



Project: Fire-Safe Testing

Certificate Number: HEL 0100451/1

Client: Metso Field Systems Oy,
Helsinki, Finland

Office: Helsinki

Client's Order Number: 7110008

Date: 08 August 2001

Order Status: Complete

Inspection Dates

First: 19 January 2001

Final: 19 January 2001

This certificate is issued to Metso Field Systems Oy to certify that the undersigned Surveyor attended their works in Helsinki on the above date for the purpose of witnessing Fire Tests of one (1) metal seated full bore ball valve designed for uni-directional installation and manufactured by Metso Field Systems Oy.

Particulars of Valve

Type: XG04DWTEJ2SJHABA

Rating: ASME Class 300

Size: NPS 4"

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 API 607, 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 is attached.

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

Additional Valve Qualification

In accordance with, and subject to the limitations of, the above standard, valves sized 3" to 6", as well as valves with pressure ratings ASME 400 and 600 are also qualified.


Matti Niskala for Hans Björkestam
Surveyors to Lloyd's Register

**FIRE TEST FOR BALL VALVE,
TYPE XG04DWTEJ2SJHABA**

1 (4)

**FIRE TEST FOR BALL VALVE,
TYPE XG04DWTEJ2SJHABA**

2 (4)

OBJECT: Fire test of ball valve XG04DWTEJ2SJHABA in accordance with standard API 607, Fourth Edition, May 1993. (Fire Test for Soft-Seated Quarter-Turn Valves).

SPECIMEN: The test valve XG04DWTEJ2SJHABA is a metal seated full bore ball valve manufactured by METSO FIELD SYSTEMS OY Helsinki, Finland. The valve is designed for uni - directional installation. The size of the valve is NPS 4" and pressure class of the body is ASME 300. The manual actuator M12 was mounted on the test valve.

The assembly drawing, parts list , dimensional drawing of the valve and dimensional drawing of the manual actuator are enclosed in Appendices 1, 2, 3 and 4. Nameplate details and location of temperature measurement points are shown in Appendix 5.

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 water against the closed ball was 2 bar during the test. The test was conducted at the Laboratory of METSO FIELD SYSTEMS OY Helsinki on January 19, 2001.

The temperatures and test pressures during the test were recorded with a datalogger. The results are shown in Appendix 6 . The temperature measurement points were located according to the test standard.

The flame temperature was raised to the required 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-spray to 100°C. The cooling time was 4 minutes.

**FIRE TEST FOR BALL VALVE,
TYPE XG04DWTEJ2SJHABA**

3 (4)

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

TABLE 1.
January 19, 2001.

TEST PHASE	TIME min.	LEAKAGE ml/in/min	
		measured	allowed
Start	0	0	
Required flame temperature	0.5	0	
Seat leakage during heating	30.5	1.5	100
External leakage heating + cooling	40.5	0	25
Operation of valve	42		
Stabilization period	47		
5 min seat leakage	52	0.5	20
5 min external leakage	52	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 ball valve XG04DWTEJ2SJHABA met the requirements presented in standard API 607, Fourth Edition: 1993.



