INTERNATIONAL CAVITATION EROSION TEST

Test Rig Identification Card

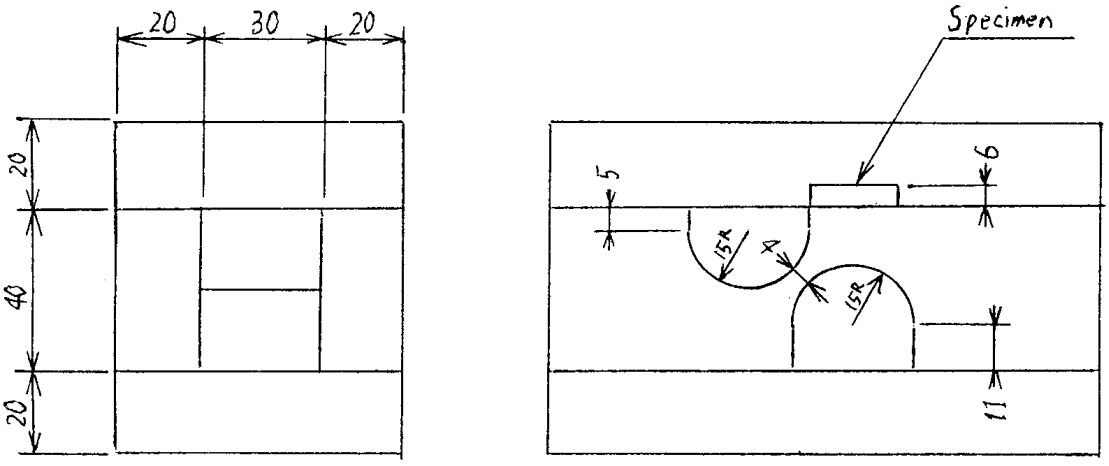
Facility: cavitation tunnel

Cavitation is generated by means of:

cavitator /~~venturi~~/ system of barricades

Laboratory: **Prof. M.Matsumura,** Dept. of Chemical Engineering,
Faculty of Engineering, Hiroshima University, Japan

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.



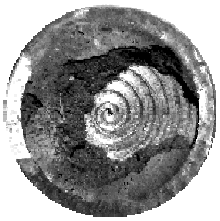
2. Basic operational data

pump power	11	kW
liquid velocity in the undisturbed flow	about 30	m/s
liquid pressure in the undisturbed flow	405.2	kPa
liquid velocity at the specimen surface	?	m/s
liquid pressure at the specimen surface	?	kPa
standard temperature of liquid	40	˚C

