

AEROTECNICA COLTRI SPA S.Martino della Battaglia BS WWW.COLTRISUB.IT	Directive 97/23/CE	Page 1 of 3
	INSTRUCTIONS MANUAL	Cod. B1.MU.01
	Scuba diving cylinders	Rev. 1

GENERAL INFORMATION
<p>These instructions will help to perform operations, inspections, and maintenance of the cylinders safely. Cylinders are manufactured according to American (DOT), Canadian (TC), and European (CE-PED) norms on equipment under pressure and belong to the category of risk III, according to the directive on non dangerous fluids classification.</p> <p>Cylinders are stamped (crown markings of a standard scuba cylinders) with data listed below.</p>

TECHNICAL DATA					
		S40	S80	C80	C100
Model					
Maximum pressure allowed PS	(bar)	200	200	225	225
Testing pressure PT	(bar)	320	320	360	360
Variations on the allowed temperature TS	(°C)	-20 / +60	-20 / +60	-20 / +60	-20 / +60
Capacity in liters	(L)	5,8	11,1	10,3	13,2
Mass	(kg)	7,2	14,3	15,6	21
Type of use		Scuba diving cylinders			
Allowed fluids on group 2, according to directive 97/23/EC		- breathable air - breathable gas mixture classified as non oxidant (40% oxygen max.)			

MARKING	
<p>Each cylinder is identified with two stamps on its ogive. One refers to the American and Canadian certification Agencies and are expressed as follows (for exemple S80) :</p> <p>DOT-3AL 3000 YYXXXXXX M4002 MMCYY S80 25P TC-3ALM 207</p> <p>Where:</p>	
Marking	Description
DOT-3AL	The American certification Agency, and the manufacturing specifics of the cylinder
3000	Operating pressure of the cylinder in p.s.i.
ASXXXXXX	Serial Number
M4002	Number M released to the manufacturer by DOT (Department of Transportation)
MMCYY	Month and year of the final test at the factory
CATALINA	Reference to the manufacturer
S80	Cylinder model
25P	Thread
TC-3ALM	Number of Canadian specification
207	Operating pressure in bar.
<p>The EC stamping is expressed as follows:</p> <p>COLTRI SUB CE 0426 PS PPP BAR TS -20/+60°C PT TTT BAR</p> <p>Where:</p>	
Stamping	Description
COLTRI SUB	Licensee for the European Union
CE 0426	EC mark followed by Notified Agency identification number
PS PPP	Maximum admissible pressure expressed in bar
TS -20/+60°C	Minimum / maximum admissible temperature expressed in Celsius
PT TTT	Hydraulic testing pressure in bar

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1	Corrections to the text	-	-	18/10/2010
0	Release	-	-	12/03/2008
Rev.	Edit description	Redact	Approved	Date

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PRELIMINARY VERIFICATIONS
It is recommended to examine the cylinder before using it in order to verify that it was not damaged during transport.

INFORMATION ON HOW TO FILL THE CYLINDERS
When filling ht cylinders, refer to the following value of pressure and temperature: maximum pressure: 200 bar (S40-S80) , 225 bar (C80-C100) temperature: 15 °C - 59.00 °F Filling must be done at a temperature above 15 °C.

SAFETY INSTRUCTIONS
<p>The following safety instructions refer to the risks that may occur during the life of the cylinder.</p> <p>Cylinder integrity The cylinder must not undergo to excessive stress (packing and transport). Maximum care and attention should be paid in assembling the cylinder. The cylinder should not be damaged or deformed in any way. Special precautions should be taken to prevent these occurrences. A severe damage may cause the cylinder to explode! During assembly, the cylinder must not undergo to any stress caused by fastening and locking tools. These tools may "mechanically" damage the cylinder and cause it to burst!</p> <p>Corrosion prevention The cylinder must be protected against humidity. In order to prevent humidity to penetrate the cylinder, before transportation, control that the cylinder port is tightly closed. Temperature changes while in stock may cause condensation with resulting danger of corrosion. During the "setting up" the cylinder must be exclusively filled with dry gas. The valve must be closed under pressure. Before every fill purge any present water. Humidity causes corrosion and thins the walls thickness, which may cause the equipment malfunction!</p> <p>Maximum temperatures The cylinder must not undergo to fire, sources of high heat, nor to extremely low temperatures. The allowed limits of temperature are stamped on the cylinder. The allowed temperature for storing must be kept in mind. If necessary, take precautions to protect the cylinder from exposure to heat. Temperatures outside of these limits may cause the modification of the mechanical properties of the cylinder. Too high or too low temperatures may cause the cylinder to burst. The cylinder must not be exposed to light, electrical or magnetic fields, which could cause overheating above the allowed temperature, and consequently cause the burst!</p> <p>Limits of pressure The maximum allowed pressure should never be exceeded (PS). The maximum allowed pressure, PS, is the maximum filling pressure reached at a normal environment temperature of 15 °C. If the temperature increases, up to maximum allowed upper limit, the internal pressure of the cylinder will increase above the value PS. This is allowed providing that the maximum allowed pressure in the cylinder at 15 °C should not be above PS value. An increase above the maximum allowed pressure could cause the burst of the cylinder! It is dangerous to create situations that may generate internal pressures above the reference PS. The PS value is stamp on the cylinder.</p> <p>Fluid allowed The allowed fluids must belong to group 2, according to the classification of PED Directive. They are: air or air enriched with O₂ up to 40% maximum. Filling the cylinder with non-allowed fluids may cause it to burst!</p> <p>Threaded mount The type of thread respects the standing Norms M25. While mounting the valve, check the correspondence of the threads and carefully adjust the tightening torque in order to avoid damaging the mouthpiece thread. A damaged thread may cause fluid leakage. The valve should never be removed under pressure. If the fitting (ex., valve) is removed under pressure explosive leakage of fluid may occur, together with parts of the cylinder.</p> <p>Precaution during transport Filled cylinders must be properly protected during transport, to avoid damaging the valve. The cylinder should not be modified for any reason.</p>

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Incorrect use

The cylinder must be use on scuba diving only. The lawful use of it is stamped on the cylinder.
An incorrect use may affect the original characteristics and cause the cylinder to burst!

Maintenance

Do not scrape the cylinder when it is under pressure.

Make sure that the cylinder is completely discharged, before cleaning the exterior surface. After the cylinder has been stored for a long period, check whether there is condensation; check the thread and the superficial and internal state of the cylinder. Only authorized and qualified personnel may perform maintenance and replace a valve.

Recurrent checks

The cylinder carries the stamp CE according to PED directives and is subjected to recurrent checks by the national Agency in charge.

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