DP - GR: glossary

Flat face
Flat face is easy to clean, helping to reduce the inclusion of contamination in the hydraulic circuit

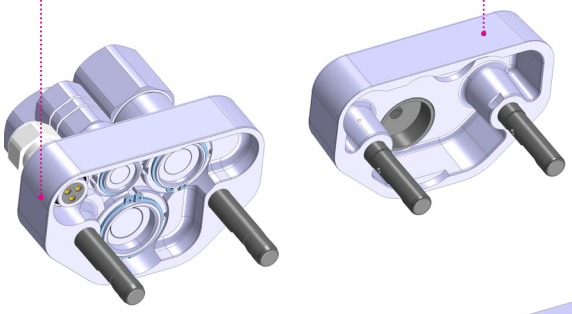
+ Male & female couplings
Equipped with a patented special valve to connect & disconnect the hydraulic lines. Special couplings available for water cooling or pneumatic lines. The main purpose of the couplings is to convey fluid, hydraulic signals or energy thru the lines and automatically shut off without spillage during disconnection.

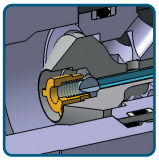
Electrical connector
Electrical connector option
Possible to integrate an electrical connector with hydraulic couplings in the same multiconnection. It is a good complement to Stucchi multiconnection adding the possibility to conduct low voltage signal for solenoid valve, sensor or other electronic Customer devices.

Fixed plate
It is called "fixed" because is normally installed on the machine, thanks to the bolting holes to assemble the body on the frame of the Customer equipment. Fixed multiconnection is normally supplied with male couplings installed

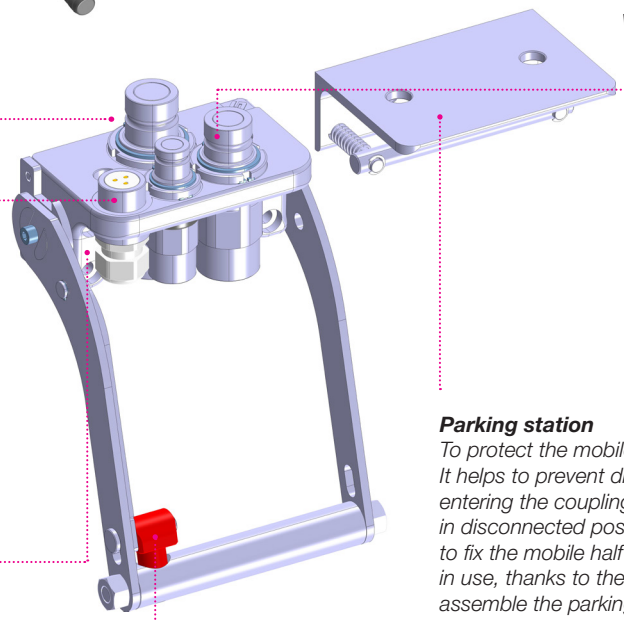
Mobile plate
It is called "mobile" because is normally installed on the attachment (it is the part with the locking pins).
The couplings of the mobile parts are connected to the flexible hose bundle of the attachment, so the mobile part of the Customer equipment.

Cover for fixed multiconnection
Reinforced design made in Aluminum in order to resist to weather conditions. It helps to prevent dirt, pollutants & contamination entering the couplings of fixed multiconnection in disconnected position.



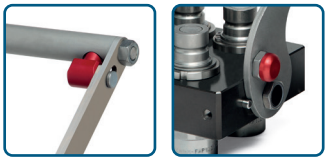


Male residual pressure eliminator
Patented internal pressure release valve system allows an easy connection with high internal residual pressure

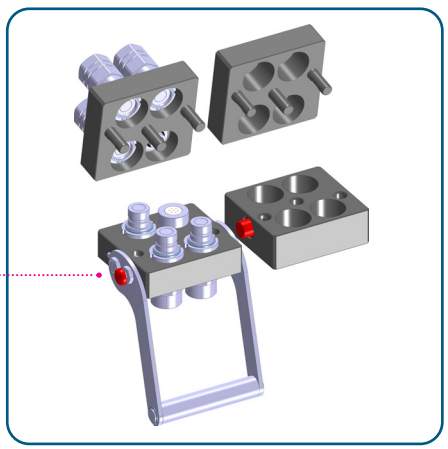


Parking station
To protect the mobile half when disconnected. It helps to prevent dirt, pollutants & contamination entering the couplings of mobile multiconnection in disconnected position. In addition to that, it helps to fix the mobile half with his hose bundle when not in use, thanks to the fixing holes making possible to assemble the parking station on the attachment frame

Levers & Locking
Ergonomic lever for easy connection/ disconnection with Safety lock system avoids accidental disconnection

