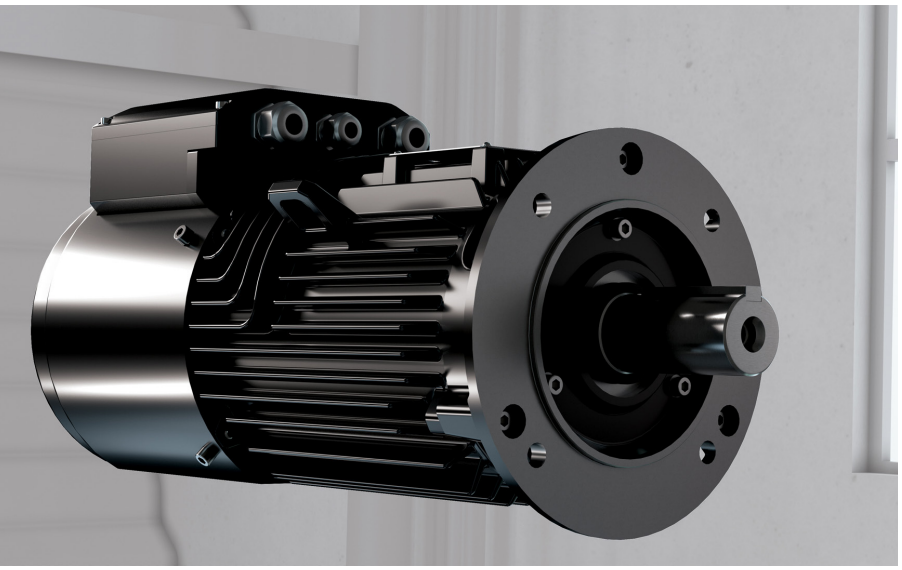
PRODUCT NOTE

ABB LV Titanium Variable Speed Motor

Plug-and-Play functionality for IE5 Ultra-premium efficiency



ABB's IEC Low voltage variable speed motors (VSMs) go beyond traditional setups with a streamlined motor-drive platform with built-in speed control. This all-in-one solution delivers IE5 efficiency, reliable performance in demanding applications, and a compact design that simplifies installation and saves space.

LV Titanium VSMs are engineered as streamlined motor-drive solutions
Competitive, streamlined motor-drive solution compared to traditional separate motor and drive packages, helping you lower upfront costs without sacrificing performance.

IE5 Ultra-premium efficiency in a compact design
Leveraging permanent magnet technology, LV Titanium VSMs deliver exceptional power density. Their compact size, streamlined design, and quiet operation—combined with IE5 ultra-premium motor efficiency and IE5 system efficiency—make them stand out in the market. With a forced air-cooling fan, LV Titanium operates across a wide speed range and maintains full torque even at low speeds.

Excellent reliability
Uninterrupted operation, minimized downtime, and increased process output. Built on proven technology and ABB's uncompromising commitment to quality, reliability, and efficiency, LV Titanium VSMs set a new benchmark for performance.

Plug-and-Play functionality
A perfectly matched motor and drive module ensures optimal performance, allowing OEMs and end users to enjoy the benefits of variable speed operation without the hassle of specifying and sourcing drives separately.

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. Simplify procurement by sourcing VSMs from a single trusted partner. This streamlines supplier interactions and provides peace of mind compared to managing multiple component suppliers.

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.

