Selección
de motores

✦   Introducción.

✦   Tipos de motores.

✦   Motor de corriente directa.

✦   Elementos de carga.

✦   Condiciones de uso.

✦   Selección.

Carcaza

Estator

Rotor
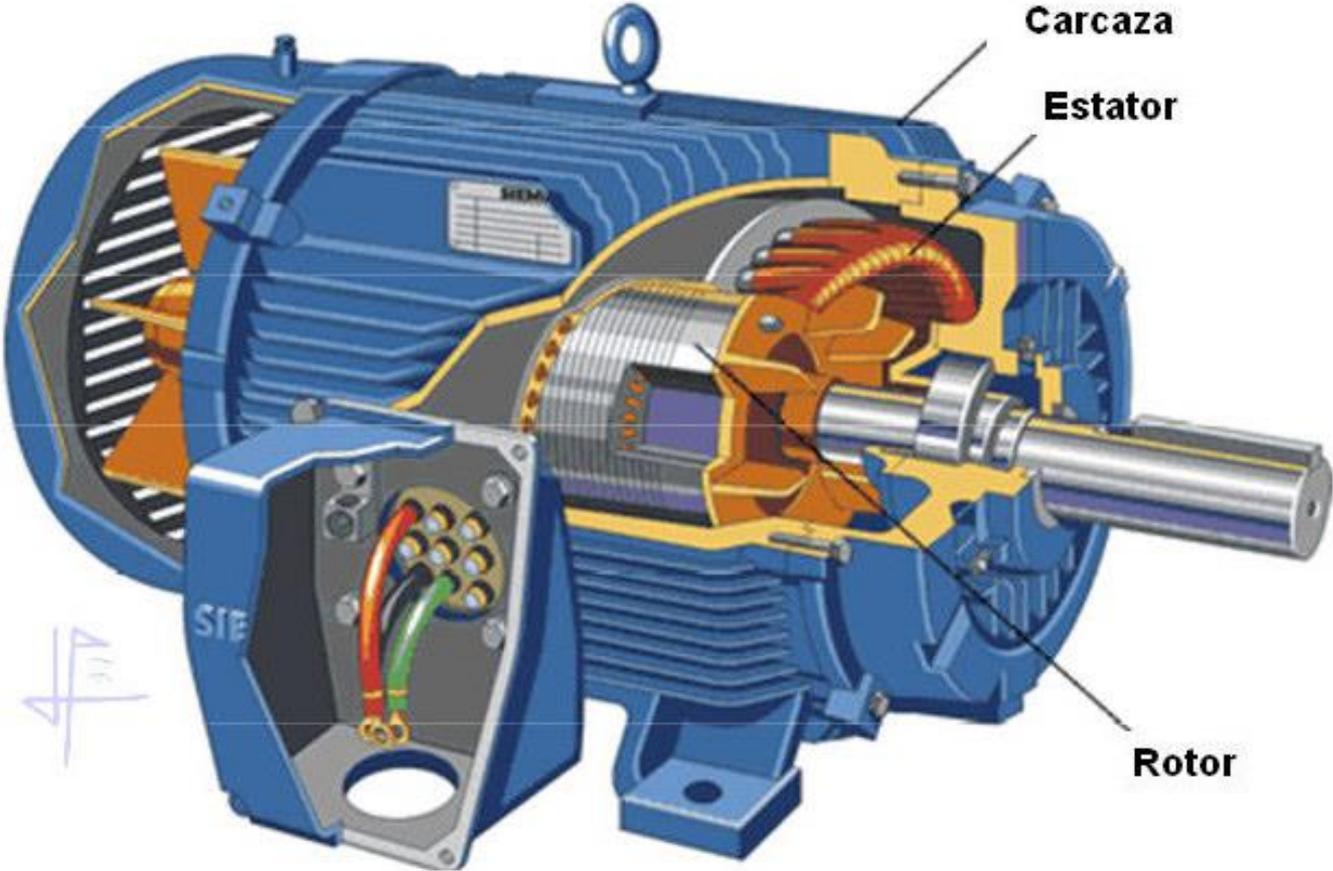
Ley de Ampere
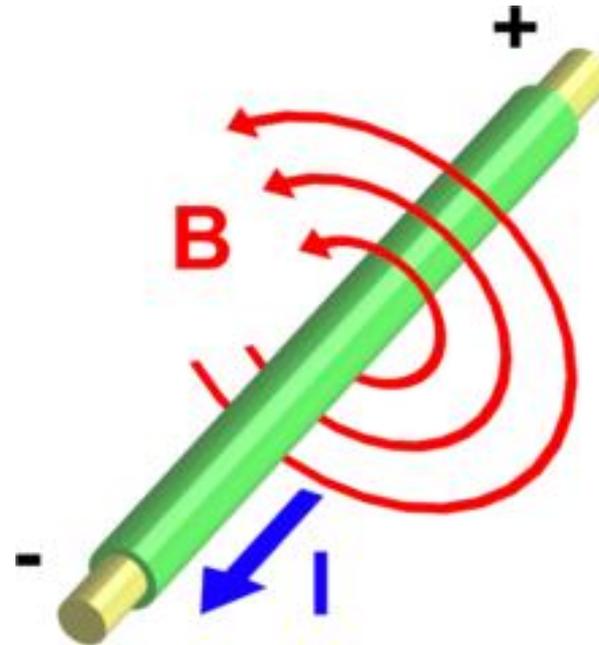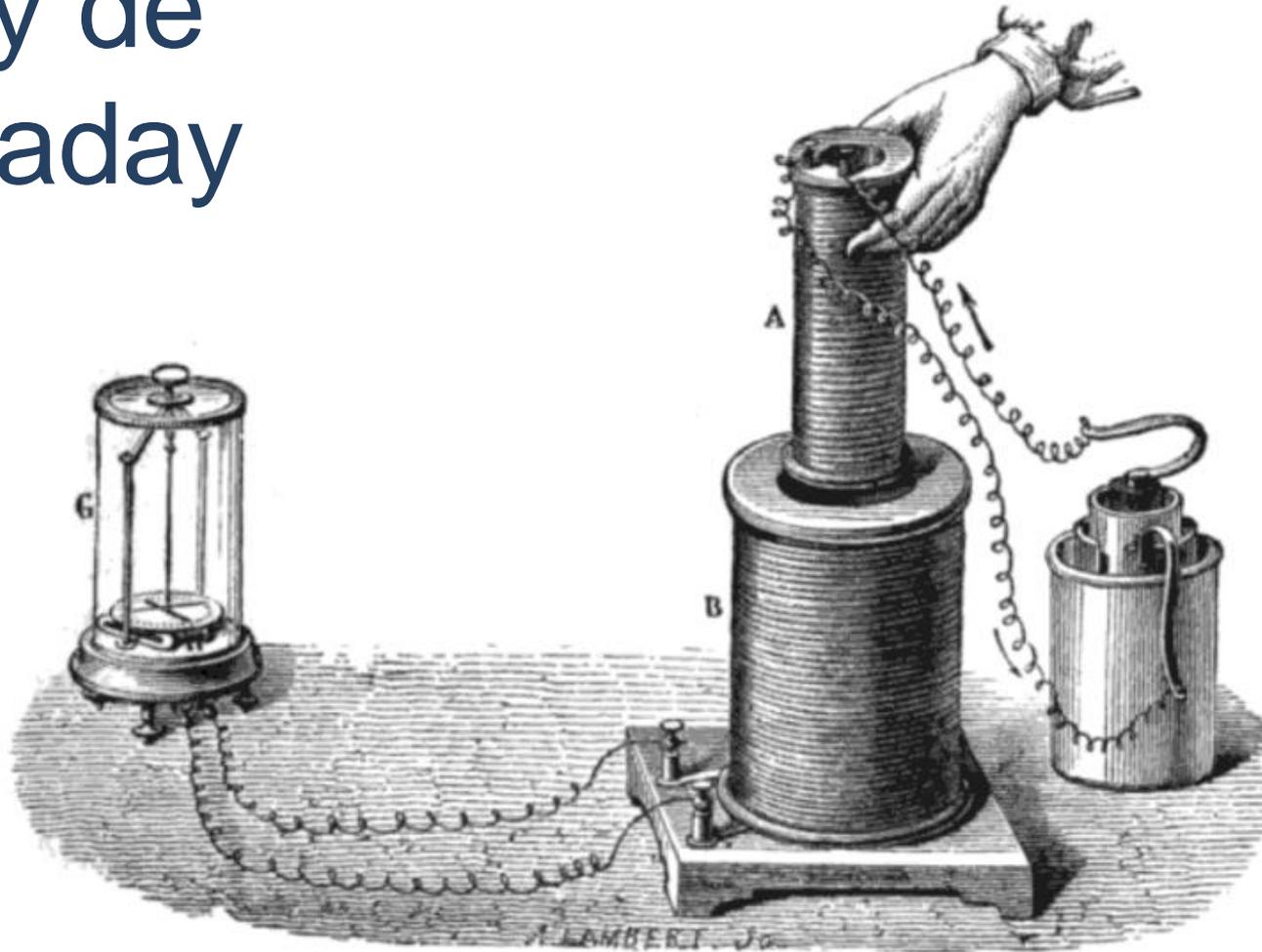
Ley de Faraday

Ley de Faraday
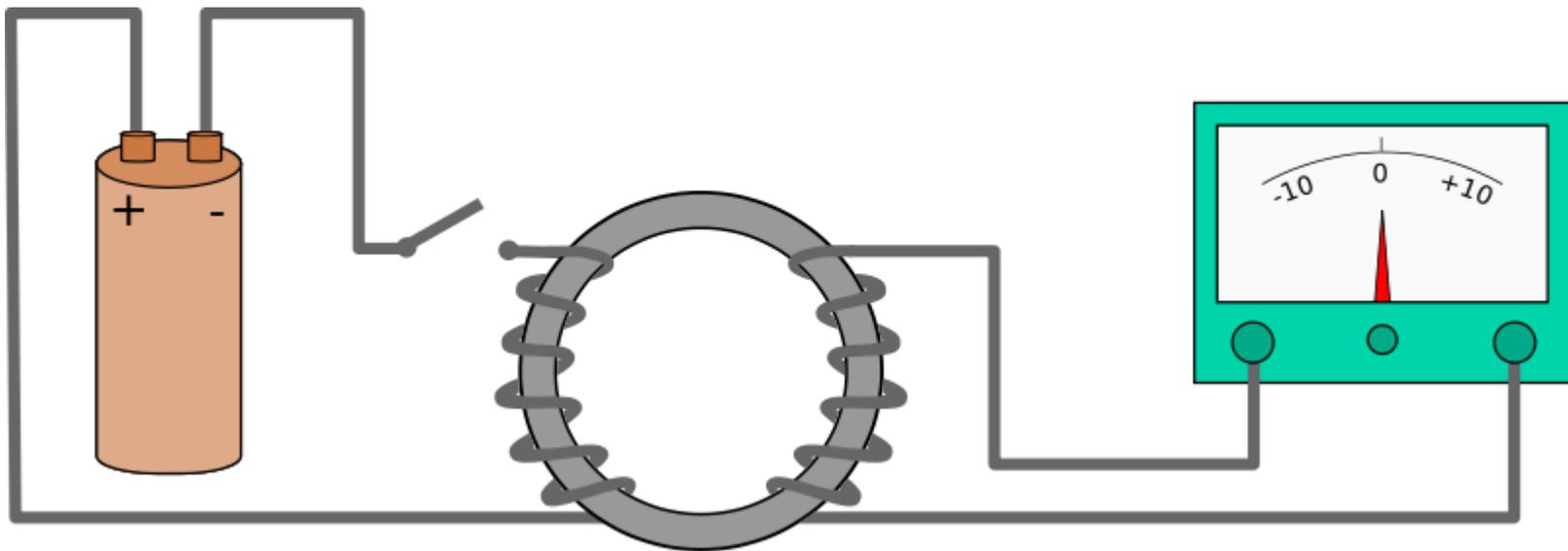
Ley de Inducción de Faraday

