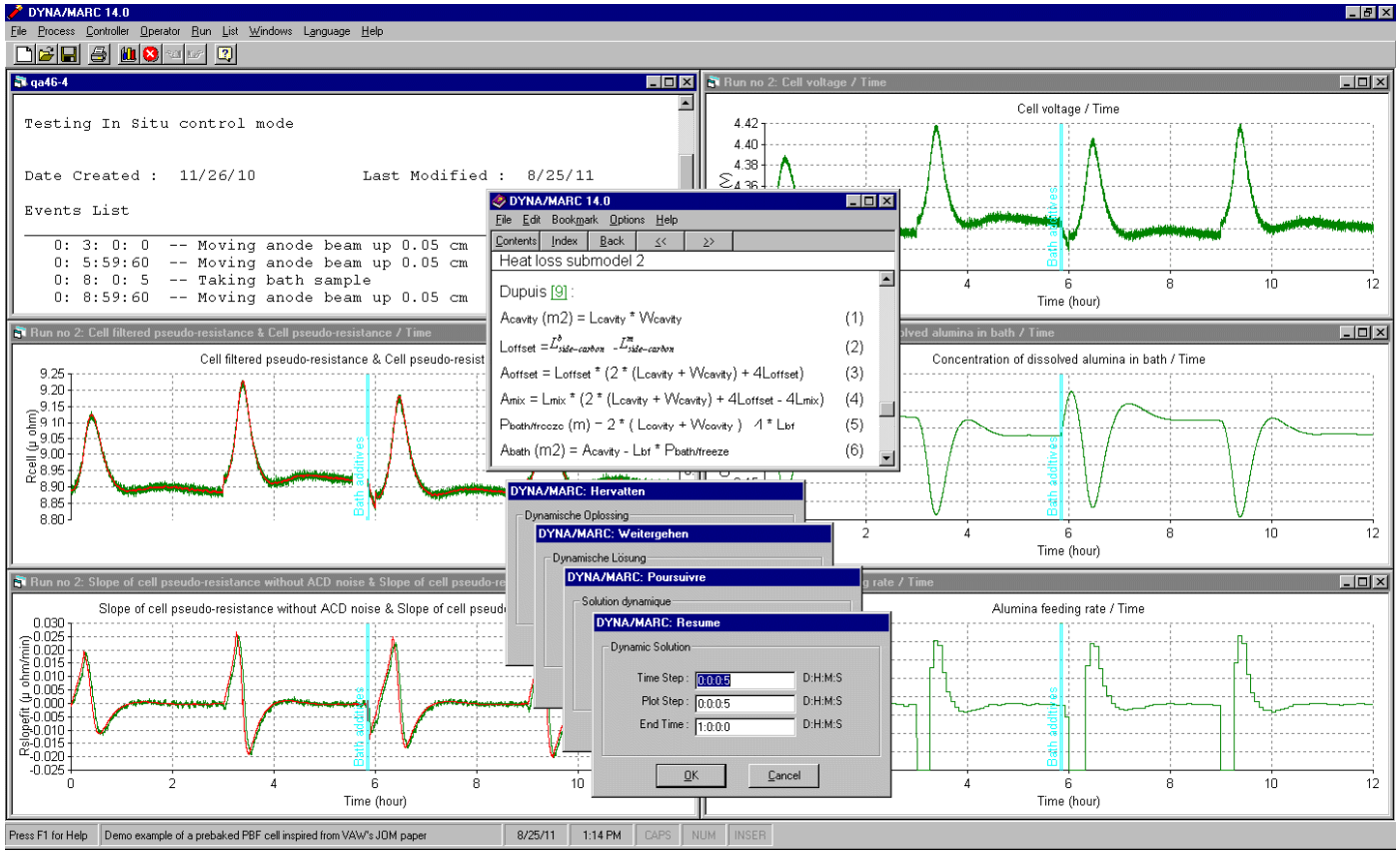
# DYNA/MARC

# DYNAMIC Model of an Aluminium Reduction Cell




GENISIM

# DYNA/MARC 14.0
## Highlights list

- Comprehensive menu system structured around potroom operation concepts;
- Dynamic run with unlimited number of interactive graphics display;
- Interrupt, control parameter adjustment and resume capabilities during dynamic run;
- Restart capabilities at the end of a dynamic run;
- 4 new sub-models that compute anode and cathode drop, anode panel heat loss and cathode bottom heat loss;
- Cell noise submodel,instability control mode, and noise filtration;
- Amperage fluctuation submodel with current curtailment and voltage treatment control;
- Pechiney, Demand and *In Situ* feed control control mode;
- Lillebuen and Solli current efficiency submodels;
- $AlF_3$ dissolution submodel;
- Bath sampling/XRD and STARprobe$^{TM}$ bath ratio feedback control;
- Advance coupling options like CE proportional to noise etc;
- Impact of noise on CE computed even in steady state runs;
- Monte Carlo risk assessment statistical analysis;
- Completely integrated user and theoretical manual featuring all the theoretical equations of each process submodel;
- Context sensitive on-line help using the same above manual;
- Visual Basic 5.0 Graphic user interface;
- English, French, German and Dutch menus / panels / graphs / printouts;
- Digital Fortran 5.0 dynamic link library solver kernel;
- Hot line support directly from the code developer.

For more information, contact:

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# DYNA/MARC 14.0
## Price list

- **Option A:**
  1. Company wide unlimited number of users, unlimited number of sites permanent license of Dyna/Marc 14.0 executable with 3 months support: $20,000 US
  2. Annual support including hot line support (one contact person) and code release updates: $2,000 US
- **Option B:**
  1. Company wide unlimited number of users, unlimited number of sites permanent license of Dyna/Marc 14.0 solver source code and Dyna/Marc 14.0 graphic user interface (GUI) executable with 3 months support: $30,000 US
  2. Annual support including hot line support (one contact person) and code release updates: $3,000 US
- **Option C:**
  1. Company wide unlimited number of users, unlimited number of sites permanent license of Dyna/Marc 14.0 solver source code and Dyna/Marc 14.0 GUI source code with 3 months support: $40,000 US
  2. Annual support including hot line support (one contact person) and code release updates: $4,000 US
- **Option D:**
  1. Company wide unlimited number of users, unlimited number of sites permanent license of Dyna/Marc 14.0 solver source code only (no GUI provided) with 3 months support: $20,000 US
  2. Annual support including hot line support (one contact person) and code release updates: $2,000 US

