

Smoke ducts and fittings, rectangular



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General

Technical data for standard sizes

Cross-sectional area, A_c [m²]

| b \ a | 200 | 250 | 300 | 400 | 500 | 600 | 800 | 1000 | 1200 |
|-------|------|------|------|------|------|------|------|------|------|
| 100 | 0,02 | 0,03 | 0,03 | 0,04 | | | | | |
| 150 | 0,03 | 0,04 | 0,05 | 0,06 | 0,08 | 0,09 | | | |
| 200 | 0,04 | 0,05 | 0,06 | 0,08 | 0,10 | 0,12 | 0,16 | | |
| 250 | | 0,06 | 0,08 | 0,10 | 0,13 | 0,15 | 0,20 | 0,25 | |
| 300 | | | 0,09 | 0,12 | 0,15 | 0,18 | 0,24 | 0,30 | 0,36 |
| 400 | | | | 0,16 | 0,20 | 0,24 | 0,32 | 0,40 | 0,48 |
| 500 | | | | | 0,25 | 0,30 | 0,40 | 0,50 | 0,60 |
| 600 | | | | | | 0,36 | 0,48 | 0,60 | 0,72 |
| 800 | | | | | | | 0,64 | 0,80 | 0,96 |
| 1000 | | | | | | | | 1,00 | 1,20 |

$$A_c = a \times b$$

Circumference, O [m]

| b \ a | 200 | 250 | 300 | 400 | 500 | 600 | 800 | 1000 | 1200 |
|-------|-----|-----|-----|-----|-----|-----|-----|------|------|
| 100 | 0,6 | 0,7 | 0,8 | 1,0 | | | | | |
| 150 | 0,7 | 0,8 | 0,9 | 1,1 | 1,3 | 1,5 | | | |
| 200 | 0,8 | 0,9 | 1,0 | 1,2 | 1,4 | 1,6 | 2,0 | | |
| 250 | | 1,0 | 1,1 | 1,3 | 1,5 | 1,7 | 2,1 | 2,5 | |
| 300 | | | 1,2 | 1,4 | 1,6 | 1,8 | 2,2 | 2,6 | 3,0 |
| 400 | | | | 1,6 | 1,8 | 2,0 | 2,4 | 2,8 | 3,2 |
| 500 | | | | | 2,0 | 2,2 | 2,6 | 3,0 | 3,4 |
| 600 | | | | | | 2,4 | 2,8 | 3,2 | 3,6 |
| 800 | | | | | | | 3,2 | 3,6 | 4,0 |
| 1000 | | | | | | | | 4,0 | 4,4 |

$$O = 2 \times (a + b)$$

Hydraulic diameter, d_h [mm]

| b \ a | 200 | 250 | 300 | 400 | 500 | 600 | 800 | 1000 | 1200 |
|-------|-----|-----|-----|-----|-----|-----|-----|------|------|
| 100 | 133 | 143 | 150 | 160 | | | | | |
| 150 | 171 | 188 | 200 | 218 | 231 | 240 | | | |
| 200 | 200 | 222 | 240 | 267 | 286 | 300 | 320 | | |
| 250 | | 250 | 273 | 308 | 333 | 353 | 381 | 400 | |
| 300 | | | 300 | 343 | 375 | 400 | 436 | 462 | 480 |
| 400 | | | | 400 | 444 | 480 | 533 | 571 | 600 |
| 500 | | | | | 500 | 545 | 615 | 667 | 706 |
| 600 | | | | | | 600 | 686 | 750 | 800 |
| 800 | | | | | | | 800 | 889 | 960 |
| 1000 | | | | | | | | 1000 | 1091 |

$$d_h = 4 \times A_c / O = 2 \times a \times b / (a + b)$$

Equivalent diameter, d_e [mm]

| b \ a | 200 | 250 | 300 | 400 | 500 | 600 | 800 | 1000 | 1200 |
|-------|-----|-----|-----|-----|-----|-----|-----|------|------|
| 100 | 152 | 169 | 183 | 207 | | | | | |
| 150 | 189 | 210 | 229 | 260 | 287 | 310 | | | |
| 200 | 219 | 244 | 267 | 305 | 337 | 366 | 414 | | |
| 250 | | 274 | 299 | 344 | 381 | 414 | 470 | 518 | |
| 300 | | | 328 | 378 | 421 | 458 | 521 | 575 | 621 |
| 400 | | | | 438 | 489 | 534 | 610 | 675 | 732 |
| 500 | | | | | 547 | 599 | 688 | 763 | 829 |
| 600 | | | | | | 657 | 757 | 842 | 916 |
| 800 | | | | | | | 876 | 978 | 1068 |
| 1000 | | | | | | | | 1095 | 1199 |

