

## TECH BULLETIN: RESPA CF/CF2, XLR BRUSHLESS MOTOR SPECS

The chart below includes the basic specifications of the 12vdc and 24vdc - 3" Brushless Motor for our CF / CF2 and XLR Technologies.

P / N	Description	Rotation	Min Temp (°C)	Max Temp (°C)	Current (Amps)	Weight (Kg)	Wire Lead (Ga)	Volt Protection *
XDC12BM	12 Volt Brushless Motor	Clockwise	-40°C	80°C	10-12	0.91	16 Ga	Yes*
XDC24BM	24 Volt Brushless Motor	Clockwise	-40°C	80°C	5 – 6	0.91	16 Ga	Yes*

Brushless Motor Protection Features:

- I2T current fold back.
- Over-voltage detection.
- Short-circuit protection.
- Reverse polarity protection.
- Load dump protection.
- Drive over-temperature protection.
- Locked rotor detect/shutdown.
- IP65 protection level\*\*
- Water Slinger\*\*

\*\* Protection level applies to all motor areas except the shaft exit. Specific IP ratings for motors equipped with water slingers is not available.

\* Always ensure that the correct Voltage / Amperage supply and Gauge of wires is used (not >3.0 metres) or the Motor will go into protection as explained below.

The brushless motor contains Over- and Under-voltage / amperage protection to keep the electronics safe when conditions drift outside of acceptable limits. The values below are evaluated with components that have normal tolerances on their nominal values, so these values have a tolerance of approximately +/-0.5vdc.

The behaviour of the motor when the bus voltage / amperage is outside of the limits will mean that the motor will immediately shut down. When tolerances are exceeded, motor protection will initiate and the LED at the rear of the Motor will indicate as follows:

1. **24Vdc Bless Motor:** The LED (rear of Motor) will blink x 4 times and pause when in **High / Over- Voltage / Amperage** fault (Motor will stop) at approx. <18 volts / >36 volts.
2. **12 Vdc Motor:** The LED blinks continuously and at the same frequency **Low / Under- Voltage** fault (Motor will stop) at approx. >17 volts / <10 volts.
3. The same Fault Indication will occur as in 2. for **Low Amperage** supply where the Motor will cycle a few times (jitter), then stop and go into fault.

**Note:** The Motor will automatically resume normal operation when voltage / amperage returns to an acceptable range.

Suggested checks if the Motor goes into fault are:

- Using a Multi- meter at the end of the wire connection to the RESPA ensure that you have the correct Amperage and Voltage Supply- Alternator may not provide enough current until full rpm.
- Ensure that the Alternator / Battery condition is okay and provides the Voltage and Amperage required (at the RESPA)- this should be after ignition and not after engine is running.
- Consider / check the condition of the Battery and Alternator and its capacity.
- Ensure all testing is completed with correct fusing in place.

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