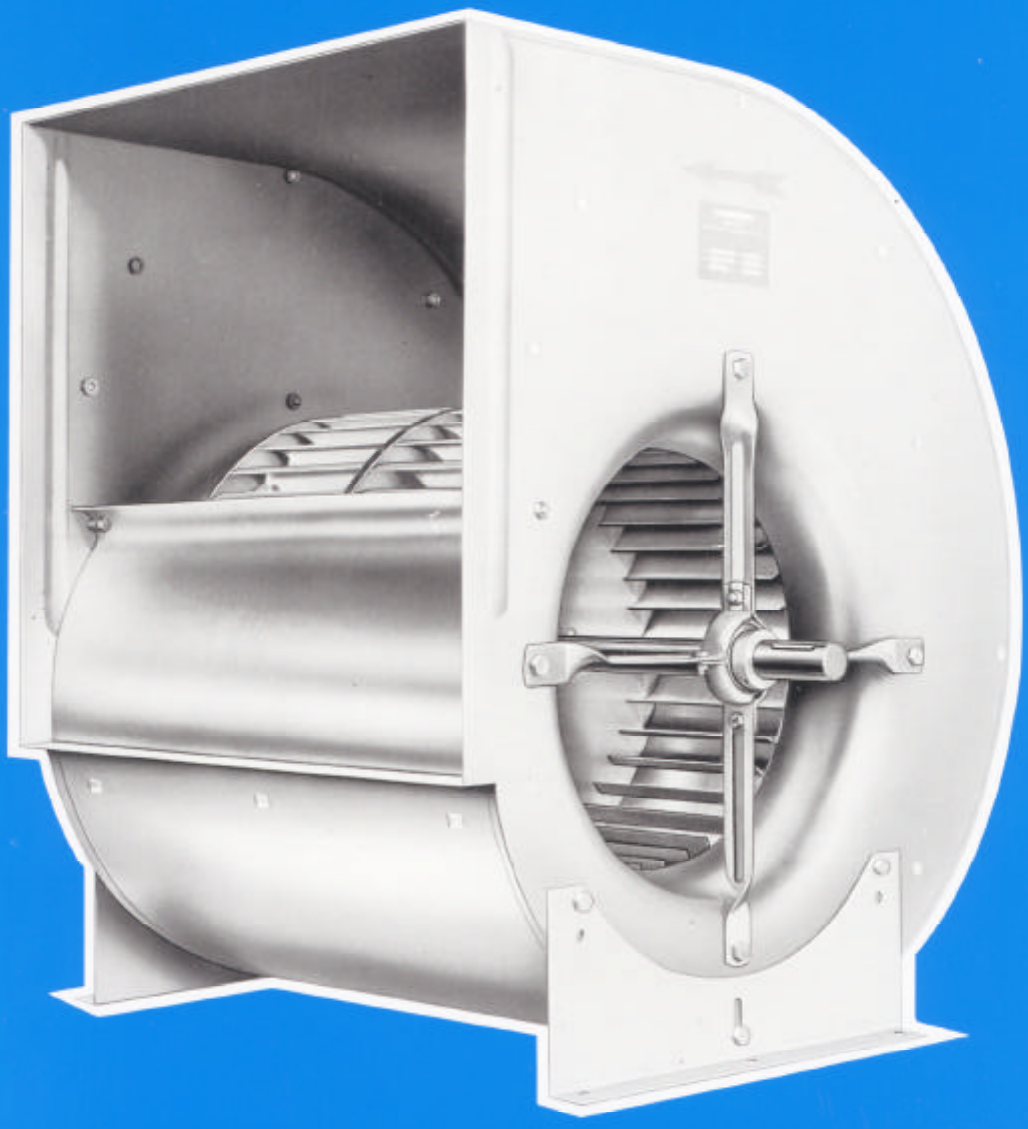
Radial Fans

Double Inlet

FORWARD AND BACKWARD CURVED



comefri®

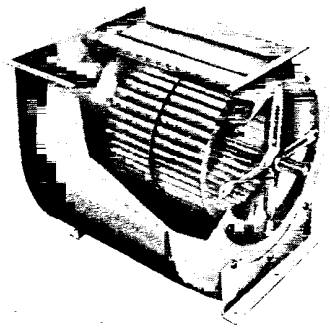
comefri Radial Fans

comefri Radial Fans

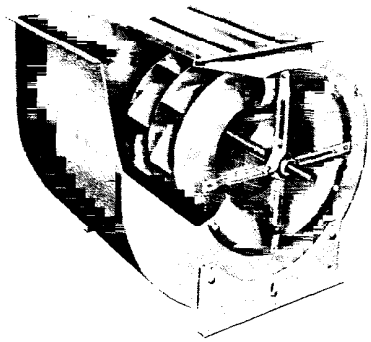
have been designed specially for ventilation and air conditioning units. They offer the following advantages to the unit manufacturer:

- compact design for space saving installations
- high efficiency operation for economic running costs
- low operational noise levels and vibration free running
- wide volume range and high pressure development
- designed for flexible applications and temperature range of -30°C to +80°C
- fans TLZ T-HLZ and HLZ all dimensionally interchangeable
- standardised components sized in accordance with R20 DIN 323
- superb quality
- short delivery from stock warehouses
- prices to meet your budget

COMEFRI double inlet fans are available in the following range with dimensionally identical casings



Pic 1
Type TLZ
High capacity and efficiency
Fan with forward curved impeller



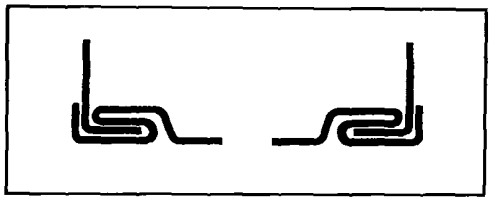
Pic 2
High capacity and efficiency
Fan with backward curved impeller

Forward and backward curved fans are engineered to identical dimensions for interchangeability.
Fan inlet diameters are the same, as impeller diameter.
Although the fans have the same external dimensions size to size, their performance curves vary significantly due to the different impeller design.

1. Fan Construction

1.1 Casings

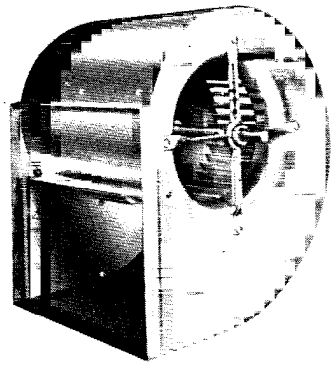
All fan casings to size 1000 are manufactured from high quality galvanized steel.



Pic 3
System of locking side plates to scroll by «Pittsburgh» seam

Series TLZ size 160 up to 400 and T-HLZ 180 to 400

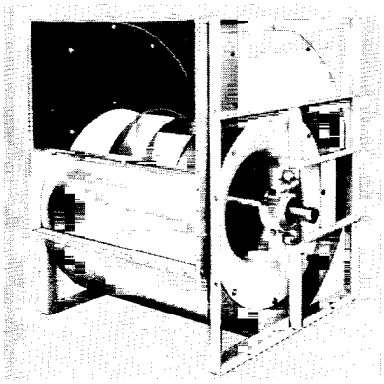
The casings are manufactured with Pittsburgh seams as described above. This system gives great strength as well as ensuring leak proof joins. Predrilled holes are located in the side plates to take either feet or frames as accessories. These are supplied extra.



Pic 4
Fan casing of Fan types
TLZ and T-HLZ size 450 to 710

Series TLZ and T-HLZ size 450 to 710

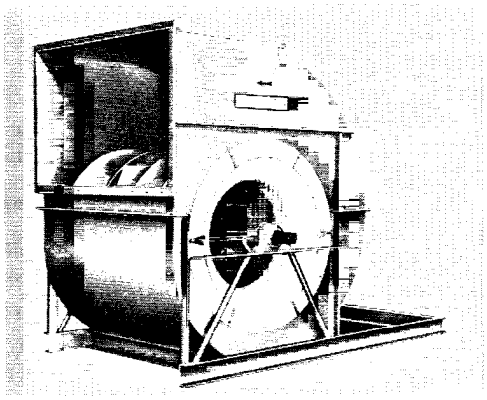
All casings are manufactured with Pittsburgh seams as described above and on the inside of the side plates nuts are applied enabling easy fixing of feet or frames by standard metric bolts, supplied as extra.



Pic 5
Fan casing of Fan Type TLZ and T-HLZ size 710T up to 1000T and size HLZ 400R to 1000T. The series T bearing arrangement is shown necessitating the frame to be supllied at an integral part of the unit.

Series TLZ and T-HLZ size 710 to 1000 and series HLZ 400 to 1000

Fans are supplied with integral bearing frames and cast iron plummer block bearings housings; in the HLZ range this system starts at size 560. Up to this size fans are supplied with removable frame as standard.



Pic 6
Fan casings of fan type T-HLZ and HLZ size 1120 to 1400.

Series T-HLZ and HLZ 1120 to 1250

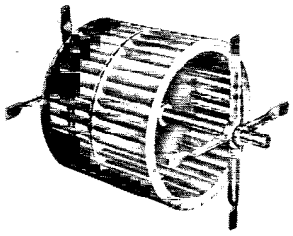
The fans are supplied with casings manufactured with heavy duty mild steel of welded construction. Casings are split on the horizontal and are supplied with edge-on stiffeners. The heavy base frame is and integral part of the fan casing providing a firm bed for the driving motor. Fans are paint finished with primer and synthetic enamel final coat.

1.2 Fan Inlets

To ensure high efficiency, fans are supplied with aerodynamically shaped fan inlets. These venturis form part of the side casing on the TLZ fans.
On fans serves T-HLZ and HLZ, the inlet cones are separate pieces, bolted to the sideplate.

1.3 Impellers

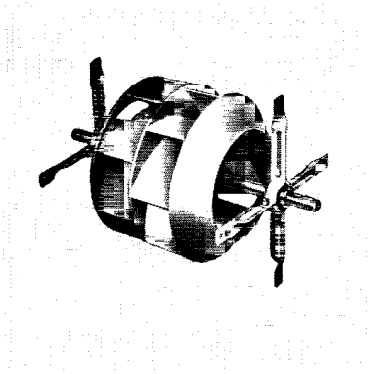
COMEFRI high efficiency impellers are specially designed to give high volume and pressures whilst maintaining smooth vibration free running. Even at high peripheral speeds the fans are stable. Fan impellers are statically and dynamically balanced, in accordance with VDI 2060 and ISO 1940/1, grade G 6,3. Impeller diameters are in series R20 to DIN 323.



Pic 7
High efficiency impeller with forward curved impellers type TLZ.

COMEFRI Fan series TLZ

These fans are supplied with forward curved impellers manufactured in galvanized sheet steel. The impellers are designed for maximum efficiency to latest technology. Impeller blades are mounted on to a common backplate and locked onto a holding shroud. A substantial aluminium hub is rigidly connected to the backplate and precision machined to receive the fan shaft.



Pic 8
High efficiency impeller with backward curved blades type T-HLZ and HLZ.

COMEFRI Fan series T-HLZ and HLZ

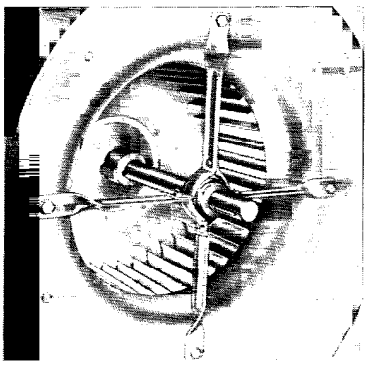
These fans are supplied with high efficiency non-overloading impellers having backward curved blades. The blade shape results from research at our test laboratory and is specially designed to give high volume and pressure characteristics at high efficiency. Impellers sizes 180 to 450 are manufactured in glass reinforced polyamid whereas fans above this size are made from high quality mild steel. These impellers are of welded construction and painted.

1.4 Shafts

Shafts are manufactured from high quality steel, keywayed at both ends and at the impeller location point.

1.5 Bearings

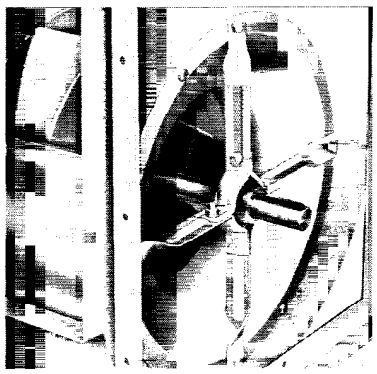
All fans are supplied as standard with pre-greased sealed-for-life ball bearings. These are always inspected prior to assembly to ensure quiet running. Bearings have an L10 life of 20,000 HRS at peak performance. Limiting values for speed and power are indicated on the characteristic curves and should not be exceeded. Pulleys should be mounted close to the fan bearing. The various bearing types are described as follows.



Pic 9
Bearings of Radial Fans series TLZ size 160 up to 710.

Series TLZ size 160 to 710

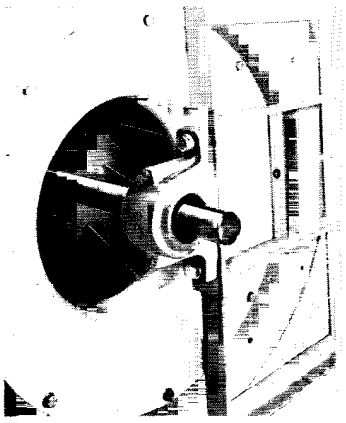
Sealed-for-life bearings are located in formed support arms made from galvanised steel. The bearing race is mounted in a unique rubber anti-vibration housing which provides for sound insulation and smooth running (Pic 9).



Pic 10
Bearings of Radial Fans series T-HLZ size 180 to 710 and HLZ size 400R to 500R.

Series T-HLZ size 180 to 710 and HLZ 400 R to 500 R

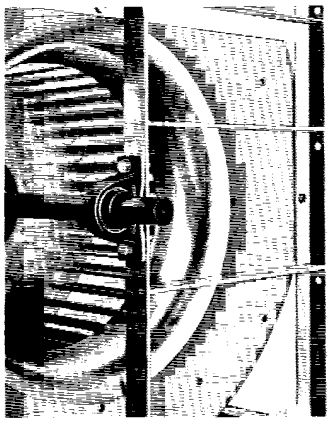
Bearings are similar to TLZ and are located with clamp collars.



Pic 11
Bearings for series HLZ.

Series HLZ size 560T to 1000T

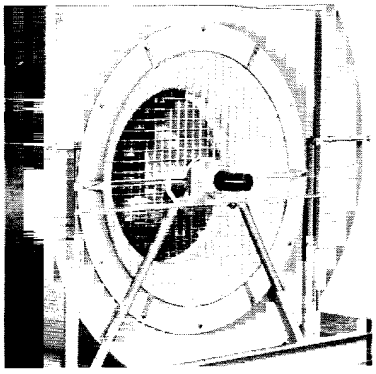
Cast iron plummer blocks house self aligning ball journals. Bearings are pre-greased for life but lubrication points are supplied in the housings.



Pic 12
Bearing of Fan series TLZ and T-HLZ 710T to 1000T.

Series TLZ and T-HLZ 710T to 1000T

Plummer blocks containing self aligning ball journals are used in this range. The bearing being mounted onto the substantial fan frame.



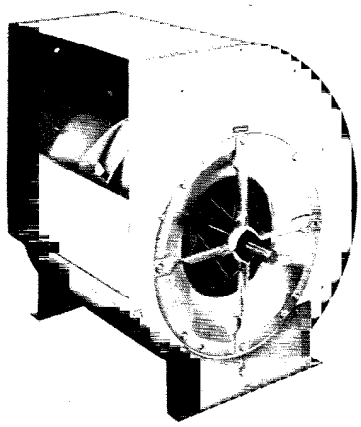
Pic 13
Bearing of Fan series T-HLZ and HLZ sizes 1120 to 1400.

Series T-HLZ and HLZ sizes 1120 to 1250

These fans are supplied with pedestal bearings of heavy duty containing roller bearings locked to the shaft with tapered sleeve.

2. Accessories

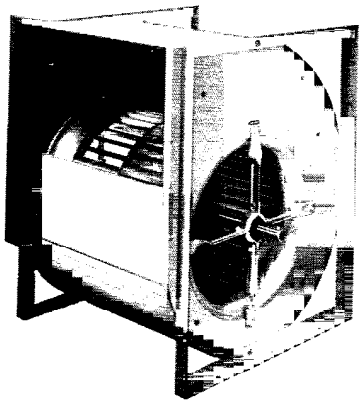
All fans can be supplied with the following accessories:



Pic 14
Radial Fan Type THLZ 500 with feet.

2.1 Feet ...F

Manufactured from galvanized sheet steel. The predrilled fan feet are supplied separately with necessary fixing screws. Feet are available from fan size 160-710.



