

С грижа за Вашия комфорт от 1989г.



❁ ВЕНТИЛАЦИЯ

❁ КЛИМАТИЗАЦИЯ

❁ ОТОПЛЕНИЕ

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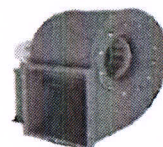
Изх.№ 1290 / 08.04.2019 г.

ДО
" АЕЦ Козлодуй" ЕАД
гр Козлодуй
НА ВНИМАНИЕТО НА:
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специалист "Маркетинг"
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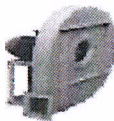
НА БАЗА ВАШЕ ЗАПИТВАНЕ, МОЛЯ ПРИЕТЕ НАШЕТО ПРЕДЛОЖЕНИЕ

за доставка на вентилационни съоръжения

Обект : Доставка на 14 броя вентилатори с постоянен режим на работа в КЗ на цех ХОГ

Обект: Доставка на 14 броя вентилатори с постоянен режим на работа в КЗ на цех ХОГ						
№	НАИМЕНОВАНИЕ	ед	коп	Доставка		
				ед.ц лв	общо лв	
1	2	3	4	5	6	
1	Центробежен вентилатор с едностранно засмукване, директно куплиран двигател и назад обвърнати лопатки - "S&P" Испания, модел FRC/4-802 -15kW/400V; RAL 7045; IE2 - положение 0°; - V=21 800 m3/h, 1422 Pa; - мощност 15 kW / 400V; - честота 50Hz - степен на защита IP55; - клас на изолация F		бр	2	8 409,00	16 818,00
2	Центробежен вентилатор с едностранно засмукване, директно куплиран двигател и назад обвърнати лопатки - "S&P" Испания, модел FRC/4-801 -22kW/400V; RAL 7045; IE2 - положение 0°; - V=28 700 m3/h, 1422 Pa; - мощност 22 kW / 400V; - честота 50Hz - степен на защита IP55; - клас на изолация F		бр	2	9 557,00	19 114,00
3	Центробежен вентилатор с едностранно засмукване, директно куплиран двигател и назад обвърнати лопатки - "S&P" Испания, модел FRC/4-801 -22kW/400V; RAL 7045; IE2 - положение 0°; - V=28 500 m3/h, 1471 Pa; - мощност 22 kW / 400V; - честота 50Hz - степен на защита IP55; - клас на изолация F		бр	2	9 557,00	19 114,00

ОД 03-0-01

1	2	3	4	5	6	
4	Центробежен вентилтор с едностранно засмукване, директно куплиран двигател и назад обърнати лопатки - "S&P" Испания, модел FP 631 /2-N4A -37kW/400V; D200L - положение 0°; - V=24 500 m3/h, 2354 Pa; - мощност 37 kW / 400V; - честота 50Hz - степен на защита IP55; - клас на изолация F		бр	2	13 114,00	26 228,00
5	Центробежен вентилтор с едностранно засмукване, директно куплиран двигател и назад обърнати лопатки - "S&P" Испания, модел FRC/2-501 -18,5kW/400V; RAL 7045; IE2 - положение 0°; - V=18 500 m3/h, 1422 Pa; - мощност 18,5 kW / 400V; - честота 50Hz - степен на защита IP55; - клас на изолация F		бр	2	5 366,00	10 732,00
6	Центробежен вентилтор с едностранно засмукване, директно куплиран двигател и назад обърнати лопатки - "S&P" Испания, модел FRC/4-802 -15kW/400V; RAL 7045; IE2 - положение 0°; - V=19 000 m3/h, 1765 Pa; - мощност 15 kW / 400V; - честота 50Hz - степен на защита IP55; - клас на изолация F		бр	2	8 409,00	16 818,00
7	Центробежен вентилтор с едностранно засмукване, директно куплиран двигател и назад обърнати лопатки - "S&P" Испания, модел FRC/4-631 -5,5kW/400V; RAL 7045; IE2 - положение 0°; - V=8 700 m3/h, 1255 Pa; - мощност 5,5 kW / 400V; - честота 50Hz - степен на защита IP55; - клас на изолация F		бр	2	4 359,00	8 718,00

Сума доставка: 117 542,00 лв.

ДДС 20 % : 23 508,40 лв.

Всичко: 141 050,40 лв.

Забележки:

1. Цените са франко склада на фирма "ТАНГРА", гр.София.

Срок на доставка:

** от 8 до 10 работни седмици след превод на аванс

Начин на плащане:

70% авансово и 30% при получаване.

Валидност на офертата:

30 календарни дни считано от датата на изготвянето ѝ.

