

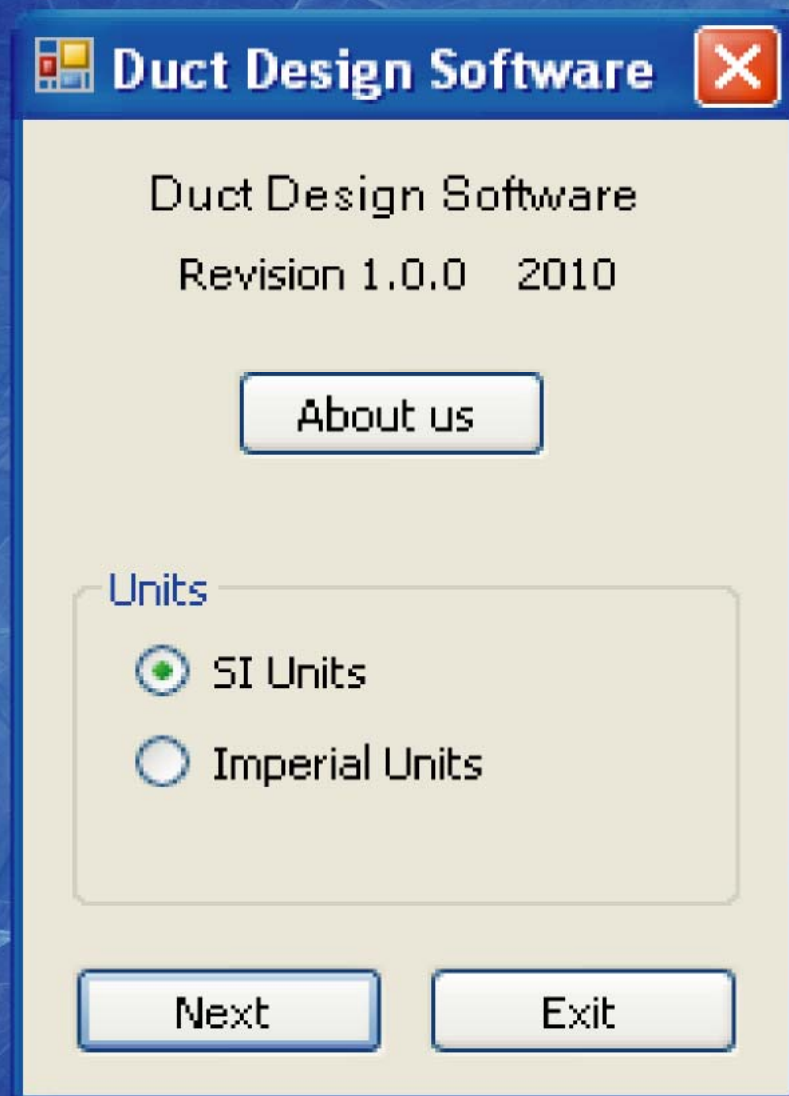


Applied Engineering Solutions

Duct Design Software Operation Manual

Software Running Instructions

Select suitable units measurements SI or Imperial



Select Applications one from followings:

Apartments Hotel Bedrooms Hospital Bedrooms

Average Stores Cafeterias

General Offices High Class Restaurants

High Class Stores Banks Industrial

Private Offices Directors Rooms Libraries

Residences

Theatres Auditoriums

Duct Design Software

Sections

Application: Apartments Hotel Bedrooms Hospital Bedrooms

Air Duct Orientation: Apartments Hotel Bedrooms Hospital Bedrooms
Average Stores Cafeterias
General Offices High Class Restaurants High Class Stores
Industrial
Private Offices Directors Rooms Libraries
Residences
Theatres Auditoriums

