

Project: **Fire-Safe type testing**

Certificate No.: **HEL 600594/01**

Client: **Neles-Jamesbury Oy,  
Helsinki, Finland**

Office: **Helsinki**

Client's Order No.: **-**

Date: **13.06.1996**

Inspection dates  
First: **and**

Order Status: **Complete**

Final: **14.05.1996**

This certificate is issued to **Neles-Jamesbury Oy** to certify that the undersigned Surveyor attended their works in Helsinki on above dates for the purpose of witnessing fire tests on one (1) ball valve.

**Particulars of Valve**

Type: **T5DB01YAA03**

Rating: **ANSI Class 300 (NPS1)**

Maximum: **Seat Cold Working Pressure: 51 bar.**

Materials (as stated by the Manufacturer): **See Appendix No.2 of the Report signed 13 June 1996.**

**Testing**

The test valve was presented by the Manufacturer, without choice. The test was conducted in accordance with the standard API607, Fourth Edition, May 1993.

Throughout the test the valve performed satisfactorily and met all the requirements of the above standard. Visual examination after testing confirmed that the design was in accordance with the Manufacturer's drawing and parts list. Copy of the Test Report signed 13 June 1996 is attached.

Before commencing the tests the testing apparatus was examined and found to be in accordance with the above standard.

  
.....  
Jari Manninen  
Surveyor to  
Lloyd's Register of Shipping

**FIRE TEST FOR BALL VALVE,  
TYPE T5DB01YAA03**

2 (4)

**OBJECT:** Fire test of ball valve T5DB01YAA03 in accordance with the standard API607, Fourth Edition, May 1993. (Fire Test for Soft-Seated Quarter-Turn Valves).

**SPECIMEN:** The test valve T5DB01YAA03 is designed for unidirectional installation. The size of the valve is NPS 1" and pressure class of the body is ANSI 300. The manual operator AR11 was fastened to the test valve.

The assembly drawing, part list and dimensional drawing of the valve are enclosed in Appendices 1, 2 and 3. The picture of the nameplate and location of temperature measurement points are in Appendix 4.

**TESTS:** The valve had been tested before the fire test by the manufacturer according to normal factory procedure.

The valve was assembled between two end flanges equipped with a 25 mm water pipe.

The valve was filled with water for the fire test and the pressure of the water against the closed ball at 2 bar (30 psi) during the test. The fire tests were conducted at the Laboratory of NELES-JAMESBURY OY Helsinki on May 14, 1996.

The temperatures and test pressures during the test were recorded with a datalogger. The results are shown in Appendix 5. The temperature measurement points were located according to the test standard.

The flame temperature was raised to the demanded level in less than 2 minutes and after that the valve was heated with gas burners for 30 minutes and it was cooled with water to 100°C. The cooling time was 7 minutes.

**FIRE TEST FOR BALL VALVE,  
TYPE T5DB01YAA03**

3 (4)

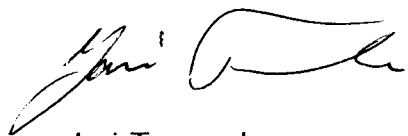
The through-seat leakages and external leakages of the test valve during the tests are in Table 1 below.

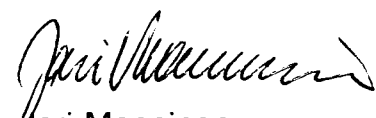
**TABLE 1.**  
May 14, 1996

| TEST PHASE                         | TIME<br>min. | LEAKAGE<br>ml/in/min |         |
|------------------------------------|--------------|----------------------|---------|
|                                    |              | measured             | allowed |
| Start                              | 0            | 0                    |         |
| Demanded flame temperature         | 0.5          | 0                    |         |
| Seat leakage during heating        | 30.5         | 5                    | 100     |
| Seat leakage during cooling period | 40.5         | 2.5                  | 100     |
| External leakage heating + cooling | -            | 0                    | 25      |
| Operation of valve                 | 41           |                      |         |
| Stabilization period               | 46           |                      |         |
| 5 min seat leakage                 | 51           | 0.8                  | 20      |
| 5 min external leakage             | 51           | 0                    | 25      |

In visual examinations after the test it was stated that the test valve was in full operating condition and complied with the supplied documents.

