



Data Sheet

Small power motors and gearboxes

General information

Construction. The frames comprise pressure die-castings accurately located together, ensuring concentric air gap with correct bearing alignment. The armature laminations or die-cast rotor are pressed onto a precision steel shaft and the complete assembly (if armature, after winding, impregnation and baking) is then statically and dynamically balanced. All stators and armatures are wound with first class quality synthetic covered copper wire manufactured to BS Specification 2757 Class 'B', and then impregnated and baked and accordingly can be considered to be tropically impregnated for all practical purposes.

Motor enclosures

| Motor type | IP rating | |
|----------------------------|-----------|----------------------------------|
| Shunt wound dc | | |
| SD 1B | 20 | Ventilated internally fan cooled |
| SD 11B | 22 | Drip proof internally fan cooled |
| SD 12B | 22 | Drip proof internally fan cooled |
| Permanent magnet dc | | |
| PM10 | 54 | Totally enclosed |
| PM2 | 22 | Drip proof internally fan cooled |
| PM3 | 54 | Totally enclosed |
| PM4 | 54 | Totally enclosed |
| Three phase ac | | |
| SD29 30 | 20 | Ventilated internally fan cooled |
| SD18 30 | 20 | Ventilated internally fan cooled |
| Single phase ac | | |
| SD8 | 20 | Ventilated internally fan cooled |
| SD8 (TEFC) | 54 | Totally enclosed fan cooled |
| SD29 10 | 20 | Ventilated internally fan cooled |
| SD 13 (TEFC) | 54 | Totally enclosed fan cooled |
| SD 18 10 | 20 | Ventilated internally fan cooled |

Bearings. Shielded ball bearings throughout, spring loaded for quiet running.

Brush gear. (Commutator motors.) A new design of adjustable rocker type for maximum brush life and good commutation with easily accessible brushes.

Testing. To BS Specification 5000 Part 11.

Finish. Durable grey hammer synthetic enamel.

Temperature. All motors shown in this data sheet are built with Class 'B' insulation to BS2757 which allows a temperature rise of 75°C based on an ambient of 20°C to 40°C. These figures are with the motor running in normal working conditions in free air and not in any form of enclosure.

Gear units. The motor is fitted with shielded spring loaded ball bearings absorbing worm thrust from gear box. Precision ground output shaft with flats or keyways carried in ball bearings with gear wheels of synthetic resin bonded fabric with hardened and worms. Gearbox and ball bearings are packed with appropriate grade of grease. In the case of worm and multi spur gear units, these are fitted with

hardened spur gear units, these are fitted with hardened spur gears and oil bath lubrication. All units are suitable for running in any position.

Lubricants. Worm gear boxes charged with a suitable grease and sealed for life. Worm and multi-spur boxes filled with 20/50 multigrade oil and sealed for life.

Gearbox type

| Code | Basic description |
|------|---|
| S | Single reduction wormgear, 90° drive |
| M | Single reduction wormgear, 90° drive |
| MB | Single reduction wormgear, 90° drive |
| L | Single reduction wormgear, 90° drive |
| WS | Worm & Multispur reduction gear unit, 90° drive |
| M/W | In line double reduction worm gear unit, offset drive |
| L/W | In line double reduction worm gear unit offset drive |

Thermal rating and maximum gear loading of gearboxes

Single and double worm reduction gearboxes

Whilst worm gearing has lower efficiency than spur gearing is true to say that generally the noise level of worm reduction is much lower and where noise is therefore an important factor, this type of gearing should be considered. To prevent premature gear failure or excessive gear wear, the maximum gear loading and thermal rating of the particular gear box must be taken into consideration otherwise there is a danger of stripping the gear wheel teeth or failure of the lubrication due to excessive gearbox temperature. The table below shows the recommended mechanical and thermal ratings for the various types of gearbox.

| Gear-box type | Ratios | Mechanical rating (Nm) | Thermal rating (Watts) | Radial loading* | | Axial loading | |
|---------------|-----------------|------------------------|------------------------|-----------------|------|---------------|------|
| | | | | lb | kg | lb | kg |
| S | 4½:1 to 40:1 | 2.94 | Fibre | | | | |
| | 44:1 to 60:1 | 2.26 | 20 | 15 | 7 | 8 | 3.6 |
| | 66:1 to 72:1 | 1.47 | | | | | |
| M | 4½:1 to 40:1 | 7.91 | | | | | |
| | 44:1 to 60:1 | 5.88 | 38 | 30 | 13.5 | 20 | 9 |
| | 66:1 to 72:1 | 5.09 | | | | | |
| MB | 4½:1 to 40:1 | 7.91 | | | | | |
| | 44:1 to 60:1 | 5.88 | 40 | 50 | 23 | 24 | 11 |
| | 66:1 to 72:1 | 5.09 | | | | | |
| L | 5:1 to 40:1 | 14.6 | | | | | |
| | 50:1 to 60:1 | 11.3 | 60 | 40 | 18 | 30 | 13.5 |
| WS | 24¾:1 to 98:1 | 22.6 | | | | | |
| | 99:1 to 492:1 | 62.1 | - | 100 | 45.5 | 50 | 23 |
| | 445:1 to 7776:1 | 73.4 | | | | | |
| MIW | ALL | 16.9 | 50 | 60 | 27 | 30 | 13.5 |
| LIW | ALL | 28 | - | 72 | 36 | 45 | 20 |

Approx Thermal rating (W) = $\frac{\text{Final rpm} \times \text{Torque (Nm)} \times (1h - 1)}{9.55}$

(η) = gear efficiency)

* Based on midway point of standard shaft extensions (1Nm=10.2cmkp) (1Nm=8.85 lb in).

For intermittent duty the thermal rating for the gearbox is increased by multiplying the appropriate gearbox thermal rating by the factor

$$X = \sqrt{\frac{100\%}{\text{duty cycle \%}}}$$

Maintenance instructions

All units are fitted with grease packed shielded ball bearings with an estimated life of 5000 working hours, which can vary depending on operating conditions and temperature. We recommend replacing a noisy bearing as re-greasing is not possible. Prolonged storage can shorten the estimated life.

In most cases dismantling of the motor or gearbox is straightforward. Carefully note the position of the spring loaded washers, shims, etc. However the commutator type motors require a suitable extractor to remove the armature from the main frame. Commutator motors require more maintenance than induction type due to the accumulation of carbon dust in the brush gear area. This dust should be blown out periodically with a dry air supply and only when the commutator surface is in a very blackened condition should it be lightly cleaned with 'flour' paper or similar.

CAUTION: Do not use emery paper.

When replacing carbon brushes (which may have a life of some 1000 hours depending on operating conditions) care should be taken to ensure these are a free fit in the holders. When dismantling, the brush gear should be marked to ensure it is replaced in the original position and the pigtails clear the motor casing.

Mounting position

All motors and motor/gearbox combinations are suitable for mounting in any position.

Quoted speeds of motors

Please note that all speeds quoted against motors and motor/gearbox combinations are nominal and will vary with load applied.

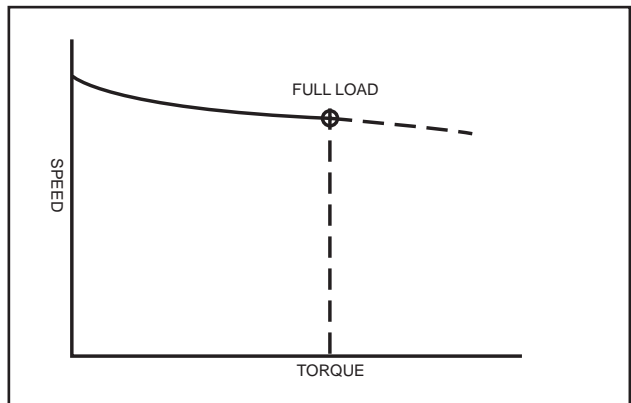
dc motor characteristics

Important: It must be borne in mind when reducing the speed of a dc motor the armature cooling fan efficiency drops and 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.

Shunt wound motors

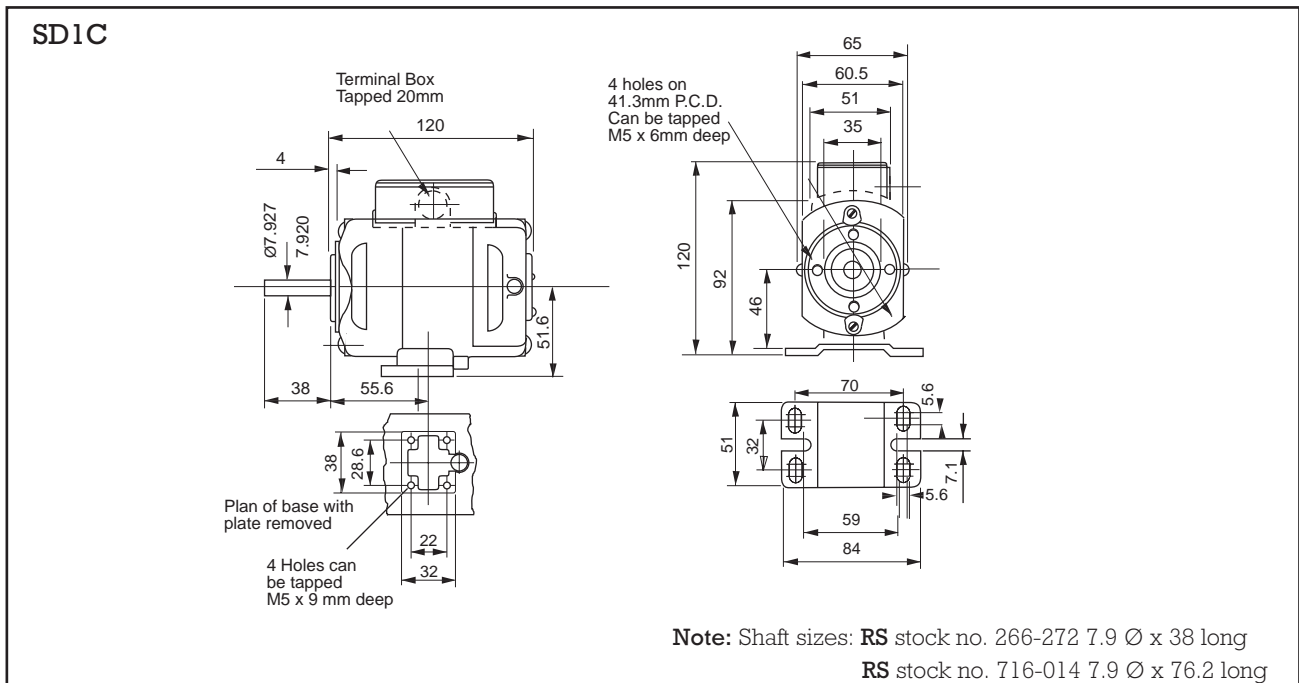
Shown is a typical 'torque/speed' characteristic for a dc shunt wound motor. This type of unit has constant speed characteristics, the difference between no load and full load speed being between 10 and 20% of rated speed.

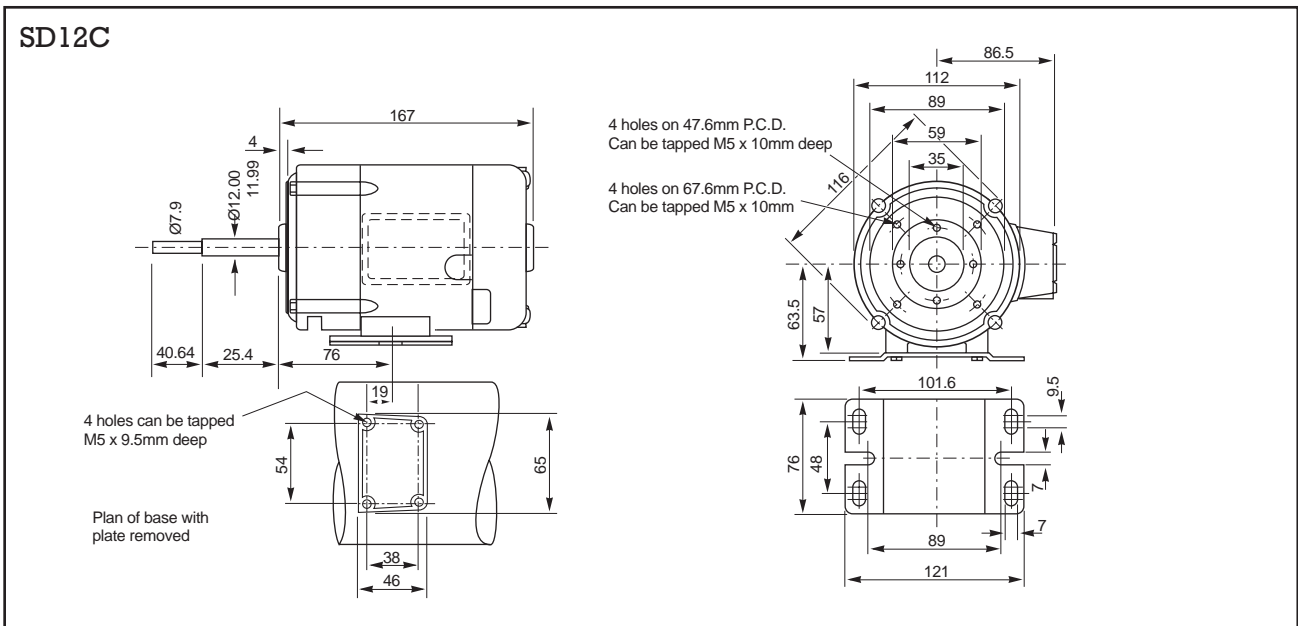
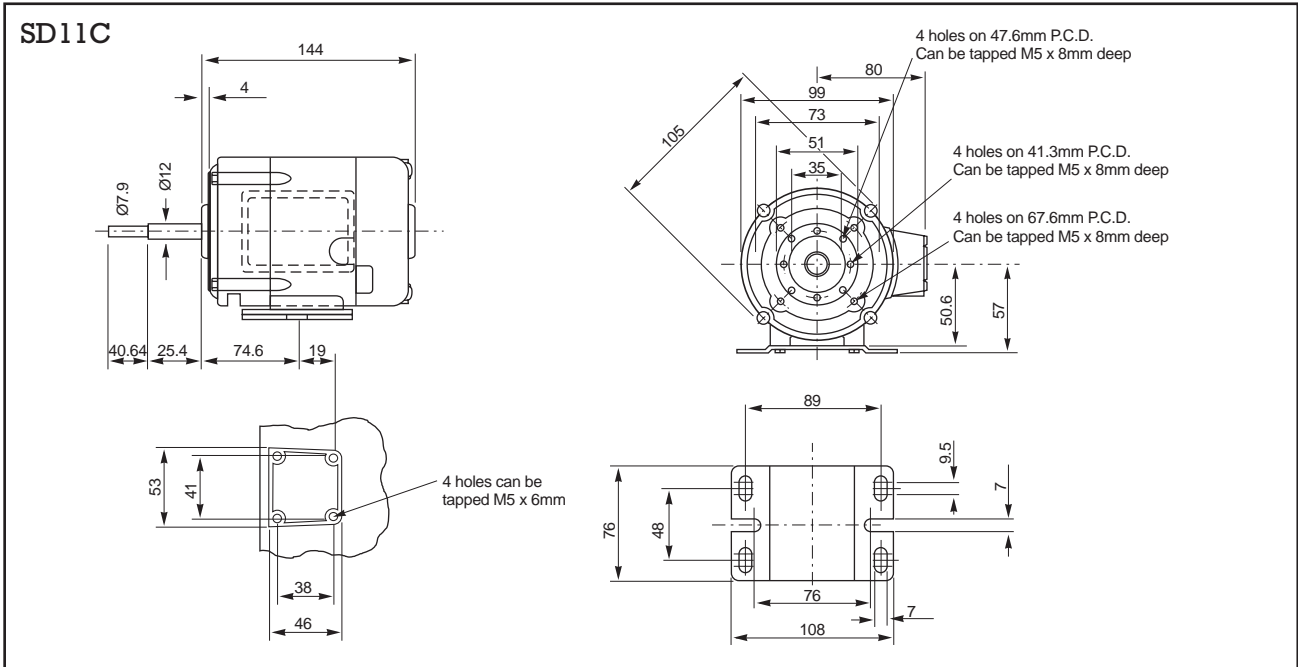
Suitable for reversing as standard i.e. 4 leads brought out (two armature and two fields). The speed can be controlled by means of a dc thyristor speed controller. If an ac supply is available a speed range of up to 25 : 1 can be obtained. Please see motors and controllers section of current RS catalogue for further details.



| dc shunt wound motors | | | | | | |
|-----------------------|-------|------------|------------|---------------|------|----------------------------------|
| RS stock no. | Type | Shaft size | Rating (w) | Input current | rpm | Suitable controller RS stock no. |
| 266-272 | SD1C | S | 38 | 0.41 | 3000 | 244-2917 |
| 716-014 | SD1C | M | 50 | 0.5 | 4000 | 244-2917 |
| 716-020 | SD11C | M | 95 | 0.75 | 3000 | 244-2917 |
| 266-317 | SD12C | M | 125 | 0.9 | 3000 | 244-2917 |
| 716-042 | SD12C | M | 190 | 1.4 | 4000 | 244-2939 |

See relevant drawing for shaft details.





