Maschio Pietro over 40 years of experience in the plastic packaging industry

Blow Moulding

THIS WILL BE THE MARK OF YOUR SUCCESS

DAS WIRD IHR ERFOLGSZEICHEN SEIN

MASCHIO GmbH
transports - logistic - engineering

Hydraulic Blow Moulding Machine

Blow Moulding

Maschio Engineering
blow – moulding systems
for jerry-cans between
5L and 30L capacity

IN HOC SIGNO VINCES
THIS WILL BE THE MARK OF YOUR SUCCESS
DAS WIRD IHR ERFOLGSZEICHEN SEIN

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MASCHIO engineering

www.maschioengineering.com

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Blow Moulding

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Maschio Blow Moulding Machine

Hydraulic Blow Moulding Machine

Blow Moulding

Technical Data Sheet PM 30 NEW

New, Rent our Machines!
Maschio Engineering is a new company in which the owner, **Pietro Maschio** and his team have put the know how and the experience of over 30 years in the blow moulding packaging business.
In the first step **Maschio Engineering** is offering standardized blow moulding machines for packaging in the volume range of 1 to 30 litres. The machine components are well designed and selected as well as proven in production. The machines are delivered ready to start production andrent to solvent customers.

GENERAL

Horizontal stroke	mm	570
Dry cycle time	sec.	4,5
Clamping force at 145 bar	KN	300
Blow air pressure	bar	8
Water consumption of mould + extruder feedzone	KJ / kg / h	850
Water consumption of hydraulic	KJ	30.000
Air consumption	NL/min	2.000
Electric motor for pump	KW	15/18,5*
Total installed electrical power	KW	125/135*
Minimal pressure cooling water	bar	3
Max. cycles	1/min	2/2,5*

PRODUCTION CAPACITY

		single head			double head
Volume	L	20	25	30	11
Weight	g	1000	1100	1200	450
Output	pcs/h	90	85	80	2x130

* For double head

EXTRUDER 90/25

Screw diameter	mm	90
Electric motor power, DC drive	KW	68
Max. extrusion capacity	kg/h HDPE	200
Max. heating power extruder + head	KW	38/45*

ARTICLE DIMENSIONS PM 30new

A	mm	360
B/D	mm	300
H	mm	530
Volume	L	30

MOULD DIMENSIONS PM 30new/PM30HD

A	mm	600
B	mm	600
C min.	mm	210
D max.	mm	760
E	mm	340
Max. weight	kg	800
Centre distance double head/max die	mm	270/150

DIMENSION and WEIGHT

Width max.	mm	3300
Height max.	mm	3600
Length max.	mm	7405
Scala		+1360
Total weight	kg	20000

MASCHIO engineering

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Extruder and single head

- **Screw diameter 90mm**
- **Effective screw length 25D**
- **DC motor 68kW**
- **Plasticizing capacity (max.) HDPE 200 Kg/h**
- **Heating/cooling zones for extruder 3x6,6kW**
- **Heating zones for reducer 1x1,25kW**
- **Clamping collar 1x1kW**
- **Head heating zones 4 max 15kW**

Extruder

Single Head WV200

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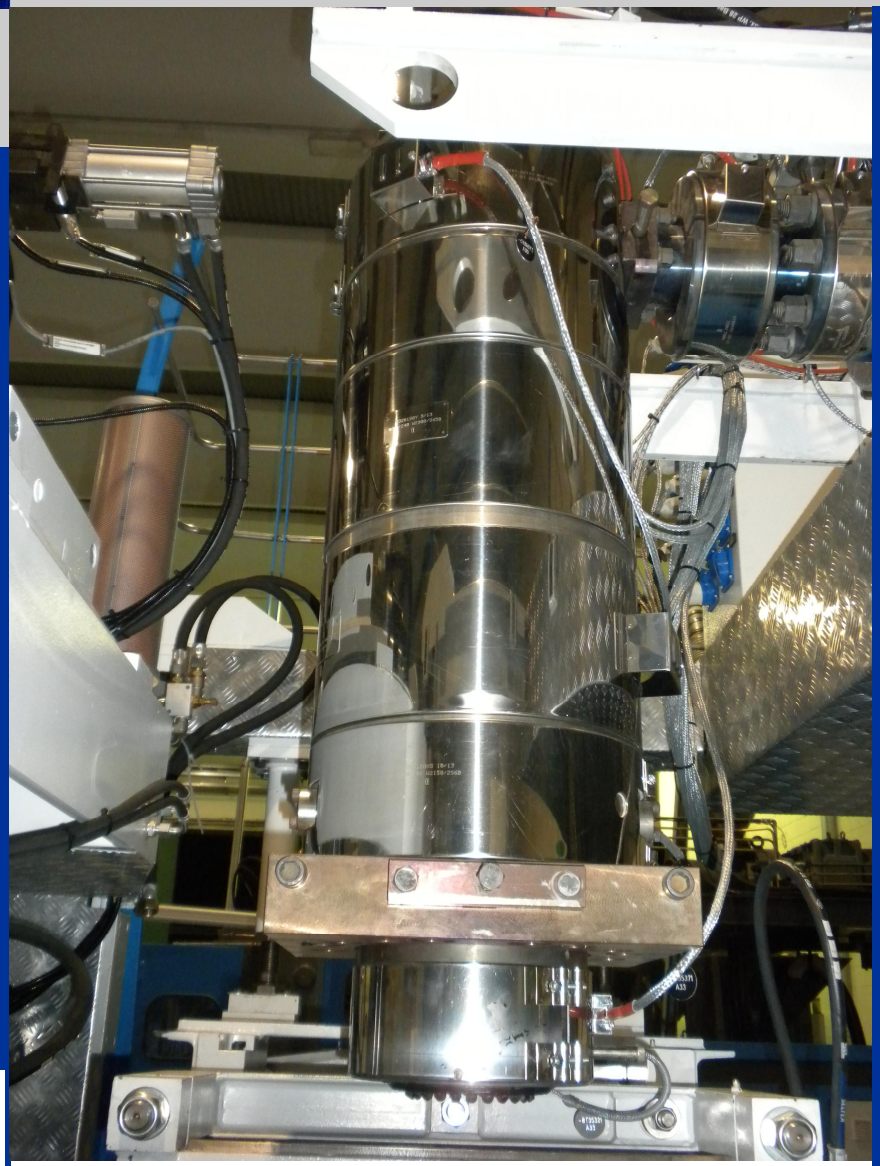

