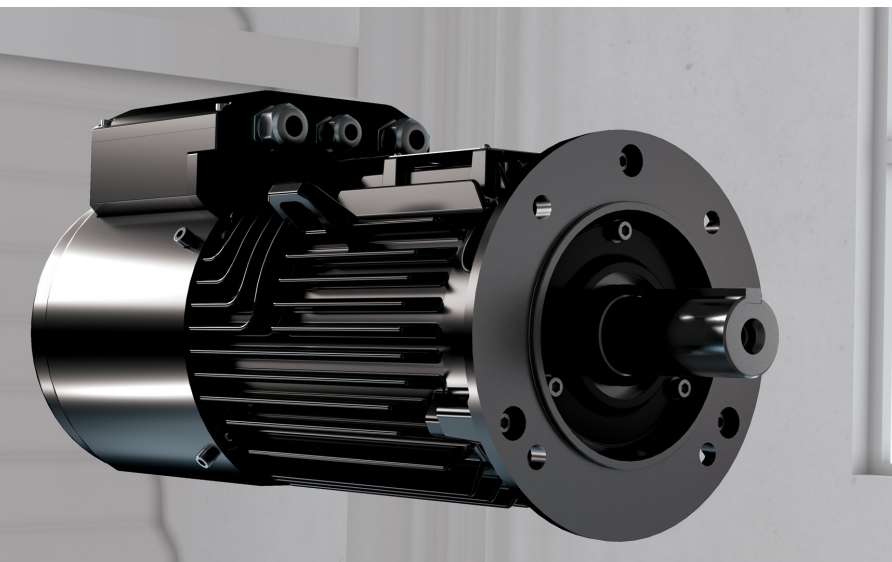


PRODUCT NOTE

ABB LV Titanium Variable Speed Motor

The easiest way to realize benefits of variable speed operations



The new platform of ABB’s IEC low-voltage variable speed motors go beyond traditional setups with a fully integrated motor and built-in speed control. This all-in-one solution delivers IE5 efficiency, consistent performance in demanding applications, and a compact design for easy installation and space savings.

LV Titanium VSMs are engineered as fully integrated solutions

With a built-in drive, VSMs can be configured to deliver the most favorable operational profile for both equipment and processes. They allow the operating speed to ramp up and down smoothly, minimizing mechanical stress, reducing starting currents, and extending equipment lifespan. Upgrading from DOL connected fixed speed motors to drive controlled variable speed operation can produce major energy savings and other benefits – and LV Titanium VSMs make this transition very simple.

Compact design

LV Titanium Variable Speed motors offer very high power density, which means they are more compact and lighter in weight than induction motors with the same power level. Thanks to their forced air-cooling fan, LV Titanium can operate over a wide speed range and full torque down to low speeds.

Plug-and-Play convenience

Plug-and-play functionality means there is no need for commissioning. Variable speed motors consist of a fully integrated motor and drive that delivers fast and easy installation. From the widely used Modbus communications protocol through digital and analog connections to control panel options, LV Titaniums are ready for the age of connectivity.

Global support you can count on

As a leading manufacturer ABB has the expertise and resources to design fully integrated solutions that deliver both great reliability and robustness. ABB ensures to build solutions to match customer-specific needs and applications, with a high customization offering.

Key segments and applications

LV Titanium is suitable for a variety of applications, including pumps, fans, and compressors used in segments such as food and beverage, and water and wastewater.

Technical information - LV Titanium	
Output	1.5 - 30 kW
Motor type	Permanent magnet (PM)
Shaft heights	71 - 160*
Efficiency class	IE5 and IES 5
Voltage/frequency	380 - 480 V & 50/60 Hz
Application	Pumps, compressors, fans and more
Frame material	Cast iron
Cooling	TEBC, IC416
Ambient condition	-20°C - +50°C
Protection	IP55 as standard
Communication and ports	Modbus RTU, 4 DI, 1DO, 2AI, 1 RO, +10V & +24V supply

*Will be released in phases.

