

Project: FIRE TEST FOR SOFT-SEATED  
FLANGED BALL VALVE

Certificate Number: BCL 9800547/7

Client: J.C. FABRICA DE VALVULAS, S.A.

Office: BARCELONA

Client's Order Number: -----

Date: 22.05.98

Order Status: complete

Inspection Dates

First: 07.05.98

Final: 07.05.98

*This certificate is issued to* Messrs. J.C. FABRICA DE VALVULAS, S.A. upon their request that the undersigned Surveyor to this Society did attend their works at Rubi - Barcelona (Spain) for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607-1993 on the following type of valve:

A manually operated soft seated flanged ball valve of ½" full bore, bi-directional as per Fig. 515 PIN A.I.T. DN ½", ANSI 150# RF FB

Body material : A-216- WCB

Seats: PTFE

Ball material: A-351 CF8M

Manufacturers identifying numbers: BODY: I 51151

Body connector: I 51152

Mass: 2 Kgs

Marks:

BODY : CYI  
BODY CONNECTOR : BQI

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

The valve, filled with water under test pressure, was put in a box and exposed to flames with and environmental temperature between 760 - 980°C. All measure temperatures shall be above 705°C. The body temperature shall be at 593° C minimum and bonnet temperature of 650°C minimum for a period of during 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every each thirty seconds, while leakages were determined using containers collecting the water leaked during burn period. Afterwards water spray so that it is rapidly cooled to below 100°C within ten minutes. Internal leakage measure during cooling time. Following operational test. Subsequently manual opened up and closed to under test pressure differential and finally the valve was hidrottested during five minutes and during this period internal and external leakage were measured.

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

All the following values were determined and recorded together with temperatures, times and pressures as shown on manufacturers Fire Safe Test Report no. API 607-515/1/2"

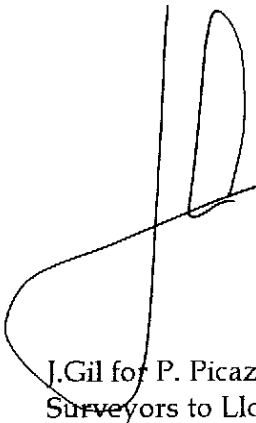
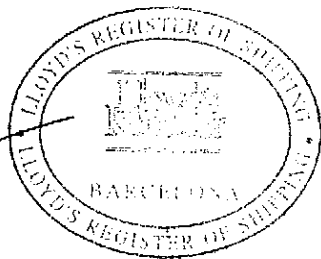
- 1.-Internal leakage during burning test - Satisfactory
- 2.-External leakage during burning and cooling test - Satisfactory
- 3.-Operatibility to full open position test - Satisfactory
- 4.-Internal and External leakage during after operational test - Satisfactory

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

The manufacturers Fire Safe Test Report no. API 607-515/1/2" and drawing 2243/515NAIT15 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 also qualified as follows:

| <u>NPS</u>             | <u>CLASS RATING</u> | <u>MATERIALS</u>            |
|------------------------|---------------------|-----------------------------|
| 1/4", 3/8", 1/2", 3/4" | 150# and 300#       | Carbon steel, (see drawing) |

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

DOCUMENTS ATTACHED:  
12 sheets reviewed and stamped accordingly

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

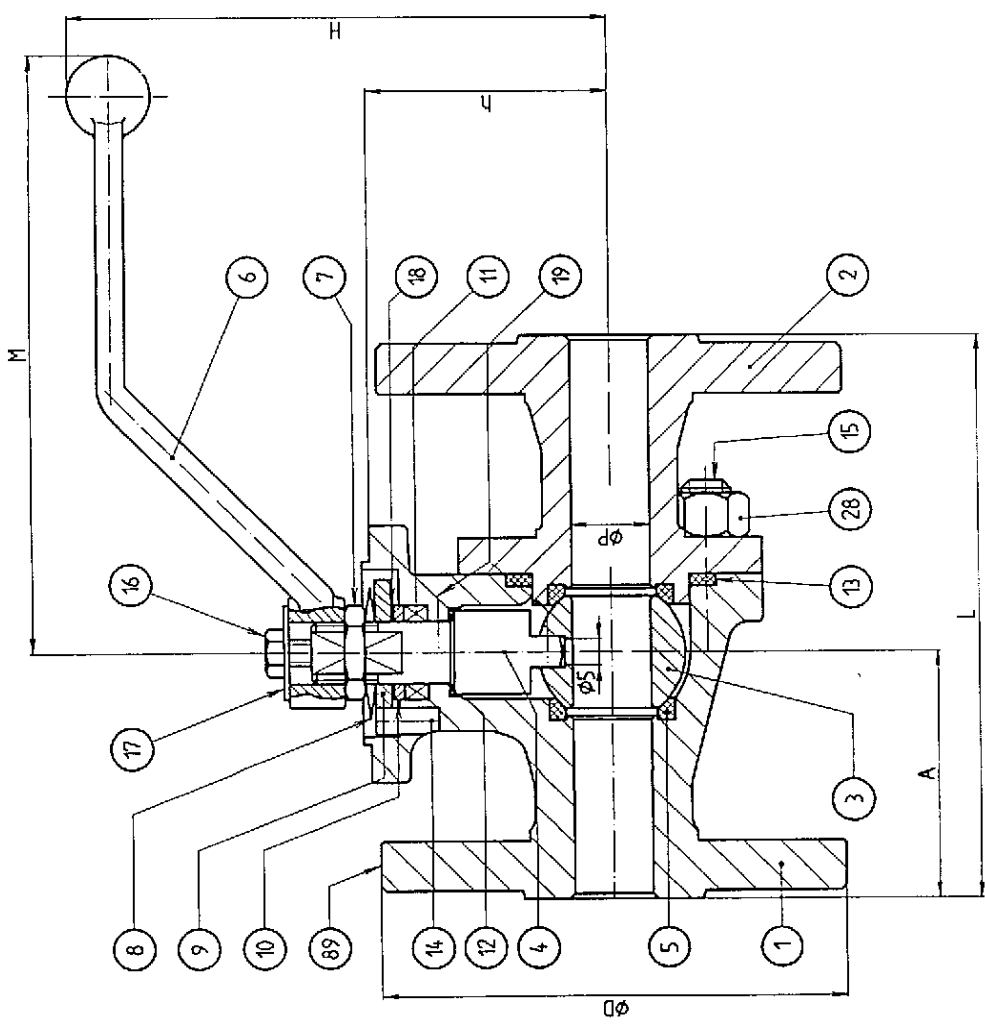
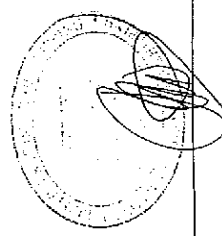
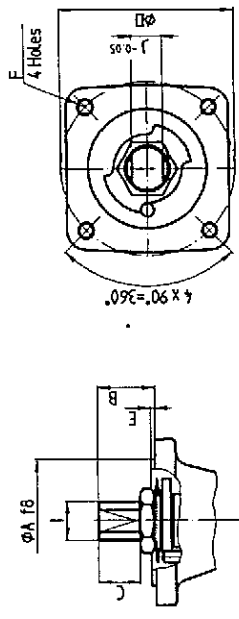
2243

