



**IMPIEGO**

Per tutte quelle applicazioni dove si richiedono spostamenti di grandi volumi di aria (pulita o leggermente polverosa, vapori, miscele di gas, ecc.) con basse pressioni.

Dotati di un elevato rendimento, fino a 84%, questi ventilatori trovano largo impiego sugli impianti di:

- Condizionamento civile ed industriale
- Essiccazione della ceramica; dei laterizi ecc.
- Areazione in silos, magazzini, capannoni.
- Aspirazione dagli ambienti, da cabine di verniciature, da vasche solventi ecc.

Questa serie di ventilatori con pale rovescie a doppia aspirazione viene eseguita in tre classi costruttive (1-2-3) il cui campo di lavoro è determinato dall'albero e dai limiti di resistenza strutturale della girante in esame. La temperatura del fluido trasportato non deve superare i 300°C, se il ventilatore è di normale costruzione, temperature superiori possono essere raggiunte con opportune modifiche.

**CARATTERISTICHE**

Tutte le caratteristiche riportate sui diagrammi sono riferite ad aria alla temperatura di 15° C e alla pressione barometrica di 760 mm. di mercurio (peso specifico 1,226 kgf/m<sup>3</sup>).

**RUMOROSITÀ**

I valori di pressione sonora riportati sui diagrammi sono ottenuti mediante le letture eseguite ad una distanza di metri 1,5 attorno al ventilatore. I dB riportati in catalogo si riferiscono alla scala "A", al massimo rendimento, con motore e trasmissione esclusi.

Le letture sono state eseguite in campo libero con ventilatori intubati secondo norme UNI.

Nell'esame della banda d'ottava, per questa serie, è risultato che il livello di pressione sonora più alto si trova ad una frequenza variabile tra 63÷1000 Hz in relazione al numero di giri.

**ORIENTAMENTI**

I ventilatori centrifughi serie CFR possono essere costruiti secondo 6 posizioni di orientamento (3 in senso orario RD e 3 in senso antiorario LG) come segnato in calce alle nostre tabelle.

Il senso di rotazione di un ventilatore è definito per un osservatore posto lato della trasmissione.

**N.B. La scelta di questa tipologia di ventilatori deve essere sempre verificata con il nostro ufficio tecnico.**

**USE**

The fans series, with backward curved blades, CFR are suitable for removing large quantities of proper or lightly dust laden air, gases etc. at low pressures, i.e. they are employed for air conditioning systems, ventilation, drying.

Three different classes are available (1-2-3), the field of application depending on the shaft and on the structural resistance limits of the impeller. The maximum air temperature shall not exceed 300° C. For higher temperatures a special fitting is needed.

**SPECIFICATIONS**

All specifications listed in the tables are referred to air at the temperature of 15° C and at the pressure of 760 mm. mercury column, specific gravity 1.226 kgf/m<sup>3</sup>.

**NOISE LEVEL**

Noise level values given in the diagrams should be read at a distance of 1,5 m. from the fan at all four cardinal points. The decibels mentioned in the catalogue are referred scale "A". The readings took place in open country with pipe connections, according to UNI standard. Relatively to this series the examination showed that the noise level lies between 63 and 1000 Hz depending on the rounds.

**POSITION OF DISCHARGE**

With this series 6 positions of discharge are available.

**N.B. The choice of this type of fan has always to be verified by our technical department.**

**UTILISATION**

Pour toutes les installations où il faut transporter de grands volumes d'air propre ou légèrement poussiéreux, vapeurs, etc. à basse pression.

Ils trouvent donc un large débouché dans des installations de conditionnement d'air, de tirage de fours, d'aspiration et de séchage. Ces ventilateurs à aubes courbées à double aspiration sont construits en trois classes (1-2-3), le domaine d'employ dépendant de l'arbre et des tours max. En construction normale la température de l'air ne doit pas dépasser 300° C.

**CARACTERISTIQUES**

Toutes les caractéristiques mentionnées dans les tableaux s'entendent pour de l'air à 15° C à la pression barométrique de 760 mm. de mercure (poids spécifique 1.226 kgf/m<sup>3</sup>).

**NIVEAU SONORE**

Les valeurs des pressions sonores indiquées sur les tableaux sont obtenues en faisant la moyenne des mesures dans les quatre points cardinaux à 1,5 m. du ventilateur, les dB reportés dans le catalogue se réfèrent à l'échelle "A". Les mesures ont été effectuées en champs libre avec tuyauteries suivant norme UNI. L'examen du spectre sonore par bandes d'octaves montre que pour cette série le niveau de pression sonore varie de 63 à 1000 Hz par rapport au nombre des tours.

**ORIENTATION**

Les ventilateurs série CFR peuvent être construits suivant 6 positions d'orientation (3 en sens horaire RD et 3 en sens anti-horaire LG), comme indiqué sur tous nos tableaux.

Le sens de rotation d'un ventilateur est donné vue côté entraînement.

**N.B. Le choix de ce type de ventilateur doit toujours être vérifié par nos techniciens.**

**ANWENDUNG**

Für reine und leicht staubhaltige Luft, Dämpfe, Gasgemische, bei niederen Drücken. Zur Belüftung, Trocknung, Absaugung.

Diese mit rückwärts gekrümmten Schaufeln doppelseitig saugenden Ventilatoren gibt es in drei Ausführungen (1-2-3). Der Arbeitsbereich der jeweiligen Klasse ist durch die Welle und die max. zulässige Umdrehungsgeschwindigkeit des Laufrads bestimmt. Ohne Kühlfügel bis max. 300° C. Bei höheren Temperaturen sind spezielle Massnahmen erforderlich.

**EIGENSCHAFTEN**

Alle in den Tabellen aufgeführten Eigenschaften beziehen sich auf eine Lufttemperatur von 15° C und auf einen Luftdruck von 760 mm Hg spezifisches Gewicht von 1.226 kgf/m<sup>3</sup>.

**SCHALLDRUCKPEGEL**

Der angegebene Schalldruckpegel wird in einem Abstand von 1,5 m vom Ventilator im Freifeld gemessen. Die im Katalog angegebenen dB beziehen sich auf die Skala "A". Die Messungen erfolgten bei angeschlossenem Ventilator.

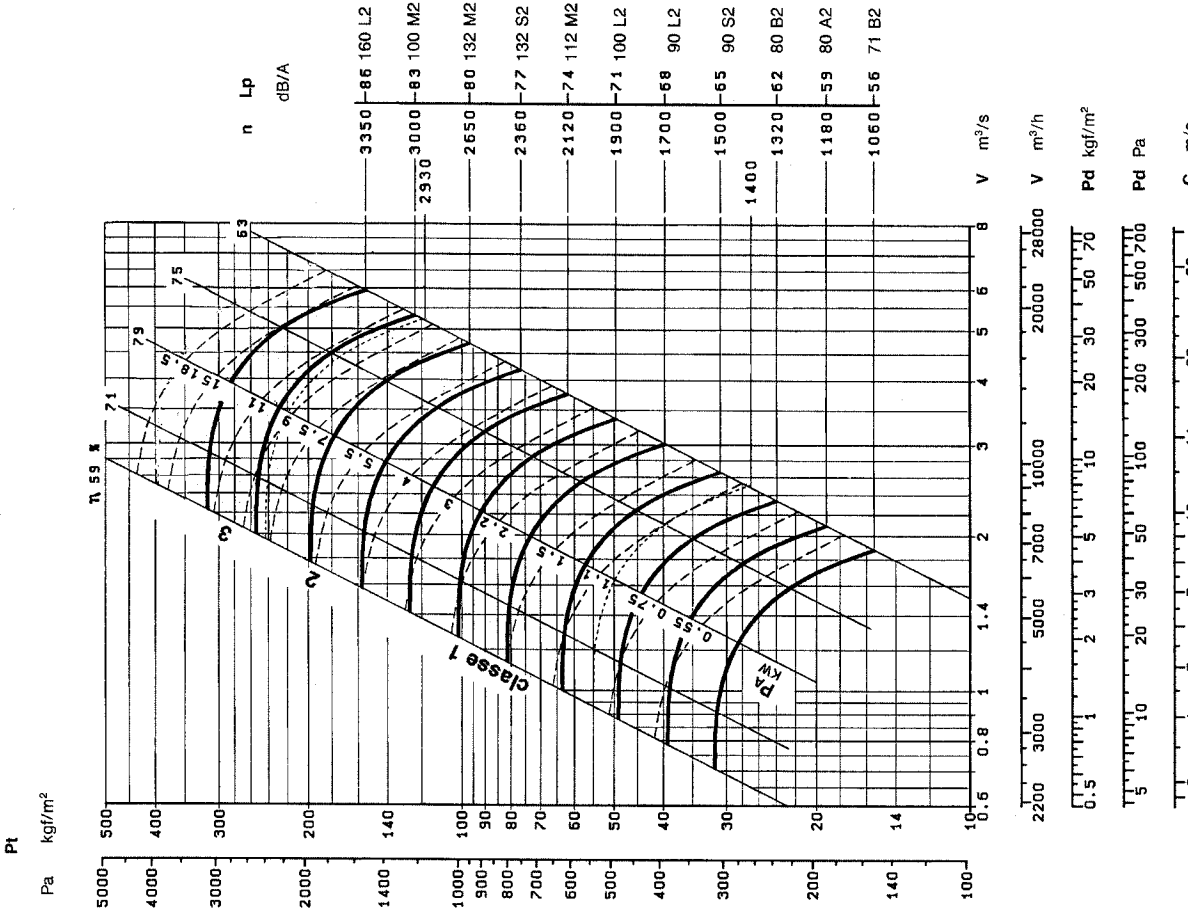
Die Hauptstörfrequenz liegt je nach Drehzahl zwischen 63 und 1000 Hz.