ИЗГОТВИЛ:

(инж. Р. Банова)

ОДОБРИЛ:

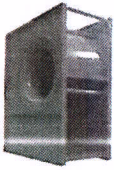
(инж. Ю.Армянов)

(Управител "ТАНГРА-АВ" ООД)



FRC

FRC/4-802 LG270 15 3-400/690V-50Hz RAL 7045 IE2



Direct coupled, single inlet centrifugal fan. Manufactured from steel sheet protected with anti-corrosion polyester paint coating. Backward curved impeller made of pre-galvanized sheet steel, dynamically balanced. Designed to continuously circulate air from -10°C up to 120°C. Suitable for transporting clean air. LG-270 standard orientation. 2, 4 or 6 pole motors, IE 2 high efficiency, three-phase 230/400V 50Hz up to 3kW and 400/690V 50Hz for higher powers. IP 55, Class F protection.

Brand Ferrari model FRC/4-802 LG270 15 3-400/690V-50Hz RAL 7045 IE2 for an airflow 22.863 m³/h and static pressure 1.564 Pa.

Theoretical Working Point

Airflow	21.800 m³/h
Static Pressure	1.422 Pa
Temperature	20 °C
Altitude	0 m
Density	1,2 kg/m³
Frequency	50 Hz
Voltage	3-400/690V-50Hz

Working Point

Airflow	22.863 m³/h
Static Pressure	1.564 Pa
Dynamic pressure	121 Pa
Total Pressure	1.685 Pa
Input power	15,1 kW
Shaft power	13,7 kW
Required Service Factor	10
Tot efficiency	78 %
St Efficiency	72,4 %
Outlet speed	14,2 m/s
Inlet speed	12,6 m/s
Fan speed	1465 rpm
Specific Fan Power	2,70 W/l/s

Construction

Discharge diameter	802 mm
Fan size	802

Motor Characteristics

Number of poles	4
Motor Power	15 kW
Voltage	3-400/690V-50Hz
Maximum absorbed current	29,8 A / 17,3 A
IP Rating	IP55
Motor insulation class	F
Starting Current	181,8 A

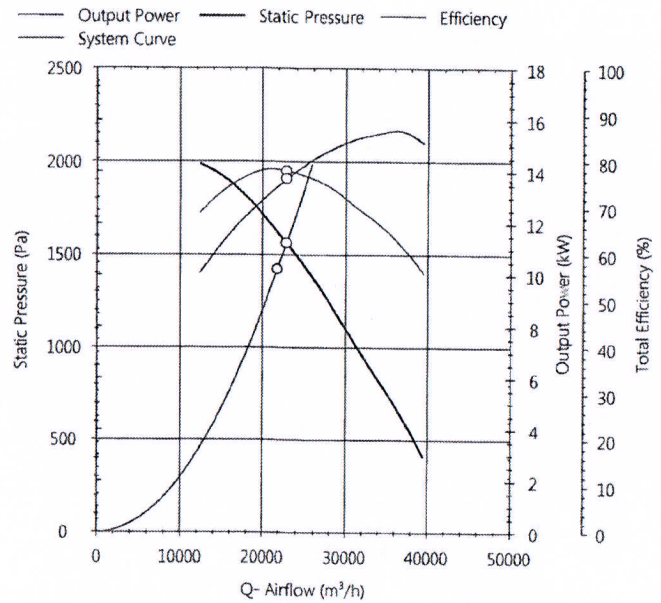
Drawing

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Accessories

Please see accessories on separate sheet

Performance Chart





FRC

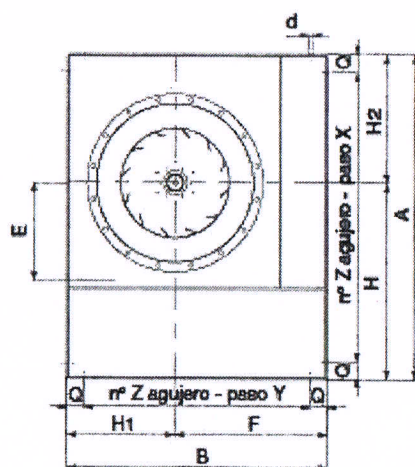
FRC/4-802 LG270 15 3-400/690V-50HZ RAL 7045 IE2

Drawing

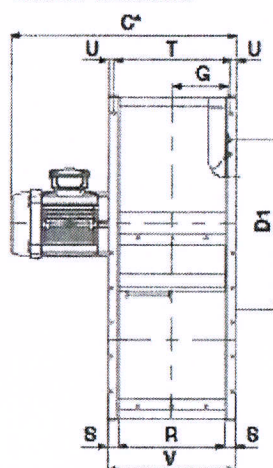
■ Dimensiones (mm) (modelos desde 281 hasta 801) / Dimensions (mm) (models from 281 to 801)



