

CEAR



MOTORI ELETTRICI A CORRENTE CONTINUA PER APPLICAZIONI INDUSTRIALI

DIRECT CURRENT ELECTRIC MOTORS FOR INDUSTRIAL APPLICATIONS

SERIE MGLC COMPENSATI

GRANDEZZE 160 - 400 (4 POLI)
GRANDEZZA 500 (6 POLI)

POTENZE DA 20 A 1900 KW (a 1000 rpm)
COPPIE DA 185 A 18500 Nm

MGLC SERIES COMPENSATED

SIZE 160 - 400 (4 POLES)
SIZE 500 (6 POLES)

POWER FROM 20 TO 1900 KW (at 1000 rpm)
TORQUE FROM 185 TO 18500 Nm





MOTORI ELETTRICI A CORRENTE CONTINUA DIRECT CURRENT ELECTRIC MOTORS

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MOTORI ELETTRICI A CORRENTE CONTINUA DIRECT CURRENT ELECTRIC MOTORS

PRODUZIONE CEAR

Tutte le macchine costruite dalla ditta CEAR sono conformi alle norme CEI EN 60034-1 classificazione 2-3 fascicolo n°11111 (data di pubblicazione 2011), per le macchine elettriche rotanti ed alle raccomandazioni internazionali IEC.

Il collaudo viene eseguito su ogni macchina, secondo quanto stabilito dalle suddette norme, onde accertarne il corretto funzionamento.

Sono inoltre considerate esecuzioni rispondenti a particolari esigenze delle ditte committenti nel rispetto di eventuali normative estere e della buona regola d'arte.

CEAR PRODUCTION

All motors made by company CEAR are in accordance with the norms CEI EN 60034-1 classification 2-3 fasc. n°11111 (publication date 2011), for the electrical rotating machines and with the IEC international recommendations.

Every motor is tested as established from the above mentioned norms in order to verify the correct operation.

We are at complete disposal for eventual execution of motors answering to particular needs of our customers ever in the respect of eventual foreign norms and executed to art rule.



ISOLAMENTO

I motori della serie MGL e MGLC sono costruiti utilizzando materiali con isolamento in classe H.
La sovratemperatura ammessa per la classe H dalle norme CEI EN 60034-1 classificazione 2-3 fascicolo n°11111 (data pubblicazione 2011), è pari a $\Delta T = 125^\circ\text{C}$.

I motori indicati sul catalogo sono previsti per sovraturemperature, relative alla classe F, pari a $\Delta T = 105^\circ\text{C}$.

I motori vengono perciò utilizzati per una sovratemperatura inferiore mediamente del 20% offrendo così un più elevato grado di affidabilità.

INSULATION

Motors of series MGL and MGLC are constructed using material with insulation class H.
The overtemperature admitted for the class from the norms CEI EN 60034-1 classification 2-3 fasc. n°11111 (publication date 2001), is like $\Delta T = 125^\circ\text{C}$.

Motors indicated on the catalogue are provided for overtemperature of class F, like to $\Delta T = 105^\circ\text{C}$.

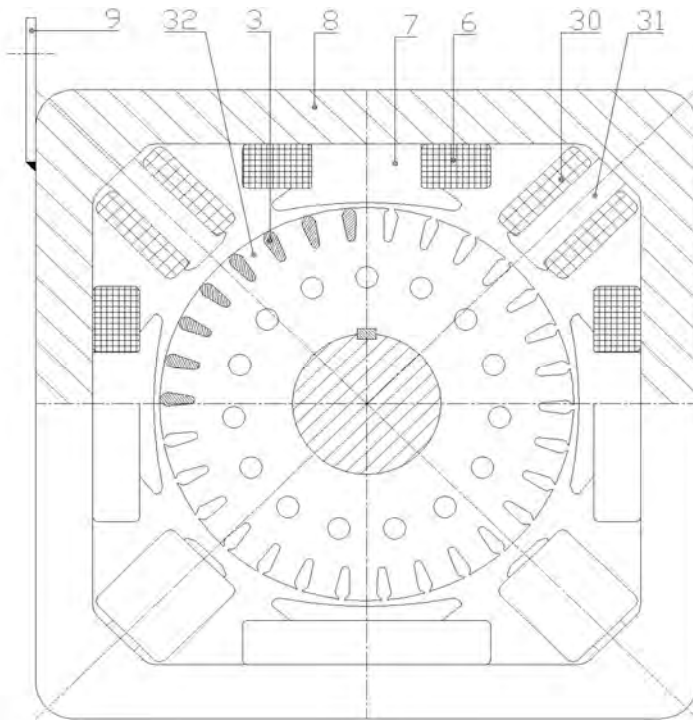
Motors are therefore used for a lower overtemperature of 20% on average, offering an higher reliability level.



Motori Serie MGL
Motoren Serie MGL
Motor Series MGL

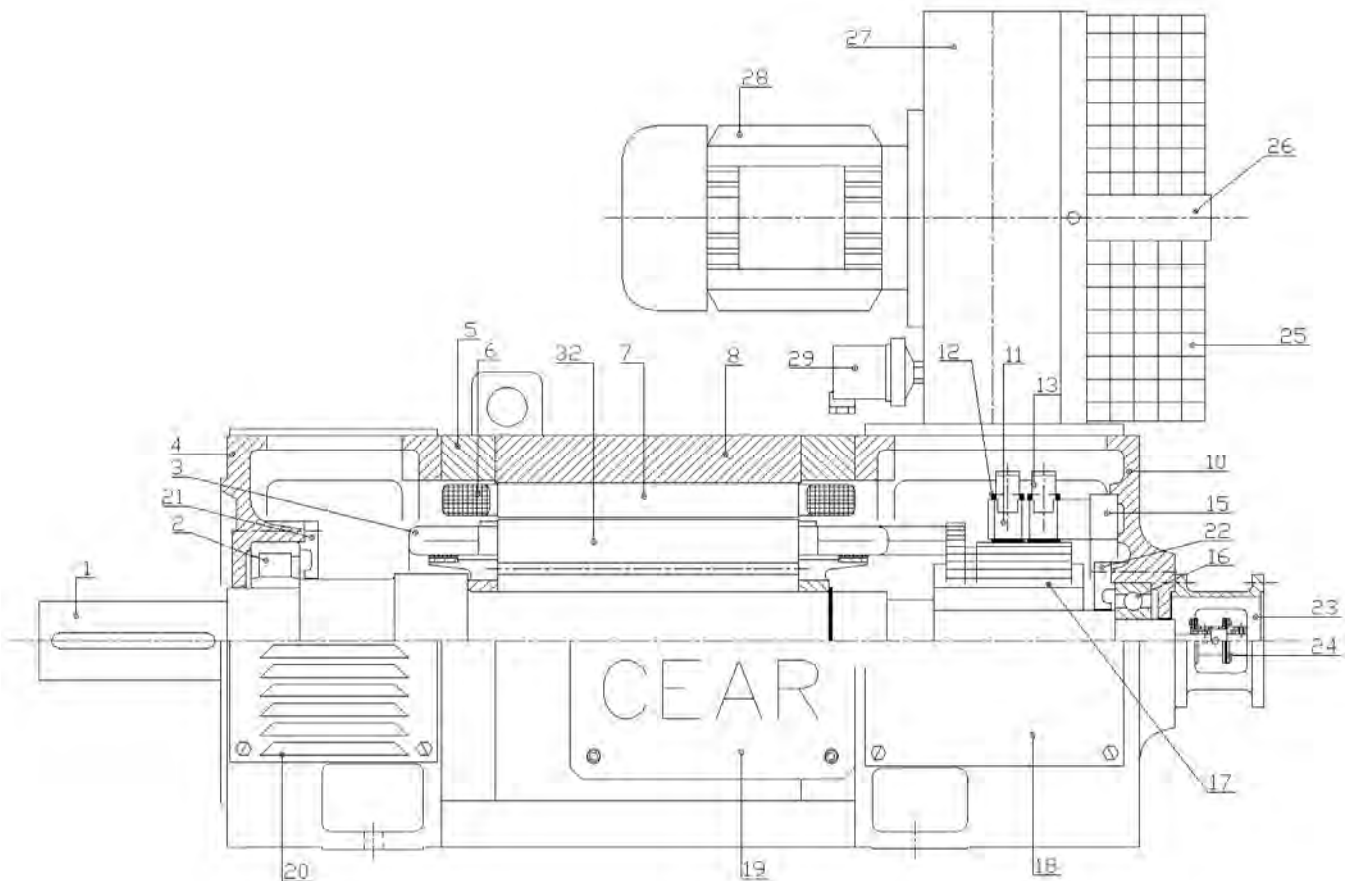
Tabella / Tisch / Tables
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RAPPRESENTAZIONE GRAFICA
MOTORE SERIE MGL

DRAWINGS
MOTOR SERIAL MGL





**Motori Serie MGL
Motoren Serie MGL
Motor Series MGL**

Tabella / Tisch / Tables
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LISTA COMPONENTI

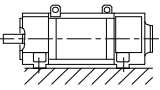
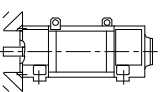
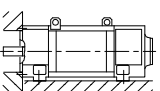
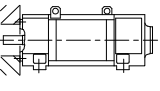
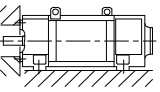



MOTORE SERIE MGL

PARTS LISTS

MOTOR SERIAL MGL

1	Sporgenza d'albero	Shaft end
2	Cuscinetto lato accoppiamento	Bearing coupling side
3	Avvolgimento del rotore	Engine winding up
4	Scudo lato accoppiamento	Coupling shield side
5	Viti di fissaggio scudi - statore	Fixing screws shield-box
6	Bobina poli principali	Coil mains poles
7	Nucleo poli principali	Nucleous mains poles
8	Statore Lamellare	Blades package stator
9	Golfari di sollevamento	Lifting ring
10	Scudo lato opposto	Opposite shield side
11	Cassetto portaspazzole e spazzole	Drawer brushes-holder
12	Spazzole	Brushes
13	Molle spingi spazzole	Spring
15	Anello portaspazzole	Brushes-holder ring
16	Cuscinetto lato opposto	Bearing opposite side
17	Collettore	Collector
18	Portello ispezione lato opposto	Opposite side inspection door
19	Scatola Morsettiera	Terminal board
20	Portello lato accoppiamento	Coupling side door
21	Coperchietto interno lato accopp.	Coupling side interior small-cover
22	Coperchietto interno lato opposto	Opposite side interior small-cover
23	Lanterna attacco D.T.	Lantern for Tachogenerator
24	Giunto elastico di adattamento D.T.	Elastic Joint for tachogenerator
25	Filtro Ventilatore	Ventilator filter
26	Staffe di sostegno filtro	Support filter stirrups
27	Voluta ventiatore	Ventilator carter
28	Motore ventilatore	Ventilator engine
29	Relè anemostatico	Air flow control relay
30	Bobina poli ausiliari	Auxiliarys poles bobbin
31	Nucleo poli ausiliari	Nucleus auxiliarys poles
32	Pacco rotore	Rotor package



Figura Sketch	CEI EN 60034-7		UNEL 05513	
	Cod. II	Cod. I		
	IM 1001	IM B3	B3	Fissata mediante piedi; piedi disposti verso il basso Mounted by feet, feet down
	IM 3001	IM B5	B5	Fissata sul lato della flangia con fori passanti, rivolto verso il lato comando Mounted by on D-end side of flange
	IM 2001	IM B35	B3/B5	Fissata mediante piedi disposti verso il basso; fissaggio ulteriore sul lato della flangia con fori passanti rivolto verso il lato comando Mounted by feet, feet down, with additional mounting on D-end side of flange
	IM 3601	IM B14	B14	Fissata sul lato della flangia con fori filettati, rivolto verso il lato comando Mounted by on D-end side of flange with tapped holes
	IM 2101	IM B34	B3/B14	Fissata mediante piedi, piedi disposti verso il basso. Fissaggio ulteriore sul lato della flangia con fori filettati rivolto verso il lato comando. Mounted by feet, feet down, with additional mounting on D-end side of flange with tapped holes
	IM 1051	IM B6	B6	Fissata mediante piedi; piedi a sinistra (visti dal lato comando) Mounted by feet, feet left (viewed from D-end)
	IM 1061	IM B7	B7	Fissata mediante piedi; piedi a destra (visti dal lato comando) Mounted by feet, feet right (viewed from D-end)
	IM 1070	IM B8	B8	Fissata mediante piedi; piedi disposti verso l'alto Mounted by feet, feet up



Forme costruttive
Construction Forms

18.05.2007
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Macchine ad asse verticale
Machines with vertical shaft

Tables N° 05

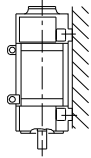
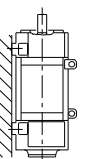
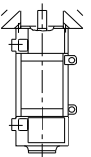
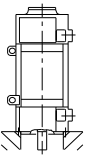
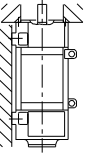
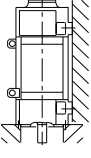
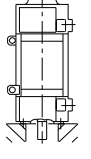
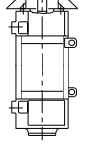
Figura Sketch	CEI EN 60034-7		UNEL 05513	
	Cod. II	Cod. I		
	IM 1011	IM V5	V5	Fissata mediante piedi; lato comando in basso Mounted by feet, D-end down
	IM 1031	IM V6	V6	Fissata mediante piedi; lato comando in alto Mounted by feet, D-end up
	IM 3031	IM V3	V3	Fissata sul lato della flangia con fori passanti rivolto verso il lato comando, lato comando in alto Mounted on D-end side of flange, D-end up
	IM 3011	IM V1	V1	Fissata sul lato della flangia con fori passanti, rivolto verso il lato comando, lato comando in basso Mounted on D-end side of flange, D-end down
	IM 2031	IM V36	V3/V6	Fissata mediante piedi; fissaggio ulteriore sulla flangia con fori passanti dal lato comando; lato comando in alto Mounted by feet, feet down, with additional mounting on D-end side of flange, D-end up
	IM 2011	IM V15	V1/V5	Fissata mediante piedi; fissaggio ulteriore sulla flangia con fori passanti dal lato comando; lato comando in basso Mounted by feet, feet down, with additional mounting on D-end side of flange, D-end down
	IM 3611	IM V18	V18	Fissata sul lato della flangia con fori filettati, dal lato comando, lato comando in basso Mounted by on D-end side of flange with tapped holes, D-end down
	IM 3631	IM V19	V19	Fissata sul lato della flangia con fori filettati, dal lato comando, lato comando in alto Mounted by on D-end side of flange with tapped holes, D-end up



Figura Sketch	CEI EN 60034-6 Semplificata Simplified	CEI EN 60034-6 Completo Complete	Descrizione Description	CEI EN 60034-5 Grado di Protezione Degrees of Protection
	IC 0 0	IC 0 A 0	Macchina raffreddata naturalmente Free convection	
	IC 0 1	IC 0 A 1	Macchina autoventilata Self-circulation	
	IC 1 1	IC 1 A 1	Macchina autoventilata con canale di aspirazione Self-circulation Inlet pipe duct circulated	
	IC 0 6	IC 0 A 6	Macchina raffreddata mediante dispositivo indipendente aspirante montato assialmente sulla macchina Circulation by machine-mounted axial Inlet independent component	IP 23
	IC 0 6	IC 0 A 6	Macchina raffreddata mediante dispositivo indipendente premente montato assialmente sulla macchina Circulation by machine-mounted axial Outlet independent component	
	IC 0 6	IC 0 A 6	Macchina raffreddata mediante dispositivo indipendente montato sulla macchina Circulation by machine-mounted independent component	
	IC 1 6	IC 1 A 6	Macchina raffreddata mediante dispositivo indipendente montato sulla macchina con canale di aspirazione Circulation by machine-mounted independent component, Inlet pipe duct circulated	
	IC 2 6	IC 2 A 6	Macchina raffreddata mediante dispositivo indipendente montato sulla macchina con canale di scarico Circulation by machine-mounted independent component, Outlet pipe duct circulated	