$$d_e = 2 \times b \times (\pi^{2-n} \times (1 + a/b)^{1+n} / (a/b)^3)^{1/(n-5)}$$

where $n = 1 / (1,05 \times \log(\text{Re}) - 0,45)$

where $\text{Re} = v_m \times d_h / \nu$

where $v_m = 5 \text{ m/s}$

and $\nu = 0,000\ 000\ 101\ 312 \times t + 0,010\ 013\ 001\ 3$

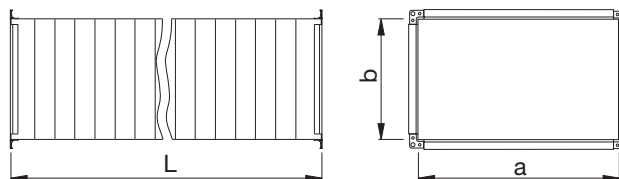
where $t = 20^\circ\text{C}$

Duct

LKRSS



Dimensions



Minimum dimensions: 150x150 mm
 Maximum dimensions: 1900x1700 mm

Non CE marked Dimensions:
 From 1900x1700 to 3000x1700 mm

Description

Straight duct, stiffened with transverse corrugations, which reduces the risk of noise generation. Larger dimensions have stiffening internal rods.

Ducts are normally supplied with a strong joining profile RJFP at each end.

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

Classification according to EN13501-4

| | |
|------------------------------|--|
| 150x150 up to 1250x1000 mm | E ₆₀₀ 120 (h _o -v _e) S 1500 single |
| 1250x1000 up to 1900x1700 mm | E ₆₀₀ 120 (h _o) S 1500 single |
| 1900x1700 up to 3000x1700 mm | Non CE marked |

Ordering example

| | | | | | |
|---------------|---|--------------|------------|------------|-------------|
| | | LKRSS | 500 | 300 | 1500 |
| Product | | | | | |
| Largest side | a | | | | |
| Smallest side | b | | | | |
| Length | L | | | | |

Bend

LBRSS



Description

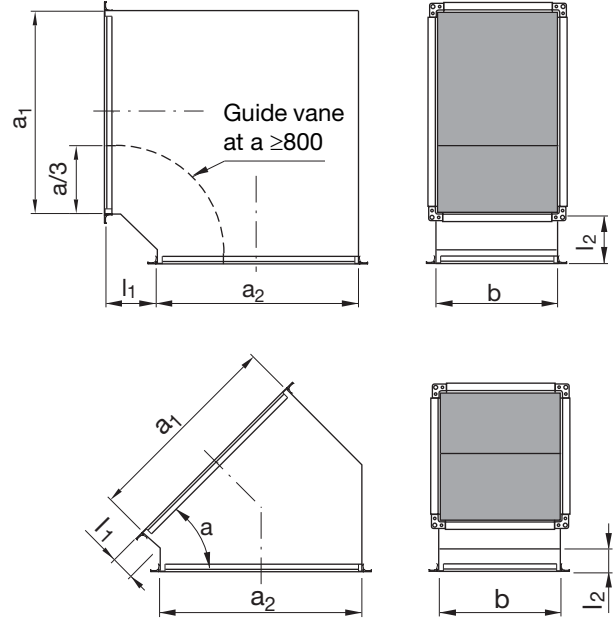
Bend with sharp outer corner, stiffened with corrugation.

The bend is delivered with 90° or 45° angles and joining profile RJFP at both ends. The guide vane is an extra accessory that has to be ordered on request and other leg lengths and angles is possible as well, talk with your nearest Lindab contact for more information.

Standard design $l_1 = l_2 = 125$ mm.

