

CoolDUCT HVAC Drafting Program

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Save 90 percent of AutoCAD time creating HVAC drawings

CoolDUCT is an AutoCAD(c) enhancement for HVAC Draughtsmen to create HVAC designs drawings or workshop detail drawings for site coordination and workshop manufacture.

Created by an experienced HVAC workshop detail draughtsman, CoolDUCT's features include automatic drawing of Extensive Rectangular and Circular Duct Fittings, Fire Dampers, Flex Ducts, Control Dampers and bought out items such as Grilles, VAV Boxes, Access Panels, etc. All the ductworks are drawn by using double lines and provide the duct information such as duct size, length, insulation, flange, air quantity, system, duct end step down and construction line. The information will be retained within the ductwork. An CAD ductulator has been created to check duct air velocity and friction. CoolDUCT also has many powerful tools for creating double-line pipelines and fittings, piping schematics and air schematics. Most of the tools are complete with the dialog interfaces and all objects are created on the appropriate layers.

CoolDUCT has a lot of unique functions such as equipment schedule, duct piece number, block attribute modifiers, tag finder, text edit, etc. An easy-to-use library also allows you to create your own library.

The whole program was designed to be fully customized to suit your drawing standards and the files to be customized are all specified.

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General Notes

1. CoolDUCT is intended for use by persons with AutoCAD experience. This manual does not explain the basics of AutoCAD operation.
2. This manual explains the most functions of CoolDUCT program.
3. The pages describing the functions of creating duct piece in this manual are based on the **Workshop Detail** drawing. For the **HVAC Design** drawing, the interface dialog boxes will be slight different. The dialog boxes will contain less details for duct as they are not required for HVAC design drawing. Also, an additional option of **Airway Size only** has been added.

Airway Size only

When this box is checked on the interface dialog boxes for creating duct piece, the thickness of internal insulation will not be added to the duct metal size. For example, for a 500x500 air way duct with 50mm internal insulation, it will be drawn as 500x500 duct (metal size) on the drawing. Otherwise, it will be drawn as 600x600 duct on the drawing.

About Trademarks

- 'Windows' is a registered trademark of Microsoft Corporation in the U.S. and other countries. The official name of Windows is Microsoft Windows Operating System.
- AutoCAD is a registered trademark of Autodesk, Inc.
- In addition, the company names and brand names referenced in this manual are themselves the trademarks, registered trademarks, and products of the respective companies.

COMPATIBILITY

CoolDUCT is created by using visual lisp and compatible with AutoCAD 2008 to 2023 and AutoCAD MEP 2008 to 2023. CoolDUCT can only be installed on the computer with Windows 10 or 11 operating system. CoolDUCT does not support AutoCAD LT.

For AutoCAD 2021 onwards , the value of the LISPSYS system variable must be set to 0.

INSTALLATION

***** To install CoolDUCT program, you must log in as an administrator and the User Account Control (UAC) must be turn off. After installation, you can turn UAC on and log in as a standard user to run CoolDUCT program. ***** Refer to [User account and UAC](#) for details

Installing CoolDUCT program is simple. Select only one version of AutoCAD to start the installation. The program can be run on several versions of AutoCAD. However, the block created by higher version of AutoCAD may not be inserted onto the drawing that is using lower version of AutoCAD.

If you need to run CoolDUCT with a **standard account** or on different version of AutoCAD after installation, just follow the procedure shown on "**Step 2**" below.

Step 1 - Copy two folders

Use decompression program to unzip the "CoolDUCT-(SI)-v7.1.zip" file into your local hard drive. A new folder named "CoolDUCT-(SI)-v7.1" will automatically be created on your hard drive. There will be two folders, "CoolDUCT" and "CDUCT-share" inside the "CoolDUCT-(SI)-v7.1" folder.

The "CoolDUCT" folder will contain all program files to be used by this computer. **Move out this folder** from the "CoolDUCT-(SI)-v7.1" folder and save it on local hard drive such as "C:\CoolDUCT".

The "CDUCT-share" folder will contain all configuration files and standard blocks. **Move out this folder**. It can be shared with other computers which also run CoolDUCT program. For network users, the "CDUCT-share" folder can be saved on network server to maintain the same drawing standard for all network users. Move out this folder from the "CoolDUCT-(SI)-v7.1" folder and save it on the **Roof Directory** of local hard drive or network server such as "C:\CDUCT-share" or "P:\CDUCT-share". You need to specify the location of the "CDUCT-share" folder during the installation late.

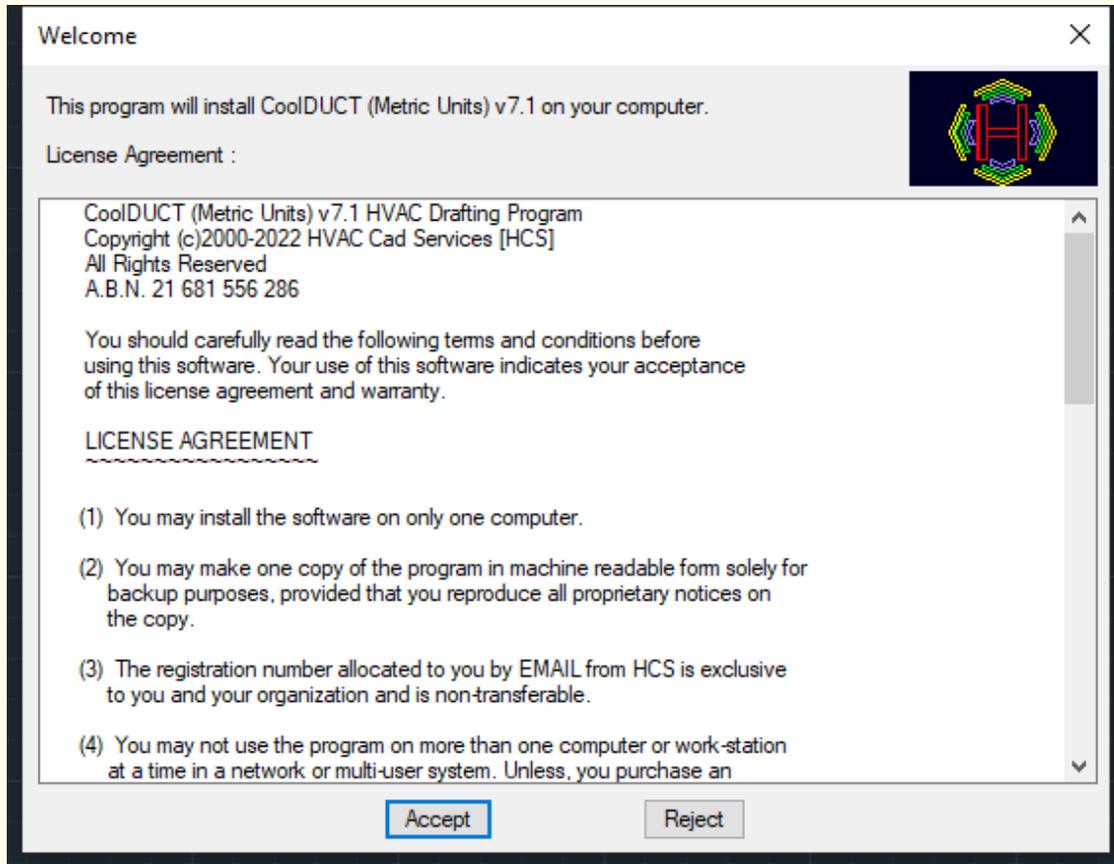
Note:

The "CDUCT-share" folder full pathname shall not contain **space** like "C:\Program Files\CDUCT-share" or "P:\Hvac CAD\Job Files\CDUCT-share" as AutoCAD will not be able to find the drawing files inside the "CDUCT-share" folder. The pathname like "P:\Hvac-CAD\Job-Files\CDUCT-share" will be OK. The best location of "CDUCT-share" folder is on the **Roof Directory**. You can change the "CDUCT-share" folder location after the installation at any time.

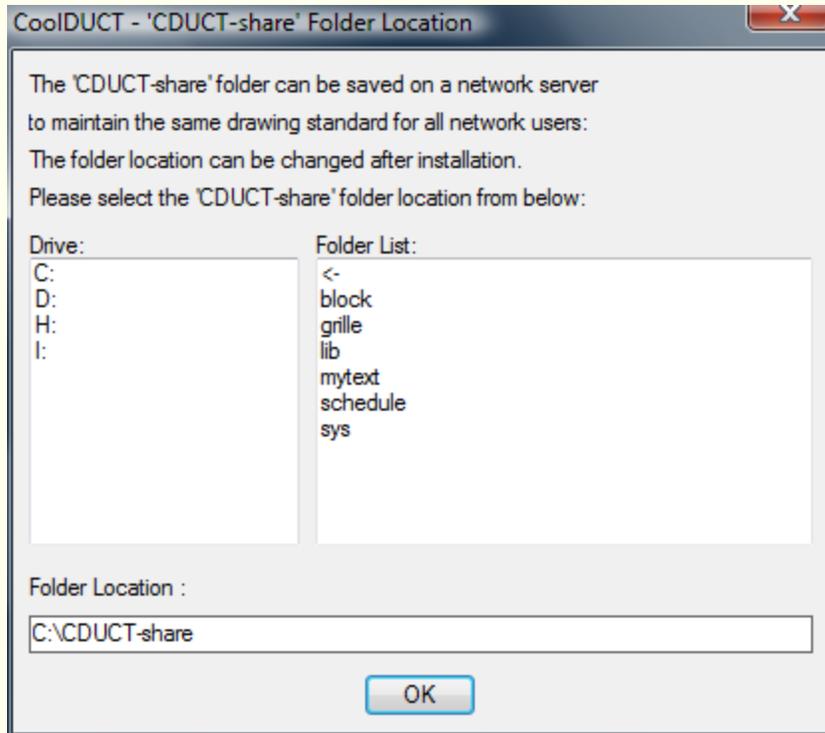
Step 2 - Add "CoolDUCT" folder location to AutoCAD's Support File Search Path...

1. In AutoCAD, click on "Tools", then "Options"
2. Click on the "Files" tab if you are not already there.
3. Click on the plus symbol next to "Support File Search Path".
4. Click on the "Add" button, then click on the "Browse" button.
5. Browse to the "CoolDUCT" folder where all program files have been saved (***** NOT the "CoolDUCT-(SI)-v7.1" folder *****). select it, and click on "OK"
6. Click on "Apply", then "OK" and exit AutoCAD program (* important).
7. Start AutoCAD again and it will run the Coolduct installation program.

Restart AutoCAD program again, it will displace license agreement.



After you accept the license agreement, AutoCAD will display the '**CDUCT-share**' Folder Location dialog box.



You need to specify the location of "CDUCT-share" folder. If you are not sure the location, use **Windows Explorer** to find the folder location. For network users, the "CDUCT-share" folder location can be all the same on network server.

Drive

Select a drive from the list where the "CDUCT-share" folder is saved.

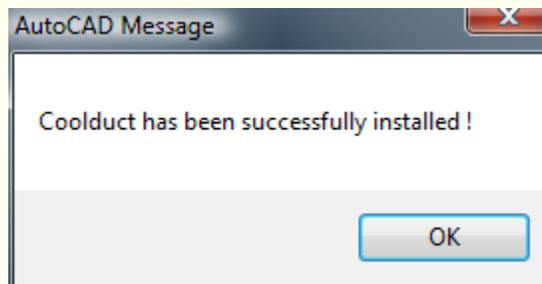
Folder List

Select the "CDUCT-share" folder location from the folder list. The "CDUCT-share" folder location will display on **Folder Location** edit box below.

Folder Location

Specify the exact location of the "CDUCT-share" folder.

Press **OK** button, AutoCAD will display the following message.



You are also presented with additional toolbars as following:

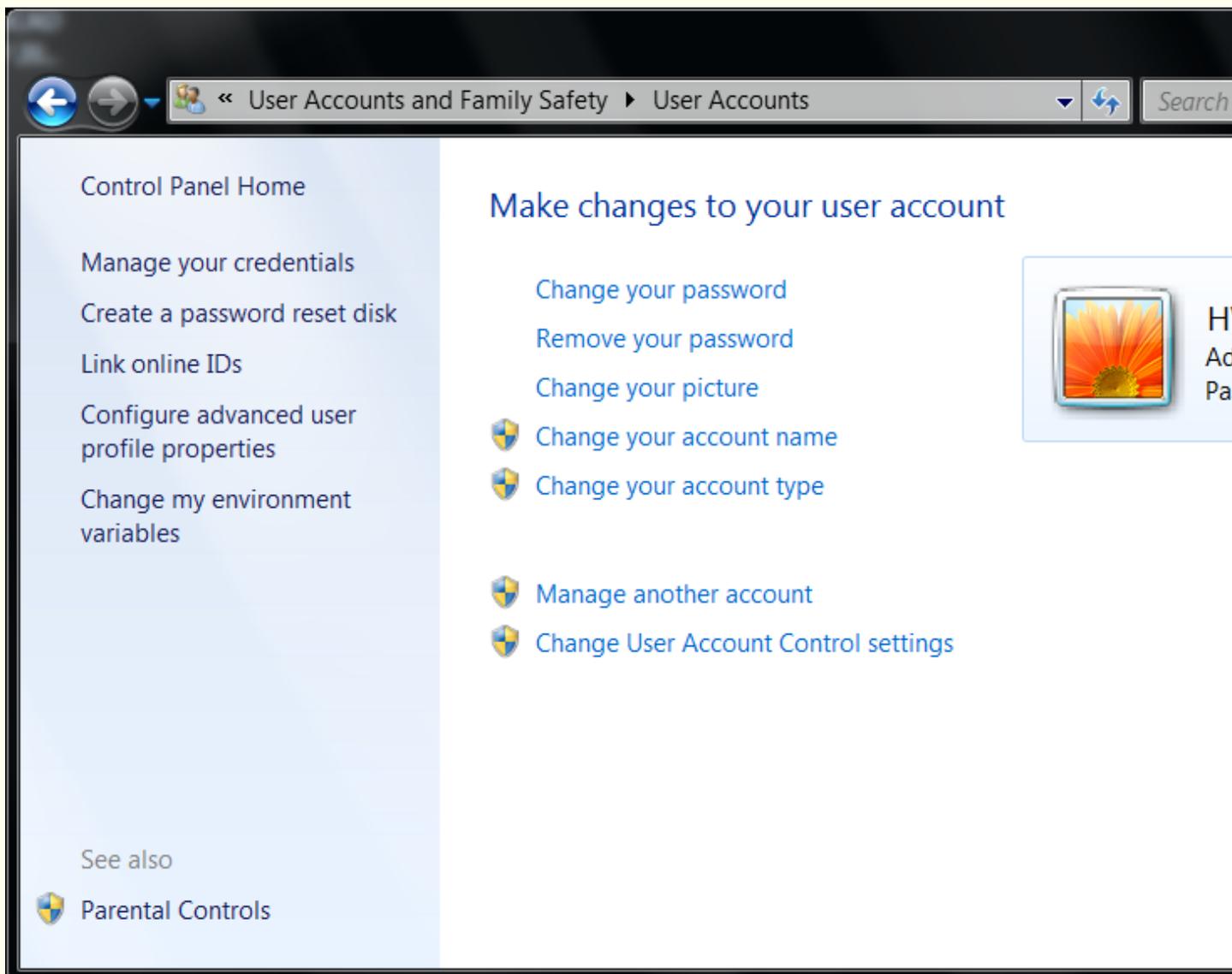


Turn User Account Control (UAC) on or off

*** To install CoolDUCT program, you must log in as an administrator and the User Account Control (UAC) must be turn off. After installation, you can turn UAC back on and use a standard account to run CoolDUCT program. ***

To turn off the User Account Control (UAC), just follow the procedure shown below.

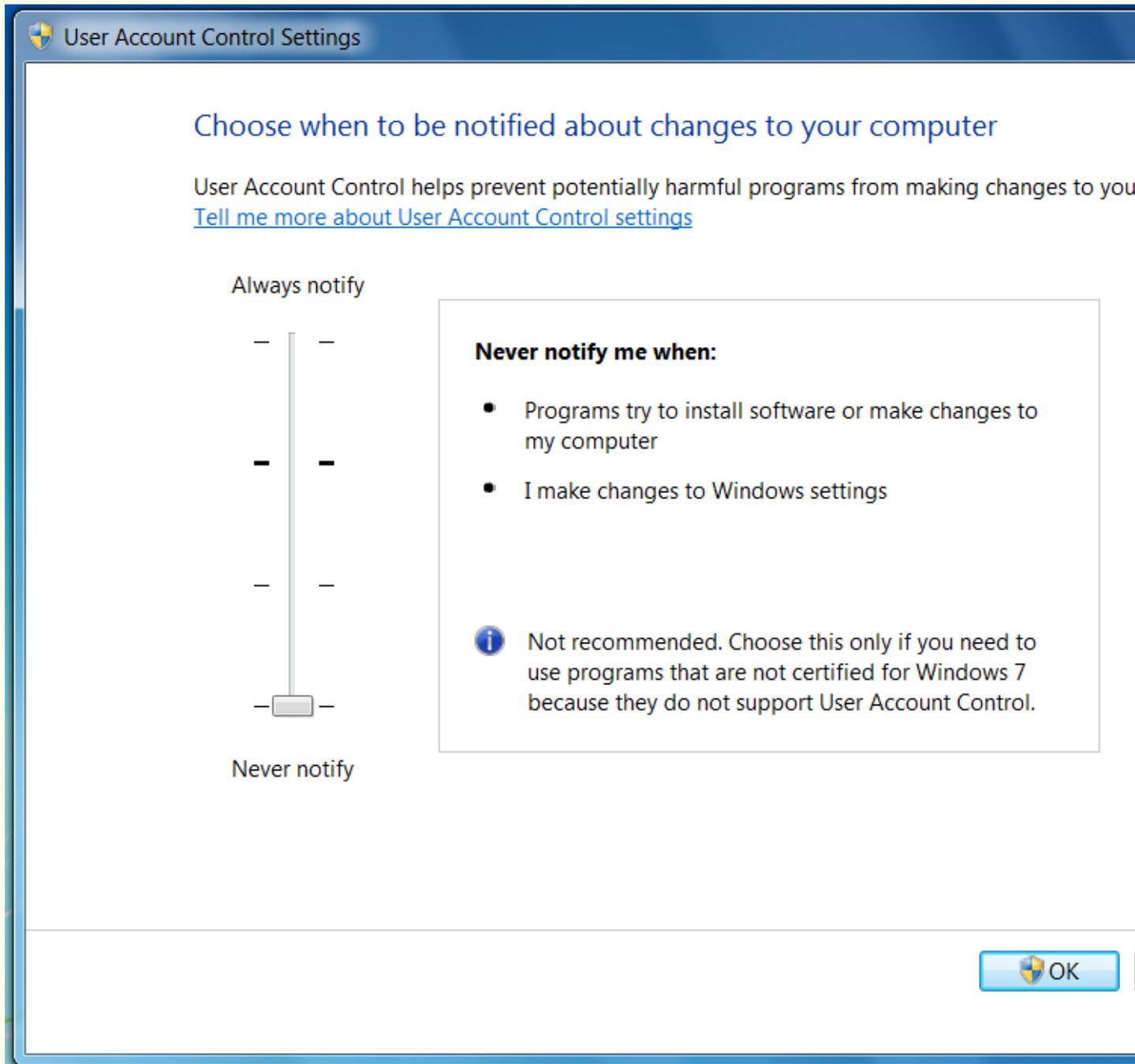
1. Open the **Control Panel - All Control Panel Items -View by large icons.**
2. Click on the **User Accounts** icon.
3. Click on the **Change User Account Control settings** link. (See screenshot below)



4. If prompted by UAC, click on **Yes** to approve.

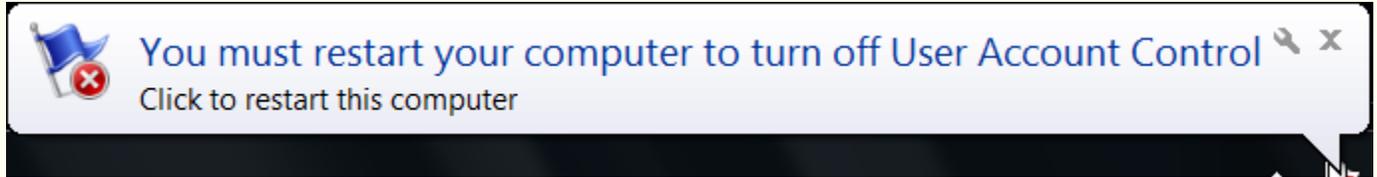
5. Slide the bar right down to the bottom and you effectively turn the UAC feature off. (See screenshots below)

6. Click on **OK** when done.



7. If prompted by UAC, click on **Yes** to approve.

8. If you have just turned UAC off, then you will need to click on **restart the computer** to apply the changes. (See screenshot below)



After restarting your computer, start AutoCAD again and it will run the Coolduct installation program.

***** Once CoolDUCT has been installed, you can follow the procedure shown above to turn User Account Control back on as soon as possible. *****

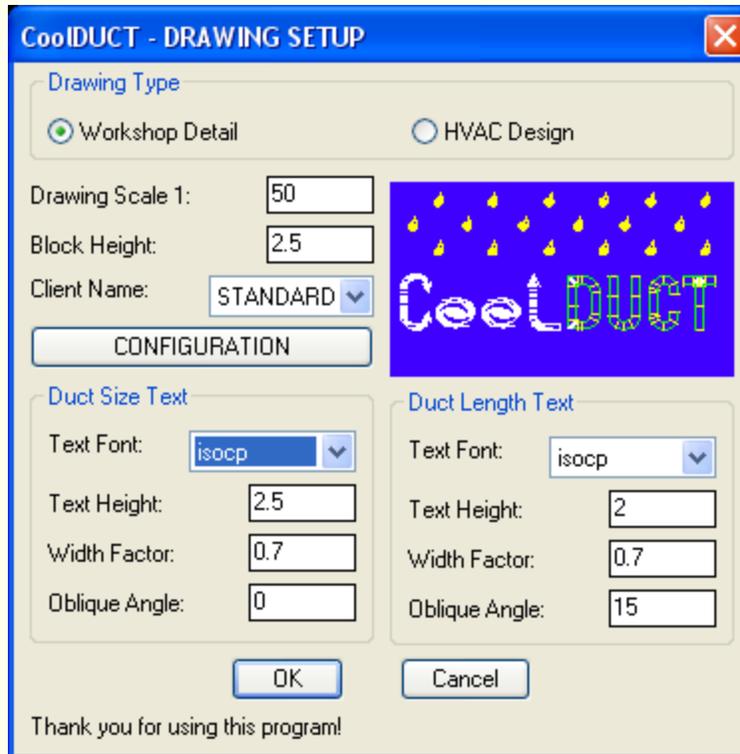
UNINSTALLATION

To remove CoolDUCT program, first use the MENU command or type "**UCDUCT**" on command line to unload the CoolDUCT menu. Then in the Files tab of the Options dialog, remove the CoolDUCT folder from the Support File Search Path. Close all AutoCAD sessions and restart it again.

To re-load CoolDuct program late, you need to add the CoolDUCT directory to the AutoCAD's Support File Search Path and use the MENU command or type "**CDUCT**" on command line to load the CoolDUCT menu again.

DRAWING SETUP

Every time you start a new drawing or open an existing drawing which was not created by using CoolDUCT program, AutoCAD will display the **DRAWING SETUP** dialog box.



All desired values you enter in this dialog box will be stored in this drawing file and remain even if the drawing is ended then later edited.

Drawing Type

Specify a drawing type to be created. This program is able to produce **Workshop Detail** drawing or **HVAC Design** drawing and it will load different interface dialog boxes for creating duct piece accordingly. For Workshop Detail drawing, it will provide additional duct manufacturing details such as duct length, duct frame, duct insulation line and duct end step down. The pages describing the functions of creating duct piece in this manual are based on the **Workshop Detail** drawing.

Workshop Detail - drawing for site coordination and workshop manufacture.

HVAC Design - drawing for Mechanical design. Refer to: [HVAC Design Drawing](#) for the details.

Drawing Scale

Set a drawing scale to be used. The program will automatically create a new dimension style such as **DIM50** and set it as the current dimension style on the drawing after you click OK. Also, the linetype scale factor **LTSCALE** is set to **50** and the paper space linetype scale factor **PSLTSCALE** is set to 0.

Block Height

Set a desired size for the block to be inserted into the drawing. These blocks include duct insulation tag, duct piece tag, equipment tag, duct height symbol, ceiling height symbol, slab height symbol and pipe height symbol. The block height is the plotted height of the block text.

Client Name

The program is designed to be fully customized to suit your drawing standards. You can choose different default settings for different client. Once you select a Client Name, all default settings will be used by the program for the duration of the drawing. All client default settings - configuration files are saved under "..\CDUCT-share\sys" directory. To add or delete a client name from client name popup list, go to the "..\CDUCT-share\sys" directory to add or delete the configuration files. For new client, you can simply just use NOTEPAD to open the "standard.ini" file and save it as "aircom.ini", then modify its values to suite your need. We recommend you to use [Configuration](#) function to modify default settings.

CONFIGURATION

Picking on this botton will display all default settings for the current client <standard>.Refer to: [Configuration](#)

Duct Size Text

Select the desired text font and height to be used for duct size text. The text height should be the plotted height of the text. Using [Configuration](#) function to change text font list order or add more if they are available within your AutoCAD. Using command "STYLE" to change the text Width and Oblique Angle if needed late.

Duct Length Text

Select the desired text font and height to be used for duct length text. However, it only works for Workshop Detail drawing. The HVAC Design drawing will not show duct length details.

OPENING AN EXISTING DRAWING

When open an existing drawing, the program will automatically check whether the drawing was created by using CoolDUCT. If it is not, the **DRAWING SETUP** dialog box will be displayed and allows you to set up the drawing and will load CoolDUCT program accordingly. Refer to: [Drawing Setup](#) for more details. Otherwise, the program will read the default settings stored within the drawing and loaded CoolDUCT functions accordingly. If the default client file was not found in your computer, an AutoCAD Message will display as following.



If you don't want the configuration file "Standand.ini" to be used for this drawing, click OK and close the drawing. Then, you need to obtain the configuration file "UNIAIR.ini" from the person who created this drawing and save it to the" \CDUCT\sys" directory. Re-open this drawing again and the AutoCAD Message will disappear. The original configuration will be used by the program for this drawing. If you cannot obtain this file, you still can use drawing re-setup function to choose you desired client name. After

the drawing has been opened and the AutoCAD Message has been displayed, click OK and then pick toolbars button . It will display the **DRAWING RE-SETUP** dialog box. Select a desired client name and click OK. Refer to: [Drawing Re-setup](#) for more details.

HVAC Design Drawing

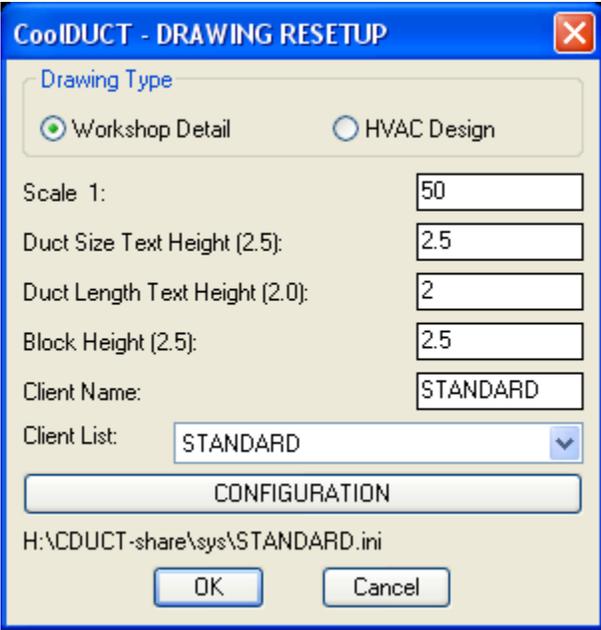
The pages describing the functions of creating duct piece in this manual are based on the **Workshop Detail** drawing. For the **HVAC Design** drawing, the interface dialog boxes will be slight different. The dialog boxes will contain less details for duct as they are not required for HVAC design drawing. Also, an additional option of **Airway Size only** has been added.

Airway Size only

When this box is checked on the interface dialog boxes for creating duct piece, the thickness of internal insulation will not be added to the duct metal size. For example, for a 500x500 air way duct with 50mm internal insulation, it will be drawn as 500x500 duct (metal size) on the drawing. Otherwise, it will be drawn as 600x600 duct on the drawing.

DRAWING RE-SETUP

When the button  is picked, displays the **DRAWING RESETUP** dialog box.



CooDUCT - DRAWING RESETUP

Drawing Type

Workshop Detail HVAC Design

Scale 1: 50

Duct Size Text Height (2.5): 2.5

Duct Length Text Height (2.0): 2

Block Height (2.5): 2.5

Client Name: STANDARD

Client List: STANDARD

CONFIGURATION

H:\CDOUCT-share\sys\STANDARD.ini

OK Cancel

All desired values you enter in this dialog box will be stored in this drawing file and remain even if the drawing is ended then later edited.

Drawing Type

Check a radio box to change the drawing type to Workshop Detail drawing or HVAC Design drawing. The different interface dialog boxes for drawing duct will be loaded accordingly. Refer to: [HVAC Design Drawing](#) for the details.

Drawing Scale

Set a drawing scale to be used. The program will automatically create a new dimension style such as **DIM100** if the scale is changed and set it as the current dimension style on the drawing after you click OK.

Duct Size Text Height

Select the desired text height to be used for duct size text. The change of the text height is valid for the new duct text only. You can not change the text font, width and oblique angle by this function. But, you can do it late by using the command "STYLE".

Duct Length Text Height

Select the desired text height to be used for duct length text. The change of the text height is valid for the new duct length text only. You can not change the text font, width and oblique angle by this function. But, you can do it late by using the command "STYLE".

Block Height

Set a desired size for the block to be inserted into the drawing. These blocks include duct insulation tag, duct piece tag, equipment tag, duct height symbol, ceiling height symbol, slab height symbol and pipe height symbol. The block height entered is the plotted height of the block text.

Client Name

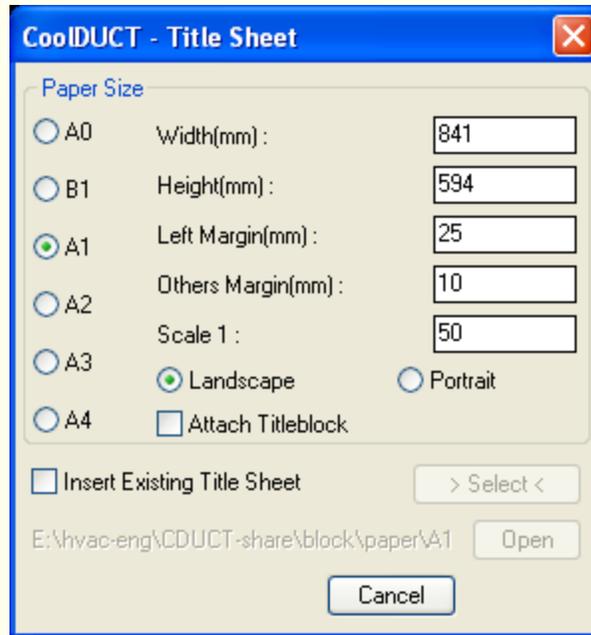
You can choose different default settings for different client. Once you select a Client Name, all default settings will be used by the program for the duration of the drawing. All client default settings - configuration files are saved under "..\CDUCT-share\sys" directory. To add or delete a client name from client name popup list, go to the "..\CDUCT-share\sys" directory to add or delete the configuration files. For new client, you can simply just use NOTEPAD to open the "standard.ini" file and save it as "aircom.ini", then modify its values to suite your need. We recommend you to use [Configuration](#) function to modify default settings.

CONFIGURATION

Picking on this botton will display all default settings for the current client <standard>.Refer to: [Configuration](#)

Title Sheet

When the button  is picked, displays the **Title Sheet** dialog box.



Paper Size

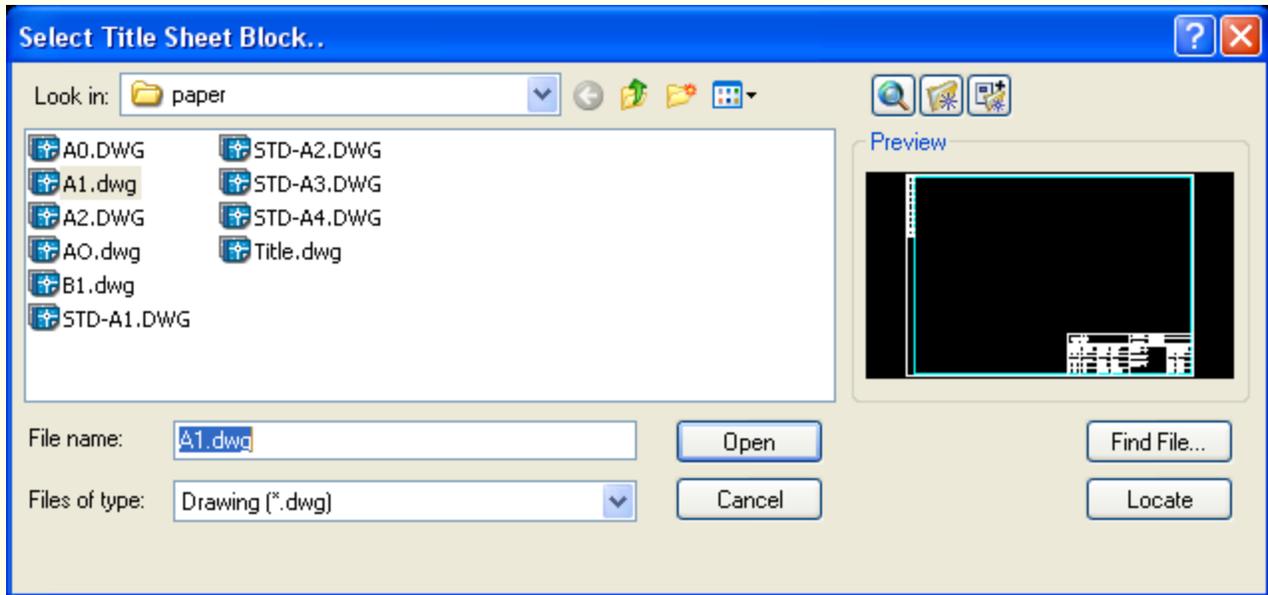
Specify the paper size and drawing scale on the edit boxes. Select title sheet orientation. Check The **Attach Titleblock** box to attach a titleblock if required. Then pressing **OK** button will prompt you to pick a point to draw the title sheet on the drawing. The drawing scale is only available on model space.

Insert Existing Title Sheet

Checking on this box will insert a existing block into drawing instead of drawing a title sheet. The block file name is shown on the bottom of the dialog box.

Select

When the **Select** button is picked, displays the **Select Title Sheet Block..** dialog box.



Select the block file name from the dialog box and press **Open** button. This will return you to previous dialog box. Clicking on the **OK** button will prompt you to pick a point for inserting the block.

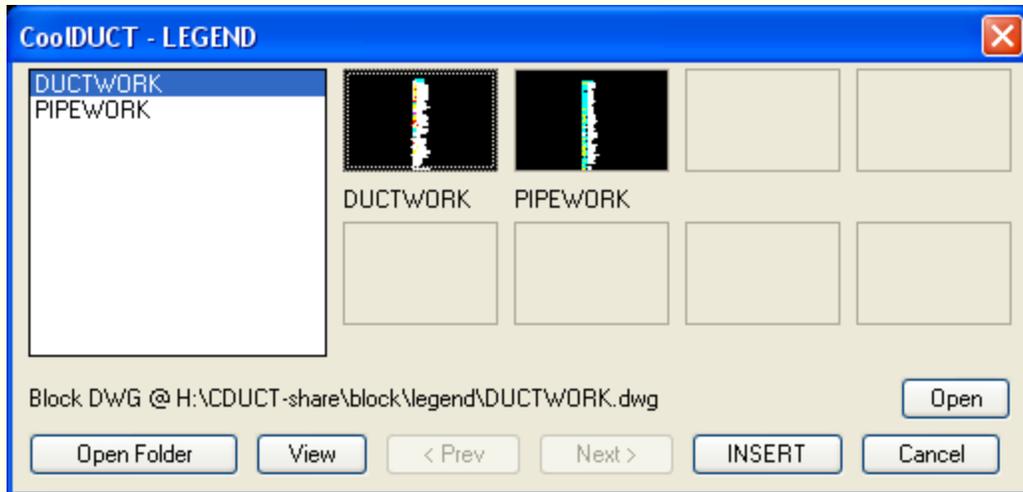
Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find the file and displays the message as picture below. Refer to: "[CDUCT-share](#)" [Folder Location](#) for more details.



LEGEND

When the button  is picked, displays the **LEGEND** dialog box.



Select a legend by double clicking on the picture or the popup list. You will be prompted to pick a point to insert the legend. The legend text height for plotting are the same in either model space or paper space. To modify the original legend, use **Open** button to open the drawing and edit it. To add more Legend into the popup list, create a new drawing in 1:1 scale and save it to the directory. You also need to use command "MSLIDE" to create a SLD file with the same name and save it in same location.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find it. Refer to: "[C'DUCT-share](#)" [Folder Location](#) for more details.

Open Folder

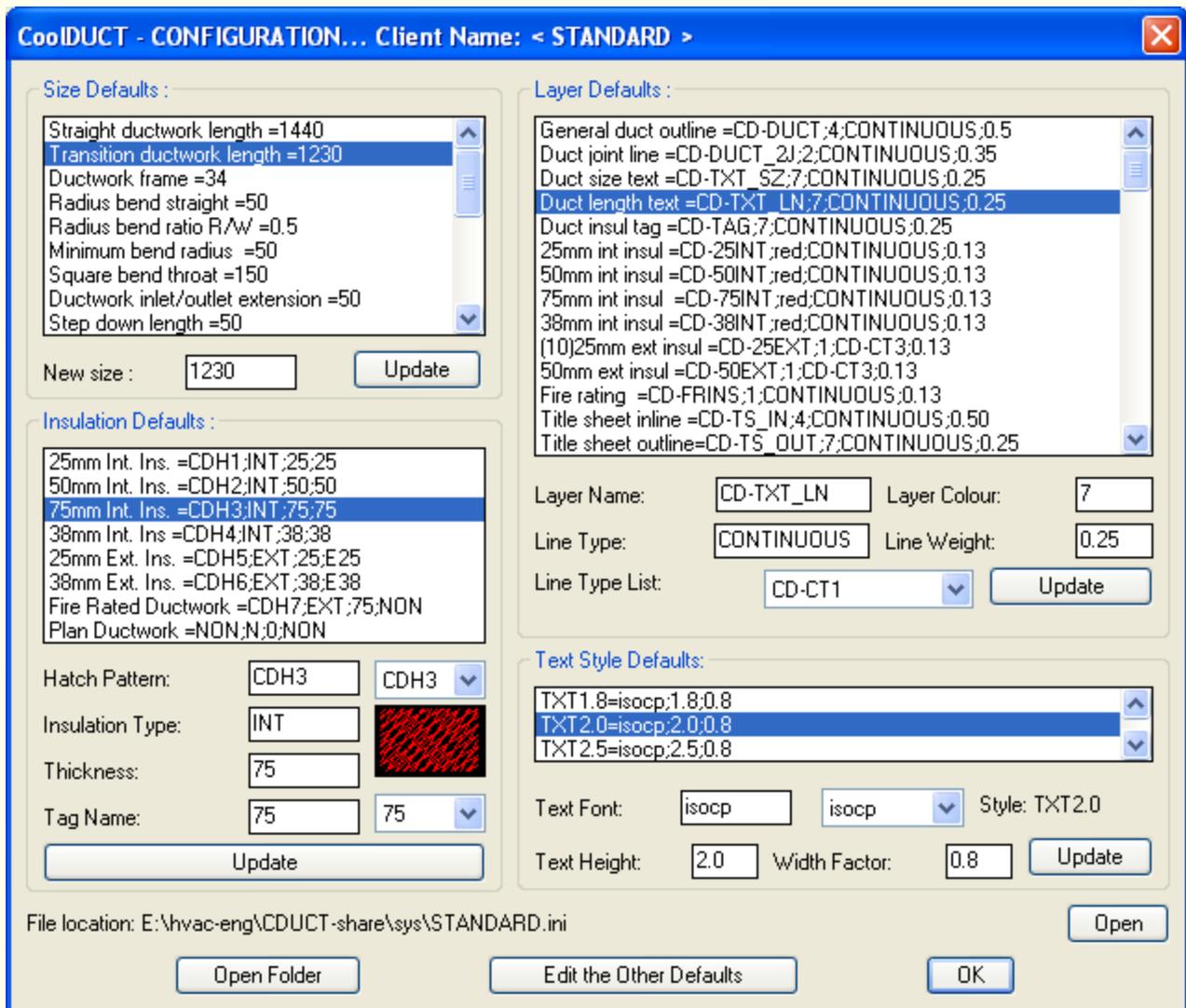
Click on this button to open the **Legend** folder which contains all legend block files.

View

Click on this button to view the legen in enlarged view without inserting.

CONFIGURATION

When The **CONFIGURATION** button is picked, it displays the **CONFIGURATION** dialog box.



This dialog box displays all default settings for the current client <standard>. By clicking on any of these settings, its current values will be displayed in the edit boxes and can be edited. Once desired values have been entered, choose the **Update** button and the default settings will be updated in the dialog box as well as saved into the configuration file "standard.ini" located under "\CDUCT\sys" directory. You also can use NOTEPAD to edit the "standard.ini" file. However, you must be very careful. **Do not delete any item or change their order**, as a corrupted client file will cause errors in CoolDUCT. If you use NOTEPAD to edit the file, we suggest you back up these files before making any changes to them. Whether the updated default settings are valid for the current drawing depends on the stage of drawing that you are creating. Certainly, all of the new default settings will be applied when you start a new drawing or open an existing drawing. The "**standard.ini**" file has been set as the default configuration file by this program and **Do not delete it or change its name**.

Size Defaults

Specify the default duct sizes to be used by the program to draw ductwork. **Do not delete any item or change their order**.