**SUMMARY:** On the basis of the results it can be stated that the tested rotary valve met the requirements presented in standard API607, Fourth Edition: 1993.

  
Jari Tammela  
Senior Engineer  
NELES-JAMESBURY OY

  
Jari Manninen  
Surveyor to Lloyd's  
Register  
13 June 1996

**FIRE TEST FOR BALL VALVE,  
TYPE T5DB01YAA03**

4 (4)

**APPENDICES:**

1. Assembly drawing C 837720
2. Parts and material list L 311328
3. Dimension drawing D 307157
4. Nameplate drawing. Location of temperature measurement points.
5. Temperature and pressure measurement results during the burn period.

Size 01'

|           |                  |               |             |               |
|-----------|------------------|---------------|-------------|---------------|
| 0         | 9267             | RLS           | 95.08.31    |               |
| C         | 8633             | PVI           | 95.03.22    | JP            |
| B         | 8128             | PVI           | 93.04.30    | KU            |
| MMUT<br>H | N.O<br>ISSUE NO. | PLIRT<br>DWN. | PVH<br>DATE | HYV.<br>APPR. |

**NELES-JAMESBURY**

HELSTINKI  
WORKS

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# NELES-JAMESBURY

## PARTS AND MATERIAL LISTS

No. L 311328

Product type: ROTARY CONTROL VALVE T5\_B\_YAA 03 (Q-T5\_) Assembly drawing No. C837720 C866180  
The First Issue 96-05-09 C893280 C991920  
Drwn up/Appr. by JPo/TJP Page: 1/1

| ITEM | R | QTY | PART DESCRIPTION             | MATERIAL                      | STANDARD                   |
|------|---|-----|------------------------------|-------------------------------|----------------------------|
| 1    | 1 | 1   | BODY                         | Carbon steel                  | ASTM A 216 gr.WCB          |
| 3    | 1 | 1   | BALL                         | Stainless steel + Hard chrome | ASTM A 351 gr.CF8M         |
| 4    | 1 | 1   | THRUST BEARING               | Stellite                      |                            |
| 5    | 1 | 1   | TRUNNION BEARING             | Stellite                      |                            |
| 7    | 1 | 1   | SEAT                         | Stellite                      |                            |
| 8    | 1 | 1   | BONNET                       | Carbon steel                  | ASTM A 216 gr.WCB          |
| 9    | 1 | 1   | GLAND                        | Stainless steel               | ASTM A 351 gr.CF8M         |
| 10   | 1 | 1   | KEY                          | Stainless steel               | Type AISI 329 (SS 14 2324) |
| 11   |   |     | STUD                         | Alloy steel                   | ASTM A 193 gr.B7           |
| 12   |   |     | STUD                         | Alloy steel                   | ASTM A 193 gr.B7           |
| 14   |   |     | STUD                         | Alloy steel                   | ASTM A 193 gr.B7           |
| 15   |   |     | HEXAGON NUT                  | Alloy steel                   | ASTM A 194 gr.2H           |
| 16   |   |     | HEXAGON NUT                  | Alloy steel                   | ASTM A 194 gr.2H           |
| 18   |   |     | HEXAGON NUT                  | Alloy steel                   | ASTM A 194 gr.2H           |
| 19   | 1 |     | IDENTIFICATION PLATE         | Stainless steel               | AISI 304                   |
| 27   | 1 |     | LOCK RING (Not in 01"...04") | Special alloy INCONEL X-750   |                            |
| 35   | 1 |     | SUPPORT RING                 | Stainless steel               | Type AISI 316 (SS 14 2343) |
| 60   | 1 |     | BEARING BUSHING              | Stainless steel               | ASTM A 351 gr.CF10SMnN     |
| 61   | 1 |     | BEARING BUSHING              | Stainless steel               | ASTM A 351 gr.CF10SMnN     |
| 62   | 1 |     | SPRING                       | Special alloy INCONEL X-750   | ASTM B 637                 |
| 65   | R | 1   | GASKET                       | Graphite                      |                            |
| 69   | R |     | GLAND PACKING                | Graphite                      |                            |
| 129  | 1 |     | RING                         | Stainless steel               | Type AISI 316 (SS 14 2343) |
| 130  | 1 |     | BACK SEAL                    | Graphite                      |                            |