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

Dimensions

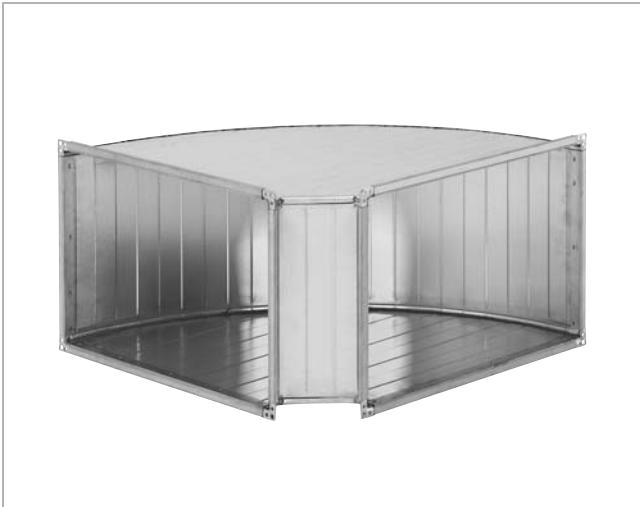


Ordering example

| | LBRSS | 500 | 300 | 500 | 90 | 125 | 125 |
|-------------|----------|-----|-----|-----|----|-----|-----|
| Product | | | | | | | |
| Form side | a_1 | | | | | | |
| Curved side | b | | | | | | |
| Form side | a_2 | | | | | | |
| Angle | α | | | | | | |
| Leg length | l_1 | | | | | | |
| Leg length | l_2 | | | | | | |

Bend

LBXRSS



Description

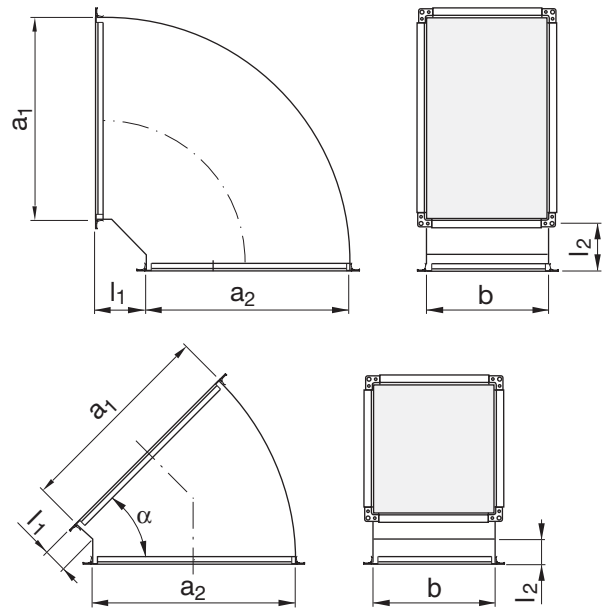
Bend with rounded outer corner, stiffened with corrugations.

The bend is delivered with 90° or 45° angles and joining profiles type RJFP at both ends. The guide vane is an extra accessory that has to be ordered on request and other leg lengths and angles is possible as well, talk with your nearest Lindab contact for more information.

Standard design $l_1 = l_2 = 125$ mm.

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

Dimensions



Ordering example

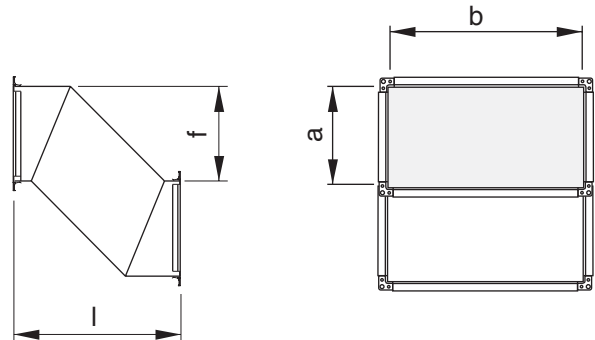
| | LBXRSS | 500 | 300 | 500 | 90 | 125 | 125 |
|-------------|----------|-----|-----|-----|----|-----|-----|
| Product | | | | | | | |
| Form side | a_1 | | | | | | |
| Curved side | b | | | | | | |
| Form side | a_2 | | | | | | |
| Angle | α | | | | | | |
| Leg length | l_1 | | | | | | |
| Leg length | l_2 | | | | | | |

S-bend

LBSRSS



Dimensions



Description

Used for deflections of the duct system, for example where ducts cross.

Has a joining profile type RJFP at both ends, and is stiffened by corrugations.

A special relationship is needed between the a-dimension, fall f and length l for the LBSR to retain its cross-sectional area and not restrict the air flow. For this reason, standard lengths and standard drops have been prepared.

