

# REPUS<sup>®</sup> Nozzle/Nozzle duct R32/R60



- **Constant and even air distribution**
- **Easy installation**
- **Low pressure drop**
- **Flexible in use**
- **High induction allows for low supply temperatures**
- **Independent of the coanda effect**
  - **accepts variable air volumes**
  - **low risk of ceiling marking**

## Function

The REPUS<sup>®</sup>-Nozzles ensure that each nozzle fitted in the same duct will provide the same air flow rate. The even air distribution is created because the flow depends on the total pressure and not the static pressure as on ordinary diffusers. This means that the nozzle can be used in many different applications and is an integral part of the REPUS<sup>®</sup> Displacement Panels.

## Design

### Nozzle

Dimensions 32 mm (R32) and 60 mm (R60)

Plastic PP

Colour: Gray, black or white.

### Nozzle ducts

A seamed duct formed in galvanised sheet steel

Size  $\varnothing$ 160 -  $\varnothing$ 400

Available in 1,0 , 1,5 and 2,0 m lengths.

**Finish:** Natural  
White NCS 0502-Y (RAL9010)  
White NCS 0500  
Black  
Stainless steel

## Accessories

Painted support brackets.

Fittings

Air Director for R32 and R60

## Applications

### Supply air duct

For large premises one or more ducts can be mounted at ceiling level. Normally an adjustment or constant volume damper is fitted on each branch to govern the air flow. The outlet velocity is calculated to provide the correct length of throw and the nozzle can be mounted in multiple rows to provide mixing. The R32-nozzle should be used with low ceiling heights. Recommended outlet velocity 2,5-5,0 m/s.

### Condensation or Down draught Control

Mount the R32-nozzles at c/c 100 mm with an air velocity of 5 m/s to counteract down draughts and condensation forming in swimming pool, atria or high level glass.

### High Velocity

In tall buildings temperature gradients will invariably built up. To provide destratification a duct with R60-nozzles should be mounted at high level in the space.

## Sizing

See performance graph.

We also provide assistance in duct sizing and selection using a computer selection program. The program is a big help to optimize the duct for best air distribution.

Please fax details or request a visit from our technical staff.

## Estemating

Maximum duct velocity 4 m/s in comfort areas and up to 5 m/s in industrial applications.

## Building details,

Dimensions

Heat Loads

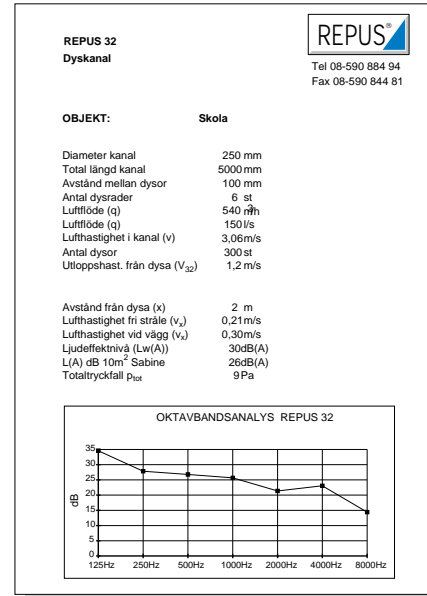
Air flow rate

Supply Air temperature

Comfort criteria

We also

## Computer printout



## Product code

DKabbb.ccde

### Nozzle type

L = R32-nozzel, S = R60-nozzle

### Dimension

160, 200, 250, 315, 400

### Length

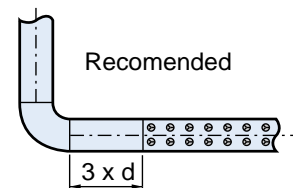
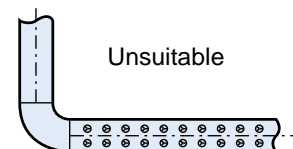
10, 15, 20 (dm)

