



Certificate No:
TAD00001ES

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Mud and Cementing Equipment

with type designation(s)
B10-60-880,SKID, AUTO LIQUID ADDITIVE SYSTEM

Issued to

SJS Limited
Jingzhou,, Hubei province,, China

is found to comply with
DNVGL-OS-E101 – Drilling facilities, Edition January 2018

Application :

See Page 2.

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

Issued at **Høvik** on **2022-07-28**

This Certificate is valid until **2027-07-27**.

for **DNV**

DNV local station: **Wuhan NB & CMC**

Approval Engineer: **M. Kevin Mandeville Jr.**

.....
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2021-03

www.dnv.com

Page 1 of 3

Product description

Skid, Auto Liquid Additive System, consisting of a power skid, pumping skid, and tank skid.

Application/Limitation

Design Parameter	Value	Equivalent
Hydraulic Power Max. Pressure	0.6 MPa	87 psi
Temperature Range	-20°C to 50°C	-4°F to 122°F
Area Classification	Zone 2	
Ingress Protection	IP56	
Allowable Accelerations		
Transverse	≤3.0 m/s ²	
Longitudinal	≤3.0 m/s ²	
Vertical	≤5.0 m/s ²	

Type Approval documentation

B10-60-880	A	Skid, Auto Liquid Additive System
B10-61-440	A	Pumping and Calibration Module
B10-62-213	A	Power Unit Assy, LAS-E8T
B10-63-141	A	Hydraulic System
B10-64-226	A	Air System
B10-67-030	A	Pipe Assy, LAS-E8T
B12-08-802	A	Control System, LAS-E8T
B10-69-049	A	Tank, Displacement, LAS-E8T
B10-60-775	A	Tank, Liquid, Assembly
B10-90-007	A	List, Tool and Spare Parts, B10-60-880

Tests carried out

Test carried out per B10-60-880 test record on 2022-05-26 for work order W2102396-001.

Fabrication Procedures

Procedures related to fabrication, welding, and NDE shall be reviewed and approved by the local DNV Surveyor.

Marking of product

For traceability, the following marking is to be carried out on each product:

1. Serial Number
2. Manufacturer's name or trademark
3. Additional Marking at the manufacturer's discretion



Job Id: **262.1-035973-1**
Certificate No: **TAD00001ES**

Periodical assessment

For retention of the Type Approval Certificate, DNV's surveyor shall perform a survey after two and three-and-a-half years in accordance with DNV's Class Program for Type Approval, DNVGL-CP-0338.

Other Comments and Conditions

1. Skid frame is reviewed for compliance to DNVGL-ST-E271 under DVR-346.1-J-11059 (550 Gallon Tank) and DVR-346.1-J-11060 (1000 Gallon Tank).
2. Category II items shall be delivered with a works certificate prepared by the manufacturer.
3. Factory Acceptance Testing of the completed skid must be completed and witnessed by a DNV surveyor prior to the issuance of a Product Certificate.
4. The electrical and control system shall be subject to product testing for prior to the final issue of the type approval certificate.
5. DNV Project Ref. A1061747.