

RotoSpider Trial User Manual

Version: EN trial V0.8.10. Text revised 2026-09-03 against the Electron application; screenshots are from the 2026-08-29 revision.

1. Introduction

RotoSpider calculates and lets you edit mold layouts on rotational molding machine spiders. It checks whether a requested mold combination can fit within the selected arm/spider geometry, then computes a layout that places as many requested molds as possible while keeping the estimated loaded weight center close to the rotation axis. The estimate places each mold's entered weight at the center of its mounting footprint; it is not a measured physical center of mass for a hollow or uneven mold.

The public Web App is a hands-on showcase of RotoSpider's core layout capability. RotoSpider Desktop is the complete layout tool: it adds complex-shape import, mold and machine master-data management, and layout file save/open. RotoSpider does not schedule factory production. That separate job belongs to RotoScheduler, which is built on RotoSpider's layout checks and adds orders, factory capacity, business rules, and data exchange.

The current public Windows, Linux, and Apple-silicon Mac trials are V0.8.10. The desktop app gives every mold one active shape: Box, Cylinder, Sphere, L-shaped prism, triangular prism, wedge / slope top, tapered cylinder, Levels Shape, drawn footprint, imported STEP, or Published Shape. These are peer choices rather than modifications layered on top of a box or cylinder.

The trial version is for functional demonstration. Its molds, machines, rule settings, and spider visual overlays are representative sample data, not certified data for a specific factory. Production use should be customized to the client's real machine geometry, mold installation method, riser options, reporting needs, and operating rules. This trial is valid through September 30, 2026.

The trial master data contains 24 synthetic molds, DEMO-M01 to DEMO-M24, and five straight-arm sample configurations. Public machine/family names, spider diameters, and published load limits are retained for traceability. Every displayed machine name includes (sample geometry) because its rotation envelope and center dead height are synthetic demonstration values, not an OEM configuration.

The Trial catalog demonstrates every editable basic shape family: DEMO-M01 to DEMO-M06 are boxes; DEMO-M07 to DEMO-M09 are L-shaped prisms; DEMO-M10 to DEMO-M12 are slopes; DEMO-M13 to DEMO-M15 are triangular prisms; DEMO-M16 to DEMO-M18 are upright or laid-down tapered cylinders; DEMO-M19 and DEMO-M20 use drawn footprints; DEMO-M21 and DEMO-M22 are native cylinders; DEMO-M23 is a Levels Shape, a tapered bin whose outline is edited level by level; and DEMO-M24 is a native sphere.

Other available features:

- cylinder molds: a mold with a diameter-prefixed Size text such as Ø121x176 is treated as a cylinder, drawn as a circle in 2D and a cylinder in 3D. Trial molds DEMO-M21 and DEMO-M22 are cylinders.
- ring layouts: when three or more copies of the same mold are requested, the solver can arrange them in a ring around the spider center, often together with a center mold, and keeps the better of the ring and standard arrangements.
- minimum and target clearance: Settings has Minimum clearance and Target clearance. When the full request does not fit at the target clearance, the Clearance scheme selector at the right end of the status strip offers relaxed alternatives down to the minimum, each labeled with the clearance actually achieved.
- optional arm weight capacity: a machine row can provide MaxLoadWeightKg; the solver then loads molds only up to that arm weight and reports the weight-limited partial load. Four public sample rows retain a published straight/main-arm load; the family-level Duroline row leaves the load blank.
- original 2D spider visual overlays that use neutral ring, beam, and hub structures below placed molds. They are illustrative Z3-created artwork, not copied client or OEM drawings.
- 3D spider visual overlays printed onto both spider surfaces on straight-arm machines.
- amber dashed clearance outlines in the 2D views.

- in-app Settings, Mold Data, and Spider / Arm Data pages for maintaining common trial data without opening Excel for every small edit.

2. Quickstart

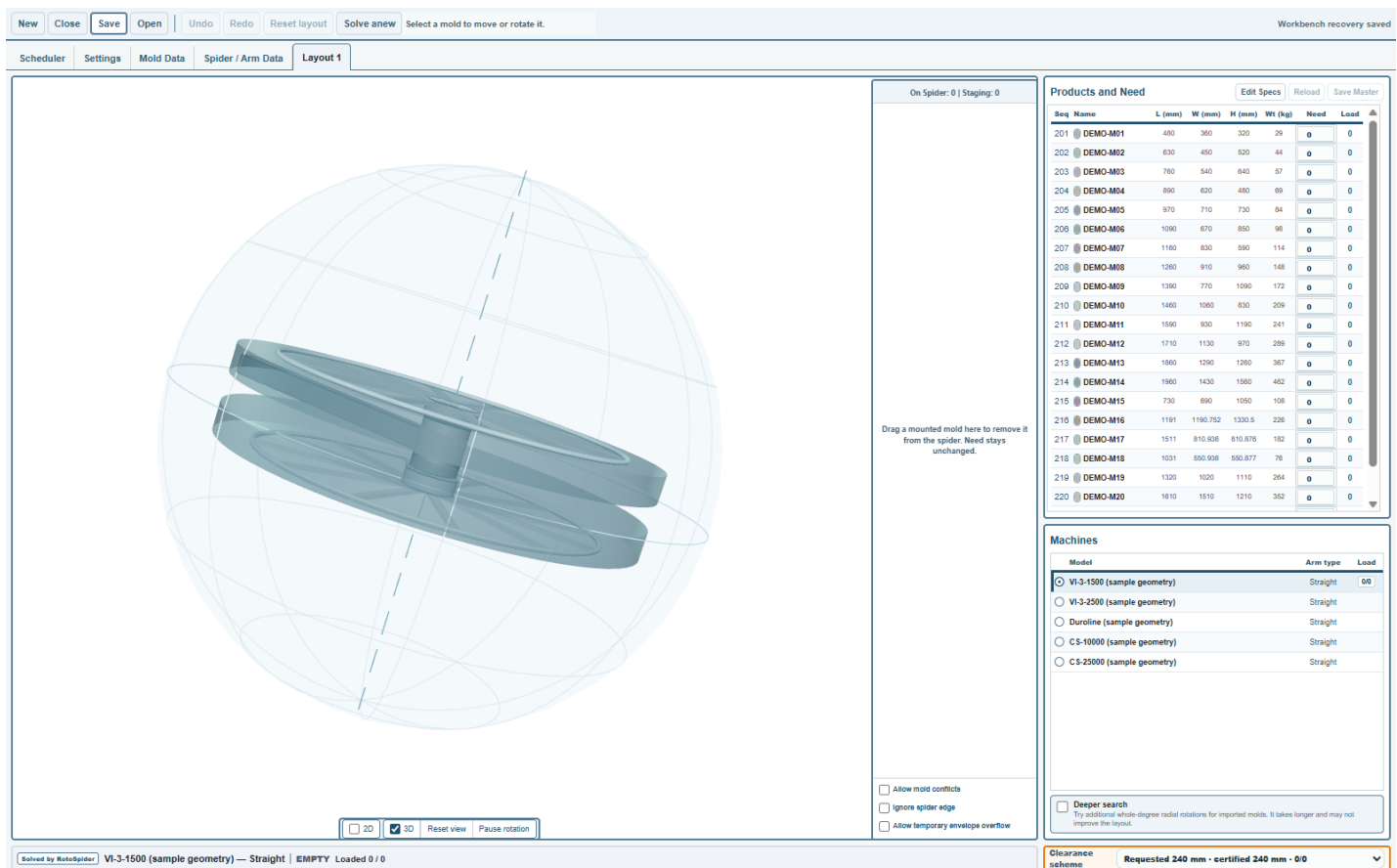
Step 1: Install and open the trial app

Install the download for your computer:

