

Eaton Gromelle™
Flat Face Quick Disconnect Couplings





The Power of Eaton



There's a certain energy at Eaton. It's the power of integrating the competencies of some of the world's most respected names to build a brand you can trust to meet every power management need. The energy created supports our commitment to powering business worldwide.

As the world's demand increases for high-efficiency hydraulic systems for mobile and stationary applications, Eaton is helping to solve these challenges more reliably, efficiently, and sustainably. Our goal is simple; to provide unique solutions across a wide range of markets that keep businesses on the leading edge of change. Visit Eaton.com/hydraulics/fusion.

That's the power of Eaton.



Serving eight key segments - sharing one focus



Alternative Energy

Making energy sources technically practical and economically sound requires the kind of control made possible by high-quality components. When Eaton is on the inside, you will experience the reliable, consistent performance to create and capture energy—making renewable energy an every-day energy.



Discrete Manufacturing

Produce at peak efficiency with the superior precision and repeatability of Eaton products. Eaton hydraulic components provide the precise control and consistent operation required for virtually every step in your manufacturing operation. With Eaton, we'll help you redefine the meaning of raw productivity.



Oil & Gas

As the oil & gas industry continues to face further globalization and consolidation, large-scale organizations that can meet your needs in every corner of the world are more difficult to find. At Eaton, our portfolio of products is only surpassed by our tremendous reach.



Processing

Whatever your industry, no matter which processes you manage, Eaton parts and systems help keep you up and running. Our components make equipment more efficient and easier to use, so you get optimal machine performance and maximum productivity.



Agriculture & Forestry

There's a reason farming and forestry are called "working the land." These segments involve some of the hardest work and longest hours of any sector in the economy. Your productivity and profitability depend on the way you manage time and tasks.



Commercial Vehicles

Eaton technologies can make your driving operation more successful. Greater comfort and productivity help increase driver retention, while reduced emissions, leaks, and noise improve environmental performance. Increased efficiencies overall mean lower costs and higher net revenue.



Material Handling

Eaton hydraulic systems provide the precise control and consistent operation required for material handling and utility work. With a broad selection of products and solutions built in, Eaton helps make you a master of your domain.



Construction & Mining

When you work on a large scale, even the details are big. You need to trust every part of the equipment that lets you handle construction and mining jobs. For reliable components that deliver consistent performance in extreme conditions, turn to Eaton.

Eaton is a leading diversified power management company

Eaton provides reliable, efficient and safe power management for a growing number of industries.

Understanding and helping our customers succeed

- Listening and understanding to requirements and business drivers
- Delivering solutions with value propositions to solve the critical business needs

Knowing what's important to our customers and integrating that knowledge into the fabric of our business

- ...to deliver innovative, quality products
- ...to respond fast
- ...to provide dedicated customer service and support around the globe

Our strength is global reach with local responsiveness and support

- Customers served in more than 150 countries
- Diverse channels ensure reliable availability and support
- Design and engineering teams provide support for standard products and custom solutions
- Eaton experts offer efficient product and application training

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Eaton Quick Disconnect Couplings – Customizing Solutions for the Future... Hydraulics and Beyond

For over 50 years, Eaton has continued to manufacture and supply the highest performing quick disconnect couplings globally for many different market segments including agriculture, construction, transportation, and fire and rescue just to name a few. Eaton’s quality and performance have never been compromised when it comes to engineering and manufacturing its full line of quick disconnect couplings. From traditional industry standards to custom couplings for the next generation of emerging markets and new advanced technologies, Eaton continues to provide quick disconnect coupling solutions to meet your demands.

Custom Design Capability – One Application at a Time

Eaton continues the tradition of developing custom quick disconnect couplings for customers that need a product to perform above and beyond industry standards. Whether it is a custom coupling for the world’s most powerful and sophisticated super computers that use electronic cooling or a self contained breathing apparatus coupling for first responders, Eaton has the ability to work directly with you on a solution. Contact Eaton to see how our dedicated and experienced design engineering team will work with you to develop a quick disconnect coupling solution.

How to Order

Eaton Quick Disconnect Couplings can be ordered as separate halves. For special packaging, contact Eaton. Standard coupling part numbers are described below.

Dimensions

Dimensions in this catalog are for reference only. Actual dimensions may vary from those shown.

Coupling Identification

Generally, the coupling series or complete part number will be stenciled on the coupling body.

Caution:

The user should carefully observe the precautions listed in this catalog. These include selection of seals and body materials for fluid compatibility and recommendations on the selection of quick disconnect couplings. In addition, care should be taken not to exceed the maximum operating pressures listed for each coupling size and type shown in the physical characteristics table for each coupling. Because of possible variations in machining tolerances, quality control, inspection and quality assurance, Eaton coupling halves should not be used with coupling halves supplied by other manufacturers except where such use is approved for a particular coupling as noted in this catalog or specifically by Eaton.

