

**ELECTRICAL-ELECTRONICS**



# **SPARKING AN IMPACT ON STARTING SYSTEM.**

A power-packed range of Starter Motors



**PERFORM@CHANGE**



# **DYNAMIC SOLUTION FOR SMOOTH STARTING SYSTEM**

## **INTRODUCING OUR POWER-PACKED STARTER MOTOR VARIANTS FOR 2W & 3W APPLICATION**

Varroc offers a wide range of 2W and 3W starter motors that are design, developed and manufactured in India.

Focusing on high power weight ratio for higher CC vehicle and our units are compact in size with higher starting torque.



# COMPACT STARTER MOTOR

50 DIA FRAME SIZE | LOW POWER



Power Output



Crank The Engine To Start



Compact & Lightweight Design

## FEATURES

Compact in size  
Lap and wave winding design available

## TECHNICAL SPECIFICATIONS

**Power rating:** 0.30kw  
**Type of motor:** PMDC direct drive  
**Construction details:** 50mm x 100mm  
**Application:** 2W (single cylinder, 150cc)  
**Reliability:** Vibration & environmental resistance  
**Durability:** Up to 50k starts  
**Net weight:** 0.7kg  
**Ingress protection:** IP 67  
**Operating temperature:** -10°C to 130°C

# DC MOTOR

62 DIA FRAME SIZE | MEDIUM POWER



Power Output



Crank The Engine To Start



High Power with A Compact Size

## FEATURES

Medium Power range  
4 Pole design for high cranking torque

## TECHNICAL SPECIFICATIONS

**Power rating:** 0.55- 0.7kw  
**Type of motor:** PMDC direct drive  
**Construction details:** 62mm x 110mm  
**Application:** 2W (single cylinder, 350cc)  
**Reliability:** Vibration & environmental resistance  
**Durability:** Up to 20k starts  
**Net weight:** 1kg  
**Ingress protection:** IP 67  
**Operating temperature:** -10°C to 130°C



# STARTER MOTOR WITH BENDIX DRIVE

68 DIA FRAME SIZE



Power Output



Crank The Engine To Start



Bendix Drive with Gear Offset Reduction

## FEATURES

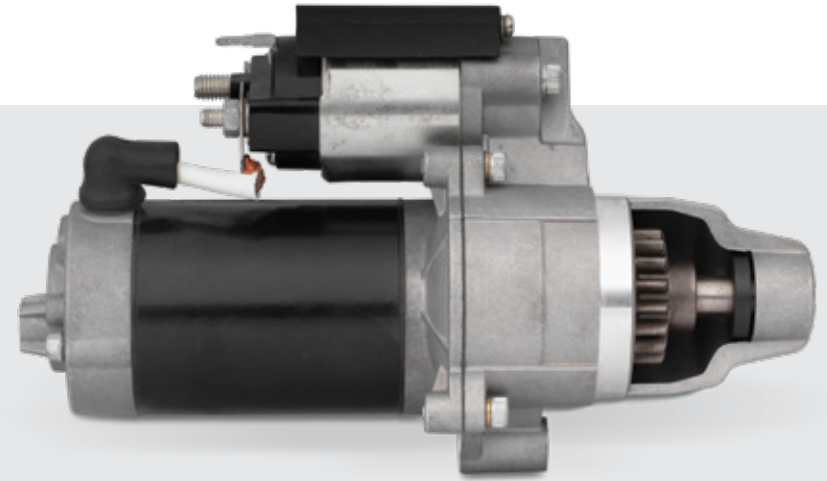
Offset gear mechanism  
Drive engagement through centrifugal force mechanism

## TECHNICAL SPECIFICATIONS

**Power rating:** 0.6kw  
**Type of motor:** PMDC GRS type  
**Construction details:** 68mm x 100mm  
**Application:** 3W (single cylinder, 236cc)  
**Reliability:** Vibration & environmental resistance  
**Durability:** Up to 75k starts  
**Net weight:** 2.2kg  
**Ingress protection:** IP 67 (motor + solenoid)  
**Operating temperature:** -10°C to 130°C  
**For Spur gear concept, different gear ratio can be adopted**

