VT Series – Vertical Turbine Pumps

VT Series Pumps provide the ultimate in reliability and ease of installation. Applications include condenser water, chilled water, water transfer, pressure boosting and water supply. Quiet, dependable, with proven performance: that's the Taco VT Series of pumps.

Taco® systems made easy

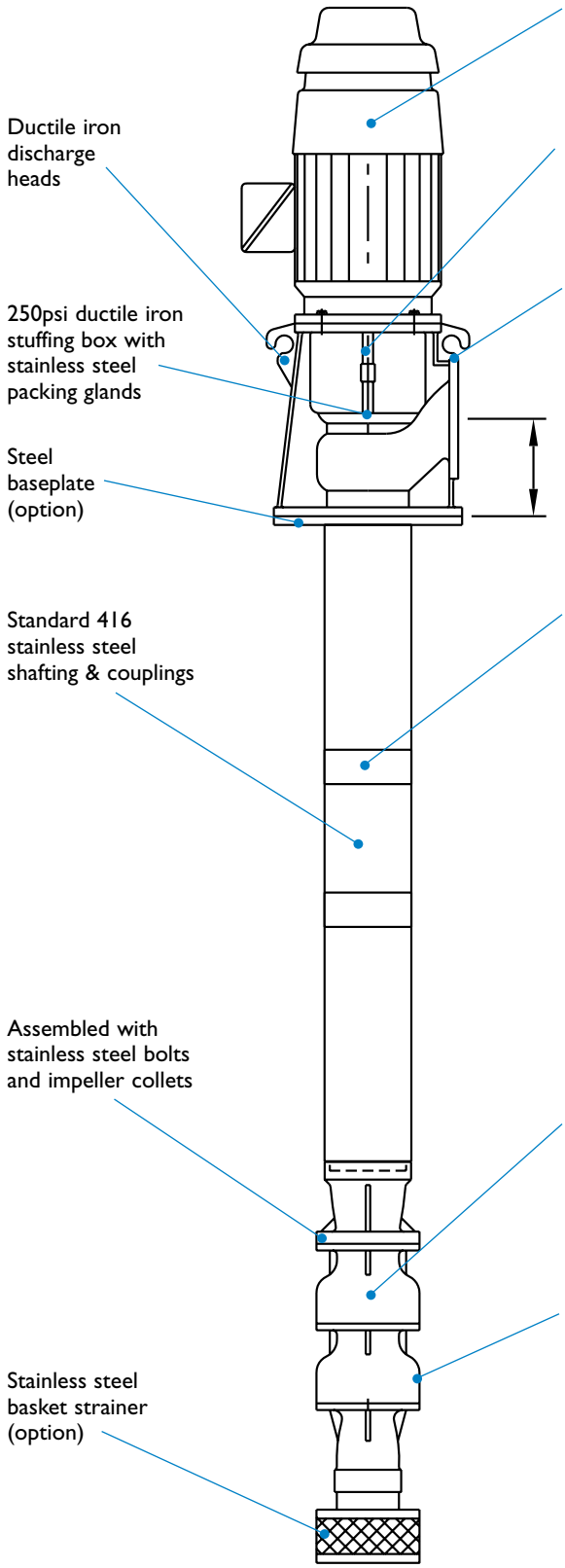
Supersedes: 12/23/08

Effective Date: 01/29/09
Printed in USA

Features & Benefits

VT Series Pump Benefits:

- Ductile iron discharge heads
- 250psi ductile iron stuffing box with stainless steel packing glands
- Steel baseplate (option)
- Standard 416 stainless steel shafting & couplings
- Assembled with stainless steel bolts and impeller collets
- Stainless steel basket strainer (option)
- GE VHS motors standard with non-release ratchet and space heaters
- High profile discharge head allows 2 piece head shaft
- Dual 1/4" air release ports at top of discharge flange
- 4" thru 10" discharge heads have matching centerlines
- Stainless steel bearing retainers
- Investment cast stainless steel impellers
- Epoxy lined cast iron intermediate bowls



For Performance Curve information see Taco Catalog# 300-9.3A

Recommended Specification

Scope

Furnish and install ____ vertical turbine pump(s) with driver and accessories of the size and type shown on the plans. The pump shall be manufactured for lubrication of the lineshaft bearings by the water being pumped. The pumping unit shall be designed and manufactured in accordance with the latest Hydraulic Institute standards and AWWA specifications for lineshaft turbine pumps.

