

# FF Series (Steel) ISO 16028 Interchange



Eaton's FF Series flat face is specifically designed for those applications where quick and easy connections and no-spill performance are essential. The FF Series is ideal for use when global interchangeability with other manufacturers is important and is available in sizes from 1/4" through 2" to best meet your specific size requirements.

## Product Features

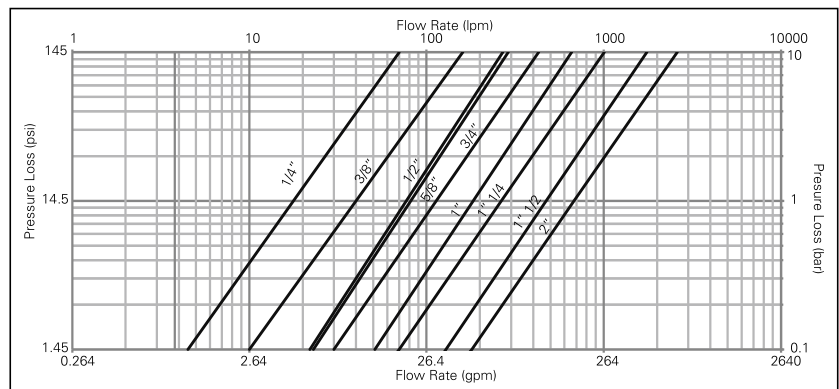
- Meets or exceeds the ISO 16028 standard
- Push-to-connect
- Standard sleeve lock prevents accidental disconnection
- Color identification rings available to help prevent crossing of lines
- Standard Material: High-resistant carbon steel with Guardian Seal™ plating, a whole new level of corrosion resistance with minimum 720 hours RR protection
- Guardian Seal™ plating
  - Nickel-free
  - Solvent-free
  - Meets Global RoHS, ELV and REACH requirements
- Standard Seal Material: NBR+AU
- Available seal options: NBR+AU, FKM, EPDM, HNBR (upon request)

## Physical Characteristics

ISO Size* (mm)	Coupling Size (in)	Maximum Operating Pressure				Minimum Burst Pressure				Rated Flow**		Fluid Loss ml-cc.	Air Inclusion ml-cc.	Force to Connect					
		Connected***	Plug/ Male Half	Socket/ Female Half	Socket/ Female Half	Connected	Plug/ Male Half	Socket/ Female Half	Socket/ Female Half	(lpm)	(gpm)			N	Lbs				
6.3	¼	400	5,800	400	5,800	400	5,800	1,400	20,300	1,400	20,300	1,400	20,300	18	4.8	0.004	0.007	80	18.0
10.0	¾	400	5,800	400	5,800	400	5,800	1,400	20,300	1,400	20,300	1,400	20,300	40	10.6	0.006	0.010	140	31.5
12.5	½	400	5,800	400	5,800	400	5,800	1,400	20,300	1,400	20,300	1,400	20,300	77	20.3	0.012	0.013	195	43.8
16.0	¾	400	5,800	400	5,800	400	5,800	1,400	20,300	1,400	20,300	1,400	20,300	82	21.7	0.016	0.030	205	46.1
19.0	¾	400	5,800	400	5,800	400	5,800	1,300	18,850	1,300	18,850	1,400	20,300	114	30.1	0.034	0.015	215	48.3
25.0	1	400	5,800	400	5,800	400	5,800	1,260	18,270	1,260	18,270	1,260	18,270	184	48.6	0.032	0.033	260	58.5
-	1¼	300	4,350	300	4,350	300	4,350	900	13,050	900	13,050	900	13,050	260	68.7	0.170	0.053	200	45.0
-	1½	300	4,350	300	4,350	270	3,915	900	13,050	900	13,050	810	11,745	450	118.9	0.265	0.445	385	86.6
-	2"	300	4,350	300	4,350	225	3,260	900	13,050	900	13,050	675	9,790	700	184.9	0.390	0.260	375	84.3

