


File Issue: 001	TEST SHEETS R67-01 LPG EQUIPMENT	
Report Number: 120461/1/3	Shut-off valve	Page: TM 1/00

Annex 7: SHUT-OFF VALVE, NON RETURN VALVE, GAS-TUBE PRESSURE RELIEF VALVE AND SERVICE COUPLING

Key to Test Sheets:	YES = YES	NA = Not Applicable	NT = Not Tested	NO = NO	Example:	YES-NA-NT-NO
Notes: When filling in Test Sheets, answers are crossed out which are not applicable for that clause.						

	Annex 7/1 Shut-off valve	
1.2	Component classification : Class 3	YES-NA-NT-NO
1.3	Classification pressure 3.000 kPa	YES-NA-NT-NO
1.4	Design temperatures: -20 °C to 120 °C	YES-NA-NT-NO
1.5	General design rules	YES-NA-NT-NO
	-meets paragraph 6.15.2 -meets paragraph 6.15.3.1	YES-NA-NT-NO
1.6	The component meets the applicable test procedures:	
	- Over pressure test Annex 15, par. 4	YES-NA-NT-NO
	- External leakage Annex 15, par. 5	YES-NA-NT-NO
	- High temperature Annex 15, par. 6	YES-NA-NT-NO
	- Low temperature Annex 15, par. 7	YES-NA-NT-NO
	- Seat leakage Annex 15 par. 8	YES-NA-NT-NO
	- Endurance Annex 15 par. 9	YES-NA-NT-NO
	- LPG compatibility Annex 15, par. 11	YES-NA-NT-NO
	- Corrosion resistance Annex 15, par. 12	YES-NA-NT-NO
	- Resistance to dry heat Annex 15, par. 13 TNO Results	YES-NA-NT-NO
	- Ozone ageing Annex 15, par. 14 TNO Results	YES-NA-NT-NO
- Creep Annex 15, par. 15	YES-NA-NT-NO	
- Temperature cycle Annex 15, par. 16	YES-NA-NT-NO	

Job Reference: 121087	Initials: ker
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File Issue: 001	RESULT SHEETS IDENTIFICATION OF EUT	GASTEC
Report Number: 120461/1/3	LPG components	Page: RID 1/00

Sample designation:

Description	Reference no.	Date intake
shut-off valve type 07	C010364	June 2001
shut-off valve type 07	C010365	June 2001
shut-off valve type 07 (valve with the small coil)	C010366	June 2001

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File Issue: 001	RESULT SHEETS R67-01 LPG EQUIPMENT	GASTEC
Report Number: 120461/1/3	HYDROSTATIC STRENGTH	Page: RM 1/100

Product:	Shut-off valve type 07
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Tested in accordance with:			
Approval requirement:	Regulation 67 01: August 2000		
Annex:	15		
Article:	4		
Testing Equipment (when no accuracy is specified the Gastec standard applies)	Gastec no.	Calibrated (✓)	Operation OK (✓)
Hydraulic pressure equipment	109917	NA	✓
Pressure gauge, when tested pneumatically	100666	NA	NA
Stopwatch			
Test Conditions			
Safety precautions:			
- safety rules for high pressures Gastec reference HP1			
- safety rules for use of gas cylinders,, reference CP16-3			
		Complies (✓)	N.A. (✓)
- Test is to be performed before and after the corrosion test;		✓	✓
- The samples are filled with water and slowly pressurised.		✓	
- The samples surface shows no visible cracks as a result of this test;		✓	
- Retest a new sample with a pressure gauge with accuracy ±5% if samples have failed			

Test Results	Requirement				sample no. C010364		sample no. C010365		sample no. C010366	
	Before/after				before	after	before	after	before	after
Moment of test	Corrosion test									
Classification of component:	1	2	2A	3	3	3	3		3	
Test pressure (kPa)	6750	1015	270	6750	6750	6750	6750		6750	
Test time	≥ 1min				5	5	5		5	
Rupture	No				No	No	No		No	
Permanent distortion	No				No	No	No		No	
Test dated	To be monitored				20-6-01	4-7-01	20-6-01		20-6-01	

