W IE2 efficiency aluminium motors

Frame 80 to 180

BROOK CROMPTON

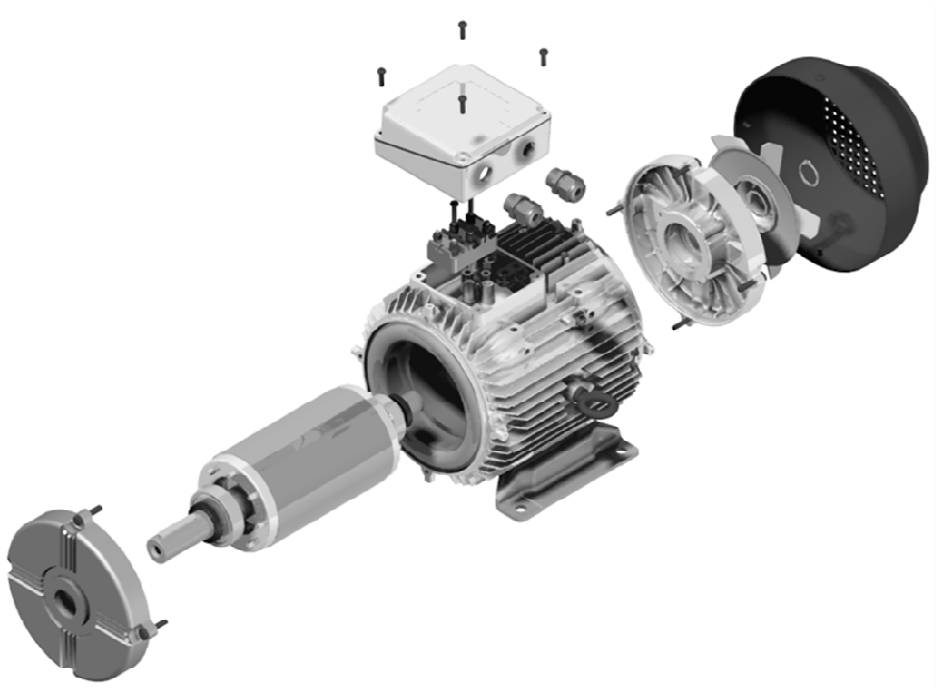
4P20P4338

F.S.E. Tamel S.A.
33-100 Tarnow.
ul. Elektryczna 6, Poland
phone: +48 14 632 11 00
fax: +48 14 621 96 64
E-mail: officetamel@tamel.pl
Internet: www.tamel.pl

BROOK CROMPTON

Table of contents

Introduction



Brook Crompton a company of ATB group

Brook Crompton is a leading manufacturer of electric motors for the global industrial market, with motor solutions which benefit a wide range of customers.

Throughout the branch, new ATB developments and systems solutions are regarded as intelligent. This means that they are efficient, individually manufactured, extremely economic and underpinned by close co-operation with customers. Many years of experience and the know-how of the work force have been merged and play a fundamental role in product intelligence. In addition, the Group also provides on-site system integration, in order to guarantee customers optimum advantages from ATB solutions.
ATB also demonstrates flexibility in the production area.

Quality assurance

ATB is a name for quality production. For standards that are maintained by means of continuous investment in modern production systems such as resin impregnation plants, CNC processing centres, assembly robots and winding centres.

Efficiency is further raised by on-going improvements to the material flow and layout design.
Stringent quality procedures are observed from first design to finished product in accordance with the ISO9001:2008 documented quality systems.
Our factories have been assessed to meet these requirements, a further assurance that only the highest possible standards of quality are accepted.


BUREAU VERITAS Certification

Certificate

FABRYKA SILNIKÓW ELEKTRYCZNYCH "TAMEL" S.A.
GRUPA BROOK CROMPTON
TARNÓW
POLAND

STANDARDS

ISO 9001:2008

SCOPE OF SUPPLY

1. DESIGN, MANUFACTURE, DELIVERY AND SERVICE OF SINGLE AND THREE-PHASE AC INDUCTION ELECTRIC MOTORS.
2. DESIGN, MANUFACTURE AND DELIVERY OF THE CAST IRON CASTINGS AND ALUMINIUM PRESSURE CASTINGS.


BUREAU VERITAS Certification

Certificate

FABRYKA SILNIKÓW ELEKTRYCZNYCH "TAMEL" S.A.
GRUPA BROOK CROMPTON
TARNÓW
POLAND

STANDARDS

ISO 9001:2008

SCOPE OF SUPPLY

1. DESIGN, MANUFACTURE, DELIVERY AND SERVICE OF SINGLE AND THREE-PHASE AC INDUCTION ELECTRIC MOTORS.
2. DESIGN, MANUFACTURE AND DELIVERY OF THE CAST IRON CASTINGS AND ALUMINIUM PRESSURE CASTINGS.

Specification, standards and regulations

New legal regulations

In connection with the international discussion on energy efficiency, a world-wide harmonized energy efficiency classification system has been established for low-voltage three-phase asynchronous motors.

New international efficiency classes of motors:
(IE = international Efficiency)
The new IEC60034-30:2009 defines world-wide the following efficiency classes in the power range from 0,75kW to 375kW 2p, 4p and 6p motors.
IE1 – Standard Efficiency (equivalent of EFF2)
IE2 – High Efficiency (equivalent of EFF1)
IE3 – Premium Efficiency
IE4 – Super Premium Efficiency

The efficiency factor defines the efficiency of motors when transforming electrical into mechanical energy. The higher the energy efficiency class, the more complex the production of motors becomes and the more material e.g. Copper, has to be used, which results in correspondingly higher prices. However, in relation to the economic life-time, the price impact by only a few percent and the additional cost will be amortized by the savings in energy costs in a short time.

A new method for determining efficiency
From now on, motors can be offered and sold with the new classes IE1, IE2 and IE3. In that case, the efficiency has to be determined according to the new measuring standard EN60034-2-1:2007.
The new method leads to substantially increased accuracy under exactly defined laboratory condition.
When comparing the measurements of the same motor, it is expected that the energy efficiency level measured with the new method will be a few percentage points less than the efficiency levels defined by the old method.
There are a few different method of determining the efficiency with low medium and high uncertainty.
For IE1 (standard efficiency) and motors below standard efficiency, test associated with low and medium uncertainty are acceptable. For higher efficiency levels only methods associated with low uncertainty shall be acceptable.

