



Project:	Fire-Safe Type Testing	Certificate No.:	HEL 400566/1
Client:	Neles-Jamesbury Oy Helsinki, Finland	Office:	Helsinki
Client's Order No.:	7142305	Date:	8 April 1994
Inspection dates First:	and	Order Status:	Complete
		Final:	18 March 1994

This certificate is issued to Neles-Jamesbury Oy to certify that the undersigned Surveyor attended the Technical Research Centre in Helsinki for the purpose of witnessing fire tests on one ball valve.

Particulars of Valve

Type: T2GB06DAY03
Rating: ANSI Class 900
Maximum: Seat Cold Working Pressure: 153 bar
Materials (as stated by the Manufacturer): See Appendix 1 of the report.

Testing

The test valve was presented by the Manufacturer, without choice. The test was conducted in accordance with the following standards.

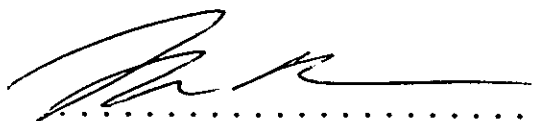
1. API Standard 607, Third Edition, November 1985
2. British Standards Institution, BS 6755: Part 2: 1987

Throughout the test the valve performed satisfactorily and met all the requirements of the above standards. Visual examination after testing confirmed that the design was in accordance with the Manufacturer's drawing and parts list.
Copy of the test report VTT RTE 33509/94 is attached.

Additional Valve Qualification

Valves sized NPS6 to NPS12 are qualified, subject to the limitations of the above standards.

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


.....
Hans Björkestam
Surveyor to
Lloyd's Register of Shipping



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

- Customer Neles-Jamesbury Oy, Levytie 6, P.O.Box 6, FIN-00881 Helsinki.
- Order No. 7142306, 17.3.1994, Åke Wilenius.
- Object Fire test of ball valve T2GB06DAY03 in accordance with the standards BS 6755: Part 2: 1987, Appendix A *Testing of valves, specification for fire type-testing requirements. Fire test method* and API Standard 607, Third Edition, November 1985 *Fire Test for Soft-Seated Quarter-Turn Valves*.
- Specimen The customer provided the Fire Technology Laboratory with a valve, type T2GB06DAY03 manufactured by the customer. The valve design is for uni-directional installation. The valve was assembled between two end flanges equipped with 25 mm water pipe. The size of the valve was 152 mm (6 inches) and pressure class ANSI 900.
- The assembly drawing, the dimension drawing and the parts and material lists of the valve are enclosed in Appendix 1. A drawing of the nameplate is in Appendix 2 and photographs during and after the test in Appendix 4.
- Test According to the manufacturer's statement the valve had been tested by the customer according to the normal factory procedure before the fire test.
- The fire test was conducted at the Fire Technology Laboratory of VTT in Espoo on March 18, 1994.
- The test procedure was the following: First the valve was filled with water and the water pressure against the closed valve was kept above 111.7 bar. Then the valve was heated with gas burners for 30 min, after which it was cooled with water down to 100 °C. After cooling the valve was opened.
- The through-seat leakages and external leakages of the test valve as well as the temperatures were recorded during the test.
- Thermocouples and calorimeters were used for the temperature measurement. The sensor positions are shown in Appendix 2 and the temperature and pressure results in Appendix 3. The leakages are given in the table below.

Test phase	Time min	Minimum pressure bar	Seat leakage ml/m*s (ml/in*min)		External leakage ml/m*s (ml/in*min)	
			meas.	allowed	meas.	allowed
Start	0	111.7	0		0	
Heating	0...30	111.7	0	262 (400)	0	66 (100)
Cooling	30...44	111.7	0	262 (400)	0	66 (100)
Opening the valve		111.7				
High pres- sure test, valve open	55...61	111.7			0	131 (200)

The torque required to open the test valve was 3900 Nm.

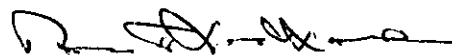
The test at VTT was made in the presence of the surveyor (Mr Hans Björkestam) of the Lloyd's Register of Shipping.