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

| a mm | l std mm | f std mm |
|---------|----------------|----------------|
| 100 | 400 | 300 |
| 150 | 400 | 300 |
| 200 | 400 | 300 |
| 250 | 400 | 300 |
| 300 | 500 | 300 |
| 350 | 500 | 300 |
| 400 | 600 | 400 |
| 450 | 600 | 400 |
| 500 | 600 | 400 |
| 600 | 700 | 400 |
| 700 | 800 | 500 |
| 800 | 900 | 500 |
| 900 | 1000 | 500 |
| 1000 | 1100 | 500 |

Ordering example

| | LBSRSS | 300 | 600 | 300 | 400 |
|-------------|--------|-----|-----|-----|-----|
| Product | | | | | |
| Form side | a | | | | |
| Curved side | b | | | | |
| Fall | f | | | | |
| Length | l | | | | |

Taper

LDRSS



Description

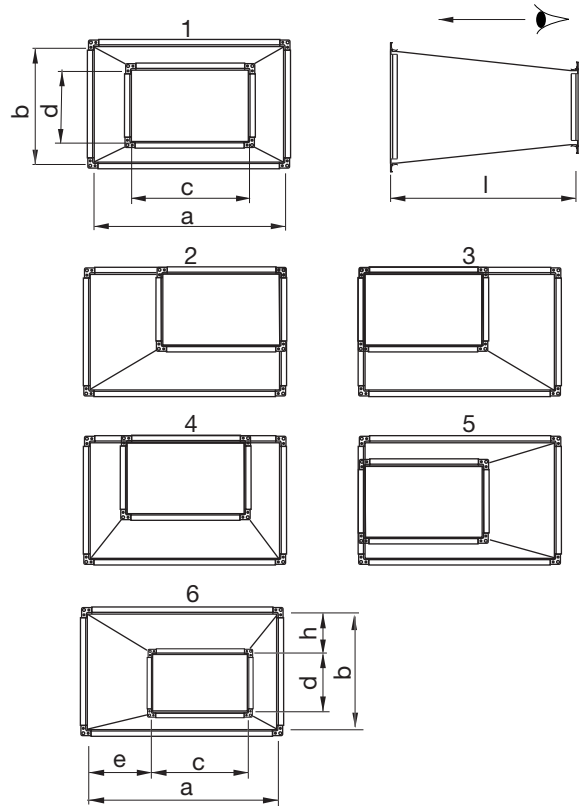
The taper is used as transition between different duct dimensions. The larger dimensions are available with offsets as in the coded sketches.

Dimension changes have a joining profile type RJFP at both ends, and are stiffened by corrugations.

Measures e and h only need to be given for alternative 6. Negative values for e, for example, mean that e is outside side a.

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

Dimensions



| a mm | l std mm |
|------|----------|
| 100 | 300 |
| 150 | 300 |
| 200 | 300 |
| 250 | 300 |
| 300 | 300 |
| 350 | 300 |
| 400 | 450 |
| 450 | 450 |
| 500 | 450 |
| 600 | 450 |
| 700 | 450 |
| 800 | 600 |
| 900 | 600 |
| 1000 | 600 |

Ordering example

| | | | | | | | | | |
|---|-------|-----|-----|-----|-----|-----|---|-------|--------------------------|
| Product | LDRSS | 500 | 300 | 300 | 200 | 450 | 1 | | |
| Large end a | | | | | | | | | |
| Large end b | | | | | | | | | |
| Small end c | | | | | | | | | |
| Small end d | | | | | | | | | |
| Length l | | | | | | | | | |
| The alternative displacements are seen from the cxd end | | | | | | | | | |
| Displacement e | | | | | | | | | (Only at alternative 6.) |
| Displacement h | | | | | | | | | (Only at alternative 6.) |

Compensator

LCRSS



Description

Used to balance the elongation of a rectangular smoke control duct when it gets warm and to prevent longitudinal forces resulting from this.

When the compensator is installed it should be fully elongated. When fully elongated l_{max} is 240 mm and flexible part is 100 mm.

