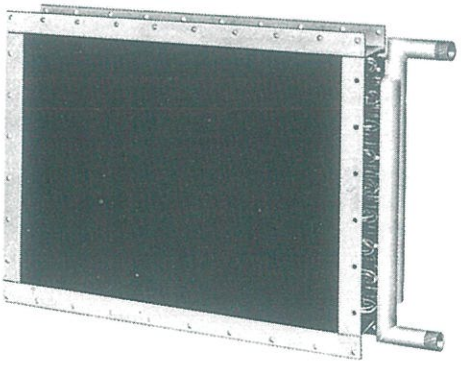
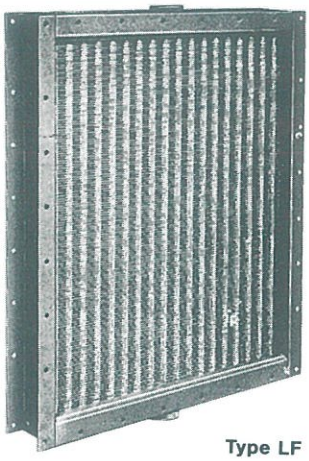
Finned heating coils



Type LFA



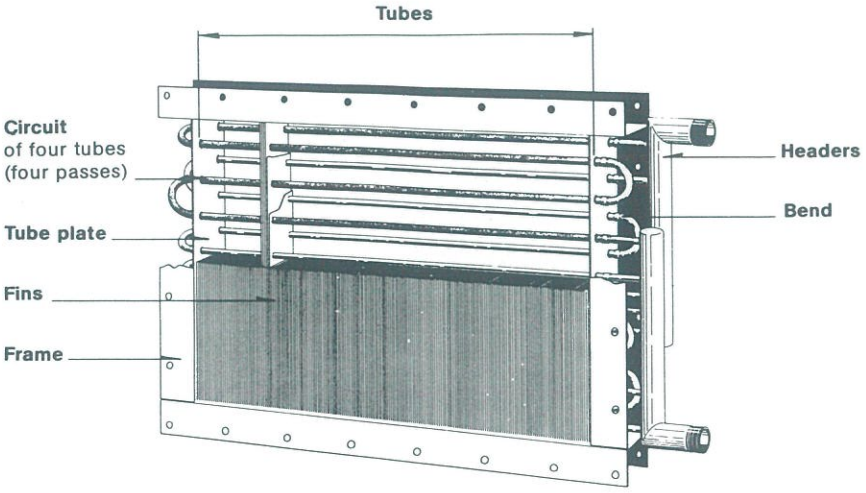
Type LF

NORDISK VENTILATOR produces a range of finned heating coils designed for heating of atmospheric air by means of hot water or steam The coils may also be used for cooling air by means of cold water, for cooling down cooling water by means of air, as well as for exchange of heat between other liquids and gases provided that these do not attack the metals used in the coil construction.

Type	Heating medium	Materials		Section
		Tubes	Fins	
LFA	Water	Copper	Aluminium	L2
LFB	Water	Copper	Aluminium	L2
LFD	Steam	Copper	Aluminium	L2
LFE	Steam	Copper	Aluminium	L2
LF	Steam*	Steel	Steel	L3
LG	Steam*	Steel	–	L3

* May also be used for water.

Design. The finned heating coils are composed of a number of tubes with mechanically bonded fins, built into a sheet steel frame. Coupled together by means of bends to form circuits of 2, 4, 6 or 8 passes, the tubes are provided with headers for the entering and leaving heating medium. Type LF, however, differs slightly from this pattern, as described in section L3.
For operation where the air has a large content of lint or other particles which would settle on the front edge of the fins, we can supply plain tube coils (without fins), type LG.



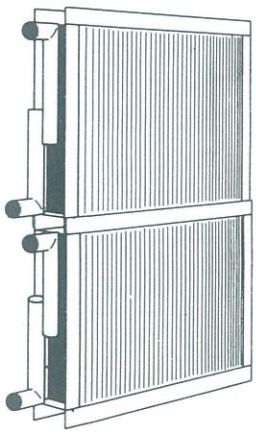
Arrangement. Finned heating coils are available in a large number of standard sizes, having face areas up to 1000 × 2000 mm and up to four rows of tubes, as shown in the dimensioned sketches and selection charts of the different types.

In installations of large capacity the standard sizes may be combined into banks as shown in the sketches at the bottom of this page,
– if the air volume requires a larger face area than that of the largest standard coil, two or more heating coils can be installed beside each other, or one on top of the other,
– if the heating load is greater than one standard coil can cope with, several coils can be combined, one after the other.

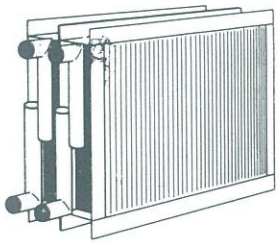
In such banks of heating coils the coils may be built into the pipe system in parallel or in series, as shown on page L1-2.0. For series connected heating coils using water as the heating medium the question of whether the air is to pass through the bank of coils in a parallel flow or counter flow arrangement is of great importance; this subject will be dealt with under "Selection".

Mounting. The sheet steel frame of the heating coils has flanges and bolt holes for mounting of the coil and connection to ducting. The coils are designed for vertical or horizontal installation, as stated in the description of the individual types, and they may only be mounted in the position for which they are designed.

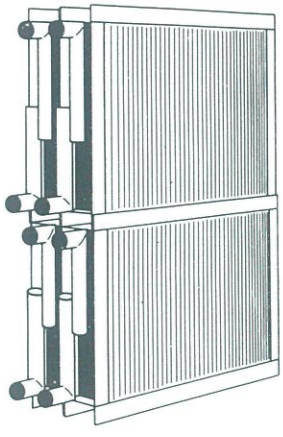
Owing to the longitudinal expansion of the tubes the sheet steel frame of the heating coil cannot be made absolutely tight where the tubes are extended through the tube plates. It may therefore be necessary, in installations operating at high pressures or where complete tightness is required, to build the heating coil into an airtight enclosure or to tighten with a non-hardening sealing-compound around the tubes.
Selection. The dimensions and design of the heating coils are selected on the basis of the selection charts of the individual types with a view to obtaining a heat transfer surface and a coefficient of transmission that will give the heating coil the required capacity.
The selection charts are based on



Large air volume

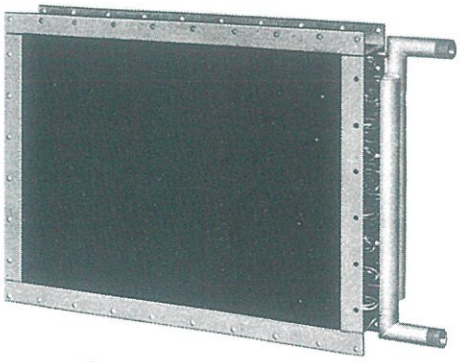


Large heating load



Large air volume – large heating load

Finned Heating Coils types LFA, LFB, LFD and LFE



Finned heating coils type LFA, LFB, LFD and LFE consist of a number of copper tubes with aluminium fins built into a frame of galvanized sheet steel.

The frame has flanges for mounting of the coil and connection to ducting.

The heating medium enters and leaves through steel headers which have screwed pipe connections.

The fields of application of the four types are listed in the table below.

The tubes of the heating coil are coupled together by means of bends to form circuits of 2, 4, 6 or 8 passes, as shown on page L1-1.0. The number of passes that will make the coil best suited for the operating conditions concerned, is found by means of the selection charts.

Each of the four types is made in 140 standard sizes with face areas up to H (height)×B (width) = 1000× 2000 mm and with 1, 2, 3 or 4 rows of tubes in the direction of the air flow. The standard sizes can be combined into banks on top of, beside or after each other, as shown on page L2-1.1.

The designation of a heating coil or a bank of coils is composed of the type designation plus a number of digits representing the dimensions of the face area, the number of rows of tubes, and the number of passes in each circuit, as illustrated by the examples overleaf. When ordering please state position designations as given on page L2-1.1.

Type	Heating medium	Fin spacing mm	Max. operating temp. °C	Normal test pressure ato	Capacities page
LFA	Water	3	120*	20	L2.2.0
LFB	Water	2	120*	20	L2-2.0
LFD	Steam	3	220	20	L2-3.0
LFE	Steam	2	220	20	L2-3.0

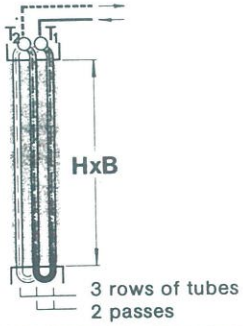
* For high pressure hot water (above 120°C) use:
- type LFD sized according to the LFA selection chart, or
- type LFE sized according to the LFB selection chart.

DESIGNATIONS

Single heating coil in standard size.

H = height of face area
B = width of face area

Horizontal section of coil

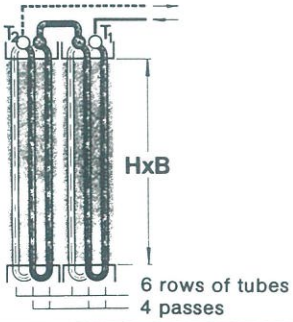


Dimensions	Symbols
H = 600 mm	6
B = 800 mm	8
3 rows of tubes	3
2 passes	−2

Designation: LFA-683-2

Two heating coils type LFA-683-2 arranged tandem, connected in series.

Horizontal section of coil

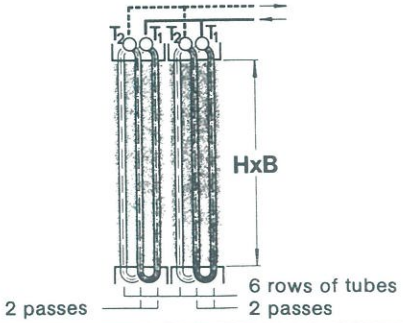


Dimensions	Symbols
H = 600 mm	6
B = 800 mm	8
6 rows of tubes	6
4 passes	−4
Connected in series	S

Designation: LFA-686-4S

Two heating coils type LFA-683-2 arranged in tandem, connected in parallel.

Horinzontal section of coil

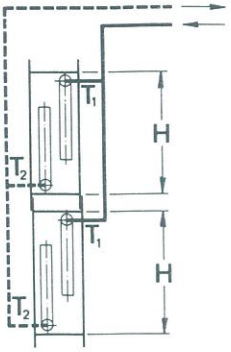


Dimensions	Symbols
H = 600 mm	6
B = 800 mm	8
6 rows of tubes	6
2 passes	−2
Connected in parallel	P

Designation: LFA-686-2P

Two heating coils type LFA-683-2 arranged one on top of the other and connected in parallel.

Side view of coil

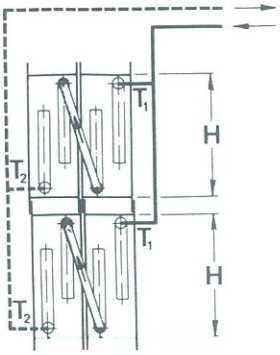


Dimensions	Symbols
H + H = 1200 mm	12
B = 800 mm	8
3 rows of tubes	3
2 passes	−2
Connected in parallel	P

Designation: LFA-1283-2P

Two banks of heating coils type LFA-686-4S arranged one on top of the other and connected in parallel.

Side view of coil



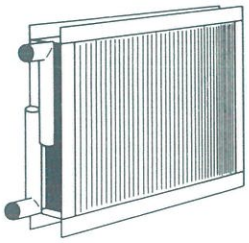
Dimensions	Symbols
H + H = 1200 mm	12
B = 800 mm	8
6 rows of tubes	6
4 passes	−4
Connected in series	S
Connected in parallel	P

Designation: LFA-1286-4SP

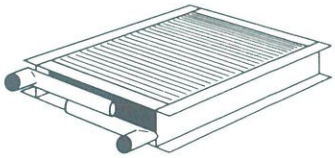
Finned heating coils types LFA, LFB, LFD and LFE

POSITION DESIGNATIONS

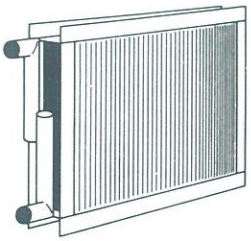
All sizes of heating coils types LFA, LFB, LFD and LFE can be supplied in pos. L and pos. V for vertical or horizontal installation, respectively. The coils should only be installed in the position for which they have been designed, and the tubes of the coil must always be horizontal. The position designation is indicated on the nameplate of the coil. Numbers 1 and 2 in the position designations refer to the location of the pipe connections.



