

Certificate no:

MLN0700628/200A3

Page 1 of 1

Project:

Client: STARLINE S.p.A.

S. Paolo d'Argon (Bergamo)

Office: Milan

Willali

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.

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Lloyd's Register EMEA

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Milan Office

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Giuseppe FLORIELLO Surveyor to Lloyd's Register EMEA

A member of the Lloyd's Register Group

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## **BALL VALVE TESTED: "FLOATING NOT ENCAP. SEAT" No. 3**

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

FIRE TEST REPORT n°: FT-700-07-A2

Date: 29/06/07

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

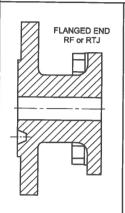
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## **VALVE CONSTRUCTION**

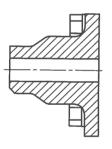
Forged Steel Ball Valves Three Pieces Bolted Construction (Type "NOT ENCAP.SEAT" No. 3) Floating Ball, Anti - Blow - Out Proof Stem Design, Antistatic Design. Designed in Conformity to Last Edition of:

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

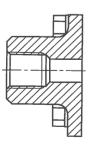
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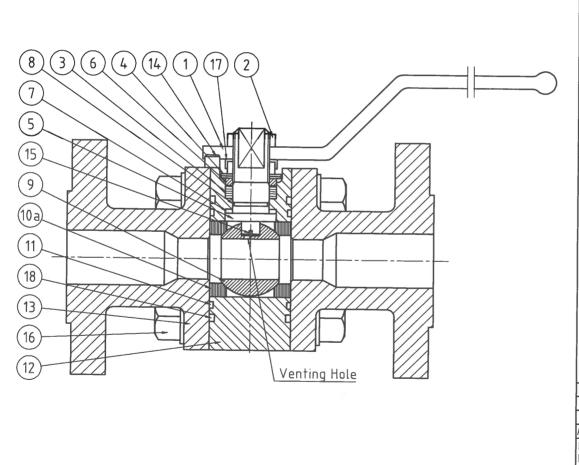






FLANGED END SCREWED





L	NO NO	Q.TY	PART NAME	MATERIAL
	NP	1	NAME PLATE	AISI 316
L	1	_ 1	HANDLE	Carbon Steel + Epoxy Coated
L	2	2	HANDLE NUT	AISI 304
×	3	1	PACKING RING	Graphite
L	4	2	SPRING WASHER	AISI 316 Treated
L	5	1	ANTISTATIC STEM	S.S. 316/316L Dual Cert.
L	6	1	GLAND PACKING	AISI 316
×	7	1	THRUST WASHER	Reinforced PTFE
×	8	1	'O' RING STEM	Viton
L	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
	*Sugge	sted ma	terial after two years service	

Suggested material after two years service



0	29/06/07	First Issue					
Rev.	Date	Reason for revision	Made By	Chk'd By	Appr. By		
D-II V-I							

Ball Valves Type : FLOATING VALVE NOT ENCAPSULED 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

Certificate no:

MLN0700628/203A3

Page 1 of 1



Project:

Client: STARLINE S.p.A.

S. Paolo d'Argon (Bergamo)

Office:

Milan

Date:

06 August 2007

Order Status: Complete

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Clients Order Number:

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

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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.

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Giuseppe FLORIELLO Surveyor to Lloyd's Register EMEA

Milan

A member of the Lloyd's Register Group

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## **BALL VALVE TESTED: "FLOATING NOT ENCAP. SEAT" No. 3**

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

FIRE TEST REPORT n°: FT-715-07-A2

Date: 29/06/07

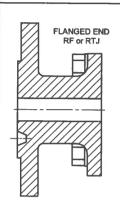
Issued in: S. PAOLO D'ARGON - BG - ITALY

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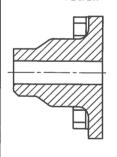
## **VALVE CONSTRUCTION**

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:

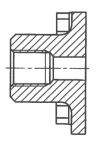
- BS 5351 (EN-ISO-17292) - ASME / ANSI B16.34 - API 6D -

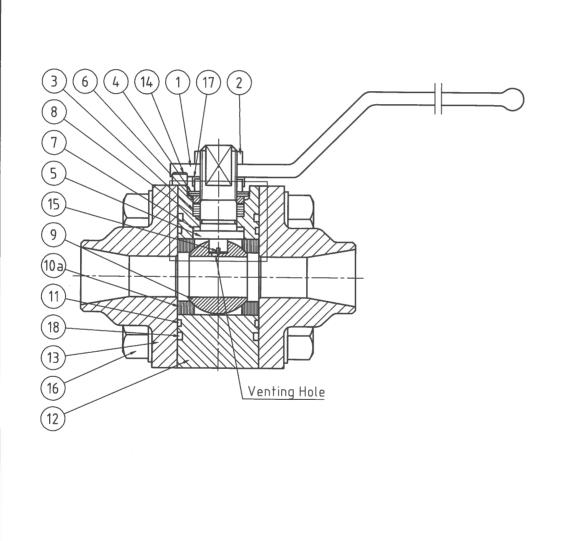






FLANGED END SCREWED





L	PART NO	UNIT Q.TY	PART NAME	MATERIAL
L	NP	1	NAME PLATE	AISI 316
L	1	1	HANDLE	Carbon Steel + Epoxy Coated
ᆫ	2	2	HANDLE NUT	AISI 304
×	3	1	PACKING RING	Graphite
L	4	2	SPRING WASHER	AISI 316 Treated
_	5	1	ANTISTATIC STEM	S.S. 316/316L Dual Cert.
L	6	1	GLAND PACKING	AISI 316
×	7	1	THRUST WASHER	Reinforced PTFE
×	8	1	'O' RING STEM	Viton
ᆫ	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
L	12	1	BODY	A350 LF2 Cl.1
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	16	4+4	BOLTS	ASTM A320 L7 + Zinc Plated
L	17	1	STOP WASHER	AISI 304
×	18	2	EMERGENCY BODY SEAL	Graphite
	*Sugge	sted ma	terial after two years service	

Lloyd's Register EMEA Milan Office Witnessed Monitored i. Floriello Surveyor

29/06/07	First Issue					
Date	Reason for revision	Made By	Chk'd By	Аррг. Ву		

Ball Valves Type

FLOATING VALVE NOT ENCAPSULED SEAT : REDUCED BORE

Port Design Class of Valve

: 600 Lbs

End Connections : BUTT WELD



Starline Fig. n°: 235-SGS-G

Drawing n°: FT-715/07-E2