

Block Loading Transient Response

As engines of a given displacement are designed for higher and higher outputs, their capability to accept *block loads* does not increase. The ISO (International Standards Organization) has taken this into account in the following diagram from ISO 8528, the ISO Standard on Generator Sets. This diagram has no voltage or frequency deviation limits, but does give a general overview of the situation and says that most turbocharged and aftercooled four-stroke diesel engines will not accept 100% block load in one step. This is especially true when the engine is just started up and has not reached operating temperature.

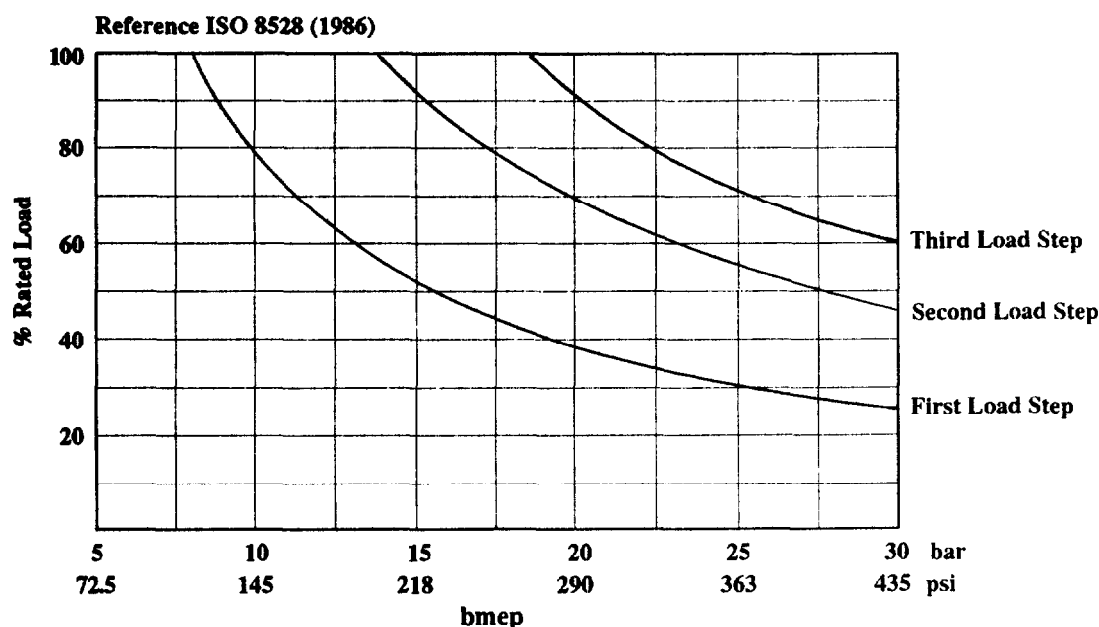


Diagram (ISO/DIS 8528-5, Figure 6)

(add below diagram) bmep levels are shown in the TMI for each rating on sheet 01 of Performance Data.

Example:

3208T	@ 160 ekW, 60 Hz Prime	has a bmep of 167
3306 ATAAC	@ 220 ekW, 50 Hz Standby	has a bmep of 273
3412 TT	@ 440 ekW, 50 Hz Standby	has a bmep of 208
3508 TA	@ 750 ekW, 60 Hz Standby	has a bmep of 225
3516 TA	@ 1800 ekW, 50 Hz Standby	has a bmep of 321

The use of Volts per Hertz Automatic Voltage Regulators (AVR) and 2:1 Volts per Hertz AVRS will help the block loading capability. Use of jacket water heaters will allow the engine to reach operating temperature quicker and allow larger block loads to be accepted on startup.

Remember, *EPG Designer* transient loading sizing program assumes the engine is at operating temperature.

Block loads and response to block loading is one of many considerations when sizing a generator set. Always investigate to ensure the selected generator set will, in fact, meet the application requirements.