# INTERNATIONAL CAVITATION EROSION TEST
## Test Rig Identification Card

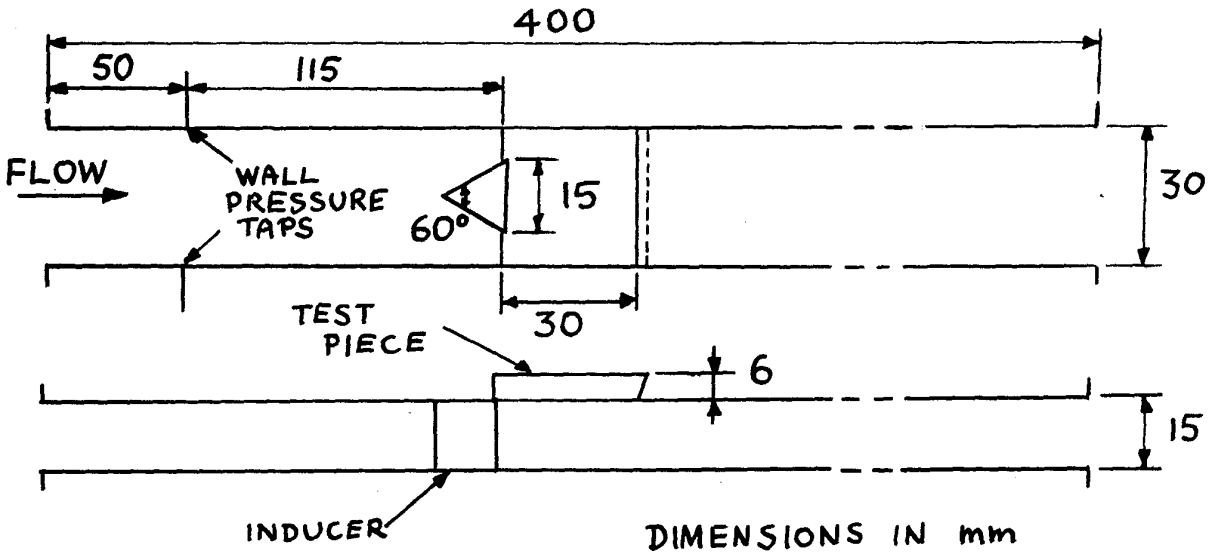
Facility: cavitation tunnel

Cavitation is generated by means of:

cavitator /~~venturi~~/ triangular wedge

Laboratory: **Thermo-Fluids Engineering Centre,**
**The City University**

1. Sketch of the cavitation chamber with specimens and basic dimensions (streamwise and transverse sections), dimensions and installation sites of the cavitator, specimen, pressure taps etc.

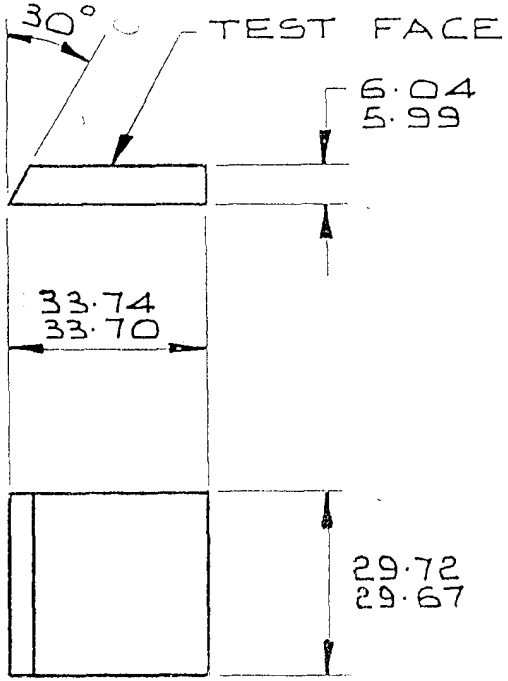



2. Basic operational data

| | | |
|---|---|---|
| pump power ..... | 22 | kW |
| liquid velocity in the undisturbed flow | 21 | m/s |
| liquid pressure in the undisturbed flow | 890 | kPa(abs) |
| liquid velocity at the specimen surface | 45 | m/s |
| liquid pressure at the specimen surface | 990 | kPa(abs) |
| standard temperature of liquid | 40 | ˚C |
| other data *vortex shedding frequency:* ..... | 600 | Hz |

