

Project: Fire-Safe Testing

Certificate Number: HEL 0100425/1

Client: Metso Field Systems Oy,
Helsinki, Finland

Office: Helsinki

Client's Order Number: 710003

Date: 08 August 2001

Order Status: Complete

Inspection Dates

First: 12 January 2001

Final: 12 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 bi-directional installation and manufactured by Metso Field Systems Oy.

Particulars of Valve

Type: XT02CWT AJ2SJHABA

Rating: ASME Class 150

Size: NPS 2"

Materials (as stated by the Manufacturer): See Appendix No. 2 of the Test Report.

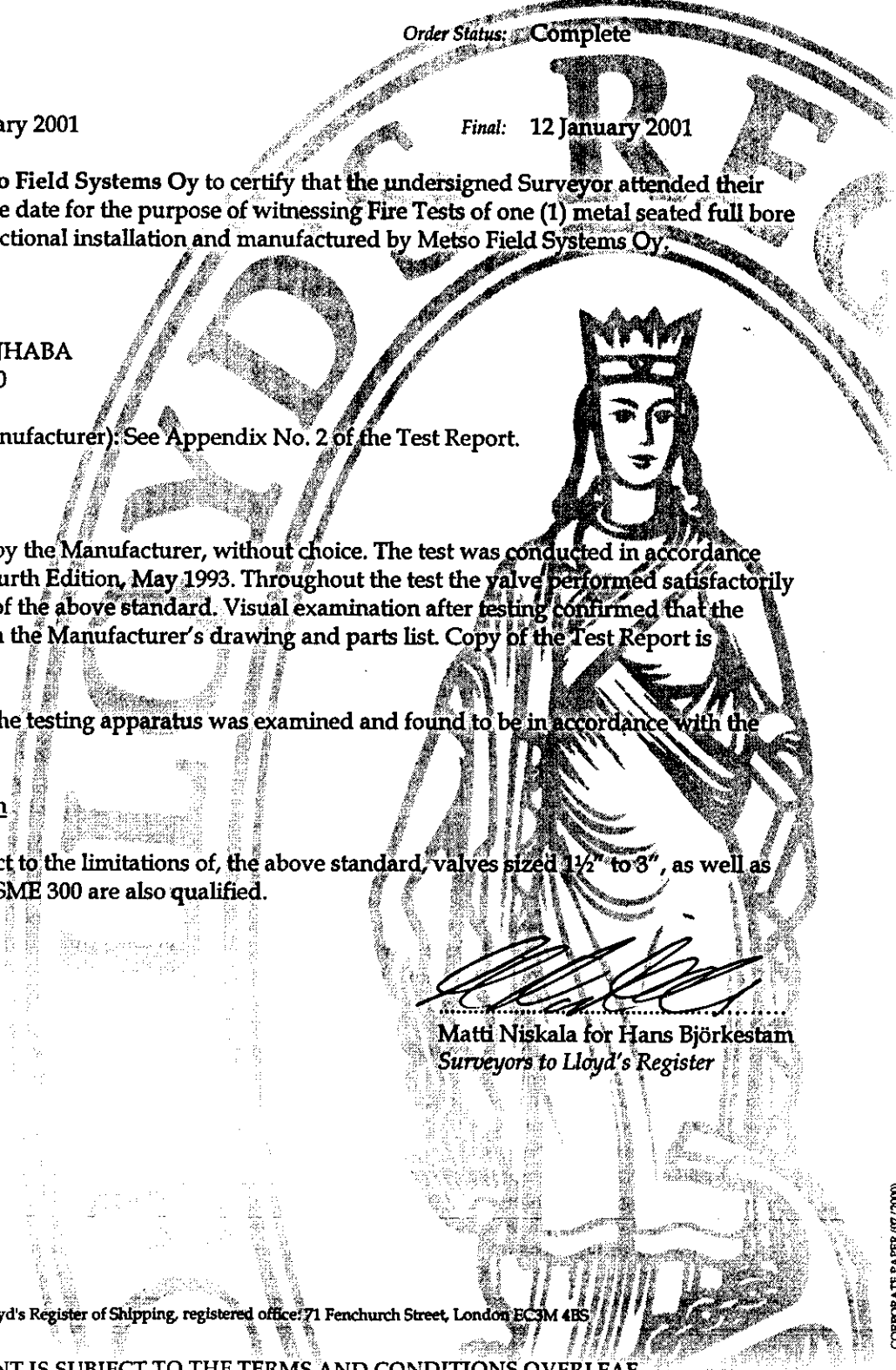
Testing

The test valve was presented by the Manufacturer, without choice. The test was conducted in accordance with the standard 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 1½" to 3", as well as valves with pressure rating ASME 300 are also qualified.