Summary Based on the results the tested ball valve T2GB06DAY03 met the requirements presented in the standards BS 6755: Part 2: 1987 and API Standard 607, Third Edition, November 1985.

Espoo, March 31, 1994

VTT BUILDING TECHNOLOGY
Fire Technology

Acting Head of Fire Research



Pentti Loikkanen

Research Scientist

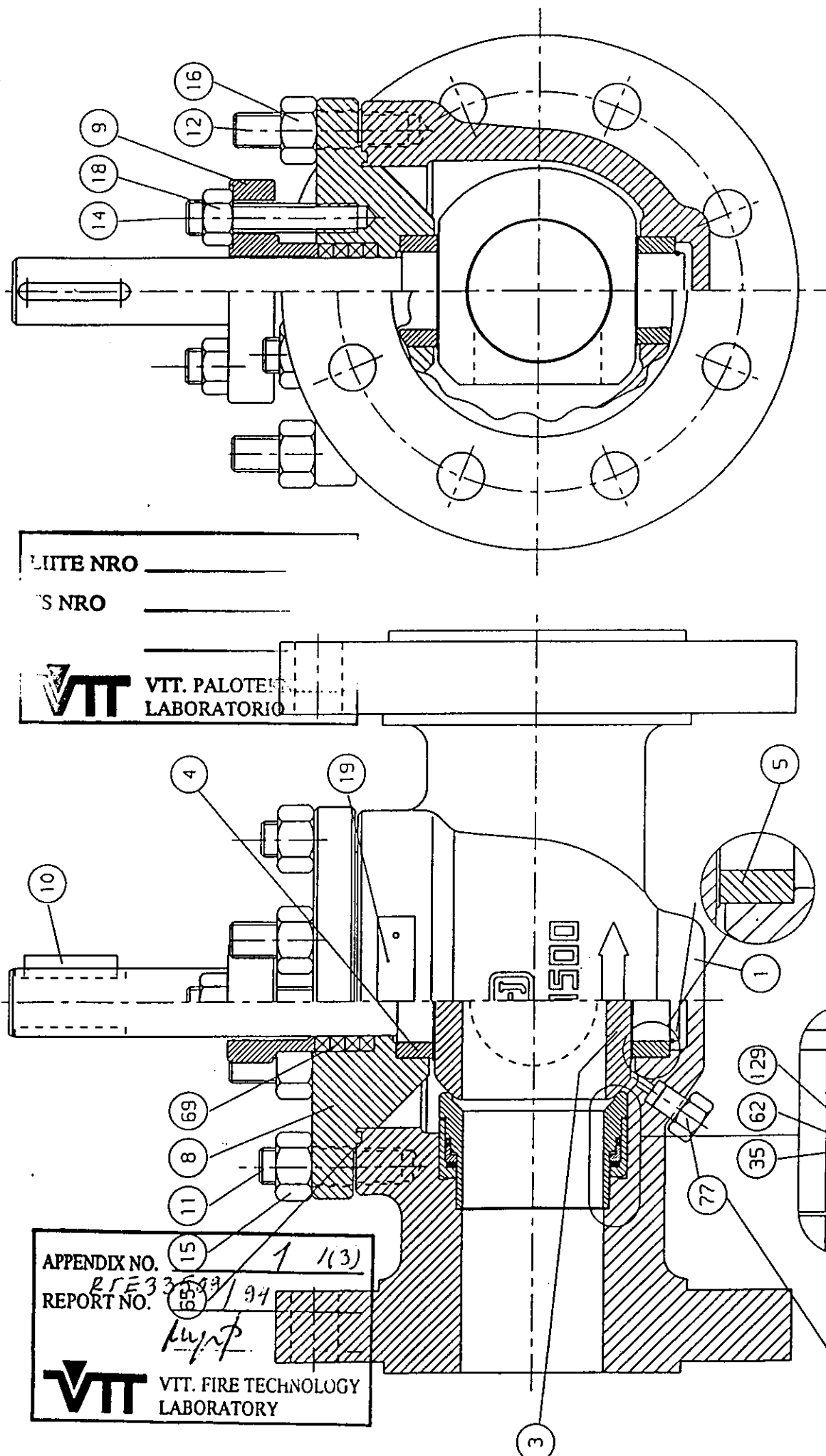


Martti Yli-Penttilä

Appendices

1. Assembly drawing C 952620 (dated 92.04.03), Parts and material lists No. L 307671 (dated 92-04-03), Dimension drawing V 0169867/003 (dated 94.03.22)
2. Nameplate drawing
Location of temperature measurement points
3. Temperature and pressure measurement results
4. Photographs

