Shot-to-Shot Engineering

Flow Test Bench for Head Engines Testing - Features and Flow Analysis Capabilities

November 2024

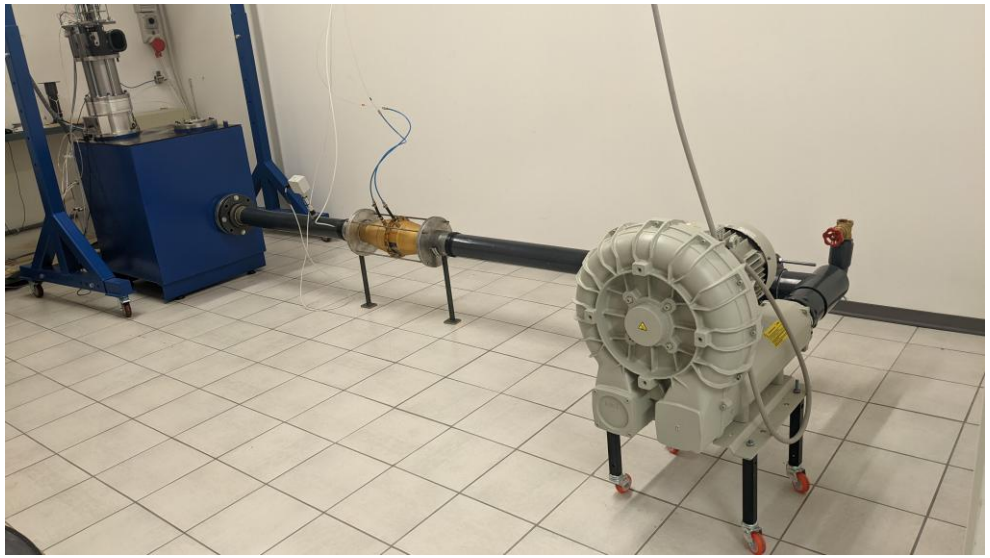
❖ ***The STSe Flow Test Bench (FB) main features***

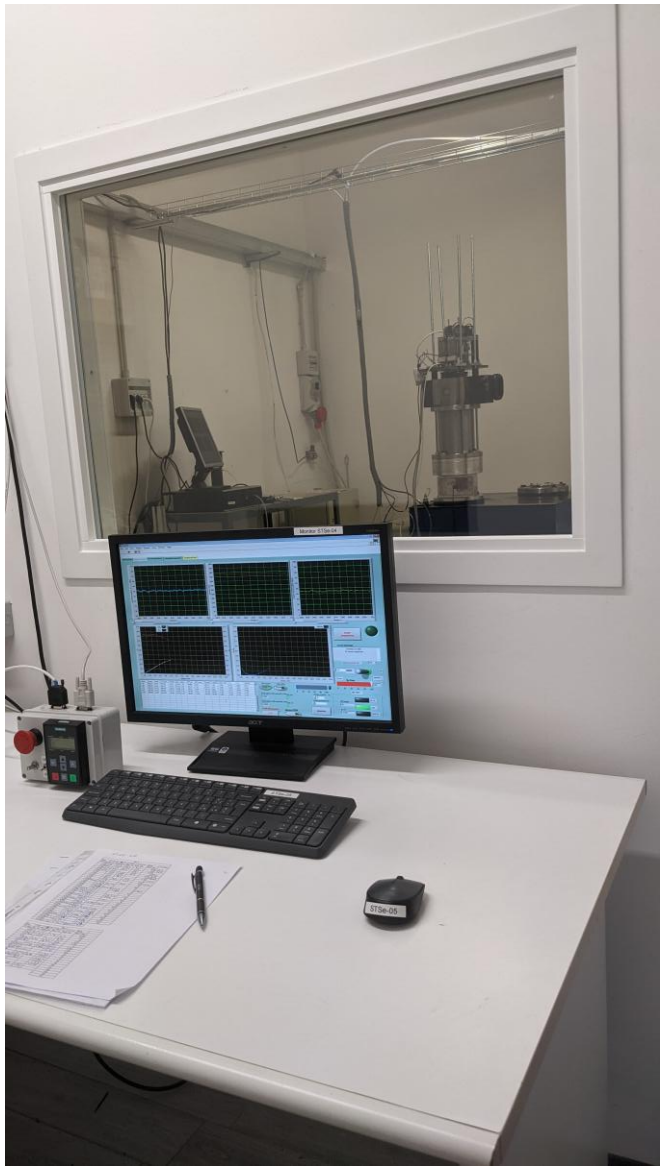
- Controlled air flow rate (max 800 kg/h).
- Max bore 160 mm.
- Automatic 2-valve lifter with a resolution of 0.001 mm.
- 3D-printed adapter for inlet and outlet.
- Proprietary STSe impulse swirl meter.
- Real-time measure of pressure, temperature, density, humidity.