Matti Niskala
Matti Niskala for Hans Björkestam
Surveyors to Lloyd's Register

**FIRE TEST FOR BALL VALVE,
TYPE XT02CWTAJ2SJHABA**

1 (4)

**FIRE TEST FOR BALL VALVE,
TYPE XT02CWTAJ2SJHABA**

2 (4)

OBJECT: Fire test of ball valve XT02CWTAJ2SJHABA in accordance with standard API 607, Fourth Edition, May 1993. (Fire Test for Soft-Seated Quarter-Turn Valves).

SPECIMEN: The test valve XT02CWTAJ2SJHABA is a metal seated full bore ball valve manufactured by METSO FIELD SYSTEMS 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 manual actuator M07 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 12, 2001.

The test was conducted in direction B, the test pressure on the side of part no. 1 (Appendix 1).

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 6 minutes.

**FIRE TEST FOR BALL VALVE,
TYPE XT02CWTAJ2SJHABA**

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 12, 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	0.5	100
External leakage heating + cooling	40.5	0	25
Operation of valve	41		
Stabilization period	46		
5 min seat leakage	51	7	20
5 min external leakage	51	22	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 XT02CWTAJ2SJHABA 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 XT02CWTAJ2SJHABA**

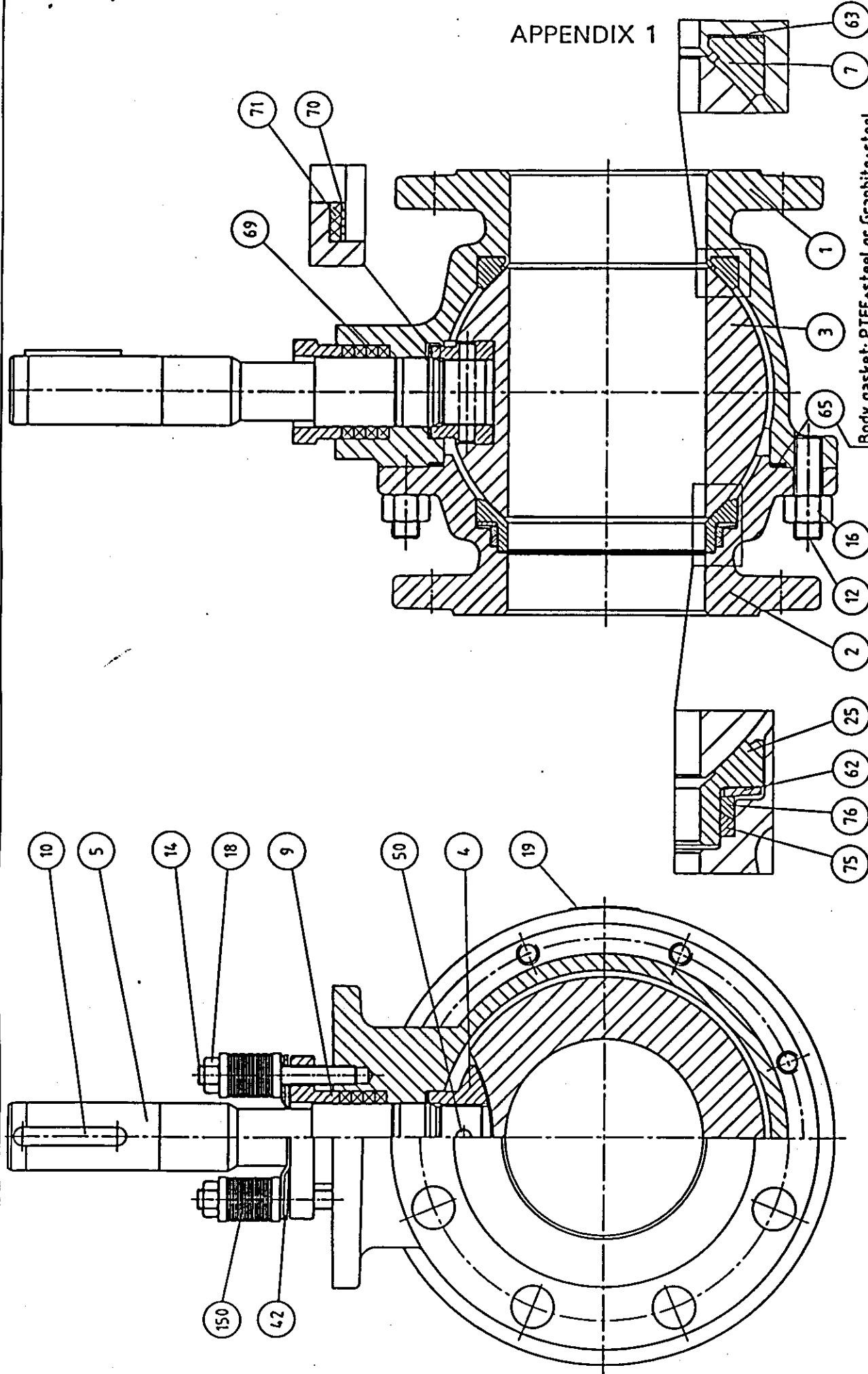
4 (4)