Service Conditions

The pump shall be designed and built to operate satisfactorily with a reasonable service life, when installed in a proper turbine pump application. The pump shall be a Taco VT Series or approved equal. Manufacturers that meet the required material standards and performance specifications must get prior approval.

Pump Construction

Bowl assembly: The intermediate bowls, discharge cases and suction bowls shall be flanged type constructed from close grain cast iron, and shall conform to ASTM A48, class 30. They shall be free of defects and accurately machined and fitted to close tolerances. The intermediate bowls shall have epoxy enamel coated waterways for maximum efficiency. All threaded discharge cases shall be threaded with an 8 TPI BUTT Standard for water lubricated column assembly. All assembly bolting shall be stainless steel.

Impellers: The impellers shall be produced by investment cast method and shall be 201 or 304 stainless steel, ASTM A296 and shall be of the enclosed type. They shall be free from defects, machined, and balanced for optimum efficiency and performance. They shall be securely fastened to the bowl shaft with stainless steel taper lock collets; C1045 steel will not be accepted. The impellers shall be adjustable by means of a top shaft adjusting nut or adjustable solid shaft coupling.

Bowl shaft: The bowl shaft shall be constructed from Pump Shaft Quality (PSQ) 416 stainless steel, ASTM A582 pump shaft material. It shall be precision machined and straightened within .002 - .004 tolerance.

Discharge Head Assembly – Water Lubricated

Discharge head: The discharge head, sized for pump capacity, shall be constructed of high grade ductile iron, ASTM A536, class 65 or fabricated steel and shall be of the high profile type with an integral motor base which allows the head shaft to be coupled to the top shaft above the stuffing box. A separate motor stand is not acceptable. The discharge head shall have an ANSI 150 psi discharge flange supplied with dual ¼" NPT ports at the top. The head shall be threaded with an 8 TPI BUTT Standard to accept the column pipe.

Stuffing box: The stuffing box shall be ductile iron, ASTM A536 class 65, rated at 250 psi and contain a minimum of five rings of John Crane 1345 packing or an optional balanced mechanical seal. It shall have an available fitting for pressure relief. The packing follower gland shall be 201 stainless steel and secured in place by stainless steel studs and nuts. Cast iron or bronze glands are not acceptable. The packing box bearing shall be bronze B-505-836. A rubber water slinger shall be provided to operate on the top shaft, above the packing gland.

Column Assembly – Water Lubricated

Column pipe: Column pipe shall be ASTM A53 grade B steel pipe. The column ends shall be machined with 8 TPI BUTT Standard threads and faced parallel to the threads to ensure proper alignment. The pipe shall be connected with threaded sleeve type ductile iron couplings that will accept ¾" stainless steel bearing retainers. Intermediate column lengths and lineshaft bearing spacing shall not exceed 7' feet with pump speeds up to 1800rpm. Pumps operating at speeds over 1800rpm shall have column and bearing spacing no greater than 5'.

Bearing retainers: Investment cast 201 stainless steel bearing retainers, also known as spiders, shall be furnished for shaft stabilization at each column pipe coupling. A rubber fluted lineshaft bearing, retained with a shoulder at each end, shall be installed in each bearing retainer. Bronze or cast iron bearing retainers are not acceptable.

Lineshaft: Lineshaft shall be 416 stainless steel, ASTM A582 and sized according to the horsepower requirements of the specified pump. To ensure proper alignment, the shafts shall be straightened to within .004 tolerance and the butting faces shall be machined perpendicular to the axis of the shaft. These shafts shall be coupled with 416 stainless steel lineshaft couplings.

Suction Strainer

A stainless steel basket strainer of a suitable size shall be provided and attached to the pump suction with stainless steel fasteners. Galvanized strainers are not acceptable.

Electric Motor

The motor shall be a GE High Efficiency Value Line heavy duty induction type, designed to NEMA MG-1 standards, _____ RPM vertical hollow shaft motor with space heaters and a non-reverse ratchet to prevent reverse rotation. The motor shall have an angular contact thrust bearing to meet the designed pump's hydraulic thrust load plus the weight of the rotating parts under operating conditions. The motor shall be high efficient with a WP-1 enclosure, 230/460 volt, 3 phase, 60HZ, and a 1.15 service factor. The motor shall be IGBT drive compatible with a 4:1 variable torque speed range (minimum 20HZ).

