

Project: FIRE TEST FOR SOFT-SEATED
FLANGED BALL VALVE

Certificate No.: BCL 100427/7

Client: BACH, S.A. - FIGUERES
SPAIN

Address Tapis, 126
XXXXXXXXXX No.: 17600 FIGUERES
SPAIN

Office: Barcelona

Date: 12.06.91

Order Status: Complete

Inspection dates
First: 15.05.91

Final: 15.05.91

This is to certify that at the request of the manufacturers BACH, S.A. the undersigned Surveyor to this Society did attend at their Works in Figueres-Spain for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755: Part 2, 1987 and API 6FA: 1985 and API 607: 1985 on the following type valve:

A manually lever operated soft seated flanged asymmetric ball valve of DN 80 (3") reduced bore, bi-directional, Class 150, Type PQR as per plan No 1,1 Rev A .

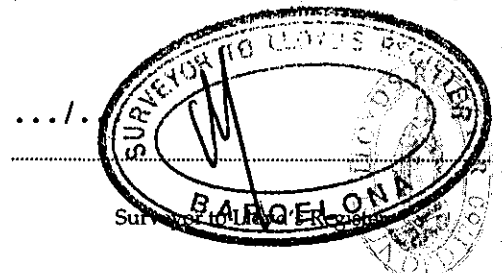
Materials as per plan No 1.1/21.11.51 Rev A, attached to Doc. No F-04-003/7
Manufacturer's test procedure P-04-504-A (6 pages)
Manufacturers identifying number 9104167.
Mass 17.5 Kg.

The test conducted on the valve previously subject to hydraulic pressure of 30 Bar was as follows:

The valve in the closed position, filled with water under high pressure, was put in a box and exposed to flames with an environmental temperature in the region 750C to 950C for a period of 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every two minutes, while leakages were determined using containers collecting the water leaked during burn period. Afterwards cool-down to 100C and the valve seat and external hydrostatically tested to the appropriate low test pressure and leakages recorded accordingly. Subsequently manually opened up under high pressure differential and finally the valve was fully hydrotested and leakages recorder.

All the following values were determined and recorded together with temperature, times, and pressures as shown on manufacturers Fire Safe Test Report No. F-04-003/7.

1. Through-seat leakage (high test pressure) during burn period - Satisfactory.
2. External leakage (high test pressure) during burn and coal-down period - Satisfactory
3. Through-seat leakage (low test pressure) after cool-down -. Satisfactory.
4. External leakage (low test pressure) after cool-down - Satisfactory.
5. Operatibility (high test pressure) to full open position and external leakage (high test pressure) - Satisfactory.



NOTICE - This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

Certificate No.: BCL 100427/7

Office : Barcelona

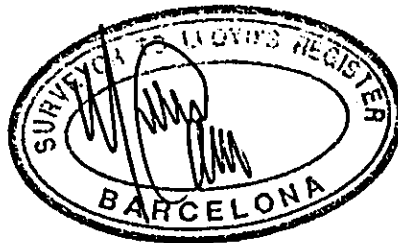
Date : 12.06.91

The valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the drawing and part list supplied by the manufacturer, while seat rings were found completely destroyed.

The manufacturers Fire Safe Test Report No. F-04-003/7 (8 pages) herewith attached were satisfactorily checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be also qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>	<u>PN RATING</u>
100(4") & 150 (6")	300	16,25 & 40



J. Cano
Surveyor to Lloyd's Register of Shipping.



Project: FIRE TEST FOR SOFT-SEATED
FLANGED BALL VALVE

Certificate No.: BCL 100427/6

Client: BACH, S.A. - FIGUERES
SPAIN

Address Tapis, 126
XXXXXXXXXX No.: 17600 FIGUERES
SPAIN

Office: Barcelona

Date: 12.06.91

Order Status: Complete

Inspection dates
First: 10.05.91

Final: 10.05.91

This is to certify that at the request of the manufacturers BACH, S.A. the undersigned Surveyor to this Society did attend at their Works in Figueres-Spain for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755: Part 2, 1987 and API 6FA: 1985 and API 607: 1985 on the following type valve:

A manually lever operated soft seated flanged asymmetric ball valve of DN 150 (6") reduced bore, bi-directional, Class 150, Type PQR as per plan No 1,1 Rev A .
Materials as per plan No 1.1/21.11.51 Rev A, attached to Doc. No F-04-003/6
Manufacturer's test procedure P-04-504-A (6 pages)
Manufacturers identifying number 9105033.
Mass: 47 Kg.