Ley de Lenz

http://www.walter-fendt.de/ph14e/electricmotor.htm

Applet Speed

Brush

Battery

N

S

Magnet

Flip Battery

Resume

http://www.glogster.com/dschrader/ac-dc-motors/g-6mn1arcofd614jo7n6ju4a0
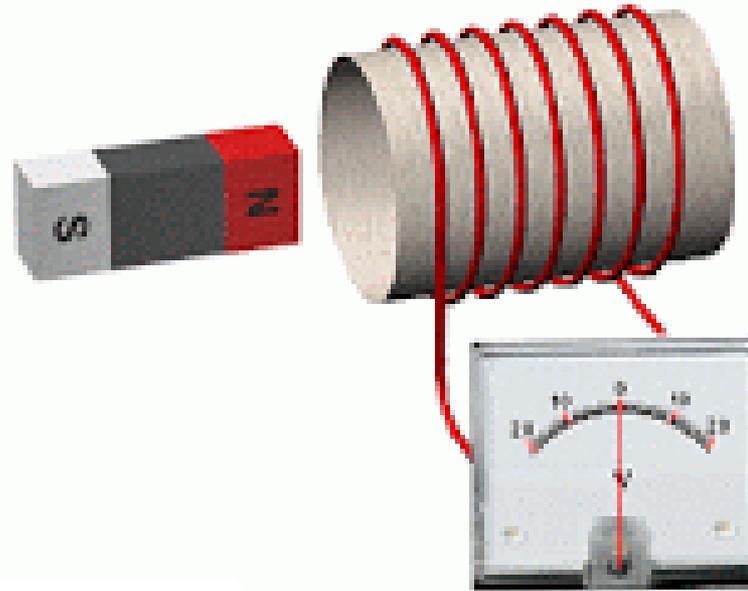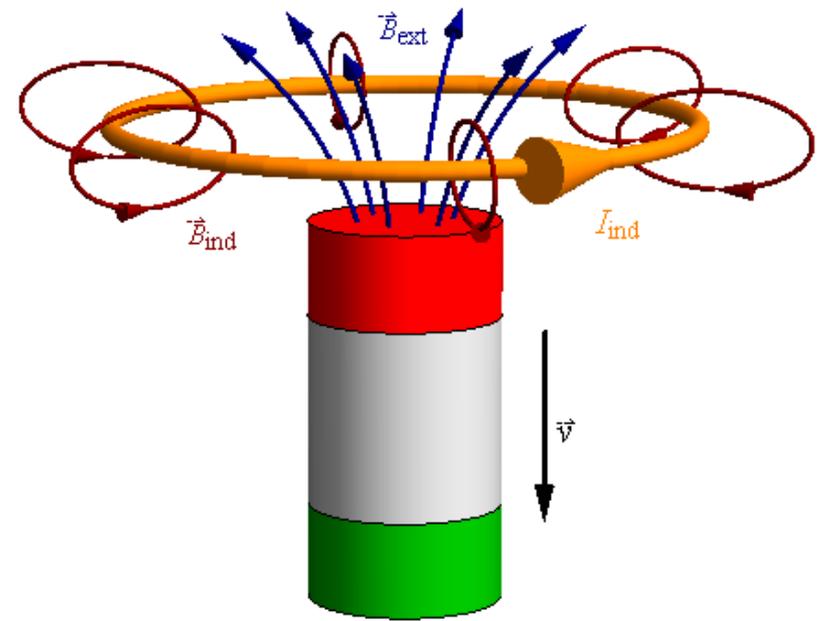