Platform	Download	Notes
Windows	RotoSpider-TRIAL_EN-0.8.10-Setup-5bd52054.exe	Full shape creation and STEP import. The installer is signed by the verified publisher. Windows may still show a reputation prompt for a newly released beta.
Mac	RotoSpider-TRIAL_EN-0.8.10-arm64-f84bc15e.dmg.zip	Apple silicon (M1 or later), signed and notarized. Extract the ZIP, open the disk image, and drag RotoSpider to Applications.
Linux	RotoSpider-TRIAL_EN-0.8.10.AppImage-9c56d53a.zip	Extract the ZIP, run <code>chmod +x</code> on the AppImage once, then run it.

On the first launch, review the trial license agreement and click **I Agree**. The app then copies the trial master data workbook into your Documents folder, under `RotoSpider/trial/masterdata.xlsx`, and opens with one blank layout tab and that master data already loaded.

An update never overwrites an existing master data workbook. This protects your edits. To inspect the current 24-mold Trial sample catalog, first back up or rename an older `RotoSpider/trial/masterdata.xlsx`, then launch the updated app so it can copy the current sample.



Startup main window

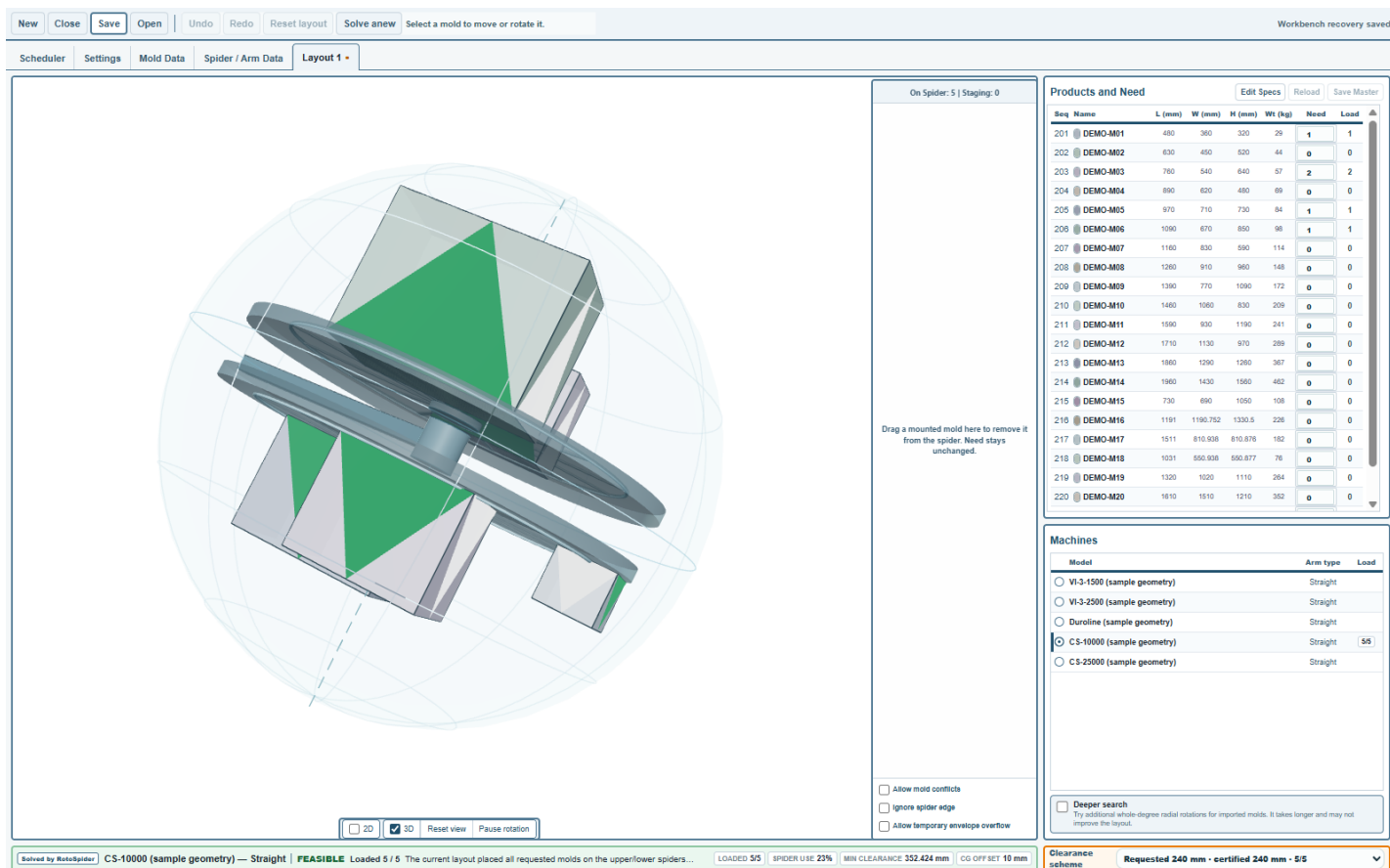
The screen is arranged in three columns, with a toolbar and page tabs above them and a status strip below:

- The **scene** fills the left. It shows the arm inside its translucent rotation envelope, turning slowly. Its own controls sit underneath it: **2D** and **3D** choose which views are shown, **Reset view** returns the camera to where it started, and **Pause rotation** holds the arm still while you look at something.
- The **staging area** is the narrow column beside it. Molds you have asked for but that are not mounted wait here. It counts what is on the spider and what is waiting, and carries the three permission switches described in section 4.
- The **input rail** is on the right: **Products** and **Need** above, listing every mold with its size, weight, **Need** and **Load**, and **Machines** below it.
- The **status strip** runs along the bottom. It names the machine and arm, states whether the layout is **FEASIBLE** or **EMPTY**, gives **Loaded** counts, and shows the **Clearance** scheme actually achieved at its right end.

Every **Need** starts at 0, so the first screen shows empty spiders. You choose what to request.

Step 2: Watch the arm and spiders rotate

The arm turns on its own as soon as a layout is on screen; there is nothing to start. The controls under the scene are **2D**, **3D**, **Reset view** and **Pause rotation**. Pause it when you want to study a placement, and press it again to let it run. A recalculation or manual edit does not restart a paused view. **Reset view** puts the camera back if you have orbited away from a useful angle.



3D simulation

For a straight arm, the app shows upper and lower spiders inside a translucent spherical envelope. By default, every mold shape must stay inside both the spider edge and this rotation envelope. Allow spider-edge overhang within the rotation envelope relaxes only the spider-edge rule, equally for every shape; the full shape must still stay inside the rotation envelope and obey mold-to-mold clearance.

