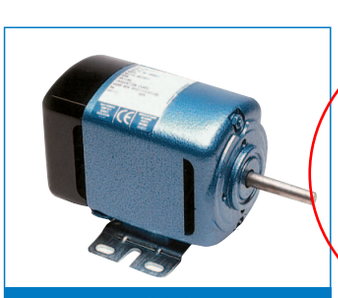
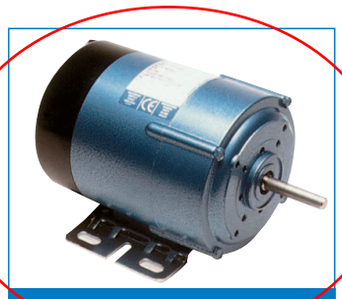
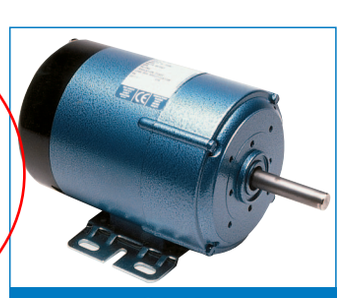
Motor Types:
SD 1
SD 11 SD 12

Commutator Type Motors
Variable Speed A.C. – D.C. Series or D.C. Shunt Wound
Enclosures: Standard – SD 1 Ventilated Internal Fan Cooled (IP 20)
SD 11 – SD 12 Drip Proof Internal Fan Cooled (IP 23)
Alternative – Totally Enclosed (IP 50) with Terminal Box (IP 54)


SD 1 TV


SD 1


SD 11


SD 12

- **Voltage Range:** 12v – 24v, 100/120v, 200/220v and 230/250v, A.C. Series – D.C. Shunt or Series. Special voltages quoted for on request. See data column for minimum voltages.
- **Starting Current:** Approximately 3 times full load.
- **Rotation:** Reversible four leads as standard.
- **Construction: Motors** – Shielded ball bearings spring loaded for quiet running.
  Single Reduction Gearboxes: Fitted with ball bearings, alloy gearbox with composite gear, grease lubricated for life and suitable for mounting in any position.
  In-Line Double Reduction Gearboxes: Fitted with ball bearings, alloy gearbox with composite gear, grease or oil bath lubricated for life and suitable for mounting in any position.
  Spur Reduction Gearboxes: Fitted with ball bearings, alloy gearbox with composite pinion gear and multi-spur type hardened steel gears, oil bath lubricated for life. Suitable for mounting in any position.
- **Connections:** 30cm P.V.C. flexible (Terminal box on request).
- **Insulation:** Class 'F' (maximum temperature rise 115°C at a maximum ambient of 40°C).
- **Specifications:** B.S. 5000 part 11. (I.E.C. 72). (CSA C-US if required).
- **Optional Extras:** Double ended motor spindles.
  Double ended gear shafts (not available on in-line units).
  Non standard shafts (stainless steel, keyways, flats, etc).
  Terminal box. (not SD 1 T.V.).
  Totally enclosed half hour rating. (SD 1 T.V. reduced length).
  Holes tapped for spigot mounting.
  3 lead reversing (split series) 30% reduction in torque.
  Radio and T.V. suppression (class B insulation).
- **Electro-Magnetic Brake:** Page 45.
- **Thyristor D.C. Controller:** Contact Parvalux.
- **Tachogenerator:** Page 117.
- **Additional Extras for Geared Units:** Non standard catalogue reductions available on request.
- **Bronze Gears:** Single and double reduction final gears.
- **Flange Mounting Gearbox Details:** Page 114.
- **Gearbox Shaft Positions:** Page 113.