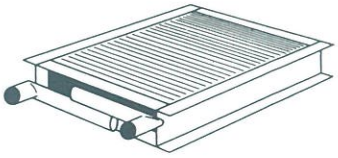
Pos. L1



Pos. V1



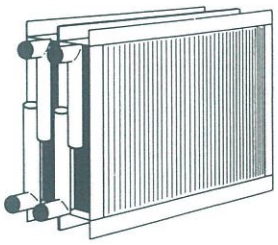
Pos. L2



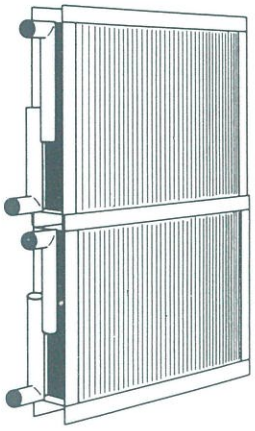
Pos. V2

BANKS OF COILS

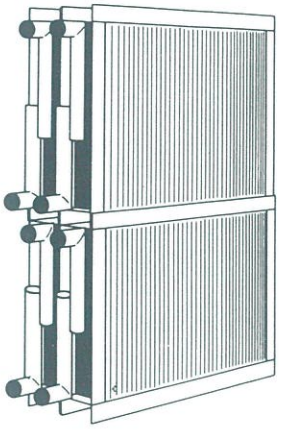
For air volumes requiring a larger face area than can be obtained with a standard heating coil, several coils can be combined into banks, being placed on top of or beside each other.
In case of greater heating loads than a standard coil can cope with, a number of coils can be arranged one after the other.
In such banks the coils may be connected either in parallel or in series as illustrated on pages L2-1.0 and L1-2.0.



Large heating capacity



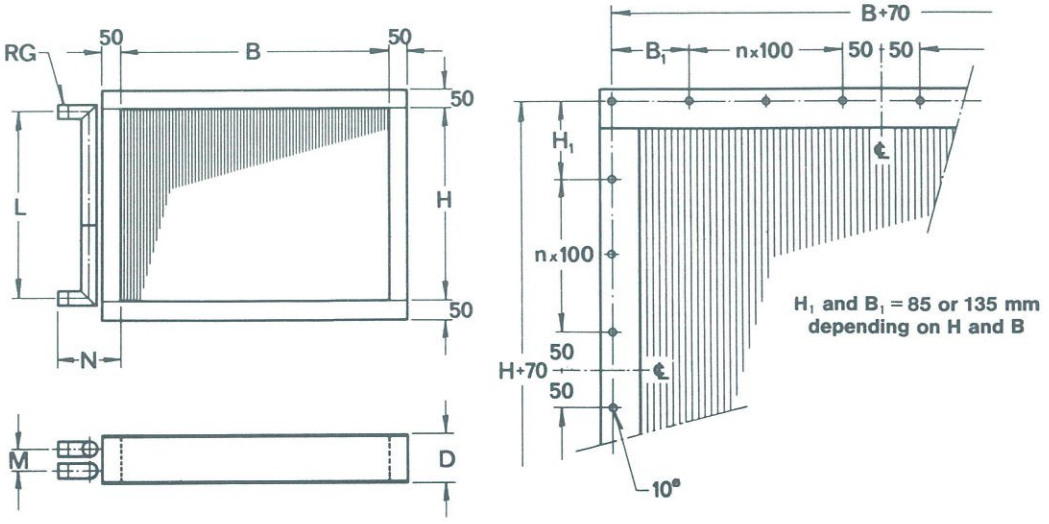
Large air volume



Large air volume – large heating capacity

Finned heating coils types LFA, LFB, LFD and LFE

DIMENSIONS



1 Tube row

B = 300 to 2000 mm at increments of 100 mm

	Number of passes	D	L	M	N	RG (BSP)
H = 300	-2	100	267	50	180	1¼"
	-6	100	250	0	140	½"
H = 400	-2	100	367	50	180	1¼"
	-4	100	367	50	180	1¼"
	-8	100	350	0	140	½"
H = 600	-2	100	567	50	180	1¼"
	-4	100	567	50	180	1¼"
	-6	100	567	50	180	1¼"
H = 800	-2	100	767	50	180	1¼"
	-4	100	767	50	180	1¼"
	-8	100	767	50	180	1¼"
H = 1000	-2	160	950	69	205	2"
	-4	100	967	50	180	1¼"

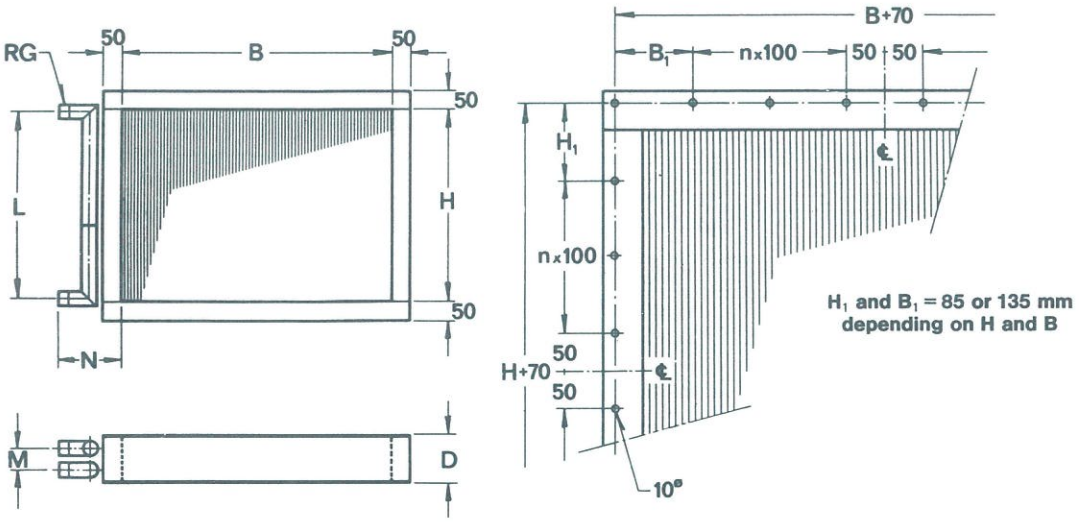
2 Tube rows

B = 300 to 2000 mm at increments of 100 mm

	Number of passes	D	L	M	N	RG (BSP)
H = 300	-2	100	292	57	180	1¼"
	-4	100	292	57	180	1¼"
	-6	100	292	57	180	1¼"
H = 400	-2	100	392	57	180	1¼"
	-4	100	392	57	180	1¼"
	-8	100	392	57	180	1¼"
H = 600	-2	160	575	94	205	2"
	-4	100	592	57	180	1¼"
	-6	100	592	57	180	1¼"
	-8	100	592	57	180	1¼"
H = 800	-2	160	775	94	205	2"
	-4	100	792	57	180	1¼"
	-8	100	792	57	180	1¼"
H = 1000	-2	160	959	80	225	2½"
	-4	160	975	94	205	2"
	-8	160	992	57	180	1¼"

Finned heating coils types LFA, LFB, LFD and LFE

DIMENSIONS



3 Tube rows

B = 300 to 2000 mm at increments of 100 mm

	Number of passes	D	L	M	N	RG (BSP)
H = 300	-2	160	275	69	205	2"
	-6	160	292	50	180	1¼"
H = 400	-2	160	375	69	205	2"
	-4	160	392	50	180	1¼"
	-6	160	392	50	180	1¼"
	-8	160	392	50	180	1¼"
H = 600	-2	160	575	69	205	2"
	-4	160	575	69	205	2"
	-6	160	592	50	180	1¼"
H = 800	-2	160	759	78	225	2½"
	-4	160	775	69	205	2"
	-6	160	792	50	180	1¼"
	-8	160	792	50	180	1¼"
H = 1000	-2	160	959	78	225	2½"
	-4	160	975	69	205	2"
	-6	160	975	69	205	2"

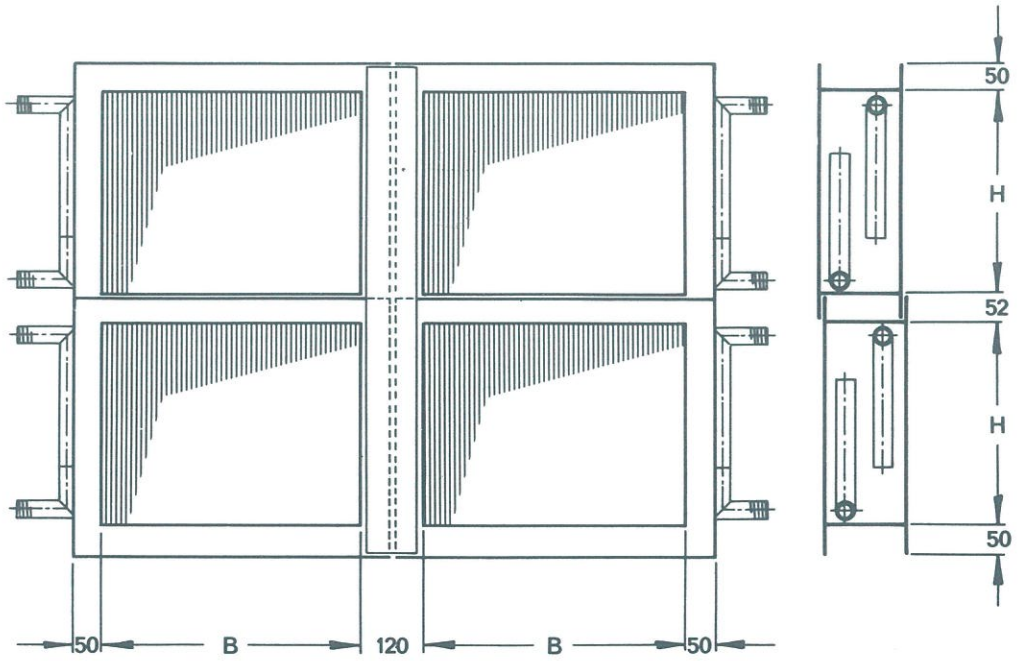
4 Tube rows

B = 300 to 2000 mm at increments of 100 mm

	Number of passes	D	L	M	N	RG (BSP)
H = 300	-2	160	275	94	205	2"
	-4	160	292	107	180	1¼"
	-6	160	292	75	180	1¼"
	-8	160	292	107	180	1¼"
H = 400	-2	160	375	94	205	2"
	-4	160	392	107	180	1¼"
	-8	160	392	107	180	1¼"
H = 600	-2	160	559	80	225	2½"
	-4	160	575	94	205	2"
	-6	160	592	75	180	1¼"
	-8	160	592	107	180	1¼"
H = 800	-2	160	759	80	225	2½"
	-4	160	775	94	205	2"
	-8	160	792	107	180	1¼"
H = 1000	-2	200	946	108	240	3"
	-4	160	959	80	225	2½"
	-8	160	975	94	205	2"

Banks of heating coils

DIMENSIONS



– for other dimensions see preceding dimension sketches

WEIGHT

The tables below give the weight of heating coils type LFA. For other types multiply by the following correction factors:

Type	LFB	LFD	LFE
Factor	1.15	1.20	1.35

1 tube row

Heating coil Type	kg	Water kg
331	3	0.24
341	4	0.32
351	5	0.40
361	6	0.48
441	5	0.42
451	6	0.53
461	7	0.64
481	8	0.85
661	13	0.96
681	14	1.3
6101	15	1.6
6121	16	1.9
881	18	1.7
8101	20	2.1
8121	22	2.5
8161	27	3.4
10101	25	2.7
10121	27	3.2
10161	34	4.2
10201	38	5.3