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Technical data

LV Titanium Variable Speed motors

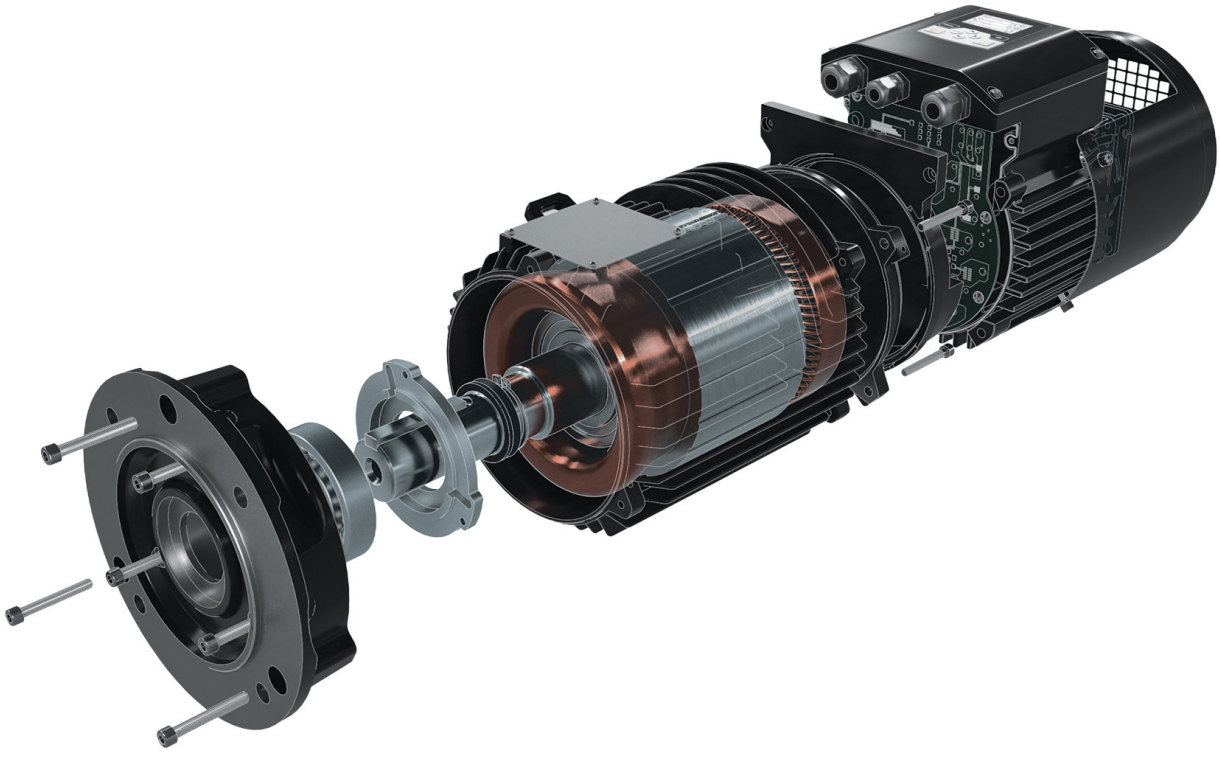
IP 55 - IC 416 - Insulation class F, temperature rise class B, IE5 efficiency class according to IEC 60034-30-2; 2016, IES 5 efficiency class according to IEC 618000-9-2

Output kW	Motor type	Product code	Speed r/min	Motor Efficiency Full load 100%	Current I_N A	Torque T_N Nm	Moment of inertia J = 1/4 GD^2kgm^2	Weight kg	Sound pressure Level L_{PA} dB	Drive input voltage V	Drive module	Drive nominal intput 400V A	Drive max intput A	System Efficiency Full load 100%
4500 r/min														
1.5	VSMJ 71MA 6	3GVY073318-A	4500	88.6%	2.7	3.2	0.000871	13	62	380-480	DM1	3.2	9	85.9%
2.2	VSMJ 71MB 6	3GVY073328-A	4500	89.9%	4	4.7	0.000932	13	62	380-480	DM1	4	9	88.1%
3	VSMJ 80MA 6	3GVY083318-A	4500	90.8%	5.5	6.4	0.001832	18	61	380-480	DM1	5.3	9	89.0%
4	VSMJ 90LA 6	3GVY093518-A	4500	91.5%	7.4	8.5	0.004567	33	68	380-480	DM2	7.1	17	88.8%
5.5	VSMJ 90LC 6	3GVY093538-A	4500	92.4%	11.5	11.7	0.004894	35	68	380-480	DM2	9.2	17	89.6%
7.5	VSMJ 90LD 6	3GVY093548-A	4500	93.1%	14.5	15.9	0.004894	36	68	380-480	DM2	12.6	17	90.3%
3000 r/min														
1.5	VSMJ 71MA 6	3GVY073317-A	3000	88.6%	2.9	4.8	0.000871	13	58	380-480	DM1	3.2	9	85.9%
2.2	VSMJ 71MC 6	3GVY073337-A	3000	89.9%	3.9	7.0	0.000871	15	58	380-480	DM1	4	9	88.1%
3	VSMJ 80MB 6	3GVY083327-A	3000	90.8%	5.5	9.5	0.002305	19	58	380-480	DM1	5.6	9	89.0%
4	VSMJ 90LA 6	3GVY093517-A	3000	91.5%	6.7	12.7	0.005598	33	68	380-480	DM2	7.2	17	89.1%
5.5	VSMJ 90LC 6	3GVY093537-A	3000	92.4%	10.6	17.5	0.006265	35	68	380-480	DM2	9.6	17	89.1%
7.5	VSMJ 90LE 6	3GVY093557-A	3000	93.1%	14.3	23.9	0.006628	38	68	380-480	DM2	12.6	17	90.3%
1500 r/min														
1.5	VSMJ 80MB 6	3GVY083323-A	1500	90.1%	3	9.5	0.002305	19	58	380-480	DM1	3.2	9	87.4%
2.2	VSMJ 90LB 6	3GVY093523-A	1500	91.1%	3.6	14.0	0.004298	32	68	380-480	DM2	4	17	88.4%
3	VSMJ 90LD 6	3GVY093543-A	1500	91.8%	5.2	19.1	0.005511	34	68	380-480	DM2	5.3	17	89.0%
4	VSMJ 90LE 6	3GVY093553-A	1500	92.6%	7.3	25.5	0.008302	38	68	380-480	DM2	7.3	17	91.0%