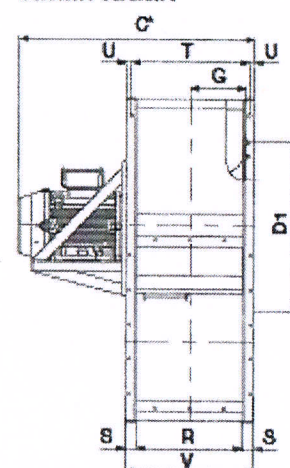
DESCARGA ORIENTABLE
(excepto 180° y 225°)
DISCHARGE ADJUSTABLE
(except 180° and 225°)



Versión / Version MB

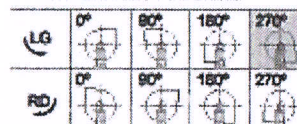


Versión / Version P



* Nos reservamos el derecho a utilizar distintos fabricantes de motores, y por lo tanto, los datos indicados para esta cota pueden variar.
* We reserve right to supply different motors and hence data of this dimension may change.

ORIENTACIONES / POSITIONS



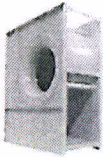
Orientación estándar: LG270.
El resto de las orientaciones se fabrican bajo pedido.
Standard supplied position: LG270.
Special versions are supplied on request.

A	B	C	E	F	G	H1	H2	Q	R	S	T	U	V	W	C _{HT}	H	X	Y	Z
1674	1160	1163	500	560	290,5	800	674	80	560	60	620	30	600	13	1223	1000	504,7	400	2



FRC

FRC/4-801 LG270 22 3-400/690V-50HZ RAL 7045 IE2



Direct coupled, single inlet centrifugal fan. Manufactured from steel sheet protected with anti-corrosion polyester paint coating. Backward curved impeller made of pre-galvanized sheet steel, dynamically balanced. Designed to continuously circulate air from -10°C up to 120°C. Suitable for transporting clean air. LG-270 standard orientation. 2, 4 or 6 pole motors, IE 2 high efficiency, three-phase 230/400V 50Hz up to 2kW and 400/690V 50Hz for higher powers. IP 55. Class F protection.

Brand Ferrari model FRC/4-801 LG270 22 3-400/690V-50Hz RAL 7045 IE2 for an airflow 30.278 m³/h and static pressure 1.583 Pa.

Theoretical Working Point

Airflow	28.700 m³/h
Static Pressure	1.422 Pa
Temperature	20 °C
Altitude	0 m
Density	1.2 kg/m³
Frequency	50 Hz
Voltage	3-400/690V-50Hz

Working Point

Airflow	30.278 m³/h
Static Pressure	1.583 Pa
Dynamic pressure	212 Pa
Total Pressure	1.795 Pa
Input power	21,3 kW
Shaft power	19,8 kW
Required Service Factor	10
Tot efficiency	76,9 %
St Efficiency	67,8 %
Outlet speed	18,8 m/s
Inlet speed	16,7 m/s
Fan speed	1465 rpm
Specific Fan Power	2,52 W/m³

Construction

Discharge diameter	501 mm
Fan size	801

Motor Characteristics

Number of poles	4
Motor Power	22 kW
Voltage	3-400/690V-50Hz
Maximum absorbed current	40,1 A / 23,2 A
IP Rating	IP55
Motor insulation class	F
Starting Current	316 % A