Insulation Defaults

Specify the insulation defaults for the duct. **Do not delete any item or change their order.**

*****The Building Code Of Australia 2010 had revised the insulation types for commercial buildings. CoolDUCT has been updated to suit these changes. The 25mm internal and external insulation types are remained in current version . *****

Hatch Pattern

Select the desired hatch pattern name to be used for ductwork insulation. Click on the popup list, you can preview the image of the selected hatch pattern. Using [Edit the Other Defaults](#) to change the popup list order or add more hatch pattern name if they are available within your AutoCAD.

Insulation Type

Specify the insulation type.

INT - Internal insulation.

EXT - External insulation.

N - Non insulation.

Thickness

Specify the thickness of insulation,

Tag Name

Select the desired reference block name to be used for ductwork insulation. Click on the popup list, you can preview the image of the selected block. Entering "NON" in the **Tag Name** edit box will not insert any tag for this type of duct insulation. Using [Edit the Other Defaults](#) to change the popup list order or add more block names. For every block name added to the "hatch-tag.ini" file, you need to create a new block drawing file and save it to the " \Coolduct\block" directory.

Layer Defaults

Specify the layer defaults to be used by the program. Every object created by the program is created by default, 'bylayer', 'bycolor', 'byltype' and 'bylweight'. **Do not delete any item or change their order.**

Layer Name

Specify the desired layer name.

Layer Colour

Specify the desired colour for the layer.

Line Weight

Specify the desired line weight for the layer.

Line Type

Specify the desired line type for the layer. You also can select a line type from the popup list. Using [Edit the Other Defaults](#) to change the popup list order or add more line types if they are available within your AutoCAD.

Text Style Defaults

Specify the text style defaults to be used by the program. **Do not delete any item or change their order.**

Text Font

Specify the desired text font for the style. Using [Edit the Other Defaults](#) to change text font list order or add more if they are available within your AutoCAD.

Text Height

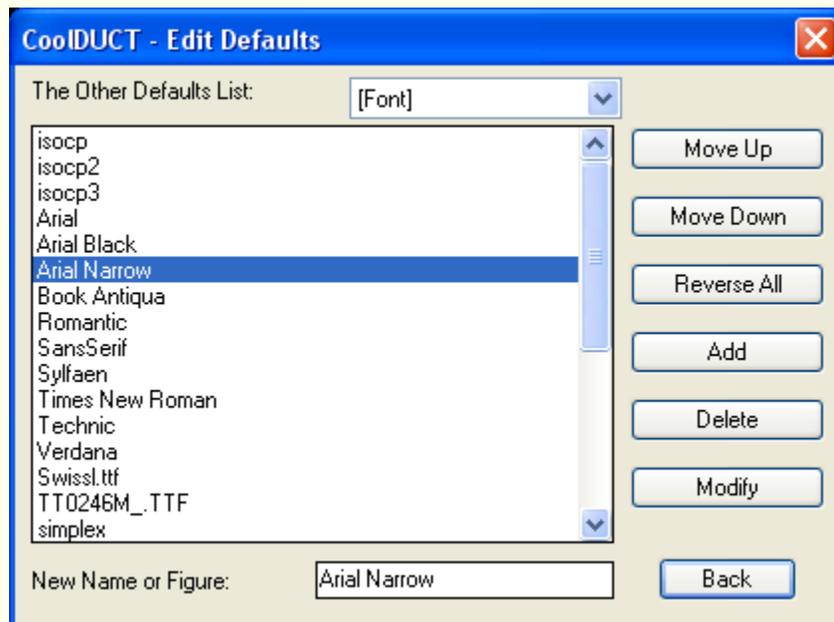
Specify the desired text height for the style.

Width Factor

Specify the desired text width factor for the style.

Edit the Other Defaults

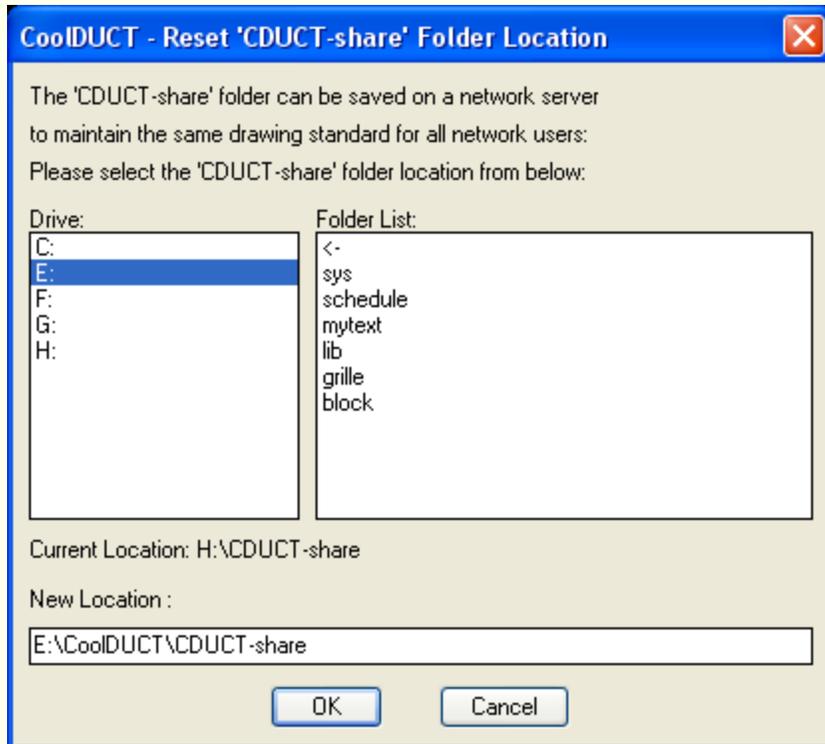
When The [Edit the Other Defaults](#) button is picked, it displays the **Edit Defaults** dialog box.



This dialog box displays all other default settings for the current client <standard>. Select the default items to edit the values. The new values will be saved into the current configuration file located under "\CDUCT\sys" directory.

Reset 'CDUCT-share' Folder Location

When the button  is picked, displays the **Reset 'CDUCT-share' Folder Location** dialog box.



The "CDUCT-share" folder contains all **configuration** files and standard blocks. It can be shared with other computers which also run CoolDUCT program . For network users, the "CDUCT-share" folder can be saved on network server to maintain the same drawing standard for all network users.

The "CDUCT-share" folder full pathname shall not contain **space** like "C:**Program Files**\CDUCT-share" or "P:**Hvac CAD****Job Files**\CDUCT-share" as AutoCAD will not be able to locate the drawing files inside the "CDUCT-share" folder. The pathname like "P:\Hvac-CAD\Job-Files\CDUCT-share" will be OK.

You need to specify the location of "CDUCT-share" folder. If you are not sure the location, use **Windows Explorer** to find the folder location. For network users, the "CDUCT-share" folder location can be all the same on network server.

Drive

Select a drive from the list which stores the "CDUCT-share" folder.

Folder List

Select the "CDUCT-share" folder location from the folder list. The "CDUCT-share" folder location will displace on **New Location** edit box below.

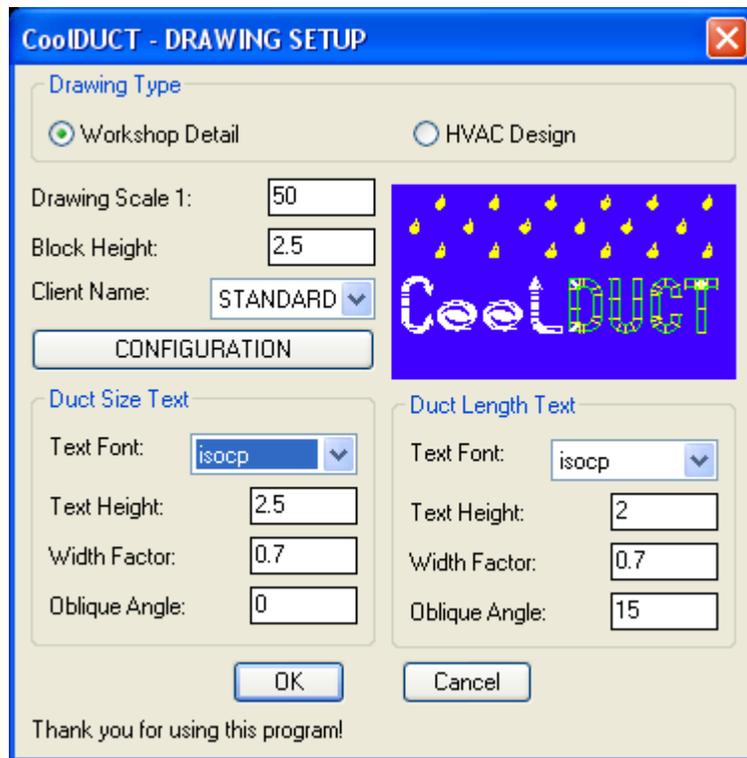
New Location

Specify the "CDUCT-share" folder new location.

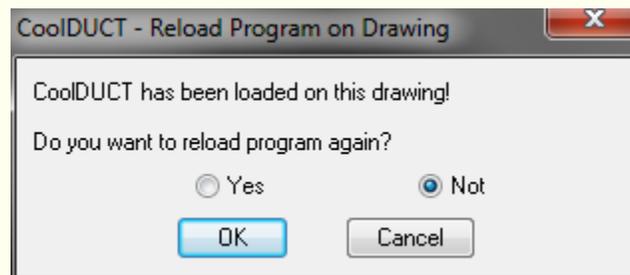
Load CoolDUCT Program

*** If there are some errors related to CoolDUCT program during the operation, reload the program again will fix the errors. ***

When the button  is picked, AutoCAD will check the drawing. If CoolDUCT program has never been loaded on this drawing, AutoCAD will display the **DRAWING SETUP** dialog box. Refer to: [DRAWING SETUP](#) for the details.



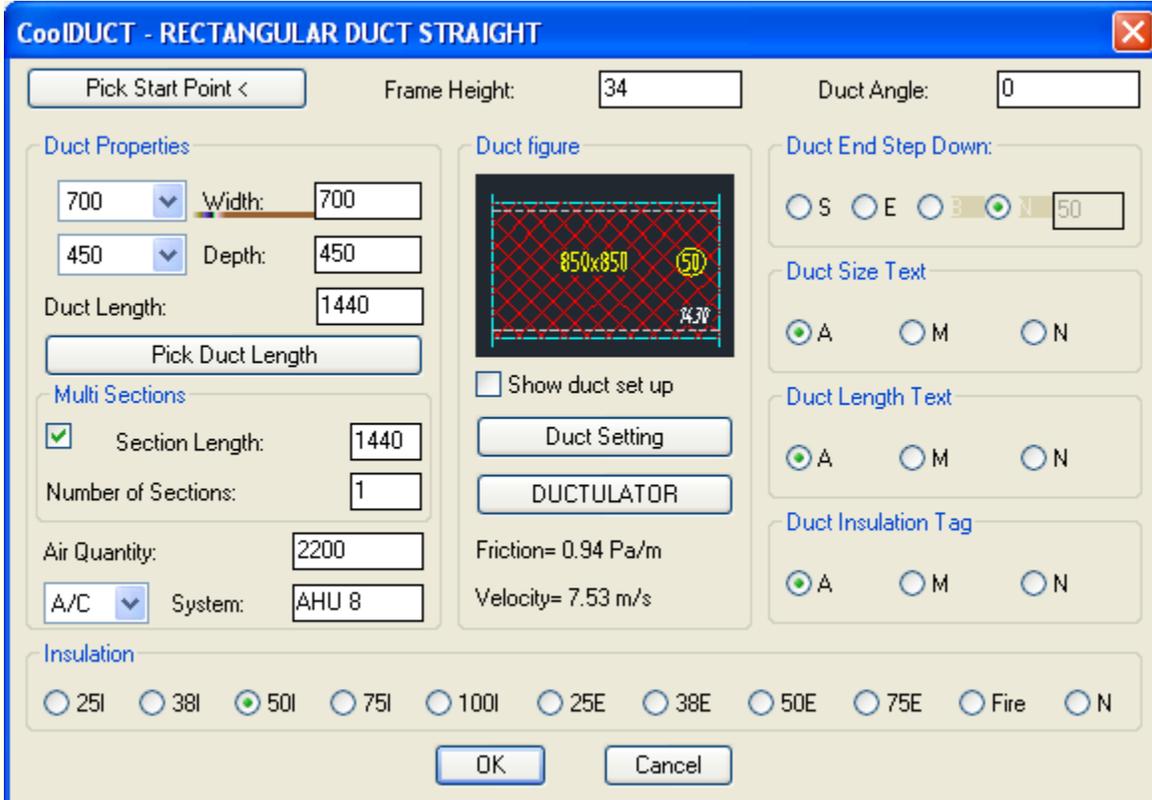
If CoolDUCT program has been loaded on this drawing, AutoCAD will display the **Reload Program on Drawing** dialog box.



If you check **Yes** box and press **OK** button, AutoCAD will display the **DRAWING SETUP** dialog box and CoolDUCT program will be reloaded again. Refer to: [DRAWING SETUP](#) for the details.

RECTANGULAR DUCT STRAIGHT

When the button  is picked, displays the **RECTANGULAR DUCT STRAIGHT** dialog box.



Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Frame Height

Specify the duct flange size. Refer to: [Configuration](#) for the default flange size.

Duct Angle

Specify the duct run direction.

Duct Width

Specify the duct width (airway size).

Duct Depth

Specify the duct depth (airway size).

Air Quantity

Specify the air flow rate for the duct. This information is optional and will not be shown on duct. If an air flow rate has been entered, the dialog box will show the duct friction and air velocity for the proposed duct.

System

This information is optional and will not be shown on ductwork. There are nine pre-determined systems that will be created in different layers accordingly.

1. GEN.....General duct
2. A/C..... Air conditioning duct
3. EXIST..... Existing duct
4. G/E.....General exhaust duct
5. T/E.....Toilet exhaust duct
6. K/E..... Kitchen exhaust duct
7. S/E..... Smoke exhaust duct
8. O/A..... Outside air duct
9. S/P..... Stair Pressure duct

You can select the system by picking on the popup list. You also can enter the new system name on the **System** edit box. However, the ductwork of the new system will always be created on GEN. system layer. Refer to: [Configuration](#) for the default pre-determined system layers.

Pick Duct Length

This button, when selected, will prompt you to specify the duct length by picking the end point of duct section.

Multi Sections

Checking this option will draw duct in section. Refer to: [Configuration](#) for the default section length.

Show insulation line

Checking this option will draw duct insulation lines.

Show insulation Hatch

Checking this option will add duct insulation hatch. Refer to: [Configuration](#) for the default insulation hatch patterns.

Show duct set up

Checking this option will insert an arrow to show duct end set up or down.

Duct Setting

Picking on this button to use **Duct Setting** function. Refer to: [Duct Setting](#)

DUCTULATOR

Picking on this button to use ductulator function. Refer to: [Ductulator](#)

The duct friction and air velocity shown in the dialog box are always based on duct airway size.

Duct End Step Down

The option for drawing a frame step down for the duct with internal insulation.

You can specify the step down length in the edit box. Refer to: [Configuration](#) for the default length.

S	Draw a frame step down at duct Start side.
E	Draw a frame step down at duct End side.
B	Draw a frame step down on duct both ends.
N	Not frame step down .

Duct Size Text

The option for inserting Duct Size Text on the duct.

A	Insert on every sections of duct.
M	Insert only on the middle section of the duct.
N	Not duct size text.

Duct Length Text

The option for inserting Duct Length Text on the duct.

A	Insert on every sections of duct.
M	Insert only on the middle section of the duct.
N	Not duct length text.

Duct Insulation Tag

The option for inserting Duct Insulation Tag on the duct. Refer to: [Configuration](#) for the default tag.

A	Insert on every sections of duct.
M	Insert only on the middle section of the duct.
N	Not duct insulation tag.

Duct Line Type

Select a line type for the duct to be drawn on the drawing.

If the **Pline** box is checked, duct will be drawn as a polyline . If the **Single** box is checked, the outline of duct is still drawn by using polyline, but the ductwork join lines will be drawn as single lines on different layer.

Insulation

Specify Duct Insulation.

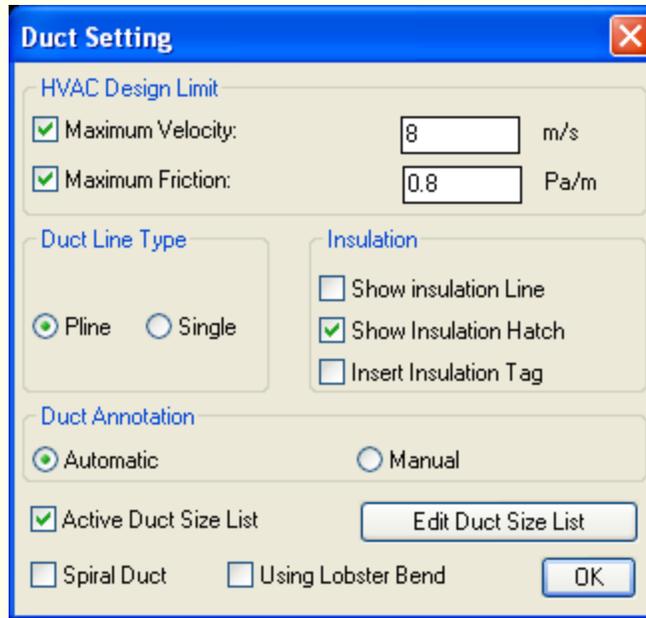
25I	25mm internal insulation.
38I	38mm internal insulation.
50I	50mm internal insulation.
75I	75mm internal insulation.
100I	100mm internal insulation.
25E	25mm external insulation.
38E	38mm external insulation.
50E	50mm external insulation.
75E	75mm external insulation.
Fire	Fire Rated insulation.
N	Not insulation (plan duct).

For internal insulation duct, the thickness of insulation will be automatically added to the duct sheet metal size. For example, for a 300mm wide x 250mm deep airway duct size with 50mm internal insulation, it will be drawn as 400mm x 350mm duct (sheet metal size) in you drawing. Refer to: [Configuration](#) for the default settings for insulation hatch patterns, type, thickness and tag.

All duct created by the program will retain the details of duct size, air flow rate, system and insulation.

Duct Setting

The **Duct Setting** button, when picked, displays the **Duct Setting** dialog box.



HVAC Design Limit

The function is designed to control the sizes of duct drawn into the drawing. When the **Max. Air Velocity** check box is on and you specify the maximum air velocity, the program will check the air velocity of main duct you are going to create. If it exceeds the specified limit, a warning message will be displays. Similarly, when the **Max. Pressure Drop** check box is on and you specify the maximum pressure drop, the program will check the pressure drop of duct. If both of check boxes are on, the program will check both of them. Either of them exceeds the specified limits, the warning message will be displays. To the duct with branches, This option will check the air velocity and pressure drop for the main duct only. Un-Checking this option makes you responsible for choosing duct sizes.

Once you exit the dialog box, the program setup preference will be stored inside the program and will remain as default until you update it again.

Duct Line Type

Select a line type for the duct to be drawn on the drawing.

If the **Pline** box is checked, duct will be drawn as a polyline . If the **Single** box is checked, the outline of duct is still drawn by using polyline, but the ductwork join lines will be drawn as single lines on different layer. If you need to produce the duct piece schedule, please select the **Pline** option. The program only can generate the duct piece schedule for the ductwork created by using **Pline** option, not **Single** option.

Insulation

Show insulation line - Checking this option will draw duct insulation lines.

Show insulation Hatch - Checking this option will add duct insulation hatch. Refer to: [Configuration](#) for the default insulation hatch patterns.

Show insulation Tag - Checking this option will insert duct insulation tag on the ductwork. Refer to: [Configuration](#) for the default tag.

Duct Annotation

Select the option for the Duct Size and Length Text to be inserted on the drawing.

If the **Automatic** box is checked, the Duct Size and Length Text to be inserted on the drawing automatically. Otherwise, you will be prompted to pick the points on the drawing to insert the Duct Size and Length Text.

Active Duct Size List

Checking this option will activate the duct **Width** and **Depth** popup lists on all rectangular duct dialog boxes.

Spiral Duct

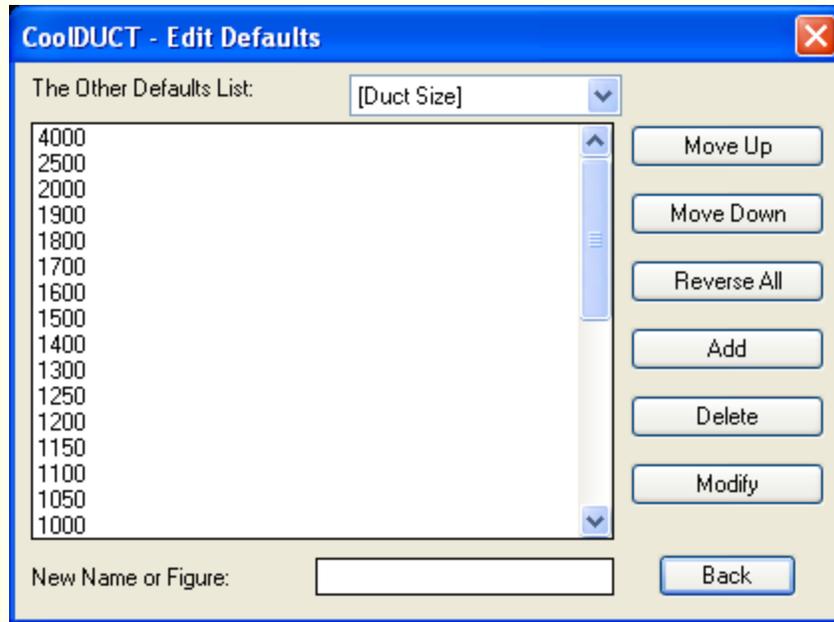
Sipral Duct always has its own standard metal sizes. If you select the **Spiral Duct** in this dialog box, the duct **Diameter** popup lists on every circular duct dialog box will be activate. When you draw a circular duct with internal insulation, the thickness of internal insulation will not be added to the duct overall size (metal size). For example, for a 508mm diameter spiral duct with 50mm internal insulation, it will be drawn as 508mm diameter duct (standard metal size) on the drawing and the actual internal diameter (airway) of duct is 408mm only.

Using Lobster Bend

If you check this option and connect two straight circular ducts by using **Duct Quick Connection**  or **Radius Offset**  functions, the lobster bends will be used for the connection.

Edit Duct Size List

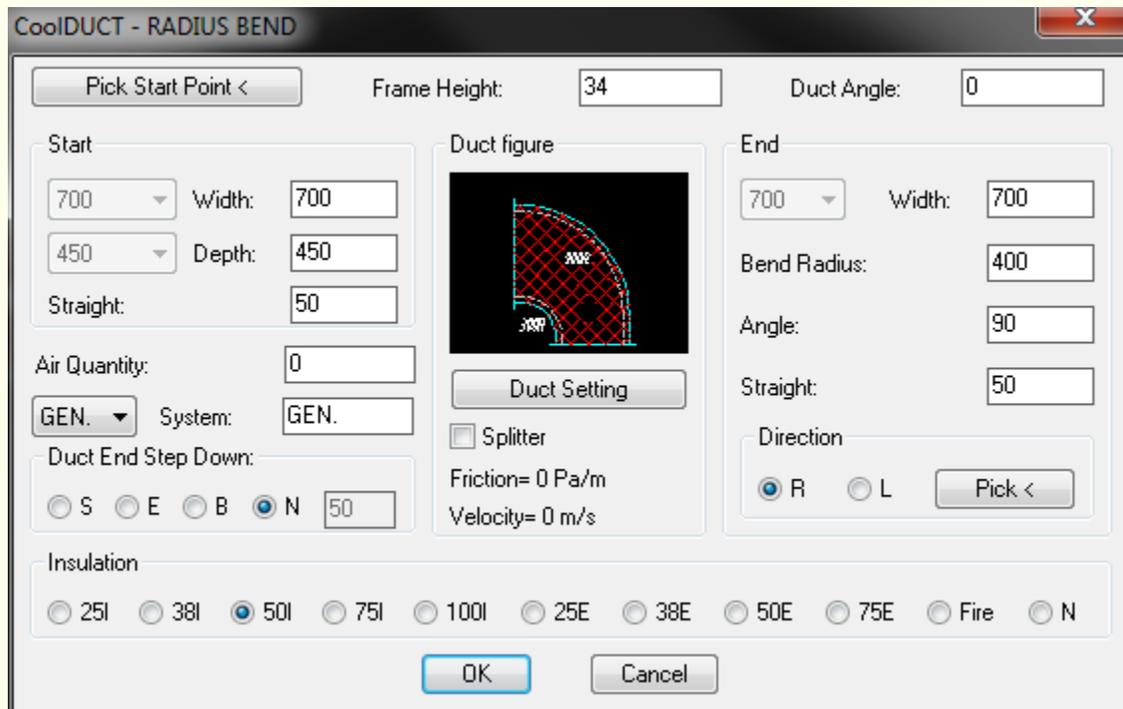
The **Edit Duct Size List** button, when picked, displays the **Edit Defaults** dialog box.



Select the default list to modify duct size or spiral duct size. The new size lists will be saved into the current configuration file located under "\CDUCT\sys" directory.

RADIUS BEND

The **Radius Bend**  button, when picked, displays the **RADIUS BEND** dialog box.



When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box,

the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end , use mouse to highlight the edit boxes on the **end** end.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Angle

Specify a bend angle.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default bend straight.

Bend Radius

Specify the bend radius for the duct. Every time you enter a new duct width, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. For internal insulation duct, the thickness of insulation will also be added to the calculation. A minimum bend radius has been set in the configuration file. If the Bend Radius is less than the minimum, it will be replaced by minimum bend radius. Refer to: [Configuration](#) for the default bend ratio and minimum bend radius.

Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

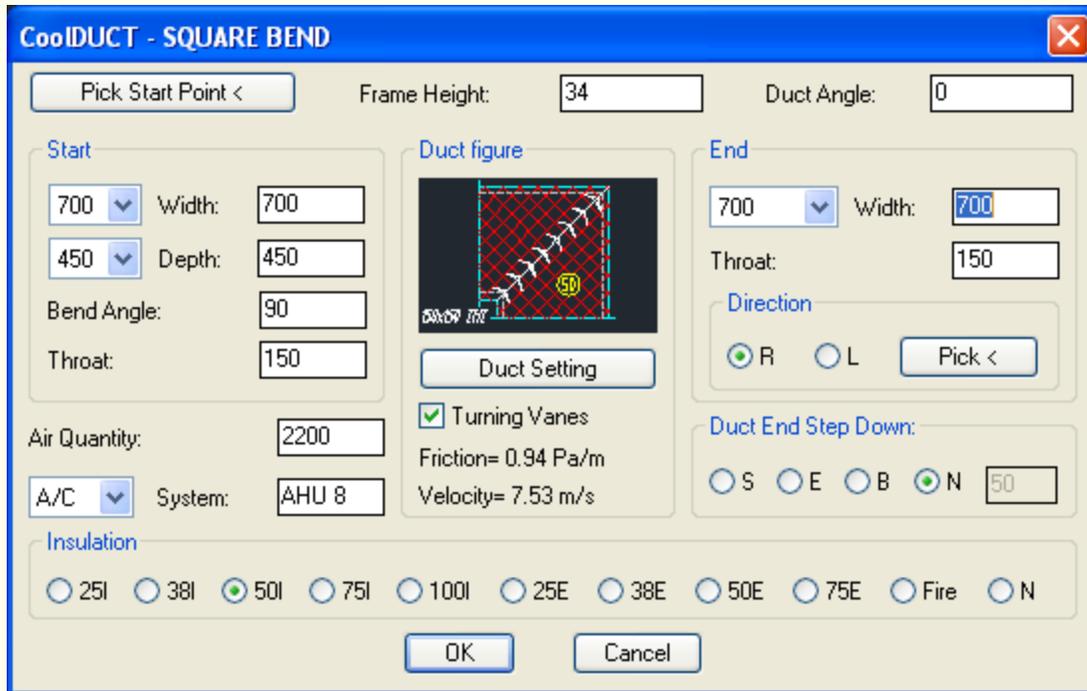
Splitter

Check this box will add Spllter on the bend.

For the other options, refer to: [Rectangular Duct Straight](#)

SQUARE BEND

The **Square Bend**  button, when picked, displays the **SQUARE BEND** dialog box.



When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end , use mouse to highlight the edit boxes on the **end** end.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Bend Angle

Specify a bend angle.

Throat

Specify the straight length of square bend. Refer to: [Configuration](#) for the default bend throat.

Turning Vane

Check this box for drawing the turning vanes in square bend.

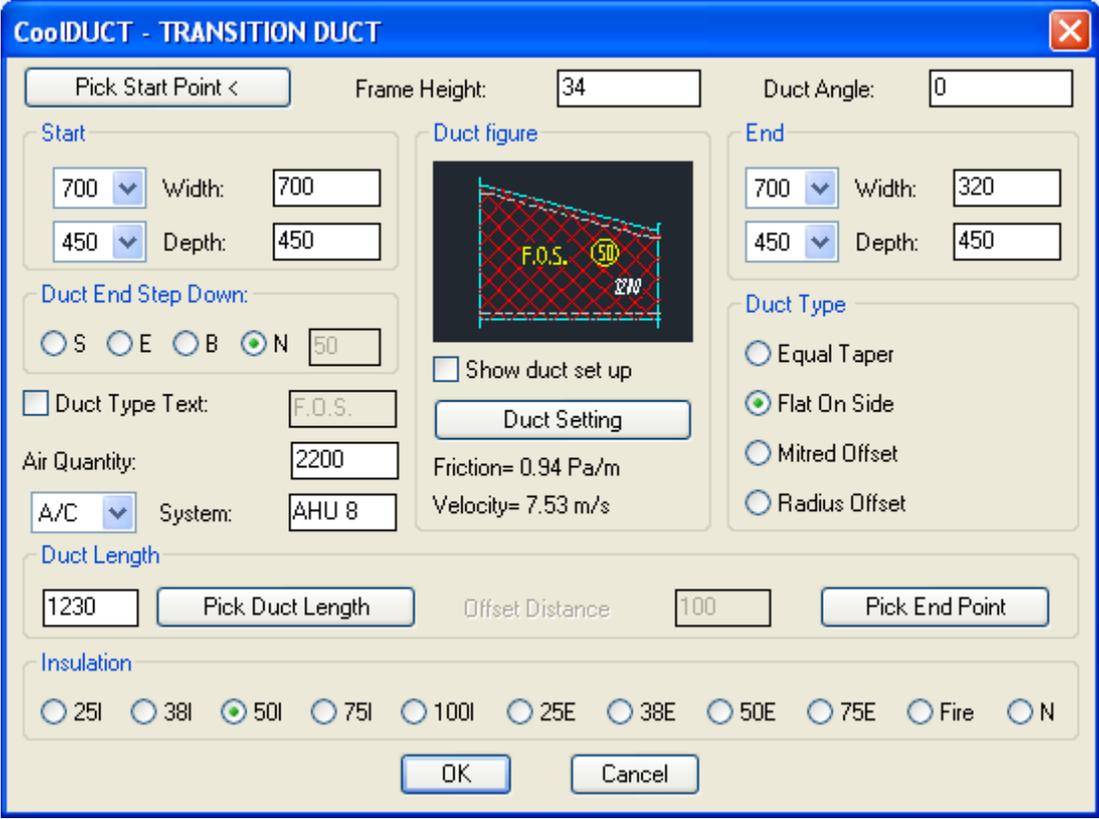
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#).

TRANSITION DUCT

When the button  is picked, displays the **TRANSITION DUCT** dialog box.



CooIDUCT - TRANSITION DUCT

Pick Start Point < Frame Height: 34 Duct Angle: 0

Start

700 Width: 700
450 Depth: 450

Duct End Step Down:

S E B N 50

Duct Type Text: F.O.S.

Air Quantity: 2200 System: AHU 8

Duct Length

1230 Pick Duct Length Offset Distance: 100 Pick End Point

Insulation

25I 38I 50I 75I 100I 25E 38E 50E 75E Fire N

Duct figure

Show duct set up

Duct Setting

Friction= 0.94 Pa/m
Velocity= 7.53 m/s

Duct Type

Equal Taper
 Flat On Side
 Mitred Offset
 Radius Offset

OK Cancel

When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end, use mouse to highlight the edit boxes on the **end** end.

Duct Type Text

Annotate duct type. It will be shown in the duct.

Transition Type

Check the radio box to select which type of transition duct to be drawn.

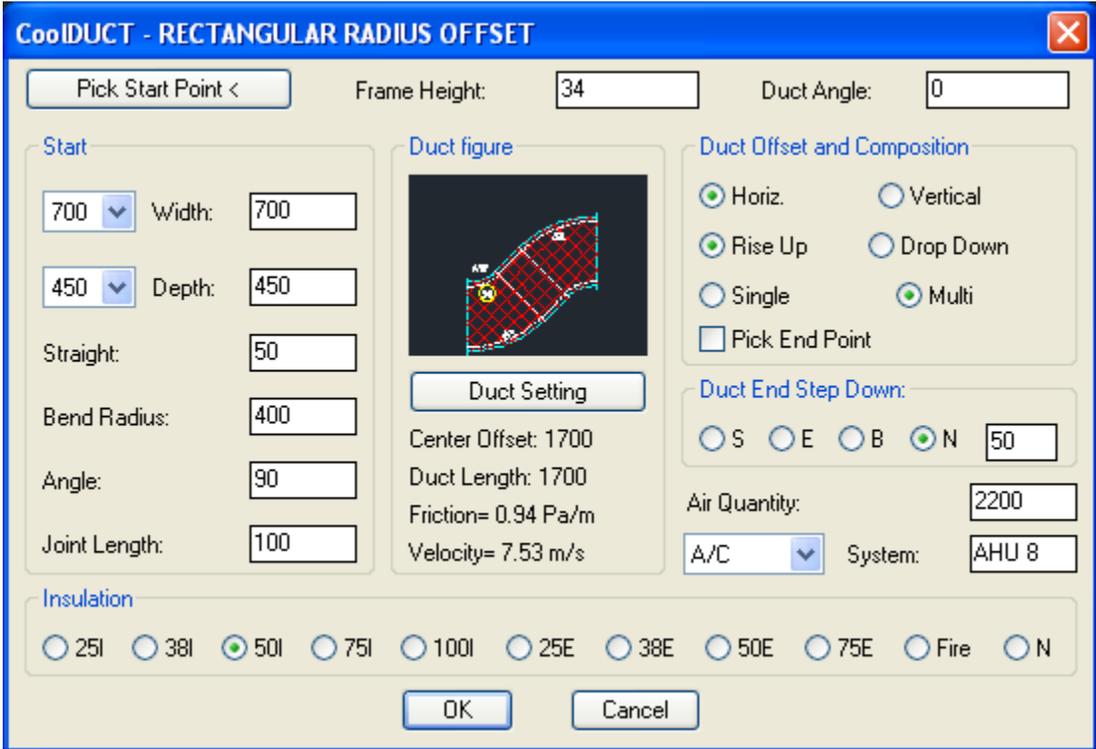
Pick End Point

By picking this button, you will be prompted to pick a point for duct end. If you pick a midpoint at the end of another existing duct that you want to join them together, the program will automatically work out the duct length, offset distance and duct size for the transition duct to be created.

For the other options, refer to: [Rectangular Duct Straight](#).

RADIUS OFFSET

When the button  is picked, displays the **RADIUS OFFSET** dialog box.



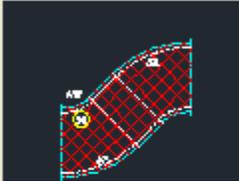
CooIDUCT - RECTANGULAR RADIUS OFFSET

Pick Start Point < Frame Height: 34 Duct Angle: 0

Start

700 Width: 700
450 Depth: 450
Straight: 50
Bend Radius: 400
Angle: 90
Joint Length: 100

Duct figure

 **Duct Setting**
Center Offset: 1700
Duct Length: 1700
Friction= 0.94 Pa/m
Velocity= 7.53 m/s

Duct Offset and Composition

Horiz Vertical
 Rise Up Drop Down
 Single Multi
 Pick End Point

Duct End Step Down:

S E B N 50

Air Quantity: 2200
A/C System: AHU 8

Insulation

25I 38I 50I 75I 100I 25E 38E 50E 75E Fire N

OK Cancel

Duct Offset and Composition

Select duct offset direction and how the duct to be composed.

Joint Length

Specify the straight duct length between two radius bends.

For the other options, refer to: [Rectangular Duct Straight](#).

RECTANGULAR RISER

The **Riser**  button, when picked, displays the **RECTANGULAR RISER** dialog box.

When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end, use mouse to highlight the edit boxes on the **end** end.

Throat or Radius

Specify the straight length for square bend riser or bend radius for radius riser. For radius bend, every time you enter a new duct depth, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. For internal insulation duct, the thickness of insulation will also be added to the calculation. A minimum bend radius has been set in the configuration file. If the Bend Radius is less than the minimum, it will be replaced by minimum bend radius. For square bend, it specifies the straight length after bend. Refer to: [Configuration](#) for the default throat, bend ratio and minimum bend radius.

Supply Air or Return Air

Check the edit boxes to select different duct type to be drawn.

Bend Shape

Select a square bend riser or radius bend riser to be drawn.

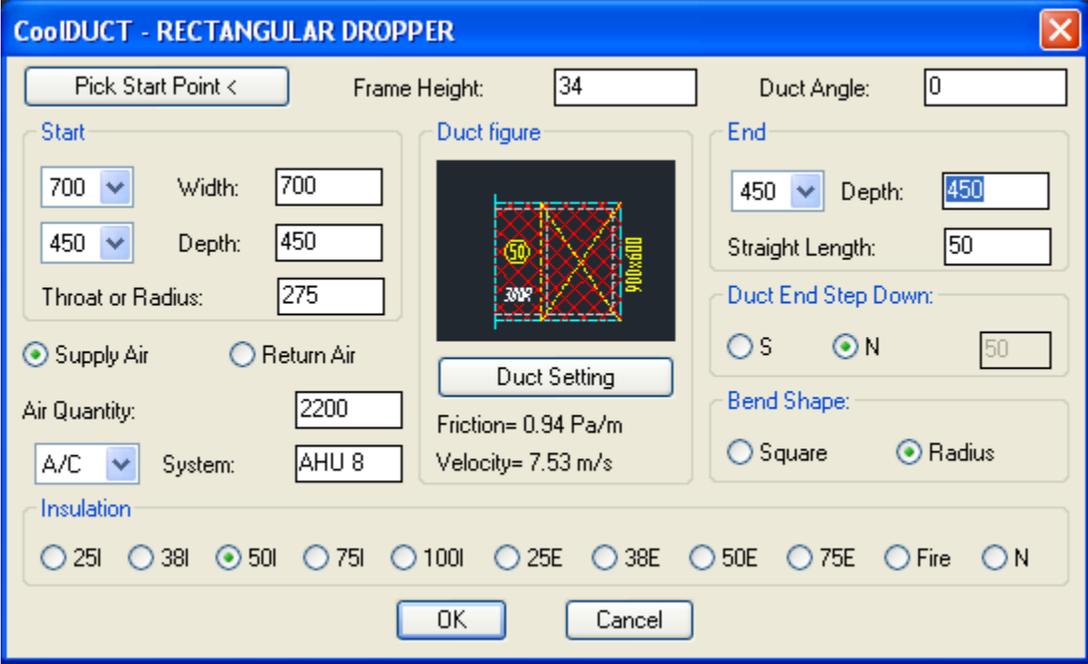
Straight Length

Specify the length of straight duct before bend for radius bend only. Refer to: [Configuration](#) for the default duct sizes.

For the other options, refer to: [Rectangular Duct Straight](#)

RECTANGULAR DROPPER

The **Dropper**  button, when picked, displays the **RECTANGULAR DROPPER** dialog box.



CooDUCT - RECTANGULAR DROPPER

Pick Start Point < Frame Height: 34 Duct Angle: 0

Start

700 Width: 700
450 Depth: 450
Throat or Radius: 275

Supply Air Return Air

Air Quantity: 2200
A/C System: AHU 8

End

450 Depth: 450
Straight Length: 50

Duct End Step Down:
 S N 50

Bend Shape:
 Square Radius

Duct figure

50
300
700x450

Duct Setting

Friction= 0.94 Pa/m
Velocity= 7.53 m/s

Insulation

25I 38I 50I 75I 100I 25E 38E 50E 75E Fire N

OK Cancel

When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end, use mouse to highlight the edit boxes on the **end** end.

Throat or Radius

Specify the straight length for square bend dropper or bend radius for radius dropper. For radius bend, every time you enter a new duct depth, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. For internal insulation duct, the thickness of insulation will also be added to the calculation. A minimum bend radius has been set in the configuration file. If the Bend Radius is less than the minimum, it will be replaced by minimum bend radius. For square bend, it specifies the straight length after bend. Refer to: [Configuration](#) for the default throat, bend ratio and minimum bend radius.

Supply Air or Return Air

Check the edit boxes to select different duct type to be drawn.

Bend Shape

Select a square bend dropper or radius bend dropper to be drawn.