Temperature: 20 C

Duct Shape: Circular

Number of Sections: Section1 Section2

Section Sample: A

Air Flow: 500 L/s

Section Length: 10 m

Fitting	Description	Qty	Action
ED5_06 Capped Wye, Branch With 45-Degree Elbc		1	Add Remove
CD3_09 Elbow, 5 Gore, 90 Degree, r-D=1.5		1	
CD3_17 Elbow, Mitered 45 Degree		1	

Calculate

Duct Size: 0.2794 m Duct Pressure Loss: Pa/m

Velocity: 8.15 m/s Total Fittings Coefficients: 1.16

Velocity Pressure: 38.44 Pa

Back Exit

Then select Air duct orientation main duct or branch duct

Select if your application is supply duct or return duct

Select duct material from followings:

Uncoated carbon steel, clean (0.05 mm)

PVC plastic pipe (0.01 to 0.05 mm)

Aluminum (0.04 to 0.06 mm)

Galvanized steel, longiitudinal seams, 1200 mm joints (0.05 to 0.10 mm)

Galvanized steel, continuously rolled, spiral seams, 3000 mm joints (0.06 to 0.12 mm)

Galvanized steel, spiral seam with 1, 2, and 3 ribs, 3600 mm joints (0.09 to 0.12 mm)

Galvanized steel, longitudinal seams, 760 mm joints (0.15 mm)

Fibrous glass duct, rigid

Fibrous glass duct liner, air side with facing material (1.5 mm)

Fibrous glass duct liner, air side spray coated
(4.5 mm)

Flexible duct, metallic (1.2 to 2.1 mm when fully
extended)

Flexible duct, all types of fabric and wire (1.0 to
4.6 mm when fully extended)

Concrete (1.3 to 3.0 mm)

Add temp. of air in duct

Select duct shape circular or rectangular

Then add sections number (1-20)

After that you must press create

Then start with section one by one as followings:

Add air flow rate

Add section length

You can add up to five fittings type as followings:

For Circular:

- CD3_06 Elbow,Pleated,60 Degree,r-D=1.5
- CD3_09 Elbow,5 Gore,90 Degree,r-D=1.5
- CD3_10 Elbow,7 Gore,90 Degree,r-D=2.5
- CD3_12 Elbow,3 Gore,90 Degree,r-D=0.75 to 2.0
- CD3_13 Elbow,3 Gore,60 Degree,r-D=1.5
- CD3_17 Elbow,Mitered 45 Degree
- CD6_01 Screen(Only)
- CD9_01 Damper,Butterfly
- CD9_03 Fire Damper,Curtain Type,type C
- ED1_01 Duct Mounted in Wall
- ED1_03 Bellmouth,with Wall
- ED5_01 Wye,30 Degree,Converging
- ED5_02 Wye,45 Degree,Converging
- ED5_06 Capped Wye,Branch With 45-Degree Elbow,Branch 90 Degree to Main,Converging
- ED5_09 Symmetrical Wye,60 Degree,Db1>=Db2, Converging
- ED7_01 Centerifugal Fan Located in Plenum or Cabinet
- ED7_02 Fan Inlet,Centifugal,SWSI,with 4 Gore Elbow
- SD2_06 Stackhead

Duct Design Software



Sections

Application

Temperature C

Air Duct Orientation Supply Return

Duct Shape

Number of Sections

Create

Section1 Section2 Section3

Section Sample **A**

Air Flow L/s

Section Length m

Fitting

Qty

Add

Remove

- ED5_06 Capped Wye, Branch With 45-Degree Elbo
- ED5_09 Symmetrical Wye, 60 Degree, Db1 >=Db2, c
- CD9_03 Fire Damper, Curtain Type, type C
- CD3_06 Elbow, Pleated, 60 Degree, r-D=1.5
- CD3_09 Elbow, 5 Gore, 90 Degree, r-D=1.5
- CD3_12 Elbow, 3 Gore, 90 Degree, r-D=0.75 to 2.0
- CD3_13 Elbow, 3 Gore, 60 Degree, r-D=1.5
- CD3_17 Elbow, Mitered 45 Degree