VT Pump – Sizing

Sizing Matrix

This chart for quick reference only. Actual selection should be made using curves found at **www.taco-hvac.com**
(See Taco Catalog# 300-9.3A for Performance Curves)

MODEL	Suction Size	Basket Strainer (Option)	Head Assembly	Column Assembly	GPM RANGE
VT06LL	4"	4"	4"	4"	75-110
VT06LH					90-140
VT06HL					175-230
VT06HH					220-270
VT07LL	6"	6"	4" or 6"	4" or 6"	90-130
VT07LH					120-160
VT07ML					130-225
VT07MH					150-275
VT07HL					250-325
VT07HH					340-450
VT08HL	6"	6"	6"	6"	450-600
VT08HH					600-700
VT09CC	6"	6"	6"	6"	200-325
VT09EC					240-400
VT09ML			6" or 8"	6" or 8"	300-500
VT09MH					400-600
VT09HL					550-750
VT09HH					700-900
VT09ZC	8"	8"	8"	8"	1100-1700
VT12CC	8"	8"	6" or 8"	6" or 8"	400-600
VT12DC					500-700
VT12IC					700-1000
VT12KC					800-1200
VT12MC	10"	10"	8" or 10"	8" or 10"	1300-1800
VT12HH					1750-2400
VT14ML	10"	10"	10" or 12"	10" or 12"	1750-2500
VT14MH					2000-2800
VT14HH					2500-4000
VT16MH	12"	12"	12"	12"	3000-5500
VT16HH					4000-6000

For Flows above 6000gpm, below grade discharge, flanged column, or other options consult factory

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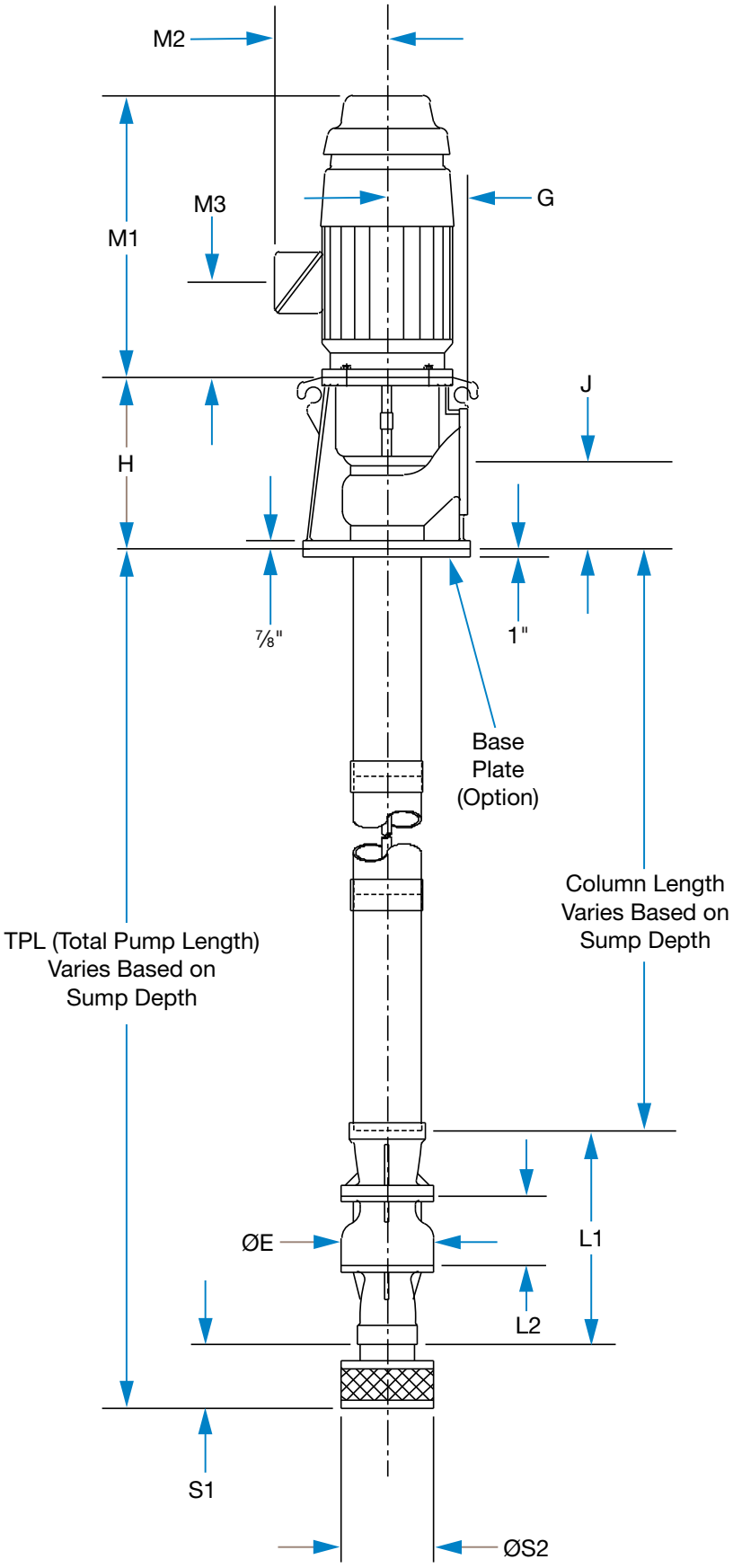
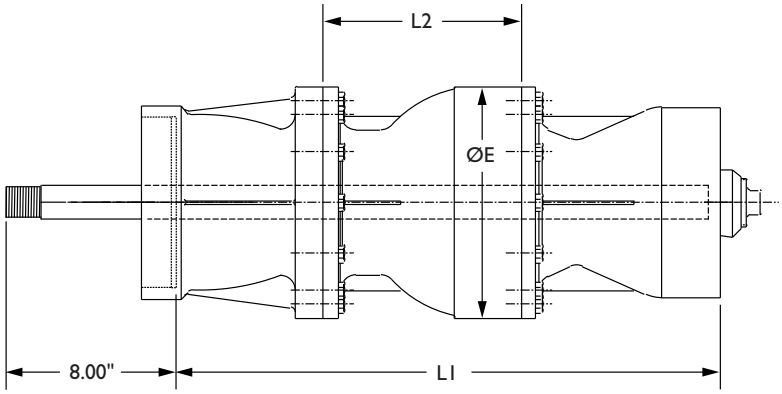
VT Pump – Dimensions



