
MEGADUCT®
AIR IS LIFE

# ميجادكت

## لصناعة خطوط تكييف الهواء

MEGADUCT®
AIR IS LIFE

# MEGADUCT

## Air Distribution Systems Factory


### The Right Choice for Superior Performance

Flexibility, response and quality separate Megaduct Air Distribution Systems Factory from other factories, our 7500m$^2$ of shop space houses a full array of HVAC ductwork, fabrication equipment including a Spiral system tubeformer, gore locker, stitch welder, coil line and state of the art Vulcan system to aid in the fabrication of fittings

### The Megaduct Air Distribution Systems Factory lines Include:

- Spiral duct
- Spiral double wall
- Rectangular duct and fittings
- Spiral silencers
- Volume control damper
- Plenum box
- Sand trap louvers and access door
- Spiral accessories

All duct work is fabricated to SMACNA standards unless otherwise instructed by the customer. Our staff as one of the most highly skilled and competent workforce in the industry is devoted to serve you. With our long experience in the duct fabrication, you can order with confidence knowing that each item is made with the pride and quality that has built our reputation

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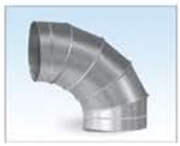
# Contents

















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# Contents










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# 1 Spiral Duct

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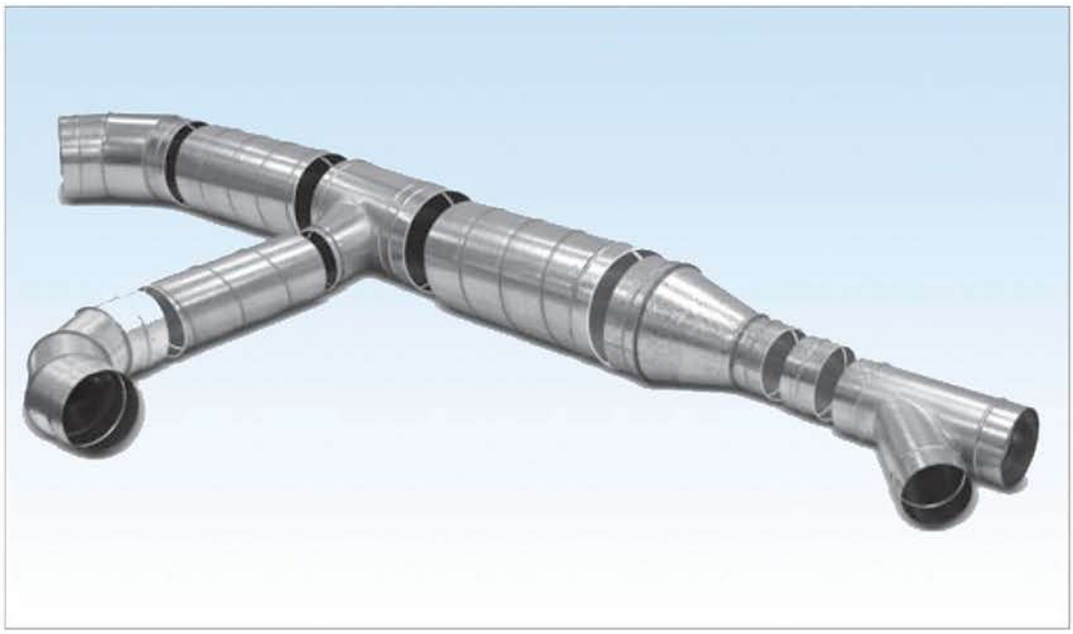
# Contents

# *Spiral System*



Spiral duct combines the economies of light gauge with spiral lockseam construction that assures maximum strength rigidity. As a result of its superior structural strength, the ductwork requires fewer joints and hangers.

Spiral duct has gained wide acceptance for all types of low, medium or high pressure, above and below ground distribution systems, such as ventilation, air-conditioning, industrial exhaust and double wall duct for sound and thermal insulation.

## *Benefits of the MEGADUCT vent system:*

- Spiral duct and fittings are ideal for use in architecturally exposed applications and can be painted to match or complement its surroundings.
- Spiral ductwork requires fewer joints and hangers.
- Less transverse joints, therefore leakage is reduced.
- Significantly lower installation costs.
- Less square meters to insulate.
- Pressure drop through a round system is significantly less than a volumetrically equal rectangular system.
- Internal duct cleaning is easier and cheaper to apply.
- Fast and easy installation .

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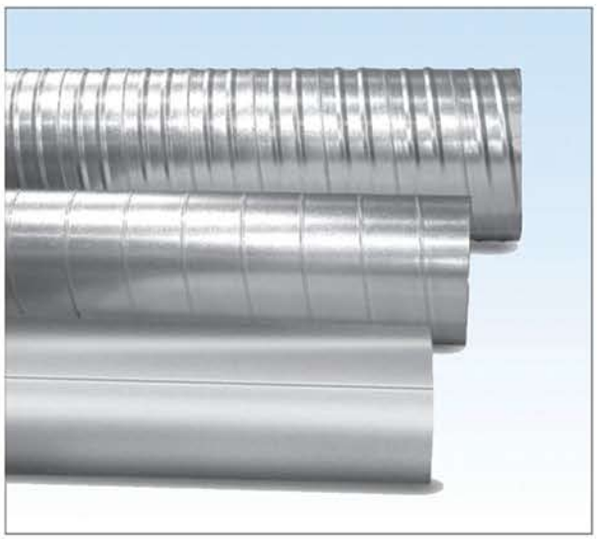
# Ducts
## *SP/SPC/SPL*



## Description

Spiral lock seam duct is constructed with an interlocking helical seam that runs the length of the duct. The Lockseam is formed on the outside of the duct, providing a smooth interior that results in minimal friction loss. This seam increases the duct's rigidity. Spiral lockseam duct can be fabricated in lengths of 6 meter or greater . Longitudinal seam duct (SPL) is available for applications that require heavy gauges or large diameters. The longitudinal seam of the duct is solid welded.

Types: SP, SPC (corrugation), SPL
Material: Galvanized, Stainless steel , Aluminum

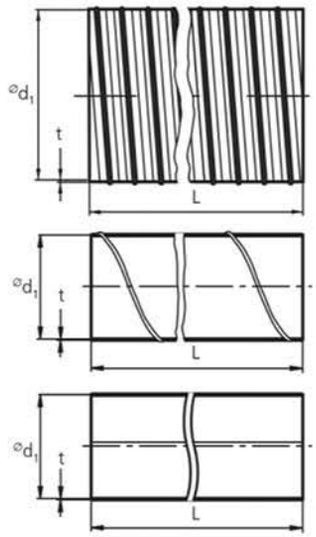
## Technical data

**Ordering**

Product code: **SP aaa bbb**

Type
$\varnothing d_1$
L

## Dimensions




With corrugation

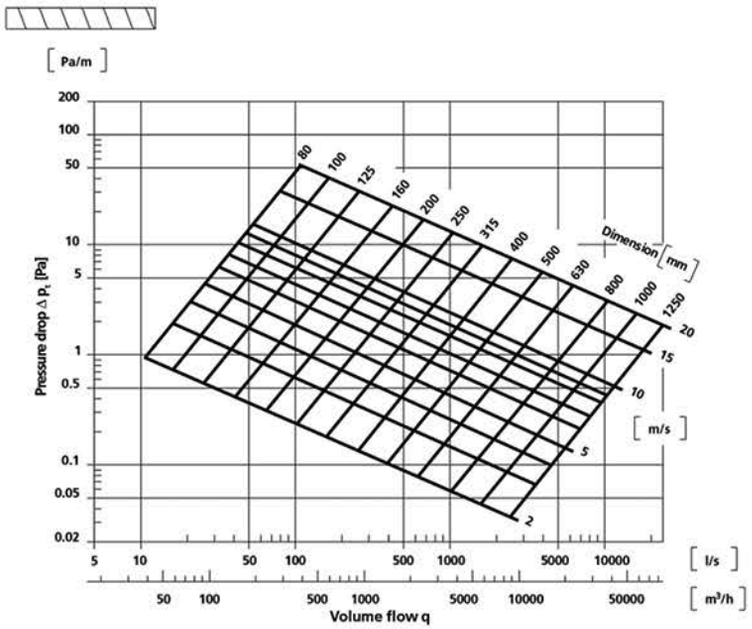
| Φd nom mm | Circumference πd m | $\frac{\pi d^2}{4}$ $m^2$ |
|---|---|---|
| 100 | 0.314 | 0.008 |
| 125 | 0.393 | 0.012 |
| 160 | 0.502 | 0.020 |
| 200 | 0.628 | 0.031 |
| 250 | 0.785 | 0.049 |
| 315 | 0.989 | 0.078 |
| 355 | 1.115 | 0.099 |
| 400 | 1.256 | 0.126 |
| 450 | 1.413 | 0.159 |
| 500 | 1.570 | 0.196 |
| 560 | 1.758 | 0.246 |
| 600 | 1.884 | 0.283 |
| 630 | 1.978 | 0.312 |
| 650 | 2.041 | 0.332 |
| 700 | 2.119 | 0.385 |
| 750 | 2.356 | 0.442 |
| 800 | 2.512 | 0.503 |
| 850 | 2.670 | 0.567 |
| 900 | 3.826 | 0.636 |
| 950 | 2.983 | 0.708 |
| 1000 | 3.140 | 0.785 |
| 1050 | 3.297 | 0.865 |
| 1100 | 3.456 | 0.950 |
| 1150 | 3.611 | 1.038 |
| 1250 | 3.925 | 1.227 |
| 1300 | 4.082 | 1.327 |
| 1400 | 4.396 | 1.538 |
| 1500 | 4.71 | 1.766 |

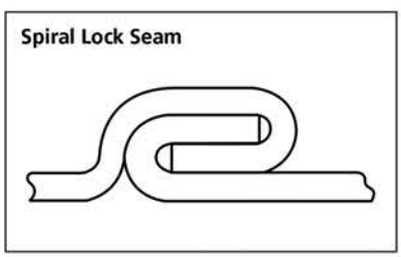
# Ducts

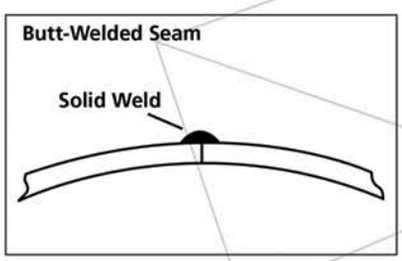
## *SP/SPC/SPL*

## Technical data





# Ducts

## SP/SPC/SPL

**Conversion Chart :** *Rectangular to Equivalent Round for Equal Function and Capacity*

| b/a | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 900 | 1000 | 1200 | 1400 | 1600 | 1700 | 1800 | 1900 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 109 | | | | | | | | | | | | | | | | | | | | | | | |
| 125 | 122 | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 133 | 164 | | | | | | | | | | | | | | | | | | | | | | |
| 175 | 143 | 177 | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 152 | 189 | 219 | | | | | | | | | | | | | | | | | | | | | |
| 225 | 161 | 200 | 232 | | | | | | | | | | | | | | | | | | | | | |
| 250 | 169 | 210 | 244 | 273 | | | | | | | | | | | | | | | | | | | | |
| 275 | 179 | 220 | 256 | 287 | | | | | | | | | | | | | | | | | | | | |
| 300 | 183 | 229 | 266 | 299 | 328 | | | | | | | | | | | | | | | | | | | |
| 350 | 195 | 245 | 286 | 322 | 354 | 383 | | | | | | | | | | | | | | | | | | |
| 400 | 207 | 260 | 305 | 343 | 378 | 409 | 437 | | | | | | | | | | | | | | | | | |
| 450 | 217 | 274 | 321 | 363 | 400 | 433 | 464 | 492 | | | | | | | | | | | | | | | | |
| 500 | 227 | 287 | 337 | 381 | 420 | 455 | 488 | 518 | 547 | | | | | | | | | | | | | | | |
| 550 | 236 | 299 | 352 | 398 | 439 | 477 | 511 | 543 | 573 | 601 | | | | | | | | | | | | | | |
| 600 | 245 | 310 | 365 | 414 | 457 | 496 | 533 | 567 | 598 | 628 | 656 | | | | | | | | | | | | | |
| 650 | 253 | 321 | 378 | 429 | 474 | 515 | 553 | 589 | 622 | 653 | 683 | 711 | | | | | | | | | | | | |
| 700 | 261 | 331 | 391 | 443 | 490 | 533 | 573 | 610 | 644 | 677 | 708 | 737 | 765 | | | | | | | | | | | |
| 750 | 268 | 341 | 402 | 457 | 506 | 550 | 592 | 630 | 666 | 700 | 732 | 763 | 792 | 820 | | | | | | | | | | |
| 800 | 275 | 350 | 414 | 470 | 520 | 567 | 609 | 649 | 687 | 722 | 755 | 787 | 818 | 847 | 875 | | | | | | | | | |
| 900 | 289 | 367 | 435 | 494 | 548 | 597 | 643 | 686 | 726 | 763 | 799 | 833 | 866 | 897 | 927 | 984 | | | | | | | | |
| 1000 | 301 | 384 | 454 | 517 | 574 | 626 | 674 | 719 | 762 | 802 | 840 | 876 | 911 | 944 | 976 | 1037 | 1093 | | | | | | | |
| 1100 | 313 | 399 | 473 | 538 | 598 | 652 | 703 | 751 | 795 | 838 | 878 | 916 | 953 | 988 | 1022 | 1086 | 1146 | | | | | | | |
| 1200 | 324 | 413 | 490 | 558 | 620 | 677 | 731 | 780 | 827 | 872 | 914 | 954 | 993 | 1030 | 1066 | 1133 | 1196 | 1312 | | | | | | |
| 1300 | 334 | 426 | 506 | 577 | 642 | 701 | 757 | 808 | 857 | 904 | 948 | 990 | 1031 | 1069 | 1107 | 1177 | 1244 | 1365 | | | | | | |
| 1400 | 344 | 439 | 522 | 595 | 662 | 724 | 781 | 835 | 886 | 934 | 980 | 1024 | 1066 | 1107 | 1146 | 1220 | 1289 | 1416 | 1530 | | | | | |
| 1500 | 353 | 452 | 536 | 612 | 681 | 745 | 805 | 860 | 913 | 963 | 1011 | 1057 | 1100 | 1143 | 1183 | 1260 | 1332 | 1464 | 1584 | | | | | |
| 1600 | 362 | 463 | 551 | 629 | 700 | 766 | 827 | 885 | 939 | 991 | 1041 | 1088 | 1133 | 1177 | 1219 | 1298 | 1373 | 1511 | 1635 | 1749 | | | | |
| 1700 | 371 | 475 | 564 | 644 | 718 | 785 | 849 | 908 | 964 | 1018 | 1069 | 1118 | 1164 | 1209 | 1253 | 1335 | 1413 | 1555 | 1684 | 1803 | 1858 | | | |
| 1800 | 379 | 485 | 577 | 660 | 735 | 804 | 869 | 930 | 988 | 1043 | 1096 | 1146 | 1195 | 1241 | 1286 | 1371 | 1451 | 1598 | 1732 | 1854 | 1912 | 1968 | | |
| 1900 | 387 | 496 | 590 | 674 | 751 | 823 | 889 | 952 | 1012 | 1068 | 1122 | 1174 | 1224 | 1271 | 1318 | 1405 | 1488 | 1640 | 1778 | 1904 | 1964 | 2021 | 2077 | |
| 2000 | 395 | 506 | 602 | 688 | 767 | 840 | 908 | 973 | 1034 | 1092 | 1147 | 1200 | 1252 | 1301 | 1348 | 1438 | 1523 | 1680 | 1822 | 1952 | 2014 | 2073 | 2131 | 2186 |
| 2100 | 402 | 516 | 614 | 702 | 782 | 857 | 927 | 993 | 1055 | 1115 | 1172 | 1226 | 1279 | 1329 | 1378 | 1470 | 1558 | 1719 | 1865 | 1999 | 2063 | 2124 | 2183 | 2240 |
| 2200 | 410 | 525 | 625 | 715 | 797 | 874 | 945 | 1013 | 1076 | 1137 | 1195 | 1251 | 1305 | 1356 | 1406 | 1501 | 1591 | 1756 | 1906 | 2044 | 2110 | 2173 | 2233 | 2292 |
| 2300 | 417 | 534 | 636 | 728 | 812 | 890 | 963 | 1031 | 1097 | 1159 | 1218 | 1275 | 1330 | 1383 | 1434 | 1532 | 1623 | 1793 | 1947 | 2088 | 2155 | 2220 | 2283 | 2343 |
| 2400 | 424 | 543 | 647 | 740 | 826 | 905 | 980 | 1050 | 1116 | 1180 | 1241 | 1299 | 1355 | 1409 | 1461 | 1561 | 1655 | 1828 | 1986 | 2131 | 2200 | 2266 | 2330 | 2393 |
| 2500 | 430 | 552 | 658 | 753 | 840 | 920 | 996 | 1068 | 1136 | 1200 | 1262 | 1322 | 1379 | 1434 | 1488 | 1589 | 1685 | 1862 | 2024 | 2173 | 2243 | 2311 | 2377 | 2441 |
| 2600 | 437 | 560 | 668 | 764 | 853 | 935 | 1012 | 1085 | 1154 | 1220 | 1283 | 1344 | 1402 | 1459 | 1513 | 1617 | 1715 | 1896 | 2061 | 2213 | 2285 | 2355 | 2422 | 2487 |
| 2700 | 443 | 569 | 678 | 776 | 866 | 950 | 1028 | 1102 | 1173 | 1240 | 1304 | 1366 | 1425 | 1483 | 1538 | 1644 | 1744 | 1929 | 2097 | 2253 | 2327 | 2398 | 2466 | 2533 |
| 2800 | 450 | 577 | 688 | 787 | 879 | 964 | 1043 | 1119 | 1190 | 1259 | 1324 | 1387 | 1447 | 1506 | 1562 | 1670 | 1772 | 1961 | 2133 | 2292 | 2367 | 2439 | 2510 | 2578 |
| 2900 | 456 | 585 | 697 | 798 | 891 | 977 | 1058 | 1135 | 1208 | 1277 | 1344 | 1408 | 1469 | 1526 | 1586 | 1696 | 1800 | 1992 | 2167 | 2329 | 2406 | 2480 | 2552 | 2621 |

$D_e = 1.30\ [(ab)^{0.625}/(a+b)^{0.250}]$ where,

*a* = length of one side of rectangular duct (mm

b = length of adjacent side of rectangular duct (mm).

De = circular equivalent of rectangular duct for equal friction and capacity (mm).

Example: convert rectangular duct 500x500 to equivalent round

*a* = 300, b = 750; from above table De = 506

# Construction Standards

## *Spiral Duct, Round Fittings*

## Table 1-1 Spiral Duct and Fitting Gauges for Positive Pressure

| Duct Diameter in mm (inches) | | | | | Positive Pressure +500 Pa, (2"W.G.) | | Positive Pressure +1000 Pa, (4"W.G.) | | Positive Pressure +2500 Pa, (10"W.G.) | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | inches | ____ | inches | mm | Spiral seam gauge | Longitudinal seam gauge fittings | Spiral seam gauge | Longitudinal seam gauge fittings | Spiral seam gauge | Longitudinal seam gauge fittings |
| 100 | (4) | thru | (8) | 200 | 26 | 26 | 26 | 26 | 26 | 24 |
| 201 | (9) | thru | (14) | 355 | 26 | 26 | 26 | 26 | 26 | 24 |
| 356 | (15) | thru | (26) | 660 | 26 | 24 | 24 | 22 | 24 | 22 |
| 661 | (27) | thru | (36) | 910 | 24 | 22 | 22 | 20 | 22 | 20 |
| 911 | (37) | thru | (50) | 1270 | 22 | 20 | 20 | 20 | 20 | 20 |
| 1271 | (51) | thru | (60) | 1520 | 20 | 18 | 18 | 18 | 18 | 18 |
| 1521 | (61) | thru | (84) | 2130 | 18 | 16 | 18 | 16 | 18 | 16 |

- Above schedule meet the requirements of SMACNA HVAC Duct Construction Stds. Metal and Flexible. Second Edition 1995
- Corrugated ducts are not reflected in above table.
- Longitudinal seam ducts are continuously welded and supplied in 1 meter long.

## Table 1-2 Spiral Duct and Fitting Gauges for Negative Pressure

| Duct Diameter in mm (inches) | | | | | Negative Pressure +500 Pa, (2"W.G.) | | Negative Pressure +1000 Pa, (4"W.G.) | | Negative Pressure +2500 Pa, (10"W.G.) | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | inches | ____ | inches | mm | Spiral seam gauge | Longitudinal seam gauge fittings | Spiral seam gauge | Longitudinal seam gauge fittings | Spiral seam gauge | Longitudinal seam gauge fittings |
| 100 | (4) | thru | (8) | 200 | 26 | 26 | 26 | 26 | 26 | 24 |
| 201 | (12) | thru | (12) | 305 | 26 | 26 | 26 | 24 | 24 | 22 |
| 306 | (16) | thru | (16) | 400 | 26 | 24 | 24 | 22 | 22 | 20 |
| 401 | (20) | thru | (20) | 508 | 24 | 22 | 22 | 20 | 22 | 18 |
| 509 | (24) | thru | (24) | 610 | 22 | 20 | 22 | 18 | 20 | 16 |
| 611 | (34) | thru | (34) | 863 | 20 | 18 | 20 | 16 | 18 | 16* |
| 864 | (34) | thru | (48) | 1219 | 18 | 18* | 18 | 16 | 18* | 16* |

- Above schedule meet the requirements of SMACNA HVAC Duct Construction Stds. Metal and Flexible. Second Edition 1995
- Corrugated ducts are not reflected in above table.
- Longitudinal seam ducts are continuously welded and supplied in 1 meter long.

* Require reinforcement angles, for more details consult **Megaduct** Air Distribution Systems Factory

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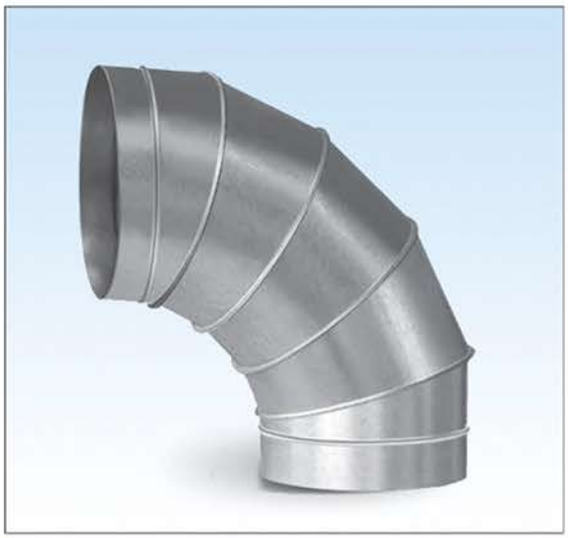
# Elbow

## *ELL 90°*



## Description

Manufactured from segments.

Also Available With EPDM Rubber

**Ordering**

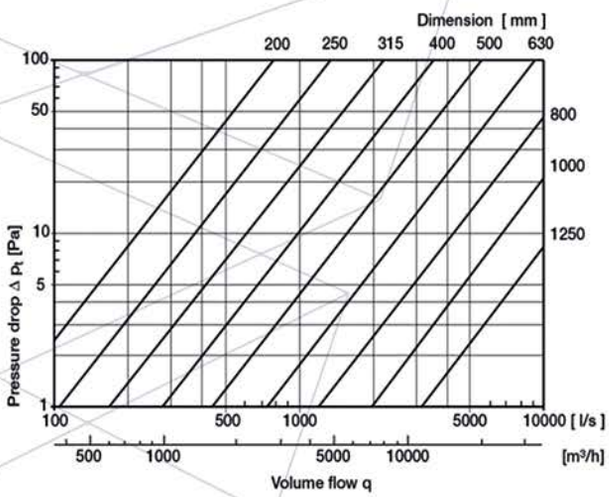
Product code: ELL aaa 90°

Type

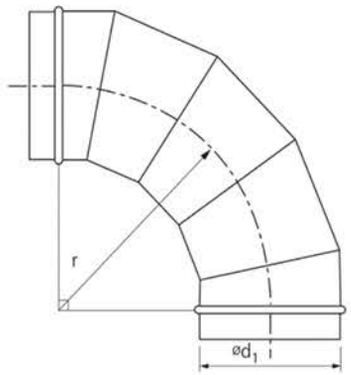
$\phi d_1$

°

## Technical Data




## Dimensions




$r_m \approx 1.5 \times d_1$

| $\phi d_1$ nom | r mm |
|---|---|
| 200 | 300 |
| 250 | 375 |
| 315 | 470 |
| 355 | 530 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |
| 630 | 945 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 1000 | 1500 |
| 1100 | 1650 |
| 1250 | 1875 |

Other Size Are Available On Request

# Elbow

## *EL 90°*

## Description

Manufactured from segments.
$r_m \approx 1 \times d_1$

Also Available With EPDM Rubber

**Ordering**

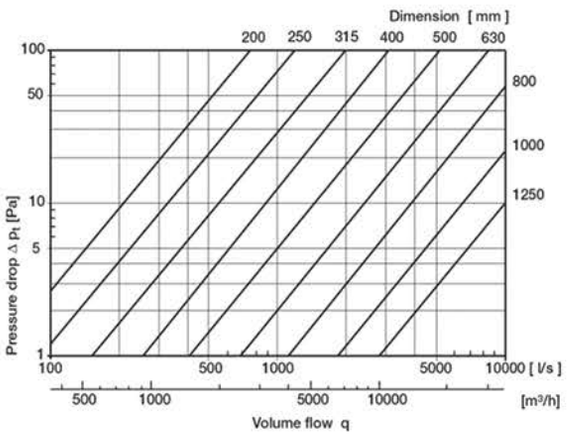
Product code: **EL aaa 90°**

Type

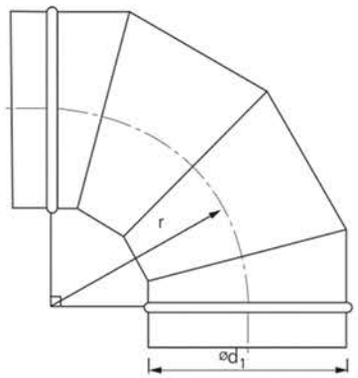
$\phi d_1$

°

## Technical Data




## Dimensions




$r_m \approx 1 \times d_1$

| $\phi d_1$ nom | r mm |
|---|---|
| 200 | 200 |
| 250 | 250 |
| 315 | 315 |
| 355 | 355 |
| 400 | 400 |
| 450 | 450 |
| 500 | 500 |
| 560 | 560 |
| 630 | 630 |
| 700 | 700 |
| 750 | 750 |
| 800 | 800 |
| 850 | 850 |
| 900 | 900 |
| 1000 | 1000 |
| 1100 | 1100 |
| 1250 | 1250 |

**Other Size Are Available On Request**

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# Elbow

## *EL 60°*

## Description

Manufactured from segments.

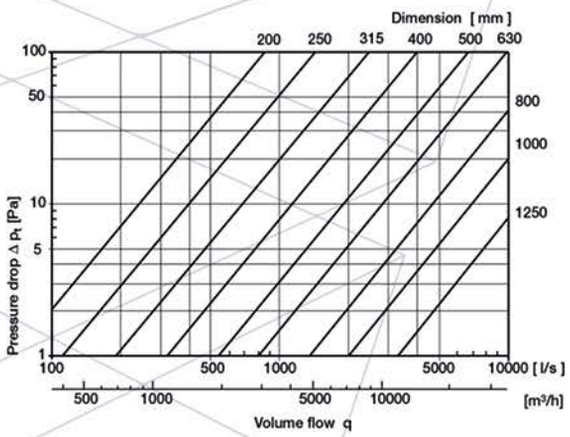
Also Available With EPDM Rubber

**Ordering**

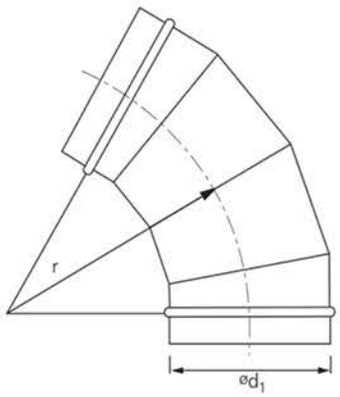
Product code: **EL aaa 60°**

- Type
- ⌀$d_1$
- °

## Technical Data




## Dimensions




$r_m \approx 1.5 \times d_1$

| ⌀$d_1$ nom | r mm |
|---|---|
| 200 | 300 |
| 250 | 375 |
| 315 | 470 |
| 355 | 530 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |
| 630 | 945 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 1000 | 1500 |
| 1100 | 1650 |
| 1250 | 1875 |

**Other Size Are Available On Request**

# Elbow

## *EL 45°*

## Description

Manufactured from segments.

**Ordering**

Product code: EL aaa 45°

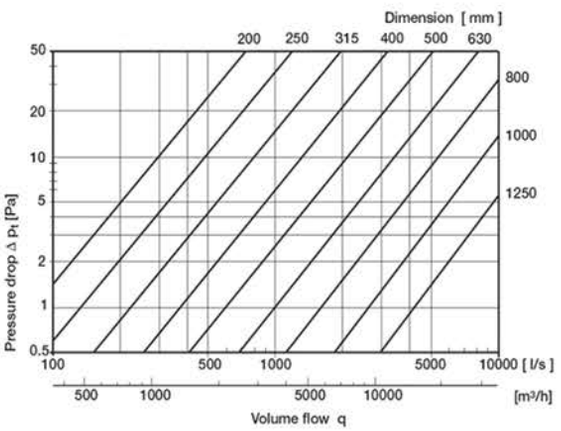
Type

$^{\varnothing}d_1$

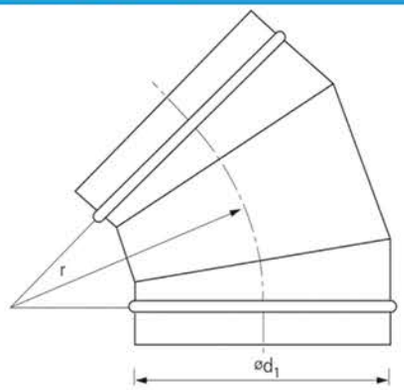
°

Also Available With EPDM Rubber

## Technical Data




## Dimensions




$r_m \approx 1.5 \times d_1$

| $^{\varnothing}d_1$ nom | r mm |
|---|---|
| 200 | 300 |
| 250 | 375 |
| 315 | 470 |
| 355 | 530 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |
| 630 | 945 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 1000 | 1500 |
| 1100 | 1650 |
| 1250 | 1875 |

**Other Size Are Available On Request**

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# Elbow

## *EL 30°*

## Description

Manufactured from segments.

Also Available With EPDM Rubber

**Ordering**

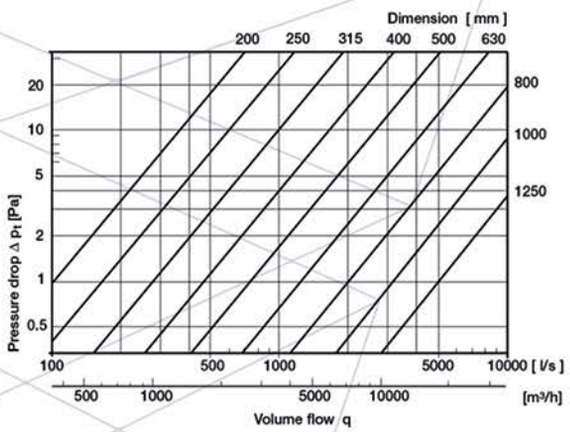
Product code: **EL aaa 30°**

Type

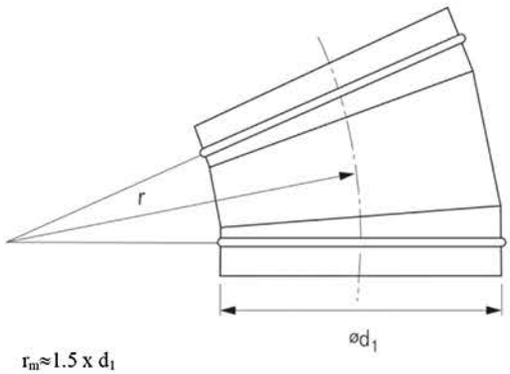
$\phi d_1$

°

## Technical Data




## Dimensions




$r_m \approx 1.5 \times d_1$

| $\phi d_1$ nom | r mm |
|---|---|
| 200 | 300 |
| 250 | 375 |
| 315 | 470 |
| 355 | 530 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |
| 630 | 945 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 1000 | 1500 |
| 1100 | 1650 |
| 1250 | 1875 |

**Other Size Are Available On Request**

# Elbow

## *EL 15°*

## Description

Manufactured from segments.

**Ordering**

Product code: **EL aaa 15°**

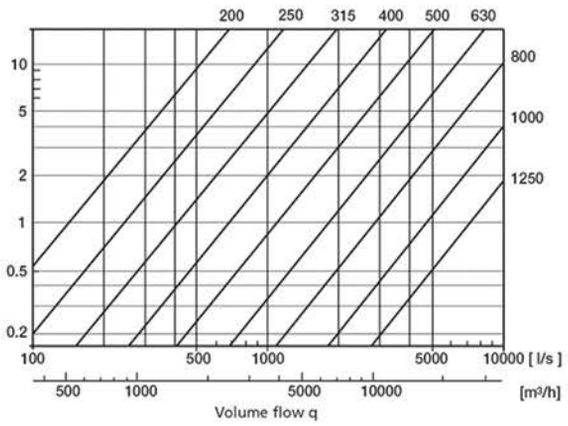
Type

$^{\varnothing}d_1$

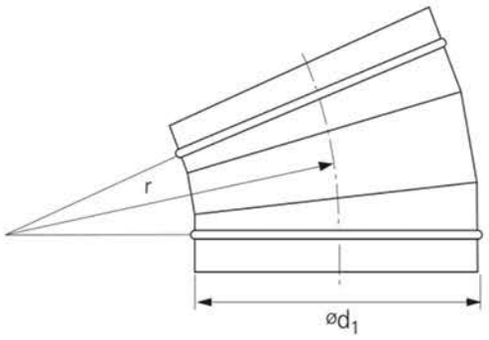
°

Also Available With EPDM Rubber

## Technical Data




## Dimensions




$r_m \approx 1.5 \times d_1$

| $^{\varnothing}d_1$ nom | r mm |
|---|---|
| 200 | 300 |
| 250 | 375 |
| 315 | 470 |
| 355 | 530 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |
| 630 | 945 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 1000 | 1500 |
| 1100 | 1650 |
| 1250 | 1875 |

**Other Size Are Available On Request**

# Offset
## *OFF*

## Description

Offset
L = 2 ⌀d - as a standard
OFF - must be specified

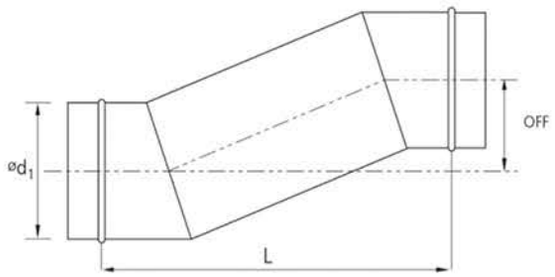
Also Available With EPDM Rubber

**Ordering**

Product code: **OFF aaa bbb ccc**

Type
⌀$d_1$
OFF
L

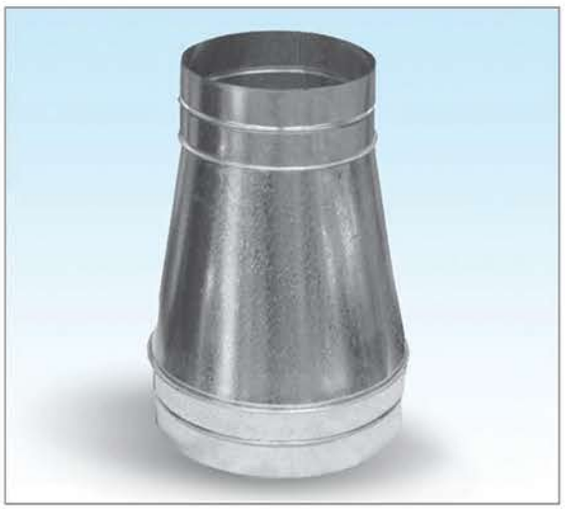
## Dimensions




| ⌀d mm |
|---|
| 100 |
| 112 |
| 125 |
| 140 |
| 160 |
| 180 |
| 200 |
| 224 |
| 250 |
| 280 |
| 315 |
| 355 |
| 400 |
| 450 |
| 400 |
| 450 |
| 500 |
| 560 |
| 630 |
| 700 |
| 750 |
| 800 |
| 850 |
| 900 |
| 1000 |
| 1100 |
| 1250 |

**Other Size Are Available On Request**

# Reducer
## *REC/REEC*



## Description

Reducer Male/Male
REC - Centric
REEC - Eccentric

**Ordering**

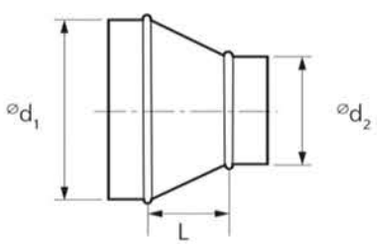
Product code: **REC aaa bbb**

Type
$\varnothing d_1$
$\varnothing d_2$

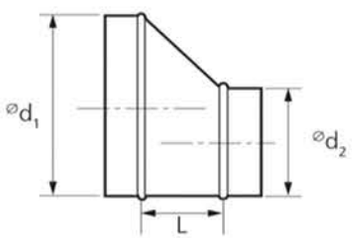
Also Available With EPDM Rubber

## Technical Data

**REC**




**REEC**




## Dimensions

| Φ$d_1$ mm | Φ$d_2$ mm | L mm |
|---|---|---|
| 100 | 80 | 58 |
| 112 | 80 | 74 |
| | 100 | 47 |
| 125 | 80 | 92 |
| | 100 | 64 |
| 140 | 80 | 112 |
| | 100 | 85 |
| | 125 | 51 |
| 150 | 80 | 126 |
| | 100 | 99 |
| | 125 | 64 |
| | 140 | 44 |
| 160 | 80 | 140 |
| | 100 | 112 |
| | 125 | 78 |
| | 140 | 57 |
| | 150 | 44 |
| 180 | 80 | 167 |
| | 100 | 140 |
| | 125 | 106 |
| | 140 | 85 |
| | 150 | 71 |
| | 160 | 58 |
| 200 | 80 | 195 |
| | 100 | 167 |
| | 125 | 133 |
| | 140 | 112 |

# Reducer

## *REC/REEC*

## Dimensions

| Φd1 mm | Φd2 mm | L mm |
|---|---|---|
| 200 | 150 | 99 |
| | 160 | 85 |
| | 180 | 58 |
| 224 | 100 | 200 |
| | 125 | 166 |
| | 140 | 145 |
| | 150 | 132 |
| | 160 | 118 |
| | 180 | 90 |
| | 200 | 63 |
| 250 | 100 | 236 |
| | 125 | 202 |
| | 140 | 181 |
| | 150 | 167 |
| | 160 | 154 |
| | 180 | 126 |
| | 200 | 99 |
| | 224 | 66 |
| 280 | 125 | 243 |
| | 140 | 222 |
| | 150 | 209 |
| | 160 | 195 |
| | 180 | 167 |
| | 200 | 140 |
| | 224 | 107 |
| | 250 | 71 |
| 300 | 125 | 270 |
| | 140 | 250 |
| | 150 | 236 |
| | 160 | 222 |
| | 180 | 195 |
| | 200 | 167 |
| | 224 | 135 |
| | 250 | 99 |
| | 280 | 58 |
| 315 | 125 | 291 |
| | 140 | 270 |
| | 150 | 257 |
| | 160 | 243 |
| | 180 | 216 |
| | 200 | 188 |
| | 224 | 155 |
| | 250 | 119 |
| | 280 | 78 |

| Φd1 mm | Φd2 mm | L mm |
|---|---|---|
| 315 | 300 | 51 |
| 355 | 160 | 298 |
| | 180 | 270 |
| | 200 | 243 |
| | 224 | 210 |
| | 250 | 174 |
| | 280 | 133 |
| | 300 | 106 |
| | 315 | 85 |
| 400 | 160 | 365 |
| | 180 | 337 |
| | 200 | 310 |
| | 224 | 277 |
| | 250 | 241 |
| | 280 | 200 |
| | 300 | 172 |
| | 315 | 152 |
| | 355 | 97 |
| 450 | 200 | 378 |
| | 224 | 346 |
| | 250 | 310 |
| | 280 | 269 |
| | 300 | 241 |
| | 315 | 221 |
| 450 | 355 | 166 |
| | 400 | 109 |
| 500 | 200 | 447 |
| | 224 | 414 |
| | 250 | 378 |
| | 280 | 337 |
| | 300 | 310 |
| | 315 | 289 |
| | 355 | 234 |
| | 400 | 177 |
| | 450 | 109 |
| 560 | 250 | 461 |
| | 280 | 420 |
| | 300 | 392 |
| | 315 | 371 |
| | 355 | 317 |
| | 400 | 260 |
| | 450 | 191 |
| | 500 | 122 |
| 600 | 250 | 516 |

# Reducer

## *REC/REEC*

## Dimensions

| Φd1 mm | Φd2 mm | L mm |
|---|---|---|
| 600 | 280 | 475 |
| | 300 | 447 |
| | 315 | 427 |
| | 355 | 372 |
| | 400 | 315 |
| | 450 | 246 |
| | 500 | 177 |
| | 560 | 95 |
| 630 | 250 | 557 |
| | 280 | 516 |
| | 315 | 468 |
| | 355 | 413 |
| | 400 | 356 |
| | 450 | 287 |
| | 500 | 219 |
| | 560 | 136 |
| | 600 | 81 |
| 700 | 355 | 528 |
| | 400 | 471 |
| | 450 | 402 |
| | 500 | 333 |
| | 560 | 251 |
| | 600 | 196 |
| | 630 | 155 |
| 800 | 400 | 594 |
| | 450 | 526 |
| | 500 | 457 |
| | 560 | 375 |
| | 600 | 320 |
| | 630 | 279 |
| | 700 | 174 |
| 900 | 450 | 663 |
| | 500 | 594 |
| | 560 | 512 |
| | 600 | 457 |
| 900 | 630 | 416 |
| | 700 | 311 |
| | 800 | 187 |
| 1000 | 500 | 732 |
| | 560 | 649 |
| | 600 | 594 |
| | 630 | 553 |
| | 700 | 448 |

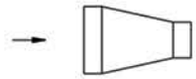
| Φd1 mm | Φd2 mm | L mm |
|---|---|---|
| 1000 | 800 | 325 |
| | 900 | 187 |
| 1100 | 560 | 814 |
| | 600 | 759 |
| | 630 | 718 |
| | 700 | 613 |
| | 800 | 490 |
| | 900 | 352 |
| | 1000 | 215 |
| 1250 | 600 | 938 |
| | 630 | 897 |
| | 700 | 792 |
| | 800 | 668 |
| | 900 | 531 |
| | 1000 | 393 |
| | 1100 | 229 |

**Other Size Are Available On Request**

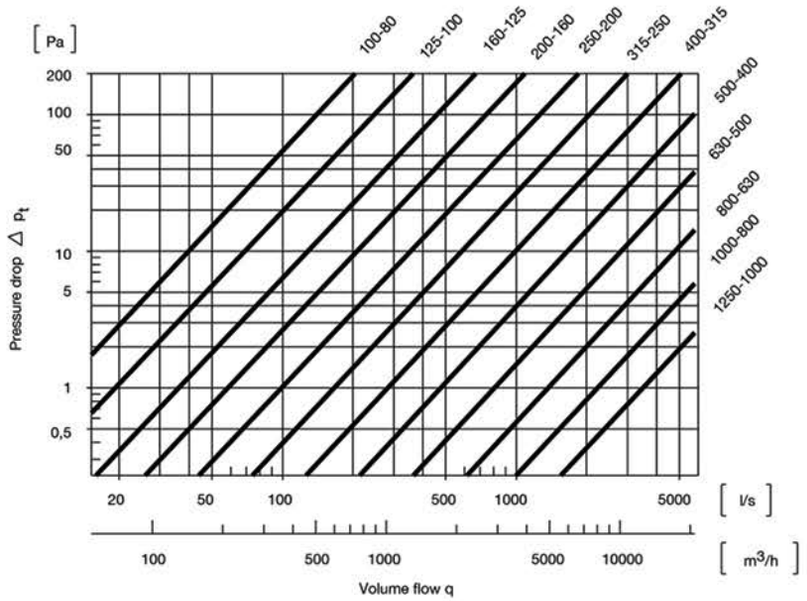
# Reducer

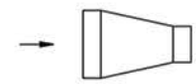
## *REC/REEC*

## Technical Data

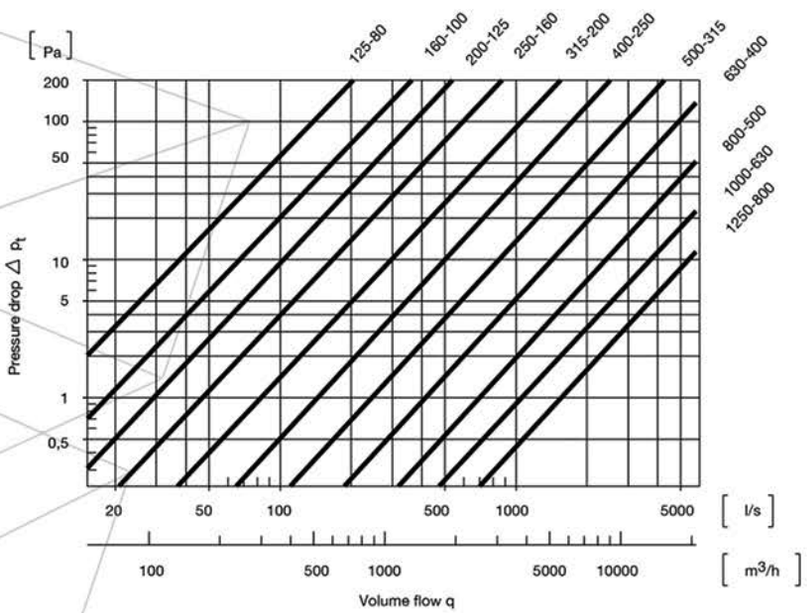


REC 1 step reduction



REC 2 step reduction



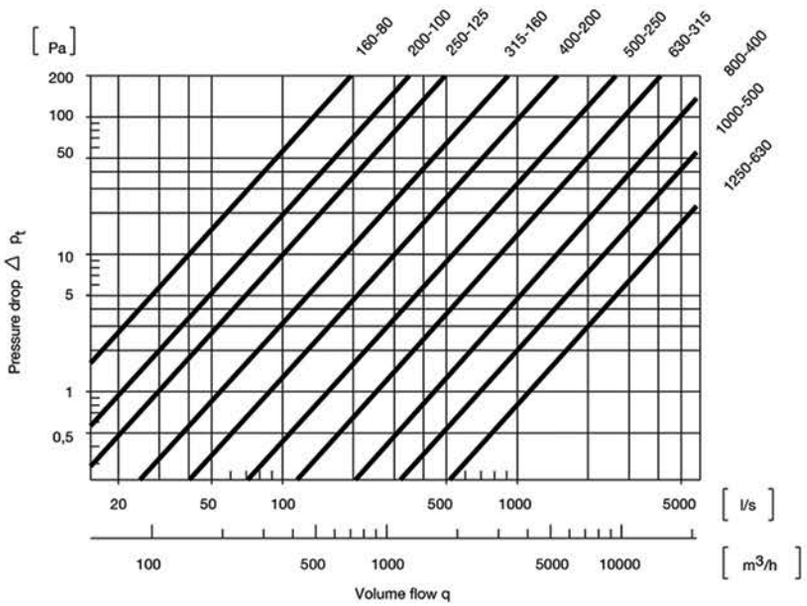
# Reducer

## *REC/REEC*

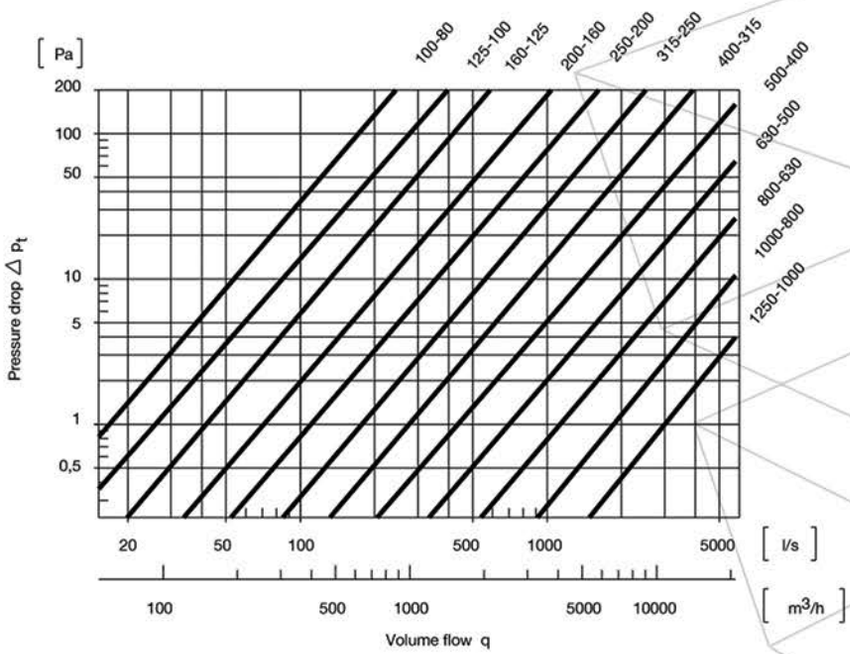
## Technical Data



REC 3 step reduction




REC 1 step reduction



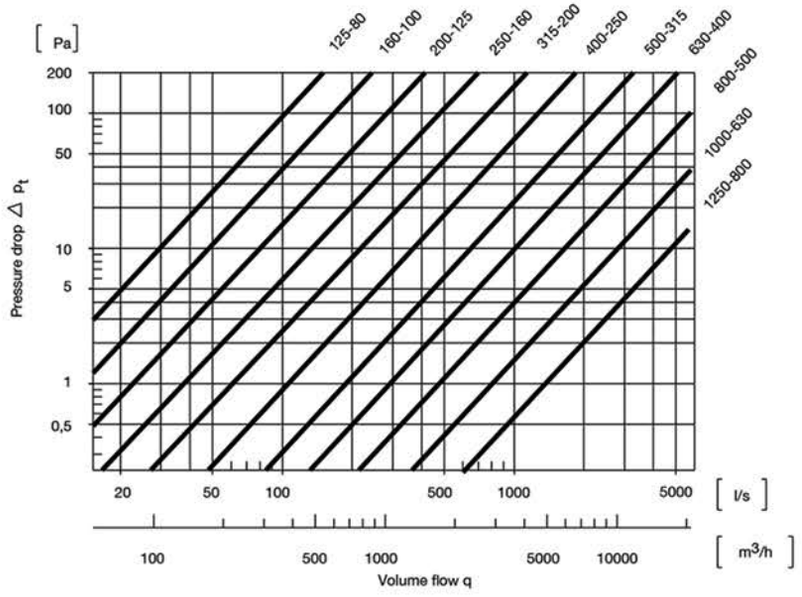
# Reducer

## *REC/REEC*

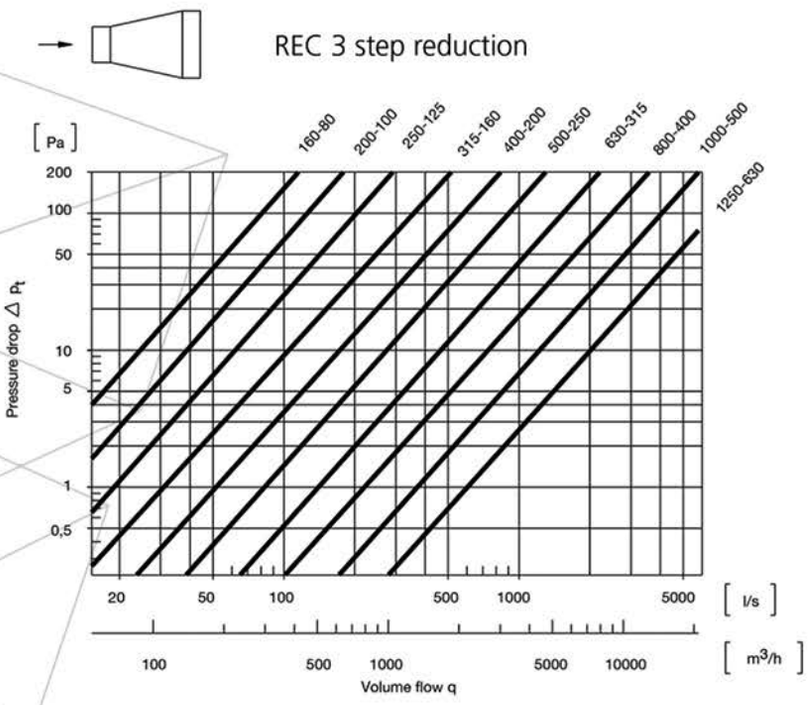
## Technical Data



REC 2 step reduction




REC 3 step reduction



# T-Pieces

## *TSLC/TSLF*



## Description

TSLC = Centric - TSLF = Eccentric
Assembled with SLC / SLF

**Ordering**

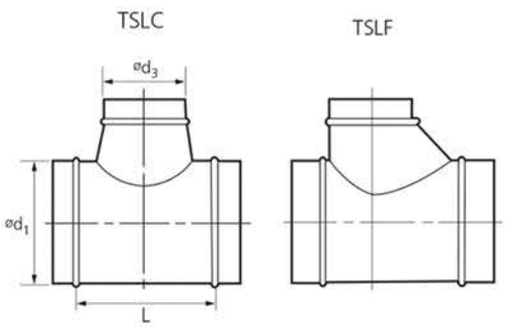
Product code: **TSLC aaa bbb**

Type

$\varnothing d_1$

$\varnothing d_3$

## Technical Data




Also Available With EPDM Rubber

## Dimensions

| Φd1 mm | Φd2 mm | L mm | H mm |
|---|---|---|---|
| 80 | 80 | 170 | 85 |
| | 100 | 190 | 85 |
| | 125 | 215 | 85 |
| 100 | 80 | 170 | 95 |
| | 100 | 190 | 95 |
| | 125 | 215 | 95 |
| | 140 | 240 | 100 |
| | 150 | 250 | 100 |
| | 160 | 260 | 100 |
| 125 | 80 | 170 | 110 |
| | 100 | 190 | 110 |
| | 125 | 215 | 110 |
| | 140 | 240 | 115 |
| | 150 | 250 | 115 |
| | 160 | 260 | 115 |
| | 180 | 280 | 115 |
| | 200 | 330 | 130 |
| 140 | 80 | 170 | 115 |
| | 100 | 190 | 115 |
| | 125 | 215 | 115 |
| | 140 | 240 | 120 |
| | 150 | 250 | 120 |
| | 160 | 260 | 120 |
| | 180 | 280 | 120 |
| | 200 | 330 | 135 |
| | 224 | 355 | 135 |

# T-Pieces

## *TSLC/TSLF*

## Dimensions

| Φd1 mm | Φd2 mm | L mm | H mm |
|---|---|---|---|
| 150 | 80 | 170 | 120 |
| | 100 | 190 | 120 |
| | 125 | 215 | 120 |
| | 140 | 240 | 125 |
| | 150 | 250 | 125 |
| | 160 | 260 | 125 |
| | 180 | 280 | 125 |
| | 200 | 330 | 140 |
| | 224 | 355 | 140 |
| | 250 | 380 | 140 |
| 160 | 80 | 170 | 125 |
| | 100 | 190 | 125 |
| | 125 | 215 | 125 |
| | 140 | 240 | 130 |
| | 150 | 250 | 130 |
| | 160 | 260 | 130 |
| | 180 | 280 | 130 |
| | 200 | 330 | 145 |
| | 224 | 355 | 145 |
| | 250 | 380 | 145 |
| 180 | 80 | 170 | 135 |
| | 100 | 190 | 135 |
| | 125 | 215 | 135 |
| | 140 | 240 | 140 |
| | 150 | 250 | 140 |
| | 160 | 260 | 140 |
| | 180 | 280 | 140 |
| | 200 | 330 | 155 |
| | 224 | 355 | 155 |
| | 250 | 380 | 155 |
| | 280 | 430 | 165 |
| 200 | 80 | 170 | 145 |
| | 100 | 190 | 145 |
| | 125 | 215 | 145 |
| | 140 | 240 | 150 |
| | 150 | 250 | 150 |
| | 160 | 260 | 150 |
| | 180 | 280 | 150 |
| | 200 | 330 | 165 |
| | 224 | 355 | 165 |
| | 250 | 380 | 165 |
| | 280 | 430 | 175 |
| | 300 | 450 | 175 |
| | 315 | 465 | 175 |

| Φd1 mm | Φd2 mm | L mm | H mm |
|---|---|---|---|
| 224 | 80 | 170 | 160 |
| | 100 | 190 | 160 |
| | 125 | 215 | 160 |
| | 140 | 240 | 165 |
| | 150 | 250 | 165 |
| | 160 | 260 | 165 |
| | 180 | 280 | 165 |
| | 200 | 330 | 180 |
| | 224 | 355 | 180 |
| | 250 | 380 | 180 |
| | 280 | 430 | 190 |
| | 300 | 450 | 190 |
| | 315 | 465 | 190 |
| | 355 | 525 | 200 |
| 250 | 80 | 170 | 170 |
| | 100 | 190 | 170 |
| | 125 | 215 | 170 |
| | 140 | 240 | 175 |
| 250 | 150 | 250 | 175 |
| | 160 | 260 | 175 |
| | 180 | 280 | 175 |
| | 200 | 330 | 190 |
| | 224 | 355 | 190 |
| | 250 | 380 | 190 |
| | 280 | 430 | 200 |
| | 300 | 450 | 200 |
| | 315 | 465 | 200 |
| | 355 | 525 | 210 |
| | 400 | 570 | 210 |
| 280 | 80 | 170 | 185 |
| | 100 | 190 | 185 |
| | 125 | 215 | 185 |
| | 140 | 240 | 190 |
| | 150 | 250 | 190 |
| | 160 | 260 | 190 |
| | 180 | 280 | 190 |
| | 200 | 330 | 205 |
| | 224 | 355 | 205 |
| | 250 | 380 | 205 |
| | 280 | 430 | 215 |
| | 300 | 450 | 215 |
| | 315 | 465 | 215 |
| | 355 | 525 | 225 |
| | 400 | 570 | 225 |

