

Iwrch Abstraction Licence Renewal Additional Information Document, 5th Feb 2020

18/54/1/634/S

Compensation Flow Provision

This remains unchanged since the last licence was issued in 2008. Compensation flow is provided by a pipe and two interchangeable orifice plates from the sump underneath the Coanda screens. When 60l/s compensation flow is required, the 214mm diameter orifice plate is fitted. When 120 l/s is required, the larger 315mm orifice plate is fitted.

The control water level in the sump is maintained at 50mm below the sump overflow level. This high water level has to be maintained; if the sump water level falls more than approximately 100mm, air is drawn into the pipeline that supplies the turbine, and the pipe partially airlocks.

Calculations showing the sizing of these plates is shown below. Please refer also to drawing H2505 C02 Edition E, dated 3rd Feb 2020.

Iwrch Compensation Flow Calculations

3rd Feb
2020

See drawings: H2505M025,
Edition 0, and H2505C02 Edition E

Discharge (m³/s) = Area Orifice x
Discharge co-efficient x (2gh)^{0.5}

60l/s Discharge

		(Hole offset 50mm)
Head to orifice centre line (h)	0.35 m	
Orifice diameter	0.214 m	
Orifice area	0.036 m ²	
Discharge Co-efficient	0.63	
Discharge	0.060 m ³ /s	

120l/s Discharge

Head to orifice centre line (h)	0.3 m
Orifice diameter	0.315 m
Orifice area	0.078 m ²
Discharge Co-efficient	0.63
Discharge	0.120 m ³ /s