Step 3: Enter mold Need quantities

The mold table has a number box under Need for each mold. It means the quantity of that mold requested for this layout. You can type a value, or hover over the number box and scroll the mouse wheel.

Each change triggers recalculation. Load is the quantity actually placed by the solver, which may be less than Need.

The screenshot below shows a straight-arm request on CS-10000 (sample geometry) [Straight]:

- DEMO-M01: 1
- DEMO-M03: 2
- DEMO-M05: 1
- DEMO-M06: 1

New Close Save Open Undo Redo Reset layout Solve anew Mold deselected. Workbench recovery saved

Scheduler Settings Mold Data Spider / Arm Data Layout 1

On Spider: 5 | Staging: 0

Products and Need

Seq	Name	L (mm)	W (mm)	H (mm)	Wt (kg)	Need	Load
201	DEMO-M01	480	360	320	29	1	1
202	DEMO-M02	630	450	520	44	0	0
203	DEMO-M03	760	640	640	57	2	2
204	DEMO-M04	890	620	480	69	0	0
205	DEMO-M05	970	710	730	84	1	1
206	DEMO-M06	1090	670	850	98	1	1
207	DEMO-M07	1180	830	550	114	0	0
208	DEMO-M08	1280	910	960	148	0	0
209	DEMO-M09	1390	770	1090	172	0	0
210	DEMO-M10	1480	1080	830	209	0	0
211	DEMO-M11	1590	930	1190	241	0	0
212	DEMO-M12	1710	1130	970	289	0	0
213	DEMO-M13	1860	1290	1260	367	0	0
214	DEMO-M14	1980	1430	1550	452	0	0
215	DEMO-M15	730	690	1050	108	0	0
216	DEMO-M16	1191	1190.752	1330.5	226	0	0
217	DEMO-M17	1511	810.808	810.878	162	0	0
218	DEMO-M18	1031	850.808	850.877	76	0	0
219	DEMO-M19	1330	1020	1110	264	0	0
220	DEMO-M20	1610	1510	1210	352	0	0

Machines

Model	Arm type	Load
☐ VI-3-1500 (sample geometry)	Straight	
☐ VI-3-2500 (sample geometry)	Straight	
☐ Duroline (sample geometry)	Straight	
☒ CS-10000 (sample geometry)	Straight	5/5
☐ CS-25000 (sample geometry)	Straight	

Deeper search
Try additional whole-degree radial rotations for imported molds. It takes longer and may not improve the layout.

Clearance scheme Requested 240 mm - certified 240 mm - 5/5

Solved by RotoSpider CS-10000 (sample geometry) — Straight FEASIBLE Loaded 5 / 5 The current layout placed all requested molds on the upper/lower spiders... LOADED 5/5 SPIDER USE: 23% MIN CLEARANCE 352.424 mm CG OFF SET 10 mm

Auto layout after entering quantities

The status strip reports whether the complete request fits at the current clearance and shows the number actually loaded. You can see:

- **Need** is the requested quantity. **Load** is the quantity placed.
- A green +1 mark means that increasing this row's **Need** by one can mount the added copy under the current machine and rules. A red +1 mark means the added copy would remain in the staging area. This preview uses the same copy order and clearance search as the automatic layout.
- The light gray line art below the molds is the spider visual overlay. It is a visual aid only; the solver still uses the numeric masterdata and settings.
- Each mold uses its active outline in 2D. L, triangle, slope, tapered, drawn, and imported molds are not replaced by their outside boxes.
- The amber dashed outline around each mold is the clearance footprint used for the configured mold-to-mold clearance.
- You can drag a mold in the 2D view. The app checks the edited placement against the same geometry and clearance rules.

Step 4: Try a different machine

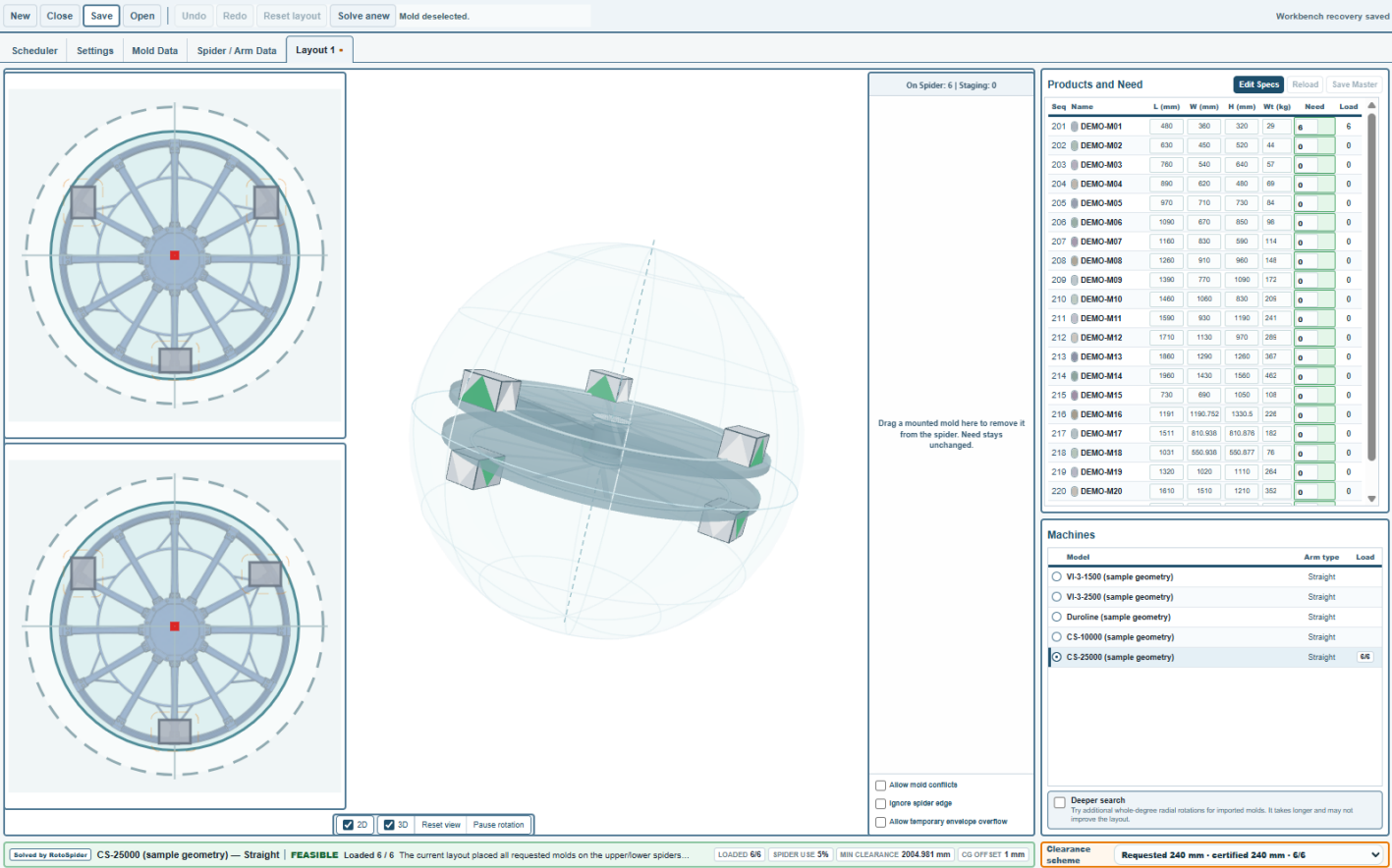
Select another row in the machine list. The same mold request is recalculated on that geometry, and the **Load** column of the machine list shows how each arm handled it. Selecting a row also shows a small card with that arm's geometry; select the row again to hide it.

