



## QXO adjustable vanes swirl diffusers



**MADEL**<sup>®</sup>

The **QXO** swirl diffusers are designed to be applied in air conditioning ventilation and heating systems. They can be mounted in false ceilings or suspended from ceiling.

The design of their vanes arranged in 4 projection sectors in the diffuser cause a swirl air supply with a coanda effect, which provides a high level of induction rate of the air in the atmosphere and reducing the stratification. Their individually adjustable vanes allow to change the supply angle to adjust the diffuser to the different architectonics environments. Their sectored vanes emit a uniform air flow all over the passage section.

The **QXO** series diffusers admit a flow variation of 60% keeping the air stream stable. These diffusers can be used from 2,6 up to 4 meters high and at a temperature differential up to 12° C.

**Models:**

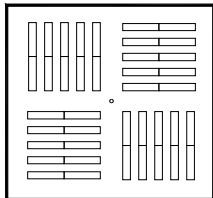
**QXO**

**QXO-KLIN**

## QXO

### Clasificación

#### QXO



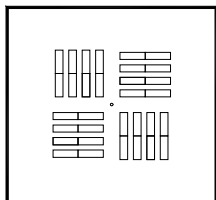
**QXO** Square diffuser with vanes arranged in 4 projection sectors.

**.../SR/** Reduced face area in relation to the diffuser size.

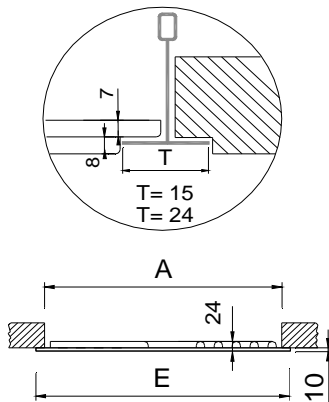
**.../T15/** Panel with angled borders to replace an angled ceiling tile profile 15 mm.

**.../T24/** Panel with angled borders to replace an angled ceiling tile profile 24 mm.

#### QXO/SR/



#### QXO/T.../



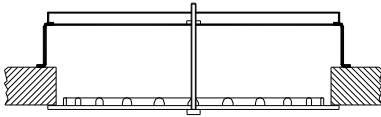
### Material

Diffuser constructed from galvanised steel and deflection vanes made of injected plastic, ABS type. All diffusers are provided with a seal on the back of the frame in order that the perimeter in contact with the plenum box or the ceiling is airtight.

|     | E   | A   |
|-----|-----|-----|
| 400 | 395 | 376 |
| 500 | 495 | 476 |
| 600 | 595 | 576 |
| 625 | 620 | 601 |
| 675 | 670 | 651 |

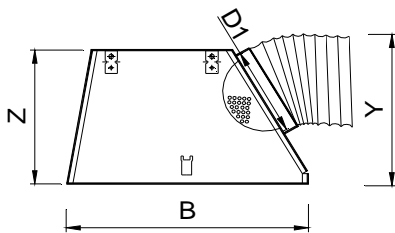
### Additional accessories

#### PMXO



**PMXO** Crossbar suitable for mounting in false ceiling with rectangular duct.

#### BOXSTAR



**BOXSTAR** Pyramidal plenum box with a lateral circular connection. It includes supports to hang from the ceiling. The crossbar is supplied separately to be assembled manually on the work site. Made in galvanised steel.

**...-R** Plenum box with a flow damper in the spigot.

**.../S/** Upper circular connection plenum box .

**.../AIS/** Plenum box thermo acoustically insulated by a foam with a coefficient of thermal conductivity of 0,04 w/mk. This foam complies with the fire reaction specifications:

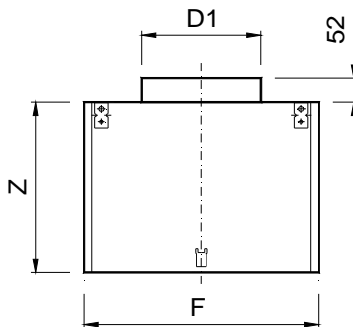
|     | B   | Z   | Y   | D1  |
|-----|-----|-----|-----|-----|
| 400 | 390 | 300 | 325 | 198 |
| 500 | 490 | 300 | 325 | 198 |
| 600 | 590 | 350 | 375 | 248 |
| 625 | 615 | 350 | 375 | 248 |
| 675 | 665 | 350 | 375 | 248 |

UNE 23-727 M2

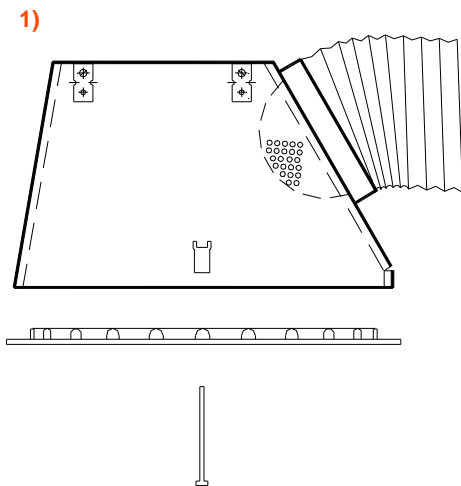
NFP 92-501 M2

DIN 4102 M2

#### BOXSTAR /S/



|     | F   | Z   | D1  |
|-----|-----|-----|-----|
| 400 | 390 | 300 | 198 |
| 500 | 490 | 300 | 198 |
| 600 | 590 | 350 | 248 |
| 625 | 615 | 350 | 248 |
| 675 | 665 | 350 | 248 |



### Fixing systems

1) Connection into the crossbar or to the plenum box by means of central screw.

### Finishes

**M9016** Painted in white similar to RAL 9016.

**R9010** Painted in white RAL 9010.

**RAL...** Painted in other RAL colours.

**.../AB/** ABS plastic vanes in white.

### Specification text

Supply and mounting of square swirl diffuser with adjustable vanes, arranged in 4 projection sectors series **QXO+BOXSTAR-R M9016 dim. 600** constructed from galvanised steel paint in white **M9016** and black ABS plastic vanes. With lateral circular connection pyramidal plenum box and air flow damper in the spigot **BOXSTAR-R**. Manufacturer **MADEL**.

## QXO-KLIN

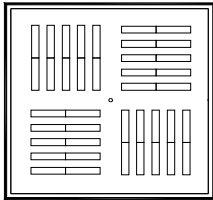
### Classification

**QXO-KLIN** Diffuser with vanes arranged in 4 projection sectors, with hinged removable core without tools, by means of PUSH fasteners. By slightly pressing on the invisible latch, the core opens, remaining hinged on one side. If necessary the core can be easily removed for maintenance of HVAC installations.

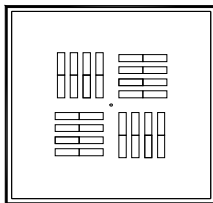
### Material

Diffuser constructed from galvanised steel and deflection vanes made of injected plastic, ABS type.

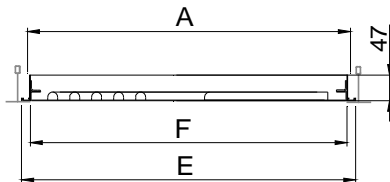
#### QXO-KLIN



#### QXO/SR-KLIN



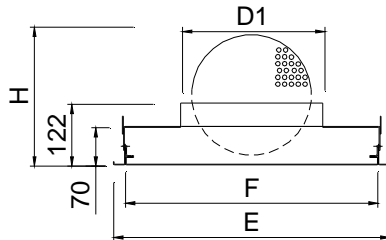
#### QXO-KLIN



|         | E   | A   | F   |
|---------|-----|-----|-----|
| 400     | 395 | 369 | 363 |
| 500     | 495 | 469 | 463 |
| 600     | 595 | 569 | 563 |
| 625     | 620 | 594 | 588 |
| 600-400 | 595 | 569 | 563 |
| 600-500 | 595 | 569 | 563 |
| 625-400 | 620 | 594 | 588 |
| 625-500 | 620 | 594 | 588 |

