SENSITIVITY ANALYSIS FOR SURFACE FORCES
UNDER AN IMMERSED VERTICAL JET

Sources of error	Range in input	Rationale
Flowrate, Q	± 0.15 l/min	Accuracy of the rotameter (Kytola Instruments, Muurame, Finland)
Standoff distance, H	± 1 mm	Reading error on distance scale for the gantry positioning system (z axis).

A. *Uncertainties due to errors on input variables, for a standoff distance H = 25 mm*

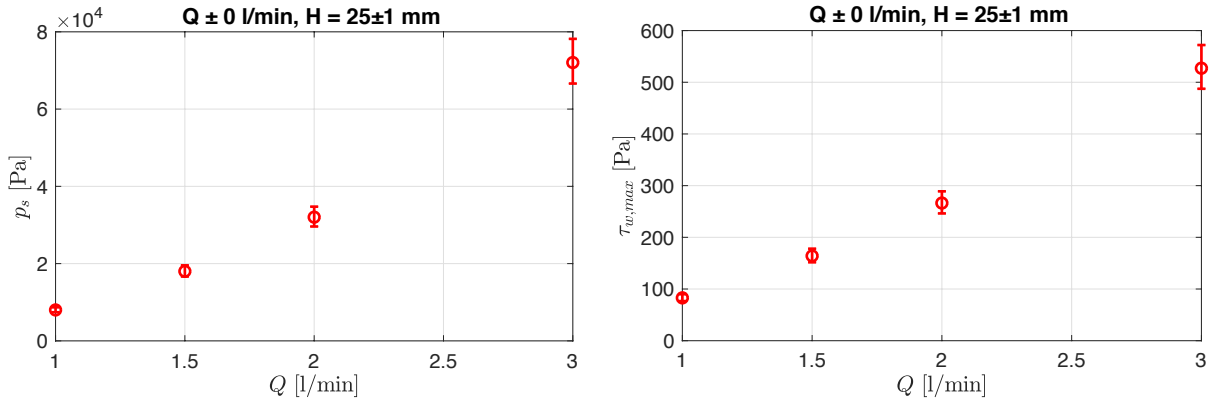a)   b)

Fig. A1 – Stagnation pressure p_s (a) and maximum wall shear stress $\tau_{w,max}$ (b) under an immersed vertically-impinging waterjet, calculated using Equations 1 and 2 (respectively), with **null error on flow rate Q**, and **±1 mm error on standoff distance H = 25 mm.**

a)   b)
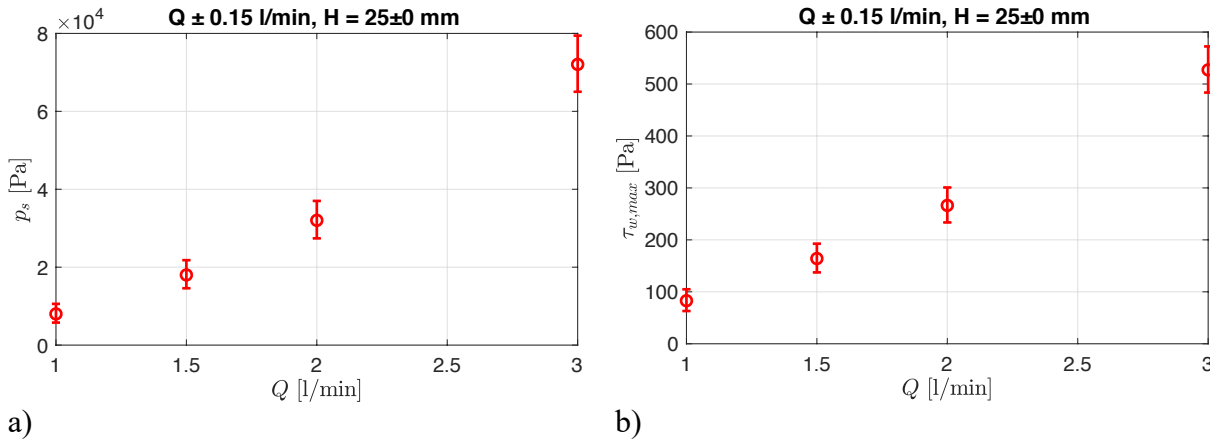
Fig. A2 – Stagnation pressure p_s (a) and maximum wall shear stress $\tau_{w,max}$ (b) under an immersed vertically-impinging waterjet, calculated using Equations 1 and 2 (respectively), with **±0.15 l/min error on flow rate Q**, and **null error on standoff distance H = 25 mm.**