2 tube rows

Heating coil Type	kg	Water kg
332	5	0.48
342	6	0.64
352	7	0.80
362	8	0.96
442	9	0.85
452	10	1.1
462	11	1.3
482	13	1.7
662	20	1.9
682	22	2.5
6102	25	3.2
6122	28	3.8
882	30	3.4
8102	34	4.2
8122	38	5.1
8162	45	6.8
10102	43	5.3
10122	48	6.4
10162	58	8.5
10202	68	11

3 tube rows

Heating coil Type	kg	Water kg
333	7	0,72
343	8	0,96
353	9	1.2
363	10	1.4
443	12	1.3
453	13	1.6
463	15	1.9
483	17	2.5
663	26	2.9
683	30	3.8
6103	34	4.8
6123	38	5.7
883	42	5.1
8103	47	6.4
8123	53	7.6
8163	64	10
10103	60	8.0
10123	66	9.6
10163	80	13
10203	94	16

4 tube rows

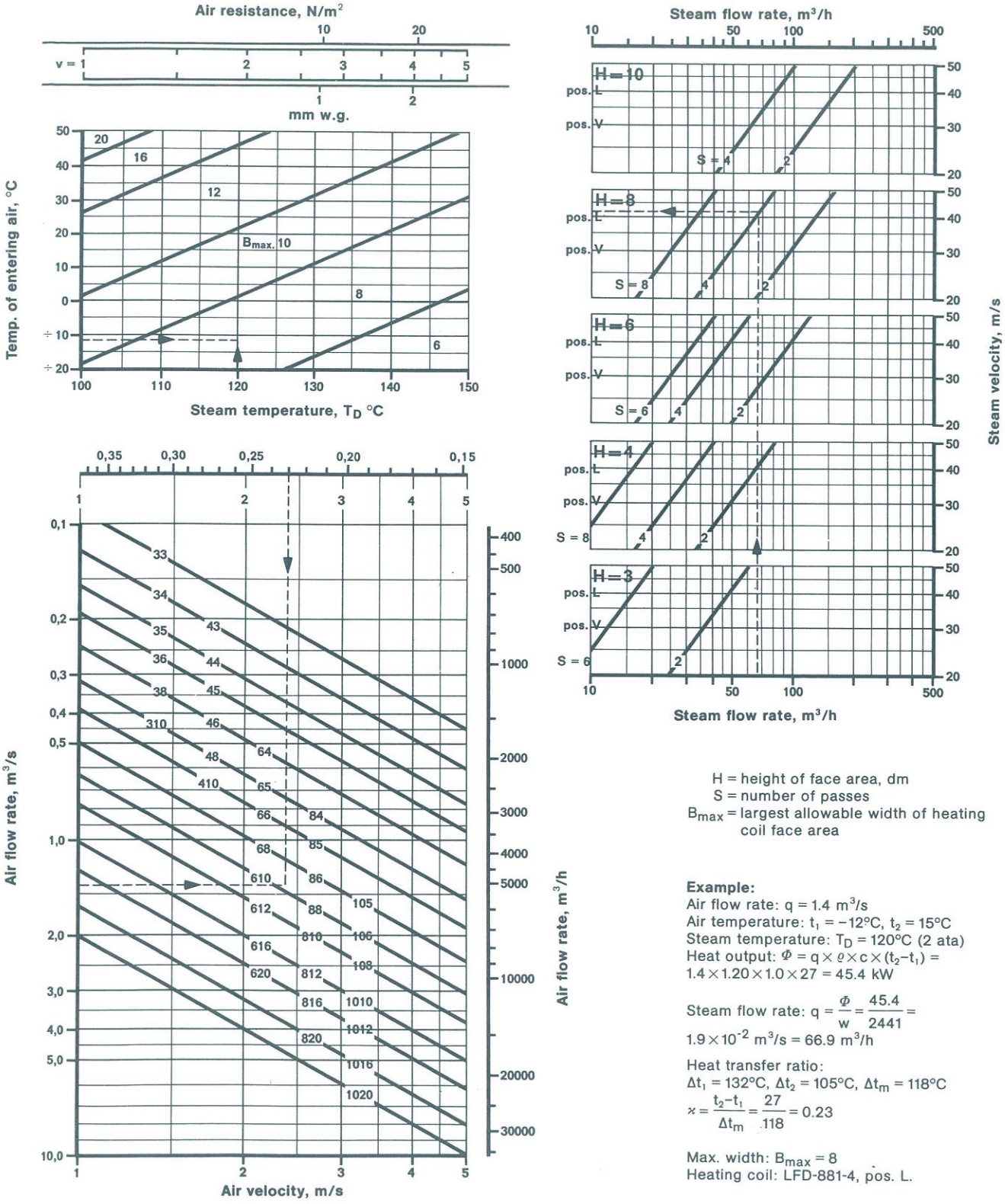
Heating coil Type	kg	Water kg
334	9	0.96
344	10	1.3
354	11	1.6
364	13	1.9
444	15	1.7
454	17	2.1
464	19	2.5
484	22	3.4
664	31	3.8
684	37	5.1
6104	42	6.4
6124	48	7.6
884	54	6.8
8104	61	8.5
8124	68	10
8164	82	14
10104	76	11
10124	86	13
10164	102	17
10204	124	21

Finned heating coil type LFD

1 tube row, $\varkappa = 0.15$ to 0.37

STEAM

SELECTION



H = height of face area, dm
S = number of passes
B_{max} = largest allowable width of heating coil face area

Example:
Air flow rate: $q = 1.4$ m³/s
Air temperature: $t_1 = -12$°C, $t_2 = 15$°C
Steam temperature: $T_D = 120$°C (2 ata)
Heat output: $\Phi = q \times \varrho \times c \times (t_2 - t_1) =$
$1.4 \times 1.20 \times 1.0 \times 27 = 45.4$ kW

Steam flow rate: $q = \frac{\Phi}{w} = \frac{45.4}{2441} =$
1.9×10^{-2} m³/s = 66.9 m³/h

Heat transfer ratio:
$\Delta t_1 = 132$°C, $\Delta t_2 = 105$°C, $\Delta t_m = 118$°C
$\varkappa = \frac{t_2 - t_1}{\Delta t_m} = \frac{27}{118} = 0.23$

Max. width: $B_{max} = 8$
Heating coil: LFD-881-4, pos. L.

The figures on the curves represent the face area of the heating coil, e.g.:
68 ~ H = 600 mm, B = 800 mm
810 ~ H = 800 mm, B = 1000 mm
108 ~ H = 1000 mm, B = 800 mm
For coils of other dimensions than those indicated, find air velocity by interpolation or calculation.

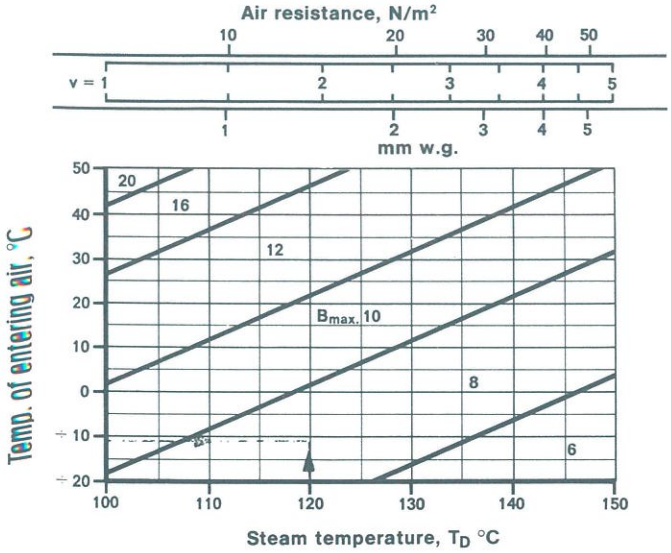
Type LFD fin spacing 3 mm

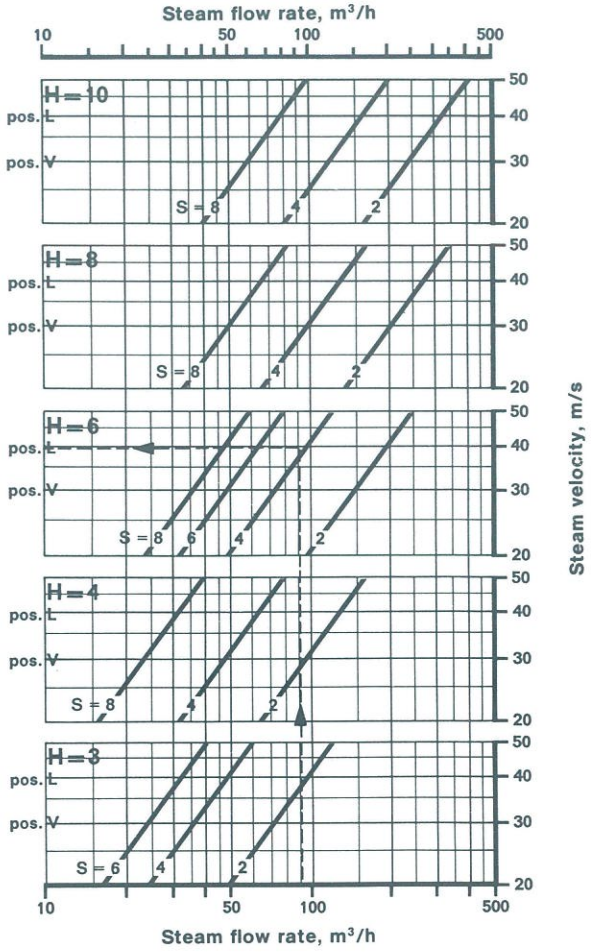
Finned heating coil type LFD

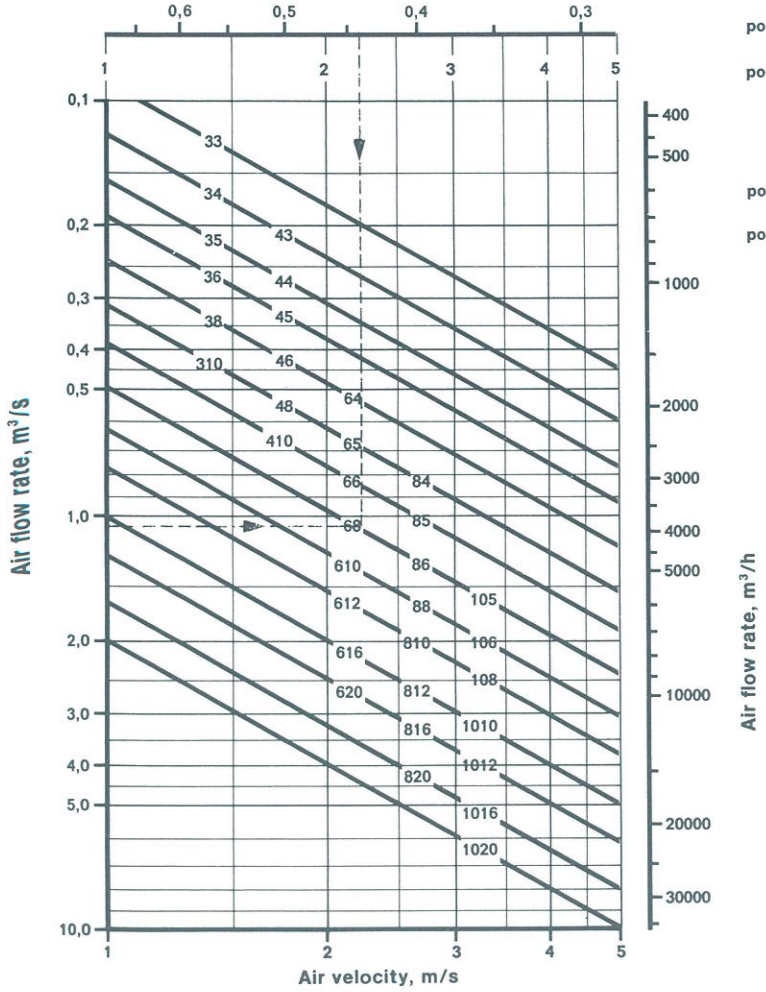
2 rows of tubes, $\varkappa = 0.30$ to 0.65

STEAM

SELECTION







H = height of face area, dm
S = number of passes
B_{max} = largest allowable width of heating coil face area

Example:
Air flow rate: q = 1.1 m³/s
Air temperature: $t_1 = -12°C$, $t_2 = 35°C$
Steam temperature: $T_D = 120°C$ (2 ata)
Heat output: $\Phi = q \times \varrho \times c \times (t_2 - t_1) =$
$1.1 \times 1.20 \times 1.0 \times 47 = 62.0$ kW

Steam flow rate: $\frac{\Phi}{w} = \frac{62}{2441} =$
2.5×10^{-2} m³/s = 91.5 m³/h

Heat transfer ratio:
$\Delta t_1 = 132°C$, $\Delta t_2 = 85°C$, $\Delta t_m = 107°C$
$= \frac{t_2 - t_1}{\Delta t_m} = \frac{47}{107} = 0.44$

Max. width: $B_{max} = 8$
Heating coil: LFD-682-4 pos. L.