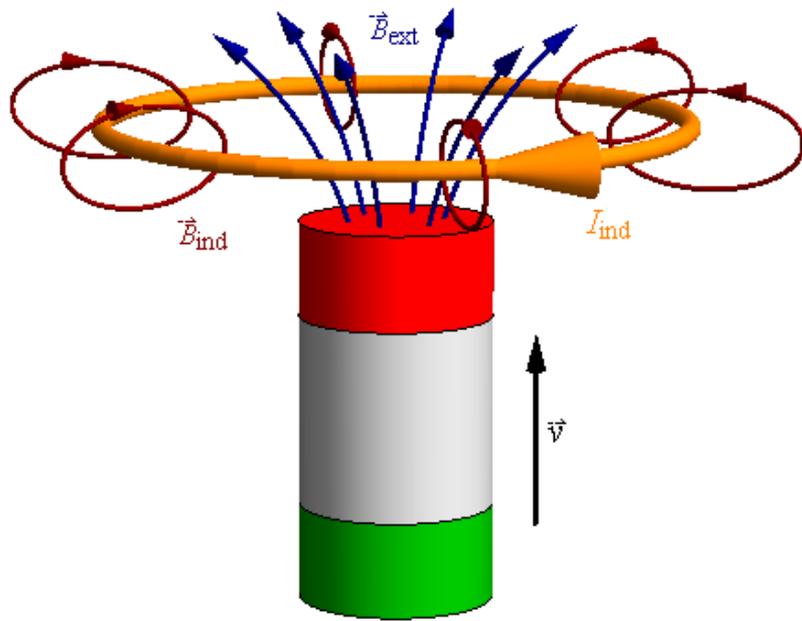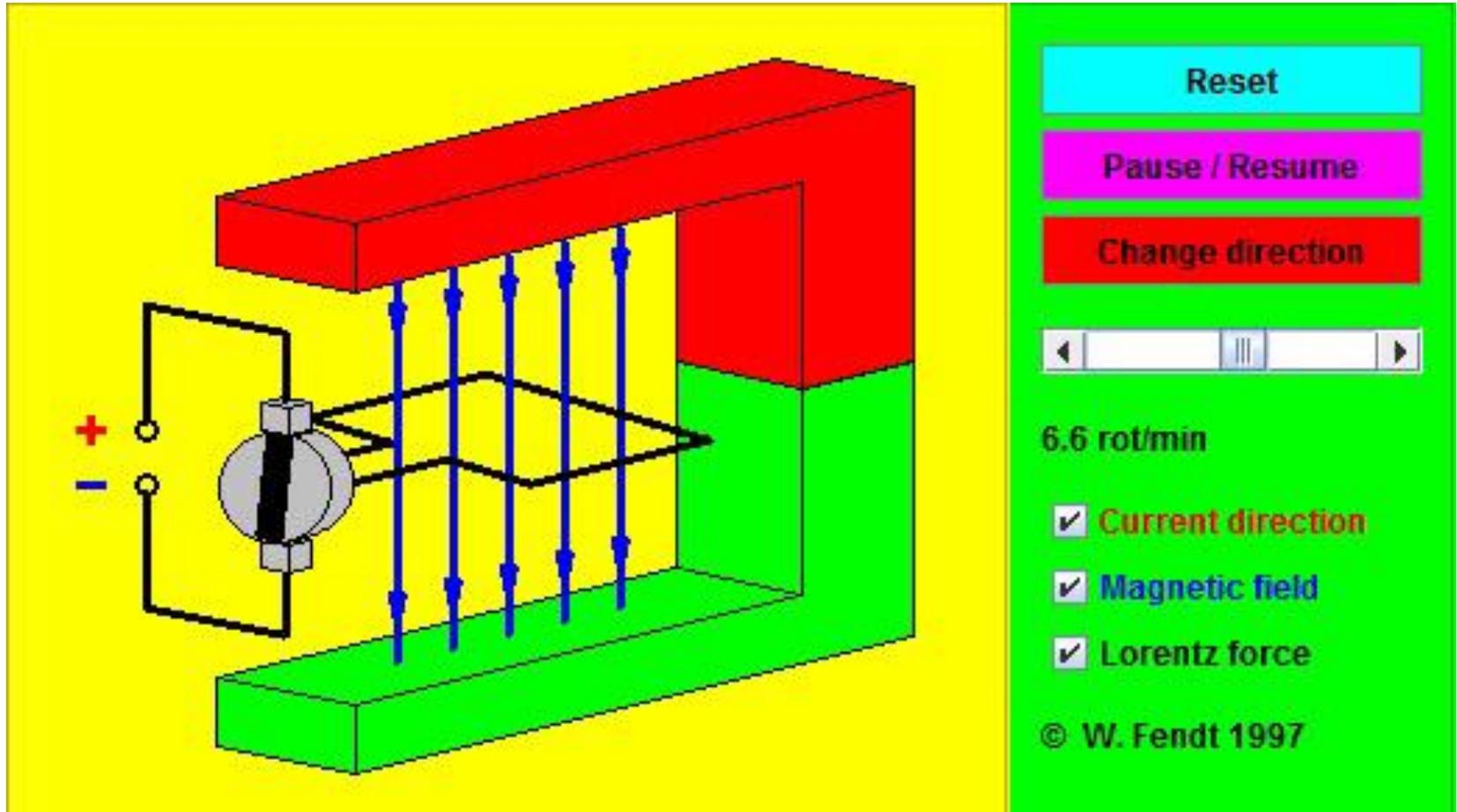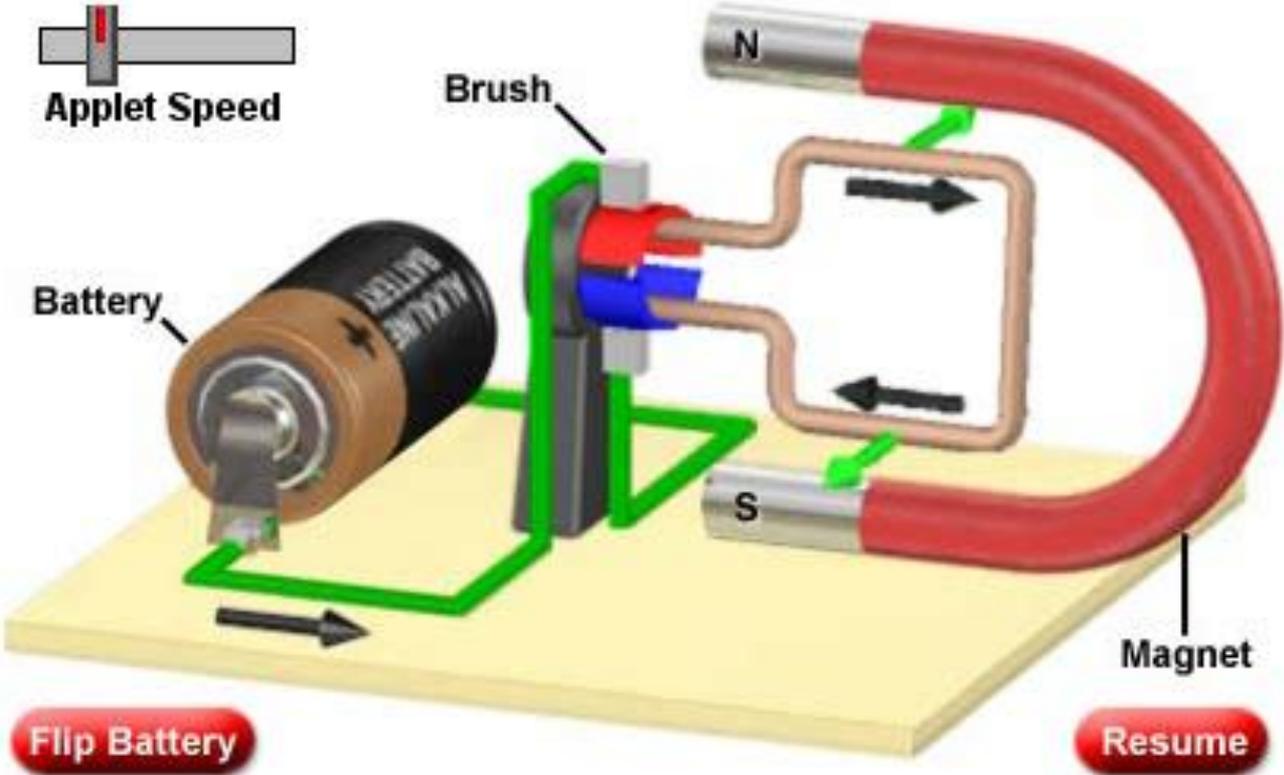
$$T = \Phi * I * A * n * \cos\Theta$$

