

HYDROGENERATORS REFERENCE LIST

ITEM	SUPPLIED TO	POWER STATION	PCS	CAPACITY (kVA)	VOLTAGE (V)	FREQ (Hz)	RATED SPEED (rpm)	RUNAWAY SPEED (rpm)	TURBINE TYPE	YEAR OF MANUFACTURE	TYPE OF CONSTRUCTION	UPGRADING FROM (kVA)	REMARKS
1	SERBIA	BAJINA BAŠTA	2	315000	11000	50	428,6	650	FRANCIS	1980	VERT.,R.-COOP.T		Motor generator stator only
2	SERBIA	ĐERDAP I	3	190000	15750	50	71,5	180	KAPLAN	1970/71	VERT.,S-U Type		
3	NIGERIA	SHIRORO	4	178500	16000	50	150,0	300	FRANCIS	1983/84	VERT.,S-U Type		OEM; regular maintenance and overhauls of generators
4	ZAMBIA	KARIBA	4	167000	18000	50	136,4	235	FRANCIS	1974/75	VERT.,U Type		
5	CROATIA	ZAKUČAC	4	160000	16000	50	333,3	590	FRANCIS	2012 / 2013 / 2014/ 2016	VERT.,S Type	2 x 120000 2 x 140000	
6	CROATIA	VELEBIT	2	155000	15750	50	600,0	910	FRANCIS	1984	VERT.,R.,S Type		Motor generator
7	CROATIA	ZAKUČAC II	2	140000	16000	50	333,3	575	FRANCIS	1978	VERT.,S Type		
8	CROATIA	DUBROVNIK B	1	140000	14400	50	300,0	506	FRANCIS	2012	VERT.,S Type	120000	New rotor poles
9	CROATIA	DUBROVNIK A	1	140000	14400	50	300,0	506	FRANCIS	2015	VERT.,S Type	120000	New stator and new rotor poles
10	IRAQ	HADITHA	6	128000	15750	50	100,0	305	KAPLAN	1986/87	VERT.,S Type		
11	MONTENEGRO	MRATINJE	3	120000	15750	50	250,0	455	FRANCIS	1974	VERT.,S Type		
12	CROATIA	ZAKUČAC I	2	120000	16000	50	300,0	558	FRANCIS	1960/61	VERT.,S Type		
13	BIH	VIŠEGRAD	3	115000	15750	50	136,4	376	KAPLAN	1989	VERT.,S-U Type		
14	SERBIA	BAJINA BAŠTA	4	100000	15650	50	136,4	265	FRANCIS	1965/68	VERT.,U Type		
15	BIH	RAMA	2	100000	15650	50	375,0	660	FRANCIS	2012/14	VERT.,S Type	90000	Upgrading, new stators and re-insulation of rotor poles
16	GREECE	MESSOCHORA	2	90000	15750	50	333,3	605	FRANCIS	1999	VERT.,S-U Type		
17	BIH	RAMA	2	90000	15650	50	375,0	660	FRANCIS	1967	VERT.,S Type		
18	CROATIA	SENJ	3	90000	10500	50	600,0	937	FRANCIS	*	VERT.	80000	New generators with uprated power
19	SWEDEN	HÄLLBY G1	1	88500	11000	50	115,4	340	KAPLAN	*	VERT.		New generator shaft, new lower bracket
20	SLOVENIA	ZLATOLIČJE	2	85000	10000	50	125,0	345	KAPLAN	2008/2009	VERT.,U Type	74000	
21	GREECE	STRATOS	2	84000	15750	50	107,0	215	FRANCIS	1988/89	VERT.,U Type		
22	CROATIA	ORLOVAC	3	83000	10500	50	500,0	835	FRANCIS	1972/73	VERT.,S Type		
23	FINLAND	SEITAKORVA	1	80000	13500	50	115,4	345	KAPLAN	2014	VERT.,S Type	60000	Upgrading, new stator
24	CROATIA	SENJ	3	80000	10500	50	600,0	1050	FRANCIS	1965	VERT.,S Type		
25	SWEDEN	HJÄLTA G1	1	79000	14000	50	187,5	365	FRANCIS	*	VERT.,S TYPE	72000	Upgrading, new stator
26	BIH	SALAKOVAC	3	75000	13800	50	150,0	455	FRANCIS	1981	VERT.,U Type		
27	SLOVENIA	SREDNJA DRAVA I	2	74000	10500	50	125,0	320	KAPLAN	1968	VERT.,U Type		
28	SLOVENIA	SREDNJA DRAVA II	2	74000	10500	50	125,0	320	KAPLAN	1977/78	VERT.,U Type		
29	NEW ZEALAND	OHAU	4	73300	13200	50	166,6	345	FRANCIS	1975/77	VERT.,S-U Type		
30	COLOMBIA	PLAYAS	3	71900	13800	60	360,0	670	FRANCIS	1986	VERT.,S Type		
31	FINLAND	PETAJASKOSKI	1	70000	12250	50	100,0	297	KAPLAN	2006	VERT.,S Type	60000	Upgrading, new stator
32	BIH	TREBINJE II	1	70000	14400	50	214,0	405	FRANCIS	1972	VERT.,S Type		
33	SWEDEN	TUGGEN	1	70000	10000	50	125,0	328	KAPLAN	*	VERT.	63000	Revitalization and upgrading
34	TURKEY	ASLANCIK	2	66660	13800	50	333,0	654	FRANCIS	2012	VERT.,S Type		
35	BIH	BOČAC "A"	2	65000	10500	50	150,0	322	KAPLAN	1981	VERT.,U Type		
36	MONTENEGRO	PERUČICA	2	65000	10500	50	428,0	790	2 PELTON	1977	HORIZ. Type		
37	BIH	GRABOVICA	2	64000	10500	50	150,0	390	KAPLAN	1981	VERT.,U Type		
38	SWEDEN	MOFORSSEN	1	64000	18000	50	125,0	263	KAPLAN	2018	VERT.,S-U Type	50000	Upgrading, new stator and new rotor poles
39	LAOS	NAM SAM 3	3	61700	13800	50	500,0	900	FRANCIS	*	VERT.		New generators
40	TANZANIA	KIDATU	2	60000	10500	50	375,0	660	FRANCIS	1974	VERT.,S Type		
41	TANZANIA	KIDATU II	2	60000	10500	50	375,0	660	FRANCIS	1980	VERT.,S Type		
42	FINLAND	PYHÄKOSKI	2	58000	10500	50	150,0	385	KAPLAN	2011/13	VERT.,S Type	40000	Upgrading, new stators
43	IRAN	KHODA AFARIN	2	56000	10500	50	166,7	487	KAPLAN	*	VERT.,S Type		on hold
44	FRANCE	ST. TULLE	1	55000	5650	50	150,0	350	KAPLAN	*	VERT.		Revitalization
45	SERBIA	BISTRICA	1	54000	10500	50	600,0	1070	FRANCIS	1959	VERT.,S Type		
46	ISLAND	BURFELL	1	53000	13800	50	300,0	570	FRANCIS	*	S 4875-20		New stator
47	COSTA RICA	CARIBLANCO	2	51730	13800	60	720,0	1225	FRANCIS	2006	VERT.,S Type		
48	SWEDEN	BERGEFORSSEN	2	50000	9600	50	115,4	295	KAPLAN	2016/2018	VERT.,S-U Type	45000	Upgrading, new stators and re-insulation of rotor poles
49	SLOVENIA	DOBLAR II	1	50000	10500	50	214,3	550	KAPLAN	2001	VERT.S Type		
50	SERBIA	SRBOBRAN	1	50000	10500	50	1000,0	1250	-	1968	HORIZ.		Compensator
51	CROATIA	VARAŽDIN	2	50000	10500	50	125,0	305	KAPLAN	1974	VERT.,U Type		
52	SWEDEN	KRANGEDE	2	46000	8500	50	167,0	-	FRANCIS	2019/2020	VERT.S Type		Disassembly, checking, cleaning, reassembly of 2 generators
53	FINLAND	IMATRA	1	45000	10500	50	150,0	375	KAPLAN	2005	VERT.S Type	34000	Upgrading, new stator and rotor poles
54	FINLAND	MELO	2	45000	10500	50	136,4	300	KAPLAN	2015	VERT.,U Type	40000	Upgrading, new stators
55	SERBIA	PIROT	2	44500	10500	50	500,0	930	FRANCIS	1988	VERT.,S Type		
56	INDIA	KODOYAR II	1	44444	11000	50	500,0	915	FRANCIS	1968	VERT.,S Type		
57	FRANCE	MAREGES	1	42500	12000	50	150,0	-	KAPLAN	2021	VERT.,S Type		New stator core, new stator winding, refurbishment of poles
58	CROATIA	ČAKOVEC	2	42000	6300	50	125,00	360	-	1981	BULB TYPE		
59	CROATIA	DUBRAVA	2	42000	6300	50	125,00	360	-	1991	BULB TYPE		
60	NORTH MACEDONIA	VRUTOK-MAVROVO	4	42000	12000	50	500,0	900	PELTON	1956/71	VERT.,S-U Type		
61	PHILIPPINES	BINGA	4	41200	13800	60	327,3	580	FRANCIS	2010/2012	VERT.,S Type	2 steps - 27800 kVA to 37000	Upgrading, new stator core and winding, re-insulation of rotor poles
62	INDIA	PERIYAR	1	41200	11000	50	750,0	1300	FRANCIS	1964	VERT.,S Type		