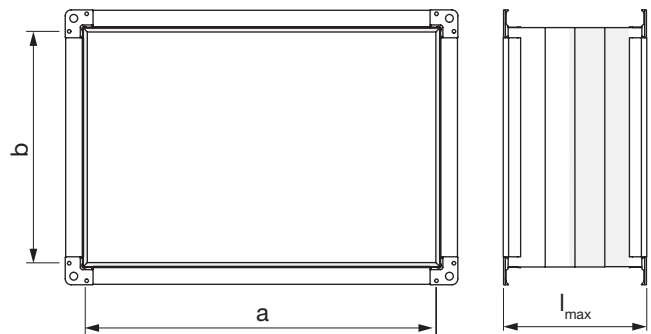
The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

| | |
|------------------------------|--|
| 150x150 up to 1250x1000 mm | E ₆₀₀ 120 (h _o -v _e) S 1500 single |
| 1250x1000 up to 1900x1700 mm | E ₆₀₀ 120 (h _o) S 1500 single |
| 1900x1700 up to 3000x1700 mm | Non CE marked |

Ordering example

| | | | | |
|---------------|---|--------------|------------|------------|
| | | LCRSS | 500 | 300 |
| Product | | | | |
| Largest side | a | | | |
| Smallest side | b | | | |

Dimensions



Minimum dimensions: 150x150 mm
 Maximum dimensions: 1900x1700 mm

Non CE marked Dimensions:
 From 1900x1700 to 3000x1700 mm

Rect-to-round transition

LORUSS



Description

Rect-to-round transition are used between rectangular and circular ducts. The rectangular connection has joining profiles type RJFP and the circular connection has Safe seal. The rectangular connection is available with offsets as in the coded sketches.

Measures e and h only need to be given for alternative 6. Negative values for e, for example, mean that e is outside side a.

The Rect-to-round transition LORU can also be manufactured with other designs of the circular connection. It then changes name as follows:

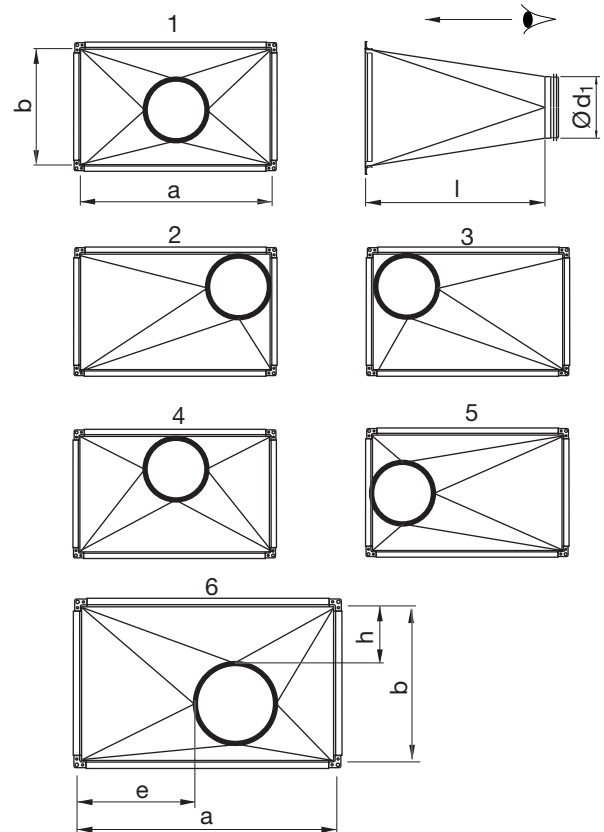
- LORNP: Transition with male coupling (without gasket)
- LORMF: Transition with female coupling
- LORFL: Transition with flange coupling

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

Ordering example

| | | | | | | | | |
|--|-------------------|------------|------------|------------|------------|--------------------------|-------|-------|
| | LORUSS | 500 | 300 | 160 | 450 | 1 | | |
| Product | | | | | | | | |
| Largest side | a | | | | | | | |
| Smallest side | b | | | | | | | |
| Diameter | $\varnothing d_1$ | | | | | | | |
| Length | l | | | | | | | |
| The alternative displacements are seen from the circular end | | | | | | 1 - 6 | | |
| Displacement | e | | | | | (Only at alternative 6.) | | |
| Displacement | h | | | | | (Only at alternative 6.) | | |