### Additional accessories

#### QXO-KLIN+PLK...-R



|     | E   | F   | D1  | H   | C   |
|-----|-----|-----|-----|-----|-----|
| 400 | 395 | 363 | 198 | 205 | 320 |
| 500 | 495 | 463 | 248 | 286 | 370 |
| 600 | 595 | 563 | 313 | 353 | 435 |
| 625 | 620 | 588 | 313 | 353 | 435 |
| 675 | 670 | 638 | 313 | 353 | 435 |

**PLK** Plenum box fixed to the diffuser with an upper connection. Made in galvanised steel.

**...-R** Plenum box with a flow damper in the spigot.

**.../L/** Plenum box with a lateral connection.

**.../AIS/** Plenum box thermo acoustically insulated by a foam with a coefficient of thermal conductivity of 0,04 w/mk. This foam complies with the fire reaction specifications:

UNE 23-727 M2

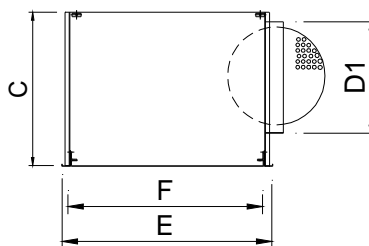
NFP 92-501 M2

DIN 4102 M2

### Fixing systems

1) Fixing with supports to hang from the ceiling with drops rods.

#### QXO-KLIN+PLK/L/...-R



|     | E   | F   | C   | D1  |
|-----|-----|-----|-----|-----|
| 400 | 395 | 363 | 320 | 198 |
| 500 | 495 | 463 | 370 | 248 |
| 600 | 595 | 563 | 435 | 313 |
| 625 | 620 | 588 | 435 | 313 |
| 675 | 670 | 638 | 435 | 313 |

### Finishes

**M9016** Painted in white similar to RAL 9016.

**R9010** Painted in white RAL 9010.

**RAL...** Painted in other RAL colours.

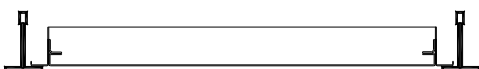
**.../AB/** ABS plastic vanes in white.

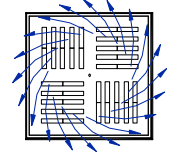
### Specification text

Supply and mounting of square swirl diffuser with adjustable vanes, arranged in 4 projection sectors, with hinged removable core without tools, by pressing on the invisible PUSH fasteners, series **QXO-KLIN+PLK-R M9016 dim. (mm)** constructed from galvanised steel paint in white **M9016** and black ABS plastic vanes. With upper circular connection, and air flow damper in the spigot **PLK-R**.

Marca **MADEL**.

1)





### RECOMMENDED VELOCITY.

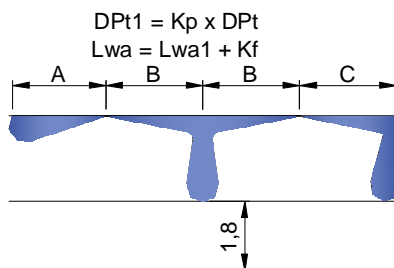
|     | Vmin<br>m/s | Vmax<br>m/s |
|-----|-------------|-------------|
| 400 | 2,5         | 5,9         |
| 500 | 2,5         | 5,4         |
| 600 | 2,5         | 5,3         |
| 625 | 2,5         | 5,3         |
| 675 | 2,5         | 5,3         |

### FREE FACE AREA (m2).

| QXO | Afree<br>m2 | Qmin.<br>m3/h | Qmax.<br>m3/h |
|-----|-------------|---------------|---------------|
| 400 | .0019       | 175           | 414           |
| 500 | .0325       | 181           | 430           |
| 600 | .0488       | 439           | 931           |
| 625 | .0488       | 439           | 931           |
| 675 | .0488       | 439           | 931           |