HYDROGENERATORS REFERENCE LIST

ITEM	SUPPLIED TO	POWER STATION	PCS	CAPACITY (kVA)	VOLTAGE (V)	FREQ (Hz)	RATED SPEED (rpm)	RUNAWAY SPEED (rpm)	TURBINE TYPE	YEAR OF MANUFACTURE	TYPE OF CONSTRUCTION	UPGRADING FROM (kVA)	REMARKS
63	INDIA	SHOLAYAR-MADRAS I	2	41200	11000	50	750.0	1300	FRANCIS	1965/66	VERT.,S Type		
64	SWEDEN	JUNSTERFORSSEN	1	40000	11000	50	187.5	500	KAPLAN	*	VERT.	33000	Revitalization, upgrading
65	SWEDEN	STORFINNFORSSEN	1	40000	18500	50	150.0	290	FRANCIS	2018	VERT.		Voltage upgrading, new stator and refurbishment of poles
66	ARGENTINA	CABRA CORRAL	3	40000	13200	50	250.0	475	FRANCIS	1976	VERT.,S Type		
67	MONTENEGRO	PERUĆICA	5	40000	10500	50	375.0	675	2 PELTON	1958/61	HORIZ.		
68	SERBIA	UVAC	1	40000	10500	50	300.0	600	FRANCIS	1978	VERT.,S Type		
69	KENYA	KAMBURU	3	37000	11000	50	273.0	540	FRANCIS	2018/2019/2020	VERT.,S-U Type		Revitalization, new stator winding and new rotor winding
70	KENYA	KAMBURU	3	37000	11000	50	273.0	540	FRANCIS	1973/75	VERT.,S-U Type		
71	EL SALVADOR	CHAPARRAL	2	36000	13800	60	300.0	620	FRANCIS	2017/2018	VERT., S Type		
72	SWEDEN	RÅTAN	1	36000	11000	50	200.0	365	FRANCIS	*	VERT.		New stator, re-insulation of rotor poles
73	SWEDEN	FORSSE	1	35000	10500	50	136.4	350	KAPLAN	*	VERT.		Revitalization
74	BIH	MOSTARSKO BLATO	2	35300	10500	50	500.0	900	FRANCIS	2009	VERT., S Type		
75	GERMANY	ERING-FRAUENSTEIN	1	35000	10500	50	68,2	190	KAPLAN	*	VERT., U Type	30000	Production and installation of new generator
76	NORWAY	DALE II	1	35000	12000	50	750.0	1368	FRANCIS	2006	VERT., S Type		
77	CROATIA	VINODOL	3	35000	10500	50	500.0	925	PELTON	2002/2003	HORIZ.		
78	FINLAND	IMATRA	2	34000	10500	50	125.0	250	FRANCIS	2014	VERT., S Type	24000	Upgrading, new stators, new shafts, re-insulation of rotor poles
79	FINLAND	PAMILO	1	34000	10500	50	187,5	350	FRANCIS	2013	VERT., S Type	32000	Upgrading, new stator, re-insulation of rotor poles
80	CROATIA	PERUĆA	2	34000	10500	50	187,5	365	FRANCIS	2004/2005	VERT.,S-U Type	26000	New generators
81	AUSTRIA	ST. PANTALEON	1	34000	6300	50	136.4	355	KAPLAN	*	VERT.	31400	Upgrading, new stator, disassembly, assembly, testing and commissioning
82	TURKEY	MENZELET	4	33000	13800	50	333.3	665	FRANCIS	1988/89	VERT.,S-U Type		
83	SWEDEN	SVARTHÅLSFORSSEN	2	33000	12800	50	107.0	330	KAPLAN	2017/2018	VERT, S-U Type	29000	Upgrading, new stators, re-insulation of rotor poles
84	USA	LOWER BAKER 4	1	32000	13800	60	300.0	300	FRANCIS	2012	VERT.,S-Type		
85	SWEDEN	ÅSEN	1	32000	11000	50	150.0	360	FRANCIS	2018	VERT.		Revitalization, new stator, re-insulation of rotor poles
86	NORTH MACEDONIA	TIKVESH	2	31800	10500	50	300.0	540	FRANCIS	2003	VERT.	26000	Upgrading, new stators and rotor poles
87	SLOVENIA	HE OŽBALT	3	30000	10500	50	125.0	350	KAPLAN	2002/2004	VERT.,U Type		
88	SLOVENIA	HE VUHRED	3	30000	10500	50	125.0	350	KAPLAN	2001/2003	VERT.,U Type		
89	BIH	JABLANICA	6	30000	6300	50	300.0	594	FRANCIS	1954/57	VERT.,S Type		
90	BIH	MOSTAR	3	30000	10500	50	150.0	420	KAPLAN	1987	VERT.,U Type		