The public seed is deliberately straight-arm only. RotoSpider also supports **offset/L** arms with a single spider, trimmed vertical/horizontal envelopes, spider Y offset, and optional riser heights, but no **Offset/L** sample is included until its geometry can be supplied as an authorized production configuration or as a separately reviewed synthetic design.

Step 5: Try different mold shapes and ring layouts

Request one mold from each group above to compare its real outline in 2D and its full solid in 3D. Trial molds DEMO-M21 (Ø1210 x 1760 mm) and DEMO-M22 (Ø840 x 760 mm) are cylinders. They are drawn as circles in the 2D spider views and as cylinders in 3D.

When you request three or more copies of the same mold, the solver can arrange them in a ring around the spider center, often with another copy placed in the center. The ring arrangement is used only when it is at least as good as the standard arrangement.

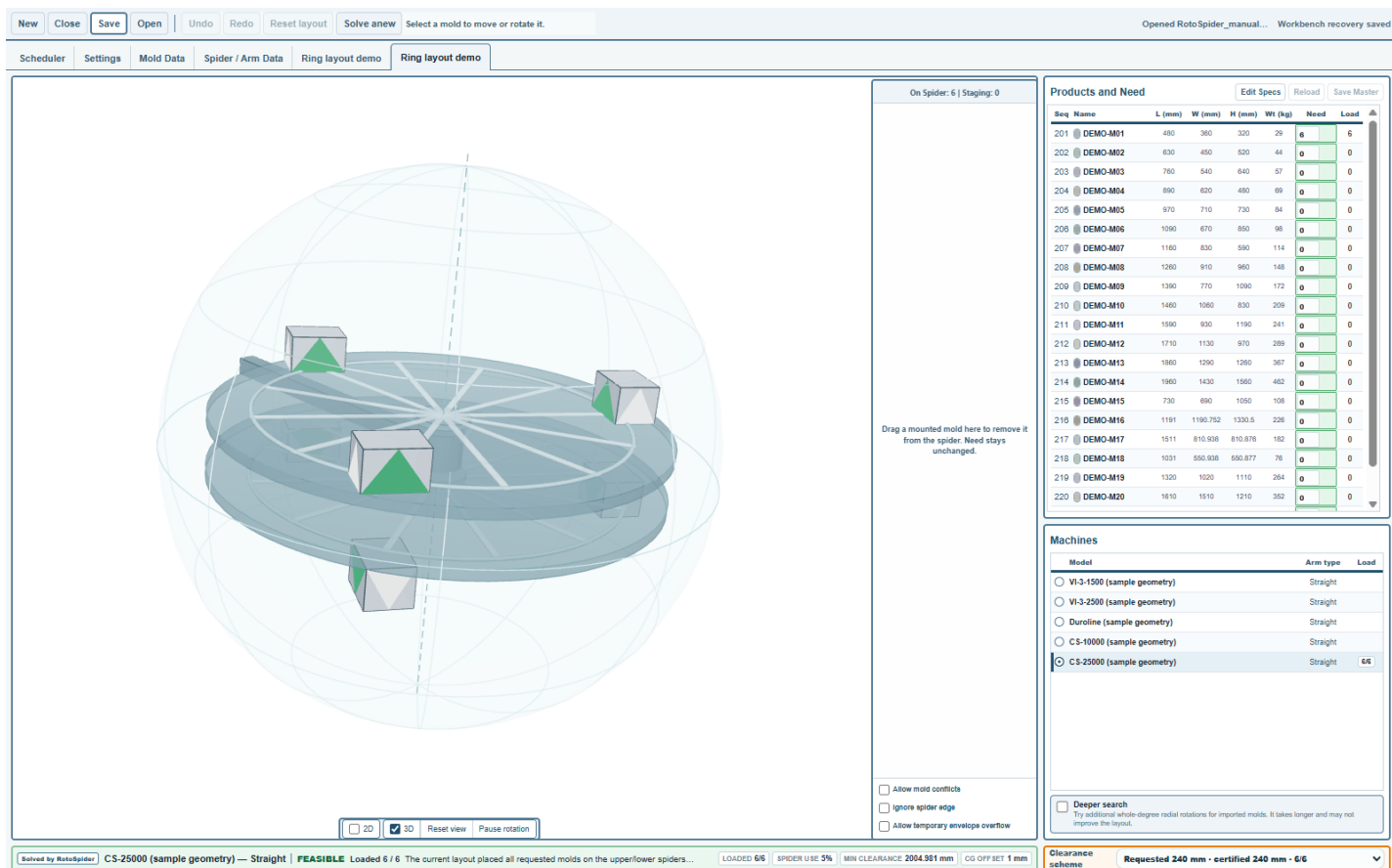


Ring layout on a straight-arm spider

The example above requests six DEMO-M01 molds on CS-25000 (sample geometry) [Straight]. The layout shows the ring option with the trial's 240 mm target-clearance outlines in 2D and the spherical envelope in 3D.

Step 6: Save and reopen a layout

Click Save to save the current layout as an Excel workbook. The app first asks for a layout name, which becomes the name on the layout tab, and then asks where to save the file. Later, click open to reopen a saved layout workbook; it opens in its own tab beside the current one.



Saved and reopened layout

The saved workbook is both a report and a reload file. It includes a layout summary, embedded 2D/3D images, and internal layout data for this release.

3. Settings And Master Data

The app maintains common settings and master data inside the app. Excel editing is still available for batch changes, but the in-app pages are easier for understanding field meaning and making targeted edits.

Settings page

Open the Settings tab. It holds five things:

- Language: Chinese or English.
- Display and input unit: millimetres or inches. This changes how lengths are shown and typed; the workbook itself is unchanged.
- Rendering: Use software rendering relaunches RotoSpider with hardware acceleration disabled. Use it when the 3D view is blank or unstable on an older machine.
- Minimum clearance and Target clearance, the mold-to-mold clearance values. The public trial defaults are 120 and 240.
- Support bundles, described below.

New Close Save Open Workbench recovery saved

Scheduler Settings Mold Data Spider / Arm Data Layout 1

DESKTOP PREFERENCES Settings

Clearance is the mounting access gap between neighboring molds on one spider. Applying a change refreshes every open layout.

Language

☐ Chinese ☒ English

Display and input unit

☒ Millimetres (mm) ☐ Inches (inch)

Rendering

☐ Use software rendering

Relaunches RotoSpider with hardware acceleration disabled. Use this when the 3D view is blank or unstable.

Minimum clearance

120

Hard lower bound used by the relaxed frontier.

Target clearance

240

Preferred mounting access clearance.

