

PR No	Mati Code	Mati Desc	PMD No	PR Qty	Proj Def	Customer Name	Coll No	Warranty/ Guarantee
1600020940		TSI PRE COMMISSIONING	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	*All equipment/goods supplied shall be guaranteed 30 months from date of dispatch of goods or upto 31st August 2023 whichever is later
1600020941		TSI COMMISSIONING	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
1600020942		TSI TRAINING	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
1600020943		TSI EXTENDED WARRANTY	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
1600020944		TSI PWCAMC	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088526	TC9765185162	PROX SENSOR 5MM,STD MNT,110MM LEN,M8,TC	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088520	TC9765185162	PROX SENSOR 5MM,STD MNT,110MM LEN,M8,TC	TC.IN.080	2	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093747	TC9765185162	PROX SENSOR 5MM,STD MNT,110MM LEN,M8,TC	TC.IN.080	2	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088527	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	2	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088521	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	2	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093730	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	6	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093740	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	6	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093748	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	6	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093744	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	8	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088528	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	2	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093731	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	6	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093741	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	6	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093749	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	8	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093745	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	8	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088529	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	2	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093732	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	6	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093742	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	6	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093750	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	8	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093746	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	8	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093733	TC9765342071	CONNECTOR PROTECTOR SET	TC.IN.080	3	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093734	TC9765342101	FLEXIBLE CONDUIT 3/4",30MTS	TC.IN.080	3	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088525	TC9765342128	TRANSDUCER CALIBRATION KIT	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088530	TC9765342136	RACK POWER SUPPLY, 110VAC, DUPLEX	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088531	TC9765342144	RACK TRANS DATA INTERFAC MODULE,ETH,TC	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088532	TC9765342152	KEYPHASOR & TACHOMETER MODULE	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088533	TC9765342160	PROXIMITY SENSOR MODULE	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088534	TC9765342179	TEMPERATURE MODULE	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088535	TC9765342187	PROGRAMMABLE RELAY MODULE	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088536	TC9765342195	COMMUNICATION GATEWAY	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088523	TC9765342209	RACK CONFIGURATION LAPTOP	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
700088524	TC9765342217	RACK CONFIGURATION SOFTWARE	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093738	TC9765342497	TSI RACK-1 as per TC65342-49-50	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
8000093739	TC9765342500	TSI RACK-2 as per TC65342-49-50	TC.IN.080	1	M-CA-1056	Toyo Engineering India Private Limi	B7C1T88520	
1600021166		TSI PRE COMMISSIONING	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
1600021167		TSI COMMISSIONING	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
1600021168		TSI TRAINING	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
1600021169		TSI EXTENDED WARRANTY	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
1600021190		TSI PWCAMC	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094159	TC9765185162	PROX SENSOR 5MM,STD MNT,110MM LEN,M8,TC	TC.IN.080	3	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088868	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088920	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	2	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094069	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	6	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094126	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	6	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094201	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	2	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088869	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	8	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094068	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	6	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094125	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	8	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088930	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094067	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	6	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094124	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	8	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094066	TC9765342071	CONNECTOR PROTECTOR SET	TC.IN.080	3	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094065	TC9765342101	FLEXIBLE CONDUIT 3/4",30MTS	TC.IN.080	3	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088917	TC9765342128	TRANSDUCER CALIBRATION KIT	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088931	TC9765342136	RACK POWER SUPPLY, 110VAC, DUPLEX	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088932	TC9765342144	RACK TRANS DATA INTERFAC MODULE,ETH,TC	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088933	TC9765342152	KEYPHASOR & TACHOMETER MODULE	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088934	TC9765342160	PROXIMITY SENSOR MODULE	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088935	TC9765342179	TEMPERATURE MODULE	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088936	TC9765342187	PROGRAMMABLE RELAY MODULE	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088937	TC9765342195	COMMUNICATION GATEWAY	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088918	TC9765342209	RACK CONFIGURATION LAPTOP	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088919	TC9765342217	RACK CONFIGURATION SOFTWARE	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088938	TC9765342292	PROX SENSOR,STD MNT,1.6" LEN,3/8-24UNF	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
700088921	TC9765342292	PROX SENSOR,STD MNT,1.6" LEN,3/8-24UNF	TC.IN.080	2	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094123	TC9765342292	PROX SENSOR,STD MNT,1.6" LEN,3/8-24UNF	TC.IN.080	2	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094158	TC9765342292	PROX SENSOR,STD MNT,1.6" LEN,3/8-24UNF	TC.IN.080	2	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094094	TC9765342659	TSI RACK AS PER TC65342-65	TC.IN.080	1	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
8000094200	TC9765342985	PROX SENSOR,STD MNT,150MM LEN,M8X1	TC.IN.080	2	M-CA-1059	Tata Private Limited (TPL), Mumbai	B7C1T88520	
1600021193		TSI PRE COMMISSIONING	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
1600021194		TSI COMMISSIONING	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
1600021195		TSI TRAINING	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
1600021196		TSI EXTENDED WARRANTY	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
1600021197		TSI PWCAMC	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
700088941	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
700088923	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	2	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094100	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	12	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094109	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	6	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094112	TC9765342012	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC.IN.080	4	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
700088942	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094099	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	12	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094108	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	4	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094110	TC9765342039	PROXIMITY PROBE EXTENSION CABLE, 4MTS,TC	TC.IN.080	6	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
700088943	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094098	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	12	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094107	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	4	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094111	TC9765342047	PROXIMITY PROBE DRIVER FOR 5MTS SYSTE,TC	TC.IN.080	6	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
700088944	TC9765342055	CASING ACCELERATION SENSOR, M8X1	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094097	TC9765342055	CASING ACCELERATION SENSOR, M8X1	TC.IN.080	2	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
700088945	TC9765342063	ACCEL SENSOR CABLE 5MTS WITH CONNecT	TC.IN.080	1	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094096	TC9765342063	ACCEL SENSOR CABLE 5MTS WITH CONNecT	TC.IN.080	2	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094104	TC9765342071	CONNECTOR PROTECTOR SET	TC.IN.080	3	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
8000094105	TC9765342101	FLEXIBLE CONDUIT 3/4",30MTS	TC.IN.080	4	M-CA-1060	Tata Projects Limited (TPL), Mumbai	B7C1T88520	
700088946	TC9765342136	RACK POWER SUPPLY, 110VAC, DUPLEX	TC.IN.TC					

		BHARAT HEAVY ELECTRICALS LIMITED [A Government of India Undertaking] Ramachandrapuram, Hyderabad, 502032, A.P. India Phone 040-23184526, 23182322 FAX:040-23021910, 1954			भारत हेवी इलेक्ट्रिकल्स लिमिटेड (भारत सरकार का उपक्रम) रामचन्द्रपुरम, हैदराबाद, 502032 आंध्र प्रदेश, भारत		RFQ NO :		PURCHASE DEPARTMENT ENQUIRY क्रय विभाग जांच (ई मेल : tenderbox@bhelhyd.co.in)		SHEET:1 OF :11	
HY17001 C REV.NO.0		Phone 091-40-23184526 091-40-23182322		FAX : 091-40-23021910 091-40-23021954		PURCHASE DEPARTMENT						
		GSTIN:		Eng/Collective No :B7C1T88520		Eng.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020		
Office Copy				Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us on or before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.								
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var	Description	Unit	Qty	Delivery Date	Schedule Qty			
1	8000094159	10	TC9765185162	NA-,,TC65185,,16	PROX SENSOR 5MM,STD MNT,110MM LEN,M8X1	EA	8.000	11.07.2020	3.000			
2	7000088520	10						11.07.2020	2.000			
3	7000088526	10						11.07.2020	1.000			
4	8000093747	10						11.07.2020	2.000			
5	8000094201	10	TC9765342012 90158020	NA-,,TC65342,03,01	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	EA	72.000	11.07.2020	2.000			
6	7000088521	10	90158020					11.07.2020	2.000			
7	7000088527	10	90158020					11.07.2020	2.000			
8	7000088868	10	90158020					11.07.2020	1.000			
9	7000088920	10	90158020					11.07.2020	2.000			
10	7000088923	10	90158020					11.07.2020	2.000			
						TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART		For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC				

		BHARAT HEAVY ELECTRICALS LIMITED [A Government of India Undertaking] Ramachandrapuram, Hyderabad, 502032, A.P. India Phone 040-23184526, 23182322 FAX:040-23021910, 1954			भारत हेवी इलेक्ट्रिकल्स लिमिटेड (भारत सरकार का उपक्रम) रामचन्द्रपुरम, हैदराबाद, 502032 आंध्र प्रदेश, भारत			RFQ NO :		PURCHASE DEPARTMENT ENQUIRY क्रय विभाग जांच (ई मेल : tenderbox@bhelhyd.co.in)		SHEET:2 OF :11	
HY17001 C REV.NO.0		Phone 091-40-23184526 091-40-23182322			FAX : 091-40-23021910 091-40-23021954			PURCHASE DEPARTMENT					
		GSTIN:			Enq/Collective No :B7C1T88520		Enq.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020		
Office Copy				Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.									
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var	Description			Unit	Qty	Delivery Date	Schedule Qty		
11	7000088941	10	90158020							11.07.2020	1.000		
12	8000093730	10	90158020							11.07.2020	6.000		
13	8000093740	10	90158020							11.07.2020	6.000		
14	8000093744	10	90158020							11.07.2020	8.000		
15	8000093748	10	90158020							11.07.2020	6.000		
16	8000094069	10	90158020							11.07.2020	6.000		
17	8000094100	10	90158020							11.07.2020	12.000		
18	8000094109	10	90158020							11.07.2020	6.000		
19	8000094112	10	90158020							11.07.2020	4.000		
20	8000094126	10	90158020							11.07.2020	6.000		
								TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART		For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC			

		BHARAT HEAVY ELECTRICALS LIMITED [A Government of India Undertaking] Ramachandrapuram, Hyderabad, 502032, A.P. India Phone 040-23184526, 23182322 FAX:040-23021910, 1954			भारत हेवी इलेक्ट्रिकल्स लिमिटेड (भारत सरकार का उपक्रम) रामचन्द्रपुरम, हैदराबाद, 502032 आंध्र प्रदेश, भारत			RFQ NO :		PURCHASE DEPARTMENT ENQUIRY क्रय विभाग जांच (ई मेल : tenderbox@bhelhyd.co.in)		SHEET:3 OF :11	
HY17001 C REV.NO.0		Phone 091-40-23184526 091-40-23182322		FAX : 091-40-23021910 091-40-23021954		PURCHASE DEPARTMENT							
		GSTIN:		Enq/Collective No :B7C1T88520		Enq.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020			
Office Copy		Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.											
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var	Description	Unit	Qty	Delivery Date	Schedule Qty				
21	8000094125	10	TC9765342039 90158020	NA-,,TC65342,03,03	PROXIMITY PROBE EXTENSION CABLE, 4MTS	EA	68.000	11.07.2020	8.000				
22	7000088528	10	90158020					11.07.2020	2.000				
23	7000088869	10	90158020					11.07.2020	1.000				
24	7000088942	10	90158020					11.07.2020	1.000				
25	8000093731	10	90158020					11.07.2020	6.000				
26	8000093741	10	90158020					11.07.2020	6.000				
27	8000093745	10	90158020					11.07.2020	8.000				
28	8000093749	10	90158020					11.07.2020	8.000				
29	8000094068	10	90158020					11.07.2020	6.000				
30	8000094099	10	90158020					11.07.2020	12.000				
						TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART			For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC				

		BHARAT HEAVY ELECTRICALS LIMITED [A Government of India Undertaking] Ramachandrapuram, Hyderabad, 502032, A.P. India Phone 040-23184526, 23182322 FAX:040-23021910, 1954			भारत हेवी इलेक्ट्रिकल्स लिमिटेड (भारत सरकार का उपक्रम) रामचन्द्रपुरम, हैदराबाद, 502032 आंध्र प्रदेश, भारत			RFQ NO :		PURCHASE DEPARTMENT ENQUIRY क्रय विभाग जांच (ई मेल : tenderbox@bhelhyd.co.in)		SHEET:4 OF :11	
HY17001 C REV:NO.0		Phone 091-40-23184526 091-40-23182322		FAX : 091-40-23021910 091-40-23021954		PURCHASE DEPARTMENT							
		GSTIN:		Enq/Collective No :B7C1T88520		Enq.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020			
Office Copy		Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.											
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var		Description		Unit	Qty	Delivery Date	Schedule Qty		
31	8000094108	10	90158020							11.07.2020	4.000		
32	8000094110	10	90158020							11.07.2020	6.000		
33	8000094124	10	TC9765342047 90158020	NA-,,TC65342,03,04		PROXIMITY PROBE DRIVER FOR 5MTS SYSTEM		EA	68.000	11.07.2020	8.000		
34	7000088529	10	90158020							11.07.2020	2.000		
35	7000088930	10	90158020							11.07.2020	1.000		
36	7000088943	10	90158020							11.07.2020	1.000		
37	8000093732	10	90158020							11.07.2020	6.000		
38	8000093742	10	90158020							11.07.2020	6.000		
39	8000093746	10	90158020							11.07.2020	8.000		
40	8000093750	10	90158020							11.07.2020	8.000		
								TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART			For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC		

