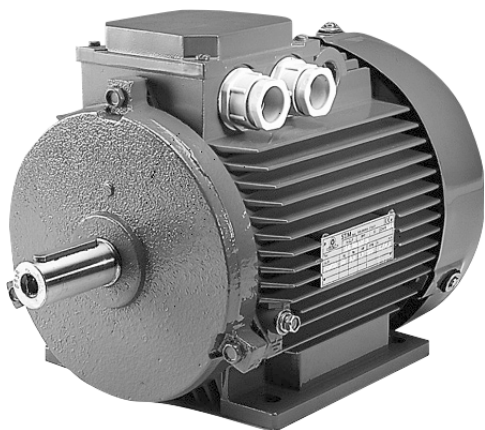


**2.0 MOTORI VELA
VELA MOTORS
MOTOREN VELA****VL**

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2.1 FORME COSTRUTTIVE

2.1 MODELS

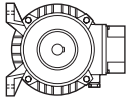
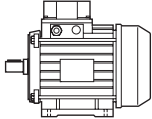
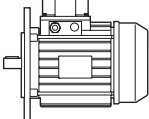
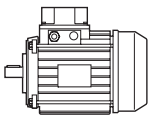
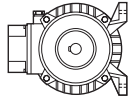
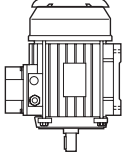
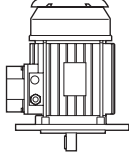
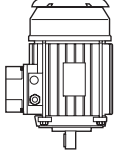
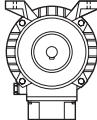
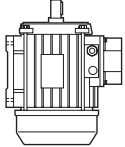
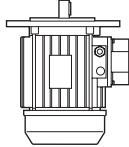
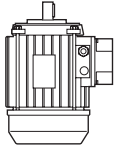
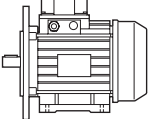
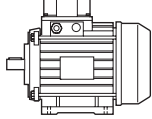
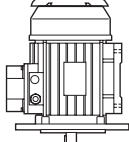
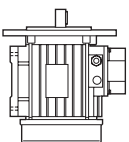
2.1 BAUFORMEN

I motori VELA possono essere forniti nelle seguenti forme costruttive in funzione della grandezza motore secondo le norme IEC 34-7 e CEI 2-14 fascicolo 724.

VELA motors are available in different models according to the size of the motor, in compliance with IEC 34-7 regulations, file 724.

Die VELA Motoren können in den folgenden Bauformen in Abhängigkeit von der Motorgröße gemäß IEC 34-7 und CEI 2-14 Heft 724 geliefert werden.

Tab. 2.1

Motori con piedi B3 <i>Motors with feet B3</i> Motoren mit Füßen B3		Motori con Flangia B5 <i>Flange-mounted motors B5</i> Motoren mit Flansch B5	Motori con Flangia B14 <i>Flange-mounted motors B14</i> Motoren mit Flansch B14
IM 1051 (IM B6) 	IM 1001 (IM B3) 	IM 3001 (IM B5) 	IM 3601 (IM B14) 
IM 1061 (IM B7) 	IM 1011 (IM V5) 	IM 3031 (IM V1) 	IM 3631 (IM V18) 
IM 1071 (IM B8) 	IM 1031 (IM V6) 	IM 3031 (IM V3) 	IM 3631 (IM V19) 
IM 2001 (IM B35)  <p>B3/B5</p>	IM 2101 (IM B34)  <p>B3/B14</p>	IM 2011 (IM V15)  <p>V3/V5</p>	IM 2031 (IM V36)  <p>V3/V6</p>

2.2 DESIGNAZIONE

2.2 DESIGNATION

2.2 TYPENSCHLÜSSEL

Descrizione <i>Description</i>	VL	63	A	4	B5	—	55	F	—
	Tipo Type Typ	Grandezza Size Größe	Lunghezza Length	n° poli Pole n.	[*1]	[*2]	[*3]	[*4]	[*5]
MOTORI TRIFASE / THREE-PHASE MOTORS / DREHSTROMMOTOREN									
Trifase <i>Three-Phase</i>	VL	56...315	A ... ML	2 4 6	B5 B14 *B3 *B35 (B3/B5) *B34 (B3/B14) B3L4 B3L2	— A B (Vedi tabella) (See tables) (Siehe Tabellen)	55	F	—

[*1] Forma

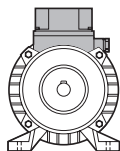
Nelle forme costruttive con piede, la scatola morsetti può essere orientata in tre posizioni.

[*1] Design version

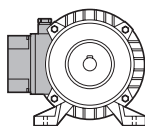
On design versions with feet, the terminal box can be set in three positions.

[*1] Forma

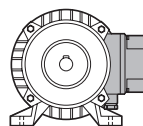
Bei den Bauformen mit Fuß kann der Klemmenkasten in drei Positionen ausgerichtet werden.



B3
standard



B3L4



B3L2

[*2] Tensione e frequenza


Specificare tensione STD o a richiesta.

[*2] Voltage and frequency

Specify either STD voltage or upon request.

[*2] Spannung und Frequenz

Spannung STD oder auf Wunsch angeben.

	Tensione / Voltage / Spannung [V]		Indicazione Designazione
	(50 Hz)	(60Hz)	
63 - 112	230/400	277/480	—
132	230/400	277/480	A
132	400 Δ	480 Δ	B
> 160	400 Δ	480 Δ	—

[*3] Grado di protezione

[*3] Protection level

[*3] Schutzart

Indicazione designazione <i>Designation indication</i> Bezeichnung	IP55
	Standard
	55

[*4] Classe di isolamento

[*4] Insulation class

[*4] Isolierstoffklasse

Indicazione designazione <i>Designation indication</i> Bezeichnung	CL F Standard
	F

[*5] Tipo di servizio (pag. 89)

[*5] Service type (page 89)

[*5] Betriebsart (Seite 89)

2.3 CUSCINETTI E MATERIALI

I cuscinetti dei motori fino alla grandezza 200 sono del tipo 2RS autolubrificati e precaricati; per le grandezze superiori (225-315) sono previsti cuscinetti autolubrificati con la possibilità di introdurre del nuovo grasso il quale sostituirà parzialmente quello usato.

Per tutti i motori utilizzati nelle posizioni di montaggio orizzontali e in assenza di carichi radiali e assiali, la durata massima calcolata è di 40.000 ore. In presenza dei carichi massimi indicati la durata calcolata è di 20.000 ore.

2.3 BEARINGS AND MATERIALS

Motors up to size 200 feature 2RS-type autolubricated and preloaded bearings; motors of larger size (225-315) have autolubricated bearings that allow the application of further grease to partially substitute the consumed lubricant.


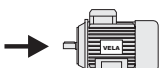

All motors used in horizontal assembling positions and without radial and axial loads have a maximum calculated duration of 40.000 hours. When the maximum loads indicated are applied, the motors have a calculated duration of 20.000 hours.

