



CEN TEK
INDUSTRIES



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CEN TEK

INDUSTRIES

ENGINEERING

Centek's engineering staff represents over 80 years of experience designing wet marine exhaust systems. Working with boat builders, marine architects, and engineers world wide by computer, fax, phone and face-to-face Centek people assist in determining the proper system for new or re-powered systems based on engine size, cost, and available space.



PRODUCTION FACILITIES

The 80,000 square foot plant located in Thomasville, Georgia manufactures thousands of mufflers, tubing, and parts for engines ranging from 5 to 2500 horsepower. Designed and constructed in 1989 specifically to manufacture fiberglass reinforced plastics the building has continuous fresh air replacement and particle filtration. The facility has been used as a model for the manufacturing of FRP products.



CONSTRUCTION

Each muffler is constructed from exact drawings. RTM, compression molds, pattern cuts and high strength filament winding equipment are used to manufacture the precise parts for the complete muffler system. Continuous inspection and testing by experienced employees and engineers, assures excellence in product quality. As an example, 100% of all flow parts of the system (Y's, T's, angles, tube sections, and mufflers) are pressure tested prior to painting, labeling, and packaging.



QUALITY AND SAFETY

As the industry leader, Centek Industries works with laboratories, suppliers, builders and marine groups to upgrade safety and product specifications. These groups (ASTM, ABYC, ABS, and Underwriters Laboratories) constantly address material quality, product specifications, and customer safety. Centek products meet or exceed ASTM-D-636 fire retardant specifications. Centek was the first to comply with these specifications and all products are classified as fire retardant and "self-extinguishing." Vernatube, the basic product for most mufflers and many components, meets ABS certifications and are listed by UL Laboratories Marine Department under Specification 669A. To maintain the approval Centek is subject to continuous and often unannounced inspections. Centek has held customer safety foremost in building marine mufflers and continues to work with the ABYC to upgrade product safety. The VERNALIFT family was designed specifically to exceed ABYC specifications for lift mufflers and is the only one to meet those specifications.



CUSTOM DESIGN AND INNOVATION

The strength and growth of Centek (formerly Vernay Products) is supported by the experience and capabilities of the engineering staff. Creators of the first FRP water-cooled marine mufflers (Vernatone), Centek has over 14 patented products and continues to lead the industry in design and innovation. Listening carefully to customer needs, the company has met the requirements and specifications of boat builders for almost 50 years. The products listed in the Centek catalog represent less than 20% of the total wet marine mufflers Centek manufactures for the boat building industry. The list of custom mufflers has grown to over 14,000 specially designed units.

Centek continues to work world wide with marine associations and boaters to reduce exhaust noise and pollutants. The engineering group designs muffler systems to fit into limited spaces with optimum performance and sound levels.

Centek's highly experienced staff works with customers to examine all the alternatives to identify the best approach from concept to design of a new craft. Utilizing state of the art 3-D software, the engineers can provide the customers with a dimensional model design to "fit" the boat configuration. Most of the thousands of innovative designs in wet marine mufflers are the result of the working partnership between Centek and customers.



Product Description

VERNATONE™

The original FRP water-cooled marine muffler created in the 1950's has been used by builders and boaters world wide for over 40 years. The Vernatone family of inline mufflers has grown to include eight basic products with hundreds of variations in length, width, height, inlets and outlets. These variations were made at the request of builders and boaters who needed a muffler for a specific engine or location in a vessel. They also vary in size due to silencing properties.

See pages 13-17.



CENTUBULAR™ MUFFLERS

Centubular mufflers are a new concept; a space saving and quiet inline muffler designed for use with diesel or gasoline engines. Centubular mufflers incorporate the features of the Vernatone into one long slender tube. Properly designed, the Centubular can be installed with fewer fittings, less hose and fewer clamps, saving costs in parts and labor. Installation at or just forward of the stern also may allow easy accessibility.

See page 17.



VERNALIFT™

The Vernalift was originally designed and used in sail boats with small engines installed near or below the water line. In the early 70's the quieting capabilities of lift mufflers was recognized and larger units were installed in vessels above the water line. The Vernalift family has expanded with its use in boats with new and larger engines.

See pages 18-22.



GAS/WATER SEPARATION MUFFLERS

The routing of exhaust gas and cooling waters in more complex vessels required developing new types of muffler products. Centek has met these needs with its gas/water separation mufflers. Separation systems are also very effective where engines are located amid ships or well forward in the hull. These units are extremely effective in noise reduction. See page 23.

GEN-SEP™

The Gen-Sep is used in conjunction with a Vernalift muffler on generator sets and/or small auxiliary engines located beneath the water line. The water drain from the Gen-Sep can be located below the water line to eliminate irritating water splash during overnight moorings.

See page 23.



COMBO-SEP™

The patented Combo-Sep marries a Vernalift and a highly efficient separator into a single space saving unit. The Combo-Sep is very adaptable to mid-range generators and propulsion engines installed at midships or forward. The Combo-Sep is recommended for above water line installations where maximum silencing and water separation is desired.

See page 23.



GEN KLEEN™

The patented Gen Kleen System was developed over a three-year period to remove the solid and liquid petroleum contaminants created in the exhaust of diesel engines. Utilizing the Centek developed Combo-Sep, (or Gen-Sep) in conjunction with a specially designed reservoir, pump, and Mycelx filter the system removes 99.9% of the exhaust pollutants. The Gen Kleen system is the most economical solution of removing the discharge and sheen associated with generator systems.



VERNATUBE™ (TUBING, SHAFTLOG AND RUDDERPOSTS)

Many of the basic components of Centek mufflers start with sections of Vernatube. Vernatube is resin-impregnated glass filament with fire retardant resins, which exceed values for "self-extinguishing" per ASTM-D-635 and UL94V-O. The smooth resin rich I.D. assures minimal flow restriction to exhaust gases and cooling water. Precise O.D. facilitates perfect fit with hose connections.



Shaftlog and rudderposts wall thickness from .200" to 1.75", and exact I.D. make these products ideal to machine for bearing installation.

See pages 24-31.

EXHAUST FITTINGS AND ACCESSORIES

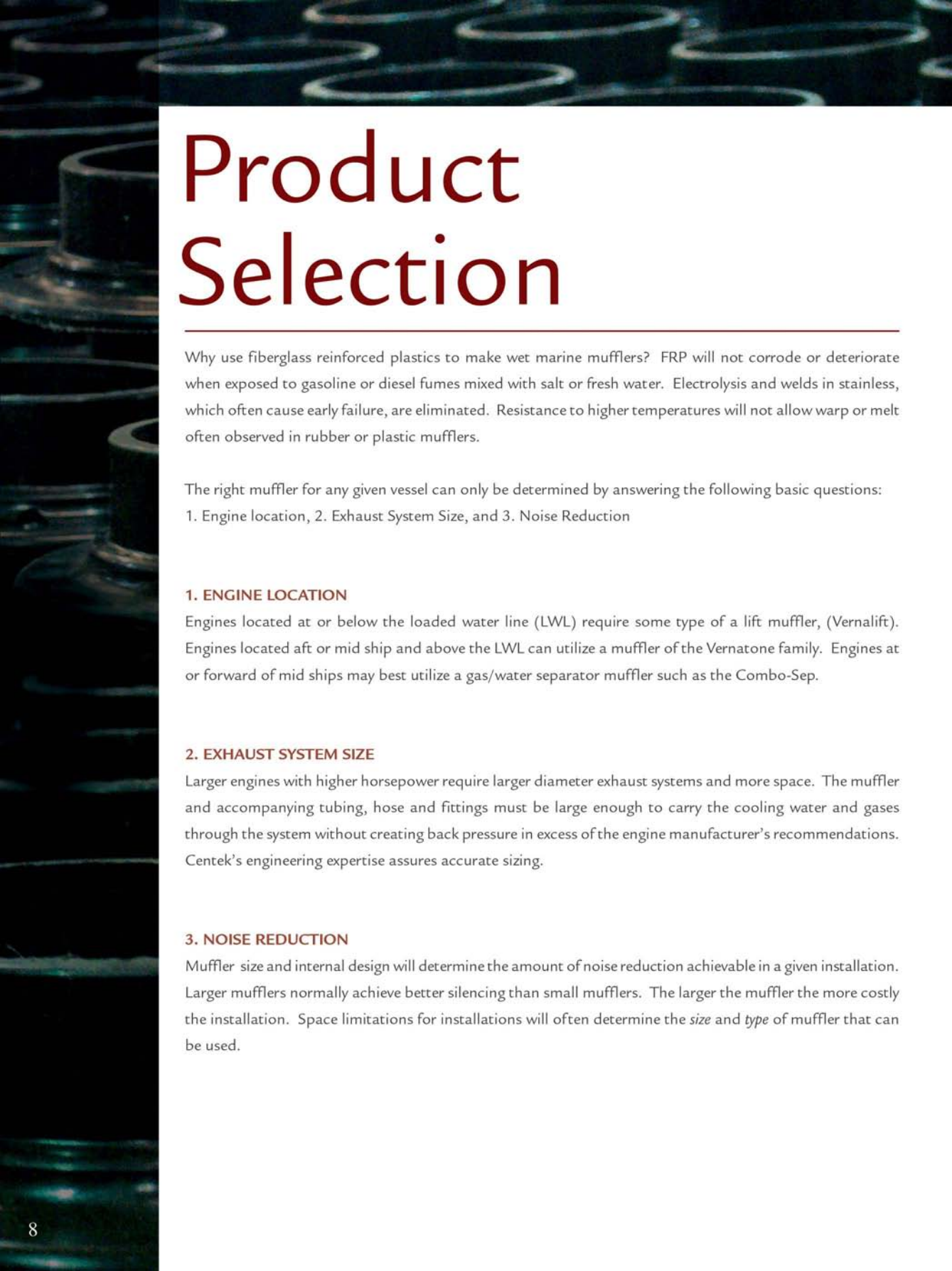
Exhaust systems fittings are made of the same fiberglass and fire retardant resins used to produce Vernatube, our UL listed tubing line. The fittings are lightweight, strong, non-corroding, and durable. Fittings are easy to install and O.D.'s are compatible with tubing and approved marine rubber exhaust hoses.



To complete the system Centek offers thru-hull fittings, (with and without flappers) check valves, exhaust flanges, and scupper drains.

See pages 32-34.





Product Selection

Why use fiberglass reinforced plastics to make wet marine mufflers? FRP will not corrode or deteriorate when exposed to gasoline or diesel fumes mixed with salt or fresh water. Electrolysis and welds in stainless, which often cause early failure, are eliminated. Resistance to higher temperatures will not allow warp or melt often observed in rubber or plastic mufflers.

The right muffler for any given vessel can only be determined by answering the following basic questions:

1. Engine location, 2. Exhaust System Size, and 3. Noise Reduction

1. ENGINE LOCATION

Engines located at or below the loaded water line (LWL) require some type of a lift muffler, (Vernalift). Engines located aft or mid ship and above the LWL can utilize a muffler of the Vernatone family. Engines at or forward of mid ships may best utilize a gas/water separator muffler such as the Combo-Sep.

2. EXHAUST SYSTEM SIZE

Larger engines with higher horsepower require larger diameter exhaust systems and more space. The muffler and accompanying tubing, hose and fittings must be large enough to carry the cooling water and gases through the system without creating back pressure in excess of the engine manufacturer's recommendations. Centek's engineering expertise assures accurate sizing.

3. NOISE REDUCTION

Muffler size and internal design will determine the amount of noise reduction achievable in a given installation. Larger mufflers normally achieve better silencing than small mufflers. The larger the muffler the more costly the installation. Space limitations for installations will often determine the *size* and *type* of muffler that can be used.

