

TYPE APPROVAL CERTIFICATE

This is to certify:

That the **Proportional Control Valve**

with type designation(s)
D1FP/D3FP

Issued to

Parker Hannifin Manufacturing Germany GmbH & Co. KG
Kaarst, Nordrhein-Westfalen, Germany

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Location classes:

Temperature	D
Humidity	B
Vibration	B
EMC	A
Enclosure	B

Issued at **Hamburg** on **2024-08-09**

This Certificate is valid until **2029-08-08**.

for **DNV**

DNV local unit: **Essen**

Approval Engineer: **Heinz Scheffler**

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

The product designation of the device is made from combining the desired product characteristics in accordance with the following structure / nomenclature.

Nomenclature: Direct Operated Proportional DC Valve

Modelcode	aaaa	bcde	f	g	h	i	j	k	ll	mm	nnn
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Position	Characteristic	Characteristic value	Description
a	Valve series / Size	D1FP D3FP	Valve series D*FP, size NG6 Valve series D*FP, size NG10
b	Spool type*	E	Symmetrical flow P-A=P-B=A-T=B-T
		A	Reduced flow P-A, A-T
		B	Reduced flow P-B, B-T
c		0	Overlap spool, symmetric
		3	Overlap spool, asymmetric
		5	Zero overlap spool, symmetric
		6	Zero overlap spool, asymmetric
d		1 - 9	Flow characteristics
e		A	Low flow capacity
		- Z	- High flow capacity
f	Spool Fail Safe Position on valve power down**	A B C	10% flow P-A /B-T 10% flow P-B / A-T Spool in center position
g	Y-Port***	0 9	Y-Port unplugged (drain to valve Y-Port) Y-Port plugged (no drain to valve Y-Port)
h	Seal material	N V	NBR (Acrylonitrile Butadiene Rubber) FPM (Fluorinated Propylene Monomer)
i	Command signal	B S W	-10...+10V 4 - 20 mA digital input
j	Electronic accessories (plug)	0 5	6 + PE acc. EN175201-804 11 + PE acc. EN175201-804
k	Valve accessories	0 D	no options additional input for feedback sensor
l	Design code	≥50	new generation of D*FP valve series with NFC communication interface ("read only" communication)
m	Modification****	XG	customized adaption (e.g. spool geometrics, color, valve adjustment, parametrization)
n		001	Sequence No.
		- 999	

* defined by geometrical shape of sleeve windows and spool geometrics.

** fixed spool position in case of loss of power supply to the valve to ensure a secure fail safe behaviour in the application

*** Y-Port needs to be unplugged with PTank>35bar to unload actuator housing

**** optional, customized adaptation (i.e. color, mechanical valve adjustment, parameterization, customized nameplate)

Approval condition

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Application/Limitation

Additional requirements in accordance with the applicable DNV Rules must be proven for the respective application.

Location class Enclosure: IP65

Type Approval documentation

Test Reports:

- Pressure Test: D_FP GenIV Gehäuse, Aktuator_25-8-2023_8-16
- Functional Pressure Test: D1FP, D3FP Gen4_21-8-2023_8-21
- ENV & EMC Test: U240115E1; E240115E1; E240115E2; P23-PRCS009206a_en

Documents:

- Manuals: D1FP D 5715-740 UK_00_Manual; D1FP D 5715-741 UK_00_Manual
- Data Sheets: D1FP XG505 UK dated 19.01.23; D1FP_XG520 UK, dated 29.11.23

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE