WHAT IS NEW IN ADVANCE STEEL 2009
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Multi-User

With the new “Model share” technology, users can work in a Multi-user mode to speed up projects.

The “Model share” technology improves the speed of projects by allowing multiple users work on the same project. Users can display only the elements they work on thus improving display performance.
Connections can be created on elements used by different users. This Advance Steel “Multi-user” functionality is extremely secure since a user cannot modify an element already locked by another user.

Some checking tools let users see who checked out a part of the structure to work on it. This is controlled easily graphically with colors highlighting the elements checked out by a selected user.
What is new in Advance Steel 2009

**Multi user 1: Multi-user specific toolbar**

A “Multi-user” toolbar can be displayed from the “Advance Steel” toolbar.

![Multi-user toolbar](image)

**Multi user 2: Multi-user “Check out” command**

Any user who has access to the Master model can check out elements to modify.

This “Check out” can be done in several ways:

- Selected elements (by picking them or by a window selection)
- Using the Search tool (with criteria)

Also the user can partially check out elements, which allow just a partial loading of their properties.

![Diagram of steel structure](image)

**Multi user 3: Multi-user “Check in” command**

The user can check in elements, so that all users connected to the Master model can see the progress in the modeling.

Each user sees a message on the bottom-right of the screen.
Multi user 4: Multi-user “Hide” command

Users can decide to see only their checked out elements, so that only part of the model is visible.

Note: Display only some elements improves display performance.

Multi user 5: Multi-user “Checking” command

Any user can see who is working on elements.

The elements from the model are colored based on the user who has them locked.

Multi user 6: Multi-user “Security” warnings

To avoid having multiple users work on the same element, warning messages appear if a user wants to access an object already completely checked out by another user.

Also if any actions are started on the Master model (e.g., numbering, workshop or general arrangement drawing creation), a warning message informs the user if some elements are still checked out.
Modeling

Model 1: Grating

**Modeling:**

Users can create standard rectangular Grating elements either with their central point or with 2 diagonals points.

For situations where non-standard grating elements are required, users can create “polygonal” gratings. This can be done by picking points and by selecting an AutoCAD® polyline to convert it to a polygonal Grating.

All functions used for Plates can be also applied to Gratings, like split, add a chamfer, create an opening, etc.
What is new in Advance Steel 2009

Catalogs:
Complete catalogs from main providers of Germany, UK, France, USA, Canada and Poland are included by default.

<table>
<thead>
<tr>
<th>Drawing style</th>
<th>Representation type</th>
<th>Note</th>
<th>User attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shape and connector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grating class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grating size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use standard hatch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custom hatch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connector</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Connector name**
- **Connector quantity**

---

ARCO REDMAN - SP - 34x38
ELEFANT - PP Stainless
ELEFANT - PP Type 02 Stainless
ELEFANT - Steel Trays - Galvanised
FISHER Expanded Metal All Flat Top
FISHER Expanded Metal All Raised
FISHER Expanded Metal Flattened
FISHER Expanded Metal Raised
France - Diamond grating
France - Grateless grating
France - Pintor grating
Lichtiger Grating
Metallic Grating
Metallic Expanded Carbon Steel
Poland - HMS PB grating
Poland - HMS Sh grating
Poland - HMS TPR stair steps
Poland - HMS TSP stair steps
Poland - NOSTOSTAL SOZ stair steps
Poland - NOSTOSTAL STO stair steps
RAINHAM STEEL - Pattern
RAINHAM STEEL - Square
RAINHAM STEEL - Standard
**What is new in Advance Steel 2009**

**Representation:**
The user can decide between different types of Hatches to represent the top face of the Grating elements.
AutoCAD® hatches or customized hatches can be used.

![Grating Element](image)

**Drawings:**
The grating elements are displayed on general arrangement drawings.
A specific symbol is used for the orientation of each grating element.
Some hatches can be displayed, and their scale can be adjusted to provide clear floor plan views on drawings.

**BOMs:**
A Grating list is available to obtain the quantity grating elements with their characteristics, length, width, etc.
Model 2: Bolts create holes

There is an intelligent link between bolts and holes, so that bolts automatically create the right holes, e.g. a countersunk bolt creates automatically a countersunk hole with the corresponding parameters.

