



1. GENERAL INTRODUCTION

OM IE1 series three phase asynchronous motor with cast iron housing.

These IE1 motors are for application of petroleum, chemical, metallurgical, cement and paper industries, especially suitable for a durable and at full capacity operation of fans, pumps, compressors, and other mechanical equipment.

2. OPERATING CONDITIONS

Ambient temperature: -15° C + 40°C on request up to 55° C. Altitude: not exceed 1.000 m. Rated voltage: 380 V or any voltage between V.220 - V.760. Rated frequency: HZ 50, HZ 60. Protection class: IP54, IP55. Insulation class: F. Temperature rise: Class B Cooling method: IC 411 Duty: S1 (continuous). Connection: Star-connection up to 3kW, delta-connection for 4kW and above. Remark: Terminal box on top, right or left side are available. Key-way can be closed type or opened type. Motors can also be equipped with PTC, as well as re-greasing system for frame size 160 and above. On request SKF or NSK Bearings. On request Heaters, Klixon.







3. MATERIAL TABLE

	Description		Description		Description		Description
1	Bearing	6	Terminal Box	11	Washer	16	Rivet
2	Wave-form washer	7	Stator pack with winding	12	Fan cowl	17	Frame
3	Bolt	8	Rotor	13	Fan	18	
4	Spring washer	9	NDE shield	14	Circlip	19	
5	DE shield	10	Screw	15	Nameplate	20	

4. BEARINGS

Frame size	POLES	Drive end	Non-drive end
63	2-4	6201	6201
71	2-6	6202	6202
80	2-8	6204	6204
90	2-8	6205	6205
100	2-8	6206	6206
112	2-8	6206	6206
132	2-8	6208	6208
160	2-8	6309	6309
180	2	6211	6211
	4-8	6311	6211
200	2	6212	6212
	4-8	6312	6212
225	2	6312	6312
	4-8	6313	6312
250	2	6313	6313
	4-8	6314	6313
280	2	6314	6314
	4-8	6317	6314
315	2	6317	6317
	4-10	6319	6319
355	2	6319	6319
	4-10	Nu332	6322



5. MOUNTING ARRANGEMENT

Types of	IEC34-	7(1992)	Types of	IEC34-7(1992)		
Mounting	Code I	Code II	Mounting	Code I	Code II	
	IMB3	IM1001		IMV1	IM3001	
	IMB5	IM3001		IMV3	IM3031	
	IMB6	-	per la	IMV5	IM1011	
	IMB7	-		IMV6	IM1031	
	IMB8	-		IMV15	IM2011	
	IMB14	IM3601		IMV36	IM2031	
	IMB34	IM2101	M2101 IMV18	IMV18	IM3611	
	IMB35	IM2001		-		

6. VIBRATION

Size of motor housing	≤	≤132 0~1800 >1800~3600 mm/s the 1.8	>13	2~225	>225		
r/min (synchronous speed)	600~1800	800 >1800~3600 60		600~1800 >1800~3600		>1800~3600	
Class of vibration		mm/s th	e r.m. s vable (of the vibration	velocity		
N	1.	.8	2.	8	3.5		
R	0.71 1.12		1.12	1.80	1.80	1.80	
S	0.45	0.71	0.71	1.12	1.12	1.12	

At no load the r.m.s values of the vibration velocity (i.e, the limits of vibration severity) of motors should not exceed the values of class. Specified in table class R.S. is available on requires.



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7. NOISE

	Sound pressure level LpA [dB(A)]-50Hz											
		2	Pol.	4	Pol.	6	Pol.	8	Pol.			
	Motor	at r	no load	at n	o load	at n	o load	at no	o load			
	5120	L pA	L WA	L pA	L WA	L pA	L WA	L pA	L WA			
	160	70.6	86.0	59.6	75.0	57.6	73.0	52.6	68.0			
	180	73.6	89.0	60.6	76.0	57.6	73.0	54.6	70.0			
	200	76.6	92.0	63.6	79.0	60.6	76.0	57.6	73.0			
Size	225	76.6	92.0	65.6	81.0	60.6	76.0	57.6	73.0			
DIEC	250	77.6	93.0	65.6	81.0	62.6	78.0	59.6	75.0			
	280	78.6	94.0	70.6	86.0	64.6	80.0	60.6	76.0			
	315SM	80.6	96.0	77.6	93.0	69.6	85.0	66.6	82.0			
	315L	83.6	99.0	81.6	97.0	69.6	85.0	66.6	82.0			
	355	87.6	103.0	85.6	101.0	76.6	92.0	74.6	90.0			

CAST IRON MOTORS

8. CLASSIFICATION OF DEGREE OF PROTECTION

The main function is to avoid being subjected to an electric shock, coming into contact with the moving parts and to prevent that solid objects, oil and water can penetrate.

It is in compliance with IEC34-5, EN 60529 European Standards; CEI 70-1 NATIONAL STANDARDS; INTERNATIONAL STANDARDS IEC 529.

Pr	otection against contact and foreign bodies		Protection against water
IP 1st digit		IP 2st digit	
0	No protection	0	No protection
1	Large foreign bodies, diameter equal or greater than 50mm to 50 mm	1	Vertically falling drops of water
2	Medium-size foreign bodies, diameter equal or greater than 12 mm	2	Obliquely falling drops of water up to 15° towards vertical
3	Small foreign bodies, diameter equal or greater than 2.5 mm	3	Spray water up to 60° towards vertical
4	Grain-shaped foreign bodies, diameter equal or greater than to 1 mm	4	Splash water from all sidesi
5	Dust deposit	5	Jets of water
6	Ingress of dust	6	Powerful jets of water
		7	Partial immersion
		8	Immersion

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9. ANTI-CONDENSATION HEATER

It is easy for moisture to enter the electric motor whiles working in a moist environment, causing it to decrease it's value of insulation. To prevent this, the electric motor anti-condensation heater is specially designed for moisture proofing. With the help of the electric motor anti-condensation heater, the temperature in the motor windings will be 5°C higher than the ambient temperature when it is running. Hence there is no water condensed on the coil windings in the electric motor and the motor will be running well in moist environment.

CHARACTERISTIC

The electric motor anti-condensation heater is connected to the AC contactor of the electrical motor at NC contact. When the electrical motors stop working, the anti-condensation heater starts to work, making the temperature of the motor winding 5° C higher than the ambient temperature. When the electric motor starts to working, the anti-condensation heater is switched according to the type of the motor bed-plate.

We have a full line of anti-condensation heater for low voltage electric motor with a complete range of specifications: The electric motor anti-condensation heater can be made according to the special needs of users, with high accredited quality, advanced technology and a stable structure.

TECHNICAL PARAMETER

Withstand voltages > 2.5KV AC. The heat proof temperature of insulation material = 250°C. The structure picture of heater.



