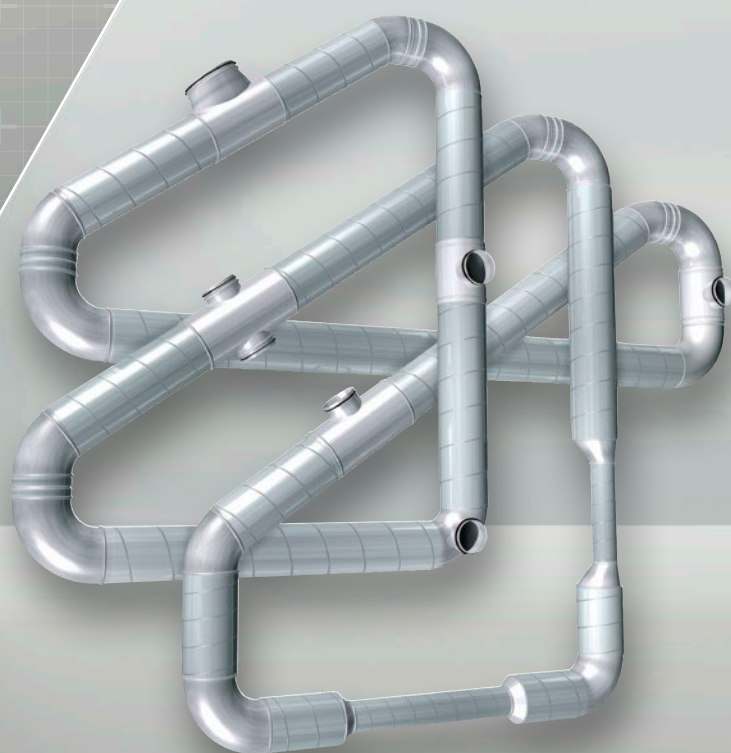


# ROUND DUCTING VELODUCT®

TECHNICAL DATA





## CONTENTS

### PRODUCT DESIGNATIONS

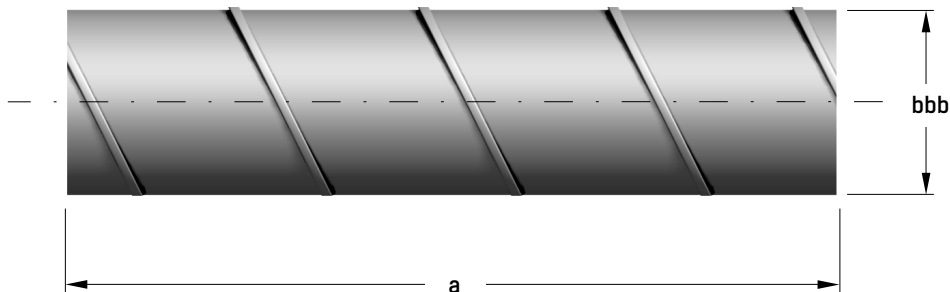
|   |           |
|---|-----------|
| Duct .....                              | 4-7       |
| VELOFLEX .....                          | 7, 25     |
| Joint .....                             | 8         |
| Insertion joint .....                   | 9         |
| Bend 15°, 30°, 45°, 60°, 90° .....      | 10-16     |
| Bend for cleaning .....                 | 17        |
| T-piece and Cross .....                 | 18-22, 60 |
| T-piece and Cross, reversed .....       | 23-24     |
| T-piece, short .....                    | 25        |
| T-piece, Veloflex .....                 | 25        |
| T-piece and Cross, 45° .....            | 26-28     |
| Branch .....                            | 29-32, 47 |
| Reducer .....                           | 33-35     |
| Reducer, long .....                     | 36-40     |
| Lid .....                               | 41        |
| Cleaning cover .....                    | 42-45     |
| Branch for insulation .....             | 46        |
| Weathering cowl .....                   | 47        |
| Crossing piece .....                    | 47        |
| Inlet cone with protective net .....    | 48        |
| Branch with mesh .....                  | 49        |
| Supply air nozzle .....                 | 50        |
| Protective cap .....                    | 50        |
| Flange .....                            | 51        |
| Bracket .....                           | 51        |
| Adjusting and shut-off damper .....     | 52-55     |
| Products for casting .....              | 56-60     |
| VELODUCT® Round ducting - General ..... | 61        |
| Dimensions and tolerances .....         | 62        |
| Pressure drop charts – Ducts .....      | 63        |
| – Bends .....                           | 64        |
| – Reducers .....                        | 65        |
| – Branches, T-pieces and Crosses .....  | 66        |
| Installation instructions .....         | 67-71     |

### PRODUCT CODES

|                 |            |
|-----------------|------------|
| BDEA.....       | 29-32      |
| BDEB.....       | 10-16, 57  |
| BDEC.....       | 46         |
| BDED.....       | 33-35      |
| BDEF.....       | 36-39      |
| BDEG.....       | 41-44      |
| BDEK.....       | 4          |
| BDEM.....       | 8          |
| BDEN.....       | 9          |
| BDEP.....       | 52-55      |
| BDET, BDEX..... | 18-25, 59  |
| BDEV, BXEV..... | 26-28      |
| BDEZ.....       | 50, 56     |
| BDKE.....       | 17         |
| BDKF.....       | 40         |
| BDKL.....       | 45         |
| BDKP.....       | 45         |
| BDKU.....       | 48         |
| BDRK.....       | 47         |
| BDSK.....       | 51         |
| EBGA.....       | 51         |
| EKOD.....       | 5          |
| ESAD.....       | 6          |
| FLEK.....       | 7          |
| FLEX.....       | 7          |
| FLET.....       | 25         |
| XBEZ.....       | 47, 50, 58 |
| XCEA.....       | 60         |
| XCEB.....       | 58         |
| XCEK.....       | 56         |
| XCET.....       | 59         |
| XDEA.....       | 49         |
| XDEZ.....       | 46         |

## DUCT

### BDEK - CIRCULAR DUCT



#### BDEK-a-bbb

Length (a)

1 = 3,00 m

2 = 6,00 m

4 = optional length between 1,00 and 6,00 m

5 = 3,00 m, liquid-tight seam

#### DUCT PROFILE



Sizes 008-020



Sizes 025-125

### STANDARD SIZES

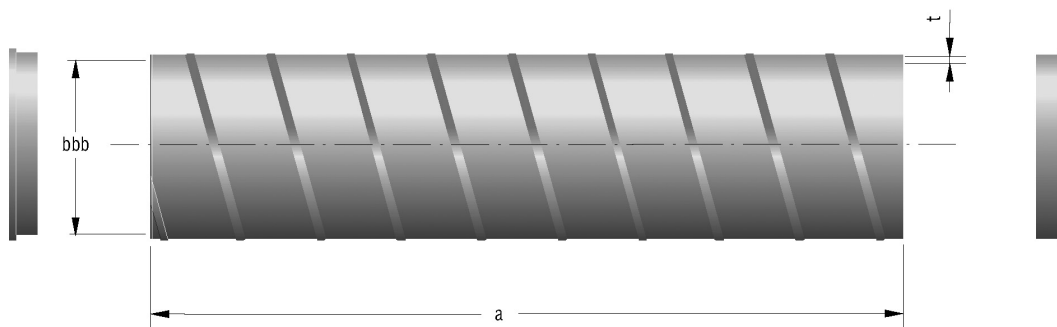
| BDEK-a-bbb | Weight (kg/m) |
|------------|---------------|
| -008       | 0.9           |
| -010       | 1.1           |
| -012       | 1.4           |
| -016       | 1.8           |
| -020       | 2.7           |
| -025       | 3.3           |
| -031       | 4.1           |
| -040       | 6.5           |
| -050       | 8.2           |
| -063       | 12.2          |
| -080       | 15.4          |
| -100       | 25.5          |
| -125       | 31.9          |

### OTHER SIZES

| BDEK-a-bbb | Weight (kg/m) |
|------------|---------------|
| -014       | 1.6           |
| -015       | 1.7           |
| -018       | 2.3           |
| -022       | 3.0           |
| -028       | 3.7           |
| -030       | 4.0           |
| -035       | 5.8           |
| -045       | 7.4           |
| -056       | 10.7          |

## DUCT

### EKOD - CIRCULAR DUCT WITH PLASTIC PROTECTIVE CAP



#### EKOD-a-bbb-1

Length (a)

3 = 3,00 m

6 = 6,00 m

4 = optional length between 1,00 and 6,00 m

#### DUCT PROFILE



Sizes 008-025



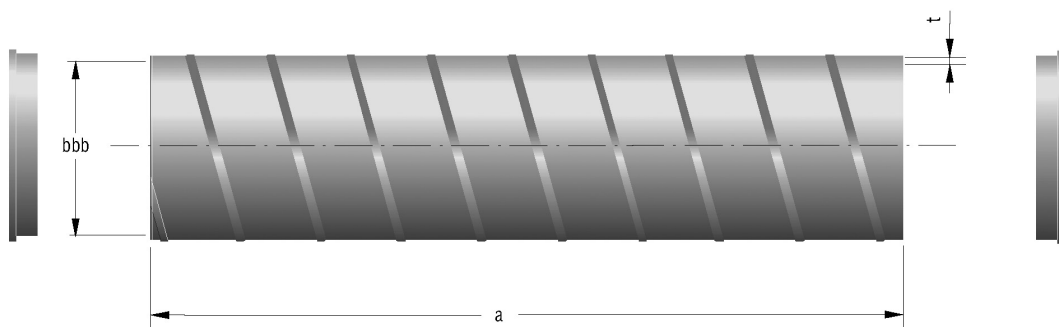
Sizes 031-125

#### STANDARD SIZES

| EKOD-a-bbb-1 | t (mm) | Weight (kg/m) |
|--------------|--------|---------------|
| -008         | 0.5    | 1.1           |
| -010         | 0.5    | 1.3           |
| -012         | 0.5    | 1.7           |
| -016         | 0.5    | 2.1           |
| -020         | 0.5    | 2.7           |
| -025         | 0.5    | 3.3           |
| -031         | 0.5    | 3.9           |
| -040         | 0.7    | 7.9           |
| -050         | 0.7    | 10.0          |
| -063         | 0.7    | 12.2          |
| -080         | 0.7    | 15.4          |
| -100         | 0.9    | 25.5          |
| -125         | 0.9    | 31.9          |

## DUCT

### ESAD - SMOKE CONTROL DUCT



#### ESAD-a-bbb-1

Length (a)

3 = 3,00 m

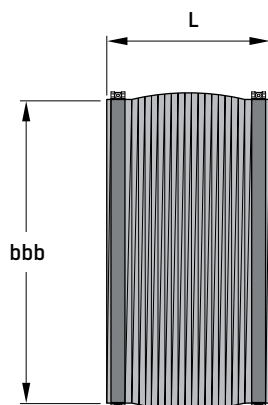
#### STANDARD SIZES

| ESAD-a-bbb-1 | t<br>(mm) | Weight<br>(kg/m) |
|--------------|-----------|------------------|
| -010         | 0.7       | 2.0              |
| -012         | 0.7       | 2.5              |
| -016         | 0.7       | 3.2              |
| -020         | 0.7       | 4.0              |
| -025         | 0.7       | 5.0              |
| -031         | 0.7       | 6.3              |
| -040         | 0.7       | 7.9              |
| -050         | 0.7       | 10.0             |
| -063         | 0.7       | 12.2             |
| -080         | 0.7       | 15.5             |
| -100         | 0.9       | 25.5             |

#### OTHER SIZES

| ESAD-a-bbb-1 | t<br>(mm) | Weight<br>(kg/m) |
|--------------|-----------|------------------|
| -015         | 0.7       | 3.0              |
| -030         | 0.7       | 6.0              |
| -056         | 0.7       | 11.2             |

### EFLE - FLEXIBLE JOINT TO SMOKE CONTROL DUCT



#### DUCT PROFILE



Sizes 010-025



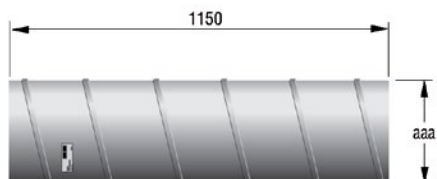
Sizes 031-100

#### STANDARD SIZES

| EFLE-bbb-1 | L<br>(mm) | Weight<br>(kg) |
|------------|-----------|----------------|
| -010       | 250       | 0.16           |
| -012       | 250       | 0.19           |
| -016       | 250       | 0.23           |
| -020       | 250       | 0.28           |
| -025       | 250       | 0.34           |
| -031       | 250       | 0.42           |
| -040       | 250       | 0.53           |
| -050       | 250       | 0.65           |
| -063       | 250       | 0.81           |
| -080       | 250       | 1.02           |
| -100       | 250       | 1.26           |

## DUCT VELOFLEX

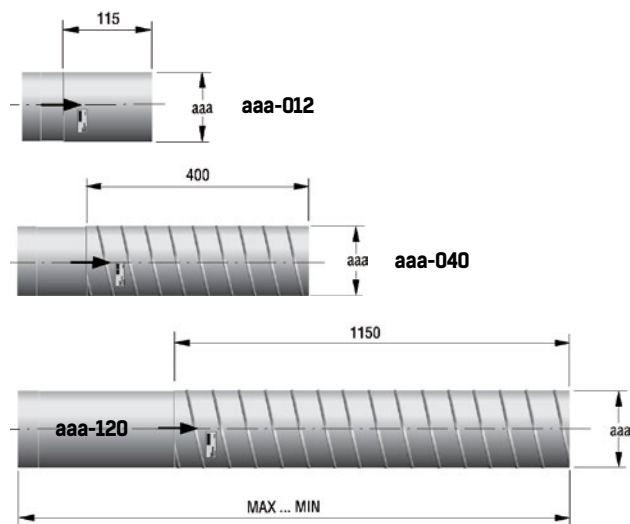
### FLEK - SPIRAL TUBE, LENGTH 1150 MM



#### STANDARD SIZES

| FLEK-aaa-120 | Weight (kg) |
|--------------|-------------|
| -010         | 1.50        |
| -012         | 1.96        |
| -016         | 2.42        |

### FLEX - TELESKOPIC TUBE

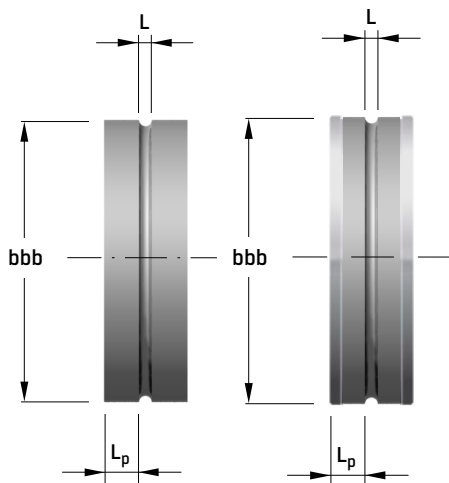


#### STANDARD SIZES

| FLEX-aaa-bbb | Length max | Length min | Weight (kg) |
|--------------|------------|------------|-------------|
| -010-012     | 200        | 153        | 0.30        |
| -010-040     | 640        | 438        | 0.86        |
| -010-120     | 1720       | 1188       | 2.26        |
| -012-012     | 200        | 153        | 0.37        |
| -012-040     | 640        | 438        | 1.11        |
| -012-120     | 1720       | 1188       | 2.91        |
| -016-012     | 200        | 153        | 0.42        |
| -016-040     | 640        | 438        | 1.39        |
| -016-120     | 1720       | 1188       | 2.64        |

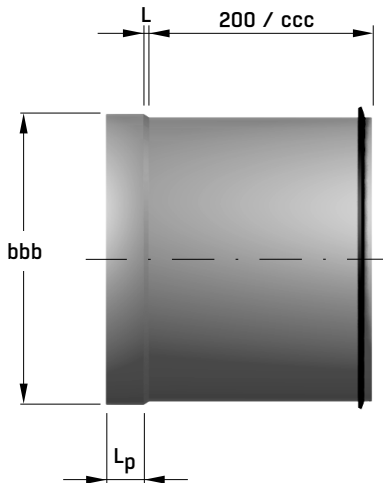
## JOINT

## BDEM-1



Sizes 008, 025-125

Sizes 010-020

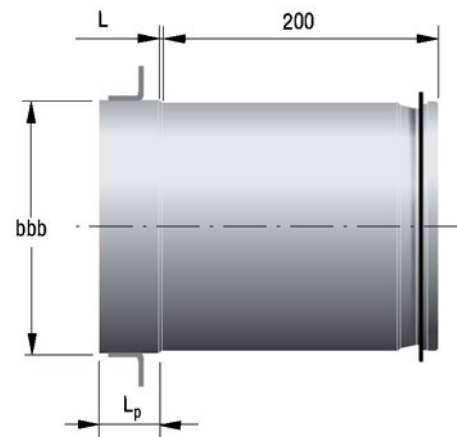
BDEM-4 - LONG JOINT,  
FIT-ON - INSERTION

## STANDARD SIZES

| BDEM-1-bbb | L (mm) | Lp (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -008       | 12     | 35      | 0.08        |
| -010       | 12     | 35      | 0.10        |
| -012       | 12     | 35      | 0.12        |
| -016       | 12     | 35      | 0.15        |
| -020       | 12     | 35      | 0.22        |
| -025       | 12     | 35      | 0.38        |
| -031       | 12     | 35      | 0.44        |
| -040       | 12     | 60      | 1.10        |
| -050       | 12     | 60      | 1.40        |
| -063       | 12     | 60      | 1.70        |
| -080       | 12     | 95      | 3.30        |
| -100       | 12     | 95      | 4.60        |
| -125       | 12     | 95      | 6.00        |

## OTHER SIZES

| BDEM-1-bbb | L (mm) | Lp (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -014       | 12     | 35      | 0.14        |
| -015       | 12     | 35      | 0.14        |
| -018       | 12     | 35      | 0.20        |
| -022       | 12     | 35      | 0.30        |
| -028       | 12     | 35      | 0.40        |
| -030       | 12     | 35      | 0.43        |
| -035       | 12     | 60      | 0.89        |
| -045       | 12     | 60      | 1.20        |
| -056       | 12     | 60      | 1.50        |

BDEM-4-BBB-K, LONG JOINT FOR  
CLEANING, FIT-ON - INSERTION

## STANDARD SIZES

| BDEM-4-bbb | L (mm) | Lp (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -008       | 5      | 35      | 0.25        |
| -010       | 5      | 35      | 0.32        |
| -012       | 5      | 35      | 0.40        |
| -016       | 5      | 35      | 0.51        |
| -020       | 5      | 35      | 0.79        |
| -025       | 5      | 35      | 0.95        |
| -031       | 5      | 35      | 1.20        |
| -040       | 5      | 60      | 1.80        |
| -050       | 5      | 60      | 2.20        |
| -063       | 5      | 60      | 2.80        |

| BDEM-4-bbb-K | L (mm) | Lp (mm) | Weight (kg) |
|--------------|--------|---------|-------------|
| -010         | 5      | 35      | 0.32        |
| -012         | 5      | 35      | 0.40        |
| -016         | 5      | 35      | 0.51        |
| -020         | 5      | 35      | 0.79        |
| -025         | 5      | 35      | 0.95        |

| BDEM-4-bbb-ccc | L (mm) | Lp (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -010-070       | 5      | 35      | 0.16        |
| -230           | 5      | 35      | 0.19        |
| -560           | 5      | 35      | 0.25        |
| -012-070       | 5      | 35      | 0.36        |
| -230           | 5      | 35      | 0.45        |
| -560           | 5      | 35      | 0.57        |
| -016-070       | 5      | 35      | 0.82        |
| -230           | 5      | 60      | 1.02        |
| -560           | 5      | 60      | 1.31        |

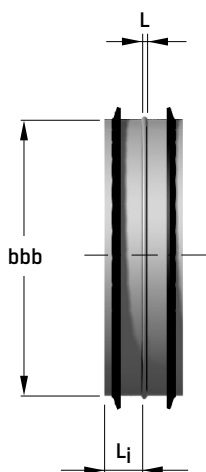
## OTHER SIZES

| BDEM-4-bbb | L (mm) | Lp (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -014       | 5      | 35      | 0.45        |
| -015       | 5      | 35      | 0.48        |
| -018       | 5      | 35      | 0.69        |
| -022       | 5      | 35      | 0.85        |
| -028       | 5      | 35      | 1.00        |
| -030       | 5      | 35      | 1.10        |
| -035       | 5      | 60      | 1.50        |
| -045       | 5      | 60      | 2.00        |
| -056       | 5      | 60      | 2.50        |

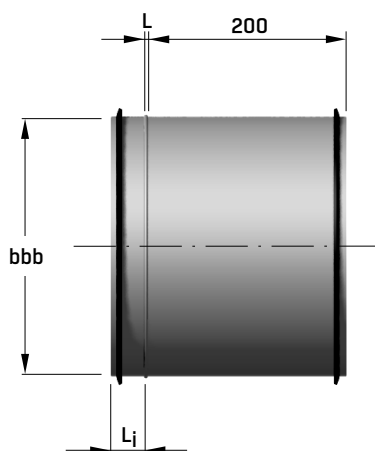


## INSERTION JOINT

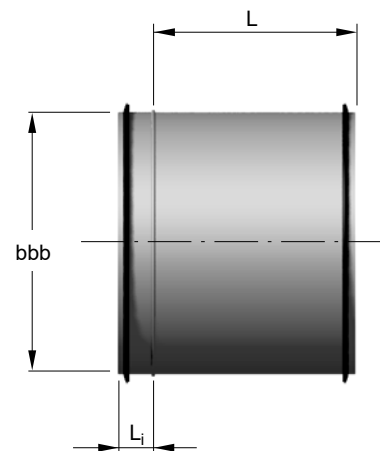
### BDEN-1



### BDEN-4 - LONG INSERTION JOINT



### BDEN-3 - LONG INSERTION JOINT



### STANDARD SIZES

| BDEN-1-bbb | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -008       | 5      | 35      | 0.10        |
| -010       | 4      | 34      | 0.11        |
| -012       | 4      | 34      | 0.15        |
| -016       | 4      | 34      | 0.19        |
| -020       | 4      | 34      | 0.27        |
| -025       | 5      | 35      | 0.43        |
| -031       | 5      | 35      | 0.52        |
| -040       | 8      | 60      | 1.10        |
| -050       | 8      | 60      | 1.40        |
| -063       | 8      | 60      | 1.80        |
| -080       | 12     | 95      | 3.70        |
| -100       | 12     | 95      | 5.20        |
| -125       | 12     | 95      | 6.60        |

### STANDARD SIZES

| BDEN-4-bbb | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -008       | 5      | 35      | 0.25        |
| -010       | 5      | 35      | 0.32        |
| -012       | 5      | 35      | 0.40        |
| -016       | 5      | 35      | 0.51        |
| -020       | 5      | 35      | 0.79        |
| -025       | 5      | 35      | 0.95        |
| -031       | 5      | 35      | 1.20        |
| -040       | 5      | 60      | 1.80        |
| -050       | 5      | 60      | 2.20        |
| -063       | 5      | 60      | 2.80        |

### STANDARD SIZES

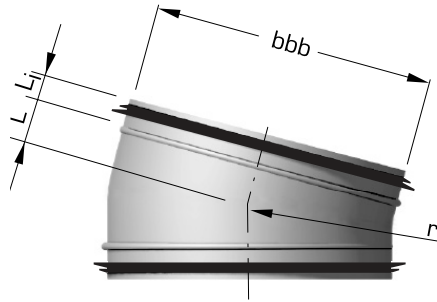
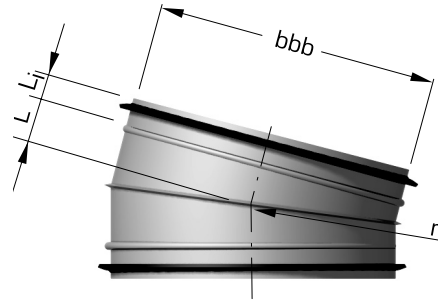
| BDEN-3-bbb | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -010       | 265    | 35      | 0.41        |
| -012       | 265    | 35      | 0.51        |
| -016       | 265    | 35      | 0.65        |
| -020       | 265    | 35      | 0.82        |
| -025       | 260    | 35      | 1.04        |
| -031       | 260    | 35      | 1.31        |
| -040       | 240    | 60      | 2.41        |
| -050       | 240    | 60      | 3.00        |

### OTHER SIZES

| BDEN-1-bbb | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -014       | 5      | 35      | 0.14        |
| -015       | 5      | 35      | 0.14        |
| -018       | 5      | 35      | 0.20        |
| -022       | 5      | 35      | 0.30        |
| -028       | 5      | 35      | 0.40        |
| -030       | 5      | 35      | 0.43        |
| -035       | 8      | 60      | 0.89        |
| -045       | 8      | 60      | 1.20        |
| -056       | 8      | 60      | 1.50        |

### OTHER SIZES

| BDEN-4-bbb | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -014       | 5      | 35      | 0.45        |
| -015       | 5      | 35      | 0.48        |
| -018       | 5      | 35      | 0.69        |
| -022       | 5      | 35      | 0.85        |
| -028       | 5      | 35      | 1.00        |
| -030       | 5      | 35      | 1.10        |
| -035       | 5      | 60      | 1.50        |
| -045       | 5      | 60      | 2.00        |
| -056       | 5      | 60      | 2.50        |

**BEND****BDEB 15° - PRESSED****BDEB 15° - FABRICATED****STANDARD SIZES**

| BDEB-15-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -008        | 15     | 100    | 35      | 0.11        |
| -010        | 15     | 100    | 35      | 0.14        |
| -012        | 15     | 125    | 35      | 0.19        |
| -016        | 15     | 160    | 35      | 0.26        |
| -020        | 15     | 200    | 35      | 0.42        |

**STANDARD SIZES**

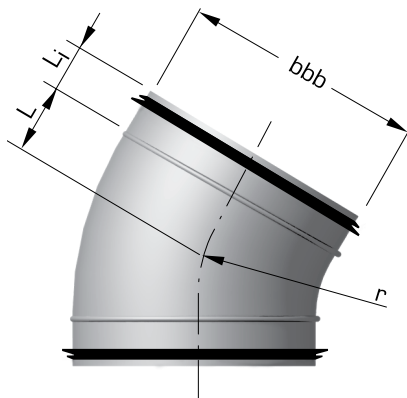
| BDEB-15-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -025        | 44     | 250    | 35      | 0.60        |
| -031        | 60     | 315    | 35      | 1.00        |
| -040        | 55     | 400    | 60      | 1.80        |
| -050        | 70     | 500    | 60      | 2.40        |
| -063        | 85     | 630    | 60      | 3.40        |
| -080        | 110    | 800    | 95      | 6.20        |
| -100        | 135    | 1000   | 95      | 11.0        |
| -125        | 165    | 1250   | 95      | 16.0        |

**OTHER SIZES**

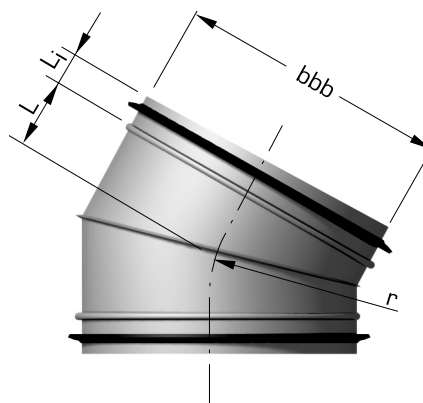
| BDEB-15-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -014        | 20     | 140    | 35      | 0.22        |
| -015        | 20     | 150    | 35      | 0.24        |
| -018        | 25     | 180    | 35      | 0.36        |
| -022        | 30     | 224    | 35      | 0.50        |
| -028        | 40     | 280    | 35      | 0.70        |
| -030        | 40     | 300    | 35      | 0.80        |
| -035        | 50     | 355    | 60      | 1.50        |
| -045        | 60     | 450    | 60      | 2.00        |
| -056        | 75     | 560    | 60      | 2.80        |

## BEND

### BDEB 30° - PRESSED



### BDEB 30° - FABRICATED



#### STANDARD SIZES

| BDEB-30-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -008        | 25     | 100    | 35      | 0.15        |
| -010        | 30     | 100    | 35      | 0.22        |
| -012        | 30     | 125    | 35      | 0.31        |
| -016        | 40     | 160    | 35      | 0.42        |
| -020        | 60     | 200    | 35      | 0.67        |

#### STANDARD SIZES

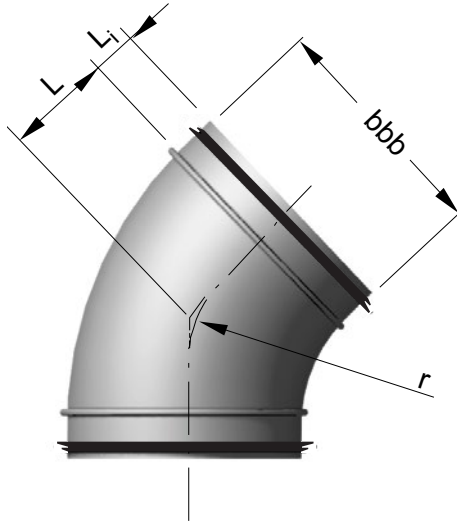
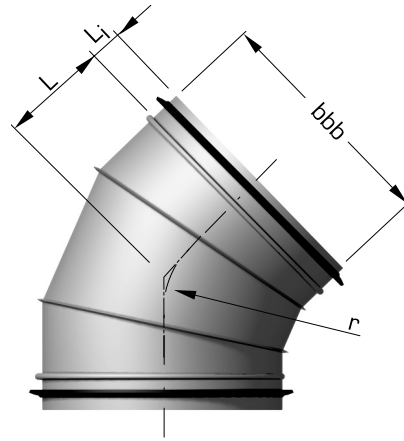
| BDEB-30-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -025        | 70     | 250    | 35      | 1.00        |
| -031        | 90     | 315    | 35      | 1.20        |
| -040        | 110    | 400    | 60      | 2.40        |
| -050        | 135    | 500    | 60      | 3.50        |
| -063        | 170    | 630    | 60      | 5.10        |
| -080        | 220    | 800    | 95      | 9.00        |
| -100        | 270    | 1000   | 95      | 17.0        |
| -125        | 340    | 1250   | 95      | 25.0        |

#### OTHER SIZES

| BDEB-30-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -014        | 40     | 140    | 35      | 0.36        |
| -015        | 40     | 150    | 35      | 0.39        |
| -018        | 50     | 180    | 35      | 0.54        |
| -022        | 60     | 224    | 35      | 0.79        |
| -028        | 80     | 280    | 35      | 1.00        |

#### OTHER SIZES

| BDEB-30-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -030        | 85     | 300    | 35      | 1.10        |
| -035        | 100    | 355    | 60      | 2.00        |
| -045        | 125    | 450    | 60      | 2.90        |
| -056        | 155    | 560    | 60      | 4.20        |

**BEND****BDEB 45° - PRESSED****BDEB 45° - FABRICATED****STANDARD SIZES**

| BDEB-45-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -008        | 40     | 100    | 35      | 0.23        |
| -010        | 40     | 100    | 35      | 0.25        |
| -012        | 50     | 125    | 35      | 0.38        |
| -016        | 65     | 160    | 35      | 0.54        |
| -020        | 80     | 200    | 35      | 0.80        |
| -025        | 105    | 250    | 35      | 1.00        |

**STANDARD SIZES**

| BDEB-45-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -031        | 130    | 315    | 35      | 1.80        |
| -040        | 165    | 400    | 60      | 3.40        |
| -050        | 205    | 500    | 60      | 4.60        |
| -063        | 260    | 630    | 60      | 6.90        |
| -080        | 330    | 800    | 95      | 12.0        |
| -100        | 410    | 1000   | 95      | 23.0        |
| -125        | 515    | 1250   | 95      | 34.0        |

**OTHER SIZES**

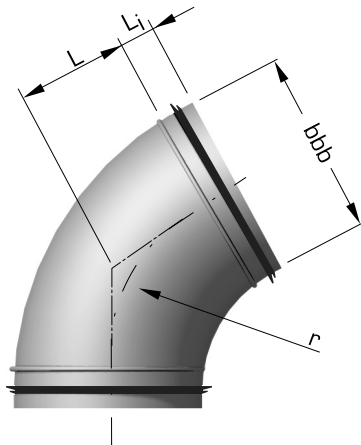
| BDEB-45-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -014        | 60     | 140    | 35      | 0.45        |
| -015        | 65     | 150    | 35      | 0.50        |
| -018        | 75     | 180    | 35      | 0.67        |
| -022        | 95     | 224    | 35      | 0.90        |
| -028        | 115    | 280    | 35      | 1.30        |

**OTHER SIZES**

| BDEB-45-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -030        | 125    | 300    | 35      | 1.60        |
| -035        | 150    | 355    | 60      | 2.30        |
| -045        | 185    | 450    | 60      | 3.90        |
| -056        | 230    | 560    | 60      | 5.60        |

## BEND

### BDEB 60° - PRESSED



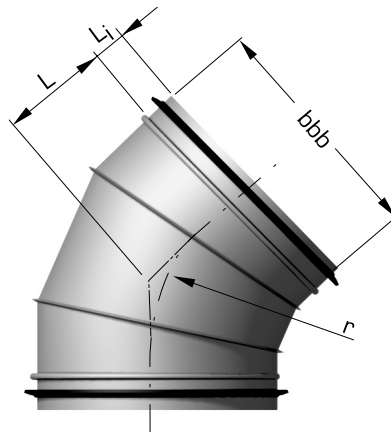
#### STANDARD SIZES

| BDEB-60-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -010        | 60     | 100    | 35      | 0.29        |
| -012        | 75     | 125    | 35      | 0.40        |
| -016        | 95     | 160    | 35      | 0.60        |
| -020        | 115    | 200    | 35      | 0.87        |

#### OTHER SIZES

| BDEB-60-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -014        | 85     | 140    | 35      | 0.48        |
| -015        | 90     | 150    | 35      | 0.54        |
| -018        | 105    | 180    | 35      | 0.73        |
| -022        | 130    | 224    | 35      | 1.30        |

### BDEB 60° - FABRICATED

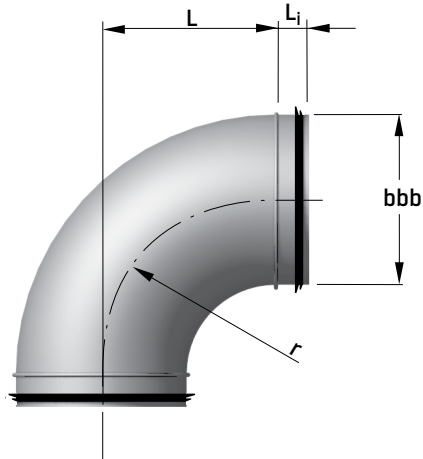
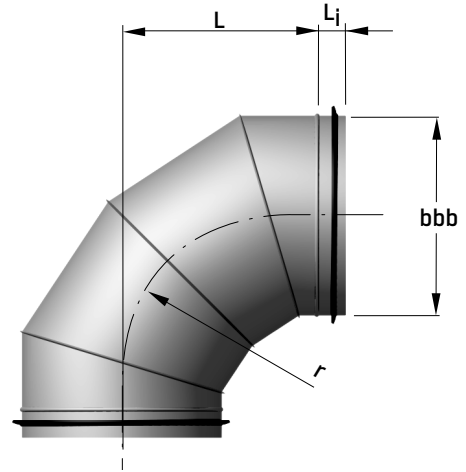


#### STANDARD SIZES

| BDEB-60-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -025        | 145    | 250    | 35      | 1.30        |
| -031        | 185    | 315    | 35      | 1.90        |
| -040        | 235    | 400    | 60      | 4.30        |
| -050        | 190    | 500    | 60      | 6.30        |
| -063        | 365    | 630    | 60      | 9.20        |
| -080        | 465    | 800    | 95      | 15.0        |
| -100        | 580    | 1000   | 95      | 30.0        |
| -125        | 725    | 1250   | 95      | 45.0        |

#### OTHER SIZES

| BDEB-60-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -028        | 165    | 280    | 35      | 1.60        |
| -030        | 175    | 300    | 35      | 1.80        |
| -035        | 205    | 355    | 60      | 3.30        |
| -045        | 260    | 450    | 60      | 6.00        |
| -056        | 325    | 560    | 60      | 7.50        |

