Vintech Duct

CAD/CAM system for parametric design and NC programming of orders for flat patterns of fittings of HVAC systems

Purpose of Vintech Duct

➢ Designs flat patterns of duct parts using libraries with parametric macros for rectangular, round and conical fittings, taking into account the assembling technology,

➢ creates automatic and interactive true shape nesting and NC programming,

➢ Manages orders and organises CNC manufacturing.

Configuration

The Vintech Duct bundle includes:

➢ Vintech Duct – CAD/CAM system for parametric design, true shape nesting, NC programming of orders for flat patterns of fittings of HVAC systems.

➢ Library Vintech rDuct – parametric rectangular, round and conical fittings and transitions between them.

➢ Vintech RCAM based functionality for true shape nesting and NC programming.

➢ Vintech NCV – verifier of NC programs for thermal cutting, with DNC for program packages on the RS-232 serial interface to CNC controllers such as Burny, Linatrol, Mazatrol, Amada.

Vintech Duct

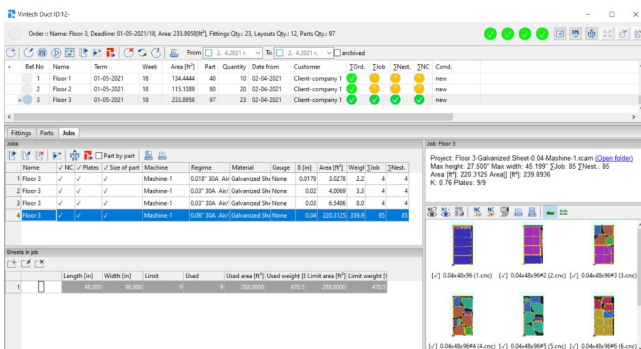➢ Manages data for nesting orders consisting of sheet parts.

Fig. 1. General view of Vintech Duct

➢ The parts are created by inputting parametric dimensions in macros from the fittings libraries or by importing their CAD geometry from files created with universal CAD system,

➢ Creates fittings from parametric macros according to assembly, technological and customer requirements for creating the plat patterns of their parts.

➢ controls the sequence of creation stages of nesting orders, parts, nesting jobs, nesting layouts, NC programs, labels and inquiries,

➢ allows editing of parts from the nesting order using universal CAD system and their replacement in the order,

➢ prepares nesting jobs based on orders and visualizes the status of the job,

➢ automates the creation of processing technologies using common Datasets database.

➢ monitors the information and status of every single part; Provides advanced tools for managing changes in orders,

➢ saves NC program package and submits it to the DNC system in Vintech NCV

➢ saves listings for nesting layouts and marking labels for the parts in the sequence of their cutting.

Libraries of fittings
Vintech rDuct

Vintech rDuct is a set of parametric libraries for rectangular, round, conical air duct fittings, transitions between them and standard flat parts.
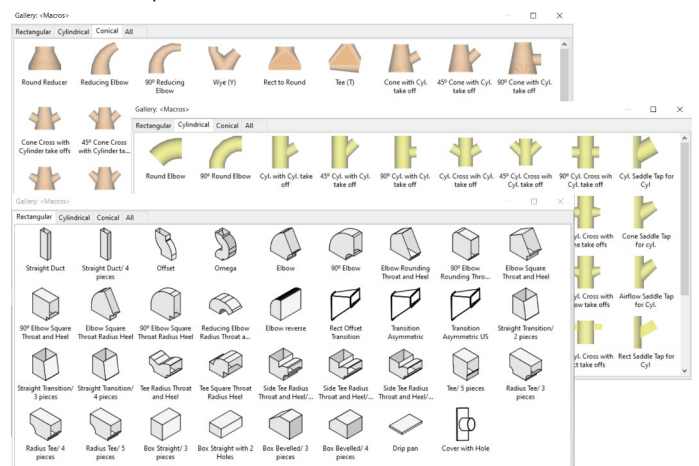

Fig. 2. Libraries of conical, cylinder and rectangular parametric fittings

Each fitting from the library is selected visually and the geometrical parameters are entered directly in the dimensions in its draft.

A created fitting can be saved for later use in a normal to a parametric fitting.