**GEHÄUSESTELLUNG**

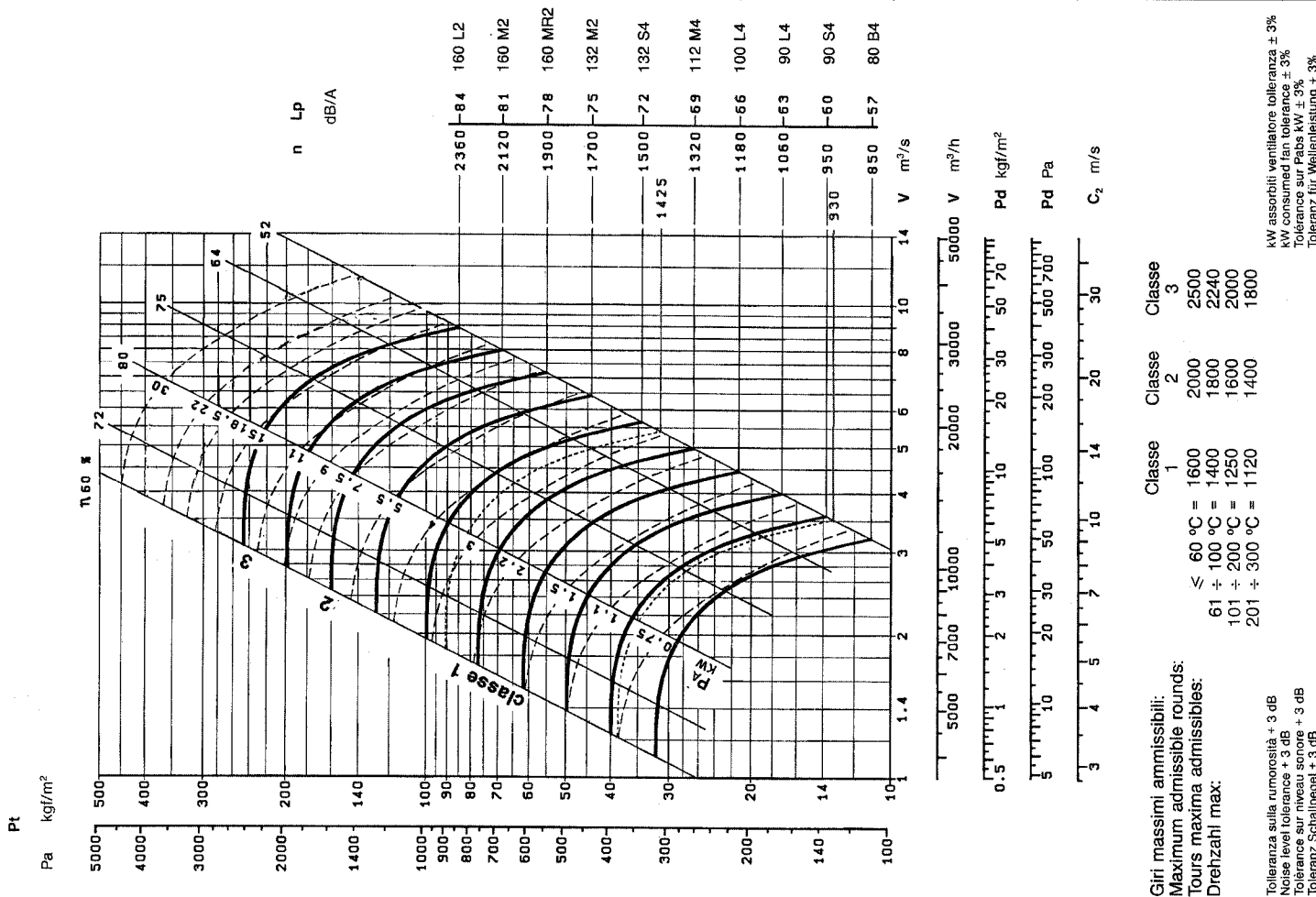
Die Ventilatoren der Serie CFR können in 6 verschiedenen Gehäusestellungen geliefert werden (3 rechtsdrehend RD und 3 linksdrehend LG).

**N.B. Die Auswahl dieser Ventilatoren muss grundsätzlich von unseren Technikern ueberprueft werden.**

Ventilatore tipo Fan type Ventilateur type Ventilator Typ	1 401 2-3	1 451 2-3	1 501 2-3	1 561 2-3	1 631 2-3	1 711 2-3	1 801 2-3	1 901 2-3	1 1001 2-3	1 1121 2-3
Supporto tipo Support type Type palier double Blockager type	55-28 65-38	60-32 70-42	65-38 75-48	70-38 80-48	75-42 85-55	80-48 90-60	90-55 100-65	100-60 110-75	100-65 120-75	110-75 130-80
	SN509CR	SN510CR	SN511CR	SN512CR	SN513CR	SN516CR	SN517CR	SN518CR	SN518CRL	SN520CR





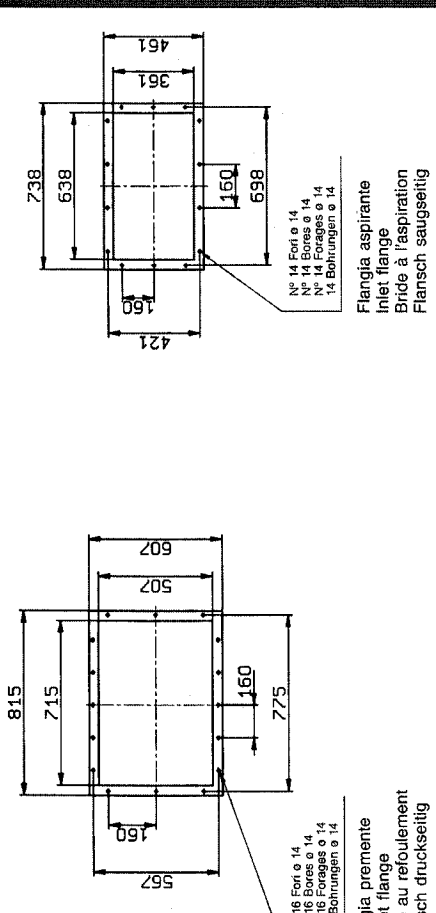
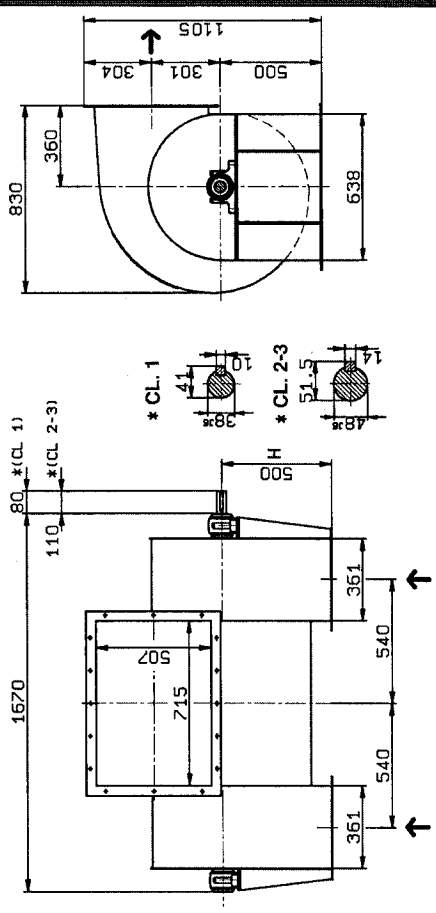


Giri massimi ammissibili:  
 Maximum admissible rounds:  
 Tours maxima admissibles:  
 Drehzahl max:

Classe	1	2	3
≤ 60 °C	1600	2000	2500
61 ÷ 100 °C	1400	1800	2240
101 ÷ 200 °C	1250	1600	2000
201 ÷ 300 °C	1120	1400	1800

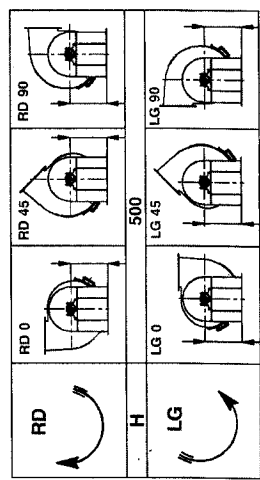
kW assorbiti ventilatore tolleranza ± 3%  
 kW consumed fan tolerance ± 3%  
 Tolérance sur Pabs kW ± 3%  
 Toleranz für Wellenleistung ± 3%

Tolleranza sulla rumorosità + 3 dB  
 Noise level tolerance + 3 dB  
 Tolérance sur niveau sonore + 3 dB  
 Toleranz Schallpegel + 3 dB

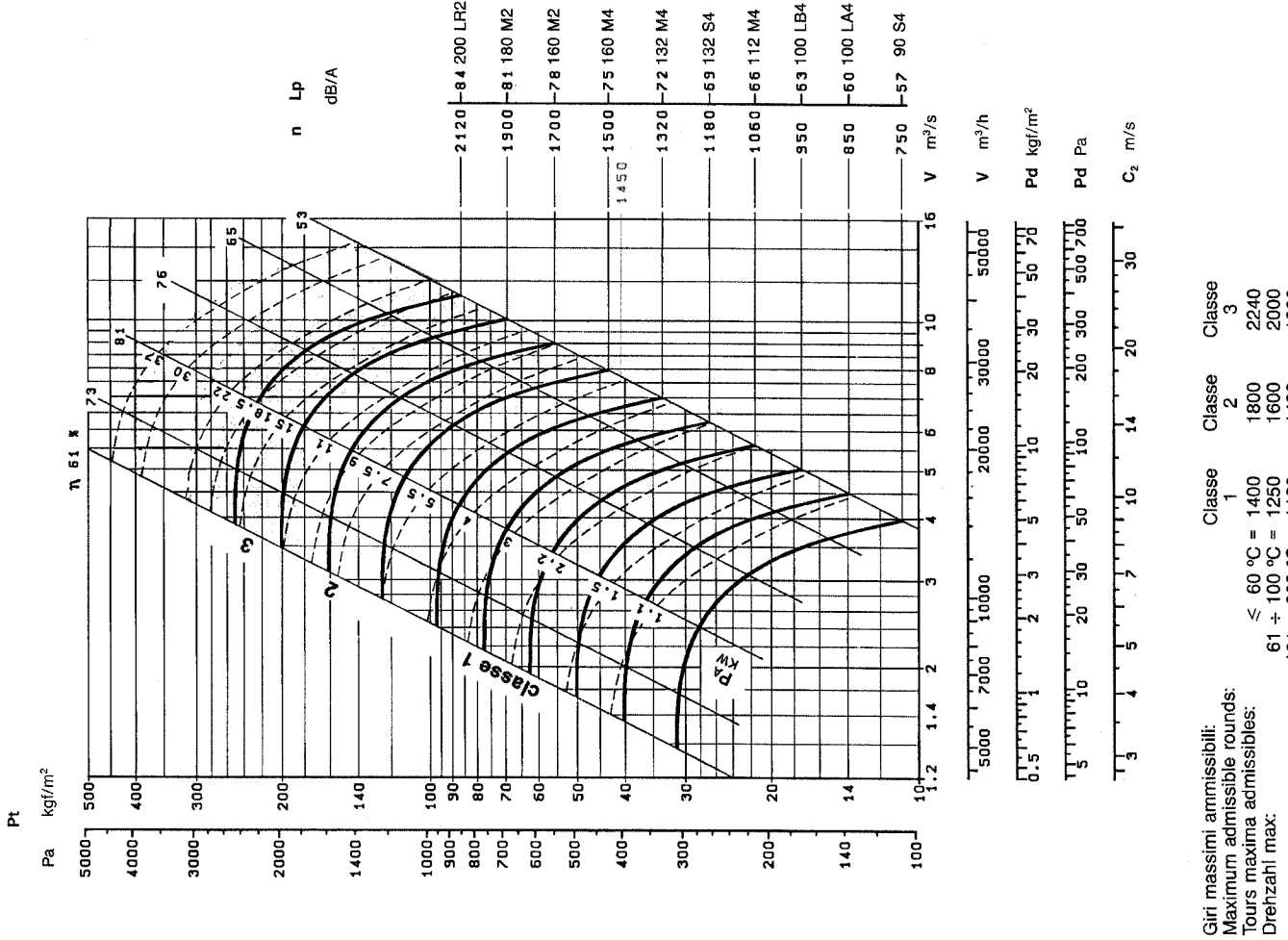


PD<sup>2</sup> = 5.1 kgf·m<sup>2</sup>  
 GD<sup>2</sup>

Peso = 225 kgf  
 Weight = 225 kgf



Il ventilatore è orientabile  
 The fan is unbinding  
 Le ventilateur est orientable  
 Der Ventilator ist drehbar