The hole properties can be viewed from their dialog box properties, but cannot be changed by the user as they are controlled by the bolt itself.
What is new in Advance Steel 2009

Quantity: 1
- PL 25x100x100
- S235JR G2- 1.1

Dimensions:
- Height: 110 mm
- Width: 50 mm
- Depth: 50 mm

Counter sunk bolt hole: 16

Material: S235JR G2

SINGLE PART DRAWING

Project: X008-10
No.: 1019-45

Scale: 1:1
Detailer: Ondi

Date: 08/09/2008

Material: S235JR G2

Revision Date

Index
Model 3: Bolts and holes distances checking

The “Semantic” tool is the perfect user helper to automatically detect if some bolts/holes are too close to each other, or if they are outside the part(s) they should connect.

The result can be displayed graphically in the 3D model or on the command line.
Model 4: New compound beam types

Advance Steel 2009 provides new types for compound beams:

- Welded beams – half column
- Welded beams – half I + T
- Welded beams – column I + 2T

The user has the option to select if the compound beam must be considered as 1 beam or as several beams for the workshop drawings, the BOMs and the NC-DSTV files.

Advance Steel joints can be applied to these Compound beams (e.g., Base Plate joint, Flange Haunch joint, Stiffener joint, etc.).
**Model 5: More options for Copy command**

The Advance Steel Copy command can be used in a continuous way like the AutoCAD® copy command.

**Model 6: More options for “Create by template”**

With the Advance Steel Create by template command, users can copy Joints efficiently and quickly.

If the user needs to copy the same Joint (e.g. Base Plate joint) at several locations (e.g. different columns), the extended “Create by template” command from the “Joints” toolbar can be used in a continuous way like the AutoCAD® copy command.
Model 7: **New sections available**

Several new sections have been added to the Advance Steel profiles library: JANSEN, FORSTER, RP TECHNIK, etc.
These types of section are mainly used for doors and windows made of steel.
Model 8: New cladding ARCELOR-MITTAL sections

Several cladding sections have been added or updated, so the complete ARVAL (cladding and roof profiles provider company which is part of the ARCELOR-MITTAL group) catalog is available in Advance Steel.

These cladding sections are also available directly within the cladding macro and can be chosen from the Section class drop-down list.
Model 9: Trim / extend commands

It has never been so easy to model beams.
With a few clicks, the user can use Trim or Extend (or even let Advance Steel to do it automatically) to trim or extend any beam to a boundary beam, including a curved beam!
Joints and Structural Elements

**Joints 1: New Base Plate Joint**

With the new joint for Base Plates, Advance Steel users have plenty of new options to define their Base Plates.
Joints 2: New Shear Splice Plate Joint

A new joint is available to connect a secondary beam to a main beam with a splice on the shear plate of the main beam. The sandwich plate can be on the left, on the right or on both sides. It can be bolted or welded to each beam.
Joints 3: New Platform (toe) Joint

A new joint is available to connect a secondary beam to a main beam with plates or a Tee profile.
The end plate can be placed outside the flanges or inside the flanges (of the main beam).
The user can use a Tee (instead of plates).
Joints 4: New HSS Bracing Joints for 2 and 3 diagonals

Two new joints are available to connect diagonals made of tubes to a main beam via a bolted or welded gusset.
What is new in Advance Steel 2009

![Advance Steel 2009 Diagram](image)

**HSS Bracing 3 Diagonals**

<table>
<thead>
<tr>
<th>Sandwich diagonal 1</th>
<th>Sandwich diagonal 2</th>
<th>Sandwich diagonal 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tab plate diagonal 1</td>
<td>Tab plate diagonal 2</td>
<td>Tab plate diagonal 3</td>
</tr>
</tbody>
</table>

- **Create plate**
  - **Type**: tab plate slotted

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>0.00</td>
<td>last bolt</td>
<td>total</td>
<td>30.00</td>
<td></td>
<td>100.00</td>
<td>same as sand</td>
</tr>
</tbody>
</table>

![Diagram of HSS Bracing 3 Diagonals](image)
Joints 5: New Direct bolting Joint

A new “Direct bolting” joint is available to connect a secondary beam on the top of another beam by creating bolts at the gauge lines intersection.
Joints 6: New Lap Joints

New “Lap” joints are available for Flats and for L angles.
**Joints 7: New Cold rolled Joints**

Advance Steel provides new Joints for cold rolled profiles (e.g. used as purlins).

