

Test Report

on Testing of Cylinder Valves for Technical Gases Type CAV-06
according to EN ISO 10297:2006

BAM reference	DG-07-074
Copy	1st copy of 4 copies
Customer	tekno valves 1, Chitpur Ghat Lane Kolkata - 700 002 WB, INDIA
Date of order	4 July 2007
Receipt of order	5 July 2007 (by fax)
Content of order	Testing of cylinder valves type CAV-06 according to EN ISO 10297:2006
Receipt of drawings	up to September 2007
Receipt of samples	26 July 2007, 10 samples CAV-06 for testing the valve characteristics together with 3 samples CAV-06 for the oxygen pressure surge test 29 August 2007, 3 samples CAV-06 for the impact test
Test period	July 2007 to September 2007
Test location	BAM Working Group "Pressure Equipment - Accessories" BAM-Building 44 BAM Working Group "Safe Handling of Oxygen" BAM-Building 41/40
Test procedure according to	EN ISO 10297:2006

This report consists of sheet 1 to 4 and the annexes to the procedure Pressure Equip-
ment DG-07-074. The pressures indicated in the report are over-pressures in bar.

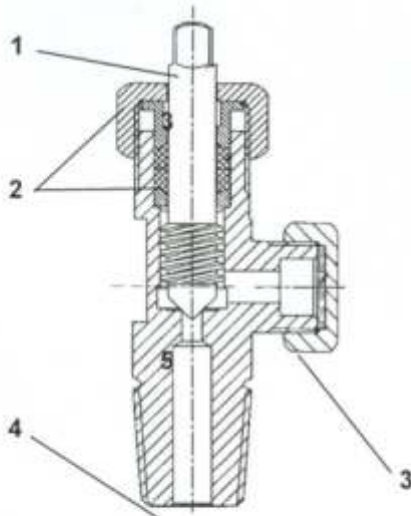
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TEST REPORT



1 Description of cylinder valves CAV-06 and documentation

Description



The cylinder valves consist of a valve body made of AISi (bronze), an operating mechanism with a key or handwheel (1), a system for external and internal sealing (monel integrated spindle with packing gland consisting of PTFE plates clamped by a gland nut (2)) and a side connection for filling and distributing (3), partly additionally closed by a gas tight plug and a threaded stub for connection to the cylinder (4).

The valves are intended for gas cylinders with a minimum testing pressure up to 50 bar for different technical gases.

1.2 Documentation

CAV-06 assembly drawing with integrated parts list

no. TV/DR/CE-925

dated 2007-09-26

and there further single drawings referred to
Annexure A list of gases CAV-06

dated 2007-09-22

Valve usage and maintenance pamphlet for series CAV-06

dated 2007-09-03

2 Performed tests and test results

Test (Note):	Test result (Note):
Materials according to EN ISO 10297 no. 4.3	The requirements according to the gas classification are fulfilled. (All listed gases have to be stringently anhydrous because of its corrosive influence.)
Dimensions and construction according to EN ISO 10297 no. 4.4	The requirements are fulfilled for the tested samples.
Documents according to EN ISO 10297 no. 6.2	The documentation has been completely submitted. The test samples comply with the essential details in the drawings.
Hydraulic pressure test according to EN ISO 10297 no. 6.9 (with 150 bar at +20 °C about >10 min)	The requirements are fulfilled.

Test (Note):	Test result (Note):
Tightness tests according to EN ISO 10297 no. 6.11 (pressure steps 0,1 bar, 10 bar and 50 bar, temperature steps +20 °C, +65 °C and -20 °C, medium hydrogen)	The requirements are fulfilled.
Endurance test according to EN ISO 10297 no. 6.12 (2000 times opening and closing with 12 Nm according to the maximum operating torque of 8 Nm specified by the manufacturer with 50 bar at 20 °C)	The requirements are fulfilled.
Visual examination according to EN ISO 10297 no. 6.12	The requirements are fulfilled.
Excessive torque test according to EN ISO 10297 no. 6.10 (closing/opening torque 34 Nm and >80 Nm according to the maximum operating torque specified by the manufacturer, at +20 °C)	The requirements are fulfilled.
Valve impact test according to Annex A of ISO 10297 with 400 Joule	The requirements are fulfilled up to a maximum permitted total package mass of 110 kg.
Flame impingement test according to EN ISO 10297 no. 6.13	The requirements are fulfilled. Was not tested because it operates without handwheel. Used operating tools (e. g. key) shall not burnable.
Oxygen pressure surge test according to EN ISO 10297 no. 6.14 (50 shocks at 100 bar and 60 °C)	The requirements are fulfilled. Procedure no. 176.07.3.
Marking according to EN ISO 10297 no. 7	The requirements are fulfilled on the drawings submitted.

3 Gas classification

The cylinder valves are suitable for all above listed gases (see 1.2 Documentation, Annexure A list of gases CAV-06).

Please note that all listed gases have to be stringently anhydrous because of its corrosive influence.

4 Summary

The cylinder valves type CAV-06 for technical gases according to drawing TV/DR/CE-925 with integrated parts list with following common features

Design:	Key operated cylinder valve with integrated spindle and metallic valve seat (monel)
Inlet:	25E EN 629-1
Valve body material:	ALSi Bronze
Sealing against the atmosphere:	Packing (PTFE)
Sealing in the seat:	Metallic (Monel)
Lubricant:	Krytox' ® GPL 225
Tightness tested with:	0,1 bar, 10 bar and 50 bar at +20 °C, +65 °C and -20 °C, medium hydrogen
Strength tested with:	150 bar
Endurance-torque:	12 Nm
Handwheel diameter:	Key operated,
Oxygen pressure surge test:	50 shocks carried out at 60 °C and 100 bar

manufactured by the company tekno valves, Kolkata - 700 002, INDIA intended for gas cylinders with a minimum testing pressure up to 50 bar fulfil the requirements of EN ISO 10297:2006.

**Federal Institute for Materials Research and Testing (BAM)
12200 Berlin, 1 October 2007**

**Working Group
„Pressure Equipment – Accessories“**

On behalf of



Dipl.-Ing. M. Szyrkowski
Tester in charge

**Working Group
“Safe Handling of Oxygen”**

On behalf of



Dipl.-Ing. S. Lehné
Tester in charge

Annex

Documentation,
marked as annex to Procedure no. 07-074 of Working Group "Pressure Equipment - Accessories"

Distribution list

1st copy:	tekno valves, Kolkata 700 002
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