\* 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  
 \*\*\* 400 bar for static, steady or non-pulsed applications, 350 bar for ISO pressure rating for dynamic applications with moderate hydraulic shock

## Flow Data



## Applications & Markets

- Hydraulic and Fluid Transfer
- Construction equipment
- Agricultural equipment
- Utility vehicles
- On-Highway vehicles
- Stationary in-plant hydraulics and fluid transfer
- Interchangeable with HTMA couplings in the 3/8" size

## Seal Elastomer Data\*

Seal Elastomer	P/N Code	ISO Size (6FF, 10FF, 12FF, 16FF, 19FF and 25FF) Maximum Operation Temperature Range	Non-ISO Size (32FF, 50FF and 50FF) Maximum Operation Temperature Range
NBR (Nitrile) + AU (Polyurethane)	-	-25°C +100°C/-13°F +212°F	-25°C +100°C/-13°F +212°F
FKM	-143	-20°C +200°C/-4°F +392°F	-20°C +200°C/-4°F +392°F
EPDM (Ethylene-Propylene)	-192	-40°C +150°C/-40°F +302°F	on request
HNBR	-507	-32°C +150°C/-25°F +302°F	on request
Kalrez® 6375	-242	-20°C +275°C/-4°F +527°F	on request
Generic FFKM (Perfluorocarbon)	-503	-15°C +275°C/+5°F +527°F	on request

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

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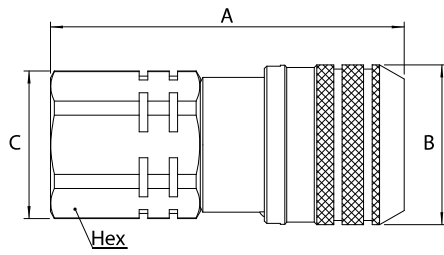
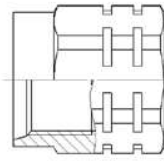
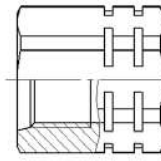


