



INGERSOLL

Gantry Concept

CNC-Electrical Discharge Machines

IG 750

IG 1000

IG 1300

IG 1300 E

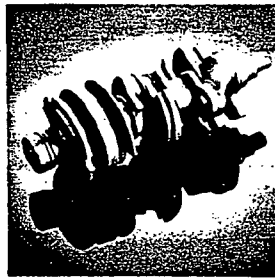
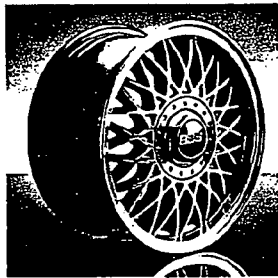
Precision in any form, e.g. in the automobile

An automobile is composed of more than a thousand individual components. More and more of these components are manufactured by sub-contractors.

Automobile components are made of different materials in the most varied sizes and forms. Materials such as steel, aluminium, plastic, rubber, glass etc. are used.

Production methods utilize moulds and dies, many of which are finished by EDM. Dimensional accuracy, exact moulding and optimum surface quality are required.

INGERSOLL GANTRY EDM produce workpieces of extremely high quality, around the clock.



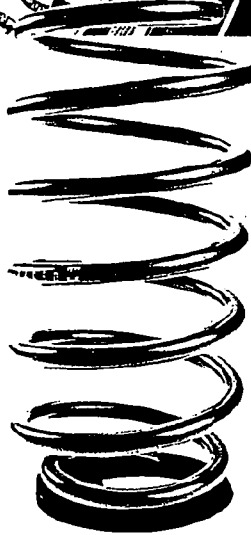
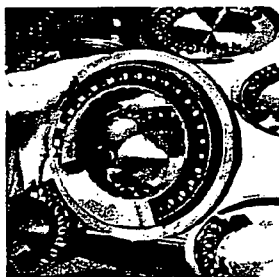
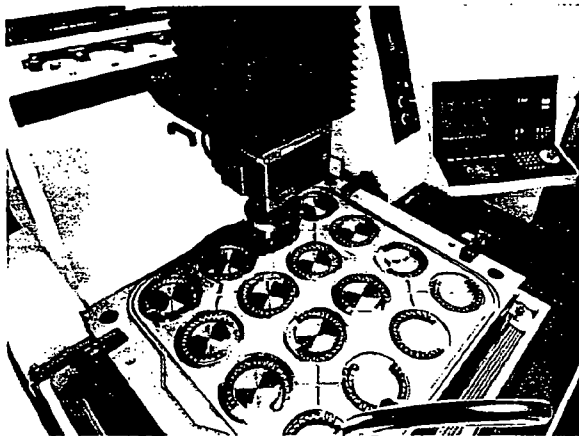
One typical example is the EDM machining of a 16-cavity rubber mould for damper rings.

For this application a high quality graphite electrode is particularly well suited for both the roughing and finishing operations.

Automatic EDMing over the entire area of the work table is made possible with the large axis

movements available in the INGERSOLL Gantry Concept.

Electrode changing systems, automatic clamping systems and the fourth rotating axis (C axis) are indispensable for this complex application.



Precision in any form, e.g. in communications

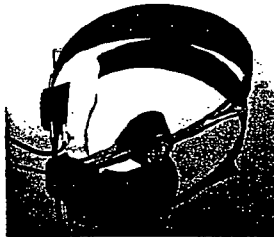
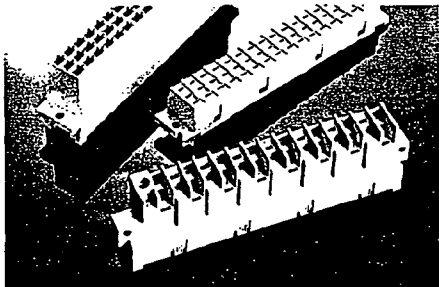
Every-day objects are measured by their value in use.

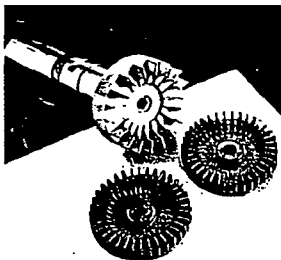
Functionality, ergonomics and quality are, therefore, the predominant criteria of a perfect design. They nevertheless must leave sufficient space for creative and attractive styling.