Safety Information

1.0 General Instructions.

- 1.1 Scope.** The scope of this safety bulletin is to warn against improper selection, use, installation, etc. of Eaton coupling products.
 - 1.2 Distribution.** A copy of this safety bulletin should be distributed to all individuals responsible for using and/or selecting Eaton coupling products.
 - 1.3 Fail-Safe.** Design all systems and equipment for fail-safe operation such that failure of any component does not result in personal injury and/or property damage.
 - 1.4 User Responsibility.** It is the sole responsibility of the user to select and determine that the Eaton product is compatible with the end use application. The user is responsible for reading and following this safety bulletin as well as any instructions or literature on the Eaton product being used. The user must provide necessary product warnings for Eaton couplings products, used with systems or equipment, to the operators of the systems or equipment.
 - 1.5 Usage with other Manufacturers' Products.** When using Eaton coupling products with other manufacturers' adapters, hoses, etc., do not exceed the lowest pressure rating of any of the components being used or rupture may result.
- ## 2.0 Selection of Eaton Couplings.
- 2.1 Pressure.** Ensure that the maximum operating pressure of the system or equipment does not exceed the rated operating pressure of the Eaton coupling product or rupture may result.
 - 2.2 Fluid Compatibility.** Verify that all components (seals, metals, etc.) are compatible with the fluid being conveyed. Failure to do so may result in high speed fluid discharge and/or leakage of fluids which may be flammable, toxic, at extreme temperatures, or otherwise harmful.
 - 2.3 Temperature.** Ensure that the maximum operating temperature of the system or equipment does not exceed the rated operating temperature of the Eaton coupling product (including seals) or rupture may result.
 - 2.4 Coupling Size.** Use properly sized couplings such that there is not a large pressure drop across them thus avoiding system damage due to excessive heat generation or failure of internal components.
 - 2.5 Sleeve Lock.** Use sleeve locks or threaded couplings where there is the possibility of accidental disconnection. Failure to utilize sleeve locks or threaded couplings in these applications may result in hose whip, expelled components, high speed fluid discharge, system damage, or leakage of fluids which may be flammable, toxic, at extreme temperatures, or otherwise harmful.

2.6 Connect or Disconnect Under Pressure.

If connection and/or disconnection of couplings under pressure is a requirement, only use couplings designed for connection/disconnection under pressure. Failure to utilize this type of coupling in that application may result in hose whip, expelled components, high speed fluid discharge, and/or system damage. Be certain not to confuse the rated operating pressure with the rated connect/disconnect under pressure.

- 2.7 Environment.** Ensure that Eaton couplings are compatible with the surrounding environment. The surrounding environment may be heat, salt water, moisture, chemicals, and the like. Failure to protect against an adverse environment may cause system damage, premature failure, and/or leakage of fluids which may be flammable, toxic, at extreme temperatures, or otherwise harmful.
 - 2.8 External Loads.** Avoid any external loads such as side loads, tensile loads, vibration, etc. Failure to do so may result in accidental disconnection, premature failure, system damage, and/or leakage of fluids which may be flammable, toxic, at extreme temperatures, or otherwise harmful.
 - 2.9 Welding & Brazing.** Extreme heating of plated products above +450°F (+232°C) such as welding, brazing, baking, etc., where the plating is burned off, may result in the release of deadly gases.
- ## 3.0 Installation of Eaton Couplings.
- 3.1 Inspection of Product.** Prior to installation, ensure that the Eaton product meets all of the requirements of the system and/or equipment it is to be used on. Ensure you have the correct part number, function test the coupling by connecting it with a mating half. The function test should result in smooth, non-binding operation or premature failure may result.
 - 3.2 Cleanliness.** Use end caps and plugs to reduce the risk of system contamination or damage to critical sealing surfaces. Failure to do so may result in leakage of fluids which may be flammable, toxic, at extreme temperatures, or otherwise harmful. Caps and plugs are not a secondary seal unless explicitly noted.
 - 3.3 Location.** Place Eaton couplings in a safe location such as not to expose the user to personal injury (slippage, tripping, falling, etc.) during installation, connection, disconnection and maintenance.
 - 4.0 Product Maintenance.** A maintenance schedule should be put in place to ensure that Eaton couplings are functioning properly. Eaton is not responsible for product failures resulting from modification or improper maintenance.
 - 4.1 Inspection.** Visually inspect to ensure that there is no leakage, cracked components, corrosion build-up, contamination build-up, wear, etc. If any abnormality is encountered, the coupling should be replaced immediately.

