

Table 5.1: Design and operation criteria for maximisation of power output

Design criterion	qualitative Statements	quantitative Statements	Status
length / width ratio of total FSEC	so long as possible for a long inflow channel	3:1 to 3.5:1	Result from used test models (SSM) and numerical model
Ratio of perfusion width/ floating bodies width	perfusion so wide as possible against necessary floatation	1:1 to 1.5:1	Result from used test models (SSM)
Ratio of total width/ draught FSEC	not definable	3.5:1 to 3:1	Result from used test with SSM and LSM
Ratio of inflow length / outflow length	not definable	indifferent	Different test results (SSM) for the best wheel position
Gap between bottom plate and wheel blade	selected	10% to 12 % of draught	protected result of tests with all models
Wheel diameter and number of blades	So large and much as possible against costs and floating stability	not definable	From history and physical / static / dynamical calculations
Separator dimension	Vertical slab under bottom plate and/or at outside walls astern	50% to 75% of draught	Result from used test with SSM and LSM
Operation criterion	qualitative Statement	quantitative Statement	Status
Trim angle	lower dipping bow at higher flow velocities	about 1° to 1.5° per 0.1 m/s (MSM) to 0.15 m/s (LSM)	protected result of tests by Froude number: 0.43 (MSM) and 0.54 (LSM)
Tip Speed Ratio	lower blockage result in higher Tip Speed Ratio	0.4 to 0.8	protected result of tests with all models
Blockage Ratio	higher blockage result in higher power output & efficiency	not definable	protected result of tests with all models
Draught	not definable	1/3 of total breadth	protected result of tests with all models

Table 7.1 - PAT Results for one hour feeding electric common loads

Hour	Rotation [rpm]	Tension [V]	Current [A]	Pressure [bar]	Flow [m³/h]	Power [W]
9:12	1868	231	0	2,1	19	0
9:15	1958	240	2,1	3	22	504
9:22	2056	235	4,6	3,9	24	1081
9:23	2325	240	6,6	4,9	27	1584
9:28	2543	238	8,9	5,7	31	2118,2
9:32	2678	243	11	6,3	35	2673
9:37	2749	235	12,9	6,7	37	3031,5
9:41	2994	239	15,2	7,5	38,5	3632,8
9:45	3041	233	17,2	8	40	4007,6
9:47	3100	246	18,2	8,5	41,4	4477,2

Table 10.1: Demand structure and distribution distances

	Electricity [kW]	Mech. Power [kW]	Hydr. Power [kW]	Distribution distance [m]
Single household	0.1-0.5	-	-	< 100
Small settlement	1-5			< 100
Agriculture	-	1 - 2	-	<100
Workshops / businesses	0.2 - 2 (lighting, recharging)	1 - 2	-	< 5 (mech. power) < 100 (El. Power)
Water purification	-	-	1 - 5	< 30 - 50
Irrigation / water supply	-	-	1 - 5	10 - 1000