

Francis

UNIVERSAL MACHINE FOR MEDIUM HEADS

A radial-axial reaction turbine for heads of 15–300 m — the most widely used turbine type in the world. Each Mavel runner is milled from a single block of forged steel on 5- and 6-axis CNC machines.

HEAD 15 – 300 m	FLOW 0.5 – 35 m ³ /s	OUTPUT 100 kW – 30 MW	RUNNER Ø 400 – 2 500 mm
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CONFIGURATIONS

Two shaft arrangements: horizontal for compact powerhouses, vertical for the largest runners and flows.

CONFIGURATION	HEAD	FLOW	OUTPUT	RUNNER DIAMETER	DRIVE
Francis Horizontal	15 – 300 m	0.5 – 20 m ³ /s	100 kW – 12 MW	Ø 400 – 1 400 mm	Direct
Francis Vertical	15 – 300 m	up to 35 m ³ /s	up to 30 MW	Ø 1 000 – 2 500 mm	Direct

APPLICATIONS

- Mountain rivers with medium heads
- Dam-toe and reservoir plants
- Cascade schemes
- Refurbishment of existing stations

KEY FACTS

- 60+ Francis units installed in 20 years
- Runners milled from a single forging
- Invented by James Francis in 1848
- Reference: 6 units / 30 MW cascade in Panama

SELECTED REFERENCES

Piedra River Cascade	Panama	6 × Francis Horizontal	P 30 MW · H 60 m · Q 20 m ³ /s
Bugoye HPP	Uganda	2 × Francis Horizontal	P 14.3 MW · H 159 m · Q 10 m ³ /s
Rio HPP	USA	1 × Francis Horizontal	P 887 kW · H 30 m · Q 3.4 m ³ /s
Fujiyoshida HPP	Japan	1 × Francis Horizontal	P 140 kW · H 16.5 m · Q 1 m ³ /s

Is this the right machine for your site?

Send your head and flow figures. We will confirm the type, size the unit and prepare a budgetary proposal.

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