Data New combinations Paker Layout New Type Code	1.1 2 3.1 5 6	01.10.2009	N.Dreilich	



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