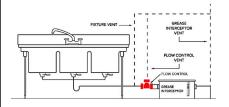


FLOW CONTROL FITTINGS - INTERNAL AND EXTERNAL

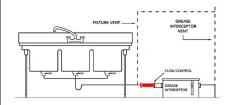
Hydromechanical Flow Control Variations

Per ASME/CSA & PDI Performance Standards

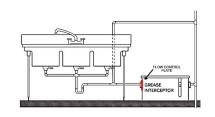
A. External flow control with air intake, directly connected. Recognized per PDI, ASME/CSA



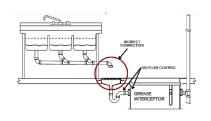
B. External flow control withoute air intake, directly connected. Recognized per ASME/CSA

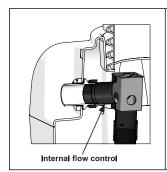


C. Without external flow control, directly connected "Internal flow control". Recognized per ASME/CSA



D. Without external flow control, indirectly connected "No flow control". Recognized per ASME/CSA









(DIMENSION) DENOTES MILLIMETRES									
MODEL NO.	FOR USE WITH MIFAB® INTERCEPTOR	NO HUB PIPE CONNECTION SIZE	ORIFICE SIZE	VENT CONNECTION SIZE					
FLC-1	Lil-7	2" (52)	.50" (13)	2" (52)					
FLC-2	Lil-10	2" (52)	.65" (16)	2" (52)					
FLC-3	Lil-15	2" (52)	.75" (19)	2" (52)					
FLC-4	Lil-20	3" (75)	1" (25)	2" (52)					
FLC-5	Lil-25	3" (75)	1.25" (31)	2" (52)					
FLC-6	Lil-35	3" (75)	1.25" (31)	2" (52)					
FLC-7	Lil-50	3" (75)	2" (52)	2" (52)					
FLC-7-F4	BIG-500	4" (102)	2" (52)	2" (52)					
FLC-XL-0	BIG-750	4" (102)	2" (52)	2" (52)					
FLC-XL-1	BIG-1150	4" (102)	2.25" (57)	2" (52)					

(DIMENSION) DENOTES MILLIMETRES								
MODEL NO.	FOR USE WITH MIFAB® INTERCEPTOR	NO HUB PIPE CONNECTION SIZE	ORIFICE SIZE	VENT CONNECTION SIZE				
FLCT-1	Lil-7	2" (52)	.50" (13)	2" (52)				
FLCT-2	Lil-10	2" (52)	.65" (16)	2" (52)				
FLCT-3	Lil-15	2" (52)	.75" (19)	2" (52)				
FLCT-4	Lil-20	3" (75)	1" (25)	2" (52)				
FLCT-5	Lil-25	3" (75)	1.25" (31)	2" (52)				
FLCT-6	Lil-35	3" (75)	1.25" (31)	2" (52)				
FLCT-7	Lil-50	3" (75)	2" (52)	2" (52)				
FLCT-7-F4	BIG-500	4" (102)	2" (52)	2" (52)				
FLCT-XL-0	BIG-750	4" (102)	2" (52)	2" (52)				
FLCT-XL-1	BIG-1150	4" (102)	2.25" (57)	2" (52)				

INSTALLATION DIAGRAMS

Figures A2.5.1 through A2.5.5 are included to illustrate various grease interceptor installations normally encountered in domestic, commercial and institutional systems. These figures will serve as a guide to practical application of grease interceptors.

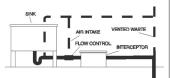


Fig. A2.5.1 Interceptor Serving Trapped and Vented Sink - Flow Control Air Intake Intersects Vent

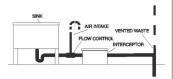


Fig. A2.5.2 Interceptor Serving Sink - Flow Control Air Intake Terminates in a Return Bend Above Flood Level

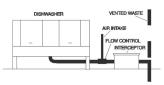


Fig. A2.5.3 Interceptor Serving Dishwasher Flow Control Air Intake Terminates Above Flood Level

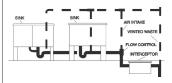
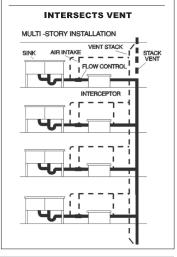


Fig. A2.5.4 Interceptor Serving Two Individually Trapped and Vented Sinks - Flow Control Air Intake