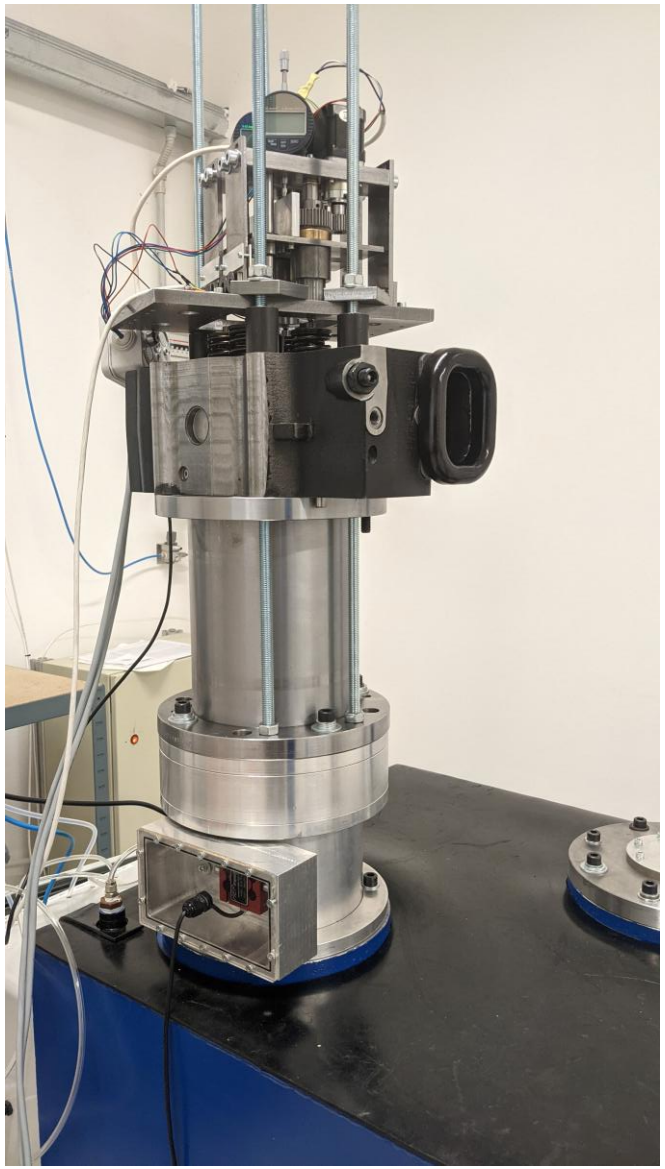
❖ ***Available diagnostics***

a) Evaluation of mass flow rate, discharge coefficients (Cv,Cf) at various valves lifts.

b) Evaluation of air flow torque, swirl coefficient and swirl flow direction of rotation.