| DN   | L   | φD | φP | A  | M   | H   | h  |
|------|-----|----|----|----|-----|-----|----|
| 1/2" | 108 | 89 | 15 | 47 | 166 | 112 | 46 |

| BALL VALVES FREE STEM DIMENSIONS |    |     |    |    |    |    |        |
|----------------------------------|----|-----|----|----|----|----|--------|
| DN                               | φA | B   | C  | φD | E  | F  | J      |
| 1/2"                             | 35 | 115 | 65 | 50 | 15 | M6 | M12x15 |
|                                  |    |     |    |    |    |    | 9      |
|                                  |    |     |    |    |    |    | 2      |

| POS. ITEM | CANTIDAD QUANTITY | PESO (Kg.) WEIGHT |
|-----------|-------------------|-------------------|
|-----------|-------------------|-------------------|

VIEW A



| Pos. | Item                 | Material                  | Quantity                                 | Weight (Kg) |
|------|----------------------|---------------------------|--|-------------|
| 2    | PLASTIC CAP          | PLASTIC                   |  |             |
| 89   | IDENTIFICATION PLATE | STAINLESS ST.             |  |             |
| 28   | NUT                  | A 194 Gr. 2HM             | 100 mm x 9 mm x 0.4 ~ 0.5 mm.            |             |
| 19   | ANTISTATIC DEVICE    | STAINLESS ST.             | ANSI B18.2.2 TABLA 3 (HEX NUTS) UNC-3/8" |             |
| 18   | THRUST WASHER        | 25% GF.PTFE               | φ18 x φ12 x 0.5                          |             |
| 17   | WASHER               | ZINC PLATED CARBON ST.    | 5120 / 17 16 / 06 / 83                   |             |
| 16   | BOLT                 | DIN 933 5.6 ZINC.         | DIN 933 M5 x 14                          |             |
| 15   | STUD                 | A 193 Gr. 87              | S51515 06 / 09 / 93                      |             |
| 14   | STOP PIN             | CARBON ST.                | 5 x 12 DIN - 6325                        |             |
| 13   | BODY CONNECTOR SEAL  | AISI 316L + GRAPHITE      | 15001300 (φ39 x φ31 x 3.2) 11 / 92       |             |
| 12   | STEM THRUST SEAL     | 25% GF.PTFE               | φ16 x φ12 x 1.3                          |             |
| 11   | GLAND PACKING        | GRAPHITE                  | φ18 x φ12 x 5.5                          |             |
| 10   | GLAND                | AISI 303                  | 5120 / 10 - 1 23 / 07 / 87               |             |
| 9    | STOP PLATE           | CARBON ST.                | STOP15H1 27 / 05 / 94                    |             |
| 8    | DISK SPRING          | CARBON ST.                | DN-20 B-25 DIN 2093                      |             |
| 7    | GLAND NUT            | CARBON ST.                | 00200710 23 / 11 / 88                    |             |
| 6    | WRENCH               | MODULAR IRON              | M15ND-M2 04 / 96                         |             |
| 5    | SEAT RING            | PTFE                      | 00150520-M2 02 / 01 / 92                 |             |
| 4    | STEM                 | A 276/479 Tp. 316         | EP15 27 / 05 / 94                        |             |
| 3    | BALL                 | A 276/479 Tp. 316         | 00150311 12 / 97                         |             |
| 2    | BODY CONNECTOR       | A 216 Gr. WCB (C ± 0.25%) | L515A15-M1 11 / 96                       |             |
| 1    | BODY                 | A 216 Gr. WCB (C ± 0.25%) | C515A15-M2 04 / 96                       |             |

| DENOMINACION   |            | MATERIAL  |  | FECHA |  |
|----------------|------------|-----------|--|-------|--|
| mm             | 12-05-98   | Victor F. |  |       |  |
| Dimensiones    | Comprobado |           |  |       |  |
| Peso (Kg)      | V. B. Ing. |           |  |       |  |
| Sustituido por | Escala     |           |  |       |  |
| Sustituido     |            |           |  |       |  |

**JC** Fábrica de válvulas, S.A.  
 Hospital de L. (Barcelona)

**JC® BALL VALVE**  
 FIG.515; PIN A.I.T.; DN-1/2"; ANSI150 RF FB

Ref: Planon.  
 2243 / 515NAIT15

Project: FIRE TEST FOR SOFT-SEATED  
FLANGED BALL VALVE

Certificate Number: BCL 9800547/6

Client: J.C. FABRICA DE VALVULAS, S.A.

Office: BARCELONA

Client's Order Number: -----

Date: 22.05.98

Order Status: complete

Inspection Dates

First: 07.05.98

Final: 07.05.98

**This certificate is issued to Messrs. J.C. FABRICA DE VALVULAS, S.A. upon their request that the undersigned Surveyor to this Society did attend their works at Rubi - Barcelona (Spain) for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607-1993 on the following type of valve:**

A manually operated soft seated flanged ball valve of 1" full bore, bi-directional as per Fig. 515 PIN A.I.T. DN 1", ANSI 150# RF FB

Body material : A-216- WCB

Seats: PTFE

Ball material: A-351 CF8M

Manufacturers identifying numbers: BODY: I 51251

Body connector: I 51252

Mass: 3,5 Kgs

Marks:

BODY : BJH

BODY CONNECTOR : BLB

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

The valve, filled with water under test pressure, was put in a box and exposed to flames with and environmental temperature between 760 - 980°C. All measure temperatures shall be above 705°C. The body temperature shall be at 593° C minimum and bonnet temperature of 650°C minimum for a period of during 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every each thirty seconds, while leakages were determined using containers collecting the water leaked during burn period. Afterwards water spray so that it is rapidly cooled to below 100°C within ten minutes. Internal leakage measure during cooling time. Following operational test. Subsequently manual opened up and closed to under test pressure differential and finally the valve was hidrotested during five minutes and during this period internal and external leakage were measured.

../..