MLDB Series

Stainless Steel Flat Face/Dry Break



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

Product Features

- Designed and manufactured in accordance with Article 3.3 of the European Pressure Equipment Directive (PED) 97/23 EC
- Safety sleeve lock prevents accidental disconnections
- Push to connect with double shut-off valving
- Capable of working under high temperature applications
- Shock resistant color coding ring option available in 1/2" size
- Serviceable design allows for easy cleaning and seal replacement
- Designed with higher flow capacity and resistance to aggressive fluids and corrosion
- Standard body material-316/316L Stainless steel corrosion resistant
- Standard seal material: FKM, EPDM, Kalrez® and generic FFKM

Physical Characteristics

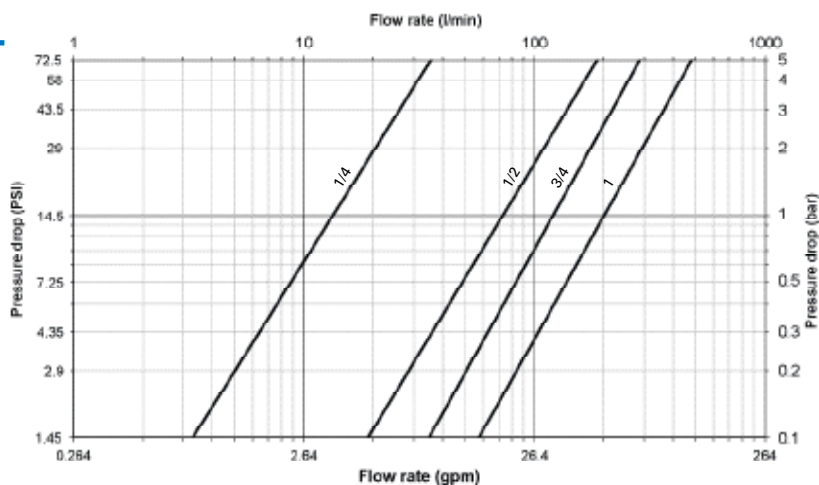
Body Size	Nominal Flow Diameter	Maximum Operating Pressure		Rated* Flow		Air Inclusion	Fluid Loss	Force to Connect	
	(mm)	bar	(psi)	L/min	(gpm)	ml-cc.	ml-cc.	N	lbf
1/4	5.9	25	360	15	4	0.002	0.001	85	19
1/2	11.5	25	360	73	19	0.012	0.025	150	34
3/4	15	25	360	120	32	0.030	0.050	170	38
1	18.5	25	360	200	53	0.150	0.130	180	41

*Indicated values refer to a 1 bar/14.5 psi pressure drop.

Applications & Markets



- Process/Fluid transfer
- Cooling
- Corrosive environments
- Chemicals/Petrochemicals
- Pharmaceuticals
- Food processing
- Electrical



Test Fluid: Oil viscosity 30 cSt at 40°C/104°F
 The former DB series interchanges with the new MLDB series, however close attention is requested to the differences in performance. Eaton recommends to connect an MLDB plug(male) with an MLDB socket(female).

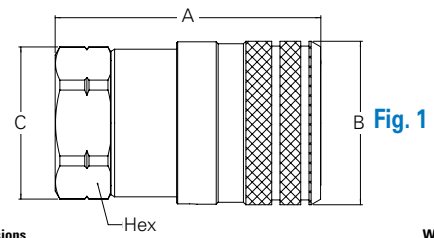
Seal Elastomer Data*

Seal Elastomer	Max. Operation Temperature Range
FKM (Fluorocarbon)	-20°C +200°C/-4°F +392°F
EPDM (Ethylene-Propylene)	-40°C +150°C/-40°F +302°F
Kalrez 6375	-20°C +275°C/-4°F +527°F
Generic FFKM (Perfluorocarbon)	-15°C +275°C/+5°F +527°F

*For reference only, based on Eaton recommended temperatures.
 Contact Eaton technical support for further information on fluid compatibility

MLDB Series Stainless Steel Flat Face/Dry Break

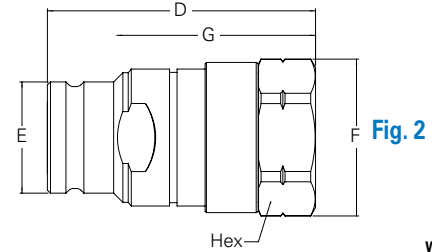
Sockets(Female)