91	SERBIA	ZVORNIK	4	30000	11000	50	150.0	340	KAPLAN	1953/56	VERT.,S-U Type		
92	COSTA RICA	TORO 3	2	29700	13800	60	600.0	900	FRANCIS	2011	VERT., S Type		
93	IRAQ	HEMREN DAM	2	27800	11000	50	166.7	450	KAPLAN	1981	VERT.,U Type		
94	INDIA	SHOLAYAR II	1	27778	11000	50	428.0	800	FRANCIS	1969	VERT.,S Type		
95	SERBIA	ĐERDAP II	4	27750	6300	50	62.5	147	-	1986	BULB TYPE		
96	SWEDEN	BATFORS	2	27000	11000	50	125.0	300	FRANCIS	2005/06	VERT.		Revitalization, stator core and winding
97	NORTH MACEDONIA	GLOBOČICA	2	26000	10500	50	375.0	695	FRANCIS	1963	VERT.,S Type		
98	CROATIA	PERUĆA	2	26000	10500	50	187,5	405	FRANCIS	1959/60	VERT.,U Type		
99	NORTH MACEDONIA	ŠPILJE	3	26000	10500	50	300.0	540	FRANCIS	1968	VERT.,S Type		
100	NORTH MACEDONIA	TIKVEŠ	2	26000	10500	50	300.0	540	FRANCIS	1967/68	VERT.,S Type		
101	NORTH MACEDONIA	TIKVEŠ II	2	26000	10500	50	300.0	540	FRANCIS	1980	VERT.,S Type		
102	SLOVENIA	FALA 9-10	2	25000	10500	50	100.0	300	KAPLAN	1989	VERT.,U Type		
103	CROATIA	LEŠČE	2	25000	10500	50	187,5	360	FRANCIS	2009	VERT.,S-Type		
104	SLOVENIA	MAVČIČE	2	25000	10500	50	150.0	375	KAPLAN	1986	VERT.,S-U Type		
105	MOROCCO	MOHAMED EL KHAMIS	1	25000	10500	50	187.5	390	KAPLAN	1966	VERT.,U Type		
106	CROATIA	SKLOPE	1	25000	10500	50	250.0	560	FRANCIS	1969	VERT.,S Type		
107	FINLAND	UTANEN	1	25000	10500	50	125.0	325	KAPLAN	2005	VERT.,S-U Type		New generator
108	CROATIA	GOJAK	3	25000	10500	50	428.6	844	FRANCIS	2017/2018/2019	VERT.,S Type		
109	CROATIA	ĐALE	2	24000	10500	50	166,6	440	KAPLAN	1988	VERT.,S Type		
110	SLOVENIA	FALA	1	24000	10500	50	125.0	315	KAPLAN	1963	VERT.,U Type		
111	FINLAND	HAPAKOSKI	2	24000	10500	50	150.0	450	KAPLAN	2008	VERT, S-U Type	17500	Upgrading, new stators and overhaul
112	ICELAND	LAGARFOSS	1	24000	10500	50	136.4	315	KAPLAN	2006	VERT.,S-Type		New generator
113	FINLAND	MAALISMA	2	24000	10500	50	166.7	457	KAPLAN	2009/2010	VERT, S-U Type	20000	Upgrading, new stators and overhaul
114	SLOVENIA	MARIBORSKI OTOK	3	24000	10000	50	125.0	315	KAPLAN	1947-60	VERT.,U Type		
115	FINLAND	PAHKAKOSKI	2	24000	10500	50	166,7	490	KAPLAN	2011/2012	VERT, S-U Type	21000	Upgrading, new stators and overhaul
116	SLOVENIA	VUZENICA	2	24000	10000	50	125.0	315	KAPLAN	1951-54	VERT.,U-Type		
117	SLOVENIA	PLAVE II	1	23000	10500	50	166,7	490	KAPLAN	2000	VERT,U Type		
118	CROATIA	RJEKA	2	23000	10500	50	600.0	1060	FRANCIS	1967	VERT.,S Type		
119	SWEDEN	LETTEN	1	22500	11000	50	500.0	1000	FRANCIS	*			New stator winding and core, re-insulation of poles, assembly, testing and commissioning
120	SLOVENIA	OŽBALT	3	22000	10500	50	125.0	335	KAPLAN	1959-61	VERT.,U Type		
121	INDIA	SHOLAYAR-KERALA	3	22000	11000	50	750.0	1360	FRANCIS	1965-66	VERT.,S Type		
122	SLOVENIA	VUHRED	3	22000	10500	50	125.0	335	KAPLAN	1955-57	VERT.,U Type		
123	SLOVENIA	VUZENICA-III	1	22000	10500	50	125.0	335	KAPLAN	1957	VERT.,U Type		
124	SLOVENIA	BREŽICE	3	21500	10500	50	107.1	320	KAPLAN	2018	VERT.,U Type		