Chart 1 Electric Motor Anti-Condensation Heater

SPECIFICATION

_	-	1		_170±0.1	5254±4.0	[300] P
Type	Dimensions	Lead wire Length (mm)	Power (W)	Rated vo	oltage(V)	Frame size of
1.104	Length*Width*Thickness				в	electric motor
BQ301A(B)	$240 \times 13 \times 2.5 \times 4.5$	200	10	230	115	H71
BQ302A(B)	$300 \times 14 \times 2.5 \times 4.5$	380	20	230	115	H80~H90
BQ303A(B)	400×14×2.5×4.5	480	30	230	115	H100~H112
BQ304A(B)	$550 \times 14 \times 2.5 \times 4.5$	780	40	230	115	H132~H160
BQ305A(B)	680×14×2.5×4.5	900	50	230	115	H180~H200
BQ306A(B)	$900{\times}14{\times}2.5{\times}4.5$	950	60	230	115	H225~H280
BQ308A(B)	$1050 \times 14 \times 2.5 \times 4.5$	1050	80	230	115	H315
BQ311A(B)	$1350 \times 14 \times 2.5 \times 4.5$	1150	110	230	115	H355

The specification and standards of BQ model electric motor anti-condensation heater (For the foreign capital electric motor affiliates use) is as follows.

CAST IRON MOTORS

Note: 2 pcs. anti-condensation heater should be used on electric motor of H315 frame size.

The specification and standards of KBQ model electric motor anti-condensation heater (For the domestic electrical motor companies use) is as follows:

Type	Dimensions	Lead wire Length	B	Rated vo	oltage(V)	Frame size of
i y pe	length*Width*Thickness	(mm)	rower (w)	A B		electric motor
KBQ301A(B)	$220 \times 14 \times 2.5 \times 4.5$	160	10	220	110	H71
KBQ302A(B)	$260 \times 14 \times 2.5 \times 4.5$	340	20	220	110	H80~H90
KBQ303A(B)	$350 \times 14 \times 2.5 \times 4.5$	440	30	220	110	H100~H112
KBQ304A(B)	$460{\times}14{\times}2.5{\times}4.5$	740	40	220	110	H132~H160
KBQ305A(B)	$630 \times 14 \times 2.5 \times 4.5$	850	50	220	110	H180~H200
KBQ306A(B)	$800{\times}14{\times}2.5{\times}4.5$	900	60	220	110	H225~H280
KBQ308A(B)	$950{ imes}14{ imes}2.5{ imes}4.5$	1000	80	220	110	H315
KBQ310A(B)	$1350{\times}14{\times}2.5{\times}4.5$	1150	100	220	110	H355
KBQ311A(B)	$2000{\times}14{\times}2.5{\times}4.5$	1500	110	220	110	H400

Note: 2 pcs. anti-condensation heater should be used on electric motor of H315 frame size.



SPECIFICATION

The specification of overseas electric motor anti-condensation heaters is as follows:

Type	Dimensions	Lead wire length	Damas (11/)	Rated voltage(V)		Frame size of
rype	length*Width*Thickness	(mm)	rower (w)		В	electric motor
KBQ3026A(B)	$432{\times}14{\times}2.5{\times}4.5$	340	26	230	115	H80~H132
KBQ3065A(B)	$1473 \times 14 \times 2.5 \times 4.5$	850	65	230	115	H160~H200
KBQ3099A(B)	$1702{\times}14{\times}2.5{\times}4.5$	900	99	230	115	H225~H280
KBQ3099A(B)	$1702 \times 14 \times 2.5 \times 4.5$	900	99	230	115	H315~H355

Note: 2 pcs. anti-condensation heater should be used on electric motor of H315 frame size.

The heaters that our company recommend.

Tyne	Rated		Lengt	h(mm)		Lead wire length	Rated wor	king voltage	Specification	
- 7195	(w)					(mm)	A	В	motor	
DB0000 L (D)		290	310	343	343		100.000			H80
DBQ02A(B)	20	310	310	350	371	- 380			H90	
DD0001(D)		350	420	420	420				H100	
DBQ03A(B)	30 -	420	450	450	450	- 480			H112	
P.P.O. LUP		500	500	560	560		200	200		
DBQ04A(B)	40	600	600	700	700	- 780		110	H160	
DBOOT A (D)		785	817	848	848		220		H180	
DRG02V(R)	50	942	942	974	974	900			H200	
		1068	1068	1131	1131				H225	
DBQ06A(B)	60	1146	1146	1146	1146	950			H250	
		1256	1288	1320	1320				H280	
DBQ08A(B)	80	1508	1508	1540	1540	1050			H315	
DBQ11A(B)	110	1696	1727	1727	1727	1150			H355	

Note: All the data above are only for reference, we can produce any kind of heater according to customers' need.

□ 2 pcs. anti-condensation heaters should be used on electric motor of H315 frame size.



CONNECTION DIAGRAM FOR REFERENCE



M: Electric motor R: Anti-condensation Heater Q: Electromagnetic switch TA: Switch off button QA: Switch on button

OPERATING INSTRUCTIONS

SAFETY ATTENTION

• INSTALLATION

Attention!
Please install the heater on non-flammable parts of the motor such as metal parts or out side of the stator end winding on the connection end, in order to avoid catching fire.

 $\hfill\square$ Do not access to the combustible substance, in order to avoid catching fire.

Do not use sharp tools to install, in order to avoid causing the heater damage.

• WIRING

Danger! U When wiring the motor, please make sure the alternating current is cut off, in order to avoid getting an electric shock or catching fire.

- □ The wiring work must be handled by a special electrician, in order to avoid getting an electric shock or catching fire.
- □ Before wiring, the product should be correctly installed, otherwise there may be the danger of getting an electric shock.

Attention!
Please confirm the product rated voltage must be consistent with the alternating current voltage, in order to avoid damaging products and catching fire.



INSTALLATION

- □ Please confirm the type of the heater must conform to the electric motor's matching requirement.
- □ Clean up the electric motor stator and the winding coil.
- Lie the heater out, the lead wires should be leaned in the side of the stator ferrite core, as Figure 1 shows.
- □ If the electric motor uses two pieces of anti-condensation heaters, one heater should be installed in the driving winding end, the other heater should be installed in the non-driving winding end.
- Wrap the heater around the outside of the stator end winding coil on the connection end and tie in place preferably with wide polyester ties. Narrow ties or strings can cause damage to the heater elements, if they are tied tightly.
- Do not overlap the heater directly on top of itself as this will cause a hot spot which could lead to reducing thermal life of the insulation exposed to the hot spot temperatures.





Connect the lead wires to the right wiring terminal and fix firmly.

BREAKDOWN AND MEASURE

Breakdown	Reason	Measure
Heater doesn't to work	 The power source was unconnected. The contact of the lead wire and the wiring terminal is not good. Heater's interior was damaged. 	 Connect the power source. Firm the contact of lead wires and wiring terminal. Replace the heater
Sometimes works, sometimes does not work	The contact of the lead wire and the wiring terminal is not good.	Firm the contact of lead wires and wiring terminal.