Jari Kirmanen
Laboratory Engineer
METSO FIELD SYSTEMS OY



Hans Björkestam
Surveyor to Lloyd's
Register

**FIRE TEST FOR BALL VALVE,
TYPE XG04DWTEJ2SJHABA**

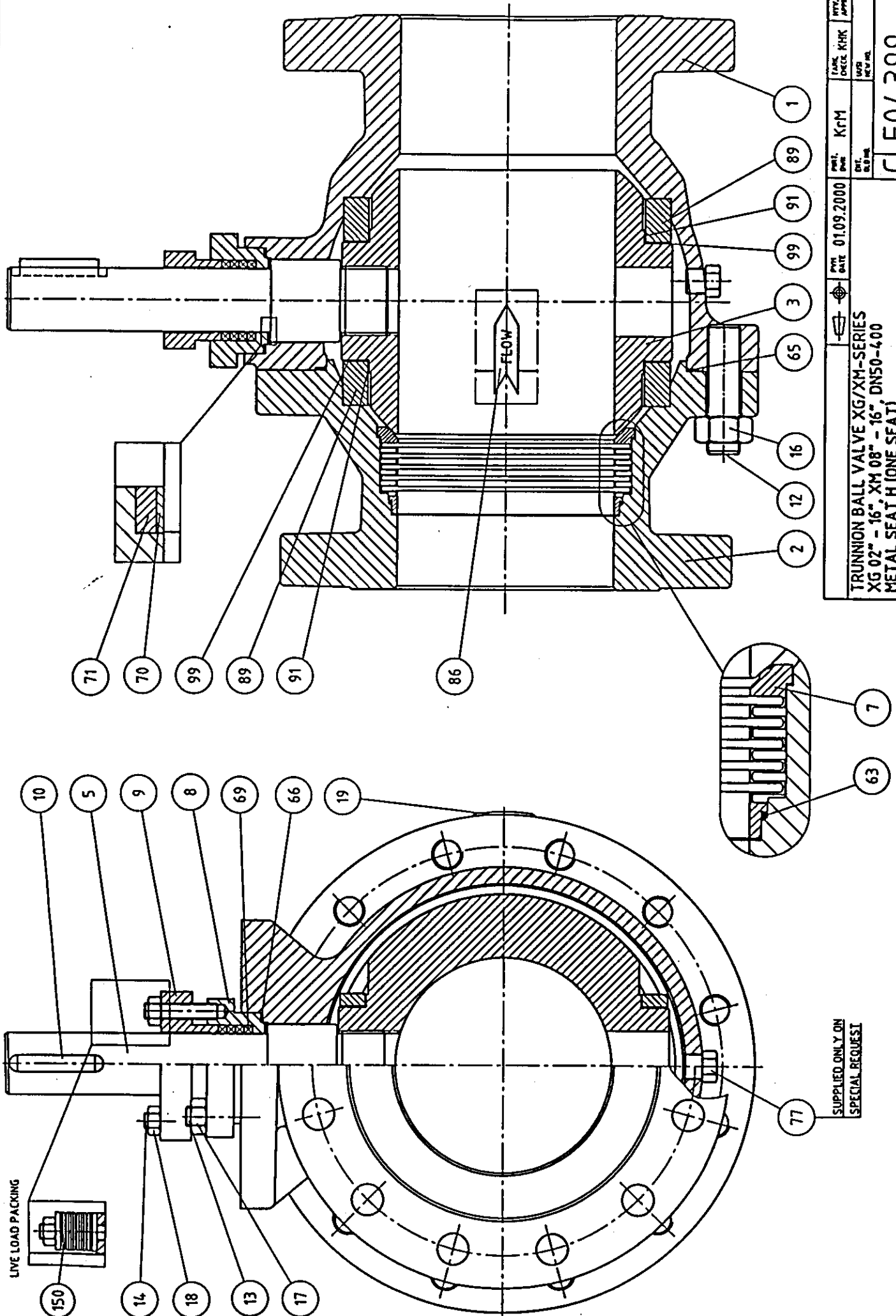
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APPENDICES:

1. Assembly drawing C FO4399
2. Parts and material list H016736
3. Dimension drawing C FO4322
4. Manual actuators dimension drawing.
5. Nameplate details. Location of temperature measurement points.
6. Temperatures and pressure measurement results during the test .

(T1 and T2= Flame thernoc,
T3= Bonnet, T4= Body, T5= unused.
p1= unused, p2= unused, p3= test pressure.)

APPENDIX 1



SUPPLIED ONLY ON
SPECIAL REQUEST

TRUNNION BALL VALVE XG/XM-SERIES
XG 02" - 16", XM 08" - 16", DN50-400
METAL SEAT H (ONE SEAT)
ASSEMBLY DRAWING

Neles Field Controls Oy

UNIT DWS	KCM	NAME CHECK KHK	RTY. APPL. TYP
CRT SLO DR		WWS REV POL	
C F04399			
INSTR IN		PLATOS USE	

Customer C-BOM
XG04DWTEJ2SJHABA
BALL VALVE

Page 1 (2)