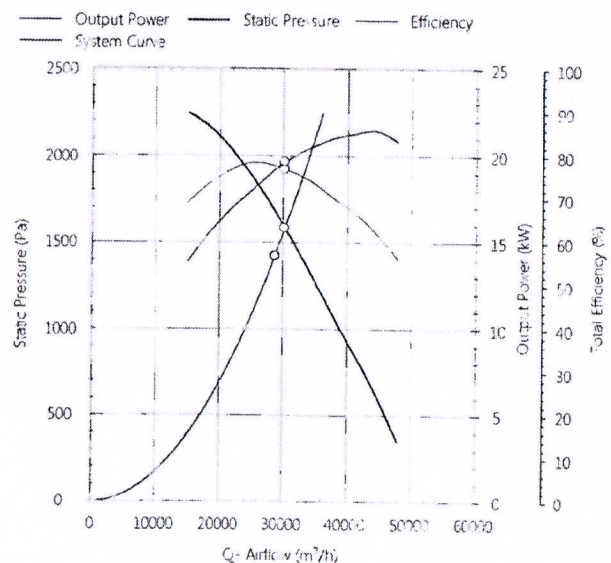
Drawing

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Accessories

Please see accessories on separate sheet

Performance Chart



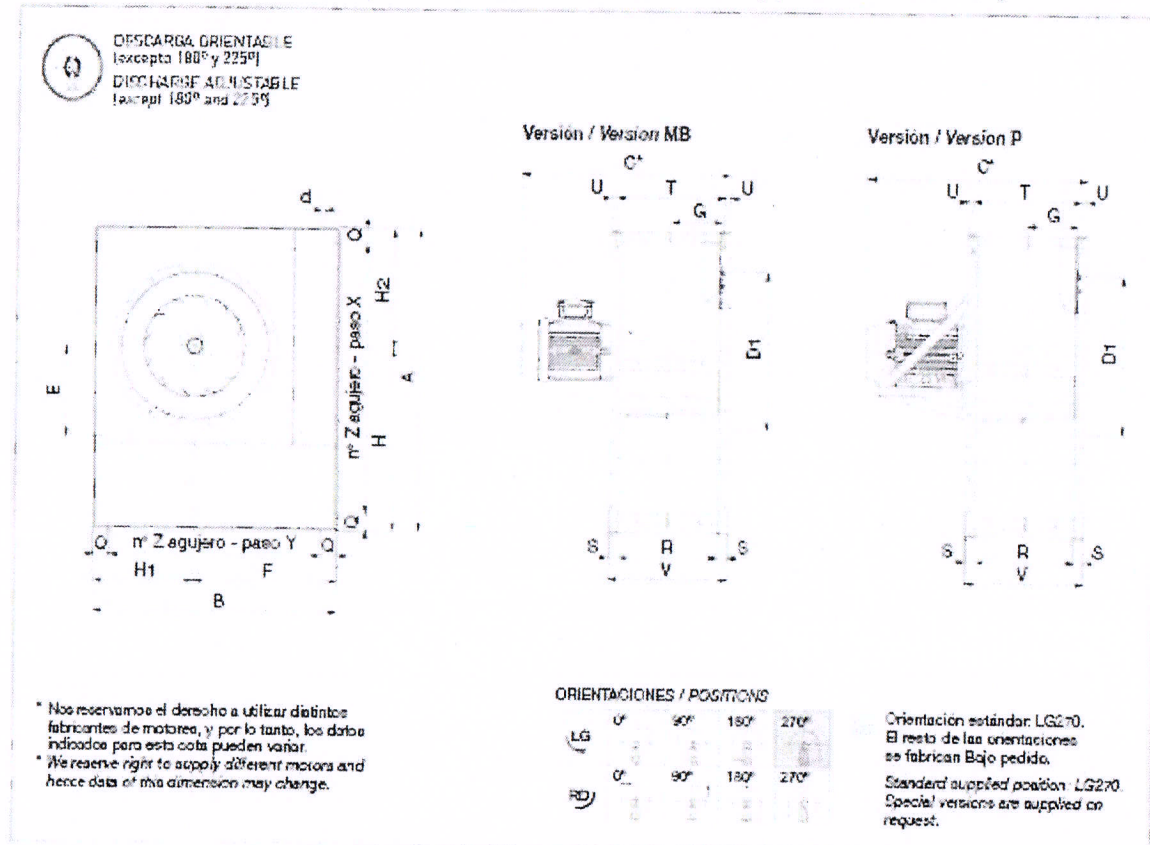


FRC

FRC/4-801 LG270 22 3-400/690V-50HZ RAL 7045 IE2

Drawing

■ Dimensiones (mm) (modelos desde 281 hasta 801) / Dimensions (mm) (models from 281 to 801)



A	B	C	E	F	G	H1	H2	Q	R	S	T	U	V	ed	C _{HT}	H	X	Y	Z
1674	1390	1223	500	560	290,5	800	674	80	560	60	620	30	680	19	1193	1000	504,7	400	3



FP-N

FP 631/2 N4A LG0 37KW-50HZ D200L



Direct drive, single inlet centrifugal fan. Manufactured from steel sheet protected with cataforesis primer + polyurethane paint finish. Designed to continuously circulate air from -20°C/60°C. Motor with 2 poles.
For slight dusty air (<150 mg/m³).
Casing manufactured in steel Fe 360 sheet.
steel impeller.

Brand Ferrari model FP 631/2 N4A LG0 37kW-50Hz D200L for an airflow 24.140 m³/h and static pressure 2.285 Pa.

The product has been selected in Outlet mode.

