

**BOREWELL  
SUBMERSIBLE  
PUMP SETS**

**4"**



**100 mm (4") Oil Filled Motor**



**100 mm (4") Water Filled Motor**

# 100 mm (4") with Oil Filled Motor

## DESCRIPTION

Varuna brand makes reliable, efficient and durable Submersible pump sets of best quality. Following are the salient features of Submersible pump sets with Oil filled Motor.

## SALIENT FEATURES

- Dynamically balanced rotating parts to ensure minimum noise and vibration-free operation.
- Pump sets are compact and weigh less for easy installation and transportation.
- Pump sets perform in wide voltage band.
- Motors are filled with food grade insulating oil which gives lubrication to bearing too. This improves thermal conductivity which reduces chance of burning.
- Starts easily at low voltage.
- Products are available with NRV which reduces the thrust load of back pressure.
- Impeller and bowl are made from glass filled noryl that gives strong resistance against sand.
- All the hardware (including stud nut) is made of SS 304, protecting them from corrosion in hard or sandy water, and makes them easier to repair and reliable.
- Higher motor efficiency and lighter body weight compared to the earlier design for better performance.
- CI part of pump and motor are coated with CED for better corrosion – resistance, durability, alignment and smoother running.

## Material of Construction

### MOTOR DETAILS

Stator	: Insulated varnish using vacuum impregnation method
Rotor	: Aluminum pressure die-cast
Motor Body	: Non Magnetic Stainless Steel
Bearing	: Roller Ball bearing/Heavy duty angular contact bearing
Winding	: Dual Coat EC Grade Copper wire
Cable Sealing Arrangement	: Water protecting device to assure outside material does not enter into motor
Journal Bearings	: Gun Metal Bush with 2% nickel and additional centrifugal molding process to avoid chance of warm out
Pressure Diaphragm	: Sufficient size to contain expansion of oil inside the motor and avoid the defeat of cooling oil

### PUMP DETAILS

Bowl	: Glass Filled Noryl/ Cast Iron
Impeller	: Glass Filled quality abrasion resistant Noryl/ Cast Iron
Shaft	: Chrome Steel
Wearing Rings	: High Quality Abrasion resistant Stainless Steel
Suction Casing	: Heavy Duty casting material to get proper grip on motor as well as provide path for suction of water. SS Strainer is also provided for protection against foreign particles
Seal	: Carbon Ceramic Seal
Non Return Valve	: FG 260 to reduce the thrust generated due to back pressure of the long pipe line at the time of switch off hence leading to increase in the life of the pump

## Applications



DOMESTIC  
WATER SUPPLY



AGRICULTURE  
WATER SUPPLY



INDUSTRIAL  
APPLICATION



IRRIGATION  
SYSTEM

# 100 mm (4") with Water Filled Motor

## DESCRIPTION

Varuna brand makes reliable, efficient and durable Submersible pump sets of top quality as per IS:8034-2002. Following are the salient features of Submersible pump sets with Water filled Motor.

## SALIENT FEATURES

- Dynamically balanced rotating parts to ensure minimum noise and vibration-free operation.
- Motor are designed using multi layer PVC insulated wire to get better reliability and easy repairing at remote location.
- Pump sets are compact and weigh less for easy installation and transportation.
- Accurately machined on CNC machine to get reliable performance and long life.
- Pump sets perform in wide voltage band.
- Motor to be filled with water to get better cooling, winding and bush.
- Starts easily at low voltage.
- Manufactured using a much sophisticated process and hence ensuring more reliability in performance.
- Heavy Duty Carbon thrust bearing with German Technology.
- Products are available with NRV which reduces the thrust load of back pressure.
- Impeller and bowl are made from glass filled noryl that give strong resistance against sand.
- CI part of pump is coated with CED for better corrosion – resistance, durability, alignment and smoother running.

## Material of Construction

### MOTOR DETAILS

Stator	: Insulated varnish using vacuum impregnation method
Rotor	: Aluminum pressure die-cast
Motor Body	: Non Magnetic Stainless Steel
Thrust Bearing	: Self aligned carbon Vs. Stainless steel thrust bearing which withstands high axial thrust load in water lubrication.
Winding	: Multi Layer PVC insulated wire
Cable Sealing Arrangement	: Nitrile Rubber bush locking to protect any foreign particles entering the motor
Journal Bearings	: Gun Metal Bush with 2% nickel and additional centrifugal molding process to avoid chance of warm out
Pressure Diaphragm	: Sufficient size to contain expansion of water inside the Diaphragm motor and avoid the defeat of cooling water