### Number of rows

### Type of air spread

1 = one way 2 = two way

## Avoid Turbulance



# REPUS<sup>®</sup> Nozzle/Nozzle duct R32/R60

Standard-ducts, and angels. ( $\overset{\circ}{0} = 12\ 00$ )

| Standard-ducts |                 |                 | pos1 | pos2 | pos3 | pos4 | pos5 | pos6 | pos7 | pos8 | pos9 |
|----------------|-----------------|-----------------|------|------|------|------|------|------|------|------|------|
| Connection     | 2-ways          | 1-way           | ±°   | ±°   | ±°   | ±°   | ±°   | ±°   | ±°   | ±°   | ±°   |
| 160            | DKL.160.XX.6.2  | DKL.160.XX.3.1  | 72   | 93   | 115  |      |      |      |      |      |      |
|                | DKL.160.XX.4.2  | DKL.160.XX.2.1  | 72   | 93   |      |      |      |      |      |      |      |
|                | DKL.160.XX.2.2  | DKL.160.XX.1.1  |      | 93   |      |      |      |      |      |      |      |
| 200            | K160.XX         |                 |      |      |      |      |      |      |      |      |      |
|                | DKL.200.XX.8.2  | DKL.200.XX.4.1  | 57   | 75   | 92   | 109  |      |      |      |      |      |
|                | DKL.200.XX.6.2  | DKL.200.XX.3.1  | 57   | 75   | 92   |      |      |      |      |      |      |
|                | DKL.200.XX.4.2  | DKL.200.XX.2.1  |      | 75   | 92   |      |      |      |      |      |      |
| 250            | K200.XX         |                 |      |      |      |      |      |      |      |      |      |
|                | DKL.250.XX.12.2 | DKL.250.XX.6.1  | 46   | 60   | 73   | 87   | 101  | 115  |      |      |      |
|                | DKL.250.XX.10.2 | DKL.250.XX.5.1  | 46   | 60   | 73   | 87   | 101  |      |      |      |      |
|                | DKL.250.XX.8.2  | DKL.250.XX.4.1  | 46   | 60   | 73   | 87   |      |      |      |      |      |
|                | DKL.250.XX.6.2  | DKL.250.XX.3.1  |      | 60   | 73   | 87   |      |      |      |      |      |
|                | DKL.250.XX.4.2  | DKL.250.XX.2.1  |      |      | 73   | 87   |      |      |      |      |      |
| 315            | K250.XX         |                 |      |      |      |      |      |      |      |      |      |
|                | DKL.315.XX.14.2 | DKL.315.XX.7.1  | 55   | 65   | 76   | 87   | 98   | 109  | 120  |      |      |
|                | DKL.315.XX.12.2 | DKL.315.XX.6.1  | 55   | 65   | 76   | 87   | 98   | 109  |      |      |      |
|                | DKL.315.XX.10.2 | DKL.315.XX.5.1  | 55   | 65   | 76   | 87   | 98   |      |      |      |      |
|                | DKL.315.XX.8.2  | DKL.315.XX.4.1  | 55   | 73   | 91   | 109  |      |      |      |      |      |
|                | DKL.315.XX.6.2  | DKL.315.XX.3.1  |      | 73   | 91   | 109  |      |      |      |      |      |
|                | DKL.315.XX.4.2  | DKL.315.XX.2.1  |      | 73   | 91   |      |      |      |      |      |      |
| 400            | K315.XX         |                 |      |      |      |      |      |      |      |      |      |
|                | DKL.400.XX.18.2 | DKL.400.XX.9.1  | 43   | 52   | 60   | 69   | 77   | 86   | 95   | 103  | 112  |
|                | DKL.400.XX.16.2 | DKL.400.XX.8.1  | 43   | 52   | 60   | 69   | 77   | 86   | 95   | 103  |      |
|                | DKL.400.XX.14.2 | DKL.400.XX.7.1  | 43   | 52   | 60   | 69   | 77   | 86   | 95   |      |      |
|                | DKL.400.XX.12.2 | DKL.400.XX.6.1  | 43   | 52   | 72   | 86   | 100  | 115  |      |      |      |
|                | DKL.400.XX.10.2 | DKL.400.XX.5.1  | 43   | 52   | 72   | 86   | 100  |      |      |      |      |
|                | DKL.400.XX.8.2  | DKL.400.XX.4.1  |      | 52   | 72   | 86   | 100  |      |      |      |      |
|                | DKL.400.XX.6.2  | DKL.400.XX.3.1  |      | 52   | 72   | 86   |      |      |      |      |      |
|                | DKL.400.XX.4.2  | DKL.400.XX.2.1  |      |      | 72   | 86   |      |      |      |      |      |
| 500            | K400.XX         |                 |      |      |      |      |      |      |      |      |      |
|                | DKL.500.XX.20.2 | DKL.500.XX.10.1 | 46   | 53   | 60   | 66   | 73   | 80   | 87   | 94   | 101  |
|                | DKL.500.XX.18.2 | DKL.500.XX.9.1  | 46   | 53   | 60   | 66   | 73   | 80   | 87   | 94   | 101  |
|                | DKL.500.XX.16.2 | DKL.500.XX.8.1  | 46   | 53   | 60   | 66   | 73   | 80   | 87   | 94   |      |
|                | DKL.500.XX.14.2 | DKL.500.XX.7.1  | 46   | 53   | 60   | 66   | 73   | 80   | 87   |      |      |
|                | DKL.500.XX.12.2 | DKL.500.XX.6.1  |      | 57   | 69   | 80   | 92   | 103  | 115  |      |      |
|                | DKL.500.XX.10.2 | DKL.500.XX.5.1  |      | 57   | 69   | 80   | 92   | 103  |      |      |      |
|                | DKL.500.XX.8.2  | DKL.500.XX.4.1  |      | 57   | 69   | 80   | 92   |      |      |      |      |
|                | DKL.500.XX.6.2  | DKL.500.XX.3.1  |      |      | 69   | 80   | 92   |      |      |      |      |
|                | DKL.500.XX.4.2  | DKL.500.XX.2.1  |      |      |      | 80   | 92   |      |      |      |      |
| DKL.500.XX.2.2 |                 | DKL.500.XX.1.1  |      |      |      | 92   |      |      |      |      |      |

