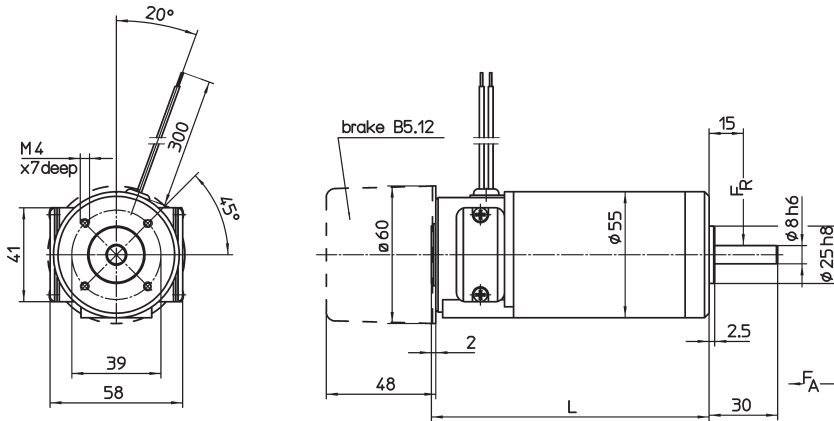




## GNM 31

**DC Motors**  
with permanent magnet field

Motor series GNM 31  
up to 90 Watts output power  
with + without parking brake

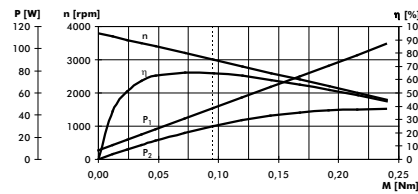


Type	Dimension L
GNM 3125	96,5
GNM 3150	121,5
GNM 3175	147,5

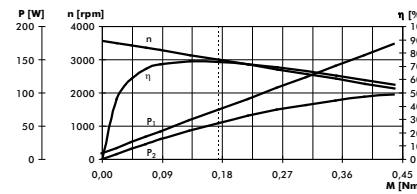
**Operation characteristics:**

n - Speed  
 $\eta$  - Efficiency  
 $P_1$  - Input power  
 $P_2$  - Output power

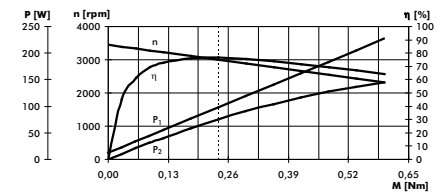
GNM3125, 24V, 3000rpm



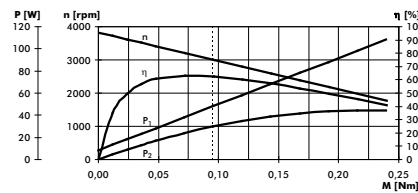
GNM3150, 24V, 3000rpm



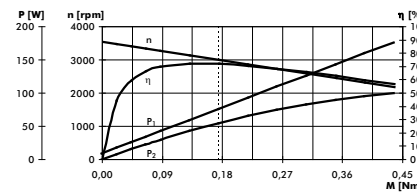
GNM3175, 24V, 3000rpm



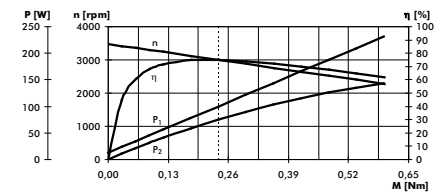
GNM3125, 42V, 3000rpm



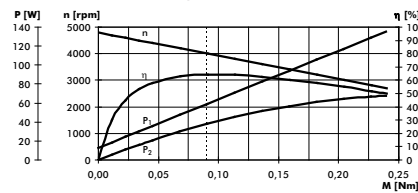
GNM3150, 42V, 3000rpm



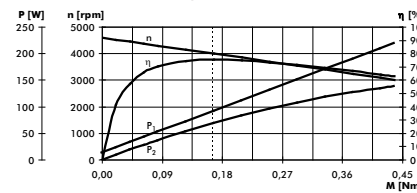
GNM3175, 42V, 3000rpm



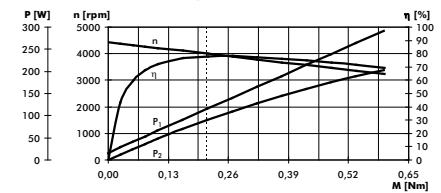
GNM3125, 24V, 4000rpm



GNM3150, 24V, 4000rpm



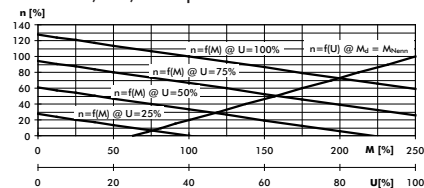
GNM3175, 24V, 4000rpm



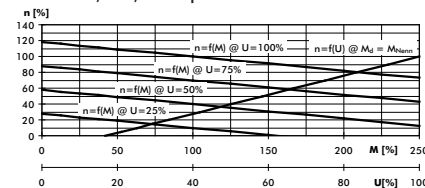
**Control characteristics :**

$n=f(M)$  - Speed as a torque function  
 $n=f(U)$  - Speed as a supply voltage function