### Pump Details

Bowl	: Glass Filled Noryl / Cast Iron
Impeller	: Glass Filled quality abrasion resistant Noryl / Cast Iron
Shaft	: Chrome Steel
Wearing Rings	: High Quality Abrasion resistant Stainless Steel
Suction Casing	: Heavy Duty casting material to get proper grip on motor as well as provide path for suction of water. SS Strainer is also provided for protection against foreign particles
Seal	: Carbon Ceramic Seal
Non Return Valve	: FG 260 to reduce the thrust generated due to back pressure of the long pipe line at the time of switch off hence leading to increase in the life of the pump

## Applications



AGRICULTURE  
WATER SUPPLY



CIVIL & INDUSTRIAL  
APPLICATION



DOMESTIC  
WATER SUPPLY



FIRE FIGHTING  
SYSTEM

# V4 OF & WF

## SUITABLE FOR 100 mm BOREWELL OR ABOVE (Min.Bore Dia. 100mm)

APPROXIMATE PERFORMANCE CHART AT 2880 RPM, 200-240 VOLTS SINGLE PHASE / 380-415 VOLTS THREE PHASE, 50 Hz. A.C. SUPPLY. Maximum Motor OD :- 96.5mm & Pump OD :- 96.5mm

OUTLET SIZE :- 38mm (ON DEMAND CAN PROVIDE 50mm)

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM							
OF	WF	kW	H.P.			0	70	85	110	120	130	140	150
WO : 1L	WW : 1L	1.10	1.50	7		47	42	39	36	34	32	27	23
WO : 1L	WW : 1L	1.50	2.00	8		53	48	45	41	39	36	31	27
WO : 1L	WW : 1L	1.50	2.00	10		67	60	56	52	48	45	38	33
VSO:71	VSR:71	2.20	3.00	12		80	72	69	63	61	56	49	41
	VSR:71	2.20	3.00	15		100	90	86	79	75	70	59	52

OUTLET SIZE :- 38mm (ON DEMAND CAN PROVIDE 50mm)

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM						
WF	kW	H.P.	0			80	95	115	125	135	145	150
VS:71H	3.00	4.00	18		122	109	103	94	88	82	71	63
VS:71H	3.70	5.00	19		129	115	109	99	93	87	75	67
VS:71H	3.70	5.00	22		149	133	126	115	108	101	87	78
VS:71H	3.70	5.00	25		169	152	144	131	123	115	98	89
VS:71H	4.00	6.00	31		210	188	178	162	152	142	122	110

OUTLET SIZE :- 38mm

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM						
OF	WF	kW	H.P.			0	30	50	80	90	110	120
WO : 0L	WW : 0L	0.75	1.00	7		46	44	42	35	32	27	22
WO : 0L	WW : 0L	1.10	1.50	10		66	63	60	50	46	38	31
WO : 0L	WW : 0L	1.50	2.00	12		79	76	72	60	55	46	37

OUTLET SIZE :- 32mm

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM							
OF	WF	kW	H.P.			0	20	30	40	50	60	70	90
WO : 2L	WW : 2L	0.55	0.75	7		42	39	38	37	36	33	30	23
WO : 2L	WW : 2L	0.75	1.00	8		48	45	44	42	41	38	34	26
WO : 2L	WW : 2L	0.75	1.00	10		60	56	54	53	51	47	43	33
WO : 2L	WW : 2L	1.10	1.50	12		72	68	65	63	61	57	51	39
WO : 2L	WW : 2L	1.10	1.50	14		84	79	76	74	71	66	60	46
WO : 2L	WW : 2L	1.50	2.00	16		96	90	87	84	81	76	68	52
WO : 2L	WW : 2L	1.50	2.00	18		108	102	98	95	92	85	77	59

Note : OF - Single phase motors are available upto 3 H.P.

WF - Single phase motors are available up to 5 H.P.