a)   b)
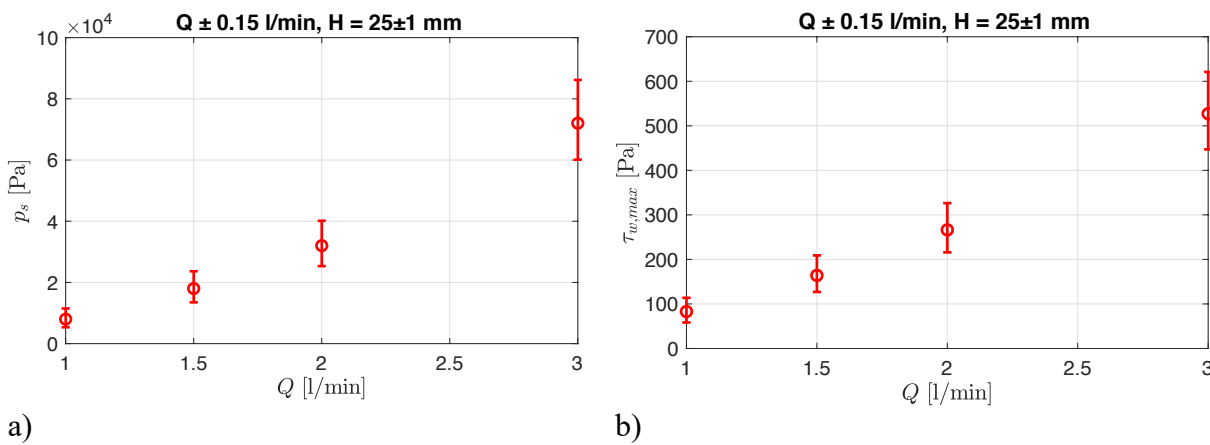
Fig. A3 – Stagnation pressure p_s (a) and maximum wall shear stress $\tau_{w,max}$ (b) under an immersed vertically-impinging waterjet, calculated using Equations 1 and 2 (respectively), with **±0.15 l/min error on flow rate Q**, and **±1 mm error on standoff distance H = 25 mm.**

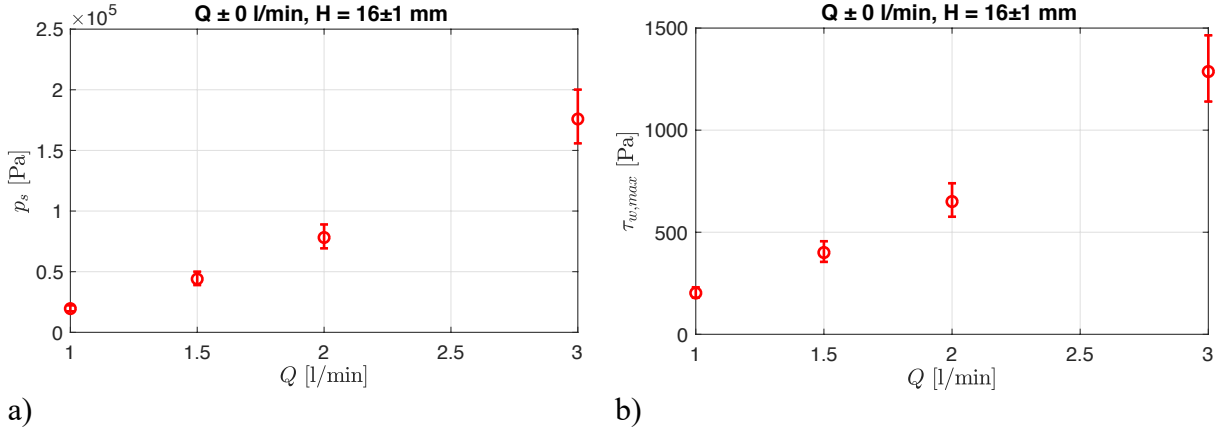## B. *Uncertainties due to errors on input variables, for a standoff distance H = 16 mm*