ADVANTAGES OF PLASTIC (H.D.P.E.) VS. STEEL AND CONCRETE **INTERCEPTORS**

A 2008 Water Environment Research Foundation (WERF) report determined that the waste water in a grease interceptor is so acidic that it meets EPA requirements for neutralization (pH<5). Acidic waste is very corrosive to steel and concrete interceptors. This results in 5 years as the typical life expectancy of a steel grease interceptor. In addition to the actual cost of a replacement grease interceptor, the owner has to contend with disruption to their facility and the labor and cost to tear out and dispose of the rusted steel grease interceptor. Specifying and installing a MIFAB® H.D.P.E. grease interceptor with our limited Lifetime Warranty from the beginning is by far the most economical choice.

The Portland Cement Association has stated that fats, fatty acids, vegetable oils, salts, sugars, acids, bleach and even water will disintegrate concrete even with proper protective coatings. Over time, concrete interceptors will crack and deteriorate, leaching contaminated waste water into the ground. Therefore, 10 years is the typical life expectancy of a concrete grease interceptor. In addition to the actual cost of a replacement grease interceptor, the owner has to contend with disruption to their facility and the labor and cost to tear out and disposal of the corroded concrete grease interceptor. Specifying and installing a MIFAB® H.D.P.E. grease interceptor with our limited Lifetime Warranty from the beginning is by far the most economical choice.





- "I do not have any issues with HDPE grease interceptors and specify these and/or FRP interceptors over concrete for the following reasons.
- · Installation, the lightweight HDPE can be installed without having to hire a crane to install.
- HDPE is more resistant to hydrogen sulfide gas attack than concrete.
- · Longer warranty over concrete.
- Deeper burial depth over standard concrete interceptors.
- · Smaller footprint over concrete interceptors.
- · Cost."

- Barry Alvord, Senior Plumbing Designer, GLUMAC Engineers, San Diego, CA

ADVANTAGES OF PLASTIC (H.D.P.E.) VS. FIBERGLASS INTERCEPTORS

MIFAB®'s Lil Max®, Big Max® and SuperMax® H.D.P.E. (high density polyethylene) interceptors are molded to a 3/8" uniform wall thickness that will not crack, chip or bulge under extreme impact, sunlight and / or temperature changes. H.D.P.E. is a much better material for interceptors than fiberglass because H.D.P.E. has resistance to a greater number of chemicals than fiberglass. Fiberglass is also hard and stiff and is subject to cracking. Additionally, it is known that a low pH level (below 5) within a fiberglass grease interceptor will exacerbate its brittleness. Typically, the pH level within a gravity grease interceptor will drop below 5 within a week of its operation - as stated by the 2008 WERF report. A rotationally molded H.D.P.E. interceptor is simply tougher and has much greater impact resistance vs. fiberglass. Fiberglass interceptors also have a negative environmental impact because they are made with VOCs – (Volatile Organic Compounds). Facilities that produce fiberglass interceptors have a negative impact on the environment because of the amount of VOCs they put into in the air. Rotationally molded H.D.P.E. interceptors have NO environmental impact.







GREASE INTERCEPTOR SIZING

The 2015 International Plumbing Code (IPC) states that hydromechanical grease interceptors (HGI) shall be tested and sized in accordance with PDI G-101, CSA B481, ASME A112-14.3 or ASME A112-14.4. These are all performance Standards. Exterior (gravity) grease interceptors (GGI) greater than 500 gallons of liquid holding capacity are not tested and certified to the PDI G-101, ASME A112-14.3 or ASME A112-14.4 performance Standards. The IPC also states that food waste grinders must connect to a solids interceptor before connecting for a grease interceptor. Solids interceptors should be sized and rated to accommodate the discharge from the food grinder and emulsifiers. Chemicals and enzymes shall not discharge into the grease interceptor. Garbage disposals are required to drain to the grease interceptor.

''I use MIFAB's Big Max and Super Max HDPE interceptors because of the extensions, the competitive pricing and the flexibility of installing the access ports no matter the depth."

