draPRO2010 HELP FOR WORKSHOP SERVICES

This help file contains information for each function in draPRO Workshop Services.

Loading Workshop Services.
The “draPRO Applications” Toolbar will appear on the right hand side of your screen on start up of draPRO2010.
To load the “Workshop Service”, select the appropriate Button from the “draPRO Application” toolbar.
Workshop Services
Once loaded the fly-out toolbar for the selected service will be displayed. The selected service is now loaded and ready to use.
Once a service has been loaded the pulldown menu for the service is also available draWS. From the pulldown menu you can select draPRO commands, display specific toolbars & retrieve this Help File.
Contents.

Features

- Utilities
- Rectangular Duct
- Circular Duct
- Oval Duct
- Grilles
- Dampers
- Duct Symbols and Equipment
- Height Symbols
- Double Line Piping
- Valves
- Schematics
- Scheduling
- Miscellaneous Symbols

How To…

- Customising draPRO
- Schedule Equipment

Utilities

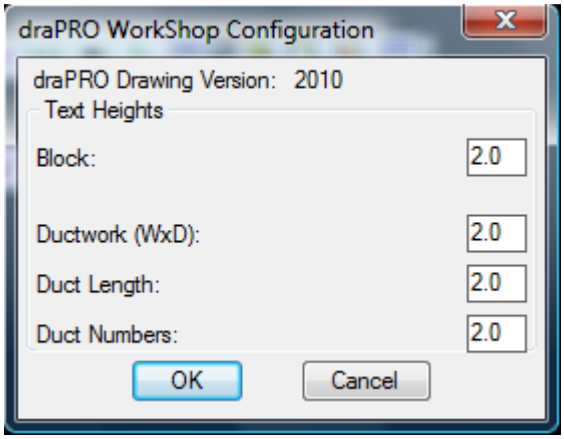
The Utilities Toolbar is the first fly-out of the Workshop Services fly-out toolbar and draWS pulldown. The Utilities toolbar/pulldown contains this list of draPRO2010 commands.
(Shown Below)

- Modify Setup
- Hatch Duct
- Duct Numbering 1
- Duct Numbering 2
- Dralib Equipment Library
- Relocation Leader
- draPRO2010 HELP FOR WORKSHOP SERVICES

Modify Setup

This dialog box displays the current settings for some variables for draPRO2010. The values you enter are only valid for the current drawing. If you want any settings to be made permanent set them in the Layer Definition File.

From the WS Utilities toolbar, choose 



- draPRO Drawing Version:

This is read only and indicates the version of draPRO that the drawing was created with.

- Block Text Height:

This text height is used in some functions to control the height of text. E.g. Supply air and return air arrows.

- Ductwork (WxD) Text Height:

This is used to adjust the text height WxD duct size dimensions across all Workshop Duct Pieces.

- Duct Length Text Height:

This is used to adjust the text height for duct Length dimensions across all Workshop Duct Pieces.

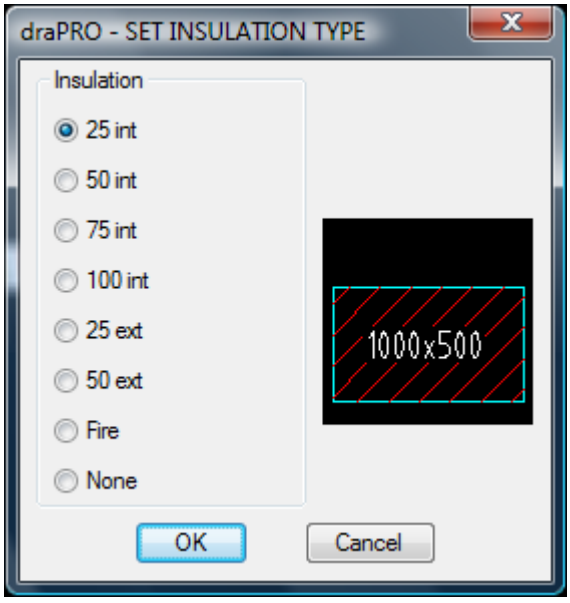
- Duct Numbers Text Height:

This is used to adjust the duct number text height across all Melbourne Workshop Duct Pieces.

Hatch Duct

Create hatching with the same settings as the hatching which represents duct insulation from the Standard Workshop Services.

From the WS Utilities toolbar, choose 



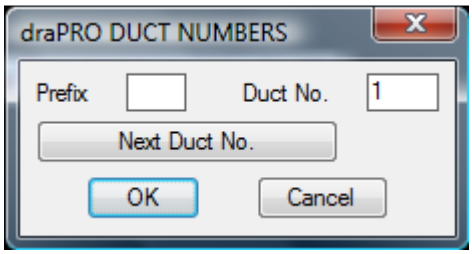
- Select the hatch pattern from the Insulation Box
- Choose the Hatch Duct button

The BHATCH command is run. Use is as per the AutoCAD documentation.

Duct Numbering

Automatically incrementing the piece mark duct number by one. Also has the ability of numbering any attributed block inserted into the drawing. e.g. Grille Schedules.

From the WS Utilities toolbar, choose 



Format:

Insertion point: Specify a point

Rotation angle: Specify an angle

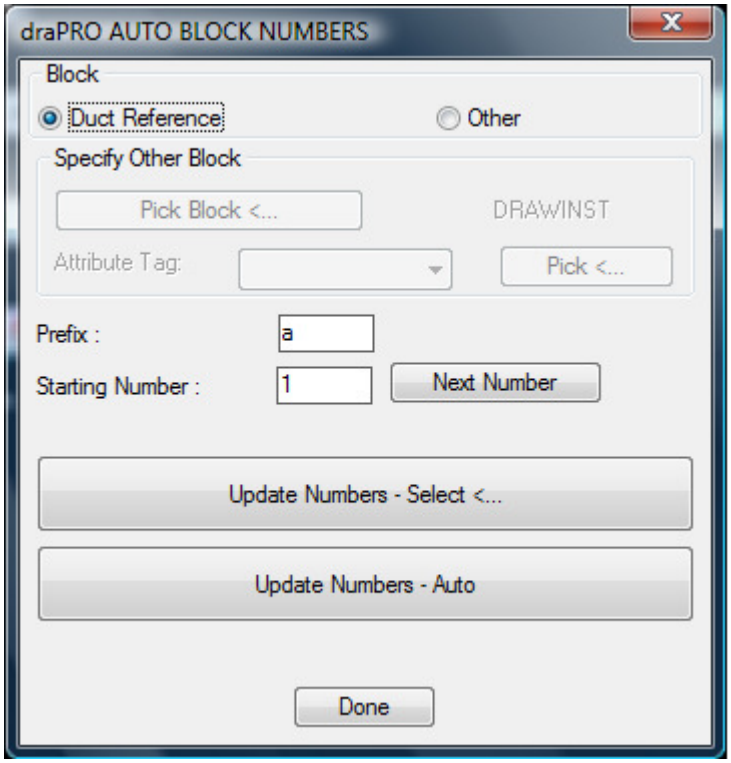
The next duct number is automatically selected

Enter To end

Duct Numbering 2

Automatically incrementing the piece mark duct number by one. Also has the ability of numbering any attributed block inserted into the drawing. e.g. Grille Schedules.

From the WS Utilities toolbar, choose 



A walk through of Numbering Piece Marks
- Select the Duct Reference from the Block Box
- Choose the Starting Number for you duct system.
- Select Update Numbers – Select <…
Select the Ductwork Piece Marks in-order.
OR
- Select Update Number – Auto
(This will select all Piece Marks and number them in order of insertion.)
For information on the below dialog box's function, question by select the area's on the dialog box.
A walk through of Numbering Any User Specified Block
- Select the Other from the Block Box
- Select Pick block <…
- Choose Attribute Tag form either Pulldown list of select Pick <.. to specify on screen
- Choose the Starting Number for you duct system.
- Select Update Numbers – Select <…
Select the Ductwork Piece Marks in-order.
OR
- Select Update Number – Auto
(This will select all Piece Marks and number them in order of insertion.)

Dralib Equipment Library
If installed the draLIB menu will be loaded for use.
From the WS Utilities toolbar, choose 
See draLIB manual for details of its use.

Relocation Leader
Creates a curved leader for dimensioning relocated Workshop services.
From the WS Utilities toolbar, choose 
See AutoCAD manual for details of its use.

Show All Associated Toolbars
Shows all associated toolbars for the Workshop services.
From the WS Utilities toolbar, choose 

Close All Associated Toolbars
Close all associated toolbars for the Workshop services.
From the WS Utilities toolbar, choose 

Rectangular Duct
The Rectangular Duct Toolbar is the second fly-out of the Workshop Services fly-out toolbar and draWS pulldown. The Rectangular Duct toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

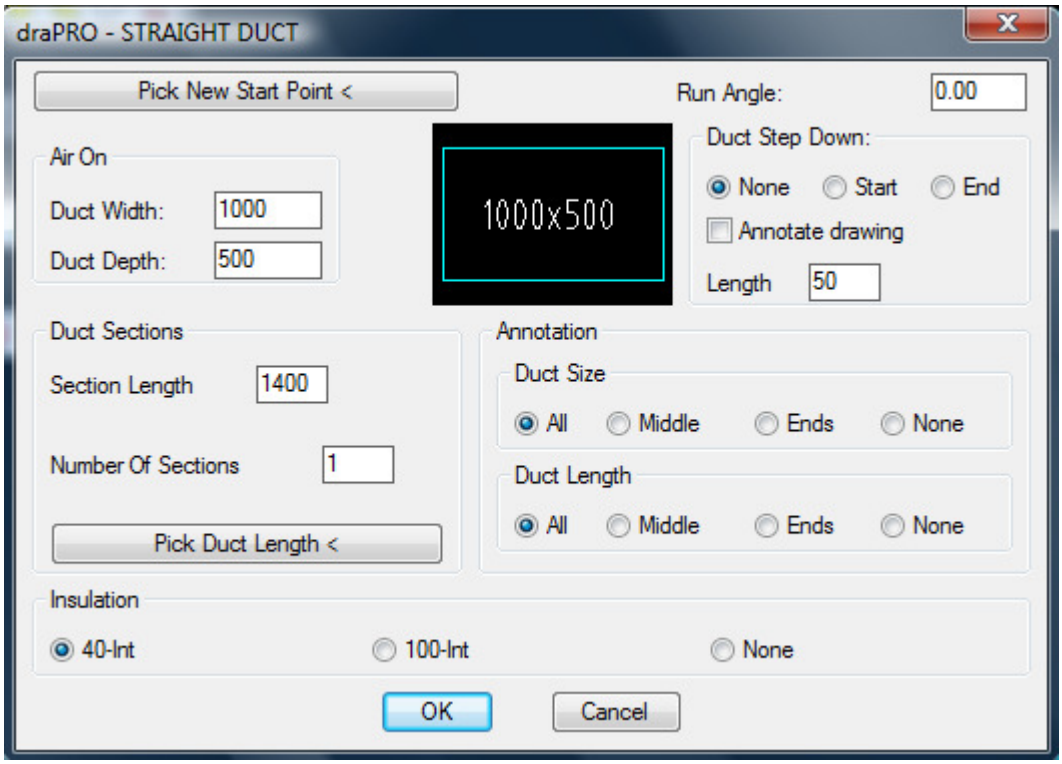
- Straight Duct
- Flexible Connection (Rect)
- Fire Damper (Rect)
- Square Bend
- Radius Bend
- Equal Transition
- Flat On Side Transition
- Offset Transition
- Shoe Take-Off
- 3way Take-Off
- Radius Tee
- Turning Vanes
- Radius Take Off
- Square Tee
- Dropper Take Off
- Duct Riser/Dropper Shaft
- Duct Mounted Humidifier
- Water Heater
- Electric Duct Heater
- Detach Toolbar

Straight Duct

Draws straight duct and annotates the duct with its width by depth (WxD) size, and the duct length. Duct pieces are drawn based on the Air On sizes (sheet metal dimensions) and the type of insulation specified.

From the WS Rectangular Duct toolbar, choose 

For information on the below dialog box's function, question by selecting the areas on the dialog box.



The WxD text is placed on the duct by specifying points inside (or outside) the duct. Before placement of the text a rectangular box indicates the extents of the text, so it may be placed in the best location, free of other lines etc.

W x D dimension location: Specify a point

Text rotation angle : Specify an angle

More than one WxD text may be placed along the length of the duct.

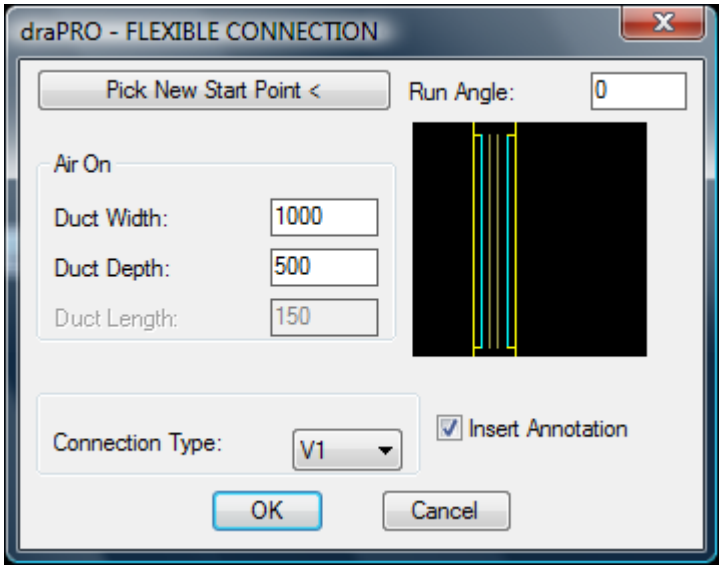
More text: (No Yes) <No> : Enter Y or {RETURN}

Flexible Connection (Rect)

Draws a flexible duct connection.