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

All the following values were determined and recorded together with temperatures, times and pressures as shown on manufacturers Fire Safe Test Report no. API 607-515/1"

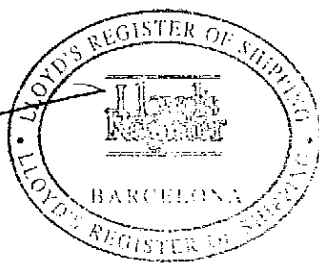
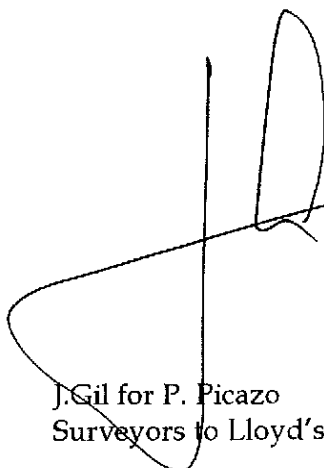
- 1.-Internal leakage during burning test - Satisfactory
- 2.-External leakage during burning and cooling test - Satisfactory
- 3.-Operatibility to full open position test - Satisfactory
- 4.-Internal and External leakage during after operational test - Satisfactory

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

The manufacturers Fire Safe Test Report no. API 607-515/1" and drawing 2245/515NAIT25 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 also qualified as follows:

| <u>NPS</u>        | <u>CLASS RATING</u> | <u>MATERIALS</u>            |
|-------------------|---------------------|-----------------------------|
| ¾", 1", 1 ¼", 1 ½ | 150# and 300#       | Carbon steel, (see drawing) |



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

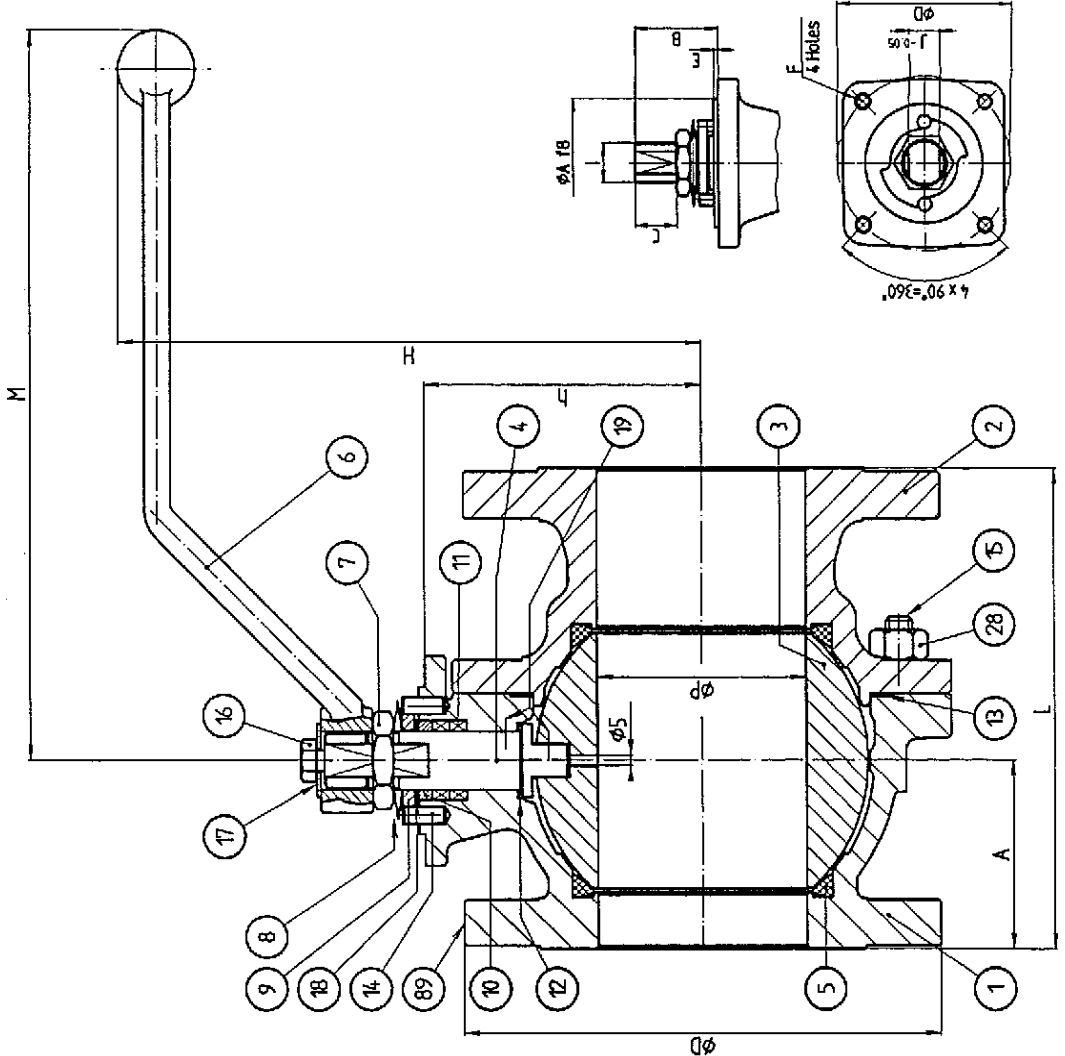
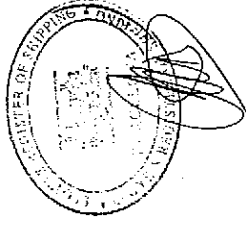
DOCUMENTS ATTACHED:  
12 sheets reviewed and stamped accordingly

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

| DN | L   | ØD  | ØP | A  | M   | H     | h  |
|----|-----|-----|----|----|-----|-------|----|
| 1" | 127 | 108 | 25 | 52 | 166 | 132.5 | 58 |

| BALL VALVES FREE STEM DIMENSIONS |    |    |    |    |    |    |        |
|----------------------------------|----|----|----|----|----|----|--------|
| DN                               | ØA | B  | C  | ØD | E  | F  | J      |
| 1"                               | 35 | 24 | 10 | 50 | 15 | M6 | M12x15 |
|                                  |    |    |    |    |    |    | 9      |

| POS. ITEM | CANTIDAD QUANTITY | PESO (KG) WEIGHT |
|-----------|-------------------|------------------|
|           |                   | 35               |