**BEND****BDEB 90° - PRESSED****BDEB 90° - FABRICATED****STANDARD SIZES**

| BDEB-90-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -008        | 100    | 100    | 35      | 0.29        |
| -010        | 100    | 100    | 35      | 0.34        |
| -012        | 125    | 125    | 35      | 0.50        |
| -016        | 160    | 160    | 35      | 0.87        |
| -020        | 200    | 200    | 35      | 1.30        |
| -025        | 250    | 250    | 35      | 1.70        |

**STANDARD SIZES**

| BDEB-90-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -031        | 315    | 315    | 60      | 2.30        |
| -040        | 400    | 400    | 60      | 5.90        |
| -050        | 500    | 500    | 60      | 8.80        |
| -063        | 630    | 630    | 60      | 13.0        |
| -080        | 800    | 800    | 95      | 21.0        |
| -100        | 1000   | 1000   | 95      | 42.0        |
| -125        | 1250   | 1250   | 95      | 64.0        |

**OTHER SIZES**

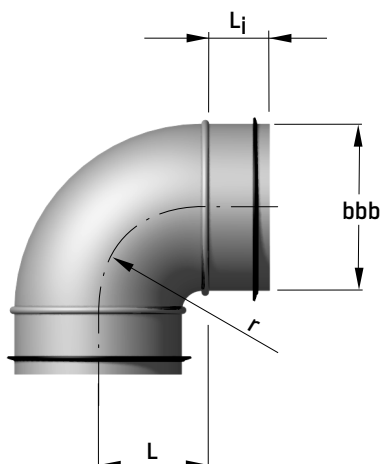
| BDEB-90-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -014        | 140    | 140    | 35      | 0.62        |
| -015        | 150    | 150    | 35      | 0.75        |
| -018        | 180    | 180    | 35      | 1.10        |
| -022        | 224    | 224    | 35      | 1.50        |
| -028        | 280    | 280    | 35      | 2.00        |

**OTHER SIZES**

| BDEB-90-bbb | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|---------|-------------|
| -030        | 300    | 300    | 35      | 2.20        |
| -035        | 355    | 355    | 60      | 4.60        |
| -045        | 450    | 450    | 60      | 7.10        |
| -056        | 560    | 560    | 60      | 10.0        |

## BEND

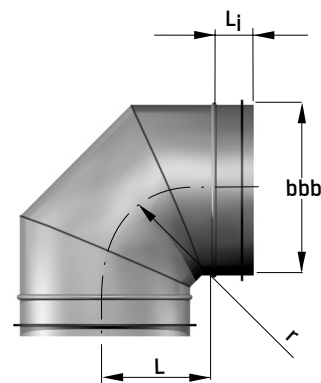
### BDEB 90 - SHORT, PRESSED



#### STANDARD SIZES

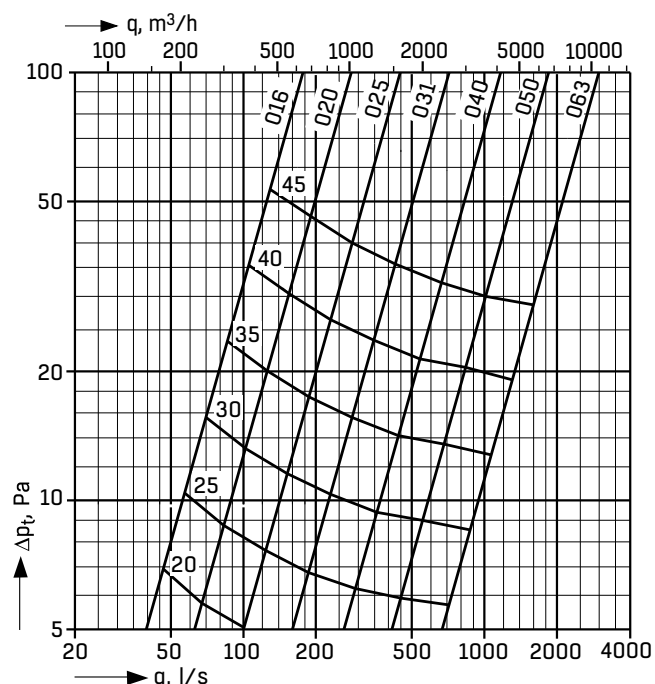
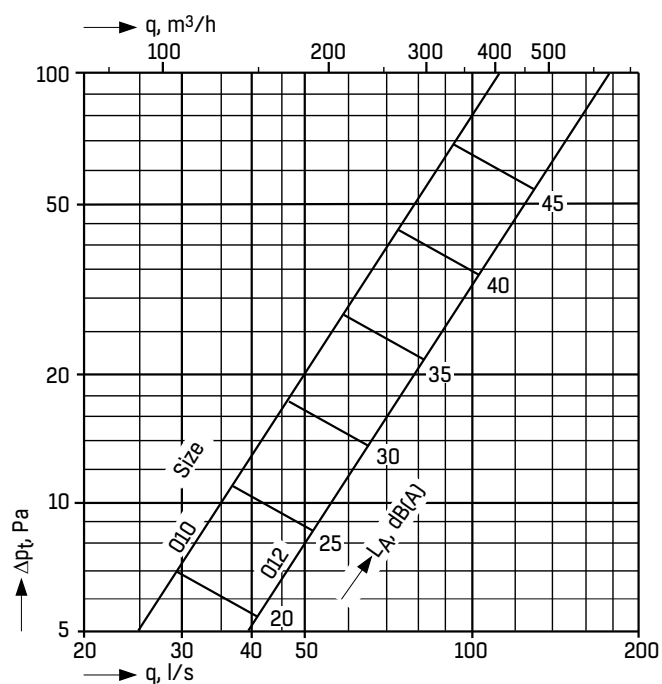
| BDEB-90-bbb-4 | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|---------------|--------|--------|---------|-------------|
| -010          | 62     | 62     | 35      | 0.22        |
| -012          | 79     | 79     | 35      | 0.31        |
| -016          | 94     | 94     | 35      | 0.50        |

### BDEB 90° - SHORT, FABRICATED



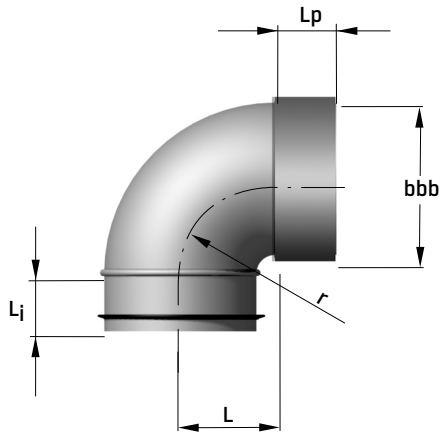
#### STANDARD SIZES

| BDEB-90-bbb-4 | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|---------------|--------|--------|---------|-------------|
| -020          | 125    | 120    | 35      | 0.94        |
| -025          | 160    | 155    | 35      | 1.30        |
| -031          | 190    | 185    | 35      | 1.90        |
| -040          | 230    | 220    | 60      | 3.80        |
| -050          | 290    | 280    | 60      | 5.60        |
| -063          | 400    | 400    | 60      | 8.40        |

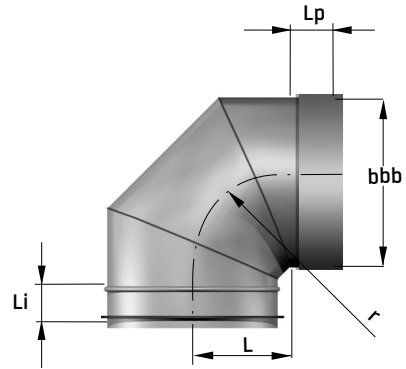


**BEND**

**BDEB 90° - SHORT, PRESSED, FIT-ON – INSERTION**



**BDEB 90° - SHORT, FABRICATED, FIT-ON – INSERTION**

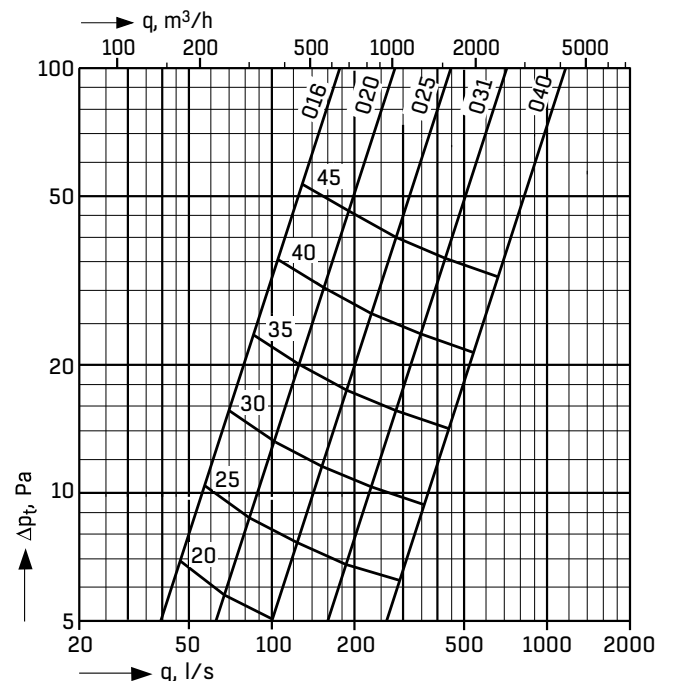
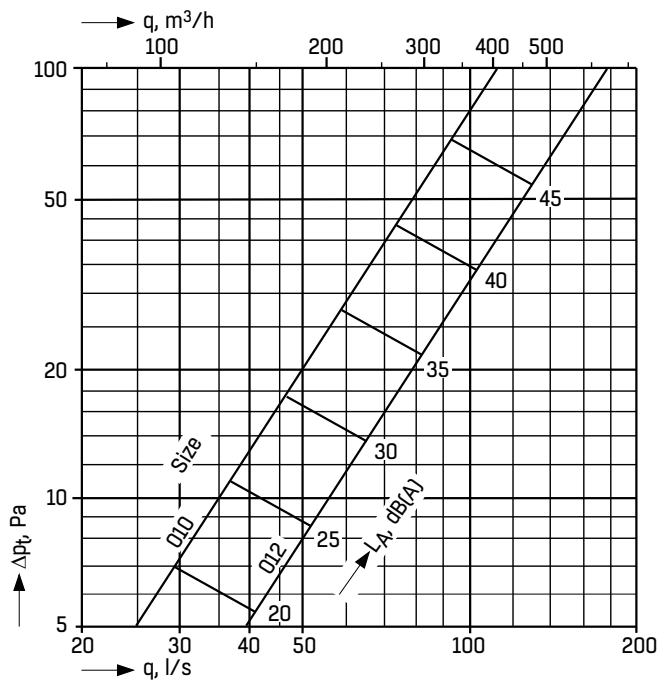


**STANDARD SIZES**

| BDEB-90-bbb-4-2 | L (mm) | r (mm) | Lp/Li (mm) | Weight (kg) |
|-----------------|--------|--------|------------|-------------|
| -010            | 65     | 60     | 35/35      | 0.26        |
| -012            | 80     | 75     | 35/35      | 0.37        |
| -016            | 105    | 100    | 35/35      | 0.56        |

**STANDARD SIZES**

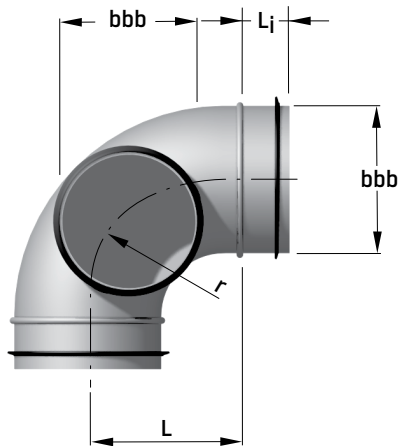
| BDEB-90-bbb-4-2 | L (mm) | r (mm) | Lp/Li (mm) | Weight (kg) |
|-----------------|--------|--------|------------|-------------|
| -020            | 125    | 120    | 35/35      | 0.94        |
| -025            | 160    | 155    | 35/35      | 1.30        |
| -031            | 190    | 185    | 35/35      | 1.90        |
| -040            | 230    | 220    | 60/60      | 3.80        |



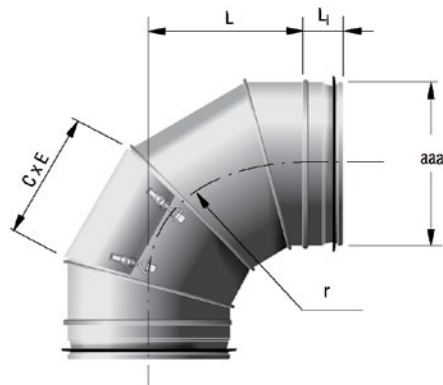


## BEND

### BDEB-90 - CLEANABLE



### BDKE - CLEANABLE

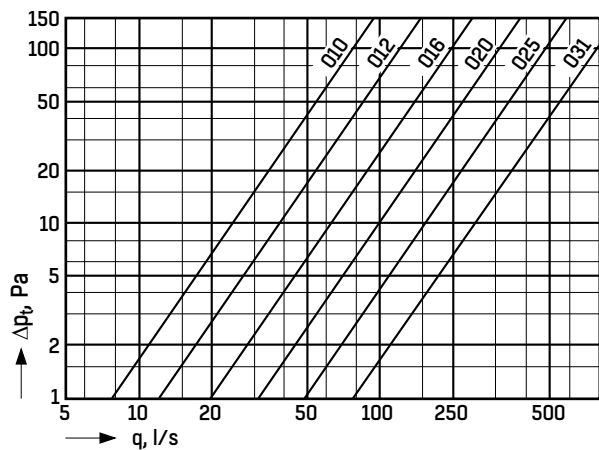


#### STANDARD SIZES

| BDEB-90-bbb-3 | L (mm) | r (mm) | Li (mm) | Weight (kg) |
|---------------|--------|--------|---------|-------------|
| -010          | 100    | 100    | 35      | 0.46        |
| -012          | 125    | 125    | 35      | 0.61        |
| -016          | 160    | 160    | 35      | 1.10        |
| -020          | 200    | 200    | 35      | 1.50        |
| -025          | 250    | 250    | 35      | 2.60        |
| -031          | 315    | 315    | 35      | 3.80        |

#### STANDARD SIZES

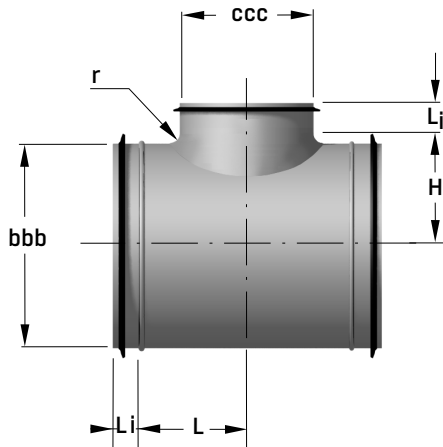
| BDKE-aaa | L (mm) | r (mm) | C (mm) | E (mm) | Li (mm) | Weight (kg) |
|----------|--------|--------|--------|--------|---------|-------------|
| -040     | 400    | 400    | 265    | 400    | 60      | 5.90        |



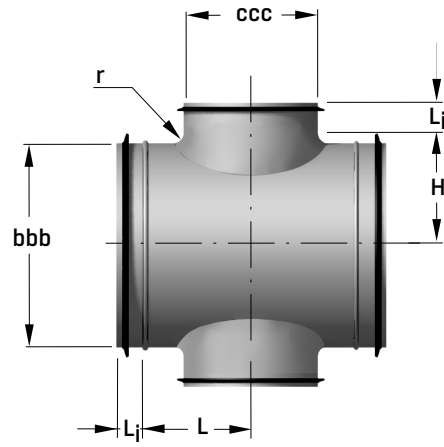
Pressure drop with cleaning cover BDEG-2 or BDEG-3.

## T-PIECE AND CROSS

### BDET-1 - T-PIECE, PRESSED BRANCHES, CONCENTRIC



### BDEX-1 - CROSS, PRESSED BRANCHES, CONCENTRIC



#### STANDARD SIZES

| BDE(T,X)-1-bbb-ccc | H (mm) | L (mm) | r (mm) | Li (mm) | Weight BDET (kg) | Weight BDEX (kg) |
|--------------------|--------|--------|--------|---------|------------------|------------------|
| -008-008           | 50     | 75     | 10     | 35      | 0.31             | 0.40             |
| -010-008           | 60     | 75     | 10     | 35      | 0.37             | 0.46             |
| -010               | 65     | 75     | 12     | 35      | 0.45             | 0.59             |
| -012-008           | 70     | 75     | 10     | 35      | 0.51             | 0.67             |
| -010               | 78     | 90     | 12     | 35      | 0.52             | 0.66             |
| -012               | 78     | 90     | 12     | 35      | 0.64             | 0.84             |
| -016-008           | 90     | 75     | 10     | 35      | 0.61             | 0.77             |
| -010               | 95     | 90     | 12     | 35      | 0.63             | 0.77             |
| -012               | 95     | 100    | 12     | 35      | 0.74             | 0.91             |
| -016               | 105    | 125    | 16     | 35      | 0.92             | 1.20             |
| -020-008           | 110    | 75     | 10     | 35      | 0.80             | 0.94             |
| -010               | 115    | 90     | 12     | 35      | 0.84             | 0.95             |
| -012               | 115    | 100    | 12     | 35      | 1.00             | 1.10             |
| -016               | 125    | 125    | 16     | 35      | 1.20             | 1.40             |
| -020               | 130    | 163    | 20     | 35      | 1.40             | 1.60             |
| -025-008           | 135    | 75     | 10     | 35      | 0.96             | 1.10             |
| -010               | 140    | 90     | 12     | 35      | 1.00             | 1.10             |
| -012               | 140    | 100    | 12     | 35      | 1.20             | 1.40             |
| -016               | 150    | 125    | 16     | 35      | 1.40             | 1.60             |
| -020               | 155    | 163    | 20     | 35      | 1.80             | 2.10             |
| -025               | 155    | 190    | 20     | 35      | 2.10             | 2.50             |

#### STANDARD SIZES

| BDE(T,X)-1-bbb-ccc | H (mm) | L (mm) | r (mm) | Li (mm) | Weight BDET (kg) | Weight BDEX (kg) |
|--------------------|--------|--------|--------|---------|------------------|------------------|
| -031-008           | 167    | 75     | 10     | 35      | 1.2              | 1.3              |
| -010               | 173    | 90     | 12     | 35      | 1.3              | 1.4              |
| -012               | 173    | 100    | 12     | 35      | 1.5              | 1.6              |
| -016               | 183    | 125    | 16     | 35      | 1.7              | 1.9              |
| -020               | 188    | 164    | 20     | 35      | 2.1              | 2.5              |
| -025               | 188    | 190    | 20     | 35      | 2.6              | 2.9              |
| -031               | 193    | 215    | 35     | 35      | 2.9              | 3.3              |
| -040-010           | 212    | 90     | 12     | 60/35   | 2.5              | 2.9              |
| -012               | 212    | 100    | 12     | 60/35   | 2.7              | 3.1              |
| -016               | 225    | 125    | 16     | 60/35   | 3.0              | 3.3              |
| -020               | 225    | 155    | 20     | 60/35   | 3.3              | 3.5              |
| -025               | 225    | 190    | 20     | 60/35   | 3.9              | 4.2              |
| -031               | 235    | 215    | 35     | 60/35   | 4.2              | 4.4              |
| -040               | 240    | 280    | 32     | 60      | 5.1              | 6.3              |
| -050-010           | 265    | 90     | 12     | 60/35   | 3.0              | 3.4              |
| -012               | 265    | 100    | 12     | 60/35   | 3.3              | 3.7              |
| -016               | 275    | 125    | 16     | 60/35   | 3.7              | 4.0              |
| -020               | 270    | 155    | 20     | 60/35   | 4.1              | 4.3              |
| -025               | 290    | 190    | 30     | 60/35   | 4.8              | 5.1              |
| -031               | 285    | 215    | 25     | 60/35   | 5.2              | 5.4              |
| -040               | 290    | 280    | 32     | 60      | 6.5              | 7.5              |
| -063-010           | 330    | 90     | 12     | 60/35   | 3.5              | 3.9              |
| -012               | 330    | 100    | 12     | 60/35   | 3.9              | 4.3              |
| -016               | 335    | 125    | 20     | 60/35   | 4.4              | 4.7              |
| -020               | 335    | 155    | 20     | 60/35   | 4.9              | 5.2              |
| -025               | 350    | 190    | 25     | 60/35   | 5.9              | 6.2              |
| -031               | 350    | 215    | 25     | 60/35   | 6.3              | 6.5              |
| -040               | 355    | 280    | 32     | 60      | 7.4              | 8.4              |

## T-PIECE AND CROSS

### BDET-1 - T-PIECE, PRESSED BRANCHES, CONCENTRIC

#### OTHER SIZES

| BDE(T,X)-1-bbb-ccc | H (mm) | L (mm) | r (mm) | Li (mm) | Weight BDET (kg) | Weight BDEX (kg) |
|--------------------|--------|--------|--------|---------|------------------|------------------|
| -014-008           | 85     | 75     | 15     | 35      | 0.55             | 0.71             |
| -010               | 90     | 90     | 20     | 35      | 0.57             | 0.71             |
| -012               | 90     | 100    | 20     | 35      | 0.67             | 0.84             |
| -014               | 85     | 125    | 15     | 35      | 0.78             | 0.98             |
| -015-008           | 90     | 75     | 15     | 35      | 0.58             | 0.74             |
| -010               | 95     | 90     | 20     | 35      | 0.60             | 0.74             |
| -012               | 95     | 100    | 20     | 35      | 0.70             | 0.84             |
| -014               | 90     | 125    | 15     | 35      | 0.77             | 0.93             |
| -015               | 100    | 125    | 25     | 35      | 0.86             | 1.1              |
| -016-014           | 95     | 125    | 15     | 35      | 0.81             | 0.97             |
| -015               | 105    | 125    | 25     | 35      | 0.90             | 1.2              |
| -018-008           | 105    | 75     | 15     | 35      | 0.74             | 0.87             |
| -010               | 110    | 90     | 20     | 35      | 0.77             | 0.88             |
| -012               | 110    | 100    | 20     | 35      | 0.91             | 1.1              |
| -014               | 105    | 125    | 15     | 35      | 1.0              | 1.2              |
| -015               | 115    | 125    | 25     | 35      | 1.0              | 1.2              |
| -016               | 120    | 125    | 30     | 35      | 1.1              | 1.3              |
| -018               | 110    | 155    | 20     | 35      | 1.2              | 1.4              |
| -020-014           | 115    | 125    | 15     | 35      | 1.1              | 1.3              |
| -015               | 125    | 125    | 25     | 35      | 1.1              | 1.3              |
| -018               | 120    | 155    | 20     | 35      | 1.4              | 1.5              |
| -022-008           | 127    | 75     | 15     | 35      | 0.87             | 1.0              |
| -010               | 127    | 90     | 15     | 35      | 0.92             | 1.0              |
| -012               | 127    | 100    | 15     | 35      | 1.1              | 1.3              |
| -014               | 127    | 125    | 15     | 35      | 1.2              | 1.4              |
| -015               | 137    | 125    | 25     | 35      | 1.3              | 1.4              |
| -016               | 137    | 125    | 25     | 35      | 1.3              | 1.5              |
| -018               | 132    | 155    | 20     | 35      | 1.5              | 1.8              |
| -020               | 132    | 155    | 20     | 35      | 1.6              | 1.9              |
| -022               | 134    | 190    | 22     | 35      | 1.8              | 2.0              |
| -025-014           | 140    | 125    | 15     | 35      | 1.4              | 1.5              |
| -015               | 150    | 125    | 25     | 35      | 1.4              | 1.6              |
| -018               | 145    | 155    | 20     | 35      | 1.9              | 2.3              |
| -022               | 147    | 190    | 22     | 35      | 2.0              | 2.2              |
| -028-008           | 155    | 75     | 15     | 35      | 1.0              | 1.1              |
| -010               | 155    | 90     | 15     | 35      | 1.1              | 1.2              |
| -012               | 155    | 100    | 15     | 35      | 1.3              | 1.5              |
| -014               | 155    | 125    | 15     | 35      | 1.5              | 1.6              |
| -015               | 165    | 125    | 25     | 35      | 1.5              | 1.7              |
| -016               | 165    | 125    | 25     | 35      | 1.6              | 1.7              |
| -018               | 160    | 155    | 20     | 35      | 1.8              | 2.0              |
| -020               | 165    | 155    | 25     | 35      | 1.9              | 2.2              |
| -022               | 162    | 190    | 22     | 35      | 2.2              | 2.5              |
| -025               | 170    | 190    | 30     | 35      | 2.3              | 2.7              |
| -028               | 165    | 215    | 25     | 35      | 2.5              | 2.8              |
| -030-008           | 165    | 75     | 15     | 35      | 1.2              | 1.3              |
| -010               | 165    | 90     | 15     | 35      | 1.3              | 1.4              |
| -012               | 165    | 100    | 15     | 35      | 1.5              | 1.6              |
| -014               | 165    | 125    | 15     | 35      | 1.7              | 1.8              |
| -015               | 175    | 125    | 25     | 35      | 1.7              | 1.9              |

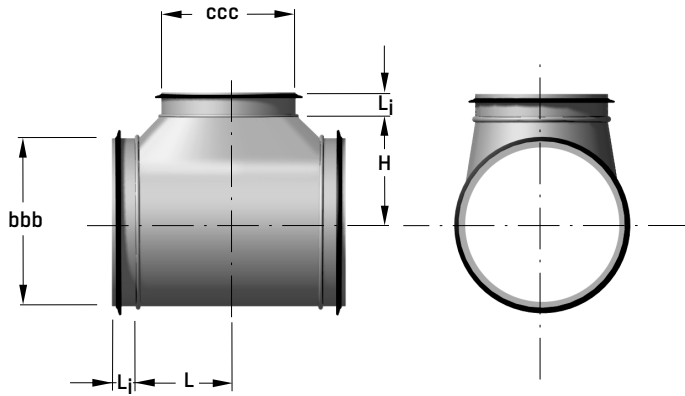
### BDEX-1 - CROSS, PRESSED BRANCHES, CONCENTRIC

#### OTHER SIZES

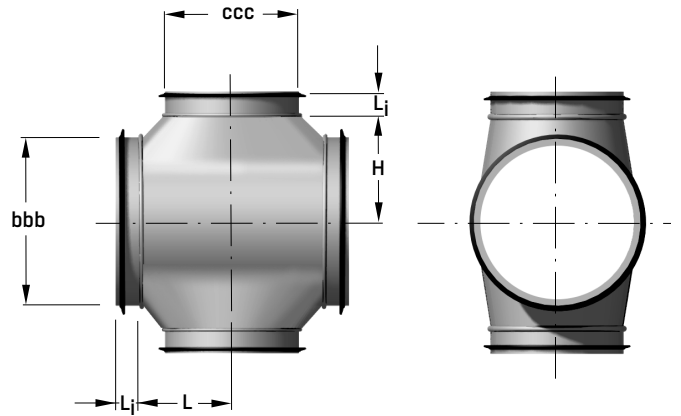
| BDE(T,X)-1-bbb-ccc | H (mm) | L (mm) | r (mm) | Li (mm) | Weight BDET (kg) | Weight BDEX (kg) |
|--------------------|--------|--------|--------|---------|------------------|------------------|
| -030-016           | 175    | 125    | 25     | 35      | 1.7              | 1.9              |
| -018               | 170    | 155    | 20     | 35      | 2.0              | 2.3              |
| -020               | 175    | 155    | 25     | 35      | 2.1              | 2.5              |
| -022               | 172    | 190    | 22     | 35      | 2.5              | 2.7              |
| -025               | 180    | 190    | 20     | 35      | 2.6              | 2.9              |
| -028               | 175    | 215    | 25     | 35      | 2.7              | 3.0              |
| -031-014           | 173    | 125    | 15     | 35      | 1.7              | 1.8              |
| -015               | 183    | 125    | 25     | 35      | 1.7              | 1.9              |
| -018               | 178    | 155    | 20     | 35      | 2.0              | 2.3              |
| -022               | 180    | 190    | 22     | 35      | 2.5              | 2.7              |
| -028               | 183    | 215    | 25     | 35      | 2.7              | 3.0              |
| -035-010           | 193    | 90     | 15     | 60/35   | 1.8              | 1.9              |
| -012               | 193    | 100    | 15     | 60/35   | 2.1              | 2.3              |
| -014               | 193    | 125    | 15     | 60/35   | 2.4              | 2.5              |
| -015               | 203    | 125    | 25     | 60/35   | 2.4              | 2.6              |
| -016               | 203    | 125    | 25     | 60/35   | 2.5              | 2.6              |
| -018               | 198    | 155    | 20     | 60/35   | 2.8              | 3.0              |
| -020               | 203    | 155    | 25     | 60/35   | 2.9              | 3.2              |
| -022               | 200    | 190    | 22     | 60/35   | 3.3              | 3.5              |
| -025               | 218    | 190    | 30     | 60/35   | 3.4              | 3.7              |
| -028               | 203    | 215    | 25     | 60/35   | 3.7              | 3.9              |
| -031               | 208    | 215    | 20     | 60/35   | 4.2              | 4.4              |
| -040-014           | 215    | 125    | 15     | 60/35   | 3.0              | 3.3              |
| -015               | 220    | 125    | 25     | 60/35   | 3.0              | 3.3              |
| -018               | 220    | 155    | 20     | 60/35   | 3.3              | 3.5              |
| -025               | 240    | 190    | 30     | 60/35   | 3.9              | 4.2              |
| -045-010           | 240    | 90     | 15     | 60/35   | 2.6              | 3.0              |
| -012               | 240    | 100    | 15     | 60/35   | 2.9              | 3.3              |
| -014               | 240    | 125    | 15     | 60/35   | 3.2              | 3.6              |
| -015               | 245    | 125    | 20     | 60/35   | 3.2              | 3.6              |
| -016               | 245    | 125    | 20     | 60/35   | 3.2              | 3.6              |
| -018               | 245    | 155    | 20     | 60/35   | 3.6              | 3.8              |
| -020               | 245    | 155    | 20     | 60/35   | 3.6              | 3.8              |
| -025               | 265    | 190    | 30     | 60/35   | 4.2              | 4.5              |
| -031               | 260    | 215    | 25     | 60/35   | 4.6              | 4.9              |
| -050-014           | 265    | 125    | 15     | 60/35   | 3.7              | 4.0              |
| -015               | 270    | 125    | 20     | 60/35   | 3.7              | 4.0              |
| -018               | 270    | 155    | 20     | 60/35   | 4.1              | 4.3              |
| -056-010           | 295    | 90     | 15     | 60/35   | 3.2              | 3.6              |
| -012               | 295    | 100    | 15     | 60/35   | 3.5              | 3.9              |
| -014               | 295    | 125    | 15     | 60/35   | 4.0              | 4.3              |
| -015               | 300    | 125    | 20     | 60/35   | 4.0              | 4.3              |
| -016               | 300    | 125    | 20     | 60/35   | 4.0              | 4.3              |
| -018               | 300    | 155    | 20     | 60/35   | 4.4              | 4.7              |
| -020               | 300    | 155    | 20     | 60/35   | 4.4              | 4.7              |
| -025               | 315    | 190    | 25     | 60/35   | 5.3              | 5.6              |
| -031               | 315    | 215    | 25     | 60/35   | 5.6              | 5.9              |
| -063-014           | 330    | 125    | 15     | 60/35   | 4.4              | 4.7              |
| -015               | 335    | 125    | 20     | 60/35   | 4.4              | 4.7              |
| -018               | 335    | 155    | 20     | 60/35   | 4.9              | 5.2              |

## T-PIECE AND CROSS

### BDET-1 - T-PIECE, FABRICATED BRANCHES, CONCENTRIC



### BDEX-1 CROSS - FABRICATED BRANCHES, CONCENTRIC



### STANDARD SIZES

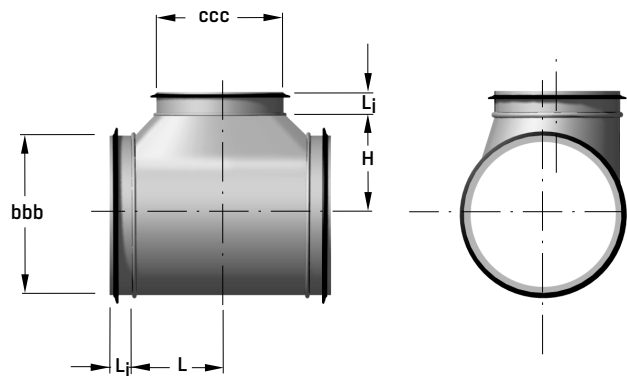
| BDE(T,X)-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDET (kg) | Weight BDEX (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -050-050           | 345    | 345    | 60      | 8.6              | 9.5              |
| -063-050           | 410    | 345    | 60      | 10               | 11               |
| -063               | 430    | 430    | 60      | 12               | 13               |
| -080-040           | 480    | 285    | 95/60   | 14               | 16               |
| -050               | 495    | 350    | 95/60   | 15               | 17               |
| -063               | 515    | 435    | 95/60   | 18               | 18               |
| -080               | 545    | 545    | 95      | 24               | 30               |
| -100-050           | 595    | 345    | 95/60   | 19               | 19               |
| -063               | 615    | 430    | 95/60   | 24               | 24               |
| -080               | 645    | 545    | 95      | 25               | 24               |
| -100               | 675    | 675    | 95      | 31               | 29               |
| -125-063           | 740    | 435    | 95/60   | 29               | 27               |
| -080               | 770    | 545    | 95      | 33               | 38               |
| -100               | 800    | 675    | 95      | 40               | 41               |
| -125               | 840    | 840    | 95      | 46               | 44               |

### OTHER SIZES

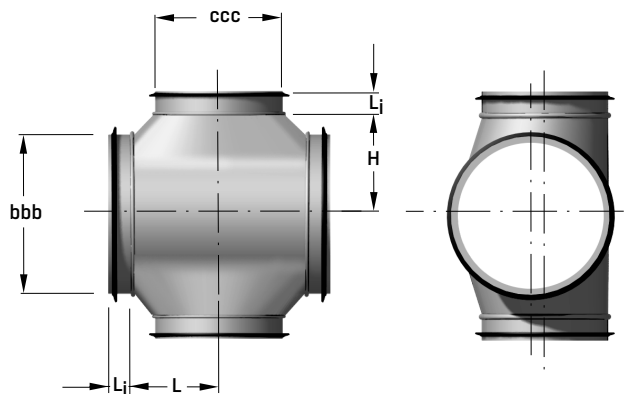
| BDE(T,X)-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDET (kg) | Weight BDEX (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -030-030           | 210    | 210    | 35      | 3.9              | 4.6              |
| -031-030           | 220    | 210    | 35      | 4.0              | 4.7              |
| -035-030           | 240    | 215    | 60/35   | 4.2              | 4.9              |
| -035               | 250    | 250    | 60      | 5.0              | 5.7              |
| -040-022           | 250    | 165    | 60/35   | 3.4              | 3.8              |
| -028               | 260    | 205    | 60/35   | 3.7              | 4.6              |
| -030               | 260    | 215    | 60/35   | 4.6              | 5.3              |
| -035               | 275    | 250    | 60      | 5.4              | 6.0              |
| -045-022           | 275    | 165    | 60/35   | 4.3              | 4.6              |
| -028               | 285    | 205    | 60/35   | 4.6              | 4.8              |
| -030               | 285    | 215    | 60/35   | 5.2              | 5.5              |
| -035               | 300    | 250    | 60      | 5.4              | 5.6              |
| -040               | 305    | 280    | 60      | 6.6              | 6.8              |
| -045               | 315    | 315    | 60      | 6.9              | 7.2              |
| -050-022           | 300    | 165    | 60/35   | 5.5              | 5.7              |
| -028               | 310    | 205    | 60/35   | 6.7              | 7.0              |
| -030               | 310    | 215    | 60/35   | 6.9              | 7.3              |
| -035               | 325    | 250    | 60      | 7.0              | 7.4              |
| -045               | 340    | 315    | 60      | 8.0              | 9.0              |
| -056-022           | 330    | 165    | 60/35   | 5.6              | 5.8              |
| -028               | 340    | 205    | 60/35   | 6.9              | 7.2              |
| -030               | 340    | 215    | 60/35   | 7.0              | 7.5              |
| -035               | 355    | 250    | 60      | 8.1              | 8.3              |
| -040               | 360    | 280    | 60      | 8.4              | 8.5              |
| -045               | 370    | 315    | 60      | 8.6              | 8.8              |
| -050               | 375    | 345    | 60      | 8.8              | 9.3              |
| -056               | 385    | 385    | 60      | 9.8              | 11               |
| -063-022           | 365    | 165    | 60/35   | 6.0              | 6.3              |
| -028               | 375    | 205    | 60/35   | 6.5              | 6.8              |
| -030               | 375    | 215    | 60/35   | 7.2              | 7.4              |
| -035               | 390    | 250    | 60      | 7.8              | 8.0              |
| -045               | 405    | 315    | 60      | 9                | 10               |
| -056               | 420    | 385    | 60      | 11               | 12               |