Figure 1

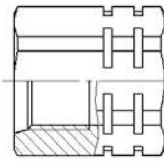
**ISO 6149-1**  
15° + metric thread



**SAE J 1926-1**  
15° + UN/UNF thread



**EATON S013A**  
15° + BSPP thread



## Sockets(Female)

Part Number	Body Size (in)	ISO Size (mm)	Nominal Flow Diameter Thread Size* (Female)		Dimensions								Weight				
			(mm)	NPT	BSPP	SAE J 1926-1	Fig.	A (in)	B (in)	C (in)	Hex (in)	A (mm)	B (mm)	C (mm)	Hex (mm)	lbs	grams
6FFS25	¼	6.3	6	¼ 18f			1	2.13	1.06	0.94	0.87	54	27	24	22	-	-
6FFS25BS	¼	6.3	6		¼-19		1	2.13	1.06	0.94	0.87	54	27	24	22	-	-
6FFS56UN	¼	6.3	6			¾ 18f UNF	1	2.17	1.06	0.94	0.87	55	27	24	22	-	-
10FFS37	¾	10	8.6	¾ 18f			1	2.67	1.26	1.16	1.06	67.8	32	29.5	27	-	-
10FFS37BS	¾	10	8.6		¾-19		1	2.67	1.26	1.16	1.06	67.8	32	29.5	27	-	-
10FFS50	¾	10	8.6		½ 14f		1	2.79	1.26	1.16	1.06	70.8	32	29.5	27	-	-
10FFS50BS	¾	10	8.6		½-14		1	2.79	1.26	1.16	1.06	70.8	32	29.5	27	-	-
10FFS56UN	¾	10	8.6			¾ 18f UNF	1	2.79	1.26	1.16	1.06	70.8	32	29.5	27	-	-
10FFS75UN	¾	10	8.6			¾ 18f UNF	1	2.79	1.26	1.16	1.06	70.8	32	29.5	27	-	-
10FFS87UN	¾	10	8.6			¾ 14f UNF	1	2.91	1.26	1.30	1.18	73.8	32	33	30	-	-
12FFS106UN	½	12.5	11			1 ¼ 12f UN	1	3.50	1.50	1.56	1.42	89	38.2	39.5	36	-	-
12FFS50	½	12.5	11		½ 14f		1	3.27	1.50	1.56	1.42	83	38.2	39.5	36	-	-
12FFS50BS	½	12.5	11		½-14		1	3.27	1.50	1.56	1.42	83	38.2	39.5	36	-	-
12FFS75	½	12.5	11		¾ 14f		1	3.39	1.50	1.56	1.42	86	38.2	39.5	36	-	-
12FFS75BS	½	12.5	11		¾-14		1	3.39	1.50	1.56	1.42	86	38.2	39.5	36	-	-
12FFS75UN	½	12.5	11			¾ 18f UNF	1	3.27	1.50	1.56	1.42	83	38.2	39.5	36	-	-
12FFS87UN	½	12.5	11			¾ 14f UNF	1	3.39	1.50	1.56	1.42	86	38.2	39.5	36	-	-
16FFS106UN	¾	16	13			1 ¼ 12f UN	1	3.50	1.66	1.56	1.42	89	42.2	39.5	36	-	-
16FFS50	¾	16	13		½ 14f		1	3.27	1.66	1.56	1.42	83	42.2	39.5	36	-	-
16FFS50BS	¾	16	13		½-14		1	3.27	1.66	1.56	1.42	83	42.2	39.5	36	-	-
16FFS75	¾	16	13		¾ 14f		1	3.39	1.66	1.56	1.42	86	42.2	39.5	36	-	-
16FFS75BS	¾	16	13		¾-14		1	3.39	1.66	1.56	1.42	86	42.2	39.5	36	-	-
16FFS75UN	¾	16	13			¾ 18f UNF	1	3.27	1.66	1.56	1.42	83	42.2	39.5	36	-	-
16FFS87UN	¾	16	13			¾ 14f UNF	1	3.39	1.66	1.56	1.42	86	42.2	39.5	36	-	-
19FFS100	¾	19	15		1 11,5f		1	3.80	1.82	1.81	1.65	96.6	46.2	46	42	-	-
19FFS100BS	¾	19	15		1-11		1	3.80	1.82	1.81	1.65	96.6	46.2	46	42	-	-
19FFS106UN	¾	19	15			1 ¼ 12f UN	1	3.80	1.82	1.81	1.65	96.6	46.2	46	42	-	-
19FFS131UN	¾	19	15			1 ¼ 12f UN	1	3.80	1.82	1.81	1.65	96.6	46.2	46	42	-	-
19FFS75	¾	19	15		¾ 14f		1	3.80	1.82	1.81	1.65	96.6	46.2	46	42	-	-
19FFS75BS	¾	19	15		¾-14		1	3.80	1.82	1.81	1.65	96.6	46.2	46	42	-	-
25FFS100	1	25	18		1 11,5f		1	4.07	2.17	2.36	2.17	103.5	55.2	60	55	-	-
25FFS100BS	1	25	18		1-11		1	4.07	2.17	2.36	2.17	103.5	55.2	60	55	-	-
25FFS125	1	25	18		1 ¼ 11,5f		1	4.07	2.17	2.36	2.17	103.5	55.2	60	55	-	-
25FFS125BS	1	25	18		1 ¼-11		1	4.07	2.17	2.36	2.17	103.5	55.2	60	55	-	-
25FFS131UN	1	25	18			1 ¼ 12f UN	1	4.07	2.17	2.36	2.17	103.5	55.2	60	55	2.77	1260
25FFS162UN	1	25	18			1 ¼ 12f UN	1	4.07	2.17	2.36	2.17	103.5	55.2	60	55	-	-
32FFS125	1 ¼		22.1		1 ¼ 11,5f		1	4.93	2.55	2.36	2.17	125.2	64.8	60	55	4.22	1915
32FFS125BS	1 ¼		22.1		1 ¼-11		1	4.93	2.55	2.36	2.17	125.2	64.8	60	55	4.18	1897
32FFS162UN	1 ¼		22.1			1 ¼ 12f UN	1	4.93	2.55	2.36	2.17	125.2	64.8	60	55	4.16	1894
40FFS150	1 ½		30.1		1 ½ 11,5f		1	5.01	3.13	2.76	2.56	127.4	79.5	70	65	6.16	2796
40FFS150BS	1 ½		30.1		1 ½-11		1	5.01	3.13	2.76	2.56	127.4	79.5	70	65	6.13	2781
40FFS187UN	1 ½		30.1			1 ¼ 12f UN	1	5.01	3.13	2.76	2.56	127.4	79.5	70	65	6.10	2767
50FFS200	2		39.2		2 11,5f		1	6.17	3.84	3.46	3.15	156.8	97.5	87.8	80	10.87	4931
50FFS200BS	2		39.2		2-11		1	6.17	3.84	3.46	3.15	156.8	97.5	87.8	80	10.82	4908
50FFS250UN	2		39.2			2 ¼ 12f UN	1	6.17	3.84	3.46	3.15	156.8	97.5	87.8	80	10.64	4825