2.3 KUGELLAGER UND MATERIALIEN

Die Lager der Motoren bis zu Baugröße 200 sind vom Typ 2RS mit Dauerschmierung und Vorspannung. Für größere Baugrößen (225-315) sind dauergeschmierte Lager vorgesehen, die nachgefettet werden können, um das verwendete Fett teilweise zu ersetzen.

Für alle Motoren in waagerechter Einbaulage und bei Fehlen von Axial- und Radialbelastungen ist die maximale Standzeit mit 40.000 Stunden angesetzt. Bei Vorhandensein der angegebenen Maximalbelastungen beträgt die berechnete Standzeit mit 20.000 Stunden.

Tab. 2.2

	Cuscinetti Bearings Kugellager		Materiali Materials Materialien				
	Lato A Side A Seite A 	Lato B Side B Seite B 	Cassa Body Gehäuse	Scudi Shields Lagerschilder	Scatola morsettiera Terminal board box Klemmenkasten	Ventola Fan Lüfter	Copriventola Fan cover Lüfterhaube
63	6201	6201	Al	Al	Al	Th	Th
71	6202	6202					
80	6204	6204					
90	6205	6205					
100	6306	6306					
112	6306	6306	Ci	Ci	Al	Al	St
132	6308	6308					
160	6309	6309					
180M	6310	6310					
180L	6312	6312					
200L	6312	6312					
200LA	6312	6312					
200LB	6313	6313					
225	6313	6213					
250	6314	6214					
280	6317	6317	Ci	Ci	Al	Al	St
315M	NU317EC	6317					
315L	NU319EC	6319					

Al Alluminio
Aluminium
Aluminium

Th Termoplastica
Thermoplastic
Thermoplast

Ci Ghisa
Cast iron
Roheisen

St Acciaio
Steel
Stahl

2.4 GRADO DI PROTEZIONE

I motori VELA sono forniti con protezione IP55 (secondo le Norme CEI 2-16 e IEC 34-5).

Se installati all'aperto è necessario proteggere i motori dall'irraggiamento diretto del sole e, se montati verticalmente, dagli agenti atmosferici.

2.4 PROTECTION LEVEL

VELA motors feature IP55 protection (in compliance with CEI 2-16 and IEC 34-5 regulations).

Motors must be protected from direct sunlight if installed outdoors and, when assembled vertically, they must be protected from atmospheric agents.

2.4 SCHUTZART

Die VELA Motoren werden in der Schutzart IP55 geliefert (gemäß CEI 2-16 und IEC 34-5).

Wenn sie im Freien installiert werden, sind sie vor direkter Sonneneinstrahlung und, bei senkrechter Einbaulage, vor Witterungseinflüssen zu schützen.

2.5 VENTILAZIONE

Il raffreddamento del motore è affidato a una ventola a pale radiali la quale assolve la sua funzione nei due sensi di rotazione.

Per garantire una ventilazione efficace è necessario prevedere durante l'installazione del motore uno spazio S adeguato fra il copriventola e l'eventuale parete.

2.5 VENTILATION

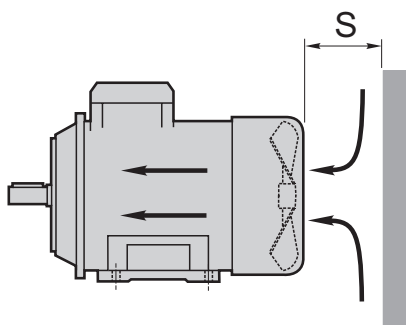
Motor cooling is provided by a radialblade fan working in both rotation directions.

If the motor is installed in proximity to a wall, adequate space S must be allowed between the fan cover and the wall during installation for the ventilation system to be effective.

2.5 BELÜFTUNG

Die Motorkühlung wird von einem Lüfterrad mit Radialschaufeln übernommen, das in beide Richtungen drehen kann.

Für eine wirksame Kühlung ist bei der Installation des Motors ein angemessener Abstand S zwischen der Lüfterhaube und einer eventuell vorhandenen Wand zu wahren.



2.6 SENSO DI ROTAZIONE

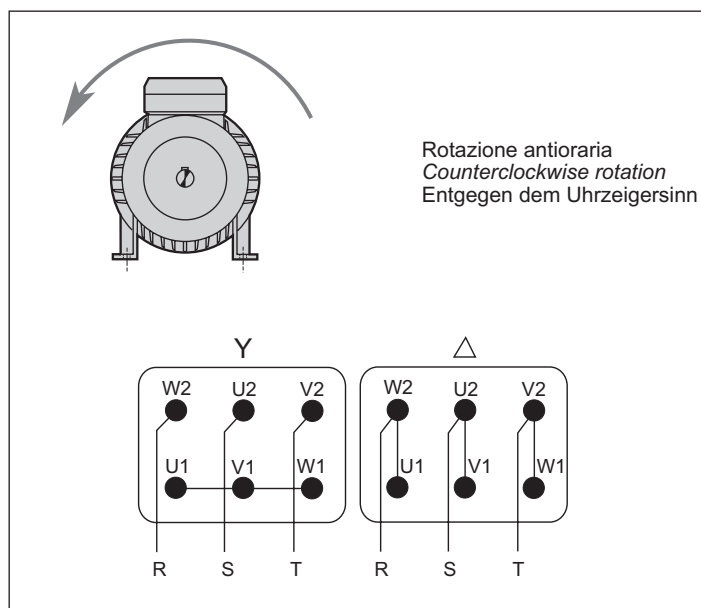
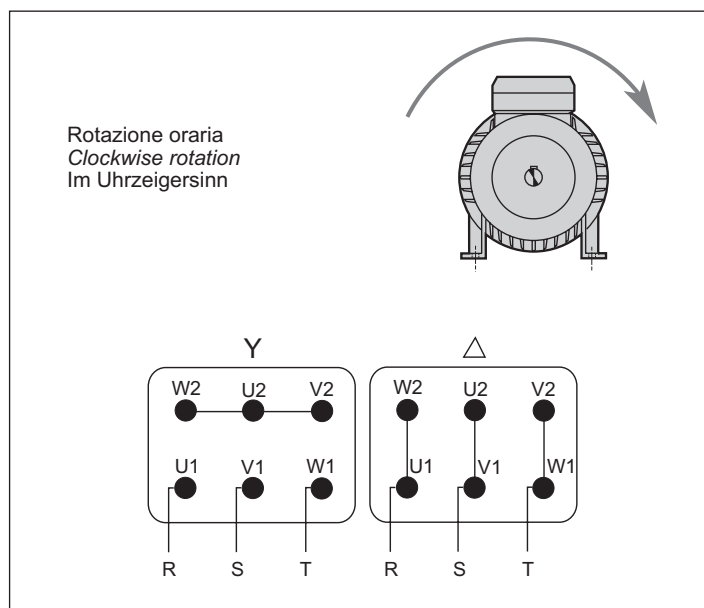
I motori VELA possono ruotare nei due sensi di marcia effettuando i collegamenti sottoriportati.

2.6 ROTATION DIRECTION

VELA motors can work in both rotation directions, as long as parts are connected according to the instructions provided.