## T-PIECE AND CROSS

### BDET-2 - T-PIECE, FABRICATED BRANCHES, ECCENTRIC



### BDEX-2 - CROSS, FABRICATED BRANCHES, ECCENTRIC

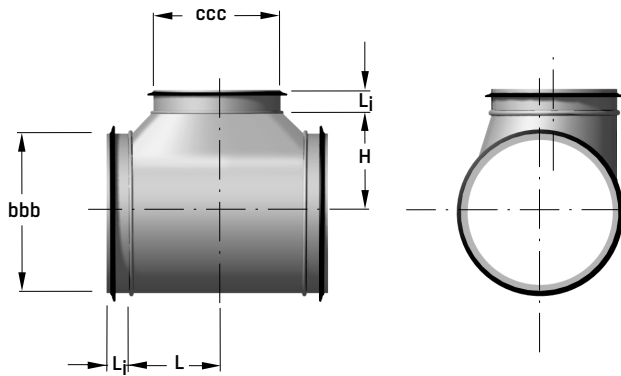


### STANDARD SIZES

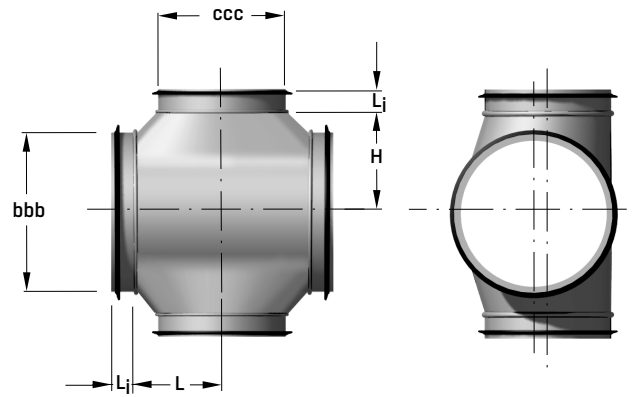
| BDE(T,X)-2-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDET (kg) | Weight BDEX (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -040-010           | 230    | 85     | 60/35   | 2.7              | 2.8              |
| -012               | 235    | 105    | 60/35   | 3.0              | 3.2              |
| -016               | 240    | 125    | 60/35   | 3.1              | 3.6              |
| -020               | 245    | 150    | 60/35   | 3.6              | 3.9              |
| -025               | 255    | 185    | 60/35   | 4.1              | 4.6              |
| -031               | 265    | 225    | 60/35   | 5.0              | 5.5              |
| -050-010           | 280    | 85     | 60/35   | 3.6              | 3.6              |
| -012               | 285    | 105    | 60/35   | 3.8              | 4.0              |
| -016               | 290    | 125    | 60/35   | 4.1              | 4.4              |
| -020               | 295    | 150    | 60/35   | 4.5              | 4.7              |
| -025               | 305    | 185    | 60/35   | 5.4              | 5.7              |
| -031               | 315    | 225    | 60/35   | 6.0              | 6.4              |
| -040               | 330    | 280    | 60      | 7.5              | 8.5              |
| -063-010           | 345    | 85     | 60/35   | 4.4              | 4.7              |
| -012               | 350    | 105    | 60/35   | 4.8              | 5.0              |
| -016               | 355    | 125    | 60/35   | 5.3              | 5.6              |
| -020               | 360    | 150    | 60/35   | 5.7              | 6.0              |
| -025               | 370    | 185    | 60/35   | 6.8              | 7.1              |
| -031               | 380    | 225    | 60/35   | 7.6              | 8.0              |
| -040               | 395    | 280    | 60      | 9.2              | 10               |
| -050               | 410    | 345    | 60      | 11               | 12               |
| -080-040           | 480    | 285    | 95/60   | 13               | 14               |
| -050               | 495    | 350    | 95/60   | 16               | 17               |
| -063               | 515    | 435    | 95/60   | 18               | 20               |
| -100-050           | 595    | 350    | 95/60   | 17               | 23               |
| -063               | 615    | 435    | 95/60   | 26               | 26               |
| -080               | 645    | 545    | 95      | 32               | 35               |
| -125-063           | 740    | 435    | 95/60   | 32               | 30               |
| -080               | 770    | 545    | 95      | 36               | 34               |
| -100               | 800    | 675    | 95      | 46               | 49               |

## T-PIECE AND CROSS

### BDET-2 - T-PIECE, FABRICATED BRANCHES, ECCENTRIC



### BDEX-2 - CROSS, FABRICATED BRANCHES, ECCENTRIC



### OTHER SIZES

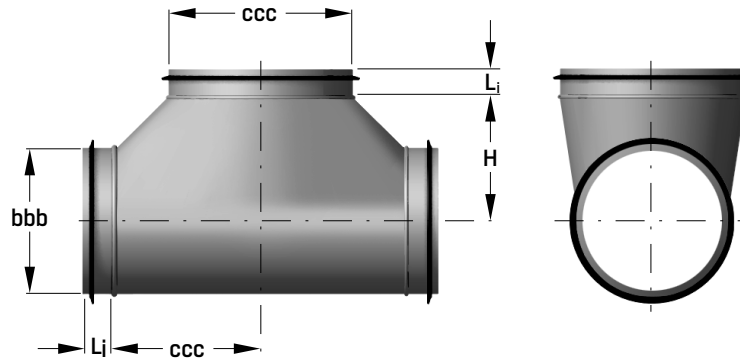
| BDE(T,X)-2-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDET (kg) | Weight BDEX (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -040-014           | 240    | 110    | 60/35   | 3.1              | 3.5              |
| -015               | 240    | 120    | 60/35   | 3.1              | 3.5              |
| -018               | 245    | 140    | 60/35   | 3.5              | 3.8              |
| -022               | 250    | 165    | 60/35   | 3.8              | 4.2              |
| -028               | 260    | 205    | 60/35   | 4.3              | 4.6              |
| -030               | 260    | 215    | 60/35   | 5.0              | 5.5              |
| -035               | 275    | 250    | 60      | 5.4              | 6.0              |
| -045-010           | 255    | 85     | 60/35   | 3.5              | 3.7              |
| -012               | 260    | 105    | 60/35   | 4.2              | 4.8              |
| -014               | 260    | 110    | 60/35   | 4.0              | 4.4              |
| -015               | 265    | 120    | 60/35   | 4.0              | 4.4              |
| -016               | 265    | 125    | 60/35   | 4.1              | 4.5              |
| -018               | 270    | 140    | 60/35   | 4.2              | 4.5              |
| -020               | 270    | 150    | 60/35   | 4.2              | 4.6              |
| -022               | 275    | 165    | 60/35   | 4.3              | 4.6              |
| -025               | 280    | 185    | 60/35   | 4.5              | 4.7              |
| -028               | 285    | 205    | 60/35   | 4.6              | 4.8              |
| -030               | 285    | 215    | 60/35   | 5.0              | 5.4              |
| -031               | 290    | 225    | 60/35   | 5.0              | 5.4              |
| -035               | 300    | 250    | 60      | 5.4              | 5.6              |
| -040               | 305    | 280    | 60      | 6.6              | 6.8              |
| -050-014           | 285    | 110    | 60/35   | 4.1              | 4.3              |
| -015               | 290    | 120    | 60/35   | 4.1              | 4.3              |
| -018               | 295    | 140    | 60/35   | 4.3              | 4.6              |
| -022               | 300    | 165    | 60/35   | 4.9              | 5.3              |
| -028               | 310    | 205    | 60/35   | 5.6              | 6.2              |
| -030               | 310    | 215    | 60/35   | 6.0              | 6.4              |
| -035               | 325    | 250    | 60      | 7.1              | 7.5              |
| -045               | 340    | 315    | 60      | 8.5              | 9.0              |

### OTHER SIZES

| BDE(T,X)-2-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDET (kg) | Weight BDEX (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -056-010           | 310    | 85     | 60/35   | 4.0              | 4.2              |
| -012               | 315    | 105    | 60/35   | 4.4              | 4.7              |
| -014               | 315    | 110    | 60/35   | 4.7              | 5.1              |
| -015               | 320    | 120    | 60/35   | 4.8              | 5.2              |
| -016               | 320    | 125    | 60/35   | 4.8              | 5.3              |
| -018               | 325    | 140    | 60/35   | 4.9              | 5.3              |
| -020               | 325    | 150    | 60/35   | 5.0              | 5.3              |
| -022               | 330    | 165    | 60/35   | 5.0              | 5.4              |
| -025               | 335    | 185    | 60/35   | 5.3              | 5.6              |
| -028               | 340    | 205    | 60/35   | 5.5              | 5.7              |
| -030               | 340    | 215    | 60/35   | 6.5              | 6.7              |
| -031               | 345    | 225    | 60/35   | 7.0              | 7.2              |
| -035               | 355    | 250    | 60      | 7.1              | 7.3              |
| -040               | 360    | 280    | 60      | 8.4              | 8.6              |
| -045               | 370    | 315    | 60      | 8.6              | 8.9              |
| -050               | 375    | 345    | 60      | 8.8              | 9.3              |
| -063-014           | 350    | 110    | 60/35   | 5.3              | 5.5              |
| -015               | 355    | 120    | 60/35   | 5.3              | 5.6              |
| -018               | 360    | 140    | 60/35   | 5.5              | 5.8              |
| -022               | 365    | 165    | 60/35   | 6.2              | 6.5              |
| -028               | 375    | 205    | 60/35   | 7.3              | 7.5              |
| -030               | 375    | 215    | 60/35   | 7.6              | 8.0              |
| -035               | 390    | 250    | 60      | 8.5              | 9.0              |
| -045               | 405    | 315    | 60      | 10               | 11               |
| -056               | 420    | 385    | 60      | 12               | 13               |

## REVERSED T-PIECE

### BDET-1 - REVERSED T-PIECE, FABRICATED, CONCENTRIC



#### STANDARD SIZES

| BDET-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -008-010       | 70     | 80     | 35      | 0.4         |
| -012           | 75     | 100    | 35      | 0.5         |
| -010-012       | 85     | 100    | 35      | 0.6         |
| -016           | 90     | 120    | 35      | 0.6         |
| -012-016       | 105    | 120    | 35      | 0.7         |
| -020           | 110    | 145    | 35      | 0.9         |
| -016-020       | 125    | 145    | 35      | 1.1         |
| -025           | 135    | 180    | 35      | 1.3         |
| -020-025       | 155    | 180    | 35      | 1.7         |
| -031           | 165    | 220    | 35      | 2.2         |
| -025-031       | 190    | 220    | 35      | 2.8         |
| -040           | 205    | 275    | 35/60   | 3.9         |
| -031-040       | 240    | 275    | 35/60   | 4.6         |
| -050           | 255    | 340    | 35/60   | 5.5         |
| -040-050       | 295    | 345    | 60      | 6.5         |
| -063           | 315    | 430    | 60      | 8.2         |
| -050-063       | 365    | 430    | 60      | 9.7         |

#### OTHER SIZES

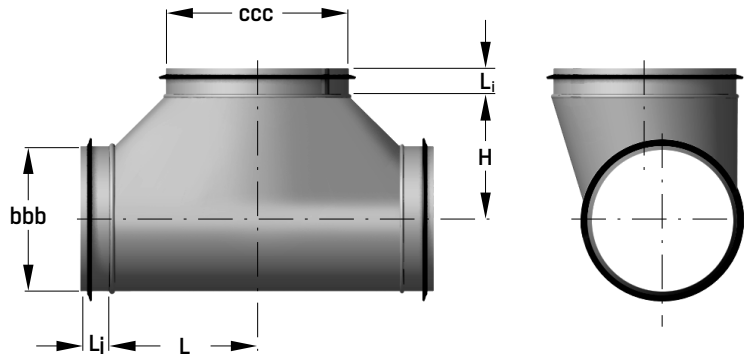
| BDET-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -016-018       | 125    | 135    | 35      | 0.9         |
| -022           | 130    | 160    | 35      | 1.1         |
| -018-020       | 135    | 145    | 35      | 1.4         |
| -022           | 140    | 160    | 35      | 1.4         |
| -025           | 145    | 180    | 35      | 1.6         |
| -028           | 150    | 200    | 35      | 1.7         |
| -020-022       | 150    | 160    | 35      | 1.0         |
| -028           | 160    | 200    | 35      | 2.0         |
| -030           | 160    | 210    | 35      | 2.1         |
| -022-025       | 165    | 180    | 35      | 1.8         |
| -028           | 170    | 200    | 35      | 1.9         |
| -030           | 175    | 210    | 35      | 2.4         |
| -031           | 175    | 220    | 35      | 2.4         |
| -035           | 185    | 245    | 35/60   | 3.3         |
| -025-028       | 185    | 200    | 35      | 2.4         |
| -030           | 185    | 210    | 35      | 2.6         |
| -035           | 200    | 245    | 35/60   | 3.6         |
| -028-030       | 200    | 210    | 35      | 2.9         |
| -031           | 205    | 220    | 35      | 3.2         |
| -035           | 215    | 245    | 35/60   | 3.9         |
| -040           | 220    | 275    | 35/60   | 4.2         |
| -045           | 230    | 310    | 35/60   | 4.6         |
| -030-031       | 215    | 220    | 35      | 4.0         |
| -035           | 225    | 245    | 35/60   | 4.2         |
| -040           | 230    | 275    | 35/60   | 4.5         |
| -045           | 240    | 310    | 35/60   | 5.0         |
| -050           | 245    | 340    | 35/60   | 5.4         |
| -031-035       | 230    | 245    | 35/60   | 4.3         |
| -045           | 245    | 310    | 35/60   | 5.1         |
| -035-040       | 260    | 280    | 60      | 5.0         |
| -045           | 265    | 315    | 60      | 6.1         |
| -050           | 275    | 345    | 60      | 6.5         |
| -056           | 285    | 385    | 60      | 7.6         |
| -040-045       | 290    | 315    | 60      | 6.5         |
| -056           | 305    | 385    | 60      | 6.6         |
| -045-050       | 320    | 345    | 60      | 7.8         |
| -056           | 330    | 385    | 60      | 8.4         |
| -063           | 340    | 430    | 60      | 9.0         |
| -050-056       | 355    | 385    | 60      | 9.2         |
| -056-063       | 395    | 430    | 60      | 9.9         |

#### OTHER SIZES

| BDET-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -008-014       | 75     | 105    | 35      | 0.5         |
| -010-014       | 85     | 105    | 35      | 0.6         |
| -015           | 90     | 115    | 35      | 0.6         |
| -018           | 95     | 135    | 35      | 0.6         |
| -012-014       | 100    | 105    | 35      | 0.6         |
| -015           | 100    | 115    | 35      | 0.6         |
| -018           | 105    | 135    | 35      | 0.8         |
| -014-015       | 110    | 115    | 35      | 0.8         |
| -016           | 110    | 120    | 35      | 0.8         |
| -018           | 115    | 135    | 35      | 0.8         |
| -020           | 115    | 145    | 35      | 1.0         |
| -022           | 120    | 160    | 35      | 1.1         |
| -015-016       | 115    | 120    | 35      | 0.8         |
| -018           | 120    | 135    | 35      | 0.8         |
| -020           | 120    | 145    | 35      | 1.0         |
| -022           | 125    | 160    | 35      | 1.1         |

## REVERSED T-PIECE

### BDET-2 - REVERSED T-PIECE, FABRICATED, ECCENTRIC



#### STANDARD SIZES

| BDET-2-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -008-010       | 70     | 80     | 35      | 0.4         |
| -012           | 75     | 100    | 35      | 0.5         |
| -010-012       | 85     | 100    | 35      | 0.6         |
| -016           | 90     | 120    | 35      | 0.6         |
| -012-016       | 105    | 120    | 35      | 0.7         |
| -020           | 110    | 145    | 35      | 0.9         |
| -016-020       | 125    | 145    | 35      | 1.1         |
| -025           | 135    | 180    | 35      | 1.3         |
| -020-025       | 155    | 180    | 35      | 1.7         |
| -031           | 165    | 220    | 35      | 2.2         |
| -025-031       | 190    | 220    | 35      | 2.8         |
| -040           | 205    | 275    | 35/60   | 3.9         |
| -031-040       | 240    | 275    | 35/60   | 4.6         |
| -050           | 255    | 340    | 35/60   | 5.5         |
| -040-050       | 295    | 345    | 60      | 6.5         |
| -063           | 315    | 430    | 60      | 8.2         |
| -050-063       | 365    | 430    | 60      | 9.7         |

#### OTHER SIZES

| BDET-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -016-018       | 125    | 135    | 35      | 0.9         |
| -022           | 130    | 160    | 35      | 1.1         |
| -018-020       | 135    | 145    | 35      | 1.4         |
| -022           | 140    | 160    | 35      | 1.4         |
| -025           | 145    | 180    | 35      | 1.6         |
| -028           | 150    | 200    | 35      | 1.7         |
| -020-022       | 150    | 160    | 35      | 1.0         |
| -028           | 160    | 200    | 35      | 2.0         |
| -030           | 160    | 210    | 35      | 2.1         |
| -022-025       | 165    | 180    | 35      | 1.8         |
| -028           | 170    | 200    | 35      | 1.9         |
| -030           | 175    | 210    | 35      | 2.4         |
| -031           | 175    | 220    | 35      | 2.4         |
| -035           | 185    | 245    | 35/60   | 3.3         |
| -025-028       | 185    | 200    | 35      | 2.4         |
| -030           | 185    | 210    | 35      | 2.6         |
| -035           | 200    | 245    | 35/60   | 3.6         |
| -028-030       | 200    | 210    | 35      | 2.9         |
| -031           | 205    | 220    | 35      | 3.2         |
| -035           | 215    | 245    | 35/60   | 3.9         |
| -040           | 220    | 275    | 35/60   | 4.2         |
| -045           | 230    | 310    | 35/60   | 4.6         |
| -030-031       | 215    | 220    | 35      | 4.0         |
| -035           | 225    | 245    | 35/60   | 4.2         |
| -040           | 230    | 275    | 35/60   | 4.5         |
| -045           | 240    | 310    | 35/60   | 5.0         |
| -050           | 245    | 340    | 35/60   | 5.4         |
| -031-035       | 230    | 245    | 35/60   | 4.3         |
| -045           | 245    | 310    | 35/60   | 5.1         |
| -035-040       | 260    | 280    | 60      | 5.0         |
| -045           | 265    | 315    | 60      | 6.1         |
| -050           | 275    | 345    | 60      | 6.5         |
| -056           | 285    | 385    | 60      | 7.6         |
| -040-045       | 290    | 315    | 60      | 6.5         |
| -056           | 305    | 385    | 60      | 6.6         |
| -045-050       | 320    | 345    | 60      | 7.8         |
| -056           | 330    | 385    | 60      | 8.4         |
| -063           | 340    | 430    | 60      | 9.0         |
| -050-056       | 355    | 385    | 60      | 9.2         |
| -056-063       | 395    | 430    | 60      | 9.9         |

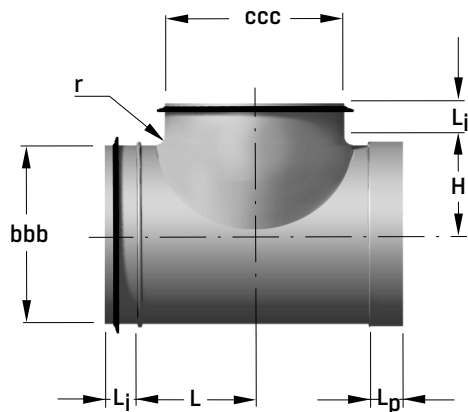
#### OTHER SIZES

| BDET-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -008-014       | 75     | 105    | 35      | 0.5         |
| -010-014       | 85     | 105    | 35      | 0.6         |
| -015           | 90     | 115    | 35      | 0.6         |
| -018           | 95     | 135    | 35      | 0.6         |
| -012-014       | 100    | 105    | 35      | 0.6         |
| -015           | 100    | 115    | 35      | 0.6         |
| -018           | 105    | 135    | 35      | 0.8         |
| -014-015       | 110    | 115    | 35      | 0.8         |
| -016           | 110    | 120    | 35      | 0.8         |
| -018           | 115    | 135    | 35      | 0.8         |
| -020           | 115    | 145    | 35      | 1.0         |
| -022           | 120    | 160    | 35      | 1.1         |
| -015-016       | 115    | 120    | 35      | 0.8         |
| -018           | 120    | 135    | 35      | 0.8         |
| -020           | 120    | 145    | 35      | 1.0         |
| -022           | 125    | 160    | 35      | 1.1         |

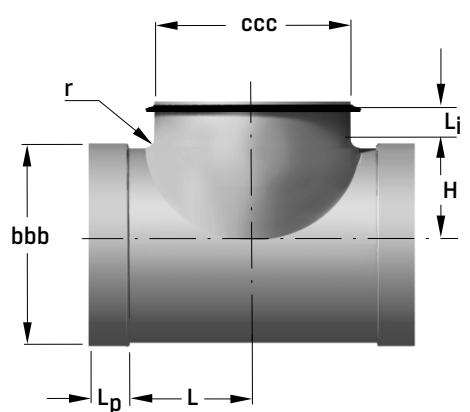


## T-PIECE

### BDET-3 - T-PIECE, SHORT, INSERTION - FIT-ON



### BDET-4 - T-PIECE, SHORT, FIT-ON - FIT-ON



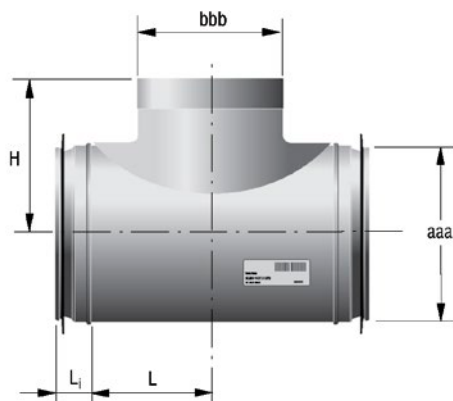
#### STANDARD SIZES

| BDET-3-bbb-ccc | H (mm) | L (mm) | Li/Lp (mm) | r (mm) | Weight (kg) |
|----------------|--------|--------|------------|--------|-------------|
| -010-010       | 60     | 65     | 35/35      | 10     | 0.40        |
| -012-012       | 75     | 85     | 35/35      | 12     | 0.57        |
| -016-016       | 96     | 105    | 35/35      | 16     | 0.82        |
| -020-020       | 125    | 135    | 35/35      | 25     | 1.20        |

#### STANDARD SIZES

| BDET-4-bbb-ccc | H (mm) | L (mm) | Li/Lp (mm) | r (mm) | Weight (kg) |
|----------------|--------|--------|------------|--------|-------------|
| -010-010       | 60     | 65     | 35/35      | 10     | 0.40        |
| -012-012       | 75     | 85     | 35/35      | 12     | 0.57        |
| -016-016       | 96     | 105    | 35/35      | 16     | 0.82        |
| -020-020       | 125    | 135    | 35/35      | 25     | 1.20        |

### VELOFLEX FLET - T-PIECE, INSERTION - FIT-ON

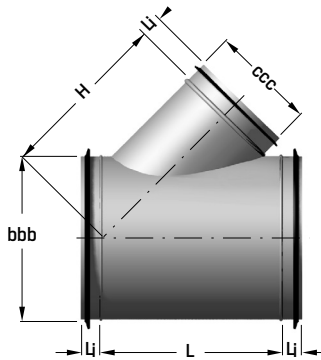


#### STANDARD SIZES

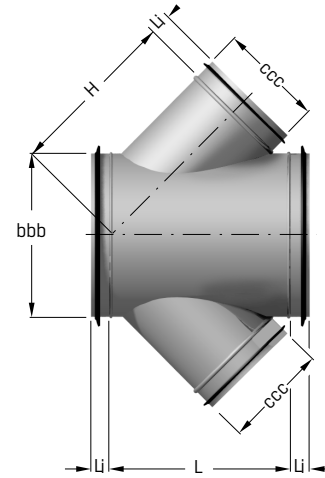
| FLET-aaa-bbb | H (mm) | L (mm) | Li (mm) | Weight (kg) |
|--------------|--------|--------|---------|-------------|
| -010-010     | 108    | 90     | 35      | 0.50        |
| -012-010     | 121    | 85     | 35      | 0.57        |
| -012-012     | 121    | 100    | 35      | 0.32        |
| -016-010     | 138    | 90     | 35      | 0.67        |
| -016-012     | 138    | 100    | 35      | 0.80        |
| -016-016     | 138    | 125    | 35      | 1.05        |

## T-PIECE AND CROSS

### BDEV-1 - T-PIECE, 45°



### BXEV-1 - CROSS, 45°, CONCENTRIC



### STANDARD SIZES

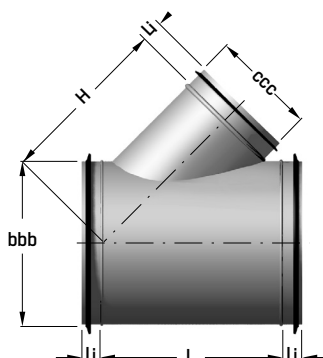
| B(D,X)EV-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDEV (kg) | Weight BXEV (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -008-008           | 124    | 250    | 35      | 0.41             | 0.46             |
| -010-008           | 138    | 250    | 35      | 0.51             | 0.56             |
| -010               | 148    | 280    | 35      | 0.56             | 0.65             |
| -012-008           | 155    | 250    | 35      | 0.63             | 0.68             |
| -010               | 165    | 280    | 35      | 0.69             | 0.78             |
| -012               | 178    | 315    | 35      | 0.80             | 0.91             |
| -016-008           | 180    | 280    | 35      | 0.80             | 0.89             |
| -010               | 190    | 305    | 35      | 0.94             | 1.0              |
| -012               | 203    | 340    | 35      | 1.1              | 1.2              |
| -016               | 220    | 390    | 35      | 1.2              | 1.4              |
| -020-008           | 208    | 280    | 35      | 1.0              | 1.1              |
| -010               | 218    | 305    | 35      | 1.1              | 1.2              |
| -012               | 231    | 340    | 35      | 1.2              | 1.3              |
| -016               | 248    | 390    | 35      | 1.5              | 1.6              |
| -020               | 268    | 450    | 35      | 1.8              | 2.0              |
| -025-010           | 254    | 305    | 35      | 1.4              | 1.5              |
| -012               | 266    | 340    | 35      | 1.6              | 1.7              |
| -016               | 284    | 390    | 35      | 1.8              | 2.0              |
| -020               | 304    | 450    | 35      | 2.1              | 2.3              |
| -025               | 329    | 520    | 35      | 2.7              | 2.9              |
| -031-010           | 300    | 335    | 35      | 1.9              | 2.0              |
| -012               | 312    | 370    | 35      | 2.1              | 2.3              |
| -016               | 330    | 420    | 35      | 2.4              | 2.6              |
| -020               | 350    | 475    | 35      | 2.8              | 3.0              |
| -025               | 375    | 545    | 35      | 3.3              | 3.6              |
| -031               | 407    | 640    | 35      | 4.0              | 4.3              |

### STANDARD SIZES

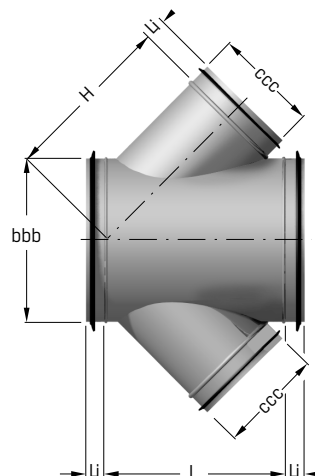
| B(D,X)EV-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDEV (kg) | Weight BXEV (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -040-010           | 335    | 400    | 60/35   | 3.4              | 3.5              |
| -012               | 370    | 415    | 60/35   | 3.6              | 3.7              |
| -016               | 420    | 445    | 60/35   | 4.0              | 4.2              |
| -020               | 475    | 465    | 60/35   | 4.4              | 4.6              |
| -025               | 545    | 490    | 60/35   | 5.0              | 5.3              |
| -031               | 640    | 535    | 60/35   | 5.6              | 5.9              |
| -040               | 760    | 580    | 60      | 6.8              | 7.6              |
| -050-010           | 355    | 570    | 60/35   | 4.4              | 4.5              |
| -012               | 370    | 585    | 60/35   | 4.5              | 4.7              |
| -016               | 420    | 515    | 60/35   | 5.0              | 5.2              |
| -020               | 475    | 535    | 60/35   | 5.5              | 5.7              |
| -025               | 545    | 560    | 60/35   | 6.0              | 6.4              |
| -031               | 640    | 610    | 60/35   | 7.1              | 7.4              |
| -040               | 760    | 650    | 60      | 8.3              | 9.0              |
| -050               | 900    | 700    | 60      | 10               | 11               |
| -063-016           | 420    | 605    | 60/35   | 6.3              | 6.5              |
| -020               | 530    | 630    | 60/35   | 7.4              | 7.6              |
| -025               | 600    | 655    | 60/35   | 8.2              | 8.5              |
| -031               | 690    | 700    | 60/35   | 9.3              | 9.6              |
| -040               | 810    | 740    | 60      | 11               | 12               |
| -050               | 950    | 790    | 60      | 13               | 14               |
| -063               | 1140   | 855    | 60      | 15               | 17               |

### T-PIECE AND CROSS

#### BDEV-1 - T-PIECE, 45°



#### BXEV-1 - CROSS, 45°, CONCENTRIC



#### OTHER SIZES

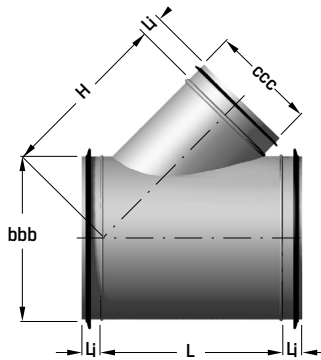
| B(D,X)EV-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDEV (kg) | Weight BXEV (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -014-008           | 280    | 210    | 35      | 0.77             | 0.86             |
| -010               | 305    | 220    | 35      | 0.83             | 0.9              |
| -012               | 340    | 230    | 35      | 0.94             | 1.0              |
| -014               | 365    | 250    | 35      | 1.1              | 1.2              |
| -015-008           | 280    | 215    | 35      | 0.82             | 0.87             |
| -010               | 305    | 225    | 35      | 0.89             | 0.98             |
| -012               | 340    | 240    | 35      | 1.0              | 1.1              |
| -015               | 380    | 265    | 35      | 1.1              | 1.3              |
| -016-014           | 365    | 265    | 35      | 1.1              | 1.3              |
| -018-008           | 280    | 235    | 35      | 0.98             | 1.0              |
| -010               | 305    | 245    | 35      | 1.1              | 1.2              |
| -012               | 340    | 260    | 35      | 1.2              | 1.3              |
| -014               | 365    | 280    | 35      | 1.3              | 1.4              |
| -015               | 380    | 285    | 35      | 1.3              | 1.4              |
| -016               | 390    | 290    | 35      | 1.4              | 1.5              |
| -018               | 420    | 300    | 35      | 1.5              | 1.7              |
| -020-014           | 365    | 295    | 35      | 1.4              | 1.5              |
| -015               | 380    | 300    | 35      | 1.4              | 1.5              |
| -018               | 420    | 315    | 35      | 1.6              | 1.8              |
| -022-010           | 305    | 275    | 35      | 1.1              | 1.1              |
| -012               | 340    | 290    | 35      | 1.4              | 1.5              |
| -014               | 365    | 310    | 35      | 1.5              | 1.6              |
| -015               | 380    | 315    | 35      | 1.6              | 1.7              |
| -016               | 390    | 320    | 35      | 1.6              | 1.8              |
| -018               | 420    | 330    | 35      | 1.8              | 1.9              |
| -020               | 450    | 340    | 35      | 1.9              | 2.1              |
| -022               | 480    | 350    | 35      | 2.1              | 2.3              |
| -025-014           | 365    | 330    | 35      | 1.7              | 1.8              |
| -015               | 380    | 335    | 35      | 1.8              | 1.9              |
| -018               | 420    | 350    | 35      | 2.0              | 2.2              |
| -022               | 480    | 370    | 35      | 2.3              | 2.5              |

#### OTHER SIZES

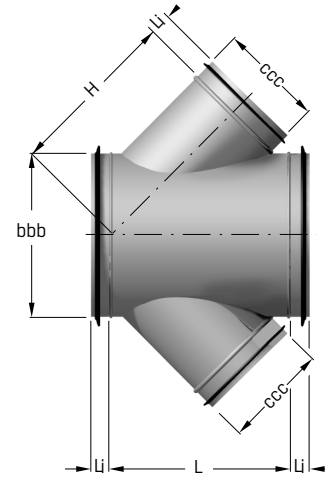
| B(D,X)EV-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDEV (kg) | Weight BXEV (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -028-010           | 335    | 315    | 35      | 1.7              | 1.8              |
| -012               | 370    | 330    | 35      | 1.9              | 2.0              |
| -014               | 390    | 350    | 35      | 2.0              | 2.2              |
| -015               | 405    | 355    | 35      | 2.1              | 2.3              |
| -016               | 420    | 360    | 35      | 2.2              | 2.4              |
| -018               | 445    | 370    | 35      | 2.3              | 2.4              |
| -020               | 475    | 380    | 35      | 2.5              | 2.7              |
| -022               | 510    | 390    | 35      | 2.7              | 2.9              |
| -025               | 545    | 405    | 35      | 3.0              | 3.2              |
| -028               | 590    | 435    | 35      | 3.2              | 3.5              |
| -030-010           | 335    | 340    | 35      | 1.9              | 2.0              |
| -012               | 370    | 350    | 35      | 2.1              | 2.3              |
| -014               | 390    | 365    | 35      | 2.2              | 2.4              |
| -015               | 405    | 370    | 35      | 2.3              | 2.5              |
| -016               | 420    | 375    | 35      | 2.4              | 2.6              |
| -018               | 445    | 385    | 35      | 2.5              | 2.7              |
| -020               | 475    | 395    | 35      | 2.7              | 2.9              |
| -022               | 510    | 405    | 35      | 2.9              | 3.1              |
| -025               | 545    | 420    | 35      | 3.2              | 3.5              |
| -028               | 590    | 450    | 35      | 3.5              | 3.8              |
| -030               | 615    | 460    | 35      | 3.9              | 4.2              |
| -031-014           | 390    | 375    | 35      | 2.2              | 2.4              |
| -015               | 405    | 380    | 35      | 2.3              | 2.5              |
| -018               | 445    | 395    | 35      | 2.6              | 2.8              |
| -022               | 510    | 415    | 35      | 3.0              | 3.2              |
| -028               | 590    | 460    | 35      | 3.6              | 3.9              |
| -030               | 615    | 470    | 35      | 3.7              | 4.0              |
| -035-010           | 335    | 370    | 60/35   | 2.1              | 2.2              |
| -012               | 370    | 380    | 60/35   | 2.3              | 2.4              |
| -014               | 390    | 405    | 60/35   | 2.5              | 2.7              |
| -015               | 405    | 410    | 60/35   | 2.6              | 2.7              |
| -016               | 420    | 415    | 60/35   | 2.7              | 2.9              |
| -018               | 445    | 425    | 60/35   | 2.8              | 3.0              |
| -020               | 475    | 435    | 60/35   | 3.0              | 3.2              |
| -022               | 510    | 445    | 60/35   | 3.4              | 3.6              |
| -025               | 545    | 460    | 60/35   | 3.6              | 3.9              |
| -028               | 590    | 490    | 60/35   | 3.9              | 4.2              |
| -030               | 615    | 500    | 60/35   | 4.3              | 4.7              |
| -031               | 640    | 505    | 60/35   | 4.4              | 4.8              |
| -035               | 695    | 525    | 60      | 4.7              | 5.3              |