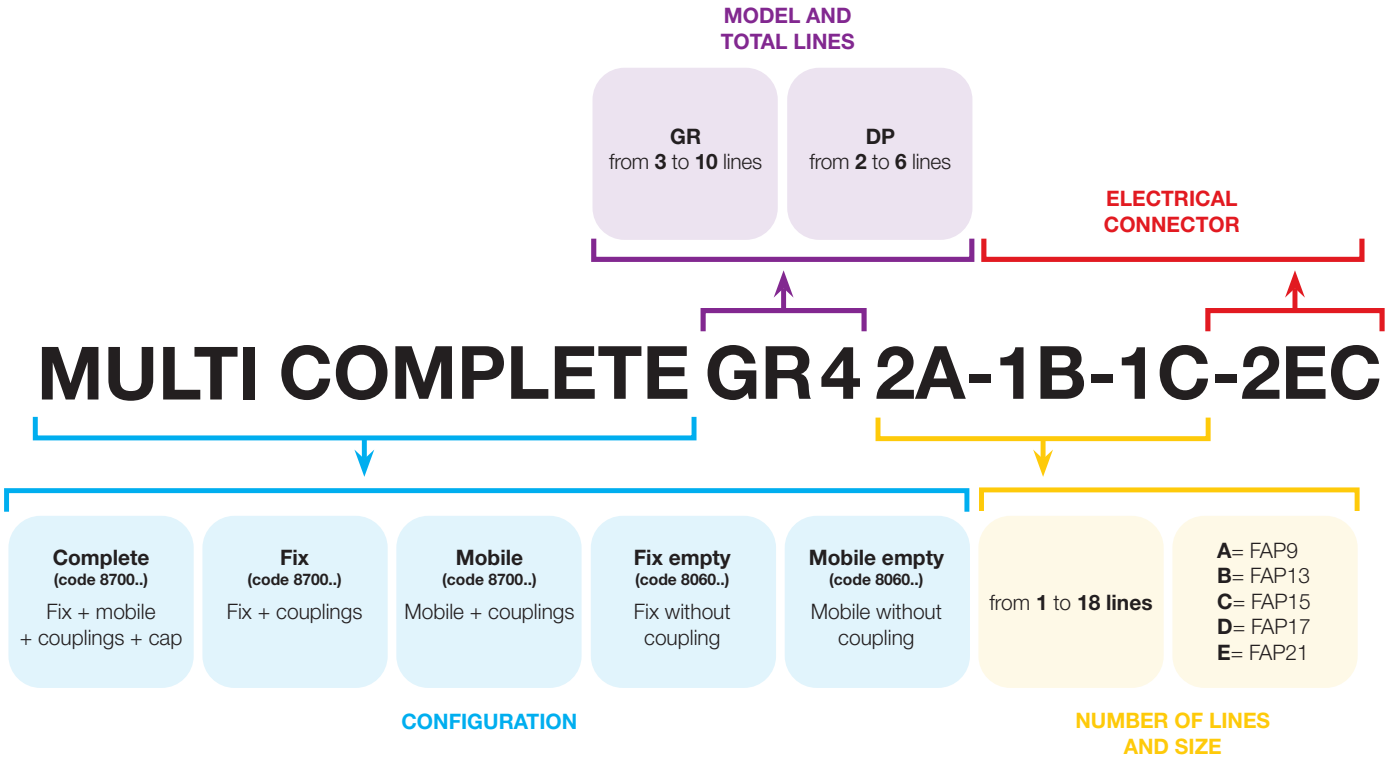


Same glossary for DP



DP - GR: multi description

The stucchi multicoupling description can help you to easily know the characteristics of a multicoupling: configuration and model, number of lines and size, presence of electrical connectors. See the example below…



DP - GR: multi map

Stucchi®

New name	Family	Total Lines	FAP9 (A)		FAP13 (B)	FAP15 (C)	FAP17 (D)	FAP21 (E)	FAP30 (G)	EC*		Previous description	Page
Body size			3/8”		1/2”	5/8”	3/4”	1”	1-1/2”	3/8”	1/2”		
Max flow suggested (l/min)			46		90	148	200	378	750				
Mostly used adaptor (main alternative thread)			3/8” (1/2”)		1/2” (3/4”)	3/4”	1” (3/4”)	1-1/4” (1”)	1-1/2”				
DP2 2A-1EC	DP	2	2	A						1		DP2-9ZN	30
DP2 2A-2EC V04	DP	2	2	A						2		DP2-9L	32
DP2 2B-1EC	DP	2			2						1	DP2-13ZN	34
DP2 2B-2EC V04	DP	2			2						2	DP2-13L	36
DP2 2C	DP	2				2						DP2-15	38
DP2 2D	DP	2					2					DP2-17ZN	40
DP2 1A-1B	DP	2	1	D	1							DPT2ZN	42
DP3 1A-1B-1EC	DP	3	1	D	1					1**		DPT3ZN	44
DP3 1A-2C-1EC V04	DP	3	1	D		2				1			46
DP3 1C-2E	DP	3				1		2				DP3GE	48
DP3 2A-1EC	DP	3	2	A						1**		DPJ3ZN	50
DP4 4A V02	DP	4	4	A								DP4-9FAZN	50
DP4 4A-2EC	DP	4	4	A						2		DP4-9ZN	52
DP4 4B-2EC	DP	4			4						2	DP4-13ZN	54
DP6 4A-2EC	DP	6	4	A						2**		DP6-9ZN	56
DP6 2A-4D-2EC	DP	6	2	D			4			2		DP6AD	58
GR3 3A-1EC	GR	3	3	A						1		GR3-9ZN	60
GR3 3B-1EC	GR	3			3						1	GR3-13ZN	62
GR3 1A-2E-1EC	GR	3	1	D				2		1		GRK3ZN	64
GR3 2B-1C-2EC	GR	3			2	1					2	GRI3	66
GR4 2A-1B-1C-2EC	GR	4	2	D	1	1				2		GRI4SBZN	68
GR4 2A-2B-2EC	GR	4	2	D	2					2		GRB4ZN	70
GR4 2A-1B-1D-2EC	GR	4	2	D	1		1			2		GR4MRZN	72
GR4 2A-1C-1D-2EC	GR	4	2	D		1	1			2		GRI4ZN	74
GR4 2A-2C-2EC	GR	4	2	D		2				2		GRI4TBZN	76
GR5 2B-3D-2EC	GR	5			2		3				2	GR5AAZN	78
GR5 3A-1D-1E-2EC	GR	5	3	D			1	1		2		GRD5ZN	80
GR5 2B-2C-1E-2EC	GR	5			2	2		1			2	GRZ5ZN	82
GR5 5C	GR	5				5						GR5-15ZN	84
GR6 6A-2EC	GR	6	6	A						2		GR6-9ZN	86
GR6 4A-2B-2EC	GR	6	4	D	2					2		GRT6ZN	88
GR6 4B-2D-4EC	GR	6			4		2				4	GR6ABZN	90
GR6 2A-2B-2C-2EC	GR	6	2	D	2	2				2		GRM6MCZN	92
GR6 6B-2EC	GR	6			6						2	GR6-13ZN	94
GR6 3A-1B-1C-1D-2EC	GR	6	3	D	1	1	1			2		GRC6ZN	96
GR6 1A-1B-1C-2D-1EC	GR	6	1	D	1	1	2			1		GRP6ZN	98
GR6 2A-2C-2D-2EC	GR	6	2	D		2	2			2		GRM6ZN	100
GR6 2A-2B-1D-1E-2EC	GR	6	2	D	2		1	1		2		GRU6ZN	102
GR6 2B-4D-2EC	GR	6			2		4				2	GR6LLZN	104
GR6 2A-4C-2EC	GR	6	2	D		4				2		GRM6ALZN	106
GR6 2A-1B-2D-1E-3EC	GR	6	2	D	1		2	1		2	1	GR6AF	108
GR7 4A-3B-4EC	GR	7	4	D	3					4		GR7ABZN	110
GR7 4A-3B-4EC V01	GR	7	4	D	3					4		GR7ABZNLC	110
GRHP7 7A-4EC	GR	7	4 3	D “HP”						4		GR7ACZN	112
GR7 4A-1B-2D-4EC	GR	7	4	D	1		2			4		GR7AAZN	114
GR8 6A-2B-6EC	GR	8	6	D	2					6		GR8ABZN	116
GR8 7A-1D-7EC	GR	8	7	D			1			7		GR8AAZN	118
GR10 10A-2EC	GR	10	10	D								GR10-9LCZN	120
GR10 10A-2EC V01	GR	10	10	D								GR10-9ZNSD	120
GR10 10A-2EC V03	GR	10	10	D						2		GR10-9ZN	120
GR10 10B-2EC	GR	10			10						2	GR10-13ZN	122