The figures on the curves represent the face area of the heating coil, e.g.:
68: H = 600 mm, B = 800 mm
810: H = 800 mm, B = 1000 mm
108: H = 1000 mm, B = 800 mm
For coils of other dimensions than those indicated, find air velocity by interpolation or calculation

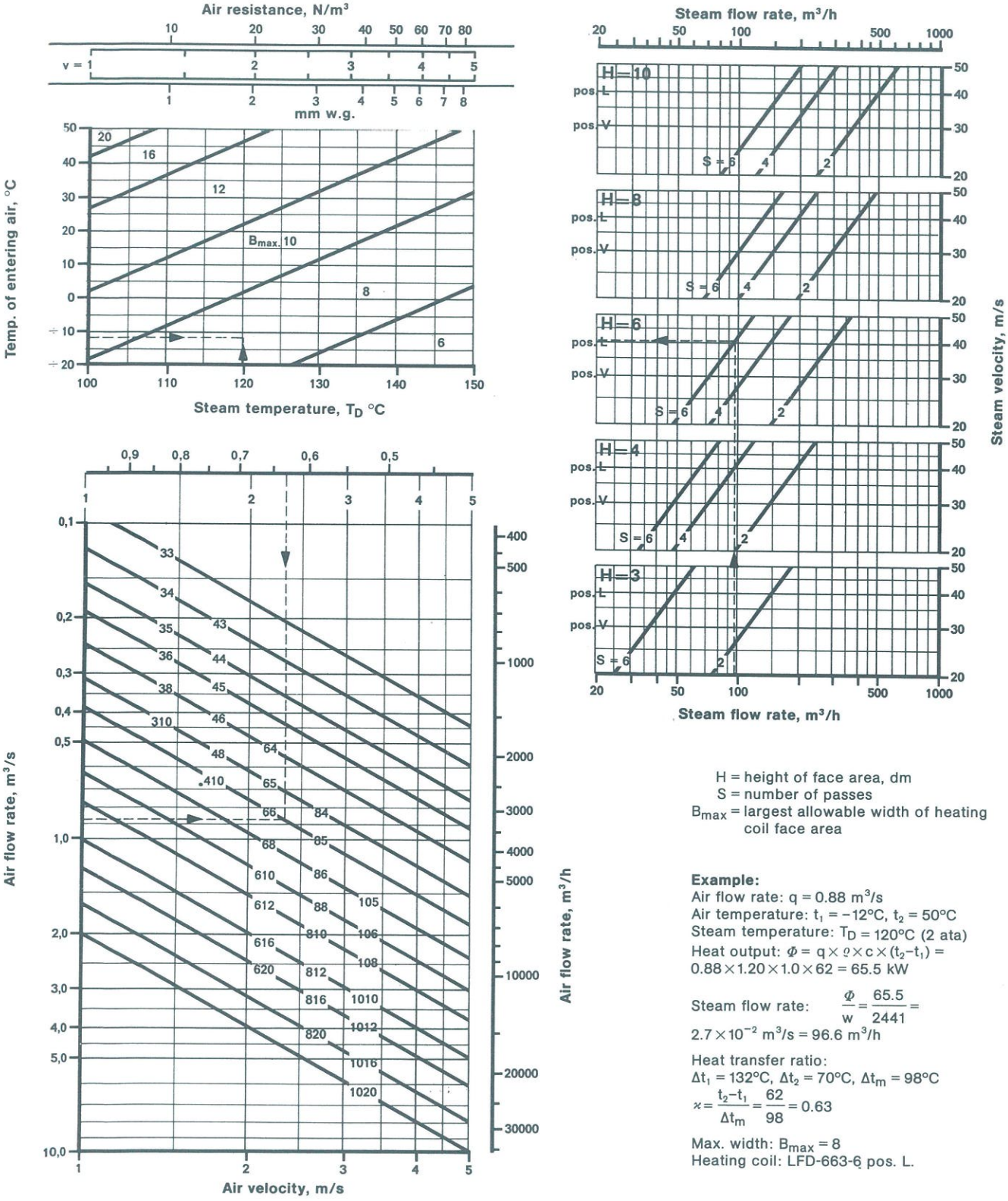
Type LFD fin spacing 3 mm

Finned heating coil type LFD

3 rows of tubes, $\varkappa = 0.45$ to 0.95

STEAM

SELECTION



H = height of face area, dm
S = number of passes
B_{max} = largest allowable width of heating coil face area

Example:
Air flow rate: $q = 0.88$ m³/s
Air temperature: $t_1 = -12$°C, $t_2 = 50$°C
Steam temperature: $T_D = 120$°C (2 ata)
Heat output: $\Phi = q \times \varrho \times c \times (t_2 - t_1) =$
$0.88 \times 1.20 \times 1.0 \times 62 = 65.5$ kW

Steam flow rate: $\frac{\Phi}{w} = \frac{65.5}{2441} =$
2.7×10^{-2} m³/s = 96.6 m³/h

Heat transfer ratio:
$\Delta t_1 = 132$°C, $\Delta t_2 = 70$°C, $\Delta t_m = 98$°C
$\varkappa = \frac{t_2 - t_1}{\Delta t_m} = \frac{62}{98} = 0.63$

Max. width: $B_{max} = 8$
Heating coil: LFD-663-6 pos. L.

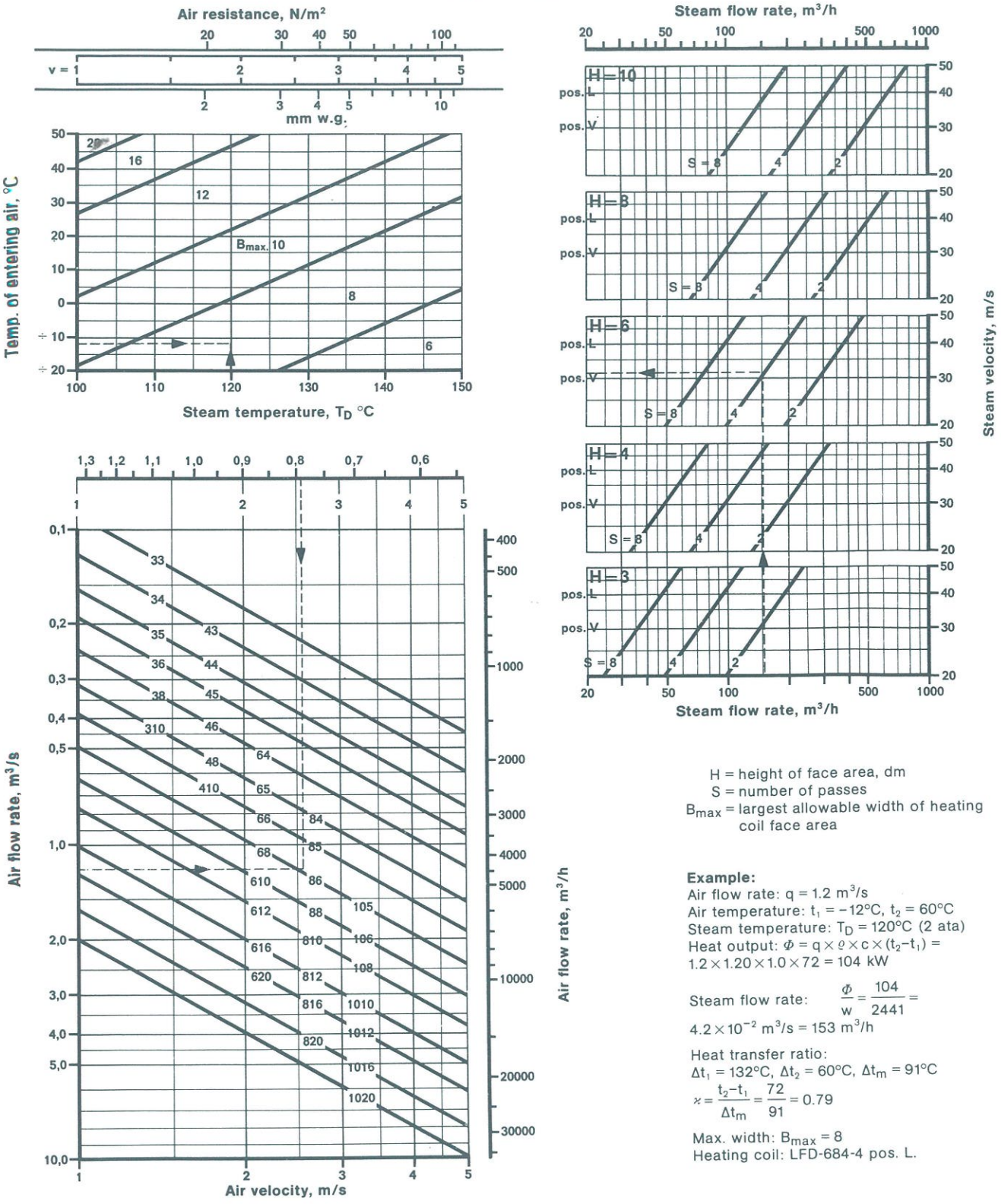
The figures on the curves represent the face area of the heating coil, e.g.:
68: H = 600 mm, B = 800 mm
810: H = 800 mm, B = 1000 mm
108: H = 1000 mm, B = 800 mm
For coils of other dimensions than those indicated, find air velocity by interpolation or calculation.

Type LFD fin spacing 3 mm

Finned heating coil type LFD

4 rows of tubes, $\varkappa = 0.55$ to 1.30

STEAM



H = height of face area, dm
S = number of passes
B_{max} = largest allowable width of heating coil face area

Example:
Air flow rate: q = 1.2 m³/s
Air temperature: $t_1 = -12°C$, $t_2 = 60°C$
Steam temperature: $T_D = 120°C$ (2 ata)
Heat output: $\Phi = q \times \varrho \times c \times (t_2 - t_1) =$
$1.2 \times 1.20 \times 1.0 \times 72 = 104$ kW

Steam flow rate: $\frac{\Phi}{w} = \frac{104}{2441} =$
4.2×10^{-2} m³/s = 153 m³/h

Heat transfer ratio:
$\Delta t_1 = 132°C$, $\Delta t_2 = 60°C$, $\Delta t_m = 91°C$
$\varkappa = \frac{t_2 - t_1}{\Delta t_m} = \frac{72}{91} = 0.79$

Max. width: $B_{max} = 8$
Heating coil: LFD-684-4 pos. L.

