

Project:

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

Office: **Milan**

Clients Order Number:

Date: **06 August 2007**

Order Status: **Complete**

Inspection Dates

First: **29 June 2007**

Final: **31 July 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 RB ( NPS 2") CLASS 150 Lbs-STARLINE FORGED STEEL BALL VALVE, THREE PIECES BOLTED CONSTRUCTION TYPE "FLOATING NOT ENCAPSULATED SEAT"--FIGURE N. 235-SGS-G ACCORDING TO DWG. FT 700/07E2 MATERIAL LF2/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.

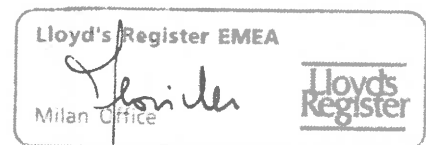
All the following values were determined and recorded together with temperature times and pressures as shown on manufacturer's fire test sheet record No. FT 700/07B2 and fire test chart record No. FT 700/07C2 detailing the following points:

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 700/07A2 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 : "FLOATING NOT ENCAP. SEAT" No. 3

Material : LF2 / F316 Size : 2" RB Class : 150 Lbs Our Fig.n° : 235-SGS-G

## VALVE CONSTRUCTION

Forged Steel Ball Valves Three Pieces Bolted Construction (Type "NOT ENCAP. SEAT" No. 3)

Floating Ball, Anti - Blow - Out Proof Stem Design, Antistatic Design.

Designed in Conformity to Last Edition of :

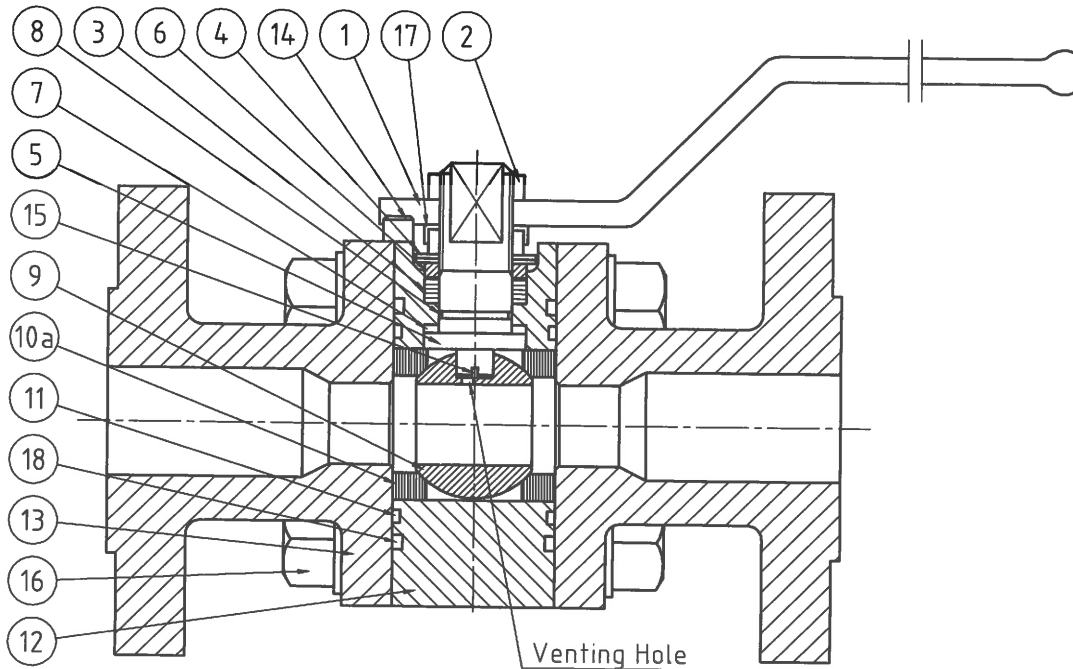
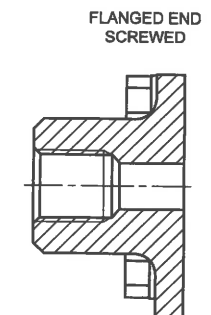
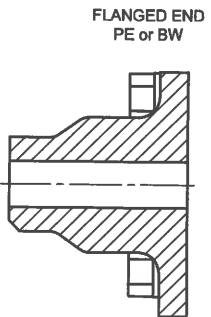
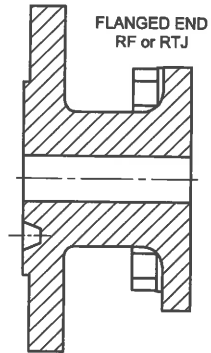
- BS 5351 (EN-ISO-17292) - ASME / ANSI B16.34 - API 6D -