Metodi di Raffreddamento delle macchine elettriche rotanti

Rotating electrical machines, Methods of cooling

19.05.2007
Sheet N° 01

Tables N° 08

Figura Sketch	CEI EN 60034-6 Semplificata Simplified	CEI EN 60034-6 Completo Complete	Descrizione Description	CEI EN 60034-5 Grado di Protezione Degrees of Protection
	IC 1 7	IC 1 A 7	Macchina raffreddata mediante dispositivo separato e indipendente, mediante pressione della rete di distribuzione Circulation by separate and independent component, by coolant pressure system	IP 23
	IC 410	IC 4A1A0	Macchina chiusa raffreddata naturalmente Free-convection	
	IC 416	IC 4A1A6	Macchina chiusa raffreddata superficialmente, mediante dispositivo indipendente montato sulla macchina Frame surface cooled, circulation by machine-mounted independent component	
	IC 3 6	IC 3 A 6	Macchina raffreddata mediante dispositivo indipendente montato sulla macchina, canali di aspirazione e scarico Circulation by machine-mounted independent component, Inlet and Outlet pipe duct circulated	
	IC 3 7	IC 3 A 7	Macchina raffreddata mediante dispositivo separato e indipendente, canali di aspirazione e scarico Circulation by separate and independent component, Inlet and Outlet pipe duct circulated	IP 44
	IC 00 66	IC 6A6A0	Scambiatore di calore montato sulla macchina, circolazione mediante dispositivo indipendente. Machine-mouted heat exchanger, circulation by independent component	
	IC W37A86	IC 8A6W7	Scambiatore di calore montato sulla macchina, circolazione mediante dispositivo indipendente. Aria-Acqua Machine-mouted heat exchanger, circulation by independent component. Air-Water cooling	
	IC 06 66	IC 6A6A6	Scambiatore di calore montato sulla macchina, circolazione mediante dispositivo indipendente. Aria-Aria Machine-mouted heat exchanger, circulation by independent component. Air-Air cooling	



TIPI DI SERVIZIO E IDENTIFICAZIONE DEL SERVIZIO

Tabella/Tables
N° 9

DUTY TYPES AND DECLARATION OF DUTY

Foglio/Sheet
N° 1

----- Max
T: Temperature - - - - - Average
————— Instantaneous

P: Carico load

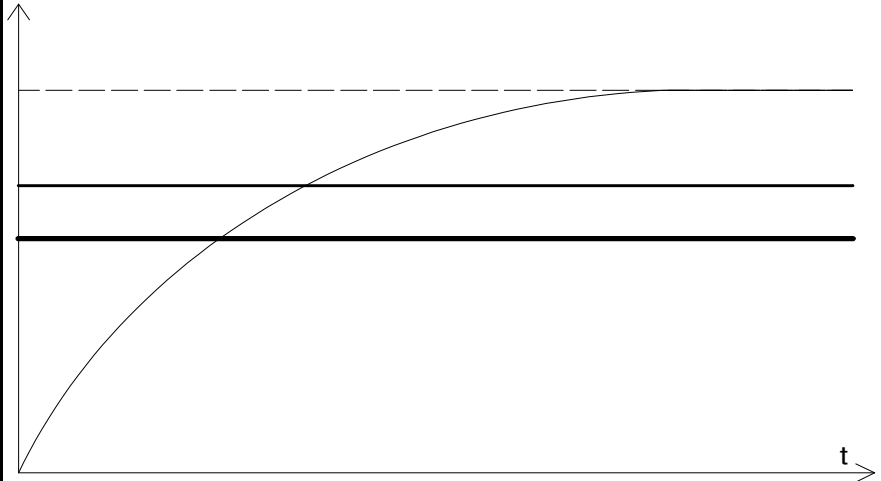
Pv: Perdite elettriche
Electrical losses

Servizio continuo S1

Funzionamento a carico costante di durata sufficiente a consentire alla macchina il raggiungimento dell'equilibrio termico.
L'abbreviazione appropriata è S1.

Continuous running duty S1

Operation at a constant load maintained for sufficient time to allow the machine to reach thermal equilibrium.
The appropriate abbreviation is S1.

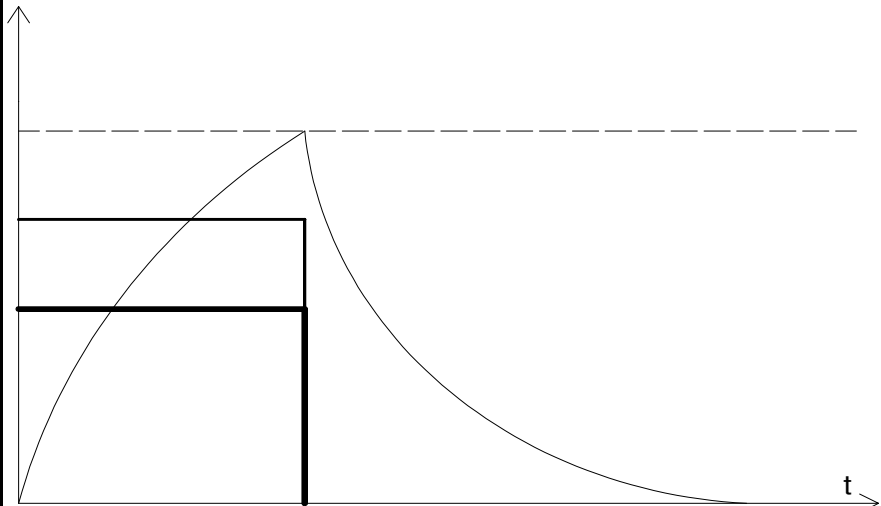


Servizio di durata limitata S2

Funzionamento a carico costante per un periodo di tempo determinato, inferiore a quello richiesto per raggiungere l'equilibrio termico, seguito da un tempo di riposo di durata sufficiente a ristabilire l'uguaglianza fra la temperatura della macchina e quella del fluido di raffreddamento, con una tolleranza di 2 K.
L'abbreviazione appropriata è S2, seguita dall'indicazione della durata del servizio.

Short - time duty S2

Operation at constant load for a given time, less than that required to reach thermal equilibrium, followed by a time de-energized and at rest of sufficient duration to re-establish machine temperatures within 2 K of the coolant temperature.
The appropriate abbreviation is S2, followed by an indication of the duration of the duty.

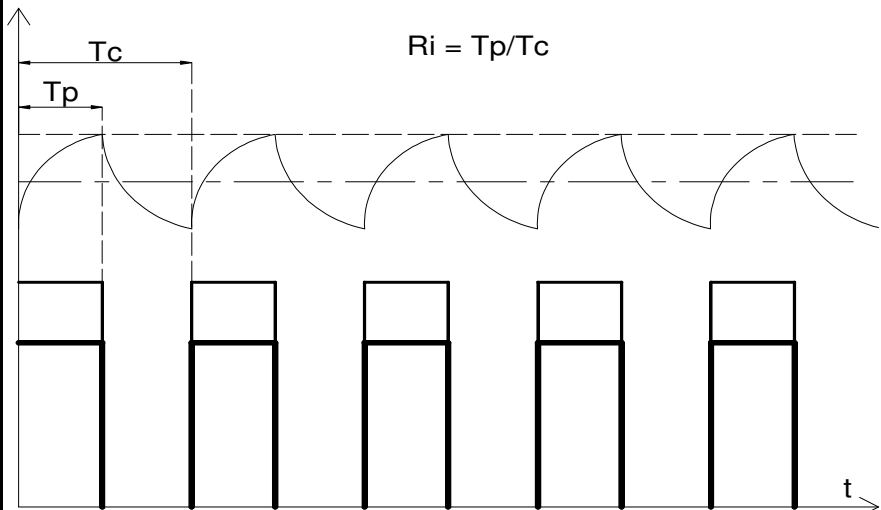


Servizio intermittente periodico S3⁽¹⁾

Sequenza di cicli di funzionamento identici, ciascuno comprendente un tempo di funzionamento a carico costante ed un tempo di riposo. In questo servizio il ciclo è tale che la corrente di avviamento non influenza la sovratemperatura in maniera significativa.
L'abbreviazione appropriata è S3, seguita dall'indicazione del rapporto di intermittenza Ri.

Intermittent periodic duty S3⁽¹⁾

A sequence of identical duty cycles, each including a time of operation at constant load and a time de-energized and at rest. In this duty, the cycle is such that the starting current does not significantly affect the temperature rise.
The appropriate abbreviation is S3, followed by the cyclic duration factor Ri.



(1) Il servizio periodico implica che l'equilibrio termico non è raggiunto durante il periodo a carico.

(1) Periodic duty implies that thermal equilibrium is not reached during the time on load.



TIPI DI SERVIZIO E IDENTIFICAZIONE DEL SERVIZIO

Tabella/Tables
N° 9

DUTY TYPES AND DECLARATION OF DUTY

Foglio/Sheet
N° 2

----- Max
T: Temperature - - - - - Average
————— Instantaneous

P: Carico
load

Pv: Perdite elettriche
Electrical losses

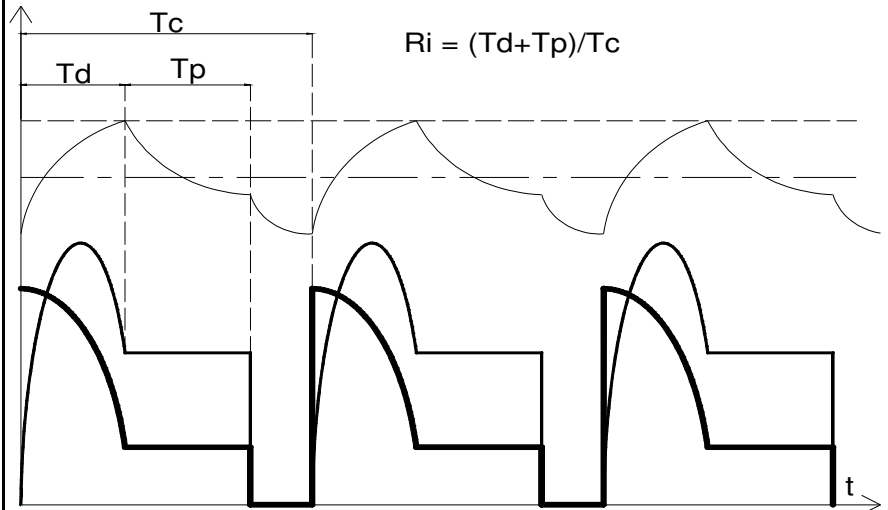
Servizio intermittente periodico con avviamento S4⁽¹⁾

Sequenza di cicli di funzionamento identici, ciascuno comprendente un tempo non trascurabile di avviamento, un tempo di funzionamento a carico costante ed un tempo di riposo.

L'abbreviazione appropriata è S4, seguita dal rapporto di intermittenza Ri, dal momento d'inerzia del motore e dal momento d'inerzia del carico, questi ultimi due riferiti all'albero motore.

Intermittent periodic duty with starting S4⁽¹⁾

A sequence of identical duty cycles, each cycle including a significant starting time, a time of operation at constant load and a time de-energized and at rest. The appropriate abbreviation is S4, followed by the cyclic duration factor Ri, the moment of inertia of the motor and the moment of inertia of the load, both referred to the motor shaft.



Servizio intermittente periodico con frenatura elettrica S5⁽¹⁾

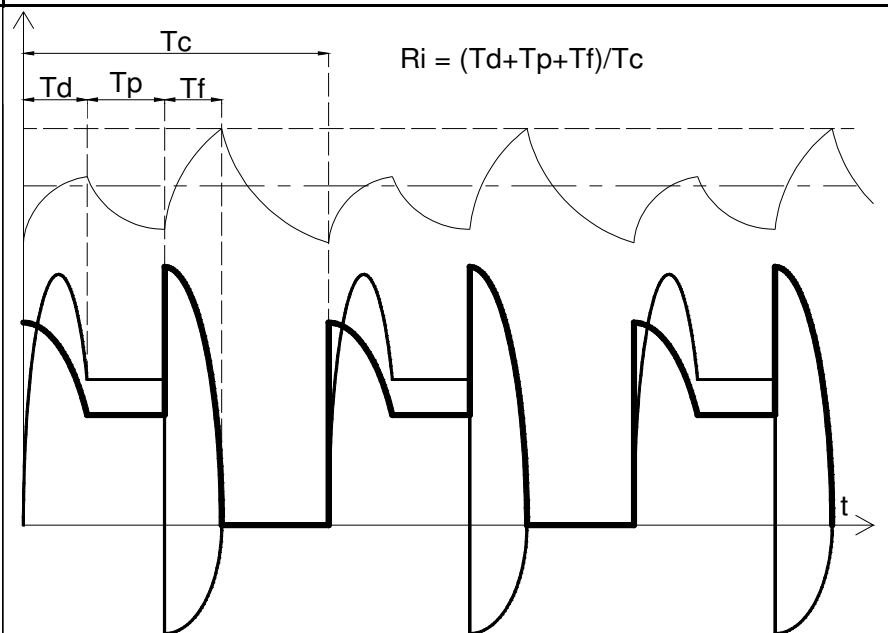
Sequenza di cicli di funzionamento identici, ciascuno comprendente un tempo di avviamento, un tempo di funzionamento a carico costante, un tempo di frenatura elettrica rapida ed un tempo di riposo.

L'abbreviazione appropriata è S5, seguita dal rapporto di intermittenza Ri, dal momento d'inerzia del motore e dal momento d'inerzia del carico, questi ultimi due riferiti all'albero motore.

Intermittent periodic duty with electric braking S5⁽¹⁾

A sequence of identical duty cycles, each cycle consisting of a starting time, a time of operation at constant load, a time of electric braking and a time de-energized and at rest.

The appropriate abbreviation is S5, followed by the cyclic duration factor Ri, the moment of inertia of the motor and the moment of inertia of the load, both referred to the motor shaft.



Servizio ininterrotto periodico S6⁽¹⁾

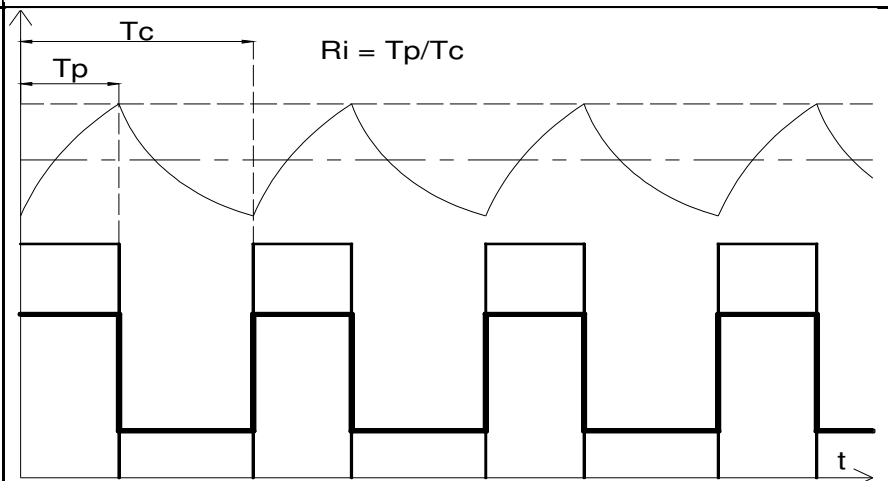
Sequenza di cicli di funzionamento identici, ciascuno comprendente un tempo di funzionamento a carico costante ed un tempo di funzionamento a vuoto. Non esiste alcun tempo di riposo.

L'abbreviazione appropriata è S6, seguita dal rapporto d'intermittenza Ri.

Continuous-operation periodic duty S6⁽¹⁾

A sequence of identical duty cycles, each cycle consisting of a time of operation at constant load and a time of operation at no-load. There is no time de-energized and at rest.

The appropriate abbreviation is S6, followed by the cyclic duration factor Ri.



(1) Il servizio periodico implica che l'equilibrio termico non è raggiunto durante il periodo a carico.

(1) Periodic duty implies that thermal equilibrium is not reached during the time on load.



