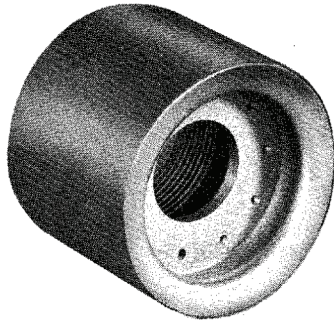
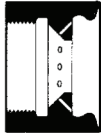
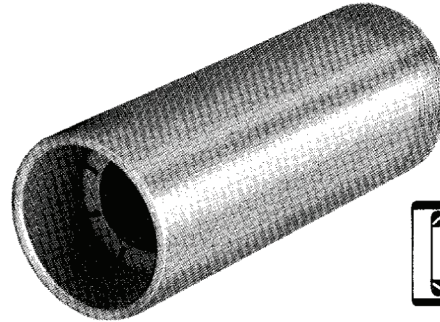


# Eclipse Open Burner Nozzles



Sticktite Nozzle



Ferrofix Nozzle

Eclipse Sticktite and Ferrofix nozzles can be used wherever an open-type nozzle is applicable. Combustion chambers must have balanced or negative pressure. Typical applications include boiler conversions, kilns, ovens, air heaters, furnaces, immersion heating and other applications where the slight excess air introduced into the combustion chamber around the burner is acceptable.

All Eclipse open burner nozzles are flame retention type nozzles which ensure satisfactory operation over a wide range of mixture pressures and draft conditions. Though combustion blocks are not necessary for proper operation, they are available when adapting to a furnace, kiln, or other refractory-lined combustion chamber.



## CAUTION

- **It is dangerous to use any fuel burner equipment unless it is equipped with suitable flame sensing device(s) and automatic fuel shut-off valve(s). Thermocouple flame monitoring must not be used on burners with capacities greater than 150,000 BTU/hr (44 kW). Eclipse can supply flame monitoring systems or information on alternate sources.**

Sticktite and Ferrofix nozzles are normally used with any air/gas mixing device capable of delivering a combustible mixture at the pressure required to give desired maximum capacity and turndown range. Typical mixers are:

- Low and high pressure injectors
- Proportional mixers
- Variset® mixers

## Sticktite Nozzles

Eclipse Sticktite nozzles are available in cast iron and a heat-resisting alloy, body with female threads. Exceptional flame stability is achieved by the Sticktite due to a built-in flame retention feature.

Sticktite nozzles provide a slightly shorter, bushier flame than the Ferrofix nozzle. Flame lengths range from 8 inches (200 mm) to 10-1/2 feet (3.2 m), depending on nozzle size and mixture pressure. They are available in ten different pipe sizes, ranging in size from 1/2" through 6". With 6" w.c. (15 mbar) mixture pressure, capacities range from 37,000 BTU/hr (11 kW - HHV) through 5,250,000 BTU/hr (1540 kW - HHV) (for a complete listing, see page 2 ).

## Ferrofix Nozzles

Eclipse Ferrofix nozzles have a steel shell with male threads and either steel or cast iron spools. They are also available in heat resisting alloy. As in the Sticktite nozzle, maximum flame retention is achieved by use of the built-in flame retention feature.

Ferrofix nozzles are available in three types:

- Type 1 has short thread
- Type 2 has a long thread
- Type 3 is threaded at both ends

Ferrofix nozzles are furnished in thirteen different pipe sizes ranging from 1/4" through 6". Alloy nozzles, however, are available in 1/2" through 2-1/2" sizes (Type 1 only). With 6" w.c. (15 mbar) mixture pressure, capacities range from 6,090 BTU/hr (2 kW - HHV) through 5,700,000 BTU/hr (1670 kW - HHV). For a complete listing of sizes, types and capacities, see page 4.

## Sticktite Nozzles

Capacities - CFH (m<sup>3</sup>/hr)

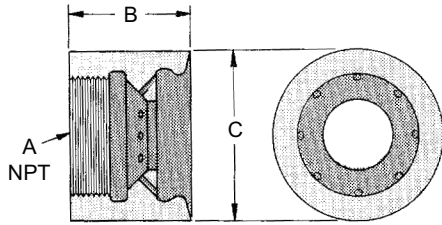
(Natural Gas - 0.6 Sp. Gr. 8:1 Air/Gas Ratio)\*