T = Torque (momento, par) generado.

Φ = Flujo magnético.

I = Intensidad de la corriente eléctrica
en la espira.

A = Área transversal de la espira.

n = No. de espiras de la bobina.

θ = Ángulo entre el plano de la espira
y la dirección del flujo magnético.

Estátor

Placa de bornes

Rotor

Rodamientos

Eje

Bobinado

Carcasa

Ventilador

Placa de características

Bobinas del rotor

Conmutador

**Estator y bobinas
del estator**

Flecha

Escobillas

- Modelo del circuito eléctrico

$$\frac{di_a}{dt} = -\frac{r_a}{L_a} i_a - \frac{k_a}{L_a} w_r + \frac{1}{L_a} u_a$$

- Modelo Mecánico.

$$\frac{dw_r}{dt} = \frac{k_a}{j} i_a - \frac{B_m}{J} w_r - \frac{1}{J} T_L$$

1era. aproximación

SI → Determinar condiciones de arranque

Analizar condiciones máximas de operación

NO

Simulación y análisis

Satisfactorio → SI

2da. aproximación

SI → **Determinar factores de seguridad**

Calcular factor total de seguridad

Selección por catalogo y verificar especificaciones

NO ◂- - - - ◆ Satisfactorio ▸ SI

Adquirir motor

Structure of the Order No.:	Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16		
Positions 1 to 3: digit, character, character	**Internally cooled DC machines**																				
	• Separate ventilation using radially-mounted, standard fan	1	G	G																	
	• Separate ventilation using external fan (not included in scope of supply), connected via duct	1	G	H																	
	Surface-cooled DC machines																				
	• Separate ventilation using mounted air-to-air heat exchanger	1	H	Q																	
	• Separate ventilation using mounted air-to-water heat exchanger	1	H	S																	
Position 4: digit	Series 5 Series 6 Series 7				5 6 7																
Positions 5 to 7: digits	Motor size (the size is encoded in positions 5 and 6)																				
Position 8: digit	Connection and mode of operation																				
Position 9: character	Field power level																				
Position 10: character	Armature circuit type of construction																				
Position 11: digit	Rated field voltage																				
Position 12: digit	Type of construction																				
Position 13: digit	Converter connection and terminal data																				
Position 14: character	Rated armature voltage																				
Position 15: character	Armature control range																				
Position 16: digit	Load-torque characteristic, performance data (latest edition)																				
	Special versions: coded short code also required																			-	Z
	not coded plain text also required																				

Field voltage

The standard field voltage is 310 V. Other field voltages have been determined in accordance with the recommended field voltages according to DIN 40 030 and in accordance with the SIMOREG product range as "Standard versions". They can be coded using a digit at position 11 of the Order No. or using a short code.

• **Standard** rated field voltages:

Field voltage	Position:																			Short code
	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16		
110 V DC												3								
180 V DC												1								
190 V DC												9								L5C
200 V DC												9								L5A
210 V DC												6								
220 V DC												2								
310 V DC												4								
325 V DC												9								L5D
330 V DC												9								L5F
340 V DC												9								L5E
350 V DC												9								L5B
360 V DC												7								
500 V DC												5								

Rated speed n_N rpm at rated armature voltage				Rated output	Rated torque	Maximum field weakening speed [1]	Order No.		Rated current	Efficiency	Armature circuit	
											Resistance at 120 °C	Inductance
420 V	470 V	520 V	600 V	P_N kW	M_N Nm	n_{Fmax} rpm			I_N A	η %	R_a Ω	L_a mH
Overall length 2												
995				31.5	302	2500	1G 6 162-0JC	-6VV5	90	79	0.65	6.6
	1130			35.7	302	2550		-6WV5	90	81		
		1270		40	301	2550		-7MV5	90	83		
			1490	47	301	2550		-7NV5	90	84		
1310				41.5	303	2350	1G 6 162-0JD	-6VV5	114	83	0.403	4
	1480			47	303	2350		-6WV5	115	84		
		1660		52.5	302	2400		-7MV5	114	85		
			1940	60.5	298	2250		-7NV5	113	87		
1660				53	305	2500	1G 6 162-0JE	-6VV5	142	86	0.252	2.65
	1880			59.5	302	2500		-6WV5	141	87		
2140				63.5	283	4500	1G 6 162-0JF	-6VV5	168	88	0.173	1.65
	2410			71	281	4500		-6WV5	168	88		
		2690		77	273	4500		-7MV5	163	89		
			3120	88.5	271	4500		-7NV5	161	90		
2750				78.5	273	4400	1G 6 162-0JG	-6VV5	206	89	0.108	1
	3100			87.5	270	4450		-6WV5	204	90		
		3430		92	256	4500		-7MV5	193	90		
3440				93.5	260	4500	1G 6 162-0JH	-6VV5	242	90	0.0691	0.66

