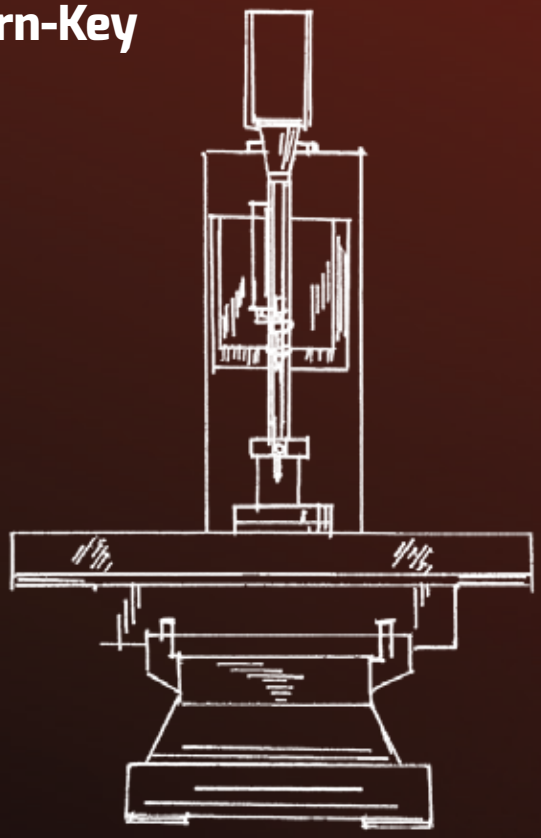
BELMONT
EQUIPMENT & TECHNOLOGIES
Divisions of Cleary Developments, Inc.

Your Answer for EDM Drills

SY Series · Astec Series · BT Tilt Head Series

Custom Builds...

Belmont Can Make Customized and Turn-Key Machines According to Your Needs



Belmont brings years of practical EDM experience to our customers. We pride ourselves in providing cost effective, innovative solutions to keep you competitive in today's global marketplace.

Custom Build Development

Defined as: a method of construction, built to order according to a customer's specifications.

- Our staff of EDM professionals meet with you to obtain a thorough understanding of your application goals, objectives and budgetary constraints.
- The right machine configuration is selected for your job based on this understanding.
- An engineered concept drawing is developed to ensure feasibility.

Turn-Key Development

Defined as: a method of construction, installation, etc. whereby the contractor, installer, etc. assumes total responsibility from design through completion of the project.

- The application is analyzed to develop an efficient process flow.
- The part is analyzed to develop efficient holding devices.
- Fixtures are designed and built for the part and/or machine.
- The cutting technology and CNC programs are developed to optimize the EDM process.
- A complete integration of the system is verified to ensure part production requirements before the machine ships from our floor.
- The system is delivered to your facility and installed by our team of qualified technicians.
- Our technicians train your operators on the machine and control so they have a complete understanding of the machining process.
- Your system's operation is verified to meet or exceed your expectations.
- Belmont's full commitment to after-sale support to ensure continued productivity of the system.

Custom SY-2535T with Robotic Part Handling System

Custom SY-4060

Optical Inspection System

Robot Integration

SY Series

SY MANUAL

ONE BUTTON CYCLE START
Automatically the electrode will detect the surface, set zero, start the high pressure pump, ramp up cutting power, cut to depth, and retract

PROGRAMMABLE WEAR COMPENSATION PERCENTAGE
Retracts the electrode to a safe position after each cycle

AUDIBLE EDGE FINDING AND AUTOMATIC CENTER CALCULATION
Setups are easier and eliminates calculation errors

SOFT SPARK
Gradually increases amperage to improve stability and hole quality

AUXILIARY I/O
Ability to integrate ancillary devices such as rotary tables, indexers, and work piece handling systems

LINEAR GLASS SCALES WITH 5 MICRON RESOLUTION
Provides true, closed loop, position feedback for precise part positioning accuracy

OIL DIELECTRIC FOR CARBIDE APPLICATIONS (OPTIONAL)
Application specific feature will reduce cycle time by using oil as the dielectric

SY CNC

6 COORDINATE SYSTEMS
Allows up to 6 jobs to be run consecutively in a single setup

3 STEP CONTROL OF EDM PARAMETERS
Program up to three EDM parameter settings per hole to improve hole quality on difficult entrance and exits

ELECTRODE STABILIZER
Moves automatically to provide extra support for long electrodes

PASSWORD PROTECTED SETTINGS
The program can be password protected to prevent unauthorized changes

1000 RPM PROGRAMMABLE SPINDLE
Rotation speed is adjustable and will reduce cycle time for some applications

WINDOWS BASED
With conversational G and M Code programming

MULTI-TASKING ABILITIES
Create and edit one program while the machine is running another

ETHERNET CONNECTIVITY AND USB SUPPORT
For programming and transferring of data

AUTOMATIC DEPTH CONTROL
Generate blind holes reliably without operator intervention

LINEAR GLASS SCALES WITH 1 MICRON RESOLUTION
Provides true, closed loop, position feedback for precise part positioning accuracy

AUXILIARY I/O
Ability to interface with ancillary devices such as rotary tables, indexers, and work piece handling systems

AUTOMATIC GUIDE CHANGER (OPTIONAL)
Allows for a large volume of unattended operation

AUTOMATIC ELECTRODE CHANGER (OPTIONAL)
Allows for a large volume of unattended operation