10. MK1 TYPE OVERTEMPERATURE PROTECTION THERMOSWITCH Patent number:ZL 02 2 10543.3 UL File No: E3187 36 CE File No: TCCE01085

SUMMARIZATION

MK1 type overtemperature protection thermoswitch is specially applied to the use of overtemperature protection of some spot. Embed the thermoswitch in electric motor winding, when the temperature reaches the protection thermoswitch operating temperature, the movable contact of the thermoswitch leaves the stationary contact to switch off the power source of the controller, and further switch off the main circuit of the electric motor to protect the electric motor.

CHARACTERISTIC

MK1 type overtemperature protection thermoswitch has a sensitive action and reliable performance. The thermoswitch can be applied to the middle process control, especially it can endure some mechanical pressure, and can work stably for a long time, its excellent performance have reached the international advanced standard.



OUTER DIMENSION OF THERMOSWITCH





normal length of L1, L4 is 520mm±10mm: L2, L3 is 200mm±4mm

TECHNICAL PARAMETER

Contact variety	normall	normally closed		ly open
The Rated switch temperature each 5 °C span in series (TK)	60~2	200°C	60~:	200°C
Standard tolerance	$\pm 5 K$		±	5К
Reset temperature range (under rated switch temperature)	$30 \mathrm{K} \pm 15 \mathrm{K}$		30K-	±15K
Maximum operating voltage	500VAC	60VDC	500VAC	60VDC
Rated current (AC:COS $\phi = 1.0$)	250VAC 2.50A	500VAC 0.75A	250VAC 2.50A	500VAC 0.75A
Rated current (AC:COS $\phi = 0.6$)	250VAC 1.60A	500VAC 0.5A	250VAC 1.60A	500VAC 0.5A
Switch on and off times at rated current (life length)	2.5A 10000 times	5A 2000 times	2.5A 10000 times	5A 2000 times
Sensitivity of switch on and off times at maximum switch current 250V AC/5.0	20	00	20	00
Contact resistance	<50	mΩ	<50)mΩ
Anti-knock capacity	1001	n/s ²	100	m/s ²
Stability of case pressure	450N(45kg)	450N	(45kg)
Insulation voltage	2К	v	21	¢ν
Length of insulating sleeving	>16	mm	>16	3mm
Diameter	<9.7	'nm	<9.7	7mm
Height	<4.8mm		<4.	Smm
Sectional area of lead wire	0.35	0.35mm ²		mm²
Standard length of lead wire	$L_1 = L_4 = 52$ $L_2 = L_3 = 22$	0±10mm 00±4mm	$L_1 = L_4 = 55$ $L_2 = L_3 = 2$	20 ± 10 mm 20 ± 4 mm

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The

CAST IRON MOTORS



WIRING REFERENCE DIAGRAM



TYPE EXPLANATION

Protection thermoswitches of different temperature TK for different insulation grade electric motors are as the following table shows. (only reference).

Electric motor insulation grade	Limited Working Temperature(°C)	Thermoswitch Tk
Y	90	75~80°C
A	105	90~95°C
Е	120	105~110°C
В	130	115~120°C
F	155	140~145°C
Н	180	165~170°C
С	above 180	above 180



SAFETY ATTENTION

INSTALLATION

Attention! Do not access to combustible substance, in order to avoid catching fire.

- Do not use sharp tools to install, in order to avoid causing the protection thermoswitch damage.
- □ Please refer to the operating instruction brochure to install.

• WIRING

- **Danger!** Please confirm the input power source is cut off, when wiring, in order to avoid getting an electric shock.
 - □ The wiring work must be handled by a special electrician, in order to avoid getting an electric shock.
 - □ Before wiring, the product should be correctly installed, otherwise there may be a danger of getting an electric shock.
- Attention! Please confirm the product rated voltage must be consistent with the alternating current voltage, in order to avoid damaging products and catching fire.



INSTALLATION

First confirmed the model of the product conforms to the electric motor's matching requirement. Fix overtemperature protection thermoswitch's labeled side next to the Stator Winding coil and tie tightly (picture 1).



Chart 1

WIRING

Connect the lead wires of the overtemperature protection thermoswitch to the junction box of the electric motor.

Connect the lead wires to the right wiring therminal and fasten it.

Before wiring, please read the technical data related to electric motor's wiring.

BREAKDOWN AND MEASURE

	Breakdown	Reason	Measure
	Thermoswitch switch does not work	1.Protection lead wires were not put in the circuit 2.Thermoswitch's interior was damaged	1.Inspect lead wires and connect them well 2.Exchange protection thermoswitch
444	Sometimes works, sometimes works does not work	The lead wires' contact is not good	Firm the contact of lead wires and wiring terminal
N THE PLANE			

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The diagram of service graphically highlights the use of the motor over time, the types of operation are standardized and are identified with the abbreviation S followed by a number (ex.S1 = continouous service).



12. SPARE PARTS



- 1. SHIELD B30
- **2. FIXING BOLT END SHIELD**
- **3. STATOR FRAME**
- 4. EYEBOLT
- 5. FEET
- 6. NAMEPLATE
- **7. SPRING WHASHER**
- 8. BEARING D.E.
- 9. INNER BEARING CAP DE
- **10. KEY**
- **11. ROTOR**
- **12. INNER BEARING CAP NDE**
- **13. BEARING NDE**
- **14.SHIELD NDE**
- **15. FIXING BOLT SHIELD NDE**
- **16. OUTER BEARING CAP NDE**
- 17. FAN
- **18. CIRCLIP**
- **19.BOLT BEARING CAP NDE**

- **20. COVER FAN 21. FAN COVER SCREW 22. TERMINAL BOX SCREW 23. TERMINAL BOX COVER 24. TERMINAL BOX GASKET 25. CONNECTION FIXATION NUTS 26. TERMINAL BOARD 27. TERMINAL BOARD HOLDER BOLT 28. TERMINAL BLOCK PTC 29. BLINDER 30. CABLE GLAND 31. TERMINAL BOX BASE 32. WINDING 33. FLANGE B5 34. FLANGE B1 35. BEARING CAP DE OUTSIDE 36. FIXING BOLT BEARING CAP OUTSIDE**
- **37. GASKET**