Maschio Blow Moulding Machine

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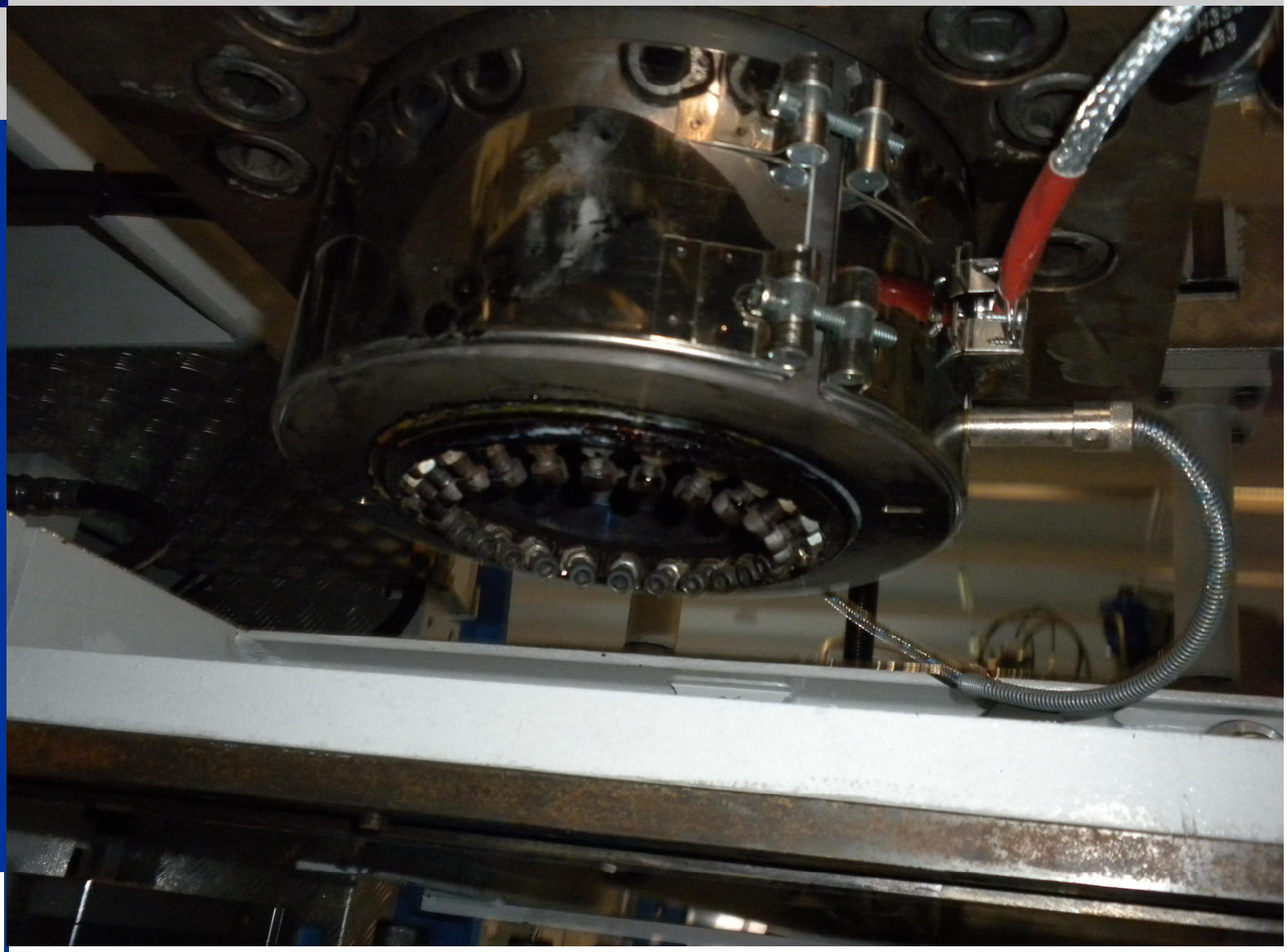
Flexible die single head WV200



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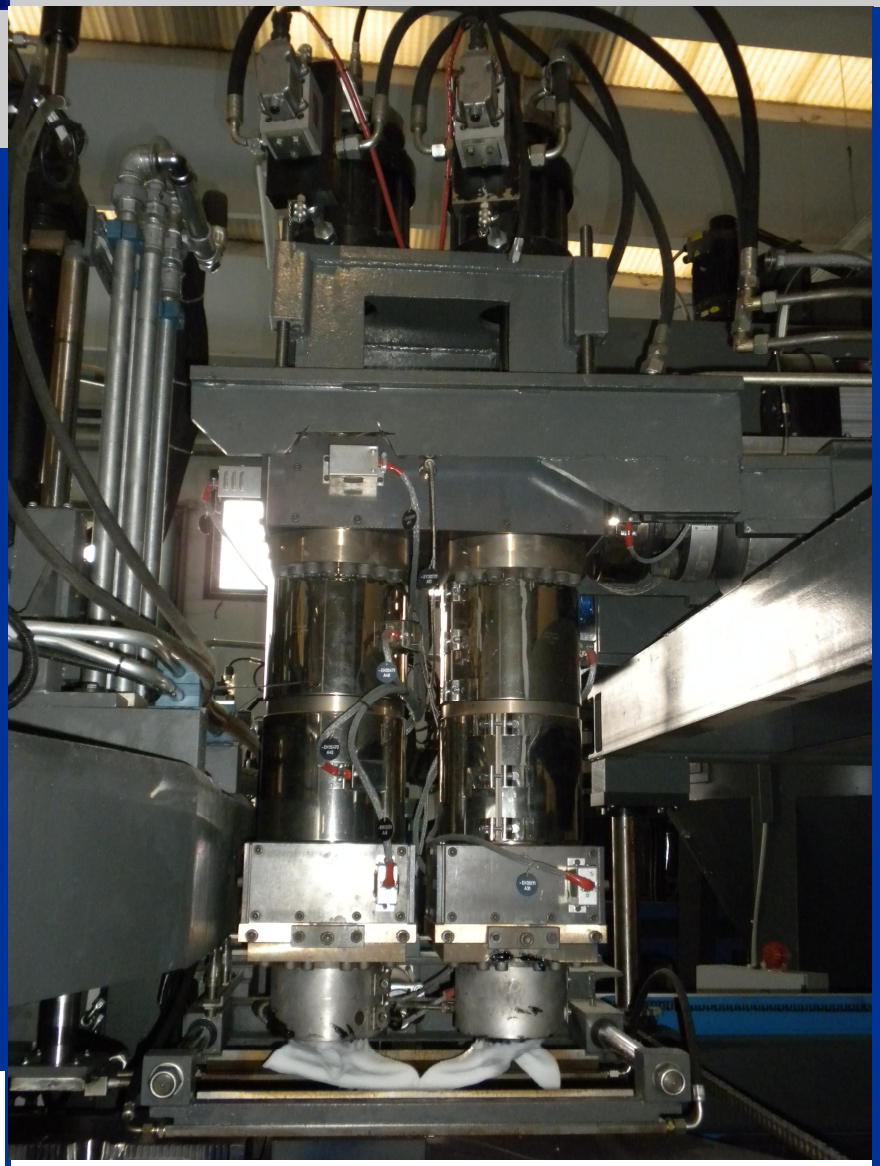
Double Head WV150

Blow Moulding



Maschio Blow Moulding Machine

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Hydraulic system

- **Integrated at the end of the machine frame**
- **Rexroth proportional and digital valves**
- **Double circuit accumulator hydraulics supplied by axial piston pump with standard motor 15kW**
- **Oil pump cooler with standard motor 0,75kW**
- **Moog servo hydraulics valve for vertical Parison controls with separate hydraulic line and accumulator.**

