

1. HANDLING MACHINES PRODUCTION SERIES BZ Single-column portal / manipulators



All devices are made on the basis of a large BZ modular system which has matured and continuously been refined over 40 years. Our components feature the high quality that is typical of series products. These devices provide decisive benefits in terms of performance, cost effectiveness and maintenance.

Requirements with regard to instrumentation are especially high in the case of submerged arc welding in order to realise low non-productive times.

The high welding performance of our submerged welding multiwire processes is therefore characterised by short production times. Thanks to a wide variety of exclusive details of our machines, you will be able to obtain extremely high levels of performance, low non-productive times and long operating times.





1.1. BENEFITS

- Rapid motion from 5m/min up to 40m/min for a decisive reduction of non-productive times.
- Travel - 12m, loads from 100 to 5000 kg.
- Easy operation of the axes for a very rapid positioning of the torch during set-up operation according to the reduction of non-productive times.
- High levels of security and availability of the device thanks to the exclusive use of standard and matured structural components of our BZ handling machines modular system.
- Exclusive use of leading-edge products as externally bought parts.
- High-quality automatic welding machines of state-of-the-art design including powerful, high-precision wire drive units and most advanced feed sources of electric power with reversing characteristic curve.
- User-friendly programming and archiving of all welding process data via CNC- welding process control.

1.2. ADDITIONAL BENEFITS

High precision, high stability and longevity thanks to:

- Precisely machined guides including screwed on and replaceable hardened guide.
- Hardened and ground, pre-stressed, free of play guide rollers.
- Generously dimensioned and ribbed cross slides made of GGG 40 nodular cast iron.
- High-grade AC servo drive including four-quadrant transistor converter, control range 1:1000, control accuracy 0.25%.
- Welding process control through CNC welding process control and state-of-the-art welding current sources.
- An absolutely reliable construction and design, tried and tested for many years.



1.3. SECURITY AND AVAILABILITY

High levels of security and availability of the device thanks to:

- Design acc. to UVV 18.3 lifting platforms.
- Stability acc. to DIN 15120.
- Electrical equipment acc. to VDE 0100 and 0113.
- CU-screening of nominal and actual value lines and protective circuits of all contactors.
- Actual value supervision and antilock system of all drive units.
- Installation of lines and hoses in stable cable chains with double-sided strain relief.
- Hardened pinions, toothed racks and guide rails.
- Maintenance-free AC servo drive units and guide rollers.
- Reliable spare parts delivery.

1.4. MODULAR DESIGN

All handling machines of the BZ production series can be installed as manipulator version.

The column and the boom are made of seamless rectangular tubes with precision-ground guide surfaces.

The cross slide as the central guide element is strongly ribbed and made of aluminium alloy or alternatively of GGG 40 nodular cast iron.

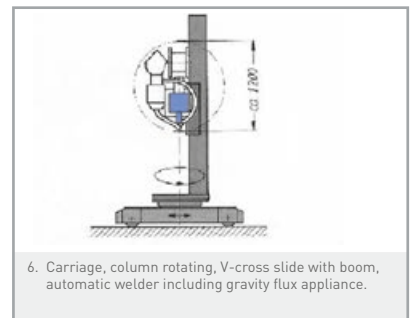
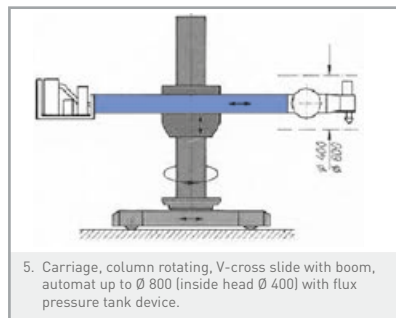
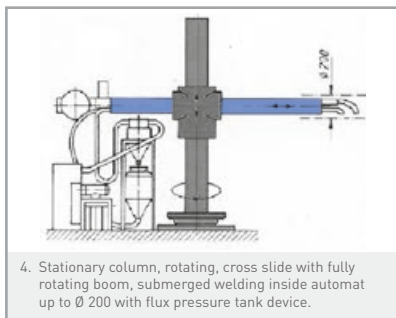
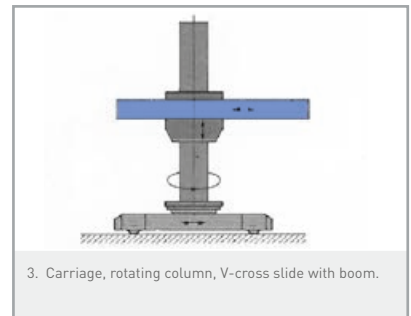
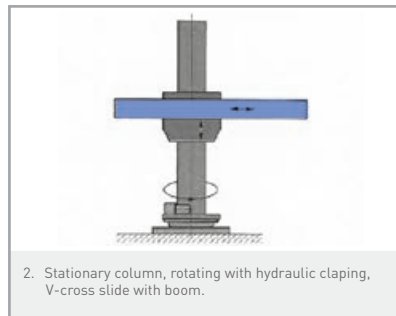
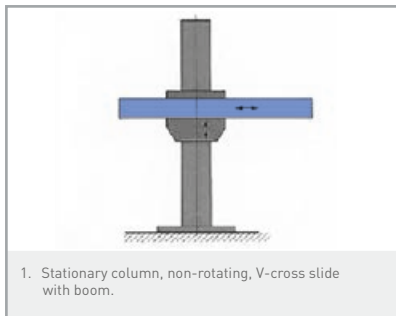
The guiding of the cross slides of the column and of the boom inside the slide is done by pre-stressed, hardened and ground rollers. The hoist and the boom are driven by servo back-gearred motors with hardened toothed racks.

The generous dimensioning of the cable conduits enables an easy installation of all control and welding lines.