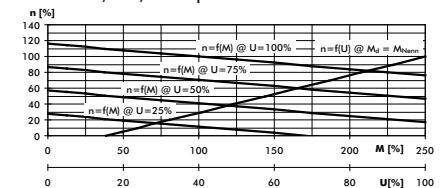
GNM3125, 24V, 3000rpm  
GNM3125, 42V, 3000rpm  
GNM3125, 24V, 4000rpm



GNM3150, 24V, 3000rpm  
GNM3150, 42V, 3000rpm  
GNM3150, 24V, 4000rpm



GNM3175, 24V, 3000rpm  
GNM3175, 42V, 3000rpm  
GNM3175, 24V, 4000rpm



type series	GNM 3125			GNM 3150			GNM 3175		
	3000	3000	4000	3000	3000	4000	3000	3000	4000
nominal speed	rpm	42	42	24	42	24	24	42	4000
nominal voltage	V	24	1,15	2,5	1,8	3,9	4,1	2,4	24
nominal current	A	2	30	38	55	70	75	75	4,8
nominal power	W	30	S1	IP 41	S1	IP 41	S1	IP 41	90
operation acc. to VDE 0530			free leads reversible			free leads reversible			
protection acc. to VDE 0530			B 14			B 14			
connection									
rotating direction									
design									
<b>mechanical data:</b>									
mass moment of inertia	kgm <sup>2</sup>	0,096	0,096	0,091	0,175	0,167	0,239	0,239	0,0421*10 <sup>-3</sup>
nominal torque	Nm	0,4	0,39	0,48	0,96	1,1	1,5	1,52	0,239
starting torque	Nm	0,105	0,105	0,105	0,2	0,2	0,27	0,27	1,9
max. continuous torque at stall	Nm	83	86	87	33	36	19	20	0,27
speed regulation constant	N <sup>-1</sup> cm <sup>-1</sup> rpm	15,4	16	16,1	10,1	11,2	8,4	9	20
mechanical time constant	ms	0,02	0,02	0,025	0,025	0,03	0,035	0,035	9
friction torque	Nm	0,02	0,19						0,035
rotor weight	kg	0,77	1,17						0,42
motor weight	kg	1,17	608/608						1,5
motor weight incl. parking brake	kg	1,17	100						1,9
ball bearings			40						608/608
F <sub>r</sub> (allowable radial shaft load)									100
F <sub>A</sub> (allowable axial shaft load)									40
<b>electrical data:</b>									
armature resistance	Ω	2,6	8,6	1,5	1,05	0,68	0,69	2,16	0,42
armature inductance	mH	3	8,5	2,2	1,4	0,98	0,94	2,8	0,6
terminal resistance	Ω	3,13	9,2	2	1,4	0,98	0,9	2,7	0,58
voltage constant	V/1000 rpm	6,27	10,6	4,9	6,69	5,3	7,06	12	5,48
torque constant	Nm/A	0,06	0,101	0,047	0,064	0,051	0,067	0,115	0,052
starting current	A	16	4,5	12	17,1	24	26	15	41
max. peak current <sup>1)</sup>	A	16	9,5	20	31	38	43	25	54
electrical time constant	ms	0,96	0,92	1,1	1	1	1,04	1,04	1,04
<b>thermal data:</b>									
max. ambient temperature	°C	40	40	40	40	40	40	40	40
insulation class acc. to VDE 0530		F	F	F	F	F	F	F	F
thermal time constant	min	32	32	32	32	32	32	32	32
temperature-rise without cooling	K/W	4,7	4,7	3,8	3,9	3,2	3,3	3,3	3,1
<b>parking brake B 5.12:</b>									
nominal voltage	V	24	24	24	24	24	24	24	24
nominal current	A	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
static break torque (motor shaft)	Nm	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
max. number of operations per hour		2000	2000	2000	2000	2000	2000	2000	2000
<p>Tolerances acc. to standard VDE 0530. ± 10 % is valid for not VDE mentioned tolerances.</p> <p>The values mentioned in the table are valid for supply with DC voltage with allowable harmonic content up to 5%. For undulatory current with increased harmonic content the rated motor values must be multiplied by 0,7.</p> <p><sup>1)</sup> The values are valid for operation in temperature-ranges from 0 up to 40°C and it is not allowed to exceed them, even not for a short-time, to avoid magnet-weakening.</p> <p>● Motors also available with DC tachogenerator and/or incremental encoder.</p> <p>● Motors also available in protection IP 54 and/or with device plug DIN 43650.</p> <p>● Design with brake in protection IP 54 and with cable connection.</p>									
<p><b>Motor design:</b>          Brushed 2-pole DC motor with permanent magnet field.          Brush holder opening will be accessible by removing the cover plate.          Flange mounting with 4 threads (see drawing).</p> <p>Rotating direction:          The rotating direction can be changed by inverting the connections.</p> <p>1. Order example          Motor          GNM 3125          24 V, 3000 rpm, 30 W          Special designs on request.</p> <p>2. Order example          Motor          GNM 3150          42 V, 3000 rpm, 55 W          - DC tachogenerator          - T 9.05          - 5 V / 1000 rpm</p>									
design-changes reserved									