# T-Pieces

## *TSLC/TSLF*

## Dimensions

| $\Phi d_1$ mm | $\Phi d_2$ mm | L mm | H mm |
|---|---|---|---|
| 280 | 450 | 620 | 225 |
| 300 | 80 | 170 | 195 |
| | 100 | 190 | 195 |
| | 125 | 215 | 195 |
| | 140 | 240 | 200 |
| | 150 | 250 | 200 |
| | 160 | 260 | 200 |
| | 180 | 280 | 200 |
| | 200 | 330 | 215 |
| | 224 | 355 | 215 |
| | 250 | 380 | 215 |
| | 280 | 430 | 225 |
| | 300 | 450 | 225 |
| | 315 | 465 | 225 |
| | 355 | 525 | 235 |
| | 400 | 570 | 235 |
| | 450 | 620 | 235 |
| 315 | 80 | 170 | 205 |
| | 100 | 190 | 205 |
| | 125 | 215 | 205 |
| | 140 | 240 | 210 |
| | 150 | 250 | 210 |
| | 160 | 260 | 210 |
| | 180 | 280 | 210 |
| | 200 | 330 | 225 |
| | 224 | 355 | 225 |
| | 250 | 380 | 225 |
| | 280 | 430 | 235 |
| | 300 | 450 | 235 |
| | 315 | 465 | 235 |
| | 355 | 525 | 245 |
| | 400 | 570 | 245 |
| | 450 | 620 | 245 |
| | 500 | 680 | 250 |
| 355 | 100 | 190 | 225 |
| | 125 | 215 | 225 |
| | 140 | 240 | 230 |
| | 150 | 250 | 230 |
| | 160 | 260 | 230 |
| | 180 | 280 | 230 |
| | 200 | 330 | 245 |
| | 224 | 355 | 245 |
| | 250 | 380 | 245 |
| | 280 | 430 | 245 |

| $\Phi d_1$ mm | $\Phi d_2$ mm | L mm | H mm |
|---|---|---|---|
| | 300 | 450 | 235 |
| | 315 | 465 | 235 |
| | 355 | 525 | 245 |
| | 400 | 570 | 245 |
| | 450 | 620 | 245 |
| | 500 | 680 | 250 |
| 355 | 100 | 190 | 225 |
| | 125 | 215 | 225 |
| | 140 | 240 | 230 |
| | 150 | 250 | 230 |
| | 160 | 260 | 230 |
| | 180 | 280 | 230 |
| | 200 | 330 | 245 |
| | 224 | 355 | 245 |
| | 250 | 380 | 245 |
| | 280 | 430 | 245 |
| | 300 | 450 | 255 |
| | 315 | 465 | 255 |
| | 355 | 525 | 265 |
| | 400 | 570 | 265 |
| | 450 | 620 | 265 |
| | 500 | 680 | 270 |
| | 560 | 740 | 270 |
| 400 | 100 | 190 | 245 |
| | 125 | 215 | 245 |
| | 140 | 240 | 250 |
| | 150 | 250 | 250 |
| | 160 | 260 | 250 |
| | 180 | 280 | 250 |
| | 200 | 330 | 265 |
| | 224 | 355 | 265 |
| | 250 | 380 | 265 |
| | 280 | 430 | 275 |
| | 300 | 450 | 275 |
| | 315 | 465 | 275 |
| | 355 | 525 | 285 |
| | 400 | 570 | 285 |
| | 450 | 620 | 285 |
| | 500 | 680 | 290 |
| | 560 | 740 | 290 |
| | 600 | 780 | 290 |
| | 630 | 810 | 290 |
| 450 | 125 | 215 | 270 |
| | 140 | 240 | 275 |

# T-Pieces

## *TSLC/TSLF*

## Dimensions

| $\Phi d_1$ mm | $\Phi d_2$ mm | L mm | H mm |
|---|---|---|---|
| 450 | 180 | 280 | 275 |
| | 200 | 330 | 290 |
| | 224 | 355 | 290 |
| | 250 | 380 | 290 |
| | 280 | 430 | 300 |
| | 300 | 450 | 300 |
| | 315 | 465 | 300 |
| | 355 | 525 | 310 |
| | 400 | 570 | 310 |
| | 450 | 620 | 310 |
| | 500 | 680 | 315 |
| | 560 | 740 | 315 |
| | 600 | 780 | 315 |
| | 630 | 810 | 315 |
| | 700 | 890 | 315 |
| 500 | 125 | 215 | 295 |
| | 140 | 240 | 300 |
| | 150 | 250 | 300 |
| | 160 | 260 | 300 |
| | 180 | 280 | 300 |
| | 200 | 330 | 315 |
| | 224 | 355 | 315 |
| | 250 | 380 | 315 |
| | 280 | 430 | 325 |
| | 300 | 450 | 325 |
| | 315 | 465 | 325 |
| | 355 | 525 | 335 |
| | 400 | 570 | 335 |
| | 450 | 620 | 335 |
| | 500 | 680 | 340 |
| | 560 | 740 | 340 |
| | 600 | 780 | 340 |
| | 630 | 810 | 340 |
| | 700 | 890 | 340 |
| | 800 | 980 | 340 |
| 560 | 200 | 330 | 345 |
| | 224 | 355 | 345 |
| | 250 | 380 | 345 |
| | 280 | 430 | 355 |
| | 300 | 450 | 355 |
| | 315 | 465 | 355 |
| | 355 | 525 | 365 |
| | 400 | 570 | 365 |
| | 450 | 620 | 365 |

| $\Phi d_1$ mm | $\Phi d_2$ mm | L mm | H mm |
|---|---|---|---|
| | 600 | 780 | 370 |
| | 630 | 810 | 370 |
| | 700 | 890 | 370 |
| | 800 | 980 | 370 |
| | 900 | 1080 | 370 |
| 600 | 200 | 330 | 365 |
| | 224 | 355 | 365 |
| | 250 | 380 | 365 |
| | 280 | 430 | 375 |
| | 300 | 450 | 375 |
| | 315 | 465 | 375 |
| | 355 | 525 | 385 |
| | 400 | 570 | 385 |
| | 450 | 620 | 385 |
| | 500 | 680 | 390 |
| | 560 | 740 | 390 |
| | 600 | 780 | 390 |
| | 630 | 810 | 390 |
| | 700 | 890 | 390 |
| | 800 | 980 | 390 |
| | 900 | 1080 | 390 |
| 630 | 200 | 330 | 380 |
| | 224 | 355 | 380 |
| | 250 | 380 | 380 |
| | 280 | 430 | 390 |
| | 300 | 450 | 390 |
| | 315 | 465 | 390 |
| | 355 | 525 | 400 |
| | 400 | 570 | 400 |
| | 450 | 620 | 400 |
| | 500 | 680 | 405 |
| | 560 | 740 | 405 |
| | 600 | 780 | 405 |
| | 630 | 810 | 405 |
| | 700 | 890 | 405 |
| | 800 | 980 | 405 |
| | 900 | 1080 | 405 |
| | 1000 | 1180 | 405 |
| 700 | 250 | 380 | 420 |
| | 280 | 430 | 420 |
| | 300 | 450 | 430 |
| | 315 | 465 | 430 |
| | 355 | 525 | 440 |
| | 400 | 570 | 440 |

## T-Pieces

# *TSLC/TSLF*

## Dimensions

| Φd1 mm | Φd2 mm | L mm | H mm |
|---|---|---|---|
| 700 | 450 | 620 | 440 |
| | 500 | 680 | 445 |
| | 560 | 740 | 445 |
| | 600 | 780 | 445 |
| | 630 | 810 | 445 |
| | 700 | 890 | 445 |
| | 800 | 980 | 445 |
| | 900 | 1080 | 445 |
| | 1000 | 1180 | 445 |
| | 1100 | 1300 | 445 |
| 800 | 250 | 380 | 465 |
| | 280 | 430 | 475 |
| | 300 | 450 | 475 |
| | 315 | 465 | 475 |
| | 355 | 525 | 485 |
| | 400 | 570 | 485 |
| | 450 | 620 | 485 |
| | 500 | 680 | 490 |
| | 560 | 740 | 490 |
| | 600 | 780 | 490 |
| | 630 | 810 | 490 |
| | 700 | 890 | 490 |
| | 800 | 980 | 490 |
| | 900 | 1080 | 490 |
| | 1000 | 1180 | 490 |
| | 1100 | 1300 | 490 |
| | 1250 | 1430 | 490 |
| 900 | 315 | 465 | 525 |
| | 355 | 525 | 535 |
| | 400 | 570 | 535 |
| | 450 | 620 | 535 |
| | 500 | 680 | 540 |
| | 560 | 740 | 540 |
| | 600 | 780 | 540 |
| | 630 | 810 | 540 |
| | 700 | 890 | 540 |
| | 800 | 980 | 540 |
| | 900 | 1080 | 540 |
| | 1000 | 1180 | 540 |
| | 1100 | 1300 | 540 |
| | 1250 | 1430 | 540 |
| 1000 | 315 | 465 | 575 |
| | 355 | 525 | 585 |
| | 400 | 570 | 585 |

| Φd1 mm | Φd2 mm | L mm | H mm |
|---|---|---|---|
| | 450 | 620 | 585 |
| | 500 | 680 | 590 |
| | 560 | 740 | 590 |
| | 600 | 780 | 590 |
| | 630 | 810 | 590 |
| 1100 | 700 | 890 | 590 |
| | 800 | 980 | 590 |
| | 900 | 1080 | 590 |
| | 1000 | 1180 | 590 |
| | 1100 | 1300 | 590 |
| | 1250 | 1430 | 590 |
| | 500 | 680 | 650 |
| | 560 | 740 | 650 |
| | 600 | 780 | 650 |
| | 630 | 810 | 650 |
| | 700 | 890 | 650 |
| | 800 | 980 | 650 |
| | 900 | 1080 | 650 |
| | 1000 | 1180 | 650 |
| | 1100 | 1300 | 650 |
| | 1250 | 1430 | 650 |
| 1250 | 500 | 680 | 715 |
| | 560 | 740 | 715 |
| | 600 | 780 | 715 |
| | 630 | 810 | 715 |
| | 700 | 890 | 715 |
| | 800 | 980 | 715 |
| | 900 | 1080 | 715 |
| | 1000 | 1180 | 715 |
| | 1100 | 1300 | 715 |
| | 1100 | 1430 | 715 |

**Other Size Are Available On Request**

# Cross-Pieces
## *XSLC/XSLF*



## Description

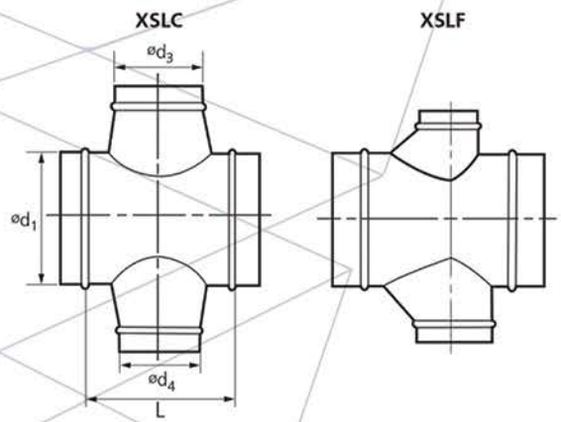
XSLC = Centric - XSLF = Eccentric
Assembled with SLC / SLF
XSLC: $\varnothing d_4$ may vary from $\varnothing d_3$.

**Ordering**

Product code: **XSLC aaa bbb**

- Type
- $\varnothing d_1$
- $\varnothing d_3$

## Technical Data




## Dimensions

| Φd1 mm | Φd3 /Φd4 mm | L mm | H mm |
|---|---|---|---|
| 80 | 80 | 170 | 85 |
| | 100 | 190 | 85 |
| | 125 | 215 | 85 |
| 100 | 80 | 170 | 95 |
| | 100 | 190 | 95 |
| | 125 | 215 | 95 |
| | 140 | 240 | 100 |
| | 150 | 250 | 100 |
| | 160 | 260 | 100 |
| 125 | 80 | 170 | 110 |
| | 100 | 190 | 110 |
| | 125 | 215 | 110 |
| | 140 | 240 | 115 |
| | 150 | 250 | 115 |
| | 160 | 260 | 115 |
| | 180 | 280 | 115 |
| | 200 | 330 | 130 |
| 140 | 80 | 170 | 115 |
| | 100 | 190 | 115 |
| | 125 | 215 | 115 |
| | 140 | 240 | 120 |
| | 150 | 250 | 120 |
| | 160 | 260 | 120 |
| | 180 | 280 | 120 |
| | 200 | 330 | 135 |
| | 224 | 355 | 135 |

Also Available With EPDM Rubber

# Cross-Pieces
## *XSLC/XSLF*

## Dimensions

| Φd1 mm | Φd3 /Φd4 mm | L mm | H mm |
|---|---|---|---|
| 150 | 80 | 170 | 120 |
| | 100 | 190 | 120 |
| | 125 | 215 | 120 |
| | 140 | 240 | 125 |
| | 150 | 250 | 125 |
| | 160 | 260 | 125 |
| | 180 | 280 | 125 |
| | 200 | 330 | 140 |
| | 224 | 355 | 140 |
| | 250 | 380 | 140 |
| 160 | 80 | 170 | 125 |
| | 100 | 190 | 125 |
| | 125 | 215 | 125 |
| | 140 | 240 | 130 |
| | 150 | 250 | 130 |
| | 160 | 260 | 130 |
| | 180 | 280 | 130 |
| | 200 | 330 | 145 |
| | 224 | 355 | 145 |
| | 250 | 380 | 145 |
| 180 | 80 | 170 | 135 |
| | 100 | 190 | 135 |
| | 125 | 215 | 135 |
| | 140 | 240 | 140 |
| | 150 | 250 | 140 |
| | 160 | 260 | 140 |
| | 180 | 280 | 140 |
| | 200 | 330 | 155 |
| | 224 | 355 | 155 |
| | 250 | 380 | 155 |
| | 280 | 430 | 165 |
| 200 | 80 | 170 | 145 |
| | 100 | 190 | 145 |
| | 125 | 215 | 145 |
| | 140 | 240 | 150 |
| | 150 | 250 | 150 |
| | 160 | 260 | 150 |
| | 180 | 280 | 150 |
| | 200 | 330 | 165 |
| | 224 | 355 | 165 |
| | 250 | 380 | 165 |
| | 280 | 430 | 175 |
| | 300 | 450 | 175 |
| | 315 | 465 | 175 |

| Φd1 mm | Φd3 /Φd4 mm | L mm | H mm |
|---|---|---|---|
| 224 | 80 | 170 | 160 |
| | 100 | 190 | 160 |
| | 125 | 215 | 160 |
| | 140 | 240 | 165 |
| | 150 | 250 | 165 |
| | 160 | 260 | 165 |
| | 180 | 280 | 165 |
| | 200 | 330 | 180 |
| | 224 | 355 | 180 |
| | 250 | 380 | 180 |
| | 280 | 430 | 190 |
| | 300 | 450 | 190 |
| | 315 | 465 | 190 |
| | 355 | 525 | 200 |
| 250 | 80 | 170 | 170 |
| | 100 | 190 | 170 |
| | 125 | 215 | 170 |
| | 140 | 240 | 175 |
| 250 | 150 | 250 | 175 |
| | 160 | 260 | 175 |
| | 180 | 280 | 175 |
| | 200 | 330 | 190 |
| | 224 | 355 | 190 |
| | 250 | 380 | 190 |
| | 280 | 430 | 200 |
| | 300 | 450 | 200 |
| | 315 | 465 | 200 |
| | 355 | 525 | 210 |
| | 400 | 570 | 210 |
| 280 | 80 | 170 | 185 |
| | 100 | 190 | 185 |
| | 125 | 215 | 185 |
| | 140 | 240 | 190 |
| | 150 | 250 | 190 |
| | 160 | 260 | 190 |
| | 180 | 280 | 190 |
| | 200 | 330 | 205 |
| | 224 | 355 | 205 |
| | 250 | 380 | 205 |
| | 280 | 430 | 215 |
| | 300 | 450 | 215 |
| | 315 | 465 | 215 |
| | 355 | 525 | 225 |
| | 400 | 570 | 225 |

# Cross-Pieces

## *XSLC/XSLF*

## Dimensions

| Φd1 mm | Φd3 /Φd4 mm | L mm | H mm |
|---|---|---|---|
| 280 | 450 | 620 | 225 |
| 300 | 80 | 170 | 195 |
| | 100 | 190 | 195 |
| | 125 | 215 | 195 |
| | 140 | 240 | 200 |
| | 150 | 250 | 200 |
| | 160 | 260 | 200 |
| | 180 | 280 | 200 |
| | 200 | 330 | 215 |
| | 224 | 355 | 215 |
| | 250 | 380 | 215 |
| | 280 | 430 | 225 |
| | 300 | 450 | 225 |
| | 315 | 465 | 225 |
| | 355 | 525 | 235 |
| | 400 | 570 | 235 |
| | 450 | 620 | 235 |
| 315 | 80 | 170 | 205 |
| | 100 | 190 | 205 |
| | 125 | 215 | 205 |
| | 140 | 240 | 210 |
| | 150 | 250 | 210 |
| | 160 | 260 | 210 |
| | 180 | 280 | 210 |
| | 200 | 330 | 225 |
| | 224 | 355 | 225 |
| | 250 | 380 | 225 |
| | 280 | 430 | 235 |
| | 300 | 450 | 235 |
| | 315 | 465 | 235 |
| | 355 | 525 | 245 |
| | 400 | 570 | 245 |
| | 450 | 620 | 245 |
| | 500 | 680 | 250 |
| 355 | 100 | 190 | 225 |
| | 125 | 215 | 225 |
| | 140 | 240 | 230 |
| | 150 | 250 | 230 |
| | 160 | 260 | 230 |
| | 180 | 280 | 230 |
| | 200 | 330 | 245 |
| | 224 | 355 | 245 |
| | 250 | 380 | 245 |
| | 280 | 430 | 245 |
| | 300 | 450 | 235 |
| | 315 | 465 | 235 |
| | 355 | 525 | 245 |
| | 400 | 570 | 245 |
| | 450 | 620 | 245 |
| | 500 | 680 | 250 |
| 355 | 100 | 190 | 225 |
| | 125 | 215 | 225 |
| | 140 | 240 | 230 |
| | 150 | 250 | 230 |
| | 160 | 260 | 230 |
| | 180 | 280 | 230 |
| | 200 | 330 | 245 |
| | 224 | 355 | 245 |
| | 250 | 380 | 245 |
| | 280 | 430 | 245 |
| | 300 | 450 | 255 |
| | 315 | 465 | 255 |
| | 355 | 525 | 265 |
| | 400 | 570 | 265 |
| | 450 | 620 | 265 |
| | 500 | 680 | 270 |
| | 560 | 740 | 270 |
| 400 | 100 | 190 | 245 |
| | 125 | 215 | 245 |
| | 140 | 240 | 250 |
| | 150 | 250 | 250 |
| | 160 | 260 | 250 |
| | 180 | 280 | 250 |
| | 200 | 330 | 265 |
| | 224 | 355 | 265 |
| | 250 | 380 | 265 |
| | 280 | 430 | 275 |
| | 300 | 450 | 275 |
| | 315 | 465 | 275 |
| | 355 | 525 | 285 |
| | 400 | 570 | 285 |
| | 450 | 620 | 285 |
| | 500 | 680 | 290 |
| | 560 | 740 | 290 |
| | 600 | 780 | 290 |
| | 630 | 810 | 290 |
| 450 | 125 | 215 | 270 |
| | 140 | 240 | 275 |

# Cross-Pieces

## *XSLC/XSLF*

## Dimensions

| Φd1 mm | Φd3 /Φd4 mm | L mm | H mm |
|---|---|---|---|
| 450 | 180 | 280 | 275 |
| | 200 | 330 | 290 |
| | 224 | 355 | 290 |
| | 250 | 380 | 290 |
| | 280 | 430 | 300 |
| | 300 | 450 | 300 |
| | 315 | 465 | 300 |
| | 355 | 525 | 310 |
| | 400 | 570 | 310 |
| | 450 | 620 | 310 |
| | 500 | 680 | 315 |
| | 560 | 740 | 315 |
| | 600 | 780 | 315 |
| | 630 | 810 | 315 |
| | 700 | 890 | 315 |
| 500 | 125 | 215 | 295 |
| | 140 | 240 | 300 |
| | 150 | 250 | 300 |
| | 160 | 260 | 300 |
| | 180 | 280 | 300 |
| | 200 | 330 | 315 |
| | 224 | 355 | 315 |
| | 250 | 380 | 315 |
| | 280 | 430 | 325 |
| | 300 | 450 | 325 |
| | 315 | 465 | 325 |
| | 355 | 525 | 335 |
| | 400 | 570 | 335 |
| | 450 | 620 | 335 |
| | 500 | 680 | 340 |
| | 560 | 740 | 340 |
| | 600 | 780 | 340 |
| | 630 | 810 | 340 |
| | 700 | 890 | 340 |
| | 800 | 980 | 340 |
| 560 | 200 | 330 | 345 |
| | 224 | 355 | 345 |
| | 250 | 380 | 345 |
| | 280 | 430 | 355 |
| | 300 | 450 | 355 |
| | 315 | 465 | 355 |
| | 355 | 525 | 365 |
| | 400 | 570 | 365 |
| | 450 | 620 | 365 |

| Φd1 mm | Φd3 /Φd4 mm | L mm | H mm |
|---|---|---|---|
| | 600 | 780 | 370 |
| | 630 | 810 | 370 |
| | 700 | 890 | 370 |
| | 800 | 980 | 370 |
| | 900 | 1080 | 370 |
| 600 | 200 | 330 | 365 |
| | 224 | 355 | 365 |
| | 250 | 380 | 365 |
| | 280 | 430 | 375 |
| | 300 | 450 | 375 |
| | 315 | 465 | 375 |
| | 355 | 525 | 385 |
| | 400 | 570 | 385 |
| | 450 | 620 | 385 |
| | 500 | 680 | 390 |
| | 560 | 740 | 390 |
| | 600 | 780 | 390 |
| | 630 | 810 | 390 |
| | 700 | 890 | 390 |
| | 800 | 980 | 390 |
| | 900 | 1080 | 390 |
| 630 | 200 | 330 | 380 |
| | 224 | 355 | 380 |
| | 250 | 380 | 380 |
| | 280 | 430 | 390 |
| | 300 | 450 | 390 |
| | 315 | 465 | 390 |
| | 355 | 525 | 400 |
| | 400 | 570 | 400 |
| | 450 | 620 | 400 |
| | 500 | 680 | 405 |
| | 560 | 740 | 405 |
| | 600 | 780 | 405 |
| | 630 | 810 | 405 |
| | 700 | 890 | 405 |
| | 800 | 980 | 405 |
| | 900 | 1080 | 405 |
| | 1000 | 1180 | 405 |
| 700 | 250 | 380 | 420 |
| | 280 | 430 | 420 |
| | 300 | 450 | 430 |
| | 315 | 465 | 430 |
| | 355 | 525 | 440 |
| | 400 | 570 | 440 |

# Cross-Pieces

## *XSLC/XSLF*

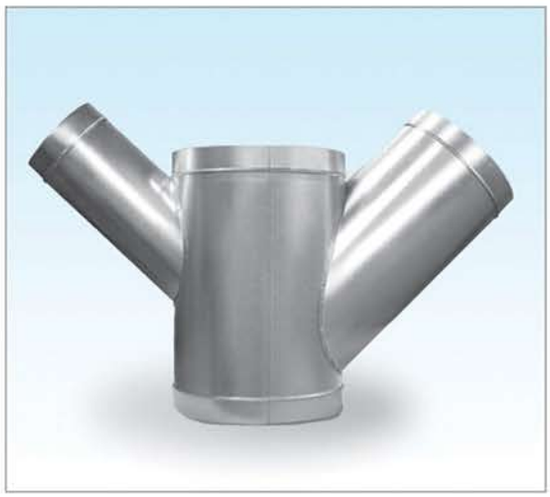
## Dimensions

| Φd1 mm | Φd3 /Φd4 mm | L mm | H mm |
|---|---|---|---|
| 700 | 450 | 620 | 440 |
| | 500 | 680 | 445 |
| | 560 | 740 | 445 |
| | 600 | 780 | 445 |
| | 630 | 810 | 445 |
| | 700 | 890 | 445 |
| | 800 | 980 | 445 |
| | 900 | 1080 | 445 |
| | 1000 | 1180 | 445 |
| | 1100 | 1300 | 445 |
| 800 | 250 | 380 | 465 |
| | 280 | 430 | 475 |
| | 300 | 450 | 475 |
| | 315 | 465 | 475 |
| | 355 | 525 | 485 |
| | 400 | 570 | 485 |
| | 450 | 620 | 485 |
| | 500 | 680 | 490 |
| | 560 | 740 | 490 |
| | 600 | 780 | 490 |
| | 630 | 810 | 490 |
| | 700 | 890 | 490 |
| | 800 | 980 | 490 |
| | 900 | 1080 | 490 |
| | 1000 | 1180 | 490 |
| | 1100 | 1300 | 490 |
| | 1250 | 1430 | 490 |
| 900 | 315 | 465 | 525 |
| | 355 | 525 | 535 |
| | 400 | 570 | 535 |
| | 450 | 620 | 535 |
| | 500 | 680 | 540 |
| | 560 | 740 | 540 |
| | 600 | 780 | 540 |
| | 630 | 810 | 540 |
| | 700 | 890 | 540 |
| | 800 | 980 | 540 |
| | 900 | 1080 | 540 |
| | 1000 | 1180 | 540 |
| | 1100 | 1300 | 540 |
| | 1250 | 1430 | 540 |
| 1000 | 315 | 465 | 575 |
| | 355 | 525 | 585 |
| | 400 | 570 | 585 |
| | 450 | 620 | 585 |
| | 500 | 680 | 590 |
| | 560 | 740 | 590 |
| | 600 | 780 | 590 |
| | 630 | 810 | 590 |
| 1100 | 700 | 890 | 590 |
| | 800 | 980 | 590 |
| | 900 | 1080 | 590 |
| | 1000 | 1180 | 590 |
| | 1100 | 1300 | 590 |
| | 1250 | 1430 | 590 |
| | 500 | 680 | 650 |
| | 560 | 740 | 650 |
| | 600 | 780 | 650 |
| | 630 | 810 | 650 |
| | 700 | 890 | 650 |
| | 800 | 980 | 650 |
| | 900 | 1080 | 650 |
| | 1000 | 1180 | 650 |
| | 1100 | 1300 | 650 |
| | 1250 | 1430 | 650 |
| 1250 | 500 | 680 | 715 |
| | 560 | 740 | 715 |
| | 600 | 780 | 715 |
| | 630 | 810 | 715 |
| | 700 | 890 | 715 |
| | 800 | 980 | 715 |
| | 900 | 1080 | 715 |
| | 1000 | 1180 | 715 |
| | 1100 | 1300 | 715 |
| | 1250 | 1430 | 715 |

**Other Size Are Available On Request**

# Lateral Cross

## *XSL 45°*



## Description

XSL 45°: Branch 45°
Available on request: 15°, 30°, 60°
e.g. XSL 15°- $d_1$- $d_3$- $d_4$.

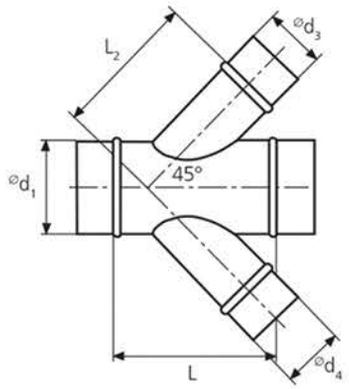
**Ordering**

Product code: **XSL 45° aaa bbb ccc**

- Type
- $\varnothing d_1$
- $\varnothing d_3$
- $\varnothing d_4$

Also Available With EPDM Rubber

## Dimensions




| Φd1 mm | Φd3 /Φd4 mm | L mm | L2 mm |
|---|---|---|---|
| 80 | 80 | 250 | 165 |
| 100 | 80 | 250 | 180 |
| | 100 | 280 | 190 |
| 125 | 80 | 250 | 200 |
| | 100 | 280 | 210 |
| | 125 | 315 | 220 |
| 140 | 80 | 280 | 210 |
| | 100 | 305 | 220 |
| | 125 | 340 | 230 |
| | 140 | 365 | 250 |
| 150 | 80 | 280 | 215 |
| | 100 | 305 | 225 |
| | 125 | 340 | 240 |
| | 140 | 365 | 260 |
| | 150 | 380 | 265 |
| 160 | 80 | 280 | 220 |
| | 100 | 305 | 230 |
| | 125 | 340 | 245 |
| | 140 | 365 | 265 |
| | 150 | 380 | 270 |
| | 160 | 390 | 275 |
| 180 | 80 | 280 | 235 |
| | 100 | 305 | 245 |
| | 125 | 340 | 260 |
| | 140 | 365 | 280 |
| | 150 | 380 | 285 |
| | 160 | 390 | 290 |
| | 180 | 420 | 300 |
| 200 | 80 | 280 | 250 |
| | 100 | 305 | 260 |
| | 125 | 340 | 270 |

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# Lateral Cross

## *XSL 45°*

## Dimensions

| Φd1 mm | Φd3 /Φd4 mm | L mm | L2 mm |
|---|---|---|---|
| 200 | 140 | 365 | 295 |
| | 150 | 380 | 300 |
| | 160 | 390 | 305 |
| | 180 | 420 | 315 |
| | 200 | 450 | 325 |
| 224 | 100 | 305 | 275 |
| | 125 | 340 | 290 |
| | 140 | 365 | 310 |
| | 150 | 380 | 315 |
| | 160 | 390 | 320 |
| | 180 | 420 | 330 |
| | 200 | 450 | 340 |
| | 224 | 480 | 350 |
| 250 | 100 | 305 | 295 |
| | 125 | 340 | 310 |
| | 140 | 365 | 330 |
| | 150 | 380 | 335 |
| | 160 | 390 | 340 |
| | 180 | 420 | 350 |
| | 200 | 450 | 360 |
| | 224 | 480 | 370 |
| | 250 | 520 | 385 |
| 280 | 125 | 370 | 330 |
| | 140 | 390 | 350 |
| | 150 | 405 | 355 |
| | 160 | 420 | 360 |
| | 180 | 445 | 370 |
| | 200 | 475 | 380 |
| | 224 | 510 | 390 |
| | 250 | 545 | 405 |
| | 280 | 590 | 435 |
| 300 | 125 | 370 | 350 |
| | 140 | 390 | 365 |
| | 150 | 405 | 370 |
| | 160 | 420 | 375 |
| | 180 | 445 | 385 |
| | 200 | 475 | 395 |
| | 224 | 510 | 405 |
| | 250 | 545 | 420 |
| | 280 | 590 | 450 |
| | 300 | 615 | 460 |
| | 140 | 390 | 375 |
| | 150 | 405 | 380 |
| | 160 | 420 | 385 |

| Φd1 mm | Φd3 /Φd4 mm | L mm | L2 mm |
|---|---|---|---|
| 300 | 180 | 445 | 395 |
| 315 | 200 | 475 | 405 |
| | 224 | 510 | 415 |
| | 250 | 545 | 430 |
| | 280 | 590 | 460 |
| | 300 | 615 | 470 |
| | 315 | 640 | 480 |
| 355 | 150 | 405 | 410 |
| | 160 | 420 | 415 |
| | 180 | 445 | 425 |
| | 200 | 475 | 435 |
| | 224 | 510 | 445 |
| | 250 | 545 | 460 |
| 355 | 280 | 590 | 490 |
| | 300 | 615 | 500 |
| | 315 | 640 | 505 |
| | 355 | 695 | 525 |
| 400 | 160 | 420 | 445 |
| | 180 | 445 | 455 |
| | 200 | 475 | 465 |
| | 224 | 510 | 475 |
| | 250 | 545 | 490 |
| | 280 | 590 | 520 |
| | 300 | 615 | 530 |
| | 315 | 640 | 535 |
| | 355 | 695 | 555 |
| | 400 | 760 | 580 |
| 450 | 180 | 445 | 490 |
| | 200 | 475 | 500 |
| | 224 | 510 | 510 |
| | 250 | 545 | 525 |
| | 280 | 590 | 555 |
| | 300 | 615 | 565 |
| | 315 | 640 | 570 |
| | 355 | 695 | 590 |
| | 400 | 760 | 615 |
| | 450 | 830 | 640 |
| 500 | 200 | 475 | 535 |
| | 224 | 510 | 550 |
| | 250 | 545 | 560 |
| | 280 | 590 | 560 |
| | 300 | 615 | 600 |
| | 315 | 640 | 610 |
| | 355 | 695 | 630 |

# Lateral Cross

## *XSL 45°*

## Dimensions

| $\Phi d_1$ mm | $\Phi d_3$ / $\Phi d_4$ mm | L mm | $L_2$ mm |
|---|---|---|---|
| 500 | 400 | 760 | 650 |
| | 450 | 830 | 675 |
| | 500 | 900 | 700 |
| 560 | 224 | 565 | 590 |
| | 250 | 600 | 605 |
| | 280 | 640 | 630 |
| | 300 | 665 | 640 |
| | 315 | 690 | 650 |
| | 355 | 750 | 670 |
| | 400 | 810 | 690 |
| | 450 | 880 | 715 |
| | 500 | 950 | 740 |
| | 560 | 1040 | 800 |
| 600 | 250 | 600 | 630 |
| | 280 | 640 | 655 |
| | 300 | 665 | 665 |
| | 315 | 690 | 675 |
| | 355 | 750 | 695 |
| | 400 | 810 | 715 |
| | 450 | 880 | 740 |
| | 500 | 950 | 765 |
| | 560 | 1040 | 825 |
| | 600 | 1090 | 850 |
| 630 | 280 | 640 | 680 |
| | 300 | 665 | 690 |
| | 315 | 690 | 700 |
| | 355 | 750 | 720 |
| | 400 | 810 | 740 |
| | 450 | 880 | 765 |
| | 500 | 950 | 790 |
| | 560 | 1040 | 850 |
| | 600 | 1090 | 870 |
| | 630 | 1140 | 885 |
| 700 | 300 | 665 | 745 |
| | 315 | 690 | 755 |
| | 355 | 750 | 775 |
| | 400 | 810 | 800 |
| | 450 | 880 | 825 |
| | 500 | 950 | 850 |
| | 560 | 1040 | 905 |
| | 600 | 1090 | 925 |
| | 630 | 1140 | 940 |
| | 700 | 1250 | 980 |
| 800 | 315 | 690 | 820 |
| | 355 | 750 | 840 |
| 800 | 400 | 810 | 860 |
| | 450 | 880 | 885 |
| | 500 | 950 | 910 |
| | 560 | 1040 | 970 |
| | 600 | 1090 | 990 |
| | 630 | 1140 | 1005 |
| | 700 | 1250 | 1045 |
| | 800 | 1380 | 1090 |
| 900 | 355 | 750 | 910 |
| | 400 | 810 | 935 |
| | 450 | 880 | 960 |
| | 500 | 950 | 985 |
| 900 | 560 | 1040 | 1040 |
| | 600 | 1090 | 1060 |
| | 630 | 1140 | 1075 |
| | 700 | 1250 | 1115 |
| | 800 | 1380 | 1160 |
| | 900 | 1520 | 1210 |
| 1000 | 400 | 810 | 1005 |
| | 450 | 880 | 1030 |
| | 500 | 950 | 1055 |
| | 560 | 1040 | 1110 |
| | 600 | 1090 | 1130 |
| | 630 | 1140 | 1145 |
| | 700 | 1250 | 1185 |
| | 800 | 1380 | 1230 |
| | 900 | 1520 | 1280 |
| | 1000 | 1660 | 1330 |
| 1100 | 500 | 1005 | 1140 |
| | 560 | 1090 | 1195 |
| | 600 | 1140 | 1215 |
| | 630 | 1190 | 1230 |
| | 710 | 1305 | 1270 |
| | 800 | 1430 | 1315 |
| | 900 | 1570 | 1365 |
| | 1000 | 1710 | 1415 |
| | 1100 | 1880 | 1505 |
| 1250 | 500 | 1005 | 1230 |
| | 560 | 1090 | 1290 |
| | 600 | 1140 | 1310 |
| | 630 | 1190 | 1325 |
| | 700 | 1305 | 1365 |
| | 800 | 1430 | 1410 |

# Lateral Cross

## *XSL 45°*

## Dimensions

| $\Phi d_1$ mm | $\Phi d_3$ / $\Phi d_4$ mm | L mm | $L_2$ mm |
|---|---|---|---|
| 1250 | 900 | 1570 | 1460 |
| | 1000 | 1710 | 1510 |
| | 1100 | 1880 | 1595 |
| | 1250 | 2065 | 1660 |

**Other Size Are Available On Request**

# Straight Lateral
## *YSL 45°*

## Description

YSL 45°: Branch 45°
Available on request: 15°, 30°, 60°
e.g. YSL 15°- $d_1$- $d_3$.

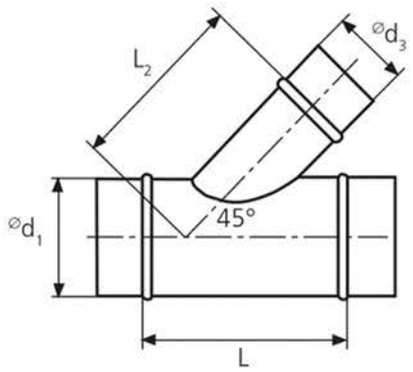
**Ordering**

Product code: **YSL 45° aaa bbb**

Type
$\varnothing d_1$
$\varnothing d_3$

Also Available With EPDM Rubber

## Dimensions




| Φ$d_1$ mm | Φ$d_3$ mm | L mm | $L_2$ mm |
|---|---|---|---|
| 80 | 80 | 250 | 165 |
| 100 | 80 | 250 | 180 |
| | 100 | 280 | 190 |
| 125 | 80 | 250 | 200 |
| | 100 | 280 | 210 |
| | 125 | 315 | 220 |
| 140 | 80 | 280 | 210 |
| | 100 | 305 | 220 |
| | 125 | 340 | 230 |
| | 140 | 365 | 250 |
| 150 | 80 | 280 | 215 |
| | 100 | 305 | 225 |
| | 125 | 340 | 240 |
| | 140 | 365 | 260 |
| | 150 | 380 | 265 |
| 160 | 80 | 280 | 220 |
| | 100 | 305 | 230 |
| | 125 | 340 | 245 |
| | 140 | 365 | 265 |
| | 150 | 380 | 270 |
| | 160 | 390 | 275 |
| 180 | 80 | 280 | 235 |
| | 100 | 305 | 245 |
| | 125 | 340 | 260 |
| | 140 | 365 | 280 |
| | 150 | 380 | 285 |
| | 160 | 390 | 290 |
| | 180 | 420 | 300 |
| 200 | 80 | 280 | 250 |
| | 100 | 305 | 260 |
| | 125 | 340 | 270 |

## Straight Lateral

*YSL 45°*

## Dimensions

| Φd1 mm | Φd3 mm | L mm | L2 mm |
|---|---|---|---|
| 200 | 140 | 365 | 295 |
| | 150 | 380 | 300 |
| | 160 | 390 | 305 |
| | 180 | 420 | 315 |
| | 200 | 450 | 325 |
| 224 | 100 | 305 | 275 |
| | 125 | 340 | 290 |
| | 140 | 365 | 310 |
| | 150 | 380 | 315 |
| | 160 | 390 | 320 |
| | 180 | 420 | 330 |
| | 200 | 450 | 340 |
| | 224 | 480 | 350 |
| 250 | 100 | 305 | 295 |
| | 125 | 340 | 310 |
| | 140 | 365 | 330 |
| | 150 | 380 | 335 |
| | 160 | 390 | 340 |
| | 180 | 420 | 350 |
| | 200 | 450 | 360 |
| | 224 | 480 | 370 |
| | 250 | 520 | 385 |
| 280 | 125 | 370 | 330 |
| | 140 | 390 | 350 |
| | 150 | 405 | 355 |
| | 160 | 420 | 360 |
| | 180 | 445 | 370 |
| | 200 | 475 | 380 |
| | 224 | 510 | 390 |
| | 250 | 545 | 405 |
| | 280 | 590 | 435 |
| 300 | 125 | 370 | 350 |
| | 140 | 390 | 365 |
| | 150 | 405 | 370 |
| | 160 | 420 | 375 |
| | 180 | 445 | 385 |
| | 200 | 475 | 395 |
| | 224 | 510 | 405 |
| | 250 | 545 | 420 |
| | 280 | 590 | 450 |
| | 300 | 615 | 460 |
| | 140 | 390 | 375 |
| | 150 | 405 | 380 |
| | 160 | 420 | 385 |

| Φd1 mm | Φd3 mm | L mm | L2 mm |
|---|---|---|---|
| 300 | 180 | 445 | 395 |
| 315 | 200 | 475 | 405 |
| | 224 | 510 | 415 |
| | 250 | 545 | 430 |
| | 280 | 590 | 460 |
| | 300 | 615 | 470 |
| | 315 | 640 | 480 |
| 355 | 150 | 405 | 410 |
| | 160 | 420 | 415 |
| | 180 | 445 | 425 |
| | 200 | 475 | 435 |
| | 224 | 510 | 445 |
| | 250 | 545 | 460 |
| 355 | 280 | 590 | 490 |
| | 300 | 615 | 500 |
| | 315 | 640 | 505 |
| | 355 | 695 | 525 |
| 400 | 160 | 420 | 445 |
| | 180 | 445 | 455 |
| | 200 | 475 | 465 |
| | 224 | 510 | 475 |
| | 250 | 545 | 490 |
| | 280 | 590 | 520 |
| | 300 | 615 | 530 |
| | 315 | 640 | 535 |
| | 355 | 695 | 555 |
| | 400 | 760 | 580 |
| 450 | 180 | 445 | 490 |
| | 200 | 475 | 500 |
| | 224 | 510 | 510 |
| | 250 | 545 | 525 |
| | 280 | 590 | 555 |
| | 300 | 615 | 565 |
| | 315 | 640 | 570 |
| | 355 | 695 | 590 |
| | 400 | 760 | 615 |
| | 450 | 830 | 640 |
| 500 | 200 | 475 | 535 |
| | 224 | 510 | 550 |
| | 250 | 545 | 560 |
| | 280 | 590 | 560 |
| | 300 | 615 | 600 |
| | 315 | 640 | 610 |
| | 355 | 695 | 630 |

# Straight Lateral

## *YSL 45°*

## Dimensions

| Φd1 mm | Φd3 mm | L mm | L2 mm |
|---|---|---|---|
| 500 | 400 | 760 | 650 |
| | 450 | 830 | 675 |
| | 500 | 900 | 700 |
| 560 | 224 | 565 | 590 |
| | 250 | 600 | 605 |
| | 280 | 640 | 630 |
| | 300 | 665 | 640 |
| | 315 | 690 | 650 |
| | 355 | 750 | 670 |
| | 400 | 810 | 690 |
| | 450 | 880 | 715 |
| | 500 | 950 | 740 |
| | 560 | 1040 | 800 |
| 600 | 250 | 600 | 630 |
| | 280 | 640 | 655 |
| | 300 | 665 | 665 |
| | 315 | 690 | 675 |
| | 355 | 750 | 695 |
| | 400 | 810 | 715 |
| | 450 | 880 | 740 |
| | 500 | 950 | 765 |
| | 560 | 1040 | 825 |
| | 600 | 1090 | 850 |
| 630 | 280 | 640 | 680 |
| | 300 | 665 | 690 |
| | 315 | 690 | 700 |
| | 355 | 750 | 720 |
| | 400 | 810 | 740 |
| | 450 | 880 | 765 |
| | 500 | 950 | 790 |
| | 560 | 1040 | 850 |
| | 600 | 1090 | 870 |
| | 630 | 1140 | 885 |
| 700 | 300 | 665 | 745 |
| | 315 | 690 | 755 |
| | 355 | 750 | 775 |
| | 400 | 810 | 800 |
| | 450 | 880 | 825 |
| | 500 | 950 | 850 |
| | 560 | 1040 | 905 |
| | 600 | 1090 | 925 |
| | 630 | 1140 | 940 |
| | 700 | 1250 | 980 |
| 800 | 315 | 690 | 820 |

| Φd1 mm | Φd3 mm | L mm | L2 mm |
|---|---|---|---|
| | 355 | 750 | 840 |
| 800 | 400 | 810 | 860 |
| | 450 | 880 | 885 |
| | 500 | 950 | 910 |
| | 560 | 1040 | 970 |
| | 600 | 1090 | 990 |
| | 630 | 1140 | 1005 |
| | 700 | 1250 | 1045 |
| | 800 | 1380 | 1090 |
| 900 | 355 | 750 | 910 |
| | 400 | 810 | 935 |
| | 450 | 880 | 960 |
| | 500 | 950 | 985 |
| 900 | 560 | 1040 | 1040 |
| | 600 | 1090 | 1060 |
| | 630 | 1140 | 1075 |
| | 700 | 1250 | 1115 |
| | 800 | 1380 | 1160 |
| | 900 | 1520 | 1210 |
| 1000 | 400 | 810 | 1005 |
| | 450 | 880 | 1030 |
| | 500 | 950 | 1055 |
| | 560 | 1040 | 1110 |
| | 600 | 1090 | 1130 |
| | 630 | 1140 | 1145 |
| | 700 | 1250 | 1185 |
| | 800 | 1380 | 1230 |
| | 900 | 1520 | 1280 |
| | 1000 | 1660 | 1330 |
| 1100 | 500 | 1005 | 1140 |
| | 560 | 1090 | 1195 |
| | 600 | 1140 | 1215 |
| | 630 | 1190 | 1230 |
| | 700 | 1305 | 1270 |
| | 800 | 1430 | 1315 |
| | 900 | 1570 | 1365 |
| | 1000 | 1710 | 1415 |
| | 1100 | 1880 | 1505 |
| 1250 | 500 | 1005 | 1230 |
| | 560 | 1090 | 1290 |
| | 600 | 1140 | 1310 |
| | 630 | 1190 | 1325 |
| | 700 | 1305 | 1365 |
| | 800 | 1430 | 1410 |

MEGADUCT®
AIR IS LIFE

## Straight Lateral

*YSL 45°*

## Dimensions

| Φd1 mm | Φd3 mm | L mm | L2 mm |
|---|---|---|---|
| 1250 | 900 | 1570 | 1460 |
| | 1000 | 1710 | 1510 |
| | 1100 | 1880 | 1595 |
| | 1250 | 2065 | 1660 |

**Other Size Are Available On Request**

# Collar Saddles

## *CSDL 45°*

## Description

45° collar saddles for mounting in Round ducts.

**Ordering**

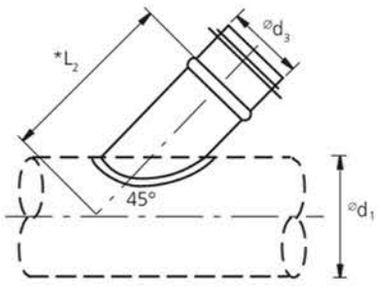
Product code: **CSDL 45° aaa bbb**

Type

$\phi d_1$

$\phi d_3$

## Dimensions




| $\Phi d_3$ | $\Phi d_3$ |
|---|---|
| 80 | 355 |
| 100 | 400 |
| 125 | 450 |
| 140 | 500 |
| 150 | 560 |
| 160 | 600 |
| 180 | 630 |
| 200 | 700 |
| 224 | 800 |
| 250 | 900 |
| 280 | 1000 |
| 300 | 1100 |
| 315 | 1250 |

For $L_2$ dimension please see tables for YSL page 39

Also Available With EPDM Rubber

**Other Size Are Available On Request**

# Saddle Pieces
## *SLC/SLF*

## Description

SLC = Centric
SLF = Eccentric

**Ordering**

Product code: **SLC aaa bbb**

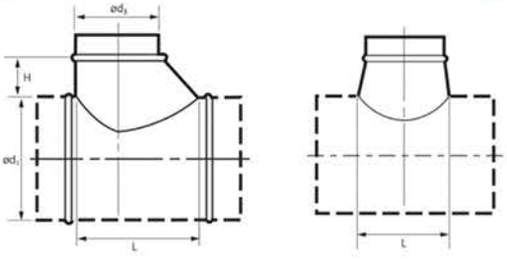
Type

$\varnothing d_1$

$\varnothing d_3$

Also Available With EPDM Rubber

## Dimensions




| Φd1 mm | Φd3 mm | L mm | H mm |
|---|---|---|---|
| 80 | 80 | 170 | 85 |
| | 100 | 190 | 85 |
| | 125 | 215 | 85 |
| 100 | 80 | 170 | 95 |
| | 100 | 190 | 95 |
| | 125 | 215 | 95 |
| | 140 | 240 | 100 |
| | 150 | 250 | 100 |
| | 160 | 260 | 100 |
| 125 | 80 | 170 | 110 |
| | 100 | 190 | 110 |
| | 125 | 215 | 110 |
| | 140 | 240 | 115 |
| | 150 | 250 | 115 |
| | 160 | 260 | 115 |
| | 180 | 280 | 115 |
| | 200 | 330 | 130 |
| 140 | 80 | 170 | 115 |
| | 100 | 190 | 115 |

# Saddle Pieces

## *SLC/SLF*

## Dimensions

| Φd1 nom | Φd3 nom | L mm | H mm |
|---|---|---|---|
| 140 | 125 | 215 | 115 |
| | 140 | 240 | 120 |
| | 150 | 250 | 120 |
| | 160 | 260 | 120 |
| | 180 | 280 | 120 |
| | 200 | 330 | 135 |
| | 224 | 355 | 135 |
| 150 | 80 | 170 | 120 |
| | 100 | 190 | 120 |
| | 125 | 215 | 120 |
| | 140 | 240 | 125 |
| | 150 | 250 | 125 |
| | 160 | 260 | 125 |
| | 180 | 280 | 125 |
| | 200 | 330 | 140 |
| | 224 | 355 | 140 |
| | 250 | 380 | 140 |
| 160 | 80 | 170 | 125 |
| | 100 | 190 | 125 |
| | 125 | 215 | 125 |
| | 140 | 240 | 130 |
| | 150 | 250 | 130 |
| | 160 | 260 | 130 |
| | 180 | 280 | 130 |
| | 200 | 330 | 145 |
| | 224 | 355 | 145 |
| | 250 | 380 | 145 |
| 180 | 80 | 170 | 135 |
| | 100 | 190 | 135 |
| | 125 | 215 | 135 |
| | 140 | 240 | 140 |
| | 150 | 250 | 140 |
| | 160 | 260 | 140 |
| | 180 | 280 | 140 |
| | 200 | 330 | 155 |
| | 224 | 355 | 155 |
| | 250 | 380 | 155 |
| | 280 | 430 | 165 |
| 200 | 80 | 170 | 145 |
| | 100 | 190 | 145 |
| | 125 | 215 | 145 |
| | 140 | 240 | 150 |
| | 150 | 250 | 150 |
| | 160 | 260 | 150 |

| Φd1 nom | Φd3 nom | L mm | H mm |
|---|---|---|---|
| 200 | 180 | 280 | 150 |
| | 200 | 330 | 165 |
| | 224 | 355 | 165 |
| | 250 | 380 | 165 |
| | 280 | 430 | 175 |
| | 300 | 450 | 175 |
| | 315 | 465 | 175 |
| 224 | 80 | 170 | 160 |
| | 100 | 190 | 160 |
| | 125 | 215 | 160 |
| | 140 | 240 | 165 |
| | 150 | 250 | 165 |
| | 160 | 260 | 165 |
| | 180 | 280 | 165 |
| | 200 | 330 | 180 |
| | 224 | 355 | 180 |
| | 250 | 380 | 180 |
| | 280 | 430 | 190 |
| | 300 | 450 | 190 |
| | 315 | 465 | 190 |
| | 355 | 525 | 200 |
| 250 | 80 | 170 | 170 |
| | 100 | 190 | 170 |
| | 125 | 215 | 170 |
| | 140 | 240 | 175 |
| | 150 | 250 | 175 |
| | 160 | 260 | 175 |
| | 180 | 280 | 175 |
| | 200 | 330 | 190 |
| | 224 | 355 | 190 |
| | 250 | 380 | 190 |
| | 280 | 430 | 200 |
| | 300 | 450 | 200 |
| | 315 | 465 | 200 |
| | 355 | 525 | 210 |
| | 400 | 570 | 210 |
| 280 | 80 | 170 | 185 |
| | 100 | 190 | 185 |
| | 125 | 215 | 185 |
| | 140 | 240 | 190 |
| | 150 | 250 | 190 |
| | 160 | 260 | 190 |
| | 180 | 280 | 190 |
| | 200 | 330 | 205 |

# Saddle Pieces

## *SLC/SLF*

## Dimensions

| Φd1 mm | Φd3 mm | L mm | H mm |
|---|---|---|---|
| 280 | 224 | 355 | 205 |
| | 250 | 380 | 205 |
| | 280 | 430 | 215 |
| | 300 | 450 | 215 |
| | 315 | 465 | 215 |
| | 355 | 525 | 225 |
| | 400 | 570 | 225 |
| | 450 | 620 | 225 |
| 300 | 80 | 170 | 195 |
| | 100 | 190 | 195 |
| | 125 | 215 | 195 |
| | 140 | 240 | 200 |
| | 150 | 250 | 200 |
| | 160 | 260 | 200 |
| | 180 | 280 | 200 |
| | 200 | 330 | 215 |
| | 224 | 355 | 215 |
| | 250 | 380 | 215 |
| | 280 | 430 | 225 |
| | 300 | 450 | 225 |
| | 315 | 465 | 225 |
| | 355 | 525 | 235 |
| | 400 | 570 | 235 |
| | 450 | 620 | 235 |
| 315 | 80 | 170 | 205 |
| | 100 | 190 | 205 |
| | 125 | 215 | 205 |
| | 140 | 240 | 210 |
| | 150 | 250 | 210 |
| | 160 | 260 | 210 |
| | 180 | 280 | 210 |
| | 200 | 330 | 225 |
| | 224 | 355 | 225 |
| | 250 | 380 | 225 |
| | 280 | 430 | 235 |
| | 300 | 450 | 235 |
| | 315 | 465 | 235 |
| | 355 | 525 | 245 |
| | 400 | 570 | 245 |
| | 450 | 620 | 245 |
| | 500 | 680 | 250 |
| 355 | 100 | 190 | 225 |
| | 125 | 215 | 225 |
| | 140 | 240 | 230 |

| Φd1 mm | Φd3 mm | L mm | H mm |
|---|---|---|---|
| 355 | 150 | 250 | 230 |
| | 160 | 260 | 230 |
| | 180 | 280 | 230 |
| | 200 | 330 | 245 |
| | 224 | 355 | 245 |
| | 250 | 380 | 245 |
| | 280 | 430 | 245 |
| | 300 | 450 | 255 |
| | 315 | 465 | 255 |
| | 355 | 525 | 265 |
| | 400 | 570 | 265 |
| | 450 | 620 | 265 |
| | 500 | 680 | 270 |
| | 560 | 740 | 270 |
| 400 | 100 | 190 | 245 |
| | 125 | 215 | 245 |
| | 140 | 240 | 250 |
| | 150 | 250 | 250 |
| | 160 | 260 | 250 |
| | 180 | 280 | 250 |
| | 200 | 330 | 265 |
| | 224 | 355 | 265 |
| | 250 | 380 | 265 |
| | 280 | 430 | 275 |
| | 300 | 450 | 275 |
| | 315 | 465 | 275 |
| | 355 | 525 | 285 |
| | 400 | 570 | 285 |
| | 450 | 620 | 285 |
| | 500 | 680 | 290 |
| | 560 | 740 | 290 |
| | 600 | 780 | 290 |
| | 630 | 810 | 290 |
| 450 | 125 | 215 | 270 |
| | 140 | 240 | 275 |
| | 150 | 250 | 275 |
| | 160 | 260 | 275 |
| | 180 | 280 | 275 |
| | 200 | 330 | 290 |
| | 224 | 355 | 290 |
| | 250 | 380 | 290 |
| | 280 | 430 | 300 |
| | 300 | 450 | 300 |
| | 315 | 465 | 300 |

# Saddle Pieces

## *SLC/SLF*

## Dimensions

| Φd1 mm | Φd3 mm | L mm | H mm |
|---|---|---|---|
| 450 | 355 | 525 | 310 |
| | 400 | 570 | 310 |
| | 450 | 620 | 310 |
| | 500 | 680 | 315 |
| | 560 | 740 | 315 |
| | 600 | 780 | 315 |
| | 630 | 810 | 315 |
| | 700 | 890 | 315 |
| 500 | 125 | 215 | 295 |
| | 140 | 240 | 300 |
| | 150 | 250 | 300 |
| | 160 | 260 | 300 |
| | 180 | 280 | 300 |
| | 200 | 330 | 315 |
| | 224 | 355 | 315 |
| | 250 | 380 | 315 |
| | 280 | 430 | 325 |
| | 300 | 450 | 325 |
| | 315 | 465 | 325 |
| | 355 | 525 | 335 |
| | 400 | 570 | 335 |
| | 450 | 620 | 335 |
| | 500 | 680 | 340 |
| | 560 | 740 | 340 |
| | 600 | 780 | 340 |
| | 630 | 810 | 340 |
| | 700 | 890 | 340 |
| | 800 | 980 | 340 |
| 560 | 200 | 330 | 345 |
| | 224 | 355 | 345 |
| | 250 | 380 | 345 |
| | 280 | 430 | 355 |
| | 300 | 450 | 355 |
| | 315 | 465 | 355 |
| | 355 | 525 | 365 |
| | 400 | 570 | 365 |
| | 450 | 620 | 365 |
| | 500 | 680 | 370 |
| | 560 | 740 | 370 |
| | 600 | 780 | 370 |
| | 630 | 810 | 370 |
| | 700 | 890 | 370 |
| | 800 | 980 | 370 |
| | 900 | 1080 | 370 |

| Φd1 mm | Φd3 mm | L mm | H mm |
|---|---|---|---|
| 600 | 200 | 330 | 365 |
| | 224 | 355 | 365 |
| | 250 | 380 | 365 |
| | 280 | 430 | 375 |
| | 300 | 450 | 375 |
| | 315 | 465 | 375 |
| | 355 | 525 | 385 |
| | 600 | 570 | 385 |
| | 450 | 620 | 385 |
| | 500 | 680 | 390 |
| | 560 | 740 | 390 |
| | 600 | 780 | 390 |
| | 630 | 810 | 390 |
| | 700 | 890 | 390 |
| | 800 | 980 | 390 |
| | 900 | 1080 | 390 |
| 630 | 200 | 330 | 380 |
| | 224 | 355 | 380 |
| | 250 | 380 | 380 |
| | 280 | 430 | 390 |
| | 300 | 450 | 390 |
| | 315 | 465 | 390 |
| | 355 | 525 | 400 |
| | 400 | 570 | 400 |
| | 450 | 620 | 400 |
| | 500 | 680 | 405 |
| | 560 | 740 | 405 |
| | 600 | 780 | 405 |
| | 630 | 810 | 405 |
| | 700 | 890 | 405 |
| | 800 | 980 | 405 |
| | 900 | 1080 | 405 |
| | 1000 | 1180 | 405 |
| 700 | 250 | 380 | 420 |
| | 280 | 430 | 420 |
| | 300 | 450 | 430 |
| | 315 | 465 | 430 |
| | 355 | 525 | 440 |
| | 400 | 570 | 440 |
| | 450 | 620 | 440 |
| | 500 | 680 | 445 |
| | 560 | 740 | 445 |
| | 600 | 780 | 445 |
| | 630 | 810 | 445 |

# Saddle Pieces

## *SLC/SLF*

## Dimensions

| Φd1 mm | Φd3 mm | L mm | H mm |
|---|---|---|---|
| 700 | 700 | 890 | 445 |
| | 800 | 980 | 445 |
| | 900 | 1080 | 445 |
| | 1000 | 1180 | 445 |
| | 1100 | 1300 | 445 |
| 800 | 250 | 380 | 465 |
| | 280 | 430 | 475 |
| | 300 | 450 | 475 |
| | 315 | 465 | 475 |
| | 355 | 525 | 485 |
| | 400 | 570 | 485 |
| | 450 | 620 | 485 |
| | 500 | 680 | 490 |
| | 560 | 740 | 490 |
| | 600 | 780 | 490 |
| | 630 | 810 | 490 |
| | 700 | 890 | 490 |
| | 800 | 980 | 490 |
| | 900 | 1080 | 490 |
| | 1000 | 1180 | 490 |
| | 1100 | 1300 | 490 |
| | 1250 | 1430 | 490 |
| 900 | 315 | 465 | 525 |
| | 355 | 525 | 535 |
| | 400 | 570 | 535 |
| | 450 | 620 | 535 |
| | 500 | 680 | 540 |
| | 560 | 740 | 540 |
| | 600 | 780 | 540 |
| | 630 | 810 | 540 |
| | 700 | 890 | 540 |
| | 800 | 980 | 540 |
| | 900 | 1080 | 540 |
| | 1000 | 1180 | 540 |
| | 1100 | 1300 | 540 |
| | 1250 | 1430 | 540 |
| 1000 | 315 | 465 | 575 |
| | 355 | 525 | 585 |
| | 400 | 570 | 585 |
| | 450 | 620 | 585 |
| | 500 | 680 | 590 |
| | 560 | 740 | 590 |
| | 600 | 780 | 590 |
| | 630 | 810 | 590 |

| Φd1 mm | Φd3 mm | L mm | H mm |
|---|---|---|---|
| 1000 | 700 | 890 | 590 |
| | 800 | 980 | 590 |
| | 900 | 1080 | 590 |
| | 1000 | 1180 | 590 |
| | 1100 | 1300 | 590 |
| | 1250 | 1430 | 590 |
| 1100 | 500 | 680 | 650 |
| | 560 | 740 | 650 |
| | 600 | 780 | 650 |
| | 630 | 810 | 650 |
| | 700 | 890 | 650 |
| | 800 | 980 | 650 |
| | 900 | 1080 | 650 |
| | 1000 | 1180 | 650 |
| | 1100 | 1300 | 650 |
| | 1250 | 1430 | 650 |
| 1250 | 500 | 680 | 715 |
| | 560 | 740 | 715 |
| | 600 | 780 | 715 |
| | 630 | 810 | 715 |
| | 700 | 890 | 715 |
| | 800 | 980 | 715 |
| | 900 | 1080 | 715 |
| | 1000 | 1180 | 715 |
| | 1100 | 1300 | 715 |
| | 1250 | 1430 | 715 |

**Other Size Are Available On Request**

# Twin Bends

## *TWSL 45°*

## Description

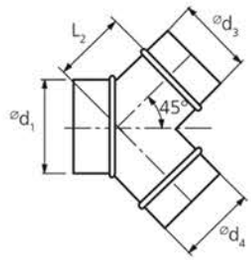
Branch 45°
Available on request: 15°, 30°, 60°
e.g. TWSL 15°- $d_1$- $d_3$- $d_4$.
When ordering, please specify both angle and diameter.