Id-code: H016736 Rev: A

Part	Id-code	Description	Material	Qty
001	H013808	BODY	ASTM A216 gr. WCB	1
002	H013868	BODY CAP	ASTM A216 gr. WCB	1
003	H001900	BALL	ASTM A351 gr. CF8M+HC	1
005	H014160	SHAFT	ASTM A479 gr. XM-19	1
007	H001993	BELLOW SEAT	EN 10088-1.4418+ALLOY 50Nb	1
008	H002161	BONNET	EN 10025-S355J2G3/A675-70	1
009	47360	CASTING GLAND	A351 gr. CF8M/1.4408	1
010	3097	KEY	TYPE AISI 329	1
012	H016765	STUD	ASTM A193 gr. B7	8
013	3484	STUD	ASTM A193 gr. B7	4
014	H002070	STUD	ASTM A193 gr. B7	2
016	3345	HEXAGON NUT HEAVY	ASTM A194 gr. 2H	8
017	3342	HEXAGON NUT HEAVY	ASTM A194 gr. 2H	4
018	3342	HEXAGON NUT HEAVY	ASTM A194 gr. 2H	2
019	234456L	IDENTIFICATION PLATE	AISI 304	1
000	234456A	BLANK ID-PLATE	AISI 304	1
063	236965	BACK SEAL	GRAPHITE	1
065	004-0630-36	BODY GASKET	GRAPHITE+AISI 316	1
066	236995	SHEET RING	GRAPHITE+AISI 316	1
069	233406	PACKING RING	GRAPHITE+PTFE	4
070	H002072	THRUST BEARING	STELL 6B	1
071	H002075	THRUST BEARING	UNS S21800	1

Customer C-BOM

XG04DWTEJ2SJHABA

BALL VALVE

Id-code: H016736

Rev:

A

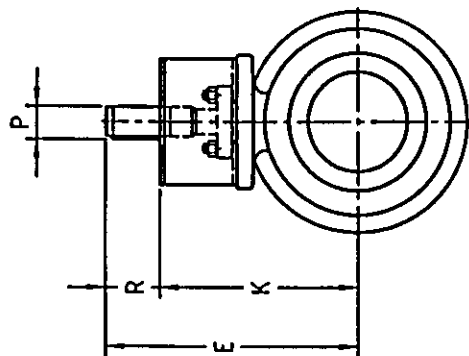
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Part	Id-code	Description	Material	Qty
089	H014221	TRUNNION PLATE	ASTM A743 gr. CA15	2
091	H002055	THRUST BEARING	ALLOY 6	2
099	H000689	TRUNNION BEARING	PTFE+AISI 316	2
150	979560	DISC SPRING SET	EN 10083-1.8159+ENP	2

Documents: F03707 TRUNNION BALL VALVE M-SERIES

Spare part sets:

For quotation purposes only



Key acc. to ANSI B17.1

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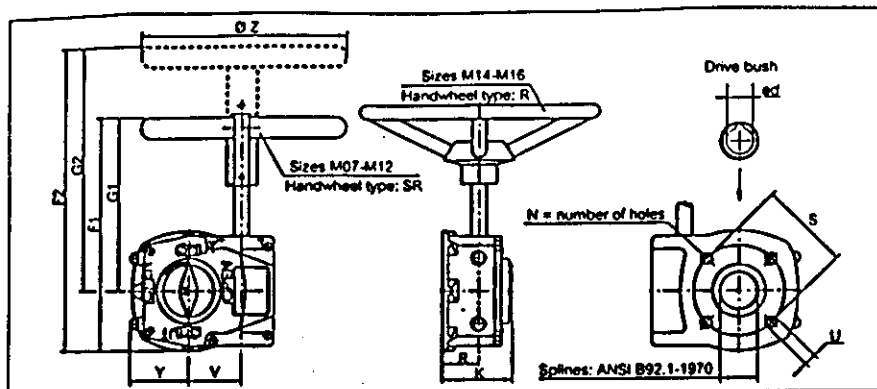
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TYPE	DN	ISO FLANGE	DIMENSIONS mm												Kg
			A	A1	ØB	ØB1	ØD	E	K	ØM	N	ØO	P	R	
XM	200	F14, F16, F25	457	229	343	426	203,2	453	385	9,575	68	40	44,275	88	190
	250	F14, F16, F25, F30	533	267	407	514	254	562	472	12,7	90	55	60,6	90	325
	300	F14, F16, F25, F30	610	305	483	592	304,8	605	515	12,7	90	55	60,6	90	480
	350	F16, F25, F30, F35	686	343	533	665	340	741	607	19,05	134	75	83,15	134	635
	400	F16, F25, F30, F35	762	381	597	750	390	779	633	22,225	146	85	94,675	146	840

FACE-TO-FACE DIMENSIONS ACC. TO ASME B16.10
PRESSURE RATINGS: XG= ASME 300, XM=ASME150
FULL BORE
Valve is shown in closed position

Valve is shown in closed position

Neles Field Controls Oy



HOW TO ORDER

M07F05SR5, where

M07 = type of manual operator
 F05 = mounting flange for valve
 SR5 = type of handwheel