APPENDICES:

1. Assembly drawing C FO3315
2. Parts and material list H016757
3. Dimension drawing CF04219
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= Center cavity, p2= unused, p3= test pressure.)

APPENDIX 1



REV.	DATE	BY	CHK.	APP.	TYP.
1	03.04.00	RLS			
BALL VALVE XA/XT-SERIES 02"-08", DN50-200					
STANDARD CONSTRUCTION					
SEAT H FULL BORE					
ASSEMBLY DRAWING					
Neles Field Controls Oy					
C/F03315					



Customer C-BOM

XT02CWTJ2SJHABA

BALL VALVE

Id-code: H016757

Rev: 0

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Part	Id-code	Description	Material	Qty
001	H013554	BODY	ASTM A216 gr. WCB	1
002	H013609	BODY CAP	ASTM A216 gr. WCB	1
003	881600	BALL	ASTM A351 gr. CF8M+HC	1
000	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	H013616	BALL SEAT	AISI 316+ALLOY 50Nb	1
009	46260	CASTING GLAND	A351 gr. CF8M/1.4408	1
010	3097	KEY	TYPE AISI 329	1
012	234883	STUD	ASTM A193 gr. B7	4
014	H016753	STUD	ASTM A193 gr. B7	2
016	3343	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
025	H013622	BALL SEAT	AISI 316+ALLOY 50Nb	1
042	932720	RETAINER PLATE	316L/1.4435	2
050	H013705	LOCKING PIN	ASTM A479 gr. XM-19	1
062	H013710	SEAT SPRING	UNS N08825	1
063	90541	SHEET RING	GRAPHITE	1
065	004-0543-36	BODY GASKET	GRAPHITE+AISI 316	1
069	233143	PACKING RING	GRAPHITE+PTFE	3