All dimensions are in inches.

VT Pump – Dimensions

Bowl Assembly



Bowl Assembly Dimensions

MODEL AND SIZE	SINGLE STAGE ASSY. LENGTH	BOWL LENGTH	STANDARD BOWL O.D.	BOWL SHAFT DIAMETER	COLUMN PIPE SIZES	SUCTION PIPE SIZES	1st STAGE BOWL ASSY. WGT.	ADDITIONAL STAGE WGT.
	L1	L2	ØE					
VT06LL/VT06LH	12.688	5.125	6.281	1.000	4	4	50	17
VT06HL/VT06HH	12.875	4.750	5.563	1.000	4	4	40	12
VT07LL/VT07LH	16.344	5.500	7.094	1.188	4, 6	6	70	25
VT07ML/VT07MH	17.219	6.375	7.094	1.188	4, 6	6	73	28
VT07HL/VT07HH	17.938	7.094	7.094	1.188	4, 6	6	74	29
VT08HL	23.500	7.875	8.188	1.188	6	6	106	39
VT08HH	23.500	7.875	8.188	1.188	6	6	106	39
VT09CC	23.000	7.750	9.500	1.500	6	6	150	60
VT09EC	23.000	7.750	9.500	1.500	6	6	150	60
VT09ML	23.500	8.500	9.500	1.500	6	6	159	64
	20.125				8		143	
VT09MH	23.500	8.500	9.500	1.500	6	6	159	64
	20.125				8		143	
VT09HL	24.562	9.313	9.500	1.500	6	6	156.4	68
	20.500				8		141.8	
VT09HH	24.532	9.313	9.500	1.500	6	6	156.4	68
	20.500				8		141.8	
VT09ZC	23.000	8.500	9.500	1.500	8	8	145	54
VT12CC	26.500	9.000	11.625	1.688	6, 8	8	235	105
VT12DC	26.500	9.000	11.625	1.688	6, 8	8	235	105
VT12IC	27.500	10.000	11.750	1.688	6, 8	8	250	107
VT12KC	27.500	10.000	11.750	1.688	6, 8	8	250	107
VT12MC	29.125	9.312	11.687	1.688	8, 10	10	274	104
VT12HH	28.250	11.250	11.750	1.688	8	10	251	99
					10		253	
VT14ML	33.750	13.500	14.000	2.188	10, 12	10	377	159
VT14MH	33.750	13.500	14.000	2.188	10, 12	10	377	159
VT14HH	33.875	13.625	14.000	2.188	10, 12	10	377	159
VT16MH	31.625	15.000	15.500	1.938	12	BELL	569	237
VT16HH	32.250	15.625	16.050	1.938	12	BELL	583	255