| 2  | PLASTIC CAP          | PLASTIC                   |  |
|----|----------------------|---------------------------|--|
| 89 | IDENTIFICATION PLATE | STAINLESS ST.             | 100 mm x 9 mm x 0.4 ~ 0.5 mm.            |
| 28 | NUT                  | A 194 Gr. 2HM             | ANSI B18.2.2 TABLA 3 (HEX NUTS) UNC-3/8" |
| 19 | ANTISTATIC DEVICE    | STAINLESS ST.             |  |
| 18 | THRUST WASHER        | 25% G.F. PTFE             | Ø18 x Ø12 x 0.5                          |
| 17 | WASHER               | ZINC PLATED CARBON ST.    | S120 / 17 16 / 06 / 83                   |
| 16 | BOLT                 | DIN 933 5.6 ZINC.         | DIN 933 M5 x 12                          |
| 15 | STUD                 | A 193 Gr. B7              | S53025 06 / 09 / 93                      |
| 14 | STOP PIN             | CARBON ST.                | 5 x 12 DIN - 6325                        |
| 13 | BODY CONNECTOR SEAL  | AISI 316L + GRAPHITE      | Ø00E00 (Ø57.2 x Ø47.6 x 3.2) 11 / 92     |
| 12 | STEM THRUST SEAL     | 25% G.F. PTFE             | Ø16 x Ø12 x 1.3                          |
| 11 | 1/1 GLAND PACKING    | GRAPHITE                  | Ø18 x Ø12 x 3.5 / Ø18 x Ø12 x 5.5        |
| 10 | GLAND                | AISI 303                  | 5120 / 10 - 1 23 / 07 / 87               |
| 9  | STOP PLATE           | CARBON ST.                | 00200930 27 / 05 / 94                    |
| 8  | DISK SPRING          | CARBON ST.                | DN-20 B-25 DIN 2093                      |
| 7  | GLAND NUT            | CARBON ST.                | 00200710 23 / 11 / 88                    |
| 6  | WRENCH               | MODULAR IRON              | M5ND-M2 04 / 96                          |
| 5  | SEAT RING            | PTFE                      | 00250520-M2 02 / 01 / 92                 |
| 4  | STEM                 | A 276/479 Tp. 316         | EP125 27 / 05 / 94                       |
| 3  | BALL                 | A 276/479 Tp. 316         | 00250311 12 / 97                         |
| 2  | BODY CONNECTOR       | A 216 Gr. WCB (C ≤ 0.25%) | L515A25-M1 11 / 96                       |
| 1  | BODY                 | A 216 Gr. WCB (C ≤ 0.25%) | C515A25-M2 04 / 96                       |

| Barra          | Concl. | DE NOMINACION | MATERIAL  | Nº DE PLANO | FECHA |
|----------------|--------|---------------|-----------|-------------|-------|
| mm             |        | 12-05-98      | Victor F. |             |       |
| Dimensiones    |        | Dibujado      | 12-05-98  |             |       |
| Peso (kg)      |        | Comprobado    |           |             |       |
| Sustituido por |        | V. B. Ing.    |           |             |       |
| Sustituye a    |        | Escala        |           |             |       |

**JC** Fábrica de válvulas, s.a.  
 Hospitalet de LL (Barcelona)

Ref: **JC® BALL VALVE**  
**FIG. 515; PIN A.I.T.; DN-1"; ANSI150 RF FB**

9.880.547/6  
 12

Planos: 2245 / 515NAIT25

2245



Project: FIRE TEST FOR SOFT-SEATED  
FLANGED BALL VALVE

Certificate Number: BCL 9800547/5A1

Client: J.C. FABRICA DE VALVULAS, S.A.

Office: BARCELONA

Client's Order Number: -----

Date: 22.05.98

Order Status: complete

Inspection Dates

First: 07.05.98

Final: 07.05.98

**This certificate is issued to Messrs. J.C. FABRICA DE VALVULAS, S.A. upon their request that the undersigned Surveyor to this Society did attend their works at Rubi - Barcelona (Spain) for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607-1993 on the following type of valve:**

A manually operated soft seated flanged ball valve of 2" full bore, bi-directional as per Fig. 515 PIN A.I.T. DN 2", ANSI 150# RF

Body material : A-216- WCB

Seats: PTFE

Ball material: A-351 CF8M

Manufacturers identifying numbers: BODY: I 5151

Body connector: 973455100

Mass: 11,3 Kgs

Marks:

BODY : 04J  
BODY CONNECTOR : N70

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

The valve, filled with water under test pressure, was put in a box and exposed to flames with and environmental temperature between 760 - 980°C. All measure temperatures shall be above 705°C. The body temperature shall be at 593° C minimum and bonnet temperature of 650°C minimum for a period of during 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every each thirty seconds, while leakages were determined using containers collecting the water leaked during burn period. Afterwards water spray so that it is rapidly cooled to below 100°C within ten minutes. Internal leakage measure during cooling time. Following operational test. Subsequently manual opened up and closed to under test pressure differential and finally the valve was hidrotested during five minutes and during this period internal and external leakage were measured.

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

All the following values were determined and recorded together with temperatures, times and pressures as shown on manufacturers Fire Safe Test Report no. API 607-515/2"

- 1.-Internal leakage during burning test - Satisfactory
- 2.-External leakage during burning and cooling test - Satisfactory
- 3.-Operability to full open position test - Satisfactory
- 4.-Internal and External leakage during after operational test - Satisfactory

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

The manufacturers Fire Safe Test Report no. API 607-515/2" and drawing 2115/515NAIT50 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 also qualified as follows:

| <u>NPS</u>       | <u>CLASS RATING</u> | <u>MATERIALS</u>            |
|------------------|---------------------|-----------------------------|
| 1½", 2", 2½", 3" | 150# and 300#       | Carbon steel, (see drawing) |