SD 1	Series Wound				
FULL LOAD R.P.M.	OUTPUT WATTS	INPUT CURRENT (AMPS)		INPUT WATTS	MINIMUM VOLTAGE AVAILABLE
		240V A.C.	220V A.C.		
6500	75	0.8	0.95	160	24
5500	63	0.68	0.75	130	24
4000	50	0.65	0.7	125	24
4000	38	0.45	0.5	90	24
3000	38	0.6	0.65	110	12
3000	25	0.27	0.3	40	12
2500	15	0.25	0.3	40	12
2000	10	0.23	0.25	37	12

SD 1	Shunt Wound				
FULL LOAD R.P.M.	OUTPUT WATTS	INPUT CURRENT (AMPS)		INPUT WATTS	MINIMUM VOLTAGE AVAILABLE
		240V D.C.	220V D.C..		
5000	75	0.6	0.7	140	24
4000	50	0.44	0.5	100	12
3000	38	0.36	0.41	80	12
2500	15	0.25	0.3	40	12
***2000**	10	120V D.C.	110V D.C.	37	12
		0.23	0.25		

*Maximum voltage for this output is 120v D.C.

SD 11	Series Wound				
FULL LOAD R.P.M.	OUTPUT WATTS	INPUT CURRENT (AMPS)		INPUT WATTS	MINIMUM VOLTAGE AVAILABLE
		240V A.C.	220V A.C.		
6000	150	1.3	1.6	290	36
5000	125	1.15	1.4	220	24
4000	95	1.1	1.2	190	12
3000	75	1.0	1.1	160	12
3000	30	0.27	0.3	60	12
3000	18.5	0.24	0.25	50	12
2000	30	0.6	0.65	70	12
2000	15	0.19	0.2	40	12

SD 11	Shunt Wound				
FULL LOAD R.P.M.	OUTPUT WATTS	INPUT CURRENT (AMPS)		INPUT WATTS	MINIMUM VOLTAGE AVAILABLE
		240V D.C.	220V D.C..		
4000	125	0.9	1.0	216	12
3000	95	0.7	0.75	168	12
2000	50	0.4	0.45	96	12

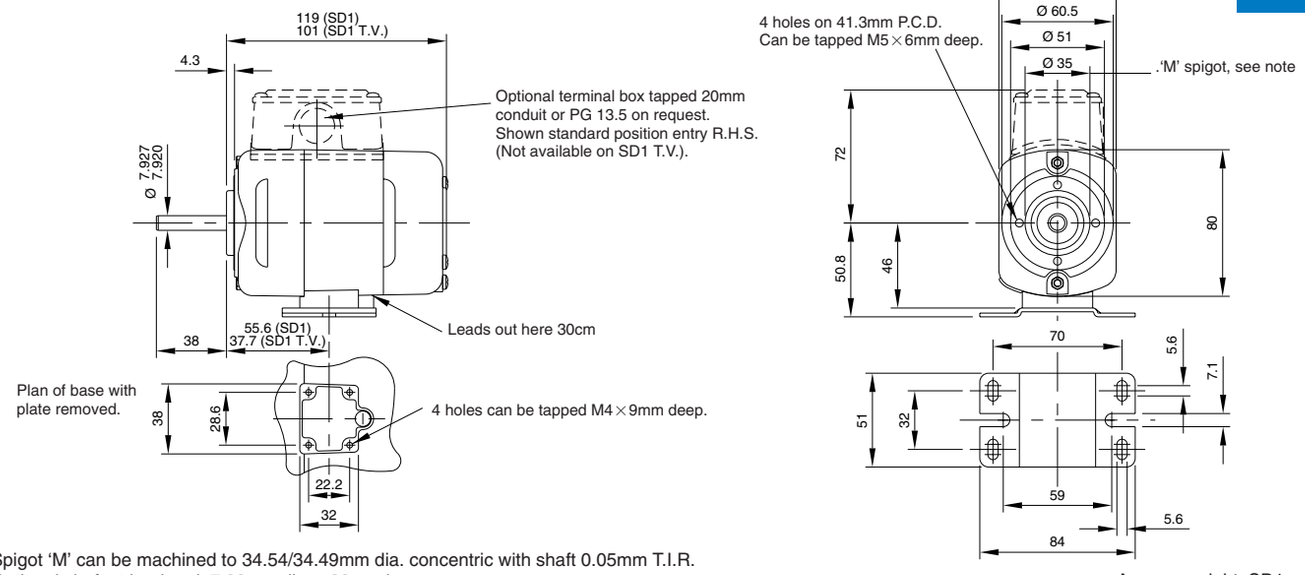
SD 12	Series Wound				
FULL LOAD R.P.M.	OUTPUT WATTS	INPUT CURRENT (AMPS)		INPUT WATTS	MINIMUM VOLTAGE AVAILABLE
		240V A.C.	220V A.C.		
6000	190	1.5	1.6	340	24
4000	150	1.8	1.8	350	24
4000	125	1.2	1.3	240	24
3000	95	1.1	1.2	200	24
2500	75	1.3	1.4	200	24
2000	50	1.2	1.3	160	12