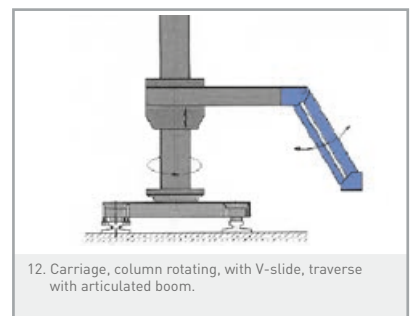
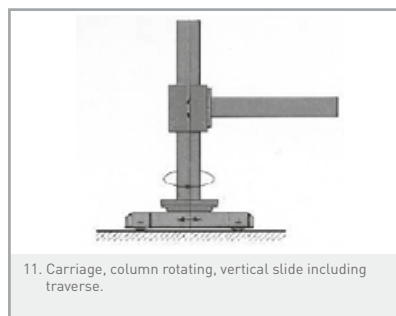
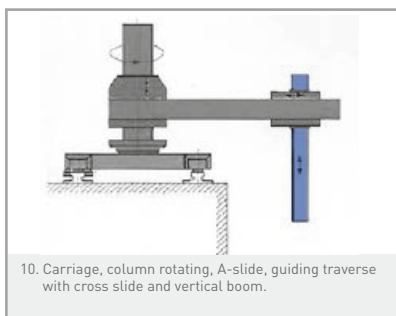
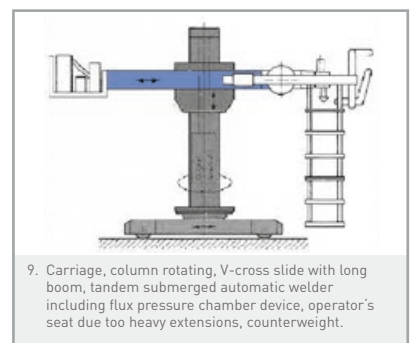
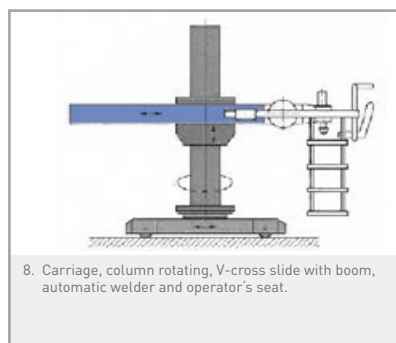
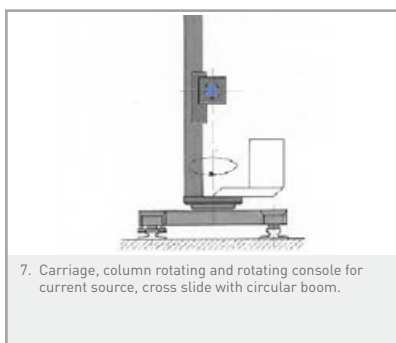
The BZ production series allows for an application-specific arrangement, e.g. as single-column portal.



1.5. OVERVIEW BZ MODULAR SYSTEM PART 1

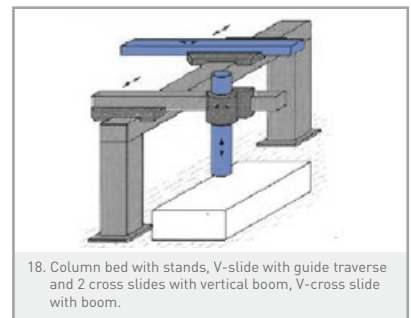
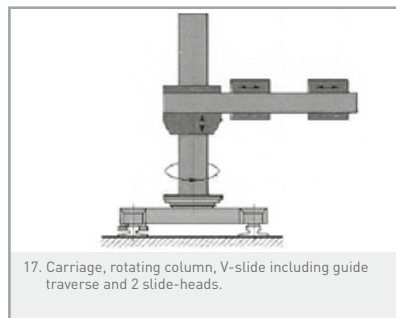
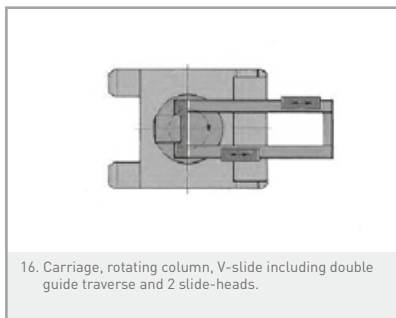
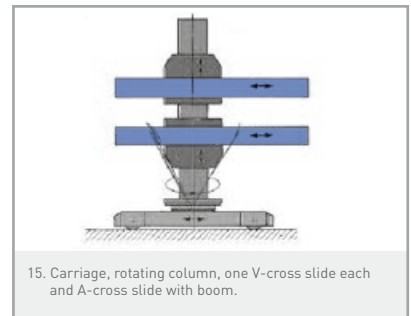
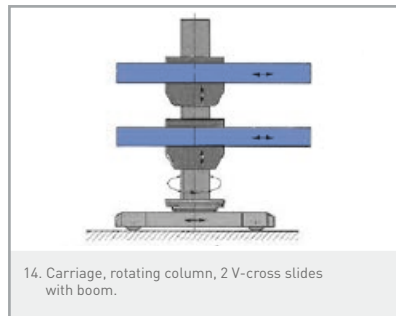
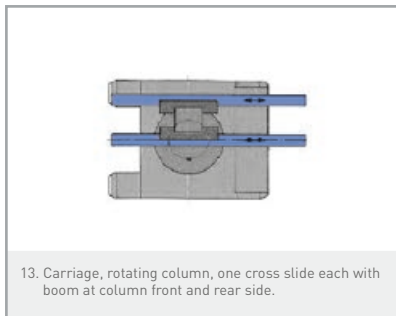