Part Number				Thread Size*(Female)			Dimensions							Weight			
FKM	EPDM	Kalrez 6375	Generic FFKM	Body Size	NPT	BSPP	Fig.	A (in)	B (in)	C (in)	Hex (in)	A (mm)	B (mm)	C (mm)	Hex (mm)	lbs	grams
ML2DBS25FBS	ML2DBS25FBS292	ML2DBS25FBS242	ML2DBS25FBS503	1/4	-	1/4-19	1	1.79	1.06	0.96	0.87	45.4	26.8	24.5	22	0.26	116
ML2DBS25F	ML2DBS25F292	ML2DBS25F242	ML2DBS25F503	1/4	1/4-18		1	1.73	1.06	0.96	0.87	43.9	26.8	24.5	22	0.26	116
ML4DBS50FBS	ML4DBS50FBS292	ML4DBS50FBS242	ML4DBS50FBS503	1/2	-	1/2-14	1	2.44	1.5	1.4	1.26	61.9	38.2	35.5	32	0.73	330
ML4DBS50F	ML4DBS50F292	ML4DBS50F242	ML4DBS50F503	1/2	1/2-14		1	2.44	1.5	1.4	1.26	61.9	38.2	35.5	32	0.73	330
ML6DBS75FBS	ML6DBS75FBS292	ML6DBS75FBS242	ML6DBS75FBS503	3/4	-	3/4-14	1	3.02	1.89	1.83	1.61	76.8	47.9	46.5	41	1.34	610
ML6DBS75F	ML6DBS75F292	ML6DBS75F242	ML6DBS75F503	3/4	3/4-14		1	3.02	1.89	1.83	1.61	76.8	47.9	46.5	41	1.34	610
ML8DBS100FBS	ML8DBS100FBS292	ML8DBS100FBS242	ML8DBS100FBS503	1	-	1-11	1	3.54	2.26	2.16	1.97	89.9	57.4	54.9	50	2.31	1050
ML8DBS100F	ML8DBS100F292	ML8DBS100F242	ML8DBS100F503	1	1-11 1/2		1	3.42	2.26	2.16	1.97	86.9	57.4	54.9	50	2.31	1050

*Alternative end connections available upon request.

To obtain connected length of coupling, add dimensions A (Fig. 1) and G (Fig. 2) together.



Plugs(Male)

Part Number				Thread Size*(Female)			Dimensions							Weight					
FKM	EPDM	Kalrez® 6375	Generic FFKM	Body Size	NPT	BSPP	Fig.	D (in)	E (in)	F (in)	G (in)	Hex (in)	D (mm)	E (mm)	F (mm)	G (mm)	Hex (mm)	lbs	grams
ML2DBP25FBS	ML2DBP25FBS292	ML2DBP25FBS242	ML2DBP25FBS503	1/4	-	1/4-19	2	1.72	0.65	0.96	1.31	0.87	43.6	16.5	24.5	33.2	22	0.17	78
ML2DBP25F	ML2DBP25F292	ML2DBP25F242	ML2DBP25F503	1/4	1/4-18		2	1.66	0.65	0.96	1.25	0.87	42.1	16.5	24.5	31.7	22	0.17	78
ML4DBP50FBS	ML4DBP50FBS292	ML4DBP50FBS242	ML4DBP50FBS503	1/2	-	1/2-14	2	2.39	0.99	1.4	1.8	1.26	60.7	25.2	35.5	45.7	32	0.46	210
ML4DBP50F	ML4DBP50F292	ML4DBP50F242	ML4DBP50F503	1/2	1/2-14		2	2.39	0.99	1.4	1.8	1.26	60.7	25.2	35.5	45.7	32	0.46	210
ML6DBP75FBS	ML6DBP75FBS292	ML6DBP75FBS242	ML6DBP75FBS503	3/4	-	3/4-14	2	2.97	1.29	1.83	2.11	1.61	75.5	32.8	46.5	53.6	41	0.87	395
ML6DBP75F	ML6DBP75F292	ML6DBP75F242	ML6DBP75F503	3/4	3/4-14		2	2.97	1.29	1.83	2.11	1.61	75.5	32.8	46.5	53.6	41	0.87	395
ML8DBP100FBS	ML8DBP100FBS292	ML8DBP100FBS242	ML8DBP100FBS503	1	-	1-11	2	3.52	1.59	2.16	2.60	1.97	89.4	40.4	54.9	66.1	50	1.54	700
ML8DBP100F	ML8DBP100F292	ML8DBP100F242	ML8DBP100F503	1	1-11 1/2		2	3.4	1.59	2.16	2.48	1.97	86.4	40.4	54.9	63.1	50	1.54	700

*Alternative end connections available upon request.

To obtain connected length of coupling, add dimensions A (Fig. 1) and G (Fig. 2) together.

