

EXPRESSION OF INTEREST

AUTOMATIC RESIDUAL STRESS MEASUREMENT USING NON-DESTRUCTIVE TESTING METHOD (PREFERABLY BARKHAUSEN NOISE / 3MA TECHNIQUE (MICRO MAGNETIC, MULTIPARAMETRIC, MICROSTRUCTURE AND STRESS ANALYSIS)) ON LP TURBINE BLADES

BROAD SCOPE OF THE REQUIREMENT

1. Residual Stress Measurement using Non-Destructive Testing method (preferably Barkhausen Noise / 3MA technique (micro magnetic, multiparametric, microstructure and stress analysis)) on LP Turbine Blades on flame hardened zone in the profile.
2. LP Turbine Blades involved are for 200, 250, 500, 600, 660 & 800 MW Turbines.
Blade dimension as an example
 - A) Minimum blade length- 734mm; Flame hardened zone- 240mm x 25mm; Root- Fir-tree; Weight- 10 Kg.
 - B) Maximum blade length- 1249mm; Flame hardened zone- 465mm x 28mm; Root- Fir-tree; Weight- 53 Kg.

The blade length, flame hardening zone and weight will vary in between above mentioned blades.



3. Each Turbine has around 100 LP blades.
4. Material of blades is X20Cr13, X10CrNiMoV12-2-2 and X5CrNiCuNb16-4.

Prabhat Kc
ANUP KUMAR
Deputy (Q-T)

Prabhat Kc
Prabhat
Manager (Q-T)

Prabhat Kc
(PRABHAT KUMAR)
Sr. Egs, QC-T

REQUIREMENT FOR RESIDUAL STRESS IS: No tensile residual stress in the hardened area as a result of flame hardening. Hardness values in the hardened area are > 320 HV5.

Measurement of residual stress: Residual stresses are to be checked on the pressure side and suction side along the length at a step of 15 mm of the hardened zone at distance of 5, 10, 15, 20 mm from the inlet edge (Annexure-1 attached).

Note: All prospective suppliers

1. May comment on the scope of work projected above.
2. Also, specify time needed for checking one blade considering approximately 100 points in flame hardened area.
3. Submit complete information about RSM machine.
4. Submit offer in English language only.

ELIGIBILITY AND PRE-QUALIFICATION CRITERIA

Only those vendors (Original Equipment Manufacturers), who have supplied and commissioned at least one Residual Stress Measuring System of same or higher configurations for turbine blades or similar type of component in the past ten years (from the date of opening of tender) and such machine is presently working satisfactorily for more than one year after commissioning (from the date of opening of tender) should quote. The following information should be submitted by the vendor about the companies where similar machines have been supplied:

1. Names of the customers / companies along with their addresses, where similar types of machines are installed.
2. Component / type of item on which residual stress measurement carried out.
3. Month & Year of commissioning.
4. Names and designations of the contact persons of the customers along with their phone numbers & e-mail addresses.
5. Broad specification of the Residual Stress Measuring System(s) mentioning minimum and maximum job size & its weight.
6. For proof of experience, submit at least one PO copy (may conceal the price of PO) which has been successfully supplied & working satisfactorily for more than one year.
7. If possible, performance certificates from the customers regarding satisfactory performance of machine supplied to them.

Note: Offer of only those vendors will be considered who will qualify above qualifying conditions of Expression of Interest. Other offers shall not be considered.

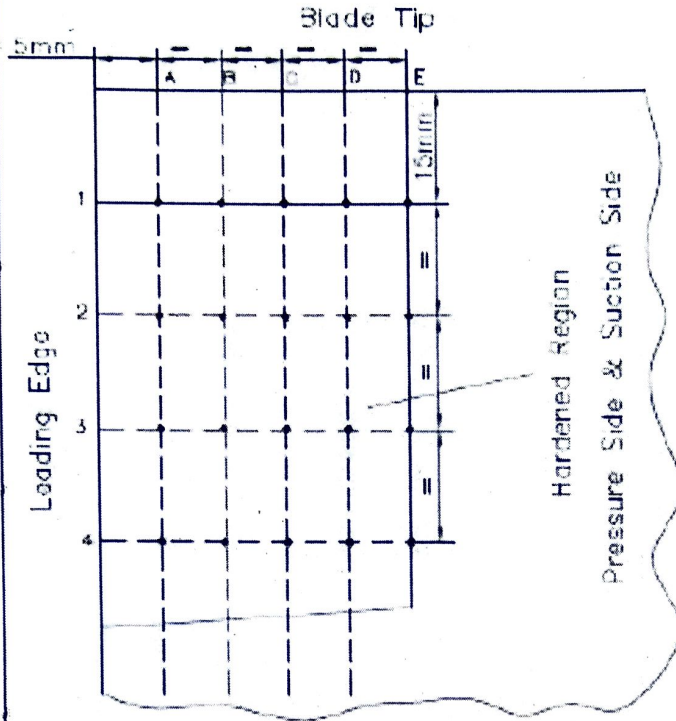
Ansul
ANAND KUMAR
DGM (QC-T)

Pranvil
Pranvil
Manager (QC-T)

Prashant K.
(PRASHANT KUMAR)
Sr. Eng. QC-T

Measurement of Residual Stresses

ANNEXURE-1



Hardened Region

Point	Residual Stress				
	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					

NOTE:

The measurement is done on different lanes on the pressure and suction side (for example at 5, 10, 15 and 20 mm from the leading edge) on the entire length of the hardened region, with a 15 mm step.

Prashant Kumar
Sr. Eng. (QC-T)

Prashant Kumar
Manager (QC-T)

Prashant Kumar
(PRASHANT KUMAR)
Sr. Eng. QC-T