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

DOCUMENTS ATTACHED:  
14 sheets reviewed and stamped accordingly

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

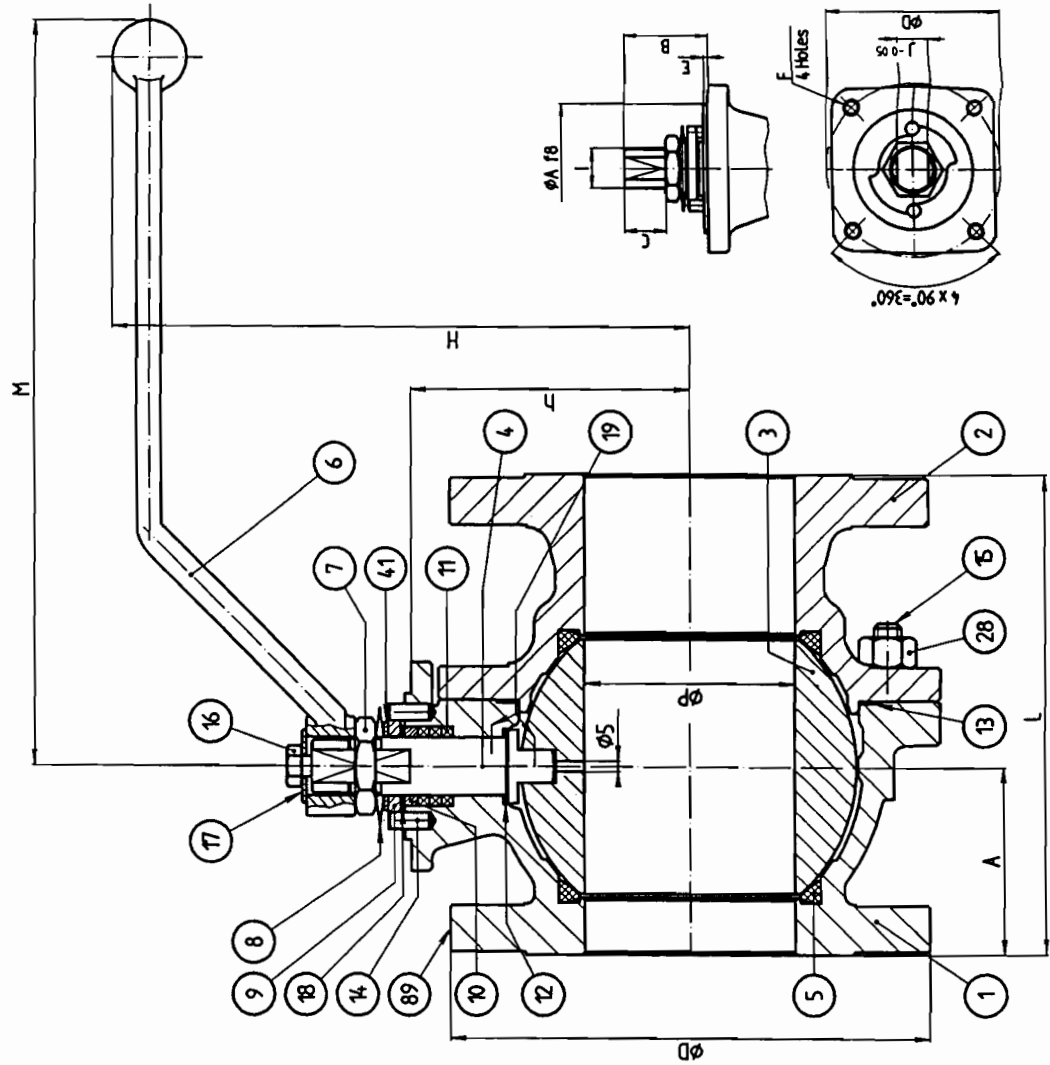


2115

|    |     |    |    |    |     |     |      |
|----|-----|----|----|----|-----|-----|------|
| DN | L   | ØD | ØP | A  | M   | H   | h    |
| 2" | 778 | 52 | 50 | 61 | 272 | 200 | 83.5 |

| BALL VALVES-FREE STEM DIMENSIONS |    |    |    |    |   |    |         |
|----------------------------------|----|----|----|----|---|----|---------|
| L..                              | ØA | B  | C  | ØD | E | F  | J       |
| 2"                               | 55 | 42 | 18 | 70 | 3 | M8 | M18x1.5 |
|                                  |    |    |    |    |   |    | 13      |

|           |           |           |
|-----------|-----------|-----------|
| PESO (Kg) | QUANTITAT | POS. ITEM |
| 113       |           |           |



| QTY | DESCRIPTION          | MATERIAL                  | DATE                          |
|-----|----------------------|---------------------------|-------------------------------|
| 2   | PLASTIC CAP          | PLASTIC                   |                               |
| 89  | IDENTIFICATION PLATE | STAINLESS ST.             | 100 mm x 13 mm x 0.4 ~ 0.5 mm |
| 41  | SPACER               | CARBON ST.                | 200040 / 41 27/06/86          |
| 28  | NUT                  | A 194 Gr. 2H              | 5150 / 28 11/06/85            |
| 19  | ANTISTATIC DEVICE    | STAINLESS ST.             |                               |
| 18  | THRUST WASHER        | 25% GF. PTFE              | Ø25.7 x Ø18 x 2               |
| 17  | WASHER               | ZINC PLATED CARBON ST.    | 5130 / 17 23/07/87            |
| 16  | BOLT                 | DIN 933 5.6 ZINC.         | DIN 933 M6 x 12               |
| 15  | STUD                 | A 193 Gr. 87              | S53050-M1 11/96               |
| 14  | STOP PIN             | CARBON ST.                | 6 x 16 DIN 6325               |
| 13  | BODY CONNECTOR SEAL  | AISI 316L + GRAPHITE      | Ø95.3 x Ø85.7 x 3.2           |
| 12  | STEM THRUST SEAL     | 25% GF. PTFE              | Ø25.7 x Ø18 x 2               |
| 11  | GLAND PACKING        | GRAPHITE                  |                               |
| 10  | GLAND                | AISI 303                  | Ø26 x Ø18 x 5                 |
| 9   | STOP PLATE           | CARBON ST.                | 5140 / 10 - 1 23/07/87        |
| 8   | DISK SPRING          | CARBON ST.                | 00400930 23/07/92             |
| 7   | GLAND NUT            | CARBON ST.                | B-35.5 DIN 2093               |
| 6   | WRENCH               | MODULAR IRON              | 00400740 28/01/89-M1          |
| 5   | SEAT RING            | PTFE                      | M40ND 17/03/93                |
| 4   | STEM                 | A 276/479 Tp. 316         | 00500530 11/12/91             |
| 3   | BALL                 | A 351Gr. CF8M             | EPI50 06/12/94                |
| 2   | BODY CONNECTOR       | A 216 Gr. WCB (C ± 0.25%) | 00500311 12/97                |
| 1   | BODY                 | A 216 Gr. WCB (C ± 0.25%) | L515A50 04/96                 |
|     |                      | C515A501-M1               | 04/96                         |

|                         |               |            |       |
|-------------------------|---------------|------------|-------|
| Marca Com.              | DETERMINACION | MATERIAL   | FECHA |
| mm                      | 05-03-98      | Victor F.  |       |
| Dimensiones             | Desujado      | Comprobado |       |
| Peso (kg)               | 5-3-98        |            |       |
| Sustituido por          | V.B. Imp.     |            |       |
| NOTED AND FOUND CORRECT | Escala        |            |       |
| ATTACHED TO ORDER       |               |            |       |
| NO. 81 8800 2375        |               |            |       |
| SHEET 15 OF 15          |               |            |       |

**JC** Fàbrica de vàlvulas, S.A.  
Hospitalet de LL. (Barcelona)

Ref. JC® BALL VALVE

ANSI150 RF; FB

2115 / 515VA150



Project: FIRE TEST FOR SOFT-SEATED  
FLANGED BALL VALVE

Certificate Number: BCL 9800547/1

Client: J.C. FABRICA DE VALVULAS, S.A.

Office: BARCELONA

Client's Order Number: ———

Date: 11.05.98

Order Status: complete

Inspection Dates

First: 02.03.98

Final: 02.03.98

*This certificate is issued to Messrs. J.C. FABRICA DE VALVULAS, S.A. upon their request that the undersigned Surveyor to this Society did attend their works at Rubi - Barcelona (Spain) for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607-1993 on the following type of valve:*

A manually operated soft seated flanged ball valve of 4" full bore, bi-directional as per Fig. 515, PIN A.I.T. DN 4" ; ANSI 150# RF; FB

Body material : A-216- WCB

Seats: PTFE

Ball material: A-351 CF8M

Manufacturers identifying numbers: BODY: 51811

Body connector: 51812

Mass: 33,5 Kgs

Marks:

BODY : M5  
BODY CONNECTOR : L95

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

The valve, filled with water under test pressure, was put in a box and exposed to flames with and environmental temperature between 760 - 980°C. All measure temperatures shall be above 705°C. The body temperature shall be at 593° C minimum and bonnet temperature of 650°C minimum for a period of during 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every each thirty seconds, while leakages were determined using containers collecting the water leaked during burn period. Afterwards water spray so that it is rapidly cooled to below 100°C within ten minutes. Internal leakage measure during cooling time. Following operational test. Subsequently manual opened up and closed to under test pressure differential and finally the valve was hidrottested during five minutes and during this period internal and external leakage were measured.