other data ……

……

designer/~~manufacturer~~: Prof. H.Louis, University of Hannover



INTERNATIONAL CAVITATION EROSION TEST

Laboratory Results Summarisation

Laboratory: **HIROSHIMA UNIVERSITY**
DEPARTMENT OF CHEMICAL ENGINEERING
HIROSHIMA, Japan

Facility: CAVITATION TUNNEL

cavitator: semicylindrical barricades
specimen: circular plate

pressure: 405.2 kPa
flow velocity: 30 m/s
impinged area: 259 mm^2

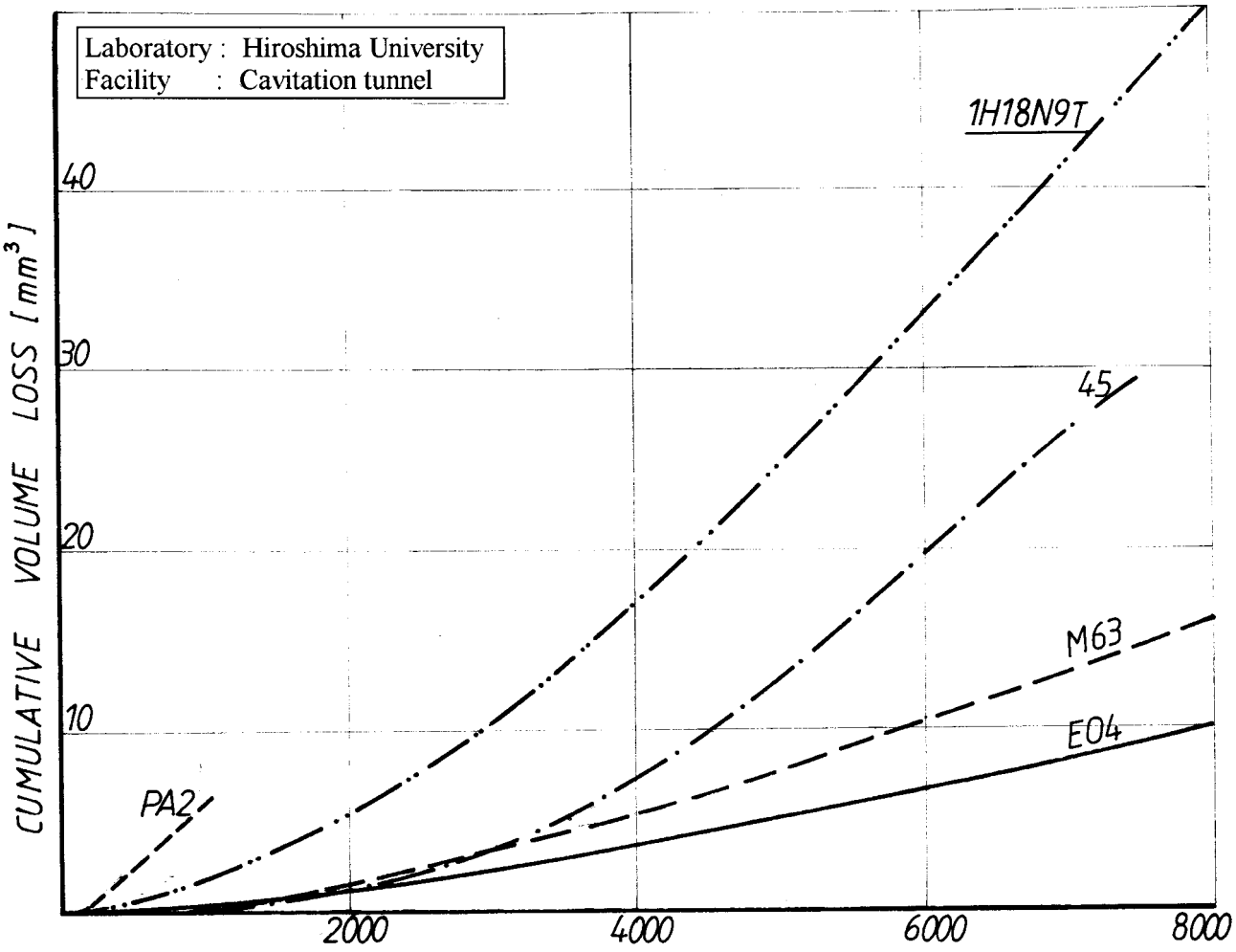
working liquid: tap water, temperature: 40 ^{0}C