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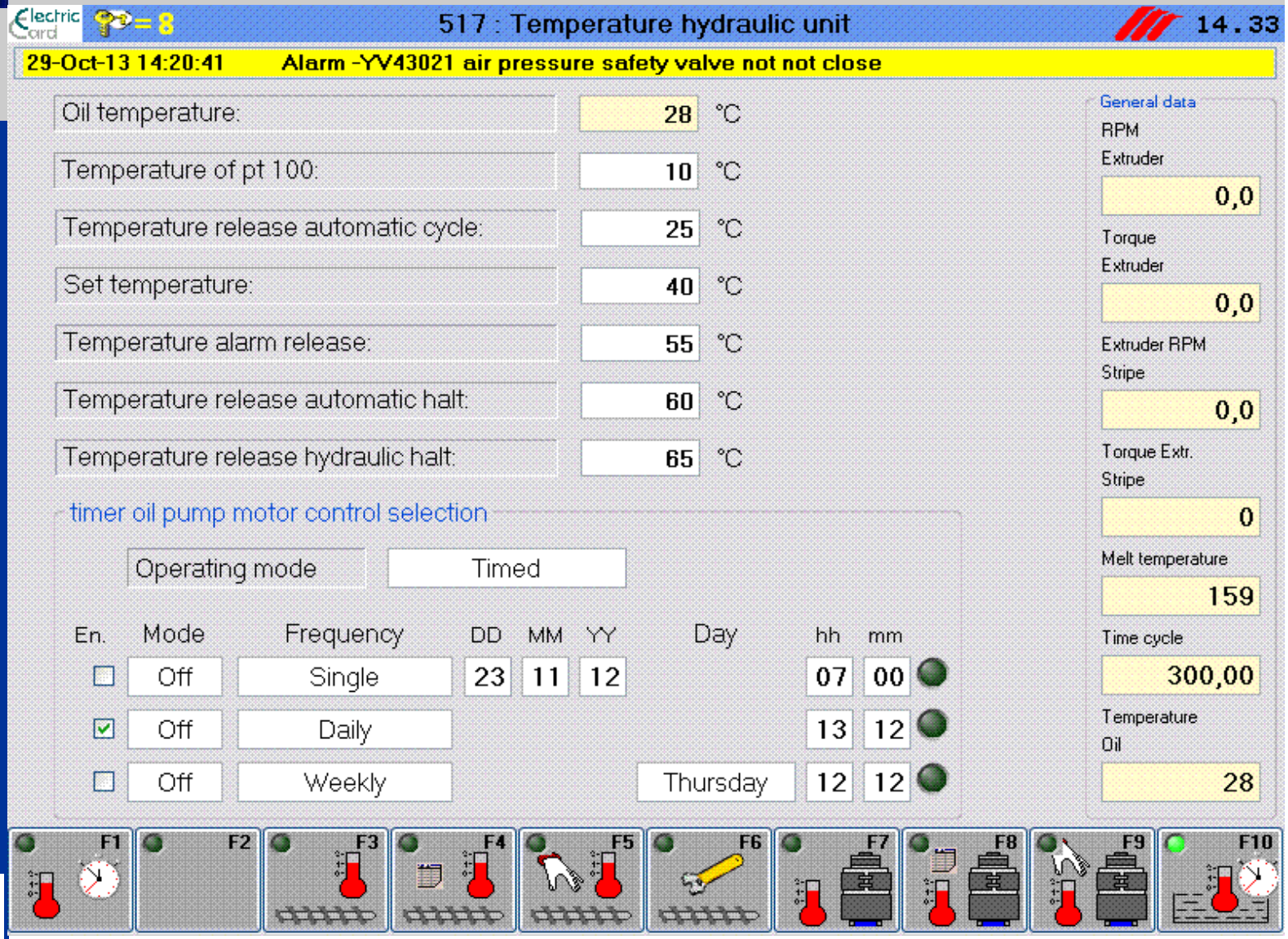
Hydraulic system

Hydraulic system user page

Blow Moulding



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Hydraulic blow pin movement and deflashing of the top

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Maschio Blow Moulding Machine

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Blow pin device for double cavity

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Maschio Blow Moulding Machine

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Hydraulic Clamping Unit force 30 Tons

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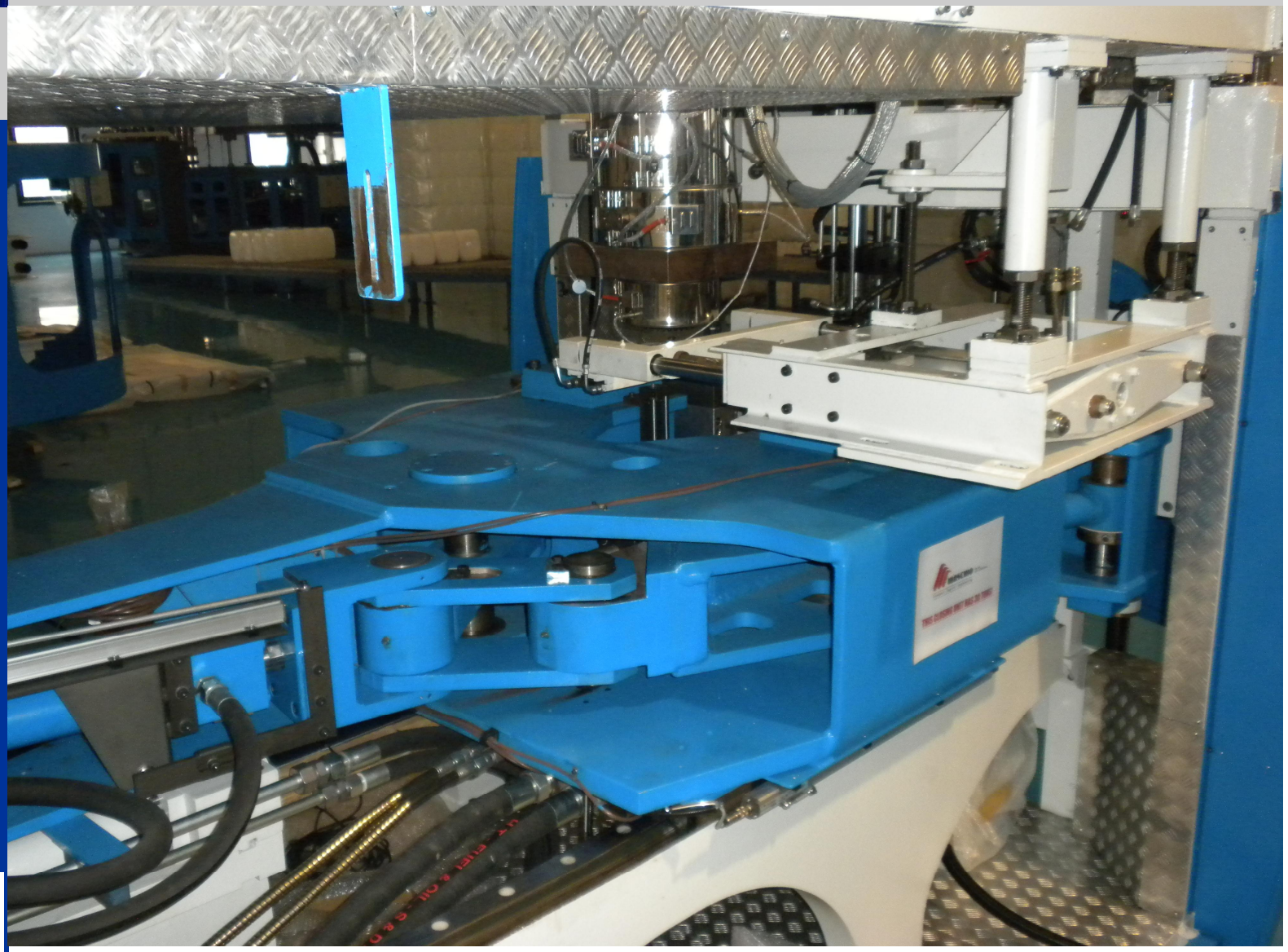
Hydraulic Clamping Unit force 30 Tons

