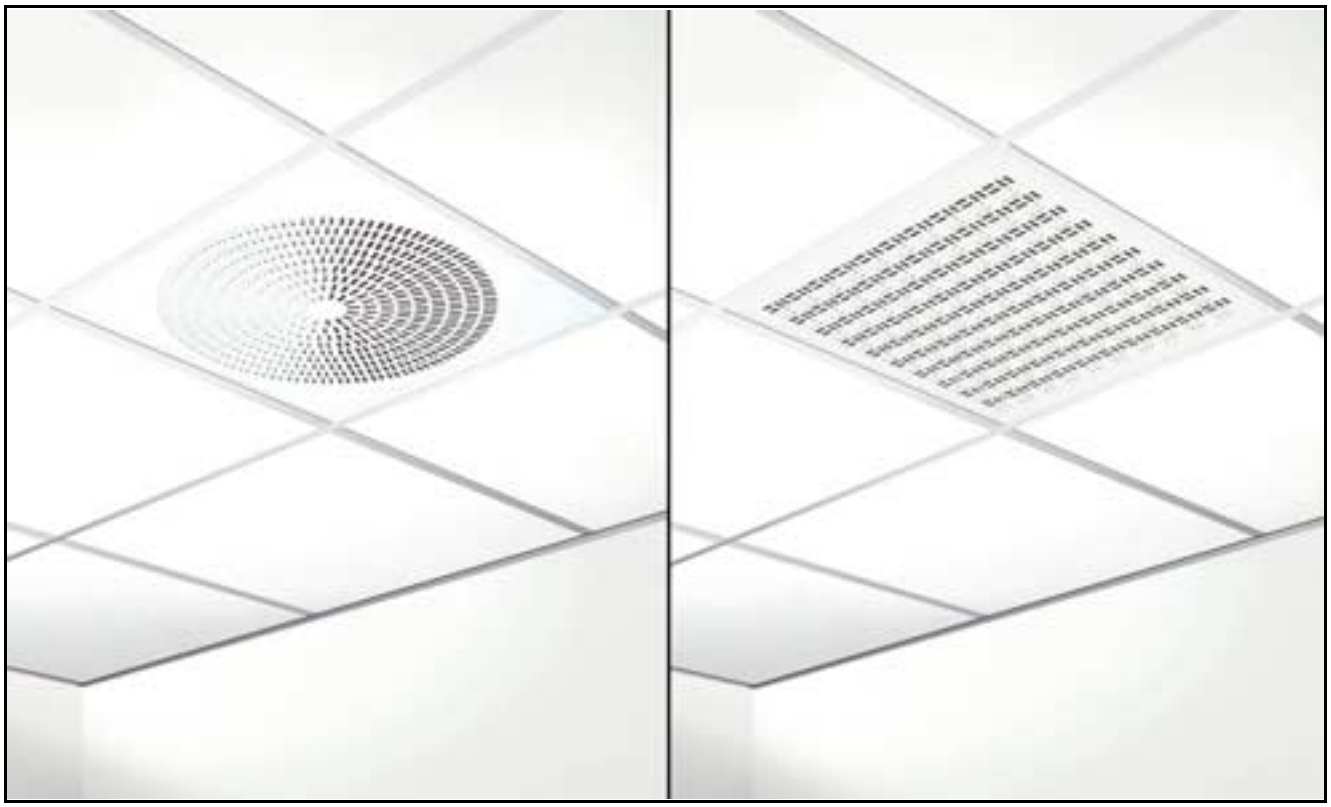
LPKa

LockZone

Square ceiling terminal for supply air



FUNCTION

LPK is a square perforated guide vane supply air terminal for ceiling mounting. Designed for "flush" mounting in suspended ceilings, but can also be mounted in fixed ceilings or freely suspended. The specially designed guide rail perforations enable supply of air at large under-temperatures. The perforated diffuser face is vertically adjustable so that a lateral slot can be opened when large air-flows are desired. Two perforation patterns are available, square or circular, both set in rotation patterns. LPK 1 has a large rotation pattern whereas LPK 2 has several small rotation patterns. Suitable for both constant and variable airflows.

QUICK FACTS

- Guide vane perforations in rotation patterns
- Large induction effect
- Designed for "flush" ceiling mounting
- In-built slot function
- Simple to install
- Can be used with plenum box ALS
- Available in alternative colours
- Included in the Magi CAD and Point databases

QUICK GUIDE

AIRFLOW-SOUND LEVEL				
LPKa 1	ALSc	l/s		
Size	Size	25 dB(A)	30 dB(A)	35 dB(A)
125-400	100-125	24	28	34
160-400	125-160	34	40	49
200-500	160-200	51	61	75
250-600	200-250	79	92	110
315-600	250-315	110	130	155
400-600	315-400	125	152	195

The table shows data for LPK1 closed slot with plenum box ALS At a total pressure drop of 50 Pa.

DESIGN

Square perforated supply air terminal consisting of two parts: diffuser face and backing box. The spring mounted removable diffuser face with guide vane perforated in a circular (LPK 1) or square (LPK 2) pattern. It is also equipped with a perforated lateral slot. The backing box has a connection nipple with a rubber seal and spring clips for the diffuser face. It is also possible to screen off the spread pattern on LPK 2. This function is only available when the slot is in the open position.

MATERIALS AND SURFACE TREATMENT

The backing box is manufactured in galvanized sheet steel. The diffuser face is in sheet steel. The whole terminal is painted in Stifab Farex white interior paint, RAL 9010.

SPECIAL

LPK is available in other standard colours: dark grey RAL 7037, light metallic grey RAL 9006 and black RAL 9005. In addition to standard sizes, the terminal can be supplied in special dimensions and with alternative perforation patterns. Please contact your nearest Stifab Farex office for further information.

ACCESSORIES

PLENUM BOX:

ALS, manufactured in galvanized sheet steel. Contains removable commissioning damper, fixed measurement outlet and sound absorbing material with reinforced surface layer. **N.B! independent of straight section of duct before connection.**

FRAME:

SAR K. For aesthetic installation of lowered diffuser.