- Mike Willman, E.J. Willman & Sons Plbg., Louisville, KY

HYDROMECHANICAL GREASE INTERCEPTOR (HGI) SIZING GUIDELINES TO THE PDI G-101, CSA B481, ASME A112-14.3 OR ASME A112-14.4 PERFORMANCE STANDARDS

Flow Rate Sizing Method:

Reliable performance of any grease interceptor is dependent on being correctly sized to handle the drainage load from the fixtures it serves. Each MIFAB® interceptor is flow and capacity rated for easy selection when sizing requirements have been established and met. Sizing is based on factors like volume of waste water and fxture type. These factors combine to establish the expected flow rate and the size of the interceptor required. The external flow control fitting is installed in the fixture drain line ahead of the interceptor and maintains the flow of drainage at the interceptor's rated flow. The following sizing formula is based on the PDI G-101 (Plumbing and Drainage Institute) requirements:

- 1. Calculate the volume in cubic inches of all the fixtures to be served by the Grease Interceptor. (length x width x depth)
- 2. *Ex.: 15" x 10" x 24" = 3600 cubic inches. Since a three compartment sink is serving the grease interceptor, multiply the single compartment cubic inch capacity by three to obtain the total capacity in cubic inches. 3600 cu in x 3 (sinks) = 10,800 cu in. Divide this number by 231 to convert the volume to US gallons. 10,800 cu in / 231 = 46.75 gallons. The fill rate is then multiplied by 75% = 35.06 U.S.G. Use MIFAB® model number Lil-35 which has a rated flow capacity of 35 G.P.M.
- 3. These calculations are based on a one minute drain down time with the interceptor within close proximity (within 25 feet) of the fixture(s). If a two minute drain down time is applied, then divide the GPM by two; ex. 35 G.P.M / 2 = 17.5 G.P.M. Use MIFAB® model number Lil-20 which has a rated flow capacity of 20 G.P.M.The flow control fitting supplied with the interceptor must be installed. If this is not in place, the interceptor will not function to PDI standards.
- If an interceptor is to be installed with the top level at the finished floor, an extension type may be required. In that instance, the "C" dimension is required, (center line of inlet/outlet to top of the finished floor) and must be specified at time of ordering.

Fixture Unit Sizing Method

The majority of plumbing codes list the drainage fixture-unit values for plumbing fixtures or fixtures not listed. Note that DFU sizing is an averaging technique and does not result in peak flow results. The Codes provide drainage fixture-unit values based on drain outlet or trap size. Drainage fixture-unit values are converted to GPM discharge rates on the basis of one drainage fixture-unit equaling = 7.5 GPM fixture discharge rate. The drainage fixture-unit sizing for grease interceptors is included for those that prefer this approach as an alternative to the conventional (volume) sizing. The following table provides the suggested PDI sized grease interceptor based on drainage fixture unit sizing method.

Fixture Outlet or Size (inches)	Drainage Trap Fixture Unit Value	GPM Discharge Equivalent	Suggested GPM Flow Rate	MIFAB Model #
1 1/4"	1	7.5	10	Lil-10
1 1/2"	2	15	15	Lil-15
2"	3	22	25	Lil-25
2 1/2"	4	30	35	Lil-35
3"	5	37.5	50	Lil-50
4"	6	45	55	Lil-50

CALIFORNIA PROPOSITION 65 WARNING. This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Design and dimensions are subject to modification. Prices do not include applicable taxes.

Visit www mifab com for the most recent product information.







GRAVITY GREASE INTERCEPTOR (GGI) SIZING GUIDELINES TO THE IAPMO Z1001 DESIGN STANDARD

The flow rate of the GGI is calculated to figure the possible highest flow produced by the drainage fixtures and equipment in the food prep area and then multiplied by retention time (usually determined by the local municipality) to produce the liquid volume (in gallons of water) needed for the grease interceptor. Gravity grease interceptors are typically required by IAPMO to have a 30 minute retention time, baffle(s), not less than two compartments, a total volume of not less than 300 gallons of liquid holding capacity and gravity separation.

IAPMO requires that the volume of the gravity grease interceptor shall be determined by using Table 1014.3.6. Where drainage fixture units (DFUs) are not known, the interceptor shall be sized based on the maximum DFUs allowed for the pipe size connected to the inlet of the interceptor. (Refer to Table on next page) for DFU guide).