Seal Kit and Tool for Servicing Sockets (Female)

Body Size	Tool Part Number	Seal Kit Part Number (includes 5 sets)		Seal Kit Part Number (includes 1 set)	
		FKM	EPDM	Kalrez 6375	Generic FFKM
1/4	ML2DBS93	2DBSG143	2DBSG292	2DBSG242	2DBSG503
1/2	ML4DBS93	4DBSG143	4DBSG292	4DBSG242	4DBSG503
3/4	ML6DBS93	6DBSG143	6DBSG292	6DBSG242	6DBSG503
1	ML8DBS93	8DBSG143	8DBSG292	8DBSG242	8DBSG503

For installation instructions, please contact your Eaton sales representative.

Seal Kit for Servicing Plugs (Male)

Body Size	Seal Kit Part Number (includes 5 sets)		Seal Kit Part Number (includes 1 set)	
	FKM	EPDM	Kalrez 6375	Generic FFKM
1/4	2DBPG143	2DBPG292	2DBPG242	2DBPG503
1/2	4DBPG143	4DBPG292	4DBPG242	4DBPG503
3/4	6DBPG143	6DBPG292	6DBPG242	6DBPG503
1	8DBPG143	8DBPG292	8DBPG242	8DBPG503

For installation instructions, please contact your Eaton sales representative. No tool required for servicing of the plug(male).

Color Coding Ring Option*

Body Size	Socket/Female Ring**		Plug/Male Ring**		Tool Part Number	Tool & Rings Kit Part Number***
	Color	Part Number	Color	Part Number		
1/2	Blue	CR12FFSLB	Blue	CR12FFPLB	CR4DBSP93	CRKIT4DB
	Red	CR12FFSRD	Red	CR12FFPRD		
	Yellow	CR12FFSYL	Yellow	CR12FFPYL		
	Green	CR12FFSDG	Green	CR12FFPDG		

*For requests on other sizes, alternative colors or installation instructions, please contact your Eaton sales representative.

**Orders must be in multiples of 10 pcs.

***The kit consists of a tool plus 10 socket rings and 10 plug rings of each color.

MLFF Series

ISO 16028 Stainless Steel Flat Face/Dry Break



The Eaton 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.

Product Features

- Designed and manufactured in accordance with Article 3.3 of the European Pressure Equipment Directive (PED) 97/23 EC
- Safety sleeve lock prevents accidental disconnections
- Push to connect with double shut-off valving
- Shock resistant color coding ring option available in all sizes to prevent accidental crossing of lines
- Resistant to aggressive environments and corrosion
- Standard body material- 316L Stainless steel corrosion resistant
- Alternative end connections available upon request
- Standard seal material: FKM, EPDM, NBR + AU

Physical Characteristics

Body Size	ISO Size*	Nominal Flow Diameter	Maximum Operating Pressure		Minimum Burst Pressure		Rated Flow**		Air Inclusion ml-cc.	Fluid Loss ml-cc.	Force to Connect	
		(mm)	bar	(psi)	bar	(psi)	L/min	(gpm)			N	lbf
3/8	10	8.6	250	3625	850	12325	29	7.66	0.010	0.006	139	31
1/2	12.5	11	250	3625	1000	14500	55	14.53	0.013	0.012	189	42
3/4	19	15	250	3625	850	12325	105	27.74	0.015	0.034	214	48

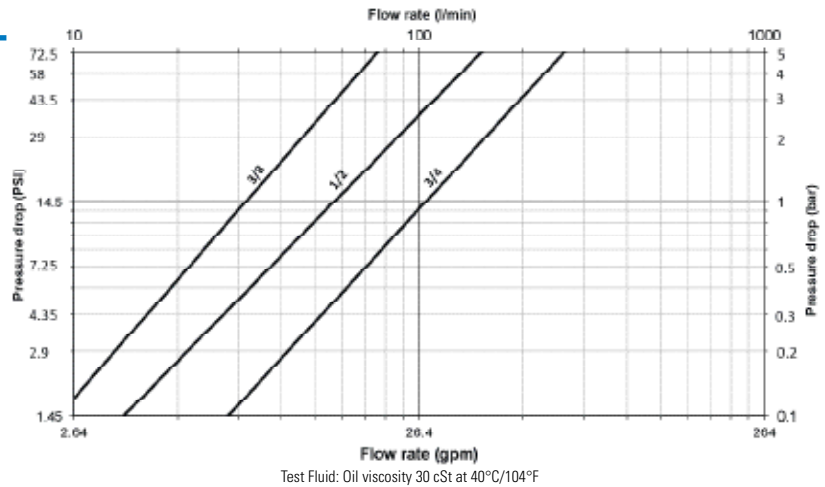
*The ISO size corresponds to the internal diameter of the hose or the external diameter of the rigid tube (as defined in ISO 4397 Standard)