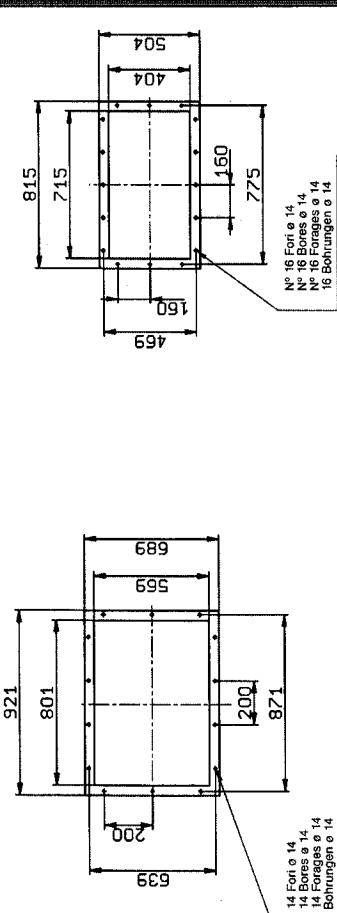
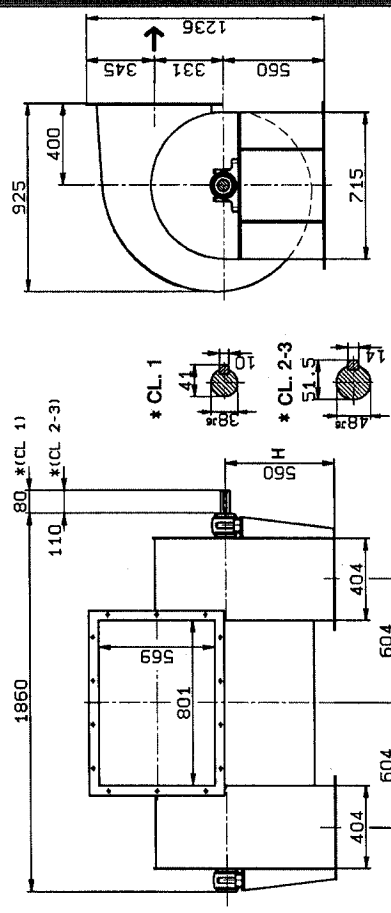


KW assorbiti ventilatore tolleranza ± 3%  
 kW consumed fan tolerance ± 3%  
 Tolerance sur Pabs kW ± 3%  
 Toleranz für Wellenleistung ± 3%

Giri massimi ammissibili:  
 Maximum admissible rounds:  
 Tours maxima admissibles:  
 Drehzahl max:

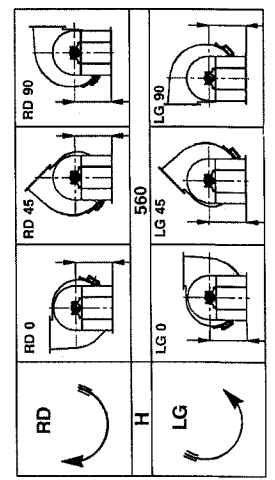
Classe	1	2	3
≤ 60 °C =	1400	1800	2240
61 ÷ 100 °C =	1250	1600	2000
101 ÷ 200 °C =	1120	1400	1800
201 ÷ 300 °C =	1000	1250	1600

Tolleranza sulla rumorosità + 3 dB  
 Noise level tolerance + 3 dB  
 Tolerance sur niveau sonore + 3 dB  
 Toleranz Schallpegel + 3 dB



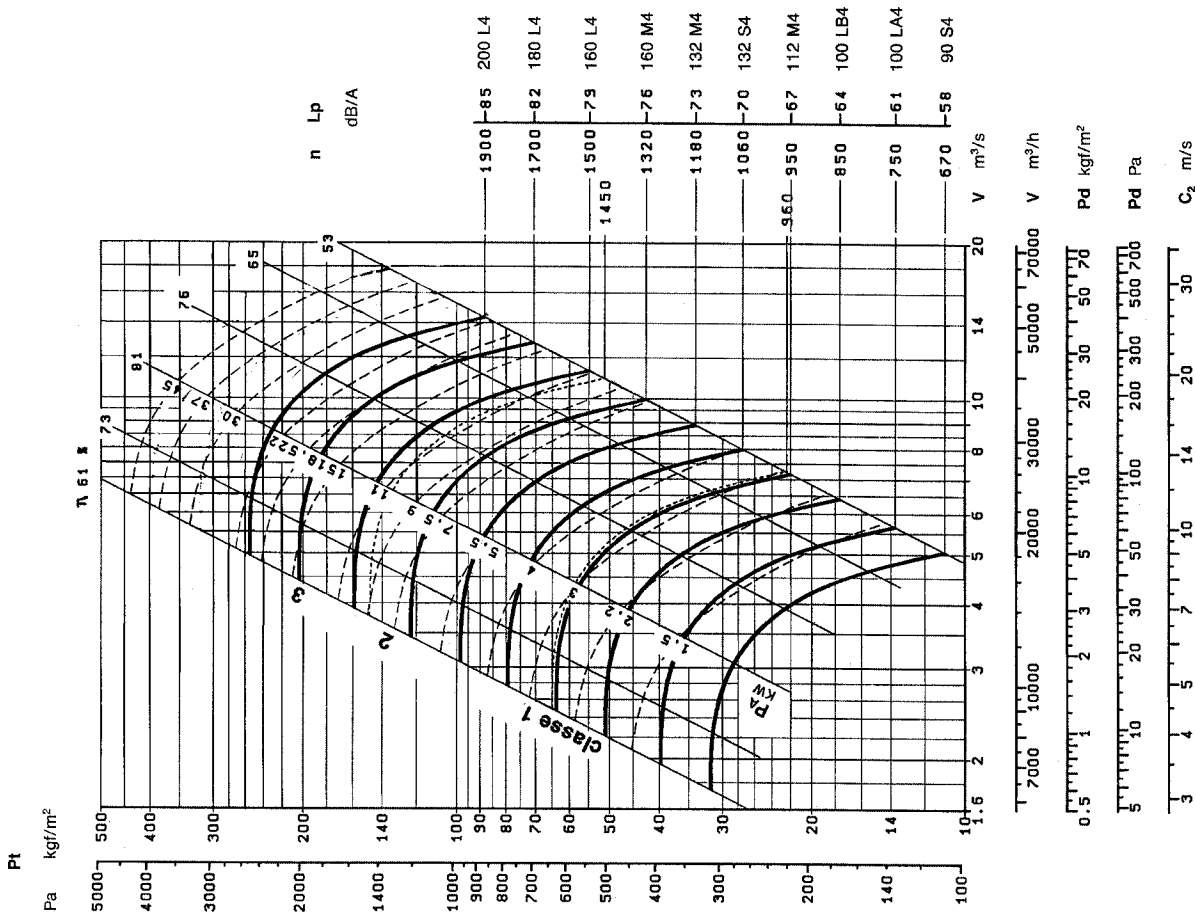
Flangia premente  
 Outlet flange  
 Briche au refoulement  
 Flansch druckseitig

Peso Weight = 280 kgf  
 Poids Gewicht = 8,5 kgf · m<sup>2</sup>  
 PD<sup>2</sup> GD<sup>2</sup>



Il ventilatore è orientabile  
 The fan is revolvable  
 Le ventilateur est orientable  
 Der Ventilator ist drehbar

Tabella non impegnativa  
 The above data are unbinding  
 Tableau sans engagement  
 Unverbindliche Tabelle

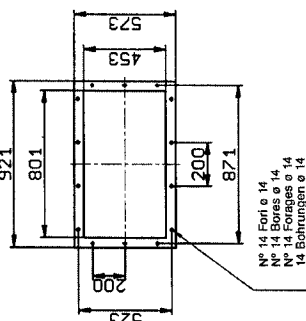
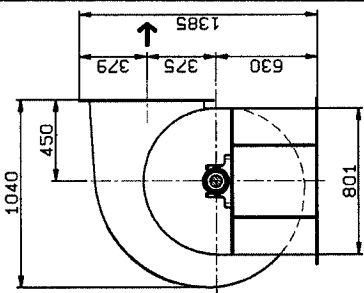


Giri massimi ammissibili:  
 Maximum admissible rounds:  
 Tours maxima admissibles:  
 Drehzahl max:

Classe	Classe 1	Classe 2	Classe 3
≤ 60 °C =	1180	1500	1900
61 ÷ 100 °C =	1060	1320	1700
101 ÷ 200 °C =	950	1180	1500
201 ÷ 300 °C =	850	1060	1320

Tolleranza sulla rumorosità + 3 dB  
 Noise level tolerance + 3 dB  
 Toleranz sur niveau sonore + 3 dB  
 Toleranz Schallpegel + 3 dB