Plastic products frequently use the EDM surface finish as the final

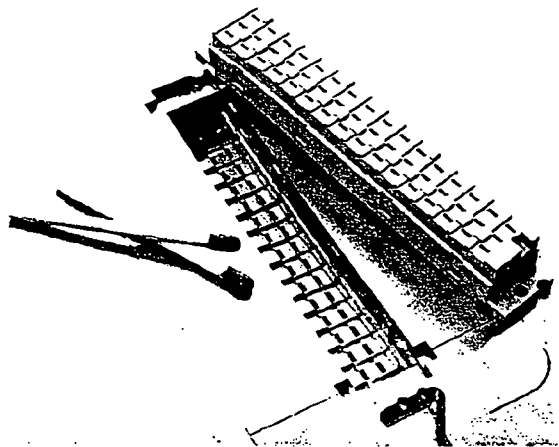
moulding finish therefore doing away with polishing and etching on the mould tool itself. As a result the mould is handier and better able to withstand soiling and damage.

Accuracies of ± 0.01 mm in the injection mould ensure the high accuracy of fit of the moulds.



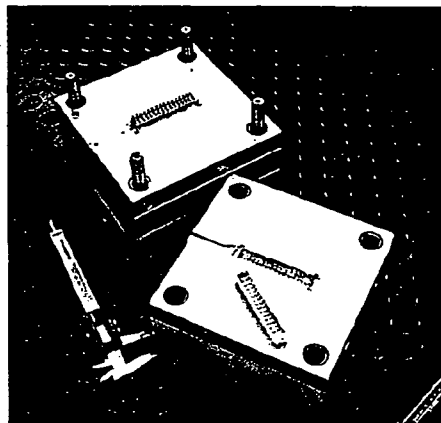
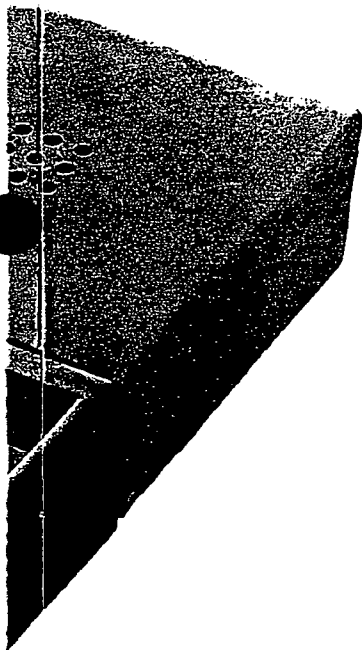


Even on a small scale, complete electrodes as depicted for the fan wheel, can be used.

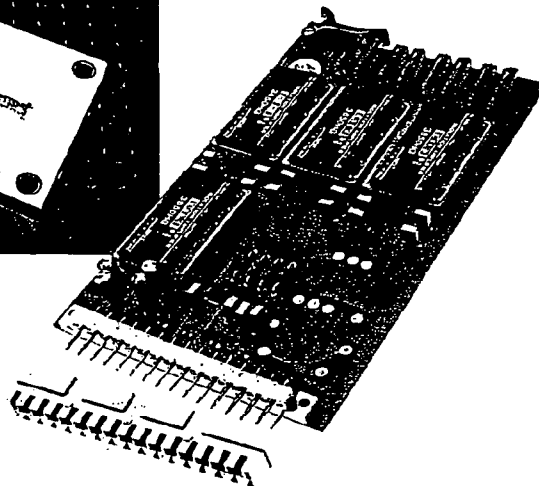


Planetary programs such as the star-program are required to produce the sharp edges in nest geometries.

Low wear, high precision and good surface finish help in the removal of the mould from the tool.



Many small geometric details are part of such a plastic plug-in module. Individual mini-electrodes, mostly copper, are used in the EDMing of the injection mould.