		BHARAT HEAVY ELECTRICALS LIMITED [A Government of India Undertaking] Ramachandrapuram, Hyderabad, 502032, A.P. India Phone 040-23184526, 23182322 FAX:040-23021910, 1954		भारत हेवी इलेक्ट्रिकल्स लिमिटेड (भारत सरकार का उपक्रम) रामचन्द्रपुरम, हैदराबाद, 502032 आंध्र प्रदेश, भारत		RFQ NO :		PURCHASE DEPARTMENT ENQUIRY क्रय विभाग जांच (ई मेल : tenderbox@bhelhyd.co.in)		SHEET:5 OF :11	
HY17001 C REV.NO.0		Phone 091-40-23184526 091-40-23182322		FAX : 091-40-23021910 091-40-23021954		PURCHASE DEPARTMENT					
		GSTIN:		Enq/Collective No :B7C1T88520		Enq.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020	
Office Copy				Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.							
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var	Description	Unit	Qty	Delivery Date	Schedule Qty		
41	8000094067	10	90158020					11.07.2020	6.000		
42	8000094098	10	90158020					11.07.2020	12.000		
43	8000094107	10	90158020					11.07.2020	4.000		
44	8000094111	10	90158020					11.07.2020	6.000		
45	8000094097	10	TC9765342055 84119900	NA-,,TC65342,03,05	CASING ACCELERATION SENSOR, M8X1	EA	3.000	11.07.2020	2.000		
46	7000088944	10	84119900					11.07.2020	1.000		
47	8000094096	10	TC9765342063 84119900	NA-,,TC65342,03,06	ACCEL SENSOR CABLE 5MTS WITH CONNECTOR	EA	3.000	11.07.2020	2.000		
48	7000088945	10	84119900					11.07.2020	1.000		
49	8000094104	10	TC9765342071 90158020	NA-,,TC65342,03,07	CONNECTOR PROTECTOR SET	SET	9.000	11.07.2020	3.000		
50	8000093733	10	90158020					11.07.2020	3.000		
						TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART			For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC		

		BHARAT HEAVY ELECTRICALS LIMITED [A Government of India Undertaking] Ramachandrapuram, Hyderabad, 502032, A.P. India Phone 040-23184526, 23182322 FAX:040-23021910, 1954		भारत हेवी इलेक्ट्रिकल्स लिमिटेड (भारत सरकार का उपक्रम) रामचन्द्रपुरम, हैदराबाद, 502032 आंध्र प्रदेश, भारत		RFQ NO :		PURCHASE DEPARTMENT ENQUIRY क्रय विभाग जांच (ई मेल : tenderbox@bhelhyd.co.in)		SHEET:6 OF :11	
HY17001 C REV.NO.0		Phone 091-40-23184526 091-40-23182322		FAX : 091-40-23021910 091-40-23021954		PURCHASE DEPARTMENT					
		GSTIN:		Enq/Collective No :B7C1T88520		Enq.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020	
Office Copy		Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.									
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var	Description	Unit	Qty	Delivery Date	Schedule Qty		
51	8000094066	10	90158020					11.07.2020	3.000		
52	8000094105	10	TC9765342101 90158020	NA-,,TC65342,03,10	FLEXIBLE CONDUIT 3/4",30MTS	SET	10.000	11.07.2020	4.000		
53	8000093734	10	90158020					11.07.2020	3.000		
54	8000094065	10	90158020					11.07.2020	3.000		
55	7000088917	10	TC9765342128 84119900	NA-,,TC65342,03,12	TRANSDUCER CALIBRATION KIT	SET	2.000	11.07.2020	1.000		
56	7000088525	10	84119900					11.07.2020	1.000		
57	7000088946	10	TC9765342136 84119900	NA-,,TC65342,03,13	RACK POWER SUPPLY, 110VAC, DUPLEX	SET	3.000	11.07.2020	1.000		
58	7000088530	10	84119900					11.07.2020	1.000		
59	7000088931	10	84119900					11.07.2020	1.000		
60	7000088947	10	TC9765342144 90158020	NA-,,TC65342,03,14	RACK TRANS DATA INTERFAC MODULE,ETHNET	SET	3.000	11.07.2020	1.000		
						TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART			For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC		

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HY17001 C REV:NO.0		Phone 091-40-23184526 091-40-23182322		FAX : 091-40-23021910 091-40-23021954		PURCHASE DEPARTMENT					
		GSTIN:		Enq/Collective No :B7C1T88520		Enq.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020	
Office Copy		Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.									
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var	Description	Unit	Qty	Delivery Date	Schedule Qty		
61	7000088531	10	90158020					11.07.2020	1.000		
62	7000088932	10	90158020					11.07.2020	1.000		
63	7000088948	10	TC9765342152 90158020	NA-,,TC65342,03,15	KEYPHASOR & TACHOMETER MODULE	SET	3.000	11.07.2020	1.000		
64	7000088532	10	90158020					11.07.2020	1.000		
65	7000088933	10	90158020					11.07.2020	1.000		
66	7000088949	10	TC9765342160 90158020	NA-,,TC65342,03,16	PROXIMITY SENSOR MODULE	SET	3.000	11.07.2020	1.000		
67	7000088533	10	90158020					11.07.2020	1.000		
68	7000088934	10	90158020					11.07.2020	1.000		
69	7000088950	10	TC9765342179 90158020	NA-,,TC65342,03,17	TEMPERATURE MODULE	SET	3.000	11.07.2020	1.000		
70	7000088534	10	90158020					11.07.2020	1.000		
						TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART		For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC			

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HY17001 C REV.NO.0		Phone 091-40-23184526 091 40 23182322			FAX : 091-40-23021910 091 40 23021954			PURCHASE DEPARTMENT						
		GSTIN:			Enq/Collective No :B7C1T88520			Enq.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020		
Office Copy		Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.												
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var		Description			Unit	Qty	Delivery Date	Schedule Qty		
71	7000088935	10	90158020								11.07.2020	1.000		
72	7000088951	10	TC9765342187 90158020	NA-,,TC65342,03,18		PROGRAMMABLE RELAY MODULE			SET	3.000	11.07.2020	1.000		
73	7000088535	10	90158020								11.07.2020	1.000		
74	7000088936	10	90158020								11.07.2020	1.000		
75	7000088952	10	TC9765342195 90158020	NA-,,TC65342,03,19		COMMUNICATION GATEWAY			SET	3.000	11.07.2020	1.000		
76	7000088536	10	90158020								11.07.2020	1.000		
77	7000088937	10	90158020								11.07.2020	1.000		
78	7000088925	10	TC9765342209 84119900	NA-,,TC65342,03,20		RACK CONFIGURATION LAPTOP			SET	3.000	11.07.2020	1.000		
79	7000088523	10	84119900								11.07.2020	1.000		
80	7000088918	10	84119900								11.07.2020	1.000		
									TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART			For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC		

		BHARAT HEAVY ELECTRICALS LIMITED [A Government of India Undertaking] Ramachandrapuram, Hyderabad, 502032, A.P. India Phone 040-23184526, 23182322 FAX:040-23021910, 1954			भारत हेवी इलेक्ट्रिकल्स लिमिटेड (भारत सरकार का उपक्रम) रामचन्द्रपुरम, हैदराबाद, 502032 आंध्र प्रदेश, भारत			RFQ NO :		PURCHASE DEPARTMENT ENQUIRY क्रय विभाग जांच (ई मेल : tenderbox@bhelhyd.co.in)		SHEET:9 OF :11	
HY17001 C REV.NO.0		Phone 091-40-23184526 091-40-23182322		FAX : 091-40-23021910 091-40-23021954		PURCHASE DEPARTMENT							
		GSTIN:		Enq/Collective No :B7C1T88520		Enq.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020			
Office Copy				Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.									
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var	Description	Unit	Qty	Delivery Date	Schedule Qty				
81	7000088926	10	TC9765342217 84119900	NA-,,TC65342,03,21	RACK CONFIGURATION SOFTWARE	SET	3.000	11.07.2020	1.000				
82	7000088524	10	84119900					11.07.2020	1.000				
83	7000088919	10	84119900					11.07.2020	1.000				
84	8000094158	10	TC9765342292	NA-,,TC65342,03,29	PROX SENSOR,STD MNT,1.6" LEN,3/8-24UNF	EA	7.000	11.07.2020	2.000				
85	7000088921	10						11.07.2020	2.000				
86	7000088938	10						11.07.2020	1.000				
87	8000094123	10						11.07.2020	2.000				
88	8000094114	10	TC9765342497	NA-,,TC65342,03,49	TSI RACK-1 as per TC65342-49-50	SET	2.000	11.07.2020	1.000				
89	8000093738	10						11.07.2020	1.000				
90	8000094113	10	TC9765342500	NA-,,TC65342,03,50	TSI RACK-2 as per TC65342-49-50	SET	2.000	11.07.2020	1.000				
91	8000093739	10						11.07.2020	1.000				
						TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART			For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC				

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HY17001 C REV.NO.0		Phone 091-40-23184526 091-40-23182322			FAX : 091-40-23021910 091-40-23021954			PURCHASE DEPARTMENT					
		GSTIN:			Enq/Collective No :B7C1T88520			Enq.Dt. : 06.06.2020		No.Of Items :*		DUE Dt. OF QUOTN. : 27.06.2020	
Office Copy					Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us on or before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.								
SL NO	Purchase Req.no	item no	Material Code, HSN No.	Drg no - Ver , Rev & Spec - Ver , Rev,Spec-Var	Description			Unit	Qty	Delivery Date	Schedule Qty		
92	8000094094	10	TC9765342659	NA-,,TC65342,03,65	TSI RACK AS PER TC65342-65			SET	1.000	11.07.2020	1.000		
93	8000094200	10	TC9765342985	NA-,,TC65342,03,98	PROX SENSOR,STD MNT,150MM LEN,M8X1			EA	2.000	11.07.2020	2.000		
Special Remarks													
> Please refer to the Special Instructions for TSI RACK & its ACCESSORIES for more details.													
> Please note that your offers will be considered for evaluation subject to End Customer Approval. In case, if End Customer rejects your bid, such vendor bid will not be considered and Price Bid of that vendor will not be opened.													
> In complete offers will be rejected. (Both Material and Service portions to be quoted.)													
> Vendor Price bid shall be in line with Price Schedule.													
> Evaluation will be on Overall L1 basis. (Grand Total Package Basis)													
> Technical Part Contact person: Mr. Ramniwas Sangwa, Manager/TC Engineering													
								TEST CERTIFICATE REQD: Y GUARANTEE REQ : Y SAMPLE REQD : N BID TYPE : TWO PART		For and on-behalf of Bharat Heavy Electricals Limited. kanhaiya kumar Dy. Manager/PUR/TC			

Email: ramsangwa@bhel.in
Office: +91 40 2318 3548

Commercial Part Contact person:
Mr. Kanhaiya Kumar Sr. Purchase Officer / TC
Email: k.kumar@bhel.in
Office: +91 40 2318 4953

(or)

Ms. Satyaveni
Email: satyaveni@bhel.in
Office: +91 40 2318 2248

CheckList of Quality Interventions:

**BHEL reserves the right to enforce any or all of the following checks during execution of the order.
There is no additional cost to the vendor on account of these checks.**

TEST CERTIFICATE REQD: Y
GUARANTEE REQ : Y
SAMPLE REQD : N
BID TYPE : TWO PART

For and on-behalf of
Bharat Heavy Electricals Limited.

kanhaiya kumar
Dy. Manager/PUR/TC

	BYHARAT HEAVY ELECTRICALS LIMITED (A Government of India Undertaking) Ramachandrapuram, Hyderabad, 502032, Telangana, India			Purchahse Department Service RFQ
	BHEL RFQ: B7C1T88520	Enq Date: 18.07.2020		Due Date:
Office Copy		Please submit your lowest quotation in sealed cover superscribed with Enquiry No./Collective No.(RFQ No B7C1T88520) and due date subject to our terms and conditions attached ,for the materials mentioned below.Your offer has to reach us onor before due date by 11.00 Hours (IST) and will be opened at 14.00 Hours.(IST).If our Enquiry No./Collective No.(RFQ No B7C1T88520) and tender due date are not super scribed on the tender cover , your offer shall be summarily rejected. Incomplete offers and late offers will not be considered.		

Sl.No	Purchase Req No.	Description	Project	qty
01	1600020940	TSI PRE COMMISSIONING	MCA 1056	1
02	1600020941	TSI COMMISSIONING	MCA 1056	1
03	1600020942	TSI TARINING	MCA 1056	1
04	1600020943	TSI EXTENDED WARRANTY	MCA 1056	1
05	1600020944	TSI PWCAMC	MCA 1056	1
06	1600021166	TSI PRE COMMISSIONING	MCA 1059	1
07	1600021167	TSI COMMISSIONING	MCA 1059	1
08	1600021168	TSI TRAINING	MCA 1059	1
09	1600021169	TSI EXTENDED WARRANTY	MCA 1059	1
10	1600021190	TSI PWCAMC	MCA 1059	1
11	1600021193	TSI PRE COMMISSIONING	MCA1060	1
12	1600021194	TSI COMMISSIONING	MCA1060	1
13	1600021195	TSI TRAINING	MCA1060	1
14	1600021196	TSI EXTENDED WARRANTY	MCA1060	1
15	1600021197	TSI PWCAMC	MCA1060	1

Scope of Service:

Scope of Service against each service PR is detailed in the Tender specification attached.

Bidders are requested to go through the Tender specification and quote the prices strictly in line with the tender specifications.

Per diem rate must be submitted wherever required.

Mode of evaluation of the tender is also detailed in the specifications. Please contact in case any clarification is required.

Remarks:

Supplier shall not source any raw material or finished good prod, any Testing and process on prod (Ex. Assembly) from china.