HYDROGENERATORS REFERENCE LIST

ITEM	SUPPLIED TO	POWER STATION	PCS	CAPACITY (kVA)	VOLTAGE (V)	FREQ (Hz)	RATED SPEED (rpm)	RUNAWAY SPEED (rpm)	TURBINE TYPE	YEAR OF MANUFACTURE	TYPE OF CONSTRUCTION	UPGRADING FROM (kVA)	REMARKS
125	AUSTRIA	WÖLLA	1	20000	6300	50	1000,0	1975	FRANCIS	*	VERT., S Type		New stator, reinsulation of rotors poles
126	CROATIA	GOJAK	3	20000	10500	50	428,0	775	FRANCIS	1957-58	VERT., S Type		
127	SERBIA	POTPEČ	3	20000	8800	50	187,5	365	KAPLAN	1966-69	VERT., S-U Type		
128	SWEDEN	BORGFORSEN	1	19000	6600	50	150,0	420	KAPLAN	2014	VERT., S Type	17000	Upgrading, new stator, reinsulation of rotor poles
129	SWEDEN	BORGFORSEN	1	19000	6600	50	150,0	420	KAPLAN	2019*	VERT., S Type	17000	Upgrading, new stator, reinsulation of rotor poles
130	INDIA	YAMUNA II	3	19000	11000	50	150,0	305	FRANCIS	1964-66	VERT., U Type		
131	BIH	PEČ MLINI	2	18000	10500	50	600,0	1080	FRANCIS	2003	VERT., S Type		
132	INDIA	BHAVANI KATTALAI I	2	16666	6600	50	71,4	214	-	2003	BULB TYPE		
133	INDIA	BHAVANI KATTALAI II	2	16666	6600	50	71,4	214	-	2009	BULB TYPE		
134	INDIA	BHAVANI KATTALAI III	2	16666	6600	50	71,4	214	-	2010	BULB TYPE		
135	NEW GUINEA	RAMU	3	16666	11000	50	750,0	1300	FRANCIS	1975	VERT., S Type		
136	SLOVENIA	BLANCA	3	16500	6300	50	100,0	295	KAPLAN	2008-2009	VERT., U Type		
137	SLOVENIA	DOBLAR I	3	16000	10500	50	300,0	574	FRANCIS	2010/2013	VERT., S Type		
138	SERBIA	VRLA I-"A"	2	16000	6000	50	600,0	1120	PELTON	1954-55	VERT., S Type		
139	SERBIA	VRLA III	1	16000	6000	50	600,0	1120	PELTON	1957	VERT., S Type		
140	RUANDA	RUZIZI II	1	15000	6600	50	187,5	400	FRANCIS	2000	VERT., S-U Type		
141	ALBANIA	SHKOPETI	2	15000	6300	50	300,0	760	-	2004	VERT.	12500	Upgrading, new stators and rotor poles
142	SLOVENIA	BOŠTANJ	3	14500	6300	50	107,0	380	-	2005	BULB TYPE		
143	CANADA	RAPIDES DES COEURS	6	14500	13800	60	225,0	538	SAXO	2008	VERT.		
144	SLOVENIA	VRHOVO	3	14300	6300	50	107,0	412	-	1991-92	BULB TYPE		
145	CANADA	MAGPIE	3	14000	13800	60	225,0	523	SAXO	2007	VERT., S-U Type		
146	FINLAND	KUURNA	2	14000	10500	50	93,8	264	KAPLAN	2020	VERT.	11000	Upgrading, new stators, new rotor / new rotor poles
147	SERBIA	VRLA II	1	14000	6000	50	500,0	965	FRANCIS	1953	VERT., S Type		
148	SERBIA	VRLA IV	1	14000	6000	50	500,0	965	FRANCIS	1957	VERT., S Type		
149	MOROCCO	EL BORJ	2	13000	10000	50	600,0	1225	FRANCIS	2008	HORIZ.		
150	SLOVENIA	SOLKAN	3	13000	6300	50	214,3	525	KAPLAN	1984	VERT., U Type		
151	SWEDEN	TURINGE	1	12780	10000	50	214,3	570	KAPLAN	2018	VERT.		Revitalization, new stator, reinsulation of rotor poles
152	AUSTRIA	SCHWARZACH	1	12500	6300	50	500,0	971	PELTON	*	VERT.		New generator
153	BIH	JAJCE II	3	12500	6000	50	250,0	500	FRANCIS	1953-56	VERT., S Type		
154	SERBIA	KOKIN BROD	2	12500	6300	50	375,0	745	FRANCIS	1961	VERT., S Type		
155	NEW ZEALAND	RUAHIHU	2	12500	11000	50	500,0	945	FRANCIS	1981	VERT., S Type		
156	INDIA	YAMUNA I / DHAKRANI	3	12500	11000	50	187,5	460	KAPLAN	1963-66	VERT., U Type		
157	SLOVENIA	MEDVODE	2	12000	6300	50	214,0	499	KAPLAN	1952-54	VERT., S Type		
158	SWEDEN	GRADA	1	11500	11000	50	115,4	340	KAPLAN	2012	VERT., S Type		New stator
159	SLOVENIA	PLAVE I	2	11425	10500	50	300,0	670	KAPLAN	2016/2017	VERT., S Type		
160	SLOVENIA	MOSTE	1	11000	6300	50	750,0	1200	FRANCIS	1978	VERT., R, S Type		
161	MOROCCO	TANAFNIT	2	11000	10000	50	500,0	1045	FRANCIS	2008	HORIZ.		
162	SWEDEN	UNTRA	1	11000	7500	50	125,0	250	FRANCIS	*	HORIZ.		Revitalization, new stator
163	INDIA	JALDHAKA	2	10600	11000	50	600,0	1100	FRANCIS	1963	VERT., S Type		
164	DOMIN. REPUBLIC	JIMENOA	1	10500	12500	60	720,0	1080	FRANCIS	2002	VERT., S Type		
165	FINLAND	LIEKSANKOSKI 1	1	10500	10500	50	150,0	445	KAPLAN	2012	VERT., U Type	9500	Upgrading, new stator, reinsulation of rotor poles
166	FINLAND	LIEKSANKOSKI 2	1	10500	10500	50	150,0	445	KAPLAN	2018	VERT., U Type	9500	Upgrading, new stator, reinsulation of rotor poles
167	FINLAND	PANKAKOSKI 1	1	10500	10500	50	150,0	445	KAPLAN	2013	VERT., U Type	9500	Upgrading, new stator, reinsulation of rotor poles
168	FINLAND	PANKAKOSKI 2	1	10500	10500	50	150,0	445	KAPLAN	2018	VERT., U Type	9500	Upgrading, new stator, reinsulation of rotor poles
169	NORWAY	TORSNES	1	10400	6600	50	600,0	1080	PELTON	2013	6SBV6 1120M1-10		
170	NORWAY	STEINVIK	1	10380	6600	50	1000,0	1860	PELTON	2006	6SBV6 1000M-6		
171	SWEDEN	VÄSSINKOSKI	1	10000	6300	50	333,3	650	FRANCIS	2018	VERT., S Type		Refurbishment, reinsulation of rotor poles
172	COSTA RICA	BIRRI	2	10000	4160	60	600,0	1080	PELTON	1989	HORIZ.		
173	SWEDEN	ELDFORSEN	1	10000	6600	50	125,0	293	KAPLAN	2009	VERT., S-U Type		New generator
174	NORTH MACEDONIA	VRBEN	1	9500	6300	50	750,0	1350	FRANCIS	2003	HORIZ.	8000	Upgrading, new winding, reinsulation of rotor poles
175	AUSTRIA	WEINZÖDL	2	9500	5300	50	150,0	462	-	2013/2014	BULB TYPE		
176	COLOMBIA	DOLORES	1	9000	6600	60	600,0	1180	FRANCIS	1996	HORIZ.		
177	NEW ZEALAND	MANGAPAPA	2	9000	11000	50	750,0	1250	FRANCIS	1971	VERT., S Type		
178	SLOVENIA	MOSTE	1	9000	6300	50	500,0	1050	FRANCIS	2009	VERT., S Type	7500	
179	SLOVENIA	MOSTE	1	9000	6300	50	500,0	1050	FRANCIS	2003	VERT., S Type	7500	
180	BURKINA FASO	BAGRE	2	9000	6600	50	272,7	720	FRANCIS	1991	VERT., S-U Type		
181	GUINEA	DONKEA	2	8500	6300	50	500,0	950	FRANCIS	1969	VERT., S Type		
182	INDIA	KARIKKAYAM	2	8340	11000	50	176,5	476	KAPLAN	1999	VERT., S-U Type		
183	CROATIA	MANOJLOVAC I	3	8000	6300	50	500,0	1010	FRANCIS	1954-55	HORIZ.		
184	NORTH MACEDONIA	RAVEN	3	8000	6300	50	500,0	935	FRANCIS	1959-70	VERT., S Type		
185	NORTH MACEDONIA	VRBEN	2	8000	6300	50	750,0	1350	FRANCIS	1959	HORIZ.		
186	FINLAND	PUNTARIKOSKI	1	8000	6300	50	150,0	420	KAPLAN	2017	VERT., S Type		Revitalization, new stator, reinsulation of rotor poles