Calculate

Duct Size m

Duct Pressure Loss Pa/m

Velocity m/s

Total Fittings Coefficients

Velocity Pressure Pa

Back

Exit

Sections
Application: Apartments Hotel Bedrooms Hospital Bedrooms Temperature: 20 °C
Air Duct Orientation: Air

Number of Sections:

Section1

Section Size

Air Flow

Section Length

Fitting

Duct Size

Velocity

Velocity Pressure

Fitting Information

Ab : Ac :

Remove

ate

Pa/m



Sections

Application

Temperature C

Air Duct Orientation

Number of Sections

Section1

Section Sample

Air Flow

Section Length

Fitting

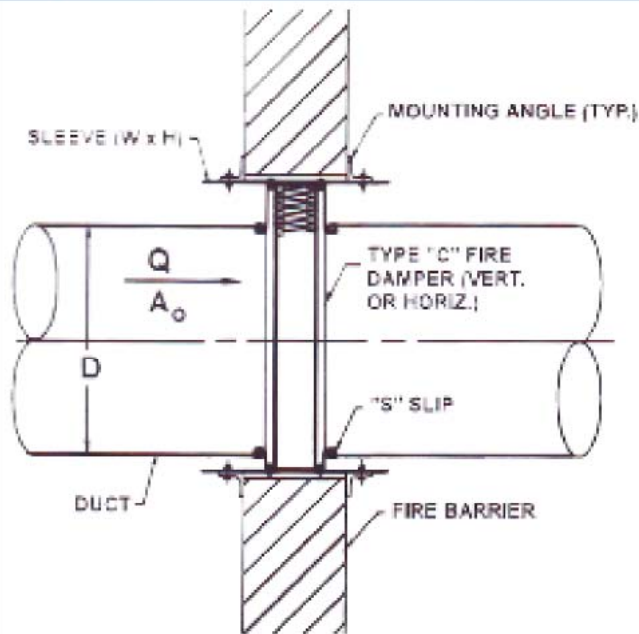
Fitting

Duct Size

Velocity

