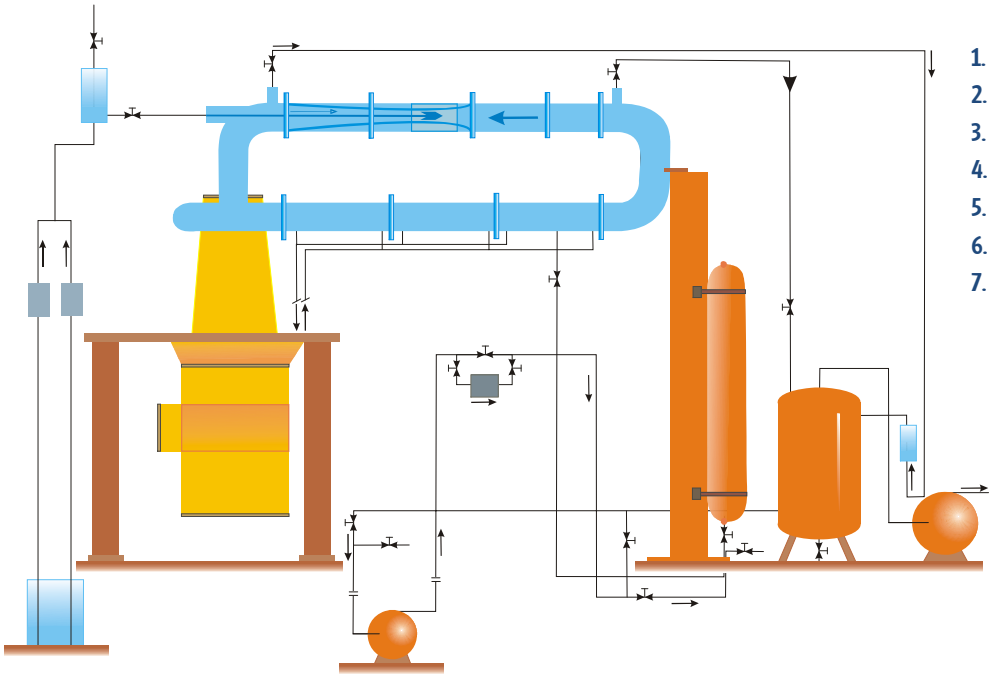
# High Speed Cavitation Tunnel Large



1. *Test section*
2. *Centrifugal pump*
3. *Heat exchanger*
4. *Pump motor*
5. *Filtration system*
6. *Deaeration system*
7. *Addition of special gases or liquids*

| | | |
|---|---|---|
| **Description** | Vertical plane, closed recirculating, variable speed and pressure, cooling/heating system, filtration system, deaeration system, addition of special gases or fluids | |
| **Type of drive system** | Centrifugal pump (inlet/outlet diameter 125 mm), thyrister controlled, 58 kW, 3000 rpm | |
| **Tunnel fluid capacity** | 0.06 m3 | |
| **Working section characteristics** | Circular (a) | diameter 40 mm |
| | Square (b) | 50 × 50 mm with rounded corners |
| | Rectangular (c) | 40 × 80 mm |
| **Working section max. velocity** | 65 m/s (a), 40 m/s (b) or 35 m/s (c) | |
| **Pressure range** | 2 - 3000 kPa (a), 2 - 800 kPa (b) or 2 - 600 kPa (c) | |
| **Cavitation number range** | $\sigma 0$ = 0.05 - 20 | |
| **Temperature range** | 10 - 80 °C | |
| **Instrumentation** | In-line holographic methods, laser techniques, strobe light, hydrophone, photomultiplier | |
| **Model size range** | Max. diameter of axisymmetric bodies 15 mm; max. chord length of hydrofoils 70 mm | |

MARIN
P.O. Box 28
6700 AA Wageningen
The Netherlands
T +31 317 49 39 11
F +31 317 49 32 45
E info@marin.nl
I www.marin.nl

