



Rudolf von Scheven GmbH, Sprockhövel

Office: Dortmund

Date: 22 September 2015

This Certificate is issued to the above client to certify that a surveyor to Lloyd's Register did, at their request, attend the undermentioned manufacturer for the purpose of inspecting and witnessing tests on the product listed below.

**FLAME – RESISTANCE TEST CERTIFICATE
OF
Fire Safe Ball Valve – DN 50 (2") and below / until DN 100 (4")**

Test requirements:	DIN EN ISO 10497:2010-06 API 607, 6 th edition
Tested sizes of ball valve:	DN 50, Class 150
Drawing no.:	00900-4 (fixed flange) 00900-5 (lose flanges)
Qualified Sizes:	DN 50 (2") and below, DN 65 (2 1/2"), DN 80 (3") and DN 100 (4")
Qualified Pressure Ratings:	Class 150, Class 300, PN 10, PN 16, PN 25 and PN 40
Test procedure and results:	as per test report IBB-1436, dated 15.09.2015

The following examinations were carried out with satisfactory results in accordance with the above specification:

- Reviewed test specification and accepted test facilities
- Verified selected ball valves against drawing and visual inspection to compliance to above stated type
- Checked calibration status of used test gauges
- Witnessed of flame-resistance test
- Reviewed and endorsed documentation

For further details please refer to attached documentation.

EN/SCH



S. Schumacher
Surveyor to Lloyd's Register EMEA

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TEST Report

Flame - resistance tests according to DIN EN ISO 10497 Report IBB – 1436 / LRDTM 1521439/3

This report confirms the testing of a representative valve in compliance with the DIN EN ISO 10497, 2010, and with API 607, 6th edition.

Manufacturer	Rudolf von Scheven GmbH Wuppertaler Str. 10-12 45549 Sprockhövel
Test Valve	Ball Valve DN 50 Class 150 Flange end connections, Lever operated Nominal bore: DN 50 Pressure rating: Class 150 Body/Bonnet material: 1.0619/1.0570 Ball material: 1.0715 Ball seal material: PTFE Drawing number: 00900-4 Operation device: Lever
Date of Testing	15 September 2015
Test Report	5 pages
Qualified sizes	DN 50 and below, DN 65, DN 80, DN 100 2" and below, 2 1/2", 3", 4"
Qualified pressure ratings	Class 150, Class 300 PN 10, PN 16, PN 25, PN 40
Testing location	Laboratory of Dr.-Ing. T. Bäumer GmbH, Altensenner Weg 75, D - 32052 Herford
Test requirements	The tests were carried out strictly in accordance with DIN EN ISO 10497, 2010, and with API 607, 6th edition
Participants	Mr. S. Schumacher Lloyds Register, EMEA Mr. Dr. T. Bäumer Dr.-Ing. T. Bäumer GmbH

Test examination

The water filled valve was subjected to fire for 30 minutes at a temperature between 750 °C and 1000 °C and a pressure of e.g. 2,0 barg. After the burn period the through-seat-leakage was determined and after a cool down period the external leakage and the through-seat-leakage were measured. Then the valve was opened, and the external leakage was determined.

Instrumentation

Temperature: 6 Thermocouples, Ni Cr Ni, accuracy 1 K.

Pressure: Pressure transmitter, accuracy 0,5 %.

PC-system: AD converter board, software for measuring, Personal Computer

The measuring devices are controlled by an accredited calibration service.