Support bundles

RotoSpider automatically keeps ready-to-send ZIPs for completed or failed sessions. They include settings, masterdata, layout workbooks, schedule JSON, and replay operations. Nothing is uploaded. 1 bundles - 2.4 MiB

☒ Record local support bundles

Maximum bundle size (MiB)

100

Total retained size (MiB)

1024

Normally ended bundles to keep

20

Crashed or incomplete bundles to keep

5

Maximum checkpoints per bundle

8

Capture and retention setting changes take effect after the next launch.

Export latest support bundle... Open support folder Clear old support bundles

Apply

Settings page for mold-to-mold clearance

Mold-to-mold clearance means the edge-to-edge space between neighboring molds on the same spider. It is mainly mounting access clearance, so workers have room for hands, bolts, clamps, and tools.

It is not mold-to-spider-edge clearance, and it is not mold-to-envelope clearance. The solid outline is the real active mold footprint. The amber dashed outline is the clearance footprint used for pairwise mold spacing. Envelope and spider boundary checks use the complete active shape.

Allow spider-edge overhang within the rotation envelope is off by default. When it is on, a mold may extend beyond the spider edge only while its complete active shape remains inside the machine's rotation envelope. Mold-to-mold clearance, dead-height, riser, and other fit checks remain active.

The solver first tries to satisfy the target clearance. If the full request does not fit at the target, it also computes relaxed alternatives down to the minimum allowed clearance. The Clearance scheme selector at the right end of the status strip then lists the options, each labeled with the clearance actually achieved and the placed count, so you can decide whether a tighter-but-fuller layout is acceptable.

To change the values:

1. Enter new values in Minimum clearance and Target clearance.
2. Click Apply.
3. The app saves the settings and recalculates every open layout.

Support bundles

The lower half of the Settings page controls support bundles. RotoSpider keeps a ready-to-send ZIP for each finished or failed session, holding the settings, master data, layout workbooks, layout state, and replay operations for that session. **Nothing is uploaded anywhere.** The bundle only exists on your machine until you choose to send it.

Control	What it does
Record local support bundles	Turn the recording on or off.
Maximum bundle size (MiB)	Largest single bundle to keep.
Total retained size (MiB)	How much disk all bundles may use together.
Normally ended bundles to keep	How many ordinary sessions to retain.
Crashed or incomplete bundles to keep	How many failed sessions to retain.
Maximum checkpoints per bundle	How much detail each bundle records.
Export latest support bundle...	Save the most recent bundle somewhere you choose.
Open support folder	Open the folder holding them.
Clear old support bundles	Delete the retained bundles.

Capture and retention changes take effect at the next launch. If you report a problem, exporting the latest bundle and sending it is the fastest way to give us what we need to reproduce it.

Mold Data page

Open the **Mold Data** tab to review and edit mold master data. The left side is a table of Seq, Name, footprint or diameter, height, weight, and mold count. The right side is a 3D preview of the selected mold. The header names the workbook file and shows its generation and fingerprint, so you can tell when the file on disk has changed.

NewCloseSaveOpen

Workbench recovery saved

SchedulerSettingsMold DataSpider / Arm DataLayout 1

DESKTOP WORKBOOK

Mold Data

Edit the workbook dimensions, weight, and available mold count. Names and sequence numbers identify existing workbook rows.

masterdata.xlsx

Generation 1 - sha256:356e9d1f090c7b2d5e1f51d00f69b0d13f176cc08f7f9b2978e288324e28f88

Seq	Name	Shape	Footprint (mm)	Height (mm)	Weight (kg)	Mold count
201	DEMO-M01	Box	480 × 360	320	29	0
202	DEMO-M02	Box	630 × 450	520	44	0
203	DEMO-M03	Box	760 × 540	640	57	0
204	DEMO-M04	Box	890 × 620	480	69	0
205	DEMO-M05	Box	970 × 710	730	84	0
206	DEMO-M06	Box	1090 × 670	850	98	0
207	DEMO-M07	L-shaped prism	1160 × 830	590	114	0
208	DEMO-M08	L-shaped prism	1260 × 910	960	148	0
209	DEMO-M09	L-shaped prism	1390 × 770	1090	172	0
210	DEMO-M10	Wedge / slope top	1460 × 1060	830	209	0
211	DEMO-M11	Wedge / slope top	1590 × 930	1190	241	0
212	DEMO-M12	Wedge / slope top	1710 × 1130	970	289	0
213	DEMO-M13	Triangular prism	1860 × 1290	1260	367	0
214	DEMO-M14	Triangular prism	1960 × 1430	1560	462	0
215	DEMO-M15	Triangular prism	730 × 690	1050	108	0
216	DEMO-M16	Tapered cylinder	1191 × 1190.752	1330.5	226	0
217	DEMO-M17	Tapered cylinder	1511 × 810.938	810.876	182	0
218	DEMO-M18	Tapered cylinder	1031 × 550.938	550.877	76	0

GEOMETRY PREVIEW

DEMO-M01

Mold

Length 480 mmWidth 360 mmHeight 320 mm

Drag to orbit · wheel or pinch to zoom

Mold data maintenance

The mold preview explains the fields:

- The green face and white triangle show mold orientation.
- Labels mark length, width, and height.
- Drag the preview area to rotate the view, and use the wheel to zoom.
- Edits to length, width, height, and weight refresh the preview.

Click **Save** to write changes back to `masterdata.xlsx`. The button stays disabled until something changes, and the header shows whether there are unsaved local edits. Keep a backup before making real master-data changes.

Change a mold shape

Select a mold on the **Mold Data** page and click **Change Shape**. Box, Cylinder, L-shaped prism, triangular prism, wedge / slope top, tapered cylinder, drawn footprint, imported STEP, and Published Shape are equal choices. Selecting one replaces the mold's previous shape; it does not keep a hidden box or cylinder underneath.

For a Cylinder, **Diameter** is the full width of the circular footprint. For an L-shaped prism, enter the outside length and width, the notch length and width, and the height. The other dimension-built shapes show only the measurements needed for that shape. Preview the result, publish it, then click **Save** on the Mold Data page to keep it in the master workbook.

The Windows Trial can build dimension-based and drawn shapes and import STEP. Linux and Mac can install and use a `.rotogeom` Published Shape or a `.rotoshape` package, but shape creation and STEP import are unavailable there because those packages do not include the Windows CAD preparation tools.

Each mold still has one measured outside length, width, and height for tables, reports, and early fit checks. Exact collision and rotation-envelope checks use the active shape itself.

Spider / Arm Data page

Open the Spider / Arm Data tab to maintain machine-arm geometry. Every row in the public trial is a straight-arm sample.

NewCloseSaveOpen

SchedulerSettingsMold DataSpider / Arm DataLayout 1

DESKTOP WORKBOOK

Spider / Arm Data

Edit Straight and Offset/L arm geometry. A workbook row may provide both variants.

