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# Air to Air Heat Exchanger Selection Tool Operating Instructions



E13-911

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## 1 Overview

The "Air to Air Heat Exchanger Selection Tool" is a tool for selection of total heat exchanger units for a required amount of ventilation, and for calculation of the amount of heat recovered and the investment recovery period. By registering the required input information, calculations are performed automatically, and graphs and forms can be created.

## 2 System requirements

The following shows the ideal system requirements for this software:

Item	Necessary environment
Operating System	Windows XP with SP3 or later, Windows Vista, Windows 7, Windows 8
Office System	Office 2003, 2007, 2010, 2013

The following runtime libraries are installed before beginning installation of the settings file creation software.

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## 3 Features of Air to Air Heat Exchanger Selection Tool

## 3-1 Select a Total Heat Exchanger Unit

Total heat exchanger unit settings are set on the basis of the required amount of ventilation; the Supply air (SA) value is calculated by setting the Outdoor air (OA)/Return air (RA) values.

Air to Air Heat Exchanger Selection Tool											
File Window Help											
Selection Psychrometric Chart Option											
Frequency 50Hz 220V  Total supply air 1234 m3/h											
Selected Models											
Select model				Heat	t exchange efficiency	69.1 %					
VN-M1000HE x	1Units	, "Extra hi	gh"	- Enth	alpy exchange efficienc	y 55.2 %	Caluculati	on			
			-	Sour	nd level	39.5 dB					
Return ai	r (RA	)		RA		Exhaust ai	r (EA)				
Dry bulb temperatur	e 28	3.0 C	6			Dry bulb temperature	32.5	С			
Relative humidity	20	0.0 %				Relative humidity	30.6	%			
Absolute humidity	Absolute humidity 4.7 g/kg					Absolute humidity	9.3	g/kg			
Enthalpy	4	0.1 kJ/kg				Enthalpy	56.6	kJ/kg			
			-		EA						
Supply ai	r (SA	)			<b>`OA</b>	Outdoor ai	r (OA)				
		Air to Air	Sensible heat	Conventional	] [	Dry bulb temperature	34.5	С			
Dry hulb temperature	6	30.0	exchanger 30.0	ger Ventilator -		Relative humidity	40.0	%			
Relative humidity	%	34.4	51.5	40.0	-	Absolute humidity	13.7	g/kg			
Absolute humidity	g/kg	9.1	13.7	13.7		Enthalpy	69.9	kJ/kg			
Enthalpy	kJ/kg	53.5	65.3	69.9		External static pressure	0	Pa			
Total heat recovered	kW	7.3	2.0	0.0	Tplot Heater						
Outdoor air load	kW	5.9	11.1	13.1		[Outdoor air (OA)]	raturo 2	45 C			
Outdoor air load ratio	%	44.8	84.5	100.0		[Supply air (SA)]	ature 3	1.5 C			
Real air volume	m3/h	1,321	-	-		Dry bulb temper	rature 3	4.5 C			

Fig. 3-1 Selection tab screen

## 3-2 Confirm Using a Psychrometric Chart

Outdoor air (OA)/Return air (RA)/Exhaust air (EA)/Supply air (SA) are displayed on psychrometric chart.