K500.XX

## DKL160

Diagram for nozzle ducts with R32

|        | Length | Order Key      | Nozzles | Order Key  | Nozzles                         |
|--------|--------|----------------|---------|--|---------------------------------|
| 2-ways | 2000   | DKL.160.20.6.2 | 114     | DKL.160.40.6.2<br>DKL.160.50.6.2<br>DKL.160.60.4.2<br>DKL.160.70.4.2<br>DKL.160.80.4.2 | 228<br>285<br>228<br>260<br>304 |
|        | 3000   | DKL.160.30.6.2 | 168     |  |                                 |
|        | 4000   | DKL.160.40.4.2 | 152     |  |                                 |
|        | 5000   | DKL.160.50.4.2 | 190     |  |                                 |
|        | 6000   | DKL.160.60.2.2 | 114     |  |                                 |
|        | 7000   | DKL.160.70.2.2 | 130     |  |                                 |
|        | 8000   | DKL.160.80.2.2 | 152     |  |                                 |
| 1-way  | 2000   | DKL.160.20.3.1 | 57      | DKL.160.60.3.1<br>DKL.160.60.2.1<br>DKL.160.70.2.1<br>DKL.160.80.2.1                   | 171<br>114<br>130<br>152        |
|        | 3000   | DKL.160.30.3.1 | 84      |  |                                 |
|        | 4000   | DKL.160.40.3.1 | 114     |  |                                 |
|        | 5000   | DKL.160.50.3.1 | 141     |  |                                 |
|        | 6000   | DKL.160.60.2.1 | 114     |  |                                 |
|        | 6000   | DKL.160.60.1.1 | 57      |  |                                 |
|        | 7000   | DKL.160.70.1.1 | 65      |  |                                 |
|        | 8000   | DKL.160.80.1.1 | 76      |  |                                 |