	For and on-behalf of Bharat Heavy Electricals Limited. Kanhaiya Kumar Dy. Manager/PUR/TC
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BHARAT HEAVY ELECTRICALS LIMITED
HEAVY POWER EQUIPMENT PLANT
TURBINE & COMPRESSOR - PURCHASE DIVISION
RAMACHANDRAPURAM, HYDERABAD

PRE-QUALIFICATION REQUIREMENTS - FINANCE - REV 01

PRODUCT: TSI Rack and Accessories

PROJECT: MCA 1056, MCA 1059 & MCA 1060

CRITERIA FOR EVALUATION - FINANCIAL-

Average annual financial turnover during the last Three Financial Years should not be less than

INR 1,17,00,000/-

(In Words, Indian Rupees One Crore seventeen Lakhs Only)

Notes:-

- The Average annual Financial turnover during last 03 (three) years, ending of the previous financial year, should be at least INR 1, 17, 00, 000/- and positive net worth as per latest balance sheet. The bidder has to submit financial accounts comprising of Audit report, Balance Sheet, Profit & Loss A/c Statement and Notes/Schedules pertaining to Turnover/Sales/Revenue, certified by Chartered Accountant for the last three years as on tender due date to review the above criteria.
- Foreign bidder is to submit a latest certificate from reputed third party business rating agency like Dun & Bradstreet, Credit reform etc. in addition to the documents mentioned at point (a) above for review of above criteria. The certificate thus produced will explicitly mention the turnover in terms of equivalent Indian Rupees.
- Other Income shall not be considered for arriving at Annual Turnover/Sales. For evaluation purpose, only revenue from operations shall be considered.

S B Fatima
20/07/2020.

एस बी फातिमा
S B Fatima
अप महा प्रबंधक / वित्त एवं लेखा
Dy. General Manager / Finance & Accounts
बी.एच.ई.एल.-एचपीईपी, हैदराबाद-32, BHEL- HPEP, HYD-32

Pre-Qualification Requirements (PQR) of Bidders for Machine Monitoring System (MMS / TSI)

Note:	All documents shall be compiled clause wise and submitted with proper tagging in following order.		
SI No	Requirement	Bidder Confirmation	Documentation Requirement
1	Machine Monitoring system / Turbo-Supervisory Instrumentation (MMS / TSI) shall be used for continuous monitoring and indication of Critical machine parameters like vibration & axial displacement, bearing and winding temperature, key-phasor etc. Complete MMS System shall comply the requirements specified as per API-670. Bidder shall submit Technical Catalog / brochure of MMS system indicating compliance to API 670. Bidder shall also indicate the Website link for technical catalog / brochure, published on the MMS OEM vendor website. <u>Note: Bidder offer shall NOT be considered if offered MMS System does not comply to API 670.</u>	Bidder to indicate MMS is API 670 compliant YES / NO	MMS Catalog / Brochure. MMS OEM Website link for MMS Catalog / Brochure / Datasheets & O&M Manuals.
2	The responsibility of complete MMS system to be supplied as per BHEL specification including engineering, selection of components, Erection and Commissioning (Supervision) shall be with MMS OEM only. (MMS OEM shall be single point responsibility vendor (SPRV) for the complete MMS system). MMS OEM shall submit confirmation for "SPRV" as per attached format. MMS system shall comprise of the following items. 1) Sensor 2) Sensor Cable & Driver 3) MMS Rack with Dual Redundant Power Supply 4) MMS Rack Module-Proximity card 5) MMS Rack Module-Temperature card 6) MMS Rack Module-Key Phasor card, Zero Speed and Speed Measurement / Reverse Rotation. 7) MMS Rack Module-Communication card 8) MMS Rack Module-Relay Card. <u>Note: Bidder offer shall NOT be considered if duly signed and stamped SPRV format is not submitted.</u>	Bidder to indicate Format-A_SPRV Attached YES / NO	Bidder to submit Filled in Format-A-SPRV
3	Bidder shall be Original Equipment Manufacturer or MMS OEM's authorized distributor / channel partner of Machine Monitoring system having offices in India. Bidder to provide the following information for the MMS system.	----	----
a	Bidder is MMS OEM.	Bidder to indicate YES / NO	----
b	Bidder is MMS OEM's authorized distributor / channel partner in INDIA.	Bidder to indicate YES / NO	----
4	In case the Bidder is MMS OEM's authorized distributor / channel partner.	----	----
a	Authorized distributor / channel partner shall submit authorization certificate from their MMS OEM to quote for complete job. For authorized distributors / channel partner, the expiry date of validity of distributorship / partnership should be clearly indicated along with documentary evidences. <u>Note: Bidder offer shall NOT be considered if duly signed and stamped Authorisation Letter from MMS OEM is not submitted.</u>	Bidder to indicate Authorisation Letter Attached YES / NO	Bidder to submit Authorisation letter from MMS OEM.
b	Authorized distributors / channel partner shall have association with the MMS OEM for the past five years and should have supplied and commissioned with the MMS OEM make MMS system. <u>Note: Bidder offer shall NOT be considered if duly signed and stamped Letter from MMS OEM is not submitted.</u>	Bidder to indicate letter from MMS OEM indicating the start date Attached YES / NO	Bidder to submit letter from MMS OEM indicating the start date of partnership.

(BIDDER SIGNATURE WITH SEAL)

(TO BE SIGNED BY BIDDER'S PRINCIPAL CORPORATE LEVEL SIGNATORY)

Pre-Qualification Requirements (PQR) of Bidders for Machine Monitoring System (MMS / TSI)

Note:	All documents shall be compiled clause wise and submitted with proper tagging in following order.		
SI No	Requirement	Bidder Confirmation	Documentation Requirement
c	MMS OEM shall declare that in the event of discontinuation of their partnership, at any point of time during the warranty period, OEM will take the total responsibility for meeting all the commitments made earlier by the authorized distributor / channel partner. <u>Note: Bidder offer shall NOT be considered if duly signed and stamped Declaration Letter from MMS OEM is not submitted.</u>	Bidder to indicate Format-B_MMS OEM DECLARATION Attached YES / NO	Bidder to submit Filled in Format-B_MMS OEM DECLARATION
5	Bidder shall have an established facility in India for engineering, documentation, after sale service for the offered make and model of MMS. Bidder to provide the office location / address along with organisation chart indicating the personnel involved in Proposal, Engineering, commissioning and servicing of the offered MMS system. <u>Note: Bidder offer shall NOT be considered if duly signed and stamped Organisation Chart along with India Office address is not submitted.</u>	Bidder to indicate Organisation Chart Attached YES / NO	Bidder to submit Organisation Chart
6	Bidder to confirm that they will provide spares and services support for the offered MMS system for at least ten years from the date of supply. In case of authorized distributor / channel partner, "After Sales Service" and availability of spares to be guaranteed by MMS OEM for at least ten years. Bidder shall submit signed and stamped "Logistic Support certificate". <u>Note: Bidder offer shall NOT be considered if duly signed and stamped Logistic Support certificate is not submitted.</u>	Bidder to indicate Format-C1 & C2_Logistic Support Certificate Attached YES / NO	Bidder to submit Format-C1 & C2_Logistic Support Certificate
7	PTR for MMS System	----	----
a	Bidder should have supplied & commissioned FIVE such MMS systems during last five years. At least ONE of the above mentioned MMS system should have been installed and used for Centrifugal Compressor train in a Refinery (Hazardous Area, IEC Zone 1, 2; Gas Gr II-A, B & C) environment. Bidder to submit attached PTR format, duly filled in with all the details. Reference list shall contain name of end user, latest contact email id and contact telephone number. Note-1: If BHEL is unable to verify the PTR furnished, with end user contact details provided above, the offer will be rejected. Note-2: PTR References of R&M projects are not acceptable, references of supply of MMS for non critical services like pumps, fans etc are not acceptable. Note-3: In case Bidder is MMS OEM's Authorised Distributor / Channel partner, Bidder shall submit PTR for MMS system supplied by Bidder only. MMS OEM PTR (without BIDDER role is NOT acceptable). <u>Note: Bidder offer shall NOT be considered if duly signed and stamped PTR is not submitted.</u>	Bidder to indicate Format-D_PTR Attached YES / NO	Bidder to submit Filled in Format-D_PTR
b	Bidder to submit evidence of satisfactory performance of the offered MMS system for a period of not less than ONE year, which has been supplied during the last five years, from at least one end user for Centrifugal Compressor train in a Refinery (Hazardous Area, IEC Zone 1, 2; Gas Gr II-A, B & C) environment. The following documents are required for acceptance of Satisfactory Performance. a) Unpriced purchase order copy of end user placed on bidder. b) Minutes of meeting with end-user for commissioning and handing over. c) Certificate issued by end user mentioning the date of installation, Make & model number of the MMS. This document shall be dated at least ONE year from the date of MMS commissioning. <u>Note: Bidder offer shall NOT be considered if above listed THREE documents are not submitted.</u>	Bidder to indicate all THREE listed documents are Attached YES / NO	All documents listed to be submitted.
8	All correspondence, Documentation, catalogs and Manuals shall be in English language only. <u>Note: Bidder offer shall NOT be considered if above listed documents are not submitted in ENGLISH language.</u>	Bidder to indicate YES / NO	----

(BIDDER SIGNATURE WITH SEAL)
SEAL)

(MMS OEM SIGNATURE WITH

(TO BE SIGNED BY BIDDER'S & MMS OEM's PRINCIPAL CORPORATE LEVEL SIGNATORY)

9	Format-A_SPRV
	<u>SINGLE POINT RESPONSIBILITY VENDOR (SPRV) COMPLIANCE STATEMENT</u> (TO BE SIGNED BY MMS OEM'S PRINCIPAL CORPORATE LEVEL SIGNATORY ON COMPANY LETTERHEAD) I, ON BEHALF OF M/s.....<MMS OEM NAME>.....CONFIRM THAT THE PROPOSAL OF <u>API 670 COMPLIANT MMS SYSTEM</u> QUOTED BY M/s.....<BIDDER NAME>..... AGAINST BHEL RFQ NO..... DT.....IS IN TOTAL COMPLIANCE TO THE SCOPE AS WELL AS ALL THE TECHNICAL SPECIFICATIONS. I, ON BEHALF OF M/s.....<MMS OEM NAME>.....CONFIRM THAT M/s.....<MMS OEM NAME>..... SHALL BE SINGLE POINT RESPONSIBILITY VENDOR FOR THE COMPLETE MMS SYSTEM TO BE SUPPLIED AS PER BHEL SPECIFICATION INCLUDING ENGINEERING, SELECTION OF COMPONENTS, ERECTION AND COMMISSIONING (SUPERVISION), AFTER SALES SERVICES AND SPARE PARTS. (SIGNATURE WITH SEAL)

10	Format-B_MMS OEM DECLARATION
	<u>MMS OEM RESPONSIBILITY DECLARATION FOR AUTHORISED DISTRIBUTOR / CHANNEL PARTNER</u> (TO BE SIGNED BY MMS OEM'S PRINCIPAL CORPORATE LEVEL SIGNATORY ON COMPANY LETTERHEAD) I, ON BEHALF OF M/s.....<MMS OEM NAME>.....DECLARE THAT IN THE EVENT OF DISCONTINUATION OF OUR DISTRIBUTORSHIP / CHANNEL PARTNERSHIP WITH M/s.....<BIDDER NAME>.....,AT ANY POINT OF TIME FROM PROPOSAL STAGE TO END OF THE WARRANTY PERIOD, M/s.....<MMS OEM NAME>.....TAKES TOTAL RESPONSIBILITY FOR MEETING ALL THE COMMITMENTS MADE BY M/s.....<BIDDER NAME>..... AGAINST BHEL RFQ NO..... DT..... (SIGNATURE WITH SEAL)

11	Format-C1_LOGISTIC SUPPORT CERTIFICATE BY MMS OEM
	<u>CERTIFICATE FOR LOGISTICS SUPPORT (BY MMS OEM)</u> (TO BE SIGNED BY MMS OEM'S PRINCIPAL CORPORATE LEVEL SIGNATORY ON COMPANY LETTERHEAD) I, ON BEHALF OF M/S.....<MMS OEM NAME>.....CONFIRM THAT THE <u>API 670 COMPLIANT MMS SYSTEM</u> QUOTED BY M/s.....<BIDDER NAME>..... FOR CENTRIFUGAL COMPRESSOR TRAIN OF <PROJECT NAME (LATER)> SHALL CONTINUE TO BE SUPPORTED BY US FOR A PERIOD OF MINIMUM TEN (10) YEARS. THE QUOTED ITEM SHALL NOT BE WITHDRAWN FROM INDIAN MARKET IN NEXT THREE (3) YEARS AS A MATTER OF OUR CORPORATE POLICY. I FURTHER CONFIRM THAT IN CASE OF PLACEMENT OF ORDER BY M/S BHEL ON M/s.....<BIDDER NAME>....., WE SHALL CONTINUE TO SUPPORT BHEL / BHEL CLIENT IN PROVIDING BACK-UP ENGINEERING, MAINTENANCE SUPPORT AND SPARE PART SUPPORT FOR A PERIOD OF TEN (10) YEARS FROM THE DATE OF EXPIRY OF WARRANTY. (SIGNATURE WITH SEAL)
12	Format-C2_LOGISTIC SUPPORT CERTIFICATE BY BIDDER
	<u>CERTIFICATE FOR LOGISTICS SUPPORT (BY BIDDER)</u> (TO BE SIGNED BY BIDDER'S PRINCIPAL CORPORATE LEVEL SIGNATORY ON COMPANY LETTERHEAD) I, ON BEHALF OF M/s.....<BIDDER NAME>..... CONFIRM THAT THE API 670 COMPLIANT MMS SYSTEM QUOTED BY M/s.....<BIDDER NAME>..... FOR CENTRIFUGAL COMPRESSOR TRAIN OF <PROJECT NAME (LATER)> SHALL CONTINUE TO BE SUPPORTED BY US AND OUR PRINCIPAL(S). THE QUOTED ITEM SHALL NOT BE WITHDRAWN FROM INDIAN MARKET IN NEXT THREE (3) YEARS AS A MATTER OF OUR CORPORATE POLICY AS SUPPORTED BY ATTACHED CERTIFICATE FROM OUR PRINCIPAL(S) M/S.....<MMS OEM NAME>..... I FURTHER CONFIRM THAT IN CASE OF PLACEMENT OF ORDER BY M/s BHEL ON US, WE SHALL CONTINUE TO SUPPORT BHEL / BHEL CLIENT IN PROVIDING BACK-UP ENGINEERING, MAINTENANCE SUPPORT AND SPARE PART SUPPORT FOR A PERIOD OF TEN (10) YEARS FROM THE DATE OF EXPIRY OF WARRANTY. (SIGNATURE WITH SEAL)