The methods for determining the efficiency are based on number of assumptions and it is not possible to make a comparison between the values of efficiency obtained by different methods. Therefore the motor documentation must state which method was used.

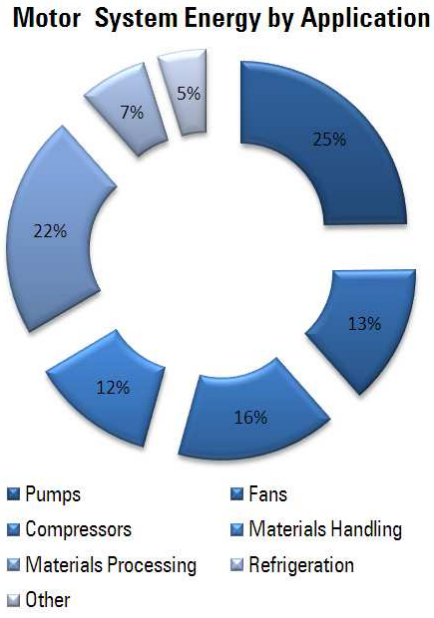
Under the new standard Brook Crompton uses indirect calculation method, additional load losses determined from measuring.

Climate protection

Today's energy trends and drivers:

- EU targets for increased energy efficiency:
  - 20% CO_2 emission
  - +20% energy efficiency
  - 20% the proportion of renewable energy
- Increased industrial efficiency through process optimization
- Limited availability of primary energy resources such as oil, gas, coal
- Higher financial cost of energy resources such as oil, gas, coal
- Globalization in the context of energy and the environment

The Brook Crompton high efficiency motor design has been optimized for application like compressors, pumps, cranes, lifts, fans and gearboxes. In these sectors customers can find the biggest potential for energy and cost savings.



Specification

Enclosure

All motors are totally enclosed with a minimum ingress protection of IP55 as defined in IEC 60034-5 (BS EN 60034 part 5).
Higher IP protection can be supplied for special request.

Motor cooling

Motors are cooled in accordance with EN 60034-6. The normal arrangement is IC411 (Totally Enclosed Fan Ventilated) via a fan mounted at the non-drive end. Alternative methods of cooling available on request.

Insulation and thermal rating

Standard motors will operate satisfactorily in an ambient temperature range of –30°C to +40°C (Class B temperature rise) and altitudes up to 1000 metres above sea level.

Duty cycle

All standard WU-DA motors are suitable for SI Duty as described in IEC 60034-1.

Electrical characteristics

All 'W' motors are wound for the 'Eurovoltage'. Motors up to and including 3kW are normally supplied 230/400V, 4kW and above supplied 400V and are suitable for ±10% tolerance in line with IEC60034-1 standard..

Standard compliance

Brook Crompton motors are of the totally enclosed, single or three phase squirrel cage type, built to comply with international IEC and EN standards. Motors conforming to other national and international specifications are also available on request.

Electrical	Mechanical
IEC/EN 60034-1	IEC 60072
IEC/EN 60034-2-1	IEC/EN 60034-5
IEC/EN 60034-30	IEC/EN 60034-6
IEC 60034-8	IEC/EN 60034-7
IEC 60034-12	IEC/EN 60034-9
	IEC 60034-14

Performance data

3000 min^{-1} (2 pole)

Rated power	Full load speed in revolutions per minute	Frame reference and size	Full load currend at rated voltage	Efficiency	Power factor	Full load torque	Direct on line starting torque ratio	Direct on line starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque ratio	Rotor interia WK^2	Sound pressure level @ 1m on no load	Net Weight
P_N Kw (HP)	n min^{-1}	Type	I_N 400V A	η 1.0P_N 0.75P_N 0.5P_N	Cos ∅ 1.0P_N 0.75P_N 0.5P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	J kgm^2	L_{PA} dB(A)	kg
0.75 (1.0)	2880	WU-DA80MJ IE2	1.65	**77.4** 76.9 75.2	**0.84** 0.78 0.66	2.5	3.0	7.1	2.7	2.4	0.0010	56	9.5
1.1 (1.5)	2880	WU-DA80MM IE2	2.35	**79.6** 80.7 78.6	**0.84** 0.77 0.65	3.6	2.8	6.7	2.7	2.4	0.0013	56	11.5
1.5 (2.0)	2850	WU-DA90SMX IE2	2.97	**81.3** 82.3 82.6	**0.90** 0.84 0.76	5.0	2.8	7.1	3.1	2.4	0.0014	66	16.5
2.2 (3.0)	2890	WU-DA90LSX IE2	4.60	**83.2** 85.4 84.1	**0.82** 0.72 0.58	7.3	2.5	7.3	3.0	2.5	0.0016	66	18.0
3.0 (4.0)	2890	WU-DA100LR IE2	5.90	**84.6** 82.7 75.2	**0.88** 0.74 0.54	9.9	3.1	8.1	3.1	2.4	0.0050	60	22.5
4.0 (5.5)	2870	WU-DA112MM IE2	7.30	**85.8** 89.2 87.4	**0.91** 0.88 0.81	13.3	3.0	7.8	3.1	2.8	0.0055	60	25.0
5.5 (7.5)	2910	WU-DA132SEX IE2	10.2	**87.0** 88.8 87.9	**0.89** 0.83 0.70	18.0	2.7	8.2	3.1	2.4	0.012	66	41.0
7.5 (10)	2900	WU-DA132SJX IE2	13.5	**88.1** 88.4 88.5	**0.91** 0.88 0.82	24.7	2.5	8.2	3.0	2.3	0.015	66	48.0
11 (15)	2940	WU-DA160MB IE2	20.0	**89.4** 89.7 88.5	**0.89** 0.84 0.76	35.7	2.2	7.8	3.0	1.8	0.039	68	73.0
15 (20)	2940	WU-DA160MJ IE2	26.6	**90.3** 89.8 88.8	**0.90** 0.86 0.79	48.7	2.2	8.0	3.1	1.9	0.045	68	80.0
18.5 (25)	2930	WU-DA160LR IE2	32.5	**90.9** 90.6 89.8	**0.90** 0.86 0.80	60.3	2.4	8.7	3.2	1.9	0.056	68	91.5
22 (30)	2950	WU-DA180ME IE2	39.0	**91.3** 91.5 90.4	**0.89** 0.86 0.76	71.2	2.2	9.0	3.1	1.9	0.084	68	115.5