Steel																		
Cat. Num.	Mixture Pressure inches w.c. (mbar)																	
	0.2 (0.5)	0.3 (0.7)	0.4 (1.0)	0.5 (1.2)	0.6 (1.5)	0.7 (1.7)	0.8 (2.0)	0.9 (2.2)	1 (2.4)	2 (4.9)	3 (7.4)	4 (9.9)	5 (12.4)	6 (14.9)	7 (17.4)	8 (19.9)	9 (22.4)	10 (24.8)
ST-102-10	-	-	-	10.5 (0.29)	11.5 (0.32)	12.5 (0.35)	13.3 (0.37)	14.2 (0.40)	15 (0.42)	21.2 (0.60)	26 (0.73)	30 (0.84)	33.8 (0.95)	37 (1.04)	40 (1.13)	43 (1.21)	45 (1.27)	48 (1.35)
ST-103-14	10.7 (0.30)	13 (0.36)	15 (0.42)	17 (0.48)	18.5 (0.52)	20 (0.56)	21.5 (0.60)	22.8 (0.64)	24 (0.67)	34 (0.96)	42 (1.18)	48 (1.35)	54 (1.52)	59 (1.67)	64 (1.81)	68 (1.92)	72 (2.03)	76 (2.15)
ST-204-18	23.5 (0.66)	28.8 (0.81)	33.2 (0.94)	37 (1.04)	41 (1.16)	44 (1.24)	47 (1.33)	50 (1.41)	52.5 (1.48)	75 (2.12)	91 (2.57)	105 (2.97)	118 (3.34)	130 (3.68)	140 (3.96)	150 (4.24)	160 (4.53)	168 (4.75)
ST-205-28	51 (1.44)	62.5 (1.76)	72 (2.03)	80 (2.26)	88 (2.49)	95 (2.69)	102 (2.88)	108 (3.05)	114 (3.22)	162 (4.58)	198 (5.60)	230 (6.51)	255 (7.22)	280 (7.92)	302 (8.55)	325 (9.20)	345 (9.76)	362 (10.25)
ST-206-36	81 (2.29)	100 (2.83)	115 (3.25)	130 (3.68)	142 (4.02)	153 (4.33)	164 (4.64)	174 (4.92)	184 (5.21)	260 (7.36)	320 (9.06)	370 (10.47)	410 (11.60)	450 (12.74)	488 (13.81)	520 (14.72)	550 (15.57)	580 (16.42)
ST-208-42	109 (3.08)	132 (3.73)	154 (4.36)	172 (4.87)	188 (5.32)	203 (5.74)	218 (6.17)	230 (6.51)	243 (6.88)	345 (9.76)	420 (11.89)	490 (13.87)	545 (15.43)	600 (16.99)	645 (18.26)	690 (19.53)	735 (20.81)	770 (21.80)
ST-208-46	130 (3.68)	160 (4.53)	182 (5.15)	205 (5.80)	225 (6.37)	243 (6.88)	260 (7.36)	275 (7.78)	290 (8.21)	410 (11.60)	502 (14.21)	580 (16.42)	655 (18.54)	718 (20.33)	770 (21.80)	830 (23.50)	875 (24.77)	920 (26.05)
ST-210-56	192 (5.43)	235 (6.65)	272 (7.70)	305 (8.63)	332 (9.40)	360 (10.19)	385 (10.90)	410 (11.60)	430 (12.17)	610 (17.27)	750 (21.23)	865 (24.49)	965 (27.32)	1050 (29.73)	1130 (31.99)	1220 (34.54)	1300 (36.81)	1350 (38.22)
ST-212-68	280 (7.92)	340 (9.62)	395 (11.18)	440 (12.45)	482 (13.64)	525 (14.86)	560 (15.85)	595 (16.84)	625 (17.69)	890 (25.20)	1080 (30.58)	1250 (35.39)	1400 (39.65)	1540 (43.60)	1670 (47.28)	1780 (50.40)	1890 (53.51)	2000 (56.63)
ST-216-84	422 (11.94)	520 (14.72)	600 (16.99)	670 (18.97)	740 (20.95)	795 (22.51)	850 (24.06)	900 (25.48)	950 (26.90)	1350 (38.22)	1650 (46.72)	1900 (53.80)	2120 (60.03)	2330 (65.97)	2520 (71.35)	2700 (76.45)	2850 (80.70)	3000 (84.95)
ST-224-128	960 (27.18)	1180 (33.41)	1350 (38.22)	1510 (42.75)	1680 (47.57)	1800 (50.97)	1910 (54.08)	2030 (57.48)	2150 (60.88)	3050 (86.36)	3700 (104.77)	4300 (121.76)	4800 (135.92)	5250 (148.66)	5700 (161.40)	6100 (172.73)	6400 (181.22)	6800 (192.55)

