

TECHNICAL BULLETIN – 2025-06-02.

To whom it may concern – Xstream Intermediate pressure, clarification.

Guidance: Understanding Intermediate Pressure in Poseidon Xstream First Stages

This text aims to provide a clear and educational explanation of why variations in intermediate pressure are completely normal and within acceptable limits. It also explains the purpose of intermediate pressure and how it impacts regulator performance and safety.

What is intermediate pressure – and why is it important?

The intermediate pressure is the pressure delivered by the first stage to the second stage. Its primary purpose is to protect and ensure the correct function of the second stage, not to maintain a fixed, exact value.

Poseidon's Xstream second stage requires a minimum of 7.5 bar (109 psi) of intermediate pressure to seal properly when pressurized.

If the intermediate pressure exceeds 10 bar (145 psi), certain soft components (such as the 3440 valve insert) inside the Xstream and Jetstream second stages may risk being damaged. Therefore, we have defined an acceptable intermediate pressure range of 7.5 – 10 bar (109 – 145 psi).

(Note: When pairing the Xstream first stage with the Cyklon second stage – a configuration referred to as Cyklon X – the intermediate pressure must be set to 11.5 bar (167 psi), with an acceptable range of 10 – 13 bar (145 – 189 psi), to ensure correct breathing performance. If the intermediate pressure is too low, the Cyklon second stage will be very heavy to breathe from.)

Setting and Measuring Intermediate Pressure

During production, the intermediate pressure is set to an IP of around 8.5 bar (123 psi) at 300 bar (4351 psi) cylinder pressure (or 11.5 bar (167 psi) when configured as Cyklon X).

This target value ensures that, throughout the full cylinder pressure range (from 200–300 bar (2901–4351 psi) down to 20 bar (290 psi)), the regulator will always deliver an intermediate pressure that remains within the safe and functional limits of the connected second stage.

Our internal testing data shows the following (paired with Xstream and Jetstream second stages):

- At high cylinder pressure (200 bar / 2,901 psi), intermediate pressure has ranged between 8.1 – 9.5 bar (118 – 138 psi)
- At low cylinder pressure (20 bar / 290 psi), intermediate pressure has ranged between 7.5 – 9.5 bar (109 – 138 psi)
- None of the 73 tested first stages in this data set showed values outside the acceptable 7.5 – 10 bar (109 – 145 psi) range

NOTE: The exception to these IP settings is the very first generation of Xstream 1st stages, built in 2002-2003, that didn't have an adjustment screw. These 1st stages will have a IP of between 8 - 11 bar (116-160 psi) at max tank pressure. It is recommended that these 1st stages are upgraded to a cap with adjustment screw by applying upgrade kit #4767-KIT.



For correct IP setting, please see table on page 38 of the Xstream service manual version 3.2.

The Tolerance Range Is by Design – Not a Defect

It is important to understand that intermediate pressure is not an absolute value, but rather a range.

Some variation between units and depending on whether the cylinder is at 200 or 300 bar (2901 or 4351 psi), is normal and expected. This does not mean the product is faulty.

In fact, this is a strength of the Xstream design – it is built to operate safely and efficiently across a wide intermediate pressure range.

Leakage

When the 1st stage is pressurized at maximum tank pressure, and the IP has been set, the IP may rise 0,7 bar/ 10 psi within 30 seconds and then stop, and the IP is regarded as ok and the 1st stage is not leaking.

But if the IP rises more than 0,7 bar/10 psi and/or does not stop to rise, the 1st stage is leaking and must be checked/repaired.

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