ESAB CUTTING SYSTEMS

SUPRAREX SXE-P

Portal Cutting System

Modular System Design

- **Machines that can be adapted exactly to each customers requirement**
- **Process flexibility that includes plasma, oxy-fuel and marking**
- **Consistent high quality cutting over the entire work area**
- **Cutting and positioning speed up to 20000 mm/min**
- **Proven design and components deliver both long term reliability and durability**
- **State of the art CNC technology delivering a large number of user benefits**
- **User friendly machine operation**
- **Option of widths between 3000 and 8000 mm**
- **Up to 12 tool stations to allow for customer present and future requirements**
- **High precision guidance and positioning to allow the maximum accuracy from the cutting process**

The modular design of the SUPRAREX portal cutting system means that it can be adapted perfectly to meet our customers needs. This guarantees an optimum price to performance ratio.

The SUPRAREX can be supplied in three types. These differ in the dimensions of the portal beam, the size of the working area and the type and complexity of the cutting tools.

Double drive systems with a positional speed of 20000 mm/min are standard for the entire SUPRAREX range.

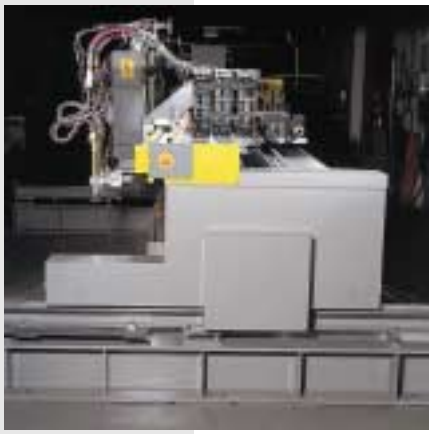
NCE Vision PC
The NCE Vision PC Control is a Windows based cutting machine control on Microsoft Windows 98 operating system. Easy of operation and a general good overview incorporates an array of new features.
Software features like menu-driven operation, real-time tool path display, and kerf-override provide an increase in the productivity.

Water-injection plasma cutting

ESAB CUTTING SYSTEMS have over 60 years experience in designing and manufacturing shape cutting machines. The modern business environment require flexible but functional processes and designs.
The SUPRAREX cutting system uses the ESAB CUTTING SYSTEMS experience to meet these customer requirements. The SUPRAREX is an extremely versatile but efficient production tool. It delivers highly efficient, functional and economical production with a consistently high quality standard for all the cutting processes.

SUPRAREX equipped with one plasma torch, one plasma arc marker and six oxy-fuel torch carriages

Mass production with up to 12 oxy-fuel torches



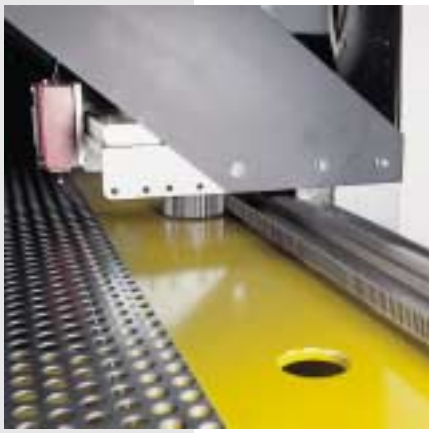
Drive speeds up to 20,000 mm/min

Dynamic and precise tool carriages

ESAB are responsible for all the parts on the SUPRAREX system, therefore all machine components are designed to integrate and interact together. The design of the main beam and the cutting carriage allows for a parking area outside the working area. This saves space and maximises the cutting area. The integration of the machine drives and side carriages in a central position not only optimises the machine performance it minimises the machine dead length which again saves valuable space.

Serviceability of the machine is a very important aspect of the design and all machine components have been made readily accessible for ease of maintenance. The use of standardised components also ensures that maintenance personnel can be highly trained with access to these common spare parts without the need for large stock holding.

Future add ons to the machine can be easily incorporated in a simple and elegant way due to this design emphasis on integration.



High-dynamic drive technology

Precise linear guidance of cutting tools (option)

Sturdy portal design

Easy accessable components for easy maintenance

Minimum parking space required – space saving

State of the Art Technology

ESAB are committed to R&D investment to ensure systematic and sustained development in cutting technology. The SUPRAREX cutting system is the latest example of this world leading technology.

The SUPRAREX uses strong, sturdy components throughout the design to guarantee high machine availability. These heavy duty components increase the lifetime of the machine as they are designed to operate and last in arduous and difficult shopfloor conditions.

The portal beams are designed and manufactured to our rigorous standards to ensure strength and performance throughout the range. This robust beam is the fundamental building block in producing accurate cut parts.