Theoretical Working Point

Airflow	24.500 m³/h
Static Pressure	2.354 Pa
Temperature	20 °C
Altitude	0 m
Density	1,21 kg/m³
Frequency	50 Hz
Voltage	400

Working Point

Airflow	24.140 m³/h
Static Pressure	2.285 Pa
Dynamic pressure	860 Pa
Total Pressure	3.145 Pa
Tot efficiency	64,7 %
St Efficiency	47 %
Shaft power	32,6 kW
Available service factor	13 %
Outlet speed	37,8 m/s
Fan speed	2960 rpm
Specific Fan Power	6,18 W/l/s
Axial thrust	-88 N
Discharge thrust	711 N
Starting time	2 s

Construction

Discharge diameter	630 mm
Fan size	630 mm
Blades	6
Tipo de posición ventilador	4
Max speed	3150 rpm
Weight	465,00 kg

Motor Characteristics

Number of poles	2
Motor Power	37 kW
Motor speed	2960 rpm

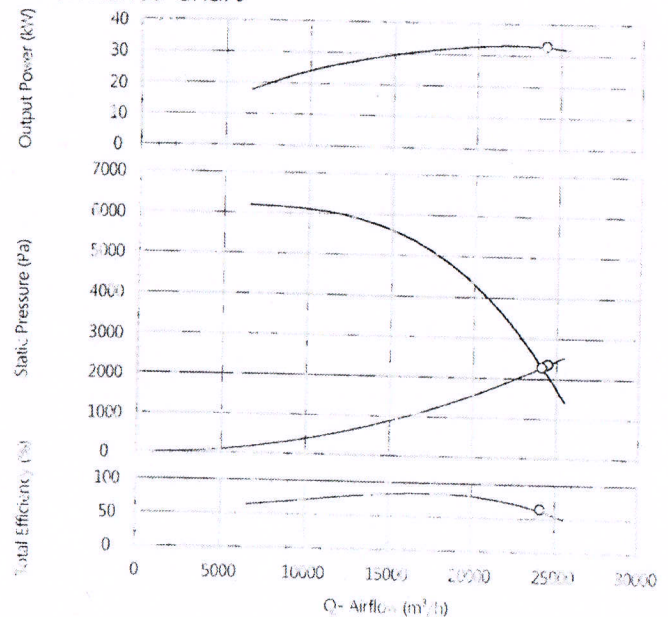
Drawing

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Accessories

Please see accessories on separate sheet

Performance Chart



Sound Performance

	63	125	250	500	1k	2k	4k	8k	Overall
Inlet (LwA)	70	84	91	98	98	99	96	88	104
Inlet LpA @ 1.5m	55	69	77	83	83	85	81	73	90
Outlet (LwA)	73	87	94	101	101	102	99	91	107
Outlet LpA @ 1.5m	58	72	80	86	86	88	84	76	93
Breakout (LwA)	71	85	92	99	99	100	97	89	105
Breakout LpA @ 1.5m	56	70	78	84	84	86	82	74	91



