

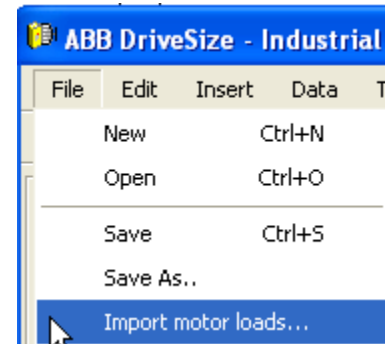


Kari Ranta, Tools, 27.10.2011

Handling motor lists with DriveSize Connectivity with Excel with example

High productivity with DriveSize 3.3 and Excel

- With earlier versions of DriveSize user typed the motor loads manually
- New **Import motor loads** –function lets user import the list of motor data provided the list is according to template.
- With Excel a list of motors can be modified easily into template format.
- Then just import motor list into DriveSize project
- With DriveSize help select the motors and drives
- With improved DriveSize report functions produce
 - the shopping list,
 - the list of motors for engineering tools



Example starting from a customer list

- Assume a list of motors is available with (any) Excel format

Tuusula Water Utility		Extension project				
Motor list						
	Load	Speed [rpm]	Power [kW]	Overload [%]	Overload [s]	Every [s]
Pumps				Overload		
Raw water pump	Axial pump	1500	180	100	10	600
Raw water pump2	Axial pump	1460	200	110	10	600
Booster pump	Pump	1460	230	120	20	600
UV light treatment	Aux pump	600	50	110	10	600
Ozone basin	Pump	3000	140	100	10	600
Constant torque						
Air compressor	CT	1500	170	150	10	600
Archimedes screw	CT	1500	170	150	10	600
		Sum	1140			

Example starting from a customer list

1st step – clean the subtitles and row sums

- Here list after subtitle removal

Tuusula Water Utility		Extension project				
Motor list						
	Load	Speed [rpm]	Power [kW]	Overload [%]	Overload [s]	Every [s]
Raw water pump	Axial pump	1500	180	100	10	600
Raw water pump2	Axial pump	1460	200	110	10	600
Booster pump	Pump	1460	230	120	20	600
UV light treatment	Aux pump	600	50	110	10	600
Ozone basin	Pump	3000	140	100	10	600
Air compressor	CT	1500	170	150	10	600
Archimedes screw	CT	1500	170	150	10	600

- 2nd step is to change the Load type text to format known by DriveSize

Example starting from a customer list

2nd step – clean load type

- “Axial pump” nor “Aux pump” is not known by DriveSize. Change them into format: a) PF, Pump, Pump* or b) CT, Cons*.
- You may utilize Find/Replace of your Excel

Tuusula Water Utility Extension project

Motor list						
	Load	Speed [rpm]	Power [kW]	Overload [%]	Overload [s]	Every [s]
Raw water pump	Pump	1500	180	100	10	600
Raw water pump2	Pump	1460	200	110	10	600
Booster pump	Pump	1460	230	120	20	600
UV light treatment	PF	600	50	110	10	600
Ozone basin	Pump	3000	140	100	10	600
Air compressor	CT	1500	170	150	10	600
Archimedes screw	CT	1500	170	150	10	600

- Then copy paste the table part to template found on C:\Program Files\DriveWare\DriveSize\VsdSize20\System

