

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00001B4
Revision No:
3

This is to certify:

That the Flowmeter

with type designation(s)

CONTOIL ® VZO / VZOA, CONTOIL ® VZF II / VZFA II, DOMINO ® ARD

Issued to

Aquametro Oil & Marine AG
Therwil, BL, Switzerland

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems

DNV GL rules for classification – Ships Pt.4 Ch.9 Control and monitoring systems

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
CONTOIL ® VZO / VZOA	up to 130°C or 180°C	up to 40 bar	DN15, DN20, DN25, DN40 and DN50
CONTOIL ® VZF II / VZFA II	up to 130°C or 180°C	up to 40 bar	DN15, DN20, DN25, DN40 and DN50
DOMINO ® ARD	up to 130°C or 180°C	up to 40 bar	DN15, DN20, DN25, DN40 and DN50

Issued at **Hamburg** on **2021-11-30**

This Certificate is valid until **2025-09-16**.

DNV local station: **Augsburg**

for **DNV**

Approval Engineer: **Andrii Pishchanskyi**

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Olaf Drews
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.



Product description

Rotary piston flowmeter consists of one hydraulic part CONTOIL®/DOMINO® with following display options:

- CONTOIL® VZO / VZOA – mechanical display module;
- CONTOIL® VZF II / VZFA II – electronic display module;
- DOMINO® ARD – mechanical display module.

Different measuring units:

- RW – roller register for local indication;
- RV – roller register for local indication with integrated reed-type pulser for remote indication;
- IN – roller register for local indication with inductive pulser module for remote indication;
- INA - like IN with higher resolution; pulser according to IEC 60947-5-6 (NAMUR);
- VZF II / VZFA II - multifunctional electronic display module and adjustable outputs.

Hydraulic part

It consists of the assembly units as per manufacturer's drawing No. AM.020074.3 and assembly unit materials as per drawing No. AM.020661 "Materials overview CONTOIL and DOMINO".

The body connection types to piping are as follows:

Designation	Description
FL	Flange connection according to EN 1092-2, ASME B16.5 or JIS B2239.
RC	Threaded end connection according to ISO 228-1.

Electrical part VZF II / VZFA II

Max. permissible error:	±1% of actual value VZF II
	±0.5% of actual value VZFA II
Repeatability:	±0,2%
Output signals:	Volume pulses, mass pulses
	Signals for flow rate (4...20mA, 0...200 Hz)
	Limiting value switch for flow rate
Display ambient temp.:	-25°C...+70°C
Display storage temp.:	-25°C...+85°C
Display power supply:	24VDC (6VDC...30VDC)
Display protection class:	IP66 / IP 68 / IP 69
Software versions:	V4.01.xx

Location classes:

Temperature	B
Humidity	B
Vibration	B
EMC	A
Enclosure	B

Application/Limitation

The flowmeters of types CONTOIL® VZO / VZOA, CONTOIL® VZF II / VZFA II and DOMINO® ARD are approved for fuel oil, lubricating oil and hydraulic oil systems. DOMINO® ARD is additionally approved for freshwater systems (not sea water).

For RC connection type, a pressure-tight joint at threaded ends shall be effected by compressing two tightening surfaces outside the threads and by interposing an appropriate seal as per manufacturer's instructions. Reference is made to DNVGL-RU-SHIP Pt.4/Ch.6/Sec.9/5.2.6.

The selection and installation of a flowmeter shall be as per the manufacturer's instructions.

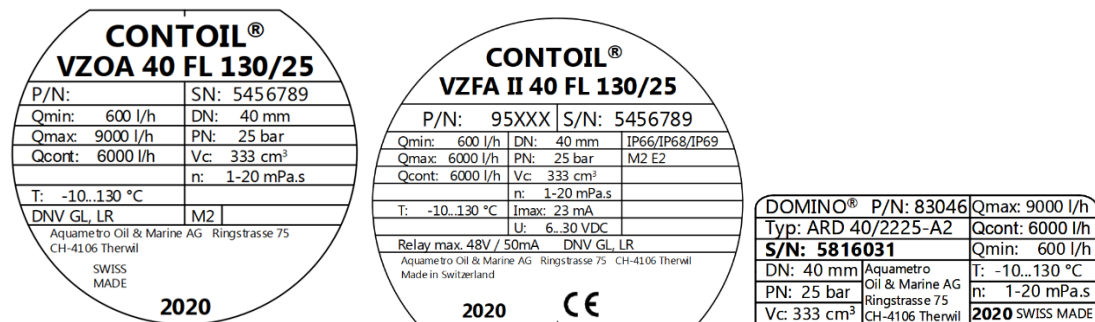
Type Approval documentation

Tests carried out

1. Vibration test;
2. Fire endurance test;
3. Burst pressure test;
4. Electric part: Applicable tests according to class guideline DNV-CG-0339, August 2021

Marking of product

For traceability to this type approval the products are to be marked with:



Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment as per DNV-CP-0338, Sec.4 to verify that the conditions for the Type Approval are complied with.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>.