



JSL INDUSTRIES LTD.

**Totally Enclosed Fan Cooled (TEFC),
Vertical Hollow Shaft Squirrel Cage Motors**



**Robust Construction, Reliable Insulation,
Energy Efficient, Effective Ventilation.**



Now with  Marking

'JSL' VERTICAL HOLLOW SHAFT (VHS) MOTORS - CVTF Series upto 355 frames

These motors find special application in driving Vertical Turbine, Propeller, Mixed and Non-clog Pumps.

SPECIFICATIONS

'JSL' VHS Motors are continuously rated S1 duty as per IS/IEC 60034-1 and are suitable to operate on 3-phase 415V \pm 10%, 50 Hz \pm 5% electric supply. Combined voltage and frequency variation on load is 10%. The performance generally conforms to above standards. The motors are available upto 355 frame.

ENCLOSURE AND MOUNTING

Motors are totally enclosed enclosure having degree of protection IP54 / IP55 as per IS/IEC 60034-5. This provides protection against damaging ingress of dirt and harmful effects of water jet. Mounting flange dimensions of these motors are in accordance with IS:2254.

The rigid construction of body and covers offers very good mechanical strength to spigots and bearing housing for assembly and dismantling of motors.

WINDING AND INSULATION

Stator winding is of Polyester Super Enamelled copper wires conforming to IS:13730, Part-III. The overhangs of the windings are well shaped and rigidly braced to withstand high stresses developed during starting of the motor. Class 'F' insulating materials suitable for working temperature of 155°C are used as insulation to provide electrical, thermal and mechanical strength to the windings. The temperature rise of winding limited by class 'B'.

Stator windings are impregnated under vacuum & pressure with thermosetting varnish. This ensures very good penetration of varnish into the windings and offers better heat transfer, mechanical strength and protection against moisture. Additional coating of air drying varnish is given when motors are required to operate under very high humid atmosphere.

STATOR & ROTOR

Stator and rotor staves are made of low-loss silicon steel laminated stampings to minimise iron losses.

The stator stack is held in position in motor body to ensure uniform air-gap and to minimise vibrations.

Rotor stampings are directly stacked on precisely machined carbon steel shaft. The rotors are aluminium die-cast. All rotors are finished to close tolerances and dynamically balanced on highly accurate digital balancing machine.

TERMINALS AND TERMINAL BOX

Six terminals made from extruded brass / copper rod and having adequate current carrying capacity are

provided for either star-delta or auto transformer starting. Delta links are provided if required for direct-on-line starting. Terminal box has ample space required for easy terminal connections. Cable entry can be arranged from any direction in steps of 90°.

LIFTING HOOKS

Two lifting hooks of adequate capacity are provided at diametrically opposite location to lift the motor for carrying out installation, alignment, repairs and overhauling.

BEARINGS

Carefully selected angular contact, heavy duty bearings are located at the top to take the thrust load and deep groove ball bearing is used at the bottom of the motor. For frames 315 & 355 top mounted thrust bearing are oil lubricated. The floating arrangement at the bottom bearing ensures safety of these bearings against possible damage due to imposition of thrust load and axial expansion of shaft. Ball bearings are greased with lithium base grease grade-3 having a drop point of more than 160°C. Well designed lubrication arrangement is provided for both top and bottom bearings.

VENTILATION

The optimum cooling is effected by guided air flow generated by rotor fins / fan.

NON-REVERSIBLE RATCHET

It is essential for the vertical turbine pump that the direction of rotation is fixed. Otherwise, line shaft may get unscrewed, thus damaging the pump. To ensure proper direction of rotation, a non-reversible ratchet is provided in all the motors. The standard direction of rotation of motor is anti-clockwise looking from the top. However, motors running in clockwise direction also can be given on request. For this non reverse ratchet & fan have to be replaced.

COUPLING

An easily accessible coupling located at the top of the motor facilitates coupling of pump and motor as well as permits vertical adjustment of the impellers in the pump through head shaft.

