Technischer Überwachungs-Verein Hessen e.V.

CERTIFICATE

concerning Helium Leakage Tests on Spindle Penetrations of Ball Valves

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test no.: W 9167

APPLICANT	:	PERRIN GmbH Siemensstr. 1 D-6369 Nidderau 1
DATE OF APPLICATION	:	02.01.1991
TEST REQUIREMENTS	:	Technical Instruction for maintaining clean air (TA-Luft) dated 27.02.1986, proof for interrupter sealing systems on valves, slide valves and shut-off valves in accordance with point 3.1.8.4

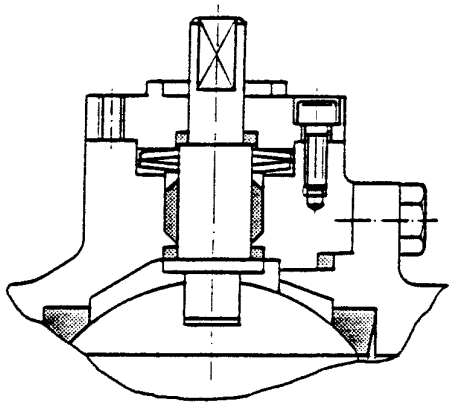
TEST CONDITIONS

- Test Object	:	Spindle penetrations of ball valves (stuffing boxes with springs, maintenance-free).
- Test Specimen	:	See Table, Page 2
TYPE OF TEST	:	Integral Method Sleeve Test
- Test Instrument	:	"Du-Pont leak detector 120 SSA"
- Test Medium	:	Helium "4,6" (99,9996 Vol.%)
- Test Temperature	:	Room temperature
- Admissible Leakage rate:		1×10^{-5} mbar x dm^3/sec

Type	Spindle ϕ d (mm)	Test Pressure (bar)	Switch Cycle (open/close)	Result	Range of Nominal Values Range DN
429093	15	1,20,40	25.000	see above	15-25
429094	20	1,20,40	25.000	see above	15-50
429095	30	1,20,40	25.000	see above	25-100
429096	45	1,20,40	25.000	see above	50-150
429096	60	1,20,40	25.000	see above	100-250

PERRIN-Spindle Penetration:

Stuffing box with springs, maintenance-free
Material of stuffing box:
PTFE with fibre glass portion
PTFE with graphite portion
pure graphite



Upon application, from February 11 until February 22, 1991, the leakage rates of ball valves with stuffing boxes were determined in accordance with Test Instruction Air (TA-Luft), (Edition Feb. 27, 1986), Article 3.1.8.4.
Hereby, for all spindle diameters maximum leakage rates of $1,5 \times 10^{-7}$ mbar x dm^3/sec integral to the outside resulted.
The result shows that the tested spindle penetrations fulfill the requirements of TA-Luft point 3.1.8.4.

Eschborn, Feb. 22, 1991

The Expert