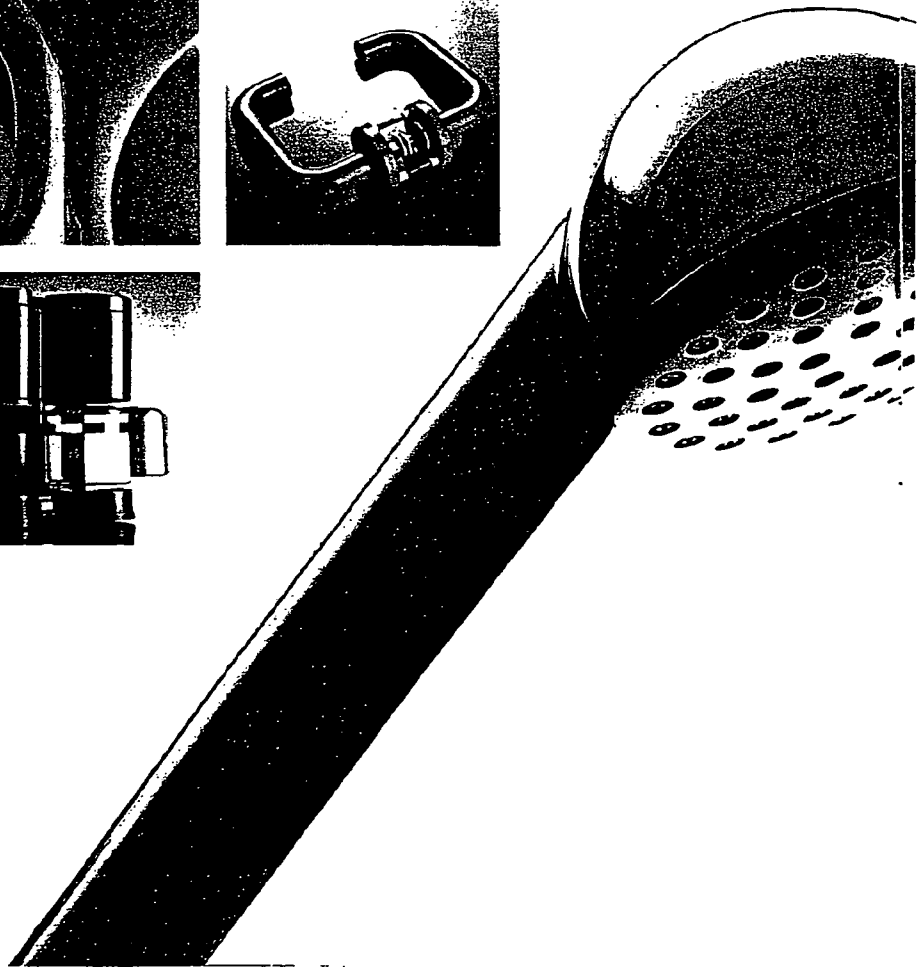
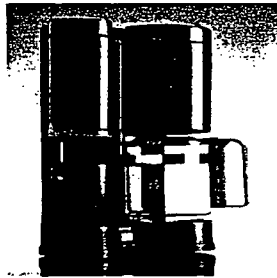
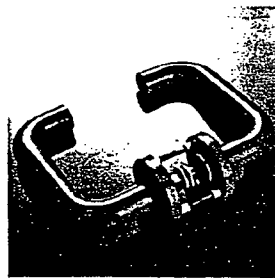
Precision in any form, e.g. at home

Even the most unusual and exceptional design ideas need to be given form, as it is this form, which provides the products with their sales image.

Complex design drawings must be conver-

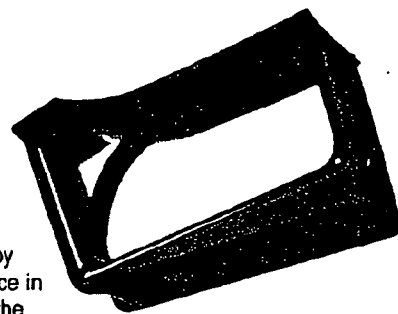
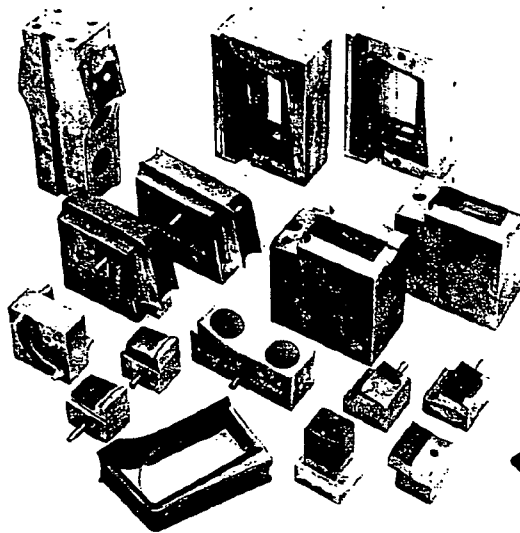
ted into a mould tool that will retain these forms.

INGERSOLL GANTRY EDM's using complete electrodes are used to machine these complex forms.



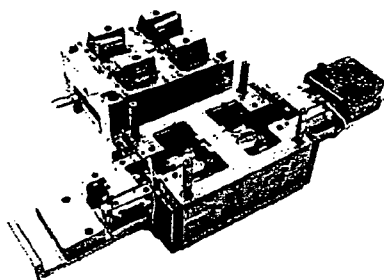
The injection mould of this plastic handle requires several slide functions for the finished part to be removed from the mould.