EARTHING

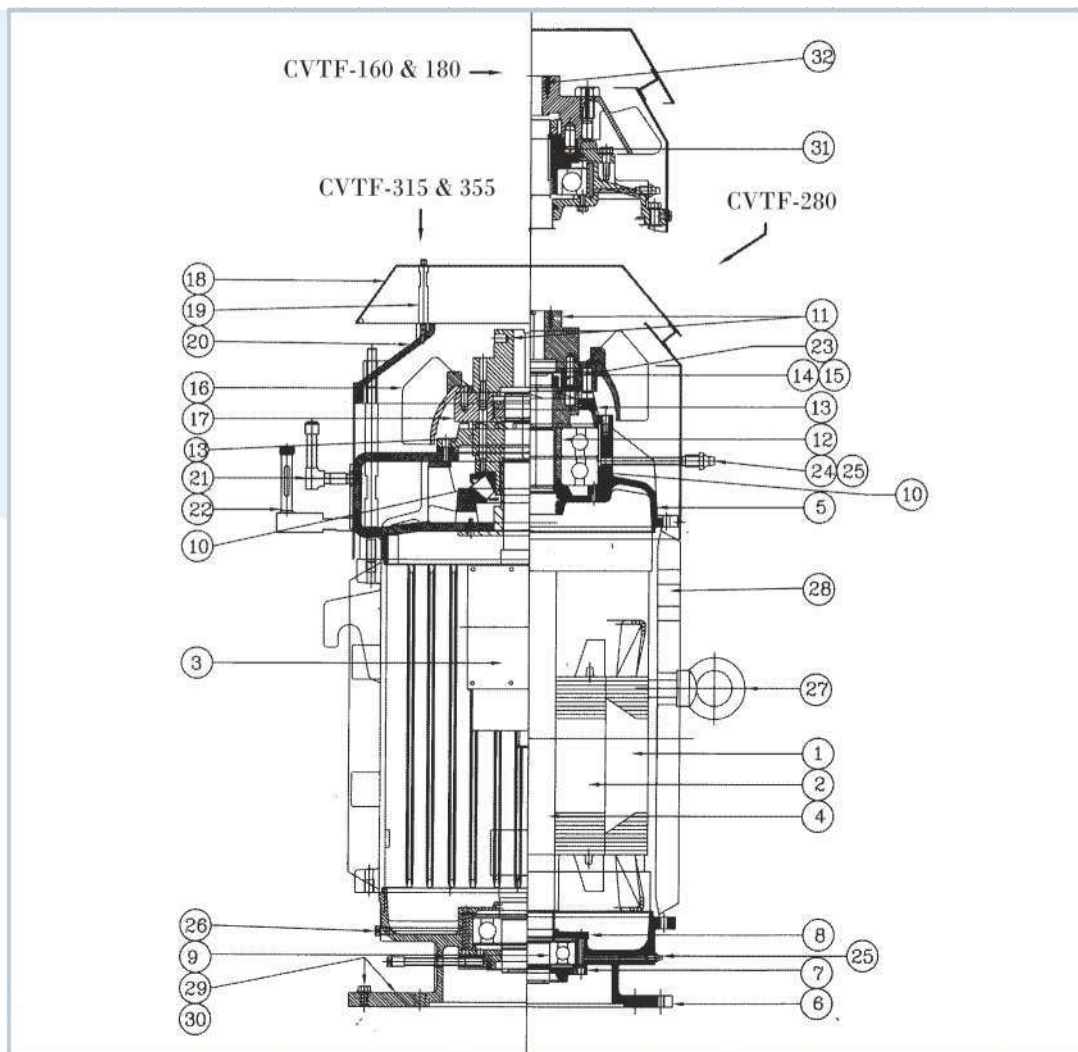
2 Nos. earthing bolts are provided for earthing connection at diametrically opposite direction.

TESTS

All the motors are tested during manufacturing and before despatch, in accordance with IS/IEC 60034-1.

In case motors are required for wider voltage variations for operating at different voltages, the same can be offered on request.

SECTIONAL ASSEMBLY LAYOUT FOR TOTALLY ENCLOSED FAN COOLED (TEFC) VERTICAL HOLLOW SHAFT (VHS) SQUIRREL CAGE MOTOR TYPE - CVTF.



