WATTS SPECIALTIES

Automated 3D Pipe Cutting

Forward-looking Solutions for Optimized Processes

WATTS SPECIALTIES

From a Pioneer to an Innovative Problem Solver in 3D Pipe Cutting

Innovative technologies, intelligent software, robust construction and modern design are the cornerstones of **Watts Specialties** industrial machine manufacturing activities.
We custom build each 3D pipe cutting machine in our USA facility located in Puyallup, Washington near Seattle. Our machines (and 3D software) meet the toughest requirements in the metalworking industry and are being used around the world in thermal pipe fabrication and production.
The high quality of workmanship and our years of experience give our customers confidence that their equipment can do the job in the most complex pipe cutting tasks around the world.

History

Watts Specialties is a US company founded by Don Watts in the early 1980's. In the early years the company focused on the production of small pipe cutting machines, mainly for welding schools.
In 2001, the company was sold to Dave Collins, who developed the computerized pipe cutting machines that put Watts Specialties on a rapid growth pattern.

Philosophy

Our philosophy is based on an understanding of our customers' needs and solutions geared to these requirements. This also entails serving our customers in a spirit of partnership throughout the life-cycle of our machines.

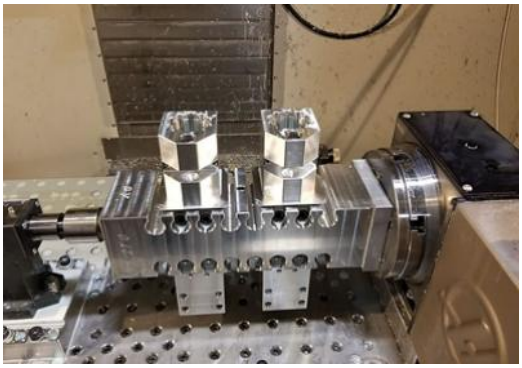
Research and development

In collaboration with our customers, our engineering team is constantly developing new solutions. Our extensive experience in CAD, 3D modeling and all other aspects of fabrication keep us on the cutting edge of technology.

Service

There are over 1,000 Watts Specialties CNC pipe cutting machines at work each day all around the world. This illustrates the reliability of our products. Our service centers in the USA, Canada, Dubai, India, Singapore and Brazil are ready to assist our customers with direct communication and machine parts availability.

Assembly in Puyallup



Machine components being fabricated in our Puyallup shop.

Tailor-made Solutions for Industrial Sectors Worldwide

You will find our machines anywhere pipes, tanks and other components are being fabricated for the metalworking industry. As an industry leader in 3D pipe fabrication, we have customers in many industrial sectors.

- Offshore plant construction
- Wind turbine construction
- Steel construction
- Mechanical contracting and process plant engineering
- Pressure vessel construction
- Shipbuilding
- General plant and equipment engineering

Some of our Reference Customers:

Bay Shipbuilding
CB&I
Chart Energy
Enerfab
F+F Mechanical
Harris
Ivey Mechanical
J.W. Williams, Inc.
M. Davis & Sons, Inc.
Piping Systems, Inc.
Porter Pipe & Supply
Roeslein & Associates, Inc.
Shinn Mechanical
SSI Fabricated
Suncore
Winger Companies

ROESLEIN
ENGINEERS • FABRICATORS • CONSTRUCTORS

"We have cut...over 12,000 feet of pipe, at 158 tons. We are getting great value with our **Watts Specialties W-244** machine."

PSI
PIPING SYSTEMS, INC.

"Using the **Watts Specialties WM-60**... a job that once took seven hours to cut was complete in less than an hour.."