Velocity Pressure

Fitting Information



OK

Remove

ate

Pa/m

Back

Exit



Sections

Application

Temperature C

Air Duct Orientation

Number of Sections

Section1

Section Size

Air Flow

Section Length

Fitting

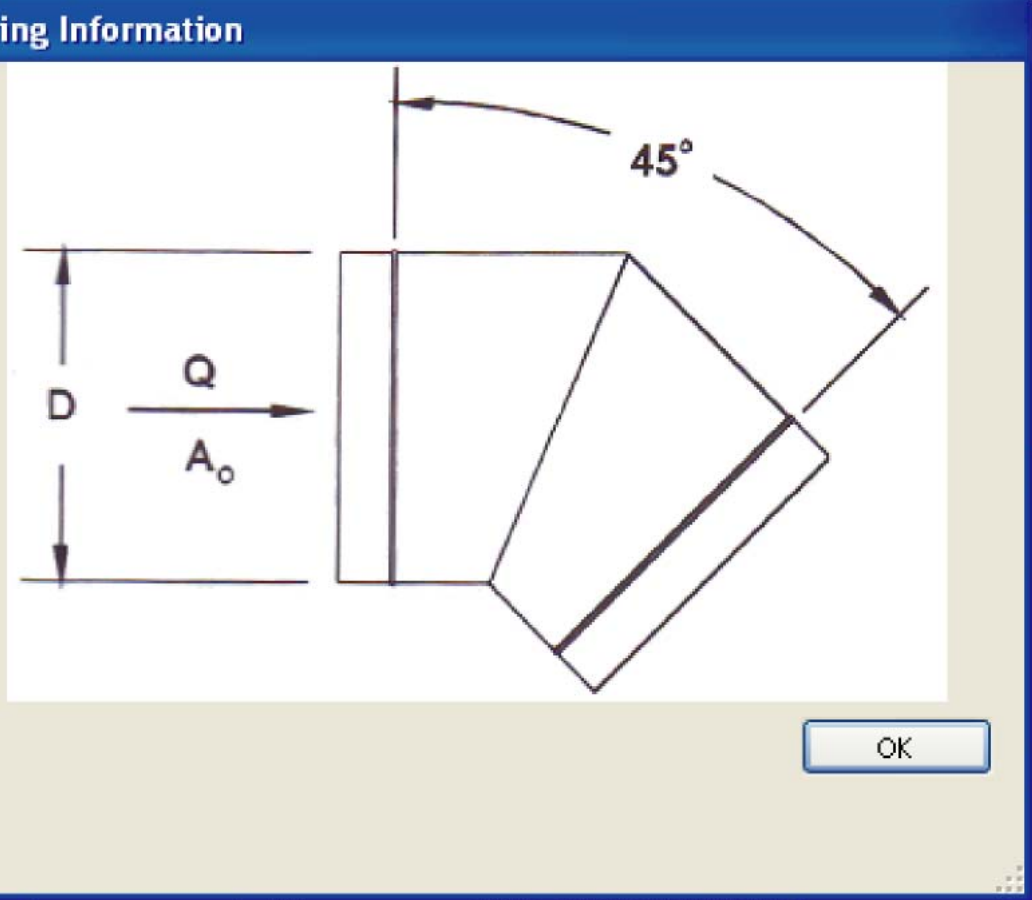
Fitting

Fitting

Duct Size

Velocity

Velocity Pressure



OK

Remove

State

Pa/m

Back

Exit



Sections

Application

Temperature C

Air Duct Orientation

Number of Sections

Section1

Section Size

Air Flow

Section Length

Fitting

Fitting

Fitting

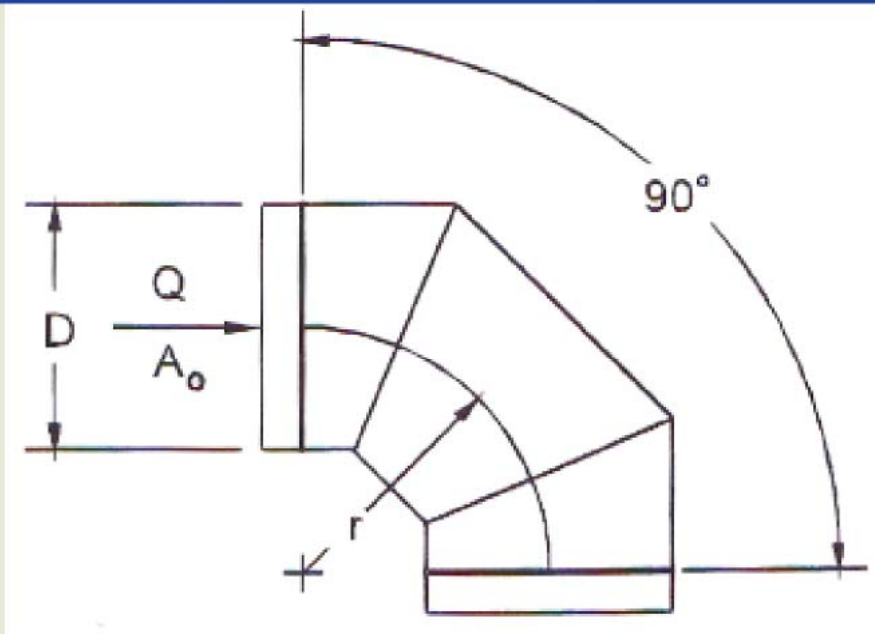
Fitting

Duct Size

Velocity m/s

Velocity Pressure Pa

Fitting Information



r :