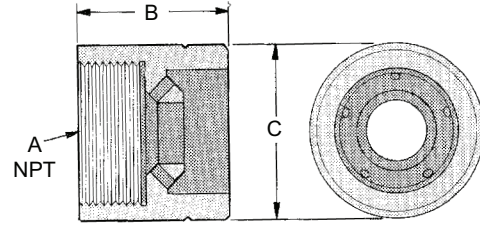
Alloy																		
Catalog Number	Mixture Pressure inches w.c. (mbar)																	
	0.2 (0.5)	0.3 (0.7)	0.4 (1.0)	0.5 (1.2)	0.6 (1.5)	0.7 (1.7)	0.8 (2.0)	0.9 (2.2)	1 (2.4)	2 (4.9)	3 (7.4)	4 (9.9)	5 (12.4)	6 (14.9)	7 (17.4)	8 (19.9)	9 (22.4)	10 (24.8)
ST-102-A18-8-7	4 (0.11)	5 (0.14)	5.7 (0.16)	6.4 (0.18)	7 (0.19)	7.6 (0.21)	8.1 (0.22)	8.6 (0.24)	9 (0.25)	12.8 (0.36)	15.8 (0.44)	18 (0.50)	20 (0.56)	22 (0.62)	24 (0.67)	25.5 (0.72)	27 (0.76)	28 (0.79)
ST-102-A18-8-10	5.8 (0.16)	7.1 (0.20)	8.2 (0.23)	9.2 (0.26)	10 (0.28)	10.9 (0.30)	11.7 (0.33)	12.4 (0.35)	13 (0.36)	18.3 (0.51)	22.5 (0.63)	26 (0.73)	29 (0.82)	32 (0.90)	34 (0.96)	36.5 (1.03)	39 (1.10)	41 (1.16)
ST-102-A18-8-12	7.6 (0.21)	9.3 (0.26)	10.8 (0.30)	12 (0.33)	13 (0.36)	14.2 (0.40)	15.2 (0.43)	16 (0.45)	17 (0.48)	24 (0.67)	29.5 (0.83)	34 (0.96)	38 (1.07)	42 (1.18)	45 (1.27)	48 (1.35)	51 (1.44)	54 (1.52)
ST-103-A18-8-12	8.5 (0.24)	10.3 (0.29)	12 (0.33)	13.4 (0.7)	14.8 (0.41)	16 (0.45)	17 (0.48)	18 (0.50)	19 (0.53)	27 (0.76)	33 (0.93)	38 (1.07)	42 (1.18)	46 (1.30)	50 (1.41)	54 (1.52)	57 (1.61)	60 (1.69)
ST-103-A18-8-14	10.2 (0.28)	12.5 (0.35)	14.5 (0.41)	16 (0.45)	17.8 (0.50)	19 (0.53)	20.5 (0.58)	21.8 (0.61)	23 (0.65)	32.3 (0.91)	39.5 (1.11)	46 (1.30)	51 (1.44)	56 (1.58)	60 (1.69)	64.5 (1.82)	68 (1.92)	72 (2.03)
ST-104-A18-8-18	19 (0.53)	23 (0.65)	26.5 (0.75)	30 (0.84)	32.5 (0.92)	35 (0.99)	37.5 (1.06)	40 (1.13)	42 (1.18)	59.5 (1.68)	73 (2.06)	84 (2.37)	94 (2.66)	102 (2.88)	110 (3.11)	120 (3.39)	125 (3.53)	132 (3.73)
ST-105-A18-8-22	27 (0.76)	33 (0.93)	38 (1.07)	42 (1.18)	46 (1.30)	50 (1.41)	53.8 (1.52)	57 (1.61)	60 (1.69)	84 (2.37)	104 (2.94)	120 (3.39)	134 (3.79)	146 (4.13)	160 (4.53)	170 (4.81)	180 (5.09)	190 (5.38)
ST-105-A18-8-28	44.2 (1.25)	54 (1.52)	63 (1.78)	70 (1.98)	77 (2.18)	84 (2.37)	90 (2.54)	95 (2.69)	100 (2.83)	140 (3.96)	172 (4.87)	200 (5.66)	222 (6.28)	245 (6.93)	263 (7.44)	280 (7.92)	300 (8.49)	310 (8.77)
ST-106-A18-8-36	73 (2.06)	89 (2.52)	102 (2.88)	115 (3.25)	125 (3.53)	135 (3.82)	146 (4.13)	155 (4.38)	162 (4.58)	230 (6.51)	280 (7.92)	322 (9.11)	360 (10.19)	395 (11.18)	430 (12.17)	455 (12.88)	485 (13.73)	505 (14.30)
ST-108-A18-8-46	125 (3.53)	153 (4.33)	178 (5.04)	198 (5.60)	218 (6.17)	235 (6.65)	250 (7.07)	267 (7.56)	280 (7.92)	390 (11.04)	480 (13.59)	558 (15.80)	620 (17.55)	680 (19.25)	730 (20.67)	775 (21.94)	830 (23.50)	870 (24.63)