TIPI DI SERVIZIO E IDENTIFICAZIONE DEL SERVIZIO

Tabella/Tables
N° 9

DUTY TYPES AND DECLARATION OF DUTY

Foglio/Sheet
N° 3

----- Max
 T: Temperature - - - - - Average
 ————— Instantaneous

P: Carico
load

Pv: Perdite elettriche
Electrical losses

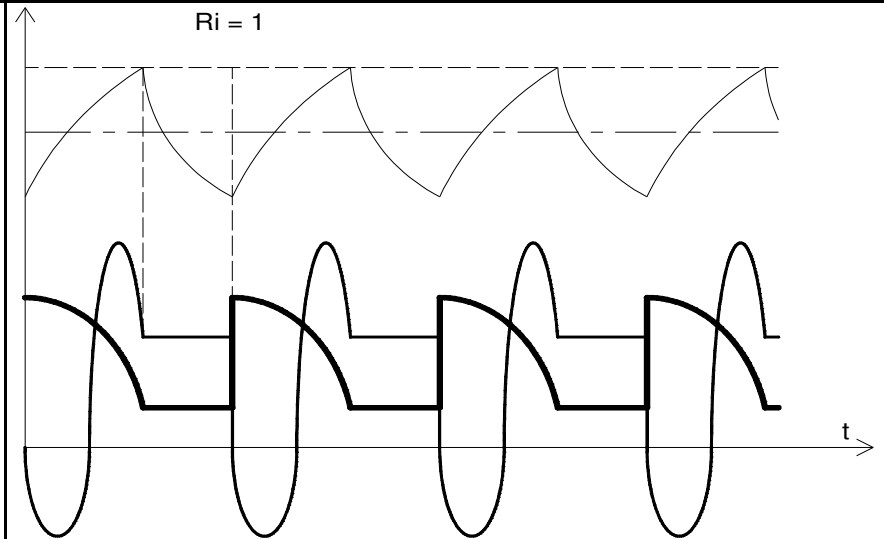
n: Velocità
speed

Servizio ininterrotto periodico con frenatura elettrica S7⁽¹⁾

Sequenza di cicli di funzionamento identici, ciascuno comprendente un tempo di avviamento, un tempo di funzionamento a carico costante ed un tempo di frenatura elettrica. Non esiste alcun periodo di riposo. L'abbreviazione appropriata è S7, seguita dal momento d'inerzia del motore e dal momento d'inerzia del carico, entrambi riferiti all'albero motore.

Continuous-operation periodic duty with electric braking S7⁽¹⁾

A sequence of identical duty cycles, each cycle consisting of a starting time, a time of operation at constant load and a time of electric braking. There is no time de-energized and at rest. The appropriate abbreviation is S7, followed by the moment of inertia of the motor and the moment of inertia of the load, both referred to the motor shaft.

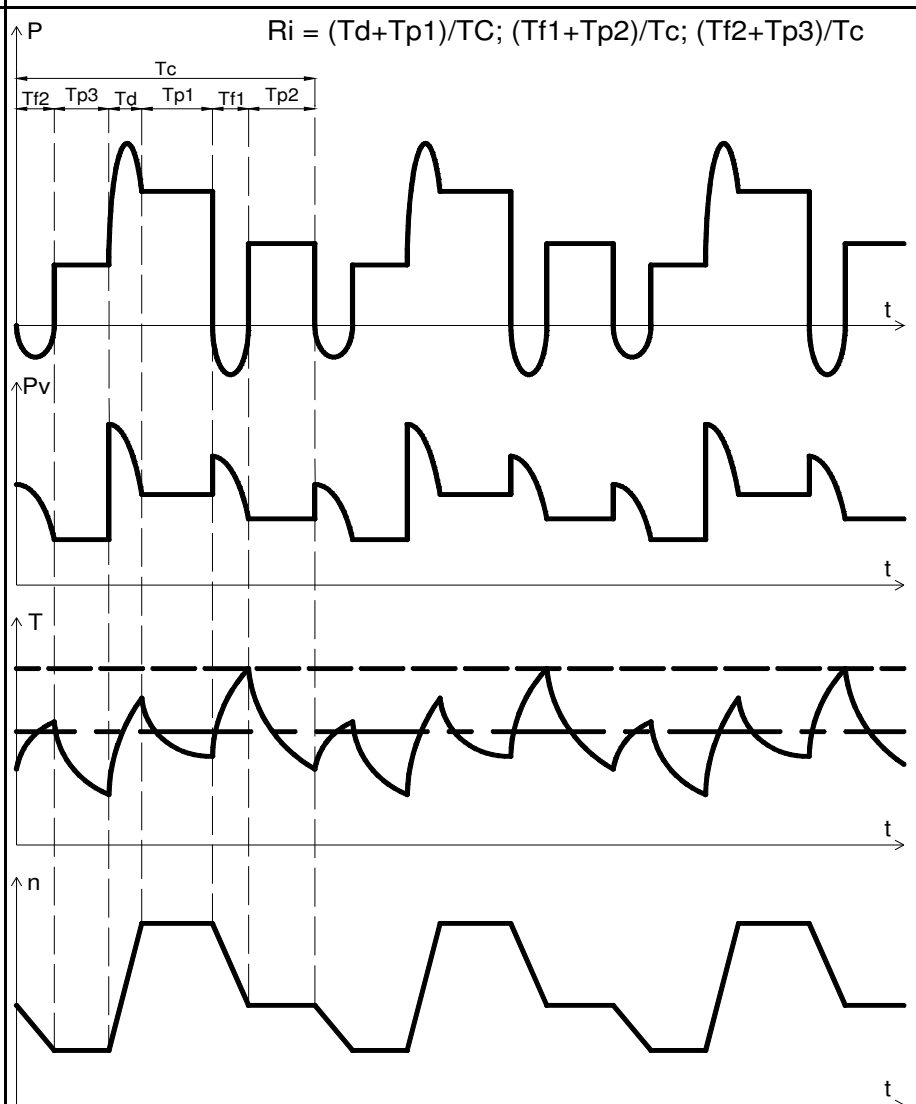


Servizio ininterrotto periodico con variazioni correlate di carico e velocità S8⁽¹⁾

Sequenza di cicli di funzionamento identici, ciascuno comprendente un tempo di funzionamento a carico costante corrispondente ad una prestabilita velocità di rotazione, seguito da uno o più tempi di funzionamento con altri carichi costanti corrispondenti a diverse velocità di rotazione (realizzato per esempio mediante cambio del numero di poli nel caso dei motori a induzione). Non esiste alcun tempo di riposo. L'abbreviazione appropriata è S8, seguita dal momento d'inerzia del motore e dal momento d'inerzia del carico, entrambi riferiti all'albero del motore, insieme al carico, alla velocità e al rapporto di intermittenza R_i , per ogni regime caratterizzato da una determinata velocità.

Continuous-operation periodic duty with related load/speed changes S8⁽¹⁾

A sequence of identical duty cycles, each cycle consisting of a time of operation at constant load corresponding to a predetermined speed of rotation, followed by one or more times of operation at other constant loads corresponding to different speed of rotation (carried out, for example, by means of a change in the number of poles in the case of induction motors). There is no time de-energized and at rest. The appropriate abbreviation is S8, followed by the moment of inertia of the motor and the moment of inertia of the load, both referred to the motor shaft, together with the load, speed and cyclic duration factor R_i for each speed condition.



(1) Il servizio periodico implica che l'equilibrio termico non è raggiunto durante il periodo a carico.

(1) Periodic duty implies that thermal equilibrium is not reached during the time on load.



TIPI DI SERVIZIO E IDENTIFICAZIONE DEL SERVIZIO

Tabella/Tables
N° 9

DUTY TYPES AND DECLARATION OF DUTY

Foglio/Sheet
N° 4

----- Max
- - - - - Average
———— Instantaneous

T: Temperature

P: Carico
load

Pv: Perdite elettriche
Electrical losses

n: Velocità
speed

Servizio con variazioni non periodiche di carico e velocità S9

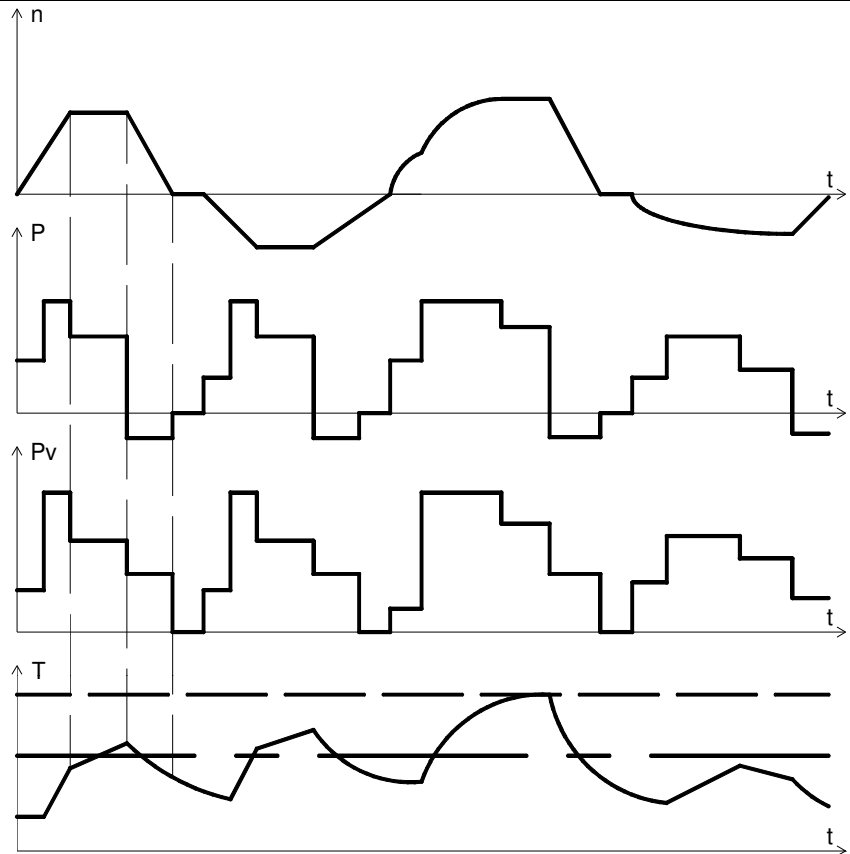
Servizio in cui generalmente il carico e la velocità variano in modo non periodico nel campo di funzionamento ammissibile. Questo servizio comprende sovraccarichi frequentemente applicati che possono essere largamente superiori ai valori di pieno carico.

L'abbreviazione appropriata è S9. Per questo tipo di servizio si prende come valore di riferimento per il concetto di sovraccarico un carico costante adeguatamente scelto e basato sul tipo di servizio S1.

Duty with non-periodic load and speed variations S9

A duty in which generally load and speed vary non-periodically within the permissible operating range. This duty includes frequently applied overloads that may greatly exceed the reference load.

The appropriate abbreviation is S9. For this duty type, a constant load appropriately selected and based on duty type S1 is taken as the reference value for the overload concept.



Servizio con carichi distinti costanti S10

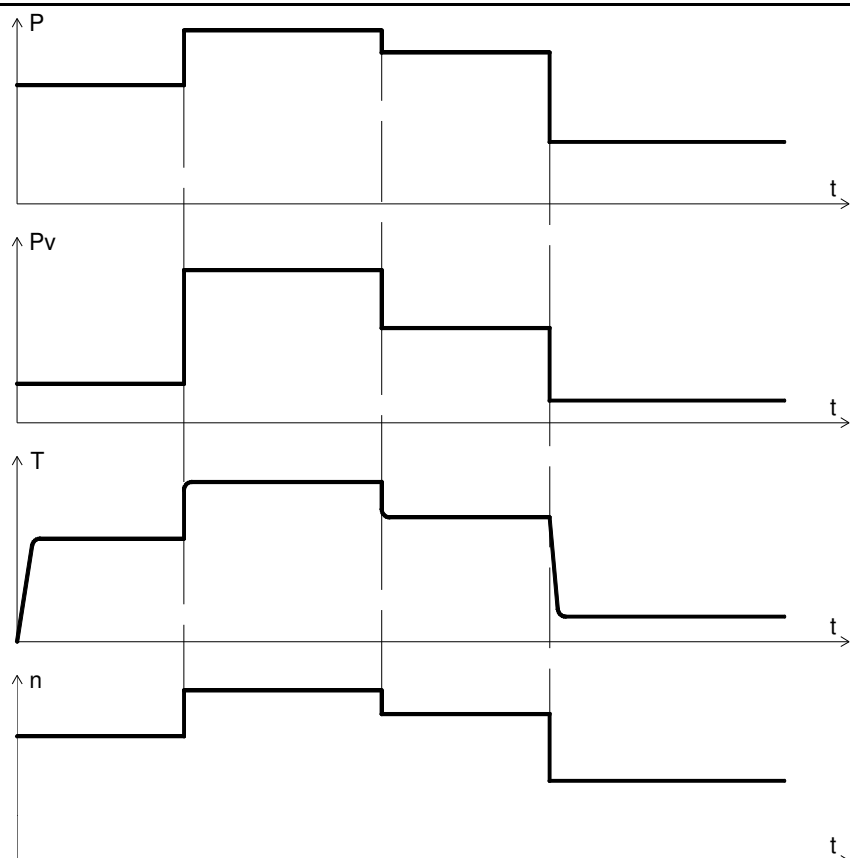
Servizio che consiste in un numero specifico di valori distinti di carico (o carico equivalente), mantenendo ogni valore per un tempo sufficiente per consentire alla macchina di raggiungere l'equilibrio termico. Il carico minimo durante un ciclo di servizio può avere valore zero (a vuoto o in stato di riposo).

L'abbreviazione appropriata è S10. Per questo tipo di servizio, deve essere assunto come valore di riferimento per i carichi distinti un carico costante adeguatamente scelto e basato sul servizio S1.

Duty with discrete constant loads and speeds S10

A duty consisting of a specific number of discrete values of load (or equivalent loading) and if applicable, speed, each load/speed combination being maintained for sufficient time to allow the machine to reach thermal equilibrium. The minimum load within a duty cycle may have the value zero (no-load or de-energized and at rest).

The appropriate abbreviation is S10. For this duty type a constant load appropriately selected and based on duty type S1 shall be taken as the reference value for the discrete loads.





**Motori Serie MGL C
Motoren Serie MGL C
Motor Series MGL C**

Tabella / Tisch / Tables
N° 14 D

Foglio / Seite / Sheet
N° 1

TIPO TYP TYPE			Momento inerzia Trageistsmoment Moment of inerzia		Eccitazione Erregung Excitation		Dati di Ventilazione Angaben uber die beluftung Ventilation Data			
	PESO GEWICHT WEIGHT	Velocità Drehzahl Speed Max	PD2	J	Costante di tempo Feldzeitconstant Time Constant	Potenza Erregerleistung Power	Potenza Leistung Out Put	Pressione Druck Pressure	Portata Forderstrom Air Flow	
	Kg	giri/1' u/min r.p.m.	Kgm ²	Kgm ²	ms	W	50Hz kW	mm H ₂ O	m ³ /1'	
160	K	220	4500	0.80	0.20	250	1000	1.1	100	18
	S	238		0.92	0.23	280	1100			
	M	264		1.12	0.28	310	1200			
	L	302		1.36	0.34	340	1300			
	P	320		1.48	0.37	360	1400			
180	K	315	3500	1.84	0.46	300	1300	1.5	115	23
	S	345		2.00	0.50	330	1450			
	M	378		2.28	0.57	360	1600			
	L	420		2.64	0.66	390	1850			
	P	455	3000	2.96	0.74	410	2100			
	X	506		3.32	0.83	430	2400			
200	K	510	3200	3.20	0.80	350	2000	2.2	130	28
	S	560		3.52	0.88	400	2150			
	M	605		4.12	1.03	450	2300			
	L	660		4.80	1.20	490	2500			
	P	700		5.33	1.33	520	2900			
	X	740	2800	5.80	1.45	550	3200			
	X2	770		6.32	1.58	590	3600			
250	K	900	3000	10.40	2.60	430	2100	2.2	120	50
	S	940		11.60	2.90	470	2300			
	M	1080		13.20	3.30	480	2700			
	L	1170		14.80	3.70	510	3100			
	P	1300		16.40	4.10	540	3500			
	X	1350	2700	17.60	4.40	560	3800			
	X2	1460		19.04	4.76	580	4100			
	X4	1580		23.00	5.75	610	4400			
280	S	1195	2600	23.60	5.90	430	2200	4.0	120	70
	M	1350		26.40	6.60	470	2500			
	L	1530		29.20	7.30	490	2800			
	P	1830		33.20	8.30	510	3000			
315	K	1820	2500	30.00	7.50	500	2900	4.0	130	120
	S	1970		34.00	8.50	590	3500			
	M	2150		38.00	9.50	640	4000			
	L	2370		42.00	10.50	730	4500			
	P	2650		48.00	12.00	800	5200			
	X	2740	2300	51.20	12.80	850	5600			
	X2	2930		56.90	14.23	870	5800			
400	K	3150	2200	120.00	30.00	1050	5000	5.0	130	150
	S	3500		132.00	33.00	1150	6000			
	M	3900		146.00	36.50	1220	6600			
	L	4400		162.80	40.70	1300	7400			
	P	5000		180.00	45.00	1400	8300			
	X	5400	2000	196.80	49.20	1500	9500			
500	K	5645	1800	240.00	60.00	1080	4600	9.0	150	170
	S	5930		264.00	66.00	1120	5000			
	M	6300		294.80	73.70	1160	5600			
	L	6720		330.40	82.60	1240	6200			
	P	7220		371.20	92.80	1300	7000			
	X	7700		412.00	103.00	1350	7700			