INTEGRATED ROTARY AND TILT/ROTARY TABLES (OPTIONAL)
Programmable tilt and rotary systems for complex parts requiring multi axis positioning

BREAK THROUGH DETECTION (OPTIONAL)
Ensures a complete hole or helps to eliminate back wall strikes

OPTICAL INSPECTION SYSTEM (OPTIONAL)
High resolution video camera can measure hole size, verify position, and locate datum points for part programs

EDM POWER BOOSTER (OPTIONAL)
Increases the maximum average current which will reduce the cycle time when using larger diameter electrodes

INTEGRATED TILTING DRILL HEAD (OPTIONAL)
Programmable angular position of the drill head that allows complete part machining in a single setup

OIL DIELECTRIC FOR CARBIDE APPLICATIONS (OPTIONAL)
Application specific feature will reduce cycle time by using oil as the dielectric

SY Series

SY-M-2535 Manual

SY-2535T CNC

Optional integrated rotary tables available

SY-M-2535 Manual / SY-2535 CNC / SY-2535R CNC

		SY-M-2535 Manual	SY-2535 CNC	SY-2535R CNC
TRAVEL	X AXIS	13.7” (350 mm)	13.3” (340 mm)	13.3” (340 mm)
	Y AXIS	9.8” (250 mm)	9.4” (240 mm)	9.4” (240 mm)
	BACK SLIDE	7.8” (200 mm)	-	-
	GUIDE HEIGHT ADJUSTMENT [1]	5.9” (150 mm)	-	-
	W AXIS	-	13.5” (345 mm)	19.6” (500 mm)
	Z AXIS	13.5” (345 mm)	15.7” (400 mm)	15.7”(400 mm)
OPEN HEIGHT *	MINIMUM	0.4” (10 mm)	0.5” (15 mm)	6.3” (160 mm)
	MAXIMUM	8.2” (210 mm)	14.1” (360 mm)	26.0” (660 mm)
WORK TABLE	WIDTH	23.6” (600 mm)	23.6” (600 mm)	23.6” (600 mm)
	DEPTH	11.8” (300 mm)	11.8” (300 mm)	11.8” (300 mm)
WORK PAN / WORK TANK	WIDTH	27.9” (710 mm)	27.9” (710 mm)	27.9” (710 mm)
	DEPTH	20.4” (520 mm)	20.4” (520 mm)	20.4” (520 mm)
	HEIGHT	-	5.9” (150 mm)	5.9” (150 mm)
WEIGHT CAPACITY OF WORK PIECE	ON WORK TABLE	880 lb.(400 kg.)	880 lb.(400 kg.)	880 lb.(400 kg.)
AUTOMATIC ELECTRODE AND GUIDE CHANGER	AEC POSITIONS	-	12 **	12 **
	AGC POSITIONS	-	4 **	4 **
GENERATOR	MAXIMUM AVERAGE CURRENT	30 A, 60 A **	30 A, 60 A **	30 A, 60 A **

Note 1: Adjusting the guide height to increase open height will reduce the usable electrode length

* Open Height is measured from tip of a standard guide ** Optional

SY Series

SY-3030T CNC

SY-3040 CNC

SY-3040T CNC

Optional integrated rotary and tilt/rotary tables available

SY-3030T CNC / SY-3040 CNC / SY-3040T CNC

		SY-3030T CNC	SY-3040 CNC	SY-3040T CNC
TRAVEL	X AXIS	10.6” (270 mm)	15.7” (400 mm)	15.7” (400 mm)
	Y AXIS	11.8” (300 mm)	11.8” (300 mm)	11.8” (300 mm)
	W AXIS	20.4” (520 mm)	16.9” (430 mm)	16.9” (430 mm)
	Z AXIS	19.6” (500 mm)	15.7” (400 mm)	15.7” (400 mm)
OPEN HEIGHT *	MINIMUM	1.5” (40 mm)	1.5” (40 mm)	1.5” (40 mm)
	MAXIMUM	22.0” (560 mm)	18.5” (470 mm)	18.5” (470 mm)
WORK TABLE	WIDTH	22.0” (560 mm)	22.0” (560 mm)	22.0” (560 mm)
	DEPTH	17.5” (445 mm)	17.3” (440 mm)	17.3” (440 mm)
WORK TANK	WIDTH	24.0” (610 mm)	34.4” (875 mm)	34.4” (875 mm)
	DEPTH	22.6” (575 mm)	29.5” (750 mm)	29.5” (750 mm)
	HEIGHT	13.0” (330 mm)	5.9” (150 mm)	5.9” (150 mm)
WEIGHT CAPACITY OF WORK PIECE	ON WORK TABLE	500 lb. (225 kg.)	770 lb. (350 kg.)	770 lb. (350 kg.)
AUTOMATIC ELECTRODE AND GUIDE CHANGER	AEC POSITIONS	12	-	20
	AGC POSITIONS	4**	-	12 **
GENERATOR	“MAXIMUM AVERAGE CURRENT	30 A, 60 A **	30 A, 60 A **	30 A, 60 A **

* Open Height is measured from tip of a standard guide ** Optional

SY Series

SY-4060 CNC

SY-4050TGUR CNC

Model shown with work enclosure and optional tilt/rotary table.