The test conducted on the valve previously subject to hydraulic pressure of 30 Bar was as follows:

The valve in the closed position, filled with water under high pressure, was put in a box and exposed to flames with an environmental temperature in the region 750C to 950C for a period of 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every two minutes, while leakages were determined using containers collecting the water leaked during burn period. Afterwards cool-down to 100C and the valve seat and external hydrostatically tested to the appropriate low test pressure and leakages recorded accordingly. Subsequently manually opened up under high pressure differential and finally the valve was fully hydrotested and leakages recorder.

All the following values were determined and recorded together with temperature, times, and pressures as shown on manufacturers Fire Safe Test Report No. F-04-003/6 .

1. Through-seat leakage (high test pressure) during burn period - Satisfactory.
2. External leakage (high test pressure) during burn and coal-down period - Satisfactory.
3. Through-seat leakage (low test pressure) after cool-down -. Satisfactory.
4. External leakage (low test pressure) after cool-down - Satisfactory.
5. Operatibility (high test pressure) to full open position and external leakage (high test pressure) - Satisfactory.



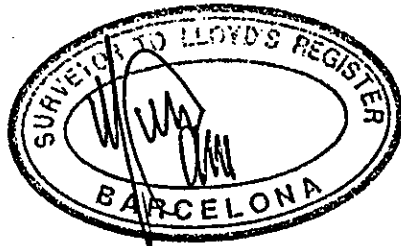
NOTICE - This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

The valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the drawing and part list supplied by the manufacturer, while seat rings were found completely destroyed.

The manufacturers Fire Safe Test Report No. F-04-003/6 (8 pages) herewith attached were satisfactorily checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be also qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>	<u>PN RATING</u>
200(8"), 250 (10) & 300 (12")	300	16,25 & 40



J. Cano
Surveyor to Lloyd's Register of Shipping.



**FIRE TEST FOR SOFT-SEATED
Project: FLANGED BALL VALVE**

Certificate No.: **BCL 100427/9**

**BACH, S.A. - FIGUERES
Client: SPAIN**

**Address Tapis, 126
XXXXXX Order No.: 17600 FIGUERES
SPAIN**

Office: **Barcelona**

Date: **12.06.91**

Order Status: **Complete**

Inspection dates
First: **16.05.91**

Final: **16.05.91**

This is to certify that at the request of the manufacturers BACH, S.A. the undersigned Surveyor to this Society did attend at their Works in Figueres-Spain for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755: Part 2, 1987 and API 6FA: 1985 and API 607: 1985 on the following type valve:

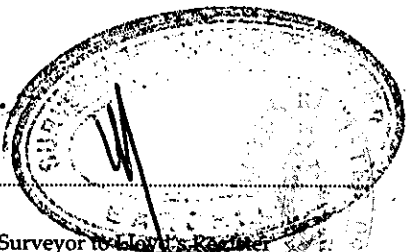
A manually gear operated soft seated flanged asymmetric ball valve of DN 250 (10") full bore, Class 150, Type NP (Trunnion) as per plan No 2.2 Rev. A. Materials as per plan No. 94.2/31, attached to Doc No. F-04-003/9. Manufacturer's test procedure P-04504-A(6 pages). Manufacturers identifying number 9105066. Mass 230.2 Kg.

The test conducted on the valve previously subject to hydraulic pressure of 30 Bar was as follows:

The valve in the closed position, filled with water under high pressure, was put in a box and exposed to flames with an environmental temperature in the region 750C to 950C for a period of 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every two minutes, while leakages were determined using containers collecting the water leaked during burn period. Afterwards cool-down to 100C and the valve seat and external hydrostatically tested to the appropriate low test pressure and leakages recorded accordingly. Subsequently manually opened up under high pressure differential and finally the valve was fully hydrotested and leakages recorder.

All the following values were determined and recorded together with temperature, times, and pressures as shown on manufacturers Fire Safe Test Report No. F-04-003/9.