2.6 DREHSINN

Die VELA Motoren können in beiden Drehrichtungen arbeiten, sofern die nachstehend angegebenen Anschlüsse ausgeführt werden.



2.7 LIVELLO DI PRESSIONE ONORA

La tab.2.3 riporta i valori medi (espressi in dB) del livello di pressione sonora LPA e potenza sonora LWA rilevati sulla scala di ponderazione (A), secondo le Norme IEC34-9 e riferiti ai motori funzionanti a 50 Hz senza carico applicato (sui valori riportati è ammessa una tolleranza + 3%).

Per motori funzionanti con frequenza a 60 Hz aumentare i valori di 5 dB(A)

2.7 NOISE PRESSURE

Tab.2.3 shows average values (in dB) of LPA noise pressure and LWA noise power, gathered according to the (A) weighting scale in compliance with IEC34-9 regulations for 50 Hz power motors with no applied loads (the values shown allow a + 3% tolerance margin).

Values must be increased by 5 dB(A) for 60 Hz power motors.

2.7 SCHALLDRUCKPEGEL

In Tab. 03 werden die gemäß IEC 34-9 ermittelten A-bewerteten Mittelwerte (in dB) des Schalldruckpegels LPA und der Schalleistung LWA für die mit 50 Hz betriebenen Motoren ohne Last angegeben (für die angegebenen Werte ist eine Toleranz von + 3 % zulässig).

Für Motoren mit einer Betriebsfrequenz von 60 Hz sind die Werte um 5 dB(A) zu erhöhen.

Tab. 2.3

		63	71	80	90S	90L	100L	100LA	100LB	112	132	160	180	200	225	250	280	315
2 P	LPA [dB]	54	56	57	62	62	65	—	—	65	71	73	74	75	79	80	82	86
	LWA [dB]	63	65	66	72	72	75	—	—	75	79	84	85	86	90	91	93	98
4 P	LPA [dB]	50	51	53	53	55	—	55	59	59	61	63	68	68	69	73	75	75
	LWA [dB]	58	60	62	63	65	—	65	69	69	72	74	79	79	80	84	86	87
6 P	LPA [dB]	47	48	52	52	52	—	—	—	52	60	68	64	64	67	67	67	67
	LWA [dB]	55	57	61	62	62	—	—	—	62	70	79	75	75	78	78	78	79

Per funzionamento a carico alla coppia nominale, i valori sopra riportati potranno subire gli incrementi massimi Δ LPA indicati nella tab.2.4.

Values could increase according to the maximum Δ LPA values indicated in tab.2.4 for motors working with loads to the rated torque.

Für den Betrieb unter Last mit dem Nennmoment können die oben angegebenen Werte maximale Steigerungen Δ LPA gemäß Tab. 04 erfahren.

Tab. 2.4

		0.12 < kW < 11	11 < kW < 37	37 < kW < 110	110 < kW < 200
2 P	Δ LPA [dB]	8	7	6	5
4 P	Δ LPA [dB]	7	6	5	4
6 P	Δ LPA [dB]	5	4	3	3

2.8 VIBRAZIONI

Tutti i motori VELA sono sottoposti ad equilibratura dinamica con mezza linguetta.

La tab.2.5 riporta i valori limite della velocità di vibrazione raccomandati dalle Norme IEC 34-14 in funzione dei tre gradi di intensità di vibrazione previsti:

- N : normale (standard)
- R : ridotta
- S : speciale

2.8 VIBRATIONS

All VELA motors undergo a half-spline dynamic balancing process.

Tab.2.5 shows the maximum vibration speed values recommended by IEC 34-14 regulations for grade:

- N : normal
- R : reduced
- S : special

2.8 VIBRATIONEN

Alle VELA Motoren sind dynamisch mit einer halben Passfeder ausgewuchtet.

In Tab. 05 sind die Grenzwerte der Vibrationsgeschwindigkeit angegeben, die gemäß IEC 34-14 in Abhängigkeit von den drei vorgesehenen Vibrationsstärkegraden festgelegt sind:

- N : Normalstärke (standard)
- R : Verringerte Stärke
- S : Sonderstärke

Tab. 2.5

		Limiti della velocità di vibrazione / Vibration speed limits / Grenzwerte der Vibrationsgeschwindigkeit [mm/s]		
Poli / Poles / Pole		Grandezze / Sizes / Größen		
		63 - 132	160 - 225	250 - 315
N	2 P	1.8	1.8	4.5
	4-6P	1.8	2.8	2.8
R	2 P	(a richiesta on request) Auf Anfrage	1.8	2.8
	4-6P		1.12	1.8
S	2 P		1.12	1.8
	4-6P		0.71	1.12

2.9 SCATOLA MORSETTI E INGRESSO CAVI

2.9 TERMINAL BOARD BOX AND CABLE SLOTS


2.9 KLEMMENKASTEN UND KABELINGANG

La tab.2.6 sottostante riassume i dati caratteristici dei morsetti e ingresso cavi relativi alle grandezze motore 63-315.

The table 2.6 below it sums up the characteristic data of the terminals and cables entrance of the motor sizes 63-315

In der nachstehenden Tab. 06 werden die Kenn-daten der Anschlussklemmen und der Kabeleingänge für die Motorgrößen 63-315 angegeben.

Tab. 2.6

	Numero morsetti Number of terminals Anzahl Klemmen	Filettatura morsetti Terminal thread Klemmengewinde	Ingresso cavi Cable slots Kabeleingang	d1, d2
63	6	M4	PG13.5	14
71	6	M4	PG13.5	14
80	6	M4	PG16	16
90	6	M5	PG16	16
100	6	M5	PG21	21
112	6	M5	PG21	21
132	6	M5	PG21	21
160	6	M5	PG21	21
180	6	M8	PG29	30
200	6	M8	PG36	38
225	6	M8	PG36	38
250	6	M8	PG42	43
280	6	M10	PG42	43
315	6	M12	PG48	48

2.10 TENSIONE DI ALIMENTAZIONE E FREQUENZA

2.10 POWER VOLTAGE AND FREQUENCY

2.10 VERSORGUNGSSPANNUNG UND FREQUENZ

La tab.2.7 indica le tensioni di alimentazione e le frequenze standard applicabili alle varie grandezze di motori secondo le IEC 38. E' ammesso uno scostamento di $\pm 10\%$ sul valore della tensione a 50 Hz.

Tab.2.7 shows power voltages and standard frequencies applicable to the different motor sizes. IEC 38 regulations allow a $\pm 10\%$ tolerance on voltage values.


In Tab. 07 werden die Versorgungsspannungen und die Standardfrequenzen für die verschiedenen Motorgrößen gemäß IEC 38 angegeben. Es ist eine Abweichung von $\pm 10\%$ vom Spannungswert bei 50 Hz zulässig.

Con gli scostamenti indicati, le norme ammettono una sovratemperatura di 10K.

Regulations also allow a 10K overheating within the tolerance described.