EDMing follows this method so that as a rule, the individual surfaces are always machined in mould-release direction.



This is achieved by clamping the workpiece in a complex set-up on the machine table or a simple set-up using a different selectable main EDM axis with the overlay of planetary programs.

The entire set of electrodes shows how extensive the machining of such a simple part can be. Long electrodes allow the use of an electrode changer only if there is a large free space available for changing. The INGER-SOLL Gantry Concept with pick-up linear or turnable magazine provides maximum flexibility.



Programmed for clear results: Ingersoll CNC dialog system (DC)

The structure of EDM programs to operate automatically becomes more complex with the functions available on EDM machines of today. Therefore programming techniques that simplify and assist the user are welcomed.

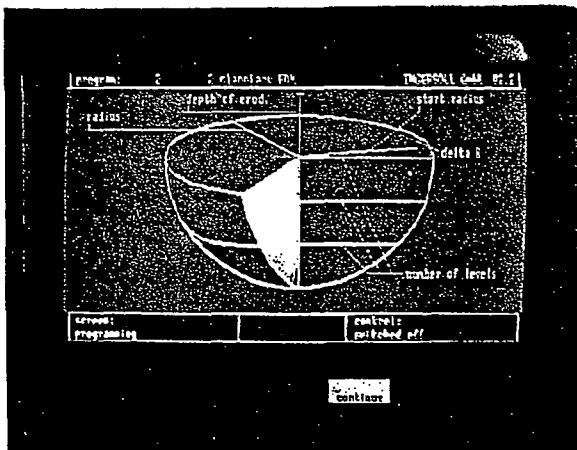
INGERSOLL technology programming provides the programmer with the means which, after the input of a few pieces of basic information, supplies complete planetary programs.

Radii and depth graduation as well as tested generator settings normally determine the program structure. Necessary undersizes are computed and displayed automatically.

Besides technology programming, it remains possible to develop and enter one's own EDMing strategies.

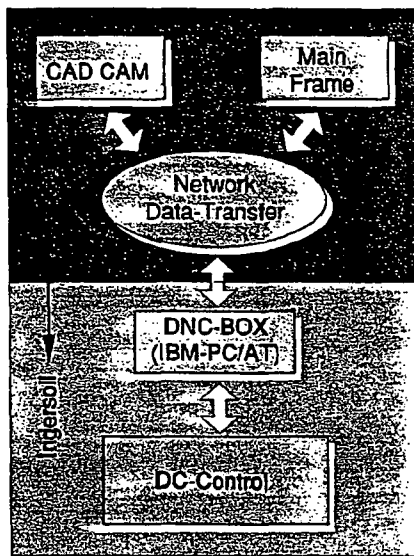
Programming is in clear text and takes place without interrupting the machining process.



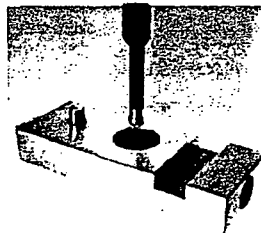
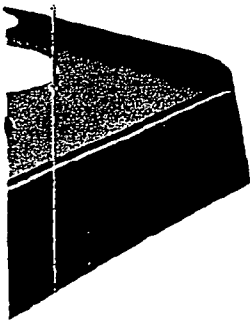


The latest generation of INGEROLL EDM machines have D.N.C. capability. Integration into networks is achieved via the INGEROLL DNC box.

Starting from the mere data communication from and to the EDM plant, geometric data such as profile EDMing can be used from most-advanced systems.



Planetary functions such as the sphere program depicted are standard functions and can be carried out in the 6 main axial directions (plus/minus x, plus/minus y, plus/minus z). Free selection of the main axis allows an application-oriented set-up of the tools to be machined.



Set-up functions such as the automatic centering of defined geometrical elements (bore hole, cylinder, groove, plate) simplify and/or automate the set-up process.



Contour EDMing functions can be used when geometrically difficult profiles (e.g. undercuts) are to be produced. The profile is pre-set by the electrode, the curve to be followed is defined in the program.

The determination and geometric description of the path of the curve will be generated on external systems (CAD/CAM).