../..

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

All the following values were determined and recorded together with temperatures, times and pressures as shown on manufacturers Fire Safe Test Report no. API 607-515/4" / B

- 1.-Internal leakage during burning test - Satisfactory
- 2.-External leakage during burning and cooling test - Satisfactory
- 3.-Operability to full open position test - Satisfactory
- 4.-Internal and External leakage during after operational test - Satisfactory

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

The manufacturers Fire Safe Test Report no. API 607-515/4" / B and drawing 2209/515NAI1T100 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 also qualified as follows:

| <u>NPS</u> | <u>CLASS RATING</u> | <u>MATERIALS</u>            |
|------------|---------------------|-----------------------------|
| 3, 4, 5, 6 | 150 and 300         | Carbon steel, (see drawing) |

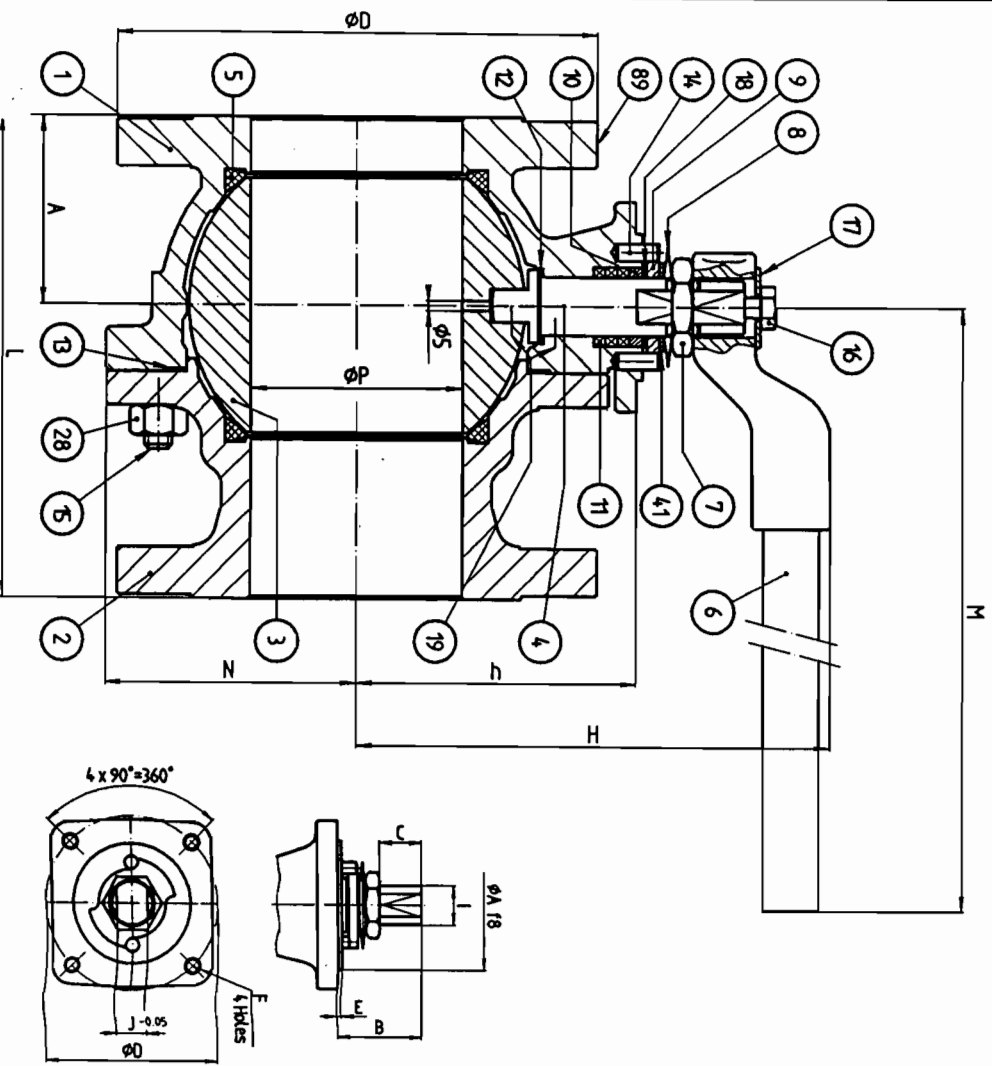


J.Gil for P. Picazo  
Surveyors to Lloyd's Register

DOCUMENTS ATTACHED:  
12 sheets reviewed and stamped accordingly

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

|    |     |     |     |    |     |     |     |     |
|----|-----|-----|-----|----|-----|-----|-----|-----|
| DN | L   | φD  | φP  | A  | M   | H   | h   | N   |
| 4" | 229 | 229 | 400 | 90 | 465 | 225 | 133 | 188 |



| BALL VALVE/FREE STEM DIMENSIONS |    |    |    |     |   |     |        |    |      | PESO (Kg) | CANTIDAD | POS. ITEM |
|---------------------------------|----|----|----|-----|---|-----|--------|----|------|-----------|----------|-----------|
| DN                              | φA | B  | C  | φD  | E | F   | I      | J  | K    |           |          |           |
| 4"                              | 70 | 56 | 28 | 102 | 3 | M10 | M28x15 | 20 | 33.5 |           |          |           |

| 2  | PLASTIC CAP            | PLASTIC                   | 140 mm x 13 mm x 0.4 + 0.5 mm |
|----|------------------------|---------------------------|-------------------------------|
| 89 | 1 IDENTIFICATION PLATE | STAINLESS ST.             |                               |
| 41 | 1 SPACER               | CARBON ST.                | 200100 / 41 18/5/82           |
| 28 | 8 NUT                  | A 194 GR. 2H              | 5181 / 28 31/9/84             |
| 19 | 2 ANTISTATIC DEVICE    | STAINLESS ST.             |                               |
| 18 | 1 THRUST WASHER        | 25% GF. PTFE              | φ38 x φ28 x 2                 |
| 17 | 1 WASHER               | ZINC PLATED CARBON ST.    | 5180 / 17 24/7/87             |
| 16 | 1 BOLT                 | DIN 933 5.6 ZINC.         | DIN 933 M10 x 15              |
| 15 | 8 STUD                 | A 193 GR. B7              | 5181 / 15 - M1 10/3/92        |
| 14 | 2 STOP PIN             | CARBON ST.                | 8 x 20 DIN 6325               |
| 13 | 1 BODY CONNECTOR SEAL  | AISI 316L + GRAPHITE      | φ35.7 x φ28 x 2.5             |
| 12 | 1 STEM THRUST SEAL     | 25% GF. PTFE              | φ38 x φ28 x 6.5               |
| 11 | 3 GLAND PACKING        | GRAPHITE                  | 5181 / 10 - 1 24/7/87         |
| 10 | 1 GLAND                | AISI 303                  | 00840930 22/7/92              |
| 9  | 1 STOP PLATE           | CARBON ST.                | B-56 DIN 2093                 |
| 8  | 2 DISK SPRING          | CARBON ST.                | 00840740 28/7/87              |
| 7  | 1 GLAND NUT            | CARBON ST.                | M0000 29/3/93                 |
| 6  | 1 WRENCH               | NODULAR IRON              | A100G1 15/2/94                |
| 5  | 2 SEAT RING            | PTFE                      | EPH00 20/12/93                |
| 4  | 1 STEM                 | A 276/479 TP. 316         | 00840371 12/97                |
| 3  | 1 BALL                 | A 351 GR. CF8M            | L55A100 4/1/93                |
| 2  | 1 BODY CONNECTOR       | A 216 GR. WCB (C ≤ 0.25%) | CS5A1001-M1 11/12/93          |
| 1  | 1 BODY                 | A 216 GR. WCB (C ≤ 0.25%) |                               |

