

Project:

Client: STARLINE S.p.A.
S. Paolo d'Argon (Bergamo)

Office: Milan

Client's Order Number:

Date: 25 October 2007

Order Status: Complete

Inspection Dates

First: 01 August 2007

Final: 19 October 2007

This certificate is issued to STARLINE S.p.A. S. Paolo d'Argon Bergamo. The undersigned Surveyor to this Society did attend at the work of Messrs Starline S.p.A. for the purpose of witnessing the FIRE TEST in accordance with EN ISO 10497:2004 and ANSI/API 607 Fifth Edition, June 2005 carried out on the following valve selected at random from current production.

DN 50 (NPS 2") CLASS 600 Lbs-STARLINE FORGED STEEL BALL VALVE, THREE PIECES BOLTED CONSTRUCTION TYPE "ULTRASTAR TRUNNION MOUNTED"-FIGURE N. 106-SGH-G ACCORDING TO DWG. FT 913/07E1 MATERIAL 316/F316

The test conducted on the valve previously subject to hydraulic and air test was as follows:

-The valve, in the closed position, filled with water under pressure, was put in a box and exposed to flames with an environmental temperature in the region of the valve of 750 Deg. C to 1000 Deg. C for a period of 30 minutes minimum and established the leakage through the valve and to atmosphere during this period. The temperature was checked by means of calorimeter cubes and flame environment thermocouples and recorded every 30 seconds, while leakage were determined using containers collecting the water leaked during burn period. After cool-down to 100 Deg. C the valve was hydrostatically tested to the low test pressure (applicable only for PN100-CLASS 600 and lower), subsequently operated and tested at the appropriate high test pressure in the fully open position, to assess the pressure containing capability of the valve shell and seats.

All the following values were determined and recorded together with temperature times and pressures as shown on manufacturer's fire test sheet record No. FT 913/07B1 and fire test chart record No. FT 913/07C1 detailing the following points:

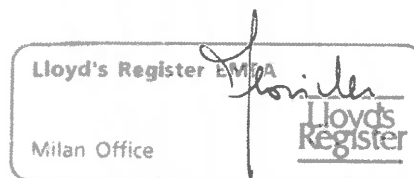
5.1 Through-seat leakage (high test pressure) during burn period	Satisfactory
5.2 External leakage (high test pressure) during burn / cool down periods	Satisfactory
5.3 Through-set leakage (low test pressure) after cool-down	Satisfactory
5.4 Operability under high pressure from closed to open position	Satisfactory
5.5 External leakage in fully open position at high pressure	Satisfactory

The valve was subject to visual examination with satisfactory results and subsequently disassembled in order to verify that valve components comply with the drawing and part list supplied by the manufacturer, while seat rings were found completely destroyed.

The Manufacturer's documentation No. FT 913/07A1 herewith attached was satisfactorily checked and signed.

The above is considered in accordance with the above mentioned specifications requirements and therefore the valve has satisfactorily passed the fire test.

gf



Giuseppe FLORIELLO
Surveyor to Lloyd's Register EMEA

A member of the Lloyd's Register Group

BALL VALVE TESTED : "ULTRASTAR TRUNNION MOUNTED" No. 0

Material : F16 / F16 Size : 2" Class : 600 Lbs Our Fig.n° : 106-SGH-G

VALVE CONSTRUCTION

Forged Steel Ball Valves Three Pieces Bolted Construction (Type "ULTRASTAR TRUNNION MOUNTED" No. 0)
Trunnion Mounted, Anti - Blow - Out Proof Stem Design, Antistatic Design.

Designed in Conformity to Last Edition of :