Distribution Neles-Jamesbury Oy
VTT/Archives



LITE NRO _____
 S NRO _____

VTT VTT. PALOTEST
 LABORATORIO

APPENDIX NO. 1 / (3)
 REPORT NO. 8533/94
VTT VTT. FIRE TECHNOLOGY
 LABORATORY

SHEET		NEW NO.	
OLD NO.		C 952620	
DATE		92.04.03	
BALL VALVE T2HB METAL SEAT Y ASSEMBLY DRAWING		NELES-JAMESBURY	

N	PROUT	N.O	PIRT	PVM	HVV

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

NEILES-JAMESBURY

PARTS AND MATERIAL LISTS

No. L 307671

Product type: BALL VALVE T2 B DAY 03

Assembly drawing No. C952620

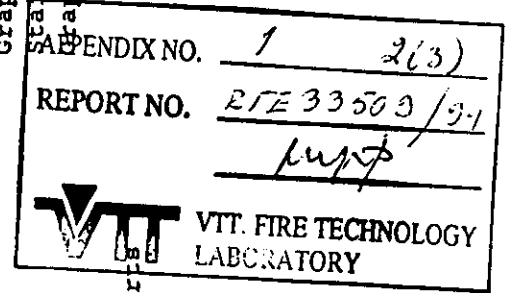
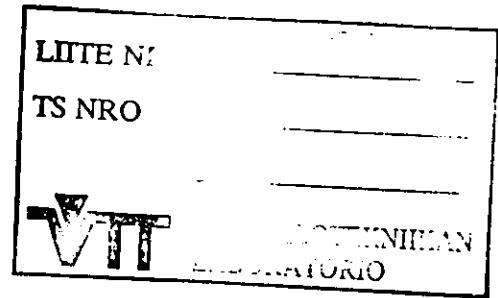
The First Issue 92-04-03

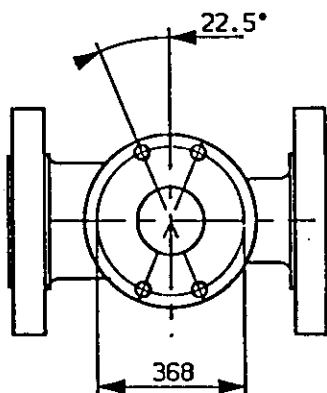
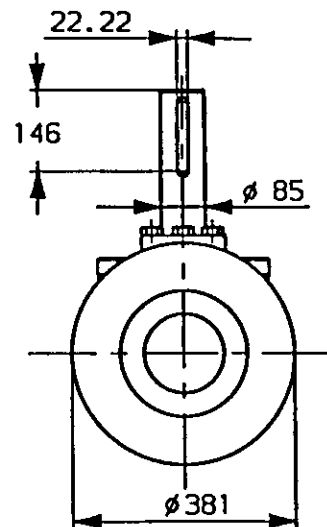
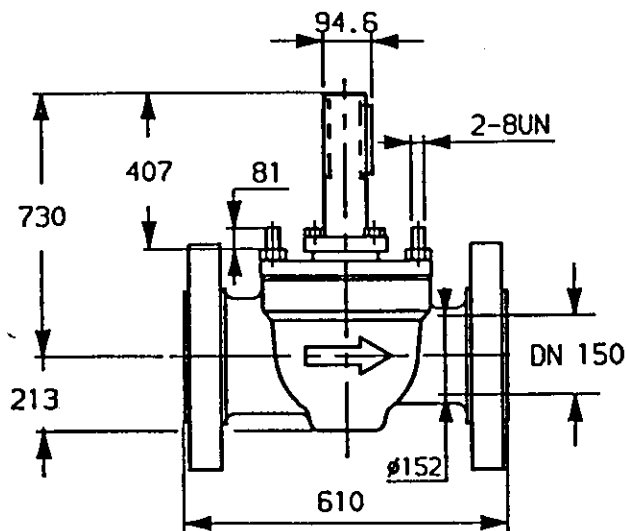
Drwn up/Apppr. by JPo/KU Page: 1/1