Blow Moulding



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User page Clamping Unit

Electric Card = 8 | 310 : Mould closing | 16 . 55

29-Oct-13 16:54:52 Alarm safety gates right open

Axe quote 344,3 mm

	Position mm	Speed mm/s	Cams
Velocity start closing		800	
Inject blow needle	2,0	0	3
Lift blow pin	7,0	0	5
Waiting position mould	200,0	400	653
Reserve	60,0	120	443
Slow closing mould	50,0	70	404
Approach	32,0	7	298
Final fast closing mould	1,0	0	0
Mould closed	0,0	0	0

General data

RPM Extruder	0,0
Torque Extruder	0,0
Extruder RPM Stripe	0,0
Torque Extr. Stripe	0
Melt temperature	184
Time cycle	300,00
Temperature Oil	25

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 Reset

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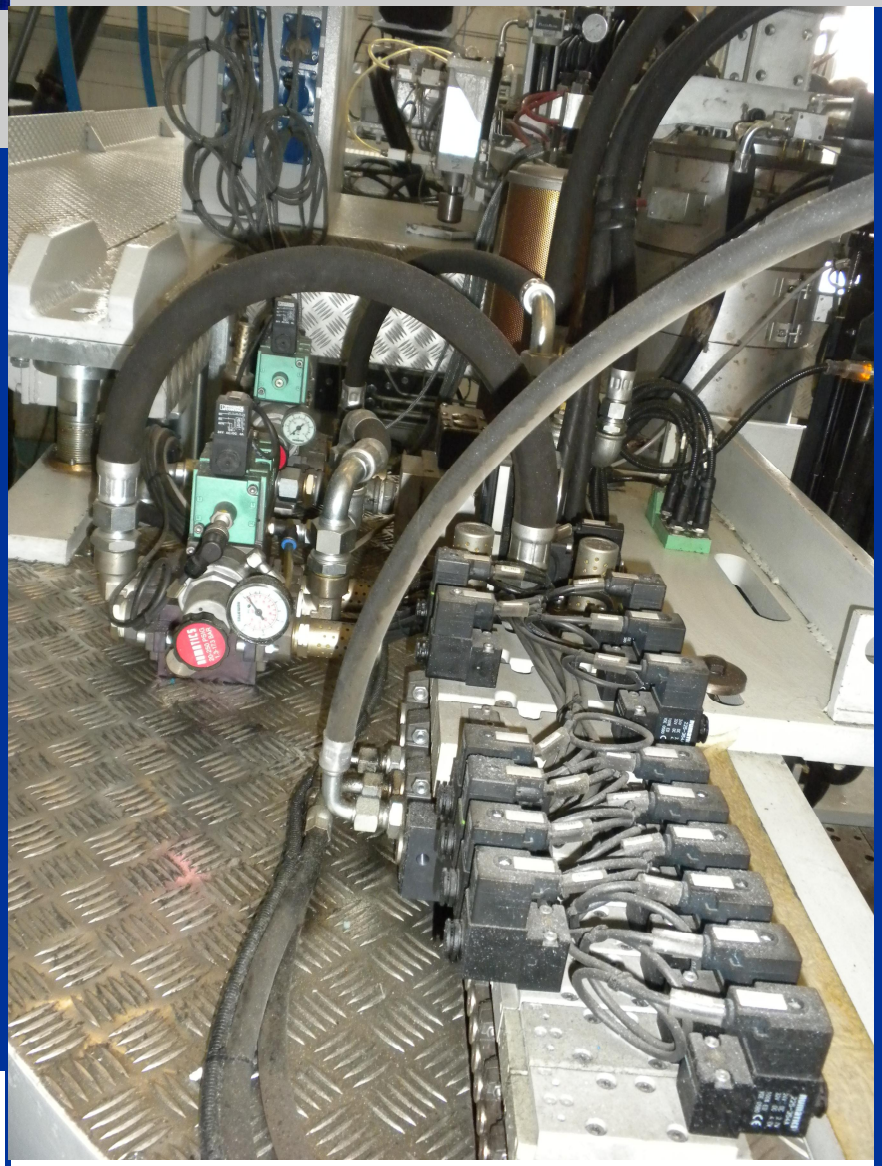
Pneumatic system

- Integrated at the top front of the machine frame
- Controls for preblowing and blowing by proportional valve
- Extrusions head up/down movements
- Deflashing device for neck, shoulder and handle
- Deflashing device for bottom
- Post cooling device
- Open/closed extruder material hopper
- Open/closed water cooling extruder filling zone
- Digital electrical controlled safety valve

Blow Moulding

Pneumatic system



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Maschio Blow Moulding Machine

Blow Moulding

Pneumatic system user page

Electric Card = 8 | 133 : Settings A | 14.34

29-Oct-13 14:20:41 Alarm -YV43021 air pressure safety valve not not close

		SET		P.V.	
	Blowing value 1.step	55	%		
	Blowing value 2.step	100	%	0	%
	Test blowing valve	0	%		
	Support air impulse value	15	%		
	Support air permanent value	10	%	0	%
	Test support air valve	0	%		
7	Delay support air blow impulse	28,00	sec	0,00	sec
8	Duration impulse support air	10,00	sec	0,00	sec
13	Support air intermediate time	0,00	sec	0,00	sec

General data

RPM Extruder	0,0
Torque Extruder	0,0
Extruder RPM Stripe	0,0
Torque Extr. Stripe	0
Melt temperature	160
Time cycle	300,00
Temperature Oil	28