Dimensions In mm

Unit size	M07	M10	M12	M14	M15	M16
Input torque, M1 (Nm)	22.7	45.5	88.5	111	166	170
Max. output torque, M2 (Nm)	250	600	1000	1800	3400	4500
Turns to close	10	10	10.5	15	17	22
Handwheel diameter, øZ / Type	125/SR5	200/SR8	250/SR10	457/R18	457/R18	610/R24
G1, with standard input shaft	152	169	210	279	331	391
F1, with standard input shaft	196	227	285	378	457	549
G2, with extended input shaft		239	282	354	406	466
F2, with extended input shaft		297	357	435	532	642
V	38.5	52	66.7	89.5	123	154
Y	45	68	75	86	114	117
K	58	67	81	93.5	105.5	126.5
R	26.5	35	42	60	60	60
Max. stem height	51	57	72	81	92	113
ød, max. valve shaft diameter	25	25	30	45	65	70
Splines: ANSI B92.1-1970	28T 20/40	28T 20/40	28T 16/32	40T 16/32	40T 12/24	44T 12/24
Weight (kg)	2.9	5	9.5	18	30.7	45.2
Valve mounting flange, ISO 5211 type	F05	F07	F10	F12	F14	F16
S	60	70	102	125	140	165
N, number of holes	4	4	4	4	4	4
U, dia	M6	M8	M10	M12	M16	M20
U, depth	9	8.5	13	16	21.5	25

Dimensions In inch

Unit size	M07	M10	M12	M14	M15	M16
Input torque, M1 (ft lbs)	17	34	66	82	123	126
Max. output torque, M2 (ft lbs)	185	370	741	1333	2519	3333
Turns to close	10	10	10.5	15	17	22
Handwheel diameter, øZ / Type	5/SR5	8/SR8	10/SR10	18/R18	18/R18	24/R24
G1, with standard input shaft	5.98	6.65	8.27	10.98	13.03	15.39
F1, with standard input shaft	7.72	8.94	11.22	14.88	17.99	21.61
G2, with extended input shaft		9.41	11.10	13.94	15.98	18.35
F2, with extended input shaft		11.69	14.06	17.13	20.94	25.28
V	1.52	2.05	2.63	3.52	4.84	6.06
Y	1.77	2.28	2.95	3.39	4.49	4.61
K	2.28	2.64	3.19	3.68	4.15	4.98
R	1.04	1.38	1.65	1.97	1.97	1.97
Max. stem height	2.01	2.24	2.83	3.19	3.62	4.45
ød, max. valve shaft diameter	1	1	1.2	1.8	2.2	2.8
Splines: ANSI B92.1-1970	28T 20/40	28T 20/40	28T 16/32	40T 16/32	40T 12/24	44T 12/24
Weight (lbs)	6.4	11	20.9	39.6	67.5	99.4
Valve mounting flange, ISO 5211 type	F05	F07	F10	F12	F14	F16
S	1.97	2.76	4.02	4.92	5.51	6.50
N, number of holes	4	4	4	4	4	4
U, dia	M6	M8	M10	M12	M16	M20
U, depth	0.35	0.33	0.51	0.63	0.85	0.98

Subject to change without prior notice.

INTERNATIONAL MANUFACTURING AND SALES LOCATIONS

UNITED STATES: Shrewsbury, Massachusetts. MEXICO: Chihuahua. BRAZIL: São José dos Campos.

FINLAND: Helsinki. PEOPLE'S REPUBLIC OF CHINA: Shanghai.