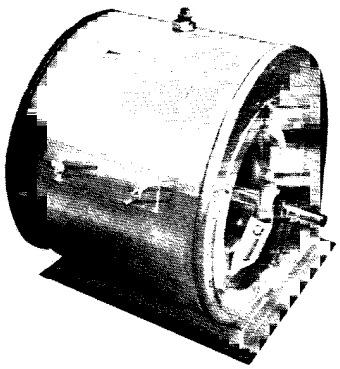
Pic 15
Radial Fan Type TLZ 500 with outlet flange and frame.

2.2 Outlet Flanges ...A

On TLZ fans to size 710 the outlet flanges can be supplied separately or fitted to customer requirement. They are manufactured from galvanized steel and drilled as the dimension sheets.

2.3 Fan Mounting Frames ... R

From size 200 to 710, separate fan frames are available as an alternative method of mounting.



Pic 16
Radial Fan Type T-HLZ 225 complete with outlet flange inspection door and condensation drain.

2.4 Inspection door

Can be fitted to the fan casing and consist in a galvanized steel plate fixed by quick release screws. Gaskets prevent leakage. For inspection door positions see section 7 and 8.

2.5 Drain Plugs

Can be fitted at lowest point of the fan casing to drain condensation. Plugs are 3/8" gas thread and can be located in positions described in section 7 and 8.

Accessory ordering should always indicate the position required as detailed in 7.2.

2.6 Anti-spark features

When selecting and installing fans for hazardous applications the relevant standards must be considered as sparking can occur from the following conditions:
- Contact sparking
- Heat build-up
- Build-up of electro-static

Consideration should also be given to the following:

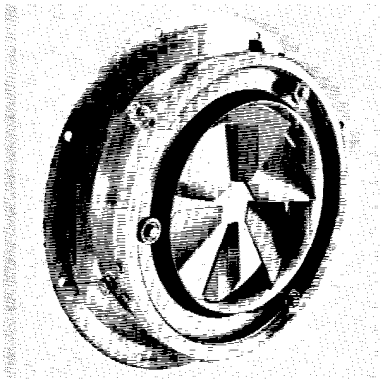
Zone 0:
fans are not suitable for this application.

Zone 1:
(Sub group G1-G3). Selection of fans in this category should take into consideration the following:
- the max fan speed should be reduced by 20%
- the max shaft power should be reduced by 30%
- fans should only be selected for applications where the shaft is in the horizontal
- guards should have a mesh size of no more than 12 mm.
- design life of bearings at duty point should be 40000 hours minimum
- driving ropes of the anti-static type should only be used

Zone 2:
standard fans described in this catalogue are suitable.

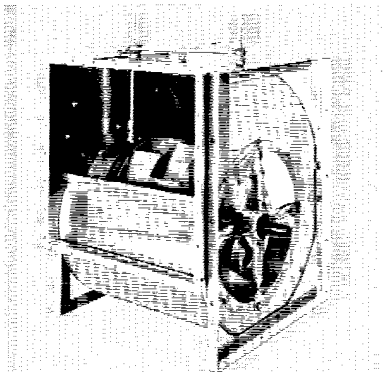
To avoid sparking the following combinations or materials can be used:
- steel with copper or brass
- stainless steel with stainless steel

2.7 Inlet vane control



Pic 17
Inlet vane control.

Volume regulation can be achieved by using the **COMEFRI** inlet vane control, see fig. 17 and 18. This energy saving device can be supplied as an integral part of T-HLZ and HLZ fans from size 315. A special selection chart is available which is for use with standard performance charts.
The vane controller comprises a set of adjustable radial vanes mounted inside the inlet venturi. The vanes when set to the required angle regulate the volume whilst directing the air into the impeller blade. The result is a considerable saving in motor power. All moving components are located inside the fan with linkage to the outside to facilitate the adjustment of the control by either electric or pneumatic actuator.



Pic 18
Inlet vane control fitted to fan T-HLZ 450R.

3. Motor Selection

The following safety margins should be added to the power requirements at the fan shaft as shown by the performance curves.

Rating	TLZ	T-HLZ
up to 10 kW	20%	15%
over 10 kW	12%	12%

This safety margin compensate for transmission losses of the V-belt drive and for possible minor inaccuracies in the calculation of the system resistance.
When selecting the suitable motor special attention should be paid to the fact that if the acceleration time of the fan is longer than the maximum acceleration time of the motor the trip time of the motor starter overload must be increased or a larger motor or starter for heavy duty starting must be used.
The acceleration time can be calculated from:
a) in case of direct starting:

$$t_a \approx 1{,}2 \cdot 10^{-5} \frac{J \cdot n^2}{P_M}$$

Where:

t_a [s] — acceleration time

J [kgm²] — mass moment of inertia, $J = m \cdot r^2 \left(\approx \frac{G \cdot D^2}{4}\right)$

n [min⁻¹] — nominal speed of the fan

P_M [kW] — motor rating

b) in case of Y /Δ starting, the acceleration time compared with direct starting is 5.5 times longer.

4. Technical Explanations

4.1 General

The formulae, signs and SI-units used in this catalogue correspond to the standards DIN 1301, DIN 1345, DIN 45635 and to the Eurovent-Recommendations 0/1 and 1/1.
Standard operating conditions for the fan performance curves:

ϱ_{air} = 1.2 kg/m³ (at 1013 mbar and 293 K (= 20°C))

4.2 Sound Levels

The measurement of noise levels are taken according to DIN 45635. For this purpose a harmonic analyzer type 2107 and Herz-Octave Band Filter type 1615 of Messrs. Brüel + Kjaer are used. These precision measuring instruments comply with DIN 45633. The sound power level L_w, referred to $W_o = 10^{-12}$ watt, required for calculation and design of sound absorbing units is marked in the performance curves.

Key to Formula Symbols:

L_w — Total Sound Power Level [dB]

L_w^* — Sound Power Level at a specific Octave Band Mid-Frequency [dB]

L_p — Sound Pressure Level (non-weighted) [dB]

L_p^* — Sound Pressure Level at a specific Octave Band Mid-Frequency [dB]

L_{pA} — Sound Pressure Level (weighted) [dB(A)]

f_m — Octave Band Mid-Frequency [Hz]

ΔL — Difference between the total Sound Power Level L_w and the non-weighted Sound Pressure Level L_p [dB]

ΔL_w — Difference between the total Sound Power Level L_w and the measured value at the corresponding Octave Band Mid-Frequency [dB]

ΔL_A — Difference between the total Sound Power Level L_w and to the weighted Sound Pressure Level L_{pA} [dB]

The Sound Data of the fans is determined as follows:

1. The total Sound Power Level can be ascertained from the Performance Curves.
2. The Sound Power Level L_w^* at the different Octave Band Mid-Frequencies is determined from following equation:

$$L_w^* = L_w - \Delta L_w$$

The values for ΔL_w are given in Table 1.

Table 1:

Octave Band Mid-Frequency f_m Hz	63	125	250	500	1000	2000	4000	8000
ΔL_w [dB] for TLZ	6	7	10	12	13	15	19	23
ΔL_w [dB] for T-HLZ and HLZ	4	6	7	9	11	15	19	23

3. The non weighted Sound Pressure Level L_p of for all fan sizes at various measuring distances is obtained from the following equation:

$$L_p = L_w - \Delta L$$

The values for ΔL are given in Table 2.

Table 2:

Distance from the fan	1 m	2 m	3 m	4 m	5 m
ΔL [dB]	6	12	15	18	20

4. The Sound Pressure Level L_p* at the different Octave Band Mid-Frequencies is obtained from the following equation:

$$L_p^* = L_p - \Delta L_w$$

The values for $\Delta L_w - \Delta L_A$ are given in Table 1.

5. The weighted Sound Pressure Level L_{pA}dB(A) is determined by the following equation:

$$L_{pA} = L_w - \Delta L_A$$

The values for ΔL_A are given in Table 3.

Table 3:

Fan size		160	180	200	225	250	280	315	355	400	450	500	560	630	710	800	900	1000	1120	1250
ΔL_A at a distance of	1 m	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	14
	2 m	16	16	16	17	17	17	17	18	18	18	18	19	19	19	19	20	20	20	20
	3 m	19	19	19	20	20	20	20	21	21	21	21	22	22	22	22	23	23	23	23
	4 m	22	22	22	23	23	23	23	24	24	24	24	25	25	25	25	26	26	26	26
	5 m	24	24	24	25	25	25	25	26	26	26	26	27	27	27	27	28	28	28	28

Please note that exact data regarding sound volume and frequency can only be determined after assembly and operation at the place of installation as the acoustic properties of the room, inherent frequencies as well as other oscillations and the effect of adiacent structures may considerably affect the sound level.

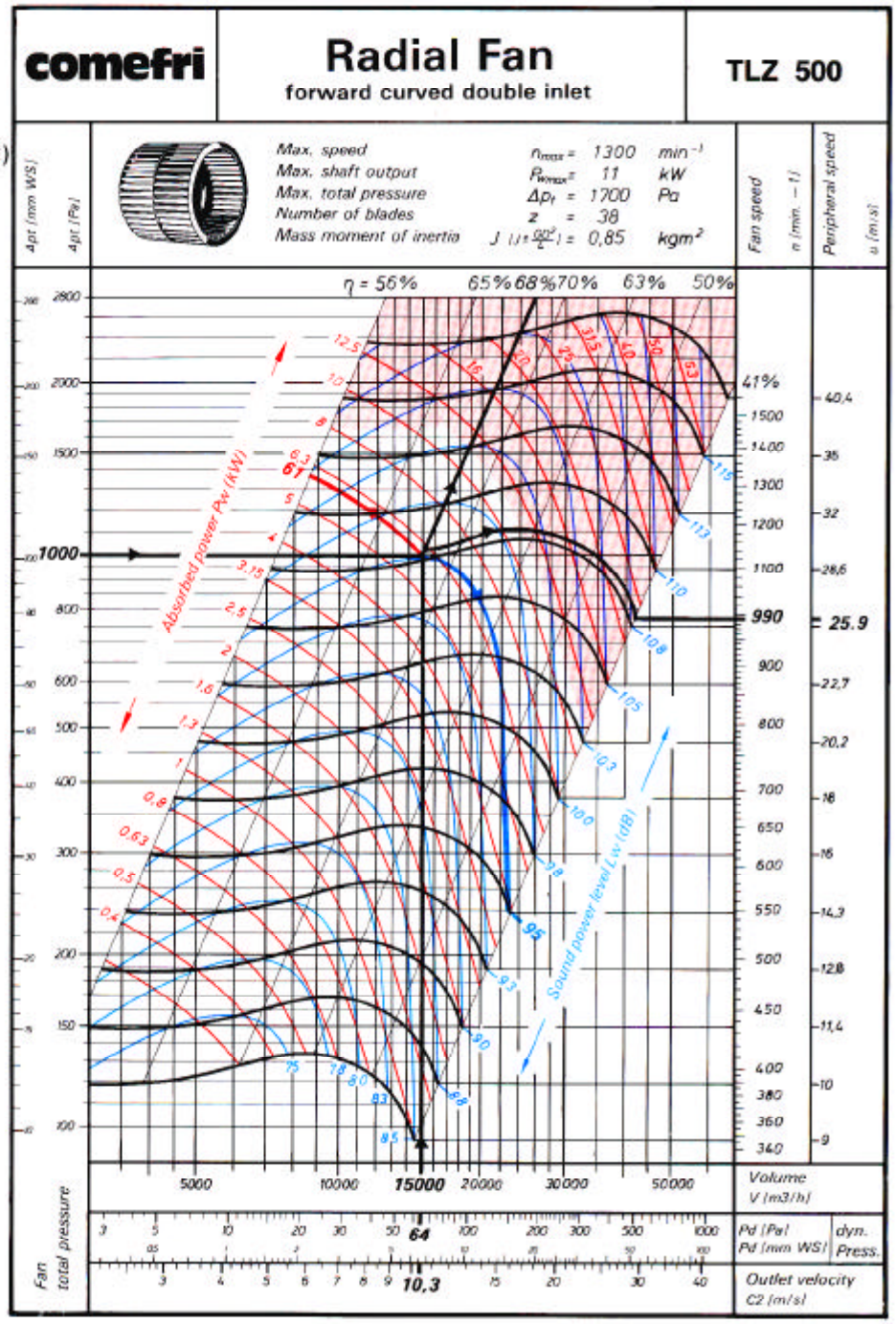
4.3 Performance Curves of the COMEFRI Fans

The fan data, which have been determined by tests in our laboratory, according to the latest recommendations and with high-precision measuring instruments, are contained in the following performance curves. They show the total pressure against from volume flow.
The curves indicate speed, circumferential velocity, power consumption at the shaft and total sound power level LW.
Please note that the values indicated at the absciss, the dynamic pressure and the outlet velocity relate to the total cross section of the fan outlet.

4.3.1 Selection Example of double inlet Fans with high efficiency impeller with forward curved blades, type TLZ

Required:
Volume flow V = 15000 m³/h
Total pressure Δp_t = 1000 Pa
Air density ϱ = 1,2 kg/m³
Air temperature t = 293 K (20°C)

To determine:
Fan size
Speed
Power consumption
Motor output
Efficiency
Sound pressure level
in dB(A) at a distance of 3 m.



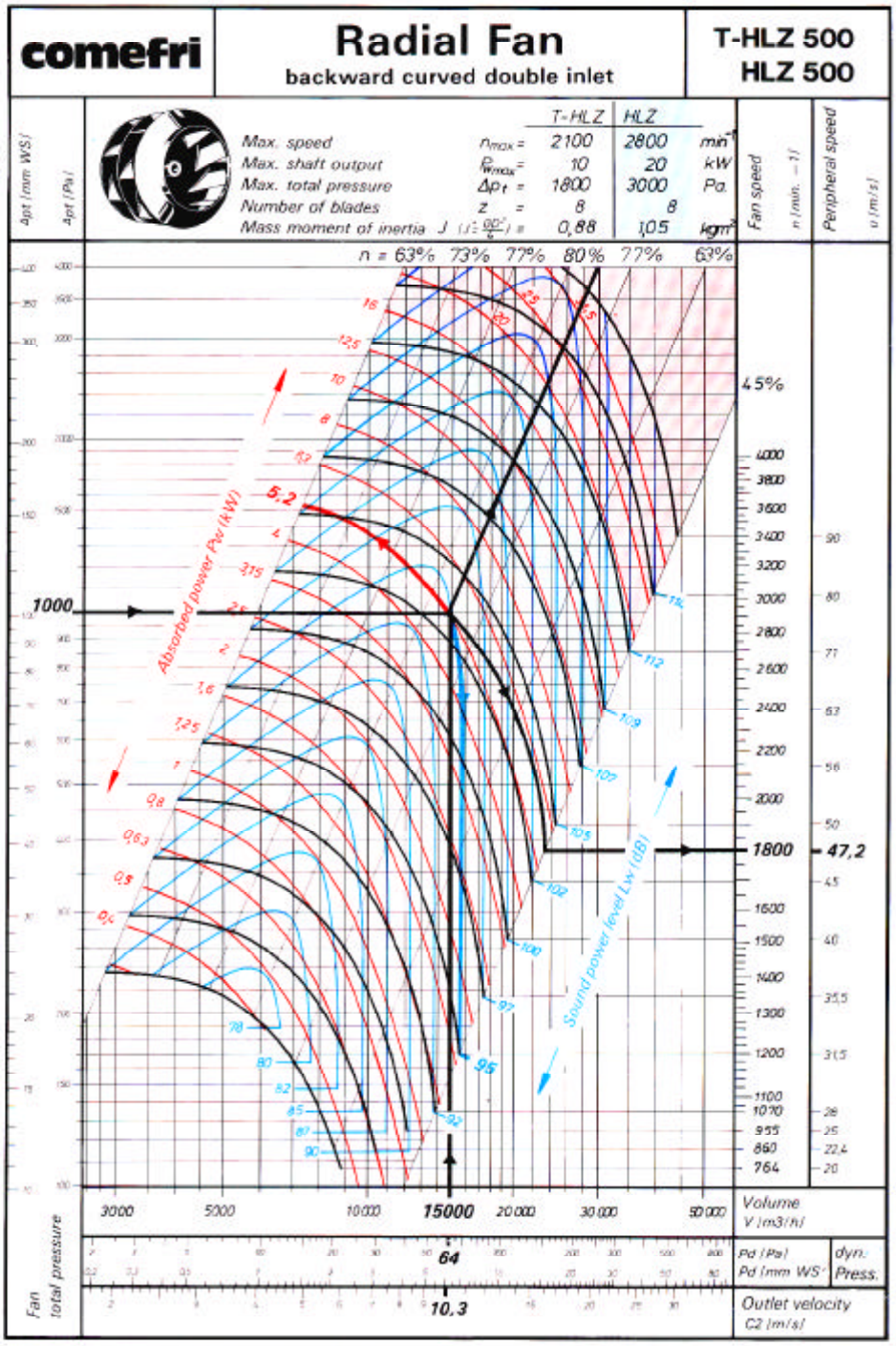
Selected from the Curve:

Radial Fan TLZ 500		
Fan speed	n	= 990 min⁻¹
Circumferential speed	u	= 25.9 m/sec.
Dynamic pressure	p_d	= 64 Pa
Static pressure	p_{st}	= 936 Pa (Total - dynamic pressure)
Outlet velocity	c_2	= 10.3 m/sec.
Volume flow	V	= 15000 m³/h
Efficiency	η	= 0.68
Absorbed power	P_w	= 6.1 kW
Motor rating	P_M	= P_w + 20%
Sound power level	L_w	= 95 dB
Sound pressure level	L_{pa}	= 95 − 21 = 74 dB(A)

4.3.2 Selection Example of double inlet Fans with high efficiency impeller with backw. curved blades, type T-HLZ

Required:
Volume flow V = 15000 m³/h
Total pressure Δp_t = 1000 Pa
Air density ϱ = 1,2 kg/m³
Air temperature t = 293 K (20°C)

To determine:
Fan size
Speed
Power consumption
Motor output
Efficiency
Sound pressure level
in dB(A) at a distance of 3 m.