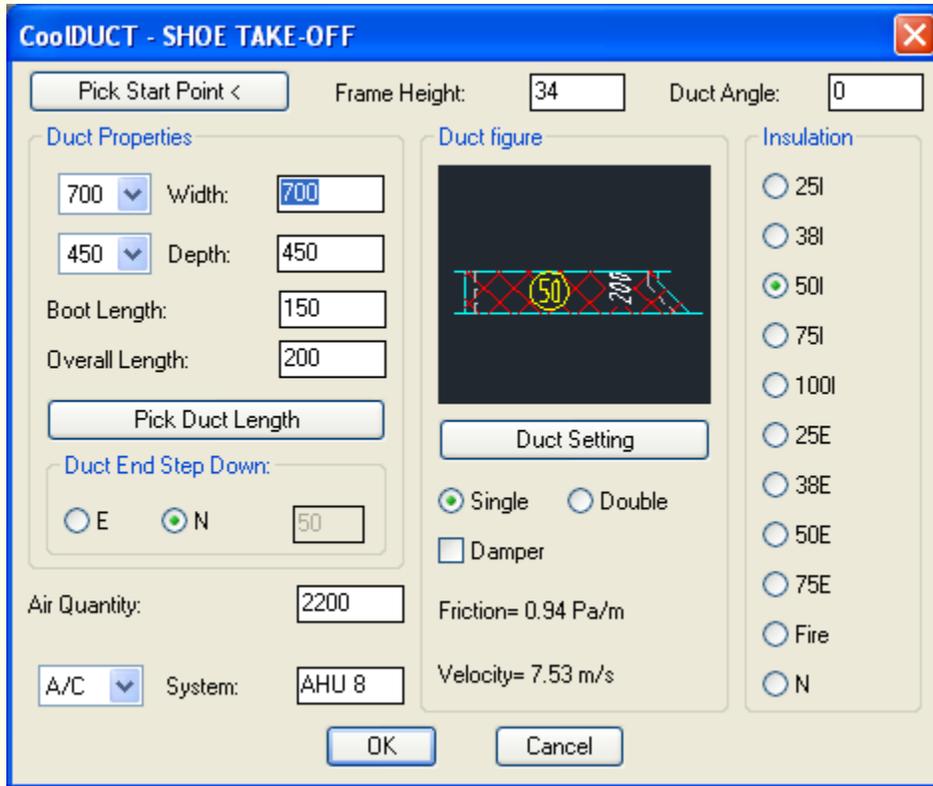
Straight Length

Specify the length of straight duct before bend for radius bend only. Refer to: [Configuration](#) for the default duct sizes.

For the other options, refer to: [Rectangular Duct Straight](#)

SHOE TAKE-OFF

The **Shoe Take-off**  button, when picked, displays the **SHOE TAKE-OFF** dialog box.



Boot Length

Specify the boot length to be drawn. Refer to: [Configuration](#) for the default shoe boot length.

Overall Length

Specify the overall duct length to be drawn. Refer to: [Configuration](#) for the default shoe overall length.

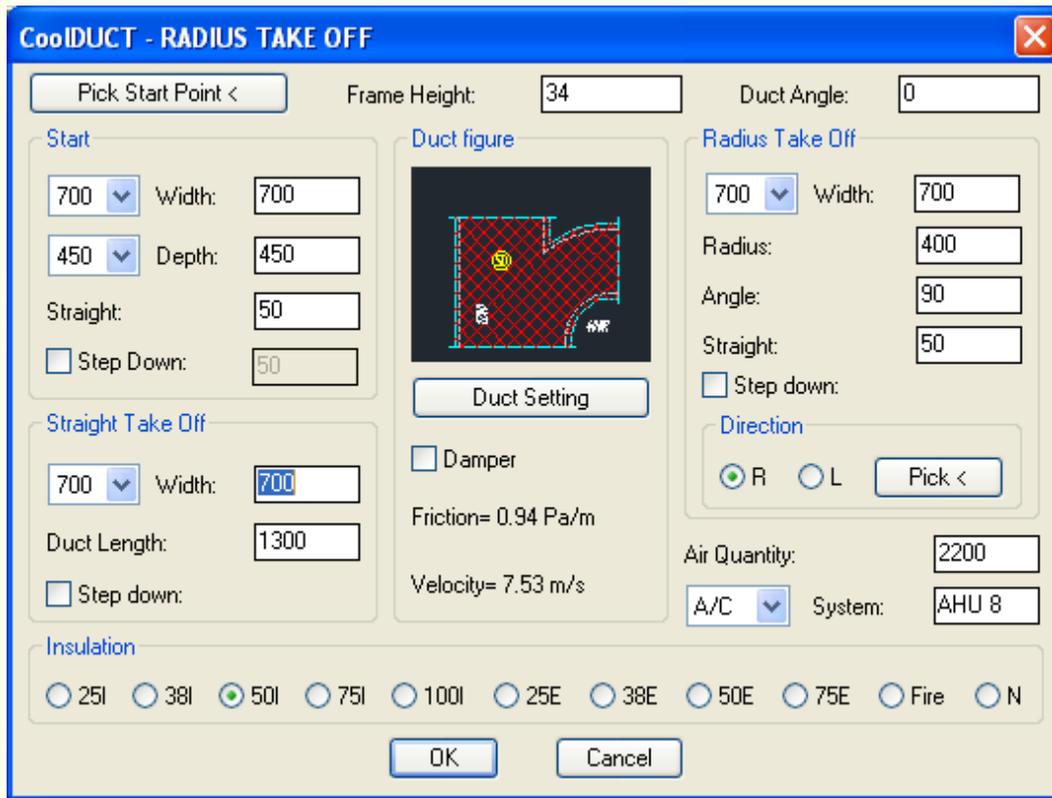
Damper

Checking this box for drawing a splitter damper.

For the other options, refer to: [Rectangular Duct Straight](#)

RADIUS TAKE OFF

When the button  is picked, displays the **RADIUS TAKE-OFF** dialog box.



When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that branch.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)  functions to rotate crosshairs angle.

Radius

Specify the bend radius for the duct. Every time you enter a new duct width, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. For internal insulation duct, the thickness of insulation will also be added to the calculation. A minimum bend radius has been set in the configuration file. If the Bend Radius is less than the minimum, it will be replaced by minimum bend radius. Refer to: [Configuration](#) for the default bend ratio and minimum bend radius.

Angle

Specify a bend angle for radius take off.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default duct sizes.

Damper

Check this box to draw a splitter damper.

Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#)

RADIUS TEE

The **Radius Tee**  button, when picked, displays the **RADIUS TEE** dialog box.

COOLDUCT - RADIUS TEE

Pick Start Point < Frame Height: 34 Duct Angle: 0

Start

700 Width: 700
450 Depth: 450
Straight: 50
 Step Down: 50

Minor Take Off

700 Width: 700
Radius: 400
Straight: 50
Entry: 0
 Step down:

Major Take Off

700 Width: 700
Radius: 400
Straight: 50
 Step down:

Duct figure

Damper

Branch Leg Length

Equal Unequal

Maximum Gap = 0
0.94 Pa/m
7.53 m/s

Direction

R L Pick <

Air Quantity: 2200

A/C System: AHU 8

Duct Setting

Insulation

25I 38I 50I 75I 100I 25E 38E 50E 75E Fire N

OK Cancel

When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct

friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that branch.

Radius

Specify the bend radius for the duct. Every time you enter a new duct width, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. For internal insulation duct, the thickness of insulation will also be added to the calculation. A minimum bend radius has been set in the configuration file. If the Bend Radius is less than the minimum, it will be replaced by minimum bend radius. Refer to: [Configuration](#) for the default bend ratio and minimum bend radius.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default duct sizes.

Damper

Check this box to draw a splitter damper.

Branch Leg Length

This option allows you to adjust the branch positions. When the **Equal** is checked, two branches will be lined up on one side. If the **Unequal** is checked, the dialog box will show you the maximum gap between the branches. The **Entry** area in the dialog box allows you to specify the entry length for the minor take-off branch. The **Entry** length is not allowed to be longer than the maximum gap.

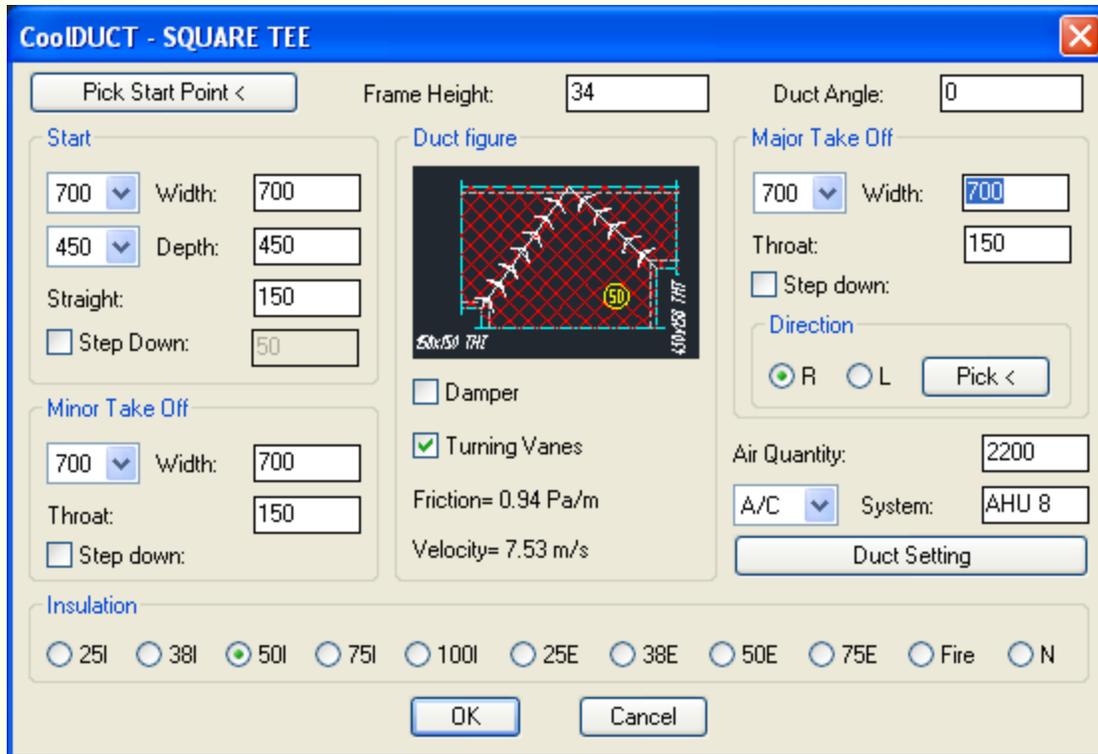
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#)

SQUARE TEE

The **Square Tee**  button, when picked, displays the **SQUARE TEE** dialog box.



When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that branch.

Straight

Specify the length of straight duct for the main duct. It has the same default value as square bend throat. Refer to: [Configuration](#) for the default duct sizes.

Throat

Specify the straight length of square bend. Refer to: [Configuration](#) for the default duct sizes.

Damper

Checking this box for drawing a splitter damper.

Turning Vane

Check this box for drawing the turning vanes in square bend.

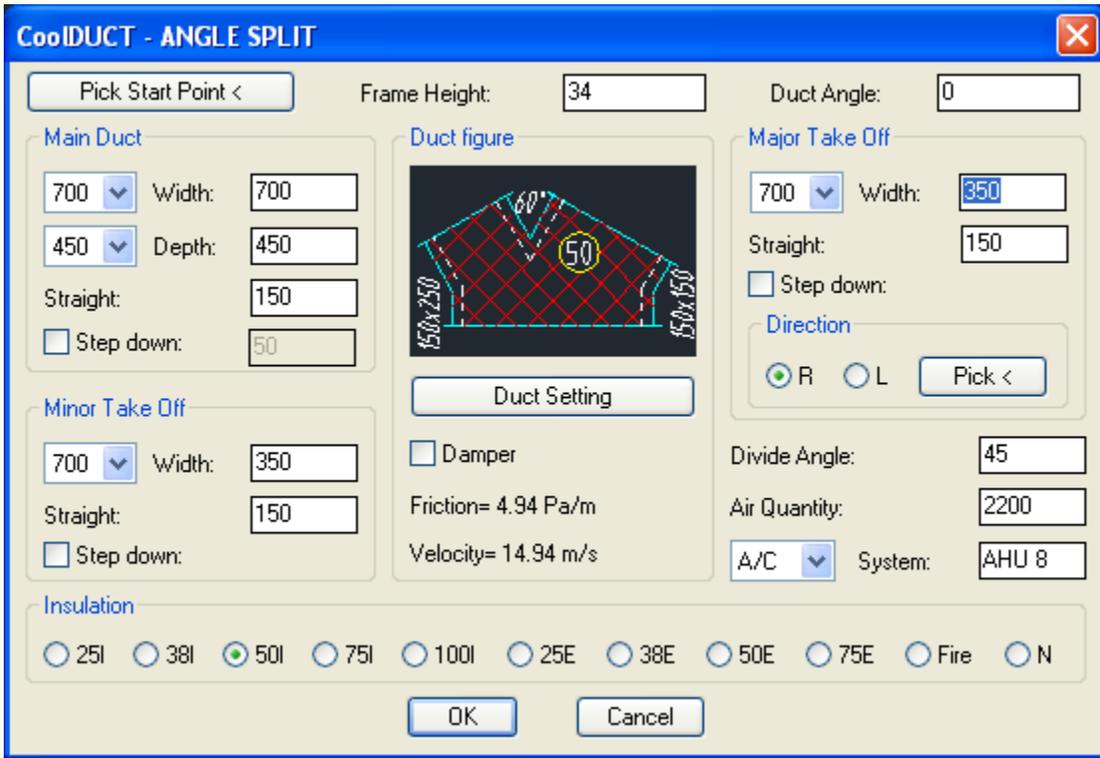
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#)

ANGLE SPLIT

The **Angle Split**  button, when picked, displays the **ANGLE SPLIT** dialog box.



When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that branch.

Divide Angle

Specify an angle between two branches.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default duct sizes.

Damper

Check this box to draw a splitter damper.

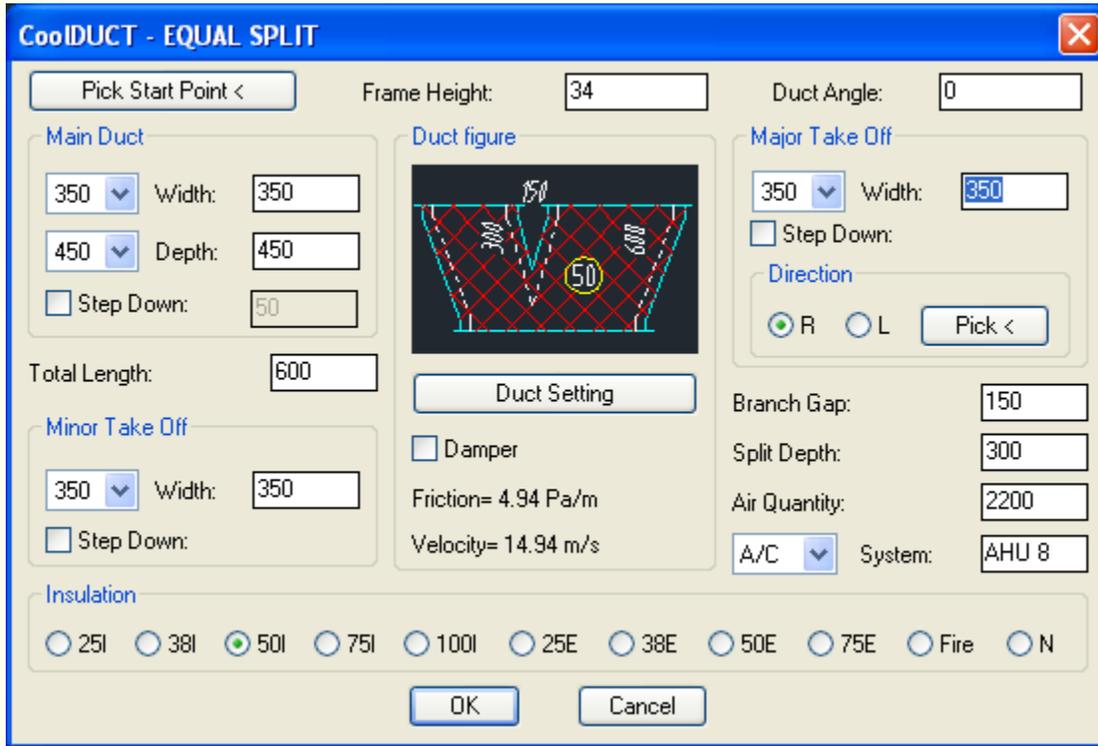
Direction

Select the side for the major branch. When the **Pick** button is picked, you are prompted on the screen to pick a point for major branch location.

For the other options, refer to: [Rectangular Duct Straight](#)

EQUAL SPLIT

The **Equal Split**  button, when picked, displays the **EQUAL SPLIT** dialog box.



When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that branch.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Branch Gap

Specify a gap between two branches.

Split Depth

Specify the split length for two branches..

Damper

Check this box to draw a splitter damper.

Direction

Select the side for the major branch. When the **Pick** button is picked, you are prompted on the screen to pick a point for major branch location.

For the other options, refer to: [Rectangular Duct Straight](#)

3 WAY TAKE-OFF

When the button  is picked, displays the **3 WAY TAKE-OFF** dialog box.

CooIDUCT - 3 WAY TAKE OFF

Pick Start Point < Frame Height: 34 Duct Angle: 0

Start

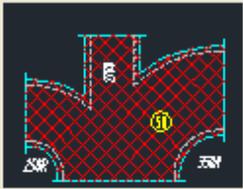
350 Width: 350
450 Depth: 450
Straight: 50
 Step Down: 50

Air Quantity: 2200
A/C System: AHU 8

Straight Take Off

350 Width: 350
Duct Length: 775
 Step down:

Duct figure

 Duct Setting

Damper
Center Line Offset
 Yes Not
C.L. Offset = 0
Friction = 4.94 Pa/m
Velocity = 14.94 m/s

Minor Radius Take Off

350 Width: 350
Radius: 225
Straight: 50
 Step down:

Major Radius Take Off

350 Width: 350
Radius: 225
Straight: 50
 Step down:

Direction

R L **Pick <**

Insulation

25I 38I 50I 75I 100I 25E 38E 50E 75E Fire N

OK Cancel

When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that

branch.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Radius

Specify the bend radius for the duct. Every time you enter a new duct width, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. For internal insulation duct, the thickness of insulation will also be added to the calculation. A minimum bend radius has been set in the configuration file. If the Bend Radius is less than the minimum, it will be replaced by minimum bend radius. Refer to: [Configuration](#) for the default bend ratio and minimum bend radius.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default duct sizes.

Damper

Check this box to draw a splitter damper.

Center Line Offset

Check the radio boxes to control the position of straight branch.

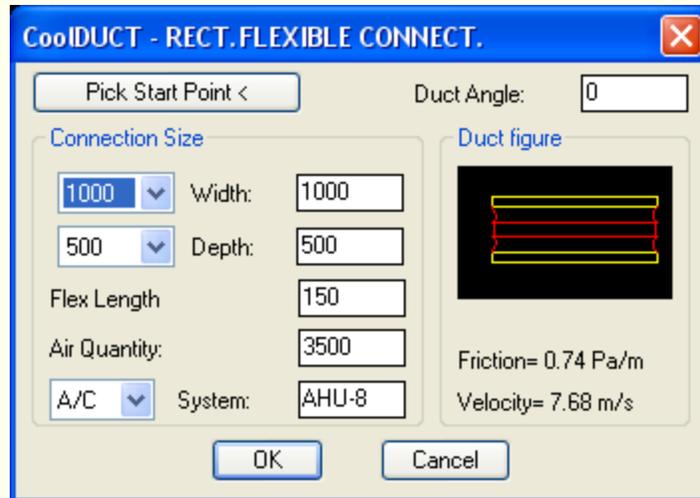
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#)

RECTANGULAR FLEXIBLE CONNECTION

The **Rectangular Flex**  button, when picked, displays the **RECTANGULAR FLEXIBLE CONNECTION** dialog box.



Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a flexible connection. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)  functions to rotate crosshairs angle.

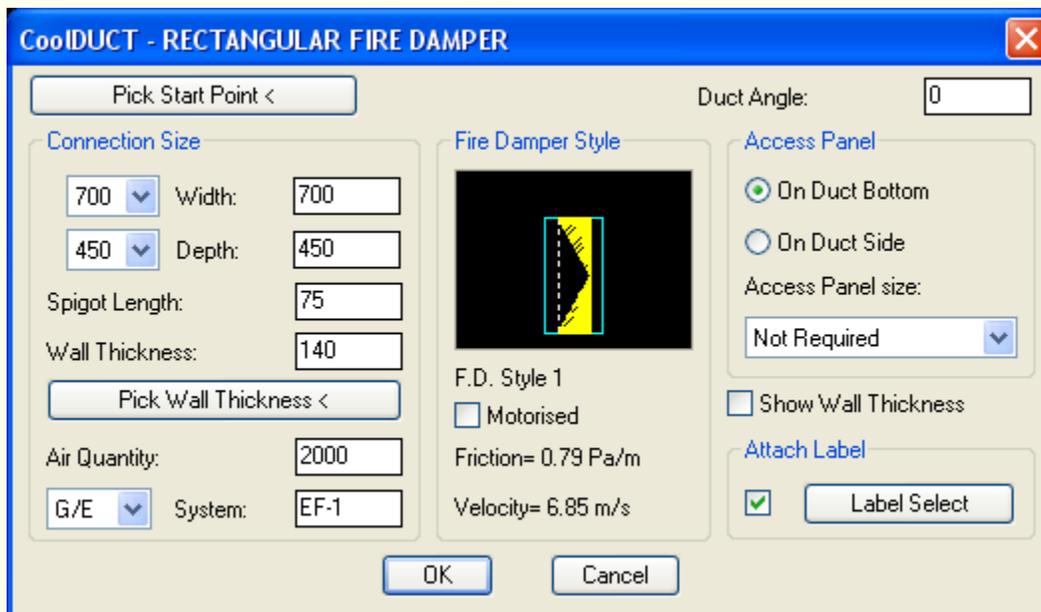
Flex Length

Specify the flexible connection length. Refer to: [Configuration](#) for the default length.

For the other options, refer to: [Rectangular Duct Straight](#).

RECTANGULAR FIRE DAMPER

When the button  is picked, displays the **RECTANGULAR FIRE DAMPER** dialog box.



Spigot Length

Specify the spigot length of the fire damper. Refer to: [Configuration](#) for the default length. It is the extension of the fire damper from the wall. For example, if the spigot length is 75mm and the wall thickness is 110mm, the program will draw $(75 + 110 + 75)$ 360mm long fire damper in the drawing.

Wall Thickness

Specify the wall thickness for the fire damper. Refer to: [Configuration](#) for the default wall thickness.

Motorised

Check this box to attach a motor control symbol to fire damper.

Access Location

This option will allow you to insert an access panel (Duct Bottom or Sides) beside the fire damper. If you select an access panel size rather than **Not Required** from the popup list, you will be prompted to pick an insert point for the access panel after drawing the fire damper. To modify the list of the access panel sizes, refer to: [Access Panel](#) for customising details.

Show Wall Thickness

Check this box to attach fire damper length text.

Attach Label

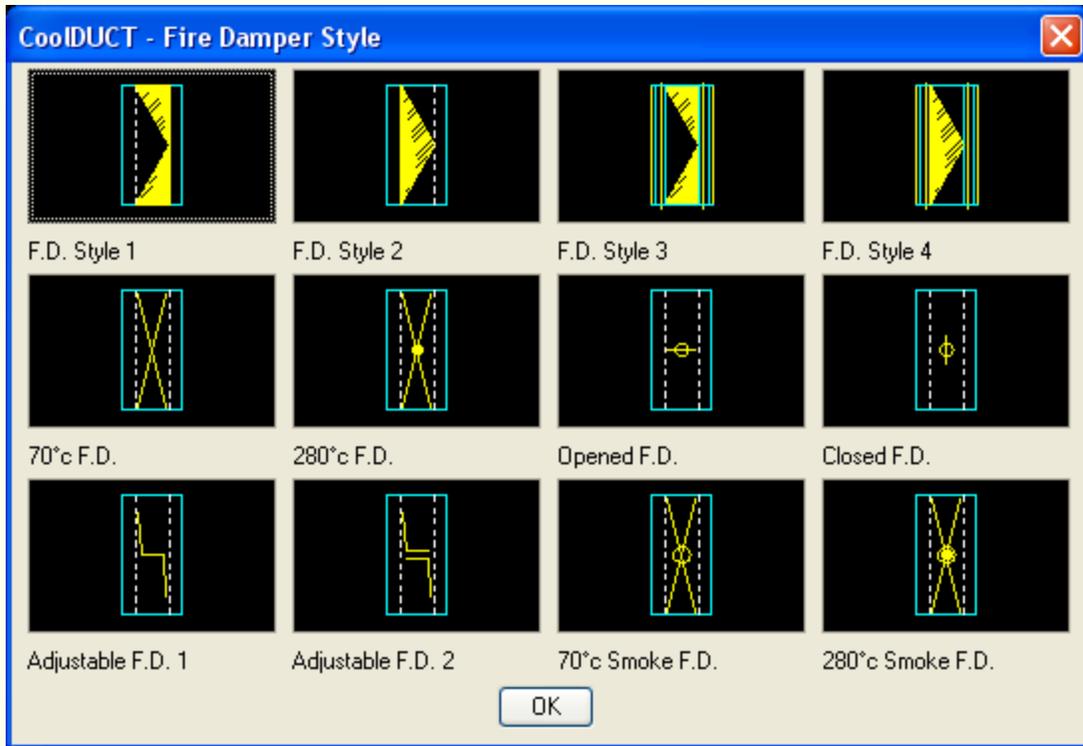
Check this box to insert a tag for fire damper.

Label Select

Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

Fire Damper Style

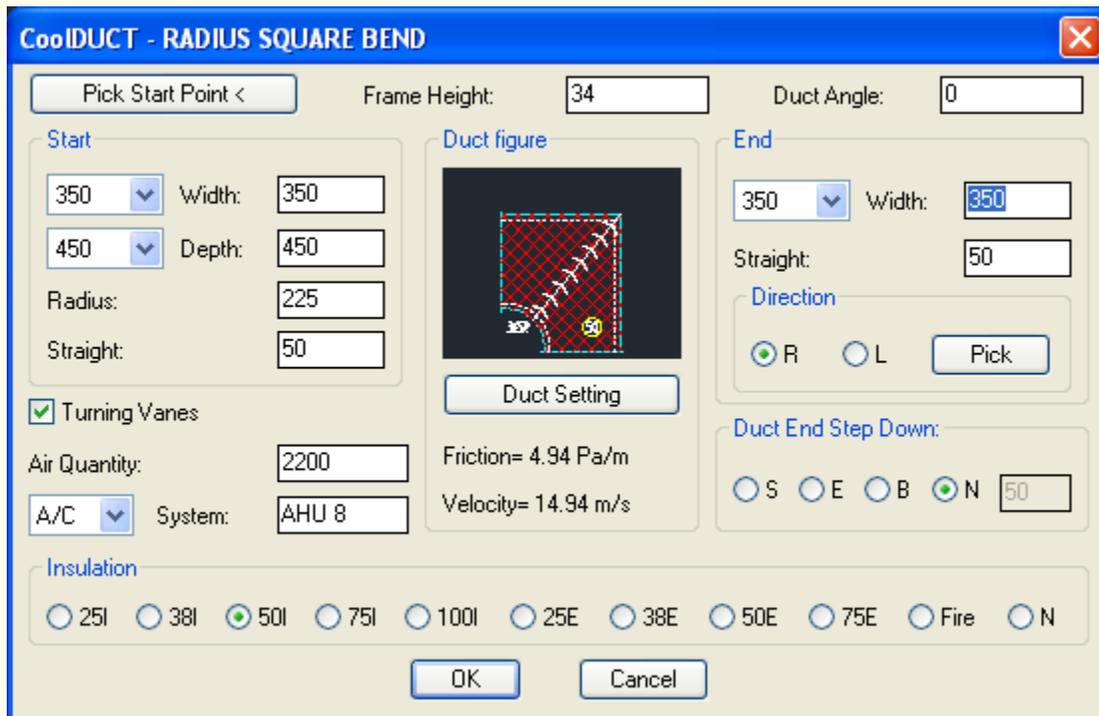
When The the **Fire Damper Style** image botton is picked, it displays the **Fire Damper Style** dialog box.



Picking on the image button to select a fire damper style. The style 3 & 4 are the Australian Standard fire damper and will always has break flange end 80mm from wall.

RADIUS SQUARE BEND

The **Radius Square Bend**  button, when picked, displays the **RADIUS SQUARE BEND** dialog box.



When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end , use mouse to highlight the edit boxes on the **end** end.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)  functions to rotate crosshairs angle.

Bend Radius

Specify the bend radius for the duct. Every time you enter a new duct width, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. For internal insulation duct, the thickness of insulation will also be added to the calculation. A minimum bend radius has been set in the configuration file. If the Bend Radius is less than the minimum, it will be replaced by minimum bend radius. Refer to: [Configuration](#) for the default bend ratio and minimum bend radius.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default bend straight.

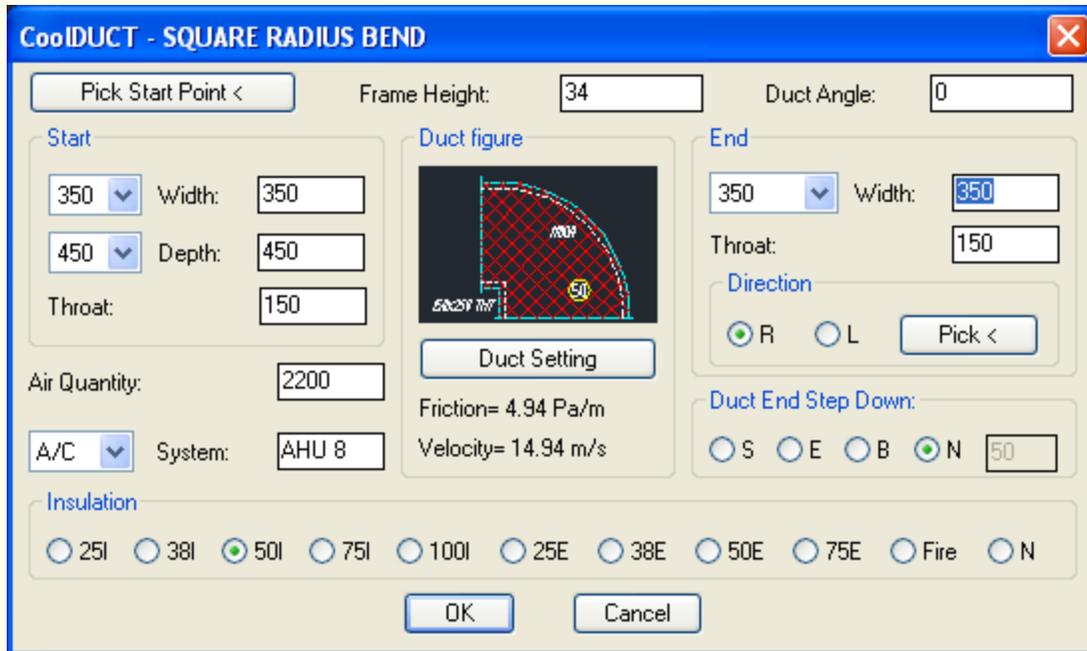
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#).

SQUARE RADIUS BEND

The **Square Radius Bend**  button, when picked, displays the **SQUARE RADIUS BEND** dialog box.



When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end, use mouse to highlight the edit boxes on the **end** end.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Throat

Specify the straight length for the square bend. Refer to: [Configuration](#) for the default bend throat.

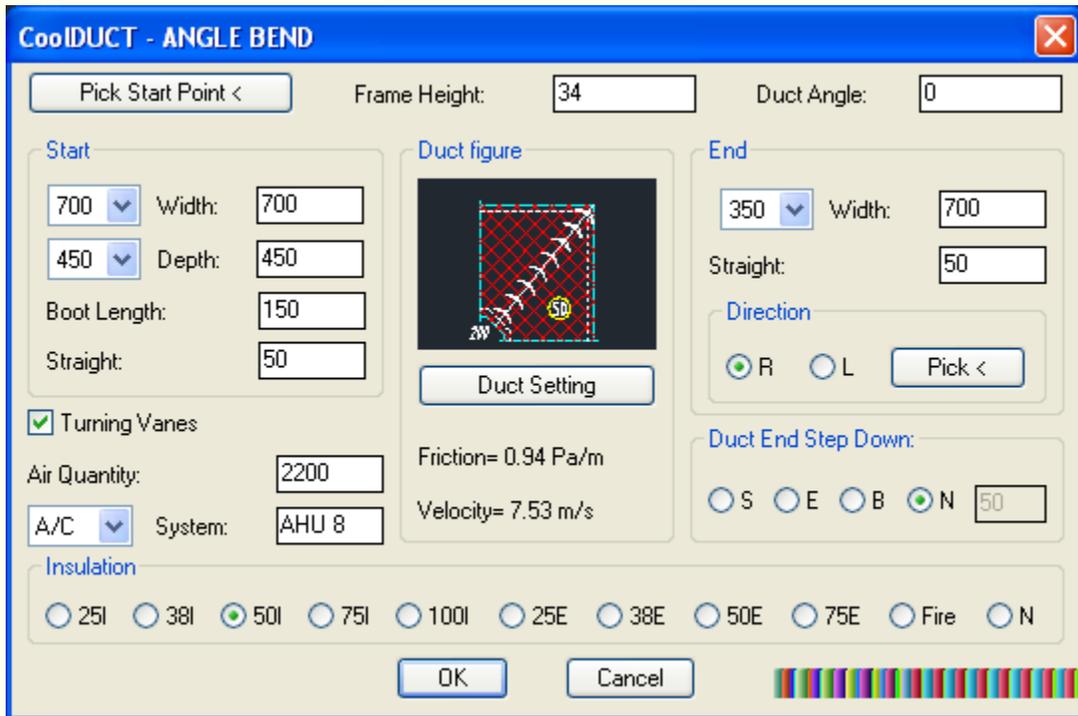
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#).

ANGLE BEND

The **Angle Bend**  button, when picked, displays the **ANGLE BEND** dialog box.



The dialog box is titled "CoolDUCT - ANGLE BEND" and contains the following fields and controls:

- Pick Start Point <** (button)
- Frame Height:** 34 (text box)
- Duct Angle:** 0 (text box)
- Start** section:
 - Width: 700 (dropdown)
 - Depth: 450 (dropdown)
 - Boot Length: 150 (text box)
 - Straight: 50 (text box)
- Duct figure** section:
 - Preview image showing a duct bend with a 50-degree angle.
 - Duct Setting** (button)
 - Friction= 0.94 Pa/m
 - Velocity= 7.53 m/s
- End** section:
 - Width: 700 (dropdown)
 - Straight: 50 (text box)
 - Direction** section:
 - R
 - L
 - Pick <** (button)
 - Duct End Step Down:** section:
 - S
 - E
 - B
 - N
 - 50 (text box)
- Turning Vanes** (checked checkbox)
- Air Quantity:** 2200 (text box)
- A/C** (dropdown) **System:** AHU 8 (text box)
- Insulation** section:
 - 25I
 - 38I
 - 50I
 - 75I
 - 100I
 - 25E
 - 38E
 - 50E
 - 75E
 - Fire
 - N
- OK** (button)
- Cancel** (button)

When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end , use mouse to highlight the edit boxes on the **end** end.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)  functions to rotate crosshairs angle.

Boot Length

Specify the boot length. Refer to: [Configuration](#) for the default booth length.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default bend straight.

Turning Vane

Check this box for drawing the turning vanes in angle bend.

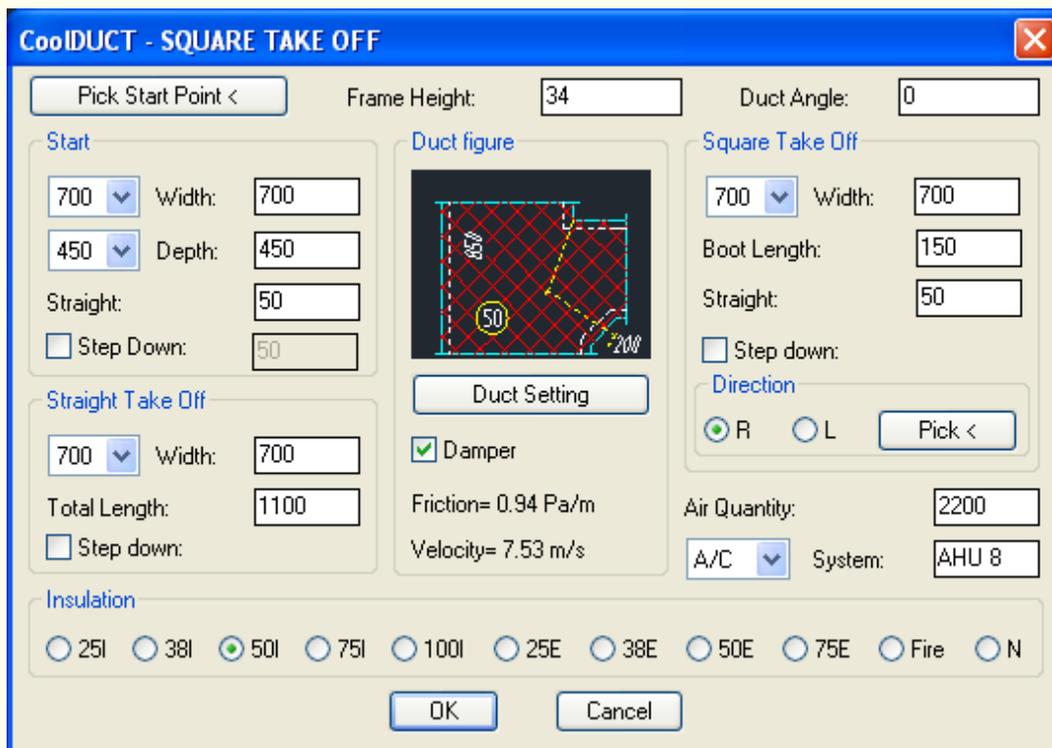
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#).

SQUARE TAKE OFF

When the button  is picked, displays the **SQUARE TAKE-OFF** dialog box.



When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that branch.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Boot Length

Specify the boot length. Refer to: [Configuration](#) for the default booth length.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default bend straight.

Damper

Check this box to draw a splitter damper.

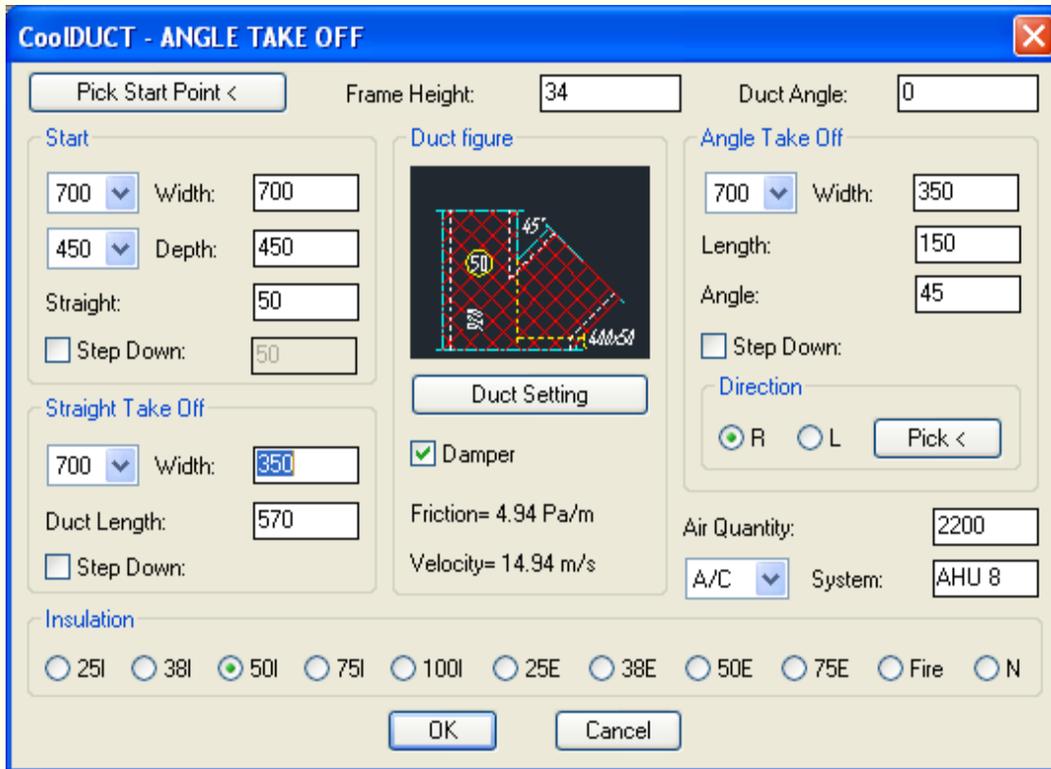
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#)

ANGLE TAKE OFF

When the button  is picked, displays the **ANGLE TAKE-OFF** dialog box.



When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that branch.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Angle

Specify an angle between two branches.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default bend straight.

Damper

Check this box to draw a splitter damper.

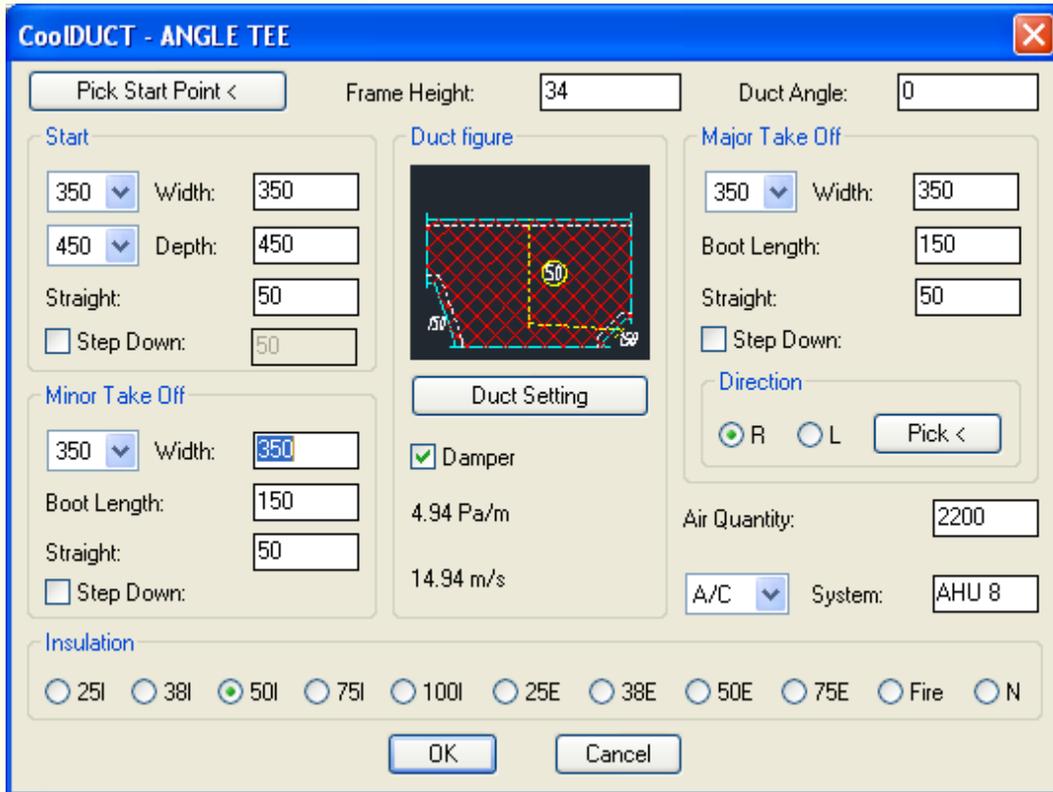
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#)

ANGLE TEE

The **Angle Tee**  button, when picked, displays the **ANGLE TEE** dialog box.