Mit den angegebenen Abweichungen gestatten die Normen eine Übertemperatur von 10K.

Tab. 2.7

	Tensione / Voltage / Spannung [V]		Indicazione designazione Designation indication Bezeichnung
	(50 Hz)	(60Hz)	
63 - 112	230/400	277/480	—
132	230/400	277/480	A
132	400 Δ	480 Δ	B
> 160	400 Δ	480 Δ	—

2.11 POTENZA

Le potenze nominali attribuite ai motori sono riferite ad una temperatura ambiente T_0 di 40 °C e ad un'altitudine fino a 1000 m s.l.m.
Per temperature oltre i 40 °C e altitudini superiori ai 1000 m fare riferimento alle tab.2.8 e 2.9 declassando la potenza PN delle percentuali indicate.

Tab. 2.8

T_0 °C	40	45	50	55	60
P_N %	100	96	92	87	82

Tab. 2.9

altitudine / altitude / Höhenlage [m]	1000	1500	2000	2500	3000	3500	4000	4300
---------------------------------------	------	------	------	------	------	------	------	------

2.12 RENDIMENTO E FATTORE DI POTENZA

Nelle tabelle dei dati tecnici dei motori sono riportati i valori del rendimento (η) e del fattore di potenza ($\cos\phi$) di potenza riferiti alla coppia nominale M.
Se la coppia nominale è utilizzata parzialmente, è possibile dalle tab.2.10 e 2.11 risalire ai valori corretti (interpolando dove necessario).

Tab. 2.10

	M			
	50%	75%	100%	125%
η %	94.5	96.0	96.0	95.0
	93.5	95.0	95.0	94.0
	93.0	94.0	94.0	93.0
	92.5	93.0	93.0	92.0
	92.0	92.5	92.0	91.0
	91.0	91.5	91.0	90.0
	89.0	90.0	90.0	89.0
	88.0	89.0	89.0	88.0
	87.0	88.0	88.0	87.0
	86.5	87.5	87.0	86.0
	85.5	86.5	86.0	85.0
	83.5	85.5	85.0	84.0
	82.5	84.5	84.0	83.0
	81.5	83.0	83.0	81.5
	80.5	82.0	82.0	80.5
	79.0	81.0	81.0	79.0
	78.0	80.0	80.0	78.0
	77.0	79.0	79.0	76.5
	76.0	78.0	78.0	75.5
	75.0	77.0	77.0	75.0
	73.5	75.5	76.0	74.5
	63.5	68.5	69.0	67.5
	63.0	67.5	68.0	66.0
	62.0	66.5	67.0	65.0
	61.0	65.0	66.0	64.0
	60.0	64.0	65.0	63.0
	59.0	63.0	64.0	62.0
	57.0	62.0	63.0	61.0
	56.0	60.5	62.0	60.5
	55.0	59.5	61.0	59.5
	53.5	58.5	60.0	58.5
	51.5	57.5	59.0	58.0
50.0	56.5	58.0	57.0	
49.0	55.0	57.0	56.0	
46.0	53.0	56.0	55.0	
45.0	52.0	55.0	53.0	

2.11 POWER

The motor ratings described refer to a T_0 room temperature of 40 °C and to an altitude up to 1000 Mt above sea level.
For temperatures over 40 °C and altitudes over 1000 Mt, refer to tab.2.8 and 2.9, decreasing P_N power by the indicated percentages.

2.11 LEISTUNG

Die Nennleistungen der Motoren beziehen sich auf eine Umgebungstemperatur T_0 von 40°C und eine Höhenlage bis 1.000 m ü.M.

Für Temperaturen über 40°C und Höhenlagen über 1.000 m siehe die angegebenen Prozentwerte in Tab. 2.8 und Tab. 2.9, die von der Nennleistung abzuziehen sind.

2.12 EFFICIENCY AND POWER FACTOR

Motor's data tables include efficiency (η) and power factor ($\cos\phi$) values referred to the M rated torque.
If the rated torque is used only partially, the correct values can be calculated using tab.2.10 and 2.11 (interpolating values if necessary).

2.12 AUSBRINGUNG UND LEISTUNGSFAKTOR

In den Tabellen mit den technischen Daten der Motoren sind die Ausbringung (η) und der Leistungsfaktor ($\cos\phi$) bezogen auf das Nennmoment M angegeben.

Wenn das Nennmoment anteilig verwendet wird, können mittels Tab. 10 und 11 die richtigen Werte ermittelt werden (durch Interpolation, sofern erforderlich).

Tab. 2.11

	M			
	50%	75%	100%	125%
$\cos\phi$	0.88	0.90	0.92	0.92
	0.87	0.89	0.91	0.91
	0.84	0.88	0.90	0.90
	0.80	0.86	0.89	0.89
	0.78	0.85	0.88	0.89
	0.76	0.83	0.87	0.88
	0.74	0.82	0.86	0.87
	0.73	0.81	0.85	0.86
	0.71	0.80	0.84	0.86
	0.70	0.79	0.83	0.84
	0.68	0.78	0.82	0.83
	0.66	0.71	0.81	0.82
	0.65	0.73	0.80	0.81
	0.62	0.74	0.79	0.80
	0.60	0.72	0.78	0.80
	0.58	0.70	0.77	0.80
	0.57	0.69	0.76	0.80
	0.56	0.69	0.75	0.80
	0.54	0.67	0.73	0.78
	0.52	0.65	0.72	0.77
0.49	0.63	0.71	0.77	
0.47	0.61	0.70	0.76	

2.13 ISOLAMENTO

Tutti i motori sono costruiti nella versione standard con isolamento degli avvolgimenti in classe F.

In caso di funzionamento in ambienti con elevato tasso di umidità, su richiesta, è possibile eseguire un processo di tropicalizzazione sugli avvolgimenti.

2.13 INSULATION RATING

All the motors are designed in standard version with class F winding insulation.

If the motors are installed in high umidity areas the windings may be tropicalized upon request.

2.13 ISOLIERUNG

Alle Motoren sind in der Standardversion mit Wicklungen in der Isolierstoffklasse F ausgeführt.

Für den Einsatz in Umgebungen mit einer hohen Luftfeuchtigkeit ist auf Anfrage die tropfenfeste Ausführung der Wicklungen möglich.

2.14 TIPO DI SERVIZIO

I dati tecnici del presente catalogo si riferiscono al servizio continuo S1, definito secondo normative come funzionamento a carico costante, mantenuto per il tempo necessario per permettere al motore di raggiungere l'equilibrio termico.

2.14 SERVICE TYPE

Engineering data included in this catalogue refer to the S1 continuous service, defined by the current regulations as constant load operation maintained for the time required by the motor to reach thermal balance.

