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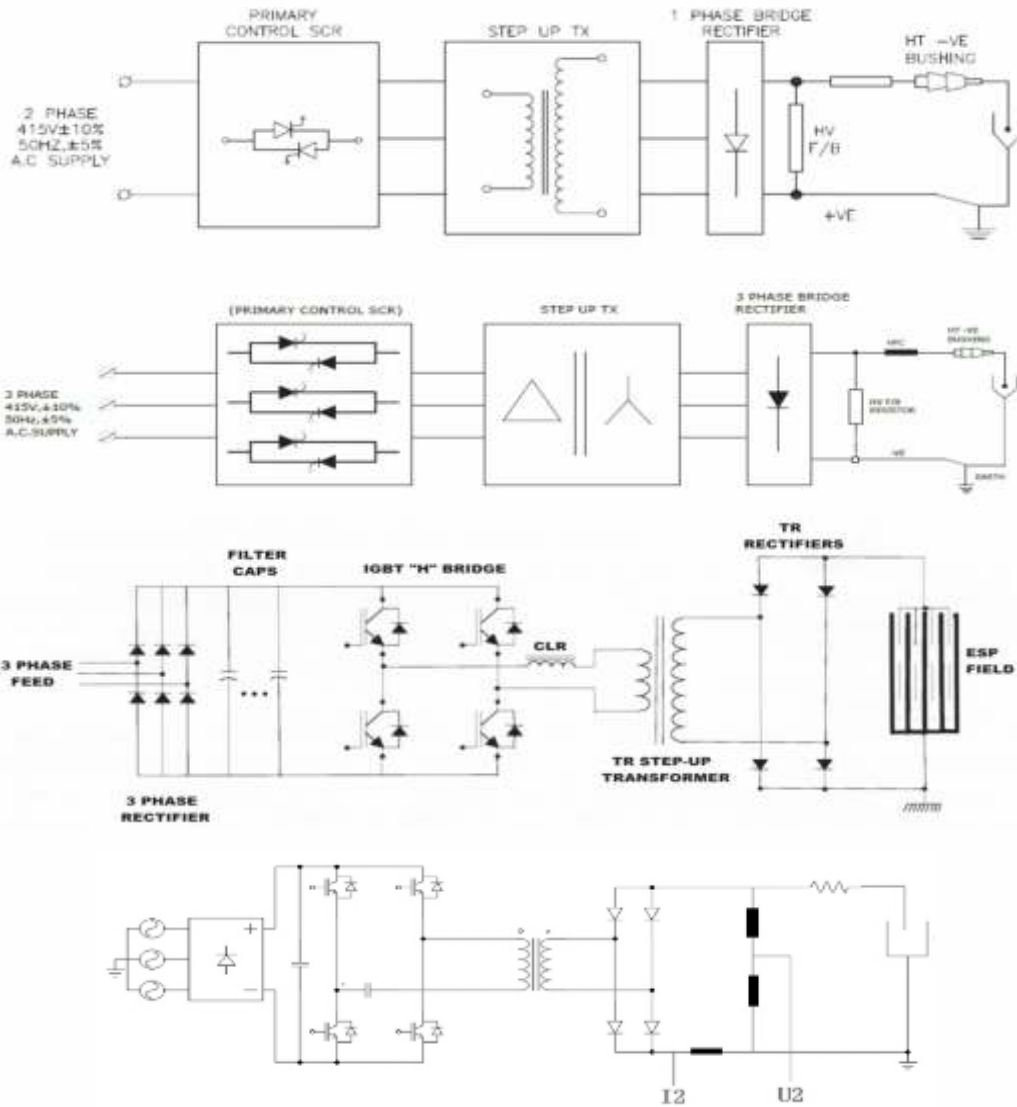
PERFECTLY ENGINEERED  
POWER CONVERSION SYSTEMS

**Hind Rectifiers Limited**

## Electro Static Precipitator Transformers Rectifier with Electronic Controllers



- Continued Legacy of Quality Products
- Commitment to Clean Environment
- Reduced Downtime with efficient Service & After-Sales Network
- Strong Design & Development



### Advantages of 3 Phase T/R Set, Mid and High Frequency Power Supply

- Balanced Load on mains power supply
- Lower line current resulting into Lower rating of cabling & input switchgear cost
- Higher Average DC voltage due to lower ripple resulting into higher corona current & higher dust collection.
- Lower sparking resulting into higher average power across ESP hence higher collection efficiency.
- Lower ripple results into lower harmonic current resulting into less cable heating & increase in cable life.
- Lower pulse width results into fast response to spark / arc increases the life of electrode.



## ESP Controller



## Power Supply Comparison

Parameter	Single Phase	Three Phase	Mid Frequency	High Frequency
Operating Frequency	50 - 60 Hz	300 - 360 Hz	1000 - 1200 Hz	Max. 25000 Hz
Power Factor	Poor	Better	Best	Best
Total Harmonic Distortion	Better	Best	Poor	Poor
Peak-to-Average Voltage Ratio	Poor	Better	Best	Best
Peak-to-Average Current Ratio	Better	Best	Poor	Poor
Efficiency	Poor	Better	Best	Best
Separate Control and Power Supply	Yes	Yes	Yes	No
Heat Loss	Best	Better	Poor	Poor
Reliability	Best	Best	Best	Best
Cost	\$	\$\$	\$\$\$	\$\$\$\$\$
Weight/Size	X	1.5X to 2X	1.5X to 2X	0.5X to 0.8X
Maximum Time to Spark Quench	Poor	Better	Best	Best
Performance	Poor	Better	Best	Best

## General Specifications

Parameter	Single phase	Three phase	Mid Frequency	High Frequency
Input Voltage	380 VAC - 690 VAC		380 VAC - 480 VAC	380 VAC - 690 VAC
Phase	Single	Three		
Voltage Variation	± 10%			
Frequency	50/60 Hz			
Output Voltage	30 kV - 200 kV DC Peak		30 kV - 120 kV DC	30 kV - 100 kV DC
Current	40 mA - 3000 mA DC mean			
Current Regulation	±5% for load variation full load			
Method of Control	Back to Back Connected Silicon Controlled Rectifiers (SCRs)		3 Phase Diode Bridge Rectifier with IGBT "H" Bridge Inverter	3 Phase SCR Bridge Rectifier with IGBT "H" Bridge Inverter
Ambient Temp.	-45°C to +50°C maximum			
Cooling Medium	Mineral Oil (IS:335 / IEC 60296 or Equivalent), Silicon or Natural (Easter) Oil - On Request			
Cooling	Transformer Rectifier - Oil cooled (ONAN / ONAF)			(ONAN / OFAF)
	Electronic Controller Panel - Air cooled (AN / AF)			(AF)
IP Rating	IP 65 - Transformer Rectifier Tank, IP 42(min.) - IP 54 (max.) Electronic Controller Panel			IP 56 - Complete Unit (Controller and Transformer Rectifier)
Installation	Electronic Controller suitable for indoor installation only, Preferably in Air - Conditioned Room. Transformer Rectifier Unit suitable for indoor/outdoor installation.			Complete Unit (Controller and Transformer Rectifier) suitable for outdoor installation
Scope of Supply	Transformer Rectifier Unit, Electronic Controller Panel			

## Applications

- Thermal Power Plants
- Cement Plants
- Steel Plants
- Paper Plants
- Sponge Iron Industries
- Non Ferrous Metal Industries
- Chemical Plants
- Acid Plants
- Biomass Power Plants



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