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 NO. 84 200542/A  
 SHEET 1 OF 19

|              |           |    |    |
|--------------|-----------|----|----|
| mm           | mm        | mm | mm |
| 01-04-98     | VICTOR F. |    |    |
| 01-04-98     | VICTOR F. |    |    |
| 1.4/98       |           |    |    |
| V 8" Ing     |           |    |    |
| Escala       |           |    |    |
| Escalado por |           |    |    |
| Peso (kg)    |           |    |    |
| Señalado por |           |    |    |
| Señalado por |           |    |    |

JC® BALL VALVE  
 FIG515; PIN A.I.T.; DN 4"; ANSI150 RF; FB  
 Fbrica de vlvulas, S.O.  
 Hospital de LL (Barcelona)  
 Ref: /55NA11100



Project: FIRE TEST FOR SOFT-SEATED  
FLANGED BALL VALVE

Certificate Number: BCL 9800603/3

Client: J.C. FABRICA DE VALVULAS, S.A.

Office: BARCELONA

Client's Order Number: -----

Date: 30.06.98

Order Status: complete

Inspection Dates

First: 09.06.98

Final: 09.06.98

**This certificate is issued to** Messrs. J.C. FABRICA DE VALVULAS, S.A. upon their request that the undersigned Surveyor to this Society did attend their works at Rubi - Barcelona (Spain) for the purpose of witnessing the FIRE TEST in accordance with the requirements specified in API 607-1993 on the following type of valve:

A manually operated soft seated flanged ball valve of 8" full bore, bi-directional as per Fig. 515 A.I.T. DN 8", ANSI 150# RF,FB

Body material : A-216- WCB

Seats: PTFE

Ball material: A-351 CF8M

Manufacturers identifying numbers: BODY: 5102001

Body connector: 5102002

Mass: 167 Kgs

Marks:

BODY : M-30  
BODY CONNECTOR : M-31

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

The valve, filled with water under test pressure, was put in a box and exposed to flames with and environmental temperature between 760 - 980°C. All measure temperatures shall be above 705°C. The body temperature shall be at 593° C minimum and bonnet temperature of 650°C minimum for a period of during 30 minutes and established the leakage through the seat and external to atmosphere during this period. The temperature was checked and recorded every each thirty seconds, while leakages were determined using containers collecting the water leaked during burn period. Afterwards water spray so that it is rapidly cooled to below 100°C within ten minutes. Internal leakage measure during cooling time. Following operational test. Subsequently manual opened up and closed to under test pressure differential and finally the valve was hidrottested during five minutes and during this period internal and external leakage were measured.

../..

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

All the following values were determined and recorded together with temperatures, times and pressures as shown on manufacturers Fire Safe Test Report no. API 607-515/8"

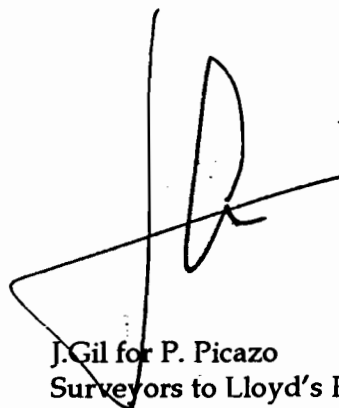
- 1.-Internal leakage during burning test - Satisfactory
- 2.-External leakage during burning and cooling test - Satisfactory
- 3.-Operatibility to full open position test - Satisfactory
- 4.-Internal and External leakage during after operational test - Satisfactory


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

The manufacturers Fire Safe Test Report no. API 607-515/8" and drawing 2380/515NAI1T200RA 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 also qualified as follows:

| <u>NPS</u>    | <u>CLASS RATING</u> | <u>MATERIALS</u>            |
|---------------|---------------------|-----------------------------|
| 6" and larger | 150# and 300#       | Carbon steel, (see drawing) |