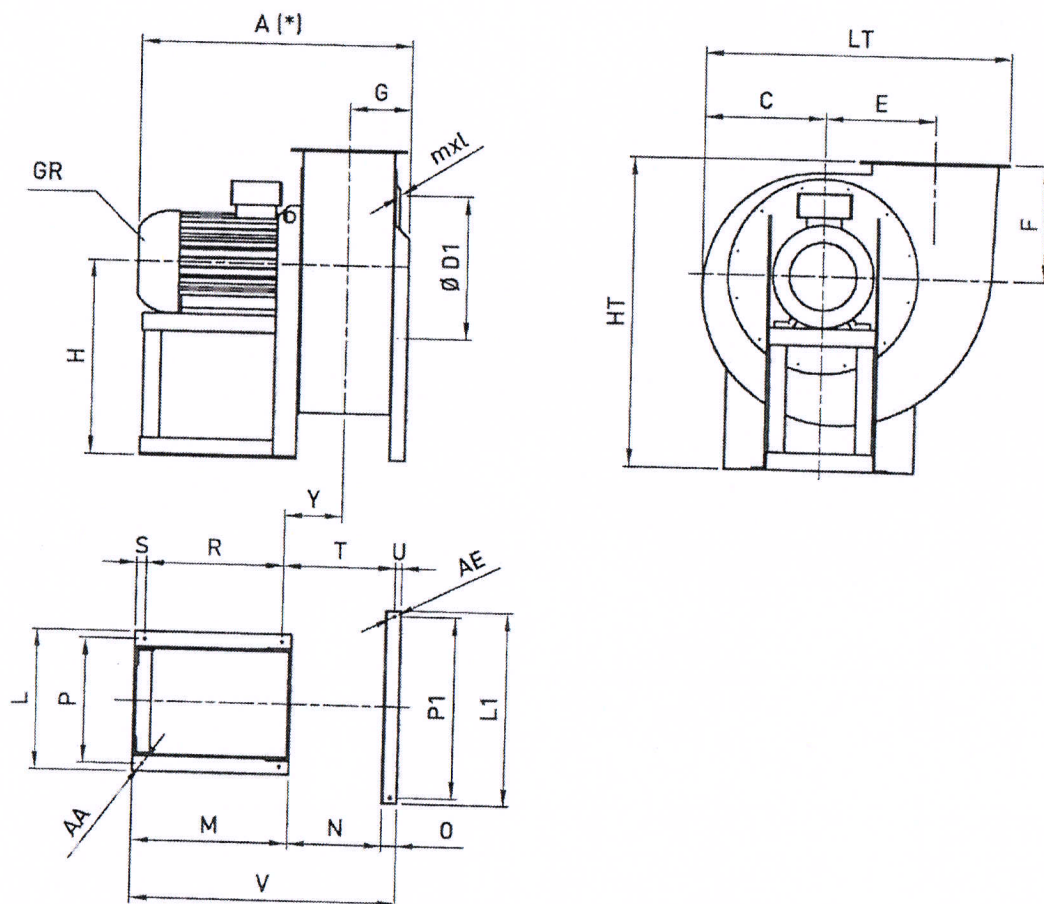


FP-N

FP 631/2 N4A LG0 37KW-50HZ D200L

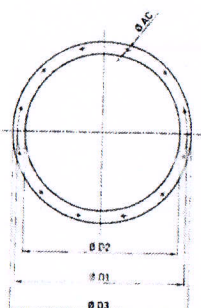
AEI Bx. № Ф-2181 / 09.04.2019 г.

Drawing



A	AA	AE	D1	E	F	G	L	L1	M	M1	M2	M3	mxl (M8X20)	N	O	P	P1	R	R5
1075	19	19	551	441	450	200	563	762	500	500	500	452		369	52	506	712	331	371
S	T	U	V	Y	Y1	C	H	HT	LT										
10	470	23	921	207	273	515	750	1200	1250										

Inlet flange



AC	D1	D2	D3
10	551	505	585



FRC

FRC/2-501 LG270 18,5 3-400/690V-50HZ RAL 7045 IE2



Direct coupled, single inlet centrifugal fan. Manufactured from steel sheet protected with anti-corrosion polyester paint coating. backward curved impeller made of pre-galvanized sheet steel, dynamically balanced. Designed to continuously circulate air from -10°C up to 120°C. Suitable for transporting clean air. LG-270 standard orientation. 2, 4 or 6 pole motors, IE 2 high efficiency, three-phase 230/400V 50Hz up to 3kW and 400, 690V 50Hz for higher powers. IP 55, Class F protection.

Brand Ferrari model FRC/2-501 LG270 18,5 3-400/690V-50Hz RAL 7045 IE2 for an airflow 18.289 m³/h and static pressure 1.725 Pa.

Theoretical Working Point

Airflow:	18.500 m³/h
Static Pressure	1.765 Pa
Temperature	20 °C
Altitude	0 m
Density	1,2 kg/m³
Frequency	50 Hz
Voltage	3-400, 690V-50Hz

Working Point

Airflow	18.289 m³/h
Static Pressure	1.725 Pa
Dynamic pressure	493 Pa
Total Pressure	2.218 Pa
Input power	17,5 kW
Shaft power	16,0 kW
Required Service Factor	10
Tot efficiency	70,5 %
St Efficiency	54,9 %
Outlet speed	28,6 m/s
Inlet speed	25,9 m/s
Fan speed	2940 rpm
Specific Fan Power	3,93 W/m³

Construction

Discharge diameter	501 mm
Fan size	501

Motor Characteristics

Number of poles	2
Motor Power	18,5 kW
Voltage	3-400/690V-50Hz
Maximum absorbed current	34,4 A / 13,9 A
IP Rating	IP55
Motor insulation class	F
Starting Current	292,4 A