ir to Air Heat Exchanger	Selection	Tool				
e Window Help						
🔚   🚔 🔍   📑 🔅						
ection Psychrometric C	Chart Op	tion				
						100/00/20/20/50/50/
Point	OA .	RA	EA	SA	20.4	
ry build temperature(C)	34.5	28.0	32.5	30.0	28.1	
elative humiditr((r))	23.5	14.4	19.9	18.9	25.5	
brolute humidity(%)RH	40.0	20.0	30.0	34.4	81.4	
ew point temperature(C)	10.0	7./	12.0	12.7	24.6	40
(ater vanor pressure(Pa)	2 180 62	756.44	1 409 59	1 463 07	3 000 64	
egree of saturation(%)	2,109.02	10.44	20.6	33.5	3,090.04	
necific volume $(m_3/k_{RD} A)$	0.872	0.853	0.866	0.859	0.853	
pecific enthalov(k1/kgD_A_)	60.04	40.11	56 58	53.47	78.18	
peene energy(ks/kgb.k./	05.54	40.11	50.50	55.47	70.20	30
iscomfort index(DI)	82.2	71.7	78.1	75.9	80.0	
					/	
					_//	
					///	20 1
				/	//	
				_//		Odtgoor Air Load
				///	///	Héat Recovery
				///		
		1	$\langle \rangle \rangle$	/	$\sim$	10
		X	$\sim$	>		$\times$
						8
						Relative humidity(%)RH
5.0 0.0	5.0	10.0	15.	0 20	).0 2	5.0 30.0 35.0 40.0 45.0 50.

Fig. 3-2 Psychrometric chart tab screen

## 3-3 Set Models, Display Units, Other Settings

Models, display units, prices, and other settings are set; the settings are reflected in the different screens.

🗉 Air to Air Heat Exchanger Selection Tool											
File Window H	File Window Help										
Language	Language Fan Speed										
English 🔹	🔽 Extra high 🛛 🛛	High 👿 Low									
	Madala				-						
Units	Models		Sensible heat	Conventional							
[Tempurature]	model	Air to Air	exchanger	ventilator							
C	VN-M150HE	0	0	0							
© F	VN-M250HE	0	0	0							
[Air flow]	VN-M350HE	0	0	0							
© m3/h	VN-M500HE	0	0	0							
CFM	VN-M650HE	0	0	0							
[Entholoy]	VN-M800HE	0	0	0							
	VN-M1000HE	0	0	0							
o kJ/kg o btu/lb	VN-M1500HE	0	0	0							
0 bta/ib	VN-M2000HE	1000	850	1000							
			Default price(%)	Default price(%)							
			☑ 85	100							
	Currency symbol \$										
	1										

Fig. 3-3 Option tab screen

## 3-4 Set Necessary Data for Calculations

The necessary data to calculate the amount of heat recovered and the investment recovery period is set.

	Calculation Setting									
[C	[Conditions]									
	Indoor	Heating	Cooling							
	Dry bulb temperature	15.0	28.0	С						
	Relative humidity	0.0	20.0	%						
	Outdoor									
	Dry bulb temperature	0.0	34.5	С						
	Relative humidity	0.0	40.0	%						
[0	peration Time]									
	hour/day	0	0	h						
	day/month	0	0	day						
	month/year	0	0	month						
[C	ost, COP]									
	Energy cost	0.01	0.01	Price/kWh						
	COP	1.5	1.5	kW/kW						
	ОК									

Fig. 3-4 Calculation settings screen

## 3-5 Check Version Information

Upon clicking About on the Help menu, the version of this software is displayed.

II Air to Air Heat Exchanger Selection Tool								
File	Window	Help						
i 🗅   🚍	🖨 🔍   I	Ab	out					
Selection Psychrometric Chart Option				L				

Fig. 3-5 Menu (version information)



Fig. 3-6 Version information screen

## 4 Using the Air to Air Heat Exchanger Selection Tool

#### 4-1 Starting and Exiting the Air to Air Heat Exchanger Selection Tool

4-1-1 Start the Air to Air Heat Exchanger Selection Tool

There are two methods for starting the Air to Air Heat Exchanger Selection Tool: from the desktop icon, and from the Windows menu.

- (1) Start the Air to Air Heat Exchanger Selection Tool.
- From the desktop icon

Double-click the desktop icon.



#### Fig. 4-1 Air to Air Heat Exchanger Selection Tool icon

• From the Windows menu

From the Start menu select All programs  $\rightarrow$  Toshiba  $\rightarrow$  Air to Air Heat Exchanger Selection Tool  $\rightarrow$  Air to Air Heat Exchanger Selection Tool.

