

Project: Fire-safe testing

Client: Metso Automation Oy
Helsinki, Finland

Office: Helsinki

Clients Order Number: 71330000

Date: 21 January 2003

Order Status: Complete

Inspection Dates

First: 09 January 2003

Final: 09 January 2003

This certificate is issued to Metso Automation Oy to certify that the undersigned Surveyor attended their works in Helsinki on the above date for the purpose of witnessing Fire Test of one (1) full bore soft seated ball valve designed for bi-directional installation.

Particulars of the valve

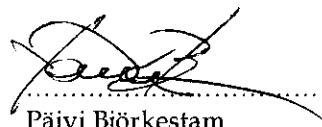
Type: XT02CWTAS6SPTMBD+D
Rating: ASME Class 150
Size: NPS 2"
Materials: As stated by the manufacturer. See Appendix No. 2 of the Test Report.

Testing

The test valve was presented by the Manufacturer, without choice. The test was conducted in accordance with the standard BS 6755: Part 2: 1987, Appendix A. 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 is attached.

Additional valve qualification

In accordance with, and subject to the limitations of the above standard valves sized 2" to 4", as well as valves with pressure rating ASME 300 are also qualified.



Päivi Björkestam
Surveyor to Lloyd's Register of Shipping

**FIRE TEST FOR BALL VALVE,
TYPE XT02CWTAS6SPTMBD + D**

2(4)

OBJECT: Fire test of ball valve XT02CWTAS6SPTMBD+D in accordance with the standard BS 6755: Part2: 1987, Appendix A. (Testing of valves, specification for fire type-testing requirements. Fire test method).

SPECIMEN: The test valve XT02CWTAS6SPTMBD + D is an full bore soft seated ball valve manufactured by METSO-AUTOMATION OY Helsinki, Finland. The valve is designed for bi-directional installation. The size of the valve is NPS 2" and pressure class of the body is ASME 150.

The assembly drawing, parts 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 shown 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 was in high pressure test kept at 14.5 bar and in low pressure test kept at 2 bar during the test. The fire test was conducted at the Laboratory of METSO- AUTOMATION OY Helsinki on January 07, 2003.

The temperatures and test pressure 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 valve was heated with gas burners for 30 minutes and it was cooled with water-spray to 100°C. The cooling time was 8 minutes.

**FIRE TEST FOR BUTTERFLY VALVE,
TYPE XT02CWTAS6SPTMBD + D**

3(4)

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

TABLE 1.

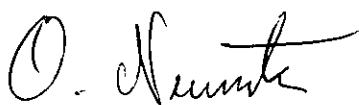
January 07, 2003.

Test phase	Time min	Pressure bar	Seat leakage ml/in/min		Extern. leakage ml/in/min	
			meas.	allowed	meas.	allowed
Start	0	14,5				
Heating	0-30	14.5	0	400		
Cooling	30 - 38	14.5			0	100
Low pressure test	40 - 45	2	0	40	0	20
Opening of valve	47	14.5				
High pressure test, valve open	47-53	14.5			0	200

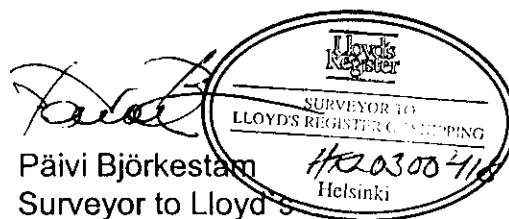
The torque required to open the test valve was 2 Nm (measured with the manual operator).

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 ball valve XT02CWTAS6SPTMBD+D met the requirements presented in standard BS 6755 Part 2: 1987.