* Electrical Connector instead of hydraulic line

** this line is only dedicated for EC

FAP9 “A” and “D”: the version is depending on the type of multicoupling in use.

DP - GR: how to choose

Step A

Define the type of multicoupling you need

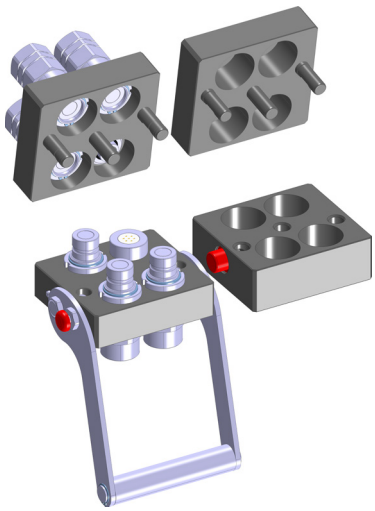
Step B

Choose configuration of the multicoupling

Step C

Set up each line

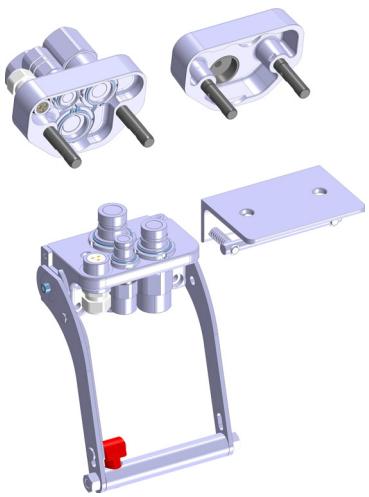
A. DEFINE THE TYPE OF MULTICOUPLING YOU NEED



DP

Features

- Hydraulic oil power line
- Operating pressure up to 350 bar
- Dis/connection under pressure
- Up to 6 lines
- Body in aluminium with special treatment
- Locking on the side



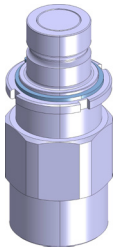
GR

Features

- Hydraulic oil power line
- Operating pressure up to 350 bar
- Dis/connection under pressure
- Up to 10 lines
- Body in brass with nickel plating
- Locking on the lever

DP - GR: how to choose

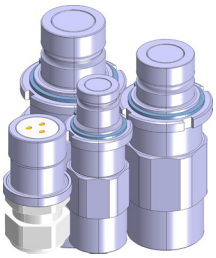
B. CHOOSE CONFIGURATION OF THE MULTICOUPLING



1 Dimension your couplings and EC

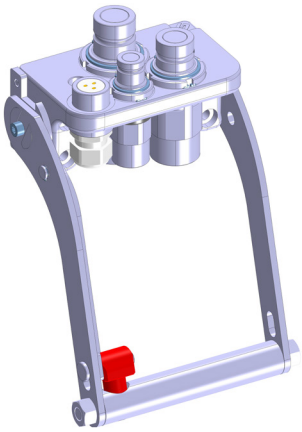
Coupling size choice is based on:

- Flow/Pressure drop
- Operating pressure (check on the FAP-ZN, FAP-HP or FAQ serie datasheet)
- Hose/Port size



2 Define your configuration = List your couplings & EC

***Eg**: 2 x size 3/8" + 1 x size 1/2" + 1 EC*



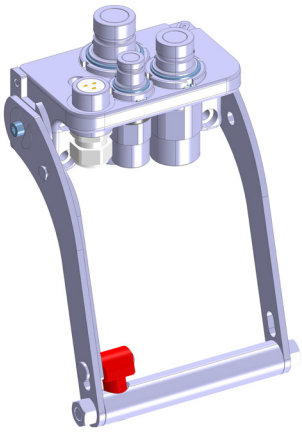
3 Choose the multicoupling for your configuration

Use the overview table 'Multi Description' to choose the multicoupling for your listing/ configuration

Advice:

1. You can increase the size of some couplings to have a better match with an existing configuration.

2. In case of too many lines, you may need to divide your configuration in different plates.



4 Verify the resistance of your multicoupling

Use '*Max. Multicoupling Resistance*' provided on the single datasheet to be sure that the multicoupling will be able to handle the pressure once connected.

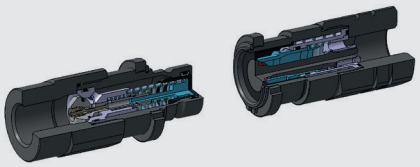
See page 27 for details.

