Specifications of 3-Ø IGBT power stack				
S.No	**Description**	**Rating / Requirement BHEL**	**To be filled by the Supplier**	**Remarks**
1	**Scope of supply**	The supplied stack shall consists of 2 Nos of 3-Ø IGBT converters connected as shown in annexure-1. Each 3-Ø IGBT converter shall consist of IGBTs connected in 3 phase converter configration, heat sink for mounting of IGBTs, IGBT gate drivers, DC-link capacitor, laminated bus-bars for DC link, Fan, IGBT Snubbers, copper bus-bars & Thermal switch. DC negative bus, R, Y, B terminals should be brought out for external connections as shown in annexure-1.		
2	**Quantity of supply**	1 No		
3	**Converter Topolozy**	Two Level		
4	**Continuous Power Rating**	50 KW		
5	**AC Current**	85 A r.m.s (Continuous) 94 A (110% overload, 60s every 10min)		
6	**Fundamental frequency**	50Hz		
7	**Switching frequecny**	The offered stack should be able switch at **4 kHz** and also should supply rated current at this switching without exceeding the allowable junction temperatures of the IGBTs and diodes.		
8	**DC voltage**	700 V DC Continuous, 800 V DC maximum.		
9	**DC link Capacitance**	Polypropylene type and minimum required voltage rating of the DC link capacitor is 800V		
10	**DC Link Capacitor current rating**	The capacitor bank of the offered stack should be able to supply harmonic current when operating at switching frequency of 4 kHz.		
11	**Type of Cooling**	Forced air cooling		
12	**Ambient temperature**	50 deg C		
13	**Maximum DC voltage withstand capability**	The supplier should mention the maximum value of the DC voltage that the offered stack can withstand without damage to any component.		
14	**Thermal Protection**	Thermal trip switches with potential free contacts should be mounted on heat sink for the purpose of thermal protection.		
15	**Specification of gate driver**	It should have in-built protections against shoot through fault, short circuit and di/dt protection. The gate drivers should have interface for electrical inputs and should give IGBT healthy status through an electrical output. It should generate isolated power supply from control supply.		
16	**Connection between capacitor and IGBTs**	The DC capacitors should be connected to IGBTs through laminated bus bars to achieve very low stray inductance between capacitor and IGBT connections		
17	**Thermal Calculation**	Detailed temperature-rise calculations for the assembled power stacks for rated condition should be submitted along with the offer by clearly indicating the junction temperatures of IGBT, built- in diode, heat sink, outlet Air temperature etc. for an ambient temperature of 50 degrees Celsius.		
18	**Mechanical design of the stack**	The mechanical design of the stack should be maintenance free and replacement friendly. Output termination details to be provided.		
19	**Testing requirements**	Visual, dimensional checks, capacitor charging & discharging check. Insulation resistance & HV test, short circuit test and heat run test.		
20	**Size and weight of the inverters**	The inverters size and weight shall be as less as possible. Vendor should provide the details of the same.		
21	**Documents to be submitted with technical offer**	Data sheets of IGBT, Gate driver, Heat sink, cooling fan & DC capacitor, OGA (drawings).		