IG 750



Technical data

Machine

Overall dimensions (WxDxH)mm .without additional filter
with 60 A2850x2130x2500
Floorspace required without stand-by filter unit
with 60 Am214,5
Weightkg4500
Power consumption with 60 AkVA14
Supply voltageV/Hz420/50 or 460/60

Workhead Assembly

Electrode platen (WxD)mm205x205
Max. head loadkg300
Open height max.mm600

Integrated C-axis

Speed adjustablerpm1 - 200
Angle resolutiondeg.0.001
Weight capacity:
Manually loadedkg50
In toolchanger operationkg20

Worktable

Clamping area (WxD)mm650x550
Load capacitykg1000
Distance between t-slotsmm80
Dimensions7x12 mm H8

Worktank

Inside dimensions (WxDxH)mm750x650x450
Capacitylitres200
DesignRise and Fall

Dielectric Supply

Integrated filter-unitCartridges
Filter aream26
Total quantity of dielectriclitres550

Axis Travel

Xmm500
Ymm400
Zmm350

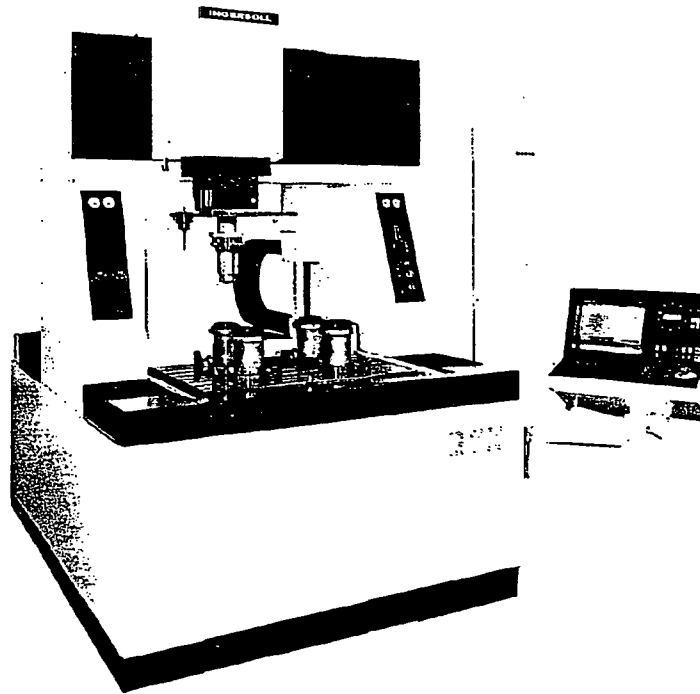
Control

CNC-dialogINGERSOLL
DrivesAC-motors
Travelling speed
max. X, Y, Zmm/min1500
Digital display resolutionmm0,001

Electrode Changer

DesignPICK-UP
Number of positions
- linear magazinepcs6
- circular magazinepcs20

IG 1000



Technical data

Machine

Overall dimensions (WxDxH)	mm	without additional filter	
with 60 A	3060x2240x2840		
with 120 A	3660x2240x2840		
Floorspace required without stand-by filter unit			
with 60 A	m2	16	
with 120 A	m2	19	
Weight	kg	5500	
Power consumption with 60 A	kVA	14	
Power consumption with 120 A	kVA	19	
Supply voltage	V/Hz	420/50 or 460/60	

Workhead Assembly

Electrode platen (WxD)	mm	205x205	
Max. head load	kg	500	
Open height max.	mm	700	

Integrated C-axis

Speed adjustable	rpm	1 - 60	
Angle resolution	deg.	0,001	
Weight capacity:			
Manually loaded	kg	50	
In toolchanger operation	kg	20	

Worktable

Clamping area (WxD)	mm	900x650	
Load capacity	kg	2000	
Distance between t-slots	mm	80	
Dimensions		8x12 mm H8	

Worktank

Inside dimensions (WxDxH)	mm	970x740x500	
Capacity	litres	320	
Design		Rise and Fall	

Dielectric Supply

Integrated filter-unit	Cartridges		
Filter area	m2	4	
Optional (Stand-by unit)	m2	12	
Total quantity of dielectric	litres	800	