From the WS Rectangle Duct toolbar, choose 

For information on the below dialog box's function, question by selecting the areas on the dialog box.



Format:

Continue run / New run: (Cont New) <Cont> : Enter N, or press {RETURN}

New option-

Pick start point: (or R to Reference from):

Specify a point

Enter duct run angle <0.0>: Specify an angle

Enter flex diameter <1000>: Specify a distance

Enter flex length <200>: Specify a distance

Fire Damper (Rect)

Draws a fire damper.

From the MD Rectangular Duct toolbar, choose 

Format:

Continue run / New run: (Cont New) <Cont> : Enter N, or press {RETURN}

New option-

Pick start point: (or R to Reference from): Specify a point

Enter duct run angle <0.0>: Specify an angle

Enter duct width <1000>: Specify a distance

Enter duct depth <500>: Specify a distance

Enter wall thickness <150>: Specify a distance

Air flow direction: (Default Opposing) <Default> : Enter O or {RETURN}

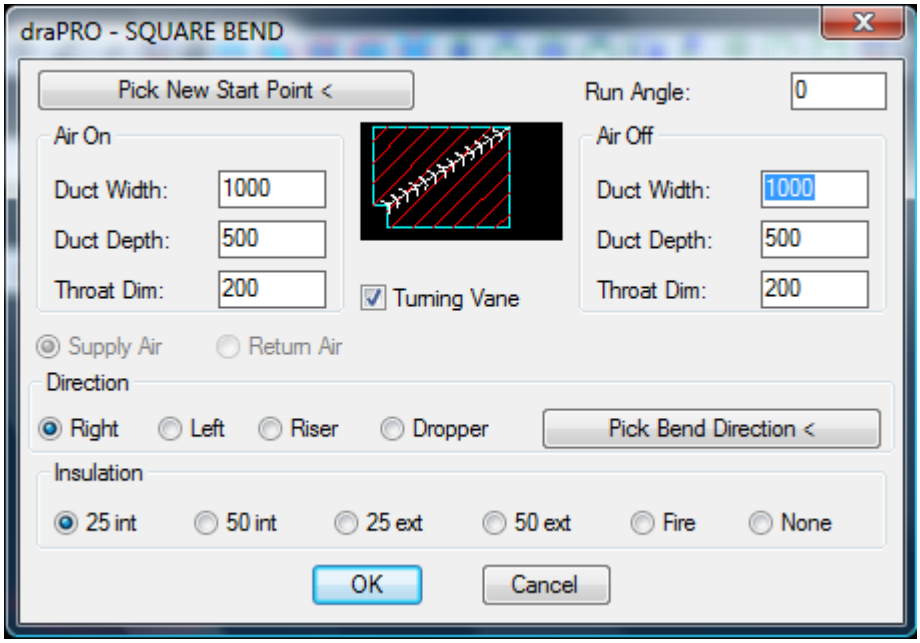
A direction arrow on the block indicates the flow, and is draw at the current run angle, Opposing will reverse the arrow 180 degrees to the current run angle.

Square Bend

Draws a square bend duct piece.

From the WS Rectangular Duct toolbar, choose 

For information on the below dialog box's function, question by selecting the areas on the dialog box.

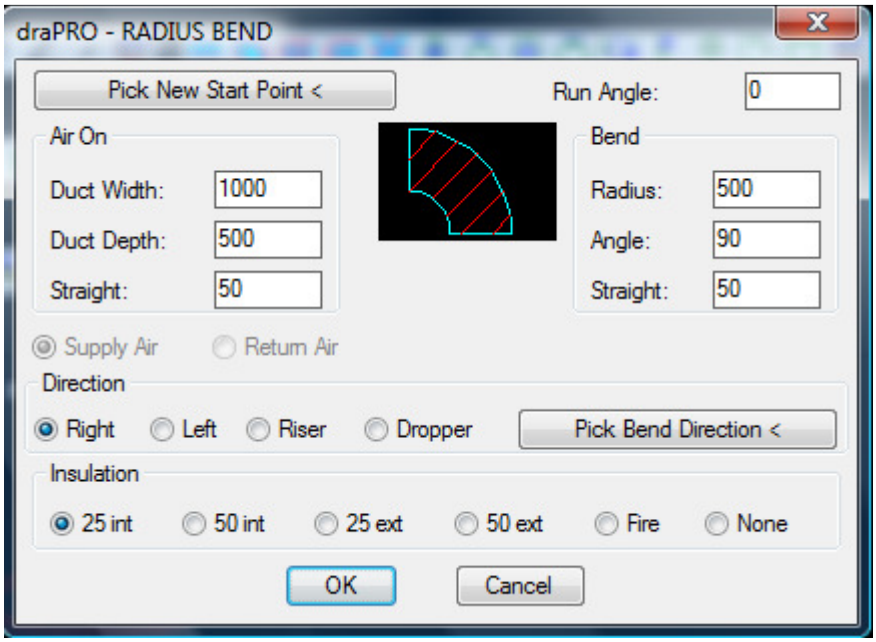


Radius Bend

Draws a radius bend duct piece.

From the WS Rectangular Duct toolbar, choose 

For information on the below dialog box's function, question by selecting the areas on the dialog box.

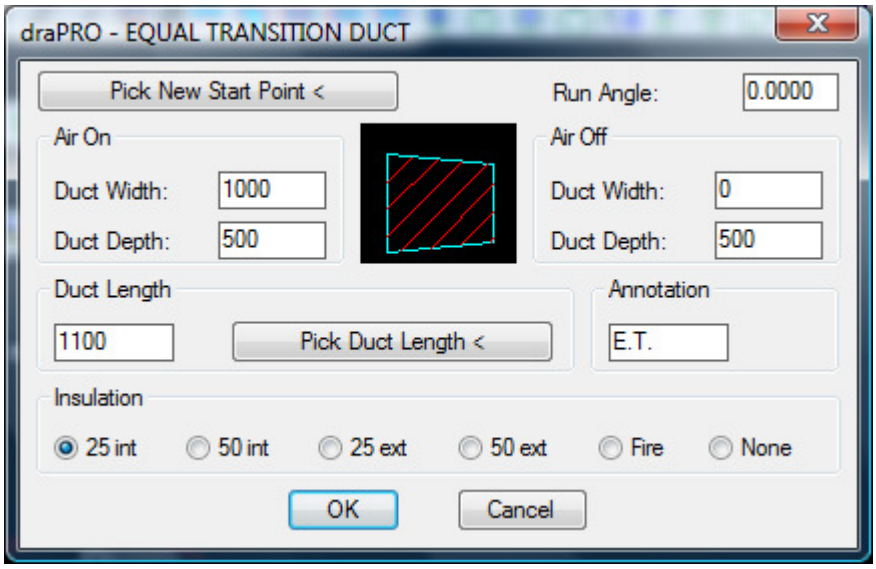


Equal Transition

Draws an equal transition duct piece.

From the WS Rectangular Duct toolbar, choose 

For information on the below dialog box's function, question by selecting the areas on the dialog box.

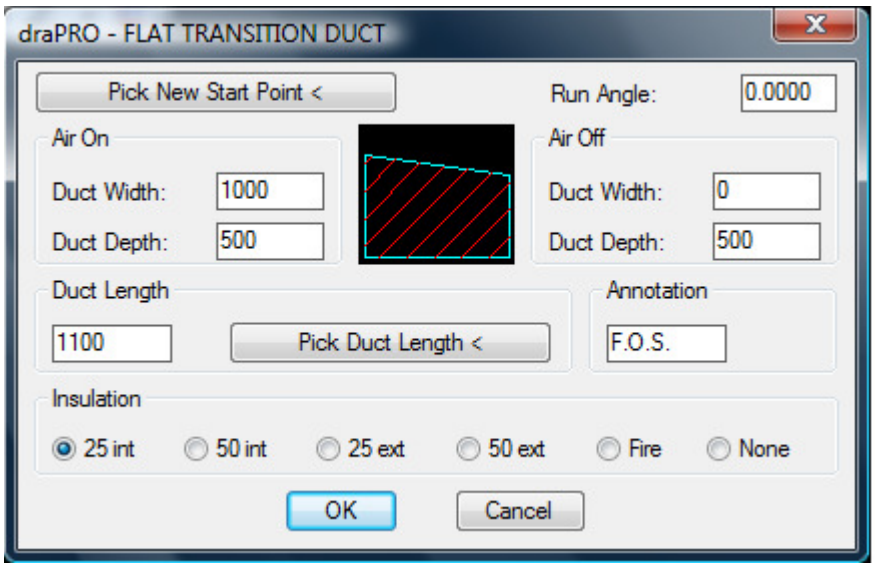


Flat On Side Transition

Draws a flat on side transition duct piece.

From the WS Rectangular Duct toolbar, choose 

For information on the below dialog box's function, question by selecting the areas on the dialog box.



Offset Transition

Draws an offset transition duct piece.

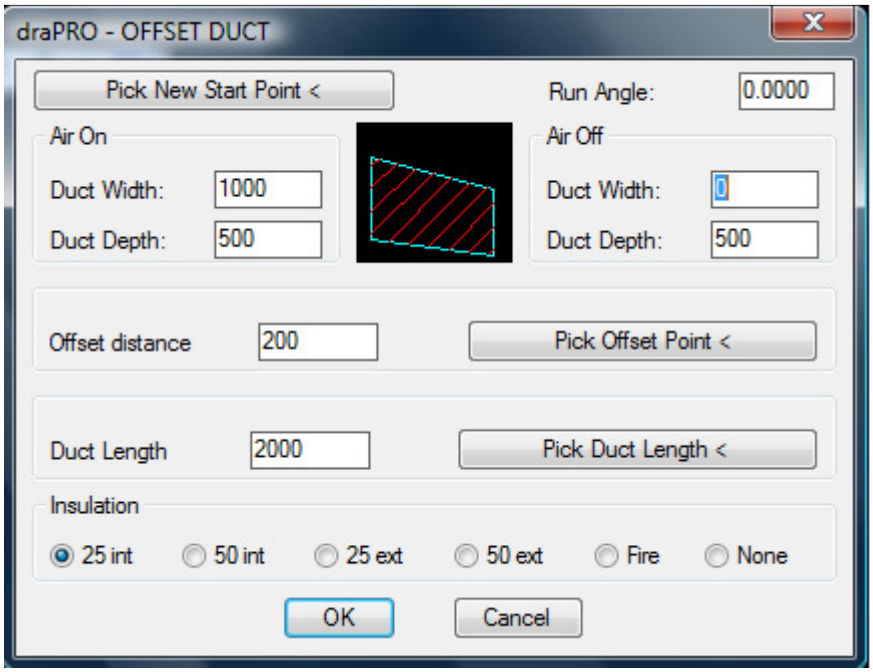
The offset transition can be constructed using an offset distance and a direction, or if both start point and end point of the duct is known -

1.Pick New Start Point for starting point of transition.

2.Pick Offset Point to specify the end point of the transition.

From the WS Rectangular Duct toolbar, choose 

For information on the below dialog box's function, question by selecting the areas on the dialog box.



If the offset point is not known (an offset point is not selected) then the following is prompted.

OK selected

Pick side of line for offset side: Specify a point

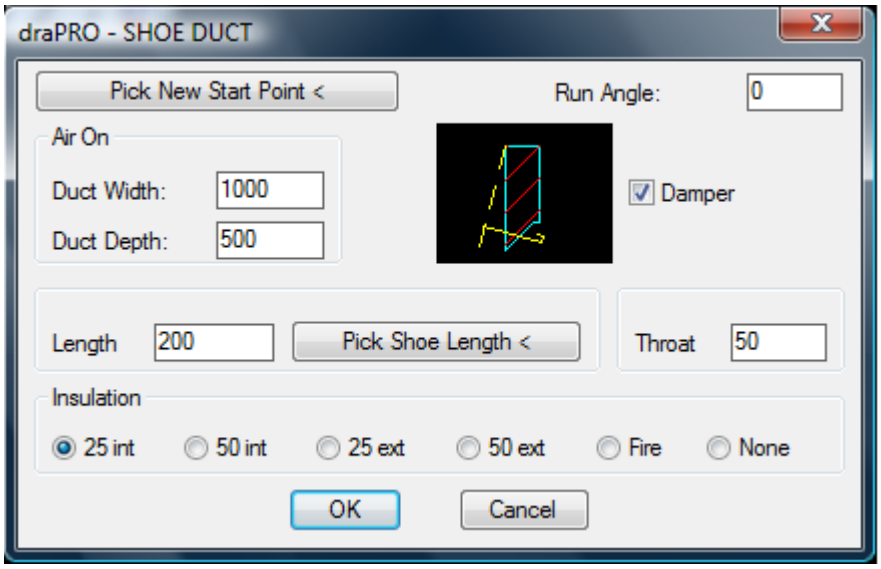
Pick Side of line for offset direction: Specify a point

Shoe Take-Off

Draws a take-off shoe duct piece.

From the WS Rectangular Duct toolbar, choose 

For information on the below dialog box's function, question by selecting the areas on the dialog box.