13	Format-D_PROVEN TRACK RECORD (PTR)					
1	Name of the Bidder					
2	Whether manufacturer & supplier:					
3	Whether System Integrator & Supplier:					
4	Name of Packager:					
Sl.No	PTR Requirement	Ref-1	Ref-2	Ref-3	Ref-4	Ref-5
1	Purchaser's name, address, Tel no, Fax no, email and contact person					
2	Description of the items offered:					
	Please add list of MMS items as follows: (Make / Model)					
	1) Sensor					
	2) Sensor Cable & Driver					
	3) MMS Rack with Dual Redundant Power Supply					
	4) MMS Rack-Proximity card					
	5) MMS Rack-Temperature card					
	6) MMS Rack-Key Phasor card, Zero Speed and Speed Measurement / Reverse Rotation.					
	7) MMS Rack-Communication card					
8) MMS Rack Module-Relay Card.						
3	Description of item as manufactured & Supplied/ engineered (identify Bidder's scope of work)					
4	Date of order placed					
5	Contractual completion date					
6	Actual completion date/ month & year of commissioning					
7	Reasons of delay if any					
8	Details of major break down till date.					

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1. Intimation to Bidder(ITB), Rev 08 are attached to the mail along with this enquiry/RFQ. The Intimation to Bidder(ITB), Rev 08, Annexure 1, Annexure 2 (Non-Disclosure Agreement) & Annexure 3 (Confirmation on Min Local Content) are mandatory docs to be filled and submitted along with the technical bid. Your Responses for the terms of ITB shall be filled in Response Column and Deviation if any shall indicate in Deviation Column of ITB.
2. Any other terms and conditions mentioned in the bid will not be considered and only the filled in ITB will be considered for evaluation.
3. Failure of submission of the Filled in ITB along with your bid may lead to rejection of your bid

4. Inspection:-

- i. **For Indigenous vendors:** Joint Inspection will be held with BHEL appointed TPI and End Customer Appointed TPI. Indian Offers will be loaded by 0.26% towards TPI charges to arrive the total destination cost to BHEL wherever TPI is applicable.
- ii. **For Imported Vendors:**
Project wise acceptable TPI for Import vendors are as follows:

HRRL DHDT MCA 1056 - BHEL Third part Inspection (TPI) is applicable to this Project. BHEL Approved TPIA are Lloyds Register/TUV/TATA Projects/CEIL/DNV. Test certificates will be reviewed by End Customer TPI.

HRRL DCU & VGO MCA 1059 & MCA 1060- Please note that Inspection shall be done by one of the BHEL approved TPIA (Lloyds/ BV/DNV/TUV)

In addition, Vendor is required to offer inspection to End Customer (TPL) appointed TPIA (M/s CEIL). - Charges for this will be borne by End Customer.

Charges for BHEL TPIA inspection will be in vendor's scope. Vendors shall quote charges for BHEL TPI separately. (Do not combine the TPI charges with Material Prices)

5. Please follow the link >> <https://dipp.gov.in/public-procurements> for all circulars. Mention your confirmation to clause 20 of ITB, Rev 08. Evaluation will be done accordingly.
6. The material is required for HRRL DHDT RGC (Toyo Engineering Pvt Ltd), HRRL VGO & DCU (TATA Projects Ltd), and material shall be dispatch to BHEL 01 Stores. (Ind Vendor: FOR BHEL 01 Stores, Hyderabad and Imp vendors: CIP Hyderabad Airport.)

(To be continued...)

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Supplier Declaration:

I _____(Supplier Name) declare that the above points are noted and Confirmed while submitting the quotation.

Authorized Signature & Stamp

(_____) Vendor Name

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7. Service Charges also to be quoted along with material. This is mandatory.
8. PQR - Technical and Revised PQR - Finance to be duly filled and signed. All required documents to satisfy the clauses of both PQR's to be enclosed to your technical offer only.
9. Project wise Guarantee/Warranty Clauses are as follows:

HRRL DHD:

"All equipment/goods supplied shall be guaranteed 30 months from date of dispatch of goods or upto 31st August 2023 whichever is later. If proved under normal operating conditions to be of inadequate design or of defective material or of poor workmanship. In such event the guarantee period for the particular equipment / material shall be another 12 months from the date of acceptance by PURCHASER/OWNER of such Replaced/ repaired equipment /material. However, extended guarantee period shall have an upper limit till 31st August 2024"

HRRL DCU & VGO:

All equipment/goods supplied shall be warranted for 12 months from the date of commissioning or upto 31st December 2023 whichever is earlier. Replaced/repaired equipment /material will be warranted for 12 months from the date of repair/replacement or 31st December 2024 whichever is earlier."

(The End)

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Supplier Declaration:

I _____ (Supplier Name) declare that the above points are noted and Confirmed while submitting the quotation.

Authorized Signature & Stamp

(_____) Vendor Name

PROJECT SPECIFIC REQUIREMENTS TSI SYSTEM

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INSTRUCTIONS TO BIDDERS:

- a) Bidders are advised to contact BHEL for essential technical queries in writing within one week of issue of RFQ. Offers with incomplete information will not be considered for evaluation, and are likely to be rejected without any further correspondence with the Bidder.
- b) Unsolicited requests from bidders for alterations to their already submitted offer will not be permitted. These would not be taken cognizance, and offers will be evaluated without taking into account such requests/correspondence.
- c) Any technical features over & above BHEL specification requirements proposed by Bidder will not be given preference for the purpose of evaluation.
- d) Bidders shall comply BHEL specifications in total. Incomplete offers will be rejected. In case feasible deviations are proposed by the bidder and subsequently withdrawn, no commercial implications can be claimed by the bidder.
- e) Bidders are advised to quote models and makes with proven track record of successful operation. Offers shall include supporting catalogue and published literature [duly highlighting, as appropriate, the offered variant with complete de-codification of the offered models. In case of discrepancy between bidder's offer and published documents, details furnished in published documents will be taken for the purpose of evaluation.
- f) In the event of any conflict between these specifications, data sheets, related standards, codes etc. the bidder shall refer the matter to the purchaser for clarifications and only after obtaining the same shall proceed with the manufacture/procurement of the items in question.
- g) Bidder shall submit duly filled deviation format enclosed with this specification along with technical offer, otherwise, it will be presumed that there are no deviations from this specification. Offer without this deviation list will not be evaluated & shall be rejected. If, there are no deviations, bidder shall submit signed copy of deviation format, mentioning "No Deviations".
- h) Bidder shall include all items required for implementation of system as per this specification as a complete package, exclusion of any required item, however not explicitly listed in this specification is not acceptable.
- i) Changes if any made by BHEL during technical evaluation on the specification requirements or Bill of material, bidder is requested by the purchase to submit impact price (amount to be reduced or increased to the original offered price) for those changed items only, other items for which there are no technical changes, unit rates shall be maintained as it is.
- j) Bidder shall include UNIT prices for all spare items. Bidder may attach separate sheet for the same.
- k) Bidder shall include PRICE SCHEDULE format attached with this specification for its technical and commercial bids. Technical bid shall contain the PRICE SCHEDULE with 'QUOTED' against each RFQ item.
- l) Sourcing of any raw material or finish good products, any testing and processing on product (e.g. assembly) from China is not allowed except for the following: Electronic cards, modules, power supplies, barriers, isolators, network components etc. may have some internal components / parts manufactured in China, however the supplier shall not be from China.**
- m) In case of any technical query, bidders may contact the following BHEL engineer before submission of offer:**

Name: Ramniwas Sangwa
Designation: Manager
Deptt: TC Engineering
Phone: +91 40 2318 3548
Email: ramsangwa@bhel.in

FORMAT	PREPARED:	APPROVED:	DATE:	REV:
TD-201 REV-00	RAVI	IS	18.06.2018	01
REF-DOC TC65342-49-50- 65-R02	COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHEL. It must not be used directly or indirectly in any way detrimental to the interest of the company.			

PROJECT SPECIFIC REQUIREMENTS TSI SYSTEM

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1 SCOPE:

This specification defines the project specific requirements for TSI System package for HRRL DHDT / VGO / DCU Compressor Project.

2 TECHNICAL REQUIREMENTS:

a TSI SYSTEM:

Sl.No		Technical Requirements								
i	Hazardous area classification	IEC Zone-1, Gas Group IIC, T3								
ii	TSI Rack Location	Satellite Rack Room (SRR)								
iii	TSI Rack Display (with connecting cable) & Location	Display Not Required.								
iv	Cable Distance	i. Field Sensor to TSI Rack: 700 mts max. ii. TSI Rack to DCS / PLC: 50 mts.								
v	SIL Certification for TSI System	Required SIL-2. Incase SIL-2 is not available with vendor, vendor shall supply SIL-1 sensors and TSI Rack cards. Vendor shall provide declaration on company letter head citing non-availability of SIL 2 certified TSI sensors and TSI Rack cards.								
vi	G3 / Eqv. Conformal Coating	Required.								
vii	Intrinsic Safe Barrier	Yes, in BHEL Scope. MTL5500 or Eqv series.								
viii	4-20 mA Output from TSI rack	Required.								
ix	Serial Communication with DCS	Dual Redundant, RS485 Modbus RTU / TCP-IP (will be finalized during detail engineering. Vendor to consider both options without any implication)								
x	Connectivity with Condition Monitoring System	Individual buffered output (raw data) connections for all system transducers (except temperature) from both front as well as rear of the MMS racks for connectivity to purchaser's machine conditioning monitoring and analysis system. Vendor to include special connectors (d-type / BNC etc.) for connection / termination from rack to terminals.								
xi	Power supply	Redundant, 85 to 264 VAC.								
xii	TSI Scheme & Loop Drawing	During detail engineering.								
xiii	TSI System material supply by BHEL	i. Proximito Junction Box. ii. Triad cable from Proximito to TSI Rack. iii. Bearing RTD. iv. TSI Panel with TSI Barriers. v. Modbus communication cables.								
xiv	TSI Sensors, Rack, Spares Qty	Vendor to quote for all items listed in the RFQ / Price Schedule. The separation of items as Main / Spares etc. is BHEL responsibility.								
xv	TSI RACK-1 as per TC65342-49-50 BHEL Material Code:	<table><tr><th>Sl. No.</th><th>Module</th><th>Qty</th></tr><tr><td>a</td><td>19" Rack</td><td>01</td></tr></table>			Sl. No.	Module	Qty	a	19" Rack	01
Sl. No.	Module	Qty								
a	19" Rack	01								

PROJECT SPECIFIC REQUIREMENTS TSI SYSTEM

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Sl.No	Technical Requirements			
	TC9765342497	b	Rack Power Supply, Duplex	01
		c	Rack Transient Data Interface Module (if applicable) / RAW Data Connectivity to CMS / Rack Programming	AR
		d	Keyphasor & Tachometer Module with Zero speed relay and Reverse Rotation relay	01
		e	Proximity Sensor Module	07
		f	Programmable Relay Module for min 48 relays with at least 01 no Independent Relay Module	AR
		g	RS485 Modbus Communication Gateway for DCS Dual Redundant Connectivity	AR
xvi	TSI RACK-2 as per TC65342-49-50 BHEL Material Code: TC9765342500	Sl. No.	Module	Qty
		a	19" Rack	01
		b	Rack Power Supply, Duplex	01
		c	Rack Transient Data Interface Module (if applicable) / RAW Data Connectivity to CMS / Rack Programming	AR
		d	Temperature Monitor Module	07
		e	Programmable Relay Module for min 64 Relays with at least 01 no Independent Relay Module	AR
		f	RS485 Modbus Communication Gateway for DCS Dual Redundant Connectivity	AR
xvii	TSI RACK AS PER TC65342-65 BHEL Material Code: TC9765342659	Sl. No.	Module	Qty
		a	19" Rack	01
		b	Rack Power Supply, Duplex	01
		c	Rack Transient Data Interface Module (if applicable) / RAW Data Connectivity to CMS / Rack Programming	AR
		d	Proximity Sensor Module	04
		e	Keyphasor & Tachometer Module with Zero speed relay and Reverse Rotation relay	01
		f	Temperature Monitor Module	04
		g	Programmable Relay Module for min 32 Relays with at least 01 no Independent Relay Module	AR
		h	RS485 Modbus Communication Gateway for DCS Dual Redundant Connectivity	AR

3 STANDARD WARRANTY (DEFECT LIABILITY PERIOD):

- The vendor shall guarantee trouble free performance of the supplied systems and work during this warranty period. In case of any defect or non-performance of the system or a component during this guarantee period, the same shall be replaced/ rectified free of cost. Any such replacement / repair shall to be carried out within 72 hours of reporting the issue to the vendor. In this regard, vendor is advised to consider periodic maintenance checks, as required in order to ensure 100% availability / trouble free performance.
- During warranty period, vendor shall supply all spares and consumables for TSI package items. vendor shall provide warranty maintenance services and supply of spares for maintaining an uptime of 98% for each system. Any fault shall be attended within 72 hrs.
- All equipment/goods supplied shall be warranted for 12 months from the date of commissioning or upto 31st December 2023 whichever is earlier. Replaced / repaired equipment / material will be warranted for 12 months from the date of repair / replacement or 31st December 2024 whichever is earlier.

