



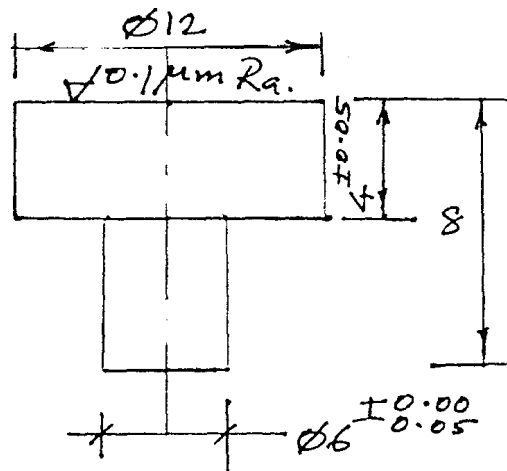
INTERNATIONAL CAVITATION EROSION TEST

Test Rig Identification Card

Facility: **Cavitating Jet**

Laboratory: **Metrology and Material Testing Laboratory,**
Fluid Control Research Institute, Palghat, India

1. Sketch of the facility with specimen and basic dimensions

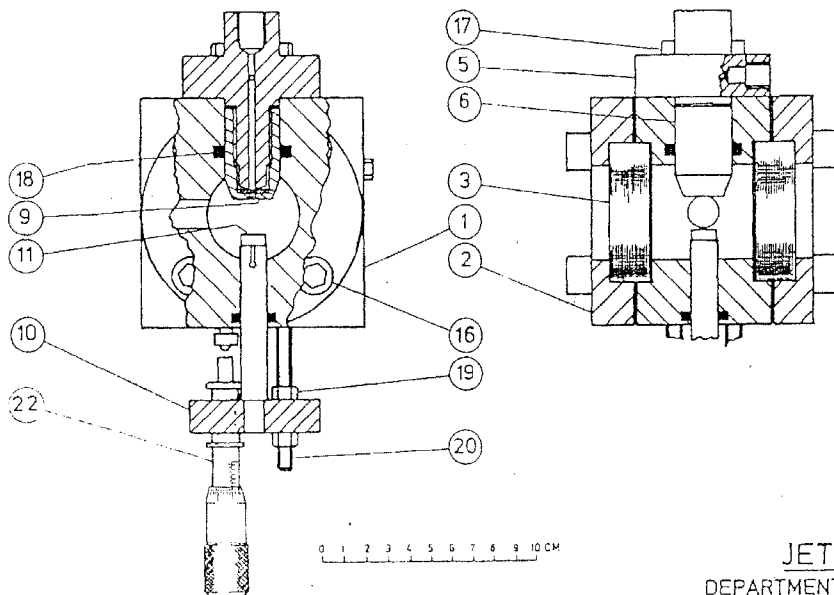


2. Basic operational data

nozzle diameter	0.4+0.015	mm
nozzle length	1.0	mm
test chamber size (diameter/width)	dia 50 mm / length 50	mm
specimen diameter	12.0	mm
maximum stand-off distance of the specimen	12.0	mm
pump power	10.8	kW
maximum pressure upstream the nozzle (pump pressure)	210	bar
maximum and minimum pressure in the chamber: adjustable, adjustment range 8 ÷ 20 MPa		

designer: Dr Andrzej Lichtarowicz, University of Nottingham

manufacturer: Fluid Control Research Institute



1	BLOCK	1
2	WINDOW FLANGE	2
3	WINDOW	2
5	NOZZLE HOLDER	1
6	NOZZLE HOLDER NUT	1
7		1
8		
9	NOZZLE	1
10	SPECIMEN HOLDER*	1
11	SPECIMEN	—
12		
13		
14		
16	SOCKET HEAD SCREW M10 x 40mm	8
17	HEX HEAD BOLT M6 x 30mm	4
18	SEALING RING	—
19	NUT M6	8
20	STUD M6 x 85mm	4
21		
22	MICROMETER HEAD	

