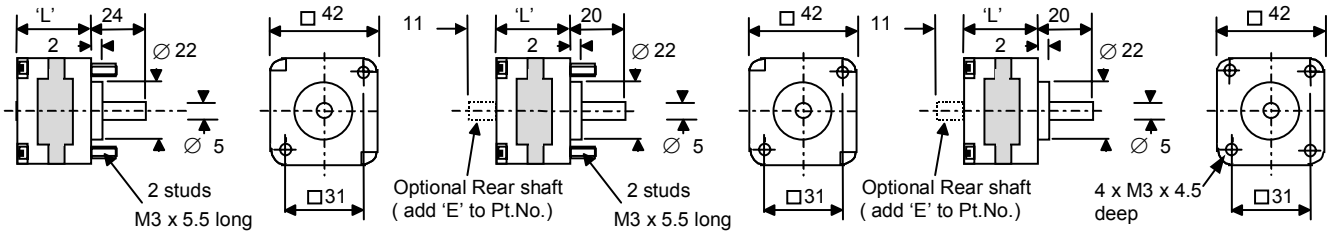
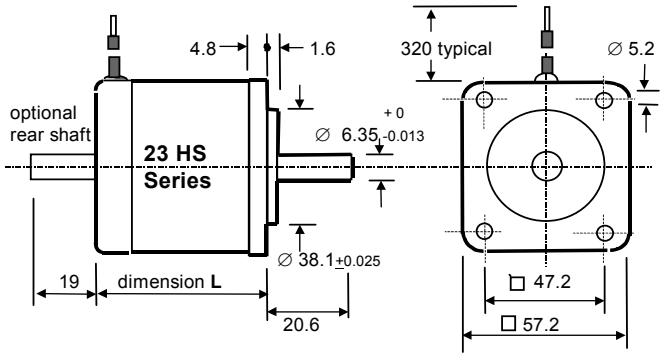
17 & 23 frame size hybrid stepper motors HS series

The hybrid stepper motors in the range conform to the international NEMA standard, and provide 200 steps /rev when used with full step drives or 400 steps per revolution in the preferred half step drive mode. The internal construction has also been optimised for microstepping resulting in improved smoothness of operation. Where increased torque and resolution is required at reduced speed a range of gearheads are available. The motors are suitable for use with either Uni-polar or Bi-polar drive circuits, the 23HS series having 8 leads to provide the choice of parallel or series connection. Despite the high quality of the latest generation **HS series**, the units remain competitively priced. The 23HS series offer a choice of single or double shaft when encoders or parking brakes are required and a wide range of drive and control modules are available to construct complete high performance systems.

Dimensions mm



17HS: Style A Style B Style C



23HS series

Specification: 17HS & 23HS series 1.8 degree stepper motors

motor type	length 'L' mm	Style	holding torque Ncm	rotor inertia $Kgcm^2$	resistance per phase ohms	current per phase amps	inductance per phase mH	number of leads	mass Kg
17HS-006 Mk 3	34	A	11.2	0.018	36	0.26	17	6	0.2
17HS-008	34	B	1.2	0.018	15.6	0.4	11.9	6	0.2
17HS020E	34	A	9.0	0.019	2	1.0	1.1	6	0.2
17HS020E Mk 2	34	C	14	0.018	5.6	1.0	8.5	4	0.2
23HS-030	38.7		25	0.077	1.6	1.5	1.6	6	0.36
23HS-104 Mk 2**	52		52	0.124	1.1	2.0	1.7	8	0.5
23HS-104 E	50.8		38	0.115	1.1	2.0	2.0	8	0.5
23HS-108 **Mk 2	52		52	0.124	0.37	3.9	0.59	8	0.5
23HS-108 E	50.8		38	0.115	0.37	3.9	0.59	8	0.5
23HS-202 E	56		50	0.135	5.0	1.0	9.5	8	0.55
23HS-304 **Mk 2	67		89	0.200	1.8	2.0	3.3	8	0.7
23HS-309 **Mk 2	67		87	0.200	0.33	4.7	0.50	8	0.7
23HS-309 **	76.2		95	0.239	0.37	4.7	0.73	8	0.95

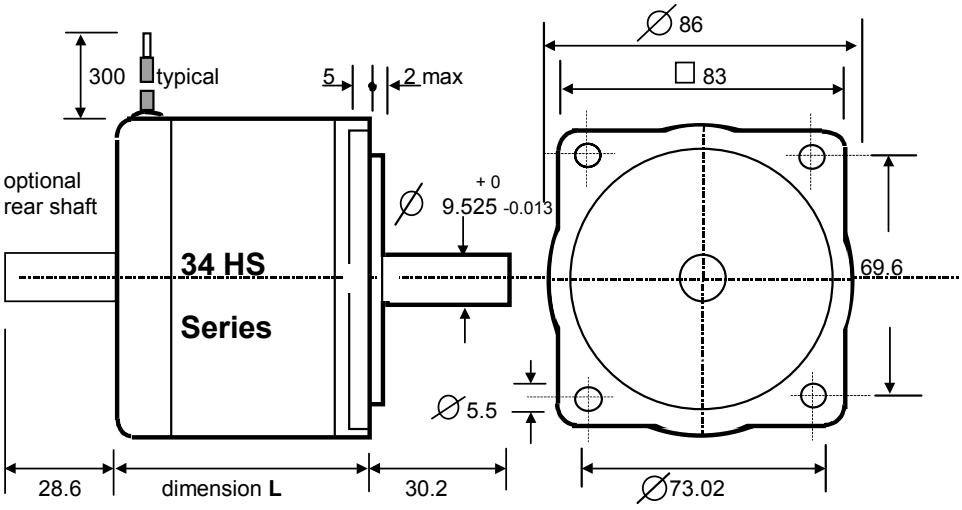
Note ** Rear shaft may be specified by adding '**E**' to part number EXAMPLE: **23HS-304E Mk 2**