SERIES THREE-PHASE ASYNCHRONOUS INDUCTION MOTOR











H160~355



H80~355

Frame with feet and endshield without flange

Frame size			M ounting dimensions									Overall dimensions								
	Poles	A	A/2	В	С	D	E	F	G	Н	к	AB	AC	AD	HD	L				
OM 63	2,4	100	50	80	40	11	23	4	8.5	63	_	135	130	70	180	225				
OM 71	2, 4, 6	112	56	90	45	14	30	5	11	71	1	150	145	80	195	250				
OM 80		125	62.5	100	50	19	40	6	15.5	80		165	175	145	214	295				
OM 90S OM 90L		140	70	100	56	24	50		20	90	10	180	195	155	250	315 340				
OM 100L		160	80	140	63			8	Sec. 1	100		205	215	180	270	385				
OM 112M		190	95	140	70	28	60		24	112	12	230	240	190	300	400				
OM 132S OM 132M	2, 4, 6, 8	216	108	140 178	89	38	80	10	33	132	12	270	275	210	345	470 510				
OM160M OM 160L		254	127	210 254	108	42		12	37	160	15	320	330	255	420	615 670				
OM 180M OM 180L		279	139.5	241 279	121	48	110	14	42.5	180	15	355	380	280	455	700				
OM 200L		318	159	305	133	55		16	49	200		395	420	305	505	770				
OM 225S	4、8			286	1	60	140	18	53		10					815				
	2	356	178		149	55	110	16	49	225	19	435	470	335	555	820				
OM 225M	4, 6, 8			311					-4				1.010000			845				
OM 250M	2	406	203	349	168	60		18	53	250		490	510	370	615	910				
OM 280S	2	457	220.5	368	100	65 75	140	20	58 67.5		24		500	110	000	985				
	2	457	228.5	and the second	190	65		18	58	280		000	580	410	080					
OM 280M	4, 6, 8			419		75		20	67.5							1035				
0110100	2			722		65	1	18	58					1		1160				
OM 3155	4, 6, 8, 10			406		80	170	22	71							1210				
OM 245M	2	500	254		240	6	140	18	58	245		625	645	620	045	1290				
OWISIOW	4.6.8.10	508	254	457	210	80	170	22	71	315		035	045	550	045	1300				
OM 3151	2			500		65	140	18	58		10000					1290				
UNIVIOL	4, 8	4	10 10	508	1	80	170	22	71		28	-				1320				
OM 355M	2			1		75	140	20	67.5							1500				
OW 300M	4, 6, 8, 10	610	305	305	560	254	95	170	25	86	355		730	710	655	1010	1530 1500			
OM 3551	2	010	010	010	010	010	1000	620		75	140	20	67.5							1500
ONI BOOL	4, 6, 8, 10				030		95	170	25	86						-	1530			



Frame with feet and endshield with flange (with plain holes)

				M ounting dimensions									Overall dimensions											
Frame size	Flange NO	Poles	A	A/2	В	С	D	E		G	H	к	М	N	Р	R*	s	Т	Flangeholes.	AB	AC	AD	HD	L
OM 63	FF115	2.4	100	50	80	40	11	23	4	8.5	63	7	115	95	140		10	3		135	130	70	180	225
OM 71	FF130	2.4.6	112	56	90	45	14	30	5	11	71		130	110	160	0 4	10		1	150	145	80	195	250
OM 80	FEARE		125	62.5	100	50	19	40	6	15.5	80	10	1.05	1.20	200		1996.51	25		165	1/5	145	214	295
OM 90L	11100		140	70	125	56	24	50		20	90	10	105	130	200		12	3.5		180	195	155	250	340
OM 100L	EE215		160	80	140	63	20	60	8	24	100		245	1.00	250			-	1	205	215	180	270	385
OM 112M	11213	and the second second	190	95	140	70	20	00		27	112	12	215	100	250			4		230	240	190	300	400
OM 132S OM 132M	FF265	2.4.6.8	216	108	140	89	38	80	10	33	132		265	230	300		15	-4.		270	275	210	345	470 510
OM160M			254	1.27	210	108	42		13	37	160									320	330	255	420	615
OM 160L	55200		204	1.21	254	100	74	110	12			15	300	250	350					320	350	200	420	670
OM 180M	177300		279	139.5	279	121	48	110	14	42.5	180								4	335	380	280	455	740
OM 200L	FF350	i and	318	159	305	133	55		16	49	200		350	300	400					395	420	305	505	770
OM 225S		4.8	-		286		60	140	18	53		10		CONTRACT.	04000			1220		11.212				815
OM 225M	FF400	468	356	178	311	149	55	110	16	49	225	15	400	350	450	0		5		435	470	335	555	820
		2	100		decrees.	-	60		128561	53	050	-	-		-		19		3	Carlos and	10000		1000	045
OM 250M		4.6.8	406	203	349	168	RE	1	18	58	250						-			490	510	370	615	900
OM 280S	FESOO	2			368		05	140	- 20	07.0		24	500	450	550									985
	11.500	4.0.0	457	228.5	20000	190	65		18	59	280		000	400	000					550	580	410	680	1025
OM 280M		4.6.8		220.0	419	L'ACCA	75		20	67.5	- and the								8					1055
011 2150		2			100		65	1	18	58														1160
OM 0100		4.6.8.10			400		80	170	22	71														1210
OM 315M	FE600	46810	508	254	457	216	6	140	18	58	315		600	550	660					635	645	530	845	1290
		2			and the second s	-	65	140	18	58													1	1290
OM 315 L		4.8			508	-	80	170	22	71	S	28		-			24	6						1320
OM 355M		2			560		75	140	20	67.5														1500
	FF740	4.6.8.10	610	305	- veroby	254	95	170	25	86	055		740	680	800					730	710	655	1010	1530
OM 355L		4.6.8.10			630	- Marin	95	170	25	86	355											1	acteration T	1530

Note: R is the distance from the flange mounting-plane to the shaft - extension shoulder.



Frame without feet and endshield with flange (with thread holes)

	EL.		ſ	Mounting dimensions									外形尺寸Overall dimensions					
Frame size	NO.	Poles	D	E	F		м	N	Р	R*	s	Т	凸缘孔载 Flangeholes.	AC	AD	HF	L	
OM 63	FF115	2.4	11	23	4	8.5	115	95	140			3		130	70	130	225	
OM 71	FF130	2.4.6	14	30	5	11	130	110	160		10		19 3	145	80	145	250	
OM 80			19	40	6	15.5								175	145	185	295	
OM 90S OM 90L	FF165		24	50		20	165	130	200		12	3.5		195	155	195	315	
OM 100L	EE215		28	60	8	24	215	180	250				2	215	180	245	385	
OM 112M	11215		20	00		24	210	100	230		4.5			240	190	265	400	
OM 132S OM 132M	FF265	2.4.6.8	38	80	10	33	265	230	300		15	4	4	275	210	315	470 510	
OM160M OM 160L			42		12	37	200	250	250					330	255	385	615 670	
OM 180M OM 180L	166 300		48	110	14	42.5	300	250	350					380	280	430	700	
OM 200L	FF350		55		16	49	350	300	400	1 0				420	305	480	770	
OM 225S		4.8	60	140	18	53	-			1							815	
OM 225M	FF 400	2	55	110	16	49	400	350	450					470	335	535	820	
OMILLOW	-	4.6.8	60	CONTRACTOR OF THE OWNER OWNER OF THE OWNER OF THE OWNER OF THE OWNER OWNE		52								1.46.855861	120030300		845	
OM 250M		2	00		18	53							1000	510	370	595	910	
		4.6.8	65	140	10	58					19	5	8	510	570	333	010	
OM 280S	FF500	2		140		07.5	5 500	150						1			985	
		4.6.8	15		20	07.5		450	0 550					580	580	410	650	
OM 280M		100	75		20	67.5									000			1035

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Note: R is the distance from the flange mounting-plane to the shaft - extension shoulder.