**Indicated values refer to a 1 bar / 14.5 psi pressure drop

Applications & Markets



- Construction
- Agriculture
- Iron and Steel Industry
- Railway
- Oil and Gas
- Marine
- Material Handling
- General Hydraulic applications



Seal Elastomer Data*

Seal Elastomer	Max. Operation Temperature Range
NBR (Nitrile) + AU (Polyurethane)	-20°C +100°C/-4°F +212°F
FKM (Fluorocarbon)	-20°C +200°C/-4°F +392°F
EPDM (Ethylene-Propylene)**	-40°C +150°C/-40°F +302°F

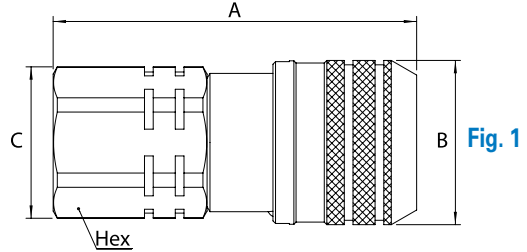
*For reference only, based on Eaton recommended temperatures.

**NFL 17-241 or NAS 1613 rev. 5

Contact Eaton technical support for further information on fluid compatibility

MLFF Series

ISO 16028 Stainless Steel Flat Face/Dry Break

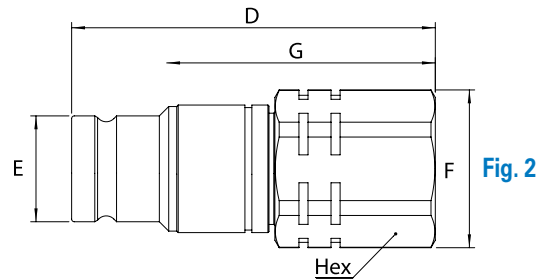


Sockets(Female)

Part Number			ISO Size	Nominal Flow Diameter	Thread Size*(Female)			Dimensions							Weight				
NBR+AU	FKM	EPDM			Body Size	mm	NPT	BSPP	Fig.	A (in)	B (in)	C (in)	Hex (in)	A (mm)	B (mm)	C (mm)	Hex (mm)	lbs	grams
ML10FFS37BS	ML10FFS37BS143	ML10FFS37BS192	3/8	10	8.6	-	3/8-19	1	2.68	1.26	1.16	1.06	68	32	29.5	27	0.54	245	
ML10FFS37	ML10FFS37143	ML10FFS37192	3/8	10	8.6	-	3/8-18	-	1	2.68	1.26	1.16	1.06	68	32	29.5	27	0.54	245
ML10FFS50BS	ML10FFS50BS143	ML10FFS50BS192	3/8	10	8.6	-	1/2-14	1	2.8	1.26	1.16	1.06	71	32	29.5	27	0.53	240	
ML12FFS50BS	ML12FFS50BS143	ML12FFS50BS192	1/2	12.5	11	-	1/2-14	1	3.27	1.50	1.56	1.42	83	38	39.5	36	1.03	470	
ML12FFS50	ML12FFS50143	ML12FFS50192	1/2	12.5	11	-	1/2-14	-	1	3.27	1.50	1.56	1.42	83	38	39.5	36	1.03	470
ML12FFS75BS	ML12FFS75BS143	ML12FFS75BS192	1/2	12.5	11	-	3/4-14	1	3.39	1.50	1.56	1.42	86	38	39.5	36	1.01	460	
ML19FFS75BS	ML19FFS75BS143	ML19FFS75BS192	3/4	19	15	-	3/4-14	1	3.82	1.81	1.77	1.61	97	46	45	41	1.69	770	
ML19FFS75	ML19FFS75143	ML19FFS75192	3/4	19	15	-	3/4-14	-	1	3.82	1.81	1.77	1.61	97	46	45	41	1.69	770
ML19FFS100BS	ML19FFS100BS143	ML19FFS100BS192	3/4	19	15	-	1-11	1	3.82	1.81	1.77	1.61	97	46	45	41	1.56	710	

*Alternative end connections available upon request.

To obtain connected length of coupling, add dimensions A (Fig. 1) and G (Fig. 2) together.