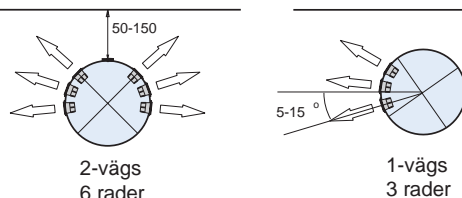
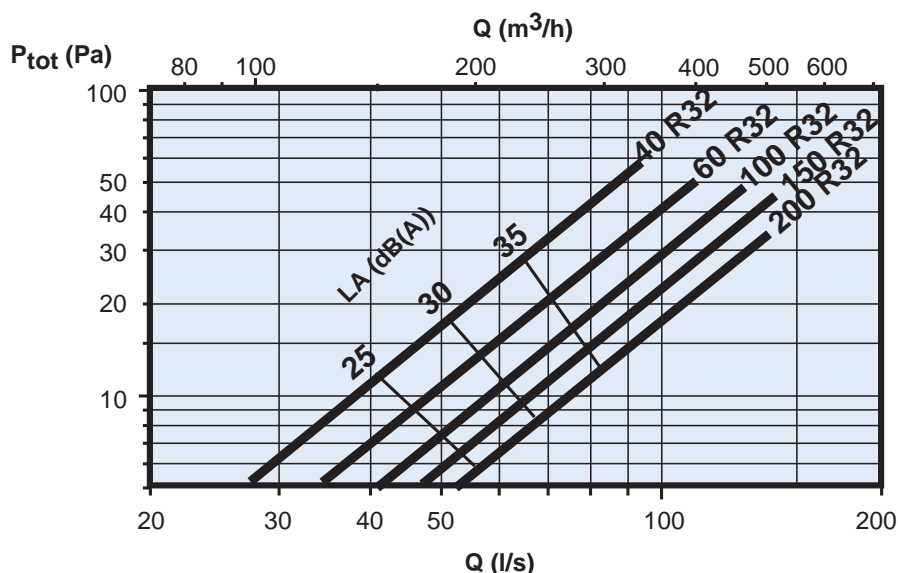


Diagram for nozzle ducts with R32



|             |         |         |         |
|-------------|---------|---------|---------|
| 30-49 R32   | 1,5/2,5 | 2,8/3,8 | 3,8/9,8 |
| 50-99 R32   | 0,9/0,6 | 1,7/3,2 | 2,5/4,3 |
| 100-250 R32 | <1      | <1,5    |         |

Air throw Free jet/wall jet

Diagram for nozzle ducts with R32

|        | Length | Order Key      | Nozzles | Order Key      | Nozzles |
|--------|--------|----------------|---------|----------------|---------|
| 2-ways | 2000   | DKL.200.20.8.2 | 152     | DKL.200.40.8.2 | 304     |
|        | 3000   | DKL.200.30.8.2 | 224     | DKL.200.50.6.2 | 282     |
|        | 4000   | DKL.200.40.6.2 | 228     | DKL.200.60.6.2 | 342     |
|        | 5000   | DKL.200.50.4.2 | 188     | DKL.200.70.4.2 | 264     |
|        | 6000   | DKL.200.60.4.2 | 228     | DKL.200.80.4.2 | 304     |
|        | 7000   | DKL.200.70.2.2 | 132     |                |         |
|        | 8000   | DKL.200.80.2.2 | 152     |                |         |
| 1-way  | 2000   | DKL.200.20.4.1 | 76      | DKL.200.40.4.1 | 152     |
|        | 3000   | DKL.200.30.4.1 | 112     | DKL.200.50.4.1 | 188     |
|        | 4000   | DKL.200.40.4.1 | 152     | DKL.200.60.4.1 | 304     |
|        | 4000   | DKL.200.40.3.1 | 114     | DKL.200.60.3.1 | 171     |
|        | 5000   | DKL.200.50.3.1 | 141     | DKL.200.70.3.1 | 198     |
|        | 6000   | DKL.200.60.3.1 | 228     | DKL.200.80.3.1 | 228     |
|        | 6000   | DKL.200.60.2.1 | 114     |                |         |
|        | 7000   | DKL.200.70.2.1 | 132     |                |         |
|        | 8000   | DKL.200.80.2.1 | 152     |                |         |

