

Project: **Fire-Safe type testing**

Certificate No.: **HEL 600630/1**

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

Office: **Helsinki**

Client's Order No.: **7162044**

Date: **26.06.1996**

Order Status: **Complete**

Inspection dates
First: **and**

Final: **07.06.1996**

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: **T5DB04YAA03**

Rating: **ANSI Class 300 (NPS4)**

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

Materials (as stated by the Manufacturer): **See Appendix No.2 of the Report signed 26 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 26 June 1996 is attached.

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

.....
Stephen Smith
Surveyor to
Lloyd's Register of Shipping

**FIRE TEST FOR BALL VALVE,
TYPE T5DB04YAA03**

2 (4)

OBJECT: Fire test of ball valve T5DB04YAA03 in accordance with the standard API607, Fourth Edition, May 1993. (Fire Test for Soft-Seated Quarter-Turn Valves).

SPECIMEN: The test valve T5DB04YAA03 is designed for unidirectional installation. The size of the valve is NPS 4" 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 June 7, 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 6 minutes.

**FIRE TEST FOR BALL VALVE,
TYPE T5DB04YAA03**

3 (4)

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

TABLE 1.
June 7, 1996

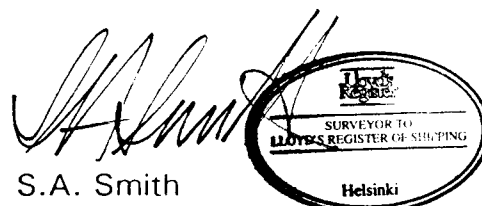
TEST PHASE	TIME min.	LEAKAGE ml/in/min	
		measured	allowed
Start	0	0	
Demanded flame temperature	0.5	0	
Seat leakage during heating	30.5	5.8	100
Seat leakage during cooling period	40.5	7.5	100
External leakage heating + cooling	-	0	25
Operation of valve	41		
Stabilization period	46		
5 min seat leakage	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 Kirmanen
Laboratory Engineer
NELES-JAMESBURY OY



The stamp is an oval-shaped seal for Lloyd's Register. It contains the text 'Lloyd's Register' at the top, 'SURVEYOR TO' in the middle, 'LLOYD'S REGISTER OF SHIPPING' at the bottom, and 'Helsinki' at the very bottom.