Performance data

1500 min^{-1} (4 pole)

Rated power	Full load speed in revolutions per minute	Frame reference and size	Full load currend at rated voltage	Efficiency	Power factor	Full load torque	Direct on line starting torque ratio	Direct on line starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque ratio	Rotor interia WK^2	Sound pressure level @ 1m on no load	Weight
P_N Kw (HP)	n min^{-1}	Type	I_N 400V A	η 1.0P_N 0.75P_N 0.5P_N	Cos ∅ 1.0P_N 0.75P_N 0.5P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	J kgm^2	L_{PA} dB(A)	kg
0.75 (1.0)	1440	WU-DA80MS IE2	1.90	**79.6** 78.8 77.4	**0.72** 0.62 0.49	5.0	3.8	6.8	2.4	1.8	0.0019	47	12.0
1.1 (1.5)	1425	WU-DA90SRX IE2	2.50	**81.4** 81.5 82.0	**0.77** 0.78 0.58	7.4	2.3	5.2	2.9	2.3	0.0034	48	17.5
1.5 (2.0)	1440	WU-DA90LWX IE2	3.70	**82.8** 83.0 81.0	**0.70** 0.58 0.46	9.9	2.6	5.6	3.1	2.4	0.0042	48	20.5
2.2 (3.0)	1435	WU-DA100LS IE2	5.10	**84.3** 83.6 81.4	**0.74** 0.66 0.53	14.6	3.1	6.6	3.1	2.6	0.0103	54	23.0
3.0 (4.0)	1445	WU-DA100LTF[1] IE2	6.80	**85.5** 83.5 82.6	**0.74** 0.63 0.50	19.8	3.9	8.5	4.0	2.8	0.0118	54	29.5
4.0 (5.5)	1440	WU-DA112MT IE2	8.70	**86.6** 86.6 85.9	**0.77** 0.69 0.55	26.5	3.0	7.4	3.1	2.6	0.012	54	29.5
5.5 (7.5)	1455	WU-DA132STX IE2	11.1	**87.7** 88.0 87.2	**0.82** 0.74 0.63	36.2	2.4	7.1	3.0	2.3	0.030	59	57.0
7.5 (10)	1460	WU-DA132MVX IE2	14.7	**88.7** 89.4 88.6	**0.83** 0.76 0.67	49.1	2.9	8.1	3.2	2.5	0.033	59	60.5
11 (15)	1465	WU-DA160MJ IE2	21.0	**89.8** 91.0 90.4	**0.83** 0.78 0.67	71.7	2.5	7.7	2.9	2.0	0.068	63	76.5
15 (20)	1460	WU-DA160LR IE2	28.0	**90.6** 91.8 91.6	**0.85** 0.81 0.71	98.1	2.5	7.7	2.9	2.0	0.084	63	89.0
18.5 (25)	1470	WU-DA180ME IE2	35.0	**91.2** 91.8 90.7	**0.84** 0.77 0.66	120	2.8	8.4	3.2	2.2	0.16	62	112.0
22 (30)	1470	WU-DA180LJ IE2	41.0	**91.6** 92.1 91.6	**0.86** 0.83 0.71	143	2.6	7.6	2.9	2.0	0.19	62	126.0

1 - New mechanical design required

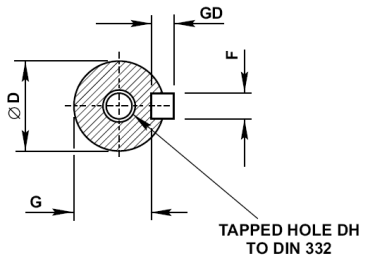
Performance data

1000 min^{-1} (6 pole)

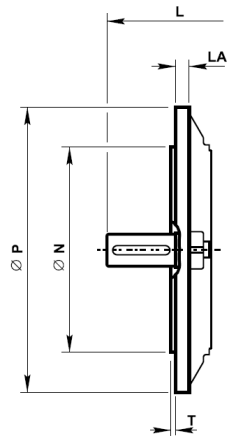
Rated power	Full load speed in revolutions per minute	Frame reference and size	Full load currend at rated voltage	Efficiency	Power factor	Full load torque	Direct on line starting torque ratio	Direct on line starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque ratio	Rotor interia Wk^2	Sound pressure level @ 1m on no load	Weight
P_N Kw (HP)	n min^{-1}	Type	I_N 400V A	η 1.0P_N 0.75P_N 0.5P_N	Cos ∅ 1.0P_N 0.75P_N 0.5P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	J kgm^2	L_{PA} dB(A)	kg
0.75 (1.0)	935	WU-DA90STX IE2	2.20	**75.9** 73.8 70.1	**0.65** 0.54 0.44	7.7	2.9	4.8	3.0	2.5	0.0039	65	19.0
1.1 (1.5)	925	WU-DA90LWX IE2	3.00	**78.1** 75.6 73.1	**0.67** 0.57 0.42	11.4	3.0	4.8	3.0	2.6	0.0043	65	20.5
1.5 (2.0)	930	WU-DA100LUW IE2	4.20	**79.8** 76.8 74.6	**0.65** 0.54 0.43	15.4	2.0	4.2	2.6	2.0	0.011	58	25.0
2.2 (3.0)	950	WU-DA112MT IE2	5.50	**81.8** 77.6 73.9	**0.70** 0.56 0.45	22.1	2.5	6.5	2.9	2.0	0.012	54	29.5
3.0 (4.0)	965	WU-DA132SLX IE2	6.90	**83.3** 84.8 83.2	**0.75** 0.67 0.54	29.7	2.1	6.7	2.3	1.6	0.027	58	52.0
4.0 (5.5)	960	WU-DA132MMX IE2	9.30	**84.6** 84.8 82.5	**0.74** 0.66 0.54	39.8	2.2	5.9	2.5	1.6	0.029	58	54.0
5.5 (7.5)	950	WU-DA132MRX IE2	12.3	**86.0** 85.2 83.5	**0.75** 0.68 0.55	55.3	2.1	5.6	2.4	1.6	0.032	58	55.0
7.5 (10)	975	WU-DA160MM IE2	16.6	**87.2** 88.1 86.2	**0.75** 0.67 0.56	73.5	1.8	6.5	2.8	1.7	0.10	59	87.0
11 (15)	980	WU-DA160LV IE2	24.0	**88.7** 90.0 88.5	**0.75** 0.67 0.57	107.2	2.0	7.5	2.8	1.9	0.12	59	95.0
15 (20)	980	WU-DA180LM IE2	30.5	**89.7** 90.8 89.6	**0.78** 0.74 0.63	146.2	2.4	6.5	2.8	2.2	0.23	59	130.0