Fig. B1 – Stagnation pressure p_s (a) and maximum wall shear stress $\tau_{w,max}$ (b) under an immersed vertically-impinging waterjet, calculated using Equations 1 and 2 (respectively), with **null error on flow rate Q**, and **±1 mm error on standoff distance H = 16 mm.**
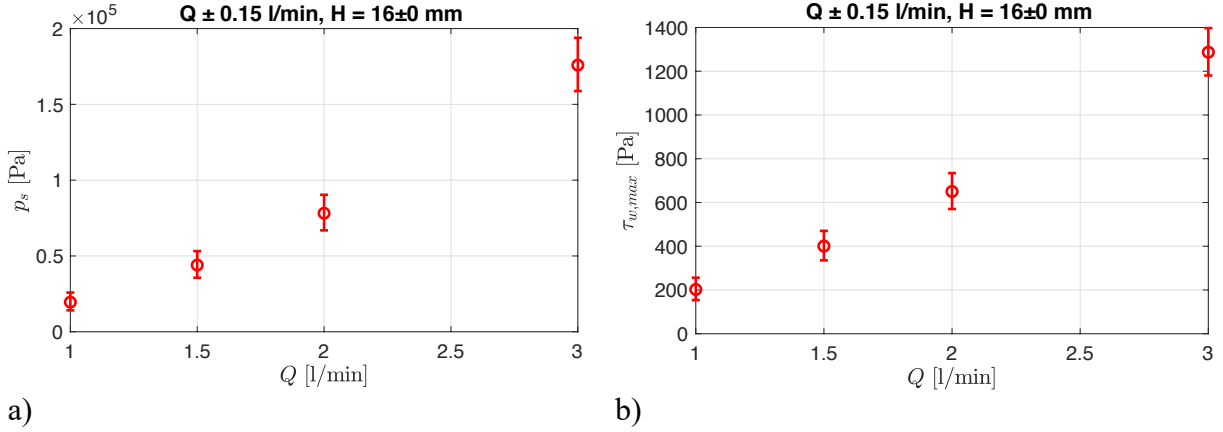

Fig. B2 – Stagnation pressure p_s (a) and maximum wall shear stress $\tau_{w,max}$ (b) under an immersed vertically-impinging waterjet, calculated using Equations 1 and 2 (respectively), with **±0.15 l/min error on flow rate Q**, and **null error on standoff distance H = 16 mm.**
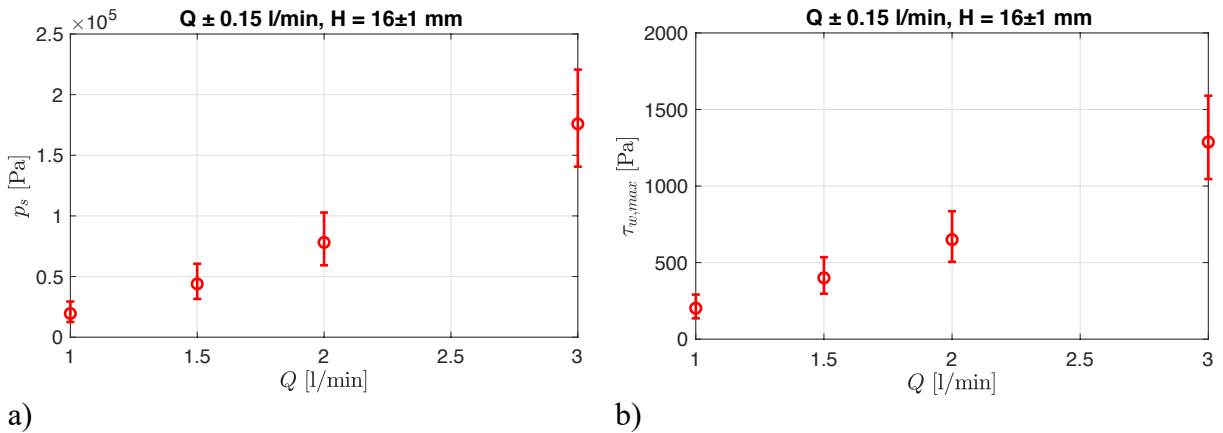

Fig. B3 – Stagnation pressure p_s (a) and maximum wall shear stress $\tau_{w,max}$ (b) under an immersed vertically-impinging waterjet, calculated using Equations 1 and 2 (respectively), with **±0.15 l/min error on flow rate Q**, and **±1 mm error on standoff distance H = 16 mm.**