DNV·GL

Expander Americas, Inc.
223 Industrial Street
DeWitt, IA 52742

Att: Nancy Svensson

Det Norske Veritas (U.S.A.), Inc.
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Date:	**Our reference**:	**Your reference**:
2016-03-02	MRAUS541/FGQ/ 2016-03-02	

SUBJECT: Updating production address for Type Approval D-5779

Reference is made to the above request for updating production address for Type Approval D-5779, relative to the subject.

Enclosed please find the following documentation:

1. DNV GL Type Approval Certificate No. TAD00000AH

Should you have any questions, please feel free to contact us.

Sincerely
for Det Norske Veritas (U.S.A.), Inc.

[redacted]

[redacted]

Enclosure: Yes

DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAD00000AH

This is to certify:

That the Hoisting, Rotation and Pipehandling Equipment

with type designation(s)
EXPANDABLE PIN ASSEMBLY

Issued to
Expander System Sweden AB
ÅTVIDABERG, Sweden

is found to comply with
DNVGL-OS-E101 – Drilling plant, Edition July 2015
DNVGL-SI-0166 – Verification for compliance with Norwegian shelf regulations, Edition July 2015

Application :

See page 2

This Certificate is valid until **2019-06-30**.
Issued at **Høvik** on **2016-02-26**

DNV GL local station: **Stockholm**

Approval Engineer: **Hallvard Thune Uglane**

[redacted]

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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Application/Limitation

Design Parameter	Range	Description/Options
Straight pin		
Internal thread and bolt	Single bolt	Without internal greasing
	Single bolt	With internal greasing (one or two outlets)
	Multi bolt	Without internal greasing
	Multi bolt	With internal greasing (one or two outlets)
External thread and nut	Single bolt	Without internal greasing
	Single bolt	With internal greasing (one or two outlets)
Through bolt	Single bolt	Without internal greasing
	Single bolt	With internal greasing (one or two outlets)
Pin outside diameter range	20mm – 406.4mm	
Safe Working Load (SWL)	Up to 5000 tonnes	
Stepped pin		
Internal thread and bolt	Single bolt	Without internal greasing
	Single bolt	With internal greasing (one or two outlets)
	Multi bolt	Without internal greasing
	Multi bolt	With internal greasing (one or two outlets)
External thread and nut	Single bolt	Without internal greasing
	Single bolt	With internal greasing (one or two outlets)
Pin outside diameter range	20mm – 406.4mm	
Safe Working Load (SWL)	Up to 5000 tonnes	

Type Approval documentation

Drwg./Doc. No.	Rev.	Title
DNV-EXP001	5	Design Calculations
DNV-EXP002	3	Material Specification
DNV-EXP003	3	Design Calculation Method
SKM-13-1474		Application for DNV Type approval
		DNV Survey report (prototype test) endorsed by DNV Stockholm, date: 2013-04-18
535332:2	1	Type Approval Assessment Report (Expander Americas, Inc.)
DNV-EXP101	0	Prototype test report
DNV-EXP102	0	Straight pin, Internal thread and bolt, Single bolt
DNV-EXP103	0	Straight pin, Internal thread and bolt, Multi bolt
DNV-EXP104	0	Straight pin, External thread and bolt, Single bolt
DNV-EXP105	0	Straight pin, Through bolt, Single bolt
DNV-EXP106	0	Stepped pin, Internal thread and bolt, Single bolt
DNV-EXP107	0	Stepped pin, Internal thread and bolt, Multi bolt
DVR-262.1-014691-J-2	0	Stepped pin, External thread and nut, Single bolt
		DNV Design verification report

Conditions and Comments

- Expandable pin assembly shall be delivered with material certificate equivalent to 3.1 type according to EN 10204:2004. The 3.1 certificate is issued by the manufacturer and is validated by the manufacturer's authorized inspection representative independent of the manufacturing department.
- If DNV GL certification is required (for bigger sizes or SWL) by End user or state authority then product may be proof tested and surveyed during fabrication in accordance with the requirements specified in the applicable standards and followed by issuance of DNV GL Survey report.
- Fatigue analysis: End user shall take into account this in each case. Normally fatigue is not a problem for proper pretensioned pin assembly. Bolts shall provide sufficient preload in order to avoid any rotation or slippage of the mating faces during operation and be designed according to Design Calculation DNV-EXP001 Rev.4.
- It is recommended that End user of the product would perform inspection once per annum in order to ensure that preload is sufficient and no loosening occurs.
- Safe working load (SWL) shall be specified by end user.
- Documentation which are to accompany each product/delivery to be kept by manufacturer over a period of at least 10 years.

Certificate Retention Survey

For retention of the Type approval, DNV GL Surveyor shall performe a survey - every second year and before the expiry date of this certificate. This is in order to verify that the conditions for the type approval are complied with, ref DNVGL-CP-0338, DNV GL type approval scheme.

This certificate replaces Type Approval Certificate D-5969.

END OF CERTIFICATE