LUSOWELD By True Solutions

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Technical Data – Butt Welding Machine Model P-SW

INGENIA 50.30 P-SW

Butt Welding Machine P-SW

The high performance INGENIA Butt-Welding machines are made for the rough working environment. The welding cycle is running automatically, the main welding parameters are stored in a database, which is linked to the CNC table force control. The smallest model has 2m working width (model 20.xx P-SW), the largest available machine has a working width of 5 m (model 50.xx PSW); the maximum weldable thickness is 60mm (higher thicknesses on request). The machines are designed to weld all standard thermoplastics as PE, PP, PVC- U and PVDF. INGENIA machines are designed according the requirements established by the DVS e. V. (German Association for Welding Techniques) and CEN standards.

Structure of the machine:

The main frame is designed as a solid construction. The welding tables are processed after the machine has been assembled. The tables are designed to avoid misalignment of the resulting weld by torsion and load stress even in high frequent usage. The machine is driven directly by pneumatic cylinders. A permanently lubricated ball bearing with solid dimensions guarantees an excellent lifetime.

The clamping beam consists of solid hollow steel profile with integrated pneumatic cylinders. The forces are transferred by non- rotating aluminum- plates with anti- skid covering. The Teflon coated heating element is designed for long-term applications.

The machine is easily controlled through a display and push buttons at the control desk in the front of the machine.

Operation of the machine:

A standard SIEMENS PLC- processor executes the welding process. All operating elements are located in the control desk and optional in a remote control (by wire).

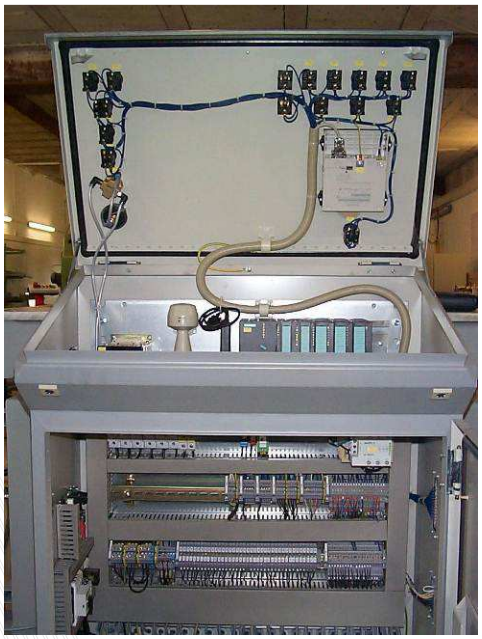
The main welding parameters are stored in a database for all standard plastics. All parameters meet the requirements established by DVS e. V. However all parameters may be adopted individually by the user. The welding forces are set up with a proportional valve. For optimum quality welding and control, the machine may be equipped with a force measuring and regulation system (optional). An optional printer may be linked to the processor to prepare a welding report.

However, with any grade of automation, the machine is performing in automatic cycle.

View into welding area of a 40.30 P-SW: beveled clamping plates and illumination of welding zone (optional), non-rotating clamping plates

View onto the clamping area of a 40.30 PL-SW: here: vertical and horizontal sheet after feeding into the machine, ready before welding to an U-profile under an angle of 90° **(optional)**

Spare parts: Main parts integrated in pneumatic and PLC system are available from the well-known manufactures FESTO and SIEMENS.



view into control desk of a 40.30 P-SW

Control board of a 40.30 PL-SW (with CNC table force control): easy to understand symbols, available in different languages

The performance of INGENIA Butt-Welding- machines

example: INGENIA 40.30 P-SW

working width: INGENIA **40**.30 SW = **40**50mm

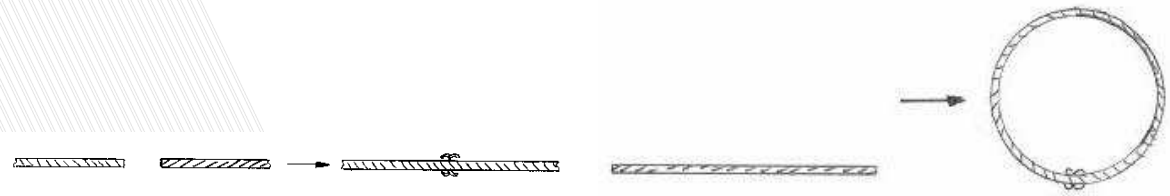
weldable material thickness: INGENIA 40.**30** SW = **30** mm with **PE-HD (PE 63/80/100)**

