

Operating Speed Balancing on model HR5K (VAC)

Those days are gone when it was not possible to meet specifications like API-612 on high speed balancing machines and you needed API deviations. On the HR-Series Machines you can meet all existing balancing and vibrations standards for turbines, compressors and armatures.

The following capacities and features are worth noting.

- A) Sensitivity at 900 rpm = 25g.mm
- B) Pedestal stiffness without considering stiffness of bearing or the inevitable compliance of foundation = 1050 kg./micron
- C) It is possible to provide bearing of different stiffness and types to stimulate site conditions; for example by the use of tilted pad bearings.



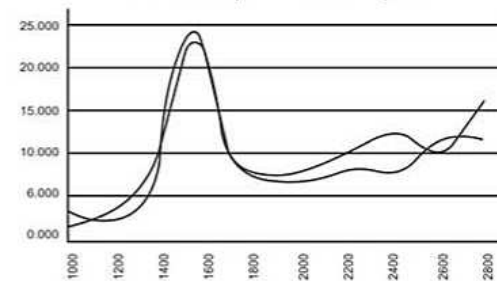
ABRO Model HR25K

Balancing with ABRO Electronic system MP102

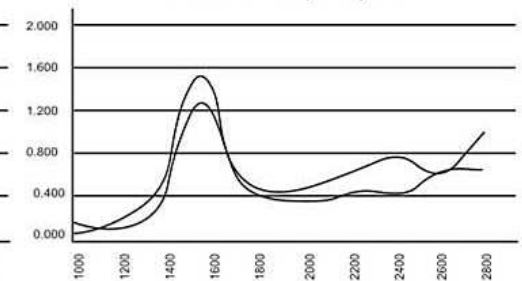
Balancing results of 50 MW Turbine

Speed RPM	Reading		Vibration Disp (microns)		Velocity mm/sec	
	P1 DIV	P2 DIV	Driven end	Non-drive end	Driven end	Non-drive end
1000	0.151	0.030	4.076	1.053	0.151	0.039
1200	0.118	0.123	2.650	2.708	0.118	0.123
1400	0.283	0.436	5.460	6.410	0.283	0.436
1600	1.1.260	1.600	22.267	24.318	1.260	1.500
1800	0.630	0.604	9.452	6.912	0.230	0.694
2000	0.600	0.405	6.102	6.684	0.600	0.495
2200	0.762	0.540	9.354	6.829	0.782	0.540
2400	0.020	0.714	11.478	8.034	0.820	0.414
2600	1.370	0.760	13.711	8.102	0.720	0.780
2800	1.168	1.215	11.265	11.719	1.108	0.617
3000	2.050	1.370	16.454	12.333	2.060	1.370

Vibration displacement vs speed



Vibration velocity vs speed



Speed in RPM

Speed in RPM

Specifications

Model	HR-5K(S)	HR-5K(M)	HR-5K(L)	HR-25K(S)	HR-25K(M)	HR-25K(L)	HR-25K(H)
Max. Weight capacity (kg)	5000	8000	15000	25000	50000	100000	150000
Max. Length of job (mm)	3500	4000	5000	5000	7000	8000	10000
Length extension in Steps of (at extra cost) (mm)	2000	2000	2000	2500	2500	2500	2500
Max. Diameter capacity (mm)							
Option-1	1100	1600	2100	2100	3200	3200	3600
Option-2	1600	2100	2500	2500	3800	4000	4400
Option-3	2100	3000	3000	3500	4500	4800	5200
Standard bore dia for Sleeve bearing housing (mm)	250	300	400	450	500	600	1050
Wn ² capacity recommended for low speed balancing (kg/min ²)	4500x10 ⁶	4500x10 ⁶	4500x10 ⁶	16000x10 ⁶	16000x10 ⁶	16000x10 ⁶	16000x10 ⁶
Wn ² capacity for trim balancing and over speed testing (kg/min ²)	630x10 ⁹	630x10 ⁹	630x10 ⁹	720x10 ⁹	720x10 ⁹	1680x10 ⁶	1680x10 ⁶
Sensitivity per plane at 900 RPM or more (g.mm)	25	25	25	50	50	50	50
Typical achievable accuracy, depending on rotor and Journal condition and stability	0.3 mmg/kg						
Typical Pedestal stiffness (kg/micron)	1050	1050	1050	1200	1200	2800	2800
Note : The machine is designed for working in a burst proof vacuum chamber which incorporate bed, pedestals and other items. This machine may be constructed inside chambers of different designs to suit specific requirements of customers.							

The technical data mentioned in this catalogue is not binding and is subject to change without notice.



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Machines listed are manufactured by ABRO Companies & its Licencees



ABRO HR-Series Balancing Machines for high speed balancing in vacuum



ABRO machine model HR5K (VAC) with vacuum hood open and turbine loaded on the machine.

ABRO HR-Series balancing machines combine high rigidity with high sensitivity. Site conditions can be created by selecting the desired stiffness and if necessary by using actual bearings of the rotor. Therefore, accurate low speed and high speed balancing is possible for rotors with widely varying weights and speeds.

ABRO dynamic balancing machine model HR5K(VAC) working with M/s MAN Turbo has been balancing rotors at speed upto 18,000 RPM and achieving low vibration levels which were not possible before.