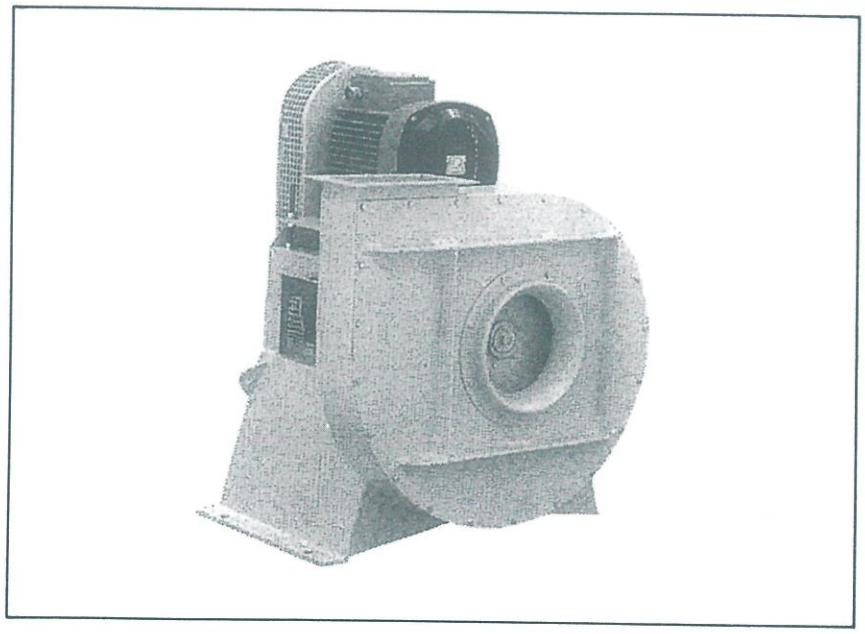
The figures on the curves represent the face area of the heating coil, e.g.:
68: H = 600 mm, B = 800 mm
810: H = 800 mm, B = 1000 mm
108: H = 1000 mm, B = 800 mm
For coils of other dimensions than those indicated, find air velocity by interpolation or calculation.

Type LFD fin spacing 3 mm

Centrifugal Fan type CPC

Centrifugal fan type CPC has a narrow radial type impeller with long backward curved blades and is designed for relatively small air volumes and high pressures. It is mainly used in industrial installations.

Type CPC is available in nine standard sizes, having impeller diameters from 250 mm to 1 000 mm and delivering air volumes up to approx. 4.5 m^3/s (16200 m^3/h) against pressures up to approx. 10 000 N/m^2 (1 000 mm wg..). All sizes can be furnished on order in varying widths, so that the capacity can be adapted to specific requirements. Dimensions and capacities for such fans will be stated on request. Special constructions (e.g. with gastight stuffing box, cooling discs, etc.) are made to specification.



Type CPC is made up of the following main components:

Fan casing consisting of two side plates and a scroll plate. For pressures up to 2 000 N/m^2 (200 mm w.g.) a lock-formed casing can be supplied. For higher pressure the casing will be welded.
Material: black sheet steel.

Shaped inlet fitted in the inlet side plate with spigot for connection to ducting, and so designed that the air is guided to the impeller without loss in pressure.
Material: cast iron.

Impeller with long backward curved blades for high pressures at relatively small air volumes.
Material: black sheet steel, riveted.

Bearing/motor pedestal with feet to support the fan assembly. The fan bearings and/or the motor are mounted on the pedestal as shown in the dimensioned sketch overleaf. When the motor is mounted above the pedestal, it is placed on an adjustable plate to facilitate belt tensioning.

Shaft and bearings. In the case of belt driven fans the impeller is mounted on a shaft supported on two spherical ball bearings in plummer blocks.

FINISH

All parts of the fan are protected against ordinary atmospheric corrosion.

ACCESSORIES

Belt drive comprising two pulleys, v-belts and a belt guard. The drive is dimensioned to suit operating conditions in each individual case.

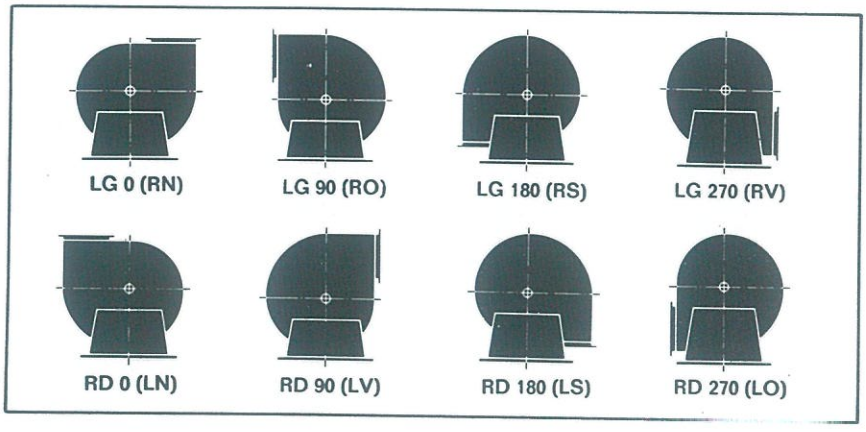
Motor to specification. For direct connected fans the impeller is normally mounted direct on the extended motor shaft.

Flexible connections for inlet spigot and outlet flange.

Counter flange for outlet.

Flange for inlet spigot

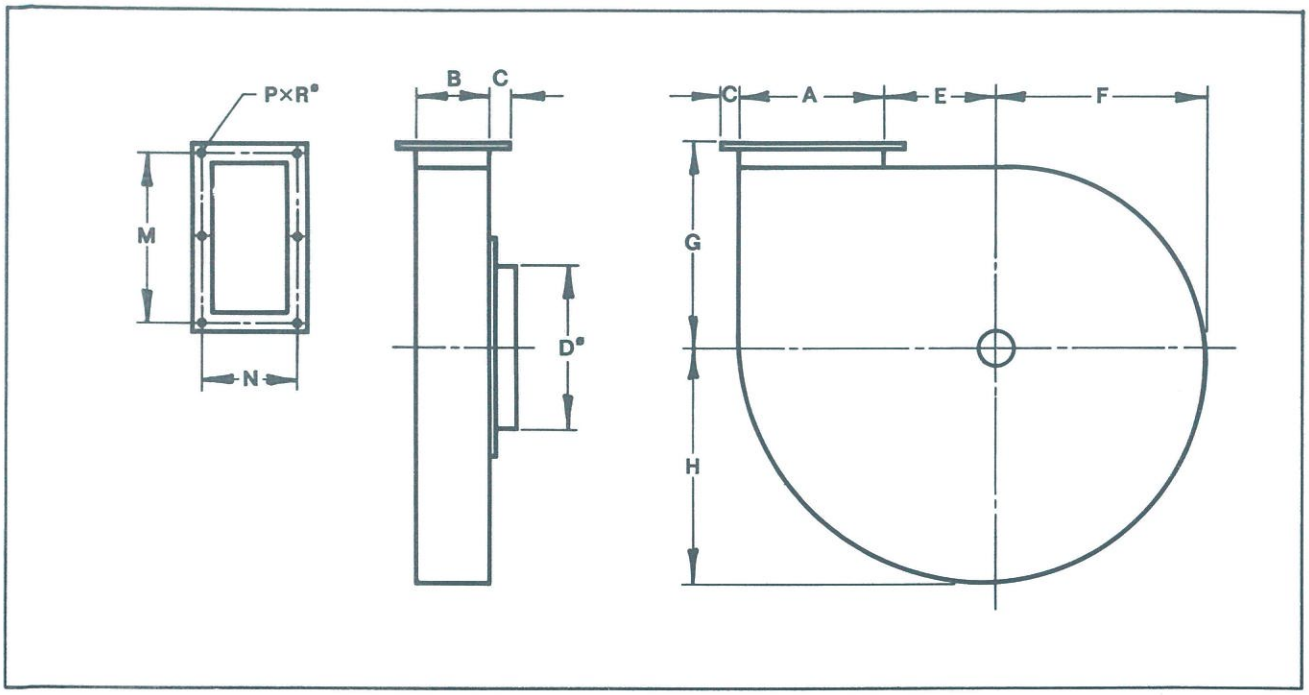
Anti-vibration mountings.



STANDARD POSITIONS

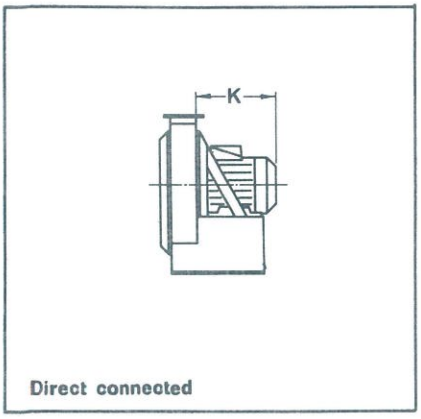
Position designations apply to the fan viewed from the side opposite to the inlet opening. The designations used are in conformity with EUROVENT's rules for designating directions of rotation and discharge of centrifugal fans. The designations previously used are shown in brackets.

DIMENSIONS

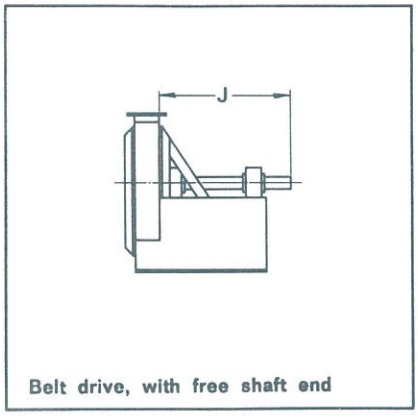


	A	B	C	D	E	F	G	H	M	N	P	R	Weight kg*
CPC-250	105	56	25	125	84	159	165	176	2×66,5	84	6	10	23
CPC-315	132	70	25	160	106	200	202	221	2×80	98	6	10	36
CPC-400	168	88	30	200	135	253	256	280	2×101	122	6	10	52
CPC-500	210	109	30	250	169	315	312	348	2×122	143	6	10	82
CPC-630	265	138	30	315	213	397	388	439	2×149,5	172	6	10	138
CPC-710	298	156	40	356	240	445	442	493	3×114	2×100	10	10	233
CPC-800	336	176	40	400	270	498	484	552	3×127	2×111	10	12	293
CPC-900	380	198	45	450	302	559	550	620	4×107,5	2×124	12	12	400
CPC-1000	420	218	50	500	337	621	615	689	4×119	2×137	12	12	520

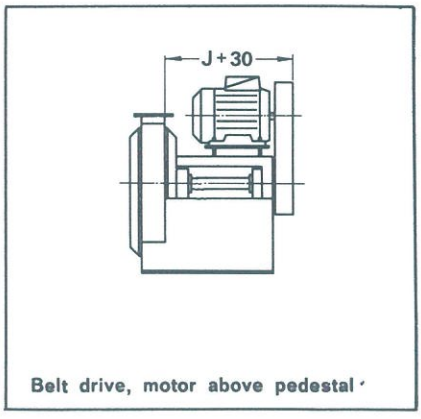
*) Max weight excl. of motor.



Direct connected



Belt drive, with free shaft end



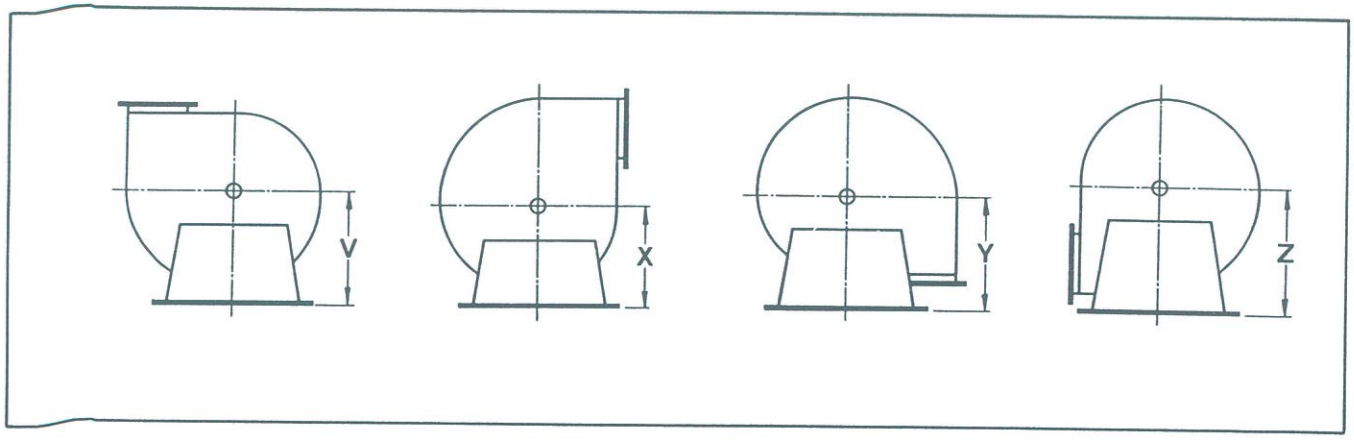
Belt drive, motor above pedestal

J- and K-dimensions depend on motor size. The J-dimensions shown apply primarily to small and medium sized motors. For large motors the shaft may be up to 200 mm longer.

