DATA SHEET
Three Phase Induction Motor - Squirrel Cage

Customer	: BIBUS AG
Product line	: W22 - IE3 Premium Efficiency Multivoltage

Frame	: 112M	Cooling method	: IC411 - TEFC
Insulation class	: F	Mounting	: B34T
Duty cycle	: S1	Rotation¹	: Both
Ambient temperature	: -20 °C to +40 °C	Starting method	: Direct On Line
Altitude	: 1000 m.a.s.l	Approx. weight³	: 46.2 kg
Protection degree	: IP55	Moment of inertia (J)	: 0.0180 kgm²
Design	: N		

Output		4 kW	4 kW	4 kW	4 kW
Poles		4	4	4	4
Frequency		50 Hz	50 Hz	50 Hz	60 Hz
Rated voltage		380/660 V	400/690 V	415 V	460 V
Rated current		8.68/5.00 A	8.69/5.04 A	8.72 A	7.68 A
L. R. Amperes		60.8/35.0 A	65.2/37.8 A	69.8 A	65.3 A
LRC		7.0	7.5	8.0	8.5 x Code L
No load current		4.40/2.53 A	5.00/2.90 A	5.60 A	4.50 A
Rated speed		1445 rpm	1450 rpm	1455 rpm	1760 rpm
Slip		3.67 %	3.33 %	3.00 %	2.22 %
Rated torque		26.5 Nm	26.4 Nm	26.3 Nm	21.7 Nm
Locked rotor torque		250 %	290 %	320 %	320 %
Pull up torque		210 %	245 %	270 %	270 %
Breakdown torque		280 %	320 %	350 %	380 %
Service factor		1.00	1.00	1.00	1.25
Noise level²		56.0 dB(A)	56.0 dB(A)	56.0 dB(A)	56.0 dB(A)
Locked rotor time (hot)		15 s	15 s	13 s	15 s
Locked rotor time (cold)		27 s	27 s	23 s	27 s
Efficiency (%)	50%	87.5	87.5	86.5	87.5
	75%	88.2	88.2	88.2	89.5
	100%	88.6	88.6	88.6	89.5
Power Factor	50%	0.62	0.53	0.50	0.50
	75%	0.71	0.69	0.63	0.63
	100%	0.79	0.75	0.72	0.73
Losses at normative operating points (speed;torque), in percentage of rated output power					
Losses (%)	P1(0,9;1,0)	10.6	10.6	10.5	11.5
	P2(0,5;1,0)	8.1	8.1	8.0	8.8
	P3(0,25;1,0)	7.1	7.1	7.0	7.7
	P4(0,9;0,5)	6.9	6.9	6.8	7.5
	P5(0,5;0,5)	4.6	4.6	4.6	5.0
	P6(0,5;0,25)	3.8	3.8	3.8	4.2
	P7(0,25;0,25)	2.7	2.7	2.7	3.0

	Drive end	Non drive end
Bearing type	6207-ZZ	6206-ZZ
Lubrication interval	-	-
Lubricant amount	-	-
Lubricant type	POLYUREA BASED GREASE	

Foundation loads	
Max. traction	: 1709 N
Max. compression	: 2162 N
Load type	: -
Load torque	: -
Load inertia (J=GD²/4)	: -

Notes
See notes on page 2.

Rev.	Changes Summary	Rev.	Checked	Date

Performed by	mih		1913782667
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SKETCH
WEG MOTORES

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Thermal protection

ID	Application	Type	Quantity	Sensing Temperature
1	Winding	Thermistor - 2 wires	1 x Phase	155°C

Notes

Standards

Specification	: IEC 60034-1	Vibration	: IEC 60034-14
Test	: IEC 60034-2	Tolerance	: IEC 60034-1
Noise	: IEC 60034-9		

This revision replaces and cancel the previous one, which must be eliminated.
(1) Looking the motor from the shaft end.
(2) Measured at 1m and with tolerance of +3dB(A).
(3) Approximate weight, subject to be changed after manufacturing process.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in IEC 60034-1.