  
J. Gil for P. Picazo  
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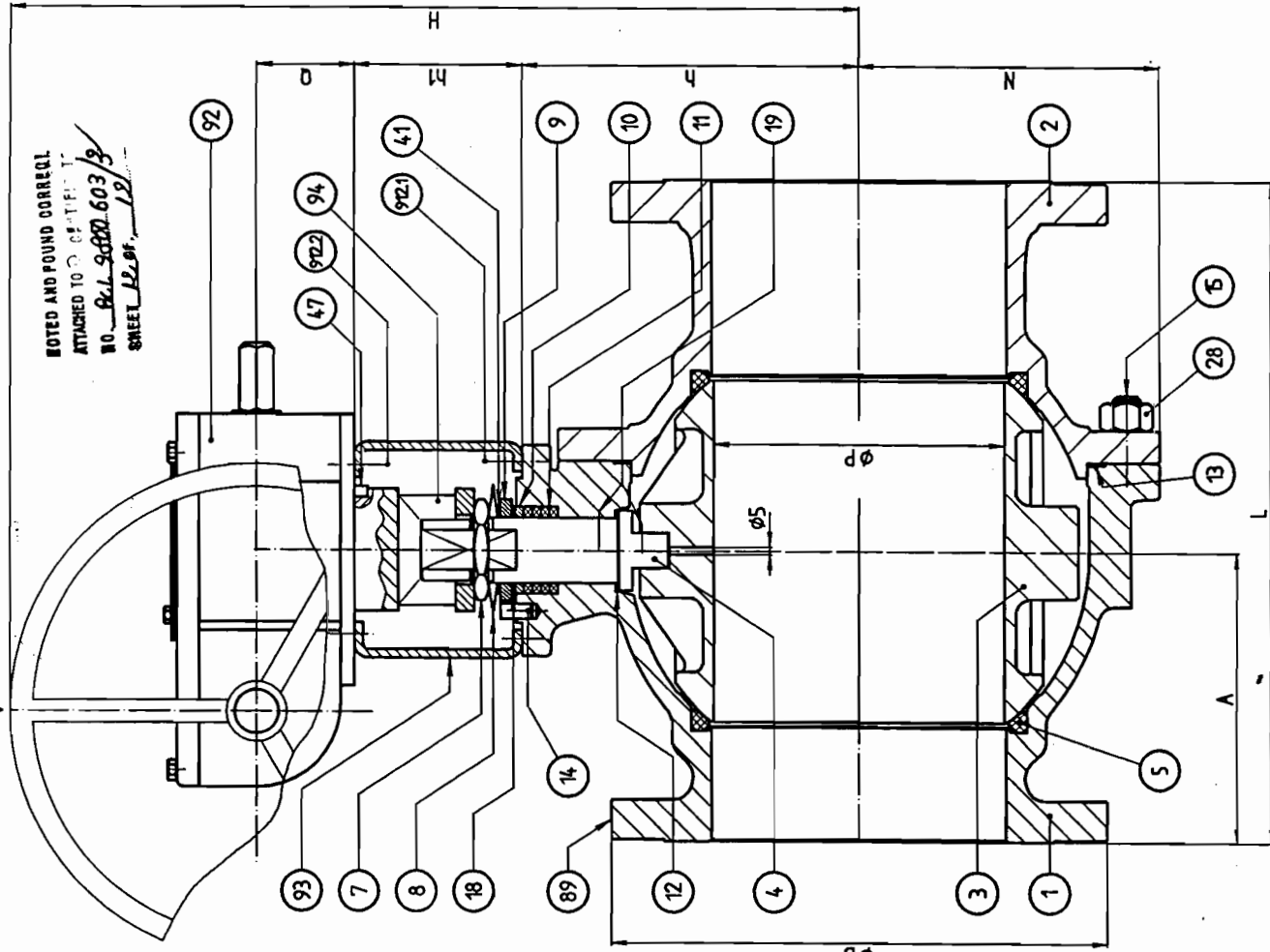
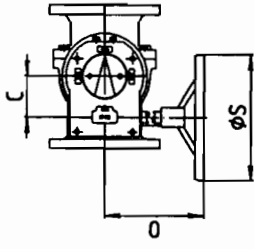
DOCUMENTS ATTACHED:  
12 sheets reviewed and stamped accordingly

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

2380

|    |     |     |     |     |       |     |     |     |      |     |    |     |
|----|-----|-----|-----|-----|-------|-----|-----|-----|------|-----|----|-----|
| DN | L   | φD  | φP  | A   | H     | h   | m1  | N   | Q    | φS  | C  | D   |
| 8" | 457 | 343 | 203 | 200 | 573.5 | 233 | 100 | 208 | 40.5 | 400 | 71 | 209 |

VIEW FOR A



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 ATTACHED TO Dwg. TIT. 1  
 NO. 94.980.603/B  
 SHEET 12 OF 12

|       |    |                      |                           |                                   |
|-------|----|----------------------|---------------------------|-----------------------------------|
| 912.2 | 4  | BOLT                 | DIN 912 8.8               | M16 x 25                          |
| 912.1 | 4  | BOLT                 | DIN 912 8.8               | M16 x 25                          |
| 94    | 1  | COUPLING             | ZINC PLATED CARBON ST.    | AC200AB550N 3/3/95                |
| 93    | 1  | MOUNTING BRACKET     | ZINC PLATED CARBON ST.    | ESF14F14100 30/6/94               |
| 92    | 1  | WORM GEAR OPERATOR   | ALECTO                    | AB 550N                           |
|       | 2  | PLASTIC CAP          | PLASTIC                   |                                   |
| 89    | 1  | IDENTIFICATION PLATE | STAINLESS ST.             | 14.0 mm x 13 mm x 0.4 ~ 0.5 mm    |
| 47    | 1  | KEY                  | CARBON ST.                | DIN 6885 A 14 x 9 x 50            |
| 41    | 1  | SPACER               | CARBON ST.                | 5184 / 41 M1 5 / 91               |
| 28    | 12 | NUT                  | A 194 Gr. 2M              | 5184 / 28 31/9/84                 |
| 19    | 2  | ANTISTATIC DEVICE    | STAINLESS ST.             |                                   |
| 18    | 1  | THRUST WASHER        | 25% GF. PTFE              |                                   |
| 15    | 12 | STUD                 | A 193 Gr. B7              | φ60 x φ45 x 2 11/91               |
| 14    | 1  | STOP PIN             | CARBON ST.                | 10 x 24 DIN-6325                  |
| 13    | 1  | BODY CONNECTOR SEAL  | AIISI 316L + GRAPHITE     | 5001300 (φ338.5xφ37x3.2) 11/11/92 |
| 12    | 1  | STEM THRUST SEAL     | 25% GF. PTFE              | φ55.7 x φ45 x 3                   |
| 11    | 4  | GLAND PACKING        | GRAPHITE                  | φ60 x φ45 x 7.2                   |
| 10    | 1  | GLAND                | AIISI 303                 | 0084-1000-M1 18/7/90              |
| 9     | 1  | STOP PLATE           | CARBON ST.                | 0084-0920 30/4/92                 |
| 8     | 2  | DISK SPRING          | CARBON ST.                | 5184 / 08 30/5/83                 |
| 7     | 1  | GLAND NUT            | CARBON ST.                | 5184 / 07 12/12/78                |
| 5     | 2  | SEAT RING            | PTFE                      | A200T1 19/10/94                   |
| 4     | 1  | STEM                 | A 276/479 Tp.316          | EPI200BF 19/12/95                 |
| 3     | 1  | BALL                 | A 351Gr. CF8M             | BC200 25/9/95                     |
| 2     | 1  | BODY CONNECTOR       | A 216 Gr. WCB (C ≤ 0.25%) | L5BA200-M1 9/95                   |
| 1     | 1  | BODY                 | A 216 Gr. WCB (C ≤ 0.25%) | C5BA200-M4 9/95                   |

|                |       |             |  |
|----------------|-------|-------------|--|
| MATERIAL       |       | FECHA       |  |
| Marca          | Cont. | Nº DE PLANO |  |
| DENOMINACION   |       |             |  |
| Dibujado       |       | Victor F.   |  |
| Comprobado     |       | 17-06-98    |  |
| Vº Jº Ing.     |       | 17-06-98    |  |
| Escala         |       |             |  |
| Sustituido por |       |             |  |
| Sustituye a    |       |             |  |

**JC** Fábrica de válvulas, s.a.  
 Hospital de LL (Barcelona)

**JC® BALL VALVE**  
**FIG.515 PIN; A.I.T; DN8" ANSI150 RF FB**  
 WORM GEAR OPERATOR

Ref.  
 Plano nº  
 2380 / 575NAHT200RA