CPC	-250	-315	-400	-500	-630	-710	-800	-900	1000
J	315	315	315	400	500	630	630	800	800

Centrifugal Fan type CPC

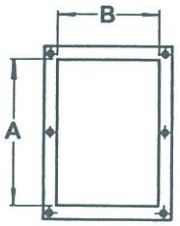
DIMENSIONS



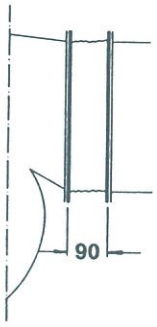
	V	X	Y	Z
CPC-250	200	180	200	250
CPC-315	250	225	280	300
CPC-400	325	300	310	375
CPC-500	400	360	400	450
CPC-630	500	420	480	550
CPC-710	550	500	500	630
CPC-800	600	550	550	700
CPC-900	635	635	635	800
CPC-1000	750	700	700	875

	A	B
CPC-250	105	56
CPC-315	132	70
CPC-400	168	88
CPC-500	210	109
CPC-630	265	138
CPC-710	298	156
CPC-800	336	176
CPC-900	380	198
CPC-1000	420	218

Bolt holes as in fan outlet flange.

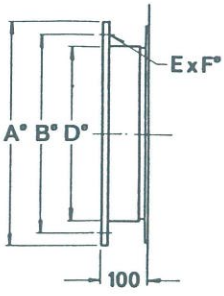


Counter flange, outlet

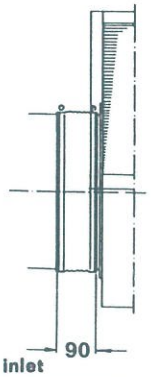


Flexible connection, outlet

	A	B	D	E	F
CPC-250	190	165	125	4	12
CPC-315	235	200	160	8	12
CPC-400	275	241	200	8	12
CPC-500	325	292	250	8	12
CPC-630	400	366	315	8	12
CPC-710	440	405	356	8	12
CPC-800	486	448	400	12	12
CPC-900	536	497	450	12	12
CPC-1000	588	551	500	12	12



Inlet flange



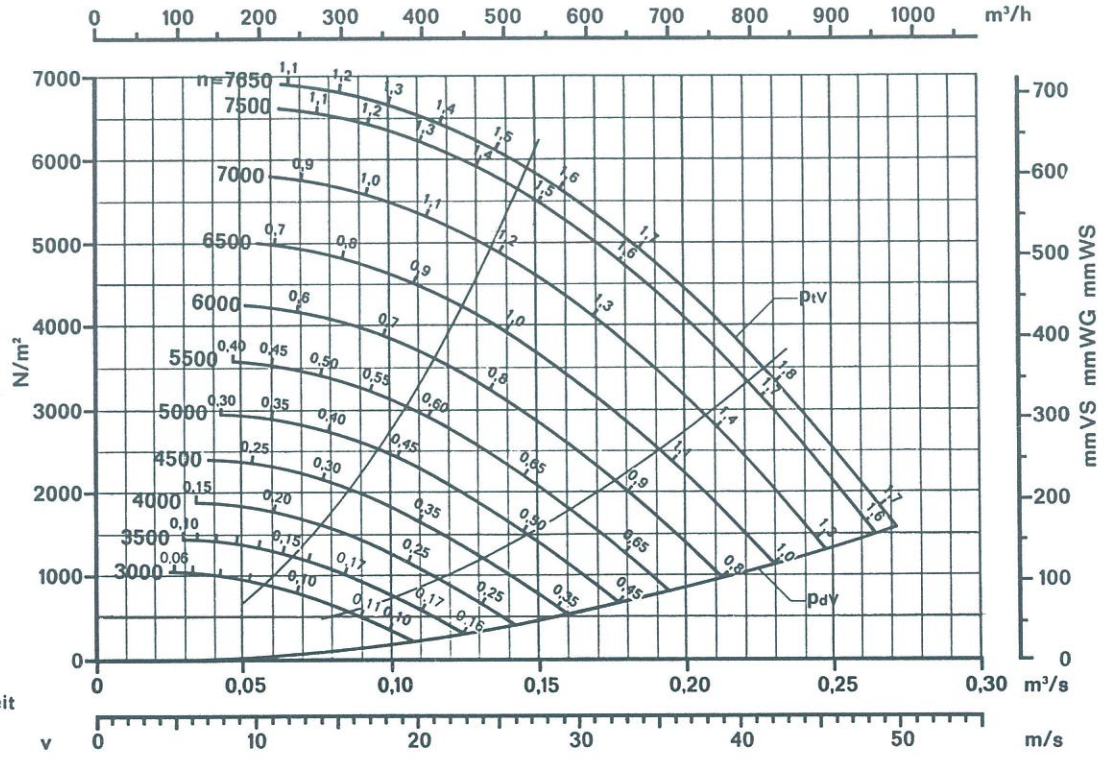
Flexible connection, inlet

Centrifugalventilator type CPC
Centrifugal Fan type CPC
Zentrifugalventilator Type CPC

DIMENSIONERINGSKURVER
PERFORMANCE CURVES
AUSLEGUNGSKURVEN

CPC-250/100

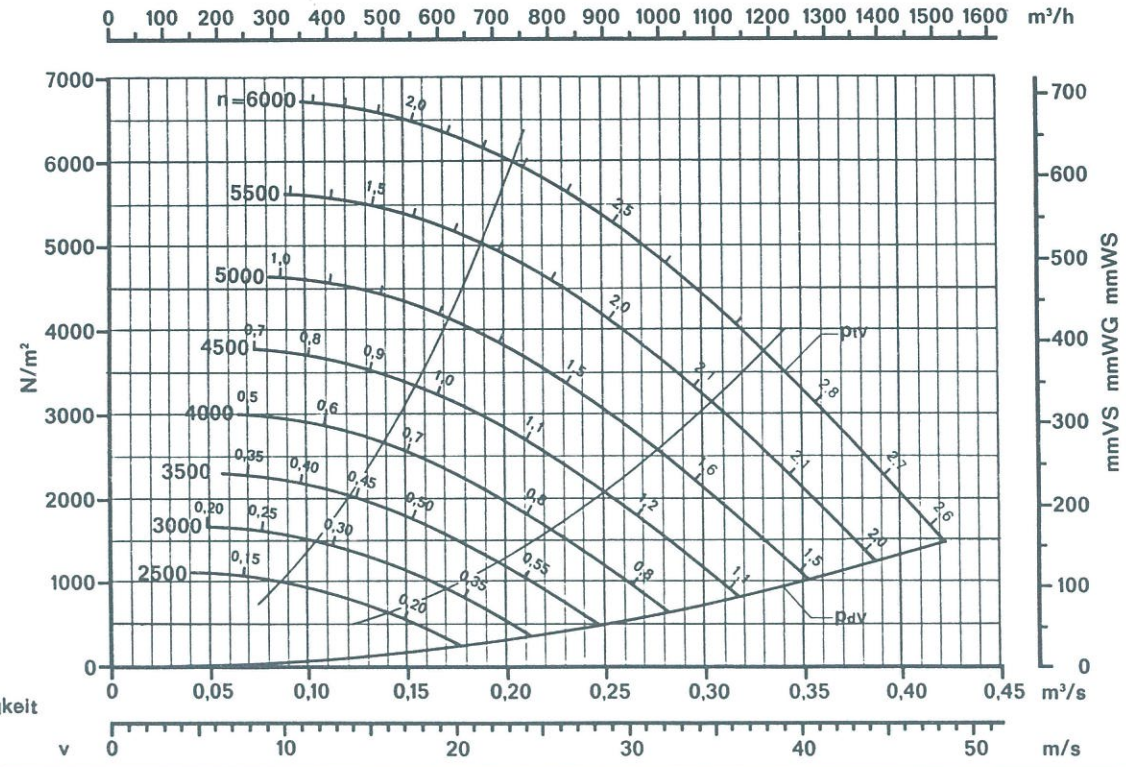
$\varrho = 1{,}225$ kg/m³



$GD^2 = 0{,}04$ kg m²
Periferihastighed
Impeller tip speed
Umfangsgeschwindigkeit
$u = 0{,}013 \times n$

CPC-315/100

$\varrho = 1{,}225$ kg/m³



$GD^2 = 0{,}084$ kg m²
Periferihastighed
Impeller tip speed
Umfangsgeschwindigkeit
$u = 0{,}016 \times n$

n: Ventilatorens omdrejningstal, o/min
Tallene på kurverne angiver ventilatorens kraftforbrug i kW
p: Tryk, N/m² (mm VS)
p_{tV}: Ventilatorens totaltryk
p_{dV}: Ventilatorens dynamiske tryk
u: Periferihastighed, m/s
v: Lufthastighed i udløbsåbningen, m/s

n: Fan speed, r.p.m.
The numbers on the curves indicate the fan power consumption in kW
p: Pressure, N/m² (mm w.g.)
p_{tV}: Fan total pressure
p_{dV}: Fan velocity pressure
u: Impeller tip speed, m/s
v: Air velocity in outlet opening, m/s

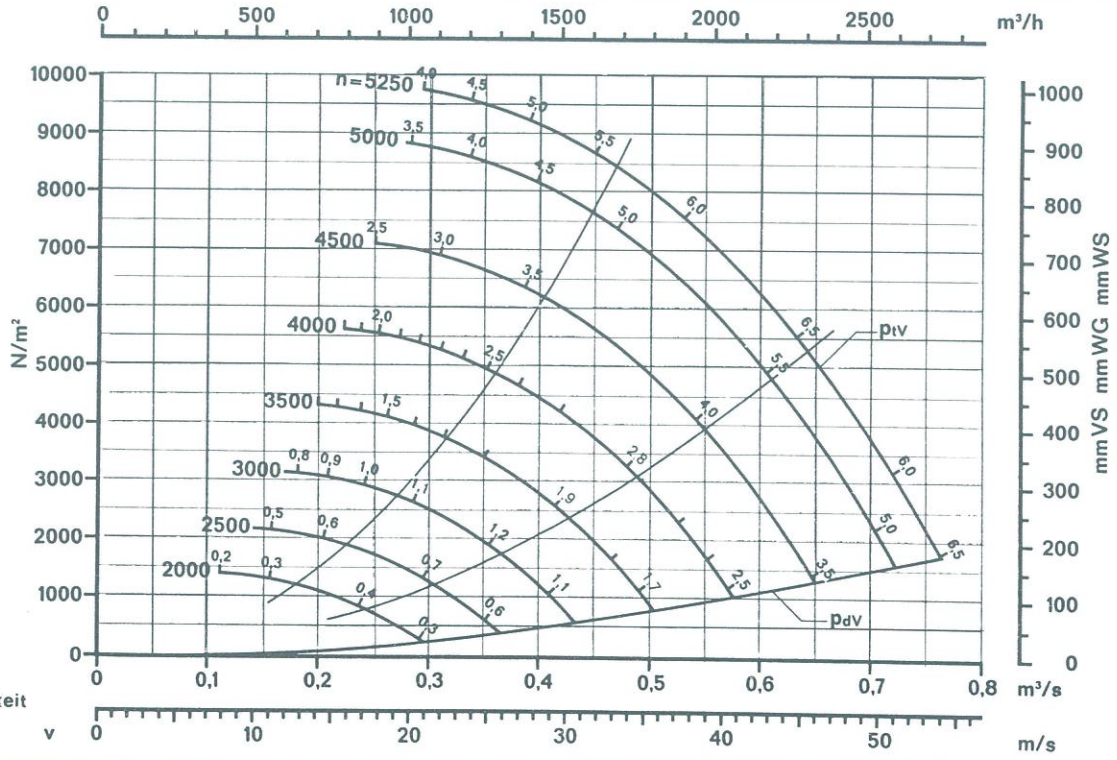
n: Lüfter Drehzahl, U/min
Die Zahlen auf den Kurven geben den Kraftbedarf des Lüfters in kW an
p: Druck, N/m² (mm WS)
p_{tV}: Lüfter Gesamtdruck
p_{dV}: Lüfter dynamischer Druck
u: Umfangsgeschwindigkeit, m/s
v: Luftgeschwindigkeit in der Austrittsöffnung, m/s