SD 12	Shunt Wound				
FULL LOAD R.P.M.	OUTPUT WATTS	INPUT CURRENT (AMPS)		INPUT WATTS	MINIMUM VOLTAGE AVAILABLE
		240V D.C.	220V D.C..		
4000	150	1.0	1.1	265	24
3000	125	0.82	0.9	200	24
2500	75	0.6	0.65	140	12
2000	60	0.4	0.46	115	12

Shunt wound motor outputs are based on a pure D.C. supply (i.e. form factor 1) with electronic control, outputs will be reduced, to what degree depends on the form factor (FF) and the matching of motor and controller. We recommend a controller range to give the best performance and brush life.

SD 1

Dimensions in mm. Scale 1:4

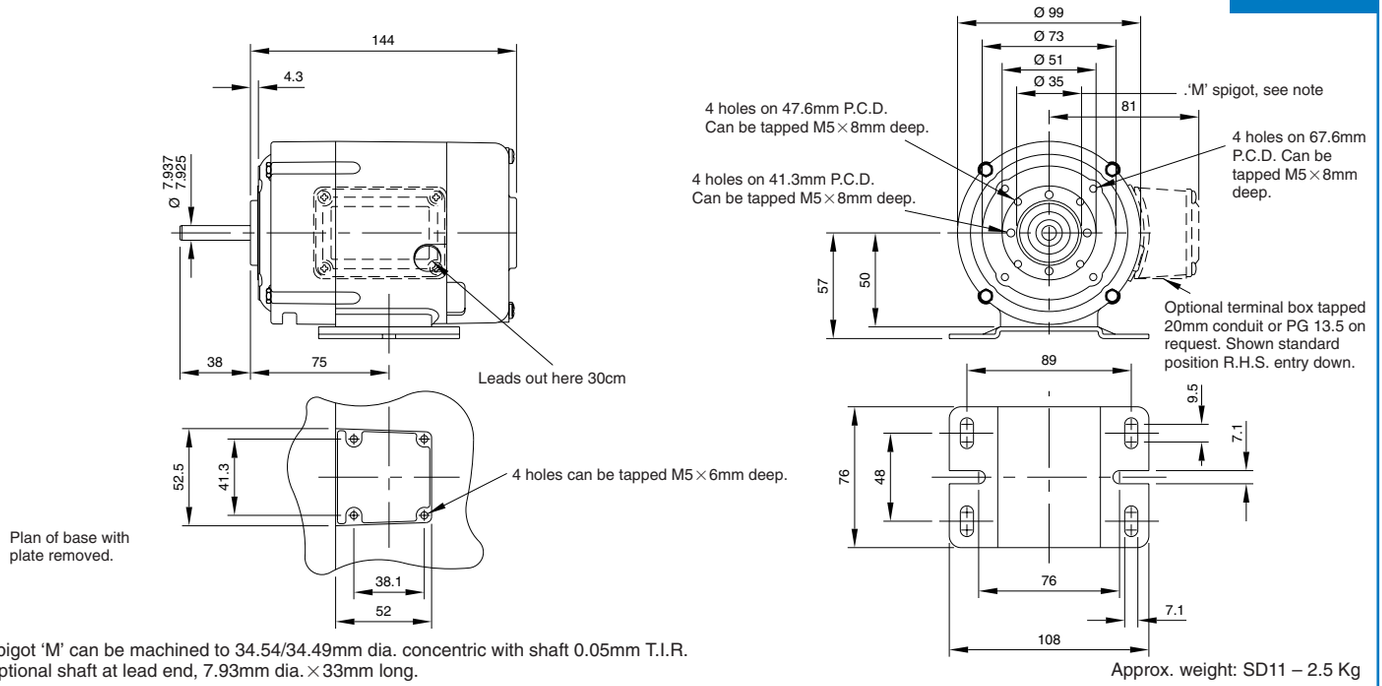


Spigot 'M' can be machined to 34.54/34.49mm dia. concentric with shaft 0.05mm T.I.R.
Optional shaft at lead end, 7.93mm dia.×33mm long.