SSI Fabricated
Division of Hellan Strainer Company

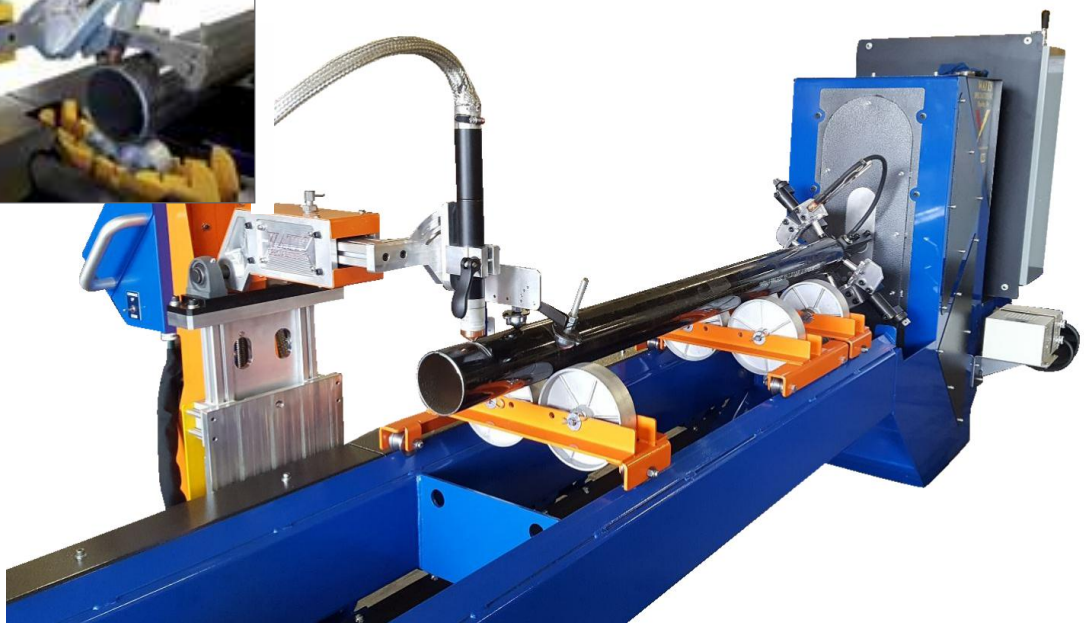
"...the Watts Specialties system drastically cuts labor time. The 3D software draws up the cuts, then the Watts machine cuts it...our welding time has been reduced by 34%."

WATTS SPECIALTIES

Perfect Solutions for Pipe Cutting plus Logistics

The Watts series comprises standardized machines with sophisticated logistics for round pipes up to a diameter of 60 inches and up to a pipe weight of 26,400 lbs. The machines are all equipped with 4 CNC-controlled axes and 2 mechanical compensation axes for pipe surface variations.
Furthermore the machines can be supplied with only 2 CNC axes as well. However, due to the 2 missing axes, these less expensive solutions generate the cutting shape but without constant weld bevel preparation. The machines are generally fabricated with comprehensive logistics solutions and a floating chuck.

Watts W-122 - 2 CNC axes for round pipes with a maximum diameter of 14 inches compatible with most plasma cutting systems, floating chuck and manual adjustable pipe support units.



Watts W-244 - 4 CNC axes for round pipes with a maximum diameter of 24 inches compatible with most plasma cutting systems, floating chuck and semiautomatic conveyor system.

Watts W-364 - 4 CNC axes for round pipes with a maximum diameter of 36 inches compatible with most plasma cutting systems, floating chuck and full automatic conveyor system with discharge solutions for pipe storage.

Watts W-484 and W-604

The larger **W-Series** machines have 4-axis 3D profiling capability for pipe from 3 in. up to 60 in. (1,500mm) OD. These larger machines come with the floating chuck and fully automatic conveyor systems and logistics for safely handling large, heavy pipe.

Logistics: Automated Roller Bed, Racks and Conveyor Systems

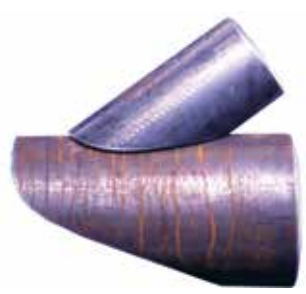
The productivity of Watts machines is boosted considerably by automated material handling with logistics integrated into the machine workspace. The photo below shows a typical materials flow with a loading and off-loading table. The pipe is transferred from the loading table onto an in-feed conveyor. From here the pipe is conveyed to the chuck, where it is clamped and cut. The finished part is then discharged onto the off-loading table in front of the machine.

Watts W-244 with in-feed loading bed and offload table for finished parts.