Model	Ou	tput	Curre	Current (A)		Efficiency	Power			
	kW	HP	380 ∨	400 V	(r/min)	(%)	Factor	Tstart/Tn	lst/in	Tmax/Tn
				380V 50	Hz Synchron	ous Speed 30	00 r/min (2 P c	iles)		
OM 63A - 2	0.18	0.24	0.53	0.50	2730	65.0	0.80	2.2	5.5	2.2
OM 63B - 2	0.25	0.33	0.66	0.60	2730	70.0	0.81	2.6	5.5	2.6
OM 71A - 2	0.37	0.50	0.95	0.90	2750	72.3	0.82	2.4	6.1	2.5
OM 71B - 2	0.55	0.75	1.33	1.26	2790	76.0	0.82	2.4	6.1	2.9
OM 80A - 2	0.75	1	1.83	1.74	2845	76.1	0.83	2.4	7.0	2.5
OM 80B - 2	1.1	1.5	2.60	2.5	2840	76.2	0.83	2.5	7.0	2.5
OM 90S - 2	1.5	2	3.50	3.3	2840	78.8	0.84	2.7	7.0	2.8
OM 90L - 2	2.2	3	4.80	4.6	2840	81.0	0.84	2.5	6.0	2.8
OM 100L-2	3.0	4	6.40	6.1	2830	82.8	0.87	2.2	7.5	2.5
OM 112M - 2	4.0	5.5	8.10	7.7	2890	84.2	0.88	2.3	7.1	2.3
OM 132SA - 2	5.5	7.5	11.0	10.5	2910	85.9	0.88	2.3	7.5	2.5
OM 1325B - 2	7.5	10	15.0	14.3	2905	87.3	0.88	2.2	1.5	2.4
OM 160MA - 2	11	15	22.0	20	2935	88.6	0.89	2.3	1.1	3.1
OM 160MB - 2	15	20	29.0	27	2935	89.4	0.90	2.4	7.0	3.1
OM 180M-2	10.0	20	35.0	33	2935	90.1	0.91	2.1	7.7	3.2
OM 2001 4 - 2	22	30	41.0	59	2940	90.0 01.6	0.90	2.0	6.0	2.1
OM 2001 B - 2	37	50	68.0	64	2045	97.0	0.90	2.1	7.0	2.0
OM 225M - 2	45	60	81.0	77	2945	92.2	0.90	2.2	7.3	31
OM 250M - 2	55	75	100	95	2965	93,1	0.90	2.6	7.6	3.1
OM 280S - 2	75	100	134	127	2965	93.8	0.91	2.2	7.8	2.5
OM 280M - 2	90	125	160	152	2965	94.1	0.91	2.2	7.8	2.5
OM 315S - 2	110	150	196	186	2975	94.4	0.91	1.8	7.1	2.4
OM 315M - 2	132	180	234	222	2975	94.9	0.91	1.8	7.1	2.4
OM 315LA - 2	160	215	280	266	2975	95.1	0.92	1.8	7.1	2.5
OM 315LB - 2	200	270	348	331	2975	95.2	0,92	1.8	7.1	2.5
OM 355M - 2	250	340	432	410	2970	95.3	0.92	1.6	7.3	2.2
OM 355L - 2	315	420	543	515	2970	95.6	0.92	1.6	7.3	2.2
				380V 50	Hz Synchron	ous Speed 15	00 r/min (4 Po	iles)		
OM 63A - 4	0.12	0.16	0.44	0.42	1320	57.0	0.72	2.4	5.2	2.2
OW 71A 4	0.18	0.24	0.63	0.60	1320	60.0	0.72	2.4	5.2	2.5
OM 71R-4	0.25	0.33	0.83	0.79	1350	67.0	0.70	2.5	5.2	3.0
OM 804 - 4	0.57	0.50	1.10	1.0	1340	71.0	0.75	2.5	5.2	3.1
OM 80B - 4	0.55	1.0	2.0	1.4	1380	74.4	0.77	2.5	53	2.5
OM 90S - 4	11	1.5	3.0	29	1390	76.3	0.75	2.5	4 7	2.3
OM 90L - 4	1.5	2	3.9	3.7	1390	78.5	0.76	2.2	5.2	2.6
OM 100LA - 4	2.2	3	5.2	4.9	1410	81.2	0.81	2.3	6.8	2.5
OM 100LB - 4	3.0	4	6.8	8.5	1410	82.8	0.82	2.3	7.1	2.5
OM 112M - 4	4.0	5.5	8.7	8.3	1440	84.2	0.82	2.3	6.4	2.6
OM 132S - 4	5.5	7.5	12	11	1445	85.7	0.83	2.3	7.0	2.5
OM 132M - 4	7.5	10	16	15	1445	87.2	0.84	2.3	7.0	2.5
OM 160M - 4	11	15	23	22	1460	88.4	0.85	2.4	7.0	2.9
OM 160L - 4	15	20	30	28	1460	89.5	0.85	2.6	7.6	2.9
OM 180M - 4	18.5	25	36	34	1470	90.2	0.87	2.2	7.0	3.0
OM 180L - 4	22	30	42	40	1470	90.6	0.87	2.2	7.0	2.7
OM 200L - 4	30	40	58	55	1470	91.4	0.86	2.2	7.2	3.0
OM 225S - 4	37	50	70	66	1475	92.2	0.87	2.2	6.9	2.8
OM 225M - 4	45	50	85	80	14/5	92.5	0.87	2.2	7.0	3.0
OM 200M - 4	22	100	103	98	14/5	93.1	0.87	2.2	7.5	2.8
OM 2805 - 4	/5	100	140	153	1485	93./	0.8/	2.2	7.5	2.4
OM 2150 4	90	125	107	109	1480	93.9	0.87	2.2	6.0	2.4
OM 3155 - 4	120	190	201	220	1400	94.5	0.00	2.2	6.9	2.1
OM 3151 4 - 4	160	215	241	229	1405	94.0	0.00	2.2	6.9	2.0
OM 3151 B - 4	200	270	350	342	1485	95.2	0.89	2.2	6.9	2.4
OM 355M - 4	250	340	440	415	1490	95.3	0.91	2.3	6.8	2.3
OM 355L - 4	315	420	550	520	1490	95.6	0.91	2.3	6.8	2.3