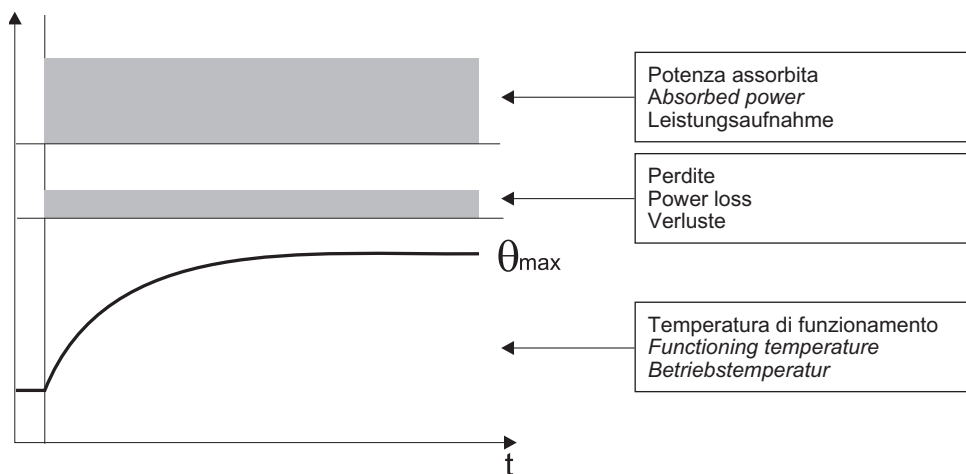
2.14 BETRIEBSART

Für die im Katalog angegebenen technischen Daten beziehen sich auf den Dauerbetrieb S1, der nach Norm als Betrieb des Motors mit konstanter Last über einen unbestimmten Zeitraum definiert ist, der für die Erreichung des Temperaturgleichgewichts ausreichend ist.

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2.15 NORME DI RIFERIMENTO


2.15 REFERENCE STANDARD

2.15 BEZUGSNORMEN


Tab. 2.12

Descrizione	Description	Beschreibung	IEC
Macchine elettriche rotanti Prescrizioni generali	Rotating electrical machines General requirements	Drehende elektrische Maschinen Allgemeine Vorschriften	IEC 34-1
Macchine elettriche rotanti Dimensioni e potenze	Rotating electrical machines construction dimension and power	Drehende elektrische Maschinen Abmessungen und Leistungen Einteilung der Schutzarten	IEC 72
Macchine elettriche rotanti Classificazione dei gradi di protezione	Rotating electrical machines classification of protection degrees	Definition der Kühlverfahren für drehende elektrische Maschinen	IEC 34-5
Definizione dei metodi di raffreddamento delle macchine elettriche rotanti	Cooling methods of rotating electrical machines	Bezeichnung der Bauformen von drehenden elek- trischen Maschinen	IEC 34-6
Definizione delle forme costruttive delle macchine elettriche rotanti	Classification of types of constructions of rotating electrical machines	Anschlussbezeichnungen und Drehsinn von dre- henden elektrischen Maschinen	IEC 34-7
Definizione dei terminali e del senso di rotazione delle macchine elettriche rotanti	Classification of terminal marking and direction of rotating electrical machi- nes	Geräuschgrenzwerte von drehenden elektrischen Maschinen	IEC 34-8
Limiti di rumorosità delle macchine elettriche rotanti	Noise limits of rotating electrical machines	Schwingungen von drehenden elektrischen Ma- schinen	IEC 34-9
Grado di vibrazione delle macchine elettriche rotanti	Vibration degree of rotating electrical machines	Drehende elektrische Maschinen	IEC 34-14
Macchine elettriche rotanti Potenza uscita, tensione e frequenza	REM power, voltage and frequency	Ausgangsleistung, Spannung und Frequenz	IEC 38



2 poli / 2 poles / 2 polig

Tipo Type Typ	P _n		n _n [min ⁻¹]	C _n [Nm]	I _n (400V) [A]	η %	cos φ	I _a I _n	C _a C _n	C _{max} C _n	J [Kg m ²]	
	[kW]	[HP]										
56A2	0.09	0.12	2730	0.32	0.33	59	0.71	2.8	2	2.2	0.00012	3.0
56B2	0.12	0.16	2730	0.45	0.41	60	0.73	3	2	2.3	0.00015	3.0
63A2	0.18	0.25	2730	0.63	0.49	68.0	0.78	5.0	2.2	2.2	0.00030	3.6
63B2	0.25	0.35	2730	0.87	0.73	69.0	0.79	5.0	2.2	2.2	0.00050	3.9
71A2	0.37	0.50	2760	1.30	0.87	72.0	0.86	5.0	1.8	2.2	0.00073	4.9
71B2	0.55	0.75	2760	1.90	1.25	75.0	0.85	5.0	1.8	2.2	0.00092	5.7
80A2	0.75	1.00	2820	2.50	1.66	78.5	0.83	6.0	1.6	2.2	0.00095	8.9
80B2	1.10	1.50	2800	3.80	2.42	79.0	0.83	6.0	1.6	2.2	0.00110	9.7
90S2	1.50	2.00	2850	5.00	3.15	82.5	0.85	7.0	1.8	3.4	0.00180	14.4
90L2	2.20	3.00	2850	7.40	4.40	83.5	0.87	7.0	1.8	3.0	0.00210	16.5
100L2	3.00	4.00	2850	10.1	5.80	84.5	0.88	7.0	1.6	2.2	0.00360	26.1
112M2	4.00	5.50	2850	13.4	7.60	87.0	0.88	7.5	1.6	2.2	0.00590	29.8
112L2	5.50	7.50	2850	18.4	10.3	88.0	0.88	7.5	1.6	2.4	0.01000	35.2
132S2	5.50	7.50	2890	18.2	10.4	86.0	0.88	7.5	2.0	2.8	0.0126	37.5
132M2	7.50	10.0	2895	24.7	14.0	87.5	0.88	7.5	2.2	3.0	0.0236	52.0
160MA2	11.0	15.0	2920	36.0	20.0	90.0	0.89	7.5	2.4	3.4	0.024	81.0
160MB2	15.0	20.0	2900	49.0	26.6	90.0	0.90	7.5	2.4	3.4	0.039	91.0
160L2	18.5	25.0	2930	60.0	33.1	90.5	0.89	7.5	2.8	3.4	0.045	138
180M2	22.0	30.0	2930	72.0	40.2	90.5	0.87	7.3	2.6	3.2	0.063	170
200LA2	30.0	40.0	2925	98.0	53.0	91.5	0.89	7.0	2.4	3.0	0.076	185
200LB2K	37.0	50.0	2940	120	63.7	93.0	0.90	7.2	2.4	3.2	0.13	255
225M2K	45.0	60.0	2940	146	76.6	93.0	0.91	7.2	2.5	3.2	0.15	275
250M2K	55.0	75.0	2945	178	93.1	93.5	0.91	7.5	2.3	3.3	0.21	340
280S2K	75.0	100	2955	242	127	93.2	0.91	7.5	2.0	2.9	0.47	485
280M2K	90.0	125	2955	291	153	93.1	0.91	6.9	1.7	2.9	0.52	515
315S2	110	150	2960	355	183	94.1	0.92	7.2	2.1	3.4	0.85	720
315M2K	132	180	2960	426	219	94.5	0.92	7.5	2.3	3.4	1.02	770
315LA2	160	220	2970	514	265	94.5	0.92	7.2	1.8	2.8	1.42	970
315LB2	200	270	2975	642	322	95.0	0.94	7.2	1.8	2.8	1.78	1110