EXHAUST SYSTEM SIZE

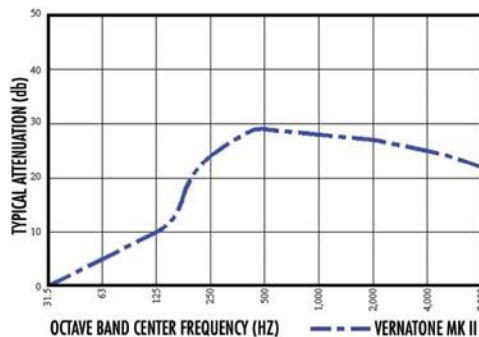
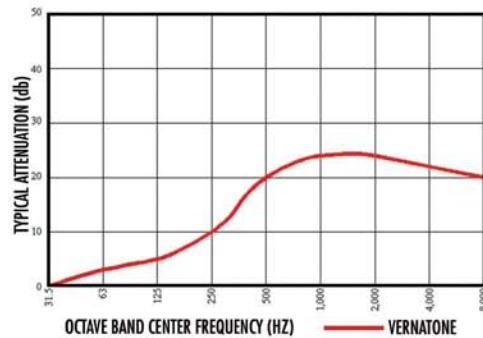
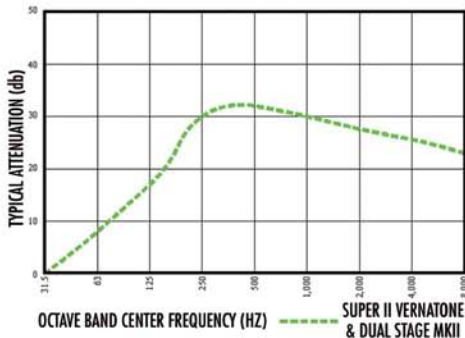
The size of the wet marine exhaust muffler is determined by the engine size (H.P.) and the engine manufacturer's allowable back pressure. Diesel engines are particularly sensitive to back pressure. If you have any questions or need help, call Centek Industries at 800-950-7653. The following table is for general recommendations only:

I/O SIZE	MAXIMUM H.P.		I/O SIZE	MAXIMUM H.P.	
Dia. A	Gasoline	Diesel	Dia. A	Gasoline	Diesel
1.5 or 1.63	30	10	5"	370	210
2"	60	25	6"	440	280
2.5"	110	40	8"	--	420
3"	160	60	10"	--	680
3.5"	220	85	12"	--	900
4"	280	125	14"	--	1150
4.5"	320	170			

NOTE: For V-Block engines where twin exhaust lines are desired, divide the H.P. by two and then match to the appropriate size.

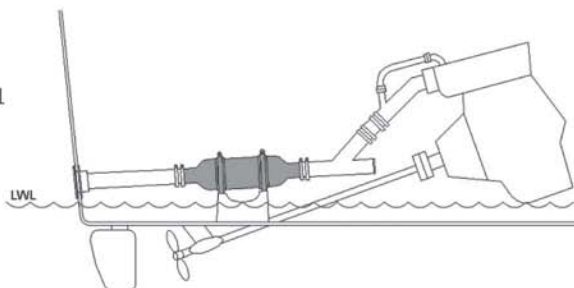
ATTENUATION CHARTS

Boat noise is generated in a number of different ways. Often the loudest and most annoying to the ear is the exhaust noise from the new, higher horse power gasoline and diesel engines. Centek wet marine exhaust systems reduce those sounds and help make boating a pleasurable experience. These graphs illustrate the sound attenuation (db) obtained with various Centek mufflers.

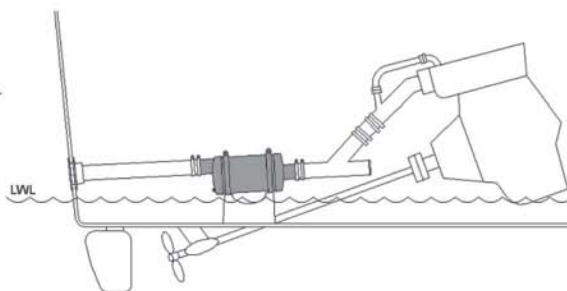


Installation Charts

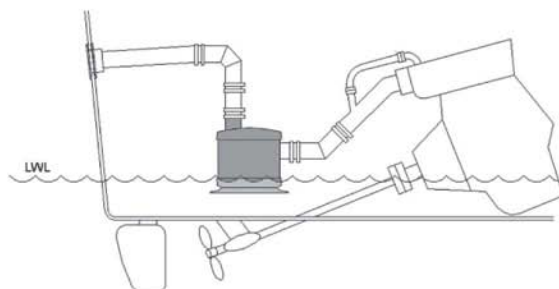
ENGINE INSTALLATION ABOVE THE LWL WITH INLINE MUFFLER. SEE DETAILED VERNATONE INSTALLATION INSTRUCTIONS ACCOMPANYING THE NEW MUFFLER.



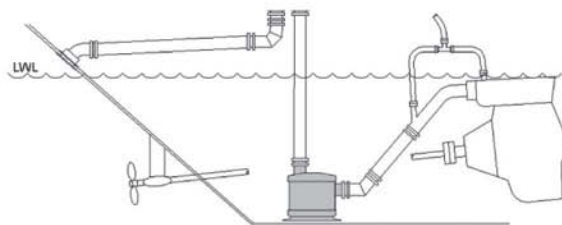
ENGINE INSTALLATION ABOVE THE LWL WITH INLINE MUFFLER. SEE DETAILED VERNATONE MK II INSTALLATION INSTRUCTIONS ACCOMPANYING THE NEW MUFFLER.



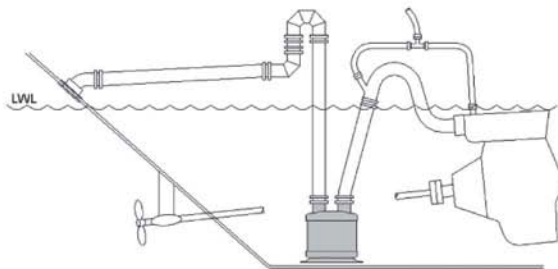
ENGINE INSTALLATION ABOVE THE LWL WITH LIFT MUFFLER. SEE DETAILED INSTALLATION INSTRUCTIONS ACCOMPANYING THE NEW MUFFLER.



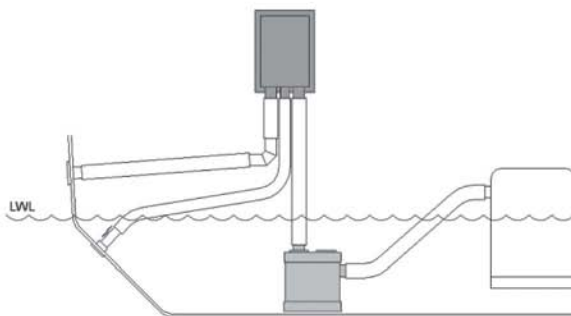
ENGINE INSTALLATION NEAR OR BELOW THE LWL WITH SPACE AVAILABLE BELOW THE ENGINE FOR A LIFT MUFFLER. SEE DETAILED INSTALLATION INSTRUCTIONS ACCOMPANYING THE NEW MUFFLER.



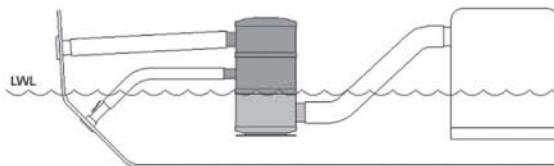
ENGINE INSTALLATION NEAR OR BELOW THE LWL WITH NO OR LIMITED SPACE BELOW THE ENGINE FOR A LIFT MUFFLER. SEE DETAILED INSTALLATION INSTRUCTIONS ACCOMPANYING THE NEW MUFFLER.



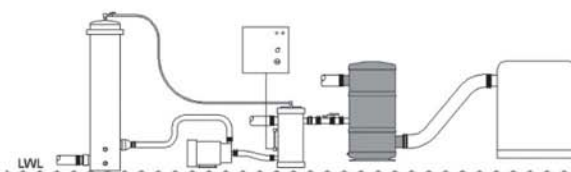
ENGINE/GENERATOR INSTALLATION NEAR OR BELOW THE LWL WITH A LIFT MUFFLER AND THE GEN-SEP WATER SEPARATOR. SEE DETAILED INSTALLATION INSTRUCTIONS ACCOMPANYING THE NEW MUFFLER.



ENGINE INSTALLATION ABOVE THE LWL WITH COMBO-SEP WATER SEPARATION MUFFLER. SEE DETAILED INSTALLATION INSTRUCTIONS ACCOMPANYING THE NEW MUFFLER.



ENGINE INSTALLATION ABOVE THE LWL WITH GEN-KLEEN WATER CLEANING SYSTEM. SEE DETAILED INSTALLATION INSTRUCTIONS ACCOMPANYING THE NEW CLEANING SYSTEM.

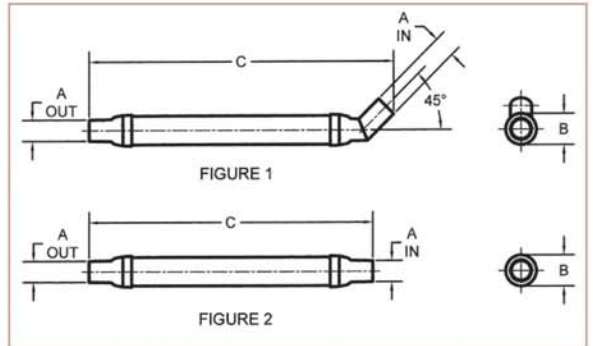




Product Specification Charts

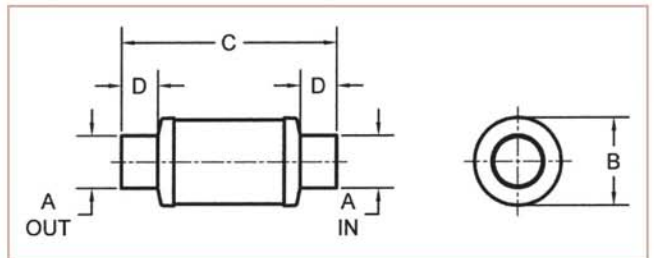
VERNA-SKI

	A		B		C		D
	I/O		DIA		LGTH		
Part #	INCH	MM	INCH	MM	INCH	MM	Figure
1000216	3.00	76	4.38	111	43	1092	1
1000217	3.00	76	4.38	111	40	1016	2
1000262	3.50	89	4.38	111	42	1067	1
1000266	3.50	89	4.38	111	40	1016	2
1000265	4.00	102	4.38	111	44	1118	1
1000267	4.00	102	4.38	111	40	1016	2



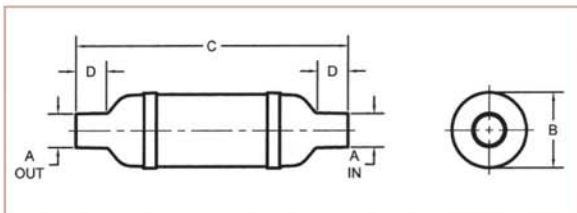
MINIMAX

	A		B		C		D	
	I/O		DIA		LGTH		I/O LGTH	
Part #	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1050250	2.50	64	6.38	162	12.75	324	2.00	51
1050300	3.00	76	6.38	162	13.75	349	2.50	64
1050350	3.50	89	6.38	162	14.75	375	2.50	64
1050400	4.00	102	8.38	213	16.75	425	3.00	76
1050450	4.50	114	8.38	213	18.75	476	3.00	76
1050500	5.00	127	8.38	213	20.75	527	3.50	89
1050600	6.00	152	10.04	255	25.00	635	4.00	102



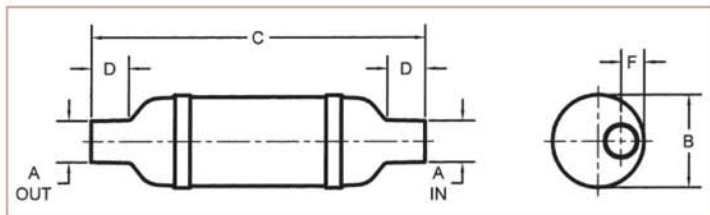
VERNATONE™ ROUND

Part #	A		B		C		D	
	I/O		DIA		LGTH		I/O LGTH	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1000103	2.50	64	5.58	142	21.62	549	3.00	76
1000145	3.00	76	7.07	180	20.12	511	3.50	89
1000104	3.00	76	7.07	180	25.84	656	3.50	89
1000105	3.50	89	8.09	205	30.00	762	3.50	89
1000165	4.00	102	9.06	230	25.50	648	3.50	89
1000106	4.00	102	9.06	230	33.69	856	3.50	89
1000107	4.50	114	10.10	257	35.62	905	4.00	102
1000108	5.00	127	11.00	279	38.75	984	4.40	112
1000112	6.00	152	12.20	310	31.43	798	5.00	127
1000111	6.00	152	12.20	310	41.50	1054	5.00	127
1000117	6.00	152	16.21	412	39.62	1006	6.00	152
1000113	6.00	152	16.21	412	52.75	1340	6.00	152
1000120	8.00	203	16.21	412	39.62	1006	6.00	152
1000119	8.00	203	16.21	412	52.75	1340	6.00	152
1000235	10.00	254	16.21	412	52.00	1321	7.50	191