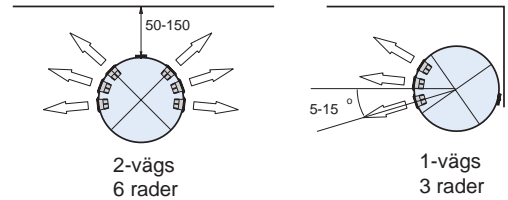
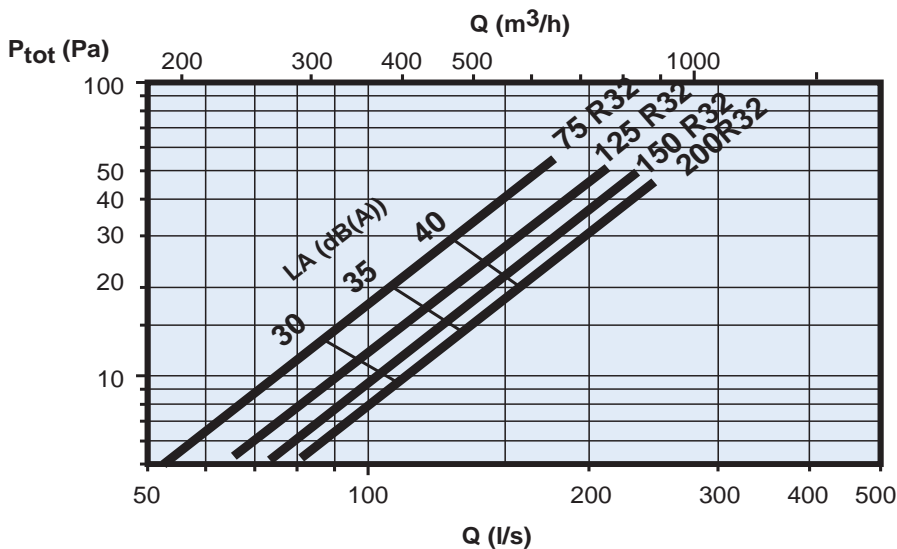


Diagram for nozzle ducts with R32



|             |         |         |
|-------------|---------|---------|
| 75-99 R32   | 1,0/2,0 | 3,8/7,2 |
| 100-149 R32 | 0,4/0,9 | 1,7/3,3 |
| 150-250 R32 | <1      | 1,7/3,2 |

Air throw Free jet/wall jet

Diagram for nozzle ducts with R32

|        | Length | Order Key       | Nozzles        | Order Key       | Nozzles        |
|--------|--------|-----------------|----------------|-----------------|----------------|
| 2-ways | 2000   | DKL.250.20.10.2 | 190            | DKL.250.20.12.2 | 228            |
|        | 3000   | DKL.250.30.10.2 | 280            | DKL.250.30.12.2 | 336            |
|        | 4000   | DKL.250.40.6.2  | 228            | DKL.250.40.8.2  | 304            |
|        | 5000   | DKL.250.50.6.2  | 188            | DKL.250.50.8.2  | 285            |
|        | 6000   | DKL.250.60.4.2  | 228            | DKL.250.60.6.2  | 342            |
|        | 7000   | DKL.250.70.4.2  | 264            | DKL.250.70.6.2  | 396            |
|        | 8000   | DKL.250.80.2.2  | 152            | DKL.250.80.4.2  | 304            |
|        | 1-way  | 2000            | DKL.250.20.6.1 | 114             | DKL.250.40.6.1 |
| 3000   |        | DKL.250.30.6.1  | 168            | DKL.250.50.5.1  | 235            |
| 4000   |        | DKL.250.40.5.1  | 190            | DKL.250.60.4.1  | 228            |
| 5000   |        | DKL.250.50.4.1  | 188            | DKL.250.70.4.1  | 264            |
| 6000   |        | DKL.250.60.3.1  | 171            | DKL.250.80.4.1  | 304            |
| 7000   |        | DKL.250.70.3.1  | 198            |                 |                |
| 8000   |        | DKL.250.80.3.1  | 228            |                 |                |

