

# Economy Precision planetary gearheads

## HPE series



- Choice of industrial standard frame sizes from 50 to 120 mm diameter
- Standard mounting
- Fits virtually all servo motors
- Standard integer gear ratios from 5:1 to 100:1
- Low backlash of typically  $\leq 12$  arc min. for positioning repeatability
- High torque capacity from 12 to 210 Nm, suitable for rapid positioning
- 200% Emergency overload capacity for increased protection
- Pure planetary design for smooth operation & reduced vibration
- Improved *Easyfit* motor mounting for a wide range of motors

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The HPE series planetary gearheads are designed to meet the demanding dynamic requirements of high performance servo systems at highly competitive pricing levels. This is achieved by a commitment to manufacturing efficiency combined with optimum design that maintains high reliability & quality. The units are suitable for fitting to a wide range of stepper, dc servo or brushless servo motors using a comprehensive range of standard motor mounting flanges and an *Easyfit* shaft clamp design.

HPE gearheads are the ideal choice in industrial automation, packaging, laser cutting, Test and & measurement machinery as well as scientific apparatus.



## Key features

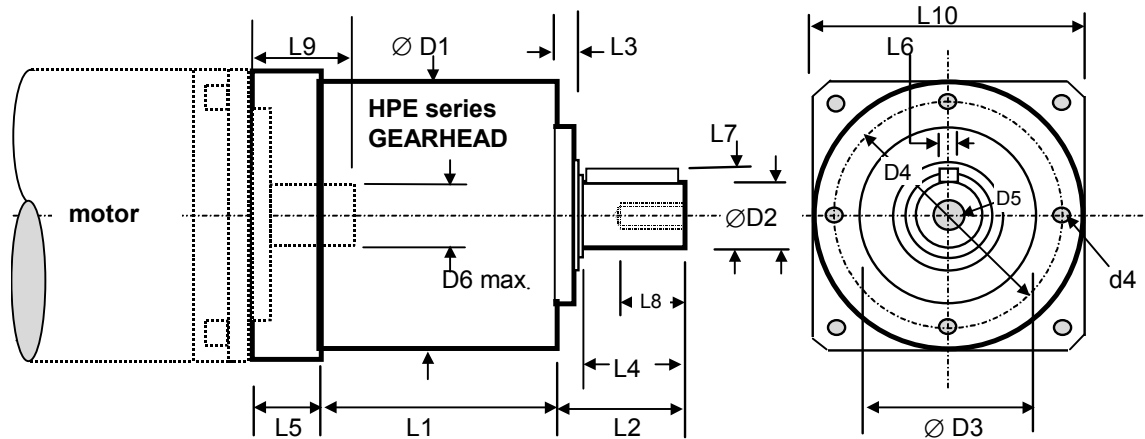
- Standard integer gear ratios from 5:1 to 100:1
- Low backlash of typically  $\leq 12$  arc minutes for high positioning repeatability
- Choice of industrial standard frame sizes from 50 to 120 mm diameter
- High torque capacity from 12 to 210 Nm suitable for rapid positioning systems
- 200% Emergency overload capacity for increased protection
- Pure planetary design for smooth operation & reduced vibration
- Improved *Easyfit* motor mounting for a wide range of motors
- Rapid delivery
- Low cost