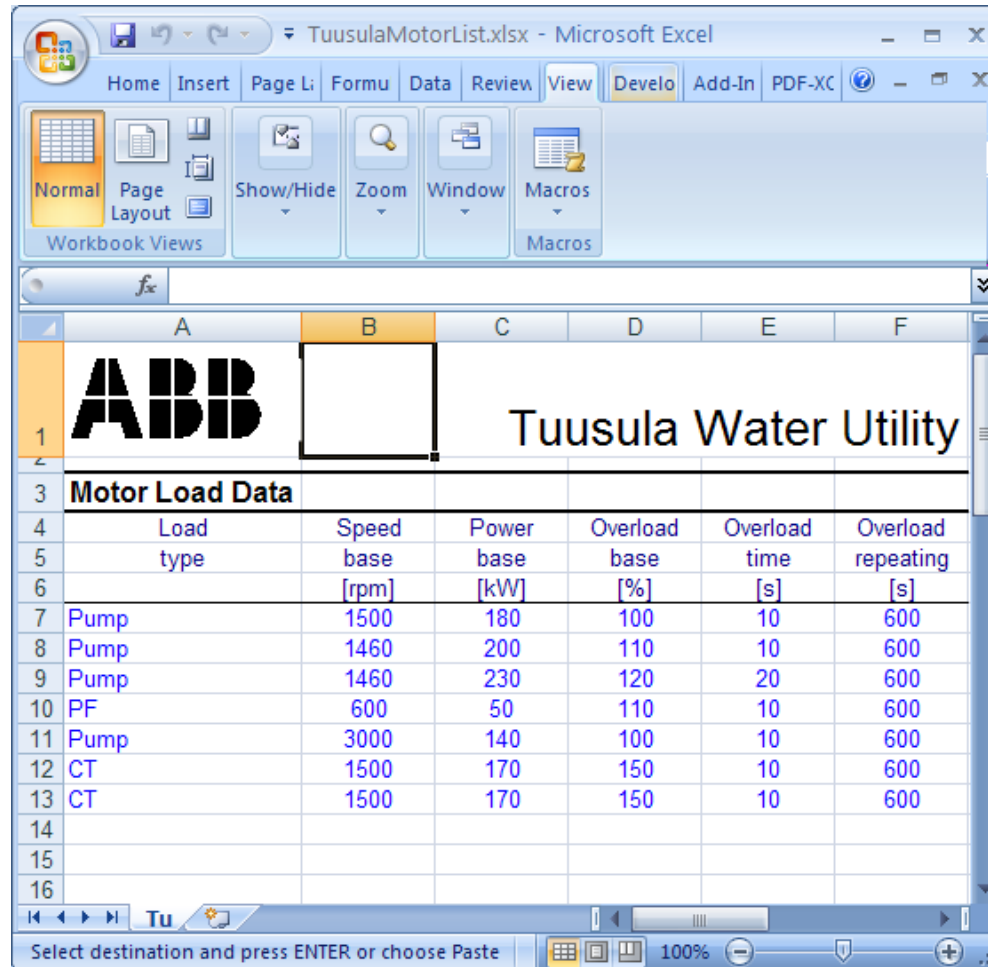
Example starting from a customer list

3rd step – copy data into template: MotorLoadData.xlsx

	A	B	C	D	E	F
1	ABB		Tuusula Water Utility			
2						
3	Motor Load Data					
4	Load	Speed	Power	Overload	Overload	Overload
5	type	base	base	base	time	repeating
6		[rpm]	[kW]	[%]	[s]	[s]
7	Pump	1500	180	100	10	600
8	Pump	1460	200	110	10	600
9	Pump	1460	230	120	20	600
10	PF	600	50	110	10	600
11	Pump	3000	140	100	10	600
12	CT	1500	170	150	10	600
13	CT	1500	170	150	10	600
14						
15						
16						

Example starting from a customer list

Finalizing the import file for later use –save the file



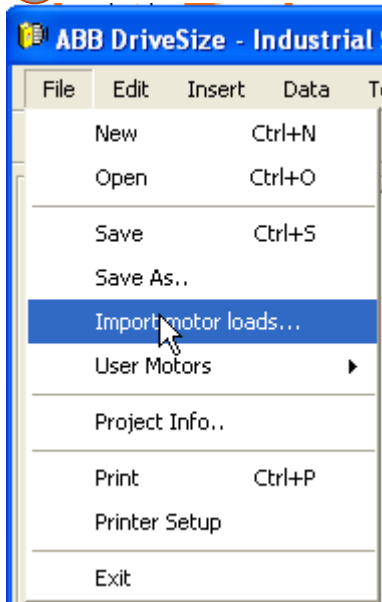
The screenshot shows a Microsoft Excel spreadsheet titled 'TuusulaMotorList.xlsx'. The spreadsheet contains the ABB logo in cell A1, the text 'Tuusula Water Utility' in cell B1, and a table of motor load data starting from row 3. The table has columns for Load type, Speed base, Power base, Overload base, Overload time, and Overload repeating. The data rows are 7 through 13.