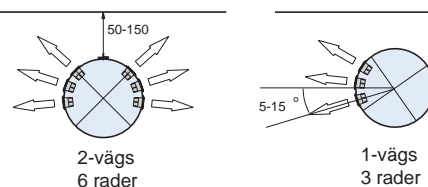
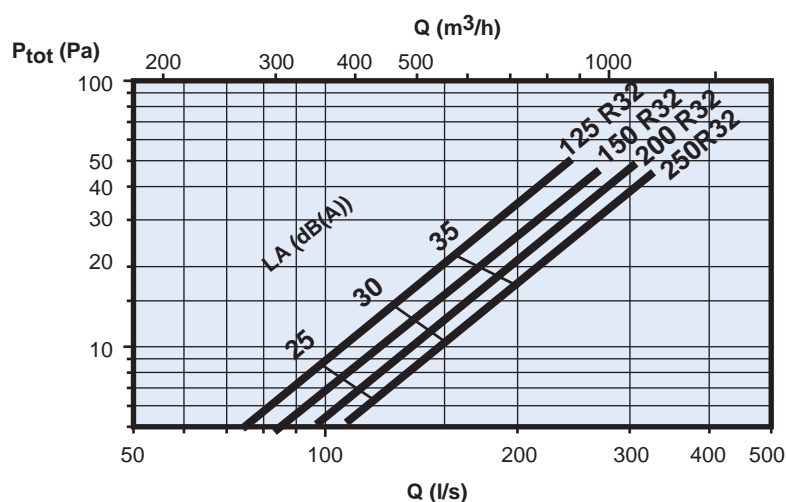


Diagram for nozzle ducts with R32



|             |         |         |
|-------------|---------|---------|
| 100-149 R32 | 1,7/3,2 | 3,8/7,2 |
| 150-199 R32 | 0,9/1,8 | 3,8/7,2 |
| 200-250 R32 | 0,6/1,2 | 1,7/3,2 |

Air throw Free jet/wall jet

Diagram for nozzle ducts with R32

|        | Length | Order Key       | Nozzles | Order Key       | Nozzles |
|--------|--------|-----------------|---------|-----------------|---------|
| 2-ways | 2000   | DKL.315.20.14.2 | 266     | DKL.315.30.12.2 | 336     |
|        | 3000   | DKL.315.30.10.2 | 280     | DKL.315.40.10.2 | 380     |
|        | 4000   | DKL.315.40.8.2  | 304     | DKL.315.50.8.2  | 376     |
|        | 5000   | DKL.315.50.6.2  | 282     | DKL.315.60.8.2  | 456     |
|        | 6000   | DKL.315.60.6.2  | 342     | DKL.315.70.6.2  | 396     |
|        | 7000   | DKL.315.70.4.2  | 264     | DKL.315.80.6.2  | 456     |
| 1-way  | 2000   | DKL.315.20.7.1  | 133     | DKL.315.40.7.1  | 266     |
|        | 3000   | DKL.315.30.7.1  | 196     | DKL.315.50.6.1  | 282     |
|        | 4000   | DKL.315.40.6.1  | 228     | DKL.315.60.5.1  | 285     |
|        | 5000   | DKL.315.50.5.1  | 235     | DKL.315.70.5.1  | 330     |
|        | 6000   | DKL.315.60.4.1  | 228     | DKL.315.80.5.1  | 380     |
|        | 7000   | DKL.315.70.4.1  | 264     |                 |         |
|        | 8000   | DKL.315.80.4.1  | 304     |                 |         |