Selected from the Curve:

Radial Fan T-HLZ 500		
Fan speed	n	= 1800 min⁻¹
Circumferential speed	u	= 47.2 m/sec.
Dynamic pressure	p_d	= 64 Pa
Static pressure	p_{st}	= 936 Pa (Total - dynamic pressure)
Outlet velocity	c_2	= 10.3 m/sec.
Volume flow	V	= 15000 m³/h
Efficiency	η	= 0.80
Absorbed power	P_w	= 5.2 kW
Motor rating	P_M	= P_w + 15%
Sound power level	L_w	= 95 dB
Sound pressure level	L_{pa}	= 95 − 21 = 74 dB(A)

5. Performance curves for Comefri Radial Fans
Series TLZ / T-HLZ / HLZ

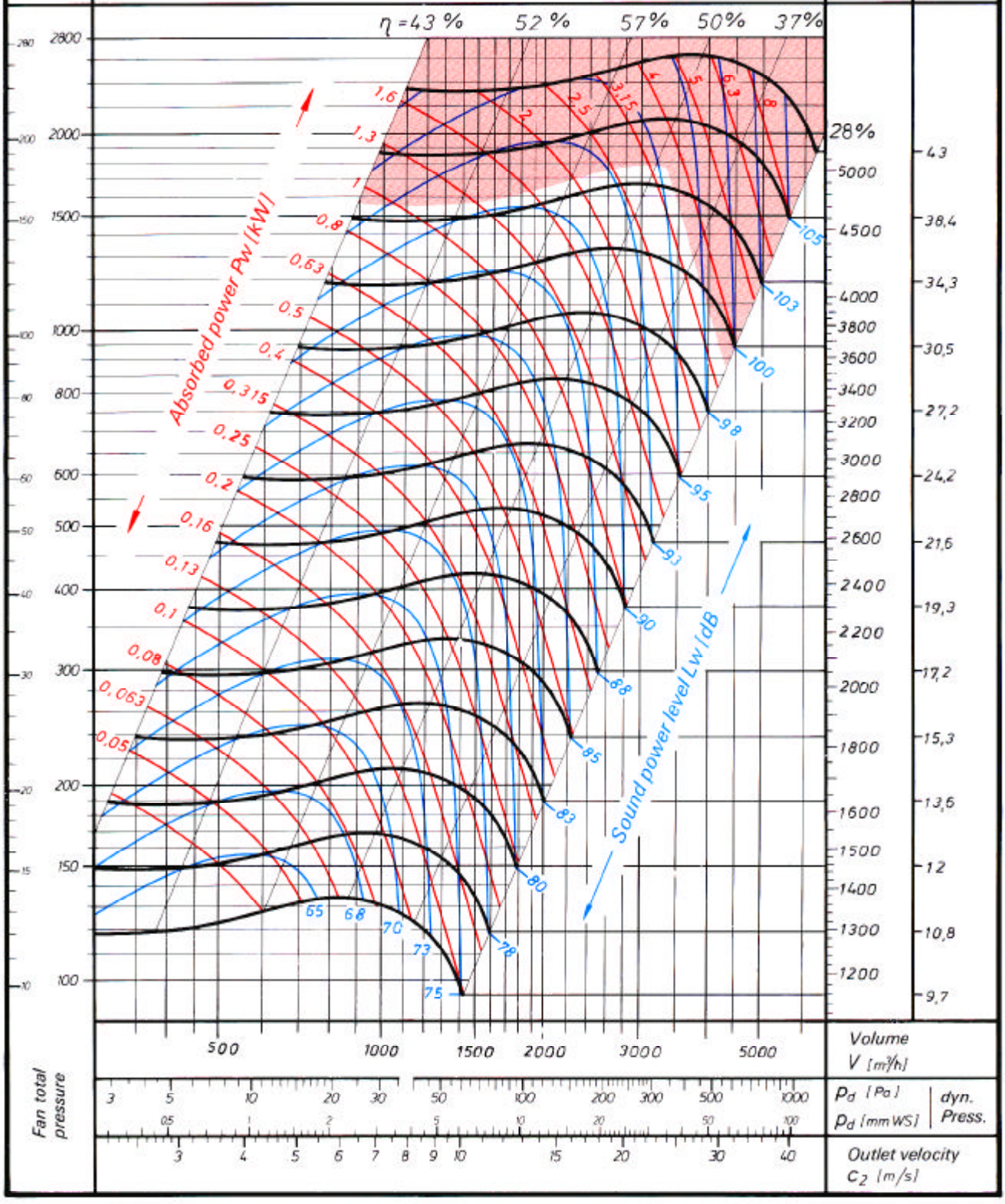
comefri

Radial Fan

forward curved double inlet

TLZ 160

Max. speed	n_{max} =	4250	min^{-1}
Max. shaft power	P_{wmax} =	3,5	kW
Max. total pressure	Δp_f =	1800	Pa
Number of blades	z =	36	
Mass moment of inertia	$J\ (= \frac{GD^2}{4}) =$	0,01	kgm^2



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Radial Fan

forward curved double inlet

TLZ 180

Max. speed	n_{max} = 4000	min^{-1}
Max. shaft power	P_{wmax} = 3,5	kW
Max. total pressure	Δp_f = 2000	Pa
Number of blades	z = 40	
Mass moment of inertia	$J\ (J \triangleq \frac{GD^2}{4})$ = 0,013	kgm^2

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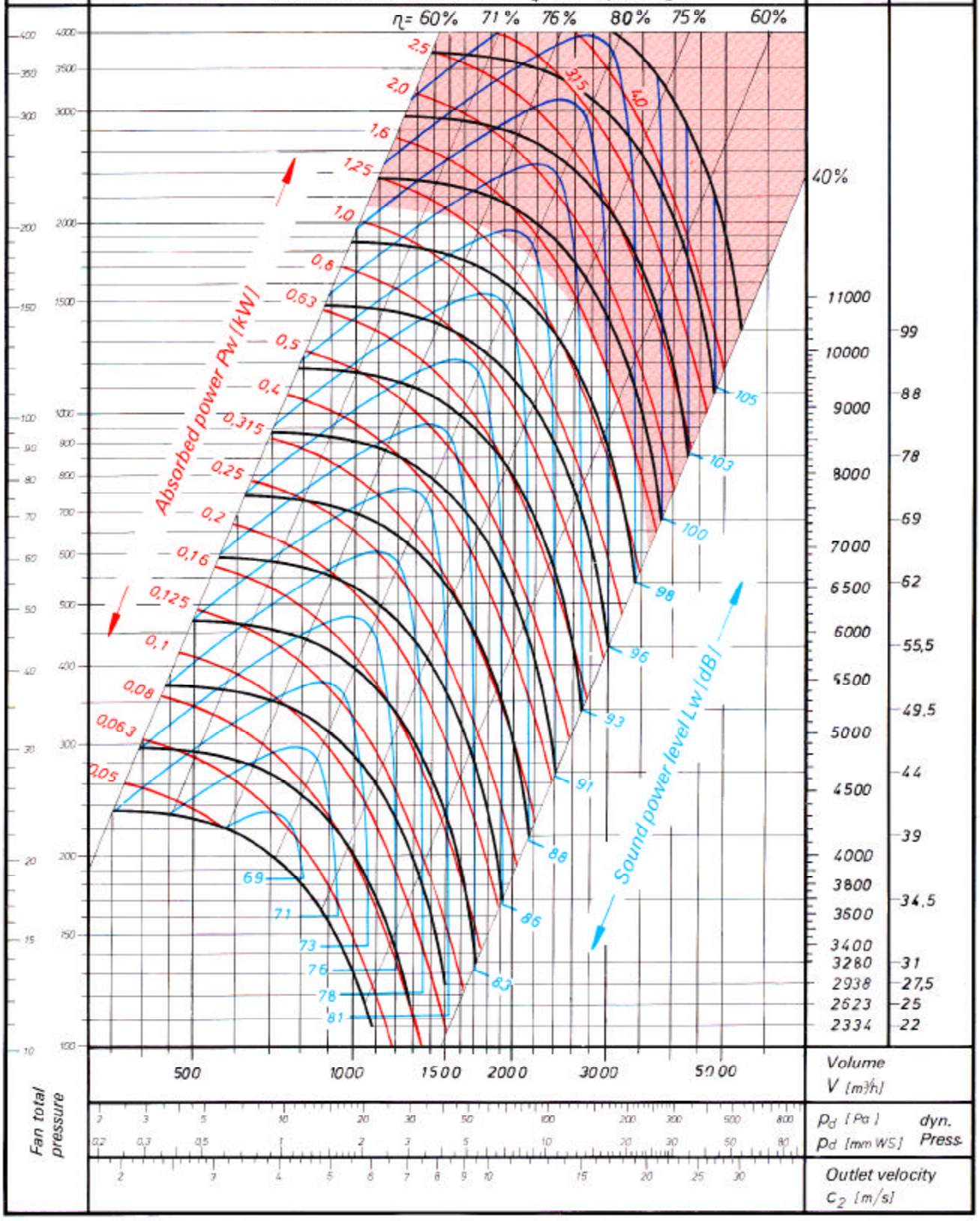
Radial Fan

backward curved double inlet

T-HLZ 180

Max. speed	n_{max} =	7000	min^{-1}
Max. shaft power	$P_{W max}$ =	3,0	kW
Max. total pressure	Δp_t =	2100	Pa.
Number of blades	z =	8	
Mass moment of inertia	$J. (\,) \hat{=} \frac{GD^2}{4}$ =	0,005	kgm^2



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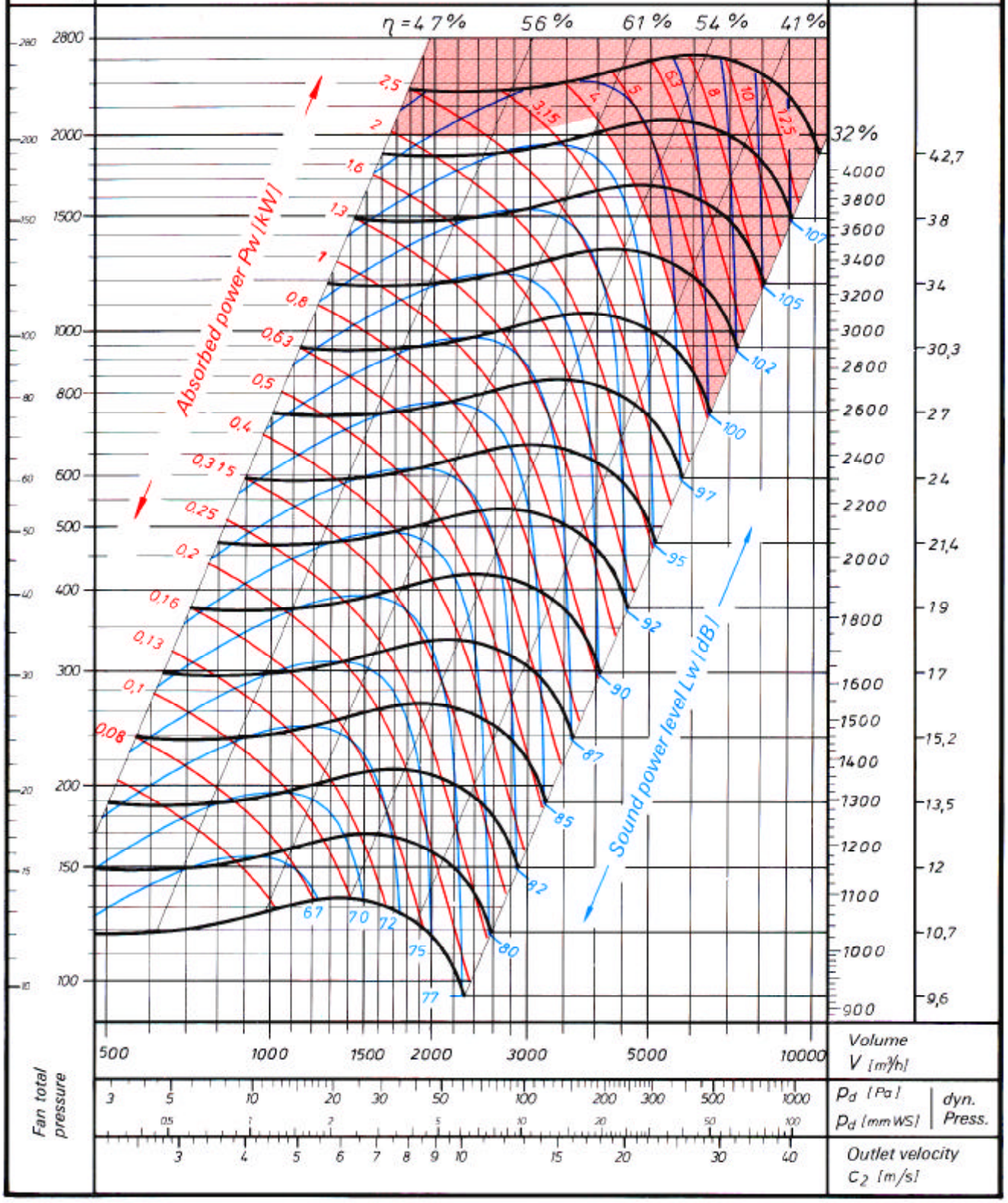
Radial Fan

forward curved double inlet

TLZ 200

Max. speed	n_{max} =	3800	min^{-1}
Max. shaft power	P_{wmax} =	4,0	kW
Max. total pressure	Δp_t =	2100	Pa
Number of blades	z =	38	
Mass moment of inertia	$J\ (J = \frac{GD^2}{4})$ =	0,018	kgm^2



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Radial Fan

backward curved double inlet

T-HLZ 200

Max. speed	n_{max} =	6200	min^{-1}
Max. shaft power	P_{Wmax} =	3,5	k W
Max. total pressure	Δp_t =	2100	Pa
Number of blades	z =	8	
Mass moment of inertia	$J\ (=\frac{GD^2}{4})$ =	0,010	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

Fan total pressure

η = 60% 72% 76% 80% 75% 60%

Absorbed power Pw [kW]

3,15 2,5 2,0 1,6 1,25 1,0 0,8 0,63 0,5 0,4 0,315 0,25 0,2 0,16 0,125 0,1 0,08

Sound power level Lw [dB]

70 72 74 77 79 82 84 87 89 92 94 97 99 101 104 106

41 %

Fan speed n [min^{-1}]

10000 9000 8000 7000 6500 6000 5500 5000 4500 4000 3800 3600 3400 3200 3000 2843 2548 2275 2053

Peripheral speed u [m/s]

95 84,5 75 66,5 59,5 53,5 47,5 42 37,5 33 30 26,5 24 21,5

500 1000 1500 2000 3000 5000

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity c_2 [m/s]