Axis Travel

X	mm	690	
Y	mm	470	
Z	mm	400	

Control

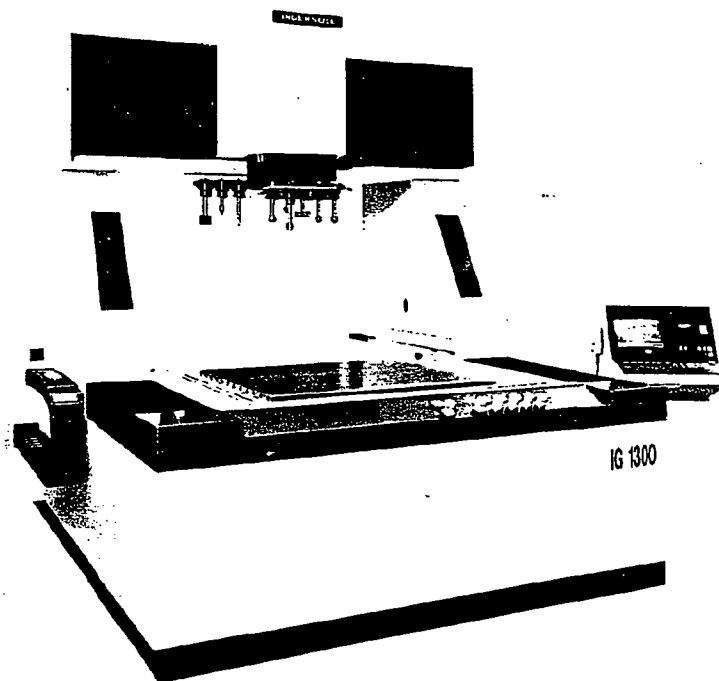
CNC-dialog	INGERSOLL		
Drives	AC-motors		
Travelling speed			
max. X, Y, Z	mm/min.	1500	
Digital display resolution	mm	0,001	

Electrode Changer

Design	PICK-UP		
Number of positions			
- linear magazine	pcs	6	
- circular magazine	pcs	20	