No local editsSave

masterdata.xlsx

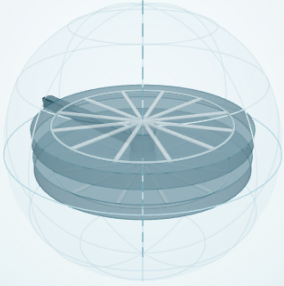
Generation 1 : sha256:356ea81f950c7b2d5c1fb1d00f6b0dd13f17d0c087f5b2078e288324e2898

Model	Variant	Rotation / vertical envelope (mm)	Spider diameter (mm)	Dead height / spider Y (mm)	Horizontal envelope (mm)
VI-3-1500 (sample geometry)	Straight	1500	1200	240	—
VI-3-2500 (sample geometry)	Straight	1950	1600	310	—
Duroline (sample geometry)	Straight	2900	2400	410	—
CS-10000 (sample geometry)	Straight	3150	2600	430	—
CS-25000 (sample geometry)	Straight	4550	3800	540	—

GEOMETRY PREVIEW

Spider / arm

VI-3-1500 (sample geometry) · Straight arm



Spider diameter 1200 mmRotation envelope 1500 mm

Center dead height 240 mm

Drag to orbit · wheel or pinch to zoom

Straight-arm spider data maintenance

Straight-arm rows use:

- spider diameter
- rotation envelope diameter
- center dead height between the upper and lower mold-mounting surfaces; the drawn spider-plate thickness extends into this gap and does not reduce the rotation envelope again

When an authorized production workbook contains Offset/L rows, they use:

- spider diameter
- vertical envelope diameter
- spider Y offset
- horizontal envelope diameter after side trim
- riser height options

The right-side 3D preview labels the corresponding geometry. It is rotatable by dragging.

Click **Save** to write edited arm/spider values back to `masterdata.xlsx`.

Excel workbook fields

The trial workbook is seeded into your Documents folder:

`Documents\RotoSpider\trial\masterdata.xlsx`

The **Molds** sheet uses these columns:

Column	Meaning	Unit / format
Seq	sequence number used as a stable display id	integer
Name	mold display name	text
LengthCm	mold footprint length	cm in workbook, shown as mm in app
WidthCm	mold footprint width	cm in workbook, shown as mm in app
HeightCm	mold height	cm in workbook, shown as mm in app
WeightKg	mold weight	kg
Color	mold display color	hex color such as #ADB4BE; blank values are auto-filled by the app
Size	optional size text; a diameter prefix (Ø, ø, φ, Φ) marks a cylinder mold, read as diameter x height	cm, such as Ø121x176; leave LengthCm/WidthCm/HeightCm empty for that row
FootprintShape	native shape marker used only when no Published Shape is active	Circle for Cylinder; blank for Box
GeometrySourceKind	source of an active Published Shape	app-managed text
ShapeDefinitionId	exact editable definition identity for a generated shape	app-managed identity
GeometryAssetId / GeometryAssetRevision	exact identity of the active Published Shape	app-managed identity pair

Trial rows **DEM0-M21** (Ø121x176) and **DEM0-M22** (Ø84x76) use the cylinder form.

Use the app's **Change Shape** command for these shape fields. Do not edit or copy the identity cells by hand: the app checks that the complete identity matches the installed shape archive and its measured bounds.

The **Machines** sheet uses these columns:

Column	Meaning	Unit / format
Model	machine model shown in the machine list	text
StraightEnvelopeDiaMm	straight-arm rotation envelope diameter	mm
StraightSpiderDiaMm	straight-arm spider diameter	mm
StraightDeadHeightMm	unusable center height between upper and lower spider surfaces	mm
OffsetArmVertDiaMm	Offset/L vertical or full rotation envelope diameter	mm
OffsetArmSpiderDiaMm	Offset/L spider diameter	mm
OffsetArmSpiderYmm	Offset/L spider Y offset from spider center to sphere center	mm
OffsetArmHorzDiaMm	Offset/L horizontal usable envelope diameter after side trim	mm
OffsetArmRiserHeightMm	riser options, such as 400 or 400, 650	mm
MaxLoadWeightKg	optional maximum total mold weight on one arm; when set, the solver loads molds only up to this weight	kg; blank means no cap

If one row has both straight-arm and **offset/L** fields, the app creates two selectable arm rows for that model.

The workbook's **Sources** sheet states which released fields are public facts and which are synthetic. It is provenance documentation and is not loaded as solver data.

Riser selection

Riser selection applies only to `offset/L` rows. For each requested layout, the solver evaluates:

- `0` mm, meaning the mold is mounted directly on the spider
- every positive riser height listed in `OffsetArmRiserHeightMm`

The same global riser height is used for one `offset/L` layout. RotoSpider does not assign different riser heights to different molds on the same spider.

The solver chooses results in this order:

1. place more requested molds
2. prefer a fully feasible layout over a partial layout
3. among comparable feasible results, choose the riser height with better 3D center-of-gravity position
4. use 2D balance, spider utilization, area, and packing penalty as tie-breakers
5. if everything still ties, choose the lower riser height

4. Main Screen Tour

Toolbar

The toolbar shows only what applies to the current state, so it stays short.

Always available, at the left:

Control	What it does
New	Create a new blank layout tab.
Close	Close the active layout tab.
Save	Save the active layout as an Excel layout workbook.
Open	Open a saved RotoSpider layout workbook.

Also always available, for the layout itself:

Control	What it does
Undo / Redo	Step back and forward through your manual edits.
Reset layout	Restore the most recent automatic layout. Undo brings the current manual draft back.
Solve anew	Run automatic placement again from the current inputs. Undo brings the current manual draft back.

The scene has its own controls, underneath it rather than in the toolbar:

Control	What it does
3D	Show the arm in three dimensions.
2D	Show the flat spider plans beside it.
Reset view	Return the camera to its starting angle.
Pause rotation	Hold the arm still; press again to let it turn.

There is no separate button for moving or rotating a mold. Both are done by dragging, as described under **Manually adjust a layout** in section 5.

Product controls sit in the header of the `Products` and `Need` band, next to the mold table they act on:

Control	What it does
Edit Specs	Allow mold L, W, H, and Wt fields to be edited in the active layout.
Reload	Reload mold specs from the master data workbook.
Save Master	Save current mold spec edits back to the master workbook.

Page tabs

Settings, Mold Data, and Spider / Arm Data are global pages. Every open layout has its own tab after them, and the active layout tab shows a dot while it has unsaved changes.

2D views

Straight-arm machines show upper and lower spider 2D views. Each circle is a spider. Every placed mold is drawn using its active footprint, so an L, triangle, slope, tapered, drawn, or imported mold is not replaced by its outside box. The visual overlay, when available, is drawn below the molds. offset/L machines are single-spider layouts, so they show one 2D view.

3D view

The 3D view shows:

- upper/lower or single-spider machine geometry
- spider visual overlays on the spider surfaces
- translucent rotation envelope
- each mold's active 3D shape
- the Selected riser label when a nonzero riser is chosen
- selected mold marker
- simulated arm/spider rotation

Use the 3D view for visual inspection. Solving constraints use the active mold shapes, measured outer dimensions, envelope geometry, spider-edge rule, risers, and mold-to-mold clearance.

Staging area

The narrow column between the scene and the input rail is the staging area. Any mold copy you have asked for that is not mounted waits here, whether the app could not place it or you took it off yourself. Its heading counts what is on the spider against what is waiting.

Putting a mold here does **not** change your Need. The mold is still requested; it simply has no place on the spider yet. Drag it back onto the spider to remount it.