Table 1014 3.6

Gravity Grease Interceptor Sizing							
Drainage Fixture Units	Interceptor Volume						
(DFUs)	(U.S. gallons of liquid holding capacity)						
8	500						
21	750						
35	1000						
90	1250						
172	1500						
216	2000						
307	2500						
342	3000						
428	4000						
576	5000						
720	7500						
2112	10,000						
2640	15,000						

GRAVITY GREASE INTERCEPTOR (GGI) SIZING EXAMPLE:

A restaurant has the following fixtures and equipment: one food preparation sink, three floor drains - one in the food preparation area, one in the grill area and one receiving the indirect waste from the ice machine and a mop sink.

Kitchen Drain Line DFU Count (from Table on next page):

3 floor drains at 2 DFUs each 6 DFUs Mop sink at 3 DFUs each 3 DFUs Food prep sink at 3 DFUs each 3 DFUs Total = 12 DFUs

Therefore, using Table 1014.3.6, the grease interceptor will be sized at 750 gallons (MIFAB® SuperMax® Model # SUPER-750).

''The cut-to-fit riser system on MIFAB's HDPE Interceptors makes the installations easy, quick and very cost effective. It's the only way to go." - Jr McVige, Manager, Plumbing Masters, Indian Trail, NC





DRAINAGE FIXTURE UNIT VALUES (DFU)

PLUMBING APPLIANCES, APPURTENANCES, OR FIXTURES	MINIMUM SIZE TRAP & TRAP ARM ⁷ (inches)	PRIVATE	PUBLIC	ASSEMBLY8
Bathtub or Combination Bath/Shower	1½	2.0	2.0	-
Bidet	11/4	1.0	-	-
Bidet	1½	2.0	-	-
Clothes Washer domestic standpipe ⁵	2	3.0	3.0	3.0
Dental Unit, cuspidor	11/4	-	1.0	1.0
Dishwasher domestic, with independent drain ²	1½	2.0	2.0	2.0
Drinking Fountain or Water Cooler	11/4	0.5	0.5	1.0
Food Waste Grinder commercial	2	-	3.0	3.0
Floor Drain emergency	2	-	0.0	0.0
Floor Drain (for additional sizes see Section 702.0)	2	2.0	2.0	2.0
Shower single-head trap	2	2.0	2.0	2.0
Multi-head each additional	2	1.0	1.0	1.0
Lavatory, single	11/4	1.0	1.0	1.0
Lavatory, in sets of two or three	1½	2.0	2.0	2.0
Wash fountain	1½	-	2.0	2.0
Wash fountain	2	-	3.0	3.0
Mobile Home trap ⁹	3	12.0		-
Receptor indirect waste ^{1, 3}	1½	;	See footno	te ^{1, 3}
Receptor indirect waste ^{1,4}	2	;	See footno	te ^{1, 4}
Receptor indirect waste ¹	3		See footne	ote ¹
Sinks	-	-	-	-
Bar	1½	1.0	-	-
Bar ²	1½	-	2.0	2.0
Clinical	3	-	6.0	6.0
Commercial with food waste ²	1½	-	3.0	3.0
Special Purpose ²	1½	2.0	3.0	3.0
Special Purpose	2	3.0	4.0	4.0
Special Purpose	3	-	6.0	6.0
Kitchen, domestic ² (with or without food waste grinder, dishwasher, or both)	1½	2.0	2.0	-
Laundry ² (with or without discharge from a clothes washer)	1½	2.0	2.0	2.0
Service or Mop Basin	2	_	3.0	3.0
Service or Mop Basin	3	-	3.0	3.0
Service flushing rim	3	-	6.0	6.0
Wash each set of faucets	-	-	2.0	2.0
Urinal integral trap 1.0 GPF ²	2	2.0	2.0	5.0
Urinal, integral trap greater than 1.0 GPF	2	2.0	2.0	6.0
Urinal. exposed trap ²	1½	2.0	2.0	5.0
Water Closet 1.6 GPF Gravity Tank ⁶	3	3.0	4.0	6.0
Water Closet 1.6 GPF Flushometer Tank ⁶	3	3.0	4.0	6.0
Water Closet 1.6 GPF Flushometer Valve ⁶	3	3.0	4.0	6.0
Water Closet greater than 1.6 GPF Gravity Tank ⁶	3	4.0	6.0	8.0
Water Closet greater than 1.6 GPF Flushometer Valve ⁶	3	4.0	6.0	8.0

For SI units: 1 inch= 25 mm

NOTES:

- 1 Indirect waste receptors shall be sized based on the total drainage capacity of the fixtures that drain therein to, in accordance with Table 702.2(b).
- 2 Provide a 2 inch (50 mm) minimum drain.
- For refrigerators, coffee urns, water stations, and similar low demands.
- For commercial sinks, dishwashers, and similar moderate or heavy demands.
- Buildings having a clothes-washing area with clothes washers in a battery of three or more clothes washers shall be rated at 6 fixture units each for purposes of sizing common horizontal and vertical drainage piping.