SR.NO.	PART NAME	SPECIFICATION
1	STATOR ASSEMBLY	----
2	ROTOR ASSEMBLY	----
3	TERMINAL BOX ASSEMBLY	----
4	ROTOR SHAFT	BLACK BAR 40-C8 IS : 7283
5	TOP COVER	CAST IRON AS PER IS : 210
6	BOTTOM COVER	CAST IRON AS PER IS : 210
7	BOTTOM BRG OUTER COVER	CAST IRON AS PER IS : 210
8	BOTTOM BRG INNER COVER	CAST IRON AS PER IS : 210
9	BOTTOM BRG	----
10	TOP BRG	----
11	TOP CLUTCH	CAST IRON
12	BOTTOM CLUTCH	CAST IRON
13	RATCHET	CAST IRON AS PER IS : 210
14	RATCHET PIN	BLACK BAR 40-C8 IS : 7283
15	SAFETY CLUTCH PIN	BLACK BAR 40-8C IS 7283
16	FAN	4600 M IS : 617

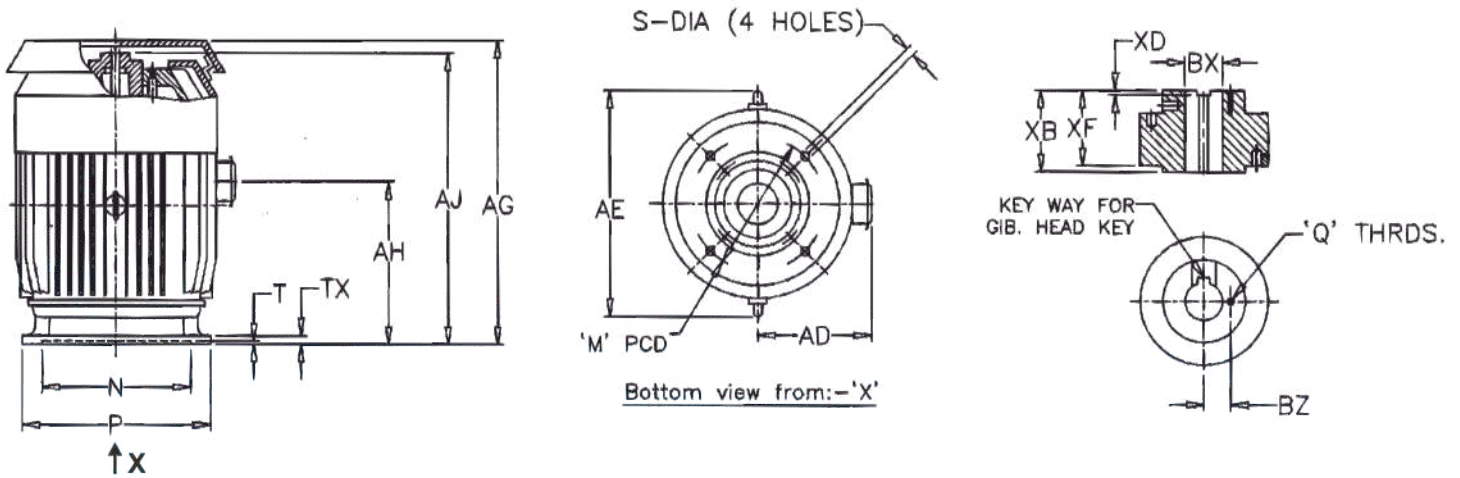
SR.NO.	PART NAME	SPECIFICATION
17	FAN BOSS	CAST IRON AS PER IS : 210
18	SHELTER	STEEL FABRICATED
19	SHELTER FIXING STUD	BLACK BAR 40-8C IS : 7283
20	AIR GUIDE	4600 M IS : 617
21	OIL INDICATOR	STEEL BAR Fe410WA, IS : 2062
22	OIL FILLER ASSLY	BLACK BAR 20-8C IS : 7283
23	LOCK NUT	BLACK BAR 40-8C IS : 7283
24	GREESE PIPE	M.S. / GALV. STEEL
25	GREESE NIPPLE	IS : 4009
26	GREESE PLUGE	IS : 1239
27	LIFTING HOOK	----
28	NAME PLATE	ALUMINIUM
29	EARTHING WIRE SCREW	BRASS
30	EARTHING LABLE	SELF ADHESIVE TYPE
31	BTM CLUTCH GIB HEAD KEY	BLACK BAR 40-8C IS : 7283
32	TOP CLUTCH KEY	BLACK BAR 40-8C IS : 7283

LIST OF BEARINGS

MOTOR NAME	TOP / DE BRG. TYPE SKF OR EQUI.	BOT. / NDE BRG. TYPE SKF OR EQUI.
CVTF 160	7312-Grease Lubri.	6310 C3-Grease Lubri.
CVTF 180	7312-Grease Lubri.	6310 C3-Grease Lubri.
CVTF 200	7316-Grease Lubri.	6312 C3-Grease Lubri.
CVTF 225	7316-Grease Lubri.	6312 C3-Grease Lubri.