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

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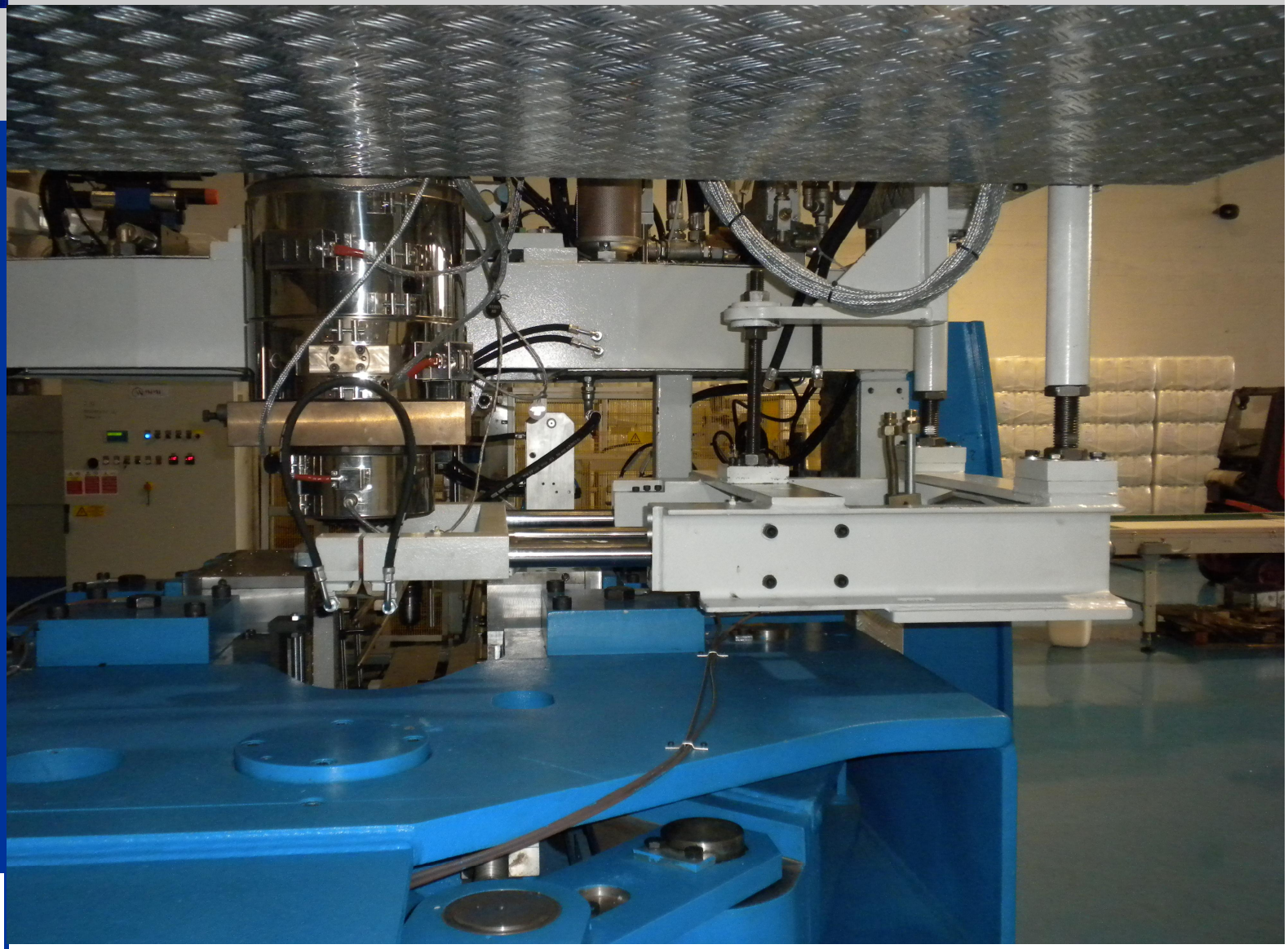
Blow Moulding

Pneumatic Parison cutting and closing device



Blow Moulding

Parison cutting device user page

Electric Card = 8 | 130 : General Timers | 14.34

29-Oct-13 14:20:41 Alarm -YV43021 air pressure safety valve not not close

		SET	P.V.	
1	Delay parison cutting device closing	3,50	0,00	sec
2	Delay parison cutting device opening	1,70	0,00	sec
3				
4				
5				
6	Delay estrusion head lifting	2,70	0,00	sec
7	Delay support air blow impulse	28,00	0,00	sec
8	Duration impulse support air	10,00	0,00	sec
9	Oil drainage WTC impulse time	5,00	0,00	sec
10	Oil drainage WTC pause time	5,00	0,00	sec
11	Time-out automatic machine cycle	100,00	0,00	sec
12	Delay extruder stop after automtic OFF	500,00	0,00	sec
13	Support air intermediate time	0,00	0,00	sec
114	Pause lubricating cycle	10	6	h
115	Duration lubricating cycle	90,00	0,00	sec

General data

RPM Extruder	0,0
Torque Extruder	0,0
Extruder RPM Stripe	0,0
Torque Extr. Stripe	0
Melt temperature	160
Time cycle	300,00
Temperature Oil	28

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

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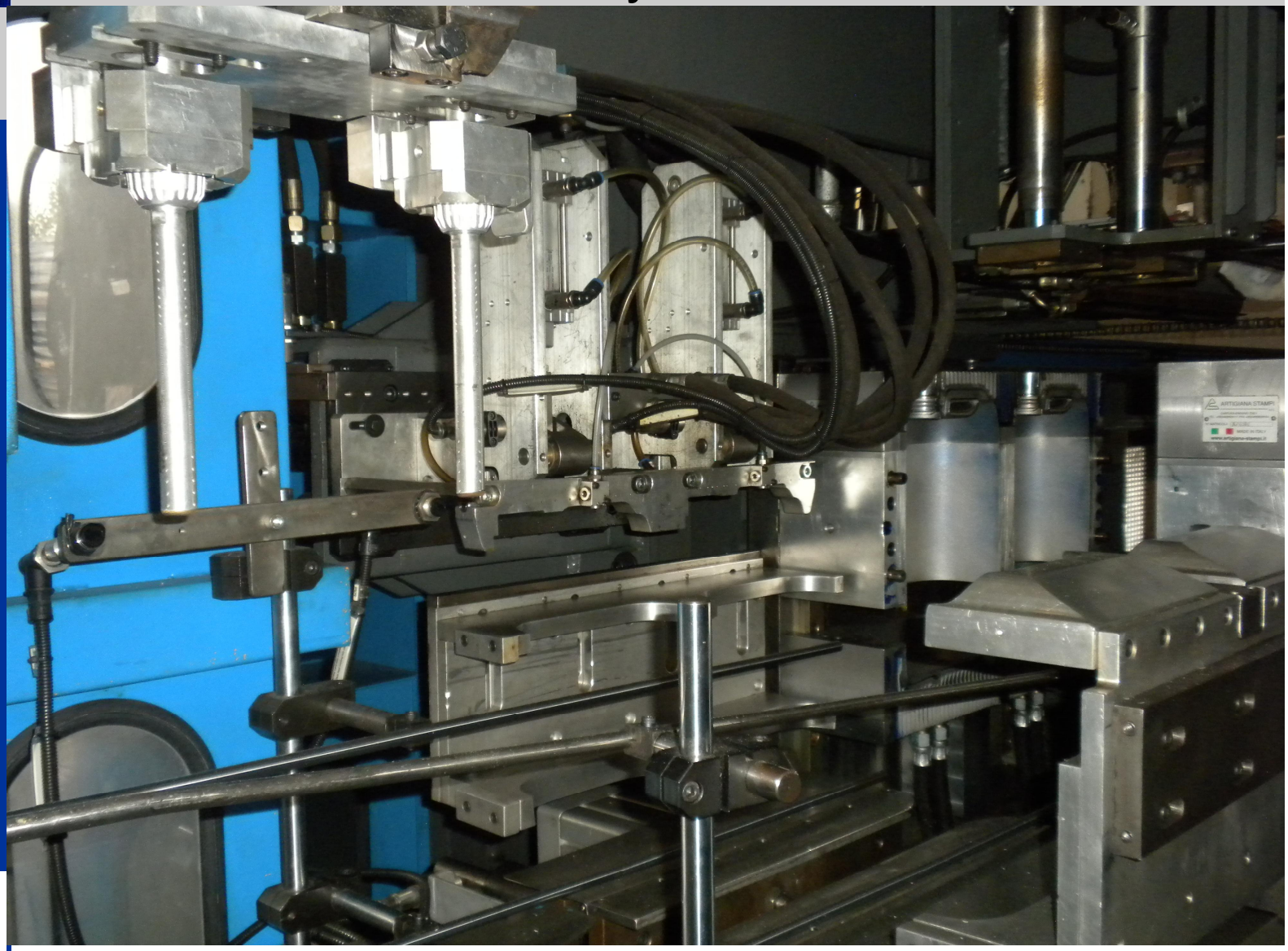
Deflashing and post cooling device

