



INTERNATIONAL CAVITATION EROSION TEST

Test Rig Identification Card

Facility: vibratory rig

Principle of vibration generation:

magnetostriction /~~piezoelectricity~~/

Laboratory: China Ship Scientific Research Centre (CSSRC)

1. Sketch of the sample (counter-sample) with dimensions and showing mounting

Sample size: $\varnothing 16\text{ mm} \times 3\text{ mm}$

The sample is mounted on the horn tip with a screw;

sample submergence depth: 1.5 mm;

vessel diameter: 110 mm, height: 140 mm

or

The sample is mounted on the holder beneath the horn tip with a screw.

The gap between the upper surface of the sample and vibrating plane is 0.8 mm;

vessel diameter: 130 mm, height: 60 mm

2. Basic operational data

input power: 250 W

oscillation frequency: ≈ 20 kHz

oscillation amplitude (p-p): 32 μm

standard temperature: 22 ± 1.5 °C

open/~~pressurised~~ vessel

sample submergence depth (open vessel): 4 ± 1 mm

vessel diameter: mm height: mm

sample area subjected to damage: ≈ 150 mm²

other data:
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designer: *Wuxi Institute of Ultrasonic Electron Devices*

manufacturer: *Wuxi Ultrasonic Electron Devices Factory*



INTERNATIONAL CAVITATION EROSION TEST

Laboratory Results Summarisation

Laboratory: **CHINA SHIP SCIENTIFIC RESEARCH CENTER**
WUXI, China

Facility: **VIBRATORY RIG**

oscillation frequency: 20.0 kHz *sample submergence:* 1.5 mm
amplitude: 32 μ m *impinged area:* 201.1 mm²

dissolved air content: 16.6 ml/l, chloride: 23.0 mg/l

working liquid: distilled water, 20°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	μ m	μ m	min	min	μ m/min	
PA2	150	15.15	174.1	87.0	-	0.5	4.4	0.980	0.036
M63	150	5.71	107.4	53.0	-	6.0	34.0	0.450	-
E04	150	1.72	107.0	16.0	-	4.0	64.0	0.156	-
45	150	0.76	129.7	5.9	-	10.0	108.0	0.118	-
1H18N9T	150	0.33	135.0	2.5	-	22.0	90.0	0.043	0.036
M63	210	8.48	107.4	79.0	-	6.0	34.0	0.450	0.045
E04	310	4.07	107.0	38.0	-	4.0	64.0	0.156	0.140
45	440	4.65	129.7	36.0	-	10.0	108.0	0.118	0.098
1H18N9T	600	2.51	135.0	19.0	-	22.0	90.0	0.043	-

Comments

- 1° Eroded area has been not explicitly specified by the Contributor. The value given in the table has been derived from the volume loss and the mean depth of erosion data.
- 2° Maximum erosion depth measured by means of a roughometer.