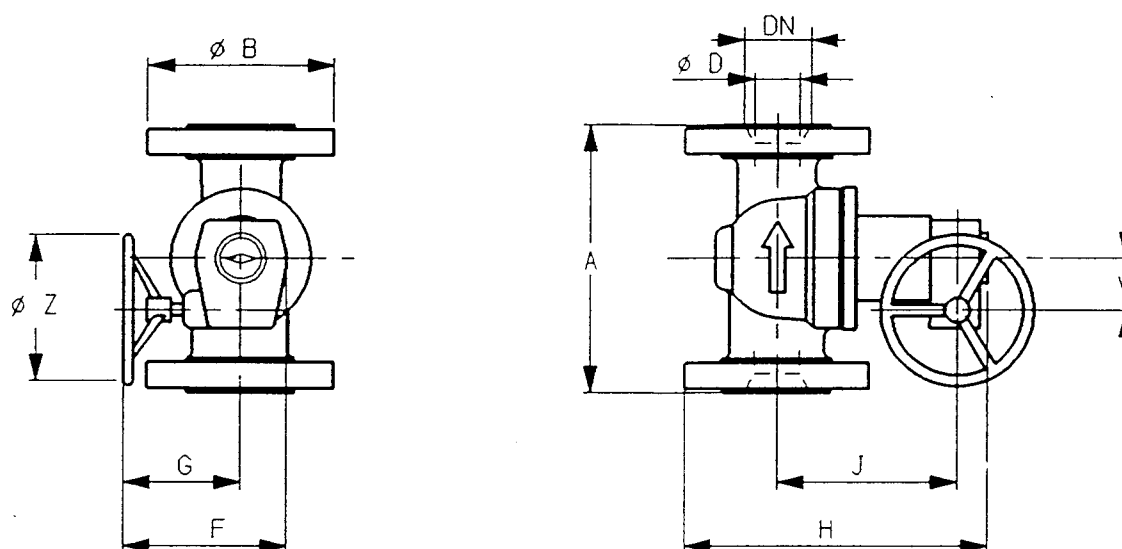
R = Recommended spare parts

Y = WCB + B7 studs

| M | MUUT<br>ISSUE | N:o<br>NO. | P.IRT<br>DWN. | PVM<br>DATE | HYV.<br>APPR.      |
|---|---------------|------------|---------------|-------------|--------------------|
|   | A             | 8119       | LL            | 93.09.20    | KU                 |
|   | B             | 9191       | KLA           | 93.09.20    | <i>[Signature]</i> |
|   |               |            |               |             |                    |

