

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Hoisting, Rotation and Pipehandling Equipment

with type designation(s)

FORCE 5I AIR WINCH MODEL FA2I & FA2I-MR

Issued to

**Ingersoll Rand Industrial Technologies
Kent WA, United States**

is found to comply with

DNVGL-OS-E101 – Drilling plant, Edition July 2015

Application :

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

This Certificate is valid until **2021-10-04**.

Issued at **Houston** on **2016-10-05**

DNV GL local station: **Seattle**

for **DNV GL**

Approval Engineer: **Kairy Otero**

**Brandon D Caraway
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.

Job Id: **262.1-013046-2**
Certificate No: **TAD00000H0**

Product description

Force 5i Air Winch, model FA2i & FA2i-MR

Application/Limitation*

	<u>FA2i</u>	<u>FA2i-MR*</u>
Minimum Design Temperature	: -4 °F (-20 °C)	: -4 °F (-20 °C)
Maximum Single Line Pull, Top-Layer	: 4400 lbs. (1995 kg.)	: 3180 lbs. (1442 kg.)
Service	: Standard Marine Environment	

* Ref: DNVGL-OS-E101 Ch.2 Sec. 5 I 402.4. The man-rider winch is not to be used in a single man, riding belt application.

Type Approval documentation

Fabrication Procedures

Procedures related to testing, welding, NDT, etc are to be reviewed/approved by DNV GL's local surveyor.

Charpy V-Notch impact testing temperature and acceptance criteria shall be in accordance with DNVGL-OS-E101 Chapter 2, Section 2, "Materials and Welding".

Tests Requirement

Each man-riding winch shall be load tested in the following manner for this certificate to be valid:

1. Static brake capacity test for all brakes operating simultaneously at $2 \times \text{SWL}$.
2. Static brake capacity test for each individual brake at $1.8 \times \text{SWL}$.
3. Dynamic brake capacity test for each individual brake at $1.25 \times \text{SWL}$.

Marking of product

For traceability to this Type Approval Certificate the products are as a minimum to be marked as follows:

1. Serial Number
2. Manufacturer's name and trademark
3. Safe Working Loads

Other conditions/comments

1. The man rider winch shall be fitted with 2 separate, independently operated braking systems and each brake shall automatically engage upon emergency stop, power loss, or other related energy failure.
2. Wire ropes for man riding winches shall have a minimum breaking strength of $10 \times \text{SWL}$
3. DNV GL Ref. Project No. A0324462
4. This TAC TAD00000H0 replaces previously issued TAC with certificate number D-4457

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 type approval scheme DNVGL-CP-0338 Section 4.

END OF CERTIFICATE