(2) Startup of the Air to Air Heat Exchanger Selection Tool is completed.

Upon starting the Air to Air Heat Exchanger Selection Tool, either from the desktop icon or from the Windows menu, the Selection tab screen is displayed, and thereafter, various functions can be used.



Fig. 4-2 Selection tab screen

#### 4-1-2 Exit the Air to Air Heat Exchanger Selection Tool

To exit the Air to Air Heat Exchanger Selection Tool, click the Close button, the Exit button, or the Exit menu item.

Image: Air to Air Heat Exchanger Selection Tool         File       Window       Help         Click the Close								
			Fig. 41 Close	button				
💷 Air to	o Air Heat Exc	hanger Selection To	ol			- • •		
<u>F</u> ile	<u>W</u> indow	<u>H</u> elp						

The Window Telp	
	Click the button
Selection Psychrometric C suit Option	
Frequency 50Hz 220V - Tota	al supply air 0 m3/h

#### Fig. 42 Exit button

💷 A	Air to Air Heat Exchanger Selection Tool										
File	e Window	Help									
	New	» 🖪 📕									
	Open	ric Chart Option									
	Save	V TO	Total supply air 0 m3/h								
	Save As				Heat exchange efficiency	0.0	) %	1			
	Output		-		Enthalpy exchange efficiency	0.0	) %	0	Caluculation		
					Sound level	0.	) dB				
Ł	Exit	(RA)		RA		Exh	aust	t aiı	r (EA)		

Fig. 43 Exit menu item

## 4-2 Before Selecting a Total Heat Exchanger Unit

Before selecting a total heat exchanger unit, settings for total heat exchanger unit models, display units in the Tool, and other settings are made on the Option tab screen.

Items which can be set are Language, Units, Fan speed, Models, and Price.

💵 Air to Air Heat Exchanger Selection Tool											
File Window H	lelp										
: 🗅 🔚 🚔 🔍 📫 🖄											
Selection Psychrometric Chart Option											
Language	Fan Speed										
Extra high V High V Low											
Units Models											
[Tempurature]	model	Air to Air	Sensible heat exchanger	Conventional ventilator							
© C	VN-M150HE	0	0	0							
© F	VN-M250HE	0	0	0							
[Air flow]	VN-M350HE	0	0	0							
m3/h	VN-M500HE	0	0	0							
CFM	VN-M650HE	0	0	0							
[Enthalov]	VN-M800HE	0	0	0							
@ k1/kg	VN-M1000HE	2000	1090	1800							
© btu/lb	VN-M1300HE	1000	990	980							
		1000	Default price(%)	Default price(%)							
	Currency symbol ¥		V 99								

Fig. 4-6 Option tab screen

#### 4-2-1 Units Settings

Units displayed on the different screens are set. Please refer to the following table for units of item that can be set.

Item	Ur	Initial value		
Temperature	°C	°F	°C	
Air flow	m <sup>3</sup> /h	CFM	m <sup>3</sup> /h	
Enthalpy	kJ/kg	BTU/lb	kJ/kg	

#### 4-2-2 Fan Speed Settings

Fan Speed for the total heat exchanger unit can be selected among Extra high, High, and Low. Only models with Fan Speed total heat exchanger unit selected are displayed in Select model on the Selection tab screen.

#### 4-2-3 Models Setting

Only selected models are displayed in Select model on the Selection tab screen. If ALL is selected, all models are selected in Select model on the Selection tab screen.

#### 4-2-4 Price Setting

Prices for each model and currency units are set. If Default Price is checked, price setting cannot be input. The price set for a model is a multiple of the Default Price.

#### 4-3 Select Total Heat Exchanger Unit

The following procedure is used to select total heat exchanger unit.