DC shunt wound motor/gearbox combinations

SD1CS-220Vdc using motor

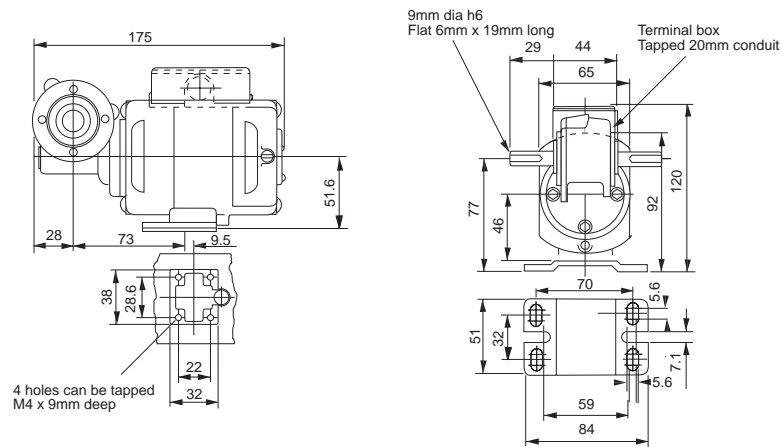
(RS stock no. 266-272), **38W, 0.41A**

Suitable controller

(RS stock no. 266-210)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 50 | 2.26 | 716-547 |
| 62 | 2.03 | 266-244 |
| 75 | 1.58 | 716-569 |
| 100 | 1.24 | 716-575 |
| 120 | 1.13 | 266-250 |
| 145 | 0.9 | 716-597 |
| 190 | 0.73 | 716-604 |
| 240 | 0.57 | 266-266 |
| 290 | 0.51 | 716-632 |
| 360 | 0.4 | 716-648 |

SD1CS



SD1CMB-220Vdc using motor

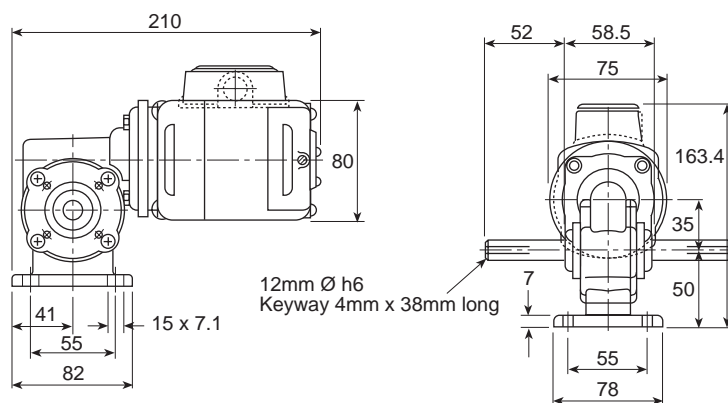
(RS stock no. 716-014), **50W, 0.41A**

Suitable controller

(RS stock no. 244-2917)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 55 | 2.71 | 716-654 |
| 65 | 2.37 | 716-660 |
| 85 | 2.03 | 716-676 |
| 100 | 1.07 | 716-682 |
| 130 | 1.47 | 716-698 |
| 160 | 1.30 | 716-705 |
| 200 | 1.13 | 716-711 |
| 260 | 0.96 | 716-733 |
| 320 | 0.79 | 716-727 |
| 400 | 0.68 | 716-749 |
| 480 | 0.51 | 716-755 |

SD1C MB



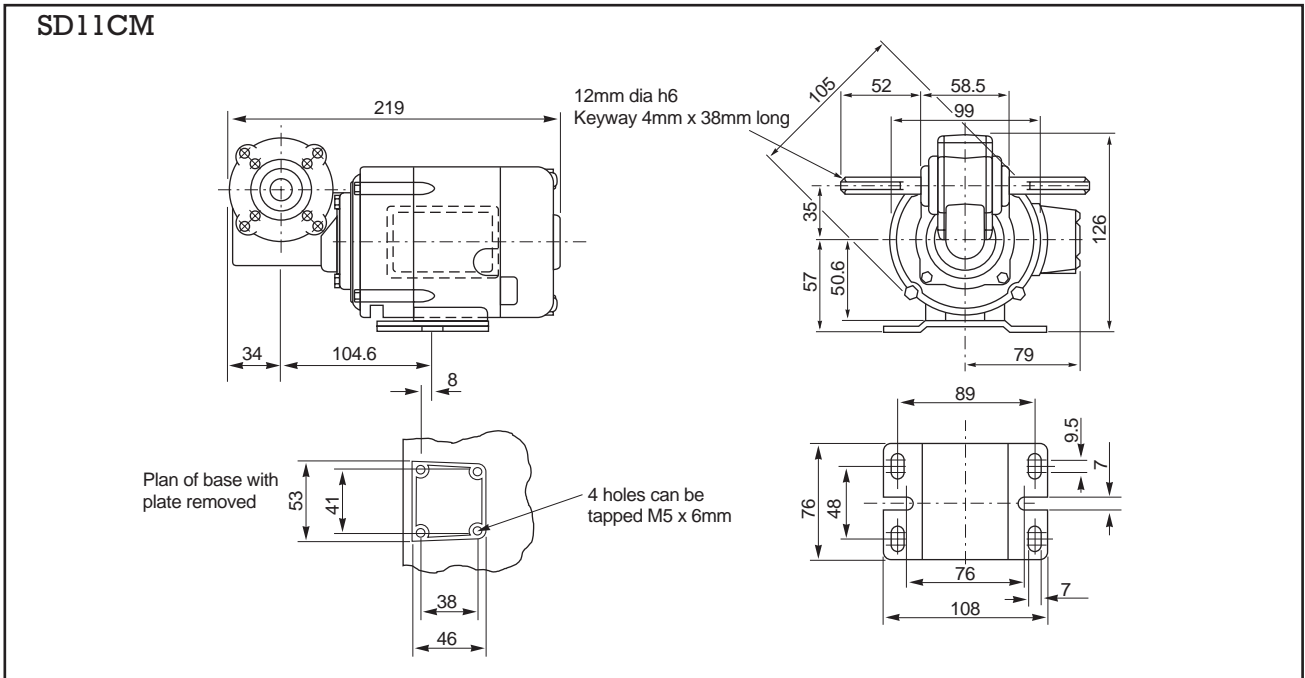
SD11CM-220Vdc using motor

(RS stock no. 716-020), **95W, 0.75A**

Suitable controller

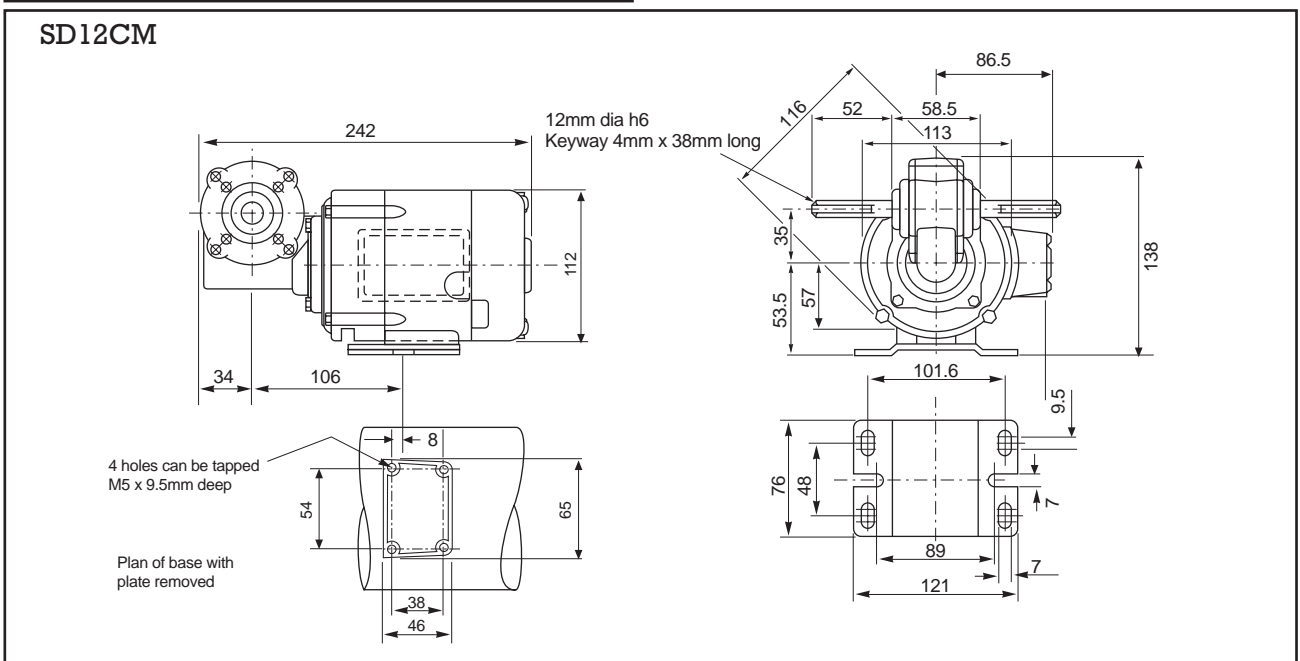
(RS stock no. 244-2917)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 50 | 5.88 | 717-761 |
| 62 | 5.42 | 717-777 |
| 75 | 5.09 | 717-783 |
| 100 | 4.18 | 717-799 |
| 145 | 3.28 | 717-812 |
| 190 | 2.71 | 717-828 |
| 240 | 2.26 | 717-834 |
| 290 | 2.03 | 717-840 |
| 360 | 1.76 | 717-856 |



SD12CM-220Vdc using motor
 (RS stock no. 266-317), **125W, 0.9A**
 Suitable controller
 (RS stock no. 244-2917)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 50 | 5.88 | 716-862 |
| 62 | 5.88 | 266-288 |
| 75 | 6.78 | 716-884 |
| 100 | 5.54 | 716-890 |
| 120 | 4.86 | 266-294 |
| 145 | 4.29 | 716-913 |
| 190 | 3.62 | 716-929 |
| 240 | 3.05 | 266-301 |
| 290 | 2.71 | 716-941 |
| 360 | 2.26 | 716-957 |



229-7587

SD11CMB-220Vdc using motor

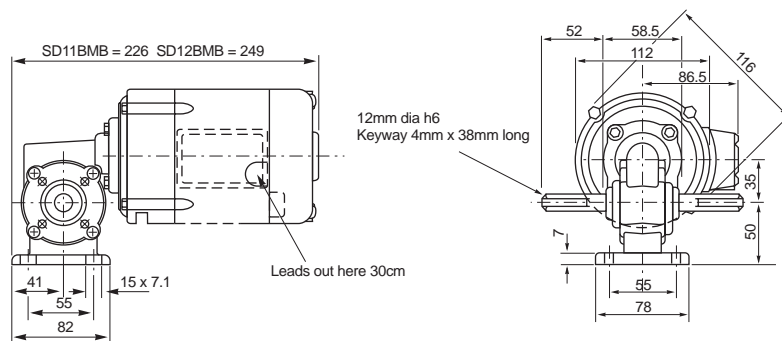
(RS stock no. 716-020), **95W, 0.75A**

Suitable controller

(RS stock no. 244-2917)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 50 | 5.88 | 716-963 |
| 62 | 5.42 | 716-979 |
| 75 | 5.07 | 716-985 |
| 100 | 4.19 | 716-991 |
| 120 | 3.62 | 717-001 |
| 145 | 3.28 | 717-017 |
| 190 | 2.71 | 717.023 |
| 240 | 2.26 | 717-039 |
| 290 | 2.03 | 717-045 |
| 360 | 1.70 | 717-051 |

SD11CMB



SD12CMB-220Vdc using motor

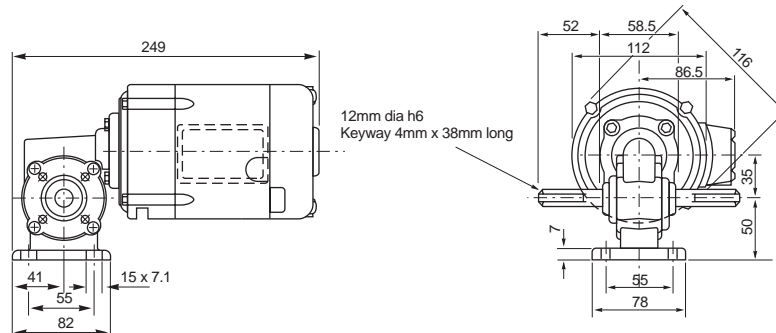
(RS stock no. 266-317), **125W, 0.9A**

Suitable controller

(RS stock no. 244-2917)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 50 | 5.88 | 717-067 |
| 62 | 5.88 | 717-073 |
| 75 | 6.78 | 717-089 |
| 100 | 5.54 | 717-095 |
| 120 | 4.86 | 717-102 |
| 145 | 4.29 | 717-118 |
| 190 | 3.62 | 717-124 |
| 240 | 3.05 | 717-130 |
| 290 | 2.71 | 717-146 |
| 360 | 2.26 | 717-152 |

SD12CMB



SD12CMB-220Vdc using motor
 (RS stock no. 716-042), **150W, 1.1A**
 Suitable controller
 (RS stock no. 244-2939)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 100 | 6.78 | 717-168 |
| 130 | 6.22 | 717-174 |
| 160 | 5.54 | 717-180 |
| 200 | 5.20 | 717-196 |
| 260 | 4.29 | 717-203 |
| 320 | 3.73 | 717-219 |
| 400 | 3.39 | 717-225 |
| 480 | 2.83 | 717-231 |

For line drawing see 125W version of SD12CMB.

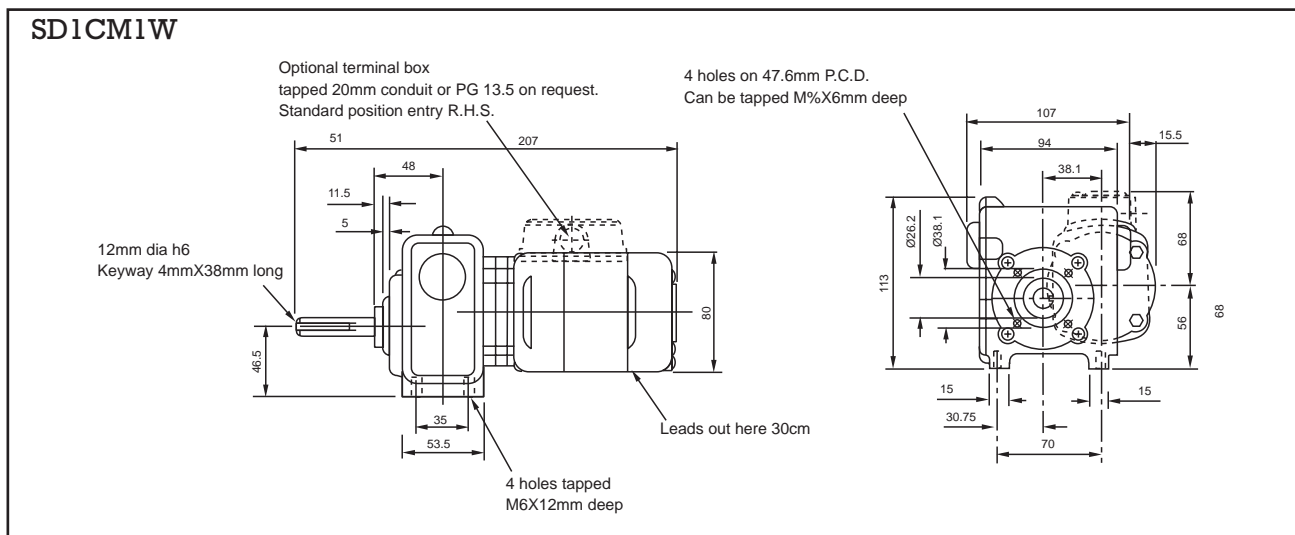
SD12CM-220Vdc using motor
 (RS stock no. 716-042), **150W, 1.1A**
 Suitable controller
 (RS stock no. 244-2939)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 100 | 6.78 | 717-247 |
| 130 | 6.22 | 717-253 |
| 160 | 5.54 | 717-269 |
| 200 | 5.20 | 717-275 |
| 260 | 4.29 | 717-281 |
| 320 | 3.73 | 717-297 |
| 400 | 3.39 | 717-304 |
| 480 | 2.83 | 717-310 |

For line drawing see 125W version of SD12CM.

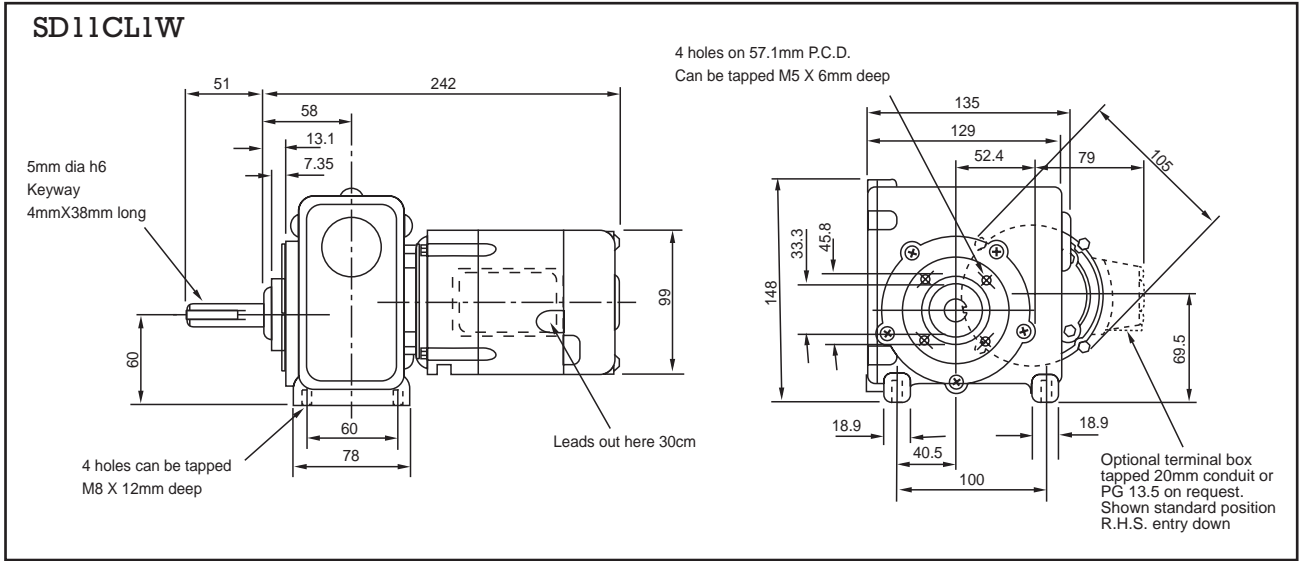
SD1CM1W-220Vdc using motor
 (RS stock no. 266-272), **38W, 0.41A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2.2 | 17.0 | 397-067 |
| 4.5 | 17.0 | 397-073 |
| 8.3 | 13.0 | 397-089 |
| 15 | 8.6 | 397-095 |
| 22 | 6.5 | 397-102 |
| 30 | 5.4 | 397-118 |
| 39 | 4.6 | 397-124 |
| 45 | 4.1 | 397-130 |
| 57 | 3.3 | 397-146 |
| 70 | 2.8 | 397-152 |
| 90 | 2.1 | 397-168 |



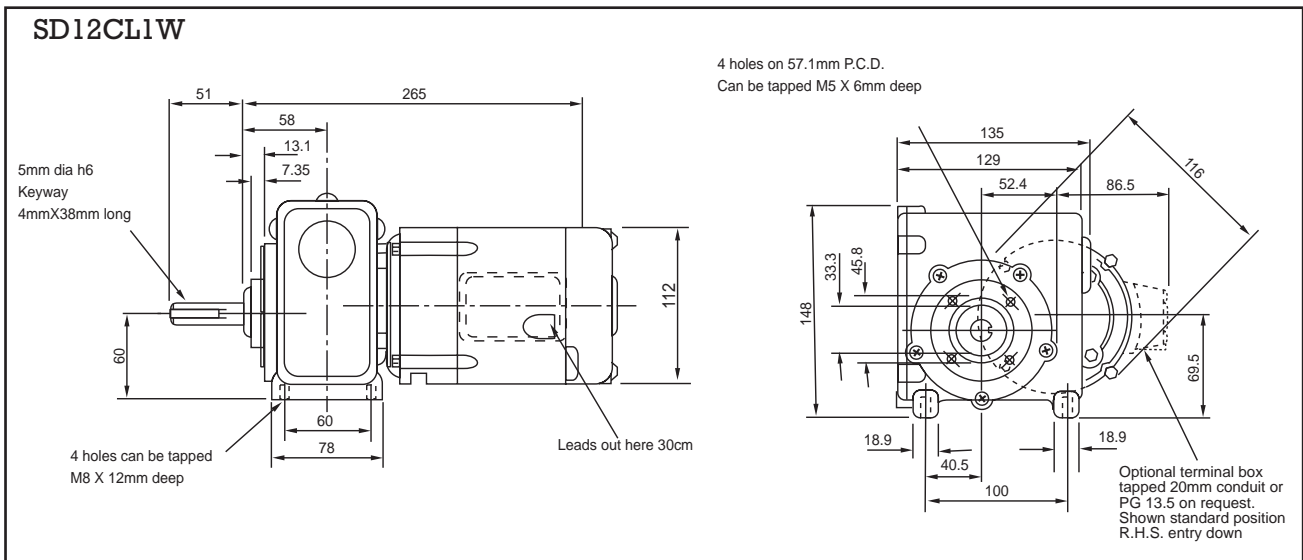
SD11CL1W-220Vdc using motor
 (RS stock no. 716-020), **95W, 0.75A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 3 | 28 | 397-506 |
| 4 | 28 | 397-512 |
| 9 | 28 | 397-528 |
| 20 | 18 | 397-534 |
| 27 | 14 | 397-540 |
| 42 | 11 | 397-556 |
| 65 | 8 | 397-562 |
| 81 | 6 | 400-242 |