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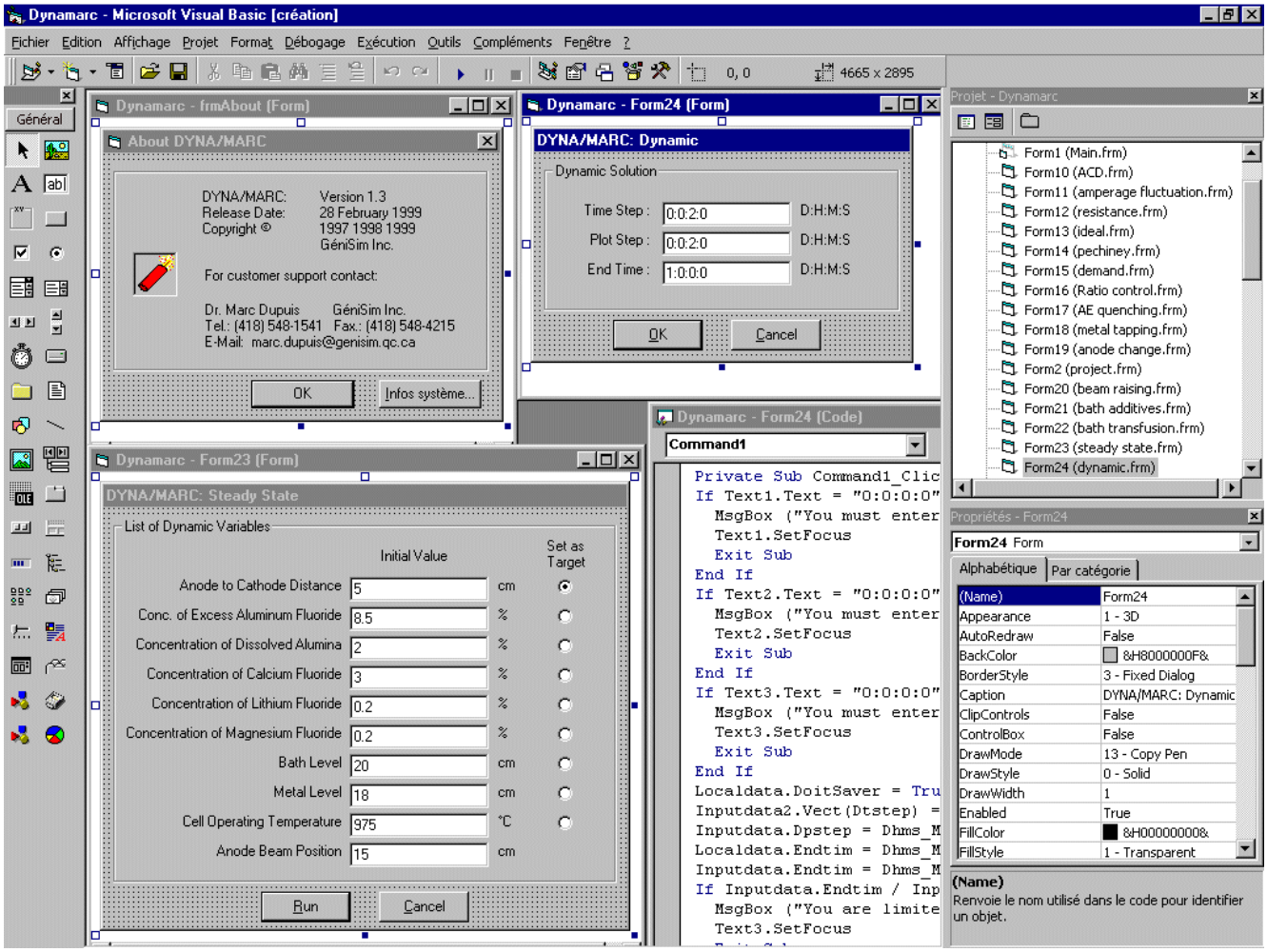
Dynamarc - Microsoft Visual Basic [création]
Fichier Edition Affichage Projet Format Débogage Exécution Outils Compléments Fenêtre ?
Dynamarc - frmAbout (Form)
About DYNA/MARC
DYNA/MARC: Version 1.3
Release Date: 28 February 1999
Copyright © 1997 1998 1999 GéniSim Inc.
For customer support contact:
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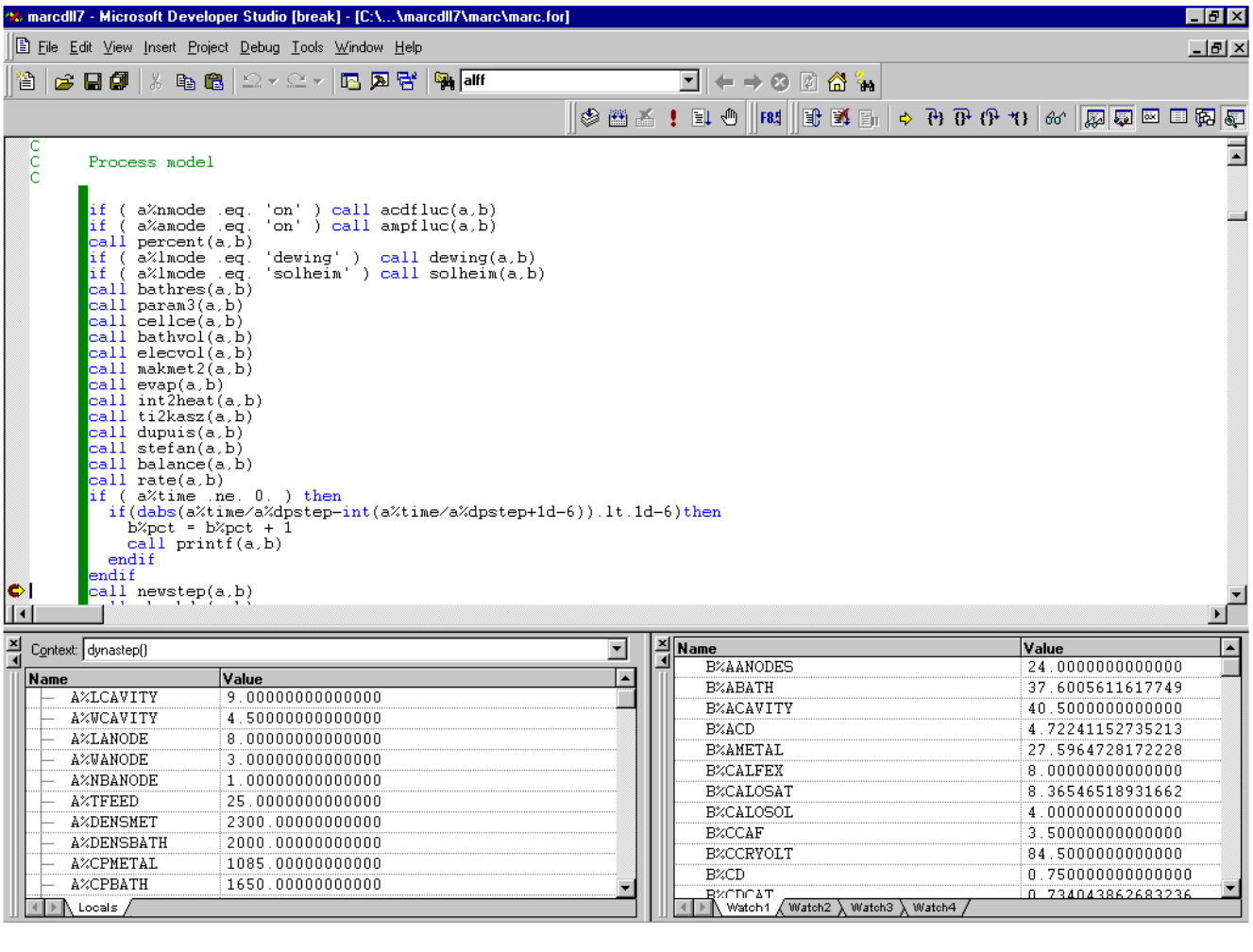
OK
Infos système...
Dynamarc - Form24 (Form)
DYNA/MARC: Dynamic
Dynamic Solution
Time Step : 0:0:2:0 D:H:M:S
Plot Step : 0:0:2:0 D:H:M:S
End Time : 1:0:0:0 D:H:M:S
OK
Cancel
Dynamarc - Form23 (Form)
DYNA/MARC: Steady State
List of Dynamic Variables
Initial Value
Set as Target
Anode to Cathode Distance 5 cm