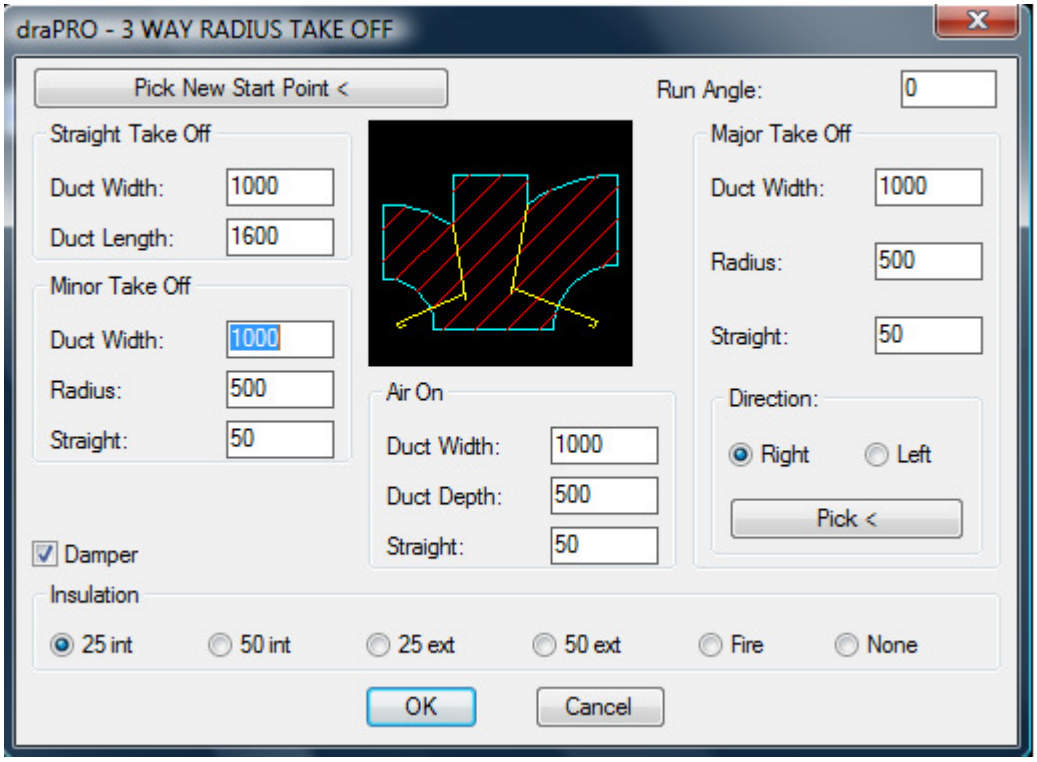


3way Take-Off

Draws a 3 way take-off duct piece.

From the WS Rectangular Duct toolbar, choose 

For information on the below dialog box's function, question by selecting the areas on the dialog box.

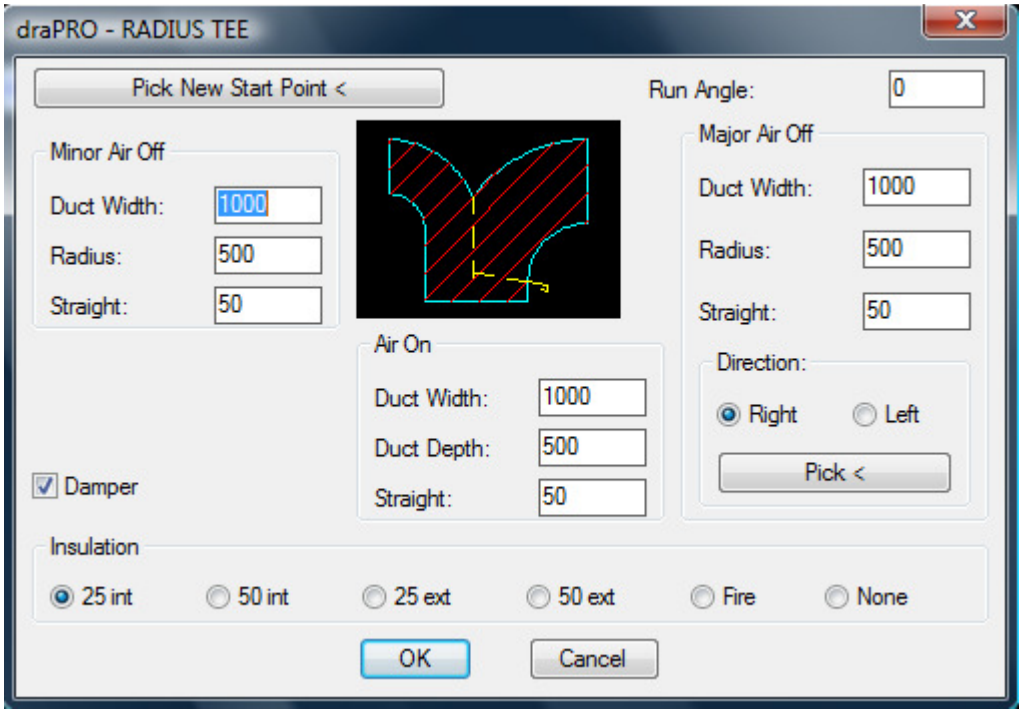


Radius Tee

Draws a radius tee duct piece.

From the WS Rectangular Duct toolbar, choose 

For information on the below dialog box's functions, question by selecting the areas on the dialog box.



Turning Vanes

Draws duct turning vanes

From the WS Rectangular Duct toolbar, choose 

Format:

Pick outer end of turning vanes: Specify a point

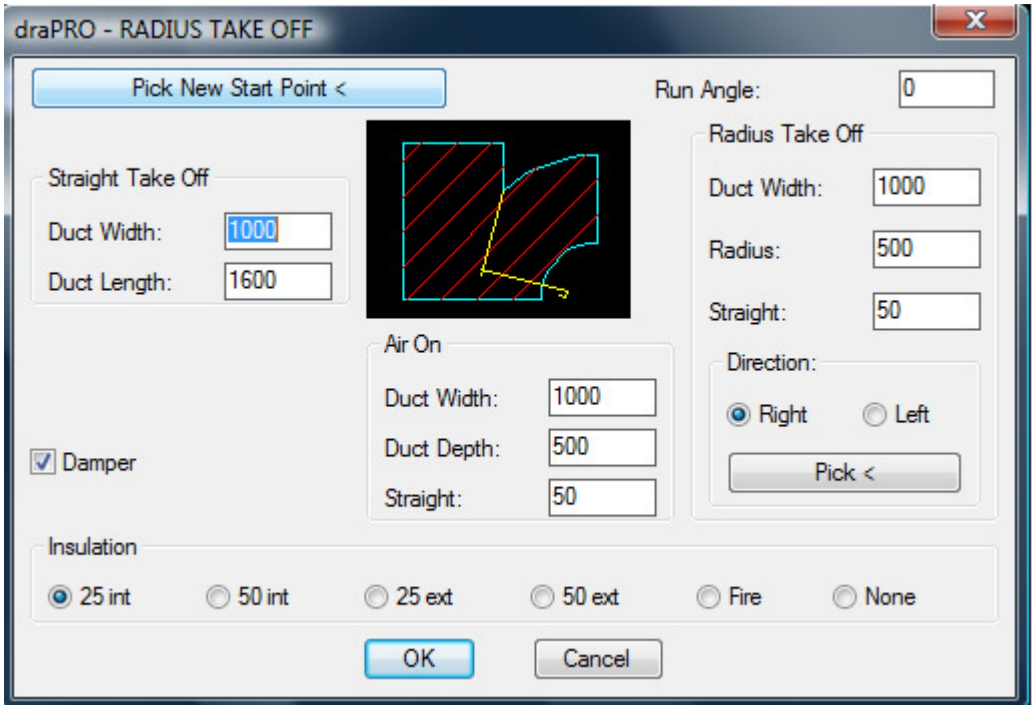
Pick inner end of turning vanes: Specify a point

Radius Take Off

Draws a radius take off duct piece.

From the WS Rectangular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.

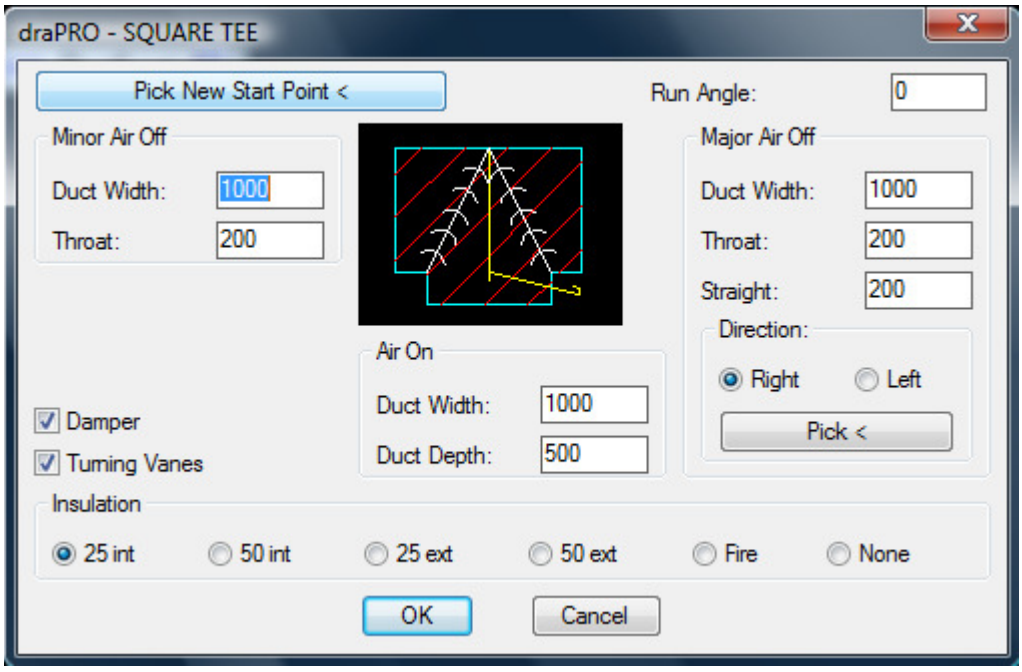


Square Tee

Draws a square tee duct piece.

From the WS Rectangular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.



Dropper Take Off

Draws a dropper take off.

From the WS Rectangular Duct toolbar, choose 

Format:

Enter first corner: (or R to Reference from): Specify a point

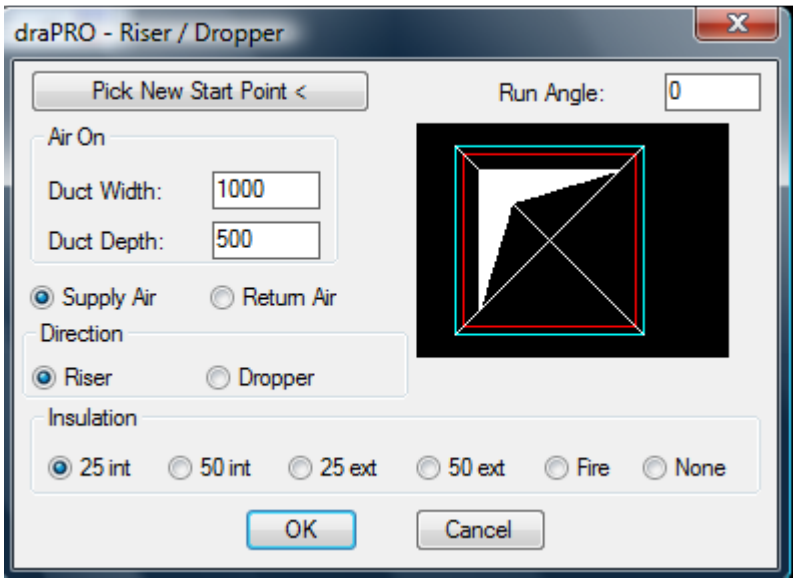
Pick second corner: Specify a point

Duct Riser/Dropper

Draws a duct riser/dropper duct piece.

From the WS Rectangular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.



Duct Mounted Humidifier

Draws a duct mounted humidifier.

From the WS Rectangular Duct toolbar, choose 

Format:

Pick mid point of humidifier on duct: (or R to Reference from):

Specify a point

Pick point on opposite side of duct: Specify a point

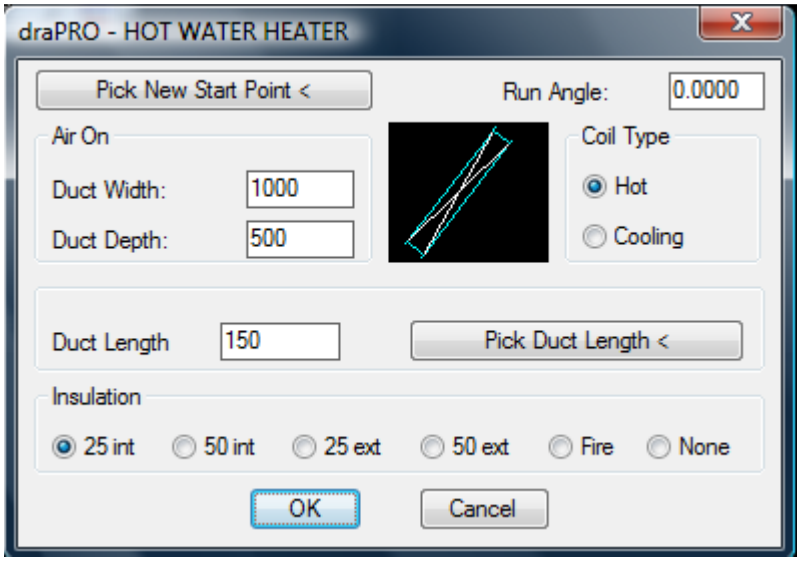
(perpendicular object snap is automatically set)

Water Heater

Draws a duct water heater.

From the WS Rectangular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.



Electric Duct Heater

Draws an electric duct heater.