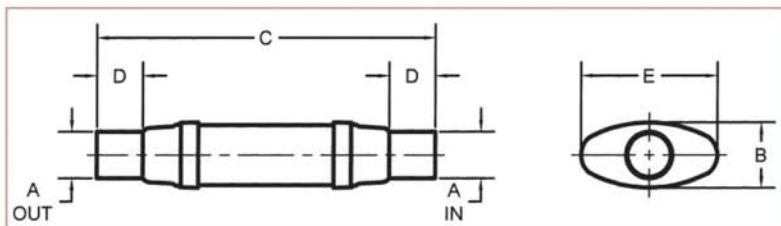
VERNATONE™ ROUND PORT & STARBOARD

Part #	A		B		C		D		E	
	I/O		DIA		LGTH		I/O LGTH		I/O OFFSET	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1000241 PORT	4	102	8.00	203	27.00	686	4.00	102	2.38	60
1000242 STBD	4	102	8.00	203	27.00	686	4.00	102	2.38	60
1000249 PORT	5	127	10.00	254	35.63	905	4.75	121	3.08	78
1000250 STBD	5	127	10.00	254	35.63	905	4.75	121	3.08	78



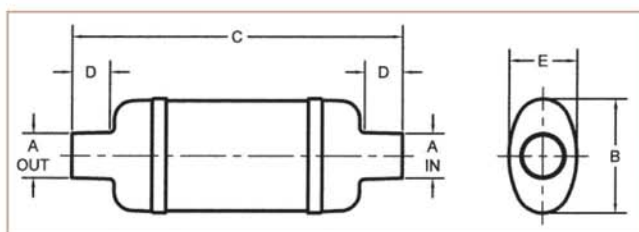
VERNATONE™ OVAL HORIZONTAL MOUNT

Part #	A		B		C		D		E	
	I/O		HGT		LGTH		I/O LGTH		WIDTH	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1000229	5	127	7.00	178	35.13	892	5.00	127	14.75	375
1000139	8	203	12.00	305	54.00	1372	5.70	145	19.00	483
1000194	10	254	14.50	368	65.50	1664	7.50	191	24.50	622



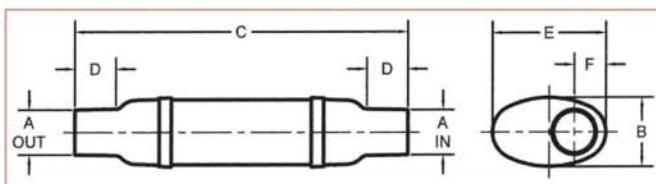
VERNATONE™ OVAL VERTICAL MOUNT

Part #	A		B		C		D		E	
	I/O		HGT		LGTH		I/O LGTH		WIDTH	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1000127	4.50	114	14.75	375	35.62	905	5.25	133	7.00	178
1000269	5.00	127	14.75	375	35.62	905	5.25	133	7.00	178
1000115	6.00	152	15.12	384	42.50	1080	5.00	127	9.00	229
1000118	6.00	152	15.12	384	32.00	813	5.00	127	9.00	229
1000121	8.00	203	19.00	483	54.00	1372	5.70	145	12.00	305
1000122	8.00	203	19.00	483	39.00	991	5.70	145	12.00	305
1000123	10.00	254	24.50	622	65.50	1664	7.50	191	14.50	368



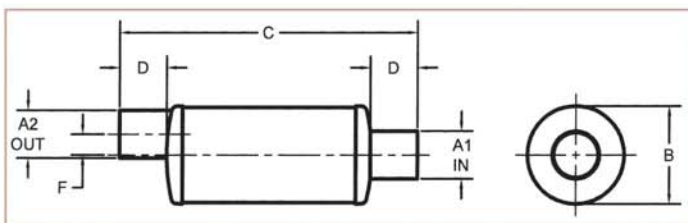
VERNATONE™ OVAL HORIZONTAL MOUNT OFFSET PORT & STARBOARD

Part #	A		B		C		D		E		F	
	I/O		HGT		LGTH		I/O LGTH		WIDTH		I/O OFFSET	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1000162 (PORT)	6.00	152	9.00	229	42.50	1080	5.00	127	15.12	384	4.25	108
1000163 (STBD)	6.00	152	9.00	229	42.50	1080	5.00	127	15.12	384	4.25	108
1000149 (PORT)	6.00	152	12.00	305	52.50	1334	5.00	127	19.00	483	6.31	160
1000150 (STBD)	6.00	152	12.00	305	52.50	1334	5.00	127	19.00	483	6.31	160
1000140 (PORT)	8.00	203	12.00	305	54.50	1384	5.32	135	19.00	483	6.31	160
1000141 (STBD)	8.00	203	12.00	305	54.50	1384	5.32	135	19.00	483	6.31	160



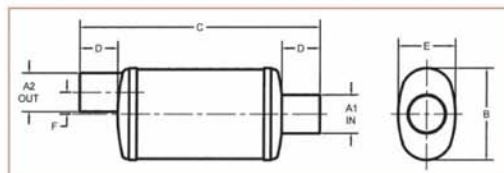
VERNATONE MKII™ ROUND

	A1		A2		B		C		D		G	
	INLET		OUTLET		DIA		LGTH		I/O LGTH		OUTLET OFFSET	
Part #	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1400003	2.00	51	2.00	51	6.38	162	16.00	406	2.50	64	1.85	47
1400002	2.38	60	2.38	60	6.38	162	16.00	406	3.00	76	1.66	42
1400032	2.50	64	2.50	64	6.38	162	18.00	457	3.00	76	1.60	41
1400015	3.00	76	3.00	76	8.38	213	19.00	483	3.00	76	2.38	60
1400016	3.50	89	3.50	89	8.38	213	23.00	584	4.00	102	2.13	54
1400017	4.00	102	4.00	102	10.04	255	25.38	645	4.00	102	2.66	68
1400018	4.50	114	4.50	114	10.04	255	28.50	724	4.50	114	2.41	61
1400006	5.00	127	5.00	127	10.04	255	31.50	800	5.00	127	2.16	55
1400040	5.00	127	6.00	152	12.50	318	40.00	1016	5.00	127	2.84	72
1400007	6.00	152	6.00	152	12.50	318	38.00	965	6.00	152	2.84	72
1400039	6.00	152	8.00	203	16.25	413	50.50	1283	8.00	203	3.72	94
1400008	8.00	203	8.00	203	16.25	413	50.50	1283	8.00	203	3.72	94
1400030	8.00	203	10.00	254	18.50	470	61.00	1549	10.00	254	3.85	98
1400009	10.00	254	10.00	254	18.50	470	63.00	1600	10.00	254	3.85	98
1400010	12.00	305	12.00	305	22.25	565	75.50	1918	12.00	305	4.25	108
1400011	14.00	356	14.00	356	22.25	565	87.00	2210	12.00	305	3.25	83



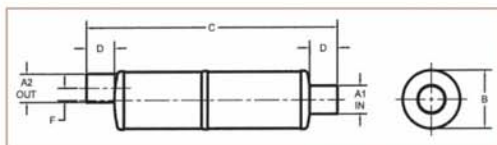
VERNATONE MKII™ OVAL VERTICAL MOUNT

Part #	A1		A2		C		D		E		B		F	
	INLET		OUTLET		LGTH		I/O LGTH		WIDTH		HGT		OUTLET/OFFSET	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1400042	5.00	127	5.00	127	31.50	800	5.50	140	9.00	229	15.00	381	4.56	116
1400037	5.00	127	6.00	152	38.00	965	6.00	152	9.00	229	15.00	381	4.06	103
1400043	6.00	152	6.00	152	32.38	822	6.00	152	9.00	229	15.00	381	4.06	103
1400014	6.00	152	8.00	203	50.50	1283	8.00	203	12.00	305	19.00	483	5.06	129
1400044	8.00	203	8.00	203	50.50	1283	8.00	203	12.00	305	19.00	483	4.81	122
1400045	10.00	254	10.00	254	63.00	1600	10.00	254	14.50	368	24.50	622	6.85	174
1400046	12.00	305	12.00	305	75.50	1918	12.00	305	18.00	457	30.00	762	8.25	210
1400047	12.00	305	14.00	356	77.13	1959	12.00	305	18.00	457	30.00	762	7.25	184
1400028	14.00	356	14.00	356	77.00	1956	12.00	305	18.00	457	30.00	762	7.25	184



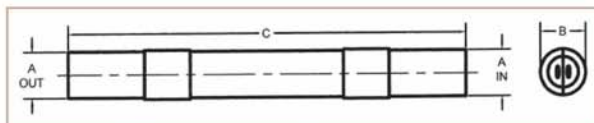
VERNATONE MKII™ DUAL STAGE ROUND

Part #	A1		A2		B		C		D		F	
	INLET		OUTLET		DIA		LGTH		I/O LGTH		OUTLET/OFFSET	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1420300	3.00	76	3.00	76	8.38	213	29.00	737	3.00	76	2.13	54
1420350	3.50	89	3.50	89	8.38	213	30.00	762	3.50	89	1.88	48
1420400	4.00	102	4.00	102	10.06	256	38.50	978	4.00	102	2.50	64
1420500	5.00	127	5.00	127	10.06	256	46.00	1168	5.00	127	2.00	51
1420600	6.00	152	6.00	152	12.38	314	54.00	1372	6.00	152	2.63	67
1420800	8.00	203	8.00	203	16.25	413	66.00	1676	8.00	203	3.50	89
1421000	10.00	254	10.00	254	18.50	470	81.00	2057	8.00	203	3.63	92
1421200	12.00	305	12.00	305	22.25	565	94.00	2388	10.00	254	4.25	108



CENTUBULAR™ MUFFLERS

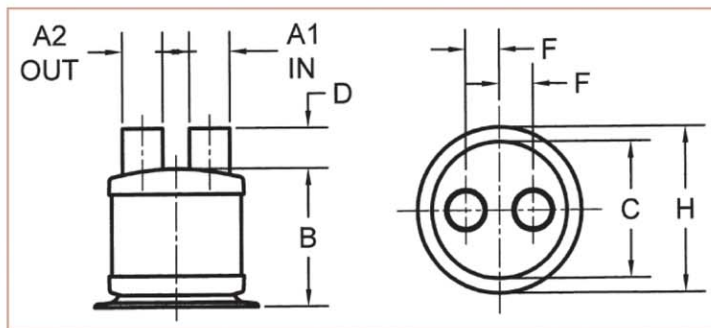
Part #	A		B1		C	
	I/O		DIA		LGTH	
	INCH	MM	INCH	MM	INCH	MM
1060500	5.00	127	5.25	133	48.00	1219
1060600	6.00	152	6.25	159	60.00	1524
1060800	8.00	203	8.38	213	76.00	1930
1061000	10.00	254	10.38	264	90.00	2286
1061200	12.00	305	12.50	318	102.00	2591
1061400	14.00	356	14.50	368	128.00	3251
1061600	16.00	406	16.50	419	148.00	3759
1061800	18.00	457	18.50	470	168.00	4267