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www.nelesautomation.com

TYPE : XG04DWTEJ2SJHABA

No.: HO16736

BODY : _ WCB _

Tmax : _ + 230° C _

TRIM : _ 316 _

Tmin : _ - 29° C _

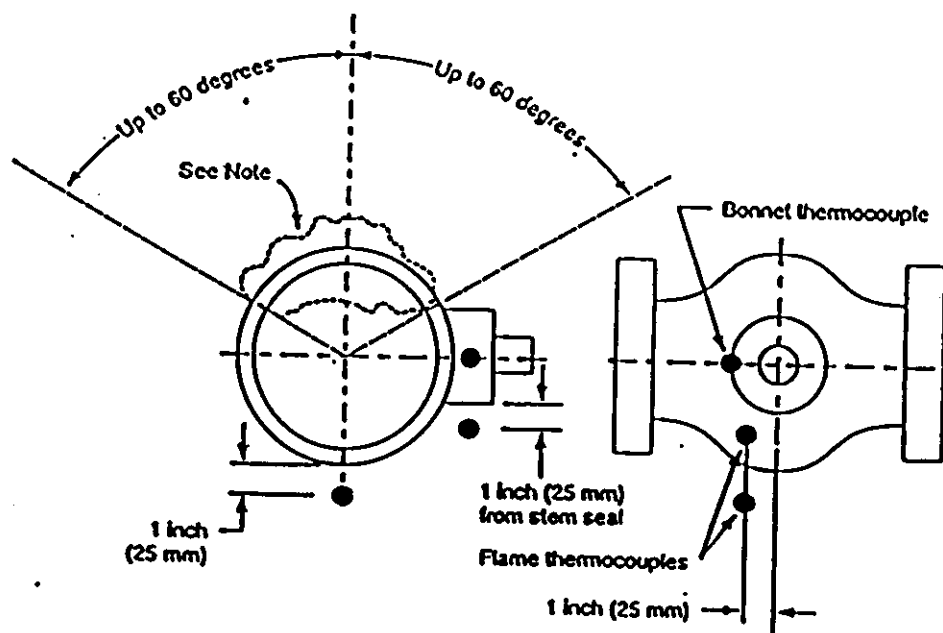
SHAFT : _ XM-19 _

RATING : _ ASME 300 _

SEAT : _ STELL _

dPs : _ 51 BAR _

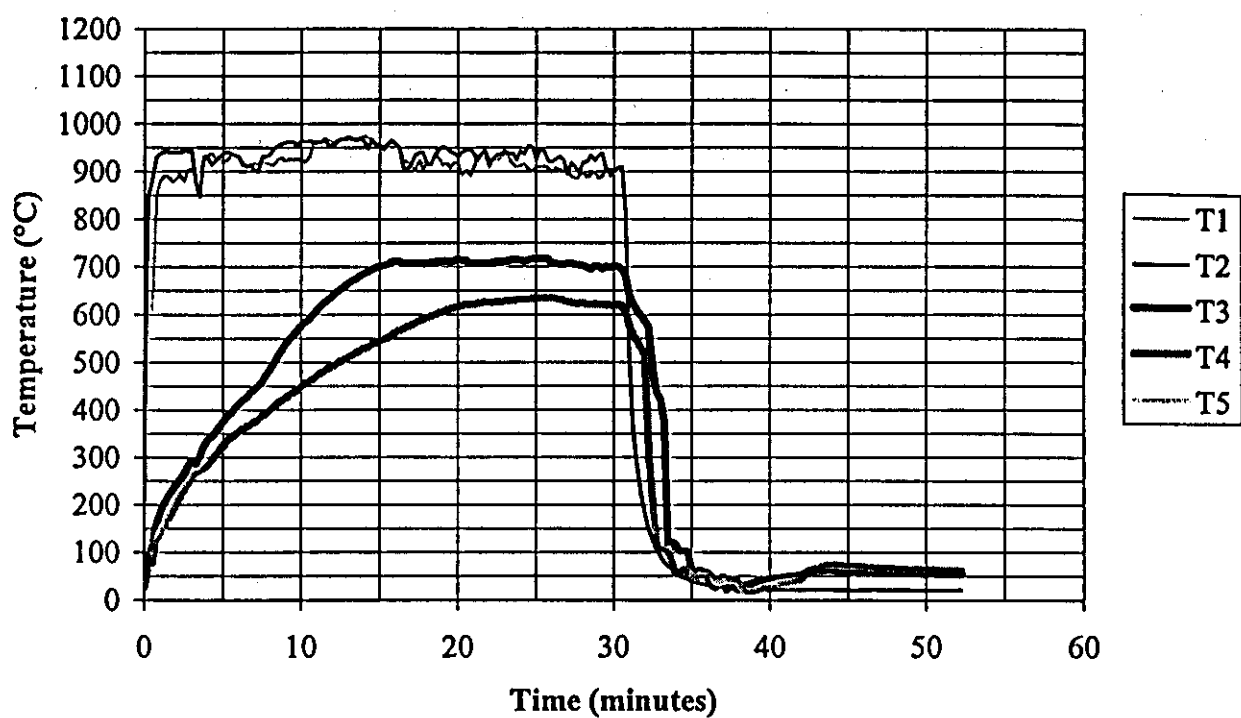
NAMEPLATE DETAILS



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

Time-Pressure-graph
Valve type: XG04DWTEJ2SJHABA



Time-Pressure-graph