PLANNING (See figure 1)

Note that LPK is supplied with dimensions 595 x 595 mm for all connection sizes. This facilitates simple installation in suspended cassette ceilings with module measurements of 600 x 600 mm. The whole terminal is placed on the T-bar framework and then attached to the duct system. If a larger airflow is desired, the diffuser face can be withdrawn from its spring clips, rotated ¼ revolution horizontally and then pressed up into the backing box again. The side slot is then opened and the outlet area thereby increased.

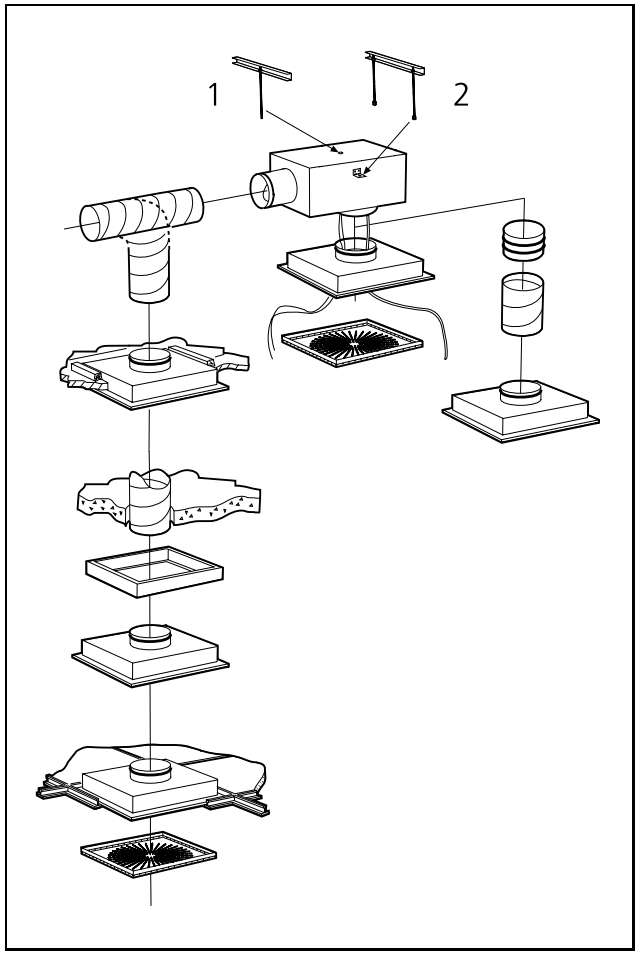


Figure 1. *Installation.*
1 = Alternative 1
2 = Alternative 2

INSTALLATION (See figure 1)

The inlet spigot is attached to the connecting duct or plenum box using blind rivets. The plenum box should be supported independently using threaded rods or mounting bands. Where no plenum is used, or when mounted in fixed ceiling systems, the diffuser should be supported independently via either the sides or top of it´s backing box. When mounted in T-bar suspended ceiling systems, the diffuser is aligned by placing it on the T-bar framework. The distance between the plenum box and the terminal may be extended up to 500 mm using normal circular duct, without the need to extend the measuring tubes or damper cords.

COMMISSIONING WITH ALS (See figure 1)

Commissioning must be carried out with the diffuser face in place. Measurement tubes and damper cords are pulled out through the perforations in the of the diffuser face. A manometer is connected to the measurement tubes. The desired commissioning pressure can be calculated using the terminals k-factor. The damper is set at the correct position and a commissioning knot tied in the damper cords to indicate the damper position. To lock the set damper position, the damper cords are fixed using the locking screw in the roof of the backing box. The k-factor is stated on the product label and the relevant commissioning instructions are also available on our web site.

MAINTENANCE (See figure 1)

The terminal may be cleaned when necessary using lukewarm water with detergent added. Access to the duct system is possible by removing the diffuser face from its spring clips. If the plenum box ALS is used, hinge the distribution plate to one side so that the damper unit can be held and rotated from its fastening.

ENVIRONMENT

The decklaration of construction materials is available on our website or may be ordered from one of our sales offices.

TECHNICAL DATA

- Sound level dB(A) applies to rooms of 10 m^2 equivalent absorption area.
- Throw $l_{0,2}$ is measured under isothermal conditions.
- Recommended maximum under temperature is for;
  LPK 1 14°C for closed slot
  LPK 2 10°C for closed slot
- For calculating the width of the airstream, air velocities in the affected zone or sound levels in rooms with other dimensions, please refer to our calculation softwares ProAir and ProAc, which are both available on our website.

Sound data - LPK - Supply air

Sound power level L_w(dB)
Table K_{OK}

Size	Mid-frequency (octave band) Hz							
LPKa	63	125	250	500	1000	2000	4000	8000
125-400	-1	-4	-3	0	3	-9	-20	-17
160-400	-1	-4	-3	0	3	-10	-20	-14
200-500	2	-2	-3	2	2	-11	-21	-15
250-600	-4	-2	-2	3	1	-10	-18	-17
315-600	0	-2	0	3	1	-11	-22	-17
400-600	0	1	1	1	1	-7	-22	-24
Size	Mid-frequency (octave band) Hz							
LPKa + ALSc	63	125	250	500	1000	2000	4000	8000
125-400	2	6	4	0	0	-7	-13	-12
160-400	2	5	4	0	1	-8	-14	-10
200-500	1	3	3	1	0	-7	-12	-10
250-600	4	5	2	2	0	-7	-13	-12
315-600	1	3	2	2	0	-9	-18	-17
400-600	2	5	3	1	1	-8	-18	-17
Tol. ±	2	2	2	2	2	2	2	2

