



MAINTENANCE AND SERVICES

Electrical Maintenance

Bharat Heavy Electricals Limited, RANIPET -632 406

Supply, Installation and Commissioning of the following in WD 160 M/c.

SNo.	1. SCOPE OF WORK
1.1	Supply, installation and commissioning of DRO and Linear scale and accessories to the WD 160 machine.

SNo.	2. REQUIRED DRO FOR WD 160 machine	Description	Acceptance	Deviations/ Details
2.1	Number of DRO required	One	Yes/No	
2.2	No. of connectable axes	Three axes (X, Y, Z)	Yes/No	
2.3	No. of display axes	Three axes (X, Y and Z)	Yes/No	
2.4	Display	7 digits, LED display, mode indication (leading zero suppress, floating minus sign)	Yes/No	
2.5	Display resolution	0.001mm	Yes/No	
2.6	Max. response speed	60 m/min	Yes/No	
2.7	Accuracy	0.001mm	Yes/No	
2.8	Resolution	0.001mm	Yes/No	
2.9	Mounting Brackets, DRO stand & other Hardware.	Suppliers scope	Yes/No	
2.10	Power supply	230 V AC $\pm$ 10 % 50/60 Hz.	Yes/No	
2.11	Linear error compensation	Features should present.	Yes/No	
2.12	Incremental, radius/diameter in mm/inch	Option shall be there.	Yes/No	
2.13	Zero point detection	-	Yes/No	
2.14	Alarm display	Hard ware and software error diagnoses should present.	Yes/No	
2.15	Data storage	Data shall be stored in non-volatile memory after power off.	Yes/No	
2.16	Display Dimensions	LCD display 1 inch or more.	Yes/No	
2.17	Key Board Dimensions	Operator key board should present.	Yes/No	
2.18	The above items shall be of HeidenHain/Fagor/Electronic a make only	-	Yes/No	



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SNo	3. REQUIRED MEASURING SYSTEMS	Qty	Acceptance by vendor	Deviations/ Details
3.1	Linear Scale for X axis - 3100 mm (optical)	1No	Yes/No	
3.2	Linear Scale for Y axis - 3000 mm (optical)	1 No	Yes/No	
3.3	Linear scale for Z Axis – 1600 mm (optical)	1 No	Yes/No	
3.4	The Scales are to be retrofitted by removing the existing track encoders.		Yes/No	
3.5	The Scales should be fully covered to protect from chips and other mechanical damages		Yes/No	
3.6	The above items shall be of HeidenHain/Fagor /Electronica make only		Yes/No	
3.7	The Scales shall be Optical only		Yes/No	
3.8	Accuracy of Scales in X axis are $\pm 0.010\text{mm}/1000\text{mm}$		Yes/No	
3.9	Accuracy of Scales in Z axes are $\pm 0.010\text{mm}/1000\text{mm}$		Yes/No	
3.10	Repeatability in X axis scales are $\pm 0.005\text{mm}$		Yes/No	
3.11	Repeatability in Z axes scales are $\pm 0.005\text{mm}$		Yes/No	
3.12	Resolution of Scales shall be 0.005mm		Yes/No	
3.13	Scales required for Rapid Speed of the axes at $5000\text{mm}/\text{min}$.		Yes/No	
3.14	Maximum scale speed shall be $50\text{m}/\text{min}$		Yes/No	

SNo	4. GENERAL CONDITIONS	Acceptance by vendor	Deviations/ Details
4.1	Existing accuracy of the machine should be maintained after retrofit.	Yes/No	
4.2	Minor help like drilling/welding/material handling can be extended by BHEL on request.	Yes/No	
4.3	BHEL Provides a Power supply of 3 Phase 3 Wire $230\text{V} \pm 10\%$, $50\text{HZ} \pm 3\text{Hz}$ without neutral.	Yes/No	
4.4	The guarantee period will be 12 months after successful commissioning.	Yes/No	
4.5	The shutdown period will be one week for installation & commissioning.	Yes/No	



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4.6	It is the responsibility of the vendor to collect details of the machine from BHEL, Ranipet. Vendor may visit BHEL, Ranipet for the same, if necessary.	Yes/No	
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SNo	5. DOCUMENTS REQUIRED	Qty	Acceptance by vendor	Deviations/ Details
5.1	Manuals and Drawings in all respect to meet all the maintenance activities and to recover the machine in case of failures. The Manuals and Drawings should be given in the form of CD also.	3 Set	Yes/No	