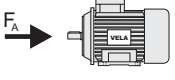
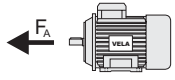

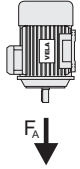
4 poli / 4 poles / 4 polig

Tipo Type Typ	P _n		n _n [min ⁻¹]	C _n [Nm]	I _n (400V) [A]	η %	cos φ	I _a I _n	C _a C _n	C _{max} C _n	J [Kg m ²]	
	[kW]	[HP]										
56B4	0.09	0.12	1350	0.65	0.44	56.0	0.65	2.3	1.8	2.0	0.00050	3.0
63A4	0.12	0.16	1350	0.85	0.46	63.0	0.66	5.0	2.3	2.2	0.00070	3.6
63B4	0.18	0.25	1350	1.30	0.66	64.0	0.68	5.0	2.3	2.2	0.00080	3.9
71A4	0.25	0.35	1370	1.70	0.80	68.0	0.67	5.0	1.8	2.2	0.00110	5.0
71B4	0.37	0.50	1370	2.60	1.13	68.0	0.70	5.0	1.8	2.2	0.00140	5.7
80A4	0.55	0.75	1360	3.90	1.53	71.0	0.73	5.0	1.8	2.4	0.00130	8.3
80B4	0.75	1.00	1350	5.30	2.00	72.0	0.75	5.0	1.6	2.6	0.00150	9.6
90S4	1.10	1.50	1395	7.50	2.62	76.7	0.79	6.0	1.8	2.6	0.00340	12.2
90L4	1.50	2.00	1395	10.3	3.40	78.5	0.83	6.0	1.8	2.6	0.00360	15.4
100LA4	2.20	3.00	1395	15.1	4.84	81.0	0.81	6.5	1.6	2.4	0.00530	24.6
100LB4	3.00	4.00	1410	20.5	6.30	82.0	0.84	7.0	1.6	2.6	0.00580	26.6
112M4	4.00	5.50	1410	27.1	8.10	85.0	0.84	6.0	1.6	2.4	0.01050	33.6
112N4	5.50	7.50	1410	37.2	12.10	82.0	0.80	6.0	2.3	2.6	0.01300	34.5
132S4	5.50	7.50	1455	36.6	11.4	85.0	0.82	7.5	2.0	2.5	0.03500	52.0
132M4	7.50	10.0	1450	50.3	15.1	86.4	0.83	7.5	2.4	2.9	0.03900	65.0
160M4	11.0	15.0	1440	73.0	21.1	88.5	0.85	7.4	2.4	3	0.045	87.0
160L4	15.0	20.0	1450	99.0	28.0	89.5	0.86	6.1	2.3	2.6	0.075	127
180M4	18.5	25.0	1460	121	34.4	90.0	0.86	6.2	2.3	2.5	0.087	145
180L4	22.0	30.0	1450	145	40.2	90.5	0.84	6.1	2.3	2.2	0.16	152
200L4	30.0	40.0	1460	196	55.2	91.0	0.86	6.8	2.5	2.6	0.20	190
225S4K	37.0	50.0	1465	241	67.9	92.2	0.85	6.7	2.6	2.6	0.27	260
225M4K	45.0	60.0	1465	293	82.3	92.5	0.85	6.9	2.5	2.5	0.32	280
250M4K	55.0	75.0	1470	357	99.8	93.3	0.85	6.8	2.4	2.4	0.50	350
280S4K	75.0	100	1480	484	134	94.0	0.86	7.2	2.1	2.3	1.00	495
280M4K	90.0	125	1485	578	156	94.3	0.88	7.2	2.3	2.3	1.20	545
315S4	110	150	1485	707	189	95.4	0.88	6.8	2.3	2.8	2.19	790
315M4	132	180	1485	848	222	95.9	0.89	7.0	2.4	2.8	2.70	885
315LA4	160	220	1485	1028	273	96.0	0.88	6.8	1.9	2.2	3.57	1110
315LB4	200	270	1485	1285	333	96.0	0.90	6.8	1.9	2.0	3.97	1150

6 poli / 6 poles / 6 polig

	P _n		n _n [min ⁻¹]	C _n [Nm]	I _n (400V) [A]	η %	cos φ	I _a I _n	C _a C _n	C _{max} C _n	J [Kg m ²]	 Kg
	[kW]	[HP]										
71A6	0.18	0.25	885	1.90	0.75	56.0	0.62	3.7	2.2	2.2	0.00200	4.6
71B6	0.25	0.33	885	2.70	1.00	59.0	0.62	3.7	2.2	2.2	0.00210	5.4
80A6	0.37	0.50	915	3.90	1.25	65.0	0.66	4.5	2.2	2.2	0.00230	8.6
80B6	0.55	0.75	915	5.70	1.65	68.5	0.70	4.5	2.2	2.2	0.00250	10.1
90S6	0.75	1.00	920	7.80	2.10	70.5	0.72	4.5	2.3	2.3	0.00340	13.3
90L6	1.10	1.50	920	11.4	2.90	74.5	0.74	4.0	2.4	2.4	0.00490	16.5
100L6	1.50	2.20	925	15.5	4.00	76.0	0.72	6.0	2.2	2.2	0.00710	25.8
112M6	2.20	3.00	945	22.2	5.30	81.0	0.74	6.0	2.1	2.1	0.01230	30.9
132S6	3.00	4.00	950	30.2	6.60	81.0	0.76	5.5	2.2	2.8	0.02200	45.5
132MA6	4.00	5.50	960	39.8	8.60	82.0	0.81	5.5	2.0	2.5	0.05200	52.0
132MB6	5.50	7.50	960	54.7	12.0	84.0	0.80	6.0	2.5	2.5	0.05900	61.0
160M6	7.50	10.0	960	75.0	15.5	87.0	0.80	6.7	2.3	3.0	0.067	86.0
160L6	11.0	15.0	970	108	21.4	88.5	0.84	6.5	2.0	2.8	0.110	124
180L6	15.0	20.0	975	147	28.0	90.5	0.85	7.0	2.3	3.0	0.150	155
200LA6	18.5	25.0	975	181	34.8	90.0	0.85	6.9	2.0	2.8	0.240	190
200LB6K	22.0	30.0	975	215	41.9	90.0	0.84	6.0	2.2	2.3	0.410	250
225M6K	30.0	40.0	975	294	57.1	90.0	0.84	6.0	2.1	2.4	0.460	270
250M6K	37.0	50.0	980	360	69.6	91.0	0.84	6.3	2.3	2.5	0.650	335
280S6K	45.0	60.0	980	438	84.6	92.5	0.83	6.5	2.2	2.3	1.200	440
280M6K	55.0	75.0	980	536	101	92.5	0.85	6.1	2.2	2.3	1.300	460
315S6	75.0	100	985	727	134	94.7	0.85	6.3	2.2	2.4	3.040	745
315M6	90.0	125	985	872	162	94.7	0.84	6.3	2.0	2.2	3.360	780
315LA6	110	150	985	1066	185	95.0	0.90	6.7	1.6	2.4	4.540	960
315LB6	132	180	985	1279	219	95.2	0.91	7.0	1.7	2.4	5.130	1010