Sound attenauation ΔL (dB)
Table ΔL

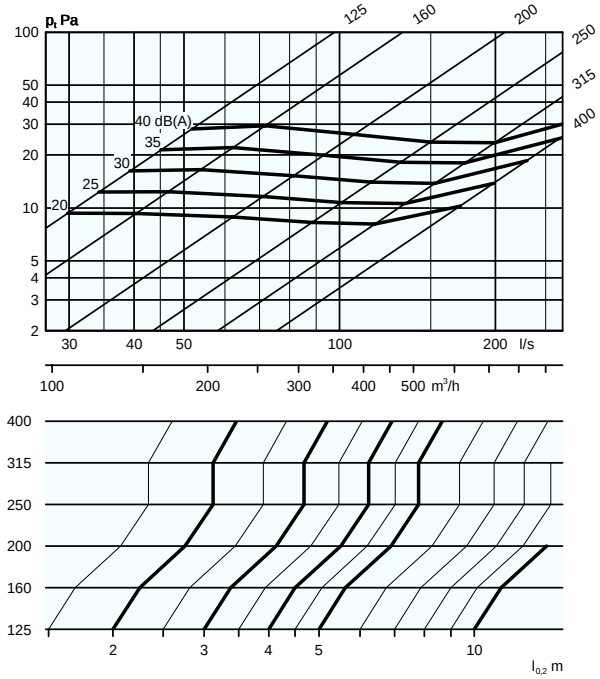
Size	Mid-frequency (octave band) Hz							
LPKa	63	125	250	500	1000	2000	4000	8000
125-400	20	15	10	5	3	5	5	4
160-400	19	14	9	4	3	5	5	4
200-500	19	14	8	3	3	4	5	5
250-600	16	11	5	4	2	3	4	4
315-600	14	9	4	2	2	2	3	3
400-600	13	8	4	1	0	0	0	0
Size	Mid-frequency (octave band) Hz							
LPKa + ALSc	63	125	250	500	1000	2000	4000	8000
125-400	21	16	9	17	23	16	11	13
160-400	19	14	10	17	19	12	10	12
200-500	16	11	8	16	18	12	11	11
250-600	13	8	8	16	17	12	12	13
315-600	11	6	7	19	14	10	10	13
400-600	10	5	8	14	11	10	11	12
Tol. ±	2	2	2	2	2	2	2	2

Engineering graphs - LPK 1 - Supply air

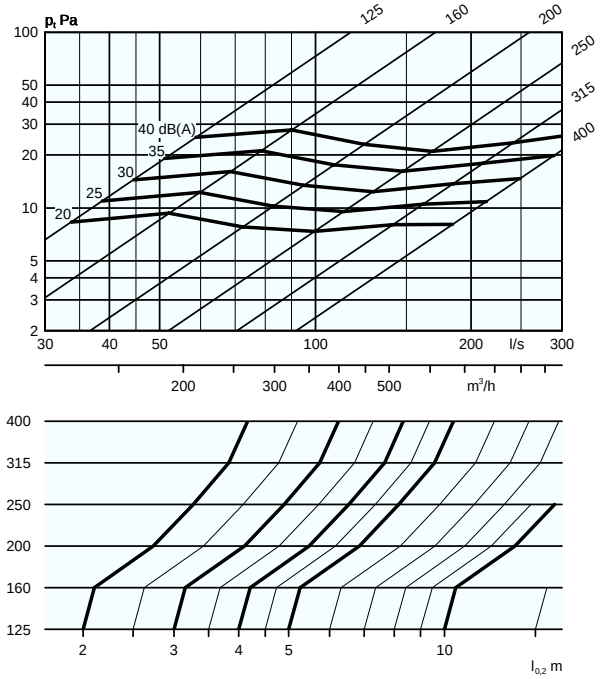
Air flow - Pressure drop - Sound level - Throw

- The graphs illustrate data for LPK recessed in a ceiling.
- The graphs must not be used for commissioning.
- ∇= Min. flow to obtain sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB´s higher than the dB(A) value. For more accurate calculations, see the calculation template in the chapter on Acoustics in the Technical Information section of this catalogue.
- The throw length data applies to a rotation spread pattern.