The following Joints are available:

- “Single purlin” Joint, to connect a purlin to a beam
- “Double purlin” Joint, to connect two purlins to a beam
- “Non continuous” Joint, to connect a floor beam (or a purlin) to a continuous beam
- “Single purlin hip” Joint, to connect a purlin to a hip beam
- “Double purlin hip” Joint, to connect two purlins to a hip beam
In the Joint dialog box, the user can choose the type of connection between the Wing plate and the hip rafter (welded, bolted plate, welded plate, etc.).

All bolt characteristics can be defined and slotted holes can be selected to help the erection at the site.
What is new in Advance Steel 2009

**Joints 7: New options in Flange Haunch Joint**

The new version provides new options for placing stiffeners, both on the column and on the rafter.

If the model contains curved beams, the Flange Haunch Joint also works if the rafter is curved.
Joint Design

Joint Design 1: EC3 Joint Design

Advance Steel includes Joint Design according to EC3 rules for the most commonly used Joints.

The Joints are:

- “Haunch flange” joint
- “Shear Plate” joint
- “Clip angle” joint
- “Clip angle skewed” joint
- “Single Side Endplate” joint
- “Double Side Endplate” joint
- “Moment End Plate” joint
- "Single Gusset Plate” joint
- “Double Gusset Plate” joint
- “Triple Gusset Plate” joint

The user must enter the forces in the dialog box, and then click the “Check” button to immediately know if the joint passes the EC3 checking.

As a result, the user gets a report that can be printed or sent to anyone by email.

This report contains all the checking done for all the components for the joint (e.g., bolt diameters, bolt distances, end plate thickness, weld thickness, etc.)
What is new in Advance Steel 2009

Flange Haunch
Standard: EC3

Column: HEA200; ID: 1; Material: S235JR G2
I
Rafter: IPE200; ID: 3; Material: S235JR G2

Bolt Verification

Conditions

Min/Max bolt edge distance (On load direction)
1.2*d_b ≤ e_1
25 mm ≤ 45 41 mm

OK

Min/Max bolt edge distance (perpendicular on load direction)
1.2*d_b ≤ e_3
25 mm ≤ 45 41 mm

OK

Min/Max bolt edge distance (perpendicular on load direction)
2.2*d_b ≤ p_b ≤ min(14*t, 200 mm)
40 mm ≤ 105 mm ≤ 140 mm

OK
Joint Design 2: AISC Joint Design

Advance Steel 2009 provides new joints, which include Joint Design according to AISC rules.
This new joints are the “Bracing to column and base plate” and the “Single gusset plate bracing”.

![Diagram of joint design settings and bracing to column and beam/plate parameters.](image-url)
**Bracing to plate**

*Standard: LRFD*

*Column: W18x136; ID: 16; Material: ASTM A992*

*Secondary beam: W18x175; ID: 173; Material: ASTM A992*

*Diagonal: L2X2X3/8; ID: 24; Material: ASTM A36*

**Connection Capacity**

\[ F = 30.8 \text{ kN}, \text{Tension Strength Of The Braces} \]

**Bolt Verification**

**Conditions**

**Minimum Bolt Edge distance**

\[ 1.34d \text{ (rounded up to 1/8 inch or 5 mm)} \leq \text{Bolt Edge Distance} \]

\[ 1.5^\text{in} \leq 1^\text{in} \]

*OK*

**Maximum Bolt Edge Distance**

\[ \text{Bolt Edge Distance} \leq \text{min (6 inch or 150 mm, 12\text{mm (connected objects thickness)})} \]

\[ 2.5^\text{in} \leq 5^\text{in} \]