Centrifugalventilator type CPC
Centrifugal Fan type CPC
Zentrifugalventilator Type CPC

DIMENSIONERINGSKURVER
PERFORMANCE CURVES
AUSLEGUNGSKURVEN

CPC-400/100

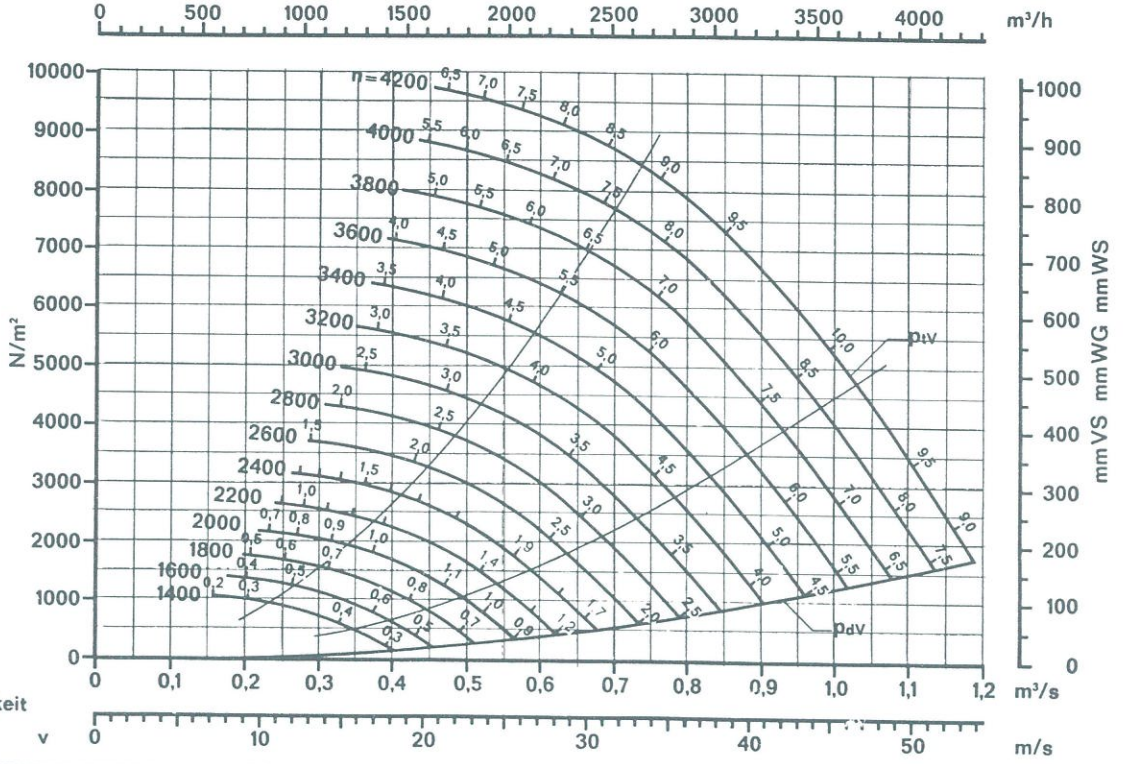
ϱ = 1,225 kg/m³



GD² = 0,32 kg m²
Periferihastighed
Impeller tip speed
Umfangsgeschwindigkeit
u = 0,021 × n

CPC-500/100

ϱ = 1,225 kg/m³



GD² = 0,92 kg m²
Periferihastighed
Impeller tip speed
Umfangsgeschwindigkeit
u = 0,026 × n

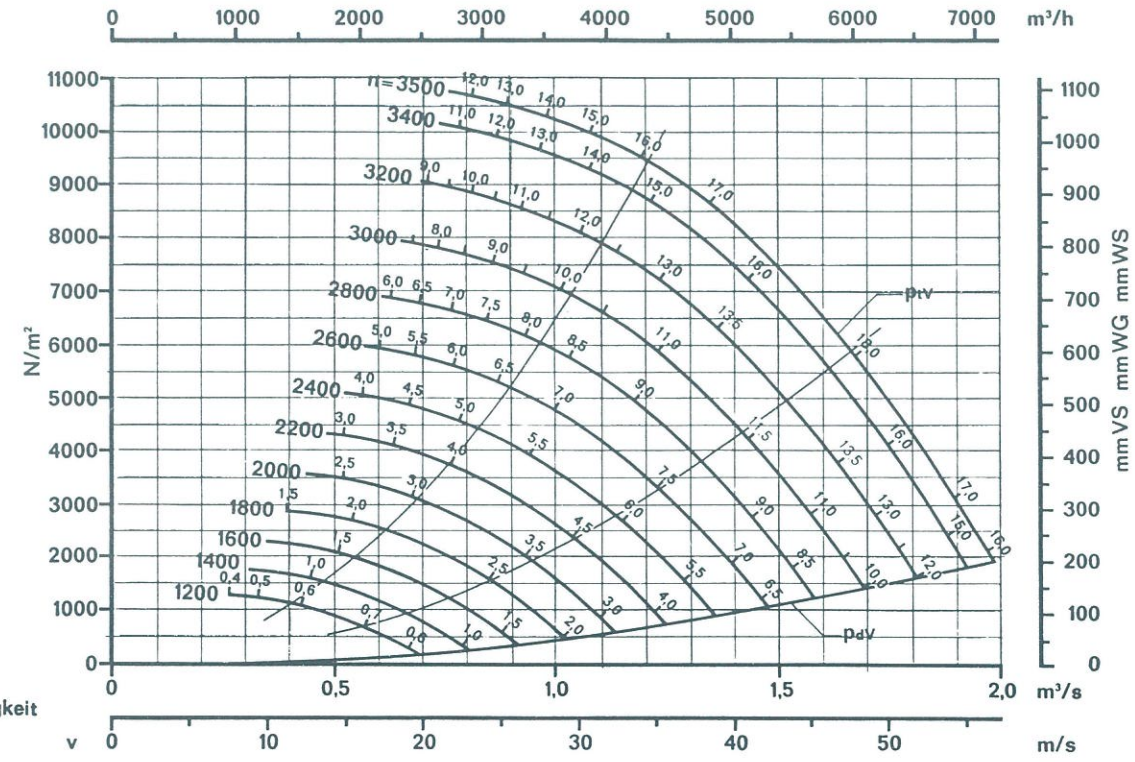
n: Ventilatorens omdrejningstal, o/min
Tallene på kurverne angiver ventilatorens kraftforbrug i kW
p: Tryk, N/m² (mm VS)
p_{tV}: Ventilatorens totaltryk
p_{dV}: Ventilatorens dynamiske tryk
u: Periferihastighed, m/s
v: Lufthastighed i udløbsåbningen, m/s

n: Fan speed, r.p.m.
The numbers on the curves indicate the fan power consumption in kW
p: Pressure, N/m² (mm w.g.)
p_{tV}: Fan total pressure
p_{dV}: Fan velocity pressure
u: Impeller tip speed, m/s
v: Air velocity in outlet opening, m/s

n: Lüfter Drehzahl, U/min
Die Zahlen auf den Kurven geben den Kraftbedarf des Lüfters in kW an
p: Druck, N/m² (mm WS)
p_{tV}: Lüfter Gesamtdruck
p_{dV}: Lüfter dynamischer Druck
u: Umfangsgeschwindigkeit, m/s
v: Luftgeschwindigkeit in der Austrittsöffnung, m/s

CPC-630/100

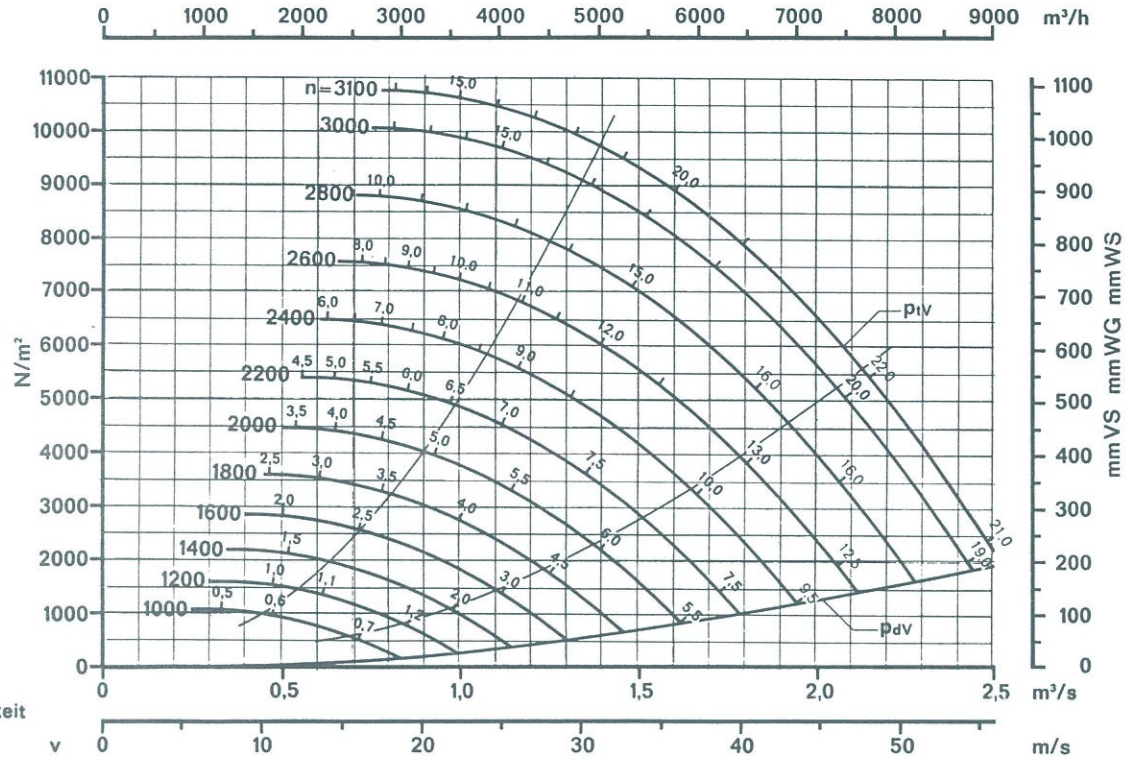
ϱ = 1,225 kg/m³



GD² = 3,2 kg m²
Periferihastighed
Impeller tip speed
Umfangsgeschwindigkeit
u = 0,033×n