From the WS Rectangular Duct toolbar, choose 

Format:

Pick mid point of heater on duct: (or R to Reference from):

Specify a point

Pick point on opposite side of duct: Specify a point

(perpendicular object snap is automatically set)

Circular Duct

The Circular Duct Toolbar is the third fly-out of the Workshop Services fly-out toolbar and draWS pulldown. The Circular Duct toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

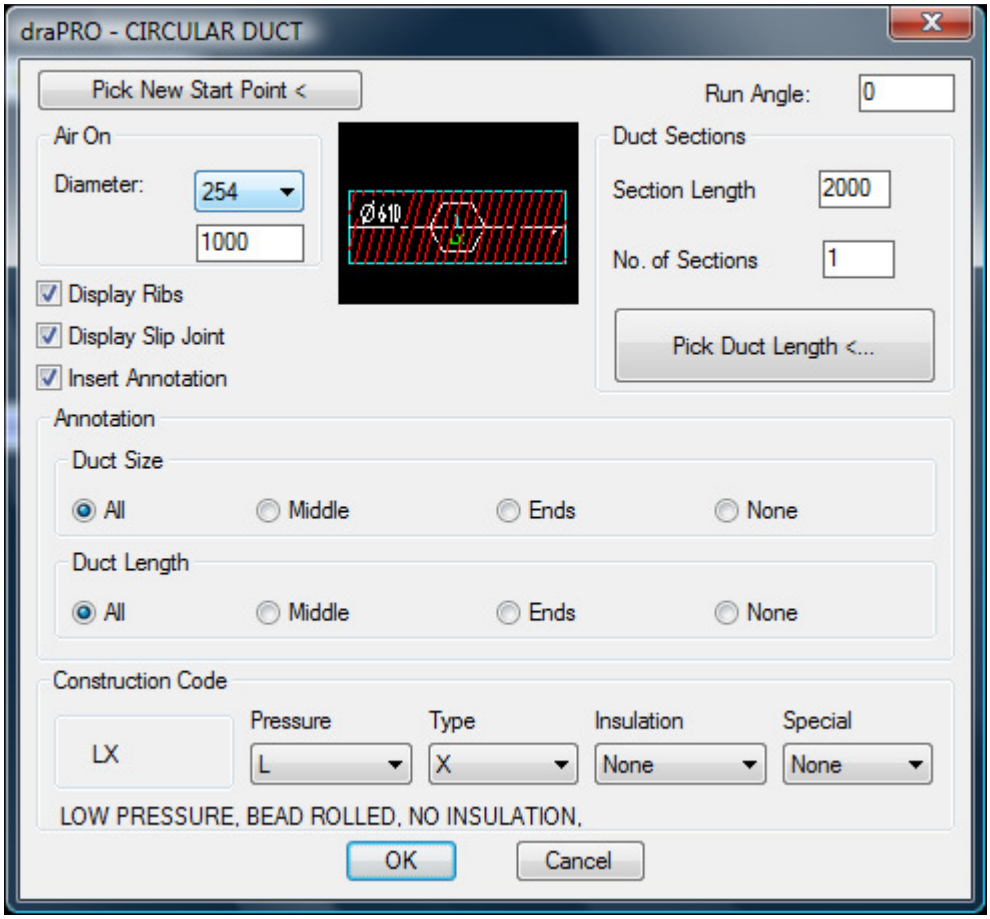
- Spiral Duct
- Flexible Connection (Circular)
- Fire Damper (Circular)
- Spiral Equal Transition
- Spiral Flat On Side
- Square To Round Equal Transition
- Square To Round Flat On Side
- Round to Square Equal Transition
- Round To Square Flat On Side
- Spiral Lobster Back Bend
- Spiral Square Bend
- Flexible Duct
- Spigot 90 Degree
- Spigot 45 Degree
- Duct End View
- Detach Toolbar

Spiral Duct

Draws spiral duct and annotates the duct with its diameter.

From the WS Circular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.



OK

The diameter text is placed on the duct by specifying points inside (or outside) the duct. Before placement of the text a rectangular box indicates the extents of the text, so it may be placed in the best location, free of other lines etc.

Diameter location: Specify a point

Text rotation angle : Specify an angle

More than one diameter text may be placed along the length of the duct.

More text: (No Yes) <No> : Enter Y or {RETURN}

Flexible Connection (Circular)

Draws a circular flexible duct connection.

From the WS Circular Duct toolbar, choose 

Format:

Continue run / New run: (Cont New) <Cont> : Enter N, or press {RETURN}

New option-

Pick start point: (or R to Reference from):

Specify a point

Enter duct run angle <0.0>: Specify an angle

Enter flex diameter <1000>: Specify a distance

Enter flex length <200>: Specify a distance

Fire Damper (Circular)

Draws a circular fire damper.

From the WS Circular Duct toolbar, choose 

Format:

Continue run / New run: (Cont New) <Cont> : Enter N, or press {RETURN}

New option-

Pick start point: (or R to Reference from):

Specify a point

Enter duct run angle <0.0>: Specify an angle

Enter duct diameter <1000>: Specify a distance

Enter wall thickness <150>: Specify a distance

Air flow direction: (Default Opposing) <Default> : Enter O or {RETURN}

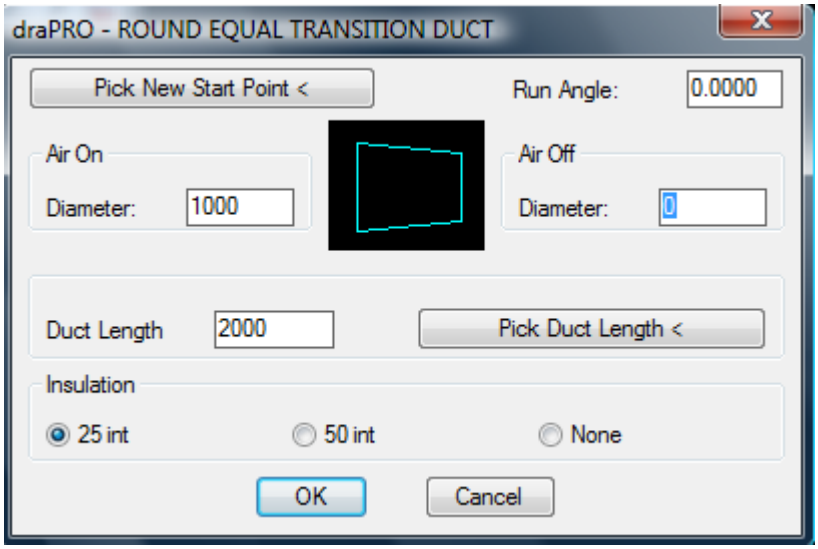
A direction arrow on the block indicates the flow, and is draw at the current run angle, Opposing will reverse the arrow 180 degrees to the current run angle.

Spiral Equal Transition

Draws a Spiral Equal transition duct piece.

From the WS Circular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.

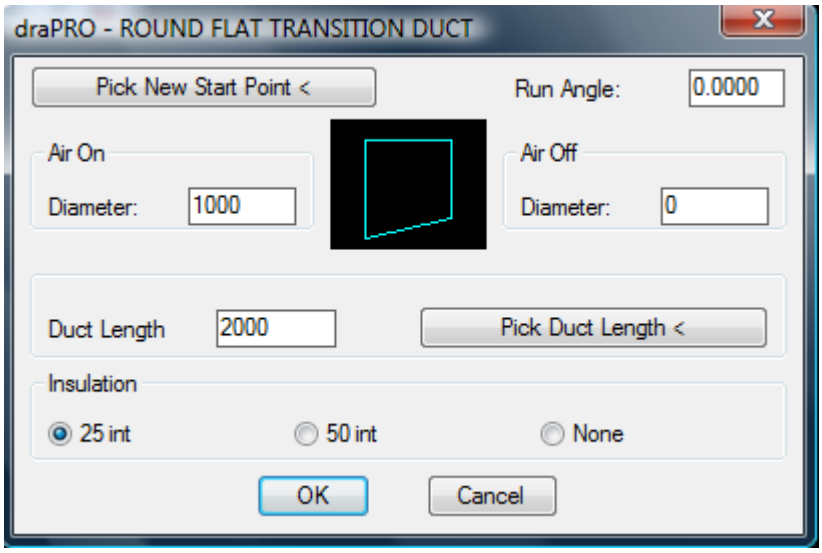


Spiral Flat On Side

Draws a Spiral Flat On Side duct piece.

From the WS Circular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.

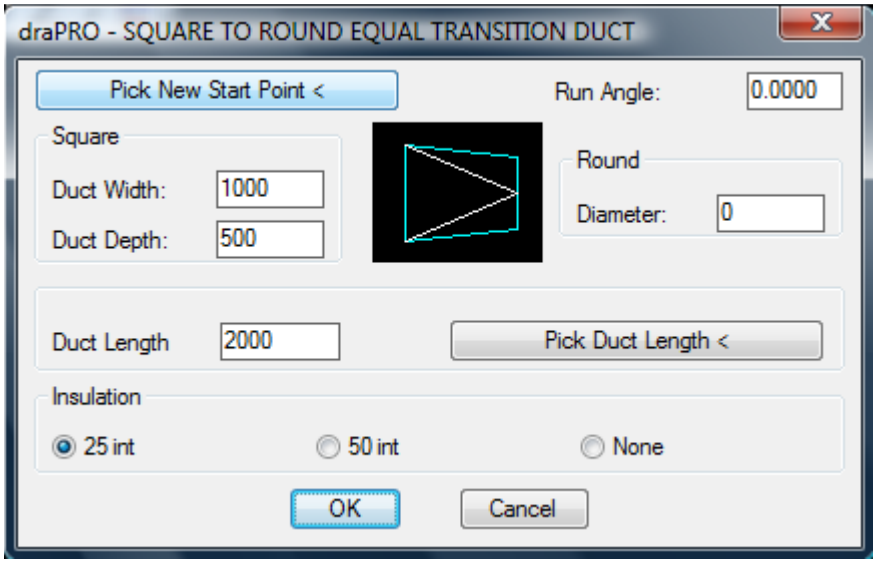


Square to Round Equal Transition

Draws a square to round equal transition duct piece.

From the WS Circular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.

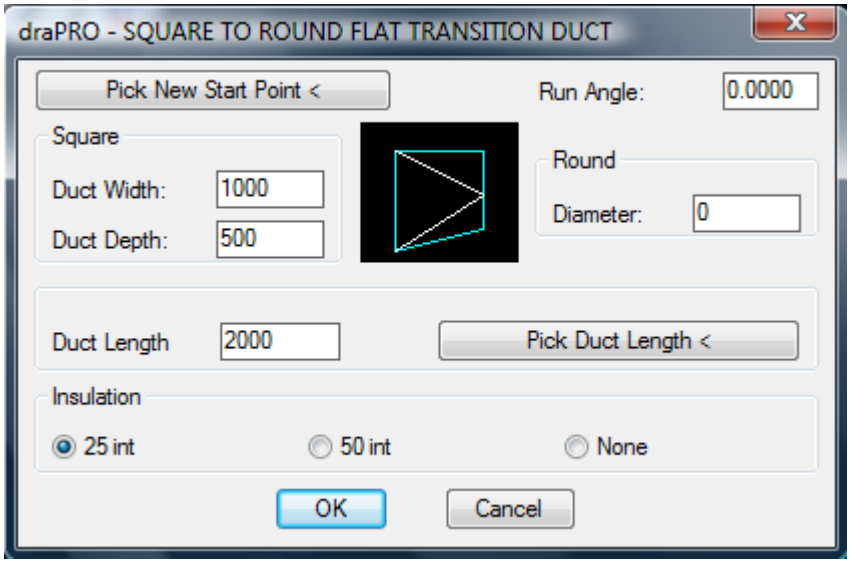


Square To Round Flat On Side Transition

Draws a square to round flat on side transition duct piece.

From the WS Circular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.

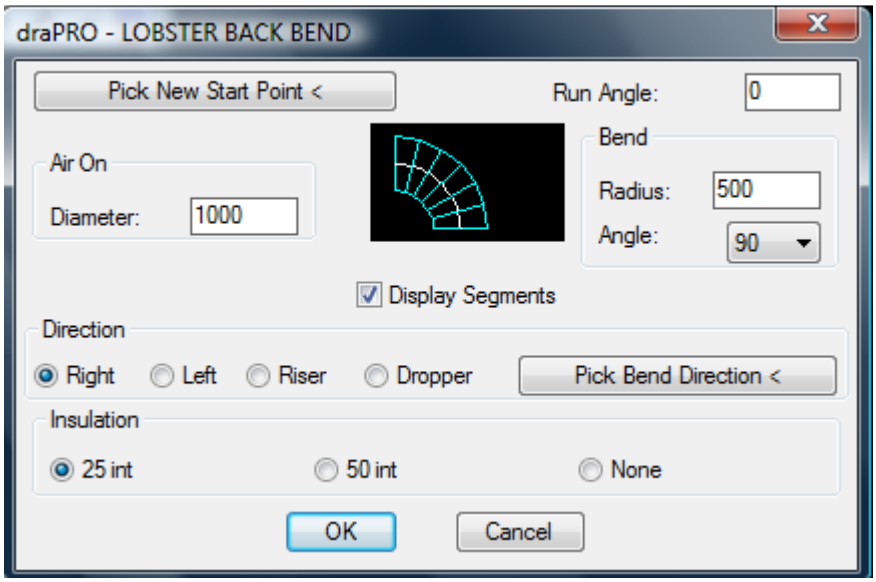


Spiral Lobster Back Bend

Draws a spiral lobster back bend duct piece in 15 degree increments

From the WS Circular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.