IG 1300

IG 1300 E

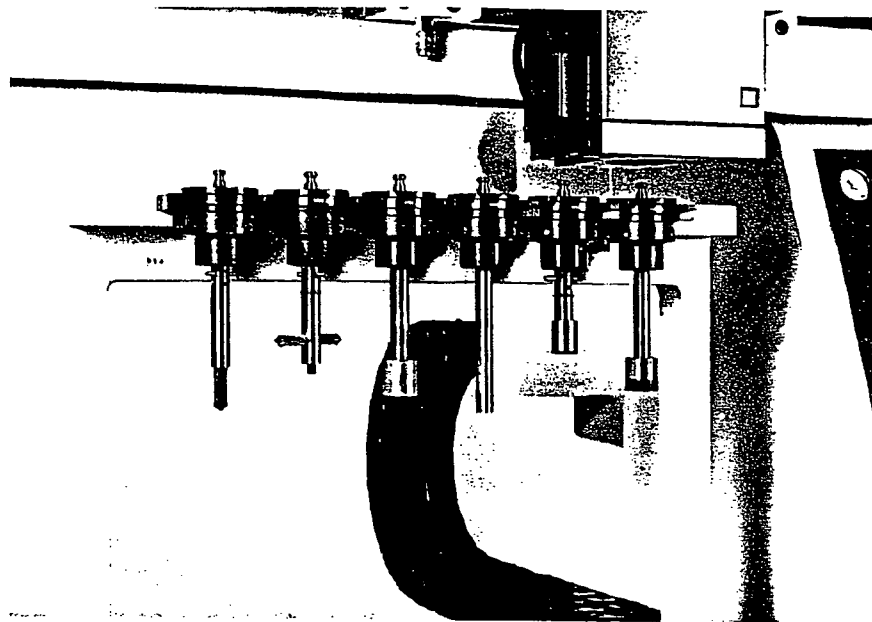


Technical Data

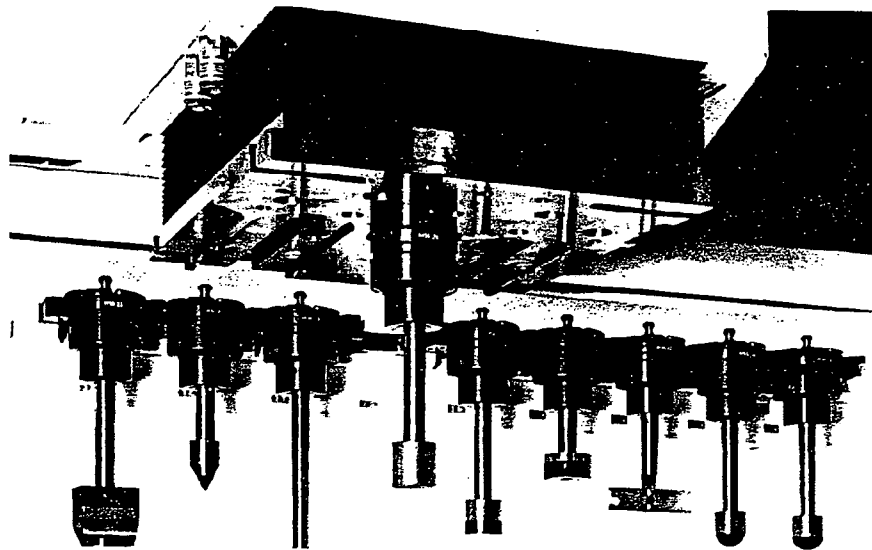
Machine	IG 1300	IG 1300 E	Worktank	IG 1300	IG 1300 E
Overall dimensions (WxDxH) mm	without additional filter		Inside dimensions (WxDxH) mm	1300x1100x600	1300x2200x800
with 60 A	4050x3170x3300	4050x4600x3500	Capacity	760	2100
with 120 A	4650x3170x3300	4650x4600x3500	Design	Rise and Fall	Rise and Fall
Floorspace required without stand-by filter unit			Dielectric Supply	IG 1300	IG 1300 E
with 60 A m2	25	35	Additional filter unit: design	Cartridges	Connection to central
with 120 A m2	28	39	Filter area m2	12	according to specs
Weight kg	13000	17000	Total quantity of dielectric litres	1700	according to specs
Power consumption with 60 A .. kVA	18	18	Axis Travel	IG 1300	IG 1300 E
Power consumption with 120 A .. kVA	24	24	X mm	900	900
Supply voltage V/Hz	420/50 or 460/60	420/50 or 460/60	Y mm	690	1800
Workhead Assembly	IG 1300	IG 1300 E	Z mm	550	550
Electrode platen (WxD) mm	380x390	380x390	Control	IG 1300	IG 1300 E
Max. Head load kg	2000	2000	CNC-dialog	INGERSOLL	INGERSOLL
Open height max. mm	1000	1200	Drives	AC-motors	AC-motors
Integrated C-axis	IG 1300	IG 1300 E	Travelling speed		
Speed adjustable rpm	1 - 60	1 - 60	max. X, Y, Z mm/min	1500	1500
Angle resolution deg.	0,001	0,001	Digital display resolution mm	0,001	0,001
Weight capacity:			Electrode Changer	IG 1300	IG 1300 E
Manually loaded kg	50	50	Design	PICK-UP	PICK-UP
In toolchanger operation kg	20	20	Number of positions		
Worktable	IG 1300	IG 1300 E	- linear magazine pcs	9	9
Clamping area (WxD) mm	1150x950	1150x2050	- circular magazine pcs	20	20
Load capacity kg	4000	7500			
Distance between t-slots mm	80	160			
Dimensions 12x12 mm HB		12x18 mm HB			

Effective EDMing with standard equipment

The standard equipment of all machines of the INGERSOLL Gantry series comprises a pick-up changer with linear magazine and an integrated C-axis with Hirschmann clamping system.

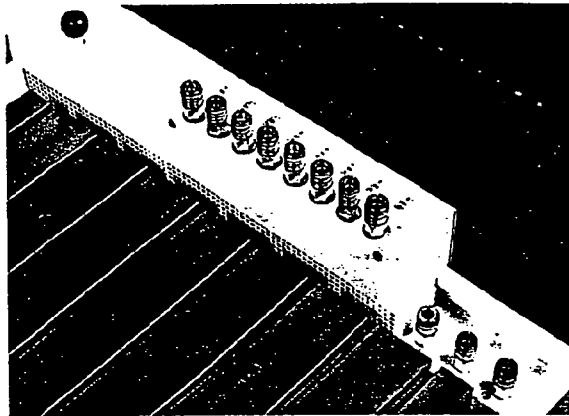


Six-position pick-up changer and C-axis as designed for IG 750 and IG 1000.

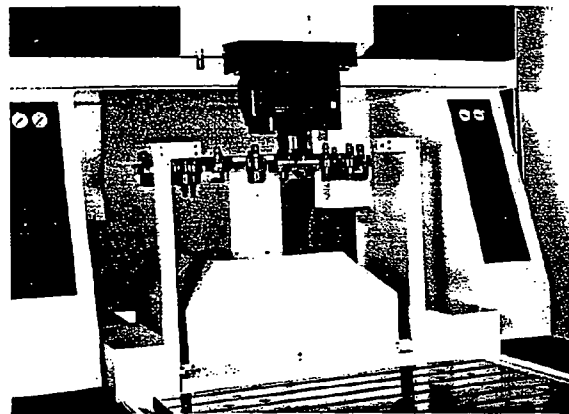


Design with nine-position pick-up for IG 1300E.

Flexibility in every application with INGERSOLL equipment



Eight-position flushing battery can supply several machining stations. The individual channels can be selected in the EDM program.