34 frame size hybrid stepper motors 34HS series

The 34HS series hybrid stepper motors in the range conform to the international NEMA standard, and provide 200 steps /rev when used with full step drives or 400 steps per revolution in the preferred half step drive mode. Where increased torque and resolution at reduced speed is required a comprehensive range of planetary gearheads may be specified. The internal construction has also been optimised for microstepping resulting in improved smoothness of operation. Suitable for use with either Uni-polar or Bi-polar drive circuits, the motors incorporate design features such as loop-less termination of the motor windings to internal circuit boards for increased reliability. Despite the high quality of the latest generation **34HS series**, the units remain competitively priced and offer a choice of single or double shaft when encoders or parking brakes are required.

A comprehensive range of drive and control modules are available for use with HS series motors. These conform to the International Eurocard standard and may be purchased in modular form or as a complete racked system depending on customer choice.

Dimensions mm

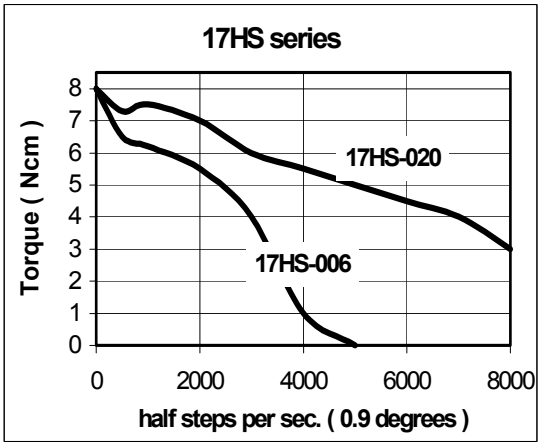


Specification: 34HS series 1.8 degree stepper motors

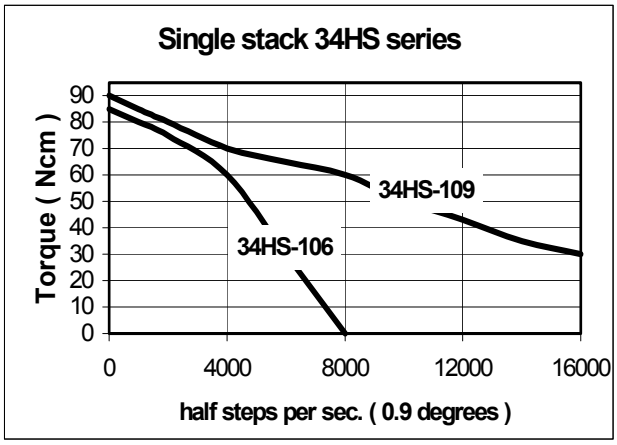
motor type	length 'L' mm	holding torque Ncm	rotor inertia $Kgcm^2$	resistance per phase ohms	current per phase amps	inductance per phase mH	number of leads	mass Kg
34HS-106 **	62.3	120	0.63	0.95	3.1	3.2	8	1.5
34HS-109 **	62.3	120	0.63	0.45	4.7	1.3	8	1.5
34HS-209 **	94.25	220	1.33	0.55	4.6	2.5	8	2.58

Note ** Rear shaft may be specified by adding '**E**' to part number EXAMPLE: **34HS-209E**

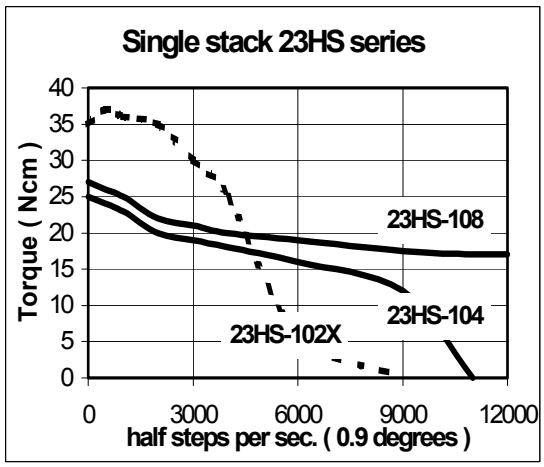
Typical HS series stepper motor performance