**Ordering**

Product code: TWSL45° aaa bbb ccc
Type
$\phi d_1$
$\phi d_3$
$\phi d_4$

Also Available With EPDM Rubber

## Dimensions




| Φd1 mm | Φd3 mm | Φd4 mm | L2 mm |
|---|---|---|---|
| 80 | 80 | 80 | 120 |
| 100 | 100 | 100 | 140 |
| 125 | 125 | 125 | 170 |
| 140 | 100 | 100 | 185 |
| 150 | 100 | 100 | 190 |
| 160 | 112 | 112 | 195 |
| 160 | 160 | 160 | 205 |
| 180 | 125 | 125 | 215 |
| 200 | 140 | 140 | 230 |
| 250 | 180 | 180 | 280 |
| 280 | 200 | 200 | 310 |
| 300 | 200 | 200 | 320 |
| 315 | 224 | 224 | 335 |
| 355 | 250 | 250 | 365 |
| 400 | 280 | 280 | 400 |
| 400 | 300 | 300 | 410 |
| 450 | 315 | 315 | 440 |
| 500 | 355 | 355 | 490 |
| 560 | 400 | 400 | 550 |
| 600 | 400 | 400 | 580 |
| 630 | 450 | 450 | 610 |
| 700 | 500 | 500 | 670 |
| 800 | 560 | 560 | 740 |
| 900 | 630 | 630 | 825 |
| 1000 | 700 | 700 | 920 |
| 1100 | 800 | 800 | 1030 |
| 1250 | 900 | 900 | 1150 |

Other Size Are Available On Request

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# Male Coupling
## *MCP*

## Description

MCP couplings are used for joining Sharqawi ducts.

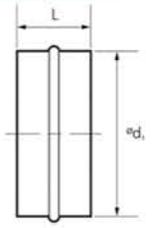
**Ordering**

Product code: **MCP aaa**

Type

$\Phi d_1$

## Dimensions

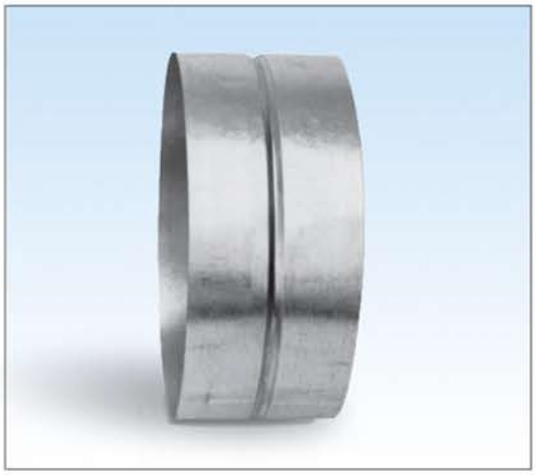



| $\Phi d_1$ mm | $L_2$ mm |
|---|---|
| 80 | 80 |
| 100 | 80 |
| 125 | 80 |
| 140 | 80 |
| 150 | 80 |
| 160 | 80 |
| 180 | 80 |
| 200 | 80 |
| 224 | 80 |
| 250 | 80 |
| 280 | 80 |
| 300 | 80 |
| 315 | 80 |
| 355 | 80 |
| 400 | 80 |
| 450 | 80 |
| 500 | 80 |
| 560 | 100 |
| 600 | 100 |
| 630 | 100 |
| 710 | 100 |
| 800 | 100 |
| 900 | 100 |
| 1000 | 100 |
| 1100 | 100 |
| 1250 | 100 |

Also Available With EPDM Rubber

**Other Size Are Available On Request**

# Female Coupling
## *FCP*



## Description

FCP is used for joining fittings.

**Ordering**

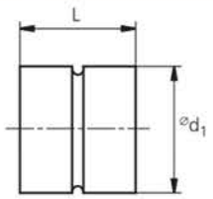
Product code: **FCP aaa**

Type

$^{\varnothing}d_1$

**Other Size Are Available On Request**

## Dimensions



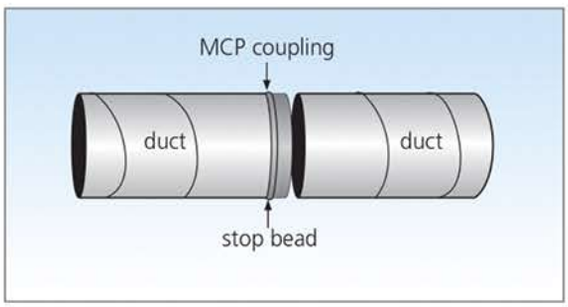

| Φd mm | L mm |
|---|---|
| 80 | 120 |
| 100 | 120 |
| 125 | 120 |
| 140 | 120 |
| 150 | 120 |
| 160 | 120 |
| 180 | 120 |
| 200 | 120 |
| 224 | 120 |
| 250 | 120 |
| 280 | 120 |
| 300 | 120 |
| 315 | 120 |
| 355 | 120 |
| 400 | 120 |
| 450 | 120 |
| 500 | 200 |
| 560 | 200 |
| 600 | 200 |
| 630 | 200 |
| 700 | 200 |
| 800 | 200 |
| 900 | 200 |
| 1000 | 200 |
| 1100 | 200 |
| 1250 | 200 |

# SINGLE-WALL, SLIP-JOINT

## Connection Instructions

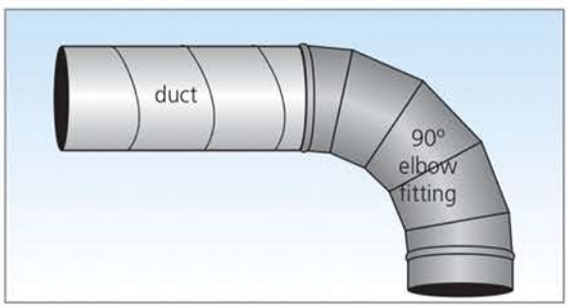
### Duct to Duct

1. Apply sealant on one end of coupling, one inch from the stop bead.
2. Slide coupling into one section of duct until stop bead is flush against raw edge of duct.
3. Slide second section of duct over the other end of the coupling, stopping one inch short of the stop bead.
4. Apply sealant to the inch of exposed coupling. (Do not apply sealant prior to this step or to the inside of duct.)
5. After the sealant is applied, push second duct over the coupling until it's flush against the stop bead. The only visible part of the coupling now is the stop bead.
6. Secure the connection by inserting megaduct screws (or pop rivets) through each duct, into the coupling, 1/2 inch from the stop bead.
7. Dress exposed stop bead as required.



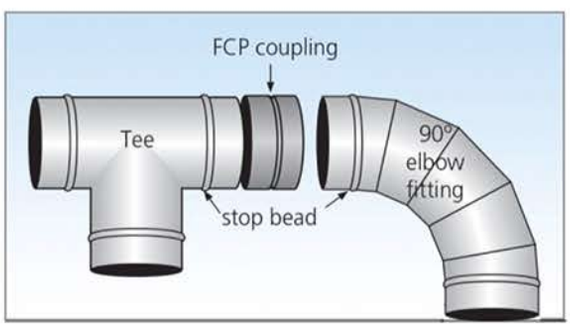

### Fitting to Duct

1. Slide fitting into duct, stopping one inch short of the stop bead.
2. Apply sealant to the one inch of exposed fitting collar. (Do not apply Sealant prior to this stage or to the inside of the duct.)
3. After the sealant is applied, push duct and fitting together until duct is flush against the stop bead. The only visible part of the fitting collar now is the stop bead.
4. secure the connection by inserting sheet metal screws (or pop rivets) through the duct, into the coupling,1/2 inch from the stop bead.
5. Dress exposed stop bead as required.




### Fitting to Fitting

1.Slide the coupling over the collar of the fitting, stopping 1 inch short of the stop bead. (Note that the coupling has no stop bead.)
2.Apply sealant to the inch of exposed fitting. (Do not apply sealant prior to this stage or to the inside of the pipe.)
3.After the sealant is applied, push fitting and coupling together until the coupling is flush against the stop bead.
4.Slide second fitting into coupling, stopping 1 inch short of stop bead.
5.Apply sealant to the inch of exposed fitting.
6.Push second fitting and coupling together until coupling is flush against stop bead.
7.Secure the connection by inserting sheet metal screws (or pop rivets) through the connector, into the fltting,1/2-inch from the stop bead.
8.Dress exposed stop bead as required.

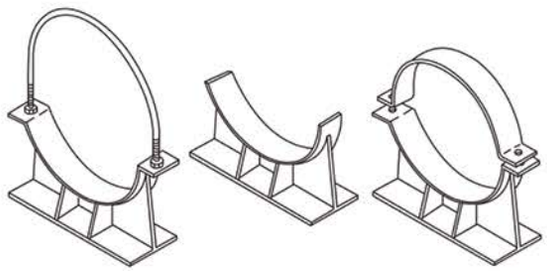



Megaduct products are manufactured to limit friction, leakage and noise. By producing fitting and couplings an 1/8 of an inch smaller than the duct, a secure fit is ensured when properly installed. If sealing Is not required, delete all sealant steps.

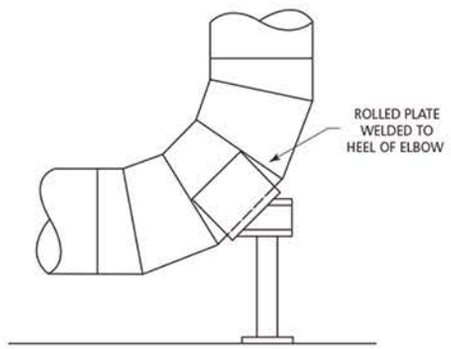
# SUPPORT SYSTEM FOR DUCTS



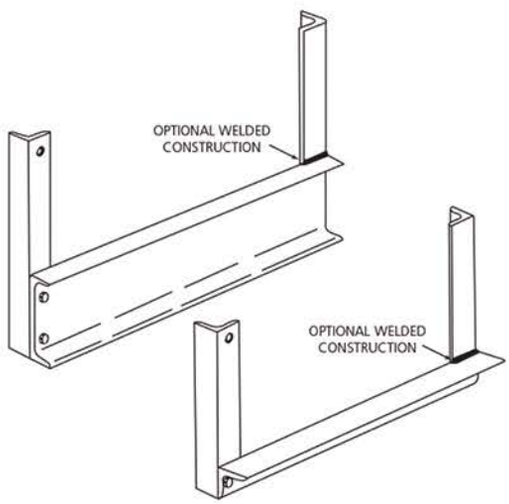
## Duct Saddles



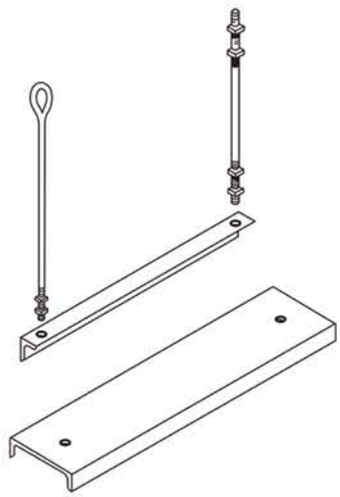
## Supporting Round Duct



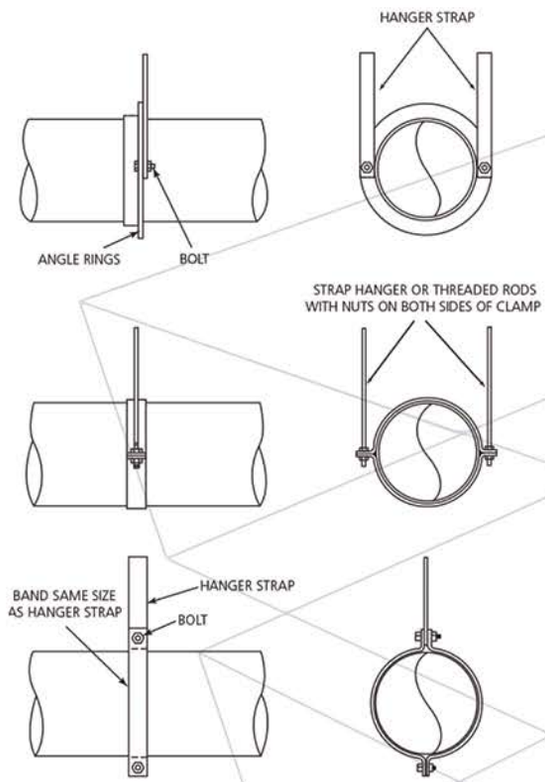

## Trapeze Type Supports




## Trapeze Type Supports



## Hanging Round Duct



MEGADUCT®
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# 2 Spiral Double Wall

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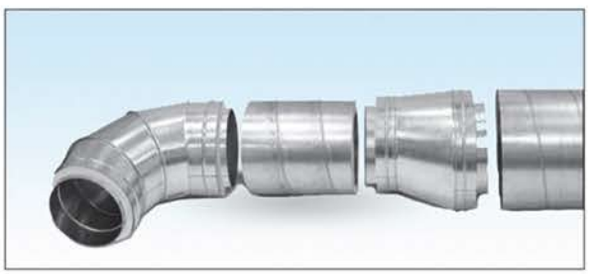
# Contents

# *Spiral Double Wall*

**Megaduct has a complete line of double wall spiral ducts and fittings, each piece fabricated with an inner metal liner surrounded by insulation and covered by a solid metal outer shell.**

**The inner liner is available in either perforated or Solid metal.**

**All Double wall ductwork is available with 25 mm or 50 mm fiberglass insulation.**



# Benefits of the MEGADUCT Double Wall Ducts

- **Fan noise reduction**

  Our double wall duct and fittings provide exceptional control of fan noise, often eliminating the need for additional duct silencers.

- **Reduced air flow- generated noise**

  The insulation is located outside the duct system's air passage, where it can absorb sound without interfering with the air flow.

- **Flanking - path control**

  When a duct system passes through noisy environments such as mechanical equipment rooms and production areas. its walls can pickup flanking - path noise and convey it to other areas served by the duct system. The internal insulation of our double wall duct begins absorbing external noise as soon as it enters duct system, effectively preventing the duct system from becoming a speaking tube.

- **Damage Protection**

  Our sheet metal outer shell protects the insulation from damage during construction and maintenance. In outdoor applications, it protects the insulation from damage caused by sun, wind, rain, oxidation and other environmental factors.

- **Fire Safety**

  The Sheet metal walls of our double-wall duct and fittings are noncombustible and not prone to penetration by fire.

- **Appearance:**

  Double-wall duct and fittings are ideal for use in architecturally exposed applications. The sheet metal outer shell has a uniform, finished appearance, and it can be painted to match or complement its surroundings.

- **Control of Heat Loss and Heat Gain**

  The insulation in double-wall duct and fittings acts as a thermal barrier, increasing a duct system's effectiveness by helping to maintain the temperature of heated or cooled air being ducted through the system.

- **Integral Vapor Barrier**

  The sheet metal outer shell of our double-wall duct and fittings serves as an integral and permanent vapor barrier to prevent moisture from condensing in the insulation.

# *Construction Standards*

## Double Wall Spiral Ducts and Fitting Gauges

| Duct Diameter mm | Spiral Duct | | Fittings | |
|---|---|---|---|---|
| | inner | outer | inner | outer |
| 100 - 315 | 26 | 26 | 24 | 24 |
| 350 - 650 | 26 | 26 | 24 | 24 |
| 700 - 900 | 24 | 24 | 22 | 22 |
| 950 - 1250 | 22 | 22 | 20 | 20 |
| 1300 - 1500 | 22 | 20 | 20 | 18 |

- Duct and fittings are fabricated from G90 galvanized steel sheet meeting ASTM A-653 standards (formally A,527).
- Outer shell of spiral duct 350 dia. and larger can be corrugated for more strength and rigidity, both inner and outer duct will be of spiral lock seam construction.
- Fiber glass conductivity factor (K) = 0.032 w/m.C° at 10° .
- For more details on construction schedule consult Megaduct Air Distribution Systems Factory.

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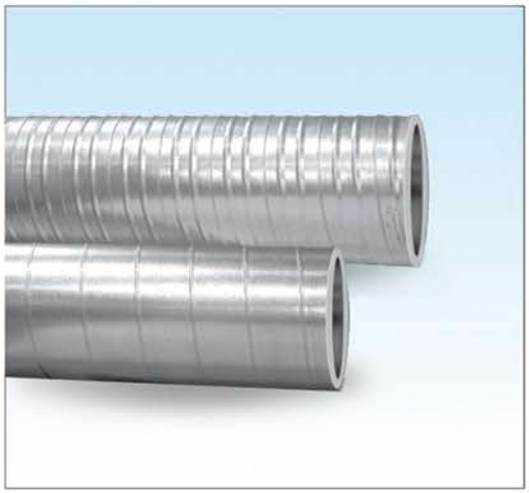
# Spiral Duct
## *SPT/SPA*



## Description

SPT - Thermal double wall duct
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

SPA - Acoustical double wall duct
- Outer shell: solid galvanized steel.
- Inner shell: perforated galvanized steel
- Inner shell diameter mm $d_1$
- Outer shell diameter mm $d_{10} = d_1 + 2l$
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard

### Ordering

Product code: SPT aaa bbb

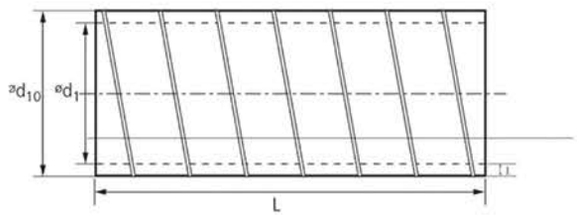
Type

$\varnothing d_1$

$\varnothing d_{10}$

Also Available With EPDM Rubber

## Dimensions




| ød Inner | ød$_t$ Outer | L Std mt |
|---|---|---|
| 100 | 160 | 3 |
| 125 | 160 | 3 |
| 160 | 200 | 3 |
| 200 | 250 | 3 |
| 250 | 315 | 3 |
| 315 | 355 | 3 |
| 355 | 400 | 3 |
| 400 | 450 | 3 |
| 450 | 500 | 3 |
| 500 | 560 | 3 |
| 560 | 630 | 3 |
| 600 | 650 | 3 |
| 630 | 700 | 3 |
| 650 | 700 | 3 |
| 700 | 750 | 3 |
| 750 | 800 | 3 |
| 800 | 850 | 3 |
| 850 | 900 | 3 |
| 900 | 950 | 3 |
| 950 | 1000 | 3 |
| 1000 | 1050 | 3 |
| 1050 | 1100 | 3 |
| 1100 | 1150 | 3 |
| 1150 | 1250 | 3 |
| 1250 | 1300 | 3 |
| 1300 | 1400 | 3 |
| 1400 | 1500 | 3 |

**Other Size Are Available On Request**

# Elbow

## *EL TL90° / ELTA 90°*

## Description

- ELTL/90 = Thermal double wall,90° Elbow
- ELTA/90 = Acoustical double wall, 90° Elbow
- Inner shell dia mm $d_1$
- Outer shell diameter mm $d_{10} = d_1 + 2l$
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard

**Ordering**

Product code: **ELTL/90** **aaa** **bbb**

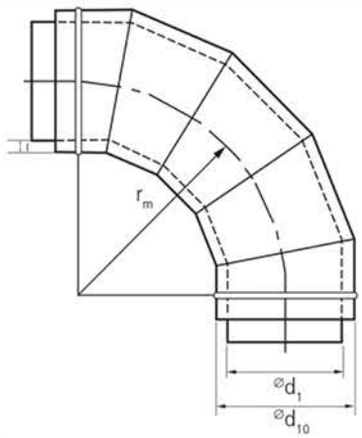
Type

$\varnothing d_1$

$\varnothing d_{10}$

Also Available With EPDM Rubber

## Dimensions




$r = 1.5\, d_1$

| $\varnothing d_1$ Inner mm | $\varnothing d_{10}$ Outer mm |
|---|---|
| 100 | 160 |
| 125 | 160 |
| 160 | 200 |
| 200 | 250 |
| 250 | 315 |
| 315 | 355 |
| 355 | 400 |
| 400 | 450 |
| 450 | 500 |
| 500 | 560 |
| 560 | 630 |
| 630 | 700 |
| 700 | 750 |
| 750 | 800 |
| 800 | 850 |
| 850 | 900 |
| 900 | 1000 |
| 1000 | 1100 |
| 1100 | 1250 |

**Other Size Are Available On Request**

# Elbow

## *ELT60°/ELA60°*

## Description

- ELT/60 = Thermal double wall,60° Elbow
- ELA/60 = Acoustical double wall, 60° Elbow
- Inner shell dia mm $d_1$
- Outer shell diameter mm $d_{10} = d_1+2l$
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard

**Ordering**

Product code: **ELT/60** **aaa** **bbb**

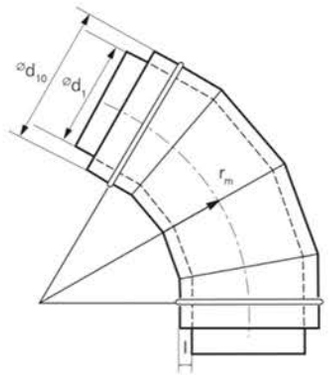
Type

$\varnothing d_1$

$\varnothing d_{10}$

Also Available With EPDM Rubber

## Dimensions




$r = 1.5\ d_1$

| $\phi d_1$ Inner mm | $\phi d_{10}$ Outer mm |
|---|---|
| 100 | 160 |
| 125 | 160 |
| 160 | 200 |
| 200 | 250 |
| 250 | 315 |
| 315 | 355 |
| 355 | 400 |
| 400 | 450 |
| 450 | 500 |
| 500 | 560 |
| 560 | 630 |
| 630 | 700 |
| 700 | 750 |
| 750 | 800 |
| 800 | 850 |
| 850 | 900 |
| 900 | 1000 |
| 1000 | 1100 |
| 1100 | 1250 |

Other Size Are Available On Request

# Elbow
## *ELT45°/ELA45°*

## Description

- ELT/45 = Thermal double wall,45° Elbow
- ELA/45 = Acoustical double wall, 45° Elbow
- Inner shell dia mm $d_1$
- Outer shell diameter mm $d_{10} = d_1+2l$
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard

**Ordering**

Product code: **ELT/45** **aaa** **bbb**

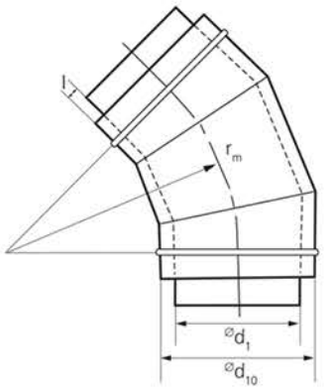
Type

$\varnothing d_1$

$\varnothing d_{10}$

Also Available With EPDM Rubber

## Dimensions




$r = 1.5\, d_1$

| $\varnothing d_1$ Inner mm | $\varnothing d_{10}$ Outer mm |
|---|---|
| 100 | 160 |
| 125 | 160 |
| 160 | 200 |
| 200 | 250 |
| 250 | 315 |
| 315 | 355 |
| 355 | 400 |
| 400 | 450 |
| 450 | 500 |
| 500 | 560 |
| 560 | 630 |
| 630 | 700 |
| 700 | 800 |
| 750 | 800 |
| 800 | 900 |
| 850 | 900 |
| 900 | 1000 |
| 1000 | 1100 |
| 1100 | 1250 |

**Other Size Are Available On Request**

# Elbow

## *ELT30°/ELA30°*

## Description

- ELT/30 = Thermal double wall,30° Elbow
- ELA/30 = Acoustical double wall, 30° Elbow
- Inner shell dia mm $d_1$
- Outer shell diameter mm $d_{10} = d_1+2l$
- Insulation 25 mm or 50 mm
- 3 gore bend (segmented) as a standard
- Insulation density: 24 kg/m³ as standard

**Ordering**

Product code: **ELT/30** **aaa** **bbb**

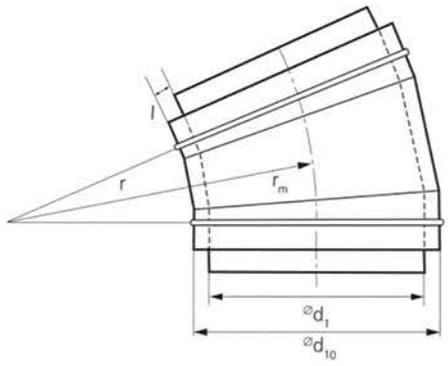
Type

$\varnothing d_1$

$\varnothing d_{10}$

Also Available With EPDM Rubber

## Dimensions




$r = 1.5\, d_1$

| $\varnothing d_1$ Inner mm | $\varnothing d_{10}$ Outer mm |
|---|---|
| 100 | 160 |
| 125 | 160 |
| 160 | 200 |
| 200 | 250 |
| 250 | 315 |
| 315 | 355 |
| 355 | 400 |
| 400 | 450 |
| 450 | 500 |
| 500 | 560 |
| 560 | 630 |
| 630 | 700 |
| 700 | 750 |
| 750 | 800 |
| 800 | 850 |
| 850 | 900 |
| 900 | 1000 |
| 1000 | 1100 |
| 1100 | 1250 |

**Other Size Are Available On Request**

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# Elbow

## *ELT15°/ELA15°*

## Description

- ELT/15 = Thermal double wall,15° Elbow
- ELA/15 = Acoustical double wall, 15°Elbow
- Inner shell dia mm $d_1$
- Outer shell diameter mm $d_{10} = d_1+2l$
- Insulation 25 mm or 50 mm
- 3 gore bend (segmented) as a standard
- Insulation density: 24 kg/m³ as standard

### Ordering

Product code: **ELT/15** **aaa** **bbb**

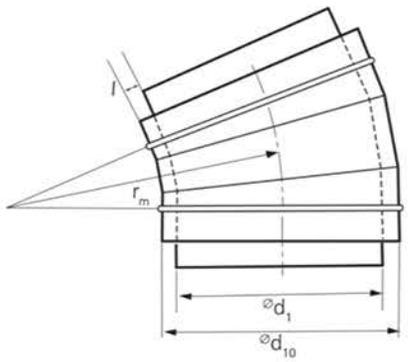
Type

$\varnothing d_1$

$\varnothing d_{10}$

Also Available With EPDM Rubber

## Dimensions




$r = 1.5\ d_1$

| $\varnothing d_1$ Inner mm | $\varnothing d_{10}$ Outer mm |
|---|---|
| 100 | 160 |
| 125 | 160 |
| 160 | 200 |
| 200 | 250 |
| 250 | 315 |
| 315 | 355 |
| 355 | 400 |
| 400 | 450 |
| 450 | 500 |
| 500 | 560 |
| 560 | 630 |
| 630 | 700 |
| 700 | 750 |
| 750 | 800 |
| 800 | 850 |
| 850 | 900 |
| 900 | 1000 |
| 1000 | 1100 |
| 1100 | 1250 |

**Other Size Are Available On Request**

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# Offset
## *OFFT/OFFA*

## Description

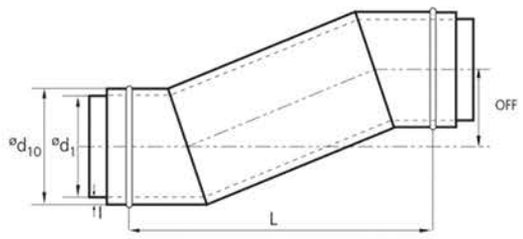
- OFFT = Thermal double wall offset
- OFFA = Acoustical double wall offset
- Inner shell dia mm $d_1$
- Outer shell diameter mm $d_{10} = d_1 + 2l$
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard
- $L = 2d_{10}$
- Off - must be specified

**Ordering**

Product code: **OFFT** **aaa** **bbb** **ccc**

- Type
- ⌀$d_1$
- ⌀$d_{10}$
- Off

## Dimensions




| ⌀$d_1$ Inner mm | ⌀$d_{10}$ Outer mm |
|---|---|
| 100 | 160 |
| 125 | 160 |
| 160 | 200 |
| 200 | 250 |
| 250 | 315 |
| 315 | 355 |
| 355 | 400 |
| 400 | 450 |
| 450 | 500 |
| 500 | 560 |
| 560 | 630 |
| 630 | 700 |
| 700 | 750 |
| 750 | 800 |
| 800 | 850 |
| 850 | 900 |
| 900 | 1000 |
| 1000 | 1100 |
| 1100 | 1250 |

**Other Size Are Available On Request**

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# Reducer
## *RECT/RECA/REFT/REFA*

## Description

- Reducer Centric connected to spiral duct from both sides
- RECT - Thermal Double wall Reducer
- RECA - Acoustical double wall Reducer
- Reducer Eccentric connected to spiral duct from both sides
- REFT - Thermal Double wall Reducer
- REFA - Acoustical double wall Reducer
- Inner shell dia mm $d_1, d_2$
- Outer shell diameter mm $d_{10}, d_{20}$
- Insulation 25mm or 50mm
- Insulation density 24 kg/m3 as standard
- L - 100mm Minimum
- $z = (d_1 - d_2)/2$

**Ordering**

Product code: **RECT aaa bbb**

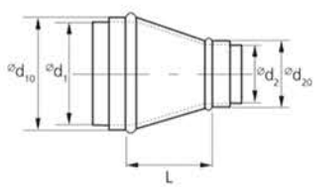
Type

$\varnothing d_1$

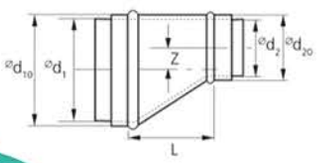
$\varnothing d_2$

## Dimensions

RECT




RECA




Also Available With EPDM Rubber

## Dimensions

| $\varnothing d_1$ mm | $\varnothing d_2$ mm |
|---|---|
| 100 | 80 |
| 112 | 80 |
| | 100 |
| 125 | 80 |
| | 100 |
| 140 | 80 |
| | 100 |
| | 125 |
| 150 | 80 |
| | 100 |
| | 125 |
| | 140 |
| 160 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| 180 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| 200 | 80 |
| | 100 |
| | 125 |
| | 140 |

# Pre- Insulated Reducer

## *RECT/RECA/REFT/REFA*

## Dimensions

| Φd1 mm | Φd2 mm |
|---|---|
| 200 | 150 |
| | 160 |
| | 180 |
| 224 | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| 250 | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| 280 | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| 300 | 120 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| 315 | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |

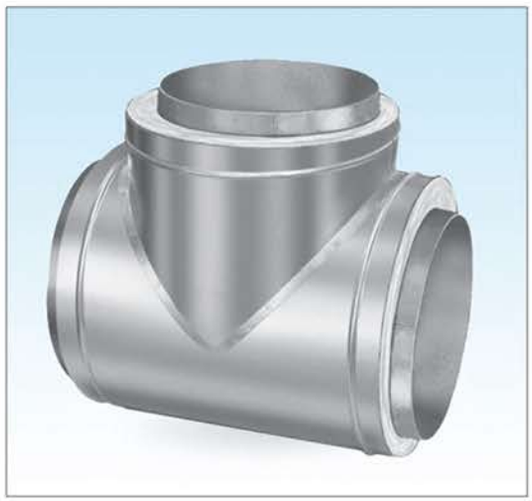
| Φd1 mm | Φd2 mm |
|---|---|
| 315 | 300 |
| 355 | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| 400 | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| 450 | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| 450 | 355 |
| | 400 |
| 500 | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| 560 | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| 600 | 250 |

| Φd1 mm | Φd2 mm |
|---|---|
| 600 | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| 630 | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| 700 | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| 800 | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| 900 | 450 |
| | 500 |
| | 560 |
| | 600 |
| 900 | 630 |
| | 700 |
| | 800 |
| 1000 | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |

| Φd1 mm | Φd2 mm |
|---|---|
| 1000 | 800 |
| | 900 |
| 1100 | 560 |
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| | 1000 |
| 1250 | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| | 1000 |
| | 1100 |

**Other Size Are Available On Request**

# Straight Tee
## *TSCT/TSCA*



## Description

TSCT - Thermal double wall straight Tee
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

TSCA - Acoustical double wall straight Tee
- Outer shell: solid galvanized steel.
- Inner shell: perforated galvanized steel
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard

$L = d_2 + 2l + 100mm$

**Ordering**

Product code: **TSCT** **aaa** **bbb**

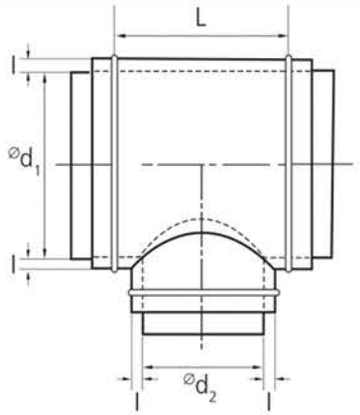
Type

$\varnothing d_1$

$\varnothing d_2$

Also Available With EPDM Rubber

## Dimensions




| ød1 mm | ød2 mm |
|---|---|
| 80 | 80 |
| | 100 |
| | 125 |
| 100 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| 125 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| 140 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |

# Straight Tee

## *TSCT/TSCA*

## Dimensions

| Φd1 mm | Φd2 mm |
|---|---|
| 150 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| 160 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| 180 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| 200 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |

| Φd1 mm | Φd2 mm |
|---|---|
| 224 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| 250 | 80 |
| | 100 |
| | 125 |
| | 140 |
| 250 | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| 280 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |

# Straight Tee

## *TSCT/TSCA*

## Dimensions

| Φd1 mm | Φd2 mm |
|---|---|
| 280 | 450 |
| 300 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| 315 | 80 |
| | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| 355 | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |

| Φd1 mm | Φd2 mm |
|---|---|
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| 355 | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| 400 | 100 |
| | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| 450 | 125 |
| | 140 |

# Straight Tee

## *TSCT/TSCA*

## Dimensions

| Φd1 mm | Φd2 mm |
|---|---|
| 450 | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| 500 | 125 |
| | 140 |
| | 150 |
| | 160 |
| | 180 |
| | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| 560 | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |

| Φd1 mm | Φd2 mm |
|---|---|
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| 600 | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| 630 | 200 |
| | 224 |
| | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| | 1000 |
| 700 | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |

# Straight Tee

## *TSCT/TSCA*

## Dimensions

| Φd1 mm | Φd2 mm |
|---|---|
| 700 | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| | 1000 |
| | 1100 |
| 800 | 250 |
| | 280 |
| | 300 |
| | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| | 1000 |
| | 1100 |
| | 1250 |
| 900 | 315 |
| | 355 |
| | 400 |
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| | 1000 |
| | 1100 |
| | 1250 |
| 1000 | 315 |
| | 355 |
| | 400 |

| Φd1 mm | Φd2 mm |
|---|---|
| | 450 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| 1100 | 700 |
| | 800 |
| | 900 |
| | 1000 |
| | 1100 |
| | 1250 |
| | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| | 1000 |
| | 1100 |
| | 1250 |
| 1250 | 500 |
| | 560 |
| | 600 |
| | 630 |
| | 700 |
| | 800 |
| | 900 |
| | 1000 |
| | 1100 |
| | 1250 |

**Other Size Are Available On Request**

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# Twin Bend
## *TWLT45°/TWLA45°*

## Description

TWLT - Thermal double wall Twin bend
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

TWLA - Acoustical double wall Twin bend
- Outer shell: solid galvanized steel.
- Inner shell: Perforated galvanized steel
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard

**Ordering**

Product code: **TWLT** **aaa** **bbb** **ccc**

Type

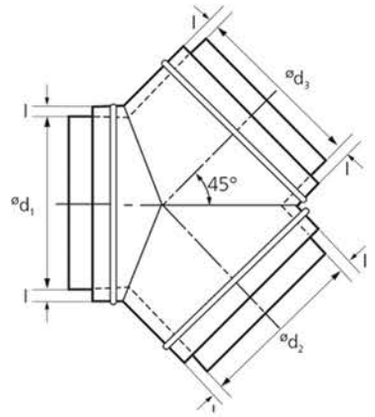
$\phi d_1$

$\phi d_2$

$\phi d_3$

Also Available With EPDM Rubber

## Dimensions




| $\phi d_1$ mm | $\phi d_2$ mm | $\phi d_3$ mm |
|---|---|---|
| 80 | 80 | 80 |
| 100 | 100 | 100 |
| 125 | 125 | 125 |
| 140 | 100 | 100 |
| 150 | 100 | 100 |
| 160 | 112 | 112 |
| 160 | 160 | 160 |
| 180 | 125 | 125 |
| 200 | 140 | 140 |
| 250 | 180 | 180 |
| 280 | 200 | 200 |
| 300 | 200 | 200 |
| 315 | 224 | 224 |
| 355 | 250 | 250 |
| 400 | 280 | 280 |
| 400 | 300 | 300 |
| 450 | 315 | 315 |
| 500 | 355 | 355 |
| 560 | 400 | 400 |
| 600 | 400 | 400 |
| 630 | 450 | 450 |
| 700 | 500 | 500 |
| 800 | 560 | 560 |
| 900 | 630 | 630 |
| 1000 | 700 | 700 |
| 1100 | 800 | 800 |
| 1250 | 900 | 900 |

**Other Size Are Available On Request**

# Straight Cross
# XSCT/XSCA

## Description

XSCT - Thermal double wall Insulated Straight Cross
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

XSCA - Acoustical double wall Insulated Straight Cross
- Outer shell: solid galvanized steel.
- Inner shell: Perforated galvanized steel
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard

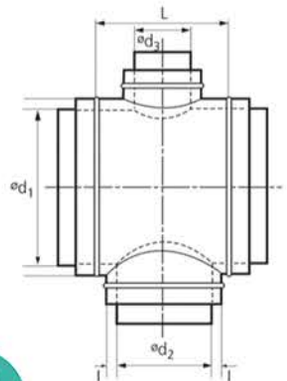
L = Largest tap($d_2$ or $d_3$) + 2l + 100mm

**Ordering**

Product code: **XSCT** **aaa** **bbb** **ccc**

- Type
- ⌀$d_1$
- ⌀$d_2$
- ⌀$d_3$

## Dimensions




## Dimensions

| ⌀$d_1$ mm | ⌀$d_2$ mm | ⌀$d_3$ mm |
|---|---|---|
| 80 | 63 | 63 |
| 100 | 80 | 80 |
| | 63 | 63 |
| 125 | 100 | 100 |
| | 80 | 80 |
| 160 | 125 | 125 |
| | 100 | 100 |
| | 80 | 80 |
| 200 | 160 | 160 |
| | 125 | 125 |
| | 100 | 100 |
| 250 | 200 | 200 |
| | 160 | 160 |
| | 125 | 125 |
| 315 | 250 | 250 |
| | 200 | 200 |
| | 160 | 160 |
| 355 | 315 | 315 |
| | 250 | 250 |
| | 200 | 200 |
| 400 | 355 | 355 |
| | 315 | 315 |
| | 250 | 250 |
| 500 | 400 | 400 |
| | 355 | 355 |
| | 315 | 315 |
| 630 | 500 | 500 |
| | 400 | 400 |
| | 355 | 355 |
| 800 | 630 | 630 |
| | 500 | 500 |
| | 400 | 400 |
| 1000 | 800 | 800 |
| | 500 | 500 |
| 1250 | 1000 | 1000 |
| | 800 | 800 |
| | 630 | 630 |

Also Available With EPDM Rubber

Other Size Are Available On Request

## Straight Lateral

# YSLT45°/YSLA45°

## Description

YSLT45° - Thermal double wall Straight Lateral
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

YSLA45° - Acoustical double wall Straight Lateral
- Outer shell: solid galvanized steel.
- Inner shell: Perforated galvanized steel
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard

$L = 1.414 \times (d_2 + 21) + 100mm$

**Ordering**

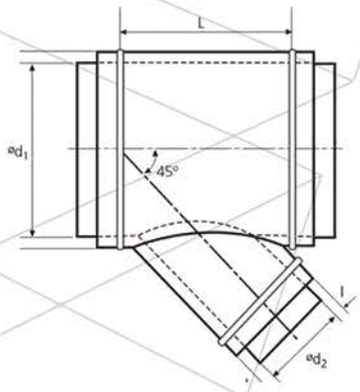
Product code: **YSLT** **aaa** **bbb**

Type

$\phi d_1$

$\phi d_2$

## Dimensions




Also Available With EPDM Rubber

## Dimensions

| $\phi d_1$ mm | $\phi d_2$ mm |
|---|---|
| 80 | 63 |
| 100 | 80 |
| | 63 |
| 125 | 100 |
| | 80 |
| 160 | 125 |
| | 100 |
| | 80 |
| 200 | 160 |
| | 125 |
| | 100 |
| 250 | 200 |
| | 160 |
| | 125 |
| 315 | 250 |
| | 200 |
| | 160 |
| 355 | 315 |
| | 250 |
| | 200 |
| 400 | 355 |
| | 315 |
| | 250 |
| 500 | 400 |
| | 355 |
| | 315 |
| 630 | 500 |
| | 400 |
| | 355 |
| 800 | 630 |
| | 500 |
| | 400 |
| 1000 | 800 |
| | 500 |
| 1250 | 1000 |
| | 800 |
| | 630 |

**Other Size Are Available On Request**

# Lateral Cross
## *XSLT45°/XSLA45°*

## Description

XSLT45° - Thermal double wall Insulated Lateral Cross
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

XSLA45° - Acoustical double wall Insulated Lateral Cross
- Outer shell: solid galvanized steel.
- Inner shell: Perforated galvanized steel
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard

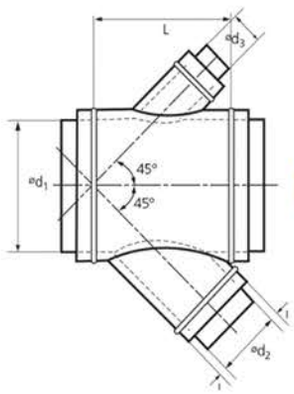
L = 1.414 (Largest tap + 2l) + 100mm

**Ordering**

Product code: **XSLT aaa bbb ccc**

Type
ø$d_1$
ø$d_2$
ø$d_3$

## Dimensions




Also Available With EPDM Rubber

## Dimensions

| ϕ$d_1$ mm | ϕ$d_2$ mm | ϕ$d_3$ mm |
|---|---|---|
| 80 | 63 | 63 |
| 100 | 80 | 80 |
| | 63 | 63 |
| 125 | 100 | 100 |
| | 80 | 80 |
| 160 | 125 | 125 |
| | 100 | 100 |
| | 80 | 80 |
| 200 | 160 | 160 |
| | 125 | 125 |
| | 100 | 100 |
| 250 | 200 | 200 |
| | 160 | 160 |
| | 125 | 125 |
| 315 | 250 | 250 |
| | 200 | 200 |
| | 160 | 160 |
| 355 | 315 | 315 |
| | 250 | 250 |
| | 200 | 200 |
| 400 | 355 | 355 |
| | 315 | 315 |
| | 250 | 250 |
| 500 | 400 | 400 |
| | 355 | 355 |
| | 315 | 315 |
| 630 | 500 | 500 |
| | 400 | 400 |
| | 355 | 355 |
| 800 | 630 | 630 |
| | 500 | 500 |
| | 400 | 400 |
| 1000 | 800 | 800 |
| | 500 | 500 |
| 1250 | 1000 | 1000 |
| | 800 | 800 |
| | 630 | 630 |

**Other Size Are Available On Request**

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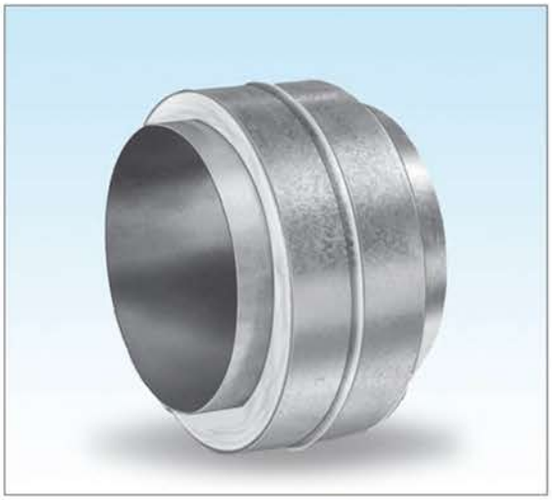
# Coupling
## *MCPT/MCPA*



## Description

MCPT used for joining duct to duct.

MCPT - Thermal double wall Coupling
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

MCPA - Acoustical double wall Coupling
- Outer shell: solid galvanized steel.
- Inner shell: Perforated galvanized steel
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard
- $d_2 = d_1 + 2l$

**Ordering**

Product code: **MCPT** **aaa** **bbb**

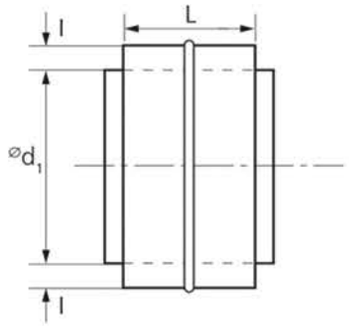
Type

$\phi d_1$

$\phi d_2$

Also Available With EPDM Rubber

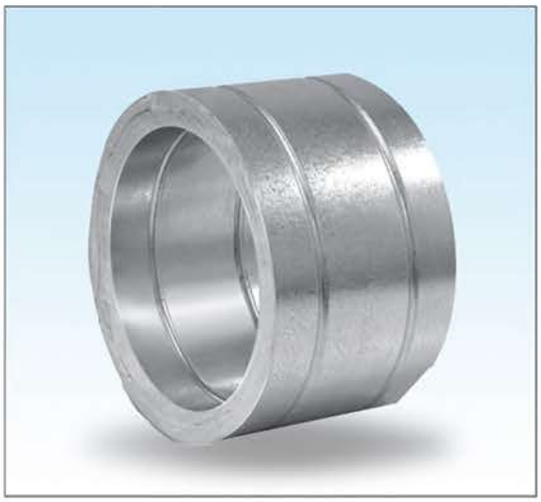
## Dimensions




| $\phi d_1$ mm | L mm |
|---|---|
| 80 | 100 |
| 100 | 100 |
| 125 | 100 |
| 140 | 100 |
| 150 | 100 |
| 160 | 100 |
| 180 | 100 |
| 200 | 100 |
| 224 | 100 |
| 250 | 100 |
| 280 | 100 |
| 300 | 100 |
| 315 | 100 |
| 355 | 100 |
| 400 | 100 |
| 450 | 100 |
| 500 | 100 |
| 560 | 100 |
| 600 | 100 |
| 630 | 100 |
| 700 | 100 |
| 800 | 100 |
| 900 | 100 |
| 1000 | 100 |
| 1100 | 100 |
| 1250 | 100 |

Other Size Are Available On Request

# Coupling
## *FCPT/FCPA*



## Description

FCP is used for joining fittings

FCPT - Thermal double wall Coupling
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

--FCPA - Acoustical double wall Coupling
- Outer shell: solid galvanized steel.
- Inner shell: Perforated galvanized steel
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard
- $d_2 = d_1 + 2l$

### Ordering

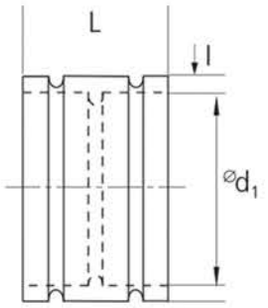
Product code: **FCPT** **aaa** **bbb**

Type

$\varnothing d_1$

$\varnothing d_2$

## Dimensions




| ⌀d mm | L mm |
|---|---|
| 80 | 120 |
| 100 | 120 |
| 125 | 120 |
| 140 | 120 |
| 150 | 120 |
| 160 | 120 |
| 180 | 120 |
| 200 | 120 |
| 224 | 120 |
| 250 | 120 |
| 280 | 120 |
| 300 | 120 |
| 315 | 120 |
| 355 | 120 |
| 400 | 120 |
| 450 | 120 |
| 500 | 200 |
| 560 | 200 |
| 600 | 200 |
| 630 | 200 |
| 700 | 200 |
| 800 | 200 |
| 900 | 200 |
| 1000 | 200 |
| 1100 | 200 |
| 1250 | 200 |

**Other Size Are Available On Request**

# End Cap
## *ECT/ECA*

## Description

ECT - Thermal double wall end cap
- Outer shell: solid galvanized steel.
- Inner shell: solid galvanized steel

ECA - Acoustical double wall end cap
- Outer shell: solid galvanized steel.
- Inner shell: Perforated galvanized steel
- Insulation 25 mm or 50 mm
- Insulation density: 24 kg/m³ as standard
- $d_2 = d_1 + 2l$

**Ordering**

Product code: **ECT** **aaa** **bbb**

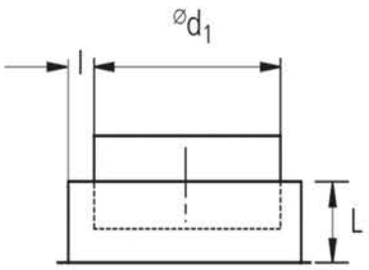
Type

ø$d_1$

ø$d_2$

Also Available With EPDM Rubber

## Dimensions




| ø$d_1$ mm | L mm |
|---|---|
| 80 | 50 |
| 100 | 50 |
| 125 | 50 |
| 160 | 50 |
| 200 | 50 |
| 250 | 50 |
| 315 | 50 |
| 355 | 50 |
| 400 | 50 |
| 450 | 50 |
| 500 | 50 |
| 560 | 50 |
| 630 | 50 |
| 700 | 50 |
| 750 | 50 |
| 800 | 50 |
| 850 | 50 |
| 900 | 50 |
| 1000 | 50 |
| 1100 | 50 |
| 1250 | 50 |

Other Size Are Available On Request

# *Assembly Instructions*

## Slip-Joint Connections

### Duct-to-Duct joints

A duct-to-duct slip joint requires a fitting size, double -wall coupling, as shown in **Figure 1.** The collars of the coupling's inner liner project beyond the collars of the outer wall. This makes it possible to insert the coupling's inner liner into the duct's inner liner before starting to connect the outer shells. A stop bead runs around the middle of the coupling's outer shells to center the coupling in the connection.