Deflashing and post cooling device double cavity

Blow Moulding



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Blow Moulding

Agreement with Electric Card engineering system integrator

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System based on industrial PC

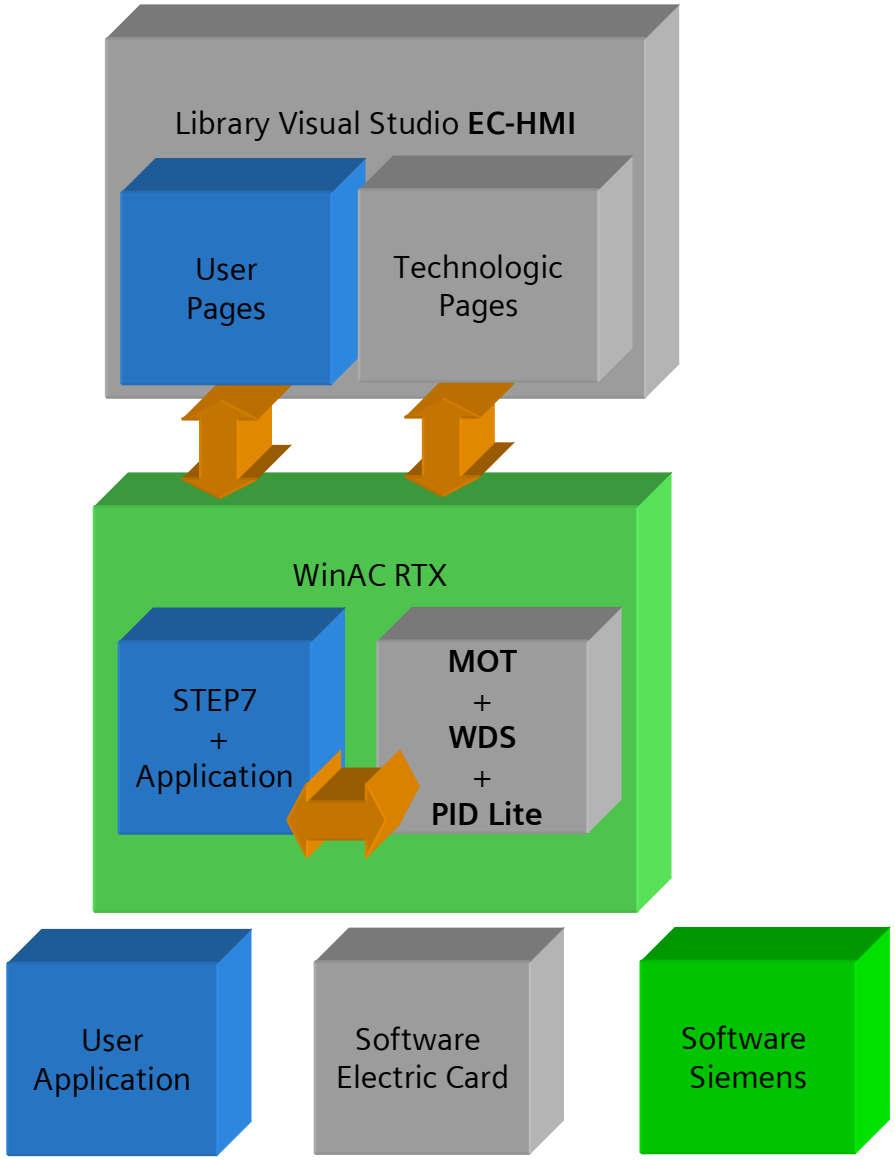
- PC Panel or PC embedded
- Power supply 24V DC (without UPS)
- Without forced cooling
- FLASH DISK (with no moving parts HD)
- Windows Embedded operating system
- Up to 128 KB retentive data

Configuration PC Panel 477C - RTX

PROFIBUS DP

Software architecture blow moulding

Blow Moulding



Software

The software provides a solution for our BLOW MOULDING plants consists of the following applications, developed entirely years of experience in C programming language:

- **MOT**
  Application for handling hydraulic and / or electrical
- **WDS**
  Application to Parison thickness control

It follows from the STEP 7 application developed by Siemens Italy:

- **PID Lite**
  Application for temperature control

Axis movement

The software for the movement hereinafter referred MOT are on a WinAC RTX has the following basic features:

- **16 axes which are electrically or hydraulic**
- **Independent regulation of the two directions**
- **Loop speed and position**
- **Movement program based on 16 CAM**
- **Each CAM may determine a speed change**
- **On each CAM can be programmed stop**
- **Functions of compression and release**

Technology page MOT

Blow Moulding

Electric Card = 8 — 712 : Parameters proportional valve Blow Mould — 16 . 55

29-Oct-13 16:54:52 Alarm safety gates right open

Select kind of curve: Offset 4

Parameters for free charact. curve

	Input	Output	
Point 1	0,000	0,000	V
Point 2	0,000	0,000	V
Point 3	0,000	0,000	V
Point 4	0,000	0,000	V
Point 5	0,000	0,000	V
Point 6	0,000	0,000	V
Point 7	0,000	0,000	V
Point 8	0,000	0,000	V

Output with input at -10 V	0,000	V
Output with input at 0 V	0,000	V
Output with input at +10 V	0,000	V

Parameters Offset + Reference

Offset positive	1,400	V
Max positive reference	10,000	V
Offset negative	0,900	V
Max negative reference	10,000	V

Valve test

Set analogic reference	0,000	V
Output counts	0	

Max voltage

Positive	10,000	V
Negative	-10,000	V

General data

RPM Extruder	0,0
Torque Extruder	0,0
Extruder RPM Stripe	0,0
Torque Extr. Stripe	0
Melt temperature	184
Time cycle	300,00
Temperature Oil	25