- (1) Select Frequency.
- (2) Set Total supply air.
- (3) Set Select model.
- (4) In Return air (RA), set the Dry bulb temperature and the Relative humidity.
- (5) In Outdoor air (OA), set the Dry bulb temperature, the Relative humidity, and the External static pressure.

However, the total heat exchanger units which can be selected change depending on the value set for the External static pressure.

(6) If heating settings appear, set the power for the heater.



Fig. 4-7 Selection tab screen

Operation switches between cooling and heating according to the relative magnitudes of the Return air (RA) and the Outdoor air (OA) Dry bulb temperatures.

· If Dry bulb temperature of Return air (RA) < Dry bulb temperature of Outdoor air (OA)

Return air (RA)			RA	Exhaust air	(EA)	
Dry bulb temperature	28.0	С		Dry bulb temperature	32.5	С
Relative humidity	55.0	%	SA CONTRACTOR	Relative humidity	50.6	%
Absolute humidity	13.0	g/kg		Absolute humidity	15.6	g/kg
Enthalpy	61.5	kJ/kg		Enthalpy	72.7	kJ/kg
Supply air (SA)			OA EA	Outdoor air	(OA)	

Fig. 4-8 Case of cooling

If Dry bulb temperature of Return air (RA)  $\geq$  Dry bulb temperature of Outdoor air (OA)



Fig. 4-9 Case of heating

The settings made on the Selection tab screen are reflected in the Psychrometric chart tab screen and Calculation Results forms. Upon clicking the Calculation button on the Selection tab screen, the Calculation Setting screen is displayed. When changing necessary data for calculations, please make changes using the Calculation screen.

Indoor	Heating	Cooling	
Dry bulb temperature	15.0	28.0	С
Relative humidity	0.0	20.0	%
Outdoor			
Dry bulb temperature	0.0	34.5	С
Relative humidity	0.0	40.0	%
peration Time]			
hour/day	0	0	h
day/month	0	0	day
month/year	0	0	month
ost, COP]			
Energy cost	0.01	0.01	Price/kWh
COP	1.5	1.5	kW/kW

Fig. 4-10 Calculation Setting screen



Fig. 4-11 Calculation Results form

The Calculation Setting screen can also be displayed using the Calculation Setting button, or from the Calculation Setting menu item.

💷 Air to /	Air Heat Excl	changer Selection Tool	- • ×
<u>F</u> ile	<u>W</u> indow	Help	
Selection	n Psychror	met Calculation Setting	
Freque	ncy 50Hz 2	220V  Total supply air 1000 m3/h	

#### Fig. 4-12 Calculation Setting button

💷 Air to	Air Heat Excl	hanger Selection Tool		x
File	Window	Help		
E 🗈	Calculation Setting			
Selection	cti Appearance		f	 
Frequ	ency 50Hz 2	20V 🔻 To	otal supply air 1000 m3/h	

#### Fig. 4-13 Calculation Setting menu item

## 4-4 Check Settings Using the Psychrometric Chart Tab Screen

The Outdoor air (OA), Return air (RA), Exhaust air (EA), and Supply air (SA) set on the Selection tab screen can be checked on the psychrometric chart. When the cursor is moved along the psychrometric chart, the numeric values of the Psychrometric Points at the cursor position are displayed (Data in the red rectangle.)