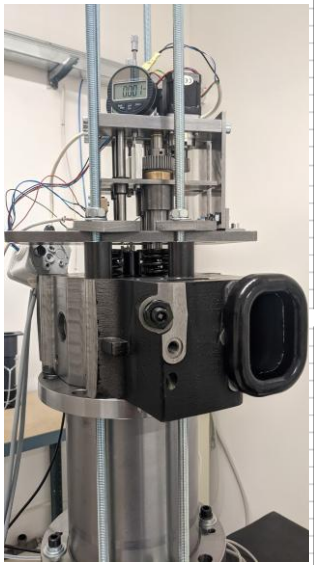


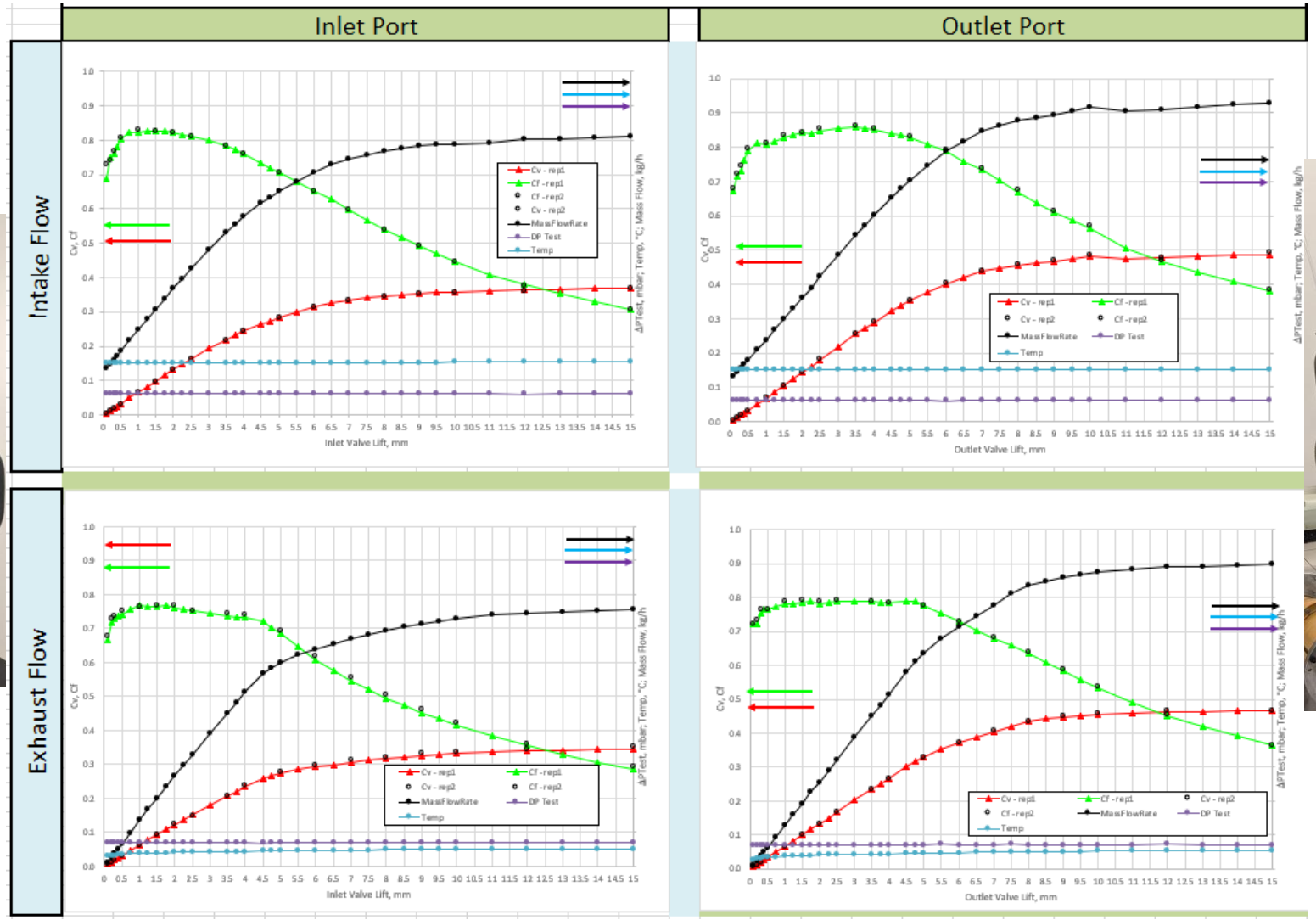


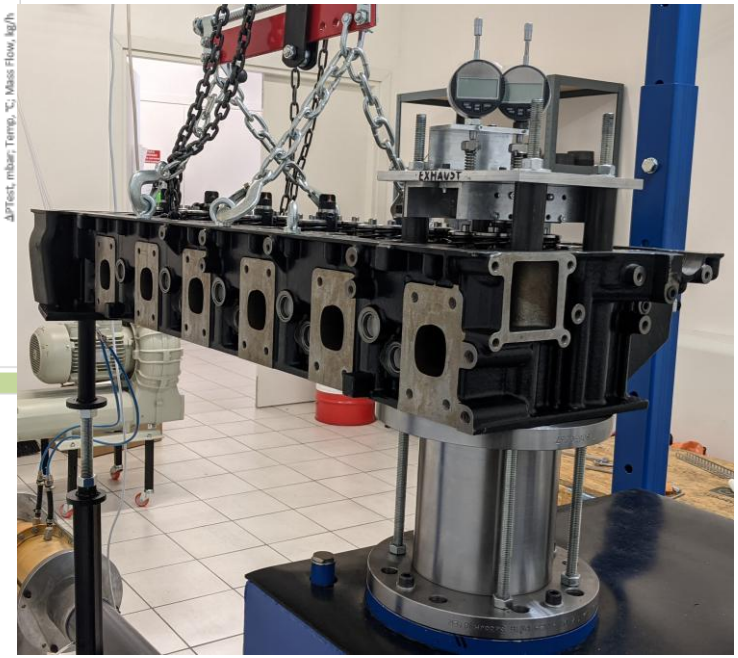


a) Evaluation of mass flow rate, discharge coefficients (Cv,Cf) at various valves lift

Discharge coefficients evaluation is made for both inlet and outlet ports and with the air flow in both directions (intake/exhaust) for each kind of valve. Cylinder, inlet/outlet adapter and valves lift values can be designed to accomplish the customer requests.