When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that branch.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the

program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)  functions to rotate crosshairs angle.

Boot Length

Specify the boot length. Refer to: [Configuration](#) for the default booth length.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default bend straight.

Damper

Checking this box for drawing a splitter damper.

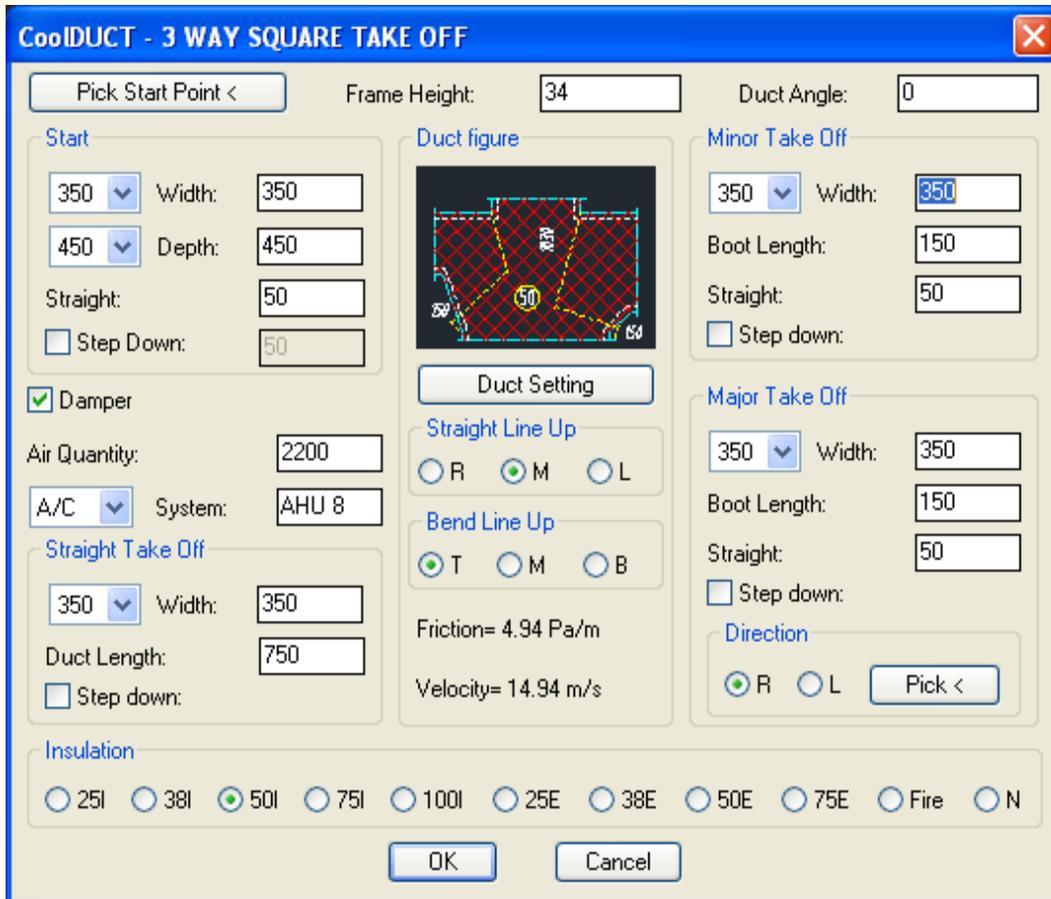
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the duct.

For the other options, refer to: [Rectangular Duct Straight](#)

3 WAY SQUARE TAKE-OFF

When the button  is picked, displays the **3 WAY SQUARE TAKE-OFF** dialog box.



When the air quantity is not equal to zero and you change duct size on any branch, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size for that branch. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the main branch **Start** end. To obtain the new figures for the branches, use your mouse to highlight the edit boxes of that branch.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Boot Length

Specify the boot length. Refer to: [Configuration](#) for the default booth length.

Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default bend straight.

Damper

Check this box to draw a splitter damper.

Straight Line Up

Select the position to line up main duct with the straight branch.

R - Line up on right hand side.

M - Line up on middle.

L - Line up on left hand side.

Bend Line Up

Select the position to line up the major take off with the minor take off.

T - Line up on top side.

M - Line up on middle.

B - Line up on bottom side.

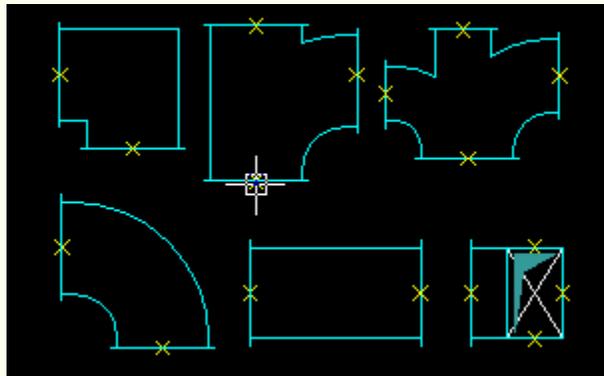
Direction

Choose a direction to bend the duct. When the **Pick** button is picked, you are prompted on the screen to pick the bend direction for the major take off.

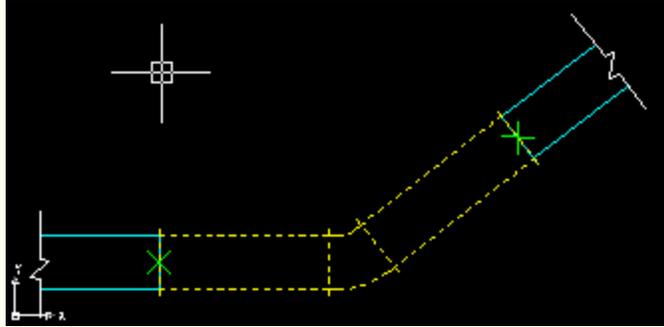
For the other options, refer to: [Rectangular Duct Straight](#)

Duct Quick Connection

When the button  is picked, you will be prompted to pick middle point on first joint duct end and second joint duct end. Pick the duct end on the locations indicated on the picture below.



Then, the program will connect two duct together with a radius bend and straight ducts as shown below.



The connected ducts can be rectangular or circular and the first picked duct type and size will always be used for the connection. For square duct, you can choose square bend or radius bend if it is a 90 degree connection. For circular duct, you can choose radius bend or lobster bend for the connection. refer to: [Duct Setting](#) for the details.

SQUARE TO ROUND

The **Square to Round**  button, when picked, displays the **SQUARE TO ROUND** dialog box.

When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the square duct end. To check the new figures for the round duct end , use mouse to highlight the edit boxes on the round duct end.

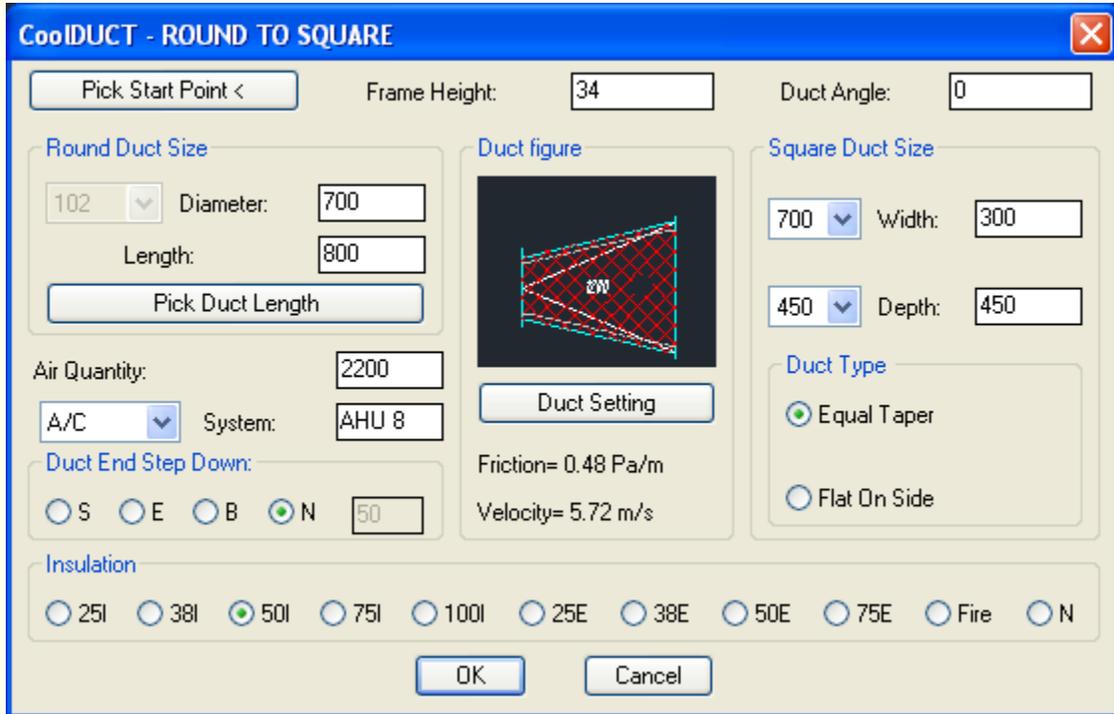
Duct Type

Check the radio box to select which type of transition duct to be drawn.

For the other options, refer to: [Rectangular Duct Straight](#).

ROUND TO SQUARE

The **Round to Square**  button, when picked, displays the **ROUND TO SQUARE** dialog box.



When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the round duct end. To check the new figures for the square duct end, use mouse to highlight the edit boxes on the square duct end.

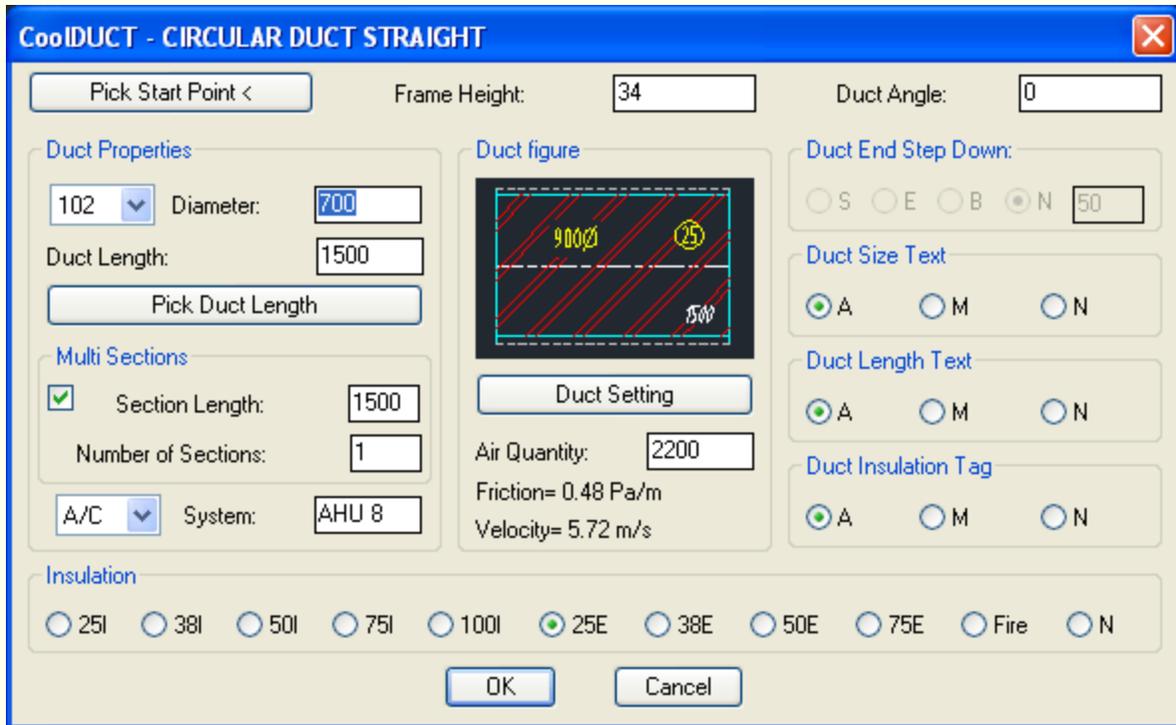
Duct Type

Check the radio box to select which type of transition duct to be drawn.

For the other options, refer to: [Rectangular Duct Straight](#).

CIRCULAR DUCT STRAIGHT

When the button  is picked, displays the **CIRCULAR DUCT STRAIGHT** dialog box.



Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Frame Height

Specify the duct flange size. Refer to: [Configuration](#) for the default flange size.

Duct Angle

Specify the duct run direction.

Duct Diameter

Specify the duct diameter (airway size).

Air Quantity

Specify the air flow rate for the duct. This information is optional and will not be shown on duct. If an air flow rate has been entered, the dialog box will show the duct friction and air velocity for the proposed duct.

System

This information is optional and will not be shown on ductwork. There are nine pre-set systems that will create ductwork in different layers accordingly.

1. GEN.....General duct
2. A/C..... Air conditioning duct
3. EXIST..... Existing duct
4. G/E.....General exhaust duct
5. T/E.....Toilet exhaust duct
6. K/E..... Kitchen exhaust duct
7. S/E..... Smoke exhaust duct
8. O/A..... Outside air duct
9. S/P..... Stair Pressure duct

Refer to: [Configuration](#) for the default layer. You can select the system by picking on the popup list. You also can enter the new system name on the **System** edit box. However, the ductwork of the new system will always be created on GEN. system layer.

Pick Duct Length

This button, when selected, will prompt you to specify the duct length by picking the end point of duct section.

Multi Sections

Checking this option will draw duct in section. Refer to: [Configuration](#) for the default section length.

Show insulation line

Checking this option will draw duct insulation lines.

Show insulation Hatch

Checking this option will add duct insulation hatch. Refer to: [Configuration](#) for the default insulation hatch patterns.

Show duct set up

Checking this option will insert an arrow to show duct end set up or down.

Duct Setting

Picking on this button will display the **Duct Setting** dialog box. Refer to: [Duct Setting](#)

DUCTULATOR

Picking on this button will activate the CoolDUCT ductulator function. Refer to: [Ductulator](#)

The duct friction and air velocity shown in the dialog box are always based on duct airway size.

Duct End Step Down

The option for drawing a frame step down for the duct with internal insulation.

You can specify the step down length in the edit box. Refer to: [Configuration](#) for the default length.

S	Draw a frame step down at duct Start side.
E	Draw a frame step down at duct End side.
B	Draw a frame step down on duct both ends.
N	Not frame step down .

Duct Size Text

The option for inserting Duct Size Text on the duct.

A	Insert on every sections of duct.
M	Insert only on the middle section of the duct.
N	Not duct size text.

Duct Length Text

The option for inserting Duct Length Text on the duct.

A	Insert on every sections of duct.
M	Insert only on the middle section of the duct.
N	Not duct length text.

Duct Insulation Tag

The option for inserting Duct Insulation Tag on the duct. Refer to: [Configuration](#) for the default tag.

A	Insert on every sections of duct.
M	Insert only on the middle section of the duct.
N	Not duct insulation tag.

Duct Line Type

Select a line type for the duct to be drawn on the drawing.

If the **Pline** box is checked, duct will be drawn as a polyline . If the **Single** box is checked, the outline of duct is still drawn by using polyline, but the ductwork join lines will be drawn as single lines on different layer.

Insulation

Specify Duct Insulation.

25 int.	25mm internal insulation.
50 int.	50mm internal insulation.
75 int.	75mm internal insulation.
100 int.	100mm internal insulation.
25 ext.	25mm external insulation.
50 ext.	50mm external insulation.
Fire	Fire Rated insulation.
N	Not insulation (plan duct).

For internal insulation duct, the thickness of insulation will be automatically added to the duct sheet metal size. For example, for a 300mm diameter airway duct size with 50mm internal insulation, it will be drawn as 400mm diameter duct (sheet metal size) in you drawing. Refer to: [Configuration](#) for the default settings for insulation hatch patterns, type, thickness and tag.

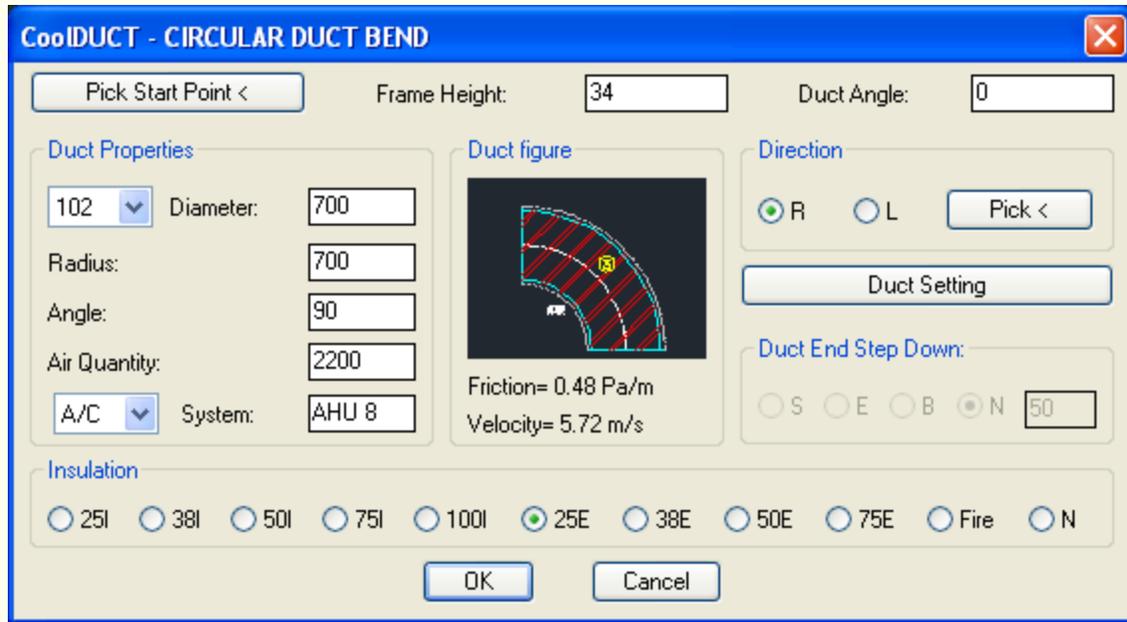
All duct created by the program will retain the details of duct size, air flow rate, system and insulation.

Note:

If the duct **Diameter** popup list has been activated, the program will create ductwork as **Sipral Duct**. The thickness of internal insulation will not be added to the duct metal size. For example, for a 508mm-diameter spiral duct with 50mm internal insulation, it will be drawn as 508mm-diameter duct (metal size) on the drawing and the duct airway size is reduced to 408mm-diameter. How to activate the duct **Diameter** popup list, Refer to: [Duct Setting](#)

CIRCULAR DUCT BEND

The **Circular Duct Bend**  button, when picked, displays the **CIRCULAR DUCT BEND**



Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Radius

Specify the bend radius for the duct. Every time you enter a new duct diameter, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. Refer to: [Configuration](#) for the default bend ratio. For internal insulation duct, the thickness of insulation will also be added to the calculation. If using **Spiral Duct**, the thickness of internal insulation will not be added to the duct metal size.

For the other options, refer to: [Circular Duct Straight](#).

CIRCULAR DUCT TRANSITION

When the button  is picked, displays the **CIRCULAR DUCT TRANSITION** dialog box.

When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end , use mouse to highlight the edit boxes on the **end** end.

Duct Type

Check the radio box to select which type of transition duct to be drawn.

For the other options, refer to: [Circular Duct Straight](#).

CIRCULAR DUCT RISER

The **Circular Duct Riser**  button, when picked, displays the **CIRCULAR DUCT RISER** dialog box.

CooDUCT - CIRCULAR DUCT RISER

Pick Start Point < Frame Height: Duct Angle:

Duct Properties

Diameter:

Radius:

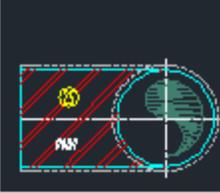
Air Quantity:

System:

Duct End Step Down:

S N

Duct figure



Friction= 0.48 Pa/m

Velocity= 5.72 m/s

Insulation

25I

38I

50I

75I

100I

25E

38E

50E

75E

Fire

N

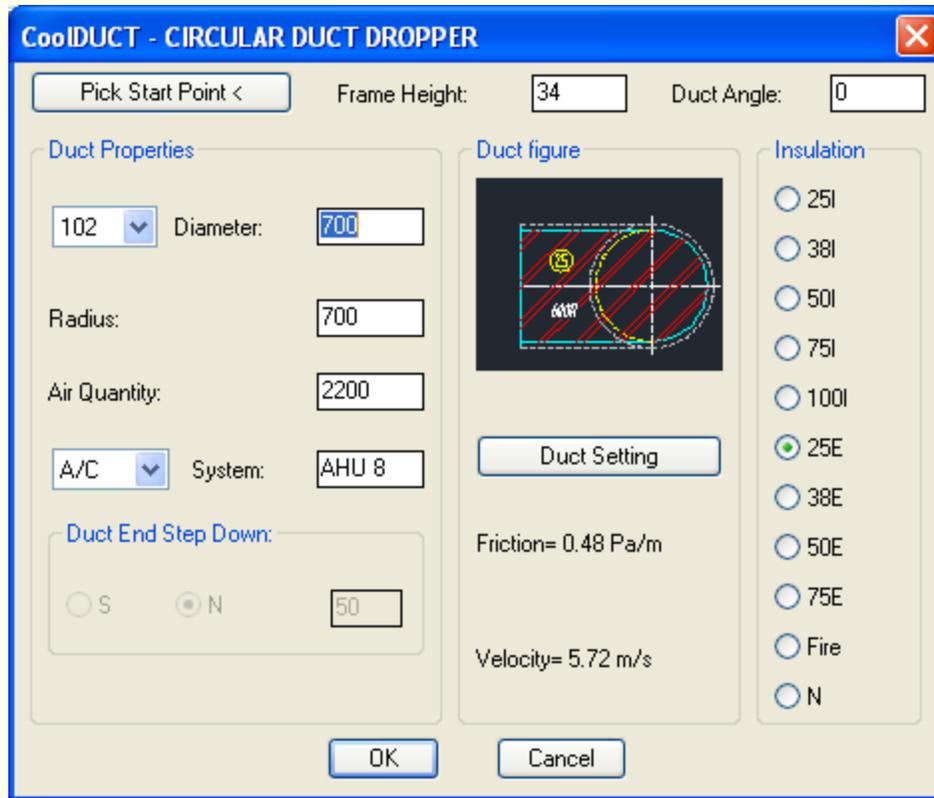
Radius

Specify the bend radius for the duct. Every time you enter a new duct diameter, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. Refer to: [Configuration](#) for the default bend ratio. For internal insulation duct, the thickness of insulation will also be added to the calculation. If using **Spiral Duct** is checked, the thickness of internal insulation will not be added to the duct metal size.

For the other options, refer to: [Circular Duct Straight](#).

CIRCULAR DUCT DROPPER

The **Circular Duct Dropper**  button, when picked, displays the **CIRCULAR DUCT DROPPER** dialog box.



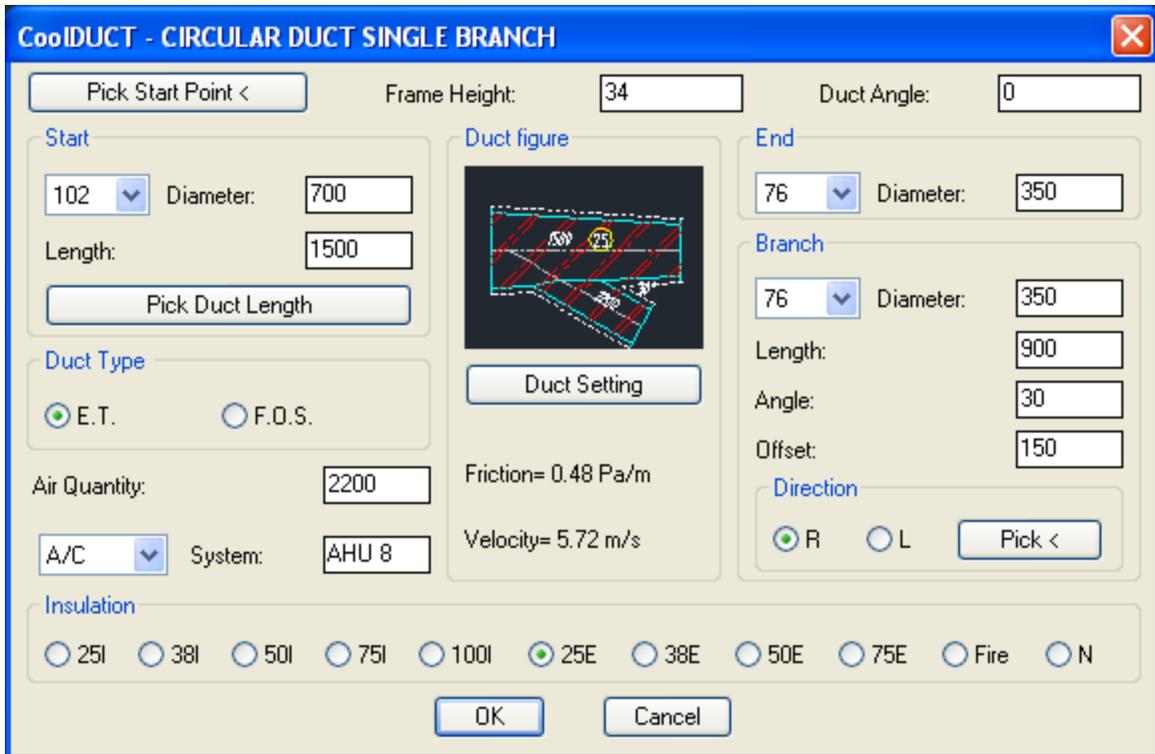
Radius

Specify the bend radius for the duct. Every time you enter a new duct diameter, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. Refer to: [Configuration](#) for the default bend ratio. For internal insulation duct, the thickness of insulation will also be added to the calculation. If using **Spiral Duct** is checked, the thickness of internal insulation will not be added to the duct metal size.

For the other options, refer to: [Circular Duct Straight](#).

CIRCULAR DUCT SINGLE BRANCH

When the button  is picked, displays the **CIRCULAR DUCT SINGLE BRANCH** dialog box.



When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end , use mouse to highlight the edit boxes on the **end** end.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Duct Type

Check the radio box to select which type of transition duct to be drawn.

Angle

Specify an angle for the branch.

Offset

Specify a value for the branch position. The **Offset** value is the distance between duct start point and the center line joint point.

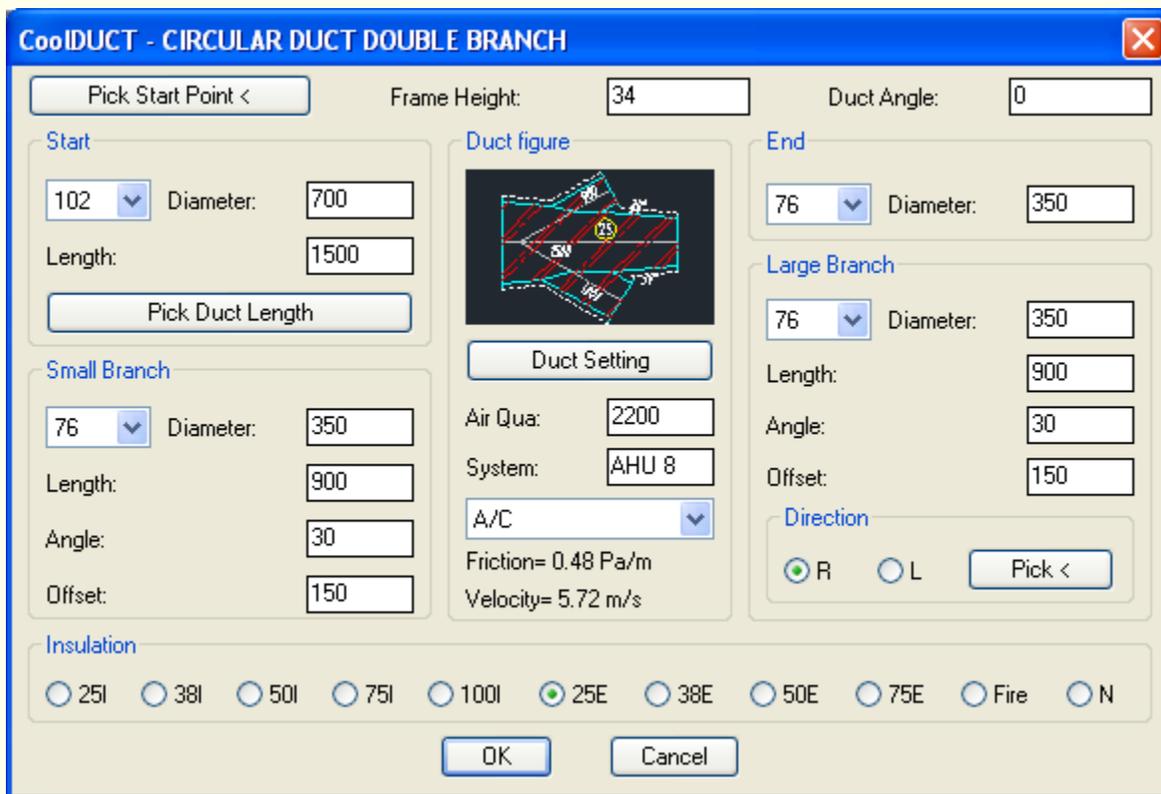
Direction

Select the side for the branch. When the **Pick** button is picked, you are prompted on the screen to pick a point for branch location.

For the other options, refer to: [Circular Duct Straight](#).

CIRCULAR DUCT DOUBLE BRANCH

When the button  is picked, displays the **CIRCULAR DUCT DOUBLE BRANCH** dialog box.



CooIDUCT - CIRCULAR DUCT DOUBLE BRANCH

Pick Start Point < Frame Height: 34 Duct Angle: 0

Start

102 Diameter: 700
Length: 1500
Pick Duct Length

Small Branch

76 Diameter: 350
Length: 900
Angle: 30
Offset: 150

End

76 Diameter: 350
Length: 900
Angle: 30
Offset: 150

Large Branch

76 Diameter: 350
Length: 900
Angle: 30
Offset: 150

Duct figure

Duct Setting

Air Qua: 2200
System: AHU 8
A/C
Friction= 0.48 Pa/m
Velocity= 5.72 m/s

Direction

R L Pick <

Insulation

25I 38I 50I 75I 100I 25E 38E 50E 75E Fire N

OK Cancel

When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end , use mouse to highlight the edit boxes on the **end** end.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be

enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)  functions to rotate crosshairs angle.

Duct Type

Check the radio box to select which type of transition duct to be drawn.

Angle

Specify an angle for the branch.

Offset

Specify a value for the branch position. The **Offset** value is the distance between duct start point and the center line joint point of main duct and branch.

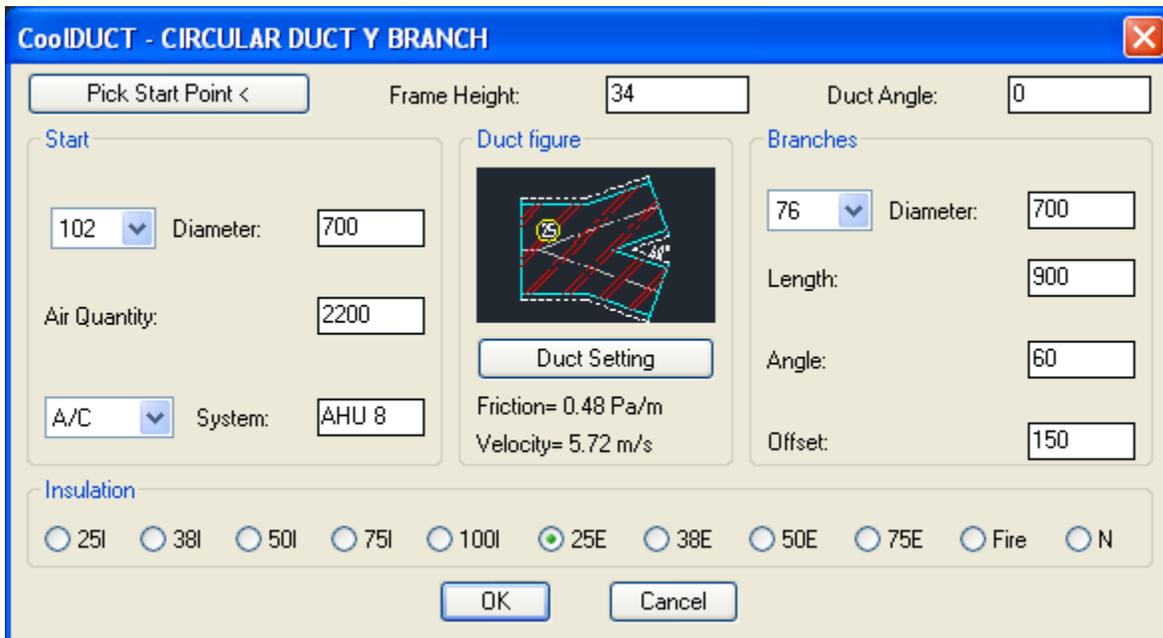
Direction

Select the side for the large branch. When the **Pick** button is picked, you are prompted on the screen to pick a point for large branch location.

For the other options, refer to: [Circular Duct Straight](#).

CIRCULAR DUCT Y BRANCH

When the button  is picked, displays the **CIRCULAR DUCT Y BRANCH** dialog box.



CooIDUCT - CIRCULAR DUCT Y BRANCH

Pick Start Point < Frame Height: 34 Duct Angle: 0

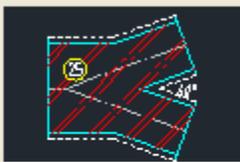
Start

102 ▼ Diameter: 700

Air Quantity: 2200

A/C ▼ System: AHU 8

Duct figure



Duct Setting

Friction= 0.48 Pa/m
Velocity= 5.72 m/s

Branches

76 ▼ Diameter: 700

Length: 900

Angle: 60

Offset: 150

Insulation

25I 38I 50I 75I 100I 25E 38E 50E 75E Fire N

OK Cancel

When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end, use mouse to highlight the edit boxes on the **end** end.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

Angle

Specify an angle between two branches.

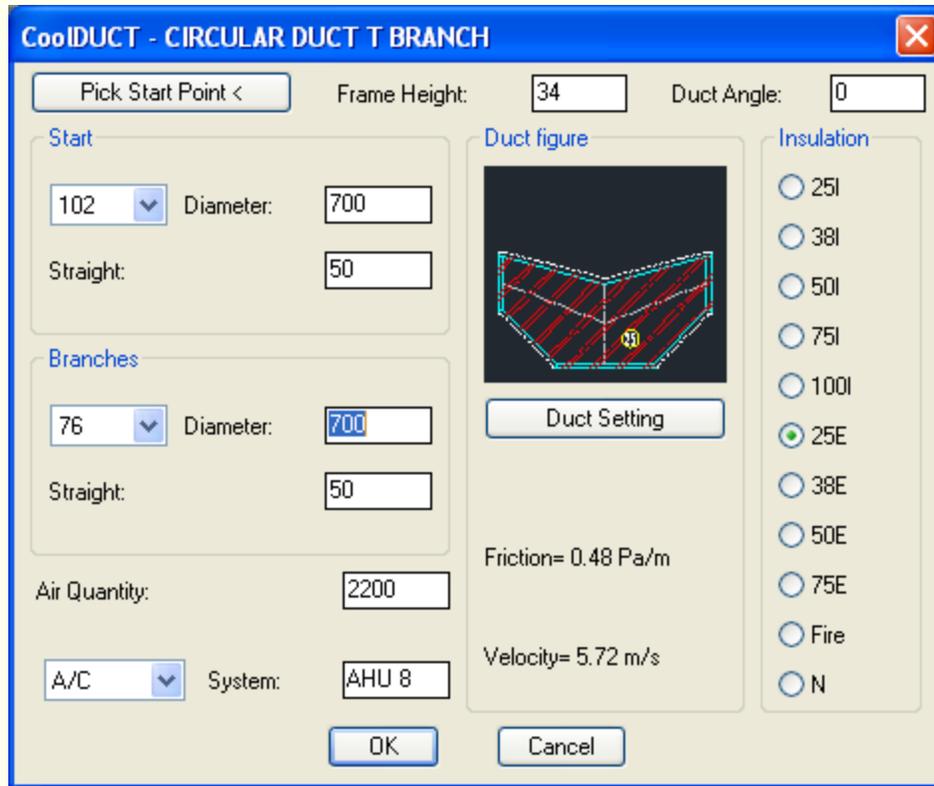
Offset

Specify a value for the branch position. The **Offset** value is the distance between duct start point and the center lines joint point of two branches.

For the other options, refer to: [Circular Duct Straight](#).

CIRCULAR DUCT T BRANCH

When the button  is picked, displays the **CIRCULAR DUCT T BRANCH** dialog box.



When the air quantity is not equal to zero and you change duct size on any end of duct, the program will automatically re-calculate the duct friction and air velocity based on the air quantity and new duct size at that end. However, if you only change the value in the air quantity edit box, the new figures for duct friction and air velocity are always indicated for the **Start** end. To check the new figures for the **end** end , use mouse to highlight the edit boxes on the **end** end.

Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a new duct. The crosshairs will be rotated to align with the proposed new duct, and Ortho mode will be enabled to help align the new duct with the previous one. If you do not pick a new start point, the program will automatically draw duct connected to the previous duct. If you pick a new start point on a previous duct, the program will automatically obtain the previous duct size and display them in the dialog box for the proposed new duct to be drawn. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

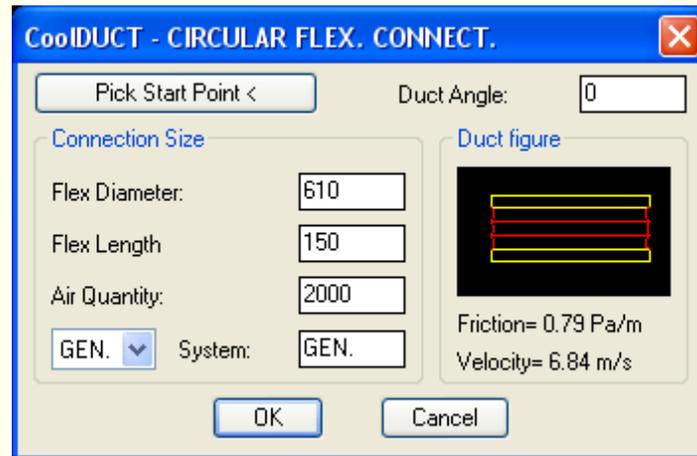
Straight

Specify the length of straight duct after bend. Refer to: [Configuration](#) for the default duct sizes.

For the other options, refer to: [Circular Duct Straight](#).

CIRCULAR FLEXIBLE CONNECTION

The **Round Duct Flex**  button, when picked, displays the **CIRCULAR FLEXIBLE CONNECTION** dialog box.



Pick Start Point

This button, when selected, will prompt you to specify the starting point and direction for a flexible connection. If the crosshair is not on the right angle, use [Rotating Crosshairs](#)   functions to rotate crosshairs angle.

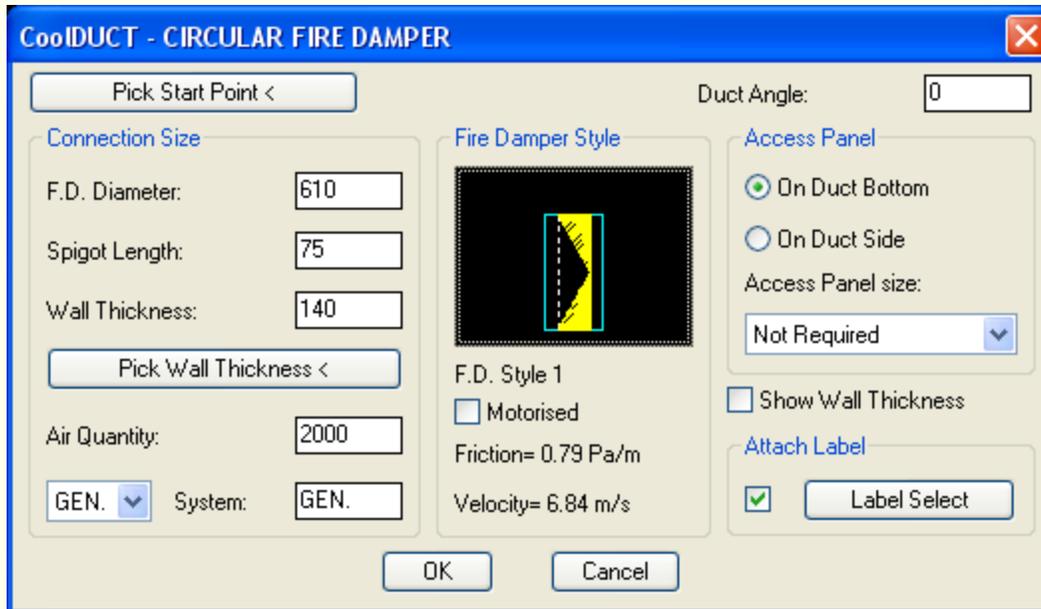
Flex Length

Specify the flexible connection length. Refer to: [Configuration](#) for the default length.

For the other options, refer to: [Rectangular Duct Straight](#).