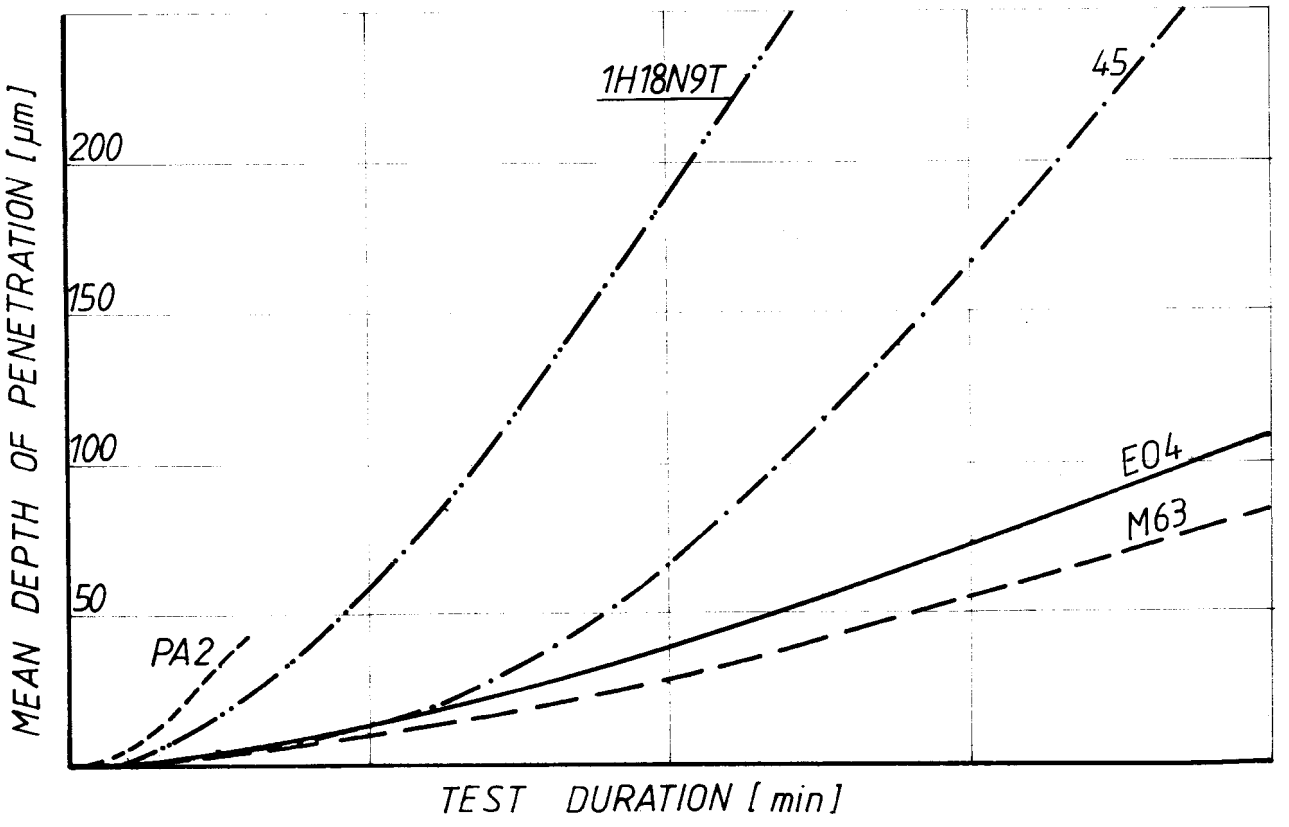
material	*Test duration*	*Volume loss*	*Eroded area*	*Mean&Max Depth of Penetration*		*Incubation period*		*MDPR*	
						$\tau_{0.2}$	τ_{inc}	*max*	*ultimate*
	min	mm^3	mm^2	μm	μm	min	min	μm/min	
PA2	1140	5.64	142.7	39.5	890	111	435	≥0.055	-
M63	7500	14.64	195.6	74.8	-	85	2200	0.014	0.014
E04	7500	9.11	93.0	98.0	495	62	3330	0.022	0.022
45	7500	29.05	114.5	253.8	625	34	3300	0.063	0.059
1H18N9T	7500	45.67	91.0	502	890	71	2167	0.093	0.093
M63	12300	26.93	195.6	138.0	600	85	2200	0.014	0.014
E04	11150	16.15	93.0	173.7	495	62	3330	0.022	0.022
1H18N9T	8000	50.05	91.0	550	890	71	2350	0.093	0.100
tarnamide	21900	-	-		149	-	6000*	-	0.011*

Comment

The impinged area was not specified by the Contributor. The value given has been obtained basing on data on aluminium samples thickness and the initial mass.

* The value given corrsponds to the maximum (not mean) depth of erosion


Laboratory : Hiroshima University
Facility : Cavitation tunnel
1H18N9T
45
M63
E04
PA2
CUMULATIVE VOLUME LOSS [mm³]
40
30
20
10
2000
4000
6000
8000


1H18N9T
45
E04
M63
PA2
MEAN DEPTH OF PENETRATION [μm]
200
150
100
50
TEST DURATION [min]