IEC motors

ABB motors for water and wastewater
WIMES compliant
0.75 to 1,000 kW

Power and productivity
for a better world™

ABB motors for water and wastewater
WIMES compliant

ABB motors for water and wastewater is a range designed specifically to meet the UK's Water Industry Mechanical and Electrical Specification (WIMES 3.03 issue 6 dated October 2014); a standard developed by The Pump Centre* working closely with the country's water utilities.

Meeting this water specification means that public and private utilities and OEMs can confidently specify a motor for any pump, compressor or fan application used within the water and wastewater sector.

The motor is packed with features that afford greater protection against the environmental conditions found in water and wastewater applications.

The motor has evolved from ABB's long established and market leading IEC low voltage motor range. Rather than customising each motor using a series of variant codes and options, the range is available from stock or as production build using a single code with all the necessary features, at a price that the industry demands.

ABB motors for water and wastewater
– From 0.75 to 1,000 kW
– IE3 premium efficiency and IE4 super premium efficiency
– Cast iron in frame sizes from 80 to 450, aluminium in frame sizes from 80 to 180
– Poles 2, 4 or 6
– Voltages 230/400 V or 400/690 V
– Frequency 50 Hz
– Insulation class F, with B temperature rise
– Continuous duty S1 or VSD duty S9
– Up to 5 years warranty

What is WIMES?
WIMES defines the requirements for a wide range of mechanical and electrical equipment used in the UK water industry.

Low voltage electric motors are specifically covered by WIMES 3.03 issue 6, which sets out minimum standards for:
– Energy efficiency and life cycle cost
– Build quality
– Environmental protection

WIMES ensures that motors used in water and wastewater applications are as efficient and reliable as possible.

What features make a motor compliant to WIMES?
To comply with WIMES, electric motors must meet or exceed the minimum standards defined as:

1. **Energy efficiency**
   WIMES lays down minimum efficiencies for 2, 4 and 6 pole electric motors up to 1,000 kW which are equivalent to today's IE3 efficiency level.

2. **Build quality**
   A WIMES motor must be robust, with a good level of protection against the harsh operating environment encountered in water and wastewater applications. The motors must be able to meet the continuous duty cycles common in this industry. A WIMES compliant motor needs to be equipped with a high IP rating and have seals in place to protect the internal bearings and other components within the motor against ingress of contaminants.

3. **Environmental protection**
   Electric motors used in the water and wastewater industry need to have a low environmental impact through:
   – Low running costs
   – Low noise levels
   – Low maintenance costs

   This equates to a low cost of ownership.

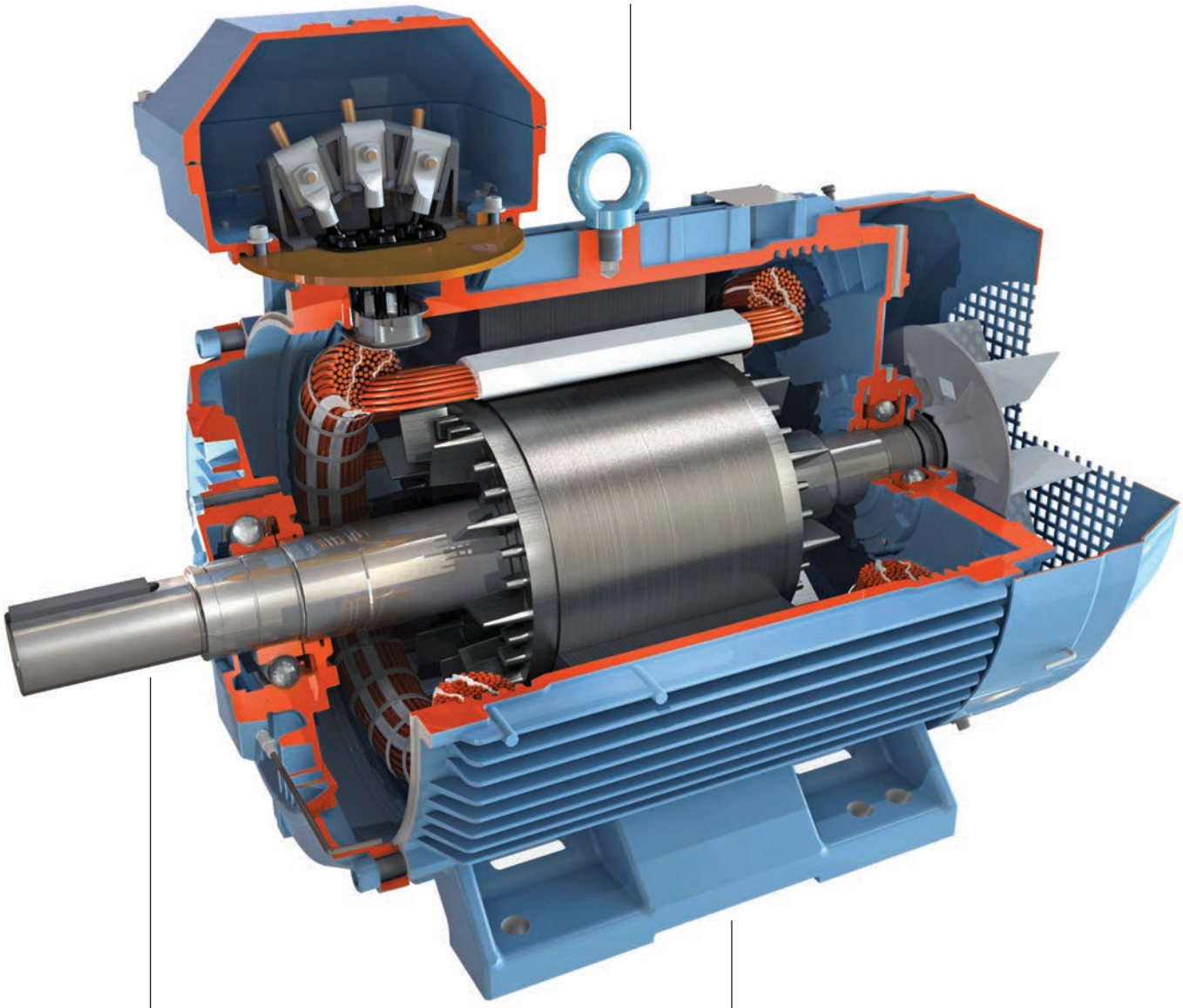
WIMES compliant

ABB motors for water and wastewater can be easily identified by this logo, affixed to the motor.

*ABB has worked with The Pump Centre and water utilities in the development of WIMES 3.03 issue 6, designed specifically to address water industry specification requirements for low voltage electric motors. The Pump Centre is an independent membership organisation that is predominantly associated with the water industry. Its members come from across the whole supply chain and include end users, consultants, contractors, manufacturers and suppliers.

ABB motors for water and wastewater
Features for WIMES compliance

1. Energy efficiency
– Windings are designed to meet or exceed IE3 or IE4 efficiency levels, resulting in reduced losses which means the motor runs cooler with extended regreasing intervals, longer bearing life and enhanced insulation life.



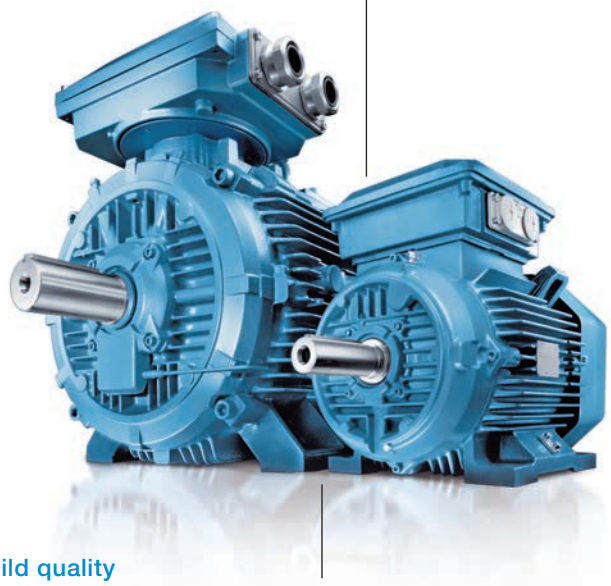
2. Build quality
– V-ring seals and labyrinth seals are used to protect the bearings and internal components from ingress of harmful amounts of water and solids.
– SPM nipples assist with vibration monitoring and preventive maintenance.
– PTC thermistors are contained within the windings of the motor to protect against overheating, while larger motors are also fitted with PT100 temperature senors to give additional preventive protection, as stipulated by the WIMES specification.
– Up to 5 years warranty.