MOTOR NAME	TOP / DE BRG. TYPE SKF OR EQUI.	BOT. / NDE BRG. TYPE SKF OR EQUI.
CVTF 250	7320-Grease Lubri.	6314 C3-Grease Lubri.
CVTF 280	7322 (2 Nos.)-Grease Lubri.	6316 C3-Grease Lubri.
CVTF 315	29324E-Oil Lubri.	6318 C3-Grease Lubri.
CVTF 355	29326E-Oil Lubri.	6322 C3-Grease Lubri.

GENERAL DIMENSIONAL SKETCH OF 'JSL' TEFC VHS SQUIRREL CAGE MOTOR.



FRAME	P+	N	M PCD	T	∅S	TX ±3	AH+	AJ ±5	AG+	AE+	AD+	XB	XD	XF	BX	'Q' THREADS	KEY	BZ
CVTF - 160	305	209.55H8	232 ±0.3	6	11	20	254	577	632	320	233	--	--	--	24H8	M5X15 DEEP	8X7	18.5
CVTF - 180	420	342.9H8	375 ±0.5	6	18	20	278	641	695	361	255	--	--	--	33H8	M5X15 DEEP	10X8	22
CVTF - 200	420	342.9H8	375 ±0.5	6	18	20	390	778	841	525	345	95	6	--	33H8	M5X15 DEEP	12X8	27
CVTF - 225	510	342.9H8	375 ±0.5	6	18	20	480	862	925	566	355	95	6	--	33H8	M5X15 DEEP	12X8	27
CVTF - 250	510	342.9H8	375 ±0.5	6	18	20	542	935	1015	642	382	80	6	75	50H8	M5X15 DEEP	14X9	35
CVTF - 280	510	342.9H8	375 ±0.5	6	20	18	667	1160	1240	700	407	108	6	100	50H8	M8X15 DEEP	14X9	35
CVTF - 315	625	342.9H8	375 ±0.5	8	18	25	756	1333	1415	680	570	116	7	109	60H8	M8X15 DEEP	18X11	40
CVTF - 355	775	558.8H8	661 ±1	8	22	25	750	1538	1610	765	615	175	8	169	60H8	M8X15 DEEP	18X11	40

- 1) # DIMENSION 'BX' INDICATES MAXIMUM HEAD SHAFT.
- 2) + THESE DIMENSIONS MAY EXCEED BY ±15mm. DUE TO VARIATIONS
- 3) ALL DIMENSIONS ARE IN mm. EXCEPT OTHERWISE STATED.



**FOR FURTHER ENQUIRIES
PLEASE CONTACT**

JSL INDUSTRIES LIMITED

Village Mogar-388 340
Tal. & Dist. Anand, (Gujarat) (India)
Phones : 02692 - 280224
Mobile : 9824889399
E-Mail : jsl@jslmogar.com
Website : www.jslmogar.com

ZONAL & BRANCH OFFICES

- **Jaipur** : C/7, .Annapurna. B/h. Dundlod House, Shiv Marg, Hawa Sarak, Civil Lines, Jaipur-302 019, TeleFax : 0141-2211575, Mobile : 9352763720, E-mail : jaipur@jslmogar.com
- **Lucknow** : Allia Cottage, opp. Leela Hotel 119/76, Kandhari Bazar, Lucknow-226001(UP). TeleFax:0522-2626393, Mobile : 9335411076, E- mail: lucknow@jslmogar.com
- **Mumbai** : 102, Narsinha Sadan, 1st Road, Gollbar, Santacruz (E) Mumbai-400 055. Ph. : 022-26134403, 26122848, Fax : 022-26100717, Mobile : 9322894461, E-mail: mumbai@jslmogar.com
- **Delhi** : 7, Jantar Mantar Road, 1st Floor, New Delhi-110 001, Ph. :011-23340205, Fax : 011-23340457, Mobile : 9868554076, E-mail : delhi@jslmogar.com

In Keeping with the technological strides the world is making in the engineering field, we introduce changes in the design of our products. Hence, the products as actually supplied might have features varying herefrom.