1.6. OVERVIEW MODULAR SYSTEM BZ PART 2

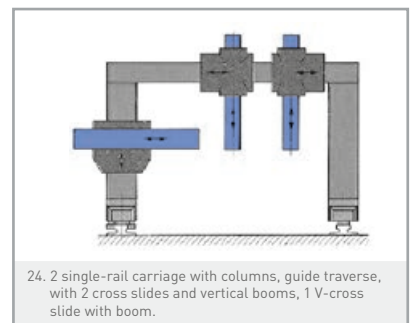
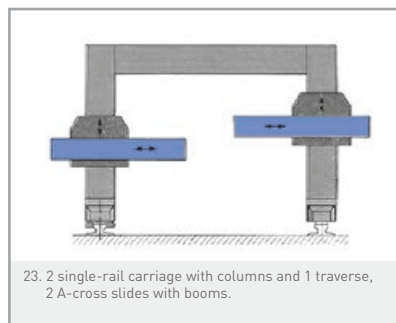
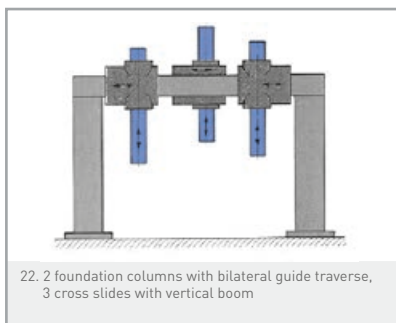
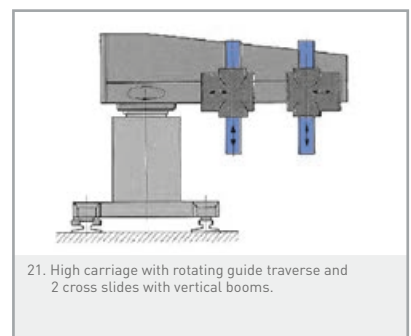
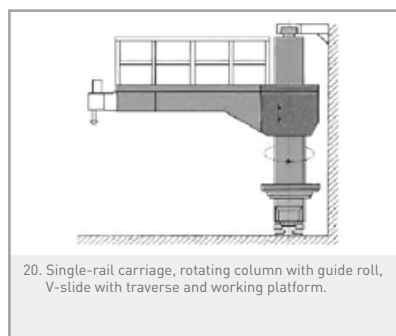
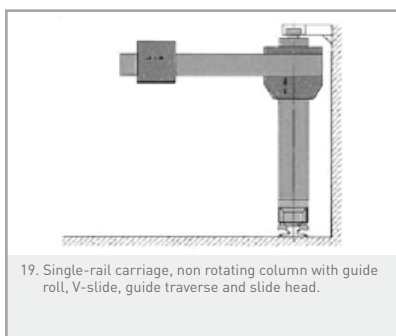




1.7. OVERVIEW MODULAR SYSTEM BZ PART 3



1.8. OVERVIEW MODULAR SYSTEM BZ PART 4





1.9. TECHNICAL DATA IN STANDARD CONSTRUCTION

		BZ 4	BZ 5	BZ 6	BZ 7	BZ 8
Carriage						
Gauge	mm	1000	1500	1500 or 2000	2000	2000
Wheel base	mm	1000	1500	1500 or 2000	2000	2500
Wheel diameter	mm	112	125	160	200	250
Rail width, adjustable from	mm	30 - 70	30 - 70	30 - 80	40 - 90	40 - 90
Creep speed adjustable & direct Controllable through feelers & sensors	mm/min	50 - 500	50 - 500	50 - 500	50 - 500	50 - 500
Feed continuously controllable	mm/min	50 - 2000	50 - 2000	50 - 2000	50 - 2000	50 - 2000
Control accuracy normal	%	1	1	1	1	1
Control accuracy upon request	%	0.1	0.1	0.1	0.1	0.1
Fast traverse optional	m/min	10 or 20	10 or 20	10 or 20	10 or 20	10 or 20
Earth return affecting the running rails for amp		1000 or 2000	1000 or 2000	1000 or 2000	1000 or 2000	2000
Columns						
Cross section without guides	mm	147x147x10	250x250x16	350x350x16	500x500x20x12	800x800
Column, rotating by	degree	370	370	370	370	370
Column bearing diameter	mm	520	850	1050	1200	1600
Autom. hydr. clamping, clamping power	N	60000	120000	120000	200000	200000
Creep speed adjustable & direct Controllable through feelers & sensors	mm/min	50 - 500	50 - 500	50 - 500	50 - 500	50 - 500
Continuously controllable feed unit upon request	mm/min	50 x 2000	50 x 2000	50 x 2000	50 x 2000	50 x 2000
Control accuracy	%	0.1	0.1	0.1	0.1	0.1
Optional fast traverse	m/min	5	5	10	10	10
* Specifications subject to alterations						

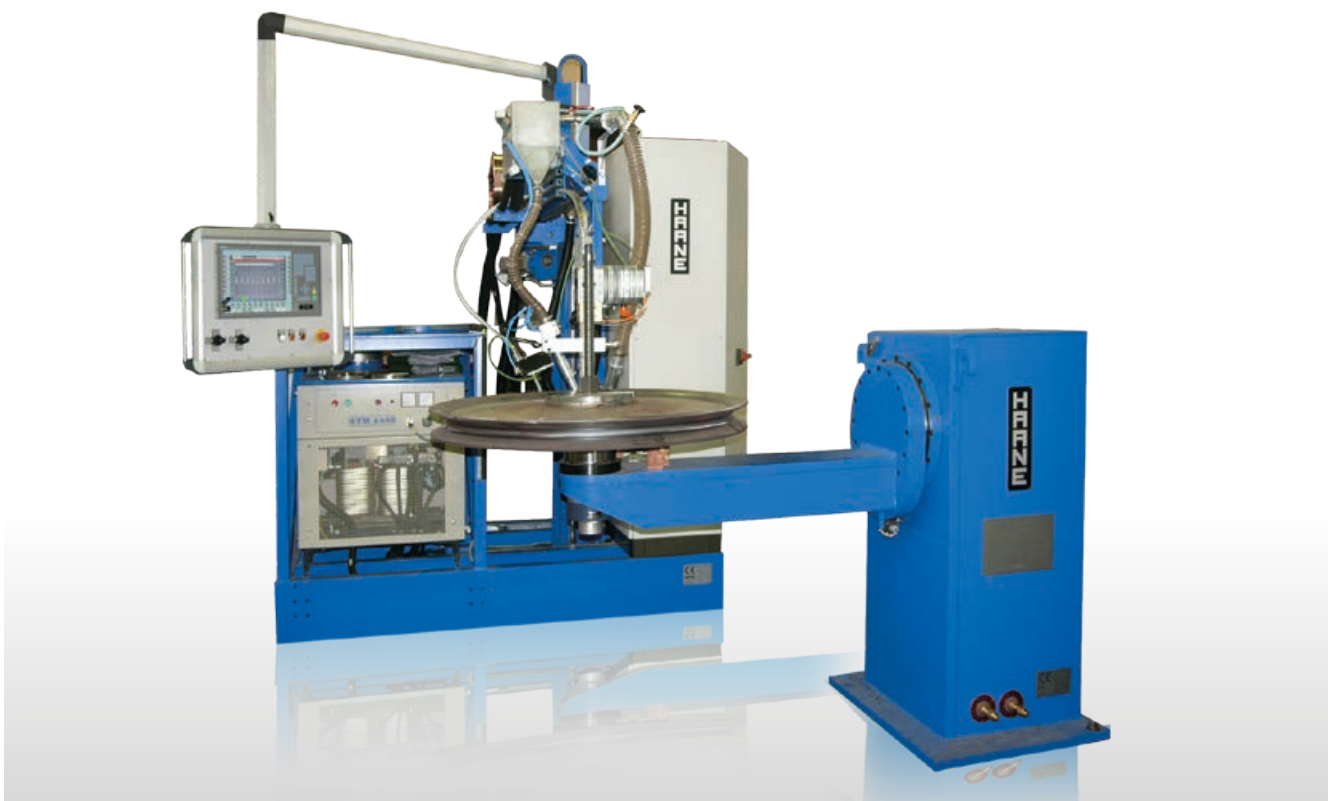
1.9. TECHNICAL DATA, CONT.