Air to Air Heat Exchanger Selection Tool									
Fil	e Window Hel	р							
: 🗅	🔚 🖨 🔍 🔩 🔅								
Sel	ection Psychrometric (	Chart	Ontion						
			option					40.0	
	Point	OA	RA	EA	SA		100 90 80 70 60 50	38.0	
	Dry bulb temperature(C)	4.5	28.0	11.6	24.9	28.0			
1	Wet bulb temperature(C)	1.3	21.2	10.6	15.2	21.3		36.0	
	Relative humidity(%)RH	54.3	55.0	88.7	34.9	55.1		34.0	
4	Absolute humidity(g/kgD.A.)	2.8	13.0	7.5	6.8	13.1	40		
	Dew point temperature(C)	-4.0	18.1	9.9	8.4	18.2		32.0	
1	Water vapor pressure(Pa)	457.49	2,080.21	1,213.24	1,097.65	2,087.94		30.0	
	Degree of saturation(%)	54.1	54.1	88.5	34.2	54.2		28.0	
1	Specific volume(m3/kgD.A.)	0.787	0.853	0.807	0.844	0.853		20.0	
	Specific enthalpy(kJ/kgD.A.)	11.61	61.45	30.71	42.35	61.60		26.0	
	Discourse in dev/DD	44.5	76.4	52.0	70.0	76 /	30	24.0	
	Discomort index(DI)	44.0	70.4	55.2	70.0	70.4		22.0 🔓	
								20.0 È	
								ipi	
								18.0 E	
-							ReturnAir (KA)	16.0 👮	
						/	Absolute humidity(g/kgD.A.) 13.0	₹ 14.0	
								-	
						///		12.0	
					Outdo	or Air Loa		10.0	
				4	$\square$	—	10		
		_		H	eat Recove	ry -		0.0	
		- [			$\sim$	>		6.0	
		4			$\sim$	~		4.0	
		_					Deleting human Station 11	2.0	
10			5.0	10.0	15.0	2	Relative numidity(%)KH	0.0	
-10.	-5.0 0.0		5.0	10.0	15.0	Dry bulb	0.0 25.0 50.0 55.0 40.0 45.0 50. temperature(C)	.0	

Fig. 4-14 Psychrometric chart tab screen

## 4-5 Save Selected Settings

To save the selected settings, click the Save button, the Save menu item, or the Save As menu item.

Air to Air Heat Exchanger Selection Tool	
<u>File W</u> indow <u>H</u> elp	
Selecti Save ychrometric Chart Option	
Frequency 50Hz 220V  Total supply air 1000 m3/h	



🔳 A	Air to Air Heat Exchan	ger Selection Tool			- • •
File	e Window	Help			
	New	🕸 🔳 📕			
1	Open	c Chart Option			
	Save	Total supply air	1000 m3/h		
	Save As		Heat exchange efficiency	69.7 %	
	Output	nits, "High" 🔹	Enthalpy exchange efficiency	61.7 % Ca	aluculation
	<b>5</b> .4		Sound level	29.5 dB	
	Exit	(RA)		Exhaust air	· (EA)
D	ry bulb temperature	28.0 C R/		Dry bulb temperature	11.6 C

#### Fig. 4-16 Save menu item

📃 Air to Air Heat Exch	anger Selection Tool			×
File Window	Help			
New	🕸   🔳 🕛			
🗁 Open	ic Chart Option			
B Save	Total supply air	1000 m3/h		
Save As		Heat exchange efficiency	69.7 %	
Output	nits, "High" 🔻	Enthalpy exchange efficiency	61.7 % Caluculation	
		Sound level	29.5 dB	
Exit	(RA)	(RA)		
Dry bulb temperatu	re 28.0 C		Dry bulb temperature 11.6 C	

Fig. 4-17 Save As menu item

When saving a new file, or when clicking the Save As menu item, a file save screen is displayed. Set the location for saving and the file name and save the file.

Save As	▶ Air to Air Heat Exchange ▶ ▼	✓ Search Air to Air Heat Exch	ang 🔎
Organize 🔻 New fol	lder	:== 🔻	0
Downloads     Ecent Places     Computer     Computer     Local Disk (Ct)	Name Output a2a.xml	Date modified 8/29/2013 6:26 PM 8/29/2013 6:36 PM	Type File folder XML Doct
shared (\\vboxsn			- F
File name: Save as type: Sett	ing File (*.xml)		<b>-</b>
) Hide Folders		Save Can	cel

Fig. 4-18 File save screen

When saving a setting file, a setting file saving confirmation dialog box is displayed. When the OK button is clicked, data is saved, overwriting any existing file, and the data input screen is displayed again. If the Cancel button is clicked, the data input screen is displayed again without saving data.