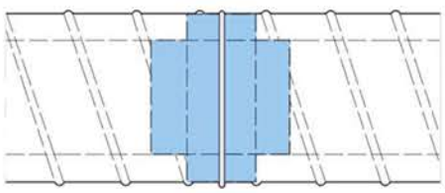


**Figure 1.** Double wall duct-to-duct slip joint

### Duct-to-fitting joints

Double-wall fittings are sized for slip-joint connection directly to double-wall duct. They are fabricated so that the inner liner collars project beyond the outer shell collars, as shown in **Figure 2.** This facilities assembly because the inner liner collar of the fitting can be inserted in to the inner liner of the duct before starting to connect the outer shell. The outer shell collars of fittings are provided with stop beads.

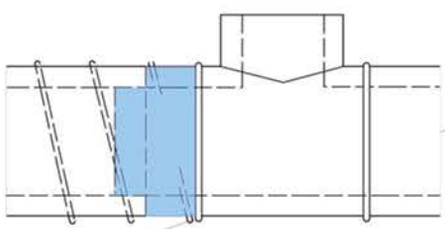


**Figure 2.** Double wall duct-to-fitting slip joint

### fitting-to-fitting joints

Two double-wall fittings can be joined using a short piece of double-wall duct cut in the field or using a double-wall fitting coupling, as shown in **Figure 3.** This joint can be assembled by the same method as a duct-to-fitting connection.

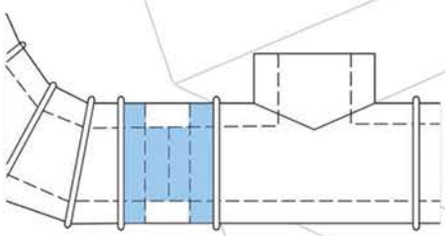


**Figure 3.** Double wall fitting-to-fitting slip joint

If an installation requires closer fitting-to-fitting connection than can be made with a coupling, a fitting can be furnished with one of its ends duct size (the inner liner at that end does not project beyond the outer wall). This special fitting can be connected directly to a standard fitting by the same procedure used to connect duct-to-fitting slip joints.

# *Assembly Instructions*

## Slip-Joint Connection Procedure

1. Slip the inner collar of the fitting (or duct coupling ) into the liner of the mating piece of double-wall duct (or fitting coupling). Duct sealant is not need on the inner liner.

2. Slip the outer collar of the fitting ( or duct coupling) into the outer shell of the duct (or fitting coupling).

3. When the connection is fully started , push the mating pieces together, leaving approximately 1 inch of the collar exposed between the end of the duct (coupling) and the stop bead.

4. Apply duct sealant around the perimeter of this exposed section. Do not put sealant on anything before the connection is fully started. For instruction on estimating the amount of duct sealant required for a job,

5. Push the mating pieces completely together so that the stop bead and duct ( or coupling ) meet.

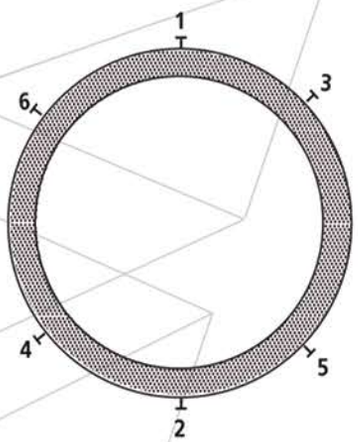
6. Mechanically secure the connection by installing sheet metal screws through the outer shell of the duct-size part of the connection,Placement of the fastening screws should be opposite from one another evenly spaced around the circumference, much like the procedure for tightening lug nuts on a tire ( see diagram below). Start where the distance between the Duct and the fitting is largest. In the event of incorrect installation, holes caused by screws or pop rivets must be sealed before re-assembly.

7. For duct-to-duct of fitting-to-fitting connections, complete the second half of the connection by repeating steps 1 through 6.

8. Apply duct sealant to the outside of each joint and brush it around the perimeter of the joint in a band 1 to 1 1/2 inches wide, starting on the stop bead . Make sure all screw heads are completely covered. For a fitting-to-fitting connection, this must be done on both ends of the connection.

9. Allow at least 48 hours for sealant to cure before pressure testing for leaks.

| Φd mm | Min. rivet diameter mm | number |
|---|---|---|
| 100 - 125 | 3.2 | 2 |
| 160 - 250 | 3.2 | 3 |
| 315 - 630 | 3.2 | 4 |
| 700 - 1250 | 4.0 | 6 |
| 1400 -1600 | 4.8 | 12 |



# *Assembly Instructions*

## Flanged-Joint Connection Procedure

1. slip one end of a fitting-size, single-wall coupling in to the inner liner of one section of duct or one fitting that is to be mated . Duct sealant is not needed on the inner liner.

2. apply approved gasketing material to the mating surface of the duct or fitting in which the coupling has been inserted, as shown in **Figure 4.** If the mating surface is a fixed angle ring, cover the face inside of any bolt hole pattern. If the mating surface is a Van Stone connector or flanged fitting, cover the flanged collar face.

3. Slip the other end of the coupling into the inner liner of a second section of duct or fitting.

4. Push the matting surfaces together, making sure the bolt holes are aligned. If a round Van Stone connector is used, it is important to have the connecting pieces as close to proper alignment as possible when the two surfaces are pushed together.

5. Insert bolts, add washers as required, and start nuts loosely. as shown in **Figure 5.**

6. Tighten all nuts.

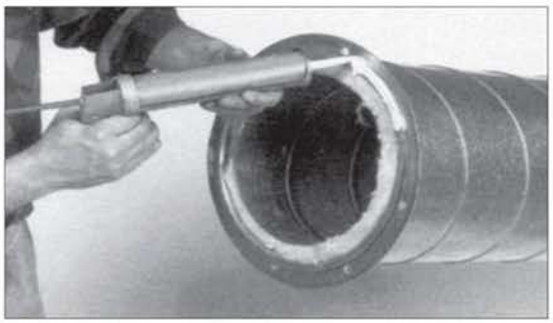


**Figure 4.** Applying gasketing material

**Figure 5.** Bolting angle rings together

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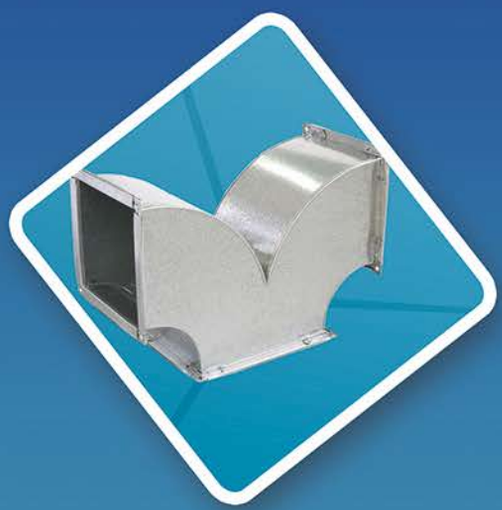

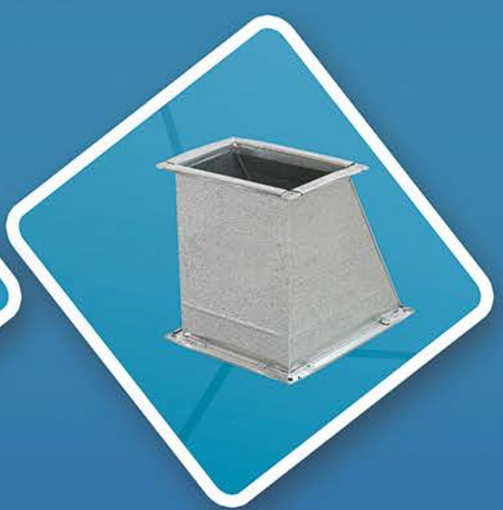

# 3 Rectangular Duct & Fitting

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# Contents

# Rectangular Duct and Fittings

**Megaduct's rectangular duct and fittings are factory fabricated to furnish you with a high-quality line of products in a broad range of standard sizes. To minimize field-assembly costs , rectangular duct is supplied in lengths up to 1.2 m (1.5 m an optional). Longitudinal seams are typically made with Pittsburgh locks. In addition to economical TDC™ transverse duct connectors, S & drive slip joint, four-bolt connectors, and applied duct connectors are available. Rectangular ductwork can be shipped completely assembled or knocked down. Megaduct's standard rectangular products are fabricated to meet SMACNA's 1995 duct construction standards. Plus , we can custom fabricate rectangular duct for commercial and Industrial applications according to your specifications.**

## Benefits of the megaducts rectangular TDC system

- Simple and trouble-free installation compared to the manual applied flanges.
- TDC connection is perfectly air tight when completed.
- Since the flange is part of the duct body, so no chance to hear noise comparing with other flange connection types.
- Additional internal sealing around the edges is no longer needed.
- TDC duct can be assembled and dismantled smoothly with no harm or damage on the duct firmness.
- Precise CFM is guaranteed upon balancing the system, simply because air leakage is negligible.
- Factory applied sealant on all transverse seams.
- All duct pieces are identified on cross- referenced to drawings for easy installation

# Straight Ducts
## *SD*

## Description

Megaduct's single wall rectangular duct and fittings will be Pittsburgh-lock longitudinal seam construction, with duct provided in standard nominal 1.2 m lengths. Standard construction will conform with the 1995 SMACNA HVAC Duct Construction standards.

Connectors will be:-

- TDC, Transverse Duct Connector.
- S & C Drive Slip
- Raw Ends
- Four Bolt applied to duct & fittings

Duct and fittings will be fabricated from:

- Galvanized Steel - ASTM 653 - G90(Z-27) Coating.
- Black steel (with various paints) ASTM - A366/A619
- Stainless Steel - ASTM A240/480
- Aluminium - ASTM B 209 - Type alloy 3003 - H14

Megaduct's rectangular duct is constructed with strengthening beads around the parameter.

- Ducts can be supplied fully assembled, L- Shape, or wrap around
- Fittings can be supplied either fully assembled or knocked down.

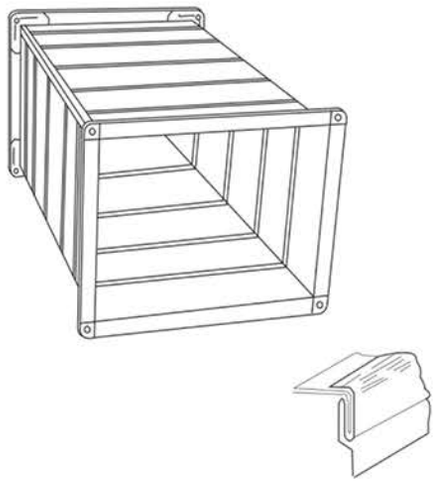
**Ordering**

Product code: **SD aaa bbb ccc**

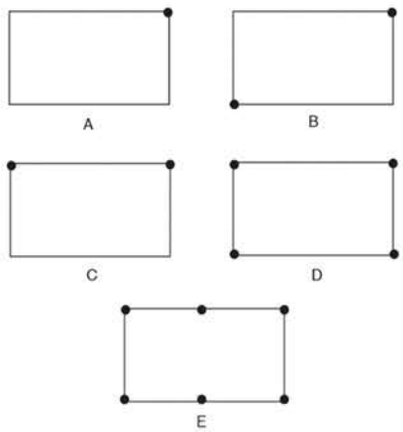
Type
W mm
H mm
L mm

## Dimensions

**Pittsburgh Lock**



**Seam Location**




Seam Location

* Seam numbers and locations vary according to joint type and size.

# Lined Ducts
## *LSD*

## Description

**Megaduct** offers Lined single wall rectangular duct for acoustical and thermal control. Liner applied to the inner surface of the sheet metal duct work using retardant adhesive and pins.

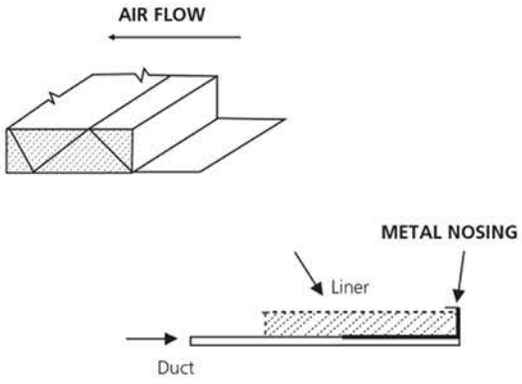
- Two types of fasteners are available, adhesive and welded
- Applying adhesive at end of liner is standard.
- Fixing a metal nosing an optional (as per client's request) **Megaduct** standard liner is made of black woven glass fiber, 25-mm thickness, 48kg/m³ density.
- Other thicknesses densities are available upon request.

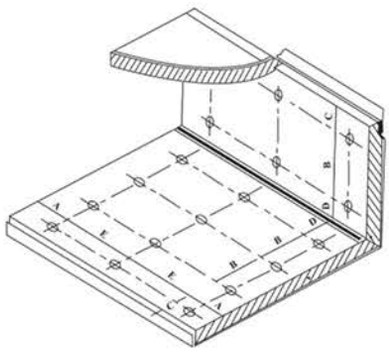
### Ordering

Product code: **LSD aaa bbb ccc**

- Type
- W mm
- H mm
- L mm

## Dimensions



All Transverse edges are coated with adhesive except when nosing is present

**Maximum Spacing for Fasteners**
**Actual intervals are approximate**

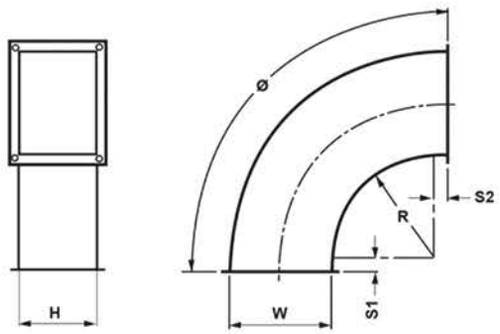
| Velocity* | Dimensions | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| 0 – 2500FPM | 3* | 12* | 4* | 6* | 18* |
| (0 – 12.7 MPS) | (76.2) | (305) | (102) | (152) | (457) |
| 0 – 2500 FPM | 3* | 6* | 4* | 6* | 16* |
| (12.7 – 30.5 MPS) | (76.2) | (152) | (102) | (152) | (406) |

# Elbow

## *RE*

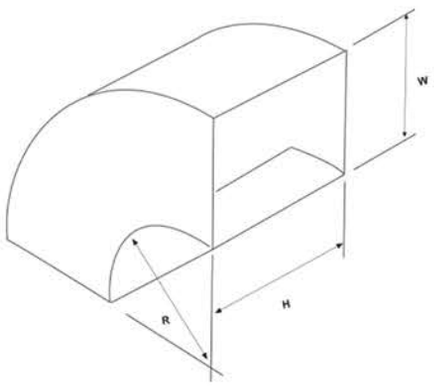
## Dimensions

Ø=1° to 90°
R=W




## Description

RADIUS ELBOW WITHOUT SPLITTER VANE
WIDTH (W-mm)
HEIGHT (H-mm)
RADIUS (R-mm)
"R"=W
Ø=1° to 90°




**Ordering**

Product code: **SD aaa bbb ccc**

- Type
- W mm
- H mm
- R mm

- **All Fittings are Available Double Wall or With Acoustic Lining**
- **If W On Both Sides Are Different, Indicate thr Direction**

# Radius Elbow with Splitter

*REV*

## Description

Radius elbow with splitter vane throat radius R is less than w (width)
width (w-mm)
height (h-mm)
radius (r-mm)
for splitter vane refer to page 205

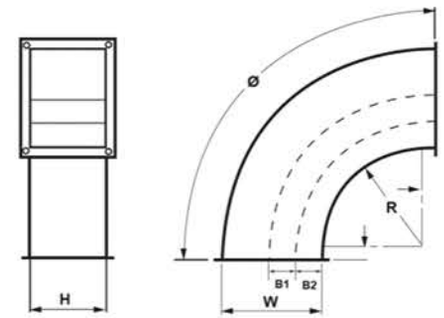
### Ordering

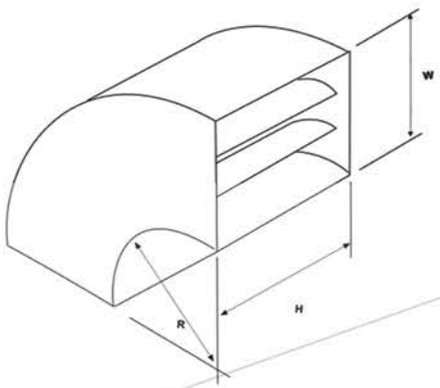
Product code: **REV aaa bbb ccc**

- Type
- W mm
- H mm
- R mm

## Dimensions

Ø=1° to 90°
R<W



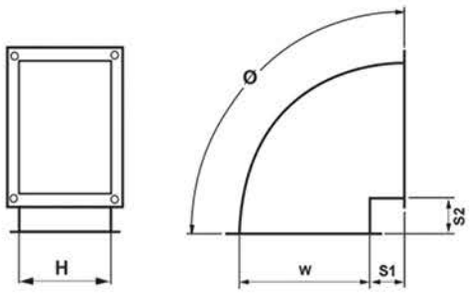




- **All Fittings are Available Double Wall or With Acoustic Lining**
- **If W On Both Sides Are Different, Indicate thr Direction**

# Radius Elbow with Square Throat

## *RES*

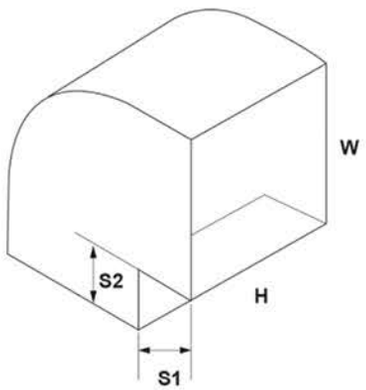
## Dimensions




## Description

Radius elbow with square throat RES

W = Width mm
H = Height mm
Ø = 1° To 90°
S1,S2 ≥100m




**Ordering**

Product code: **RES aaa bbb ccc**

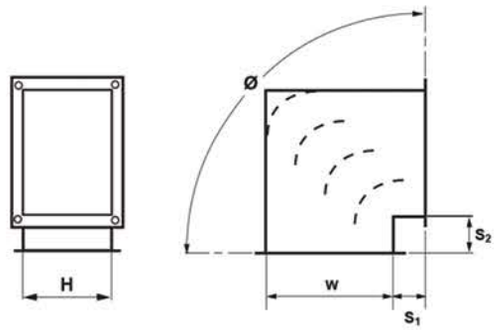
Type
W mm
H mm
S1,S2 mm

- **All Fittings are Available Double Wall or With Acoustic Lining**
- **If W On Both Sides Are Different, Indicate thr Direction**

# Mitered Elbow with Turning Vanes

## *EMV*

## Dimensions




## Description

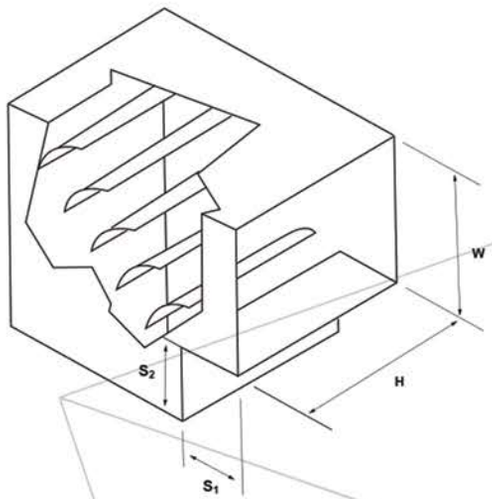
Mitered Elbow with Turning Vanes EMV

Width (W1-mm)
Height (H1-mm)
Radius (R-mm)
S1,S2 ≥ 100mm

**Ordering**

Product code: **EMV aaa bbb ccc**

- Type
- W mm
- H mm
- S1,S2 mm

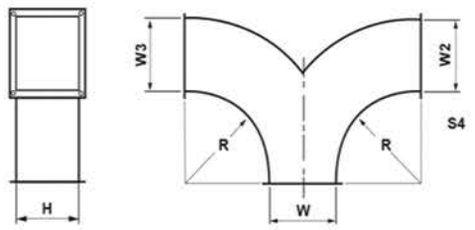


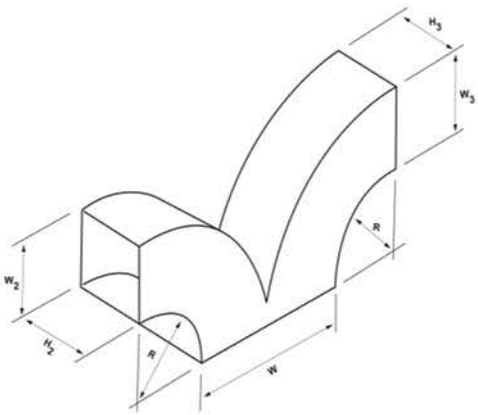

- **All Fittings are Available Double Wall or With Acoustic Lining**
- **If W On Both Sides Are Different, Indicate thr Direction**

# Y-Branch

*YB*

## Dimensions




## Description

Y- Branch

W=W2=W3
R=W
Available with splitter damper

**Ordering**

Product code: **Y-Branch aaa bbb ccc**

- Type
- W mm
- H mm
- R mm

- **All Fittings are Available Double Wall or With Acoustic Lining**
- **If W On Both Sides Are Different, Indicate thr Direction**

# TEE

## Description

TEE

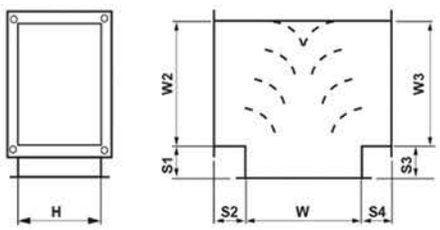
S1,S2,S3,S4 ≥100m
W=W2=W3

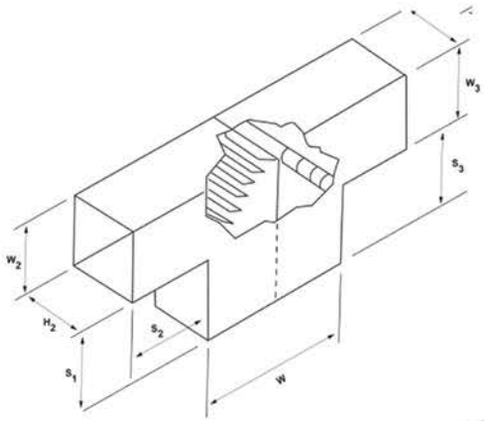
**Ordering**

Product code: **TEE aaa bbb ccc**

- Type
- W mm
- H mm
- S1,S2 mm

## Dimensions




- **All Fittings are Available Double Wall or With Acoustic Lining**
- **If W On Both Sides Are Different, Indicate thr Direction**

# Offset
# OFFS

## Description

OFFS-OFFSET

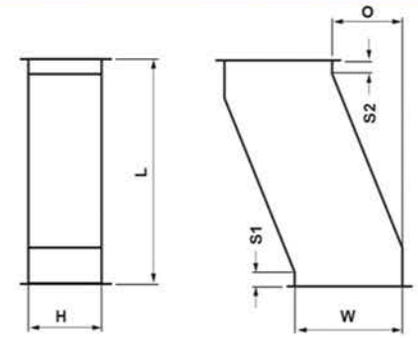
Width (W-mm)
Height (H-mm)
Offset (O-mm)
Length (L-mm)
L=2w

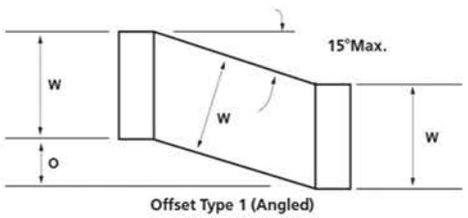
**Ordering**

Product code: **OFFS aaa bbb ccc ddd**

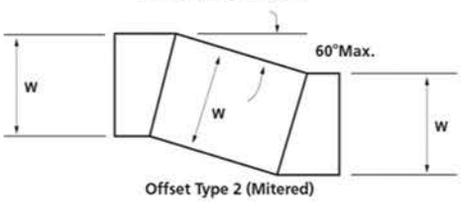
- Type
- W mm
- H mm
- L mm
- O mm

## Dimensions

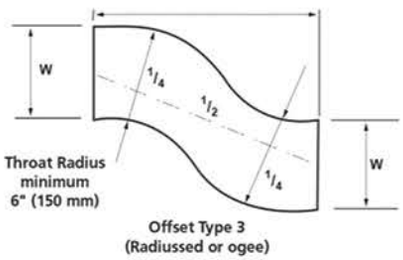



Offset Type 1 (Angled)




Offset Type 2 (Mitered)




Offset Type 3
(Radiussed or ogee)

- All Fittings are Available Double Wall or With Acoustic Lining
- If W On Both Sides Are Different, Indicate thr Direction

# Duct Reducer
## *REDC/REDE*



## Description

Concentric Reducer REDC
Eccentric Reducer REDE

Width (W-mm)
Height (H-mm)
Width2 (W2-mm)
Height2 (H2-mm)
Length (L-mm)
S1,S2 mm

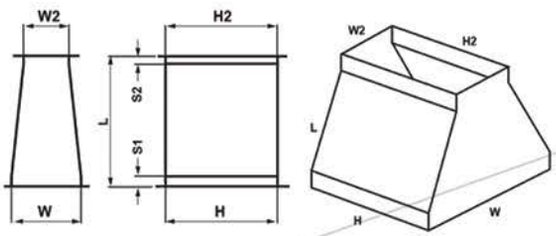
**Ordering**

Product code: REDC aaa bbb ccc ddd eee fff

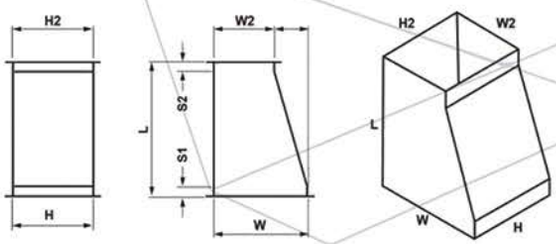
- Type
- Wmm
- Hmm
- W2 mm
- H2 mm
- L mm
- $S_1$ mm

## Dimensions

**Concentric Reducer**




**Eccentric Reducer**




- **All Fittings are Available Double Wall or With Acoustic Lining**
- **If H On Both Sides Are Different, Indicate thr Elevation. FOT, FOB, CL**

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# Rectangular to Round
## *RTR*

## Description

Rectangular to Round RTR

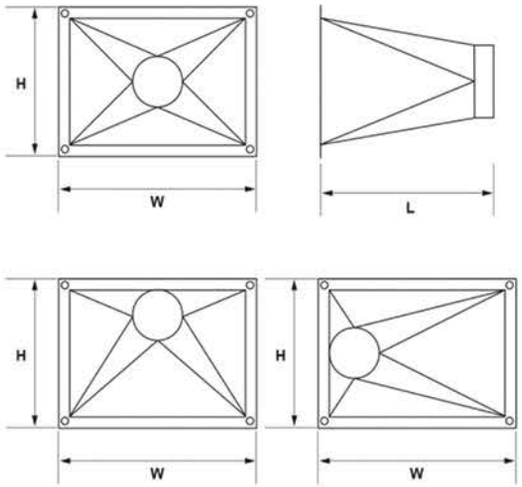
Width (W-mm)
Height (H-mm)
Length (L-mm)
Diameter (Ø-mm)

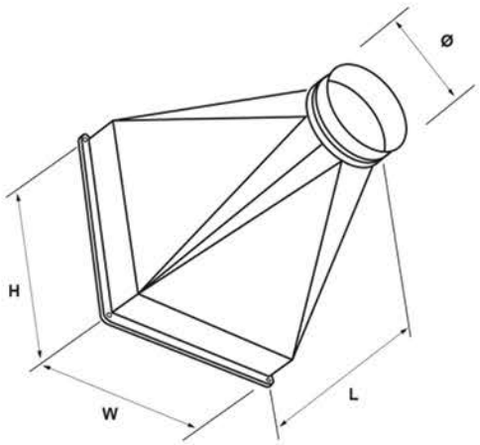
**Ordering**

Product code: **RTR aaa bbb ccc**

Type
W mm
H mm
Ø mm

## Dimensions




• All Fittings are Available Double Wall or With Acoustic Lining

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# 45° Take Off

## *TOF 45°*

## Description

Branch Connection Take Off 45°

Width (W-mm)
Height (H-mm)
Length (L-mm)
Ø-45°

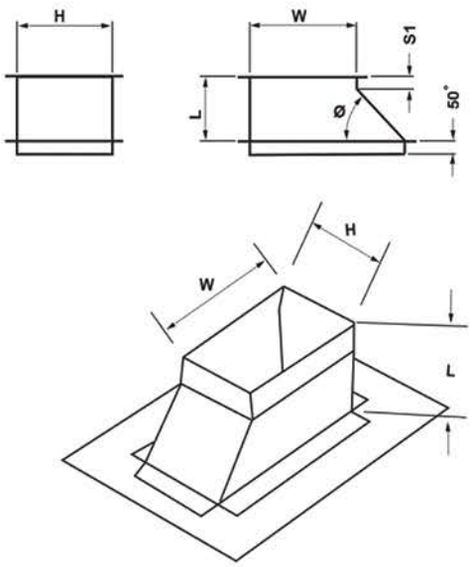
**Ordering**

Product code: TOF aaa bbb ccc

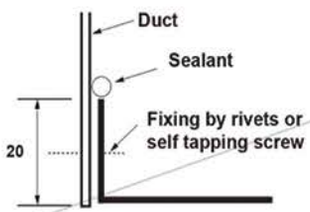
- Type
- W mm
- H mm
- L mm

- **All Fittings are Available Double Wall or With Acoustic Lining**
- **Available With Splitter Damper**

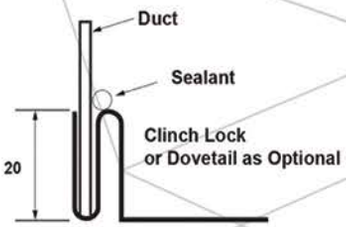
## Dimensions




**Detail - A**




**Straight Tap as a Standard**



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# Straight Take Off
## *STOF*

## Description

Rectangular Duct Branch Connection Straight Take Off

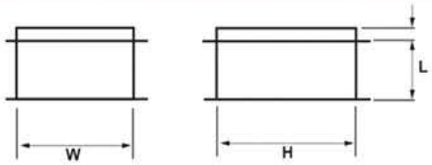
Width (W-mm)
Height (H-mm)
Length (L-mm)

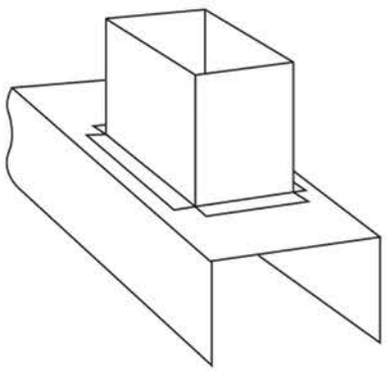
**Ordering**

Product code: **STOF aaa bbb ccc**

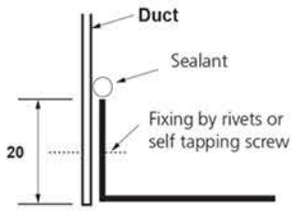
- Type
- W mm
- H mm
- L mm

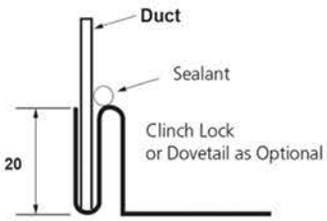
## Dimensions



**Detail - A**



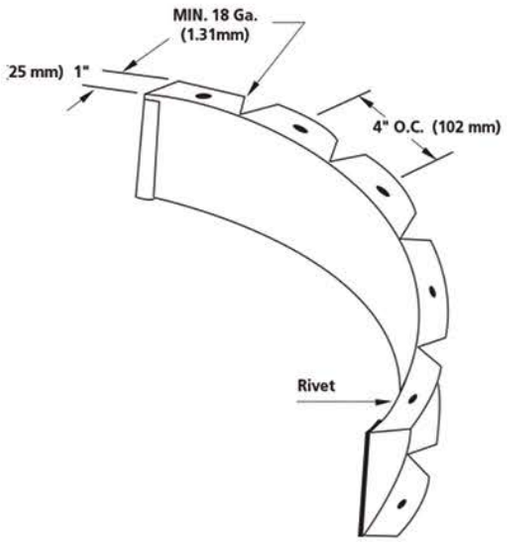




- **All Fittings are Available Double Wall or With Acoustic Lining**
- **Available With Splitter Damper**

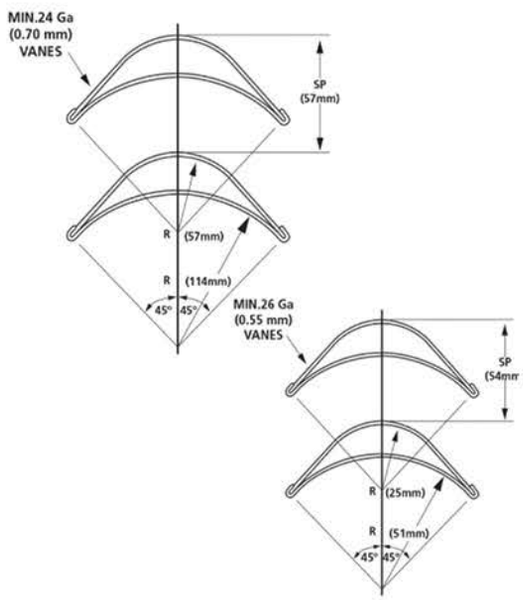
# Fabrication& Assembly of TURNING VANES

## Description

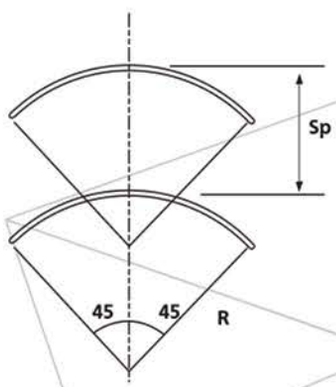
## Short Radius Vanes




Double Vane




Single Vane

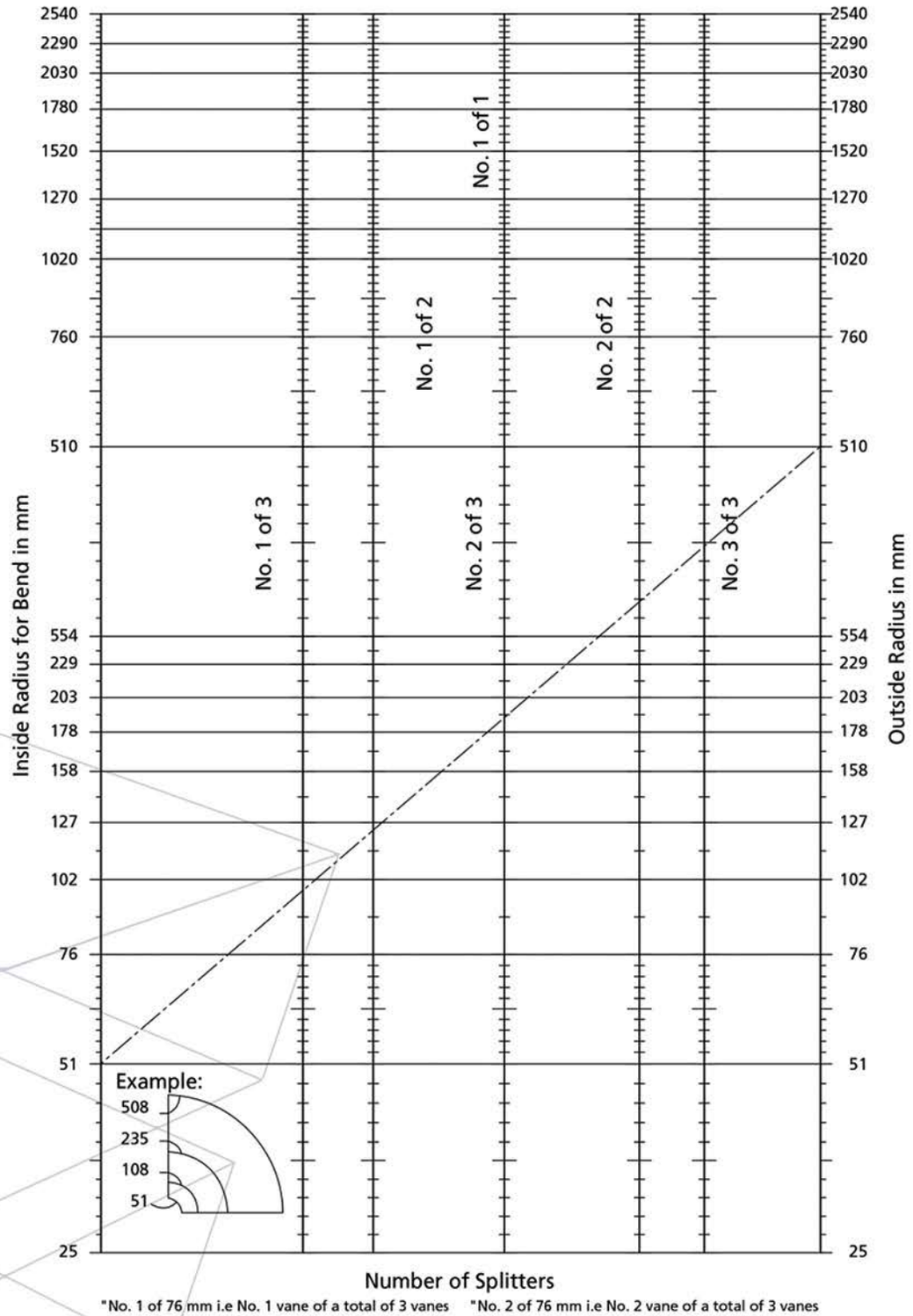



| DUCT SIZE | Double Vane Schedule | | | |
|---|---|---|---|---|
| | Type | R | Sp | Ga |
| 0-1219 | Small | 51 | 54 | 26 (0.55mm) |
| 1219 Up | Large | 114 | 83 | 24 (0.7mm) |
| * 1500 Up Segmented | | | | |

| DUCT SIZE | Double Vane Schedule | | | |
|---|---|---|---|---|
| | Type | R | Sp | Ga |
| 0-914 | Small | 50 | 38 | 24 (0.7mm) |
| 914 Up | Large | 114 | 83 | 22 (0.85mm) |
| * 1500 Up Segmented | | | | |

# SPLITTER VANES

## Number of Short Radius Vanes




"No. 1 of 76 mm i.e No. 1 vane of a total of 3 vanes "No. 2 of 76 mm i.e No. 2 vane of a total of 3 vanes

# Splitter Damper
## *SPD*

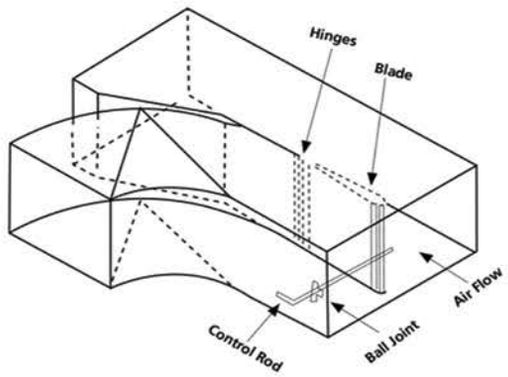
## Description

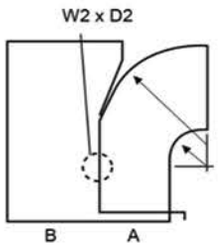
SPD - available single blade as a standard
- Aerofoil blade

**Single blade**

**Aerofoil blade**

## Dimensions




R1 = 3/4 W3
R2 = A + R1

W1 x D1

Splitter Damper Length is Equal to 1.5 A

Where: A = 100 mm Min.

Trunk may be divided using:

$$A = \left[ \frac{(W3 \times D3)}{(W2 \times D2) + (W3 \times D3)} \right] W1$$

$$B = \left[ \frac{(W2 \times D2)}{(W2 \times D2) + (W3 \times D3)} \right] W1$$

One Rod Up To 610Mm depth (D1)
Two rods 615 mm to 1525 mm depth (D1)
Three rods above 1525 mm depth (D1)

# Flexible Duct Connector
## *FDCJ/FDCE*

## Description

Flexible duct connector eliminates duct system noises and vibrations.
In order to isolate vibrations caused by air handling units, fans or other equipment connected to air duct, it is highly recommended to install a flexible duct connector joint between the outlet of these devices and the air duct.

- Flexible Connector ends are vary upon request (TDC , S & drive or flange type).
- Standard sizes:

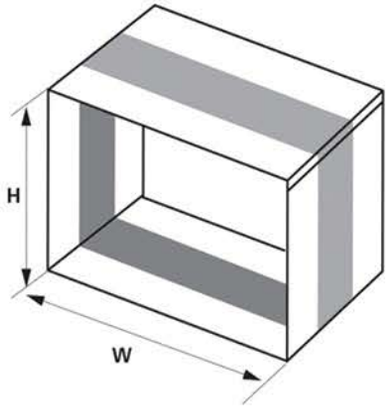
A x B x A
- FDCJ 1.75" X 3" X 1.75"
- FDCE 2.75" X 4" X 2.75"

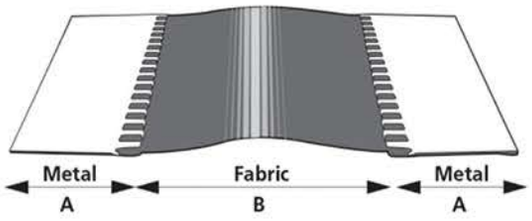
**Ordering**

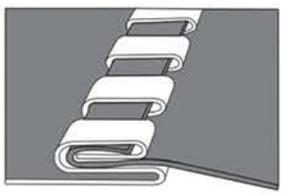
Product code: **FDCJ aaa bbb**

Type
W mm
H mm

## Dimensions



Guard Lock Seam

**Other Sizes Are Available On Request**

# Air Extractor
## *AEX*

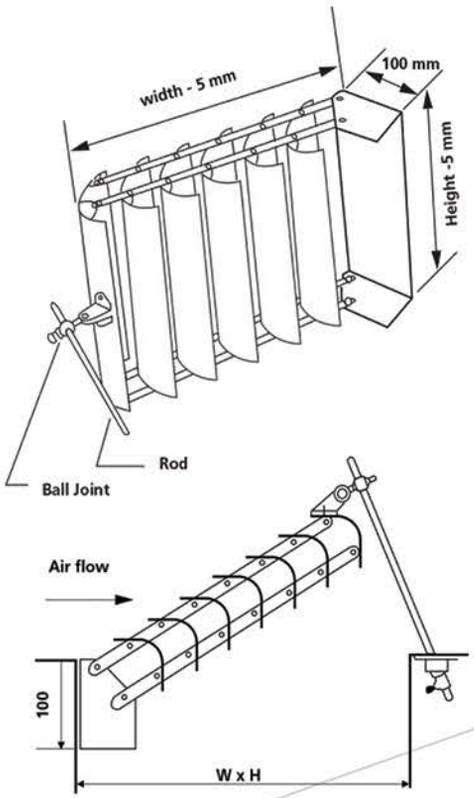
## Description

AEX is using for extract and control air flow into takeoffs and minimizing air turning pressure losses.
Air extractor can be installed at main or branch duct.

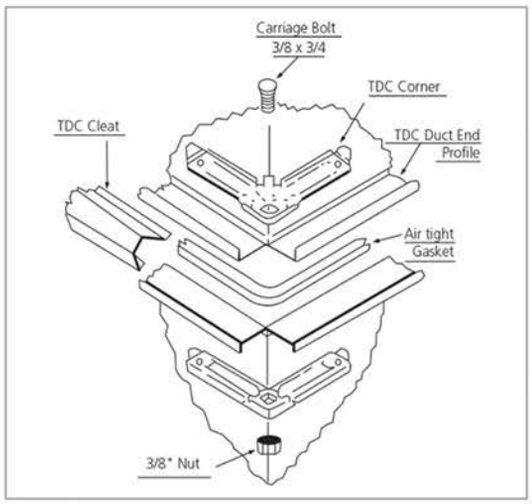
**Ordering**
Product code:

| AEX | aaa | bbb |
|---|---|---|
| Type | | |
| | W mm | |
| | | H mm |

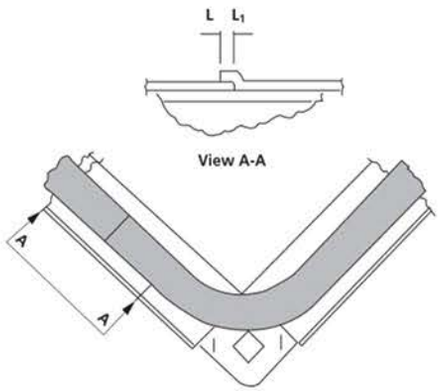
## Dimensions



# CORNER ASSEMBLY

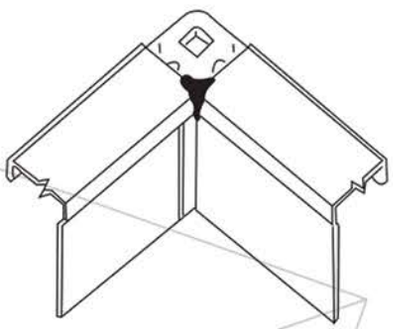



## Assembly Sequence

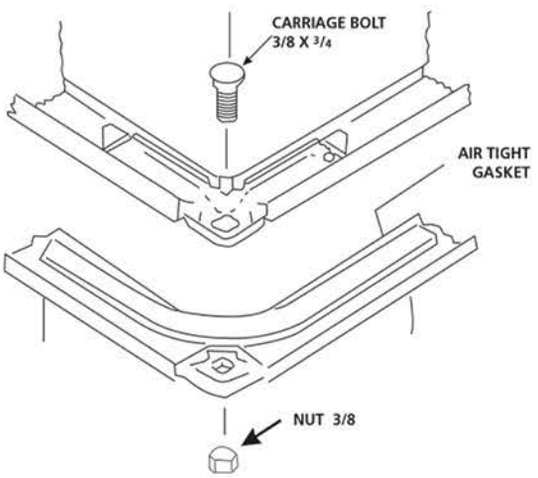



This preparation is required on only one end of each duct to be joined. Place a single length of gasket on the center of the TDC flange on all four sides of the duct sections to be joined. Turn gasket at comers as shown. The ends of the strip of gasket must overlap by 1/4" at a point about 9" away from any bolt hole.

## Instruction



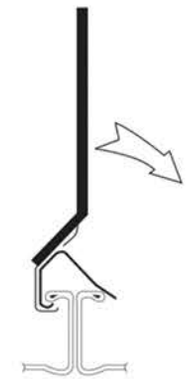
Apply Sealant over the corner and lock joint as shown. If a small Gap occurs at the end of the Lock Joint beside the TDC flange , adjust the left and right TDC Notches heads laterally so the corner notches they make are the same size as the depth of the lock (as set on Rollformer). This readjustment should eliminate any such gaps and possible leakage.




Place one prepared end, and one bald end of Duct sections together, align the bolt holes and secure with 3/8" x 3/4" long carriage bolts at all four corners.

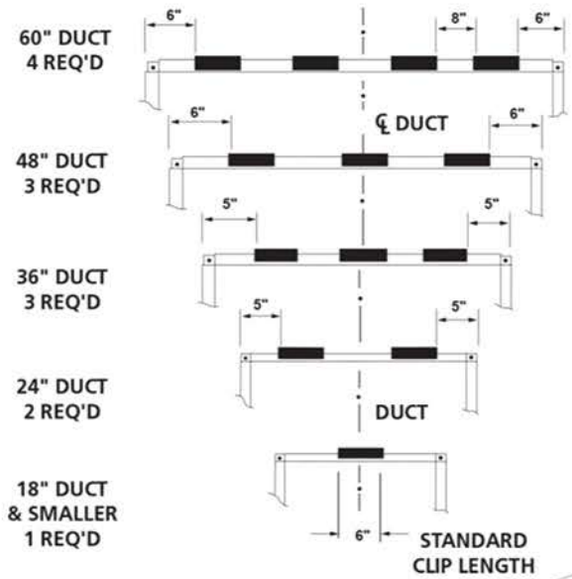
## Assembly Sequence

**Maximum space between clips**
**More than 3" W.G. 6"**
**3" W.G. Or less 9"**



## Recommended Clip Spacing

**Maximum space between clips**
**More than 3" W.G. 6"**
**3" W.G. Or less 9"**




The clamping TDC Clips are installed with 6"wide full coverage TDC Clip tool as shown. For Clip Spacing, see (Recommended clip spacing)

When using TDC in conjunction with slip-on four bolt Connectors, it may be desirable to increase tension on TDC Clip.

To tighten the grip of the TDC Clip to the flange by over bending the long leg of the Clip. Use the forming end of the tool as shown above

**CAUTION:** Use of a hammer for installation will damage Clip and may cause leakage.

# Ductwork Construction Schedule

*2"W.G=500 PASCAL PRESSURE CLASS - AS PER SMACNA 1995 2ND EDITION*

## Table A

| MAX.DUCT DIMENSION | U.S. GAGE | LONGITUDINAL CONNECTION | INTERMEDIATE REINFORCEMENT | TRANSVERSE CONNECTION | SPACING | BEADING |
|---|---|---|---|---|---|---|
| 0-508 | 26 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 509-915 | 24 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 916-1219 | 22 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 1220-1524 | 20 | PITTSBURGH (LOCK SEAM) | !EE BAR (45x25x1mm @600mm | TDC | 1220 | BEADING |
| 1525-1829 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV.COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 1830-2134 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV.COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 2135-2438 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV.COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 2439-3048 | 18 | PITTSBURGH (LOCK SEAM) | GALV.COMPANION ANGLE 50x50x5mm Or DM-35MM | GALV.COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |

# Ductwork Construction Schedule

*2"W.G=500 PASCAL PRESSURE CLASS - AS PER SMACNA 1995 2ND EDITION*

## Table B

| MAX.DUCT DIMENSION | U.S. GAGE | LONGITUDINAL CONNECTION | INTERMEDIATE REINFORCEMENT | TRANSVERSE CONNECTION | SPACING | BEADING |
|---|---|---|---|---|---|---|
| 0-254 | 26 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | HEMMED S-SLIP (GA.24) C-DRIVE (GA.24) | 1220 | BEADING |
| 255-508 | 26 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | REINFORCED1"S-SLIP (GA.26) C-DRIVE (GA.24) | 1220 | BEADING |
| 509-915 | 24 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | STANDING S REINFORCED C-DRIVE | 1220 | BEADING |
| 916-1219 | 22 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 1220-1524 | 20 | PITTSBURGH (LOCK SEAM) | ZEE BAR (45X25X1) | TDC | 1220 | BEADING |
| 1 525-1829 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV.COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 1830-2134 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV.COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 2135-2438 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV.COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 2439-2438 | 18 | PITTSBURGH (LOCK SEAM) | GALV.COMPANION ANGLE 50X50X5mm Or DM-35MM | GALV.COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |

# Ductwork Construction Schedule

*3"W.G=750 PASCAL PRESSURE CLASS - AS PER SMACNA 1995 2ND EDITION*

## Table C

| MAX.DUCT DIMENSION | U.S. GAGE | LONGITUDINAL CONNECTION | INTERMEDIATE REINFORCEMENT | TRANSVERSE CONNECTION | SPACING | BEADING |
|---|---|---|---|---|---|---|
| 0-457 | 24 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 458-762 | 24 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 763-914 | 24 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 915-1067 | 22 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 1068-1219 | 20 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 1220-1524 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 1525-2133 | 18 | PITTSBURGH (LOCK SEAM) | COMPANION ANGLE 50x50x5mm Or DM-35MM | COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 2134-2438 | 18 | PITTSBURGH (LOCK SEAM) | COMPANION ANGLE 50x50x5mm Or DM-35MM | COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |

# Ductwork Construction Schedule

*4"W.G=1000 PASCAL PRESSURE CLASS - AS PER SMACNA 1995 2ND EDITION*

## Table D

| MAX.DUCT DIMENSION | U.S. GAGE | LONGITUDINAL CONNECTION | INTERMEDIATE REINFORCEMENT | TRANSVERSE CONNECTION | SPACING | BEADING |
|---|---|---|---|---|---|---|
| 0-406 | 24 | PITTSBURGH (LOCKSEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 407-762 | 24 | PITTSBURGH (LOCKSEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 763-914 | 22 | PITTSBURGH (LOCKSEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 915-1067 | 20 | PITTSBURGH (LOCKSEAM) | NOT REQUIRED | COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 1068-1372 | 18 | PITTSBURGH (LOCKSEAM) | NOT REQUIRED | COMPANION ANGLE 30x30x3 mm Or DM-35MM | 1220 | BEADING |
| 1373-1829 | 18 | PITTSBURGH (LOCKSEAM) | COMPANION ANGLE 50x50x5mm Or DM-35MM | COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 1830-2438 | 18 | PITTSBURGH (LOCKSEAM) | COMPANION ANGLE 50x50x5mm Or DM-35MM | COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |

# Ductwork Construction Schedule

*6"W.G=1500 PASCAL PRESSURE CLASS - AS PER SMACNA 1995 2ND EDITION*

## Table E

| MAX.DUCT DIMENSION | U.S. GAGE | LONGITUDINAL CONNECTION | INTERMEDIATE REINFORCEMENT | TRANSVERSE CONNECTION | SPACING | BEADING |
|---|---|---|---|---|---|---|
| 0-559 | 24 | PITTSBURGE(LOCK SEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 560-762 | 22 | PITTSBURGH(LOCKSEAM) | NOT REQUIRED | TDC | 1220 | BEADING |
| 763-915 | 20 | PITTSBURGH(LOCKSEAM) | NOT REQUIRED | GALV. COMPANION ANGLE 30x30x3 mm Or DM-35MM | 1220 | BEADING |
| 916-1219 | 20 | PITTSBURGH(LOCKSEAM) | NOT REQUIRED | GALV. COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 1220-1524 | 18 | PITTSBURGH(LOCKSEAM) | GALV. COMPANION ANGLE 50x50x5mm+TIE ROD @ 600mm Or DM-35MM | GALV. COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 1525-2133 | 18 | PITTSBURGH(LOCKSEAM) | GALV. COMPANION ANGLE 50x50x5mm+TIE ROD ® 600mm Or DM-35MM | GALV. COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 2134-2438 | 18 | PITTSBURGH(LOCKSEAM) | GALV. COMPANION ANGLE 50x50x5mm+TIE ROD ® 600mm Or DM-35MM | GALV. COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |

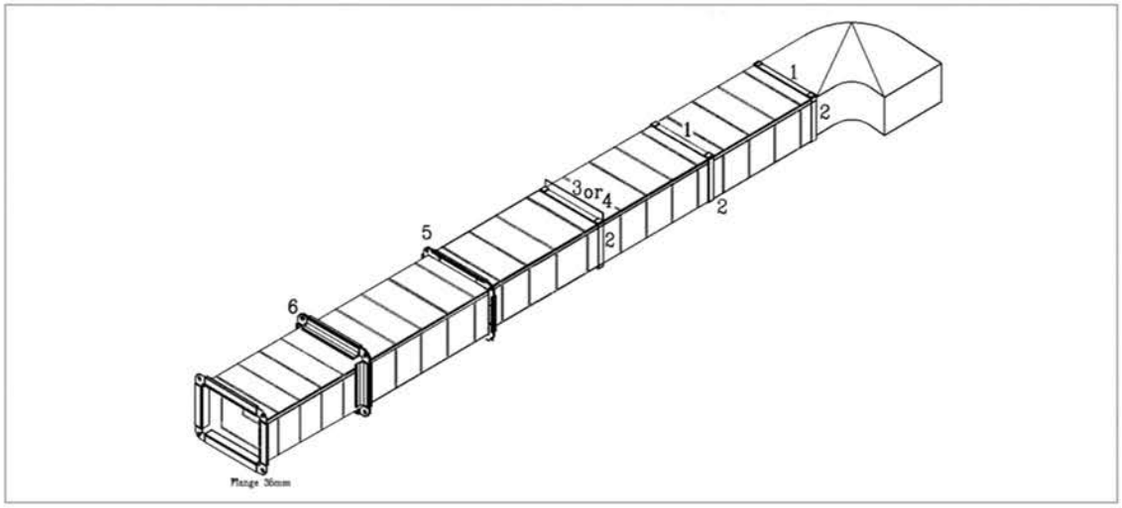
# Ductwork Construction Schedule

*10"W.G=2500 PASCAL PRESSURE CLASS - AS PER SMACNA 1995 2ND EDITION*

## Table F

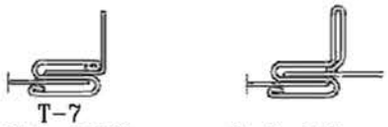
| MAX.DUCT DIMENSION | U.S. GAGE | LONGITUDINAL CONNECTION | INTERMEDIATE REINFORCEMENT | TRANSVERSE CONNECTION | SPACING | BEADING |
|---|---|---|---|---|---|---|
| 0-305 | 24 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV. COMPANION ANGLE 30x30x3 mm Or DM-35MM | 48 | BEADING |
| 306-406 | 22 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV. COMPANION ANGLE 30x30x3 mm Or DM-35MM | 1220 | BEADING |
| 406-559 | 20 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV. COMPANION ANGLE 30x30x3 mm Or DM-35MM | 1220 | BEADING |
| 560-660 | 20 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV. COMPANION ANGLE 30x30x3 mm Or DM-35MM | 1220 | BEADING |
| 661-762 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV. COMPANION ANGLE 40x40x4mm Or DM-35MM | 1220 | BEADING |
| 763-915 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV. COMPANION ANGLE 40x40x4mm Or DM-35MM | 1220 | BEADING |
| 916-1068 | 18 | PITTSBURGH (LOCK SEAM) | NOT REQUIRED | GALV. COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 1068-1372 | 18 | PITTSBURGH (LOCK SEAM) | GALV. COMPANION ANGLE 50x50x5mT Or DM-35MM | GALV. COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |
| 1373-1828 | 18 | PITTSBURGH (LOCK SEAM) | GALV. COMPANION ANGLE 50x50x5mm + TLE ROD Or DM-35MM | GALV. COMPANION ANGLE 50x50x5mm Or DM-35MM | 1220 | BEADING |

# *Transverse Joints*

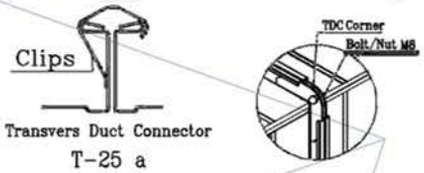



## Hemmed s-slip and drive slip

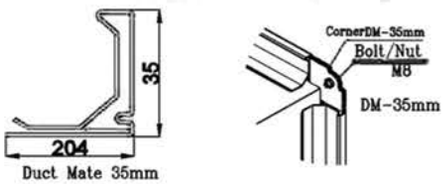

## Rainforced's' and standing 5



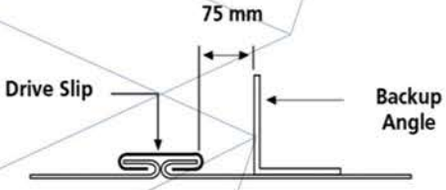

## TDC-IH 35mm Roll on flange




## Slip on fange-DM-35mm




## Backup angle for drive slip




| Application | | |
|---|---|---|
| Pressure Class | Duct Height | Backup Angles Size |
| 2" W.G. | 458-915 | 25x25x3mm |
| 3" W.G. | 458-559 | 25x25x3mm |
| 4" W.G. | 407-508 | 25x25x3mm |

# Double Wall Ducts
## *DSD*

## Description

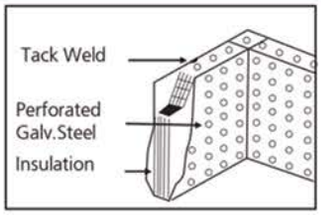
**Megaduct** has a complete line of double wall insulated duct & fittings, each piece is constructed of solid metal outer shell and (either perforated or solid metal) inner shell surrounded by a layer of insulation.
The insulation serves both thermal & acoustical purposes. Our liner insulation is black woven fiber glass 1" thick,48 Kg /m³ density. Several types of insulation material, densities, thicknesses are available.