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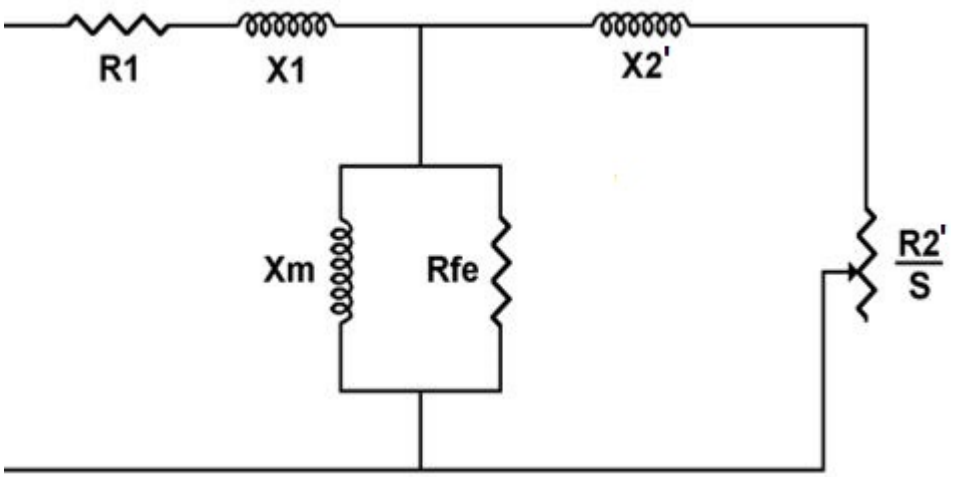
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EQUIVALENT CIRCUIT

Three Phase Induction Motor - Squirrel Cage

Customer : BIBUS AG

Product line : W22 - IE3 Premium Efficiency Multivoltage



Rated			
R1	2.5633 omhs / 0.0710 p.u.	**X1**	6.6415 omhs / 0.1840 p.u.
R2'	1.9430 omhs / 0.0538 p.u.	**X2'**	8.6234 omhs / 0.2389 p.u.
Rfe	3749.2600 omhs / 103.8576 p.u.	**Xm**	125.8419 omhs / 3.4859 p.u.

Locked rotor			
R1	2.9247 omhs / 0.0810 p.u.	**X1**	4.3871 omhs / 0.1215 p.u.
R2'	2.5858 omhs / 0.0716 p.u.	**X2'**	3.6651 omhs / 0.1015 p.u.
Rfe	3342.4790 omhs / 92.5894 p.u.	**Xm**	168.5329 omhs / 4.6685 p.u.

T"do	0.1695 s	**X/R**	2.2262 p.u.
T"d	0.0103 s	**RS**	0.7375 omhs / 0.0204 p.u.
Ta	0.0071 s	**X"d = Xs**	8.0521 omhs / 0.2230 p.u.
Zbase	36.1000 omhs	**X2(-)**	5.1354 omhs / 0.1423 p.u.

All parameters reflected to stator side.
Per phase values, for T connection.
Resistances at 20.0 °C, reactances at rated voltage and frequency.

R1	: Stator resistance	T"do	: Open circuit AC time constant
R2'	: Rotor resistance	T'd	: Short circuit AC time constant
Rfe	: Core loss resistance	Ta	: Short circuit DC time constant
X1	: Stator leakage reactance	X/R	: X/R ratio
X2'	: Rotor leakage reactance	RS	: Supplementary losses resistance
Xm	: Magnetizing reactance	X"d = Xs	: Subtransient reactance
Zbase	: Base impedance	X2(-)	: Negative sequence reactance