VERNALIFT™ TOP IN/TOP OUT

	A1		A2		B		C		D		F		H	
	INLET		OUTLET		HGT		DIA		I/O LGTH		I/O OFFSET		BASE DIA.	
Part #	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1500001	1.50	38	1.50	38	6.14	156	6.36	162	2.00	51	1.50	38	8.50	216
1500060	1.50	38	1.50	38	7.92	201	8.36	212	2.00	51	2.00	51	10.50	267
1500129	1.50	38	2.00	51	6.14	156	6.36	162	2.00	51	1.50	38	8.50	216
1500061	1.63	41	1.50	38	6.14	156	6.36	162	2.00	51	1.50	38	8.50	216
1500002	1.63	41	1.63	41	6.14	156	6.36	162	2.00	51	1.50	38	8.50	216
1500003	1.63	41	1.63	41	7.92	201	8.36	212	2.00	51	2.00	51	10.50	267
1500143	1.63	41	1.88	48	7.92	201	8.36	212	2.00	51	2.00	51	10.50	267
1500004	1.75	44	1.75	44	6.14	156	6.36	162	2.00	51	1.50	38	8.50	216
1500005	1.75	44	1.75	44	7.92	201	8.36	212	2.00	51	2.00	51	10.50	267
1500006	1.88	48	1.88	48	6.14	156	6.36	162	2.00	51	1.50	38	8.50	216
1500007	1.88	48	1.88	48	7.92	201	8.36	212	2.00	51	2.00	51	10.50	267
1500062	2.00	51	1.50	38	6.14	156	6.36	162	2.00	51	1.50	38	8.50	216
1500008	2.00	51	2.00	51	6.14	156	6.36	162	2.00	51	1.50	38	8.50	216
1500009	2.00	51	2.00	51	7.92	201	8.36	212	2.00	51	2.00	51	10.50	267
1500010	2.00	51	2.00	51	10.16	258	10.04	255	2.00	51	2.50	64	12.18	309
1500126	2.00	51	2.38	60	7.92	201	8.36	212	2.25	57	2.00	51	10.50	267
1500011	2.25	57	2.25	57	7.92	201	8.36	212	2.00	51	2.00	51	10.50	267
1500012	2.25	57	2.25	57	10.16	258	10.04	255	2.25	57	2.50	64	12.18	309
1500013	2.38	60	2.38	60	7.92	201	8.36	212	2.00	51	2.00	51	10.50	267
1500014	2.38	60	2.38	60	10.16	258	10.04	255	2.38	60	2.50	64	12.18	309
1500015	2.50	64	2.50	64	10.16	258	10.04	255	2.50	64	2.50	64	12.18	309
* 1500141	2.50	64	2.50	64	12.00	305	12.34	313	3.00	76	2.75	70	12.00	305
1500138	2.50	64	3.00	76	10.16	258	10.04	255	3.00	76	2.50	64	12.18	309
1500016	2.88	73	2.88	73	10.16	258	10.04	255	3.00	76	2.50	64	12.18	309
1500017	3.00	76	3.00	76	10.16	258	10.04	255	3.00	76	2.50	64	12.18	309
* 1500063	3.00	76	3.00	76	12.00	305	12.34	313	4.00	102	2.75	70	12.00	305
* 1500150	3.00	76	3.50	89	12.00	305	12.34	313	4.00	102	2.75	70	12.00	305
* 1500064	3.50	89	3.50	89	12.00	305	12.34	313	4.00	102	2.75	70	12.00	305
* 1500065	4.00	102	4.00	102	12.00	305	12.34	313	4.00	102	2.75	70	12.00	305
* 1500066	4.50	114	4.50	114	12.00	305	12.34	313	4.00	102	3.00	76	12.00	305
* 1500067	4.50	114	4.50	114	16.00	406	16.17	411	4.00	102	4.00	102	17.00	432
* 1500068	5.00	127	5.00	127	16.00	406	16.17	411	5.00	127	4.00	102	17.00	432
* 1500069	6.00	152	6.00	152	16.00	406	16.17	411	5.00	127	4.00	102	17.00	432
* 1500131	8.00	203	8.00	203	22.00	559	22.00	559	8.00	203	5.00	127	23.00	584
* 1500154	10.00	254	10.00	254	28.00	711	28.50	724	8.00	203	7.00	178	30.00	762

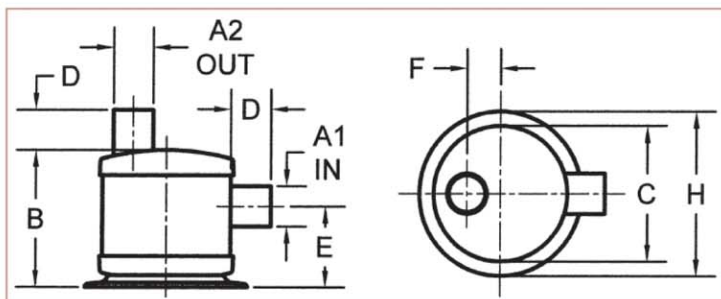
* Bases on these models are square



VERNALIFT™ SIDE IN/TOP OUT

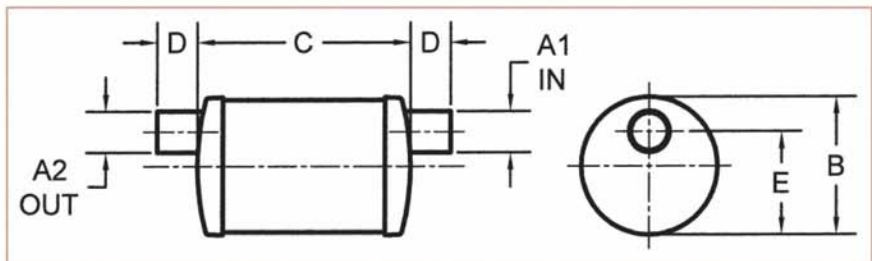
	A1		A2		B		C		D		F		E		H	
	INLET		OUTLET		HGT		DIA		I/O LGTH		OFFSET		INLET		BASE DIA.	
Part #	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1500018	1.50	38	1.50	38	6.14	156	6.36	162	2.00	51	1.50	38	3.29	84	8.50	216
1500071	1.50	38	1.50	38	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500142	1.50	38	2.00	51	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500072	1.63	41	1.50	38	6.14	156	6.36	162	2.00	51	1.50	38	3.29	84	8.50	216
1500019	1.63	41	1.63	41	6.14	156	6.36	162	2.00	51	1.50	38	3.29	84	8.50	216
1500020	1.63	41	1.63	41	7.92	201	8.36	212	2.00	51	1.75	44	4.68	119	10.50	267
1500123	1.63	41	1.63	41	10.16	258	10.04	255	2.00	51	2.50	64	6.50	165	12.18	309
1500140	1.63	41	1.75	44	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500073	1.63	41	2.00	51	7.92	201	8.36	212	2.00	51	1.75	44	4.68	119	10.50	267
1500125	1.75	44	1.50	38	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500021	1.75	44	1.75	44	6.14	156	6.36	162	2.00	51	1.50	38	3.29	84	8.50	216
1500022	1.75	44	1.75	44	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500148	1.75	44	2.00	51	10.16	258	10.04	255	2.00	51	2.50	64	6.50	165	12.18	309
1500146	1.88	48	1.63	41	10.16	258	10.04	255	2.00	51	2.50	64	6.50	165	12.18	309
1500023	1.88	48	1.88	48	6.14	156	6.36	162	2.00	51	1.50	38	3.29	84	8.50	216
1500024	1.88	48	1.88	48	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500075	1.88	48	2.00	51	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500076	2.00	51	1.50	38	6.14	156	6.36	162	2.00	51	1.50	38	3.29	84	8.50	216
1500077	2.00	51	1.63	41	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500121	2.00	51	1.88	48	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500074	2.00	51	1.88	48	10.16	258	10.04	255	2.00	51	2.50	64	6.50	165	12.18	309
1500078	2.00	51	1.88	48	10.16	258	10.04	264	2.00	51	2.50	64	6.50	165	12.18	309
1500025	2.00	51	2.00	51	6.14	156	6.36	162	2.00	51	1.50	38	3.29	84	8.50	216
1500026	2.00	51	2.00	51	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500027	2.00	51	2.00	51	10.16	258	10.04	255	2.50	64	2.25	57	6.50	165	12.18	309
* 1500120	2.00	51	2.00	51	12.00	305	12.34	313	2.00	51	2.50	64	8.50	216	12.00	305
* 1500147	2.00	51	2.25	57	12.00	305	12.34	313	2.00	51	2.50	64	8.50	216	12.00	305
1500137	2.00	51	2.50	64	7.92	201	8.36	212	2.50	64	2.00	51	4.68	119	10.50	267
1500055	2.00	51	2.50	64	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500079	2.00	51	2.50	64	10.16	258	10.04	255	2.50	64	2.50	64	6.50	165	12.18	309
* 1500132	2.00	51	2.50	64	12.00	305	12.34	313	2.00	51	2.50	64	8.50	216	12.00	305
1500028	2.25	57	2.25	57	7.92	201	8.36	212	2.00	51	2.00	51	4.68	119	10.50	267
1500029	2.25	57	2.25	57	10.16	258	10.04	255	2.25	57	2.50	64	6.50	165	12.18	309
* 1500080	2.25	57	2.38	60	12.00	305	12.34	313	2.38	60	2.50	64	8.34	212	12.00	305
1500030	2.38	60	2.38	60	7.92	201	8.36	212	2.38	60	2.00	51	4.68	119	10.50	267
1500031	2.38	60	2.38	60	10.16	258	10.04	255	2.38	60	2.50	64	6.50	165	12.18	309
* 1500081	2.38	60	2.38	60	12.00	305	12.34	313	2.50	64	2.50	64	7.25	184	12.00	305
1500082	2.38	60	2.50	64	10.16	258	10.04	255	2.50	64	2.50	64	6.30	160	12.18	309
* 1500083	2.50	64	2.38	60	12.00	305	12.34	313	2.50	64	2.50	64	8.25	210	12.00	305
1500032	2.50	64	2.50	64	10.16	258	10.04	255	2.50	64	2.50	64	6.50	165	12.18	309
* 1500128	2.50	64	3.00	76	12.00	305	12.34	313	3.00	76	2.75	70	7.25	184	12.00	305
1500033	2.88	73	2.88	73	10.16	258	10.04	255	3.00	76	2.50	64	6.19	157	12.18	309
1500139	2.88	73	3.00	76	10.16	258	10.04	255	3.00	76	2.50	64	6.19	157	12.18	309
* 1500084	3.00	76	2.88	73	12.00	305	12.34	313	3.00	76	2.75	70	8.00	203	12.00	305
1500034	3.00	76	3.00	76	10.16	258	10.04	255	3.00	76	2.25	57	6.50	165	12.18	309
* 1500085	3.00	76	3.00	76	12.00	305	12.34	313	3.00	76	2.75	70	8.00	203	12.00	305
1500152	3.00	76	3.50	89	10.16	258	10.04	255	3.50	89	2.50	64	6.50	165	12.18	309
* 1500086	3.50	89	3.00	76	12.00	305	12.34	313	3.50	89	2.75	70	7.75	197	12.00	305
* 1500087	3.50	89	3.50	89	12.00	305	12.34	313	3.50	89	2.75	70	7.75	197	12.00	305
* 1500151	3.50	89	5.00	127	12.00	305	12.34	313	5.00	127	2.75	70	7.75	197	12.00	305
* 1500130	4.00	102	3.50	89	12.00	305	12.34	313	4.00	102	2.75	70	7.25	184	12.00	305
* 1500088	4.00	102	4.00	102	12.00	305	12.34	313	4.00	102	2.75	70	7.50	191	12.00	305
* 1500149	4.00	102	5.00	127	16.00	406	16.17	411	5.00	127	4.00	102	8.75	222	17.00	432
* 1500089	4.50	114	4.50	114	12.00	305	12.34	313	4.50	114	2.75	70	7.25	184	12.00	305
* 1500091	5.00	127	5.00	127	12.00	305	12.34	313	5.00	127	2.75	70	6.00	152	12.00	305
* 1500090	5.00	127	5.00	127	16.00	406	16.17	411	5.00	127	4.00	102	8.75	222	17.00	432
* 1500092	6.00	152	6.00	152	16.00	406	16.17	411	5.00	127	4.00	102	8.75	222	17.00	432
* 1500094	8.00	203	8.00	203	18.00	457	18.50	470	6.00	152	3.00	76	10.50	267	19.00	483
* 1500159	10.00	254	10.00	254	24.00	610	24.60	625	8.00	203	6.00	152	12.00	305	26.00	660