3. Environmental protection
– Heating elements are fitted within the windings, with drain holes in the stator frame, which will help protect the motor from the effects of condensation.
– Frames are made of aluminium or high grade robust cast iron with a surface treatment in accordance with C3M (corrosivity category, ISO 12944-2: 2007).
– Steel fan covers and stainless steel rating plates withstand outdoor conditions.
– Reduced losses and improved frame and end-shield designs result in a smaller fan, leading to lower noise levels.

ABB motors for water and wastewater
WIMES compliant motors – standard features

Technical specifications	
Outputs: 0.75 to 1,000 kW	Relative humidity: up to 95 percent
Poles: 2, 4 or 6	Mounting positions according to IEC standards (i.e. B3-IM1001, B5-IM3001 & V1-IM3011)
Frame sizes: Cast iron from 80 to 450, aluminium from 80 to 180	Vibration level grade A according to IEC 60034-14
Frequency: 50 Hz	Continuous duty S1 or VSD duty S9
Voltages: 230/400V or 400/690V	Internal & external earth bolt
Insulation: class F, with B temperature rise	PTC thermistors embedded in windings (additionally, PT100 from 315 frame and above)
Ambient temperature: 20ºC to 40ºC	

1. Energy efficiency
- Efficiency levels: Premium efficiency (IE3) and super premium efficiency (IE4)
- Motors made of aluminium or high grade, robust cast iron
- Totally enclosed fan cooled
- Winding insulation system suitable for frequency converter duty applications



2. Build quality
- Bearings locked at D-end for low axial play
- Bearings can be either permanently greased or regreasable, fitted with a grease relief system
- Bearings grease -30ºC to 120ºC
- Oversized terminal box fitted as standard for ease of installation
- Fan and motor fins optimised for low noise level
- Motor vibration level according to grade A (IEC60034-14)

3. Environmental protection
- Degree of protection against the ingress of water or solids: IP55 according to IEC 60034-5 and IEC 60529
- Degree of protection against external mechanical impacts IK08 according to IEC 50102
- Stainless steel rating plates
- Steel fan covers
- Surface treatment (polyurethane or epoxide) in accordance with C3M (corrosivity category, ISO 12944-2: 2007)
- Colour: Munsell blue 8B 4.5/3.25

Options	
Degrees of protection IP56, IP65	Reinforced bearings for tough radial or axial loads
Impact canopy for vertical (shaft down) applications	Enhanced paint systems and/or special paint colour
Enhanced insulation system for VSD duty for 690V supply	Customer identification/tag plate
Heating element in winding	Range of standard cabling solutions
Stainless steel bolts for harsh environments	EMC cable gland
Metal fan for high ambient temperatures	WIMES compliant motors for hazardous environments i.e. Ex d, Ex de, Ex nA
PT100 fitted to bearings	Typical type test reports available on request
Roller bearing at D-end (from motor size 160 upwards)	Routine test report

ABB motors for water and wastewater
Technical data – IE3 general performance cast iron motors, 3000 and 1500 r/min

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor	Current		Torque			Moment of inertia	Weight	Sound pressure Level L_{PA}
				Full load 100%	3/4 load 75%	1/2 load 50%	Cosφ	I_N A	I_S/I_N	T_N Nm	I_S/I_N	T_b/T_N	J = 1/4 GD^2kgm^2	kg	dB
3000 r/min = 2 poles				400 V 50 Hz				CENELEC-design							
7.5	M2BAX 132 SME 2	3GBA131250-••D	2901	90.1	91.1	91.2	0.91	13.1	7.3	24.7	2.2	3.7	0.02	83	71
11	M2BAX 160 MLA 2	3GBA161410-••D	2943	91.2	92.0	91.6	0.91	19.1	7.2	35.6	2.6	3.6	0.057	118	69
15	M2BAX 160 MLB 2	3GBA161420-••D	2947	91.9	92.2	91.8	0.88	26.5	8.2	48.5	3.2	4.2	0.063	126	69
18.5	M2BAX 160 MLC 2	3GBA161430-••D	2949	92.4	93.0	92.6	0.90	32.0	9.0	59.8	3.3	3.9	0.076	144	73
22	M2BAX 180 MLA 2	3GBA181410-••D	2956	92.7	93.1	92.7	0.90	37.7	7.8	71.0	3.4	3.8	0.11	181	73
30	M2BAX 200 MLA 2	3GBA201410-••D	2957	93.3	93.8	93.6	0.88	52.4	7.5	96.9	2.5	3.1	0.182	230	73
37	M2BAX 200 MLB 2	3GBA201420-••D	2960	93.7	94.2	94.1	0.89	64.2	8.2	119.5	3.1	3.4	0.222	257	73
45	M2BAX 225 SMA 2	3GBA221210-••D	2968	94.0	94.0	93.0	0.87	79.6	7.3	144.8	3.2	3.1	0.296	287	76
55	M2BAX 250 SMA 2	3GBA251210-••D	2968	94.3	93.7	93.6	0.89	94.8	6.8	177.0	2.4	3.0	0.426	344	76
75	M2BAX 280 SMB 2	3GBA281220-••M	2978	94.7	94.5	93.6	0.88	130.0	7.0	240.0	2.3	3.0	0.9	581	74
90	M2BAX 280 SMC 2	3GBA281230-••M	2975	95.0	95.0	94.3	0.88	155.0	6.4	288.8	2.1	2.8	0.99	603	74
110	M2BAX 315 SMB 2	3GBA311220-••M	2982	95.2	95.0	94.0	0.87	192.0	7.0	352.0	1.8	2.7	1.3	778	78
132	M2BAX 315 SMC 2	3GBA311230-••M	2982	95.4	95.3	94.4	0.88	227.0	6.8	422.0	2.0	2.8	1.5	828	78
160	M2BAX 315 SMD 2	3GBA311240-••M	2983	95.6	95.5	94.9	0.88	275.0	7.4	512.0	2.2	2.8	1.7	885	78
200	M2BAX 315 MLA 2	3GBA311410-••M	2983	95.8	95.8	95.4	0.88	342.0	7.7	640.0	2.5	3.1	2.1	1033	81
250	M2BAX 355 SMA 2	3GBA351210-••M	2984	95.8	95.5	94.6	0.89	422.0	7.7	800.0	2.1	3.3	3	1406	83
315	M2BAX 355 SMB 2	3GBA351220-••M	2980	95.8	95.6	95.0	0.89	532.0	7.0	1009.2	2.1	3.0	3.4	1489	83
355	M2BAX 355 SMC 2	3GBA351230-••M	2985	95.8	95.7	95.0	0.88	605.0	7.2	1136.0	2.2	3.0	3.6	1559	83

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor	Current		Torque			Moment of inertia	Weight	Sound pressure Level L_{PA}
				Full load 100%	3/4 load 75%	1/2 load 50%	Cosφ	I_N A	I_S/I_N	T_N Nm	I_S/I_N	T_b/T_N	J = 1/4 GD^2kgm^2	kg	dB
1500 r/min = 4 poles				400 V 50 Hz				CENELEC-design							
7.5	M2BAX 132 SME 4	3GBA132250-••D	1465	90.4	90.7	90.3	0.78	15.5	7.4	49.0	2.5	4.0	0.037	77	60
11	M2BAX 160 MLA 4	3GBA162410-••D	1477	91.4	91.8	91.1	0.82	21.1	7.6	71.3	2.6	3.3	0.11	134	61
15	M2BAX 160 MLB 4	3GBA162420-••D	1477	92.1	92.4	91.6	0.82	28.5	8.2	97.0	3.0	3.7	0.135	159	61
18.5	M2BAX 180 MLA 4	3GBA182410-••D	1481	92.6	93.2	92.9	0.83	34.9	7.2	119.3	2.8	3.0	0.219	192	60
22	M2BAX 180 MLB 4	3GBA182420-••D	1481	93.0	93.5	93.3	0.82	41.4	6.5	142.0	3.0	3.2	0.243	205	60
30	M2BAX 200 MLA 4	3GBA202410-••D	1483	93.6	93.8	93.4	0.84	54.8	7.5	193.2	2.7	3.2	0.385	259	63
37	M2BAX 225 SMA 4	3GBA222210-••D	1482	93.9	94.1	93.8	0.83	68.9	7.2	238.6	3.1	3.1	0.427	274	67
45	M2BAX 225 SMB 4	3GBA222220-••D	1481	94.2	94.4	93.8	0.85	81.0	7.9	290.0	3.0	3.3	0.525	307	67
55	M2BAX 250 SMA 4	3GBA252210-••D	1482	94.6	94.7	94.0	0.84	100.0	7.1	354.2	2.9	3.4	0.694	358	68
75	M2BAX 280 SMB 4	3GBA282220-••M	1484	95.0	95.1	94.6	0.85	134.0	6.5	482.0	2.3	2.8	1.38	557	75
90	M2BAX 280 SMC 4	3GBA282230-••M	1485	95.2	95.4	94.9	0.86	159.0	7.1	578.0	2.5	2.9	1.73	621	75
110	M2BAX 315 SMB 4	3GBA312220-••M	1489	95.4	95.4	94.8	0.85	195.0	7.0	705.0	2.1	3.0	2.43	800	71
132	M2BAX 315 SMC 4	3GBA312230-••M	1488	95.6	95.7	95.3	0.86	231.0	6.7	847.0	2.2	2.9	2.9	869	71
160	M2BAX 315 SMD 4	3GBA312240-••M	1488	95.8	95.9	95.5	0.85	284.0	6.9	1026.0	2.2	3.0	3.2	910	71
200	M2BAX 315 MLB 4	3GBA312420-••M	1487	96.0	96.3	96.1	0.86	350.0	6.8	1284.0	2.4	3.0	3.9	1073	74
250	M2BAX 355 SMA 4	3GBA352210-••M	1491	96.0	96.0	95.5	0.86	436.0	6.4	1601.0	2.1	2.9	5.9	1439	78
315	M2BAX 355 SMB 4	3GBA352220-••M	1491	96.0	96.1	95.5	0.86	550.0	7.2	2017.0	2.3	3.3	6.9	1589	78
355	M2BAX 355 SMC 4	3GBA352230-••M	1490	96.0	96.1	95.8	0.86	621.0	6.3	2273.0	2.3	2.8	7.2	1629	78