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	1 STUD	Low alloy steel	ASTM A 320 gr.L7M
12	1 STUD	Low alloy steel	ASTM A 320 gr.L7M
14	1 STUD	Low alloy steel	ASTM A 320 gr.L7M
15	1 HEXAGON NUT	Low alloy steel	ASTM A 194 gr.2H or gr.2HM (NACE)
16	1 HEXAGON NUT	Low alloy steel	ASTM A 194 gr.2H or gr.2HM (NACE)
18	1 HEXAGON NUT	Low alloy steel	ASTM A 194 gr.2H or gr.2HM (NACE)
19	1 IDENTIFICATION PLATE	Stainless steel	AISI 304
35	1 SUPPORT RING	Stainless steel	Type AISI 316 (SS 14 2343)
62	1 SPRING	Special alloy INCONEL X-750	ASTM B 637
65	1 GASKET	Graphite	
69	1 GLAND PACKING	Graphite	
129	1 RING	Stainless steel	
130	1 BACK SEAL	Stainless steel	Type AISI 316 (SS 14 2343)

R = Recommended spare parts

Y = T5-series A-seat





APPENDIX NO. 1 3(3)
 REPORT NO. RTE 33509/94
my up
VTT VTT. FIRE TECHNOLOGY
 LABORATORY

UITE NRO _____
 TS NRO _____
VTT VTT. PALOTEKNIIA
 LABORATORIO

RATING ACC. TO ANSI class 900 , FLANGE DRILLING ACC. TO ANSI class 900
 FACING: "STOCK FINISH (Ra 10-12.5)"
 TOTAL WEIGHT 470 Kg
 BUYER / ORDER NO:
 CUSTOMER / ORDER NO:
 TAG. NO:

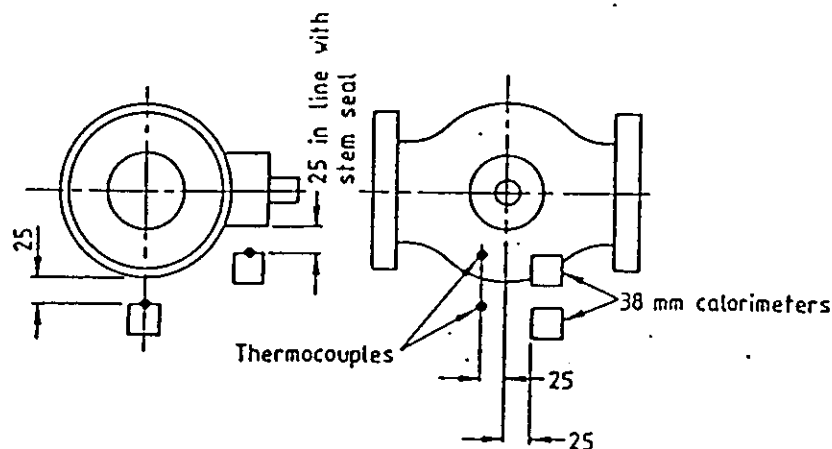
PRODUCT: T2GB06DAY03
 MFG. NO: 0169867/003

ORIGINAL

DATE: 94.03.22	APPROVED: <u>RU</u>	DRAWN: JJA	SHEET:
CERTIFIED DIMENSION DRAWING BALL VALVE T2GB06DAY03		NELES-JAMESBURY V 0169867/003	

ATTENTION. READ INSTRUCTION BEFORE INSTALLATION OR SERVICING. CONTACT NELES-JAMESBURY FOR COPY.					
BODY	WC8	$t_{max.}$	+425 °C	TYPE	T2GB 06 DAY 03
TRIM	CF8M	$t_{min.}$	-29 °C	No.	370795
SHAFT	CF8M	Δps	153 BAR	RATING	ANSI 900
SEAT	STELL				
NELES-JAMESBURY MADE IN FINLAND					