Conclusion		
Requirement	Complies (✓)	N.A. (✓)
Samples meet requirement	✓	
Remarks:		

Job Reference: 121087	Initials: Van
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File Issue: 001	RESULT SHEET R67-01 LPG EQUIPMENT	GASTEC
Report Number: 20461/1/3	EXTERNAL LEAKTIGHTNESS Including high and low temperature	Page: RM 2/00

Product:	Shut-off Valve type 07
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Tested in accordance with:			
Approval requirement:	Regulation 67 01; August 2000		
Annex:	15		
Article:	5, 6, 7		
Testing Equipment (when no accuracy is specified the Gastec standard applies)		Gastec no.	Calibrated (✓) / Operation OK (✓)
Oven		1638	✓ / ✓
Cooler		200444 / 820	✓ / ✓
Pressure gauge		100666	✓ / ✓
Leakage gauge			
Stopwatch			
Test Conditions			
Safety precautions:			
- safety rules for high temperature, Gastec reference HT1			
- safety rules for high pressures, Gastec reference HP1			
- safety rules for use of gas cylinders, reference CP16-3			
		Complies (✓)	N.A. (✓)
- The sample has conditioned for 8 hours (at least) at the test temperature;			
- The sample is slowly pressurised after the 8 hours of conditioning at the test temperature;			
- The test sample is submerged in the test fluid for at least 60 sec, preferred is 900 sec;			
- When air bubble(s) are detected after 60 sec, leakage is considered to be > 15 cc/h.			

Test Results	Requirement				sample no.: C010364					
					room temperature		-66°C / 120°C *		-20°C	
Test temperature					before	after	before	after	before	after
Moment of test *	Corrosion / creep / endurance / cycle test									
Classification of component *	1	2	2A	3	3	3	3	3	3	3
Test pressure (kPa) *	4500	675	180	6750	6750	6750	6750	6750	6750	6750
External leakage	< 15cc/h				0	0	0	0	0	0
Test date	To be monitored				20.6.01	4.7.01	5.7.01	5.7.01	4.7.01	4.7.01

Conclusion		
Requirement	Complies (✓)	N.A. (✓)
Samples meet requirement	✓	
Remarks: After the endurance test, leakage testing is only required at room temperature.		

* Cross out which is not applicable

Job Reference: 121087	Initials: <i>Va</i>
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File Issue: 001	RESULT SHEET R67-01	GASTEC
	LPG EQUIPMENT	
Report Number: 120461/1/3	EXTERNAL LEAKTIGHTNESS	Page: RM 3/00
	Including high and low temperature	

Product:	Shut-off valve type 07
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Tested in accordance with:			
Approval requirement:	Regulation 67 01: August 2000		
Annex:	15		
Article:	5, 6, 7		
Testing Equipment (when no accuracy is specified the Gastec standard applies)			
	Gastec no.	Calibrated (✓)	Operation OK (✓)
Oven	1638	✓	✓
Cooler	200444 / 820	✓	✓
Pressure gauge	100666	✓	✓
Leakage gauge			
Stopwatch			
Test Conditions			
Safety precautions:			
- safety rules for high temperature, Gastec reference HT1			
- safety rules for high pressures, Gastec reference HP1			
- safety rules for use of gas cylinders, reference CP16-3			
		Complies (✓)	N.A. (✓)
- The sample has conditioned for 8 hours (at least) at the test temperature;		✓	
- The sample is slowly pressurised after the 8 hours of conditioning at the test temperature;		✓	
- The test sample is submerged in the test fluid for at least 60 sec, preferred is 900 sec;		✓	
- When air bubble(s) are detected after 60 sec, leakage is considered to be > 15 cc/h.			✓

Test Results	Requirement				sample no.: C010365					
Test temperature					room temperature		-66°C / 120°C *		-20°C	
Moment of test *	Corrosion / creep / endurance / cycle test				before	after	before	after	before	after
Classification of component *	1	2	2A	3	3	/	3	/	3	/
Test pressure (kPa) *	4500	675	180	6750	6750	/	6750	/	6750	/
External leakage	< 15cc/h				0	/	0	/	0	/
Test date	To be monitored				20-6-01	/	22-6-01	/	21-6-01	/

Conclusion		
Requirement	Complies (✓)	N.A. (✓)
Samples meet requirement	✓	
Remarks:		
After the endurance test, leakage testing is only required at room temperature.		