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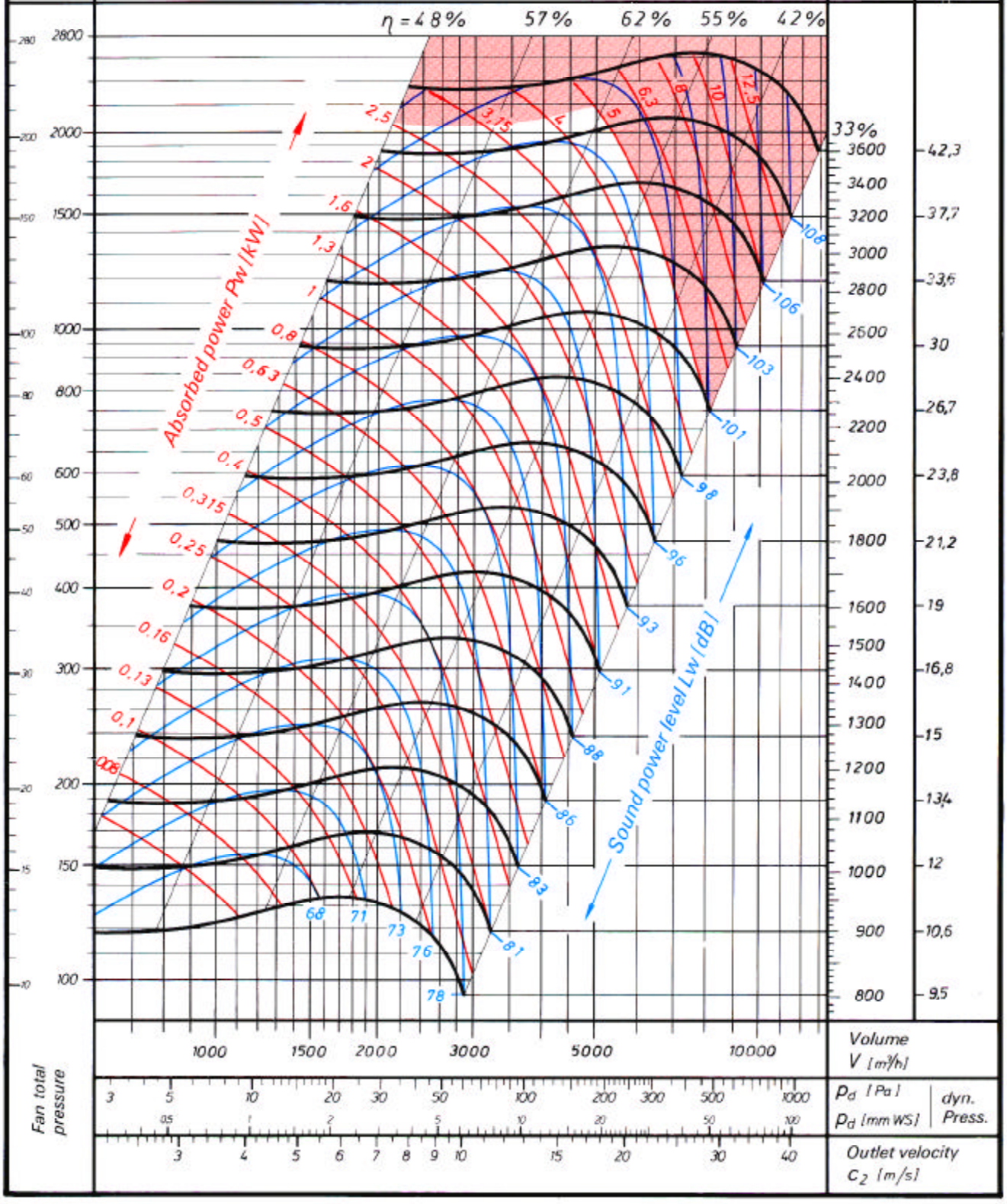
Radial Fan

forward curved double inlet

TLZ 225

Max. speed	n_{max} = 3400	min^{-1}
Max. shaft power	P_{wmax} = 5,0	kW
Max. total pressure	Δp_t = 2200	Pa
Number of blades	z = 42	
Mass moment of inertia	$J\ (J \triangleq \frac{GD^2}{4})$ = 0,028	kgm^2



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Radial Fan

backward curved double inlet

T-HLZ 225

Max. speed	n_{max} =	6200	min^{-1}
Max. shaft power	P_{Wmax} =	4,0	kW
Max. total pressure	Δp_t =	2900	Pa
Number of blades	z =	8	
Mass moment of inertia	$J\ (J \triangleq \frac{GD^2}{4})$ =	0,014	$kg\,m^2$

η= 61% 72% 76% 80% 75% 61%

41%

Absorbed power Pw [kW]

Sound power level Lw [dB]

Fan total pressure Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

forward curved double inlet

TLZ 250

Max. speed	n_{max} =	3000	min^{-1}
Max. shaft power	P_{wmax} =	5,0	kW
Max. total pressure	Δp_t =	2100	Pa
Number of blades	z =	38	
Mass moment of inertia	$J\ (J \triangleq GD^2)$ =	0,044	kgm^2

Δp_t [mm WS] | Δp_t [Pa] | Fan speed n [min^{-1}] | Peripheral speed u [m/s]

η = 50% 59% 64% 57% 44%

Absorbed power P_W [kW]

Sound power level L_W [dB]

35%

Fan total pressure

Volume V [m^3/h]

p_d [Pa] | p_d [mm WS] | dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

backward curved double inlet

T-HLZ 250

Max. speed	$n_{max.}$ =	5800	min^{-1}
Max. shaft power	$P_{W max}$ =	5,0	kW
Max. total pressure	Δp_t =	3400	Pa
Number of blades	z =	8	
Mass moment of inertia	$J\ (= \frac{GD^2}{4})$ =	0,02	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

η = 61% 72% 76% 80% 75% 61%

Absorbed power Pw [kW]

Sound power level Lw [dB]

Fan total pressure

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity c_2 [m/s]

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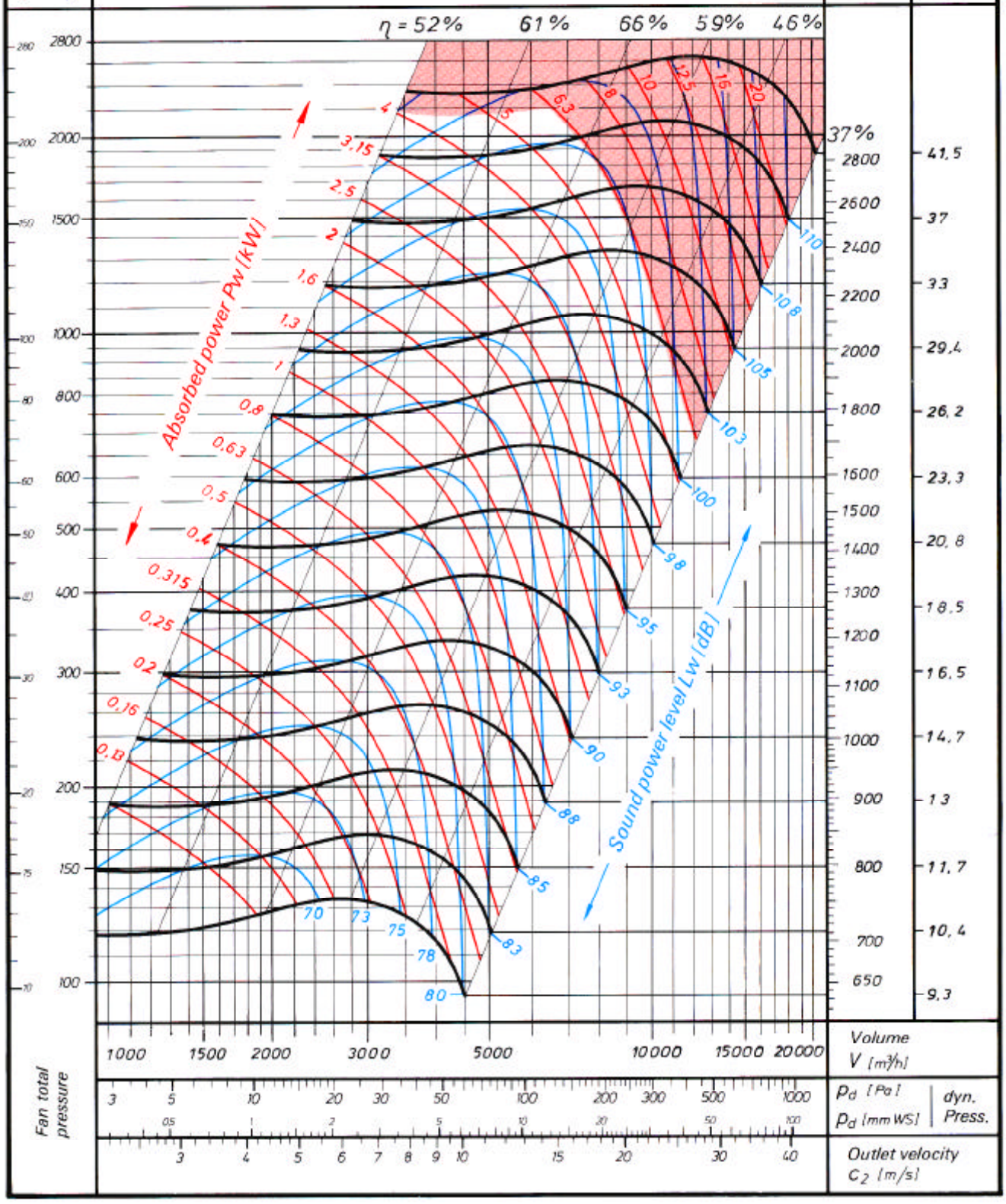
Radial Fan

forward curved double inlet

TLZ 280

Max. speed	n_{max} =	2730 min^{-1}
Max. shaft power	P_{wmax} =	6,3 kW
Max. total pressure	Δp_t =	2200 Pa
Number of blades	z =	42
Mass moment of inertia	$J\ (J \triangleq \frac{GD^2}{4})$ =	0,06 kgm^2



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Radial Fan

backward curved double inlet

T-HLZ 280

Max. speed	n_{max} =	4700	min^{-1}
Max. shaft power	P_{wmax} =	5,2	kW
Max. total pressure	Δp_t =	2800	Pa
Number of blades	z =	8	
Mass moment of inertia	$J\ (J = \frac{GD^2}{4})$ =	0,034	$kg\,m^2$

Δp_t [mm WS] | Δp_t [Pa] | Fan speed n [min^{-1}] | Peripheral speed u [m/s]

η = 62% 73% 76% 80% 75% 62%

Absorbed power Pw [kW]: 6,3 | 5,0 | 4,0 | 3,15 | 2,5 | 2,0 | 1,6 | 1,25 | 1,0 | 0,8 | 0,63 | 0,5 | 0,4 | 0,315 | 0,25 | 0,2 | 0,16 | 0,125

Sound power level Lw [dB]: 73 | 75 | 77 | 80 | 82 | 85 | 87 | 90 | 92 | 95 | 97 | 100 | 102 | 104 | 107 | 109

41%

Fan speed n [min^{-1}]: 6500 | 6000 | 5500 | 5000 | 4500 | 4000 | 3800 | 3600 | 3400 | 3200 | 3000 | 2800 | 2600 | 2400 | 2200 | 2000 | 1913 | 1714 | 1531 | 1364

Peripheral speed u [m/s]: 90 | 79,5 | 70,5 | 63 | 56 | 50,5 | 45 | 40 | 35 | 31,5 | 28 | 25 | 22,5 | 20

Fan total pressure

1000 1500 2000 3000 5000 10000

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

forward curved double inlet

TLZ 315

Max. speed	n_{max} =	2400	min^{-1}
Max. shaft power	P_{Wmax} =	7,0	kW
Max. total pressure	Δp_t =	2200	Pa
Number of blades	z =	38	
Mass moment of inertia	J ($J = \frac{GD^2}{4}$) =	0,104	kgm^2

Δp_t [mm WS] | Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

η = 53% 62% 67% 60% 47%

Absorbed power P_W [kW]

Sound power level L_W [dB]

38%

Fan total pressure

Volume V [m^3/h]

p_d [Pa] | p_d [mm WS] | dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

backward curved double inlet

T-HLZ 315

Max. speed	$n_{max.}$ =	3700	min^{-1}
Max. shaft power	P_{Wmax} =	5,6	kW
Max. total pressure	Δp_t =	2200	Pa
Number of blades	z =	8	
Mass moment of inertia	$J\ (J = \frac{GD^2}{4})$ =	0,05	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

η= 63% 73% 77% 81% 76% 62%

Absorbed power Pw [kW]

6,0 6,3 5,0 4,0 3,15 2,5 2,0 1,6 1,25 1,0 0,8 0,63 0,5 0,4 0,315 0,25 0,2 0,16

Sound power level Lw [dB]

74 76 78 81 83 86 88 91 93 96 98 101 103 105 108 110 112

42%

Fan speed n [min^{-1}]

6000 5500 5000 4500 4000 3800 3600 3400 3200 3000 2800 2600 2400 2200 2000 1800 1701 1524 1361 1213

Peripheral speed u [m/s]

90 79,5 70,5 63 56 50,5 45 40 35,5 31,5 28 25 22,5 20

Fan total pressure

Volume V [m^3/h]

1500 2000 3000 5000 10000 15000 20000

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

forward curved double inlet

TLZ 355

Max. speed	n_{max} =	1900	min^{-1}
Max. shaft power	P_{wmax} =	9,0	kW
Max. total pressure	Δp_t =	1800	Pa
Number of blades	z =	42	
Mass moment of inertia	$J\ (J=\frac{GD^2}{4})$ =	0,15	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

η = 54% 63% 68% 61% 48%

39 %

Absorbed power P_W [kW]

Sound power level L_W [dB]

Fan total pressure

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

backward curved double inlet

T-HLZ 355

Max. speed	$n_{max.}$ =	3400	min^{-1}
Max. shaft power	P_{wmax} =	7,0	kW
Max. total pressure	Δp_t =	2400	Pa
Number of blades	z =	8	
Mass moment of inertia	J ($J = \frac{GD^2}{4}$) =	0,1	kgm^2

η = 63% 73% 77% 81% 77% 62%

Absorbed power P_W [kW]

Sound power level L_W [dB]

44%

Fan total pressure Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

forward curved double inlet

TLZ 400

Max. speed	n_{max} =	1700	min^{-1}
Max. shaft power	P_{wmax} =	9,0	kW
Max. total pressure	Δp_t =	1800	Pa
Number of blades	z =	38	
Mass moment of inertia	$J\ [J \triangleq \frac{GD^2}{4}]$ =	0,3	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

η = 54% 63% 68% 61% 48%

39%

Absorbed power Pw (kW)

Sound power level Lw [dB]

Fan total pressure

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

backward curved double inlet

T-HLZ 400
HLZ 400 R
HLZ 400 T

			T-HLZ	HLZ-R	HLZ-T	
Max. speed	n_{max}	=	2850	3240	3600	min^{-1}
Max. shaft power	$P_{W\,max}$	=	7,5	11	14	kW
Max. total pressure	Δp_t	=	2100	2530	3400	Pa.
Number of blades	z	=	8	8	8	
Mass moment of inertia	J ($\omega = \frac{60}{2}$)	=	0,15	0,45	0,45	kgm^2

Δp_t [mm WS] Δp_t [Pa]

η = 63% 74% 78% 82% 78 % 63%

45%

Absorbed power P_w [kW]

10 8 6,3 5 4 3,15 2,5 2 1,6 1,25 1 0,8 0,63 0,5 0,4 0,315 0,25

Sound power level L_w [dB]

112 110 107 105 103 100 98 95 93 90 88 85 83 80 78 76

Fan speed n [min^{-1}]

4500 4000 3800 3600 3400 3200 3000 2800 2600 2400 2200 2000 1800 1600 1500 1400 1340 1194 1070 955

Peripheral speed u [m/s]

90 80 71 63 56 50 45 40 35,5 31,5 28 25 22,4 20

Volume V [m^3/h]

2000 3000 5 000 10 000 15 000 20 000 30 000

Fan total pressure

p_d [Pa] p_d [mm WS] dyn. Press.

Outlet velocity C_2 [m/s]

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Radial Fan

forward curved double inlet

TLZ 450

Max. speed	n_{max} =	1500	min^{-1}
Max. shaft power	P_{wmax} =	11	kW
Max. total pressure	Δp_t =	1800	Pa
Number of blades	z =	42	
Mass moment of inertia	J ($J \triangleq \frac{GD^2}{4}$) =	0,44	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

η = 56% 65% 70% 63% 50%

Absorbed power P_W [KW]

Sound power level L_W [dB]

41%

Fan total pressure

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

backward curved double inlet

T-HLZ 450
HLZ 450 R
HLZ 450 T

			T-HLZ	HLZ-R	HLZ-T	
Max. speed	n_{max}	=	2500	3060	3400	min^{-1}
Max. shaft power	$P_{W\,max}$	=	8	16	20	kW
Max. total pressure	Δp_t	=	2000	3000	4000	Pa.
Number of blades	z	=	8	8	8	
Mass moment of inertia	$J\,(\frac{D+0,01}{4})$	=	0,33	0,7	0,7	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

η = 63% 74% 77% 82% 77% 63%

Absorbed power P_W [kW]

12,5 · 10 · 8 · 6,3 · 5 · 4 · 3,15 · 2,5 · 2 · 1,6 · 1,25 · 1 · 0,8 · 0,63 · 0,5 · 0,4 · 0,315

Sound power level L_W [dB]

77 · 79 · 81 · 84 · 86 · 89 · 91 · 94 · 96 · 99 · 101 · 104 · 106 · 108 · 111 · 113

45 %

4 000 · 3800 · 3600 · 3400 · 3200 · 3000 · 2800 · 2600 · 2400 · 2200 · 2000 · 1800 · 1600 · 1500 · 1400 · 1300 · 1195 · 1062 · 951 · 850

90 · 80 · 71 · 63 · 56 · 50 · 45 · 40 · 35,5 · 31,5 · 28 · 25 · 22,4 · 20

3000 · 5000 · 10 000 · 15 000 · 20 000 · 30 000

Volume V [m^3/h]

Fan total pressure

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity C_2 [m/s]

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Radial Fan

forward curved double inlet

TLZ 500

Max. speed	n_{max} =	1300	min^{-1}
Max. shaft power	P_{wmax} =	11	kW
Max. total pressure	Δp_f =	1700	Pa
Number of blades	z =	38	
Mass moment of inertia	$J\ (J \pm \frac{GD^2}{4})$ =	0,85	kgm^2

Δp_f [mm WS] | Δp_f [Pa] | Fan speed n [min^{-1}] | Peripheral speed u [m/s]

η = 56% 65% 70% 63% 50%

Absorbed power Pw [kW]

Sound power level Lw [dB]

41%

Fan total pressure

Volume V [m^3/h]

p_d [Pa] | p_d [mm WS] | dyn. Press.