.....

designer/manufacturer: Peter Lush / University Workshop

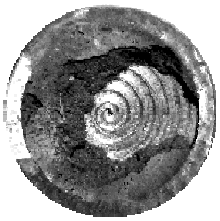



MODIFICATIONS

ISSUE No2
LENGTH WAS
63·74 / 63·70
6-7-1988

UNLESS OTHERWISE STATED:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL DIMENSIONS NOT TOLERANCED TO BE ± 0·25.
3. DRAWN TO FIRST ANGLE PROJECTION.
4. SURFACE TEXTURE IN μm.
5. MACHINE WHERE SHOWN THUS ✓

| | | | | | |
|---|---|---|---|---|---|
| REQUESTED BY | DR. P.A. LUSH - DEPT. OF MECH. ENG. | | | | |
| MATERIAL | TO BE SPECIFIED BY CLIENT | | | | |
| USED ON | CAVITATION RIG | | | FINISH | |
| SCALE | FULL SIZE | DRAWN | G. K. | PROJECT No. D.378 | JOB No. |
| TITLE | SPECIMEN FOR HYDRODYNAMIC CAVITATION EROSION TEST | APPROVED | | DRAWING No. D.123 | ISSUE No. 2 |
| | | DATE | 15·10·87 | THE CITY UNIVERSITY | CENTRAL WORKSHOP |



# INTERNATIONAL CAVITATION EROSION TEST

## Laboratory Results Summarisation

Laboratory: **CITY UNIVERSITY**
**THERMO-FLUIDS ENGINEERING RESEARCH CENTRE**
LONDON, U.K.