DP - GR: how to choose

C. SETUP EACH LINE

Hydraulic oil
Connectable under pressure
Medium pressure

FAP-ZN*



Hydraulic oil
Connectable under pressure
High pressure

FAP-HP

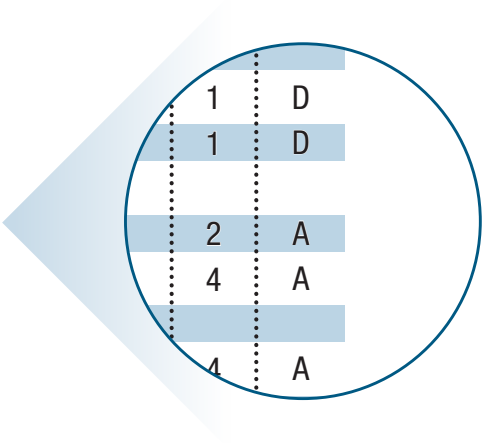
Water-Glycol
Not connectable under pressure
Low pressure

FAQ

Choose your port type (BSP/SAE-ORB/NPT...) and port size

* if size 3/8" check the multicoupling to know if you need a type A or D (See Multi Map pag. 16)

New name	Family	Total Lines	FAP9 (A)	
Body size			3/8"	
Max flow suggested (l/min)			46	
Mostly used adaptor (main alternative thread)			3/8" (1/2")	
DP2 2A-1EC	DP	2	2	A
DP2 2B-1EC	DP	2		
DP2 2B-2EC V04	DP	2		
DP2 2C	DP	2		
DP2 2D	DP	2		
DP2 1A-1B	DP	2	1	D
DP3 1A-1B-1EC	DP	3	1	D
DP3 1C-2E	DP	3		
DP3 2A-1EC	DP	3	2	A
DP4 4A-2EC	DP	4	4	A
DP4 4B-2EC	DP	4		
DP4 4A V02	DP	4	4	A
DP6 4A-2EC	DP	6	4	A
DP6 2A-4D-2EC	DP	6	2	D



DP - GR: features

Technical features and options

Interchange
Stucchi internal specification

Available threads
BSP NPT SAE

Mechanical connection
Internal cams and locking pins

Valving style
Flat Face

Connection/disconnection system
Rotating the lever after disengage the locking system

Operating pressure
Up to 350 bar/5000 psi

Construction material and surface treatment
Body plates in aluminum alloy with hard oxidation surface treatment for DP; Body plates in brass with nichel plating for GR; lever in carbon steel with zinc nickel plating.

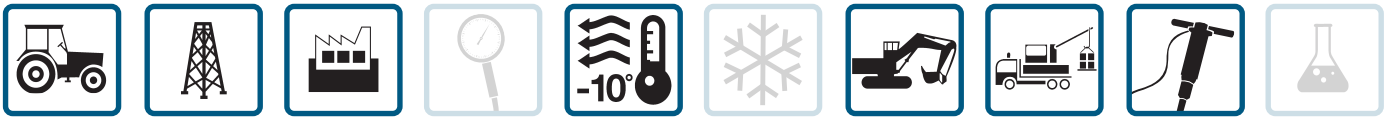
Flow rate
Up to 378 l/min - 100 GPM

Nominal diameter available
FAP9=3/8", FAP13=1/2", FAP15=5/8", FAP17=3/4", FAP21=1"

Temperature
from -20 °C to +100 °C
(from -4 °F to +212 °F).

Connection under pressure
Connectable with residual pressure in both sides with FAP-ZN couplings

Application



Benefits

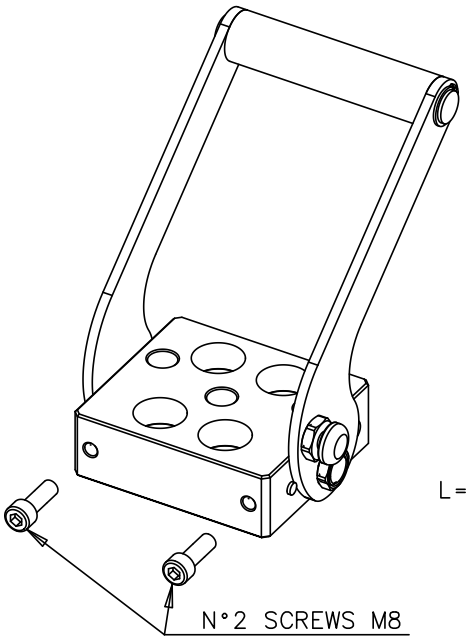
- Optimal solution for hydraulic fluid power applications with a operating pressure up to 350 bar.
- Quick connection and disconnection of up to ten hydraulic, electrical and pneumatic lines without any risk to incorrect connection of the lines.
- Ergonomic lever for easy connect/disconnect with residual pressure.
- Patented coupling design to connect/disconnect multiple couplings with high residual pressure.
- Flat face couplers eliminate environmental issue of leakage.
- No risk of misalignment or misconnection with guide pin design.
- Couplers mounted with snap rings for ease of installation or replacement.
- Fixed half male couplers interchangeable with FIRG or A series flat face coupling for temporary diagnostic purpose.
- Electrical connector option for electronic control systems.
- Easily mounted on new equipment or retrofit on pre-existing system.