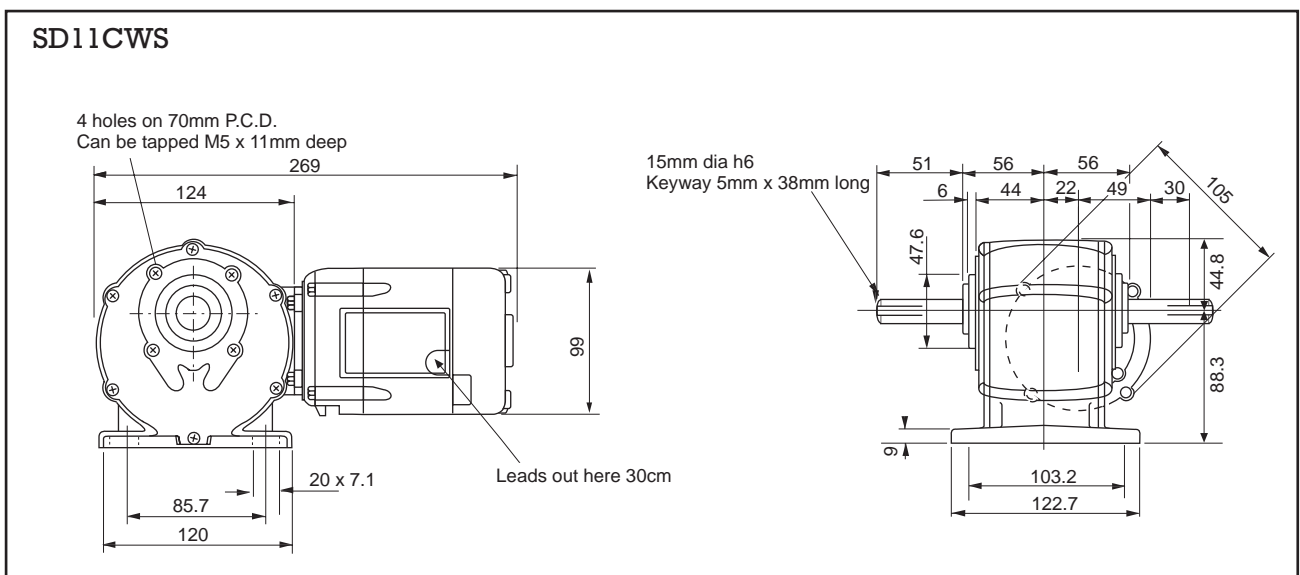
SD12CL1W-220Vdc using motor
(RS stock no. 266-317), **125W, 0.9A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 3.3 | 28 | 400-258 |
| 5.4 | 28 | 400-264 |
| 9 | 28 | 400-270 |
| 20 | 23 | 400-286 |
| 27 | 18 | 400-292 |
| 42 | 14 | 400-309 |
| 65 | 10 | 400-315 |
| 81 | 8 | 400-321 |



SD11CWS-220Vdc using motor
 (RS stock no. 716-020), **95W, 0.75A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 0.5 | 74 | 224-7093 |
| 1 | 74 | 224-7100 |
| 1.6 | 74 | 224-7116 |
| 2.1 | 74 | 224-7122 |
| 3.2 | 74 | 224-7138 |
| 4.5 | 74 | 224-7144 |
| 6.5 | 74 | 224-7150 |
| 7.5 | 60 | 224-7166 |
| 10 | 43 | 224-7188 |
| 15 | 27 | 224-7194 |
| 20 | 23 | 224-7201 |
| 30 | 17 | 224-7217 |
| 40 | 13 | 244-7223 |
| 60 | 10 | 244-7245 |
| 80 | 8 | 244-7251 |

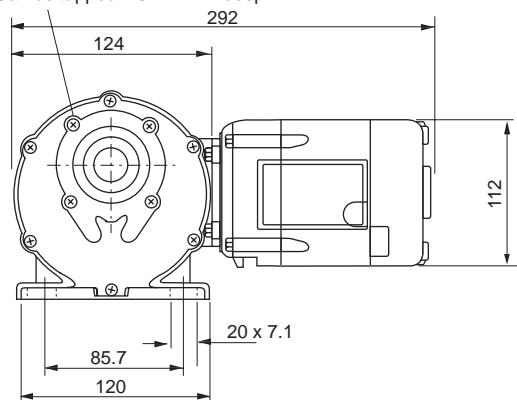


SD12CWS-220Vdc using motor
 (RS stock no. 266-317), **125W, 0.9A**

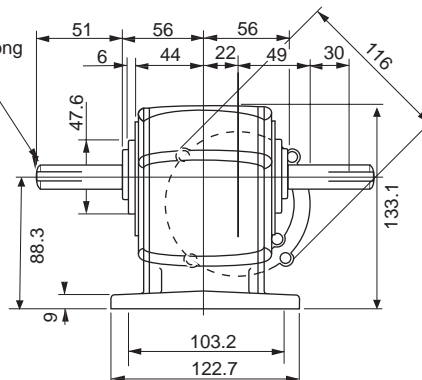
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 7.5 | 62 | 244-7267 |
| 10 | 56.5 | 224-7273 |
| 15 | 34 | 224-7289 |
| 20 | 29 | 224-7295 |
| 30 | 21 | 224-7302 |
| 40 | 17 | 224-7318 |
| 60 | 13 | 224-7324 |
| 80 | 10 | 224-7330 |

SD12CWS

4 holes on 70mm P.C.D.
Can be tapped M5 x 11mm deep



15mm dia h6
Keyway 5mm x 38mm long



SD12CWS-220Vdc using motor
(RS stock no. 716-042), 150W, 1.1A

SDIC SWS 220Vdc 0.41A
Supplied with motor (RS stock no. 266-272)

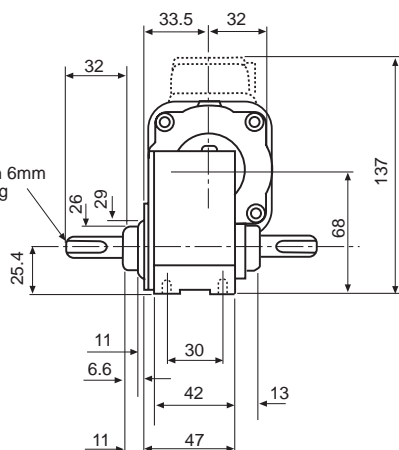
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 0.7 | 74 | 224-7346 |
| 1.3 | 74 | 224-7352 |
| 2.2 | 74 | 224-7368 |
| 3 | 74 | 224-7374 |
| 4.3 | 74 | 224-7380 |
| 5.7 | 74 | 224-7403 |
| 8.7 | 74 | 224-7419 |
| 10 | 62 | 224-7425 |
| 13 | 61 | 224-7431 |
| 20 | 45 | 224-7447 |
| 27 | 36 | 224-7469 |
| 40 | 31 | 224-7475 |
| 53 | 16 | 224-7481 |
| 80 | 9 | 224-7504 |
| 106 | 6 | 224-7497 |

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 7 | 11 | 305-9932 |
| 13 | 11 | 305-9948 |
| 23 | 9.6 | 305-9960 |
| 31 | 7.7 | 305-9976 |
| 47 | 5.7 | 305-9982 |
| 71 | 4.1 | 305-9998 |

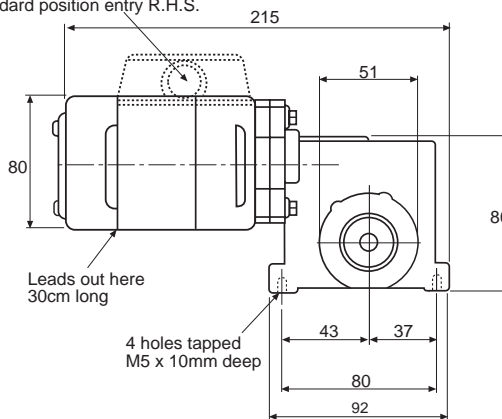
For line drawing see 125W version of SD12CWS.

SD1CSWS

10mm dia h6 with 6mm flat x 25.4mm long is both sides



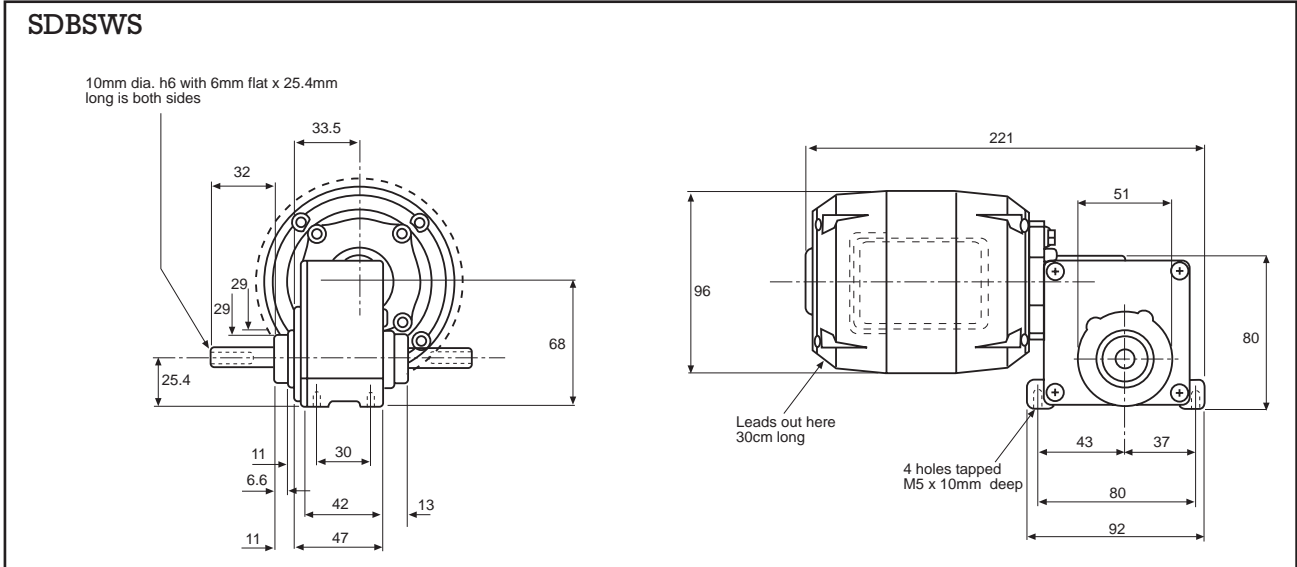
Optional terminal box tapped 20mm conduit or PG 13.5 on request. Shown standard position entry R.H.S.



SD8 SWS 240ac 0.3A

Supplied with motor (RS stock no. 716-064)

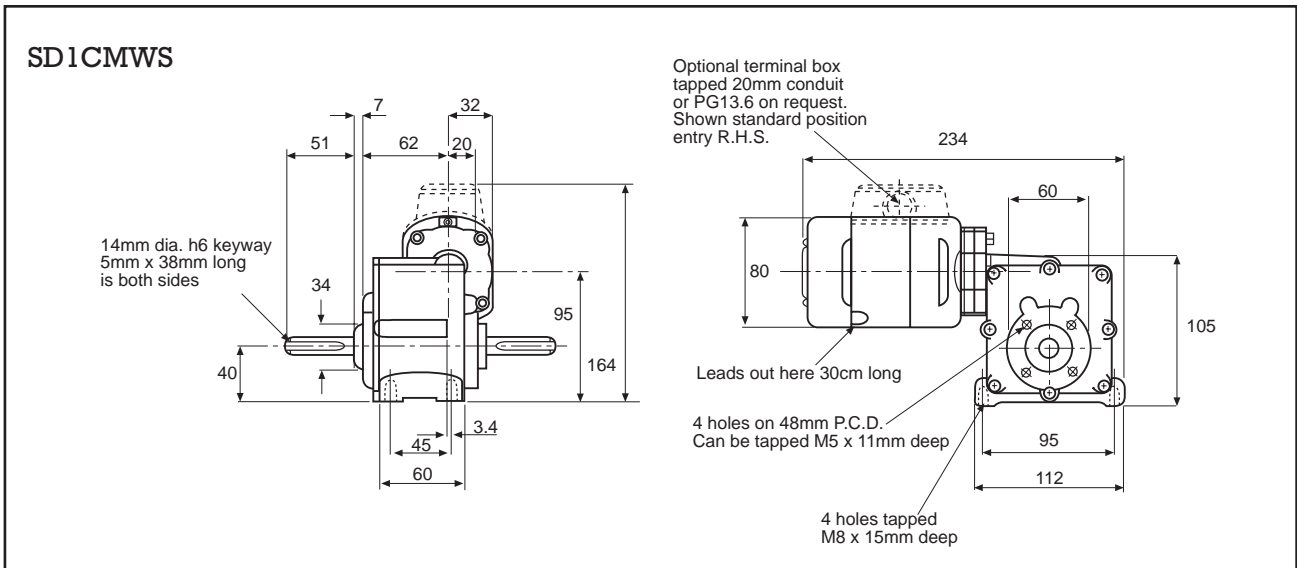
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 1 | 11 | 305-9847 |
| 3.5 | 11 | 305-9853 |
| 6 | 11 | 305-9869 |
| 11 | 8.4 | 305-9875 |
| 15 | 7 | 305-9881 |
| 33 | 3.8 | 305-9910 |



SDIC MWS 220Vdc 0.41A

Supplied with motor (RS stock no. 266-272)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2 | 45 | 307-5619 |
| 5 | 39 | 307-5625 |
| 12 | 21 | 307-5631 |
| 32 | 8 | 307-5653 |
| 48 | 6 | 307-5669 |

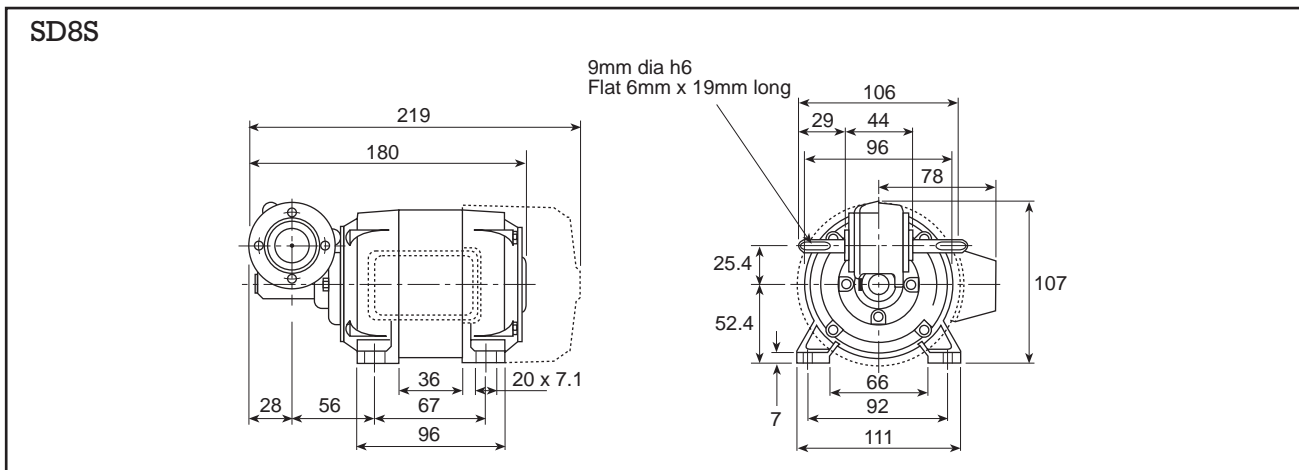


SD8S-240Vac using motor
(RS stock no. 716-058), 35W, 0.30A

SD8M-240Vac using motor
(RS stock no. 716-064), 35W, 0.36A TEFC

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 20 | 1.47 | 717-326 |
| 23 | 2.26 | 717-332 |
| 29 | 2.26 | 717-348 |
| 35 | 2.94 | 717-354 |
| 47 | 2.94 | 717-360 |
| 56 | 2.71 | 717-376 |
| 68 | 2.49 | 717-382 |
| 90 | 2.03 | 717-398 |
| 112 | 1.47 | 717-405 |
| 135 | 1.24 | 717-411 |
| 168 | 1.02 | 717-427 |

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 20 | 4.86 | 717-433 |
| 23 | 5.09 | 717-449 |
| 29 | 4.52 | 717-455 |
| 35 | 3.73 | 717-461 |
| 47 | 3.05 | 717-477 |
| 56 | 2.83 | 717-483 |
| 68 | 2.60 | 717-499 |
| 90 | 2.15 | 717-506 |
| 113 | 1.47 | 717-512 |
| 135 | 1.24 | 717-528 |
| 168 | 1.02 | 717-534 |



ac single phase capacitor start and run motors

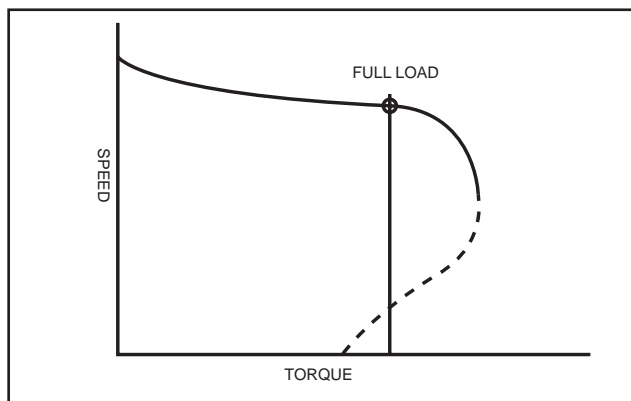
General characteristics

Shown is a typical 'torque/speed' characteristic for this type of motor, these units are only suitable for operating from a single phase ac supply and incorporate a permanently connected capacitor.

This speed is fairly constant but it should be borne in mind that the starting torque is lower than the full load output usually in order of 85% of full load output.

The motor however has the advantage of low starting current and is particularly suited for frequent reversing. Capacitor motors cause no radio or tv interference.

