

ENGINEERING
TOMORROW



Danfoss Power Solutions

Danfoss Multiplate System (Multi-FF)

Connecting fast and easy multiple lines



Our innovative **Multiplate System**

Our new Multi-FF further extends all the benefits of our FF couplings.

Designed for any application requiring multiple hydraulic fluid connections for power transmission, our innovative system supports two to six FF couplings simultaneously. When configured to connect-under-pressure, Multi-FF also supports easy manual connection up to 350 bar.

Multi-FF makes hose connectivity both faster and simpler, as well as offering a modular and flexible design that can be customized to meet your specific requirements. This includes an option to connect electrical connections, alternative materials, a one-side handle, specialized couplings for water or air transfer, and the ability to integrate our Snap-To-Connect system.

Smaller and lighter

Compact and light our Multi-FF solution gives manufacturers greater design flexibility and enables the creation of even more compact, energy-efficient machines. It's also easier to move attachments and create connections during assembly, installation and maintenance.

Exceptional ease-of-use

The system features an ergonomic handle for operator comfort, which only requires a short 130° rotation to make a connection and has distinctive start and end positions. A push button can also easily open the plates to end the connection. Additionally, the system requires a considerably lower force-to-connect—just 50N in a 4x10FF configuration.

Robust and reliable

Alongside the excellent corrosion protection, our Multi-FF patented internal mechanism is designed to withstand heavy duty cycles in the most demanding applications. This ensures the greatest possible uptime and also reduces maintenance costs.

Simplified maintenance

Replacing a failed coupling can be time-consuming and expensive in some multiplate systems. Instead, we've made it very easy to replace a coupling in the field with standard tools, minimizing downtime. Our Multi-FF solution can also integrate our Snap-To-Connect system for couplings and hose fittings, which enables faster assembly, as well as reducing the risk of failures due to the wrong torque being used.

Modular and flexible

We've designed our Multi-FF system to be hugely customizable to your specific needs. There are options to include electrical connectors, as well as specialized couplings for water or air transfer. In addition, the integrated FF couplings are available in both carbon steel and stainless steel.

Cleanliness

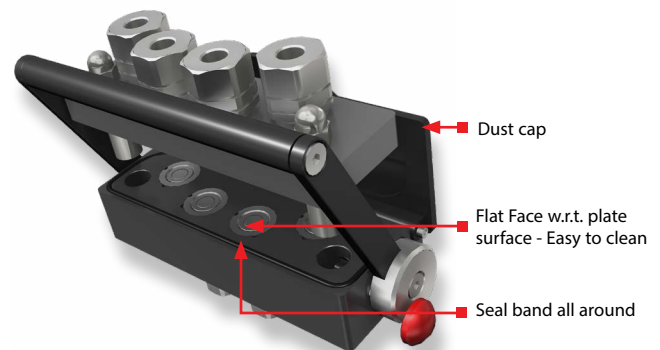
Our Multi-FF system also greatly reduces the chance of contamination of the couplings when used in dirty environments, which can compromise the entire hydraulic circuit. An integrated sealing band between the plates prevents any contact of the couplings with dirt during operation. In addition, the fix plate features a dust cap that automatically closes to protect female couplings during disconnection.



Multiplate **Standard Configurations**

Key features:

- Robust internal mechanism and linear connection for a long service lifetime
- Easy for untrained operators to use with optimum force-to-connect
- Integrated contamination protection through sealing band and dust caps
- Improved serviceability through easy to replace couplings, dust cap and safety pin mechanism
- Modular design that allows for customized solutions with electrical connectors or specialized couplings



Technical information:

- Supports FF coupling sizes 6, 10, 12 and 19
- Performance exceeds ISO 16028 standard:
 - Qualified for 350 bar operating pressure
 - Integrated couplings exhibit up to 74% higher flow rates
- Connect under residual pressure up to 350 bar with CUP option
- Plates constructed in aluminium
- Couplings available in zinc plated carbon steel and 316L stainless steel
- Flat Face couplings has up to 1000 hours corrosion resistance