1. Through-seat leakage (high test pressure) during burn period - Satisfactory.
2. External leakage (high test pressure) during burn and cool-down period - Satisfactory.
3. Through-seat leakage (low test pressure) after cool-down -. Satisfactory.
4. External leakage (low test pressure) after cool-down - Satisfactory.
5. Operatibility (high test pressure) to full open position and external leakage (high test pressure) - Satisfactory.

.../...

Surveyor to Lloyd's Register

NOTICE - This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

Certificate No.: BCL 100427/9

Office : Barcelona

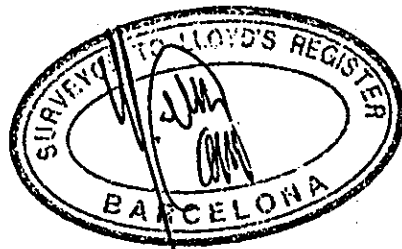
Date : 12.06.91

The valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the drawing and part list supplied by the manufacturer, while seat rings were found completely destroyed.

The manufacturers Fire Safe Test Report No. F-04-003/9 (9 pages) herewith attached were satisfactorily checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be also qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>	<u>PN RATING</u>
300(12"), 350 (14") & 400(16")	300	16,25 & 40



J. Cano

Surveyor to Lloyd's Register of Shipping.



CERTIFICATE N° : BCL 400651/1
OFFICE : BARCELONA
DATE : 20.06.94
Page 1 of 2

This certificate is issued to manufacturers BACH SA to certify that the undersigned did at their request attend at their works in Figueres - Spain on 12th May 1994 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755: Part 2, 1987 and API 6FA: 1985 and API 607:1985 on the three (3) following valves:

- * ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: FB
Size: DN15
Rating: Class 150
Particulars as per drw n° G38H001 Rev. A

- * ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: FB
Size: DN25
Rating: Class 150
Particulars as per drw n° G38H001 Rev. A

- * ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: FB
Size: DN100
Rating: Class 150
Particulars as per drw n° G38H002 Rev. A

The above valves chosen at random from the manufacturer's standard production by the witness surveyor were submitted to the following:

1. Hydraulic test in accordance with BS 6755: Part 1
2. Fire test performed in accordance with the following procedures:
 - 2.1 Valve DN 15 as per Doc. Nr:F-04-003/19
 - 2.2 Valve DN 25 as per Doc. Nr:F-04-003/20
 - 2.3 Valve DN 100 as per Doc. Nr:F-04-003/21
3. On completion the three (3) valves were subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
4. The three manufacturer's Fire-safe test reports (12pages) herewith attached were satisfactory checked and signed.



CERTIFICATE N° : BCL 400651/1
OFFICE : BARCELONA
DATE : 20.06.94
Page 2 of 2

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valves has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>	<u>PN RATING</u>
15(1/2"), 20(3/4"), 25(1")	150 & 300	16, 25, 40
25(1"), 32(1 1/4"), 40(1 1/2"), 50(2")	150 & 300	16, 25, 40
100(4"), 125(5"), 150(6"), 200(8")	150 & 300	16, 25, 40

The three (3) valves fire tested were identified as follows

LLOYD'S BCL: 400651 FIRE TEST 12.05.94

ES



E. Souto
Surveyor to Lloyd's Register of Shipping



Project: FIRE TEST FOR SOFT-SEATED
FLANGED BALL VALVE

Certificate No.: BCL200339/1

Client: BACH SA-FIGUERES
SPAIN

Office: BARCELONA

Address: Tapis, 126
~~XXXXXX~~ 17600 Figueres
SPAIN

Date: 21.12.92

Order Status: Complete

Inspection dates
First: 30.6.92

Final: 21.12.92

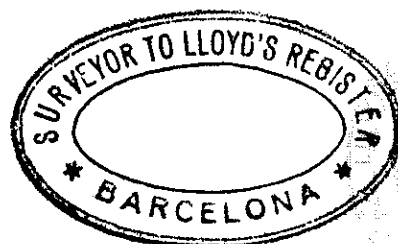
This is to certify that at the request of the manufacturers BACH S.A. the undersigned Surveyor to this Society did attend at their Works in Figueres-Spain for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755: Part 2, 1987 and API 6FA: 1985 and API 607: 1985 on the following type valve:

A manually lever operated soft seated flanged symmetrical ball valve of DN 50 (2") full bore, bi-directional, Class 150, type FB Stainless steel body and trim.
Materials as per plan No G38H001Rev A & G 39H001 Rev. A.
Manufacturer's test procedure P-04-504-A (6 pages).
Manufacturer's identifying number 9206001.
Mass 12.4kg.
Markings as per dwg. No. D000025 Rev. A.

The test conducted on the valve previously subject to hydraulic pressure of 30 Bar was as follows:

The valve in the closed position, filled with water under high pressure, was put in a box and exposed to flames with an environmental temperature in the region 750C to 950C for a period of 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every two minutes, while leakages were determined using containers collecting the water leaked during burn period. Afterwards cool-down to 100C and the valve seat and external hydrostatically tested to the appropriate low test pressure and leakages recorded accordingly. Subsequently manually opened up under high pressure differential and finally the valve was fully hydrottested and leakages recorded.

.../...



Certificate : BCL 200339/1

Office : Barcelona

Date : 21.12.92

All the following values were determined and recorded together with temperature, times, and pressures as shown on manufacturers Fire Safe Test Report No. F-04-003/13.

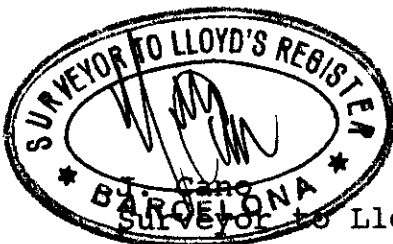
1. Through-seat leakage (high test pressure) during burn period - Satisfactory.
2. External leakage (high test pressure) during burn and cool-down period-Satisfactory.
3. Through-seat leakage (low test pressure) after cool-down-Satisfactory.
4. External leakage (low test pressure) after cool-down-Satisfactory.
5. Operatibility (high test pressure) to full open position and external leakage (high test pressure) - Satisfactory.

The valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the drawing and part list supplied by the manufacturer, while seat rings were found completely destroyed.

The manufacturers Fire Safe Test Report No. F-04-003/13 (6 pages) herewith attached were satisfactorily checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>	<u>PN RATING</u>
50 (2"), 65 (2½") 80 (3") & 100 (4")	150 & 300	16 & 40



Surveyor to Lloyd's Register of Shipping.



This certificate is issued to manufacturers V.BACH,S.A. to certify that the undersigned Surveyor did at their request attend at their works in Figueres - Spain on 9th December 1994 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755:Part 2, 1987 and API 6FA: 1985 on the following valve:

ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: FBT (TRUNNION)
Size: DN 150
Rating: Class 150
Particulars as per drw No: G38H054 Rev: A

The above valve chosen at random from the manufacturer's standard production by the witness surveyor were submitted to the following:

1. Hydraulic test in accordance with BS 6755:Part 1
2. Fire test performed in accordance with the following procedure:
 - 2.1 Valve DN 150 as per Doc. Nr: F-04-003/24
3. On completion the valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
4. The manufacturer's Fire-safe test report (4 pages) herewith attached were satisfactory checked and signed.



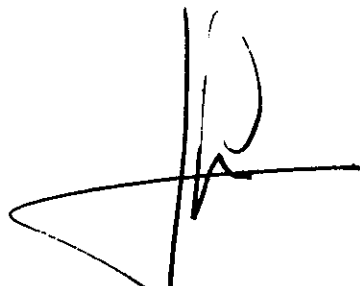
The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>	<u>PN RATING</u>
150(6"), 200 (8"),250 (10"), 300 (12")	150 & 300	16,25,40

The valve fire tested was identified as follows:

LLOYD'S BCL: 400836 FIRE TEST : 09.12.94

79



J. Gil for N. Cano
Surveyor to Lloyd's Register of Shipping.



NOTICE – This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

CERTIFICATE N° : BCL 500543/1
OFFICE : BARCELONA
DATE : 18.03.95
Page 1 of 2

This certificate is issued to manufacturers V. BACH, S.A. to certify that the undersigned did at their request attend at their works in Figueres - Spain on 3thd March 1995 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755: Part 2, 1987 and API 6FA: 1985 and API 607:1985 on the two (2) following valves:

- * ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: SR8
Size: DN1/2"
Rating: Class 800
Particulars as per drw n° G43H002 Rev. A

- * ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: SR8
Size: DN1"
Rating: Class 800
Particulars as per drw n° G43H002 Rev. A

The above valves chosen at random from the manufacturer's standard production by the witness surveyor were submitted to the following:

1. Hydraulic test in accordance with BS 6755: Part 1
2. Fire test performed in accordance with the following procedures:
 - 2.1 Valve DN1/2" as per Doc. Nr:F-04-003/25
 - 2.2 Valve DN1" as per Doc. Nr:F-04-003/26
3. On completion the two (2) valves were subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
4. The two manufacturer's Fire-safe test reports (6 pages) herewith attached were satisfactory checked and signed.

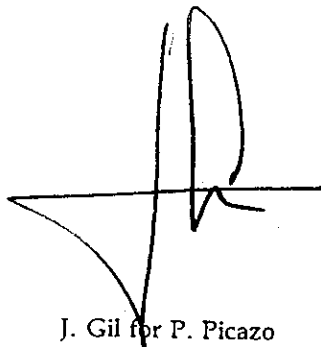
CERTIFICATE N° : BCL 500543/1
OFFICE : BARCELONA
DATE : 18.03.95
Page 2 of 2

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valves has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>
15(1/2"), 20(3/4"), 25(1")	800, 900 and 1500
25(1"), 32(1 1/4"), 40(1 1/2"), 50(2")	800, 900 and 1500

The two (2) valves fire tested were identified as follows

LLOYD'S BCL: 500543/1 FIRE TEST 3.03.95



J. Gil for P. Picazo
Surveyors to Lloyd's Register of Shipping

This certificate is issued to manufacturers V.BACH, S.A. to certify that the undersigned did at their request attend at their works in Figueres-Spain on 24th July 1997 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607:1993 on the following valve:

- * ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: AP
Size: 2"
Rating: Class 600
Particulars as per drw n° 10-2805

The above valve chosen at random from the manufacturer's standard production by the witness surveyor was submitted to the following:

- 1- Fire test performed in accordance with the following procedures:
 - 1.1- Valve DN 2" as per Doc. Nr: F-04-003/31.
- 2- On completion the valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify the valve components comply with the applicable drawing, while seat rings were found completely destroyed.
- 3- The manufacturer's Fire-safe test report (5 pages) herewith attached was satisfactory checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>NPS</u>	<u>CLASS RATING</u>
1½, 2, 2½, 3	600, 800 and 900

../..

Certificate Number: BCL 9700717/1

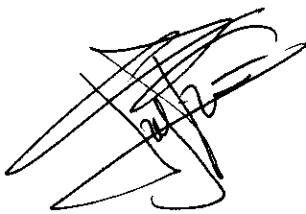
Office: BARCELONA

Date: 25.07.97

Page: 2 of 2

The valve fire tested was identified as follows:

BCL 9700717 *JG.*

A handwritten signature in black ink, appearing to be 'JG.', written over a circular stamp.

FOR

J.Gil for P.E.Fernández
Surveyors to Lloyd's Register of Shipping

NOTICE: This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

This certificate is issued to manufacturers V.BACH, S.A. to certify that the undersigned did at their request attend at their works in Figueres-Spain on 3rd December 1997 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755: Part 2, 1987.

- * ONE (1) SOFT SEATED TRUNNION MOUNTED BALL VALVE
Type: APT
Size: 2"
Rating: Class 600
Particulars, as per drw no. 10-2806 Rev. A

The above valve chosen from the manufacturer's standard production, were submitted to the following:

1. Hydraulic test in accordance with BS 6755: Part 1: 1987
2. Fire test performed in accordance with the following procedure:
 - 2.1 Doc. Nr: F-04-003/32
3. On completion the valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
4. The manufacturer's Fire-safe test report (3 pages) herewith attached was satisfactory checked and signed