Outlet velocity c_2 [m/s]

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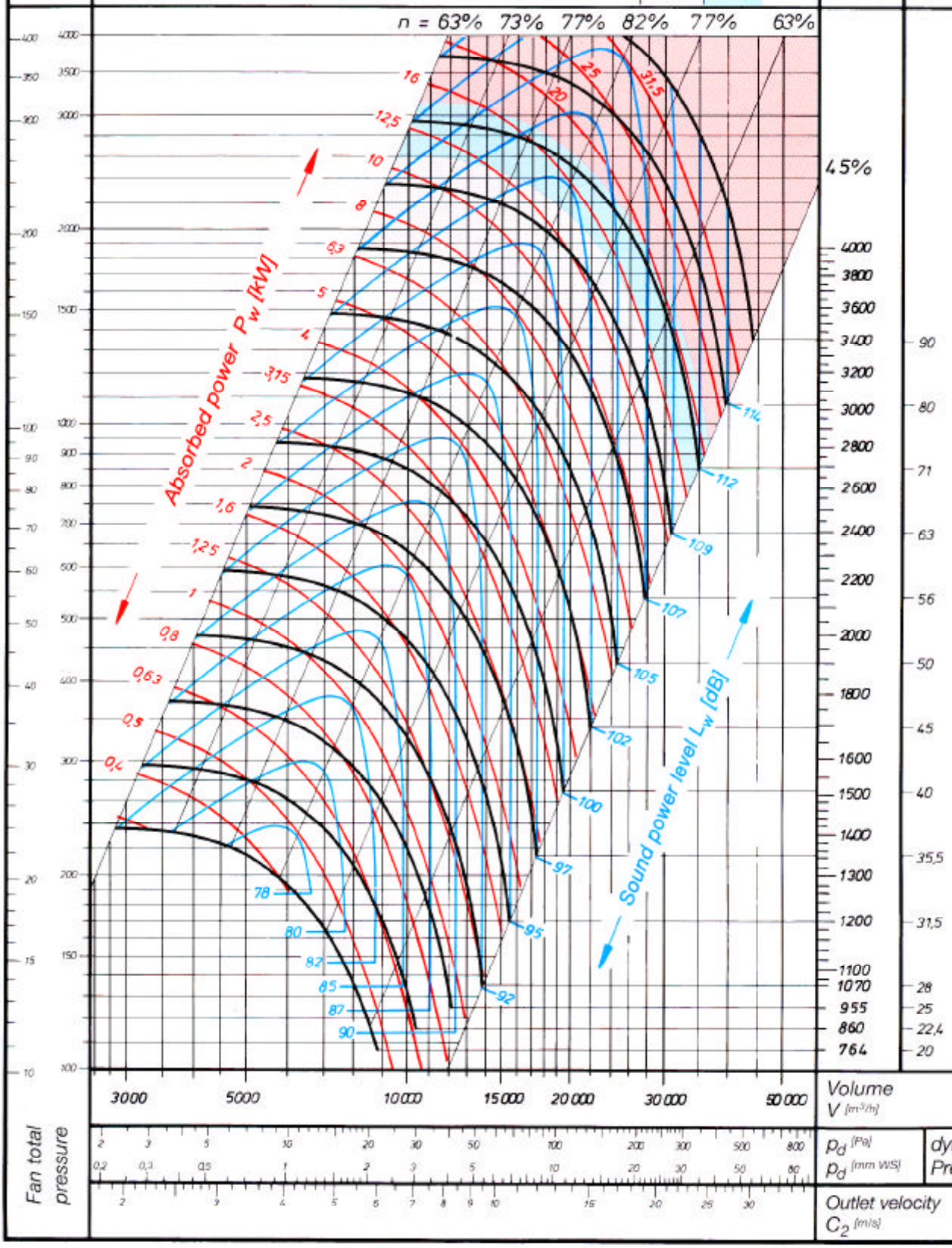
Radial Fan

backward curved double inlet

T-HLZ 500
HLZ 500 R
HLZ 500 T

			T-HLZ	HLZ-R	HLZ-T	
Max. speed	n_{max}	=	2100	2520	2800	min^{-1}
Max. shaft power	$P_{W\,max}$	=	10	16	20	kW
Max. total pressure	Δp_t	=	1800	2600	3000	Pa.
Number of blades	z	=	8	8	8	
Mass moment of inertia .	$J_{u+\frac{d(\rho)}{4}}$	=	0,88	1,05	1,05	kgm^2



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Radial Fan

forward curved double inlet

TLZ 560

Max. speed	n_{max} =	1200	min^{-1}
Max. shaft power	P_{wmax} =	13,5	kW
Max. total pressure	Δp_t =	1800	Pa
Number of blades	z =	42	
Mass moment of inertia	$J\ [J \triangleq \frac{GD^2}{4}]$ =	1,34	kgm^2

Δp_t [mm WS] / Δp_t [Pa] — Fan total pressure

Absorbed power P_w [kW]

Sound power level L_W [dB]

η = 57% 66% 71% 64% 51%

42%

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

backward curved double inlet

T-HLZ 560
HLZ 560 T

		T-HLZ	HLZ	
Max. speed	n_{max} =	2000	2800	min^{-1}
Max. shaft power	P_{Wmax} =	14	35	kW
Max. total pressure	Δp_t =	2000	4000	Pa
Number of blades	z =	8	8	
Mass moment of inertia	$J\ (\approx \frac{GD^2}{4})$ =	1,4	2	kgm^2

η = 64% 74% 78% 82% 78% 63%

Absorbed power Pw [kW]

Sound power level Lw [dB]

45%

Fan total pressure Δp_t [mm WS] Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

Volume V [m^3/h]

p_d [Pa] p_d [mm WS] dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

forward curved double inlet

TLZ 630

Max. speed	n_{max} =	1000	min^{-1}
Max. shaft power	P_{wmax} =	13,5	kW
Max. total pressure	Δp_t =	1600	Pa
Number of blades	z =	38	
Mass moment of inertia	$J\ (J \pm \frac{GD^2}{4})$ =	2,2	kgm^2

Δp_t [mm WS] | Δp_t [Pa] | η = 57% | 66 % | 71 % | 64 % | 51 % | Fan speed n [min^{-1}] | Peripheral speed u [m/s]

Absorbed power Pw [kW]

Sound power level Lw [dB]

42 %

Fan total pressure

Volume V [m^3/h]

p_d [Pa] | p_d [mm WS] | dyn. Press.

Outlet velocity c_2 [m/s]

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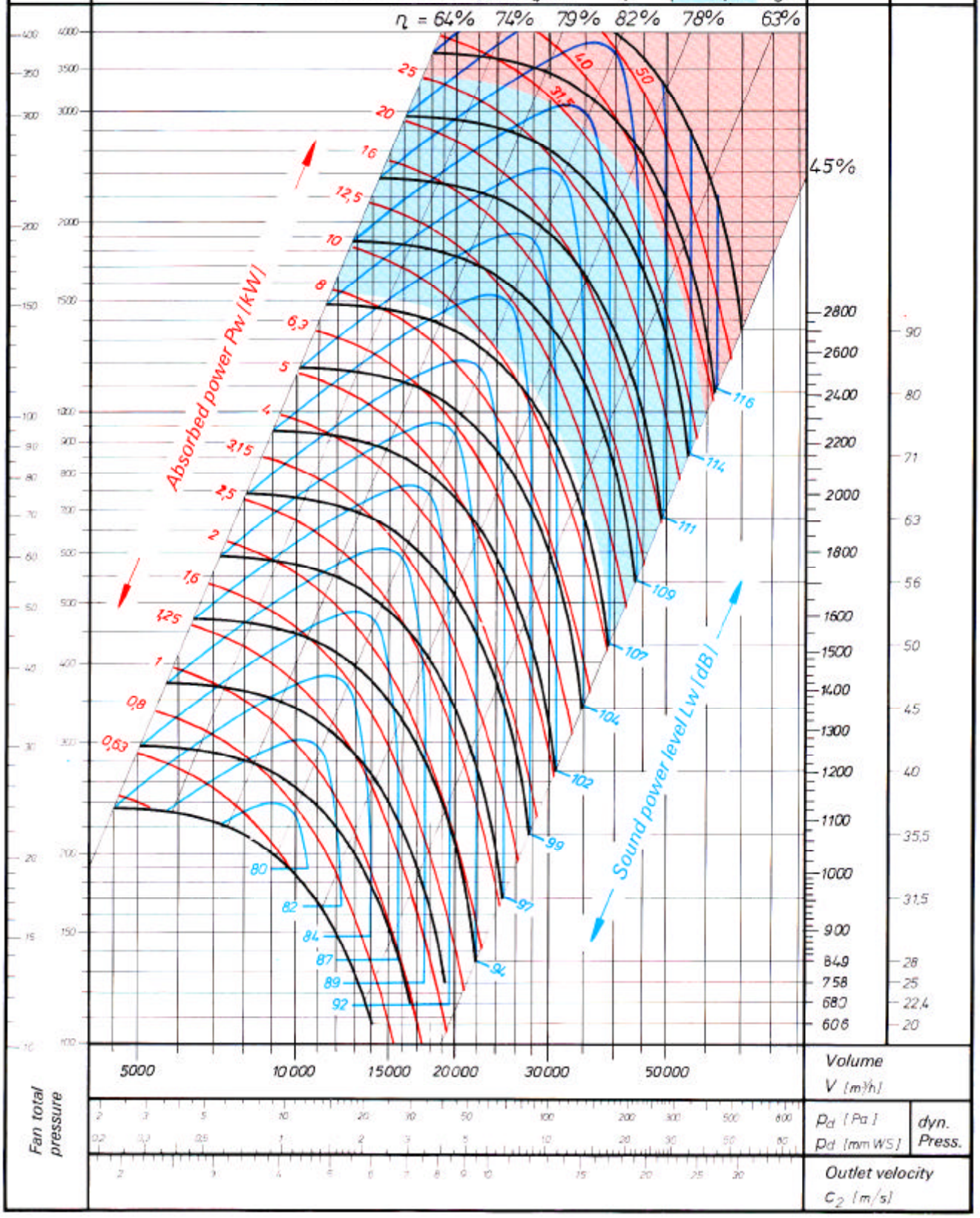
Radial Fan

backward curved double inlet

T-HLZ 630

HLZ 630 T

		T-HLZ	HLZ	
Max. speed	n_{max} =	1550	2300	min^{-1}
Max. shaft power	P_{Wmax} =	12,5	40	kW
Max. total pressure	Δp_t =	1600	3400	Pa
Number of blades	z =	8	8	
Mass moment of inertia	$J\ (J \triangleq \frac{GD^2}{4})$ =	2,3	3,1	kgm^2



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Radial Fan

forward curved double inlet

TLZ 710
TLZ 710 T

		TLZ 710	710 T	
Max. speed	n_{max} =	750	850	min^{-1}
Max. shaft power	$P_{w_{max}}$ =	14	22	kW
Max. total pressure	Δp_t =	1200	1550	Pa
Number of blades	z =	42	42	
Mass moment of inertia	J ($J \triangleq \frac{GD^2}{4}$) =	3,4	3,4	kgm^2

Δp_t [mm WS] | Δp_t [Pa] | Fan speed n [min^{-1}] | Peripheral speed u [m/s]

η = 58% 67% 72% 65% 52%

Absorbed power P_W [KW]

Sound power level L_W [dB]

43%

Fan total pressure

Volume V [m^3/h]

p_d [Pa] | p_d [mm WS] | dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

backward curved double inlet

T-HLZ 710
T-HLZ 710T
HLZ 710T

		THLZ	THLZ-T	HLZ	
Max. speed	n_{max} =	1300	1500	2050	min^{-1}
Max. shaft power	P_{wmax} =	12,5	18	45	kW
Max. total pressure	Δp_t =	1400	1850	3600	Pa
Number of blades	z =	8	8	8	
Mass moment of inertia	J ($J = \frac{GD^2}{4}$) =	4,8	4,8	6,4	kgm^2

η = 64% 74% 79% 83% 78% 63%

45%

Absorbed power Pw [kW]

Sound power level Lw [dB]

Fan total pressure Δp_t [mm WS] / [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

forward curved double inlet

TLZ 800 T

Max. speed	n_{max} =	750	min^{-1}
Max. shaft power	P_{Wmax} =	25	kW
Max. total pressure	Δp_t =	1600	Pa
Number of blades	z =	38	
Mass moment of inertia	$(J \pm \frac{GD^2}{4})$ =	5,8	kgm^2

Δp_t [mm WS] | Δp_t [Pa]

Fan speed n [min^{-1}] | Peripheral speed u [m/s]

η = 59 % 68 % 73 % 66 % 53 %

Absorbed power P_W [kW]

Sound power level L_W [dB]

Fan total pressure

Volume V [m^3/h]

p_d [Pa] | p_d [mm WS] | dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

backward curved double inlet

T-HLZ 800 T
HLZ 800 T

		T-HLZ	HLZ	
Max. speed	n_{max} =	1200	1650	min^{-1}
Max. shaft power	P_{Wmax} =	18	45	kW
Max. total pressure	Δp_t =	1500	2800	Pa
Number of blades	z =	8	8	
Mass moment of inertia	$J\ (= \frac{GD^2}{4})$ =	7,6	10,2	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

η = 65% 74% 79% 83% 78% 64%

Absorbed power Pw [kW]

Sound power level Lw [dB]

46%

Fan total pressure

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

forward curved double inlet

TLZ 900 T

Max. speed	n_{max} =	650	min^{-1}
Max. shaft power	P_{wmax} =	32	kW
Max. total pressure	Δp_t =	1450	Pa
Number of blades	z =	42	
Mass moment of inertia	$J\ (J \triangleq \frac{GD^2}{4})$ =	8,9	kgm^2

Δp_t [mm WS] | Δp_t [Pa] | Fan speed n [min^{-1}] | Peripheral speed u [m/s]

η = 59% 68% 73% 66% 53%

44%

Absorbed power Pw [kW]

Sound power level Lw [dB]

Fan total pressure

Volume V [m^3/h]

p_d [Pa] | p_d [mm WS] | dyn. Press.