Optional integrated rotary and tilt/rotary tables available

SY-4060 CNC / SY-4060R CNC / SY-4050T CNC / SY-4050TR CNC

		SY-4060 CNC	SY-4060R CNC	SY-4050T CNC	SY-4050TR CNC
TRAVEL	X AXIS	23.6” (600 mm)	23.6” (600 mm)	19.6” (500 mm)	19.6” (500 mm)
	Y AXIS	15.7” (400 mm)	15.7” (400 mm)	15.7” (400 mm)	15.7” (400 mm)
	W AXIS	13.5” (345 mm)	19.6” (500 mm)	13.5” (345 mm)	19.6” (500 mm)
	U AXIS (TILT HEAD)1	+/-45° from vertical **	+/-45° from vertical **	+/-45° from vertical **	+/-45° from vertical **
	Z AXIS	15.7” (400 mm) 23.6” (600 mm) **	15.7” (400 mm) 23.6” (600 mm) **	15.7” (400 mm) 23.6” (600 mm) **	15.7” (400 mm) 23.6” (600 mm) **
OPEN HEIGHT *	MINIMUM	0.5” (15 mm)	6.3” (160 mm)	0.5” (15 mm)	6.3” (160 mm)
	MAXIMUM	14.1” (360 mm)	26.0” (660 mm)	14.1” (360 mm)	26.0” (660 mm)
WORK TABLE	WIDTH	31.4” (800 mm)	31.4”(800 mm)	31.4” (800 mm)	31.4” (800 mm)
	DEPTH	19.6” (500 mm)	19.6” (500 mm)	19.6” (500 mm)	19.6” (500 mm)
WORK TANK	WIDTH	43.8” (1,115 mm)	43.8” (1,115 mm)	43.8” (1,115 mm)	43.8” (1,115 mm)
	DEPTH	27.3” (695 mm)	27.3” (695 mm)	27.3” (695 mm)	27.3” (695 mm)
	HEIGHT	5.9” (150 mm)	5.9” (150 mm)	5.9” (150 mm)	5.9” (150 mm)
WEIGHT CAPACITY OF WORK PIECE	ON WORK TABLE	1,750 lb.(795 kg.)	1,750 lb.(795 kg.)	1,750 lb.(795 kg.)	1,750 lb.(795 kg.)
AUTOMATIC ELECTRODE AND GUIDE CHANGER	AEC POSITIONS	-	-	20, 30 **	20, 30 **
	AGC POSITIONS	-	-	12 **	12 **
GENERATOR	MAXIMUM AVERAGE CURRENT”	30 A, 60 A **	30 A, 60 A **	30 A, 60 A **	30 A, 60 A **

Note 1: Depending on tilt position in the U- direction there could be AEC interference

* Open Height is measured from tip of a standard guide ** Optional

SY Series

SY-9070 CNC

SY-1210 CNC

Optional riser to increase open height, as well as optional integrated rotary and tilt/rotary tables available

SY-9070 CNC / SY-1210 CNC

		SY-9070 CNC	SY-1210 CNC
TRAVEL	X AXIS	27.5” (700 mm)	39.3” (1,000 mm)
	Y AXIS	35.4” (900 mm)	47.2” (1,200 mm)
	W AXIS	19.6” (500 mm)	39.3” (1,000 mm)
	U AXIS (TILT HEAD)1	+/-45° from vertical **	+/-100° from vertical ** [2]
	Z AXIS	15.7” (400 mm) 23.6” **(600 mm) **	15.7” (400 mm) 23.6” (600 mm) ** [2]
OPEN HEIGHT *	MINIMUM	5.7” (145 mm)	3.1” (80 mm)
	MAXIMUM	25.3” (645 mm)	39.3” (1,000 mm)
WORK TABLE	WIDTH	28.3” (720 mm)	43.3” (1,100 mm)
	DEPTH	35.4” (900 mm)	51.1” (1,300 mm)
WORK PAN	WIDTH	39.3” (1,000 mm)	59.0” (1,500 mm)
	DEPTH	55.9” (1,420 mm)	70.8” (1,800 mm)
WEIGHT CAPACITY OF WORK PIECE	ON WORK TABLE	2,200 lb. (1,000 kg.)	5,500 lb. (2,500 kg.)
AUTOMATIC ELECTRODE AND GUIDE CHANGER	AEC POSITIONS	20 **, 30 **	20 **, 30 **
	AGC POSITIONS	12 **	12 **
GENERATOR	MAXIMUM AVERAGE CURRENT	30 A, 60 A **	30 A, 60 A *

Note 1: Depending on tilt position in the U- direction there could be AEC interference
Note 2: U Axis travel is +/-45° from vertical on SY-1210 with Extended Z Axis Travel of 23.6” (600 mm)
* Open Height is measured from tip of a standard guide ** Optional

Carbide Applications

SY-4050ST CNC

SY Oil Drills are specifically designed for carbide applications and EDM oil is used as the dielectric. Included with the machine is a closed loop filter system that consists of a reservoir, single cartridge filter unit with a 5 micron paper cartridge, and a pump used to fill and circulate the oil in the work tank. The reservoir has a 55 gallon capacity. The filter system also includes a liquid chiller that will maintain a consistent temperature of the oil dielectric.