HYDROGENERATORS REFERENCE LIST

ITEM	SUPPLIED TO	POWER STATION	PCS	CAPACITY (kVA)	VOLTAGE (V)	FREQ (Hz)	RATED SPEED (rpm)	RUNAWAY SPEED (rpm)	TURBINE TYPE	YEAR OF MANUFACTURE	TYPE OF CONSTRUCTION	UPGRADING FROM (kVA)	REMARKS
187	FINLAND	MYLLYKOSKI	1	7900	10500	50	94,0	280	KAPLAN	2012	VERT., S Type	5700	Upgrading, new stator and rotor poles
188	NORWAY	KLOSTERFOSS	2	7800	6000	50	100,0	255	BULB	2014/2015	BULB TYPE	5670	Upgrading and revitalization, existing upstream cover and access shaft
189	NORTH MACEDONIA	KALIMANCI	2	7500	6300	50	500,0	905	FRANCIS	1970	VERT., S Type		
190	ITALY	MOSSO IN PASSIRIA	2	7500	6300	50	750,0	1350	PELTON	2006	6SBV6 900M2-8		
191	ICELAND	MJOLKA-II	2	7125	6300	50	750,0	1420	PELTON	1975	HORIZ.		New generator
192	NORWAY	REKVATN	1	7100	6600	50	750,0	1200	FRANCIS	2011	6SBV6 900M2-8		
193	AUSTRIA	GRATKORN	2	7000	5300	50	107,1	350	KAPLAN	*	SB 4558-56		New generator
194	CROATIA	FUŽINE	1	6700	6300	50	375,0	675	FRANCIS	2017	VERT. S Type		
195	INDONESIA	AMPELGADING	2	6540	6600	50	1000,0	1710	FRANCIS	2009	6SBO6 800S2-6		
196	TURKEY	QILDIR	3	6400	10600	50	750,0	1350	FRANCIS	1973	VERT., S Type		
197	NORWAY	STAMPELVA	1	6400	6600	50	1000	1800	PELTON	2021	6SBV6 800M1-6		
198	NORWAY	KVAESANI	1	6325	6600	50	1000,0	1830	PELTON	2010	6SBV6 800S2-6		
199	GUINEA	GRANDES CHUTES	2	6300	3200	50	750,0	1300	PELTON	1963	HORIZ.		
200	GUINEA	GRANDES CHUTES	2	6300	3200	50	600,0	1050	FRANCIS	2020	6SBV3 900S2-10		
201	IRAN	DOROODZAN DAM	2	6200	4160	50	300,0	655	FRANCIS	1986	VERT., S-U Type		
202	SWEDEN	IGGESUND	1	6200	6600	50	333,3	834		2009	6SBV6 1250-18		
203	FINLAND	KORKEAKOSKI	2	6100	10500	50	214,3	643	KAPLAN	2017	VERT. S Type	4400	Upgrading, new generators
204	PHILIPPINES	TAFT	3	5900	6300	50	400,0	800	FRANCIS	2021	6SBO6 1000M-18		
205	BIH	DUB	2	5800	6300	50	600,0	1100	FRANCIS	2017	6SBO6 900M2-10		
206	PAKISTAN	GUJRUNWALLA	3	5750	3300	50	107,0	276	KAPLAN	1957	VERT., U Type		
207	CAMBODIA	KIRIROM	2	5600	6300	50	600,0	1100	PELTON	1966	HORIZ.		
208	SERBIA	MEĐUVRŠJE-II	1	5600	6300	50	300,0	852	KAPLAN	1956	VERT., S Type		
209	SERBIA	OVČAR BANJA	1	5600	6300	50	300,0	852	KAPLAN	1956	VERT., S Type		
210	C. AFR. REP.	BOALI 2	2	5500	5500	50	600,0	1150	KAPLAN	2013	VERT., S Type		New stators
211	C. AFR. REP.	BOALI 2	2	5500	5500	50	600,0	1150	KAPLAN	1974	VERT., S Type		
212	NORWAY	RASDALEN	1	5490	6600	50	750,0	1150	PELTON	2009	6SBV6 900-8		
213	BULGARIA	VACHA	1	5400	6300	50	500,0	880	FRANCIS	2021	6SCO6 1000S1-12		Static excitation
214	COLOMBIA	PAJARITO	1	5400	6600	60	720,0	1140	FRANCIS	1996	HORIZ.		
215	CROATIA	KRALJEVAC	1	5300	10500	50	1000,0	1700	PELTON	1989	HORIZ.		
216	MALAYSIA	SUNGAI SELAMA	2	5300	6300	50	429	771	PELTON	2021	6SBO6 900M2-14		
217	NORWAY	N. GROSLANDESELV	1	5230	6600	50	600,0	1052	PELTON	2018	6SBV6 900S1-10		
218	IRAN	SHAHID RAJAE	3	5200	6300	50	750,0	1380	FRANCIS	2007	6SBV6 900-8		
219	SWITZERLAND	AUGAND	2	5200	6300	50	428,6	102	KAPLAN	*	6SBV6 1000M1-14		
220	JAPAN	SHIN SAKAGAMI	1	5200	6600	60	240,0	576	KAPLAN	*	6SBO6 1250M1-30		
221	JAPAN	SHIN UTSUBO	1	5200	6600	60	240,0	576	KAPLAN	*	6SBO6 1250M1-30		
222	KOSOVO	KOZHNER	2	5050	6300	50	500,0	915	PELTON	2005	HORIZ.		
223	CROATIA	FUŽINE	1	5000	6300	50	375,0	695	FRANCIS	1956	VERT., R., S Type		
224	MONTENEGRO	LIVEROVIĆI	2	5000	6300	50	500,0	900	FRANCIS	1955	HORIZ.		
225	USA	VERNON	4	5000	13800	60	144,0	345	KAPLAN	2007	VERT., S Type		
226	SLOVENIA	ZADLAŠČICA	2	5000	6300	50	750,0	1350	PELTON	1989	HORIZ.		
227	SWITZERLAND	RASOIRA	1	5000	6300	50	375,0	1050	KAPLAN	2021	6SBV6 1000S2-16		
228	NORWAY	LANGDALSELVA	1	4900	6600	50	600,0	1135	PELTON	2012	6SBV6 900S2-10		
229	ETHIOPIA	TISS ABBAY	2	4800	6000	50	375,0	745	FRANCIS	1962	VERT., S Type		
230	ETHIOPIA	TISS ABBAY-II	1	4800	6000	50	375,0	745	FRANCIS	1983	VERT., S Type		
231	NORWAY	VANNDOLA	1	4750	6600	50	1000,0	1860	PELTON	2008	6SBV6 710M2-6		
232	CANADA	JONQUIERE	1	4500	4160	60	276,9	700	KAPLAN-S	1996	HORIZ.		
233	BIH	USTIPRAČA	2	4400	6300	50	500,0	900	FRANCIS	2015	6SBO6 900M1-12		HORIZ.
234	NORWAY	REINAGA	1	4350	6600	50	1000,0	1870	PELTON	2014	6SBV6 800S1-6		
235	NORWAY	BRUVOLLELVA	1	4335	6600	50	750,0	1500	FRANCIS	2009	6SBV6 710M2-8		
236	NORWAY	TVEITASKAR	1	4312	6600	50	750,0	1400	PELTON	2009	6SBV6 800S1-8		
237	SLOVENIA	AJBA PLAVE	1	4300	3150	50	187,5	420	-	1974	HORIZ.		
238	BIH	NOVAKOVIĆI 1	1	4200	6300	50	750,0	1265	FRANCIS	2011	6SBO6 710M2-8		
239	NORWAY	PALMAFOSSEN	1	4200	6600	50	231,0	646	KAPLAN	2021	6SBV6 1120M2-26		
240	USA	MADISON DAM	4	4100	4000	60	300,0	586	FRANCIS	2020	6SBO4 1120S2-24		
241	NORWAY	BOEN FOSS	1	4100	6300	50	231	644	KAPLAN	2020	6SBV6 1120M2-26		
242	BULGARIA	BANITE	1	4000	6300	50	750,0	1480	FRANCIS	2009	6SBV6 710M2-8		
243	SERBIA	RAŠKA	2	4000	6300	50	1000,0	1800	PELTON	1952	VERT., S-U Type		
244	INDONESIA	TANGKA	2	4000	6300	50	1000,0	1800	FRANCIS	2020	6SBO6 710S2-6		
245	NORWAY	MANNBERG	1	3940	6600	50	1000,0	1720	PELTON	2016	6SBV6 710S2-6		
246	ICELAND	BJOLFSVIRKJUN	2	3900	6600	50	750,0	1350	PELTON	2007	6SBO6 710M2-8		HORIZ.
247	NORWAY	MIDTLEGRE	1	3855	6600	50	1000,0	1800	PELTON	2015	6SBV6 710S2-6		
248	CROATIA	GOLUBIĆ	2	3850	6000	50	500,0	925	FRANCIS	1981	HORIZ.		

