

INSTITUTE TNO FOR BUILDING MATERIALS AND BUILDING STRUCTURES

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REPORT

Nr. B-84-290(E)

Orderno. 00.65.6.0084.035

Date: May 1984

Re: THE BEHAVIOUR OF A BUTTERFLY VALVE TYPE EVS 150 (SIZE 150 MM) DURING HEATING
AT 550°C.

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Wouter Witzel B.V.

P.O. Box 465

To: 7500 AL ENSCHEDE

The Netherlands

This report has been compiled in April 1984.

If it has to be used after a period of time, it is advisable to contact the Technical Centre for Fire Prevention TNO, to check whether the usefulness of the contents has remained unaltered.

This report contains 2 pages and 2 drawings.

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Subject : Butterfly valve type EVS 150 (size 150 mm).

Tested for : Behaviour during heating according the requirements of Lloyds Register of Shipping in London.

Sponsor : Wouter Witzel B.V.
P.O. Box 465
7500 AL ENSCHEDE
The Netherlands

Testing date : 8th May 1984.

The butterfly valve : The tested valve was indicated in the sponsor's catalogue as the type EVS 150. The assembled valve parts were stated with a description on the enclosed drawing no. 2. The actuation of the valve was by means of a handle with a length of 315 mm.

Test purpose : To examine if the butterfly valve satisfied the requirements of Lloyds Register of Shipping in London. This requirements are:

The valve should be placed in a suitable furnace or oven where a temperature of 540°C (1000°F) should be maintained for 20 minutes, during which time an internal waterpressure without flow of 8.3 bar (120 lb per square inch) should be maintained on the valve.

At the end of the test the maximum permissible leakage is not to exceed 22.7 litre (5 imperial gallons) per minute.

The valve is to be tested in the closed position with pressure on one side of the valve and may have an open ended pipe connected to the other side of the valve leading outside the furnace or oven.

Test method

: The tested valve was mounted between two steelpipes \emptyset 168.3 x 4.5 mm by means of welded-on flanges and 8 bolts/nuts M20. Each of the pipes had a length of abt. 1 m and one of them was connected to a waterpressure-pump, while the other had a function as drain for eventual leaking water (see drawing no. 1).

The valve, with the two connected pipes, was heated in the furnace according to the requirements.

The inside dimensions of the furnace were about 1 x 1 x 1 m, so, the exposed part of the test piece had a length of abt. 1 m. During the heating, the temperature in the furnace was measured by means of thermocouples installed at 100 mm from the test piece (according to IMO-Resolutions).

Observations

: 0 minutes igniting of the burners in the furnace. The waterpressure against the closed valve was adjusted at 8.3 bar. During the heating this pressure was maintained. After 6 minutes, the temperature in the furnace reached the required value of 540°C; some vapour escaped out of the "drain" pipe. After 24 minutes, condensate drops were visible on the edge of the "drain" pipe. After 27 minutes, the valve had not leaked any water.

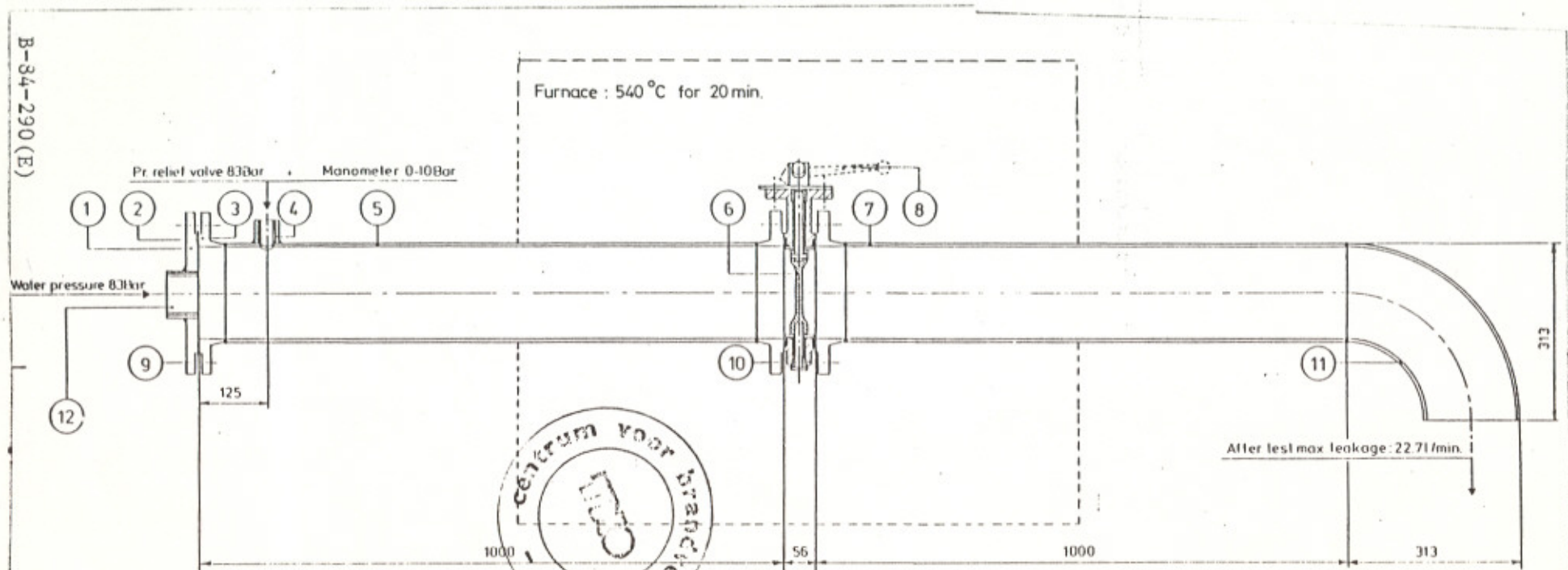
The heating was terminated.