* Cross out which is not applicable

Job Reference: 121007	Initials: Vam
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File Issue: 001	RESULT SHEET R67-01	GASTEC
	LPG EQUIPMENT	
Report Number: 120461/1/3	EXTERNAL LEAKTIGHTNESS including high and low temperature	Page: RM 4/00

Product: Shut-off valve type of

Tested in accordance with:			
Approval requirement:	Regulation 67 01: August 2000		
Annex:	15		
Article:	5, 6, 7		
Testing Equipment (when no accuracy is specified the Gastec standard applies)	Gastec no.	Calibrated (✓)	Operation OK (✓)
Oven	1638	✓	✓
Cooler	200444 / 820	✓	✓
Pressure gauge	100666	✓	✓
Leakage gauge			
Stopwatch			
Test Conditions			
Safety precautions:			
- safety rules for high temperature, Gastec reference HT1			
- safety rules for high pressures, Gastec reference HP1			
- safety rules for use of gas cylinders, reference CP16-3			
		Complies (✓)	N.A. (✓)
- The sample has conditioned for 8 hours (at least) at the test temperature;		✓	
- The sample is slowly pressurised after the 8 hours of conditioning at the test temperature;		✓	
- The test sample is submerged in the test fluid for at least 60 sec, preferred is 900 sec;		✓	
- When air bumble(s) are detected after 60 sec, leakage is considered to be > 15 cc/h.			✓

Test Results	Requirement				sample no. <u>C010366A</u>					
					room temperature		65°C / 120°C *		-20°C	
Moment of test *	Corrosion / cycle / endurance / cycle test				before	after	before	after	before	after
Classification of component *	1	2	2A	3	3	3	3	3	3	3
Test pressure (kPa) *	4500	675	180	6750	6750	6750	6750	6750	6750	6750
External leakage	< 15cc/h				0	0	0	0	0	0
Test date	To be monitored				Aug 01	Sept 01	Aug 01	Sept 01	Aug 01	Sept 01

Conclusion		
Requirement	Complies (✓)	N.A. (✓)
Samples meet requirement	✓	
Remarks:		
After the endurance test, leakage testing is only required at room temperature.		

* Cross out which is not applicable

Job Reference: <u>121087</u>	Initials: <u>Ken</u>
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File Issue: 001	RESULT SHEET R67-01 LPG EQUIPMENT	GASTEC
Report Number: 12046/1/3	EXTERNAL LEAKTIGHTNESS including high and low temperature	Page: RM 5/60

Product:	Schut-off valve type 07
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Tested in accordance with:			
Approval requirement:	Regulation 67 01; August 2000		
Annex:	15		
Article:	5, 6, 7		
Testing Equipment (when no accuracy is specified the Gastec standard applies)		Gastec no.	Calibrated (✓)
Oven		1638	✓
Cooler		20044 / 820	✓
Pressure gauge		100666	✓
Leakage gauge			
Stopwatch			
Test Conditions			
Safety precautions:			
- safety rules for high temperature, Gastec reference HT1			
- safety rules for high pressures, Gastec reference HP1			
- safety rules for use of gas cylinders, reference CP16-3			
		Complies (✓)	N.A. (✓)
- The sample has conditioned for 8 hours (at least) at the test temperature;		✓	
- The sample is slowly pressurised after the 8 hours of conditioning at the test temperature;		✓	
- The test sample is submerged in the test fluid for at least 60 sec, preferred is 900 sec;		✓	
- When air bumble(s) are detected after 60 sec, leakage is considered to be > 15 cc/h.			✓

Test Results	Requirement				sample no.: C0 10366 B					
Test temperature					room temperature		60°C / 120°C *		-20°C	
Moment of test *	Corrosion / creep / endurance / cycle test				before	after	before	after	before	after
Classification of component *	1	2	2A	3	3	3	3	3	3	3
Test pressure (kPa) *	4500	675	180	6750	6750	6750	6750	6750	6750	6750
External leakage	< 15cc/h				0	0	0	0	0	0
Test date	To be monitored				Aug 01	Sept 01	Aug 01	Sept 01	Aug 01	Sept 01

Conclusion		
Requirement	Complies (✓)	N.A. (✓)
Samples meet requirement	✓	
Remarks:		
After the endurance test, leakage testing is only required at room temperature.		