Technical data

LV Titanium Variable Speed motors

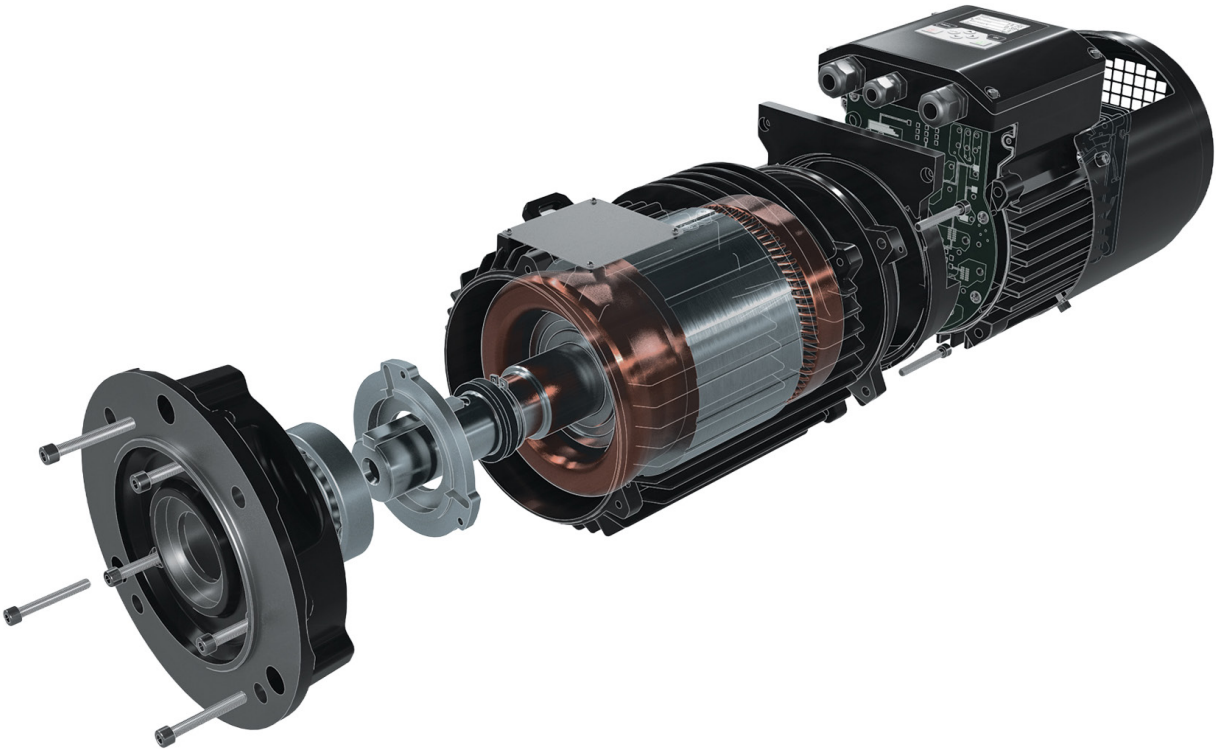
IP 55 - IC 416 - Insulation class F, temperature rise class B, IE5 efficiency class according to IEC 60034-30-2; 2016, IES 5 efficiency class according to IEC 618000-9-2

Output kW	Motor type	Product code	Speed r/min	Motor Efficiency	Current I_N A	Torque T_N Nm	Moment of inertia $J = 1/4$ GD ² kgm ²	Weight kg	Sound pressure Level L_{pA} dB	Drive input voltage V	Drive mod- ule	Drive nominal input 400V A	Drive max input A	System Efficiency
				Full load 100%										Full load 100%
4500 r/min														
4	VSMJ 90LA 6	3GVY093518-A	4500	91.5%	6.7	8.5	0.004567	33	68	380-480	DM2	6.7	17	88.8%
5.5	VSMJ 90LC 6	3GVY093538-A	4500	92.4%	8.8	11.7	0.004894	35	68	380-480	DM2	9.1	17	89.6%
7.5	VSMJ 90LD 6	3GVY093548-A	4500	93.1%	12	15.9	0.004894	36	68	380-480	DM2	12.6	17	90.3%
3000 r/min														
4	VSMJ 90LA 6	3GVY093517-A	3000	91.5%	6.5	12.7	0.005598	33	68	380-480	DM2	6.5	17	89.1%
5.5	VSMJ 90LC 6	3GVY093537-A	3000	92.4%	8.9	17.5	0.006265	35	68	380-480	DM2	9.1	17	89.1%
7.5	VSMJ 90LE 6	3GVY093557-A	3000	93.1%	12	23.9	0.006628	38	68	380-480	DM2	12.6	17	90.3%
1500 r/min														
4	VSMJ 90LE 6	3GVY093553-A	1500	92.6%	6.5	25.5	0.006628	38	68	380-480	DM2	6.5	17	91.0%

Bearing calculations

Frame size	Speed r/min	20000h		40000h		20000h		40000h	
		F_{AD}	F_{AZ}	F_{AD}	F_{AZ}	F_{XO}	F_{XMAX}	F_{XO}	F_{XMAX}
90	4500	1390	830	1115	555	1455	1125	1150	885
90	3000	1585	1025	1265	705	1670	1290	1320	1015
90	1500	2015	1455	1585	1025	2115	1630	1670	1290

D: 6208-2Z
N: 6305-2Z



Variant codes

LV Titanium Variable Speed motors

Variant codes specify additional options and features to the standard motor. The desired features are listed as three-digit variant codes in the motor order. Note also that there are variants that cannot be used together. Confirm the availability of variants with your ABB sales office before making an order.

