



Ultra slim profile, totally enclosed, d.c. motors with cost effective, servo capability. Using flat armature technology they are ideal for general purpose applications.

GP series motors are available in 3 standard sizes and a wide range of performances are achieved from two alternative magnetic technologies.

**GPM** - excellent performance to volume ratio

**GPN** - enhanced GPM performance

Low voltage versions are ideally suited to battery driven and vehicle based applications. A wide selection of design options are also available.

- 3 sizes
- 12 models

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# GP

# Series

d.c. pancake motors





### Standard Benefits

#### GPM models

- High torque
- Zero cogging
- Ultra slow/creep capabilities
- Minimal torque ripple
- Low inertia
- Instant start torque
- Low inductance
- Ultra slim profile
- Wide speed range
- EMC compliant

#### GPN models

- As GPM benefits plus:
- Rare earth magnet technology
- Higher power to weight ratio
- Extra high torque
- Ultra fast acceleration
- High sensitivity

### Design Options

- Operating voltages to suit
- Tailored performance profiles
- Custom shaft sizes/profiles
- In-line gearboxes to suit
- Special OEM configurations
- Rear shaft for encoder, or brake
- High altitude/vacuum operation

### Typical Applications

- Process plant
- Robotics
- Automated machinery
- Professional transcription machines
- Winding machinery
- Sub-sea research machines
- Vehicle sub-systems
- Medical/scientific equipment
- Fluid valve control