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65-R02

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4 **EXTENDED WARRANTY:**

- a In addition to standard warranty specified above, extended warranty of 2 years for TSI package shall be considered. The extended warranty shall start after expiry of standard warranty (defect liability period) indicated above.
- b The terms and condition of extended warranty shall be same as those for standard warranty (defect liability period).

5 **POST WARRANTY COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT (PWCAMC, optional offer):**

- a Comprehensive post warranty annual maintenance contract for 3 years duration shall be provided for Package. PWCAMC shall be executed after expiry of extended warranty.
- b Vendor shall propose 3 year's post warranty maintenance contract & contract shall exclusively mention the service to be provided, methodology, scope of work, and Vendor's responsibility with year wise break-up.
- c In the event of any malfunction of the system hardware / system software, experienced service engineer shall be made available at site within 24 hours on the receipt of such Information from OWNER.
- d The contract shall include supply of maintenance spares, tools & tackles as required, Travel, boarding & lodging of service engineer. The quote shall be made year wise upto 3 Years.
- e Contract shall include on site stock & shall give cost of each item after expiry of 3 Years AMC with escalation formula.
- f The service under Post Warranty Maintenance Contract including supply of spare parts and services shall broadly encompass:
 - g Preventive maintenance
 - h Periodic maintenance
 - i Emergency service
 - j Software support
- k Preventive maintenance: Once in a year, involving complete overhaul of the system, inspection of hardware and software, fault prediction, inspection of power supply quality, environmental and operating condition checks, calibration checks, major repairs/replacements and detailed reporting.
- l Periodic maintenance: Site visits, minimum four to six times in a year, inspection of general healthiness of the system, study and advice on daily maintenance, inspection of H/W & S/W. if any problem is reported, running of test programs, on-line servicing and solving reported problems.
- m Checks shall be conducted on running system i.e. (a) On-line sub-systems (b) Power supply checks (c) Others vendor to mention.
- n Software maintenance: Maintain existing software to improve and utilize existing application and improve performance of the system. Minor modification of the software shall also be covered under this scope.
- o Emergency service: Any failure shall be on system suppliers' account. The Engineer must report at site within 24 hrs of report of failure, with necessary spares. The system must be brought back within 24 hours after reporting at site.
- p NOTE-1. Vendor to note that while carrying out the Post Warranty Maintenance Contract activities OWNER'S engineers may associate with system engineers. On job training of these associated engineers shall be covered under this scope.
- q Note-2. All financial aspects of the Post Warranty Maintenance Contract must be listed clearly by the Vendor.
- r Vendor shall stock 1 no of each type of card / module and any other additional spares recommended, at owner site, and these shall not be part of the mandatory spares. Vendor can use these spares during the

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AMC. The spares used shall be replaced by vendor within 7 days with no cost to Owner. Vendor shall maintain a record of all faults during the PWCAMC.

- s Purchase order for PWCAMC shall be placed before expiry of extended warranty as per commercial terms and conditions).

6 **PRE-COMMISSIONING & COMMISSIONING ASSISTANCE:**

Pre-Commissioning & Commissioning assistance at site & BHEL works during turbine testing for the above equipment shall be provided by vendor (Lump sum). A total period of 5 working days for pre-commissioning, excluding travel time and 2 visits shall be considered. A total period of 12 working days for commissioning, excluding travel time and 3 visits shall be considered. The offer shall be inclusive of Travel, Boarding & Lodging and local conveyance during the visit. BHEL may decide to place order for additional number of days & visits (refer actual no of days / number of visits in Price Schedule / RFQ).

7 **TRAINING (If specified in RFQ):**

- a The training shall include configuration, operation and maintenance of the ITCCS and ODS package. The training shall be conducted at site. All requisite training material for the said training shall be provided by the vendor during the training.
- b Training of 5 engineers for 5 days excluding travel time at site and one visit inclusive of Travel, Boarding, Lodging and local conveyance shall be considered.

8 **LOGISTIC SUPPORT**

- a Vendor shall ensure and provide the following information/ details along with the offer.
- Local service facilities in India is available or not from the vendor?
 - If not available, where the vendors approved service facility presently located nearest to India.
 - Instruments / System shall be user serviceable.
 - User reference list
 - When was quoted model introduced in the market?

b Certificate for logistics support (by Principal)

(To be signed by Principal's corporate level signatory on company's letterhead and submitted along with the offer)

I, on behalf of M/s confirm that the quoted by M/s for <by BHEL, Later> Gas Compressor of <by BHEL, Later> Project shall continue to be supported by us. The quoted item shall not be withdrawn from Indian market in next five (5) years from the date of placement of order as a matter of our corporate policy.

I further confirm that in case of placement of order by M/s BHEL on M/s we shall continue to support M/s BHEL / END USER in providing back-up engineering, maintenance support and spare part to M/s BHEL / END USER for a period of 10 years from the date of expiry of warranty.

SIGNATURE WITH SEAL

AUTHORIZED, SENIOR MANAGEMENT LEVEL

c Certificate for Logistics Support (by Vendor)

(To be signed by Vendor's corporate level signatory on company's letterhead and submitted along with the offer)

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I, on behalf of M/s confirm that the quoted by M/s for <by BHEL, Later> Project shall continue to be supported by us and our principal(s). The quoted item shall not be withdrawn from Indian market in next five (5) years from the date of placement of order as a matter of our corporate policy as supported by attached certificate from our principal(s) M/s

I further confirm that in case of placement of order by M/s BHEL on us, we shall continue to support M/s BHEL / END USER in providing back-up engineering, maintenance support and spare part to M/s BHEL / END USER for a period of 10 years from the date of expiry of warranty.

SIGNATURE WITH SEAL

AUTHORIZED, SENIOR MANAGEMENT LEVEL SIGNATORY

9 CHECK LIST:

(TO BE FILLED BY BIDDER AND SUBMITTED ALONG WITH OFFER)

SL. NO.	DESCRIPTION	Vendor confirmation	Comments / Remarks
i.	Offer for complete package as per BHEL specification Vendors shall furnish the complete bill of material offered against the respective material codes.		
ii.	Clause wise confirmation / deviation to BHEL specification included in the offer.		
iii.	Certificate of logistic support included in the offer.		
iv.	Filled in Unpriced Price schedule as per clause no 10 is included in the technical offer.		
v.	Offer for extended warranty included.		
vi.	Offer for PWAMC included.		
vii.	UNIT prices for all items included.		

(Signature and stamp of bidder with date)

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10 PRICE SCHEDULE:

Enquiry ref no.

Date:

Offer ref no.

Date:

A: Material Supply:

Sl No	Matl Desc	Matl Code	PR Qty	Unit Price	Total Price
1	PROX SENSOR 5MM,STD MNT,110MM LEN,M8X1	TC9765185162			
2	PROX SENSOR,REV MNT,1.2" LEN,3/8-24UNF	TC9765342012			
3	PROXIMITY PROBE EXTENSION CABLE, 4MTS	TC9765342039			
4	PROXIMITY PROBE DRIVER FOR 5MTS SYSTEM	TC9765342047			
5	CASING ACCELERATION SENSOR, M8X1	TC9765342055			
6	ACCEL SENSOR CABLE 5MTS WITH CONNECTOR	TC9765342063			
7	CONNECTOR PROTECTOR SET	TC9765342071			
8	FLEXIBLE CONDUIT 3/4",30MTS	TC9765342101			
9	TRANSDUCER CALIBRATION KIT	TC9765342128			
10	RACK POWER SUPPLY, 110VAC, DUPLEX	TC9765342136			
11	RACK TRANS DATA INTERFAC MODULE,ETHNET	TC9765342144			
12	KEYPHASOR & TACHOMETER MODULE	TC9765342152			
13	PROXIMITY SENSOR MODULE	TC9765342160			
14	TEMPERATURE MODULE	TC9765342179			
15	PROGRAMMABLE RELAY MODULE	TC9765342187			
16	COMMUNICATION GATEWAY	TC9765342195			
17	RACK CONFIGURATION LAPTOP	TC9765342209			
18	RACK CONFIGURATION SOFTWARE	TC9765342217			
19	PROX SENSOR,STD MNT,1.6" LEN,3/8-24UNF	TC9765342292			
20	TSI RACK-1 as per TC65342-49-50	TC9765342497			
21	TSI RACK-2 as per TC65342-49-50	TC9765342500			
22	TSI RACK AS PER TC65342-65	TC9765342659			
23	PROX SENSOR,STD MNT,150MM LEN,M8X1	TC9765342985			

B: COMMISSIONING & TRAINING SERVICES:

Sl No	Service Description	Remarks	QTY	Unit Price	Total Price
1	TSI PRE COMMISSIONING: Pre-Commissioning Assistance for 5 working days at BHEL / site and two visits. Price shall be inclusive of Travel, boarding, lodging, and local conveyance	Lump sum			
2	TSI COMMISSIONING: Commissioning Assistance for 5 working days at site and two visits. Price shall be inclusive of Travel, boarding, lodging, and local conveyance	Lump sum			
3	TSI TRAINING: Training for 5 days at site and one visit. Price shall be inclusive of Travel, boarding, lodging, and local conveyance	Lump sum			
4	Per-diem Rates for pre-commissioning and Commissioning Assistance at site. Price shall be inclusive of Travel, boarding, lodging, and local conveyance	Optional price required	Per-diem		
5	Per-diem Rates for Training. Price shall be inclusive of Travel, boarding, lodging, and local conveyance	Optional price required	Per-diem		

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C: EXTENDED WARRANTY: **OPTIONAL**

Sl No	Service Description	Remarks	QTY	Unit Price	Total Price
1	TSI EXTENDED WARRANTY: Extended warranty for 2 years after expiry of standard warranty (defect liability period)	1 Lot			

D: Post Warranty Comprehensive Annual Maintenance Contract (TSI PWCAMC): **OPTIONAL**

Sl No	Service Description	Remarks	QTY	Unit Price	Total Price
1	First year after expiry of extended warranty	1 Lot			
2	Second year after expiry of extended warranty	1 Lot			
3	Third year after expiry of extended warranty	1 Lot			
	Total Price for 3-year PWCAMC	1 Lot			

i. Total Price in WORDS:

Notes:

- a Vendor shall indicate unit price of all items of Price Schedule irrespective of RFQ Qty.
- b Any additional requirements which are essential for proper functioning of the control system, however not indicated in this specification shall be explicitly listed and included in the offer by vendor.
- c Extended Warranty (item-C) & PWCAMC (item-D) is yet to be ordered by Customer. In case these are ordered by Customer, the same shall be required and considered for L1 evaluation. BHEL will inform this before commercial bid opening.

VENDOR SEAL & SIGNATURE

SPECIFICATION OF TURBO SUPERVISORY INSTRUMENTATION (TSI) SYSTEM

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1 SCOPE:

The scope of vendor shall cover Engineering, Design, Manufacture, Inspection, packaging, supply, commissioning supervision at site, Training and Documentation of TSI (Turbo supervisory instrumentation / **MMS**) Transducers, TSI Monitoring Rack and accessories. Vendor shall supply all the hardware, software and accessories required for reliable and efficient measurements of various parameters.