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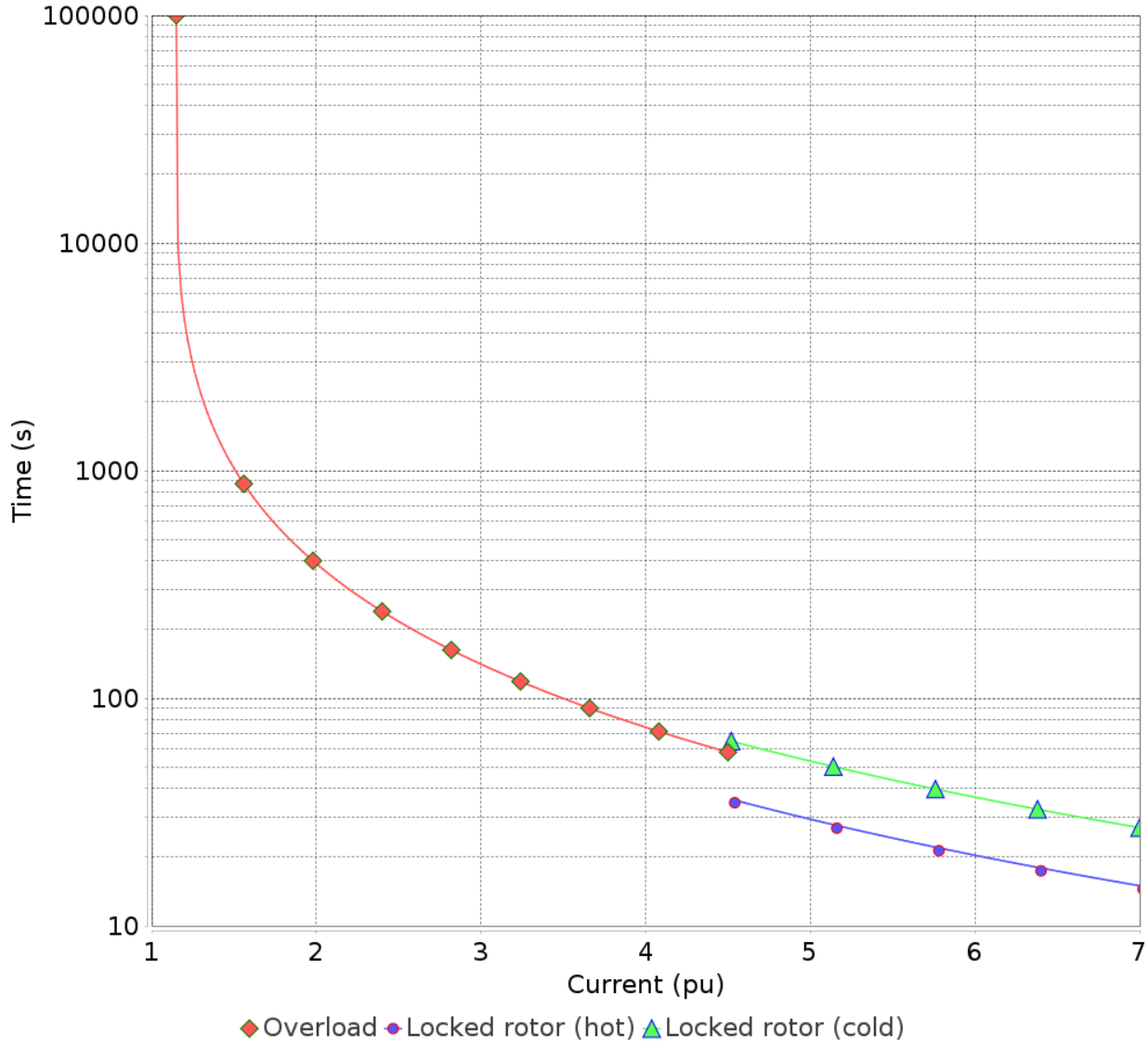
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THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage

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Performance	: 4 kW 380/660 V 50 Hz 4P 112M		
Rated current	: 8.68/5.00 A	Moment of inertia (J)	: 0.0180 kgm²
LRC	: 7.0	Duty cycle	: S1
Rated torque	: 26.5 Nm	Insulation class	: F
Locked rotor torque	: 250 %	Service factor	: 1.00
Breakdown torque	: 280 %	Temperature rise	: 80 K
Rated speed	: 1445 rpm	Design	: N
Heating constant	: 18.9 min		
Cooling constant	: 56.7 min		