### Material and Finish

#### Casing/lend plates

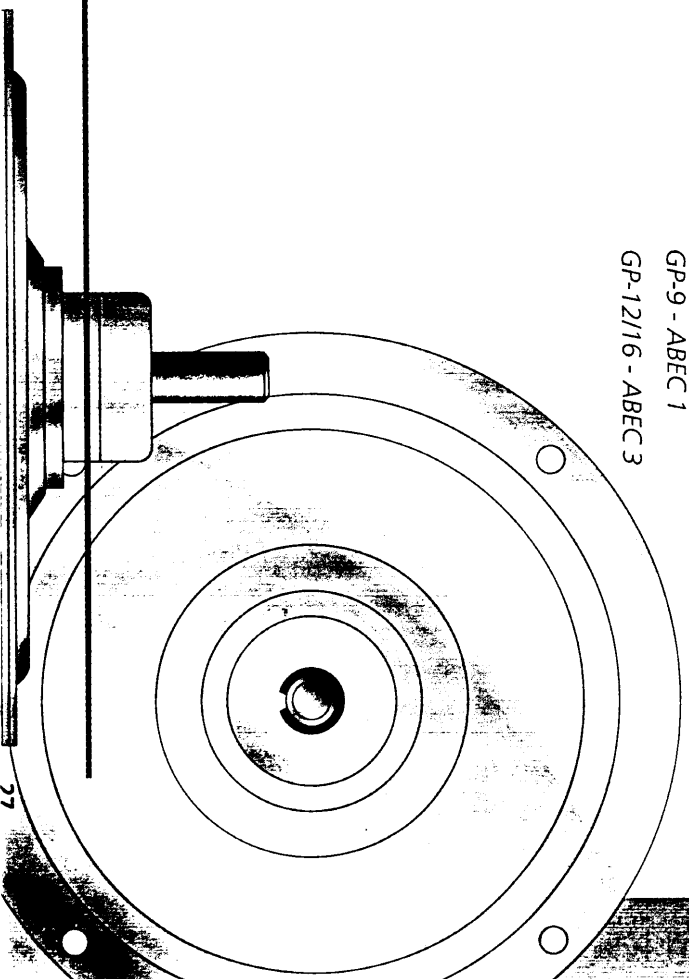
*GPM - mild steel - bright zinc plated*

*GPN - mild steel - matt black painted*

#### Bearings

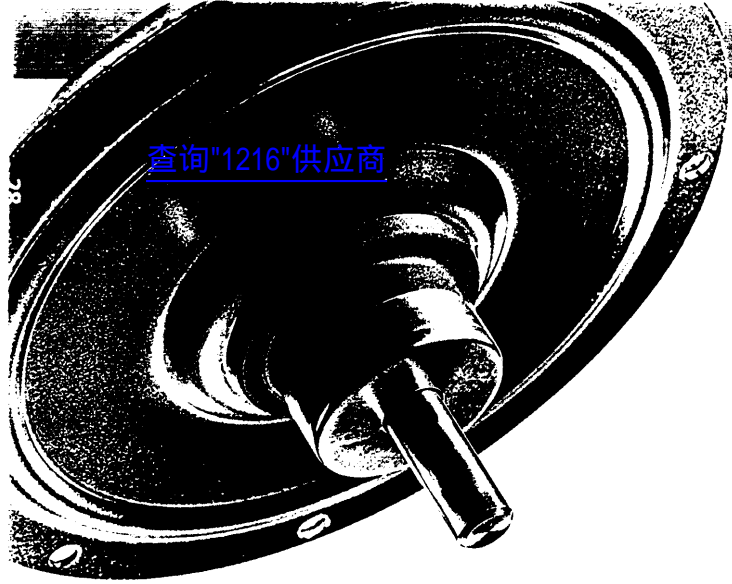
*GP-9 - ABEC 1*

*GP-12/16 - ABEC 3*



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**servo compatibility**  
**ultra slim profile**



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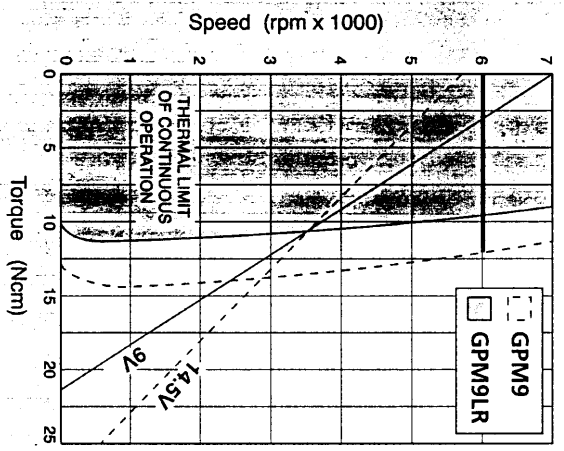
### Performance Characteristics

These general performance values are typical and can be more precisely qualified upon receipt of customer's specific application requirements.

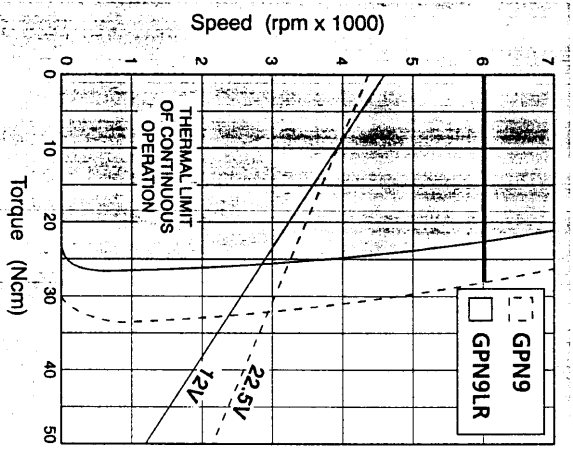
All motor (tach/amplifier) performance data has been obtained at 22°C. Thermal limits for continuous operation were achieved with a 200 x 400 x 10mm aluminium heatsink fitted.

MAXIMUM SPEED FOR CONTINUOUS USE. REFER TO PML FOR OTHER DUTY CYCLES.