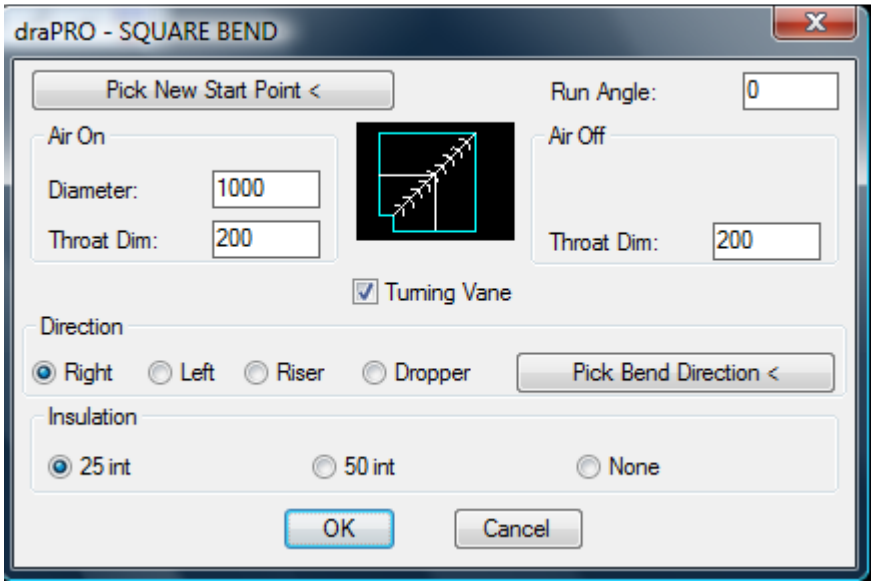


Spiral Square Bend

Draws a Spiral Square Bend

From the WS Circular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.

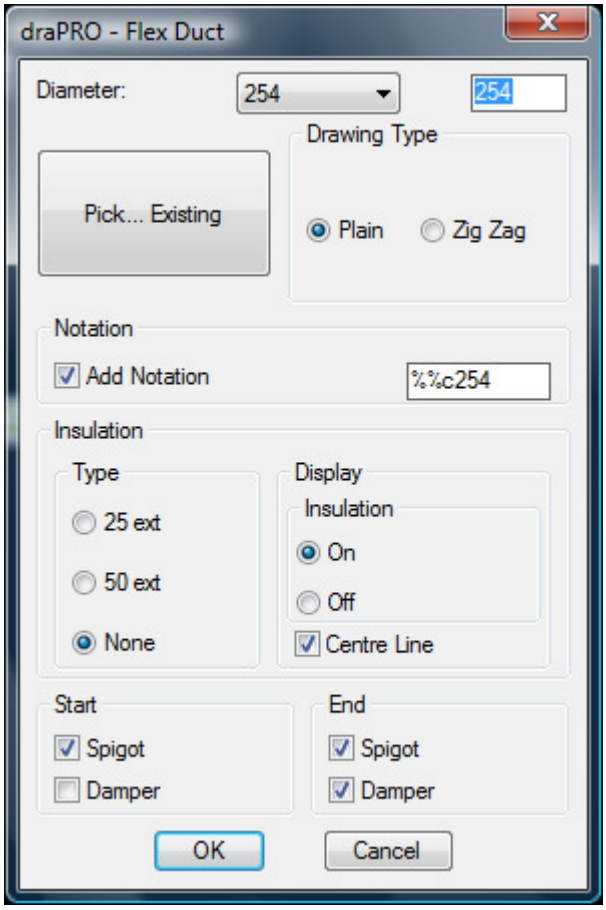


Flexible Duct

Draws a flexible duct with optional flex size anotation.

From the WS Circular Duct toolbar, choose 

For description on the below dialog box's functions, question by selecting the areas on the dialog box.



OK

Flex duct start point: Specify a point

(perpendicular object snap automatically set)

To Point: Specify a point or press {RETURN}

Notation location: Specify a point

Text rotation angle : Specify an angle

Spigot 90 Degree

Draws a 90 degree spigot.

From the WS Circular Duct toolbar, choose 

Format:

Spigot Diameter <300>: Enter a value or press {RETURN}

Insertion point: (or R to Reference from):

Specify a point

Rotation angle: Specify an angle

Spigot 45 Degree

Draws a 45 degree spigot.

From the WS Circular Duct toolbar, choose 

Format:

Spigot Diameter <300>: Enter a value or press {RETURN}

Insertion point: (or R to Reference from):

Specify a point

Rotation angle: Specify an angle

Spigot Ok or Mirror: (Ok Mirror) <Ok> : Enter m or press {RETURN}

Ok

Spigot remains as drawn

Mirror

Spigot is mirrored about a plane +90 degrees to specified rotation angle

Duct End View

Draws a circular duct end view.

From the WS Circular Duct toolbar, choose 

Format:

Duct diameter <100>: Enter a value or press {RETURN}

Insertion point: Specify a point

Rotation angle: Specify an angle

Grilles

The Grilles Toolbar is the fourth fly-out of the Melbourne Shop Services fly-out toolbar and draWS pulldown. The Grilles toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

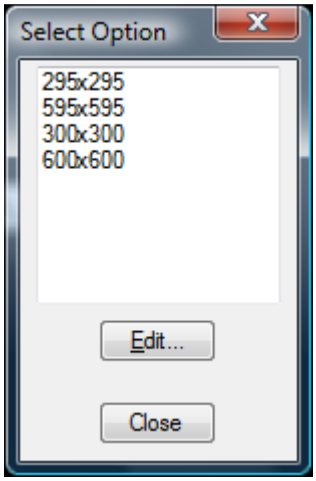
. Grilles, Diffusers and Registers
· T-Bar Cushon Head Diffusers
· T-Bar Flex Diffusers
· Plaster Board Cushon Head Diffuser
· Plaster Board Flex Diffuser
· Light Air-Boot
· Linear Slot Diffuser
· T-Bar Eggcrate Grille
· Plaster Board Eggcrate Grille
· Wall Mounted Register
· Hidden Grille
· Toilet Exhaust Grille
· Detach Toolbar

Grilles, Diffusers and Registers

T-Bar Cushon Head Diffusers

Draws T-Bar diffuser.

From the WS Grilles toolbar, choose 



Format:

Insertion point: (or R to Reference from):

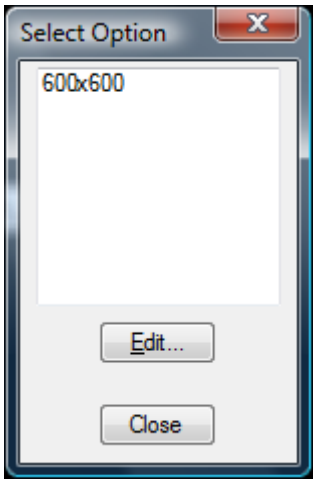
Specify a point

Rotation angle: Specify an angle

T-Bar Flex Diffusers

Draws T-Bar diffuser.

From the WS Grilles toolbar, choose 



Format:

Insertion point: (or R to Reference from):

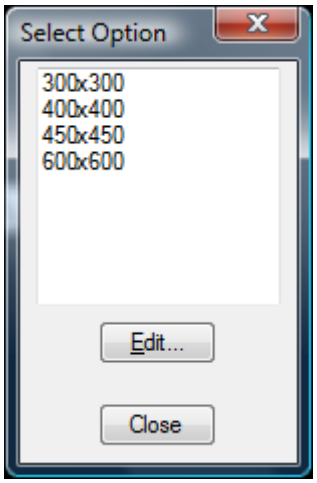
Specify a point

Rotation angle: Specify an angle

Plaster Board Cushon Head Diffuser

Draws a plaster board diffuser.

From the WS Grilles toolbar, choose  , then from the dialog box choose the size



Format:

Select Plaster Board Diffuser-

Specify size of diffuser from the selection on the screen menu

Insertion point: (or R to Reference from):

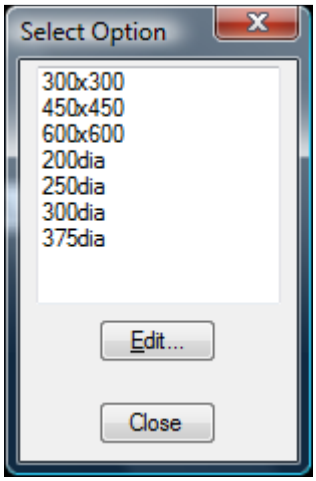
Specify a point

Rotation angle: Specify an angle

Plaster Board Flex Diffuser

Draws a plaster board diffuser.

From the WS Grilles toolbar, choose  , then from the dialog box choose the size



Format:

Select Plaster Board Diffuser-

Specify size of diffuser from the selection on the screen menu

Insertion point: (or R to Reference from):

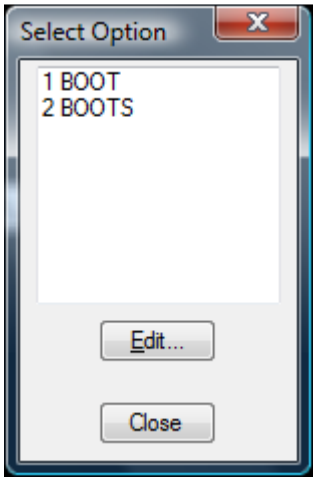
Specify a point

Rotation angle: Specify an angle

Light Air-Boot

Draws a light air-boot.

From the WS Grilles toolbar, choose  , then from the dialog box choose the size



Format:

Select Light Air-boot

Specify a selection from the screen menu

Insertion point: (or R to Reference from):

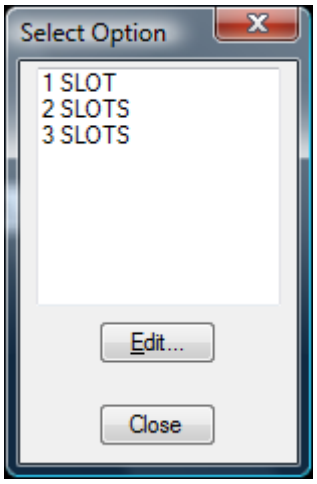
Specify a point

Rotation angle: Specify an angle

Linear Slot Diffuser

Draws a Linear Slot Diffuser

From the WS Grilles toolbar, choose , then from the dialog box choose the size



Format:

Select Linear Slot Diffuser

Specify a selection from the screen menu

Insertion point: (or R to Reference from):

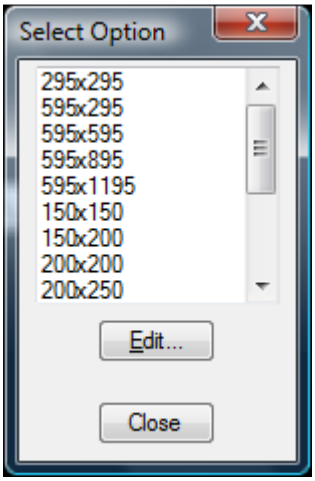
Specify a point

Rotation angle: Specify an angle

T-Bar Eggcrate Grilles

Draws an eggcrate grille.

From the WS Grilles toolbar, choose , then from the dialog box choose the size



Format:

Select Eggcrate R/A Grille

Specify a selection from the screen menu

Insertion point: (or R to Reference from):

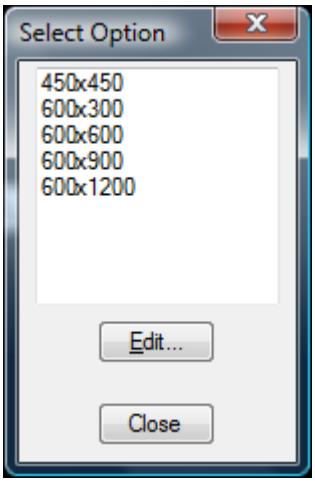
Specify a point

Rotation angle: Specify an angle

Plaster Board Eggcrate Grilles

Draws an eggcrate grille.

From the WS Grilles toolbar, choose  , then from the dialog box choose the size



Format:

Select Eggcrate R/A Grille

Specify a selection from the screen menu

Insertion point: (or R to Reference from):

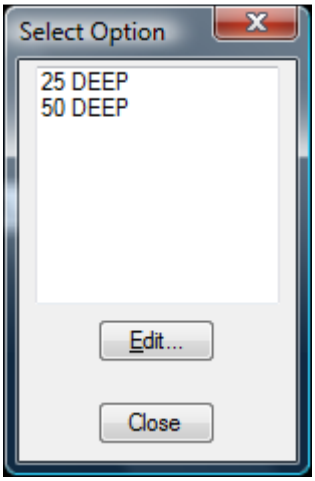
Specify a point

Rotation angle: Specify an angle

Wall Mounted Register

Draws a wall mounted register.