Customer C-BOM

XT02CWTJ2SJHABA

BALL VALVE

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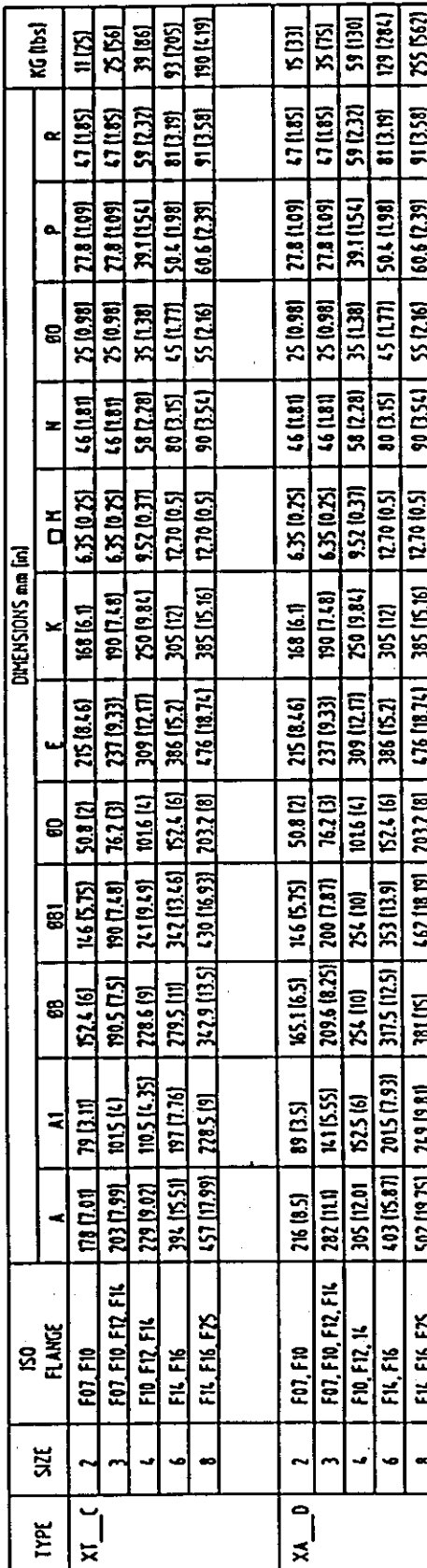
Rev: 0

Id-code: H016757

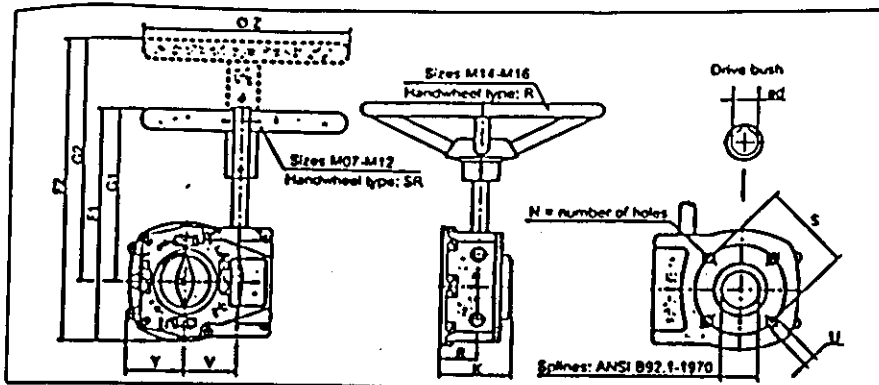
Part	Id-code	Description	Material	Qty
070	004-0700-49/H	THRUST BEARING	PTFE+C+GF (MTFE)	3
075	939380	BACK SEAL	GRAPHITE	1
076	939280	SUPPORT RING	AISI 316	1
150	979560	DISC SPRING SET	EN 10083-1.8159+ENP	2

Documents: F03315 BALL VALVE XA/XT-SERIES 02"-08", DN50-200

Spare part sets:



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



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	62	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	61	67	72	81	92	113
ed, 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	6	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	6/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	17.89	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
ed, 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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TYPE : XT02CWTAJ2SJHABA