OK

Cancel

Remove



Pa/m

Back

Exit

Duct Design Software



Sections

Application: Apartments Hotel Bedrooms Hospital Bedrooms

Temperature: 20 C

Air Duct Orientation: Main Ducts Supply Return

Duct Shape: Circular

Number of Sections: 3

Create

Section1 Section2 Section3

Section Sample: A

Air Flow: 500 L/s

Section Length: 10 m

Fitting: ED5_06 Capped Wye, Branch With 45-Degree Elbc Qty: 1 Add Remove

Fitting: CD3_09 Elbow, 5 Gore, 90 Degree, r-D=1.5 Qty: 1

Fitting: CD3_17 Elbow, Mitered 45 Degree Qty: 1

Calculate

Duct Size: 0.2794 m

Duct Pressure Loss: Pa/m

Velocity: 8.15 m/s

Total Fittings Coefficients: 1.16

Velocity Pressure: 38.44 Pa

Back

Exit

For Rectangular

CR3_01 Elbow,Smooth Radius,Without Vanes

**CR3_03 Elbow,Smooth Radius,One Splitter
Vane**

CR3_06 Elbow,Mitered

**CR3_10 Elbow,Mitered,90 Degree,
Single-Thickness Vanes**

CR3_17 Elbow,Z-Shaped

CR6_01 Screen(Only)

**CR6_04 Obstruction,Smooth Cylinder in
Rectangular Duct**

CR9_01 Damper,Butterfly

CR9_04 Damper,Opposed Blades

CR9_06 Fire Damper,Curtain Type,type B

SR2_01 Abtupt Exit

**SR2_03 Plain Diffuser(Two Sides Parallel),
Free Discharge**

SR2_05 Pyramidal Diffuder,Free Discharge

SR2_06 Pyramidal Diffuser,with Wall
SR3_01 Elbow,90 Degree,Variable
Inlet-Outlet Areas,Supply Air Systems
SR4_01 Transition,Rectangular,Two Sides
Parallel,Symmetrical,Supply Air Systems
SR5_01 Smooth Wye of Type $A_s+A_b \geq A_c$,
Branch 90 Main Diverging
SR5_13 Tee,45 Degree Entry Branch,Diverging
SR5_14 Wye,Symmetrical,Dovetail,
 $Q_b-Q_c=0.5$,Diverging
SR7_01 Fan,Centrifugal,Without Outlet
Diffuser,Free Discharge
SR7_02 Plane Asymmetric Diffuser at
Centrifugal Fan Outlet,Free Discharge
SR7_17 Pyramidal Diffuser at Centrifugal
Fan Outlet with Ductwork

Output:
Duct dimensions
Air velocity
Velocity pressure
Total duct pressure loss
Total fitting coefficients

Duct Design Software

Sections

Application: Apartments Hotel Bedrooms Hospital Bedrooms
Air Duct Orientation: Main Ducts Supply Return
Temperature: 20 C
Duct Shape: Circular

Number of Sections: 3

Section1 Section2 Section3

Section Sample: A

Air Flow: 500 L/s
Section Length: 10 m

Fitting	ED5_06 Capped Wye, Branch With 45-Degree Elbc	Qty	1	<input type="button" value="Add"/>	<input type="button" value="Remove"/>
Fitting	CD3_09 Elbow, 5 Gore, 90 Degree, r-D=1.5	Qty	1		
Fitting	CD3_17 Elbow, Mitered 45 Degree	Qty	1		

Duct Size	0.2794	m	Duct Pressure Loss		Pa/m
Velocity	8.15	m/s	Total Fittings Coefficients	1.16	
Velocity Pressure	38.44	Pa			

Contact US:

Soheil Assayed For Applied Engineering Solutions

Firas Complex

Firas Cycle

Khalid Bin Al Waleed Street

Jebel Al Huessein

P.o.Box "212827"

Amman - 11121 - Jordan

Fax: 0096265604411

Mobile : 00962799733254

sales@applied-eng.com

saleapplied_eng@yahoo.com

applied_eng@yahoo.com

info@applied-eng.com

www.applied-eng.com