Conc. of Excess Aluminum Fluoride 8.5 %
Concentration of Dissolved Alumina 2 %
Concentration of Calcium Fluoride 3 %
Concentration of Lithium Fluoride 0.2 %
Concentration of Magnesium Fluoride 0.2 %
Bath Level 20 cm
Metal Level 18 cm
Cell Operating Temperature 975 °C
Anode Beam Position 15 cm
Run
Cancel
Dynamarc - Form24 (Code)
Command1
Private Sub Command1_Clic
If Text1.Text = "0:0:0:0"
MsgBox ("You must enter
Text1.SetFocus
Exit Sub
End If
If Text2.Text = "0:0:0:0"
MsgBox ("You must enter
Text2.SetFocus
Exit Sub
End If
If Text3.Text = "0:0:0:0"
MsgBox ("You must enter
Text3.SetFocus
Exit Sub
End If
Localdata.DoitSaver = Tru
Inputdata2.Vect(Dtstep) =
Inputdata.Dpstep = Dhms_M
Localdata.Endtim = Dhms_M
Inputdata.Endtim = Dhms_M
If Inputdata.Endtim / Inp
MsgBox ("You are limite
Text3.SetFocus
Projet - Dynamarc
Form1 (Main.frm)
Form10 (ACD.frm)
Form11 (amperage fluctuation.frm)
Form12 (resistance.frm)
Form13 (ideal.frm)
Form14 (pechiney.frm)
Form15 (demand.frm)
Form16 (Ratio control.frm)
Form17 (AE quenching.frm)
Form18 (metal tapping.frm)
Form19 (anode change.frm)
Form2 (project.frm)
Form20 (beam raising.frm)
Form21 (bath additives.frm)
Form22 (bath transfusion.frm)
Form23 (steady state.frm)
Form24 (dynamic.frm)
Propriétés - Form24
Form24 Form
Alphabétique Par catégorie
(Name) Form24
Appearance 1 - 3D
AutoRedraw False
BackColor &H8000000F&
BorderStyle 3 - Fixed Dialog
Caption DYNA/MARC: Dynamic
ClipControls False
ControlBox False
DrawMode 13 - Copy Pen
DrawStyle 0 - Solid
DrawWidth 1
Enabled True
FillColor &H00000000&
FillStyle 1 - Transparent
(Name)
Renvoie le nom utilisé dans le code pour identifier un objet.