CIRCULAR FIRE DAMPER

The **Circular Fire Damper**  button, when picked, displays the **CIRCULAR FIRE DAMPER** dialog box.



Spigot Length

Specify the spigot length of the fire damper. Refer to: [Configuration](#) for the default length. It is the extension of the fire damper from the wall. For example, if the spigot length is 75mm and the wall thickness is 110mm, the program will produce $(75 + 110 + 75)$ 360mm long fire damper in the drawing.

Wall Thickness

Specify the wall thickness for the fire damper. Refer to: [Configuration](#) for the default wall thickness.

Motorised

Check this box to attach a motor control symbol to fire damper.

Access Location

This option will allow you to insert an access panel (Duct Bottom or Sides) beside the fire damper. If you select an access panel size rather than **Not Required** from the popup list, you will be prompted to pick an insert point for the access panel after drawing the fire damper. To modify the list of the access panel sizes, refer to: [Access Panel](#) for customising details.

Show Wall Thickness

Check this box to attach fire damper length text.

Attach Label

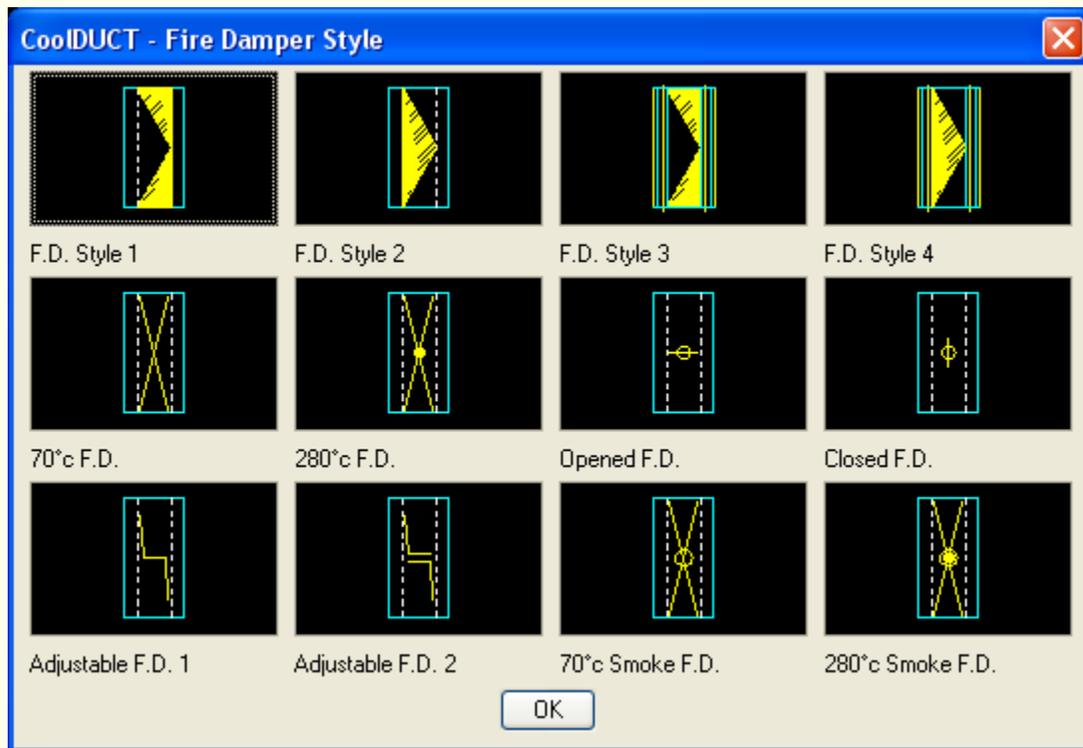
Check this box to insert a tag for fire damper.

Label Select

Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

Fire Damper Style

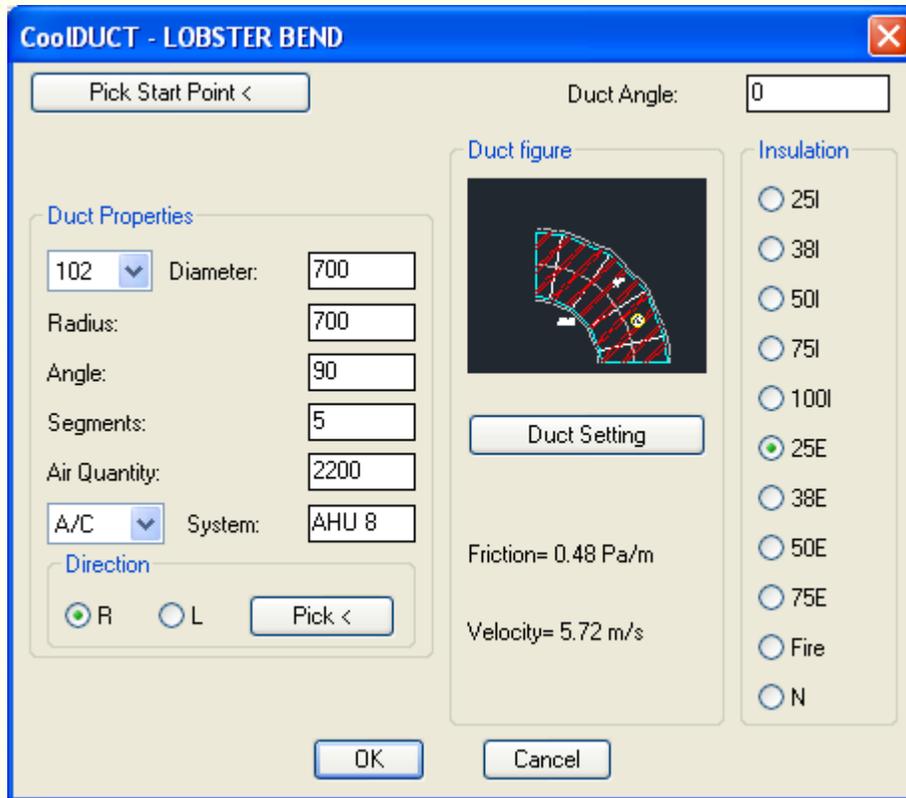
When The the **Fire Damper Style** image botton is picked, it displays the **Fire Damper Style** dialog box.



Picking on the image botton to select a fire damper style. The style 3 & 4 are the Australian Standard fire damper and will always has break flange end 80mm from wall.

LOBSTER BEND

The **Lobster Bend**  button, when picked, displays the **LOBSTER BEND** dialog box.



Radius

Specify the bend radius for the duct. Every time you enter a new duct diameter, the program will automatically calculate the **Bend Radius** by using the default ratio in the configuration file. Refer to: [Configuration](#) for the default bend ratio. For internal insulation duct, the thickness of insulation will also be added to the calculation. If the **Spiral Duct** is checked, the thickness of internal insulation will not be added to the duct metal size.

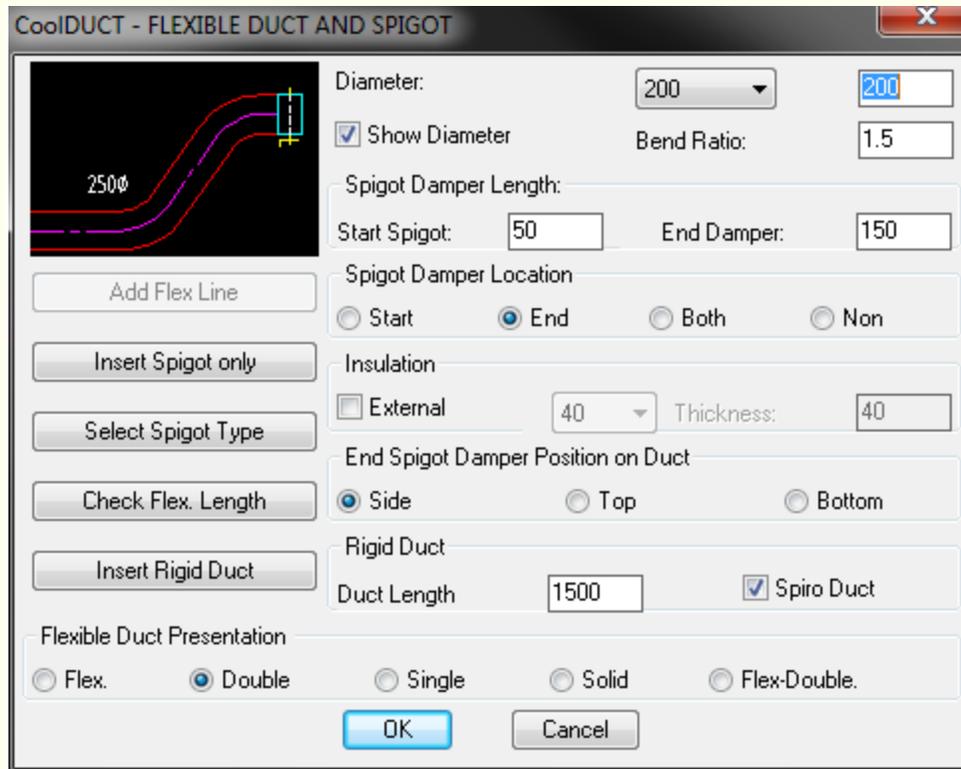
Segments

Specify the number of segments to create the lobster bend.

For the other options, refer to: [Circular Duct Straight](#).

FLEXIBLE DUCT AND SPIGOT

When the button  is picked, displays the **FLEXIBLE DUCT AND SPIGOT** dialog box.



Diameter

Specify flexible duct diameter.

Show Diameter

Check this box to insert the text for flexible duct diameter.

Bend Ratio

Specify flexible duct bend ratio. By changing **Bend Ratio**, You can change flexible duct bend radius.

Spigot Damper Length

Specify the length of the start spigot connected on grille and the length of the end damper connected on side of duct.

Spigot Damper Location

Start - show a spigot on start point (grille side).

End - show a damper spigot on end point (duct side). Refer to: [Configuration](#) for the default end spigot damper length.

Both - show spigot on start and end points.

Non - no spigot on start and end points.

Check **End** or **Both** box to attach a spigot at the end of flexible duct and activate the **Spigot Location** option.

Insulation

Select a flexible duct insulation. The thickness of insulation will be added to the diameter of flexible duct to be drawn. For example, a 200mm diameter flexible duct with 25mm external insulation will be drawn as 250mm-diameter duct.

Spigot Location

Specify the spigot position on duct when the check box for **Attach Spigot** is on. If the **Side** position is selected, you will be allowed to select a spigot type by picking the **Select Spigot Type** button.

Rigid Duct

Duct Length - Specify the length of rigid duct to be insert onto a flexible duct.

Spiro Duct - Check this box to draw rigid duct as a spiro duct.

Add Flex Line

When the **Add Flex Line** button is picked, you will be prompted to select flex duct centerlines. Once the lines are selected, they are converted to flexible ducts with a width. The selected entities can be lines or polylines. This function is only available when the **Flex** edit box is checked.

Insert Spigot Only

When the button is picked, you will be prompted to pick an insert point for spigot. The spigot type and diameter specified within the dialog box will be used.

Check Flex. Length

When the button is picked, you will be prompted to select flexible duct centre line for total length. The total length is in the horizontal plane.

Insert Rigid Duct

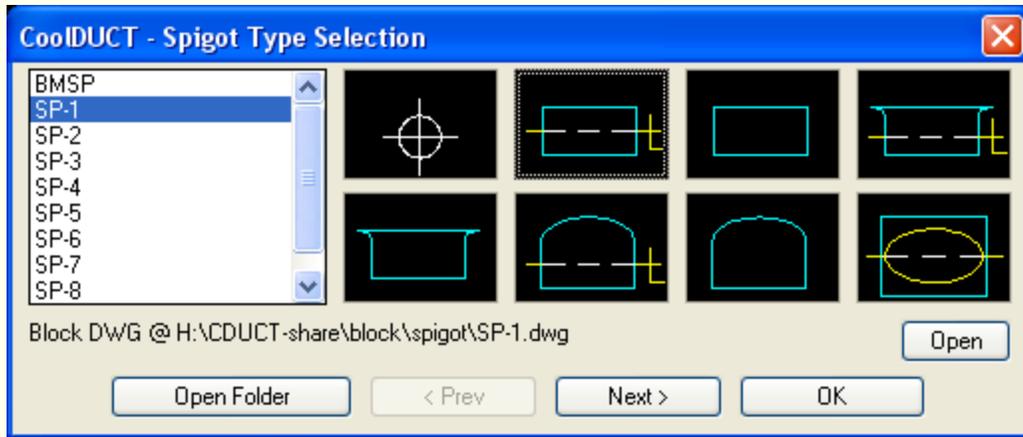
When the button is picked, you will be prompted to pick a point along flexible duct centre line for inserting a section of rigid duct.

Flexible Duct Presentation

There are five ways to draw flexible duct. By selecting different radio buttons, you can see their difference on the picture.

Select Spigot Type

When the **Select Spigot Type** button is picked, displays the **Spigot Type Selection** dialog box.



This dialog box shows the current type of spigot. If you click on any of these items, their drawing file names and locations will be shown at bottom of dialog box. Select your desired spigot by double clicking on the picture or the popup list. This will return you to previous dialog box. Spigot type **SP-1** always is the default type of spigot and not to be deleted. To change the default type, just change new default spigot block name as **SP-1** to replace original one. To modify the original spigot, use **Open** button to open the drawing and edit it. To add more spigots into the popup list, create a new drawing in 1:1 scale and save it to the directory. You also need to use command "MSLIDE" to create a SLD file with the same name and save it in same location.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find it. Refer to: ["CDUCT-share" Folder Location](#) for more details.

Open Folder

Click on this button to open the **Spigot** folder which contains all spigot block files.

CROSSHAIRS ROTATION

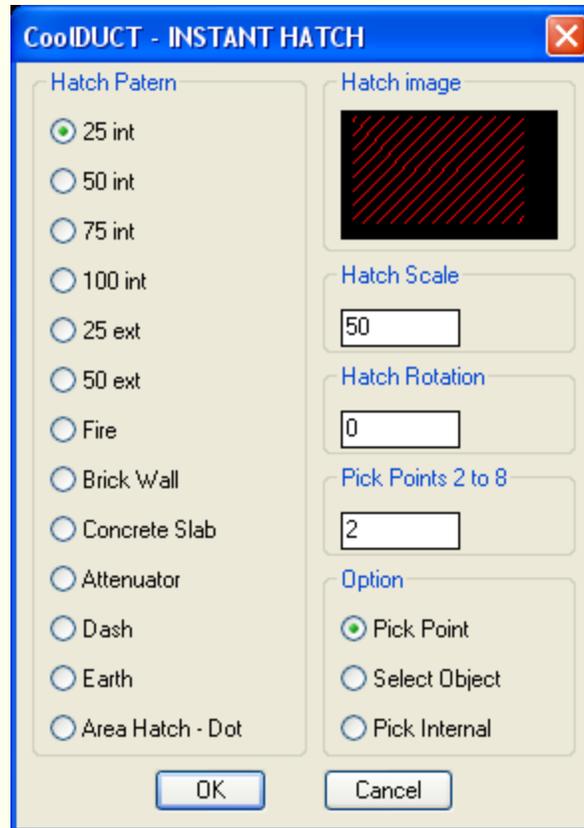
When the button  is picked or type "S1" on command line, you will be prompted to select an entity. The entity includes Line, Polyline, Text and Mtext. Once the entity has been selected the crosshairs will be rotated to the angle of the entity. By press Enter button, you will be prompted to specify an angle by picking two points on the screen. Once the two points have been selected the crosshairs will be rotated to align with the proposed new angle. If the current user coordinate system **UCS** is not set to the **WORLD** coordinate system or the **WORLD** coordinate system has been rotated, you must use selecting line or picking two points so that you can get the actual angle for cross hairs. To reset the cross hairs to 90 degrees, just pick the button  from toolbars or type "S0" on command line.

SNAP MODES

When the button  is picked, Object Snap Modes will be set to **Endpoint, Midpoint, Intersection & Perpendicular**. By picking on the button , Object Snap Modes will be set to **Non**.

INSTANT HATCH

When the button  is picked, displays the **INSTANT HATCH** dialog box.



Hatch Pattern

Choose a hatch pattern to create hatch. The hatch pattern which represents duct insulation has been specified in the configuration file. Refer to: [Configuration](#) for the default hatch pattern and layers.

Hatch Scale

Specify a scale to be used for hatching.

Hatch Rotation

Specify an angle for hatching.

Pick Points

Specify the number of the pick points to create hatch. Maximum 8 points.

Option

Select the method to create hatch.

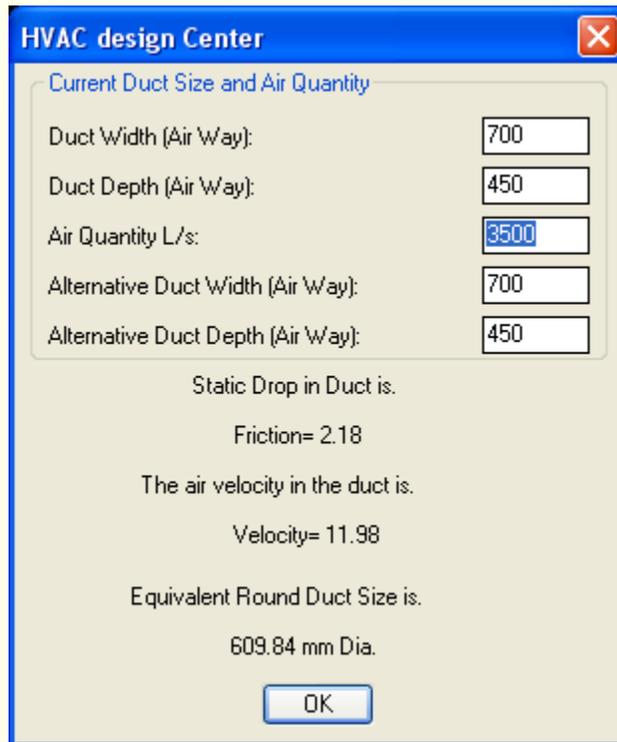
Pick Point - to hatch an area by picking points.

Select Object - to hatch an area by selecting the objects.

Pick Internal - to hatch an area by picking internal point of a object or selecting object boundary. It works like command "BHATCH" but the hatch will be created on the appropriate layers. Refer to: [Configuration](#) for the default layers.

DUCTULATOR

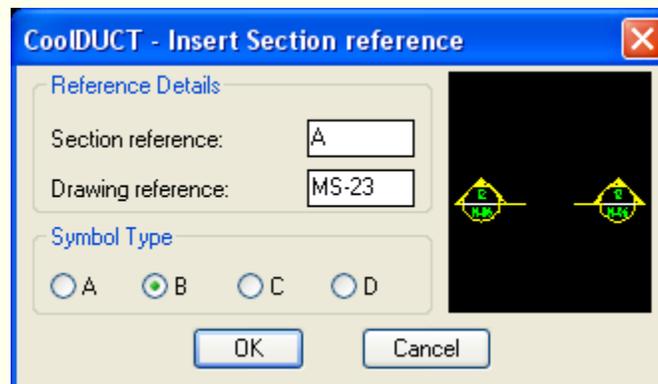
When the **DUCTULATOR** button or the toolbar button  is picked, displays the **HVAC Design Center** dialog box.



The Formula of this function was taken from CARRIER design manual. By entering a value in the edit box, you will get the answers very close to what you would normally read off a TRANE DUCTULATOR.

SECTION REFERENCE

When the button  is picked, displays the **Insert Section Reference** dialog box.



Reference Details

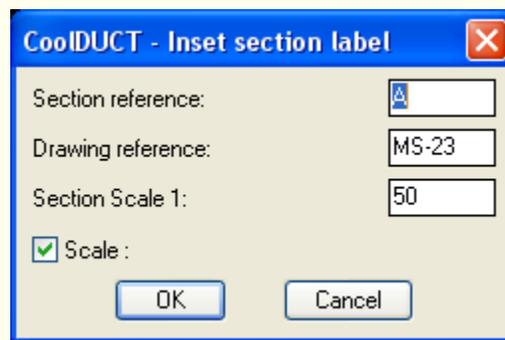
Section Reference	Specify the section reference.
Drawing Reference	Specify the drawing reference.

Symbol Type

Click on the radio boxes to choose your option, you can preview the image of the selected section reference.

SECTION LABEL

When the button  is picked, displays the **Insert Section Label** dialog box.



Section Reference

Specify the section reference.

Drawing Reference

Specify the drawing reference.

Section Scale

Specify the section scale.

Scale

Check this box to show the section scale.

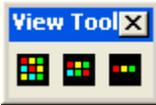
UNDO

If you cancel a function by pressing **ESC** during creating double line pipeline or fittings, press this button  will undo this action at Once . It works like AutoCAD command "UNDO" but it can undo several actions at once.

VIEW



The CoolDUCT menus has three view toolbars . Click on the



View Tool toolbar to select one of three view toolbars to be displayed on screen.



How to use View tool

By picking on button **1**, it will set view 1 as current.

By picking on button , it will save current display as view 1.

By picking on button , you will be prompted to use the pointing device to define the opposite corners of the new view window as view 1.

VOLUME DAMPER

When the button  is picked, displays the **VOLUME DAMPER** dialog box.

Damper Type

Select damper type to be drawn. By clicking on different radio buttons, you can see their difference on the picture.

Damper Orientation

Specify the orientation of damper to be drawn. By clicking on different radio buttons, you can see their difference on the picture.

Attach Label

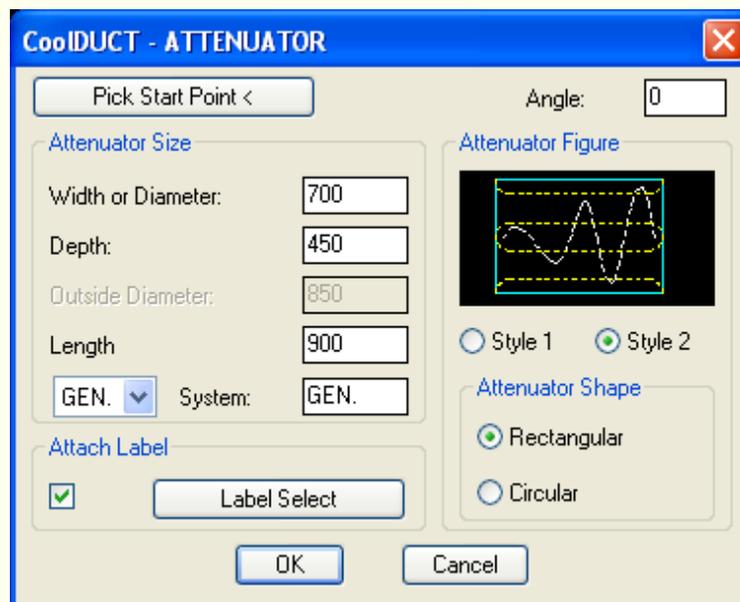
Check this box to insert a tag for Damper.

Label Select

Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

ATTENUATOR

The **Attenuator**  button, when picked, displays the **ATTENUATOR** dialog box.



Attenuator Figure

Select a style of attenuator to be drawn.

Attenuator Shape

Select a square attenuator or circular attenuator to be drawn.

Attach Label

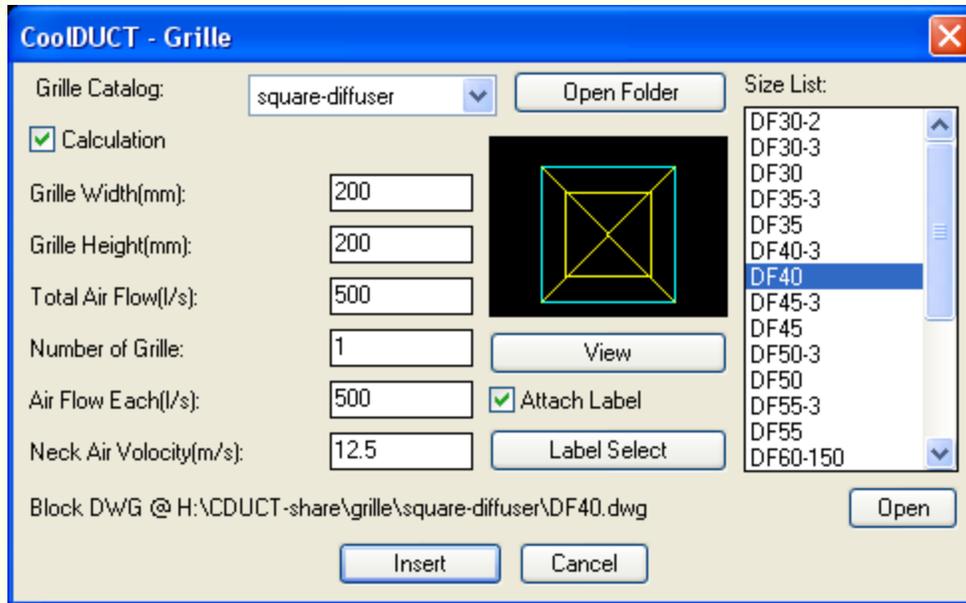
Check this box to insert a tag for Attenuator.

Label Select

Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

GRILLE

When the button  is picked, displays the **Grille** dialog box.



Grille Catalog

This is a list of available catalogues. Pick on the **Grille Catalog** popup list to select a catalog. The **Size List** box will updated with all available grilles in the selected catalog.

To add new catalog, create new folder under "\CDUCT-share\grille" directory and save all block DWG files and SLD files in this folder. Avoid to create new folder that does not contain any block DWG file and do not use any **space** for the new folder name such as "**Ceiling Diffuser**". Using "**Ceiling-Diffuser**" will be OK.

Open Folder

Click on this button to open the **GRILLE** folder which contains all grille block files.

View

Click on this button to view the grille in enlarged view without inserting it.

Attach Label

Check this box to insert a tag for grille.

Label Select

Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

Size List

Select your desired size on the **Size List** popup list and press **Insert** button or just double click on your desired size to insert it into the drawing.

To add new size of grille to the size list, create a new drawing in 1:1 scale and save it to the directory

indicated on the dialog box. You also need to use command "MSLIDE" to create a SLD file with the same name and save it in same location.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find the file and displays the message as picture below. Refer to: "[CDUCT-share](#)" [Folder Location](#) for more details.



Using Calculator

Check this box to activate the edit boxes for calculating. **A formula has been created within the program for calculating.**

Grille Width(mm)

Specify the grille width.

Grille Height(mm)

Specify the grille height.

Total Air Flow(l/s)

Specify the total air flow for the outlet.

Number of Grille

Specify the number of grille to be used.

Air Flow Each(l/s).

The air flow rate for each grille.

Neck Air Velocity(m/s).

The air velocity on grille outlet.

REGISTER

When the button  is picked, displays the **Register** dialog box.

CoolDUCT - Register

Register Width(mm): Calculation

Register Thickness(mm): Total Air Flow(l/s):

Register Height(mm): Number of Register:

Plenum Box Depth(mm): Air Flow Each(l/s):

Spigot Diameter(mm): Neck Air Volocity(m/s):

Attach Plenum Plenum Insulation Attach Spigot

Attach Label

Register Width(mm)

Specify a value for register width.

RegisterThickness(mm)

Specify a value for register thickness to be drawn.

Register Height(mm)

Specify a value for register height.

Plenum Box Depth(mm)

Specify a value for plenum box depth.

Spigot Diameter(mm)

Specify a value for spigot diameter.

Attach Plenum

Check this box to draw a plenum box after grille.

Plenum Insulation

Check this box to show the insulation to the plenum box.

Attach Spigot

Check this box to draw a spigot after plenum box.

Attach Label

Check this box to insert a tag for grille.

Label Select

Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

Using Calculator

Check this box to activate the edit boxes for calculating. **A formula has been created within the program for calculating.**

Total Air Flow(l/s)

Specify the total air flow for the outlet.

Number of Register

Specify the number of grille to be used.

Air Flow Each(l/s).

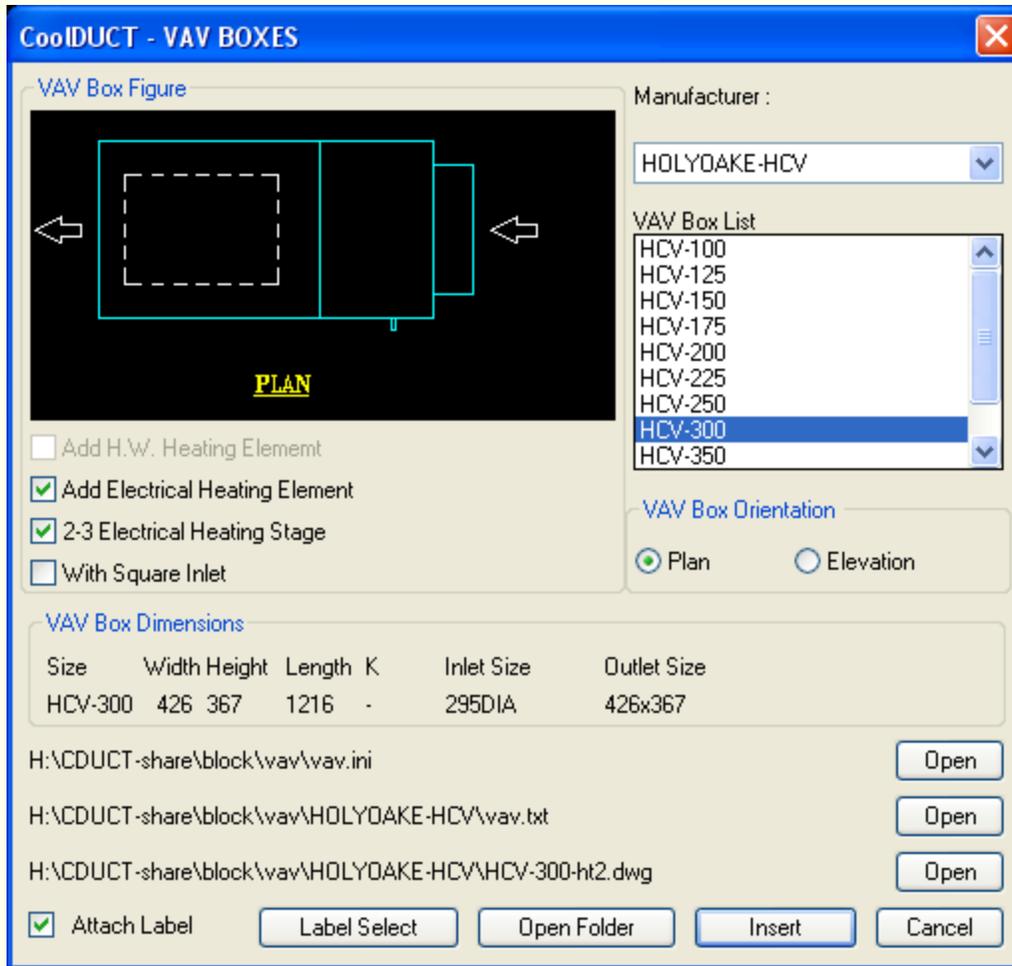
The air flow rate for each grille.

Neck Air Velocity(m/s).

The air velocity on grille outlet.

VAV BOXES

When the button  is picked, displays the **VAV BOXES** dialog box.



Choose the manufacturer by clicking on the popup list. Then, Select a desired size by clicking on the VAV Box List. Pick check boxes in VAV Box Orientation to insert the box in plan or elevation view. Once **OK** button is picked, you will be prompted to pick insert point to insert block. To modify the original block, you just open the drawing file which location is shown in the dialog box and edit it. To add more block in the list, you can simply use NOTEPAD to edit both of the "vax.txt" and "vaxh.txt" files in the same location. To create new manufacturer, for example "Uni-air", add text "Uni-air" to the end of "\CDUCT-share\block\vav\vav.ini" file and save. Create a "Uni-air" folder under "vav" directory and save all VAV drawing files and slide files to this folder. Create a "vax.txt" file and a "vaxh.txt" file with all VAV box dimension data and save them in the "Uni-air" folder.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find the file and displays the message as picture below. Refer to: ["CDUCT-share" Folder Location](#) for more details.



Attach Label

Check this box to insert a tag for VAV Box.

Label Select

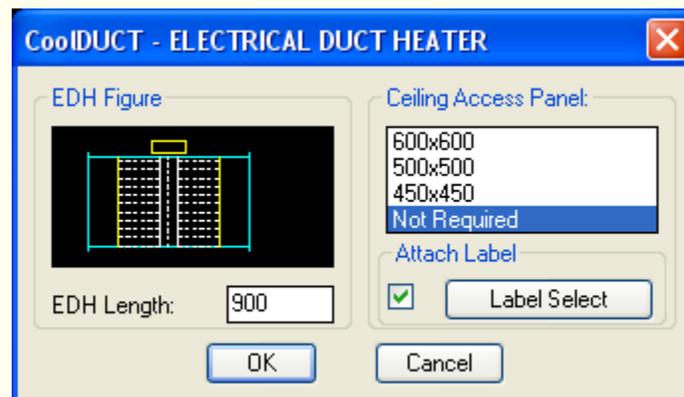
Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

Open Folder

Click on this button to open the **vav** folder which contains all VAV block files.

DUCT HEATER

The **Duct Heater**  button, when picked, displays the **ELECTRICAL DUCT HEATER** dialog box.



Ceiling Access Panel Size

Select a ceiling access panel size to be inserted. You can select the access panel sizes or **Not Required** from the popup list. When the **OK** button is picked, the duct heater will be drawn and you are prompted to pick an insert point for access panel. To modify the list of access panel sizes, refer to: [Access Panel](#) for customization details.

Attach Label

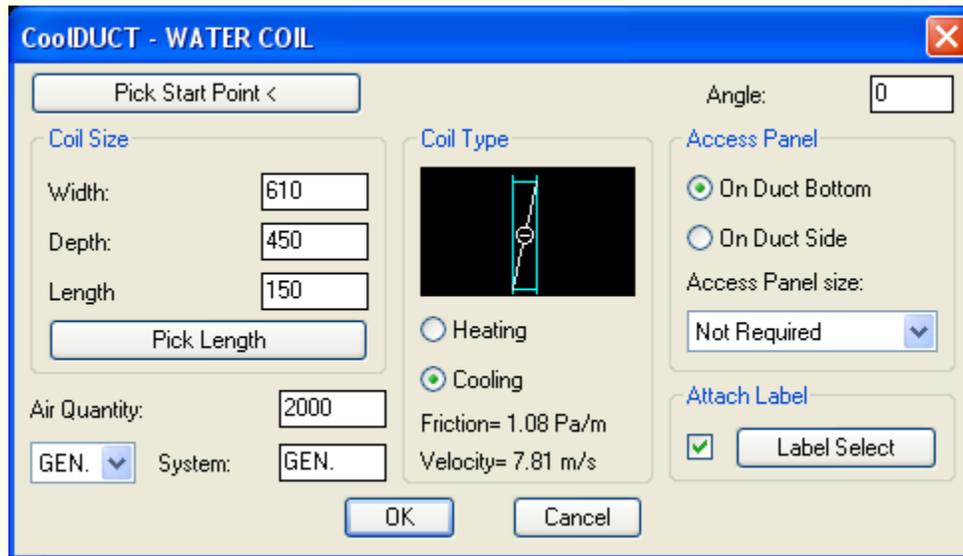
Check this box to insert a tag for Duct Heater.

Label Select

Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

Water Coil

The **Water Coil**  button, when picked, displays the **WATER COIL** dialog box.



Width

Specify the coil width.

Depth

Specify the coil depth.

Length

Specify the coil length.

Pick Length

This button, when selected, will prompt you to specify the coil length by picking the end point of coil.

Coil Type

Select the coil type - Heating or Cooling.

Access Location

This option will allow you to insert an access panel (Duct Bottom or Sides) beside the cooling coil only. If you select an access panel size rather than **Not Required** from the popup list, you will be prompted to pick an insert point for the access panel after drawing the coil. To modify the list of the access panel sizes, refer to: [Access Panel](#) for customising details.

Attach Label

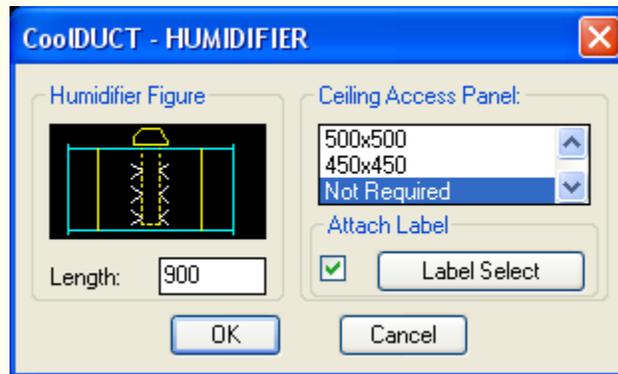
Check this box to insert a tag for Coil.

Label Select

Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

HUMIDIFIER

When the button  is picked, displays the **HUMIDIFIER** dialog box.



Ceiling Access Panel Size

Select a ceiling access panel size to be inserted. You can select the access panel sizes or **Not Required** from the popup list. When the **OK** button is picked, the humidifier will be drawn and you are prompted to pick an insert point for access panel. To modify the list of access panel sizes, refer to: [Access Panel](#) for customization details.

Attach Label

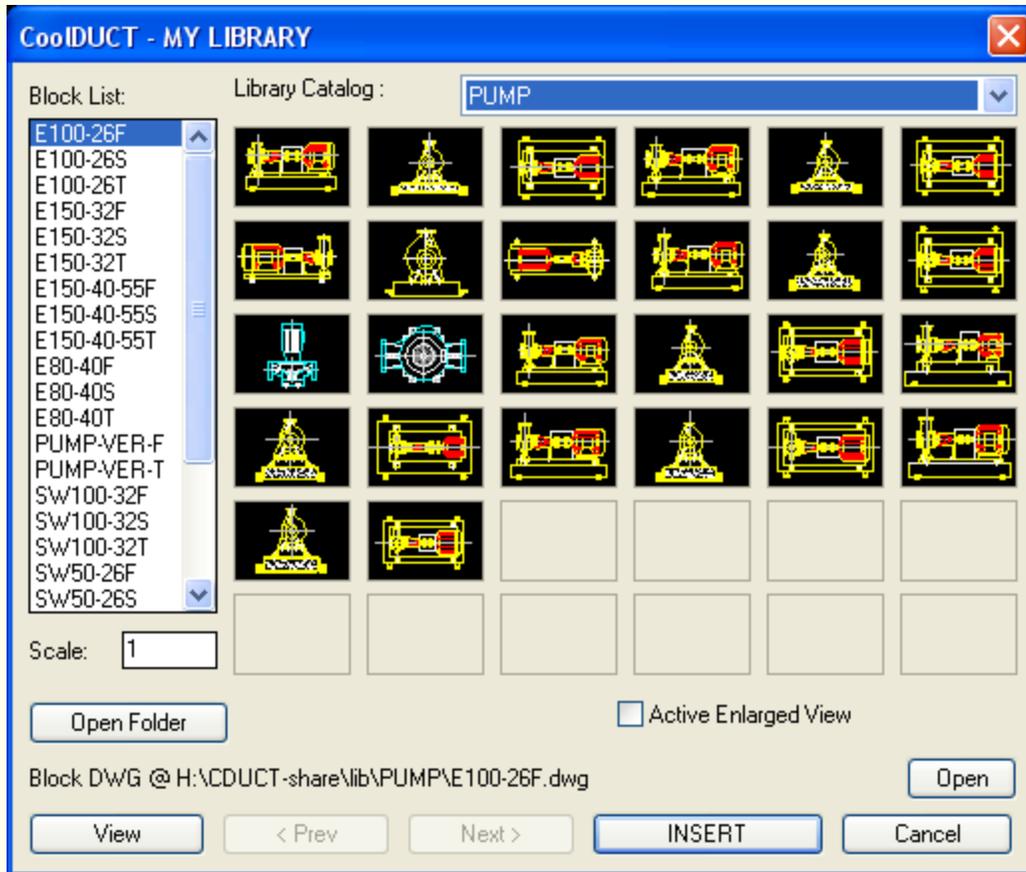
Check this box to insert a tag for Humidifier.

Label Select

Clicking on this button will prompt you to select a tag. Refer to: [Label Selection](#).

EQUIPMENT LIBRARY

When the button  is picked, displays the **MY LIBRARY** dialog box.



Choose your Library Catalog by clicking on the popup list. The dialog box will display available blocks in this catalog. Select your desired block by double clicking on the picture or the Block List, you will be prompted to pick point to insert block.

Library Catalog

This is a list of available cataloges. Pick on the **Library Catalog** popup list to select a catalog. The **Block List** box will updated with all available blocks in the selected catalog.

To add new catalog, create new folder under "\CDUCT-share\lib" directory and save all block DWG files and SLD files in this folder. Avoid to create new folder that does not contain any block DWG file and do not use any **space** for the new folder name such as "**Apac Units**". Using "**Apac-Unit**" will be OK.

Block List

Select your desired block on the **Block List** popup list and press **Insert** button or just double click on your desired block to insert it into the drawing.

To add new block to the block list, create a new drawing in 1:1 scale and save it to the directory indicated on the dialog box. You also need to use command "MSLIDE" to create a SLD file with the same name and save it in same location.

Scale

Specify insertion scale.

Open Folder

Click on this button to open the **lib** folder which contains all block files.

Active Enlarged View

Checking this box will allow you to view the block in enlarged view without inserting block.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find the file and displays the message as picture below. Refer to: ["CDUCT-share" Folder Location](#) for more details.

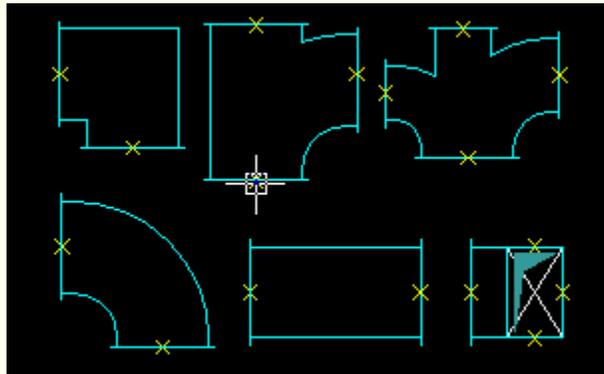


View

Click on this button to view the block in enlarged view without inserting block.