Otso Numento
Laboratory Engineer
METSO - AUTOMATION OY



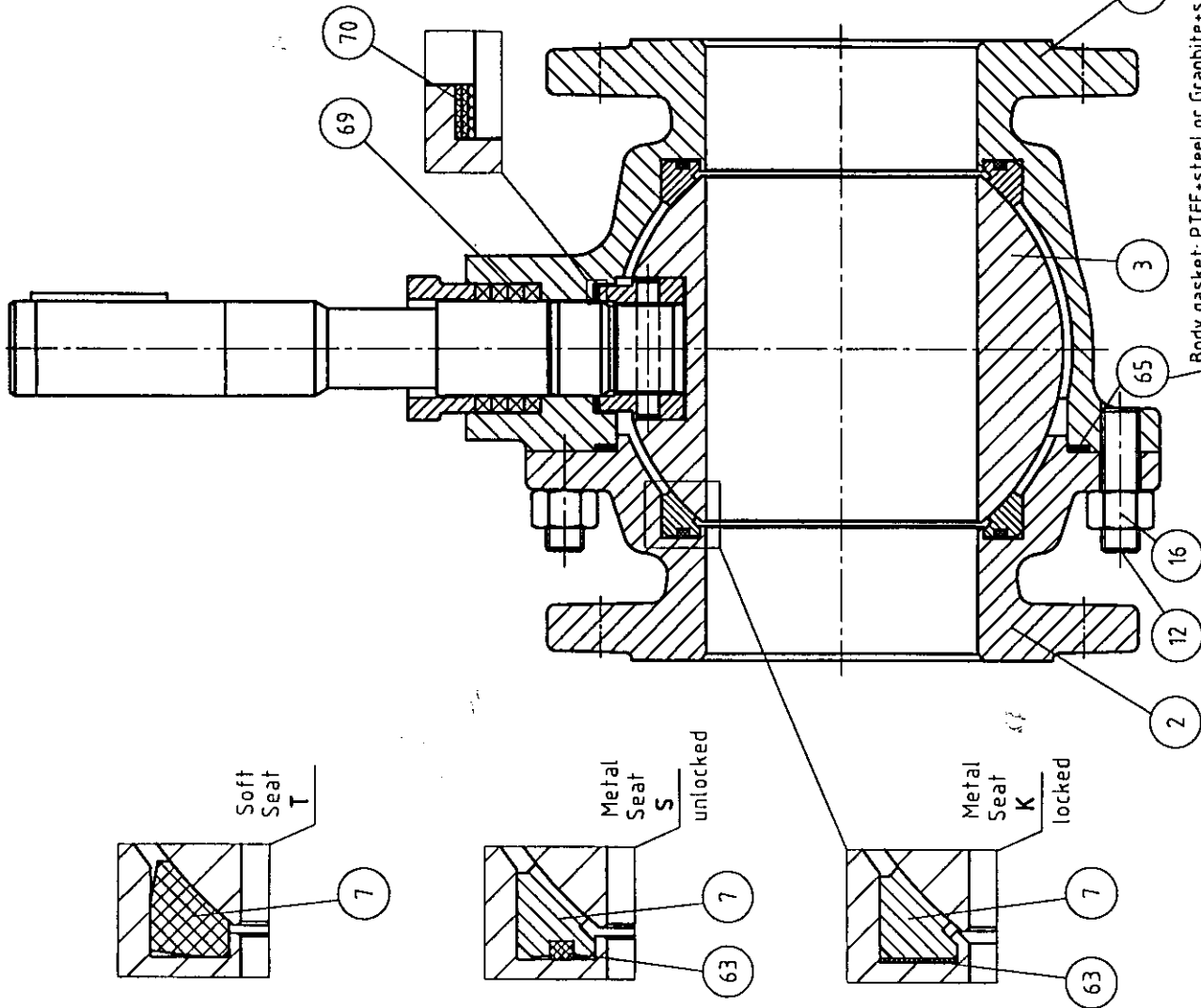
Päivi Björkestam
Surveyor to Lloyd's
Register

**FIRE TEST FOR BUTTERFLY VALVE,
TYPE XT02CWTAS6SPTMBD + D**

4(4)

APPENDICES:

1. Assembly drawing C F03314
2. Parts and material list H014624
3. Dimension drawing C F04219
4. Nameplate details. Location of temperature measurement points.
5. Temperatures and pressure measurement results during the test . (T1 and T2= Flame thernoc., T3 and T4 = Calorimeter cubes, T5= Unused. p1= unused, p2= Test pressure, p3= unused.)



			PWT DATE	3103-00	SHEET NO.	R/S	CHECK HI	HVY APPR T/F
					ENT. OLD NO.		USER NEW NO.	
BALL VALVE XA/XT-SERIES 02"-08", DN50-200 STANDARD CONSTRUCTION SEATS S,K,T FULL BORE ASSEMBLY DRAWING								
						C F03314		
Neles Field Controls Oy							NEDZELM PHOTOS ISSUE	A A
HOLBOM FINLAND								

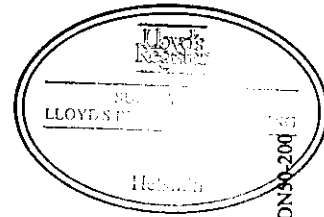
BALL VALVE XA/XT-SERIES 02"-08", DN50-200
STANDARD CONSTRUCTION
SEATS S, K, T FULL BORE
ASSEMBLY DRAWING