Outlet velocity c_2 [m/s]

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Radial Fan

backward curved double inlet

T-HLZ 900 T
HLZ 900 T

		T-HLZ	HLZ	
Max. speed	n_{max} =	1200	1600	min^{-1}
Max. shaft power	P_{Wmax} =	30	70	kW
Max. total pressure	Δp_t =	1800	3300	Pa
Number of blades	z =	8	8	
Mass moment of inertia	$J\ (= \frac{GD^2}{4})$ =	13,4	19,4	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

η = 65% 74% 80% 83% 78% 64%

Absorbed power P_W [kW]

Sound power level L_W [dB]

Fan total pressure

Volume V [m^3/h]

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity c_2 [m/s]

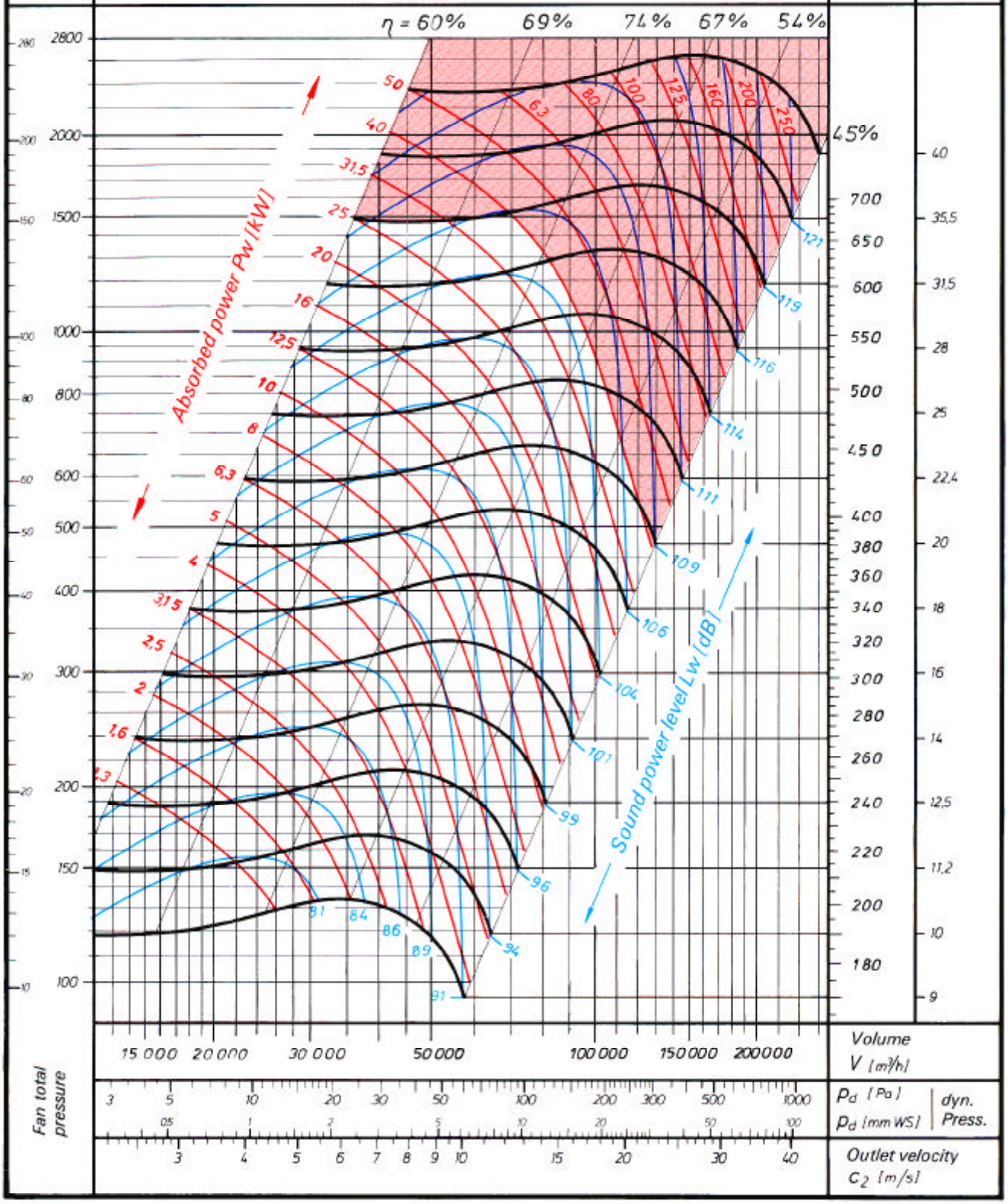
comefri

Radial Fan

forward curved double inlet

TLZ 1000T

Max. speed	n_{max} =	600	min^{-1}
Max. shaft power	P_{wmax} =	40	kW
Max. total pressure	Δp_t =	1500	Pa
Number of blades	z =	48	
Mass moment of inertia	$J\ (J \triangleq \frac{GD^2}{4})$ =	13,5	kgm^2



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Radial Fan

backward curved double inlet

T-HLZ 1000T
HLZ 1000T

		T-HLZ	HLZ	
Max. speed	$n_{max.}$ =	1065	1330	min^{-1}
Max. shaft power	P_{Wmax} =	35	70	kW
Max. total pressure	Δp_t =	1800	2850	Pa
Number of blades	z =	8	8	
Mass moment of inertia	$J\ (= \frac{GD^2}{4})$ =	21,5	29,5	kgm^2

Δp_t [mm WS] / Δp_t [Pa]

Fan speed n [min^{-1}]

Peripheral speed u [m/s]

η = 65% 74% 80% 83% 78% 64%

46%

Absorbed power Pw [kW]

Sound power level Lw [dB]

Volume V [m^3/h]

Fan total pressure

p_d [Pa] / p_d [mm WS] — dyn. Press.

Outlet velocity c_2 [m/s]

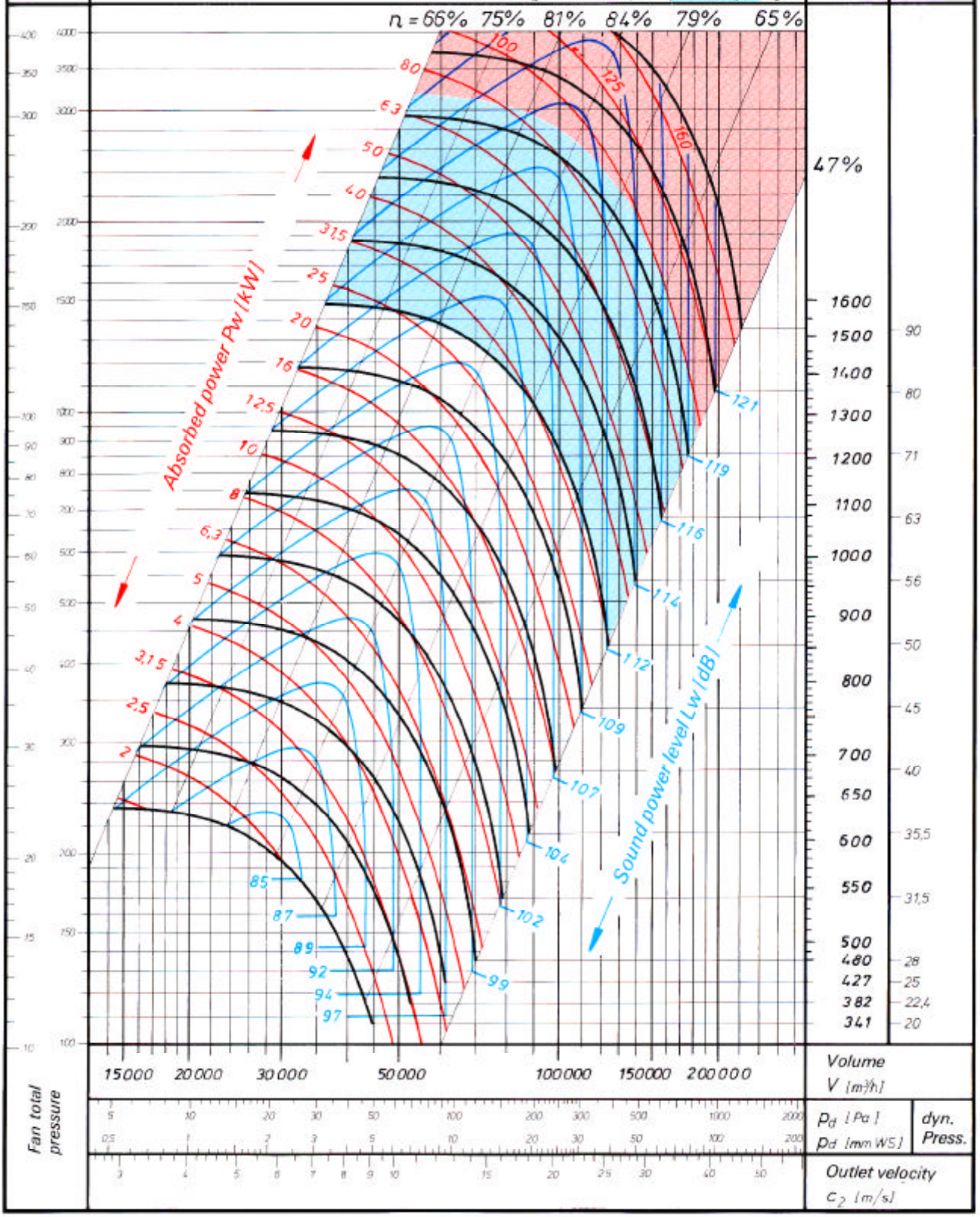
comefri

Radial Fan

backward curved double inlet

T-HLZ 1120
HLZ 1120

		T-HLZ	HLZ	
Max. speed	n_{max} =	850	1250	min⁻¹
Max. shaft power	P_{wmax} =	35	105	kW
Max. total pressure	Δp_t =	1500	3200	Pa
Number of blades	z =	8	8	
Mass moment of inertia	$J\ (J = \frac{GD^2}{4})$ =	38,3	61,8	kgm²



comefri

Radial Fan

backward curved double inlet

T-HLZ 1250
HLZ 1250

		T-HLZ	HLZ	
Max. speed	n_{max} =	800	1200	min^{-1}
Max. shaft power	P_{wmax} =	50	140	kW
Max. total pressure	Δp_t =	1600	3600	Pa
Number of blades	z =	8	8	
Mass moment of inertia	$J\ (J \triangleq \frac{GD^2}{4})$ =	61	97,5	kgm^2

Δp_t [mm WS] | Δp_t [Pa] | Fan speed n [min^{-1}] | Peripheral speed u [m/s]

η = 66% 75% 81% 85% 80% 65%

47%

Absorbed power Pw [kW]

Sound power level Lw [dB]

Fan total pressure

Volume V [m^3/h]

p_d [Pa] | p_d [mm WS] | dyn. Press.

Outlet velocity c_2 [m/s]

6. Fan dimensions and weights

comefri

Radial Fans

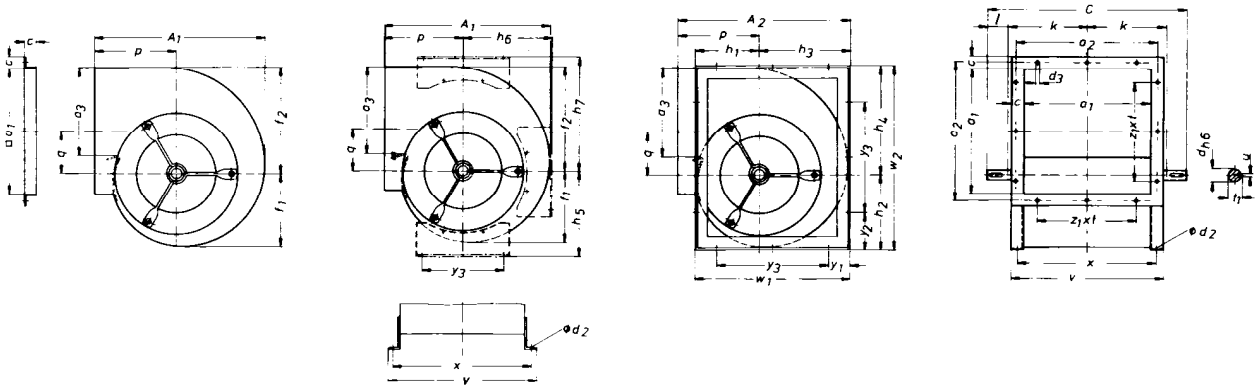
TLZ 160 ÷ 710

TLZ 200 R ÷ 710 R

Dimensions and technical details

Drawing 6.1

...A TLZ... TLZ...F TLZ...R



TLZ	A_1	A_2	a_1	a_2	a_3	C	c	d^{h6}	d_2	d_3	f_1	f_2	h_1	h_2	h_3	h_4	h_5
160	282,5	285	205	230	131	345	25	20	7	7,5	120	153	109	121	145	177	150
180	316,5	319	229	259	149	375	25	20	7	7,5	136	195	119	138	167	200	164
200	342	344	256	286	163	405	25	20	7	7,5	149	216	133	152	180	220	181
225	380	382	288	318	180	435	25	20	7	7,5	167	243	146	169	202	246	197
250	422	420	322	352	199	470	25	20	7	7,5	186	269	159	188	225	273	210
280	464	467	361	391	228	540	25	25	10,5	7,5	208	302	180	211	252	307	233
315	519	519	404	434	240	585	25	25	10,5	7,5	232	341	197	235	283	343	258
355	582	580	453	483	311	655	25	30	10,5	7,5	265	383	222	266	319	389	274
400	645	651	507	537	336	709	25	30	10,5	7,5	295	432	245	300	361	436	302
450	722	722	569	599	382	810	25	35	12	7,5	330	485	270	336	404	492	336
500	795	801	638	668	450	875	25	35	12	7,5	366	538	295	374	449	544	375
560	886	893	715	745	502	1000	25	40	15	7,5	411	601	335	419	503	611	416
630	992	1000	801	831	559	1090	25	40	15	7,5	463	679	370	471	566	687	468
710	1114	1120	898	928	624	1220	25	50	17	7,5	521	765	412	531	636	773	531

TLZ	h_6	h_7	k	l	p	q	t_1	u	v	w_1	w_2	x	y_1	y_2	y_3	z_1 x t
160	149	204	134	38,5	139,5	71	22,5	6	256	254	298	231	47	69	180	2 x 90
180	164	224	146	41,5	152,5	81	22,5	6	280	286	338	255	53	79	180	2 x 90
200	184	245	162	40,5	164	89	22,5	6	307	314	372	282	45	74	224	2 x 90
225	204	274	178	39,5	180	100	22,5	6	339	348	416	314	62	96	224	3 x 90
250	227	299	195	40	195	109	22,5	6	373	384	462	348	80	119	224	3 x 90
280	252	328	217	53	215	123	28	8	422	432	518	392	76	119	280	3 x 90
315	280	367	239	53	236	139	28	8	466	480	578	436	100	149	280	4 x 90
355	320	411	267	60	261	158	33	8	534	542	655	494	94	150	355	4 x 90
400	359	462	293	61,5	290	179	33	8	588	606	736	549	126	191	355	5 x 90
450	407	518	330	75	322	202	38	10	651	674	828	611	112	189	450	6 x 90
500	448	568	364	73	352	221	38	10	720	744	918	681	147	234	450	6 x 90
560	502	634	406	94	390	248	43	12	818	838	1030	768	169	265	500	7 x 90
630	571	707	450	95	434	280	43	12	904	936	1158	854	188	299	560	8 x 90
710	636	797	497	119	485	318	53,5	14	1001	1048	1304	961	209	337	630	9 x 90

subject to change

comefri

Radial Fans

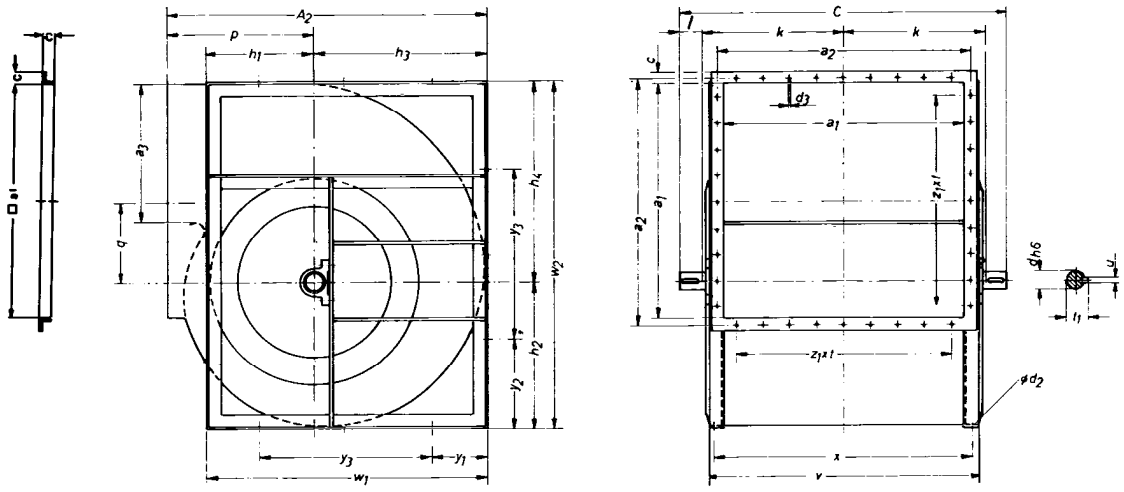
TLZ 710 T ÷ 1000 T

Dimensions and technical details

Drawing 6.2

...A

TLZ...T



TLZ	A_2	a_1	a_2	a_3	C	c	d^{h6}	d_2	d_3	h_1	h_2	h_3	h_4	k
710 T	1120	898	928	624	1260	25	50	18	7,5	413	531	635	773	516
800 T	1256	1007	1037	714	1367	25	50	18	7,5	458	597	716	871	570
900 T	1409	1130	1164	806	1529	30	60	18	10	507	670	805	978	639
1000 T	1541	1267	1301	909	1666	30	60	18	10	560	735	884	1075	708