	A	B	C	D	E	F
1	ABB		Tuusula Water Utility			
3	Motor Load Data					
4	Load type	Speed base	Power base	Overload base	Overload time	Overload repeating
5		[rpm]	[kW]	[%]	[s]	[s]
7	Pump	1500	180	100	10	600
8	Pump	1460	200	110	10	600
9	Pump	1460	230	120	20	600
10	PF	600	50	110	10	600
11	Pump	3000	140	100	10	600
12	CT	1500	170	150	10	600
13	CT	1500	170	150	10	600

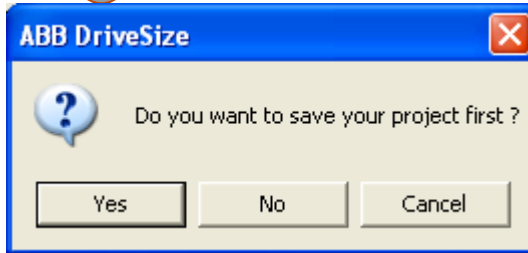
Import data into DriveSize

Here all the steps

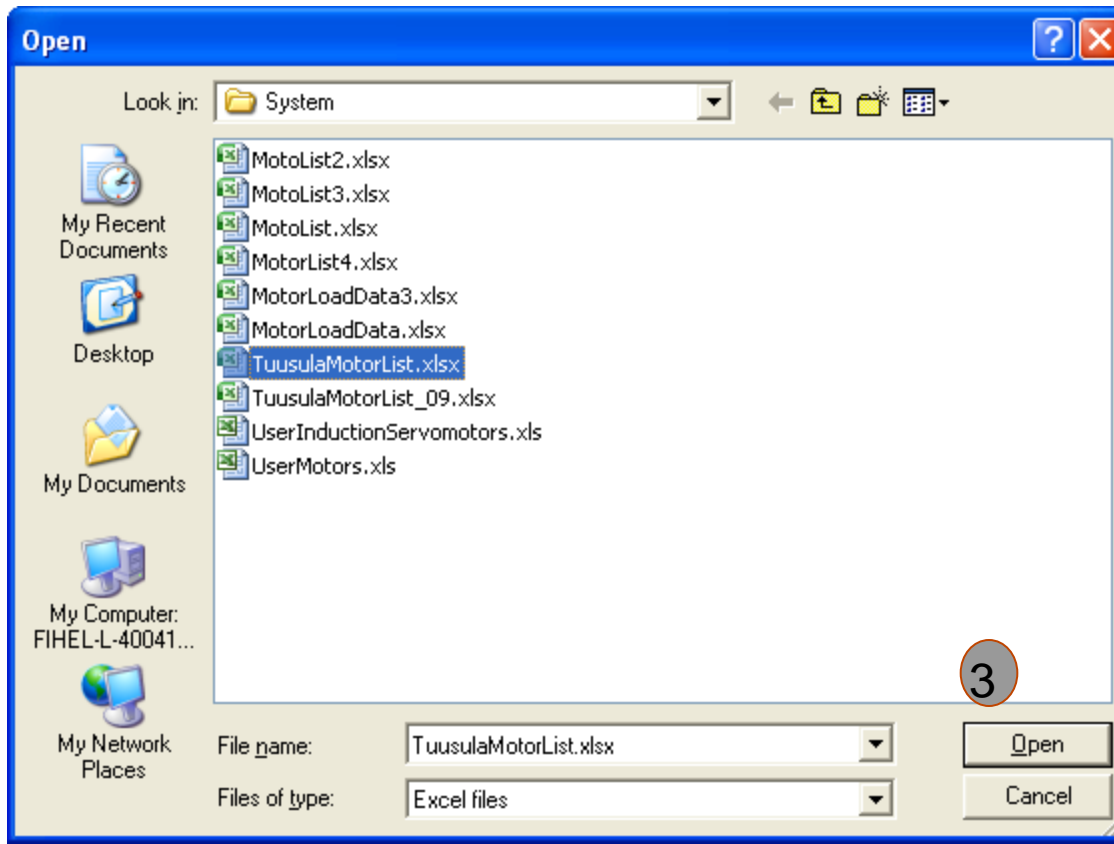
1



2



Gives the possibility to save the current work



Import data into DriveSize

- A successful import looks if 7 motors were on list:

The screenshot displays the ABB DriveSize - Industrial SingleDrive [Untitled] software interface. The window title bar includes standard Windows window controls. The menu bar contains File, Edit, Insert, Data, Tools, Result, and Help. The toolbar features icons for file operations and system settings. The main interface is divided into three primary sections:

- System configuration:** A tree view on the left showing a hierarchy of components, all currently labeled as [undefined].
- Motor load:** A central panel with the following settings:
 - Load type: Pump/fan load
 - Overload type: Simple cyclic
 - Speed [rpm]: min 1500, base 1500, max 1500
 - Power [kW]: min 180, base 180, max 180
 - Overload [%]: min 100, max 100
 - Overload time [s]: 10
 - Every [s]: 600
- Selected motor data:** A panel on the right with the following fields:
 - Selection: [undefined]
 - Type code: [undefined]
 - Product code: [undefined]

At the bottom of the Motor load section is a **Specifications** table:

Specification	Value
Name	[undefined]
No. of motors	1
Motor type	Process performance
FrameMaterial	Not specified
Family	Not specified
Polenumber	Automatic
Design	Basic (Cenelec)
Connection	Not specified
IP class	IP55
IC class	IC411 self ventilated
IM class	IM1001, B3(foot)
Max. speed rule	Standard
Temp. rise	B (<80 K)
Tmax margin	43 %

DriveSize computing takes some seconds

Different selection criteria is easy to apply

- A successful selection with defaults looks like this

The screenshot displays the ABB DriveSize - Industrial SingleDrive [Untitled] software interface. The window title bar includes standard Windows window controls and the software name. The menu bar contains File, Edit, Insert, Data, Tools, Result, and Help. Below the menu bar is a toolbar with various icons for file operations and system settings. The main interface is divided into several panels:

- System configuration:** A tree view showing a hierarchy of components. The selected component is 'M4BP 315 LKB 4' under 'ACS800-02-0260-3'.
- Motor load:** A panel with dropdown menus for 'Load type' (set to 'Pump/fan load') and 'Overload type' (set to 'Simple cyclic'). Below these are input fields for 'Speed [rpm]', 'Power [kW]', and 'Overload [%]' with 'min', 'base', and 'max' columns. The 'Overload time [s]' is set to '10' with a note 'Every [s] 600'.
- Selected motor data:** A panel showing the selection criteria: 'Selection: DriveSize', 'Type code: M4BP 315 LKB 4', and 'Product code: 3GBP 312 820-ADK (F)'. Below this is a table of motor specifications.
- Specifications:** A table listing various motor parameters and their values.

Selected motor data	
Voltage [V]	400
Frequency [Hz]	50
Power [kW]	200
Poles	4
Speed [rpm]	1490
Max mech. speed [rpm]	2600
Current [A]	343
Torque [Nm]	1281
Tmax/Tn	2.9
Power factor	0,87
Efficiency [%]	96,5
Temperature rise class	B
Insulation class	F
Inertia [kgm ²]	5

Specifications	
Name	[undefined]
No. of motors	1
Motor type	Process performance
FrameMaterial	Not specified
Family	Not specified
Polenumber	Automatic
Design	Basic (Cenelec)
Connection	Not specified
IP class	IP55
IC class	IC411 self ventilated
IM class	IM1001, B3(foot)
Max. speed rule	Standard
Temp. rise	B (<80 K)
Tmax margin	43 %

Then utilize reports - here just clips from Excel

Excel reports are available with Print-> Preview

Motor q'ty	Type designation Mot or	Drive q'ty	Type designation Drive
1	M4BP 315 LKB 4	1	ACS800-02-0260-3
1	M4BP 315 LKC 4	1	ACS800-02-0260-3
1	M3BP 355 SMB 4	1	ACS800-02-0320-3
1	M3BP 315 SMB 8	1	ACS800-01-0075-3
1	M4BP 315 MLA 2	1	ACS800-01-0165-3
1	M4BP 315 LKC 4	1	ACS800-02-0320-3
1	M4BP 315 LKC 4	1	ACS800-02-0320-3

Frequency converter			Inu calculation	
Type designation	In [A]	I _{max} [A]	I _{cont} margin	I _{max} margin
ACS800-02-0260-3	440		33 %	76 %
ACS800-02-0260-3	440		18 %	44 %
ACS800-02-0320-3	516		17 %	12 %
ACS800-01-0075-3	141		21 %	32 %
ACS800-01-0165-3	254		2 %	28 %
ACS800-02-0320-3	516		60 %	25 %
ACS800-02-0320-3	516		60 %	25 %