\* For air/gas ratios other than 8:1 see multifactor chart on page 4.

## Dimensions and Specifications



STEEL



ALLOY

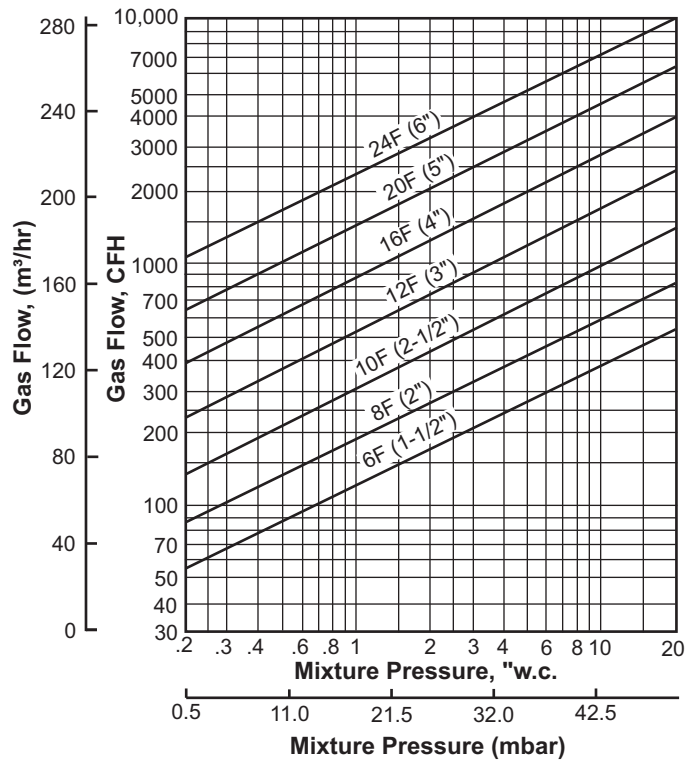
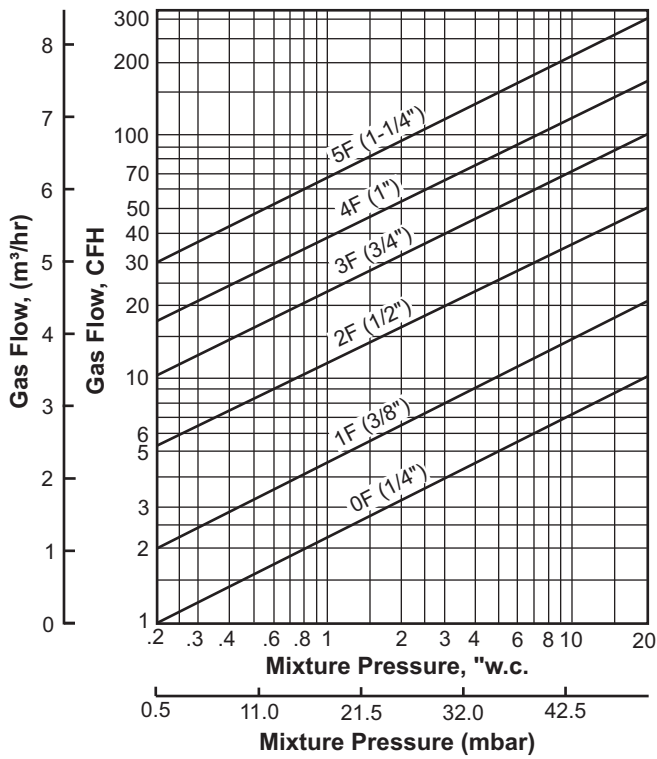
Catalog Number	Part No.	Actual Port Area in <sup>2</sup> (mm <sup>2</sup> )	Dimensions inches (mm)		
			A NPT	B	C
ST 102-10	18902-1	0.114 (73.5)	1/2 (12.7)	1.25 (31.8)	1.06 (26.9)
ST 103-14	18903-1	0.199 (128.3)	3/4 (19.1)	1.37 (34.9)	1.31 (33.3)
ST 204-18	3612	0.309 (199.3)	1 (25.4)	1.75 (44.5)	2.12 (53.9)
ST 205-28	3663	0.669 (431.6)	1-1/4 (31.8)	2.18 (55.6)	2.43 (61.9)
ST 206-36	3619	1.069 (689.6)	1-1/2 (31.8)	2.25 (57.2)	2.75 (69.6)
ST208-42	3620-1	1.443 (930.9)	2 (50.8)	2.31 (58.7)	3.25 (82.6)
ST 208-46	3620-2	1.713 (1105.1)	2 (50.8)	2.31 (58.7)	3.25 (82.6)
ST 210-56	3665	2.525 (1629.0)	2-1/2 (63.5)	2.75 (69.6)	4 (101.6)
ST 212-68	3664	3.682 (2375.4)	3 (76.2)	3.06 (77.8)	4.37 (111.1)
ST 216-84	3677	5.59 (3606.4)	4 (101.6)	3.18 (80.9)	5.5 (139.7)
ST 224-128	3679	12.8 (8258.0)	6 (152.4)	3.62 (92.1)	7.68 (179.4)