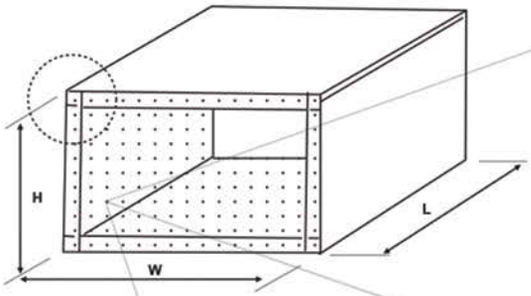
**Ordering**

Product code: **SD aaa bbb ccc**

- Type
- W mm
- H mm
- L mm

## Dimensions



# Rectangular Double Wall Duct & Fittings

## Megaduct Connectors, Inc. (SMC)

Megaduct Connectors, Inc. double wall rectangular duct and fittings are one part of our complete line of HVAC products. Double wall rectangular duct is constructed with TDC end treatments. There are two different types of applications:

- Acoustical double wall duct for noise control
- Thermal double wall duct for temperature control

Straight double wall duct comes standard with stiffening beads. Double wall duct is fabricated with either Snap Lock or Pittsburgh longitudinal seams. Sealant is available in the seams upon request. Double wall duct is manufactured completely assembled with TDC corners installed. All sizes shall be listed using inside dimensions.

## Acoustical Double Wall

Standard acoustical double wall is for noise control. Constructed of a perforated inner shell surrounded by a layer of insulation and covered by a solid outer shell. The perforated inner shell has 3/32" diameter holes staggered at 3/16" on center for a clear open area of 23%.

### Solid outer sell

| MATERIAL | THICKNESS | ASTM | TYPE | DUCT | END TREATMENT |
|---|---|---|---|---|---|
| Galvanized | 26 - 18 gauge | A-653 | G60-G90 | 44 1/2" - 68 1/2"* | TDC |
| Paint Grip | 24 - 18 gauge | A-653 | A60 | 56 1/2" | |
| PVS | 24 - 18 gauge | A-653 | 4 x 1, 4 x 4 | 56 1/2" | |
| Aluminum | .032 - .050 | B-316 | 3003 H-14 | 44 1/2" | |
| Stainless Steel | 24 - 20 gauge | A-240 | 304 or 316 | 44 1/2" | |

*Check with factory for availability of 68 1/2" in 26 gauge galvanized

### Perforated Inner Shell

| MATERIAL | THICKNESS | ASTM | TYPE | DUCT |
|---|---|---|---|---|
| Galvanized | 24 - 22 gauge | A-653 | G60-G90 | TDC 56 1/2" |

*Special order perforated available in other material - consult factory

## Thermal Double Wall

Standard thermal double wall is for temperature control. Constructed of a solid shell surrounded by a layer of insulation and covered by a solid outer shell.

### Solid Outer and Inner Shell

| MATERIAL | THICKNESS | ASTM | TYPE | DUCT | END TREATMENT |
|---|---|---|---|---|---|
| Galvanized | 26 - 18 gauge | A-653 | G60-G90 | 44 1/2" - 68 1/2"* | TDC |
| Paint Grip | 24 - 18 gauge | A-653 | A60 | 56 1/2" | |
| PVS | 24 - 18 gauge | A-653 | 4 x 1, 4 x 4 | 56 1/2" | |
| Aluminum | .032 - .050 | B-316 | 3003 H-14 | 44 1/2" | |
| Stainless Steel | 24 - 20 gauge | A-240 | 304 or 316 | 44 1/2" | |

# Megaduct Connectors, Inc.

## Fittings

Megaduct Connectors, Inc. manufactures double wall fittings in most sizes and configurations. Double wall fittings are manufactured on our state-of-the-art fabrication equipment. All double wall fittings are fabricated with stiffening beads on duct sizes 19" wide and larger which have more than 10 square feet of unbraced panel. This requirement is applicable to 20 gauge or less in thickness and 3" W.G. or less. Most double wall fittings are fabricated with Pittsburgh seams. Double wall fittings are completely assembled with all accessories (TDC corners, vane & rail, etc...) installed.

## Turning Vane and Rail

SMC manufactures several types of turning vane and E-Z rail. Turning vane and E-Z rail are recommended for square throat elbows and tees. When using turning vane and E-Z rail performance is greatly enhanced in the HVAC duct system. Test data is available upon request.
Maximum unsupported vane length

- 4" single turning vane ..... 36" maximum length
- 2" double turning vane .....48" maximum length
- 4" double turning vane .....72" maximum length
- 4" acoustical vane ..... 72" maximum length

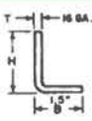
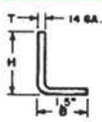
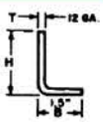
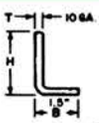
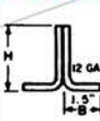
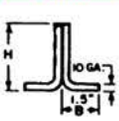
*When exceeding maximum vane length, vanes can be installed in sections or a tie rod can be tack welded to the face of the turning vane.*

## Transverse Joint and Intermediate Reinforcement

SMC manufactures many different types of reinforcement. SMC's most popular types are as follows:-

- Tie Rod Reinforcement: threaded inserts installed into each end of thin wall (emt) conduit. These are installed internally at both the joint and/or intermediate duct spacing.
- R-Angle Reinforcement: roll formed pre-punched angle iron reinforcement. See chart below

**Rigidity Comparison Chart**

| Minimum Rigidity Class | | Commercial Angle | Lock former R-Angle 16 | Lock former R-Angle 14 | Lock former R-Angle 12 | Lock former R-Angle 10 | Lock former R 16 Back to Back | Lock former R 14 Back to Back | Lock former R 12 Back to Back | Lock former R 10 Back to Back |
|---|---|---|---|---|---|---|---|---|---|---|
| | |  |  |  |  |  |  |  |  |  |
| Elx10-5 | | H x T | H x B x T | H x B x T | H x B x T | H x B x T | H x B x T | H x B x T | H x B x T | H x B x T |
| 6 | 0.5 | | | | | | | | | |
| B | 1.0 | | | | | | | | | |
| C | 2.5 | 1 x 18 Ga<br>1 x 16 Ga<br>3/4 x 1/8 | | | | | | | | |
| D | 5 | 1 1/4 x 20 Ga<br>1 x 1/8 | | | | | | | | |
| E | 10 | 1 1/4 x .090<br>1 1/2 x 16 Ga | 1 1/2 x 1 1/2 x 16 Ga | | | | | | | |
| F | 15 | 1 1/4 x 1/8 | 1 5/8 x 1 1/2 x 16 Ga | 1 1/2 x 1 1/2 x 14 Ga | 1 1/2 x 1 1/2 x 12 Ga | | | | | |
| G | 25 | 1 1/2 x 3/16 | 2 x 1 1/2 x 16 Ga | 1 7/8 x 1 1/2 x 14 Ga | 1 5/8 x 1 1/2 x 12 Ga | 1 1/2 x 1 1/2 x 10 Ga | 1 1/2 x 1 1/2 x 16 Ga | 1/2 x 1 1/2 x 14 Ga | 1 1/2 x 1 1/2 x 12 Ga | |
| H | 50 | 2 x 1/8 | 2 1/2 x 1 1/2 x 16 Ga | 2 3/8 x 1 1/2 x 14 Ga | 2 1/8 x 1 1/2 x 12 Ga | 2 x 1 1/2 x 10 Ga | 2 x 1 1/2 x 16 Ga | 1 7/8 x 1 1/2 x 14 Ga | 1 5/8 x 1 1/2 x 12 Ga | 1 1/2 x 1 1/2 x 10 Ga |
| I | 75 | 2 x 3/16 | 2 7/8 x 1 1/2 x 16 Ga | 2 3/4 x 1 1/2 x 14 Ga | 2 1/2 x 1 1/2 x 12 Ga | 2 1/4 x 1 1/2 x 10 Ga | 2 1/4 x 1 1/2 x 16 Ga | 2 1/8 x 1 1/2 x 14 Ga | 1 7/8 x 1 1/2 x 12 Ga | 1 3/4 x 1 1/2 x 10 Ga |
| J | 100 | 2 x 1/4<br>2 1/2 x 1/8 | 3 1/4 x 1 1/2 x 16 Ga | 3 x 1 1/2 x 14 Ga | 2 3/4 x 1 1/2 x 12 Ga | 2 1/2 x 1 1/2 x 10 Ga | 2 1/2 x 1 1/2 x 16 Ga | 2 3/8 x 1 1/2 x 14 Ga | 2 1/8 x 1 1/2 x 12 Ga | 2 x 1 1/2 x 10 Ga |
| K | 150 | 2 1/2 x 3/16 | ----- | 3 1/2 x 1 1/2 x 14 Ga | 3 1/8 x 1 1/2 x 12 Ga | 2 7/8 x 1 1/2 x 10 Ga | 3 x 1 1/2 x 16 Ga | 2 3/4 x 1 1/2 x 14 Ga | 2 1/2 x 1 1/2 x 12 Ga | 2 1/4 x 1 1/2 x 10 Ga |
| L | 200 | 2 1/2 x 1/4 | ----- | ----- | 3 1/2 x 1 1/2 x 12 Ga | 3 1/4 x 1 1/2 x 10 Ga | 3 1/4 x 1 1/2 x 14 Ga | 2 3/4 x 1 1/2 x 12 Ga | 2 1/2 x 1 1/2 x 10 Ga | ----- |
| M | 300 | 2 1/2 x 5/16 | ----- | ----- | ----- | ----- | ----- | 3 1/2 x 1 1/2 x 14 Ga | 3 1/8 x 1 1/2 x 12 Ga | 2 7/8 x 1 1/2 x 10 Ga |

# Megaduct Connectors, Inc.

## Insulation

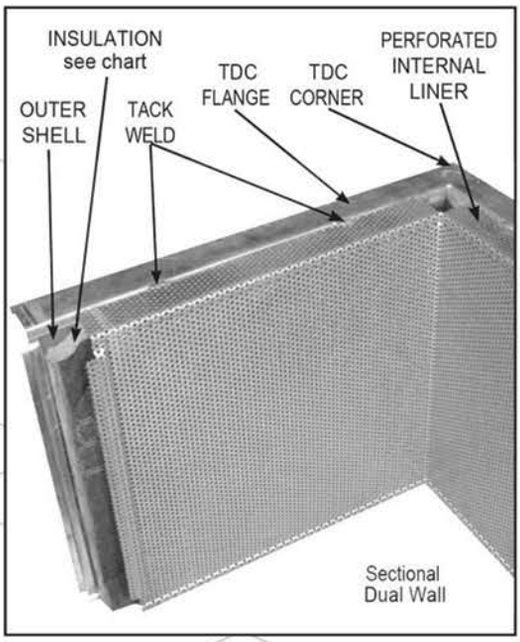
Megaduct Connectors, Inc. double wall rectangular duct is a dependable, erosion resistant alternative to lined rectangular duct, providing improved protection for insulation exposed to the airstream. In double wall rectangular duct a metal inner liner insures that high airflow velocities cannot separate insulation by pulling away from the duct's outer wall and creating erosion or airflow problems.

Duct liner shall be of the specified materials, thickness, and density of the contractor's request. All sizes shall be listed using inside dimensions. Each layer of duct liner shall be attached with a minimum of 90% coverage of adhesive at the liner contact surface area.

SMC constructs each piece with an inner shell (perforated or solid) surrounded by a layer of insulation and covered by a solid outer shell. The insulation is used in both acoustical and thermal duct systems.

SMC solves air quality problems caused by bacteria and other contaminants that can embed in fibrous materials. These air quality problems can be a health hazard in environments such as schools, hospitals, laboratories, and food or pharmaceutical plants. In cases where additional erosion or contamination protection is desired for such an environment, we can provide a customer specified barrier material (mylar or tedlar) between the insulation and the perforated liner.

Standard insulation is 1" thick with 1 1/2 lb. per cubic foot density. See chart below for specifications. Many other thickness' and densities are available, consult factory.




**SOUND ABSORPTION COEFFICIENTS** (ASTM C 423, Type A Mounting)
1/3 Octave Band Center Frequency (cycles/sec.)

| Type | 125 | 250 | 500 | 1000 | 2000 | 4000 | NRC |
|---|---|---|---|---|---|---|---|
| .5" - 2 # Cu. Ft. | .09 | .14 | .40 | .60 | .73 | .82 | .45 |
| 1" - 1 1/2 # Cu. Ft. | .18 | .36 | .59 | .86 | .95 | .90 | .70 |
| 2" - 1 1/2 # Cu. Ft. | .34 | .64 | .96 | 1.03 | 1.00 | 1.03 | .90 |
| 1" - 3 # Cu. Ft. | .09 | .28 | .63 | .86 | .91 | .92 | .65 |

Coefficients determined per ASTM E 795 Type A Mounting
Note: Pressure classifications are based on SMACNA Second Edition - 1995

**THERMAL CONDUCTANCE "C" AND RESISTANCE "R" (ASTM C 177)**

| | Mean Temperature 75˚F (24˚) | |
|---|---|---|
| Product | Conductance "C"(1) | Resistance "R"(2) |
| .5" - 2 # Cu. Ft. | .48 (2.73) | 2.1(.37) |
| 1" - 1 1/2 # Cu. Ft. | .24 (1.42) | 4.2(.74) |
| 2" - 1 1/2 # Cu. Ft. | .13(.74) | 8.0 (1.41) |
| 1" - 3 # Cu. Ft. | .24 (1.36) | 4.2(.73) |

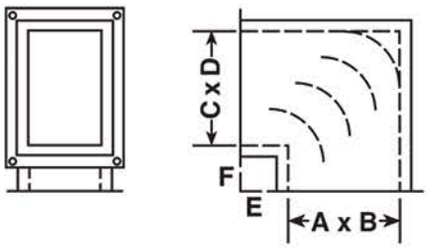
1 The lower the value, the better the performance. 2 The higher the value, the better the performance

"C" units: $\frac{BTU}{ft^2 \cdot hr \cdot {}^\circ F}$ $\left(\frac{W}{m^2}\right)_C$ "R" units: $\frac{ft^2 \cdot hr \cdot {}^\circ F}{BTU}$ $\left(\frac{m^2 \cdot {}^\circ C}{W}\right)$

## *Specification Compliance*

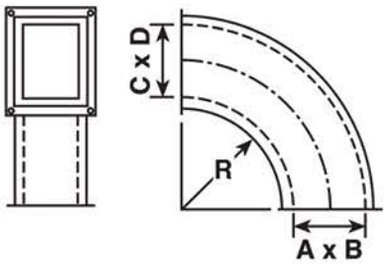
SMC standard insulation meets the requirements of the following codes and specifications .

## Square Throat Elbow



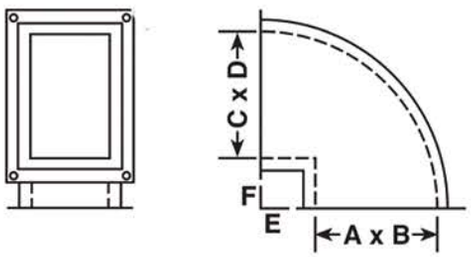

- TDC
- Dimensions are I.D.

## Radius Elbow



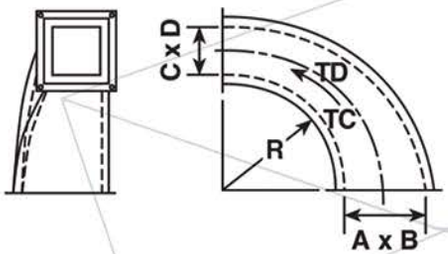

- TDC
- Dimensions are I.D.

## Radius
(With Square Throat)



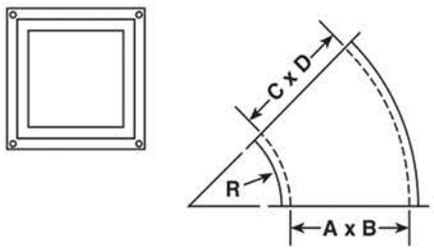

- TDC
- Dimensions are I.D.

## Reducing Radius Elbow
(Left or Right)



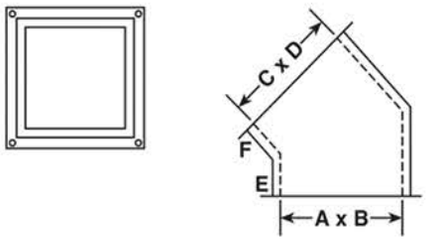

- TDC
- Dimensions are I.D.

## Radius Angle



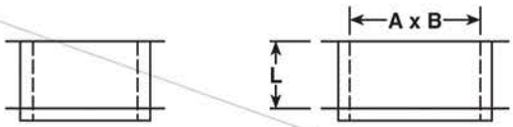

- TDC
- Dimensions are I.D.

## Square Throat Angle



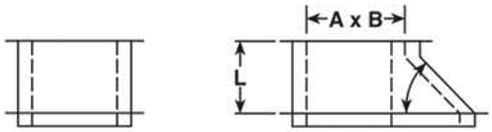

- TDC
- Dimensions are I.D.

## 90° Straight Tap



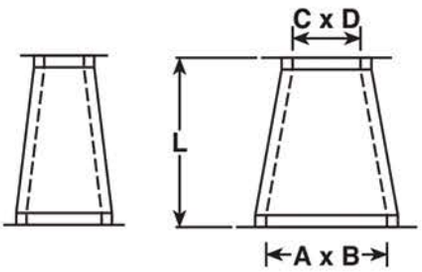

- TDC
- Dimensions are I.D.

## 90° Increased Tap



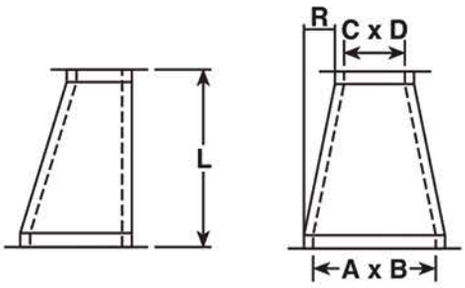

- TDC
- Dimensions are I.D.

## Concentric Transition



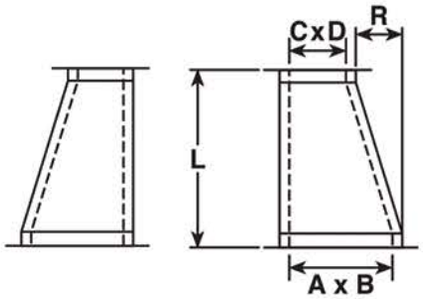

- TDC
- Dimensions are I.D.

## Top or Bottom Flat Transition



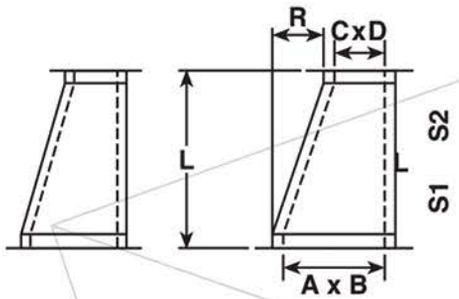

- TDC
- Dimensions are I.D.

## Transition (Top and Left Sides Flat)



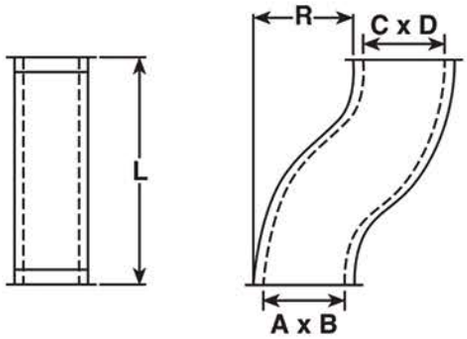

- TDC
- Dimensions are I.D.

## Transition (Top and Right Sides Flat)



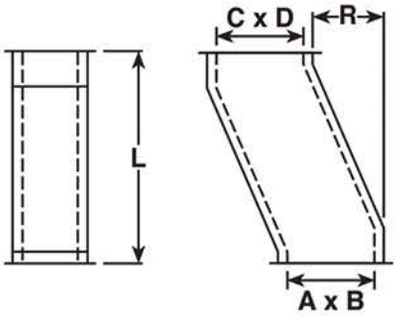

- TDC
- Dimensions are I.D.

## Radius Offset



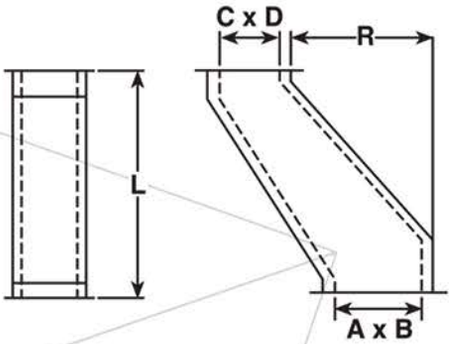

- TDC
- Dimensions are I.D.

## Offset



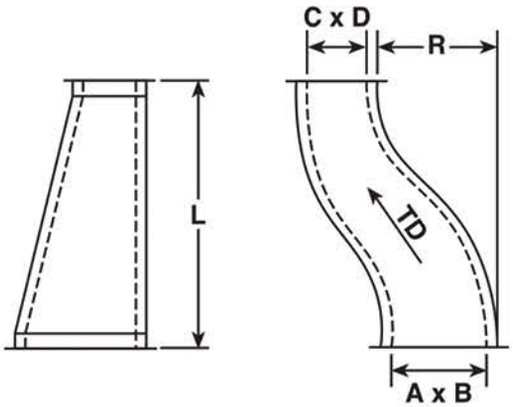

- TDC
- Dimensions are I.D.

## Reducing Offset



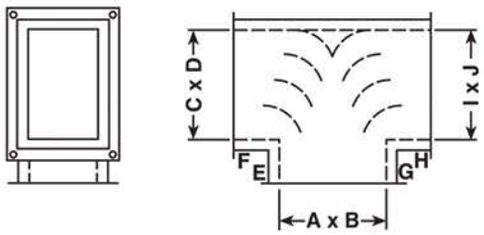

- TDC
- Dimensions are I.D.

## Reducing Radius Offset
(Left or Right)



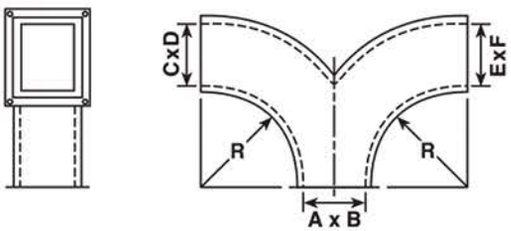

- TDC
- Dimensions are I.D.

## Bullhead Tee



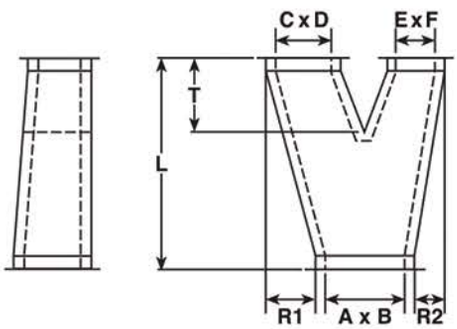

- TDC
- Dimensions are I.D.

## Y-Branch




- TDC
- Dimensions are I.D.

## Pants




- TDC
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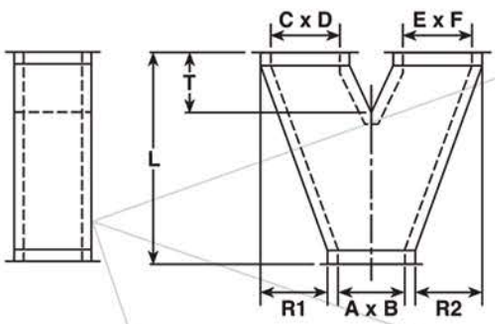
## Pants




- TDC
- Dimensions are I.D.

MEGADUCT®
AIR IS LIFE

# 4 Spiral Silencers

MEGADUCT®
AIR IS LIFE

# Contents

# Circular Silencers
## *SLL/SLBL/SLGL/SLBGL*



## Technical data

**Design**
The circular silencers are designed with an external, spiral-seam pipe and an inner casing of perforated sheet steel. The cavity is filled with sound-absorbent mineral wool.
There is polyester tissue between the perforated sheet steel and attenuation material in order to prevent mineral wool from being drawn into the duct.

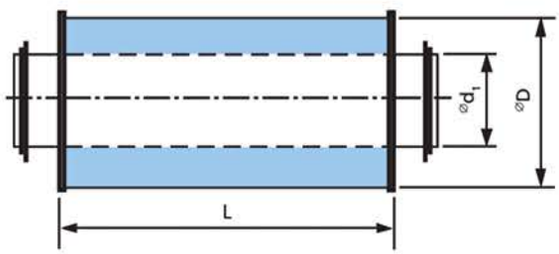
**Connection**
Circular silencers are supplied as a standard with spiral system
For $d_1 \leq 315$ mm loose male couplings are supplied (type NPL).

**Dimensions**
Circular silencers are supplied with connection dimensions from 80 to 800 mm, and in standard lengths of 300, 600, 900, 1200 and 1500 mm, depending on the connection diameter.

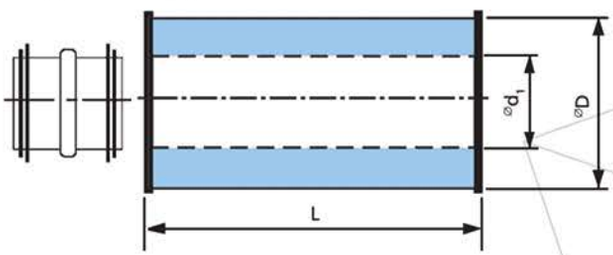
**Technical data**
For information on dimensions, weight, attenuation and pressure drop, please see the appropriate sections for each individual

## Dimensions

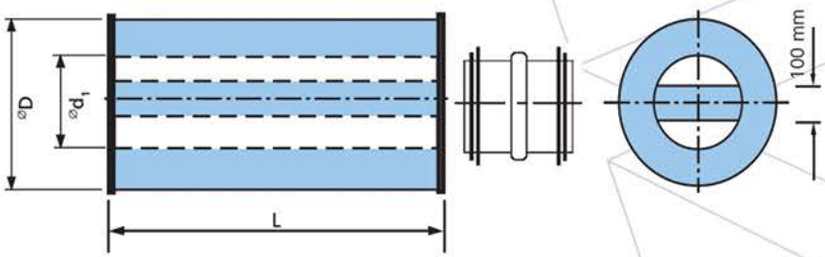
Dimensional sketch for types: SLL, SLGL, $d_1 < 315$ mm




Dimensional sketch for types: SLL, SLGL, $d_1 \geq 315$ mm




Dimensional sketch for types SLBL, SLBGL



# Circular Silencers
## *SLL*

## Description

Diameters ≥ 315 mm are supplied with 2 loose male couplings type NPL, which must be fitted before the silencer is installed.

With rockwool.

**Ordering**

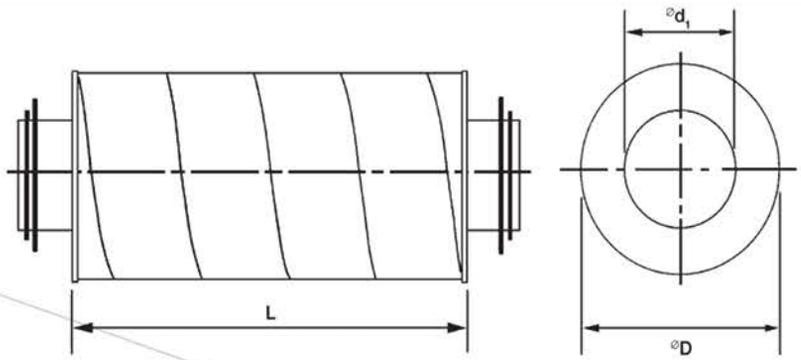
Product code: **SLL aaa bbb**

Type

$\varnothing d_1$

L

## Dimensions



# Circular Silencers

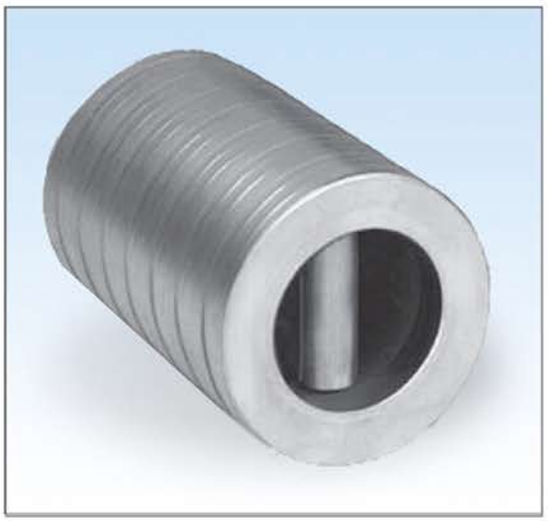
## *SLL*

## Dimensions

| Description | | ⌀$d_1$ nom | ⌀D nom | L | Ins. attenuation (dB) in octave bands (Hz) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | mm | mm | mm | 125 | 250 | 500 | 1000 | 2000 | 4000 |
| SLL | 80-300 | 80 | 180 | 300 | 5 | 11 | 15 | 25 | 28 | 23 |
| | 80-600 | 80 | 180 | 600 | 7 | 18 | 26 | 29 | 29 | 24 |
| | 80-900 | 80 | 180 | 900 | 9 | 26 | 38 | 33 | 30 | 26 |
| | 80-1200 | 80 | 180 | 1200 | 11 | 30 | 36 | 37 | 31 | 27 |
| SLL | 100-300 | 100 | 200 | 300 | 5 | 9 | 12 | 20 | 25 | 17 |
| | 100-600 | 100 | 200 | 600 | 7 | 15 | 25 | 33 | 29 | 24 |
| | 100-900 | 100 | 200 | 900 | 9 | 22 | 32 | 36 | 33 | 31 |
| | 100-1200 | 100 | 200 | 1200 | 11 | 25 | 36 | 39 | 37 | 38 |
| SLL | 125-300 | 125 | 224 | 300 | 3 | 7 | 14 | 19 | 16 | 19 |
| | 125-600 | 125 | 224 | 600 | 5 | 13 | 21 | 37 | 37 | 31 |
| | 125-900 | 125 | 224 | 900 | 7 | 16 | 28 | 38 | 38 | 35 |
| | 125-1200 | 125 | 224 | 1200 | 9 | 20 | 34 | 39 | 39 | 36 |
| SLL | 160-300 | 160 | 260 | 300 | 2 | 8 | 12 | 15 | 15 | 14 |
| | 160-600 | 160 | 260 | 600 | 3 | 11 | 22 | 33 | 42 | 29 |
| | 160-900 | 160 | 260 | 900 | 8 | 14 | 23 | 39 | 37 | 25 |
| | 160-1200 | 160 | 260 | 1200 | 11 | 19 | 35 | 38 | 47 | 41 |
| SLL | 200-300 | 200 | 315 | 300 | 2 | 4 | 8 | 15 | 18 | 13 |
| | 200-600 | 200 | 315 | 600 | 4 | 8 | 15 | 31 | 28 | 20 |
| | 200-900 | 200 | 315 | 900 | 8 | 9 | 20 | 32 | 35 | 23 |
| | 200-1200 | 200 | 315 | 1200 | 11 | 17 | 26 | 34 | 40 | 26 |
| SLL | 250-600 | 250 | 355 | 600 | 6 | 9 | 13 | 24 | 15 | 15 |
| | 250-900 | 250 | 355 | 900 | 8 | 11 | 20 | 33 | 24 | 18 |
| | 250-1200 | 250 | 355 | 1200 | 10 | 13 | 25 | 38 | 29 | 24 |
| SLL | 315-600 | 315 | 500 | 600 | 5 | 5 | 11 | 19 | 12 | 10 |
| | 315-900 | 315 | 500 | 900 | 7 | 9 | 16 | 30 | 18 | 14 |
| | 315-1200 | 315 | 500 | 1200 | 9 | 12 | 21 | 36 | 18 | 17 |
| SLL | 400-600 | 400 | 600 | 600 | 5 | 6 | 9 | 13 | 10 | 7 |
| | 400-900 | 400 | 600 | 900 | 7 | 7 | 14 | 22 | 15 | 13 |
| | 400-1200 | 400 | 600 | 1200 | 7 | 10 | 14 | 22 | 18 | 13 |
| SLL | 500-900 | 500 | 710 | 900 | 6 | 8 | 14 | 16 | 13 | 13 |
| | 500-1200 | 500 | 710 | 1200 | 8 | 11 | 22 | 24 | 17 | 16 |
| SLL | 630-900 | 630 | 800 | 900 | 4 | 7 | 12 | 12 | 12 | 10 |
| | 630-1200 | 630 | 800 | 1200 | 5 | 10 | 16 | 15 | 15 | 11 |
| SLL | 800-1200 | 800 | 1000 | 1200 | 4 | 5 | 10 | 9 | 15 | 12 |
| | 800-1500 | 800 | 1000 | 1500 | 4 | 7 | 13 | 12 | 15 | 12 |

Max. outside diameter = ⌀D + 25 mm

# Circular Silencers
## *SLBL*



## Description

Supplied with 2 male couplings type NPL, which must be fitted before the silencer is installed.

With rockwool.

Ordering

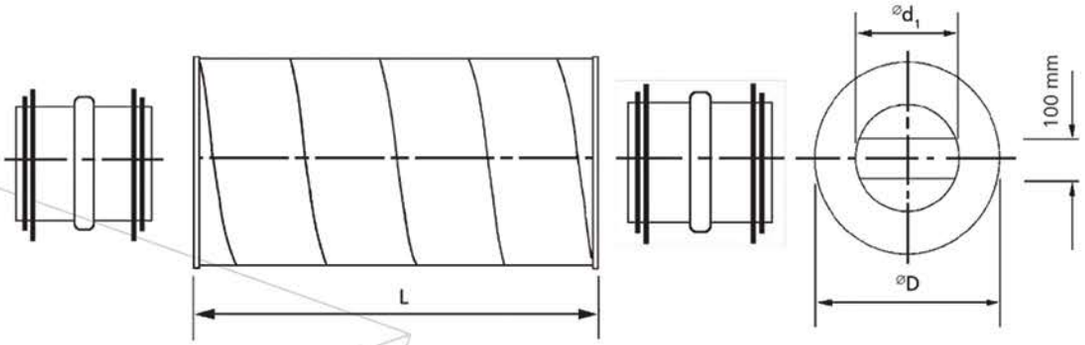
Product code: **SLBL** **aaa** **bbb**

Type

$\varnothing d_1$

L

## Dimensions



# Circular Silencers

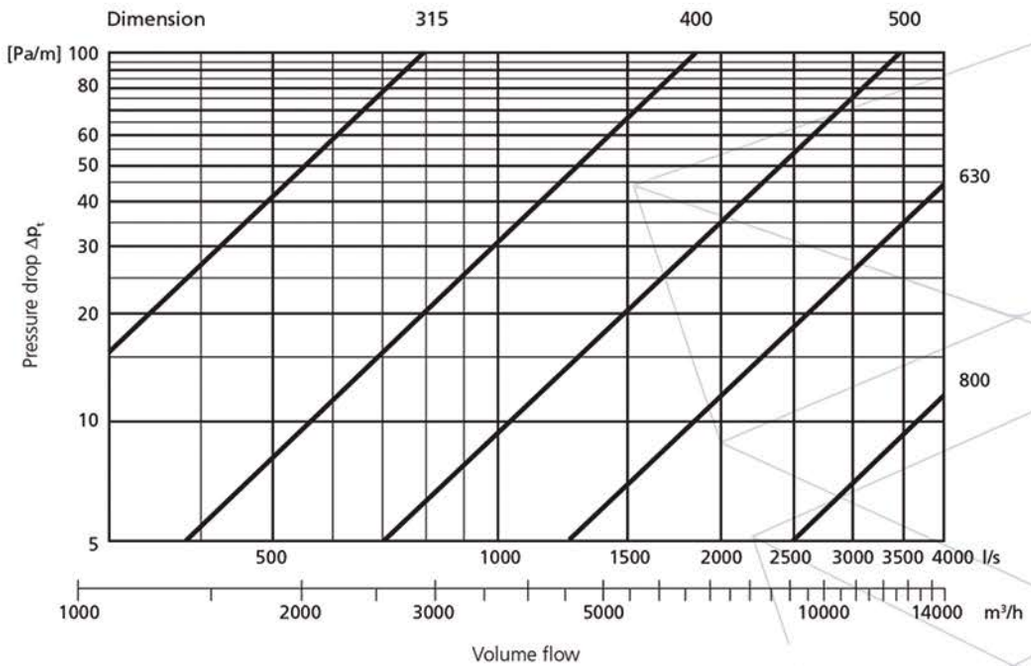
## *SLBL*

## Dimensions

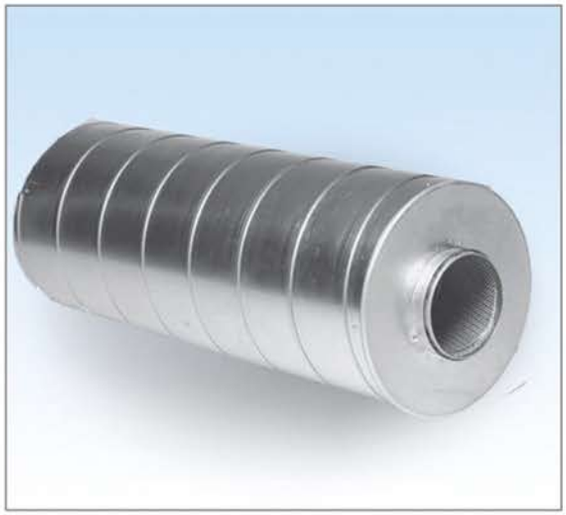
| Description | | ⌀$d_1$ nom mm | ⌀D nom mm | L mm | Ins. attenuation (dB) in octave bands (Hz) 125 | 250 | 500 | 1000 | 2000 | 4000 |
|---|---|---|---|---|---|---|---|---|---|---|
| SLBL | 315-600 | 315 | 500 | 600 | 7 | 15 | 18 | 26 | 34 | 24 |
| | 315-900 | 315 | 500 | 900 | 11 | 18 | 26 | 37 | 40 | 28 |
| | 315-1200 | 315 | 500 | 1200 | 15 | 21 | 33 | 41 | 46 | 40 |
| SLBL | 400-600 | 400 | 600 | 600 | 8 | 9 | 16 | 22 | 24 | 19 |
| | 400-900 | 400 | 600 | 900 | 11 | 14 | 22 | 34 | 32 | 23 |
| | 400-1200 | 400 | 600 | 1200 | 11 | 21 | 30 | 38 | 43 | 28 |
| SLBL | 500-900 | 500 | 710 | 900 | 8 | 12 | 19 | 27 | 21 | 19 |
| | 500-1200 | 500 | 710 | 1200 | 10 | 16 | 26 | 35 | 29 | 22 |
| SLBL | 630-1200 | 630 | 800 | 1200 | 8 | 11 | 23 | 38 | 23 | 19 |
| | 630-1500 | 630 | 800 | 1500 | 10 | 15 | 23 | 39 | 26 | 20 |
| SLBL | 800-1200 | 800 | 1000 | 1200 | 5 | 9 | 17 | 23 | 21 | 16 |
| | 800-1500 | 800 | 1000 | 1500 | 5 | 12 | 19 | 26 | 23 | 18 |

Max. outside diameter = ⌀D + 25 mm

## Technical data



# Circular Silencers
## *SLGL*



## Description

Diameters ≥ 315 mm are supplied with 2 male couplings type NPL, which must be fitted before the silencer is installed.

With glass wool.

Ordering

Product code: **SLGL aaa bbb**

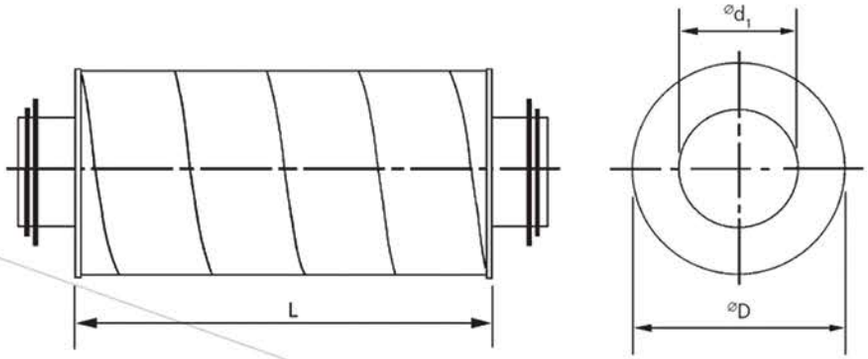
Type

$\varnothing d_1$

L



## Dimensions



# Circular Silencers

## *SLGL*

## Dimensions

**SLGL, 100 mm insulation**

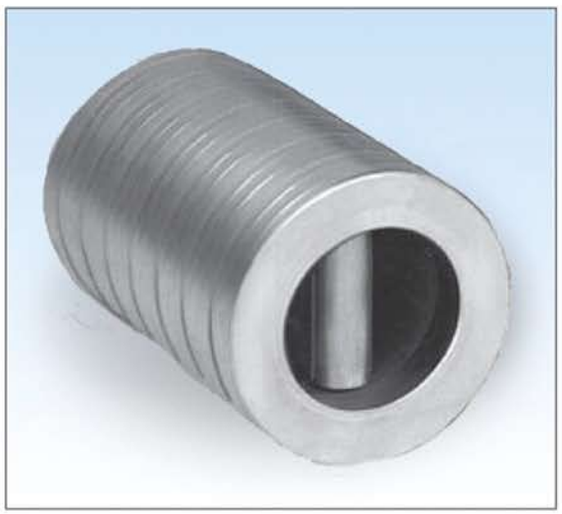
| Description | | ⌀$d_1$ nom | ⌀D nom | L | Ins. attenuation (dB) in octave bands (Hz) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | mm | mm | mm | 125 | 250 | 500 | 1000 | 2000 | 4000 |
| SLGL | 80-300 | 80 | 280 | 300 | 8 | 13 | 19 | 27 | 33 | 29 |
| | 80-600 | 80 | 280 | 600 | 17 | 26 | 29 | 53 | 53 | 45 |
| | 80-900 | 80 | 280 | 900 | 25 | 23 | 32 | 55 | 56 | 46 |
| | 80-1000 | 80 | 280 | 1000 | 24 | 27 | 33 | 55 | 58 | 47 |
| SLGL | 100-300 | 100 | 315 | 300 | 6 | 12 | 18 | 23 | 28 | 23 |
| | 100-600 | 100 | 315 | 600 | 13 | 23 | 34 | 46 | 52 | 40 |
| | 100-900 | 100 | 315 | 900 | 17 | 30 | 39 | 54 | 55 | 46 |
| | 100-1000 | 100 | 315 | 1000 | 19 | 36 | 39 | 56 | 51 | 40 |
| SLGL | 125-300 | 125 | 315 | 300 | 6 | 10 | 15 | 19 | 23 | 18 |
| | 125-600 | 125 | 315 | 600 | 11 | 20 | 30 | 40 | 45 | 30 |
| | 125-900 | 125 | 315 | 900 | 15 | 27 | 38 | 56 | 62 | 39 |
| | 125-1000 | 125 | 315 | 1000 | 16 | 31 | 35 | 48 | 51 | 30 |
| | 125-1200 | 125 | 315 | 1200 | 15 | 34 | 38 | 56 | 59 | 45 |
| SLGL | 160-300 | 160 | 355 | 300 | 4 | 8 | 12 | 16 | 21 | 14 |
| | 160-600 | 160 | 355 | 600 | 9 | 16 | 28 | 33 | 37 | 21 |
| | 160-900 | 160 | 355 | 900 | 11 | 24 | 35 | 49 | 51 | 27 |
| | 160-1000 | 160 | 355 | 1000 | 12 | 25 | 38 | 54 | 54 | 29 |
| | 160-1200 | 160 | 355 | 1200 | 12 | 29 | 41 | 56 | 57 | 33 |
| SLGL | 200-600 | 200 | 400 | 600 | 6 | 12 | 22 | 28 | 28 | 18 |
| | 200-900 | 200 | 400 | 900 | 8 | 18 | 28 | 40 | 37 | 23 |
| | 200-1000 | 200 | 400 | 1000 | 9 | 21 | 29 | 44 | 38 | 25 |
| | 200-1200 | 200 | 400 | 1200 | 10 | 25 | 33 | 50 | 42 | 27 |
| SLGL | 250-600 | 250 | 450 | 600 | 5 | 12 | 20 | 24 | 23 | 14 |
| | 250-900 | 250 | 450 | 900 | 6 | 17 | 30 | 34 | 28 | 17 |
| | 250-1000 | 250 | 450 | 1000 | 7 | 18 | 31 | 36 | 30 | 18 |
| | 250-1200 | 250 | 450 | 1200 | 9 | 22 | 35 | 39 | 33 | 20 |
| SLGL | 315-600 | 315 | 500 | 600 | 4 | 8 | 14 | 17 | 14 | 12 |
| | 315-900 | 315 | 500 | 900 | 4 | 12 | 21 | 26 | 19 | 15 |
| | 315-1000 | 315 | 500 | 1000 | 5 | 13 | 23 | 29 | 20 | 16 |
| | 315-1200 | 315 | 500 | 1200 | 7 | 15 | 28 | 35 | 24 | 18 |
| SLGL | 400-900 | 400 | 600 | 900 | 5 | 12 | 19 | 22 | 18 | 13 |
| | 400-1000 | 400 | 600 | 1000 | 5 | 13 | 22 | 24 | 20 | 14 |
| | 400-1200 | 400 | 600 | 1200 | 7 | 16 | 22 | 29 | 22 | 15 |
| | 400-1500 | 400 | 600 | 1500 | 9 | 20 | 32 | 35 | 24 | 17 |
| SLGL | 500-900 | 500 | 710 | 900 | 4 | 11 | 18 | 16 | 14 | 11 |
| | 500-1000 | 500 | 710 | 1000 | 5 | 12 | 19 | 18 | 15 | 12 |
| | 500-1200 | 500 | 710 | 1200 | 6 | 13 | 21 | 21 | 17 | 14 |
| | 500-1500 | 500 | 710 | 1500 | 7 | 19 | 27 | 26 | 19 | 15 |
| SLGL | 630-900 | 630 | 900 | 900 | 5 | 8 | 14 | 12 | 13 | 9 |
| | 630-1000 | 630 | 900 | 1000 | 5 | 10 | 15 | 13 | 14 | 10 |
| | 630-1200 | 630 | 900 | 1200 | 6 | 13 | 18 | 15 | 15 | 12 |
| | 630-1500 | 630 | 900 | 1500 | 7 | 15 | 23 | 18 | 17 | 13 |
| SLGL | 800-1000 | 800 | 1000 | 1000 | 4 | 8 | 11 | 9 | 9 | 8 |
| | 800-1200 | 800 | 1000 | 1200 | 5 | 9 | 13 | 11 | 11 | 9 |
| | 800-1500 | 800 | 1000 | 1500 | 6 | 12 | 17 | 14 | 14 | 11 |

**SLGL, 150 mm insulation**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SLGL | 80-1000 | 80 | 400 | 1000 | 26 | 22 | 27 | 50 | 55 | 47 |
| SLGL | 100-1000 | 100 | 400 | 1000 | 25 | 36 | 42 | 59 | 53 | 47 |
| SLGL | 125-1000 | 125 | 450 | 1000 | 22 | 34 | 38 | 51 | 50 | 40 |
| | 125-1200 | 125 | 450 | 1200 | 21 | 36 | 40 | 62 | 55 | 46 |
| SLGL | 160-1000 | 160 | 450 | 1000 | 16 | 28 | 40 | 51 | 52 | 28 |
| | 160-1200 | 160 | 450 | 1200 | 17 | 33 | 44 | 58 | 56 | 32 |
| SLGL | 200-1000 | 200 | 500 | 1000 | 14 | 24 | 32 | 45 | 36 | 24 |
| | 200-1200 | 200 | 500 | 1200 | 15 | 25 | 36 | 49 | 42 | 26 |
| SLGL | 250-1000 | 250 | 560 | 1000 | 12 | 22 | 31 | 37 | 31 | 18 |
| | 250-1200 | 250 | 560 | 1200 | 15 | 26 | 36 | 41 | 34 | 20 |

Max. outside diameter = ⌀D + 25 mm

# Circular Silencers
## *SLBGL*



## Description

Supplied with 2 male couplings type NPL, which must be fitted before the silencer is installed.

With glass wool.

**Ordering**

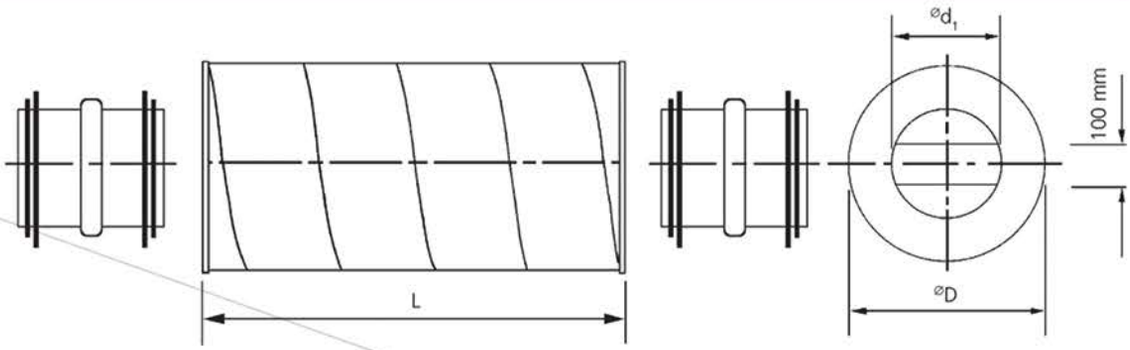
Product code: **SLBGL aaa bbb**

Type

$\varnothing d_1$

L

## Dimensions



# Circular Silencers
## *SLBGL*

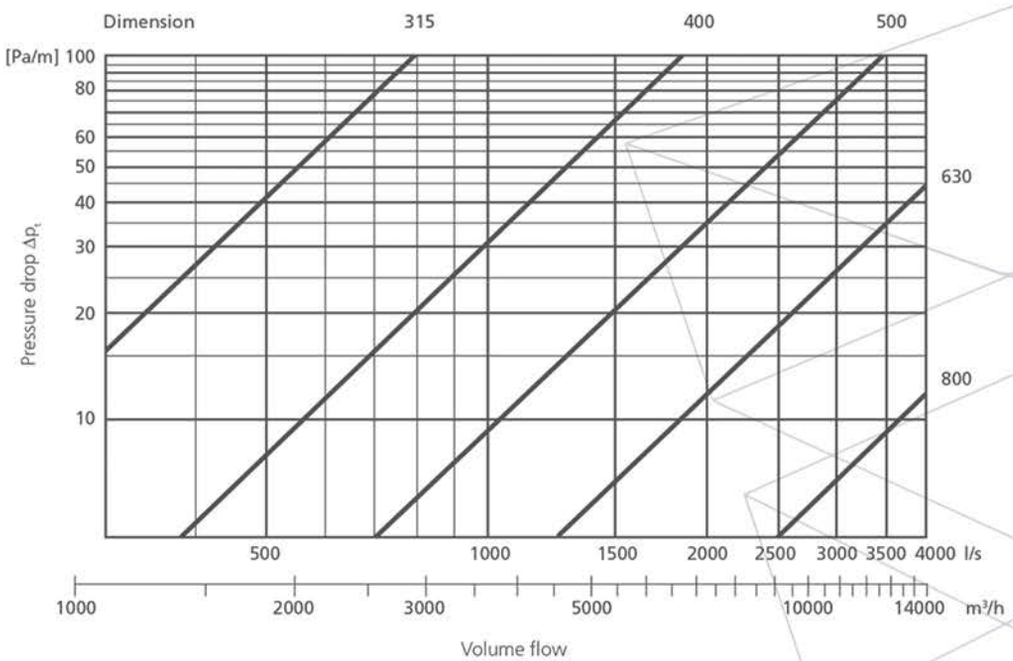
## Dimensions

**SLBGL, 100 mm insulation**

| Description | ⌀$d_1$ nom | ⌀D nom | L | Ins. attenuation (dB) in octave bands (Hz) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | mm | mm | mm | 125 | 250 | 500 | 1000 | 2000 | 4000 |
| SLBGL 315-1000 | 315 | 500 | 1000 | 8 | 20 | 34 | 43 | 52 | 37 |
| 315-1200 | 315 | 500 | 1200 | 11 | 22 | 37 | 46 | 54 | 40 |
| SLBGL 400-1000 | 400 | 600 | 1000 | 8 | 18 | 30 | 37 | 42 | 28 |
| 400-1200 | 400 | 600 | 1200 | 10 | 22 | 33 | 44 | 44 | 31 |
| 400-1500 | 400 | 600 | 1500 | 12 | 27 | 29 | 47 | 47 | 34 |
| SLBGL 500-1000 | 500 | 710 | 1000 | 7 | 16 | 26 | 31 | 32 | 20 |
| 500-1200 | 500 | 710 | 1200 | 8 | 17 | 29 | 37 | 37 | 22 |
| 500-1500 | 500 | 710 | 1500 | 9 | 25 | 37 | 45 | 43 | 25 |
| SLBGL 630-1000 | 630 | 900 | 1000 | 6 | 14 | 21 | 26 | 24 | 16 |
| 630-1200 | 630 | 900 | 1200 | 8 | 16 | 26 | 30 | 27 | 18 |
| 630-1500 | 630 | 900 | 1500 | 9 | 20 | 31 | 37 | 31 | 20 |
| SLBGL 800-1000 | 800 | 1000 | 1000 | 5 | 10 | 17 | 21 | 20 | 14 |
| 800-1200 | 800 | 1000 | 1200 | 6 | 12 | 19 | 24 | 23 | 16 |
| 800-1500 | 800 | 1000 | 1500 | 7 | 16 | 25 | 30 | 26 | 18 |

Max. outside diameter = ⌀D + 25 mm

## Technical data



# Silencer Bends
## *BSLL*

## Description

The BSLL silencer bend has been developed for use in ventilation systems where space considerations or other circumstances prevent the use of circular silencers (e.g. SLL).