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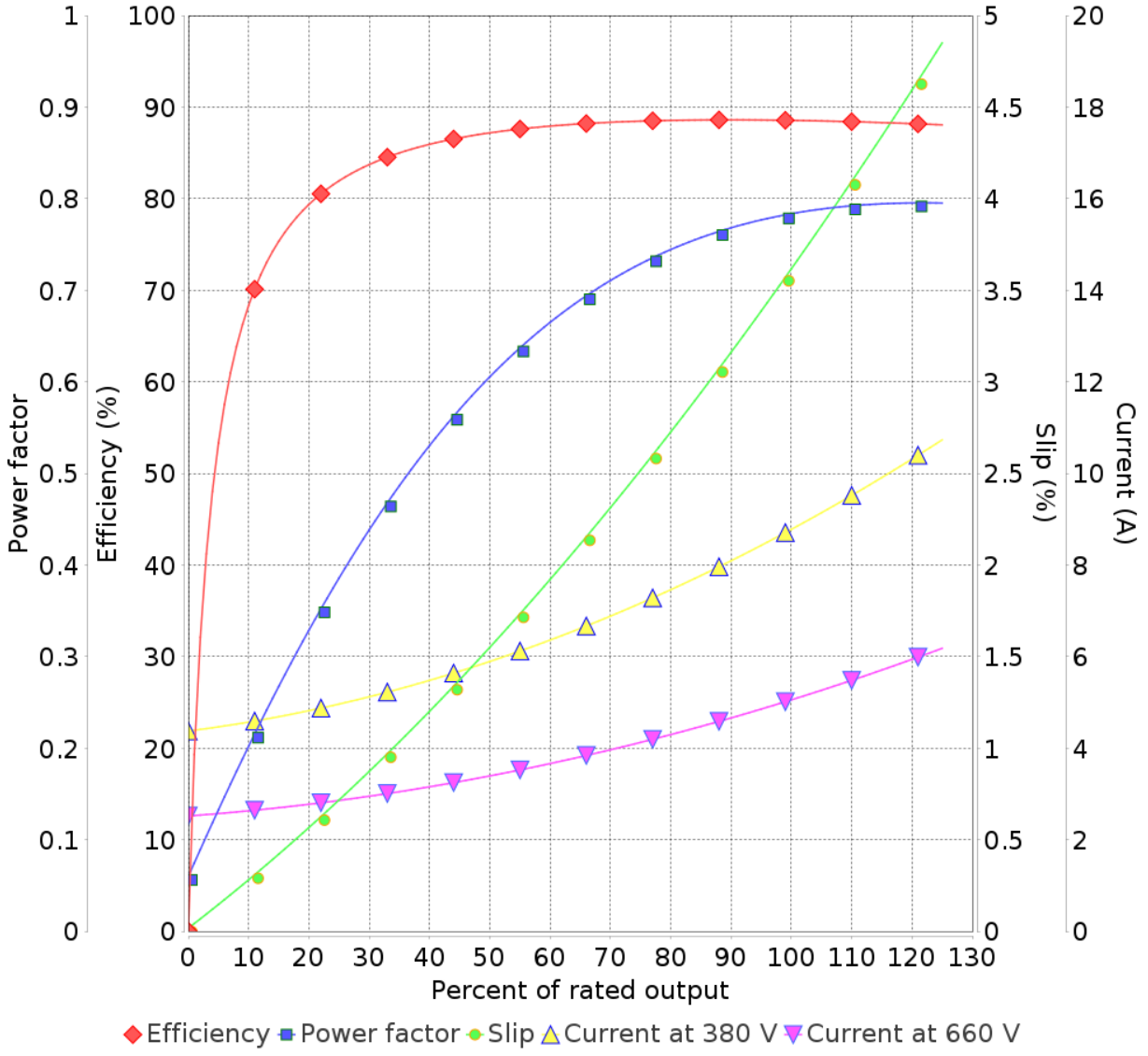
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LOAD PERFORMANCE CURVE

Three Phase Induction Motor - Squirrel Cage

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Product line	: W22 - IE3 Premium Efficiency Multivoltage



Performance	: 4 kW 380/660 V 50 Hz 4P 112M

Rated current	: 8.68/5.00 A	Moment of inertia (J)	: 0.0180 kgm²
LRC	: 7.0	Duty cycle	: S1
Rated torque	: 26.5 Nm	Insulation class	: F
Locked rotor torque	: 250 %	Service factor	: 1.00
Breakdown torque	: 280 %	Temperature rise	: 80 K
Rated speed	: 1445 rpm	Design	: N