* Bases on these models are square



VERNALIFT™ INLINE

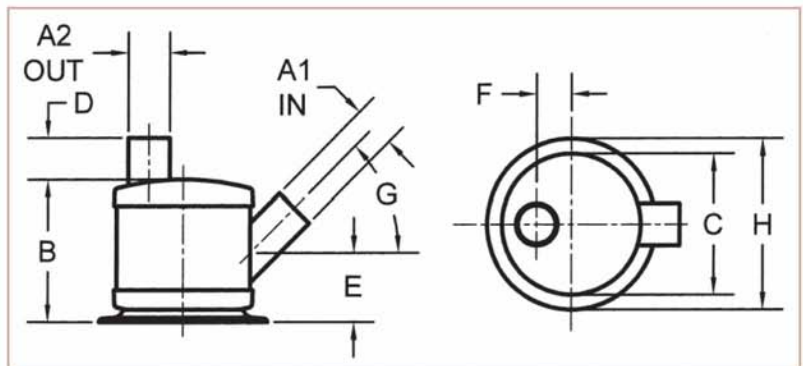
	A1		A2		C		B		D		E	
	INLET		OUTLET		LGTH		DIA		I/O LGTH		I/O HGT	
Part #	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1500035	1.50	38	1.50	38	10.50	267	6.36	162	2.00	51	4.88	124
1500036	1.63	41	1.63	41	10.50	267	6.36	162	2.00	51	4.88	124
1500037	1.63	41	1.63	41	14.00	356	8.36	212	2.00	51	6.18	157
1500155	1.63	41	1.63	41	17.00	432	10.04	255	2.00	51	7.52	191
1500038	1.75	44	1.75	44	10.50	267	6.36	162	2.00	51	4.68	119
1500039	1.75	44	1.75	44	14.00	356	8.36	212	2.00	51	6.18	157
1500040	1.88	48	1.88	48	10.50	267	6.36	162	2.00	51	4.88	124
1500041	1.88	48	1.88	48	14.00	356	8.36	212	2.00	51	6.18	157
1500042	2.00	51	2.00	51	10.50	267	6.36	162	2.00	51	4.88	124
1500043	2.00	51	2.00	51	14.00	356	8.36	212	2.00	51	6.18	157
1500044	2.00	51	2.00	51	17.50	445	10.04	255	2.00	51	7.52	191
1500095	2.00	51	2.50	64	17.00	432	10.04	255	2.50	64	7.52	191
1500059	2.00	51	3.00	76	17.50	445	10.04	255	3.00	76	7.52	191
1500045	2.25	57	2.25	57	14.00	356	8.36	212	2.25	57	6.18	157
1500046	2.25	57	2.25	57	17.50	445	10.04	255	2.25	57	7.52	191
1500047	2.38	60	2.38	60	14.00	356	8.36	212	2.38	60	6.18	157
1500048	2.38	60	2.38	60	17.50	445	10.04	255	2.38	60	7.52	191
1500049	2.50	64	2.50	64	17.50	445	10.04	255	2.50	64	7.52	191
1500050	2.88	73	2.88	73	17.50	445	10.04	255	3.00	76	7.52	191
1500051	3.00	76	3.00	76	17.50	445	10.04	255	3.00	76	7.52	191
1500096	3.00	76	3.00	76	20.00	508	12.34	313	3.00	76	9.17	233
1500119	3.50	89	3.50	89	17.00	432	10.04	255	3.50	89	7.52	191
1500098	4.00	102	4.00	102	22.00	559	12.34	313	4.00	102	9.17	233
1500099	4.50	114	4.50	114	22.00	559	12.34	313	5.00	127	9.19	233
1500100	5.00	127	5.00	127	22.00	559	12.34	313	5.00	127	9.19	233
1500101	6.00	152	6.00	152	28.00	711	16.17	411	6.00	152	12.47	317
1500102	8.00	203	8.00	203	32.00	813	18.50	470	6.00	152	13.75	349
1500169	10.00	254	10.00	254	40.00	1016	22.00	559	8.00	203	16.00	406



VERNALIFT™ SIDE ANGLE IN/TOP OUT

	A1		A2		B		C		D		E		G	H		F	
	INLET		OUTLET		HGT		DIA		I/O LGTH		INLET HEIGHT		ANGLE	BASE DIA.		OUT OFFSET	
Part #	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	DEG.	INCH	MM	INCH	MM
1500103	1.50	38	1.50	38	6.14	156	6.36	162	2.00	51	3.25	83	45-	8.50	216	1.50	38
1500104	1.63	41	1.63	41	7.92	201	8.36	212	2.00	51	4.43	113	45-	10.50	267	2.00	51
1500127	1.75	45	1.75	45	8.00	203	8.36	212	2.00	51	4.43	113	45-	10.50	267	2.00	51
1500133	1.88	48	1.88	48	6.14	156	6.36	162	2.00	51	3.25	83	45-	8.50	216	1.50	38
1500157	1.88	48	1.88	48	8.00	203	8.36	212	2.00	51	4.43	113	45-	10.50	267	2.00	51
1500106	1.88	48	1.88	48	10.16	258	10.04	255	2.00	51	5.30	135	45-	12.18	309	2.50	64
1500163	2.00	51	2.00	51	6.14	156	6.36	162	2.00	51	3.25	83	45-	8.50	216	1.50	38
1500107	2.00	51	2.00	51	10.16	258	10.04	255	2.00	51	5.30	135	45-	12.18	309	2.50	64
1500108	2.25	57	2.25	57	10.16	258	10.04	255	2.50	64	5.30	135	45-	12.18	309	2.50	64
1500109	2.25	57	3.00	76	10.16	258	10.04	255	2.50	64	5.30	135	45-	12.18	309	2.50	64
1500122	2.38	61	2.38	61	10.16	258	10.04	255	2.50	64	5.30	135	45-	12.18	309	2.50	64
1500110	2.50	64	2.50	64	10.16	258	10.04	255	2.50	64	5.30	135	45-	12.18	309	2.50	64
* 1500160	2.50	64	3.00	76	12.00	305	12.34	313	3.00	76	6.67	170	45-	12.00	305	2.75	70
1500111	2.88	73	2.88	73	10.16	258	10.04	255	3.00	76	5.30	135	45-	12.18	309	2.50	64
* 1500112	3.00	76	3.00	76	12.00	305	12.34	313	3.00	76	6.67	170	45-	12.00	305	2.75	70
* 1500153	3.00	76	4.00	102	12.00	305	12.34	313	3.00	76	6.92	176	30-	12.00	305	2.75	70
* 1500113	3.50	89	3.50	89	12.00	305	12.34	313	3.50	86	7.50	191	30-	12.00	305	2.75	70
* 1500134	3.50	89	5.00	127	12.00	305	12.34	313	4.00	102	7.75	197	45-	12.00	305	2.75	70
* 1500114	4.00	102	4.00	102	12.00	305	12.34	313	4.00	102	6.92	176	30-	12.00	305	2.75	70
* 1500115	4.50	114	4.50	114	12.00	305	12.34	313	4.00	102	7.25	184	45-	12.00	305	2.75	70
* 1500116	5.00	127	5.00	127	12.00	305	12.34	313	5.00	127	6.00	152	30-	12.00	305	2.75	70
* 1500117	6.00	152	6.00	152	14.50	368	16.17	411	5.00	127	8.75	222	45-	17.00	432	4.00	102
* 1500118	8.00	203	8.00	203	18.00	457	18.50	470	6.00	152	10.00	254	45-	19.00	483	3.00	76
* 1500136	10.00	254	10.00	254	24.00	610	24.60	625	8.00	203	12.00	305	45-	26.00	660	6.00	152

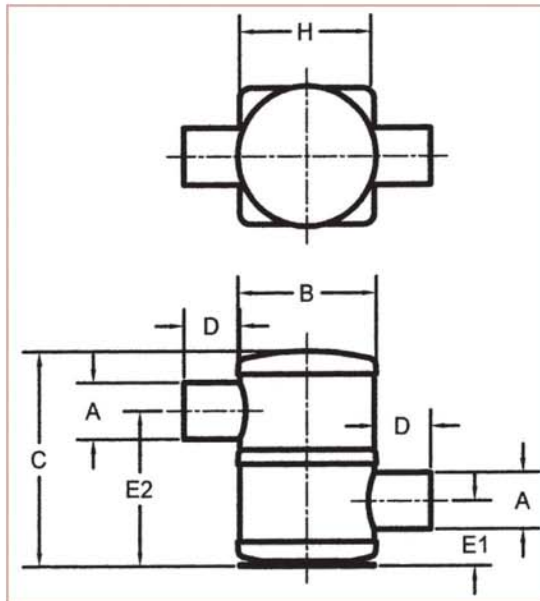
* Bases on these models are square



VERNALIFT™ DUAL STAGE – FOR ABOVE WATERLINE INSTALLATIONS

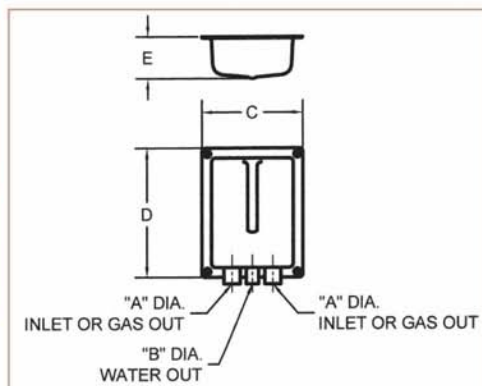
A			B		C		H		E1		E2		D	
I/O			DIA		HGT		BASE DIA.		INLET HGT		HGT TO OUT		I/O LGTH	
Part #	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1520200	2.00	51	8.38	213	11.25	286	10.50	267	4.00	102	8.00	203	2.50	64
1520250	2.50	64	8.38	213	12.50	318	10.50	267	4.25	108	9.00	229	2.50	64
1520300	3.00	76	10.06	256	14.25	362	12.18	309	4.75	121	10.25	260	3.00	76
1520350	3.50	89	10.06	256	15.25	387	12.18	309	5.25	133	11.00	280	3.50	89
* 1520400	4.00	102	12.38	314	16.25	413	12.00	305	5.00	127	11.50	292	4.00	102
* 1520500	5.00	127	12.38	314	19.00	483	12.00	305	5.75	146	13.75	349	5.00	127
* 1520600	6.00	152	16.25	413	22.50	572	17.50	445	7.00	178	16.25	413	6.00	152
* 1520800	8.00	203	18.50	470	29.25	743	19.50	495	9.00	229	21.00	534	8.00	203
* 1521000	10.00	254	22.00	559	36.00	915	24.00	610	12.00	305	26.25	667	8.00	203
* 1521200	12.00	305	24.63	626	41.00	1042	26.50	673	13.00	330	30.00	762	10.00	254

* Bases on these models are square



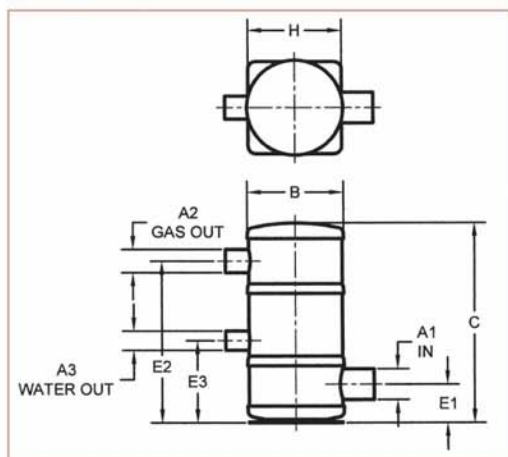
GEN-SEP™

	A		B		C		D		E	
	INLET/GAS OUT		WATER OUT		WIDTH		LGTH		HGT	
Part #	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1020150	1.50	38	1.25	32	12.38	314	15.63	397	5.03	128
1020162	1.62	41	1.25	32	12.38	314	15.63	397	5.03	128
1020200	2.00	51	1.50	38	12.38	314	15.63	397	5.03	128
1020250	2.50	64	1.50	38	17.50	445	20.50	521	7.00	178
1020300	3.00	76	1.50	38	17.50	445	20.50	521	7.00	178
1020350	3.50	89	2.00	51	23.50	597	27.00	686	9.00	229
1020400	4.00	102	2.50	64	23.50	597	27.00	686	9.00	229
1020450	4.50	114	2.50	64	28.00	711	30.00	762	7.25	184
1020500	5.00	127	3.00	76	28.00	711	30.00	762	7.25	184



COMPOSEP

	A1		A2		A3		B		C		D		E1		E2		E3	
	INLET		GAS OUT		WATER OUT		DIA		HGT		BASE SQ		INLET		GAS OUT		WATER OUT	
Part #	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1040200	2.00	51	1.50	38	1.25	32	10.00	254	20.00	508	10.13	257	3.75	95	16.50	419	8.13	207
1040250	2.50	64	2.00	51	1.50	38	10.00	254	20.00	508	10.13	257	3.75	95	16.50	419	8.13	207
1040300	3.00	76	2.50	64	1.50	38	10.00	254	20.00	508	10.13	257	3.75	95	16.50	419	8.13	207
1040350	3.50	89	3.00	76	2.00	51	12.34	313	26.00	660	12.00	305	5.00	127	21.00	533	10.50	267
1040400	4.00	102	3.00	76	2.50	64	12.34	313	26.00	660	12.00	305	5.00	127	21.00	533	10.70	272
1040500	5.00	127	4.00	102	2.50	64	14.36	365	30.00	762	15.00	381	6.00	152	25.00	635	12.38	314
1040600	6.00	152	5.00	127	3.00	76	16.25	413	35.00	889	17.00	432	7.00	178	29.25	743	14.25	362
1040800	8.00	203	6.00	152	4.00	102	18.50	470	45.00	1143	19.00	483	9.25	235	37.75	959	19.00	483
1041000	10.00	254	8.00	203	5.00	127	22.00	559	55.00	1397	23.00	584	11.25	286	46.25	1175	22.63	575
1041200	12.00	305	10.00	254	6.00	152	28.50	724	64.00	1626	30.00	762	13.25	337	55.13	1400	26.00	660