Three switches sit below the list. They relax a check that would otherwise refuse a position, so you can explore an arrangement the strict rules reject:

Switch	What it allows
Allow mold conflicts	Two molds closer than the mold-to-mold clearance.
Ignore spider edge	A mold past the edge of the spider.
Allow temporary envelope overflow	A mold reaching outside the rotation envelope while you work.

Nothing is hidden when these are on: a mold kept in a position that breaks a rule stays marked, and the layout is not treated as ready for production while it is. Switch them off again to restore the strict check.

Status strip

The strip along the bottom of the window reports the active result: the machine and arm, **FEASIBLE** or **EMPTY**, and the **Loaded** count against the requested count. At its right end it shows the **Clearance** scheme actually achieved, and the selected riser when one is used.

Mold table

Column	Meaning
color square	mold display color; click to choose another color for this layout
Seq	mold sequence number
Name	mold name
L (mm)	mold length
W (mm)	mold width
H (mm)	mold height
Wt (kg)	mold weight
Need	requested quantity
Load	quantity placed by the solver

Increasing or decreasing **Need** recalculates the layout immediately without discarding the arrangement you were reviewing. The first result keeps every other mounted mold at its existing position and angle. When **Need** increases, RotoSpider tries to mount the added copy in the remaining space; if it cannot, the copy waits in the staging area. When **Need** decreases, a waiting copy is removed first; otherwise one mounted copy is removed and the others stay put.

RotoSpider then checks a complete rearrangement. It applies that second result only when it is better under the same automatic-layout rules. If a rearranged result is shown, the first **Undo** returns to the fixed-position result while keeping the new **Need**; a second **Undo** restores the previous **Need** and layout. These checkpoints work the same way after manual edits and in the public Web App.

Machine list

The machine list shows **Model**, **Arm type**, and **Load**. Select a row to recalculate the active layout with that geometry. The **Clearance** scheme selector sits below the list and offers the relaxed alternatives described in section 3.

5. Common Workflows

Create a new layout

1. Click **New**.
2. Select a machine and arm.
3. Enter **Need** quantities.
4. Review **Load**, 2D placement, and 3D view.
5. Save if the layout should be kept.

Layout copies and global data

Settings, **Mold Data**, and **Spider / Arm Data** are global defaults for new layouts. Each layout tab keeps its own copy of the mold data, arm geometry, and layout settings that were active when the layout was created or opened.

If global data changes while a layout tab remains open, the layout does not change immediately. The tab reports that it is out of date, and you choose whether to refresh it from the global data or keep the layout's current copy.

What-if edits inside a layout affect only that layout. Use **Save Master** only when the local mold spec changes should become masterdata.

Compare machines

1. Keep the current **Need** quantities unchanged.
2. Select another machine or arm row.
3. Compare the **Load** column, envelope feasibility, center of gravity, and spider utilization.
4. Save or screenshot cases where the result does not match production experience.

Manually adjust a layout

1. Click a mold to select it. A handle appears at its centre for moving it, with a ring around it for turning it.
2. Drag the handle to slide the mold across the spider.
3. Drag the ring to turn the mold about its own centre.
4. Drag the mold onto the staging area to take it off the spider. Your **Need** does not change; drag it back to remount it.
5. Use **Undo** or **Redo** to step through your changes, or **Reset layout** to return to the most recent automatic layout.

Every position is checked as you go. If a target position would break a clearance rule or leave the rotation envelope, the app refuses it and says why in plain words rather than committing the move.

Edit mold dimensions inside the active layout

Use this for quick what-if checks when you want to test a different mold size or weight without first editing Excel.

The screenshot displays the RotoSpider software interface. The main workspace shows a 3D isometric view of a spider with several molds mounted on its arms. To the left, there are two 2D top-down views of the spider's layout. The right sidebar contains a 'Products and Need' table and a 'Machines' section.

Products and Need Table:

Seq	Name	L (mm)	W (mm)	H (mm)	Wt (kg)	Need	Load
201	DEMO-M01	480	360	320	28	1	1
202	DEMO-M02	630	450	520	44	0	0
203	DEMO-M03	760	640	900	87	2	2
204	DEMO-M04	890	620	480	69	0	0
205	DEMO-M05	970	710	730	84	1	1
206	DEMO-M06	1090	670	850	98	1	1
207	DEMO-M07	1160	830	590	114	0	0
208	DEMO-M08	1280	910	960	148	0	0
209	DEMO-M09	1390	770	1090	172	0	0
210	DEMO-M10	1480	1080	830	208	0	0
211	DEMO-M11	1590	930	1190	241	0	0
212	DEMO-M12	1710	1130	970	288	0	0
213	DEMO-M13	1980	1290	1260	367	0	0
214	DEMO-M14	1980	1430	1560	463	0	0
215	DEMO-M15	730	690	1050	108	0	0
216	DEMO-M16	1191	1190.752	1330.5	226	0	0
217	DEMO-M17	1511	810.938	810.876	182	0	0
218	DEMO-M18	1031	550.938	550.877	76	0	0
219	DEMO-M19	1320	1020	1110	264	0	0

Machines Section:

Model	Arm type	Load
☐ VI-3-1500 (sample geometry)	Straight	
☐ VI-3-2500 (sample geometry)	Straight	
☐ Duroline (sample geometry)	Straight	
☒ CS-10000 (sample geometry)	Straight	55
☐ CS-25000 (sample geometry)	Straight	

Clearance scheme: Requested 120 mm • certified 240 mm • 5/5

What-if mold specification edit

Steps:

1. Click **Edit Specs** in the **Products** and **Need** header.
2. Edit **L**, **W**, **H**, or **wt** in the mold table.
3. Change **Need** or review the recalculated layout.
4. Click **Save Master** only if the edited specs should update the master workbook.
5. Click **Reload** to discard current in-app spec changes and return to the master workbook values.

Save Master writes to **masterdata.xlsx**.

6. Practical Notes

- Use **Need** for planning requests and **Load** for what was actually placed.
- If a mold cannot be fully loaded, try a larger machine or arm, reduce other mold loads, or review clearance.
- Use the 2D visual overlay as context, not as a hard constraint.
- Use the 3D view to inspect rotation envelope clearance and riser height.
- If the 3D view is blank or unstable on an older computer, turn on **Use software rendering** in **Settings**.
- Use the master-data pages for targeted edits, and Excel for larger batch changes.
- Keep backups before changing **masterdata.xlsx**.
- Trial data and rules are for demonstration. Final customer delivery should be customized.

7. Change Log

V0.8.10

- Added two new mold shape choices: **Levels Shape**, for a mold whose outline changes from level to level (a tapered bin, a kayak hull, a domed tank), built by stacking and editing outlines rather than typing one set of measurements; and **Sphere**, for a mold that rests on the plate at a single point. The Trial sample catalog gained one example of each, **DEMO-M23** and **DEMO-M24**, bringing it to 24 molds.
- Mold-to-mold clearance between two **Levels Shape** solids, or between a **Levels Shape** solid and any other shape, is computed exactly rather than falling back to the coarser voxel estimate, matching every other shape family.
- Rebuilt the signed Windows, qualified Linux, and signed/notarized Apple-silicon Mac packages from the same clean source commit.