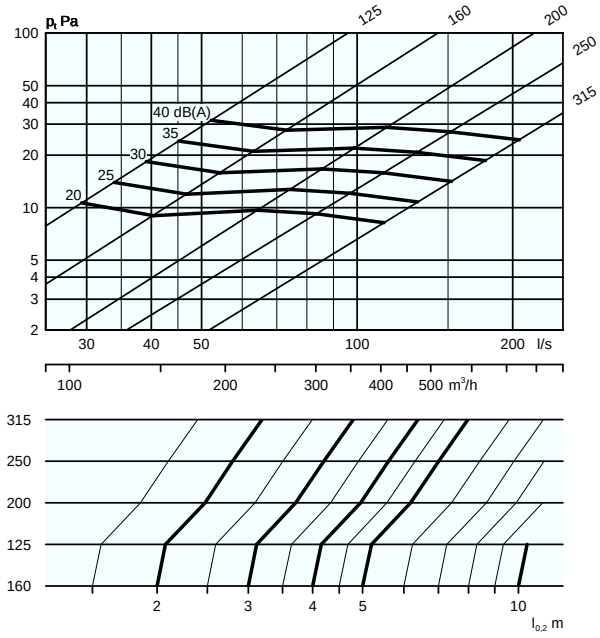
LPKA 1, closed slot



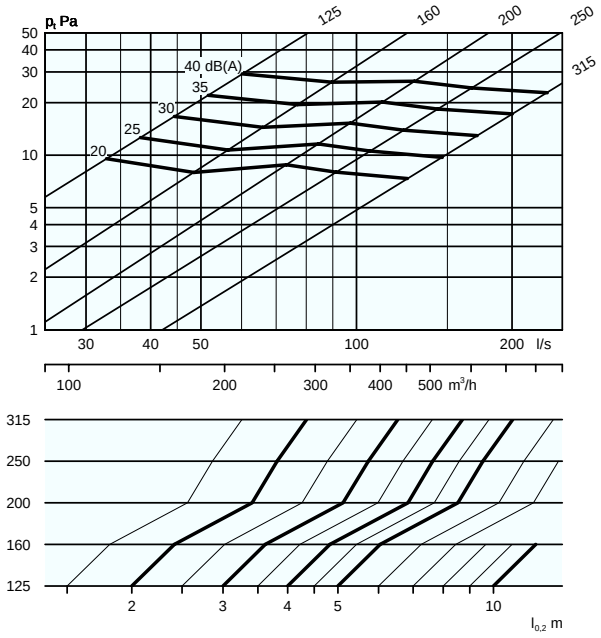
LPKa 1, open slot



LPKa 2, closed slot



LPKa 2, open slot

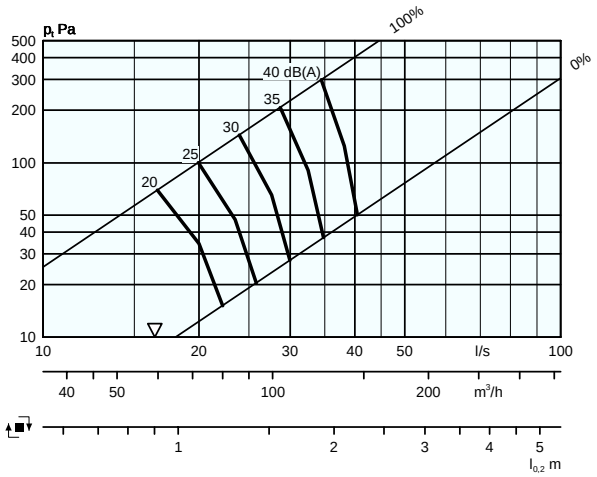


Engineering graphs - LPK 1 with ALSc - Supply air

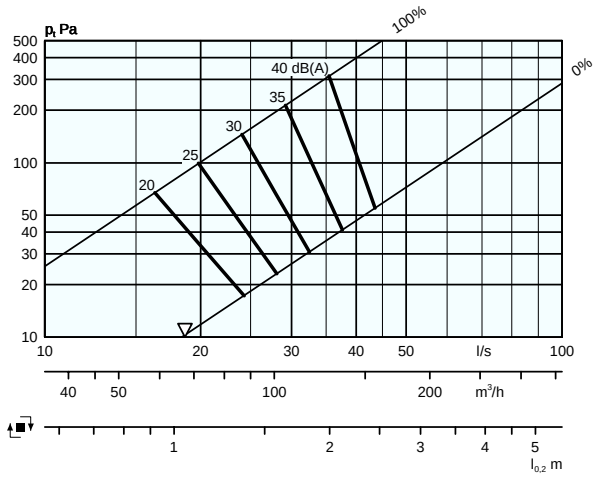
Air flow - Pressure drop - Sound level - Throw

- The graphs illustrate data for LPK recessed in a ceiling.
- The graphs must not be used for commissioning.
- ∇= Min. flow to obtain sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB´s higher than the dB(A) value. For more accurate calculations, see the calculation template in the chapter on Acoustics in the Technical Information section of this catalogue.

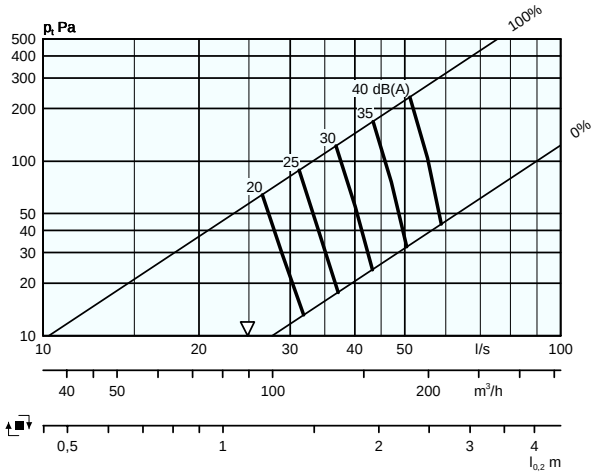
LPKa 1-125-400 + ALSc 100-125, closed slot



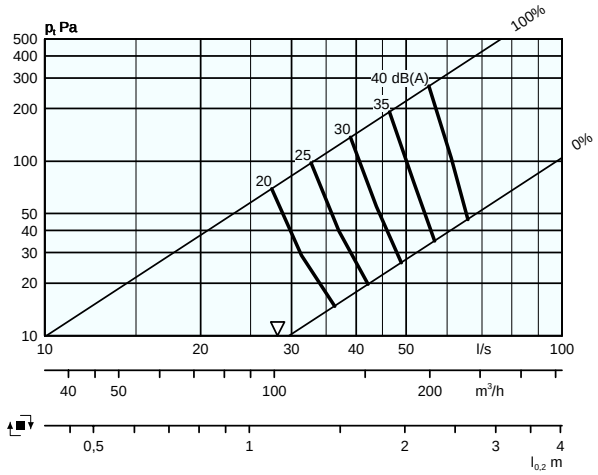
LPKa 1-125-400 + ALSc 100-125, open slot



LPKa 1 160-400 + ALSc 125-160, closed slot



LPKa 1 160-400 + ALSc 125-160, open slot

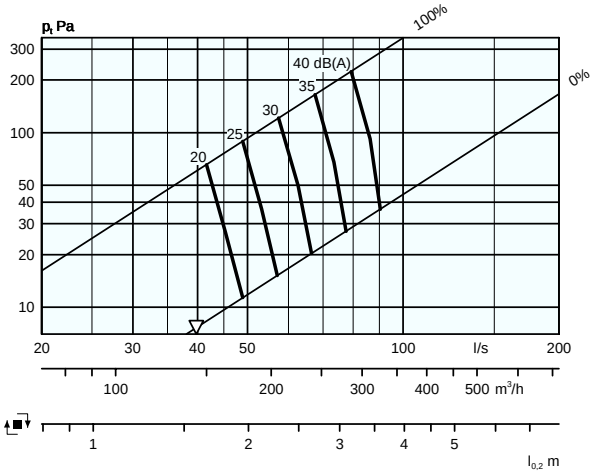


Engineering graphs - LPK 1 with ALSc - Supply air

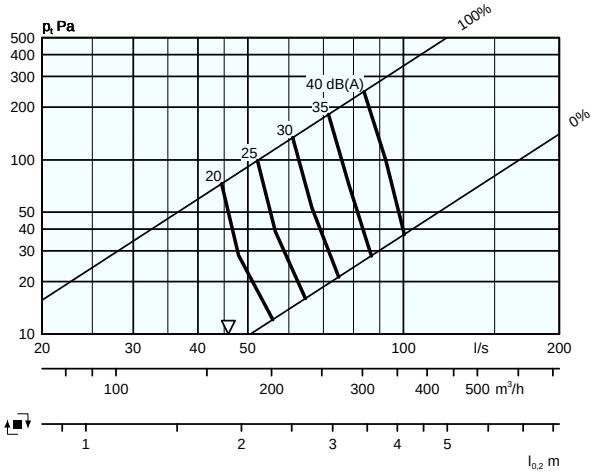
Air flow - Pressure drop - Sound level - Throw

- The graphs illustrate data for LPK recessed in a ceiling.
- The graphs must not be used for commissioning.
- ∇= Min. flow to obtain sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB´s higher than the dB(A) value. For more accurate calculations, see the calculation template in the chapter on Acoustics in the Technical Information section of this catalogue.