### CORRECTION FACTOR FOR DPt AND Lwa1.

| BOXSTAR-R | 100%<br>Open |          |      | 50%<br>Open |  | 10%<br>Open |  |
|-----------|--------------|----------|------|-------------|--|-------------|--|
|           |              | Dpt (Kp) |      |             |  |             |  |
| 400       | Dpt (Kp)     | 1        | 1,2  | 2,3         |  |             |  |
|           | Lwa1 (Kf)    | +0,8     | +1,5 | +2,9        |  |             |  |
| 500       | Dpt (Kp)     | 1        | 1,4  | 4           |  |             |  |
|           | Lwa1 (Kf)    | +0,8     | +1,5 | +2,9        |  |             |  |
| 600       | Dpt (Kp)     | 1        | 1,4  | 4           |  |             |  |
|           | Lwa1 (Kf)    | +0,9     | +5,8 | +7,7        |  |             |  |
| 625       | Dpt (Kp)     | 1        | 1,5  | 4,8         |  |             |  |
|           | Lwa1 (Kf)    | +0,9     | +5,8 | +7,7        |  |             |  |
| 675       | Dpt (Kp)     | 1        | 1,7  | 4,5         |  |             |  |
|           | Lwa1 (Kf)    | +0,9     | +3,6 | +5,2        |  |             |  |



