INTERNATIONAL CAVITATION EROSION TEST
Test Rig Identification Card

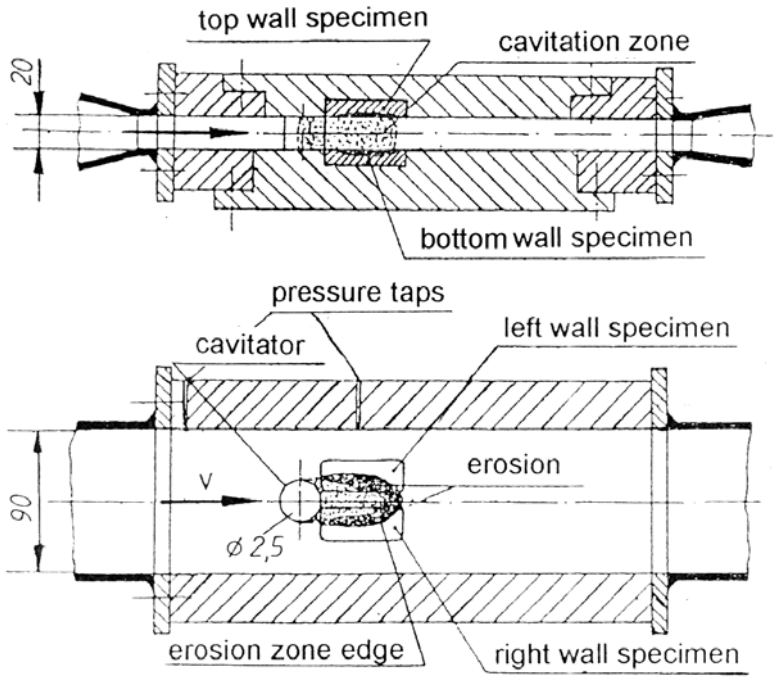
Facility: cavitation tunnel

Cavitation is generated by means of:

Cavitator /~~venturi~~/ circular body

Laboratory: **Hohenwarte II Pumped Storage Power Plant,** Germany

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 ..... - kW

liquid velocity in the undisturbed flow ..... 30 m/s

liquid pressure in the undisturbed flow ..... 780 kPa

liquid velocity at the specimen surface ..... m/s

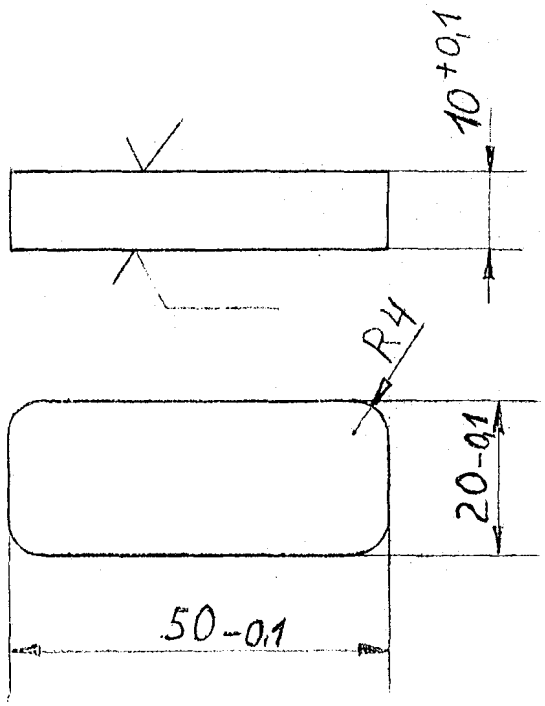
liquid pressure at the specimen surface ..... kPa

standard temperature of liquid ..... 6 ÷ 12 °C

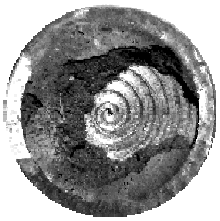
other data .....

.....

designer / manufacturer: *VEB Pumpspeicherwerke, Sitz Hohenwarte*



Tag 29.10.87	Name Dimter	Werkstoff	
VEB PSW Bereich T		Probe	M1:1



INTERNATIONAL CAVITATION EROSION TEST

Laboratory Results Summarisation

Laboratory: **UNITED POWER PLANTS Co. PEITZ**
HOHENWARTE II PUMPED-STORAGE PLANT
HOHENWARTE, *Germany*

Facility: CAVITATION TUNNEL

working liquid: tap water, pH 6.9, 26 mg air pro 1 dm (9.2 mg O /dm), 10 C
atmospheric pressure: 99.7 kPa