# SOLENOID STARTER

64 DIA FRAME SIZE | HIGH POWER



Power Output



Crank The Engine To Start



High Power

## FEATURES

Pre-engaging starting system through powerful mechanism

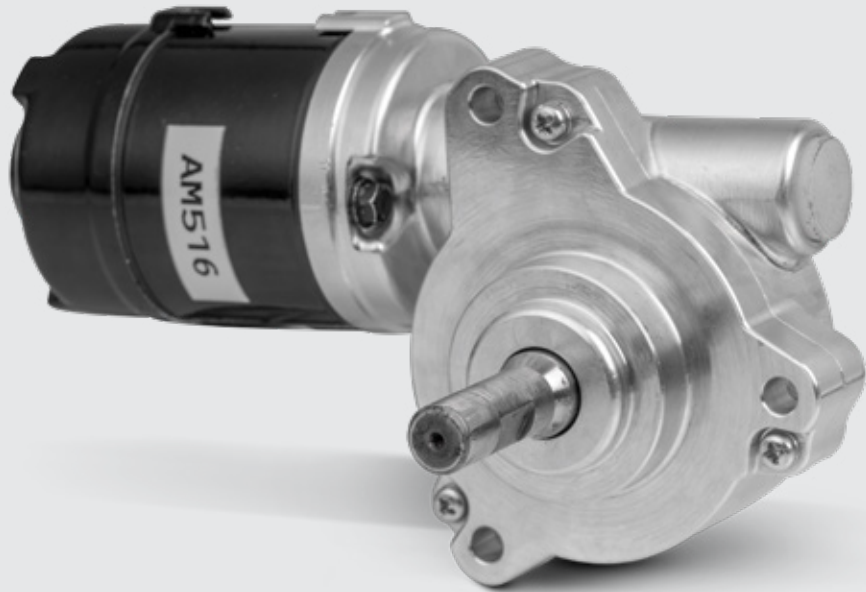
## TECHNICAL SPECIFICATIONS

**Power rating:** 0.9kw  
**Type of motor:** PMDC GRS type  
**Construction details:** 64mm x 150mm  
**Application:** 3W (single cylinder, 294cc)  
**Reliability:** Vibration & environmental resistance  
**Durability:** Up to 75k starts  
**Net weight:** 2.6kg  
**Ingress protection:** IP 67 (motor + solenoid)  
**Operating temperature:** -10°C to 130°C  
**For Spur gear concept, different gear ratio can be adopted**



# ACTUATOR MOTOR

55 DIA FRAME SIZE



High Torque Output



Reliable system with high efficiency



Slow speed actuation



Compact and robust design

## FEATURES

Compact design with multi-stage arrangements

Gear systems: Worm and worm system (53 ratio) and Planetary system (3.75 ratio)

Can be further optimised to single stage worm gear with right-angled arrangement or single/multi-stage planetary with coaxial design

## TECHNICAL SPECIFICATIONS

**Gear ratio:** -198 reduction

**Voltage:** 10V to 14.5V

**Power:** 45W

**Torque:** Up to 30 Nm (Can be altered using different motors / gear pairs)

### Construction details:

**Type of gear arrangement:**  
Right-angled drive

**Product:** 172mm X 100mm X 70mm (approx.)

**Motor:** Dia. 55mm X 90mm

**Gearbox:** 95mm X 80mm X 55mm

**Net weight:** 1.2 kgs

**Motor operating temperature:**  
-20°C to 130°C



# WIPER MOTOR

FOR 3W



Power Output



Glass Wiper

## TECHNICAL SPECIFICATIONS

**Rated voltage:** 12v DC

**No load current:** 0.8 A max

**Speed:** 45 to 60/min with 4kg. cm load

**Sweep angle:** 60°  $\pm$ 5°

**Stall torque:** > 13 kg. cm

**Construction details:** 41mm x 100mm

**Application:** 3W

**Net weight:** 0.5kg

**Current:** 1.2amp max at 4kg. cm load



# CAPABILITIES

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One manufacturing plant



One technical centre



Design validation (CAE / electrical simulations)



NABL accredited lab for product validations



Localized development and manufacturing



Supply to leading 2W & 3W OEMs



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