* Cross out which is not applicable

Job Reference: 121087	Initials: Ken
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File Issue: 001	RESULT SHEET R67-01	
	LPG EQUIPMENT	
Report Number: 120461/1/3	SEAT LEKKAGE	Page: RM 6/00

Product: 1	Sub-off valve type 07
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Tested in accordance with:			
Approval requirement:	Regulation 67 01: August 2000		
Annex:	15		
Article:	8		
Testing Equipment (when no accuracy is specified the Gastec standard applies)	Gastec no.	Calibrated (✓)	Operation OK (✓)
Flow meter (for metal to metal seat only)			
Pressure gauge	100666	✓	✓
Leakage gauge			
Stopwatch			
Test Conditions			
Safety precautions:			
- Safety rules for high pressures Gastec reference HP1			
- Safety rules for use of gas cylinders, reference CP16.3			
		Complies (✓)	N.A. (✓)
- Seat leakage is tested after testing the external leakage.			
- The sample is submerged in water (metal to metal seats excluded) and slowly pressurised;			
- Test is carried out at room temperature			
- The test time is at least 120 sec, preferred is 900 sec;			
- When air bubble(s) are detected after 120 sec, seat leakage is considered to be above the limits (for metal to metal seats leakage shall be less than 500 cc/h, as indicated below).			

Test Results	Requirement		sample no. 6010364		sample no. 6010365		sample no.	
	Endurance test		before	after	before	after	before	after
Moment of test								
Test pressure (kPa)	0-3000	50-3000	0-2300	3000	3000			
Seat leakage *	No air bubble(s) / < 500 cc/h		0		0			
Test date	To be monitored		20-6-01		20-6-01			

Conclusion		
Requirement	Complies (✓)	N.A. (✓)
Samples meet requirement	✓	
Remarks:		
After the endurance test, leakage testing is only required at room temperature.		

* Cross out which is not applicable

Job Reference: 121007	Initials: Ven
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File Issue: 001	RESULT SHEET R67-01 LPG EQUIPMENT	GASTEC
Report Number: 20461/1/3	SEAT LEAKAGE	Page: RM 7/00

Product:	Shut-off valve type 07
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Tested in accordance with:			
Approval requirement:	Regulation 67 01: August 2000		
Annex:	15		
Article:	8		
Testing Equipment (when no accuracy is specified the Gastec standard applies)	Gastec no.	Calibrated (✓)	Operation OK (✓)
Flow meter (for metal to metal seat only)			
Pressure gauge	100666	✓	✓
Leakage gauge			
Stopwatch			
Test Conditions			
Safety precautions:			
- Safety rules for high pressures Gastec reference HP1			
- Safety rules for use of gas cylinders, reference CP16-3			
		Complies (✓)	N.A. (✓)
- Seat leakage is tested after testing the external leakage.			
- The sample is submerged in water (metal to metal seats excluded) and slowly pressurised;			
- Test is carried out at room temperature			
- The test time is at least 120 sec, preferred is 900 sec;			
- When air bubble(s) are detected after 120 sec, seat leakage is considered to be above the limits (for metal to metal seats leakage shall be less than 500 cc/h, as indicated below).			

Test Results	Requirement			sample no.: 20461/1/3		sample no.: 20461/1/3		sample no.:	
	Endurance test			before	after	before	after	before	after
Moment of test									
Test pressure (kPa)*	0-3000	50-3000	0-2300	3000	3000	3000	3000		
Seat leakage*	No air bubble(s) / < 500 cc/h			0	0	0	0		
Test date	To be monitored			Aug 01	Sept 01	Aug 01	Sept 01		

Conclusion		
Requirement	Complies (✓)	N.A. (✓)
Samples meet requirement	✓	
Remarks:		
After the endurance test, leakage testing is only required at room temperature.		