## T-PIECE AND CROSS

### BDEV-1 - T-PIECE, 45°



### BXEV-1 - CROSS, 45°, CONCENTRIC



#### OTHER SIZES

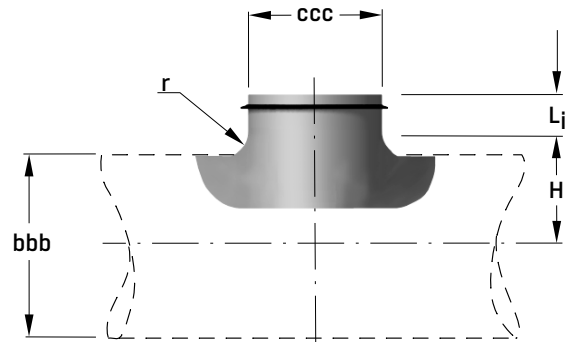
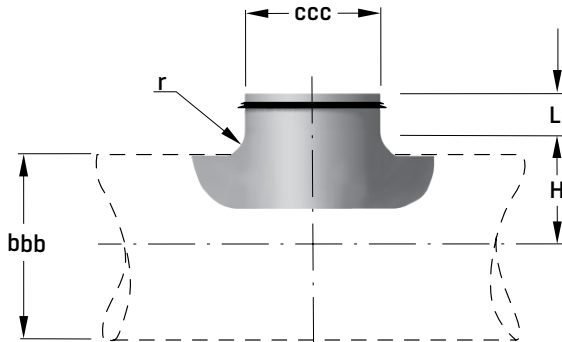
| B(D,X)EV-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDEV (kg) | Weight BXEV (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -040-014           | 390    | 435    | 60/35   | 3.8              | 3.9              |
| -015               | 405    | 440    | 60/35   | 3.9              | 4.0              |
| -018               | 445    | 455    | 60/35   | 4.2              | 4.4              |
| -022               | 510    | 475    | 60/35   | 4.7              | 4.9              |
| -028               | 590    | 520    | 60/35   | 5.3              | 5.6              |
| -030               | 615    | 530    | 60/35   | 5.5              | 5.8              |
| -035               | 695    | 555    | 60      | 6.2              | 6.8              |
| -045-010           | 335    | 435    | 60/35   | 3.9              | 4.0              |
| -012               | 370    | 450    | 60/35   | 4.2              | 4.3              |
| -014               | 390    | 470    | 60/35   | 4.4              | 4.5              |
| -015               | 405    | 475    | 60/35   | 4.5              | 4.6              |
| -016               | 420    | 480    | 60/35   | 4.6              | 4.8              |
| -018               | 445    | 490    | 60/35   | 4.8              | 5.0              |
| -020               | 475    | 500    | 60/35   | 5.0              | 5.2              |
| -022               | 510    | 510    | 60/35   | 5.4              | 5.6              |
| -025               | 545    | 525    | 60/35   | 5.7              | 5.9              |
| -028               | 590    | 555    | 60/35   | 6.0              | 6.4              |
| -030               | 615    | 565    | 60/35   | 6.3              | 6.7              |
| -031               | 640    | 570    | 60/35   | 6.5              | 6.9              |
| -035               | 695    | 590    | 60      | 7.0              | 7.6              |
| -040               | 760    | 615    | 60      | 7.7              | 8.4              |
| -045               | 830    | 640    | 60      | 8.5              | 9.3              |
| -050-014           | 390    | 505    | 60/35   | 4.7              | 4.9              |
| -015               | 405    | 510    | 60/35   | 4.9              | 5.1              |
| -018               | 445    | 525    | 60/35   | 5.2              | 5.4              |
| -022               | 510    | 550    | 60/35   | 5.8              | 6.0              |
| -028               | 590    | 590    | 60/35   | 6.6              | 6.9              |
| -030               | 615    | 600    | 60/35   | 6.8              | 7.2              |
| -035               | 695    | 630    | 60      | 7.6              | 8.2              |
| -045               | 830    | 675    | 60      | 9.2              | 9.9              |

#### OTHER SIZES

| B(D,X)EV-1-bbb-ccc | H (mm) | L (mm) | Li (mm) | Weight BDEV (kg) | Weight BXEV (kg) |
|--------------------|--------|--------|---------|------------------|------------------|
| -056-015           | 405    | 550    | 60/35   | 5.4              | 5.6              |
| -016               | 420    | 555    | 60/35   | 5.6              | 5.7              |
| -018               | 445    | 565    | 60/35   | 5.8              | 6.0              |
| -020               | 530    | 580    | 60/35   | 6.4              | 6.8              |
| -022               | 565    | 590    | 60/35   | 6.9              | 7.1              |
| -025               | 600    | 605    | 60/35   | 7.3              | 7.6              |
| -028               | 640    | 630    | 60/35   | 7.7              | 8.0              |
| -030               | 665    | 640    | 60/35   | 7.5              | 7.8              |
| -031               | 690    | 650    | 60/35   | 8.3              | 8.6              |
| -035               | 750    | 670    | 60      | 8.9              | 9.5              |
| -040               | 810    | 690    | 60      | 9.6              | 10               |
| -045               | 880    | 715    | 60      | 11               | 11               |
| -050               | 950    | 740    | 60      | 12               | 12               |
| -056               | 1040   | 800    | 60      | 13               | 14               |
| -063-015           | 405    | 600    | 60/35   | 6.1              | 6.3              |
| -018               | 445    | 615    | 60/35   | 6.6              | 6.8              |
| -022               | 565    | 640    | 60/35   | 7.9              | 8.1              |
| -028               | 640    | 680    | 60/35   | 8.7              | 9.0              |
| -030               | 665    | 665    | 60/35   | 9.0              | 9.3              |
| -035               | 750    | 720    | 60      | 10               | 11               |
| -045               | 880    | 765    | 60      | 12               | 13               |
| -056               | 1040   | 850    | 60      | 14               | 15               |

## BRANCH

### BDEA-1 - BRANCH, PRESSED, CONCENTRIC



#### STANDARD SIZES

| BDEA-1-bbb-ccc | H (mm) | r (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -008-008       | 50     | 10     | 35      | 0.10        |
| -010-008       | 60     | 10     | 35      | 0.10        |
| -010           | 65     | 12     | 35      | 0.14        |
| -012-008       | 70     | 10     | 35      | 0.10        |
| -010           | 78     | 12     | 35      | 0.13        |
| -012           | 78     | 12     | 35      | 0.21        |
| -016-008       | 90     | 10     | 35      | 0.09        |
| -010           | 95     | 12     | 35      | 0.12        |
| -012           | 95     | 12     | 35      | 0.19        |
| -016           | 105    | 16     | 35      | 0.34        |
| -020-008       | 110    | 10     | 35      | 0.09        |
| -010           | 115    | 12     | 35      | 0.12        |
| -012           | 115    | 12     | 35      | 0.17        |
| -016           | 125    | 16     | 35      | 0.29        |
| -020           | 130    | 20     | 35      | 0.46        |
| -025-008       | 135    | 10     | 35      | 0.09        |
| -010           | 140    | 12     | 35      | 0.12        |
| -012           | 140    | 12     | 35      | 0.17        |
| -016           | 150    | 16     | 35      | 0.29        |
| -020           | 155    | 20     | 35      | 0.41        |
| -025           | 155    | 20     | 35      | 0.63        |
| -031-008       | 167    | 10     | 35      | 0.09        |
| -010           | 173    | 12     | 35      | 0.12        |
| -012           | 173    | 12     | 35      | 0.17        |
| -016           | 183    | 16     | 35      | 0.27        |
| -020           | 188    | 20     | 35      | 0.41        |
| -025           | 188    | 20     | 35      | 0.50        |
| -031           | 193    | 35     | 35      | 0.85        |
| -040-010       | 212    | 12     | 35      | 0.12        |
| -012           | 212    | 12     | 35      | 0.17        |
| -016           | 225    | 16     | 35      | 0.25        |
| -020           | 225    | 20     | 35      | 0.37        |
| -025           | 225    | 20     | 35      | 0.49        |
| -031           | 235    | 35     | 35      | 0.68        |
| -050-010       | 265    | 12     | 35      | 0.12        |
| -012           | 265    | 12     | 35      | 0.17        |
| -016           | 275    | 16     | 35      | 0.25        |
| -063-010       | 330    | 12     | 35      | 0.12        |
| -012           | 330    | 12     | 35      | 0.17        |

#### STANDARD SIZES

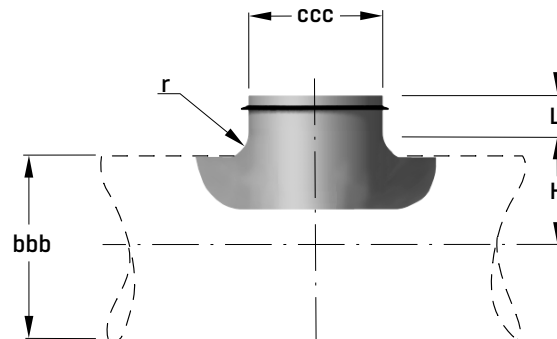
| BDEA-1-bbb-ccc | H (mm) | r (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -040-040       | 240    | 32     | 60      | 1.90        |
| -050-020       | 270    | 20     | 35      | 0.48        |
| -025           | 290    | 30     | 35      | 0.69        |
| -031           | 285    | 25     | 35      | 0.85        |
| -040           | 290    | 32     | 60      | 1.70        |
| -063-016       | 335    | 20     | 35      | 0.48        |
| -020           | 335    | 20     | 35      | 0.48        |
| -025           | 350    | 25     | 35      | 0.69        |
| -031           | 350    | 25     | 35      | 0.85        |
| -040           | 355    | 32     | 60      | 1.70        |

#### OTHER SIZES

| BDEA-1-bbb-ccc | H (mm) | r (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -014-008       | 85     | 15     | 35      | 0.19        |
| -010           | 90     | 20     | 35      | 0.19        |
| -012           | 90     | 20     | 35      | 0.24        |
| -014           | 85     | 15     | 35      | 0.33        |
| -015-008       | 90     | 15     | 35      | 0.19        |
| -010           | 95     | 20     | 35      | 0.19        |
| -012           | 95     | 20     | 35      | 0.24        |
| -014           | 90     | 15     | 35      | 0.28        |
| -015           | 100    | 25     | 35      | 0.37        |
| -016-014       | 95     | 15     | 35      | 0.30        |
| 015            | 105    | 25     | 35      | 0.37        |
| -018-008       | 105    | 15     | 35      | 0.17        |
| -010           | 110    | 20     | 35      | 0.17        |
| -012           | 110    | 20     | 35      | 0.23        |
| -014           | 105    | 15     | 35      | 0.27        |
| -015           | 115    | 25     | 35      | 0.28        |
| -016           | 120    | 30     | 35      | 0.32        |
| -018           | 110    | 20     | 35      | 0.44        |
| -020-014       | 115    | 15     | 35      | 0.26        |
| -015           | 125    | 25     | 35      | 0.29        |
| -018           | 120    | 20     | 35      | 0.44        |

## BRANCH

### BDEA-1 - BRANCH, PRESSED, CONCENTRIC



#### OTHER SIZES

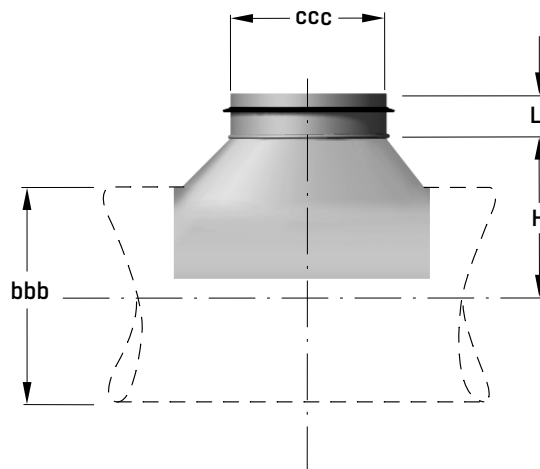
| BDEA-1-bbb-ccc | H (mm) | r (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -022-008       | 127    | 15     | 35      | 0.16        |
| -010           | 127    | 15     | 35      | 0.16        |
| -012           | 127    | 15     | 35      | 0.23        |
| -014           | 127    | 15     | 35      | 0.27        |
| -015           | 137    | 25     | 35      | 0.31        |
| -016           | 137    | 25     | 35      | 0.35        |
| -018           | 132    | 20     | 35      | 0.44        |
| -020           | 132    | 20     | 35      | 0.53        |
| -022           | 134    | 22     | 35      | 0.62        |
| -025-014       | 140    | 15     | 35      | 0.27        |
| -015           | 150    | 25     | 35      | 0.31        |
| -018           | 145    | 20     | 35      | 0.44        |
| -022           | 147    | 22     | 35      | 0.62        |
| -028-008       | 155    | 15     | 35      | 0.16        |
| -010           | 155    | 15     | 35      | 0.16        |
| -012           | 155    | 15     | 35      | 0.23        |
| -014           | 155    | 15     | 35      | 0.27        |
| -015           | 165    | 25     | 35      | 0.31        |
| -016           | 165    | 25     | 35      | 0.35        |
| -018           | 160    | 20     | 35      | 0.44        |
| -020           | 165    | 25     | 35      | 0.53        |
| -025           | 170    | 20     | 35      | 0.75        |
| -028           | 165    | 25     | 35      | 0.88        |
| -030-008       | 165    | 15     | 35      | 0.16        |
| -010           | 165    | 15     | 35      | 0.16        |
| -012           | 165    | 15     | 35      | 0.23        |
| -014           | 165    | 15     | 35      | 0.26        |
| -015           | 175    | 25     | 35      | 0.29        |
| -016           | 175    | 25     | 35      | 0.32        |
| -018           | 170    | 20     | 35      | 0.42        |
| -020           | 175    | 25     | 35      | 0.52        |
| -022           | 172    | 22     | 35      | 0.62        |
| -025           | 180    | 20     | 35      | 0.72        |
| -028           | 175    | 25     | 35      | 0.86        |
| -031-014       | 173    | 15     | 35      | 0.26        |
| -015           | 183    | 25     | 35      | 0.29        |
| -018           | 178    | 20     | 35      | 0.42        |
| -022           | 180    | 22     | 35      | 0.62        |
| -028           | 183    | 25     | 35      | 0.86        |

#### OTHER SIZES

| BDEA-1-bbb-ccc | H (mm) | r (mm) | Li (mm) | Weight (kg) |
|----------------|--------|--------|---------|-------------|
| -035-010       | 193    | 15     | 35      | 0.16        |
| -012           | 193    | 15     | 35      | 0.2         |
| -014           | 193    | 15     | 35      | 0.26        |
| -015           | 203    | 25     | 35      | 0.29        |
| -016           | 203    | 25     | 35      | 0.32        |
| -018           | 198    | 20     | 35      | 0.42        |
| -020           | 203    | 25     | 35      | 0.52        |
| -022           | 200    | 22     | 35      | 0.62        |
| -025           | 218    | 30     | 35      | 0.72        |
| -028           | 203    | 25     | 35      | 0.86        |
| -031           | 208    | 20     | 35      | 1.0         |
| -040-014       | 215    | 15     | 35      | 0.4         |
| -015           | 220    | 20     | 35      | 0.48        |
| -018           | 220    | 20     | 35      | 0.48        |
| -045-010       | 240    | 15     | 35      | 0.48        |
| -012           | 240    | 15     | 35      | 0.48        |
| -014           | 240    | 15     | 35      | 0.48        |
| -015           | 245    | 20     | 35      | 0.48        |
| -016           | 245    | 20     | 35      | 0.48        |
| -018           | 245    | 20     | 35      | 0.48        |
| -020           | 245    | 20     | 35      | 0.48        |
| -025           | 265    | 30     | 35      | 0.69        |
| -031           | 260    | 25     | 35      | 0.85        |
| -050-014       | 265    | 15     | 35      | 0.48        |
| -015           | 270    | 20     | 35      | 0.48        |
| -018           | 270    | 20     | 35      | 0.48        |
| -056-010       | 295    | 15     | 35      | 0.48        |
| -012           | 295    | 15     | 35      | 0.4         |
| -014           | 295    | 15     | 35      | 0.48        |
| -015           | 300    | 20     | 35      | 0.48        |
| -016           | 300    | 20     | 35      | 0.48        |
| -018           | 300    | 20     | 35      | 0.48        |
| -020           | 300    | 20     | 35      | 0.48        |
| -025           | 315    | 25     | 35      | 0.69        |
| -031           | 315    | 25     | 35      | 0.85        |
| -063-014       | 330    | 15     | 35      | 0.48        |
| -015           | 335    | 20     | 35      | 0.48        |
| -018           | 335    | 20     | 35      | 0.48        |

## BRANCH

### BDEA-1 - BRANCH, FABRICATED, CONCENTRIC



#### STANDARD SIZES

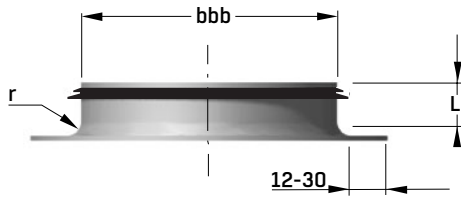
| BDEA-1-bbb-ccc | H (mm) | Li (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -050-050       | 345    | 60      | 3.9         |
| -063-050       | 410    | 60      | 3.9         |
| -063           | 430    | 60      | 5.5         |
| -080-025       | 470    | 35      | 2.2         |
| -031           | 480    | 35      | 2.4         |
| -040           | 495    | 60      | 4.2         |
| -050           | 515    | 60      | 4.8         |
| -063           | 520    | 60      | 6.1         |
| -080           | 525    | 95      | 13          |
| -100-031       | 555    | 35      | 3.9         |
| -040           | 580    | 60      | 2.6         |
| -050           | 595    | 60      | 3.4         |
| -063           | 615    | 60      | 7.0         |
| -080           | 645    | 95      | 7.6         |
| -100           | 675    | 95      | 12          |
| -125-050       | 720    | 60      | 8.1         |
| -063           | 740    | 60      | 6.3         |
| -080           | 770    | 95      | 9.3         |
| -100           | 800    | 95      | 13          |
| -125           | 840    | 95      | 19          |

#### OTHER SIZES

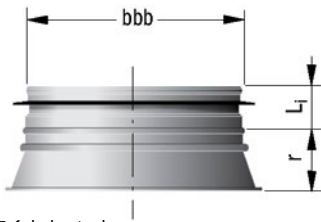
| BDEA-1-bbb-ccc | H (mm) | Li (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -030-030       | 210    | 35      | 1.3         |
| -031-030       | 220    | 35      | 1.4         |
| -035-030       | 240    | 35      | 1.6         |
| -035           | 250    | 60      | 2.2         |
| -040-022       | 250    | 35      | 1.2         |
| -028           | 260    | 35      | 1.6         |
| -030           | 260    | 35      | 1.7         |
| -035           | 275    | 60      | 2.3         |
| -045-022       | 275    | 35      | 1.2         |
| -028           | 285    | 35      | 1.6         |
| -030           | 285    | 35      | 1.7         |
| -035           | 300    | 60      | 2.4         |
| -040           | 305    | 60      | 2.7         |
| -045           | 315    | 60      | 2.8         |
| -050-022       | 300    | 35      | 1.2         |
| -028           | 310    | 35      | 1.6         |
| -030           | 310    | 35      | 1.7         |
| -035           | 325    | 60      | 2.6         |
| -045           | 340    | 60      | 3.4         |
| -056-022       | 330    | 35      | 1.2         |
| -028           | 340    | 35      | 1.6         |
| -030           | 340    | 35      | 1.8         |
| -035           | 355    | 60      | 2.7         |
| -040           | 360    | 60      | 3.0         |
| -045           | 370    | 60      | 3.6         |
| -050           | 375    | 60      | 3.9         |
| -056           | 385    | 60      | 4.1         |
| -063-022       | 365    | 35      | 1.2         |
| -028           | 375    | 35      | 1.6         |
| -030           | 375    | 35      | 1.9         |
| -035           | 390    | 60      | 2.8         |
| -045           | 405    | 60      | 3.4         |
| -056           | 420    | 60      | 4.8         |

## BRANCH

### BDEA-5 - BRANCH WITH RADIUS

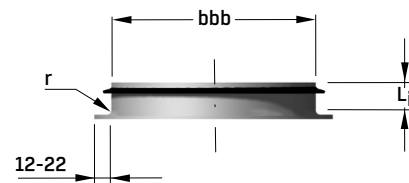


Sizes 008 - 063 pressed

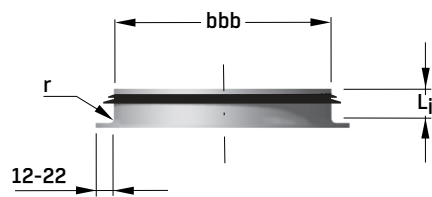


Sizes 080 - 125 fabricated

### BDEA-6 - BRANCH WITH SMALL RADIUS



Sizes 008 - 020 extruded sealing and 080 - 125 Veloduct sealing



Sizes 025 - 063 Veloduct Twin sealing

### STANDARD SIZES

| BDEA-5-bbb | r (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -008       | 10     | 35      | 0.11        |
| -010       | 15     | 35      | 0.15        |
| -012       | 20     | 35      | 0.20        |
| -016       | 25     | 35      | 0.27        |
| -020       | 25     | 35      | 0.35        |
| -025       | 25     | 35      | 0.51        |
| -031       | 25     | 35      | 0.70        |
| -040 *     | 30     | 60      | 0.88        |
| -050 *     | 30     | 60      | 1.1         |
| -063 *     | 30     | 60      | 1.4         |
| -080       | 120    | 95      | 3.8         |
| -100       | 120    | 95      | 7.2         |
| -125       | 145    | 95      | 9.2         |

\*) normal Veloduct sealing

### STANDARD SIZES

| BDEA-6-bbb | r (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -008       | 2      | 35      | 0.10        |
| -010       | 2      | 35      | 0.10        |
| -012       | 2      | 35      | 0.15        |
| -016       | 2      | 35      | 0.18        |
| -020       | 2      | 35      | 0.25        |
| -025       | 4      | 40      | 0.23        |
| -031       | 4      | 40      | 0.27        |
| -040       | 4      | 50      | 0.40        |
| -050       | 4      | 65      | 0.60        |
| -063       | 4      | 70      | 1.0         |
| -080       | 4      | 95      | 2.2         |
| -100       | 4      | 95      | 2.6         |
| -125       | 4      | 95      | 3.2         |

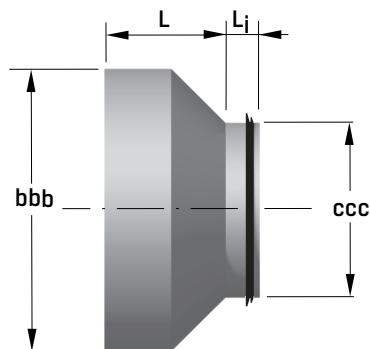
### OTHER SIZES

| BDEA-5-bbb | r (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -014       | 15     | 35      | 0.23        |
| -015       | 25     | 35      | 0.25        |
| -018       | 20     | 35      | 0.31        |
| -022       | 20     | 35      | 0.42        |
| -028       | 25     | 35      | 0.60        |

### OTHER SIZES

| BDEA-6-bbb | r (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -014       | 3      | 35      | 0.16        |
| -015       | 3      | 35      | 0.17        |
| -018       | 3      | 35      | 0.22        |
| -022       | 4      | 35      | 0.29        |
| -028       | 4      | 35      | 0.38        |
| -030       | 4      | 35      | 0.40        |
| -035       | 4      | 60      | 0.51        |
| -045       | 4      | 60      | 0.70        |
| -056       | 4      | 60      | 0.88        |



**REDUCER****BDED-1 - REDUCER, CONCENTRIC, FIT-ON - INSERTION****STANDARD SIZES**

| BDED-1-bbb-ccc | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -010-008       | 53     | 35      | 0.11        |
| -012-008       | 63     | 35      | 0.16        |
| -010           | 53     | 35      | 0.16        |
| -016-010       | 73     | 35      | 0.23        |
| -012           | 60     | 35      | 0.23        |
| -020-010       | 96     | 35      | 0.30        |
| -012           | 81     | 35      | 0.30        |
| -016           | 60     | 35      | 0.30        |
| -025-012       | 111    | 35      | 0.50        |
| -016           | 91     | 35      | 0.40        |
| -020           | 74     | 35      | 0.40        |
| -031-016       | 123    | 35      | 0.60        |
| -020           | 100    | 35      | 0.60        |
| -025           | 78     | 35      | 0.50        |
| -040-020 *     | 125    | 35      | 1.4         |
| -025 *         | 105    | 35      | 1.3         |
| -031 *         | 75     | 35      | 1.2         |
| -050-025 *     | 150    | 35      | 1.9         |
| -031 *         | 120    | 35      | 1.8         |
| -040 *         | 80     | 60      | 1.9         |
| -063-031 *     | 185    | 35      | 2.7         |
| -040 *         | 145    | 60      | 2.8         |
| -050 *         | 95     | 60      | 2.6         |

\*) normal Veloduct sealing

**OTHER SIZES**

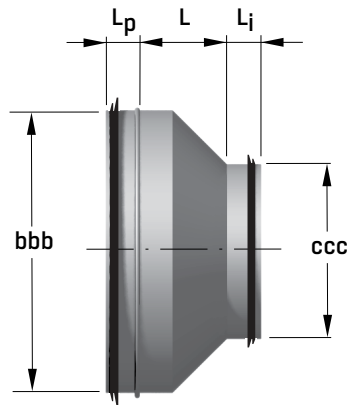
| BDED-1-bbb-ccc | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -014-008       | 55     | 35      | 0.18        |
| -010           | 35     | 35      | 0.25        |
| -012           | 25     | 35      | 0.24        |
| -015-008       | 60     | 35      | 0.19        |
| -010           | 45     | 35      | 0.30        |
| -012           | 30     | 35      | 0.28        |
| -014           | 20     | 35      | 0.25        |
| -016-014       | 25     | 35      | 0.28        |
| -015           | 20     | 35      | 0.28        |
| -018-010       | 65     | 35      | 0.29        |
| -012           | 45     | 35      | 0.29        |
| -014           | 35     | 35      | 0.28        |
| -015           | 30     | 35      | 0.28        |
| -016           | 25     | 35      | 0.27        |
| -020-014       | 55     | 35      | 0.34        |
| -015           | 45     | 35      | 0.34        |
| -018           | 25     | 35      | 0.33        |
| -022-012       | 85     | 35      | 0.54        |
| -014           | 70     | 35      | 0.35        |
| -015           | 65     | 35      | 0.33        |
| -016           | 50     | 35      | 0.49        |
| -018           | 40     | 35      | 0.46        |
| -020           | 30     | 35      | 0.43        |
| -025-014       | 80     | 35      | 0.46        |
| -015           | 75     | 35      | 0.61        |
| -018           | 60     | 35      | 0.55        |
| -022           | 30     | 35      | 0.51        |
| -028-014       | 95     | 35      | 0.55        |
| -015           | 90     | 35      | 0.54        |
| -016           | 85     | 35      | 0.54        |
| -018           | 75     | 35      | 0.53        |
| -020           | 65     | 35      | 0.54        |
| -022           | 55     | 35      | 0.51        |
| -025           | 40     | 35      | 0.53        |
| -030-015       | 100    | 35      | 0.60        |
| -016           | 95     | 35      | 0.60        |
| -018           | 85     | 35      | 0.60        |
| -020           | 75     | 35      | 0.60        |
| -022           | 65     | 35      | 0.57        |
| -025           | 50     | 35      | 0.59        |
| -028           | 35     | 35      | 0.56        |

**OTHER SIZES**

| BDED-1-bbb-ccc | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -031-015       | 110    | 35      | 0.65        |
| -018           | 95     | 35      | 0.64        |
| -022           | 70     | 35      | 0.62        |
| -028           | 45     | 35      | 0.61        |
| -030           | 35     | 35      | 0.59        |
| -035-018       | 115    | 35      | 1.2         |
| -020           | 105    | 35      | 1.2         |
| -022           | 90     | 35      | 1.2         |
| -025           | 80     | 35      | 1.1         |
| -028           | 65     | 35      | 1.1         |
| -030           | 55     | 35      | 1.1         |
| -031           | 45     | 35      | 1.0         |
| -040-022       | 115    | 35      | 1.3         |
| -028           | 85     | 35      | 1.3         |
| -030           | 75     | 35      | 1.3         |
| -035           | 55     | 60      | 1.5         |
| -045-022       | 40     | 35      | 1.6         |
| -025           | 125    | 35      | 1.7         |
| -028           | 110    | 35      | 1.6         |
| -030           | 100    | 35      | 1.6         |
| -031           | 95     | 35      | 1.6         |
| -035           | 80     | 60      | 1.8         |
| -040           | 55     | 60      | 1.7         |
| -050-028       | 135    | 35      | 1.9         |
| -030           | 125    | 35      | 1.8         |
| -035           | 105    | 60      | 2.0         |
| -045           | 55     | 60      | 1.9         |
| 056-028        | 165    | 35      | 2.2         |
| -030           | 155    | 35      | 2.2         |
| -031           | 150    | 35      | 2.2         |
| -035           | 135    | 60      | 2.4         |
| -040           | 110    | 60      | 2.3         |
| -045           | 85     | 60      | 2.3         |
| -050           | 60     | 60      | 2.1         |
| -063-030       | 190    | 35      | 2.7         |
| -035           | 170    | 60      | 2.9         |
| -045           | 120    | 60      | 2.8         |
| -056           | 65     | 60      | 2.4         |

## REDUCER

## BDED-3 - REDUCER, CONCENTRIC, INSERTION - INSERTION



## STANDARD SIZES

| BDED-3-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -010-008       | 53     | 35         | 0.11        |
| -012-008       | 63     | 35         | 0.16        |
| -010           | 53     | 35         | 0.16        |
| -016-010       | 73     | 35         | 0.23        |
| -012           | 60     | 35         | 0.23        |
| -020-010       | 96     | 35         | 0.30        |
| -012           | 81     | 35         | 0.30        |
| -016           | 60     | 35         | 0.30        |
| -025-012       | 111    | 35         | 0.50        |
| -016           | 91     | 35         | 0.40        |
| -020           | 74     | 35         | 0.40        |
| -031-016       | 123    | 35         | 0.60        |
| -020           | 100    | 35         | 0.60        |
| -025           | 78     | 35         | 0.50        |
| -040-020 *     | 125    | 35         | 1.4         |
| -025 *         | 105    | 35         | 1.3         |
| -031 *         | 75     | 35         | 1.2         |
| -050-025 *     | 150    | 35         | 1.9         |
| -031 *         | 120    | 35         | 1.8         |
| -040 *         | 80     | 60         | 1.9         |
| -063-031 *     | 185    | 35         | 2.7         |
| -040 *         | 145    | 60         | 2.8         |
| -050 *         | 95     | 60         | 2.6         |

\*) normal Veloduct sealing

## OTHER SIZES

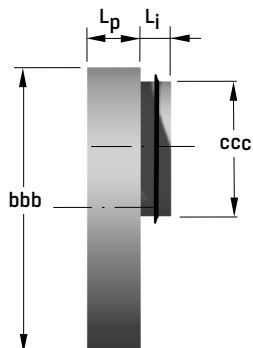
| BDED-3-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -014-008       | 60     | 35/35      | 0.18        |
| -010           | 30     | 35/35      | 0.25        |
| -012           | 20     | 35/35      | 0.24        |
| -015-008       | 65     | 35/35      | 0.19        |
| -010           | 40     | 35/35      | 0.30        |
| -012           | 25     | 35/35      | 0.28        |
| -014           | 35     | 35/35      | 0.25        |
| -016-014       | 20     | 35/35      | 0.28        |
| -015           | 15     | 35/35      | 0.28        |
| -018-010       | 55     | 35/35      | 0.29        |
| -012           | 40     | 35/35      | 0.29        |
| -014           | 30     | 35/35      | 0.28        |
| -015           | 25     | 35/35      | 0.28        |
| -016           | 20     | 35/35      | 0.27        |
| -020-014       | 45     | 35/35      | 0.34        |
| -015           | 35     | 35/35      | 0.34        |
| -018           | 20     | 35/35      | 0.33        |
| -022-012       | 75     | 35/35      | 0.54        |
| -014           | 75     | 35/35      | 0.35        |
| -015           | 70     | 35/35      | 0.33        |
| -016           | 45     | 35/35      | 0.49        |
| -018           | 30     | 35/35      | 0.46        |
| -020           | 20     | 35/35      | 0.43        |
| -025-014       | 85     | 35/35      | 0.46        |
| -015           | 65     | 35/35      | 0.61        |
| -018           | 50     | 35/35      | 0.55        |
| -022           | 25     | 35/35      | 0.51        |
| -028-014       | 100    | 35/35      | 0.55        |
| -015           | 95     | 35/35      | 0.54        |
| -016           | 90     | 35/35      | 0.54        |
| -018           | 80     | 35/35      | 0.53        |
| -020           | 70     | 35/35      | 0.54        |
| -022           | 60     | 35/35      | 0.51        |
| -025           | 45     | 35/35      | 0.53        |
| -030-015       | 105    | 35/35      | 0.60        |
| -016           | 100    | 35/35      | 0.60        |
| -018           | 90     | 35/35      | 0.60        |
| -020           | 80     | 35/35      | 0.60        |
| -022           | 70     | 35/35      | 0.57        |
| -025           | 55     | 35/35      | 0.59        |
| -028           | 40     | 35/35      | 0.56        |

## OTHER SIZES

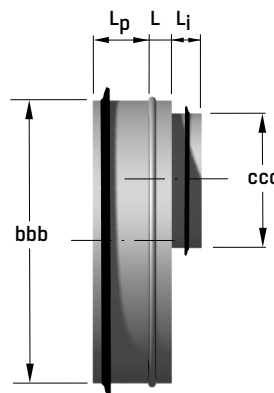
| BDED-3-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -031-015       | 115    | 35/35      | 0.65        |
| -018           | 100    | 35/35      | 0.64        |
| -022           | 75     | 35/35      | 0.62        |
| -028           | 50     | 35/35      | 0.61        |
| -030           | 40     | 35/35      | 0.59        |
| -035-018       | 125    | 60/35      | 1.2         |
| -020           | 115    | 60/35      | 1.2         |
| -022           | 100    | 60/35      | 1.2         |
| -025           | 90     | 60/35      | 1.1         |
| -028           | 75     | 60/35      | 1.1         |
| -030           | 65     | 60/35      | 1.1         |
| -031           | 55     | 60/35      | 1.0         |
| -040-022       | 125    | 60/35      | 1.3         |
| -028           | 95     | 60/35      | 1.3         |
| -030           | 85     | 60/35      | 1.3         |
| -035           | 65     | 60/60      | 1.5         |
| -045-022       | 150    | 60/35      | 1.6         |
| -025           | 135    | 60/35      | 1.7         |
| -028           | 120    | 60/35      | 1.6         |
| -030           | 110    | 60/35      | 1.6         |
| -031           | 105    | 60/35      | 1.6         |
| -035           | 90     | 60/60      | 1.8         |
| -040           | 65     | 60/60      | 1.7         |
| -050-028       | 145    | 60/35      | 1.9         |
| -030           | 135    | 60/35      | 1.8         |
| -035           | 115    | 60/60      | 2.0         |
| -045           | 65     | 60/60      | 1.9         |
| 056-028        | 175    | 60/35      | 2.2         |
| -030           | 165    | 60/35      | 2.2         |
| -031           | 160    | 60/35      | 2.2         |
| -035           | 145    | 60/60      | 2.4         |
| -040           | 120    | 60/60      | 2.3         |
| -045           | 95     | 60/60      | 2.3         |
| -050           | 70     | 60/60      | 2.1         |
| -063-030       | 200    | 60/35      | 2.7         |
| -035           | 180    | 60/60      | 2.9         |
| -045           | 130    | 60/60      | 2.8         |
| -056           | 75     | 60/60      | 2.4         |

## REDUCER

### BDED-2 - REDUCER, ECCENTRIC, FIT-ON - INSERTION



### BDED-4 - REDUCER, ECCENTRIC, INSERTION - INSERTION



#### STANDARD SIZES

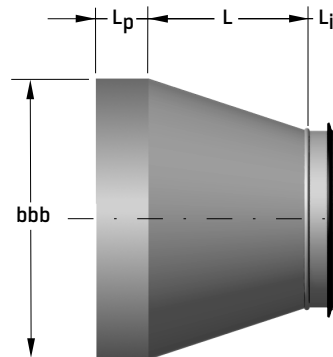
| BDED-2-bbb-ccc | Lp/Li (mm) | Weight (kg) |
|----------------|------------|-------------|
| -040-020       | 60/35      | 1.2         |
| -025           | 60/35      | 1.2         |
| -031           | 60/35      | 1.2         |
| -050-025       | 60/35      | 1.7         |
| -031           | 60/35      | 1.7         |
| -040           | 60/60      | 1.6         |
| -063-031       | 60/35      | 2.4         |
| -040           | 60/60      | 2.4         |
| -050           | 60/60      | 2.4         |
| -080-040       | 95/60      | 5.3         |
| -050           | 95/60      | 4.9         |
| -063           | 95/60      | 4.4         |
| -100-050       | 95/60      | 7.4         |
| -063           | 95/60      | 6.8         |
| -080           | 95/95      | 6.6         |
| -125-063       | 95/60      | 11          |
| -080           | 95/95      | 10          |
| -100           | 95/95      | 8.7         |