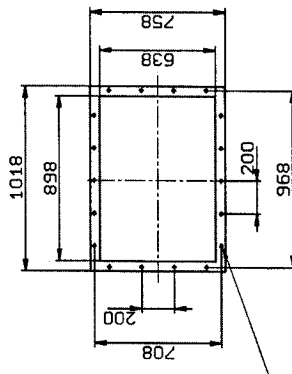
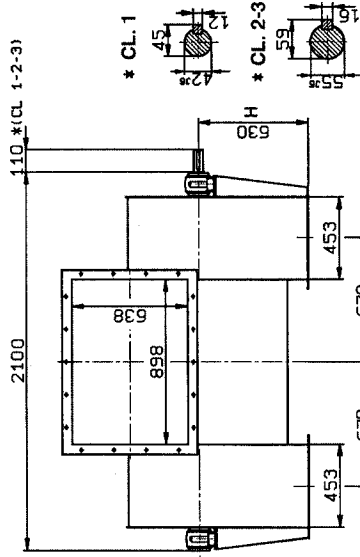
kW assorbiti ventilatore tolleranza ± 3%  
 kW consumed fan tolerance ± 3%  
 Tolerance sur Pabs kW ± 3%  
 Toleranz für Wellenleistung ± 3%



Flangia aspirante  
 Inlet flange  
 Bride à l'aspiration  
 Flansch saugseitig

№ 14 Fori ø 14  
 № 14 Foras ø 14  
 № 14 Forages ø 14  
 14 Bohrungen ø 14

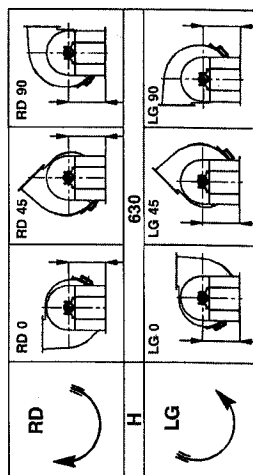
PD<sup>2</sup> = 14 kgf·m<sup>2</sup>  
 GD<sup>2</sup>



Flangia premeinte  
 Outlet flange  
 Bride au refoulement  
 Flansch druckseitig

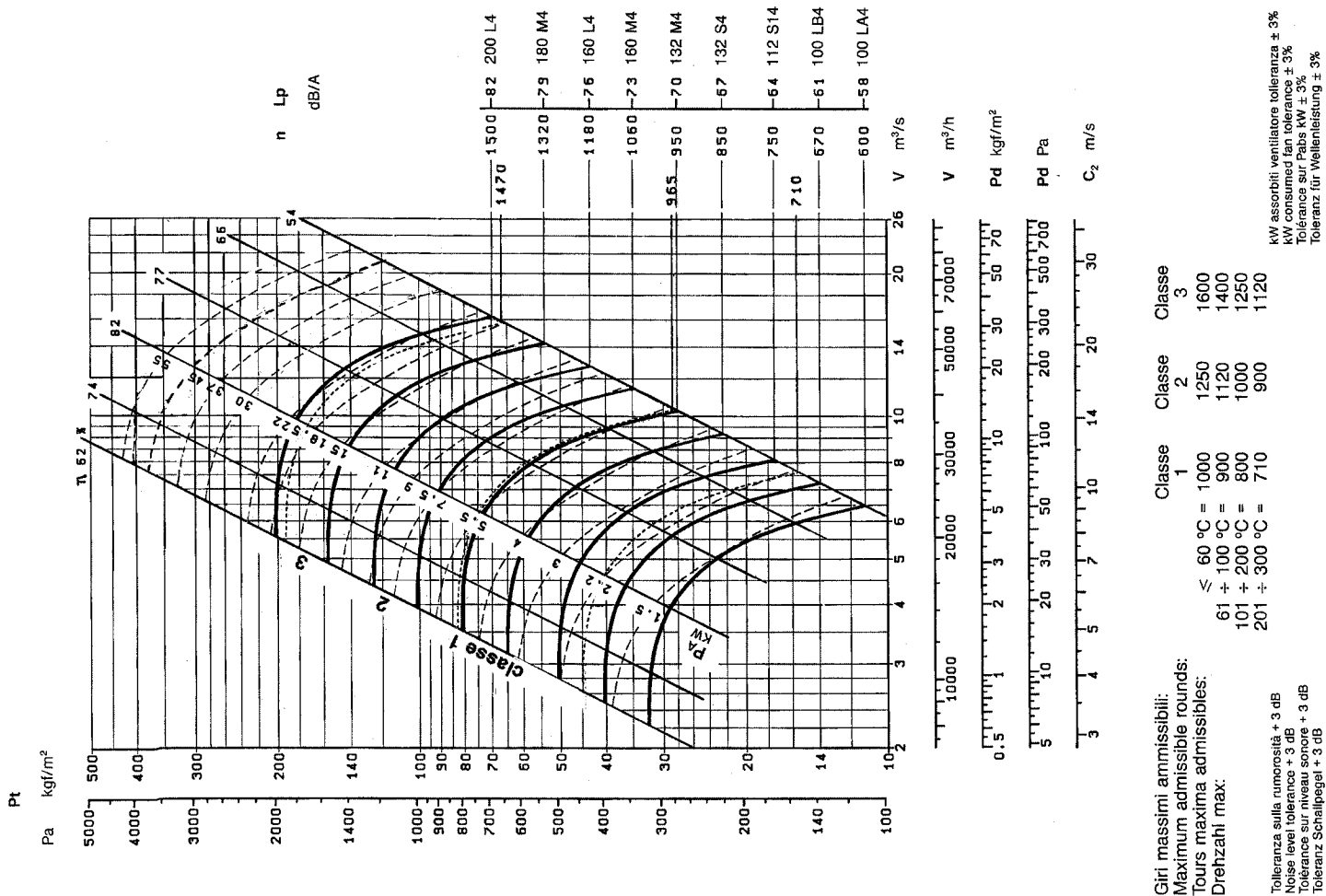
№ 18 Fori ø 14  
 № 18 Foras ø 14  
 № 18 Forages ø 14  
 18 Bohrungen ø 14

Peso = 355 kgf  
 Weight Gewicht



Il ventilatore è orientabile  
 The fan is revolvable  
 Le ventilateur est orientable  
 Der Ventilator ist drehbar

Tabella non impegnativa  
 The above data are unbinding  
 Table est sans engagement  
 Unverbindliche Tabelle

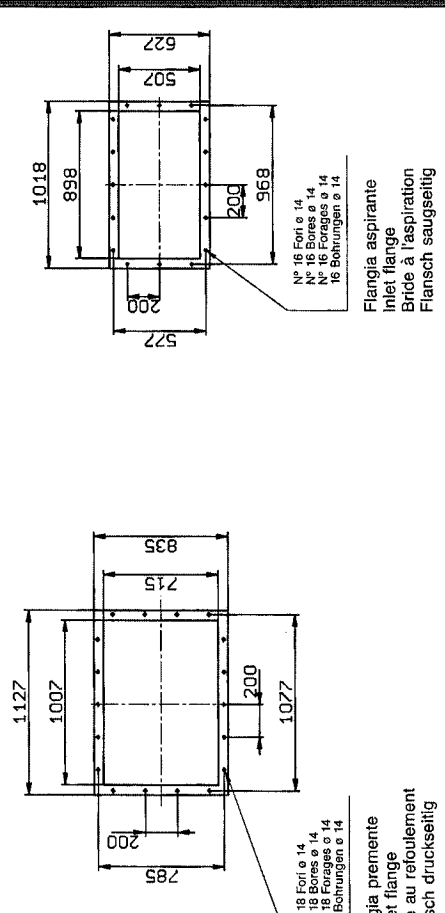
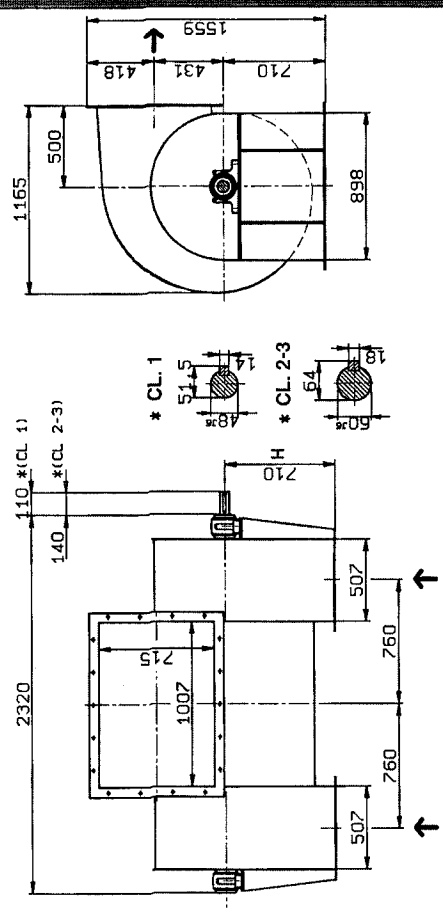


Giri massimi ammissibili:  
 Maximum admissible rounds:  
 Tours maxima admissibles:  
 Drehzahl max:

Classe	Classe	Classe
1	2	3
≤ 60 °C = 1000	1250	1600
61 + 100 °C = 900	1120	1400
101 + 200 °C = 800	1000	1250
201 + 300 °C = 710	900	1120

kW assorbiti ventilatore tolleranza ± 3%  
 kW consumed fan tolerance ± 3%  
 Tolérance sur Pabs kW ± 3%  
 Toleranz für Wellenleistung ± 3%

Tolleranza sulla rumorosità + 3 dB  
 Noise level tolerance + 3 dB  
 Tolérance sur niveau sonore + 3 dB  
 Toleranz Schallpegel + 3 dB