\*Alternative end connections available upon request.

To obtain connected length of coupling, add dimensions A (Fig. 1 or Fig. 2) and G (Fig. 3 or 4) together.

FLUID TRANSFER  
AND HYDRAULIC

PNEUMATIC

SPECIAL APPLICATIONS

DIAGNOSTIC

AGRICULTURE

REFRIGERANT

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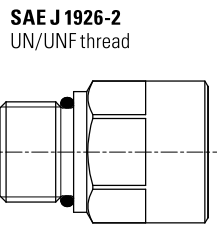
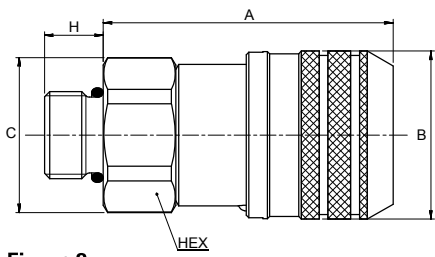


Figure 2

## Sockets(Female)

Part Number	Body Size	ISO Size	Nominal Flow Diameter	Dimensions												Weight	
				SAE J 1926-2	Fig.	A (in)	B (in)	C (in)	H (in.)	Hex (in)	A (mm)	B (mm)	C (mm)	H (mm)	Hex (mm)	lbs	grams
10FFS56ORM	3/8	10	8,6	1/8 18F UNF	2	2.61	1.26	1.06	0.47	0.94	66.4	32	27	12	23.8	-	-
10FFS75ORM	3/8	10	8,6	1/8 16F UNF	2	2.61	1.26	1.06	0.55	0.94	66.4	32	27	14	23.8	-	-

\* Alternative end connections available upon request.  
To obtain connected length of coupling, add dimensions A (Fig. 1 or Fig. 2) and G (Fig. 3 or 4) together.

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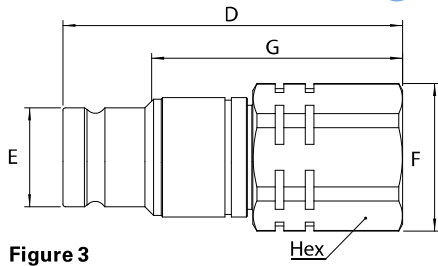
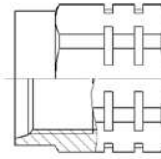
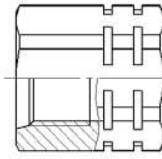