#### STANDARD SIZES

| BDED-4-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -040-020       | 25     | 60/35      | 1.5         |
| -025           | 25     | 60/35      | 1.5         |
| -031           | 25     | 60/35      | 1.4         |
| -050-025       | 40     | 60/35      | 2.0         |
| -031           | 40     | 60/35      | 2.0         |
| -040           | 45     | 60/60      | 2.0         |
| -063-031       | 40     | 60/35      | 2.8         |
| -040           | 45     | 60/60      | 2.8         |
| -050           | 35     | 60/60      | 2.7         |
| -080-040       | 50     | 95/60      | 5.6         |
| -050           | 50     | 95/60      | 5.1         |
| -063           | 50     | 95/60      | 4.6         |
| -100-050       | 50     | 95/60      | 7.6         |
| -063           | 50     | 95/60      | 7.0         |
| -080           | 50     | 95/95      | 6.8         |
| -125-063       | 50     | 95/60      | 11          |
| -080           | 50     | 95/95      | 10          |
| -100           | 50     | 95/95      | 8.9         |

## REDUCER

## BDEF-1 - REDUCER, LONG, CONCENTRIC, FIT-ON - INSERTION



## STANDARD SIZES

| BDEF-1-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -010-008       | 60     | 35/35      | 0.19        |
| -012-008       | 95     | 35/35      | 0.25        |
| -010           | 65     | 35/35      | 0.22        |
| -016-008       | 140    | 35/35      | 0.36        |
| -010           | 115    | 35/35      | 0.33        |
| -012           | 80     | 35/35      | 0.30        |
| -020-010       | 170    | 35/35      | 0.55        |
| -012           | 135    | 35/35      | 0.54        |
| -016           | 85     | 35/35      | 0.46        |
| -025-012       | 205    | 35/35      | 0.86        |
| -016           | 155    | 35/35      | 0.79        |
| -020           | 100    | 35/35      | 0.70        |
| -031-016       | 245    | 35/35      | 1.2         |
| -020           | 190    | 35/35      | 1.1         |
| -025           | 120    | 35/35      | 1.0         |
| -040-020       | 310    | 60/35      | 2.5         |
| -025           | 245    | 60/35      | 2.3         |
| -031           | 155    | 60/35      | 1.9         |
| -050-025       | 380    | 60/35      | 3.6         |
| -031           | 290    | 60/35      | 3.2         |
| -040           | 180    | 60/60      | 2.9         |
| -063-031       | 470    | 60/35      | 5.2         |
| -040           | 360    | 60/60      | 5.0         |
| -050           | 220    | 60/60      | 4.1         |
| -080-040       | 595    | 95/60      | 9.3         |
| -050           | 460    | 95/60      | 8.4         |
| -063           | 280    | 95/60      | 6.9         |
| -100-050       | 735    | 95/60      | 16          |
| -063           | 555    | 95/60      | 14          |
| -080           | 325    | 95/95      | 12          |
| -125-063       | 900    | 95/60      | 23          |
| -080           | 670    | 95/95      | 21          |
| -100           | 395    | 95/95      | 16          |

## OTHER SIZES

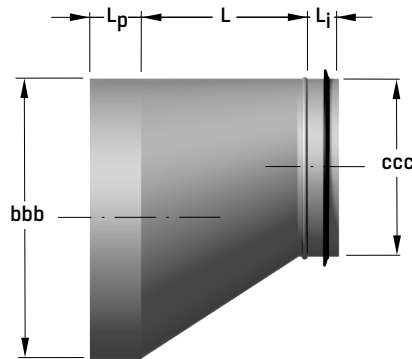
| BDEF-1-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -014-008       | 115    | 35/35      | 0.29        |
| -010           | 85     | 35/35      | 0.27        |
| -012           | 55     | 35/35      | 0.25        |
| -015-008       | 130    | 35/35      | 0.32        |
| -010           | 100    | 35/35      | 0.30        |
| -012           | 65     | 35/35      | 0.26        |
| -014           | 45     | 35/35      | 0.24        |
| -016-014       | 60     | 35/35      | 0.28        |
| -015           | 45     | 35/35      | 0.26        |
| -018-010       | 140    | 35/35      | 0.47        |
| -012           | 110    | 35/35      | 0.42        |
| -014           | 85     | 35/35      | 0.39        |
| -015           | 75     | 35/35      | 0.37        |
| -016           | 60     | 35/35      | 0.35        |
| -020-014       | 115    | 35/35      | 0.51        |
| -015           | 100    | 35/35      | 0.48        |
| -018           | 60     | 35/35      | 0.42        |
| -022-010       | 200    | 35/35      | 0.70        |
| -012           | 170    | 35/35      | 0.66        |
| -014           | 145    | 35/35      | 0.63        |
| -015           | 135    | 35/35      | 0.60        |
| -016           | 120    | 35/35      | 0.58        |
| -018           | 90     | 35/35      | 0.53        |
| -020           | 65     | 35/35      | 0.4         |
| -025-014       | 185    | 35/35      | 0.83        |
| -015           | 170    | 35/35      | 0.80        |
| -018           | 130    | 35/35      | 0.74        |
| -022           | 70     | 35/35      | 0.61        |
| -028-014       | 225    | 35/35      | 1.0         |
| -015           | 210    | 35/35      | 1.0         |
| -016           | 195    | 35/35      | 0.99        |
| -018           | 170    | 35/35      | 0.94        |
| -020           | 140    | 35/35      | 0.90        |
| -022           | 110    | 35/35      | 0.81        |
| -025           | 75     | 35/35      | 0.67        |
| -030-015       | 240    | 35/35      | 1.2         |
| -016           | 225    | 35/35      | 1.1         |
| -018           | 195    | 35/35      | 1.1         |
| -020           | 170    | 35/35      | 1.0         |
| -022           | 135    | 35/35      | 0.95        |
| -025           | 100    | 35/35      | 0.90        |
| -028           | 60     | 35/35      | 0.77        |

## OTHER SIZES

| BDEF-1-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -031-015       | 260    | 35/35      | 1.3         |
| -018           | 220    | 35/35      | 1.2         |
| -022           | 155    | 35/35      | 1.1         |
| -028           | 80     | 35/35      | 0.88        |
| -030           | 55     | 35/35      | 0.81        |
| -035-018       | 270    | 60/35      | 2.0         |
| -020           | 245    | 60/35      | 2.0         |
| -022           | 210    | 60/35      | 1.9         |
| -025           | 175    | 60/35      | 1.8         |
| -028           | 135    | 60/35      | 1.6         |
| -030           | 110    | 60/35      | 1.5         |
| -031           | 85     | 60/35      | 1.4         |
| -040-022       | 280    | 60/35      | 2.3         |
| -028           | 200    | 60/35      | 2.1         |
| -030           | 175    | 60/35      | 2.0         |
| -035           | 100    | 60/60      | 1.9         |
| -045-022       | 350    | 60/35      | 3.0         |
| -025           | 310    | 60/35      | 2.9         |
| -028           | 270    | 60/35      | 2.8         |
| -030           | 245    | 60/35      | 2.7         |
| -031           | 225    | 60/35      | 2.6         |
| -035           | 170    | 60/60      | 2.6         |
| -040           | 110    | 60/60      | 2.3         |
| -050-028       | 340    | 60/35      | 3.4         |
| -030           | 310    | 60/35      | 3.3         |
| -035           | 235    | 60/60      | 3.2         |
| -045           | 110    | 60/60      | 2.6         |
| -056-028       | 420    | 60/35      | 4.3         |
| -030           | 395    | 60/35      | 4.2         |
| -031           | 375    | 60/35      | 4.1         |
| -035           | 320    | 60/60      | 4.1         |
| -040           | 260    | 60/60      | 3.8         |
| -045           | 195    | 60/60      | 3.5         |
| -050           | 125    | 60/60      | 2.9         |
| -063-030       | 490    | 60/35      | 5.4         |
| -035           | 415    | 60/60      | 5.3         |
| -045           | 290    | 60/60      | 4.6         |
| -056           | 140    | 60/60      | 3.4         |

## REDUCER

### BDEF-2 - REDUCER, LONG, ECCENTRIC, FIT-ON - INSERTION



#### STANDARD SIZES

| BDEF-2-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -010-008       | 60     | 35/35      | 0.19        |
| -012-008       | 95     | 35/35      | 0.25        |
| -010           | 65     | 35/35      | 0.22        |
| -016-008       | 140    | 35/35      | 0.36        |
| -010           | 115    | 35/35      | 0.33        |
| -012           | 80     | 35/35      | 0.30        |
| -020-010       | 170    | 35/35      | 0.55        |
| -012           | 135    | 35/35      | 0.54        |
| -016           | 85     | 35/35      | 0.46        |
| -025-012       | 205    | 35/35      | 0.86        |
| -016           | 155    | 35/35      | 0.79        |
| -020           | 100    | 35/35      | 0.70        |
| -031-016       | 245    | 35/35      | 1.2         |
| -020           | 190    | 35/35      | 1.1         |
| -025           | 120    | 35/35      | 1.0         |
| -040-020       | 310    | 60/35      | 2.5         |
| -025           | 245    | 60/35      | 2.3         |
| -031           | 155    | 60/35      | 1.9         |
| -050-025       | 380    | 60/35      | 3.6         |
| -031           | 290    | 60/35      | 3.2         |
| -040           | 180    | 60/60      | 2.9         |
| -063-031       | 470    | 60/35      | 5.2         |
| -040           | 360    | 60/60      | 5.0         |
| -050           | 220    | 60/60      | 4.1         |
| -080-040       | 595    | 95/60      | 9.3         |
| -050           | 460    | 95/60      | 8.4         |
| -063           | 280    | 95/60      | 6.9         |
| -100-050       | 735    | 95/60      | 16          |
| -063           | 555    | 95/60      | 14          |
| -080           | 325    | 95/95      | 12          |
| -125-063       | 900    | 95/60      | 23          |
| -080           | 670    | 95/95      | 21          |
| -100           | 395    | 95/95      | 16          |

#### OTHER SIZES

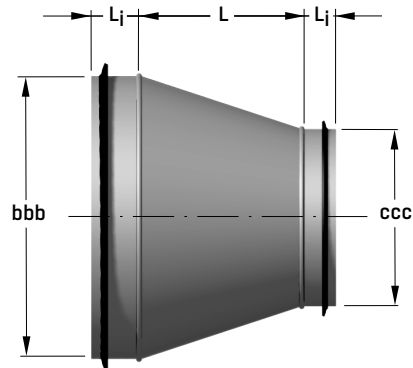
| BDEF-2-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -014-008       | 115    | 35/35      | 0.29        |
| -010           | 85     | 35/35      | 0.27        |
| -012           | 55     | 35/35      | 0.25        |
| -015-008       | 130    | 35/35      | 0.32        |
| -010           | 100    | 35/35      | 0.30        |
| -012           | 65     | 35/35      | 0.26        |
| -014           | 45     | 35/35      | 0.24        |
| -016-014       | 60     | 35/35      | 0.28        |
| -015           | 45     | 35/35      | 0.26        |
| -018-010       | 140    | 35/35      | 0.47        |
| -012           | 110    | 35/35      | 0.42        |
| -014           | 85     | 35/35      | 0.39        |
| -015           | 75     | 35/35      | 0.37        |
| -016           | 60     | 35/35      | 0.35        |
| -020-014       | 115    | 35/35      | 0.51        |
| -015           | 100    | 35/35      | 0.48        |
| -018           | 60     | 35/35      | 0.42        |
| -022-010       | 200    | 35/35      | 0.70        |
| -012           | 170    | 35/35      | 0.66        |
| -014           | 145    | 35/35      | 0.63        |
| -015           | 135    | 35/35      | 0.60        |
| -016           | 120    | 35/35      | 0.58        |
| -018           | 90     | 35/35      | 0.53        |
| -020           | 65     | 35/35      | 0.4         |
| -025-014       | 185    | 35/35      | 0.83        |
| -015           | 170    | 35/35      | 0.80        |
| -018           | 130    | 35/35      | 0.74        |
| -022           | 70     | 35/35      | 0.61        |
| -028-014       | 225    | 35/35      | 1.0         |
| -015           | 210    | 35/35      | 1.0         |
| -016           | 195    | 35/35      | 0.99        |
| -018           | 170    | 35/35      | 0.94        |
| -020           | 140    | 35/35      | 0.90        |
| -022           | 110    | 35/35      | 0.81        |
| -025           | 75     | 35/35      | 0.67        |
| -030-015       | 240    | 35/35      | 1.2         |
| -016           | 225    | 35/35      | 1.1         |
| -018           | 195    | 35/35      | 1.1         |
| -020           | 170    | 35/35      | 1.0         |
| -022           | 135    | 35/35      | 0.95        |
| -025           | 100    | 35/35      | 0.90        |
| -028           | 60     | 35/35      | 0.77        |

#### OTHER SIZES

| BDEF-2-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -031-015       | 260    | 35/35      | 1.3         |
| -018           | 220    | 35/35      | 1.2         |
| -022           | 155    | 35/35      | 1.1         |
| -028           | 80     | 35/35      | 0.88        |
| -030           | 55     | 35/35      | 0.81        |
| -035-018       | 270    | 60/35      | 2.0         |
| -020           | 245    | 60/35      | 2.0         |
| -022           | 210    | 60/35      | 1.9         |
| -025           | 175    | 60/35      | 1.8         |
| -028           | 135    | 60/35      | 1.6         |
| -030           | 110    | 60/35      | 1.5         |
| -031           | 85     | 60/35      | 1.4         |
| -040-022       | 280    | 60/35      | 2.3         |
| -028           | 200    | 60/35      | 2.1         |
| -030           | 175    | 60/35      | 2.0         |
| -035           | 100    | 60/60      | 1.9         |
| -045-022       | 350    | 60/35      | 3.0         |
| -025           | 310    | 60/35      | 2.9         |
| -028           | 270    | 60/35      | 2.8         |
| -030           | 245    | 60/35      | 2.7         |
| -031           | 225    | 60/35      | 2.6         |
| -035           | 170    | 60/60      | 2.6         |
| -040           | 110    | 60/60      | 2.3         |
| -050-028       | 340    | 60/35      | 3.4         |
| -030           | 310    | 60/35      | 3.3         |
| -035           | 235    | 60/60      | 3.2         |
| -045           | 110    | 60/60      | 2.6         |
| -056-028       | 420    | 60/35      | 4.3         |
| -030           | 395    | 60/35      | 4.2         |
| -031           | 375    | 60/35      | 4.1         |
| -035           | 320    | 60/60      | 4.1         |
| -040           | 260    | 60/60      | 3.8         |
| -045           | 195    | 60/60      | 3.5         |
| -050           | 125    | 60/60      | 2.9         |
| -063-030       | 490    | 60/35      | 5.4         |
| -035           | 415    | 60/60      | 5.3         |
| -045           | 290    | 60/60      | 4.6         |
| -056           | 140    | 60/60      | 3.4         |

## REDUCER

## BDEF-3 - REDUCER, LONG, CONCENTRIC, INSERTION - INSERTION



## STANDARD SIZES

| BDEF-3-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -010-008       | 60     | 35         | 0.19        |
| -012-008       | 95     | 35         | 0.25        |
| -010           | 65     | 35         | 0.22        |
| -016-008       | 140    | 35         | 0.36        |
| -010           | 115    | 35         | 0.33        |
| -012           | 80     | 35         | 0.30        |
| -020-010       | 170    | 35         | 0.55        |
| -012           | 135    | 35         | 0.54        |
| -016           | 85     | 35         | 0.46        |
| -025-012       | 205    | 35         | 0.86        |
| -016           | 155    | 35         | 0.79        |
| -020           | 100    | 35         | 0.70        |
| -031-016       | 245    | 35         | 1.2         |
| -020           | 190    | 35         | 1.1         |
| -025           | 120    | 35         | 1.0         |
| -040-020       | 310    | 60/35      | 2.5         |
| -025           | 245    | 60/35      | 2.3         |
| -031           | 155    | 60/35      | 1.9         |
| -050-025       | 380    | 60/35      | 3.6         |
| -031           | 290    | 60/35      | 3.2         |
| -040           | 180    | 60/60      | 2.9         |
| -063-031       | 470    | 60/35      | 5.2         |
| -040           | 360    | 60/60      | 5.0         |
| -050           | 220    | 60/60      | 4.1         |
| -080-040       | 595    | 95/60      | 9.3         |
| -050           | 460    | 95/60      | 8.4         |
| -063           | 280    | 95/60      | 6.9         |
| -100-050       | 735    | 95/60      | 16          |
| -063           | 555    | 95/60      | 14          |
| -080           | 325    | 95/95      | 12          |
| -125-063       | 900    | 95/60      | 23          |
| -080           | 670    | 95/95      | 21          |
| -100           | 395    | 95/95      | 16          |

## OTHER SIZES

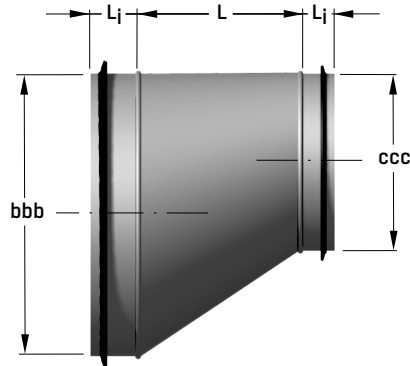
| BDEF-3-bbb-ccc | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -014-008       | 115    | 35      | 0.29        |
| -010           | 85     | 35      | 0.27        |
| -012           | 55     | 35      | 0.25        |
| -015-008       | 130    | 35      | 0.32        |
| -010           | 100    | 35      | 0.30        |
| -012           | 65     | 35      | 0.26        |
| -014           | 45     | 35      | 0.24        |
| -016-014       | 60     | 35      | 0.28        |
| -015           | 45     | 35      | 0.26        |
| -018-010       | 140    | 35      | 0.47        |
| -012           | 110    | 35      | 0.42        |
| -014           | 85     | 35      | 0.39        |
| -015           | 75     | 35      | 0.37        |
| -016           | 60     | 35      | 0.35        |
| -020-014       | 115    | 35      | 0.51        |
| -015           | 100    | 35      | 0.48        |
| -018           | 60     | 35      | 0.42        |
| -022-010       | 200    | 35      | 0.70        |
| -012           | 170    | 35      | 0.66        |
| -014           | 145    | 35      | 0.63        |
| -015           | 135    | 35      | 0.60        |
| -016           | 120    | 35      | 0.58        |
| -018           | 90     | 35      | 0.53        |
| -020           | 65     | 35      | 0.49        |
| -025-014       | 185    | 35      | 0.83        |
| -015           | 170    | 35      | 0.80        |
| -018           | 130    | 35      | 0.74        |
| -022           | 70     | 35      | 0.61        |
| -028-014       | 225    | 35      | 1.0         |
| -015           | 210    | 35      | 1.0         |
| -016           | 195    | 35      | 0.99        |
| -018           | 170    | 35      | 0.94        |
| -020           | 140    | 35      | 0.90        |
| -022           | 110    | 35      | 0.81        |
| -025           | 75     | 35      | 0.67        |
| -030-015       | 240    | 35      | 1.2         |
| -016           | 225    | 35      | 1.1         |
| -018           | 195    | 35      | 1.1         |
| -020           | 170    | 35      | 1.0         |
| -022           | 135    | 35      | 0.95        |
| -025           | 100    | 35      | 0.90        |
| -028           | 60     | 35      | 0.77        |

## OTHER SIZES

| BDEF-3-bbb-ccc | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -031-015       | 260    | 35      | 1.3         |
| -018           | 220    | 35      | 1.2         |
| -022           | 155    | 35      | 1.1         |
| -028           | 80     | 35      | 0.88        |
| -030           | 55     | 35      | 0.81        |
| -035-018       | 270    | 60/35   | 2.0         |
| -020           | 245    | 60/35   | 2.0         |
| -022           | 210    | 60/35   | 1.9         |
| -025           | 175    | 60/35   | 1.8         |
| -028           | 135    | 60/35   | 1.6         |
| -030           | 110    | 60/35   | 1.5         |
| -031           | 85     | 60/35   | 1.4         |
| -040-022       | 280    | 60/35   | 2.3         |
| -028           | 200    | 60/35   | 2.1         |
| -030           | 175    | 60/35   | 2.0         |
| -035           | 100    | 60      | 1.9         |
| -045-022       | 350    | 60/35   | 3.0         |
| -025           | 310    | 60/35   | 2.9         |
| -028           | 270    | 60/35   | 2.8         |
| -030           | 245    | 60/35   | 2.7         |
| -031           | 225    | 60/35   | 2.6         |
| -035           | 170    | 60      | 2.6         |
| -040           | 110    | 60      | 2.3         |
| -050-028       | 340    | 60/35   | 3.4         |
| -030           | 310    | 60/35   | 3.3         |
| -035           | 235    | 60      | 3.2         |
| -045           | 110    | 60      | 2.6         |
| -056-028       | 420    | 60/35   | 4.3         |
| -030           | 395    | 60/35   | 4.2         |
| -031           | 375    | 60/35   | 4.1         |
| -035           | 320    | 60      | 4.1         |
| -040           | 260    | 60      | 3.8         |
| -045           | 195    | 60      | 3.5         |
| -050           | 125    | 60      | 2.9         |
| -063-030       | 490    | 60/35   | 5.4         |
| -035           | 415    | 60      | 5.3         |
| -045           | 290    | 60      | 4.6         |
| -056           | 140    | 60      | 3.4         |

## REDUCER

### BDEF-4 - REDUCER, LONG, ECCENTRIC, INSERTION - INSERTION



#### STANDARD SIZES

| BDEF-4-bbb-ccc | L (mm) | Lp/Li (mm) | Weight (kg) |
|----------------|--------|------------|-------------|
| -010-008       | 60     | 35         | 0.19        |
| -012-008       | 95     | 35         | 0.25        |
| -010           | 65     | 35         | 0.22        |
| -016-008       | 140    | 35         | 0.36        |
| -010           | 115    | 35         | 0.33        |
| -012           | 80     | 35         | 0.30        |
| -020-010       | 170    | 35         | 0.55        |
| -012           | 135    | 35         | 0.54        |
| -016           | 85     | 35         | 0.46        |
| -025-012       | 205    | 35         | 0.86        |
| -016           | 155    | 35         | 0.79        |
| -020           | 100    | 35         | 0.70        |
| -031-016       | 245    | 35         | 1.2         |
| -020           | 190    | 35         | 1.1         |
| -025           | 120    | 35         | 1.0         |
| -040-020       | 310    | 60/35      | 2.5         |
| -025           | 245    | 60/35      | 2.3         |
| -031           | 155    | 60/35      | 1.9         |
| -050-025       | 380    | 60/35      | 3.6         |
| -031           | 290    | 60/35      | 3.2         |
| -040           | 180    | 60/60      | 2.9         |
| -063-031       | 470    | 60/35      | 5.2         |
| -040           | 360    | 60/60      | 5.0         |
| -050           | 220    | 60/60      | 4.1         |
| -080-040       | 595    | 95/60      | 9.3         |
| -050           | 460    | 95/60      | 8.4         |
| -063           | 280    | 95/60      | 6.9         |
| -100-050       | 735    | 95/60      | 16          |
| -063           | 555    | 95/60      | 14          |
| -080           | 325    | 95/95      | 12          |
| -125-063       | 900    | 95/60      | 23          |
| -080           | 670    | 95/95      | 21          |
| -100           | 395    | 95/95      | 16          |

#### OTHER SIZES

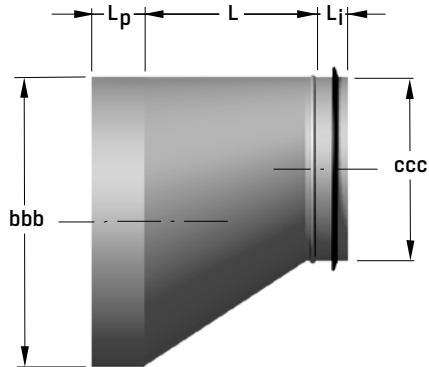
| BDEF-4-bbb-ccc | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -014-008       | 115    | 35      | 0.29        |
| -010           | 85     | 35      | 0.27        |
| -012           | 55     | 35      | 0.25        |
| -015-008       | 130    | 35      | 0.32        |
| -010           | 100    | 35      | 0.30        |
| -012           | 65     | 35      | 0.26        |
| -014           | 45     | 35      | 0.24        |
| -016-014       | 60     | 35      | 0.28        |
| -015           | 45     | 35      | 0.26        |
| -018-010       | 140    | 35      | 0.47        |
| -012           | 110    | 35      | 0.42        |
| -014           | 85     | 35      | 0.39        |
| -015           | 75     | 35      | 0.37        |
| -016           | 60     | 35      | 0.35        |
| -020-014       | 115    | 35      | 0.51        |
| -015           | 100    | 35      | 0.48        |
| -018           | 60     | 35      | 0.42        |
| -022-010       | 200    | 35      | 0.70        |
| -012           | 170    | 35      | 0.66        |
| -014           | 145    | 35      | 0.63        |
| -015           | 135    | 35      | 0.60        |
| -016           | 120    | 35      | 0.58        |
| -018           | 90     | 35      | 0.53        |
| -020           | 65     | 35      | 0.49        |
| -025-014       | 185    | 35      | 0.83        |
| -015           | 170    | 35      | 0.80        |
| -018           | 130    | 35      | 0.74        |
| -022           | 70     | 35      | 0.61        |
| -028-014       | 225    | 35      | 1.0         |
| -015           | 210    | 35      | 1.0         |
| -016           | 195    | 35      | 0.99        |
| -018           | 170    | 35      | 0.94        |
| -020           | 140    | 35      | 0.90        |
| -022           | 110    | 35      | 0.81        |
| -025           | 75     | 35      | 0.67        |
| -030-015       | 240    | 35      | 1.2         |
| -016           | 225    | 35      | 1.1         |
| -018           | 195    | 35      | 1.1         |
| -020           | 170    | 35      | 1.0         |
| -022           | 135    | 35      | 0.95        |
| -025           | 100    | 35      | 0.90        |
| -028           | 60     | 35      | 0.77        |

#### OTHER SIZES

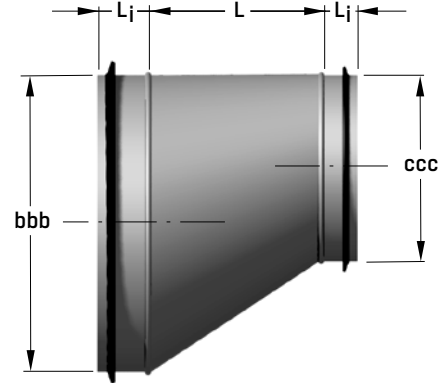
| BDEF-4-bbb-ccc | L (mm) | Li (mm) | Weight (kg) |
|----------------|--------|---------|-------------|
| -031-015       | 260    | 35      | 1.3         |
| -018           | 220    | 35      | 1.2         |
| -022           | 155    | 35      | 1.1         |
| -028           | 80     | 35      | 0.88        |
| -030           | 55     | 35      | 0.81        |
| -035-018       | 270    | 60/35   | 2.0         |
| -020           | 245    | 60/35   | 2.0         |
| -022           | 210    | 60/35   | 1.9         |
| -025           | 175    | 60/35   | 1.8         |
| -028           | 135    | 60/35   | 1.6         |
| -030           | 110    | 60/35   | 1.5         |
| -031           | 85     | 60/35   | 1.4         |
| -040-022       | 280    | 60/35   | 2.3         |
| -028           | 200    | 60/35   | 2.1         |
| -030           | 175    | 60/35   | 2.0         |
| -035           | 100    | 60      | 1.9         |
| -045-022       | 350    | 60/35   | 3.0         |
| -025           | 310    | 60/35   | 2.9         |
| -028           | 270    | 60/35   | 2.8         |
| -030           | 245    | 60/35   | 2.7         |
| -031           | 225    | 60/35   | 2.6         |
| -035           | 170    | 60      | 2.6         |
| -040           | 110    | 60      | 2.3         |
| -050-028       | 340    | 60/35   | 3.4         |
| -030           | 310    | 60/35   | 3.3         |
| -035           | 235    | 60      | 3.2         |
| -045           | 110    | 60      | 2.6         |
| -056-028       | 420    | 60/35   | 4.3         |
| -030           | 395    | 60/35   | 4.2         |
| -031           | 375    | 60/35   | 4.1         |
| -035           | 320    | 60      | 4.1         |
| -040           | 260    | 60      | 3.8         |
| -045           | 195    | 60      | 3.5         |
| -050           | 125    | 60      | 2.9         |
| -063-030       | 490    | 60/35   | 5.4         |
| -035           | 415    | 60      | 5.3         |
| -045           | 290    | 60      | 4.6         |
| -056           | 140    | 60      | 3.4         |

## REDUCER

### BDKF-2 - REDUCER, ECCENTRIC, FIT-ON - INSERTION



### BDKF-4 - REDUCER, ECCENTRIC, INSERTION - INSERTION



#### STANDARD SIZES

| BDKF-2-bbb-ccc(-T) | L (mm) | Lp/Li (mm) | Weight (kg) |
|--------------------|--------|------------|-------------|
| -040-020 (-T)      | 200    | 60/35      | 2.1         |
| -025 (-T)          | 200    | 60/35      | 2.2         |
| -031 (-T)          | 200    | 60/35      | 2.3         |
| -050-025 (-T)      | 250    | 60/35      | 3.0         |
| -031 (-T)          | 250    | 60/35      | 3.2         |
| -040 (-T)          | 250    | 60/60      | 3.7         |
| -063-031 (-T)      | 315    | 60/35      | 4.4         |
| -040 (-T)          | 315    | 60/60      | 5.0         |
| -050 (-T)          | 290    | 60/60      | 5.3         |
| -080-040 (-T)      | 400    | 95/60      | 8.7         |
| -050 (-T)          | 400    | 95/60      | 9.1         |
| -063 (-T)          | 400    | 95/60      | 10.9        |
| -100-050 (-T)      | 500    | 95/60      | 14.4        |
| -063 (-T)          | 500    | 95/60      | 14.9        |
| -080 (-T)          | 500    | 95/95      | 17.5        |
| -125-063 (-T)      | 630    | 95/60      | 20.9        |
| -080 (-T)          | 630    | 95/95      | 23.5        |
| -100 (-T)          | 630    | 95/95      | 25.1        |

T in the code: separate packing (M1)

#### STANDARD SIZES

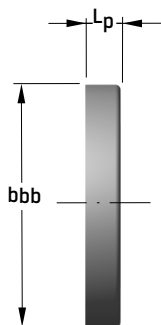
| BDKF-4-bbb-ccc(-T) | L (mm) | Li (mm) | Weight (kg) |
|--------------------|--------|---------|-------------|
| -025-016 (-T)      | 120    | 35/35   | 0.8         |
| -020 (-T)          | 120    | 35/35   | 0.8         |
| -031-020 (-T)      | 150    | 35/35   | 1.0         |
| -040-020 (-T)      | 200    | 60/35   | 2.1         |
| -025 (-T)          | 200    | 60/35   | 2.1         |
| -031 (-T)          | 200    | 60/35   | 2.3         |
| -050-025 (-T)      | 250    | 60/35   | 3.0         |
| -031 (-T)          | 250    | 60/35   | 3.2         |
| -040 (-T)          | 250    | 60      | 3.7         |
| -063-031 (-T)      | 315    | 60/35   | 4.4         |
| -040 (-T)          | 315    | 60      | 5.0         |
| -050 (-T)          | 290    | 60      | 5.1         |
| -080-040 (-T)      | 400    | 95/60   | 8.7         |
| -050 (-T)          | 400    | 95/60   | 9.1         |
| -063 (-T)          | 400    | 95/60   | 10.9        |
| -100-050 (-T)      | 500    | 95/60   | 14.4        |
| -063 (-T)          | 500    | 95/60   | 14.9        |
| -080 (-T)          | 500    | 95      | 17.5        |
| -125-063 (-T)      | 630    | 95/60   | 20.9        |
| -080 (-T)          | 630    | 95      | 23.5        |
| -100 (-T)          | 630    | 95      | 25.1        |

T in the code: separate packing (M1)



## LID

### BDEG-1 - LID, FIT-ON



#### STANDARD SIZES

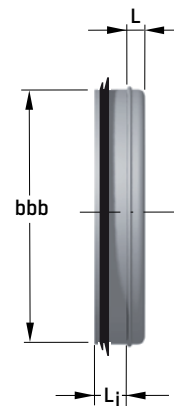
| BDEG-1-bbb | Lp (mm) | Weight (kg) |
|------------|---------|-------------|
| -008       | 40      | 0.07        |
| -010       | 40      | 0.11        |
| -012       | 40      | 0.14        |
| -016       | 40      | 0.25        |
| -020       | 40      | 0.32        |
| -025       | 40      | 0.47        |
| -031       | 40      | 0.71        |
| -040       | 40      | 1.4         |
| -050       | 45      | 1.9         |
| -063       | 70      | 2.9         |
| -080 **    | 95      | 5.8         |
| -100 **    | 95      | 8.2         |
| -125 **    | 95      | 11.4        |

\*\* ) Fabricated

#### OTHER SIZES

| BDEG-1-bbb | Lp (mm) | Weight (kg) |
|------------|---------|-------------|
| -014       | 35      | 0.15        |
| -015       | 35      | 0.15        |
| -018       | 35      | 0.27        |
| -022       | 35      | 0.32        |
| -028       | 35      | 0.53        |
| -030       | 35      | 0.66        |
| -035       | 60      | 1.2         |
| -045       | 60      | 1.7         |
| -056       | 60      | 2.4         |

### BDEG-4 - LID, INSERTION



#### STANDARD SIZES

| BDEG-4-bbb | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -008       | 15     | 35      | 0.10        |
| -010       | 17     | 35      | 0.10        |
| -012       | 17     | 35      | 0.10        |
| -016       | 17     | 35      | 0.20        |
| -020       | 15     | 35      | 0.30        |
| -025       | 15     | 35      | 0.60        |
| -031       | 15     | 35      | 0.90        |
| -040       | 16     | 35      | 1.2         |
| -050 *     | 30     | 70      | 1.8         |
| -063 *     | 30     | 70      | 2.5         |
| -080 **    | 30     | 95      | 6.1         |
| -100 **    | 30     | 95      | 8.5         |
| -125 **    | 30     | 95      | 12.0        |

\* ) Veloduct sealing

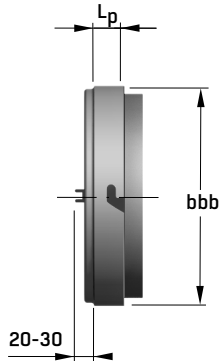
\*\* ) Fabricated + Veloduct sealing

#### OTHER SIZES

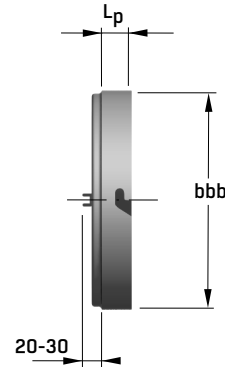
| BDEG-4-bbb | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -014       | 15     | 35      | 0.24        |
| -015       | 15     | 35      | 0.25        |
| -018       | 15     | 35      | 0.37        |
| -022       | 20     | 35      | 0.50        |
| -028       | 20     | 35      | 0.55        |
| -030       | 20     | 35      | 0.77        |
| -035       | 20     | 60      | 1.4         |
| -045       | 30     | 60      | 2.0         |
| -056       | 30     | 60      | 2.9         |

## CLEANING COVER

### BDEG-2 - CLEANING COVER, INSULATED, FIT-ON



### BDEG-3 - CLEANING COVER, FIT-ON



#### FIRE RESISTANCE CLASS E 60 (EI 60)<sup>1)</sup>

| BDEG-2-bbb | Lp (mm) | Weight (kg) |
|------------|---------|-------------|
| -010       | 35      | 0.29        |
| -012       | 35      | 0.35        |
| -016       | 35      | 0.49        |
| -020       | 35      | 0.73        |
| -025       | 35      | 1.10        |
| -031       | 35      | 1.50        |

<sup>1)</sup> In accordance with BBR 5:6213, the cover may be used where components to fire resistance class EI 60 are required provided that the cover is installed at a min. distance of 500 mm from an escape route and at a min. distance of 200 mm from any combustible material.