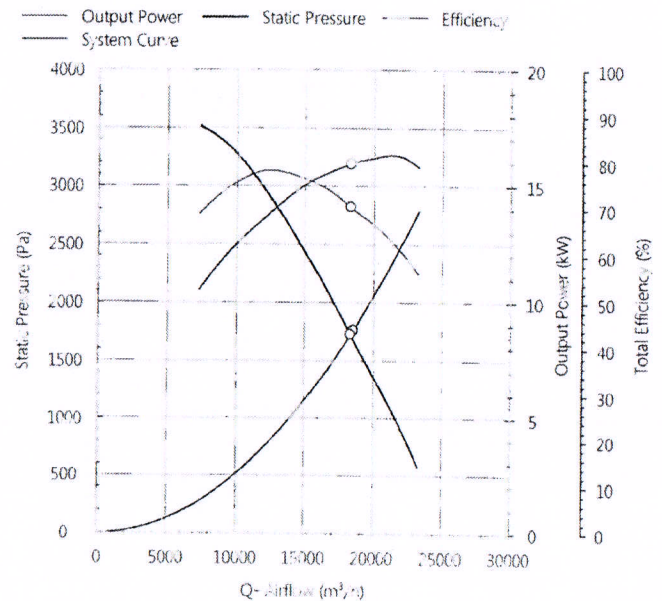
Drawing

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Accessories

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Performance Chart



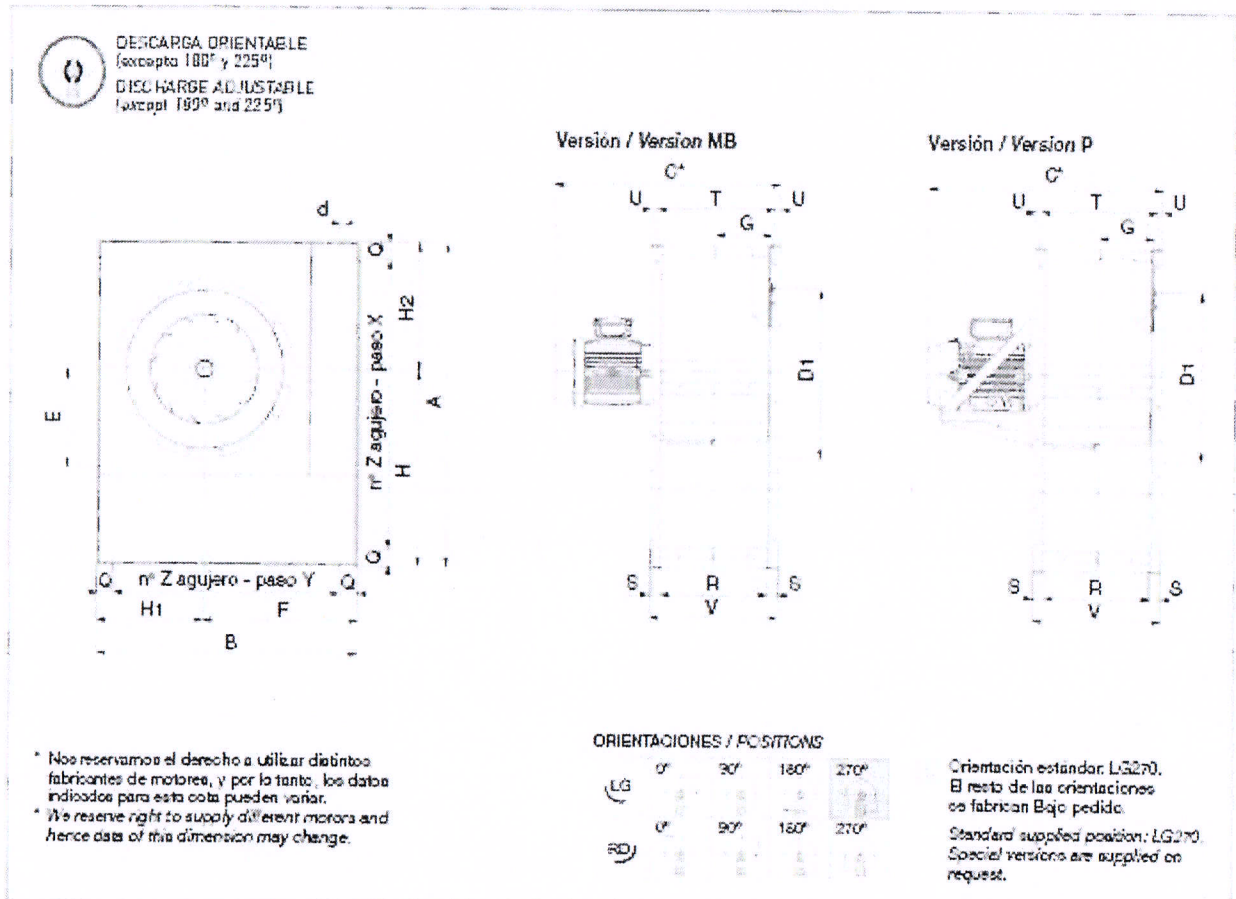


FRC

FRC/2-501 LG270 18,5 3-400/690V-50HZ RAL 7045 IE2

Drawing

■ Dimensiones (mm) (modelos desde 281 hasta 501) / Dimensions (mm) (models from 281 to 501)

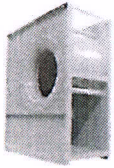


A	B	C	E	F	G	H1	H2	Q	R	S	T	U	V	ed	C _{HT}	H	X	Y	Z
1045	855	945	315	355	104	500	415	80	355	50	405	25	455	17	1006	630	442,5	347,5	2



FRC

FRC/4-802 LG270 15 3-400/690V-50Hz RAL 7045 IE2



Direct coupled, single inlet centrifugal fan. Manufactured from **steel sheet protected with anti-corrosion polyester paint coating**. **Backward curved impeller** made of pre-galvanized sheet steel, dynamically balanced. Designed to continuously circulate air from -10°C up to 120°C. Suitable for transporting clean air. LG-270 standard orientation. 2, 4 or 6 pole motors, IE 2 high efficiency, three-phase 230/400V 50Hz up to 3kW and 400/690V 50Hz for higher powers. IP 55, Class F protection.