- Water closets shall be computed as 6 fixture units where determining septic tank sizes based on Appendix H of this code.
- Trap sizes shall not be increased to the point where the fixture discharge is capable of being inadequate to maintain their selfscouring properties.
- 8 Assembly Public Use.
- [HCD 2] For drainage fixture unit values related to mobile home parks in all parts of the State of California, see California Code of Regulations, Title 25, Division I, Chapter 2, Article 5, Section 1268. For drainage fixture unit values related to special occupancy parks in all parts of the State of California, see California Code of Regulations, Title 25, Division I, Chapter 2.2, Article 5, Section 2268.

"I specify MIFAB H.D.P.E. interceptors because I like the life time warranty; they are light weight and easy to install. They don't corrode like the metal or concrete interceptors." - Christopher T. Ramos, Plumbing Designer, Kraemer Consulting Engineers, Phoenix, AZ

CALIFORNIA PROPOSITION 65 WARNING. This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Design and dimensions are subject to modification. Prices do not include applicable taxes.

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GREASE PRODUCTION SIZING METHOD

Some industry people believe that sizing grease interceptors based on the amount of grease that is produced in a restaurant or kitchen makes a lot more sense than sizing based on flow rate of water and / or drainage fixture units going into the grease interceptor. This can be done first by flow rate and then by grease capacity for pump-out cycle. Note that local codes and ordinances should be followed for compliance. For example, a Chinese restaurant with a 4" drain line can be sized to require a grease interceptor with a 50 GPM flow rate. A Subway deli with a 4" drain line can also be sized to require a grease interceptor with a 50 GPM flow rate. Therefore, two restaurants with very different meal types and production of grease can end up having the same code compliant grease interceptor sized.

The following information and sizing chart can be used to size grease interceptors based on the grease produced in a variety of different restaurants. Note that local codes and ordinances should be followed for compliance.



"I buy MIFAB HDPE grease interceptors for one reason, the local rep. It is the ability to get my questions answered quickly. The local knowledge is a great resource." - Mark Gomez, Manager, H2O Service, Louisville, KY

SIZE BY PIPE DIAMETER/FLOW RATE

Hydromechanical grease interceptor sizing using gravity flow rates (Per Chapter 10 of the Uniform Plumbing Code)

SIZE OF GREASE INTERCEPTOR:

*RECOMMENDED

DIAMETER OF GREASE WASTE PIPE	MAX. FULL PIPE FLOW	ONE MINUTE DRAINAGE PERIOD	TWO MINUTE DRAINAGE PERIOD
2"	20 GPM	20 GPM	10 GPM
3"	60 GPM	75 GPM	35 GPM
4"	125 GPM	150 GPM	75 GPM
5"	230 GPM	250 GPM	125 GPM
6"	375 GPM	500 GPM	250 GPM

^{**1/4&}quot; inch slope per foot (20.8 mm/m) based on Manning's formula with friction factor of N= 0.012

FIND GREASE PRODUCTION VALUE

RESTAURANT TYPE	GREASE PRODUCTION VALUES	GREASE PRODUCTION SIZING METHOD
Low Grease Production	.005 lbs / meal no flatware .0065 lbs / meal with flatware	Frozen yogurt, hotel breakfast bar, sub shop, sushi, deli, bar convenience store, residential
Medium Grease Production	.025 lbs / meal no flatware .0325 lbs / meal with flatware	Cafes, low grease output restaurant, pizza restaurant, grocery stores (with no fryer), ice cream parlor
High Grease Production	.035 lbs / meal no flatware .0455 lbs / meal with flatware	Full fare family, German, Italian, fast food Mexican, hamburger bar and grill and fast food restaurant, medium level restaurants with fryer
Very High Grease Production	.058 lbs / meal no flatware .075 lbs / meal with flatware	Full fare BBQ, fast food fried chicken, full fare Mexican, Steak and Seafood, Hawaiian and Chinese