Catalog Number	Part No.	Actual Port Area in <sup>2</sup> (mm <sup>2</sup> )	Dimensions inches (mm)		
			A NPT	B	C
ST 102-A18-8-7	10097-2	0.0745 (48.0)	1/2 (12.7)	1.25 (31.8)	1.06 (26.9)
ST 102-A18-8-10	18902-2	0.114 (73.5)	1/2 (12.7)	1.25 (31.8)	1.06 (26.9)
ST 102-A18-8-12	18902-6	0.148 (95.4)	1/2 (12.7)	1.25 (31.8)	1.06 (26.9)
ST 103-A18-8-12	11895-2	0.159 (102.5)	3/4 (19.1)	1.37 (34.9)	1.31 (33.3)
ST 103-A18-8-14	18903-2	0.199 (128.3)	3/4 (19.1)	1.37 (34.9)	1.31 (33.3)
ST 104-A18-8-18	19174-2	0.310 (199.9)	1 (25.4)	1.68 (42.9)	1.75 (44.5)
ST 105-A18-8-22	19231	0.433 (279.3)	1-1/4 (31.8)	2 (50.8)	2 (50.8)
ST 105-A18-8-28	19404	0.675 (435.4)	1-1/4 (31.8)	2 (50.8)	2 (50.8)
ST 106-A18-8-36	18874	1.09 (703.2)	1-1/2 (31.8)	2.25 (57.2)	2.5 (63.5)
ST 108-A18-8-46	18875	1.75 (1129.0)	2 (50.8)	2.5 (63.5)	3 (76.2)

# Ferrofix Nozzle

## Capacities

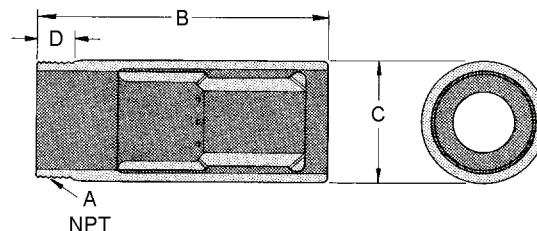
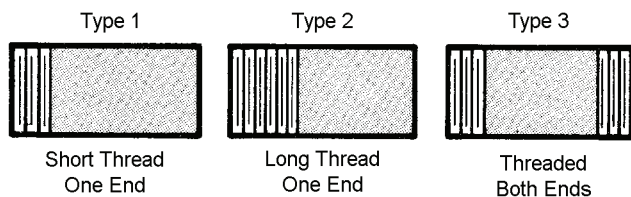
(Natural Gas - 0.6 Sp. Gr. - 8:2 Air/Gas Ratio)



For Air/Gas Ratios other than 8:1 apply Gas Flow x Multifactor below.

