

# FREQUENTLY ASKED QUESTIONS

## THREE PHASE RANGE

**Question 1:** How does Powerboss work?

In simple terms Powerboss works by matching motor torque to load torque by sensing the motors load and reducing the motors terminal voltage to a level where the motor produces the correct torque requirement for the driven load.

This has the effect of reducing the motors iron (magnetising) losses (Kvar) and saving energy.

The soft start feature within the Powerboss Compact and PML range works by steplessly increasing the terminal voltage to the motor until the motor provides enough torque to accelerate the load to full speed. This has the effect of drastically reducing the motors starting current, usually by 50%.

**Question 2:** Can Powerboss be fitted too more than one motor at a time?

Powerboss is an intelligent device which calculates the torque needed by the motor to do the work its doing. This means that it needs clean direct signals from the motor it is driving. So the answer is no you cannot connect more than motor to Powerboss for optimisation.

You can however connect more than one motor to a Powerboss as a soft starter, where you are simply wanting to start the motors but the total Kw of all motors must be added and a Powerboss selected according to the total.

**Question 3:** Which types of motor can benefit from Powerboss?

Any AC Induction Motor.

**Question 4:** What are the parameters for energy saving?

Applications should be constant speed and variable load and run for at least 8 Hrs per day. Typically, the motor should run at 50% load or less for at least 50% of the time to achieve good savings.

For further details see document; ***Taking and Proving Measurements***

**Question 5:** Can Powerboss be fitted to a slip-ring motor?

Yes, the slip-ring motor is part of the AC Induction motor family. In most cases the existing method of starting must be retained.

For further details see document; ***Installing Powerboss on Slip Ring Motors.***

**Question 6:** Which types of motor cannot benefit from Powerboss?

Powerboss cannot be fitted to the following types of motor:

1. Any DC Motor
2. Universal Motors, which is motors fitted with a commutator and brushes.
3. Stepper Motors.
4. Switch Reluctance Motors.
5. Variable Voltage Motors.
6. Synchronous Motors.

**Question 7:** Can Powerboss be fitted on motors with individual power factor correction capacitors?

Yes, Powerboss will still provide a soft start feature.

However, it is very unlikely Powerboss will provide further savings as motor power factor will already be high.

Most modern systems have power factor correction at the common point of coupling, that is where the supply is metered **not** at the motor.

**Question 8:** Will Powerboss meet the CE directives?

Yes, Powerboss meets both the EMC and Low Voltage directives.

**Question 9:** Can Powerboss be fitted to high efficiency motors?

Powerboss can be fitted to high efficiency motors however, the level of savings will be less than a standard cage motor due to the motors inherent higher efficiency.

The impact of the motors iron losses will always be less on a high efficiency Motor. However Powerboss will accept the fixed savings and reduce the iron loss even further as the load decreases.

**Question 10:** What happens if Powerboss fails?

In the rare circumstances of unit failure Powerboss can be bypassed using a switch or contactor.

**Question 11:** Will Powerboss work on poor power supplies?

We presently have Powerboss units performing arduous tasks in many African countries as well as India and Pakistan without undue problems.

**Question 12:** What is the present range of Powerboss units?

The Powerboss Compact is available in 10 models ranging between 2.2 and 55kW at 208 to 440V.

The Powerboss PMLV2 is available ranging between 75 and 1450kW at 208 to 1100V.

**Question 13:** How is Powerboss sized?

To accurately size Powerboss the following information is needed.

Motor kW Rating.

Supply Voltage and Frequency.

Motor Current in Amps.

Ambient Temperature.

For further details see document; **Reading a Motor name Plate**