ABB motors for water and wastewater
Technical data – IE3 general performance cast iron motors, 1000 r/min

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cosφ	Current I_N A	I_S/I_N	Torque T_N Nm	T_I/T_N	T_b/T_N	Moment of inertia J = 1/4 GD^2kgm^2	Weight kg	Sound pressure Level L_{PA} dB
1000 r/min = 6 poles				400 V 50 Hz				CENELEC-design							
7.5	M2BAX 160 MLA 6	3GBA163410-••D	975	89.1	90.0	90.0	0.77	15.7	5.7	73.2	1.4	3.0	0.089	119	59
11	M2BAX 160 MLB 6	3GBA163420-••D	975	90.3	91.1	91.1	0.78	22.5	6.4	107.5	1.6	3.1	0.138	160	64
15	M2BAX 180 MLA 6	3GBA183410-••D	979	91.2	91.9	91.6	0.79	30.1	5.2	146.9	1.5	2.7	0.212	190	63
18.5	M2BAX 200 MLA 6	3GBA203410-••D	989	91.7	91.9	91.2	0.82	35.2	6.5	178.8	2.2	3.2	0.496	238	59
22	M2BAX 200 MLB 6	3GBA203420-••D	989	92.2	92.4	91.4	0.81	42.4	7.3	212.4	2.6	3.5	0.585	263	59
30	M2BAX 225 SMA 6	3GBA223210-••D	986	92.9	93.6	93.5	0.84	55.5	6.7	291.0	2.3	2.7	0.724	285	59
37	M2BAX 250 SMA 6	3GBA253210-••D	990	93.3	93.7	93.5	0.80	71.1	6.5	357.0	2.4	3.1	1.3	379	58
45	M2BAX 280 SMB 6	3GBA283220-••M	991	93.7	94.0	93.5	0.84	82.5	7.4	433.0	2.7	3.0	1.87	547	72
55	M2BAX 280 SMC 6	3GBA283230-••M	992	94.1	94.4	93.9	0.85	99.3	7.5	528.0	2.8	3.0	2.57	600	71
75	M2BAX 315 SMB 6	3GBA313220-••M	994	94.6	94.8	94.3	0.84	136.0	6.8	720.0	1.8	2.6	4.1	768	75
90	M2BAX 315 SMC 6	3GBA313230-••M	994	94.9	95.1	94.5	0.84	163.0	7.2	864.0	2.0	3.0	4.6	835	76
110	M2BAX 315 SMD 6	3GBA313240-••M	994	95.1	95.3	94.8	0.83	201.0	7.3	1056.0	2.2	3.1	4.9	889	75
132	M2BAX 315 MLB 6	3GBA313420-••M	995	95.4	95.5	94.8	0.82	244.0	7.3	1266.0	2.3	3.2	6.3	1051	72
160	M2BAX 355 SMA 6	3GBA353210-••M	993	95.6	95.9	95.6	0.82	294.0	6.7	1538.0	2.5	2.6	7.9	1342	75
200	M2BAX 355 SMB 6	3GBA353220-••M	993	95.8	96.1	95.9	0.82	367.0	6.7	1923.0	2.6	2.5	9.7	1506	75
250	M2BAX 355 SMC 6	3GBA353230-••M	993	95.8	96.0	95.7	0.81	465.0	7.7	2404.0	3.0	3.1	11.3	1650	75

ABB motors for water and wastewater
Technical data – IE3 process performance cast iron motors, 3000 r/min