*OK*

**Minimum Bolt Spacing**

\[ 3d \text{ (rounded up to 1/8 inch or 5 mm)} \leq \text{Bolt Spacing} \]

\[ 1.5^\text{in} \leq 2^\text{in} \]

*OK*

**Minimum Bolt Spacing**

\[ \text{Bolt spacing} \leq \text{min (12 inch or 305 mm, 24\text{mm (connected objects thickness)})} \]

\[ 2^\text{in} \leq 0^\text{in} \]

*OK*
Numbering 1: User settings

New options have been added to provide more flexibility when numbering! In each element properties, the user can select in the dialog box which properties provide a different number to similar elements.
What is new in Advance Steel 2009

Document Manager

DM 1: Speed improvements

The Advance Steel 2009 version has many speed improvements, especially when the user opens the Document Manager. The opening takes only a few seconds, even for projects that contain hundreds of drawings or NC-DSTV files.

DM 2: Necessary drawings flagged for update

The Document Manager automatically detects only the drawings which need an update. This is a very secure process since users know in real time the drawings that need to be updated and need to be issued again (e.g. for fabrication).
DM 3: Automatic update for BOMs

The Document Manager checks if BOMs are up-to-date or need an automatic update.

If BOMs are up-to-date, they are placed in the “Current” branch of the Document Manager (see the figure below, on the left).

If BOMs need an automatic update, they are placed in the “Update required” branch.

Then with the “Update” button, the user can automatically update the necessary BOMs.

![Document Manager interface with BOM branches]

Warning: If this option is not selected, then the drawing status is not correctly shown unless a “Status check” is done.
**DM 4: Automatic update for NC-DSTV files**

The Document Manager checks if NC-DSTV files are up-to-date or need an automatic update.

If NC-DSTV files are up-to-date, they are placed in the “Current” branch of the Document Manager (see the figure below, on the left).

If NC-DSTV files need an automatic update, they are placed in the “Update required”.

Then with the “Update” button, the user can automatically update the necessary NC-DSTV files.
**Drawings**

**Draw 1: Speed improvements**

The speed to create the workshop drawings has been significantly improved in Advance Steel 2009. This includes single part drawings and assembly drawings.

The speed to modify some view settings within a drawing has also been improved.

The creation of cut views or a modification of the scale is much faster than in previous versions.
What is new in Advance Steel 2009

Draw 2: Automatic dimensions of saw cuts

A saw cut at the end of a beam is automatically dimensioned as required by workshops.

The user can change the helpline color and enter text within the drawing using a dialog box.
**Draw 3: Perfect placement of the Advance Steel dimensions**

The relative and absolute dimensions (if required) are automatically placed so that they do not overlap each other and give a clear workshop drawing where the user does not need to manually move incorrectly placed dimensions.

**Draw 4: Automatic dimension of environment parts**

The environment parts can be dimensioned automatically on drawings. Users can have the contour points, the median line or the system line of the main beam dimensioned.
**Draw 5: Better weld symbol size and placement**

The width size of weld symbols is automatically calculated depending on the weld label content, and the weld symbol is placed much closer to the labeled objects.

This provides much clearer drawings when users decide to display weld symbols (e.g. on assembly drawings).

**Draw 6: Object level on anchor drawing**

It is possible to add the bottom level (and the top level) of, for example, base plates, which is useful if all base plates are not at the same level. This can be added afterwards in the drawing, or this can be configured in the drawing styles (specific configuration used during the drawing creation).

**Draw 7: Orientation labels keep their moved position during an update**

If a drawing needs to be updated, the labels previously moved by the user keep their position within the drawing.
Draw 8: Automatic cut view naming

If the user deletes a Cut view and creates a new one, the number of the deleted cut view can automatically be reused, in order to have no gap in the cut view numbering.
**Draw 9: Cut views size can be modified afterwards**

In a drawing, the user can modify the cut view size and depth in the properties dialog box.
Draw 10: View borders can be printed

The green frames around the views on drawings can be printed to get a printed border around each view.

The user must activate the “Detail Frame Visibility” default and set the layer to “Plot-able”.

What is new in Advance Steel 2009

Lists

Lists 1: Saw cut list

A saw cut list can be obtained automatically with clear pictures for a better understanding.