S.A. Smith
Surveyor to Lloyd's
Register

26 June 1996

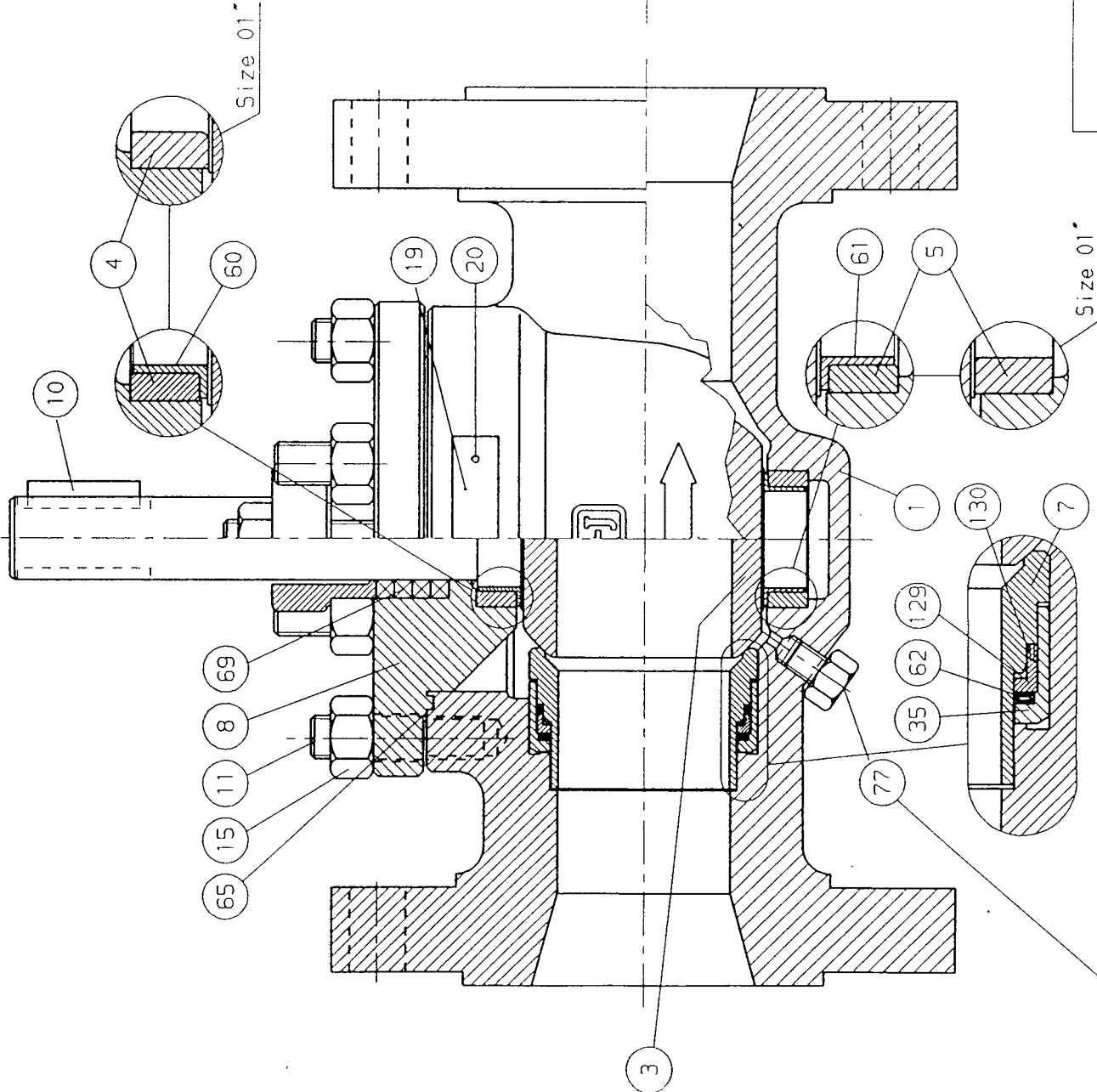
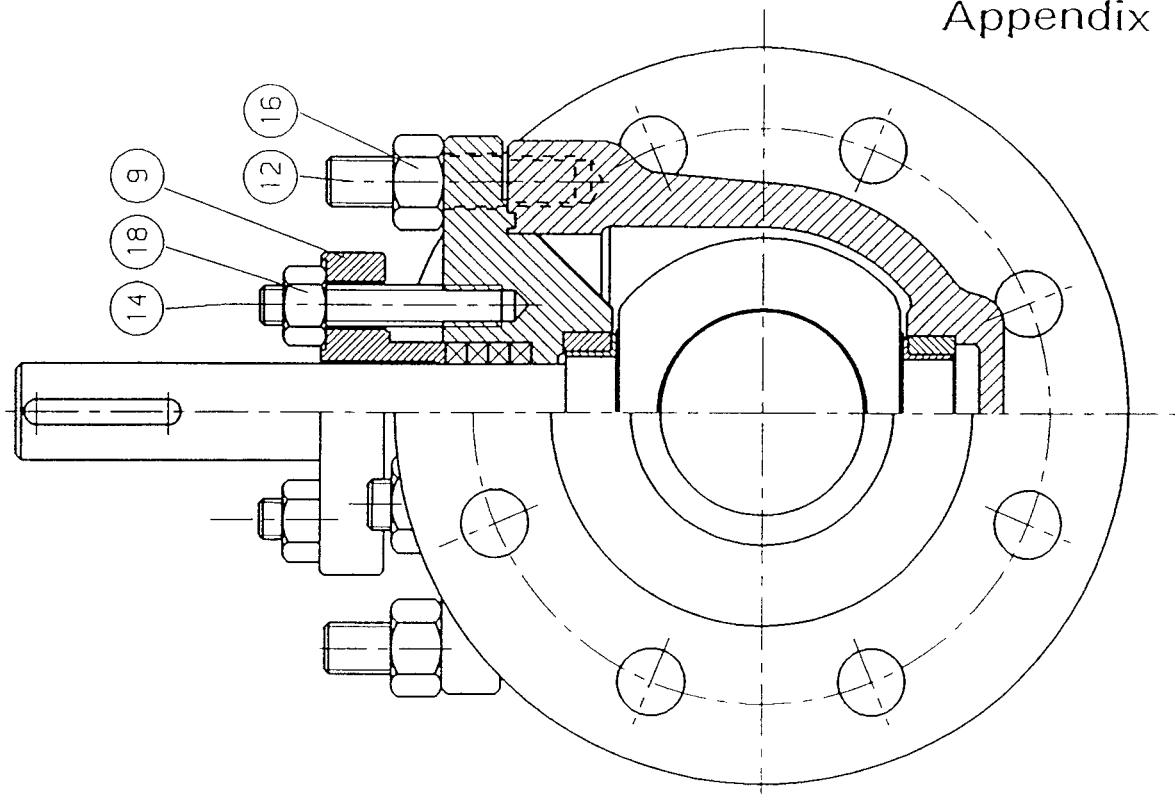
**FIRE TEST FOR BALL VALVE,
TYPE T5DB04YAA03**