Dimensions



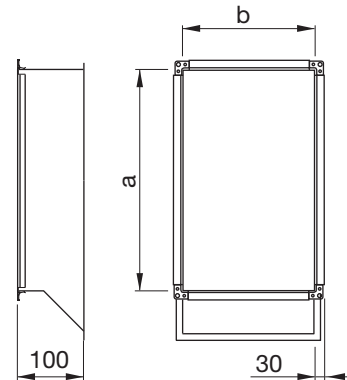
| a mm | l std mm |
|------|----------|
| 100 | 300 |
| 150 | 300 |
| 200 | 300 |
| 250 | 300 |
| 300 | 300 |
| 350 | 300 |
| 400 | 450 |
| 450 | 450 |
| 500 | 450 |
| 600 | 450 |
| 700 | 450 |
| 800 | 600 |
| 900 | 600 |
| 1000 | 600 |

Collar

LARSS



Dimensions



Sloping design: FAS

Description

The collar is used for connection to rectangular duct. The smaller joint end is provided with joining profiles type RJFP. The larger one has an edge, for fixing with blind rivets or self-tapping screws, but can also be given a folding tab to facilitate assembly.

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

Ordering example

| | LARSS | 500 | 300 | 100 | FAS |
|-------------|----------|-------|-----|-----|-----|
| Product | | | | | |
| Form side | a | | | | |
| Curved side | b | | | | |
| Length | | | | | |
| Design | sloping | FAS * | | | |
| | straight | RAK | | | |

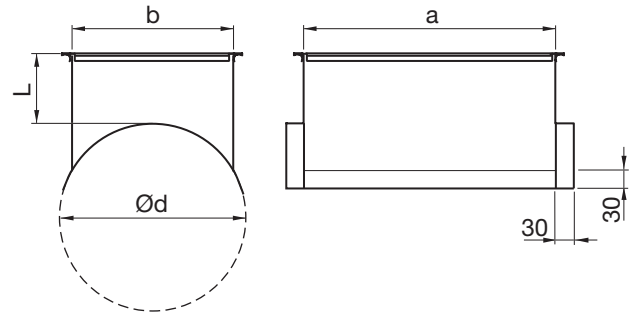
* FAS can only be selected if the length is 50 mm or more.

Collar in circular duct

LPSRSS



Dimensions



Description

The collar is used for connection to circular duct. The rectangular end is provided with joining profiles type RJFP. The rounded end has an edge, for fixing with blind rivets or self-tapping screws.

Other lengths can also be supplied.

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

Ordering example

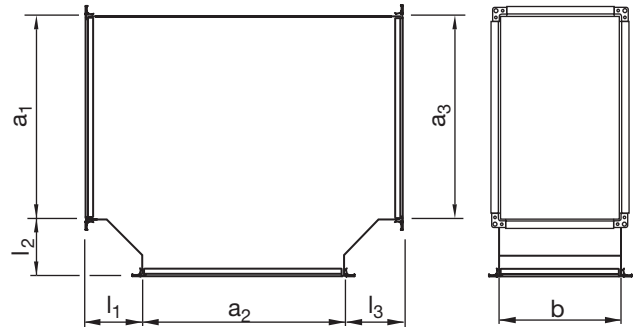
| | LPSRSS | 600 | 300 | 400 | 100 |
|-------------|--------|-----|-----|-----|-----|
| Product | | | | | |
| Side a | | | | | |
| Side b | | | | | |
| Diameter Ød | | | | | |
| Length | | | | | |

T-piece

LTRSS



Dimensions



Description

A T-piece which is provided with joining profiles type RJFP and is stiffened with corrugations.
 Standard design $l_1 = l_2 = l_3 = 125$ mm.
 Other leg lengths can also be supplied.

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

Ordering example

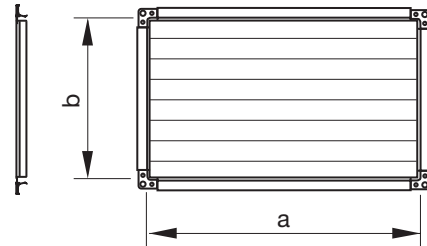
| | LTRSS | 600 | 800 | 600 | 400 | 125 | 125 | 125 |
|------------|-------|-----|-----|-----|-----|-----|-----|-----|
| Product | | | | | | | | |
| Side | a_1 | | | | | | | |
| Side | a_2 | | | | | | | |
| Side | a_3 | | | | | | | |
| Side | b | | | | | | | |
| Leg length | l_1 | | | | | | | |
| Leg length | l_2 | | | | | | | |
| Leg length | l_3 | | | | | | | |

End cover

LEPRSS



Dimensions



Description

Used as end cover in duct.

