

Laboratory	Hydro Machinery Development Station, Bharat Heavy Electricals Limited, Bhopal, Madhya Pradesh		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Fluid Flow Testing	Issue Date	11.02.2014
Certificate Number	T-0106	Valid Until	10.02.2016
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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I. LIQUIDS

1. Hydro Turbine Model Test of Francis, Kaplan, Pelton, Tubular, Bulb, Pump Turbine & Pump	a) Hydraulic Efficiency:	Head	Test Procedure Agreed Mutually between Laboratory and client in line with IEC : 60193 - 1999	Upto 100 mWc (for Test Bed 1 & 2) Upto 140 mWc (for Test Bed 3)
		Flow		Upto 1.8 m ³ /s (for Test Bed 1 & 2) Upto 0.3 m ³ /s (Pelton for Test Bed 3)
		Torque		Upto 3450 Nm
		Speed		Upto 2200 RPM (for Test Bed 1 & 2) Upto 1950 RPM (for Test Bed 3)
		b) Cavitation		Upto 1 (Thoma's Coefficient)
		c) Cavitation Visualization		Visual /Photographic (Qualitative)
		d) Raunaway Speed		Upto 2200 RPM (for Test Bed 1 & 2) Upto 1950 RPM (for Test Bed 3)
		e) Pressure Pulsation		Upto 10 mWc

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		f) Torque:	Test Procedure agreed mutually between laboratory and client in line with IEC : 60193 - 1999	
		Guide Vane,		Upto 60 Nm
		Kaplan Blade,		Upto 240 Nm
		Pelton Deflector		Upto 60 Nm
		g) Aeration Test		Upto 19.0 m ³ /hr (Qualitative)
		h) Velocity Distribution		Upto 10 m/s
		i) Axial Thrust		Downward 15,000 N Upward 10,000 N
		j) Radial Thrust		2000 N

X-X-X-X-X-X-X-X-X-X-X-X-