This silencer bend is made of 2 seamed bends. The inner bend is made of perforated sheet steel. The cavity is filled with attenuation material. In order to prevent the attenuation material from being drawn into the duct, a piece of canvas is fitted between the perforated sheet steel and attenuation material.

Silencer bends up to ⌀315 are supplied with fixed **Spiral system** connections as standard. From ⌀315 upwards, the connection supplied has loose male couplings (NPL).

The BSLL silencer bend is available
with 50 mm insulation material in the following dimensions:
⌀125 - 160 - 200 - 250 - 315.
With 100 mm insulation material in the following dimensions:
⌀125 - 160 - 200 - 250 - 315 - 400 - 500 - 630.

These silencer bends are made of galvanised sheet steel.

Insertion attenuation is measured in accordance with GLSM's instructions.

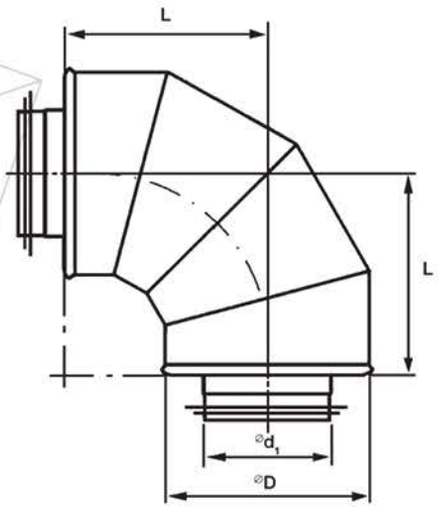
Patented.

**Ordering**

Product code: **BSLL aa bbb**

- Type
- Insulation 50/100
- $\varnothing d_1$

## Dimensions



# Silencer Bends
## *BSLL*



## Dimensions

**BSLL, 50 mm insulation**

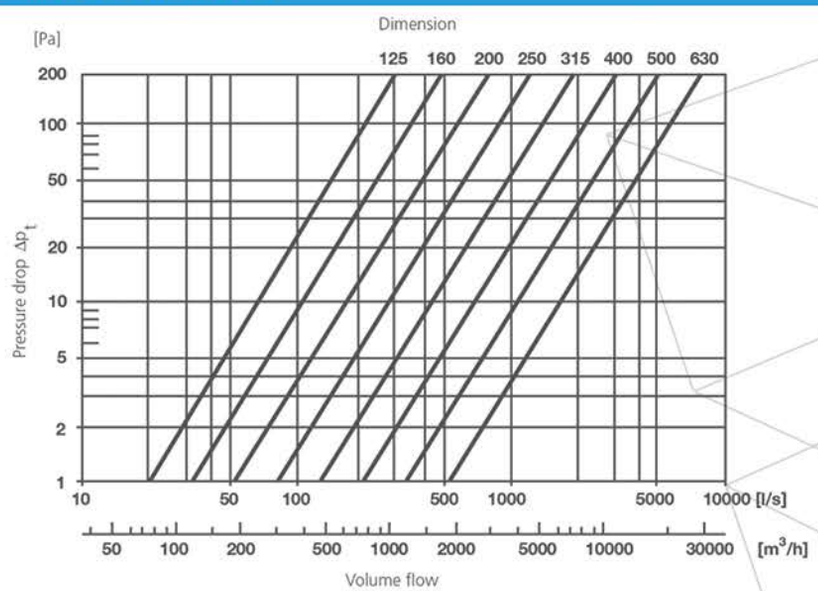
| ⌀$d_1$ nom mm | L mm | ⌀D nom mm | Attenuation (dB) in octave band 125 | 250 | 500 | 1000 | 2000 | 4000 | Hz 8000 |
|---|---|---|---|---|---|---|---|---|---|
| 125 | 200 | 224 | 2 | 6 | 14 | 29 | 30 | 31 | 24 |
| 160 | 240 | 260 | 3 | 6 | 14 | 26 | 34 | 30 | 25 |
| 200 | 305 | 315 | 3 | 8 | 20 | 26 | 32 | 30 | 25 |
| 250 | 370 | 355 | 2 | 6 | 17 | 29 | 28 | 24 | 22 |
| 315 | 370 | 450 | 3 | 7 | 13 | 15 | 15 | 14 | 12 |

**BSLL, 100 mm insulation**

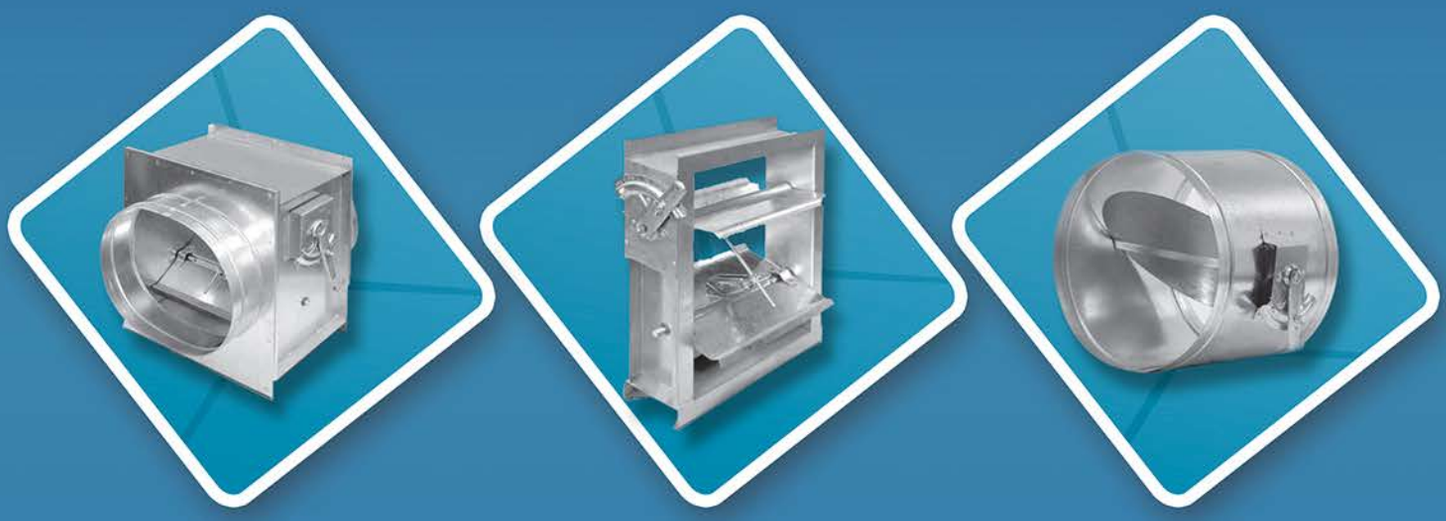
| ⌀$d_1$ nom mm | L mm | ⌀D nom mm | Attenuation (dB) in octave band 125 | 250 | 500 | 1000 | 2000 | 4000 | Hz 8000 |
|---|---|---|---|---|---|---|---|---|---|
| 125 | 260 | 315 | 6 | 13 | 22 | 25 | 35 | 39 | 33 |
| 160 | 280 | 355 | 7 | 14 | 18 | 26 | 38 | 33 | 25 |
| 200 | 325 | 400 | 6 | 15 | 22 | 29 | 34 | 32 | 27 |
| 250 | 370 | 450 | 4 | 11 | 16 | 27 | 28 | 26 | 22 |
| 315 | 375 | 500 | 4 | 11 | 15 | 18 | 17 | 15 | 14 |
| 400 | 420 | 600 | 5 | 9 | 14 | 14 | 15 | 14 | 12 |
| 500 | 485 | 710 | 5 | 13 | 19 | 14 | 13 | 12 | 10 |
| 630 | 610 | 850 | 6 | 14 | 17 | 13 | 12 | 12 | 11 |

Max. outside diameter = ⌀D + 25 mm

## Technical data



MEGADUCT®
AIR IS LIFE



# 5 Volume Control Damper

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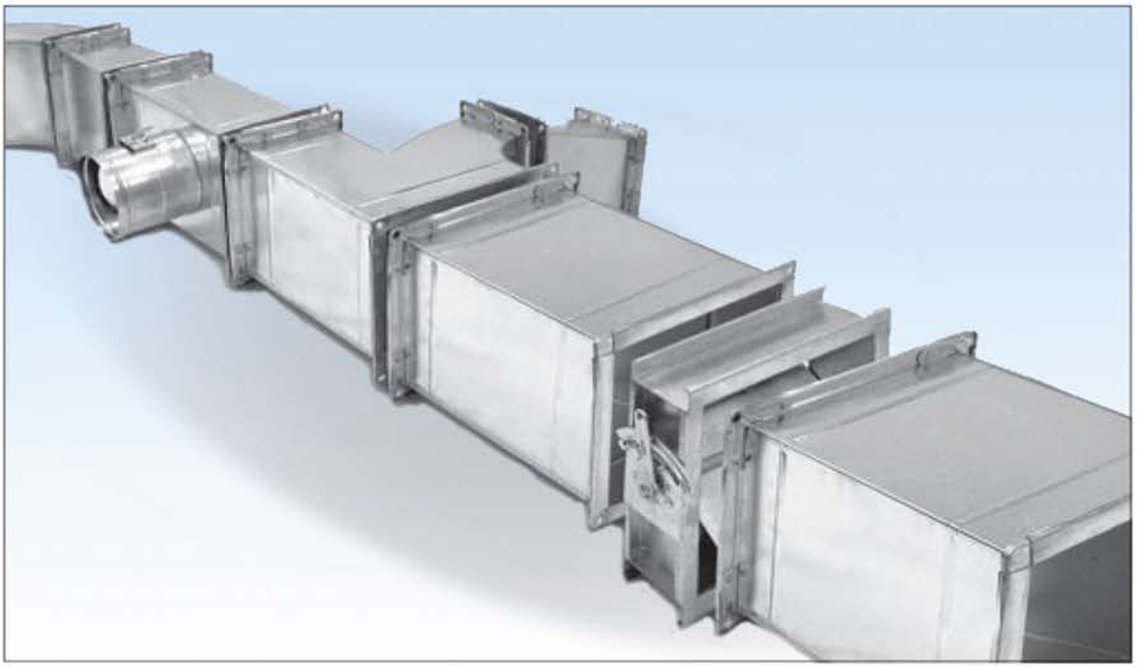
# Contents

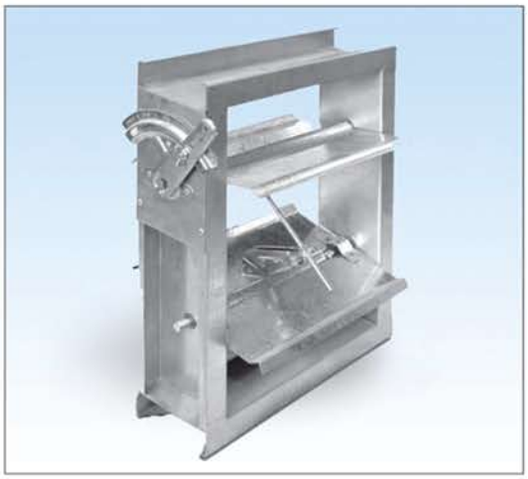
# *Volume Control Damper*



**Volume control dampers are used to regulate air flow in a duct system, they are available in a range of round, rectangular and flat oval sizes. Such dampers can be furnished with optional manual or electric actuators.**

**The quadrant assembly is designed to facilitate simple conversion to motorization without the need for additional components.**

# Flange Type
## *SVF/SVFO*



## Description

Volume Control Damper are designed to suit client individual requirements, maintain and safe air flow level in ventilation systems.

**Ordering**

Product code: **SVF aaa bbb**

Type

H

W

## Specification

SVF - Parallel Volume Control Damper
SVFO - Opposed Volume Control Damper

Frame: Manufactured from galvanized formed steel channel G90
100mm x 35 x 1.5 mm (16 Ga)

Blades: Galvanized steel (1.2 mm) (18 Ga)

Bushings: Self Oiling bronze bushings 12.7 mm diameter

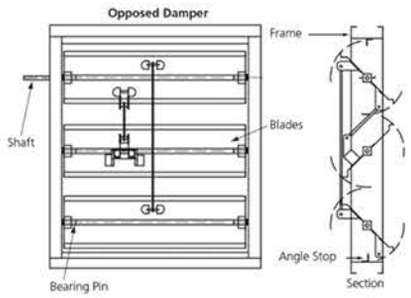
Bearing Pin: Plated steel rod 12.7 mm diameter

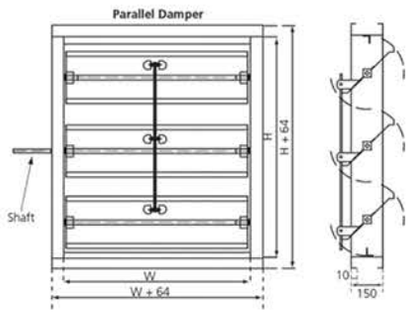
VCD Available: - Parallel or opposed blade
- Manual Quadrant or motorized

Damper up to 305 mm high are single blade construction. Otherwise will be multiblade damper

Damper size 1200 x 1200 mm is manufactured as single section bigger sizes will be multiple sections

## Section Detalis




| w mm | H mm | Number of Blades |
|---|---|---|
| 100 | 100 | 1 |
| 150 | 150 | 1 |
| 200 | 200 | 1 |
| 250 | 250 | 1 |
| 300 | 300 | 1 |
| 350 | 350 | 2 |
| 400 | 400 | 2 |
| 450 | 450 | 2 |
| 500 | 500 | 3 |
| 550 | 600 | 3 |
| 600 | 700 | 4 |
| 650 | 800 | 4 |
| 700 | 900 | 5 |
| 750 | 1000 | 5 |
| 800 | 1100 | 6 |
| 850 | 1200 | 7 |
| 900 | 1300 | 7 |
| 950 | 1400 | 8 |
| 1000 | 1500 | 9 |
| 1050 | 1600 | 9 |
| 1100 | 1700 | 10 |
| 1200 | 1800 | 12 |

# Flange Type
## *SVS/SVSO*

## Description

Volume Control Damper are designed to suit client individual requirements, maintain and safe air flow level in ventilation systems.

**Ordering**

Product code: **SVS aaa bbb**

Type

H

W

## Specification

SVS - Parallel Volume Control Damper
SVSO - Opposed Volume Control Damper

Frame: Manufactured from galvanized formed steel channel G90
100mm x 35 x 1.5 mm (16 Ga)

Blades: Galvanized steel (1.2 mm) (18 Ga)

Bushings: Self Oiling bronze bushings 12.7 mm diameter

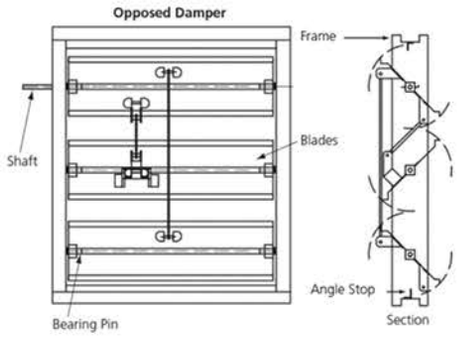
Bearing Pin: Plated steel rod 12.7 mm diameter

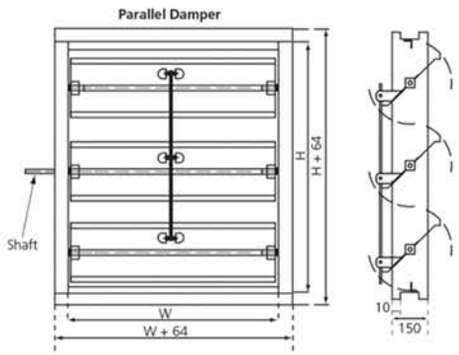
VCD Available: - Parallel or opposed blade
- Manual Quadrant or motorized

Damper up to 305 mm high are single blade construction. Otherwise will be multiblade damper

Damper size 1200 x 1200 mm is manufactured as single section bigger sizes will be multiple sections

## Section Detalis

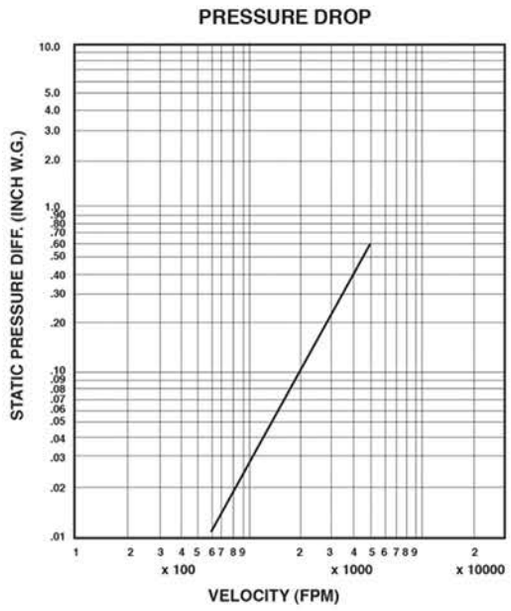


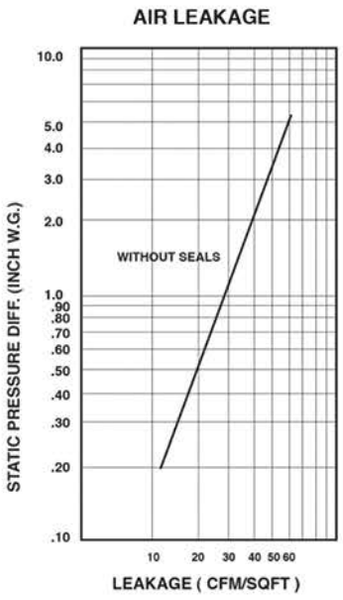




| W in mm | H in mm | Number of Blades |
|---|---|---|
| 100 | 100 | 1 |
| 150 | 150 | 1 |
| 200 | 200 | 1 |
| 250 | 250 | 1 |
| 300 | 300 | 1 |
| 350 | 350 | 2 |
| 400 | 400 | 2 |
| 450 | 450 | 2 |
| 500 | 500 | 3 |
| 550 | 600 | 3 |
| 600 | 700 | 4 |
| 650 | 800 | 4 |
| 700 | 900 | 5 |
| 750 | 1000 | 5 |
| 800 | 1100 | 6 |
| 850 | 1200 | 7 |
| 900 | 1300 | 7 |
| 950 | 1400 | 8 |
| 1000 | 1500 | 9 |
| 1050 | 1600 | 9 |
| 1100 | 1700 | 10 |
| 1200 | 1800 | 12 |

# *Megaduct Volume Control Damper*

## Performance Data




- Performance Shown is at standard air density of 0.075 lb/ft$^3$.
- Test size 36" wide by 36" height

# Round Spigot Type
## *SVC/SVCO*

## Description

Volume Control Damper are designed to suit client individual requirements, maintain and safe air flow level in ventilation systems.

**Ordering**

Product code: **SVC aaa bbb**

Type

H

W

## Specification

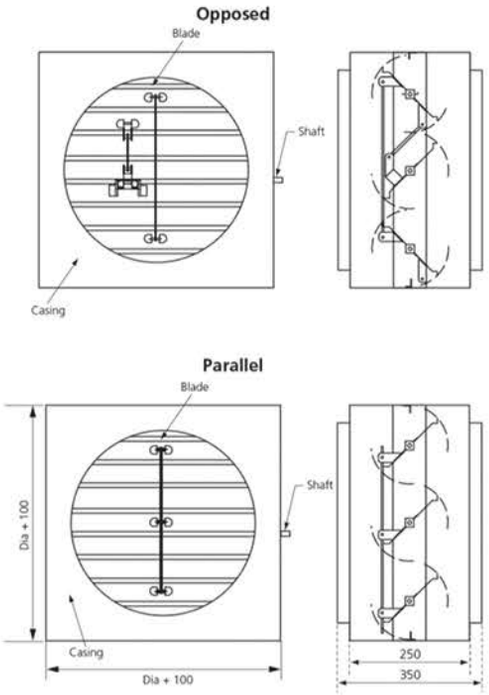
SVC - Parallel Volume Control Damper
SVCO - Opposed Volume Control Damper

| | |
|---|---|
| Frame: | Manufactured from galvanized formed steel channel G90<br>100mm x 35 x 1.5 mm (16 Ga) |
| Blades: | Galvanized steel (1.2 mm) (18 Ga) |
| Bushings: | Self Oiling bronze bushings 12.7 mm diameter |
| Bearing Pin: | Plated steel rod 12.7 mm diameter |
| VCD Available: | - Parallel or opposed blade<br>- Manual Quadrant or motorized |

Damper up to 305 mm high are single blade construction. Otherwise will be multiblade damper

Damper size 1200 x 1200 mm is manufactured as single section bigger sizes will be multiple sections

## Section Detalis




| W in mm | H in mm | Number of Blades |
|---|---|---|
| 550 | 550 | 3 |
| 600 | 600 | 4 |
| 650 | 650 | 4 |
| 700 | 700 | 5 |
| 750 | 750 | 5 |
| 800 | 800 | 6 |
| 850 | 850 | 7 |
| 900 | 900 | 7 |
| 950 | | |
| 1000 | | |
| 1050 | | |
| 1100 | | |
| 1200 | | |

For smaller dimeters see RVCD

# Oval Spigot Type
## *SVV/SVVO*

## Description

Volume Control Damper are designed to suit client individual requirements, maintain and safe air flow level in ventilation systems.

**Ordering**

Product code: **SVV aaa bbb**

Type

H

W

## Specification

SVV - Parallel Volume Control Damper
SVVO - Opposed Volume Control Damper

Frame: Manufactured from galvanized formed steel channel G90
100mm x 35 x 1.5 mm (16 Ga)

Blades: Galvanized steel (1.2 mm) (18 Ga)

Bushings: Self Oiling bronze bushings 12.7 mm diameter

Bearing Pin: Plated steel rod 12.7 mm diameter

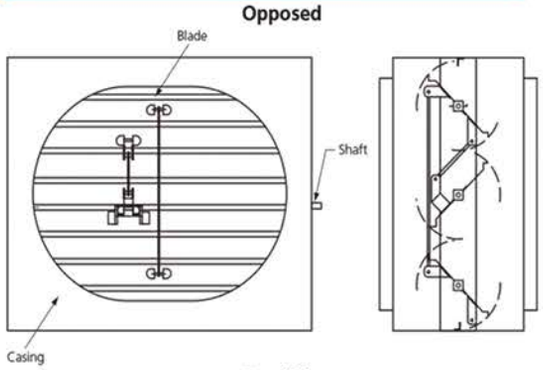
VCD Available: - Parallel or opposed blade
- Manual Quadrant or motorized

Damper up to 305 mm high are single blade construction. Otherwise will be multiblade damper

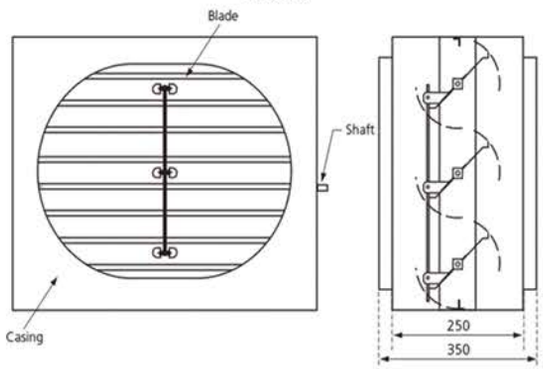
Damper size 1200 x 1200 mm is manufactured as single section bigger sizes will be multiple sections

## Section Detalis

**Opposed**




**Parallel**

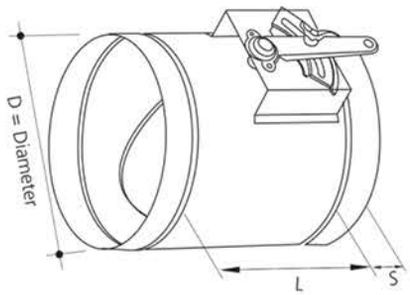



| W in mm | H in mm | Number of Blades |
|---|---|---|
| 100 | 100 | 1 |
| 150 | 150 | 1 |
| 200 | 200 | 1 |
| 250 | 250 | 1 |
| 300 | 300 | 1 |
| 350 | 350 | 2 |
| 400 | 400 | 2 |
| 450 | 450 | 3 |
| 500 | 500 | 3 |
| 550 | 600 | 3 |
| 600 | 700 | 4 |
| 650 | 800 | 4 |
| 700 | 900 | 5 |
| 750 | 1000 | 5 |
| 800 | 1100 | 6 |
| 850 | 1200 | 7 |
| 900 | 1250 | 7 |
| 950 | | |
| 1000 | | |
| 1050 | | |
| 1100 | | |
| 1200 | | |

# Round Volume Control Damper ' Single Blade '

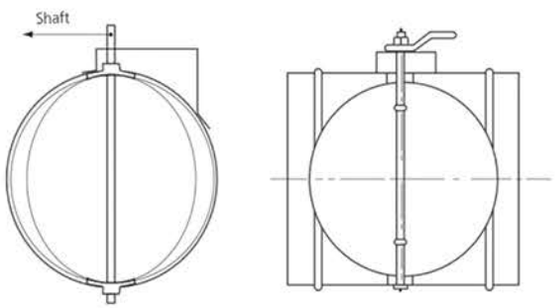
## *RVCD*

## Section Detalis




## Specification

- Housing-made of galvanized steel material Ga.20
- Blade-made of galvanized steel material Ga.18
- Bearing pin-plated steel rod 12.7 mm diameter
- Bushing-self oiling bronze bushing 12.7 mm diameter
- Quadrant; locking quadrant with position indicator
- Up to size 600 mm will be single blade
- For larger sizes see SVC model Page No. 239




**Ordering**

Product code: **RVCD** **aaa**

Type

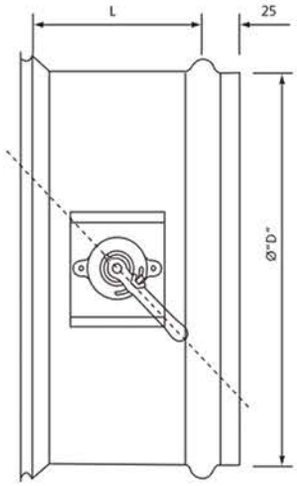
$^{\varnothing}d_1$

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **D** | 100 | 150 | 200 | 250 | 300 | 350 | 350 | 400 | 450 | 500 | 550 | 600 |
| **L** | 150 | 150 | 150 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |

# Round Neck (Spin Collar)

## *SPCR*

## Section Detalis




## Description

**Ordering**

Product code: **SPCR aaa bbb**

Type

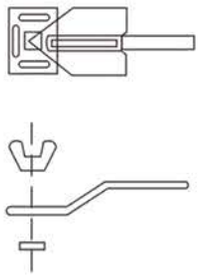
H

W

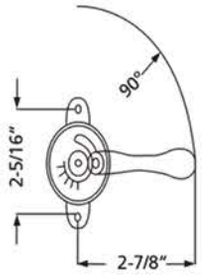
## Specification

### Standard Materials & Construction

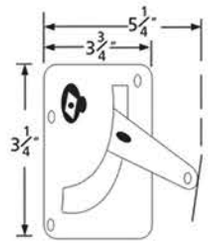
- Frame : 24 Gauge Galvanized Steel
- Blade : 18 Gauge Galvanized Steel
- Operation : Hand Quadrant for Manual Operation with position indicator



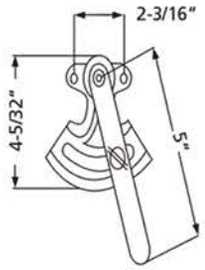
'RAPIT' REGULATOR UP TO Ø 150mm




1/4" DIAL REGULATOR SEATS & BEARING UP TO Ø 200mm




3/8" WEDGELOC" REGULATOR SEATS UP TO Ø 250mm



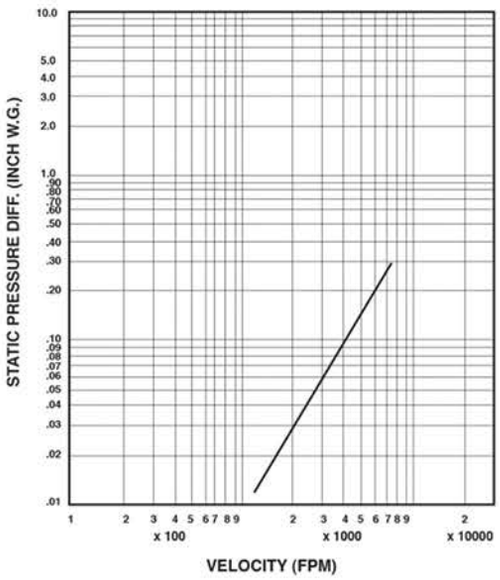

3/8" QUADRANT SETS Ø300mm & above

| D | 100 | 150 | 200 | 250 | 300 | 350 |
|---|---|---|---|---|---|---|
| L | 200 | 200 | 200 | 250 | 300 | 350 |

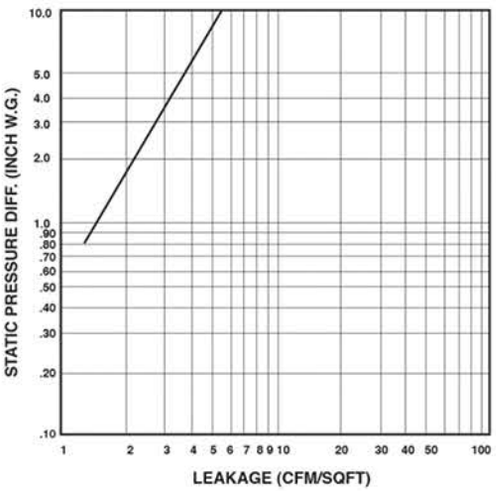
# *Megaduct Round Volume Control Damper*

## Performance Data

PRESSURE DROP




AIR LEAKAGE




- Performance Shown is at standard air density of 0.075 lb/ft$^3$.
- Test size is 14" diameter

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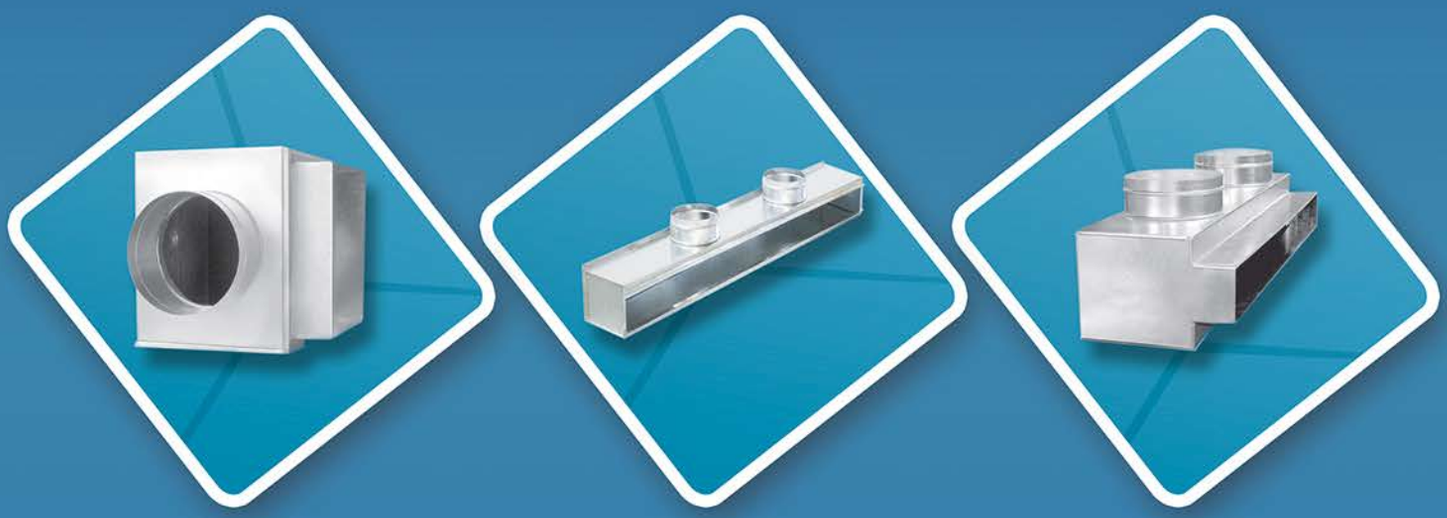


# 6 Plenum Box

# Contents

# Linear Plenum Box
## *LPB*

## Description

- 24 - GA Galvanized Steel (G-90)
- Standard Liner - 48 kg/m³ density x 25 mm thickness.

H - Height (mm)
L - Length (mm)
N - Neck Length (70 mm standard)
ø - Diameter
S - Spigot Length (S) (250 mm with damper) (100 mm without damper)
1- slot equal 40 mm as a standard

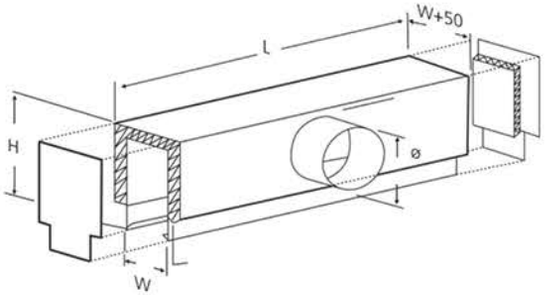
- the spigot inlet can fix either on the top or on the side of the plenum box depending on site requirements.
- Dimensions H and W is based on the grille/diffuser neck size
- For round neck sizes see SPCR model Page No. 242

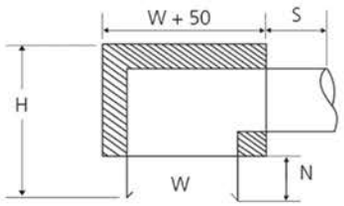
**Ordering**

Product code: **LPB aaa bbb**

Type
H mm
W mm

## Dimensions

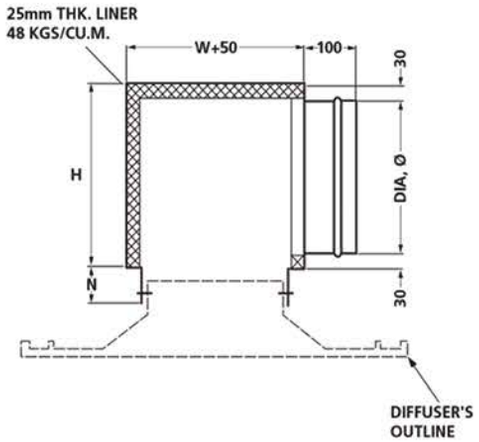


# Plenum Box for Rectangular Diffuser

## *DPB*

## Dimensions




## Description

The spigot inlet can fix either on the top or on the side of the box depending on site requirements

H - Height (mm)
L - Length (mm)
N - Neck Length (70 mm standard)
ø - Diameter
S - Spigot Length (S) (250 mm with damper) (100 mm without damper)
1- slot equal 40 mm as standard

- Box made of 24 Gage galvanized Steel (G90)
- Dimensions H and W in is based on the grill diffuser neck size
- Standard Liner - 48 kg/m³ density x 25 mm thickness.
- For round neck sizes see SPCR model Page No. 242

### Ordering

Product code: **DPB aaa bbb**

Type

H mm

W mm

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# 7 Sand Trap Louvers & Access Door

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# Contents

# Sand Trap Louver
## *STLG/STLA/STLS*

## Description

Sand Trap Louver is used for separating sand from intake air

STLG - GALV. sand trap louver (galv.steel)
STLG - Alum . sand trap louver (alum.steel)
STLG - SS . sand trap louver (stainless steel)

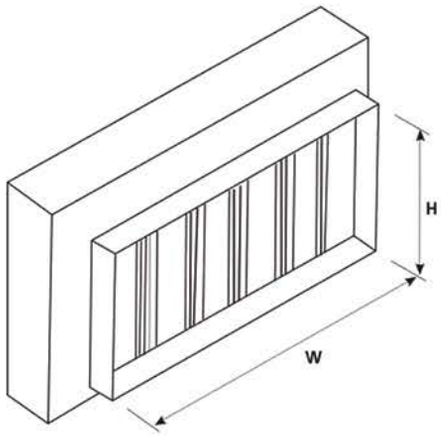
- Minimum thickness for casing is 24 Ga
- Minimum thickness for blades is 24 Ga
- Holes 19 mm dla.at bottom casing only
- Bird screen 12 mm x 1 mm as a standard, other sizes availabl on request

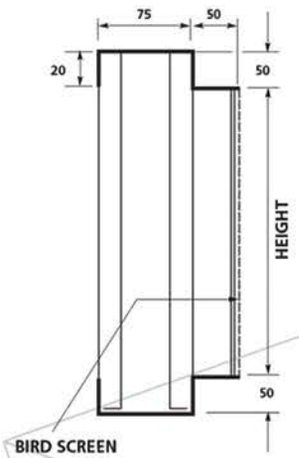
**Ordering**

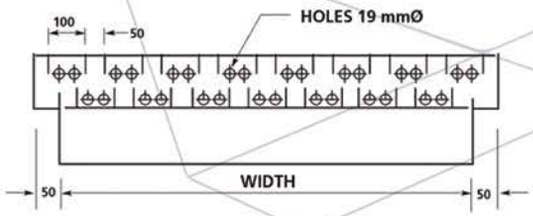
Product code: **STLG aaa bbb**

Type
H mm
W mm

## Dimensions



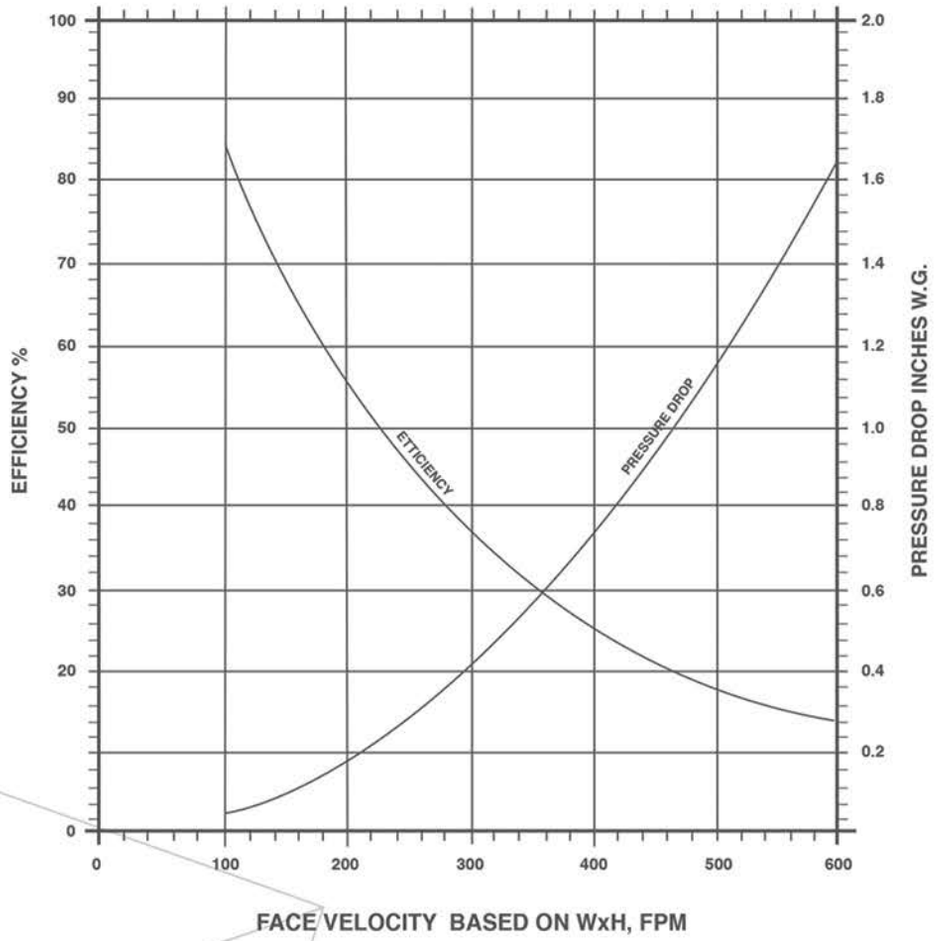




## Lengend and Notes

NOTE: Fabricated as per customer request, when ordering please specify the size.
Available with Aluminium fitters and wire mesh

## Sand Trap Louver

# Performance Data



# Duct Access Door
## *DAC*

## Description

- 22 gauge galvanized steel frame
- 24 gauge galvanized steel double wall door
- 25mm thick fiber glass insulation
- Piano hinges
- Gasket
- Access door up to 350 mm have one lock, above this size have two locks
- Cam lock is standard
- Other locks are available upon request
- Out side frame size fits hole 50mm smaller than door size
- Minimum size is 150mm x 150mm (Wx H)
- Maximum Size is 600 mm x 600mm (Wx H)

- **Doors**

  Made of galvanized steel ga. 24, double skin and with internal insulation.
- **Door Frame**

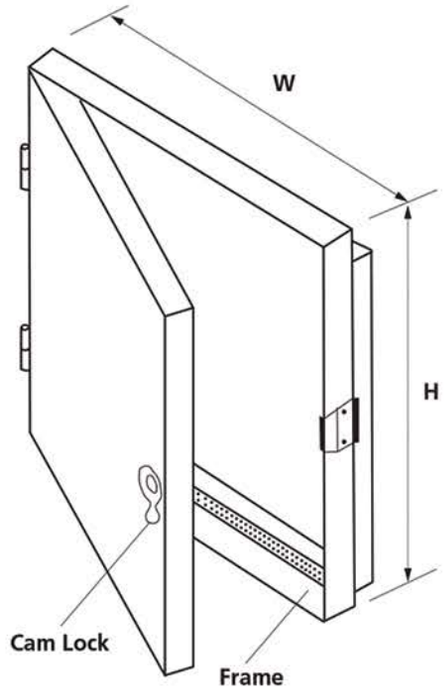
  Galvanized steel ga.24 roll formed. Provided with foam gasket all around.

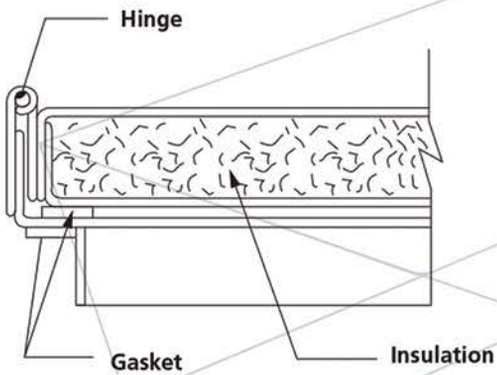
  Bottom edge will be notched knock over for easy fixing onto the duct.
- **Camlock**

  Hot rolled steel camlock. Use one piece of camlock. Only on door size (H) up to 300mm only.
- **Hinges**

  Hinges, spot welded to the frame.

## Dimensions




Door side view

**Other Size Are Available On Request**

# Access Door
## *Saddle with Glass*

## Description

- **Doors**

  Made of galvanized steel 24g. double skin anc with internal insulation. (see section detail)

- **Door Saddle**

  Made of galvanized steel 24g. double skin anc with internal insulation. (see section detail)

- **Camlock**

  Hot rolled steel camlock. Use one piece of camlock Only on door size (H) up to 300mm only.

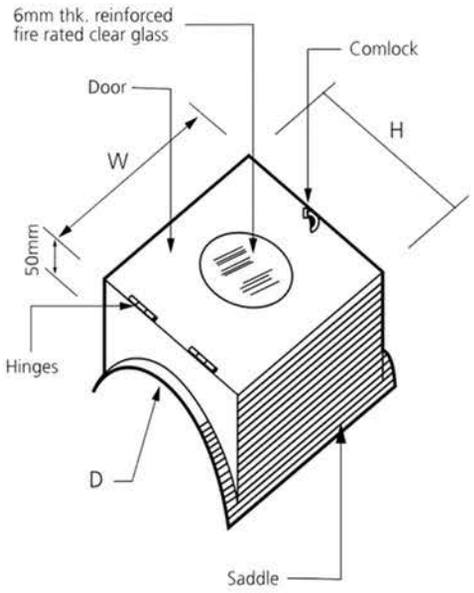
- **Hinges**

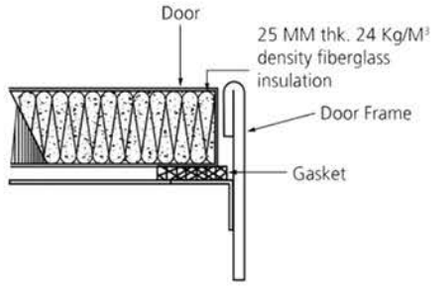
  Hinges, spot welded to the frame.

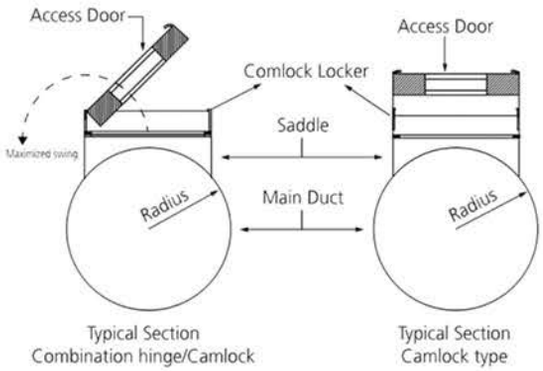
- **Windows**

  6mm thick reinforced fire rated clear glass.

## Dimensions



# Access Door
## *Saddle Type*

## Description

- **Doors**

  Made of galvanized steel 24g. double skin and with internal insulation. (see section detail)

- **Door Saddle**

  Made of galvanized steel 24g. double skin and with internal insulation. (see section detail)

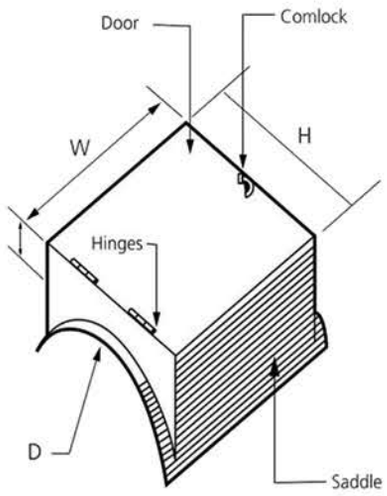
- **Camlock**

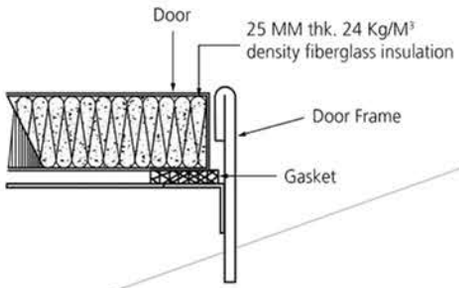
  Hot rolled steel camlock. Use one piece of camlock. Only on door size (H) up to 300mm only.

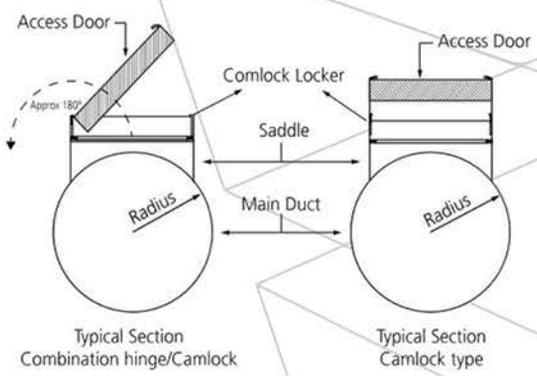
- **Hinges**

  Hinges, spot welded to the frame.

## Dimensions



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# 8 Spiral Accessories

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# Contents

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# Contents

# Louver Caps

## *VHL*

## Description

VHL louvre caps have been developed specially to achieve an architectonic finish to air input and exhaust systems placed on roofs. The standard version has a galvanised finish, but is also available with a black Rilsan coating. To achieve a harmonious transition from pipe to cap, a pipe with a dimension corresponding to ⌀D can be chosen.

Under roofs the pipe can be reduced to ⌀$d_1$ (see mounting example 1).

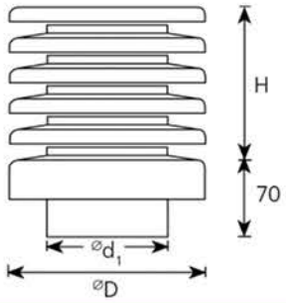
However, louvre caps can also be mounted direct on pipes with the diameter ⌀$d_1$ (see mounting example 2).

VHL =v galvanised
VHL-S = black Rilsan-coated

**Ordering**

Product code: VHL aaa c
Type
⌀$d_1$
Colour if relevant (S = black)

## Dimensions

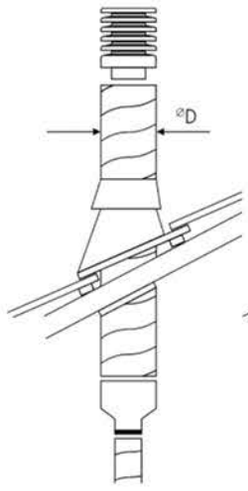



| Φ$d_1$ | ΦD | H | Free area net, $m^2$ | $m^3/h$* intake |
|---|---|---|---|---|
| 100 | 160 | 110 | 0.019 | 175 |
| 125 | 200 | 145 | 0.033 | 270 |
| 160 | 250 | 180 | 0.055 | 430 |
| 200 | 315 | 250 | 0.100 | 690 |
| 250 | 315 | 250 | 0.125 | 1000 |
| 315 | 400 | 290 | 0.182m | 1600 |
| 400 | 500 | 370 | 0.306 | 2600 |
| 500 | 630 | 410 | 0.441 | 3900 |

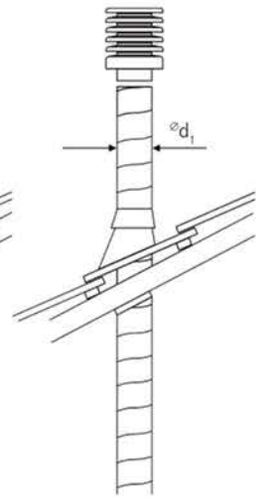
* Recommended maximum volume flow when using VHL as an intake cap.
H = mounting dimensions

**Mounting**

Mounting example 1




Mounting example 2

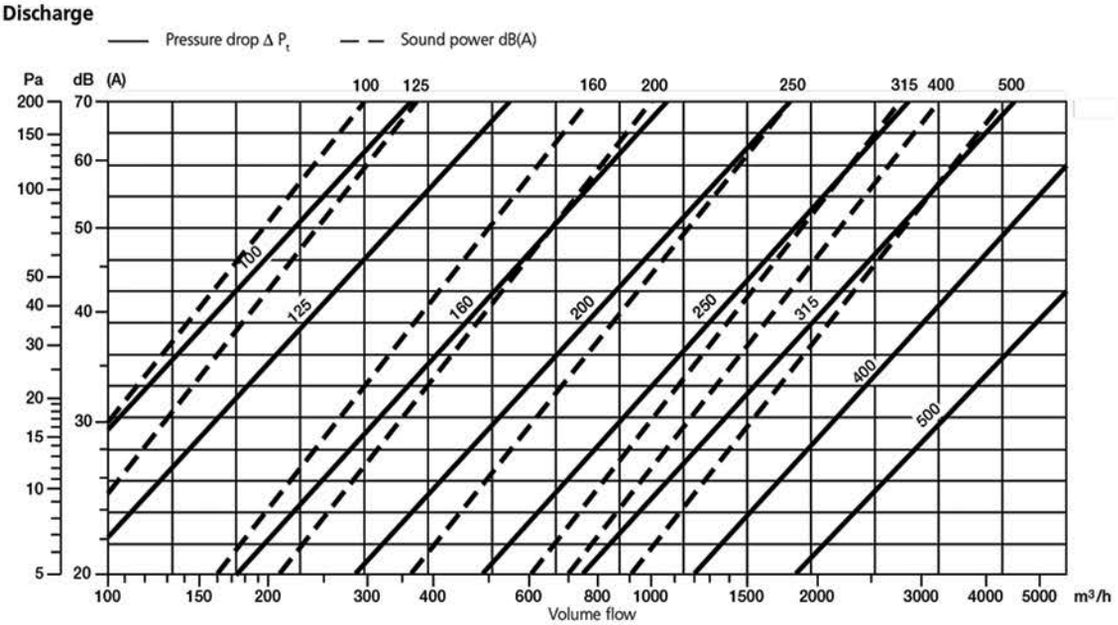


# Louver Caps

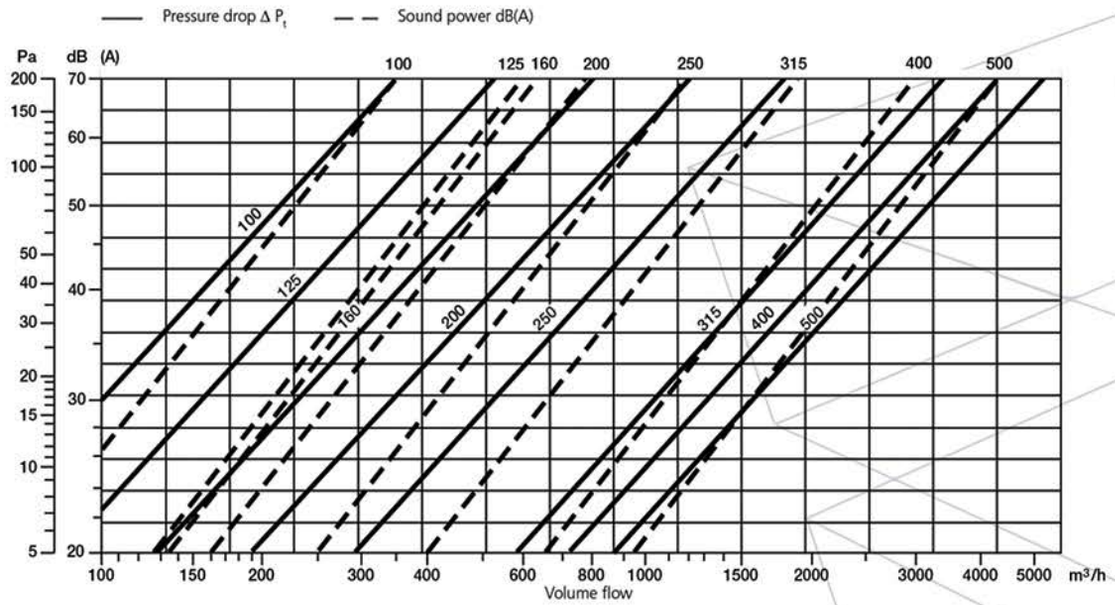
## *VHL*

## Technical data

**Discharge**




**Intake**



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# Ventilation Caps

## *VHP*

## Description

VHP ventilation caps have been developed specially to achieve an architectonic finish to air input and exhaust systems placed on roofs. The standard version has a galvanised finish, but is also available in grey RAL 7024 or other colours

Design-protected.

To achieve a harmonious transition from pipe to cap, a pipe with a dimension corresponding to ⌀D can be chosen. (see mounting example 1).

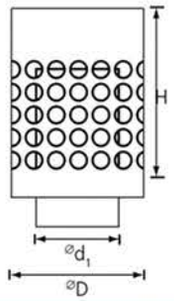
However, bar caps can also be mounted direct on pipes with the diameter ⌀$d_1$ (see mounting example 2).