We use CAD drawings to help our customers plan and design the floor space for our machine and logistics. In this example there is a pipe rack outside the building where materials can be conveyed onto the machine bed or stored after fabrication.

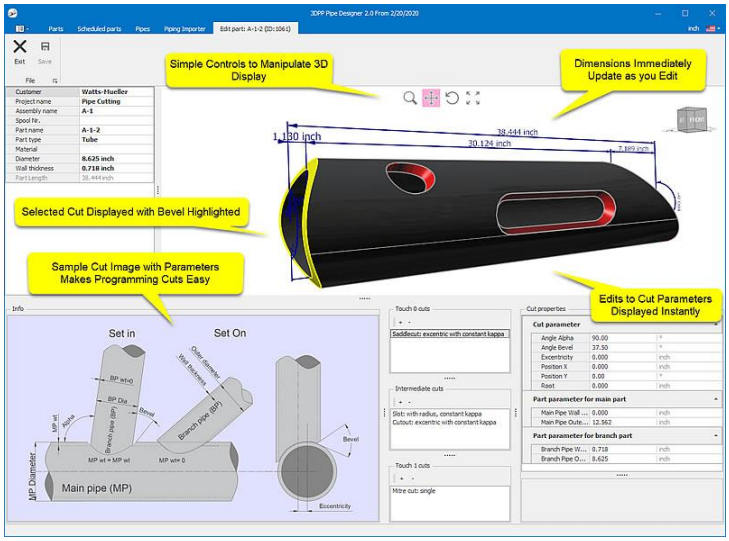
Technical information / Machine series:	Watts W-124 W-122	Watts W-244 w-242	Watts W-364 W-362	Watts W-484 -
Weight of standard machine in lbs:	22,000	24,200	28,600	33,000
Number of CNC axes:	4+2 / 2+2	4+2 / 2+2	4+2 / 2+2	4+2 / 2+2
Max. workpiece weight in lbs:	11,000	22,000	26,400	26,400
Min. - max. clampable pipe diameter in inch:	2 - 14	2 - 24	3 - 36	3 - 48
Max. size of chuck opening in inch:	-	-	-	-
Min. - max. clampable square & rectangular pipe dimensions in inch:	-	-	-	-
Min. - max. clampable beam width in inch:	-	-	-	-
Min. - max. clampable diameter for dished ends in inch:	-	-	-	-
Min. - max. cuttable workpiece length in feet: *	1** - 44	1** - 44	1** - 44	1** - 44
Min. - max. wall thickness for cutting with oxy-fuel / plasma in inch: *	0.2-3.5 0.1-3.15	0.2-3.5 0.1-3.15	0.2-3.5 0.1-3.15	0.2-3.5 0.1-3.15
Max. torch angle with oxy-fuel / plasma in °:	+/- 70 / 45	+/- 70 / 45	+/- 70 / 45	+/- 70 / 45

* With torch in vertical position
** With additional clamping device up to 2 inches (depending on pipe parameters)
*** Up to 55° when special plasma cutting sources are used

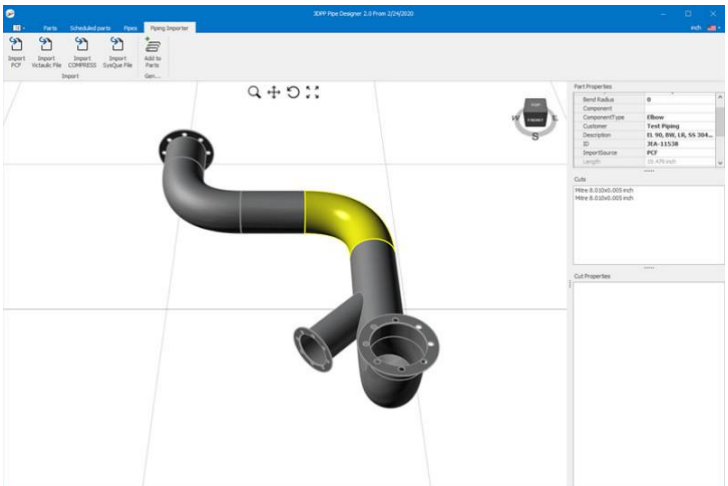



Comprehensive **3D-Profile Plus** Software Support for Process-oriented Production

Our **3D-Profile Plus** software solution for machines and processes make our customers' production workflows more efficient. Our machines for the thermal cutting of 3D contours are not therefore isolated elements, but part of an integrated process chain.
With our CAM modules, we are able to link our machines to upstream and downstream workflows to significantly reduce production time, material costs and errors.



Design a Part Using Graphical Tools



CAD/CAM for all Watts Specialties Machines

3D-Profile Plus software is a comprehensive system for the purpose of modeling cutting geometries, for nesting numerous parts to be cut on a single pipe, for assigning cutting functions to one or several machines while taking into account their respective capacity, for keeping track of current working process stages at the machines and for calculating and recording cutting times and costs.

3D-Profile Plus also provides extensive reporting functions for calculation or documentation purposes. Our software also provides comprehensive reporting for downstream costing and documentation and can be fully integrated in a company's workflow as an autonomous software system for the modeling of pipes or by importing drawings from a multitude of CAD software systems.

CAD/CAM offers rich data in SQL views that can be pulled into Excel and other tools for reporting, and into ERP systems or other databases. CAD/CAM is typically run at both the machine and in offices. In offices, CAD designers and detailers import jobs, design parts, and plan work. At the machine, machine operators nest parts on pipes and cut jobs.

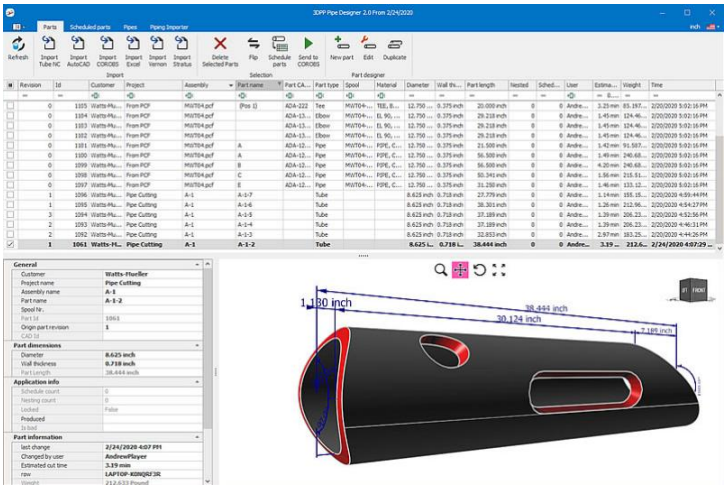
CAD/CAM and SQL databases

CAD/CAM runs on top of SQL databases. These databases expose a rich set of data views for use in ERP, process management, inventory control, and custom reporting.

Our customers often integrate CAD/CAM data with their ERP system, and also with Microsoft Excel to create custom live reports for job costing, scheduling and tracking, inventory control, and post-job analyses.

CAD/CAM modeling module

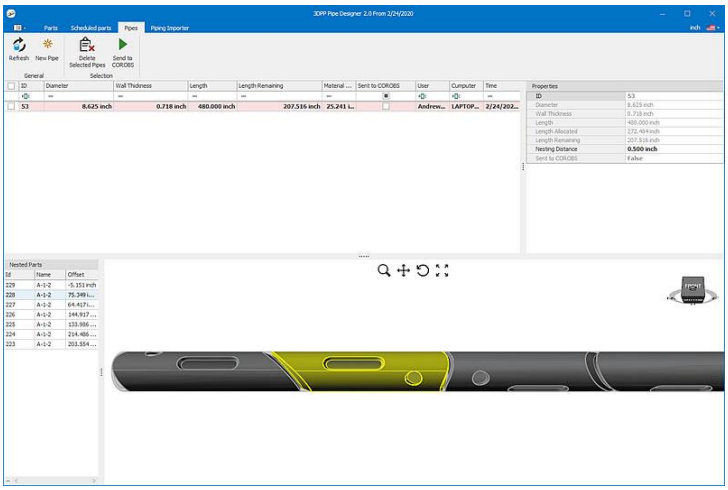
The CAD/CAM modeling module permits independent production of pipe cutting contours represented in 3D with dimension contours. To begin with, a cutting contour such as a saddle cut is selected. Then, only a few parameters need be entered into a pre-set mask to allow the cutting contour to develop automatically. Repetitive contours can simply be duplicated.