SY Drill Series for Carbide Applications Using Oil Dielectric

		SY-M-2535S MANUAL	SY-2535S CNC	SY-4060S CNC	SY-4050ST CNC
TRAVEL	X AXIS	13.7” (350 mm)	13.3” (340 mm)	23.6” (600 mm)	19.6” (500 mm)
	Y AXIS	9.8” (250 mm)	9.4” (240 mm)	15.7” (400 mm)	15.7” (400 mm)
	BACK SLIDE	7.8” (200 mm)	-	-	-
	GUIDE HEIGHT ADJUSTMENT 1	5.9” (150 mm)	-	-	-
	W AXIS	-	13.5” (345 mm)	13.5” (345 mm)	13.5” (345 mm)
	Z AXIS	15.7” (400 mm)	15.7”(400 mm)	15.7” (400 mm) 23.6” (600 mm) **	15.7” (400 mm) 23.6” (600 mm) **
OPEN HEIGHT *	MINIMUM	0.4” (10 mm)	0.5” (15 mm)	0.5” (15 mm)	0.5” (15 mm)
	MAXIMUM	8.2” (210 mm)	14.1” (360 mm)	14.1” (360 mm)	14.1” (360 mm)
WORK TABLE	WIDTH	23.6” (600 mm)	23.6” (600 mm)	31.4” (800 mm)	31.4” (800 mm)
	DEPTH	11.8” (300 mm)	11.8” (300 mm)	19.6” (500 mm)	19.6” (500 mm)
WORK TANK	WIDTH	27.9” (710 mm)	27.9” (710 mm)	43.8” (1,115 mm)	43.8” (1,115 mm)
	DEPTH	20.4” (520 mm)	20.4” (520 mm)	27.3” (695 mm)	27.3” (695 mm)
	HEIGHT	5.9” (150 mm)	5.9” (150 mm)	5.9” (150 mm)	5.9”(150 mm)
WEIGHT CAPACITY OF WORK PIECE	ON WORK TABLE	880 lb. (400 kg.)	880 lb. (400 kg.)	880 lb. (400 kg.)	880 lb. (400 kg.)
FILTER SYSTEM	RESERVOIR CAPACITY	55 gal. (208 liters)	55 gal. (208 liters)	88 gal. (335 liters)	88 gal. (335 liters)
	DIELECTRIC CHILLER	INCLUDED	INCLUDED	INCLUDED	INCLUDED
AUTOMATIC ELECTRODE AND GUIDE CHANGER	AEC POSITIONS	-	12 **	-	20, 30 **
	AGC POSITIONS	-	4 **	-	12 **
GENERATOR	MAXIMUM AVERAGE CURRENT	30 A, 60 A **	30 A, 60 A **	30 A, 60 A **	30 A, 60 A **

Note 1: Adjusting the guide height to increase open height will reduce the usable electrode length

* Open Height is measured from tip of a standard guide ** Optional

ASTEC Series

ASTEC MANUAL

ONBOARD STORAGE OF EDM PARAMETERS
Allows the storage of up to 16 different sets of EDM conditions

AUTOMATIC ELECTRODE MANAGEMENT
At the start of a hole the electrode is checked for sufficient length to complete the hole

ONE BUTTON CYCLE START
Automatically the electrode will detect the surface, set zero, start the pump, ramp up cutting power, cut to depth, and retract

3 STEP CONTROL
Use up to three EDM parameter settings per hole to improve quality on difficult entrance and exits

SOFT SPARK
Gradually increases amperage to improve stability and hole quality

AUXILIARY I/O
Ability to integrate ancillary devices such as rotary tables, indexers, and work piece handling systems

LINEAR GLASS SCALES WITH 5 MICRON RESOLUTION
Provides true, closed loop, position feedback for precise part positioning accuracy

BREAK THROUGH DETECTION (OPTIONAL)
Ensures a complete hole or helps to eliminate back wall strikes

ASTEC CNC

ON BOARD TECHNOLOGY
Proven machine parameters are built in for different work piece materials

PASSWORD PROTECTED SETTINGS
The program can be password protected to prevent unauthorized changes

AUTOMATIC ELECTRODE MANAGEMENT
At the start of a hole the electrode is checked for sufficient length to complete the hole

ELECTRODE STABILIZER
Moves automatically to provide extra support for long electrodes

LINEAR GLASS SCALES WITH 0.5 MICRON RESOLUTION
Provides true, closed loop, position feedback for precise part positioning accuracy

HAND PENDANT FOR REMOTE OPERATION
Machine functions are more accessible to the operator during setup

INTEGRATED ROTARY AND TILT/ROTARY TABLES (OPTIONAL)
Programmable tilt and rotary systems for complex parts requiring multi axis positioning

BREAK THROUGH DETECTION (OPTIONAL)
Ensures a complete hole or helps to eliminate back wall strikes

AUTOMATIC ELECTRODE CHANGER (OPTIONAL)
The 24-position carousel allows for unattended operation

AUTOMATIC GUIDE CHANGER (OPTIONAL)
The 8-position carousel can change guides up to 6” in length

OPTICAL INSPECTION SYSTEM (OPTIONAL)
High resolution video camera can measure hole size, verify position, and locate datum points for part programs