VERNATUBE STANDARD TEMPERATURE UP TO 250°F

Part #	NOMINAL O.D.	NOMINAL WALL THICKNESS (in.)	WEIGHT (LBS. PER FT.)	STANDARD LENGTH
1100525	1.00	0.104	0.03	5' - 10"
1100521	1.50	0.105	0.40	10' - 0"
1100522	1.62	0.113	0.40	10' - 0"
1100523	1.75	0.112	0.40	10' - 0"
1100524	1.88	0.116	0.50	10' - 0"
1100512	2.00	0.125	0.50	10' - 0"
1100510	2.25	0.127	0.50	10' - 0"
1100511	2.38	0.127	0.60	10' - 0"
1100501	2.50	0.128	0.70	10' - 0"
1100513	2.88	0.130	0.80	10' - 0"
1100502	3.00	0.130	0.90	10' - 0"
1100503	3.50	0.135	1.00	10' - 0"
1100504	4.00	0.138	1.30	10' - 0"
1100505	4.50	0.140	1.50	10' - 0"
1100506	5.00	0.144	1.70	10' - 0"
1100507	6.00	0.148	2.00	10' - 0"
1100508	8.00	0.154	3.00	10' - 0"
1100509	10.00	0.160	3.80	10' - 0"
1100515	12.00	0.160	4.60	10' - 0"
1100514	14.00	0.200	6.50	12' - 0"
1100516	16.00	0.200	8.00	12' - 0"
1100529	18.00	0.200	8.50	12' - 0"

VERNATUBE HI TEMPERATURE UP TO 300°F

Part #	NOMINAL O.D.	NOMINAL WALL THICKNESS (IN.)	WEIGHT (LBS. PER FT.)	STANDARD LENGTH
11P0500	5.00	0.144	1.70	10' - 0"
11P0600	6.00	0.148	2.00	10' - 0"
11P0800	8.00	0.154	3.00	10' - 0"
11P1000	10.00	0.160	3.80	10' - 0"
11P1200	12.00	0.160	4.60	10' - 0"
11P1400	14.00	0.200	6.50	12' - 0"
11P1600	16.00	0.200	8.00	12' - 0"
11P1800	18.00	0.200	8.50	12' - 0"

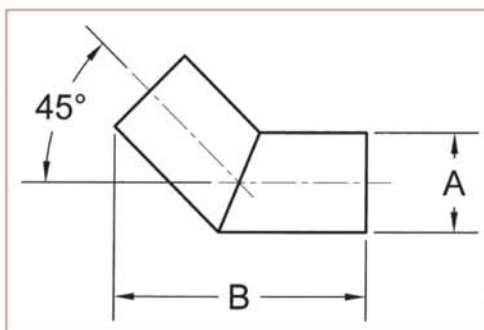


SHAFT LOG/RUDDER POST HOUSING

Part #	ID.	TOLERANCE	O.D.	TOLERANCE	NOMINAL WALL THICKNESS (in)	STD. LENGTH (FT.)	LBS. PER FOOT
1100252	0.425	+/- .005	0.63	+/- .015	0.100	5'	0.12
1100250	0.550	+/- .005	0.75	+/- .015	0.100	5'	0.17
1100251	0.794	+/- .005	1.00	+/- .015	0.103	5'	0.21
1100234	1.290	+0.010 - .005	1.50	+/- .030	0.105	10'	0.33
1100243	1.290	+0.010 - .005	1.63	+/- .030	0.170	10'	0.56
1100276	1.290	+0.010 - .005	1.75	+/- .030	0.230	10'	1.10
1100204	1.500	+0.010 - .005	2.00	+/- .030	0.250	10'	0.99
1100221	1.500	+0.010 - .005	2.25	+/- .030	0.375	10'	1.27
1100237	1.523	+0.010 - .005	1.75	+/- .030	0.113	10'	0.42
1100240	1.640	+0.010 - .005	2.00	+/- .030	0.180	10'	0.74
1100236	1.640	+0.010 - .005	2.38	+/- .030	0.370	10'	1.68
1100262	1.750	+0.010 - .005	2.00	+/- .030	0.125	10'	0.50
1100209	1.750	+0.010 - .005	2.25	+/- .030	0.250	10'	1.13
1100293	1.750	+0.010 - .005	2.50	+/- .030	0.375	10'	2.00
1100214	1.750	+0.010 - .005	2.75	+/- .030	0.500	10'	2.54
1100218	1.875	+0.010 - .005	2.38	+/- .030	0.252	10'	1.20
1100249	1.875	+0.010 - .005	2.50	+/- .030	0.313	10'	1.53
1100208	1.875	+0.010 - .005	2.63	+/- .030	0.378	10'	1.91
1100206	1.875	+0.010 - .005	2.75	+/- .030	0.438	10'	2.29
1100231	1.875	+0.010 - .005	2.88	+/- .030	0.503	10'	2.70
1100217	2.000	+0.010 - .005	2.25	+/- .030	0.125	10'	0.60
1100201	2.000	+0.010 - .005	2.38	+/- .030	0.190	10'	0.93
1100203	2.000	+0.010 - .005	2.50	+/- .030	0.250	10'	1.27
1100213	2.000	+0.010 - .005	2.63	+/- .030	0.315	10'	1.63
1100207	2.000	+0.010 - .005	3.00	+/- .030	0.500	10'	2.83
1100220	2.250	+0.010 - .005	2.50	+/- .030	0.125	10'	0.67
1100222	2.250	+0.010 - .005	3.00	+/- .030	0.375	10'	2.23
1100277	2.250	+0.010 - .005	3.25	+/- .030	0.500	10'	3.50
1100202	2.375	+0.010 - .005	2.63	+/- .030	0.125	10'	0.71
1100245	2.375	+0.010 - .005	3.00	+/- .030	0.313	10'	1.90
1100205	2.375	+0.010 - .005	3.38	+/- .030	0.500	10'	3.25
1100216	2.500	+0.010 - .005	3.00	+/- .030	0.250	10'	1.56
1100288	2.50	+0.010 - .005	3.50	+/- .030	0.500	10'	3.55
1100225	2.625	+0.010 - .005	2.88	+/- .030	0.125	10'	0.78
1100224	2.625	+0.010 - .005	3.00	+/- .030	0.188	10'	1.19
1100228	2.625	+0.010 - .005	3.38	+/- .030	0.375	10'	2.36
1100254	2.625	+0.010 - .005	3.63	+/- .030	0.500	10'	3.27
1100302	2.74	+0.010 - .005	3.25	+/- .030	0.250	10'	1.75
1100226	2.750	+0.010 - .005	3.50	+/- .030	0.375	10'	2.65
1100215	2.875	+0.010 - .005	3.25	+/- .030	0.188	10'	1.30
1100242	2.875	+0.010 - .005	3.88	+/- .030	0.500	10'	3.84
1100211	3.000	+0.010 - .005	3.50	+/- .030	0.250	10'	1.84
1100289	3.000	+0.010 - .005	3.75	+/- .030	0.375	10'	3.20
1100232	3.000	+0.010 - .005	4.00	+/- .030	0.500	10'	5.09
1100239	3.230	+0.010 - .005	3.50	+/- .030	0.135	10'	1.03
1100212	3.230	+0.010 - .005	3.63	+/- .030	0.200	10'	1.53
1100241	3.230	+0.010 - .005	4.03	+/- .030	0.400	10'	3.28
1100244	3.230	+0.010 - .005	4.38	+/- .030	0.575	10'	4.92
1100230	3.230	+0.010 - .005	4.50	+/- .030	0.635	10'	5.55
1100259	3.475	+0.010 - .005	4.00	+/- .030	0.263	10'	2.39
1100253	3.475	+0.010 - .005	4.50	+/- .030	0.513	10'	4.66
1100279	3.560	+0.010 - .005	4.00	+/- .030	0.220	10'	2.07
1100235	3.735	+0.010 - .005	4.12	+/- .030	0.193	10'	1.71
1100248	3.735	+0.010 - .005	4.50	+/- .030	0.383	10'	3.56
1100247	3.735	+0.010 - .005	4.74	+/- .030	0.503	10'	4.82
1100257	3.735	+0.010 - .005	5.00	+/- .030	0.633	10'	6.25
1100227	4.230	+0.010 - .005	5.25	+/- .030	0.510	10'	5.47
1100260	4.720	+0.010 - .005	6.00	+/- .030	0.640	10'	7.76
1100290	4.940	+0.010 - .005	6.50	+/- .030	0.780	10'	11.10
1100229	5.704	+0.010 - .005	6.00	+/- .030	0.148	10'	1.98
1100309	5.704	+0.010 - .005	6.25	+/- .030	0.273	10'	4.01

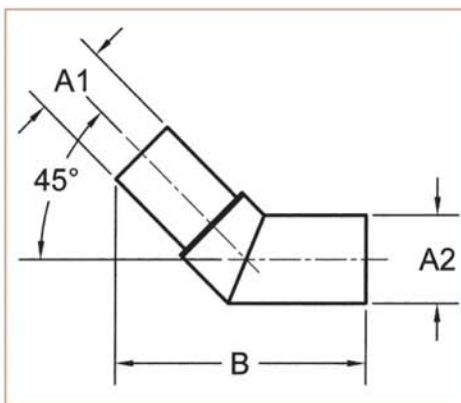
45° STANDARD ELBOWS

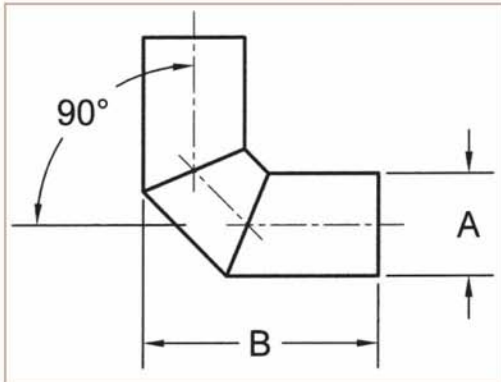
Part #	A		B	
	NOM. O.D.		LGTH	
	INCH	MM	INCH	MM
1200217	1.50	38	6.00	152
1200214	1.63	41	6.00	152
1200349	1.75	45	6.00	152
1200281	1.88	48	6.63	168
1200192	2.00	51	6.75	171
1200350	2.25	57	7.00	178
1200308	2.38	61	7.25	184
1200215	2.50	64	7.75	197
1200294	2.88	73	8.50	216
1200109	3.00	76	8.50	216
1200111	3.50	89	10.25	260
1200112	4.00	102	10.25	260
1200168	4.50	114	12.13	308
1200113	5.00	127	13.63	346
1200114	6.00	152	15.38	391
1200216	8.00	203	27.00	686
1200204	10.00	254	30.73	781
1200311	12.00	305	35.80	909
1200351	14.00	356	42.00	1067
1200352	16.00	406	48.00	1219



45° REDUCER ELBOWS

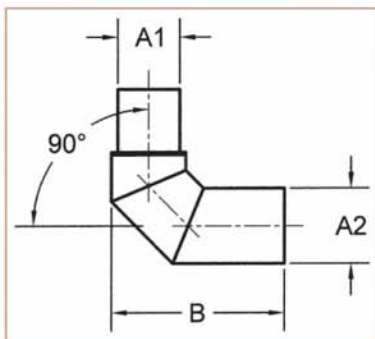
Part #	A1		A2		B	
	INLET		OUTLET		LGTH	
	INCH	MM	INCH	MM	INCH	MM
1200496	2.00	51	3.00	76	7.74	197
1200605	2.25	57	3.00	76	7.69	195
1200497	2.50	64	3.00	76	8.25	210
1200480	3.00	76	3.50	89	9.32	237
1200468	3.00	76	4.00	102	11.80	300
1200420	3.50	89	4.00	102	9.30	236
1200450	3.50	89	4.50	114	11.80	300
1200642	3.50	89	5.00	127	12.00	305
1200457	4.00	102	5.00	127	14.13	359
1200378	5.00	127	6.00	152	18.20	462
1200380	6.00	152	8.00	203	23.25	591





90° STANDARD ELBOWS

Part #	A		B	
	NOM. O.D.		LGTH	
	INCH	MM	INCH	MM
1200376	1.00	26	3.56	90
1200555	1.25	32	3.78	96
1200202	1.50	38	5.13	130
1200201	1.63	41	5.13	130
1200312	1.75	45	5.50	140
1200267	1.88	48	5.63	143
1200200	2.00	51	5.75	146
1200330	2.25	57	6.00	152
1200269	2.38	61	6.31	160
1200195	2.50	64	6.38	162
1200295	2.88	73	7.38	187
1200171	3.00	76	7.50	191
1200189	3.50	89	9.00	229
1200157	4.00	102	9.38	238
1200190	4.50	114	10.83	275
1200175	5.00	127	12.25	311
1200162	6.00	152	14.00	356
1200197	8.00	203	22.50	572
1200327	10.00	254	22.00	559
1200346	12.00	305	30.00	762
1200347	14.00	356	35.00	889
1200348	16.00	406	40.00	1016