Dimensions

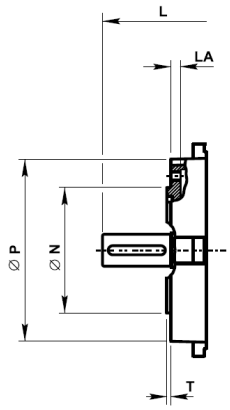
Shaft		
	British and European	
Dim D	Tol	Limits
19 to 28	j6	+0,009 - 0,004
32 to 48	k6	+0,018 - 0,002



Flange		
	IEC 72-1	
Dim N	Tol	Limits
130 to 180	j6	+0.014 - 0.011
230 to 250	h6	+0.016 - 0.013



Face		
	IEC 72-1	
Dim N	Tol	Limits
95 to 110	j6	+0.013 - 0.009
130 to 180	j6	+0.014 - 0.011



Notes

All dimensions in millimetres

Drain holes are standard on frames 160-180 and on request for frames 80-132

Cable entry can be arranged in any one of four positions at 90° intervals

No eyebolts on frame sizes 80-90

On frame sizes 80 the terminal box is offset towards the non -drive end

Dimensions should not be used for installation purposes unless specially endorsed

Notes

B5 mounted motors have suffix '-D' in the frame reference, eg WU-DA132MRX-D and B3/B5 mounted motors have suffix '-H' in the frame reference, eg WU-DA132MRX-H

B14 mounted motors have suffix 'C' in the frame reference, eg WU-DA132MRX-C and B3/B14 mounted motors have suffix '-H' in the frame reference, eg WU-DA132MRX-H

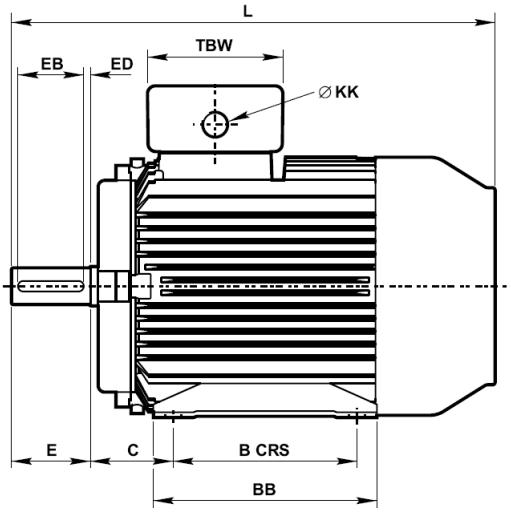
Pad mounted motors have suffix '-P' in the frame reference, eg WU-DA132MRX-P