ASTEC Series

2Z400 Attachment
With P2 Generator

A22M Manual

A33M Manual

A34 CNC

ASTEC Series EDM Drills

		2Z400 Attachment	A22M Manual	A33M Manual	A34 CNC
TRAVEL	X AXIS	-	7.8” (200 mm)	11.8” (300 mm)	11.8” (300 mm)
	Y AXIS	-	7.8” (200 mm)	11.8” (300 mm)	15.7” (400 mm)
	BACK SLIDE	-	9.6” (245 mm)	11.8” (300 mm)	-
	W AXIS	-	-	-	12.2” (310 mm)
	Z AXIS	15.7” (400 mm)	15.7” (400 mm)	15.7” (400 mm)	17.3” (400 mm)
OPEN HEIGHT *	MINIMUM	-	0.0” (0 mm)	0.0” (0 mm)	4.3” (110 mm)
	MAXIMUM	-	8.2” (210 mm)	11.8” (300 mm)	16.5” (420 mm)
WORK TABLE	WIDTH	-	10.0” (255 mm)	15.7” (400 mm)	15.7” (400 mm)
	DEPTH	-	12.2” (310 mm)	15.7” (400 mm)	19.2” (490 mm)
WORK PAN	WIDTH	-	14.5” (370 mm)	21.6” (550 mm)	21.6” (550 mm)
	DEPTH	-	18.1” (460 mm)	25.0” (635 mm)	28.9” (735 mm)
WEIGHT CAPACITY OF WORK PIECE	ON WORK TABLE	-	220 lb. (100 kg.)	660 lb.(300 kg.)	660 lb.(300 kg.)
AUTOMATIC ELECTRODE AND GUIDE CHANGER	AEC POSITIONS	-	-	-	24 **
	AGC POSITIONS	-	-	-	8 **
GENERATOR	MAXIMUM AVERAGE CURRENT	30 A, 40 A **	30 A, 40 A **	30 A, 40 A **	40 A

* Open Height is measured from tip of a standard guide ** Optional

BT CNC

BT CNC

INTEGRATED TILTING DRILL HEAD
Programmable with ±110° of travel that allows complete part machining in a single setup

ON BOARD TECHNOLOGY
Proven machine parameters are built in for different work piece materials

PASSWORD PROTECTED SETTINGS
The program can be password protected to prevent unauthorized changes

AUTOMATIC ELECTRODE MANAGEMENT
At the start of a hole the electrode is checked for sufficient length to complete the hole

AUTOMATIC ELECTRODE STABILIZER
Moves automatically to provide extra support for long electrodes

LINEAR GLASS SCALES WITH 0.5 MICRON RESOLUTION
Provides true, closed loop, position feedback for precise part positioning accuracy

HAND PENDANT FOR REMOTE OPERATION
Machine functions are more accessible to the operator during setup

ROTARY TABLE (OPTIONAL)
Fully integrated for complex parts requiring multi axis positioning

BREAK THROUGH DETECTION (OPTIONAL)
Ensures a complete hole or helps to eliminate back wall strikes

AUTOMATIC ELECTRODE CHANGER (OPTIONAL)
The 24-position carousel allows for unattended operation

AUTOMATIC GUIDE CHANGER (OPTIONAL)
The 8-position carousel can change guides up to 6” in length

OPTICAL INSPECTION SYSTEM (OPTIONAL)
High resolution video camera can measure hole size, verify position, and locate datum points for part programs

BT-125-T

Model shown with optional A axis Rotary Table.

BT-125-T/AEC/AGC

Model shown with optional A axis Rotary Table and Optical System.

These machines are specially designed for processing parts that require multiple holes drilled at various entry angles, such as cooling hole applications for small or large turbine components. The stationary work table has excellent weight carrying capacity and stability for supporting oversize work pieces. The machine system combines the high speed EDM drilling technology of our Astec products coupled with an open architecture gantry style machine which allows for additional open height capabilities on all models. The Astec EDM head tilts +/-110° from vertical maximizing drilling capabilities on complex parts.

These machines are built in Belmont's Michigan facilities.

Belmont's BT CNC EDM Drills

		BT-125-T CNC	BT-176-T CNC	BT-306-T CNC
TRAVEL	X AXIS	47.2" (1,200 mm)	78.7" (2,000 mm)	118.1" (3,000 mm)
	Y AXIS	19.6" (500 mm)	24.0" (610 mm)	24.0" (610 mm)
	W AXIS	27.6" (700 mm)	30.3" (770 mm)	30.3" (770 mm)
	Z AXIS	15.7" (400 mm)	15.7" (400 mm)	15.7" (400 mm)
	B AXIS (TILT HEAD)	+/- 110° from vertical	+/- 110° from vertical	+/- 110° from vertical
OPEN HEIGHT *	MINIMUM	0.0" (0 mm)	0.0" (0 mm)	0.0" (0 mm)
	MAXIMUM	26.5" (675 mm)	29.5" (750 mm)	29.5" (750 mm)
WORK TABLE	WIDTH	63.0" (1,600 mm)	78.7" (2,000 mm)	122.0" (3,100 mm)
	DEPTH	39.3" (1,000 mm)	39.3" (1,000 mm)	39.3" (1,000 mm)
WORK PAN	WIDTH	70.8" (1,800 mm)	90.0" (2,285 mm)	130.0" (3,300 mm)
	DEPTH	53.1" (1,350 mm)	53.1" (1,350 mm)	53.1" (1,350 mm)
WEIGHT CAPACITY OF WORK PIECE	ON WORK TABLE	10,000 lb. (4,535 kg.)	15,000 lb. (6,800 kg.)	20,000 lb. (9,070 kg.)
GENERATOR	MAXIMUM AVERAGE CURRENT	40 A	40 A	40 A
AUTOMATIC ELECTRODE AND GUIDE CHANGER	AEC POSITIONS	24 **	24 **	24 **
	AGC POSITIONS	8 **	8 **	8 **
ENVIRONMENTAL	ROOM TEMPERATURE	68 to 77˚F (20 to 25˚C)	68 to 77˚F (20 to 25˚C)	68 to 77˚F (20 to 25˚C)
	RELATIVE HUMIDITY	40% to 55%	40% to 55%	40% to 55%
UTILITIES	ELECTRICAL	220VAC ±10%, 60 Hz, 4.5 KVA	220VAC ±10%, 60 Hz, 4.5 KVA	220VAC ±10%, 60 Hz, 4.5 KVA
	AIR	70 PSI @ 1 CFM (5 BAR @ 1.7 CMH)	70 PSI @ 1 CFM (5 BAR @ 1.7 CMH)	70 PSI @ 1 CFM (5 BAR @ 1.7 CMH)