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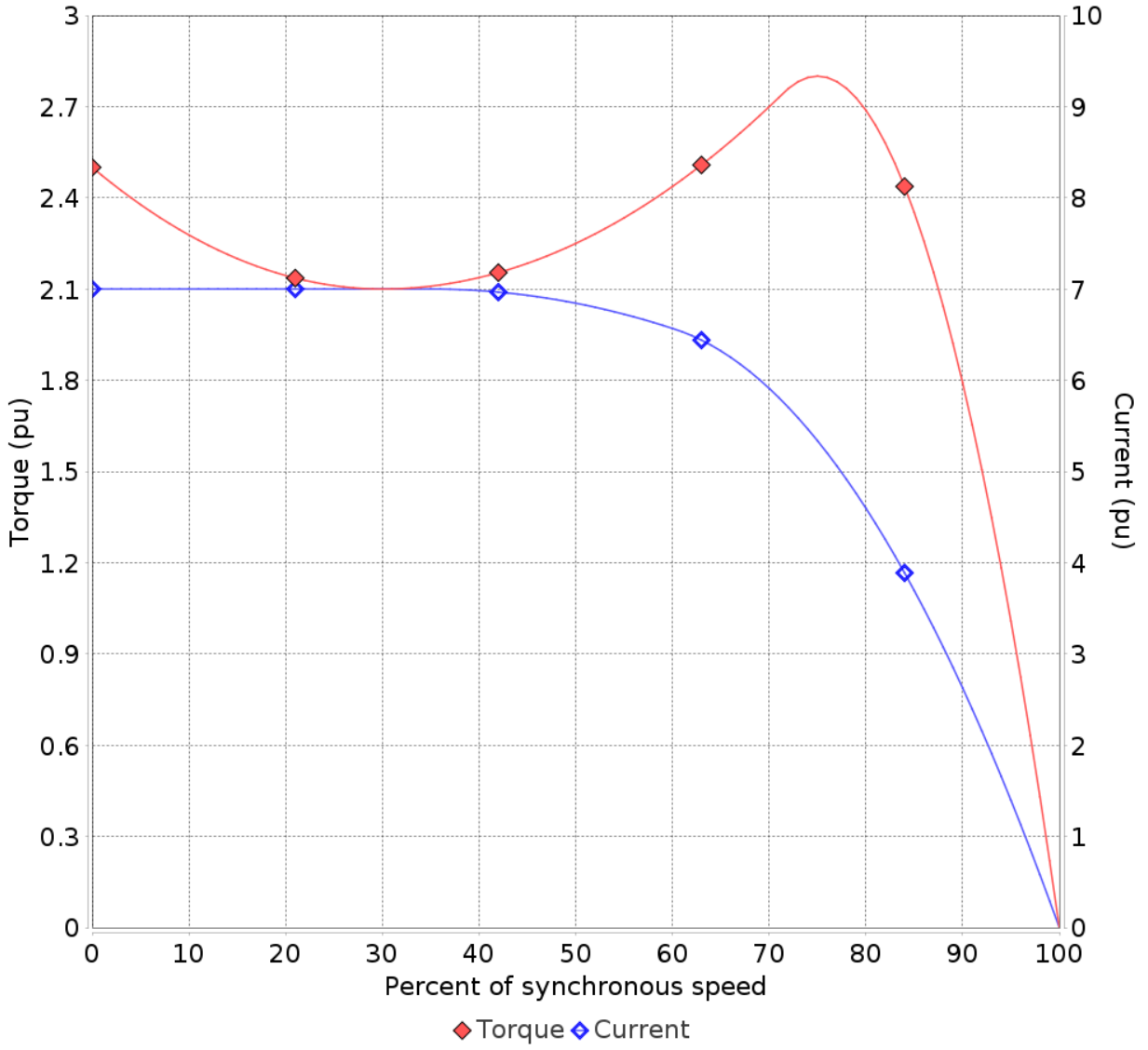
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TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage

SKETCH
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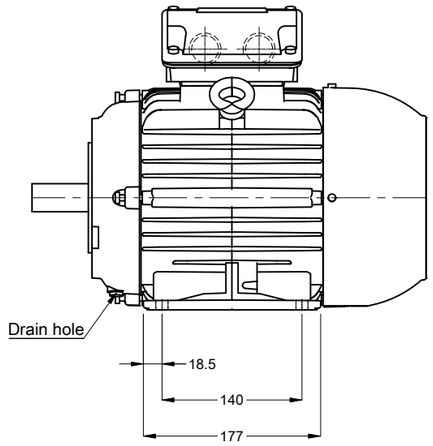