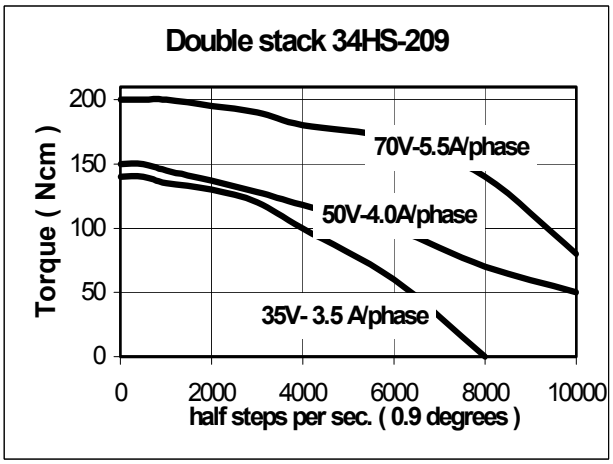
Uni-polar drive with 24 Vdc supply



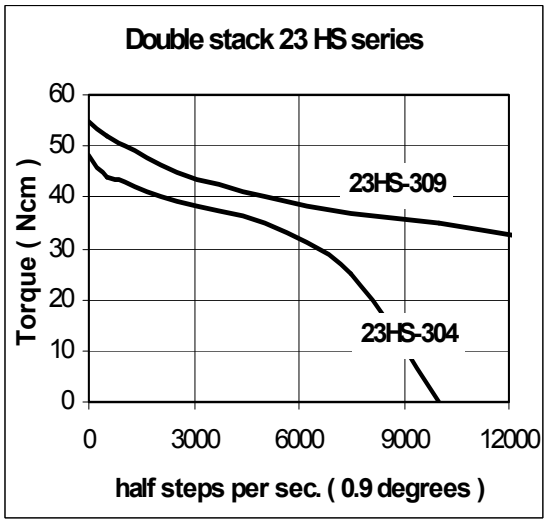
Bi-polar drive with coils in parallel



Bi-polar drive with coils in parallel



Bi-polar drive with coils in parallel



Bi-polar drive with coils in parallel

For increased torque at low speed the motors may be connected with their coils in series

Hybrid stepper motors with integral encoders HS series

The **23HS** & **34HS** stepper motors are available fitted with dual track encoders to provide feedback of motor position. Motors thus equipped are therefore ideally suited for use with motion systems employing closed loop controllers such as PM341 & PM600.

Two encoders types **CI** & **RI** series are available, which may be specified with the **23HS** motors & **34HS** types as shown below. Since the controllers monitor each signal transition on each of the encoder's A & B tracks, a line count of 100 ppr provides a measuring resolution of 400 steps/rev while a 500 ppr encoder is used with 2000 step per rev. microstepping drives.

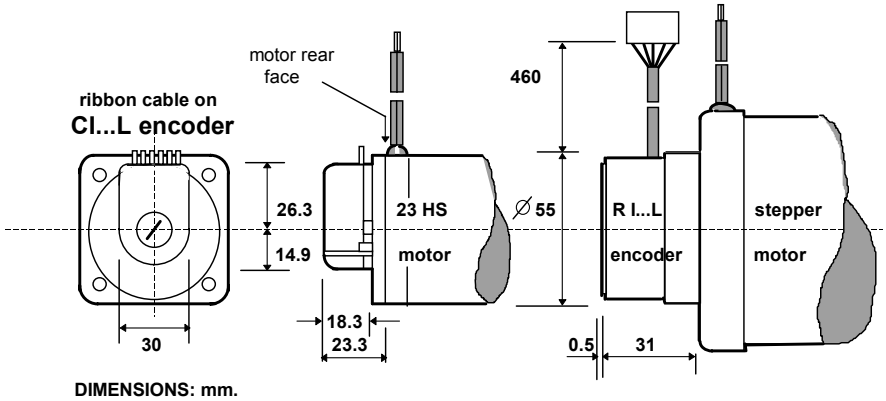
Where customers require an encoder for use with control systems not supplied by Mclennan and which require alternative line counts, the model **'RI'** encoder is available with any line count required up to a maximum value of 2,000 ppr. resulting in a measuring resolution of 8,000 steps/rev.

Encoder signals:

The **CI...T** encoder provides a 5V TTL output signal and is suitable for instrumentation applications where the encoder is to be sited no further than 5 meters from the measuring electronics.
The **CI...L** & **RI ...L** encoders are equipped with a 5V line driver output suitable for industrial installations where the motor-encoder may be up to 50 meters away from the measuring electronics providing the encoder lead is correctly screened.

Dual track output	pulses/rev	index	motor steps/rev	motor type	Encoder type
A B	100	-	400	23HS...	**CI 100T**
A B	500	-	2000	23HS...	**CI..500T**
A $\overline{A}$ B $\overline{B}$	500	C $\overline{C}$	2000	23HS...	**CI 500L**
A $\overline{A}$ B $\overline{B}$	100	C $\overline{C}$	400	34HS.	**RI 100L**
A $\overline{A}$ B $\overline{B}$	500	C $\overline{C}$	2000	34HS...	**RI 500L**

stepper motor fitted with CI Encoder **RI...L encoder**



DIMENSIONS: mm.