V0.8.9

- Showed the preserved-arrangement result of a **Need** change immediately, with the improved automatic rearrangement following as soon as it is ready. Previously a large **Need** change could briefly leave the layout unchanged on screen while the solver worked.
- Moved the background feasibility probes that color the **+1** previews into their own solver process, so manual edits and quantity changes never wait behind them.
- Fixed a case where reopening a workbook holding quarter-turn catalog shapes could lose the on-screen workspace.
- Restructured the manual-editing and session-replay internals for long-term maintainability, with expanded automated test coverage, and rebuilt the signed Windows, qualified Linux, and signed/notarized Apple-silicon Mac packages from the same clean source commit.

V0.8.8

- Made every `Need` change preserve the current mounted arrangement first, including manual edits, before checking whether a full rearrangement gives a better automatic layout. Undo steps back through both results and then to the previous `Need`; decreasing `Need` removes staged copies first.
- Kept a paused 3D view paused through recalculation and manual editing, and aligned the green/red `+1` preview with the same placement order and clearance search used when the quantity is actually increased.
- Rebuilt the signed Windows, qualified Linux, and signed/notarized Apple-silicon Mac packages from the same clean source commit. New Mac profiles receive the current 22-mold sample workbook and its generated-shape files; an existing user workbook is preserved during an update.

V0.8.7

- Kept a late solver-pipe error during normal app shutdown inside desktop supervision, so closing the app is not archived as a crash. Genuine solver, renderer, and main-process failures remain crash-classified.
- Rebuilt the signed Windows and Linux packages from the same clean source commit. The signed and notarized Apple-silicon Mac package remains V0.8.1.

V0.8.6

- Kept normal app closure out of crash support metadata even when Chromium reports its renderer exiting after the desktop window has begun closing. Genuine renderer failures are still captured as crashes.
- Refreshed the signed Windows and Linux packages from the same clean source commit. The signed and notarized Apple-silicon Mac package remains V0.8.1.

V0.8.5

- Kept RotoSpider focused on mold layout: the desktop app no longer exposes the separate RotoScheduler production-scheduling workspace, and it reopens layout files saved by V0.8.1.
- Allowed `Need` to be zero, meaning that the mold is not requested for the current layout.
- Clarified that the three staging-area switches govern manual placement, while `Allow spider-edge overhang within the rotation envelope` governs automatic layout. With overhang disabled, manual and automatic placement both keep the active mold shape inside the spider.
- Explained the two recovery actions: `Reset layout` returns to the last computed layout; `Solve anew` discards manual edits and computes a new result. Both can be undone.
- Published the same shared layout behavior in the signed Windows and Linux desktop packages. The signed and notarized Apple-silicon Mac package remains V0.8.1.

V0.8.3

- Rewrote the manual against the Electron application. The earlier text described the C++Builder/FireMonkey interface, which no longer matches what a trial user opens.
- Retook every screenshot from the current application, and scripted the captures so a future interface change re-runs them rather than needing them retaken by hand.
- Documented the staging area and support bundles, which the manual had never covered.
- Removed the `Sim / Stop / Step` toolbar, the `Rotate` button, and the upper/lower spider transfer. None of them exist any more; rotation runs on its own and is paused with `Pause rotation`, and molds are moved and turned by dragging.

V0.8.1

- Kept every mold shape inside the spider by default. Added one explicit `Allow spider-edge overhang within the rotation envelope` option that applies equally to Box, Cylinder, generated, drawn, and imported shapes.

- Drew exact active footprints in 2D instead of showing the outside box for an L, triangle, slope, tapered, drawn, or imported shape.
- Added exact analytic collision checks for dimension-built shapes while retaining conservative voxel checks for imported complex geometry.
- Added local WebAssembly layout computation for supported browser cases while retaining the complete server WebAPI and MCP interfaces.
- Made the equal-peer shape chooser fit common desktop and high-scale displays.
- Verified the downloadable Linux package by importing a portable exact shape, saving and reopening it, and calculating its layout offline.

V0.8.0

- Made Box, Cylinder, L-shaped prism, triangular prism, wedge / slope top, tapered cylinder, drawn footprint, imported STEP, and Published Shape peer choices with one active shape per mold.
- Added exact shape-aware layout, rotation-envelope, manual-edit, workbook save/reopen, and integration checks.
- Added editable generated-shape packages and portable Published Shape packages.
- Enabled shape creation and STEP import in the Windows English Trial. Linux and Apple-silicon Mac use Published Shapes but do not include the Windows CAD preparation tools.

2026-07-31 public trial data revision

- Replaced all QDYL-derived trial molds, machine names, geometry, rule clearances, and spider overlays.
- Added 22 independently created DEMO-Mxx molds and five straight-arm sample configurations with public name/spider/load provenance and visibly labelled synthetic geometry.
- Added original neutral spider artwork and a workbook Sources sheet. The QDYL edition remains separate and unchanged.

V0.7.2

- New desktop application for Windows, Apple silicon Mac, and Linux, replacing the Windows-only build. Layout engine, master data workbook, and saved layout files are unchanged and interchangeable with the earlier version.
- Toolbar reorganized: file actions and 3D controls are always visible, editing controls appear when a mold is selected, and mold spec controls moved into the Products and Need header.
- Layout tabs, a status strip with spider utilization and center-of-gravity badges, and a Clearance scheme selector below the machine list.
- Settings gained language selection and a software-rendering option for computers with weak graphics hardware.
- Per-layout mold colors, an in-app layout name prompt when saving, and master-data pages that show the workbook fingerprint and unsaved-edit state.

V0.6.1

- Corrected straight-arm geometry so StraightDeadHeightMm is treated as the gap between the two mold-mounting surfaces; visual spider-plate thickness is no longer subtracted from usable rotation-envelope space.
- Updated the 3D straight-arm plates to extend inward into the center gap while molds remain mounted on the two specified surfaces.
- Added straight-arm regression coverage for mounting-surface geometry and upper/lower placement counts using synthetic test fixtures.

V0.6

- Added cylinder molds: diameter-prefixed Size text such as Ø121x176, drawn as circles in 2D and cylinders in 3D.

- Added ring layouts: three or more copies of the same mold can be arranged in a ring around the spider center when that is at least as good as the standard arrangement.
- Split the clearance setting into a minimum and a target, with a selector offering relaxed alternatives when the target does not fit everything.
- Added optional `MaxLoadWeightKg` per machine arm with weight-limited partial loads.
- Trial validity extended through September 30, 2026.

V0.5.1

- English trial package asks for first-run trial license acceptance and includes `TRIAL_LICENSE.txt`.
- Layout tabs keep local mold, arm, and settings snapshots so open layouts do not silently change after global data edits.

V0.4

- Added trial spider visual overlays, 3D spider visual overlays on spider surfaces, and amber dashed clearance outlines in the 2D views.
- Added the configurable `mold-to-mold clearance` setting.
- Added `Settings`, `Mold Data`, and `Spider/Arm Data` pages with rotatable master-data previews.

V0.3 and earlier

- Established trial mold and machine masterdata loading.
- Supported straight-arm and `Offset/L` layout solving, riser selection, manual 2D edits, 3D inspection, save, and reopen.