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							1 F			-
Model	Ou	tput	Currei	nt (A)	Speed	Efficiency	Power			
	kW	HP	380 V	400 V	(r/min)	(%)	Factor	Tstart/Tn	ist/in	Tmax/Tn
				380V 50H	z Svnchrono	l us Speed 100I) 0 r/min (6 Pole	s)		
OM 71A-6	0.18	0.24	0.70	0.67	865	59.0	0.66	2.3	4.0	2.4
OM 71B - 6	0.25	0.33	0.90	0.83	865	64.0	0.68	2.0	4.0	2.0
OM 80A - 6	0.37	0.50	1.20	1.1	885	62.5	0.76	2.0	4.7	2.1
OM 80B - 6	0.55	0.75	1.70	1.5	885	69.0	0.76	2.0	4.7	2.1
OM 901 - 6	1.1	15	3.30	2.5	915	75.2	0.71	2.0	5.5	2.2
OM 100L - 6	1.5	2	4.00	3.7	940	77.4	0.76	2.1	6.2	2.2
OM 112M - 6	2.2	3	5.50	5.0	980	79.8	0.76	2.2	5.0	2.2
OM 132S - 6	3.0	4	7.50	7.0	960	81.4	0.76	2.2	6.3	2.8
OM 132MA - 6	4.0	5.5	10.0	9.5	960	83.2	0.76	2.4	6.4	2.9
OM 160M - 6	7.5	10	17.0	12	970	86.2	0.77	2.4	6.5	2.0
OM 160L - 6	11	15	24.0	23	970	87.6	0.79	2.0	6.5	2.3
OM 180L - 6	15	20	31.0	29	970	88.9	0.83	2.1	7.0	2.2
OM 200LA - 6	18.5	25	38.0	38	975	89.6	0.82	2.1	6.5	2.8
OM 200LB - 6	22	30	45.0	42	975	90.4	0.83	2.1	6.5	2.7
OM 250M - 6	37	50	71.0	68	980	91.7	0.86	2.3	6.9	2.3
OM 280S - 6	45	60	86.0	82	980	92.3	0.86	2.3	7.0	2.7
OM 280M - 6	55	75	105	100	980	92.8	0.86	2.3	7.0	2.7
OM 315S - 6	75	100	142	135	980	93.6	0.86	2.0	7.0	2.4
OM 315M - 6	90	125	207	100	935	93.9	0.86	2.0	7.0	2.4
OM 315LR-6	132	180	245	233	935	94.5	0.80	2.1	7.0	2.4
OM 355MA - 6	160	215	293	277	935	94.9	0.88	2.0	7.0	2.0
OM 355MB - 6	200	270	363	345	990	95.0	0.88	2.0	7.0	2.0
OM 355L - 6	250	340	450	425	990	95.0	0.89	2.3	7.0	2.5
OM 804 - 8	0.18	0.25	0.82	380V 50H	z Synchrono	us Speed 750	nmin (8 Poles	1.9	3.5	2.0
OM 80B - 8	0.10	0.34	1.10	1.0	640	54.0	0.64	1.8	3.5	2.0
OM 90S - 8	0.37	0.50	1.60	1.5	660	59.0	0.60	1.9	4.0	2.3
OM 90L - 8	0.55	0.75	2.20	2.1	660	62.0	0.60	2.0	4.0	2.3
OM 100LA - 8	0.75	1	2.40	2.3	690	68.4	0.67	2.0	5.0	2.2
OM 110LB-8	1.1	1.5	3.40	3.2	690	74.6	0.69	1.8	5.0	2.2
OM 132S - 8	2.2	3	6.00	5.7	710	77.8	0.73	1.8	6.0	2.5
OM 132M - 8	3.0	4	7.90	7.5	710	79.8	0.73	1.8	6.0	2.4
OM 160MA - 8	4.0	5.5	10.3	9.8	720	81.5	0.73	1.9	6.0	2.0
OM 160MB - 8	5.5	7.5	13.6	12.8	720	83.4	0.74	2.0	6.0	2.0
OM 180L - 8	/.0	10	18.0	24	720	85.5	0.75	2.0	6.0	2.0
OM 200L - 8	15	20	35.0	32	730	88.5	0.76	2.2	6.2	2.8
OM 225S - 8	18.5	25	40.0	38	730	89.6	0.77	2.2	6.8	2.8
OM 225M - 8	22	30	47.0	44	740	89.7	0.80	2.2	6.7	2.3
OM 250M - 8	30	40	63.0	60 74	740	90.9	0.80	1.9	5.5	2.9
OM 2805 - 8 OM 280M - 8	45	50	95.0	90	740	91.5	0.79	2.0	6.6	2.8
OM 3155 - 8	55	75	115	110	740	92.8	0.81	1.8	6.6	2.4
OM 315M - 8	75	100	150	145	740	93.5	0.81	1.8	6.6	2.2
OM 315LA - 8	90	125	180	170	740	93.8	0.82	1.8	6.6	2.2
OM 315LB - 8	110	150	220	205	740	94.1	0.82	1.9	6.6	2.3
OM 355MR - 8	160	215	315	300	740	94.4	0.82	1.9	6.5	2.3
OM 355L - 8	200	270	386	367	740	94.8	0.83	1.9	6.5	2.0
				380V 50H	z Synchrono	us Speed 600	r/min (10 Pole	s)		
OM 315S - 10	45	60	100	95	590	91.5	0.75	1.5	6.2	2.0
OM 315M - 10	55	75	122	115	590	92.0	0.75	1.5	6.2	2.0
OM 315LA - 10	75 90	100	103	155	590	92.5	0.76	1.5	6.2	2.0
OM 355MA - 10	110	150	230	218	590	93.2	0.78	1.3	6.0	2.0
OM 355MB - 10	132	180	275	261	590	93.5	0.78	1.3	6.0	2.0
OM 355L - 10	160	215	333	317	590	93.5	0.78	1.3	6.0	2.0

CAST IRON MOTORS



1. GENERAL INTRODUCTION DOUBLE SPEED MOTORS

OM series three phase multi-speed induction motors are one of the derived series of IE1 series induction motors of our national uniform design. It has following features: excellent performance, attractive appearance and good interchangeability for the same kind of products abroad.

The motors are designed in three types: double speed, three speed and four speed. These speed rates can be switched. The motors are widely used on applications in the equipments where the changed rates in stages are needed, such as mechanism, mine, metallurgy, textiles, printing and dyeing, chemical industry, agricultural machinery, etc. They can also simplify or take the place of reduction gearbox in the mechanical drive lines.

2. OPERATING CONDITIONS

Ambient temperature: -15° C + 40°C on request up to 55° C. Altitude: not exceed 1.000 m. Rated voltage: V.380 Rated frequency: HZ 50, HZ 60. Protection class: IP54, IP55. Insulation class: F. Temperature rise: Class B Cooling method: IC 411 Duty: S1 (continuous). On request SKF or NSK Bearings. On request Heaters, Klixon.