* Cross out which is not applicable

Job Reference: 121087	Initials: Ken
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File Issue: 001	RESULT SHEET R67-01	GASTEC
	LPG EQUIPMENT	
Report Number: 1204611/3	CORROSION TESTS (Ammonia)	Page RM 8/00

Product:	Shut-off valve type 07
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Tested in accordance with:			
Approval requirement:	Regulation 67 01: August 2000		
Annex:	15		
Article:	12.2		
Task instructions*:	ISO 6957		
Testing equipment (when no accuracy is specified the Gastec standard applies)	Gastec no.	Calibrated (✓)	Operation OK (✓)
Ammonia test equipment		NA	✓
Stopwatch		NA	✓
Microscope		NA	✓
Thermometer	701347	✓	✓
Test conditions			
Safety precautions:-			
		Complies (✓)	N.A. (✓)
- Before testing the sample is cleaned and dried at ambient temperatures < 40°C		✓	
- All connections and openings are closed		✓	
- During testing the ammonia concentration is pH 10.0		✓	
- After testing the sample is cleaned and dried at ambient temperatures < 40 °C		✓	

Test results	Requirement	Sample no. 6010864	Sample no.:
Date and time starting the test	Timing aspects to be monitored	July 01	
Date and time stopping the test	Timing aspects to be monitored	July 01	
Exposure time in ammonia	24 h	24	
Ambient temperature during testing	25±6°C	25	
Result at magnification of x10 to x15	No cracks	No cracks	
Test to be performed after the endurance test are:			
Hydrostatic strength	According to 15.4	See page RM 8/00	See page: RM
External leakage at ambient, low and high temp	According to 15.5, 15.6 and 15.7	See page RM 2/00	See page RM

Conclusion			
Requirement		Complies (✓)	N.A. (✓)
Samples meet requirement		✓	
Remarks:			

Job Reference: 121087	Initials: Ke
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File Issue: 001	RESULT SHEET R67-01	GASTEC
	LPG EQUIPMENT	
Report Number: 120461/1/3	ENDURANCE TEST	Page: RM 9/00

Product:	Shut-off valve
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Tested in accordance with:			
Approval requirement:	Regulation 67 01: August 2000		
Annex:	15		
Article:	9		
Testing Equipment (when no accuracy is specified the Gastec standard applies)		Gastec no.	Calibrated (✓) / Operation OK (✓)
Robot			
Life test device		828	NA ✓
Pressure gauge		100666	✓
Stopwatch			
Test Conditions			
Safety precautions:			
- safety rules for high pressures Gastec reference HP1			
- safety rules for use of gas cylinders, reference CP16-3			
		Complies (✓)	N.A. (✓)
- The test is performed at a rate of no more than 10 cycles per minute;		✓	
- For a shut-off valve the outlet is plugged, the samples are filled with n-hexane and the inlet is subjected to 3.000 kPa;		✓	
- A separator is used to prevent mixture of the n-hexane with the test pressure (air);		✓	

Test Results	Requirement				sample no.: 60166A	sample no.: 60166B	sample no.:
	2	2A	3		3	3	
Classification of component *					3	3	
Test pressure (kPa) *	3.000	450	120	3000	3.000	3.000	
Date & time starting the test	To be monitored				Sept 01	Sept 01	
Date & time stopping the test	To be monitored				Sept 01	Sept 01	
Actual cycles performed	Test cycles > 6.000 times Test cycles > 20.000 times				20.000	30.000	
Test to be performed after the endurance test are:							
External leakage	According to annex 15.5	See RM 4/00	See RM 5/00	See RM			
Seat leakage	According to annex 15.8	See RM 7/00	See RM 7/00	See RM			

Conclusion		
Requirement	Complies (✓)	N.A. (✓)
Samples meet requirement	✓	
Remarks:		

* Cross out which is not applicable

Job Reference: 20087	Initials: Ken
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