Motor type	nominal values				construction						
	Un	fn	Pn	nn	In	cos phi	eff. [%]	Tmax /Tn	IM	code	IC
	[V]	[Hz]	[kW]	[rpm]	[A]						
M4BP 315 LKB 4	400	50	200	1 490	343	0,87	96,5	2,9	1001, B3	3GBP 312 820-ADK	411
M4BP 315 LKC 4	400	50	250	1 491	429	0,87	96,6	3,0	1001, B3	3GBP 312 830-ADK	411
M3BP 355 SMB 4	400	50	315	1 488	551	0,86	95,9	2,8	1001, B3	3GBP 352 220-ADG	411
M3BP 315 SMB 8	400	50	75	741	140	0,82	93,7	2,7	1001, B3	3GBP 314 220-ADG	411
M4BP 315 MLA 2	400	50	160	2 982	267	0,9	96,1	2,7	1001, B3	3GBP 311 410-ADK	411
M4BP 315 LKC 4	400	50	250	1 491	429	0,87	96,6	3,0	1001, B3	3GBP 312 830-ADK	411
M4BP 315 LKC 4	400	50	250	1 491	429	0,87	96,6	3,0	1001, B3	3GBP 312 830-ADK	411

▪ This is really ready for POs!

Data into engineering tools and PLC and drive setup Excel reports as starting point for engineering

- If the project motors are acquired based on DriveSize **Project Technical Data Sheet**, the data required for drives setup is also found from these files: P_{2N} , n_N , I_N etc.
- The drive and motor information is also shown on electrical drawings and part lists. Copy/paste is handy tool for this.
- The drive and motor information is also input for PLC/DCS systems with copy/paste.
- ABB product configurators can read DriveSize XML files.

Speed range			P			Overload			Motor													Motor calculation result			
min [rpm]	base [rpm]	max [rpm]	[nbase] [kW]	[nbase] [%]	[nmax] [%]	type	nominal values					construction								Temp.rise / Insul.	Tcont margin	Tmax margin	Icont [A]	Imax [A]	
							Un [V]	fn [Hz]	Pn [kW]	nn [rpm]	In [A]	cos phi	eff. [%]	Tmax /Tn	IM	code	IC								
1500	1500	1500	180	100	100	M4BP 315 LKB 4	400	50	200	1490	343	0,87	96,5	2,9	1001, B3	3GBP 312 820-ADK	411	B/F	0 %	90 %	334	334			
1460	1460	1460	200	110	110	M4BP 315 LKC 4	400	50	250	1491	429	0,87	96,6	3,0	1001, B3	3GBP 312 830-ADK	411	B/F	14 %	106 %	376	410			
1460	1460	1460	230	120	120	M3BP 355 SMB 4	400	50	315	1488	551	0,86	95,9	2,8	1001, B3	3GBP 352 220-ADG	411	B/F	24 %	93 %	446	524			
600	600	600	50	110	110	M3BP 315 SMB 8	400	50	75	741	140	0,82	93,7	2,7	1001, B3	3GBP 314 220-ADG	411	B/F	19 %	108 %	119	129			
3000	3000	3000	140	100	100	M4BP 315 MLA 2	400	50	160	2982	267	0,9	96,1	2,7	1001, B3	3GBP 311 410-ADK	411	B/F	3 %	82 %	254	254			
300	1500	1500	170	150	150	M4BP 315 LKC 4	400	50	250	1491	429	0,87	96,6	3,0	1001, B3	3GBP 312 830-ADK	411	B/F	17 %	74 %	326	470			
300	1500	1500	170	150	150	M4BP 315 LKC 4	400	50	250	1491	429	0,87	96,6	3,0	1001, B3	3GBP 312 830-ADK	411	B/F	17 %	74 %	326	470			

Roadmap

- There is a plan to extend the DriveSize connectivity at least to ABB SACE DocWin SW to select cabling and short circuit protection devices for each drive. This will be done with XML files not through Excel.

Thanks for your time

Power and productivity
for a better world™

