

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Flexible Hoses and Hose assemblies of Non-Metallic Material**

with type designation(s)
HD-C, VHD-C, PHD-F, TW-E

issued to

ELAFLEX HIBY GmbH & Co. KG
Hamburg, Germany

is found to comply with

ISO 1825:2017 – Rubber hoses and hose assemblies for aircraft ground fuelling and defuelling – Specification
EI 1529 7th Edition, November 2014 – Aviation fuelling hose and hose assemblies
AS 2683:2000 Hose and hose assemblies for distribution of petroleum and petroleum products (excepting LPG)

Application:

Rubber hoses and hose assemblies for aircraft ground fuelling, defueling

Type:	Temperature range:	Max. working press.:	Sizes:
HD-C	-30°C up to +70°C	20bar	DN10 - DN100
VHD-C	-30°C up to +70°C	20bar	DN38 - DN100
PHD-F	-30°C up to +70°C	20bar	DN38 - DN100
TW-E	-30°C up to +70°C	20bar	DN25 - DN100

Issued at **Hamburg** on **2025-09-16**

This Certificate is valid until **2030-09-15**.

for **DNV**

DNV local unit: **Essen**

Approval Engineer: **Hagen Markus**

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

Rubber hoses and hose assemblies for aircraft ground fuelling, defueling and airport depot hoses.
Reference: Elaflex catalogue "Petrol + Chemical Hoses, Section 1":

Yellow Band aircraft refuelling hoses:

Type HD-C

Lining : Nitrile rubber (NBR), black, antistatic, no fuel solubility
Reinforcements : Textile braids without metallic strands
Cover : Chloroprene (CR), conductive, ozone and flame resistant, highly abrasion resistant

Type VHD-C

Special type with three textile braids and thicker wall for lower bending radii and good suction rates.

Type PHD-F

Special type with non-metallic plastic helix and thick wall for enhanced lateral stability.

Type TW-E

Suction-/discharge hard wall hose with galvanised steel helix for high suction and for gravity discharge.

Application/Limitation

Aviation Refuelling Hoses

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

Type Approval documentation

Tests carried out

Type tests according to hose design standard DIN EN ISO 1825:2017, EI 1529:2014, AS 2683:2000

Marking of product

Scope	Example
Hose assembly manufacturer	ELAFLEX  MADE IN GERMANY
Type	ELAFLEX HD-C
Design standard	DIN EN ISO 1825:2017, EI 1529:2014, AS 2683:2000
Production date hose Quarter / Year	3Q-25

Periodical assessment

Not applicable.