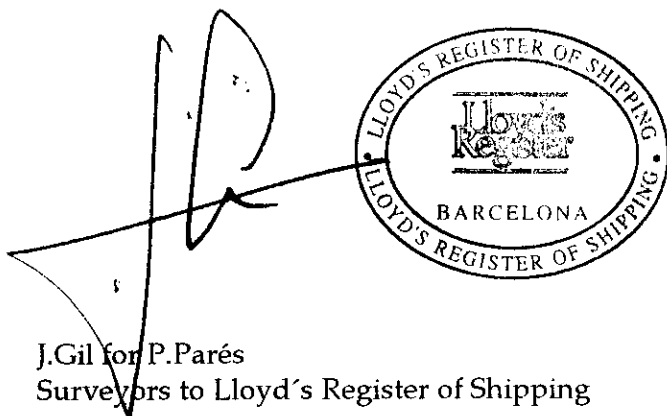
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The above is considered in accordance with the mentioned specifications requirements, therefore the subject valves has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>
2" (50), 2 1/2" (65), 3" (80), 4"(100)	600, 800 and 900

The valve fire tested was identified with a label as follows:

BCL 9700833
3-12-97
(body and adapter
stamped PG)



J.Gil for P.Parés
Surveyors to Lloyd's Register of Shipping

Attachments: 7 pages

This certificate is issued to manufacturers V. BACH, S.A. to certify that the undersigned did at their request attend at their works in Figueres- Spain on 16th April 1998 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607:1993 on the following valve:

ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: FB
Size: 4"
Mass: 38 Kg
Rating: Class 150
Particulars as per drw no. 05-2023 Rev. A

The above valve chosen at random from the manufacturer's standard production by the witness surveyor was submitted to the following:

- 1- Fire test performed in accordance with the following procedures:
 - 1.1.- Valve DN 100 as per Doc. Nr: F-04-003/36
- 2- On completion the valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
- 3- The manufacturer's Fire-safe test report (7 pages) herewith attached was satisfactory checked and signed.

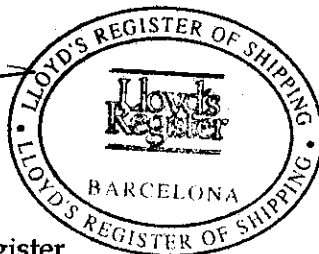
The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>NPS</u>	<u>CLASS RATING</u>
3", 4", 5", 6"	150, 300

The valve fire tested was identified as follows:

BCL 9800571/4 *JG.*

J. Gil
J. Gil for F.E. Fernández
Surveyors to Lloyd's Register



NOTICE: This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

This certificate is issued to manufacturers V. BACH, S.A. to certify that the undersigned did at their request attend at their works in Figueres- Spain on 16th April 1998 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607:1993 on the following valve:

ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: PQR
Size: 4"
Mass: 27 Kg
Rating: Class 150
Particulars as per drw no. 01-2801

The above valve chosen at random from the manufacturer's standard production by the witness surveyor was submitted to the following:

- 1- Fire test performed in accordance with the following procedures:
 - 1.1.- Valve DN 100 as per Doc. Nr: F-04-003/34
- 2- On completion the valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
- 3- The manufacturer's Fire-safe test report (7 pages) herewith attached was satisfactory checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be qualified as follows:

NPS

CLASS RATING

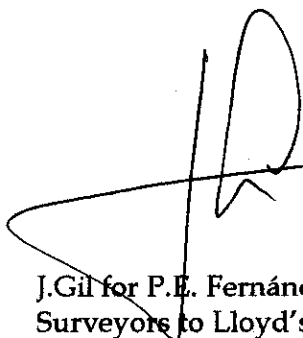
3", 4", 5", 6"

150, 300

The valve fire tested was identified as follows:

BCL 9800571/2

JG.