2.17 CARICHI RADIALI E ASSIALI 2.17 RADIAL AND AXIAL LOADS 2.17 RADIAL- UND AXIALLASTEN

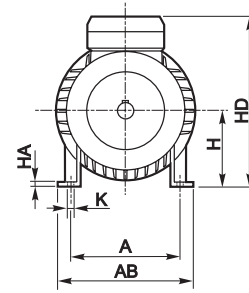
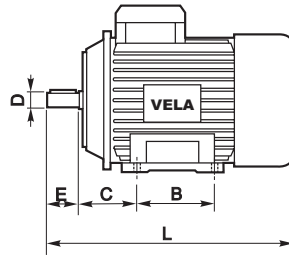
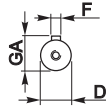
	Poli Poles	Carico assiale max. F_A / Maximum axial load F_A / Axiallast max. F_A								F_R max
		Montaggio orizzontale Horizontal assembling Horizontale Einbaulage				Montaggio verticale Vertical assembling Vertikale Einbaulage				
										
		$F_R = 0$	F_R max	$F_R = 0$	F_R max	$F_R = 0$	F_R max	$F_R = 0$	F_R max	
63	2	140	110	140	110	145	115	130	95	300
	4	290	190	290	190	300	195	280	160	350
	6	380	270	380	270	370	275	360	240	400
71	2	270	190	270	190	280	200	250	170	380
	4	360	260	360	260	370	270	340	240	400
	6	450	330	450	330	460	340	430	310	420
80	2	620	450	620	450	640	470	590	420	500
	4	810	590	810	590	830	610	780	560	590
	6	950	690	950	690	980	720	910	650	670
90	2	670	490	670	490	700	520	630	450	540
	4	870	640	870	640	910	680	820	590	730
	6	1080	790	1080	790	1130	840	1020	730	830
100	2	930	680	930	680	980	730	870	620	850
	4	1150	840	1150	840	1210	900	1080	770	1070
	6	1440	1050	1440	1050	1520	1130	1360	970	1230
112	2	920	670	920	670	980	730	850	600	870
	4	1190	870	1190	870	1270	850	1100	780	1080
	6	1450	1060	1450	1060	1540	1150	1350	960	1250
132	2	1250	820	1250	820	1350	830	1150	810	1200
	4	1500	1050	1500	1050	1600	1100	1400	950	1600
	6	1720	1350	1720	1350	1820	1450	1600	1300	1950
160	2	1450	1150	1450	520	1550	1300	1400	380	1940
	4	1750	1350	1750	680	2050	1600	1850	470	2450
	6	2200	1750	2200	800	2450	1850	2200	540	2810
180	2	2030	780	2030	780	2250	990	1920	630	1570
	4	2480	1080	2480	1080	3000	1080	2510	590	2270
	6	2280	1300	2280	1300	3500	1300	2950	750	2600
200	2	2030	780	2030	780	2250	990	1920	630	1570
	4	1670	1070	1670	1070	2120	1340	1420	640	3600
	6	2080	1360	2080	1360	2560	1600	1750	790	3850
225	2	1340	940	1340	940	1560	1040	1060	540	3380
	4	1670	1070	1670	1070	2120	1340	1420	640	4390
	6	2080	1360	2080	1360	2560	1600	1750	790	5060
250	2	1500	1020	1500	1020	1720	1190	1080	550	3870
	4	1860	1220	1860	1220	2350	1490	1470	610	4960
	6	2240	1370	2240	1370	2800	1760	1790	750	5750
280	2	3210	2760	3210	2760	3570	3000	2550	1980	4890
	4	4280	3590	4280	3590	4870	3970	3440	2540	6540
	6	5000	4180	5000	4180	5870	4760	4470	3360	7560
315S-M	2	3050	2550	3050	2550	3550	2650	2090	1190	4890
	4	3850	3150	3850	3150	4900	3750	2720	1570	6250
	6	4600	3750	4600	3750	6000	4600	3770	2370	7210
315L	2	3400	2700	3400	2700	4100	3200	1970	1070	5420
	4	4300	3600	4300	3600	5450	4350	2650	1550	7410
	6	5100	4150	5100	4150	6450	5150	3570	2270	8570

2.18 DIMENSIONI

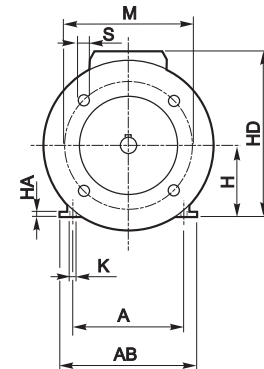
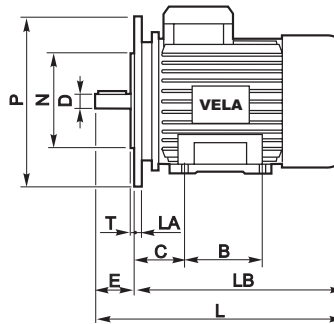
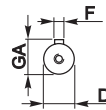
2.18 DIMENSIONS