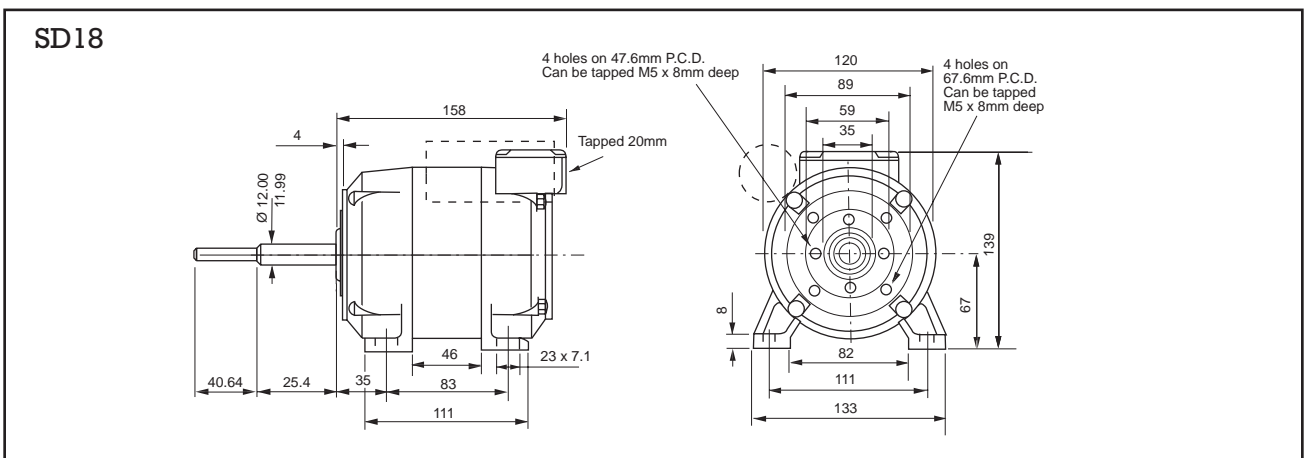
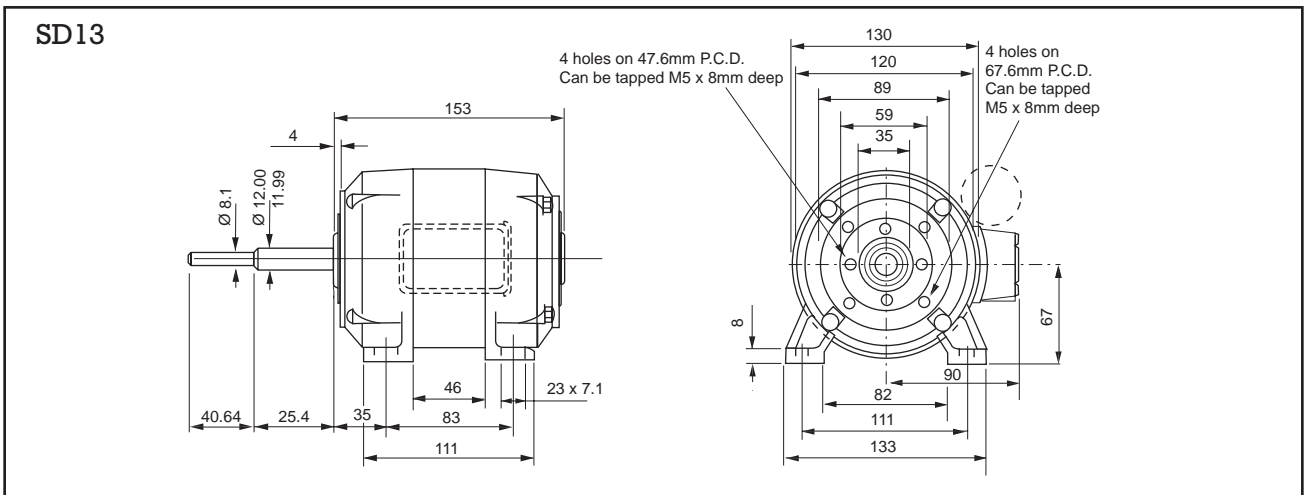
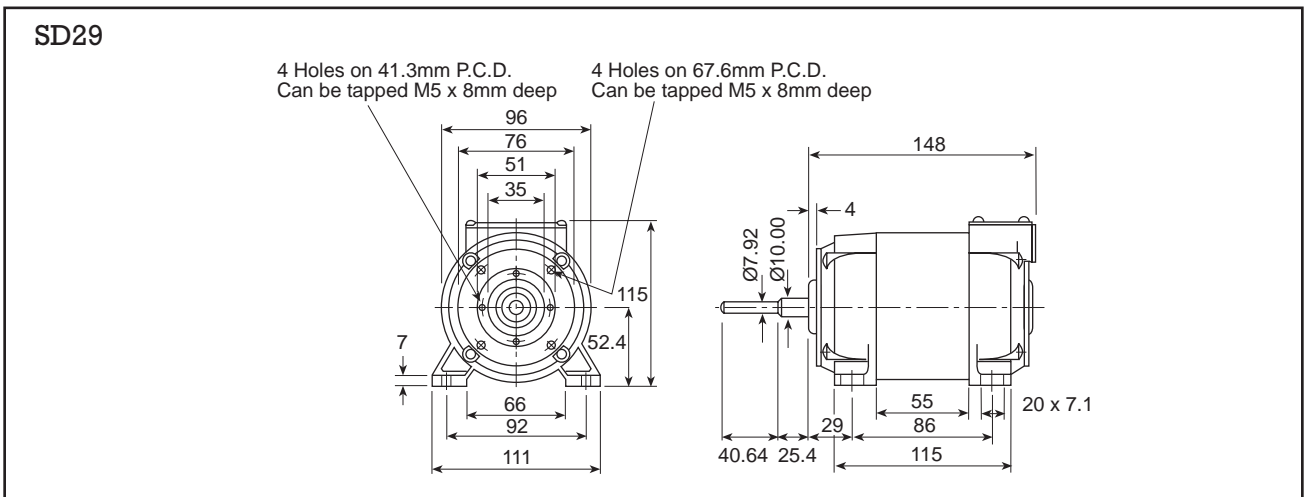
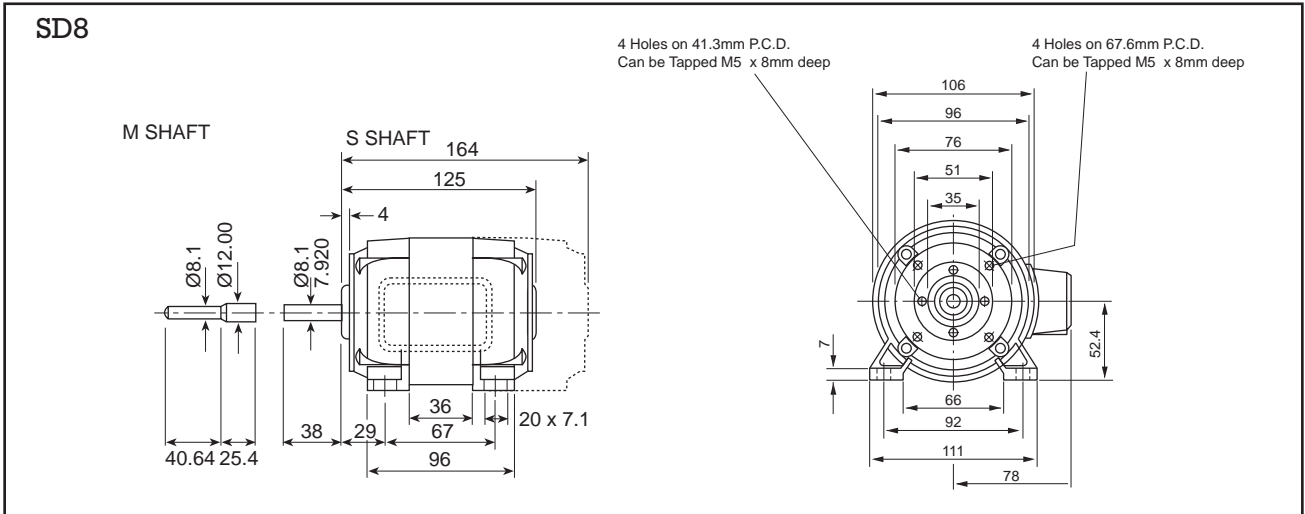
Note: That for maximum capacitor life, mount capacitor away from motor.



| ac cap start and run motors | | | | | | |
|-----------------------------|-------------|------------|--------------------------|------------|---------------|------|
| RS stock no. | Type | Shaft size | Supplied capacitor value | Rating (w) | Input current | rpm |
| 716-058 | SD8 | S | 3µF | 30 | 0.33 | 1400 |
| 716-064 | SD8 (TEFC) | M | 2.5µF | 30 | 0.33 | 1400 |
| 716-070 | SD29 | M | 4µF | 60 | 0.58 | 1400 |
| 716-092 | SD13 (TEFC) | M | 5µF | 95 | 0.66 | 1400 |
| 266-531 | SD18 | M | 6µF | 125 | 1.00 | 2800 |

(TEFC) Totally enclosed fan cooled.

See relevant drawing for shaft details



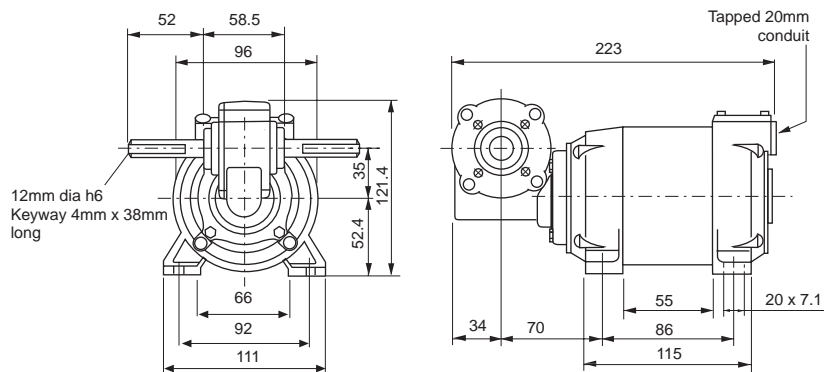
229-7587

SD29M-240Vac using motor

(RS stock no. 716-070), 50W, 0.41A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 20 | 5.09 | 717-540 |
| 23 | 5.88 | 717-556 |
| 29 | 5.88 | 717-562 |
| 35 | 6.78 | 266-468 |
| 47 | 6.10 | 717-584 |
| 56 | 5.65 | 717-590 |
| 68 | 5.20 | 717-607 |
| 90 | 4.29 | 266-474 |
| 113 | 2.94 | 266-480 |
| 135 | 2.49 | 717-635 |
| 168 | 2.03 | 717-641 |

SD29M

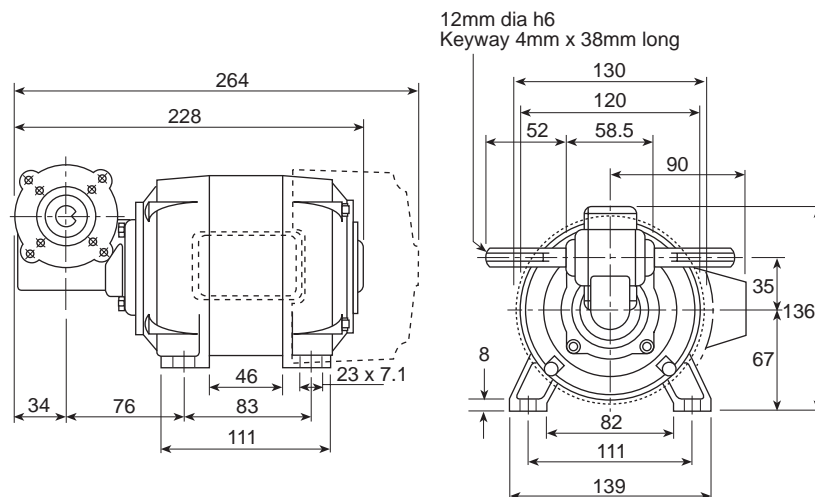


SD13M-240Vac using motor

(RS stock no. 716-092), 100W, 0.76 TEFC

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 35 | 6.78 | 717-764 |
| 47 | 6.78 | 717-770 |
| 56 | 6.78 | 717-786 |
| 68 | 6.44 | 717-792 |
| 90 | 4.97 | 717-809 |
| 113 | 4.29 | 717-815 |
| 135 | 3.62 | 717-821 |
| 168 | 2.94 | 717-837 |

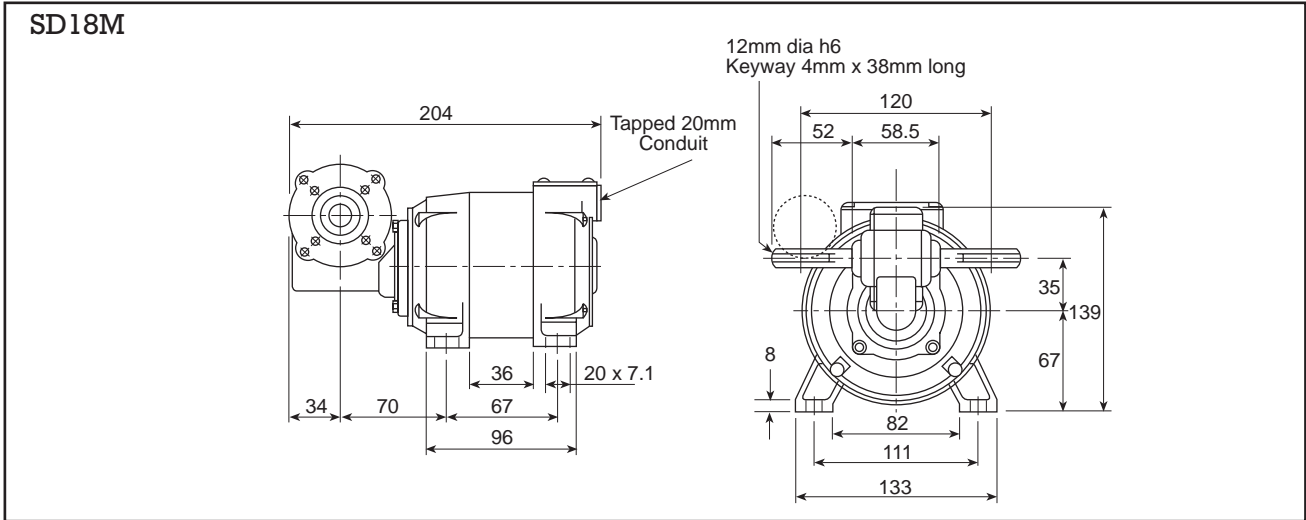
SD13M



SD18M-240Vac using motor

(RS stock no. 266-531), 150W, 1.2A

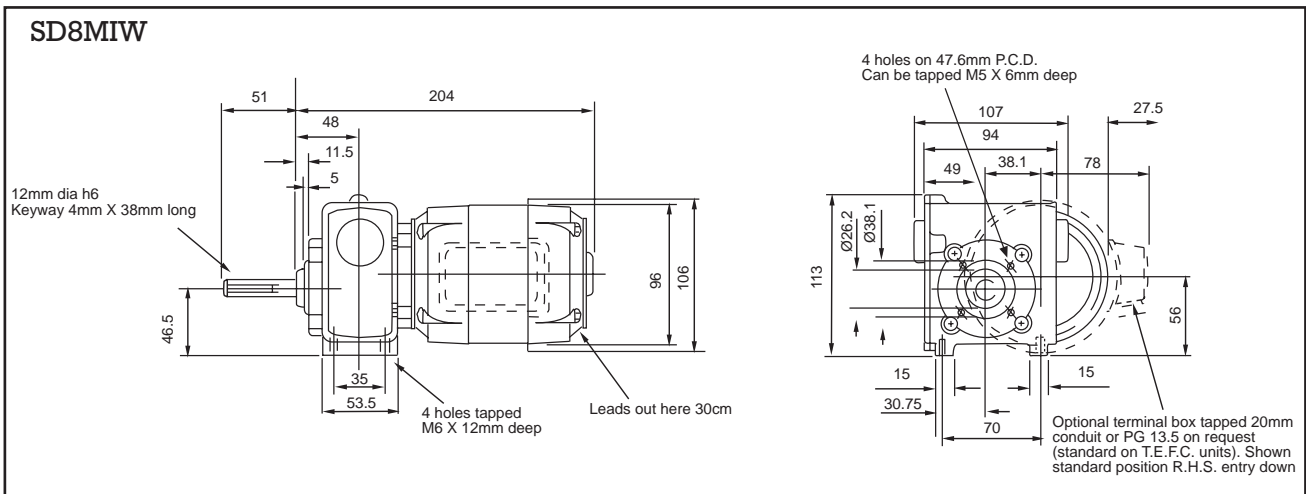
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 58 | 5.88 | 717-859 |
| 70 | 6.55 | 717-865 |
| 93 | 5.65 | 717-871 |
| 112 | 5.20 | 717-887 |
| 136 | 4.52 | 717-893 |
| 180 | 3.96 | 266-496 |
| 226 | 3.39 | 717-916 |
| 270 | 2.83 | 717-922 |
| 338 | 2.26 | 266-503 |



SD8M1W-240Vac using motor

(RS stock no. 716-058), 35W, 0.36A

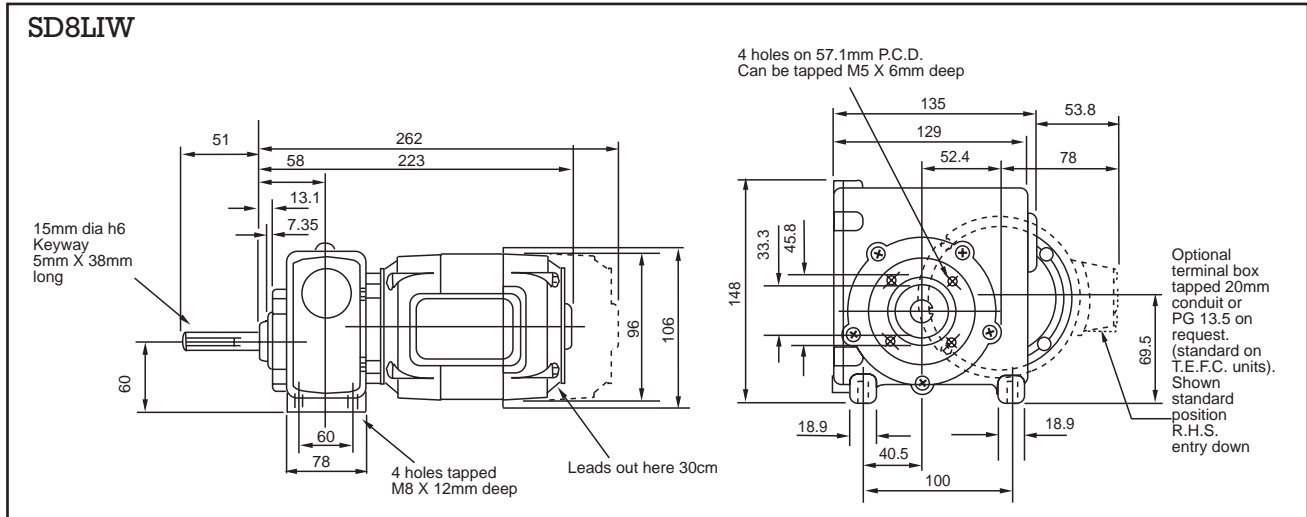
| rpm | Output torque (Nm) | RS stock no. |
|------|--------------------|--------------|
| 1 | 17 | 397-398 |
| 2 | 17 | 397-405 |
| 4 | 17 | 397-427 |
| 7 | 17 | 397-411 |
| 11 | 14.3 | 397-433 |
| 13.5 | 11.2 | 397-449 |
| 18 | 9.1 | 397-455 |
| 20 | 8.2 | 397-461 |
| 27 | 6.3 | 397-477 |
| 32 | 5.5 | 397-483 |
| 41 | 4.1 | 397-499 |