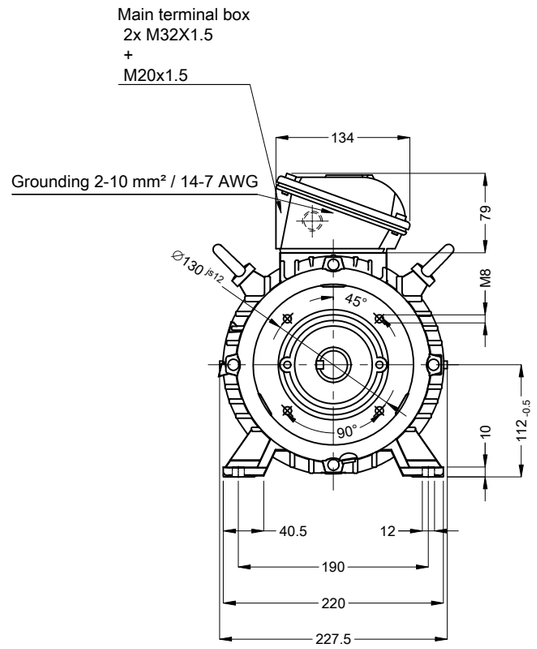
Performance	: 4 kW 380/660 V 50 Hz 4P 112M		
Rated current	: 8.68/5.00 A	Moment of inertia (J)	: 0.0180 kgm²
LRC	: 7.0	Duty cycle	: S1
Rated torque	: 26.5 Nm	Insulation class	: F
Locked rotor torque	: 250 %	Service factor	: 1.00
Breakdown torque	: 280 %	Temperature rise	: 80 K
Rated speed	: 1445 rpm	Design	: N
Locked rotor time 100%	: 15 s (hot) 27 s (cold)		
Load inertia (J=GD²/4)	: 0.018 kgm²		
Allowable run up time 100%	: 12 s (hot) 21 s (cold)		

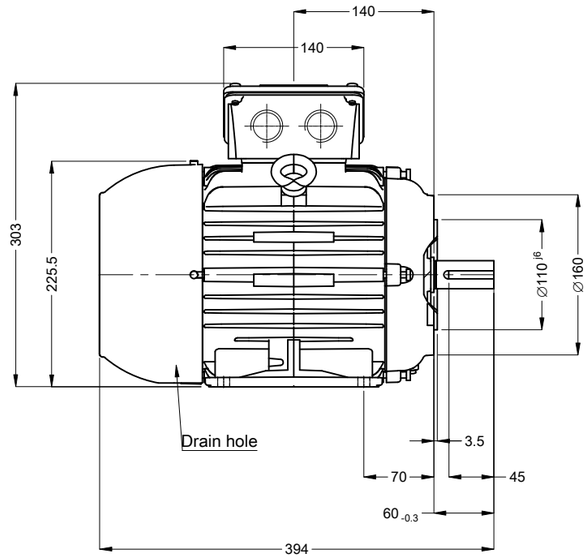
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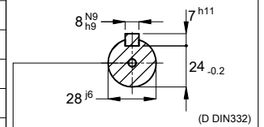






NDE sealing - lip seal
Sealing - oil seal ring
Bearing cap
Thermal protection to switch off - thermistors 155°C
Color RAL 5009
Painting plan 207A
Mounting B34T

DE Shaft End



DM10 WEG WPR-7339

4 kW 04 Poles 50 Hz | A

BIBUS AG

Scale 1 : 6

ECM	LOC	SUMMARY OF MODIFICATIONS	EXECUTED	CHECKED	RELEASED	DATE	VER
			PIRWBUSER				00

EXECUTED	PIRWBUSER
CHECKED	
RELEASED	
REL. DATE	

THREE PH. MOTOR W22 IE3
FRAME 112M IP55 TEFC

PREVIEW

WDD 00

SHEET 1 / 1

Dimensions in mm

A3

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