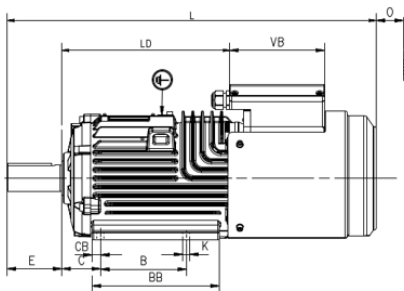
Code / Variants		Frame size
		90
VC002	Restamping voltage, frequency and output, continuous duty.	●
VC005	Protective roof	●
VC008	IM 2101 foot/flange mounted, IEC flange, from IM 1001 (B34 from B3).	●
VC009	IM 2001 foot/flange mounted, IEC flange, from IM 1001 (B35 from B3).	●
VC014	Winding insulation class H.	●
VC040	Heat-resistant grease	○
VC047	IM 3601 flange mounted, IEC flange, from IM 3001 (B14 from B5).	●
VC057	2RS bearings at both ends.	●
VC066	Modified for specified mounting position differing from IM B3 (1001), IM B5 (3001), B14 (3601), IM B35 (2001), IM B34 (2101)	●
VC067	External earthing bolt.	○
VC070	Special shaft extension at D-End, standard shaft material	●
VC072	Radial seal at D-end. Not possible for 2-pole, 280 and 315 frames	●
VC075	Cooling method IC418 (without fan)	●
VC114	Special paint color, standard grade	●
VC146	Type test with report for one motor from specific delivery batch.	●
VC148	Routine test report.	●
VC158	Degree of protection IP65.	●
VC178	Stainless steel / acid proof bolts.	●
VC209	Non-standard voltage or frequency, (special winding).	●
VC230	Standard metal cable gland.	●
VC250	Degree of protection IP66	●
VC375	Standard plastic cable gland	○
VC379	SKF bearings	●
VC403	Degree of protection IP56.	●
VC405	Special winding insulation for frequency converter supply.	●
VC425	Corrosion protected stator and rotor core.	●
VC530	Two-year extension on standard warranty	●
VC538	CE mark	○
VC622	Inner bearing cover of cast iron	●
VC631	Quenched and tempered shaft material	●
VC704	EMC cable entry.	●
VC784	Gamma-seal at D-end.	●
VC865	One-year extension on standard warranty	●

○ = Included as standard | ● = Available as option

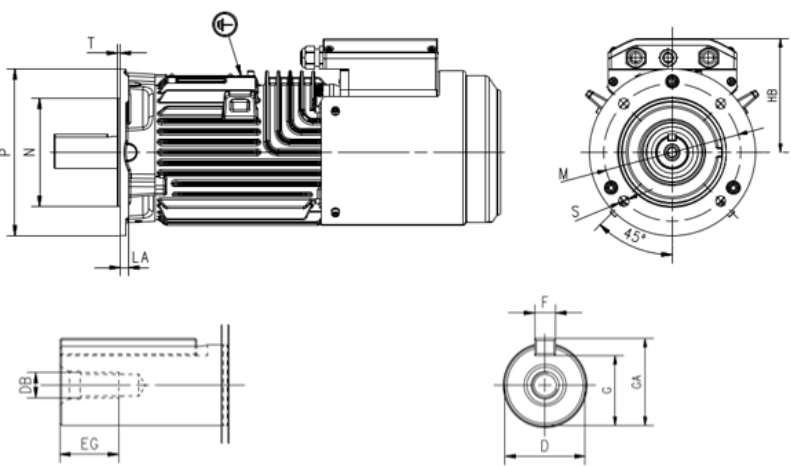
Dimensions

LV Titanium Variable Speed motors

Foot-mounted motor IM1001, B3



Flange-mounted motor IM3001, B5



Motor size	A	AA	AB	AC	AE	B	BB	C	CB	D-tol.	DB	E	EG	F	G	GA	H	HA	HE	HD
90L	140	33	170	209	154	125	185	56	12	38	M12	80	28	10	33	41	90	12	113	226

Motor size	K	L	LD	O	UB1	UB2	VB	VC	VD	VE	HB	LA	M	N	P	S	T
90L	10	538	244	20	2-M20x1.5	M16x1.5	138	44	44	5	136	10	165	130	200	12	3.5

The tables give the main dimensions in mm.