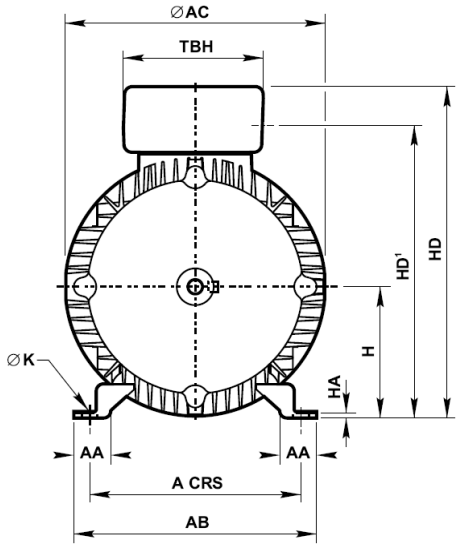
Dimensions

Foot (B3) / Flange (B5) / Face mounting (B14) - TEFV

IM B3
IM 1001

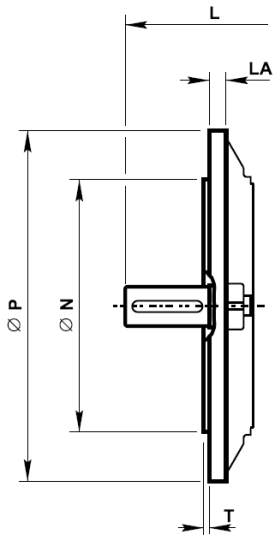
Mounting options

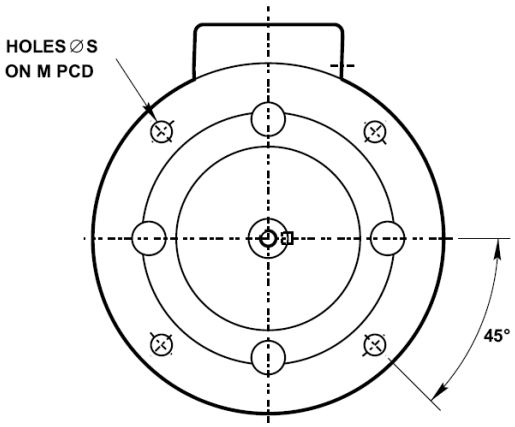




IM B5/IM B35
IM 3001/IM 2001

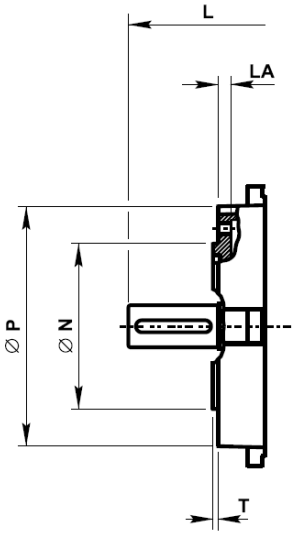
Mounting options

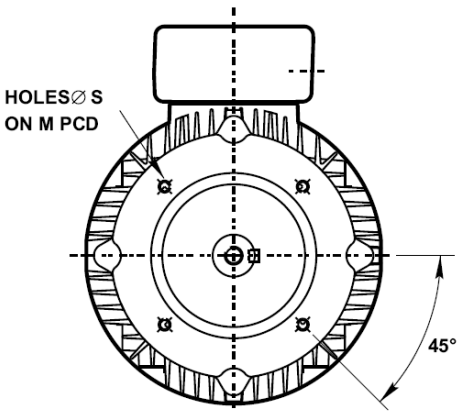




IM B14/IM B34
IM 3601/IM 2101

Mounting options





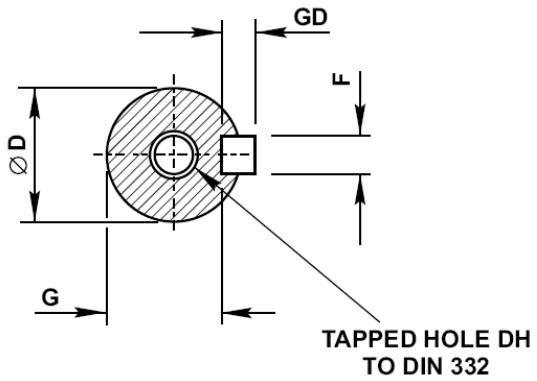
Dimensions

Foot (B3) / Flange (B5) / Face mounting (B14) - TEFV

	General													Terminal box		
Type	A	B	C	H	K	L	AA	AB	AC	BB	HA	HD	HD[1]	TBW	TBH	KK
WU-DA80M	125	100	50	80	10	278	27	157	160	127	4	212	183	86	86	1 x M20
WU-DA90SX	140	100	56	90	10	356	28	164	178	150	4	225	201	86	86	1 x M20
WU-DA90LX	140	125	56	90	10	356	28	164	178	150	4	225	201	86	86	1 x M20
WU-DA100L	160	140	63	100	12	368	28	184	199	170	4	254	223	106	106	2 x M20
WU-DA100LW	160	140	63	100	12	380	28	184	199	170	4	254	223	106	106	2 x M20
WU-DA100LF[1]	160	140	63	100	12	442	28	184	215	170	4	267	233	127	127	2 x M20
WU-DA112M	190	140	70	112	12	382	35	218	215	170	4	279	245	127	127	2 x M25
WU-DA132SX	216	140	89	132	12	489	38	242	255	208	5	322	289	127	127	2 x M25
WU-DA132MX	216	178	89	132	12	489	38	242	255	208	5	322	289	127	127	2 x M25
WU-DA160M	254	210	108	160	15	605	49	304	314	304	5	400	359	140	140	2 x M32
WU-DA160L	254	254	108	160	15	605	49	304	314	304	5	400	359	140	140	2 x M32
WU-DA180M	279	241	121	180	15	667	50	329	358	329	6	440	396	140	140	2 x M32
WU-DA180L	279	279	121	180	15	667	50	329	358	329	6	440	396	140	140	2 x M32

	IM B5 mounting						IM B14 mounting					
Type	M	N	P	S	T	LA	M	N	P	S	T	LA
WU-DA80M	165	130	200	12	3.5	12	100	80	120	M6	3	9
WU-DA90SX	165	130	200	12	3.5	10	115	95	140	M8	3	9
WU-DA90LX	165	130	200	12	3.5	10	115	95	140	M8	3	9
WU-DA100L	215	180	250	14.5	4	12	130	110	160	M8	3.5	12.5
WU-DA100LW	215	180	250	14.5	4	12	130	110	160	M8	3.5	12.5
WU-DA100LF[1]	215	180	250	14.5	4	12	130	110	160	M8	3.5	12.5
WU-DA112M	215	180	250	14.5	4	12	130	110	164	M8	3.5	13
WU-DA132SX	265	230	300	14.5	4	12	165	130	200	M10	3.5	14
WU-DA132MX	265	230	300	14.5	4	12	165	130	200	M10	3.5	14
WU-DA160M	300	250	350	18.5	5	13	215	180	250	M12	4	13
WU-DA160L	300	250	350	18.5	5	13	215	180	250	M12	4	13
WU-DA180M	300	250	350	18.5	5	15	-	-	-	-	-	-
WU-DA180L	300	250	350	18.5	5	15	-	-	-	-	-	-

	Shaft							
Type	D	E	F	G	GD	EB	ED	DH
WU-DA80M	19	40	6	15.5	6	32	4	M6x16
WU-DA90SX	24	50	8	20	7	40	5	M8x19
WU-DA90LX	24	50	8	20	7	40	5	M8x19
WU-DA100L	28	60	8	23.9	7	50	5	M10x22
WU-DA100LW	28	60	8	23.9	7	50	5	M10x22
WU-DA100LF[1]	28	60	8	23.9	7	50	5	M10x22
WU-DA112M	28	60	8	23.9	7	50	5	M10x22
WU-DA132SX	38	80	10	33	8	70	5	M12x28
WU-DA132MX	38	80	10	33	8	70	5	M12x28
WU-DA160M	42	110	12	37	8	100	5	M16x36
WU-DA160L	42	110	12	37	8	100	5	M16x36
WU-DA180M	48	110	14	42.5	9	100	5	M16x36
WU-DA180L	48	110	14	42.5	9	100	5	M16x36