marcdll7 - Microsoft Developer Studio [break] - [C:\...\marcdll7\marc\marc.for]
File Edit View Insert Project Debug Tools Window Help
C
C Process model
C
if ( a%nmode .eq. 'on' ) call acdfluc(a,b)
if ( a%amode .eq. 'on' ) call ampfluc(a,b)
call percent(a,b)
if ( a%lmode .eq. 'dewing' ) call dewing(a,b)
if ( a%lmode .eq. 'solheim' ) call solheim(a,b)
call bathres(a,b)
call param3(a,b)
call cellce(a,b)
call bathvol(a,b)
call elecvol(a,b)
call makmet2(a,b)
call evap(a,b)
call int2heat(a,b)
call ti2kasz(a,b)
call dupuis(a,b)
call stefan(a,b)
call balance(a,b)
call rate(a,b)
if ( a%time .ne. 0. ) then
if(dabs(a%time/a%dpstep-int(a%time/a%dpstep+1d-6)).lt.1d-6)then
b%pct = b%pct + 1
call printf(a,b)
endif
endif
call newstep(a,b)
Context: dynastep()
Name Value
A%LCAVITY 9.00000000000000
A%WCAVITY 4.50000000000000
A%LANODE 8.00000000000000
A%WANODE 3.00000000000000
A%NBANODE 1.00000000000000
A%TFEED 25.0000000000000
A%DENSMET 2300.00000000000
A%DENSBATH 2000.00000000000
A%CPMETAL 1085.00000000000
A%CPBATH 1650.00000000000
Locals
Name Value
B%AANODES 24.0000000000000
B%ABATH 37.6005611617749
B%ACAVITY 40.5000000000000
B%ACD 4.72241152735213
B%AMETAL 27.5964728172228
B%CALFEX 8.00000000000000
B%CALOSAT 8.36546518931662
B%CALOSOL 4.00000000000000
B%CCAF 3.50000000000000
B%CCRYOLT 84.5000000000000
B%CD 0.750000000000000
Watch1 Watch2 Watch3 Watch4