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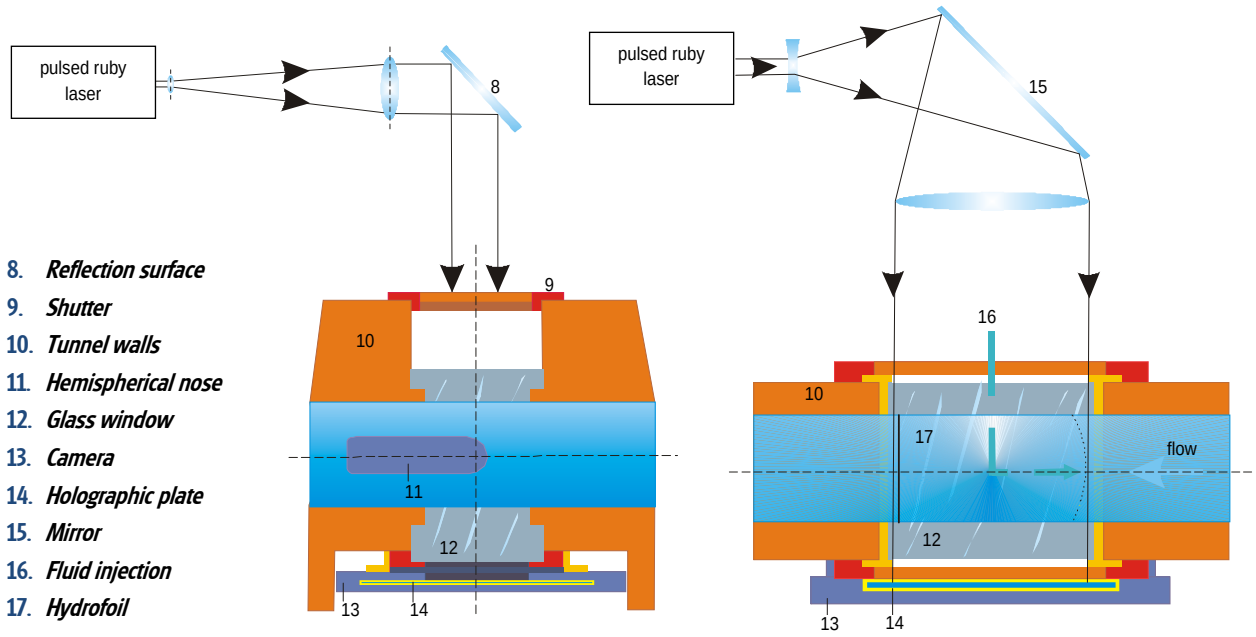
**Test capabilities**

- Cavitation inception measurements
- Holographic recordings of boundary layer flow behaviour (a), cavition phenomena (b) and nuclei distributions (c)
- Studies on laser-induced cavities
- Erosion measurements
- Noise measurements
- Luminescence measurements

**Published description**


- Witte, J.H.; "The Ultra High-Velocity Tunnel of the NSMB", International shipbuilding Progress, Vol. 13, No. 144, August 1966 (NSMB Publ. No. 281).
- Van der Meulen, J.H.J.; "A Holographic Study of Cavitation on Axisymmetric Bodies and the Influence of Polymer Additives", NSMB Publ. No. 509, June 1976.
- Van der Meulen, J.H.J.; "Boundary Layer and Cavitation Studies of NACA 16-012 and NACA 4412 Hydrofoils", Proc. 13th Symp. on Naval Hydrodynamics, Tokyo, Oct. 1980, pp. 195 -219.


8. *Reflection surface*
9. *Shutter*
10. *Tunnel walls*
11. *Hemispherical nose*
12. *Glass window*
13. *Camera*
14. *Holographic plate*
15. *Mirror*
16. *Fluid injection*
17. *Hydrofoil*


For more information please contact the department Ships;

T +31 317 49 34 72

E Ships@marin.nl