**Ordering**

Product code: **VHP aaa c**

- Type
- ⌀$d_1$
- Colour if relevant

## Dimensions

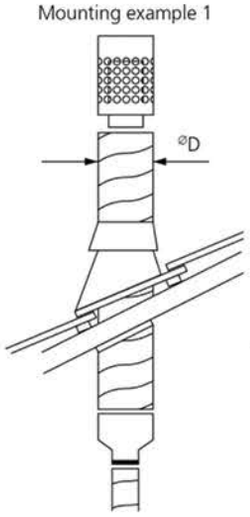



| ΦD nom | ΦD nom | H mm | Free area $m^2$ | $M^3/h$* intake |
|---|---|---|---|---|
| 100 | 160 | 190 | 0.029 | 175 |
| 125 | 200 | 190 | 0.037 | 270 |
| 160 | 250 | 190 | 0.047 | 430 |
| 200 | 315 | 315 | 0.092 | 690 |
| 250 | 400 | 315 | 0.117 | 1000 |
| 315 | 500 | 315 | 0.141 | 1600 |
| 355 | 500 | 470 | 0.219 | 2100 |
| 400 | 630 | 470 | 0.275 | 2600 |
| 450 | 630 | 470 | 0.275 | 3900 |
| 500 | 710 | 600 | 0.386 | 4200 |
| 630 | 800 | 725 | 0.583 | 5700 |
| 710 | 1000 | 725 | 0.725 | 7700 |
| 800 | 1250 | 725 | 0.905 | 10500 |

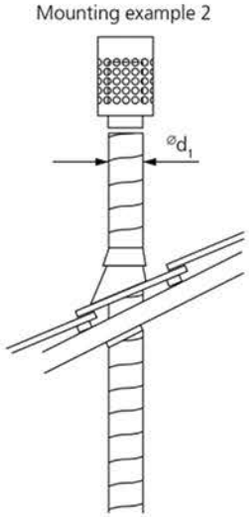
* Recommended maximum volume flow when using VHP as an intake cap.
H = mounting dimensions

**Mounting**

Mounting example 1




Mounting example 2

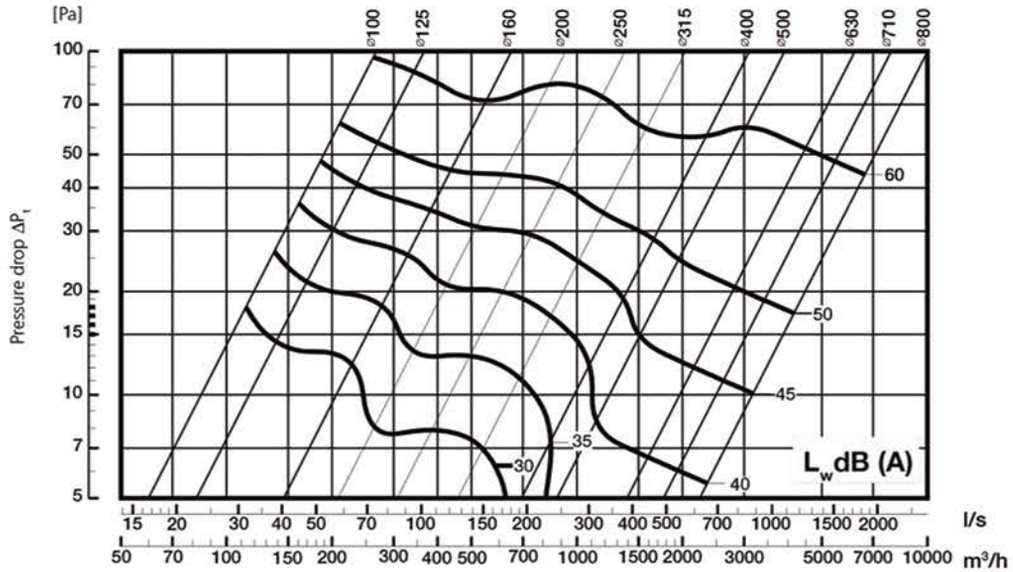


# Ventilation Caps

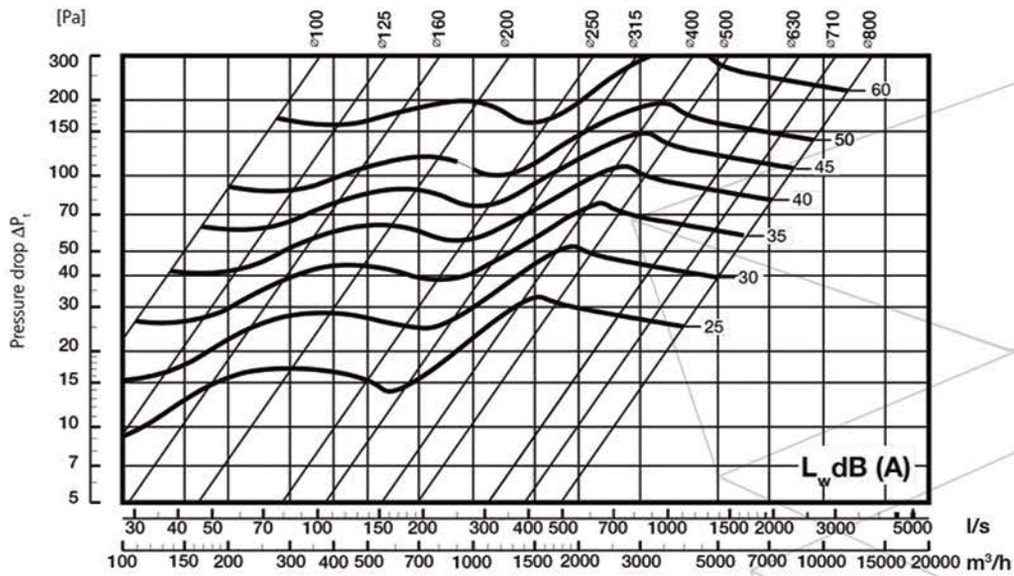
## *VHP*

## Technical data

**Discharge**




**Intake**



# Discharge Caps
## *VHA*

## Description

VHA discharge caps have been developed specially to achieve an architectonic finish to air exhaust systems placed on roofs. The standard version has a galvanised finish, but is also available with a black Rilsan coating. The cap is fitted with an internal cone to lead rainwater out over the pipe sides.

The air is discharged in a vertical jet, thus avoiding pollution of the air near the cap and soiling of the roof surface around the cap. Extraction is so effective that a fresh air input can be mounted next to the exhaust cap (e.g. louvre cap VHL, the design of which matches VHA).

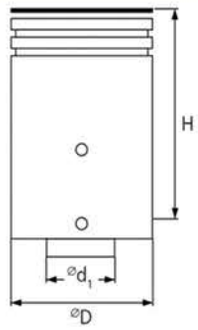
To achieve a harmonious transition from pipe to cap, a pipe with a dimension corresponding to ⌀D can be chosen. Under roofs pipes can be reduced to ⌀$d_1$ (see mounting example 1).
However, discharge caps can also be mounted direct on pipes with the diameter ⌀d1 (see mounting example 2).
Discharge cap VHA is design-protected.

VHA = galva0.2nised
VHA-S = black powder-enamelled

**Ordering**

Product code: **VHA aaa b**
Type
⌀$d_1$
Colour if relevant (S = black)

## Dimensions

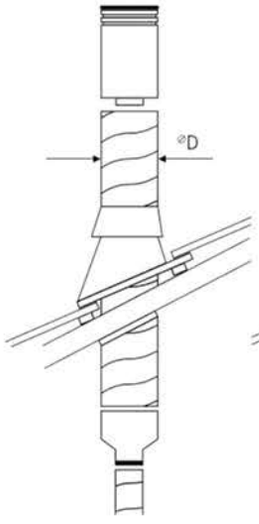



| ⌀$d_1$ | ⌀D | H mm |
|---|---|---|
| 100 | 160 | 210 |
| 125 | 200 | 230 |
| 160 | 250 | 310 |
| 200 | 315 | 380 |
| 250 | 355 | 437 |
| 315 | 450 | 540 |
| 400 | 560 | 700 |
| 500 | 710 | 840 |

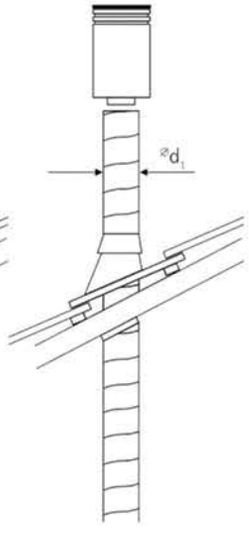
H = mounting dimension

**Mounting**

Mounting example 1




Mounting example 2

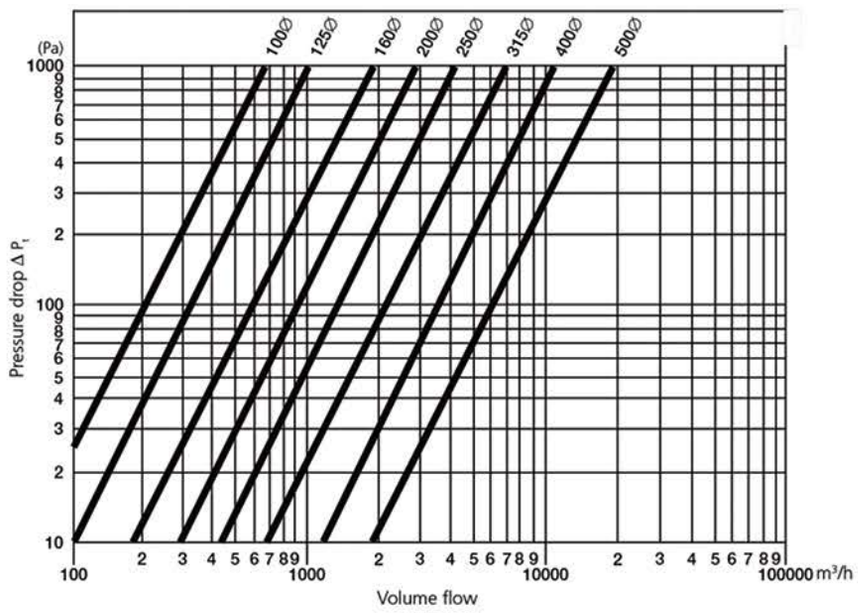


# Discharge Caps

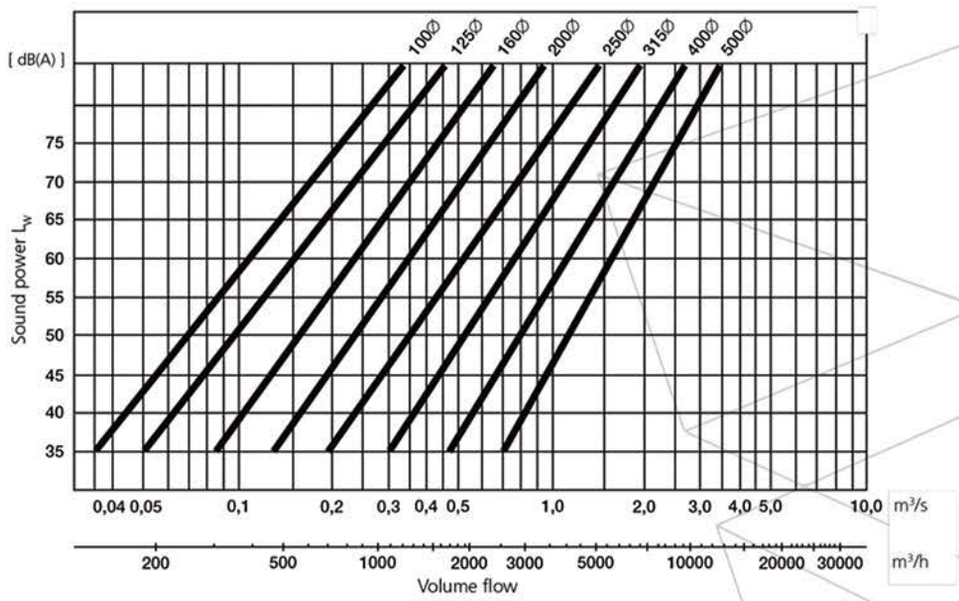
*VHA*

## Technical data

**Pressure drop**




**Sound data**



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# Jet Caps
## *HN/HF*

## Description

HN/HF jet caps are discharge caps which are suitable for both industrial and comfort ventilation.

The air is discharged in a vertical jet, thus avoiding pollution of the air near the cap and soiling of the roof surface around the cap. Discharge is so effective that a fresh air input can be mounted next to the jet cap.

The caps are made of galvanised sheet steel, and are also available to order in other materials such as stainless steel, aluminium and plastic-coated sheet steel in various colours. They are fitted with a 1/2'' net at the top and an inside cone for the collection of snow and rainwater, which is piped away from the cap.

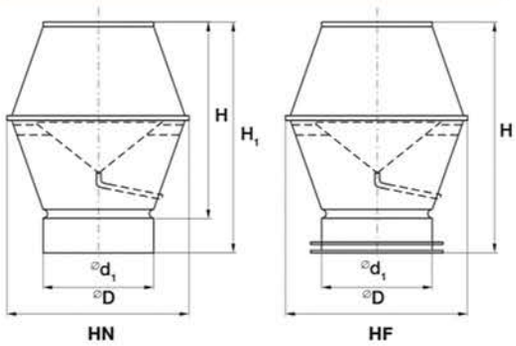
The standard design is up to and including ⌀355 (seam outside duct). Larger dimensions have a flange connection.

**Ordering**

Product code: **HN aaaa**
External joint on tube
⌀$d_1$

Product code: **HF aaaa**
Flange seam
⌀$d_1$

## Dimensions




| ⌀$d_1$ | ⌀D | H mm | $H_1$ mm |
|---|---|---|---|
| 80 | 130 | 160 | 200 |
| 100 | 180 | 220 | 260 |
| 125 | 225 | 240 | 280 |
| 140 | 245 | 280 | 320 |
| 150 | 265 | 315 | 355 |
| 160 | 280 | 340 | 380 |
| 180 | 310 | 375 | 415 |
| 200 | 345 | 420 | 460 |
| 224 | 385 | 475 | 515 |
| 250 | 430 | 505 | 565 |
| 280 | 480 | 585 | 645 |
| 300 | 515 | 600 | 660 |
| 315 | 550 | 620 | 680 |
| 355 | 615 | 705 | 765 |

**HN**
H= MOUNTING DIMENSION

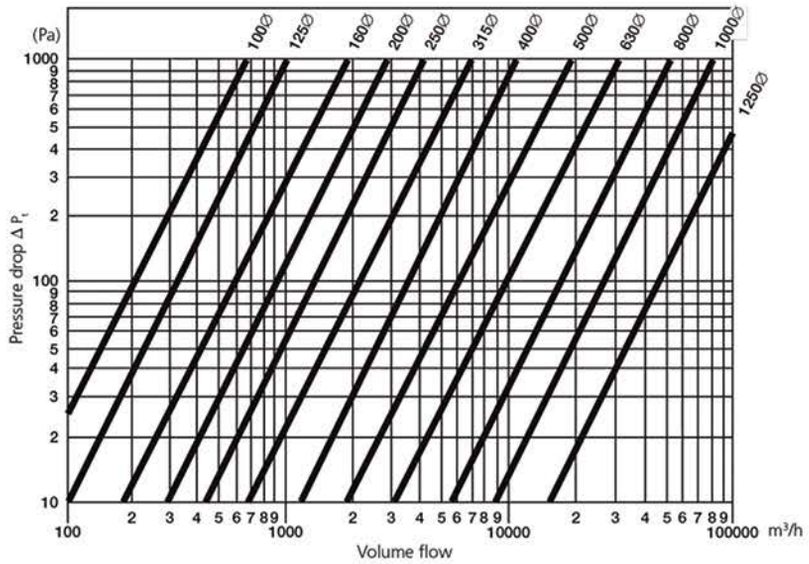
| ⌀$d_1$ | ⌀D | H mm |
|---|---|---|
| 400 | 685 | 905 |
| 450 | 775 | 970 |
| 500 | 855 | 1055 |
| 560 | 955 | 1170 |
| 600 | 1015 | 1255 |
| 630 | 1075 | 1300 |
| 710 | 1215 | 1490 |
| 800 | 1360 | 1630 |
| 900 | 1420 | 1925 |
| 1000 | 1600 | 2125 |
| 1120 | 1820 | 2360 |
| 1250 | 2020 | 2660 |

**HF**

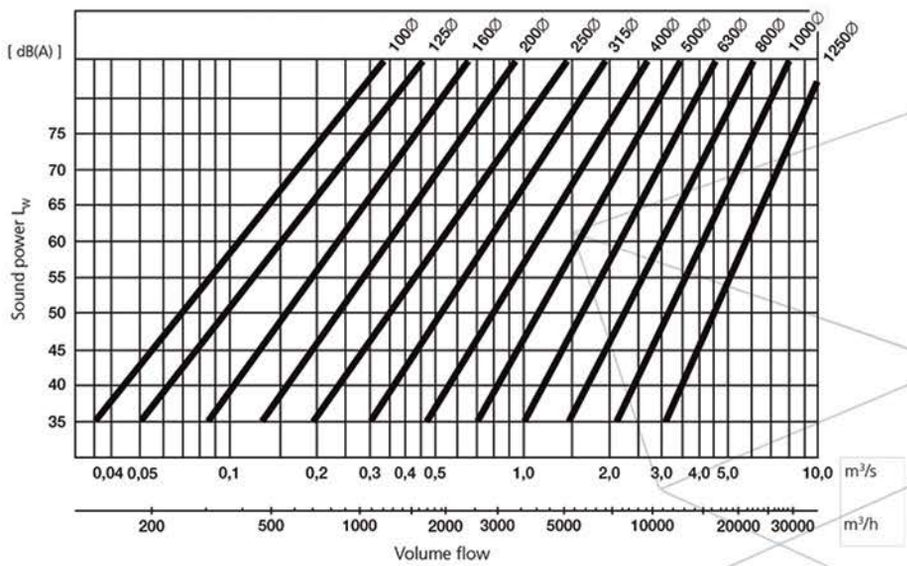
# Jet Caps
## *HN/HF*

## Technical data

**Pressure drop**




**Sound data**



# Ventilation Caps

## *VH*

## Description

VH ventilation caps are designed as fresh air intakes for both industrial and comfort ventilation, but can also be used as discharge caps.

The caps are made of galvanised sheet steel, and are also available to order in other materials such as stainless steel, aluminium and plastic-coated sheet steel in various colours. They are fitted with a net and skirt, ensuring effective protection from rain, leaves etc. The standard design is assembled with a male connector, but the cap can be ordered with flange if desired.

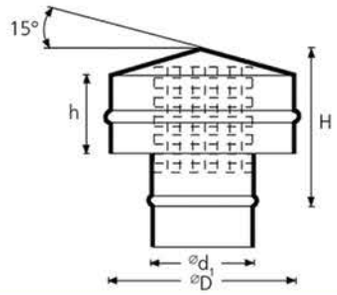
**Ordering**

Product code: VH aaa

Type

$\phi d_1$

## Dimensions



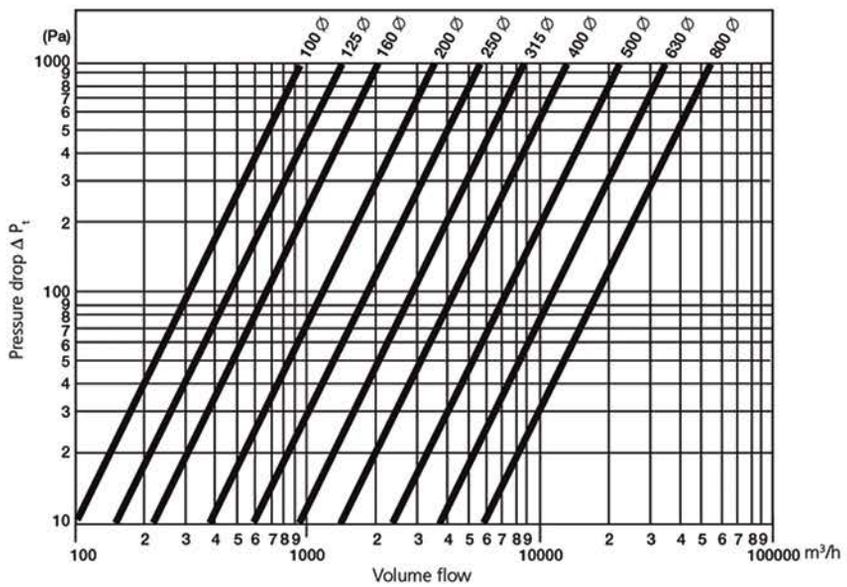

| $\Phi d_1$ | $\Phi D$ | h mm | H mm | Free area net. $m^2$ |
|---|---|---|---|---|
| 80 | 180 | 60 | 133 | 0.015 |
| 100 | 180 | 60 | 133 | 0.017 |
| 125 | 224 | 60 | 139 | 0.021 |
| 140 | 290 | 60 | 148 | 0.024 |
| 150 | 290 | 60 | 148 | 0.025 |
| 160 | 290 | 60 | 148 | 0.027 |
| 180 | 360 | 100 | 197 | 0.051 |
| 200 | 360 | 100 | 197 | 0.057 |
| 224 | 405 | 100 | 208 | 0.063 |
| 250 | 450 | 100 | 228 | 0.071 |
| 280 | 570 | 100 | 244 | 0.079 |
| 300 | 570 | 100 | 244 | 0.085 |
| 315 | 570 | 100 | 244 | 0.089 |
| 355 | 720 | 150 | 337 | 0.151 |
| 400 | 720 | 150 | 337 | 0.170 |
| 450 | 810 | 150 | 349 | 0.191 |
| 500 | 900 | 200 | 411 | 0.283 |
| 560 | 1080 | 200 | 435 | 0.317 |
| 600 | 1080 | 200 | 435 | 0.339 |
| 630 | 1135 | 200 | 442 | 0.356 |
| 710 | 1280 | 200 | 482 | 0.401 |
| 800 | 1440 | 200 | 503 | 0.452 |

# Ventilation Caps

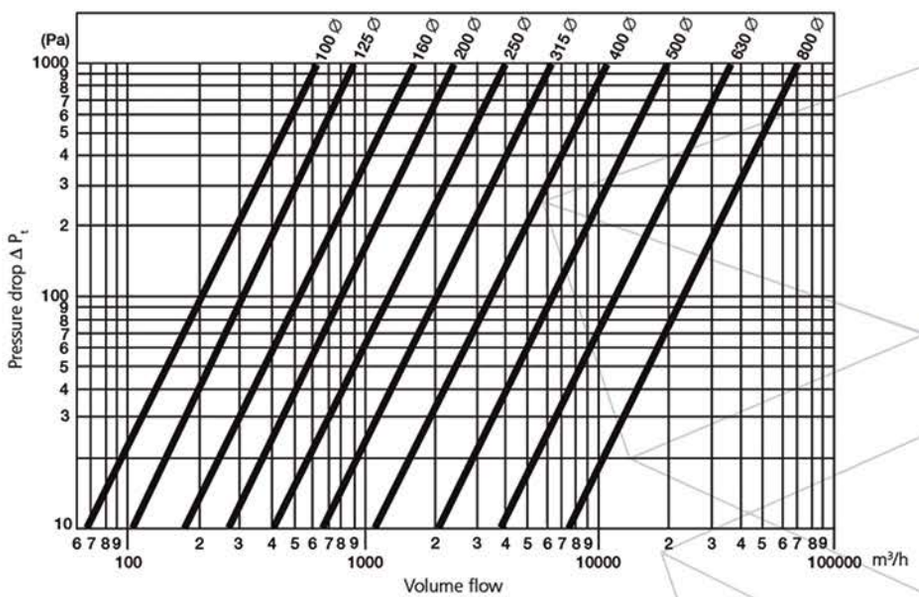
*VH*

## Technical Data

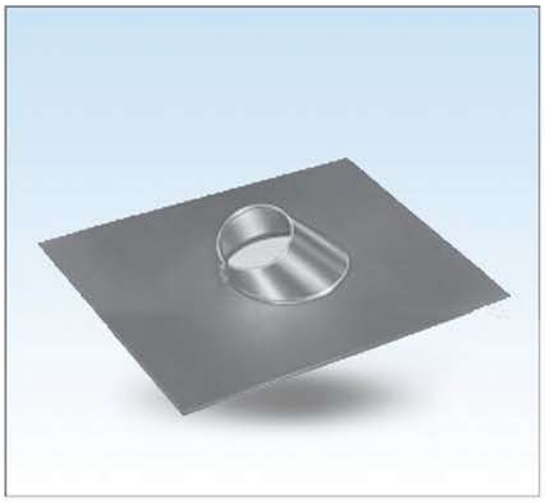
**Discharge**




**Intake**



# Roof Cover
## *VHIN*



## Description

Roof cover type VHIN 0° are made of zinc and have a pipe collar made of aluminium.

Roof cover type VHIN 1-55° are made of lead and have a pipe collar made of aluminium. It is easy to shape the lead to fit the structure of the roof concerned.

Tighten the enclosed collar around the pipe - the joint sealing material will then form a watertight finish around the roofl ead-in.

**Ordering**

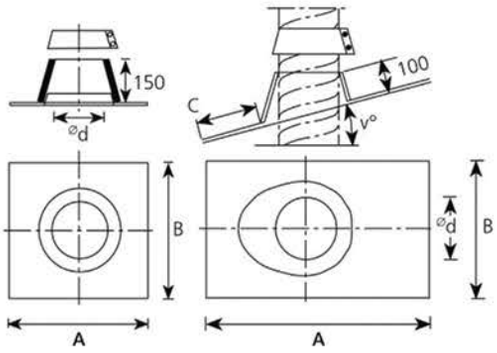
Product code: **VHIN aaa bbb**

Type

⌀d

Angle° (e.g. 1-30°)

## Dimensions




VHIN 0° VHIN 1-30°/31-45°/46-55°

**VHIN 0°**

| ⌀d nom | A mm | B mm |
|---|---|---|
| 80 | 435 | 435 |
| 100 | 435 | 435 |
| 112 | 470 | 470 |
| 125 | 490 | 490 |
| 140 | 505 | 505 |
| 150 | 520 | 520 |
| 160 | 530 | 530 |
| 180 | 550 | 550 |
| 200 | 580 | 580 |
| 224 | 610 | 610 |
| 250 | 670 | 670 |
| 315 | 745 | 745 |
| 355 | 785 | 785 |
| 400 | 830 | 830 |
| 450 | 890 | 890 |
| 500 | 950 | 950 |

# Roof Cover
## *VHIN*

## Technical Data

| ϕd nom | A mm | B mm | C mm |
|---|---|---|---|
| 80 | 710 | 590 | 200 |
| 100 | 710 | 590 | 200 |
| 112 | 710 | 590 | 200 |
| 125 | 710 | 590 | 200 |
| 140 | 800 | 680 | 200 |
| 150 | 800 | 680 | 200 |
| 160 | 800 | 680 | 200 |
| 180 | 800 | 680 | 200 |
| 200 | 940 | 800 | 200 |
| 224 | 940 | 800 | 200 |
| 250 | 940 | 800 | 200 |
| 315 | 1050 | 900 | 200 |
| 355 | 1050 | 900 | 200 |
| 400 | 1150 | 940 | 200 |
| 450 | 1240 | 1010 | 200 |
| 500 | 1320 | 1050 | 200 |

VHIN 46-55°

| ϕd nom | A mm | B mm | C mm |
|---|---|---|---|
| 80 | 710 | 590 | 200 |
| 100 | 710 | 590 | 200 |
| 112 | 710 | 590 | 200 |
| 125 | 710 | 590 | 200 |
| 140 | 800 | 680 | 200 |
| 150 | 800 | 680 | 200 |
| 160 | 800 | 680 | 200 |
| 180 | 800 | 680 | 200 |
| 200 | 940 | 800 | 200 |
| 224 | 940 | 800 | 200 |
| 250 | 940 | 800 | 200 |
| 315 | 1050 | 900 | 200 |
| 355 | 1150 | 940 | 200 |
| 400 | 1240 | 940 | 200 |
| 450 | 1330 | 1010 | 200 |
| 500 | 1530 | 1050 | 200 |

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# Roof Lead - Ins
## *GSLL/GSLGL*

## Description

GSLL and GSLGL lead-ins can be used in connection with roof ventilators when the ventilator noise emitted to the duct system needs attenuation, or the noise emitted to the surrounding environment from a ventilator positioned under a roof needs attenuation. In many cases, the GSLL/GSLGL can replace a silencer.

Roof lead-ins type GSLL and GSLGL are based on silencers type SLL and SLGL respectively, and are fitted with a soldered lead plate so they can be fitted to the roof structure.

The lead-ins incorporate cable holes for electrical connection of the ventilator. The dimensions and mounting attenuation are shown in the tables - other dimensions are available to order.

We recommend attaching GSLL and GSLGL lead-ins to the rafters on mounting (use e.g. rafter fittings type SBG).

Please state the roof pitch when ordering.

### Ordering

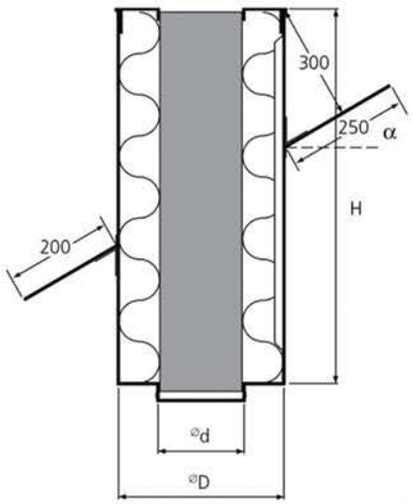
Product code: **GSLL aaa bbb**

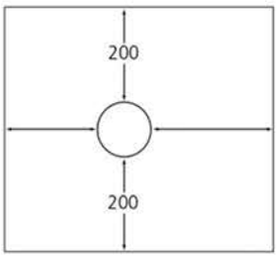
Type

ⱷd

α

## Dimensions




| Roof lead-in GSLL | ⱷd nom. | ⱷD mm | H | Attenuation dB 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz |
|---|---|---|---|---|---|---|---|---|---|
| 125 | 125 | 224 | 900 | 7 | 16 | 28 | 38 | 38 | 35 |
| 160 | 160 | 280 | 900 | 8 | 14 | 23 | 39 | 37 | 25 |
| 200 | 200 | 315 | 900 | 8 | 9 | 20 | 32 | 35 | 23 |
| 250 | 250 | 355 | 1200 | 10 | 13 | 25 | 38 | 29 | 24 |
| 315 | 315 | 500 | 1200 | 9 | 12 | 21 | 36 | 18 | 17 |
| 400 | 400 | 600 | 1200 | 7 | 10 | 14 | 22 | 18 | 13 |

| Roof lead-in GSLL | ⱷd nom. | ⱷD mm | H | Attenuation dB 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz |
|---|---|---|---|---|---|---|---|---|---|
| 125 | 125 | 315 | 900 | 15 | 27 | 38 | 56 | 62 | 39 |
| 160 | 160 | 355 | 900 | 11 | 24 | 35 | 49 | 51 | 27 |
| 200 | 200 | 400 | 900 | 8 | 18 | 28 | 40 | 37 | 23 |
| 250 | 250 | 450 | 1200 | 9 | 22 | 35 | 39 | 33 | 20 |
| 315 | 315 | 500 | 1200 | 7 | 15 | 28 | 35 | 24 | 18 |
| 400 | 400 | 600 | 1200 | 7 | 16 | 22 | 29 | 22 | 15 |

# Roof Lead - Ins
## *GISOL*

## Description

Roof lead-ins type GISOL can be used in connection with roof caps type VHL and VHA when insulation against condensation is required as well as a harmonious transition between roof lead-in and cap.

GISOL lead-ins are based on two spiral-seam pipes with insulation between them, and are fitted with an end cap at one end. The lead plate is soldered to the pipe, and is easy to adapt to fit the roof structure concerned.

We recommend attaching GISOL lead-ins to the rafters (use e.g. rafter fittings type SBG).

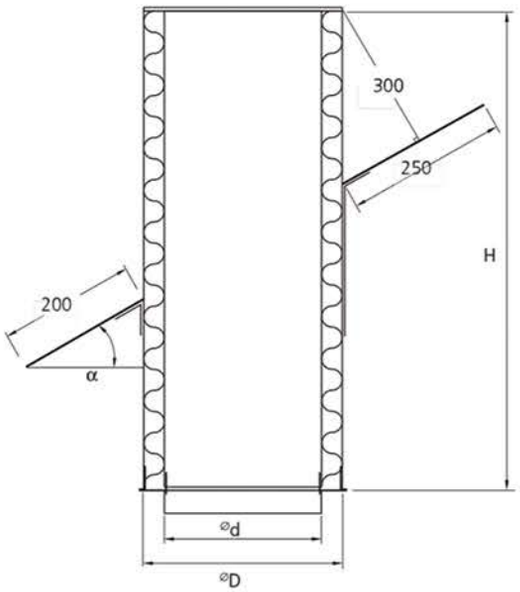
Please state the roof pitch when ordering.

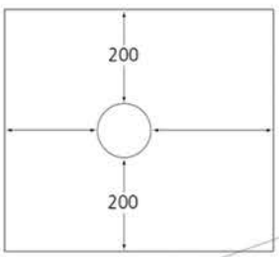
**Ordering**

Product code: **GISOL aaa bbb ccc**

- Type
- ⌀d
- ⌀D
- α

## Dimensions




| Roof Lead-in GISOL | ⌀d nom. mm | ⌀D mm | H mm |
|---|---|---|---|
| 100 - 160 | 100 | 160 | 1000 |
| 125 - 200 | 125 | 200 | 1000 |
| 160 - 250 | 160 | 250 | 1000 |
| 200 - 315 | 200 | 315 | 1000 |
| 250 - 315 | 250 | 315 | 1000 |
| 250 - 355 | 250 | 355 | 1000 |
| 315 - 400 | 315 | 400 | 1000 |
| 315 - 450 | 315 | 450 | 1000 |
| 400 - 500 | 400 | 500 | 1000 |
| 400 - 560 | 400 | 560 | 1000 |

# Roof Lead - Ins

## *TGF*

## Description

TGF lead-ins are made of a pipe with galvanised sheet steel soldered on.

The standard TGF lead-in has a diameter which can accommodate SR pipes. Alternatively, the pipe can be made with NP dimensions (male coupling), with MF dimensions (female coupling), or as a spiral-seam duct.

Please state the roof pitch when ordering.

### Ordering

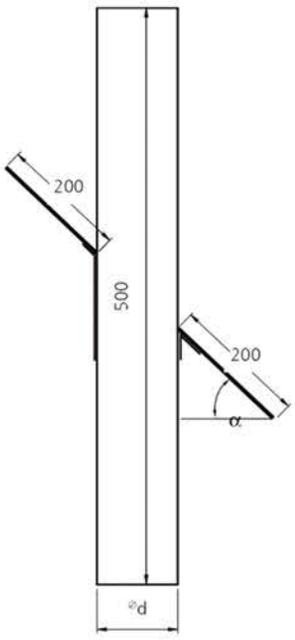
Product code: **TGF aaa bbb**

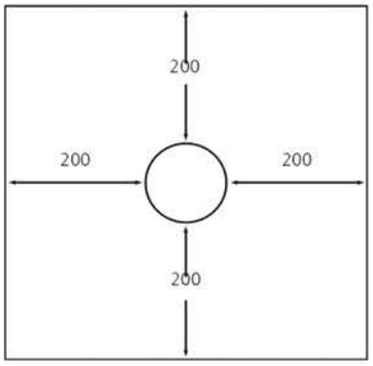
Type

⌀d

α

## Dimensions



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# Inspection Cover
## *IPLR*

## Description

IPLR for mounting on circular ducts.
Template for cutting hole in duct enclosed.

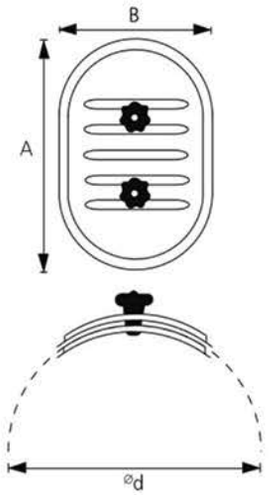
**Ordering**

Product code: **IPLR** **aaa**

Type

⌀d

## Dimensions




| ⌀d | A | | B |
|---|---|---|---|
| 80 | 180 | X | 80 |
| 100 | 180 | X | 80 |
| 112 | 180 | X | 80 |
| 125 | 180 | X | 80 |
| 140 | 200 | X | 100 |
| 150 | 200 | X | 100 |
| 160 | 200 | X | 100 |
| 180 | 200 | X | 100 |
| 200 | 200 | X | 100 |
| 224 | 200 | X | 100 |
| 250 | 200 | X | 100 |
| 280 | 200 | X | 100 |
| 315 | 200 | X | 100 |
| 355 | 300 | X | 200 |
| 400 | 300 | X | 200 |
| 450 | 300 | X | 200 |
| 500 | 300 | X | 200 |
| 560 | 400 | X | 300 |
| 630 | 400 | X | 300 |
| 710 | 400 | X | 300 |
| 800 | 400 | X | 300 |
| 900 | 400 | X | 300 |
| 1000 | 500 | X | 400 |
| 1120 | 500 | X | 400 |
| 1250 | 500 | X | 400 |

# Wall / Ceiling Lead - Ins
## *VLG*

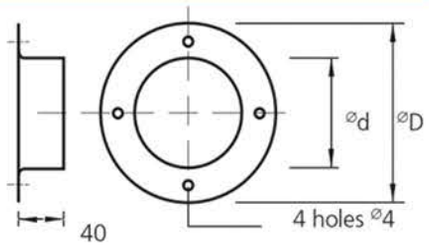
## Description

The purpose of VLG lead-ins is to finish off ventilation ducts passing through walls or ceilings.
Fit outside ducts.

**Ordering**

Product code: **VLG aaa**
Type
⌀d

## Dimensions




| ⌀d nom | Hole dimensions | ⌀D |
|---|---|---|
| 80 | 90 | 145 |
| 100 | 110 | 165 |
| 125 | 135 | 190 |
| 160 | 170 | 225 |
| 180 | 190 | 245 |
| 200 | 210 | 265 |
| 250 | 260 | 315 |
| 315 | 327 | 380 |
| 355 | 367 | 420 |
| 400 | 412 | 465 |
| 500 | 512 | 565 |

# Sealing Clamps
## *MFK*

## Description

The inside of these sealing clamps is fitted with age-resistant EPDM rubber.

Used to seal joints in ducts.

**Ordering**

Product code: **MFK aaa**

Type

ØD

## Dimensions


| ØD nom |
|---|
| 80 |
| 100 |
| 125 |
| 140 |
| 150 |
| 160 |
| 180 |
| 200 |
| 224 |
| 250 |
| 300 |
| 315 |
| 350 |
| 400 |
| 450 |
| 500 |

# Flanges
## *FL*

## Description

Flanges made of galvanised flat steel. Fit both spiral-seam and longitudinal-seam pipes. Available in dimensions ⌀80- 1600 mm. Elongated screw holes for ease of assembly.

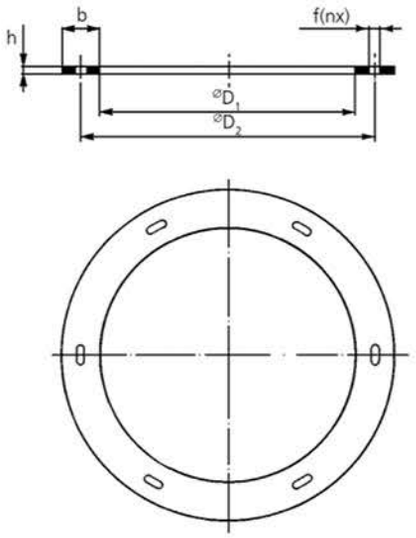
**Ordering**

Product code: **FL aaaa**

Type

$⌀D_1$

## Dimensions



# Flanges

## *FL*

## Dimensions

| ⌀$D_1$ | | | ⌀$D_2$ | f | DIN 601 | | | bxh |
|---|---|---|---|---|---|---|---|---|
| nom | mm | Tol. | mm | mm | n | dim. | x L | mm |
| 80 | 82 | + 1/- 0 | 108 | 7 x 16 | 4 | M6 | 16 | 25 x 3 |
| 100 | 102 | + 1/- 0 | 129 | 7 x 16 | 4 | M6 | 16 | 25 x 3 |
| 125 | 127 | + 1/- 0 | 155 | 7 x 16 | 4 | M6 | 16 | 25 x 3 |
| 140 | 142 | + 1.5/- 0 | 176 | 7 x 316 | 6 | M6 | 20 | 30 x 4 |
| 150 | 152 | + 1.5/- 0 | 184 | 7 x 16 | 6 | M6 | 20 | 30 x 4 |
| 160 | 162 | + 1.5/- 0 | 194 | 7 x 16 | 6 | M6 | 20 | 30 x 4 |
| 180 | 182 | + 1.5/- 0 | 213 | 7 x 16 | 6 | M6 | 20 | 30 x 4 |
| 200 | 203 | + 1.5/- 0 | 235 | 7 x 16 | 6 | M6 | 20 | 30 x 4 |
| 224 | 227 | + 1.5/- 0 | 259 | 7 x 16 | 6 | M6 | 20 | 30 x 4 |
| 250 | 253 | + 1.5/- 0 | 286 | 7 x 16 | 6 | M6 | 20 | 30 x 4 |
| 280 | 283 | + 1.5/- 0 | 322 | 9.5 x 20 | 8 | M8 | 20 | 35 x 5 |
| 300 | 303 | + 1.5/- 0 | 341 | 9.5 x 20 | 8 | M8 | 20 | 35 x 5 |
| 315 | 318 | + 1.5/- 0 | 356 | 9.5 x 20 | 8 | M8 | 20 | 36 x 5 |
| 355 | 358 | + 1.5/- 0 | 395 | 9.5 x 20 | 8 | M8 | 20 | 36 x 5 |
| 400 | 404 | + 1.5/- 0 | 438 | 9.5 x 20 | 12 | M8 | 20 | 35 x 5 |
| 450 | 454 | + 1.5/- 0 | 487 | 9.5 x 20 | 12 | M8 | 20 | 35 x 5 |
| 500 | 504 | + 1.5/- 0 | 541 | 9.5 x 20 | 12 | M8 | 20 | 35 x 5 |
| 560 | 564 | + 2/- 0 | 605 | 11.5 x 24 | 16 | M10 | 20 | 40 x 5 |
| 600 | 604 | + 2/- 0 | 644 | 11.5 x 24 | 16 | M10 | 20 | 40 x 5 |
| 630 | 634 | + 2/- 0 | 674 | 11.5 x 24 | 16 | M10 | 20 | 40 x 5 |
| 650 | 654 | + 2/- 0 | 694 | 11.5 x 24 | 16 | M10 | 20 | 40 x 5 |
| 710 | 714 | + 2/- 0 | 751 | 11.5 x 24 | 16 | M10 | 20 | 40 x 5 |
| 750 | 754 | + 2/- 0 | 791 | 11.5 x 24 | 16 | M10 | 20 | 40 x 5 |
| 800 | 804 | + 2/- 0 | 837 | 11.5 x 24 | 24 | M10 | 20 | 40 x 5 |
| 900 | 904 | + 2/- 0 | 934 | 11.5 x 24 | 24 | M10 | 20 | 40 x 5 |
| 1000 | 1005 | + 2/- 0 | 1043 | 11.5 x 24 | 24 | M10 | 20 | 40 x 5 |
| 1120 | 1125 | + 2/- 0 | 1174 | 11.5 x 24 | 24 | M10 | 25 | 50 x 6 |
| 1250 | 1255 | + 2/- 0 | 1311 | 11.5 x 24 | 24 | M10 | 25 | 50 x 6 |
| 1400 | 1405 | + 2/- 0 | 1465 | 11.5 x 24 | 24 | M10 | 25 | 50 x 6 |
| 1600 | 1605 | + 2/- 0 | 1637 | 11.5 x 24 | 32 | M10 | 25 | 50 x 6 |

# Mounting Brackets
## *UV40/UV25/UVH25/UVVHGM*


## Description

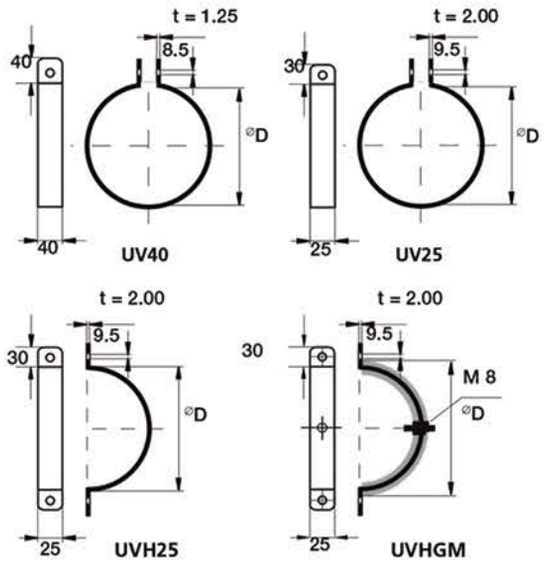
UV mounting brackets are available in various versions.
UV 40 in 40 x 1.25 mm galvanised sheet steel.
UV 25 in 25 x 2 mm galvanised sheet steel.
UVH 25 as two halves in 25 x 2 mm galvanised sheet steel.

UVHGM as 2 halves in 25 x 2 mm galvanised sheet steel. Fitted with anti-vibration rubber and an M 8 thread bush.

**Ordering**

Product code: **UV40 aaa**
Type
⌀D

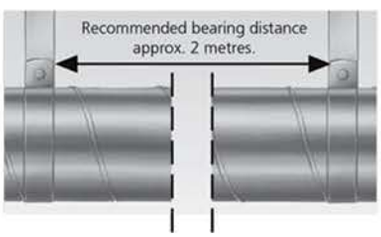
## Dimensions




| ϕD nom |
|---|
| 63 * |
| 80 |
| 100 |
| 112 |
| 125 |
| 140 |
| 150 |
| 160 |
| 180 |
| 200 |
| 224 |
| 250 |
| 280 |
| 300 |

| ϕ nom |
|---|
| 315 |
| 355 |
| 400 |
| 450 |
| 500 |
| 560 |
| 600 |
| 630 |
| 710 |
| 800 |
| 900 |
| 1000 |
| 1120 |
| 1250 |

*) Not as UVH/UVHGM



# Duct Bearings

## *RK*

## Description

Hot-galvanised.

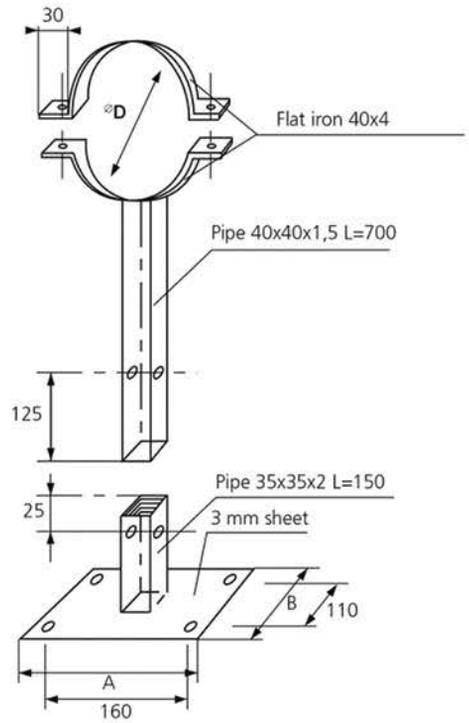
**Ordering**

Product code: **RK** **aaa**

Type

⌀D

## Dimensions




| ϕD mm | A mm | B mm | Holes mm |
|---|---|---|---|
| 250 | 200 | 150 | 10x17 |
| 315 | 200 | 150 | 10x17 |
| 400 | 200 | 150 | 10x17 |
| 500 | 200 | 150 | 10x17 |
| 630 | 200 | 150 | 10x17 |
| 710 | 200 | 150 | 10x17 |
| 800 | 200 | 150 | 10x17 |
| 1000 | 200 | 150 | 10x17 |
| 1250 | 200 | 150 | 10x17 |

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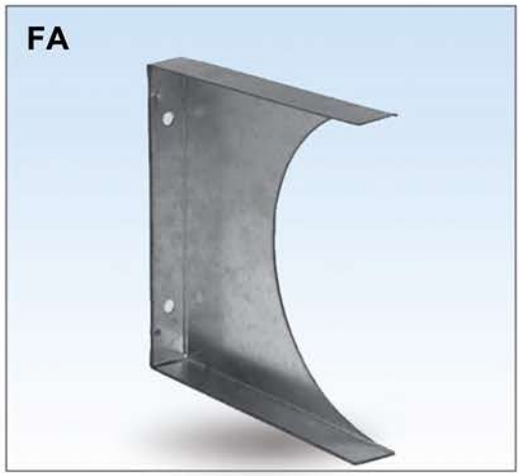
# Duct Supports
## *FA / FAST / FALA*

**FA**



**FAST**
**With strap**

**FALA**
**With lock**

## Description

Duct supports for wall mounting.

The FA can be fitted with a strap (FAST) and snaplock if necessary (FALA), thus preventing self-tapping screws or pop rivets cutting into the pipes.

These mounting brackets are fitted with ⌀7 mm mounting holes.

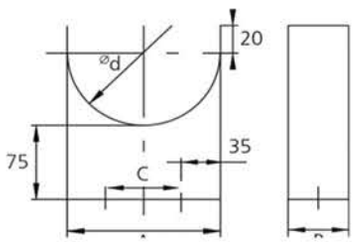
**Ordering**

Product code: **FA aaa**

Type

⌀d

## Dimensions




| Φd nom | A mm | B mm | C mm | No.of holes |
|---|---|---|---|---|
| 63 | 66 | 25 | - | 1 |
| 80 | 83 | 25 | - | 1 |
| 100 | 103 | 25 | 33 | 2 |
| 125 | 128 | 25 | 58 | 2 |
| 150 | 153 | 25 | 83 | 2 |
| 160 | 163 | 25 | 93 | 2 |
| 200 | 203 | 25 | 133 | 2 |
| 250 | 253 | 25 | 183 | 2 |
| 315 | 318 | 25 | 248 | 2 |
| 400 | 403 | 25 | 333 | 2 |
| 500 | 503 | 25 | 433 | 2 |
| 630 | 633 | 25 | 563 | 2 |

# Duct Supports
## *IN*

## Description

Inside mounting bracket for ducts.
Electro-galvanised.
Material 40x4.

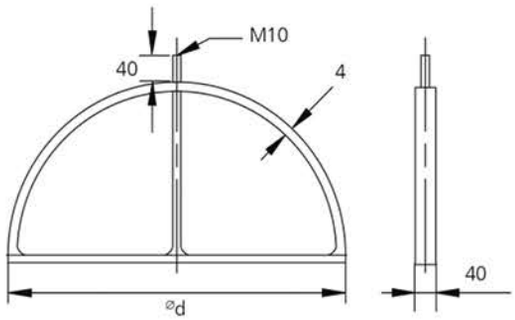
**Ordering**

Product code: **IN aaa**

Type

⌀d

## Dimensions




| Φd |
|---|
| 250 |
| 280 |
| 300 |
| 315 |
| 355 |
| 400 |
| 450 |
| 500 |
| 560 |
| 600 |
| 630 |
| 710 |
| 800 |
| 900 |
| 1000 |
| 1120 |
| 1250 |

# Wall Brackets

## *VK*

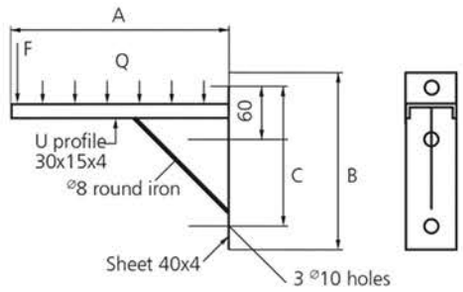
## Description

Brackets for mounting on wall.
Electro-galvanised.

**Ordering**

Product code: **VK** **aaa**
Type
A

## Dimensions




| | A mm | B mm | C mm |
|---|---|---|---|
| VK3 | 300 | 250 | 200 |
| VK4 | 400 | 300 | 250 |
| VK5 | 500 | 350 | 300 |
| VK6 | 600 | 400 | 350 |
| VK8 | 800 | 500 | 450 |
| VK10 | 1000 | 600 | 550 |

F shows max. permitted point load.
Q shows max. permitted spread load.

# Wall Brackets

*K*

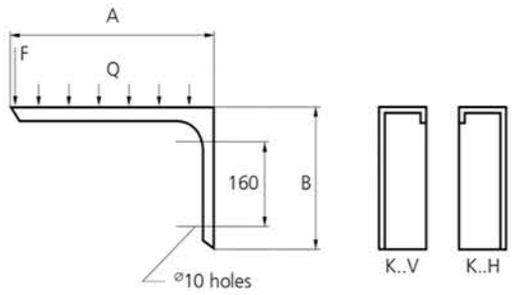
## Description

Brackets for mounting on wall.
Material: 2.0 mm galvanised sheet.

**Ordering**

Product code: K 3 H
Type
Dim.
Mounting

## Dimensions

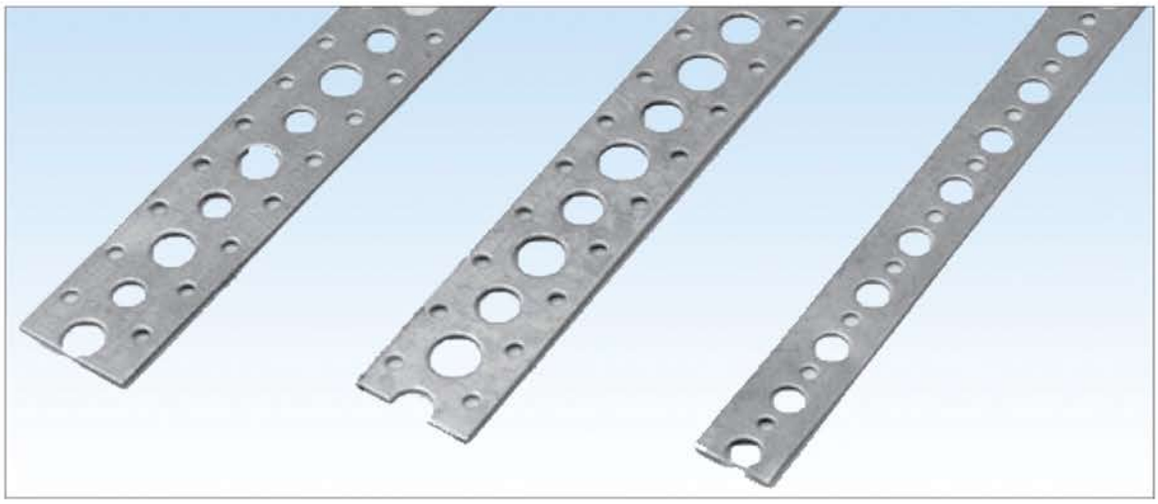



| | A mm | B mm | No. of holes |
|---|---|---|---|
| K3 | 300 | 200 | 2 |
| K4 | 400 | 200 | 2 |
| K5 | 500 | 200 | 2 |
| K6 | 600 | 200 | 2 |
| K8 | 800 | 350 | 3 |
| K10 | 1000 | 350 | 3 |

F shows max. permitted point load.
Q shows max. permitted spread load.

KH = Right
KV = Left

# Fitting Bands
## *FB40/FB50/FB1*



## Description

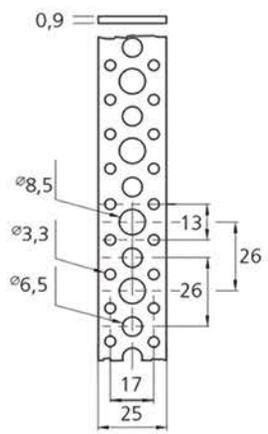
FB 1 supplied in rolls of 10 or 25 m.
FB 40 supplied in rolls of 25 m.
FB 50 supplied in rolls of 25 m.

**Ordering**

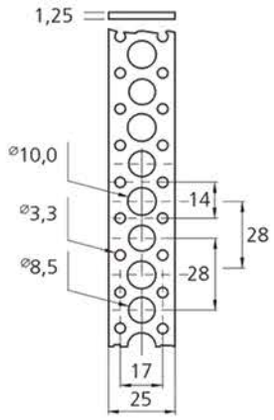
Product code: **FB50 aaa**
Type
L (10/25)

## Dimensions

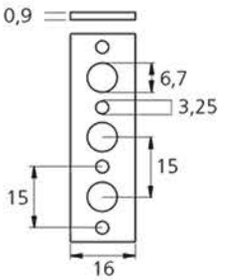
**FB 40**




**FB 50**

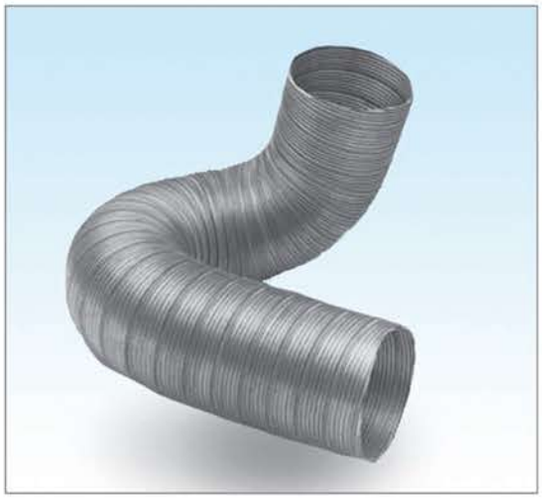



**FB 1**

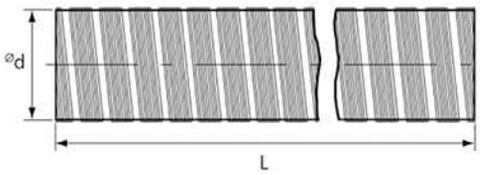


# Flexible Hoses

## *SRFC-2*



## Dimensions




## Description

Flexible hose made of 2 x 0.07 mm aluminium sheet, standard length 5 m, compressed to approx. 1.20 m, manufactured in dimensions from ⌀63 to ⌀315 mm, withstands temperatures up to 200°C.