All dimensions are in inches. All weights are in pounds.

VT Pump – Diminsions

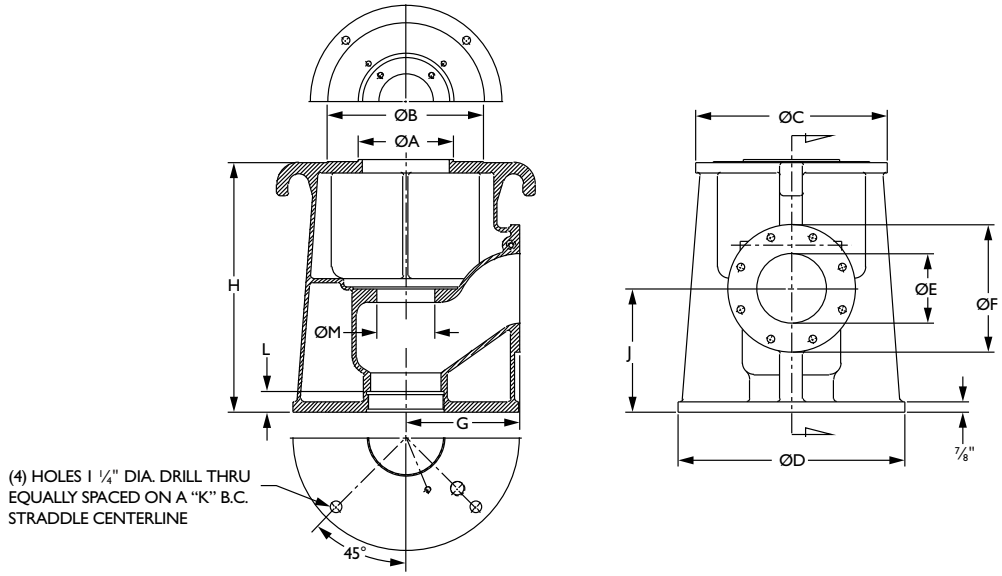
Column Assemblies

COLUMN ASSEMBLIES DIMENSIONS:

ITEM NUMBER	DESCRIPTION	SHAFT LENGTH (FEET)	SHAFT DIAMETER (INCHES)	MAX HORSEPOWER	WEIGHT (LBS)
VT04100CA-T05	4 x 1 Standard Wall	5	1	40	75
VT04100CA-T10		10			150
VT06100CA-T05	6 x 1 Standard Wall	5			120
VT06100CA-T10		10			230
VT06118CA-T05	6 x 1 3/16 Standard Wall	5	1 3/16	75	125
VT06118CA-T10		10			240
VT08118CA-T05	8 x 1 3/16 Standard Wall	5			155
VT08118CA-T10		10			310
VT10118CA-T05	10 x 1 3/16 Standard Wall	5			200
VT10118CA-T10		10			400
VT12118CA-T05	12 x 1 3/16 Standard Wall	5			270
VT12118CA-T10		10			540
VT08150CA-T05	8 x 1 1/2 Standard Wall	5	1 1/2	150	170
VT08150CA-T10		10			330
VT10150CA-T05	10 x 1 1/2 Standard Wall	5			215
VT10150CA-T10		10			420
VT12150CA-T05	12 x 1 1/2 Standard Wall	5			285
VT12150CA-T10		10			560
VT10168CA-T05	10 x 1 11/16 Standard Wall	5	1 11/16	300	225
VT10168CA-T10		10			440
VT12168CA-T05	12 x 1 11/16 Standard Wall	5			295
VT12168CA-T10		10			580

Column assemblies cut to length.