The machine tracks are also designed to combine optimum strength with accuracy. This means that heavy duty railway tracks are accurately machined to give optimum performance but with the durability to stand up to shopfloor use.

All power and supply cables and hoses are introduced to the machine through cable chains. This ensures that the hoses and cables are tidy and safe. It also increases the lifetime of the cables and hoses and minimises service intervals.

Operator independent control of the process parameters such as gas pressures are made by proportional values controlled by the CNC unit. This increases efficiency by reducing set up time but also enables cutting conditions to be easily preset ensuring consistent economic production of precision parts.

Cable chains ensure precise movement of all cutting tools

Robust beam design

Gas supply is controlled by proportional valves

HEAVY DUTY machined RAILWAY TRACK

Top Plasma Quality

The SUPRAREX machine is configured with the essential high speed, acceleration and manoeuvring capability to deliver the highest quality standards achievable from the plasma process.

The machines are provided with servo controlled 3 axis rack and pinion drives which deliver this optimum plasma cutting performance.

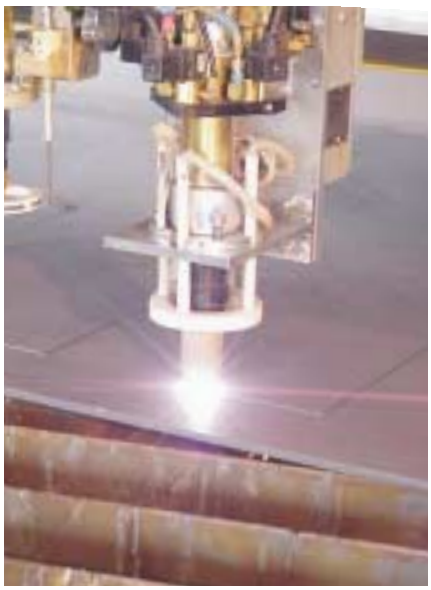
All plasma torches are integrated with a unique ESAB collision protection system which is used to protect the torch from mechanical damage and is also used as a fast convenient way to change torch consumables.

Tactile positioning device
For setting the height the tactile positioning device is a good help.
If the sensing foot is in horizontal position, the plasma torch has the proper distance to the workpiece.
At the same time the plasma torch is ignited by the NCE control.
Now the height control takes place via the arc.

Precision plasma parts

Carriage fitted with plasma cutting torch

Plasma cutting with inductive initial height setting



Plasma cutting with capacitive initial height setting

Efficient, fast flexible change over device

Carriage for plasma cutting

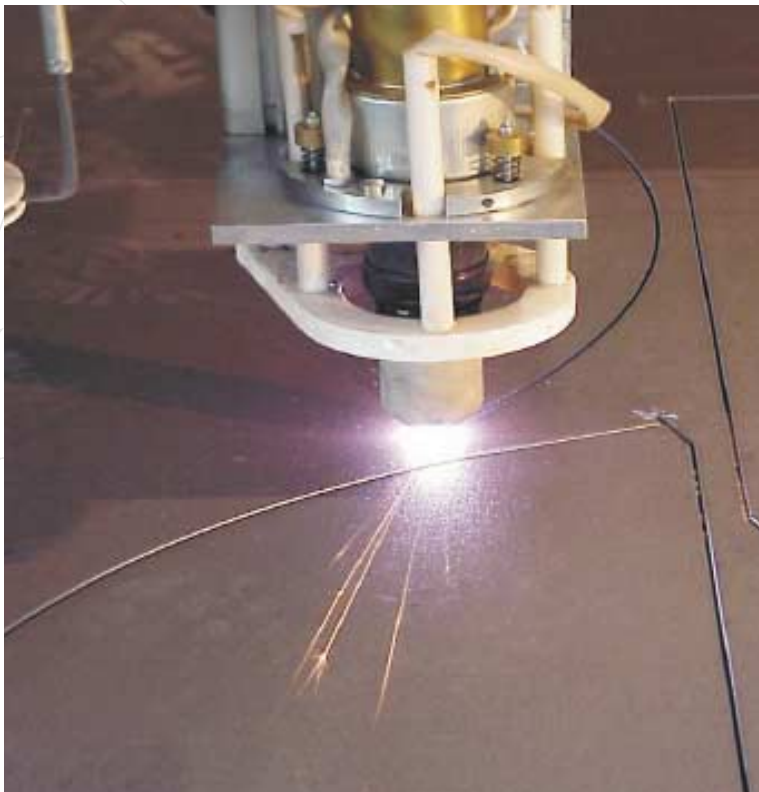
Precision plasma cutting

Use of the ESAB plasma systems ensure that we can deliver fully integrated systems with the highest performance from a single source.

The quality of the plasma process is greatly influenced by the torch to work piece height. ESAB CUTTING SYSTEMS have developed a range of initial and cutting height controls which guarantee the optimum performance for each plasma system used.

