STAR LINE S.P.A.
24060 S.PAOLO D'ARGON (Bergamo) ITALY
Tel.035/958041-035/958102 Fax. 035/958413

FUGITIVE EMISSION TEST PROTOTYPE

NDE REPORT
N°: 01/05-FE-PR

TEST ACCORDING TO

MESC SPE 77/312 ed.2004 - STAR FE101-PROTOTYPE – ISO 14001 –
ASME SEZ. V Article 10, Appendix IV Last Edition – ASME B16.34 & Addenda Last Edition

EQUIPMENTS

Mass Spectrometer manufactured by : LEYBOLD AG model : PHOENIX L300
Serial n° : 90001041842
Range: 1 x 10^{-8} (sniffing)
5 x 10^{-12} (vacuum)

Calibrated Leak manufactured by : ESA s.r.l. model : PTL60 range10^-6
Serial n° : 020805-059

Mass Spectrometer Calibrated Before Testing

VALVES DESCRIPTION	SIZE	CLASS	QUALIFIED VALVES	CLASS	TEST REPORT AT PAGE
ULTRASTAR	3/4" x 3/4" 1"x3/4"	300	1/2"x1/2" - 3/4"x1/2" - 1"x1"-1.1/4"x1" - 1.1/4x1.1/4" – 1.1/2"x1"	150 - 300	2
	2"x2" 2.1/2"x2"	300	1.1/2"x1.1/2" - 2"x1.1/2" - 2.1/2"x2.1/2" - 3"x2" - 3"x3" - 4"x3"	150 - 300	2
	4"x4" 6"x4"	300	3"x3" - 4"x3" - 6"x6" - 8"x6" - 8"x8" - 10"x8"	150 - 300	2
	3/4" x 3/4" 1"x3/4"	900	1/2"x1/2" - 3/4"x1/2" - 1"x1"-1.1/4"x1" - 1.1/4x1.1/4" – 1.1/2"x1"	600 - 900	3
	2"x2" 2.1/2"x2"	900	1.1/2"x1.1/2" - 2"x1.1/2" - 2.1/2"x2.1/2" - 3"x2" - 3"x3" - 4"x3"	600 - 900	3
	4"x4" 6"x4"	900	3"x3" - 4"x3" - 6"x6" - 8"x6" - 8"x8" - 10"x8"	600 - 900	3
	3/4" x 3/4" 1"x3/4"	2500	1/2"x1/2" - 3/4"x1/2" - 1"x1"-1.1/4"x1" - 1.1/4x1.1/4" – 1.1/2"x1"	1500 - 2500	4
	2"x2" 2.1/2"x2"	2500	1.1/2"x1.1/2" - 2"x1.1/2" - 2.1/2"x2.1/2" - 3"x2" - 3"x3" - 4"x3"	1500 - 2500	4
	4"x4" 6"x4"	2500	3"x3" - 4"x3" - 6"x6" - 8"x6" - 8"x8" - 10"x8"	1500 - 2500	4

Notes:

OPERATOR QUALIFIED IN ACCORDANCE TO
UNI EN473 - LEVEL II

Jeremy Gritti

Date: 26-01-2006

INSPECTOR

WITNESSED

26-01-06

VALVE DESCRIPTION AND TESTS REPORTS

TYPE:	**ULTRASTAR**
PRESSURE CLASS:	**300**
TEMPERATURE CLASS:	**T6**
ENDURANCE CLASS:	**CO–QT–SS–ML**

Valve Size	Test	Tightness size	Max allowable leakage	Test Pressure (Bar)	Max leakage at ambient temperature	Max leakage After 34 cycles at ambient temperature	Max leakage After 34 cycles at -46°C	Max leakage After 34 cycles at +80°C
3/4"x3/4" 1"x3/4"	*stem*	*16.2*	***2.8x10^-5***	*20*	8x10^-7	6x10^-7	9x10^-7	5x10^-7
	Body/ Ends	*43*	***2.4x10^-5***		9x10^-7	9x10^-7	1x10^-6	6x10^-7
2"x2" 2.1/2"x2"	*stem*	*25.2*	***4.4x10^-5***	*20*	2x10^-7	2x10^-7	8x10^-7	6x10^-7
	Body/ Ends	*92*	***5.1x10^-5***		8x10^-7	6x10^-7	6x10^-7	6x10^-7
4"x4" 6"x4"	*stem*	*40.2*	***7.0x10^-5***	*20*	2x10^-6	1x10^-6	2x10^-6	1x10^-7
	Body/ Ends	*182*	***1.0x10^-4***		3x10^-6	4x10^-6	6x10^-6	4x10^-6

TYPE:	**ULTRASTAR**
PRESSURE CLASS:	**300**
TEMPERATURE CLASS:	**T7**
ENDURANCE CLASS:	**CO–QT–SS–ML**

Valve Size	Test	Tightness size	Max allowable leakage	Test Pressure (Bar)	Max leakage at ambient temperature	Max leakage After 50 cycles at ambient temperature	Max leakage After 50 cycles at +150°C
3/4"x3/4" 1"x3/4"	*stem*	*16.2*	***2.8x10^-5***	*20*	1x10^-6	8x10^-7	3x10^-7
	Body/ Ends	*43*	***2.4x10^-5***		4x10^-7	2x10^-7	2x10^-7
2"x2" 2.1/2"x2"	*stem*	*25.2*	***4.4x10^-5***	*20*	9x10^-7	1x10^-6	2x10^-6
	Body/ Ends	*92*	***5.1x10^-5***		4x10^-6	2x10^-6	2x10^-6
4"x4" 6"x4"	*stem*	*40.2*	***7.0x10^-5***	*20*	1x10^-6	8x10^-7	8x10^-7
	Body/ Ends	*182*	***1.0x10^-4***		4x10^-6	3x10^-6	3x10^-6

Notes:

OPERATOR QUALIFIED IN ACCORDING TO UNI EN473 - LEVEL II

Jeremy Gritti

Date: 25-01-2006

INSPECTOR

AT NEBBIA

25/01/06

STAR LINE® S.P.A.
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FUGITIVE EMISSION TEST PROTOTYPE

VALVE DESCRIPTION AND TESTS REPORTS

TYPE:	**ULTRASTAR**
PRESSURE CLASS:	**900**
TEMPERATURE CLASS:	**T6**
ENDURANCE CLASS:	**CO–QT–SS–ML**

Valve Size	Test	Tightness size	Max allowable leakage	Test Pressure (Bar)	Max leakage at ambient temperature	Max leakage After 34 cycles at ambient temperature	Max leakage After 34 cycles at -46°C	Max leakage After 34 cycles at +80°C
3/4"x3/4" 1"x3/4"	*stem*	*16.2*	***2.8x10^-5***	*30*	3x10^-7	2x10^-7	6x10^-7	6x10^-7
	Body/ Ends	43	***2.4x10^-5***		8x10^-7	8x10^-7	8x10^-7	8x10^-7
2"x2" 2.1/2"x2"	*stem*	*28.2*	***4.9x10^-5***	*30*	6x10^-7	4x10^-7	8x10^-7	6x10^-7
	Body/ Ends	92	***5.1x10^-5***		3x10^-6	3x10^-6	4x10^-6	2x10^-6
4"x4" 6"x4"	*stem*	*55.2*	***9.7x10^-5***	*30*	2x10^-6	1x10^-6	5x10^-6	1x10^-6
	Body/ Ends	*182*	***1.0x10^-4***		3x10^-6	3x10^-6	6x10^-6	2x10^-6