CPC-710/100

ϱ = 1,225 kg/m³



GD² = 7,0 kg m²
Periferihastighed
Impeller tip speed
Umfangsgeschwindigkeit
u = 0,037×n

n: Ventilatorens omdrejningstal, o/min
Tallene på kurverne angiver ventilatorens kraftforbrug i kW
p: Tryk, N/m² (mm VS)
p_{tV}: Ventilatorens totaltryk
p_{dV}: Ventilatorens dynamiske tryk
u: Periferihastighed, m/s
v: Lufthastighed i udløbsåbningen, m/s

n: Fan speed, r.p.m.
The numbers on the curves indicate the fan power consumption in kW
p: Pressure, N/m² (mm w.g.)
p_{tV}: Fan total pressure
p_{dV}: Fan velocity pressure
u: Impeller tip speed, m/s
v: Air velocity in outlet opening, m/s

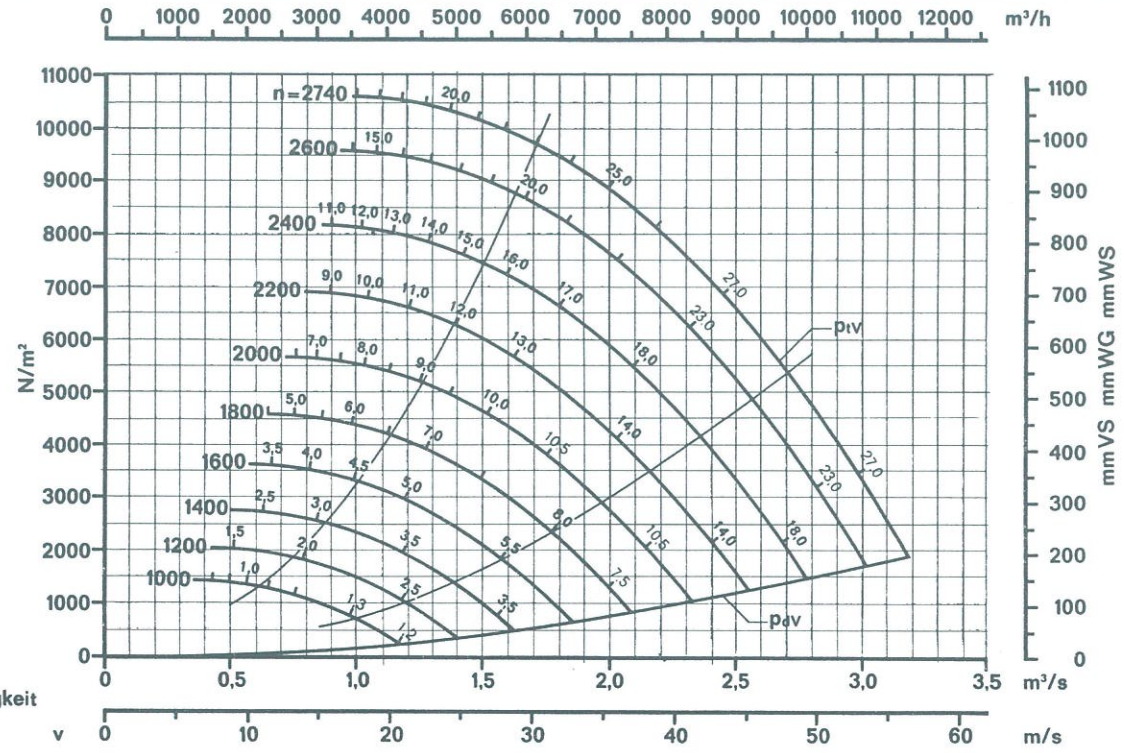
n: Lüfter Drehzahl, U/min
Die Zahlen auf den Kurven geben den Kraftbedarf des Lüfters in kW an
p: Druck, N/m² (mm WS)
p_{tV}: Lüfter Gesamtdruck
p_{dV}: Lüfter dynamischer Druck
u: Umfangsgeschwindigkeit, m/s
v: Luftgeschwindigkeit in der Austrittsöffnung, m/s

Centrifugalventilator type CPC
Centrifugal Fan type CPC
Zentrifugalventilator Type CPC

DIMENSIONERINGSKURVER
PERFORMANCE CURVES
AUSLEGUNGSKURVEN

CPC-800/100

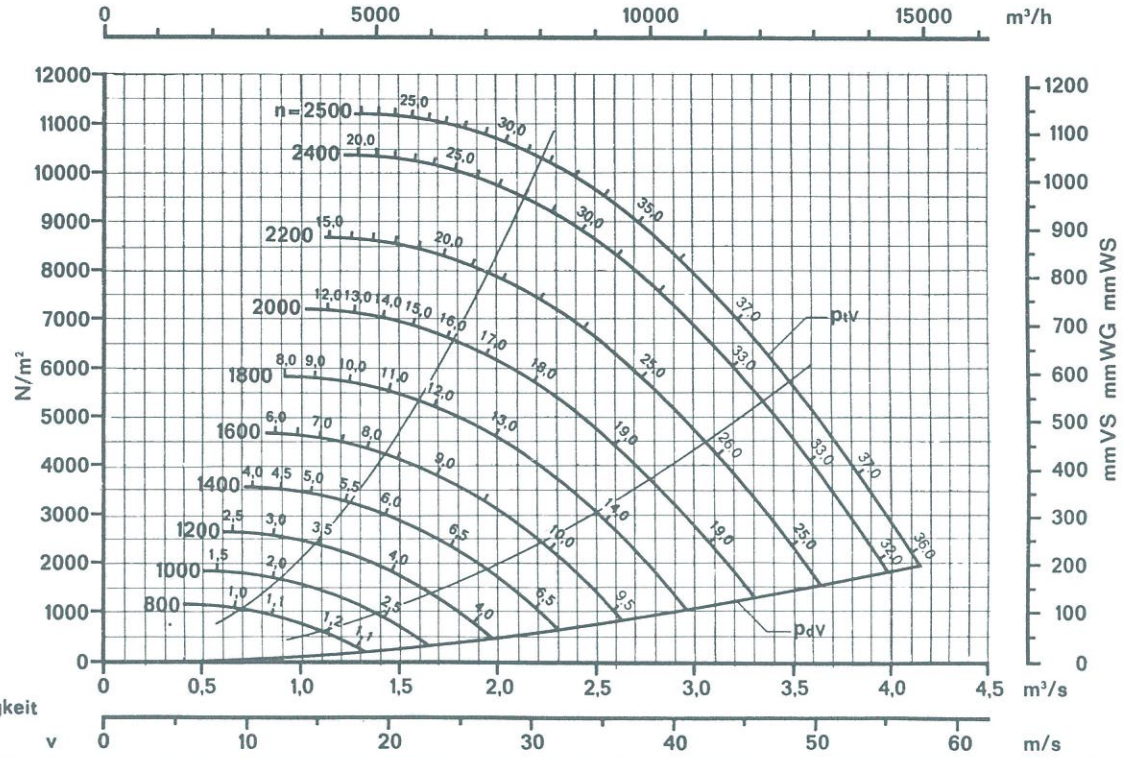
ϱ = 1,225 kg/m³



GD² = 11,8 kg m²
Periferihastighed
Impeller tip speed
Umfangsgeschwindigkeit
u = 0,042×n

CPC-900/100

ϱ = 1,225 kg/m³



GD² = 20,6 kg m²
Periferihastighed
Impeller tip speed
Umfangsgeschwindigkeit
u = 0,047×n

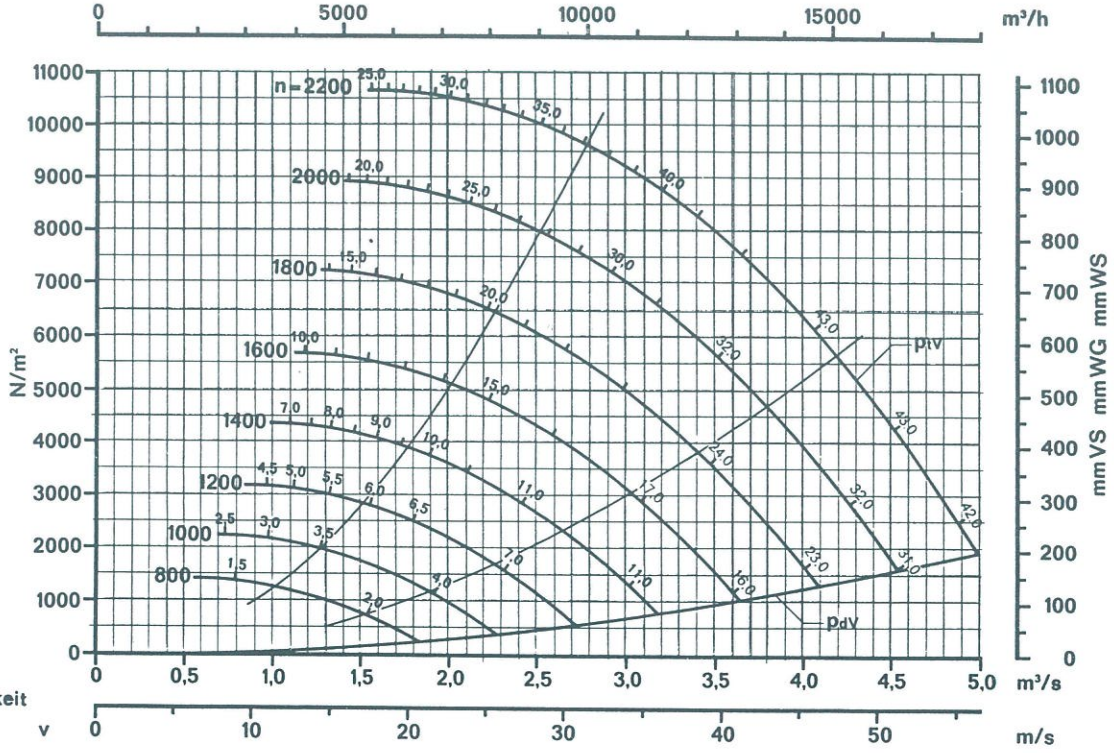
n: Ventilatorens omdrejningstal, o/min
Tallene på kurverne angiver ventilatorens kraftforbrug i kW
p: Tryk, N/m² (mm VS)
p_{tV}: Ventilatorens totaltryk
p_{dV}: Ventilatorens dynamiske tryk
u: Periferihastighed, m/s
v: Lufthastighed i udløbsåbningen, m/s

n: Fan speed, r.p.m.
The numbers on the curves indicate the fan power consumption in kW
p: Pressure, N/m² (mm w.g.)
p_{tV}: Fan total pressure
p_{dV}: Fan velocity pressure
u: Impeller tip speed, m/s
v: Air velocity in outlet opening, m/s

n: Lüfter Drehzahl, U/min
Die Zahlen auf den Kurven geben den Kraftbedarf des Lüfters in kW an
p: Druck, N/m² (mm WS)
p_{tV}: Lufter Gesamtdruck
p_{dV}: Lüfter dynamischer Druck
u: Umfangsgeschwindigkeit, m/s
v: Luftgeschwindigkeit in der Austrittsöffnung, m/s

CP C-1000/100

ϱ = 1,225 kg/m³



GD^2 = 31,7 kg m²
Periferihastighed
Impeller tip speed
Umfangsgeschwindigkeit
u = 0,052×n

n: Ventilatorens omdrejningstal, o/min Tallene på kurverne angiver ventilatorens kraftforbrug i kW p: Tryk, N/m² (mm VS) p_{tV}: Ventilatorens totaltryk p_{dV}: Ventilatorens dynamiske tryk u: Periferihastighed, m/s v: Lufthastighed i udløbsåbningen, m/s	n: Fan speed, r.p.m. The numbers on the curves indicate the fan power consumption in kW p: Pressure, N/m² (mm w.g.) p_{tV}: Fan total pressure p_{dV}: Fan velocity pressure u: Impeller tip speed, m/s v: Air velocity in outlet opening, m/s	n: Lüfter Drehzahl, U/min Die Zahlen auf den Kurven geben den Kraftbedarf des Lufters in kW an p: Druck, N/m² (mm WS) p_{tV}: Lüfter Gesamtdruck p_{dV}: Lüfter dynamischer Druck u: Umfangsgeschwindigkeit, m/s v: Luftgeschwindigkeit in der Austrittsöffnung, m/s