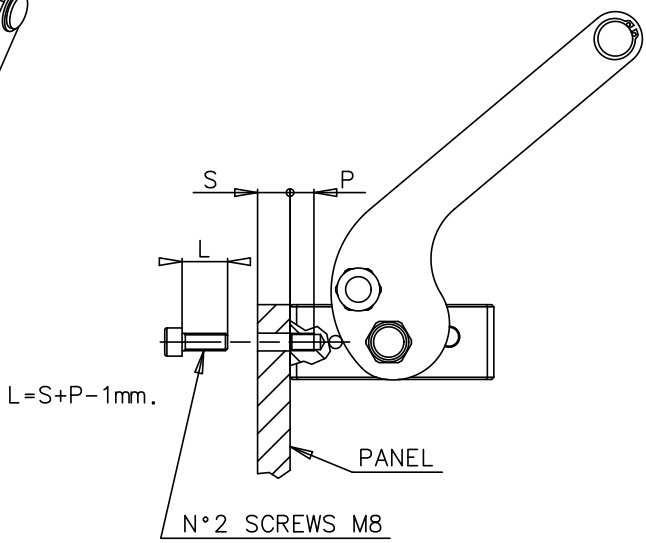
DP - GR: installation

Installation

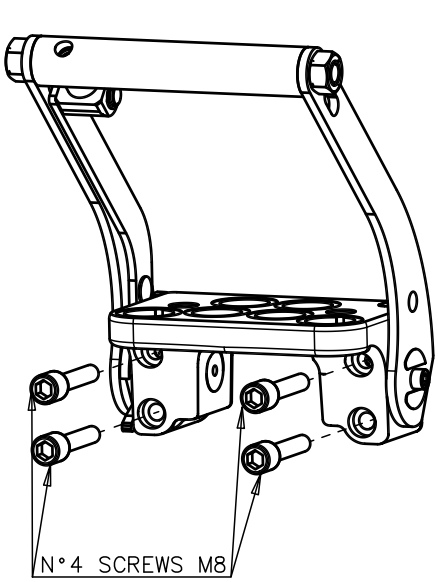
- Ensure the space to assemble the multiconnection is enough to allow the correct connection & disconnection in an ergonomic way. Check the drawing of the multiconnection referring to the corresponding datasheet.
- For GR version: If the fixed multiconnection has the couplings assembled in the holes: disassemble the couplings close to the fixing holes prior to proceed with the installation.
- Attach the fixed multicoupling on the machine using fixing screws as indicated in the drawing below.
- After having assembled the couplings on the hoses, place the couplings in the holes of the multicoupling and lock them using proper threaded sleeve and/or seeger/snap rings. Please refer to corresponding FAP-ZN or FAQ coupling series datasheet for further information.
- Use flexible hoses to connect the couplings; avoid to using rigid pipes as they could transmit excessive side load & vibration to the multiconnection.

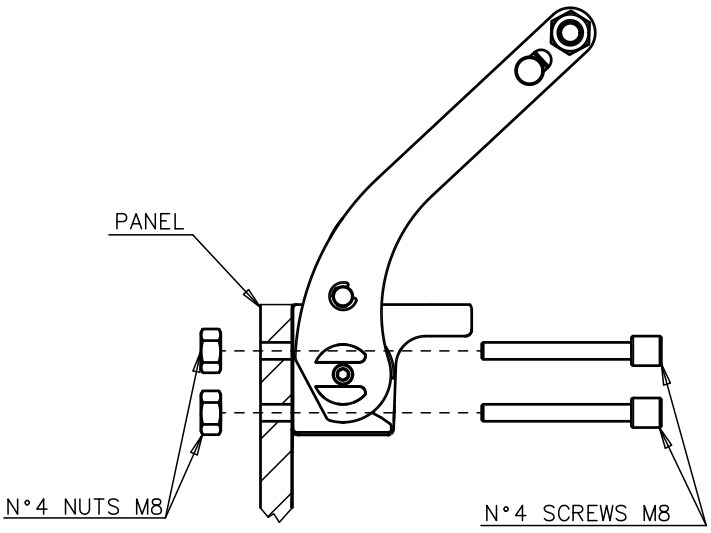
DP





GR





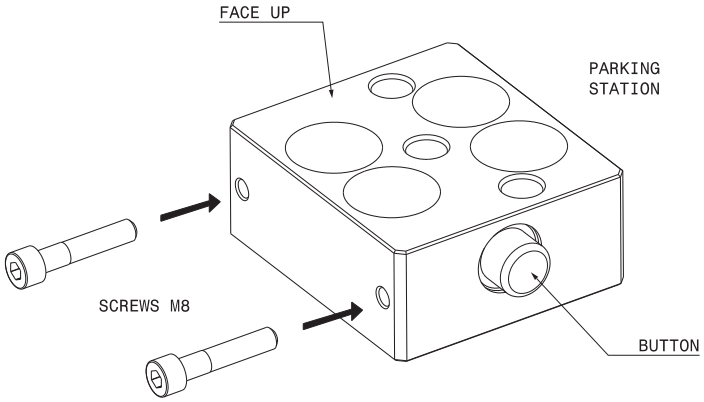
DP - GR: installation

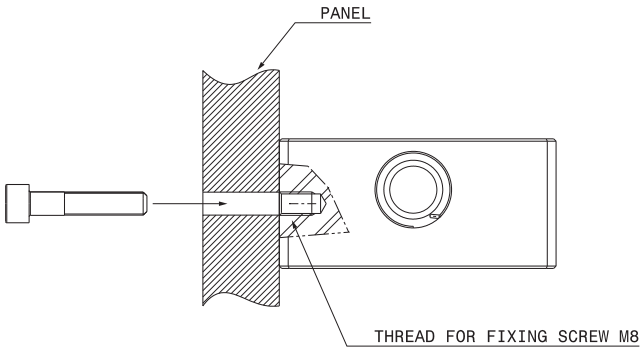
To install the parking station
Ensure the space to assemble the parking station is enough to allow the correct connection & disconnection in an ergonomic way.
Check the drawing of the parking station.

Fix the parking station body on the machine or the frame of the attachment using fixing screws as indicated in the drawing of the corresponding parking station.

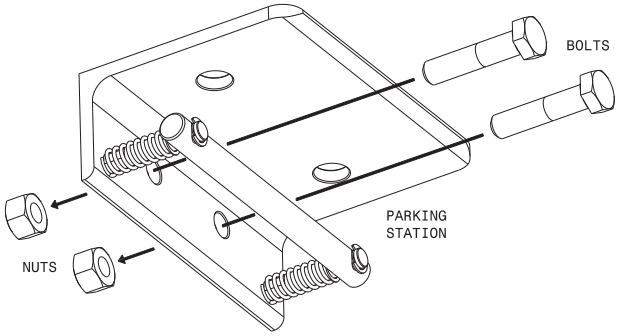
Please verify the parking station is placed “face up”.