Brand Ferrari model FRC/4-802 LG270 15 3-400/690V-50Hz RAL 7045 IE2 for an airflow 19.011 m³/h and static pressure 1.767 Pa.

Theoretical Working Point

Airflow	19.000 m³/h
Static Pressure	1.765 Pa
Temperature	20 °C
Altitude	0 m
Density	1,2 kg/m³
Frequency	50 Hz
Voltage	3-400/690V-50Hz

Working Point

Airflow	19.011 m³/h
Static Pressure	1.767 Pa
Dynamic pressure	84 Pa
Total Pressure	1.851 Pa
Input power	13,9 kW
Shaft power	12,6 kW
Required Service Factor	10
Tot efficiency	77,5 %
St Efficiency	74 %
Outlet speed	11,8 m/s
Inlet speed	10,5 m/s
Fan speed	1465 rpm
Specific Fan Power	2,98 W/l/s

Construction

Discharge diameter	802 mm
Fan size	802

Motor Characteristics

Number of poles	4
Motor Power	15 kW
Voltage	3-400/690V-50Hz
Maximum absorbed current	29,8 A / 17,3 A
IP Rating	IP55
Motor insulation class	F
Starting Current	181,8 A

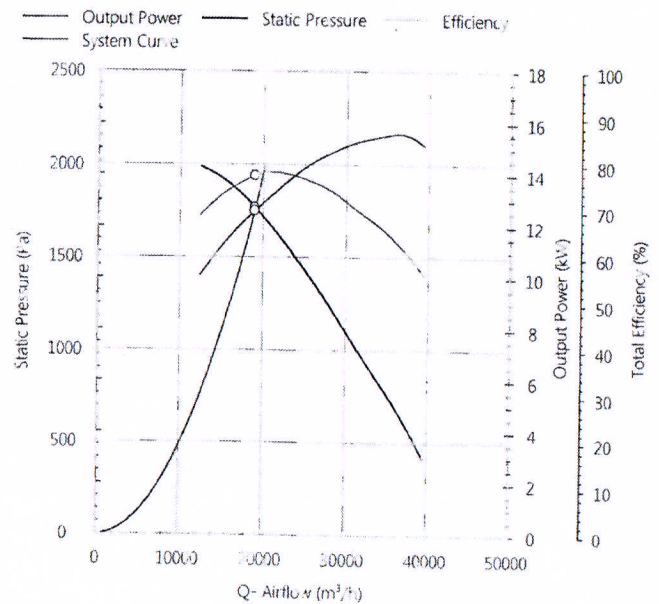
Drawing

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Accessories

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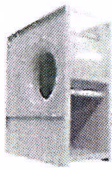
Performance Chart





FRC

FRC/4-631 LG270 5,5 3-400/690V-50HZ RAL 7045 IE2



Direct coupled, single inlet centrifugal fan. Manufactured from steel sheet protected with anti-corrosion polyester paint coating. Backward curved impeller made of pre-galvanized sheet steel, dynamically balanced. Designed to continuously circulate air from -10°C up to 120°C. Suitable for transporting clean air. LG-270 standard orientation. 2, 4 or 6 pole motors, IE 2 high efficiency, three-phase 230/400V 50Hz up to 3kW and 400/690V 50Hz for higher powers. IP 55, Class F protection.

Brand Ferrari model FRC/4-631 LG270 5,5 3-400/690V-50Hz RAL 7045 IE2 for an airflow 8.836 m³/h and static pressure 1.294 Pa.

Theoretical Working Point

Airflow	8.700 m³/h
Static Pressure	1.255 Pa
Temperature	20 °C
Altitude	0 m
Density	1,2 kg/m³
Frequency	50 Hz
Voltage	3-400/690V-50Hz

Working Point

Airflow	8.836 m³/h
Static Pressure	1.294 Pa
Dynamic pressure	45,1 Pa
Total Pressure	1.340 Pa
Input power	5,08 kW
Shaft power	4,44 kW
Required Service Factor	10
Tot efficiency	74,1 %
St Efficiency	71,6 %
Outlet speed	8,7 m/s
Inlet speed	7,9 m/s
Fan speed	1460 rpm
Specific Fan Power	2,26 W/l's

Construction

Discharge diameter	631 mm
Fan size	631

Motor Characteristics

Number of poles	4
Motor Power	5,5 kW
Voltage	3-400/690V-50Hz
Maximum absorbed current	10,5 A / 6,1 A
IP Rating	IP55
Motor insulation class	F
Starting Current	76,6 A

Drawing

Please see drawing on separate sheet

Accessories

Please see accessories on separate sheet

Performance Chart