Air/Gas Ratio	7:1	8:1	9:1	10:1	11:1
Multifactor	1.12	1.0	0.91	0.82	0.75

## Dimensions and Specifications



Catalog Number	Type Number	Assembly Numbers		Actual Burner Area in <sup>2</sup> (mm <sup>2</sup> )	Dimensions inches (mm)				Shipping Wt. lbs
		Steel	Alloy		A	B	C	D	
0 F-1	1	103201	-	0.018 (11.61)	1/4 (6.4)	1.75 (44.4)	0.21 (13.5)	0.34 (8.7)	0.25 (0.11)
1 F-1	1	103202	-	0.037 (23.87)	3/8 (9.5)	3 (76.2)	0.68 (17.5)	0.37 (9.5)	0.25 (0.11)
2 F-1	1	103204	103228	0.0895 (57.74)	1/2 (12.7)	3 (76.2)	0.84 (21.4)	0.5 (12.7)	0.25 (0.11)
2 F-3	3	103240	-	0.0895 (57.74)	1/2 (12.7)	3 (76.2)	0.84 (21.4)	0.5 (12.7)*	0.25 (0.11)
3 F-1	1	103206	103229	0.1657 (106.9)	3/4 (19.1)	3 (76.2)	1.06 (26.9)	0.56 (14.3)	0.33 (0.15)
3 F-2	2	103207	-	0.1657 (106.9)	3/4 (19.1)	4.5 (114.3)	1.06 (26.9)	2 (50.8)	0.5 (0.22)
3 F-3	2	103241	-	0.1657 (106.9)	3/4 (19.1)	3 (76.2)	1.06 (26.9)	0.56* (14.3)	0.33 (0.15)
4 F-1	1	103208	103230	0.3021 (194.9)	1 (25.4)	3.5 (88.9)	1.31 (33.3)	0.68 (17.5)	0.66 (0.30)
4 F-2	2	103209	-	0.3021 (194.9)	1 (25.4)	5 (127)	1.31 (33.3)	2 (50.8)	1 (0.45)
4 F-3	3	103255	-	0.3021 (194.9)	1 (25.4)	3.5 (88.9)	1.31 (33.3)	0.68* (17.5)	0.66 (0.30)
5 F-1	1	103210	103231	0.5169 (333.48)	1-1/4 (31.7)	3.5 (88.9)	1.68 (42.8)	0.68 (17.5)	1 (0.45)
5 F-2	2	103211	-	0.5169 (333.48)	1-1/4 (31.7)	5 (101.6)	1.68 (42.8)	2 (50.8)	2 (0.90)
6 F-1	1	103212	103232	0.8266 (533.28)	1-1/2 (38.1)	3.5 (88.9)	1.31 (49.2)	0.68 (17.5)	1.5 (0.68)
6 F-2	2	103213	-	0.8255 (532.57)	1-1/2 (38.1)	5 (127)	1.31 (49.2)	2 (50.8)	2.5 (1.13)
8 F-1	1	103214	103233	1.2736 (821.67)	2 (50.8)	6.5 (165.1)	2.37 (34.9)	0.75 (19.1)	3 (1.36)
8 F-2	2	103216	-	1.2736 (821.67)	2 (50.8)	5 (127)	2.37 (34.9)	3.75 (95.3)	5.5 (2.49)
10 F-1	1	103217	103234	2.128 (1372.9)	2-1/2 (63.5)	6.5 (165.1)	2.87 (73.0)	0.31 (23.8)	4.5 (2.04)
10 F-2	2	103218	-	2.128 (1372.9)	2-1/2 (63.5)	8 (203.2)	2.87 (73.0)	3.75 (95.3)	5.5 (2.49)
12 F-1	1	103219	-	3.62 (2335.47)	3 (76.2)	6.5 (165.1)	3.5 (88.9)	1 (25.4)	6 (2.72)
12 F-2	2	103220	-	3.62 (2335.47)	3 (76.2)	8 (203.2)	3.5 (88.9)	3.75 (95.3)	7.5 (3.40)
16 F-1	1	103251	-	6.0244 (1951.22)	4 (101.6)	8 (203.2)	4.5 (114.3)	1.12 (28.6)	15 (6.80)
16 F-2	2	103222	-	6.0244 (1951.22)	4 (101.6)	12.5 (317.5)	4.5 (114.3)	3.75 (95.2)	20 (9.07)
20 F-1	1	103252	-	9.751 (6290.95)	5 (127)	8 (203.2)	4.5 (114.3)	1.12 (28.6)	15 (6.80)
24 F-1	1	103225	-	16.099 (10386.43)	6 (152.4)	11 (279.4)	6.62 (168.3)	1.31 (33.3)	24 (10.88)