HYDROGENERATORS REFERENCE LIST

ITEM	SUPPLIED TO	POWER STATION	PCS	CAPACITY (kVA)	VOLTAGE (V)	FREQ (Hz)	RATED SPEED (rpm)	RUNAWAY SPEED (rpm)	TURBINE TYPE	YEAR OF MANUFACTURE	TYPE OF CONSTRUCTION	UPGRADING FROM (kVA)	REMARKS
249	PHILIPPINES	MATUNO	3	3800	6300	60	400,0	880	KAPLAN	2020	6SBO6 900M1-18		
250	ALBANIA	RAPUNI 3&4	3	3780	6300	50	428,6	800	FRANCIS	2015	6SBO6 900M1-14		
251	NEPAL	TRISHULLI	3	3750	6600	50	500,0	925	FRANCIS	1963	HORIZ.		
252	SWEDEN	SEMLA	1	3750	3300	50	250,0	641	BULB	2017	SB 2507-24		
253	IRAN	MAHABAD	2	3700	6300	50	375,0	755	FRANCIS	1969	VERT.,S Type		
254	NORWAY	BYRO	1	3550	6600	50	1000,0	1850	PELTON	2015	6SBV6 710M1-6		
255	AUSTRIA	BREITENBACH	1	3500	10500	50	200,0	460	KAPLAN	2005	VERT., S-U Type		
256	NEW ZEALAND	DEEP STREAM	2	3500	690	50	1000,0	1930	FRANCIS	2007	6SBO1 630M2-6		
257	SLOVENIA	DUBRAVA	1	3500	10500	50	750,0	1300	PELTON	2007	6SBO0 710M3-8B		
258	TURKEY	GENERAL	2	3500	6300	50	1000,0	2000	FRANCIS	2012	6SBO6 710M1-6		
259	NORWAY	STUBLIELVA	1	3300	6600	50	750,0	1520	PELTON	2014	6SBO6 710M2-8		
260	PHILIPPINES	TIBAG	2	3300	6300	60	900,0	1719	FRANCIS	*	6SBO6 710S1-8		
261	MONTENEGRO	GLAVA ZETE	2	3200	6300	50	375,0	1020	KAPLAN	1952/53	VERT.,S Type		
262	BIH	LUKAČ	1	3200	6300	50	600,0	1160	FRANCIS	2007	6SBO6 710M2-10		
263	SERBIA	MEĐUVRŠJE	1	3200	6300	50	375,0	1020	KAPLAN	1953	VERT.,		
264	SERBIA	OVČAR BANJA	1	3200	6300	50	375,0	1020	KAPLAN	1952	VERT.,S Type		
265	BIH	UNA	4	3170	6300	50	300,0	750	KAPLAN	2000	VERT.,S Type		
266	NORWAY	KALDSANI	1	3120	6600	50	750,0	1320	PELTON	2014	6SBO6 710M2-8		
267	NORWAY	VASSVIKELVA	1	3100	6600	50	1000,0	1750	PELTON	2014	6SBO6 710S2-6		
268	PHILIPPINES	DAVAO	1	3030	2400	60	900,0	1910	FRANCIS	2021	6SBO2 710S1-8		
269	GERMANY	ROTHENFELS	1	3020	6300	50	130,4	395	KAPLAN	2017	SB 3159-46		BULB TYPE
270	AUSTRIA	OVELLA	1	3000	3300	50	272,7	780	KAPLAN	2018	SB 1809-22		
271	NORWAY	SORDALSELVA	1	3000	6600	50	600,0	1050	PELTON	2016	6SBO6 800S2-10		
272	BIH	MAJDAN	1	3000	6300	50	1000,0	1300	PELTON	2004	6SBO6 630 M2-6		
273	GEORGIA	AKHALKALAKI 1	3	3000	6300	50	600,0	1260	FRANCIS	2021	6SBO6 710M2-10		
274	ITALY	CASTIGLIONE	2	2800	6300	50	750,0	1275	FRANCIS	2005	6SBO6 710M1-8		
275	GUINEA	BANEAH	2	2780	3150	50	375,0	1100	KAPLAN	1988	VERT.,S Type		
276	NORTH MACEDONIA	GLAŽNJA	1	2500	6300	50	1000,0	1740	PELTON	1986	HORIZ.		
277	ITALY	MONTALTO DORA	1	2500	6300	50	300,0	709	KAPLAN	2004	VERT		
278	ITALY	MONTALTO DORA 2	1	2500	6300	50	300,0	709	KAPLAN	2006	6SBO6 1000M-20		
279	SLOVENIA	LOMŠČICA	1	2400	3150	50	1000,0	1700	FRANCIS	1989	HORIZ.		
280	ITALY	BESSE 2	1	2300	6000	50	500,0	1075	FRANCIS	2007	6SBV6 710M2-12		
281	SLOVENIA	MELJE	1	2250	400	50	250,0	585	KAPLAN	2008	6SBO1 1250M1-24		
282	NORTH MACEDONIA	DOŠNICA	3	2200	6300	50	600,0	1140	PELTON	1952	HORIZ.		
283	BIH	MESIČI	2	2200	3150	50	600,0	1320	FRANCIS	1949/50	VERT.,		
284	SLOVENIA	SAVICA	2	2200	6300	50	600,0	1140	PELTON	1949/50	HORIZ.		
285	ITALY	SEDA	1	2200	6300	50	500,0	800	PELTON	2004	6SBO6 710 M2-12		
286	BIH	SLAPOVI NA UNI	4	2200	3150	50	300,0	780	KAPLAN	1950/53	VERT.,S Type		
287	SERBIA	SOKOLOVICA	2	2200	3150	50	300,0	780	KAPLAN	1950/55	VERT.,S Type		
288	SYRIA	YARMOUK	2	2200	6300	50	1500,0	2700	PELTON	1952	HORIZ.		
289	CROATIA	ZAVRELJE	1	2200	6300	50	600,0	1140	PELTON	1952	HORIZ.		
290	ICELAND	BJOLFSVIRKJUN	2	2200	6600	50	500,0	900	PELTON	2007	6SBO6 710M1-12		HORIZ.
291	NORWAY	SOLIA	1	2177	6600	50	600,0	1095	FRANCIS	2015	6SBO6 710S1-10		
292	BIH	NOVAKOVIĆI 2	1	2150	6300	50	1000,0	1670	FRANCIS	2011	6SBO6 630M1-6		
293	NORWAY	BORDALSBEKKEN	1	2050	690	50	750,0	1322	PELTON	2012	6SBO1 630S2-8		
294	NORWAY	HOMMSANI	1	2020	690	50	750,0	1350	PELTON	2013	6SBO1 630S2-8		
295	ROMANIA	SAFRA	1	2000	6300	50	1000,0	1998	PELTON	2013	6SBV6 630M1-6		
296	GEORGIA	AKHALKALAKI 2	1	2000	6300	50	750,0	1525	FRANCIS	2021	6SBO6 630M1-8		
297	SLOVAKIA	ZELIEZOVCE	2	1990	690	50	230,8	655	KAPLAN	2015	6SBO1 1250S1-26		BULB TYPE
298	FINLAND	KISSAKOSKI	1	1890	690	50	187,5	550	BULB	2012	6SBO1 1120-32		
299	SWEDEN	BANGBRO	1	1800	690	50	600,0	1200	FRANCIS	2005	6SBO1 630M1-10		
300	SLOVENIA	MEŽICA	2	1800	3300	50	1000,0	1630	PELTON	1965	HORIZ.		
301	BIH	MUJADA	1	1800	400	50	750,0	1300	PELTON	2005	6SBO1 560L-8		
302	BIH	MUJAKOVIĆI	1	1800	400	50	750,0	1300	PELTON	2004	6SBO1 560L-8		
303	CROATIA	OZALJ	2	1800	6300	50	300,0	780	KAPLAN	1951	VERT.,S Type		
304	NORTH MACEDONIA	PESOČANI	2	1800	6300	50	600,0	1140	PELTON	1951	HORIZ.		
305	BIH	POLJANICA 1	2	1800	400	50	750,0	1300	PELTON	2005	6SBO1 560L-8		
306	NORTH MACEDONIA	SAPUNČICA	2	1800	6300	50	1000,0	1850	PELTON	1951/52	HORIZ.		
307	SLOVENIA	SAVA	2	1800	6300	50	600,0	1600	KAPLAN	2008	6SBV6 630M2-10		
308	BIH	TREŠANICA	1	1750	400	50	600,0	1080	KAPLAN	2007	6SBO1 630M1-10		
309	GERMANY	LANDSBERG	1	1710	6300	50	214,3	460	STRAFLO	2021			Revitalization, new stator winding and core, re-insulation of rotor poles
310	GERMANY	SPERBER	1	1710	6300	50	214,3	460	STRAFLO	2021			Revitalization, new stator winding and core, re-insulation of rotor poles