ESAB can provide plasma systems which can be used with dry fume extraction tables or alternatively, with water tables. An interesting development with water tables is the water injection plasma cutting under or above water.

The high performance of the SUPRAREX machine and height sensing system enables precision plasma to be supplied that can achieve cutting performance which can be compared to the quality achievable from laser cutting.



Oxy-fuel Cutting

The SUPRAREX machine can be equipped with up to 12 oxy-fuel torches. The machine can be used with oxygen and a variety of fuel gases which include propane, acetylene, natural gas and other commercially available fuel gases.

The CoolJet torch used with the SUPRAREX uses a patented system that feeds heating oxygen gas into the cutting stream for keeping the cutting nozzle cool while preheating. This gives a much longer nozzle lifetime and reduces flashback. The CoolJet torch can be used with a large number of nozzle types to give high speed cutting with precision.
An adaption of the CoolJet torch with internal ignition is the ESAB MultiJet. This torch protects the ignition system from the dirt and heat therefore ensuring consistent ignition and performance.

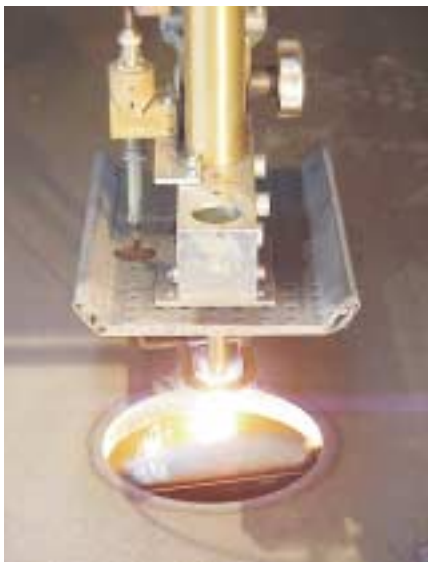
All the gas cutting equipment and torches are subject to the highest quality control and conform to the applicable standards and statutory safety regulations. Torches are fitted with flashback arrestors and non return valves to ensure machine and operator protection.

The SUPRAREX oxy-fuel gas normally comes supplied with an automatic preheat piercing and cutting system. This combined with proportional valves for continuous pressure control guarantees an optimum and consistent cutting quality independent of the operator.

All the above equipment enable automatic operation of the machine which contributes greatly to quality, efficiency, accuracy and safety of the machine operation.

Multijet torch with automatic internal ignition

Valve block and proportional valves



Heat protection on the oxy-fuel carriage

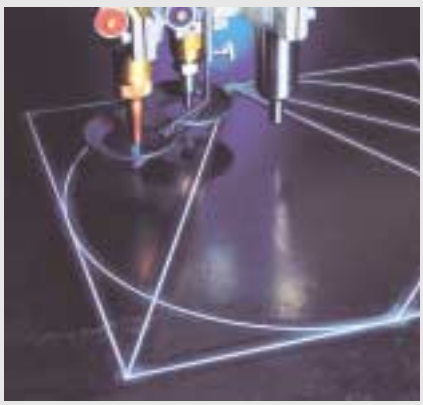
Signing and Marking

The great advances in marking techniques have been recognised by industries where the opportunity to premark plates and profiles with geometric information or alpha numeric text has been readily accepted.
All the acceptable methods of marking are available for interface into the SUPRAREX system.

- **Pneumatic punching**
- **Zinc powder marking**
- **Plasma marking**
- **Ink jet marking**

All marking units tend to set at a fixed offset to the cutting torch which allows to overlay marking within a cutting programme and for all marking to be carried out automatically prior to the cutting operation.

Pneumatic marking
Compressed air punching



Powder marking

Plasma marking

Ink jet marking

Oxy-fuel Three-Torch Station

For weld edge preparation of I-cuts and V-, Y-, K-, X-bevels to be carried out by:

- **Three-torch-station manual ± 90° swivelable for straight linear cuts**

or

- **Three-torch-station manual ± 90° in the centre rotable for straight linear cuts. The side torches are detachable mounted.**

or (SUPRAREX SXE-P 3)

- **Three-torch-station automatic infinitely rotating for contour cuts with tangential control.**

Continuous Path Controls

Numerical control NCE Vision PC

The NCE VISION control units are based on PC technology. The units have graphical display, fixed programme (standard shape) technology, floppy disk drive and a large operating memory.
The NCE control units are connected into the machine by an integrated BUS system which reduces the number of cables and leads on the machine. This ensures the information is quickly and reliably transmitted to all parts of the machine. This gives higher machine reliability, ease of servicing and easy machine upgrading.
The closed loop monitoring system ensures that the accuracy of the machine is continuously maintained.