2 TECHNICAL REQUIREMENTS:

- a The Engineering, design, manufacture, and supply of Turbo supervisory systems for measurements of different parameters like shaft vibration, axial displacements, bearings housing vibration, Casing expansion, Eccentricity, Key-phasor & Tachometer and bearing metal temperature etc. for continuous monitoring shall be as per the technical details as given in this specification.
- b The turbo-supervisory system and components shall conform to API-670 (Latest edition).
- c Turbo supervisory system shall be provided for continuous monitoring and indication of machine parameters like shaft vibration, Housing vibration, axial displacement, Key-phasor & Tachometer, differential expansion, casing expansion and bearing temperature as per the requirement against respective items.
- d The bill of material furnished by the vendor is for information only, it is the responsibility of the vendor to check the completeness and correct model selection of the bill of material to meet BHEL specification requirements. Any changes or additions to the bill of material offered by the vendor to meet the BHEL specification requirements identified during detailed engineering shall be accommodated by the vendor without any commercial or delivery implications.
- e The selection of models and BOM along with mounting accessories suitable for the application for the entire package is the responsibility of the vendor. Any change in the offered models or requirement of additional items in view of the system requirements identified during detailed engineering shall be supplied by the vendor without any commercial or delivery implications.
- f Vendor shall confirm compliance to this technical specification. Deviation, if any, shall be brought out giving technical reason for the same.
- g If the vendor's standard system is different than the system envisaged, vendor shall clearly bring out the difference giving technical advantages for the offered system. Acceptance of the system offered is entirely at the discretion of BHEL
- h Vendor shall furnish detailed reference list for system similar to the offered system with detail like client's name / address, model no, year of commissioning, type and rating of machines (steam turbine, generator, compressor etc.).
- i Vendor shall furnish the latest EIL approved data sheets of TSI system supplied for any earlier project with the same models offered for this enquiry for reference.
- j Vendor to refer project specific TSI Loop Drawing for TSI system rack arrangement [as specified in project specific input data](#).
- k [The TSI rack, modules, sensors, drivers etc. shall be SIL certified.](#)

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3 TRANSDUCER (PROBE, SENSOR) AND ACCESSORIES:

The transducers (proximity sensors and driver) shall be mounted in the field on the machine in hazardous area classification IEC Zone-1, IIC, T3.

a Proximity Sensor for Vibration, displacement, Zero speed, Eccentricity and Keyphasor & Tachometer: Reverse Mount Type

The sensors shall be Non-contact type sensors with connecting leads and terminal connectors. The sensors shall be capable of operation in an atmosphere of oil fumes. The casing of the sensor shall be made of stainless steel and the measurement shall not be affected by the presence of oil in the air gap. The sensor integral cable and the extension cable shall be insulated to meet the high operating temperature requirement of the respective sensor. The length of the cable from Sensor up to nearest local junction box (JB not in the scope of vendor) shall be equal to 5 meters. The vibration transducer shall be with tip diameter 8mm, reverse mounting type and thread connection 3/8"-24 UNF with 1 meter integral cable and miniature male coaxial connector.

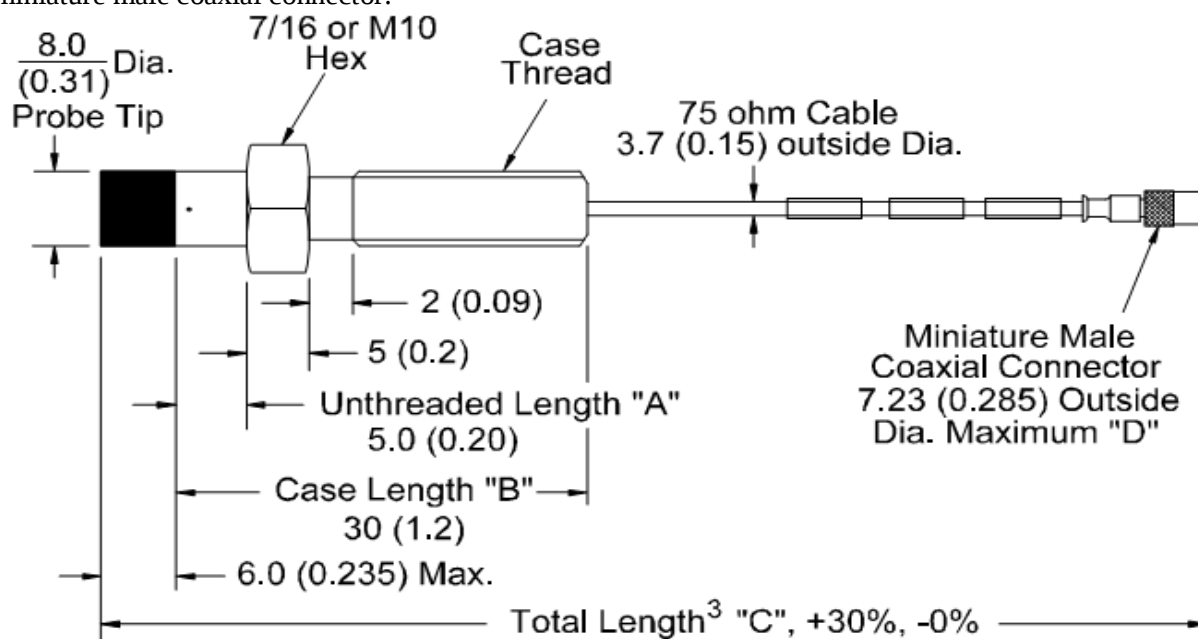


FIG: 3-a: 8 MM REVERSE MOUNT PROBE

Total length "C": 1.0 meter.

Unthreaded length "A": 0mm

Threaded Case length "B": 30mm

Sl No	Parameter	Requirement
i.	Connectors	Gold plated, corrosion resistant
ii.	Environmental Protection	Encapsulated/ Hermetically sealed
iii.	Frequency Range	10 Hz to 10 KHz
iv.	Temperature Range	0 – 177 DegC
v.	Hazardous area approval	Intrinsic safe Exia

b Proximity Sensor for displacement: Standard Mount Type

The transducer shall be same as 3-a above except the transducer shall be standard mounting type, thread connection M10x1. Refer variant table for dimensional details.

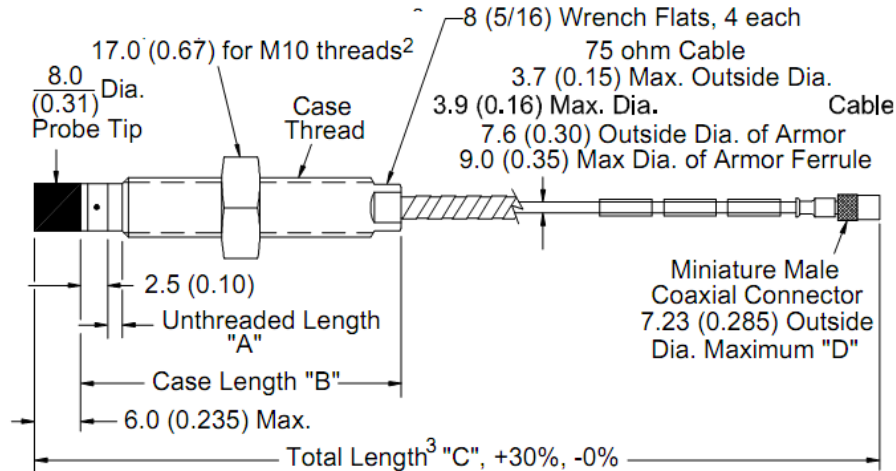


FIG: 3-b: 8 MM STANDARD MOUNT PROBE

Total length "C": 1.0 meter.

Unthreaded length: 0mm

Threaded Case length: 70mm

c Proximity Sensor Extension cable:

The extension cable shall be suitable for respective transducers and total length of 4 meter with suitable connector & protector for connection to the sensor cable on one side and to the driver on the other side. The electrical parameters shall match with the corresponding proximity sensor and proximator / driver.

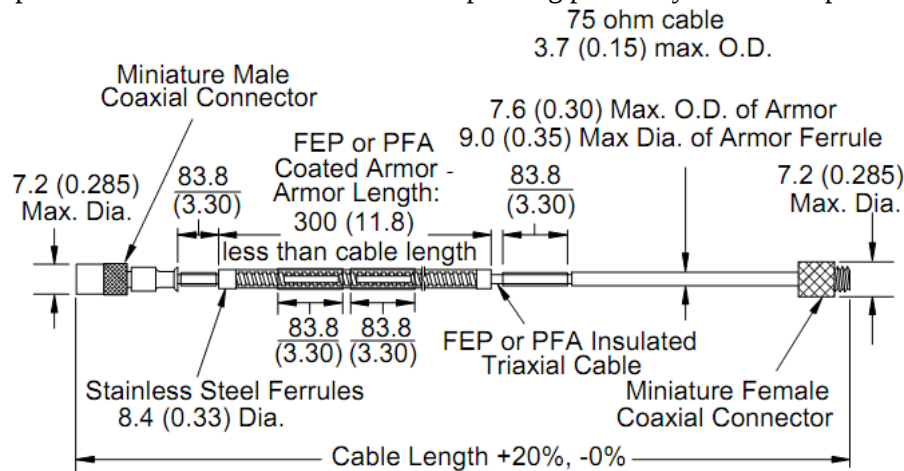


FIG: 3-c: Extension Cable

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d Proximity sensor driver / proximator:

It shall be suitable for total cable length of 5 meter (transducer integral cable of 1 meter plus 4 meter extension cable) and shall be compatible with respective transducers.

Sl No	Parameter	Requirement
i.	Sensor input	Accepts one non contacting 5 mm, 8 mm Proximity sensor and Extension Cable.
ii.	Power	-23 Vdc to -26 Vdc with barriers from TSI rack.
iii.	Supply Sensitivity	Less than 2 mV change in output voltage per volt change in input voltage.
iv.	Mounting	DIN rail or 4 hole (2"x2" apart)
v.	Connectors	Gold plated, corrosion resistant
vi.	Environmental Protection	Encapsulated/ Hermetically sealed
vii.	Hazardous area approval	Intrinsic safe Exia

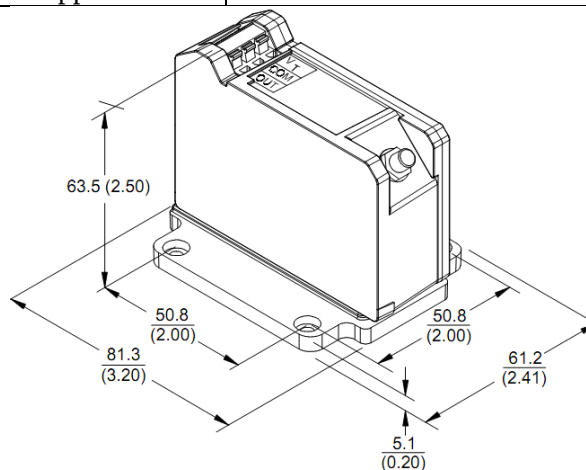


FIG: 3-d: Proximator driver

e Acceleration transducer (Bearing housing vibration):

The seismic probe complete with connecting leads, terminal connectors shall be provided, and the sensors shall meet the following specifications:

The length of the cable from the sensor up to the nearest local junction shall be 5 meters. The sensor integral cable and extension cable shall be insulated and armored meeting the operating temperature requirements.

Sl No	Parameter	Requirement
i.	Connectors	Gold plated, corrosion resistant, with 5 meter connecting cable with connectors
ii.	Environmental Protection	Encapsulated/ Hermetically sealed
iii.	Acceleration range	490 m/s ² (50g) peak overall acceleration within the 1 Hz to 20 kHz frequency span
iv.	Temperature Range	0 to 85 DegC
v.	Hazardous area approval	Intrinsic safe Exia
vi.	Amplitude linearity	±1% to 490 m/ s ² (50 g) peak
vii.	Sensitivity	10.2 mV/m/s ² (100 mV/g) ±5% at 100 Hz

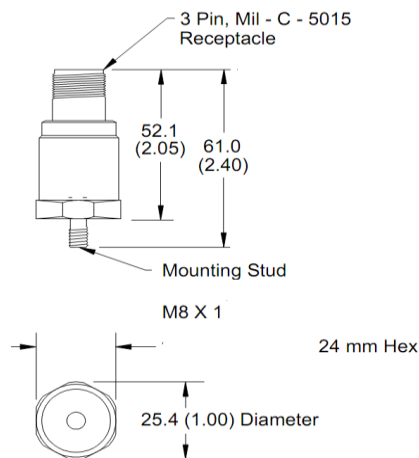


FIG: 3-e: Acceleration Probe

4 **SENSOR FITTINGS AND INSTALLATION ACCESSORIES:**

Vendor shall include all types of fittings, cable seals and accessories required for field installation and protection of sensors, extension cables, probe driver etc.

a **Connector protectors:**

It shall provide the environmental protection and electrical isolation of the connector at the junction where the proximity sensor joins with the extension cable. The connector kit shall include minimum 10 sets of connector protectors.

b **Connector protector kit:**

The kit shall preferably include minimum 10 sets of connector protector, silicon lubricant, tape, easy to use installation tools, instructions and a convenient carrying case.

c **Low pressure cable seal:**

The low pressure cable seal shall be used to exit the transducer cable through a single hole in a machine case. It shall be constructed out of SS & molded silicon rubber grommet to prevent leakage of fluids along the outer jacket of the cable. The seal is threaded on both ends & fits in to a trapped hole on the machine case. External pipe threads shall enable the seal to be mated to conduit or housings. It shall be designed to seal up to 50 psi. The high pressure side and low pressure side thread size shall be $\frac{3}{4}$ " NPTM. The cable seal shall be supplied with 01 hole full drilled and remaining 03 nos half drilled.

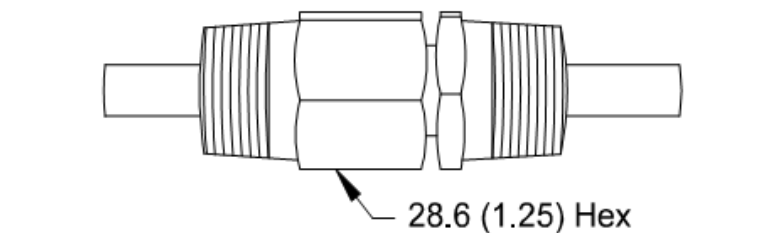


FIG: 4-c: Low Pressure Cable Seal

d **Flexible conduit:**

Flexible conduit ($\frac{3}{4}$ ", 30 meters) shall be provided to route the proximity sensor cables safely to the driver housing to protect transducer. It shall consist of galvanized steel core with an extruded thermoplastic cover. The conduit shall be 'Anaconda Sealtite' or equivalent.