LPKa 1 200-500 + ALSc 160-200, closed slot



LPKa 1 200-500 + ALSc 160-200, open slot

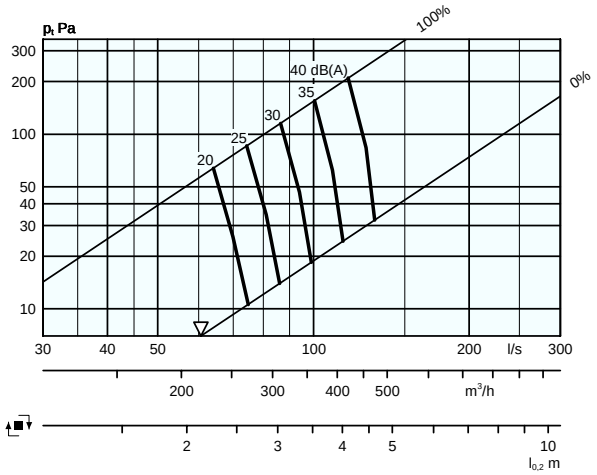


Engineering graphs - LPK 1 with ALS - Supply air

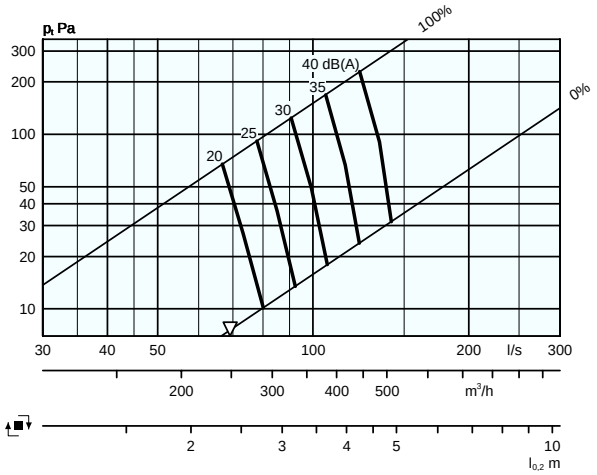
Air flow - Pressure drop - Sound level - Throw

- The graphs illustrate data for LPK recessed in a ceiling.
- The graphs must not be used for commissioning.
- ∇= Min. flow to obtain sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB´s higher than the dB(A) value. For more accurate calculations, see the calculation template in the chapter on Acoustics in the Technical Information section of this catalogue.

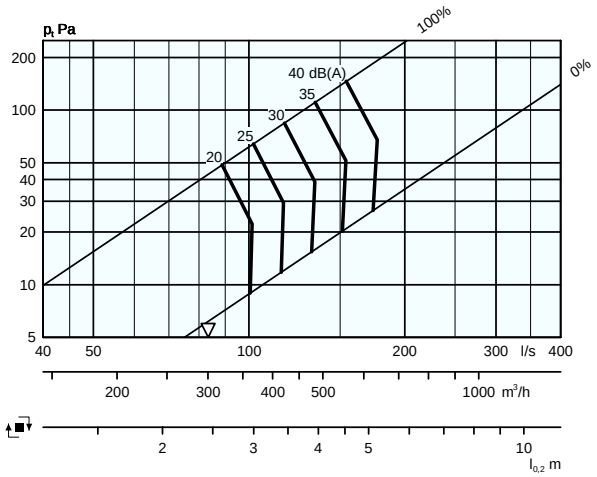
LPKa 1 250-600 + ALSc 200-250, closed slot



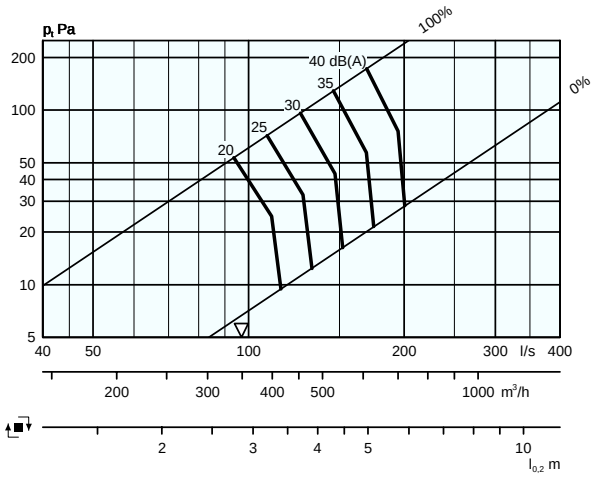
LPKa 1 250-600 + ALSc 200-250, open slot