The edges are equipped with joining profiles type RJFP .

The end cover is stiffened with corrugations.

The product is CE marked according to EN 12101-7 and used in a rectangular smoke control system - single compartment (see declaration of performance).

Ordering example

| | | | |
|---------------|--------|-----|-----|
| Product | LEPRSS | 500 | 300 |
| Largest side | a | | |
| Smallest side | b | | |

Access door

IPLSS



Description

High temperature resistance access door.

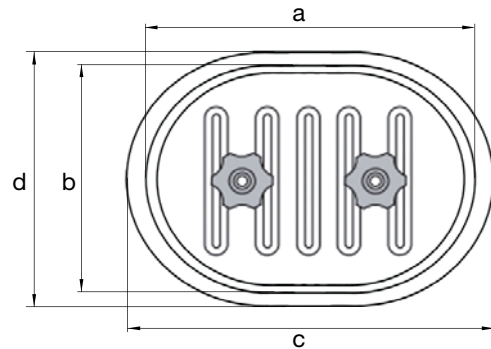
IPLSS is tested with the whole Lindab smoke evacuation system according to EN 1366-9.

Access door are flat and used for rectangular duct.

Materials

Access door Galvanized steel
Sealing gasket High temperature ceramic

Dimensions



| Size nom | a [mm] | b [mm] | c [mm] | d [mm] |
|-----------|--------|--------|--------|--------|
| 180 × 180 | 170 | 72 | 197 | 101 |
| 250 × 150 | 250 | 150 | 274 | 186 |
| 300 × 200 | 300 | 200 | 329 | 228 |
| 400 × 300 | 380 | 280 | 403 | 303 |
| 500 × 400 | 500 | 400 | 532 | 462 |

The format is oblong, and the radius of the 4 angles is equivalent to the small size divided by 2.

Technical specifications gasket

Dimension 4 × 18 mm
Density ±160 kg/m³
Temperature range -30°C / +1500°C

Ordering example

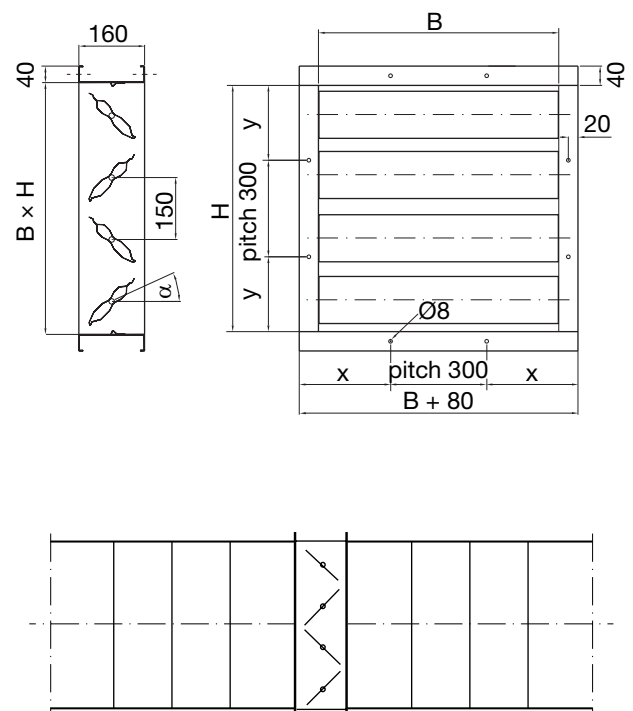
| | | |
|---------|-------|-----------|
| Product | IPLSS | 200 × 100 |
| Size | | |

Regulating damper

DLT



Dimensions



Description

Regulating damper DLT is tested with the whole Lindab smoke evacuation system according to EN 1366-9.

Blade spacing: 150 mm.

Pressure loss tested in accordance to ISO 7244.

Acoustic data tested in accordance to UNI EN 25135.

Materials

| | |
|-------------------------|--|
| Frame | Galvanized steel thickness 1,5 mm |
| Blades | Galvanized steel thickness 0,6+0,6 mm |
| External movement drive | Galvanized steel |
| Bearings | Galvanized steel |
| Axes (Ø12 mm) | Galvanized steel |

Accessories

- Manual drive
- Electric motor

Ordering example