<table>
<thead>
<tr>
<th>Mark</th>
<th>Description</th>
<th>Grade</th>
<th>Saw length (mm)</th>
<th>Quantity</th>
<th>Web (Degree)</th>
<th>Flange (Degree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PE330</td>
<td>S235JR2</td>
<td>1 227</td>
<td>2</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>PE330</td>
<td>S235JR3</td>
<td>1 972</td>
<td>5</td>
<td>0</td>
<td>-12</td>
</tr>
<tr>
<td>3</td>
<td>PE330</td>
<td>S235JR2</td>
<td>1 220</td>
<td>4</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>UPN 160</td>
<td>S235JR2</td>
<td>1 188</td>
<td>1</td>
<td>0</td>
<td>0</td>
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<tr>
<td>21</td>
<td>PE330</td>
<td>S235JR2</td>
<td>2 005</td>
<td>1</td>
<td>0</td>
<td>-22</td>
</tr>
</tbody>
</table>

The pictures are automatically created to give a clear explanation of how the beams must be cut at the workshop, reflecting if it has saw cuts on the web or on the flange or both.

Only the beams that have saw cuts are listed in this list, the elements that have no cuts or straight cuts are not listed.

Lists 2: Anchor list

An anchor list can be issued in addition to the traditional bolt list.

<table>
<thead>
<tr>
<th>Type code</th>
<th>Length (mm)</th>
<th>Grade</th>
<th>Coating</th>
<th>Quantity</th>
<th>Type</th>
<th>Weight of piece (kg)</th>
<th>Total Weight (kg)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M24 DN26 725 DISTY Anchor 4 Φ 6 None</td>
<td>725</td>
<td>6.9</td>
<td>50</td>
<td>DISTY Anchor</td>
<td>5</td>
<td>00,9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M20 DN29 530 DISTY Anchor 4 Φ 6 None</td>
<td>820</td>
<td>6.9</td>
<td>52</td>
<td>DISTY Anchor</td>
<td>1,6</td>
<td>92,4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M12 350 HRB A2 Steel galvanised</td>
<td>810</td>
<td>Steel</td>
<td>12</td>
<td>HRB A2</td>
<td>0,1</td>
<td>0,7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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What is new in Advance Steel 2009

Lists 3: More sorting options

The user has many more options for sorting the columns in lists.

Lists 4: External DSTV List

An external list can be created for each assembly workshop drawing. The user can configure the prototypes so that an external list is created when the drawing is created.
The obtained list gives a result according to the DSTV standard.
NC Files

NC Files 1: New tokens for DXF-DSTV files

Users can obtain their DXF-DSTV files with more information in the file name.

This file name customization can help to classify the files within Explorer before giving them for fabrication at the workshop.
**Miscellaneous**

- Advance Steel 2009 can be installed in Romanian and also in Japanese.
<table>
<thead>
<tr>
<th>Country</th>
<th>Company</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Hotline</th>
<th>Tool free</th>
<th>Website</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>CIVIL DESIGN Inc</td>
<td>183, St. Charles St. W. Suite 300</td>
<td>(450) 674-0657</td>
<td>(450) 674-0665</td>
<td>1-800-724-5678</td>
<td><a href="mailto:sales@civild.com">sales@civild.com</a></td>
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<td>Longueuil (Québec) Canada J4H1C8</td>
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<td><a href="http://www.graitec.com/CaFr/">http://www.graitec.com/CaFr/</a></td>
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<td>Longueuil (Québec) Canada J4H1C8</td>
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</tr>
<tr>
<td>USA</td>
<td>GRAITEC Inc.</td>
<td>221 West Exchange Ave. Suite 202</td>
<td>1-800-724-5678 ext 300</td>
<td>+420/244 016 088</td>
<td>+420/244 016 050</td>
<td><a href="mailto:abstudio@abstudio.cz">abstudio@abstudio.cz</a></td>
<td><a href="http://www.abstudio.cz/">http://www.abstudio.cz/</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dallas / Fort Worth, TX 76164-8189</td>
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<td></td>
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<tr>
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