Approx. weight: SD1 – 1.22 Kg

SD 11

Dimensions in mm. Scale 1:4

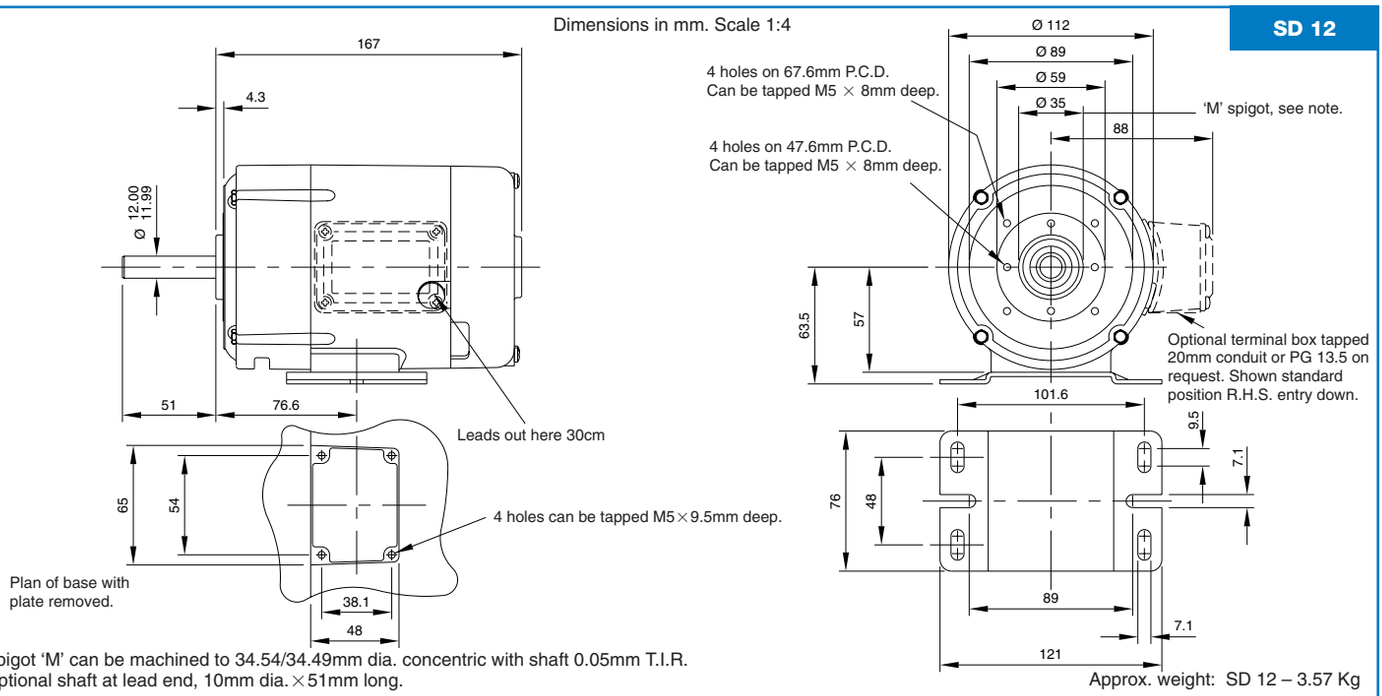


Spigot 'M' can be machined to 34.54/34.49mm dia. concentric with shaft 0.05mm T.I.R.
Optional shaft at lead end, 7.93mm dia.×33mm long.