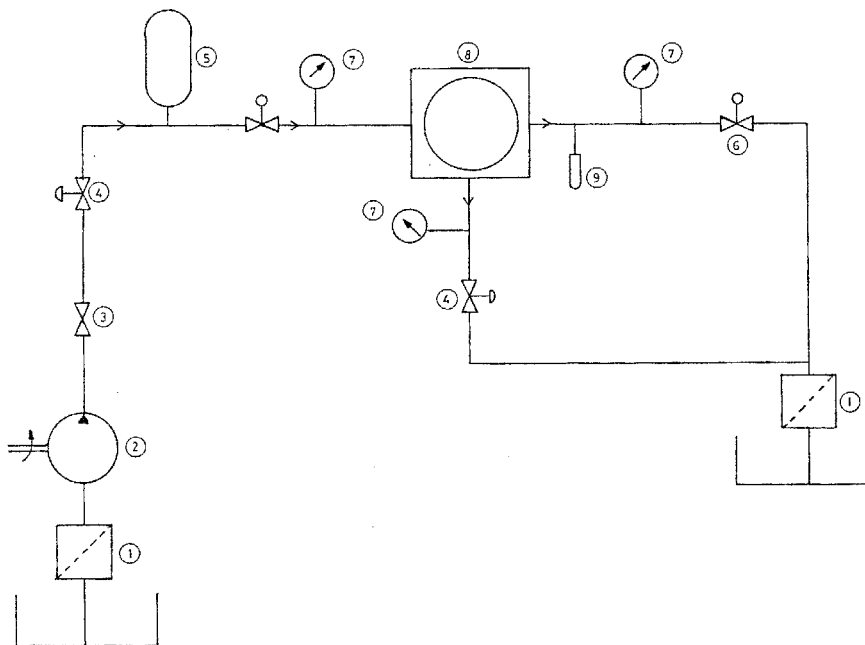
JET CAVITATION EROSION RIG
DEPARTMENT OF MECHANICAL ENGINEERING

*HOLDER DESIGN MODIFIED 11/84

REVISED 7/88

DRG N° 1130 (REVISED 7/86)

UNIVERSITY OF NOTTINGHAM



- 1—FILTER
- 2—HIGH PRESSURE PUMP — 210 bar
- 3—PRESSURE RELIEF VALVE
- 4—CONTROL VALVE
- 5—PULSATION DAMPER
- 6—PRESSURE REGULATING VALVE
- 7—PRESSURE GAUGE (0-3000 psi)
- 8—JET CAVITATION EROSION RIG
- 9—THERMOMETER

SCHEMATIC OF TEST LAYOUT



INTERNATIONAL CAVITATION EROSION TEST

Laboratory Results Summarisation

Laboratory: **FLUID CONTROL RESEARCH INSTITUTE**
PALGHAT, India

Facility: **CAVITATING JET**

upstream pressure : 9.81 MPa stand-off distance: 10.0 mm
pressure in the chamber: 0.14 MPa specimen area subjected
nozzle diameter 0.397÷0.424 mm to damage: 113.1 mm²
jet velocity : 92÷98 m/s

working liquid: tap water, pH 6.5, temperature: 28±2 °C,
chlorides: 4 mg/dm³, sulphate: 0, turbidity: 2 mg/dm³

material	Test	Volume	Eroded	Mean&Max Depth		Incubation period		MDPR	
	duration	loss	area	of Penetration		$\tau_{0.2}$	τ_{inc}	max	ultimate
	min	mm ³	mm ²	μm	μm	min	min	μm/min	
PA2	960	46.926	59.4	740	3675	6	40	1.205	0.64
E04	1200	6.655	35.5	188	902	41	157	0.227	-
45	1200	2.040	23.7	86	482	71	187	0.085	-
1H18N9T	1200	0.191	20.8	9	40	120	?	0.016	-
M63	1200	8.563	48.5	177	914	23	85	0.200	-
tarnamide	1200	no discernible erosion							
E04	1800	9.825	40.0	246	1315	41	200	0.178	-
45	2400	5.338	33.7	159	659	71	187	0.092	-
1H18N9T	3000	2.527	51.8	49	569	120	1350	0.027	0.027
tarnamide	1860	no discernible erosion							

Enclosure

Selected technical details

1. Depth measurement of eroded area
2. Details of instruments