Material:	PE-HD (spec. weld factor **0,15 N/mm²**)	30mm Thickness x 4050mm Width
	PP-H/ B/ R (spec. weld factor **0,10 N/mm²**)	30mm Thickness x 4050mm Width
	PVC-U (spec. weld factor **0,60 N/mm²)**	8mm Thickness x 4050mm Width

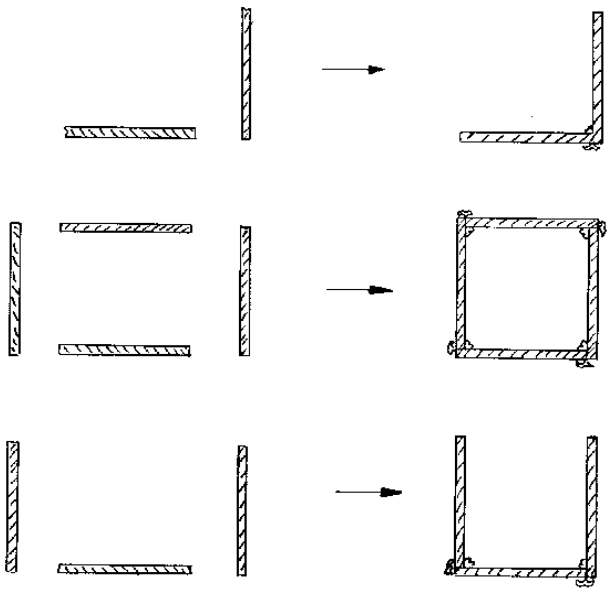
*** not valid for 90°welding device

This calculation may be applicable to all INGENIA Butt-Welding machines

Products that may be realized with INGENIA standard machines:



Products that may be realized with INGENIA 90°weld ing device (option):



Base Machine:

Fixed control panel, opposite of opening side

Machinery control via **SIEMENS** S7 PLC

CNC-Table-Force-Control with proportional valve via PLC-processor to realize pressure ramp according to the DVS standards, inclusive data-base. The user only enters the **M**aterial, **Th**ickness and **L**ength of the sheets, the machine then automatically sets up the welding parameters.

Welding cycle according DVS: alignment, heating, joining, and cooling

Determination of welding parameters and temperature via database for PE/ PP/ PVC-U PVDF, all values according DVS

One free programmable Database for different parameter or new material

Safety stop in case of pressure drop below 6,5 bar (95 psi)

Temperature regulation system and digital temperature read out

Temperature control integrated in start process of weld cycle. If the temperature is out of the tolerated temperature range the machine will not release the start function.

All information and reported problems of the machine are shown in the display in clear words.

Possibility to interrupt or extend process times via push button

Parameters stored in data base for PE / PP / PVC-U / PVDF (other materials on request)

Pneumatic control system made of **FESTO** single valve technology (service friendly)

Clamping beam with quick releasing bolts to take out welded pipes

Flexible mounted clamping plates, non rotating, with rubber anti skid covering

Heating element with Teflon- coating 30 x 80 mm, T_{max} = 260^{0}C, connected with plug and wire for easy exchange

Integrated alignment beam made of stainless steel for easy sheet feeding

Possibility to increase performance of machine (max. welding thickness) at any time

Safety lines or safety stops alongside of the machine for possible emergency case

Extension arms with Polyethylene covering

Paint: red / grey

Extra equipment included in basic price:

Two clamping areas, for separated clamping of two work pieces

Continuously adjustable clamping forces, allows adoption to different material hardness