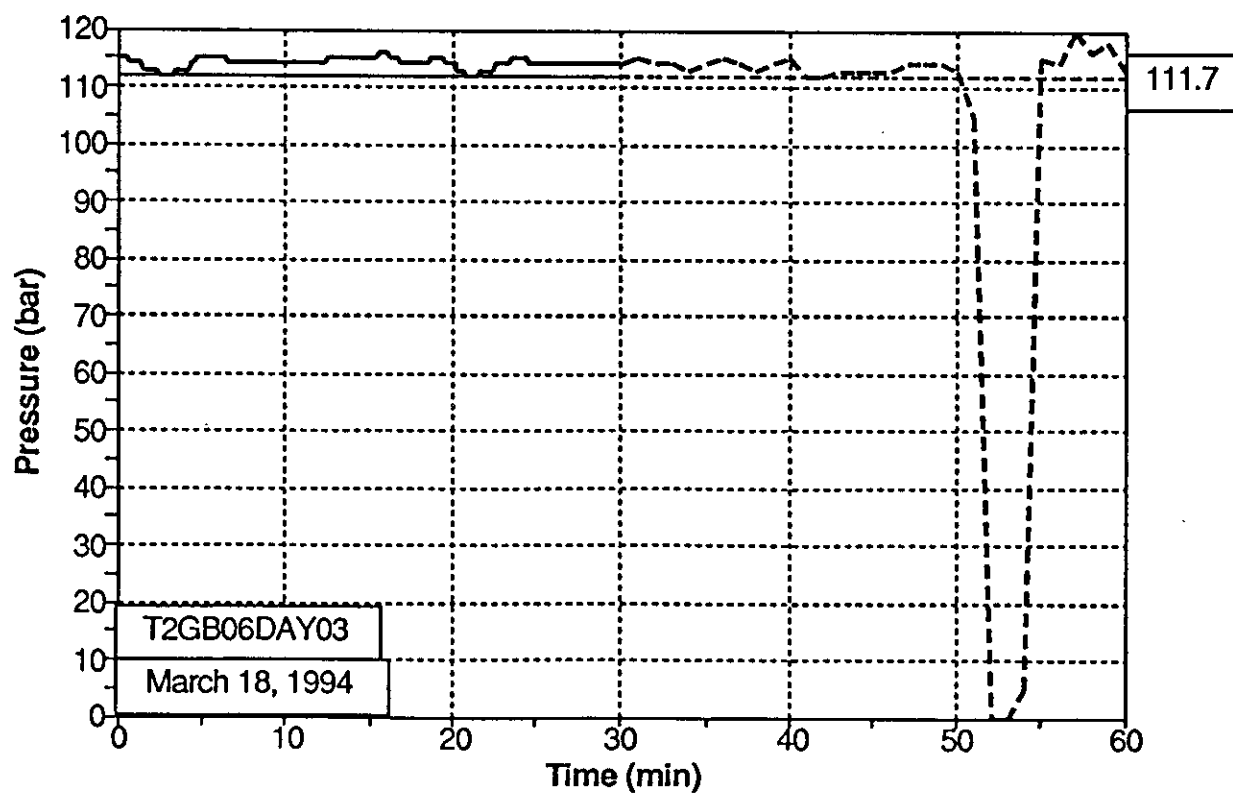
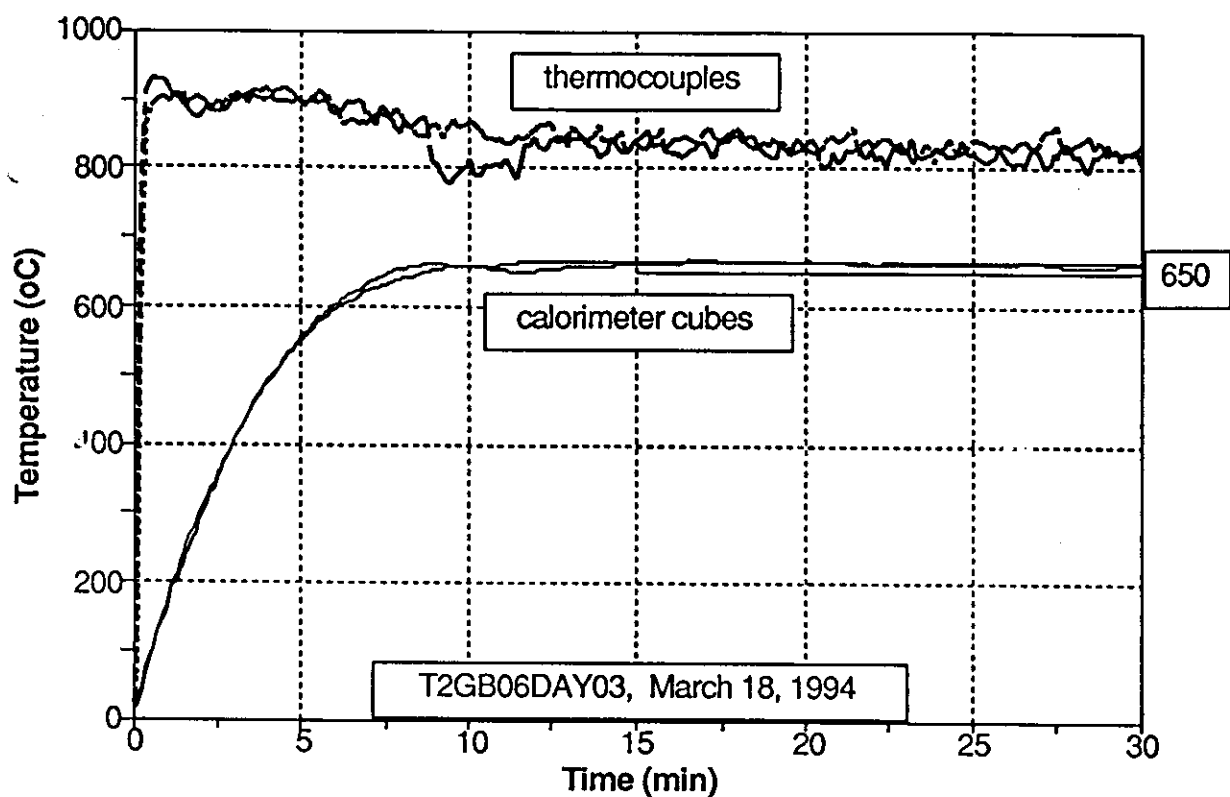
Nameplate drawing