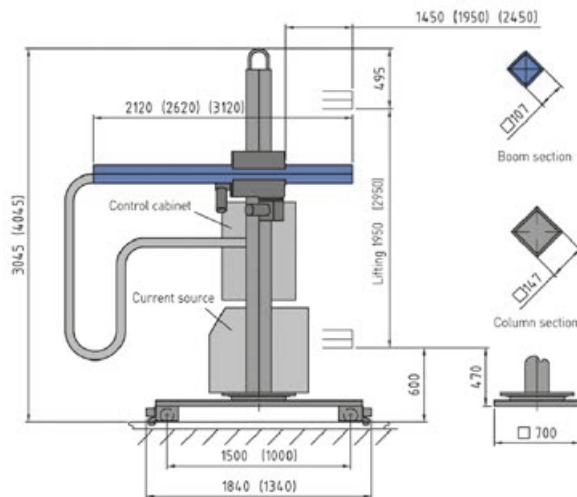
		BZ 4		BZ 5		BZ 6		BZ 7		BZ 8		
Boom												
Smallest weldable inner diameter	mm	upon request		upon request		upon request		upon request		upon request		
Boom feed way	min/max.	1450	2450	2300	3500	2500	4500	3000	5500	4000	8000	
Boom load without counterweight per boom end	max. kg	50	50	200	200	400	400					
However, total boom load	max. kg	100	100	300	200	700	450			2500		
Boom load with counterweight	max. kg					700	700	800	800			
However, total boom load	max. kg					1250	1000	1500	1000			
Creep speed adjustable & directly controllable through feelers & sensors	mm/min	50 - 500		50 - 500		50 - 500		50 - 500		50 - 500		
Feed continuously controllable	mm/min	50 - 2000		50 - 2000		50 - 2000		50 - 2000		50 - 2000		
Control accuracy normal	%	1		1		1		1		1		
Control accuracy upon request	%	0.1		0.1		0.1		0.1		0.1		
Fast traverse optional	m/min	5		5		10		10		10		
Approach dimensions			Carriage	stationary	Carriage	stationary	Carriage	stationary	Carriage	stationary	Carriage	stationary
Height to the top edge of the running rail or hall floor to the lower edge of the boom with V-slide	min. mm	600		470	670	500	890	720	1000	790		1300
dto. with A slide	min. mm						545	375	640	430		940
Fall in meters from the lower edge of the boom to the top edge of the column without counterweight	mm		495		415		490					800
as above, with counterweight	mm						630		800			
* Specifications subject to alterations.												