Duct Size Annotation

When the button  is picked, you will be prompted to select an existing duct. Pick the duct on the locations indicated on the picture below.



You then will be asked to pick a point for Duct Size dimension location. The duct size text will be inserted into the drawing on the appropriate layer.

AIR FLOW ARROW

When the button  is picked, displays the **Insert Air Flow Arrow** dialog box.



Grille Neck Size

Enter the size in the edit box when the **Show** check box is on, it will show grille neck size on the inserted arrow.

Air Flow

Enter the air flow rate in the edit box when the **Show** check box is on, it will show air flow rate on the inserted arrow.

DUCT SIZE TEXT

The function works like AutoCAD command "DTEXT" and will draw text similar to duct size text drawn when using duct functions.

DUCT LENGTH TEXT

The function works like AutoCAD command "DTEXT" and will draw text similar to duct length text drawn when using duct functions.

DUCT SIZE REVERSE

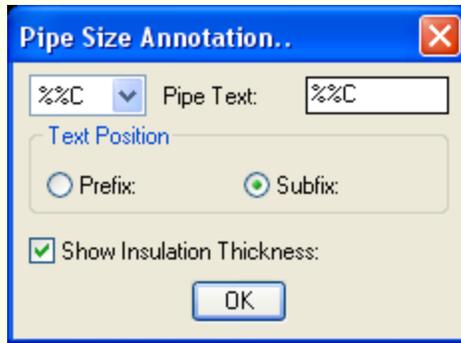
When click on this button, you will be prompted to pick a duct size on the screen and will reverse it. For example, reverses duct size 900x450 to 450x900.

Duct Size Annotation

When the button  is picked, you will be prompted to select a point along pipe centre line only... Once completing the selection, you then will be asked to pick pipe size text location. The pipe size text will be inserted into the drawing on the appropriate layer. It only work on the double line pipework created by using [Pipe Line](#)  tool. Refer to [Pipe Size Annotation Setting](#)  for pipe size text setting..

PIPE SIZE ANNOTATION SETTING

When the button  is picked, displays the **Pipe Size Annotation** dialog box.



Specify pipe size text by picking on the **Pipe Text** popup list or enter a value on the edit box.

Prefix

Place the pipe text in front of the number.

Suffix

Place the pipe text after the number.

Show Insulation Thickness

Checking this option will add the insulation thickness to the pipe size.

The setting will be used by the functions of [Pipe Line](#)  and [Pipe Size Annotation](#) .

DUCT HEIGHT

When the button  is picked, displays the **Duct Height Above Floor** dialog box.



Duct Height Label Content

Height of Bottom of Duct	Specify the distance from bottom of duct to floor slab.
Show Bottom of Duct R.L.	Check this box and enter a value in the edit box to show the duct bottom R.L.
Show Top of Duct Clearance	Check this box and enter a value in the edit box to show the distance from top of duct to underside of top slab.

Using Calculator

Check this box to activate the edit boxes for calculating.

Duct Depth

Specify the duct height.

Ceiling Clearance

Specify the clearance between the bottom of duct and ceiling.

Sofit Height

The distance from underside of top slab to floor slab.

Current Floor R.L.

Enter the R.L. of current floor slab. Check the **Fix** box to fix the value.

Next Floor above R.L.

Enter the R.L. of top floor slab. Check the **Fix** box to fix the value.

Slab or Beam Thickness

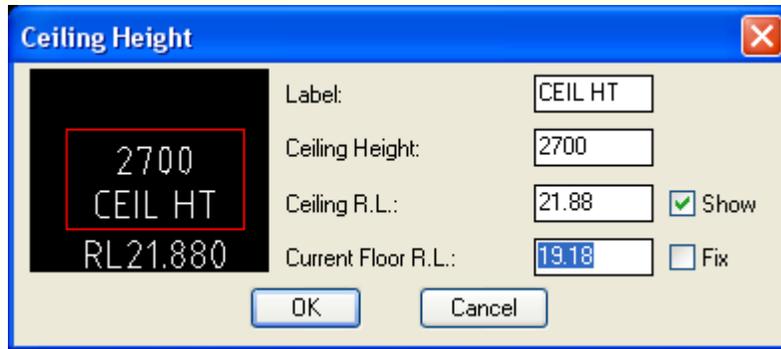
Enter the thickness of slab or beam on the top floor. Check the **Fix** box to fix the value.

Ceiling Height

Enter the height of ceiling. Check the **Fix** box to fix the value.

A formula has been created within the program for calculating. CEILING HEIGHT

When the button  is picked, displays the **Ceiling Height** dialog box.



Label

Specify a title for the symbol.

Ceiling Height

Specify the distance from bottom of ceiling to floor slab.

Ceiling R.L.

Check this box and enter a value in the edit box to show ceiling R.L.

Current Floor R.L.

Enter the R.L. of current floor slab. Check the **Fix** box to fix the value.

A formula has been created within the program for calculating. SOFIT HEIGHT

When the button  is picked, displays the **Sofit Height** dialog box.



Sofit Type

Specify a title for the symbol.

Sofit Height

Specify the distance from underside of top slab to floor slab.

Show Soffit R.L.

Check this box and enter a value in the edit box to show the R.L. of underside of top slab.

Current Floor R.L.

Enter the R.L. of current floor slab. Check the **Fix** box to fix the value.

Next Floor above R.L.

Enter the R.L. of top floor slab. Check the **Fix** box to fix the value.

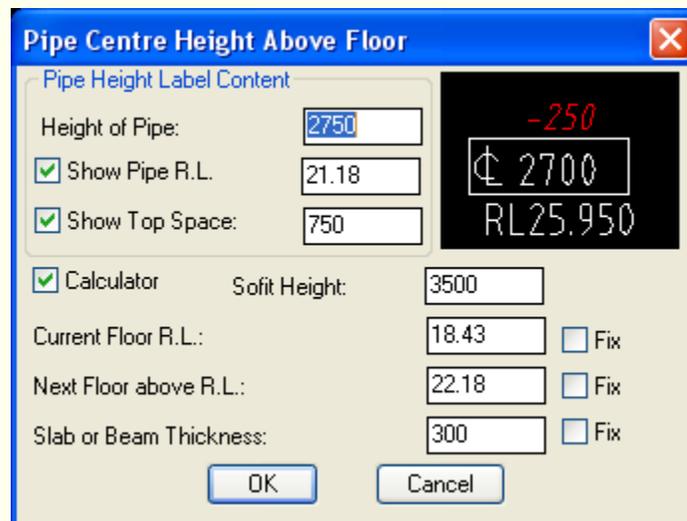
Slab or Beam Thickness

Enter the thickness of slab or beam on top floor. Check the **Fix** box to fix the value.

A formula has been created within the program for calculating.

PIPE HEIGHT

When the button  is picked, displays the **Pipe Centre Height Above Floor** dialog box.



Pipe Height Label Content

<u>Height of Pipe</u>	Specify the distance from centre of pipe to floor slab.
<u>Show Pipe R.L.</u>	Check this box and enter a value in the edit box to show the R.L. of centre of pipe.
<u>Show Top Space</u>	Check this box and enter a value in the edit box to show the distance from centre of pipe to underside of top slab.

Using Calculator

Check this box to activate the edit boxes for calculating.

Sofit Height

The distance from underside of top slab to floor slab.

Current Floor R.L.

Enter the R.L. of current floor slab. Check the **Fix** box to fix the value.

Next Floor above R.L.

Enter the R.L. of top floor slab. Check the **Fix** box to fix the value.

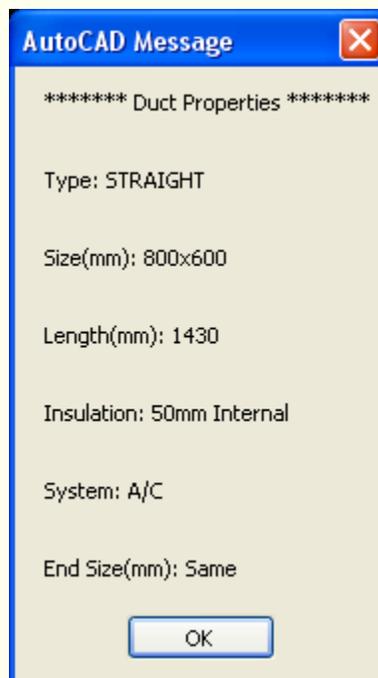
Slab or Beam Thickness

Enter the thickness of slab or beam on the top floor. Check the **Fix** box to fix the value.

A formula has been created within the program for calculating.

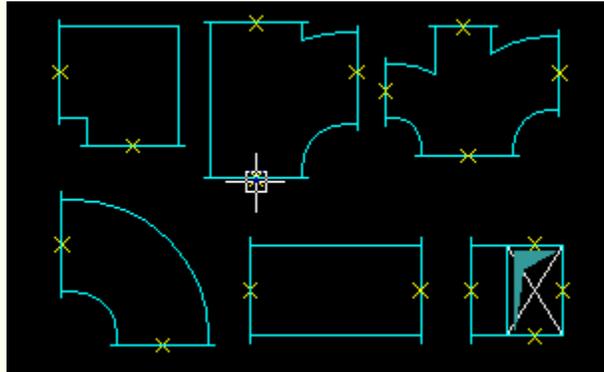
Duct Properties

When the button  is picked, you will be prompted to select an existing duct. Then, AutoCAD will display a message containing the information of the selected duct.

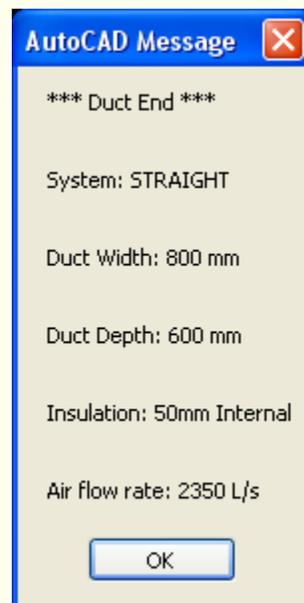


Duct End Properties

When the button  is picked, you will be prompted to select an existing duct. Pick the duct on the locations indicated on the picture below.

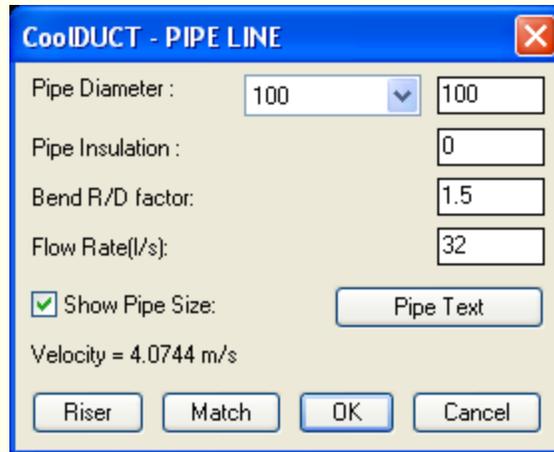


Then, AutoCAD will display a message containing the information of the selected duct end.



PIPE LINE

When the button  is picked, displays the **PIPE LINE** dialog box.



Pipe Diameter

Specify pipe diameter by picking on the popup list or enter a value on the edit box. Refer to: [Configuration](#) for the default pipe sizes.

Pipe Insulation

Specify the thickness of pipe insulation.

Bend Radius/Diameter factor

Specify pipe radius bend ratio.

Flow Rate(l/s)

Specify the pipe water flow rate on the edit box (optional). The velocity of water will be shown on bottom of the dialog box.

Riser

Clicking on this button will prompt you to pick a point on screen to insert a pipe riser.

Match

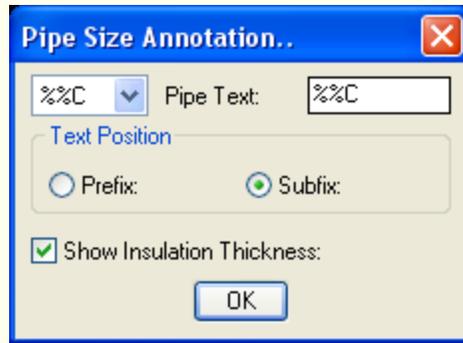
Clicking on this button will prompt you to select existing pipe centerline(s) on screen. Then, it will display the information of its diameter and insulation in the dialog box for you.

Show Pipe Size

Checking this option will insert the pipe diameter size text into the drawing.

Pipe Text

The Pipe Text button, when picked, displays the **Pipe Size Annotation** dialog box.



Specify pipe size text by picking on the popup list or enter a value on the edit box.

Prefix

Place the pipe text in front of the number.

Suffix

Place the pipe text after the number.

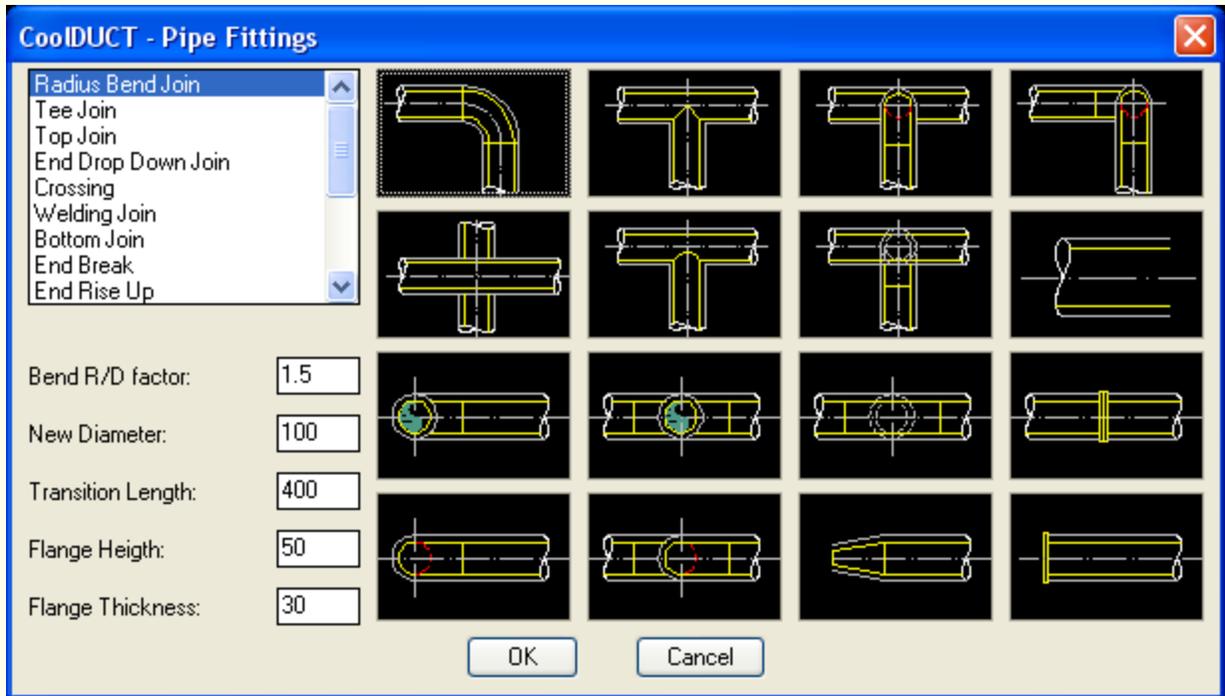
Show Insulation Thickness

Checking this option will add the insulation thickness to the pipe size.

The pipelines created by this function will store the information of pipe diameter and insulation in its centerline. The information will be used late by the functions of [Pipe Fittings](#)  and [Valve Library](#) .

PIPE FITTINGS

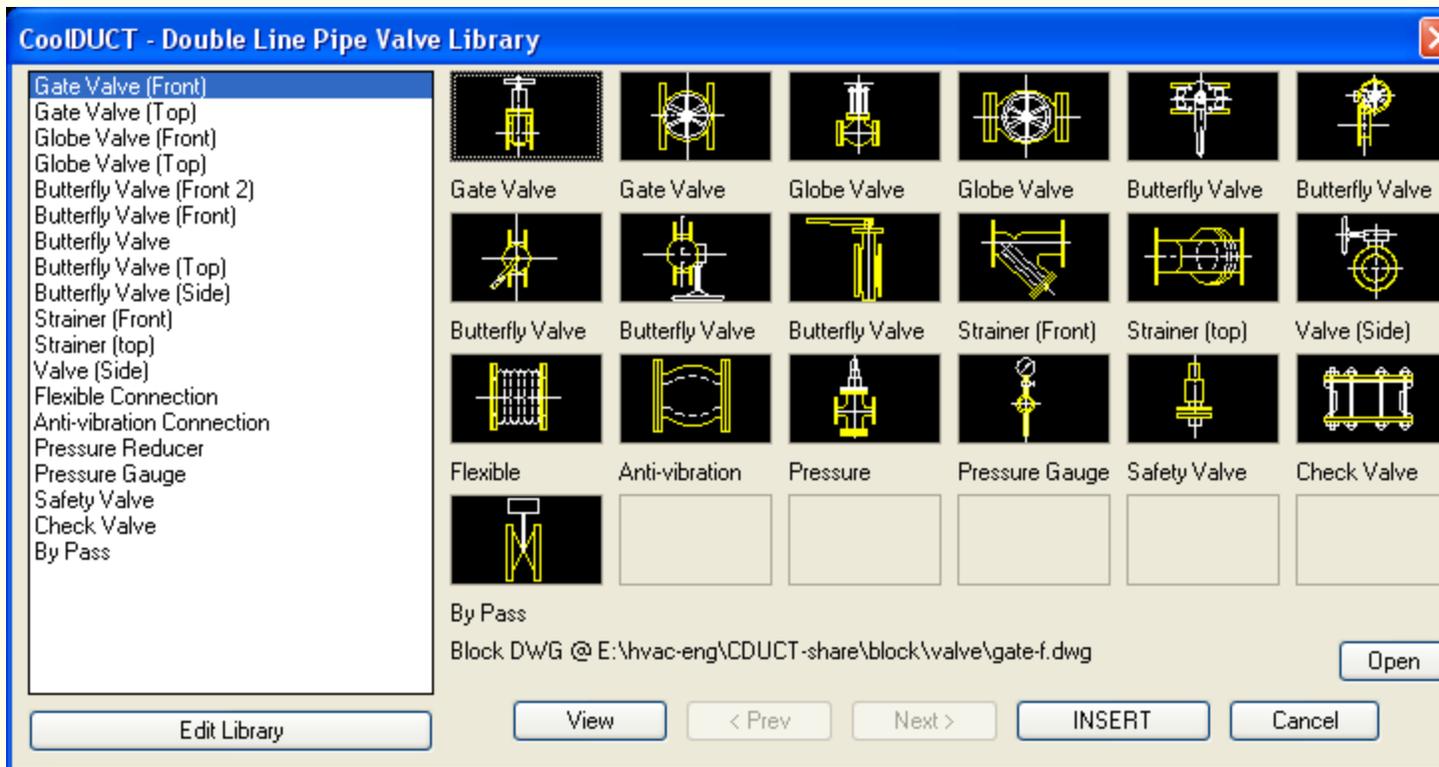
When the button  is picked, displays the **Pipe Fittings** dialog box.



Choose a desired fitting by double clicking on the picture or the popup list. You will be prompted to select pipe centerline(s). The fitting will be drawn on the single pipeline or between two pipelines. For the two pipeline fittings, if the fitting is not placed in the desired place or in wrong direction, you may need to undo them and then trim back one end of the pipeline before placing fitting again. For single pipeline fittings, pick the point close to the end of the pipeline where the fitting to be placed. The edit boxes in the dialog box are applicable to appropriate fittings only. This function only works on the pipelines created by using [Pipe Line](#)  function. For the pipelines with insulation, **do not delete any insulation lines** as this will cause errors when using this function.

VALVE LIBRARY

When the button  is picked, displays the **Double Line Pipe Valve Library** dialog box.



Choose a desired valve by double clicking on the picture or the popup list. You will be prompted to select a point along pipe centerline or press the Enter button for insert only. By picking a point on pipe centerline, the selected valve will be inserted and break into the pipeline automatically. By pressing Enter button instead of picking a point on pipe centerline, you will be prompted to enter pipe diameter and pick a point to insert the valve. This function only works on the pipelines created by using [Pipe Line](#)  function.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find the file and displays the message as picture below. Refer to: ["CDUCT-share" Folder Location](#) for more details.

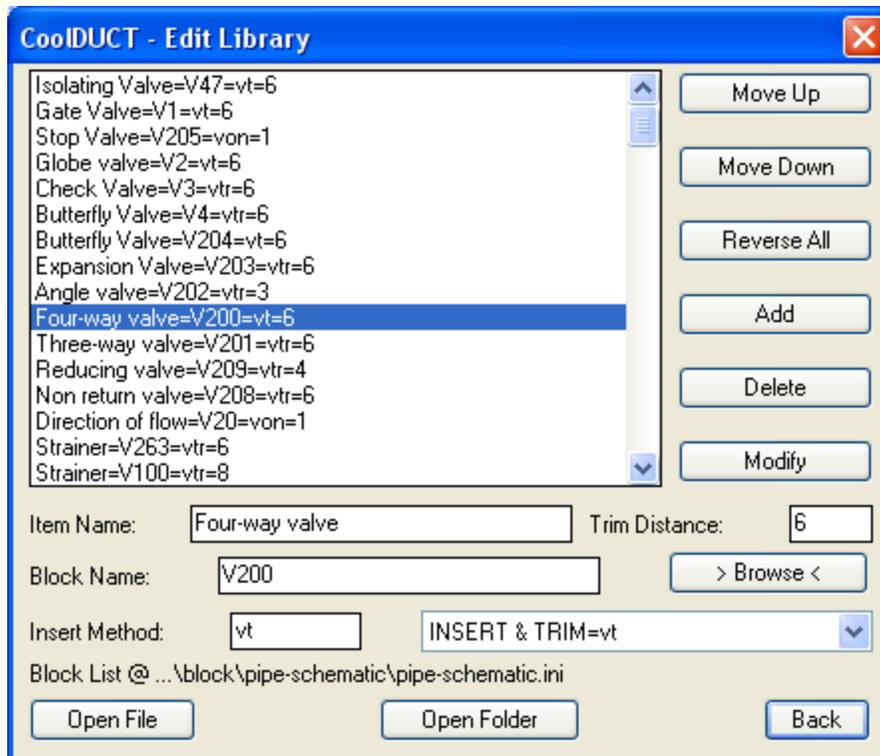


View

Click on this button to view the valve in enlarged view without inserting it.

Edit Library

When the **Edit Library** button is picked, displays the **Edit Library** dialog box.



Picking on any item on popup list will display its current values in the edit boxes and they can be edited.

Move Up

Move the item up.

Move Down

Move the item down.

Reverse All

Reverse the item order.

Add

Before adding new valve to the library, You need to create a new drawing in 1:1 scale and set drawing origin point in the centre of the object. Save the drawing file like "check-t.dwg" to the "\valve" directory. Use "MSLIDE" command to create a slide file "check-t.sld" and save it to the "\valve" directory.

Enter the value to the relevant edit boxes in the dialog box and pick the **Add** button. The new valve will be added to the popup list in the dialog box as well as save it into the valve definition file "valve.ini" located under "\CDUCT-share\block\valve" directory. You also can use **Open File** button to edit the "valve.ini" file. However, you must be very careful as a corrupted file will cause errors in CoolDUCT program.

Item Name

Specify the valve name.

Trim Distance

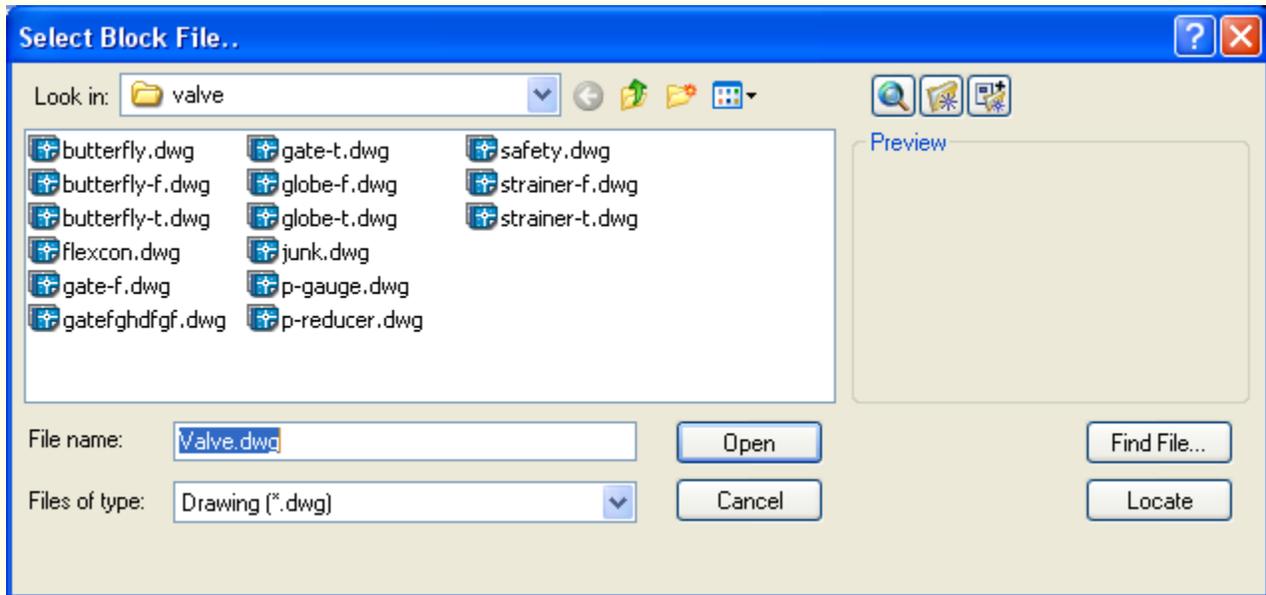
Specify the gap for pipeline to be broken when inserting the valve.

Block Name

Specify the block name to be used for the valve. You can use **Browse** button to select the block.

Browse

When the **Browse** button is picked, displays the **Select Block File..** dialog box.



Select the block file name to be used from the dialog box.

Inserting Method

There are three routines as follows:

von ----- Insert & Rotate

vt ----- Inser & Trim

vtr ----- Insert, Trim & Rotate

Specify an inserting method by picking on the popup list or enter a value on the edit box.

Delete

Pick the item to be deleted on the popup list and click on the **Delete** button to delete the value from the popup list in the dialog box as well as save it into the valve definition file "valve.ini" located under "\CDUCT-share\block\valve" directory. You also can use **Open File** button to edit the "valve.ini" file.

Modify

Pick the item to be modified on the popup list and enter the value to the relevant edit boxes in the dialog box. Click on the **Modify** button to update the new values in the dialog box as well as save it into the

valve definition file "valve.ini" located under "\CDUCT-share\block\valve" directory. You also can use **Open File** button to edit the "valve.ini" file.

Open File

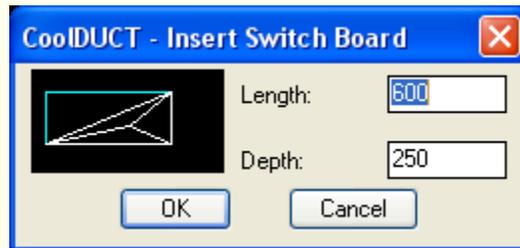
Click on this button to open the **valve.ini** file.

Open Folder

Click on this button to open the **valve** folder which contains all block files.

Switch Board

When the button  is picked, displays the **Insert Switch Board** dialog box.



Length

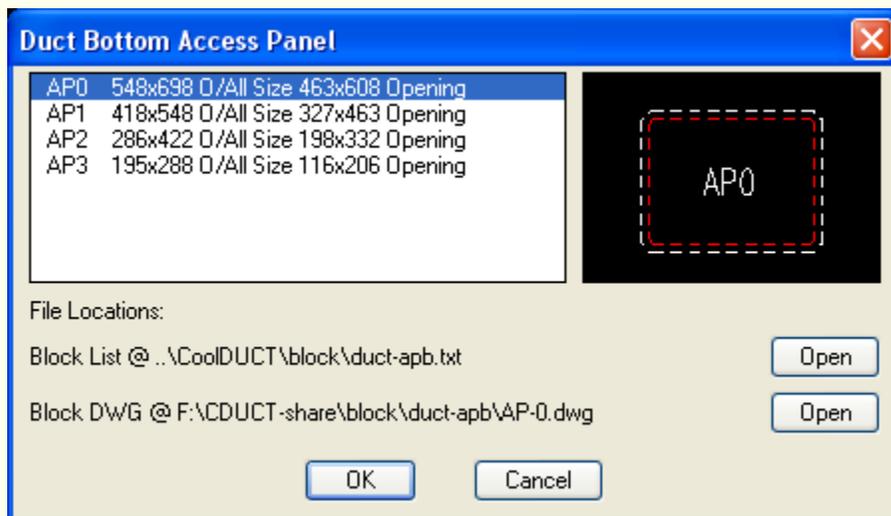
Specify a value for switch board length.

Depth

Specify a value for switch board depth.

ACCESS PANEL

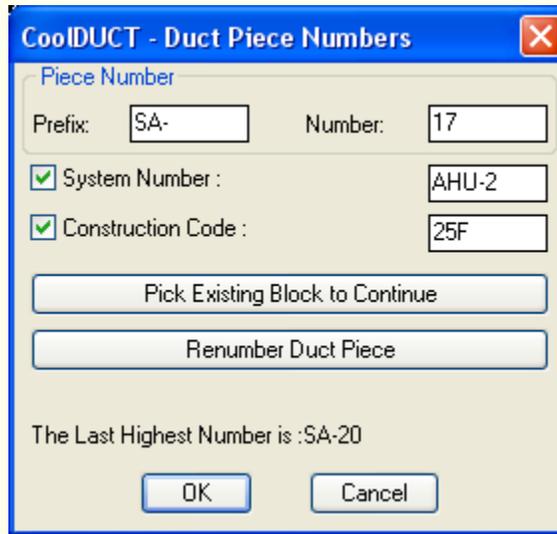
There are four types of access panel to be inserted onto your drawing where applicable. For example, when the button  is picked, displays the **Duct Bottom Access Panel** dialog box.



Select your desired size by picking on the List and press **OK**. You will be prompted to pick a point to insert block. To add more blocks in the list, you can simply pick on **Open** button to use NOTEPAD to add new block name and its description to the "duct-apb.txt" file. Create drawing file and slide file for the new block. Save them under the same directory. To modify the original block, you just pick on **Open** button to open the drawing and edit it.

DUCT PIECE NUMBERS

When the button  is picked, displays the **Duct Piece Numbers** dialog box.



CoolDUCT - Duct Piece Numbers

Piece Number

Prefix: SA- Number: 17

System Number : AHU-2

Construction Code : 25F

Pick Existing Block to Continue

Renumber Duct Piece

The Last Highest Number is :SA-20

OK Cancel

This function inserts duct piece number and automatically increments the number by one with each insertion. The number block contains the information of piece number, system number and construction code.

Piece Numbers

Specify piece numbers by entering a value in the **Number** edit box and the **Prefix** edit box (optional).

System Number

When the box is checked and you enter a value in edit box, it will be shown in the inserted number block.

Construction Code

When the box is checked and you enter a value in edit box, it will be shown in the inserted number block. The value of Construction Code will be ignored when the program checks the existing number.

The Last Highest number

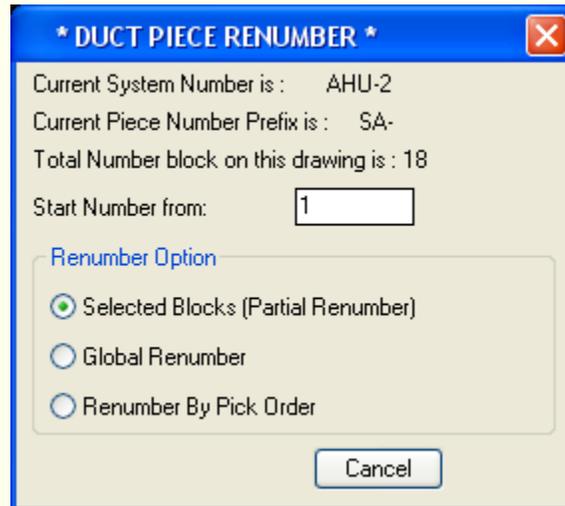
Each time you enter a new value for piece number or system number, the program will check whether any number block has already existed on this drawing with same number prefix and system number. If Yes, It will show the last highest number of the existing block. Otherwise, it will indicate that it is new system duct piece number and the number will start from 1.

Pick Existing Block to Continue

When the button is picked, you will be prompted to pick an existing number block on the screen and return you to previous dialog box with the next number.

Renumber Duct Piece

Clicking on this button will prompt you to pick an existing number block on the screen to be re-numbered. Once a block has been selected, it will display the **DUCT PIECE RENUMBER** dialog box.



The dialog box displays the details of the system number, piece number prefix of the selected block and total number of the number block on this drawing. This function only renumbers the number blocks matching the system number and piece number prefix. The total number of block could be 28, but there are probably only 10 blocks matching the block name and the piece number prefix. The **Start Number from** edit box allows you to specify a number to start .

Renumber Option

There are three options to renumber duct piece number.

Selected Blocks (Partial Renumber) - to renumber the selected blocks only and start from the lowest number block.

Globe Renumber - to renumber all blocks on the drawing and start from the lowest number block.

Renumber By Pick Order - to renumber the blocks by the picking order on the screen.

DUCT PIECE SCHEDULE

This function will extract all data contained within the ductworks and generate the duct piece schedule. It won't work accurately in the following conditions :

- The duct piece created with **Single** option will not be scheduled. Refer to [Duct Setting](#) for more details of creating ductwork.
- The Duct piece has to be exploded. In this case, the exploded piece will not be scheduled. To avoid this, copy the duct piece before exploding and place its copy in the corner of drawing. Pick the copy when doing schedule.

- The Duct piece has to be trimmed. In this case, one duct piece could be counted as several same pieces on the schedule. To avoid this, copy the duct piece before exploding and place its copy in the corner of drawing. Trim the explored duct piece. Pick the copy when doing schedule.
- The Duct piece is not on the default pre-determined system layers. In this case, the duct piece will not be scheduled. Refer to: [Configuration](#) for the default pre-determined system layers. If you create duct pieces first and change system layer name in the configuration file later, the previous duct pieces will not be scheduled as they are on different layer now.
- The duct piece has been stretched. In this case, the duct length shown on the schedule will not accurate. To have a accurate duct length, redraw this duct piece instead of stretching it.

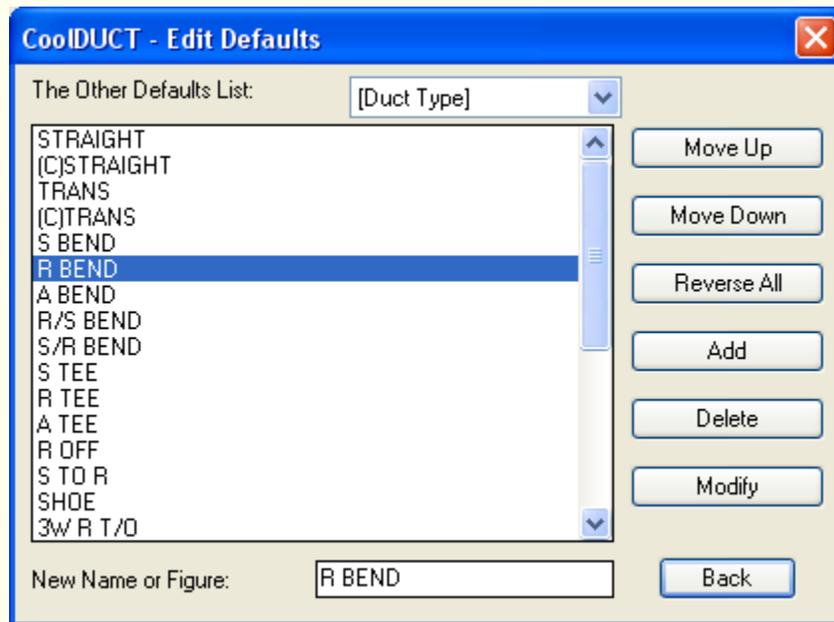
When the button  is picked, displays the **DUCT PIECE SCHEDULE** dialog box.

Title

Specify a tile for the schedule.

Edit Duct Type Order

When the **Edit Duct Type Order** button is picked, displays the **Edit Defaule** dialog box.



Use this dialog box to edit the Duct Type list. The new list will be saved into the current configuration file located under "C:\CDUCT\sys" directory.

Duct System

Select the duct systems to be scheduled. The program will schedule the duct pieces which are on the selected system layers.

Select Duct Type below

Select the Duct Type to be scheduled from the list.

Duct Type to Schedule

List the Duct Type to be scheduled. Use the buttons on right hand side to edit the list.

Move Up - move the duct type up.

Move Down - move the duct type down.

Delete - delete the duct type.

Clear All - Delete all duct type from the list.

Reverse All - reverse duct type list order.

Select All - select all duct type from **Select Duct Type below** List.

Select Text Style

Pick on the **Select Text Style** popup list to select what style of text to be used for creating the schedule. Refer to: [Configuration](#) for the default settings of text style **SCHEDULE**.

Text Height

Specify a text height to be used for creating the schedule. The text height entered should be the plotted height of the text.

Schedule Option

<u>Window Selected</u>	Schedule the selected duct piece only. You will be prompted to select by picking them individually or dragging a window over one area.
<u>All within Drawing</u>	Schedule all duct pieces existing in the drawing.

Schedule Orientation

<u>Upward</u>	Generate the schedule in upward direction.
<u>Downward</u>	Generate the schedule in downward direction.

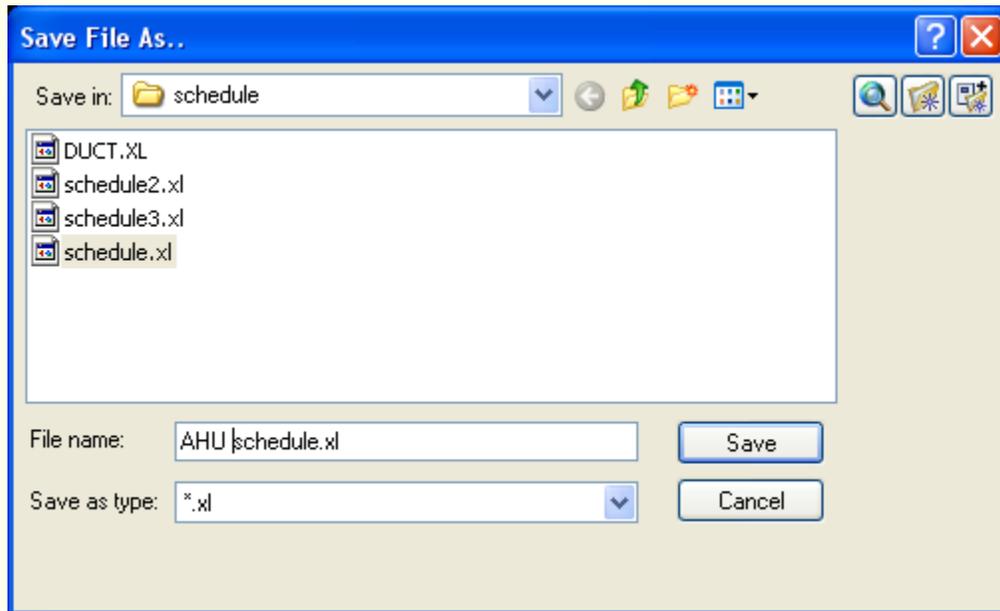
By adjusting the drawing UCS, you can change the schedule orientation. The schedule table can be moved anywhere in the drawing. Do not place schedule table on the top of other objects as they may be deleted when using [Duct Piece Schedule Update](#)  function late.

Save as a file

When your computer does not have Microsoft Excel program, select this option will save the schedule data as a text file. The text file name is shown on the bottom of the dialog box.

Browse

When the **Browse** button is picked, displays the **SAVE FILE AS..** dialog box.



Select the location and the file name from the dialog box. You can use other computer which has the Microsoft **Excel** program to open the file late. Check **SemiColon** box on **Text Import**

Wizard - Step 2 off 3 when open the file.

Export to EXCEL

Select this option will export the schedule data to a Excel sheet. This option is only available when Microsoft Excel program has been installed on this computer and it has been tested on Microsoft Excel up to version 2003.

DUCT PIECE SCHEDULE UPDATE

This function will update duct piece schedule tables that you have made changes on the drawing. This is included adding or deleting any duct piece. It won't work accurately in the following conditions :

- The duct piece created with **Single** option will not be scheduled. Refer to [Duct Setting](#) for more details of creating ductwork.
- The Duct piece has to be exploded. In this case, the exploded piece will not be scheduled. To avoid this, copy the duct piece before exploding and place its copy in the corner of drawing. Pick the copy when doing schedule.
- The Duct piece has to be trimmed. In this case, one duct piece could be counted as several same pieces on the schedule. To avoid this, copy the duct piece before exploding and place its copy in the corner of drawing. Trim the explored duct piece. Pick the copy when doing schedule.
- The Duct piece is not on the default pre-determined system layers. In this case, the duct piece will not be be scheduled. Refer to: [Configuration](#) for the default pre-determined system layers. If you create duct pieces first and change system layer name in the configuration file later, the previous duct pieces will not be scheduled as they are on different layer now.
- The duct piece has been stretched. In this case, the duct length shown on the schedule will not accurate. To have a accurate duct length, redraw this duct piece instead of stretching it.