HYDROGENERATORS REFERENCE LIST

ITEM	SUPPLIED TO	POWER STATION	PCS	CAPACITY (kVA)	VOLTAGE (V)	FREQ (Hz)	RATED SPEED (rpm)	RUNAWAY SPEED (rpm)	TURBINE TYPE	YEAR OF MANUFACTURE	TYPE OF CONSTRUCTION	UPGRADING FROM (kVA)	REMARKS
311	CROATIA	OZALJ	3	1700	5000	50	107.4	193	KAPLAN	2017/2018/2019	VERT.,S Type		Revitalization, new stators and rotors
312	ITALY	SILEA	2	1700	6000	50	107.1	270	KAPLAN	2007	6SBO6 1250-56		
313	ROMANIA	GOZNA	2	1600	6300	50	750.0	1405	FRANCIS	2013	6SBV6 630S2-8		
314	SLOVENIA	MEŽICA	1	1600	3300	50	750.0	1315	FRANCIS	1998	HORIZ.		
315	CROATIA	PRANČEVIĆI	1	1600	6300	50	428.6	943	FRANCIS	2014	6SBO6 710M1-14		
316	NORWAY	TYTTEBERELVA	1	1600	690	50	428.6	790	PELTON	2013	6SBO1 710S2-14		
317	CROATIA	LEPENICA	1	1560	6300	50	600	1560	KAPLAN	1988	VERT.,R.,S Type		
318	BIH	BOTUN	1	1500	400	50	1000	1700	PELTON	2004	6SBO1 560M2-6		
319	BIH	JEZERNICA	1	1500	400	50	1000	1700	PELTON	2004	6SBO1 560M1-6		
320	NORWAY	KVINSDAL	1	1500	660	50	1000	2000	PELTON	2006	6SBO1 560S1-6		
321	BIH	VITEZ	1	1500	6300	50	300	700	KAPLAN	2006	6SBO6 800M2-20		
322	CROATIA	ZAKUČAC	2	1500	400	50	750	1350	PELTON	2003	S 1253-8		Static excitation
323	SWEDEN	ADOLFSFORS	1	1500	690	50	250	580	FRANCIS	2005	6SBO1 900M-24		
324	SWITZERLAND	RÜCHLIG	1	1425	6300	50	750	2548	KAPLAN	2014	SB 1127-8		
325	CROATIA	DUBRAVA-"B"	1	1400	400	50	428	1350	KAPLAN	1989	HORIZ.		
326	SLOVENIA	JAVORNIK	1	1400	5250	50	750	1450	PELTON	1986	HORIZ.		
327	CROATIA	LEŠČE	1	1320	400	50	750	1365	FRANCIS	2009	6SBO1 630M-8		
328	ITALY	BESSE 1	1	1300	6000	50	600	1200	FRANCIS	2007	6SBV6 630S2-10		
329	CROATIA	DUBROVNIK	2	1300	400	50	1000	1800	PELTON	2017	6SCO1 560S1-6		Static excitation
330	CROATIA	ČAKOVEC	1	1300	400	50	432	1200		1981	BULB TYPE		
331	SWITZERLAND	ETTISBÜHL	1	1240	400	50	231	696	KAPLAN	2010	6SBO1 900S-26		
332	SLOVENIA	FUŽINE-VEVČE	1	1200	6300	50	1000	3000	FRANCIS	1986	VERT.,S Type		
333	MONTENEGRO	LIPKOVO	1	1200	400	50	750	1680	PELTON	1962	HORIZ.		
334	MONTENEGRO	SLAP ZETE	2	1200	3150	50	250	400	KAPLAN	1951	VERT.,S Type		
335	NORTH MACEDONIA	TURJIA-STRUMICA	2	1170	400	50	1000	2100	PELTON	1986	HORIZ.		
336	UNITED KINGDOM	YSTRADFFIN	1	1170	690	50	750	1450	FRANCIS	2020	6SBO1 500M2-8		
337	TURKEY	DINC 1	1	1150	400	50	750	1350	PELTON	2011	6SBO1 560S1-8		
338	BIH	DO	2	1100	400	50	500	1000	KAPLAN	2015	6SBO1 630S1-12		
339	ITALY	CRESPI 3	1	1100	400	50	375	975	KAPLAN	2007	6SBO1 630M2-16		
340	ITALY	CRESPI 5	1	1100	400	50	375	825	KAPLAN	2007	6SBO1 630M1-16		
341	TURKEY	DINC 2	1	1100	400	50	429	775	PELTON	2011	6SBO1 630M1-14		
342	SLOVENIA	KNEŠKE RAVNE	1	1100	400	0	600	1100	PELTON	1992	HORIZ.		
343	TOGO	KPIMÉ	2	1000	5000	50	750	1350	PELTON	1962	HORIZ.		
344	CROATIA	ORLOVAC-"B"	1	1000	400	50	1000	1800	PELTON	1972	HORIZ.		
345	MONTENEGRO	PERUĆICA-"B"	2	1000	400	50	1000	1800	PELTON	1957-64	HORIZ.		
346	CROATIA	SPLIT-"B"	2	1000	400	50	750	1350	FRANCIS	1961	HORIZ.		
347	CROATIA	ZELENI VIR	1	1000	5000	50	750	1350	FRANCIS	1961	HORIZ.		
348	SERBIA	BISTRICA-"B"	1	950	400	50	1000	1800	PELTON	1959	HORIZ.		
349	SERBIA	DIKANCE	1	950	400	50	1000	1800	PELTON	1975	HORIZ.		
350	SERBIA	DIKANCE	1	950	400	50	1000	1800	PELTON	1957	HORIZ.		AS.GEN.
351	ITALY	BRUGNETO 2	1	900	400	50	757	1400	FRANCIS	2006	6AGO1 500S3-8		
352	NORTH MACEDONIA	ZRNOVCI	2	900	3150	50	600	1080	PELTON	1949	HORIZ.		
353	AUSTRIA	HAUNOLDMÜHLE	2	900	400	50	214	555	KAPLAN	2019	6SBO1 900S1-28		
354	BIH	PODKOZICA	1	863	400	50	1000	1550	PELTON	2005	6SBO1 450M2-6		
355	BIH	POLANICA 2	2	850	400	50	1000	1800	FRANCIS	2005	6SBO1 450-6		
356	FINLAND	PUHOS	1	850	400	50	150	300	KAPLAN	2020	6SBO1 1000S1-40		
357	ITALY	LAVOREIT	1	845	400	50	750	1350	FRANCIS	2019	6SBO1 500S1-8		
358	UNITED KINGDOM	YSTRADFFIN	1	820	690	50	750	1650	FRANCIS	2020	6SBO1 500S2-8		
359	ITALY	CRESPI 1	1	800	400	50	300	760	KAPLAN	2007	6SBO1 630M1-20		
360	SLOVENIA	KOREN	2	800	400	50	750	1350	PELTON	1992	HORIZ.		
361	CROATIA	SENJ-"B"	1	800	400	50	1500	2700	PELTON	1965	HORIZ.		
362	ITALY	VAL MAIRA	2	800	400	50	1000	1800	FRANCIS	2004	6SBO1 500M-6		
363	SWEDEN	ARJEPLOG	1	800	690	50	150	424	BULB	2013	6SBO1 1120S1-40		
364	AUSTRIA	OFFNER LAVANT	1	750	400	50	375	938	KAPLAN	2015	6SBO1 560M2-16		
365	BIH	JABLANICA-"B"	2	750	400	50	750	1350	FRANCIS	1952/58	HORIZ.		
366	NORTH MACEDONIA	LUKAR	1	750	400	50	750	1275	PELTON	2000	40SB S904-8		
367	BIH	RAMA-"B"	1	750	400	50	750	1570	PELTON	1968	HORIZ.		
368	AUSTRIA	SCHALLDORF	2	750	690	50	200	530	KAPLAN	2012	6SBO1 800S1-30		
369	SERBIA	SOKOLJA	1	750	3150	50	750	1350	FRANCIS	1950	HORIZ.		
370	SERBIA	VRLA I-"B"	1	750	400	50	750	1350	PELTON	1952	HORIZ.		
371	GREECE	SARANTOBRIS I	1	700	400	50	750	1275	PELTON	1999	HORIZ.		
372	SLOVENIA	ORMOŽ-VARAŽDIN	1	670	380	50	385	1000		1974	BULB TYPE		