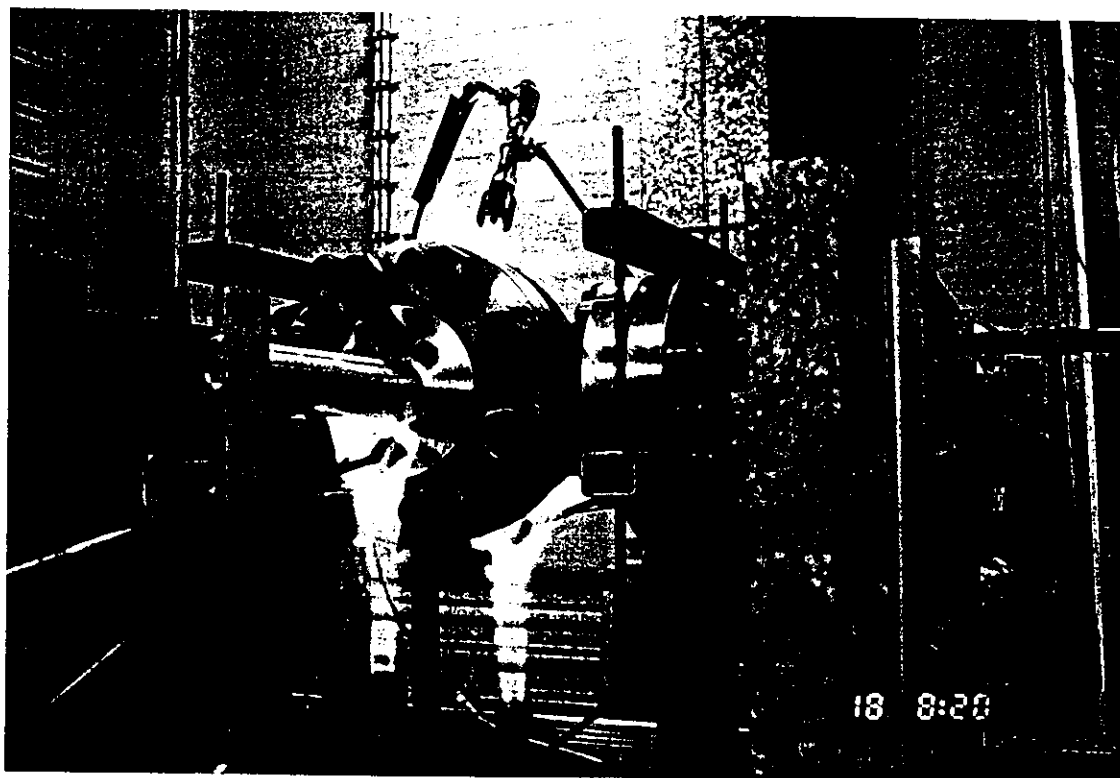
All dimensions are in millimetres.