2.18 ABMESSUNGEN

B3

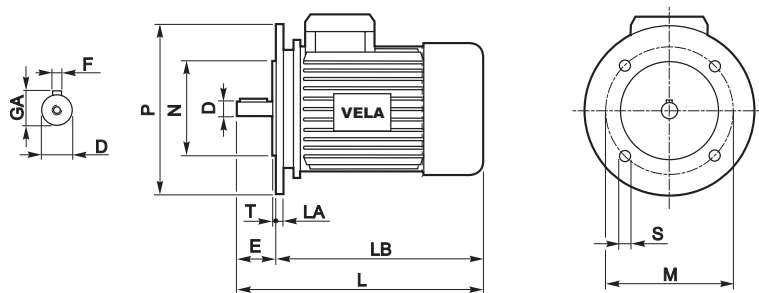


B3/B5

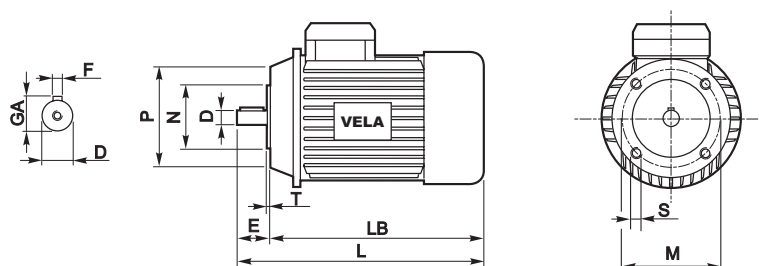



	B3 - B3/B5						B3							B3/B5						
	C	D	E	F	GA	L	AB	A	B	H	HA	HD	K	S	LA	LB	M	N	P	T
63	40	11	23	4	12.5	210	117	90	80	63	7	148	7	10	10	187	115	95	140	3.0
71	45	14	30	5	16.0	234	135	113	90	71	7	172	7	10	10	204	130	110	160	3.5
80	50	19	40	6	21.5	272	150	126	100	80	9	197	10	12	10	232	165	130	200	3.5
90S	56	24	50	8	27.0	296	165	140	100	90	10	214	10	12	10	246	165	130	200	3.5
90L	56	24	50	8	27.0	320	165	140	125	90	10	214	10	12	10	270	165	130	200	3.5
100	63	28	60	8	31.0	347	194	160	140	100	12	243	12	15	14	287	215	180	250	4.0
112	70	28	60	8	31.0	391	230	190	140	112	12	260	12	15	14	331	215	180	250	4.0
132S	89	38	80	10	41.0	440	254	215	140	132	13	305	12	15	14	360	265	230	300	4.0
132M	89	38	80	10	41.0	485	254	215	178	132	13	305	12	15	14	405	265	230	300	4.0
160M	108	42	110	12	45.0	630	292	254	210	160	18	347	15	19	16	520	300	250	350	5.0
160L	108	42	110	12	45.0	630	292	254	254	160	18	347	15	19	16	520	300	250	350	5.0
180M	121	48	110	14	51.5	700	320	279	241	180	20	422	15	19	13	550	300	250	350	5.0
180L	121	48	110	14	51.5	700	320	279	279	180	20	422	15	19	13	550	300	250	350	5.0
200LA	121	55	110	16	59.0	670	368	318	305	200	25	460	19	19	13	550	350	300	400	5.0
200L	133	55	110	16	59.0	670	368	318	305	200	25	460	19	19	15	560	350	300	400	5.0
200LB	133	55	110	16	59.0	781	395	318	305	200	25	490	19	19	15	671	350	300	400	5.0
225S	149	60	140	18	64.0	811	425	356	286	225	30	515	19	19	19	671	400	350	450	5.0
225M2	133	55	110	18	59.0	811	395	318	311	225	30	515	19	19	19	701	400	350	450	5.0
225M4-6	149	60	140	18	64.0	811	425	356	311	225	30	515	19	19	19	671	400	350	450	5.0
250M2	168	60	140	18	64.0	865	480	406	349	250	35	560	24	19	19	725	500	450	550	5.0
250M4-6	168	65	140	18	69.0	865	480	406	349	250	35	560	24	19	19	725	500	450	550	5.0
280S2	190	65	140	18	69.0	935	560	457	368	280	35	660	24	19	18	795	500	450	550	5.0
280S4-6	190	75	140	20	79.5	935	560	457	368	280	35	660	24	19	18	795	500	450	550	5.0
280M2	190	65	140	18	69.0	985	560	457	419	280	35	660	24	19	18	845	500	450	550	5.0
280M4-6	190	75	140	20	79.5	985	560	457	419	280	35	660	24	19	18	845	500	450	550	5.0
315S2	216	65	140	18	69	1080	608	508	406	315	40	695	28	24	22	940	600	550	660	6.0
315M2	216	65	140	18	69	1150	608	508	457	315	40	695	28	24	22	1010	600	550	660	6.0
315S4-6	216	80	170	22	85	1110	608	508	406	315	40	695	28	24	22	940	600	550	660	6.0
315M4-6	216	80	170	22	85	1180	608	508	457	315	40	695	28	24	22	1010	600	550	660	6.0
315LA2	216	65	140	18	69	1160	608	508	508	315	40	765	28	24	22	1020	600	550	660	6.0
315LB2	216	65	140	18	69	1260	608	508	508	315	40	765	28	24	22	1120	600	550	660	6.0
315L4	216	80	170	22	85	1290	608	508	508	315	40	765	28	24	22	1120	600	550	660	6.0
315L6	216	80	170	22	85	1190	608	508	508	315	40	765	28	24	22	1020	600	550	660	6.0

B5



B14



	B5 - B14					B5							B14					
	D	E	F	GA	L	S	LA	LB	M	N	P	T	S	LB	M	N	P	T
63	11	23	4	12.5	210	10	10	187	115	95	140	3.0	M5	187	75	60	90	2.5
71	14	30	5	16.0	234	10	10	204	130	110	160	3.5	M6	204	85	70	105	2.5
80	19	40	6	21.5	272	12	10	232	165	130	200	3.5	M6	232	100	80	120	3.0
90S	24	50	8	27.0	296	12	10	246	165	130	200	3.5	M8	246	115	95	140	3.0
90L	24	50	8	27.0	320	12	10	270	165	130	200	3.5	M8	270	115	95	140	3.0
100	28	60	8	31.0	347	15	14	287	215	180	250	4.0	M8	287	130	110	160	3.5
112	28	60	8	31.0	391	15	14	331	215	180	250	4.0	M8	331	130	110	160	3.5
132S	38	80	10	41.0	440	15	14	360	265	230	300	4.0						
132M	38	80	10	41.0	485	15	14	405	265	230	300	4.0						
160M	42	110	12	45.0	630	19	16	520	300	250	350	5.0						
160L	42	110	12	45.0	630	19	16	520	300	250	350	5.0						
180M	48	110	14	51.5	670	19	13	550	300	250	350	5.0						
180L	48	110	14	51.5	670	19	13	550	300	250	350	5.0						
200LA	55	110	16	59.0	670	19	13	550	350	300	400	5.0						
200L	55	110	16	59.0	670	19	15	560	350	300	400	5.0						
200LB	55	110	16	59.0	781	19	15	671	350	300	400	5.0						
225S	60	140	18	64.0	811	19	19	671	400	350	450	5.0						
225M2	55	110	16	59.0	811	19	19	701	400	350	450	5.0						
225M4-6	60	140	8	64.0	811	19	19	671	400	350	450	5.0						
250M2	60	140	18	64.0	865	19	19	725	500	450	550	5.0						
250M4-6	65	140	18	69.0	865	19	19	725	500	450	550	5.0						
280S2	65	140	18	69.0	935	19	18	795	500	450	550	5.0						
280S4-6	75	140	20	79.5	935	19	18	795	500	450	550	5.0						
280M2	65	140	18	69.0	985	19	18	845	500	450	550	5.0						
280M4-6	75	140	20	79.5	985	19	18	845	500	450	550	5.0						
315S2	65	140	18	69	1080	24	22	940	600	550	660	6.0						
315M2	65	140	18	69	1150	24	22	1010	600	550	660	6.0						
315S4-6	80	170	22	85	1110	24	22	940	600	550	660	6.0						
315M4-6	80	170	22	85	1180	24	22	1010	600	550	660	6.0						
315LA2	65	140	18	69	1160	24	22	1020	600	550	660	6.0						
315LB2	65	140	18	69	1260	24	22	1120	600	550	660	6.0						
315L4	80	170	22	85	1290	24	22	1120	600	550	660	6.0						
315L6	80	170	22	85	1190	24	22	1020	600	550	660	6.0						