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cosφ	Current I_N A	I_S/I_N	Torque T_N Nm	T_I/T_N	T_b/T_N	Moment of inertia J = 1/4 GD^2kgm^2	Weight kg	Sound pressure Level L_{PA} dB
3000 r/min = 2 poles				400 V 50 Hz				CENELEC-design							
0.75	M3BP 80 MC 2	3GBP081330-••L	2879	80.7	80.9	79.0	0.81	1.6	7.2	2.5	3.4	4.2	0.00100	17	57
1.1	M3BP 80 ME 2	3GBP081350-••L	2865	82.7	83.2	82.5	0.84	2.3	7.2	3.7	3.5	4.1	0.00120	18	60
1.5	M3BP 90 SLA 2	3GBP091010-••L	2901	84.2	84.6	83.6	0.89	2.9	7.7	4.93	2.1	3.5	0.00280	27	69
2.2	M3BP 90 LA 2	3GBP091510-••L	2904	85.9	86.3	84.8	0.89	4.2	8.8	7.2	3.1	3.8	0.00360	30	64
3	M3BP 100 MLA 2	3GBP101410-••L	2908	87.1	87.9	87.4	0.91	5.4	8.2	9.9	3.3	3.9	0.00130	42	68
4	M3BP 112 ME 2	3GBP111350-••L	2882	88.1	89.8	90.7	0.93	6.9	8.3	13.0	2.9	3.7	0.0139	56	70
5.5	M3BP 132 SMC 2	3GBP131230-••L	2908	89.2	89.7	89.0	0.91	9.8	7.6	18.0	2.3	3.8	0.0182	69	70
7.5	M3BP 132 SME 2	3GBP131250-••L	2896	90.1	90.9	90.9	0.91	13.2	7.2	25.0	2.1	3.6	0.0203	75	70
11	M3BP 160 MLA 2	3GBP161051-••K	2943	92.1	92.7	92.4	0.92	18.7	8.1	35.6	2.7	3.4	0.0520	141	69
15	M3BP 160 MLB 2	3GBP161052-••K	2943	92.5	93.4	93.2	0.92	25.4	8.4	48.6	3.1	3.4	0.0620	170	69
18.5	M3BP 160 MLC 2	3GBP161053-••K	2942	93.1	93.9	93.9	0.93	30.8	8.3	60.0	3.1	3.6	0.0720	183	69
22	M3BP 180 MLA 2	3GBP181051-••K	2957	93.2	93.9	93.8	0.91	37.4	8.1	71.0	2.6	3.2	0.116	234	69
30	M3BP 200 MLA 2	3GBP201051-••K	2958	94.2	94.9	94.7	0.90	51.0	7.8	96.8	2.8	3.1	0.196	298	72
37	M3BP 200 MLB 2	3GBP201052-••K	2960	94.7	95.2	95.0	0.91	61.9	8.8	119	3.1	3.4	0.217	314	72
45	M3BP 225 SMA 2	3GBP221051-••K	2972	95.0	95.2	94.8	0.89	76.8	7.8	144	3.1	3.0	0.323	409	74
55	M3BP 250 SMA 2	3GBP251051-••K	2975	95.2	95.4	95.0	0.89	93.6	8.0	176	2.8	3.3	0.579	452	75
75	M3BP 280 SMB 2	3GBP281220-••K	2980	95.5	95.5	94.9	0.87	130	7.3	240	2.1	2.9	0.90	665	77
90	M3BP 280 SMC 2	3GBP281230-••K	2981	95.7	95.6	95.0	0.88	154	8.0	288	2.5	3.1	1.15	725	77
110	M3BP 315 SMB 2	3GBP311220-••K	2982	95.9	95.9	95.2	0.88	189	6.7	352	1.9	2.6	1.40	940	77
132	M3BP 315 SMC 2	3GBP311230-••K	2986	96.1	96.2	95.9	0.88	225	7.9	422	2.4	3.0	1.70	1025	77
160	M3BP 315 MLA 2	3GBP311410-••K	2983	96.2	96.5	96.2	0.90	268	7.3	512	2.2	2.7	2.10	1190	77
200	M3BP 315 MLB 2	3GBP311420-••K	2983	96.4	96.7	96.6	0.90	334	6.8	640	1.9	2.6	2.20	1220	77
200	M3BP 355 SMA 2	3GBP351210-••K	2985	96.4	96.1	95.3	0.89	337	7.6	640	2.0	3.1	3.00	1600	83
250	M3BP 315 LKB 2	3GBP311820-••K	2982	96.4	96.7	96.7	0.91	414	7.9	801	2.5	2.7	2.90	1540	77
250	M3BP 355 SMB 2	3GBP351220-••K	2983	96.4	96.5	96.1	0.90	418	7.6	800	2.2	3.0	3.40	1680	83
315	M3BP 355 SMC 2	3GBP351230-••K	2984	96.4	96.4	95.9	0.89	532	7.8	1008	2.3	2.8	3.60	1750	83
355	M3BP 355 MLA 2	3GBP351410-••K	2981	96.4	96.7	96.3	0.90	593	7.5	1137	2.3	2.6	4.10	2000	83
400 [3]	M3BP 355 MLA 2	3GBP351410-••G	2982	96.9	96.6	95.9	0.88	677	7.1	1280	2.3	2.9	4.10	2000	83
450 [3]	M3BP 355 MLB 2	3GBP351420-••G	2983	97.1	97.0	96.4	0.90	743	7.9	1440	2.2	2.9	4.30	2080	83
500 [3]	M3BP 355 LKA 2	3GBP351810-••G	2982	96.9	96.9	96.5	0.90	827	7.5	1601	2.0	3.9	4.80	2320	83
560 [2]	M3BP 400 LA 2	3GBP401510-••G	2988	97.2	97.2	96.6	0.89	934	7.8	1789	2.1	3.4	7.90	2950	82
560 [2]	M3BP 400 LKA 2	3GBP401810-••G	2988	97.2	97.2	96.6	0.89	934	7.8	1789	2.1	3.4	7.90	2950	82
560 [3]	M3BP 355 LKB 2	3GBP351820-••G	2983	97.0	97.0	96.5	0.90	925	8.0	1792	2.2	4.1	5.20	2460	83
630 [2]	M3BP 400 LB 2	3GBP401520-••G	2987	97.4	97.4	96.9	0.89	1048	7.8	2014	2.2	3.4	8.20	3050	82
630 [2]	M3BP 400 LKB 2	3GBP401820-••G	2987	97.4	97.4	96.9	0.89	1048	7.8	2014	2.2	3.4	8.20	3050	82
710 [2]	M3BP 400 LC 2	3GBP401530-••G	2987	97.5	97.4	97.0	0.89	1180	7.8	2269	2.6	3.4	9.30	3300	82
710 [2]	M3BP 400 LKC 2	3GBP401830-••G	2987	97.5	97.4	97.0	0.89	1180	7.8	2269	2.6	3.4	9.30	3300	82
800 [1] [2]	M3BP 450 LA 2	3GBP451510-••G	2990	97.2	97.1	96.4	0.88	1349	7.8	2554	1.3	3.2	12.5	4000	85
900 [1] [2]	M3BP 450 LB 2	3GBP451520-••G	2990	97.3	97.2	96.6	0.88	1517	7.8	2874	1.5	3.1	14.0	4200	85
1000 [1] [4]	M3BP 450 LC 2	3GBP451530-••G											15.5	4400	85

[1] Temperature rise class F
[2] Unidirectional fan, variant code 044 or 045 is mandatory
[3] 3 dB(A) sound pressure level reduction with unidirectional fan construction. Direction of rotation must be stated when ordering, see variant codes 044 and 045
[4] Data on request

ABB motors for water and wastewater
Technical data – IE3 process performance cast iron motors, 1500 r/min

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cosφ	Current I_N A	I_S/I_N	Torque T_N Nm	T_I/T_N	T_b/T_N	Moment of inertia J = 1/4 GD²kgm²	Weight kg	Sound pressure Level L_{PA} dB
1500 r/min = 4 poles				400 V 50 Hz				CENELEC-design							
0.75	M3BP 80 MLE 4	3GBP082450-••L	1448	82.5	82.5	80.3	0.78	1.7	7.4	4.9	3.5	4.0	0.00330	22	50
1.1	M3BP 90 LA 4	3GBP092510-••L	1443	84.1	84.1	81.6	0.77	2.4	5.2	7.26	3.4	4.2	0.00490	28	56
1.5	M3BP 90 LB 4	3GBP092520-••L	1445	85.3	85.5	83.1	0.77	3.3	5.7	9.9	3.8	4.6	0.00670	32	56
2.2	M3BP 100 LA 4	3GBP102510-••L	1442	86.7	87.0	86.0	0.82	4.5	7.5	14.0	2.3	3.6	0.0109	38	56
3	M3BP 100 MLB 4	3GBP102420-••L	1444	87.7	88.4	87.6	0.81	6.1	7.0	19.8	3.3	4.1	0.0121	42	58
4	M3BP 112 ME 4	3GBP112350-••L	1455	88.6	88.4	87.5	0.76	9.0	7.8	26.0	3.5	4.3	0.0188	52	59
5.5	M3BP 132 SMB 4	3GBP132220-••L	1463	89.6	89.9	89.1	0.75	11.7	7.6	36.0	2.8	3.9	0.0295	68	70
7.5	M3BP 132 SME 4	3GBP132250-••L	1462	90.4	90.9	90.2	0.76	15.7	7.9	49.0	3.0	4.0	0.0376	78	64
11	M3BP 160 MLA 4	3GBP162051-••K	1473	92.2	93.0	92.7	0.84	20.4	7.7	71.3	2.6	2.9	0.108	173	62
15	M3BP 160 MLB 4	3GBP162052-••K	1474	92.6	93.4	93.2	0.84	27.8	7.9	97.1	2.8	3.3	0.125	187	62
18.5	M3BP 180 MLA 4	3GBP182051-••K	1481	93.3	94.0	93.8	0.82	34.9	7.6	119	3.0	3.1	0.217	235	62
22	M3BP 180 MLB 4	3GBP182052-••K	1480	93.3	94.1	94.1	0.82	41.5	8.2	141	2.8	3.1	0.217	235	62
30	M3BP 200 MLA 4	3GBP202051-••K	1484	94.4	94.8	94.6	0.84	54.6	8.3	193	3.0	3.3	0.366	319	63
37	M3BP 225 SMA 4	3GBP222051-••K	1482	94.9	95.5	95.4	0.86	65.4	7.7	238	2.8	3.1	0.536	398	66
45	M3BP 225 SMB 4	3GBP222052-••K	1482	95.2	95.6	95.5	0.85	80.2	7.9	289	2.8	3.2	0.536	398	66
55	M3BP 250 SMA 4	3GBP252051-••K	1485	95.4	95.9	95.7	0.85	97.8	7.9	353	3.0	3.3	0.933	476	67
75	M3BP 280 SMB 4	3GBP282220-••K	1486	95.9	96.2	96.1	0.85	133	7.4	482	2.5	2.8	1.50	665	72
90	M3BP 280 SMC 4	3GBP282230-••K	1487	96.0	96.2	95.9	0.85	160	7.9	578	2.9	3.0	1.85	725	72
110	M3BP 315 SMC 4	3GBP312230-••K	1491	96.2	96.5	96.1	0.85	194	7.8	704	2.4	3.1	2.90	1000	68
132	M3BP 315 SMD 4	3GBP312240-••K	1490	96.3	96.6	96.2	0.85	233	7.9	846	2.6	3.2	3.20	1065	68
160	M3BP 315 MLB 4	3GBP312420-••K	1490	96.5	96.7	96.4	0.87	276	7.9	1025	2.7	3.0	3.90	1220	68
200	M3BP 315 LKB 4	3GBP312820-••K	1490	96.6	96.8	96.7	0.87	344	7.6	1282	2.5	2.9	5.00	1520	74
200	M3BP 355 SMA 4	3GBP352210-••K	1491	96.6	96.7	96.4	0.87	345	7.3	1281	2.1	2.7	5.90	1610	74
250	M3BP 315 LKC 4	3GBP312830-••K	1490	96.6	96.9	96.8	0.87	430	7.8	1602	2.3	3.0	5.50	1600	74
250	M3BP 355 SMB 4	3GBP352220-••K	1491	96.6	96.8	96.5	0.87	431	7.8	1601	2.5	2.9	6.90	1780	74
315	M3BP 355 SMC 4	3GBP352230-••K	1490	96.6	96.8	96.5	0.85	553	7.4	2019	2.8	2.9	7.20	1820	74
355	M3BP 355 MLA 4	3GBP352410-••K	1491	96.6	96.9	96.5	0.87	611	7.9	2274	2.7	2.9	8.40	2140	78
400	M3BP 355 MLA 4	3GBP352410-••G	1489	96.3	96.3	95.9	0.85	705	6.8	2565	2.3	2.6	8.40	2140	78
450	M3BP 355 MLB 4	3GBP352420-••G	1490	96.8	96.8	96.3	0.86	780	6.9	2884	2.3	2.9	8.40	2140	78
500	M3BP 355 LKA 4	3GBP352810-••G	1490	97.0	97.0	96.5	0.86	865	6.8	3204	2.0	3.0	10.0	2500	78
560 [1]	M3BP 355 LKB 4	3GBP352820-••G	1490	96.9	96.9	96.5	0.85	981	7.2	3588	2.6	2.7	10.6	2600	78
560	M3BP 400 LA 4	3GBP402510-••G	1491	96.8	96.8	96.3	0.85	982	7.4	3586	2.4	2.8	15.0	3200	78
560	M3BP 400 LKA 4	3GBP402810-••G	1491	96.8	96.8	96.3	0.85	982	7.4	3586	2.4	2.8	15.0	3200	78
560	M3BP 400 LKA 4	3GBP402810-••G	1491	96.8	96.8	96.3	0.85	982	7.4	3586	2.4	2.8	15.0	3200	78
630	M3BP 400 LB 4	3GBP402520-••G	1491	97.0	97.0	96.5	0.87	1077	7.6	4034	2.2	2.9	16.0	3300	78
630	M3BP 400 LKB 4	3GBP402820-••G	1491	97.0	97.0	96.5	0.87	1077	7.6	4034	2.2	2.9	16.0	3300	78
630	M3BP 400 LKB 4	3GBP402820-••G	1491	97.0	97.0	96.5	0.87	1077	7.6	4034	2.2	2.9	16.0	3300	78
710 [1]	M3BP 400 LC 4	3GBP402530-••G	1491	97.1	97.1	96.6	0.86	1227	7.6	4547	2.4	3.0	17.0	3400	78
710 [1]	M3BP 400 LKC 4	3GBP402830-••G	1491	97.1	97.1	96.6	0.86	1227	7.6	4547	2.4	3.0	17.0	3400	78
710 [1]	M3BP 400 LKC 4	3GBP402830-••G	1491	97.1	97.1	96.6	0.86	1227	7.6	4547	2.4	3.0	17.0	3400	78
800	M3BP 450 LA 4	3GBP452510-••G	1492	96.9	96.9	96.2	0.86	1385	7.0	5120	1.3	2.8	23.0	4050	85
900	M3BP 450 LB 4	3GBP452520-••G	1492	97.1	97.1	96.5	0.86	1555	7.0	5760	1.3	2.8	25.0	4350	85
1000 [1]	M3BP 450 LC 4	3GBP452530-••G	1491	97.2	97.2	96.7	0.86	1726	6.8	6404	1.3	2.7	30.0	4700	85