Location of calorimeter cubes and flame environment thermocouples for DN 150 (NPS 6) and smaller size valves

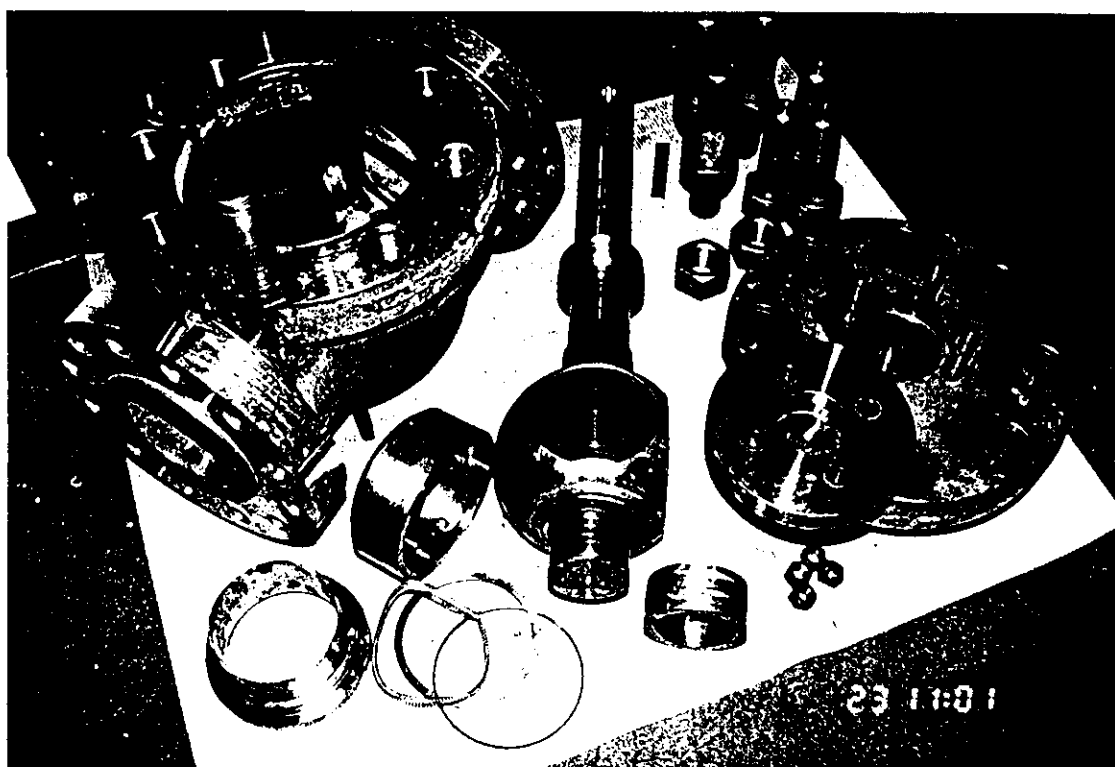
Appendix 3



Appendix 4



Photograph 1. The test valve during heating



Photograph 2. The valve after the test