



# DNV BUSINESS ASSURANCE

## EC TYPE-EXAMINATION CERTIFICATE

*Certificate No. 124186-2012-CE-SWE-ACCREDIA*

*This certificate consists of 4 pages*

*This is to certify that the product(s)*

### ***Pressure vessels***

*with name and/or type designation(s)*

### ***Piston accumulator Type PAS and PAC***

*manufactured by*

### ***PMC Cylinders AB***

***Frideborgsvägen 21 - 56730 Vaggeryd - Sweden***

*has been assessed with respect to  
the conformity assessment procedure described in Annex III (Module B) of Directive 97/23/EC  
on pressure equipment, as amended, and found to comply.*

*Further details are given in the following pages*

*This certificate is valid until*

**2022-11-13**



SGQ N°003 A PRD N°003 B  
SGA N°003 D SSI N°002 G  
SCR N°004 F FSM N°001 I

**Giovanni Cortesi**

*Technical Reviewer*

Membro di MLA EA per gli schemi di accreditamento SGQ,  
SGA, PRD, PRS, ISP e LAB, di MLA IAF per gli schemi di  
accreditamento SGQ, SGA, SSI, FSM e PRD  
e di MRA ILAC per gli schemi di accreditamento LAB

*Place and date*

**Agrate Brianza, 2012-11-13**

*for the Notified Body 0496*

**Det Norske Veritas Italia S.r.l.**

**Renato Grottola**

*Management Representative*

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

DET NORSKE VERITAS ITALIA S.r.l. - CENTRO DIREZIONALE COLLEONI - PALAZZO SIRIO - V.LE COLLEONI, 9 - 20864 AGRATE BRIANZA (MB) - ITALY - TEL. 039.68 99 905 - WWW.DNVBA.COM/IT



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### **Jurisdiction**

Application of pressure equipment Directive 97/23/EC of the European Parliament and of the Council and Decreto Legislativo No.93 of 25 February 2000

### **Certificate history**

<b>Revision</b>	<b>Description</b>	<b>Issue date</b>
00	Original certificate	2012-11-13

### **Products covered by this certificate**

<b>Product name</b>	<b>Product description</b>	<b>Category</b>	<b>Module</b>	<b>Applied product standards</b>
Piston accumulator	PAC, PAS	IV	B	EN-14359:2006

### **Design data**

<b>Maximum allowable pressure (PS)</b>	<b>Minimum/maximum allowable temperature (TS)</b>	<b>Maximum inside diameter/length (mm)</b>	<b>Fluid group</b>
1500 bar g	-40°C /+100°C	Ø 700/10000	2

### **Applications/Limitations:**

- the pressure vessels are to be hydraulic tested with a minimum pressure of 1.43 times the design pressure. (ref.: PED, Annex I, section 7.4);
- for engineering and structural steels, see additional design restrictions in the applicable PMA-documents;
- for design temperatures below 0°C, additional design restrictions may apply in applicable PMA-documents for relevant materials.

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The following materials have been subject to a Particular Material Appraisal as required by PED Annex 1 Section 4.2c. The material grades are found acceptable under the conditions as stated in the following documents issued for the particular material appraisal:

<b>Material Standard</b>	<b>Grade</b>	<b>PMA Rev.</b>
ISO 3506	A4-80	0
ASTM A320	L7	0
EN-10025-2	S355J2+N	0
EN-10219-1	S355J2H	0
EN-10210-1	S355J2H	0
ASME SA-351	CF3M	0
ASME SA-351	CF8M	0
ASME SA-995	UNS J92205	0
ASME SA-995	UNS J93371	0
ASME SA-995	UNS J93404	0
ASTM A-890	UNS J92205	0
ASTM A-890	UNS J93371	0
ASTM A-890	UNS J93404	0
EN-10088-3	1.4418	0
EN-10305-1	E355+N	0
ASME SA-790	UNS S31803	0
ASME SA-789	UNS S31803	0
ASME SA-182	UNS S31803	0
ASME SA-182	UNS S32750	0
Sandvik Specification for SAF2205	SAF 2205	0
Sandvik Specification for SAF2507	SAF 2507	0
EN 10305	E335+SR	1

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### **Type examination documentation**

The type examination is based on reference drawings and calculations done for a representative range of the products. The manufacturer is allowed to supply variants of the approved types of pressure vessels within the limitations specified above. The manufacturer shall make specific drawings and calculations for each variant.

### **Tests carried out on prototype(s)**

Inspection of manufacturing and testing of prototype(s) has been carried out by Det Norske Veritas Certification AB Sweden, ref. Assessment Report dated 2012-08-16.

### **Documents reviewed**

<b>Drawing/Document No.</b>	<b>Rev.</b>	<b>Date</b>	<b>Title</b>	<b>Status (*)</b>
6810001	N/A	2012-01-31	Kolvackumulator PAC-250-100	A
6810004	N/A	2112-09-20	Kolvackumulator PAS-250-100	A
K 016 Beräkning accumulator	1	2012-08-15	Calculation sheets	A

\*) A = Approved, AC = Approved with comments, FI = For information

### **Terms and conditions**

The certificate is subject to the following terms and conditions:

- in case of damages caused by defective products, Council Directive 85/374/EEC, as amended, will apply;
- the certificate is only valid for the product(s) listed above.

The following may render this certificate invalid:

- changes in the design or construction of the product(s);
- changes or amendments to the referenced directive(s);
- changes or amendments in the standard(s) which form the basis for documenting compliance with the essential requirements of the directive(s).

### **Conformity declaration and marking of product**

This certificate does not give the manufacturer the right to CE mark and put on the market the product(s) listed on this certificate. Only after the product(s) have been found to comply with the requirements in a following Conformity Assessment Module C1, D, E or F, the manufacturer may draw up an EC declaration of conformity and legally affix the CE mark followed by the identification number (0496) of the Notified Body involved in these modules.

### **END OF CERTIFICATE**

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