SD8L1W-240Vac using motor

(RS stock no. 716-064), 35W, 0.36A TEFC

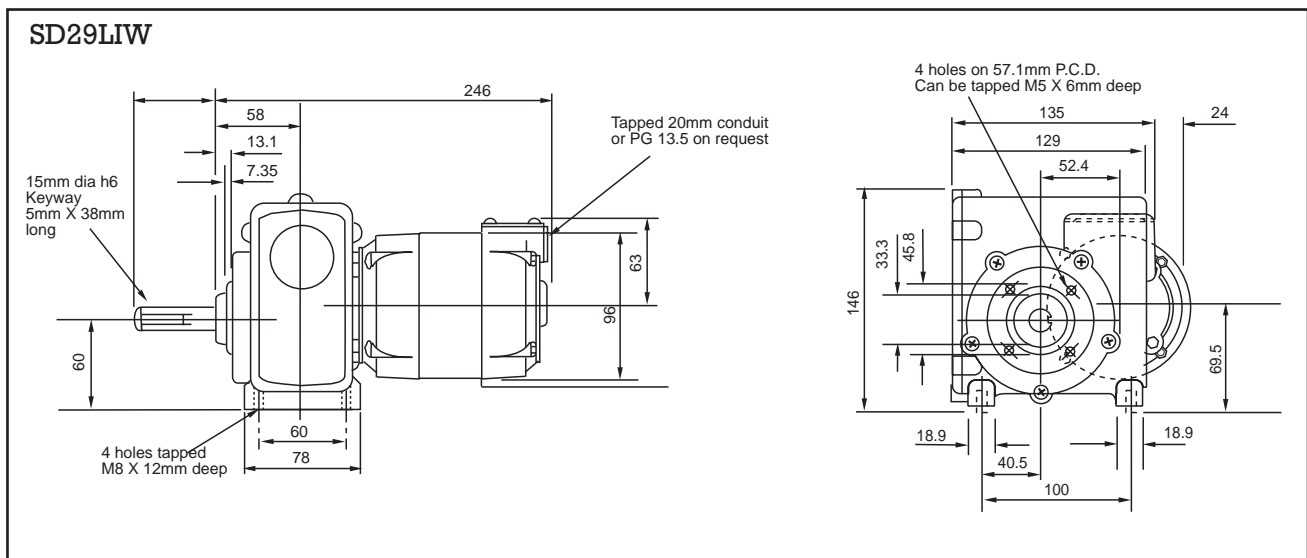
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 1.5 | 28 | 400-595 |
| 2.5 | 28 | 400-602 |
| 4.0 | 26 | 400-618 |
| 9.4 | 14 | 400-624 |
| 12 | 11 | 400-630 |
| 19 | 9 | 400-646 |
| 30 | 6 | 400-652 |
| 38 | 5 | 400-668 |



SD29L1W-240Vac using motor

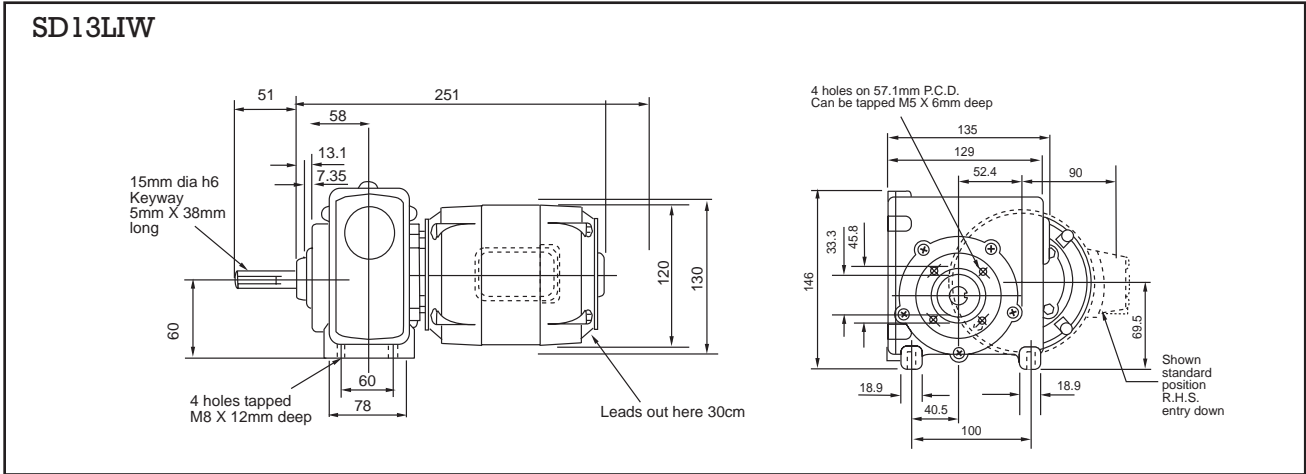
(RS stock no. 716-070), 55W, 0.41A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 1.5 | 28 | 400-674 |
| 2.5 | 28 | 400-680 |
| 4.0 | 28 | 400-696 |
| 9.4 | 24 | 400-703 |
| 12 | 20 | 400-719 |
| 19 | 15 | 400-725 |
| 30 | 11 | 400-731 |
| 38 | 8.5 | 400-747 |



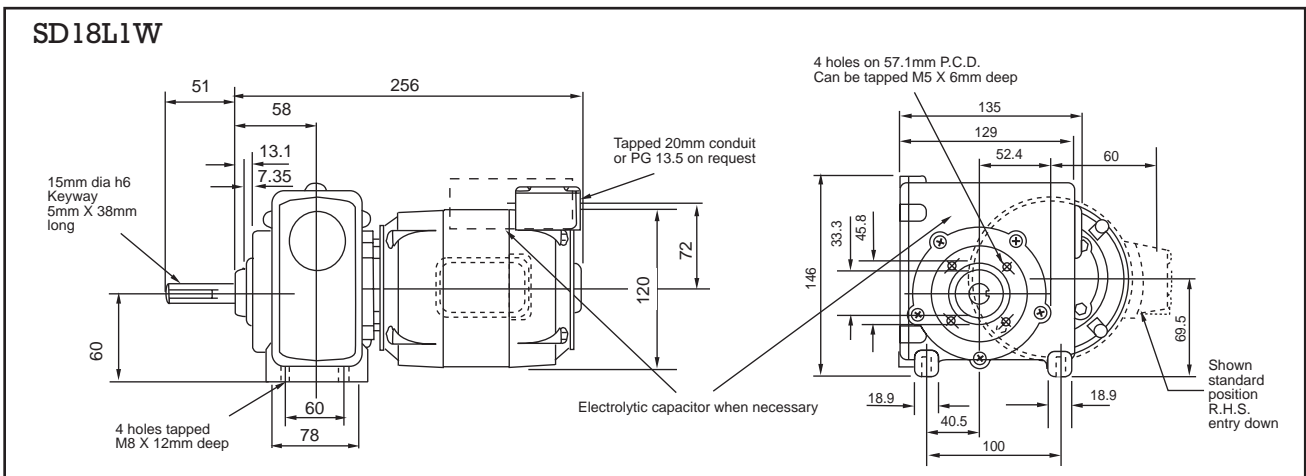
SD13L1W-240Vac using motor
 (RS stock no. 716-092), 100W, 0.76A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 1.5 | 28 | 400-753 |
| 2.5 | 28 | 400-769 |
| 4.0 | 28 | 400-775 |
| 9.4 | 28 | 400-781 |
| 12 | 28 | 400-797 |
| 19 | 24 | 400-804 |
| 30 | 17 | 400-810 |
| 38 | 13 | 400-826 |



SD18L1W-240Vac using motor
 (RS stock no. 266-531), 150W, 1.2A

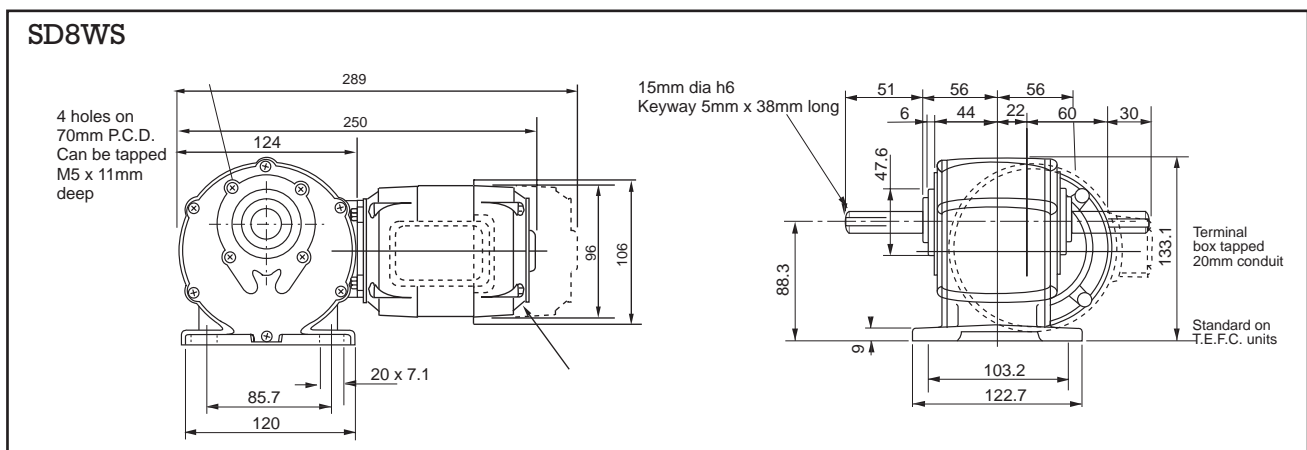
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 3 | 28 | 400-832 |
| 5 | 28 | 400-848 |
| 8 | 28 | 400-854 |
| 19 | 218 | 400-860 |
| 24 | 25 | 400-876 |
| 37 | 16 | 400-882 |
| 61 | 13.2 | 400-898 |
| 75 | 10.5 | 400-905 |



SD8WS-240Vac using motor

(RS stock no. 716-064), 35W, 0.36A TEFC

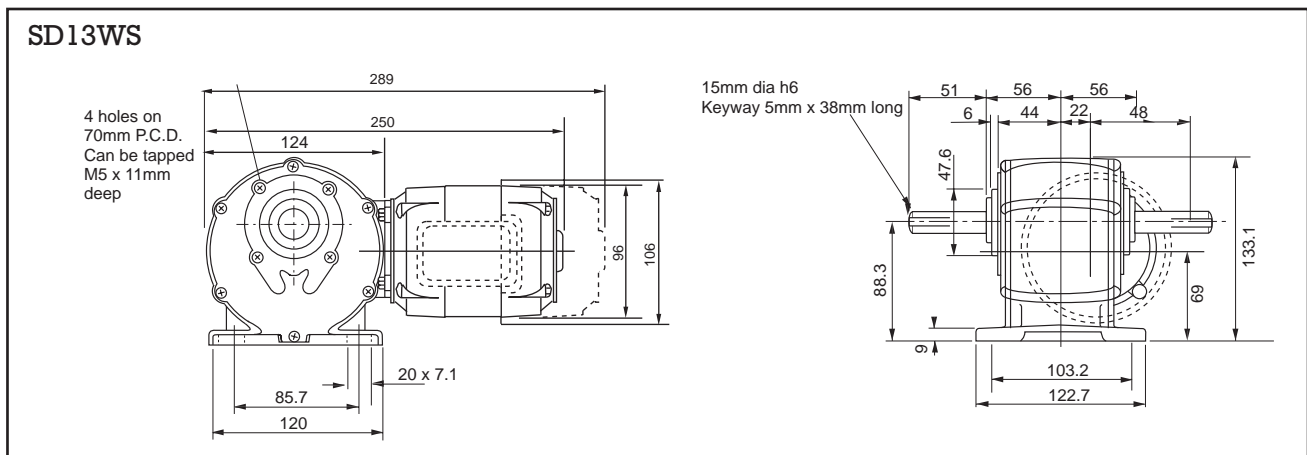
| rpm | Output torque (Nm) | RS stock no. |
|------|--------------------|--------------|
| 0.25 | 74 | 227-1440 |
| 0.5 | 74 | 227-1456 |
| 0.75 | 74 | 227-1462 |
| 1 | 784 | 227-1478 |
| 1.5 | 74 | 227-1490 |
| 2 | 66 | 227-1507 |
| 3 | 46 | 227-1513 |
| 3.5 | 43 | 227-1529 |
| 4.5 | 35 | 227-1535 |
| 7 | 26 | 227-1557 |
| 9 | 19 | 227-1563 |
| 14 | 13 | 227-1579 |
| 18.5 | 10 | 227-1585 |
| 28 | 6.5 | 227-1591 |
| 37 | 5 | 227-1614 |
| 38 | 3.5 | 227-1620 |



SD13WS-240Vac using motor

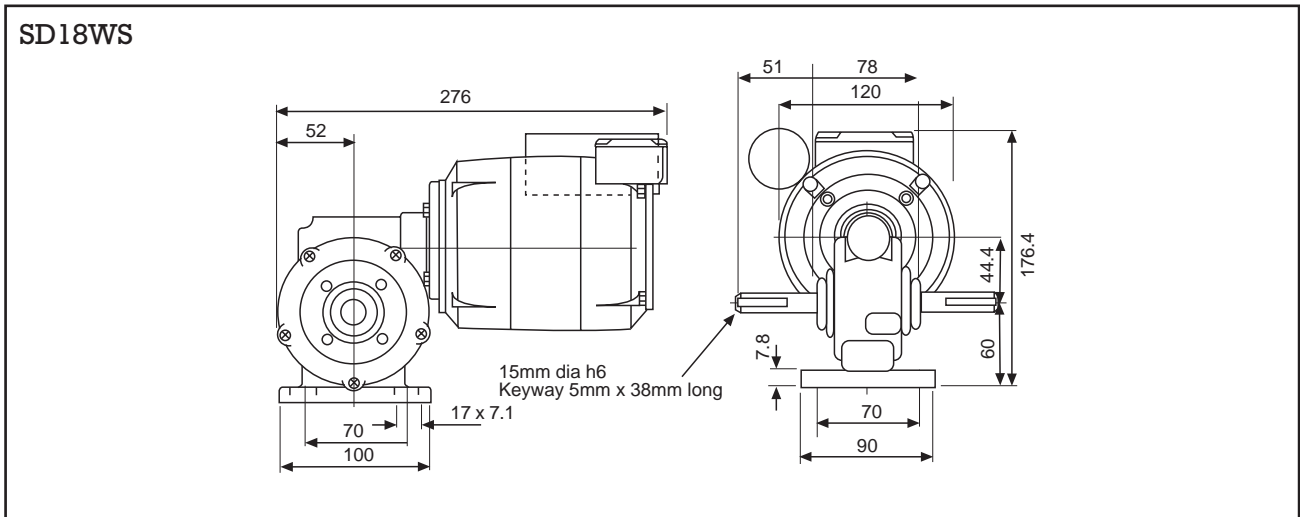
(RS stock no. 716-092), 100W, 0.75A TEFC

| rpm | Output torque (Nm) | RS stock no. |
|------|--------------------|--------------|
| 2 | 74 | 227-1636 |
| 3 | 74 | 227-1642 |
| 3.5 | 62 | 227-1658 |
| 4.5 | 62 | 227-1664 |
| 7 | 62 | 227-1670 |
| 9 | 56 | 227-1686 |
| 14 | 39 | 227-1692 |
| 18.5 | 28 | 227-1709 |
| 28 | 20 | 227-1715 |
| 37 | 16 | 227-1721 |
| 38 | 11 | 227-1737 |



SD18WS-240Vac using motor
 (RS stock no. 266-531), 150W, 1.2A TEFC

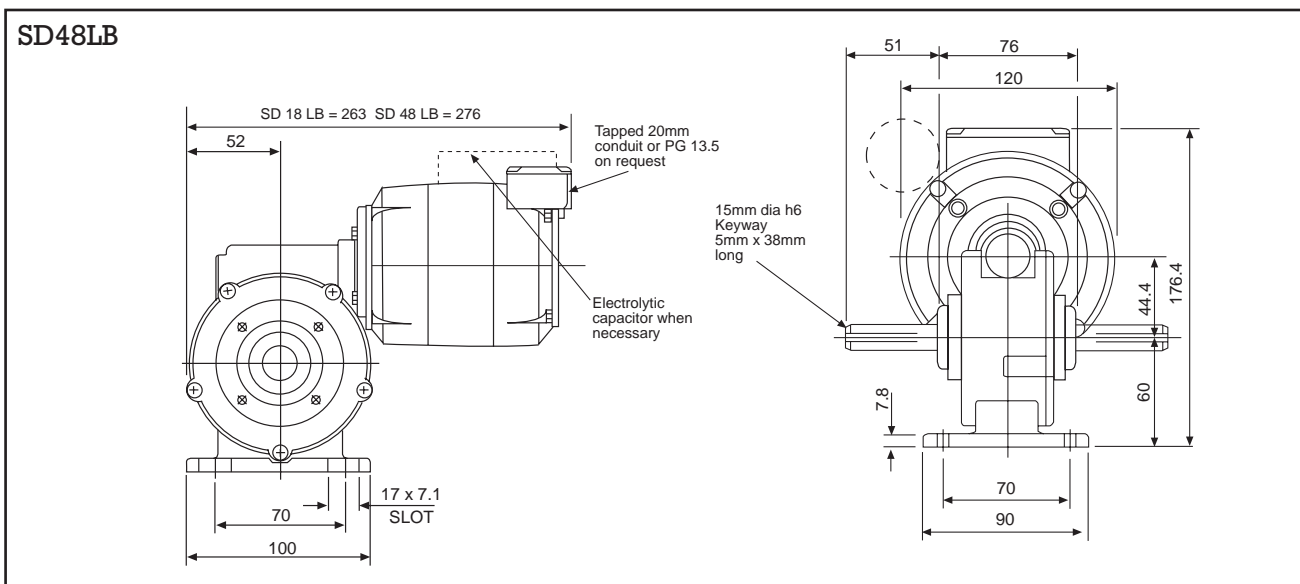
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2 | 74 | 227-1743 |
| 3 | 74 | 227-1759 |
| 4 | 74 | 227-1771 |
| 6 | 74 | 227-1787 |
| 7 | 62 | 227-3115 |
| 9 | 62 | 227-1793 |
| 14 | 62 | 227-1800 |
| 18 | 52 | 227-1816 |
| 28 | 27 | 227-1838 |
| 37 | 17 | 227-1844 |
| 56 | 12 | 227-1850 |
| 74 | 9 | 227-1866 |
| 113 | 7.5 | 227-1872 |



ac capacitor start induction and run motor/gearbox combinations

SD48LB-240Vac, 125W, 1.6A

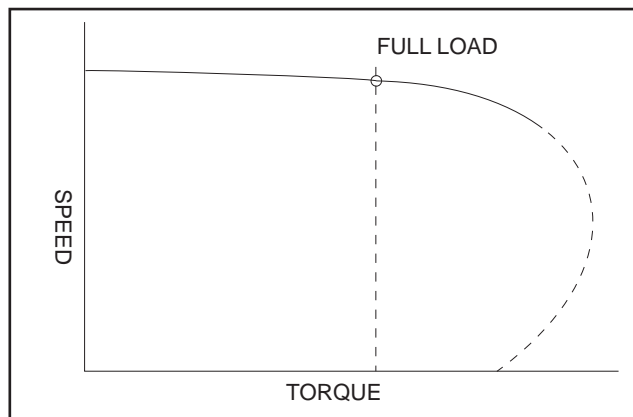
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 68 | 9.49 | 266-519 |
| 112 | 6.78 | 266-525 |



ac three phase motors

Shown below is a typical torque/speed characteristic for this type of motor. The speed is fairly constant over the no load to full load range. Where a 3 phase supply is available this motor should be the logical choice. The starting torque is up to 200% of full load torque. It is possible to instantaneously reverse this type of motor whilst running. The motor does cause radio or tv interference.

General characteristics



| ac three phase motors | | | | | | |
|-----------------------|------|------------|------------|---------------|------|----------------------------------|
| RS stock no. | Type | Shaft Type | Rating (w) | Input current | rpm | Suitable controller RS stock no. |
| 716-086 | SD29 | M | 60 | 0.28 | 1400 | 266-856 |
| 716-115 | SD18 | M | 190 | 0.5 | 2800 | 266-856 |

SD29

For line drawing see SD39 single phase motor.

SD18

For line drawing see SD18 single phase motor

ac three phase motors/gearbox combinations

SD29M-220 to 440Vac using motor

(RS stock no. 716-086), 60W, 0.28A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 20 | 5.09 | 717-657 |
| 23 | 5.88 | 717-663 |
| 29 | 5.88 | 717-679 |
| 35 | 6.78 | 717-685 |
| 47 | 6.10 | 717-691 |
| 56 | 5.65 | 717-708 |
| 68 | 5.20 | 717-714 |
| 90 | 4.29 | 717-720 |
| 113 | 2.94 | 717-736 |
| 135 | 2.49 | 717-742 |
| 168 | 2.03 | 717-758 |

For line drawing see SD29M single phase motor/gearbox.