Neles Field Controls Oy

**SURVEYOR TO
LLOYD'S REGISTER OF SHIPPING**

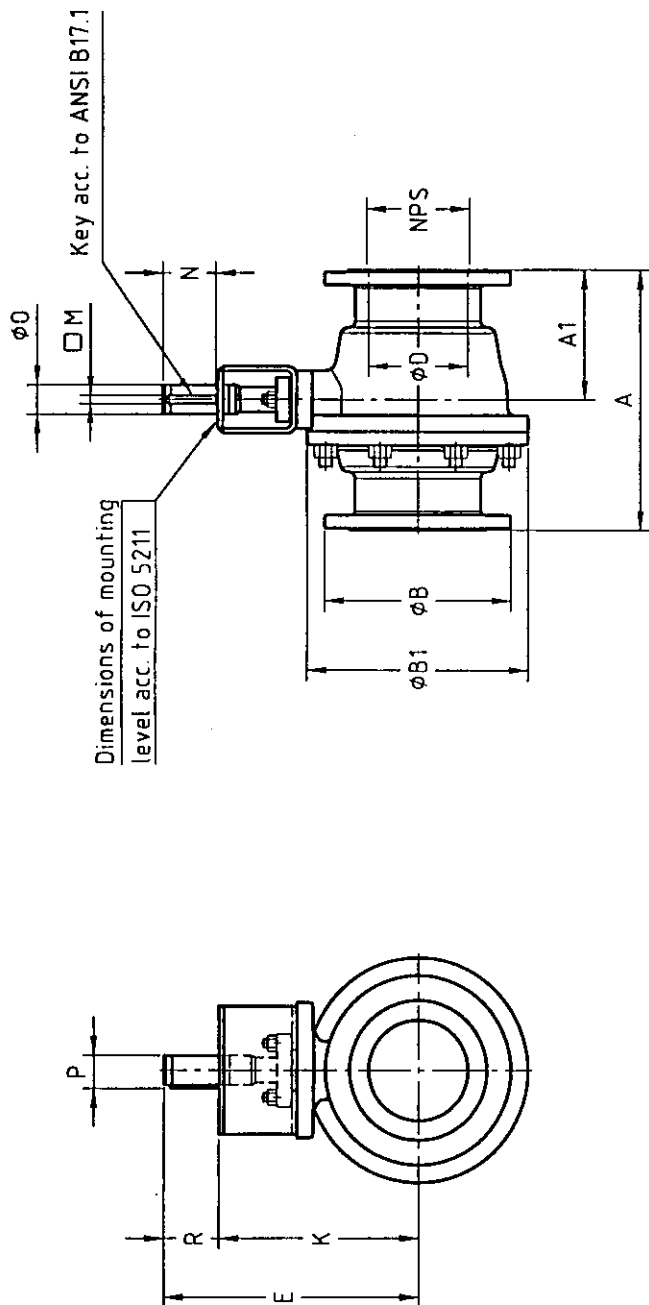
Helsinki

Part	Id-code	Description	Material	Qty
001	H013538	BODY	ASTM A351 gr. CF8M	1
002	H013564	BODY CAP	ASTM A351 gr. CF8M	1
003	943080	BALL	ASTM A351 gr. CF8M	1
004	1182780	SPLINE DRIVER	A351 gr. CF8M/1.4581	1
005	1163340	SHAFT	ASTM A479 gr. XM-19	1
007	H014597	BALL SEAT	PTFE+C25	2
009	46260	CASTING GLAND	A351 gr. CF8M/1.4408	1
010	3097	KEY	TYPE AISI 329	1
012	230505	STUD	ASTM A193 gr. B8M	4
014	234711	STUD	ASTM A193 gr. B8M	2
016	230350	HEXAGON NUT HEAVY	ASTM A194 gr. 8M	4
018	230462	HEXAGON NUT HEAVY	ASTM A194 gr. 8M	2
019	H028251	IDENTIFICATION PLATE	AISI 304	1
042	932720	RETAINER PLATE	316L/1.4435	2
050	H013705	LOCKING PIN	ASTM A479 gr. XM-19	1
065	004-0543-36	BODY GASKET	GRAPHITE+AISI 316	1
069	233143	PACKING RING	GRAPHITE+PTFE	3
070	004-0700-49/H	THRUST BEARING	PTFE+C+GF (MTFE)	3
150	979560	DISC SPRING SET	EN 10083-1.8159+ENP	2