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

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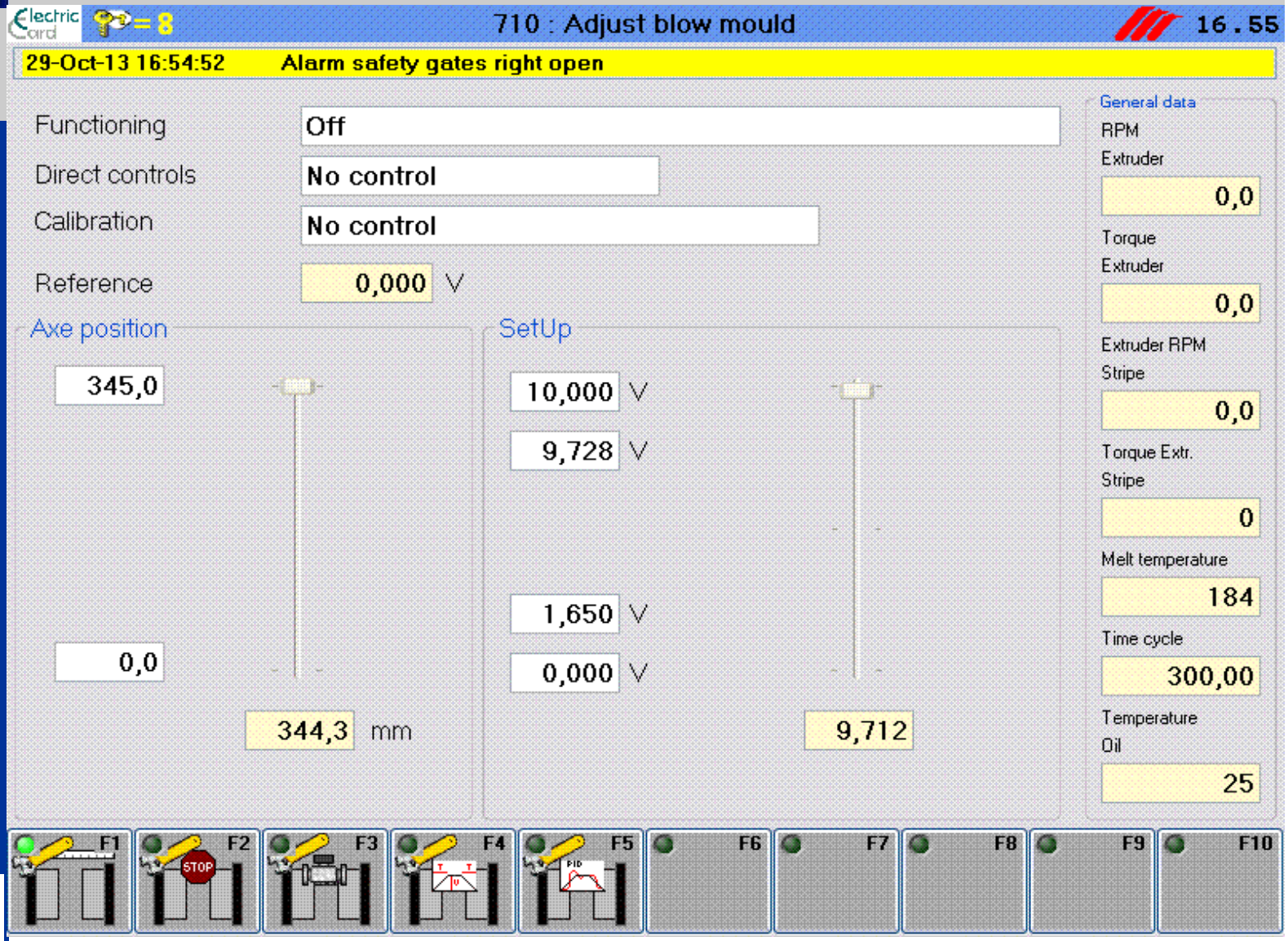
Technology page MOT

Blow Moulding



Parison thickness control

The software for Parison control hereinafter referred WDS are on a WinAC RTX has the following basic features:

- Management for blow moulding thickness control for accumulation head or continuous single or double station
- 32 independent heads
- 8 thickness profiles and / or pressure
- Parison length adjustment
- Parison cycle time adjustment
- In the case of double station synchronization of the cycle time

Thickness profile or pressure

WDS can handle up to 8 profiles contemporary with the following characteristics:

- Selection maximum number of points between: 64, 128, 256, 512
- Free introduction of points for operator define the profile
- Each point operator can be also point in change which type of interpolation between points
- The types of interpolation can be selected from: linear, uniform, cosine and polynomial.
- The distinction between profile and profile Test Set Point allows to produce while the operator prepares a new profile
- The profile comparison allows you to select one of the profiles to be superimposed to that in processing

Blow Moulding

Technology page WDS

Electric Card — Adjust VWTC — 14.21

20/Jun/2008 13:53:22 Alarm intervention pressure switch oil WTC -SP44721

☑ Enable regulation		Profile position	128
Regulation type	Speed	Direct controls	No control
Select direction	Positive	Calibration	No control
Gain	20.00	‰	1000.0
TI	0.0	mS	
TD	0.0	mS	
Coefficent of speed	15.0	%	
Range	190.0	‰	
Base gap	37.0	‰	
Base gap dyn.	0.0	‰	

V 7.193

SP	P.V.	Out	IN
498.7	498.7	0.000	0.000
‰	0.0	V	-7.158

General data

RPM Extruder	0.0
Torque Extruder	0.0
Extruder RPM Stripe	0.0
Torque Extr. Stripe	0
Melt temperature	0
Time cycle	-0.01
Temperature Oil	0

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

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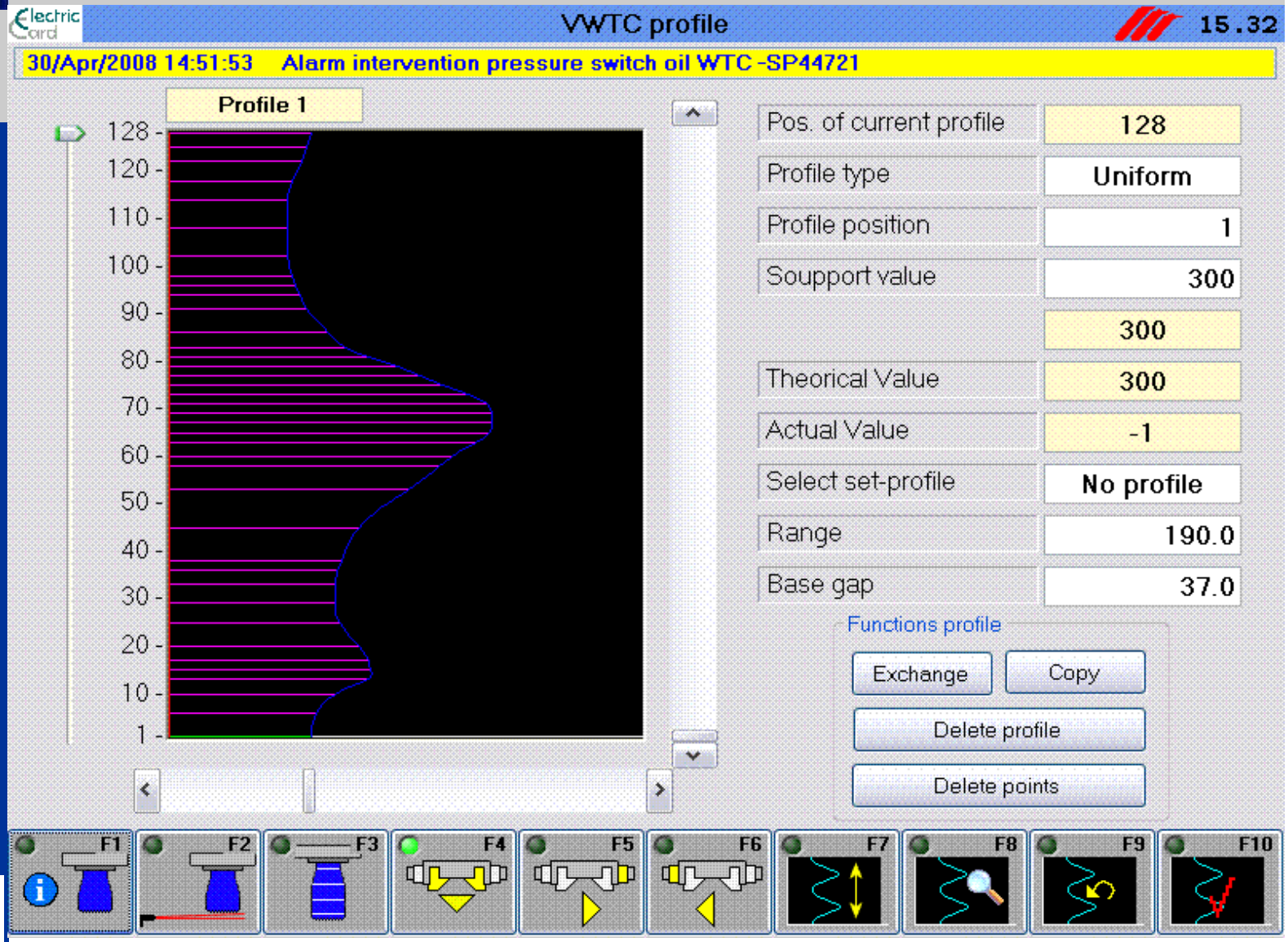
User page WDS



Association head / profile

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- For each head can be associated with one of the 8 profiles
- The same profile can be associated with more heads because the profile is customizable by:
  - Base gap
  - Dynamic gap
  - Range
- WDS verifies that each carries out the head regulation set by control tolerance on every point
- Each point that does not respect the limits regulation set is highlighted simultaneously with the cumulative alarm.