The SUPRAREX portal cutting system is equipped with an NCE continuous path control as standard. There is a choice of different control systems which offer varying levels of equipment and ease of operation.

Database for automatic plasma cutting

Programming under Windows

The COLUMBUS programming system provides the user with a high performance, adaptable and flexible software for generation of cutting programmes

- **MS Windows user interface**
- **High operational reliability thanks to object orientated programming**
- **Network compatible**
- **Modular programme structure**
- **Optimum use of materials and machine**
- **Simple to master**

Columbus programming system

Technical Data

SUPRAREX	**SXE-P 1**		**SXE-P 2**		**SXE-P 3**		
Machine sizes	**3,000**	**4,500**	**4,000**	**5,500**	**5,000**	**7,000**	**8,000** [5]
Machine dead length	mm	2,000	2,000	2,000	2,000	2,000	2,000
Machine width	mm	3,650	5,150	4,650	6,150	5,650	7,650
Machinen height	mm	2,000	2,000	2,000	2,000	2,000	2,000
Work support height	mm	700	700	700	700	700	700
Main voltage [4]	V/Hz	230/50	230/50	230/50	230/50	230/50	230/50
Power input	VA	≈2,000	≈2,000	≈2,000	≈2,000	≈2,000	≈2,000
Torch gases [2]		Acetylene/Propane/Natural gas/Gas mixes					
Positioning speed	mm/min	20,000	20,000	20,000	20,000	20,000	20,000
ESAB NCE 290	Carriages	6	6	6	6	6	6
ESAB NCE Vision PC	Carriages	6	6	8	8	12	12
Maximum number of single-torch	Carriages	6	6	8	8	12	12
Cutting width (1 single torch)	mm	2,200	3,700	3,200	4,700	4,200	6,200
Cutting width (2 single torches) congr.	mm	2x1,100	2x1,850	2x1,600	2x2,350	2x2,100	2x3,100
Cutting width (6 single torches) congr.	mm	6x 365	6x615	6x 525	6x775	6x700	6x1,035
Cutting width (8 single torches) congr.	mm	–	–	8x400	8x585	8x525	8x775
Cutting width (12 single torches) congr.	mm	–	–	–	–	12x350	12x515
Cutting thickness (1 single torch)	mm	3-200 [1]	3-200 [1]	3-200 [1]	3-200 [1]	3-200 [1]	3-200 [1]
Cutting thickness (2 single torches)	mm	3-200	3-200	3-200	3-200	3-200	3-200
Cutting thickness (4 single torches)	mm	3-150	3-150	3-150	3-150	3-150	3-150
Cutting thickness (6 single torches)	mm	3- 50	3- 50	3- 50	3- 50	3- 50	3- 50
Cutting thickness (8 single torches)	mm	3- 40	3- 40	3- 40	3- 40	3- 40	3- 40
Cutting thickness three-torch unit	mm	8- 75	8- 75	8- 75	8- 75	8- 75	8- 75
Three-torch unit +/– 90°		2	2	2	2	2	2
Centre-rotating three-torch unit +/– 90°		–	–	2	2	2	2
Continuously rotating three-torch station		–	–	–	–	2	2
Plasma power sources [3]							
up to 50 Ampère operating voltage		2	2	2	2	2	2
up to 100 Ampère operating voltage		2	2	2	2	2	2
up to 200 Ampère operating voltage		2	2	2	2	2	2
up to 600 Ampère operating voltage		–	–	2	2	2	2
Precision/Fine beam plasma		2	2	2	2	2	2
Plasma marking							
up to 10 Ampère marking current		2	2	2	2	2	2
up to 20 Ampère marking current		2	2	2	2	2	2

[1]) For cutting thicknesses over 200 mm, the cutting table must be lowered accordingly
[2]) Other fuel gases on request
[3]) Other configurations on request
[4]) If required, other main voltages are available
[5]) On request

Shaping the Future

For more than 60 years ESAB CUTTING SYSTEMS have been a leader in the design, manufacture and supply of high-tech cutting systems.

ESAB CUTTING SYSTEMS supply an outstanding range of profile cutting machines incorporating the very latest cutting technology available for oxy-fuel, plasma, laser and water jet cutting.
In our role as the number one cutting machine supplier we are continually striving to improve the performance of these cutting processes in respect to efficiency, accuracy, safety and environmental aspects.
The commitment to research and development ensures market leadership based upon and driven by high customer satisfaction.
The SUPRAREX range of machines incorporates state of the art technology combined with a unique modular building block approach to deliver the most productive solution to meet individual customer requirements.

LASER

OXY-FUEL

PLASMA

WATER JET

We reserve the right to make technical modifications and improvements without notification

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