DNV·GL

Certificate No:
TAD0000080

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Mud and Cementing Equipment

with type designation(s)
Degasser Model 500, 1000 & 1500

Issued to
BURGESS MANUFACTURING, LTD
HOUSTON TX, United States

is found to comply with
DNVGL-OS-E101 – Drilling plant, Edition July 2015
and DNV GL AS' understanding of the implementation and interpretation of:
PSA's "Regulations relating to design and outfitting of the facilities etc. in the petroleum activities" (THE FACILITIES REGULATIONS), Last amended 16 December 2014, Ch.VIII

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

THIS CERTIFICATE IS A RENEWAL OF D-4134
This Certificate is valid until **2021-01-10**.

Issued at **Houston** on **2016-01-11**

for **DNV GL**

DNV GL local station: **Approval CMC – Houston**

Approval Engineer: **Xiangwen (Maggie) Wang**

Christian Nilsen
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.

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Job Id: **262.1-011326-2**
Certificate No: **TAD0000080**

Product description

- Degasser Model 500-CE
  (Dwgs: 11995 Rev. A & 12084 Rev. A)
- Degasser Model 500-US
  (Dwgs: 11920 Rev. B & 12086 Rev. B)
- Degasser Model 1000-CE
  (Dwgs: 11841 Rev. A & 12088 Rev. A)
- Degasser Model 1000-US
  (Dwgs: 11908 Rev. C & 12045 Rev. B)
- Degasser Model 1500-CE
  (Dwgs: 11977 Rev. A & 11911 Rev. E)
- Degasser Model 1500-US
  (Dwgs: 11876 Rev. C & 12947 Rev. B)

Application/Limitation

- Min. Design Temperature: 0 ^{O}C
- Max. Design Pressure (All Models): 15" of Murcury (Vacuum)
- Service: H_2S
- Model 500
  Max. Output at 0 ft : 500 GPM @1.0 Sg
- Model 1000
  Max. Output at 0 ft : 620 GPM @2.0 Sg
  950 GPM @1.5 Sg
  1000 GPM @1.0 Sg
- Model 1500
  Max. Output at 0 ft : 660 GPM @2.0 Sg
  1000 GPM @1.0-1.5 Sg

Type Approval documentation

Drawings:

Drwg. No.	Rev.	Title
*11767	H	Model 500 Base Unit
*11768	F	Model 500 Base Unit (CE)
*11765	G	Model 1000 Base Unit
*11766	E	Model 1000 Base Unit (CE)
*11763	H	Model 1500 Base Unit
*11764	F	Model 1500 Base Unit (CE)
*11199	C	Vacuum/Blower, Motor Assembly, 20 HP, 380 V, 50 Hz Baldor
*11826	C	Vacuum/Blower, Motor Assembly, 20 HP, 575 V, 60 Hz Baldor
*11610	D	Vacuum/Blower, Motor Assembly Nema/UL, US Motor 380 V, 60 Hz
*11827	C	Vacuum/Blower, Motor Assembly Nema/UL, US Motor 230/460V 60 Hz 3PH
*11838	D	Vacuum/Blower, IEC ATEC 18.5KW 690 V, 50 Hz
*11844	F	Vacuum/Blower, IEC ATEC 18.5KW 460 V, 60 Hz
*11888	B	Vacuum/Blower, IEC ATEC 18.5KW 400 V, 50 Hz
*11918	B	Vacuum/Blower, IEC ATEC 18.5KW 575 V, 60 Hz
*11925	C	Vacuum/Blower, IEC ATEC 18.5KW 690 V, 60 Hz
*11930	B	Vacuum/Blower, IEC ATEC 18.5KW 400 V, 60 Hz
*11580	B	Booster, Turbo-Vac, 5 HP USA 380 V, 60 Hz
*10492	F	Booster, Turbo-Vac, 5 HP USA 230/460 V, 60 Hz
*11608	B	Booster, Turbo-Vac, 5 HP USA 575 V, 60 Hz
*11769	B	Booster, Turbo-Vac, 5 HP USA 380 V, 50 Hz
*11875	A	Booster, Turbo-Vac ATEX, 4 KW EURO 460 Vac 60 Hz
*11919	A	Booster, Turbo-Vac ATEX, 4 KW EURO 575 Vac 60 Hz
Drwg. No.	Rev.	Title