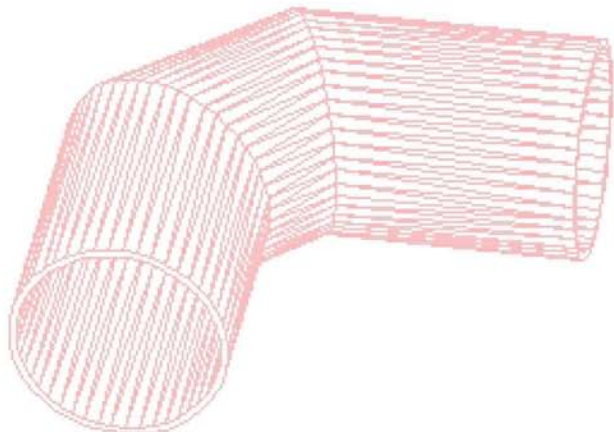
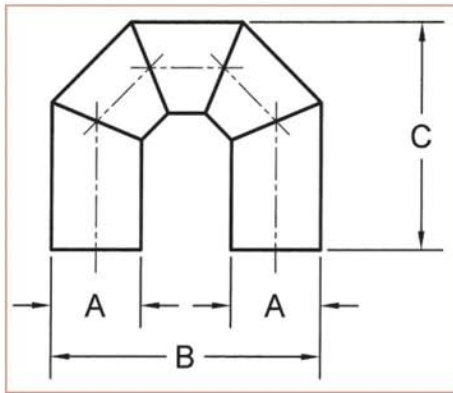


90° REDUCER ELBOWS

Part #	A1		A2		B	
	INLET		OUTLET		LGTH	
	INCH	MM	INCH	MM	INCH	MM
1200570	1.25	32	1.50	38	5.11	130
1200500	1.50	38	2.00	51	5.04	128
1200576	1.63	41	2.00	51	5.77	147
1200523	1.75	44	2.00	51	6.00	152
1200528	1.88	48	2.00	51	6.00	152
1200429	2.00	51	2.25	57	6.30	160
1200409	2.00	51	2.38	60	6.31	160
1200437	2.00	51	2.50	64	6.37	162
1200424	2.00	51	3.00	76	8.50	216
1200384	2.38	60	3.00	76	7.47	190
1200421	2.50	64	3.00	76	8.25	210
1200329	3.00	76	3.50	89	9.00	229
1200454	3.00	76	4.00	102	10.52	267
1200521	3.50	89	4.00	102	10.21	259
1200624	3.50	89	4.50	114	10.96	278
1200581	3.50	89	5.00	127	10.90	277
1200531	4.00	102	5.00	127	12.31	313
1200428	4.00	102	5.50	140	11.21	285
1200385	5.00	127	6.00	152	13.95	354
1200477	6.00	152	8.00	203	17.22	437
1200577	8.00	203	10.00	254	23.00	584

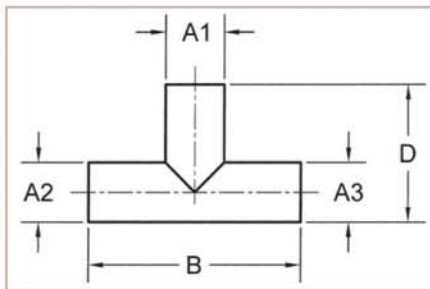
180° RETURNS STANDARD

Part #	A		B		C	
	NOM O.D.		WIDTH		HGT	
	INCH	MM	INCH	MM	INCH	MM
1200353	1.50	38	4.50	114	3.75	95
1200354	1.63	41	4.88	124	4.00	102
1200355	1.75	45	5.25	133	4.38	111
1200356	1.88	48	5.63	143	4.75	121
1200333	2.00	51	6.00	152	5.75	146
1200357	2.25	57	6.75	172	5.63	143
1200358	2.38	61	7.13	181	6.00	152
1200359	2.50	64	7.50	191	6.25	159
1200360	2.88	73	8.63	219	7.25	184
1200199	3.00	76	8.44	214	7.50	191
1200361	3.50	89	10.50	267	8.75	222
1200334	4.00	102	11.50	292	9.38	238
1200476	4.50	114	13.50	343	11.25	286
1200402	5.00	127	15.00	381	12.50	318
1200399	6.00	152	18.04	458	15.00	381
1200370	8.00	203	24.00	610	20.34	517
1200446	10.00	254	30.00	762	25.00	635



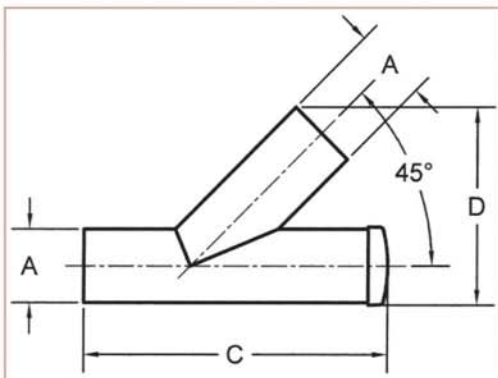
STANDARD T FITTINGS

Part #	A1		A2		A3		B		D	
	NOM O.D.		NOM O.D.		NOM O.D.		LGTH		HGT	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1200524	1.00	26	1.00	26	1.00	26	6.00	152	3.50	89
1200522	1.50	38	1.50	38	1.50	38	7.50	191	4.50	114
1200405	2.00	51	2.00	51	2.00	51	8.00	203	5.00	127
1200552	2.50	64	2.50	64	3.50	89	14.00	356	8.34	212
1200475	2.50	64	2.50	64	4.00	102	13.00	330	9.18	233
1200280	3.00	76	3.00	76	3.00	76	11.00	279	7.00	178
1200478	3.00	76	3.00	76	3.50	89	14.00	356	9.50	241
1200389	3.00	76	3.00	76	4.00	102	14.00	356	8.00	203
1200441	3.00	76	3.00	76	5.00	127	14.00	356	9.00	229
1200495	3.50	89	3.50	89	3.50	89	13.50	343	8.50	216
1200492	3.50	89	3.50	89	4.00	102	14.25	362	8.00	203
1200373	4.00	102	4.00	102	4.00	102	14.00	356	9.00	229
1200444	4.00	102	4.00	102	4.50	114	15.00	381	8.50	216
1200341	4.00	102	4.00	102	5.00	127	15.00	381	9.00	229
1200379	5.00	127	5.00	127	5.00	127	18.00	457	11.50	292
1200494	5.00	127	5.00	127	6.00	152	18.75	476	11.00	279
1200602	8.00	203	8.00	203	8.00	203	24.00	610	16.00	406



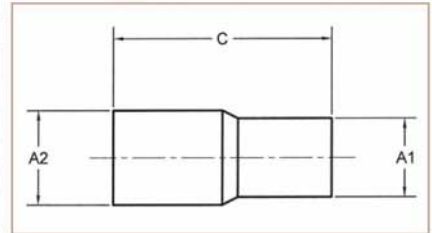
SURGE CHAMBERS

Part #	A		C		D	
	IN/OUT		LGTH		HGT	
	INCH	MM	INCH	MM	INCH	MM
1200407	2.00	51	9.00	229	5.36	136
1200442	3.00	76	14.19	360	8.30	211
1200387	3.50	89	15.75	400	9.70	246
1200362	4.00	102	18.00	457	11.07	281
1200363	4.50	114	19.75	502	12.28	312
1200364	5.00	127	21.50	546	13.50	343
1200365	6.00	152	25.00	635	15.90	404
1200366	8.00	203	32.00	813	20.75	527
1200367	10.00	254	39.00	991	25.56	649



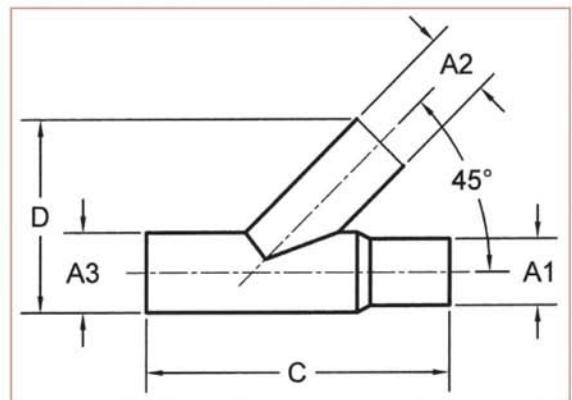
REDUCER COUPLINGS

Part #	A1		A2		C	
	NOM OD		NOM OD		LGTH	
	INCH	MM	INCH	MM	INCH	MM
1200532	1.25	32	1.63	41	5.00	127
1200390	1.50	38	1.63	41	6.00	152
1200435	1.50	38	1.75	44	6.00	152
1200503	1.50	38	1.88	48	6.00	152
1200410	1.50	38	2.00	51	6.20	157
1200533	1.63	41	1.75	44	5.00	127
1200266	1.63	41	2.00	51	3.00	76
1200447	1.63	41	2.38	60	5.00	127
1200506	1.63	41	2.50	64	9.00	229
1200394	1.75	44	2.00	51	6.00	152
1200505	1.75	44	2.38	60	6.00	152
1200309	1.88	48	2.00	51	5.88	149
1200430	2.00	51	2.25	57	6.00	152
1200396	2.00	51	2.38	60	5.00	127
1200277	2.00	51	2.50	64	4.25	108
1200371	2.00	51	2.88	73	8.00	203
1200264	2.00	51	3.00	76	8.00	203
1200336	2.00	51	3.50	89	8.00	203
1200400	2.00	51	4.00	102	9.00	229
1200431	2.25	57	2.38	60	6.00	152
1200569	2.25	57	3.00	76	6.19	157
1200529	2.38	60	2.50	64	7.00	178
1200318	2.38	60	2.88	73	8.50	216
1200451	2.38	60	3.00	76	8.50	216
1200270	2.50	64	3.00	76	8.50	216
1200125	2.50	64	3.50	89	9.00	229
1200161	3.00	76	3.50	89	9.50	241
1200170	3.00	76	4.00	102	10.00	254
1200639	3.00	76	5.00	127	9.19	233
1200222	3.50	89	4.00	102	10.50	267
1200124	3.50	89	4.50	114	11.00	279
1200185	4.00	102	4.50	114	11.50	292
1200223	4.00	102	5.00	127	12.00	305
1200265	4.00	102	6.00	152	14.00	356
1200227	4.50	114	5.00	127	12.50	318
1200123	4.50	114	6.00	152	14.00	356
1200285	5.00	127	5.50	140	10.00	254
1200148	5.00	127	6.00	152	14.00	356
1200491	5.00	127	8.00	203	14.19	360
1200272	5.50	140	6.00	152	11.88	302
1200268	6.00	152	6.62	168	15.00	381
1200166	6.00	152	8.00	203	18.00	457
1200603	6.00	152	8.63	219	14.25	362
1200392	6.69	170	8.00	203	18.00	457
1200534	8.00	203	8.63	219	16.25	413
1200259	8.00	203	10.00	254	22.00	559
1200425	10.00	254	12.00	305	16.00	406



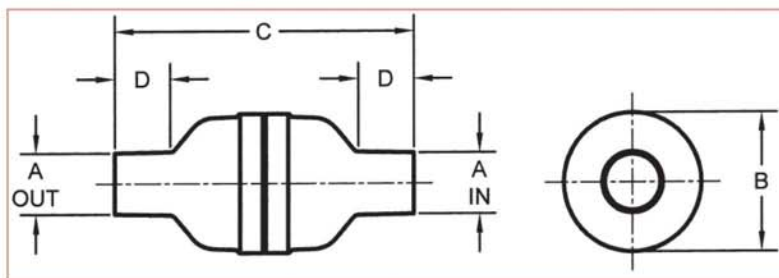
STANDARD Y FITTINGS

Part #	A1 & A2		A3		C		D	
	INLET		OUTLET		LGTH		HGT	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1200427	2.00	51	3.00	76	10.83	275	5.83	148
1200406	2.00	51	3.50	89	16.00	406	8.45	215
1200458	2.38	60	3.50	89	18.50	470	8.72	221
1200321	2.50	64	3.50	89	18.50	470	8.80	224
1200432	2.50	64	4.00	102	13.00	330	8.95	227
1200413	3.00	76	3.00	76	14.00	356	8.55	217
1200293	3.00	76	3.50	89	19.00	483	11.18	284
1200256	3.00	76	4.00	102	14.00	356	9.30	236
1200116	3.00	76	4.50	114	14.38	365	9.83	250
1200320	3.00	76	5.00	127	14.87	378	10.08	256
1200417	3.50	89	3.50	89	16.00	406	9.94	252
1200415	3.50	89	4.00	102	16.00	406	10.19	259
1200255	3.50	89	4.50	114	16.00	406	10.67	271
1200315	3.50	89	5.00	127	21.50	546	11.19	284
1200414	3.50	89	6.00	152	20.00	508	12.02	305
1200316	4.00	102	4.00	102	16.50	419	11.20	284
1200391	4.00	102	4.50	114	18.00	457	10.86	276
1200304	4.00	102	5.00	127	17.50	445	11.82	300
1200119	4.00	102	6.00	152	19.13	486	13.33	339
1200453	4.50	114	6.00	152	19.50	495	13.42	341
1200120	5.00	127	5.00	127	21.57	548	13.85	352
1200310	5.00	127	6.00	152	23.00	584	15.19	386
1200319	5.00	127	8.00	203	28.50	724	16.83	427
1200203	6.00	152	6.00	152	26.50	673	16.61	422
1200322	6.00	152	8.00	203	30.00	762	18.61	473
1200314	6.00	152	10.00	254	37.19	945	20.61	523
1200397	6.63	168	10.00	254	37.19	945	20.61	523
1200525	8.00	203	12.00	305	33.00	838	26.31	668