TYPE:	**ULTRASTAR**
PRESSURE CLASS:	**900**
TEMPERATURE CLASS:	**T7**
ENDURANCE CLASS:	**CO–QT–SS–ML**

Valve Size	Test	Tightness size	Max allowable leakage	Test Pressure (Bar)	Max leakage at ambient temperature	Max leakage After 50 cycles at ambient temperature	Max leakage After 50 cycles at +150°C
3/4"x3/4" 1"x3/4"	*stem*			*30*	6x10^-7	1x10^-7	1x10^-7
	Body/ Ends				2x10^-7	2x10^-7	1x10^-7
2"x2" 2.1/2"x2"	*stem*			*30*	6x10^-7	1x10^-7	2x10^-7
	Body/ Ends				4x10^-7	9x10^-7	2x10^-7
4"x4" 6"x4"	*stem*			*30*	8x10^-7	8x10^-7	8x10^-7
	Body/ Ends				4x10^-6	2x10^-6	2x10^-6

Notes:

OPERATOR QUALIFIED IN ACCORDING TO UNI EN473 - LEVEL II

Jeremy Gritti

Date: 26-01-2006

INSPECTOR

WITNESSED

26-01-2006

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FUGITIVE EMISSION TEST PROTOTYPE

NDE REPORT
N°: 01/05-FE-PR

VALVE DESCRIPTION AND TESTS REPORTS

TYPE:	ULTRASTAR
PRESSURE CLASS:	2500
TEMPERATURE CLASS:	T6
ENDURANCE CLASS:	CO–QT–SS–ML

Valve Size	Test	Tightness size	Max allowable leakage	Test Pressure (Bar)	Max leakage at ambient temperature	Max leakage After 34 cycles at ambient temperature	Max leakage After 34 cycles at -46°C	Max leakage After 34 cycles at +80°C
3/4"x3/4" 1"x3/4"	*stem*	*16.2*	***2.8x10^-5***	*84*	8x10^-6	3x10^-6	6x10^-6	4x10^-6
	Body/ Ends	43	***2.4x10^-5***		2x10^-6	2x10^-6	5x10^-6	3x10^-6
2"x2" 2.1/2"x2"	*stem*	*28.2*	***4.9x10^-5***	*84*	7x10^-6	2x10^-7	8x10^-7	6x10^-7
	Body/ Ends	92	***5.1x10^-5***		8x10^-6	6x10^-6	8x10^-6	6x10^-7
4"x4" 6"x4"	*stem*	90	***1.6x10^-4***	*84*	9x10^-6	6x10^-6	8x10^-6	3x10^-6
	Body/ Ends	186	***1.0x10^-4***		1x10^-5	4x10^-6	7x10^-6	5x10^-6

TYPE:	ULTRASTAR
PRESSURE CLASS:	2500
TEMPERATURE CLASS:	T7
ENDURANCE CLASS:	CO–QT–SS–ML

Valve Size	Test	Tightness size	Max allowable leakage	Test Pressure (Bar)	Max leakage at ambient temperature	Max leakage After 50 cycles at ambient temperature	Max leakage After 50 cycles at +150°C
3/4"x3/4" 1"x3/4"	*stem*	*16.2*	***2.8x10^-5***	*84*	1x10^-6	9x10^-7	1x10^-6
	Body/ Ends	43	***2.4x10^-5***		8x10^-7	6x10^-7	7x10^-7
2"x2" 2.1/2"x2"	*stem*	*28.2*	***4.9x10^-5***	*84*	3x10^-6	2x10^-6	5x10^-7
	Body/ Ends	92	***5.1x10^-5***		8x10^-6	8x10^-7	8x10^-7
4"x4" 6"x4"	*stem*	90	***1.6x10^-4***	*84*	5x10^-5	1x10^-5	8x10^-6
	Body/ Ends	186	***1.0x10^-4***		5x10^-5	8x10^-6	3x10^-6

Notes:

OPERATOR QUALIFIED IN ACCORDING TO UNI EN473 - LEVEL II

Jeremy Gritti

Q.C. MANAGER STARLINE S.p.A.

Date: 26 - 01 - 2006

INSPECTOR

RINA LIMITED 218

26/01/06

WITNESSED