[1] Temperature rise class F

ABB motors for water and wastewater
Technical data – IE3 process performance cast iron motors, 1000 r/min

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014			Power factor	Current		Torque			Moment of inertia	Weight	Sound pressure
				Full load 100%	3/4 load 75%	1/2 load 50%	Cosφ	I_N A	I_S/I_N	T_N Nm	T_I/T_N	T_b/T_N	J = 1/4 GD²kgm²	kg	Level L_{PA} dB
1000 r/min = 6 poles				400 V 50 Hz				CENELEC-design							
0.75	M3BP 90 SLD 6	3GBP093040-••L	944	78.9	79.4	77.6	0.73	1.9	4.4	7.57	2.1	2.8	0.00560	29	44
1.1	M3BP 90 LF 6	3GBP093560-••L	944	81.0	82.1	80.5	0.75	2.65	4.7	11.1	2.1	2.8	0.00680	33	44
1.5	M3BP 100 MLB 6	3GBP103420-••L	960	82.5	82.5	80.3	0.65	3.8	5.4	14.9	2.7	3.4	0.0120	41	49
2.2	M3BP 112 MJ 6	3GBP113390-••L	962	84.3	84.4	83.2	0.68	5.3	4.2	21.8	1.4	2.3	0.0196	53	66
3	M3BP 132 SMB 6	3GBP133220-••L	981	85.6	85.5	84.0	0.63	8.0	6.6	29.2	2.7	3.8	0.0355	75	57
4	M3BP 132 SMF 6	3GBP133260-••L	980	86.8	86.5	84.9	0.62	10.7	6.6	39.0	2.7	3.8	0.0416	82	57
5.5	M3BP 132 SMJ 6	3GBP133290-••L	966	88.0	88.5	88.0	0.72	12.5	5.0	54.0	1.7	2.7	0.0408	81	57
7.5	M3BP 160 MLA 6	3GBP163051-••K	980	90.8	91.5	91.0	0.78	15.2	7.9	73.0	1.7	3.3	0.114	172	59
11	M3BP 160 MLB 6	3GBP163052-••K	979	91.2	91.8	91.1	0.74	23.5	8.5	107	2.2	3.9	0.131	185	59
15	M3BP 180 MLA 6	3GBP183051-••K	981	92.2	92.4	91.5	0.77	30.4	7.7	146	2.2	3.5	0.225	234	59
18.5	M3BP 200 MLA 6	3GBP203051-••K	990	92.8	93.2	92.6	0.77	37.3	7.5	178	2.6	3.2	0.448	291	63
22	M3BP 200 MLB 6	3GBP203052-••K	990	93.3	93.7	93.1	0.79	43.0	7.8	212	2.6	3.2	0.531	318	63
30	M3BP 225 SMA 6	3GBP223051-••K	989	94.1	94.6	94.4	0.81	56.8	7.9	289	2.8	3.1	0.813	392	63
37	M3BP 250 SMA 6	3GBP253051-••K	991	94.4	94.9	94.7	0.83	68.0	7.7	356	2.7	2.9	1.49	467	63
45	M3BP 280 SMB 6	3GBP283220-••K	992	94.7	95.1	94.6	0.85	80.8	6.9	433	2.4	2.6	2.2	680	65
55	M3BP 280 SMC 6	3GBP283230-••K	990	95.0	95.4	95.0	0.85	98.5	6.8	531	2.4	2.6	2.85	725	65
75	M3BP 315 SMC 6	3GBP313230-••K	994	95.3	95.6	95.2	0.83	137	7.0	720	2.2	2.8	4.9	1000	67
90	M3BP 315 SMD 6	3GBP313240-••K	994	95.5	95.8	95.4	0.81	168	7.2	865	2.4	2.9	4.9	1040	67
110	M3BP 315 MLB 6	3GBP313420-••K	994	95.7	95.9	95.7	0.83	200	6.9	1057	2.3	2.7	6.3	1200	68
132	M3BP 315 LKA 6	3GBP313810-••K	993	95.9	96.1	95.9	0.82	242	6.9	1269	2.4	2.7	7.3	1410	68
160	M3BP 315 LKC 6	3GBP313830-••K	994	96.1	96.3	96.2	0.82	293	7.4	1537	2.7	2.9	9.2	1600	68
160	M3BP 355 SMB 6	3GBP353220-••K	995	96.1	96.1	95.6	0.82	293	7.0	1536	2.1	2.7	9.7	1680	73
200	M3BP 355 SMC 6	3GBP353230-••K	995	96.2	96.4	96.1	0.82	366	7.3	1919	2.3	2.8	11.3	1820	73
250	M3BP 355 MLB 6	3GBP353420-••K	995	96.4	96.6	96.5	0.83	451	7.1	2399	2.3	2.7	13.5	2180	73
315	M3BP 355 LKA 6	3GBP353810-••K	994	96.5	96.7	96.4	0.83	568	6.9	3026	2.3	2.6	15.5	2500	76
355	M3BP 355 LKB 6	3GBP353820-••K	995	96.5	96.6	96.1	0.81	655	7.7	3407	2.7	2.9	16.5	2600	76
400 [1]	M3BP 355 LKB 6	3GBP353820-••G	992	96.0	96.0	95.5	0.83	724	7.2	3850	2.6	2.6	16.5	2600	75
400	M3BP 400 LA 6	3GBP403510-••G	993	96.2	96.3	95.8	0.82	731	7.1	3846	2.3	2.7	17.0	2900	76
400	M3BP 400 LKA 6	3GBP403810-••G	993	96.2	96.3	95.8	0.82	731	7.1	3846	2.3	2.7	17.0	2900	76
450	M3BP 400 LB 6	3GBP403520-••G	994	96.6	96.6	96.1	0.82	819	7.4	4323	2.4	2.8	20.5	3150	76
450	M3BP 400 LKB 6	3GBP403820-••G	994	96.6	96.6	96.1	0.82	819	7.4	4323	2.4	2.8	20.5	3150	76
500	M3BP 400 LC 6	3GBP403530-••G	993	96.6	96.7	96.2	0.83	900	7.2	4808	2.5	2.7	22.0	3300	76
500	M3BP 400 LKC 6	3GBP403830-••G	993	96.6	96.7	96.2	0.83	900	7.2	4808	2.5	2.7	22.0	3300	76
560	M3BP 400 LD 6	3GBP403540-••G	993	96.9	96.9	96.4	0.85	981	7.4	5385	2.4	2.8	24.0	3400	77
560	M3BP 400 LKD 6	3GBP403840-••G	993	96.9	96.9	96.4	0.85	981	7.4	5385	2.4	2.8	24.0	3400	77
630	M3BP 450 LA 6	3GBP453510-••G	994	96.7	96.8	96.4	0.84	1119	6.5	6052	1.1	2.5	31.0	4150	81
710	M3BP 450 LB 6	3GBP453520-••G	995	96.9	96.9	96.5	0.85	1244	7.0	6814	1.3	2.5	37.0	4500	81
800 [1]	M3BP 450 LC 6	3GBP453530-••G	995	96.9	97.0	96.6	0.84	1418	7.2	7677	1.3	2.7	41.0	4800	81