TABELLA SELEZIONE MOTORI
MGLC 160 - 180 - 200

DATA: 01/12/2011

Tabella 1

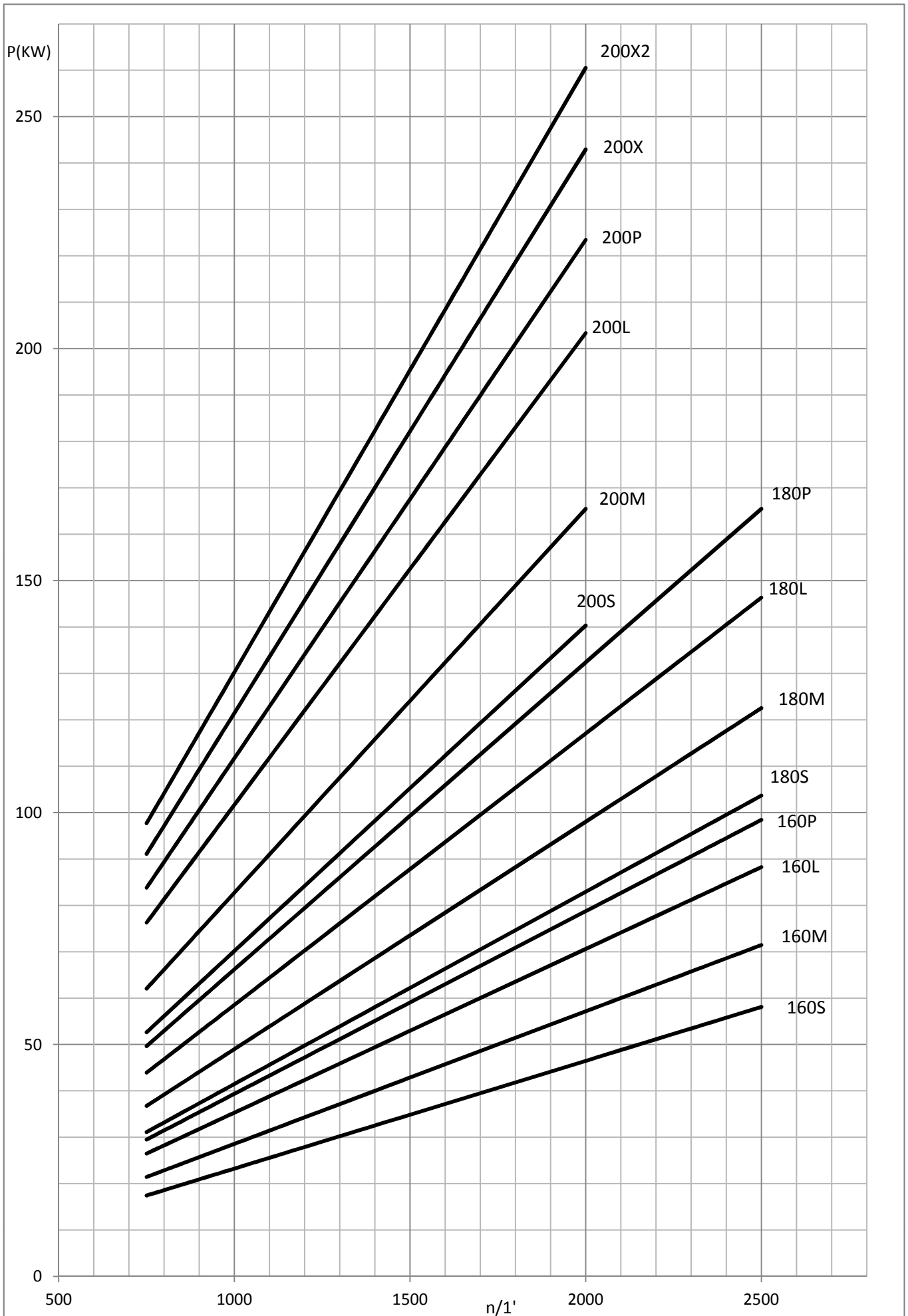




TABELLA SELEZIONE MOTORI
MGLC 250 -280

DATA: 01/12/2011

Tabella 2

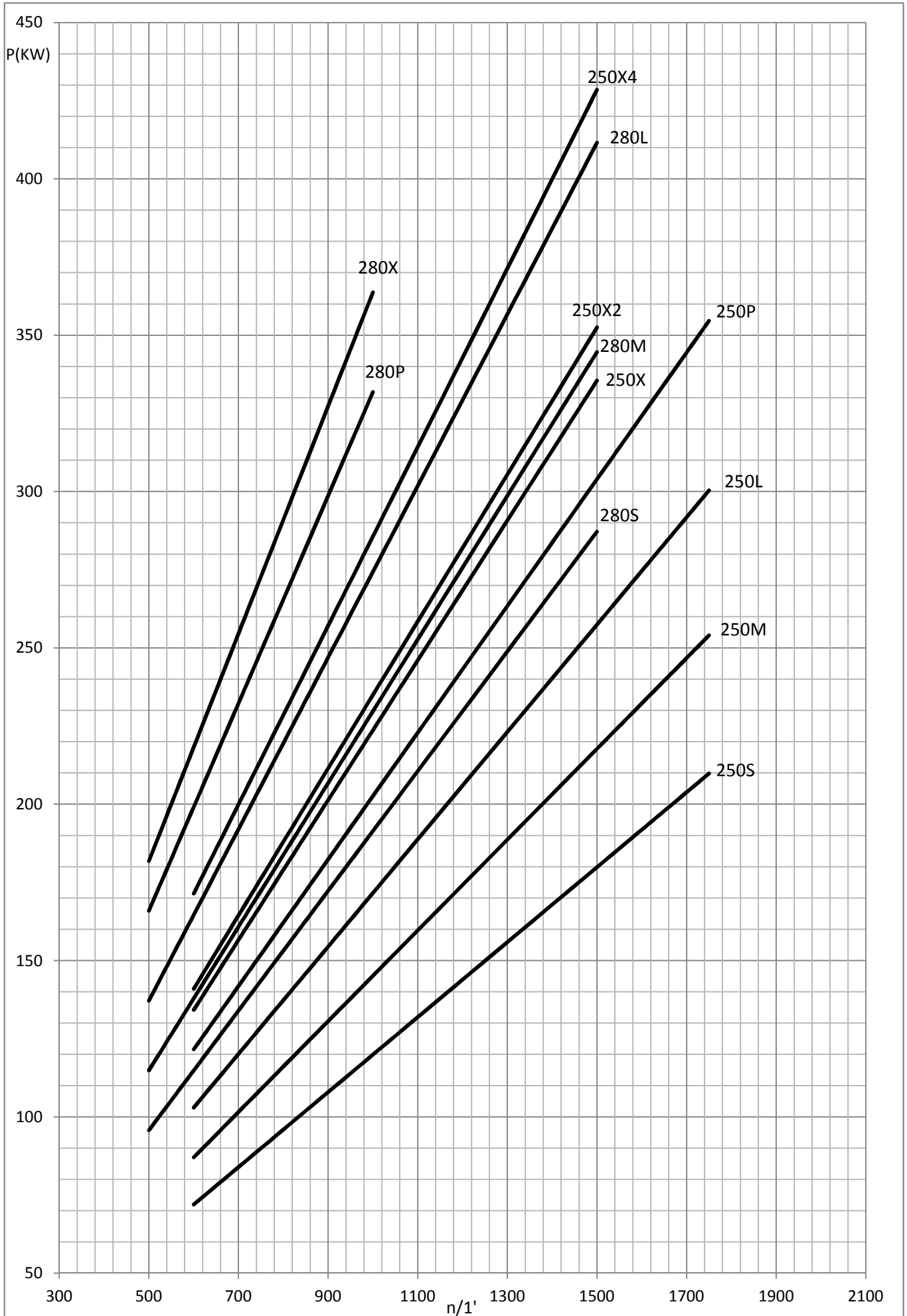
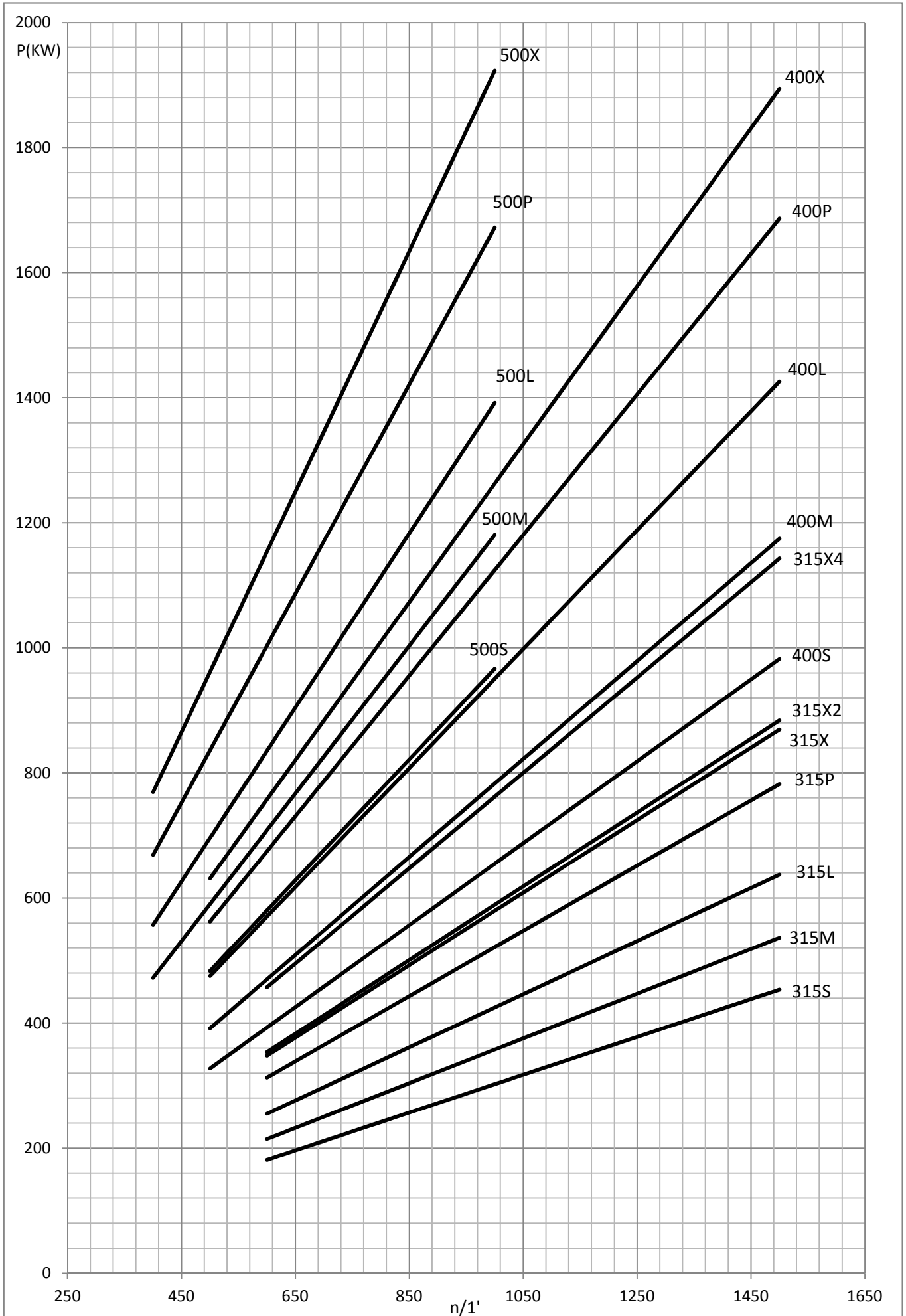




TABELLA SELEZIONE MOTORI
MGLC 315 - 400 - 500

DATA: 01/12/2011

Tabella 3





Potenza eccitazione		
Excitation power	(w)	1300
Cost. tempo eccitaz.		
Field time constant	(ms)	300
Massa del motore		
Mass of the motor	(Kg)	315
Momento d'inerzia rotore		
Rotor inertia moment	(Kgm2)	0.460

Tipo		
Size	MGL C 180	K
Ventilazione		
Ventilation		IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)	
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH		
47	1150	---	---	---	---	---	---	39.5	328	85.5	210	116	0.77	3500	*
		2220	---	---	---	---	---	76.3	328	90.8	210			3500	
		2460	---	---	---	---	---	84.4	328	91.3	210			3500	
		2575	---	---	---	---	---	88	327	91.7	209			3500	
		2635	---	---	---	---	---	90.0	326	91.6	209			3500	
		2935	---	---	---	---	---	99.1	322	92.5	206			3500	
		3410	---	---	---	---	---	113	316	93.2	202			3500	
		48	1060	---	---	---	---	---	---	35.7	322			84.5	
2055	---			---	---	---	---	69.3	322	90.2	192	3500			
2275	---			---	---	---	---	76.8	322	90.9	192	3500			
2385	---			---	---	---	---	80	321	91.3	191	3500			
2440	---			---	---	---	---	82	321	91.2	191	3500			
2720	---			---	---	---	---	90.3	317	91.9	189	3500			
3160	---			---	---	---	---	103	311	92.3	186	3500			
49	905			---	---	---	---	---	---	29.8	314	82.6	164	192	1.15
		1775	---	---	---	---	---	58.5	315	89.2	164	3500			
		1970	---	---	---	---	---	64.9	315	89.9	164	3500			
		2065	---	---	---	---	---	67.8	314	90.4	163	3500			
		2115	---	---	---	---	---	69.3	313	90.5	163	3500			
		2355	---	---	---	---	---	76.6	311	90.9	162	3500			
		2745	---	---	---	---	---	87.9	306	92.1	159	3500			
		50	790	---	---	---	---	---	---	26.8	324	81.2	150		
1565	---			---	---	---	---	53.1	324	88.5	150	3500			
1735	---			---	---	---	---	58.9	324	89.2	150	3500			
1825	---			---	---	---	---	61.7	323	89.4	150	3500			
1865	---			---	---	---	---	63.1	323	90.1	149	3500			
2080	---			---	---	---	---	69.8	321	90.7	148	3500			
2425	---			---	---	---	---	80.4	317	91.8	146	3500			
51	690			---	---	---	---	---	---	23.3	323	79.0	134	296	1.79
		1390	---	---	---	---	---	46.8	322	87.3	134	3500			
		1545	---	---	---	---	---	52.0	321	88.2	134	3500			
		1620	---	---	---	---	---	54.5	321	88.4	134	3500			
		1660	---	---	---	---	---	55.7	320	88.4	134	3500			
		1855	---	---	---	---	---	61.9	319	89.5	133	3500			
		2165	---	---	---	---	---	71.5	315	91.0	131	3500			
		52	620	---	---	---	---	---	---	21.1	325	78.0	123		
1255	---			---	---	---	---	42.7	325	86.8	123	3192			
1395	---			---	---	---	---	47.5	325	87.8	123	3252			
1465	---			---	---	---	---	49.8	325	88.0	123	3285			
1500	---			---	---	---	---	51.0	325	88.2	123	3301			
1680	---			---	---	---	---	56.6	322	89.2	122	3376			
1960	---			---	---	---	---	65.5	319	90.2	121	3479			
53	555			---	---	---	---	---	---	18.7	322	76.6	111	410	2.70
		1140	---	---	---	---	---	38.1	319	85.8	111	2958			
		1265	---	---	---	---	---	42.5	321	87.0	111	3015			
		1330	---	---	---	---	---	44.6	320	87.3	111	3046			
		1365	---	---	---	---	---	45.6	319	87.4	111	3061			
		1525	---	---	---	---	---	50.7	318	88.6	110	3130			
		1785	---	---	---	---	---	58.9	315	90.1	109	3224			