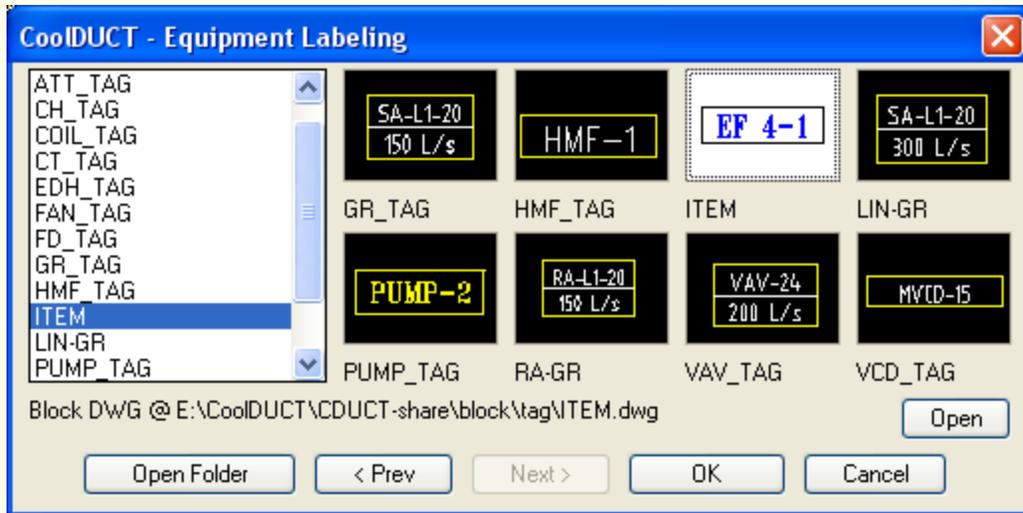
From toolbar, press the **Duct Piece Schedule Update** button , the program will search any schedule table and zoom in on it if it was found. You are then asked to update. Once enter 'y' or press Enter. The schedule will be updated in the same position.

In the following cases, use [Duct Piece Schedule](#)  function to create new schedule table instead of using **Duct Piece Schedule Update**  function to update. Then, erase old schedule table.

1. Schedule table was not created by using **World** coordinate system.
2. Schedule table has been rotated.
3. Schedule table was created only from the selected ductwork (not All within Drawing).

EQUIPMENT LABELLING

When the button  is picked, displays the **Equipment Labelling** dialog box.



Select a tag by double clicking on the picture or the popup list. You will be prompted to pick a point to insert the tag.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find the file and displays the message as picture below. Refer to: "[CDUCT-share](#)" [Folder Location](#) for more details.



Open Folder

Click on this button to open the **tag** folder which contains all tag block files.

Customising

To modify the original block, use **Open** button to open the drawing and edit it. **Do not delete any item or change their original block names that already existed in the tag folder** as they are also been read by other functions.

To add more tag into the popup list, create a new drawing in 1:1 scale and save it to the directory. You also need to use command "MSLIDE" to create a SLD file with the same name and save it in same location.

If you will use the new tag to schedule the equipment late by using the [Equipment Schedule](#)  function, the first value of the new tag attribute must contain a number or text string with a number at its end. Otherwise, the schedule table will not be generated in numerical order.

FINDING A TAG

When the button  is picked, displays the **FINDING A TAG** dialog box.



Tag

Specify a Tag name to search. For example, you want to find a supply air diffuser which has been labelled as L1-20.

Pick text or attribute from drawing

Click on this button to prompt you to pick a text or block attribute on screen and return the tag name in the **Tag** edit box. This option can be used in conjunction with [Equipment Schedule](#)  function

Block Name Option

<u>Searching Whole Drawing</u>	Search all blocks in the drawing. The time taken by AutoCAD to search the whole drawing depends on the drawing file size.
<u>Selecting Sample Block</u>	Obtain block name by picking sample block on the screen and only search the blocks with the same name in the drawing.
<u>Entering Block Name</u>	Activate the Block Name edit box and the Block List popup list. Enter the block name in the edit box or click on the popup list to have the block name. This option will only search the blocks with the same name in the drawing.

Zoom

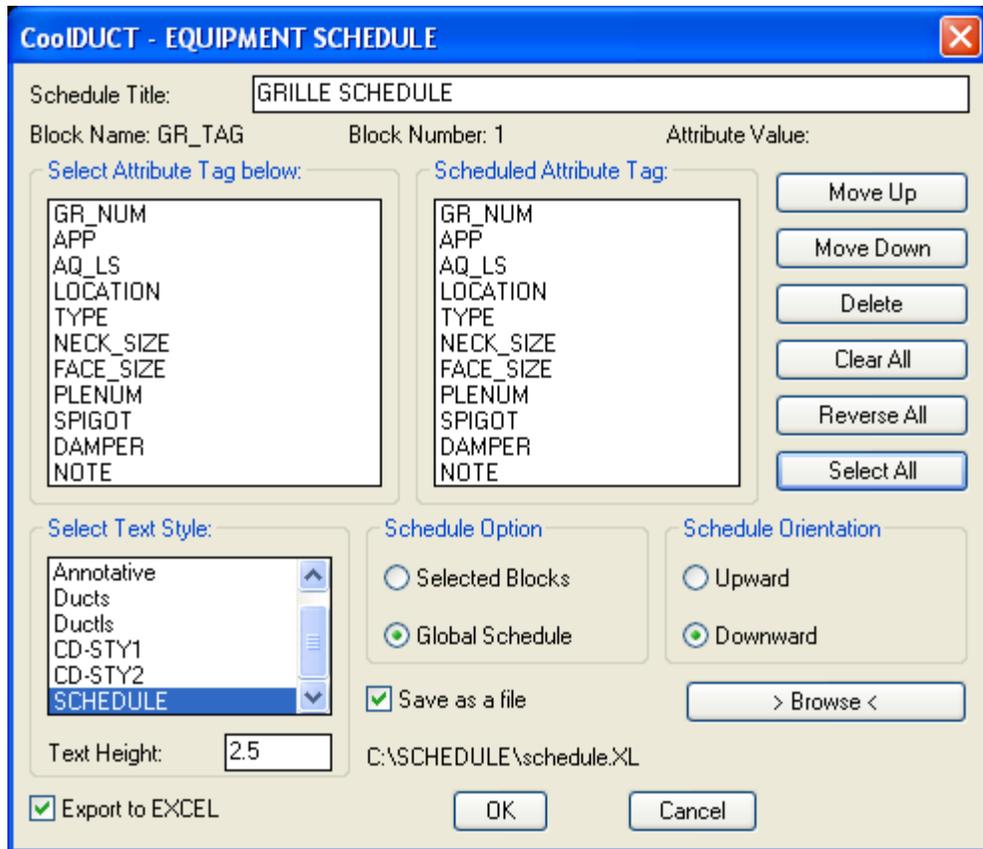
You can control to zoom in on the block by specifying the zoom magnification in the **Magnification** edit box

The program will search all attributes existing within the block, including attributes in invisible mode. If there are more than one existing in the drawing, the program will indicate the total number and show each location.

EQUIPMENT SCHEDULE

This function will extract all attribute data contained within the reference blocks and generate an equipment schedule in numerical order. If the first attribute contains not number, the schedule will be generated at random. Refer to [Equipment Labelling](#) to see how to insert item reference block.

When the button  is picked, displays the **EQUIPMENT SCHEDULE** dialog box.



Title

Specify a title for the schedule.

Select Attribute Tag below

Select the Attribute Tag from the list.

Scheduled Attribute Tag

Show the selected Attribute Tag to be scheduled. Use the buttons on right hand side to edit the list.

Delete - delete the Attribute Tag.

Move Up - move the Attribute Tag up.
Move Down - move the Attribute Tag down.
Clear All - Delete all Attribute Tags from the list.
Reverse All - reverse the Attribute Tag order.

Select Text Style Name

Pick on the **Select Text Style Name** popup list to select what style of text to be used for creating the schedule. Refer to: [Configuration](#) for the default settings of text style **SCHEDULE**.

Text Size

Specify a text height to be used for creating the schedule. The text height entered should be the plotted height of the text.

Schedule Orientation

<u>Upward</u>	Generate the schedule in upward direction.
<u>Downward</u>	Generate the schedule in downward direction.

Schedule Option

<u>Select Blocks</u>	Schedule the selected blocks only. You will be prompted to select sample block for the block name and then asked to select objects to be scheduled. You can select the objects by picking them individually or dragging a window over one area. The blocks that do not match the block name will be filtered out.
<u>Global Schedule</u>	Schedule all blocks in the drawing. You will be prompted to select sample block for the block name. This option will schedule all blocks with the same name in the drawing.

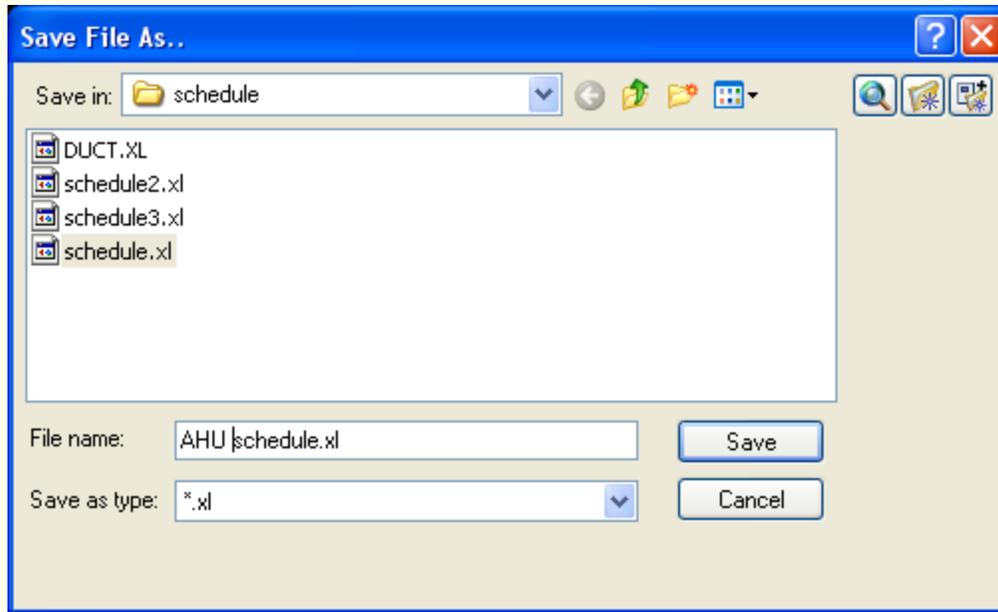
By adjusting the drawing UCS, you can change the schedule orientation. The schedule table can be moved anywhere in the drawing. Do not place schedule table on the top of other objects as they may be deleted when using [Schedule Update](#)  function late. The time taken to generate schedule depends on the number of selected blocks and their reference number. Small reference numbers take less time than large numbers. For example, the reference numbers with AHU-1, AHU-2.. will take much less time than the reference numbers with AHU-101, AHU-102.

Save as a file

When your computer does not have Microsoft Excel program, select this option will save the schedule data as a text file. The text file name is shown on the bottom of the dialog box.

Browse

When the **Browse** button is picked, displays the **SAVE FILE AS..** dialog box.



Select the location and the file name from the dialog box. You can use other computer which has the Microsoft **Excel** program to open the file late. Check **SemiColon** box on **Text Import Wizard - Step 2 off 3** when open the file.

Export to EXCEL

Select this option will export the schedule data to a Excel sheet. This option is only available when Microsoft Excel program has been installed on this computer and it has been tested on Microsoft Excel up to version 2007.

SCHEDULE UPDATE

This function will update equipment schedule tables that you have made changes to their relative reference block. This is included adding or deleting any reference block, modifying existing reference block attributes.

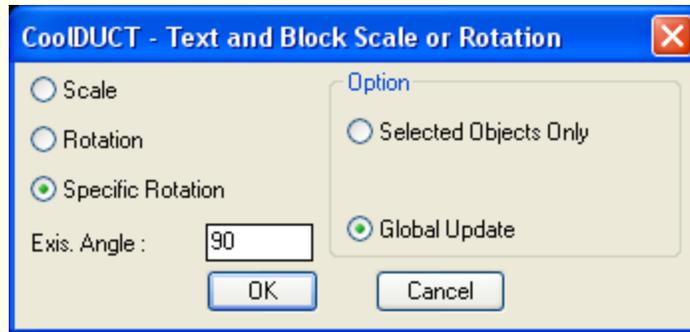
From toolbar, press the **Schedule Update** button , the program will search any schedule table and zoom in on it if it was found. You are then asked to update. Once enter 'y' or press Enter. The schedule will be updated in the same position.

In the following cases, use [Equipment Schedule](#)  function to create new schedule table instead of using **Schedule Update**  function to update. Then, erase old schedule table.

1. Schedule table was not created by using **World** coordinate system.
2. Schedule table has been rotated.
3. Schedule table was created only from the selected blocks (not global).

TEXT AND BLOCKS SCALE OR ROTATION

When the button  is picked, displays the **Text and Block Scale or Rotation** dialog box.



This function will execute scaling or rotating tasks for texts or blocks at once at their insert points.

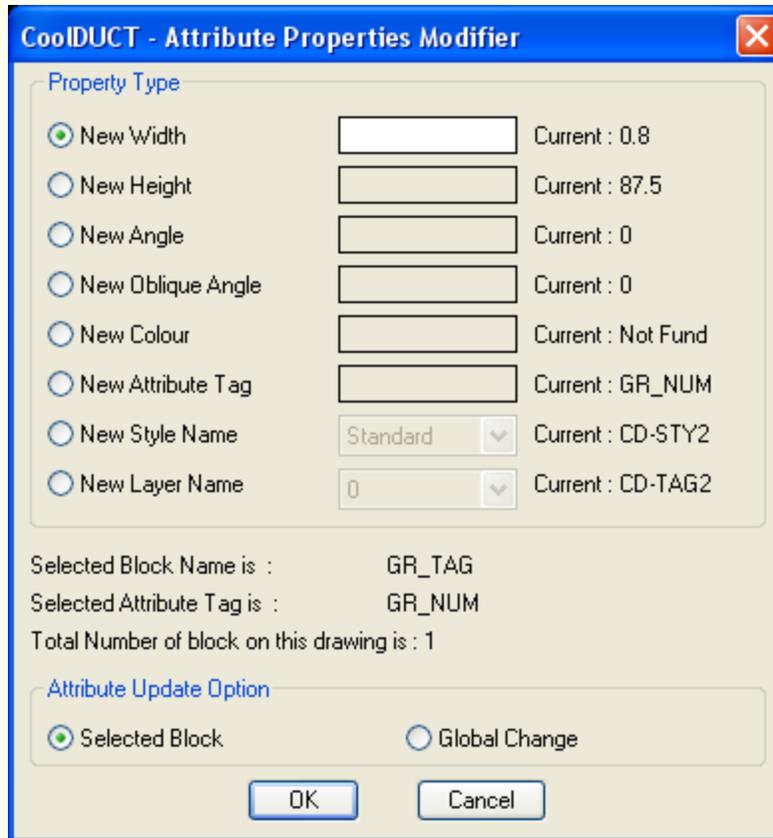
Scale	Scale texts or blocks.
Rotation	Rotate texts or blocks at their insert point.
Specific Rotation	Rotate texts or blocks which angle match the specified angle in the Exist. Angle edit box.

Option

Selected Objects Only	Modify the selected texts or blocks only.
Global Update	Modify all texts on the same layer or blocks with the same name in the drawing .

ATTRIBUTE PROPERTIES MODIFIER

When the button  is picked, you will be prompted to select attribute to change. After picking an attribute, it will display the **Attribute Properties Modifier** dialog box.



Property Type

Check a radio box to choose the property type. It will activate the edit boxes or popup lists on the right.

New Height	Change attribute text height.
New Width	Change attribute text width.
New Angle	Change attribute text angle.
New Oblique Angle	Change attribute text oblique angle.
New Colour	Change attribute text colour.
New Attribute Tag	Remane attribute tag name.
New Style Name	Change attribute text style.
New Layer Name	Change attribute text layer.

Attribute Update Option

Selected Block	Modify the selected blocks only. You will be prompted to select objects. You can select the objects by picking them individually or dragging a window over them. The blocks that do not match the block name will be filtered out.
Global Change	Update all blocks in the drawing.

This function only modify the blocks existed in the drawing. It will not affect the original block inserted late. To add new block, copy the existed block instead of inserting new block. Otherwise, you need to invoke this function again.

ATTRIBUTE VALUE MODIFIER

When the button  is picked, you will be prompted to select a block to modify. After picking a block, it will display the **Attribute Value Modifier** dialog box.

Modified Object

Attribute Value	Modify attribute current value.
Attribute Tag	Rename attribute tag.

Modified Option

Selected Block	Modify the selected blocks only.
Global Change	Modify all block in the drawing .

Existing Attribute Tag within Block

Select an attribute tag from the popup list to be modified. Their current values will be displayed in the dialog box.

Text or Number to be used

Specify a text or number to be used.

Replace All

Use the value specified in **Text or Number to be used** edit box to replace whole content of the existing attribute value or tag name.

Find and Replace

Use the value specified in **Text or Number to be used** edit box to replace whole content of the existing attribute value which match the value specified in **Find What** edit box.

Plus or Minus Number (+ or -)

Use the value specified in **Text or Number to be used** edit box to plus or minus the number of the existing attribute value. The selected attribute value must be a number or text string with a number at its end. To minus the number, add a prefix "-" like -400.

Add Prefix

Use the value specified in **Text or Number to be used** edit box to add a prefix to the existing attribute value.

Add Suffix

Use the value specified in **Text or Number to be used** edit box to add a suffix to the existing attribute value.

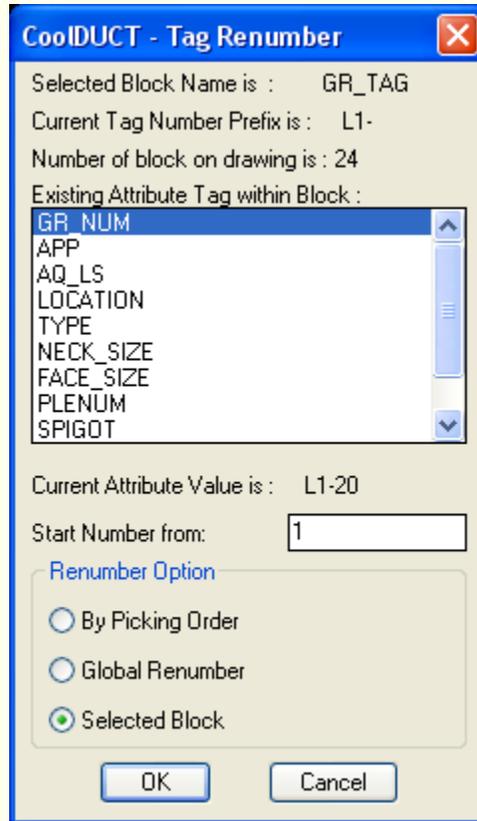
Replace Partial Content

Use the value specified in **Text or Number to be used** edit box to replace partial content of the existing attribute value. You need to specify the position of the text string to be replaced. For

example, to change an attribute value SA-GF-20 to SA-L2-20, enter **L2** in **Text or Number to be used** edit box. You then enter **3** in **Start Position From No** edit box for the letter "G" and **4** in **End Position From No** edit box for the letter "F". This will replace "GF" with "L2" only. This function is very useful when creating typical floor drawings.

TAG RENUMBER

When the button  is picked, you will be prompted to select a block to be re-numbered. After picking a block, it will display the **Tag Renumber** dialog box.



The dialog box lists all attributes nested within the block. The program only renumbers the blocks that are matched with the block name and tag number prefix. The total number of block could be 24, but there are probably only 10 blocks that are matched with the block name and the tag number prefix. The value of the selected attribute must be a number or text string with a number at its end.

Existing Attribute Tag within Block

Select an attribute tag from the popup list to be modified.

Start Number from

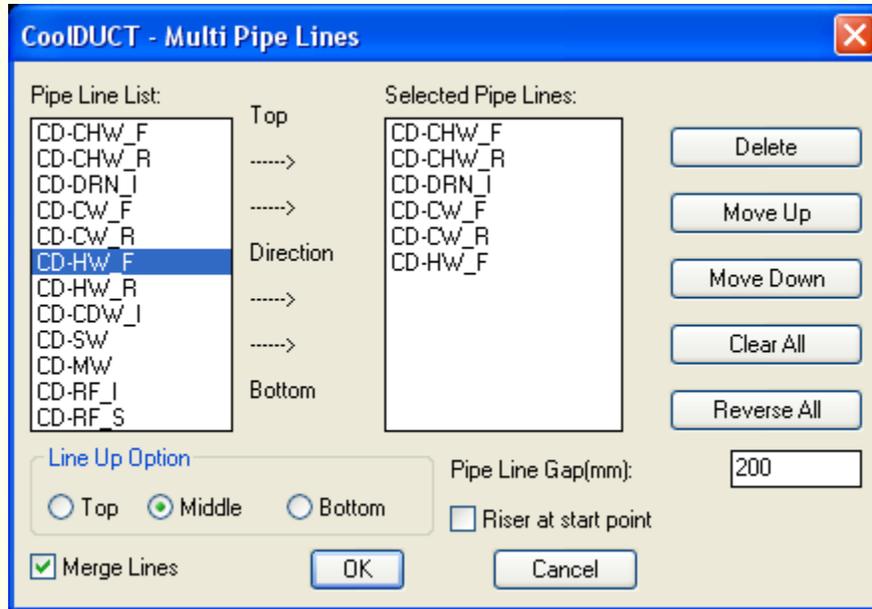
Specify a number to start.

Renumber Option

By Picking Order	Renumber the blocks by the picking order on the screen.
Global Renumber	Renumber all blocks on the drawing and start from the lowest number block.
Selected Block	Renumber the selected blocks only and start from the lowest number block.

Multi Pipe Lines

When the button  is picked, displays the **Multi Pipe Lines** dialog box.



There are twelve pre-determined pipe schematic lines and they have been defined by the configuration file under the ".\CDUCT-share\sys". You can use [Configuration](#) function to change pipe line name. The pipe line name are the same as their layer name which are placed starting from 59th line on **Layer Defaults** list.

Pipe Line List

Select the pipe line from the list.

Selected Pipe Lines

Show the selected pipe line to draw. Use the buttons on right hand side to edit the list.

Delete - delete the pipe.

Move Up - move the pipe up.

Move Down - move the pipe down.

Clear All - Delete all pipes from the list.

Reverse All - reverse the pipe order.

Line Up Option

Top ----- line up to the top
Middle ---- line up to the middle
Bottom --- line up to the bottom

Pipe Line Gap(mm)

Specify the distance between the two pipe lines.

Riser at Start Point

Check on this box to insert a riser at the start point of each pipe line.

Merge Lines

Check on this box to join all segments of the pipe line to an open polyline .

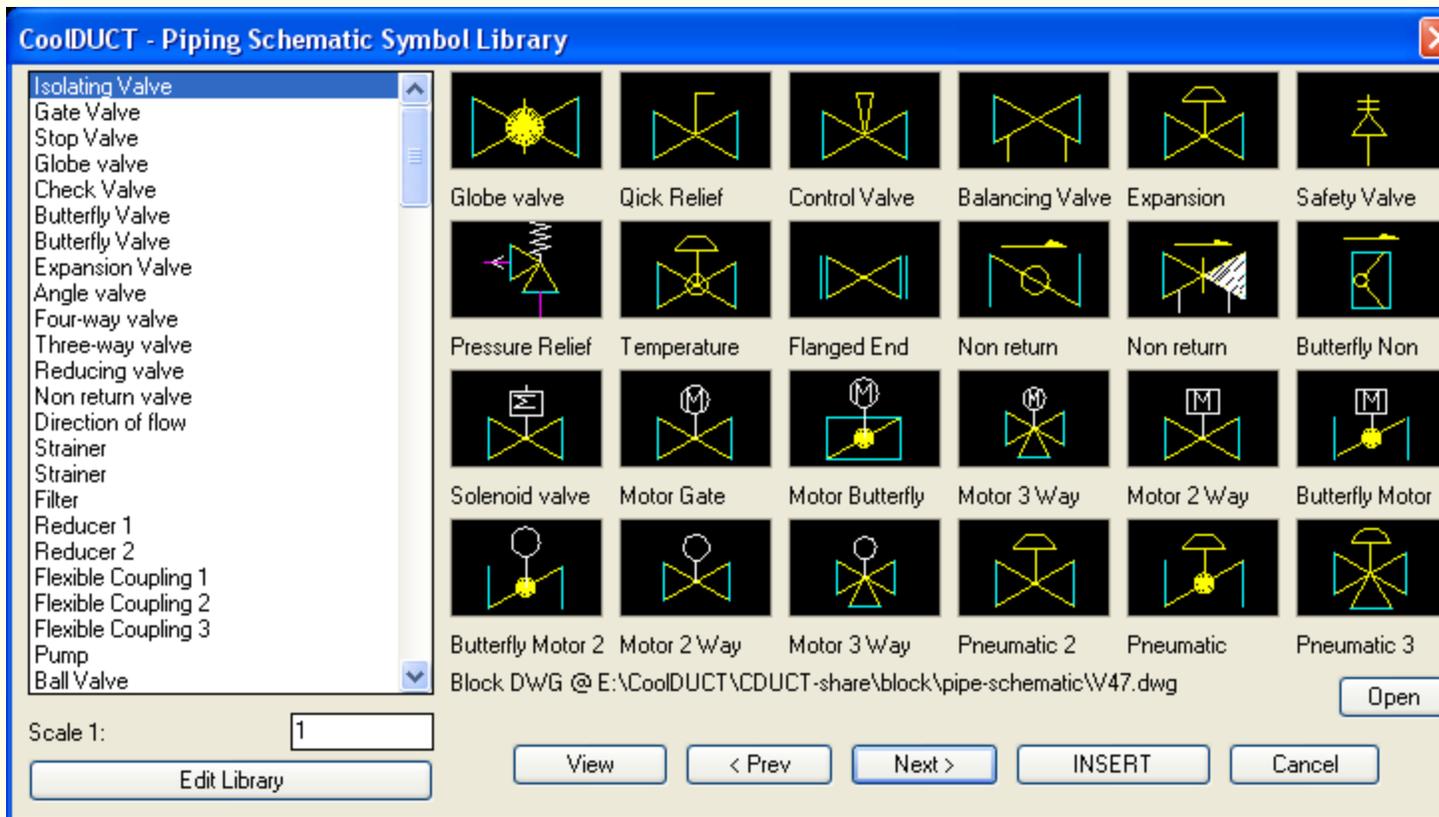
Schematic Lines

There are fourteen pre-determined schematic lines and they have been defined by the configuration file under the "..\CDUCT-share\sys". You can use [Configuration](#) function to change pipe line name. The pipe line name are the same as their layer name which are placed starting from 57th line on **Layer Defaults** list.

Clicking on these buttons  will prompt you to pick the points for drawing schematic lines with the appropriate layers on the drawing.

PIPING SCHEMATIC SYMBOL LIBRARY

When the button  is picked, displays the **Piping Schematic Symbol Library** dialog box.



Choose a desired symbol by double clicking on the picture or the popup list. You will be prompted to pick a point or pick a line for insert point. By picking a line, the symbol will be inserted and break into the line automatically.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find the file and displays the message as picture below. Refer to: ["CDUCT-share" Folder Location](#) for more details.



Scale

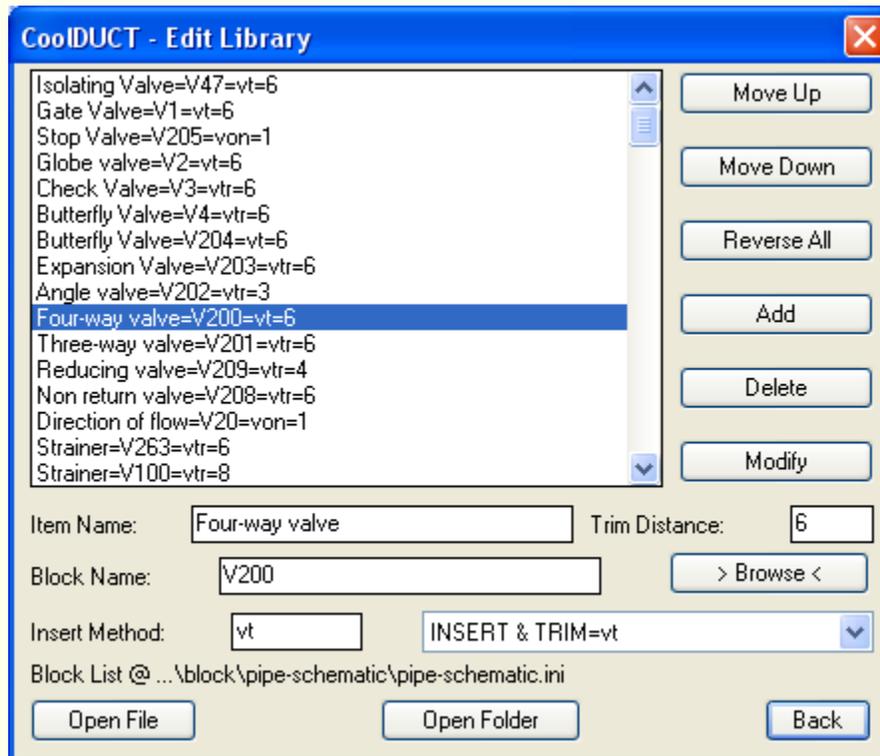
Specify scale to be used when inserting block. Default scale is 1:1.

View

Click on this button to view the symbol in enlarged view without inserting it.

Edit Library

When the **Edit Library** button is picked, displays the **Edit Library** dialog box.



Picking on any item on popup list will display its current values in the edit boxes and they can be edited.

Move Up

Move the item up.

Move Down

Move the item down.

Reverse All

Reverse the item order.

Add

Before adding new symbol to the library, You need to create a new drawing in 1:1 scale and set drawing origin point in the centre of the object. Save the drawing file like "V200.dwg" to the "\\pipe-schematic" directory. Use "MSLIDE" command to create a slide file "V200.sld" and save it to the "\\pipe-schematic" directory.

Enter the value to the relevant edit boxes in the dialog box and pick the **Add** button. The new symbol will be added to the popup list in the dialog box as well as save it into the valve definition file "pipe-schematic.ini" located under "\\CDUCT-share\block\pipe-schematic" directory. You also can use **Open File** button to edit the "valve.ini" file. However, you must be very careful as a corrupted file will cause errors in CoolDUCT program.

Item Name

Specify the symbol name.

Trim Distance

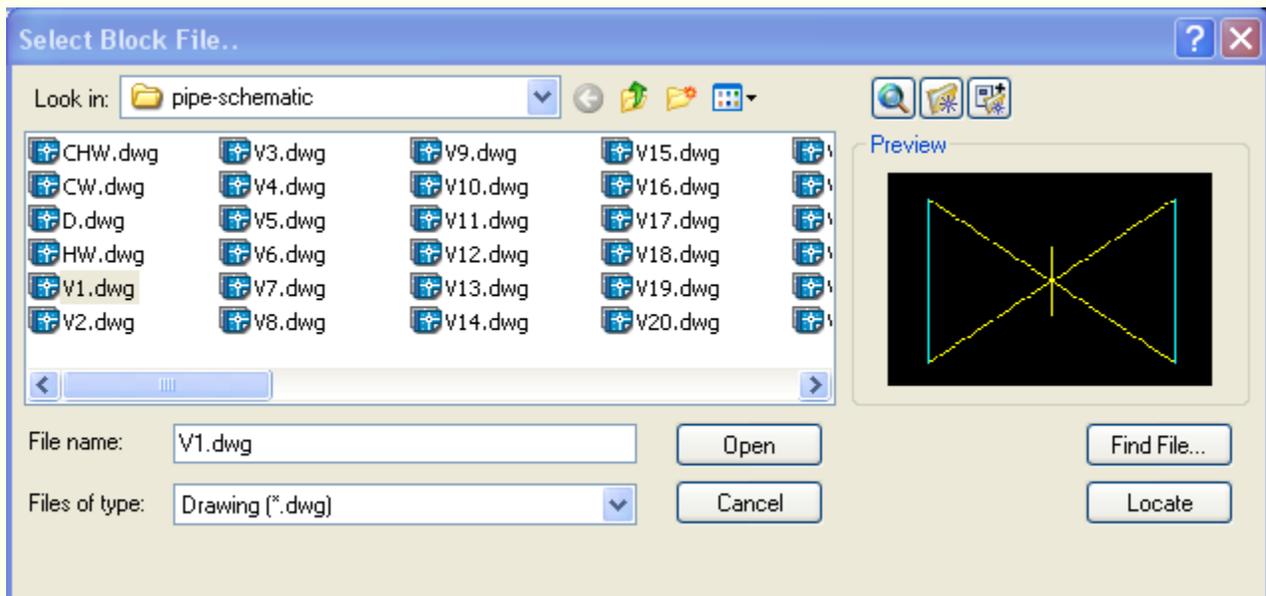
Specify the gap for line to be broken when inserting the symbol.

Block Name

Specify the block name to be used for the symbol. You can use **Browse** button to select the block.

Browse

When the **Browse** button is picked, displays the **Select Block File..** dialog box.



Select the block file name to be used from the dialog box.

Inserting Method

There are seven routines as follows:

vin ----- Insert Only

von ----- Insert & Rotate

vt ----- Inser & Trim

vtr ----- Insert, Trim & Rotate

vtc ----- Insert, Trim, Rotate & Delete

vtb ----- Insert & Delete

vinang --- Aligned Insert

Specify an inserting method by picking on the popup list or enter a value on the edit box.

Delete

Pick the item to be deleted on the popup list and click on the **Delete** button to delete the symbol from the popup list in the dialog box as well as save it into the valve definition file "pipe-schematic.ini" located under "\CDUCT-share\block\pipe-schematic" directory. You also can use **Open File** button to edit the "pipe-schematic.ini" file.

Modify

Pick the item to be modified on the popup list and enter the value to the relevant edit boxes in the dialog box. Click on the **Modify** button to update the new values in the dialog box as well as save it into the valve definition file "pipe-schematic.ini" located under "\CDUCT-share\block\pipe-schematic" directory. You also can use **Open File** button to edit the "pipe-schematic.ini" file.

Open File

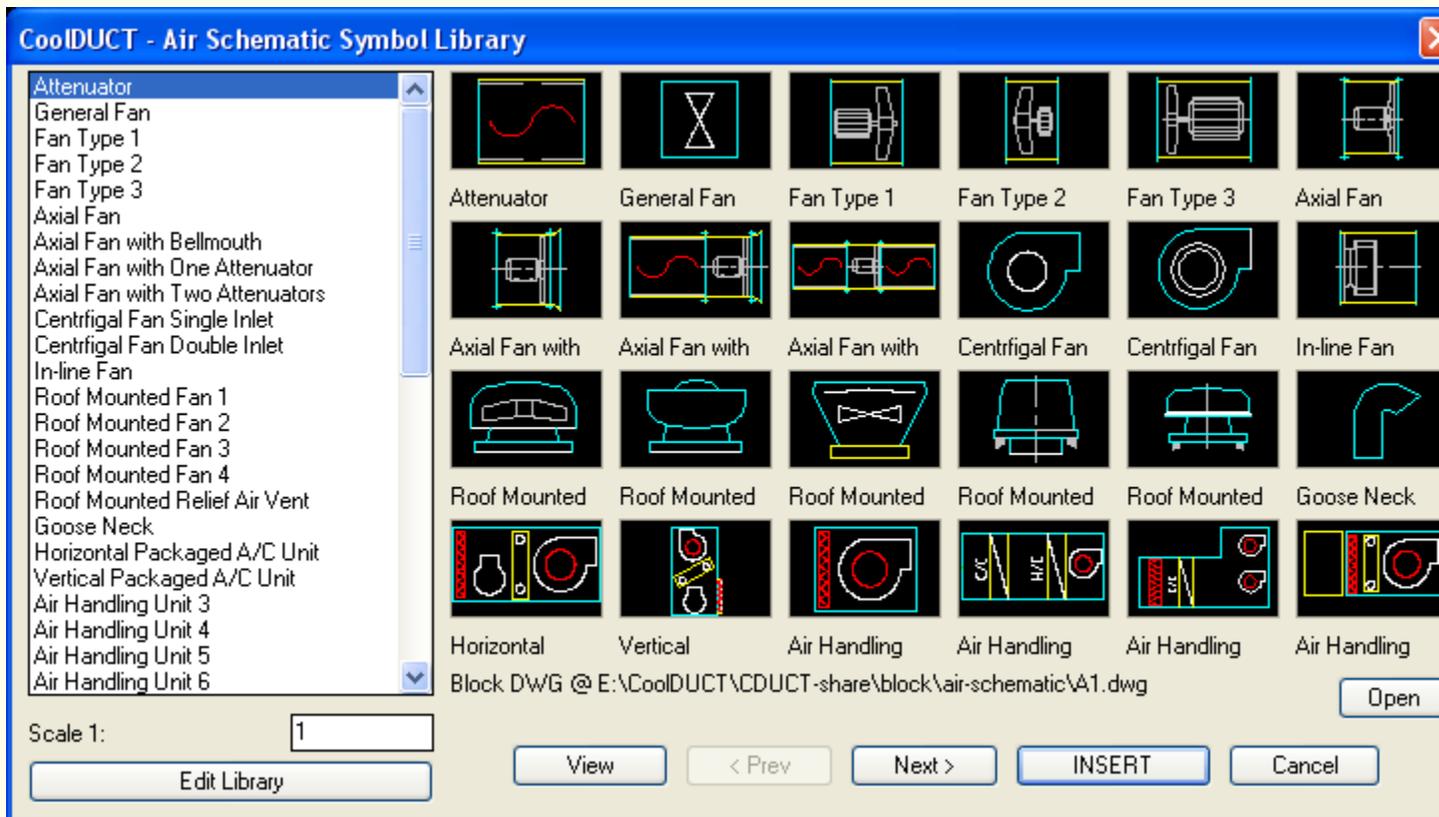
Click on this button to open the **pipe-schematic.ini** file.

Open Folder

Click on this button to open the **pipe-schematic** folder which contains all block files.

AIR SCHEMATIC SYMBOL LIBRARY

When the button  is picked, displays the **Air Schematic Symbol Library** dialog box.



Choose a desired symbol by double clicking on the picture or the popup list. You will be prompted to pick a point or pick a line for insert point. By picking a line, the symbol will be inserted and break into the line automatically.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find the file and displays the message as picture below. Refer to: "[CDUCT-share](#)" [Folder Location](#) for more details.



Scale

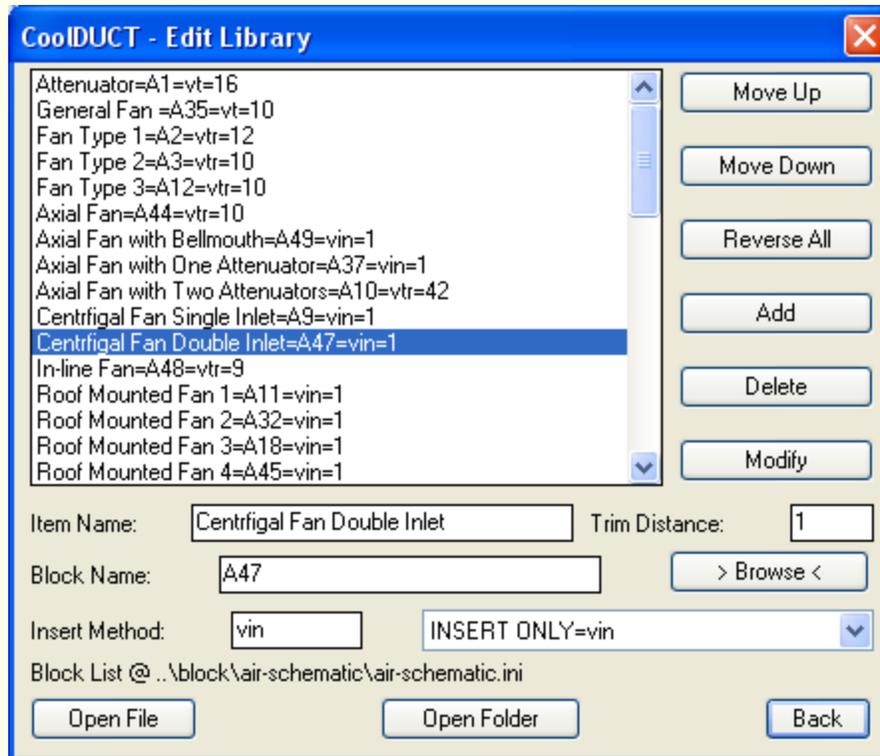
Specify scale to be used when inserting block. Default scale is 1:1.

View

Click on this button to view the symbol in enlarged view without inserting it.

Edit Library

When the **Edit Library** button is picked, displays the **Edit Library** dialog box.



Picking on any item on popup list will display its current values in the edit boxes and they can be edited.

Move Up

Move the item up.

Move Down

Move the item down.

Reverse All

Reverse the item order.

Add

Before adding new symbol to the library, You need to create a new drawing in 1:1 scale and set drawing origin point in the centre of the object. Save the drawing file like "A200.dwg" to the "air-schematic" directory. Use "MSLIDE" command to create a slide file "A200.sld" and save it to the "air-schematic" directory.

Enter the value to the relevant edit boxes in the dialog box and pick the **Add** button. The new symbol will be added to the popup list in the dialog box as well as save it into the valve definition file "pipe-schematic.ini" located under "\CDUCT-share\block\air-schematic" directory. You also can use **Open File** button to edit the "air-schematic.ini" file. However, you must be very careful as a corrupted file will cause errors in CoolDUCT program.

Item Name

Specify the symbol name.

Trim Distance

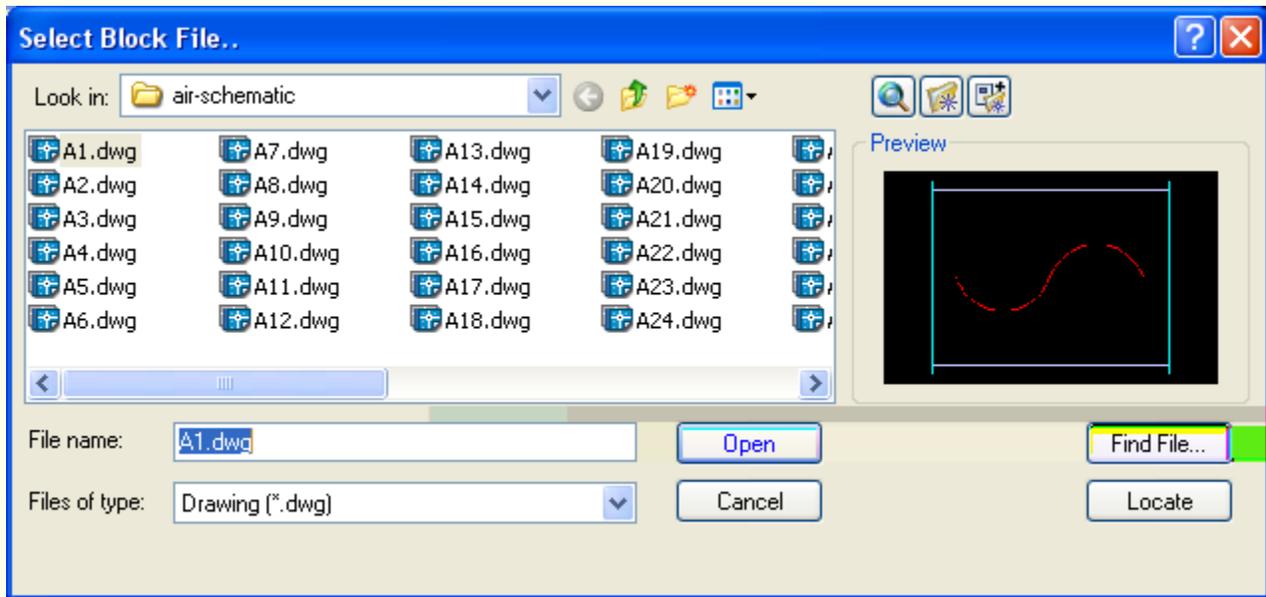
Specify the gap for line to be broken when inserting the symbol.