* Open Height is measured from the tip of a standard guide. **Optional.

Your Complete Source For EDM Consumables

Small Hole EDM Drill Accessories

Rotary Tables and Indexers

- Wide variety of work holding capabilities
- Horizontal or vertical tables available

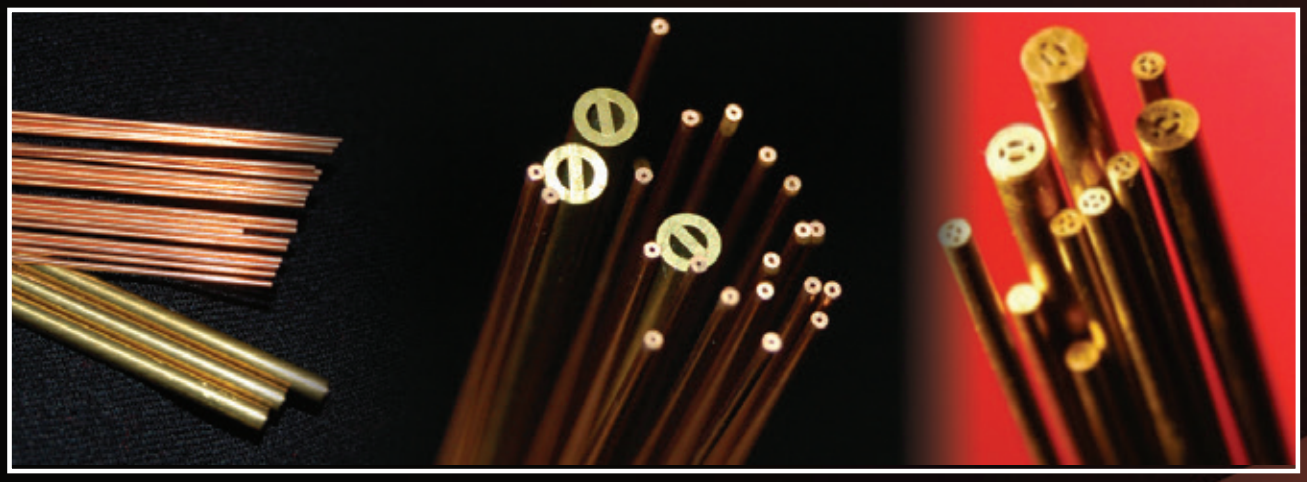
Integrated Rotary and Tilt/Rotary Tables

- Available in select models
- Precision ground stainless steel table
- Work piece flushing is integrated through the tilt rotary

Stainless Steel Tooling Packages from:

- Erowa, System 3R, and Hirschmann

Small Hole EDM Drill Supplies



- Custom manufactured fabrication
- Single & multi-channel brass tubing
- Single & multi-channel copper tubing
- Ceramic guides
- Guide extensions
- Resin
- Filter cartridges

Your Complete Source For EDM Filtration

Ebbco F-.8 Streamline EDM Drill Filtration System

- Complete dielectric system for EDM hole driller
- Separate clean and dirty tanks
- Compact floor space design
- DI resin bottle
  - Optional placement on steel base or next to filtration system

Ebbco F-3 Filtration Unit

- Recommended for production applications where water temperature and conductivity need to be maintained at a consistent level
- Inline chiller for temperature control
- Conductivity meter for maintaining water quality
- Ozone generator to eliminate bacteria (optional)

Ebbco F-7SPS-SS Filtration Unit

- Recommended for production applications where water temperature and conductivity need to be maintained at a consistent level
- 6,000 BTU/hour liquid chiller to maintain water temperature
- .75 HP submersible pump is included and supplies water to the chiller and water to the auxillary flush port on the machine
- Digital connectivity controller for maintaining water quality
- Ozone generator to eliminate bacteria (optional)

Custom Designed Central Filtration Systems for Multiple Machine Applications

Belmont's History of High Speed EDM Drilling

From the 1960's, Belmont's involvement in EDM hole drilling was done through design and build of fixtures for traditional oil sinker type EDM, often using special multi-electrode holders and perhaps even multi-lead power supplies.

For Belmont, High Speed EDM Drilling began in 1985 when we introduced the Astec CDH-3A line of HS EDM Drills. Along with selling EDM Drills, we also used them in our facility to learn more about the technology and develop our capabilities. While originally intended only to produce start holes for the new Wire EDM market, High Speed EDM drilling quickly evolved into a stand-alone process.