FIRE TEST REPORT n° : FT-700-07-A2

Date : 29/06/07

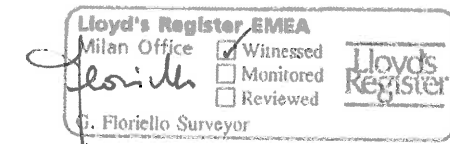
Issued in : S. PAOLO D'ARGON - BG - ITALY

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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
2	2	HANDLE NUT	AISI 304
* 3	1	PACKING RING	Graphite
4	2	SPRING WASHER	AISI 316 Treated
5	1	ANTISTATIC STEM	S.S. 316/316L Dual Cert.
6	1	GLAND PACKING	AISI 316
* 7	1	THRUST WASHER	Reinforced PTFE
* 8	1	'O' RING STEM	Viton
9	1	BALL	S.S. 316/316L Dual Cert.
* 10a	2	SEAT	PTFE + 25% C. Graphite
* 11	2	FIRST BODY GASKET	PTFE + 25% C. Graphite
12	1	BODY	A350 LF2 Cl.1
13	2	END CONNECTION	A350 LF2 Cl.1
14	1	STOP PIN	A4.70
15	1	ANTISTATIC DEVICE	Stainless Steel
16	4+4	BOLTS	ASTM A320 L7 + Zinc Plated
17	1	STOP WASHER	AISI 304
* 18	2	EMERGENCY BODY SEAL	Graphite

\*Suggested material after two years service



Rev.	Date	Reason for revision	Made By	Chk'd By	Appr. By
0	29/06/07	First Issue			

Ball Valves Type : FLOATING VALVE NOT ENCAPSULATED SEAT  
 Port Design : REDUCED BORE  
 Class of Valve : 150 Lbs  
 End Connections : FLANGED RF



Starline Fig. n° : 235-SGS-G  
 Drawing n° : FT-700/07-E2

Project:

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

Office: Milan

Clients Order Number:

Date: 06 August 2007

Order Status: Complete

Inspection Dates

First: 29 June 2007

Final: 31 July 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 RB ( NPS 2") CLASS 600 Lbs-STARLINE FORGED STEEL BALL VALVE, THREE PIECES BOLTED CONSTRUCTION TYPE "FLOATING NOT ENCAPSULATED SEAT"-FIGURE N. 235-SGS-G ACCORDING TO DWG. FT 715/07E2 MATERIAL LF2/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 715/07B2 and fire test chart record No. FT 715/07C2 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 715/07A2 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 : "FLOATING NOT ENCAP. SEAT" No. 3