**Facility: CAVITATION TUNNEL**

*cavitator:* symmetrical wedge
*specimen:* rectangular plate

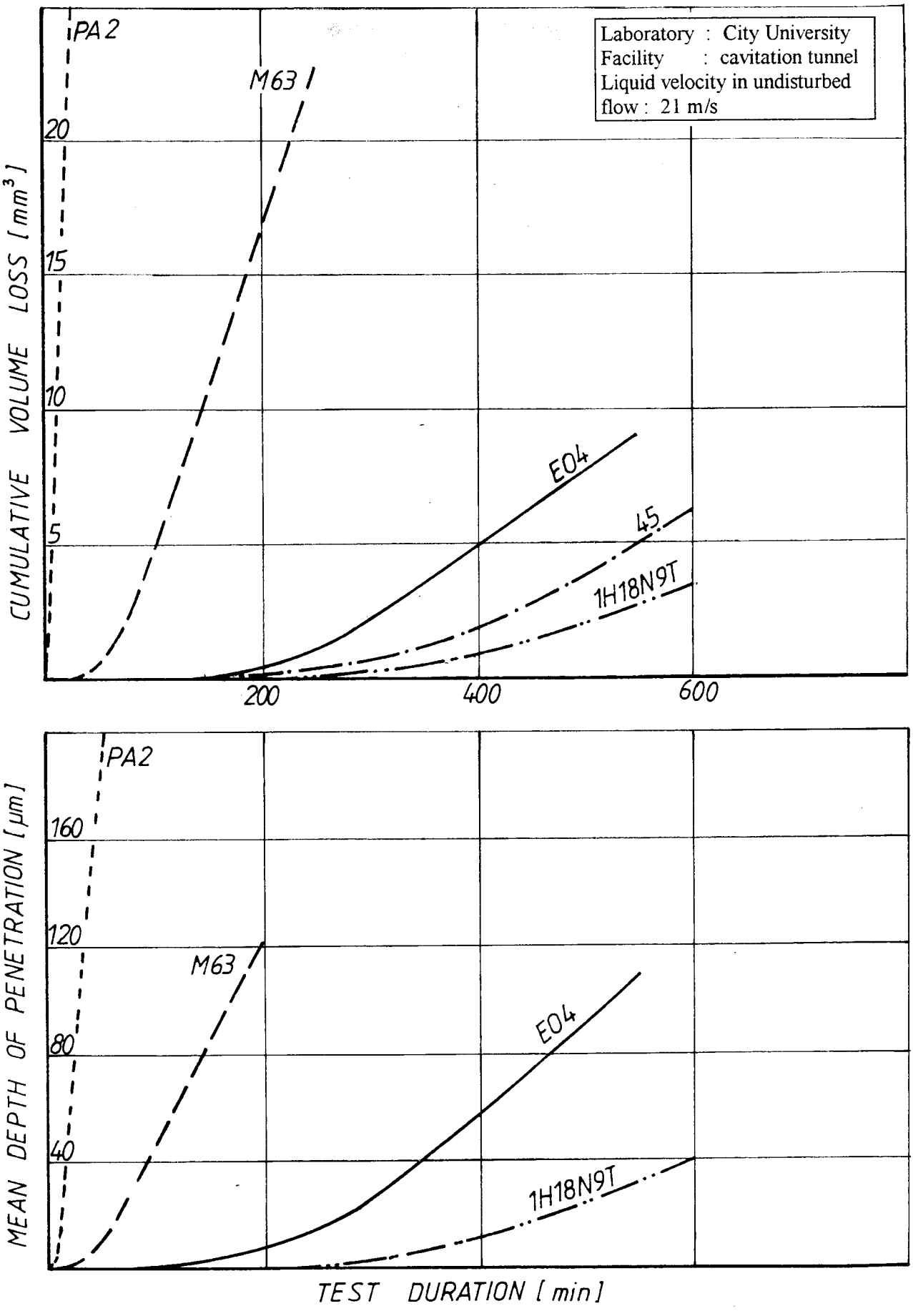
*pressure:* 879 kPa (abs)
*flow velocity:* 21 m/s
*impinged area:* 897 $mm^2$

*working liquid:* tap water, pH 7.8, dissolved air content: 24.55 ml/l, temperature: 40 $^0$C

| *material* | *Test duration* | *Volume loss* | *Eroded area* | *Mean&Max Depth of Penetration* | | *Incubation period* | | *MDPR* | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | $\tau_{0.2}$ | $\tau_{inc}$ | *max* | *ultimate* |
| | min | $mm^3$ | $mm^2$ | μm | μm | min | min | μm/min | |
| PA2 | 150 | 158.06 | 398 | 398 | - | 0.11 | 12 | 2.01 | 2.01 |
| M63 | 150 | 10.26 | 168 | 61 | - | 9 | 66 | 0.742 | 0.742 |
| M63 | 240 | 22.46 | 168 | 134 | - | 9 | 66 | 0.742 | 0.742 |
| E04 | 550 | 9.05 | 83 | 109 | - | 56 | 213 | 0.332 | 0.332 |
| 45 | 550 | 4.91 | 84 | 58 | - | 50 | 367 | 0.317 | 0.317 |
| 1H18N9T | 550 | 2.86 | 86 | 33 | - | 209 | 351 | 0.152 | 0.152 |
| 45 | 600 | 6.10 | 84 | 73 | - | 50 | 367 | 0.317 | 0.317 |

**Comment**

Eroded area has been evaluated from the photographs delivered by the Contributor.


Laboratory : City University
Facility : cavitation tunnel
Liquid velocity in undisturbed flow : 21 m/s
CUMULATIVE VOLUME LOSS [mm³]
PA2
M63
E04
45
1H18N9T
20
15
10
5
200
400
600
MEAN DEPTH OF PENETRATION [µm]
160
120
80
40
TEST DURATION [min]

CT 004