HYDROGENERATORS REFERENCE LIST

ITEM	SUPPLIED TO	POWER STATION	PCS	CAPACITY (kVA)	VOLTAGE (V)	FREQ (Hz)	RATED SPEED (rpm)	RUNAWAY SPEED (rpm)	TURBINE TYPE	YEAR OF MANUFACTURE	TYPE OF CONSTRUCTION	UPGRADING FROM (kVA)	REMARKS
373	MONTENEGRO	SAVO MAŠKOVIĆ	3	650	3150	50	500	900	PELTON	1951	HORIZ.		
374	SERBIA	SELJAŠNICA	2	650	3150	50	500	900	PELTON	1951	HORIZ.		
375	BIH	VLAŠENICA	2	650	3150	50	500	900	PELTON	1950	HORIZ.		
376	SERBIA	ZVORNIK-"A"	1	650	400	50	500	900	FRANCIS	1954	HORIZ.		
377	BIH	DUŠČICA	1	640	400	50	750	1350	FRANCIS	2012	6SBO1 450M2-8		
378	ETHIOPIA	ADOLA	3	630	400	50	600	1080	PELTON	1963	HORIZ.		
379	SLOVENIA	STRUGE	1	620	400	50	333	550	KAPLAN	2005	6SBO1 630M2-18		
380	KENYA	KIANTHUMBI	1	600	400	50	600	1200	FRANCIS	2020	6SBO1 500S1-10		
381	CROATIA	VARAŽDIN	1	580	400	50	757		KAPLAN	2014	6AGO1 500S1-8		AS.GEN.
382	NORTH MACEDONIA	VRUTOK-"B"	1	560	400	50	1500	2850	PELTON	1956	HORIZ.		
383	ITALY	CONSUVERO	2	550	3000	50	275	930	PELTON	2005	6SBO3 500M-16		
384	BULGARIA	DRAGOVISHTICA	1	550	6300	50	508	980	FRANCIS	2009	6AGO6a 500M1-12		AS.GEN.
385	SLOVENIA	MOŽNICA	1	550	5500	50	600	1220	PELTON	1961	HORIZ.		
386	JAPAN	SHIN UTSUBO	1	546	6600	60	366	774	FRANCIS	*	6AGO6 630S2-20		AS.GEN.
387	SLOVENIA	ŽINGARICA	1	540	400	50	1000	1800	PELTON	1993	HORIZ.		
388	SLOVENIA	SAVA KRANJ	1	505	3150	50	510	1500		1967	BULB TYPE		
389	ITALY	BALANGERO	1	500	400	50	508	1200	KAPLAN	2007	6AGO1 500S1-12		AS.GEN.
390	ITALY	CERETTO	1	500	400	50	221	625	KAPLAN	2006	6AGO1 710M2-28		AS.GEN.
391	ITALY	CHIUSA DI PESIO	1	500	400	50	429	840		2002	HORIZ.		AS.GEN.
392	ITALY	CRESPI 2	1	500	400	50	250	700	KAPLAN	2006	6SBO1 630M2-24		
393	SLOVENIA	OPLOTNICA	1	450	400	50	600	1080		1994	HORIZ.		
394	ITALY	PICEGLIE 1	1	450	400	50	758	1250	KAPLAN	2004	6AOG 407-08		AS.GEN.
395	BIH	POSUŠJE	1	430	400	50	600	1080	PELTON	2019	6SBO1 450M2-10		
396	BULGARIA	VODEV CHARK	1	420	6300	50	1010	1950	PELTON	2013	9AOG 407-06		AS.GEN.
397	ITALY	SALTO BRUNENGA	1	400	400	50	434	1100	KAPLAN	2006	5AGO1 500S2-14		AS.GEN.
398	ITALY	VILLANOVETTA	1	400	400	50	600	1300	KAPLAN	2004	6SBO1 450M2-12		
399	SLOVENIA	KRANJ-OLJARICA	1	390	400	50	500	1500	PELTON	1991	HORIZ.		AS.GEN.
400	ITALY	SUSSA 2	1	350	400	50	308	600	KAPLAN	2006	6AGO1 560S2-20		AS.GEN.
401	ITALY	DOMPE 1	1	320	400	50	382	790	KAPLAN	2004	6AGO1 500S2-16		AS.GEN.
402	ITALY	SANTA ANNA	1	300	400	50	235	510	KAPLAN	2007	6AGO1 630S2-26		AS.GEN.
403	ITALY	BERSANA	1	270	500	50	610	1350	PELTON	2004	6AOG 404-10		AS.GEN.
404	ITALY	DOMPE 2	1	250	400	50	508	1400	PELTON	2005	6AOG 407-12		AS.GEN.
405	SLOVENIA	VODOSIL	1	250	400	50	333	667		2003	HORIZ.		AS.GEN.
406	ITALY	AGISTROU 3	1	250	400	50	1011	1700		2004	6AOG 319-06		AS.GEN.
407	CROATIA	PLETERNICA	1	230	400	50	250	450	KAPLAN	2012	6SBO1 560S1-24		
408	ITALY	MATHIE	1	200	400	50	1010	1800	FRANCIS	2005	6AOG 318-06		AS.GEN.
409	CROATIA	VELIKA VRANOVINA	1	200	400	50	1500	2350	PELTON	2013	6AZG 318-04		AS.GEN.
410	SLOVENIA	GRMOV VRH	1	170	400	50	1009	1009	PELTON	2013	6AOG 318-06		AS.GEN.
411	ITALY	PIEVE DI TECO	1	150	400	50	435	1100	KAPLAN	2013	6AOG 404-14		AS.GEN.
412	ITALY	ECOLUBE	1	140	400	50	339	750	KAPLAN	2005	6AOG 407-18		AS.GEN.
413	SLOVENIA	RAZTEŽILNIK	1	132	380	50	1012	1012		2011	6AOG 314-06		AS.GEN.
414	ITALY	SEDESANE	1	110	400	50	1015	1700	PELTON	2015	6AOG 311-06		AS.GEN.
415	AUSTRIA	SCHMIDLEITHNER	1	100	400	50	750	1400		2013	6AOG 314-08		AS.GEN.
416	CROATIA	VELIKA ŠUMA	1	90	400	50	750	900	PELTON	2016	6AZG 317-08		AS.GEN.

710

HORIZ. - horizontal unit

R - reversible unit

VERT. - vertical unit

S-U - semi-umbrella type

S - suspended type

U - umbrella type

* - under manufacturing

AS.GEN. - Asynchronous generator