No.: HO 16757

BODY : _ 1.4408/CF8M _

Tmax : _ +425° C _

TRIM : _ 316 _

Tmin : _ -29° C _

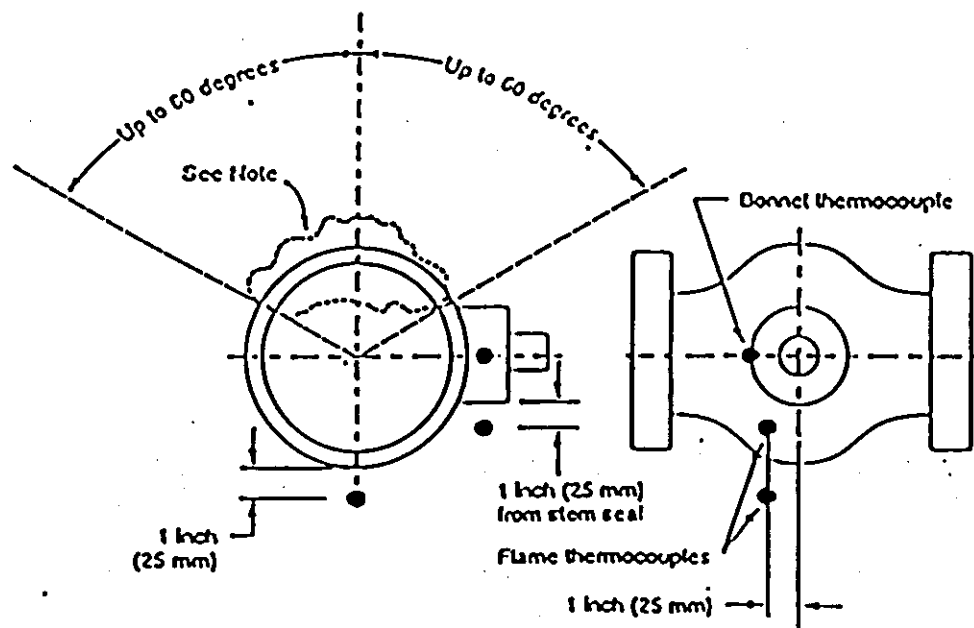
SHAFT : _ XM-19 _

RATING : _ ASME 150 _

SEAT : _ STELL _

dPs : _ 19,6 BAR _

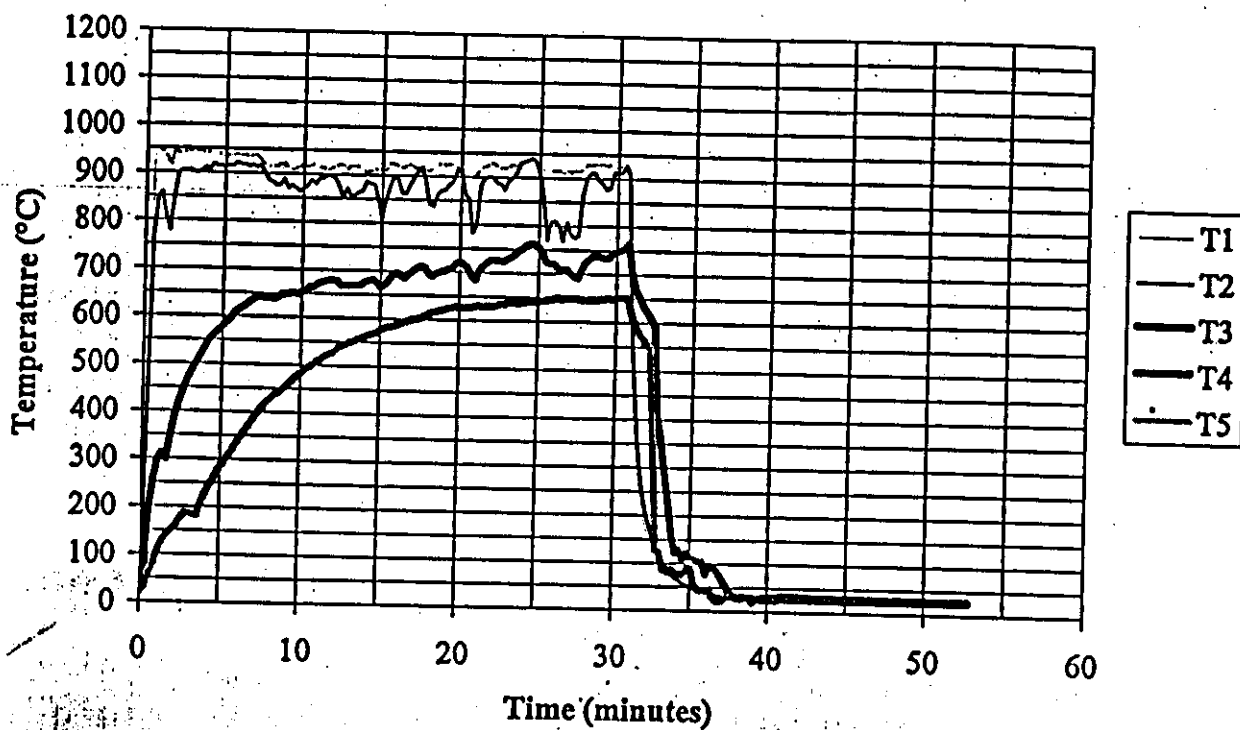
NAMEPLATE DETAILS



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-Temperature-graph
Valve type:XT02CWTAJ2SJHABA



Time-Pressure-graph