If the fire resistance requirement is EI 30, the corresponding protective distance must be at least 400 mm (escape route) and 150 mm (combustible material) respectively.

#### THE TYPE APPROVAL FOR FIRE RESISTANCE CLASS DOES NOT APPLY TO THE COMPONENT BELOW.

| XDEG-2-bbb | Lp (mm) | Weight (kg) |
|------------|---------|-------------|
| -040       | 60      | 3.4         |
| -050       | 60      | 4.7         |
| -063       | 60      | 6.9         |

#### FIRE RESISTANCE CLASS E 60 (EI 60)<sup>1)</sup>

| BDEG-3-bbb | Lp (mm) | Weight (kg) |
|------------|---------|-------------|
| -010       | 35      | 0.17        |
| -012       | 35      | 0.22        |
| -016       | 35      | 0.28        |
| -020       | 35      | 0.35        |
| -025       | 35      | 0.50        |
| -031       | 35      | 0.74        |

<sup>1)</sup> In accordance with BBR 5:6213, the cover may be used where components to fire resistance class EI 60 are required provided that the cover is installed at a min. distance of 500 mm from an escape route and at a min. distance of 200 mm from any combustible material.

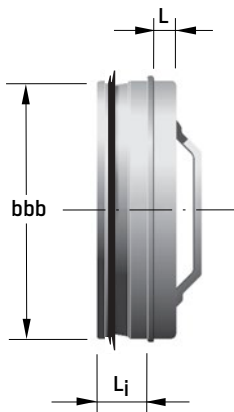
If the fire resistance requirement is EI 30, the corresponding protective distance must be at least 400 mm (escape route) and 150 mm (combustible material) respectively.

#### THE TYPE APPROVAL FOR FIRE RESISTANCE CLASS DOES NOT APPLY TO THE COMPONENT BELOW.

| XDEG-3-bbb | Lp (mm) | Weight (kg) |
|------------|---------|-------------|
| -040       | 60      | 1.5         |
| -050       | 60      | 2.0         |
| -063       | 60      | 2.8         |

## CLEANING COVER

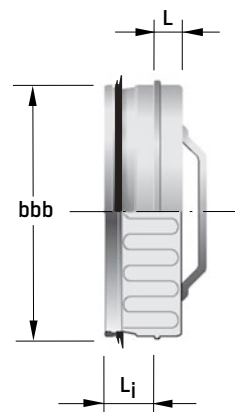
### BDEG-4 - CLEANING COVER WITH HANDLE, INSERTION



#### STANDARD SIZES

| BDEG-4-bbb-K | L (mm) | Li (mm) | Weight (kg) |
|--------------|--------|---------|-------------|
| -010         | 15     | 35      | 0.20        |
| -012         | 15     | 35      | 0.29        |
| -016         | 15     | 35      | 0.34        |
| -020         | 20     | 35      | 0.42        |
| -025         | 20     | 35      | 0.65        |
| -031         | 20     | 35      | 1.0         |
| -040         | 30     | 60      | 1.5         |
| -050         | 30     | 60      | 2.0         |
| -063         | 30     | 60      | 3.1         |

### BDEG-4 - CLEANING COVER WITH HANDLE, INSULATED, INSERTION



#### STANDARD SIZES

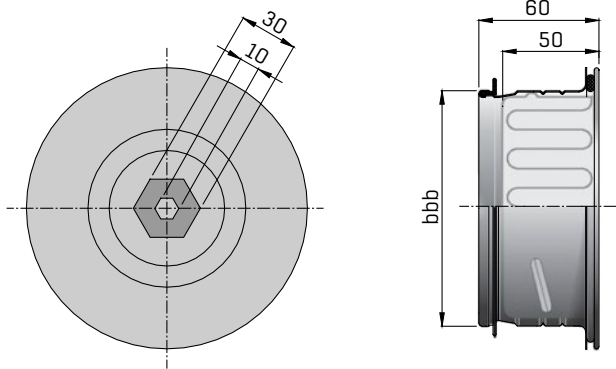
| BDEG-4-bbb-KE | L (mm) | Li (mm) | Weight (kg) |
|---------------|--------|---------|-------------|
| -010          | 17     | 35      | 0.25        |
| -012          | 17     | 35      | 0.36        |
| -016          | 17     | 35      | 0.46        |
| -020          | 17     | 35      | 0.60        |
| -025          | 17     | 35      | 0.93        |
| -031          | 17     | 35      | 1.43        |
| -040          | 17     | 35      | 2.22        |
| -050          | 30     | 60      | 3.12        |
| -063          | 30     | 60      | 4.88        |

Fire insulation thicknesses according to fire class EI 60 and standard EN 1366.

The fire insulation meets the requirements of the test methods according to standard EN 1366-1 and is VTT certified.

## CLEANING COVER

### BDEG-7 - CLEANING COVER WITH MOUNTING RING, INSULATED, INSERTION



## STANDARD SIZES

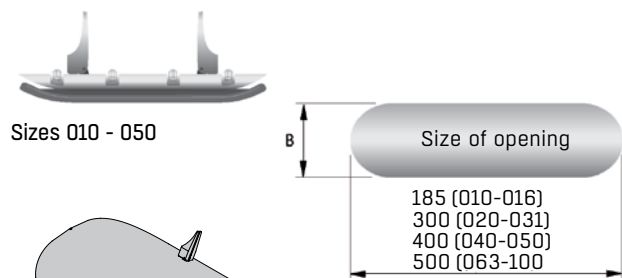
| BDEG-7-bbb | Weight (kg/m) |
|------------|---------------|
| -010       | 0.35          |
| -012       | 0.40          |
| -016       | 0.70          |
| -020       | 0.90          |
| -025       | 1.40          |
| -031       | 2.00          |

Fire insulation thicknesses according to fire class EI 60 and standard EN 1366.

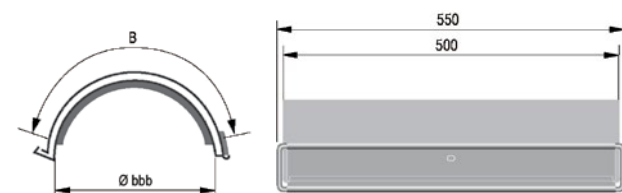
The fire insulation meets the requirements of the test methods according to standard EN 1366-1 and is VTT certified.

## CLEANING COVER

### BDKL-1 - CLEANING COVER FOR SUBSEQUENT INSTALLATION ON CIRCULAR DUCT



Sizes 010 - 050

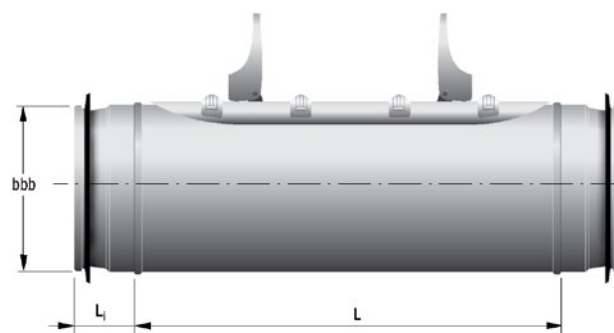


Size 125

### STANDARD SIZES

| BDKL-1-bbb | B (mm) | C (mm) | Weight (kg) |
|------------|--------|--------|-------------|
| -010       | 85     | 185    | 0.25        |
| -012       | 85     | 185    | 0.25        |
| -016       | 85     | 185    | 0.25        |
| -020       | 100    | 300    | 0.55        |
| -025       | 100    | 300    | 0.55        |
| -031       | 100    | 300    | 0.55        |
| -040       | 200    | 400    | 1.4         |
| -050       | 200    | 400    | 1.4         |
| -063       | 400    | 500    | 4.8         |
| -080       | 400    | 500    | 4.8         |
| -100       | 400    | 500    | 4.8         |
| -125       | 400    | 500    | 3.1         |

### BDKP-3 - CLEANING COVER, INSERTION

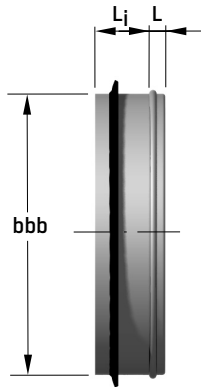


### STANDARD SIZES

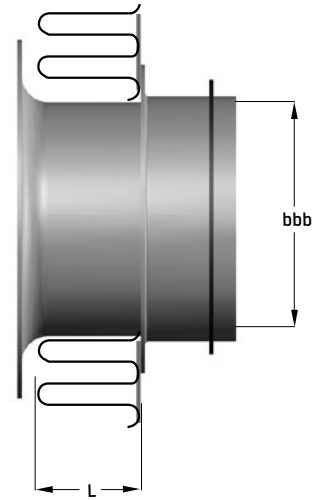
| BDKP-3-bbb | B (mm) | C (mm) | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|--------|--------|---------|-------------|
| -010       | 85     | 185    | 250    | 35      | 0.8         |
| -012       | 85     | 185    | 250    | 35      | 0.9         |
| -016       | 85     | 185    | 250    | 35      | 1.0         |
| -020       | 100    | 300    | 315    | 35      | 1.8         |
| -025       | 100    | 300    | 315    | 35      | 2.1         |
| -031       | 100    | 300    | 315    | 35      | 3.2         |
| -040       | 200    | 400    | 415    | 60      | 4.9         |
| -050       | 200    | 400    | 415    | 60      | 6.0         |
| -063       | 400    | 500    | 540    | 60      | 12.2        |

## BRANCH

### BDEC-1 – BRANCH



### XDEZ-05 – BRANCH FOR INSULATION



#### STANDARD SIZES

| BDEC-1-bbb | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -006       | 15     | 35      | 0.04        |
| -008       | 15     | 35      | 0.06        |
| -010       | 15     | 35      | 0.06        |
| -012       | 15     | 35      | 0.07        |
| -016       | 15     | 35      | 0.09        |
| -020       | 15     | 35      | 0.14        |
| -025       | 15     | 35      | 0.22        |
| -031       | 15     | 35      | 0.28        |
| -040       | 20     | 60      | 0.68        |
| -050       | 20     | 60      | 0.85        |
| -063       | 20     | 60      | 1.1         |
| -080       | 25     | 95      | 2.3         |
| -100       | 25     | 95      | 2.6         |
| -125       | 25     | 95      | 3.2         |

#### OTHER SIZES

| BDEC-1-bbb | L (mm) | Li (mm) | Weight (kg) |
|------------|--------|---------|-------------|
| -014       | 15     | 35      | 0.08        |
| -015       | 15     | 35      | 0.08        |
| -018       | 15     | 35      | 0.11        |
| -022       | 15     | 35      | 0.15        |
| -028       | 15     | 35      | 0.25        |
| -030       | 15     | 35      | 0.27        |
| -035       | 20     | 60      | 0.63        |
| -045       | 20     | 60      | 0.82        |
| -056       | 20     | 60      | 0.95        |

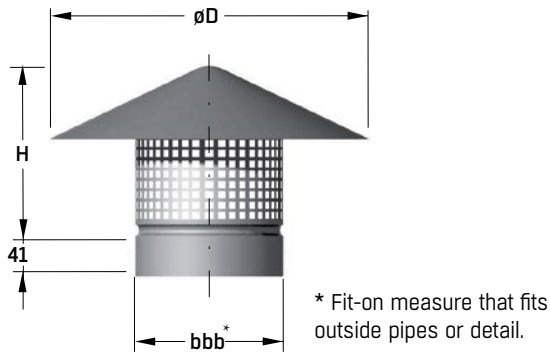
#### STANDARD SIZES

| XDEZ-05-bbb-05 | L (mm) | Weight (kg) |
|----------------|--------|-------------|
| -008           | 50     | 0.23        |
| -010           | 50     | 0.26        |
| -012           | 50     | 0.38        |
| -016           | 50     | 0.45        |
| -020           | 50     | 0.65        |
| -025           | 50     | 0.89        |
| -031           | 50     | 1.2         |
| -040           | 50     | 1.6         |
| -050           | 50     | 1.8         |
| -063           | 50     | 2.2         |

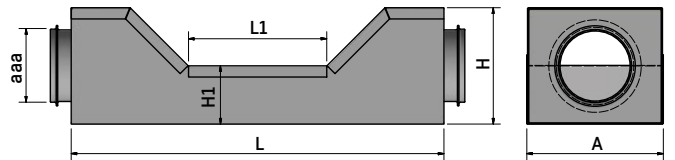
| XDEZ-05-bbb-10 | L (mm) | Weight (kg) |
|----------------|--------|-------------|
| -008           | 100    | 0.28        |
| -010           | 100    | 0.32        |
| -012           | 100    | 0.46        |
| -016           | 100    | 0.55        |
| -020           | 100    | 0.80        |
| -025           | 100    | 1.1         |
| -031           | 100    | 1.4         |
| -040           | 100    | 2.0         |
| -050           | 100    | 2.2         |
| -063           | 100    | 2.6         |

## WEATHERING COWL & CEILING AND WALL BRANCH

### XBEZ-71 - WEATHERING COWL



### BDRK – CROSSING PIECE



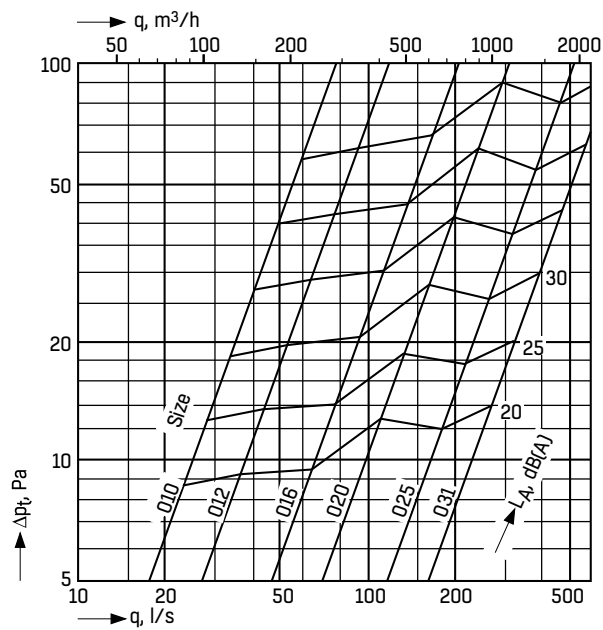
### STANDARD SIZES

| XBEZ-71-bbb | øD (mm) | H (mm) | Weight (kg) |
|-------------|---------|--------|-------------|
| -010        | 200     | 90     | 0.30        |
| -012        | 225     | 95     | 0.38        |
| -016        | 260     | 130    | 0.63        |
| -020        | 310     | 140    | 0.72        |
| -025        | 370     | 205    | 1.1         |
| -031        | 435     | 215    | 1.4         |

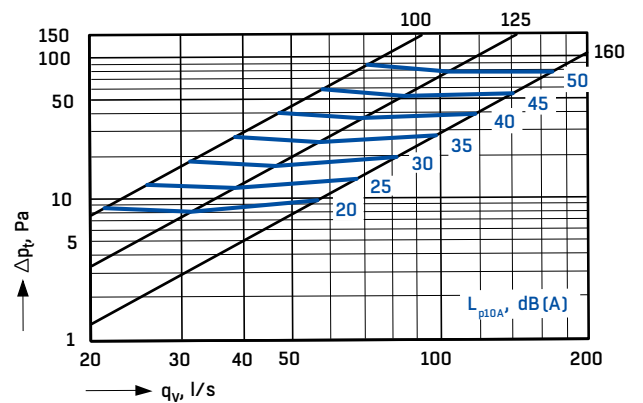
### STANDARD SIZES

| BDRK-aaa | L (mm) | A (mm) | H (mm) | H1 (mm) | Li (mm) | Weight (kg) |
|----------|--------|--------|--------|---------|---------|-------------|
| -100     | 500    | 183    | 156    | 78      | 185     | 2.231       |
| -125     | 500    | 183    | 156    | 78      | 185     | 2.213       |
| -160     | 500    | 223    | 190    | 94      | 225     | 2.739       |

### PRESSURE DROP

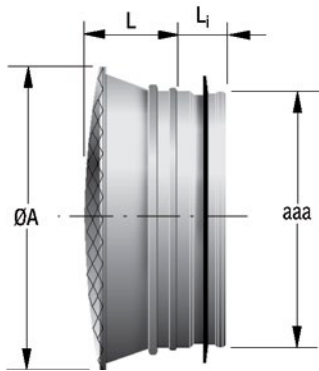


### PRESSURE DROP



### INLET CONE WITH PROTECTIVE NET

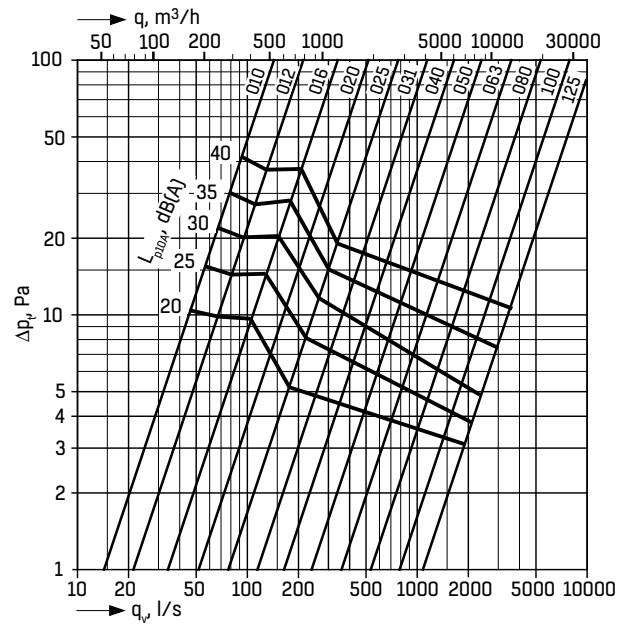
#### BDKU - INLET CONE WITH PROTECTIVE NET



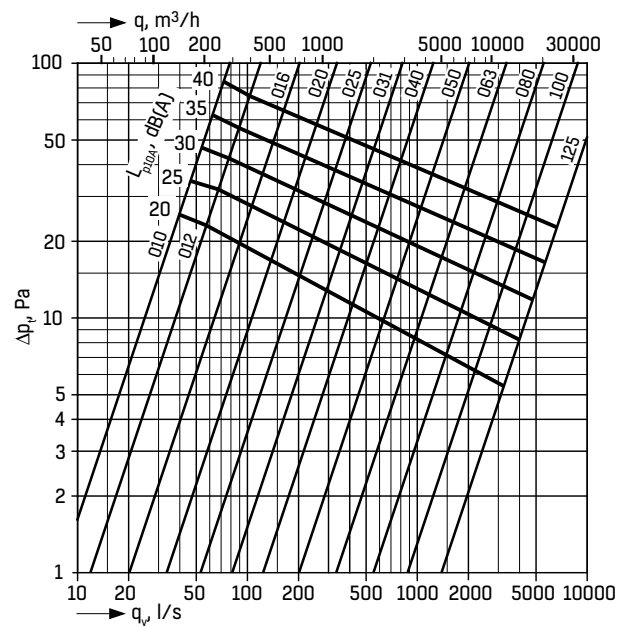
#### STANDARD SIZES

| BDKU-aaa | A (mm) | L (mm) | Li (mm) | Weight (kg) |
|----------|--------|--------|---------|-------------|
| -010     | 170    | 70     | 35      | 0.18        |
| -012     | 190    | 70     | 35      | 0.21        |
| -016     | 230    | 70     | 35      | 0.26        |
| -020     | 270    | 70     | 35      | 0.3         |
| -025     | 315    | 70     | 35      | 0.4         |
| -031     | 370    | 70     | 35      | 0.5         |
| -040     | 455    | 80     | 60      | 1.0         |
| -050     | 565    | 80     | 60      | 1.1         |
| -063     | 695    | 93     | 60      | 1.5         |
| -080     | 905    | 120    | 95      | 3.6         |
| -100     | 1120   | 120    | 95      | 4.5         |
| -125     | 1410   | 145    | 95      | 5.8         |

#### EXTRACT AIR



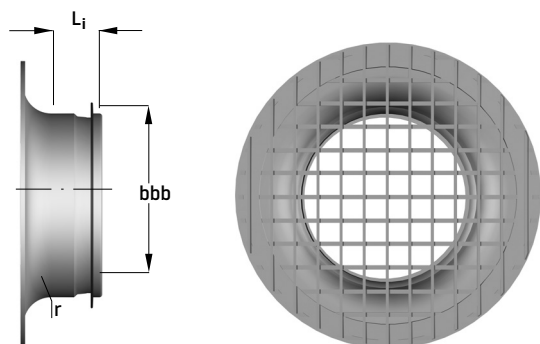
#### SUPPLY AIR



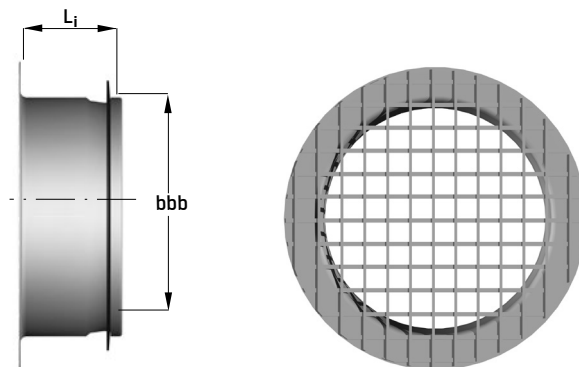


## BRANCH WITH MESH

### XDEA-5 – BRANCH WITH MESH



### XDEA-6 – BRANCH WITH MESH



#### STANDARD SIZES

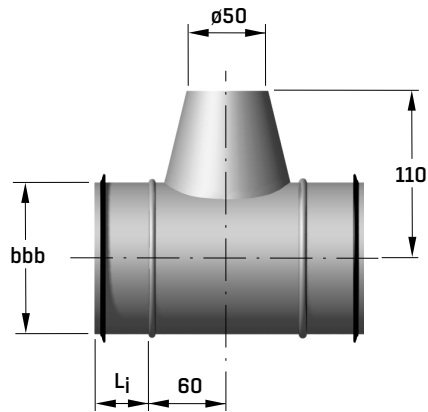
| XDEA-5-bbb-10 | r (mm) | Li (mm) | Weight (kg) |
|---------------|--------|---------|-------------|
| -008          | 10     | 35      | 0.18        |
| -010          | 15     | 35      | 0.25        |
| -012          | 20     | 35      | 0.36        |
| -016          | 25     | 35      | 0.51        |
| -020          | 25     | 35      | 0.68        |
| -025          | 25     | 35      | 0.97        |
| -031          | 25     | 35      | 1.4         |
| -040          | 30     | 60      | 2.0         |
| -050          | 30     | 60      | 2.7         |
| -063          | 30     | 60      | 3.7         |

#### STANDARD SIZES

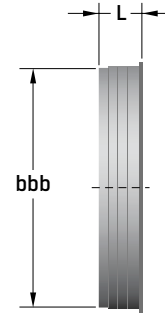
| XDEA-6-bbb-10 | Li (mm) | Weight (kg) |
|---------------|---------|-------------|
| -008          | 35      | 0.15        |
| -010          | 35      | 0.17        |
| -012          | 35      | 0.25        |
| -016          | 35      | 0.33        |
| -020          | 35      | 0.47        |
| -025          | 35      | 0.67        |
| -031          | 35      | 0.94        |
| -040          | 60      | 1.4         |
| -050          | 60      | 2.0         |
| -063          | 60      | 3.0         |

## SUPPLY AIR NOZZLE & PROTECTIVE CAP

### XBEZ-72 – SUPPLY AIR NOZZLE



### BDEZ – PLASTIC PROTECTIVE CAP, PUSHED DIMENSION INSERTION

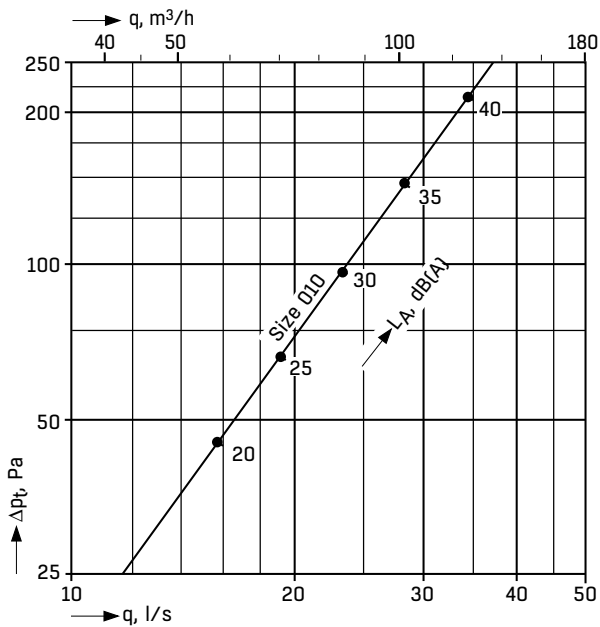


#### STANDARD SIZES

| XBEZ-72- <i>bbb</i> | $L_i$<br>(mm) | Weight<br>(kg) |
|---------------------|---------------|----------------|
| -010                | 35            | 0.38           |

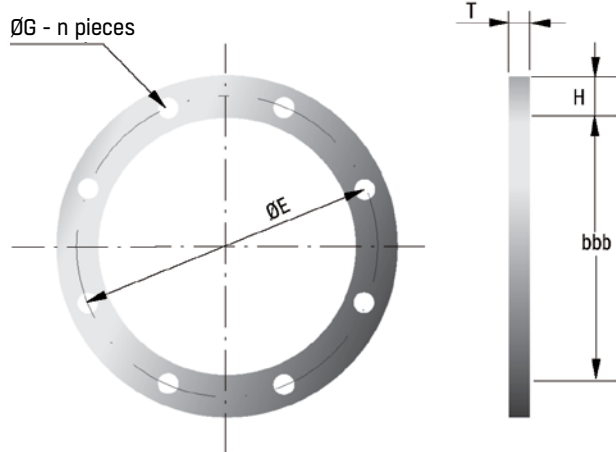
#### STANDARD SIZES

| BDEZ-02- <i>bbb</i> | $L$<br>(mm) | Weight<br>(kg/m) |
|---------------------|-------------|------------------|
| -006                | 15          | 0.01             |
| -008                | 10          | 0.01             |
| -010                | 12          | 0.01             |
| -012                | 15          | 0.02             |
| -016                | 15          | 0.03             |
| -020                | 30          | 0.08             |
| -025                | 20          | 0.10             |
| -031                | 30          | 0.14             |
| -040                | 40          | 0.35             |
| -050                | 45          | 0.73             |

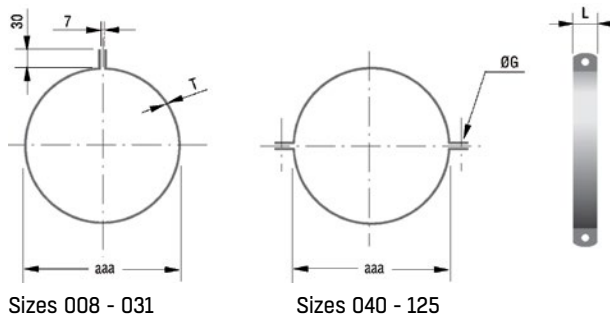


### FLANGE & BRACKET

#### EBGA-2 - FLANGE, GALVANIZED (SIZES 031 - 160 EUROVENT 1/2)



#### BDSK - BRACKET, GALVANIZED



Sizes 008 - 031

Sizes 040 - 125

#### STANDARD SIZES

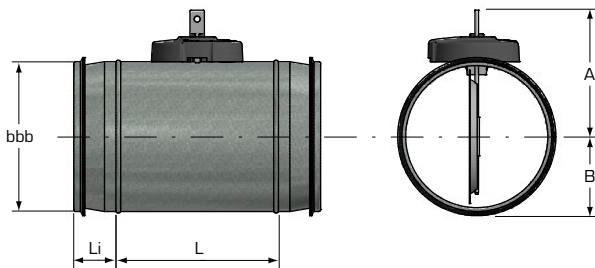
| EBGA-2-bbb | Ds (mm) | E (mm) | T (mm) | H (mm) | G (mm) | n kpl | Weight (kg) |
|------------|---------|--------|--------|--------|--------|-------|-------------|
| -010       | 106     | 140    | 4      | 30     | 11     | 6     | 0.4         |
| -012       | 131     | 165    | 4      | 30     | 11     | 6     | 0.5         |
| -016       | 166     | 200    | 4      | 30     | 11     | 8     | 0.6         |
| -020       | 206     | 240    | 4      | 30     | 11     | 8     | 0.7         |
| -025       | 256     | 290    | 4      | 30     | 11     | 8     | 0.8         |
| -031       | 319     | 355    | 6      | 35     | 10     | 8     | 1.9         |
| -040       | 406     | 450    | 6      | 40     | 12     | 8     | 2.6         |
| -050       | 506     | 560    | 6      | 50     | 12     | 12    | 3.5         |
| -056       | 566     | 620    | 6      | 50     | 12     | 12    | 4.6         |
| -063       | 636     | 690    | 6      | 50     | 12     | 12    | 5.1         |
| -071       | 716     | 770    | 6      | 50     | 12     | 16    | 5.7         |
| -080       | 806     | 860    | 6      | 50     | 12     | 16    | 6.3         |
| -090       | 908     | 970    | 6      | 60     | 15     | 16    | 8.6         |
| -100       | 1008    | 1070   | 6      | 60     | 15     | 16    | 9.5         |
| -112       | 1128    | 1190   | 6      | 60     | 15     | 20    | 10.5        |
| -125       | 1258    | 1320   | 6      | 60     | 15     | 20    | 11.7        |
| -140       | 1408    | 1470   | 6      | 60     | 15     | 20    | 13.1        |
| -160       | 1608    | 1680   | 8      | 60     | 19     | 24    | 14.9        |

#### STANDARD SIZES

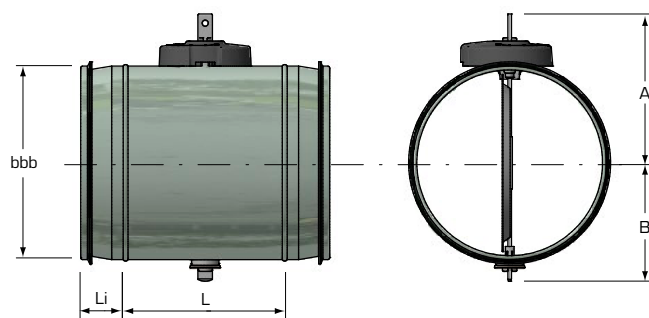
| BDSK-aaa | Ds (mm) | $\varnothing G$ (mm) | L (mm) | T (mm) | Weight (kg) |
|----------|---------|----------------------|--------|--------|-------------|
| -008     | 83      | 11                   | 30     | 1.25   | 0.09        |
| -010     | 103     | 11                   | 30     | 1.25   | 0.11        |
| -012     | 128     | 11                   | 30     | 1.25   | 0.14        |
| -016     | 163     | 11                   | 30     | 1.25   | 0.17        |
| -020     | 203     | 11                   | 30     | 1.5    | 0.25        |
| -025     | 250     | 11                   | 30     | 1.5    | 0.30        |
| -031     | 314     | 11                   | 30     | 2.0    | 0.51        |
| -040     | 398     | 11                   | 30     | 2.0    | 0.66        |
| -050     | 498     | 11                   | 30     | 2.0    | 0.81        |
| -063     | 628     | 10                   | 30     | 2.0    | 1.02        |
| -080     | 798     | 10                   | 25     | 3.0    | 1.58        |
| -100     | 998     | 10                   | 25     | 3.0    | 1.96        |
| -125     | 1198    | 10                   | 25     | 3.0    | 2.43        |

## ADJUSTING AND SHUT-OFF DAMPER

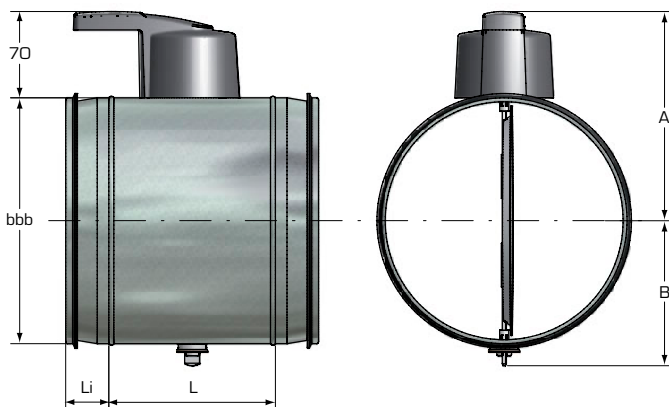
### BDEP-1 AND BDEP-4



Sizes 008 - 012



Sizes 016 - 031

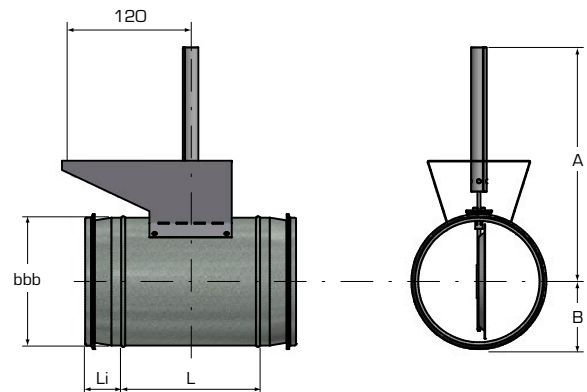


Sizes 040 - 063

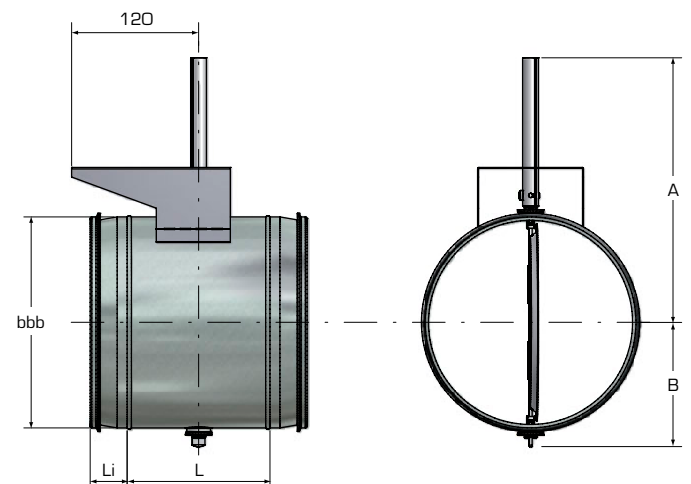
### STANDARD SIZES

| BDEP-a-bbb-c | L (mm) | A (mm) | B (mm) | Li (mm) | Weight (kg) |
|--------------|--------|--------|--------|---------|-------------|
| -008         | 135    | 80     | 40     | 35      | 0.30        |
| -010         | 135    | 90     | 50     | 35      | 0.34        |
| -012         | 135    | 100    | 65     | 35      | 0.42        |
| -016         | 135    | 120    | 100    | 35      | 0.46        |
| -020         | 135    | 140    | 120    | 35      | 0.82        |
| -025         | 125    | 165    | 145    | 35      | 1.2         |
| -031         | 125    | 195    | 175    | 35      | 1.5         |
| -040         | 160    | 270    | 220    | 60      | 2.7         |
| -050         | 160    | 320    | 270    | 60      | 3.9         |
| -063         | 160    | 385    | 335    | 60      | 5.2         |