cavitator: circular cylinder ∅ 25
specimen: rectangular plate

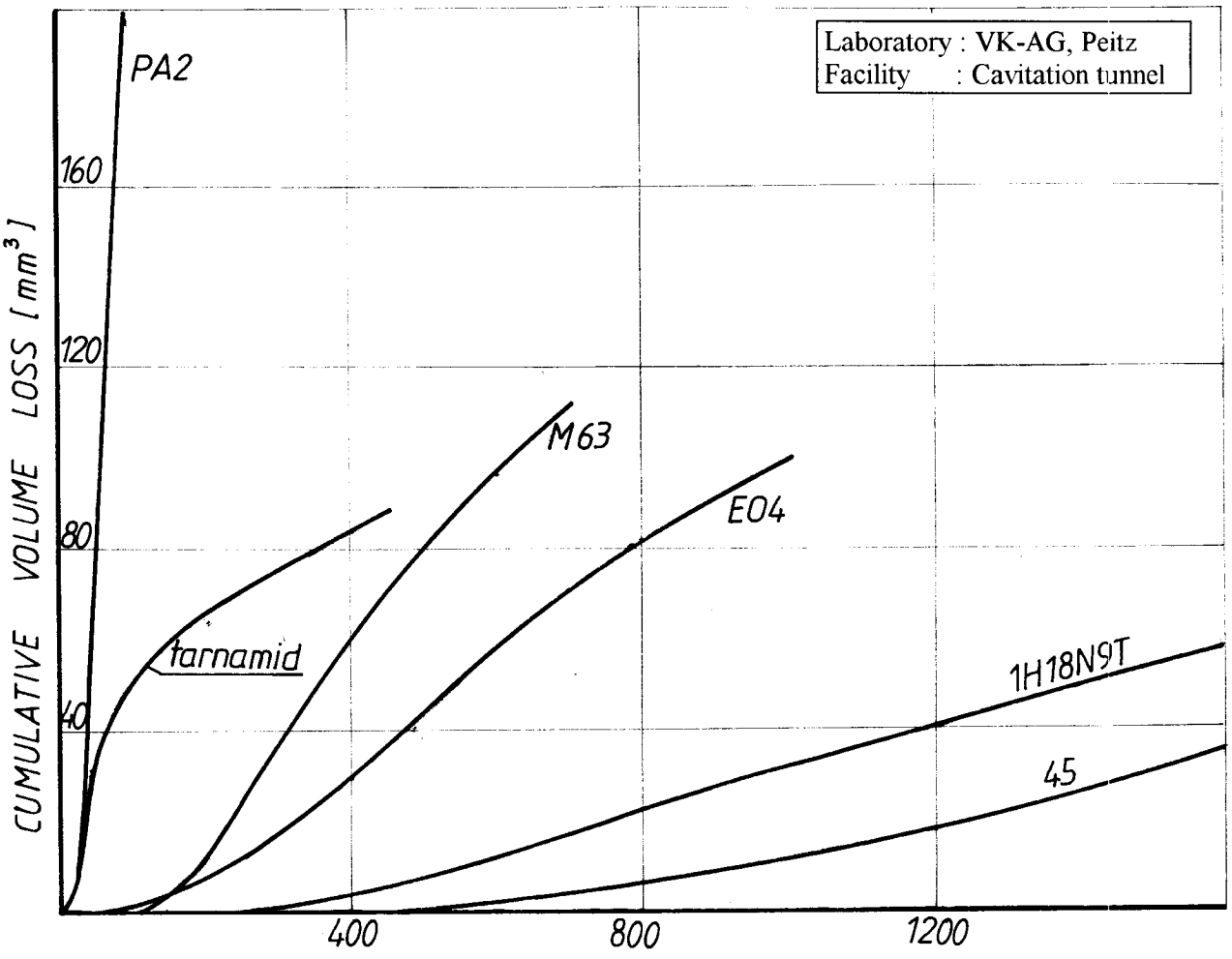
pressure: 930 kPa (gauge)
flow velocity: 30 m/s
impinged area: 986.3 mm^2