J. Gil for P.E. Fernández
Surveyors to Lloyd's Register



NOTICE: This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

This certificate is issued to manufacturers V. BACH, S.A. to certify that the undersigned did at their request attend at their works in Figueres- Spain on 16th April 1998 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607:1993 on the following valve:

ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: FB
Size: 2"
Mass: 12,5 Kg
Rating: Class 150
Particulars as per drw no. 05-2023 Rev. A

The above valve chosen at random from the manufacturer's standard production by the witness surveyor was submitted to the following:

- 1- Fire test performed in accordance with the following procedures:
 - 1.1.- Valve DN 50 as per Doc. Nr: F-04-003/35
- 2- On completion the valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
- 3- The manufacturer's Fire-safe test report (7 pages) herewith attached was satisfactory checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be qualified as follows:

NPS

CLASS RATING

1½", 2", 2½", 3"

150, 300

The valve fire tested was identified as follows:

BCL 9800571/3



J. Gil for P.E. Fernández
Surveyors to Lloyd's Register

NOTICE: This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

This certificate is issued to manufacturers V. BACH, S.A. to certify that the undersigned did at their request attend at their works in Figueres- Spain on 16th April 1998 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607:1993 on the following valve:

ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: FB
Size: 4"
Mass: 38 Kg
Rating: Class 150
Particulars as per drw no. 05-2023 Rev. A

The above valve chosen at random from the manufacturer's standard production by the witness surveyor was submitted to the following:

- 1- Fire test performed in accordance with the following procedures:
 - 1.1.- Valve DN 100 as per Doc. Nr: F-04-003/36
- 2- On completion the valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
- 3- The manufacturer's Fire-safe test report (7 pages) herewith attached was satisfactory checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>NPS</u>	<u>CLASS RATING</u>
3", 4", 5", 6"	150, 300

The valve fire tested was identified as follows:

BCL 9800571/4 *JG.*

J. Gil
J. Gil for F.E. Fernández
Surveyors to Lloyd's Register



NOTICE: This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

Certificate Number: BCL 9800574/1
Office: BARCELONA
Date: 18.05.98

This certificate is issued to manufacturers V. BACH, S.A. to certify that the undersigned did at their request attend at their works in Figueres- Spain on 20th and 21th of April 1998 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607:1993 on the following valve:

ONE (1) SOFT SEATED BALL VALVE
Symetric and bi-directional
Type: AP
Size: 4"
Mass: 90 Kg
Rating: Class 600
Particulars as per drw no. 10-2805 Rev. A

The above valve chosen at random from the manufacturer's standard production by the witness surveyor was submitted to the following:

- 1- Fire test performed in accordance with the following procedures:
 - 1.1.- Valve DN 100 as per Doc. Nr: F-04-003/37
- 2- On completion the valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
- 3- The manufacturer's Fire-safe test report (8 pages) herewith attached was satisfactory checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be qualified as follows:

NPS

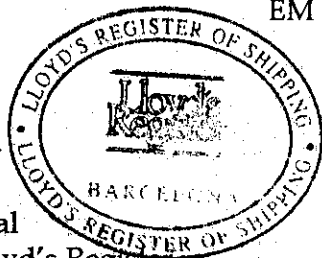
CLASS RATING

3" x 2", 3" x 3", 4" x 3"
4" x 4", 5", 6" x 4", 6"

600,800 and 900

The valve fire tested was identified as follows:

BCL 9800574
EM



for J.Gil for E. Marsal
Surveyors to Lloyd's Register

NOTICE: This certificate is subject to the terms and conditions overleaf, which form part of this certificate.

This certificate is issued to manufacturers V.BACH,S.A. to certify that the undersigned Surveyor did at their request attend at their works in Figueres - Spain on 7th November 1994 for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755:Part 2, 1987 and API 6FA: 1985 on the two (2) following valves:

- ONE (1) BUTTERFLY VALVE
Asimetric and bi-directional
Type: LD
Size: 3"
Rating: Class 150
Particulars as per drw No: 130E001 Rev: A

- ONE (1) BUTTERFLY VALVE
Asimetric and bi-directional
Type: LD
Size: 12"
Rating: Class 150
Particulars as per drw No: 130E001 Rev:A

The above valves chosen at random from the manufacturer's standard production by the witness surveyor were submitted to the following:

1. Hydraulic test in accordance with BS 6755:Part 1
2. Fire test performed in accordance with the following procedures:
 - 2.1 Valve 3" as per Doc. Nr: F-04-003/22
 - 2.2 Valve 12" as per Doc. Nr: F-04-003/23
3. On completion the two (2) valves were subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the applicable drawing, while seat rings were found completely destroyed.
4. The two manufacturer's Fire-safe test reports (12 pages) herewith attached were satisfactory checked and signed.