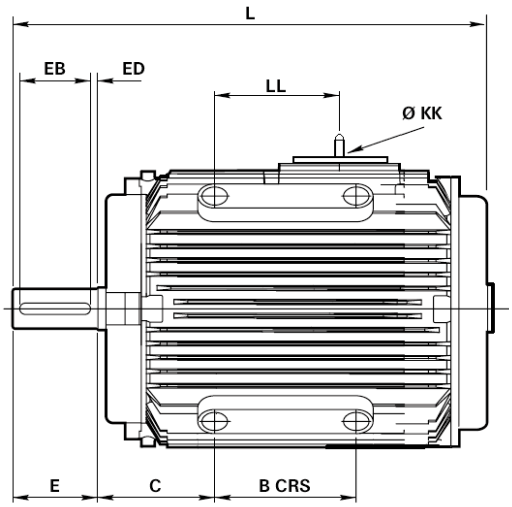
1 - New mechanical design required

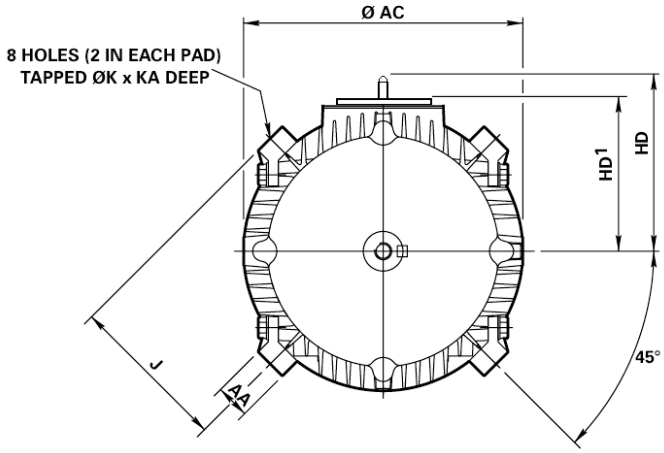
Dimensions

Pad/rod mounting (B30) - AOM

IM B30, IM V30, IM V31
IM 9201, IM 9211, IM 9231

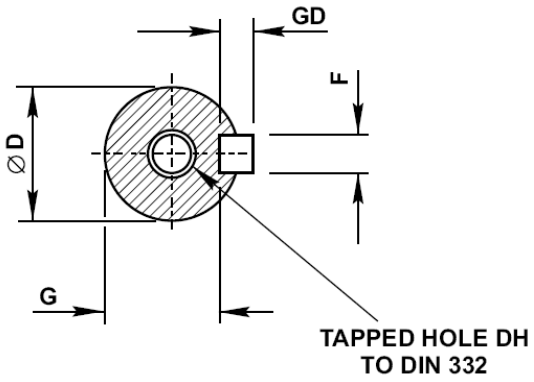
Mounting options





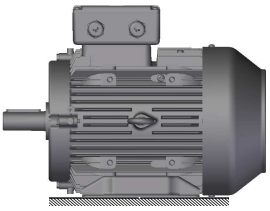
Pad / rod mounting: general												
Type	B	C	J	K	L	AA	AC	HD	HD1	KA	KK	LL
WU-DA80M-P	90	55	95	M12	253	23	160	-	96	14	M20	67.5
WU-DA90LX-P	90	73.5	103	M12	327	24	178	-	104	13	M20	129.5
WU-DA100L-P	100	83	112.5	M12	322	24	199	146	116	15	M20	88
WU-DA100LW-P	100	83	112.5	M12	337	24	199	146	116	15	M20	88
WU-DA100LF-P[1]	100	90	125	M12	395	24	215	154	133	18	M25	145.5
WU-DA112M-P	100	90	125	M12	336	24	215	154	133	18	M25	85
WU-DA132MX-P	140	108	150	M16	430	35	255	175	145	19	M25	134
WU-DA160L-P	200	135	181	M20	533	35	314	208.5	181	22	M32	180
WU-DA180L-P	200	160.5	202	M20	590	35	358	238	202	22	M32	180

Shaft								
Type	D	E	F	G	GD	EB	ED	DH
WU-DA80M	19	40	6	15.5	6	32	4	M6x16
WU-DA90LX	24	50	8	20	7	40	5	M8x19
WU-DA100L	28	60	8	23.9	7	50	5	M10x22
WU-DA100LW	28	60	8	23.9	7	50	5	M10x22
WU-DA100LF[1]	28	60	8	23.9	7	50	5	M10x22
WU-DA112M	28	60	8	23.9	7	50	5	M10x22
WU-DA132MX	38	80	10	33	8	70	5	M12x28
WU-DA160L	42	110	12	37	8	100	5	M16x36
WU-DA180L	48	110	14	42.5	9	100	5	M16x36

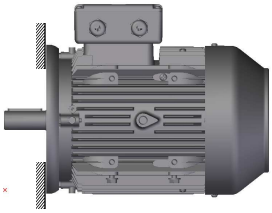


1 - New mechanical design required

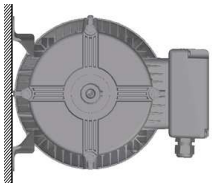
Mounting option



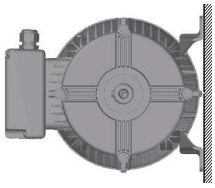
IM B3
IM 1001
foot mounted



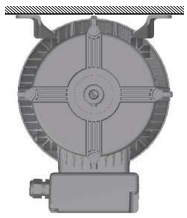
IM B5
IM 3001
flange at DE no feet



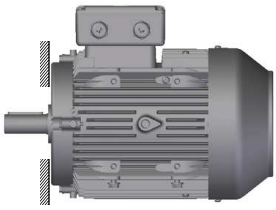
IM B6
IM 1051
foot wall mounted with feet on left hand side



IM B7
IM 1061
foot wall mounted with feet on right hand side

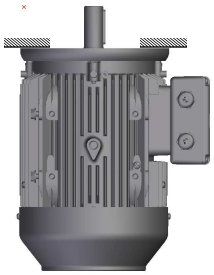


IM B8
IM 1071
ceiling mounted with feet above motor

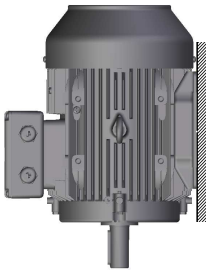


IM B14
IM 3601
face at DE no feet

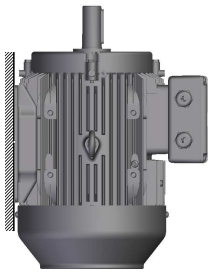
IM V1
IM 3011
flange at DE shaft down no feet



IM V3
IM 3031
flange at DE shaft down no feet



IM V5
IM 1011
vertical foot wall mounted shaft down



IM V6
IM 1031
vertical foot wall mounted shaft up

IM V18
IM 3611
face at DE no feet shaft down

IM V19
IM 3631
face at DE no feet shaft up

Technical information: Mechanical

Bearing and grease arrangement

Bearings are pre-packed with a lithium complex based grease or Polyurea.
Regreasing facilities are available on request.