From the WS Grilles toolbar, choose , then from the dialog box choose the size



Format:

Select Wall Mounted Register

Specify a selection from the screen menu

Enter length of grill: Specify a distance

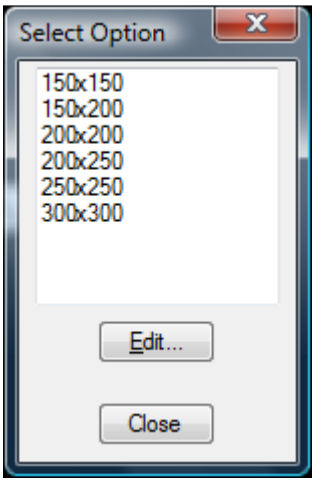
Insertion point: (or R to Reference from):

Specify a point

Rotation angle: Specify an angle

Hidden Grille
Draws a hidden grille.
From the WS Grilles toolbar, choose
Format:
Enter first corner: (or R to Reference from):
Specify a point
Pick second corner: Specify a point

Toilet Exhaust Grille
Draws a Toilet Exhaust Grille.
From the WS Grilles toolbar, choose , then from the dialog box choose the size



Format:
Select Toilet Exhaust Grille
Specify a selection from the screen menu
Insertion point: (or R to Reference from):
Specify a point
Rotation angle: Specify an angle

Dampers

The Dampers Toolbar is the fifth fly-out of the Melbourne Shop Services fly-out toolbar and draWS pulldown. The Dampers toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

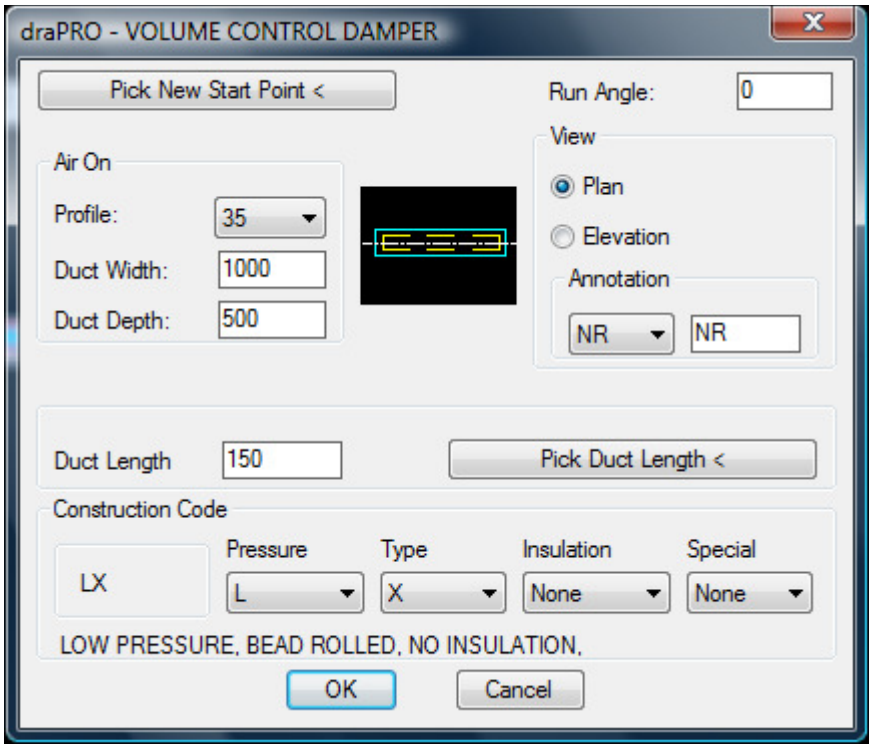
- Opposed Blade Damper
- Motorised Damper
- Stream Splitter
- Butterfly Damper
- Detach Toolbar

Opposed Blade Damper

Draws an opposed blade damper in either plan or elevation.

If drawn in elevation the number of blades drawn is dependant on the size of the damper.

From the WS Dampers toolbar, choose 



Motorised Damper

Inserts a symbol for a motorised damper.

From the WS Dampers toolbar, choose 

Format:

Insertion Point: Specify a point

Rotation Angle: Specify an angle

Note: The ‘M’ inside the block is always rotated so it is at zero rotation.

Stream Splitter

Draws a stream splitter.

From the WS Dampers toolbar, choose 

Format:

Pick point for stream splitter: (or R to Reference from):

Specify a point

Length of grill for stream splitter: Specify a distance

Direction of air flow: Specify an angle

Side for splitter: Specify a point

Butterfly Damper
Draws a single butterfly damper.

From the WS Dampers toolbar, choose 

Format:

Duct diameter <100>: Enter a value

Insertion point: (or R to Reference from):

Specify a point

Rotation angle: Specify an angle

Duct Symbols and Equipment

The Duct Symbols Toolbar is the sixth fly-out of the Workshop Services fly-out toolbar and draWS pulldown. The Duct Symbols toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

- Equipment Library
- Duct Length Text
- Supply Air Arrow
- Return Air Arrow
- Duct Flow Arrow
- T-Stat Symbol
- Smoke Symbol
- Switch Board
- Access Panel
- Duct Break Symbol (Rectangular)
- Duct Break Symbol (Circular)
- Shadow
- Detach Toolbar

Equipment Library

Insert standard equipment blocks

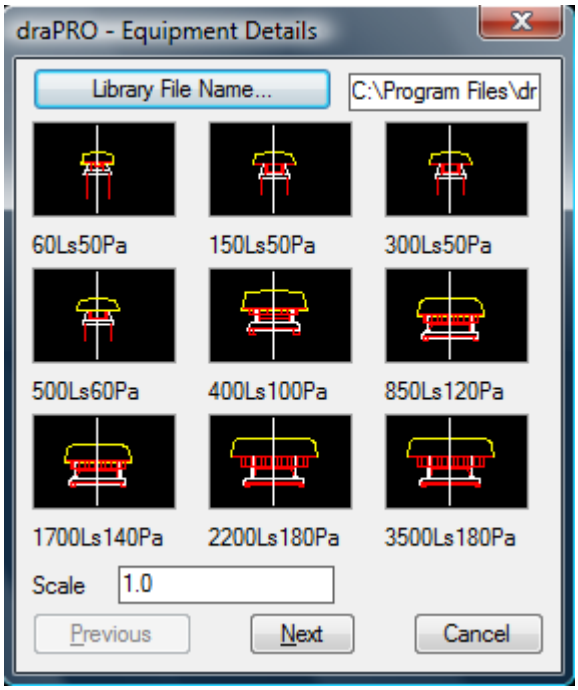
The application is shipped with various examples of equipment. Additional equipment may be added to the library supplied, or new libraries may be created.

The Equipment Details dialog box will first appear empty. This has been done so you will not have to wait for the images to all appear before possibly selecting a different library.

From the WS Duct Symbols toolbar, choose 

Format:

Dialog Box Description



Insert block

Insertion point: Specify a point

Rotation angle: Specify an angle

See

EQUIPMENT LIBRARY CUSTOMISATION on the procedures to follow to create new equipment libraries.

Duct Length Text

Draws text with an obliquing angle (The duct length text drawn when using duct functions).

From the WS Duct Symbols toolbar, choose

Format:

Start Point : Specify a point

Rotation angle : <0.0000> : Specify an angle

Text: Enter text

Text: Enter more text, or press the Enter key from the keyboard to finish the command.

Supply Air Arrow

Draws a supply air arrow. Annotation is optional.

From the WS Duct Symbols toolbar, choose 

Format:

Insertion point: Specify a point

Arrow end

Rotation angle: Specify an angle

Flow notation: (Yes No) <Yes> : Enter n or press {RETURN}

Yes

Enter grille neck size <500x500>:

Enter characters or press {RETURN}

Enter air quantity <500 L/s.>:

Enter characters or press {RETURN}

Return Air Arrow

Draws a return air arrow. Annotation is optional.

From the WS Duct Symbols toolbar, choose 

Format:

Insertion point: Specify a point

Arrow end

Rotation angle: Specify an angle

Flow notation: (Yes No) <Yes> : Enter n or press {RETURN}

Yes

Enter grille neck size <500x500>:

Enter characters or press {RETURN}

Enter air quantity <500 L/s.>:

Enter characters or press {RETURN}

Duct Flow Arrow

Draws a Duct Flow Arrow.

From the WS Duct Symbols toolbar, choose 

Format:

Insertion point: (or R to Reference from):

Specify a point

Rotation angle: Specify an angle

T-Stat

Draws a thermostat symbol.

From the WS Duct Symbols toolbar, choose 

Format:

Insertion point: (or R to Reference from):

Specify a point

Rotation angle: Specify an angle

Smoke

Draws a smoke symbol.

From the WS Duct Symbols toolbar, choose 

Format:

Insertion point: (or R to Reference from):

Specify a point

Rotation angle: Specify an angle

Switch Board

Draws a switch board at variable width and length dimensions.

From the WS Duct Symbols toolbar, choose 

Format:

Switch board length <600.00>: Enter a value or press {RETURN}

Switch board width <250.00>: Enter a value or press {RETURN}

Insertion point: (or R to Reference from):

Specify a point

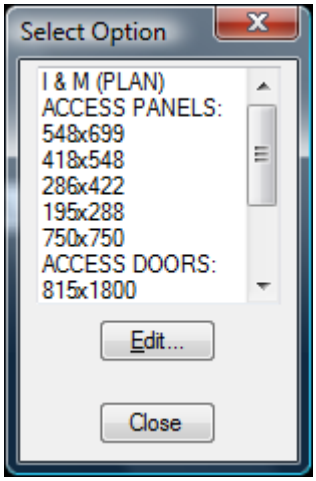
Rotation angle: Specify an angle

Access Panel

Draws an access panel in plan view.

From the WS Duct Symbols toolbar, choose  , to Fly out the WS Access Panel toolbar.

Choose from I&M Access Panel & Door sizes or Bullock Access Panel & Door sizes for both Plan & Side views.



Format:
Select Access Panel Size:
Specify a selection from the screen menu
Insertion point: (or R to Reference from):
Specify a point
Rotation angle: Specify an angle

Duct Break Symbol (Rectangular)
Draws a duct break symbol for rectangular duct.
The break line will extend past the specified points on the duct.
From the WS Duct Symbols toolbar, choose 
Format:
Pick first point of duct break: Specify a point
Pick second point of duct break: Specify a point

Duct Break Symbol (Circular)
Draws a duct break symbol for circular duct.
From the WS Duct Symbols toolbar, choose
Format:
Duct diameter <100>: Enter a value
Insertion point: Specify a point
Rotation angle: Specify an angle

Shadow
Draws a shadow symbol to indicated duct riser.
From the WS Duct Symbols toolbar, choose 
Pick first corner: Specify a point
Second corner (clockwise from 1st): Specify a point
Third corner (clockwise from 2nd): Specify a point
If the points selected are not selected in a clockwise direction the shadow will be drawn outside the points.

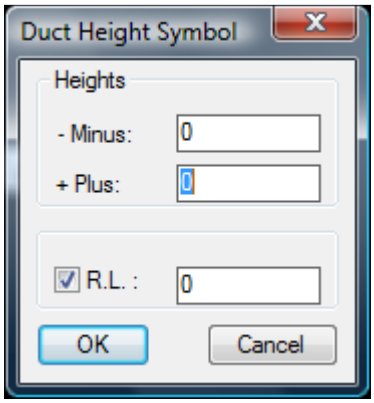
Height Symbols
The Height Symbols Toolbar is the seventh fly-out of the Workshop Services fly-out toolbar and draWS pulldown. The Height Symbols toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

- Duct
- Ceiling
- Sofit
- Slab
- Pipe
- Detach Toolbar

Duct Height Symbol

Draws a height symbol with optional R.L. value.

From the WS Height Symbols toolbar, choose  ,



Format:

Dialog Box Description

OK

Insertion point (or ENTER to Reference from):

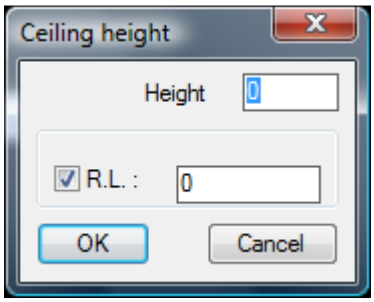
Specify a point

Specify an angle.

Ceiling Height Symbol

Draws a height symbol with optional R.L. value.

From the WS Height Symbols toolbar, choose  ,



Format:

Dialog Box Description

OK

Insertion point (or ENTER to Reference from):

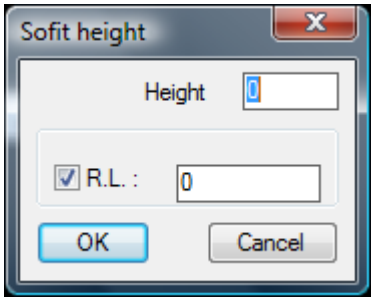
Specify a point

Specify an angle.

Sofit Height Symbol

Draws a height symbol with optional R.L. value.

From the WS Height Symbols toolbar, choose 



Format:

Dialog Box Description

OK

Insertion point (or ENTER to Reference from):

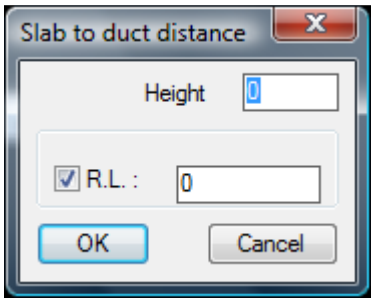
Specify a point

Specify an angle.

Slab Height Symbol

Draws a height symbol with optional R.L. value.

From the WS Height Symbols toolbar, choose  ,



Dialog Box Description

Insertion point (or ENTER to Reference from):

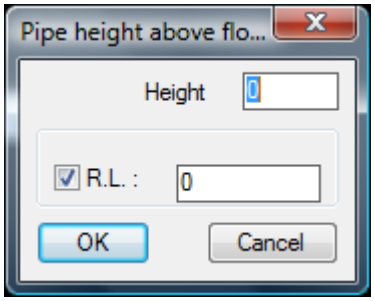
Specify a point

Specify an angle.

Pipe Height Symbol

Draws a height symbol with optional R.L. value.

From the WS Height Symbols toolbar, choose  ,



Format:
Dialog Box Description
OK
Insertion point (or ENTER to Reference from):
Specify a point
Specify an angle.