SD18M-220 to 440V ac using motor

(RS stock no. 716-115), 190W, 0.5A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 46 | 5.88 | 717-944 |
| 58 | 5.88 | 717-950 |
| 70 | 6.78 | 717-966 |
| 93 | 6.78 | 717-972 |
| 112 | 6.78 | 717-988 |
| 136 | 6.78 | 717-994 |
| 180 | 5.99 | 718-004 |
| 270 | 4.52 | 718-010 |

For line drawing see SD18M single phase motor/gearbox.

SD29L1W 220/380/440Vac using motor

(RS stock no. 716-086), 60W, 0.28A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 1.5 | 28 | 400-911 |
| 2.5 | 28 | 400-927 |
| 4.0 | 28 | 400-933 |
| 9.4 | 24 | 400-949 |
| 12 | 20 | 400-955 |
| 19 | 15 | 400-961 |
| 30 | 11 | 400-977 |
| 38 | 8.5 | 400-983 |

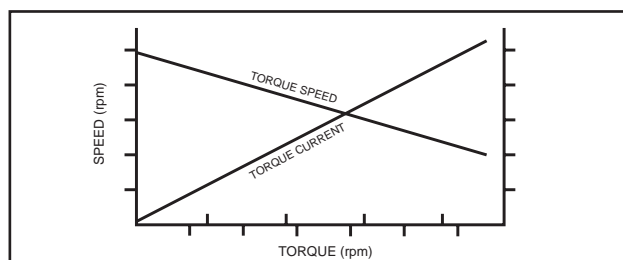
For line drawing see 55W version of SD29LIW

Permanent magnet dc motors

Shown is a typical 'torque/speed' and 'torque/current' characteristic for a dc permanent magnet motor, the 'torque/speed' being linear.

Suitable for reversing as standard i.e. 2 leads brought out (armature). The speed can be controlled by means of our dc thyristor controller (RS stock no. 266-626). Please see motors and controllers section of current RS Catalogue.

General characteristics



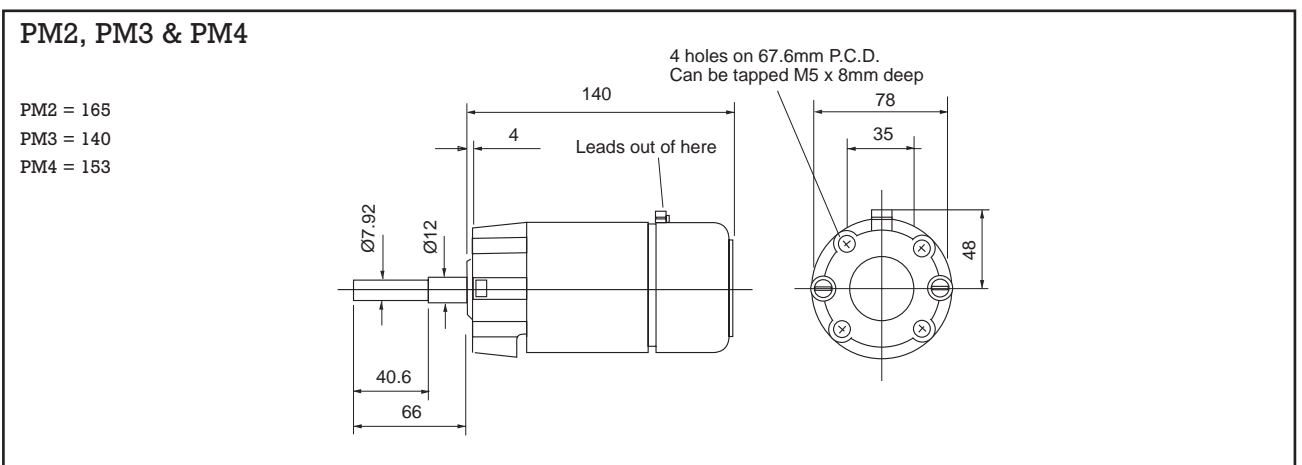
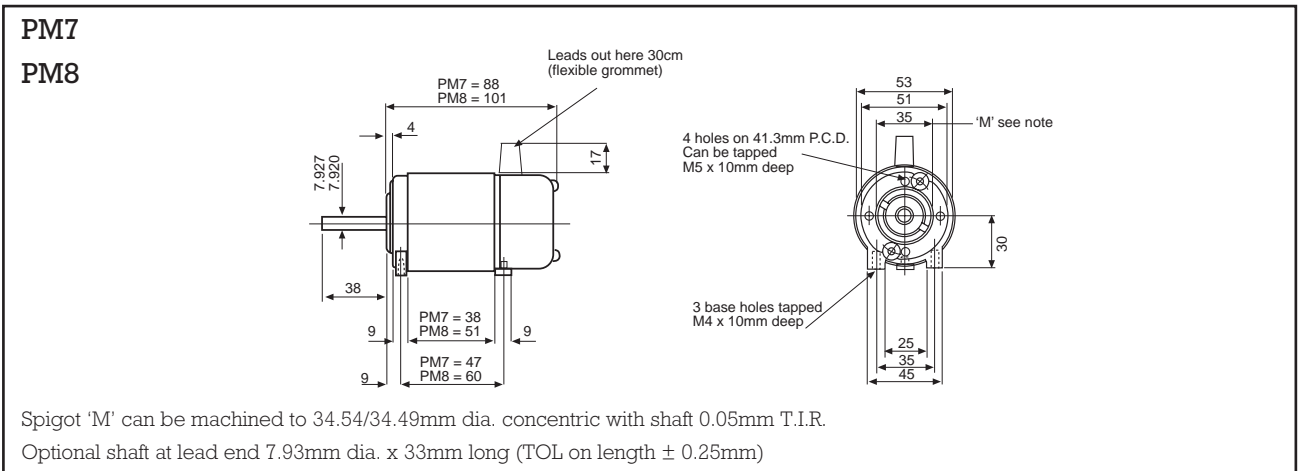
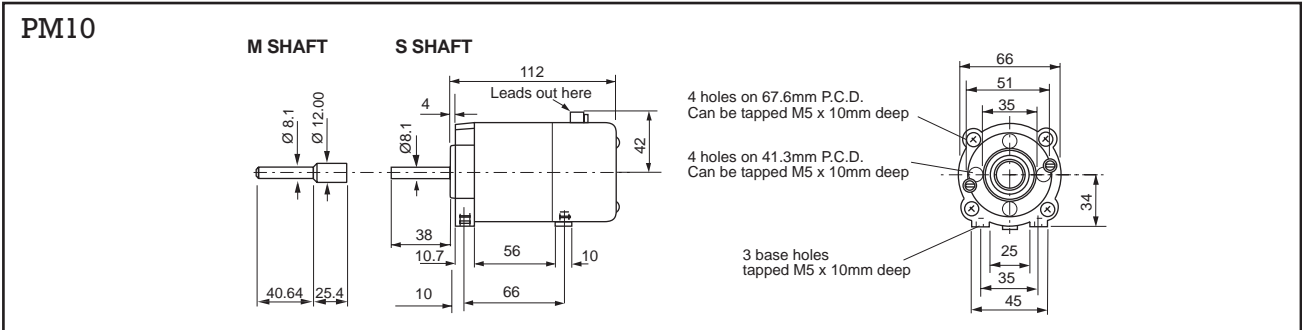
SD18L1W 220/380/440Vac using motor

(RS stock no. 716-115), 190W, 0.5A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 3 | 28 | 407-647 |
| 5 | 28 | 407-653 |
| 8 | 28 | 407-669 |
| 19 | 28 | 407-675 |
| 24 | 28 | 407-681 |
| 37 | 24 | 407-697 |
| 61 | 17 | 407-704 |
| 75 | 13 | 407-710 |

For line drawing see 150W version of SD18LIW

| Permanent magnet dc motors | | | | | | | |
|----------------------------|------|------------|------------|---------------|------|---------|----------------------------------|
| RS stock no. | Type | Shaft Type | Rating (W) | Input current | rpm | Voltage | Suitable controller RS stock no. |
| 266-424 | PM10 | S | 60 | 1.7 | 4000 | 50 | 244-2939 |
| 716-165 | PM10 | M | 60 | 1.7 | 4000 | 50 | 244-2939 |
| 716-171 | PM10 | S | 60 | 7.3 | 4000 | 12 | 440-492 |
| 716-187 | PM10 | M | 60 | 7.3 | 4000 | 12 | 440-492 |
| 716-137 | PM2 | M | 160 | 3.8 | 4000 | 50 | - |
| 266-389 | PM3 | M | 90 | 2.4 | 4000 | 50 | 244-2939 |
| 716-193 | PM4 | M | 90 | 10.5 | 3000 | 12 | 440-492 |
| 716-200 | PM4 | M | 90 | 5.2 | 3000 | 24 | 440-492 |
| 298-5060 | PM7 | M | 15 | 1.7 | 3000 | 12 | |
| 298-5076 | PM7 | M | 15 | 0.9 | 3000 | 24 | |
| 298-5082 | PM7 | M | 15 | 0.4 | 3000 | 50 | |
| 298-5098 | PM8 | M | 25 | 2.8 | 3000 | 12 | |
| 298-5105 | PM8 | M | 25 | 1.4 | 3000 | 24 | |
| 298-5111 | PM8 | M | 25 | 0.7 | 3000 | 50 | |
| 298-5155 | PM8 | M | 25 | 0.16 | 3000 | 220 | |
| 296-3054 | PM10 | M | 30 | 4.3 | 2000 | 12 | |
| 296-3076 | PM10 | M | 30 | 1.1 | 2000 | 50 | |
| 298-5127 | PM10 | M | 45 | 6 | 3000 | 12 | |
| 298-5149 | PM10 | M | 45 | 1.3 | 3000 | 50 | |



229-7587

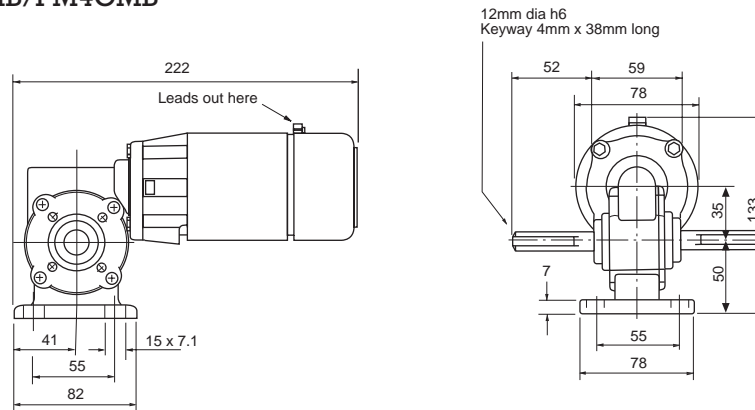
PM2CMB-50Vdc using motor
(RS stock no. 716-137), 160W, 3.8A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 100 | 6.3 | 718-026 |
| 130 | 5.0 | 718-032 |
| 160 | 4.4 | 718-048 |
| 200 | 3.9 | 718-054 |
| 260 | 3.3 | 718-060 |
| 320 | 2.6 | 718-076 |
| 400 | 2.4 | 718-082 |
| 480 | 2.0 | 718-098 |

PM3CMB-50Vdc using motor
(RS stock no. 266-389), 90W, 2.4A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 66 | 4.43 | 718-105 |
| 83 | 4.2 | 718-111 |
| 100 | 3.75 | 266-351 |
| 130 | 3.0 | 718-133 |
| 160 | 2.63 | 718-149 |
| 200 | 2.33 | 266-367 |
| 260 | 1.95 | 718-161 |
| 320 | 2.0 | 266-373 |
| 400 | 1.43 | 718-183 |
| 480 | 1.2 | 718-199 |

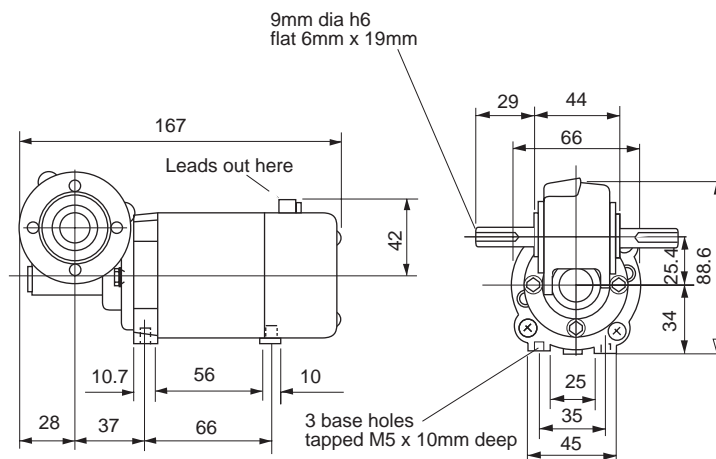
PM2CMB/PM3CMB/PM4CMB



PM10CS-50Vdc using motor
(RS stock no. 266-424), 60W, 1.7A

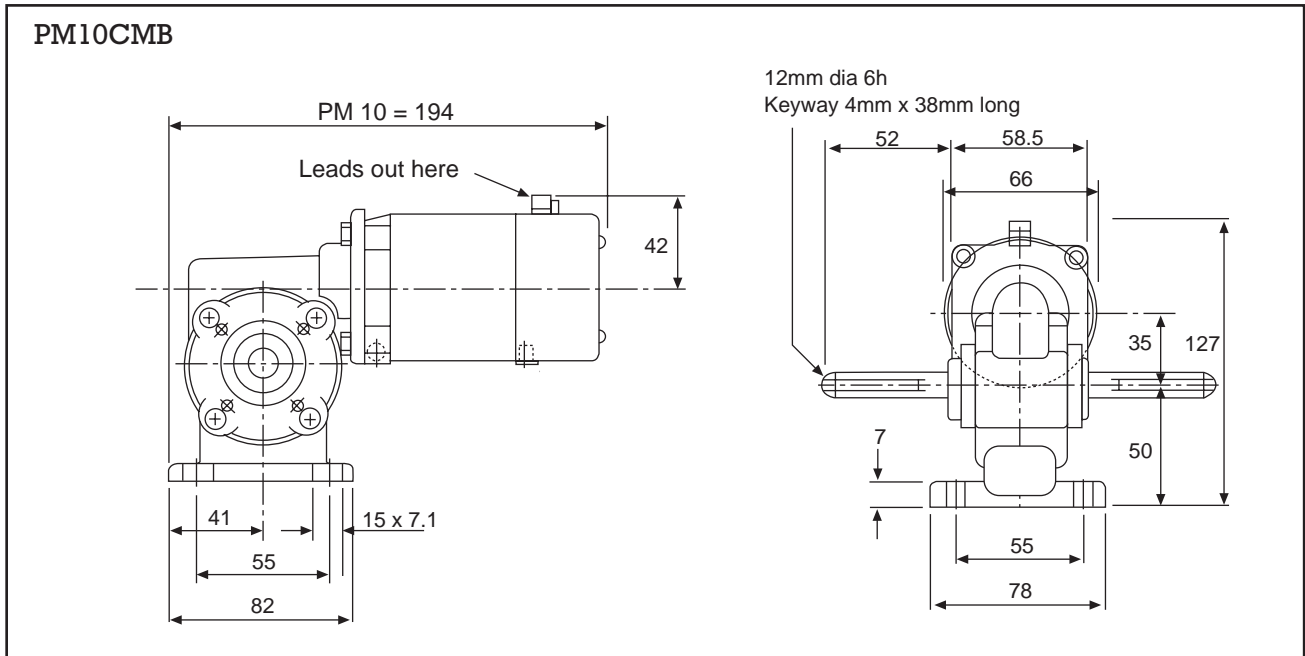
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 100 | 2.5 | 266-395 |
| 130 | 2.0 | 718-212 |
| 160 | 1.75 | 718-228 |
| 200 | 1.55 | 266-402 |
| 260 | 1.3 | 718-240 |
| 330 | 1.05 | 266-418 |
| 400 | 0.95 | 718-262 |
| 480 | 0.8 | 718-278 |

PM10CS



PM10CMB-50Vdc using motor
 (RS stock no. 716-165), 60W, 1.7A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 60 | 2.95 | 718-284 |
| 83 | 2.80 | 718-290 |
| 100 | 2.5 | 718-307 |
| 130 | 2.0 | 718-313 |
| 160 | 1.75 | 718-329 |
| 200 | 1.55 | 718-335 |
| 260 | 1.3 | 718-341 |
| 320 | 1.05 | 718-357 |
| 400 | 0.95 | 718.363 |
| 480 | 0.8 | 718-379 |



PM10CS-12Vdc using motor
 (RS stock no. 716-171), 60W, 7.3A

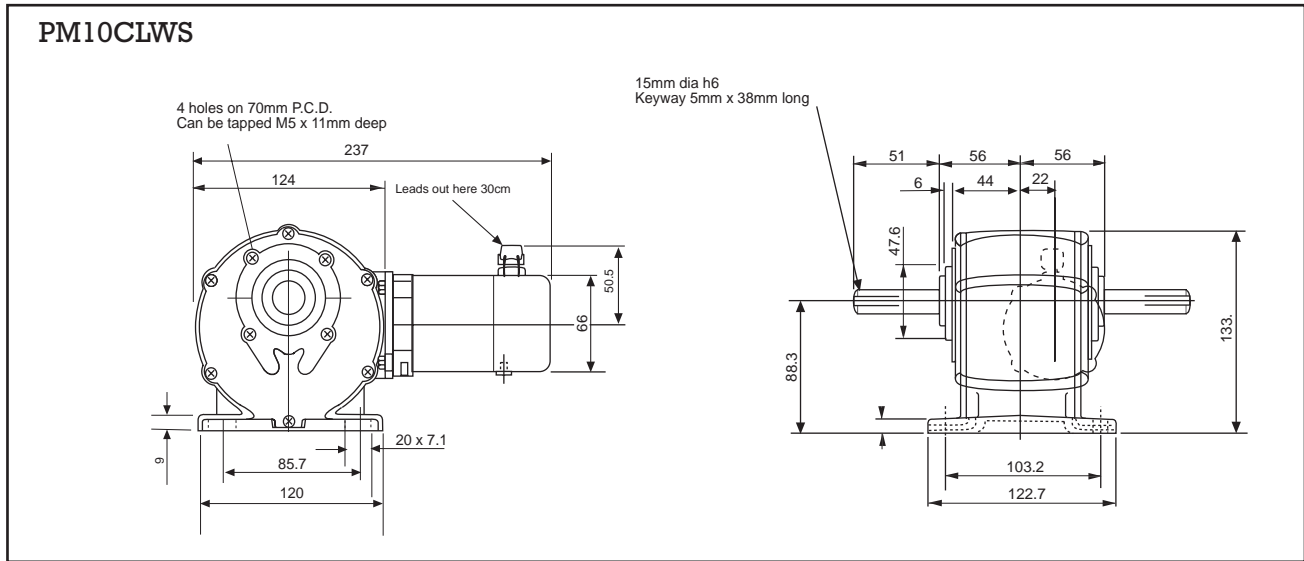
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 100 | 2.5 | 718-385 |
| 130 | 2.0 | 718-391 |
| 160 | 1.75 | 718-408 |
| 200 | 1.55 | 718-414 |
| 260 | 1.3 | 718-420 |
| 330 | 1.05 | 718-436 |
| 400 | 0.95 | 718-442 |
| 480 | 0.8 | 718-458 |

For line drawing see PM10CS, 50V.