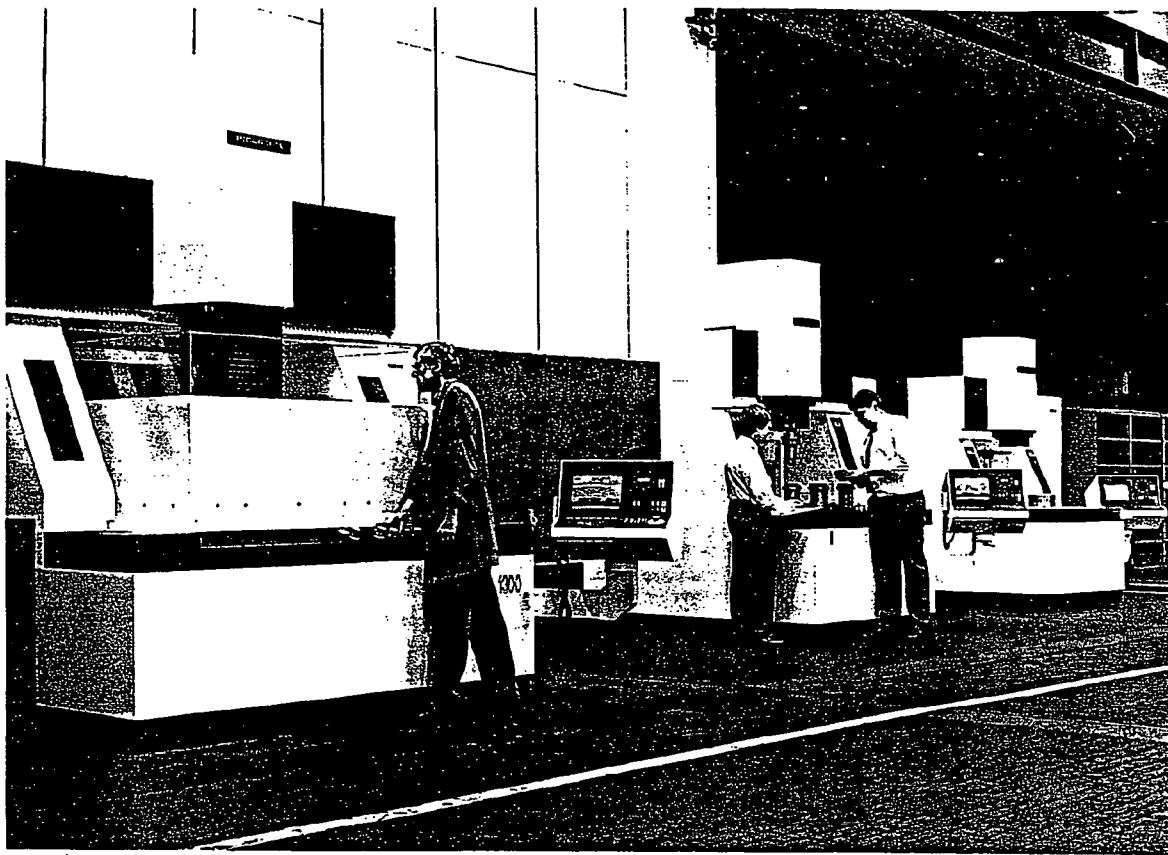
Twenty-position circular electrode changer can provide electrodes for complex machining.

The most important standard equipment and options are summarized

Equipment variant	IG 750	IG 1000	IG 1300 (E)
Hirschmann C-axis	Standard	Standard	Standard
6-position linear changer	Standard	Standard	-
9-position linear changer	-	-	Standard
20-position circular changer	Option	Option	Option
40-position circular changer	-	-	Option
Fire extinguishing plant	Option	Option	Option
Chiller unit for dielectric fluid	Option	Option	Option
8-position flushing battery	Option	Option	Option
Integrated cartridge filter unit	Standard	Standard	-
Preparation for connection to external filter plant	Option	Option	Standard
Stand-by filter units	-	Option	Option
Fume extraction plant	Option	Option	Option
Integrated fume extraction duct within the working area	Standard	Standard	Standard

Further options such as higher generator capacity etc. on request.

At the INGERSOLL EDM center, we shall be pleased to demonstrate our capabilities



The utilization of the latest technology only pays if and when the workforce knows how to handle it efficiently.

Therefore, the INGERSOLL concept offers a user-friendly system with a wide performance range.

In the INGERSOLL EDM center, the machines of the GANTRY series are available for demonstrations and sub-contract work.

It provides the opportunity to gather information on the operation of various

equipment in a practical application.

An individual training program completes the INGERSOLL package.

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