*11926	A	Booster, Turbo-Vac ATEX, 4 KW EURO 690 Vac 60 Hz
*11927	A	Booster, Turbo-Vac ATEX, 4 KW EURO 400 Vac 50 Hz
*11928	A	Booster, Turbo-Vac ATEX, 4 KW EURO 690 Vac 50 Hz
*11934	A	Booster, Turbo-Vac ATEX, 4 KW EURO 400 Vac 60 Hz
*11811	E	Model 500 Degasser Mud Handling Section (Vessel) 3600 RPM 60 Hz Motor/3000 RPM 50 Hz Motor
*11845	E	Model 1000/1500 Degasser Mud Handling Section (Vessel) 3600 RPM 60 Hz Motor
*11804	E	Model 1000/1500 Degasser Mud Handling Section (Vessel) 3000 RPM 50 Hz Motor
*11700-CE	C	Model 500 Sound Shield
*11700-US	C	Model 500 Sound Shield
*11550-CE	C	Model 1000 Sound Shield
*11550-US	C	Model 1000 Sound Shield
*11600-CE	G	Model 1500 Sound Shield
*11600-US	G	Model 1500 Sound Shield
10976	03	Motor Handling Bracket
10471	01	Degasser Model 1000-1500 Shell – Pipe Mounted
10472	02	Degasser Model 1000-1500 Shell – Pipe Mounted
10480	04	Degasser Model 1000-1500 Shell – Pad Mounted
10050	01	Degasser Model 1000-1500 Shell – Pad Mounted
10061	05	Motor/Gear Box Adapter Spool
10492	02	Turbo-Vac Booster Assembly Baldor Motor
10923	02	Turbo-Vac Booster Assembly European Motor
10105	02	Upper Inspection Port Detail
10106	02	Lower Inspection Port Detail
10441	01	Discharge Pipe Tubing

*For Information Only
Note: Other part numbers or updated revisions may be acceptable under this Certificate provided critical aspects of the design remain the same. Changes shall be documented and approved (via Engineering Change Notice or similar) by the Manufacturer's Engineering and/or Quality department as appropriate. DNV GL's local surveyor shall verify the change before issuance of Product Certificate)

Material Specifications:
- Engineering Standard No. 349 Rev. A for Model 500
- Engineering Standard No. 155 Rev. G for Model 1000
- Engineering Standard No. 289 Rev. 03 for Model 1500

Design Calculations:
- Engineering Standard No. 280 Design Calculation for Shell (Vessel)
- Engineering Standard No. 303 Mounting Support Calculations for all Burgess MAGNA-VAC Degassers

Tests carried out
1. Function test report (S/N: H-167, Model No. 500) dated 10 Feb. 2015
2. Function test report (S/N: 695, Model No. 1000) dated 14 Dec. 2015
3. Function test report (S/N: 693, Model No. 1500) dated 30 July 2015

Marking of product
For traceability the following marking is to be carried out on each product:
1. Serial No. & Manufacturer's name or trademark.
2. Marking shall be in accordance with DNVGL-OS-E101 Ch. 2 Sec.6 1.3.

Certificate Retention Survey

For retention of the Type Approval, DNV GL's surveyor shall perform a survey every second year in accordance with DNV GL's Class Programme DNVGL-CP-0338, Section 4

Other conditions/comments

1. Procedures related to testing, welding, NDT, and other quality control requirements are to be reviewed/approved by DNV GL's local surveyor.
2. ATEX and CE marking are covered under DNV Acknowledgement No. 43735-2008-CE-USA Rev. 1 'Magna-Vac Degasser'.
3. DNV GL ref.: Project No. PP146151.

END OF CERTIFICATE