Body cavity set relief pressure and setting: 29 barg

Test results

Time of test start (ignition of burners): 11.55 am

Temperatures and pressure during burn period

Time [s]	p [barü]	T _{Fire1} [°C]	T _{Fire2} [°C]	T _{Cal1} [°C]	T _{Cal2} [°C]	T _{Body} [°C]	T _{Bonnet} [°C]
.0	2.0	17.2	16.7	32.2	35.6	18.6	19.7
30.0	2.0	371.2	522.8	43.4	46.4	261.7	318.9
60.0	2.0	777.9	825.2	106.2	114.6	405.3	515.1
90.0	2.0	851.3	847.1	180.0	182.2	464.4	528.2
120.0	2.1	840.2	851.3	252.0	249.8	476.3	536.4
150.0	2.0	873.1	849.7	323.0	316.6	485.3	530.9
180.0	2.0	917.1	887.3	390.0	379.2	474.8	533.7
210.0	2.1	883.1	867.4	448.7	437.3	471.8	558.8
240.0	2.1	895.6	874.5	503.0	488.2	462.5	561.7
270.0	2.0	909.0	886.8	549.5	530.5	484.4	584.2
300.0	2.0	915.8	908.3	590.0	567.9	493.2	588.8
330.0	2.1	904.2	898.7	624.3	597.7	526.2	608.1
360.0	2.1	918.3	896.3	652.6	625.4	535.8	599.1
390.0	2.0	912.0	904.5	677.1	650.8	550.9	622.6
420.0	2.0	934.8	925.5	699.7	671.8	559.8	617.2
450.0	2.0	942.1	921.3	719.3	690.2	567.8	622.2
480.0	2.0	958.2	936.0	735.8	705.8	572.2	634.0
510.0	2.1	952.5	945.9	748.7	720.9	581.8	650.2

540.0	2.1	938.1	925.4	759.8	733.3	593.1	640.2
570.0	2.0	937.6	932.3	769.9	744.2	603.8	642.9
600.0	2.0	934.3	964.3	780.5	751.1	602.0	660.8
630.0	2.1	935.3	936.4	789.8	762.5	607.4	662.3
660.0	2.1	949.9	949.8	799.2	769.3	608.5	661.2
690.0	2.0	943.5	937.1	807.9	775.4	618.2	662.3
720.0	2.1	953.9	944.1	814.7	780.6	609.7	664.9
750.0	2.0	939.6	948.2	822.2	789.5	609.0	659.9
780.0	2.0	938.5	944.0	823.7	796.4	596.4	656.4
810.0	2.0	824.6	879.6	823.9	809.7	581.2	650.3
840.0	2.1	793.1	839.2	814.9	808.5	566.1	631.8
870.0	2.1	840.7	924.9	805.6	804.0	558.3	626.9
900.0	2.1	920.5	961.5	806.9	809.3	588.9	647.3
930.0	2.0	910.5	967.9	809.8	819.1	598.0	654.4
960.0	2.0	848.6	970.1	812.3	826.9	597.1	652.6
990.0	2.0	892.9	964.8	815.2	836.5	615.1	656.4
1020.0	2.1	850.2	958.8	814.4	842.5	607.4	655.7
1050.0	2.1	890.5	960.0	812.3	845.4	606.1	657.6
1080.0	2.0	914.8	945.0	811.9	848.1	602.2	657.9
1110.0	2.1	897.3	944.5	811.7	849.8	605.8	656.9
1140.0	2.1	854.5	938.9	810.8	853.1	595.6	666.0
1170.0	2.0	881.8	948.1	808.2	852.8	599.3	667.0
1200.0	2.1	864.9	952.4	806.9	853.2	596.6	668.4
1230.0	2.1	878.6	956.3	806.3	855.8	604.1	671.0
1260.0	2.0	890.2	950.2	806.3	858.0	606.5	674.3
1290.0	2.0	892.8	947.7	806.6	859.4	604.0	675.7
1320.0	2.1	843.8	958.8	806.9	860.5	593.1	677.6
1350.0	2.1	905.7	963.2	805.9	859.7	594.7	675.1
1380.0	2.1	881.3	951.5	806.7	862.5	597.1	683.4
1410.0	2.0	921.8	966.8	807.1	861.8	591.6	679.2
1440.0	2.1	864.2	955.1	807.4	861.8	588.8	688.6
1470.0	2.1	878.9	952.1	807.5	862.7	589.6	683.7
1500.0	2.1	861.1	935.2	807.8	863.5	585.1	679.9
1530.0	2.1	853.9	958.3	805.6	864.7	578.1	689.8
1560.0	2.1	922.9	958.5	806.3	863.5	590.9	677.1
1590.0	2.1	861.8	955.2	807.2	865.3	590.0	686.7
1620.0	2.1	869.4	938.9	804.5	862.9	581.7	683.7
1650.0	2.1	892.9	942.2	805.8	865.6	584.3	682.1
1680.0	2.1	861.7	946.0	806.8	866.5	587.8	685.8
1710.0	2.1	870.2	948.1	807.8	865.1	575.4	682.9
1740.0	2.1	883.5	939.8	808.6	866.6	586.5	678.7
1770.0	2.1	853.4	972.5	809.2	863.6	577.2	685.8
1800.0	2.1	811.4	885.2	810.1	884.4	576.4	682.5