Double Line Piping

The Double Line Piping Toolbar is the ninth fly-out of the Melbourne Shop Services fly-out toolbar and draWS pulldown. The Double Line Piping toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

- Double Line Pipe
- Double Line Pipe Bend
- Double Line Pipe Up
- Double Line Pipe Down
- Double Line Pipe Break
- Gate Valve (Plan)
- Gate Valve (Elev)
- Globe Valve (Plan)
- Globe Valve (Elev)
- Butterfly Valve (Plan)
- Butterfly Valve (Elev)
- Strainer Valve (Plan)
- Strainer Valves (Elev)
- Anti-Vibration Valve
- Detach Toolbar

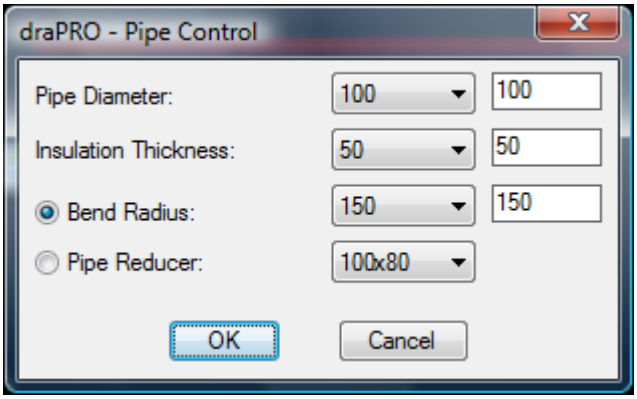
Double Line Pipe

Draws double line pipe with optional insulation.

From the WS Double Line Piping toolbar, choose 

Command: Pipe diameter= 100 Insulation thickness= 50 Bend Radius= 150
[Defaults/]<Draw pipe From point>: Specify a point, or D for Pipe Defaults Dialog, or
R for reference point
- R (reference point option from any "To point")
Reference point: Specify a point to reference from
Enter relative/polar coordinates (with @): Enter relative offset value
To point: Specify a point, or R
To point: Specify a point, R, or {RETURN} when done

To edit pipe sizes:
[Defaults/]<Draw pipe From point>: D (Enter D for Pipe Defaults Dialog)
Format:



Dialog Box Description
See Customising Pipe Valves on how to add new valve sizes.

Double Line Pipe Bend
Constructs a bend at the juncture of two pipes.
From the WS Double Line Piping toolbar, choose
Select Pipes…
Crossing window - Inside corner: Specify a point on the inside of the two pipes so the crossing window will cross both ends of the pipe.
Pick outside corner: Specify a point on the outside of both pipes.
Select or Enter Bend Radius….
Bends will only be drawn when pipes of the same diameter and insulation thickness are selected.

Double Line Pipe Up
Constructs a pipe up bend for a double line pipe
From the WS Double Line Piping toolbar, choose
Select pipe...
Crossing window: Specify the first point of the crossing window which will enclose the end of the pipe
Other corner: Specify the other point of the crossing window so the end of the pipe is inside the window

Double Line Pipe Down
Constructs a pipe down bend for a double line pipe
From the WS Double Line Piping toolbar, choose
Select pipe...
Crossing window: Specify the first point of the crossing window which will enclose the end of the pipe
Other corner: Specify the other point of the crossing window so the end of the pipe is inside the window

Double Line Pipe Break

Breaks double line pipe crossing over the top, or underneath another double line pipe, of any diameter.

From the WS Double Line Piping toolbar, choose 

Select TOP pipe: Use an object selection method to select the centre line of the pipe which will not be broken

Select BOTTOM pipe: Use an object selection method to select the centre line of the pipe which will be broken

Note: When selecting the centre line of the pipe be sure to make your selection on the line, not the gaps.

Pipe Valves (Plan)

Draws a plan view of a valve on double line pipe, breaking the pipe automatically.

From the WS Double Line Piping toolbar, choose  , or  , or  , or  , or 

Pick insertion point for valve: (or R to Reference from):

Use an object selection method to select the position on the double line pipe centre line. If the reference from option is used, the resulting relative offset must also be on the pipe centre line.

If a valve for the selected pipe (the diameter is determined from information on the centre line of the pipe) is not found the following message is displayed.

There is no valve available for the pipe diameter selected.

See Customising Pipe Valves on how to add new valve sizes.

Pipe Valves (Elev)

Draws a elevation view of a valve on double line pipe, breaking the pipe automatically.

From the WS Double Line Piping toolbar, choose  , or  , or  , or 

Pick insertion point for valve: (or R to Reference from):

Use an object selection method to select the position on the double line pipe centre line. If the reference from option is used, the resulting relative offset must also be on the pipe centre line.

Rotation angle: Specify an angle

If a valve for the selected pipe (the diameter is determined from information on the centre line of the pipe) is not found the following message is displayed.

There is no valve available for the pipe diameter selected.

See Customising Pipe Valves on how to add new valve sizes.

Valves

The Valves Toolbar is the tenth fly-out of the Workshop Services fly-out toolbar and draWS pulldown. The Valves toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

- Gate
- Globe
- Check
- Stop
- Butterfly
- Motor 3-way
- Motor 2-way
- Anti-Vibration
- Strainer
- T'stat Pocket
- Pressure Gauge
- Temperature Gauge
- Vent
- Drain
- Pressure Relief
- Stat
- Reducer
- Flow Direction
- Sight Glass
- TX
- Relief

Pipe Valves

Draws a pipe valve symbol (schematic), automatically breaking into the line.

From the WS Valves toolbar, choose  , or  , or  , or  , or  , or  , or  , or  , or  , or 

Format:

Pick point for valve: select a point on the pipe (line) or select a point on the screen.

Pipe Valve Symbols

Draws a pipe valve symbol (schematic).

From the WS Valves toolbar, choose  , or  , or  , or  , or  , or  , or  , or  , or 

Format:

Insertion point: (or R to Reference from):

Specify a point

Rotation angle: Specify an angle

Schematics

The Schematics Toolbar is the eleventh fly-out of the Workshop Services fly-out toolbar and draWS pulldown. The Schematices toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

- Heating Hot Water
- Chilled Water
- Condenser Water
- Refrigerant Pipe
- Condensate Drain
- Line Break
- Pipe Dia Text
- Fillet
- Break
- Up
- Down
- Blocked End
- Flow Direction
- Recip Chiller
- Centrif Chiller
- Cooling Tower Cell 1
- Cooling Tower Cell 2
- Coil Type 1
- Coil Type 2
- Pump Type 1
- Pump Type 2
- Pump Type 3
- Boiler
- Expansion Tank

Single Line Pipe

Draws a single line pipe filleting the bends. Each pipe service is automatically drawn on a specify service layer.

From the WS Piping toolbar, choose 

, or 

, or 

, or 

, or 

.

Format:

Point (or R to Reference from):Specify a point

Point (or R to Reference from):Specify a point, or press {RETURN}

The linetype and colour (layer) of the pipe can be changed by editing the tablet menu 4 area specific to the pipe you want changed.

Break Line

Breaks pipe under two inserting Pipe Runs

From the WS Piping toolbar, choose 

Format:

Current settings: Break Distance = 6.0000

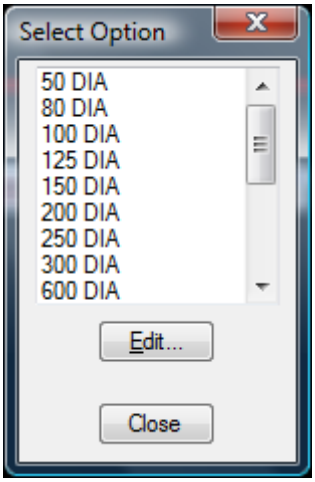
[Breakdistance]<Pick line to break over>: Select pipe to break over or B to change Break Distance.

Select objects: Select pipe to Break.

Pipe Diameter Text.

Draws Pipe Diameter Text.

From the WS Piping toolbar, choose 

Format: 

Select Pipe Diameter Text: Specify a selection from the screen menu

Insertion point: (or R to Reference from) Specify a point

Rotation angle: Specify an angle

Pipe Bend

Draws a pipe bend at the same radius as is drawn by the single line pipe functions.

From the WS Piping toolbar, choose 

Format:

Polyline/Radius/Trim/<Select first object>:)

Use an object selection method

Select second object:

Use an object selection method

Pipe Break

Draws a pipe break symbol (schematic).

From the WS Piping toolbar, choose 

Format:

Insertion point:(or R to Reference from): Specify a point

Rotation angle: Specify an angle

Pipe Up

Draws a pipe symbol indicating a pipe change of direction, up.

From the WS Piping toolbar, choose 

Format:

Insertion point:(or R to Reference from): Specify a point

Rotation angle: Specify an angle

Pipe Down

Draws a pipe symbol indicating a pipe change of direction, down.

From the WS Piping toolbar, choose 

Format:

Insertion point:(or R to Reference from): Specify a point

Rotation angle: Specify an angle

Blanked End

Draws a pipe symbol indicating a Blocked or Blanked off end

From the WS Piping toolbar, choose 

Format:

Insertion point:(or R to Reference from): Specify a point

Rotation angle: Specify an angle

Flow Direction

Draws a pipe symbol indicating a Flow Direction

From the WS Piping toolbar, choose

Format:

Insertion point:(or R to Reference from): Specify a point

Rotation angle: Specify an angle

Schematic Examples

Inserts an example of a schematic diagram for different equipment.

From the WS Schematics toolbar, choose , or , or , or , or , or , or , or , or , or , or

Format:

Insertion point:(or R to Reference from): Specify a point

Rotation angle: Specify an angle

These schematic examples can easily be edited to suit your own requirements by -

1. Insert the schematic.
2. Using the LIST command display the name of the block.
3. Explode the schematic block and modify where necessary.
4. Using the WBLOCK command redefine the block, making sure you overwrite the exiting one, by default installed in the drapro\block directory.

Or

Using the OPEN command open the required block (drawing file).

Scheduling

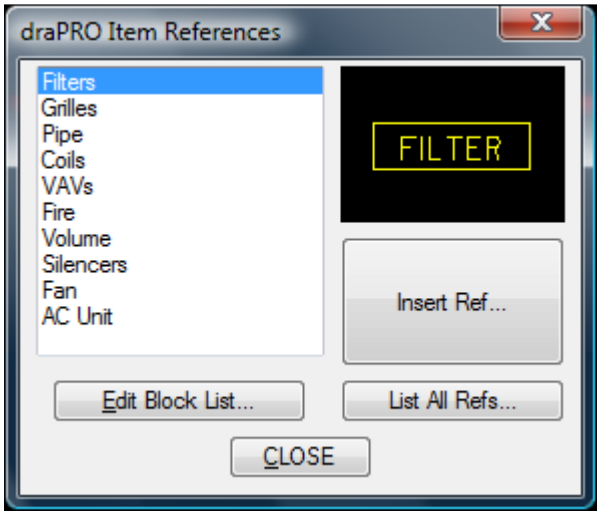
The Scheduling Toolbar is the twelfth fly-out of the Workshop Services fly-out toolbar and draWS pulldown. The Scheduling toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

- Item References
- Schedule Items
- Re-Schedule Items

Item References

Inserts an item reference which can be used to schedule equipment.

From the WS Schedule toolbar, choose



Format:

Dialog Box Description

See CUSTOMISING ITEM REFERENCES for details on creating customised item references.

See also SCHEDULING EQUIPMENT OVERVIEW

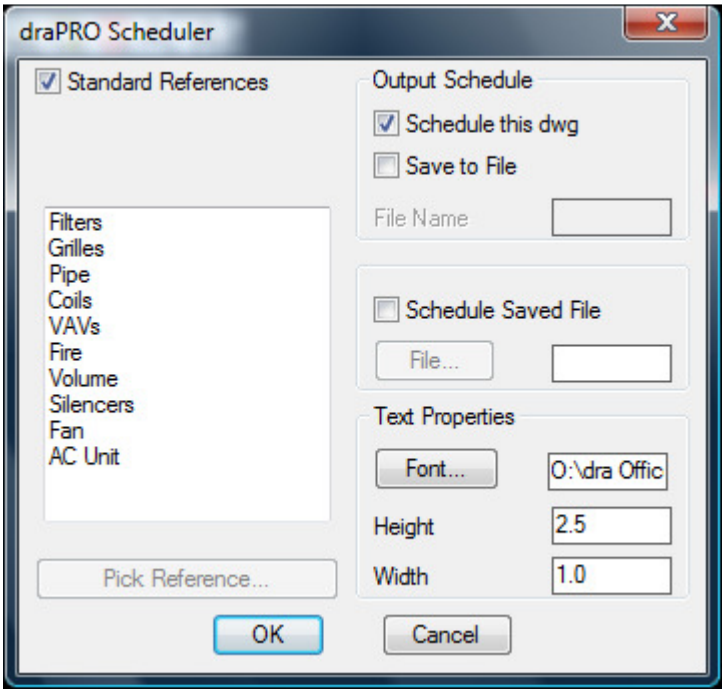
Schedule Items

The draPRO schedule program tabulates items referenced in a drawing.

Items are counted and sorted according to the value entered in the item reference as an attribute.

Items will only be scheduled if the database used has an entry which matches the value entered into the item reference.

From the WS Schedule toolbar, choose 

Format: 

OK button

Choose OK when you have finished specifying values in the dialog box. You will then be prompted for a point for the placement of the schedule. The point specified is located at the top left hand corner of the schedule table.

TO SCHEDULE A STANDARD ITEM REFERENCE

The following steps are required to create a schedule onto the current drawing.

1. Select the item reference to schedule in the Standard References list box.
2. The Schedule this dwg toggle is on.
3. Choose OK.
4. Specify a point for the location of the schedule table.

See also SCHEDULING EQUIPMENT OVERVIEW

Re-Schedule Items

If you have added, or removed any item references you can have draPRO re-schedule an existing schedule on the drawing.

From the WS Schedule toolbar, choose 

Format:

draPRO has found a different number of "item ref" references than has been scheduled.

Re-schedule (Yes No)<Yes>: Enter n or press {RETURN}

The schedule table for the item reference will be erased and updated in the same position.

