



THE PARTICULAR GENERATOR USED IIN THE PROTOTYPE DESIGN IS A 500 W MICRO-HYDROTURBINE INDUCTION GENERATOR. THE GENERATOR HAS BEEN MODELLED FOR SIZING PURPOSES OF THE OTHER MECHANICAL COMPONENTS. THE GENERATOR IS MOUNTED TO THE BRAKE AND GENERATOR PLATFORM AND FASTENED USING A SERIES OF M8 BOLTS. THE GENERATOR HAS A RATED OPERATING SPEED OF 1000 RPM, HOWEVER IT PRODUCES POWER EVEN AT LOWER RUNNING SPEEDS. THE CURRENT ISIS INVERTED AND THEN IS REGULATED USING A SHUNT REGULATOR CIRCUIT. THE ELECTRICITY CREATED IS THEN USED TO POWER CHARGE A BATTERY AND ONCE FULLY CHARGED IS DIVERTED TO A HOT WATER SYSTEM. THE GENERATOR HOUSING IS CAST ALUMINIUM. THE GENERATOR ROTOR CONSISTS OF A SERIES OF LAMINATED STEEL PLATES WHILS THE WINDINGS ARE WOUND COPPER WIRE.

THE ROTOR OF THE TURBINE IS CAPABLE OF PROVIDING ENOUGH POWER TO DRIVE GENERATOR'S UP TO AROUND 2kW, DEPENDING ON THE WIND CONDITIONS IN THE PARTICULAR AREA OF INSTALATION. LARGER GENERATORS WILL GENERALLY HAVE A LARGER DIAMETER AND THEREFORE THE BRAKE AND GENERATOR BRAKET MAY NEED TO BE ADJUSTED TO ALLOW FOR THE CHANGE IN CENTRE HEIGHT OF THE GENERATOR ROTOR.

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UNIVERSITY OF SOUTHERN QUEENSLAN		UNLESS OTHERWISE SPECIFIED:		NAME		DATE		KH3- 500 WIND TURBINE					
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±		DRAWN		J.KIRSCH		6/10/09		TITLE: 500W INDUCTION GEN			
				CHECKED									
				ENG APPR.									
		INTERPRET GEOMETRIC TOLERANCING PER:		MFG APPR.									
		MATERIAL		Q.A.									
				COMMENTS:									
NEXT ASSY		USED ON		FINISH				SIZE		DWG. NO.		REV	
								C		20			
APPLICATION		DO NOT SCALE DRAWING						SCALE: 1:2				SHEET 1 OF 1	