### BDEP-10 AND BDEP-40 DAMPER WITH MOTOR BRACKET EXCL. MOTOR



Sizes 008 - 012



Sizes 016 - 063

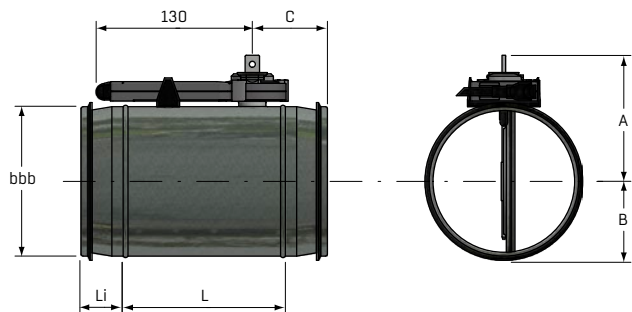
### STANDARD SIZES

| BDEP-aa-bbb | L (mm) | A (mm) | B (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|--------|---------|-------------|
| -008        | 135    | 205    | 40     | 35      | 0.60        |
| -010        | 135    | 215    | 50     | 35      | 0.65        |
| -012        | 135    | 227    | 60     | 35      | 0.75        |
| -016        | 135    | 245    | 98     | 35      | 1.0         |
| -020        | 135    | 265    | 118    | 35      | 1.2         |
| -025        | 125    | 290    | 143    | 35      | 1.6         |
| -031        | 125    | 322.5  | 175    | 35      | 2.0         |
| -040        | 160    | 368    | 215    | 60      | 3.7         |
| -050        | 160    | 418    | 265    | 60      | 5.0         |
| -063        | 160    | 483    | 330    | 60      | 6.0         |

\*) excl. motor

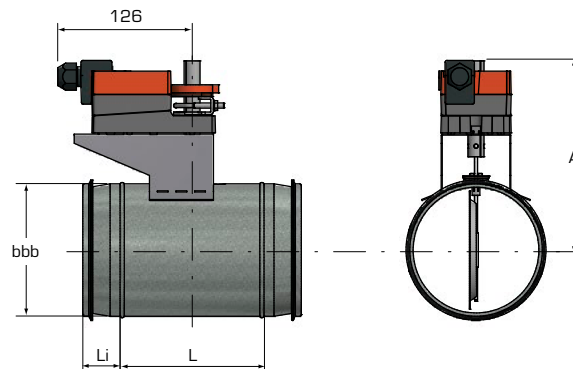
## ADJUSTING AND SHUT-OFF DAMPER

### BDEP-12 AND BDEP-42 BELIMO MOTOR TYPE CM ON-OFF

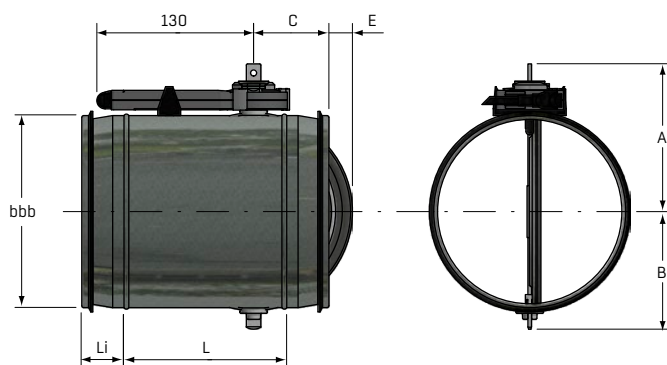


Sizes 008 - 012

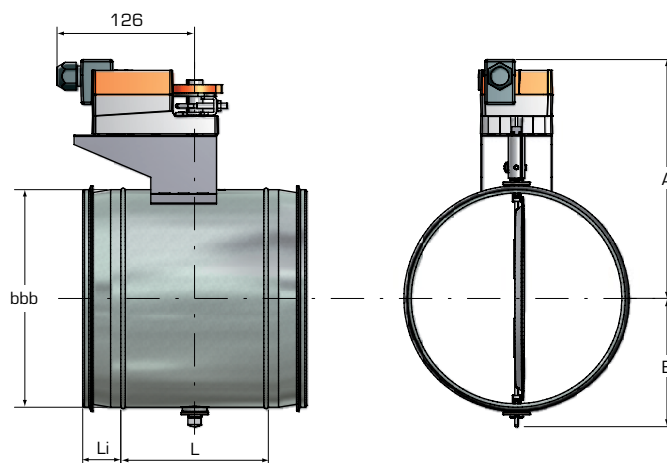
### BDEP-13 AND BDEP-43 BELIMO MOTOR TYPE LM... A ON-OFF



Sizes 008 - 012



Sizes 016 - 020



Sizes 016 - 031

### STANDARD SIZES

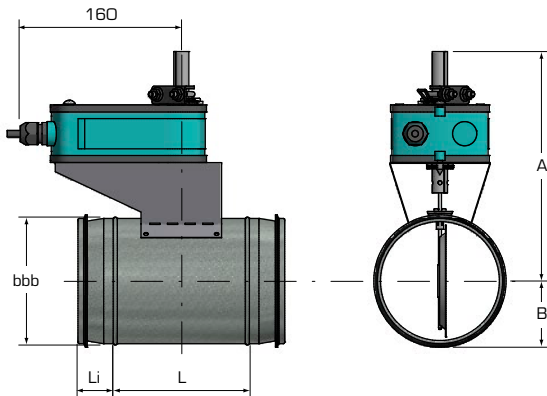
| BDEP-aa-bbb | L (mm) | A (mm) | B (mm) | Li (mm) | C (mm) | E (mm) | Weight (kg) |
|-------------|--------|--------|--------|---------|--------|--------|-------------|
| -008        | 135    | 83     | 40     | 35      | 63     | -      | 0,58        |
| -010        | 135    | 93     | 50     | 35      | 63     | -      | 0,62        |
| -012        | 135    | 105    | 65     | 35      | 63     | -      | 0,70        |
| -016        | 135    | 122    | 100    | 35      | 63     | 20     | 0,74        |
| -020        | 135    | 143    | 120    | 35      | 63     | 40     | 1,10        |

### STANDARD SIZES

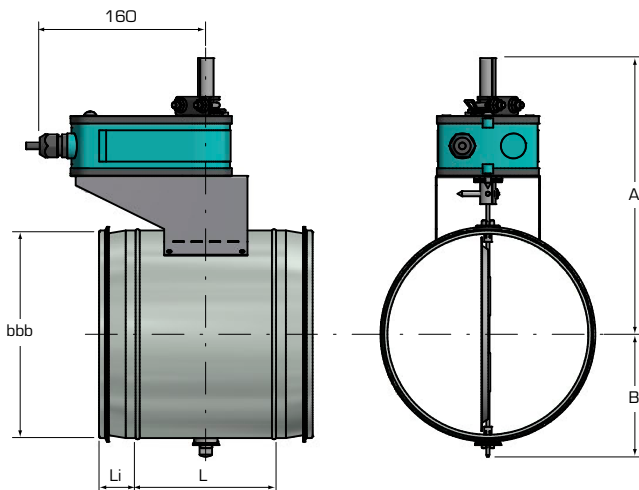
| BDEP-aa-bbb | L (mm) | A (mm) | B (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|--------|---------|-------------|
| -008        | 135    | 160    | 40     | 35      | 1,10        |
| -010        | 135    | 170    | 50     | 35      | 1,20        |
| -012        | 135    | 180    | 60     | 35      | 1,30        |
| -016        | 135    | 200    | 98     | 35      | 1,45        |
| -020        | 135    | 220    | 118    | 35      | 2,0         |
| -025        | 125    | 245    | 143    | 35      | 2,4         |
| -031        | 125    | 280    | 175    | 35      | 2,8         |

## ADJUSTING AND SHUT-OFF DAMPER

### BDEP-18 AND BDEP-48 BELIMO MOTOR TYPE LF WITH SPRING RETURN



Sizes 008 - 012

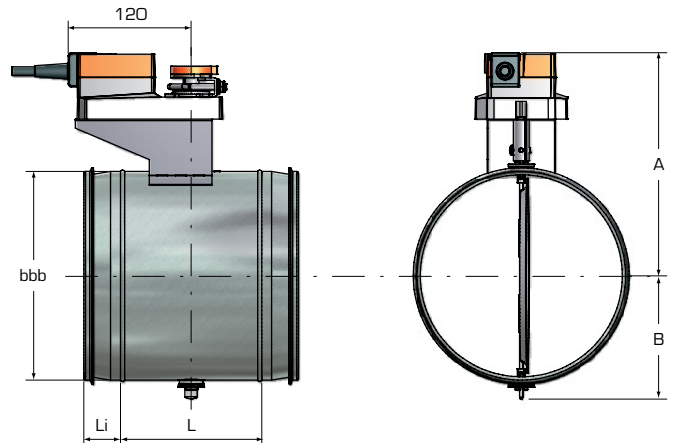


Sizes 016 - 031

#### STANDARD SIZES

| BDEP-aa-bbb | L (mm) | A (mm) | B (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|--------|---------|-------------|
| -008        | 135    | 205    | 40     | 35      | 2.1         |
| -010        | 135    | 215    | 50     | 35      | 2.2         |
| -012        | 135    | 227    | 60     | 35      | 2.3         |
| -016        | 135    | 245    | 98     | 35      | 2.6         |
| -020        | 135    | 265    | 118    | 35      | 2.8         |
| -025        | 125    | 290    | 143    | 35      | 3.2         |
| -031        | 125    | 322.5  | 175    | 35      | 3.6         |

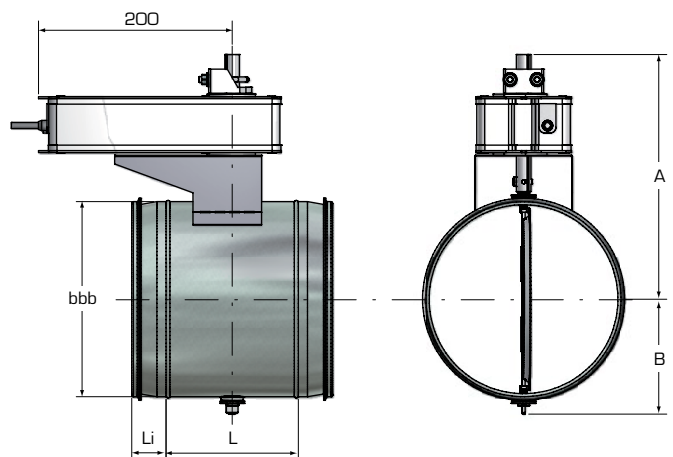
### BDEP-19 AND BDEP-49 BELIMO MOTOR TYPE SM... A ON-OFF



#### STANDARD SIZES

| BDEP-aa-bbb | L (mm) | A (mm) | B (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|--------|---------|-------------|
| -040        | 160    | 320    | 217.5  | 60      | 4.1         |
| -050        | 160    | 374    | 264    | 60      | 5.5         |
| -063        | 160    | 445    | 329    | 60      | 6.5         |

### BDEP-46 BELIMO MOTOR TYPE SF WITH SPRING RETURN

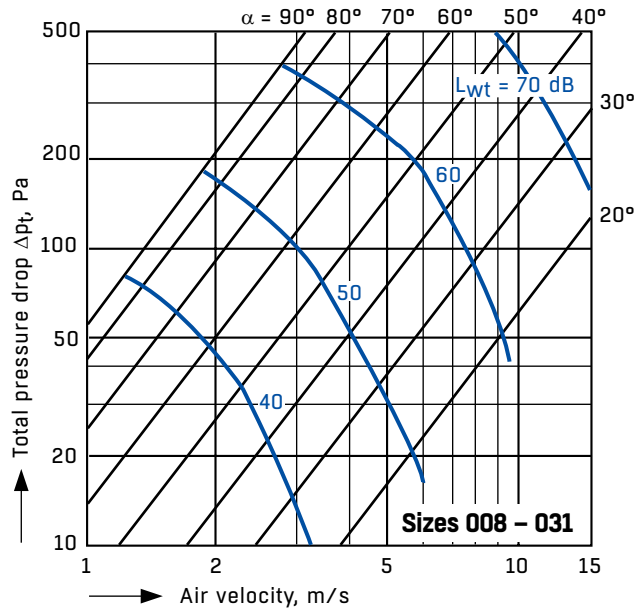


#### STANDARD SIZES

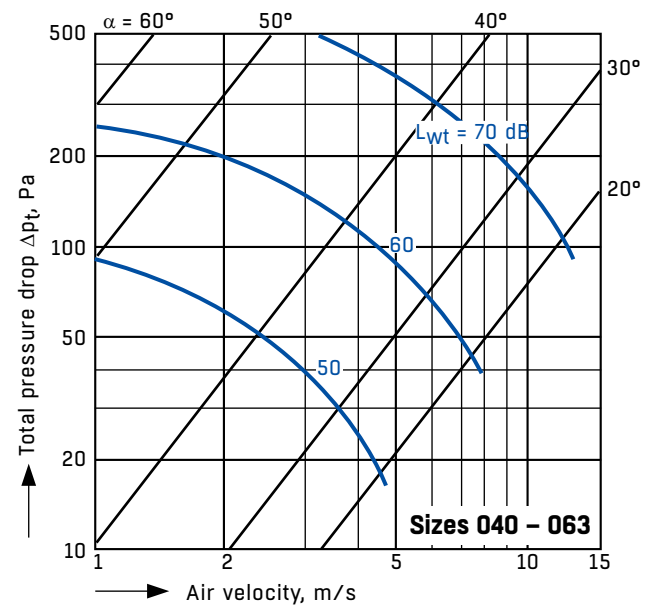
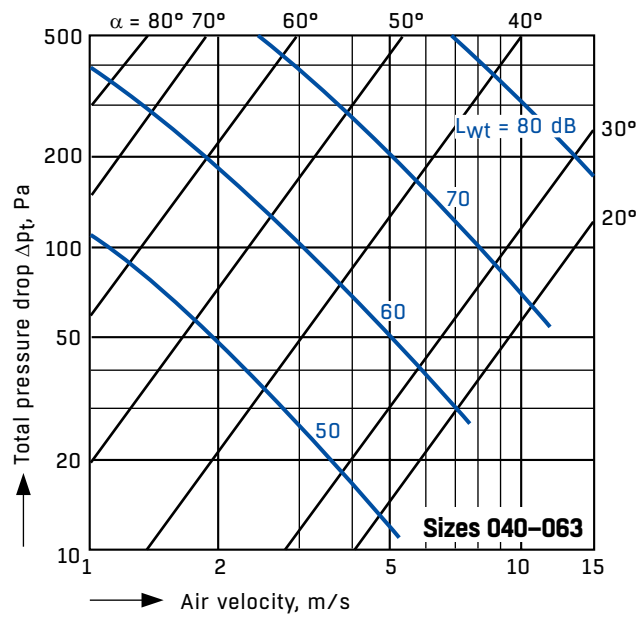
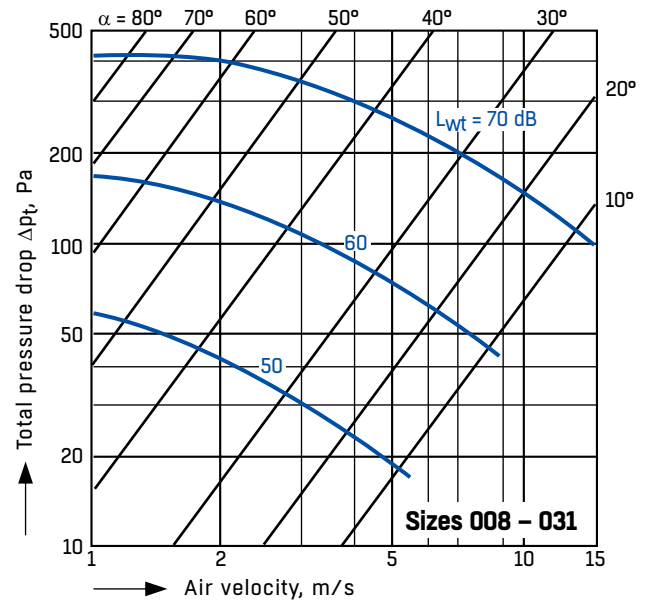
| BDEP-aa-bbb | L (mm) | A (mm) | B (mm) | Li (mm) | Weight (kg) |
|-------------|--------|--------|--------|---------|-------------|
| -040        | 160    | 368    | 215    | 60      | 7.0         |
| -050        | 160    | 418    | 265    | 60      | 8.3         |
| -063        | 160    | 483    | 330    | 60      | 9.3         |

## ADJUSTING AND SHUT-OFF DAMPER

**PRESSURE DROP CHARTS**  
**BDEP-1, -10, -12, -13, -18 AND -19**

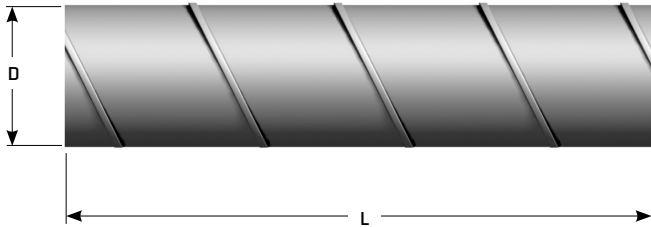


**PRESSURE DROP CHARTS**  
**BDEP-4, -40, -42, -43, -46, -48 AND -49**



## PRODUCTS FOR CASTING

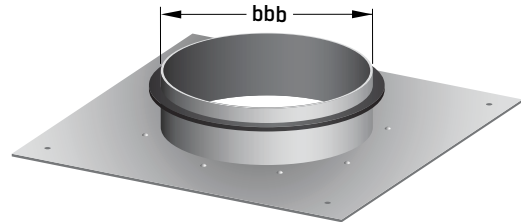
### XCEK – SPIRAL DUCT FOR EMBEDDING IN CONCRETE, FIT-ON



#### STANDARD SIZES

| XCEK-1-bbb-03 | ØD<br>nom. | L<br>(m) | t<br>(mm) | Weight<br>(kg/m) | Value for deformation<br>limit at vacuum (kPa) |
|---------------|------------|----------|-----------|------------------|--|
| -010          | 010        | 3.0      | 0.6       | 4.4              | 36   |
| -012          | 012        | 3.0      | 0.7       | 6.4              | 31   |

### BDEZ-43 - CEILING AND WALL BRANCH



The size of the plate is 255 x 255 mm and the hole size for the insertion branch below.

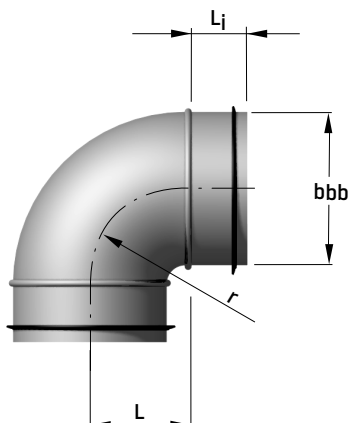
#### STANDARD SIZES

| BDEZ-43-bbb | ØD<br>(mm) |
|-------------|------------|
| -010        | 100        |
| -012        | 125        |
| -016        | 160        |



## PRODUCTS FOR CASTING

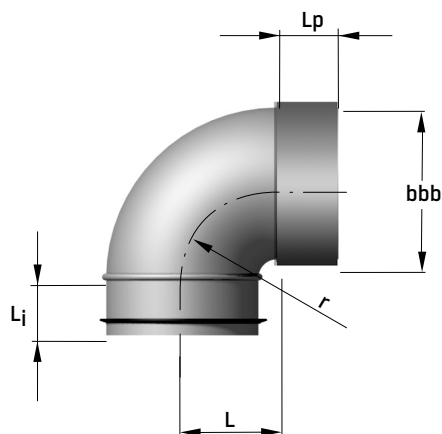
### BDEB 90° - SHORT, PRESSED



#### STANDARD SIZES

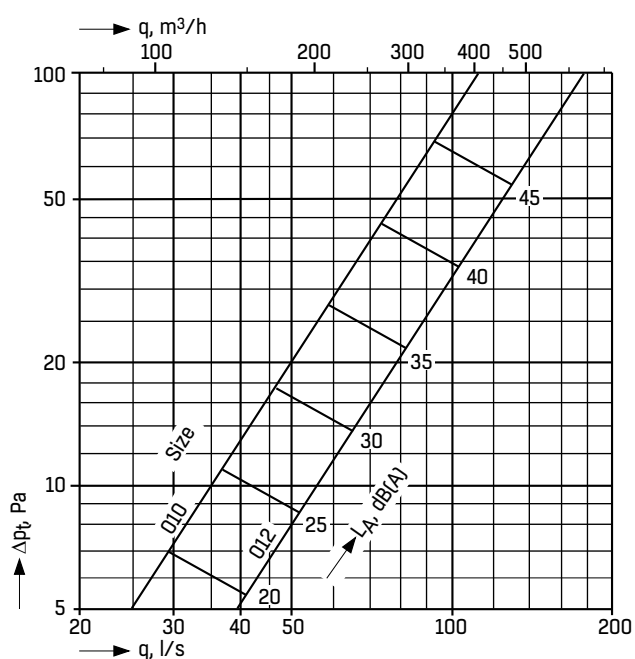
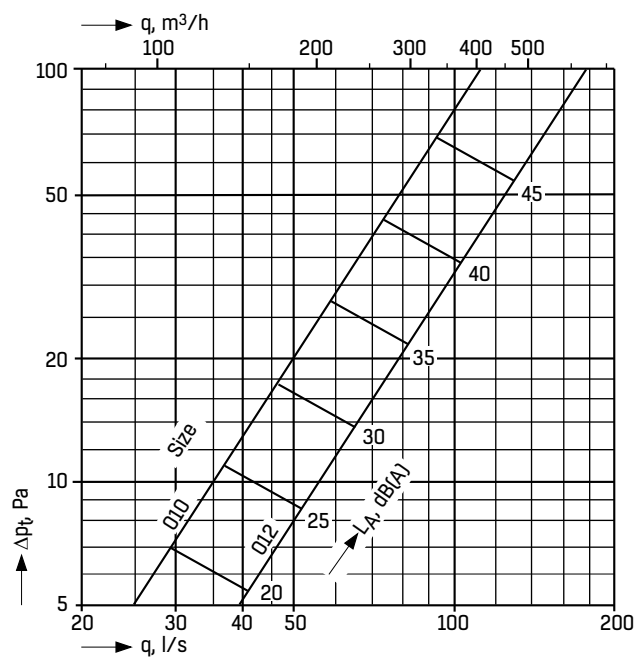
| BDEB-90-bbb-4 | L (mm) | r (mm) | Lj (mm) | Weight (kg) |
|---------------|--------|--------|---------|-------------|
| -010          | 62     | 62     | 35      | 0.22        |
| -012          | 79     | 79     | 35      | 0.31        |
| -016          | 94     | 94     | 35      | 0.50        |

### BDEB 90° - SHORT, PRESSED, FIT-ON - INSERTION



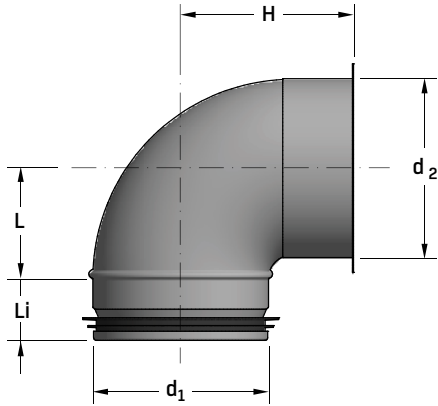
#### STANDARD SIZES

| BDEB-90-bbb-4-2 | L (mm) | r (mm) | Lp/Li (mm) | Weight (kg) |
|-----------------|--------|--------|------------|-------------|
| -010            | 65     | 60     | 35/35      | 0.26        |
| -012            | 80     | 75     | 35/35      | 0.37        |
| -016            | 105    | 100    | 35/35      | 0.56        |



## PRODUCTS FOR CASTING

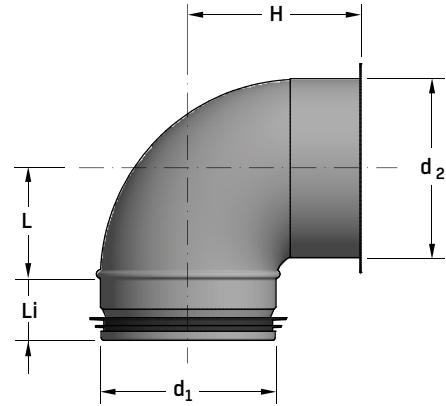
### XBEZ / XCEB - ANGLE DUCT WITH DIFFUSER MOUNTING FRAME, LOW HEIGHT, PRESSED



#### STANDARD SIZES

| Product code | d <sub>1</sub><br>(mm) | d <sub>2</sub><br>(mm) | H<br>(mm) | L<br>(mm) | Li<br>(mm) | Weight<br>(kg) |
|--------------|------------------------|------------------------|-----------|-----------|------------|----------------|
| XBEZ-46      | 010                    | 010                    | 90        | 65        | 35         | 0.32           |
| XCEB-304-03  | 012                    | 012                    | 115       | 75        | 35         | 0.54           |

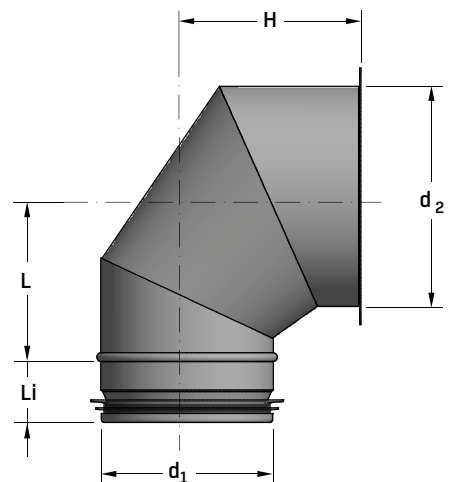
### XCEB - ANGLE DUCT, FIT-ON AND NAIL FLANGE, PRESSED



#### STANDARD SIZES

| Product code | d <sub>1</sub><br>(mm) | D <sub>2</sub><br>(mm) | H<br>(mm) | L<br>(mm) | Li<br>(mm) | Weight<br>(kg) |
|--------------|------------------------|------------------------|-----------|-----------|------------|----------------|
| XCEB-291     | 010                    | 010                    | 100       | 60        | 35         | 0.28           |
| XCEB-304     | 012                    | 012                    | 120       | 75        | 35         | 0.54           |

### XCEB - ANGLE DUCT, FIT-ON AND NAIL FLANGE, FABRICATED

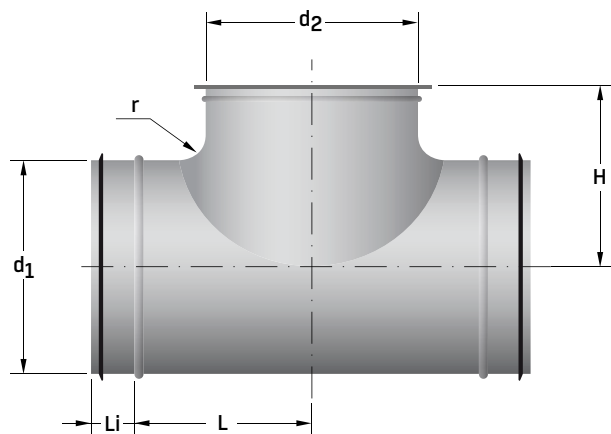


#### STANDARD SIZES

| Product code | d <sub>1</sub><br>(mm) | D <sub>2</sub><br>(mm) | H<br>(mm) | L<br>(mm) | Li<br>(mm) | Weight<br>(kg) |
|--------------|------------------------|------------------------|-----------|-----------|------------|----------------|
| XCEB-245     | 010                    | 012                    | 115       | 105       | 35         | 0.41           |

## PRODUCTS FOR CASTING

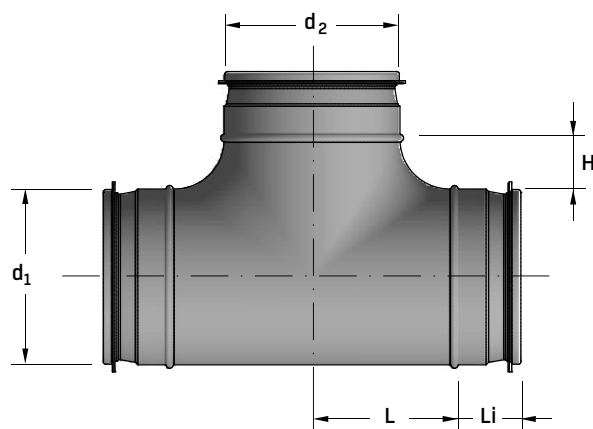
### XCET –T-PIECE WITH DIFFUSER MOUNTING FRAME, LOW HEIGHT



#### STANDARD SIZES

| Product code | d <sub>1</sub> nom. | d <sub>2</sub> nom. | H (mm) | L (mm) | Li (mm) | r (mm) | Weight (kg) |
|--------------|---------------------|---------------------|--------|--------|---------|--------|-------------|
| XCET-257     | 010                 | 010                 | 95     | 90     | 35      | 10     | 0.4         |

### BDET-1 –T-PIECE, SHORT, CASTING

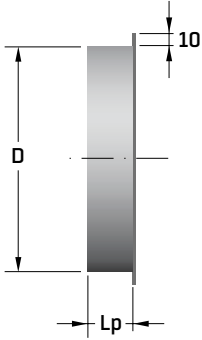


#### STANDARD SIZES

| Product code     | d <sub>1</sub> nom. | d <sub>2</sub> nom. | H (mm) | L (mm) | Li (mm) | Weight (kg) |
|------------------|---------------------|---------------------|--------|--------|---------|-------------|
| BDET-1-010-010-B | 010                 | 010                 | 30     | 83     | 35      | 0.59        |
| BDET-1-012-010-B | 012                 | 010                 | 33     | 83     | 35      | 0.66        |
| BDET-1-012-012-B | 012                 | 012                 | 33     | 96     | 35      | 0.84        |

## PRODUCTS FOR CASTING

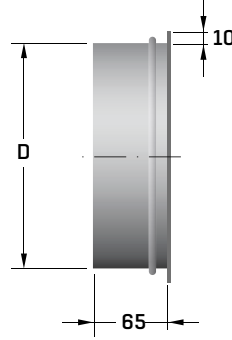
### XCEA – BRANCH, INSERTION, WITH NAIL FLANGE



#### STANDARD SIZES

| Product code | D nom. | Lp (mm) | Weight (kg) |
|--------------|--------|---------|-------------|
| XCEA-270     | 010    | 35      | 0.09        |
| XCEA-296     | 012    | 35      | 0.11        |

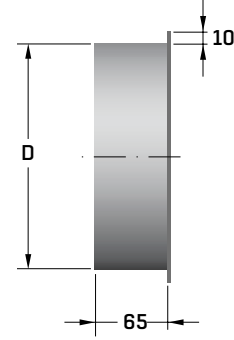
### XCEA – BRANCH, INSERTION, WITH DIFFUSER MOUNTING FRAME, INTENDED FOR FACTORY CASTING "FILIGRANBRANCH"



#### STANDARD SIZES

| Product code | D nom. | Weight (kg) |
|--------------|--------|-------------|
| XCEA-313     | 010    | 0.19        |
| XCEA-312     | 012    | 0.21        |

### XCEA – BRANCH, INSERTION, WITH NAIL FLANGE, INTENDED FOR FACTORY CASTING "FILIGRANBRANCH"



#### STANDARD SIZES

| Product code | D nom. | Weight (kg) |
|--------------|--------|-------------|
| XCEA-314     | 010    | 0.19        |
| XCEA-315     | 012    | 0.24        |
| XCEA-316     | 016    | 0.30        |

## GENERAL

The VELODUCT® system is a complete system of round ducting for which type approval for tightness class D according to EN 12237 has been granted.

All duct fittings are equipped with a sealing ring made of EPDM rubber.

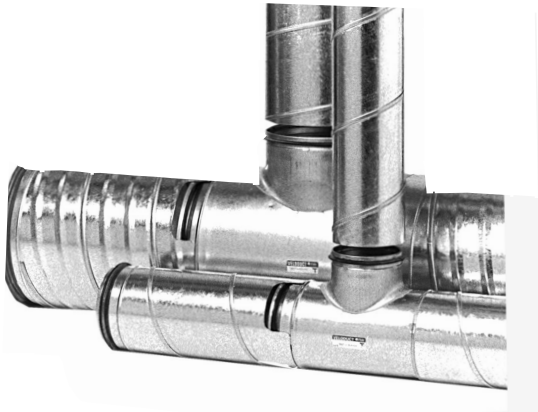
### VELODUCT®

- permits rapid, easy and clean installation
- can be installed in any climate
- easy to balance
- reduces operating cost
- made of fireproof sheet steel

### TYPE APPROVALS AND CERTIFICATES

- Tightness and strength type approvals:
  - SP Sveriges tekniska forskningsinstitut, number 1718/88, tightness class D<sup>1)</sup>
  - VTT Technical Research Centre of Finland, number VTT-RTH-00007-10, tightness class C<sup>1)</sup>
- Finnish M1 cleanliness Classification by The Building Information Foundation RTS<sup>1)</sup>
- CE marked (smoke control duct system) according to EN 12101-7:2011, EC Certificate of Conformity 0761-CPD-0277<sup>1)</sup>

<sup>1)</sup> Certificates available at [www.flaktgroup.com](http://www.flaktgroup.com).



Tube and fittings are marked with a type approval label.

### THE SEAL

The sealing principle is illustrated in the drawings below. These show an insertion fitting and a fit-on (tube) fitting. The seal is made of solid EPDM rubber and is fixed to the end of the fitting.

The seal is highly resistant to moisture, airborne pollutants and solar radiation and can withstand continuous exposure to temperatures between -30°C and +80°C with an unimpaired function.

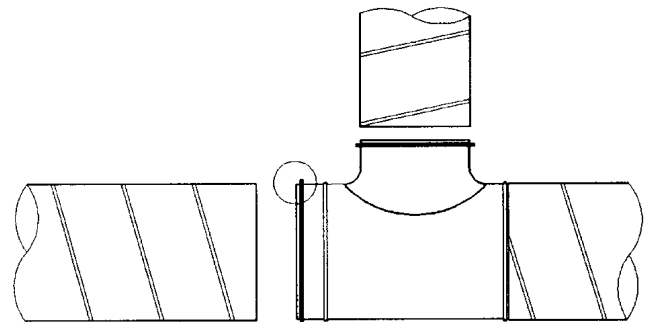
### DESIGN



*Veloduct sealing*



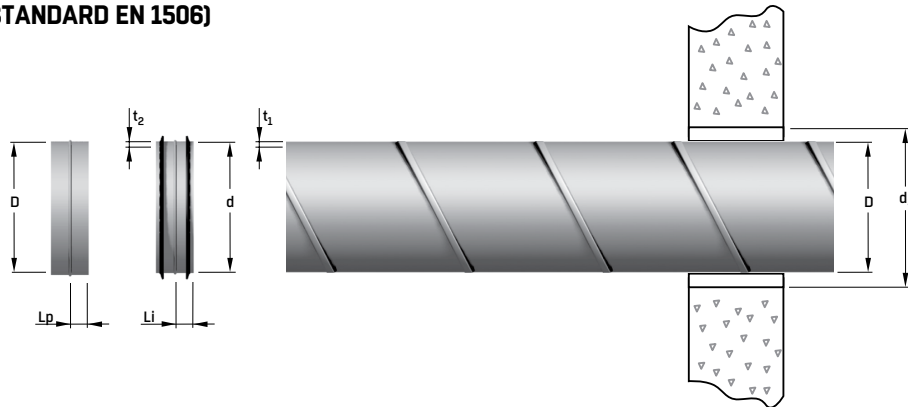
*Veloduct Twin sealing*



## GENERAL

### DIMENSIONS AND TOLERANCES

(AS PER EUROPEAN STANDARD EN 1506)



| Size<br>bbb | D<br>mm       | d<br>mm       | d <sub>3</sub><br>mm | A<br>m <sup>2</sup> | LI/Lp<br>mm | t <sub>1</sub> tube,<br>BDEK | t <sub>1</sub> tube,<br>EKOD |
|-------------|---------------|---------------|----------------------|---------------------|-------------|------------------------------|------------------------------|
| 008         | 80.0-80.5     | 78.8-79.3     | 100                  | 0.005               | 35          | 0.5                          | 0.5                          |
| 010         | 100.0-100.5   | 98.8-99.3     | 125                  | 0.008               |             |                              |                              |
| 012         | 125.0-125.5   | 123.8-124.3   | 160                  | 0.012               |             |                              |                              |
| 014         | 140.0-140.6   | 138.7-139.3   | 160                  | 0.015               |             |                              |                              |
| 015         | 150.0-150.6   | 148.7-149.3   | 180                  | 0.018               |             |                              |                              |
| 016         | 160.0-160.6   | 158.7-159.3   | 200                  | 0.020               |             |                              |                              |
| 018         | 180.0-180.7   | 178.6-179.3   | 224                  | 0.025               |             |                              |                              |
| 020         | 200.0-200.7   | 198.6-199.3   | 250                  | 0.031               |             |                              |                              |
| 022         | 224.0-224.8   | 222.5-223.3   | 280                  | 0.039               |             |                              |                              |
| 025         | 250.0-250.8   | 248.5-249.3   | 315                  | 0.049               |             |                              |                              |
| 028         | 280.0-280.9   | 278.4-279.3   | 355                  | 0.062               | 60          | 0.5                          |                              |
| 030         | 300.0-300.9   | 298.4-299.3   | 355                  | 0.071               |             |                              |                              |
| 031         | 315.0-315.9   | 313.4-314.3   | 400                  | 0.078               |             |                              |                              |
| 035         | 355.0-356.0   | 353.3-354.3   | 450                  | 0.099               |             |                              |                              |
| 040         | 400.0-401.0   | 398.3-399.3   | 500                  | 0.126               |             |                              |                              |
| 045         | 450.0-451.1   | 448.2-449.3   | 560                  | 0.159               |             |                              |                              |
| 050         | 500.0-501.1   | 498.2-499.3   | 630                  | 0.196               |             |                              |                              |
| 056         | 560.0-561.2   | 558.1-559.3   | 710                  | 0.246               | 95          | 0.9                          |                              |
| 063         | 630.0-631.2   | 628.1-629.3   | 800                  | 0.312               |             |                              |                              |
| 071         | 710.0-711.6   | 708.9-709.3   | 900                  | 0.396               |             |                              |                              |
| 080         | 800.0-801.6   | 798.0-799.3   | 1000                 | 0.502               | 95          | 0.9                          |                              |
| 090         | 900.0-902.0   | 897.0-899.3   | 1120                 | 0.636               |             |                              |                              |
| 100         | 1000.0-1002.0 | 997.9-999.3   | 1200                 | 0.785               |             |                              |                              |
| 112         | 1120.0-1122.5 | 1117.8-1119.3 | 1300                 | 0.984               |             |                              |                              |
| 125         | 1250.0-1252.5 | 1247.8-1249.3 | 1400                 | 1.227               |             |                              |                              |

D Inner diameter, tubes and fit-on fittings

d Outer diameter, insertion fittings

d<sub>3</sub> Recommended diameter of opening

A Cross-section area of duct

L<sub>i</sub> Insertion length

L<sub>p</sub> Fit-on length

t<sub>1</sub> Sheet metal thickness, tubes

t<sub>2</sub> Sheet metal thickness, parts

### MATERIALS AND FINISH

Pipes and pipe components are made of hot-dip galvanized sheet steel in accordance with EN 10327 with a zinc thickness of 275 g/m<sup>2</sup> (double sided).