Plugs(Male)

Part Number			ISO Size	Nominal Flow Diameter	Thread Size*(Female)			Dimensions							Weight						
NBR+AU	FKM	EPDM			Body Size	mm	NPT	BSPP	Fig.	D (in)	E (in)	F (in)	G (in)	Hex (in)	D (mm)	E (mm)	F (mm)	G (mm)	Hex (mm)	lbs	grams
ML10FFP37BS	ML10FFP37BS143	ML10FFP37BS192	3/8	10	8.6	-	3/8-19	2	2.56	0.78	1.16	1.97	1.06	65	19.8	29.5	50	27	0.33	150	
ML10FFP37	ML10FFP37143	ML10FFP37192	3/8	10	8.6	-	3/8-18	-	2	2.56	0.78	1.16	1.97	1.06	65	19.8	29.5	50	27	0.33	150
ML10FFP50BS	ML10FFP50BS143	ML10FFP50BS192	3/8	10	8.6	-	1/2-14	2	2.68	0.78	1.16	2.09	1.06	68	19.8	29.5	53	27	0.33	150	
ML12FFP50BS	ML12FFP50BS143	ML12FFP50BS192	1/2	12.5	11	-	1/2-14	2	2.72	0.96	1.56	2.05	1.42	69	24.5	39.5	52	36	0.64	290	
ML12FFP50	ML12FFP50143	ML12FFP50192	1/2	12.5	11	-	1/2-14	-	2	2.72	0.96	1.56	2.05	1.42	69	24.5	39.5	52	36	0.61	275
ML12FFP75BS	ML12FFP75BS143	ML12FFP75BS192	1/2	12.5	11	-	3/4-14	2	2.83	0.96	1.56	2.17	1.42	72	24.5	39.5	55	36	0.61	275	
ML19FFP75BS	ML19FFP75BS143	ML19FFP75BS192	3/4	19	15	-	3/4-14	2	3.70	1.18	1.77	2.83	1.61	94	30	45	72	41	1.28	580	
ML19FFP75	ML19FFP75143	ML19FFP75192	3/4	19	15	-	3/4-14	-	2	3.70	1.18	1.77	2.83	1.61	94	30	45	72	41	1.28	580
ML19FFP100BS	ML19FFP100BS143	ML19FFP100BS192	3/4	19	15	-	1-11	2	3.70	1.18	1.77	2.83	1.61	94	30	45	72	41	1.12	510	

*Alternative end connections available upon request.

To obtain connected length of coupling, add dimensions A (Fig. 1) and G (Fig. 2) together.

Color Coding Ring Option*

Body Size	ISO Size	Nominal Flow Diameter	Socket/Female Ring Part Number**				Plug/Male Ring Part Number**				Tool Part Number	Tool & Rings Kit Part Number***
			Blue	Red	Yellow	Green	Blue	Red	Yellow	Green		
3/8	10	8.6	CR10FFSLB	CR10FFSRD	CR10FFSYL	CR10FFSDG	CR10FFPLB	CR10FFPRD	CR10FFPYL	CR10FFPDG	CR10FFSP93	CRKIT10FF
1/2	12.5	11	CR12FFSLB	CR12FFSRD	CR12FFSYL	CR12FFSDG	CR12FFPLB	CR12FFPRD	CR12FFPYL	CR12FFPDG	CR12FFSP93	CRKIT12FF
3/4	19	15	CR19FFSLB	CR19FFSRD	CR19FFSYL	CR19FFSDG	CR19FFPLB	CR19FFPRD	CR19FFPYL	CR19FFPDG	CR19FFSP93	CRKIT19FF

*For requests on alternative colors or installation instructions, please contact your Eaton sales representative.

**Orders must be in multiples of 10 pcs.

***The kit consists of a tool plus 10 socket rings and 10 plug rings of each color.



FFCUP Series

ISO 16028 Connect Under Pressure Flat Face Plug/Male



The Eaton FFCUP Series plug/male coupling is an ISO 16028 standard interchange. The flush face design prevents fluid loss on disconnection and air inclusion on connection guaranteeing excellent flow capability. An integrated patented system allows the Eaton FFCUP series plug to be connected to a socket/female half coupling under 350 bar(5075 psi) residual pressure.

Product Features

- Designed and manufactured in accordance with Article 3.3 of the European Pressure Equipment Directive (PED) 97/23 EC
- Meets dimensional requirements of ISO 16028
- Push to connect
- Connect under residual pressure
- Shock resistant color coding ring option available to prevent accidental crossing of lines
- Standard body material—High resistance carbon steel with zinc trivalent plating
- Alternative end connections available upon request
- Standard seal material: NBR (Nitrile) + AU (Polyurethane)
- Utilize FF Series dust caps

Physical Characteristics

Body Size	ISO Size*	Nominal Flow Diameter	Maximum Operating Pressure		Minimum Burst Pressure		Rated Flow**		Air Inclusion	Fluid Loss	Force to Connect	
		(mm)	bar	(psi)	bar	(psi)	L/min	(gpm)	ml-cc.	ml-cc.	N	lbf
3/8	10	8.6	350	5075	1400	20300	29.4	7.76	0.010	0.006	350	79

