PS/ML/Tech. Note/84-8
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PROVISIONAL ACCEPTANCE TEST FOR THE VAT DN 100 VALVE

(Right angle, viton sealed)

M. Brouet

The prototype valve was received the 26th of January 1984. It was not possible to immediately start measurements because of the accelerators shut-down. Measurements started the 27th of February.

Test set up

The valve was connected to a clean turbomolecular pump according to Fig. 1. All metal seals.

The valve was subjected to the following tests:

- visual inspection : OK
- overall leak test : OK
- tightness of the seal plate : OK
- operational speed and control of the limit switches: OK
- Bake out at 150 °C, temperature gradient 50 °C h^{-1}
- Measurement of outgassing:
  - pressure rise method = 1.5 10^{-6} t l s^{-1}
  - dynamic method (pressure x pumping speed) = 7 x 10^{-6} t l s^{-1}
  - leak tightness of the seal plate : 1 x 10^{-6} t l s^{-1}

Investigations showed that the quality of the Viton was responsible for the poor results.

The defective valve was sent back to VAT in agreement with Mr. Gschwenter and Mr. Fisher (9th of March).

The 29th of March: valve was returned to CERN.

- overall tightness : OK
- bake out (as before)
- limit pressure 24 hours after baking 1.5 10^{-9} torr
- valve vented with dry nitrogen for 2 hours.

- pump down:
  limit pressure after 24 hours: $5.5\ 10^{-9}$ torr
  specific outgassing: $Q_{\Delta 24} \simeq 3.5\ 10^{-10}$ t l s^{-1} cm^{-2}.

- leak tightness (a gas analysis showed only small amount of water)

  - overall: OK
  - seal plate against atmospheric pressure: OK

- 1000 cycles

- leak tightness:

  - overall: OK
  - seal plate against atmospheric pressure: Ok

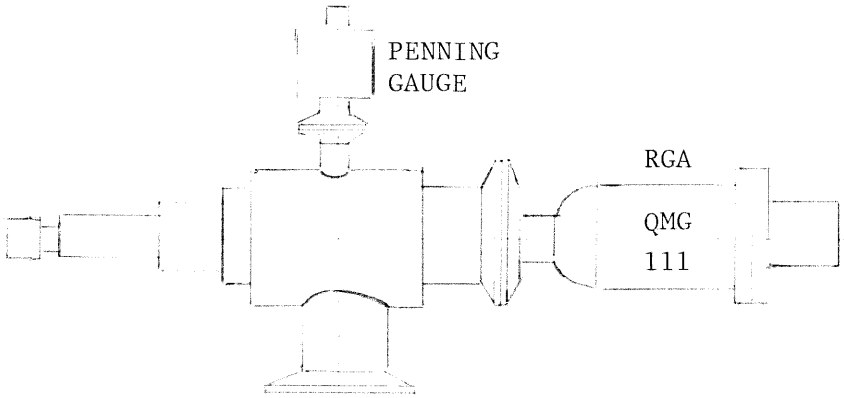
- operational speed and control of the limit switches: OK

In view of these results, production may start for the valves DN 100 and DN 63. We recommend VAT to bake the Viton "O ring" before fitting into the valves, in a vacuum oven (10^{-4} torr) 150 °C for 10 hours.

Distribution:

Section Vide/ML
P.L. Riboni

Messrs. Fisher and Gschwenter / VAT



TPM 270

Fig. 1

Vanne équerre NW 100

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CURVE 1 FIRST PUMPDOWN (VALVE AS RECEIVED)

CURVE 2 AFTER BAKING @ +2 HOURS, N° AT. PR.

CURVE 3 TURBO Molecular Pump down

Volume [m³]	
Surface [m²] Al	
SST	
Al_2O_3	
Ferrite	
.....	
.....