Time required for valve to cool down to 100 °C: 6 min

Test valve unseated: Yes

Test valve moved to the fully open position: Yes

	Leakage [ml/DN/min]	Allowable leakage [ml/DN/min]
Through-seat-leakage in burning phase:	0,1	4,0
External leakage in burning and cooling phase:	0,0	1,0
Through-seat-leakage at low pressure:	0,0	1,6
External leakage after unseating the valve:	0,3	1,0

Comments on the results

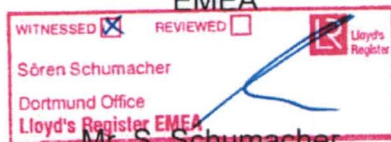
The test valve is a Ball Valve with a bore in the ball inlet. Because it is intended for one-directional installation, the tests were carried out only for one flow direction.

Conclusion

The test valve fulfilled the test requirements according to DIN EN ISO 10497, 2010, and API 607, 6th edition. Only allowable through-seat-leakages and external leakages were observed during the tests.

Herford, 15 September 2015

Lloyd's Register
EMEA

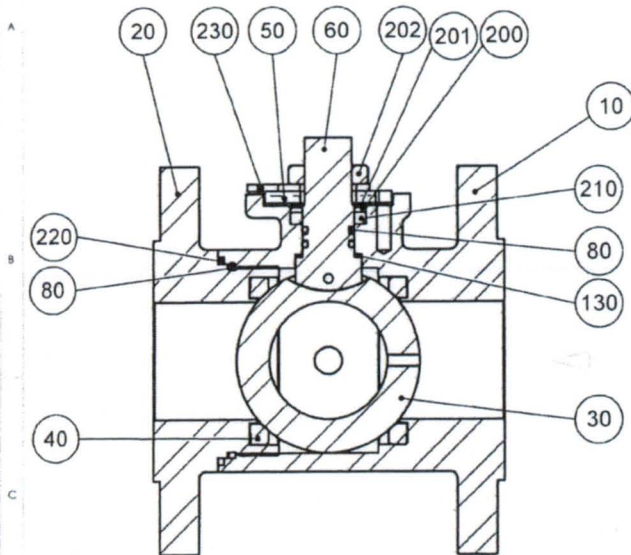


Mr. S. Schumacher
Surveyor

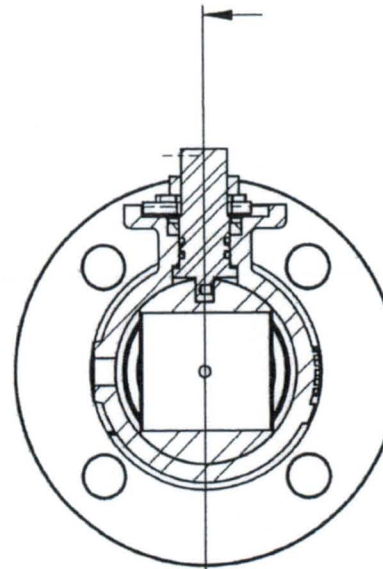
Dr.-Ing. T. Bäumer
GmbH

A blue handwritten signature of Dr.-Ing. T. Bäumer.