**Accessories**

**TKS**
Hose clamp with fixed lock.
Max ⌀540 mm.

**TKSE**
Endless clip in rolls of 5 or 30 metres.

**TKSL**
Locks for endless clip type TKSE.
In boxes of 50.

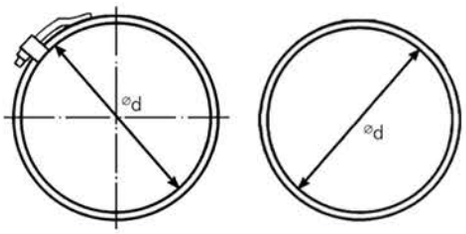
**Ordering**

Product code: **SRFC-2 aaa bbb**

Type
⌀d
L

# Clips/ Flanges
## *FLM/FLKM*

## Dimensions



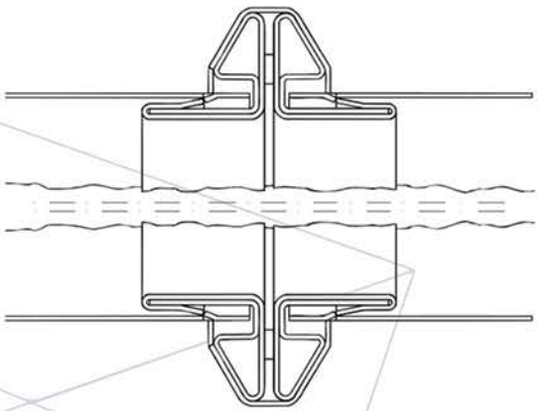

FLKM FLM

Dimensions: ⌀d 560 - 900

## Description

FLM flanges are mounted direct in pipes and can be locked using special tongs.

Place FLKM clips around the flanges and tighten.



**Ordering**

Product code: **FLM aaa**

Type

⌀d

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# 9 Terms & Specification

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# Contents

# Galvanized Sheet Thickness Tolerances

| Gauge | Thickness in Inches | | | Weight | | | | Thickness in Millimeter | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min. | Max. | Nom. | Min. lb/sf | Nom. lb/sf | Max. lb/sf | Nom. kg/m2 | Nom. | Min. | Max. |
| 33 | .0060 | .0120 | .0090 | .2409 | .376 | .486 | | .1524 | .3048 | .2286 |
| 32 | .0104 | .0164 | .0134 | .4204 | .563 | .665 | | .2642 | .4166 | .3404 |
| 31 | .0112 | .0172 | .0142 | .4531 | .594 | .698 | | .2845 | .4369 | .3607 |
| 30 | .0127 | .0187 | .0157 | .5143 | .656 | .759 | 3.20 | .3188 | .4783 | .3988 |
| 29 | .0142 | .020 | .0172 | .5755 | .719 | .820 | | .3569 | .5169 | .4369 |
| 28 | .0157 | .0217 | .0187 | .6367 | .781 | .881 | 3.81 | .3950 | .5550 | .4750 |
| 27 | .0172 | .032 | .0202 | .6979 | .844 | .943 | | .4331 | .5931 | .5131 |
| 26 | .0187 | .0247 | .0217 | .7591 | .906 | 1.004 | 4.42 | .4712 | .6312 | .5512 |
| 25 | .0217 | .0287 | .0247 | .8407 | | 1.167 | | .5274 | .7274 | .6274 |
| 24 | .0236 | .0316 | .0276 | .9590 | 1.156 | 1.285 | 5.64 | .6010 | .8010 | .7010 |
| 23 | .0266 | .0346 | .0306 | 1.0814 | | 1.408 | | .6772 | .8772 | .7772 |
| 22 | .0296 | .0376 | .0336 | 1.2038 | 1.406 | 1.530 | 6.86 | .7534 | .9534 | .8534 |
| 21 | .0326 | .0406 | .0366 | 1.3263 | | 1.653 | | .8296 | 1.0296 | .9296 |
| 20 | .0356 | .0436 | .0396 | 1.4486 | 1.656 | 1.775 | 8.08 | .906 | 1.106 | 1.006 |
| 19 | .0406 | .0506 | .0456 | 1.6526 | | 2.061 | | 1.028 | 1.288 | 1.158 |
| 18 | .0466 | .0566 | .0516 | 1.8974 | 2.156 | 2.305 | 10.52 | 1.1-81 | 1.441 | 1.311 |
| 17 | .0525 | .0625 | .0575 | 2.1381 | | 2.546 | | 1.331 | 1.591 | 1.461 |
| 16 | .0575 | .0695 | .0635 | 2.342 | 2.656 | 2.832 | 12.96 | 1.463 | 1.763 | 1.613 |
| 15 | .0650 | .0770 | .0710 | 2.6481 | | 3.138 | | 1.653 | 1.953 | 1.803 |
| 14 | .0705 | .0865 | .0785 | 2.8725 | 3.281 | 3.525 | 16.01 | 1.784 | 2.204 | 1.994 |
| 13 | .0854 | .1014 | .0934 | 3.4804 | | 4.133 | | 2.162 | 2.5823 | 2.372 |
| 12 | .0994 | .1174 | .1084 | 4.0516 | 4.531 | 4.786 | 22.11 | 2.523 | 2.983 | 2.753 |
| 11 | .1143 | .1323 | .1233 | 4.6505 | | 5.394 | | 2.902 | 3.362 | 3.132 |
| 10 | .1292 | .1472 | .1382 | 5.2675 | 5.781 | 6.002 | 28.21 | 3.280 | 3.740 | 3.510 |
| 9 | .1442 | .1622 | .1532 | 5.8795 | | 6.614 | | 3.661 | 4.121 | 3.891 |
| 8 | .1591 | .1771 | .1681 | 6.4874 | 6.875 | 7.222 | | 4.040 | 4.500 | 4.270 |

NOTES:

1. Based on ASTM A924 924M-94 Standard Specification for general Requirements for Sheet Steel Metallic Coated by the Hot-Dip Process (formerly ASTM A525); and ASTM A653/A-94 Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-iron alloy Coated Zinc-iron alloy Coated (Galvanized)by the Hot-Dip Process.
2. Tolerances are valid for 48" for 60" wide coil and cut length stock- other dimensions apply to other sheet widths and to strip.
3. The lock forming grade of steel will conform to ASTM A 653 (formerly ASTM A 527).
4. The Steel producing industry recommends that steel be ordered by decimal thickness only. Thickness and zinc coating class can be stenciled on the sheet. The gage designation is retained for residual familiarity reference only.
5. Minimum weight in this table is based on the following computation:
   Minimum sheet thickness minus 0.001" of G60 coating times 40.8 lb per s.f. per inch plus 0.0369 lb/sf zinc.
   G60 stock would be comparably calculated from:
   (t.00153") 40.8 + 0.0564 = minimum weight.
   However, scale weight may run 2% (or more) greater than theoretical weight. Actual weight may be near 40.82 lb per s.t. per inch.
6. G60 coating . per ASTM A653 and ASTM A90, has 0.60 oz/sf (triple spot test) total for two sides. 0.59 oz/sf of zinc equals 0.001". 1 oz is 0.0017" and is 305.15 g/$m^2$
   G90 coating is 0.90 oz/sf (triple spot test), or 0.00153" . Magnetic gage measurement of zinc coating may have 15% error.
7. ASTM A2092, Practices for Preparation of Zinc-Coated Galvanized Steel Surfaces for paint, includes mill phosphatizing.
8. ASTM A755 is the Specification for Sheet Steel, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process
   for Exterior Building Products. Other information is available from the National Coil Coaters Association, Philadelphia, PA.
9. Much chemical and atmospheric corrosion information is available from ASM International in Metals Park, Ohio and from NACE International in Houston, TX.
10. A principle international standard is ISO 3575, Continuous Hot-Dip Process, Zinc-Coated Carbon steel Sheet of Commercial, Lock Forming and Drawing Qualities.

# Aluminum Sheet Thickness-Alloy 3003-H14

| Thickness in Inches | | | | Weight | | Thickness in Millimeters | | |
|---|---|---|---|---|---|---|---|---|
| Nom. | Tolerance 48" & (60") Width | Min. | Max. | lb/ft$^2$ | Kg/m$^2$ | Nom. | Min. | Max. |
| .016 | .0015 | .0145 | .0175 | .228 | 1.114 | .4068 | .3683 | .4445 |
| .020 | .002 (.003) | .018 | .022 | .285 | 1.393 | .508 | .4572 | .5588 |
| .024 | .002 (.003) | .022 | .026 | .342 | 1.671 | .6096 | .5588 | .6604 |
| .025 | .002 (.003) | .023 | .027 | .358 | 1.7398 | .635 | .5842 | .6858 |
| .032 | .0025 (.0035) | .0295 | .0345 | .456 | 2.228 | .8128 | .7493 | .8763 |
| .040 | .0035 (.0045) | .0365 | .0435 | .570 | 2.786 | 1.016 | .9271 | 1.1049 |
| .050 | .0035 (.005) | .0465 | .0535 | .713 | 3.484 | 1.27 | 1.1811 | 1.3589 |
| .063 | .0035 (.005) | .0595 | .0665 | .898 | 4.389 | 1.600 | 1.5113 | 1.6891 |
| .080 | .0045 (.006) | .0755 | .0845 | .140 | 5.571 | 2.032 | 1.9117 | 2.1463 |
| .090 | .0045 (.006) | .0855 | .0945 | 1.283 | 6.270 | 2.286 | 2.1717 | 2.4003 |
| .100 | .0055 (.007) | .0945 | .1055 | 1.426 | 6.969 | 2.54 | 2.4003 | 2.6797 |
| .125 | .0055 (.007) | .1195 | .1305 | 1.782 | 8.709 | 3.175 | 3.0353 | 3.3147 |

Weight is based on 14.256 lb per square foot per inch of thickness (or 17.1 lb/cf). Alloy 1100 is of slightly lower density.

Specification references: ASTM B209 Standard Specification of Aluminum Alloy Sheet and Plate which references ANSI *Standard H35.2 Dimensional Tolerances for Aluminum mill Products.*

Other useful references are published by the Aluminum Association: *Specification for Aluminum Structures; Engineering Data for Aluminum Structures; Aluminum Standards and Data.*

# Stainless Steel Thickness

| | Thickness in Inches | | | | Weight | | | | Thickness in Millimeter | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | lb/sf | | Kg/m² | | | | |
| Gage | Min. | Max. | Tolerance | Nom. | 300 | 400 | 300 | 400 | Nom. | Min. | Max. |
| 31 | .0089 | .0129 | .002 | .0109 | .459 | .451 | 2.239 | 2.200 | .2769 | .2269 | .3269 |
| 30 | .0105 | .0145 | .002 | .0125 | .525 | .515 | 2.562 | 2.512 | .3175 | .2675 | .3675 |
| 29 | .0121 | .0161 | .002 | .0141 | .591 | .579 | 2.883 | 2.825 | .3581 | .3081 | .4081 |
| 28 | .0136 | .0176 | .002 | .0156 | .656 | .644 | 3.200 | 3.142 | .3962 | .3462 | .4462 |
| 27 | .0142 | .0202 | .003 | .0172 | .722 | .708 | 3.522 | 3.454 | .4369 | .3569 | .5169 |
| 26 | .0158 | .0218 | .003 | .0188 | .788 | .773 | 3.844 | 3.771 | .4775 | .3975 | .5575 |
| 25 | .0189 | .0249 | .003 | .0219 | .919 | .901 | 4.483 | 4.395 | .5562 | .4762 | .6362 |
| 24 | .0220 | .0280 | .003 | .0250 | 1.050 | 1.030 | 5.122 | 5.025 | .6350 | .5550 | .7150 |
| 23 | .0241 | .0321 | .004 | .0281 | 1.181 | 1.159 | 5.761 | 5.654 | .7137 | .6137 | .8137 |
| 22 | .0273 | .0353 | .004 | .0313 | 1.313 | 1.288 | 6.405 | 6.283 | .7950 | .6950 | .8950 |
| 21 | .0304 | .0384 | .004 | .0344 | 1.444 | 1.416 | 7.044 | 6.908 | .8738 | .7738 | .9138 |
| 20 | .0335 | .0415 | .004 | .0375 | 1.575 | 1.545 | 7.683 | 7.537 | .9525 | .8525 | 1.0525 |
| 19 | .0388 | .0488 | .005 | .0438 | 1.838 | 1.803 | 8.966 | 8.796 | 1.1125 | .9835 | 1.2425 |
| 18 | .0450 | .0550 | .005 | .0500 | 2.100 | 2.060 | 10.245 | 10.050 | 1.2700 | 1.1400 | 1.4000 |
| 17 | .0513 | .0613 | .005 | .0563 | 2.363 | 2.318 | 11.528 | 11.308 | 1.4300 | 1.300 | 1.5600 |
| 16 | .0565 | .0685 | .006 | .0625 | 2.625 | 2.575 | 12.806 | 12.562 | 1.5875 | 1.4375 | 1.7375 |
| 15 | .0643 | .0763 | .006 | .0703 | 2.953 | 2.897 | 14.406 | 14.133 | 1.2856 | 1.6356 | 1.9356 |
| 14 | .0711 | .0851 | .007 | .0781 | 3.281 | 3.219 | 16.006 | 15.704 | 1.9837 | 1.8037 | 2.1637 |
| 13 | .0858 | .1018 | .008 | .0938 | 3.938 | 3.863 | 19.211 | 18.845 | 2.3825 | 2.1825 | 2.5825 |
| 12 | .1000 | .1184 | .009 | .1094 | 4.594 | 4.506 | 22.411 | 21.982 | 2.7788 | 2.5488 | 2.9788 |
| 11 | .1150 | .1350 | .010 | .1250 | 5.250 | 5.150 | 25.612 | 25.124 | 3.1750 | 2.9250 | 3.4250 |
| 10 | .1286 | .1526 | .012 | .1406 | 5.906 | 5.794 | 28.812 | 28.265 | 3.5712 | 3.2712 | 3.8712 |
| 9 | .1423 | .1703 | .014 | .1563 | 6.563 | 6.438 | 32.017 | 31.407 | 3.9700 | 3.6100 | 4.3300 |
| 8 | .1579 | .1859 | .014 | .1719 | 7.219 | 7.081 | 35.217 | 34.544 | 4.3663 | 4.0063 | 4.7263 |

ASTM-A167 - "Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip"(Properties of the 300 series)
ASTM-A480 - "Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet and Strip"

Finishes:

No. 1 Finish - Hot-rolled, annealed, and descaled.
No. 2 D Finish - cold-rolled, dull finish.
No. 3 B Finish - Cold-rolled, bright finish.
Bright Annealed Finish - A bright cold-rolled finish retained by annealing in a controlled atmosphere furnace.
No. 3 Finish - Intermediate polished finish, one or both sides.
No. 4 Finish - General Purpose polished finish, one or both sides.
No. 6 Finish - Dull stain finish, Tampico brushed, one or both sides.
No. 7 Finish - High luster finish.
No. 8 Finish - Mirror finish.

The 300 series weight is based on 41.99 lb per square foot per inch of thickness (or 504 lb/cf).

The 400 series weight is based on 41.20 lb per square foot per inch of thickness (or 494 lb/cf).

ASTM -A666 covers the structural grade of stainless steel (not used for ducts). For design criteria, generally, consult the *AISI Stainless Steel Cold-Formed Structural Design Manual* For general application and corrosion data consult the AISI *Design Guidelines for* the Selection and Use of Stainless Steels and the Specialty Steel Industry of the United States in Washington, D.C.

# Designation : A 653/A 653M-97

## Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galannealed) by the Hot-Dip Process

This standard is issued under the fixed designation A 653/A 653M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (e) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification covers steel sheet, zinc-coated (galvanized) or zinc-iron alloy-coated (galvannealed) by the hot-dip process in coils and cut lengths.

1.2 The product is produced in various zinc or zinc-iron alloycoating weights [masses] or coating designations as shown in Table 1.

1.3 Product furnished under this specification shall conform to the applicable requirements of the latest issue of Specification A 924/A 924M, unless otherwise provided herein.

1.4 The product is produced in a number of designations, types, grades and classes pertaining to chemical composition and typical mechanical properties of the steel sheet which are designed to be compatible with differing application requirements.

1.5 This specification is applicable to orders in either inchpound units (as A 653) or SI units (as A 653M). Values in inchpound and SI units are not necessarily equivalent. Within the text , SI units are shown in brackets. Each system shall be used independently of the other.

1.6 Unless the order specifies the "M" designation (SI units), the product shall be furnished to inch-pound units.

### 2. Referenced Documents

2.1 ASTM Standards:
A 90/A 90M /Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy coatings[2]
A 568/A 568M Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for[3]
A 902 Terminology Relating to Metallic Coated Steel Products[2]
A924/A924M Specification for General Requirements for Steel Sheet, Metallic-coated by the Hot-Dip Process[2]
D 2092 Guide for Treatment of Zinc-Coated (Galvaniz ed) Steel Surfaces for Printing[4]
E 517 Test Method for Plastic Strain Ratio r for Sheet Metal[5]
E 646 Test Method for Tensile Strain-Hardening Expo-nents (n values) of Metallic Sheet Materials[5]
*2.2 ISO Standard:*
ISO 3575 Continuous Hot-Dip Zinc-Coated Carbon Steel Sheet of Commercial, Lock-Forming, and Drawing Qualities[6]

### 3. Terminology

3.1 *Definitions-See* Terminology A 902 for definitions of general terminology relating to metallic-coated hot-dip products.
3.2 *Descriptions of Terms Specific to This Standard:*
3.2.1 differentially coated, n-galvanized steel sheet having a specified "coating designation" on one surface and a significantly lighter specified "coating designation" on the other surface.
3.2.1.1 Discussion-The single side relationship of either specified "coating designation" is the same as shown in the note of Table 1 regarding uniformity of coating.
3.2.2 high strength-low alloy steel, Type A sheet, n-steel sheet intended for applications where mechanical properties are specified and where improved formability is required compared ti structural steel.
3.2.2.1 Discussion-Suppliers may use one or a combination of microalloying elements as strengthening agents.
3.2.3 high strength-low alloy steel, Type B sheet, n-steel sheet intended for applications where mechanical properties are specified and where improved formability is required compared to high strength-low alloy steel, Type A.
3.2.3.1 Discussion-Suppliers may use one or a combination of microalloying elements as strengthening agents and may also treat the steel with additional small alloy additions to effect sulfide inclusion control.
3.2.4 minimized spangle, n-the crystal structure produced on galvanized sheet by treating the regular coated sheet during solidification of the zinc to restrict normal spangle formation.
3.2.4.1 Discussion-Minimized spangle coating usually has a dull appearance that may be somewhat nonuniform, and dissimilarity from coil to coil is not unusual. Minimized spangle is normally produced in coating designations G90 [Z275] and lighter.
3.2.5 regular spangle, n-the unaltered, large, multifaceted crystal structure that occurs during normal solidification of a hot-dip zinc coating on steel sheet.
3.2.6 zinc-iron alloy, n-a coating produced on galvanized sheet by processing the steel through the galvanizing line to produce a completely alloyed coating.
3.2.6.1 Discussion-Zinc-iron alloy coating is not spangled, is normally dull grey in appearance, and is suitable for immediate painting without further treatment except normal cleaning (refer to Guide D2092). The lack of ductility of the

[1]This specification is under the jurisdiction of ASTM Committee A-5 on Metallic Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.11 on Sheet Specifications.
Current edition approved Oct. 10, 1996 and April 10, 1997. Published December 1997. Originally published as A 653/A 653M - 94. Last previous edition A 653/A 653M - 96.
[2]Annual Book of ASTM Standards, Vol 01.06.
[3]Annual Book of ASTM Standards, Vol 01.03.
[4]Annual Book of ASTM Standards, Vol 06.02.
[5]Annual Book of ASTM Standards, Vol 03.01.
[6]Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

# Designation : A 653/A 653M-97

Table 1 Weight [Mass] of Coating Requirements A,B,C

NOTE-The coating thickness may be estimated from the coating weight [mass] by using the information provided in 8.1.3.

| | | Minimum Requirement[D] | | |
|---|---|---|---|---|
| | | Triple-Spot Test | Single-Spot Test | |
| **Inch-Pound Units** | | | | |
| Type Coating Designation | Total Both Sides, oz/ft [2] | | One Side | Total Both Sides, oz/ft [2] |
| Zinc | G360 | 3.60 | 1.28 | 3.20 |
| | G300 | 3.00 | 1.04 | 2.60 |
| | G235 | 2.35 | 0.80 | 2.00 |
| | G210 | 2.10 | 0.72 | 1.80 |
| | G185 | 1.85 | 0.64 | 1.60 |
| | G165 | 1.65 | 0.56 | 1.40 |
| | G140 | 1.40 | 0.48 | 1.20 |
| | G115 | 1.15 | 0.40 | 1.00 |
| | G90 | 0.90 | 0.32 | 0.80 |
| | G60 | 0.60 | 0.20 | 0.50 |
| | G40 | 0.40 | 0.12 | 0.30 |
| | G30 | 0.30 | 0.10 | 0.25 |
| | G01 | no minimum | no minimum | no minimum |
| Zinc-iron alloy | A60 | 0.60 | 0.20 | 0.50 |
| | A40 | 0.40 | 0.12 | 0.30 |
| | A25 | 0.25 | 0.08 | 0.20 |
| | A01 | no minimum | no minimum | no minimum |
| **SI Units** | | | | |
| Type Coating Designation | Total Both Sides, g/m [2] | | One Side | Total Both Sides, g/m² |
| Zinc | Z1100 | 1100 | 390 | 975 |
| | Z900 | 900 | 316 | 790 |
| | Z700 | 700 | 238 | 595 |
| | Z600 | 600 | 204 | 510 |
| | Z450 | 450 | 154 | 385 |
| | Z350 | 350 | 120 | 300 |
| | Z275 | 275 | 94 | 235 |
| | Z180 | 180 | 60 | 150 |
| | Z120 | 120 | 36 | 90 |
| | Z001 | no minimum | no minimum | no minimum |
| Zinc-iron alloy | ZF180 | 180 | 60 | 150 |
| | ZF120 | 120 | 36 | 90 |
| | ZF75 | 75 | 24 | 60 |
| | ZF001 | no minimum | no minimum | no minimum |

[A] The coating designation number is the term by which this product is specified. Because of the many variables and changing conditions that are characteristics of continuous hot-dip coating lines, the zinc or zinc-iron alloy coating is not always evenly divided between the two surfaces of a coated sheet; nor is it always evenly distributed from edge to edge. However, the minimum triple-spot average coating weight (mass) on any one side shall not be less than 40% of the single-spot requirement.

[B] As it is an established fact that the atmospheric corrosion resistance of zinc or zinc-iron alloy-coated sheet products is a direct function of coating thickness (weight (mass)), the selection of thinner (lighter) coating designations will result in almost linearly reduced corrosion performance of the coating. For example, heavier galvanized coatings perform adequately in bold atmospheric exposure whereas the lighter coatings are often further coated with paint or a similar barrier coating for increased corrosion resistance. Because of this relationship, products carrying the statement "meets ASTM A 653/A 653M requirements" should also specify the particular coating designation.

[C] International Standard, ISO 3575, continuous hot-dip zinc-coated carbon steel sheet commercial, lockforming, and drawing qualities contains Z100 and Z200 designations and does not specify a ZF75 coating.

[D] No minimum means that there are no established minimum requirements for triple- and single-spot tests.

alloy coating may result in powdering of the coating during fabrication. The zinc-iron coating ductility improves as the specified coating thickness is decreased. By the proper selection of a total coating system which includes the zinc-iron coating thickness, the pretreatment, organic primer, and organic topcoat detachment of the organic or metallic coatings, or both, can be avoided in subsequent forming operations. The user should discuss each potential application of prepainted zinc-iron alloy product with the supplier. Zinc-iron alloy coated sheet can be supplied in the four coating designations in Table 1 prefixed by the letter "A" ["ZF"].

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**Table 2(a) Chemical Requirements**

Composition, %-Heat Analysis Element, max (unless otherwise shown)

| Designation | Carbon | Manganese | Phosphorus | Sulfur | Aluminum, min [F] | Comments |
|---|---|---|---|---|---|---|
| CS Type A[A,C] | 0.10 | 0.60 | 0.030 | 0.035 | . . . | . . . |
| CS Type B[A,B,C] | 0.02 to 0.15 | 0.60 | 0.030 | 0.035 | . . . | . . . |
| CS Type C[A,C] | 0.08 | 0.60 | 0.100 | 0.035 | . . . | . . . |
| FS Type A[C,G] | 0.10 | 0.50 | 0.020 | 0.035 | . . . | . . . |
| FS Type B[C,G] | 0.02 to 0.10 | 0.50 | 0.020 | 0.030 | . . . | . . . |
| DDS[D] | 0.06 | 0.50 | 0.020 | 0.025 | 0.01 | . . . |
| EDDS[E] | 0.02 | 0.40 | 0.020 | 0.020 | 0.01 | . . . |

[A] For CS Designation, specify Type B to avoid carbon levels below 0.02 %.
[B] CS Type A describes the typical commercial quality product previously included in this specification.
[C] When a deoxidized steel is required for the application, CS and FS may be ordered to a minimum of 0.01 % total aluminum.
[D] May be furnished as a stabilized steel at producer's option.
[E] Shall be furnished as a stabilized steel.
[F] When an ellipsis (. . .) appears in this table, there is no requirement, but the analysis shall be reported.
[G] Shall not be furnished as a stabilized steel.

## 4. Classification

4.1 The material is available in several designations as follo
ws:
4.1.1 Commercial Steel (CS Types A,B, and C),
4.1.2 Forming Steel (FS Types A and B),
4.1.3 Deep Drawing Steel (DDS),
4.1.4 Extra Deep Drawing Steel (EDDS),
4.1.5 Structural Steel (SS),
4.1**Table 2**.6 High Strength-Low Alloy Steel (HSLAS Type A), and
4.1.7 High Strength-Low Alloys Steel (HSLAS Type B).
4.2 Structural steel and high strength-low alloys steel are available in several grades based on mechanical properties. Structural Steel Grade 50 [340] is available in three classes based on tensile strength.
4.3 The material is available as either zinc-coated or zinc-iron alloy-coated in several coating weights [masses] or coating designations as shown in Table 1, and
4.3.1 The material is available with the same or different coating designations on each surface.

## 5. Ordering Information

5.1 Zinc-coated or zinc-iron alloy-coated sheet in coils and cut lengths is produced to thickness requirements expr
essed to 0.001 in. [0.
01 mm]. The thickness of the sheet includes both the base metal and the coating.
5.2.1 Name of product (steel sheet, zinc-coated (galvanized) or zinc-iron alloy-coated (galvannealed)),
5.2.2 Designation of sheet [CS (Types A, B, and C), FS (Types A and B) DDS, EDDS, SS, or HSLAS (Types A and B)].
5.2.2.1 When a CS type is not specified, Type A will be furnished. When a FS type is not specified, FS Type B will be furnished.
5.2.3 When a SS or HSLAS designation is specified, state the type, grade, or class, or combination thereof.
5.2.4 ASTM designation number and year of issue, as A 653 for
5.2.7 Oiled or not oiled,
5.2.8 Minimized spangle (if required),
5.2.9 Extra smooth (if required),
5.2.10 Phosphatized (if required),
5.2.11 Dimensions (show thickness, minimum or nominal, width, flatness requirements and length, if cut lengths). The purchaser shall specify the appropriate table of thickness tolerances in Specification A 924/A 924M that applies to the order, that is, the table of thickness tolerances for 3/8-in. [10-mm] edge distance, or the table of thickness tolerances for 1-in. [25-mm] edge distance.
5.2.12 Coil size requirements (specify maximum outside diameter (OD), acceptable inside diameter (ID), and maximum weight (mass),
5.2.13 Packaging,
5.2.14 Certification, if required, heat analysis and mechanical property report,
5.2.15 Application (part identification and description), and
5.2.16 Special requirements (if any).
5.2.16.1 If required, the product may be ordered to a specified base metal thickness (see Supplementary Requirement S1.)

NOTE 1-Typical ordering descriptions are as follows: steel sheet, zinc-coated, commercial steel Type A, ASTM A 653, Coating Designation G115, chemically treated, oiled, minimum 0.040 by 34 by 117 in., for stock tanks, or steel sheet, zinc coated, high strength-low alloy steel Type A Grade 340, ASTM A 653M, Coating Designation Z275, minimized spangle, not chemically treated, oiled, minimum 1.00 by 920 mm by coil,1520-mm maximum OD, 600-mm ID, 10,000-kg maximum, for tractor inner fender.
NOTE 2-The purchaser should be aware that there are variations in manufacturing practices among the producers and therefore is advised to establish the producer's standard (or default) procedures for thickness tolerances.

## 6. Chemical Composition

6.1 Base Metal:

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**Table 2(b) Chemical Requirements[A]**

Composition, %-Heat Analysis Element, max (unless otherwise shown)

| Designation | Carbon | Manganese | Phosphorus | Sulfur | Copper,min (when specified) |
|---|---|---|---|---|---|
| SS Grd | | | | | |
| 33 [230] | 0.20 | ... | 0.04 | 0.04 | ... |
| 37 [255] | 0.20 | ... | 0.10 | 0.04 | ... |
| 40 [275] | 0.25 | ... | 0.10 | 0.04 | ... |
| 50 [340] Class 1 & 2 | 0.40 | ... | 0.20 | 0.04 | ... |
| 50 [340] Class 3 | 0.50 | ... | 0.04 | 0.04 | ... |
| 80 [550] | 0.20 | ... | 0.04 | 0.04 | ... |
| HSLAS Type A[B] | | | | | |
| 50 [340] | 0.20 | 1.20 | ... | 0.035 | ... |
| 60 [410] | 0.20 | 1.35 | ... | 0.035 | ... |
| 70 [480] | 0.20 | 1.65 | ... | 0.035 | ... |
| 80 [550] | 0.20 | 1.65 | ... | 0.035 | ... |
| HSLAS Type B[B,C] | | | | | |
| 50 [340] | 0.15 | 1.20 | ... | 0.035 | ... |
| 60 [410] | 0.15 | 1.20 | ... | 0.035 | ... |
| 70 [480] | 0.15 | 1.65 | ... | 0.035 | ... |
| 80 [550] | 0.15 | 1.65 | ... | 0.035 | ... |

[A] Where an ellipsis (...) appears in this table there is no requirements, but the analysis shall be reported.
[B] Steel conforming to this designation commonly contains the strengthening elements columbium, nitrogen, phosphorus, or vanadium added single or in combination.
[C] Some steels may be treated by means of small alloy additions to effect sulfide inclusion control.

**Table 2(c) Chemical Requirements-Limits On Unspecified Elements**

| | | |
|---|---|---|
| Copper, max %[A] | Heat Analysis 0.20 | |
| | Product Analysis | 0.23 |
| Nickel, max %[A] | Heat Analysis | 0.20 |
| | Product Analysis | 0.23 |
| Chromium, max %[A] | Heat Analysis | 0.15 |
| | Product Analysis | 0.19 |
| Molydenum, max %[A] | Heat Analysis | 0.06 |
| | Product Analysis | 0.07 |
| Vanadium, max %[B] | Heat Analysis | 0.008 |
| | Product Analysis | 0.018 |
| Columbium, max %[B,C] | Heat Analysis | 0.008 |
| | Product Analysis | 0.018 |
| Titanium, max % | Heat Analysis | 0.30 |
| | Product Analysis | 0.33 |

A The sum of copper, nickel, chromium, and molybdenum shall not exceed 0.50 % on heat analysis. When one or more of these elements are specified, the sum does not apply; in which case, only the individual limits on the remaining unspecified elements will apply.

[B] The limits do not apply when HSLAS is specified.
[C] The limits for steel whose carbon content is 0.02 % or less are:

| | |
|---|---|
| heat analysis | 0.045 % |
| product analysis | 0.055 % |

6.1.1 The heat analysis of the base metal shall conform to the requirements shown in Table 2(a) for CS (Types A, B, and C), FS (Types A and B), DDS, and EDDS, Table 2(b) for SS and HSLAS (Types A and B), and Table 2(c ) for the unspecified elements.

6.1.2 Unspecified elements may be present. Limits shall be as stated in Table 2(c).

6.1.3 Each of the elements listed in Table 2(c) shall be included in the report of heat analysis. When the amount of copper, nickel. chromium, or molybdenum is less than 0.02 %, the analysis may be reported as <0.02 %. When the amount of vanadium. titanium or columbium is less than 0.008 %, the analysis may be reported as <0.008 %.

6.1.4 See Specification A 924/A 924M for chemical analysis procedures and product analysis tolerances.

6.2 Zinc Bath Analysis-The bath metal used in continuous hotdip galvanizing shall contain not less than 99 % zinc.

Note 3-To control alloy formation and promote adhesion of the zinc coating with the steel base metal, the molten coating metal composition normally contains a percentage of aluminum usually in the range from 0.05 to 0.25. This aluminum is purposely supplied to the molten coating bath, either as a specified ingredient in the zinc splitter or by the addition of a master alloy containing aluminum.

## 7. Mechanical Properties

7.1 Structural steel and high-strength low-alloy steel shall conform to the mechanical property requirements in Table 3 for the type, grade, or class, or all, specified.

7.2 The typical mechanical properties for CS (Types A, B, and C), FS (Types A and B), DDS, and EDDS sheet designations are listed in Table 4. These mechanical property values are nonmandatory .They are intended solely to provide the purchaser with as much information as possible to make

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**Table 3 Mechanical Requirements, Base Metal (Longitudinal)**

**Inch-Pound Units**

| Designation | Type | Grade | Yield Strength, min, ksi | Tensile Strength, min, ksi [E] | Elongation in 2 in., min, %[E] |
|---|---|---|---|---|---|
| SS [D] | . . . | 33 | 33 | 45 | 20 |
| | | 37 | 37 | 52 | 18 |
| | | 40 | 40 | 55 | 16 |
| | | 50 Class 1 | 50 | 65 | 12 |
| | | 50 Class 2 | 50 | . . . | 12 |
| | | 50 Class 3 | 50 | 70 | 12 |
| | | 80[A] | 80[B] | 82 | . . . |
| HSLAS | Type A | 50 | 50 | 60[C] | 20 |
| | | 60 | 60 | 70[C] | 16 |
| | | 70 | 70 | 80[C] | 12 |
| | | 80 | 80 | 90[C] | 10 |
| HSLAS | Type B | 50 | 50 | 60[C] | 22 |
| | | 60 | 60 | 70[C] | 18 |
| | | 70 | 70 | 80[C] | 14 |
| | | 80 | 80 | 90[C] | 12 |

**SI Units**

| Designation | Type | Grade | Yield Strength, min, MPa | Tensile Strength, min, MPa | [E] | Elongation in 50mm, min, %[E] |
|---|---|---|---|---|---|---|
| SS [D] | . . . | 233 | 230 | 310 | | 20 |
| | | 255 | 255 | 360 | | 18 |
| | | 275 | 275 | 380 | | 16 |
| | | 340 Class 1 | 340 | 450 | | 12 |
| | | 340 Class 2 | 340 | . . . | | 12 |
| | | 340 Class 3 | 340 | 480 | | 12 |
| | | 550[A] | 550[B] | 570 | | . . . |
| HSLAS | Type A | 340 | 340 | 410[C] | | 20 |
| | | 410 | 410 | 480[C] | | 16 |
| | | 480 | 480 | 550[C] | | 12 |
| | | 550 | 550 | 620[C] | | 10 |
| HSLAS | Type B | 340 | 340 | 410[C] | | 22 |
| | | 410 | 410 | 480[C] | | 18 |
| | | 480 | 480 | 550[C] | | 14 |
| | | 550 | 550 | 620[C] | | 12 |

[A] For sheet thickness of 0.028 in. (0.71 mm) no tension test is required if the hardness result is Rockwell B 85 or higher .
[B] As there is no discontinuous yield curve, the yield strength should be taken as the stress at 0.5 % elongation under load or 0.2 % offset.
[C] If a higher tensile strength is required, the user should consult the producer.
[D] No type identification is applicable to the SS designation.
[E] Where an ellipsis (. . . ) appears in this table there is no requirement.

an informed decision on the steel to be specified. Values outside of these ranges are to be expected.

7.3 When base metal mechanical properties are required, all tests shall be conducted in accordance with the methods specified in Specification A 924/A 924M.

7.4 Bending Properties-Minimum Cold Bending Radius-Structural steel and high-strength low-alloy steel are commonly fabricated by cold bending. There are many interrelated factors that affect the ability of a steel to cold form over a given radius under shop conditions. These factors include; thickness, strength level, degree of restraint, relationship to rolling direction, chemistry, and base metal microstructure. Table X1.1 in Appendix X1 lists the suggested minimum inside radius for 900 cold bending for structural steel and high strength low-alloy steel. They presuppose "hard way" bending (bend axis parallel to rolling direction) and reasonably good shop forming practices. Where possible, the use of larger radius or "easy way" bends are recommended for improved performance.

## 8. Coating Properties

8.1 Coating Weight [Mass]:

8.1.1 The weight [mass] of coating shall conform to the triple and single-spot requirements shown in Table 1 for the specific coating designation. The weight [ mass] of coating is the total amount on both sides of a sheet, expressed in ounces per square foot [grams per square metre] of sheet, except in the case of differential coating.

8.1.2 The test for coating weight [mass] shall be performed in accordance with Test Method A 90/A 90M on specimens taken an informed decision on the steel to be specified. Values outside of these ranges are to be expected.

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**Table 4 Typical Ranges of Mechanical Properties[A,B] (Nonmandatory)**

| Designation | (Longitudinal Direction) Yield Strength ksi | Yield Strength [MPa] | Elongation in 2 in., [50 mm], % | $r_m$ Value[C] | *n* Value[D] |
|---|---|---|---|---|---|
| CS Type A | 25/55 | [170/380] | ≥20 | *E* | *E* |
| CS Type B | 30/55 | [205/380] | ≥20 | *E* | *E* |
| CS Type C | 25/60 | [170/410] | ≥15 | *E* | *E* |
| FS Types A & B[F] | 25/45 | [170/310] | ≥26 | 1.0/1.4 | 0.17/0.21 |
| DDS[G] | 20/35 | [140/240] | ≥32 | 1.4/1.8 | 0.19/0.24 |
| EDDS[H] | 15/25 | [105/170] | ≥40 | 1.6/2.1 | 0.22/0.27 |

[A]The typical mechanical property values presented here are nonmandatory. They are intended solely to provide the purchaser with as much information as possible to make an informed decision on the steel to be specified. Values outside of these ranges are to be expected. The purchaser may negotiate with the supplier if a specific range or a more restrictive range is required for the application.
[B]These typical mechanical properties apply to the full range of steel sheet thicknesses. The yield strength tends to increase and some of the formability values tend to decrease as the sheet thickness decreases.
[C]$r_m$ Value-Average plastic strain ratio as determined by method in Test Method E 517.
[D]n Value-Strain-hardening exponent as determined by method in Test Method E 646.
[E]No typical mechanical properties have been established.
[F]The FS designation encompasses the properties of the previous DQ grade in Specification A 528.
[G]The DDS designation encompasses the properties of the previous DQSK grade in Specification A 642.
[H]EDDS Sheet will be free from changes in mechanical properties over time, that is. nonaging.

taken in accordance with Specification A 924/A 924M.
8.1.3 The coating thickness may be estimated from the coating weight [mass] by using the following relationships:
8.1.3.1 1 oz/ft² coating weight = 1.7 mils coating thickness, and
8.1.3.2 7.14 g/m² coating mass = 1mmm coating thickness.
8.2 Coating Bend Test:
8.2.1 The bend test specimens of coated sheet designated by prefix "G" ["Z"] shall be capable of being bent through 180° in any direction without flaking of the coating on the outside of the bend only. The coating bend test inside diameter shall have a relation to the thickness of the specimen as shown in Table 5. Flaking of the coating within 0.25 in. [6 mm] of the edge of the bend specimen shall not be cause for rejection.
8.2.2 Because of the characteristics of zinc-iron alloy coatings designated by prefix "A" ["ZF"] as explained in 3.2.6, coating bend tests are not applicable.

**9. Dimensions and Permissible Variations**

9.1 All dimensions and permissible variations shall comply with the requirements of Specification A 924/A 924M, except for flatness of SS and HSLAS, which is specified in Tables 6 and 7, respectively.

**10. Keywords**

10.1 Alloyed coating; minimized spangle coating; spangle; sheet steel, high strength-low alloy; steel; steel sheet; zinc; zinc coated (galvanized); zinc iron-alloy; zinc iron-alloy coated.

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**Table 5 Coating Bend Test Requirements**

**Inch-Pound Units**

**Ratio of the Inside Bend Diameter to Thickness of the Specimen (Any Direction)**

| Coating Designation [A] | CS, FS, DDS, EDDS | | | SS, Grade [B] | | |
|---|---|---|---|---|---|---|
| | Sheet Thickness | | | | | |
| | Through 0.039 in. | Over 0.039 Through 0.079 in. | Over 0.079 in. | 33 | 37 | 40 |
| G235 | 2 | 3 | 3 | 3 | 3 | 3 |
| G210 | 2 | 2 | 2 | 2 | 2 | 2 1/2 |
| G185 | 2 | 2 | 2 | 2 | 2 | 2 1/2 |
| G165 | 2 | 2 | 2 | 2 | 2 | 2 1/2 |
| G140 | 1 | 1 | 2 | 2 | 2 | 2 1/2 |
| G115 | 0 | 0 | 1 | 1 1/2 | 2 | 2 1/2 |
| G90 | 0 | 0 | 1 | 1 1/2 | 2 | 2 1/2 |
| G60 | 0 | 0 | 0 | 1 1/2 | 2 | 2 1/2 |
| G40 | 0 | 0 | 0 | 1 1/2 | 2 | 2 1/2 |
| G30 | 0 | 0 | 0 | 1 1/2 | 2 | 2 1/2 |
| G01 | 0 | 0 | 0 | 1 1/2 | 2 | 2 1/2 |
| | HSLAS Type A [B] | | HSLAS Type B | | | |
| | 50 | 50 | 50 | 60 | 70 | 80 |
| G115 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |
| G90 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |
| G60 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |
| G40 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |
| G30 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |
| G01 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |

**SI Units**

**Ratio of the Inside Bend Diameter to Thickness of the Specimen (Any Direction)**

| Coating Designation [A] | CS, FS, DDS, EDDS | | | SS, Grade [C] | | |
|---|---|---|---|---|---|---|
| | Sheet Thickness | | | | | |
| | Through 1.0mm | Over 1.0 mm Through 2.0mm | Over 2.0 mm | 230 | 255 | 275 |
| Z700 | 2 | 3 | 3 | 3 | 3 | 3 |
| Z600 | 2 | 2 | 2 | 2 | 2 | 2 1/2 |
| Z450 | 1 | 1 | 2 | 2 | 2 | 2 1/2 |
| Z350 | 0 | 0 | 1 | 1 1/2 | 2 | 2 1/2 |
| Z275 | 0 | 0 | 1 | 1 1/2 | 2 | 2 1/2 |
| Z180 | 0 | 0 | 0 | 1 1/2 | 2 | 2 1/2 |
| Z120 | 0 | 0 | 0 | 1 1/2 | 2 | 2 1/2 |
| Z001 | 0 | 0 | 0 | 1 1/2 | 2 | 2 1/2 |
| | HSLAS Type A [C] | | *HSLAS Type* B | | | |
| | 340 | 410 | 340 | 410 | 480 | 550 |
| Z350 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |
| Z275 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |
| Z180 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |
| Z120 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |
| Z001 | 1 1/2 | 3 | 1 | 1 | 1 1/2 | 1 1/2 |

[A] If other coatings are required, the user should consult the producer for availability and suitable bend test requirements.
[B] SS Grades 50 and 80 and HSLAS Type A Grades 70 and 80 are not subject to bend test requirements.
[C] SS Grades 340 and 550 and HSLAS Type A Grades 480 and 550 are not subject to bend test requirements.

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**Table 6 Structural Steel-Flatness Tolerances (Cut Lengths Only)**

NOTE 1-This table also applies to sheets cut to length from coils by the consumer when adequate flattering measures are performed.

NOTE 2-For Grade 50 [340] (Classes 1, 2, and 3) use $1^1/_2$ times the values given in this table.

NOTE 3-For Grade 80 [550], there are no defined flatness standards.

| Specified Thickness, in. [mm] | Specified Width, in. [mm] | Flatness Tolerances (Maximum Deviation from a Horizontal Flat Surface), in. [mm] |
|---|---|---|
| Over 0.060 [1.5] | to 60 [1500], inclusive | $^1/_2$ [12] |
| | over 60 [1500] to 72 [1800], inclusive | $^3/_4$ [20] |
| 0.060 [1.5] and thinner | to 36 [900], inclusive | $^1/_2$ [12] |
| | over 36 [900] to 60 [1500], inclusive | $^3/_4$ [20] |
| | over 60 [1500] to 72 [1800], inclusive | 1 [25] |

**Table 7 High-Strength Low-Alloy Steel-Flatness Tolerances (Cut Lengths Only)**

NOTE-This table also applies to sheets cut to length from coils by the consumer when adequate flattening measures are performed.

**Inch-Pound Units**

| Specified Thickness, in. | Specified Width, in. | Flatness Tolerances (Maximum Deviation from a Horizontal Flat Surface), in. [mm] Grade 50 | 60 | 70 | 80 |
|---|---|---|---|---|---|
| Over 0.060 | to 60, inclusive | $^3/_4$ | $^7/_8$ | 1 | $1^1/_8$ |
| | over 60 | $1^1/_8$ | $1^1/_4$ | $1^3/_8$ | $1^1/_2$ |
| 0.060 and thinner | to 36, inclusive | $^3/_4$ | $^7/_8$ | 1 | $1^1/_8$ |
| | over 36 to 60, inclusive | $1^1/_8$ | $1^1/_4$ | $1^3/_8$ | $1^1/_2$ |
| | over 60 | $1^1/_2$ | $1^5/_8$ | $1^3/_4$ | $1^7/_8$ |

**SI Units**

| Specified Thickness, in. | Specified Width, in. | Flatness Tolerances (Maximum Deviation from a Horizontal Flat Surface), in. [mm] Grade 340 | 410 | 480 | 550 |
|---|---|---|---|---|---|
| Over 1.5 | to 1500, inclusive | 20 | 22 | 25 | 30 |
| | over 1500 | 30 | 32 | 35 | 38 |
| 1.5 & thinner | to 900, inclusive | 20 | 22 | 25 | 30 |
| | over 900 to 1500, inclusive | 30 | 32 | 35 | 33 |
| | over 1500 | 38 | 40 | 45 | 48 |

## SUPPLEMENTARY REQUIREMENTS

The following standardized supplementary requirements are for use when desired by the purchaser. These additional requirements shall apply only when specified on the order.

### S1. Base Metal Thickness

S1.1 The specified minimum thickness shall apply to the base metal only.

S1.2 The coating designation shown on the order indicates the coating to be applied to the specified minimum base metal thickness.

S1.3 The applicable tolerances for base metal thickness are shown in Tables 16 and 17, Thickness Tolerance of Cold-Rolled Sheet (Carbon and High-Strength, Low-Alloy Steel), of Specification A 568/A 568M.

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## APPENDIX

## (Nonmandatory Information)

## X1. BENDING PROPERTIES

**Table X1.1 Suggested Minimum Inside Radius for Cold Bending [A]**

NOTE 1-(t) equals a radius equivalent to the steel thickness.
NOTE 2-The suggested radius should be used as minimum for 90° bends in actual shop practice.

| Qualtiy | Type | Grade | Minimum Inside Radius for Cold Bending [B] |
|---|---|---|---|
| SS | | 33 [230] | 1 $^1/_2 t$ |
| | | 37 [255] | 2$t$ |
| | | 40 [275] | 2$t$ |
| | | 50 [340] Class1 | not applicable |
| | | 50 [340] Class 2 | not applicable |
| | | 50 [340] Class 3 | not applicable |
| | | 80 [550] | not applicable |
| HSLAS | Type A | 50 [340] | 2 $^1/_2 t$ |
| | | 60 [410] | 3$t$ |
| | | 70 [480] | 4$t$ |
| | | 80 [550] | 4$^1/_2 t$ |
| HSLAS | Type B | 50 [340] | 2 $t$ |
| | | 60 [410] | 2$t$ |
| | | 70 [480] | 3$t$ |
| | | 80 [550] | 3$t$ |

[A] Material that does not perform satisfactorily, when fabricated in accordance with the requirements in Table X1.1, may be subject to rejection negotiation with the steel supplier.
[B] Bending capability may be limited by coating designation.

# HVAC Equations in Metric Units

**AIR EQUATIONS**

**a)** $v = 1.414\sqrt{\frac{V_p}{d}}$

or for standard air (d = 1.204 kg.m³):

$V = \sqrt{1.66\ V_p}$

To solve for "d":

$\left(d = 3.48\ \frac{P_b}{T}\right)$

V = Velocity (m/s)
Vp = Velocity Pressure (Pascals or Pa)
d = Density ( kg/m³)
$P_b$ = Absolute Static Pressure (kPa)
( Barometric pressure + static pressure)
T = Absolute Temp .(273° + °C = °k)

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**b)** $Q = C_p \times d \times l/s \times \Delta t$
or for standard air ($C_p$ = 1.005 kJ/kg. °C)
Q (sens) = 1.23 x 1/s x Δt

**c)** Q = (lat.) = 3.0 x 1/s x Δw

**d)** Q = (total heat) = 1.20 x 1/s x Δh

**e)** Q = A x U x Δt

**f)** $R = \frac{1}{U}$

**g)** $\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2} = RM$

Q = Heat Flow (watts or w)
$C_p$ = Specific Heat (KJ/kg.°C)
d = Density ( kg/m³)
Δt = Temperature Difference (C°)
Δw = Humidity Ratio (g $H_2o$/kg dry air)
Δh = Enthalpy Diff. (kJ/kg dry air)
A = Area of Surface (m²)
U = Heat Transfer Coefficient (W/m².°C)
R = Sum of Thermal Resistance (m². °C/W)
P = Absolute Pressure (kPa)
V = Total Volume (m³)
T = Absolute Temperature (273 + °C = °K)
R = Gas Constant (kJ/kg.°C)
M = Mass (kg)

---

**h)** $TP = V_p + SP$

**i)** $V_p = \frac{d}{2} \times V^2 = 0.602V^2$

**j)** $V = V_m \left[\frac{d\ (\text{other than standard})}{1.204\ (d = \text{std.air})}\right]$

**k)** l/s = 1000 x A x V

**l)** $TP = C \times V_p$

TP = Total Pressure (Pa)
$V_p$ = Velocity Pressure (Pa)
SP = Static Pressure (Pa)
V = Velocity (m/s)
$V_m$ = Measured Velocity (m/s)
d = Density (kg.m³)
A = Area of duct cross section (m²)
C = Duct fitting loss coefficient

# Metric Units

## FAN EQUATIONS

a) $\frac{l/s_2}{l/s_1} = \frac{m^3/s_2}{m^3/s_1} = \frac{rad/s_2}{rad/s_1}$

b) $\frac{P_2}{P_1} = \left(\frac{rad/s_2}{rad/s_1}\right)^2$

c) $\frac{kW_2}{kW_1} = \left(\frac{rad/s_2}{rad/s_1}\right)^3$

d) $\frac{d_2}{d_1} = \left(\frac{rad/s_2}{rad/s_1}\right)^2$

e) $\frac{\text{rad/s (fan)}}{\text{rad/s (motor)}} = \frac{\text{Pitch diam. motor pulley}}{\text{Pitch diam. fan pulley}}$

l/s = Liters per second

$m^3/s$ = Cubic meters per second

rad/s = Radians per second

P = Static or Total Pressure (Pa)

kW = Kilowatts

d = Density ($kg/m^3$)

## PUMP EQUATIONS

a) $\frac{l/s_2}{l/s_1} = \frac{m^3/s_2}{m^3/s_1} = \frac{rad/s_2}{rad/s_1}$

b) $\frac{m^3/s_2}{m^3/s_1} = \frac{D_2}{D_1}$

c) $\frac{H_2}{H_1} = \left(\frac{rad/s_2}{rad/s_1}\right)^2$

d) $\frac{H_2}{H_1} = \left(\frac{D_2}{D_1}\right)^2$

e) $\frac{BP_2}{BP_1} = \left(\frac{rad/s_2}{rad/s_1}\right)^3$

f) $\frac{BP_2}{BP_1} = \left(\frac{D_2}{D_1}\right)^3$

l/s = Liters per second

$m^3/s$ = Cubic meters per second

rad/s = Radians per second

D = Impeller diameter

kW = Head (kPa)

BP = Brake horsepower

## Metric Equivalents

| Quantity | Symbol | Unit | U.S. Relationship |
|---|---|---|---|
| **Acceleration** | m / $s^2$ | Meters per second squared | 1m/$s^2$ = 3.281 ft/$sec^2$ |
| **Angular velocity** | Rad / s | Radians per second | 1 rad/sec = 9.549 rpm |
| **Area** | $m^2$ | Square meter | 1$m^2$ = 10.76 sq ft |
| **Atmospheric pressure** | ------ | 101.325 kpa | 29.92 in Hg = 14.696 psi |
| **Density** | kg/$m^3$ | Kilograms per cubic meter | 1kg/$m^3$ = 0.0624 ib/cu ft |
| **Density. Air** | ------ | 1.2 kg/$m^3$ | 0.075 ib/cu ft |
| **Density. Water** | ------ | 1000 kg/$m^3$ | 62.4 ib/cu ft |
| **Duct friction loss** | Pa/m | Pascals per meter | 1pa/m = 0.1224 in.wg./100 |
| **Enthalpy** | KJ/kg | Kilojoule per kilogram | 1kj/kg = 0.4299 Btu/lb dry air |
| **Gravity** | ------ | 9.8067 m/$s^2$ | 32.2 ft/$sec^2$ |
| **Heat flow** | W | Watt | 1w = 3.412 btu/hr |
| **Length (normal)** | m | Meter | 1m = 3.281 ft = 39.37 in |
| **Linear velocity** | m /s | Meters per second | 1 m/s =196.9 fpm |
| **Mass flow rate** | kg/s | Kilograms per second | 1kg/s = 7936.6 ib/hr |
| **Moment of inertia** | kg.$m^2$ | Kilograms x square meter | 1kg.$m^2$ =23.73 lb.Sq ft |
| **Power** | W | Watt | 1w = 0.00134 hp |
| **Pressure** | kPa | Kilo Pascal (1000 pascals) | 1kpa = 0.296 in Hg.145 |
| | Pa | pascal | 1 Pa = 0.004015 in.w.g. |
| **Specific heat-air ($c_p$)** | ------ | 1000 J/kg. °C | 1000 J/kg.°C = 1kJ/kg.°C =0.2388 btu/b °F |
| **Specific heat-air ($c_v$)** | ------ | 717 J/kg. °C | 0.17 btu/lb°F |
| **Specific heat-water** | ------ | 4190 J/kg. °C | 1.0 btu/lb°F |
| **Specific volume** | $m^3$/kg | Cubic meters per kilogram | 1$m^3$ /kg = 16.019 cu ft/lb |
| **Thermal conductivity** | W.mm/$m^2$.°C | Watt millimeter per square meter °C | 1w.mm/$m^2$.°C = 0.0069 btu. in/$ft^2$.hr.°F |
| **Volume flow rate** | $m^3$./kg | Cubic meters per second | 1$m^3$ /s = 2118.88 cfm (air) |
| | l/s | litres per second | 1 l/s = 2.12 cfm (air) |
| | | 1$m^3$/s=1000 l/s | 1$m^3$/s = 15.850 gpm (water) |
| | | 1ml-litres/1000 | 1ml/s = 1.05 gph (water) |

## Metric Units

| Unit | Symbol | Quantity | Equivalent or Relationship |
|---|---|---|---|
| **Ampere** | A | Electric current | Same as U.S |
| **Candela** | cd | Luminous intensity | 1cd/m²=0.292 ft lamberts |
| **Celsius** | c | Temperature | °F = 1.8°C +32° |
| **Coulomb** | c | Electric charge | Same as U.S |
| **Farad** | F | Electric capacitance | Same as U.S |
| **Henry** | H | Electric inductance | Same as U.S |
| **Hertz** | Hz | frequency | Same as cycles per second |
| **joule** | J | Energy , work , heat | 1 J=0.7376 f-1b<br>=0.000948 Btu |
| **Kelvin** | K | Thermodynamic temperature | °K =°C+273.15°<br>= $\frac{°F+459.367}{1.8}$ |
| **Kilogram** | Kg | Mass | 1kg=2.2046 1b |
| **Litter** | l | Liquid volume | 1l = 1.056qt=0.264 gal |
| **Lumens** | lm | Luminous flux | 1lm/m² =0.0929 ft candles |
| **Lux** | lx | Illuminance | 1 lx = 0.0929 ft candles |
| **Meter** | m | Length | 1m = 3.081 ft |
| **Mole** | mol | Amount of Substance | ---------- |
| **Newton** | N | Force | 1N = kg m/s² = 0.2248 1b(force) |
| **Ohm** | | Electric resistance | Same as U.S |
| **Pascal** | Pa | Pressure , stress | 1 Pa = N/m² 0.000145 psi<br>=0.004022 in.w.g. |
| **Radian** | rad | Plane angle | 1 rad = 57.29 |
| **Second** | s | Time | Same as U.S |
| **Siemens** | S | Electric conductance | ---------- |
| **Steradian** | sr | Solid angle | ---------- |
| **Volt** | V | Electric potential | Same as U.S |
| **Watt** | W | power , heat flow | 1 W = J/s = 3.4122 Btu/hr<br>1 W = 0.000284 tons of refrig |

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