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 1300
Cost. tempo eccitaz.
Field time constant (ms) 300
Massa del motore
Mass of the motor (Kg) 315
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.460

Tipo
Size MGL C 180 K
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
54	495	---	---	---	---	---	---	16.5	318	73.5	102	509	2.83	2266
		1030	---	---	---	---	---	34.4	319	84.3				2731
		1150	---	---	---	---	---	38.4	319	85.6				2786
			1210	---	---	---	---	40.3	318	85.9				2815
		1240	---	---	---	---	---	41.3	318	86.1				2829
			1390	---	---	---	---	46.0	316	87.6				2892
		1630	---	---	---	---	---	53.5	313	89.2				2979
		55	450	---	---	---	---	---	---	15.4				327
950	---			---	---	---	---	32.4	326	83.5	2483			
1060	---			---	---	---	---	36.2	326	84.8	2532			
	1115			---	---	---	---	38.0	325	85.3	2558			
1140	---			---	---	---	---	38.9	326	85.5	2570			
	1280			---	---	---	---	43.5	325	86.8	2627			
1500	---			---	---	---	---	50.7	323	88.3	2704			
56	415			---	---	---	---	---	---	14.1	324	71.2	90.0	640
		880	---	---	---	---	---	29.9	325	83.1	2326			
		985	---	---	---	---	---	33.4	324	84.3	2373			
			1035	---	---	---	---	35.1	324	84.9	2397			
		1060	---	---	---	---	---	36.0	324	85.3	2408			
			1190	---	---	---	---	40.2	323	86.4	2461			
		1395	---	---	---	---	---	46.9	321	87.9	2532			
		57	380	---	---	---	---	---	---	12.7	319	69.6		
815	---			---	---	---	---	27.3	320	82.2	2205			
915	---			---	---	---	---	30.5	318	83.5	2252			
	960			---	---	---	---	32.1	319	84.2	2275			
985	---			---	---	---	---	32.9	319	84.5	2286			
	1105			---	---	---	---	36.8	318	85.8	2336			
1300	---			---	---	---	---	43.0	316	87.4	2404			
58	350			---	---	---	---	---	---	11.9	325	68.0	79.6	810
		760	---	---	---	---	---	25.9	325	81.3	2040			
		850	---	---	---	---	---	29.0	326	82.8	2083			
			895	---	---	---	---	30.5	325	83.4	2104			
		920	---	---	---	---	---	31.3	325	83.8	2114			
			1035	---	---	---	---	35.1	324	85.2	2160			
		1215	---	---	---	---	---	41.1	323	86.9	2222			
		59	325	---	---	---	---	---	---	11.2	329	66.5		
710	---			---	---	---	---	24.7	332	80.7	1856			
795	---			---	---	---	---	27.7	333	82.3	1895			
	840			---	---	---	---	29.1	331	82.8	1914			
860	---			---	---	---	---	29.8	331	83.0	1923			
	970			---	---	---	---	33.5	330	84.7	1963			
1140	---			---	---	---	---	39.3	329	86.5	2018			
60	620			---	---	---	---	---	---	20.9	322	78.2	66.8	1170
		700	---	---	---	---	---	23.5	321	80.0	1778			
		735	---	---	---	---	---	24.8	322	80.8	1797			
			755	---	---	---	---	25.4	321	81.0	1806			
		855	---	---	---	---	---	28.6	319	82.7	1846			
			1010	---	---	---	---	---	33.7	319	84.8	1899		

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 1300
Cost. tempo eccitaz.
Field time constant (ms) 300
Massa del motore
Mass of the motor (Kg) 315
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.460

Tipo
Size MGL C 180 K
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel.nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
61		525	---	---	---	---	---	18.2	331	75.8	60.0	1460	9.63	1464
			590	---	---	---	---	20.5	332	77.7	60.0			1498
				625	---	---	---	21.7	332	78.8	59.9			1514
					640	---	---	22.3	333	79.2	59.9			1522
						725	---	25.2	332	81.0	59.8			1556
							860	29.8	331	83.3	59.6			1599
62		445	---	---	---	---	---	14.9	320	73.0	51.0	1950	12.0	1326
			505	---	---	---	---	16.9	320	75.3	51.0			1360
				535	---	---	---	17.9	320	76.3	51.0			1376
					550	---	---	18.3	318	76.5	50.9			1383
						625	---	20.8	318	78.7	50.8			1416
							745	24.7	317	81.2	50.7			1458

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione		
Excitation power	(w)	1450
Cost. tempo eccitaz.		
Field time constant	(ms)	330
Massa del motore		
Mass of the motor	(Kg)	345
Momento d'inerzia rotore		
Rotor inertia moment	(Kgm2)	0.500

Tipo		
Size	MGL C 180	S
Ventilazione		
Ventilation		IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
46	1140	---	---	---	---	---	---	46.0	385	86.4	242	94.3	0.66	3500
		2190	---	---	---	---	---	88.4	386	91.3	242			3500
		---	2420	---	---	---	---	97.8	386	91.8	242			3500
		---	---	2540	---	---	---	102	384	92.0	241			3500
		---	---	---	2595	---	---	104	383	92.2	240			3500
		---	---	---	---	2890	---	114	377	92.5	237			3500
		---	---	---	---	---	3355	130	370	93.4	232			3500
		---	---	---	---	---	---	---	---	---	---			---
47	930	---	---	---	---	---	---	39.2	403	84.8	210	128	0.93	3324
		1805	---	---	---	---	---	76.1	403	90.6	210			3500
		---	2000	---	---	---	---	84.3	403	91.2	210			3500
		---	---	2095	---	---	---	88	402	91.6	209			3500
		---	---	---	2145	---	---	90	400	91.5	209			3500
		---	---	---	---	2390	---	99.2	396	92.2	207			3500
		---	---	---	---	---	2775	114	392	93.6	203			3500
		---	---	---	---	---	---	---	---	---	---			---
48	855	---	---	---	---	---	---	35.3	394	83.6	192	154	1.07	2911
		1670	---	---	---	---	---	69.1	395	90.0	192			3350
		---	1850	---	---	---	---	76.6	395	90.7	192			3403
		---	---	1940	---	---	---	80.1	394	91.2	191			3437
		---	---	---	1985	---	---	81.8	394	91.1	191			3454
		---	---	---	---	2210	---	90.4	391	92.0	189			3500
		---	---	---	---	---	2575	104	386	93.2	186			3500
		---	---	---	---	---	---	---	---	---	---			---
49	725	---	---	---	---	---	---	29.3	386	81.2	164	212	1.39	3293
		1440	---	---	---	---	---	58.2	386	88.7	164			3500
		---	1600	---	---	---	---	64.6	386	89.5	164			3500
		---	---	1675	---	---	---	67.6	385	89.6	164			3500
		---	---	---	1715	---	---	69.1	385	90.2	163			3500
		---	---	---	---	1915	---	76.6	382	90.9	162			3500
		---	---	---	---	---	2230	88.1	377	91.8	160			3500
		---	---	---	---	---	---	---	---	---	---			---
50	635	---	---	---	---	---	---	26.3	396	79.7	150	255	1.69	2853
		1265	---	---	---	---	---	52.8	399	88.0	150			3401
		---	1410	---	---	---	---	58.6	397	88.8	150			3468
		---	---	1480	---	---	---	61.4	396	89.0	150			3500
		---	---	---	1515	---	---	62.8	396	89.7	149			3500
		---	---	---	---	1690	---	69.7	394	90.6	148			3500
		---	---	---	---	---	1970	80.5	390	91.3	147			3500
		---	---	---	---	---	---	---	---	---	---			---
51	550	---	---	---	---	---	---	22.8	396	77.3	134	327	2.16	2554
		1125	---	---	---	---	---	46.4	394	86.6	134			3070
		---	1250	---	---	---	---	51.7	395	87.7	134			3132
		---	---	1315	---	---	---	54.2	394	87.9	134			3166
		---	---	---	1345	---	---	55.4	393	88.0	134			3182
		---	---	---	---	1505	---	61.7	392	89.2	133			3258
		---	---	---	---	---	1755	71.4	389	90.2	132			3363
		---	---	---	---	---	---	---	---	---	---			---
52	495	---	---	---	---	---	---	20.7	399	76.5	123	375	2.61	2297
		1015	---	---	---	---	---	42.3	398	86.0	123			2766
		---	1130	---	---	---	---	47.2	399	87.2	123			2822
		---	---	1185	---	---	---	49.5	399	87.5	123			2852
		---	---	---	1215	---	---	50.6	398	87.5	123			2866
		---	---	---	---	1360	---	56.4	396	88.9	122			2933
		---	---	---	---	---	1590	65.4	393	90.1	121			3024
		---	---	---	---	---	---	---	---	---	---			---

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (*) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 1450
Cost. tempo eccitaz.
Field time constant (ms) 330
Massa del motore
Mass of the motor (Kg) 345
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.500

Tipo
Size MGL C 180 S
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
53	445	---	---	---	---	---	---	18.2	391	74.5	111	454	3.26	2110
		920	---	---	---	---	---	37.7	391	84.9	111			2561
		1025	---	---	---	---	---	42.1	392	86.2	111			2615
		---	1075	---	---	---	---	44.2	393	86.6	111			2643
		---	---	1105	---	---	---	45.3	392	86.8	111			2657
		---	---	---	1235	---	---	50.5	391	88.3	110			2718
		---	---	---	---	---	1445	58.7	388	89.8	109			2802
		54	390	---	---	---	---	---	---	16.0	392			71.3
830	---			---	---	---	---	34.0	391	83.3	102	2363		
---	930			---	---	---	---	38.0	390	84.7	102	2415		
---	---			975	---	---	---	39.9	391	85.0	102	2441		
---	---			---	1000	---	---	40.9	391	85.3	102	2453		
---	---			---	---	1125	---	45.7	388	87.0	101	2511		
---	---			---	---	---	1320	53.3	386	88.0	101	2589		
55	355			---	---	---	---	---	---	14.9	401	69.8	97.0	634
		760	---	---	---	---	---	32.0	402	82.5	97.0	2148		
		---	855	---	---	---	---	35.8	400	83.9	97.0	2195		
		---	---	900	---	---	---	37.6	399	84.4	96.9	2218		
		---	---	---	920	---	---	38.5	400	84.6	96.8	2230		
		---	---	---	---	1035	---	43.1	398	86.0	96.4	2281		
		---	---	---	---	---	1215	50.4	396	87.6	95.9	2350		
		56	325	---	---	---	---	---	---	13.6	400	68.7	90.0	
705	---			---	---	---	---	29.5	400	81.9	90.0	2011		
---	790			---	---	---	---	33.0	399	83.3	90.0	2056		
---	---			835	---	---	---	34.7	397	83.9	89.9	2078		
---	---			---	855	---	---	35.6	398	84.3	89.8	2089		
---	---			---	---	960	---	39.8	396	85.5	89.5	2137		
---	---			---	---	---	1130	46.6	394	87.3	89.0	2201		
57	298			---	---	---	---	---	---	12.2	391	66.8	83.0	811
		655	---	---	---	---	---	26.9	392	81.0	83.0	1906		
		---	735	---	---	---	---	30.1	391	82.4	83.0	1950		
		---	---	775	---	---	---	31.7	391	83.1	82.9	1971		
		---	---	---	795	---	---	32.5	390	83.4	82.9	1981		
		---	---	---	---	895	---	36.5	389	85.0	82.6	2028		
		---	---	---	---	---	1050	42.7	388	86.6	82.2	2089		
		58	274	---	---	---	---	---	---	11.4	397	65.1	79.6	
610	---			---	---	---	---	25.5	399	80.1	79.6	1763		
---	685			---	---	---	---	28.6	399	81.7	79.6	1804		
---	---			720	---	---	---	30.1	399	82.3	79.5	1823		
---	---			---	740	---	---	30.9	399	82.7	79.5	1833		
---	---			---	---	835	---	34.7	397	84.3	79.2	1875		
---	---			---	---	---	980	40.7	397	86.0	78.9	1931		
59	570			---	---	---	---	---	---	24.2	405	79.1	76.5	980
		640	---	---	---	---	---	27.2	406	80.8	76.5	1638		
		---	---	---	---	---	---	28.7	406	81.7	76.4	1656		
		---	675	---	---	---	---	29.4	407	81.9	76.4	1664		
		---	---	---	690	---	---	33.1	405	83.5	76.2	1702		
		---	---	---	---	780	---	38.9	404	85.5	75.8	1751		
		---	---	---	---	---	920	38.9	404	85.5	75.8	1751		

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 1450
Cost. tempo eccitaz.
Field time constant (ms) 330
Massa del motore
Mass of the motor (Kg) 345
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.500

Tipo
Size MGL C 180 S
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
60		495	---	---	---	---	---	20.4	394	76.3	66.8	1290	8.46	1499
			560	---	---	---	---	23.0	392	78.3	66.8			1537
				590	---	---	---	24.3	393	79.2	66.7			1555
					605	---	---	25.0	395	79.7	66.7			1563
						685	---	28.2	393	81.4	66.6			1601
							810	33.3	393	83.7	66.3			1650
61		415	---	---	---	---	---	17.7	407	73.8	60.0	1610	11.6	1261
			470	---	---	---	---	20.1	408	76.1	60.0			1294
				500	---	---	---	21.2	405	76.8	60.0			1309
					510	---	---	21.8	408	77.4	59.9			1317
						580	---	24.7	407	79.4	59.8			1348
							690	29.3	406	81.9	59.6			1389
62		350	---	---	---	---	---	14.4	393	70.6	51.0	2150	14.4	1139
			400	---	---	---	---	16.4	392	73.1	51.0			1173
				425	---	---	---	17.4	391	74.2	51.0			1188
					435	---	---	17.9	393	74.7	51.0			1195
						500	---	20.4	390	77.1	50.9			1226
							595	24.3	390	79.9	50.7			1266

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione Excitation power (w)	1600	Tipo Size	MGL C 180 M
Cost. tempo eccitaz. Field time constant (ms)	360	Ventilazione Ventilation	IC 06
Massa del motore Mass of the motor (Kg)	378		
Momento d'inerzia rotore Rotor inertia moment (Kgm2)	0.570		

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)	
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH		
45	1220	---	---	---	---	---	---	56.8	445	87.5	295	69.4	0.47	3500	*
		2330	---	---	---	---	---	108	443	91.5	295			3500	
		---	2575	---	---	---	---	120	445	92.4	295			3500	
		---	---	2700	---	---	---	125	442	92.7	293			3500	
		---	---	---	2760	---	---	128	443	93.3	292			3500	
		---	---	---	---	3070	---	140	436	93.5	288			3500	
		---	---	---	---	---	---	---	---	---	---			---	
46	950	---	---	---	---	---	---	45.6	458	85.6	242	103	0.78	3500	
		1840	---	---	---	---	---	88.1	457	91.0	242			3500	
		---	2040	---	---	---	---	97.6	457	91.7	242			3500	
		---	---	2135	---	---	---	102	456	92.0	241			3500	
		---	---	---	2185	---	---	104	455	91.8	241			3500	
		---	---	---	---	2435	---	115	451	92.9	238			3500	
		---	---	---	---	---	2830	131	442	93.3	234			3500	
47	775	---	---	---	---	---	---	38.7	477	83.8	210	140	1.09	2911	*
		1515	---	---	---	---	---	75.8	478	90.2	210			3350	
		---	1680	---	---	---	---	84.0	478	90.9	210			3403	
		---	---	1765	---	---	---	87.8	475	91.3	209			3437	
		---	---	---	1805	---	---	89.7	475	91.3	209			3454	
		---	---	---	---	2010	---	99.2	471	92.2	207			3500	
		---	---	---	---	---	2340	114	465	93.1	204			3500	
48	710	---	---	---	---	---	---	34.9	469	82.6	192	169	1.25	3263	
		1400	---	---	---	---	---	68.7	469	89.5	192			3500	
		---	1555	---	---	---	---	76.2	468	90.2	192			3500	
		---	---	1630	---	---	---	79.8	468	90.8	191			3500	
		---	---	---	1670	---	---	81.5	466	90.8	191			3500	
		---	---	---	---	1860	---	90.2	463	91.3	190			3500	
		---	---	---	---	---	2165	104	459	92.7	187			3500	
49	605	---	---	---	---	---	---	28.9	456	80.1	164	233	1.63	2871	
		1205	---	---	---	---	---	57.8	458	88.1	164			3460	
		---	1340	---	---	---	---	64.2	458	89.0	164			3500	
		---	---	1410	---	---	---	67.3	456	89.2	164			3500	
		---	---	---	1440	---	---	68.8	456	89.8	163			3500	
		---	---	---	---	1610	---	76.3	453	90.6	162			3500	
		---	---	---	---	---	1875	88.1	449	91.2	161			3500	
50	525	---	---	---	---	---	---	25.9	471	78.5	150	280	1.99	2486	
		1060	---	---	---	---	---	52.4	472	87.3	150			3000	
		---	1180	---	---	---	---	58.2	471	88.2	150			3062	
		---	---	1240	---	---	---	61.1	471	88.6	150			3096	
		---	---	---	1270	---	---	62.5	470	88.7	150			3113	
		---	---	---	---	1420	---	69.4	467	89.6	149			3189	
		---	---	---	---	---	1660	80.4	463	91.2	147			3295	
51	455	---	---	---	---	---	---	22.3	468	75.6	134	358	2.53	2222	
		940	---	---	---	---	---	46.0	467	85.8	134			2706	
		---	1045	---	---	---	---	51.2	468	86.8	134			2765	
		---	---	1100	---	---	---	53.8	467	87.3	134			2796	
		---	---	---	1125	---	---	55.0	467	87.3	134			2810	
		---	---	---	---	1260	---	61.3	465	88.6	133			2878	
		---	---	---	---	---	1475	71.2	461	89.9	132			2972	