[1] Temperature rise class F

ABB motors for water and wastewater

Technical data – IE3 process performance aluminium motors, 3000, 1500 and 1000 r/min

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1; 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cosφ	Current I_N A	I_S/I_N	Torque T_N Nm	T_I/T_N	T_b/T_N	Moment of inertia J = 1/4 GD²kgm²	Weight kg	Sound pressure Level L_{PA} dB
3000 r/min = 2 poles				400 V 50 Hz				CENELEC-design							
0.75	M3AA 80 B 2	3GAA081612-••J	2881	81.8	81.5	78.6	0.83	1.59	7.6	2.4	3.0	3.4	0.0020	9.4	60
1.1	M3AA 80 C 2	3GAA081613-••J	2875	82.7	82.7	80.1	0.80	2.3	8.3	3.6	4.0	3.7	0.0020	11	60
1.5	M3AA 90 L 2	3GAA091612-••J	2900	84.4	85.7	84.5	0.86	2.9	7.6	4.9	2.6	3.2	0.0050	16	60
2.2	M3AA 90 LB 2	3GAA091613-••J	2880	85.9	87.7	87.5	0.87	4.2	7.0	7.2	2.6	3.2	0.0050	18	63
3	M3AA 100 LB 2	3GAA101612-••J	2888	87.5	89.1	89.2	0.93	5.3	7.4	9.9	2.7	3.3	0.0090	31	62
4	M3AA 112 MB 2	3GAA111612-••J	2887	88.1	89.8	90.0	0.92	7.1	9.1	13.2	3.4	4.3	0.0130	35	68
5.5	M3AA 132 SB 2	3GAA131612-••J	2926	89.6	90.6	90.1	0.92	9.6	9.4	17.9	2.7	4.0	0.0210	56	73
7.5	M3AA 132 SC 2	3GAA131613-••J	2901	90.5	91.7	91.6	0.91	13.1	7.9	24.6	2.4	4.0	0.0230	63	73
11	M3AA 160 MLA 2	3GAA161051-••K	2943	92.1	92.7	92.4	0.92	18.7	8.1	35.6	2.7	3.4	0.0520	106	69
15	M3AA 160 MLB 2	3GAA161052-••K	2943	92.5	93.4	93.2	0.92	25.4	8.4	48.6	3.1	3.4	0.0620	123	69
18.5	M3AA 160 MLC 2	3GAA161053-••K	2942	93.1	93.9	93.9	0.93	30.8	8.3	60.0	3.1	3.6	0.0720	137	69
22	M3AA 180 MLA 2	3GAA181051-••K	2957	93.2	93.9	93.8	0.91	37.4	8.1	71.0	2.6	3.2	0.116	176	69

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cosφ	Current I_N A	I_S/I_N	Torque T_N Nm	T_I/T_N	T_b/T_N	Moment of inertia J = 1/4 GD²kgm²	Weight kg	Sound pressure Level L_{PA} dB
1500 r/min = 4 poles				400 V 50 Hz				CENELEC-design							
0.75	M3AA 80 E 4	3GAA082614-••J	1433	82.5	83.4	81.4	0.73	1.79	7.0	4.9	3.1	3.9	0.0040	13.1	54
1.1	M3AA 90 LB 4	3GAA092614-••J	1437	84.1	84.4	82.1	0.80	2.3	6.9	7.3	3.1	3.5	0.0070	17	50
1.5	M3AA 90 LD 4	3GAA092615-••J	1440	85.3	84.9	82.2	0.75	3.3	7.1	9.9	3.4	3.9	0.0070	20	50
2.2	M3AA 100 LC 4	3GAA102613-••J	1452	86.7	86.5	84.2	0.80	4.5	7.3	14.4	2.7	3.4	0.0110	25	54
3	M3AA 100 LD 4	3GAA102614-••J	1449	87.9	88.8	88.0	0.83	5.9	6.9	19.7	2.6	3.3	0.0140	32	63
4	M3AA 112 MB 4	3GAA112612-••J	1444	88.6	89.4	88.9	0.79	8.2	7.1	26.4	2.8	3.3	0.0180	34	64
5.5	M3AA 132 M 4	3GAA132612-••J	1460	89.6	90.5	89.6	0.82	10.8	6.4	35.9	1.9	2.6	0.0310	48	66
7.5	M3AA 132 MA 4	3GAA132614-••J	1462	90.6	91.3	90.6	0.79	15.1	6.6	48.9	2.2	3.7	0.0370	59	63
11	M3AA 160 MLA 4	3GAA162051-••K	1473	92.2	93.0	92.7	0.84	20.4	7.7	71.3	2.6	2.9	0.108	126	62
15	M3AA 160 MLB 4	3GAA162052-••K	1474	92.6	93.4	93.2	0.84	27.8	7.9	97.1	2.8	3.3	0.125	140	62
18.5	M3AA 180 MLA 4	3GAA182051-••K	1481	93.3	94.0	93.8	0.82	34.9	7.6	119	3.0	3.1	0.217	177	62
22	M3AA 180 MLB 4	3GAA182052-••K	1480	93.3	94.1	94.1	0.82	41.5	8.2	141	2.8	3.1	0.217	176	62

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cosφ	Current I_N A	I_S/I_N	Torque T_N Nm	T_I/T_N	T_b/T_N	Moment of inertia J = 1/4 GD²kgm²	Weight kg	Sound pressure Level L_{PA} dB
1000 r/min = 6 poles				400 V 50 Hz				CENELEC-design							
0.75	M3AA 90 LB 6	3GAA093613-••J	930	78.9	80.9	79.1	0.73	1.87	4.0	7.7	2.0	2.3	0.0070	17	44
1.1	M3AA 90 LD 6	3GAA093614-••J	931	81.0	83.4	82.6	0.77	2.5	4.4	11.2	2.0	2.2	0.0070	19	44
1.5	M3AA 100 LC 6	3GAA103612-••J	962	84.7	84.8	82.5	0.69	3.7	4.9	14.8	1.9	2.7	0.0140	28	49
3	M3AA 132 S 6	3GAA133611-••J	969	86.1	87.4	86.7	0.75	6.7	5.5	29.5	1.8	3.0	0.0310	48	57
4	M3AA 132 MA 6	3GAA133612-••J	961	86.8	89.4	89.7	0.82	8.1	5.5	39.7	1.8	2.1	0.0390	60	61
5.5	M3AA 132 MC 6	3GAA133614-••J	970	88.5	88.8	87.3	0.67	13.3	5.0	54.1	1.9	3.2	0.0440	64	61
7.5	M3AA 160 MLA 6	3GAA163051-••K	980	90.8	91.5	91.0	0.78	15.2	7.9	73.0	1.7	3.3	0.114	125	59
11	M3AA 160 MLB 6	3GAA163052-••K	979	91.2	91.8	91.1	0.74	23.5	8.5	107	2.2	3.9	0.131	139	59
15	M3AA 180 MLA 6	3GAA183051-••K	987	92.2	92.4	91.5	0.77	30.4	7.7	145	2.2	3.5	0.225	175	59

