New Folder Name Conductance Calculation

CONDUCTANCE CALCULATION

ELECTRIC ANALOG METHOD

$$C=C_1C_2/(C_1+C_2)$$

NORMALIZE:

$$W=C/C_0 \quad W_1=C_1/C_0 \quad W_2=C_2/C_0$$

$$W=W_1W_2/(W_1+W_2)$$

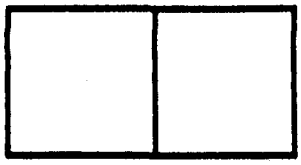
?DERIVATION/JUSTIFICATION?

?ACCURACY?

C = CONDUCTANCE (C_0 = APERTURE COND.)

W = TRANSMISSION FRACTION

1. CONDUCTANCE OF TWO PIPES



FOR L/R=2, W=.514230527 (FROM TABLES)

JOIN 2 PIPES, EACH HAS L/R=2

W, ELECTRIC ANALOG = .257115

BUT, FOR L/R=4, W=.356572250 (FROM TABLES)

ERROR=-27.9%

OATLEY'S METHOD

JOIN SAME TWO PIPES, USING OATLEY'S EQUATION:

$$W=W_1W_2/(W_1+W_2-W_1W_2)$$

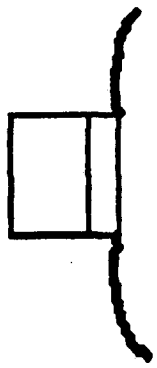
$$W=.346103854$$

ERROR=-2.9%

$$C=C_1C_2/(C_1+C_2-C_1C_2/C_0)$$

Oatley, C.W.; "The flow of gas through composite systems at very low pressure", British Journal Applied Physics, v 8, p 15-19, Jan 1957

2. SPEED OF PUMP + NOZZLE



50,000 L/S CRYOPUMP, N_2 @ 300K

52" DIA NOZZLE, 26" LONG

ELEC. ANALOG	34,336. L/S	-20.9%
OATLEY	43,492.	0.1%
NUMERICAL	43,428.	