LPKa 1 315-600 + ALSc 250-315, closed slot



LPKa 1 315-600 + ALSc 250-315, open slot

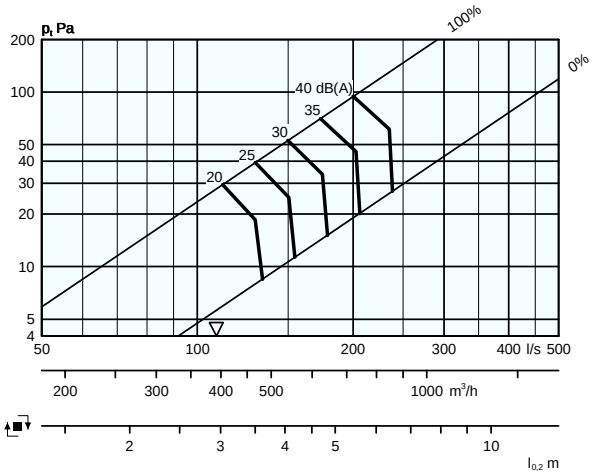


Engineering graphs - LPK 1 with ALS - Supply air

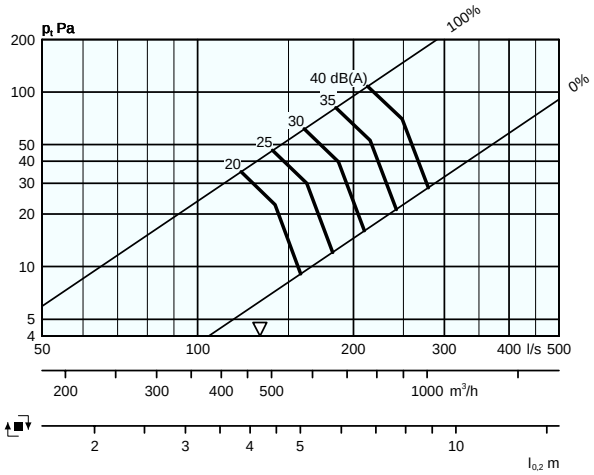
Air flow - Pressure drop - Sound level - Throw

- The graphs illustrate data for LPK recessed in a ceiling.
- The graphs must not be used for commissioning.
- ∇= Min. flow to obtain sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB´s higher than the dB(A) value. For more accurate calculations, see the calculation template in the chapter on Acoustics in the Technical Information section of this catalogue.

LPKa 1 400-600 + ALSc 315-400, closed slot



LPKa 1 400-600 + ALSc 315-400, open slot

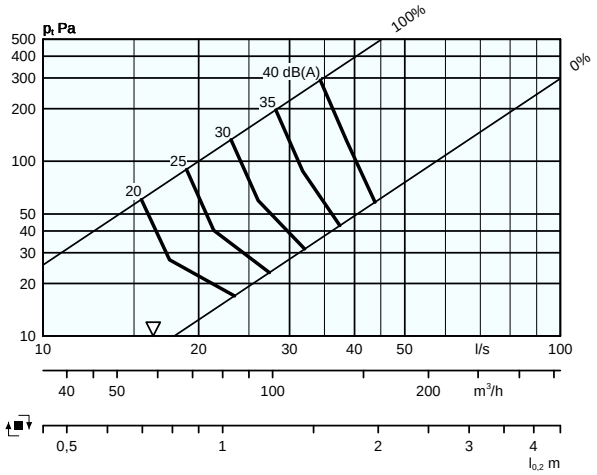


Engineering graphs - LPK 2 with ALS - Supply air

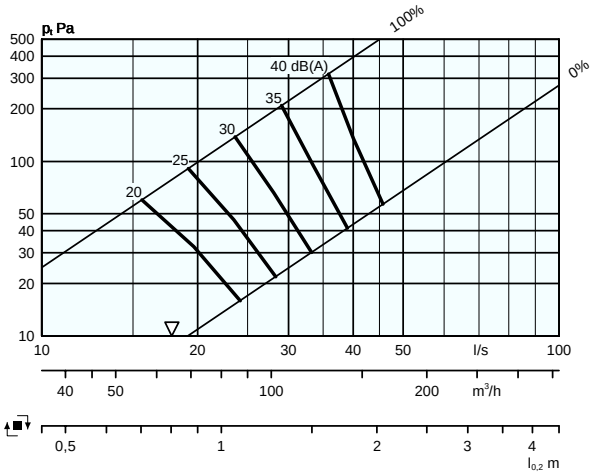
Air flow - Pressure drop - Sound level - Throw

- The graphs illustrate data for LPK recessed in a ceiling.
- The graphs must not be used for commissioning.
- ∇ = Min. flow to obtain sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB´s higher than the dB(A) value. For more accurate calculations, see the calculation template in the chapter on Acoustics in the Technical Information section of this catalogue.

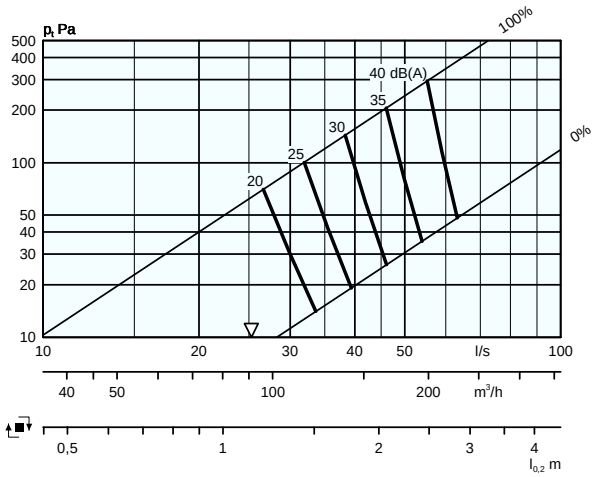
LPKa 2 125-400 + ALSc 100-125, closed slot



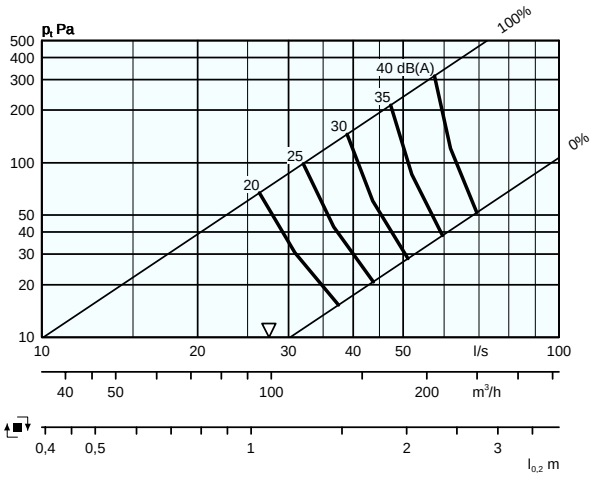
LPKa 2 125-400 + ALSc 100-125, open slot