PD<sup>2</sup> = 26 kgf·m<sup>2</sup>  
 GD<sup>2</sup>

Peso = 450 kgf  
 Poids = 450 kgf  
 Gewicht

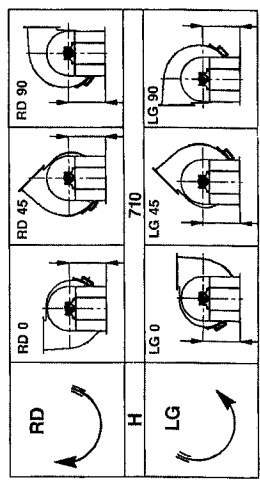
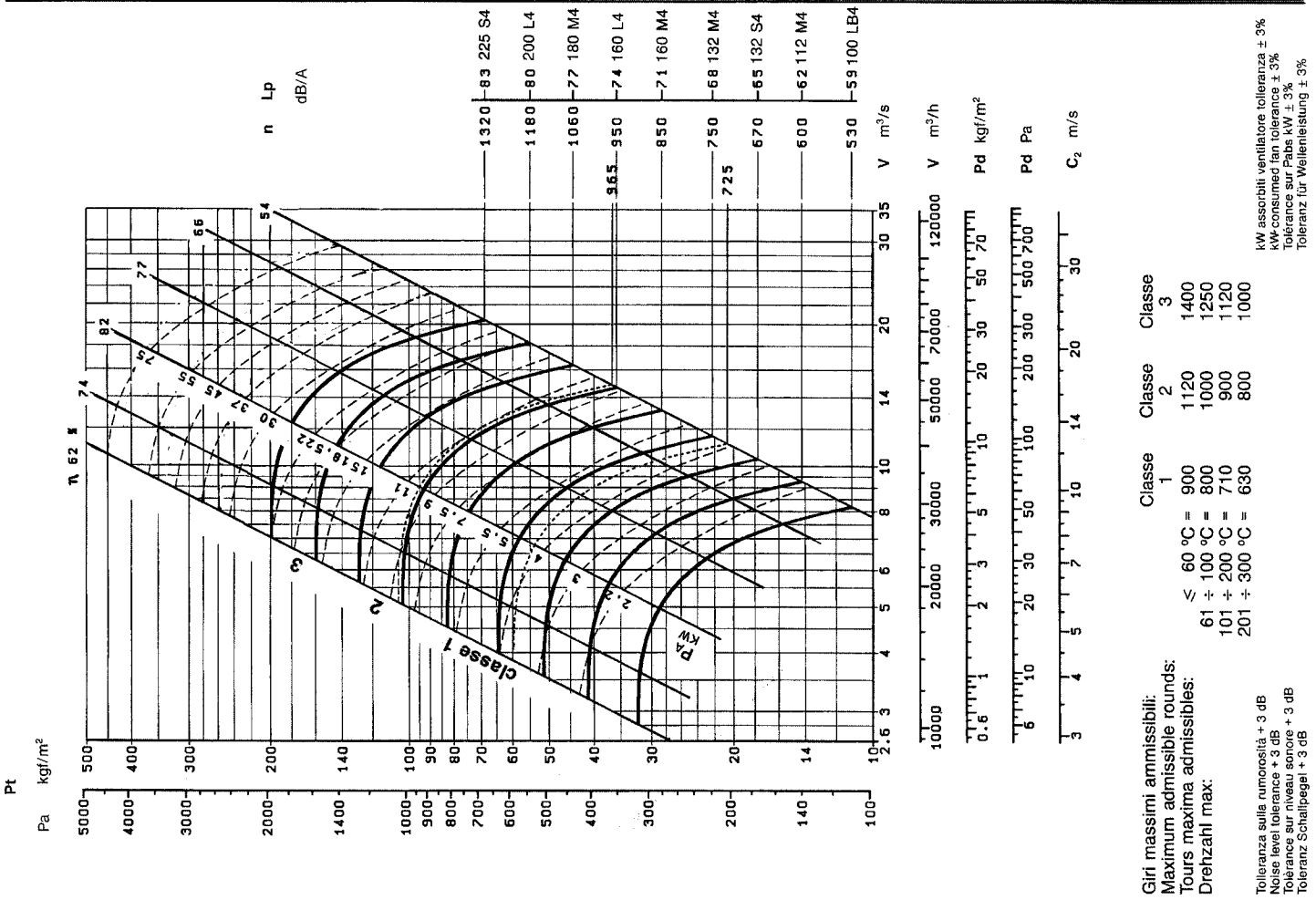


Tabella non impegnativa  
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 Tableau sans engagement  
 Unverbindliche Tabelle

Il ventilatore è orientabile  
 The fan is revolvable  
 Le ventilateur est orientable  
 Der Ventilator ist drehbar

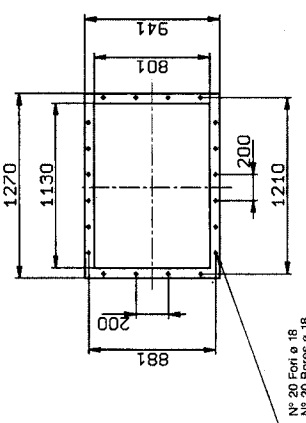
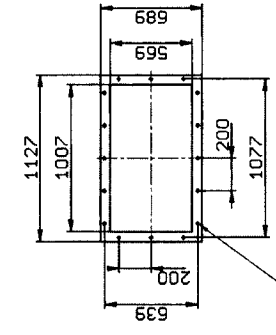
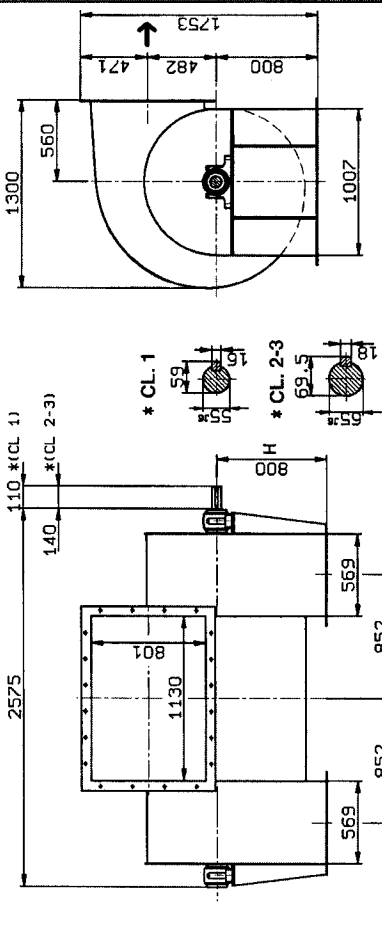


kW assorbiti ventilatore tolleranza ± 3%  
 kW-consumed fan tolerance ± 3%  
 Tolérance sur Pabs kW ± 3%  
 Toleranz für Wellenleistung ± 3%

**Giri massimi ammissibili:**  
 Maximum admissible rounds:  
 Tours maxima admissibles:  
 Drehzahl max:

Classe	Classe 1	Classe 2	Classe 3
≤ 60 °C	900	1120	1400
61 ÷ 100 °C	800	1000	1250
101 ÷ 200 °C	710	900	1120
201 ÷ 300 °C	630	800	1000

Tolleranza sulla rumorosità + 3 dB  
 Noise level tolerance + 3 dB  
 Tolérance sur niveau sonore + 3 dB  
 Toleranz Schallpegel + 3 dB

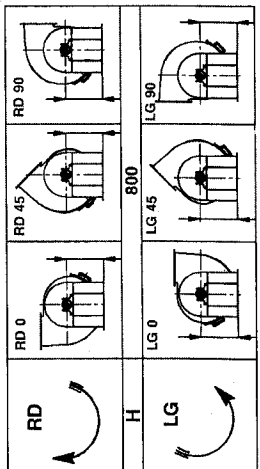


**Flangia aspirante**  
 Inlet flange  
 Brides à l'aspiration  
 Flansch saugseitig

**Flangia premeute**  
 Outlet flange  
 Brides au renoulement  
 Flansch druckseitig

**PD<sup>2</sup> = 43 kgf·m<sup>2</sup>**

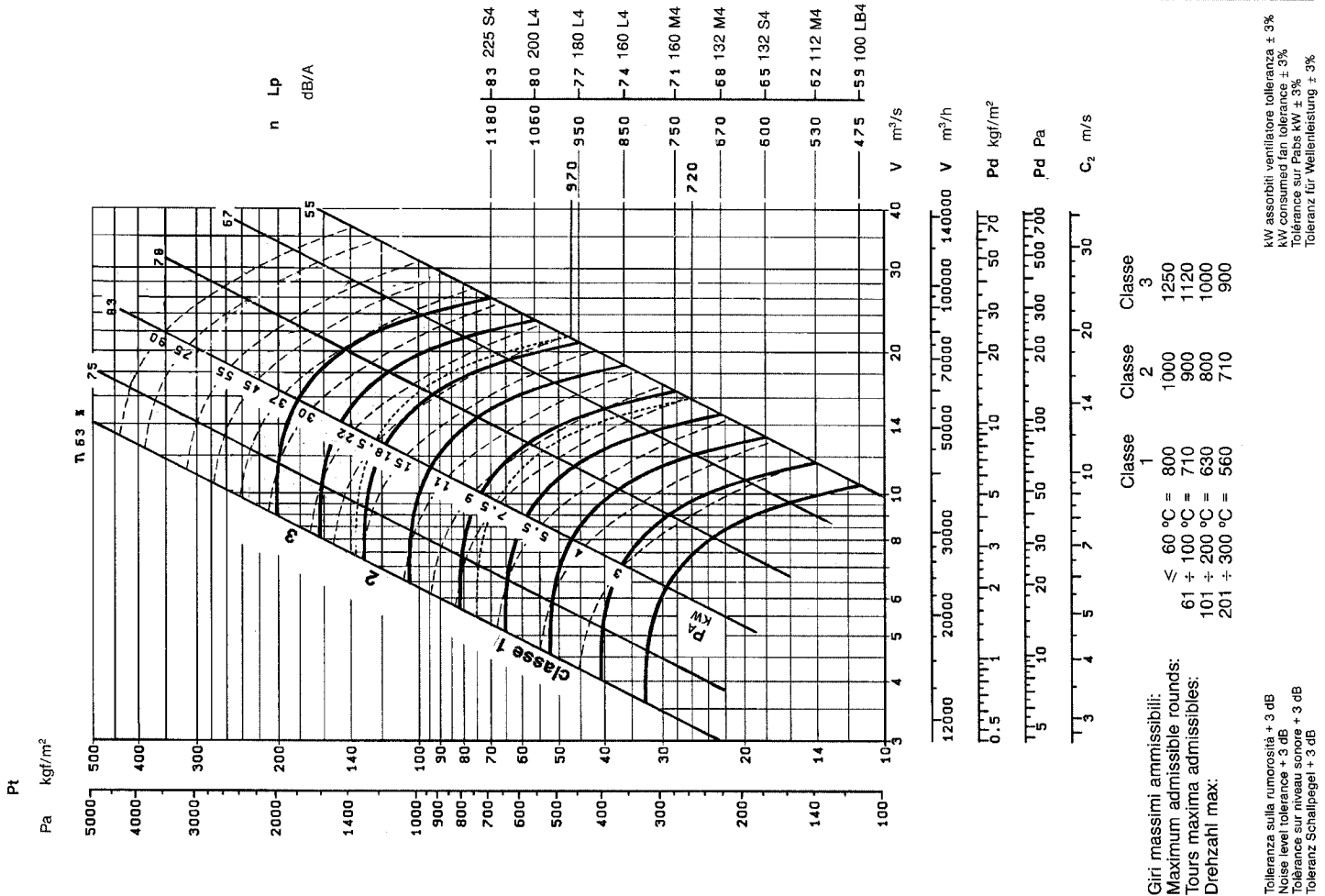
**Peso** Poids = 560 kgf  
**Weight** Gewicht = 560 kgf



**Tabella non impegnativa**  
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 Tableau sans engagement  
 Unverbindliche Tabelle