Fig. 4-19 File save screen

#### 4-6 Create a New File

To create a new file, click the New button or the New menu item.

	Air to Air Heat Ex	xchanger Selection Tool	- • ×
	<u>F</u> ile <u>W</u> indow	Help	
1	🗋 🔚 🖨 🔍	🗠 🔅 🛯 🗧	
3	e New Psychro	Click the button	
	Frequency 50Hz	220V  Total supply air 1000 m3/h	



💷 Air	to Air Heat Exchan	ger Selection Tool			
File	Window	Help			
	New	≫∣∎_			
1	Open	c Chart Option			
	Save	Total supply air	1000 m3/h		
	Save As		Heat exchange efficiency	69.7 %	
	Output	nits, "High"	Enthalpy exchange efficiency	61.7 % C	aluculation
			Sound level	29.5 dB	
	Exit	(RA)		Exhaust ai	r (EA)
Dry	bulb temperature	28.0 C RA		Dry bulb temperature	11.6 C

Fig. 4-21 New menu item

When creating a new file, a file creation confirmation dialog box is displayed. When the OK button is clicked, a new file is created.



Fig. 4-22 File creation confirmation dialog box

## 4-7 Select a File and Edit Existing Data

💷 Ai	ir to Air Heat Exchan	ger Selection Tool						x
File	e Window	Help						
	New	🕸   🔳 🔒						
	Open	c Chart Option						
	Save	Total supply air		0 m3/h				
	Save As			Heat exchange efficiency	0.0	%		
	Output	~	-	Enthalpy exchange efficiency	0.0	%	Caluculation	
	Evit			Sound level	0.0	dB		
	Lot	(KA)	D/	<b>,</b>	ExI	naust	air (EA)	_
Dr	y bulb temperature	5.0 C	N.		Dry bulb tem	peratu	re 5.0 C	

To select a file and edit existing data, click the Open menu item.

Fig. 4-23 Open menu item

Open	Air to Air Heat Exchange 🕨 👻 👫	arch Air to Air Heat Exchana 9
Organize   New folder	, ,	≣ ▼ 🗍 🔞
☆ Favorites	Name	Date modified Type
🧮 Desktop	\mu Output	8/29/2013 6:26 PM File folder
🗼 Downloads	🔮 a2a.xml	8/29/2013 7:00 PM XML Doct
Libraries Documents Music Pictures Videos		
Computer		
🏭 Local Disk (C:)		
🚅 shared (\\vboxsn 🔻	∢ III me: a2a.xml    Set	ting File (*.xml)   Open  Cancel

Fig. 4-24 File selection screen

When the file selection screen is displayed, select the file to be edited. After selecting a file, the Selection tab screen (Fig. 3-1) is displayed.

## 4-8 Output Selected Settings

To output selected settings, click the Output button or the Output menu item. The Output screen is displayed.

Air to Air Heat Exchanger Selection Tool	×
<u>File Window H</u> elp	
i 🗈   🔚 🔚 🖳 🚧 🔊   🔳 👷	
Selection Output metric CF Click the button	 
Frequency 50Hz 220V  Total supply air 1000 m3/h	



<b>.</b>	Air to Air Heat Excha	nger Selection Tool		
Fil	e Window	Help		
	New	🕸 🔳 📕		
	Open	ic Chart Option		
	Save	Total supply air	1000 m3/h	
	Save As		Heat exchange efficiency	72.5 %
	Output	Jnits, "Extra high" 🔻	Enthalpy exchange efficiency	67.4 % Caluculation
_			Sound level	39.5 dB
	Exit	(RA)		Exhaust air (EA)
D	ry bulb temperature	28.0 C		Dry bulb temperature 11.0 C

Fig. 4-26 Output menu item

Output		
	Excel	Print
Selection	<b>V</b>	
Psychrometric chart	<b>V</b>	
Appearance	<b>V</b>	<b>V</b>
Calculation	<b>V</b>	<b>V</b>
ОК	Cancel	

Fig. 4-27 Output screen

On the Output screen, select whether to output the selected results as a file in Excel format or to print the results, and click the OK button.