CAST IRON MOTORS

TECHNICAL DATA (380V HZ50)

Model		Speed (r/min)	Output (KW)	Current (A)	Eff (%)	Power Factor	lst/In	Tstart/Tn	Tmax/Tn
OM 80A	4	1420	0.45	1.4	66	0.74	6.5	1.5	1.8
	4	1420	0.55	1.5	68	0.85	6.5	1.0	1.8
OM 80B	2	2860	0.75	2.0	66	0.85	7	1.6	1.8
OM 90S	4	1430	0.85	2.3	74	0.77	6.5	1.5	1.8
0111000	2	2850	1.1	2.8	73	0.84	7	1.6	1.8
OM 90L	2	2850	1.8	4.3	74	0.78	7	1.6	1.8
OM 1001 A	4	1430	2	4.8	78	0.81	6.5	1.5	1.8
UNI IUULA	2	2850	2.4	5.6	76	0.86	7	1.6	1.8
OM 100LB	4	1430	2.4	5.6	79	0.83	6.5 7	1.5	1.8
014 44014	4	1450	3.3	7.4	81	0.83	6.5	1.5	1.8
OM 112M	2	2860	4	8.6	80	0.88	7	1.6	1.8
OM 132S	4	1450	4.5	9.8	83	0.84	6.5	1.5	1.8
	2	2860	5.5	11.9	/9	0.88	65	1.6	1.8
OM 132M	2	2880	8	17.1	80	0.89	7	1.6	1.8
OM 160M	4	1460	9	18.5	87	0.85	6.5	1.5	1.8
OW TOOM	2	2920	11	22.9	82	0.89	7	1.6	1.8
OM 160L	4	1460	11	22.3	8/	0.86	6.5 7	1.5	1.8
	4	1470	14	20.0	89	0.90	6.5	1.5	1.0
OM 180M	2	2940	18.5	36.7	85	0.90	7	1.6	1.8
OM 1801	4	1470	18.5	35.9	89	0.88	6.5	1.5	1.8
OIN TOOL	2	2940	22	42.7	86	0.91	6.5	1.6	1.8
OM 200L	2	2950	30	49.9	85	0.89	0.5	1.4	1.0
0110050	4	1480	32	60.7	90	0.89	6.5	1.4	1.8
UNI 2255	2	2960	37	71.7	86	0.92	7	1.4	1.8
OM 225M	4	1480	37	69.4	91	0.89	6.5	1.4	1.8
	4	2960	40	80.4	87 91	0.92	6.5	1.4	1.8
OM 250M	2	2960	55	103.2	88	0.92	7	1.4	1.8
OM 2805	4	1480	60	111.3	91	0.90	6.5	1.4	1.8
01112000	2	2970	72	135.1	88	0.92	7	1.4	1.8
OM 280M	2	2970	82	133.0	91	0.90	0.0	1.4	1.8
014000	6	920	0.65	2.2	64	0.70	6	1.4	1.8
OM 905	4	1420	0.85	2.3	70	0.79	6.5	1.3	1.8
OM 90L	6	930	0.85	2.8	66	0.70	6	1.4	1.8
	6	940	1.1	3.0	74	0.79	6.0	1.5	1.8
OM 100LA	4	1440	1.8	4.4	77	0.80	6.5	1.3	1.8
OM 1001 B	6	940	1.5	4.3	75	0.70	6	1.4	1.8
OIII TOULD	4	1440	2.2	5.4	77	0.80	6.5	1.4	1.8
OM 112M	4	960	2.2	5.7	77	0.75	6.5	1.4	1.8
OM 1990	6	960	3	7.7	79	0.70	6	1.4	1.8
01011325	4	1440	4	9.5	80	0.82	6.5	1.3	1.8
OM 132M	6	960	4	9.8	81	0.76	6	1.4	1.8
	6	970	0.0	12.3	80	0.85	6.0	1.3	1.8
OM 160M	4	1460	8	17.4	83	0.85	6.5	1.3	1.8
OM 1601	6	970	9	20.6	85	0.78	6	1.4	1.8
	4	1460	11	23.4	84	0.85	6.5	1.3	1.8
OM 180M	4	1470	14	25.9	85	0.78	6.5	1.4	1.8
OM 1901	6	980	13	29.4	86	0.78	6	1.4	1.8
OW IOUL	4	1470	16	33.6	85	0.85	6.5	1.3	1.8
OM 200L	6	980	18.5	41.4	87	0.78	6.E.	1.4	1.8
Ottocco	6	980	22	44.7	88	0.86	6.5	1.4	1.8
UM 225S	4	1470	28	56.2	87	0.87	7	1.3	1.8
OM 225M	6	980	26	52.2	88	0.86	6.5	1.4	1.8
	4	1470	34	66.0	87	0.90	65	1.3	1.8
OM 250M	4	1470	42	74.7	88	0.91	7	1.4	1.8
OM 2805	6	980	42	81.5	90	0.87	6.5	1.4	1.8
0/0/2000	4	1470	55	104.2	89	0.90	7	1.3	1.8
OM 280M	6	990	55	106.7	90	0.87	6.5	1.4	1.8
011.001	4	680	0.45	138.1	58	0.89	55	1.3	1.8
OW 90L	4	1420	0.75	1.92	72	0.87	6.5	1.5	1.8
OM 100	8	700	0.85	3.1	68	0.63	5.5	1.5	1.8
CAR TOUL	4	1420	1.5	3.5	75	0.88	6.5	1.5	1.8
OM 112M	8	1420	1.5	5.0	72	0.63	5.5	1.5	1.8
OM 1990	8	720	2.2	7.0	75	0.64	5.5	1.5	1.8
01011325	4	1440	3.3	7.1	80	0.88	6.5	1.5	1.8



TECHNICAL DATA (380V HZ50)