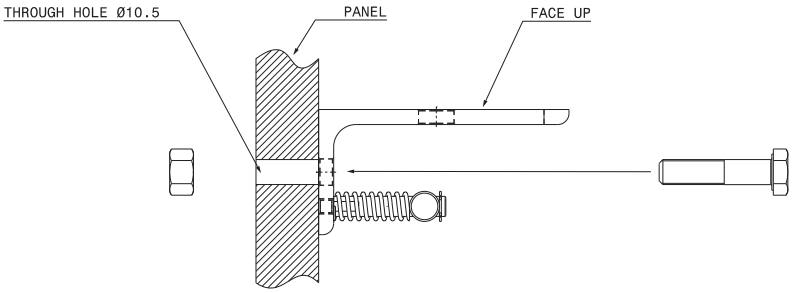
DP





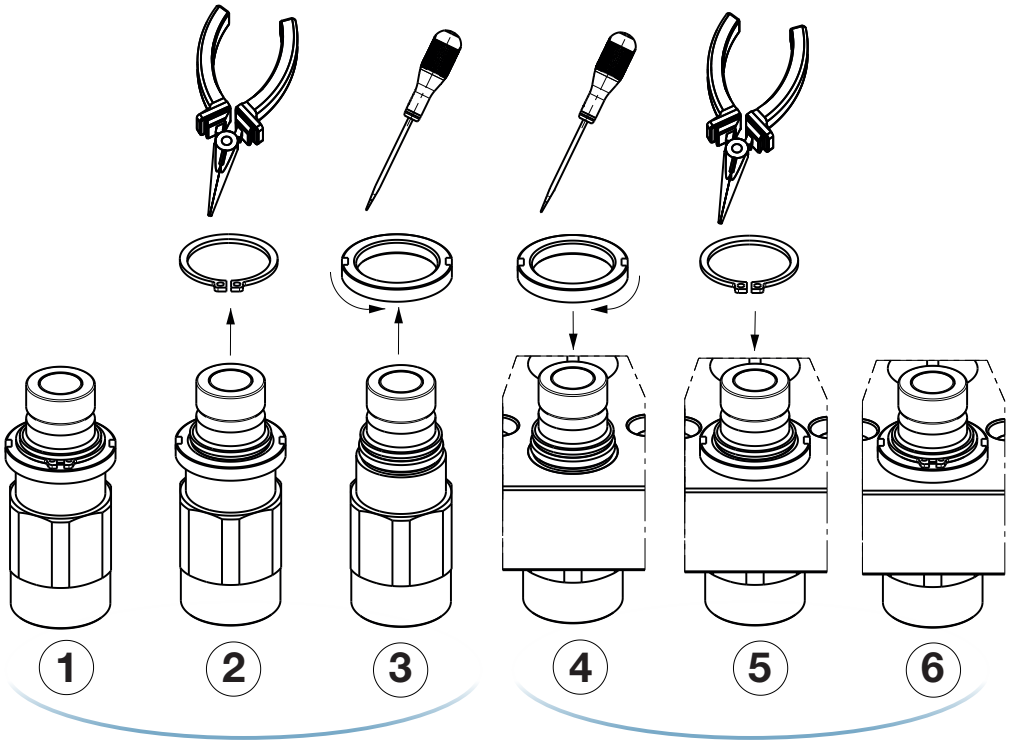
GR

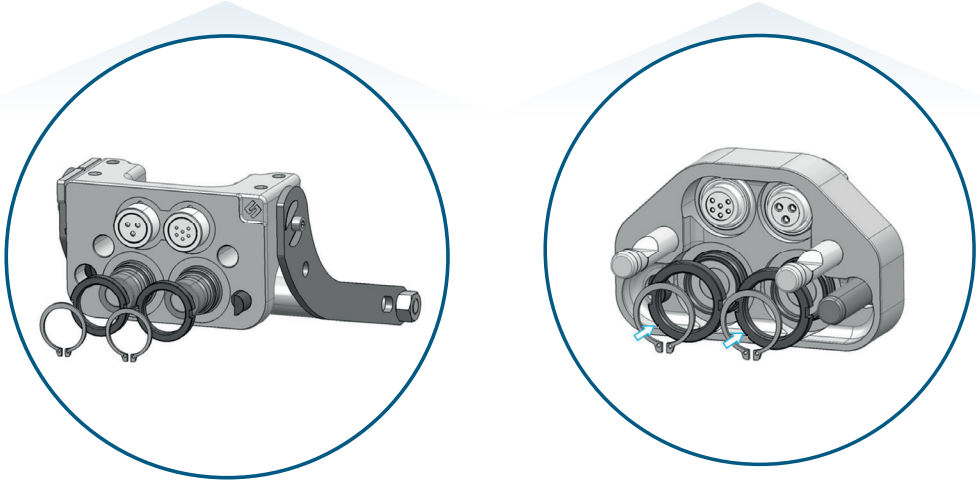




FAP-ZN: How to install

- FAP-ZN couplings are normally supplied already assembled on the Stucchi multiconnection or may be supplied as a spare part to be replaced on a Stucchi multiconnection.
- To assemble the FAP-ZN couplings on the multiconnection: take away the seeger ring, unscrew the threaded nut, mount the flexible hose on the threaded port (screwing with the proper torque), insert the coupling in the hole of the multiconnection; screw the threaded nut with a manual torque (an overtorque is not necessary!) then assemble the seeger ring to lock the threaded nut (fig. below 1…6) .
- To disassemble the FAP-ZN couplings from the multiconnection: take away the seeger ring, unscrew the threaded nut, extract the coupling from the hole of the multiconnection (fig. below viceversa 6 to 4) then proceed to disassemble the flexible hose from the threaded port.
- Before connecting clean the flat mating surface of coupling to avoid inclusion of contamination in the circuit.
- Connect and disconnect in according to the instruction of use for multicoupling.
- Test the correct functioning of the couplings



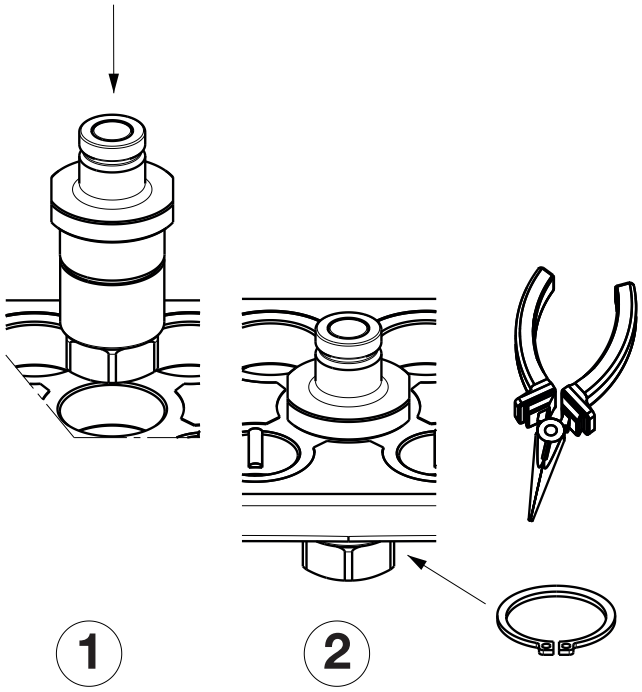


WARNING

During the assembly/dismantling of the quick couplings, be careful to not deform the seeger rings. if deformed, replace them.