	Multi-FF Part number	No. of coupling ports	Coupling type	Coupling body size	Pattern	Operating pressure	Seal	No. of Electrical port	No. of contacts in electrical connector	End connection for couplings ##
	4MFC-10CUP15LS11	4	FFCUP**	ISO 10	DLM122	250 bar	NBR	0	–	15L as per ISO 8434-1
	4MFCE1-12CUP15L	4	FFCUP	ISO 12	Generic	350 bar	NBR	1	3#	15L as per ISO 8434-1
	4MFC-12CUP15L	4	FFCUP	ISO 12	Generic	350 bar	NBR	0	–	15L as per ISO 8434-1
	4MFC-1015L	4	FF*	ISO 10	Generic	350 bar	NBR	0	–	15L as per ISO 8434-1
	4MFCE1-1015L	4	FF	ISO 10	Generic	350 bar	NBR	1	3	15L as per ISO 8434-1
	6MFC-1015L	6	FF	ISO 10	Generic	350 bar	NBR	0	–	15L as per ISO 8434-1

* FF is ISO 16028 interchange flat face series coupling

** FFCUP is ISO 16028 interchange flat face series coupling with connect under residual pressure capability on plug side

No. of contacts in each connector is configurable and connector can be provided with 3 to 12 number of contacts as per requirement

Other end connection styles and sizes are available. See next page for list of end connection available for configuration. Contact Danfoss CSR for more information.

Note: This limited list of configurations are indicative only. Danfoss's Multi-FF solution is highly configurable and optimum solution can be provided to meet application requirements. Please contact Danfoss CSR for more information.

Multiplate Configurable Design

4 MF C E1-12 ML 50BS 192 S11

Number of QDC

This digit specifies number of QDC's in a Multi-FF set. MF is family name for Danfoss's Multiplate solution.

Type of assembly

- C:** Complete set of Multi-FF system
- P:** Movable plate sub-assembly (attachment side)
- S:** Fixed plate sub-assembly (equipment side)

Electrical connector

This position indicates number of electrical connectors in particular Multi-FF system.
(no code) = No electrical connector
E1 = 1 electrical connector
E2 = 2 electrical connectors
Etc.

QDC Body size

ISO size of QDC's used.
6 = 1/4"
10 = 3/8"
12 = 1/2"
16 = 5/8"
19 = 3/4"
25 = 1"

End connection thread size

- For BSPP, NPT, UN, UNF threads:

Fraction in inch x 100
1/4" = 25; 3/8" = 37; 1/2" = 50;
5/8" = 62; 3/4" = 75; 1" = 100

- For Metric threads:

2 character nominal thread size
e.g. M5=05; M10=10; M22=22

- For ISO 8434-1 terminal end:

2 digits tube size per ISO 8434-1

End connection size and code

PT = NPT
MET = Metric
BS = BSPP
UN = UNF
L = ISO 8434-1 Light Duty
S = ISO 8434-1 Heavy Duty

Product series code

This position is to define type of QDC being used in Multi-FF solution.

- (no code) = Flat Face ISO 16028
- CUP = Flat Face Connect under Pressure ISO 16028
- MLFF = SS version of ISO 16028 coupling
- MLDB = SS version of Dry break coupling (water transfer, etc.)
- ADB = Dry break coupling in Aluminium (for cooling line, etc.)
- G600/G700 = Pneumatic application coupling

S11

Danfoss internal code for special QDC pattern or configuration

Seal code

(no code) = NBR
143 = FKM
192 = EPDM
507 = HNBR
242 = Kalrez® 6375
503 = FFKM

MLDB Series (Stainless Steel)

Flat Face/Dry Break

Danfoss's MLDB Series stainless steel coupling is a flat face/dry break coupling used for fluid transfer applications. The MLDB Series offers the ability to connect with less force, higher sealing performance and are available in multiple configurable end connections.



ADB Series (Aluminium)

Flat Face/Dry Break

Danfoss's Aluminium Flat Face ADB coupling is a flat face/ dry break coupling used for cooling systems in electric applications with circulating water and antifreeze fluids. This coupling is providing an enhanced solution for preventing spillage of cooling agent which can cause technical failures, system shutdowns, and difficult clean-ups.



G600 Series

ISO 6150 B Interchange

Danfoss's Gromelle™ G600 Series is a single shutoff compressed air coupling that interchanges with ISO 6150 B and US A-A-59439 Standards requirements. Nominal diameter is 5.5 mm. Its new revamped design and the materials used make it a rugged and long-lasting coupling, offered in a wide selection of end connections. It is used in general pneumatic applications.



MLFF Series (Stainless Steel)

ISO 16028 Flat Face/Dry Break

Danfoss's MLFF Series stainless steel coupling is a flat face dry break coupling used for hydraulic applications. The MLFF Series interchanges with all ISO 16028 profiles. Due to its stainless steel design, it is corrosion resistant and can handle aggressive environments.



Notes

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