

NESPERT Duct

CAD/CAM system for production preparation for flat patterns of fittings of HVAC systems

Purpose of NESPERT® Duct



- ✓ Designs flat patterns of parts from fittings of HVAC systems using libraries with parametric macros for rectangular, round and conical fittings, taking into account the production and assembling technology,
- ✓ creates automatic and interactive true shape nesting and NC programming,
- ✓ manages orders and organises CNC manufacturing.

Configuration

The NESPERT Duct bundle includes:

- ✓ NESPERT Duct – CAD/CAM system for design, true shape nesting, NC programming of flat patterns by orders for elements of HVAC systems,
- ✓ Library NESPERT rDuct – parametric rectangular, round and conical fittings and transitions between them.
- ✓ NESPERT CAM based functionality for true shape nesting and NC programming,
- ✓ NESPERT 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.

NESPERT Duct

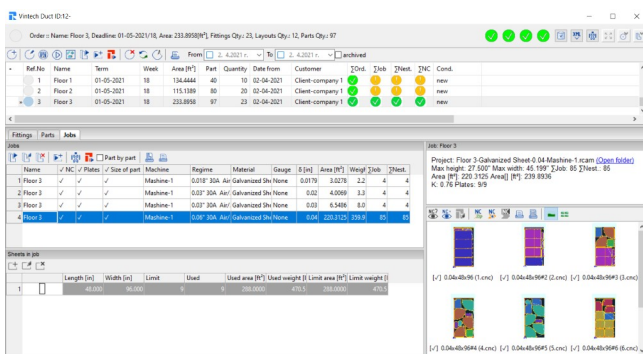


Fig. 1. General view of NESPERT Duct

- ✓ Manages data for nesting orders for parts – flat patterns of fittings.
- ✓ Creates flat patterns of the parts using a parametric macros, depending on dimensions and assembly, technological and user requirements for the fitting,
- ✓ Allows importing CAD geometry from files, created with universal CAD system,
- ✓ Controls the sequence of creation of nesting orders, flat patterns, nesting jobs, nesting layouts, NC programs, labels and reports. Provides advanced tools for managing changes in an order,

- ✓ Allows editing of a flat pattern of fitting using universal CAD system,
- ✓ Automates the creation of processing technologies using common Technological Datasets Base (TDB).

Libraries NESPERT rDuct

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

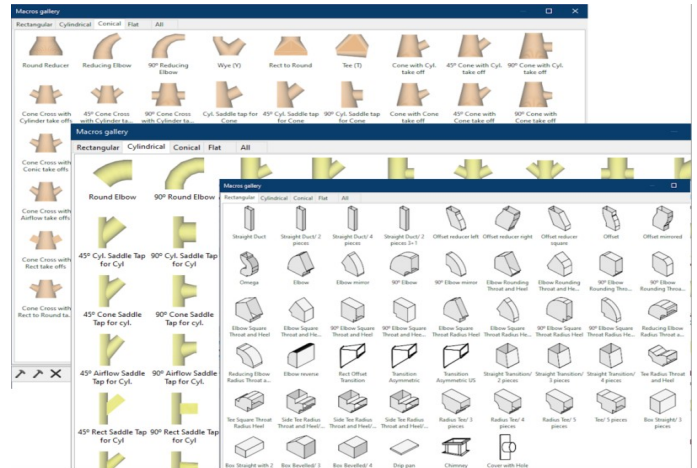


Fig. 2. Libraries of Conical, Cylinder and Rectangular parametric fittings

The fitting is selected from the library and the geometrical parameters are entered directly in the dimensions in the element's draft.

A fitting with specific dimensions can be saved for later use in a normal to a parametric fitting.

Starting a fitting from library NESPERT rDuct allows for:

- ✓ Adding a fitting in order by setting parameters or by selection from a normal, with no need for a CAD system,
- ✓ automatic break down of fitting to flat parts,
- ✓ compensation of elongation or contraction of bended parts.

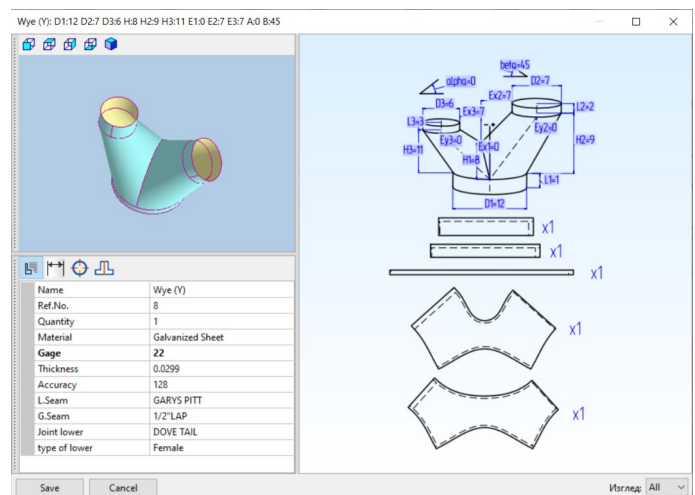


Fig. 3. Panel for creating and editing of fittings.

Specific characteristics of NESPERT Duct

- ✓ Works in mm or inches. Supports weight of the materials in kg or in

lb and gauges,

- ✓ 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 sizes of seams and flanges in Technological Datasets.

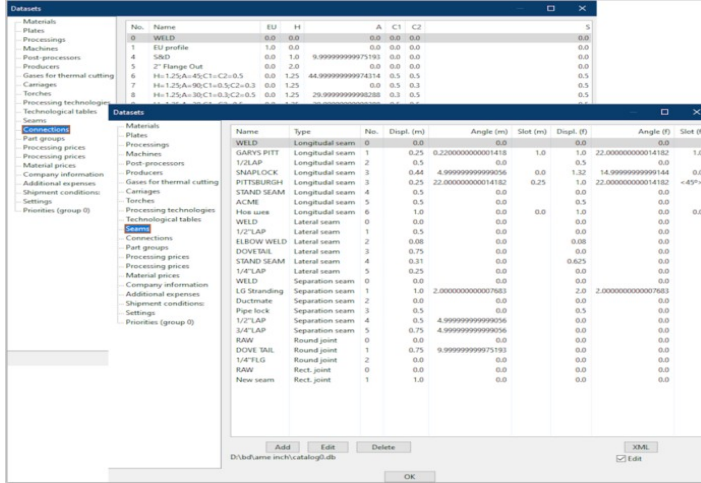


Fig. 4. Seams and Flanges Datasets

Nesting with NESPERT CAM

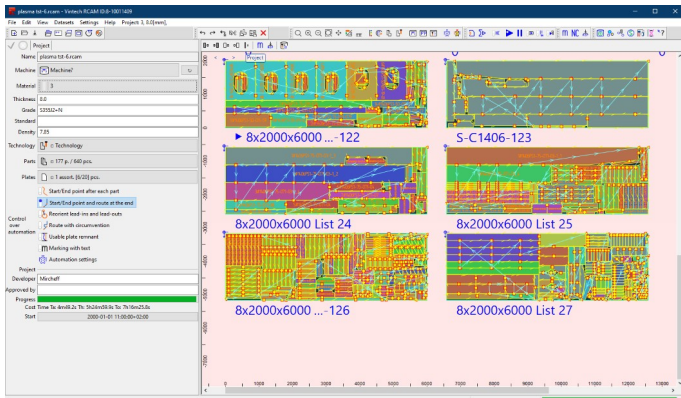


Fig. 5. NESPERT CAM, multi-plate nesting

- ✓ Loads a nesting job from NESPERT Duct and creates nesting layouts, NC programs and technological documents.

- ✓ nests automatically and interactively with true shape or in a pattern, with on-line control against overlapping,
- ✓ creates multi-plate nesting on whole plates or usable remnants,

NC programs and documents

- ✓ NESPERT Duct uses a configurable postprocessor to generate NC programs for CNC machines for thermal cutting, and:
 - Generates NC programs in ISO/EIA, ESSI and XML LXSD command systems,
 - allows the creation of NC programs for cutting and text marking,
 - allows the creation of NC program packages complete with corresponding listings with nesting layouts and labels for the parts,
 - generates label listings, sorted by the sequence of cutting the nesting layouts and the parts in them.

Verifying and DNC with NESPERT NCV

- ✓ NESPERT NCV creates a graphic simulation of the processing path of ESSI, ISO / EIA and XML LXSD NC programs and NC program packages for thermal and jet cutting.

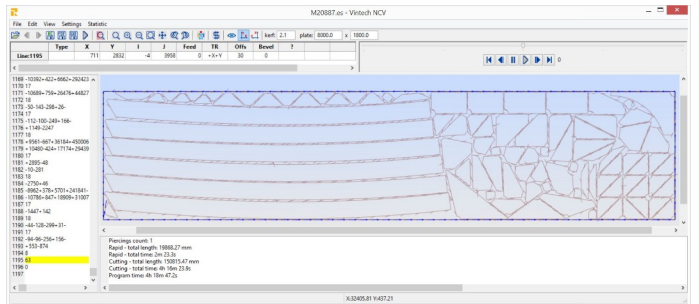





Fig.6: NC program verification

- ✓ loads successively NC programs from a program package in the sequence they are processed in the CNC controller of the machine via serial DNC interface:
 - allows selecting and loading for execution a specific program or a part from a program,
 - allows management of the DNC interface by the CNC controller (Linatrol, Burny, Mazatrol, Amada, etc.).
- ✓ NESPERT NCV converts ISO/ESSI NC programs in AutoCAD DXF file format.

System requirements and localizations

The CAM system NESPERT Duct works in 64 bit mode in the environment of Microsoft  Windows 10,11.

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

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

VINTECH is the author and the creator of NESPERT® CAM and MES systems, based on IT excellence and more than 44 years of experience in the integration of effective CNC/CAM/MES solutions.

- NESPERT CAM**-CAM system for true shape nesting and NC programming,
- NESPERT Pipe**- CAD/CAM system for NC programming of pipe cutting machines,
- NESPERT Duct**- CAD/CAM system for production of flat patterns of fittings of HVAC systems,

We create software for managing Your future!

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Bulgaria
9027 Varna, 6 Jan Hunyadi Blvd.

- NESPERT NCV**- Verifier of NC programs for thermal cutting,
- NESPERT Manager** – CAPP system for nesting production management,
- NESPERT MES**- MES system for management of the nesting production.

https:// www.vintech.bg
E-mail: sales@vintech.bg
tel: +359 52 757 221