LPKa 2 160-400 + ALSc 125-160, closed slot



LPKa 2 160-400 + ALSc 125-160, Open slot

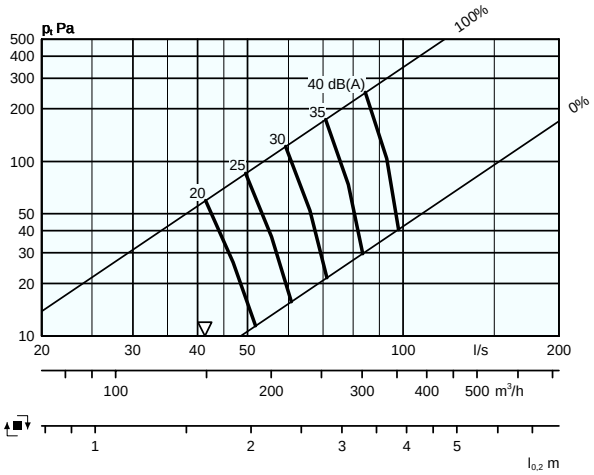


Engineering graphs - LPK 2 with ALS - Supply air

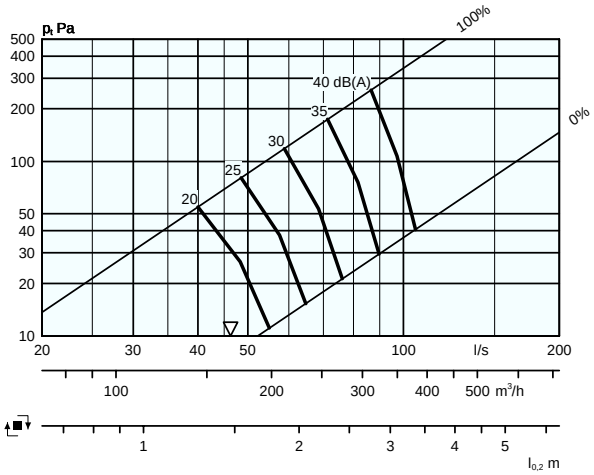
Air flow - Pressure drop - Sound level - Throw

- The graphs illustrate data for LPK recessed in a ceiling.
- The graphs must not be used for commissioning.
- ∇ = Min. flow to obtain sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB´s higher than the dB(A) value. For more accurate calculations, see the calculation template in the chapter on Acoustics in the Technical Information section of this catalogue.

LPKa 2 200-500 + ALSc 160-200, closed slot



LPKa 2 200-500 + ALSc 160-200, open slot

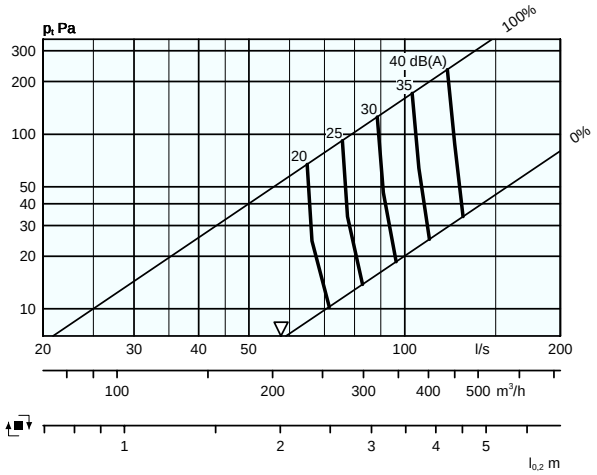


Engineering graphs - LPK 2 with ALS - Supply air

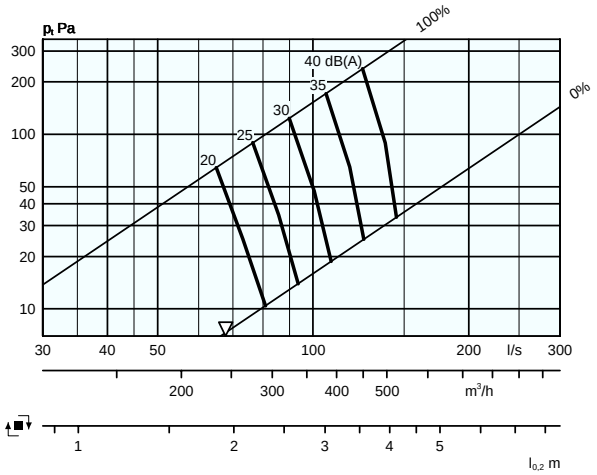
Air flow - Pressure drop - Sound level - Throw

- The graphs illustrate data for LPK recessed in a ceiling.
- The graphs must not be used for commissioning.
- ∇ = Min. flow to obtain sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB´s higher than the dB(A) value. For more accurate calculations, see the calculation template in the chapter on Acoustics in the Technical Information section of this catalogue.

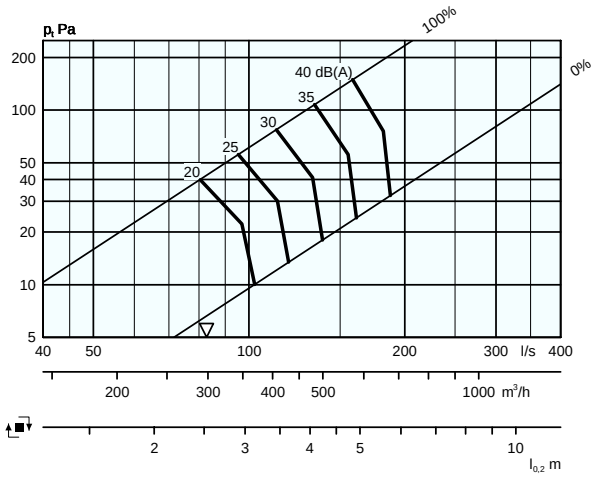
LPKa 2 250-600 + ALSc 200-250, closed slot