OUTLET SIZE :- 32mm

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM							
OF	WF	kW	H.P.			0	22	26	37	42	45	55	68
WO : 3L	WW : 3L	0.37	0.50	6		35	32	31	29	28	26	23	8
WO : 3L	EWV : 3LE	0.75	1.00	8		46	43	41	39	37	35	30	10
WO : 3L	WW : 3L	0.55	0.75	10		58	53	51	48	46	44	38	13
WO : 3L	WW : 3L	0.75	1.00	12		69	64	61	58	55	53	45	15
WO : 3L	WW : 3L	1.10	1.50	16		92	85	81	77	73	71	60	20
WO : 3L	WW : 3L	1.10	1.50	21		121	112	107	102	97	92	79	27
	WW : 3L	1.50	2.00	25		144	134	128	121	115	110	94	32

OUTLET SIZE :- 32mm

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM						
OF	WF	kW	H.P.			0	10	15	20	25	35	40
WO : 5L	WW : 5L	0.37	0.50	8		45	42	40	38	34	28	20
WO : 5L	WW : 5L	0.37	0.50	9		50	48	45	43	39	32	22
WO : 5L	WW : 5L	0.55	0.75	14		78	74	70	67	60	49	35
WO : 5L	WW : 5L	0.75	1.00	16		90	85	80	77	69	56	40
WO : 5L	WW : 5L	0.75	1.00	18		101	95	90	86	77	63	45
WO : 5L	WW : 5L	0.75	1.00	20		112	106	100	96	86	70	50
WO : 5L	WW : 5L	0.75	1.00	21		118	111	105	101	90	74	52
WO : 5L	WW : 5L	1.10	1.50	25		140	132	125	120	108	88	62

Note : OF - Single phase motors are available upto 3 H.P.

WF - Single phase motors are available up to 5 H.P.

**V4 OF & WF**

**SUITABLE FOR 100 mm BOREWELL OR ABOVE (Min.Bore Dia. 100mm)**

APPROXIMATE PERFORMANCE CHART AT 2880 RPM, 200-240 VOLTS SINGLE PHASE / 380-415 VOLTS THREE PHASE, 50 Hz. A.C. SUPPLY. Maximum Motor OD :- 96.5mm & Pump OD :- 98 mm

OUTLET SIZE :- 32mm

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM									
OF	WF	kW	H.P.			0	28	42	43	45	52	58	64	80	92
WO:2H	WW:2H	0.37	0.50	4		35	31	29	28.5	28	26	23	21	16	11
WO:2H	WW:2H	0.75	1.00	7		60	55	51	50	49	45	41	37	28	19
WO:2H	WW:2H	1.10	1.50	10		87	78	72	71	69	63	59	53	40	28
WO:2H	WW:2H	1.10	1.50	12		104	94	86	85	83	76	71	63	49	33
WO:2H	WW:2H	1.50	2.00	14		121	110	101	99	97	89	82	74	57	39
	WW:2H	1.50	2.00	16		139	125	115	113	111	101	94	84	65	44
	WW:2H	2.20	3.00	18		156	141	129	127	125	114	106	95	73	50

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM									
WF	OF	kW	H.P.			0	35	42	50	70	75	80	90	95	
WW:3H(N)	WO:3H(N)	0.55	0.75	7		51	46	42	38	32	28	25	20	14	
WW:3H(N) E	WO:3H(N) E	0.75	1.00	7		51	46	42	38	32	28	25	20	14	
WW:3H(N)	WO:3H(N)	0.75	1.00	8		58	53	48	43	36	33	29	23	16	
WW:3H(N)	WO:3H(N)	0.75	1.00	10		73	66	60	54	45	41	36	29	20	
WW:3H(N)	WO:3H(N)	1.10	1.50	12		88	79	72	65	54	49	43	35	24	
WW:3H(N)	WO:3H(N)	1.10	1.50	15		110	99	90	81	68	61	54	44	30	
WW:3H(N)	WO:3H(N)	1.50	2.00	14		102	92	84	75	63	57	50	40	28	
WW:3H(N)	WO:3H(N)	1.50	2.00	18		132	118	108	97	81	73	64	52	36	
WW:3H(N)		2.20	3.00	21	154	138	126	113	95	85	75	60	42		
WW:3H(N)		2.20	3.00	25	183	164	150	135	113	101	89	71	50		

OUTLET SIZE :- 32mm (ON DEMAND CAN PROVIDE 38mm)

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM							
WF	OF	kW	H.P.			0	13	20	24	27	34	39	45
WO 4H E	WW : 4H(L) E	0.75	1.00	10		73	63	59	55	53	43	35	22
WO 4H	WW : 4H(L)	0.75	1.00	14		102	88	82	77	74	60	49	31
WO 4H	WW : 4H(L)	0.75	1.00	16		116	101	94	88	84	68	56	35
WO 4H	WW : 4H(L)	1.10	1.50	18		131	113	105	99	95	77	63	40

Note : OF - Single phase motors are available upto 3 H.P.

WF - Single phase motors are available up to 5 H.P.

