



Certificate No:  
**TAD00001FR**

# TYPE APPROVAL CERTIFICATE

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## This is to certify:

**That the Well Testing Equipment**

with type designation(s)  
**Oil & Gas Manifolds type MFD**

Issued to

**ETUDES ET PRODUCTIONS SCHLUMBERGER  
CLAMART, France**

is found to comply with  
**DNV-OS-E101 – Drilling facilities, Edition July 2021**

## Application :

**Valid for products not subject to DNV classification requirements**

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Issued at **Høvik** on **2022-02-22**

This Certificate is valid until **2027-02-21** .

for **DNV**

DNV local unit: **Paris Verification**

Approval Engineer: **Georgios Mandrekas**

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**Bartłomiej Zygmunt Kolosowski**  
**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 281

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## Product description

Manifolds MFD may be used to divert oil or gas (Contains H<sub>2</sub>S), from the separator to burners for disposal, to a tank for measurements/storage or to a production line.

The oil manifold consists of five ball valves arranged as a manifold and is skid mounted.  
The gas manifold is fitted with two ball valves and is also mounted on a skid.

| Type    | Medium | Nominal size (In) | Number of Valves | Working pressure, PSI (KPa) at 100° F (38°C) | Temperature range deg F (deg C) |
|---------|--------|-------------------|------------------|----------------------------------------------|---------------------------------|
| MFD-AEA | Gas    | 3                 | 2                | 1440 (9930)                                  | -20 to 300 (-29 to 149)         |
| MFD-BDA | Gas    | 4                 | 2                | 1440 (9930)                                  | 0 to 212 (-18 to 100)           |
| MFD-BFA | Gas    | 4                 | 2                | 1440 (9930)                                  | -4 to 350 (-20 to 177)          |
| MFD-BDE | Gas    | 6                 | 2                | 1440 (9930)                                  | -4 to 350 (-20 to 177)          |
| MFD-BEA | Oil    | 3                 | 5                | 1440 (9930)                                  | -20 to 300 (-29 to 149)         |
| MFD-CDA | Oil    | 4                 | 5                | 1440 (9930)                                  | -4 to 350 (-20 to 177)          |

## Material Specification:

| Component                            | Material designation | Minimum guaranteed yield strength (Psi) |
|--------------------------------------|----------------------|-----------------------------------------|
| Wing union connection / Welding neck | ASTM A350 LF2        | 21300                                   |
| Straight Tee                         | ASTM A420 WPL 6      | 20000                                   |
| Piping                               | ASTM A333 GR 6       | 20000                                   |

**Note:** Metallic materials used in pressure containing parts shall be qualified according to NACE MR 01-75/ISO 15156 (latest revision).

## Design code:

ASME B31.3:2020- Process Piping

## Application/Limitation

It is the responsibility of the operator to ensure that risk analysis is carried out prior to every operation including subject equipment when evaluating the risk situation. Design verification limitations / assumptions:

- Combined corrosion and erosion: 3.2mm (maximum)
- Sources of loading other than the internal pressure loads are of negligible effect
- The use of the product is limited to temporary well test operations

Non-metallic materials to be used shall be provided in accordance with requirements in DNV-OS-E101 Ch. 2 Sec. 2 Clause 2.7.

Valves shall be fire tested according to the procedure outlined in API 6FA or equivalent. Other pressure containing components equipped with material that may disintegrated, be destroyed or in other ways render ineffective by heat shall be fire tested in accordance with ISO 19921 and ISO 19922.

Hammer union connections shall be qualified according to requirements in DNV-OS-E101.

Design review of the skids and supports are not part of this Type Approval certificate.

This Type Approval certificate is not valid for designs, components, equipment, systems or products which are subject to classification by DNV.

This Type Approval covers design(s) only. i.e. the Type Approval is not valid for the final product, but may be used as basis for obtaining a product certificate.

## **Type Approval documentation**

### **Production tests**

Carbon and low alloy materials for piping must be Charpy V-notch (CVN) impact tested in accordance with DNV-OS-E101 Ch. 2 Sec. 2.

Manufacturing, workmanship, and testing shall be performed in accordance with requirements in DNV-OS-E101 Ch.2 Sec. 8.

### **Marking of product**

All equipment shall be clearly marked with identification and serial number which relates the equipment to certificates and fabrication documentation.

### **Periodical assessment**

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>