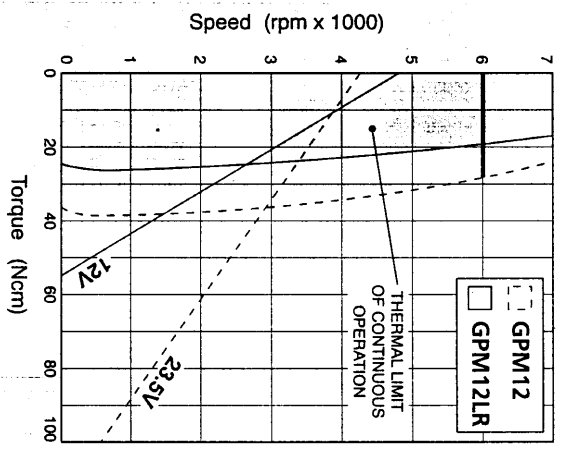
### GPM9 and GPM9LR



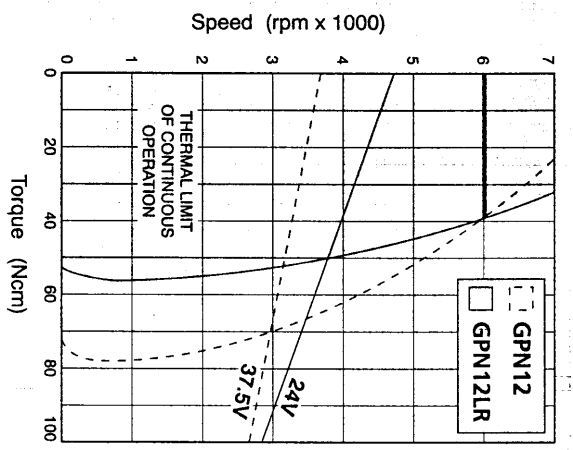
### GPN9 and GPN9LR



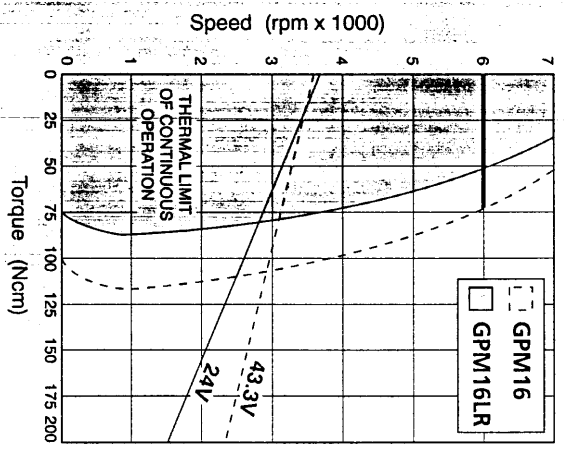
### GPM12 and GPM12LR



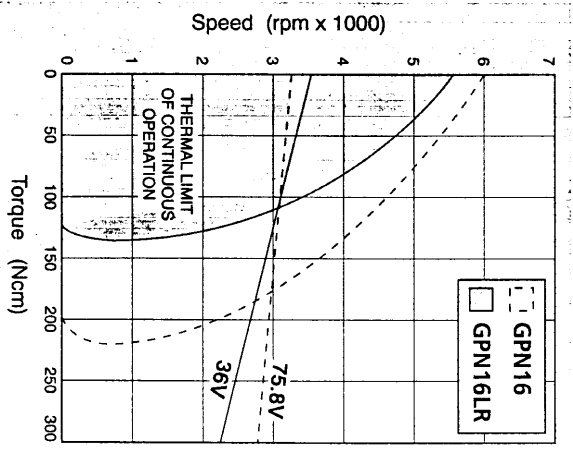
### GPN12 and GPN12LR



### GPM16 and GPM16LR



### GPN16 and GPN16LR



# GPM SERIES

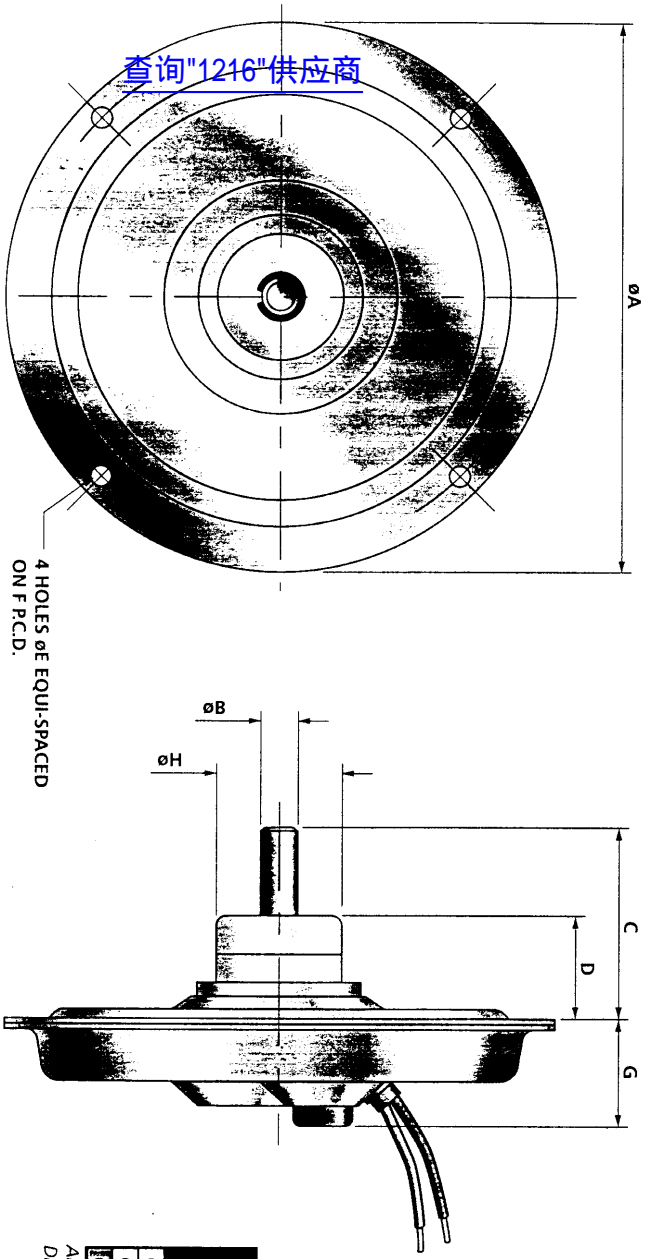
## Performance Data

### TEST DETAIL

MOTOR RATINGS	SYMBOL	UNIT	GPM9	GPM9LR	GPM12	GPM12LR	GPM16	GPM16LR	GPN9	GPN9LR	GPN12	GPN12LR	GPN16	GPN16LR
Power	P	Watt	41	38.7	110	64	300	221	94	75	200	190	533	324
Torque	T	Ncm	13.1	10	35	20	96	73	30	25	64	48	170	100
Speed	N	rpm	3000	3705	3000	3050	3000	2905	3000	2887	3000	3810	3000	3102
Voltage	V	Voit	14.5	9	23.5	12	43.3	24	22.5	12	37.5	24	75.8	36
Current	I	Amp	6.9	11.7	7.6	10.8	9.3	13.4	6.85	11.4	7.3	11	8.4	11.7
Continuous Stall Current	IS	Amp	4.5	6.5	5.0	6.5	6.0	8.0	4.5	6.5	5.0	7	5.7	8

MOTOR CONSTANTS	SYMBOL	UNIT	GPM9	GPM9LR	GPM12	GPM12LR	GPM16	GPM16LR	GPN9	GPN9LR	GPN12	GPN12LR	GPN16	GPN16LR