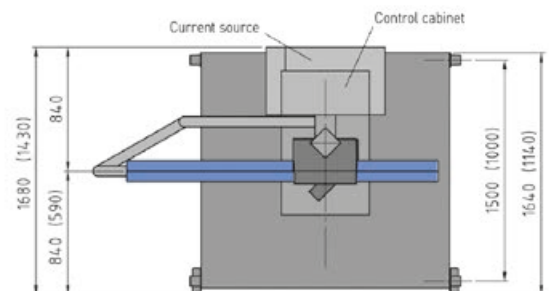
1.10.1. HANDLING MACHINE BZ4



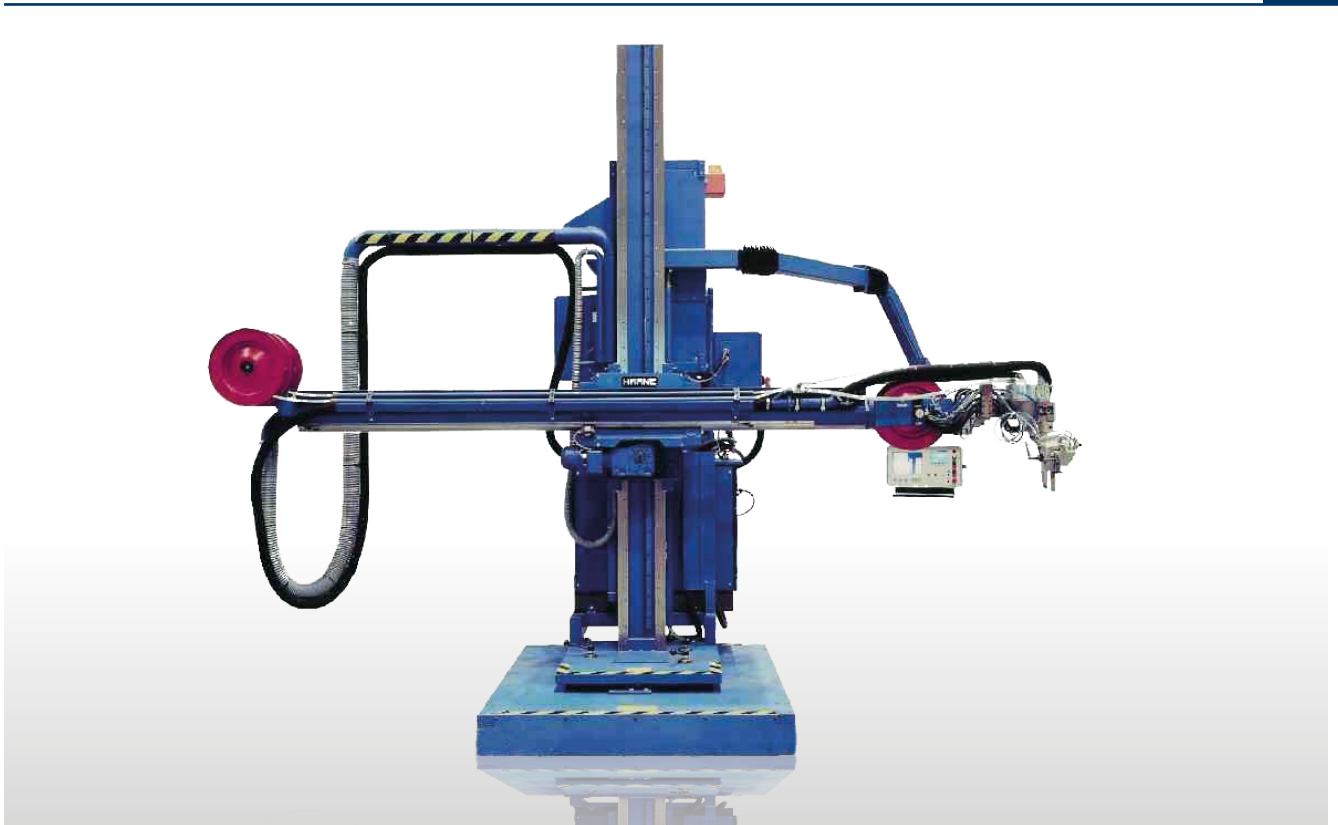
BZ4 Dimensions side view



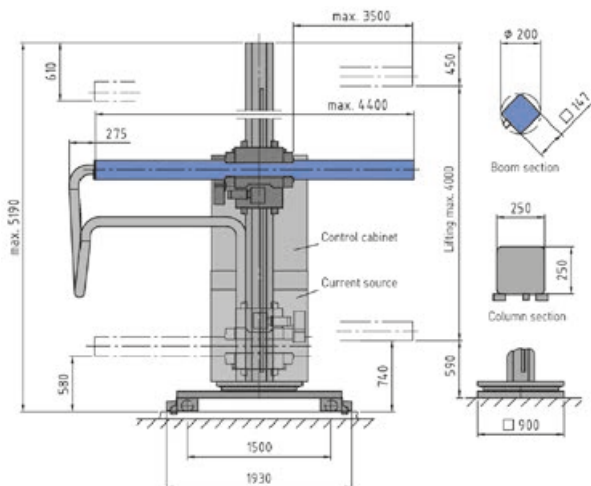
BZ4 Dimensions top view



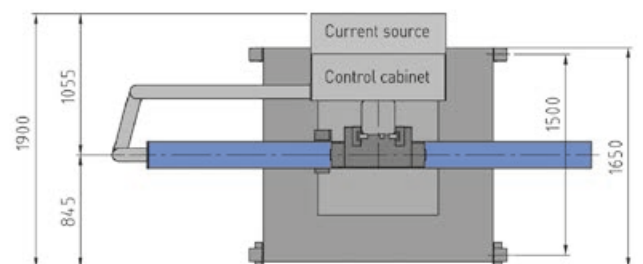
1.10.2. HANDLING MACHINE BZ5



BZ5 Dimensions side view

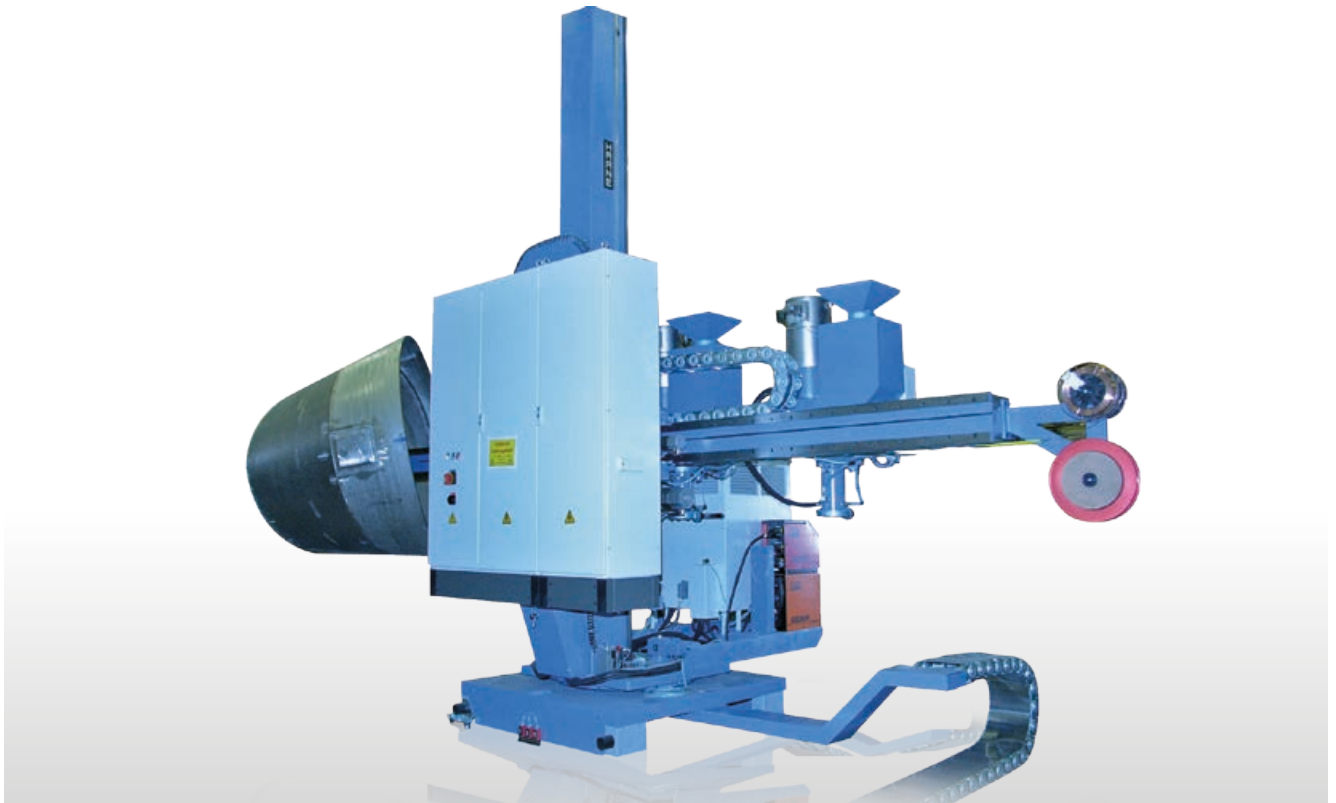


BZ5 Dimensions top view

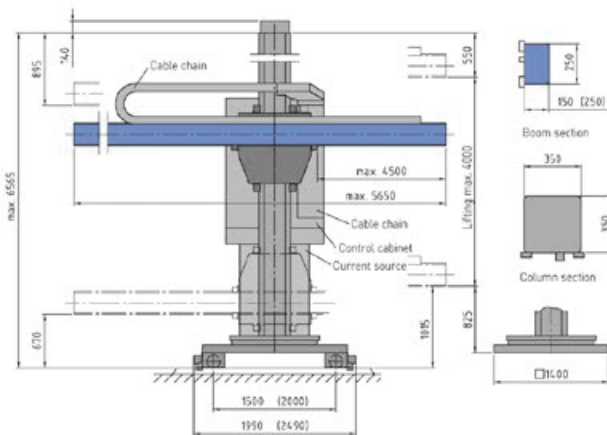




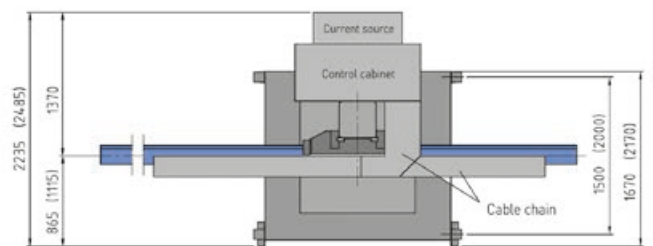
1.10.3. HANDLING MACHINE BZ6