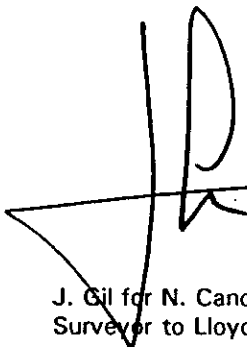
The above is considered in accordance with the mentioned specifications requirements, therefore the subject valves has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>	<u>PN RATING</u>
80 (3"), 100 (4"), 125 (5"), 150 (6")	150 & 300	16,25,40
300 (12"), 350(14"), 400(16"), 450(18"), 500(20"), 600(24"),	150 & 300	16,25,40

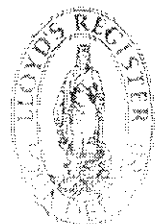
The two(2) valves fire tested were identified as follows

LLOYD'S BCL: 400801 FIRE TEST : 07.11.94

JG



J. Gil for N. Cano
Surveyor to Lloyd's Register of Shipping.



NOTICE - This certificate is subject to the terms and conditions overleaf, which form part of this certificate.



"This Certificate replaces the Certificate nº BCL 200389/1 issued at 11.02.93, which is hereby cancelled".

Project: FIRE TEST FOR SOFT-SEATED LUGGED BUTTERFLY VALVE

Certificate No.: BCL200389/A1

Client: BACH SA-FIGUERES SPAIN

Office: BARCELONA

Address Tapis, 126
~~XXXXXXXXXX~~ No.: 17600 Figueres
SPAIN

Date: 18.04.94

Inspection dates
First: 27.07.92

Order Status: Complete

Final: 28.07.92

This certificate is issued to BACH S.A. to certify that the undersigned Surveyor to this Society did attend at their Works in Figueres-Spain for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in BS 6755: Part 2, 1987 and API 6FA: 1985 and API 607: 1985 on the following type valve:

A manually lever operated soft seated lugged asymmetric butterfly valve of DN 150 (6") bi-directional, Class 150, type LD, stainless steel body and trim.

Materials as per plan No 21R150 Rev A & sectional dwg nº I21E150 Rev. A.

Manufacturer's test procedure F-04-003/14 (11 pages).

Manufacturer's identifying number 9207001.

Mass 25 kg.

Markings as per dwg. Acc. MSS SP-25.

The test conducted on the valve previously subject to hydraulic pressure of 30 Bar was as follows:

The valve in the closed position, filled with water under high pressure, was put in a box and exposed to flames with an environmental temperature in the region 750C to 950C for a period of 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every two minutes, while leakages were determined using containers collecting the water leaked during burn period. Afterwards cool-down to 100C and the valve seat and external hydrostatically tested to the appropriate low test pressure and leakages recorded accordingly. Subsequently manually opened up under high pressure differential and finally the valve was fully hydrotested and leakages recorder.

The test has been carried out in each direction as per asymmetric bi-directional requirements.



Certificate : BCL200389/A1

Office : Barcelona

Date : 18.04.94

All the following values were determined and recorded together with temperature, times, and pressures as shown on manufacturers Fire Safe Test Report No. F-04-003/14 (11 pages).

1. Through-seat leakage (high test pressure) during burn period - Satisfactory.
2. External leakage (high test pressure) during burn and cool-down period-Satisfactory.
3. Through-seat leakage (low test pressure) after cool-down-Satisfactory.
4. External leakage (low test pressure) after cool-down-Satisfactory.
5. Operatibility (high test pressure) to full open position and external leakage (high test pressure) - Satisfactory.

The valve was subject to a visual examination with satisfactory results and subsequently dismantled in order to verify that valve components comply with the drawing and part list supplied by the manufacturer, while seat rings were found completely destroyed.

The manufacturers Fire Safe Test Report No. F-04-003/14 (11 pages) herewith attached were satisfactorily checked and signed.

The above is considered in accordance with the mentioned specifications requirements, therefore the subject valve has satisfactorily passed the prescribed fire test and can be qualified as follows:

<u>DN</u>	<u>CLASS RATING</u>	<u>PN RATING</u>
150 (6"), 200 (8") 250 (10") & 300 (12")	150 & 300	16 & 40



E. Souto for J. Cano
Surveyors to Lloyd's Register of Shipping.