Spare part sets:

Documents: F03314 BALL VALVE XA/XT-SERIES 02"-08", DNS0-200



TYPE	SIZE	ISO FLANGE	DIMENSIONS mm (in)												
			A	A1	ØB	ØB1	ØD	E	K	□ M	N	ØO	P	R	KG (lbs)
XT C	2	F07, F10	178 (7.01)	79 (3.11)	152.4 (6)	146 (5.75)	50.8 (2)	215 (8.46)	168 (6.1)	6.35 (0.25)	46 (1.81)	25 (0.98)	27.8 (1.09)	4.7 (1.85)	11 (25)
	3	F07, F10, F12, F14	203 (7.99)	101.5 (4)	190.5 (7.5)	190 (7.48)	76.2 (3)	237 (9.33)	190 (7.48)	6.35 (0.25)	46 (1.81)	25 (0.98)	27.8 (1.09)	4.7 (1.85)	25 (56)
	4	F10, F12, F14	229 (9.02)	110.5 (4.35)	228.6 (9)	241 (9.49)	101.6 (4)	309 (12.17)	250 (9.84)	9.52 (0.37)	58 (2.28)	35 (1.38)	39.1 (1.54)	5.9 (2.32)	39 (86)
	6	F14, F16	394 (15.51)	197 (7.76)	279.5 (11)	342 (13.46)	152.4 (6)	386 (15.2)	305 (12)	12.70 (0.5)	80 (3.15)	45 (1.77)	50.4 (1.98)	8.1 (3.19)	93 (205)
	8	F14, F16, F25	457 (17.99)	228.5 (9)	342.9 (13.5)	430 (16.93)	203.2 (8)	476 (18.74)	395 (15.16)	12.70 (0.5)	90 (3.54)	55 (2.16)	60.6 (2.39)	9.1 (3.58)	190 (419)
XA D	2	F07, F10	216 (8.5)	89 (3.5)	145.1 (6.5)	146 (5.75)	50.8 (2)	215 (8.46)	168 (6.1)	6.35 (0.25)	46 (1.81)	25 (0.98)	27.8 (1.09)	4.7 (1.85)	15 (33)
	3	F07, F10, F12, F14	282 (11.1)	141 (5.55)	209.6 (8.25)	200 (7.87)	76.2 (3)	237 (9.33)	190 (7.48)	6.35 (0.25)	46 (1.81)	25 (0.98)	27.8 (1.09)	4.7 (1.85)	35 (75)
	4	F10, F12, 14	305 (12.01)	152.5 (6)	254 (10)	254 (10)	101.6 (4)	309 (12.17)	250 (9.84)	9.52 (0.37)	58 (2.28)	35 (1.38)	39.1 (1.54)	5.9 (2.32)	59 (130)
	6	F14, F16	403 (15.87)	201.5 (7.93)	317.5 (12.5)	353 (13.9)	152.4 (6)	386 (15.2)	305 (12)	12.70 (0.5)	80 (3.15)	45 (1.77)	50.4 (1.98)	8.1 (3.19)	129 (284)
	8	F14, F16, F25	502 (19.75)	249 (9.81)	381 (15)	462 (18.19)	203.2 (8)	476 (18.74)	395 (15.16)	12.70 (0.5)	90 (3.54)	55 (2.16)	60.6 (2.39)	9.1 (3.58)	255 (562)

FACE-TO-FACE DIMENSIONS ACC. TO ASME B16.10
PRESSURE RATINGS C=ASME 150, D=ASME 300
FLANGED, FULL BORE

Valve is shown in closed position

 		PUMP DATE	30 S. 2000	PRPT. DWN	RLS	TABL. CDEK.	7-11	INTY. APPR.	7
BALL VALVE XT/XA 2" - 8" DIMENSION DRAWING				DWT DWT NO.		WGT WGT NO.	C F04219		
Neles Field Controls Oy		HELSINKI FINLAND		PROJECT NO. DRAWING NO.		- - - - -			