*The ISO size corresponds to the internal diameter of the hose or the external diameter of the rigid tube(as defined in ISO 4397 Standard)

**Indicated values refer to a 1 bar / 14.5 psi pressure drop

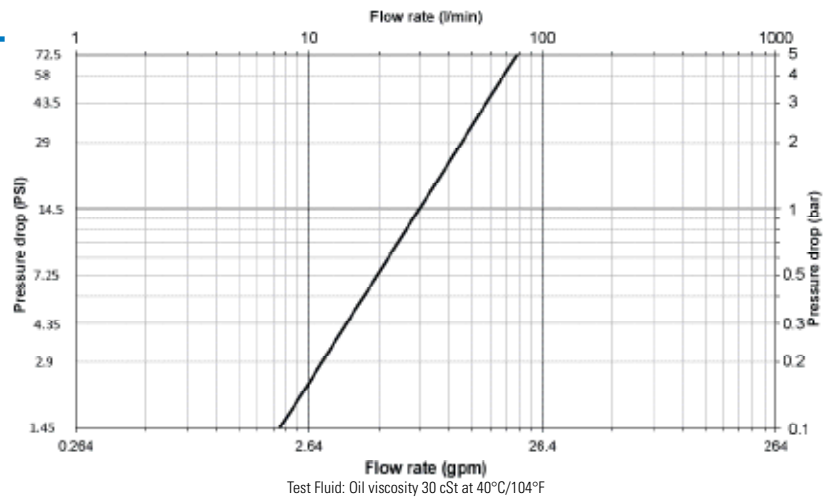
Connect Under Pressure Operating Guidelines

- The plug can be connected against 350 bar / 5075 psi residual pressure to sockets/females meeting ISO 16028 standard requirements.
- Plug only is under pressure while connected.
- During the connection phase, the socket must not be under pressure.
- Disconnection under pressure is strictly forbidden.
- Connection under pressure may require a few seconds: the force to connect must be maintained during this lapse of time.

Applications & Markets



- Connection to hydraulic pumps, jacks, distributors and accessories
- Hydraulic circuits
- Material handling
- Construction
- Agriculture
- Iron and steel industry
- Railway
- Industrial plants



Seal Elastomer Data*

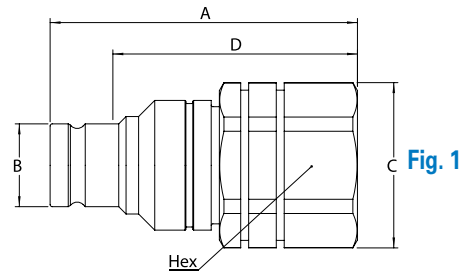
Seal Elastomer	Max. Operation Temperature Range
NBR (Nitrile) + AU (Polyurethane)	-20°C +100°C/-4°F +212°F

*For reference only, based on Eaton recommended temperatures.

Contact Eaton technical support for further information on fluid compatibility

FFCUP Series

ISO 16028 Connect Under Pressure Flat Face Plug/Male



Plugs(Male)

Part Number	Body Size	ISO Size	Nominal Flow Diameter	Thread Size*(Female)		Dimensions										Weight		
				NPT	BSPP	Fig.	A (in)	B (in)	C (in)	D (in)	Hex (in)	A (mm)	B (mm)	C (mm)	D (mm)	Hex (mm)	lbs	grams
10FFPCUP37	3/8	10	8.6	3/8-18	–	1	2.89	0.74	1.55	2.28	1.41	73.5	18.7	39.5	58.0	36	0.69	314
10FFPCUP37BS				–	3/8-19	1	2.89	0.74	1.55	2.28	1.41	73.5	18.7	39.5	58.0	36	0.69	314
10FFPCUP50				1/2-14	–	1	2.89	0.74	1.55	2.28	1.41	73.5	18.7	39.5	58.0	36	0.66	300
10FFPCUP50BS				–	1/2-14	1	2.89	0.74	1.55	2.28	1.41	73.5	18.7	39.5	58.0	36	0.66	300

*Alternative end connections available upon request.

Color Coding Ring Option*

Body Size	ISO Size	Nominal Flow Diameter	Plug/Male Ring Part Number**		Yellow	Green	Tool Part Number
			Blue	Red			
3/8	10	8.6	CR10FFPLB	CR12FFPRD	CR10FFPYL	CR10FFPDG	CR10FFSP93

*For requests on alternative colors or installation instructions, please contact your Eaton sales representative.

**Orders must be in multiples of 10 pcs.

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