This sheet is suitable for use in an environment with corrosivity class C3 in accordance with ISO 9223 and/or environmental class M2 in accordance with VVS AMA 98.

### TOLERANCES

Sheet metal thickness according to SS-EN 10143

Weight: ±10%

Length: The following tolerances are applicable to the basic dimensions specified

| Basic dimensions, mm | ≤ 15 | (15) – 100 | > 100 |
|----------------------|------|------------|-------|
| Tolerance, mm        | 0    | 0          | 0     |
|                      | -2   | -5         | -10   |

The tolerance of the bends is ±2°.

## PRESSURE DROP CHARTS

Basic calculation data for ducts and duct components having cross-section to Eurovent 2/3 and design to Eurovent 2/4.

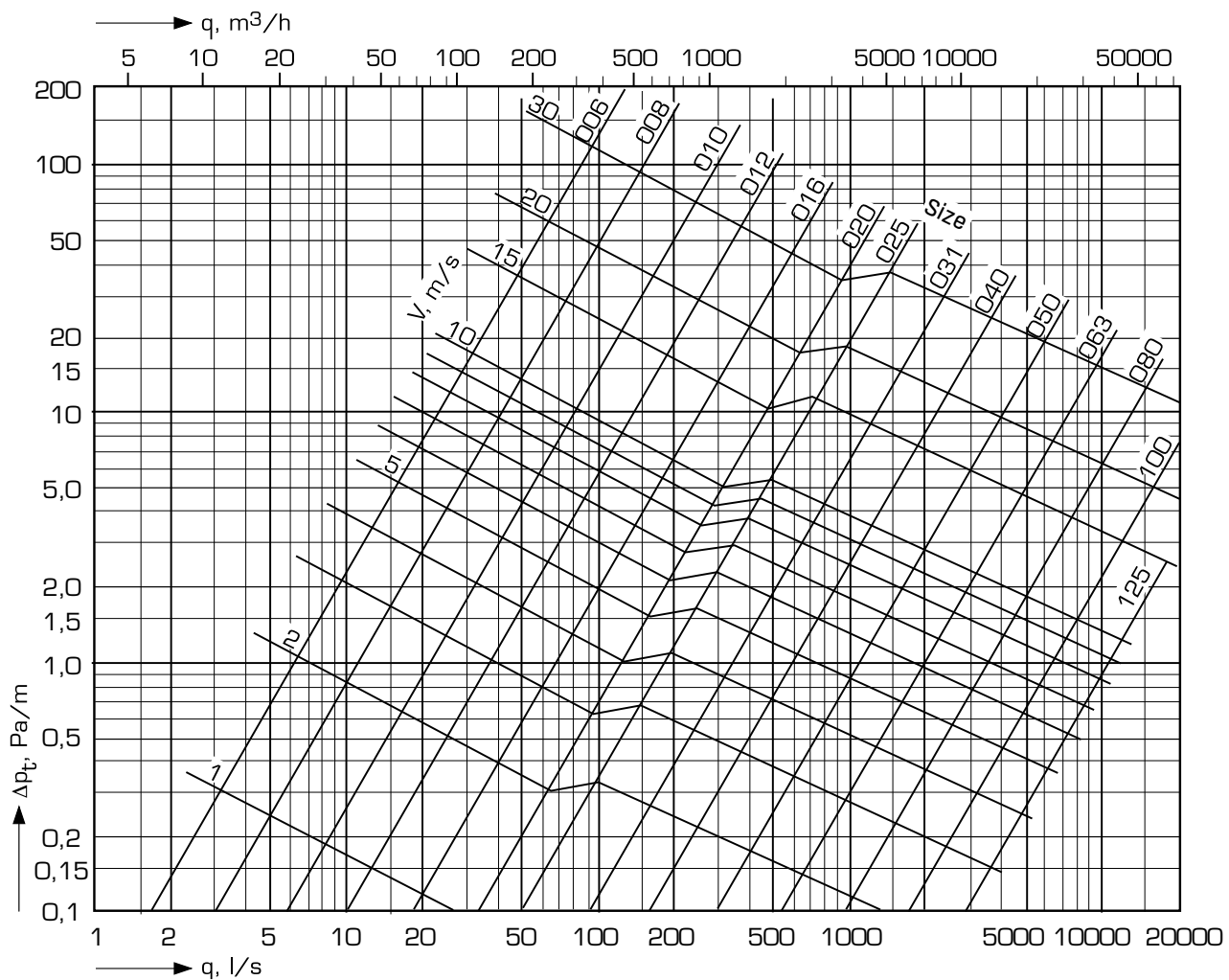
The rated nominal air flow resistance ( $p_{nom}$ ) should be corrected with regard to leakage and fan connection.

$$\sum \Delta p_{tot} = \Delta p_{nom} + \Delta p_{leakage} + \Delta p_{fan\ conn.}$$

The air flow resistances are charted directly in Pa.

- The data in the charts refer to total pressure drop and are therefore direct measurements of the energy loss across the air flow resistances. ( $P_a = 1 \text{ J/m}^3$ )
- The influence of the choice of velocity on the pressure drop can be judged directly.
- The difference in pressure drop between the first and the nth branch can be read directly.
- The effect of a transition in 1, 2 or 3 size steps can be read directly.

### DUCTS



## PRESSURE DROP CHARTS

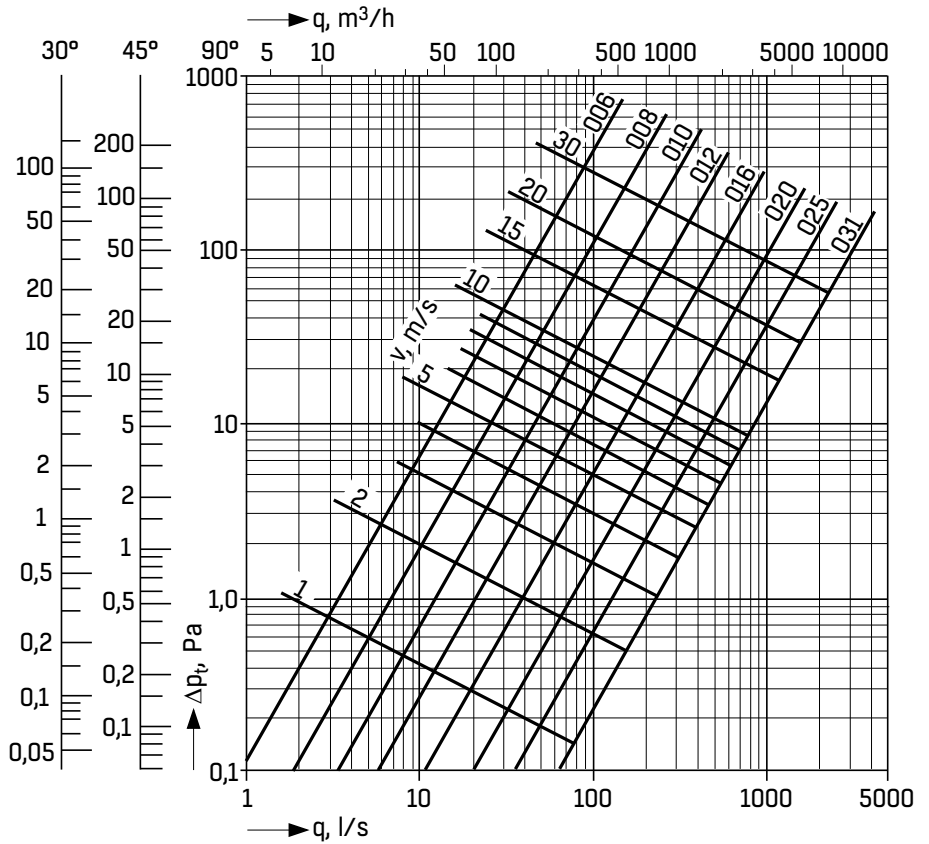
### BDEB BEND, PRESSED

The pressure drop in the chart refer to 90 ° bend.

For 45 °-, respectively. 30 ° bend the following applies:

$$\Delta p_{t45^\circ} = 0.5 * \Delta p_t$$

$$\Delta p_{t30^\circ} = 0.33 * \Delta p_t$$



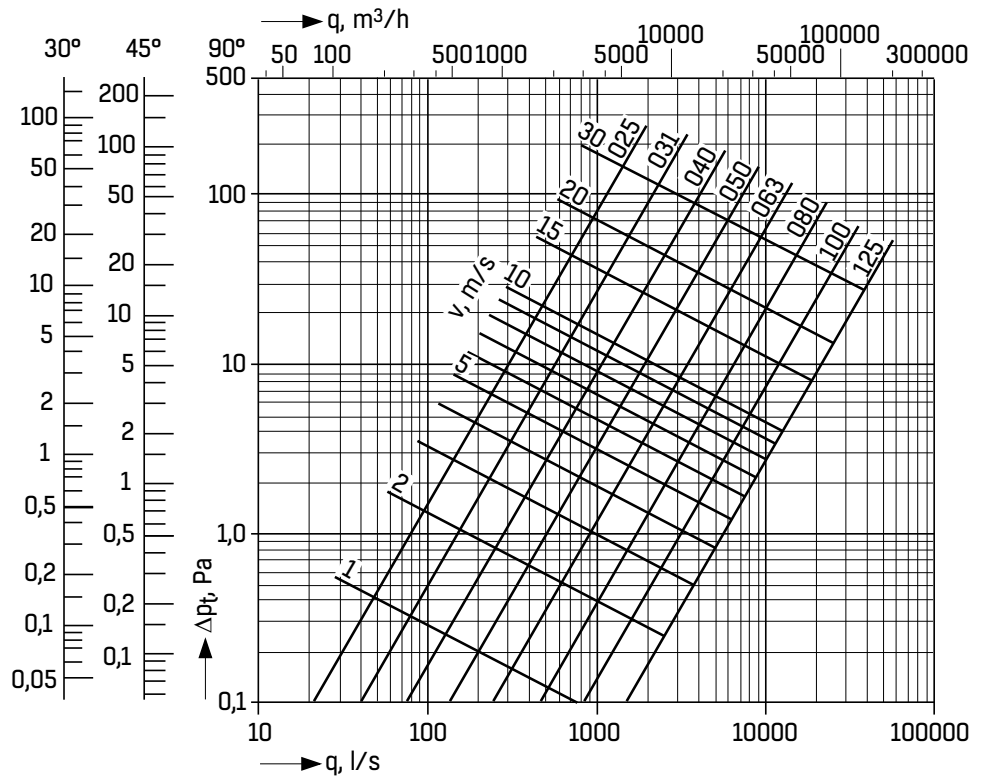
### BDEB BEND, FABRICATED

The pressure drop in the chart refer to 90 ° bend.

For 45 °-, respectively. 30 ° bend the following applies:

$$\Delta p_{t45^\circ} = 0.5 * \Delta p_t$$

$$\Delta p_{t30^\circ} = 0.33 * \Delta p_t$$



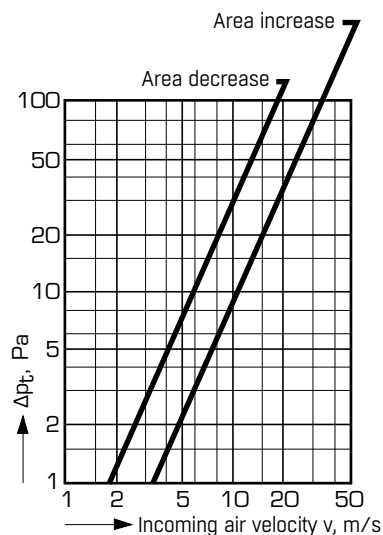


## PRESSURE DROP CHARTS

### REDUCER, ALL TYPES

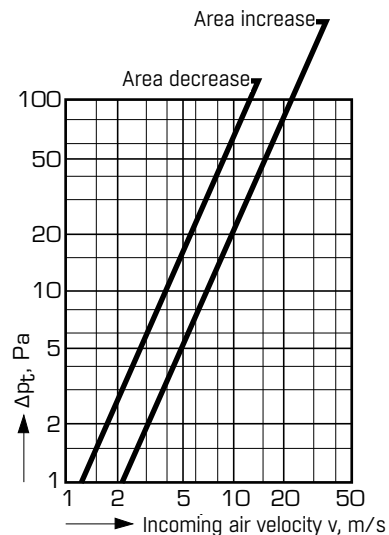
#### 1 size step\*)

D1/D2 = 1.25



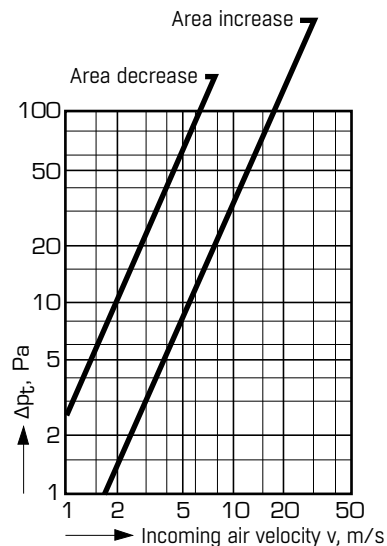
#### 2 size step\*)

D1/D2 = 1.6



#### 3 size step\*)

D1/D2 = 2.0

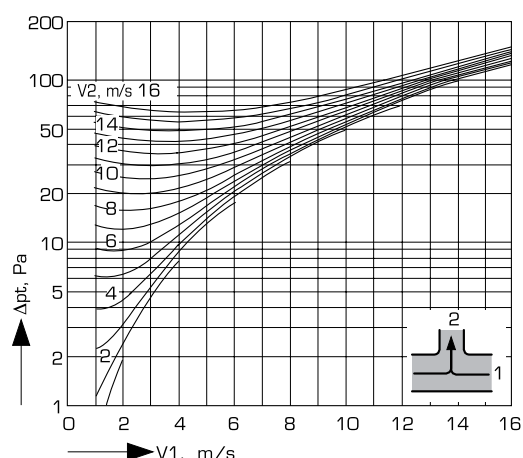
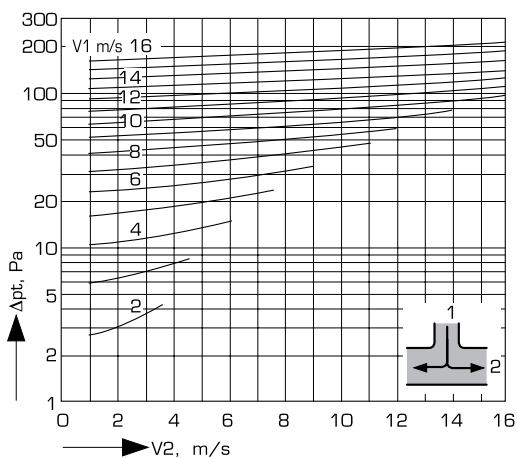
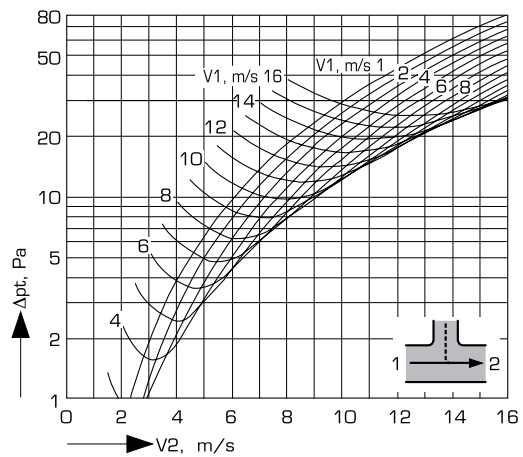
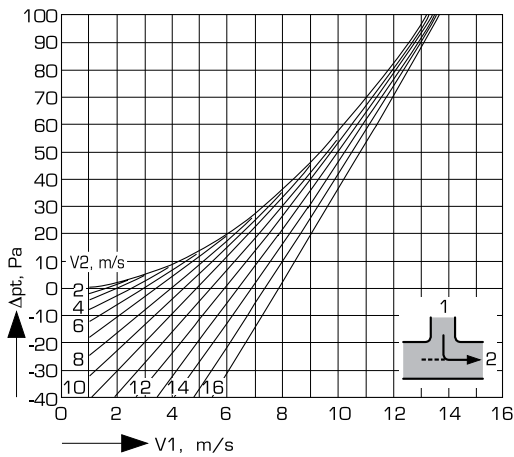
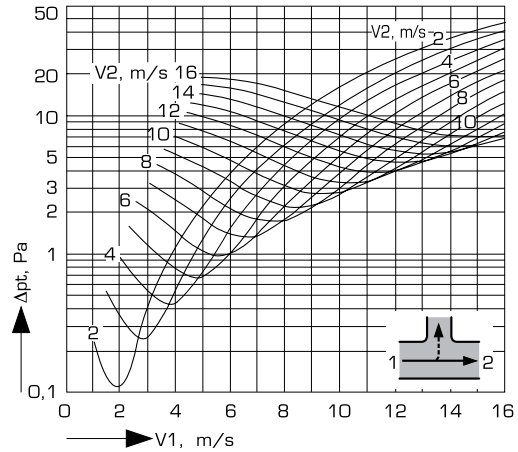
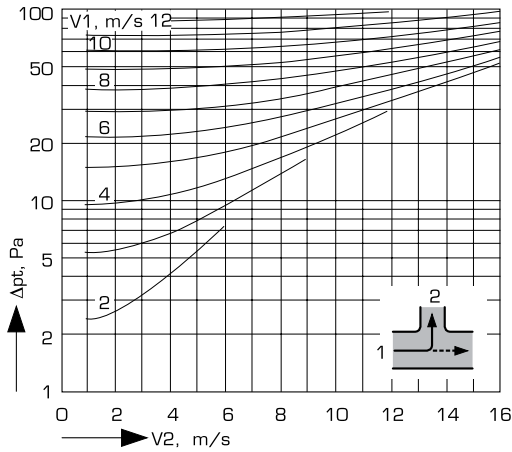
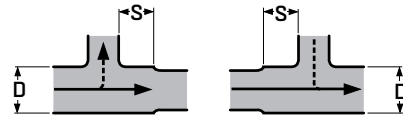


\*) Example: Transition from 020 to 016 = 1 size step.  
 020 to 012 = 2 size step  
 020 to 010 = 3 size step

## PRESSURE DROP CHARTS

### BRANCHES, T-PIECES AND CROSSES

The pressure drops included any reductions in cross section in accordance with the figures, provided that  $S < 3 \cdot D$ .



## INSTALLATION INSTRUCTIONS

### INSTALLATION OF ROUND TUBES AND FITTINGS (TO TIGHTNESS CLASS D)



Fig. 1

### THE TYPE APPROVAL

The Veloduct ducting system has been granted type approval by SITAC (the Swedish Institute for Technical Approval in Construction) in accordance with Type Approval Certificate 1718/88. The type approval signifies that a Veloduct ducting system, installed in accordance with this instruction, complies with the provisions of the Swedish Law (1994:847) on technical specification requirements for construction work, etc. In order for the type approval to be valid, it is required that all details be marked as shown in Fig. 1 or in a similar manner.

Components without this seal of approval may only be employed to a limited extent and only if they are essential for connection to items of equipment or for special matching of the ducting to the building structure.

The supervisor must check any components which do not bear the seal of approval with regard to the sealing employed and the installation. The sealing employed and the installation.

## INSTALLATION INSTRUCTIONS

### INSTALLATION OF ROUND TUBES AND FITTINGS (TO TIGHTNESS CLASS D)

#### PREPARATORY WORK PRIOR TO INSTALLATION



#### WARNING!

Ventilation ducts made of thin sheet metal sometimes have razor-sharp edges.

#### WEAR PROTECTIVE GLOVES!

Be especially careful with the following:

- cut edges of spiral ducts
- straight (non-folded) sheet metal edges of assembly parts.

1. Select a suitable section of ducting and check that the duct can be run in accordance with the drawing before collecting the necessary components from the storage area.

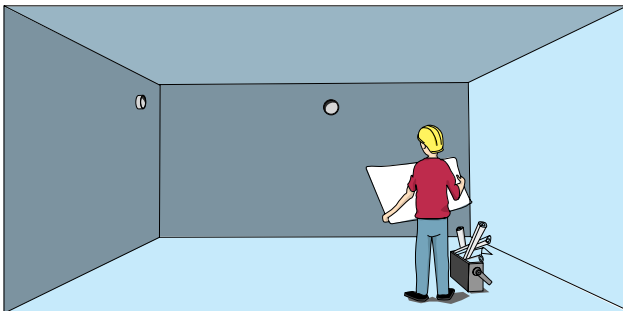


Fig. 2

2. Collect the necessary fittings and tubes. Check that they aren't damaged in any way that would cause air leakage in the finished ducting system, such as holes left after rivets/screws have been removed from reused parts. If the storage area is well arranged and has good weather protection, the components will be easier to find, and the risk of damage or wastage will be reduced. A sign such as that shown in Fig. 3 will facilitate the delivery of materials.

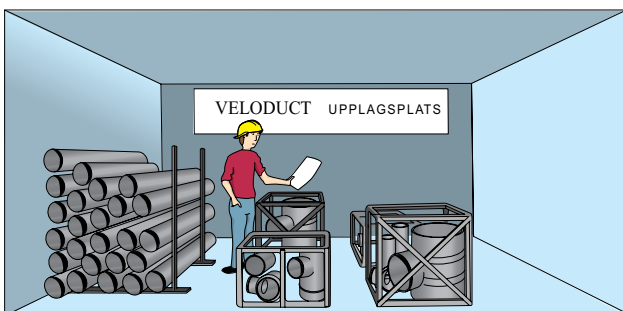


Fig. 3

3. Cut the tubes at right angles to the measured lengths (make allowance for the fitting lengths of the components), and deburr the tube ends thoroughly, using a file or a deburring tool.

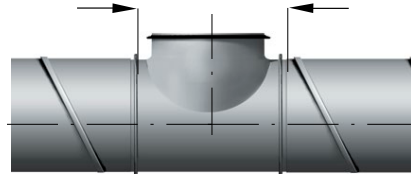


Fig. 4

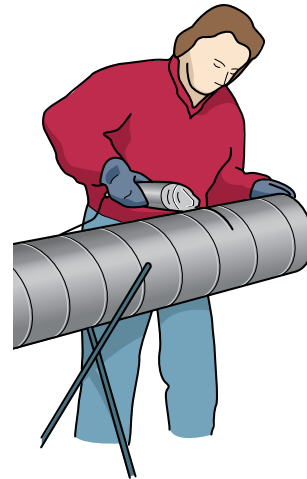


Fig. 5

#### INSTALLATION

4. Assemble suitable sections on the floor. To facilitate the fitting of one part into another, turn one of them while pushing it in.

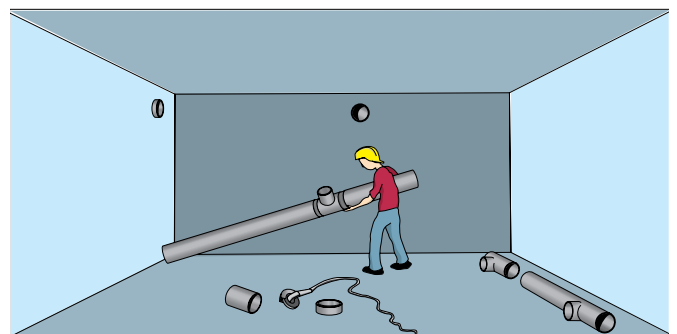


Fig. 6

## INSTALLATION INSTRUCTIONS

### INSTALLATION OF ROUND TUBES AND FITTINGS (TO TIGHTNESS CLASS D)

#### SIZE 008–063 COMPONENTS

a) Minimum overlap = to edge of bead

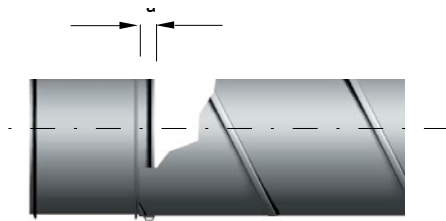


Fig. 7

#### SIZE 035–125 COMPONENTS

b) Minimum overlap = until the dimples centre to tube end

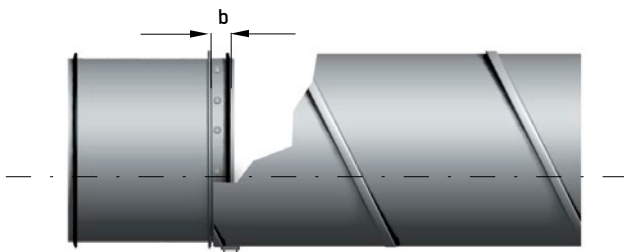


Fig. 8

- Fit together the various components as shown in Fig. 7 and 8.
- Lock the joints. All joints must be secured by means of self-tapping screws or pop rivets in the ducts. The purchaser decides which fasteners can be utilised for ease of cleaning. The number of self-tapping screws or pop rivets necessary is specified in the table above. Locate the screws at such a distance from the tube end that the rubber seal will not be damaged. Space the screws equally around the periphery, and arrange them in such a manner that the gap between the tube and the fitting will be as small as possible. The ductwork can be locked with the tubes and fittings resting on the floor, or this can be done after the ducting has been suspended. The latter procedure facilitates adjustment of the overall length and the positions of various fittings.

| Duct size | Number of screws/pop rivets |
|-----------|-----------------------------|
| 008-016   | 2                           |
| 020-031   | 3                           |
| 040-063   | 4                           |
| 080-125   | 8                           |

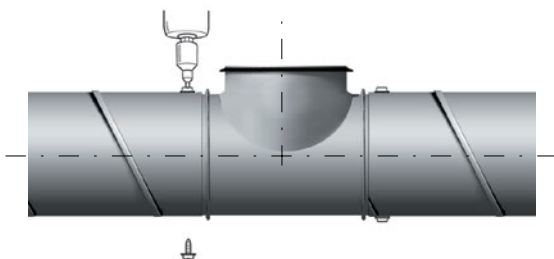


Fig. 9

7. Fit the hangers (e.g. XCEZ-111 Veloduct hanger straps).

The ducts shall be provided with a suspension of max 500 mm from each joint and the distance between hangers should not exceed 3 m for uninsulated ducts and 2 m for ducts with fire insulation.

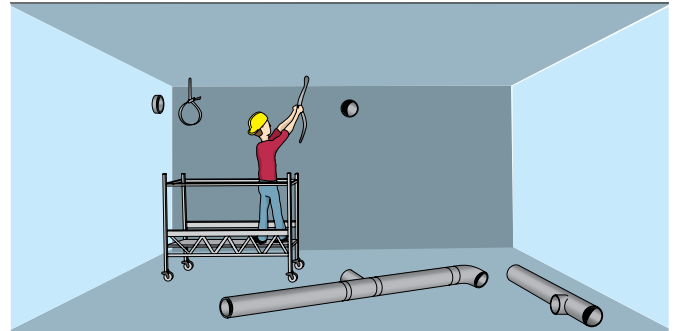


Fig. 10

8. Suspend the duct sections from the hangers.

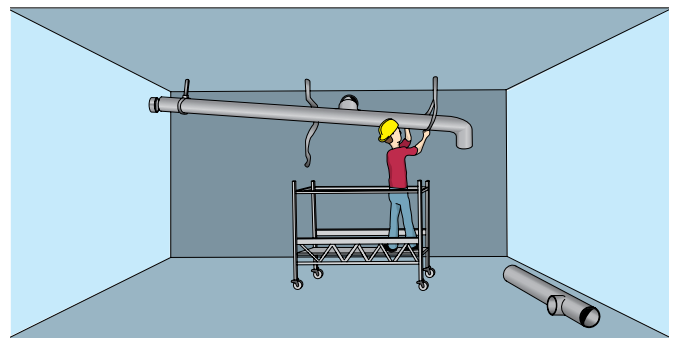


Fig. 11

9. Insertion is facilitated if the entry end is located so that the seal will not be nipped.

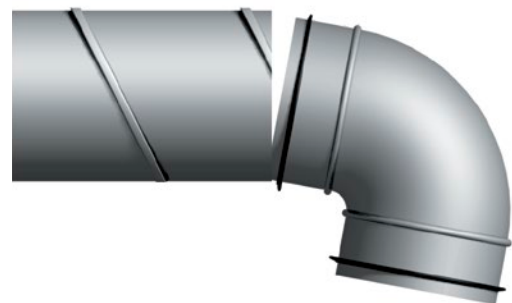


Fig. 12

10. Readjustment of Veloduct joints: If it becomes necessary to turn one or both duct components at their joint, and the rivets or screws securing it are removed, the rivet/screw holes left in the duct component will have to be sealed before the joint is relocked. Keep in mind that an open hole in the insertion end of the duct component will leak even though it is concealed by a tube or connection piece.

## INSTALLATION INSTRUCTIONS

### INSTALLATION OF ROUND TUBES AND FITTINGS (TO TIGHTNESS CLASS D)

11. Removal of fittings or tubes: Turn the component while withdrawing since the seal will otherwise fold and render dismantling difficult.

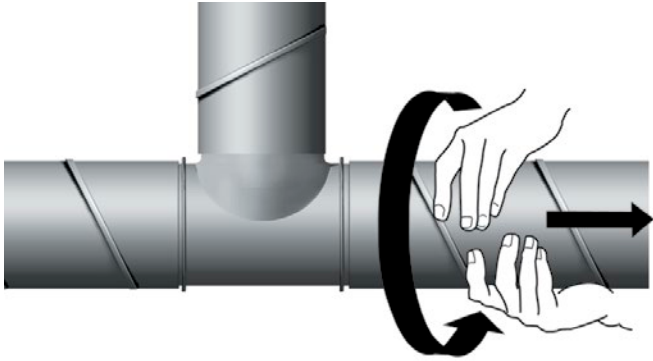


Fig. 13

### INSTALLATION OF PRODUCTS WITHOUT SEAL OF APPROVAL

12. Products without seal of approval incorporated into the ducting and fitted in accordance with the provisions of the seal of approval must be sealed so that they will definitely be in conformance with tightness class D. The seal at joints, etc. must be checked visually before fitting into the ducting. A test report must be produced for products with concealed joint seals. Components not provided with VELODUCT seals must be sealed in accordance with relevant parts of the example below. The sealing material should be non-ageing and permanently elastic.

#### A) Mounting frames and branches for duct fittings and equipment branches (Fig. 14).

Deburr the tube end (1).

Apply an abundant coating of sealing agent to the end of the branch so that a bead of sealing agent will be formed (2).

Push the branch into the tube.

Secure the branch to the tube by means of self-tapping screws/ blind rivets.

If sealing compound cannot be applied to the outside of the branch (e.g. in the case of a mounting frame), apply additional sealing compound at the inner end of the branch (3).

If the branch is accessible from the outside (item of equipment), spread out the compound which has been squeezed out (4). If necessary, apply additional compound until a uniform, sealing bead has been

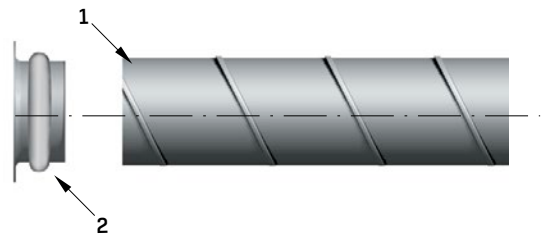


Fig. 14 a

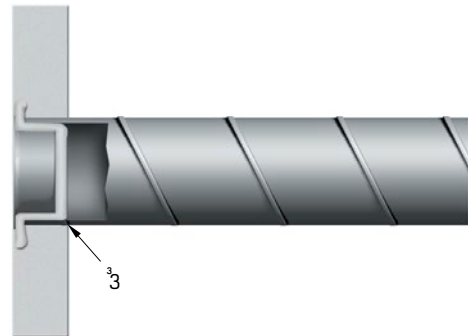


Fig. 14 b

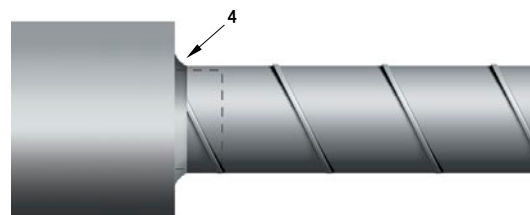


Fig. 14 c

## INSTALLATION INSTRUCTIONS

### INSTALLATION OF ROUND TUBES AND FITTINGS (TO TIGHTNESS CLASS D)

#### B) Securing of products to the building structure (Fig. 15).

Check that the joint surface (1) is smooth.

Apply a sealing strip to the joint surface of the product (2).

Secure the product to the building structure. Then seal the inside of the joint (3) or, if preferable, on the outside.

Refinish with concrete or similar material, if necessary (4)

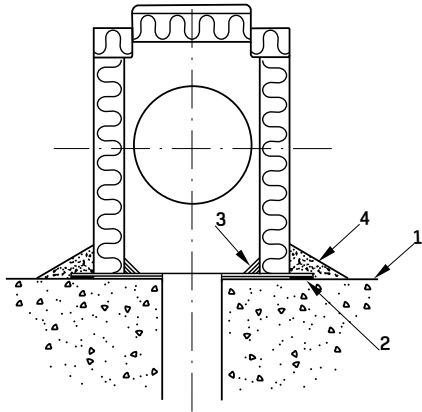


Fig. 15.

#### C) Sealing of rectangular joint against items of equipment (transition from a circular duct to an item of equipment with a rectangular connection) as shown in Fig. 16.

If possible, the circular connection (1) of the transition piece should be made by means of a VELODUCT joint.

The rectangular joint (2) should be of the factory-made type and should be fitted in accordance with the manufacturer's instructions for tightness class C.

A flanged joint (bolted joint) must be fitted with a non-ageing sealing strip and external corners under the flange should be carefully sealed with sealing compound (3).

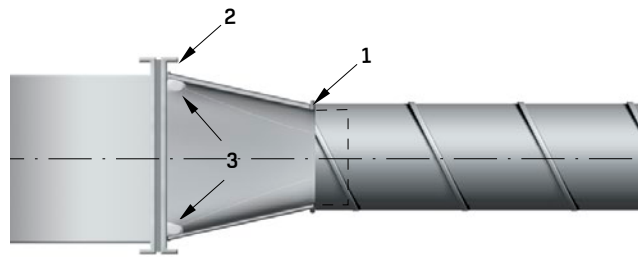


Fig. 16.







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