Mod	lel	Speed (r/min)	Output (KW)	Current (A)	Eff (%)	Power Factor	lst/in	Tstart/Tn	Tmax/Tn
	8	720	3	9.0	78	0.65	5.5	1.5	1.8
OM 132M	4	1440	4.5	9.4	82	0.88	6.5	1.5	1.8
011 10011	8	730	5	13.9	83	0.66	5.5	1.5	1.8
OW TOOM	4	1450	7.5	15.2	84	0.89	6.5	1.5	1.8
OM 160	8	/30	1	19.0	85	0.66	5.5	1.5	1.8
	4	720	11	21.0	00	0.89	0.0	1.5	1.0
OM 180L	8	1470	17	20.0	87	0.74	7	1.5	1.0
	4	740	14	33.0	86	0.74	6	1.5	1.8
OM 200LA	4	1470	22	41.3	88	0.92	7	1.5	1.8
OM ON D	8	740	17	40.1	87	0.74	6	1.5	1.8
UM 200LB	4	1470	26	48.8	88	0.92	7	1.5	1.8
OM 225M	8	740	24	53.2	89	0.77	6	1.4	1.8
omiccom	4	14/0	34	64.9	88	0.88	6	1.3	1.8
OM 250M	8	1480	42	78.8	89	0.76	7	1.4	1.0
	4	740	40	83.5	91	0.80	6	1.4	1.8
OM 280S	4	1480	55	102	90	0.91	7	1.3	1.8
01100011	8	740	47	96.9	91	0.81	6	1.4	1.8
UNI 200M	4	1480	67	122.9	90	0.92	7	1.3	1.8
OM 90S	8	680	0.35	1.6	56	0.60	5	1.5	1.8
	6	930	0.45	1.4	70	0.72	5	1.0	1.8
OM 90L	6	930	0.45	1.9	71	0.00	6	1.5	1.8
	8	710	0.75	2.9	65	0.60	5	1.5	1.8
OM 100L	6	950	1.1	3.1	75	0.73	6	1.5	1.8
OM 112M	8	710	1.3	4.5	72	0.61	5	1.5	1.8
SIN TIEN	6	950	1.8	4.8	78	0.73	6	1.5	1.8
OM 132S	8	730	1.8	5.8	/5	0.62	5	1.5	1.8
	8	730	2.6	8.2	78	0.62	5	1.5	1.8
OM 132M	6	970	3.7	9.4	82	0.73	6	1.5	1.8
01116011	8	930	4.5	13.3	83	0.62	5	1.5	1.8
OW TOOM	6	980	6	14.7	85	0.73	6	1.5	1.8
OM 160L	8	930	6	17.5	84	0.62	5	1.5	1.8
	0	930	7.5	19.4 21.0	84	0.73	5	1.5	1.0
OM 180M	6	980	10	24.2	86	0.73	6	1.5	1.8
014 1001	8	730	9	24.8	85	0.65	5	1.5	1.8
OM 180L	6	980	12	28.3	86	0.75	6	1.5	1.8
OM 200LA	8	730	12	32.5	86	0.65	5	1.5	1.8
	6	980	1/	39.1	8/	0.76	5	1.5	1.8
OM 200LB	6	980	20	40.5	88	0.05	6	1.5	1.0
014 4001	0.410	940/1420/	0.754.04.0	2.62/3.66/	07/70/74	0.65/0.75/	5 5 10 17	1.0	1.0
OM 100L	6/4/2	2880	0.75/1.3/1.8	4.53	6///2//1	0.85	5.5/6/7	1.8/1.0/1.0	1.8/1.8/1.8
OM 112M	6/4/2	940/1440/	1.1/2/2.4	3.52/5.14/	73/74/74	0.65/0.81/	5.5/6/7	1.7/1.4/1.6	1.8/1.8/1.8
		2890		5.80		0.85			
OM 132S	6/4/2	2900	1.8/2.6/3	7.38	75/78/71	0.87	5.5/6/7	1.4/1.3/1.7	1.8/1.8/1.8
OM 132MA	6/4/2	940/1440/	2.2/3.3/4	6.03/7.46/	77/80/76	0.72/0.84/	5.5/6/7	1.3/1.3/1.7	1.8/1.8/1.8
		2900		6.96/9.04/		0.91			
OM 132MB	6/4/2	2900	2.6/4/5	10.8	80/80/77	0.120.84/	5.5/6/7	1.5/1.4/1.7	1.8/1.8/1.8
011 10011	GLAUD	970/1490/	2 7/5/0	9.52/11.2/	04/04/70	0.72/0.84/	5 51017	4 54 24 4	4 0/4 0/4 0
OW TOOM	0/4/2	2930	3.11010	13.2	81/81//0	0.91	5.5/6/7	1.0/1.3/1.4	1.0/1.0/1.0
OM 160L	6/4/2	2930	4.5/7/9	11.4/15.1/	83/83/79	0.72/0.85/	5.5/6/7	1.5/1.2/1.3	1.8/1.8/1.8
OM 112M	8/4/2	710/1440/	0.65/2/2.4	2.66/5.14/	59/74/74	0.63/0.81/	4 5/6/7	1 4/1 3/1 2	1 8/1 8/1 8
0111000	0.00	2900	0.00/2/2.4	5.80		0.85	4.5/6/7	1.41.571.2	1.0/1.0/1.0
OM 132S	8/4/2	2900	1/2.6/3	7.08	69/78/74	0.87	4.5/6/7	1.4/1.2/1.4	1.8/1.8/1.8
OM 132M	8/4/2	2900	1.3/3.7/4.5	4.56/8.37/	71/80/75	0.61/0.84/	4.5/6/7	1.5/1.3/1.4	1.8/1.8/1.8
OM 160M	8/4/2	720/1460/ 2930	2.2/5/6	7.55/11.2/	75/81/76	0.59/0.84/	4.5/6/7	1.4/1.3/1.4	1.8/1.8/1.8
OM 160L	8/4/2	720/1460/	2.8/7/9	9.21/15.10/	77/83/79	0.60/0.85/	5.5/6.5/7	1.3/1.2/1.3	1.8/1.8/1.8
OM 112M	8/6/4	71 0/9 40/	0.85/1/1.5	3.72/3.06/	62/69/75	0.92	5 5/6 5/7	1 4/1 2/1 4	1 8/1 9/1 9
ON TRA	01014	1 400 71 0/9 40/	4.44 54 0	3.53	02/00/75	0.86	5.50.517	1.4/1.2/1.4	1.0/1.0/1.0
01/11/1325	8/6/4	1440	1.1/1.5/1.8	4.03	68//4//8	0.87	5.5/6.5/7	1.4/1.3/1.3	1.8/1.8/1.8
OM 132MA	8/6/4	1440	1.5/2/2.2	4.87	71/77/79	0.87	5.5/6.5/7	1.3/1.5/1.4	1.8/1.8/1.8
OM 132MB	8/6/4	1440	1.8/2.6/3	6.13/6.84/	72/78/80	0.62/0.74/	5.5/6.5/7	1.5/1.5/1.5	1.8/1.8/1.8
OM 160M	8/6/4	720/970/ 1460	3.3/4/5.5	10.2/9.87/ 11.6	79/81/83	0.62/0.76/	5.5/6.5/7	1.7/1.4/1.5	1.8/1.8/1.8
OM 160L	8/6/4	720/970/ 1460	4.5/6/7.5	13.8/14.5/ 15.6	80/83/84	0.62/0.76/ 0.87	5.5/6.5/7	1.6/1.6/1.5	1.8/1.8/1.8

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	CAST IRON MOTORS
NOTE	1F 1F 1F 1F 1F 10,05 260 10,05 260 10,05 260 10,05 260 10,05 260 10,05