TLZ	l	p	q	t_1	u	v	w_1	w_2	x	y_1	y_2	y_3	z_1 x t
710 T	114	485	318	53,5	14	1001	1048	1304	961	209	327	630	9 x 90
800 T	113	540	359	53,5	14	1111	1174	1468	1071	232	379	710	11 x 90
900 T	125,5	604	406	64	18	1234	1312	1648	1194	256	424	800	11 x 100
1000 T	125	657	433	64	18	1371	1444	1810	1331	272	455	900	12 x 100

subject to change

comefri

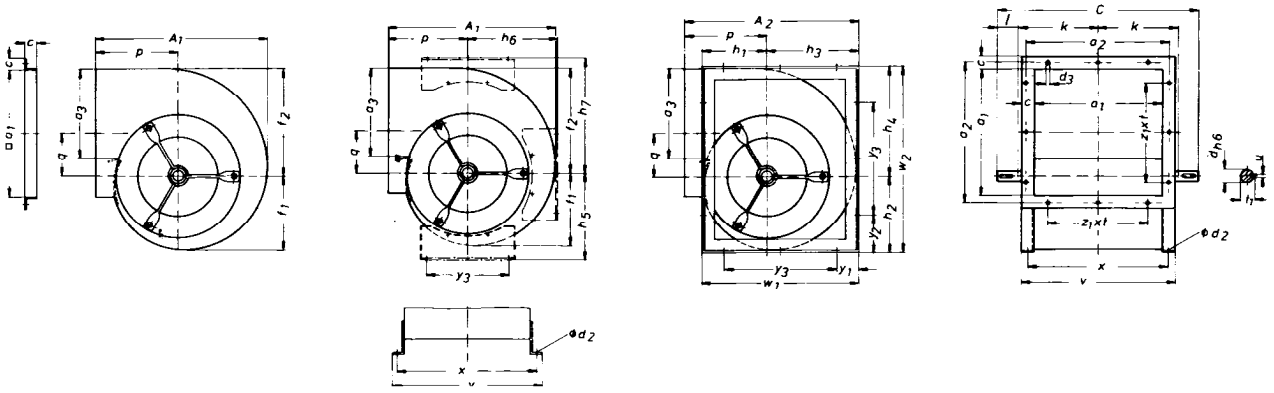
Radial Fans

T-HLZ 180 ÷ 710
T-HLZ 200 R ÷ 710 R

Dimensions and technical details

Drawing 6.3

...A T-HLZ... T-HLZ...F T-HLZ...R



T-HLZ	A_1	A_2	a_1	a_2	a_3	C	c	d^{h6}	d_2	d_3	f_1	f_2	h_1	h_2	h_3	h_4	h_5
180	316,5	319	229	259	185	375	25	20	7	7,5	136	195	119	138	167	200	164
200	342	344	256	286	166	405	25	20	7	7,5	149	216	133	152	180	220	181
225	380	382	288	318	230	435	25	20	7	7,5	167	243	146	169	202	246	197
250	422	420	322	352	193	470	25	20	7	7,5	186	269	159	188	225	273	210
280	464	467	361	391	227	540	25	25	10,5	7,5	208	308	180	211	252	307	233
315	514	519	404	434	243	585	25	25	10,5	7,5	232	341	197	235	283	343	258
355	582	580	453	483	275	655	25	30	10,5	7,5	265	383	222	266	319	389	274
400	645	651	507	537	305	709	25	30	10,5	7,5	295	432	245	300	361	436	302
450	722	722	569	599	306	810	25	35	12	7,5	330	485	270	336	404	492	336
500	795	801	638	668	383	875	25	35	12	7,5	366	538	295	374	449	544	375
560	886	893	715	745	414	1000	25	40	15	7,5	411	601	335	419	503	611	416
630	992	1000	801	831	469	1090	25	40	15	7,5	463	679	370	471	566	687	468
710	1114	1120	898	928	510	1220	25	50	17	7,5	521	765	412	531	636	773	531

T-HLZ	h_6	h_7	k	l	p	q	t_1	u	v	w_1	w_2	x	y_1	y_2	y_3	z_1 x t
180	164	224	146	41,5	152,5	81	22,5	6	280	286	338	255	53	79	180	2 x 90
200	184	245	162	40,5	164	89	22,5	6	307	314	372	282	45	74	224	2 x 90
225	204	274	178	38,5	180	100	22,5	6	339	348	416	314	62	96	224	3 x 90
250	227	299	195	40	195	109	22,5	6	373	384	462	348	80	118	224	3 x 90
280	252	328	217	53	215	123	28	8	422	432	518	392	76	119	280	3 x 90
315	280	367	239	53,5	236	139	28	8	466	480	578	436	100	149	280	4 x 90
355	320	411	267	60	261	158	33	8	534	542	654	494	94	150	355	4 x 90
400	359	462	293	61,5	290	179	33	8	588	606	736	549	126	191	355	5 x 90
450	407	518	330	75	322	202	38	10	651	674	828	611	112	189	450	6 x 90
500	448	568	364	73	352	221	38	10	720	744	918	681	147	234	450	6 x 90
560	502	634	406	94	390	248	43	12	818	838	1030	768	169	265	500	7 x 90
630	571	707	450	95	434	280	43	12	904	936	1158	854	188	299	560	8 x 90
710	636	797	497	119	485	318	53,5	14	1001	1048	1304	961	209	337	630	9 x 90

subject to change

comefri

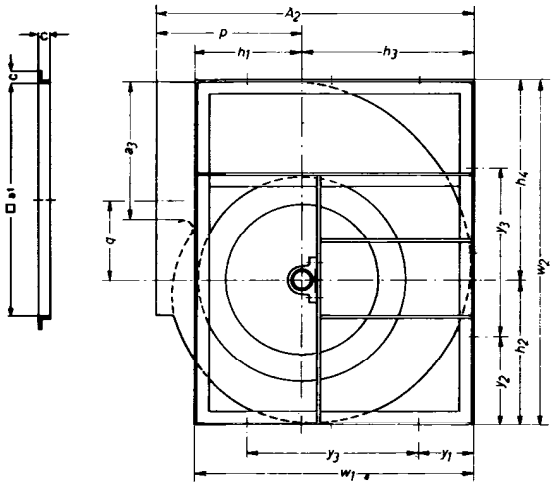
Radial Fans

T-HLZ 710 T ÷ 1000 T

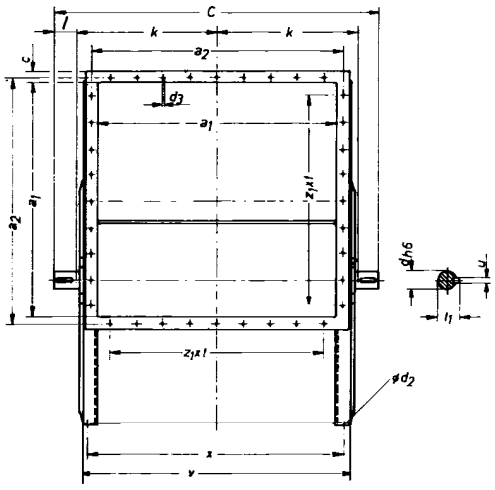
Dimensions and technical details

Drawing 6.4

...A



T-HLZ...T



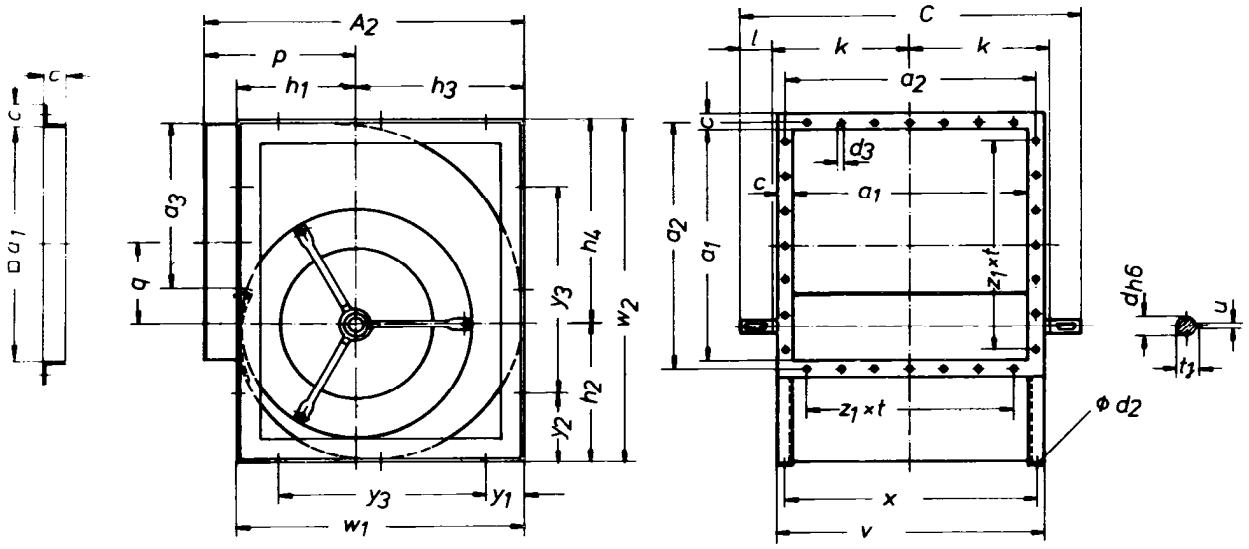
T-HLZ	A_2	a_1	a_2	a_3	C	c	d^{h6}	d_2	d_3	h_1	h_2	h_3	h_4	k
710 T	1120	898	928	510	1260	25	50	18	7,5	413	531	635	773	516
800 T	1256	1007	1037	574	1367	25	50	18	7,5	458	597	716	871	570
900 T	1409	1130	1164	653	1529	30	60	18	10	507	670	805	978	633
1000 T	1541	1267	1301	713	1666	30	60	18	10	560	735	884	1075	708

T-HLZ	l	p	q	t_1	u	v	w_1	w_2	x	y_1	y_2	y_3	z_1 x t
710 T	114	485	318	53,5	14	1001	1048	1304	961	209	331	630	9 x 90
800 T	113	540	354	53,5	14	1111	1174	1468	1071	232	379	710	11 x 90
900 T	125	604	406	64	18	1234	1312	1648	1194	256	424	800	11 x 100
1000 T	125	657	433	64	18	1371	1444	1810	1331	272	455	900	12 x 100

subject to change

comefri	Radial Fans HLZ 400 R ÷ 500 R Dimensions and technical details	Drawing 6.5

...A HLZ...R



HLZ	A_2	a_1	a_2	a_3	C	c	d^{h6}	d_2	d_3	h_1	h_2	h_3	h_4	k
400 R	651	507	537	305	745	25	35	10	7,5	245	300	361	436	299
450 R	722	569	599	306	855	25	40	12	7,5	270	336	404	492	333
500 R	801	638	668	383	920	25	40	12	7,5	296	374	448	544	368

HLZ	l	p	q	t_1	u	v	w_1	w_2	x	y_1	y_2	y_3	z_1 x t
400 R	73,5	290	179	38	10	588	606	736	549	126	191	355	5 x 90
450 R	94,5	322	202	43	12	651	674	828	611	112	189	450	6 x 90
500 R	92	352	221	43	12	720	744	918	681	147	234	450	6 x 90

subject to change

comefri

Radial Fans

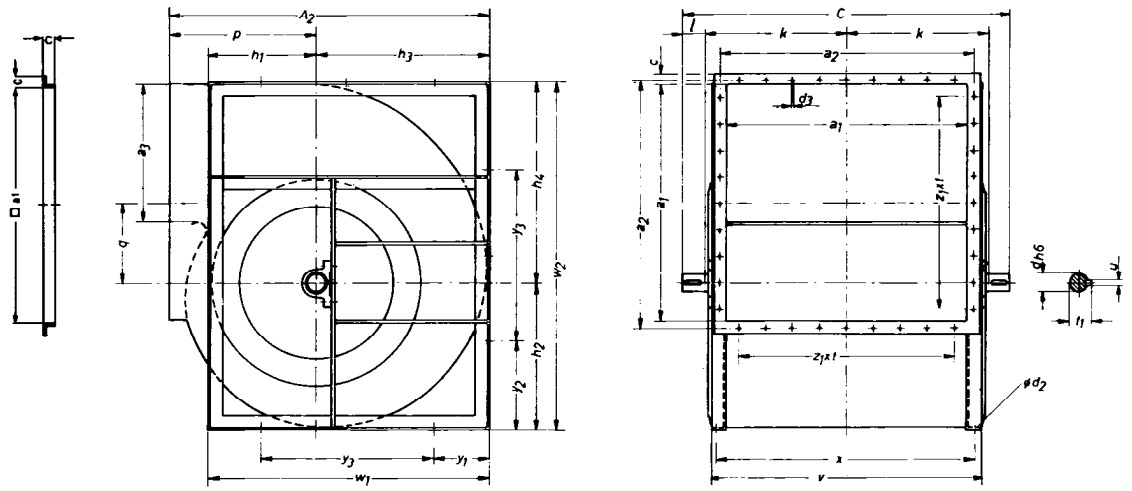
HLZ 400 T ÷ 1000 T

Dimensions and technical details

Drawing 6.6

...A

HLZ...T



HLZ	A_2	a_1	a_2	a_3	C	c	d^{h6}	d_2	d_3	h_1	h_2	h_3	h_4	k
400 T	651	507	537	305	780	25	35	10	7,5	245	300	361	436	312
450 T	722	569	599	306	920	25	40	12	7,5	270	336	404	492	346
500 T	801	638	668	383	955	25	40	12	7,5	296	374	448	544	381
560 T	893	715	745	414	1118	25	50	15	7,5	335	419	502	611	446
630 T	1000	801	831	469	1220	25	50	15	7,5	370	471	566	687	490
710 T	1120	898	928	510	1336	25	60	18	7,5	412	531	636	773	544
800 T	1256	1007	1037	574	1445	25	60	18	7,5	458	597	716	871	598
900 T	1409	1130	1164	653	1574	30	60	18	10	507	670	805	978	660
1000 T	1541	1267	1301	713	1712	30	60	18	10	560	735	884	1075	728

HLZ	l	p	q	t_1	u	v	w_1	w_2	x	y_1	y_2	y_3	z_1 x t
400 T	73,5	290	179	38	10	588	606	736	549	126	191	355	5 x 90
450 T	94,5	322	202	43	12	651	674	828	611	112	189	450	6 x 90
500 T	92	352	221	43	12	720	744	918	681	147	234	450	6 x 90
560 T	113	390	248	53,5	14	818	838	1030	768	169	265	500	7 x 90
630 T	120	434	280	53,5	14	904	936	1158	854	188	299	560	8 x 90
710 T	124	485	318	64	18	1001	1048	1304	961	209	337	630	9 x 90
800 T	124	540	354	64	18	1111	1174	1468	1071	232	379	710	11 x 90
900 T	127	604	406	64	18	1234	1312	1648	1194	256	424	800	11 x 100
1000 T	128	657	433	64	18	1371	1444	1810	1331	272	455	900	12 x 100

subject to change

comefri

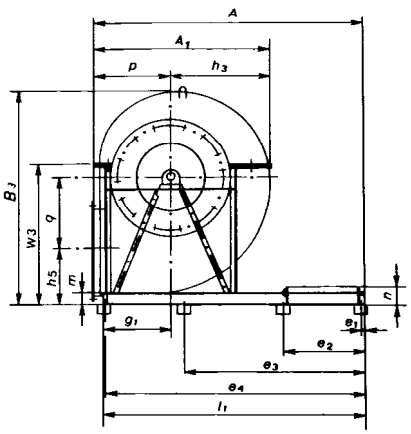
Radial Fans

T-HLZ 1120 ÷ 1250

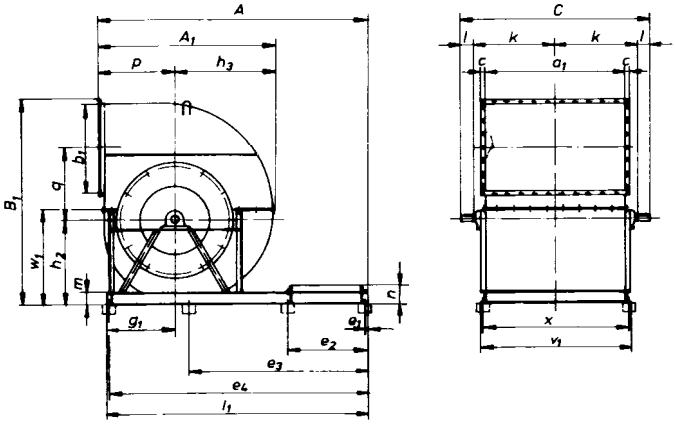
Dimensions and technical details

Drawing 6.7

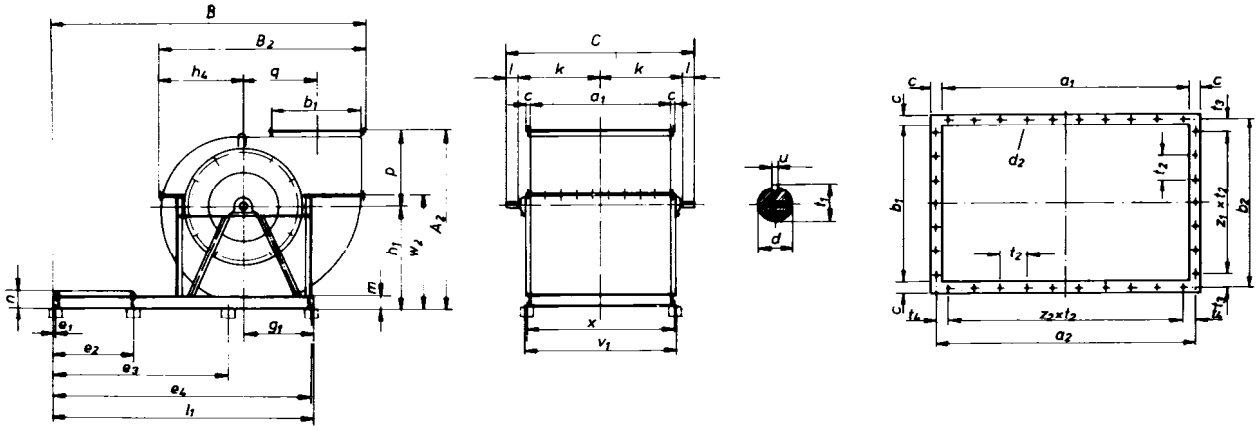
270°



90°



360°



Motor position subject to final frame size
anti-vibration points E1 to E4
Subject to final design conditions
Holes 17 mm dia