CALCULATE GREASE CAPACITY **MEALS PER DAY GREASE PRODUCTION VALUE** (STEP 2) DAYS PER PUMP **OUT CYCLE GREASE CAPACITY NEEDED**







GREASE INTERCEPTOR CAPACITY DATA

Model No.	Flow Rate (GPM)	Liquid Cap (Gal)	Grease Design Cap. (Lbs)	Solids Cap. (Gal)
LIL-7	7	5.8	37	2.0
LIL-10	10	8.5	42	2.0
LIL-15	15	13	50	3.1
LIL-20	20	16	73	3.9
LIL-25	25	23	79	5.6
LIL-35	35	39	86	10.6
LIL-50	50	44	109	11.9
LIL-25-LP	25	19	74	11.9
BIG-500	50	55 493		28
BIG-750	75	140	140 838	
BIG-1150	100	300	300 2016	
SUPER-500	100	539	4059	53
SUPER-750	100	772	5812	77
SUPER-1000	100	1015	6577	102
SUPER-1250	100	1262	8177	126
SUPER-1300	100	1312	8501	131
SUPER-1500	100	1522	9862	152
SUPER-2000	100	2022	13102	202

Capacities listed are for reference. Many external circumstances can have an effect on the data provided.

DUMD	MEALC	GREASE PRODUCTION VALUES								
PUMP I OUT CYCLE	MEALS PER	1	2	3	4	5	6	7	8	
	DAY	0.005 lbs/ meal	0.0065 lbs/ meal	0.025 lbs/ meal	0.0325 lbs/ meal	0.035 lbs/ meal	0.0455 lbs/ meal	0.058 lbs/ meal	0.075 lbs/meal	
30	250	LIL-7	LIL-15	BIG-500	BIG-500	BIG-500	BIG-500	BIG-500	BIG-750	
	500	LIL-20	LIL-50	BIG-750	BIG-750	BIG-750	BIG-1150	B I G-1150	BIG-1150	
	750	LIL-50	BIG-500	BIG-750	BIG-750	BIG-750	BIG-1150	BIG-1150	BIG-1150	
	1000	BIG-500	BIG-500	BIG-750	BIG-1150	BIG-1150	BIG-1150	BIG-1150	SUPER-500	

DUMD	MEALO	GREASE PRODUCTION VALUES									
PUMP	MEALS PER	1	2	3	4	5	6	7	8		
CYCLE	DAY	0.005 lbs/ meal	0.0065 lbs/meal	0.025 lbs/ meal	0.0325 lbs/ meal	0.035 lbs/ meal	0.0455 lbs/ meal	0.058 lbs/ meal	0.075 lbs/meal		
	250	LIL-25	LIL-50	BIG-500	BIG-500	BIG-750	BIG-750	BIG-1150	BIG-1150		
60	500	BIG-500	BIG-500	BIG-1150	BIG-1150	BIG-1150	BIG-1150	BIG-1150	SUPER-500		
80	750	BIG-500	BIG-500	BIG-1150	B I G-1150	BIG-1150	SUPER-500	SUPER-500	SUPER-500		
	1000	BIG-500	BIG-500	BIG-1150	BIG-1150	SUPER-500	SUPER-500	SUPER-500	SUPER-750		

DUMB	MEALO	GREASE PRODUCTION VALUES								
PUMP OUT CYCLE	MEALS PER DAY	1	2	3	4	5	6	7	8	
		0.005 lbs/ meal	0.0065 lbs/meal	0.025 lbs/ meal	0.0325 lbs/ meal	0.035 lbs/ meal	0.0455 lbs/ meal	0.058 lbs/ meal	0.075 lbs/ meal	
	250	LIL-50	BIG-500	BIG-750	BIG-1150	BIG-1150	BIG-1150	BIG-1150	SUPER-500	
90	500	BIG-500	BIG-500	B I G-1150	BIG-1150	BIG-1150	SUPER-500	SUPER-500	SUPER-500	
90	750	BIG-500	BIG-500	BIG-500	SUPER-500	SUPER-500	SUPER-500	SUPER-750	SUPER-1000	
	1000	BIG-500	BIG-750	SUPER-500	SUPER-500	SUPER-500	SUPER-500	SUPER-750	SUPER-1250	