**Il ventilatore è orientabile**  
 The fan is revolvable  
 Le ventilateur est orientable  
 Der Ventilator ist drehbar



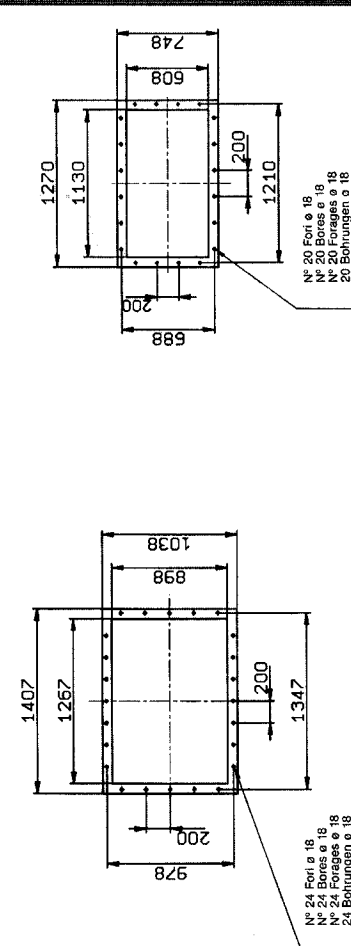
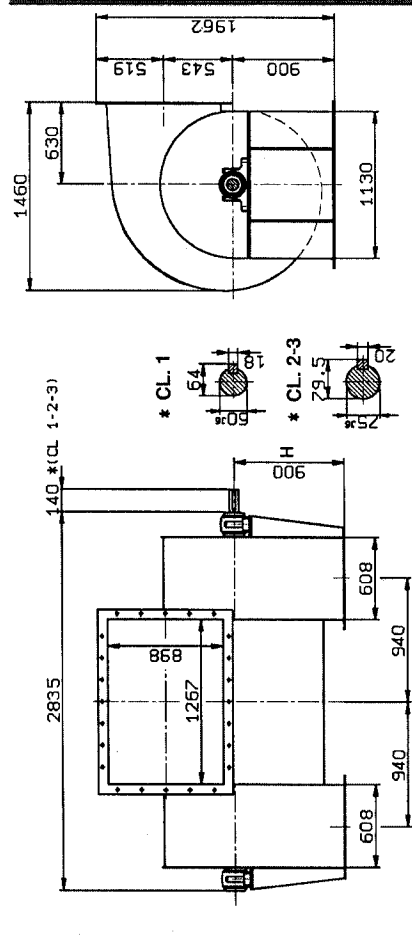


Ciri massimi ammissibili:  
 Maximum admissible rounds:  
 Tours maxima admissibles:  
 Drehzahl max:

Classe	Classe	Classe	Classe
1	2	3	3
800	1000	1250	1250
61 + 100 °C = 710	900	1120	1120
101 + 200 °C = 630	800	1000	1000
201 + 300 °C = 560	710	900	900

kW assorbiti ventilatore tolleranza ± 3%  
 kW absorbed fan tolerance ± 3%  
 Tolerance sur Pabs kW ± 3%  
 Toleranz für Wellenleistung ± 3%

Tolleranza sulla rumorosità + 3 dB  
 Noise tolerance + 3 dB  
 Tolerance sur niveau sonore + 3 dB  
 Toleranz Schallpegel + 3 dB



Flangia aspirante  
 Inlet flange  
 Brides à l'aspiration  
 Flansch saugseitig

Peso Poids = 750 kgf  
 Weight Gewicht = 71 kgf·m²

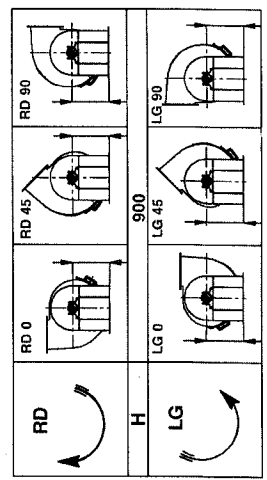
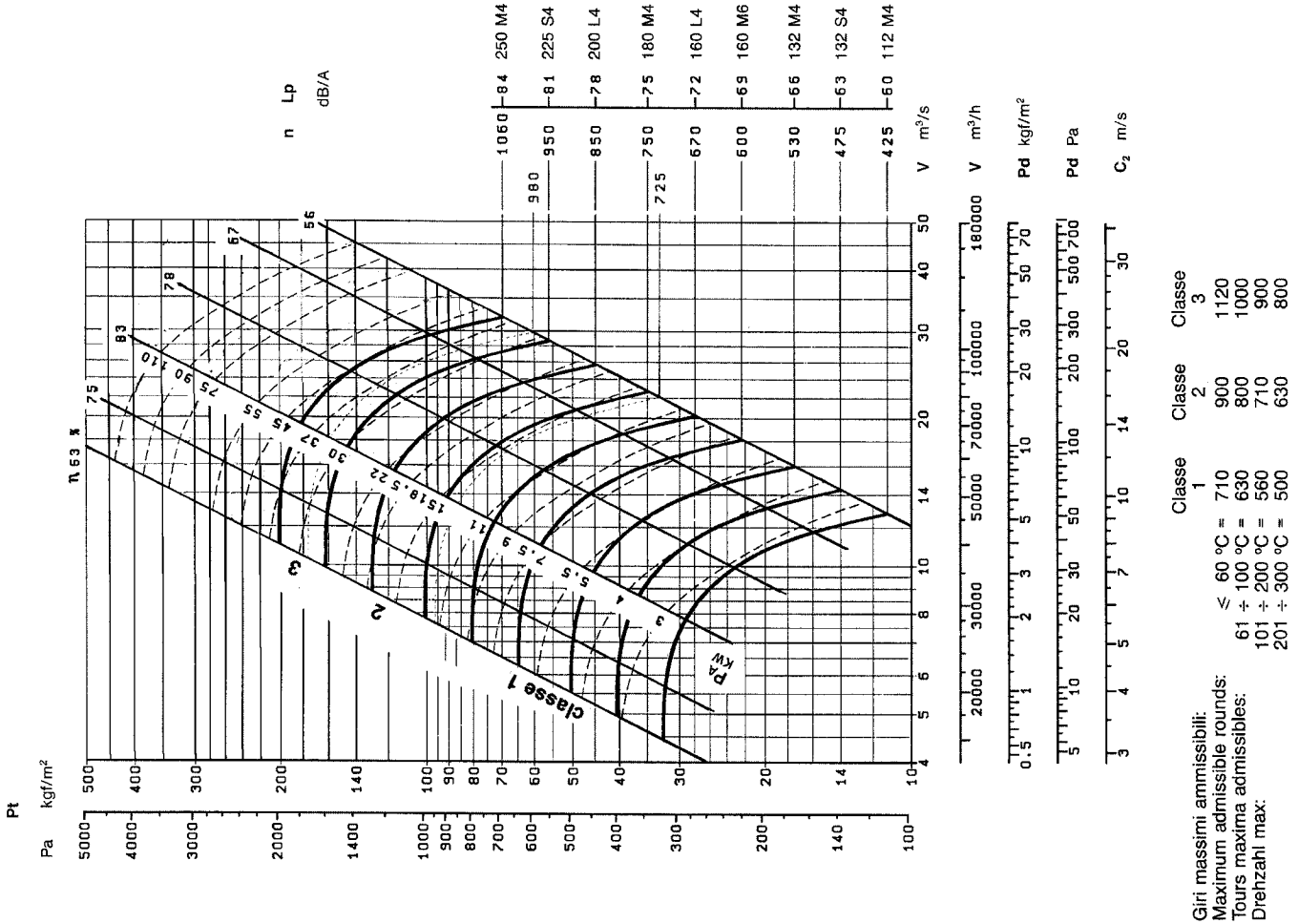


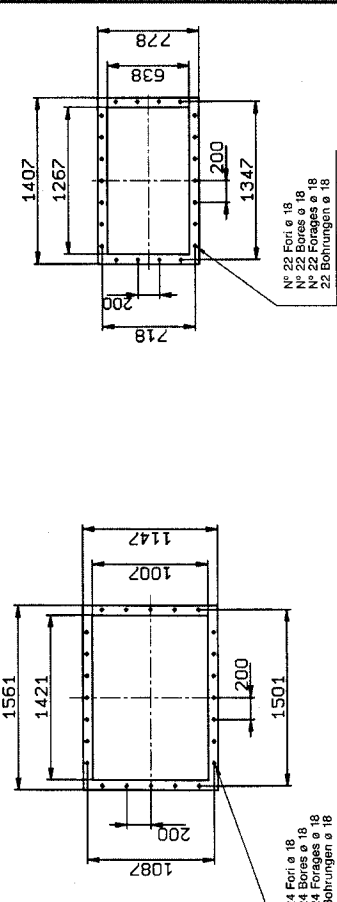
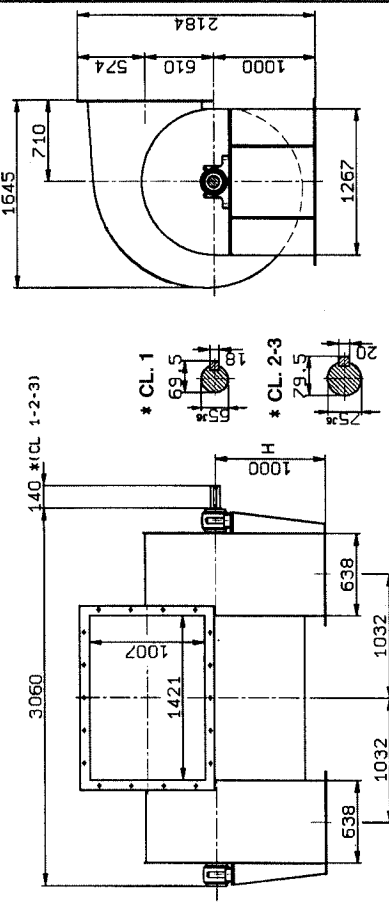
Tabella non impegnativa  
 The above data are unbinding  
 Tableau sans engagement  
 Unverbindliche Tabelle

Il ventilatore è orientabile  
 The fan is revolvable  
 Le ventilateur est orientable  
 Der Ventilator ist drehbar



Giri massimi ammissibili: Maximum admissible rounds: Tours maxima admissibles: Drehzahl max:	Classe 1	Classe 2	Classe 3
≤ 60 °C =	710	900	1120
61 ÷ 100 °C =	630	800	1000
101 ÷ 200 °C =	560	710	900
201 ÷ 300 °C =	500	630	800

kW assorbiti ventilatore tolleranza ± 3%  
 kW consumed fan tolerance ± 3%  
 Tolérance sur Pabs kW ± 3%  
 Toleranz für Wellenleistung ± 3%