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 1600
Cost. tempo eccitaz.
Field time constant (ms) 360
Massa del motore
Mass of the motor (Kg) 378
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.570

Tipo
Size MGL C 180 M
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
52	410	---	---	---	---	---	---	20.2	471	74.6	123	411	3.06	1996
		845	---	---	---	---	---	41.9	474	85.2	123			
			945	---	---	---	---	46.7	472	86.3	123			
				995	---	---	---	49.1	471	86.8	123			
					1020	---	---	50.3	471	87.0	123			
						1140	---	56.1	470	88.4	122			
							1335	65.2	466	89.8	121			
53	365	---	---	---	---	---	---	17.7	463	72.5	111	498	3.82	1818
		765	---	---	---	---	---	37.3	466	84.0	111			
			855	---	---	---	---	41.7	466	85.4	111			
				900	---	---	---	43.8	465	85.8	111			
					925	---	---	44.9	464	86.1	111			
						1035	---	50.1	462	87.6	110			
							1215	58.4	459	88.5	110			
54	320	---	---	---	---	---	---	15.5	463	69.1	102	618	4.01	1598
		690	---	---	---	---	---	33.5	464	82.1	102			
			775	---	---	---	---	37.5	462	83.6	102			
				815	---	---	---	39.5	463	84.2	102			
					835	---	---	40.5	463	84.5	102			
						940	---	45.3	460	86.3	101			
							1105	53.0	458	87.5	101			
55	289	---	---	---	---	---	---	14.3	473	67.0	97.0	694	4.78	1443
		635	---	---	---	---	---	31.5	474	81.2	97.0			
			710	---	---	---	---	35.3	475	82.7	97.0			
				750	---	---	---	37.2	474	83.5	96.9			
					770	---	---	38.1	473	83.7	96.8			
						865	---	42.7	471	85.1	96.5			
							1015	50.1	471	87.0	96.0			
56	265	---	---	---	---	---	---	13.1	472	66.2	90.0	776	5.94	1324
		585	---	---	---	---	---	29.0	473	80.6	90.0			
			660	---	---	---	---	32.5	470	82.1	90.0			
				695	---	---	---	34.3	471	82.9	89.9			
					710	---	---	35.1	472	83.2	89.8			
						800	---	39.4	470	84.6	89.6			
							945	46.3	468	86.5	89.2			
57	242	---	---	---	---	---	---	11.7	462	64.1	83.0	889	6.51	1208
		545	---	---	---	---	---	26.4	463	79.5	83.0			
			610	---	---	---	---	29.7	465	81.3	83.0			
				645	---	---	---	31.3	463	81.1	83.9			
					660	---	---	32.1	464	82.4	82.9			
						745	---	36.1	463	84.0	82.6			
							880	42.4	460	85.9	82.3			
58		505	---	---	---	---	---	25.0	473	78.5	79.6	981	7.14	1550
			570	---	---	---	---	28.1	471	80.2	79.6			
				600	---	---	---	29.7	473	81.2	79.5			
					615	---	---	30.4	472	81.4	79.5			
						695	---	34.3	471	83.2	79.3			
							820	40.4	471	85.2	79.0			

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 1600
Cost. tempo eccitaz.
Field time constant (ms) 360
Massa del motore
Mass of the motor (Kg) 378
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.570

Tipo
Size MGL C 180 M
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel.nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
59		470	---	---	---	---	---	23.7	482	77.5	76.5	1070	8.09	1407
			530	---	---	---	---	26.7	481	79.3	76.5			1441
				560	---	---	---	28.2	481	80.2	76.4			1458
					575	---	---	29.0	482	80.8	76.4			1466
						650	---	32.7	480	82.5	76.2			1500
							770	38.5	478	84.5	75.9			1546
60		405	---	---	---	---	---	19.9	469	74.5	66.8	1410	9.91	1315
			460	---	---	---	---	22.5	467	76.6	66.8			1351
				490	---	---	---	23.8	464	77.6	66.7			1368
					500	---	---	24.5	468	78.2	66.7			1376
						570	---	27.7	464	80.0	66.6			1411
							675	32.9	465	82.6	66.4			1457
61		340	---	---	---	---	---	17.2	483	71.7	60.0	1770	13.6	1105
			385	---	---	---	---	19.6	486	74.2	60.0			1137
				410	---	---	---	20.7	482	75.0	60.0			1151
					420	---	---	21.3	484	75.7	59.9			1158
						480	---	24.2	481	77.8	59.8			1188
							575	28.9	480	80.7	59.7			1227
62		286	---	---	---	---	---	13.9	464	68.1	51.0	2360	16.9	996
			330	---	---	---	---	15.9	460	70.9	51.0			1028
				350	---	---	---	16.9	461	72.0	51.0			1042
					360	---	---	17.4	462	72.6	51.0			1049
						410	---	19.9	464	75.2	50.9			1079
							495	23.8	459	78.1	50.8			1116

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione		
Excitation power	(w)	1850
Cost. tempo eccitaz.		
Field time constant	(ms)	390
Massa del motore		
Mass of the motor	(Kg)	420
Momento d'inerzia rotore		
Rotor inertia moment	(Kgm2)	0.660

Tipo		
Size	MGL C 180	L
Ventilazione		
Ventilation		IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)	
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH		
45	1010	---	---	---	---	---	---	56.3	532	86.7	295	77.0	0.56	3500	*
		1940	---	---	---	---	---	108	532	91.5	295			3500	
		---	2150	---	---	---	---	120	533	92.4	295			3500	
		---	---	2255	---	---	---	125	529	92.4	294			3500	
		---	---	---	2305	---	---	128	530	92.9	293			3500	
		---	---	---	---	2565	---	140	521	93.2	289			3500	
		---	---	---	---	---	2975	159	510	94.0	282			3500	
		---	---	---	---	---	---	---	---	---	---			---	
46	785	---	---	---	---	---	---	45.1	549	84.7	242	115	0.92	3132	*
		1535	---	---	---	---	---	87.8	546	90.7	242			3500	
		---	1700	---	---	---	---	97.2	546	91.3	242			3500	
		---	---	1780	---	---	---	102	547	92.0	241			3500	
		---	---	---	1825	---	---	104	544	91.8	241			3500	
		---	---	---	---	2030	---	115	541	92.9	238			3500	
		---	---	---	---	---	2360	131	530	92.9	235			3500	
		---	---	---	---	---	---	---	---	---	---			---	
47	640	---	---	---	---	---	---	38.2	570	82.7	210	156	1.29	2517	*
		1260	---	---	---	---	---	75.3	571	89.6	210			2922	
		---	1400	---	---	---	---	83.5	570	90.4	210			2970	
		---	---	1465	---	---	---	87.4	570	90.9	209			3000	
		---	---	---	1500	---	---	89.4	569	91.0	209			3015	
		---	---	---	---	1675	---	98.9	564	91.4	208			3082	
		---	---	---	---	---	1950	114	558	92.7	205			3179	
		---	---	---	---	---	---	---	---	---	---			---	
48	585	---	---	---	---	---	---	34.3	560	81.2	192	188	1.48	2812	*
		1165	---	---	---	---	---	68.2	559	88.8	192			3391	
		---	1290	---	---	---	---	75.8	561	89.7	192			3463	
		---	---	1355	---	---	---	79.4	560	89.9	192			3500	
		---	---	---	1390	---	---	81.1	557	90.3	191			3500	
		---	---	---	---	1550	---	90.0	555	91.1	190			3500	
		---	---	---	---	---	1805	104	550	92.2	188			3500	
		---	---	---	---	---	---	---	---	---	---			---	
49	495	---	---	---	---	---	---	28.3	546	78.4	164	258	1.93	2468	*
		1000	---	---	---	---	---	57.3	547	87.3	164			3013	
		---	1115	---	---	---	---	63.7	546	88.3	164			3080	
		---	---	1170	---	---	---	66.8	545	88.5	164			3116	
		---	---	---	1195	---	---	68.3	546	89.2	163			3133	
		---	---	---	---	1340	---	76.0	542	89.7	163			3214	
		---	---	---	---	---	1565	87.9	536	91.0	161			3327	
		---	---	---	---	---	---	---	---	---	---			---	
50	430	---	---	---	---	---	---	25.3	562	76.7	150	310	2.35	2136	*
		880	---	---	---	---	---	51.8	562	86.3	150			2612	
		---	980	---	---	---	---	57.7	562	87.4	150			2670	
		---	---	1030	---	---	---	60.5	561	87.7	150			2700	
		---	---	---	1055	---	---	62.0	561	87.9	150			2715	
		---	---	---	---	1180	---	69.0	558	89.1	149			2782	
		---	---	---	---	---	1380	80.1	554	90.2	148			2875	
		---	---	---	---	---	---	---	---	---	---			---	
51	370	---	---	---	---	---	---	21.7	560	73.6	134	398	2.99	1852	*
		775	---	---	---	---	---	45.4	559	84.7	134			2355	
		---	865	---	---	---	---	50.7	560	86.0	134			2409	
		---	---	910	---	---	---	53.2	558	86.3	134			2437	
		---	---	---	935	---	---	54.5	557	86.5	134			2450	
		---	---	---	---	1045	---	60.8	556	87.9	133			2511	
		---	---	---	---	---	1225	70.9	553	89.5	132			2594	
		---	---	---	---	---	---	---	---	---	---			---	

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 1850
Cost. tempo eccitaz.
Field time constant (ms) 390
Massa del motore
Mass of the motor (Kg) 420
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.660

Tipo
Size MGL C 180 L
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)				
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH					
52	330	---	---	---	---	---	---	19.6	567	72.4	123	456	3.63	1655				
		700	---	---	---	---	---	41.3	563	83.9	123			2121				
		---	780	---	---	---	---	46.2	566	85.4	123			2170				
		---	---	820	---	---	---	48.5	565	85.7	123			2195				
		---	---	---	845	---	---	49.7	562	86.0	123			2206				
		---	---	---	---	945	---	55.6	562	87.6	122			2260				
		---	---	---	---	---	1110	64.8	558	88.5	122			2333				
		53	294	---	---	---	---	---	---	17.1	555			70.0	111	553	4.53	1468
630	---			---	---	---	---	36.7	556	82.7	111	1961						
---	705			---	---	---	---	41.1	557	84.2	111	2008						
---	---			745	---	---	---	43.2	554	84.6	111	2032						
---	---			---	760	---	---	44.3	557	84.9	111	2043						
---	---			---	---	855	---	49.6	554	86.7	110	2094						
---	---			---	---	---	1005	58	551	87.9	110	2161						
54	256			---	---	---	---	---	---	14.8	552	66.0	102	686	4.74			1281
		570	---	---	---	---	---	32.9	551	80.6	102	1806						
		---	635	---	---	---	---	36.9	555	82.2	102	1852						
		---	---	670	---	---	---	38.9	554	82.9	102	1874						
		---	---	---	690	---	---	39.9	552	83.2	102	1885						
		---	---	---	---	775	---	44.8	552	84.5	102	1932						
		---	---	---	---	---	915	52.5	548	86.6	101	1996						
		55	230	---	---	---	---	---	---	13.7	569	64.2	97.0			770	5.65	1151
520	---			---	---	---	---	30.8	566	79.4	97.0	1641						
---	585			---	---	---	---	34.7	566	81.3	97.0	1683						
---	---			615	---	---	---	36.5	567	81.9	96.9	1703						
---	---			---	630	---	---	37.5	568	82.4	96.8	1712						
---	---			---	---	710	---	42.1	566	83.8	96.6	1755						
---	---			---	---	---	840	49.5	563	85.8	96.1	1812						
56	480			---	---	---	---	---	---	28.4	565	78.9	90.0	862	7.04			1536
		540	---	---	---	---	---	31.9	564	80.6	90.0	1575						
		---	---	570	---	---	---	33.7	565	81.5	89.9	1594						
		---	---	---	585	---	---	34.5	563	81.7	89.9	1603						
		---	---	---	---	660	---	38.9	563	83.5	89.6	1644						
		---	---	---	---	---	780	45.8	561	85.5	89.3	1697						
		57	445	---	---	---	---	---	---	25.8	554	77.7	83.0			986	7.71	1453
				500	---	---	---	---	---	29.1	556	79.7	83.0					1492
---	---			530	---	---	---	30.7	553	79.5	83.9	1511						
---	---			---	545	---	---	31.5	552	80.8	82.9	1520						
---	---			---	---	615	---	35.5	551	82.6	82.7	1559						
---	---			---	---	---	725	41.9	552	84.7	82.4	1610						
58	410			---	---	---	---	---	---	24.4	568	76.6	79.6	1090	8.44			1344
				465	---	---	---	---	---	27.5	565	78.5	79.6					1380
		---	---	490	---	---	---	29.1	567	79.6	79.5	1397						
		---	---	---	505	---	---	29.8	564	79.8	79.5	1405						
		---	---	---	---	570	---	33.7	565	81.7	79.3	1441						
		---	---	---	---	---	675	39.8	563	83.9	79.1	1488						

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 1850
Cost. tempo eccitaz.
Field time constant (ms) 390
Massa del motore
Mass of the motor (Kg) 420
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.660

Tipo
Size MGL C 180 L
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel.nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
59		385	---	---	---	---	---	23.1	573	75.5	76.5	1190	9.58	1218
			435	---	---	---	---	26.1	573	77.5	76.5			1251
				460	---	---	---	27.6	573	78.5	76.4			1266
					470	---	---	28.4	577	79.1	76.4			1273
						535	---	32.1	573	80.9	76.3			1306
							635	38.0	572	83.3	76.0			1347
60		330	---	---	---	---	---	19.3	559	72.2	66.8	1570	11.7	1137
			375	---	---	---	---	21.9	558	74.5	66.8			1171
				395	---	---	---	23.2	561	75.5	66.8			1187
					410	---	---	23.9	557	76.2	66.7			1195
						465	---	27.1	557	78.3	66.6			1228
							555	32.3	556	81.1	66.4			1270
61		274	---	---	---	---	---	16.5	575	68.8	60.0	1960	16.1	954
			315	---	---	---	---	18.9	573	71.6	60.0			984
				335	---	---	---	20.1	573	72.8	60.0			998
					345	---	---	20.7	573	73.4	60.0			1005
						390	---	23.6	578	75.8	59.9			1033
							470	28.3	575	79.0	59.7			1069
62		229	---	---	---	---	---	13.3	555	65.2	51.0	2620	20.0	856
			264	---	---	---	---	15.3	553	68.2	51.0			888
				281	---	---	---	16.3	554	69.5	51.0			901
					290	---	---	16.8	553	70.1	51.0			908
						335	---	19.3	550	72.9	50.9			936
							400	23.2	554	76.1	50.8			972