Space for removing filter

Add-on unit
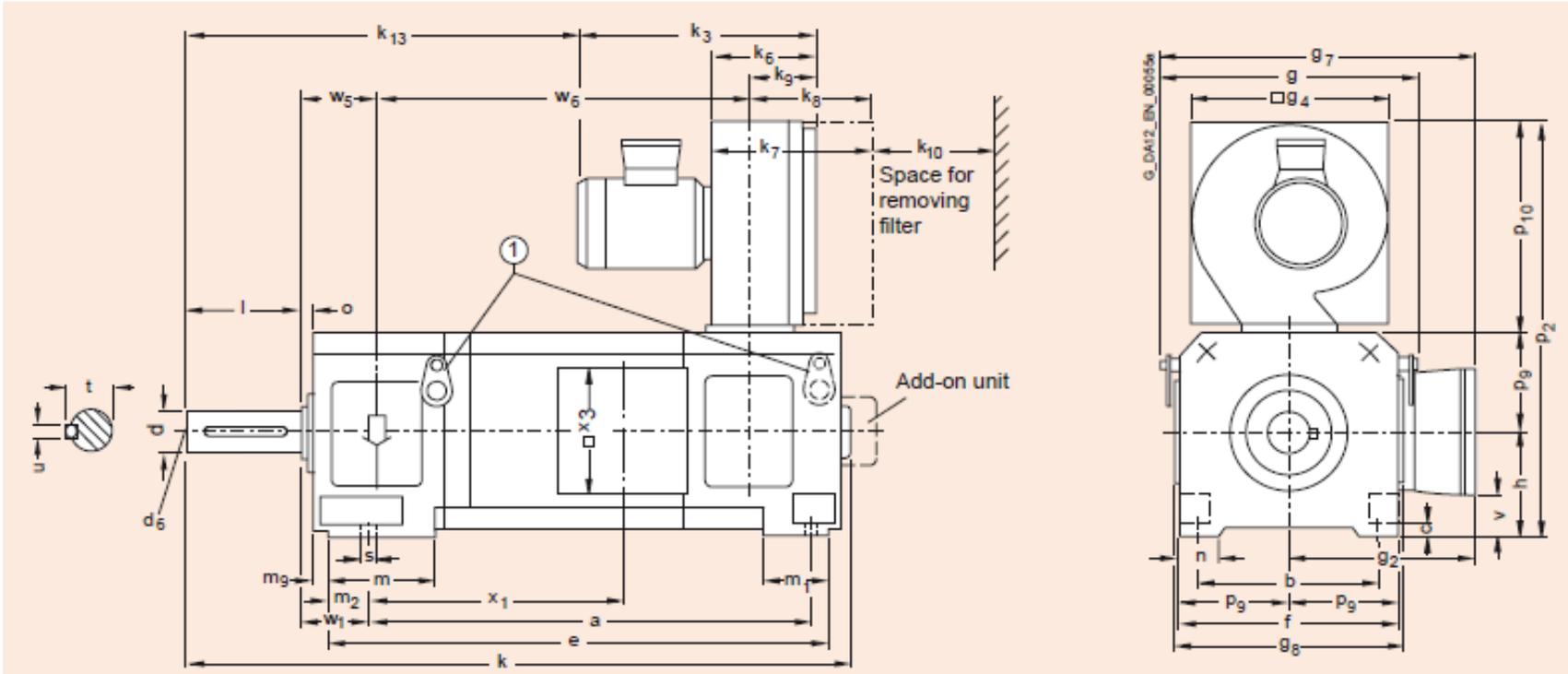
① Special lifting eye for size 160, no graphic representation for sizes 180 to 280

For motors		Dimensions acc. to																	
Size	Type 1GG6...	a IEC B	b A	c HA	e –	f AB	g AC	g_2 AD	g_4 –	g_7 –	g_8 –	h H	k L	k_3 –	k_6 –	k_7 –	k_8 –	k_9 –	k_{10} –	k_{13} –
160	162	590	254	12	691	316	379	302	310	492	339	160	858	334	121	232	184	74	135	436
	164	660	254	12	761	316	379	302	310	492	339	160	928	334	121	232	184	74	135	506
	166	750	254	12	851	316	379	302	310	492	339	160	1018	334	121	232	184	74	135	596
180	186	600	279	14	730	360	460	350	350	580	382	180	1020	470	185	310	250	130	130	522
	188	670	279	14	800	360	460	350	350	580	382	180	1090	470	185	310	250	130	130	592
200	206	645	318	18	815	400	500	370	350	620	422	200	1090	470	185	310	250	130	130	558
	208	725	318	18	895	400	500	370	350	620	422	200	1170	470	185	310	250	130	130	638
225	226	735	356	18	925	450	550	430	430	705	475	225	1290	530	215	380	305	140	170	675
	228	825	356	18	1015	450	550	430	430	705	475	225	1380	530	215	380	305	140	170	765
250	256	785	406	22	1015	500	620	455	430	765	525	250	1420	530	215	380	305	140	170	774
	258	885	406	22	1115	500	620	455	430	765	525	250	1520	530	215	380	305	140	170	874
280	286	850	457	22	1100	560	680	485	430	825	585	280	1500	530	215	380	305	140	170	846
	288	960	457	22	1210	560	680	485	430	825	585	280	1610	530	215	380	305	140	170	956

Agradezco su amable atención

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