T-HLZ	A	A_1	A_2	a_1	a_2	B	B_1	B_2	B_3	b_1	b_2	C	c	d	d_2
1120	2850	1784	1783	1421	1465	3346	2109	2093	2124	898	942	1917	40	60	11,5
1250	3075	1993	2015	1593	1653	3629	2353	2332	2360	1007	1067	2135	50	65	15

T-HLZ	e_1	e_2	e_3	e_4	g_1	h_1	h_2	h_3	h_4	h_5	k	l	l_1	m	n
1120	25	920	1880	2775	703	1030	860	1031	845	534	800	120	2800	120	195
1250	30	925	2040	2970	770	1170	954	1148	943	589	925	140	3000	140	215

T-HLZ	p	q	t_1	t_2	t_3	t_4	u	v_1	w_1	w_2	w_3	x	$z_1 \times t_2$	$z_2 \times t_2$
1120	753	760	64	125	33,5	45	18	1531	880	1151	1274	1481	7 x 125	11 x 125
1250	845	846	79,5	160	53,5	106,5	18	1713	1015	1285	1373	1653	6 x 160	9 x 160

subject to change

comefri

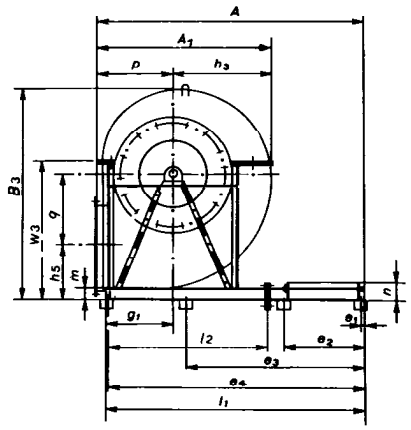
Radial Fans

HLZ 1120 ÷ 1250

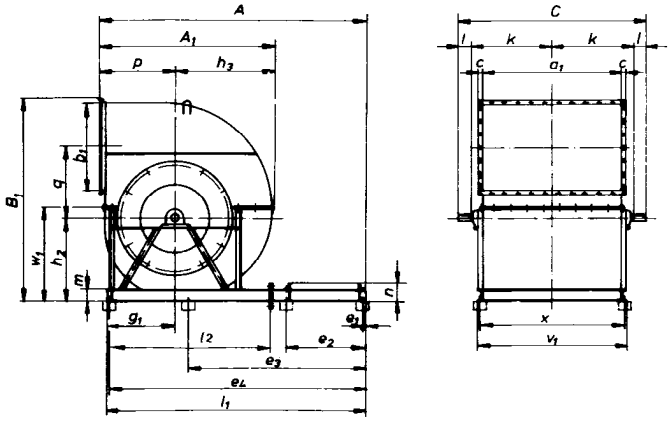
Dimensions and technical details

Drawing 6.8

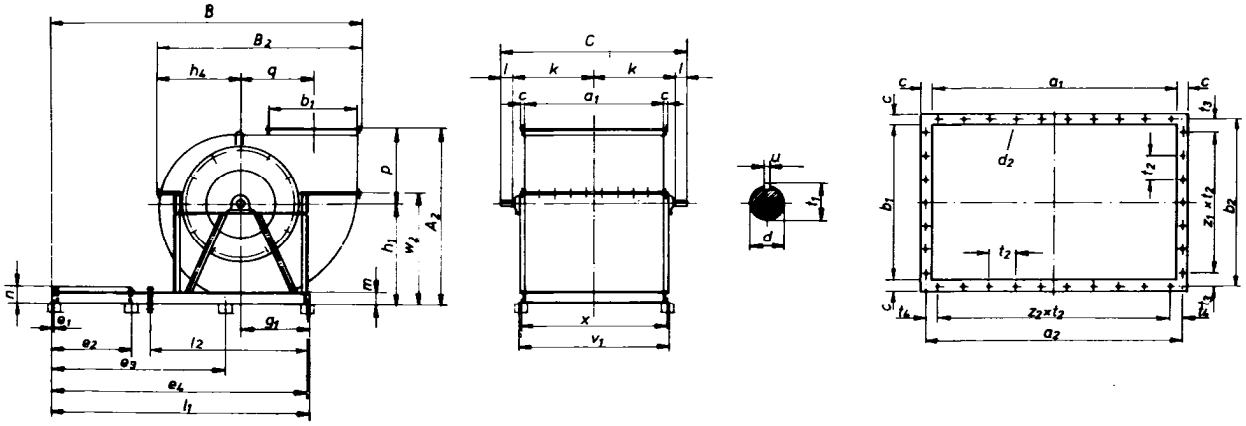
270°



90°



360°



The same words. See drawing 6.7.

HLZ	A	A_1	A_2	a_1	a_2	B	B_1	B_2	B_3	b_1	b_2	C	c	d	d_2
1120	2860	1785	1805	1421	1465	3360	2106,5	2100	2120	898	942	1987	40	75	11,5
1250	3075	2000	2015	1593	1653	3630	2351	2345	2360	1007	1067	2170	50	75	15

HLZ	e_1	e_2	e_3	e_4	g_1	h_1	h_2	h_3	h_4	h_5	k	l	l_1	l_2	m
1120	25	920	1890	2785	703	1050	860	1033	850	532,5	853,5	140	2810	1810	120
1250	30	925	2045	2970	770	1170	954	1155	945	590	945	140	3000	2000	140

HLZ	n	p	q	t_1	t_2	t_3	t_4	u	v_1	w_1	w_2	w_3	x	$z_1 \times t_2$	$z_2 \times t_2$
1120	195	753	757,5	79,5	125	33,5	45	20	1531	880	1171	1270	1481	7 x 125	11 x 125
1250	215	845	844	79,5	160	53,5	106,5	20	1713	1015	1270	1373	1653	6 x 160	9 x 160

subject to change

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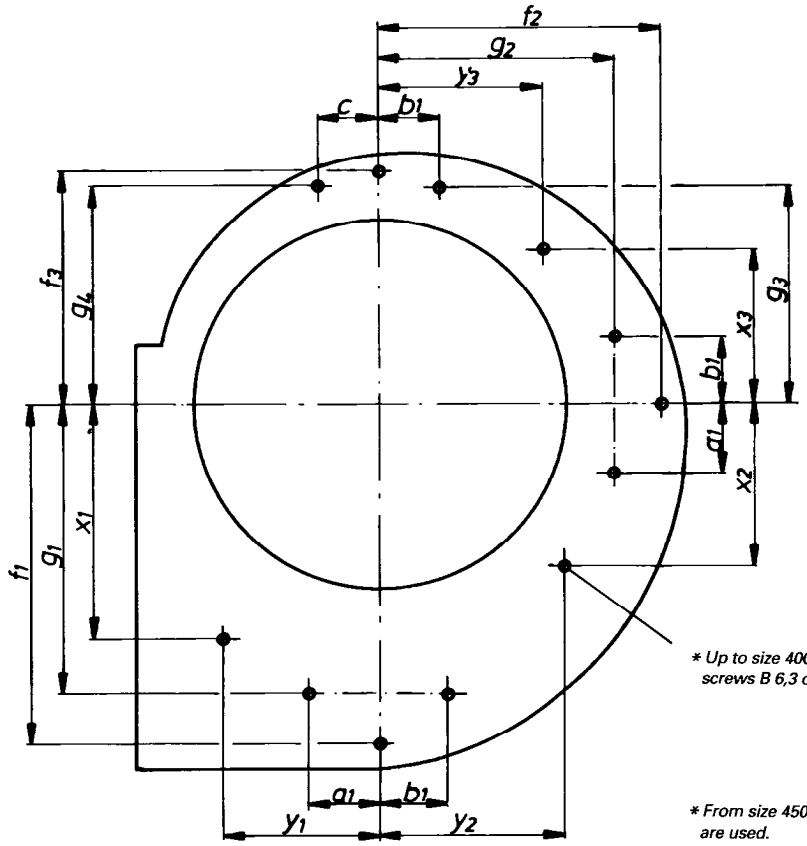
Radial Fans

TLZ 160 to 710 and T-HLZ 180 to 710

Side plate

Table 6.9



* Up to size 400 use self tapping screws B 6,3 or B 8, DIN 7976

* From size 450 pierce nuts are used.

Fan size		a_1	b_1	c	f_1	f_2	f_3	g_1	g_2	g_3	g_4	x_1	x_2	x_3	y_1	y_2	y_3	*
TLZ	T-HLZ																	
160	–	30	30	30	–	–	–	155	101	101	101	121	92	67	92	67	92	B 6,3
180	180	30	30	30	–	–	–	175	115	115	115	141	92	81	92	81	92	B 6,3
200	200	40	40	40	202	163	134	190	129	126	126	155	110	91	110	94	110	B 6,3
225	225	40	40	40	229	185	152	219	149	142	142	184	110	107	110	114	110	B 6,3
250	250	40	40	40	256	208	171	244	172	155	155	209	110	120	110	137	110	B 6,3
280	280	113	113	71	287	233	191	245	169	150	170	–	–	–	–	–	–	B 8
315	315	113	113	71	323	263	215	284	197	175	195	–	–	–	–	–	–	B 8
355	355	156	156	156	364	295	241	295	204	158	158	197,5	–	–	197,5	–	–	B 8
400	400	156	156	156	411	336	275	346	243	186	186	220	–	–	220	–	–	B 8
450	450	213	213	213	466	379	311	350	271	168	168	245	–	–	245	–	–	M 10
500	500	213	213	213	519	423	349	400	280	207	207	270	–	–	270	–	–	M 10
560	560	235	235	235	581	472	389	494	362	276	276	305	–	–	305	–	–	M 12
630	630	235	235	235	656	535	441	567	431	328	328	340	–	–	340	–	–	M 12
710	710	265	265	265	717	601	496	637	476	371	371	377,5	–	–	377,5	–	–	M 12

subject to change

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Radial Fans

TLZ, T-HLZ and HLZ

Weights

Table 6.10

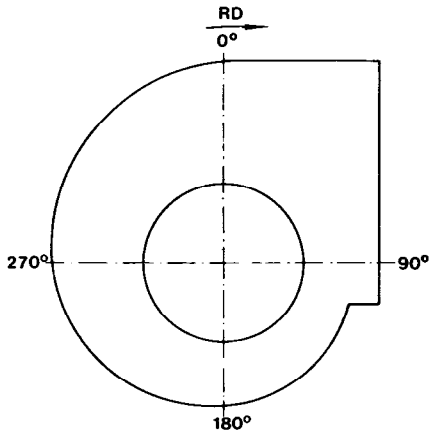
Fan and accessories weights (in Kg)

Size	TLZ	TLZ...T	T-HLZ	T-HLZ...T	HLZ	Inlet vane control	Feet	Frame	Outlet flange
160	5.1						0.5		0.66
180	6.0		6.3				0.5		0.72
200	7.2		7.2				0.8	2.0	0.80
225	8.5		8.2				0.8	2.1	0.88
250	10.8		10.2				0.8	2.4	0.97
280	14.5		14.2				1.0	3.2	1.07
315	20.0		19.4			12	1.0	3.7	1.20
355	26.5		26.3			14	2.0	7.0	1.35
400	32.0		31.5		58	18	2.0	7.6	1.50
450	42.0		41.2		76	21	3.7	8.5	1.70
500	56.0		66.3		88	23	3.7	9.5	1.90
560	76.0		90.0		155	24	7.5	15.8	2.00
630	96.0		111.0		182	30	7.5	17.9	2.30
710	125.0	190	145.0	208	245	35	11.0		2.60
800		230		249	297	40			2.90
900		288		321	392	46			3.90
1000		333		380	459	55			4.40
1120				835	115				
1250				1015	1280				

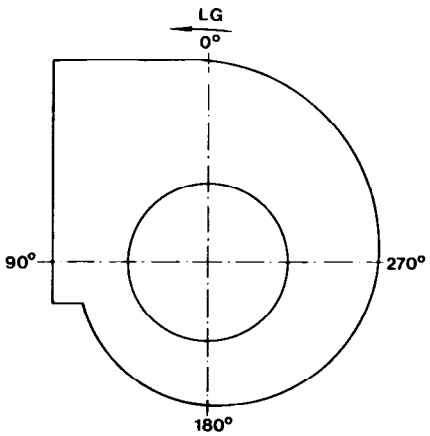
subject to change

7. Fan Discharge and Accessory Positions

The following positions are in accordance with Eurovent 1/1.



Pic 19



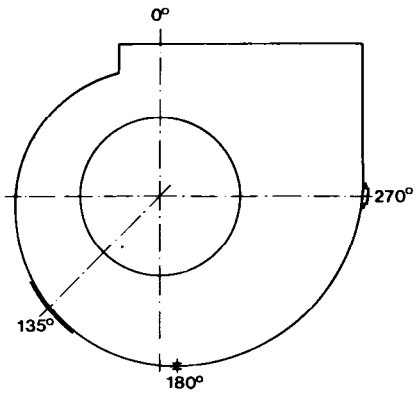
Pic 20

7.1 Pic 19 and 20 show right hand (RD) and left hand (LG) fans. Fan rotation is always decided when looking from the drive side, i.e. that coupled with the motor. Fan discharges are therefore always described by either RD ... or LG ... followed by the required outlet position (i.e. 90°).

7.2 Positions of accessories are described similarly, viewed from the drive side. (see 7.4 and pic 19/20).

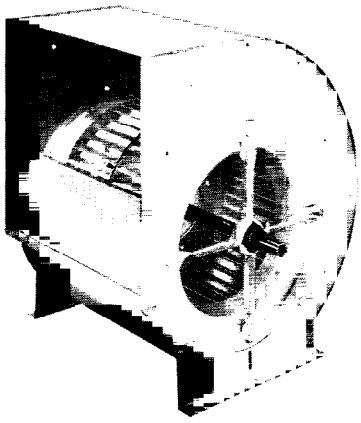
7.3 When inlet vane controls are specified it is essential to state the position of the actuating arm, see 7.4.

7.4 Example of fan discharge and accessory position:
Fan discharge LG 00°
Inspection door 135°
Drain 180°
IVC control 270°

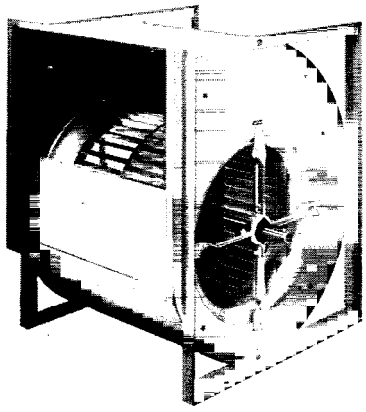


Pic 21

8. Instructions for Ordering and Specifying



Pic 22
Radial Fan TLZ 400 F



Pic 23
Radial Fan TLZ 500 RA

8.1 All standard fans are detailed on drawings 6.1, 6.2 and 6.3.
To order or specify fans they must be described as follows:
Fan range either TLZ, T-HLZ or HLZ
Fan size which represents the diameter of impellers in mm (i.e. TLZ 450 or T-HLZ 630).

8.2 Accessories are represented by the following symbols:

F = Feet
A = Outlet flange
R = Fan frame
Dr = Inlet vane control
I = Inspection door
K = Condensation drain
Ex = Anti-Spark Feature

Fan accessories should be specified when ordering fans.

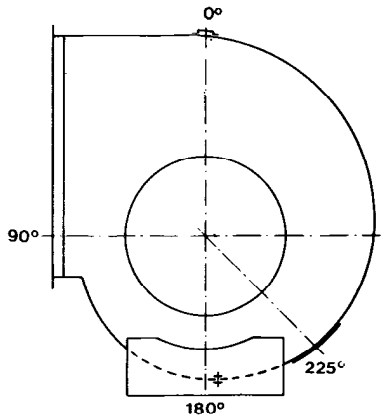
Example 1 (see Pic 22):

Fan TLZ 400 with feet TLZ 400 F

Example 2 (see Pic 23):

Fan TLZ 500 with outlet flange and fan frame TLZ 500 RA

8.3 Fan sizes TLZ 710 and T-HLZ 710 can be supllied as standard with or without frames. see (6.1 and 6.3)



Pic 24
Ordering Example.

8.4 Ordering Example

To order a T-HLZ 355 with discharge position LG 90° plus feet, outlet flange, inspection door, drain and inlet vane control.
Order as follows:

T-HLZ 355 A - LG 90° I 225° Dr 0° K 180°
F-355

The fans described in this catalogue are suitable for many and varied applications; but should you require special versions a complete technical team exists to assist and advise.
Due to improvements which are introduced from time to time the company reserves the right to alter the products specified in this catalogue.

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