During 1986 and 1987, Belmont worked with a major aircraft engine manufacturer and their Tier 1 supplier to refine the High Speed drilling process. Fast hole EDM drilling, using high pressure water dielectric, could now pass the same recast specifications approved for oil sinker EDMs. Our first application for production aircraft parts to come off the EDM drills reduced the traditional EDM sinker time from 6.5 hours to just 37 minutes! We believe this was some of the first High Speed EDM drilling technology in the aircraft industry.

As many new applications for High Speed drilling were uncovered the need to advance the machine's controller was realized. In 1987, Belmont developed an optional PLC add-on that would automatically set zero at the part surface using "soft spark" sensing, turn on flushing, ramp up cutting power, cut to depth then turn off power and retract the electrode – all this at the touch of a single button. This operating feature is now taken for granted on most all EDM drills, but in 1987 it was a major innovation!

In 1988 the PLC add-on was replaced by a dedicated circuit and we coined the phrase "Auto Z" to market the "Auto Z Control". Customers found the optional Auto Z so useful that in 1990 we made it a standard feature on all Astec controls. The Auto Z was an important

stepping stone that allowed integration of automated programmable rotary indexers and X-Y positioning tables to EDM drills.

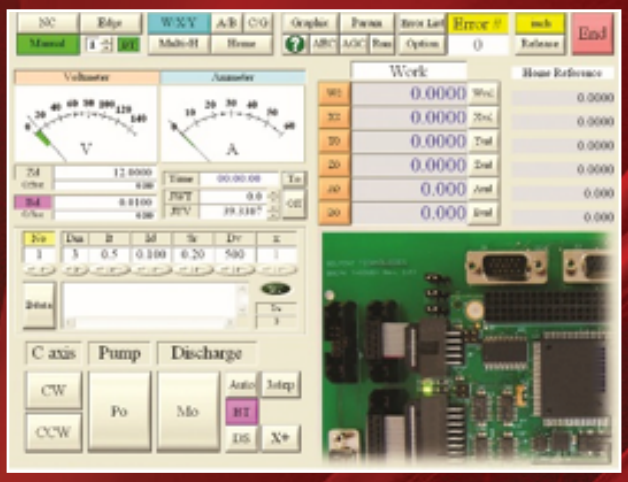
The market was growing quickly and so was the need for diversified machine tool platforms to support the ever increasing range of customer requirements. To meet this need, we introduced the EDM Drilling Attachment that included the EDM drilling head, a power supply and the high pressure flushing system. These components were available in kit form that allowed converting any standard machine tool into a High Speed EDM Drill. We converted everything from Bridgeport mills to multi-axis CNC machining centers and even some Wire EDMs into High Speed drills. The versatility of this kit opened the market further and the drilling concepts allowed new products to be pursued, and lead to others entering the EDM drill market.

1988-89 with all the new manufacturing opportunities for EDM Drilling, Belmont was heavily involved in having EDM Drilling recognized and accepted as a 3rd method of EDM Machining along with Sinker/Ram EDM and Wire EDM.

In 1992, after having success integrating single axis rotary indexers to our drills, we took the next step and produced a full 5-axis CNC drill utilizing a tilting/rotating table. This allowed positioning the work piece in any attitude necessary to produce the drilled feature. A few years later, we added a tilting head High Speed EDM Drill to our line up to further expand the versatility of the process.

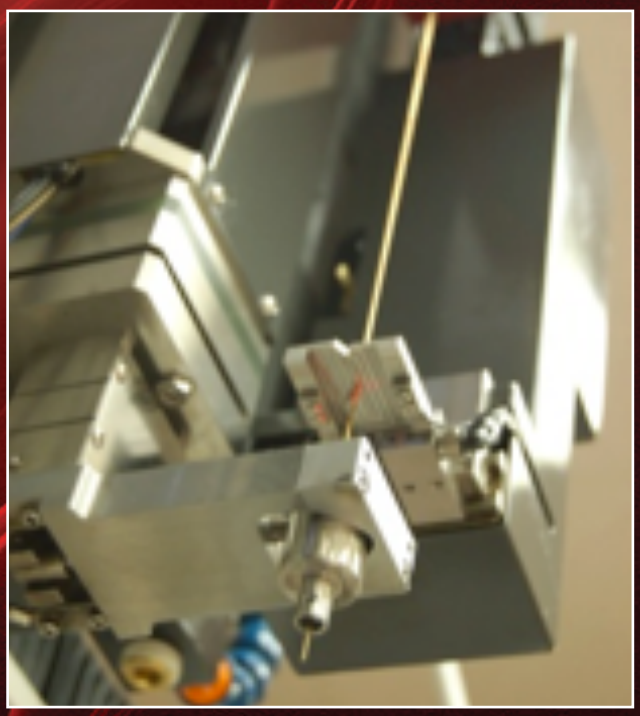
In 1996, with markets and needs changing, Belmont developed a well-built economical S-26 EDM Drill for simple applications. This line lent itself well to additional model developments, such as the S-150 CNC integrated tilt head.

In 1997, we incorporated a fabrication unit on an EDM drill to dress off the worn and tapered end of the electrodes. With ongoing development of this technology new versions were introduced in 2004, 2006, and 2010. This continues today with our advancements in this development leading us to 3D EDM milling for Shaped Hole features in the High Speed Drill.