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.

Appendix 1



Supplied only on special request.
Location of plug
according to mounting position

BALL VALVE 15_B METAL SEAT A ASSEMBLY DRAWING		PV DATE 89.03.10	PIRT PVI	TARK. CHECK. TPJ APPR. KU
			ENT	UJST
			OLD NO.	NEW NO.
NELES-JAMESBURY			C 837720	
HELSINKI WORKS			MICROFILM	
			MUTOS ISSUE	

D	9267	RLS	95.08.31	JP	KU	HYV. APPR.
C	8633	PVI	95.03.22			
B	8128	PVI	93.04.30			
MUUT N:o	PTIRT	PVM	DATE			
M ISSUE	NO.	DATE				

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	BODY	Carbon steel	ASTM A 216 gr.WCB
3		1	BALL	Stainless steel + Hard chrome	ASTM A 351 gr.CF8M
4		1	THRUST BEARING	Stellite	
5		1	TRUNNION BEARING	Stellite	
7		1	SEAT	Stellite	
8		1	BONNET	Carbon steel	ASTM A 216 gr.WCB
9		1	GLAND	Stainless steel	ASTM A 351 gr.CF8M
10		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

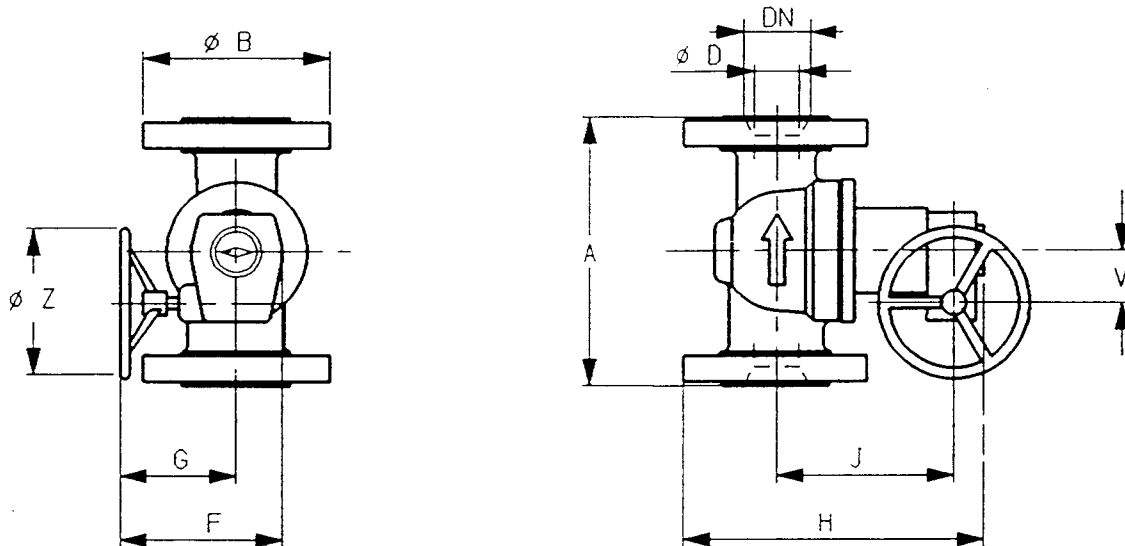
Y = WCB + B7 studs

→

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

Appendix 3

MOUNTING POSITION B (STANDARD)