Approx. weight: SD11 – 2.5 Kg

SD 12

Dimensions in mm. Scale 1:4

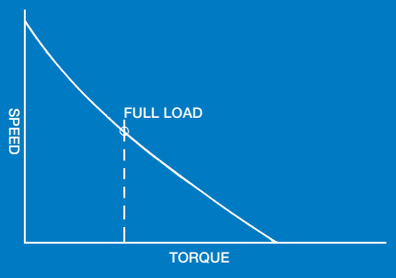


Spigot 'M' can be machined to 34.54/34.49mm dia. concentric with shaft 0.05mm T.I.R.
Optional shaft at lead end, 10mm dia.×51mm long.

Approx. weight: SD 12 – 3.57 Kg

Characteristics of Commutator Motors

Series Wound Motors



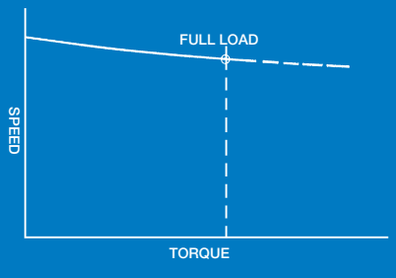
Shown is a typical “torque/speed” characteristic for series wound motors. Series wound motors can be wound for A.C. or D.C. supply. A.C. wound units when operated from a similar D.C. voltage will have approximately 15% increase in output.

Suitable for reversing as standard i.e. 4 leads brought out (two armature and two field). Series motors can be supplied as 3 lead reversing (split field) (the motor runs on one field coil at a time with approximately 30% power loss), change of direction being affected by a single pole switch.

As will be seen from the characteristic the speed varies inversely with the load, consequently series wound motors should not be oversized for their particular application as this will result in the motor running at much higher speeds than required.

It is possible to control the speed of this type of motor by means of a variable resistance transformer in a ratio 5:1 although this can vary depending on the application.

Shunt Wound Motors



Shown is a typical “torque/speed” characteristic for D.C. shunt wound motors. This type of unit has constant speed characteristics, the difference between no load and full load speed being between 10% and 20% of rated speed.

Suitable for reversing as standard i.e. 4 leads brought out (two armature and two fields). The speed can be controlled by means of a variable resistance in series with the armature by a ratio of approximately 6:1, however this can vary considerably depending on the application. Alternatively if an A.C. supply is available a speed range of up to 25:1 can be obtained by means of a D.C. thyristor controller.

IMPORTANT: It must be noted, in mind when reducing the motor speed the armature cooling fan efficiency drops and therefore it is wise to reduce the rating or load of the motor by 30–40% over a speed range of 10:1 and by 50% for a speed range of 25:1.

Connection Diagrams for Wound Field Commutator Motors

Series Wound 2 Lead

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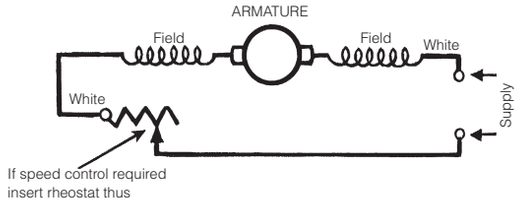

Series Wound 3 Lead Reversing (Split-Series)

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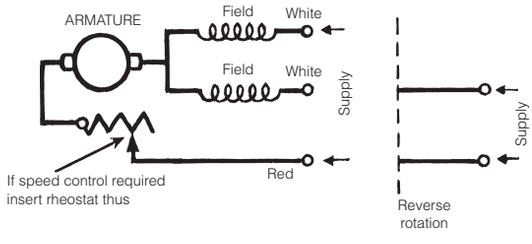
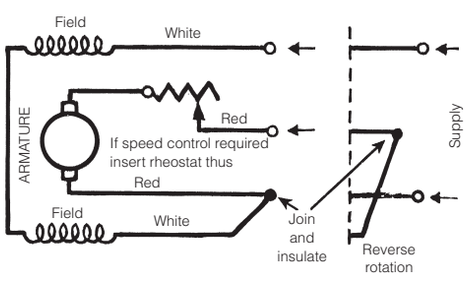


Series Wound 4 Lead Reversing

11



D.C. Shunt Wound

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