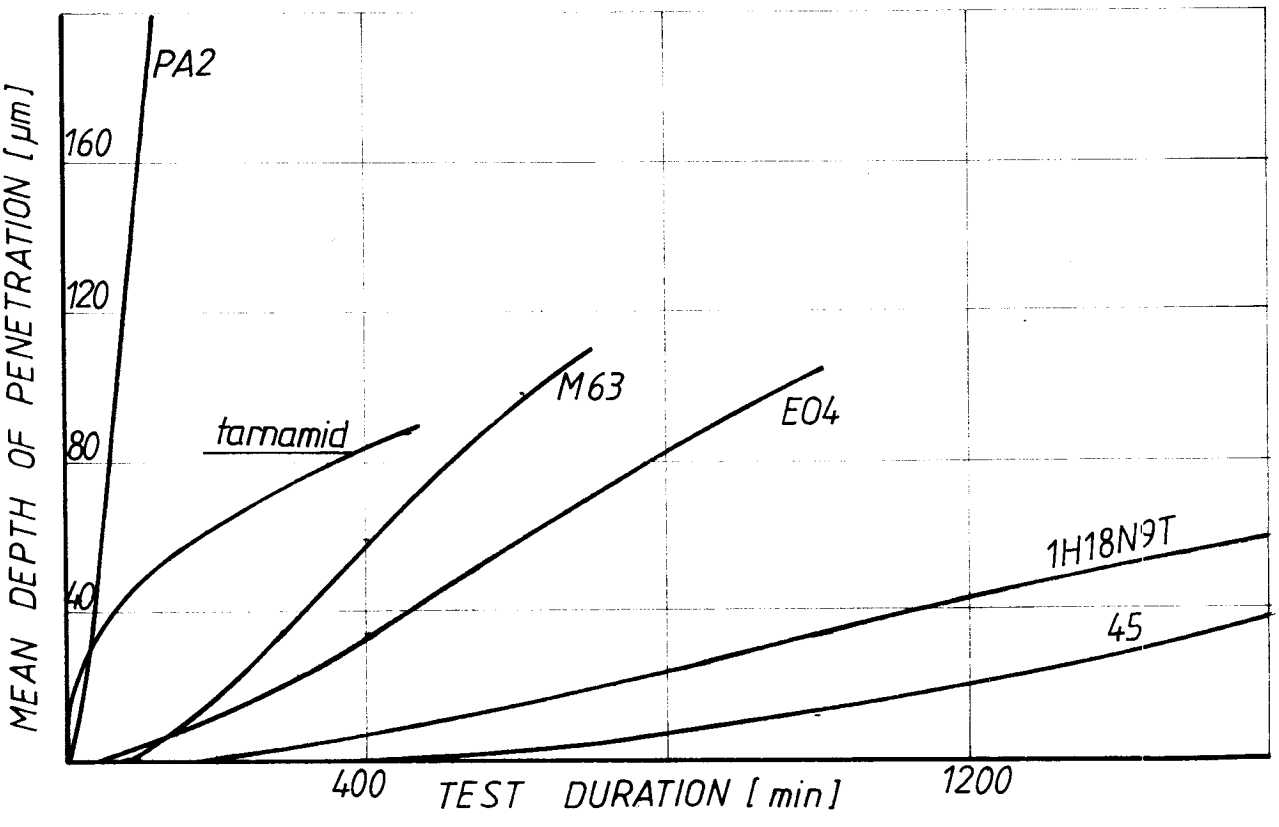
working liquid: tap water, pH 6.9, 26 mg air pro 1 dm^3 (9.2 mgO_2/dm^3),
temperature 10˚C atmospheric pressure: 99.7 kPa

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	150	323.0	986.3	327.5	5347	5	14	2.35	2.00
M63	720	115.4	986.3	117.0	3500	90	132	0.25	0.15
E04	720	71.3	986.3	72.3	2940	10	233	0.14	-
45	720	3.8	986.3	3.9	30	600	755	0.048	-
1H18N9T	720	3.0	986.3	3.1	120	300	360	0.050	-
45	3600	130.9	986.3	132.7	1976	600	755	0.048	-
1H18N9T	3600	106.5	986.3	108.0	3113	300	360	0.050	-
E04	1020	102.6	986.3	104.0	3600	10	200	0.151	
45	4035	142.3	986.3	144.3	2040	600	1000	0.059	
1H18N9T	3780	110.3	986.3	111.9	3200	300	313	0.049	0.021
tarnamide	420	101.9	986.3	86.1	2450	10	5	1.135	0.075

Comment

Eroded area was not specified by the Contributor. The value inserted in the table corresponds to the total surface area of a specimen. It results from the data available that such an assumption must have lead to the eroded area over- estimation by a factor of at least 2.


Laboratory : VK-AG, Peitz
Facility : Cavitation tunnel
CUMULATIVE VOLUME LOSS [mm³]
PA2
160
120
80
40
M63
E04
tarnamid
1H18N9T
45
400
800
1200


MEAN DEPTH OF PENETRATION [µm]
PA2
160
120
80
40
M63
E04
tarnamid
1H18N9T
45
400
TEST DURATION [min]
1200