ABB motors for water and wastewater
Technical data – IE4 process performance cast iron motors, 3000, 1500 and 1000 r/min

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE4 efficiency class according to IEC 60034-30-1; 2014

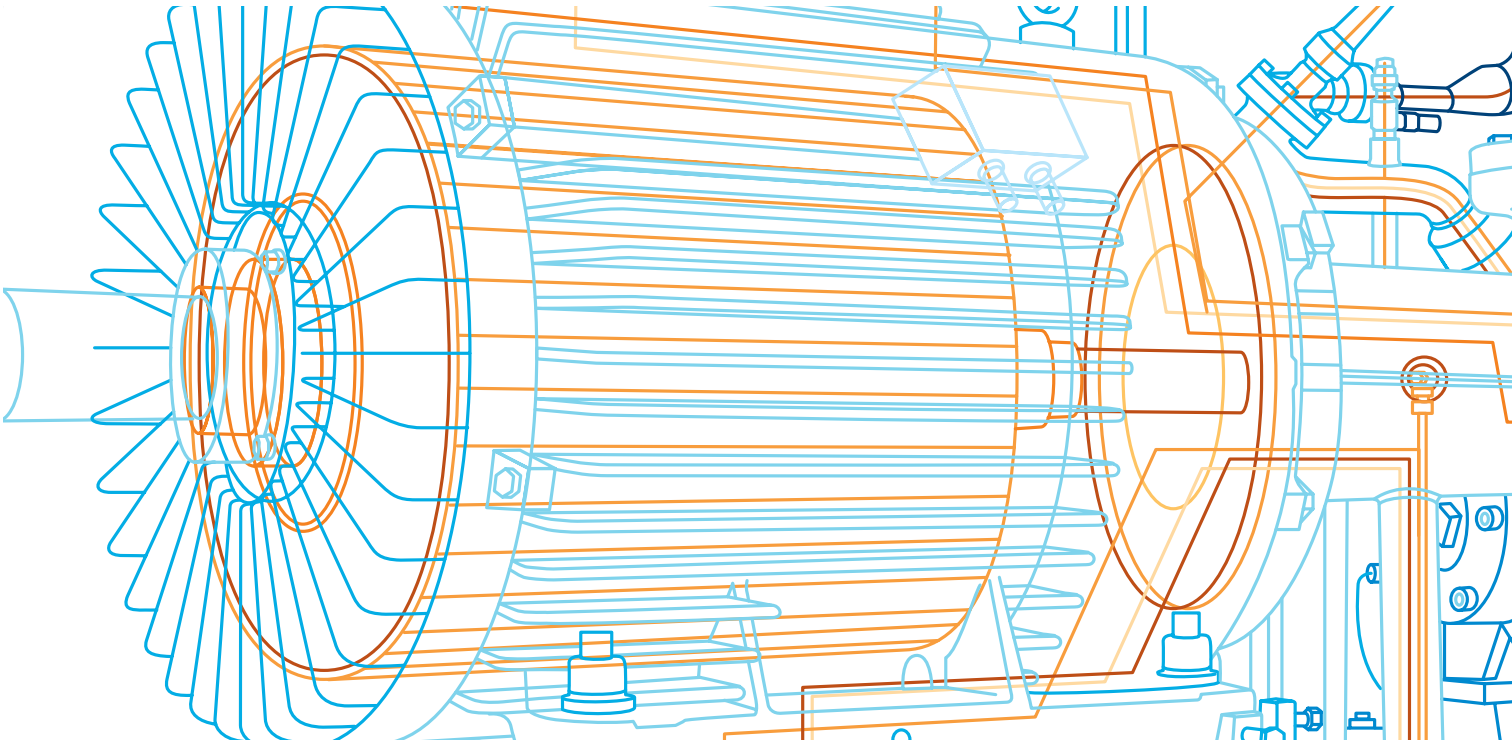
Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cosφ	Current I_N A	I_S/I_N	Torque T_N Nm	T_I/T_N	T_b/T_N	Moment of inertia J = 1/4 GD²kgm²	Weight kg	Sound pressure Level L_{PA} dB
3000 r/min = 2 poles				400 V 50 Hz				CENELEC-design							
75	M3BP 280 SMB 2	3GBP281220-••M	2979	96.3	96.3	95.6	0.87	129	7.3	240	2.1	2.9	0.90	665	77
90	M3BP 280 SMC 2	3GBP281230-••M	2981	96.5	96.4	95.8	0.88	152	8.0	152	2.5	3.1	1.15	725	77
110	M3BP 315 SMB 2	3GBP311220-••M	2982	96.4	96.3	95.7	0.87	189	6.7	352	1.9	2.6	1.40	940	77
132	M3BP 315 SMC 2	3GBP311230-••M	2984	96.6	96.6	96.1	0.88	224	7.9	422	2.4	3.0	1.70	1025	77
160	M3BP 315 MLA 2	3GBP311410-••M	2982	97.1	97.2	96.9	0.90	264	7.3	512	2.2	2.7	2.10	1190	77
200	M3BP 315 MLB 2	3GBP311420-••M	2982	97.1	97.2	97.0	0.90	330	6.8	640	1.9	2.6	2.20	1220	77
200 [1]	M3BP 355 SMA 2	3GBP351210-••M	2984	97.0	96.9	96.4	0.89	334	7.6	640	2.0	3.1	3.00	1600	83
250	M3BP 315 LKB 2	3GBP311820-••M	2981	96.9	97.1	97.1	0.91	409	7.9	800	2.5	2.7	2.90	1540	77
250 [1]	M3BP 355 SMB 2	3GBP351220-••M	2983	97.2	97.2	96.8	0.90	412	7.6	800	2.2	3.0	3.40	1680	83
315 [1]	M3BP 355 SMC 2	3GBP351230-••M	2984	97.0	96.9	96.3	0.89	526	7.8	1008	2.3	2.8	3.60	1750	83
355 [1]	M3BP 355 MLA 2	3GBP351410-••M	2982	97.0	97.0	96.6	0.90	586	7.5	1136	2.3	2.6	4.10	2000	83

[1] 3 dB(A) sound pressure level reduction with unidirectional fan construction. Direction of rotation must be stated when ordering, see variant codes 044 and 045

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cosφ	Current I_N A	I_S/I_N	Torque T_N Nm	T_I/T_N	T_b/T_N	Moment of inertia J = 1/4 GD²kgm²	Weight kg	Sound pressure Level L_{PA} dB
1500 r/min = 4 poles				400 V 50 Hz				CENELEC-design							
75	M3BP 280 SMC 4	3GBP282230-••M	1487	96.2	96.3	96.0	0.86	130	7.8	481	2.8	2.9	1.85	725	72
90	M3BP 280 MLA 4	3GBP282410-••M	1489	96.4	96.5	96.1	0.85	158	8.8	577	3.4	3.2	2.30	840	72
110	M3BP 315 SMC 4	3GBP312230-••M	1490	96.8	96.8	96.5	0.85	192	7.8	704	2.4	3.1	2.90	1000	68
132	M3BP 315 SMD 4	3GBP312240-••M	1490	96.9	96.9	95.6	0.85	231	7.9	845	2.6	3.2	3.20	1065	68
160	M3BP 315 MLB 4	3GBP312420-••M	1489	96.9	97.0	96.8	0.86	277	7.9	1026	2.7	3.0	3.90	1220	68
200	M3BP 315 LKB 4	3GBP312820-••M	1490	97.0	97.1	96.9	0.87	342	7.6	1281	2.5	2.9	5.00	1520	74
200	M3BP 355 SMA 4	3GBP352210-••M	1490	97.0	97.1	96.7	0.87	342	7.3	1281	2.1	2.7	5.90	1610	74
250	M3BP 315 LKC 4	3GBP312830-••M	1491	97.0	97.2	97.0	0.87	427	7.8	1601	2.3	3.0	5.50	1600	74
250	M3BP 355 SMB 4	3GBP352220-••M	1491	97.0	97.1	96.8	0.87	427	7.8	1601	2.5	2.9	6.90	1780	74
315	M3BP 355 SMC 4	3GBP352230-••M	1491	97.2	97.2	96.9	0.85	550	7.4	2017	2.8	2.9	7.20	1820	74
355	M3BP 355 MLA 4	3GBP352410-••M	1491	97.0	97.0	96.6	0.86	614	7.9	2273	2.7	2.9	8.40	2140	78

