



Power Consulting

> Case history

H-One India Pvt. Ltd., Greater Noida, U.P.

Our energy working for you.™



**Power
Generation**

Where

H-One India Pvt. Ltd., Greater Noida, U.P.

What

Unbalanced Real Time Reactive Power Compensation cum Harmonic Filtration System (RTPFC) of 1260 kVAR rating with a phase to phase, cycle to cycle compensation with response time of 20 milliseconds capability

Purpose

To enable DG sets to take on spot welding load during State Electricity Board power outages

Primary Choice Factors

The remarkable and highly successful performance of a similar power solution offered by Cummins to Honda Siel Cars India Ltd.

Power Solution to enable DG Sets to run spot welding load

U.P., INDIA - H-One India Pvt. Ltd., a 100% subsidiary of H-One Japan is into manufacturing of sheet metal welded assemblies. The H-One Group is a supplier of sheet metal parts to Honda worldwide. In India they started operations in 1999, with a plant at Surajpur, Greater Noida.

Cummins, with its wide range of gensets has been fulfilling H-One India's back up power requirement for several years. However, during power outages due to shortages faced by the State Electricity board, these existing gensets were unable to run the spot welding load of the weld shop. In February 2005, the management of Honda Siel, which were extremely buoyant about the performance of the Harmonic Filtration System installed by Cummins, advised their sheet metal component supplier, H-One India to contact Cummins for a power solution to address this problem.



Unbalanced RTPFC cum Harmonic Filtration System (1260 kVAr rating) installed by Cummins Power Generation



Robotic welding at the H-One India Weld Shop

At H-One India, welding operations (spot and projection welding) are carried out in-house using stationary spot welding machines of 50 kVA, 75 kVA and 150 kVA rating and portable guns of 150 kVA rating. Currently, the plant has a sanctioned load of 750 kVA, which is going to be enhanced to 1500 kVA through its 33 KV feeder line. In addition, they also have three Cummins generators - 380 kVA each. Their peak electric load during usage is approximately 750 kVA, which goes up to 2000 A during welding. As it happens in spot welding, the load is associated with heavy fluctuations and jerks. Due to this reason they were unable to perform welding operations on their existing DG sets and therefore, decided to approach the Power Consulting Division of Cummins Power Generation.

The Power Consulting team began this project by calculating the actual load measurements. Thereafter, the team designed and supplied an unbalanced Real Time Reactive Power Compensation cum Harmonic Filtration System of 1260 kVAr rating with 14% inductors, for 415 V/50Hz 3 wire Delta Network and incoming 2000 A breaker, fixed type and electrically operated accompanied with an overall panel dimension of 4600 x 600 x 2100 mm.

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For effective operations of fast changing unbalanced load on DG sets, each phase was compensated with the requirement, typically a 20 millisecond system response time. The existing 3 x 380 kVA DG sets were of standard type and therefore were augmented by retrofitting PMG (Permanent Magnet Generator). To ensure smooth operations, AVR Regulation and Engine Electronic Governor response were adjusted to match the overall system characteristics.

"Compared to last year, while our production increased, our power consumption reduced. Our plant has experienced 45% energy saving as a result of RTPFC."

*- Lalit Kedia
General Manager
H-One India Pvt. Ltd.*

The State Electricity Board power outage is no longer a cause of worry for H-One India as the installed DG sets have enabled them to take weld loads as per deliverables committed by Cummins.

Unmatched product design using Cummins state-of-the-art technology, coupled with the largest customer support network in the country, ensures SINGLE SOURCE POWER ASSURANCE to customers. Little wonder then, that for over four decades Cummins has been a leading player in power generation technology in India.

Cummins Power Generation is a world leader in the design and manufacture of power generation solutions for a wide variety of standby and prime power applications. For enabling your DG sets to run critical loads like spot welding, kindly contact the Power Consulting Division on atul.tare@cummins.com or (0)9850563569.