Select One or More Parts from Database for Nesting

CAD/CAM CAD import module

CAD/CAM can import parts and complete design spools of most well-known software CAD systems such as Acorn, AutoDesk, Aveva, BoCAD, COMPRESS, Intergraph, Pro CAD, Pro Engineer, Ship Constructor, Solid Works or Tekla Structures. Custom importers for special CAD systems can be developed in cooperation with customers.



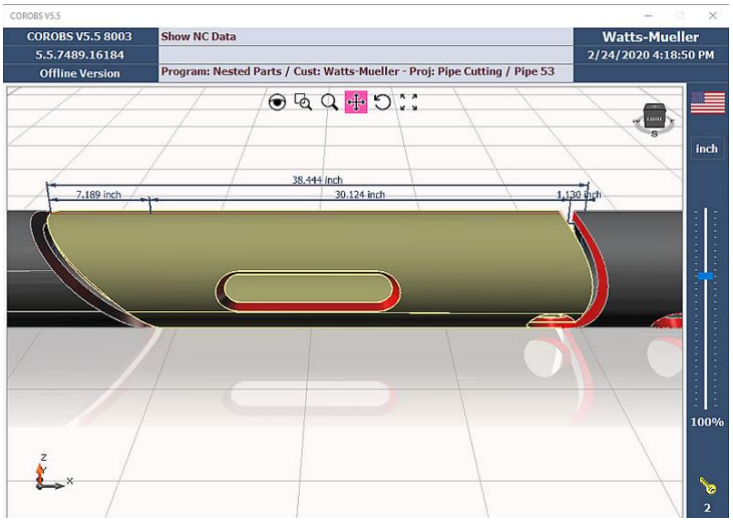
Nested Pipe is Ready to be Sent to the Machine for Cutting

CAD/CAM nesting module

Once all the parts have either been modeled or alternatively imported, CAD/CAM, with a single command, automatically nests the parts on a pipe. This algorithm for such optimal nesting can save up to 10 percent in materials. The pipe segments to be cut are then shown in 3D on the monitor.

During the cutting process, both the machine operator and those using CAD/CAM in offices can remotely see the machines' cutting progress.

CAD/CAM integrates also software that can automatically print unique labels for each part.



View Nested Pipe in 3D-Profile Plus...and Cut

Proven Standard Components for Unique Solutions

Simple straight cut-off fixtures designed for a maximum load of 3,300 lbs and for a maximum pipe diameter of 32 inches are used for cutting several pieces out of a pipe, with or without weld bevel preparation. These fixtures are much more economic than sawing.

The standard versions of our straight cut-off fixtures have the following features:

- Drive unit and support unit including a base frame and centrically displaceable roller consoles
- Fastening chain to prevent pipe slippage during the rotation process and to provide ground for plasma cutting
- Manually movable cutting carriage with length measuring system, torch fixture and vertical scanning mechanism for retaining the torch height and angle position on curved and non-circular pipes
- Template for torch angle positioning to generate weld bevel preparation
- Standard control
- Oxy-fuel or plasma cutting system

Table-top cutting fixtures designed for a maximum load of 110 lbs and for a maximum pipe diameter of 12 inches are used for simple cut-offs with weld bevel preparation at short pipes.

The standard versions of our mechanized table-top cutting fixtures have the following features:

- Machine frame in a heavy-duty welded design
- Manuel chuck for clamping short pipes
- Torch fixture with torch angle positioning function
- Standard control
- Oxy-fuel or plasma cutting system
- Optional with cutting template for longitudenal motions along the pipe axes for the cutting of miters and saddle cuts

W-132

	Max. load in lbs:	Min. – max. Ø in inch:	Min. – max. length in feet:
W-116	3,300	2 - 16	0.65 - 140
W-132	3,300	2 - 32	0.65 - 140

W-60-20-SM

	Max. load in lbs:	Min. – max. Ø in inch:	Min. – max. length in feet:
W-60-20-SM	110	2 - 12	0.16 - 1

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