Test Report No. 8413237831
in accordance with Clause 12 of the Standards Law, 1953

Details of order:

The test was ordered by	: A.R.I. Agshah Ltd.
Address	: Kibbutz Kfar Haruv 12932, ISRAEL
Date of order	: 2004-11-14
Sample selected by a representative of	: The customer
and received at SII on	: 2004-11-18

Description of sample:

Three copper alloy check valves, ¾ nominal diameter, 16 bars nominal pressure, Model UFR, Product of the customer.

Nature of test:

Compliance of the valves with the requirements of clauses: 2.1 – General, 2.2 – Marking, 2.3 – Quality and finish, 2.4 – Wall thickness, 2.5 – Face to face dimensions, 2.6 – Connections, 2.7 – Closing mechanism, 2.8 – Sealing seat, 3.2 – Resistance of valve to internal hydrostatic pressure, 3.3 – Valve sealing, 3.4 – Test of valve opening at end of sealing test, 3.5 – Column loss test, 3.6 – Durability test and 3.7 – Sealing after durability test in Israel Standard SI 1171 (2001): "Check valve ".

Summary:

The valves comply with the requirements of the clauses to which they were tested.

For complete details of the test findings, see the following pages.

Remarks:

1. The test results refer to the tested valves only. They do not indicate compliance of any manufacturing batch or of any supervision of The Standards Institution of Israel to the abovementioned product.
2. The materials were not checked (Materials are checked in accordance with the requirements of the Standard only on special request.)
   The materials were verified according to the manufacturer's declaration on the information sheet attached as an annex to the test report.

Date test completed: 2005-01-06

This report contains 4 pages and two annexes and may be used only in full.	The test results in this document refer only to the item tested.	

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A. General:

Three copper alloy check valves, ¾ nominal diameter, with a plastic sealing body were brought for testing.

The valves bear the following cast and stamped markings on the body:

- Manufacturer's name : ARI
- Nominal dimension : DN 20
- Nominal pressure : PN 16
- Arrow showing the water flow direction.
- Year of manufacture : 2004

The construction of the product is in accordance with that specified on the manufacturer's information sheet attached as an annex to the test report

B. Description and test results

Clause no. in Standard	Subject	Test results and remarks					Compliance with requirements of the Standard
2.1	General	The body parts of the valves are made of a copper alloy. The sealing part is made of plastic. The chemical composition of the materials and their suitability for drinking water was not tested. (Materials testing on special request only.)					–
2.2	Marking	The valves bear the following stamped cast markings: Manufacturer's registered trademark: ARI Nominal size: DN 20 Nominal pressure: DN 16 Arrow showing the water flow direction. Year of manufacture: 2004					Complies
2.3	Quality and finish	The quality and finish of the valves are in accordance with the requirements of the Standard.					Complies
2.4	Wall thickness	**Valve no.**	**1**	**2**	**3**	**Requirements of Standard**	Complies
		Min. body wall thickness	1.9	1.9	1.85	1.8 minimum	
2.5	Face to face dimension	**Valve no.**	**1**	**2**	**3**	**Requirements of Standard**	Complies
		Body length	73.2	73.0	73.0	73.5±1	
		Note: The requirement is according to the manufacturer's declaration in the product catalog with an allowable deviation of ±1 mm.					

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		Test results and remarks	Compliance with requirements of the Standard
2.6	Connections	The inlet thread is right helical internal. The thread was checked with "plug" G ¾ "go-no go" gages and complies.	Complies
		The outlet thread is right helical internal, ¾" nominal diameter. The thread was checked with G ¾ ring A go gage and a G ¾ B no-go gage and complies.	Complies
		Note: The threads were checked in accordance with the requirements of clause 2.6B in the Standard, " Threaded connections for direct connection to other fittings or pipe made of copper, plastic or other materials, in compliance with SI 50.2, tolerance level B.	–
		The valve ends has a hexagonal shape for gripping by regular tools	Complies
2.7	Closing mechanism	The construction of the closing mechanism is in accordance with the requirements of the Standard.	Complies
2.8	Sealing seat	The construction of the sealing seat is in accordance with the requirements of the Standard.	Complies
3.2	Resistance of valve to internal hydrostatic pressure	The inlet of the valves was connected to a source of water pressure with the outlet opening sealed. The inlet pressure was gradually increased to 25.6 bars. The maximum pressure was applied for five minutes. No cracks in the valves or their parts were formed and no signs of leakage or sweating were observed during the test. The outlet of the valves was connected to a source of water pressure and the inlet opening was open to the atmosphere. The pressure at the outlet was increased to 25.6 bars for five minutes. No cracks and residual deformation were formed in the valves or their parts.	Complies
3.3	Watertightness of valve	The outlet of the valves was connected to a source of water pressure with the inlet opening open to the atmosphere. Water pressure of 0.3 bars was applied for two minutes through the outlet. The pressure was increased to 2.5 bars for 30 seconds. The pressure was increased to 5 bars for 30 seconds. Finally, the pressure was increased to 16 bars for 5 minutes. No leakage whatsoever was exhibited during the test.	Complies
3.4	Test of valve opening after watertightness test	After the watertightness test, the outlet opening was opened and the inlet opening was connected to a source of water pressure of 0.3 bars. The valves were opened to allow water flow.	Complies
3.5	Column loss test	The column loss was measured in the valve at several flow rates and was in accordance with the data in the manufacturer's catalog. (The graph of column loss as a function of flow rate is attached to this test report.)	Complies

Clause no. in Standard	Subject	Test results and remarks	Compliance with requirements of the Standard
3.6	Durability test	Valves no. 1 and 2 were assembled on the durability test rig and 100,000 cycles were applied as follows: A. Water was passed through the inlet for 30 seconds. B. The flow was stopped and water pressure of 16 bars was applied in the direction opposite to the flow for 30 seconds. The water temperature for the first 50,000 cycles was the ambient temperature, and 75 °C for the remaining 50,000 cycles. No signs of leakage through the valve parts were observed during or after the test.	Complies
3.7	Watertightness after durability test	After the durability test in accordance with clause 3.6, the valves were again tested for watertightness in accordance with clause 3.3.1 A and B. No signs of leakage whatsoever were observed during the test.	Complies

I. Frenkel – B.Sc.
Head of Hydraulics, Plastics and Energy Branch

Date: 2005-01-06

V. Sharbani
Head of Valves and Regulators Section

Date: 2005-01-06