1999 brought in a new Astec CNC model with a fully Automatic Electrode Changer with auto center stabilizer, a Guide Changer as well as Astec's version of Break Through Detection. At the same time Belmont was developing our own version of Break Through Detection, due to the increasing demand for better consistency in this feature.

Our first version was introduced in 2001. In 2005 we introduced an improved version with faster data acquisition capabilities to further improve consistency. In 2008 we integrated it into the CNC control of both our Astec and SY Series of CNC Drills. We continue to



develop and improve this feature to meet the aerospace industries need to avoid back-wall strikes in blind casting pockets. This is a popular option on many of our machines.

In 2004 Astec introduced an improved Automatic Electrode and Guide Changer (AEC/AGC) design along with an updated drill head with new electrode stabilizer system. The new AEC/AGC allowed for better electrode monitoring and management. The new stabilizer incorporated a sensor to determine the electrode length after an automatic electrode change to allow more efficient use of partial electrodes.

In 2006 our Machine Tool division expanded into a larger portion of our Michigan facility allowing us to produce

the new BT Series of Tilt Head CNC EDM drills. Selecting the best features from several of our suppliers we designed and developed these large machines using our extensive drilling background. In our Michigan facility we combined the fixed table, gantry style construction of our large EDM die sinkers with a Direct Drive Rotary (DDR) linear motor or cone drive to tilt the EDM head. The customized machines with massive work piece capacity further expanded the capability of EDM drilling.

Also in 2006 we incorporated an Optical Inspection System to our drills to provide magnified, visual inspection capabilities. This feature has proven extremely useful in aircraft repair situations where it is often preferable to use visual positioning to determine hole location.

In the same year, Belmont introduced our SY Series of machines that provide a high quality, full featured HS EDM Drill with great Return on Investment. This product line was designed to be modular. As our customer's needs grow they can add features such as an Automatic Electrode Changer, an Automatic Guide Changer, Break Through Detection, Optical Inspection, and capabilities up to 7 axes.

Through the years our Engineering Department has not only been involved with our R&D, but also worked with our customers and manufacturing partners to drive technological solutions while integrating state of the art technology.

This adds efficiency to the EDM Drill process along with automation needs whether stand alone units or custom made handling systems.

From the beginning, with EDM consumables being a large part of Belmont's business, we have strived to offer the best products including tubing for EDM Drills. Over the years we have done much testing, and have worked successfully with our manufacturing partners developing the right tube for the right application. All tubes are not created equal. We developed Economy and Premium type tubes to work in most applications depending on the need. The evolution of EDM drilling created a need for customized tubing based on specific applications. Partnering with a 3rd manufacturer, for the last 10+ years, we have offered custom made tubing with tight tolerance O.D. and I.D. along with important material consistency. This is normally designed around specific applications when required. The right tubing is as important to the EDM drill process as the drill itself. We regularly introduce new consumable products to the market, such as precision tubing and special guides that not only benefit our machines, but advance the High Speed EDM drilling process throughout the industry.

Today, more than 30 years after selling our first High Speed EDM Drill, Belmont continues to research, design and develop new products and enhancements for our equipment at our Madison Heights, Michigan facility. Belmont has never lost sight of the fact that it's our people and committed support to our customer's success after the sale, that truly separate us from others in the industry.

Belmont Equipment & Technologies
Bob Ianitelli
President/COO

"Everything for EDM"

Advancing EDM ... a Family Tradition

Mr. Ping Ianitelli, a pioneer of EDM in the United States, founded Belmont in 1960 to distribute "Gentrode-10", one of the first premium grades of graphite designed specifically for use in EDM. Today, his sons carry on the tradition of Belmont's development and distribution of EDM equipment and supplies that has set the industry standard.

We are continually one of the largest Poco graphite distributors worldwide: The premium quality graphite for sinker EDM.

Belmont is the world's largest distributor of OKI EDM Wire Products: The premium quality wire for wire EDM machines.

Belmont helped introduce high speed EDM drilling as an accepted third method of EDM.

Today we are second to none in our application and engineering background to support the EDM market.

One Source ... Multiple Options

Belmont is the source for all your EDM requirements, from material selection to machine tool solutions. Our personnel have extensive industry experience, with a wide range of support tools at their disposal, with on-going training and the highest quality products available. This performance-driven approach offers:

EDM application consulting

The right equipment and materials to increase productivity

Expert advice to help you operate your EDMs more effectively

Automation to help increase throughput

Turn-Key system development

Support before and after the sale

Products researched in our facility before going to market

If you don't see it, just ask. We'll build it for you.

BELMONT
EQUIPMENT & TECHNOLOGIES
Divisions of Cleary Developments, Inc.

Headquarters/MI
P.O. Box 71013
32055 Edward Avenue
Madison Heights, MI 48071
Phone (800) 356-4811
Fax (800) 486-4336
Fax (800) 441-4336

New England
665 Prospect Street Suite 8
Chicopee, MA 01020
Phone (866) 468-9611
Fax (413) 536-5683

Central/IL
840 Eagle Drive
Bensenville, IL 60106
Phone (877) 860-9602
Fax (630) 860-9604

Southeastern
797 Locust Street
Hendersonville, NC 28792
Phone (800) 799-0786
Fax (828) 654-9612

Mountain/Pacific
1011 Segovia Circle
Placentia, CA 92870
Phone (800) 394-4993
Fax (800) 441-4336

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