Material : LF2 / F316 Size : 2" RB Class : 600 Lbs Our Fig.n° : 235-SGS-G

## VALVE CONSTRUCTION

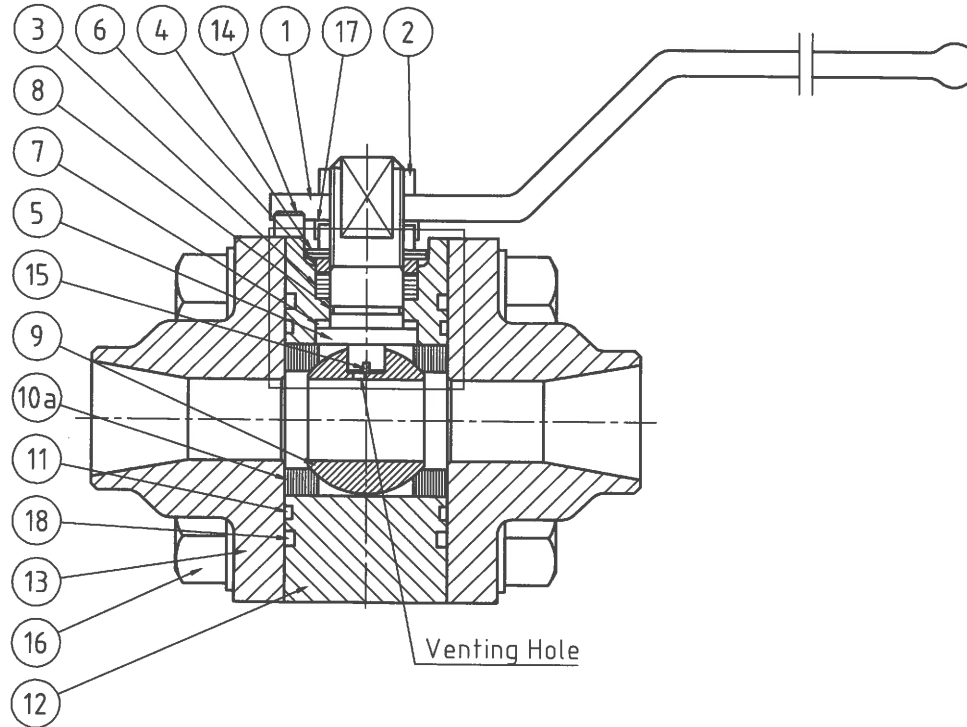
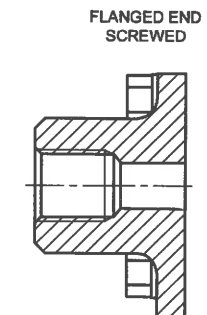
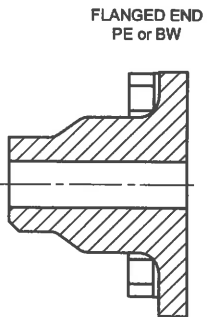
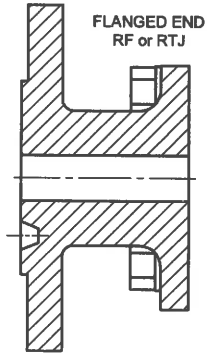
Forged Steel Ball Valves Three Pieces Bolted Construction (Type "NOT ENCAP.SEAT" No. 3)  
 Floating Ball, Anti - Blow - Out Proof Stem Design, Antistatic Design.  
 Designed in Conformity to Last Edition of :  
 - BS 5351 (EN-ISO-17292) - ASME / ANSI B16.34 - API 6D -

FIRE TEST REPORT n° : FT-715-07-A2

Date : 29/06/07

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
2	2	HANDLE NUT	AISI 304
*	3	PACKING RING	Graphite
4	2	SPRING WASHER	AISI 316 Treated
5	1	ANTISTATIC STEM	S.S. 316/316L Dual Cert.
6	1	GLAND PACKING	AISI 316
*	7	THRUST WASHER	Reinforced PTFE
*	8	'O' RING STEM	Viton
9	1	BALL	S.S. 316/316L Dual Cert.
*	10a	SEAT	PTFE + 25% C. Graphite
*	11	FIRST BODY GASKET	PTFE + 25% C. Graphite
12	1	BODY	A350 LF2 CL1
13	2	END CONNECTION	A350 LF2 CL1
14	1	STOP PIN	A4-70
15	1	ANTISTATIC DEVICE	Stainless Steel
16	4+4	BOLTS	ASTM A320 L7 + Zinc Plated
17	1	STOP WASHER	AISI 304
*	18	EMERGENCY BODY SEAL	Graphite

\*Suggested material after two years service



Rev.	Date	Reason for revision	Made By	Chk'd By	Appr. By
0	29/06/07	First Issue			
Ball Valves Type	: FLOATING VALVE NOT ENCAPSULED SEAT				
Port Design	: REDUCED BORE				
Class of Valve	: 600 Lbs				
End Connections	: BUTT WELD				