Figure 3

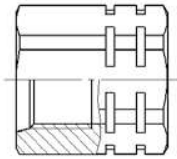
**ISO 6149-1**  
15° + Metric thread



**SAE J 1926-1**  
15° + UN/UNF thread



**EATON S013A**  
15° + BSPP Thread



## Plugs(Male)

Part Number	Body Size		Nominal Flow				Dimensions										Weight		
	(in)	(mm)	Diameter (mm)	NPT	BSPP	SAE J 1926-1	Fig.	D (in)	E (in)	F (in)	G (in)	Hex (in)	D (mm)	E (mm)	F (mm)	G (mm)	Hex (mm)	lbs	grams
6FFP25	¼	6.3	6	¼ 18f			3	2.01	0.64	0.94	1.58	0.87	51	16.2	24	40.1	22	-	-
6FFP25BS	¼	6.3	6		¼-19		3	2.01	0.64	0.94	1.58	0.87	51	16.2	24	40.1	22	-	-
6FFP56UN	¼	6.3	6			¾ 18f UNF	3	2.05	0.64	0.94	1.62	0.87	52	16.2	24	41.1	22	-	-
10FFP37	¾	10	8.6	¾ 18f			3	2.56	0.78	1.16	1.96	1.06	65	19.7	29.5	49.7	27	-	-
10FFP37BS	¾	10	8.6		¾-19		3	2.56	0.78	1.16	1.96	1.06	65	19.7	29.5	49.7	27	-	-
10FFP50	¾	10	8.6	½ 14f			3	2.68	0.78	1.16	2.08	1.06	68	19.7	29.5	52.7	27	-	-
10FFP50BS	¾	10	8.6		½-14		3	2.68	0.78	1.16	2.08	1.06	68	19.7	29.5	52.7	27	-	-
10FFP56UN	¾	10	8.6			¾ 18f UNF	3	2.68	0.78	1.16	2.08	1.06	68	19.7	29.5	52.7	27	-	-
10FFP75UN	¾	10	8.6			¾ 16f UNF	3	2.68	0.78	1.16	2.08	1.06	68	19.7	29.5	52.7	27	-	-
10FFP87UN	¾	10	8.6			¾ 14f UNF	3	2.80	0.78	1.30	2.19	1.18	71	19.7	33	55.7	30	-	-
12FFP106UN	½	12.5	11			1 ¼ 12f UN	3	2.95	0.96	1.56	2.28	1.42	75	24.5	39.5	58	36	-	-
12FFP50	½	12.5	11	½ 14f			3	2.71	0.96	1.56	2.05	1.42	69	24.5	39.5	52	36	-	-
12FFP50BS	½	12.5	11		½-14		3	2.71	0.96	1.56	2.05	1.42	69	24.5	39.5	52	36	-	-
12FFP75	½	12.5	11	¾ 14f			3	2.83	0.96	1.56	2.16	1.42	72	24.5	39.5	55	36	-	-
12FFP75BS	½	12.5	11		¾-14		3	2.83	0.96	1.56	2.16	1.42	72	24.5	39.5	55	36	-	-
12FFP75UN	½	12.5	11			¾ 16f UNF	3	2.71	0.96	1.56	2.05	1.42	69	24.5	39.5	52	36	-	-
12FFP87UN	½	12.5	11			¾ 14f UNF	3	2.83	0.96	1.56	2.16	1.42	72	24.5	39.5	55	36	-	-
16FFP106UN	¾	16	13			1 ½ 12f UN	3	2.95	1.06	1.56	2.28	1.42	75	27	39.5	58	36	-	-
16FFP50	¾	16	13	½ 14f			3	2.71	1.06	1.56	2.05	1.42	69	27	39.5	52	36	-	-
16FFP50BS	¾	16	13		½-14		3	2.71	1.06	1.56	2.05	1.42	69	27	39.5	52	36	-	-
16FFP75	¾	16	13	¾ 14f			3	2.83	1.06	1.56	2.16	1.42	72	27	39.5	55	36	-	-