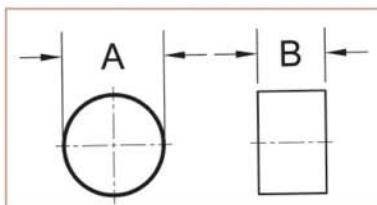
CHECK VALVES

Part #	A		B		C		D	
	I/O		DIA		LGTH		I/O LGTH	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1200403	1.50	38	4.34	110	11.79	299	2.00	51
1200263	1.63	41	4.34	110	11.79	299	1.50	38
1200398	1.88	48	4.34	110	9.00	229	1.88	48
1200328	2.00	51	4.34	110	8.37	213	1.50	38
1200426	2.25	57	5.58	142	16.13	410	3.19	81
1200449	2.38	60	7.06	179	18.69	475	3.31	84
1200307	2.50	64	5.58	142	16.13	410	3.00	76
1200274	3.00	76	7.06	179	18.66	474	3.50	89
1200411	3.50	89	8.09	205	20.30	516	3.50	89
1200369	4.00	102	9.06	230	21.00	533	3.50	89
1200479	4.50	114	11.15	283	24.63	626	5.00	127
1200377	5.00	127	11.15	283	24.25	616	4.38	111
1200386	6.00	152	12.20	310	26.20	665	5.00	127



CRUSH SLEEVES

Part #	A		B	
	NOM. O.D.		LGTH	
	INCH	MM	INCH	MM
1200584	4.00	102	4.00	102
1200585	5.00	127	4.00	102
1200586	6.00	152	4.00	102
1200593	6.63	168	4.00	102
1200587	8.00	203	4.00	102
1200594	8.63	219	4.00	102
1200588	10.00	254	4.00	102
1200595	10.63	270	4.00	102
1200589	12.00	305	4.00	102
1200590	14.00	356	4.00	102
1200591	16.00	406	4.00	102
1200592	18.00	457	4.00	102

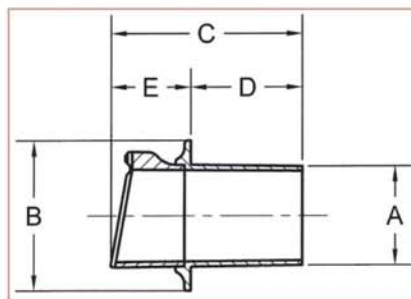


THRU HULL FITTING WITH FLAPPER

Part #	A		B		C		D		E	
	I/O		DIA		LGTH		T-H LGTH		EXT. LGTH	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1200300 - W	2.00	51	3.50	89	4.50	114	2.75	70	1.75	44
1200301 - BL.	2.00	51	3.50	89	4.50	114	2.75	70	1.75	44
1200298 - W	3.00	76	4.88	124	5.50	140	3.00	76	2.50	64
1200299 - BL.	3.00	76	4.88	124	5.50	140	3.00	76	2.50	64
1200326 - W	4.00	102	6.00	152	7.75	197	4.50	114	3.25	83
1200325 - BL.	4.00	102	6.00	152	7.75	197	4.50	114	3.25	83
1200342 - W	5.00	127	7.50	191	9.06	230	5.63	143	3.44	87
1200343 - BL.	5.00	127	7.50	191	9.06	230	5.63	143	3.44	87

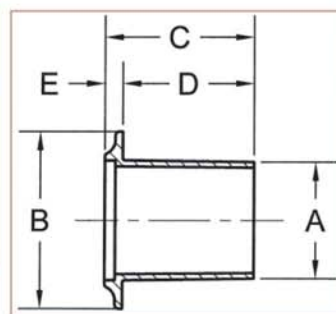
FLAPPER REPAIR KIT

Part #	Size
1200344	2.00
1200313	3.00
1200340	4.00
1200345	5.00



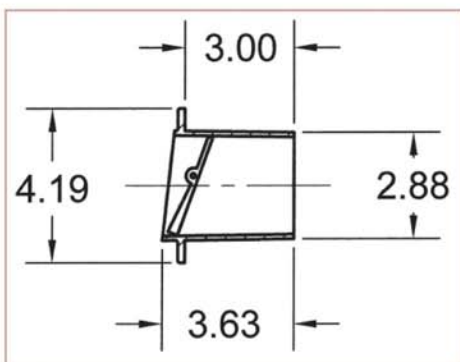
THRU HULL FITTING WITHOUT FLAPPER

Part #	A		B		C		D		E	
	I/O		DIA		LGTH		T-H LGTH		EXT. LGTH	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1200302 - W	2.00	51	3.50	89	3.19	81	2.75	70	0.44	11
1200303 - BL.	2.00	51	3.50	89	3.19	81	2.75	70	0.44	11
1200287 - W	3.00	76	4.88	124	3.63	92	3.00	76	0.63	16
1200288 - BL.	3.00	76	4.88	124	3.63	92	3.00	76	0.63	16
1200324 - W	4.00	102	6.00	152	5.13	130	4.50	114	0.63	16
1200323 - BL.	4.00	102	6.00	152	5.13	130	4.50	114	0.63	16
1200337 - W	5.00	127	7.50	191	6.38	162	5.63	143	0.75	19
1200338 - BL.	5.00	127	7.50	191	6.38	162	5.63	143	0.75	19



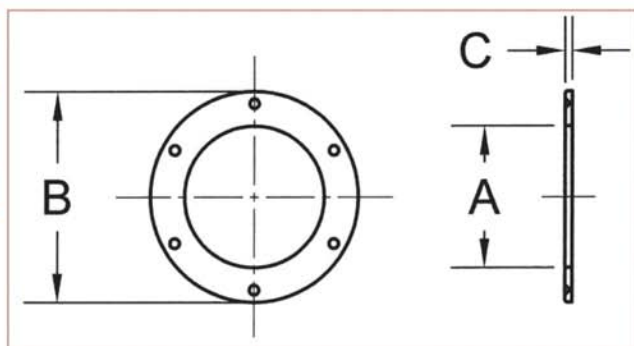
SCUPPER DRAIN FITTING

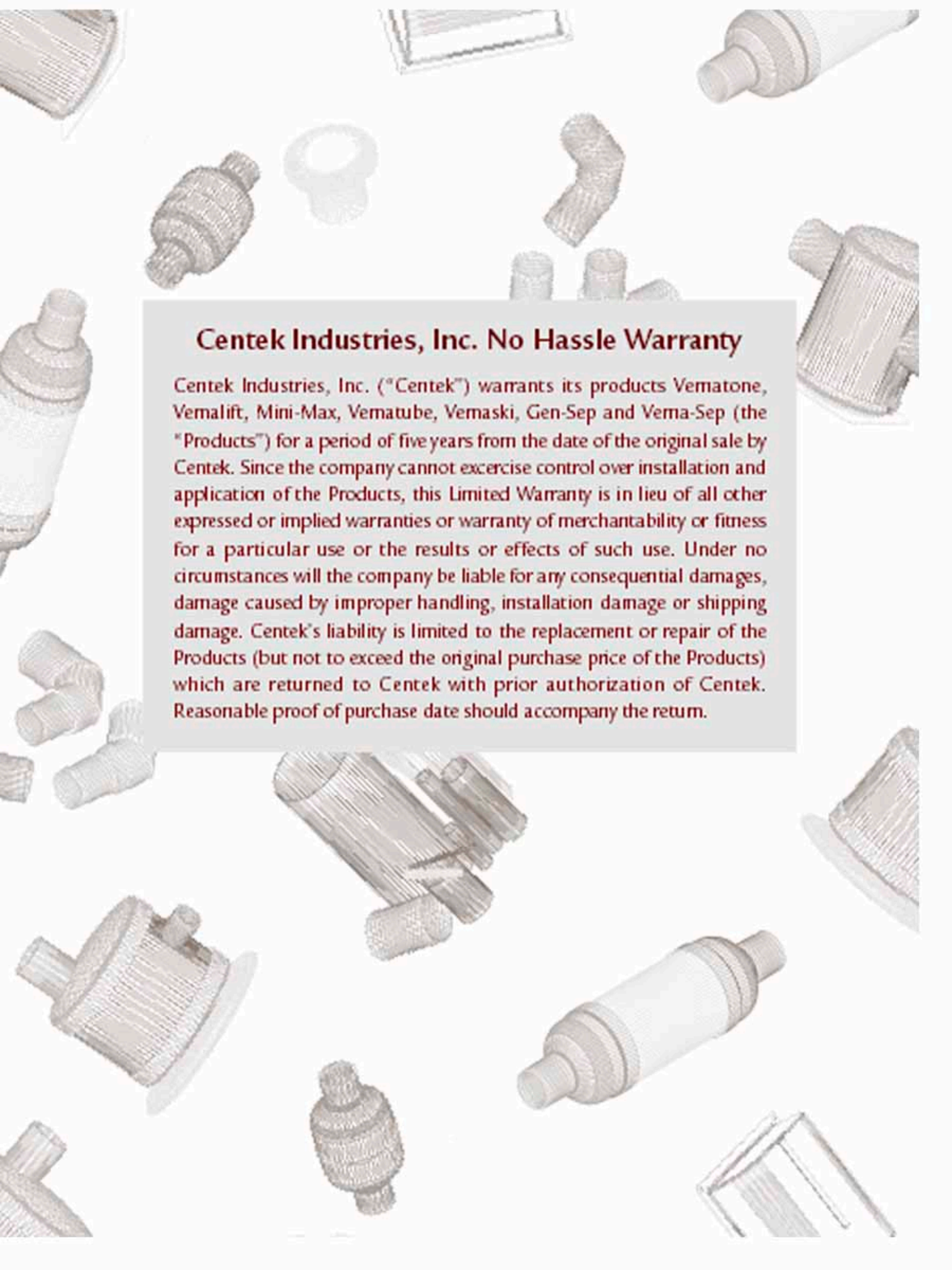
Part #	Description
1200134	3" Scupper Drain - white with flapper
1200252	3" Scupper Drain - black with flapper



EXHAUST FLANGE

Part #	A		B		C	
	INSIDE DIA		OUTSIDE DIA		FLANGE THICKNESS	
	INCH	MM	INCH	MM	INCH	MM
1200137	2.10	53	4.00	102	0.250	6
1200138	2.60	66	4.62	117	0.250	6
1200139	3.10	79	5.37	136	0.250	6
1200140	3.60	91	6.12	155	0.250	6
1200141	4.10	104	7.12	181	0.250	6
1200142	5.10	130	8.06	205	0.312	8
1200143	6.06	154	9.10	231	0.312	8





Centek Industries, Inc. No Hassle Warranty

Centek Industries, Inc. ("Centek") warrants its products Vematone, Vemalift, Mini-Max, Vematube, Vemaski, Gen-Sep and Vema-Sep (the "Products") for a period of five years from the date of the original sale by Centek. Since the company cannot exercise control over installation and application of the Products, this Limited Warranty is in lieu of all other expressed or implied warranties or warranty of merchantability or fitness for a particular use or the results or effects of such use. Under no circumstances will the company be liable for any consequential damages, damage caused by improper handling, installation damage or shipping damage. Centek's liability is limited to the replacement or repair of the Products (but not to exceed the original purchase price of the Products) which are returned to Centek with prior authorization of Centek. Reasonable proof of purchase date should accompany the return.