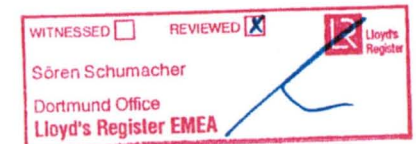
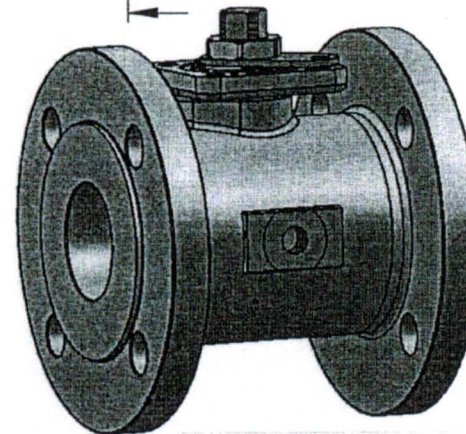
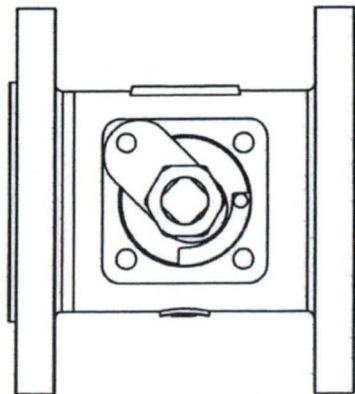
Mr. Dr. T. Bäumer
Consultant engineer



Druckseite



POS-NR.	BENENNUNG	Material	MENGE
10	Gehäuse	1.0619	1
20	Einschraubflansch	1.0570	1
30	Kugel	1.0715	1
40	Dichtung	PTFE	2
50	Anschlagscheibe	1.0038	1
60	Spindel	1.0715	1
80	O-Ring	Viton	3
130	Lagering	PTFE	1
200	Unterlegscheibe	1.0038	1
201	Spannscheiben oder Wellenring	DIN 6796	1
202	Mutter niedrige Ausführung M20x1.5	DIN 936/439	1
210	Packung (Graphit)	Graphit	1
220	Graphitring 82x88	Graphit	1
230	Scheibe für Abschließbarkeit	1.0038	1



Maßstab: 1:2
Werkstoff:
Gewicht: g

DIN ISO 13715
+0.3
-0.5

Allgemeintoleranzen nach DIN 2768-T1-m
bis 6 ± 0.1, über 6-30 ± 0.2,
über 30-120 ± 0.3, über 120-400 ± 0.5,
über 400-1000 ± 0.8

Benennung
Fire-Safe-Hahn DN50
aus Stahl Class 150

Nr. Änderung

Datum / Name Gepr.

Rudolf von Scheven GmbH
Armaturenfabrik und Apparatebau
45538 Sporkhövel
Postfach 1365
Tel.: 02324 9742-0
Fax: 02324 9742-10
www.von-scheven.de
info@von-scheven.de