Standard and re-greasing facilities		
Type	Lithium complex	Polyurea
80 - 180	Esso Unirex N3 with temperature range of –30°C to +140°C	EA6 with temperature range of –40°C to +160°C

Bearing references and oil seals

Type	Mounting	Number of poles	Bearings		Oil seals - bore x O/D x width in mm	
			Drive end	Non-drive end	Drive end	Non-drive end
WU-DA80	All	All	6204ZZ	6003ZZ	20 x 30 x 7	17 x 28 x 6
WU-DA90	All	All	6205ZZ	6203ZZ	25 x 35 x 7	17 x 28 x 6
WU-DA100L	All	All	6206ZZ	6205ZZ	30 x 42 x 7	25 x 37 x 7
WU-DA112	All	All	6206ZZ	6205ZZ	30 x 42 x 7	25 x 37 x 7
WU-DA132	All	All	6208ZZ	6305ZZ	40 x 52 x 7	25 x 37 x 7
WU-DA160	All	All	6309ZZ	6307ZZ	45 x 60 x 8	35 x 47 x 7
WU-DA180	All	All	6310ZZ	6308ZZ	50 x 65 x 8	40 x 52 x 7

Grease life at 80°C temperature x 10^3 hours

	3000 min^{-1}		1500 min^{-1}		1000 min^{-1}	
Type	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
WU-DA80M	30	30	30	30	30	30
WU-DA90	30	30	30	30	30	30
WU-DA100	30	30	30	30	30	30
WU-DA112	30	30	30	30	30	30
WU-DA132	30	25	30	30	30	30
WU-DA160	29	19	30	30	30	30
WU-DA180	24	16	30	30	30	30

Approximate shipping specifications

Type	Net weight (kg)	Gross weight (kg)	Cubage (m^3)
WU-DA80M	12	13	0.02
WU-DA90SX	18	19	0.03
WU-DA90LX	20.5	21.5	0.03
WU-DA100L	23.0	25.5	0.04
WU-DA100LF[1]	29.5	33.5	0.08
WU-DA112M	29.5	33.5	0.05
WU-DA132SX	57.0	63.0	0.08
WU-DA132MX	60.5	66.5	0.08
WU-DA160M	88	98	0.125
WU-DA160L	92	102	0.125
WU-DA180M	115	130	0.253
WU-DA180L	126	141	0.253

Table includes average motor weight with B3 (foot) mounting type.
The average weight of motor with B5 (flange) mounting type is around 10% higher.

Technical information: Mechanical

Axial and radial loads

Maximum permissible external axial and radial loads in Newtons*

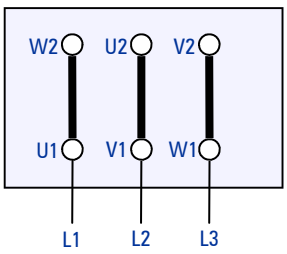
Type	Poles	Horizontal shaft		Vertical shaft				Maximum permissible radial load end of shaft (horizontal mounting)
				Shaft up		Shaft down		
		Load towards motor	Load away from motor	Load towards motor	Load away from motor	Load towards motor	Load away from motor	
	2	339	539	321	565	362	521	774
WU-DA80	4	303	503	283	530	330	583	729
	6	284	484	260	516	316	460	646
	2	444	684	421	716	476	661	915
WU-DA90	4	398	638	366	682	442	606	854
	6	349	589	309	641	401	549	720
	2	781	1101	743	1159	839	1063	1295
WU-DA100	4	710	1030	655	1107	787	975	1215
	6	560	880	506	963	643	826	1145
	2	768	1088	715	1170	850	1035	1295
WU-DA112	4	690	1010	612	1131	811	932	1202
	6	541	861	463	979	659	783	1141
	2	1355	1707	1266	1838	1486	1618	2114
WU-DA132	4	1253	1605	1130	1779	1427	1482	2068
	6	1167	1519	1035	1711	1359	1387	1968
	2	2144	2639	1951	2920	2425	2446	3613
WU-DA160	4	2123	2618	1895	2959	2464	2390	3738
	6	1973	2468	1669	2905	2410	2164	3544
	2	2711	3274	2465	3667	3104	3027	4374
WU-DA180	4	2749	3312	2426	3801	3238	2988	4556
	6	2575	3138	2166	3785	3222	2728	4334

* All figures are based on Lna bearing life of 20.000 hours. Lna = adjusted L10 life rating taking account of:
- reliability - material improvements - lubrication conditions

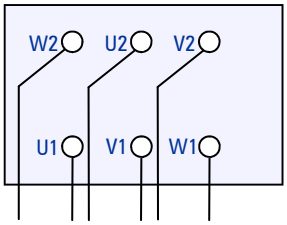
Electrical

Connection diagrams

Star Delta



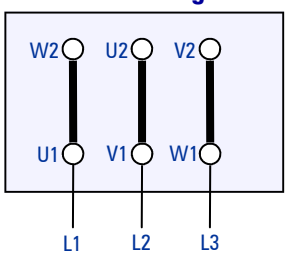
D.O.L. Δ



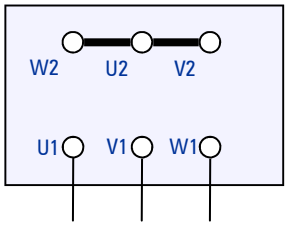
Y/Δ

Motors output power => 4kW

Dual Voltage

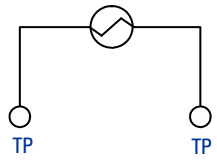


Δ



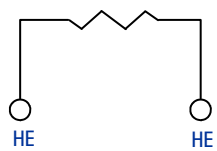
Y

Thermistors



Connect to thermistor control unit.