PM10CMB-12Vdc using motor
 (RS stock no. 716-187), 60W, 7.3A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 66 | 2.95 | 718-464 |
| 83 | 2.80 | 718-470 |
| 100 | 2.5 | 718-486 |
| 130 | 2.0 | 718-492 |
| 160 | 1.75 | 718-509 |
| 200 | 1.55 | 718-515 |
| 260 | 1.3 | 718-521 |
| 320 | 1.05 | 718-537 |
| 400 | 0.95 | 718-543 |
| 480 | 0.8 | 718-559 |

For line drawing see PM10CS, 50V



PM4CMB-12Vdc using motor
(RS stock no. 716-193), **90W, 10.5A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 50 | 5.9 | 718-565 |
| 62 | 5.6 | 718-571 |
| 75 | 5.0 | 718-587 |
| 100 | 4.0 | 718-593 |
| 120 | 3.5 | 718-600 |
| 145 | 3.1 | 718-616 |
| 190 | 2.6 | 718-622 |
| 240 | 2.1 | 718-638 |
| 290 | 1.9 | 718-644 |
| 360 | 1.6 | 718-650 |

PM4CMB-12Vdc using motor
(RS stock no. 716-200), **90W, 10.5A**

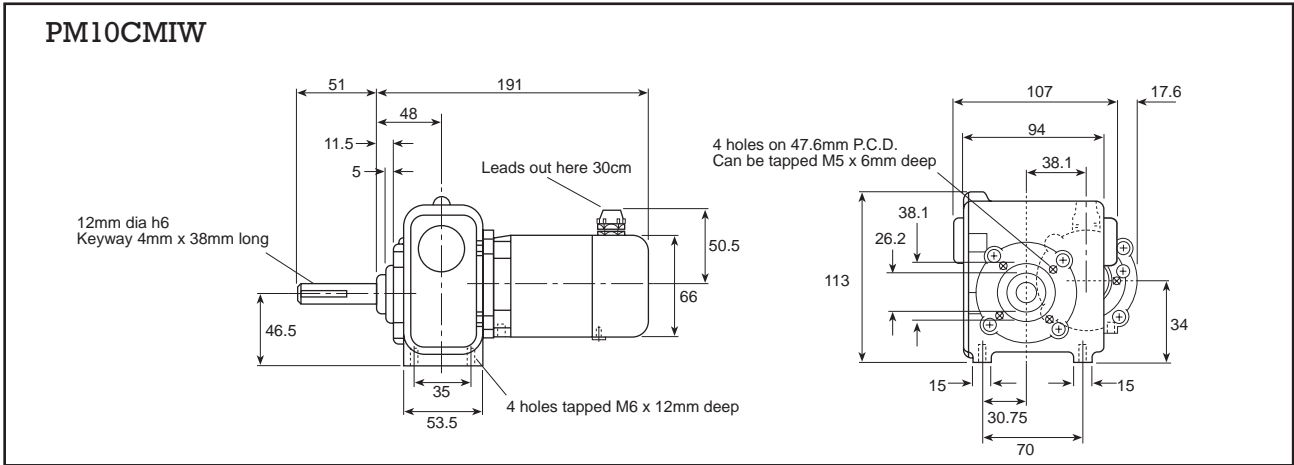
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 50 | 5.9 | 718-666 |
| 62 | 5.6 | 718-672 |
| 75 | 5.0 | 718-688 |
| 100 | 4.0 | 718-694 |
| 120 | 3.5 | 718-701 |
| 145 | 3.1 | 718-717 |
| 190 | 2.6 | 718-723 |
| 240 | 2.1 | 718-739 |
| 290 | 1.9 | 718-745 |
| 360 | 1.6 | 718-751 |

PM10CM1W-50Vdc using motor
(RS stock no. 266-424), **60W, 1.7A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 3 | 17 | 397-174 |
| 6 | 17 | 397-180 |
| 11 | 15.9 | 397-196 |
| 20 | 10.5 | 397-203 |
| 30 | 8.1 | 397-219 |
| 38 | 6.5 | 397-225 |
| 52 | 5.3 | 397-231 |
| 58 | 4.7 | 397-247 |
| 76 | 3.9 | 397-253 |
| 92 | 3.4 | 397-269 |
| 152 | 2.6 | 397-275 |

PM10CM1W-12Vdc using motor
(RS stock no. 716-171), **60W, 7.3A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 3 | 17 | 397-281 |
| 6 | 17 | 397-297 |
| 11 | 15.9 | 397-304 |
| 20 | 10.5 | 397-310 |
| 30 | 8.1 | 397-326 |
| 38 | 6.5 | 397-332 |
| 52 | 5.3 | 397-348 |
| 58 | 4.7 | 397-354 |
| 76 | 3.9 | 397-360 |
| 92 | 3.4 | 397-376 |
| 152 | 2.6 | 397-382 |



PM7 SWS 12Vdc 1.7A

Supplied with motor
(RS stock no. 298-5060)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2 | 11 | 306-0005 |
| 4 | 11 | 306-0011 |
| 9.7 | 9 | 306-0027 |
| 19 | 5 | 306-0033 |
| 31 | 3 | 306-0049 |
| 47 | 2 | 306-0061 |
| 71 | 2 | 306-0077 |

PM7C SWS-50Vdc 0.4A

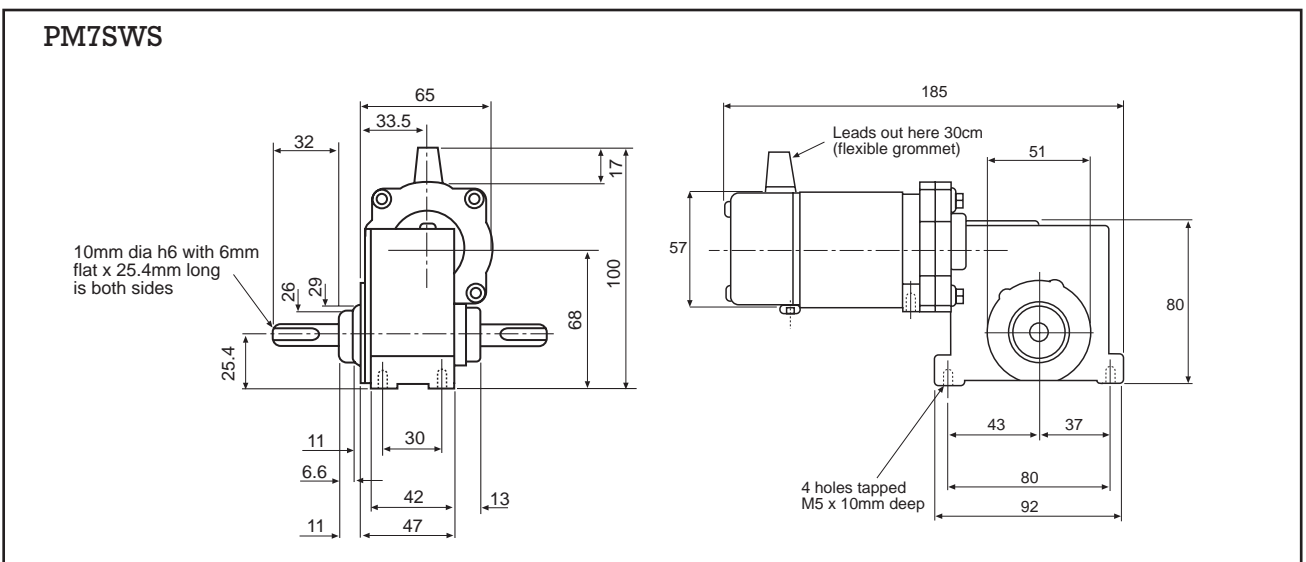
Supplied with motor
(RS stock no. 298-5082)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2 | 11 | 306-0162 |
| 4 | 11 | 306-0178 |
| 9.7 | 9 | 306-0184 |
| 19 | 5 | 306-0190 |
| 31 | 3 | 306-0207 |
| 47 | 2 | 306-0213 |
| 71 | 2 | 306-0229 |

PM7C SWS-24Vdc 0.9A

Supplied with motor
(RS stock no. 298-5076)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2 | 11 | 306-0083 |
| 4 | 11 | 306-0099 |
| 9.7 | 9 | 306-0106 |
| 19 | 5 | 306-0128 |
| 31 | 3 | 306-0134 |
| 47 | 2 | 306-0140 |
| 71 | 2 | 306-0156 |



PM10C SWS-12Vdc 4.3A

Supplied with motor
(RS stock no. 296-3054)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 1.4 | 11 | 306-0235 |
| 4.8 | 11 | 306-0241 |
| 8.6 | 11 | 306-0257 |
| 16 | 11 | 306-0263 |
| 21 | 9 | 306-0285 |
| 31 | 7 | 306-0291 |
| 47 | 5 | 306-0308 |

PM10C SWS-12Vdc 6A

Supplied with motor
(RS stock no. 298-5127)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2.1 | 11 | 306-0392 |
| 44 | 11 | 306-0409 |
| 9.7 | 11 | 306-0415 |
| 19 | 11 | 306-0421 |
| 231 | 9 | 306-0437 |
| 47 | 7 | 306-0443 |
| 71 | 5 | 306-0459 |

PM10C SWS-50Vdc 1.1A

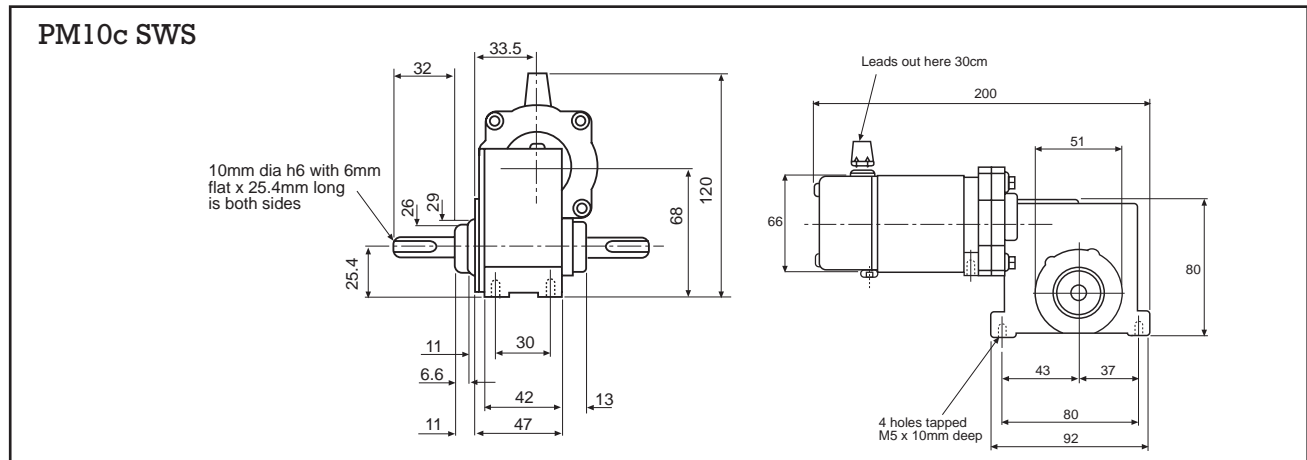
Supplied with motor
(RS stock no. 296-3076)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 1.4 | 11 | 306-0314 |
| 4.8 | 11 | 306-0320 |
| 8.6 | 11 | 306-0342 |
| 16 | 11 | 306-0358 |
| 21 | 9 | 306-0364 |
| 31 | 7 | 306-0370 |
| 47 | 5 | 306-0386 |

PM10C SWS-50Vdc 1.3A

Supplied with motor
(RS stock no. 298-5149)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2.1 | 11 | 306-0465 |
| 4 | 11 | 306-0471 |
| 9.7 | 11 | 306-0487 |
| 19 | 11 | 306-0500 |
| 31 | 9 | 306-0516 |
| 47 | 7 | 306-0522 |
| 71 | 5 | 306-0538 |



PM7 MWS-12Vdc 1.7A

Supplied with motor
(RS stock no. 298-5060)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 4 | 26 | 306-0588 |
| 4.5 | 16 | 306-0594 |
| 9 | 10 | 306-0601 |
| 17 | 6 | 306-0623 |
| 21 | 5 | 306-0639 |
| 24 | 4 | 306-0645 |
| 32 | 3 | 306-0651 |

PM7 MWS-50Vdc 0.4A

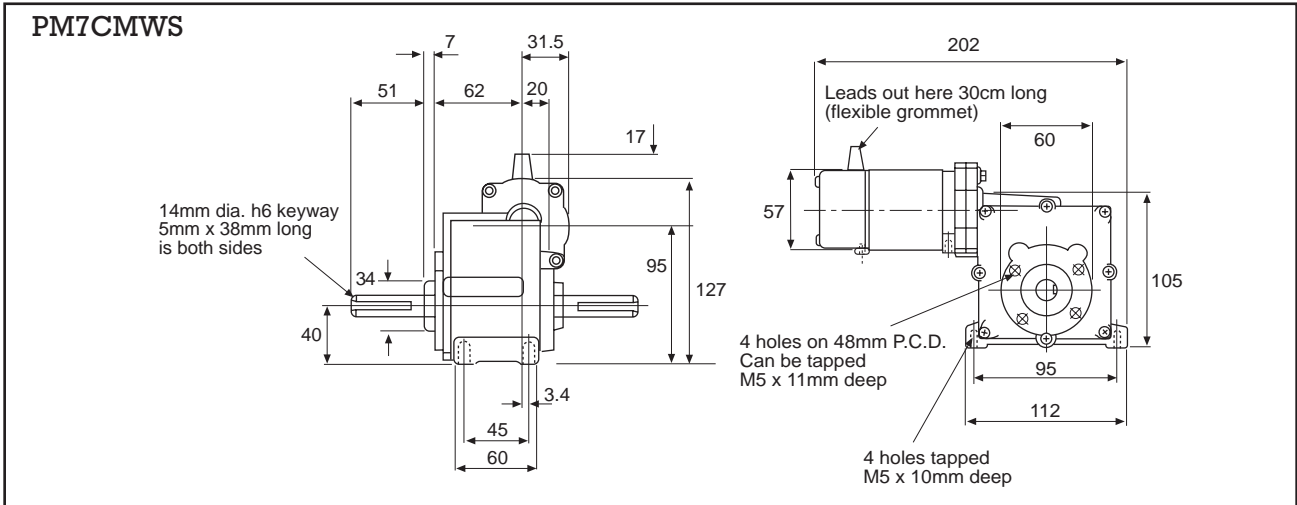
Supplied with motor
(RS stock no. 298-5082)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2 | 26 | 306-0730 |
| 4.5 | 16 | 306-0746 |
| 9 | 10 | 306-0752 |
| 17 | 6 | 306-0768 |
| 21 | 5 | 306-0780 |
| 24 | 4 | 306-0796 |
| 32 | 3 | 306-0803 |

PM7 MWS-24Vdc 0.9A

Supplied with motor
(RS stock no. 298-5076)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2 | 26 | 306-0667 |
| 4.5 | 16 | 306-0673 |
| 99 | 10 | 306-0689 |
| 17 | 6 | 306-0695 |
| 21 | 5 | 306-0702 |
| 24 | 4 | 306-0718 |
| 32 | 3 | 306-0724 |



PM10C MWS-12Vdc 4.3A

Supplied with motor
(RS stock no. 296-3054)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 1.4 | 45 | 306-0819 |
| 3 | 45 | 306-0825 |
| 6 | 30 | 306-0847 |
| 11 | 19 | 306-0853 |
| 14 | 15 | 306-0869 |
| 18 | 12 | 306-0875 |
| 21 | 10 | 306-0881 |
| 32 | 7 | 306-0897 |

PM10C MWS-50Vdc 1.1A

Supplied with motor
(RS stock no. 298-3076)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 1.4 | 45 | 306-0904 |
| 3 | 45 | 306-0910 |
| 6 | 30 | 306-0926 |
| 11 | 19 | 306-0932 |
| 4 | 15 | 306-0948 |
| 18 | 12 | 306-0954 |
| 21 | 10 | 306-0960 |
| 32 | 7 | 306-0976 |

PM10C MWS-12Vdc 6.0A

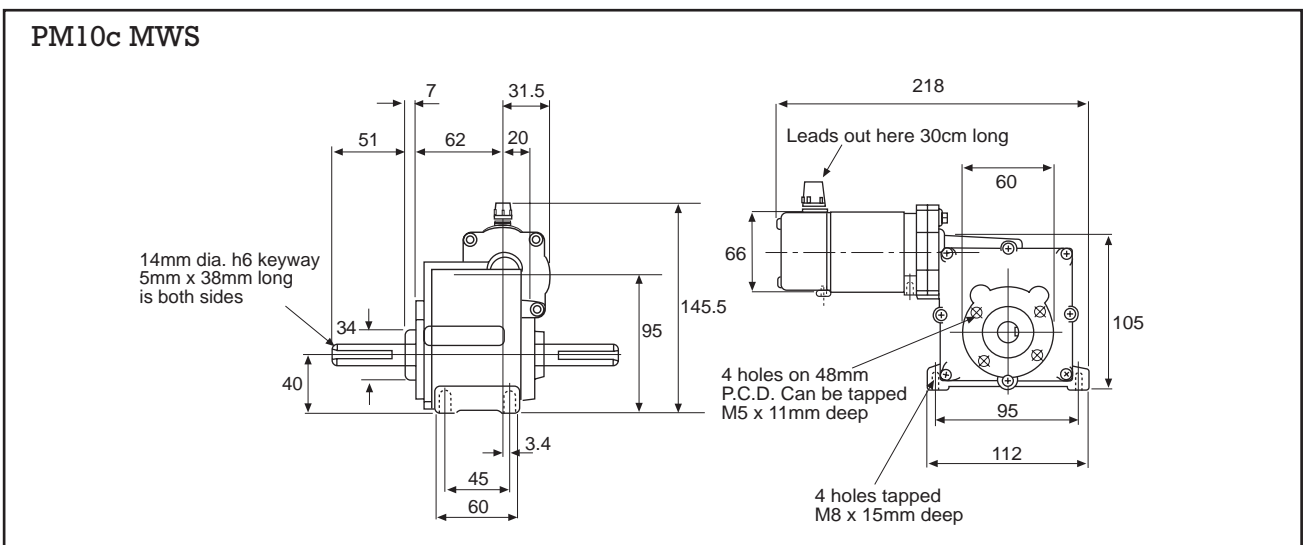
Supplied with motor
(RS stock no. 298-5127)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2.1 | 45 | 306-0982 |
| 4.6 | 37 | 306-1008 |
| 9 | 30 | 306-1014 |
| 17 | 18 | 306-1020 |
| 21 | 15 | 306-1036 |
| 28 | 11 | 306-1042 |
| 32 | 10 | 306-1058 |
| 48 | 7 | 306-1070 |