## Specification

Gearhead		HPE 50		HPE 70		HPE 90		HPE120	
Diameter	mm	50		70		90		120	
Ratio options	N:1	5, 25, 50	10 100	5, 25,50	10 100	5, 25,50	10 100	5, 25,50	10 100
Continuous rated torque	Nm	6.5	5.5	18	16.5	45	40	120	100
Peak torque	Nm	15	12	33	30	82	72	210	180
Emergency torque	Nm	28		75		200		480	
Max. Radial load	N	850		1650		2600		4800	
Max. Axial load	N	700		1600		2000		4000	
Maximum input speed	rpm	6000		6000		6000		5000	
Nominal input speed	rpm	4000		3000		3000		2500	
No load input torque	Nm	$\leq 0.05$		$\leq 0.14$		$\leq 0.38$		$\leq 0.8$	
Number of stages		1	2	1	2	1	2	1	2
Ratios	N:1	5, 10	25, 50, 100	5, 10	25, 50, 100	5, 10	25, 50, 100	5, 10	25, 50, 100
Torsional Backlash	arc min.	12	15	12	15	12	15	12	15
Torsional rigidity	Nm/arcmin	1		2		6		22	
Inertia @ input	Kgcm <sup>2</sup>	0.063	0.052	0.31	0.25	1.72	1.47	5.5	4.45
Mass	Kg	0.8	1.0	2.0	2.5	4.3	5.3	9.2	11.4
Efficiency		97%	95%	97%	95%	97%	95%	97%	95%
No load input torque	Nm	$\leq 0.05$		$\leq 0.14$		$\leq 0.38$		$\leq 0.8$	
Noise level @ 2000 rpm To ISO 3746	dBA	$\leq 52$		$\leq 56$		$\leq 62$		$\leq 62$	
Typical operating life	Hours	20,000							

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Dimensions:

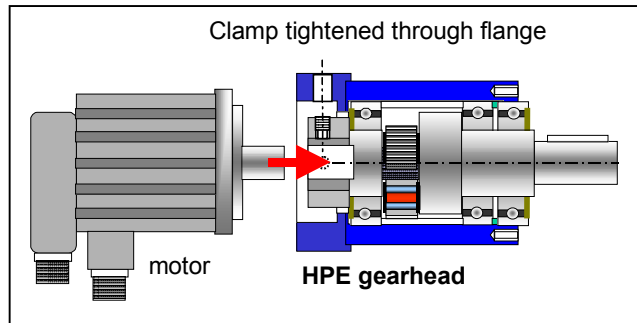


Dimensions: mm

Gearhead		HPE50		HPE70		HPE90		HPE120	
<b>Gearbox Diameter</b>	D1	50		70		90		120	
Output shaft diameter	D2	12k6		16k6		22k6		32k6	
Gearbox mounting register	D3	35h6		52h6		68h6		90h6	
Gearbox mounting holes	d4	M4		M5		M6		M8	
mounting hole PCD	D4	44		62		80		108	
Shaft fixing bolt size	D5	M4		M5		M8		M12	
Max motor shaft diameter	D6	11		14		19		24	
Number of stages		1	2	1	2	1	2	1	2
<b>Gearbox Length</b>	L1	53	74.5	69	91.5	80	109	106	142
Overall Output Shaft length	L2	24.5		36		46		70	
Gearbox register length	L3	4		5		5		6	
Free shaft length	L4	18		28		36		58	
Adaptor length *	L5	18		22		30		33	
Output shaft key width	L6	4		5		6		10	
Output shaft key height	L7	13.5 h9		18 h9		24.5 h9		35 h9	
Shaft fixing tapped length	L8	8		10		13		22	
Max motor shaft length *	L9	23.5		32		41		51	
Note*	Longer motor shafts can be accommodated using increased length adaptors								
Max Motor adaptor size	L10	70		90		115		140	

## Easyfit motor mounting

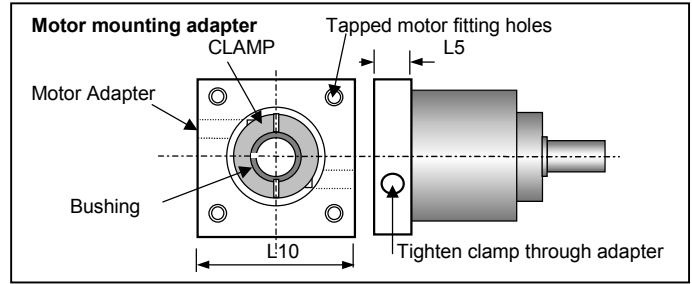
The motor is mounted via a precision flange that provides an accurate register for the motor. The input pinion is mounted in its own sealed bearing and incorporates a clamp, the bolts of which are tightened through the input flange. The advantage of the design is easy motor mounting in both horizontal and vertical positions providing improved serviceability. The clamping force of the system is sufficient to transmit the peak torque capacity of the most powerful motor that can be fitted to each gearhead.