BZ6 Dimensions side view

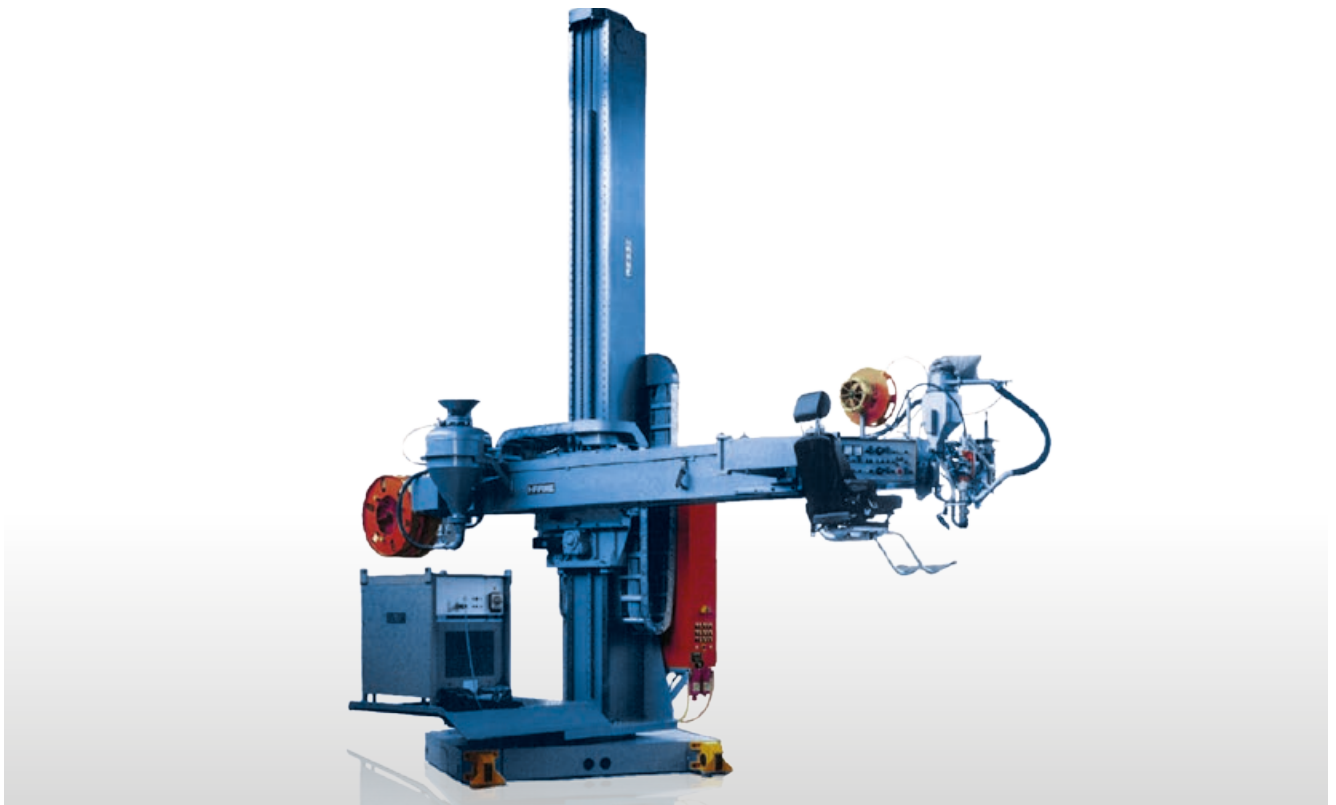


BZ6 Dimensions top view

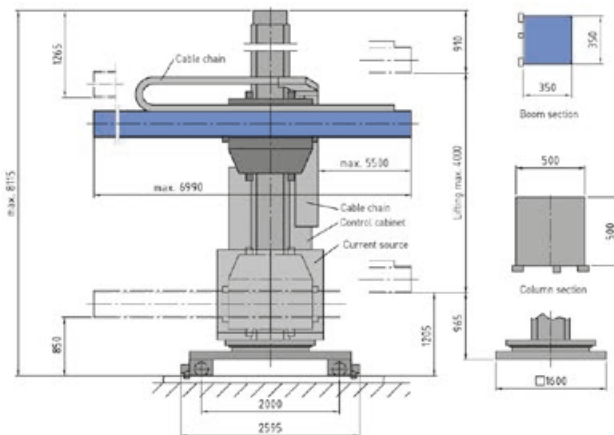




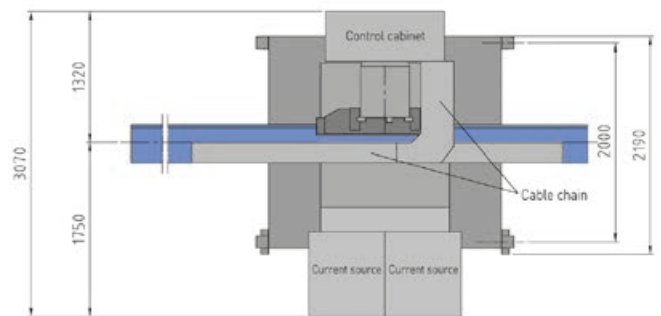
1.10.4. HANDLING MACHINE BZ7



BZ7 Dimensions side view



BZ7 Dimensions top view



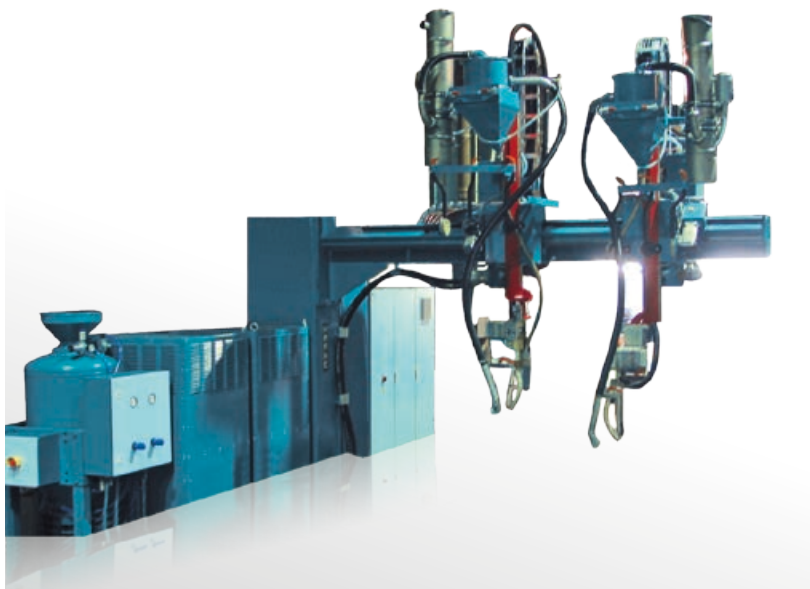
1.10.5. SINGLE-COLUMN PORTAL SYSTEM PRODUCTION SERIES BZ3



TECHNICAL DATA:

Setting range lifting:	750 mm
Setting range, crosswise:	1500 mm
Welding:	MIG / MAG
Current source:	Puls-Mig