## Appendix 3

### MOUNTING POSITION B (STANDARD)



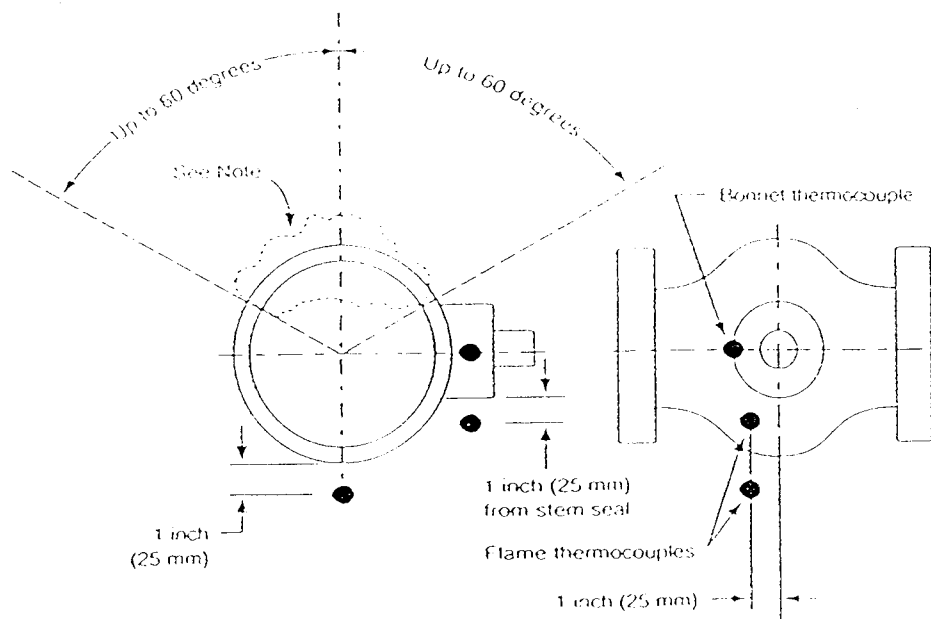
| TYPE          | DN  | A    | ØB    | ØD  | F   | G   | H    | J   | V   | ØZ  | kg   |
|---------------|-----|------|-------|-----|-----|-----|------|-----|-----|-----|------|
| TSD01 - AR11  | 25  | 197  | 124   | 25  | 195 | 150 | 285  | 169 | 50  | 200 | 15   |
| TSD015 - AR11 | 40  | 235  | 155.4 | 38  | 195 | 150 | 335  | 205 | 50  | 200 | 20   |
| TSD02 - AR11  | 50  | 267  | 165.1 | 38  | 195 | 150 | 340  | 205 | 50  | 200 | 29   |
| TSD03 - AR11  | 80  | 317  | 209.5 | 50  | 195 | 150 | 375  | 220 | 50  | 200 | 47   |
| TSD04 - AR21  | 100 | 368  | 254   | 76  | 260 | 180 | 465  | 275 | 80  | 250 | 97   |
| TSD06 - AR31  | 150 | 473  | 317.5 | 102 | 395 | 270 | 580  | 345 | 125 | 400 | 185  |
| TSD08 - AR31  | 200 | 568  | 381   | 125 | 395 | 270 | 660  | 395 | 125 | 400 | 280  |
| TSD10 - AR41  | 250 | 708  | 444.5 | 152 | 530 | 370 | 740  | 425 | 160 | 600 | 375  |
| TSD12 - AR41  | 300 | 775  | 520.7 | 202 | 530 | 370 | 835  | 485 | 160 | 600 | 580  |
| TSD14 - AR41  | 350 | 927  | 584.2 | 254 | 530 | 370 | 1045 | 660 | 160 | 600 | 1100 |
| TSD16 - AR41  | 400 | 1057 | 647.7 | 254 | 530 | 370 | 1075 | 660 | 160 | 600 | 1150 |

PRESSURE RATING Class ANSI 300.

FACE TO FACE DIMENSION ACC. TO IEC 534-3

|                                                                                                            |  |                            |                  |                   |                  |
|------------------------------------------------------------------------------------------------------------|--|----------------------------|------------------|-------------------|------------------|
|                                                                                                            |  | PVM<br>DATE 91.11.15       | P.IRT.<br>DWN LL | TARK.<br>CHECK. . | HYV.<br>APPR. KU |
| ROTARY CONTROL VALVE TSD<br>WITH HAND WHEEL OPERATOR AR<br><br>DIMENSION DRAWING<br><b>NELES-JAMESBURY</b> |  | ENT.<br>OLD NO. .          |                  | UUSI<br>NEW NO. . |                  |
|                                                                                                            |  | D 307157                   |                  |                   |                  |
| HELSINKI<br>WORKS                                                                                          |  | MICROFILM.<br>MUUTOS ISSUE |                  | B                 |                  |

| Attention: Read instructions before installation or servicing. Contact Neles-Jamesbury for copy. |        |      |        |                   |             |                |                |
|--------------------------------------------------------------------------------------------------|--------|------|--------|-------------------|-------------|----------------|----------------|
| BODY                                                                                             | WCB    | STEM | 316 SS | T <sub>max</sub>  | +425°C      | MAX. OPER. Δps | 51 BAR at 20°C |
| TRIM                                                                                             | 316 SS | SEAT | STELL  | T <sub>min</sub>  | -29°C       | RATING         | 300            |
|                                                                                                  |        |      |        | TYPE              | TSDB01YAA03 |                |                |
|                                                                                                  |        |      |        | No.               | 376830DA    | MOD            |                |
|                                                                                                  |        |      |        | NELES-JAMESBURY   |             |                |                |
|                                                                                                  |        |      |        | P.O. B 6 HELSINKI |             |                |                |
|                                                                                                  |        |      |        | MADE IN FINLAND   |             |                |                |



Note: The body thermocouple shall be installed in this area. When installed externally, the body thermocouple shall be recessed into the valve body a distance of  $\frac{1}{4}$  the thickness of the wall.

## Installation of Temperature Measurement Sensors for Valves Rated Lower Than Class 900

May 14, 1996.

T5DB01YAA03