PM10C MWS-50Vdc 1.3A

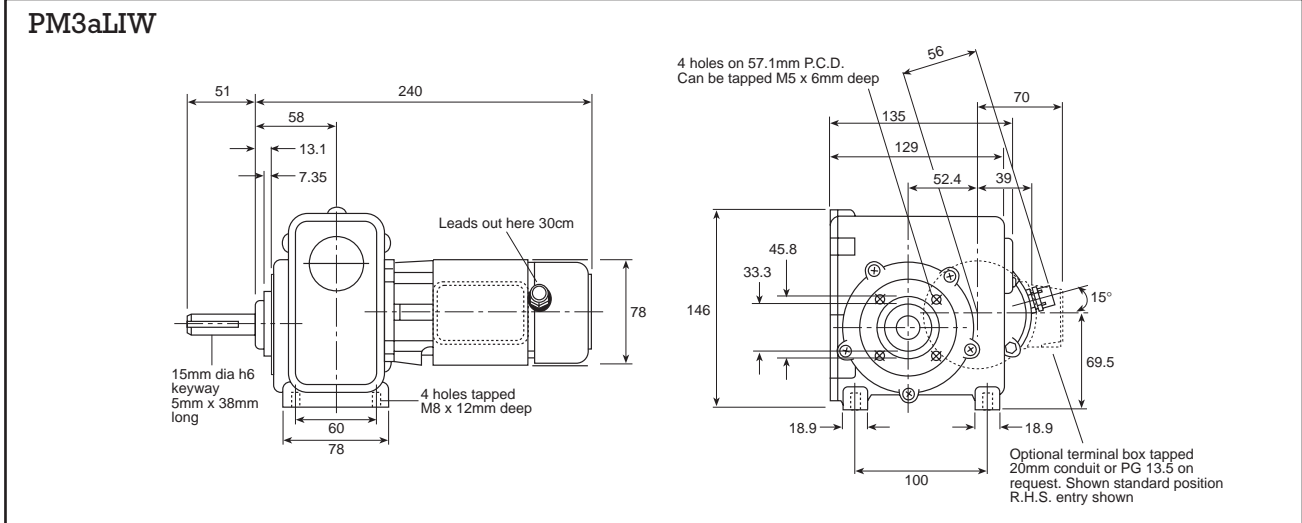
Supplied with motor
(RS stock no. 298-5149)

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 2.1 | 45 | 306-1086 |
| 4.6 | 37 | 306-1092 |
| 9 | 30 | 306-1109 |
| 17 | 18 | 306-1115 |
| 21 | 15 | 306-1137 |
| 28 | 11 | 306-1143 |
| 32 | 10 | 306-1159 |
| 48 | 7 | 306-1165 |



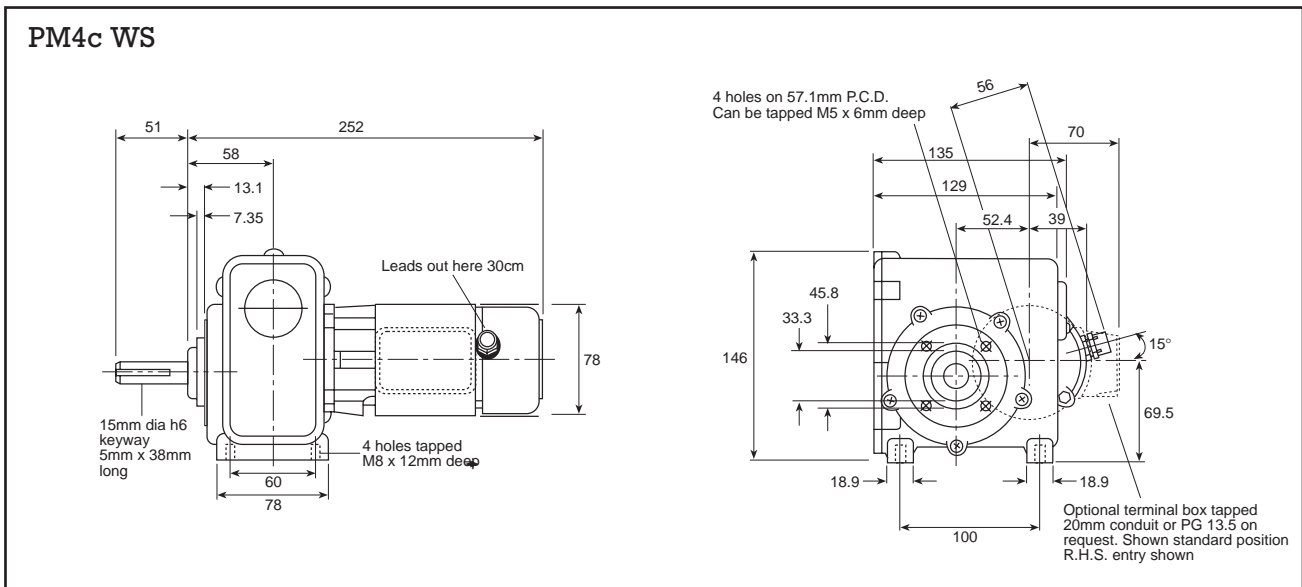
PM3CL1W-50Vdc using motor
 (RS stock no. 266-389), 90W, 2.4A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 4.5 | 28 | 400-337 |
| 7.2 | 28 | 400-343 |
| 12 | 22 | 400-359 |
| 27 | 12 | 400-365 |
| 36 | 10 | 400-371 |
| 53 | 9 | 400-387 |
| 87 | 6 | 400-393 |
| 107 | 5 | 400-400 |



PM4CL1W-12Vdc using motor
 (RS stock no. 716-193), 90W, 10.5A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 3.3 | 28 | 400-416 |
| 5.4 | 28 | 400-422 |
| 9.0 | 28 | 400-438 |
| 20 | 15 | 400-444 |
| 27 | 13.5 | 400-450 |
| 42 | 10.5 | 400-466 |
| 65 | 7.5 | 400-472 |
| 81 | 6 | 400-488 |



PM4CL1W-24Vdc using motor
(RS stock no. 716-200), **90W, 5.2A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 3.3 | 28 | 400-517 |
| 5.4 | 28 | 400-523 |
| 9 | 28 | 400-539 |
| 20 | 15 | 400-545 |
| 27 | 13.5 | 400-551 |
| 42 | 10.5 | 400-567 |
| 65 | 7.5 | 400-573 |
| 81 | 6 | 400-589 |

PM10CWS-12Vdc using motor
(RS stock no. 716-187), **60W, 7.3A**

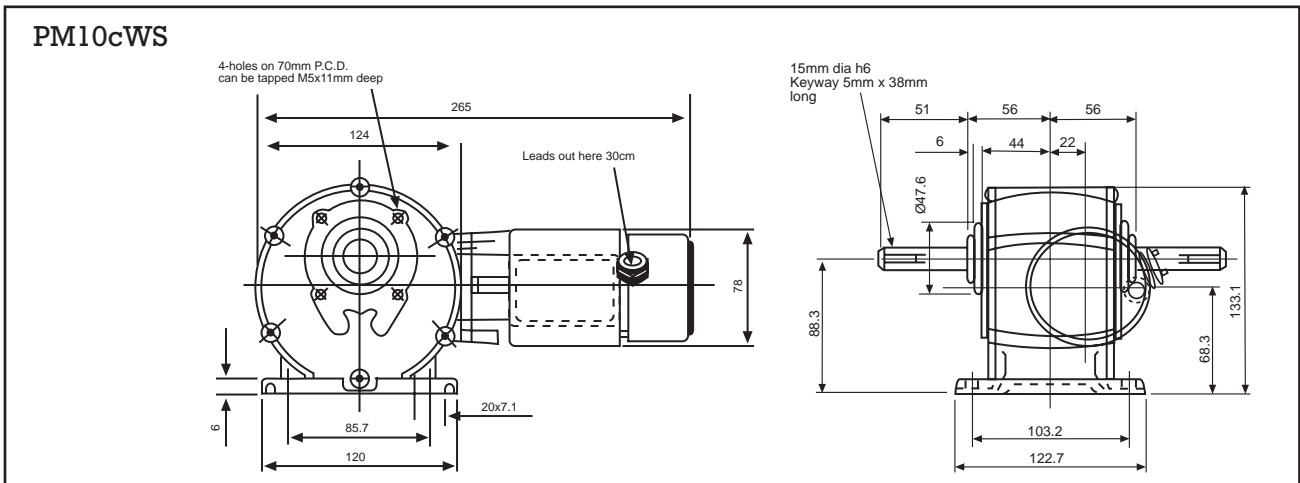
| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 0.5 | 74 | 224-7683 |
| 1 | 74 | 224-7699 |
| 1.6 | 74 | 224-7706 |
| 2.1 | 74 | 224-7712 |
| 3.2 | 74 | 224-7728 |
| 4.5 | 74 | 224-7740 |
| 6.5 | 74 | 224-7756 |
| 8 | 54 | 224-7762 |
| 10 | 43 | 224-7778 |
| 15 | 27 | 224-7784 |
| 20 | 24 | 224-7790 |
| 30 | 16 | 224-7807 |
| 40 | 12 | 224-7813 |
| 60 | 9 | 224-7829 |
| 80 | 7 | 224-7835 |

For line drawing see PM10CWS

PM10CWS-50Vdc using motor
(RS stock no. 716-165), **60W, 1.7A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 0.7 | 74 | 224-7526 |
| 1.3 | 74 | 224-7532 |
| 2.2 | 74 | 224-7548 |
| 3 | 74 | 224-7554 |
| 4.3 | 74 | 224-7560 |
| 5.7 | 74 | 224-7576 |
| 8.7 | 69 | 224-7582 |
| 10 | 41 | 224-7598 |
| 13 | 32 | 224-7605 |
| 20 | 20 | 224-7611 |
| 27 | 18 | 224-7627 |
| 40 | 15 | 224-7633 |
| 53 | 9 | 224-7649 |
| 80 | 7 | 224-7655 |
| 106 | 5 | 224-7661 |

For line drawing see PM10CWS

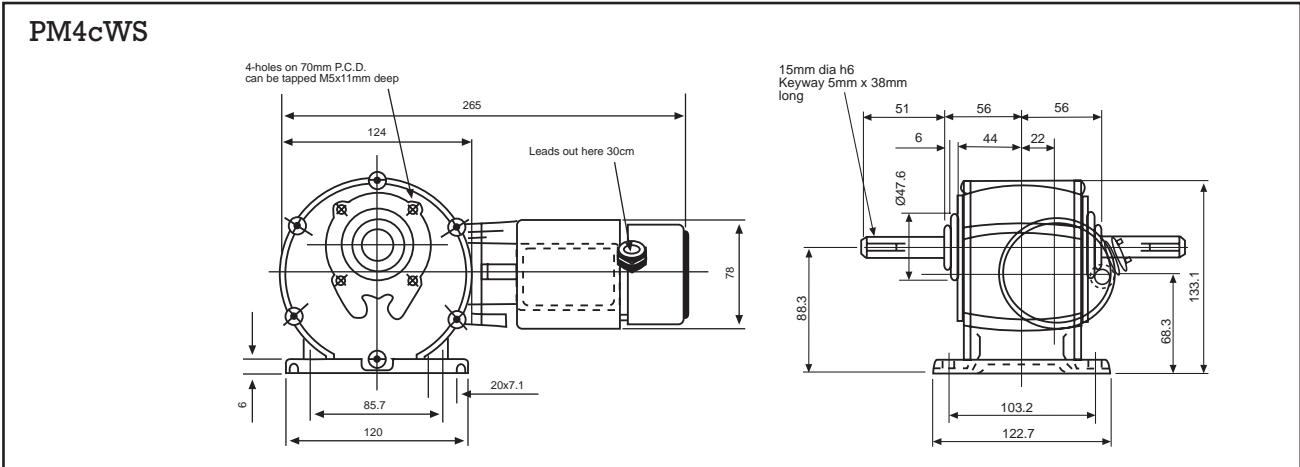
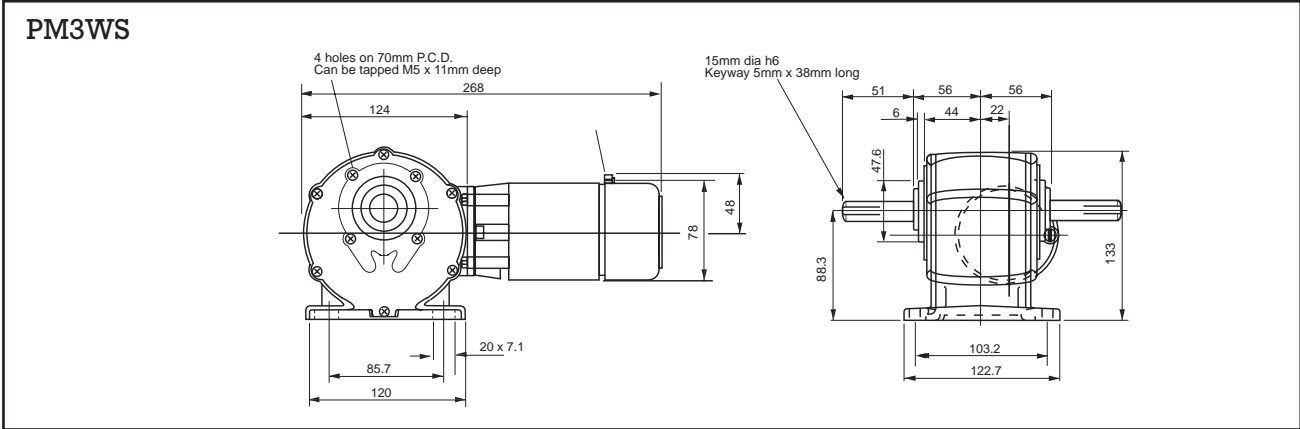


PM2C WS-50Vdc using motor
(RS stock no. 716-137), **160W, 3.8A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 5.7 | 74 | 224-7841 |
| 8.7 | 74 | 224-7857 |
| 10 | 62 | 224-7863 |
| 13 | 57 | 224-7879 |
| 20 | 38 | 224-7885 |
| 27 | 32 | 224-7908 |
| 40 | 27 | 224-7914 |
| 53 | 16 | 224-7920 |
| 80 | 12 | 224-7936 |
| 100 | 9 | 224-7942 |

PM3CWS-50Vdc using motor
(RS stock no. 266-389), **90W, 2.4A**

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 0.7 | 74 | 224-7964 |
| 1.3 | 74 | 224-7970 |
| 2.2 | 74 | 224-7986 |
| 3 | 74 | 224-7992 |
| 4.3 | 74 | 224-8002 |
| 5.7 | 74 | 224-8018 |
| 8.7 | 69 | 224-8030 |
| 13 | 32 | 227-3137 |
| 20 | 20 | 266-446 |
| 27 | 18 | 224-8068 |
| 40 | 15 | 224-8074 |
| 53 | 9 | 224-8080 |
| 60 | 7.5 | 266-452 |
| 80 | 7 | 224-8096 |
| 106 | 5 | 224-8103 |



PM4CWS-12Vdc using motor
(RS stock no. 716-193), 90W, 10.5A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 0.5 | 74 | 224-8119 |
| 1 | 74 | 224-8125 |
| 1.6 | 74 | 224-8131 |
| 2.1 | 74 | 224-8147 |
| 3.2 | 74 | 224-8153 |
| 4.5 | 74 | 224-8169 |
| 6.5 | 74 | 224-8175 |
| 8 | 54 | 224-8197 |
| 10 | 43 | 224-8204 |
| 15 | 43 | 224-8210 |
| 20 | 24 | 224-8226 |
| 30 | 16 | 224-8232 |
| 40 | 12 | 224-8254 |
| 60 | 9 | 224-8260 |
| 80 | 7 | 224-8276 |

Replacement gearboxes (these are only suitable for use with Parvalux motors)
S gearbox

| Ratio | RS stock no. |
|--------|--------------|
| 72:1 | 716-216 |
| 60:1 | 716-222 |
| 48:1 | 716-238 |
| 40:1 | 716-244 |
| 30:1 | 716-250 |
| 25:1 | 716-266 |
| 20.5:1 | 716-272 |
| 15.5:1 | 716-288 |
| 12.5:1 | 716-294 |
| 10.3:1 | 716-301 |
| 8.33:1 | 716-317 |

PM4CWS-24Vdc using motor
(RS stock no. 716-200), 90W, 5.2A

| rpm | Output torque (Nm) | RS stock no. |
|-----|--------------------|--------------|
| 0.5 | 74 | 224-8282 |
| 1 | 74 | 224-8298 |
| 1.6 | 74 | 224-8311 |
| 2.1 | 74 | 224-8327 |
| 3.2 | 74 | 224-8333 |
| 4.5 | 74 | 224-8349 |
| 6.5 | 74 | 224-8355 |
| 8 | 54 | 224-8361 |
| 10 | 43 | 224-8377 |
| 15 | 43 | 224-8383 |
| 20 | 24 | 224-8399 |
| 30 | 16 | 224-8406 |
| 40 | 12 | 224-8412 |
| 60 | 9 | 224-8428 |
| 80 | 7 | 224-8434 |

'S' type box

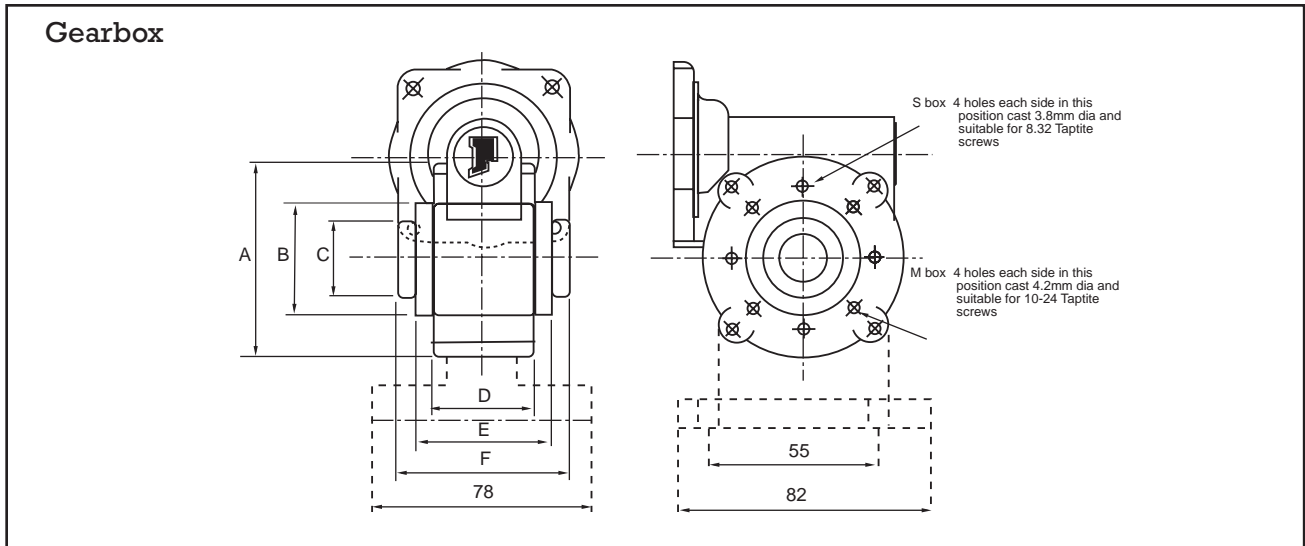
Nominal as cast dimensions ± .13mm

| | A | B | C | D | E | F |
|----|----|------|------|------|----|----|
| mm | 60 | 34.9 | 22.9 | 32.5 | 40 | 44 |

M and MB gearbox

| Ratio | RS stock no. |
|--------|--------------|
| 72:1 | 716-323 |
| 60:1 | 716-339 |
| 48:1 | 716-345 |
| 40:1 | 716-351 |
| 30:1 | 716-367 |
| 25:1 | 716-373 |
| 20.5:1 | 716-389 |
| 15.5:1 | 716-395 |
| 12.5:1 | 716-402 |
| 10.3:1 | 716-418 |
| 8.33:1 | 716-424 |

| 'M' type box | | | | | | |
|---|------|------|------|------|------|------|
| Nominal as cast dimensions $\pm .13\text{mm}$ | | | | | | |
| | A | B | C | D | E | F |
| | Dia. | Dia. | Dia. | | | |
| mm | 68.6 | 38.1 | 26.2 | 35.6 | 45.2 | 58.5 |



Greased used in gearboxes is Polyurea - 'O' grade - Not supplied with replacement gearboxes.

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