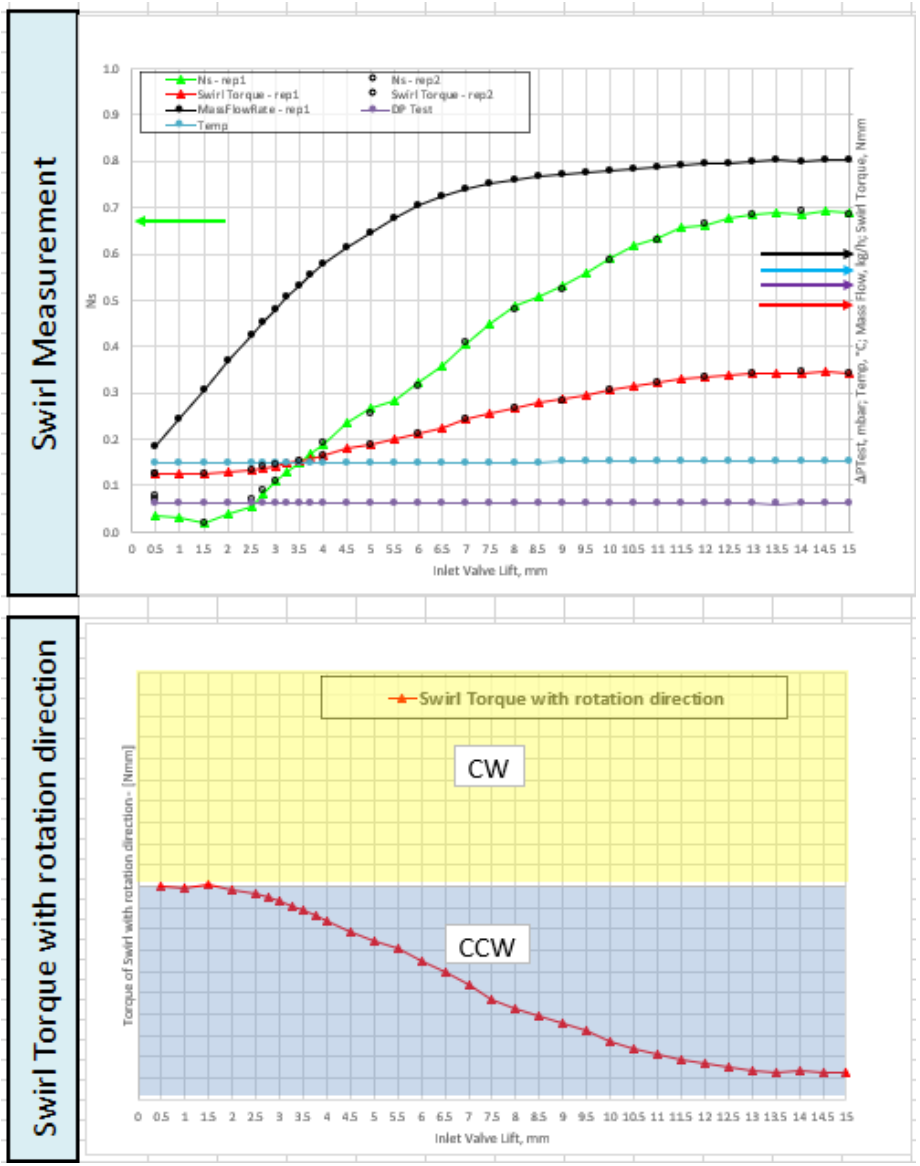


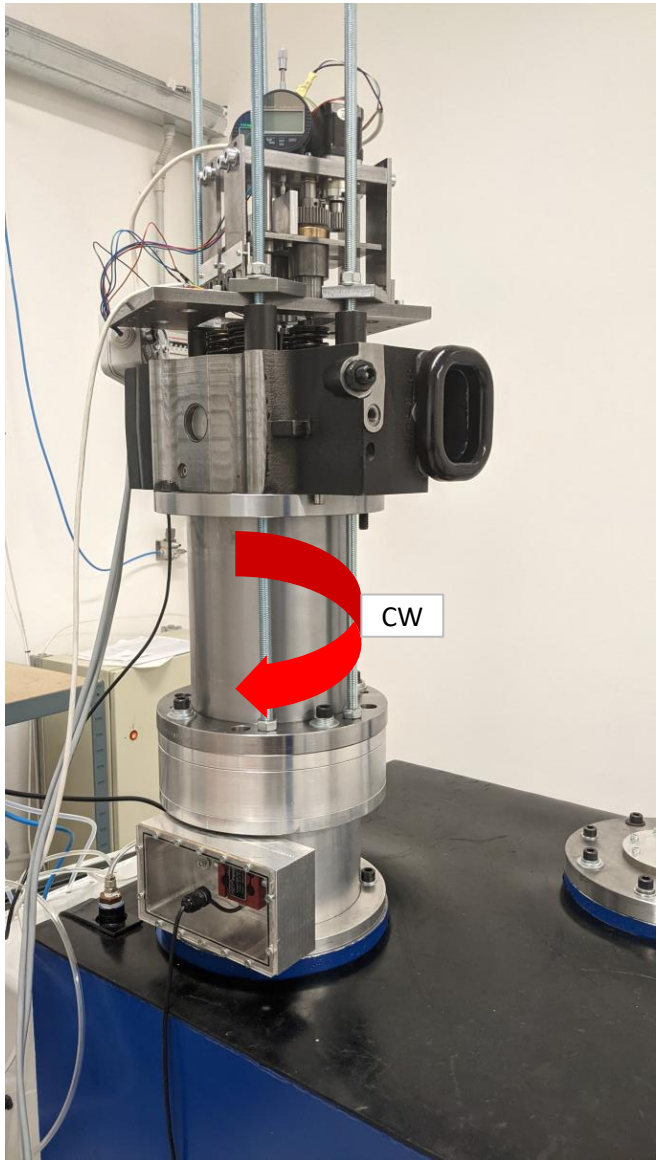
b) Evaluation of air flow torque, swirl coefficient and swirl flow direction of rotation

STSe has projected and built a proprietary impulse swirl meter.

With this apparatus it is possible to estimate the torque and the direction of rotation of the intake air flow passing by the inlet valves at various values of valve lifts.

Due to this measure swirl coefficients can be easily obtained.





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Thank you for your attention!

the STSe Team