Discharge Head



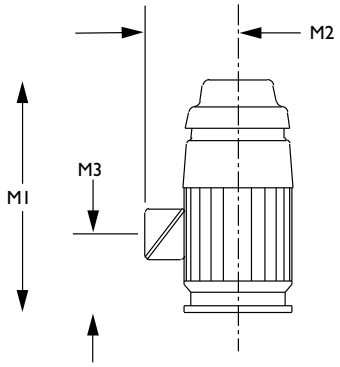
Discharge Head Dimensions

MODEL/SIZE	ØA	ØB	ØC	ØD	ØE	ØF	G	H	J	K	L	ØM	WGT.
VT04DH	8 1/4	N/A	12	19 3/8	4	9	9 7/8	21 1/2	10 5/8	17	1 3/4	4.687	186
VT06DH	8 1/4	13 1/2	16 1/2	19 1/2	6	11	9 7/8	21 1/2	10 5/8	17	1 3/4	4.687	262
VT08DH	8 1/4	13 1/2	16 1/2	21 1/4	8	13 1/2	9 7/8	21 1/2	10 5/8	18 3/4	2	4.687	279
VT10DH	N/A	13 1/2	20	21 1/4	10	16	9 7/8	21 1/2	10 5/8	18 3/4	2 1/2	4.687	311
VT12DH	N/A	13 1/2	20	24 7/8	12	19	14	23	12	22 3/4	2 1/2	5.5625	630

All dimensions are in inches. All weights are in pounds.

VT Pump – Diminsions

Motor



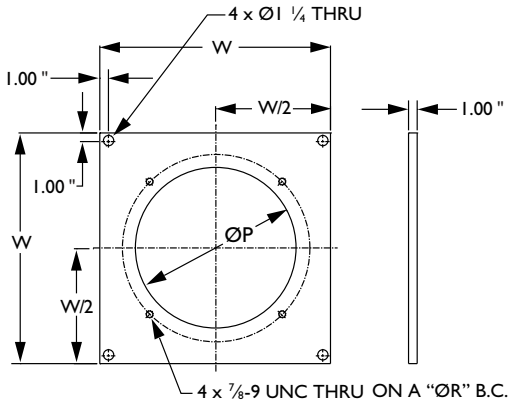
NEMA MG1-31 Design
High Efficiency Vertical Hollowshaft WP-1 Enclosure

GE VHS MOTOR DIMENSIONS:

HP (1760RPM)	M1	M2	M3	WEIGHT
5	24.29	9.30	8.14	220
7.5	24.29	9.30	8.14	220
10	24.29	9.30	8.14	220
15	30.60	10.97	9.41	340
20	27.85	10.97	9.41	370
25	29.25	14.60	10.19	507
30	29.25	14.60	10.19	507
40	32.53	14.68	13.40	760
50	32.53	14.68	13.40	760
60	35.70	15.78	16.12	1102
75	35.70	15.78	16.12	1102
100	41.96	20.90	15.68	1590

All dimensions are in inches. All weights are in pounds.

Base Plate

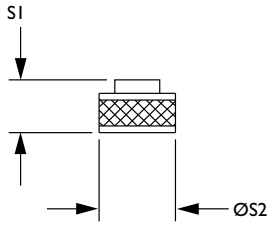


Base Plate Dimensions

MODEL/ SIZE	DISCHARGE HEAD SIZE	W	W/2	ØP	ØR (BOLT CIRCLE)	WGT.
VT04BP	4"	24"	12"	14"	17.000"	104
VT06BP	6"	24"	12"	14"	17.000"	104
VT08BP	8"	24"	12"	16"	18.750"	104
VT10BP	10"	24"	12"	16"	18.750"	104
VT12BP	12"	28"	14"	19.5"	22.750"	165

All dimensions are in inches. All weights are in pounds.

Basket Type Suction Strainer



Suction Strainer Dimensions

MODEL/ SIZE	SUCTION SIZE	S1	ØS2	WEIGHT
VT04BS	4	6	6½	8
VT06BS	6	6	8½	9
VT08BS	8	7¾	10¾	13
VT10BS	10	9⅞	13	17
VT12BS	12	11⅞	18⅝	25

All dimensions are in inches. All weights are in pounds.

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