Conclusion

: The tested valve satisfied the requirements at least during 21 minutes.

Technical Centre for Fire Prevention TNO,

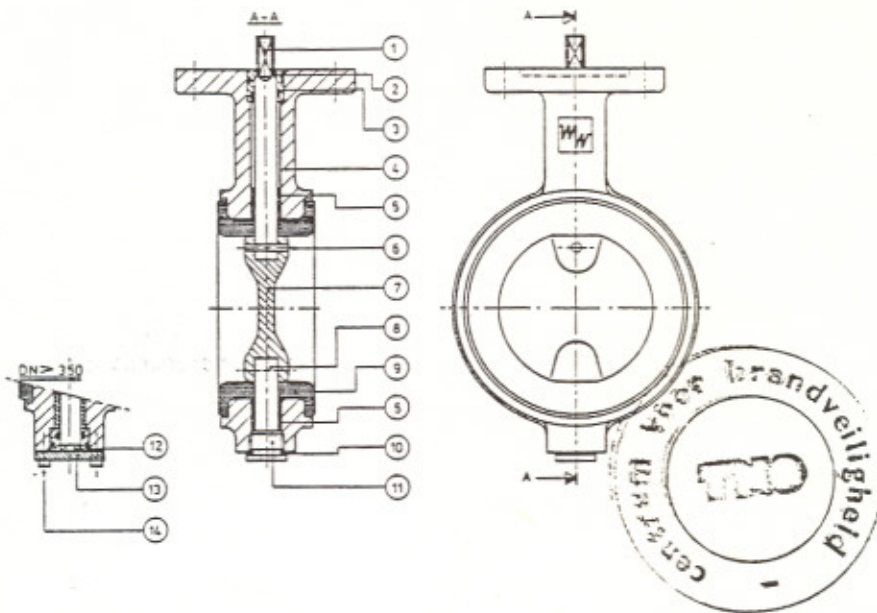

A.F.R. Harms



POS NR	DESCRIPTION	NUMBER	MATERIAL / REMARKS
1	Blind flange	1	E 150 ND16 DIN 2527 - US137-1
2	Sealing	1	Klingerit / 150 DIN 2692
3	Weld neck flange	3	C 150 x 1683 DIN 2633-RS137-2
4	Thread sp socket	1	DIN 2986 - 2 n (st 37)
5	Pipe	1	1683 x 45 DIN 2448-S135/1-8X
6	Butterfly-Valve	1	EVS DN 150
7	Pipe	1	1683 x 45 DIN 2448-S135/1-945
8	Actuator	1	Lever
9	Hold-nut-washers	8	M 20 x 70 - M 20 - Ø 21 x 37 B82 n SC
10	Hold-nut-washers	8	M 20 x 130 - M 20 - Ø 21 x 37 B82 n SC
11	Tube bend	1	90° x 1683 x 45 DIN 2605 / st 37
12	Thread sp socket	1	DIN 2986 - 2 l/2-n (st 37)



Range EVS



Pos nr.	Aantal Pieces Stück Nombre	Omschrijving	Description	Description
1	1	as	shaft	axe
2	1-2	bus	bush	garniture d'étanchéité
3	2-4	o-ring	o-ring	o-ring
4	1	huis	body	corps
5	2-4	lager	bearing	Lagerbüchse palier
6	1-2-3-4	conische pen	conical pin	Kegeistifte goupille conique
7	1	klep	disc	Klappe papillon
8	1	as	shaft	Welle axe
9	1	voering	lining	Futter bague souple
10	1	afdichting	sealing ring	Dichtungsring joint
11	1	kraagplug	plug	Verschlusschraube bouchon / tampon
12	1	axiaal lager	axial bearing	axial Lager palier d'axe
13	1	deksel	cover plate	Deckel couverture
14	4	cilinderkopschroef	cylinder head screw	Zylinderschraube vis cylindrique

Pos nr./Material	DIN-CODE	ASTM-CODE	DIN-CODE	ASTM-CODE
1	CuAl(10Ni-F75)	Alu-Bronze	8	CuAl(10Ni-F75)
2	G-CuSn7ZnPb	C.922.00	9	NB
3	NB	NBR	10	Kupfer
4	GG25	40B	11	5.8/Zn5C
5	Glacier D.U.	Glacier D.U.	12	Glacier D.U.
6	CuAl(10Ni-F75)	Alubronze	13	St37-2
7	G-CuAl10Ni	C.955.00	14	8.8/Zn5C

TBC

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