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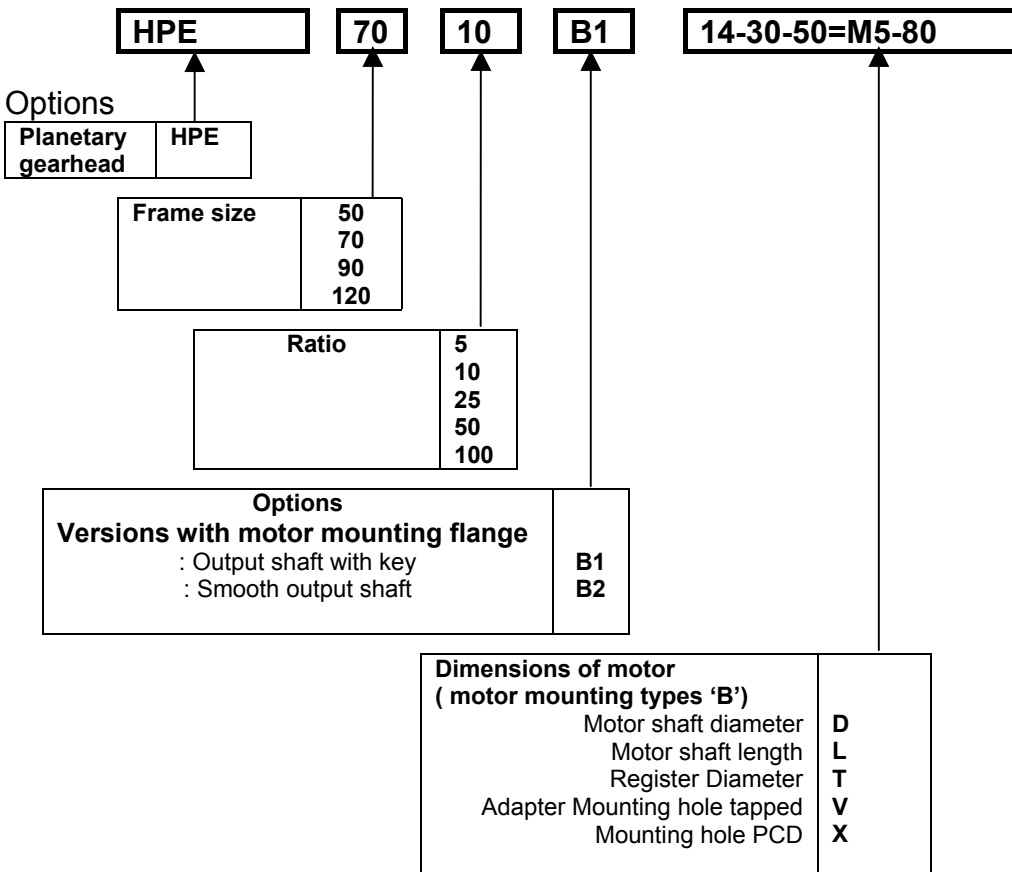
## Specifying the motor fitting kit

The motor is fitted to the HPE gearhead via a mounting kit that consists of a motor adapter that fits the motor flange and a bushing sleeve to fit the motor shaft. The motor shaft and flange details are added to the gearhead part number as shown below



## Ordering codes:

The following ordering code is used to specify for the HPE series gearhead, a typical example being shown below:



## Fitting kit for motors with round flanges

When fitting a motor with a round flange a two part adapter is required as shown in the drawing.