16FFP75BS	¾	16	13		¾-14		3	2.83	1.06	1.56	2.16	1.42	72	27	39.5	55	36	-	-
16FFP75UN	¾	16	13			¾ 16f UNF	3	2.71	1.06	1.56	2.05	1.42	69	27	39.5	52	36	-	-
16FFP87UN	¾	16	13			¾ 14f UNF	3	2.83	1.06	1.56	2.16	1.42	72	27	39.5	55	36	-	-
19FFP100	¾	19	15	1 11,5f			3	3.69	1.18	1.81	2.84	1.65	93.8	29.9	46	72	42	-	-
19FFP100BS	¾	19	15		1-11		3	3.69	1.18	1.81	2.84	1.65	93.8	29.9	46	72	42	-	-
19FFP106UN	¾	19	15			1 ½ 12f UN	3	3.69	1.18	1.81	2.84	1.65	93.8	29.9	46	72	42	-	-
19FFP131UN	¾	19	15			1 ¾ 12f UN	3	3.69	1.18	1.81	2.84	1.65	93.8	29.9	46	72	42	-	-
19FFP75	¾	19	15	¾ 14f			3	3.69	1.18	1.81	2.84	1.65	93.8	29.9	46	72	42	-	-
19FFP75BS	¾	19	15		¾-14		3	3.69	1.18	1.81	2.84	1.65	93.8	29.9	46	72	42	-	-
25FFP100	1	25	18	1 11,5f			3	4.12	1.42	2.36	3.22	2.17	104.6	36	60	81.7	55	-	-
25FFP100BS	1	25	18		1-11		3	4.12	1.42	2.36	3.22	2.17	104.6	36	60	81.7	55	-	-
25FFP125	1	25	18	1 ¼ 11,5f			3	4.12	1.42	2.36	3.22	2.17	104.6	36	60	81.7	55	-	-
25FFP125BS	1	25	18		1 ¼-11		3	4.12	1.42	2.36	3.22	2.17	104.6	36	60	81.7	55	-	-
25FFP131UN	1	25	18			1 ½ 12f UN	3	4.12	1.42	2.36	3.22	2.17	104.6	36	60	81.7	55	2.09	952
25FFP162UN	1	25	18			1 ¾ 12f UN	3	4.12	1.42	2.36	3.22	2.17	104.6	36	60	81.7	55	-	-
32FFP125	1 ¼	-	22.1	1 ¼ 11,5f			3	4.15	1.73	2.36	3.24	2.17	105.5	44	60	82.3	55	2.63	1193
32FFP125BS	1 ¼	-	22.1		1 ¼-11		3	4.15	1.73	2.36	3.24	2.17	105.5	44	60	82.3	55	2.60	1177
32FFP162UN	1 ¼	-	22.1			1 ¾ 12f UN	3	4.15	1.73	2.36	3.24	2.17	105.5	44	60	82.3	55	2.59	1174
40FFP150	1 ½	-	30.1	1 ½ 11,5f			3	4.13	2.24	2.61	3.01	2.36	105	57	66.3	76.5	60	3.15	1430
40FFP150BS	1 ½	-	30.1		1 ½-11		3	4.13	2.24	2.61	3.01	2.36	105	57	66.3	76.5	60	3.12	1417
40FFP187UN	1 ½	-	30.1			1 ¾ 12f UN	3	4.13	2.24	2.61	3.01	2.36	105	57	66.3	76.5	60	3.10	1406
50FFP200	2	-	39.2	2 11,5f			3	5.31	2.87	3.29	3.80	2.95	135	73	83.5	96.6	75	6.01	2725
50FFP200BS	2	-	39.2		2-11		3	5.31	2.87	3.29	3.80	2.95	135	73	83.5	96.6	75	5.97	2706
50FFP250UN	2	-	39.2			2 ½ 12f UN	3	5.31	2.87	3.29	3.80	2.95	135	73	83.5	96.6	75	5.78	2623

\*Alternative end connections available upon request.