Torque	Kt	Ncm/Amp	2.19	1.05	5.1	2.2	11.2	6.0	4.77	2.38	9.65	4.8	21.87	9.6
EMF	Ke	V/krpm	2.3	1.1	5.3	2.3	11.8	6.3	5.0	2.5	10.1	5.0	22.9	10
Damping	Kd	Ncm/krpm	0.3	0.3	0.59	0.56	0.99	1.0	0.5	0.3	1.2	0.7	2.5	2.5
Friction Torque	Tf	Ncm	1.2	1.2	2.0	2.0	4.9	4.9	1.2	1.2	2.0	2.0	4.9	4.9
Terminal Resistance @5A	Rtm	Ohm	1.1	0.42	1.0	0.45	0.85	0.425	1.1	0.42	1.0	0.45	0.85	0.425
Total Inertia	J	kg.cm <sup>2</sup>	0.388	0.388	1.624	1.624	6.284	6.284	0.388	0.388	1.624	1.624	6.284	6.284

## Dimensional Details



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4 HOLES ØE EQUI-SPACED ON F.P.C.D.

MOTOR TYPE	DIMENSIONS											Wt			
	A	B	C	D	E	F	G	H	ØE		ØF				
GP*9*	120	5.992/5.987	30.2	11.7	4.7	110	26	19.05	0.59						
GP*12*	152.4	9.995/9.982	53	28.5	5.8	142	32	34.3	1.22						
GP*16	215.1	11.989/11.976	60	32.5	7.1	200	35.6	45.72	2.9						

All dimensions in mm. All weights in kg. Dimensions can be to NEMA, National, or General International standards upon request.