max. current:	450 A
Control unit:	AWS 1000
Sensor:	Tactile

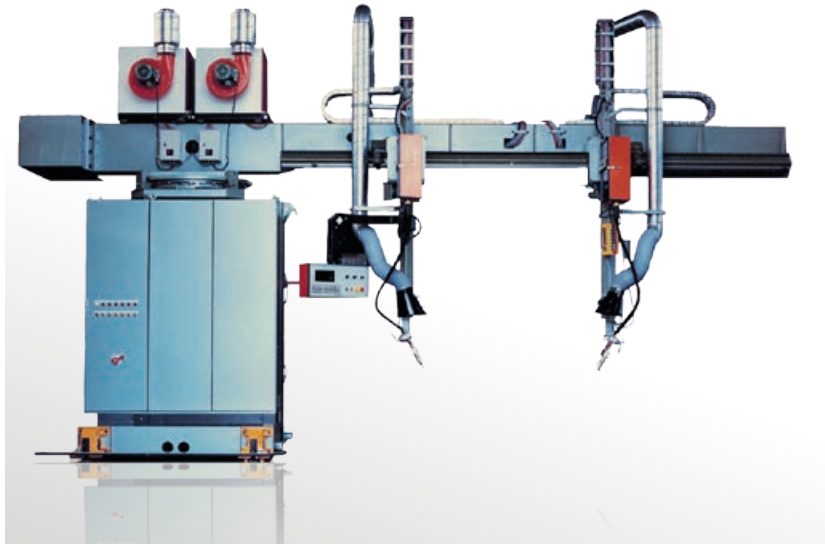
1.10.6. SINGLE-COLUMN PORTAL SYSTEM PRODUCTION SERIES BZ4 - SAW



TECHNICAL DATA:

Setting range lifting:	700 mm
Setting range, crosswise:	2000 mm
Welding head:	2 x SAW
Current source:	DC-1000
max. current:	2 x 1000 A
Flux supply:	Recycling-prinziple
Control unit:	AWS 287005
Sensor:	2 x tactile

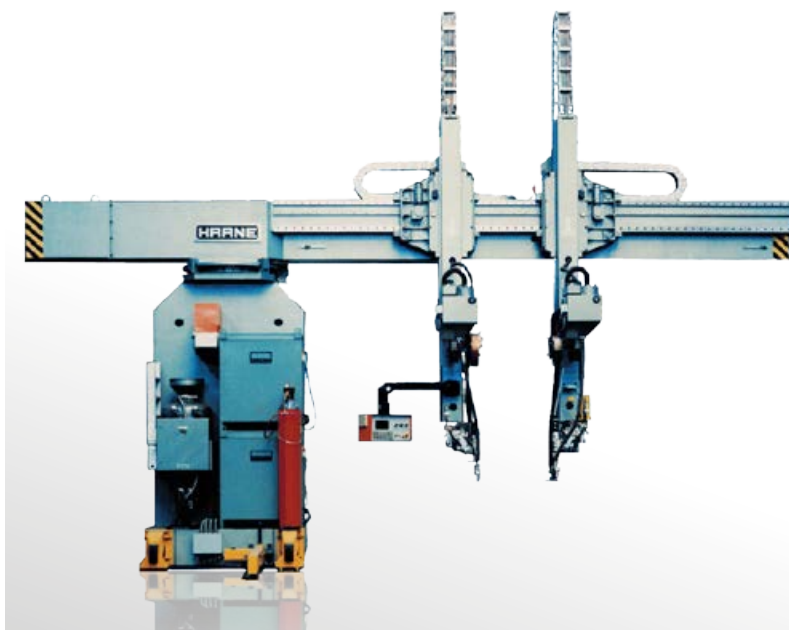
1.10.7. SINGLE-COLUMN PORTAL SYSTEM PRODUCTION SERIES BZ4