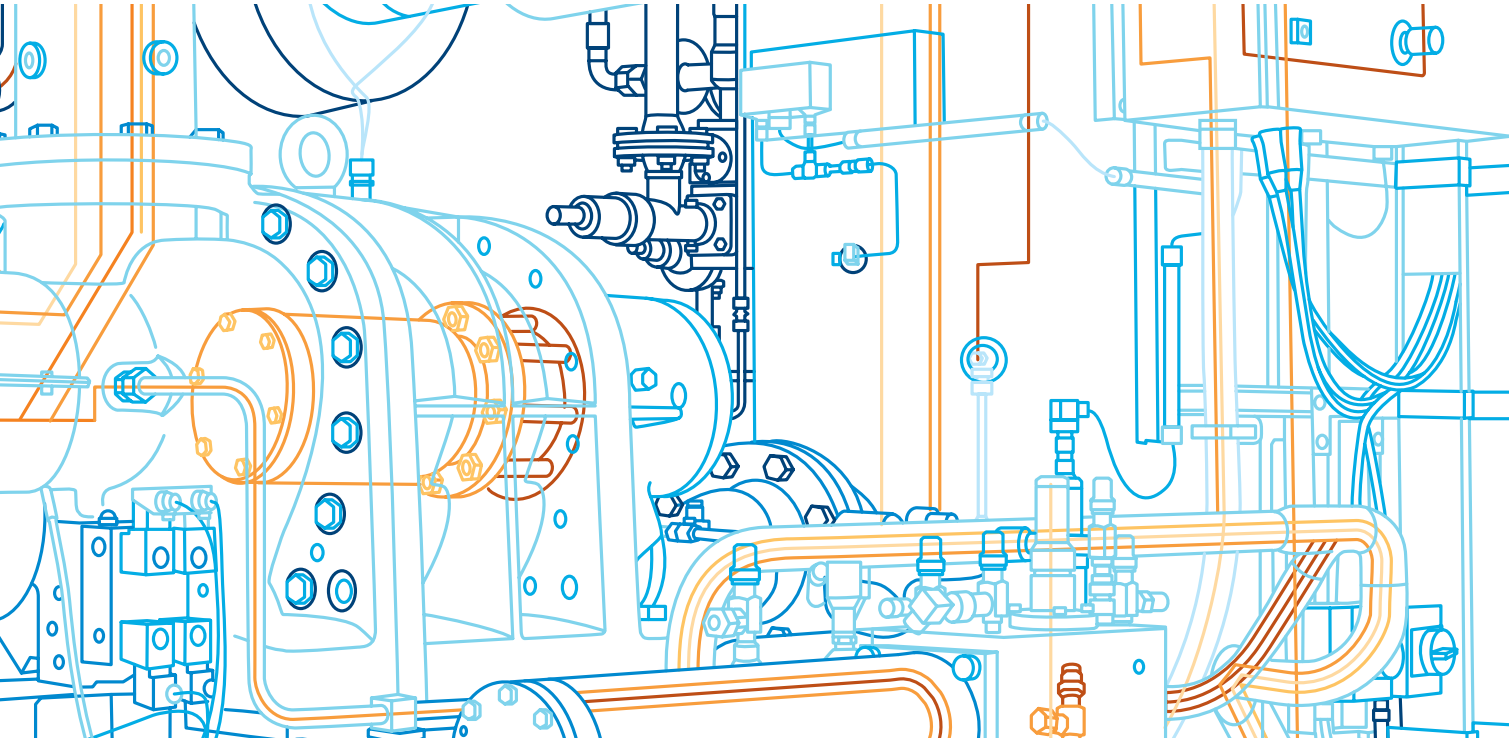
Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1; 2014 Full load 100%	3/4 load 75%	1/2 load 50%	Power factor Cosφ	Current I_N A	I_S/I_N	Torque T_N Nm	T_I/T_N	T_b/T_N	Moment of inertia J = 1/4 GD²kgm²	Weight kg	Sound pressure Level L_{PA} dB
1000 r/min = 6 poles				400 V 50 Hz				CENELEC-design							
45	M3BP 280 SMB 6	3GBP283220-••M	992	95.2	95.3	94.9	0.85	80.2	6.9	433	2.4	2.6	2.20	680	65
55	M3BP 280 SMC 6	3GBP283230-••M	990	95.4	95.6	95.2	0.85	97.8	6.8	530	2.4	2.6	2.85	725	65
75	M3BP 315 SMC 6	3GBP313230-••M	994	96.2	96.3	95.9	0.84	133	7.0	721	2.2	2.8	4.90	1000	67
90	M3BP 315 SMD 6	3GBP313240-••M	994	96.1	96.1	95.7	0.83	162	7.2	864	2.4	2.9	4.90	1040	67
110	M3BP 315 MLB 6	3GBP313420-••M	993	96.4	96.5	96.2	0.84	196	6.9	1057	2.3	2.7	6.30	1200	68
132	M3BP 315 LKA 6	3GBP313810-••M	993	96.4	96.5	96.2	0.83	238	6.9	1269	2.4	2.7	7.30	1410	68
160	M3BP 315 LKC 6	3GBP313830-••M	994	96.7	96.8	96.4	0.83	287	7.4	1537	2.7	2.9	9.20	1600	68
160	M3BP 355 SMB 6	3GBP353220-••M	995	96.4	96.4	96.1	0.83	288	7.0	1535	2.1	2.7	9.70	1680	73
200	M3BP 355 SMC 6	3GBP353230-••M	995	96.5	96.6	96.2	0.83	360	7.3	1919	2.3	2.8	11.3	1820	73
250	M3BP 355 MLB 6	3GBP353420-••M	995	96.6	96.7	96.4	0.83	450	7.1	2399	2.3	2.7	13.5	2180	73
315	M3BP 355 LKA 6	3GBP353810-••M	994	96.6	96.7	96.4	0.83	567	6.9	3026	2.3	2.6	15.5	2500	76
355	M3BP 355 LKB 6	3GBP353820-••M	995	96.7	96.7	96.1	0.80	662	7.7	3407	2.7	2.9	16.5	2600	76

When choosing an electric motor look beyond the obvious



Which one is more expensive to own, an electric motor that costs £1,000, or one with a price tag of £1,500? The purchase price won't tell the whole truth.

To see the real cost of any electric motor, you have to look beyond the purchasing price. The calculation is not difficult to make but is certainly worth doing. The number you get is the total cost of ownership for the motor, i.e. the true price that you are paying.



Purchase price
< 1 percent of total costs

Capital cost of acquiring a new motor does not exceed 3% of the total life cycle costs of the motor (machine monitor, survey of 6000 motors).

Cost of running
= 35–45 percent of total costs

Cost of running is basically the energy costs that the motor consumes per year. The energy price and annual running hours effecting the cost are more or less fixed, and therefore the cost of running is optimised by motor efficiency. The more the motor runs, the more the efficiency level counts.

Cost of not running
= 55–65 percent of total costs

The cost of unplanned production stops in a year caused through the failure of a motor. Depending on industry, this cost can ruin the yearly energy savings in just few hours.

All data in this infographics are based on ABB's experience and long cooperation with process industry customers.

Example: a typical motor in the water industry
110 kW motor

A motor in the water industry	
Output	110 kW
Purchase price	£7,000
Efficiency level	96.2%
kW cost for user	114.3
kWh cost for user	£0.08
Running hours in process industry	8,400 h/year
Lifetime of a motor	20 years
Cost of running	110 x 8,400 hours x 0.08 pence x 20 years / 0.962 = £1,536,798
Number of outage	1
Hours/outage	0,5
Unplanned downtime cost	£20,000 per hour
Cost of not running	20 years x 1 x 0.50 x £20,000 = £200,000
Cost of ownership:	

7,000 + (114.3 x 8,400 x 20 x 0.08) +
(20,000 x 20 x 1 x 0.5) =
7,000 + 1,536,798 + 200,000 = 1,743,798

Ratio showing the value of the purchase price compared to the total cost of ownership:

$$\text{Cost of ownership ratio} = \frac{£7{,}000}{£1{,}743{,}798} = 0.004$$

Notes

Notes

Contact us

www.abb.com/motors&generators

Notes:
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

ABB motors for water and wastewater/March 2015

Power and productivity
for a better world™