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e **Flexible conduit connector:**

The vendor shall supply conduit connectors (3/4" NPT, SS MOC) for connecting the conduit to JB and Machine Housing. **The flexible conduit connector shall be T&B 5333SST or eqv.**

f **Calibration Kit & Calibration Board:**

The calibration kit & Calibration board shall be suitable for performing acceptance testing of all transducers to the performance specifications and to the API 670 standard. Special calibration / Test and configuration equipment with its accessories required, if any, should be indicated & included in the offer. **The calibration kit shall be Bentley Nevada TK3-2E or eqv., powered by 90 to 270 VAC.**

g **Portable Offline Measurement Kit:**

The portable offline measurement kit shall be dual-channel vibration data collector and analyzer. It shall be used for data collection and analysis and shall be suitable for use in hazardous area (IEC Zone-1, IIC). The portable kit shall be supplied with the following as a minimum. **The portable offline measurement kit shall be Bentley Nevada Scout 100 or eqv.**

- i Carry Case.
- ii DC Adaptor.
- iii AC Adaptor.
- iv Vibration sensor Connecting cable (02 nos).
- v Accelerometer (2 nos).
- vi Accelerometer magnetic base (2 nos).
- vii Data Transfer cable.
- viii Reference / Operation Manual.

5 **TSI MONITORS AND TSI MONITORING RACK:**

The electronic modules, to drive the various sensors shall be housed in adequate no of instrument racks / DIN rail mounted. The hardware design shall allow replacement of monitors without isolation / disconnection of the input / output cable connections. Each module shall be provided with LED status for module / channel OK / fault.

The TSI rack shall be completely assembled & pre-programmed to the specified parameters and shall be connected to purchaser supplied common machine diagnostic and health monitoring system (Analysis Package). Necessary hardware, software shall be provided for connectivity to overall machine monitoring and diagnostic system.

a **Monitor rack:**

The entire monitoring system including power supply module shall accommodated in a durable, easy to access, expandable mounting rack. The Rack bezel shall allow to individually identify machine / monitor point or loop number by using the factory engraved bezel number or clear plastics strips provided with the system to hold paper tags. The rack design shall be such that which eliminates the need for internal rack wiring and allows easy expansion to meet increased monitoring requirements. The rack size shall be selected as per project requirement. The rack shall be suitable for flush panel mounting and vendor shall also supply the necessary mounting accessories. Vendor to furnish the dimensional detail for different rack sizes along with the offer.

b **Rack power supply module:**

The power supply module shall be in redundant configuration and shall supply power (from customer supplied UPS supply of 110VAC) for operation for all the modules, field sensors etc. Each power supply module shall be capable for driving the total rack and proximity sensors.

c **Rack transient data interface module / RAW data provision:**

The rack interface module shall be used for interfacing the rack transient data to **common machine diagnostic and health monitoring system (Analysis Package)**. The module shall be provided with Ethernet interface. Alternatively, incase vendor does not have a dedicated transient data interface module, each

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sensor transient RAW data shall be available from the rack for connection to [purchasers common machine diagnostic and health monitoring system \(Analysis Package\)](#).

d Rack keyphasor & tachometer module:

The rack keyphasor module shall be used for interfacing the keyphasor data for proximity sensor module and shall be connected to TWO number of keyphasor sensors, mounted on different rotors. The tachometer function / module shall provide two isolated speed (4-20mA) signals. The tachometer function shall be able to detect rotor zero speed and actuate a corresponding relay in rack relay module. [Incuse vendor does not have a common keyphasor and tachometer module, two separate module shall be provide in the TSI rack, however the sensor signal shall be single only. Vendor shall provide all necessary hardware for connection of the sensors to two different modules. The tachometer module shall have provision of reverse rotation detection. In case it is not inbuilt function of tachometer module, an additional module shall be provided. BHEL shall provide \(upto\) TWO no of proximity sensors \(key phasor probes\) for connection to reverse rotation module.](#)

e Rack Proximity Sensor module:

The rack Proximity Sensor module shall be used for measurement of the Promity Sensor signal from field. The module shall be microprocessor based monitors (Maximum 4 channel per module) with digitally adjustable alert and danger set points for on-line measurement and monitoring of vibration, axial displacement, bearing housing vibration, Casing acceleration, Eccentricity etc. with the following technical requirements. Proximity Sensor module shall meet the following specifications as a minimum:

- i. Continuous two channel monitoring with each channel input from one probe. Readout scale shall read higher of the two sensors.
- ii. Each channel shall have two independent alarm levels one for pre trip alarm and one for each trip, setttable continuously over measurement range. Two relay potential free contacts for each pre trip alarm and trip alarm per channel shall be provided.
- iii. LED lamps on monitor front for each channel to indicate pre-trip alarm, trip alarm and circuit not OK conditions.
- iv. Selector switches on monitor front to read vibration/ displacement pre-trip alarm and trip set points for each channel shall be provided.
- v. One number each potential free contacts to be provided for hooking up to DCS for following:
 - System failure (Rack wise or system wise as per manufacturer's standard practice).
 - Power supply OK/Failure.
- vi. Broken sensor failure detection without causing shut down.
- vii. Continuous 4 to 20mA DC isolated output for each channel of measurement shall be provided. The output signal of each channel shall be independent and fault in one channel shall not reflect on other output channels. Each module shall have in built indication to show at least
 - Alarm indication
 - Module healthy / Fault indication
 - Facility to set the measuring range.
- viii. All alarms and related data shall be interfaced to PLC / DCS using serial interface.
- ix. [RAW data provision for all the input sensors.](#)

f Vibration measurement (Relative shaft vibration):

The monitor shall provide radial vibration measurement for rotating machine with two probes at 90 degree apart for each location shall be provided and connected to same monitor. It shall continuously measure and monitor two independent channels of radial vibration accepting inputs from two proximity sensors. The various full scale ranges for the monitor shall be user programmable. Preferably without use of jumper

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pots or dip switch display of gap measurement in voltages or in engineering units shall be possible. The minimum specifications are as follows for various monitor options in addition to clause 5-d above:

- i. Frequency response is user-programmable for 4 to 4000HZ (240 to 240,000 cpm) or 1 to 600 hz (60 to 36,000 cpm);-3dB.
- ii. An output for recorder etc. shall be 4-20 mA, Galvanically isolated. Individual recorder outputs shall be provided for each channel. Monitor output shall remain unaffected for short circuits on recorder outputs.
- iii. One coaxial connector per channel on the front panel and one terminal connection per channel on the rear panel shall be provided for buffered transducer outputs.
- iv. Transducer supply voltages shall be user programmable.
- v. Vibration alert and danger setpoints shall be available for both the channels. The setpoints shall be digitally adjustable from 0 to 100% of fullscale.
- vi. Alarm time delay option shall be programmable for 0 sec to 6 seconds
- vii. Selectable alert reset option (latching / nonlatching).
- viii. Danger relay voting option(OR voting for relay drive/AND voting for relay drive)
- ix. The display meter shall be non-multiplexing vertical bar graph type. Probe gap also shall be indicated.
- x. The following minimum indication shall be provided.
 - **OK:** This will indicate system status.
 - **Alarm:** status indication for alert & danger shall be provided.
- xi. **RAW data provision for all the input sensors.**

g Axial displacement measurement

The Axial displacement / thrust position monitor shall provide early warning of thrust bearing failure. It shall continuously measure and monitor one or two independent channels of axial shaft position relative to the axial clearances within the machine accepting inputs from two-eddy current probes. The various full-scale ranges for the monitor shall be user programmable. The minimum applicable technical specification shall be same indicated in clause 5-d & e above.

h Bearing temperature module:

Temperature Sensors shall be 3-wire / 4-wire RTD PT-100 / **TC-k / TC-j** as per **IEC60752** standard, the monitors shall have broken sensor failure detection without causing shutdown.

- i. In general, bearing temperature shall be measured at the points which are under maximum loading.
- ii. Bearing temperature shall be monitored by means of a (six channel maximum) temperature monitor.
- iii. Continuous six channel maximum monitoring with each channel input from one RTD. Read out scale shall read higher of the six temperatures.
- iv. Each channel shall have two independent alarm levels one for pre-trip alarm and one for trip alarm, settable continuously over measurement range.
- v. Broken sensor failure detection without causing shut down.
- vi. Selector switches on monitor front, to read temperature, pre-trip alarm and trip set points for each channel shall be provided.
- vii. All alarms and related data shall be interfaced to DCS using serial interface.

i Programmable Relay module:

The Relay Module shall provide (min) 16 relay outputs. Each output of the Relay Module shall be independently programmed to perform needed voting logic. Each relay utilized on the Relay Module shall include "Alarm Drive Logic". Programming for the Alarm Drive Logic uses AND and OR logic, and shall use alarming inputs (Alert and Danger statuses), Not OK, or individual PPLs from any monitor channel or any combination of monitor channels in the rack. Users shall program this Alarm Drive using the Rack

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Configuration Software to meet the specific needs of the application. The module shall be provided with status LED for each relay as well as module status. The relay shall be single pole dual throw type.

j **Communication gateway:**

Communication gateway module with redundant RS 485 MODBUS RTU / **TCP** protocol shall be provided with necessary hardware including the cable for redundant serial data communication from TSI rack to DCS. The module shall have facility for daisy chaining another rack. Vendor shall furnish all details like pin configuration details and tag number wise MODBUS address mapping list etc. for interfacing with DCS.

The data via this interface shall include the following on a per channel basis:

- i. Proportional value for each monitored variable as current values and a Fast Trend file
- ii. Proportional value for probe gap voltage (for proximity probe channel)
- iii. Ok status
- iv. Alert and Danger alarm status
- v. Bypass status

The above requirement, if provided in different fashion, shall be elaborated in detail by the vendor

k **Rack Configuration laptop:**

One laptop with required configuration software and hardware for configuration of TSI system including the communication cable between the configuration laptop and TSI rack shall be supplied. Vendor shall provide the hardware latest configuration with operating system compatible with the rack configuration software. Vendor shall supply a copy of back up disk of the laptop OS with all the software installed along with antivirus.

l **Rack Configuration software:**

The rack configuration software shall be used for programming and configuration of TSI rack. The software shall not be license limited for a specific rack (project specific) or number of racks to be programmed / configured. The rack configuration software and final rack configuration shall be supplied as separate software copies.

m **TSI rack System display:**

The System Display shall be suitable for panel mount and shall be designed to meet the requirements of American Petroleum Institute (API) Standard 670. It shall provide local or remote visual indication of all TSI Machinery Protection System information residing in the rack including:

- i. System Event List.
- ii. Alarm Event List.
- iii. All Channel, Monitor, Relay Module, Keyphasor Module or Tachometer Module data.

The display shall be backlit type and shall include Display interface module & power supply if required along with the cable and connectors for connection between the rack and the display.

6 **INSPECTION AND TEST REQUIREMENTS:**

- a Calibration test certificate shall be furnished.
- b Certificate for Explosion proof/ intrinsic safe execution shall be furnished.
- c Materials compliance certificate shall be furnished.
- d Statutory certificates shall be furnished as follows:
 - i. For all intrinsically safe / explosion proof / flameproof equipments / instruments / systems or equipments with any other type of protection allowable as per this package which are manufactured abroad and certified by any statutory authority like BASEEFA, FM, UL, PTB, LCIE etc. should also have the approval of Petroleum And Explosives Safety Organisation (PESO)/ Chief Controller of Explosives (CCE), Nagpur.
 - ii. For all flame proof equipments manufactured locally (indigenously), the testing shall be carried out by any of the approved test house like CMRI/ERTL etc. The equipment shall in addition bear

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- the valid approval from Petroleum and Explosives Safety Organisation (PESO) / Chief Controller of Explosives, Nagpur and a valid BIS license.
- iii. For all intrinsically safe equipment manufactured locally (indigenously), the testing shall be carried out by any of the approved test house like CMRI/ERTL etc. The equipment shall in addition bear the valid approval from Petroleum and Explosives Safety Organisation (PESO)/ Chief Controller of Explosives, Nagpur

7 DOCUMENTATION:

Documentation shall be in three steps, during offer submission as response to BHEL Enquiry stage, drawing approval stage, and during delivery of items stage (as-built). Incomplete data, without title blocks, name of the item, document number, revision number, page number etc. will not be acceptable. Bidder shall be responsible for creating, making and arranging complete documentation as per BHEL requirements at all stages.

- a During Technical offer submission: Two copies of following
 - i. Filled up check list as per clause 17.
 - ii. Catalogues of TSI system and other hardware.
 - iii. Communication interface diagram.
 - iv. GA & Bill of material.
 - v. Deviation list as per “deviation format clause 12 if any.
 - vi. Compliance certificate (duly signed & stamped copy of complete specification).
 - vii. Un-priced price schedule.
 - viii. Reference list (mandatory) as per clause 14 for all the items.
 - ix. Filled in Certificate of logistics support as per clause 15.
 - x. Cable specification for TSI Sensors.
- b Vendor shall visit BHEL office within one week of PO / LOI to collect the project specific information (Tag no's, services, range, etc.) for engineering their drawings/documents.
- c During drawing approval after PO placement: Two copies of the following within 2 week of order placement
 - i. General arrangement
 - ii. Bill of material
 - iii. MODBUS address list for serial communication
 - iv. Wiring diagram.
 - v. Quality plans of individual items.
 - vi. Detailed GA drawing for each item as per PO.
 - vii. Type Test certificates.
- d It is the responsibility of the vendor to review the documents for total compliance with all the BHEL specifications furnished with the inquiry before submitting to BHEL.
- e The data sheets will be forwarded by BHEL to Customer/Consultant for approval, comments if any from Customer/Consultant shall be clarified and revise the data sheets if required by the vendor in line with BHEL specifications furnished with the inquiry.
- f Vendor has to attend technical meeting with Customer/Consultant along with BHEL if required for technical discussions and obtaining approval of documents for the package items.
- g Along with material, final documentation in 6 Copies shall be sent to project site and two numbers of soft copies in USB with the following listed documents. However, one advance copy shall be handed over to BHEL- Engineering for approval before dispatching multiple sets to the project site.