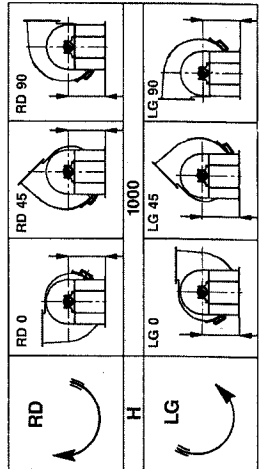


Flangia aspirante  
 Inlet flange  
 Bride à l'aspiration  
 Flansch saugseitig

Flangia premente  
 Outlet flange  
 Bride au refoulement  
 Flansch druckseitig

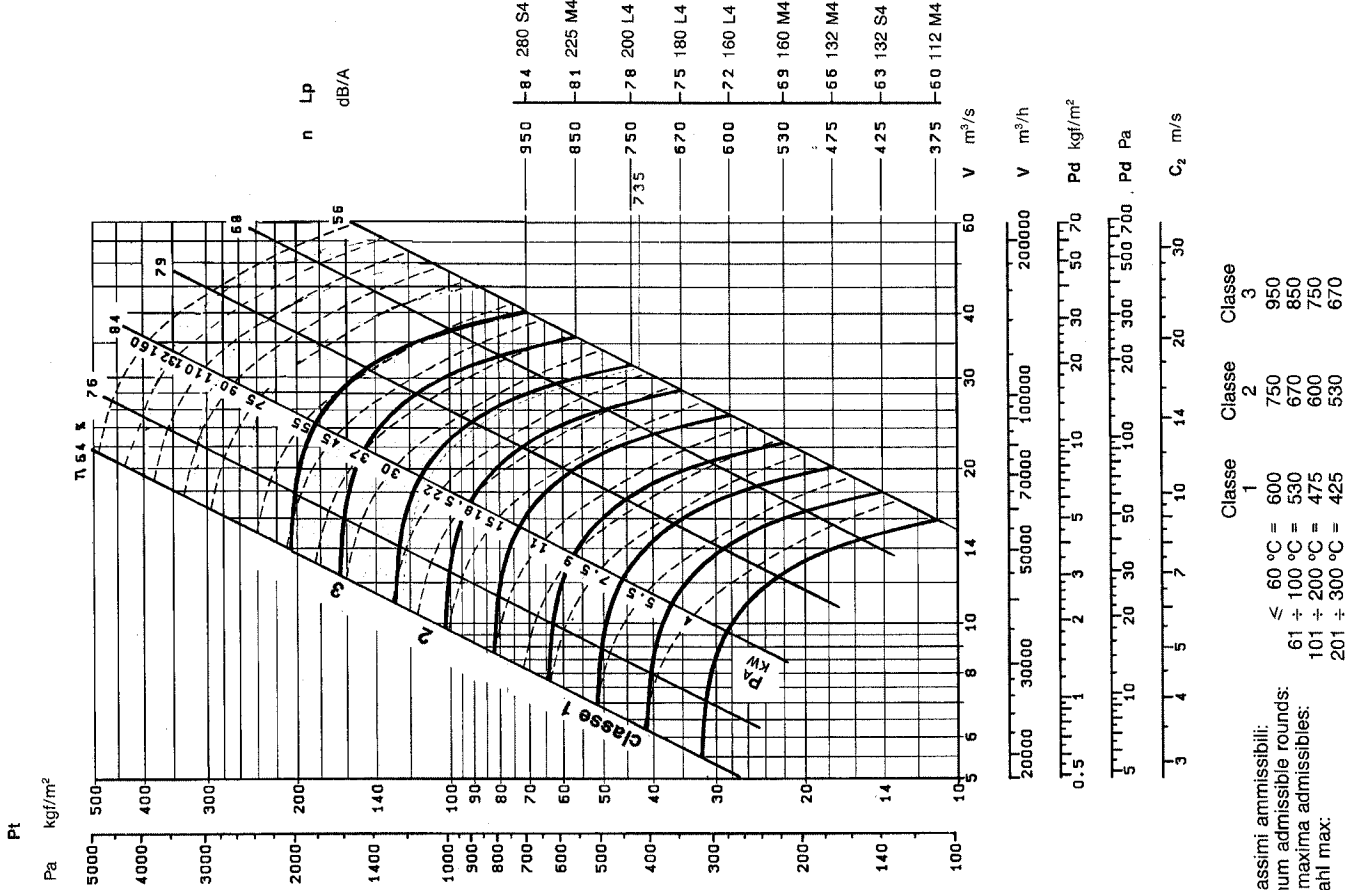
Peso = 1000 kgf  
 Weight = 1000 kgf

PD<sup>2</sup> = 127 kgf·m<sup>2</sup>  
 GD<sup>2</sup> = 127 kgf·m<sup>2</sup>



Il ventilatore è orientabile  
 The fan is revolvable  
 Le ventilateur est orientable  
 Der Ventilator ist drehbar

Tabella non impegnativa  
 The above data are unbinding  
 Tableau sans engagement  
 Unverbindliche Tabelle

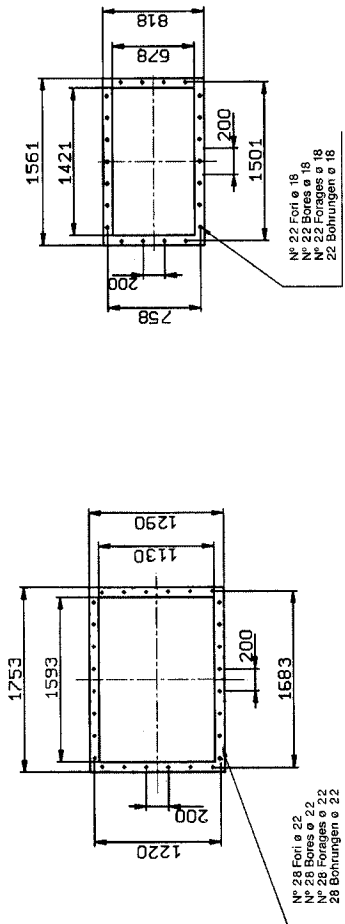
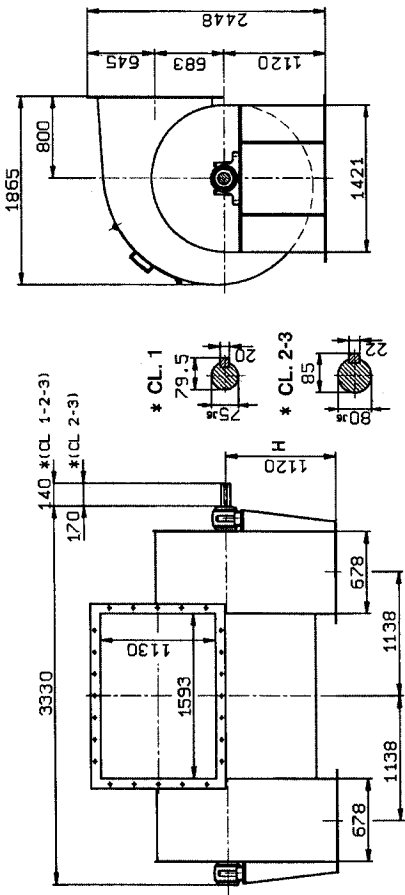


kW assorbiti ventilatore tolleranza ± 3%  
 kW consumed fan tolerance ± 3%  
 Tolerance sur Pabs kW ± 3%  
 Toleranz für Wellenleistung ± 3%

Classe	Classe 1	Classe 2	Classe 3
≤ 60 °C	600	750	950
61 ÷ 100 °C	530	670	850
101 ÷ 200 °C	475	600	750
201 ÷ 300 °C	425	530	670

Giri massimi ammissibili:  
 Maximum admissible rounds:  
 Tours maxima admissibles:  
 Drehzahl max:

Tolleranza sulla rumorosità + 3 dB  
 Noise level tolerance + 3 dB  
 Toleranz für Schalldruck + 3 dB  
 Toleranz Schallpegel + 3 dB



Flangia aspirante  
 Inlet flange  
 Bride à l'aspiration  
 Flansch saugseitig

Flangia premente  
 Outlet flange  
 Bride au refoulement  
 Flansch druckseitig

PD<sup>2</sup> = 221 kgf·m<sup>2</sup>  
 GD<sup>2</sup>

Peso Poids = 1500 kgf  
 Weight Gewicht

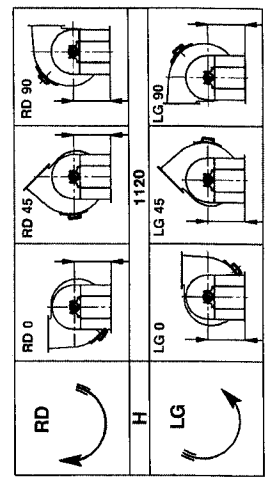
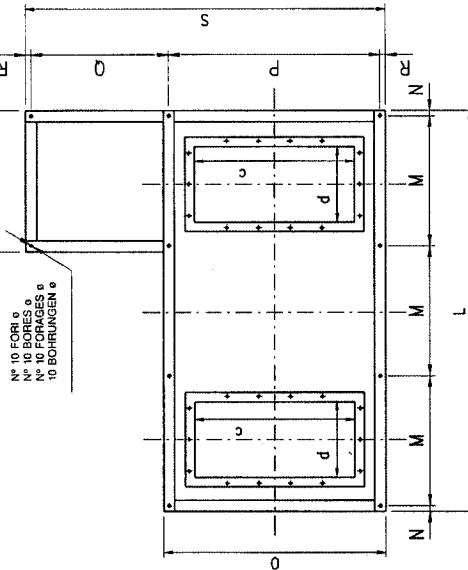
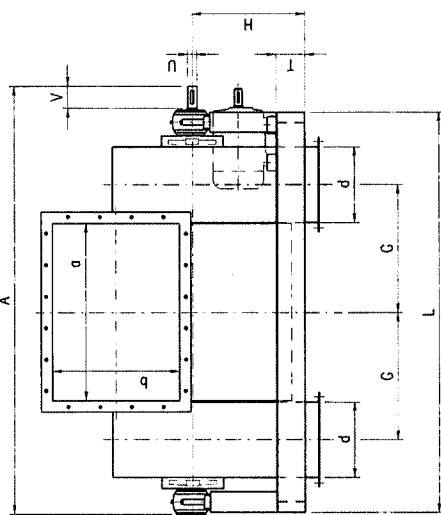