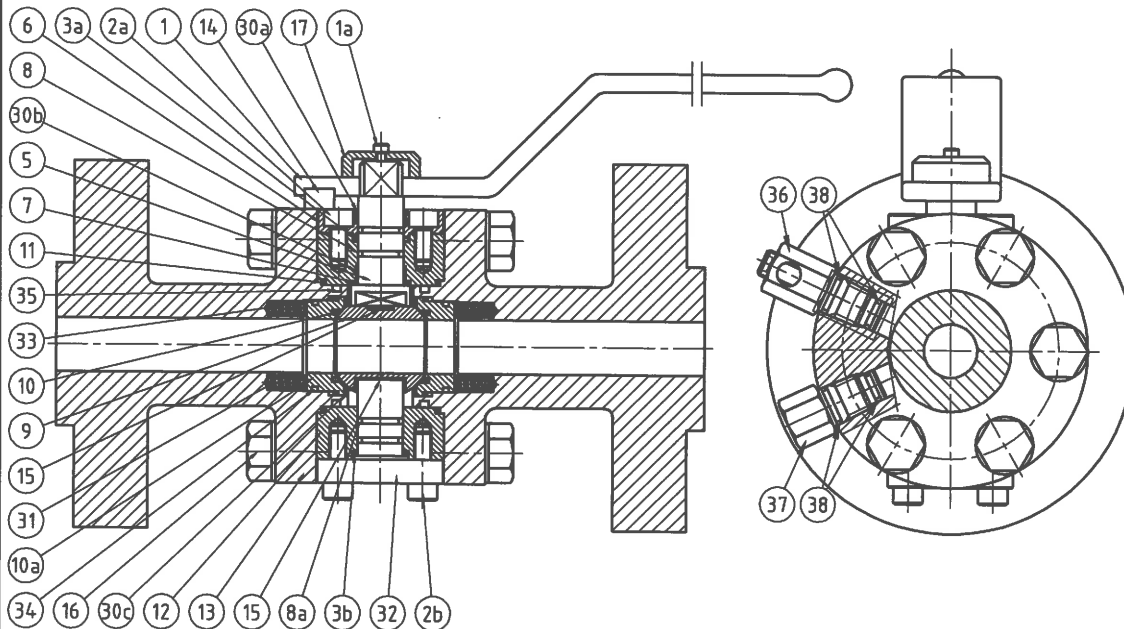
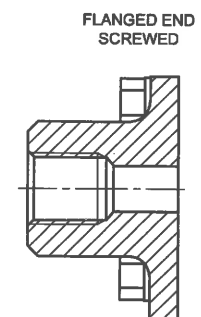
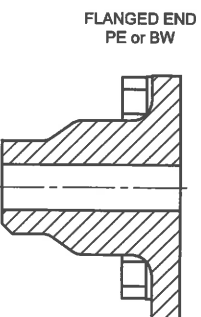
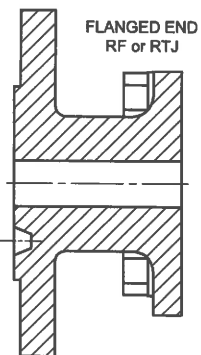
- BS 5351 (EN-ISO-17292) - ASME / ANSI B16.34 - API 6D -

FIRE TEST REPORT n° : FT-913-07-A1

Date : 01/08/07

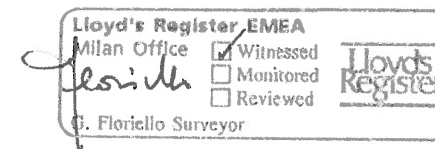
Issued in : S. PAOLO D'ARGON - BG - ITALY

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PART NO	UNIT Q.TY	PART NAME	MATERIAL
NP	1	NAME PLATE	AISI 316
1	1	HANDLE	Carbon Steel + Epoxy Coated
1a	1	HANDLE BOLT	A4.70
2a	4	TOP COVER SCREW	A4.70
2b	4	TRUNNION RETAINER SCREW	A4.70
3a-b	1+1	STEM/TRUNNION FIRE SEAL	Graphite
5	1	ANTISTATIC UPPER STEM	S.S. 316/316L Dual Cert.
6	1	TOP COVER	S.S. 316/316L Dual Cert.
7	1	THRUST WASHER	Reinforced PTFE
8-8a	2+2	STEM/TRUNNION 'O'RING	HNBR
9	1	BALL	S.S. 316/316L Dual Cert.
10	2	SEAT INSERT	PTFE + 25% C. Graphite
10a	2	SEAT	S.S. 316/316L Dual Cert.
11	2	ADAPTOR FIRE SEAL	Graphite
12	1	BODY	S.S. 316/316L Dual Cert.
13	2	ADAPTOR FLANGE	S.S. 316/316L Dual Cert.
14	1	STOP PIN	A4.70
15	2	ANTISTATIC SPRING	Inconel X750
16	8+8	BOLTS	ASTM A193 B8M
17	1	STOP HANDLE WASHER	A350 LF2 Cl.1
30a-b	1+1	UPPER STEM BEARING	AISI 316 + PTFE LINED
30c	1	TRUNNION BEARING	AISI 316 + PTFE LINED
31	6+6	SEAT SPRING	Inconel X750
32	1	TRUNNION	S.S. 316/316L Dual Cert.
33	2	SEAT FIRE SEAL	Graphite
34	2+2	'O'RING SEAT	HNBR
35	2	'O'RING FLANGE	HNBR
36	1	RELIEF PLUG	AISI 316
37	1	DRAIN PLUG	AISI 316
38	2+2	'O'RING PLUG	HNBR

*Suggested material after two years service



0	01/08/2007	First Issue			
Rev.	Date	Reason for revision	Made By	Chk'd By	Appr. By

Ball Valves Type : ULTRASTAR TRUNNION MOUNTED
Port Design : FULL BORE
Class of Valve : 600 Lbs
End Connections : FLANGED RF

STAR LINE
S. PAOLO D'ARGON BERGAMO ITALY



Starline Fig. n°: 106-SGH-G

Drawing n°: FT-913/07-E1