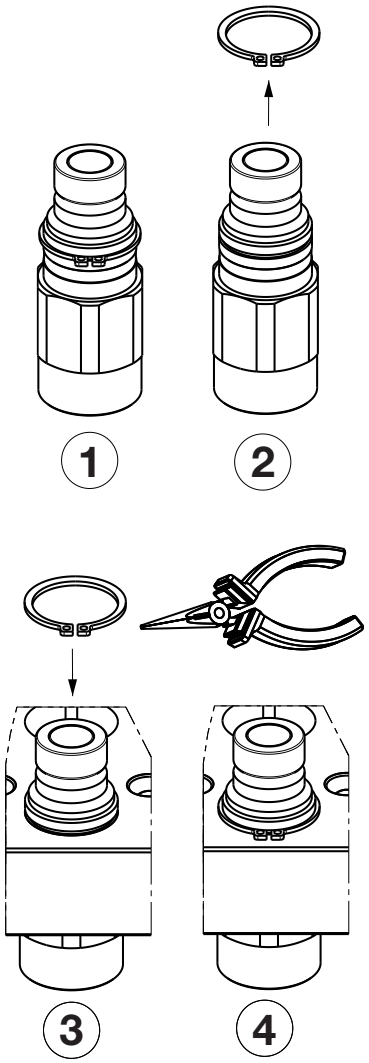
FAP-HP: How to install

- FAP-HP couplings are normally supplied already assembled in the Stucchi multiconnection or may be supplied as a spare part to be replaced on a Stucchi multiconnection.
- To assemble the FAP-HP couplings in the multiconnection: take away the seeger ring on the back side of the male & female, insert the coupling in the hole of the multiconnection then assemble the seeger ring on the back of side to lock the couplings in the plates, mount the flexible hose on the threaded port (screwing with the proper torque), (fig. below 1…2) .
- To disassemble the FAP-HP couplings from the multiconnection: take away the seeger ring from the back side of male & female then proceed to disassemble the flexible hose from the threaded port. , extract the coupling from the hole of the multiconnection (fig. below reverse process)
- Before connecting clean the flat mating surface of coupling to avoid inclusion of contamination in the circuit.
- Connect and disconnect in according to the instruction of use for multicoupling.
- Test the correct functioning of the couplings



FAQ: How to install

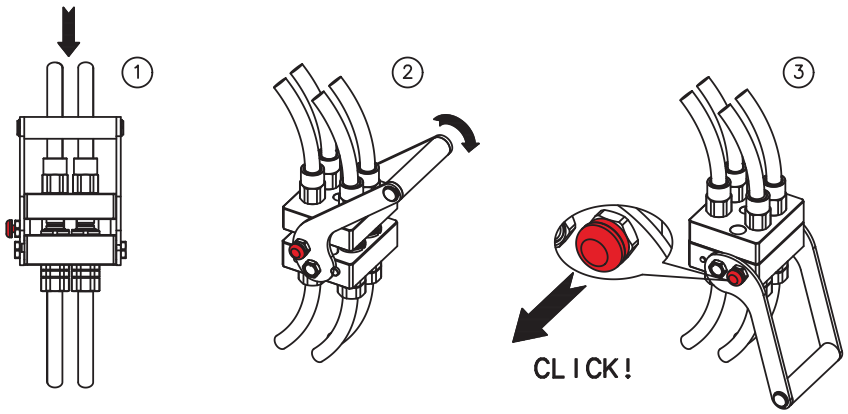
- FAQ couplings may be fitted in the same holes of FAP-ZN couplings; read the table on the specific multiconnection as described below:
- FAP9A: in the hole may be assembled the FAQ9A coupling
- FAP9D: in the hole may be assembled the FAQ9D coupling
- FAP13 or FAP15 or FAP17 or FAP21 : in the hole may be assembled respectively FAQ13,15,17,21 coupling.
- FAQ couplings are normally supplied already assembled on the Stucchi multiconnection or may be supplied as a spare part to be replaced on a Stucchi multiconnection.
- To assemble/disassemble the FAQ couplings on the multiconnection: take away the seeger ring from the groove, assemble the flexible hose on the threaded port, insert the coupling in the proper hole of the multiconnection; then assemble the seeger ring to lock the FAQ in the multiconnection.Follow the sequence shown in the drawing below from 1 to 4 for assembly operation; to disassemble follow the same sequence but viceversa from 4 to 1.
- Be careful during the assembly of the seeger ring: if damaged replace it with a new one.
- Before to couple clean the flat mating surface of quick coupling to avoid the inclusion of dirty in the circuit.
- Connect and disconnect in according to the instruction of use for multicoupling.



DP: how to use

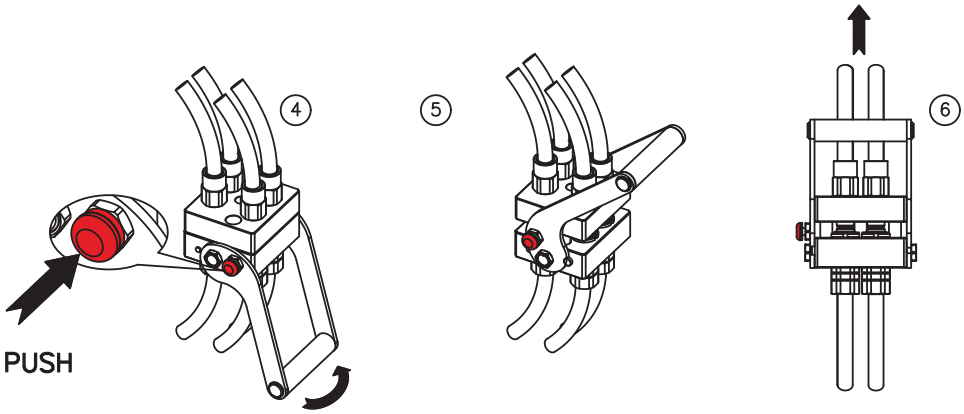
To connect

- Before coupling, clean the flat mating surface of the couplings to avoid inclusion of dirt in the circuit.
- Insert the guidance pins of the mobile multicoupling into the holes of the fixed multicoupling and move the mobile half till the contact of the couplings faces (fig. 1).
- Acting on the handle turn the lever in the direction of the fixed multicoupling (fig. 2).
- Continue to rotate till the safety lock automatically engage itself (fig. 3).
- Now the multicoupling is coupled and ready to work.
- In case of connection with residual pressure in the circuit, the maximum force is required only for the last third of the connection.