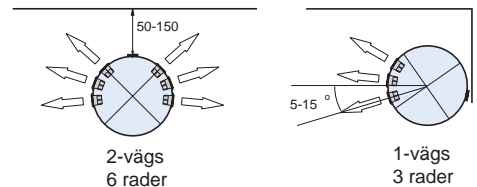
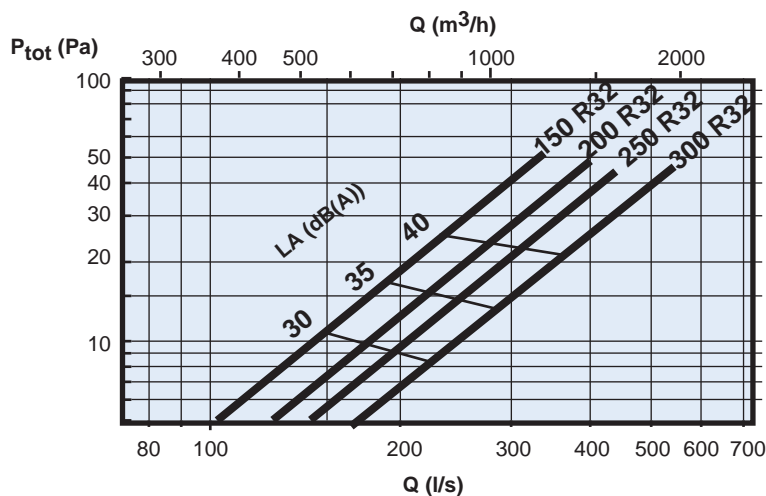


Diagram for nozzle ducts with R32



|             |         |       |                               |
|-------------|---------|-------|-------------------------------|
| 125-199 R32 | 1,5/2,5 | 2,5/5 | [ Air throw Free jet/wall jet |
| 200-249 R32 | 1/2     | 4/7   |                               |
| 250-350 R32 | 1/1,5   | 2/4   |                               |

Diagram for nozzle ducts with R32

|        | Length         | Order Key       | Nozzles | Order Key       | Nozzles |
|--------|----------------|-----------------|---------|-----------------|---------|
| 2-ways | 2000           | DKL.400.20.18.2 | 342     | DKL.400.30.18.2 | 396     |
|        | 3000           | DKL.400.30.16.2 | 352     | DKL.400.40.16.2 | 608     |
|        | 4000           | DKL.400.40.14.2 | 532     | DKL.400.50.14.2 | 658     |
|        | 5000           | DKL.400.50.12.2 | 564     | DKL.400.60.12.2 | 684     |
|        | 6000           | DKL.400.60.10.2 | 570     | DKL.400.70.10.2 | 660     |
|        | 7000           | DKL.400.70.8.2  | 528     | DKL.400.80.8.2  | 608     |
|        | 8000           | DKL.400.80.6.2  | 456     | DKL.400.90.6.2  | 510     |
| 1-way  | 2000           | DKL.400.20.9.1  | 171     | DKL.400.40.9.1  | 342     |
|        | 3000           | DKL.400.30.9.1  | 252     | DKL.400.50.8.1  | 376     |
|        | 4000           | DKL.400.40.8.1  | 304     | DKL.400.60.8.1  | 456     |
|        | 5000           | DKL.400.50.7.1  | 329     | DKL.400.70.7.1  | 462     |
|        | 6000           | DKL.400.60.7.1  | 399     | DKL.400.80.7.1  | 532     |
|        | 7000           | DKL.400.70.6.1  | 396     | DKL.400.90.7.1  | 595     |
|        | 8000           | DKL.400.80.6.1  | 456     |                 |         |
| 9000   | DKL.400.90.6.1 | 510             |         |                 |         |

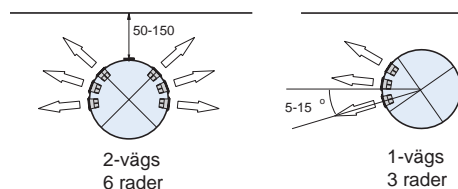
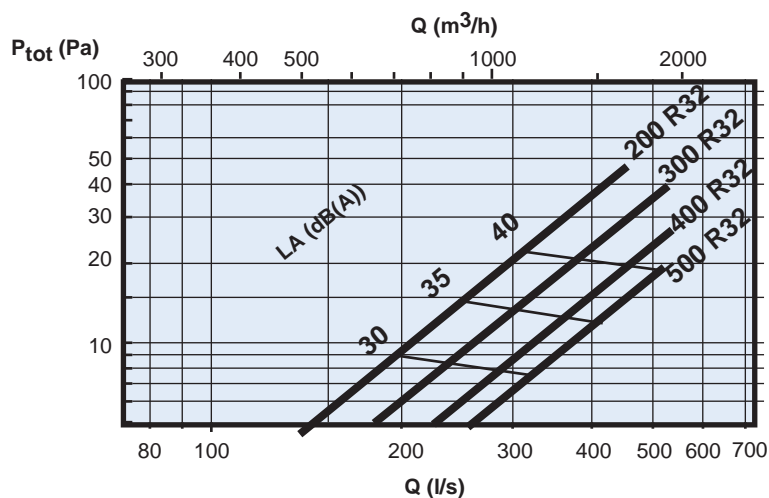