$$Dp_{t1} = K_p \times Dp_t$$

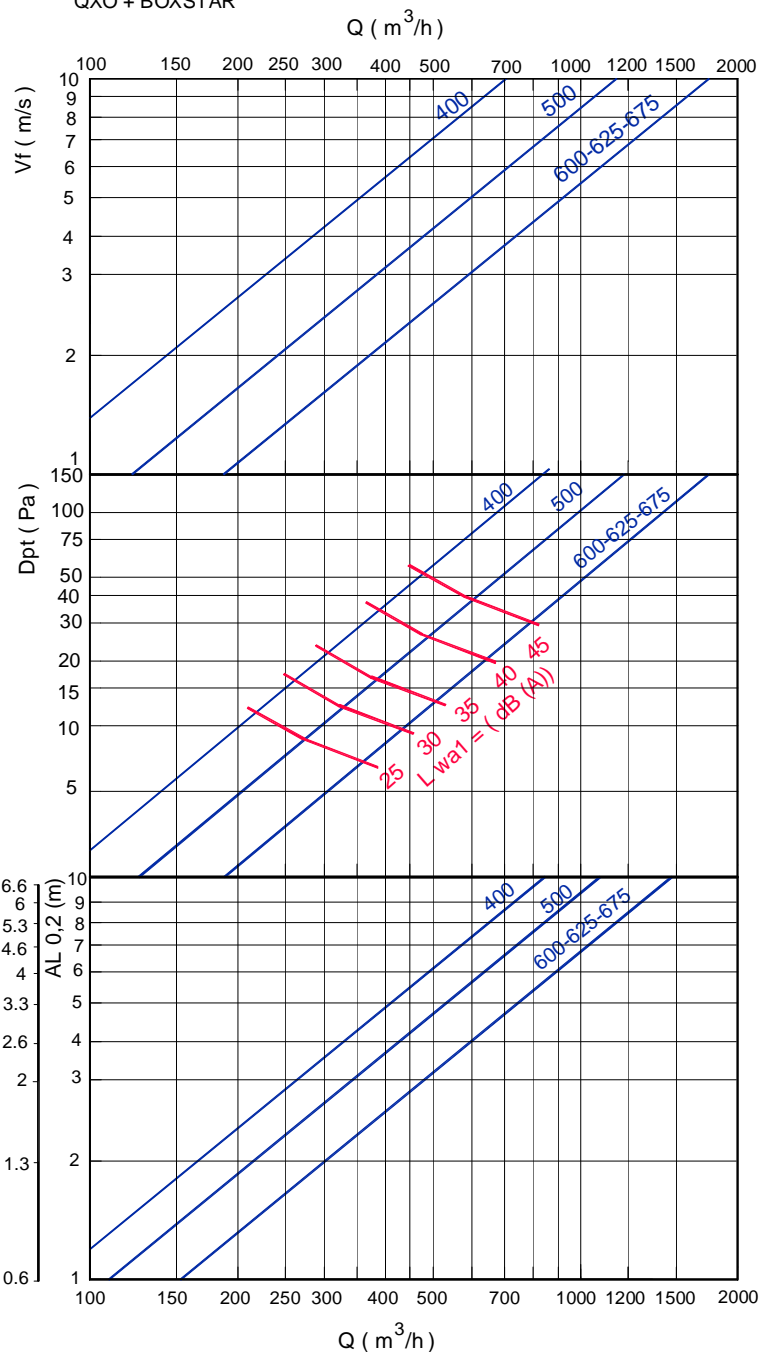
$$Lwa = Lwa_1 + K_f$$

$$AL_{0,2} = A$$

$$AL_{0,2} = B+H$$

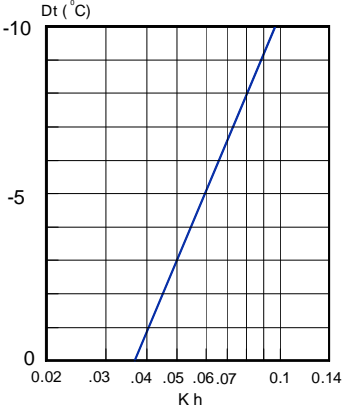
$$AL_{0,2} = C+H$$

### FREE VELOCITY, PRESSURE LOSS AND SOUND POWER LEVEL, THROW WITH CEILING EFFECT. QXO + BOXSTAR



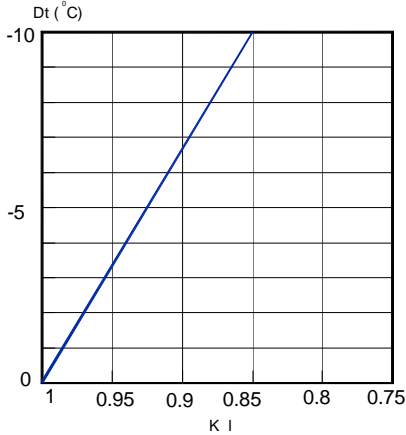
Note: In MadelMedia Octava band centre frequency in Hz.

**CORRECTION FACTOR FOR VERTICAL DIFFUSION (bv) FOR DT (-).**

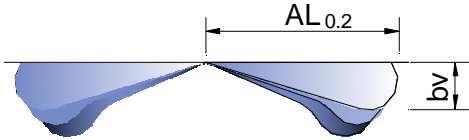


Kh = Correction factor for the vertical diffusion.

**CORRECTION FACTOR FOR THROW (L0.2) DT (-).**



KI = Correction factor for the throw.

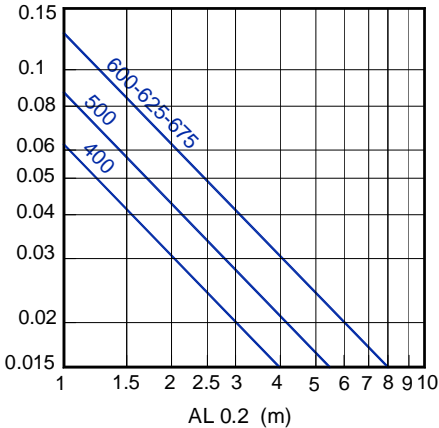


$$bv = Kh \times AL_{0.2}$$

$$AL'_{0.2}(Dt < 0) = KI \times AL_{0.2}$$

**TEMPERATURE RATIO.**

$$\frac{Dtl}{Dtz} = \frac{t_{room} - t_x}{t_{room} - t_{supply}}$$



**INDUCTION RATIO.**

$$i = \frac{Q_r}{Q_0} = \frac{Q_{total\ at\ x}}{Q\ of\ supply}$$