To disconnect

- Push the red safety button, at the same time acting on the handle turn the lever in the direction of the mobile multicoupling (fig. 4).
- Continue to rotate till the mechanical stop of the levers (fig. 5)
- Now the multicoupling is uncoupled and it is possible to pull out the mobile half (fig. 6).
- In case of disconnection with residual pressure in the circuit, the maximum force is required only for the first third of the disconnection.



DP - GR: resistance

Resistance

All Stucchi multicouplings have been tested at their maximum resistance by impulse pressure test (for 200.000 cycles in according with ISO norm; 100.000 cycles for model GRHP7 7A-4EC.
The maximum resistance (N) for each multicoupling model is indicated in the data sheets.

The force applied to multicoupling coupled depends on the number of couplings under pressure at the same time, on their operating pressure and on their size. For a correct use of the multicoupling it is necessary to verify that the force is not higher than the maximum resistance of the multicoupling.

F = [(P3/8x S3/8) + (P1/2x S1/2) + (P5/8x S5/8) + (P3/4x S3/4) + (P1x S1)] x 10
F = Force applied to multicoupling (N)
P = Total amount of operating pressure coupled in the couplings with same size (bar)
S = Hydrostatic pushing area coupled (cm2)

The operating pressure for a single coupling must not be higher than the maximum operating pressure coupled indicated in table.

Coupling size	Hydrostatic pushing area coupled	Maximum operating pressure coupled for FAP-ZN couplings
FAP-ZN9 - 3/8	S3/8= 1,226 cm2	35 Mpa (350 bar)
FAP-ZN13 - 1/2	S1/2= 1,893 cm2	33 Mpa (330 bar)
FAP-ZN15 - 5/8	S5/8= 2,404 cm2	33 Mpa (330 bar)
FAP-ZN17 - 3/4	S3/4= 3,298 cm2	33 Mpa (330 bar)
FAP-ZN21 - 1	S1 = 4,335 cm2	30 Mpa (300 bar)

Example

Max. resistance of 870015092 MULTI COMPLETE GR6 2A-2C-2D is 23000 N.

To verify if 870015092 MULTI COMPLETE GR6 2A-2C-2D multicoupling resists to operating condition of following application:
One line size 3/8 with max. operating pressure coupled of 30 Mpa (300 bar)
One line size 3/8 with max. operating pressure coupled of 15 Mpa (150 bar)

One line size 5/8 with max. operating pressure coupled of 25 Mpa (250 bar)
One line size 5/8 with max. operating pressure coupled of 10 Mpa (100 bar)

One line size 3/4 with max. operating pressure coupled of 20 Mpa (200 bar)
One line size 3/4 with max. operating pressure coupled of 5 Mpa (50 bar)

It is necessary to verify that F (force applied to multicoupling) is not greater than max. multicoupling resistance:
P3/8 = 300 bar + 150 bar = 450 bar
P5/8 = 250 bar + 100 bar = 350 bar
P3/4 = 200 bar + 50 bar = 250 bar
F= [(P3/8x S3/8) + (P5/8x S5/8) + (P3/4x S3/4)] x 10 =
F= [(450x1,226) + (350x2,404) + (250x3,298)] x 10 =
F= [551.7 + 841.4 + 824.5] x 10 = 22.176N

Being F (21732 N) lower than max. multicoupling resistance (23000 N), the 870015092 MULTI COMPLETE GR6 2A-2C-2D multicoupling is suitable for this application.

WARNING

A defect, a wrong choice or an improper use of products, can cause injury to persons, animals and objects.
Never connect or disconnect with dynamic pressure (e.g. pump on).
Do not use the female coupling disconnected with high impulse pressure.
Do not couple-uncouple with flow and/or pressure in the circuit.
Do not couple-uncouple when the temperature inside of the circuit is higher than 80 °C (176 °F).
Check the maximum allowable operating pressure of the port in use.
Make sure that the medium used is compatible with seal and material as indicated for each series.
In case of doubt please contact Stucchi Technical Support.
It is MANDATORY to read and closely follow the instructions. Last updated version always apply at time of installation, see latest written Instructions on Stucchi website (stucchigroup.com) before selecting or using Stucchi products.

Do not force the lever without pushing the red safety button.
Do not use extensions or other tools to ease the rotating of the lever.
Do not connect the fixed half with the mobile half if dirt or other material (tool, finger) is between them
Pay attention during the connection not to put finger or other body parts between the plates
We advise to assemble the multiconnection with the female face down in order to allow water or moisture to be drained easily.
Do not exceed single coupling performance and total multiconnection resistance of the multiconnection (please refer to dedicated datasheet)
Read&follow also the corresponding catalogue of the coupling and/or electrical connector in use in the multiconnection.
When the multicoupling is disconnected, it is suggested to use the protection cover for the fixed half and the parking station for the mobile half.
Do not modify, disassemble or damage the multiconnection, part of it or coupling/electrical connector, the lever or safety lock system.
Stucchi Multiconnection GR&DP are intended to be used for hydraulic oil applications: do not use the products for dangerous, inflammable or explosive fluids (Example: heat transfer oil at very high temperature, steam …).
Stucchi Multiconnection GR&DP are intended to be used for hydraulic oil applications with limitations given by NBR seal compatibility&temperature range.
Do not use GR&DP series multiconnection for very high temperature applications.