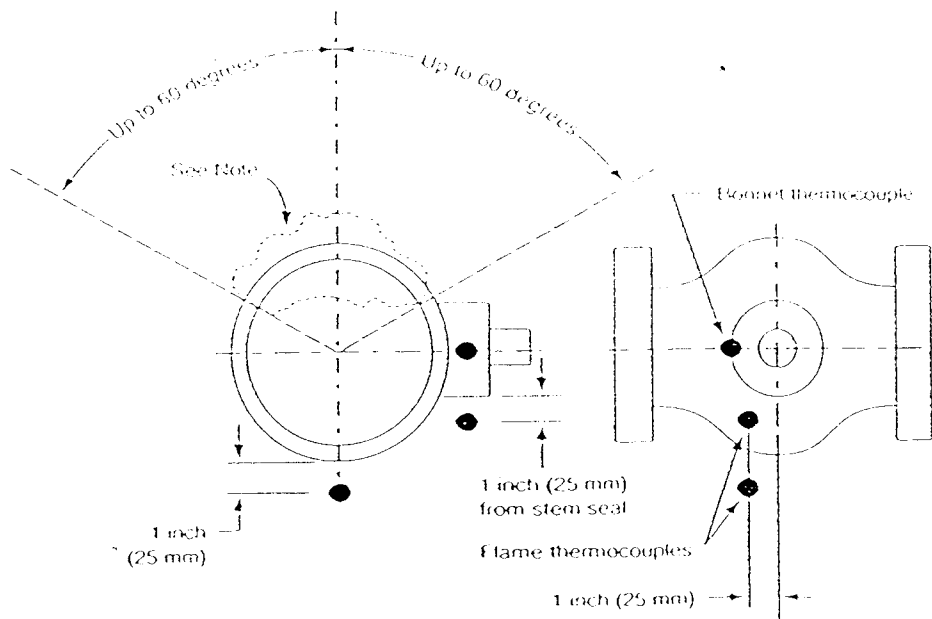
TYPE	DN	A	ØB	ØD	F	G	H	J	V	ØZ	kg
T5D01 - AR11	25	197*	124	25	195	150	285	169	50	200	15
T5D015 - AR11	40	235	155.4	38	195	150	335	205	50	200	20
T5D02 - AR11	50	267	165.1	38	195	150	340	205	50	200	29
T5D03 - AR11	80	317	209.5	50	195	150	375	220	50	200	47
T5D04 - AR21	100	368	254	76	260	180	465	275	80	250	97
T5D06 - AR31	150	473	317.5	102	395	270	580	345	125	400	185
T5D08 - AR31	200	568	381	125	395	270	660	395	125	400	280
T5D10 - AR41	250	708	444.5	152	530	370	740	425	160	600	375
T5D12 - AR41	300	775	520.7	202	530	370	835	485	160	600	580
T5D14 - AR41	350	927	584.2	254	530	370	1045	660	160	600	1100
T5D16 - 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 DATE 91.11.15	P.IRT. DWN LL	TARK. CHECK. *	HYV. APPR. KU
ROTARY CONTROL VALVE T5D WITH HAND WHEEL OPERATOR AR DIMENSION DRAWING NELES-JAMESBURY		ENT. OLD NO. *		UUSI NEW NO. *	
		D 307157			
HELSINKI WORKS		MICROFILM.			
		MUUTOS ISSUE		B	

Attention: Read instructions before installation or servicing. Contact Neles-Jamesbury for copy.							
BODY	WCB	STEM	316 SS	T _{max}	+425°C	MAX. OPER. Δps	51 BAR at 20°C
TRIM	316 SS	SEAT	STELL	T _{min}	-29°C	RATING	300
				TYPE		T5DB04YAA03	
				No.		376832DA	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 $\frac{1}{2}$ the thickness of the wall

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

T5DB04YAA03

June 7, 1996.