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 2100
Cost. tempo eccitaz.
Field time constant (ms) 410
Massa del motore
Mass of the motor (Kg) 455
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.740

Tipo MGL C 180 P
Size
Ventilazione IC 06
Ventilation

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
45	885	---	---	---	---	---	---	55.9	603	86.1	295	83.1	0.26	3200
		1710	---	---	---	---	---	108	603	91.5	295			3200
		---	1895	---	---	---	---	120	605	92.4	295			3200
		---	---	1985	---	---	---	125	601	92.4	294			3200
		---	---	---	2035	---	---	127	596	92.2	293			3200
		---	---	---	---	2260	---	140	592	92.8	290			3200
		---	---	---	---	---	2630	160	581	93.9	284			3200
		---	---	---	---	---	---	---	---	---	---			---
46	690	---	---	---	---	---	---	44.6	617	83.8	242	124	1.03	2824
		1350	---	---	---	---	---	87.4	618	90.3	242			3200
		---	1495	---	---	---	---	96.9	619	91.0	242			3200
		---	---	1570	---	---	---	101	614	91.1	241			3200
		---	---	---	1605	---	---	104	619	91.8	241			3200
		---	---	---	---	1790	---	114	608	91.7	239			3200
		---	---	---	---	---	2085	131	600	92.9	235			3200
		---	---	---	---	---	---	---	---	---	---			---
47	560	---	---	---	---	---	---	37.7	643	81.6	210	168	1.45	2268
		1110	---	---	---	---	---	74.9	644	89.2	210			2650
		---	1230	---	---	---	---	83.1	645	89.9	210			2696
		---	---	1290	---	---	---	87.1	645	90.6	209			2723
		---	---	---	1320	---	---	89.0	644	90.6	209			2736
		---	---	---	---	1475	---	98.7	639	91.3	208			2796
		---	---	---	---	---	1720	114	633	92.7	205			2883
		---	---	---	---	---	---	---	---	---	---			---
48	510	---	---	---	---	---	---	33.8	633	80.0	192	202	1.67	2528
		1020	---	---	---	---	---	67.8	635	88.3	192			3073
		---	1135	---	---	---	---	75.3	634	89.1	192			3141
		---	---	1195	---	---	---	79.0	631	89.4	192			3178
		---	---	---	1220	---	---	80.8	632	90.0	191			3196
		---	---	---	---	1365	---	89.7	628	90.8	190			3200
		---	---	---	---	---	1590	104	625	92.2	188			3200
		---	---	---	---	---	---	---	---	---	---			---
49	430	---	---	---	---	---	---	27.8	617	77.1	164	279	2.17	2145
		875	---	---	---	---	---	56.8	620	86.6	164			2729
		---	975	---	---	---	---	63.3	620	87.7	164			2792
		---	---	1025	---	---	---	66.4	619	88.0	164			2826
		---	---	---	1050	---	---	67.9	618	88.1	164			2842
		---	---	---	---	1175	---	75.6	614	89.2	163			2915
		---	---	---	---	---	1375	87.7	609	90.8	161			3018
		---	---	---	---	---	---	---	---	---	---			---
50	370	---	---	---	---	---	---	24.8	640	75.2	150	335	2.64	1857
		770	---	---	---	---	---	51.3	636	85.5	150			2366
		---	860	---	---	---	---	57.2	635	86.7	150			2420
		---	---	905	---	---	---	60.1	634	87.1	150			2449
		---	---	---	925	---	---	61.5	635	87.2	150			2462
		---	---	---	---	1035	---	68.6	633	88.5	149			2524
		---	---	---	---	---	1215	79.8	627	89.9	148			2609
		---	---	---	---	---	---	---	---	---	---			---
51	320	---	---	---	---	---	---	21.2	633	71.9	134	429	3.37	1599
		680	---	---	---	---	---	44.9	631	83.8	134			2131
		---	760	---	---	---	---	50.2	631	85.1	134			2183
		---	---	800	---	---	---	52.8	630	85.7	134			2209
		---	---	---	820	---	---	54.0	629	85.7	134			2221
		---	---	---	---	920	---	60.4	627	87.3	133			2277
		---	---	---	---	---	1075	70.5	626	89.0	132			2353
		---	---	---	---	---	---	---	---	---	---			---

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 2100
Cost. tempo eccitaz.
Field time constant (ms) 410
Massa del motore
Mass of the motor (Kg) 455
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.740

Tipo
Size MGL C 180 P
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)					
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH						
52	285	---	---	---	---	---	---	19.1	640	70.6	123	492	4.08	1296					
		610	---	---	---	---	---	40.9	640	83.1	123				1745				
		---	685	---	---	---	---	45.7	637	84.4	123				1787				
		---	---	720	---	---	---	48.1	638	85.0	123				1808				
		---	---	---	740	---	---	49.3	636	85.3	123				1818				
		---	---	---	---	830	---	55.1	634	86.9	122				1864				
		---	---	---	---	---	975	64.5	632	88.1	122				1925				
		53	252	---	---	---	---	---	---	16.6	629				68.0	111	597	5.09	1145
550	---			---	---	---	---	36.3	630	81.8	111	1613							
---	615			---	---	---	---	40.6	630	83.1	111	1654							
---	---			650	---	---	---	42.8	629	83.8	111	1674							
---	---			---	665	---	---	43.8	629	84.0	111	1683							
---	---			---	---	750	---	49.2	626	86.0	110	1725							
---	---			---	---	---	885	57.6	622	87.3	110	1783							
54	495			---	---	---	---	---	---	32.4	625	79.4	102	740	5.33	1484			
		555	---	---	---	---	---	36.4	626	81.1	102	1524							
		---	585	---	---	---	---	38.4	627	81.8	102	1543							
		---	---	600	---	---	---	39.4	627	82.2	102	1552							
		---	---	---	680	---	---	44.3	622	83.5	102	1592							
		---	---	---	---	800	---	52.1	622	86.0	101	1645							
		55	450	---	---	---	---	---	---	30.3	643	78.1	97.0				831	6.35	1348
				510	---	---	---	---	---	34.1	639	79.9	97.0						
---	535			---	---	---	---	36.0	643	80.8	96.9	1402							
---	---			550	---	---	---	37.0	642	81.2	96.9	1410							
---	---			---	625	---	---	41.7	637	83.0	96.6	1446							
---	---			---	---	735	---	49.1	638	85.1	96.2	1645							
56	420			---	---	---	---	---	---	27.9	634	77.5	90.0	930	7.91	1261			
				470	---	---	---	---	---	31.4	638	79.3	90.0						
		---	495	---	---	---	---	33.2	641	80.3	89.9	1312							
		---	---	510	---	---	---	34.0	637	80.5	89.9	1319							
		---	---	---	575	---	---	38.4	638	82.3	89.7	1355							
		---	---	---	---	685	---	45.3	632	84.5	89.3	1399							
		57	385	---	---	---	---	---	---	25.3	628	76.2	83.0				1060	8.66	1193
				435	---	---	---	---	---	28.6	628	78.3	83.0						
---	460			---	---	---	---	30.2	627	78.3	83.9	1243							
---	---			475	---	---	---	31.0	623	79.6	82.9	1250							
---	---			---	535	---	---	35.0	625	81.4	82.7	1284							
---	---			---	---	635	---	41.4	623	83.7	82.4	1327							
58	355			---	---	---	---	---	---	23.9	643	75.1	79.6	1170	9.49	1102			
				405	---	---	---	---	---	27.0	637	77.1	79.6						
		---	425	---	---	---	---	28.6	643	78.2	79.5	1149							
		---	---	440	---	---	---	29.3	636	78.4	79.5	1155							
		---	---	---	500	---	---	33.2	634	80.4	79.4	1187							
		---	---	---	---	590	---	39.4	638	83.0	79.1	1227							

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 2100
Cost. tempo eccitaz.
Field time constant (ms) 410
Massa del motore
Mass of the motor (Kg) 455
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.740

Tipo
Size MGL C 180 P
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel.nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
59		330	---	---	---	---	---	22.6	654	73.9	76.5	1280	10.8	1099
			375	---	---	---	---	25.6	652	76.1	76.5			1130
				400	---	---	---	27.1	647	77.1	76.4			1144
					410	---	---	27.9	650	77.7	76.4			1151
						465	---	31.6	649	79.6	76.3			1182
							555	37.5	645	82.2	76.0			1221
60		284	---	---	---	---	---	18.8	632	70.4	66.8	1690	13.2	1023
			325	---	---	---	---	21.4	629	72.8	66.8			1057
				345	---	---	---	22.7	628	73.9	66.8			1072
					355	---	---	23.4	629	74.6	66.7			1079
						405	---	26.6	627	76.8	66.6			1111
							485	31.8	626	79.7	66.5			1151
61		235	---	---	---	---	---	16.0	650	66.7	60.0	2120	18.1	857
			269	---	---	---	---	18.4	653	69.7	60.0			887
				287	---	---	---	19.6	652	71.0	60.0			900
					295	---	---	20.1	651	71.3	60.0			907
						340	---	23.1	649	74.2	59.9			934
							410	27.8	648	77.5	59.8			968
62			225	---	---	---	---	14.8	628	66.0	51.0	2820	22.5	798
				241	---	---	---	15.8	626	67.3	51.0			811
					248	---	---	16.3	628	68.0	51.0			818
						287	---	18.8	626	71.0	50.9			845
							350	22.8	622	74.8	50.8			879

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione Excitation power (w)	2400	Tipo Size	MGL C 180 X
Cost. tempo eccitaz. Field time constant (ms)	430		
Massa del motore Mass of the motor (Kg)	506	Ventilazione Ventilation	IC 06
Momento d'inerzia rotore Rotor inertia moment (Kgm2)	0.830		

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
45	750	----	----	----	----	----	----	55.1	702	84.9	295	91.9	0.71	2909
		1460	----	----	----	----	----	107	700	90.7	295			2909
		1620	----	----	----	----	----	119	702	91.7	295			2909
			1695	----	----	----	----	124	699	91.7	294			2909
		1735	----	----	----	----	----	127	699	92.2	293			2909
			1935	----	----	----	----	139	686	92.2	290			2909
		2255	----	----	----	----	----	159	673	93.3	284			2909
		46	615	----	----	----	----	----	----	44.3	688			83.2
1205	----			----	----	----	----	87.0	690	89.9	242	2909		
1335	----			----	----	----	----	96.5	690	90.6	242	2909		
	1405			----	----	----	----	101	687	91.1	241	2909		
1435	----			----	----	----	----	103	685	90.9	241	2909		
	1600			----	----	----	----	114	680	91.7	239	2909		
1865	----			----	----	----	----	131	671	92.9	235	2909		
47	450			----	----	----	----	----	----	34.8	739	75.3	210	211.8
		910	----	----	----	----	----	70.7	742	84.2	210	2409		
		1015	----	----	----	----	----	78.6	740	85.1	210	2451		
			1065	----	----	----	----	82.6	741	85.9	209	2475		
		1090	----	----	----	----	----	84.6	741	86.1	209	2487		
			1220	----	----	----	----	94.6	741	87.5	208	2542		
		1425	----	----	----	----	----	111	744	90.2	205	2621		
		48	425	----	----	----	----	----	----	32.5	730	76.9	192	
870	----			----	----	----	----	66.4	729	86.5	192	2794		
965	----			----	----	----	----	73.9	731	87.5	192	2855		
	1015			----	----	----	----	77.7	731	88.0	192	2889		
1040	----			----	----	----	----	79.2	727	88.2	191	2905		
	1165			----	----	----	----	88.2	723	89.3	190	2909		
1365	----			----	----	----	----	102	714	90.4	188	2909		
49	370			----	----	----	----	----	----	27.2	702	75.4	164	292.4
		765	----	----	----	----	----	56.2	702	85.7	164	2481		
		855	----	----	----	----	----	62.6	699	86.8	164	2538		
			895	----	----	----	----	65.8	702	87.2	164	2569		
		920	----	----	----	----	----	67.4	700	87.4	164	2584		
			1030	----	----	----	----	75.0	695	88.5	163	2650		
		1205	----	----	----	----	----	86.8	688	89.9	161	2744		
		50	315	----	----	----	----	----	----	23.6	715	71.5	150	
670	----			----	----	----	----	50.0	713	83.3	150	2151		
750	----			----	----	----	----	55.8	711	84.5	150	2200		
	790			----	----	----	----	58.7	710	85.1	150	2226		
810	----			----	----	----	----	60.2	710	85.4	150	2238		
	910			----	----	----	----	67.1	704	86.6	149	2295		
1070	----			----	----	----	----	78.2	698	88.1	148	2372		
51	286			----	----	----	----	----	----	20.9	698	70.9	134	431.5
		610	----	----	----	----	----	44.4	695	82.8	134	1937		
		680	----	----	----	----	----	49.6	697	84.1	134	1985		
			715	----	----	----	----	52.2	697	84.7	134	2008		
		735	----	----	----	----	----	53.5	695	84.9	134	2019		
			825	----	----	----	----	59.6	690	86.2	133	2070		
		970	----	----	----	----	----	69.5	684	87.8	132	2139		

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 2400
Cost. tempo eccitaz.
Field time constant (ms) 430
Massa del motore
Mass of the motor (Kg) 506
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.830

Tipo
Size MGL C 180 X
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel. nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)			
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH				
52	255	---	---	---	---	---	---	18.6	697	68.7	123	509.3	4.61	1296			
		550	---	---	---	---	---	40.2	698	81.7	123			1745			
		615	---	---	---	---	---	44.9	697	83.0	123			1787			
		650	---	---	---	---	---	47.3	695	83.6	123			1808			
		665	---	---	---	---	---	48.5	697	83.9	123			1818			
		750	---	---	---	---	---	54.1	689	85.3	122			1864			
		880	---	---	---	---	---	63.6	690	86.9	122			1925			
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
53	230	---	---	---	---	---	---	16.4	681	67.2	111	590.7	5.75	1145			
		505	---	---	---	---	---	35.8	677	80.6	111			1613			
		565	---	---	---	---	---	40.2	679	82.3	111			1654			
		595	---	---	---	---	---	42.3	679	82.8	111			1674			
		610	---	---	---	---	---	43.4	679	83.2	111			1683			
		685	---	---	---	---	---	48.4	675	84.6	110			1725			
		810	---	---	---	---	---	56.9	671	86.2	110			1783			
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
54	455	---	---	---	---	---	---	32.3	678	79.2	102	712.4	6.02	1484			
		515	---	---	---	---	---	36.2	671	80.7	102			1524			
		540	---	---	---	---	---	38.2	676	81.4	102			1543			
		555	---	---	---	---	---	39.2	675	81.8	102			1552			
		625	---	---	---	---	---	44.2	675	83.3	102			1592			
		740	---	---	---	---	---	51.6	666	85.1	101			1645			
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
55	420	---	---	---	---	---	---	30.3	689	78.1	97.0	812.9	7.18	1348			
		470	---	---	---	---	---	34.2	695	80.1	97.0			1385			
		500	---	---	---	---	---	36.1	690	81.0	96.9			1402			
		510	---	---	---	---	---	37	693	81.2	96.9			1410			
		575	---	---	---	---	---	41.8	694	83.2	96.6			1446			
		680	---	---	---	---	---	49.4	694	85.6	96.2			1645			
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
56	380	---	---	---	---	---	---	27.1	681	75.3	90.0	973.9	8.94	1261			
		430	---	---	---	---	---	30.6	680	77.3	90.0			1295			
		455	---	---	---	---	---	32.4	680	78.3	89.9			1312			
		470	---	---	---	---	---	33.3	677	78.8	89.9			1319			
		530	---	---	---	---	---	37.6	678	80.6	89.7			1355			
		630	---	---	---	---	---	44.6	676	83.2	89.3			1399			
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
57	350	---	---	---	---	---	---	24.4	666	73.5	83.0	1165.1	8.79	1193			
		395	---	---	---	---	---	27.6	667	75.6	83.0			1226			
		420	---	---	---	---	---	29.2	664	75.7	83.9			1243			
		430	---	---	---	---	---	30.0	666	77.0	82.9			1250			
		490	---	---	---	---	---	34.1	665	79.3	82.7			1284			
		580	---	---	---	---	---	40.6	669	82.1	82.4			1327			
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
58	330	---	---	---	---	---	---	23.6	683	74.1	79.6	1179.8	10.7	1102			
		375	---	---	---	---	---	26.7	680	76.2	79.6			1135			
		400	---	---	---	---	---	28.2	673	77.1	79.5			1149			
		410	---	---	---	---	---	29.0	675	77.6	79.5			1155			
		465	---	---	---	---	---	32.9	676	79.7	79.4			1187			
		550	---	---	---	---	---	39.1	679	82.4	79.1			1227			
		---	---	---	---	---	---	---	---	---	---			---	---	---	---
		---	---	---	---	---	---	---	---	---	---			---	---	---	---