The schedule table can be moved anywhere in the drawing, draPRO will update it in its present position.

See also SCHEDULING EQUIPMENT OVERVIEW

Miscellaneous Symbols

The Miscellaneous Symbols Toolbar is the thirteenth fly-out of the Workshop Services fly-out toolbar and draWS pulldown. The Miscellaneous Symbols toolbar/pulldown contains this list of draPRO2010 commands. (Shown Below)

- W.C.
- W.C.
- Signal Urinal
- Basin
- Sink
- Tundish
- Floor Waste
- Ceiling Mounted Sprinkler
- Concealed Sprinkler
- Ceiling Mounted Thermal
- Concealed Thermal
- T'Bar Light
- Plaster Board Light
- Switch Board

Service Symbols

Inserts a service symbol at a specified angle.

From the WS Miscellaneous Symbols toolbar, choose  , or  , or  , or  , or 

Format:

Insertion point:(or R to Reference from):

Specify a point

Rotation angle: Specify an angle

Service Light Symbols
Inserts a light symbol.
From the WS Miscellaneous Symbols toolbar, choose  , or  , then choose a size from the dialog box.
Format:
From the screen menu select a light size.
Insertion point:(or R to Reference from): Specify a point
Rotation angle: Specify an angle

Service Switchboard
Inserts a switch board symbol symbol at variable sizes.
From the WS Miscellaneous Symbols toolbar, choose 
Format:
Switch board length <600.00>: Enter a value or press {RETURN}
Switch board width <250.00>: Enter a value or press {RETURN}
Insertion point:(or R to Reference from): Specify a point
Rotation angle: Specify an angle

Customising draPRO

- Layers
- Drawing Objects Bycolor/Byltype Support
- Customising Pipe Valves
- Item References
- Equipment Library

Layer Customisation
Layer Structure
Every object created by draPRO is created by default, 'bylayer'. See Drawing Objects Bycolor/Byltype Support if you want to draw draPRO features "bycolor" and "byltype". Each object drawn in draPRO is placed on a layer which determines the objects layer. The layer names draPRO by default uses is 10 characters in length.
Eg. DUCTTXT2CO
The layer name structure is as follows:
- first 4 characters
This is the main layer group eg. DUCT
- next 3 characters
This is the secondary layer group eg. TXT
- next 1 character
This is the line size group eg. 2
- next 2 characters

This is the linetype group eg. CO

If you want to use draPRO's automatic layer creation and setting facility the layer structure must be maintained. If you want to use your own layer, structure this can also be done.

Customising DraPRO's Layer Names

Layer Definition File Name

Each layer used by draPRO is defined in the layer definition file. Each draPRO service module has its own definition file which defines the layer for that particular service. The layer definition file is an ascii file and has file type extension of .ini. You can also have a different layer definition for each client code (refer to printed manual). The default layer definition files for each service are

drastdmd.ini - Mechanical design
drastdws.ini - Workshop services
drastdsm.ini – Melbourne Workshop services
drastdes.ini - Electrical services
drastdhs.ini - Hydraulic services
drastdfs.ini - Fire services

The 'std' portion of the name is the client code and should match the client code used to create a new drawing. You will locate these files in the root directory of each service for draPRO, and to modify them use a text editor. eg. Notepad. Experienced users should only attempt to modify these files, as a corrupted layer definition file will cause errors in draPRO.

Layer Definition File Structure

Refer to The Layer Definition File Format for an additional explanation of this files format.

You MUST ensure no tabs are used to edit the file.

There are essentially two columns of data in the file -

MDAR01=ARCH;CGD;R;CO

- Definition code

First six characters. Starts in column 1 and ends in column 6. This is the code or alias that dra uses to determine the layer name, colour, or linetype. You MUST not delete any existing lines. You may however add new lines to any section.

- Layer code

This field starts after the = sign and can be any length, however the standard layer code is only 10 characters long. You can edit any layer code to your requirements. You MUST ensure each entry in the file begins in the first column.

Layer Definition File Sections

;*** GLOBAL VARIABLES **********

This section sets default variables for dra functions.

BYCL=0 >feature creation mode. Set to 0 all objects are drawn bylayer, 1 enable bycolor/byltype mode

DSZ=2.5 > duct WxD text height

SDTX=2.5 > text height used in some blocks
SDLN=2300 > default duct length
TDLN=1100 > transition duct length
RANG=0.00 > duct run angle
DWID=1000 > duct width
DDEP=500 > duct depth
THT1=200 > square bend throat size
THT2=200 > square bend throat size
ITHK=25 > duct insulation thickness
BANG=90.00 > radius bend angle
RBRD=0.75 > default radius bend radius (% of air on duct width value)
LBLK=AX > leader block name
ITYP=INS-4 > duct insulation type

;**** KEYBOARD LAYERS *****
This section defines the layer to be set by selecting one of the number keys on the keyboard. Defaults are shown on the keyboard template.
MDKL01=ARCH;___;2;CO
MDKL02=ARCH;BGD;R;CT
MDKL03=ARCH;CGD;R;CO
MDKL04=DUCT;___;5;CO
Example:
Whenever you press the 1 key on the keyboard and press {RETURN} the layer wil
be set to ARCH___2CO.
;**** ARCHITECTURAL LAYERS *****
This section defines the layers used by dra whenever an architectural feature is drawn.
MDAR01=ARCH;CGD;R;CO
MDAR02=ARCH;BGD;R;CT
MDAR03=ARCH;BGD;3;CO
Example:
When dra is called to draw an object on MDAR03 the layer ARCHBGD3CO is created (if not present), or set.
- the ARCHBGD is the main and secondary codes, these in no way determine the colour or linetype of the layer.
- the 3CO creates a layer with the colour designated by line size group code 3 (default is yellow), and the linetype designated by the linetype group code CO (default continuous).

All the rest of the section follow this format, and define layers for different objects drawn by dra.

* Creating a Different Layer Structure

To create your own layer structure you must still use the Layer Definition File as it is this file which defines what layer to set for all draPRO functions. It is important you don't delete any of the Definition codes in the first 4 columns. If you wish you can use your own layer structure, and by this it is meant your layer names don't conform to the main, secondary, size, linetype 10 character layer names. The following steps are necessary.

1. Beside each Definition Code specify your preferred layer name. The length of the name is limited only by AutoCAD.
2. For each new layer name you specify you must add it along with its colour and linetype to the dra.dwg prototype drawing. This is necessary because your layer name won't define colour and linetype so draPRO will not create it, however if draPRO on searching the layer list finds the layer name it has been instructed to set it will set it as the current layer.

Example:
MDDU04=DUCTOUTLINE
MDDU08=FLEX
MDRE01=EQUIPMENT-REFS

* Setting Layers for draPRO Functions

Although many dra functions set layers automatically within the function, many are passed the layer Definition Code from the menu.

Eg.

[T4-S28^C^C(if (not drablkr)(load "drablkr"))(DRABLKR "DRASWC1" "MDWS05")

This line is found in the drapromd.mnu tablet area 4. The section of lisp within the 'if' statement loads the dra function if its not already loaded.

The last portion of the menu item is where the layer gets set.

(DRABLKR "DRASWC1" "MDWS05")

"MDWS05" is the Definition Code specified in the Layer Definition file for dra-md, and will create/set the layer SYMB___RCO before the function inserts, in this example a W.C. symbol.

So by specifying new codes in the Layer Definition file you can have functions use your new layer names.

To see where layers get used refer to Standard Layer Mapping

Drawing Objects Bycolor/Byltype Support.

Features drawn by draPRO can be drawn "bycolor" and "byltype" instead of "bylayer". The mode that draPRO will use to draw with is controlled by the BYCL variable set in the layer definition file, eg drastdmd.txt. If you wish to draw bycolor/byltype you will also need to edit the layer definition file to tell draPRO what colours and linetypes you want to use when drawing draPRO features.

.Global variable BYCL must be the first variable in the file to be read.

BYCL=0 all objects are drawn bylayer

BYCL=1 objects specifying the layer code are drawn on the layer specified, and drawn by the color and linetype specified.

Layer syntax for bycolor/byltype support:

MDDU09=DUCT;___;5;CO;25;CONTINUOUS

The layer code "MDDU09" tells dra what layer to set (make).

The layer name "DUCT;___;5;CO is what layer is set, (made, according to line colour & linetypes in the layer definition file).

The colour "25" tells dra what color to set (bycolor).

The linetype "CONTINUOUS" tells dra what linetype to set (byltype).
IMPORTANT: If you wish to specify drawing bycolor/byltype you must specify two additional values for the layer designation, if color or linetype is to be bylayer specify "BYLAYER".
e.g. MDDU09=DUCT;___;5;CO;33;BYLAYER
Block layers, colours and linetypes will be unaffected, and will have to be edited by you if you require their properties to be bycolor or byltype.

Example Layer Definition File

Below is a sample portion of a layer definition file which includes support for bycolor/byltype feature creation.

Features drawn "bylayer"

```
;**** GRILLE LAYERS ************
MDGR01=GRIL;___;R;CO
MDGR02=GRIL;___;2;CO
MDGR03=GRIL;___;3;CO
MDGR04=GRIL;___;5;CO
MDGR05=GRIL;___;3;HD
```

Features drawn "bycolor/byltype"

```
;**** GRILLE LAYERS ************
MDGR01=GRIL;___;2;CO;1;CONTINUOUS
MDGR02=GRIL;___;2;CO;BYLAYER;BYLAYER
MDGR03=GRIL;___;2;CO;2;CONTINUOUS
MDGR04=GRIL;___;2;CO;4;CONTINUOUS
MDGR05=GRIL;___;2;CO;2;HIDDEN
```

The bycolor/byltype system will allow you to create features of the same type on minimal layers, as in the above example, all the grilles are drawn on the layer GRIL___2CO.

Customising Pipe Valves

Additional valve sizes can quickly be added to the range supplied.
Each VALVE is a block.
Its name is made up of the following a four character code e.g. GATE,
the diameter (up to three char) e.g. 100 & the orientation e.g. E (elevation view), or P (plan view)
For Example GATE100E.dwg
To add a new plan view of a gate valve of 300 diameter

1. Draw new valve plan view to correct dimensions
2. Create a block of the valve with a name of GATE300P, its insertion point being in the centre of the block.
3. Wblock the block GATE300P to draPRO's block directory
4. Add the new size and its break length to the gate valve ini file, dravgate.ini.

Each type of valve has an ini file which tells draPRO the dimension to break out of the pipe.
The file names are:
dravgate.ini = Gate valves
dravglob.ini = Globe valves

dravbfly.ini = Butterfly valves
dravstrn.ini = Strainers
dravauto.ini = Anti vibration

Customising Item References

The blocks used for item references can be customised and used with the scheduling program.

Item reference blocks must have -

- a unit size, i.e. the block is drawn 1:1 so when it is inserted using the Item Reference dialog box it is scaled correctly to the scale of the drawing.
- attributes. The tag names can be any name you choose. No – (dash) in the name. The schedule will be sorted based on the first attribute in the block.

You can create a slide to be displayed when you select the new item reference in the dialog box. Use the MSLIDE command to create a slide with the same name as the item reference block. Eg the block name may be 'thingy.dwg', the slide should be named 'thingy.sld'. The slide file should be saved to the \dra14\ws directory.

The block, if created in the current drawing, will only be valid for the current drawing. Make a WBLOCK of the item reference block and save it to the \dra14\ws\block directory.

See ITEM REFERENCES for details on inserting references to be used in conjunction with the scheduling commands.

Equipment Library Customisation

Create new equipment (block) library files.

The equipment library requires the following:

1. Wblocks (.dwg files)
2. Slides (.sld files, or a .slb file)
3. Equipment library definition file (.blk file)

* WBLOCKS

The blocks to be inserted using the equipment library dialog box must be on the AutoCAD path, or the currently logged directory.

Example: chiller.dwg

* SLIDES

Slides are optional, however it is must be said, a picture is worth a thousand words.

Slides of the blocks they relate to must have the same name as the block.

Example: chiller.sld

The slide files must be either in the currently logged directory, or in the directory set by the LIBPATH variable, set in the dramd.ini file.

Slides can also be grouped into a library (.slb) file. If this is done the slide library file must be the same name as the equipment library definition file. Slide libraries can be made using AutoCAD's SLIDELIB.EXE file normally found in AutoCAD's support directory.

If a slide library is to be used, the individual slides are not needed for the equipment library function, however you may wish to retain them if you want to remake the slide lib with new slides. A very good slide manager program is SLDMGR. This program will allow you to delete,

and add new slides at any time, whereas the AutoCAD slidelib function will only allow the creation of the slide library.

The equipment library function will look for a .sld file for the block, if this is not found it will then search for a .slb of the same name as your equipment library, if neither is found no slide is displayed, but you will see the name of the block below the blank image tile in the dialog box.

* EQUIPMENT DEFINITION FILE

This file is a text (ascii) file with .blk extension.

Example: MYBLOCKS.BLK

It contains a list of blocks you wish to be in the equipment library. draPRO will look for these files in the directory the LIBPATH variable is set to first, however you may put them in any directory. You can create this file using any text editor, such as the DOS EDIT command, or if you use Windows, NOTEPAD.

An example of the contents of the file are as follows:

CHILLER
PUMP1
PUMP2
CTOWER

The only rules for the file format are

1. Only one block name to a line
2. The block name must start in the left most column

The block names are not case sensitive.

So to conclude, create wblocks, then create slides, then create a definition file.

Example:

Wblocks - chiller.dwg, pump1.dwg, pump2.dwg, ctower.dwg
Slides - chiller.sld, pump1.sld, pump2.sld, ctower.sld (optional)
Slide library - myblocks.slb (optional)
Definition file - myblocks.blk