When outputting an Excel format file, a save destination specification screen is displayed. Specify the destination to which to save the output file.

Browse For Folder
🔺 🌗 ProgramData 🔷
D 🌆 Adobe
D 🖟 Google
Discrosoft
4 퉲 Toshiba Carrier Corporation
4 퉲 Air to Air Heat Exchanger Selection T
🔒 Output
📕 Setting Data 👻
4 III >
Make New Folder OK Cancel

Fig. 4-28 Save destination specification screen

## 4-9 Check the Report Preview

To check a preview of the report, click the Print Preview button. The Report Preview screen is displayed. On the Report Preview screen, Selection, Calculation, and Psychrometric Chart results can be checked.

Í	Air to Air Heat Exchanger Selection Tool	- • •
	<u>F</u> ile <u>W</u> indow <u>H</u> elp	
	Selection Psyck Print Preview Option	
	Frequency 50Hz 220V  Total supply air 1000 m3/h	



Report Preview								
Selection Calculation	on Psychrometric Chart							
	۸ir	to Air H	logt I	Evel	handor	•		
			call		nangei	_		12042
						E	dit Date:8/2	9/2013
Air to Ai	Heat Exchand	er Selection F	Results					
Selecte	d Model							
Model	1 model	VN-M1000HF	1Units					
Fan spe	ed	Extra high						
Heat exe	change efficiency	72.5	%					
Enthalpy	exchange efficiency	67.4	%			- 1	60	
Sound p	ressure level	39.5	dB					
Room (	onditions						6	
Total sur	onutions poly air	1 000	m3/h					
External	static pressure	100	Pa					
Inlet Hea	ater	5.000	W					
[Indoor]		Air to Air	Sensib	le	Conventional			
Supply	air (SA)	Heat Exchanger	Heat exch	anger	Ventilator			
Dry bulb	temperature	25.4		25.4	18.4	4 C		
Relative	humidity	38.5		35.5	54.3	3 %		
Absolute	numidity	1.1		(.1	1.	1 g/kg		
Entral bo	at recovered	40.2		43.7	30.	o kJ/Kg		
Outdoor	air load	5.0		6.2	0.1			
Outdoor	air load ratio	5.0		71.5	100	9 KVV		
Real air		1 070			100.	- m3/h		
Return	air (RA)	1,010				morn		
Dry bulb	temperature	28.0	С					
Relative	humidity	55.0	%					
Absolute	humidity	13.0	a/ka					
Enthalpy	1	61.5	kJ/kg		SA		EA	
						~ ~		
				~	100	~ <b>+</b>	_ P	·
1 of 1	I I PDF	<ul> <li>Export</li> </ul>	Refresh	-		-+ 🕂	🗢 📥	

Fig. 4-30 Report Preview screen (Selection Results)

## 4-10 Display Model Specifications

To display the specifications of a model selected on the Selection tab screen, click the Appearance button.

Air to Air Heat Exchanger Selection Tool				- • ×				
<u>F</u> ile <u>W</u> indow <u>H</u> elp								
Selection Psychron Appearance Option								
Frequency 50Hz 220V  Total supply air	1000 m3/h							
Selected Models Select model								
Select model	Heat exchange efficiency	72.5	%					
VN-M1000HE v 1Units "Extra high"	Enthalpy exchange efficiency	67.4	%	Caluculation				
Sound level 39.5 dB								

Fig. 4-31 Appearance button



Fig. 4-32 Specifications of selected model

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## Air to Air Heat Exchanger Selection Tool Operating Instructions

September, 2013

TOSHIBA CARRIER CORPORATION