Bearing calculations

Frame size	Speed r/min	20000h F_{AD}	20000h F_{AZ}	40000h F_{AD}	40000h F_{AZ}	20000h F_{XO}	20000h F_{XMAX}	40000h F_{XO}	40000h F_{XMAX}
71	4500	730	370	595	235	695	555	550	440
71	3000	825	465	670	310	800	640	635	505
80	4500	945	545	760	360	965	750	760	590
80	3000	1080	680	860	460	1105	860	870	675
80	1500	1370	970	1080	680	1400	1085	1105	860
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

Frame size	D-bearing	N-bearing
71	6205-2Z/C3	6302-2Z/C3
80	6206-2Z/C3	6303-2Z/C3
90	6208-2Z/C3	6305-2Z/C3



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.

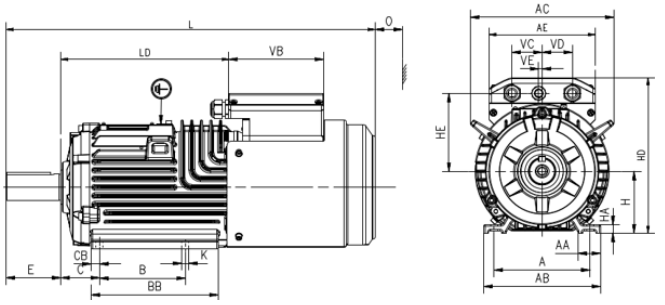
		Frame size		
Code / Variants		**71**	**80**	**90**
VC002	Restamping voltage, frequency and output, continuous duty.	●	●	●
VC005	Protective roof	●	●	●
VC008	IM 2101 foot/flange mounted, IEC flange, from IM 1001 (B34 from B3).	●	●	●
VC009	IM 2001 foot/flange mounted, IEC flange, from IM 1001 (B35 from 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.	●	●	●
VC183	Separate motor cooling (fan axial, N-end).	○	○	○
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.	●	●	●
VC531	Sea freight packing	●	●	●
VC533	Wooden sea freight packing	●	●	●
VC538	CE mark	○	○	○
VC622	Inner bearing cover of cast iron	-	●	●
VC631	Quenched and tempered shaft material	●	●	●
VC784	Gamma-seal at D-end.	●	●	●

○ = Included as standard | ● = Available as option

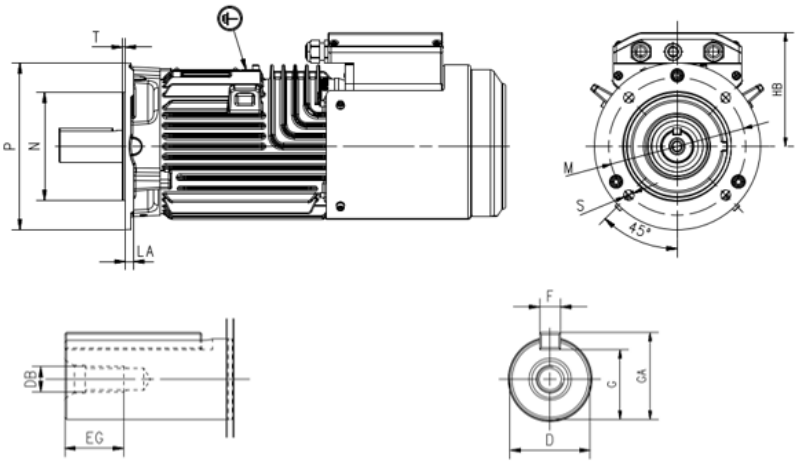
Dimensions

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
71M	112	30	136	149	134	90	135	45	10	24	M8	50	19	8	20	27	71	9	97	191
80M	125	33	154	164	134	100	125	50	12.5	28	M10	60	22	8	24	31	80	12	97	200
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
71M	7	401	169	20	2-M20x1.5	M16x1.5	132	36	36	0	120	9	130	110	160	10	3.5
80M	10	430	188	20	2-M20x1.5	M16x1.5	132	36	36	0	120	10	165	130	200	12	3.5
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.

new.abb.com/motors-generators/iec-low-voltage-motors/lv-titanium

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