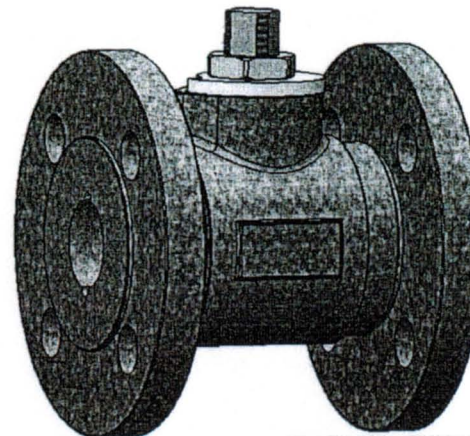
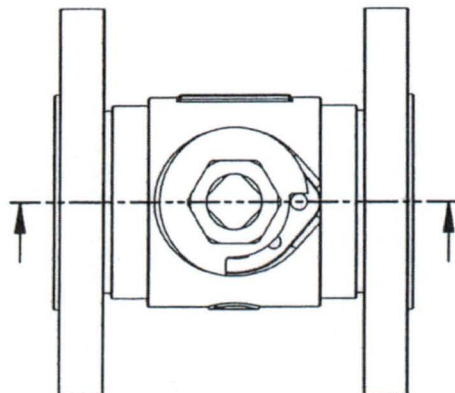
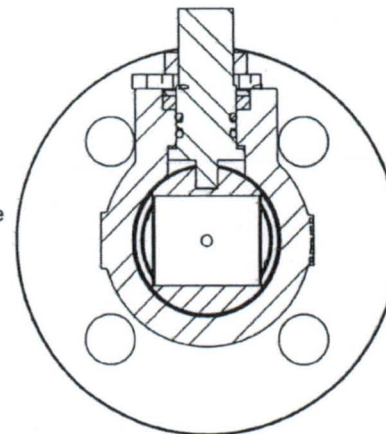
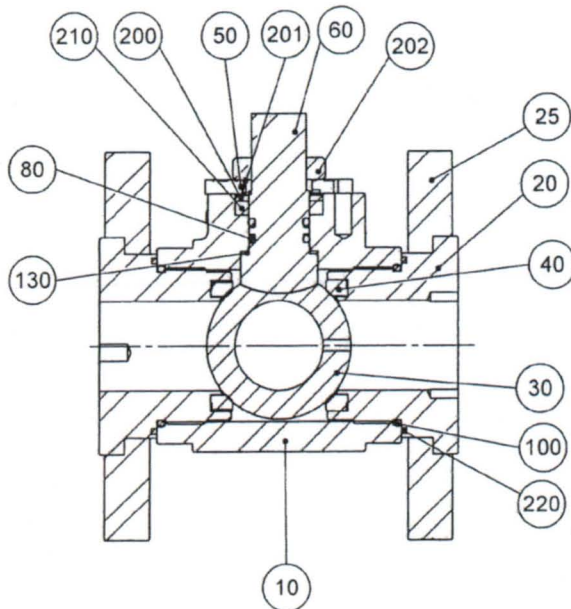
Ersatz für:
Zeichnungs-Nr.

A3

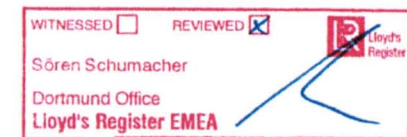
Entwurf00900-4

Änderung

Blatt 1 von 1



POS-NR.	BENENNUNG	BESCHREIBUNG	MENGE
10	Gehäuse	1.0619	1
20	Einschraubstück	1.0570	2
25	Flanschblatt	1.0570	2
30	Kugel	1.0715	1
40	Dichtung	PTFE	2
50	Anschlagscheibe	1.0038	1
60	Spindel	1.0715	1
80	O-Ring	Viton	2
100	O-Ring	Viton	2
130	Lagering	PTFE	1
200	Unterlegscheibe	1.0038	1
201	Spannscheibe oder Wellenring	Stahl	1
202	Mutter niedrige Ausführung M20x1.5	DIN 936/439	1
210	Packung (Graphit)	Graphit	1
220	Graphitring 82x88	Graphit	2



Maßstab: 1:1,7
Werkstoff:
Gewicht: g

DIN ISO 13715
+0,3 -0,5

Allgemeintoleranzen nach DIN 2768-T1: m
bis 6 ± 0,1, über 6-30 ± 0,2,
über 30-120 ± 0,3, über 120-400 ± 0,5,
über 400-1000 ± 0,8

Benennung:
Fire-Safe-Hahn DN50
aus Stahl Class 150

Nr. Änderung

Datum / Name Gepr.

Rudolf von Scheven GmbH
Armaturenfabrik und Apparatebau
45538 Spröckhövel
Postfach 1365
Tel.: 02324 9742-0
Fax: 02324 9742-10
www.von-scheven.de
info@von-scheven.de

Ersatz für:
Zeichnungs-Nr.

A3 Entwurf00900-5

Änderung

Blatt 1 von 1