Diagram for nozzle ducts with R32



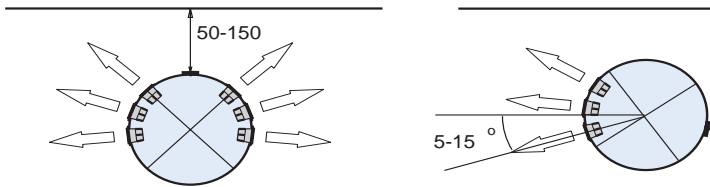
|             |         |         |
|-------------|---------|---------|
| 180-299 R32 | 1,6/1,7 | 2,0/3,0 |
| 300-399 R32 | 1/2     | 3/6     |
| 400-500 R32 | 0,8/1,2 | 1,8/3   |

Air throw Free jet/wall jet

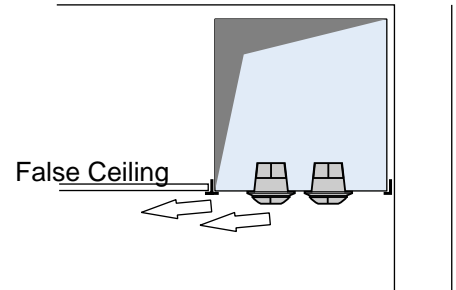


## Typical Installations

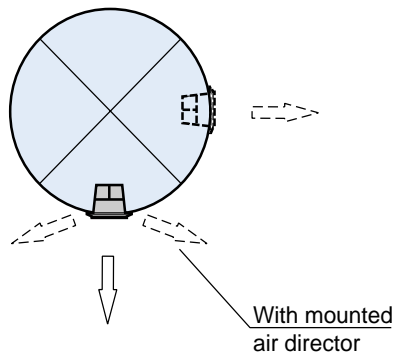
### Class rooms, offices, shops (R32-nozzles)



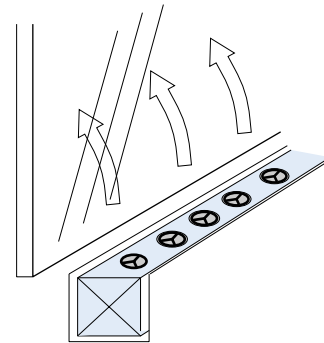
### Mounted R60-nozzles with air director in a painted duct.



### Store rooms, leisure centers to reduce the temperature gradient (R60-nozzles)



### Defrost windows (R32 or R60-nozzles)



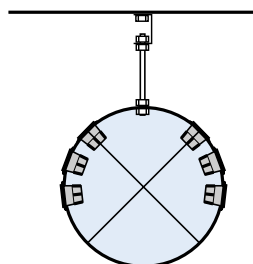
## Installation Instructions

### Nozzles

If fitting nozzles to your own duct use a 32 or 60 mm hole saw suitable for the purpose. Warming the nozzles will make them easier to install. Maximum temperature 100°C. Take all precautions when using hot water. When fitting nozzles note that the arrow on the nozzle indicates the correct air direction.

### Nozzle Duct

The simplest suspension method is to use studding onto a threaded connector set on top of the nozzle duct.



## Maintenance

The duct is designed for ease of maintenance. Clean with damp cloth and a mild detergent.

# REPUS<sup>®</sup> Nozzle/Nozzle duct R32/R60