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

Nota (°) - Regolazione di campo / Field weakening



Potenza eccitazione
Excitation power (w) 2400
Cost. tempo eccitaz.
Field time constant (ms) 430
Massa del motore
Mass of the motor (Kg) 506
Momento d'inerzia rotore
Rotor inertia moment (Kgm2) 0.830

Tipo
Size MGL C 180 X
Ventilazione
Ventilation IC 06

Avv.	Velocità nominale n/min a tensione nominale di armatura Rated speed (rev/min) at rated voltage							Potenza Power kW	Coppia vel.nomin. Torque at rated speed Nm	Rendimento Efficiency %	Circuito di armatura Armature circuit			Max giri Max. speed (°)
	220	400	440	460	470	520	600				Corrente Current Amp	Res. 115°C mOhm	Ind. mH	
59		310	---	---	---	---	---	22.5	693	73.5	76.5	1289.1	12.2	1000
			350	---	---	---	---	25.5	696	75.8	76.5			1027
				370	---	---	---	27.0	697	76.8	76.4			1040
					385	---	---	27.7	687	77.1	76.4			1046
						435	---	31.5	692	79.4	76.3			1075
							520	37.5	689	82.2	76.0			1110
60		300	---	---	---	---	---	19.5	621	73.0	66.8	1425.9	14.9	930
			340	---	---	---	---	22.1	621	75.2	66.8			961
				360	---	---	---	23.3	618	75.8	66.8			975
					370	---	---	24.0	619	76.6	66.7			981
						415	---	27.2	626	78.5	66.6			1010
							495	32.3	623	81.0	66.5			1046
61		275	---	---	---	---	---	17.1	594	71.3	60.0	1594.5	20.5	779
			315	---	---	---	---	19.4	588	73.5	60.0			806
				335	---	---	---	20.6	587	74.6	60.0			818
					345	---	---	21.2	587	75.2	60.0			825
						390	---	24.1	590	77.4	59.9			849
							465	28.7	589	80.0	59.8			880
62			310	---	---	---	---	17.1	527	76.2	51.0	1763.1	25.4	725
				330	---	---	---	18.1	524	77.2	51.0			737
					340	---	---	18.6	522	77.6	51.0			744
						385	---	21.0	521	79.3	50.9			768
							455	25.0	525	82.0	50.8			799

Nota (*) - VENTILAZIONE SOLO L.O. / FAN ONLY SIDE COMMUTATOR

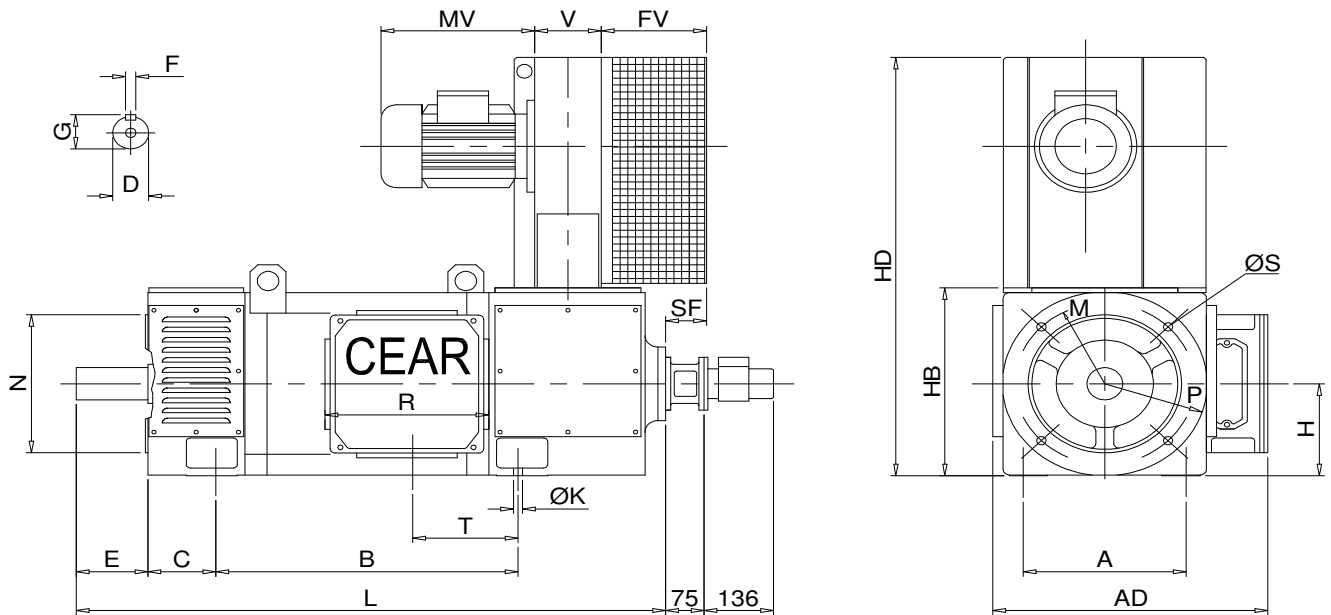
Nota (°) - Regolazione di campo / Field weakening


MOTORI C.C. SERIE MGLC - D.C. MOTORS SERIES MGLC

Forma costr. IM B3/B5 e derivate - Mounting IM B3/B5 and derived

Protezione IP23S - Protection IP23S

Ventilazione IC06 - Cooling IC06

MGLC 160 - 180 - 200


TYPE	SIZE	PIAZZAMENTO					INGOMBRO				ELETTOVENTILATORE				MORSETT.	
		A	B	C	H	K	HD	HB	L	AD	FV	MV	V	SF	R	T
160	K	254	342	108	160	14	637	329	760	433	100	240	115	16	186	145
	S		372						790							
	M		412						830							
	L		462						880							
	P		492						910							
180	K	279	370	121	180	14	727	369	850	483	122	268	115	15	240	171
	S		410						890							
	M		450						930							
	L		500						980							
	P		540						1020							
200	K	318	500	133	200	18	910	409	1061	538	206	300	130	81	320	206
	S		550						1111							
	M		590						1151							
	L		640						1201							
	P		680						1241							
	X		720						1281							

TYPE	ALBERO				FLANGIA			
	E	D	F	G	M	N	S	P
160	140	60	18	64	300	250	18	350
180	140	65	18	69	350	300	18	400
200	140	70	20	74,5	350	300	18	400

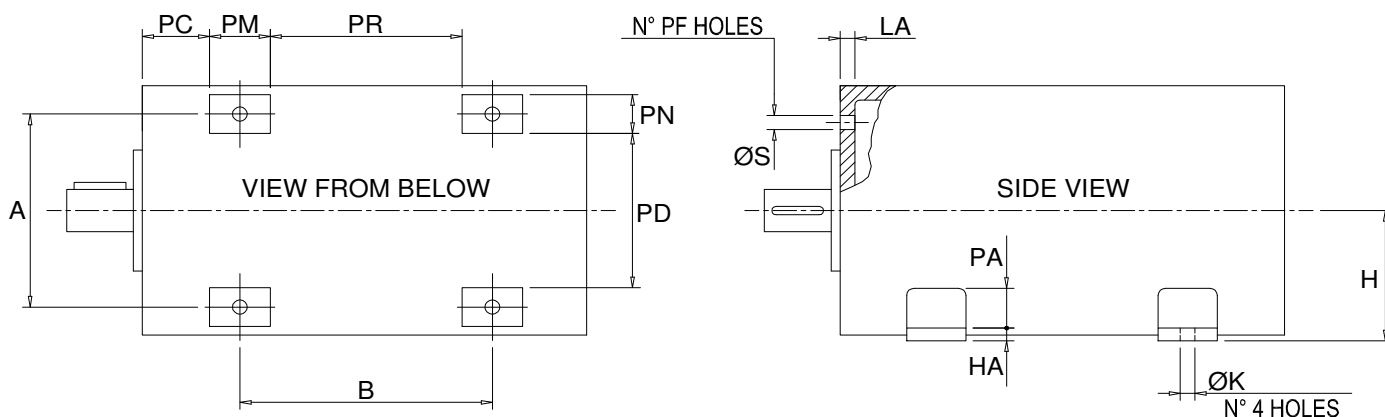


PIAZZAMENTO - QUOTE AUSILIARIE

18.05.2007
Sheet N°

PLACEMENT - AUXILIARY DIMENSION

Tables N°



TIPO/TYPER	A	PD	PN	PC	PM	PR	B	K	S	PF	LA	PA	HA	H	
80	S	170	123	36	57	55	100	160	9	11.5	4	16	31	9	80
	M						125	185							
	L						160	220							
100	S	216	150	45	54	65	132	192	12	14	4	20	35	10	100
	M						157	217							
	L						192	252							
112	S	190	146	31	48	52	228	288	12	14	4	16	40	15	112
	M						258	318							
	L						298	358							
132	S	216	172	38	62	55	275	330	12	14	4	20	40	15	132
	M						315	370							
	L						365	420							
	P						415	470							
160	K	254	200	50	71	75	268	342	14	18	4	25	52	15	160
	S						298	372							
	M						338	412							
	L						388	462							
180	P	279	225	54	77	80	418	492	14	18	4	30	55	20	180
	K						298	370							
	S						338	410							
	M						378	450							
	L						428	500							
200	P	318	222	75	75	100	468	540	18	18	4	30	70	20	200
	X						508	580							
	K						416	500							
	S						466	550							
	M						506	590							
	L						556	640							
	P						596	680							
250	X	406	316	85	95	140	636	720	24	19	8	38	85	25	250
	X2						676	760							
	K						490	624							
	S						540	674							
	M						590	724							
	L						650	784							
	P						720	854							
	X						760	894							
	X2						800	934							
X4	910	1044													
315	K	508	390	120	110	160	550	710	28	24	8	45	105	35	315
	S						605	765							
	M						670	830							
	L						750	910							
	P						850	1010							
	X						910	1070							
	X2						980	1140							
400	K	686	496	152	175	200	595	785	35	24	8	60	140	35	400
	S						665	855							
	M						745	935							
	L						845	1035							
	P						965	1155							
	X						1045	1235							

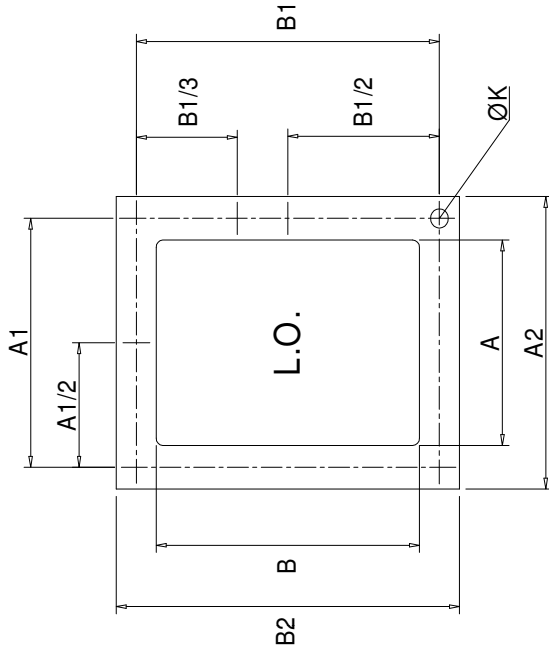


Tabella quote per bocchette di
adattamento ventilazione separata

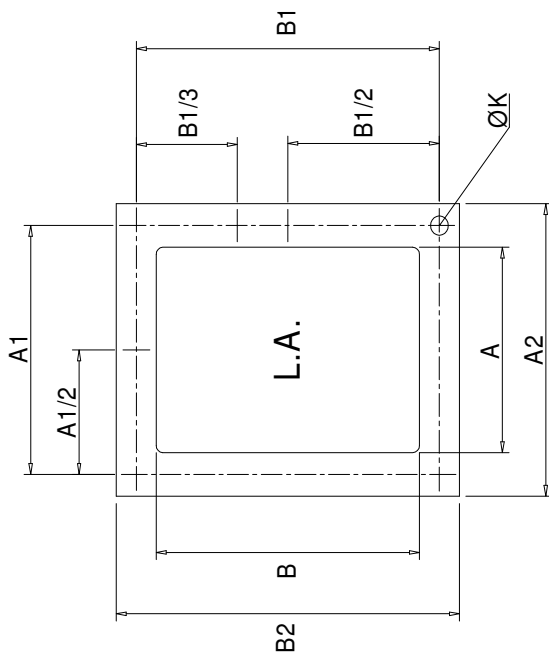
Dimensions table of adapted openings
for separated ventilation

18.05.2007
Sheet N°

Tables N° 40



A1/2 = B1/2 = N° 8 FORI
B1/3 = N° 10 FORI
A1/2 = B1/2 = N° 8 HOLES
B1/3 = N° 10 HOLES



TIPO	A	B	A1	B1	A2	B2	FORI / HOLES		TIPO
							N°	K	
80	98	145	ON TOP / SUPERIORI		120	172	4	6	80
			ON SIDE / LATERALI		108	160			
	98	90	ON TOP / SUPERIORI		120	105			
			ON SIDE / LATERALI		108	90			
100	100	170	ON TOP / SUPERIORI		125	134	8	7	100
			ON SIDE / LATERALI		113	178			
	100	120	ON TOP / SUPERIORI		125	190			
			ON SIDE / LATERALI		113	122			
	85	140	ON TOP / SUPERIORI		110	155			
			ON SIDE / LATERALI		98	145			
	105	180	ON TOP / SUPERIORI		130	197			
			ON SIDE / LATERALI		118	185			
	115	210	ON TOP / SUPERIORI		155	240			
			ON SIDE / LATERALI		135	220			
175	240	ON TOP / SUPERIORI		215	256				
		ON SIDE / LATERALI		195	216				
230	250	ON TOP / SUPERIORI		285	285				
		ON SIDE / LATERALI		265	265				
260	310	ON TOP / SUPERIORI		305	355				
		ON SIDE / LATERALI		285	335				
180	385	ON TOP / SUPERIORI		225	425				
		ON SIDE / LATERALI		205	390				
315	205	ON TOP / SUPERIORI		260	425				
		ON SIDE / LATERALI		240	405				
315 1	205	ON TOP / SUPERIORI		260	425				
		ON SIDE / LATERALI		240	405				
400	290	ON TOP / SUPERIORI		350	530				
		ON SIDE / LATERALI		320	504				

TIPO	A	B	A1	B1	A2	B2	FORI / HOLES		TIPO
							N°	K	
80	90	145	ON TOP / SUPERIORI		120	172	4	6	80
			ON SIDE / LATERALI		108	160			
	90	90	ON TOP / SUPERIORI		120	105			
			ON SIDE / LATERALI		108	90			
100	90	170	ON TOP / SUPERIORI		125	190	8	7	100
			ON SIDE / LATERALI		113	178			
	90	120	ON TOP / SUPERIORI		125	134			
			ON SIDE / LATERALI		113	122			
	112	70	ON TOP / SUPERIORI		110	155			
			ON SIDE / LATERALI		98	145			
	132	90	ON TOP / SUPERIORI		130	197			
			ON SIDE / LATERALI		118	185			
	160	110	ON TOP / SUPERIORI		155	240			
			ON SIDE / LATERALI		135	220			
180	112	ON TOP / SUPERIORI		155	256				
		ON SIDE / LATERALI		135	216				
200	130	ON TOP / SUPERIORI		185	285				
		ON SIDE / LATERALI		165	265				
250	180	ON TOP / SUPERIORI		225	355				
		ON SIDE / LATERALI		205	335				
250 1	205	ON TOP / SUPERIORI		260	425				
		ON SIDE / LATERALI		240	405				
315	205	ON TOP / SUPERIORI		260	425				
		ON SIDE / LATERALI		240	405				
315 1	205	ON TOP / SUPERIORI		260	425				
		ON SIDE / LATERALI		240	405				
400	290	ON TOP / SUPERIORI		350	530				
		ON SIDE / LATERALI		320	504				