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- i. Packing list.
- ii. All the documents submitted during drawing approval.
- iii. Inspection reports & Test certificates.
- iv. Copy of BHEL Approved documents.
- v. Warrantee certificates.
- vi. Operation & Maintenance manual.
- vii. Erection & commissioning procedure.
- h It is Vendors responsibility for obtaining approvals on drawings/documents from BHEL/Customer within time frame and dispatch material in time to project site office as per purchase order delivery schedule. Further vendor requests for any clarifications or approvals for delivery extensions etc. are not entertained at any stage.
- i Within 15 days after commissioning:
 - i. Final reports giving details of commissioning data, its analysis and recommendations, if any.
 - ii. Vendor shall supply the portion of system engineering document, which requires updating as per commissioning data, and 06 copies of it shall be furnished.

8 **GUARANTEE:**

Vendor shall be responsible for all the items supplied in this package. i.e. vendor shall provide a guarantee certificate for trouble free performance of all the items for 18 months from date of supply. Vendor shall have tie-ups with sub-vendors for providing guarantee & only OEM authorized agency shall handle the warranty period services. If any defect in the material is reported from site the same shall be replaced by vendor at site immediately without any commercial or delivery implications.

9 **PACKING, MARKING & SHIPPING:**

a **PACKING:**

- i. All the items shall be packed in very good quality packing; the packing shall be such that the items should not be damaged during loading, unloading and transportation, the packing shall be suitable for 6 months of outdoor storage from the date of shipment.
- ii. The operation and maintenance manuals of all the items 2 copies shall be included in the packing.
- iii. One copy of the packing list shall be fixed on the packing with suitable protection to with stand loading, unloading, transportation and rain.
- iv. Adequate amount of silica gel or equivalent shall be provided in each box before dispatch for the removal of moisture till installation.
- v. All safety instructions for storage and handling shall be indicated on external surface of each box.

b **PACKING LIST:**

- i. Detailed packing list with description, quantity, tag nos, make and model no. etc. including the list of O&M manuals shall be prepared by vendor and submitted to BHEL before dispatch.
- ii. All the items shall be shipped in a single shipment.
- iii. It is the responsibility of the vendor to check that all the items are dispatched along all the accessories i.e. Cable glands, Mounting brackets, adapters etc. queries if any received from site regarding the ASC system package items shall be clarified by vendor immediately, malfunction or defects of any items reported from site within the guarantee period shall be replaced at site immediately without any commercial or delivery implications.

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- iv. Bidder to consider and include charges for one visit to site as part of the main package as and when informed by BHEL to resolve issues if any reported from site regarding material discrepancy of the ASC system package items.
- v. Each device shall be identified with the following information as a minimum. The information shall be in a permanent form on a stainless steel nameplate and permanently attached to the device/equipment.
 - OEM name or identity
 - Manufacturer's model and /or serial number
 - instrument range
 - Tag no.

10 ERECTION AND COMMISSIONING:

- a The erection of the TSI system shall be by BHEL / Customer. However expert E&C services are required to commission the offered items and Bidder to consider the supervision of E&C services in the offer.
- b Commissioning Assistance ~~for 3 days at site and one visit~~ inclusive of Travel, boarding, lodging, and local conveyance shall be considered.

11 TRAINING:

- a The training shall include configuration, operation and maintenance of the TSI system. The training shall be conducted at site. All requisite training material for the said training shall be provided by the vendor during the training.
- b Optional offer for Training ~~of 5 engineers for 2 days at site and one visit~~ inclusive of Travel, boarding, lodging, and local conveyance shall be indicated in Price Schedule.

12 DEVIATION FORMAT:

Bidder shall submit duly filled deviation format (as given below) along with technical offer, otherwise, it will be presumed that there are no deviations from this specification. Offer without this deviation list will not be evaluated & shall be considered for rejection. If, there are no deviations, bidder shall submit signed copy of this format, mentioning "No Deviations".

Sl.No	Clause No. of Spec	Deviation	Reason for deviation	Deviation category	
				Product / design limitation	Optimization
1					

13 PROVEN TRACK RECORD:

The system being offered as per specification shall have well proven performance record of operating satisfactorily in TWO similar units in a hydrocarbon processing industry for a minimum of 8000 running Hours. The above criteria shall be applicable to main equipment, sub- components as well as brought out items if any. Prototype equipment / instruments or instrument under phase out cycle shall not be offered or supplied. Bidder shall submit necessary supporting documents / past users confirmation supporting to above PTR requirements along with technical offer. Bidder to furnish the PTR details as per clause 14.

14 PROVEN TRACK RECORD FORMAT

- a Name of the Bidder
- b Whether manufacturer & supplier:
- c Whether System Integrator & Supplier:
- d Name of Packager:

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Sl.No	PTR Requirement	Ref-1	Ref-2	Ref-3	Ref-4
1	Description of the items offered: Please add list of MMS items as follows: (Make / Model) 1) Sensor 2) Sensor Cable & Driver 3) MMS Rack with Dual Redundant Power Supply 4) MMS Rack-Proximity card 5) MMS Rack-Temperature card 6) MMS Rack-Key Phasor card, Zero Speed and Speed Measurement / Reverse Rotation. 7) MMS Rack-Communication card 8) MMS Rack Module-Relay Card.				
2	Description of item as manufactured & Supplied/ engineered (identify bidder's scope of work)				
3	Purchaser's name, address, Tel no, Fax no, email and contact person				
4	Date of order placed				
5	Contractual completion date				
6	Actual completion date/ month & year of commissioning				
7	Reasons of delay if any				
8	Details of major break down till date.				

~~15 **CERTIFICATE FOR LOGISTICS SUPPORT:** (To be signed by Manufacturer's corporate level signatory on company's letterhead and submitted along with offer)~~

~~I, on behalf of M/s _____ confirm that the (Name of the Instrument/Equipment) Model No _____ for (name of application: TSI System & TSI Field Instruments) quoted by M/s _____ for M/s (BHEL Customer) against M/s BHEL inquiry no _____ shall continue to be supported by us. The quoted Items shall not be withdrawn from Indian market in next three (3) years from the date of placement of order as a matter of our corporate policy.~~

~~I further confirm that in case of placement of order by M/s BHEL on us, we shall continue to support M/s in providing back up engineering, maintenance support and spare part support to M/s (BHEL Customer) for a period of ten (10) years from the date of expiry of warranty.~~

~~SIGNATURE WITH SEAL~~

~~AUTHORISED, SENIOR MANAGEMENT LEVEL SIGNATORY~~

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16 TENDER EVALUATION CRITERIA

- a The total price for the complete package i.e. Main System, Spares, Supervision of erection & commissioning charges shall be considered for L1 evaluation.
- b Duly signed & stamped un-priced price schedule and unit prices shall be submitted along with technical offer by bidder as a token of concurrence that all items are quoted without which the offer will not be evaluated. For un-priced bid bidder to fill 'Quoted' for each item and submit (refer clause 19 for PRICE SCHEDULE).

17 CHECK LIST:

(TO BE FILLED BY BIDDER AND SUBMITTED ALONG WITH OFFER)

SL. NO.	DESCRIPTION	Vendor confirmation	Comments / Remarks
1	Offer for complete package as per BHEL specification Vendors shall furnish the complete bill of material offered against the respective material codes.		
2	Offer for Spares as per BHEL specification. Vendor shall furnish the bill of material of mandatory spares offered.		
3	Clause wise confirmation / deviation to BHEL specification (as per the deviation format clause 15) included in the offer.		
4	Reference list for TSI System satisfying the Proven track record requirement as per clause no 14 of BHEL specification included in the offer.		
5	Certificate of logistic support as per clause no 15 of BHEL specification included in the offer for TSI System.		
6	Cable specification / datasheet for TSI Sensors (for cable distance indicated in project specific requirement).		
7	Filled in Un-priced Price schedule is included in the technical offer.		

(Signature and stamp of bidder with date)

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18 VARIANT TABLE:

a Variant Table-1:

Var No	Material Description	Ref. Drawing	Material Code
1	Proximity sensor (Vibration / axial measurement, keyphasor, speed), reverse mount, 8mm tip, 1.2" length, 3/8-24 UNF thread	3-a	TC9765342012
2	Proximity sensor (Vibration / axial measurement), Standard mount, 8mm tip, 70mm length, M10x1 thread, , Unarmoured	3-b	TC9765342020
3	Proximity Probe Extension Cable, 4mts, Unarmoured	3-c	TC9765342039
4	Proximity Probe Driver for 5mts system	3-d	TC9765342047
5	Acceleration Sensor, M8x1, with 5mts Cable & Connector	3-e	TC9765342055
6	Acceleration Sensor Cable 5mts with Connector, Armoured	3-e	TC9765342063
7	Connector protectors (10nos per set)		TC9765342071
8	Connector protector Kit (assembly kit with 1 connector protector set)		TC9765342080
9	Low Pressure Cable Seal 3/4"NPTM	4-c	TC9765342098
10	Flexible Conduit 3/4", 30 mts		TC9765342101
11	Flexible Conduit Connector 3/4"		TC9765342110
12	Transducer Calibration Kit		TC9765342128
13	Rack Power Supply, 110VAC, Duplex		TC9765342136
14	Rack Transient Data Interface Module, Ethernet TCP/IP		TC9765342144
15	Keyphasor & Tachometer Module (with reverse rotation function)		TC9765342152
16	Proximity Sensor module		TC9765342160
17	Temperature module		TC9765342179
18	Programmable Relay module		TC9765342187
19	Communication gateway		TC9765342195
20	Rack Configuration laptop		TC9765342209
21	Rack Configuration software		TC9765342217
22	Rack System display		TC9765342225
23	Ethernet to SM Fiber optic Convertor with patch cords & LIU		TC9765342233
24	RS485 Serial to SM Fiber optic Convertor with patch cords & LIU		TC9765342241
25	RS485 Serial Cable, armoured with Connectors		TC9765342250
26	Rack Power Supply, 220VAC, Duplex		TC9765342268
27	Proximity sensor (Keyphasor & tachometer), reverse mount, 8mm tip, 1.2" length, 3/8-24 UNF thread	3-a	TC9765342276
28	Portable Offline Measurement Kit		TC9765342284
29	Proximity sensor (Vibration / axial measurement), Standard mount, 8mm tip, 40mm / 1.6" length, 3/8-24 UNF thread	3-b	TC9765342292
30	Fibre optic cable, 6 fibre, armoured, Orange colour		TC9765342306
31	Fibre optic cable HDPE conduit as per IS-4984 or eqv. IEC standard. Colour shall be orange with black fittings (1" or 3/4 ")		TC9765342314

b Variant Table-2:

Var No	Material Description	Ref. Drawing	Material Code
51 to 99	TSI Rack & Spares as per TC65342-<Variant No.>	Project specific	TC9765342xxx

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Rev. No.	Date	Revision Details	Revised By	Approved By
00	03.11.15	ISSUE	-----	PSVS
01	30.01.16	Variant 26, 53 & 54 added for 220VAC	RAM	PSVS
02	16.09.16	Revised and new variants added.	RAM	PSVS
03	09.08.17	Updated for IOCL Haldia BS-VI	RAM	PSVS
04	07.05.18	Updated for APL	PG	RAM

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1 SCOPE:

This specification is extension of TC65342. Refer TC65342 latest revision for all technical information.

2 VARIANT TABLE:

a Variant Table-1:

Var No	Material Description	Ref. Drawing	Material Code
1	RACK POW SUPPLY-VAC,DUPLX.G3(SHIN)		TC9765185014
2	RACK DATA INTERFAC MOD,ETHNET.G3(SHIN)		TC9765185022
3	KEYPHASOR & TACHOMETER MODULE.G3(SHIN)		TC9765185030
4	PROXIMITY SENSOR MODULE.G3(SHIN)		TC9765185049
5	TEMPERATURE MODULE.G3(SHIN)		TC9765185057
6	PROGRAMMABLE RELAY MODULE.G3(SHIN)		TC9765185065
7	COMMUNICATION GATEWAY.G3(SHIN)		TC9765185073
8	TRANSDUCR CALIB KIT(SHIN)		TC9765185081
9	RACK POWER SUPPLY-VAC DUPLX(SHIN)		TC9765185090
10	RACK DATA INTERFAC MOD,ETHNET(SHIN)		TC9765185103
11	KEYPHASOR & TACHOMETER MODULE(SHIN)		TC9765185111
12	PROXIMITY SENSOR MODULE(SHIN)		TC9765185120
13	TEMPERATURE MODULE(SHIN)		TC9765185138
14	PROGRAMMABLE RELAY MODULE(SHIN)		TC9765185146
15	COMMUNICATION GATEWAY(SHIN)		TC9765185154
16	PROX SENSOR 5MM,STD MNT,110MM LEN,M8X1	TC65342, 3.b	TC9765185162
17	PROX SENSOR 5MM,STD MNT,80MM LEN,M8X1	TC65342, 3.b	TC9765185170
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