OUTLET SIZE :- 32mm

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM									
OF	WF	kW	H.P.			0	14	16	18	20	25	30	40	45	50
VSO:5H	VS:5H	0.37	0.5	7		54	48	46	45	43	42	37	32	25	19
VSO:5H	VS:5H	0.55	0.75	10		77	69	66	64	62	60	53	45	36	27
VSO:5H	VS:5H	0.75	1	13		100	89	86	84	81	78	68	59	47	35
	VS:5H	1.1	1.5	18		139	123	119	116	112	108	95	81	65	48
	VS:5H	1.1	1.5	20		154	137	133	129	124	120	105	90	73	54
	VS:5H	1.5	2	25		193	171	166	161	155	150	131	113	91	67
	VS:5H	1.5	2	27		208	185	179	174	167	162	141	122	98	72
	VS:5H	1.5	2	30		231	206	199	193	186	180	158	135	109	80
	VS:5H	2.2	3	40		308	274	265	257	248	240	210	180	145	107
	VS:5H	3	4	50		385	343	332	321	310	300	263	225	182	133

OUTLET SIZE :- 32mm

TYPE OF FLOW : RADIAL

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM									
WF	kW	H.P.	0			25	30	35	45	50	55	60	65	75	
VS:7H	0.75	1	10	80		71	68	63	58	53	47	41	34	26	
VS:7H	1.1	1.5	15	120		107	101	95	87	79	71	62	52	40	
VS:7H	1.5	2	20	160		142	135	126	116	106	94	82	69	53	
VS:7H	2.2	3	25	201		178	169	158	145	132	118	103	86	66	
VS:7H	2.2	3	30	241		214	203	189	174	158	142	124	103	79	
VS:7H	3	4	40	321		285	270	252	232	211	189	165	138	106	
VS:7H	3.7	5	50	401		356	338	315	290	264	236	206	172	132	

OUTLET SIZE :- 50 & 65mm

TYPE OF FLOW : MIXED

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM									
OF	WF	kW	H.P.			0	190	225	265	295	320	350	365	380	
VSO:74 J	VS:74 J	1.50	2.00	7		39	29	26	23	21	19	16	14	12	
VSO:74 J E		2.20	3.00	7		39	29	26	23	21	19	16	14	12	
VSO:74 J	VS:74 J	2.20	3.00	8		44	33	30	27	24	21	18	16	13	
	VS:74 J	2.20	3.00	9		50	37	34	30	27	24	20	18	15	
	VS:74 J	3.00	4.00	10		56	41	38	33	30	27	22	20	17	
	VS:74 J	3.70	5.00	12		67	49	45	40	36	32	27	24	20	
	VS:74 J	3.70	5.00	14		78	58	53	47	42	37	31	28	23	
	VS:74 J	4.50	6.00	16		89	66	60	53	48	43	36	32	27	
	VS:74 J	4.50	6.00	18		100	74	68	60	54	48	40	36	30	

OUTLET SIZE :- 50 & 65mm

TYPE OF FLOW : MIXED

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM							
OF	WF	kW	H.P.			0	210	260	320	370	425	485	600
VSO:74 C	VS:74 C	1.50	2.00	5		30	24	21	19	17	15	13	9
VSO:74 C	VS:74 C	1.50	2.00	6		36	28	26	23	21	18	15	10
VSO:74 C	VS:74 C	2.20	3.00	6		36	28	26	23	21	18	15	10
	VS:74 C	2.20	3.00	7		42	33	30	27	24	21	18	12
	VS:74 C	3.70	5.00	10		60	47	43	39	34	30	26	17
	VS:74 C	5.50	7.50	14		84	66	60	54	48	42	36	24
	VS:74 C	7.50	10.00	16		96	75	68	62	55	48	41	27

OUTLET SIZE :- 65mm

TYPE OF FLOW : MIXED

MODEL		MOTOR RATING		STAGE	HEAD IN METERS	DISCHARGE IN LPM									
OF	WF	kW	H.P.			0	120	200	250	300	350	400	450	500	
VSO:79	VS:79	2.20	3.00	6		38	33	30	27	24	21	18	15	12	
	VS:79	2.20	3.00	7		44	39	35	32	28	24.5	21	18	14	
	VS:79	3.70	5.00	10		62	55	50	45	40	35	30	25	20	
	VS:79	4.50	6.00	12		75	66	60	54	48	42	36	30	24	
	VS:79	5.50	7.50	14		88	77	70	63	56	49	42	35	28	

Note : OF - Single phase motors are available upto 3 H.P. WF - Single phase motors are available up to 5 H.P.