

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Battery (Accumulator)**with type designation(s)
UP1 L & UP1 M

Issued to

SAFT AB
OSKARSHAMN, Swedenis found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft
IEC 62259 (2003-10)
IEC 60623 (2017-01)
IEC 60092-305 (1980)**Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**This Certificate is valid until **2023-06-30**.Issued at **Høvik** on **2018-12-21**DNV GL local station: **Stockholm**Approval Engineer: **Nicolay Horn**for **DNV GL**

Marta Alonso Pontes
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Job Id: **262.1-019210-7**
 Certificate No: **TAE000010G**
 Revision No: **2**

Product description

Industrial pocket plate Ni-Cd batteries with the following type designation are covered by this certificate:

Type Designation	Rated Capacity C ₅ Ah
UP1 L 15	15
UP1 L 30	30
UP1 L 47	47
UP1 L 62	62
UP1 L 75	75
UP1 L 95	95
UP1 L 110	110
UP1 L 140	140
UP1 L 185	185
UP1 L 235	235
UP1 L 280	280
UP1 L 325	325
UP1 L 375	375
UP1 L 420	420
UP1 L 470	470
UP1 L 515	515
UP1 L 560	560

Type Designation	Rated Capacity C ₅ Ah
UP1 L 610	610
UP1 L 650	650
UP1 L 700	700
UP1 L 750	750
UP1 L 800	800
UP1 L 840	840
UP1 L 890	890
UP1 L 940	940
UP1 L 980	980
UP1 L 1030	1030
UP1 L 1120	1120
UP1 L 1220	1220
UP1 L 1300	1300
UP1 L 1400	1400
UP1 L 1500	1500
UP1 L 1600	1600
UP1 L 1700	1700

Type Designation	Rated Capacity C ₅ Ah
UP1 M 8	8
UP1 M 16	16
UP1 M 24	24
UP1 M 32	32
UP1 M 40	40
UP1 M 48	48
UP1 M 65	65
UP1 M 75	75
UP1 M 100	100
UP1 M 125	125
UP1 M 150	150
UP1 M 170	170
UP1 M 195	195
UP1 M 220	220
UP1 M 245	245
UP1 M 270	270
UP1 M 295	295
UP1 M 320	320
UP1 M 345	345

Type Designation	Rated Capacity C ₅ Ah
UP1 M 370	370
UP1 M 395	395
UP1 M 420	420
UP1 M 445	445
UP1 M 490	490
UP1 M 540	540
UP1 M 590	590
UP1 M 640	640
UP1 M 690	690
UP1 M 740	740
UP1 M 785	785
UP1 M 835	835
UP1 M 885	885
UP1 M 935	935
UP1 M 985	985
UP1 M 1030	1030
UP1 M 1130	1130
UP1 M 1230	1230
UP1 M 1330	1330

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Application/Limitation

Industrial Nickel-Cadmium batteries for mobile and stationary applications and for use in ships and Offshore Units.

Installation and maintenance to be done in accordance with Installation and Operating Instructions and/or the Technical Manual.

Tests carried out

Type tests in accordance with IEC 62259 (2003 - 10)*:

- item 7.2.1 - Discharge performance at +20°C
- item 7.2.2 - Discharge performance at +5°C
- item 7.2.3 - Discharge performance at -18°C
- item 7.2.4 - High rate current test
- item 7.3 - Charge retention
- item 7.4.1 - Endurance in cycles
- item 7.4.2 - Permanent charge endurance
- item 7.5 - Charge acceptance at constant voltage
- item 7.7 - Vent operation
- item 7.8 - Electrolyte retention
- item 7.9 - Determination of gas recombination efficiency
- item 7.10 - Storage

* The type tests performed are also in accordance with IEC 60623 5th edition (2017-01)
Item 7.6 to 7.9 including:

- item 7.3.5 Discharge performance at low temperature ($T_L = -30^\circ\text{C}$)
- item 7.3.6 Discharge performance at high temperature ($T_H = +70^\circ\text{C}$)

Vibration test.

Marking of product

The product to be marked in accordance with in IEC 62259: Manufacturers name, IEC 62259, type and manufacturing date.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Product sample tests (PST) checked (if not available, tests according item 10.2 in IEC 62259 to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed at 2, 3.5 and at renewal.

END OF CERTIFICATE