Working with library Vintech rDuct allows for:

➢ adding fitting in order by setting parameters or by selection from normal, with no need for a CAD system,

➢ automatic break down of fitting to flat parts,

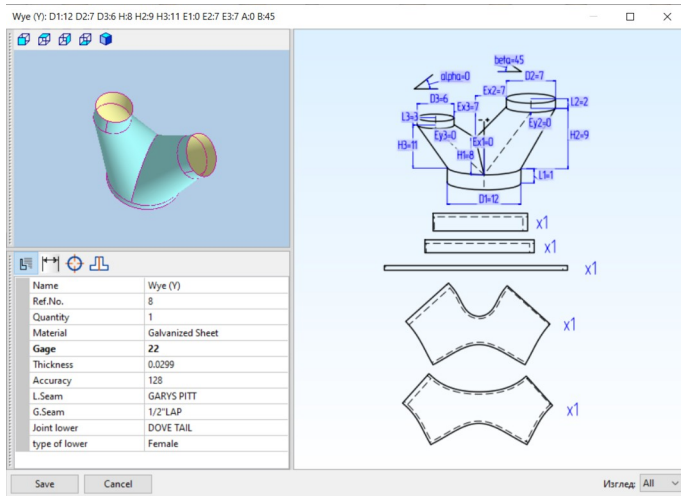➢ compensation of elongation or contraction of bended parts.

Fig. 3. Panel for creating and editing of fittings.

Specific characteristics of Vintech Duct

➢ Limits the incorrect actions with the system to the highest degree,

➢ works in mm or inches and gauges. Supports weight of the materials in kg or lb,

➢ takes into account the requirements of the HVAC ducts production. Allows the user to define:

- type and size of connections/flanges,
- type and size of seams and slits,
- markings – with labels or with ink-jet printer.

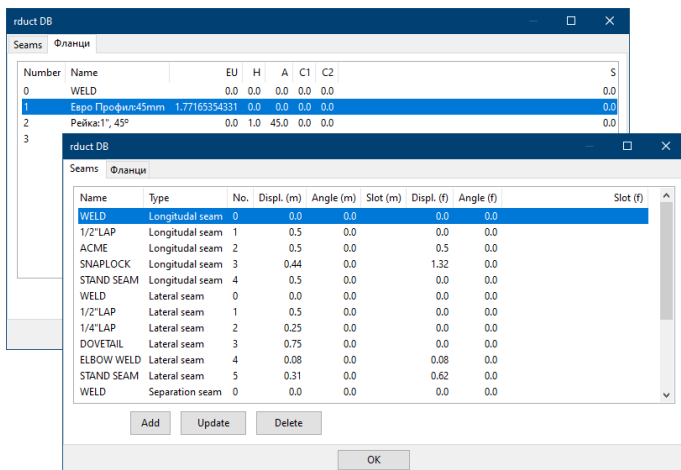➢ Supports types and dimensions of seams and flanges in technological datasets,

Fig. 4. Seams and Flanges datasets

True shape nesting with Vintech RCAM 11

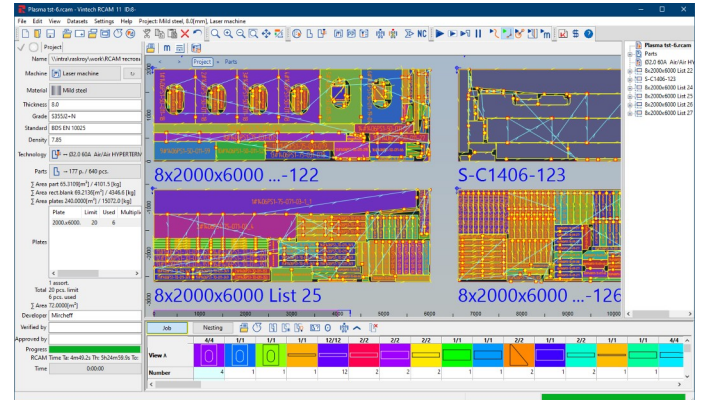➢ Opens nesting job from Vintech Duct and creates nesting layouts and NC programs

Fig. 5. Vintech RCAM 11, multi-plate nesting

➢ Provides user interface with integrated methods for nesting and processing technology management. Provides a new standard for usability with Project navigator, Layouts, Blocks and Parts galleries, interactive nesting with „handles", paths with „handles" and „halos", etc.