To obtain connected length of coupling, add dimensions A (Fig. 1 or Fig. 2) and G (Fig. 3 or 4) together.

FLUID TRANSFER  
AND HYDRAULIC

PNEUMATIC

SPECIAL APPLICATIONS

DIAGNOSTIC

AGRICULTURE

REFRIGERANT

# FF Series (Steel) ISO 16028 Interchange

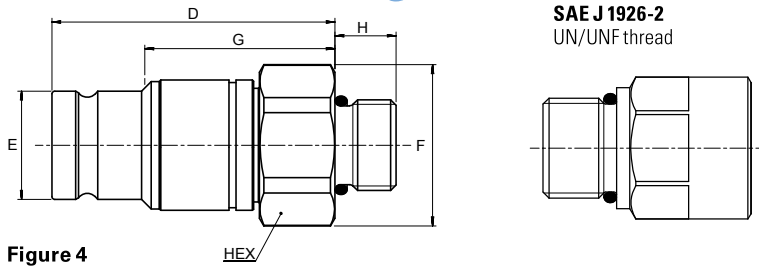


Figure 4

## Plugs(Male)

Part Number	NBR+AU	FKM	EPDM	Body Size (in)	ISO Size (mm)	Nominal Flow Diameter (mm)	Dimensions												Weight		
							SAE J 1926-2	Fig.	D (in)	E (in)	F (in)	G (in.)	H (in)	Hex (in)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	Hex (mm)	lbs
10FFP56ORM	10FFP56ORM143	10FFP56ORM192	3/8	10	8,6	9/16 18F UNF	4	2,5	0,78	1,06	1,9	0,47	0,94	63,6	19,7	27	48,3	12	23,8	0,33	150
10FFP75ORM	10FFP75ORM143	10FFP75ORM192	1/2	10	8,6	3/4 16F UNF	4	2,	0,78	1,06	1,	0,55	0,94	63,6	19,7	27	48,3	14	23,8	0,34	156

1\* Alternative end connections available upon request.

To obtain connected length of coupling, add dimensions A (Fig. 1 or Fig. 2) and G (Fig. 3 or 4) together.

## Socket (Female) Dust Plug

Body Size (in)	Body Size(in) with color ring	Part Number	Coupling Type	Dust Plug Material
3/8	-	SDC6FF	Socket/Female	PVC
3/8*	-	SDC10FF	Socket/Female	PVC
1/2	3/8	SDC12FF	Socket/Female	PVC
1/2	-	SDC16FF	Socket/Female	PVC
3/4	1/2	SDC19FF	Socket/Female	PVC
1	3/4	SDC25FF	Socket/Female	PVC

\*Dust caps and dust plugs are offered in black.

## Plug (Male) Dust Cap

Body Size (in)	Part Number	Coupling Type	Dust Plug Material
3/8	PDC6FF	Plug/Male	PVC
3/8*	PDC10FF	Plug/Male	PVC
1/2	PDC12FF	Plug/Male	PVC
1/2	PDC16FF	Plug/Male	PVC
3/4	PDC19FF	Plug/Male	PVC
1	PDC25FF	Plug/Male	PVC



## Color Coding Ring Option\*

Body Size (in)	ISO Size (mm)	Size	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	10FF	CR10FFSLB	CR10FFSRD	CR10FFSYL	CR10FFSDG	CR10FFPLB	CR10FFPRD	CR10FFPYL	CR10FFPDG	CR10FFSP93	CRKIT10FF
1/2	12.5	12FF	CR12FFSLB	CR12FFSRD	CR12FFSYL	CR12FFSDG	CR12FFPLB	CR12FFPRD	CR12FFPYL	CR12FFPDG	CR12FFSP93	CRKIT12FF
3/4	16	16FF	CR16FFSLB	CR16FFSRD	CR16FFSYL	CR16FFSDG	CR16FFPLB	CR16FFPRD	CR16FFPYL	CR16FFPDG	CR16FFSP93	CRKIT16FF
1	19	19FF	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.