

ANNEXURE FOR THYRISTOR STACK

A) TECHNICAL SPECIFICATIONS

Item-1 Three phase Thyristor stack assembly to the following specifications:

AC Input 160V, 3 ϕ , 50Hz, AC , PIV 700 V

Duty Points				
	(1)	(2)	(3)	(4)
Uac (pu)	1	1	1	1
If (Adc)	245	401	421	550
Vf (Vdc)	52	96	103	142
α (firing angle delay in degree)	76	63.62	61.53	48.91
Form factor	2.326	2.04	2	1.869
Duty Cycle	Continuous	Continuous	15 minutes	10 seconds

(1) This duty point correspond to the functioning of the generator at no load

(2) This duty point correspond to the functioning of the generator at rated load

(3) This duty point correspond to the functioning of the generator at over load

(4) This duty point correspond to the functioning of the generator at ceiling conditions

Item-2 Qty. 10 no.

Spare Thyristors for Item-1.

Item-3 Qty. 10 no.

Spare Fuses with microswitch for Item-1.

Item-4 Three phase Thyristor stack assembly to the following specifications:

AC Input 265V, 3 ϕ , 50Hz, AC, PIV 1200 V

Duty Points				
	(1)	(2)	(3)	(4)
Uac (pu)	1	1	1	1
If (Adc)	217	371	392	500
Vf (Vdc)	83	162	176	236
α (conduction angle in degree)	76.59	63.08	60.54	48.74

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Form factor	2.326	2.04	2	1.869
Duty Cycle	Continuous	Continuous	15 minutes	10 seconds

- (1) This duty point correspond to the functioning of the generator at no load
- (2) This duty point correspond to the functioning of the generator at rated load
- (3) This duty point correspond to the functioning of the generator at over load
- (4) This duty point correspond to the functioning of the generator at ceiling conditions

Item-5 Qty. 10 no.

Spare Thyristors for Item-4.

Item-6 Qty. 10 no.

Spare Fuses with microswitch for Item-4.

Item-7 Three phase Thyristor stack assembly to the following specifications:

AC Input 150V, 3 ϕ , 50Hz, AC, PIV 700 V

Duty Points				
	(1)	(2)	(3)	(4)
Uac (pu)	1	1	1	1
If (A _{dc})	248	382	400	500
Vf (V _{dc})	52	92	98	130
α (conduction angle in degree)	75.12	62.98	61.06	50.07
Form factor	2.273	2.02	2	1.887
Duty Cycle	Continuous	Continuous	15 minutes	10 seconds

- (1) This duty point correspond to the functioning of the generator at no load
- (2) This duty point correspond to the functioning of the generator at rated load
- (3) This duty point correspond to the functioning of the generator at over load
- (4) This duty point correspond to the functioning of the generator at ceiling conditions

Item-8 Qty. 5 no.

Spare Thyristors for Item-7.

Item-9 Qty. 5 no.

Spare Fuses with microswitch for Item-7.

ANNEXURE FOR THYRISTOR STACK

Common specifications to the above items (Item 1,4 & 7)

Cooling	In built bottom mounted blower type fan, operating from 240V, 1 ϕ , 50Hz AC supply, with a flow rate of at least 615m ³ /hr
Protections	6 Nos high speed semiconductor fuse in series with each device suitably rated. 6 sets of snubber circuits of suitable rating Three nos. bimetal thermal trips to operate 90 deg C. Contacts for the thermal switch to be brought out to separate terminal block on the front of the stack.
Trigger	Mounting supports shall be provided for mounting 3 Pulse transformer cards with overall dimension 120mm(L)*50mm(W)*27mm(H), & mounting dimension 110mm*42mm.
Construction	The stack shall comprise of six thyristors sandwiched between heat sinks to enable double sided cooling from the fan above. Busbars for AC & DC terminations shall be provided. The construction will be modular type to enable easy replacement of thyristor/ fuse/ snubber circuit/ thermal trip/ pulse circuit.
Limiting dimensions	500mm(W)*650mm(H)*450mm(D)
Standard	As per IS:7788
Testing	As per IS:7788

B) COMMERCIAL TERMS & CONDITIONS

- The price bid of only those vendors will be considered who shall comply to the technical specifications, any deviations shall be clearly spelt out in the technical offer.
- The vendor will have to furnish the details of sizing calculations of major components like thyristors, fuses & heatsink, also datasheets of components shall be furnished along with the offer.
- The vendor shall furnish the drawing of complete assembly showing dimensions, mounting & termination details & BOM along with the offer.
- A quality plan depicting the tests to be carried out shall be furnished after placement of order. List of type tests to be conducted on is to be submitted along with the offer.
- 2 copies of documentation shall be furnished illustrating maintenance of the equipment, i.e. process of dismantling & re-assembling the stack components, maintenance of thyristors and any other pertinent information.
- The supplier will have to demonstrate the functioning of the stack at defined duty points at their works during inspection. Inspection call shall be given at least 10 days prior.
- Routine test & type test certificates have to be submitted along with the consignment