



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. P-12793

This is to certify that the
Heat Exchanger

with type designation(s)
Heat exchanger type BEM and BEW

Manufactured by
APL Apparatebau GmbH
HOPFGARTEN, Austria

is found to comply with
Det Norske Veritas' Rules for Classification of Ships

Application

Temperature range:	See certificate.
Design pressure:	See certificate.
Operating media:	See certificate.

Høvik, 2010-05-04
for Det Norske Veritas AS



This Certificate is valid until
2012-06-30


Marianne Spæren
Head of Section

DNV local office:
Essen


Øyvind Skåra
Surveyor

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.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: P-12793
 File No.: 743.80
 Job Id.: 262.1-003625-2

Product description

Shell and tube heat exchanger with flanged or threaded connections with following main materials.

Shell: St35.8I DIN17175

Flanges and/or tubesheets: P265GH EN 10028-2 or
 CuZn38SnA1 F39 DIN17660/17675 or
 1.4571 EN 10028-7 or
 C22.8 DIN17243

Tubes: CuZn28Sn1 F36 DIN1785 or
 1.4571 DIN 17457

Nozzles and/or Sockets: St35.8I DIN17175

Application/Limitation

Model	Shell side				Tube side			
	Class	Medium	DP (bar)	DT (degC)	Class	Medium	DP (bar)	DT (degC)
BEM 02-EsESS-16.75 A/08S/10S CCFA 505-100	III	Water	10	100	I	Air	100	175
BEW 06-BsBSS-15.25 B/07S CP 1205-2Weg	II	ISO VG 68	25	120	III	Water	10	100
BEM 03-EsSSS-12.7 A/06S CCFA 604-B6-25-2	III	Water	10	100	II	Air	25	175
BEM 03-EsSSS-14.75 A/10S CCFA 604-6-40	III	Water	10	100	II	Air	40	175
BEM 02-EsESS-15.25 A/08S CCFA 505-250	III	Water	10	100	I	Air	250	175

Each heat exchanger is to be certified by DNV and delivered with a product certificate when required by DNV Rules or by the purchaser.

Type Approval documentation

Approved documentation

6495/07/A1, dated 05.06.2007,
 6495/07/A1-1, dated 05.06.2007,
 9495/07/A1, dated 14.06.2007,
 6493/07/A1, dated 05.06.2007,
 6493/07/A1-1, dated 05.06.2007,
 9493/07/A1, dated 13.06.2007,

BEM 02-EsESS-15.25 A/08S (W9131-32)
 Details to BEM 02-EsESS-15.25 A/08S (W9131-32)
 Part list BEM 02-EsESS-15.25 A/8S (W9131-32)
 BEM 03-EsSSS-14.75 A/10S (W9127-28)
 Details to BEM 03-EsSSS-14.75 A/10S (W9127-28)
 Part list BEM 03-EsSSS-14.75 A/10S (W9127-28)



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6492/07/A1,	dated 05.06.2007,	BEM 03-EsSSS-12.7 A/06S (W9125-26)
6492/07/A1-1,	dated 05.06.2007,	Details to BEM 03-EsSSS-12.7 A/06S (W9125-26)
6492/07/A1,	dated 13.06.2007,	Part list BEM 03-EsSSS-12.7 A/06S (W9125-26)
6494/07/A1,	dated 05.06.2007,	BEM 02-EsESS-16.75 A/08S (W9129-30)
6494/07/A1-1,	dated 05.06.2007,	Details to BEM 02-EsESS-16.75 A/08S (W9129-30)
6494/07/A1,	dated 13.06.2007,	Part list BEM 02-EsESS-16.75 A/08S (W9129-30)
6494/07/A1-1,	dated 30.04.2008	Details to BEM 02-EsESS-16.75 A/10S (W9265)
6494/07/A1,	dated 30.04.2008,	BEM 02-EsESS-16.75 A/10S (W9265)
6494/07/A1,	dated 30.04.2008,	Part list to BEM 02-EsESS-16.75 A/10S (W9265)
6496/07/A1,	dated 05.06.2007,	BEW 06-BsBSS-15.25 B/07S (W9133-34)
6496/07/A1-1,	dated 05.06.2007,	Details to BEW 06-BsBSS-15.25 B/07S (W9133-34)
6496/07/A1,	dated 13.06.2007,	Part list BEW 06-BsBSS-15.25 B/07S (W9133-34)
6494/07/A1,	dated 30.04.2008,	BEW 06-BsBSS-15.25 B/07S (W9269-70)
6494/07/A1-1,	dated 30.04.2008,	Details to BEW 06-BsBSS-15.25 B/07S (W9269-70)
6494/07/A1,	dated 30.04.2008,	Part list to BEW 06-BsBSS-15.25 B/07S (W9269-70)
6492/07/A1,	dated 26.06.2007,	BEM 03-EsSSS-12.7 A/06S (W9261)
6492/07/A1-1,	dated 05.06.2007,	Details to BEM 03-EsSSS-12.7 A/06S (W9261)
6493/07/A1,	dated 26.06.2007,	BEM 03-EsSSS-14.75 A/10S (W9263)
6493/07/A1-1,	dated 05.06.2007,	Details to BEM 03-EsSSS-14.75 A/10S (W9263)
6495/07/A1,	dated 27.06.2007,	BEM 02-EsESS-15.25 A/08S (W9267)
6495/07/A1-1,	dated 05.06.2007,	Details to BEM 02-EsESS-15.25 A/08S (W9267)

Part lists W1, W2 and W4 dated 21.11.2007
Part list W3 and W5 dated 30.04.2008

Documentation used for information:

Job-no: W9131, Calculations 6495/07/A1 dated 16.09.2008 / 9 pages
Job-no: W9127, Calculations 6493/07/A1 dated 16.09.2008 / 10 pages
Job-no: W9125, Calculations 6492/07/A1 dated 16.09.2008 / 6 pages
Job-no: W9129, Calculations 6494/07/A1 dated 16.09.2008 / 10 pages
Job-no: W9133, Calculations 6496/07/A1 dated 16.09.2008 / 11 pages

Marking of product

The marking is to show the following particulars:

- a. the name and domicile of the manufacturer
- b. the manufacturer's type designation and serial number
- c. the year of manufacture
- d. the design pressure
- e. the design temperature (s) in °C
- f. the hydraulic test pressure
- g. DNV's identifying mark.



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Certificate Retention Survey

For retention of the Type Approval and if no certification has taken place during the last year of the validity period, Det Norske Veritas' surveyor shall perform a survey at the manufacturer's premises before the expiry date of this certificate, to verify that the conditions for Type Approval complied with.