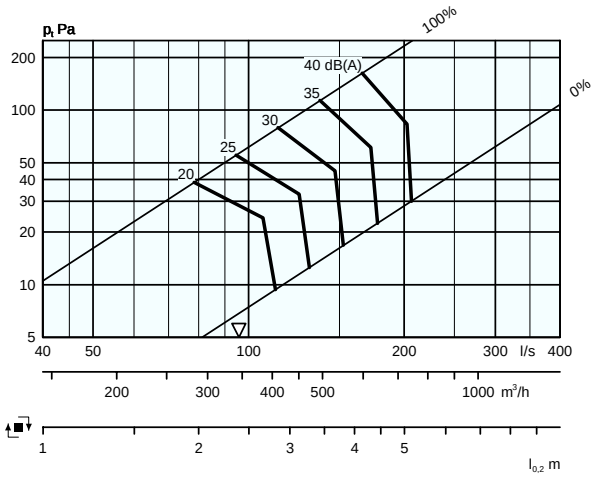
LPKa 2 250-600 + ALSc 200-250, open slot



LPKa 2 315-600 + ALSc 250-315, closed slot



LPKa 2 315-600 + ALSc 250-315, open slot



DIMENSIONS AND WEIGHTS

LPKa 1 and 2

Size	A	l x l	ØD	Weight,kg
125-400	395	355	124	2,5
160-400	395	355	159	2,5
200-500	495	455	199	3,6
250-600	595	555	249	4,8
315-600	595	555	399	4,8
400-600	595	555	399	4,8

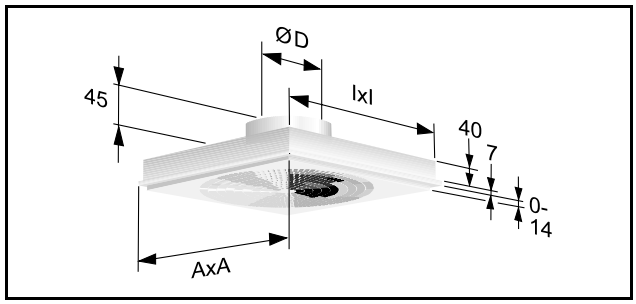


Figure 2. *LPK 1 and 2.*

LPKa 1 and 2 with ALSc

Size	B	C	∅D	∅d	E
125-400	282	217	99	125	218
160-400	342	252	124	160	242
200-500	404	288	159	200	277
250-600	504	332	199	250	317
315-600	622	388	249	315	378
400-600	767	488	314	400	440
Size	F	G	H	K	Weight, kg
125-400	180	140	270	80	4,5
160-400	204	153	315	80	5,2
200-500	239	170	375	100	7,1
250-600	279	190	465	115	10,0
315-600	340	215	575	140	15,1
400-600	400	252	722	180	20,0

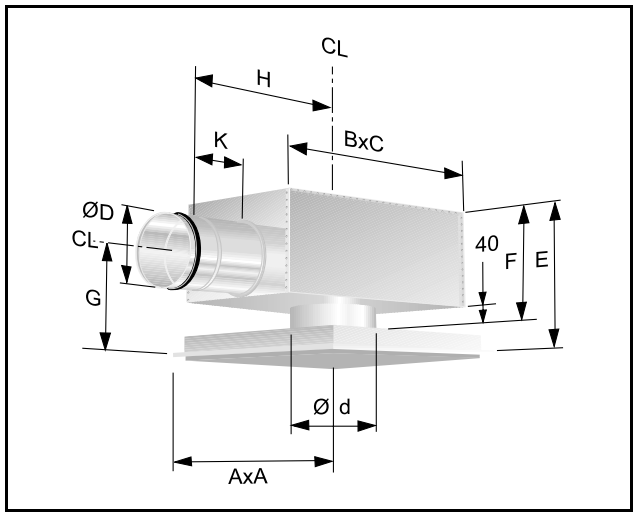


Figure 3. *LPK 1 and 2 with ALS.*

Frame SARa K

Size	L	Weight,kg
125-400	395	1
160-400	395	1
200-500	495	1
250-600	590	1
315-600	590	1
400-600	590	1

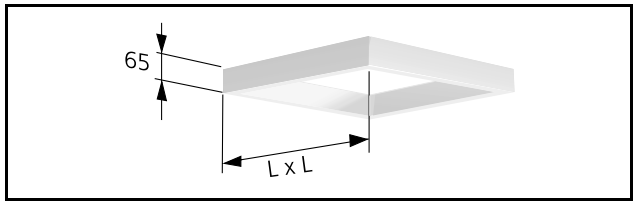


Figure 4. *Frame SAR K.*

ORDER KEY

Product designation

Square ceiling terminal with guide vane perforations	LPKa	-a	-bbb	-ccc
Version: 1, 2				
Nom.connection dimension,mm 125, 160, 200, 250, 315, 400				
Nom. square dimension, mm 400, 500, 600				

Standard range

Size:	1-125-400	2-123-400
	1-125-600	2-126-600
	1-160-400	2-160-400
	1-160-600	2-160-600
	1-200-500	2-200-500
	1-200-600	2-200-600
	1-250-600	2-250-600
	1-315-600	2-315-600
	1-400-600	

Accessories

Plenum box			ALSc	-aaa - bbb
For LPKa	125-400	ALSc	100-125	
	125-600		100-125	
	160-400		125-160	
	160-600		125-160	
	200-500		160-200	
	200-600		160-200	
	250-600		200-250	
	315-600		250-315	
	400-600		315-400	

Frame			SARa K -aaa
For size:	125-400:	395	
	160-400	395	
	200-500:	495	
	125-600:	595	
	160-600	595	
	200-600	595	
	250-600	595	
	315-600	595	
	400-600	595	

SPECIFICATION EXAMPLE

SD XX

Stifab Farex complete square perforated ceiling terminal of type LPKa, with plenum box ALSc and the following functions:

- Guide vane perforation, LockZone
- Designed for suspended cassette ceiling
- Inbuilt slot function
- Removable commissioning damper with lockable setting
- Measurement function with low method error
- Interior acoustic lining with reinforced surface layer
- Powder coated in white

Accessories:

Frame:	SARa K aaa	xx items
Size:	LPKa a-bbb-ccc with ALSc aaa-bbb	xx items