APPENDIX 4

TYPE : XT02CWTAS6SPTMBD + D

No.: S0413550001VEN

BODY : _ CF8M _

Tmax : _ + 260 C _

TRIM : _ 316 _

Tmin : _ - 50° C _

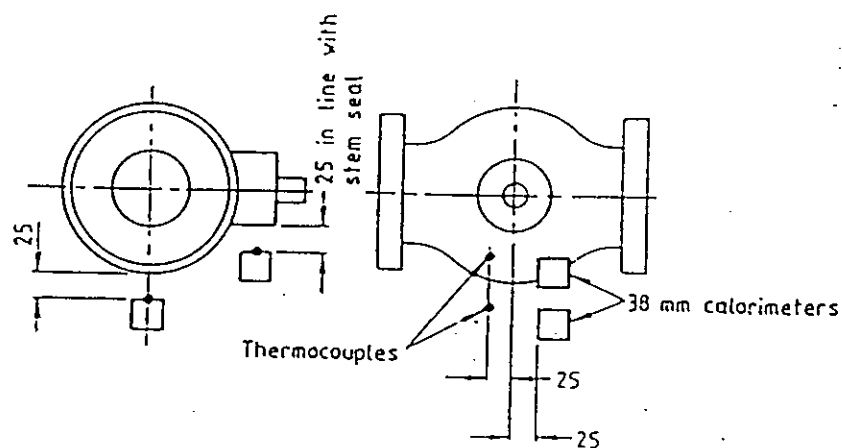
SHAFT : _ XM-19 _

RATING : _ ASME 150 _

SEAT : _ MTFE _

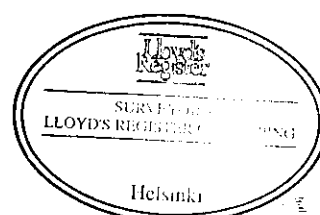
dPs : _ 29 BAR _

NAMEPLATE DETAILS

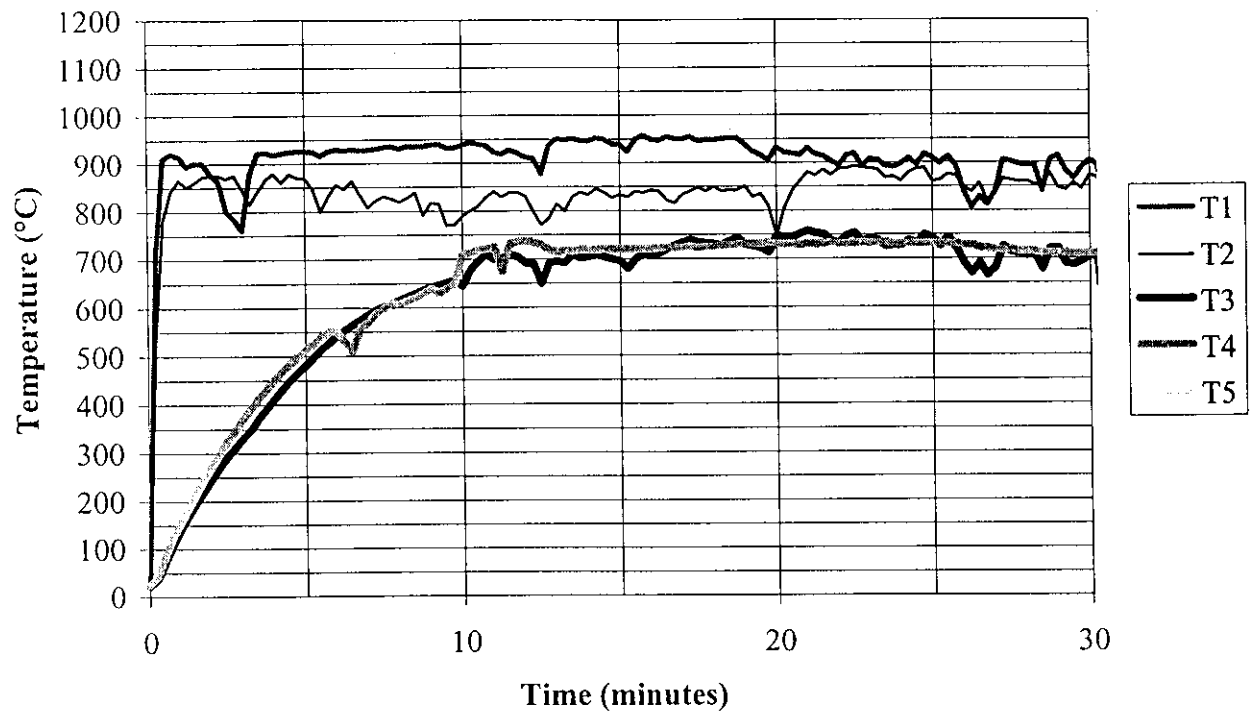


All dimensions are in millimetres.

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



Time-Temperature-graph
Valve type: XT02CWTAS6SPTMBD + D



Time-Pressure-graph