Block Name

Specify the block name to be used for the symbol. You can use **Browse** button to select the block.

Browse

When the **Browse** button is picked, displays the **Select Block File..** dialog box.



Select the block file name to be used from the dialog box.

Inserting Method

There are seven routines as follows:

vin ----- Insert Only

von ----- Insert & Rotate

vt ----- Inser & Trim

vtr ----- Insert, Trim & Rotate

vtc ----- Insert, Trim, Rotate & Delete

vtb ----- Insert & Delete

vinang --- Aligned Insert

Specify an inserting method by picking on the popup list or enter a value on the edit box.

Delete

Pick the item to be deleted on the popup list and click on the **Delete** button to delete the symbol from the popup list in the dialog box as well as save it into the valve definition file "air-schematic.ini" located under "\CDDUCT-share\block\air-schematic" directory. You also can use **Open File** button to edit the "air-schematic.ini" file.

Modify

Pick the item to be modified on the popup list and enter the value to the relevant edit boxes in the dialog box. Click on the **Modify** button to update the new values in the dialog box as well as save it into the valve definition file "air-schematic.ini" located under "\CDDUCT-share\block\air-schematic" directory. You also can use **Open File** button to edit the "air-schematic.ini" file.

Open File

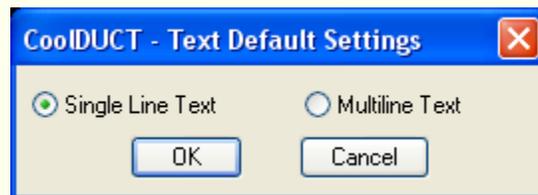
Click on this button to open the **air-schematic.ini** file.

Open Folder

Click on this button to open the **air-schematic** folder which contains all block files.

TEXT DEFAULT SETTINGS

When the button  is picked, displays the **TEXT DEFAULT SETTINGS** dialog box.



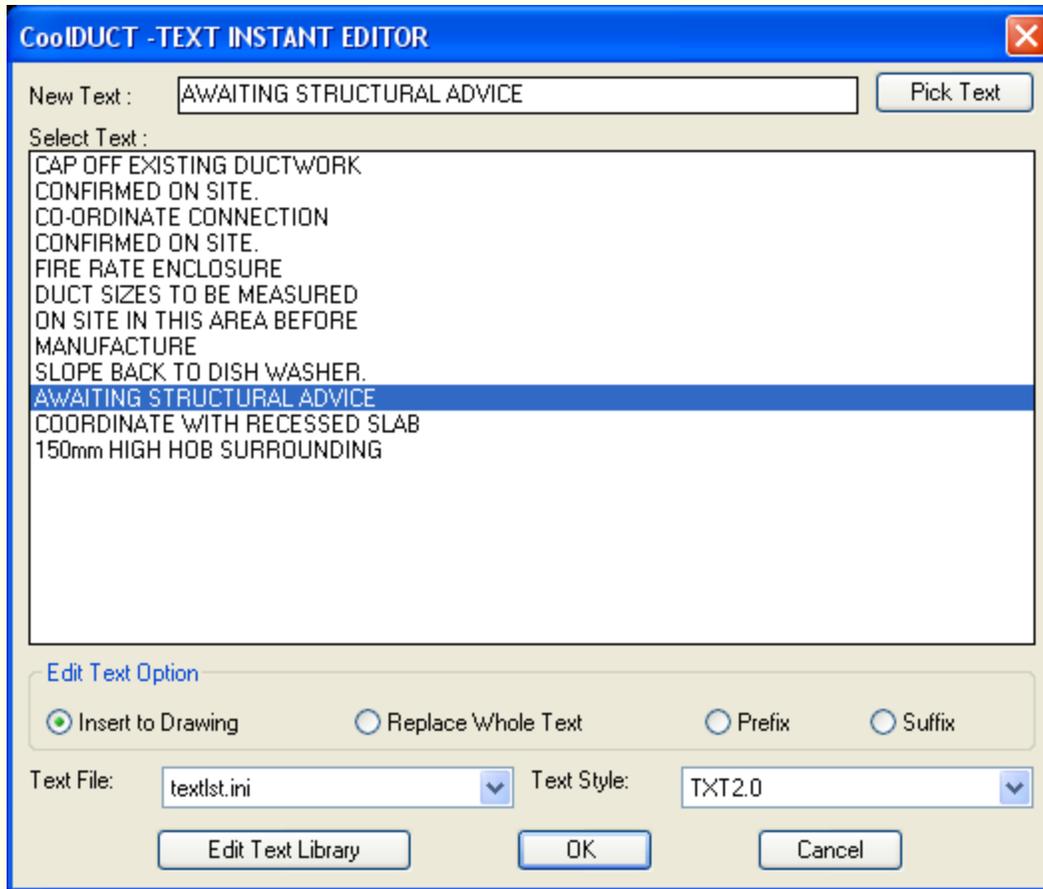
Select single line text or multiline text as your preference for new text created by using these text tool buttons  .

TEXT

Click on these buttons  to create new text in different sizes and styles, It works like using AutoCAD command "DTEXT" or "MTEXT" except using pre-determined text styles, text height and placing texts with the appropriate layers on the drawing. Refer to: [Configuration](#) for the default text style and their layer settings. The text size should be the plotted height of the text. The text always has the same plotted height when they are inserted in either model space or paper space.

TEXT INSTANT EDITOR

The function was created to edit text more easy. When the button  is picked, displays the **TEXT INSTANT EDITOR** dialog box.



New Text

Enter a text to use.

Pick from drawing

Click on this button to prompt you to pick a text or attribute text on screen and return the value in the **New Text** edit box.

Select Replace Text

Select a text by clicking on the popup list and return the value in the **New Text** edit box.

Edit Text Option

Insert to Drawing	Insert the text specified in New Text edit box to the drawing.
Replace Whole Text	Use the value specified in New Text edit box to replace whole content of the selected text.
Prefix	Use the value specified in New Text edit box to add a prefix to the selected text.

Suffix	Use the value specified in New Text edit box to add a suffix to the selected objects.
------------------------	--

Press **OK** button, you will be prompted to select objects. You can select object by picking them individually or dragging a window over them. Press Enter after the selection and the selected text will be updated at once.

Text File

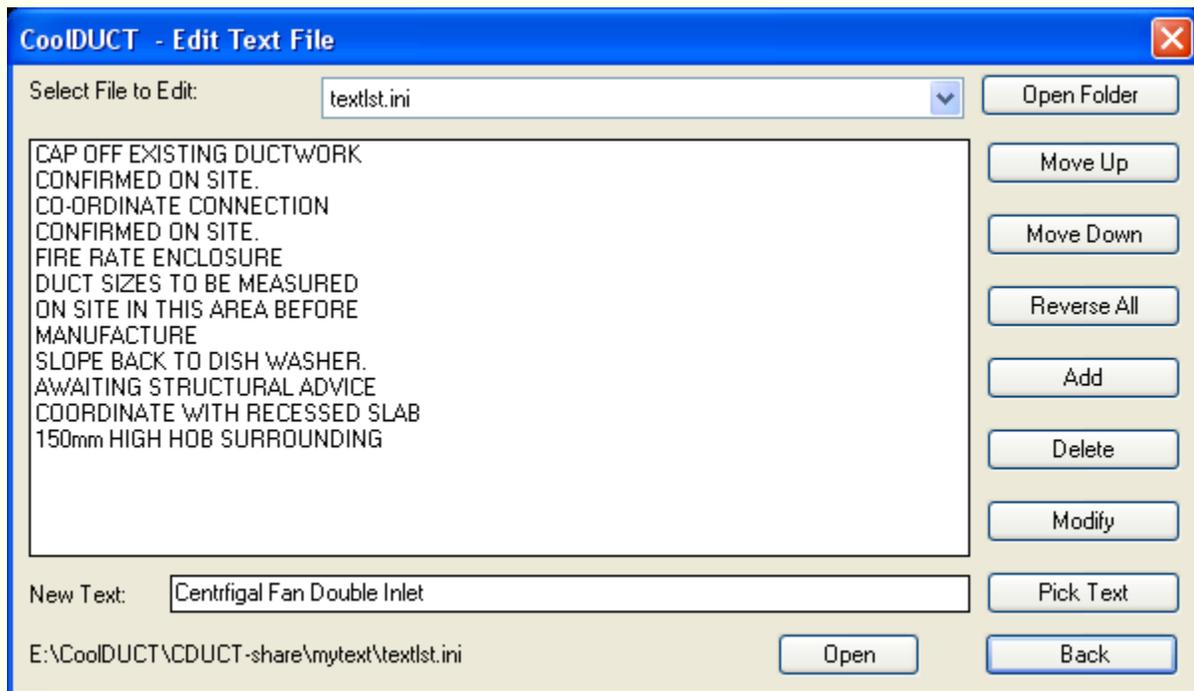
This is a list of available text files. Pick on the **Text file** popup list to select a file. The **Select Text** box will be updated with all available text in the selected file. To add or delete any text file from popup list, go to the "..\CDUCT-share\mytext" directory to add or delete the files. You can use **Edit text Library** function to modify text file.

Text Style

Select a text style from the popup list to use. It only applies when inserting the text into Drawing. Refer to: [Configuration](#) for the default text style and layers.

Edit Text Library

Clicking on this button will display the **Edit Text File** dialog box.



Select a text file on the popup list to edit.

New Text

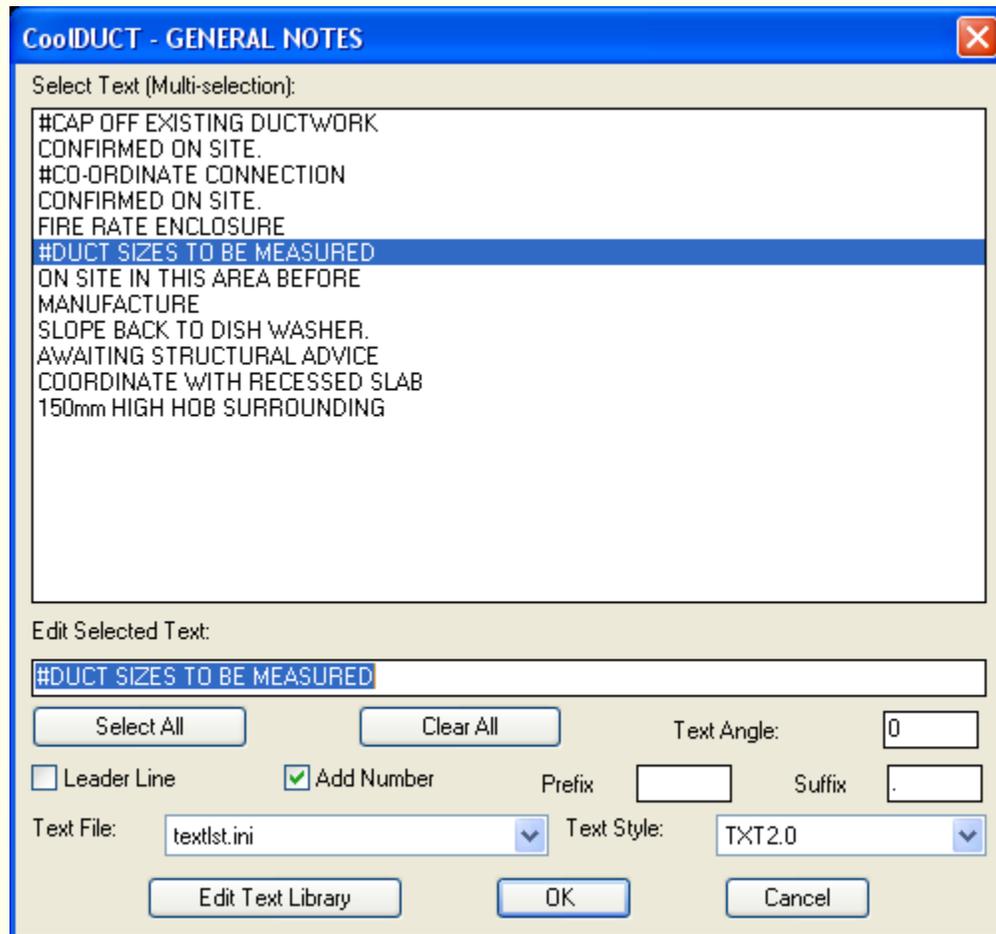
Enter a text to use.

Pick Text

Click on this button to prompt you to pick a text or attribute text on screen and return the value in the **New Text** edit box.

GENERAL NOTES

When the button  is picked, displays the **GENERAL NOTES** dialog box.



Select Text (Multi-selection)

Use keyboard **Shift** or **Ctrl** keys to select multi-lines text from **Select Text** popup list..

Edit Selected Text

Pick a text from **Select Text** popup list and return the value in the **Edit select Text** edit box. Edit the text in the **Edit select Text** edit box and press **Enter** to update the text value on the text list.

If you need to add a number in front of the text, check the **Add Number** box and add "#" letter in the front of text in the **Edit select Text** edit box. When inserting the notes, the program will add a number in the front of each text which has the "#" letter in front by order.

Select All

Picking on this button will select all text from **Select Text** popup list.

Clear All

Picking on this button will clear all selection from **Select Text** popup list.

Text Angle

Specify an angle for text to be inserted on the drawing.

Leader Line

Checking this option will draw leader line for the general notes.

Add Number

Checking this option will add numbers for the general notes.

Prefix

Add a prefix to the number.

Suffix

Add a suffix to the number.

Text File

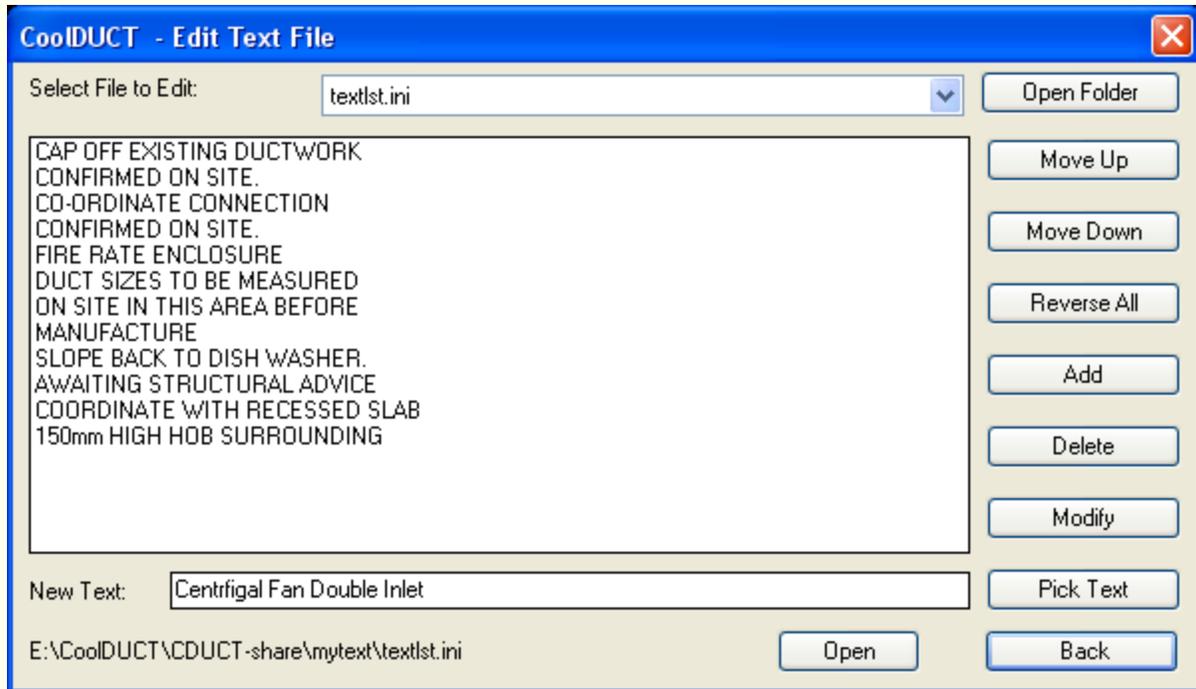
This is a list of available text files. Pick on the **Text file** popup list to select a file. The **Select Text** box will be updated with all available text in the selected file. To add or delete any text file from popup list, go to the "..\CDUCT-share\mytext" directory to add or delete the files. You can use **Edit text Library** function to modify text file.

Text Style

Select a text style from the popup list to be used. Refer to: [Configuration](#) for the default text styles and layers.

Edit Text Library

Clicking on this button will display the **Edit Text File** dialog box.



Select a text file on the popup list to edit.

New Text

Enter new text to modify the existing text.

Pick Text

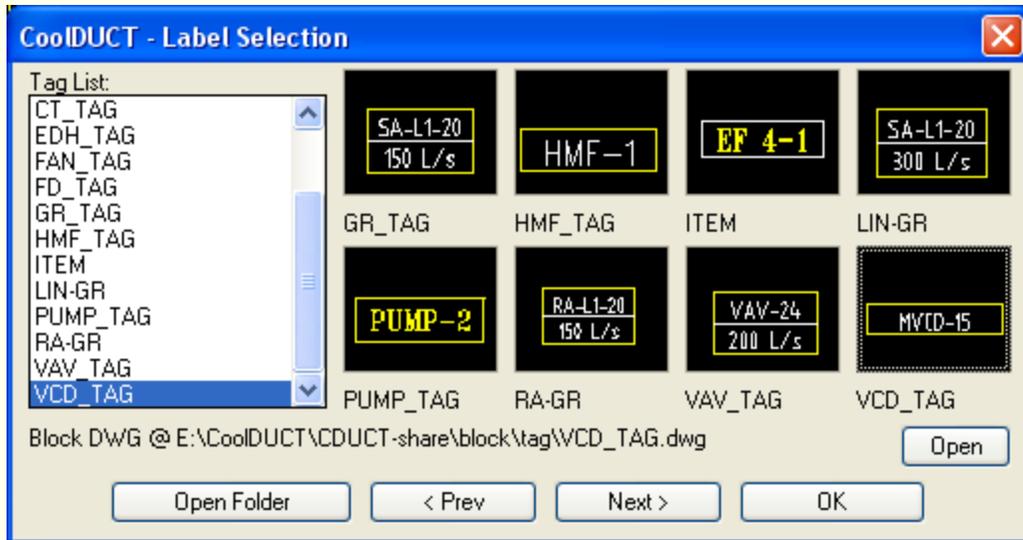
Click on this button to prompt you to pick a text or attribute text on screen and return the value in the **New Text** edit box.

TEXT or ATTRIBUTE TEXT MATCH

The function will match the contents for attribute or text. When the button  is picked, you are prompted to select Source Text (Attribute or Text). Then you will be asked to select Text or Attribute to match. Pick the objects individually to update its content.

LABEL SELECTION

The **Label Select** button, when picked, displays the **Label Selection** dialog box.



This box shows the current default reference block for the equipment. If you select any of these blocks, their drawing name and location will be shown at bottom of dialog box. Select your desired reference block by double clicking on the picture or the popup list. This will return you to previous dialog box.

Open

Clicking on this button will open the original block drawing for you to modify it. If the block file pathname contains any **space**, AutoCAD will not be able to find the file and displays the message as picture below. Refer to: "[CDUCT-share](#)" [Folder Location](#) for more details.



Open Folder

Click on this button to open the **tag** folder which contains all tag block files.

Customising

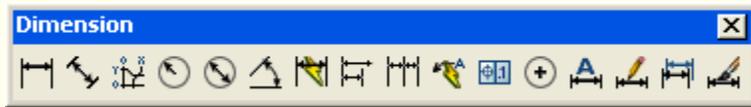
To modify the original block, use **Open** button to open the drawing and edit it. **Do not delete any item or change their original block names that already existed in the tag folder** as they are also been read by other functions.

To add more tag into the popup list, create a new drawing in 1:1 scale and save it to the directory. You also need to use command "MSLIDE" to create a SLD file with the same name and save it in same location.

If you will use the new tag to schedule the equipment late by using the [Equipment Schedule](#)  function, the first value of the new tag attribute must contain a number or text string with a

number at its end. Otherwise, the schedule table will not be generated in numerical order. The numbers like 001, 010, 01 will not be accepted by the [Equipment Schedule](#)  function.

CoolDuct Dimension



When using **COOLDUCT DIMENSION** toolbars to create dimensions, the dimensions will be placed on a default layer. Refer to: [Configuration](#) for the default layer settings.

CoolDUCT Command Shortcuts

The main Command Aliases for CoolDUCT have been added to the **acad.pgp** file for the current version of AutoCAD. The following table shows the default Command Aliases for CoolDUCT. You can make any changes to the default CoolDUCT command aliases in **acad.pgp** file. If a command alias appears more than once in this file, items in the User Defined Command Alias take precedence over duplicates that appear earlier in this file.

Main COOLDUCT Command Aliases Table:

Function	Command	Alias	Function	Command	Alias
Drawing Resetup	cd-rset	rst	Square to Round	cd-2r	2r
Title Sheet	cd-tb	tb	Round To Square	cd-2s	2s
Legend	cd-lgd	lgd	Circular Duct Straight	cd-rdu	rdu
Configuration	cd-config	cfg	Circular Duct Bend	cd-rdb	rdb
Reset CoolDUCT-share Folder Location	cd-dir	lcn	Circular Duct Transition	cd-re	re
Load CoolDUCT Program	cd-load	lad	Circular Duct Riser	cd-rdrs	rrs
Rectangular Straight	cd-zd	zd	Circular Duct Dropper	cd-rddp	rdp
Radius Bend	cd-rb	rb	Circular Duct Single Branch	cd-rdsb	rdsb
Square Bend	cd-sb	sb	Circular Duct Double Branches	cd-rddb	rddp
Rectangular Transition	cd-fs	dtr	Circular Duct "Y" Branch	cd-rdyb	rdyb
Riser	cd-rs	rs	Circular Duct "T" Branch	cd-rd2t	rd2t
Dropper	cd-dp	dp	Circular Duct Flex	cd-rf	rf
Shoe Take-off	cd-oe	oe	Circular Fire Damper	cd-rfd	rfd
Radius Take-off	cd-sr	sr	Lobster Bend	cd-lob	lob
Radius Tee	cd-rr	rr	Flexible Duct Spigot	cd-fx	fx
Square Tee	cd-2t	2t	Hidden Circular Duct	cd-hdrd	
Angle Split	cd-2y	2y	Circular Duct Riser Shadow	cd-rdshd	
Equal Split	cd-2w	2w	Rotate Snap Angle	s1	s1

3 Way Radius Take-off	cd-3w	3w	Set Snap Angle to Zero	s0	s0
Rectangular Flex	cd-df	df	Calculator	cd-ca	ca
Rectangular Fire Damper	cd-fd	fd	Instant Hatch	cd-ah	ah
Radius Offset	cd-ss	ss	Ductulator	cd-hv	hv
Radius Square Bend	cd-rsb	rsb	Grid Line	cd-gdl	gdl
Square Radius Bend	cd-srb	srb	Section Reference	cd-sec	sec
Angle Bend	cd-xjb	ab	Section Label	cd-seclab	slb
Square Take-off	cd-dsr	dsr	Repeated Break Line	cd-mbk	mbk
Angle Take-off	cd-2f	2f	Break Line Between	cd-bkw	
Angle Tee	cd-x2t	x2t	Hidden Line Between	cd-bkc	
3 Way Square Take-off	cd-3wx	3wx	Break Line	cd-bkl	
Duct Quick Connection	cd-lj	lj	Undo	cd-ude	
Circular Duct Radius Offset	cd-rof	rof	Access Door	cd-asd	
Hidden Duct	cd-hdt	hdt	Thermostat	cd-tst	
Insert Turning Vanes	cd-vn	vn	Smoke Detector	cd-sk	
Rectangular Duct Riser Shadow	cd-rss	rss	Tundish	cd-tund	
Flow Direction	cd-par	par	Floor Waste	cd-fwst	
Switch Board	cd-swb	swb	Make Up Water	cd-bj	
Volume Damper	cd-vd	vd	Duct Piece Numbers	cd-dtnm	nm
Motorised Control	cd-mp	mp	Equipment Labelling	cd-tag	tag
Attenuator	cd-zat	zat	Finding a tag	cd-fg	fg
Grille	cd-gre	gre	Tag Renumber	cd-bty	bty
Side Mounted Grille	cd-wrg	wrg	Equipment Schedule	cd-bsh	bsh
VAV Boxes	cd-vav	vav	Duct Piece Schedule	cd-dtp	dtp
Duct Heater	cd-dht	dht	Equipment Schedule Update	cd-rsh	rsh
Water Coil	cd-wcd	wcd	Duct Piece Schedule Update	cd-rdtp	rdtp
Humidifier	cd-hmf	hmf	Attribute Value Modifier	cd-bax	bax
Hidden Grille	cd-hgr	hgr	Attribute Properties Modifier	cd-apc	apc
Door Undercut	cd-uc	duc	Text, Block Scale or Rotation	cd-tbsc	tbsc
Door Grille	cd-dg	dg	Draw Multi Pipe Lines	cd-wp	wp
Equipment Library	cd-bklib	lib	Piping Schematic Symbol Library	cd-psh	psh
Duct Mounted Bottom Access Panel	cd-ap	dap	Air Schematic Symbol Library	cd-ash	ash
Duct Mounted Side Access Panel	cd-aps	aps	Cross Over	cd-cross	

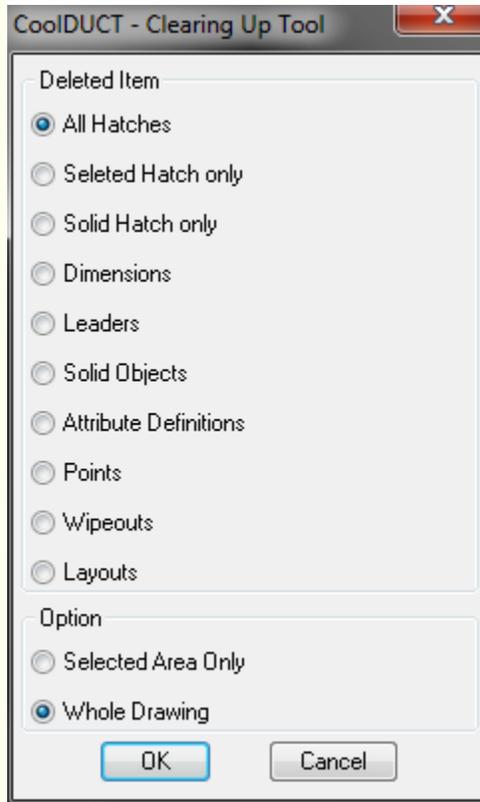
Ceiling Access Pane	cd-cap	cap	Text Instant Editor	cd-tu	tu
Duct Size Annotation	cd-sztext	sztext	General Notes	cd-nt	nt
Air Flow Arrow	cd-airflow	af	Text or Attribute Text Match	cd-tm	ztm
Duct Set up or down Arrow	cd-sud	sud	1.8mm High Text	txt18	
Duct Size Text	cd-zt	zt	2.0mm High Text	txt20	
Duct Length Text	cd-zdln	zln	2.5mm High Text	txt25	
Duct Size Reverse	cd-wxh	wxh	3.0mm High Text	txt30	
Duct Height	cd-ducthgt		3.5mm High Text	txt35	
Ceiling Height	cd-ceilhgt		4.0mm High Text	txt40	
Sofit Height	cd-sofhgt		4.5mm High Text	txt45	
Pipe Height	cd-piphgt		5.0mm High Text	txt50	
Duct Properties	cd-gx	dpr	7.0mm High Text	txt70	
Duct End Properties	cd-egx	dep	10.0mm High Text	txt100	
Pipe Line	cd-pip	pip	Hot Water Flow	Pcd-hwf	
Pipe Fittings	cd-pj	pj	Hot Water Return	cd-hwr	
Valve Library	cd-vins	vin	Condensate Line	cd-nj	
Chilled Water Flow	cd-chwf		Stream Line	cd-zq	
Chilled Water Return	cd-chwr		Refrigrant Suction Line	cd-rfs	
Drainage Line	cd-drain		Refrigrant Liquid Line	cd-rfl	
Condenser Water Flow	cd-cwf		Supply Air Line	cd-sal	
Condenser Water Return	cd-cwr		Return Air Line	cd-ral	



This tools set will work even CoolDUCT is not loaded.

Clearing Up Tool

When the button  is picked, displays the **Clearing Up Tool** dialog box.



Deleted Item

All Hatches	All types of hatch objects on drawing.
Seleted Hatch only	Hatch objects with the same type of selected hatch on drawing.
Solid Hatch only	All Solid Hatch on drawing.
Dimensions	All Dimensions objects on drawing .
Leaders	All Leader objects on drawing.
Solid Objects	All Solid objects on drawing.
Attribute Definitions	All Attribute Definition objects on drawing
Points	All Point objects on drawing.
Wipeouts	All Wipeout objects on drawing
Layouts	All Layouts on paperspace of drawing.

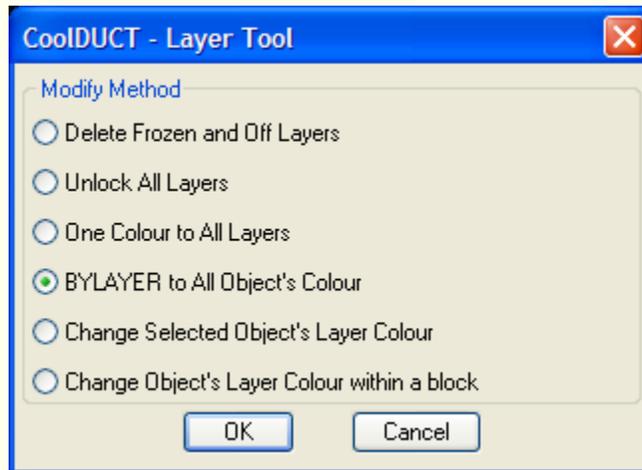
Option

Selected Area Only	Delete selected objects only.
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Whole Drawing	Delete all matching objects on whole drawing.
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Layer Tool

When the button  is picked, displays the **Layer Tool** dialog box.

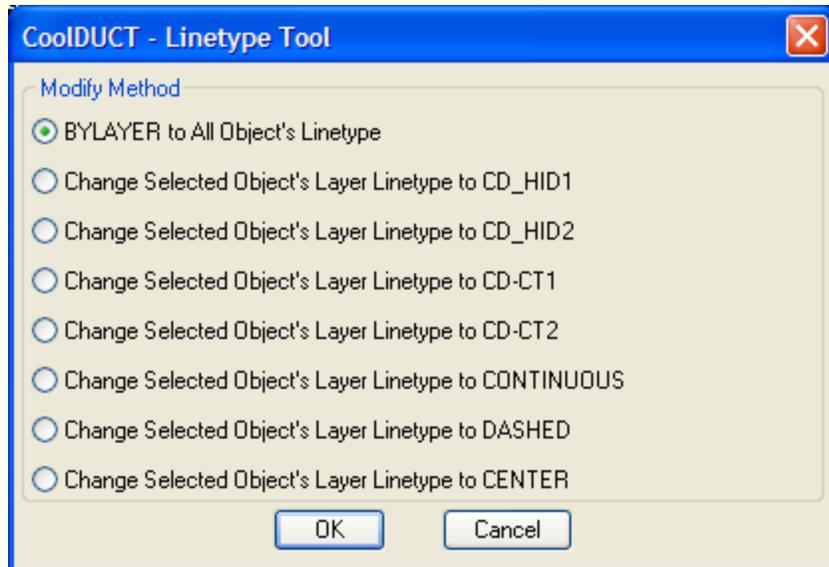


Modify Method

Delete Frozen and Off Layers	All objects which is on a Frozen or Off layer will be deleted including its layer from drawing.
Unlock All Layers	Unlock all locked layers on drawing.
One Colour to All Layers	All layer's colours on drawing will be changed to a specified colour.
BYLAYER to All Object's Colour	All object's colours on drawing will be changed to ByLayer.
Change Selected Object's Layer Colour	The selected object's layer will be changed to a specified colour.
Change Object's Layer Colour within a block	The nested object's layer will be changed to a specified colour.

Linetype Tool

When the button  is picked, displays the **Linetype Tool** dialog box.



Modify Method

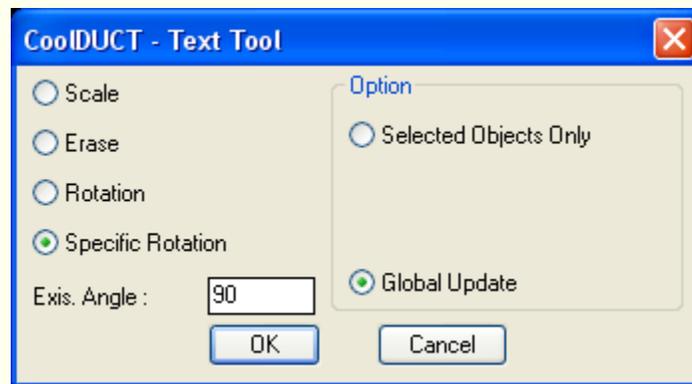
BYLAYER to All Object's Linetype	All object's linetype on drawing will be changed to ByLayer.
Change Selected Object's Layer Linetype to CD_HID1	The linetype of the selected object's layer will be changed to "CD_HID1" linetype.
Change Selected Object's Layer Linetype to CD_HID2	The linetype of the selected object's layer will be changed to "CD_HID2" linetype.
Change Selected Object's Layer Linetype to CD-CT1	The linetype of the selected object's layer will be changed to "CD_CT1" linetype.
Change Selected Object's Layer Linetype to CD-CT2	The linetype of the selected object's layer will be changed to "CD_CT2" linetype.
Change Selected Object's Layer Linetype to CONTINUOUS	The linetype of the selected object's layer will be changed to "CONTINUOUS" linetype.
Change Selected Object's Layer Linetype to DASHED	The linetype of the selected object's layer will be changed to "DASHE" linetype.

Linetype to DASHED	
Change Selected Object's Layer Linetype to CENTER	The linetype of the selected object's layer will be changed to "CENTER" linetype.

Text Tool

This function is created for the control of Text and MText objects on [same layer](#).

When the button  is picked, displays the **Text Tool** dialog box.



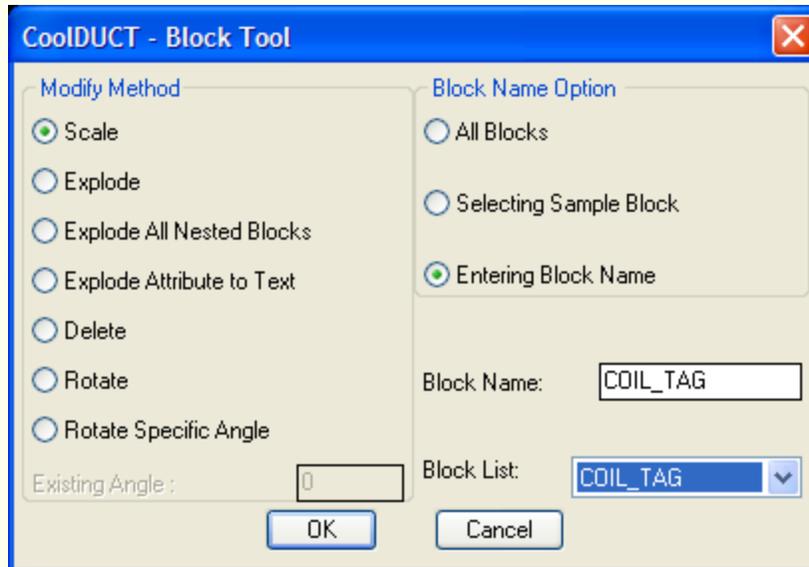
Scale	Scale Text and MText objects at their insert points.
Erase	Erase Text and MText objects from drawing.
Rotate	Rotate Text and MText objects at their insert points.
Rotate Specific Angle	Rotate the Text and MText objects which inserting angle matches with the specified angle in the Exist. Angle edit box.

Option

Selected Objects Only	Change selected Text and Mtext objects on the same layer in the drawing only.
Global Update	Change all Text and Mtext objects on the same layer in the drawing.

Block Tool

When the button  is picked, displays the **Block Tool** dialog box.



Modify Method

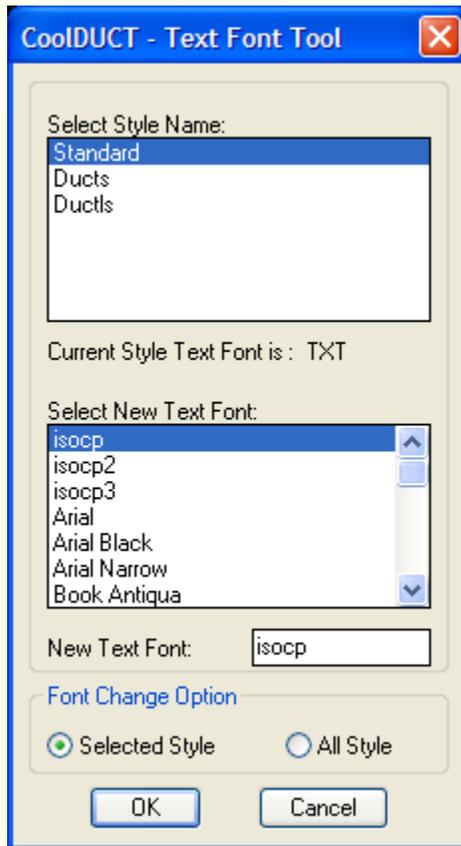
Scale	Scale blocks at their insert points.
Explode	Explode blocks on drawing.
Explode All Nested Blocks	Explode all blocks including nested blocks on whole drawing.
Explode Attribute to Text	Explode attribute within a block to text.
Delete	Delete blocks from drawing.
Rotate	Rotate blocks at their insert points.
Rotate Specific Angle	Rotate the blocks which inserting angle matches with the specified angle in the Exist. Angle edit box.

Block Name Option

All Blocks	Search all blocks in the drawing. The time taken by AutoCAD to search the whole drawing depends on the drawing file size.
Selecting Sample Block	Obtain block name by picking sample block on the screen and only search the blocks with the same name in the drawing.
Entering Block Name	Activate the Block Name edit box and the Block List popup list. Enter the block name in the edit box or click on the popup list to have the block name. This option will only search the blocks with the same name in the drawing.

Text Font Tool

When the button **F** is picked, displays the **Text Font Tool** dialog box.



Select Style Name

Pick on the **Select Style Name** popup list to select what style of text to be changed.

Select New Text Font

Select the desired text font to be used. Using [Configuration](#) function to change text font list order or add more if they are available within your AutoCAD.

Option

Selected Style	Change the text font of the named text style to the new text font
All Styles	Change the text font of all text styles on drawing to the new text font

Global Rename Tool

When the button **RN** is picked, displays the **Global Rename Tool** dialog box.



This function will rename drawing's five types of names (Layer, Linetype, Block, Text & Dimension) to numerical names.

Prefix

Specify a text string as a prefix for the new names.(optional).

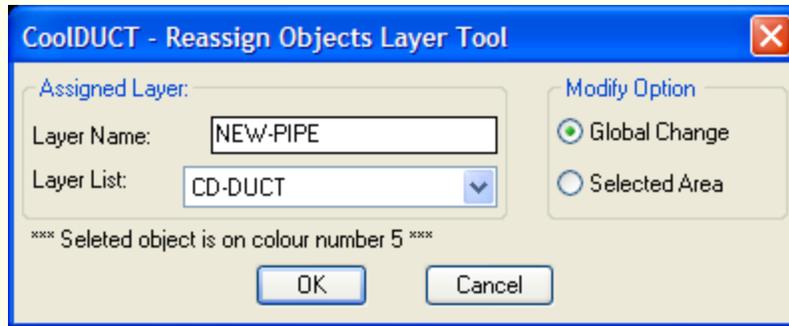
Name Type

Layer Names	Rename all layer names on drawing
Line Type Names	Rename all linetype names on drawing
Block Names	Rename all block names on drawing
Text Style Names	Rename all text style names on drawing
Dimension Style Names	Rename all dimension names on drawing
All Names	Rename all names (Layer, Linetype, Block, Text Style & Dimension Style) on drawing

Reassign Objects Layer Tool

On some of CAD drawings created by other CAD software, there is only one layer. The objects are used a different colour number to present different items such as ceiling, furniture, lighting. etc... It is hard to clearup the drawings. This function will organise the objects with same colour to a new layer or existing layer. The new created layer will have the same colour as the selected object. All object's colour will be changed to ByLayer. This function only works on the objects which colour is not ByLayer.

When the button  is picked, you will be prompted to select a sample object for the colour number. After picking an object which colour is not ByLayer, it will display the **Reassign Objects Layer Tool** dialog box.



Assigned Layer

Layer Name - Enter the layer name to be use. If it is a new layer, the new layer will have the same colour as the selected object's colour.

Layer List - Pick on the popup list to select a existing layer.

Modify Option

Global Change	Change all matching objects on whole drawing.
Selected Area	Change selected objects only.

Purge All

Press this button  will completely purge drawing all at Once without any dialog box. It works like AutoCAD command "PURGE".