Heaters

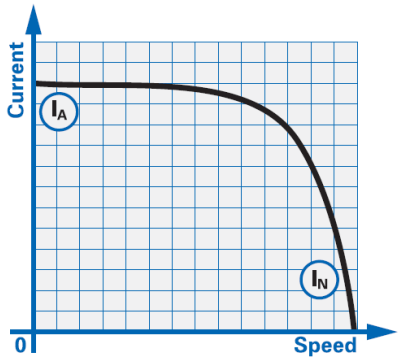


Connect to single phase voltage.

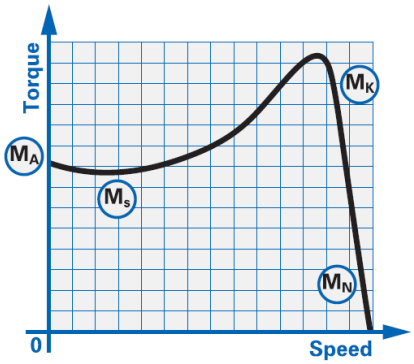
Technical information: Electrical

DOL starting (EN60034-12 Design N)

Typical speed/current curve

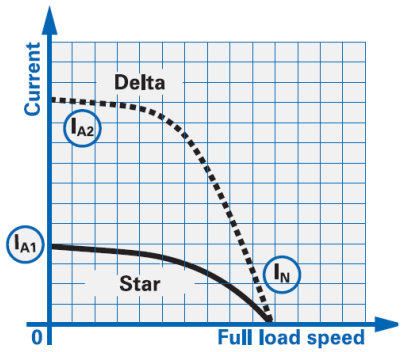


Typical speed/torque curve

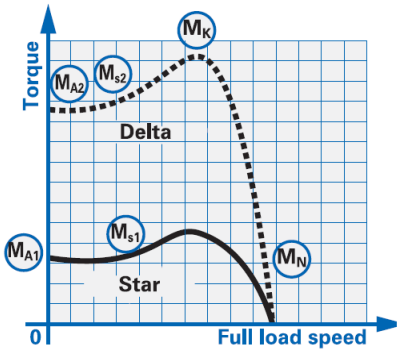


Star delta starting (EN60034-12 Design NY)

Typical speed/current curve



Typical speed/torque curve



Description

I_A	Starting current
I_N	Full load current
M_A	Starting torque or locked rotor torque
M_S	Pull up torque or run up torque
M_K	Pull out torque or breakdown torque
M_N	Full load torque

Torque/speed curves for specific motors can be supplied on request.

Notes

During the run up period in Star, there must be an adequate excess of motor torque over the load torque. The change to delta must not occur until the motor is near the operating speed.

Motors are wound for either 230/400 volts or 400/690 volts.

The moment of inertia is presented as:

$$J\ (WK^2 \text{ or } WR^2) = \frac{GD^2}{4} \qquad J \text{ in lb ft}^2 = \frac{kgm^2}{0{,}042}$$

where *G* is the mass, *D* is the "size" of the body in the direction perpendicular to the axis of rotation.

Notes

Worldwide sales and service network

AUSTRIA
ATB Motorenwerke GmbH
G.-Bauknecht-Str. 1
8724 Spielberg
T: +43 3577 757-323
F: +43 3577 757-182
info@atb-motors.com
ATB Technologies GmbH
Millenium Park 11
6890 Lustenau
T: +43 5577 9010-0
F: +43 5577 9010-110
info@atb-motors.com

ASIA
ATB Motorentechnik GmbH
141 Market Street,
07-01 International Factors
Building
Singapore 048944
T: +65 63721174
F: +65 62253524
dennis.tan@atbs.com.sg

BAHREIN
ATB Austria Antriebstechnik Aktiengesellschaft,
Rep. Office Bahrain
AlmoayyedTower
21st Floor c/o Regus
Seef District, Manama
Kingdom of Bahrain
T: +973 175 68 160
F: +973 175 67 901

BENELUX
ATB BeNeLux B.V.
Tasveld 14
8271 RW IJsselmuiden
T: +31 38 443 2110
F: +31 38 443 2111
verkoop@nl.atb-motors.com

GERMANY
ATB Antriebstechnik GmbH
Silcherstraße 74
73642 Welzheim
T: +49 7182 14-535
F: +49 7182 14 590
info@de.atb-motors.com

ATB Motorentechnik GmbH
Helgoländer Damm 75
26954 Nordenham
T: +49 4731 365-0
F: +49 4731 365-159
nordenham@de.atb-motors.com

Schorch Elektrische Maschinen
und Antriebe GmbH
Breite Straße 131
41238 Mönchengladbach
T: +49 2166 925-0
T: +49 2166 925-100
mail@schorch.de

POLAND
Fabryka Silnikow Elektrycznych Tamel S.A. ul.
Elektryczna 6
33 100 Tarnow
T: +48 14 632 11 00
F: +48 14 632 11 02
Office.tamel@tamel.pl

RUSSIA
ATB Rus OOO
Petrovka ul. 27
107031 Moscow
T: +7 495 95 66 326
vyacheslav.mikheyev@a-tecindustries.com

SERBIA
ATB Sever a.d.
Magnetna polja 6
24000 Subotica
T: +381 24 548 111
sever@rs.atb-motors.com
ATB FOD d.o.o.
Dorda Vajferta 16
19210 Bor
T: +381 30 423 147
fod@fod.co.rs

SWITZERLAND
ATB Schweiz AG
Industriestraße 28
5600 Lenzburg
T: +41 62 885 70-10
info@ch.atb-motors.com

UK & IRELAND
ATB Laurence Scott Ltd.
PO Box 25 Hardy Road, Norwich NR1 1JD
Norfolk
T: +44 1603 628 333
hvm.sales@laurence-scott.com

ATB Morley Limited
Bradford Road
Leeds LS28 6QA
West Yorkshire
T: +44 113 257 1734
sales@uk.atb-motors.com

Brook Crompton UK
St. Thomas Road, Huddersfield HD1 3LJ
West Yorkshire
T: +44 1484557200
F: +44 1484557201
csc@brookcrompton.com

CANADA
Brook Crompton
North America
264 Attwell Drive
M9W 5B2 Toronto, Ontario
T: +1 416 675-3844
ramzi.mallouk@
brookcromptonna.com

BROOK CROMPTON