➢ nests automatically and interactively with true shape or in a pattern, with on-line control against overlapping,

➢ creates multi-plate nesting on whole plate blanks or usable remnants,

➢ creates paths with optimisation according to the type and length of the contours, with on-line control against overlapping of the path elements,

➢ automatically and interactively solves special tasks for true shape nesting, such as common cuts, chain cutting, circumventing parts with cutting paths, cutting with bridges and others,

➢ optimises the sequence for cutting parts, taking into account the part-in-part nesting and the nesting levels. It allows interactive creation of the route of rapid moves.

NC programs and documents

➢ Vintech Duct uses a configurable postprocessor to generate NC programs for CNC machines for thermal cutting, and:

- generates NC programs in ISO/EIA and ESSI command systems,
- allows the creation of NC programs for cutting and text marking,
- allows the creation of NC program packages for orders.

➢ Generates documents from the current job in HTML, DXF and PDF. When needed, the listings follow the cutting sequence of the layouts and parts in the order.

➢ Vintech Duct generates:

- nesting layout listing file,
- label listing file,
- technological and organisational documents.

Verification and DNC with Vintech NCV

Vintech NCV is designed for verification of NC programs and program packages for thermal and jet cutting.
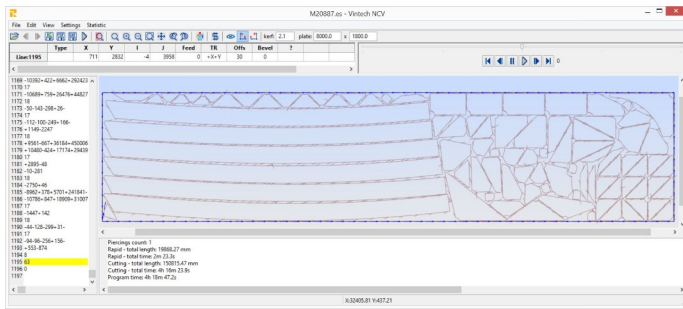

Fig.6: NC program verification

➢ Vintech NCV creates a graphic simulation of the processing path of ESSI and ISO / EIA NC programs, and:

- checks for correspondence between the NC commands and the paths of the graphic simulation,

- verifies NC programs with subroutines in absolute or relative coordinates, with translation and/or rotation of the subroutines,

- allows direct editing of the NC programs,

- uses CNC machine profiles to verify programs with different structure and format,

- tracks the program registers and calculates the number of drills, the time and the distance of rapid moves and cutting moves,

- creates a technological sketch of the NC program in PDF and a specification in HTML.

➢ Vintech NCV loads NC programs and NC program packages in the CNC controller via serial DNC interface. It allows management of the DNC interface by the CNC controller (Linatrol, Burny, Mazatrol, Amada, etc.).

- Loads NC programs in the order of processing, allows selection and loading of a single plate or of a part from a plate.

➢ Vintech NCV converts ISO/ESSI NC programs in AutoCAD DXF file format.

System requirements and localizations

The CAM system **Vintech Duct** works in 64 bit mode in the environment of Microsoft Windows 10.

It is localized in English , Bulgarian and Russian . There are no limitations for the localization language in the system.

The licenses are activated by a hardware key WIBUBox/U+. The key is installed in a USB port of a local computer or file server in the factory's network. The license for Vintech Duct is a local licence and for Vintech NCV it is a network license.

VINTECH – Your partner for CNC thermal and jet cutting of sheet material!

VINTECH is the author and the creator of **Vintech** CAM system – a system based on IT excellence and more than 40 years of experience in the integration of effective CNC/CAM/MES solutions.

Vintech RCAM 11- CAM system for true shape nesting and NC programming,
Vintech Pipe- CAM system for NC programming of 2D pipe cutting machines,
Vintech Duct- CAD/CAM system for production of flat patterns of fittings of HVAC systems,

Vintech NCV- Verifier of NC programs for thermal cutting,
Vintech Manager- CAPP system for preparation of the nesting production,
ViNES- MES system for management of the nesting production.

We create software for managing Your future!