TECHNICAL DATA:

Setting range lifting:	1400 mm
Setting range, crosswise:	3500 mm
Welding:	MIG / MAG
max. current:	2 x 600 A
Control unit:	AWS 287005
Sensor:	2 x tactile

1.10.8. SINGLE-COLUMN PORTAL SYSTEM PRODUCTION SERIES BZ6 – SAW / MAG



TECHNICAL DATA:

Setting range lifting:	2500 mm
Setting range, crosswise:	4000 mm
Welding head:	SAW / MAG
Current source:	DC-1000
max. current:	2 x 1000 A
Flux supply:	Pressure tank principle
Control unit:	AWS 287005
Sensor:	2 x tactile

1.11. ROBOT USED AS A HANDLING MACHINE



HAANE welding systems supplies Robot Solutions, where the Robot handles the welding head, the cutting head, or exchangeable even both of them.



Especially customized applications demanding for additional equipment, heavy loads or extra size cabins, which usually are not in the range of a standard robot cell, are our business.

1.11.1 Welding-Robot with high precision travel carriage built as a gantry. The robot can be mounted on top as well as upside down. Very good position repeatability.

TECHNICAL DATA:

Travel stroke of the gantry:	30 m
Travel speed:	15 m/min
Repeatability:	$\pm 0,1$ mm
Gauge:	4.300 mm



1.11.2 Robot for welding and cutting, multifunctional installation for plasma cutting of weld joint preparations for complex pipe structures, as well as laser overlay welding including robot cell.



TECHNICAL DATA:

Plasma-Cutting current up to:	bis 600 Ampere
Software:	TubeCut
Faser-Laser:	4 kW
Workpiece dimensions:	\varnothing bis 2.000 mm bis 10 t Gewicht
Cell dimensions (LxB):	9.750 x 6.700 mm ³
Height:	4340 mm ³

1.2. CNC - WELDING PROCESS CONTROL SYSTEMS



- Tractor control
CNC AWS 1000 / 1200
- Welding process control
CNC AWS 287006
- Turntable control
CNC AWS 287008

1.2.1. CNC AWS 1000 / 1200 – TRACTOR CONTROL SYSTEM

The CNC AWS 1000 is a compact and easy-to-use control unit for welding tractors and small manipulators with an integrated welding system based on Siemens components.

The welding system is operated via the operator panel of the AWS control system 1000. The panel is provided with a foil keyboard with illuminated keys. Unlike in the case of conventional CNC and robot control systems which are programmed acc. to DIN, no programming skills are required for operation. Operators will be guided through prepared screen masks, menus and symbols. Input of process parameters is exclusively done in charts in the current input mask on the screen. This operating structure is the same for all welding methods.

Disturbances of the process such as troubles concerning the wire or the feed axis will be displayed as texts. In addition, the welding process will be interrupted, if required.

The control unit supervises the axes of the tractor or manipulator. Using the cursor keys you can also operate the axes manually for set-up purposes. If the device is equipped with a tactile or laser-guided sensor, the sensor operation of the axes is also possible.

The weld control current source and the feed of the wire drive unit are controlled by the AWS 1000. However, this requires a suitable interface at the weld control current source.



1.2.2. OPERATOR PANEL AWS 1000



1.2.3. OPERATOR PANEL BZ5 WITH AWS 1200 AND CAMERA MONITOR



1.2.4. CNC AWS 287006 – WELDING PROCESS CONTROL SYSTEM



The AWS 287006 CNC welding process control unit is the central element of a device for the mechanised or automated welding.

This control unit is based on the Siemens S7 series control unit. In an automatic welding machine it allows the simultaneous control of the welding process, the course of the process, the entire handling equipment required (manipulators, rotary table, roller stand, etc.) as well as the peripheral functions and devices such as sensors used for the guiding of the welding heads, inert gas, cooling water, flux supply, pre-heating of the parts, etc.. The CNC manages all parameters required for welding and for the movement of the parts and the torch.

The modular hardware and software structure allows for a random combination of welding process and handling equipment. Special software modules have been developed for the various welding methods to be applied (SAW, GMAW, TIG, plasma, etc.). These method-specific software modules include the operational level on the screen, the supply of the welding current source with parameters as well as the run-off control, screen visualisation of actual data and the monitoring of the process. The modular structure makes it also possible to integrate several processes in one welding system. The processes can be selected directly at the screen and according to the task to perform.

The operation of the complete welding system is effected by a central screen-operator panel. Thus, the user will be confronted with just one operational level. The panel is equipped with keys which are illuminated over their whole surface (system of protection IP54) with pressure point and exchangeable symbols.

Unlike in the case of conventional CNC and robot control systems which are programmed acc. to DIN, no programming skills are required for operation. Operators will be guided through prepared screen masks, menus and symbols. Input of process parameters is exclusively done in charts in the current input mask on the screen. The input fields of the charts are provided with relevant text comments regarding the parameters to be input. This operating structure is the same for all welding methods.

In the case of complex welding methods requiring various input parameters, such as the gas metal-arc welding-pulsed current arc welding and the additionally required parameters for the pulsing of the arc, the operator will also be supported by an integrated expert system. This expert system includes complete sets of parameters for the correct adjustment of the arc for pre-defined welding tasks.

Such a prepared set of parameters can be called via keypress and be transferred to the current processing chart.



A set of parameters prepared for a certain welding task can be stored under a certain name and be recalled at a later point of time. Optionally, the storing of such parameters on an external data medium (memory-card, memory-stick) is also possible.

During the course of the process all relevant data of the welding process (voltage across the arc, arc current, etc.) and of the handling machine (positions and travelling speed of the axes, etc.) will be displayed. Using the +/- keys below the screen, whose allocations to the parameter are represented as symbols on the screen, the operator may directly influence the most important welding process parameters during the run-off control.

The range of adjustment where changes may be made during the welding process, is defined in a dedicated chart. Access to that chart can be prevented by using a special coding.

Disturbances of the process, such as lack of flux during submerged arc welding, lacking protection gas during gas metal-arc welding, troubles with regard to the drive of the wire or the feed axis will be displayed in clear text. In addition, the welding process will be interrupted depending on the fault classification.