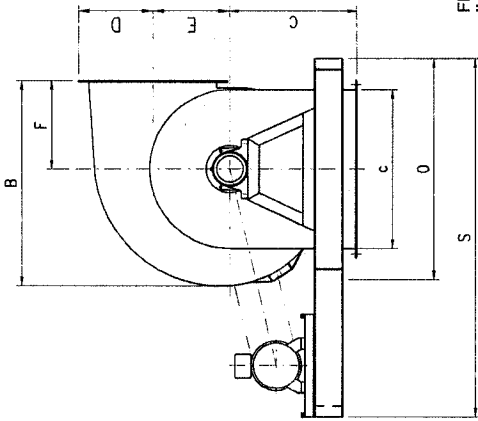
Tabella non impegnativa  
 The above data are unbinding  
 Tableau sans engagement  
 Unverbindliche Tabelle

Il ventilatore è orientabile  
 The fan is revolvable  
 Le ventilateur est orientable  
 Der Ventilator ist drehbar

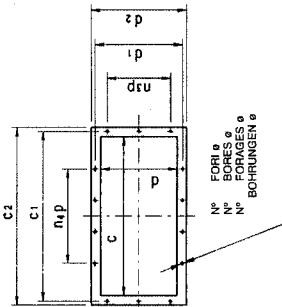
**DIMENSIONI D'INGOMBRO E PESI SERIE CFR SPECIALE PER ALTE TEMPERATURE**  
**DIMENSIONS AND WEIGHTS SPECIAL SERIE CFR FOR HIGH TEMPERATURES**  
**ENCUMBREMENTS ET POIDS DE LA SERIE CFR SPECIALE POUR HAUTE TEMPERATURE**  
**MASSE UND GEWICHTE SONDERSERIE CFR FÜR HOHE TEMPERATUREN**



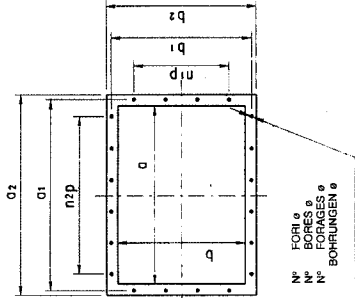
N° 10 FORI Ø  
 N° 10 BORES Ø  
 N° 10 FORAGES Ø  
 10 BOHRUNGEN Ø



FLANGIA ASPIRANTE  
 INLET FLANGE  
 BRIDE À L'ASPIRATION  
 FLANSCH SAUGSEITIG



N° FORI Ø  
 N° BORES Ø  
 N° FORAGES Ø  
 N° BOHRUNGEN Ø



FLANGIA PREMENTE  
 OUTLET FLANGE  
 BRIDE AU REFOULEMENT  
 FLANSCH DRUCKSEITIG

N° FORI Ø  
 N° BORES Ø  
 N° FORAGES Ø  
 N° BOHRUNGEN Ø

TABELLA NON IMPEGNATIVA  
 THE ABOVE DATA ARE UNBINDING  
 TABLEAU SANS ENGAGEMENT  
 UNVERBINDLICHE TABELLE

Tipo/Type/Typ Ventilatore Fan Ventilator	Basamento Basis Chassis Sockel																Albero Shaft Abris Welle								Flangia Aspirante Inlet flange Bride à l'aspiration Flansch saugseitig								Flangia Prementente Outlet flange Bride au refoulement Flansch druckseitig								Peso Weight Poids Gewicht																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	Ø	U	V	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	aa	ab	ac	ad	ae	af	ag	ah	ai	aj	ak	al	am	an	ao	ap	aq	ar	as	at	au	av	aw	ax	ay	az	ba	bb	bc	bd	be	bf	bg	bh	bi	bj	bk	bl	bm	bn	bo	bp	bq	br	bs	bt	bu	bv	bw	bx	by	bz	ca	cb	cc	cd	ce	cf	cg	ch	ci	cj	ck	cl	cm	cn	co	cp	cq	cr	cs	ct	cu	cv	cw	cx	cy	cz	da	db	dc	dd	de	df	dg	dh	di	dj	dk	dl	dm	dn	do	dp	dq	dr	ds	dt	du	dv	dw	dx	dy	dz	ea	eb	ec	ed	ee	ef	eg	eh	ei	ej	ek	el	em	en	eo	ep	eq	er	es	et	eu	ev	ew	ex	ey	ez	fa	fb	fc	fd	fe	ff	fg	fh	fi	fj	fk	fl	fm	fn	fo	fp	fq	fr	fs	ft	fu	fv	fw	fx	fy	fz	ga	gb	gc	gd	ge	gf	gg	gh	gi	gj	gk	gl	gm	gn	go	gp	gq	gr	gs	gt	gu	gv	gw	gx	gy	gz	ha	hb	hc	hd	he	hf	hg	hh	hi	hj	hk	hl	hm	hn	ho	hp	hq	hr	hs	ht	hu	hv	hw	hx	hy	hz	ia	ib	ic	id	ie	if	ig	ih	ii	ij	ik	il	im	in	io	ip	iq	ir	is	it	iu	iv	iw	ix	iy	iz	ja	jb	jc	jd	je	jf	jj	jk	jl	jm	jn	jo	jp	jq	jr	js	jt	ju	ju	kv	kw	kx	ky	kz	la	lb	lc	ld	le	lf	lg	lh	li	lj	lk	ll	lm	ln	lo	lp	lq	lr	ls	lt	lu	lv	lw	lx	ly	lz	ma	mb	mc	md	me	mf	mg	mh	mi	mj	mk	ml	mn	mo	mp	mq	mr	ms	mt	mu	mv	mw	mx	my	mz	na	nb	nc	nd	ne	nf	ng	nh	ni	nj	nk	nl	nm	no	np	nq	nr	ns	nt	nu	nv	nw	nx	ny	nz	oa	ob	oc	od	oe	of	og	oh	oi	oj	ok	ol	om	on	oo	op	oq	or	os	ot	ou	ov	ow	ox	oy	oz	pa	pb	pc	pd	pe	pf	pg	ph	pi	pj	pk	pl	pm	pn	po	pp	pq	pr	ps	pt	pu	pv	pw	px	py	pz	qa	qb	qc	qd	qe	qf	qg	qh	qi	qj	qk	ql	qm	qn	qo	qp	qq	qr	qs	qt	qu	qv	qw	qx	qy	qz	ra	rb	rc	rd	re	rf	rg	rh	ri	rj	rk	rl	rm	rn	ro	rp	rq	rr	rs	rt	ru	rv	rw	rx	ry	rz	sa	sb	sc	sd	se	sf	sg	sh	si	sj	sk	sl	sm	sn	so	sp	sq	sr	ss	st	su	sv	sw	sx	sy	sz	ta	tb	tc	td	te	tf	tg	th	ti	tj	tk	tl	tm	tn	to	tp	tq	tr	ts	tt	tu	tv	tw	tx	ty	tz	ua	ub	uc	ud	ue	uf	ug	uh	ui	uj	uk	ul	um	un	uo	up	uq	ur	us	ut	uu	uv	uw	ux	uy	uz	va	vb	vc	vd	ve	vf	vg	vh	vi	vj	vk	vl	vm	vn	vo	vp	vq	vr	vs	vt	vu	vv	vw	vx	vy	vz	wa	wb	wc	wd	we	wf	wg	wh	wi	wj	wk	wl	wm	wn	wo	wp	wq	wr	ws	wt	wu	wv	ww	wx	wy	wz	xa	xb	xc	xd	xe	xf	yg	yh	yi	yj	yk	yl	ym	yn	yo	yp	yq	yr	ys	yt	yu	yv	yw	yx	yy	yz	za	zb	zc	zd	ze	zf	zg	zh	zi	zj	zk	zl	zm	zn	zo	zp	zq	zr	zs	zt	zu	zv	zw	zx	zy
CFR 401 N18S 2.3	1435	660	400	252	245	285	407	355	475	1350	437	20	710	670	500	20	1210	120	14	38	80	507	242	551	286	587	322	1-125	3-125	12	12	569	404	629	464	669	504	2-160	3-160	14	14	200	1.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
CFR 451 N18S 2.3	1615	745	450	277	275	320	457	400	530	1500	487	20	800	760	500	20	1300	120	14	42	110	569	273	629	333	669	373	1-160	3-160	12	14	638	453	698	513	738	553	2-160	3-160	14	14	250	3.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
CFR 501 N18S 2.3	1780	830	500	304	301	360	513	450	580	1650	534	25	900	850	600	25	1500	140	17	48	110	638	307	698	367	738	407	1-160	3-160	12	14	715	507	775	567	815	807	2-160	4-160	16	14	315	5.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
CFR 561 N18S 2.3	1970	925	560	345	332	400	573	500	650	1850	600	25	1000	950	600	25	1600	140	17	48	110	715	341	775	401	815	441	2-160	4-160	16	14	801	569	871	839	921	689	2-200	3-200	14	14	375	3.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
CFR 631 N18S 2.3	2180	1040	630	379	373	450	642	560	725	2050	664	30	1120	1060	750	30	1870	160	17	55	110	801	381	871	451	921	501	1-200	3-200	12	14	898	638	968	708	1018	758	3-200	4-200	16	14	450	15																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
CFR 711 N18S 2.3	2460	1165	710	418	427	500	723	630	810	2300	747	30	1250	1180	750	30	2000	160	17	60	140	898	433	968	503	1018	553	2-200	4-200	16	14	1007	715	1077	785	1127	835	3-200	4-200	18	14	560	26																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
CFR 801 N18S 2.3	2715	1300	800	471	478	560	812	710	900	2550	827	35	1400	1320	870	35	2270	180	19	65	140	1007	482	1077	552	1127	602	2-200	4-200	16	14	1130	801	1210	861	1370	941	3-200	5-200	20	18	710	42																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
CFR 901 N18S 2.3	2945	1460	900	519	538	630	890	800	980	2800	910	35	1600	1500	870	35	2470	180	19	75	140	1130	507	1210	587	1270	647	2-200	5-200	18	18	1267	898	1347	978	1407	1038	4-200	6-200	24	18	900	75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
CFR1001 N18S 2.3	3170	1645	1000	574	607	710	982	900	1050	3000	977	35	1800	1700	870	35	2670	200	21	75	140	1267	538	1347	618	1407	678	2-200	6-200	20	18	1421	1007	1501	1087	1561	1147	4-200	6-200	24	18	1250	118																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
CFR1121 N18S 2.3	3470	1865	1120	645	684	800	1084	1000	1150	3300	1077	35	2000	1900	1020	35	3020	200	21	80	170	1421	569	1501	649	1561	709	2-200	6-200	20	18	1553	1130	1683	1220	1753	1290	4-200	6-200	28	18	1800	212																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													