Technical data of standard machine, model xx.30 P-SW:

	unit	20.30 P-SW	30.30 P-SW	40.30 P-SW	50.30 P-SW
Main dimensions					
Length	mm	3200	4200	5200	6200
Width	mm	1200	1200	1200	1200
Height/ height of table	mm	1200/900	1200/900	1200/900	1200/900
Machinery weight, approx.	to	1,6	2,2	2,8	3,3
Working range					
Maximum working width	mm	2050	3050	4050	5050
Weldable thickness	mm	3-30	3-30	3-30	3-30
Gap between beam and table	mm	47	47	47	47
Minimum cylindrical pipe	mm	500	500	500	500
Clamping range per beam		2	2	2	2
Energy supply					
Electrically		230/400 V	3/N/PE	50-60 Hz	
Performance	kW	3	4	7	9
Electrical connector	CEE	16A	16A	32A	32A
Pneumatic	bar	7	7	7	7
Forces					
Clamping at 7 bar / 10 bar	kN	15 / 25	26 / 37	35 / 50	47 / 65
Minimum welding forces	N	925	1375	1825	2275
Maximum welding forces	N	9225	13725	18225	22725
Heating unit					
Heating bar	mm	30 x 80	Tefloncoat.	T_{max}=260°	

Technical data of standard machine, model xx.40 P-SW:

	Einheit	30.40 P-SW	40.40 P-SW	50.40 P-SW
Main dimensions				
Length	mm	4200	5200	6200
Width	mm	1200	1200	1200
Height/ height of table	mm	1200/900	1200/900	1200/900
Machinery weight	to	2,3	2,9	3,4
Working range				
Maximum working width	mm	3050	4050	5050
Weldable thickness	mm	3-40	4-40	4-40
Gap between beam and table	mm	77	77	77
Minimum cylindrical pipe	mm	500	500	500
Clamping range per beam		2	2	2
Energy supply				
Electrically		230/400 V	3/N/PE	50-60 Hz
Performance	kW	4	7	9
Electrical Plug		32 A	CEE	
Pneumatic	bar	7	7	7
Forces				
Clamping at 7 bar / 10 bar	kN	51 / 85	68 / 113	85 / 140
Minimum welding forces	N	1830	2430	3030
Maximum welding forces	N	18300	24300	30300
Heating unit				
Heating bar		30 x 80 mm	Teflon coated	T_{max} = 260 °C

Technical data of standard machine, model xx.50 P-SW:

	Einheit	30.50 P-SW	40.50 P-SW	50.50 P-SW
Main dimensions				
Length	mm	4200	5200	6200
Width	mm	1200	1200	1200
Height/ height of table	mm	1200/900	1200/900	1200/900
Machinery weight	to	2,5	3,1	3,6
Working range				
Maximum working width	mm	3050	4050	5050
Weldable thickness	mm	4-50	4-50	4-50
Gap between beam and table	mm	77	77	77
Minimum cylindrical pipe	mm	500	500	500
Clamping range per beam		2	2	2
Energy supply				
Electrically		230/400 V	3/N/PE	50-60 Hz
Performance	kW	4	7	9
Electrical Plug		32 A	CEE	
Pneumatic	bar	7	7	7
Forces				
Clamping at 7 bar / 10 bar	kN	51 / 85	68 / 113	85 / 140
Minimum welding forces	N	1830	2430	3030
Maximum welding forces	N	22875	30375	37950
Heating unit				
Heating bar		30 x 80 mm	Teflon coated	T_{max} = 260 °C

Technical data of standard machine, model xx.60 P-SW:

	Einheit	30.60 P-SW	40.60 P-SW	50.60 P-SW
Main dimensions				
Length	mm	4200	5200	6200
Width	mm	1500	1500	1500
Height/ height of table	mm	1300/900	1300/900	1300/900
Machinery weight	to	2,9	3,6	4,15
Working range				
Maximum working width	mm	3050	4050	5050
Weldable thickness	mm	6-60	6-60	6-60
Gap between beam and table	mm	100	100	100
Minimum cylindrical pipe	mm	700	700	700
Clamping range per beam		2	2	2
Energy supply				
Electrically		230/400 V	3/N/PE	50-60 Hz
Performance	kW	4	7	9
Electrical Plug		32 A / 64A	CEE	
Pneumatic	bar	7	7	7
Forces				
Clamping at 7 bar / 10 bar	kN	51 / 85	68 / 113	85 / 140
Minimum welding forces	N	2745	3645	4545
Maximum welding forces	N	27450	36450	45450
Heating unit				
Heating bar		30 x 100 mm	Teflon coated	T_{max} = 260 °C

--- Change of technical data always possible ---