Blow Moulding

User page WDS

Electric Card — Wall Thickness Parameters — 11 . 28

20/Jun/2008 9:48:24 Low tolerance limit Stripe zone 53

Machine type	Single station mode
Operation mode head 1	continuous

Wall Thickness Parameters

	VWTC	RWTC 1	RWTC 2
Interpolation	Profile 1	Profile 2	Profile 3
base gap dynamic	0.0 %	0.0 %	0.0 %
Base gap	37.0 %	340.0 %	0.0 %
Range	190.0 %	650.0 %	800.0 %
Mandrel selection	automatic off	automatic off	automatic off
Manual closing	12.0 %	10.0 %	0.0 %
Manual position	0.0 %	0.0 %	0.0 %
Manual opening	100.0 %	100.0 %	0.0 %

General data

RPM Extruder	0.0
Torque Extruder	0.0
Extruder RPM Stripe	0.0
Torque Extr. Stripe	0
Melt temperature	0
Time cycle	-0.01
Temperature Oil	0

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

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Blow Moulding

User page WDS

Electric Card = 8 | 413 : Parison Length Control | 14.33

29-Oct-13 14:20:41 Alarm -YV43021 air pressure safety valve not not close

Cycle time selection	Automatic (1)				
Time cycle	38,00 s	17,93 s			
Cycle time system	81,56 s				
Machine time	0,92 s				
Automatic correction limit	30,00 s		Actual profile position	128	
			Start cut closing	80	
			base gap WDS	85,0	%
Correction filter	50 %		Range	200,0	%

Regulation type	Correction extruder speed (1)	
Extrusion time up to photocell	0,00 s	35,59 s
Limit inferior correction	0,20 s	
Limit superior correction	0,40 s	
Maximal correction	0,50 s	

General data

RPM Extruder	0,0
Torque Extruder	0,0
Extruder RPM Stripe	0,0
Torque Extr. Stripe	0
Melt temperature	157
Time cycle	300,00
Temperature Oil	28

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

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Thermoregulation

The software for thermoregulation hereinafter referred to as PID Lite working in STEP 7 ambient, provides the following basic features:

- **Adjusting zone heating & cool it**
- **Self learning function parameters**

Our engineering to based Siemens has developed the technology pages of EC-HMI to configure and operate our different BLOW MOULDING MACHINE (extruders, single head, double heads, accumulator heads)

- **Configuration thermoregulation zones**
- **Self-learning parameters**
- **Management consents to the operation system**
- **Alarm management**

Extruder thermoregulation

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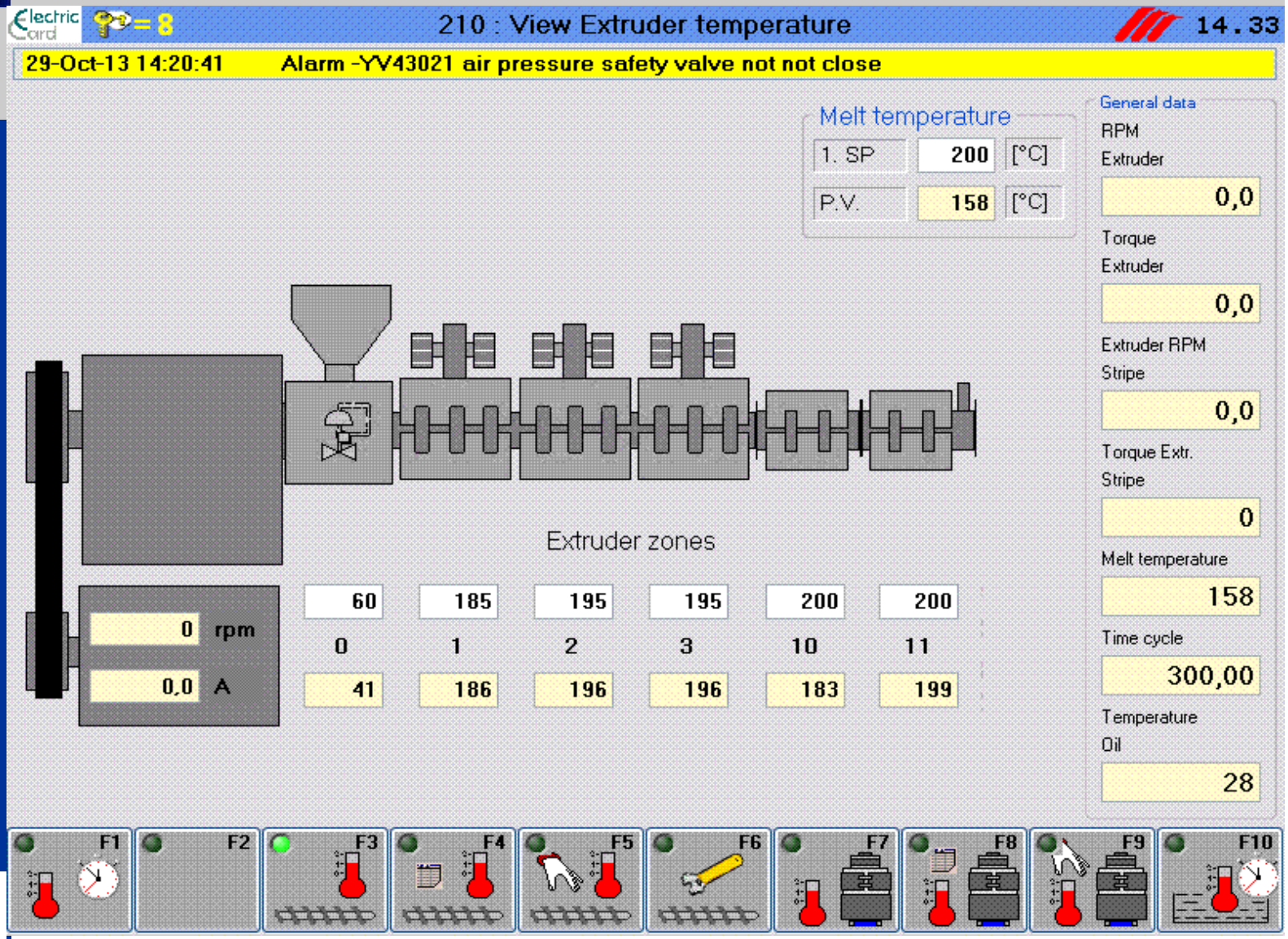

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Single head thermoregulation

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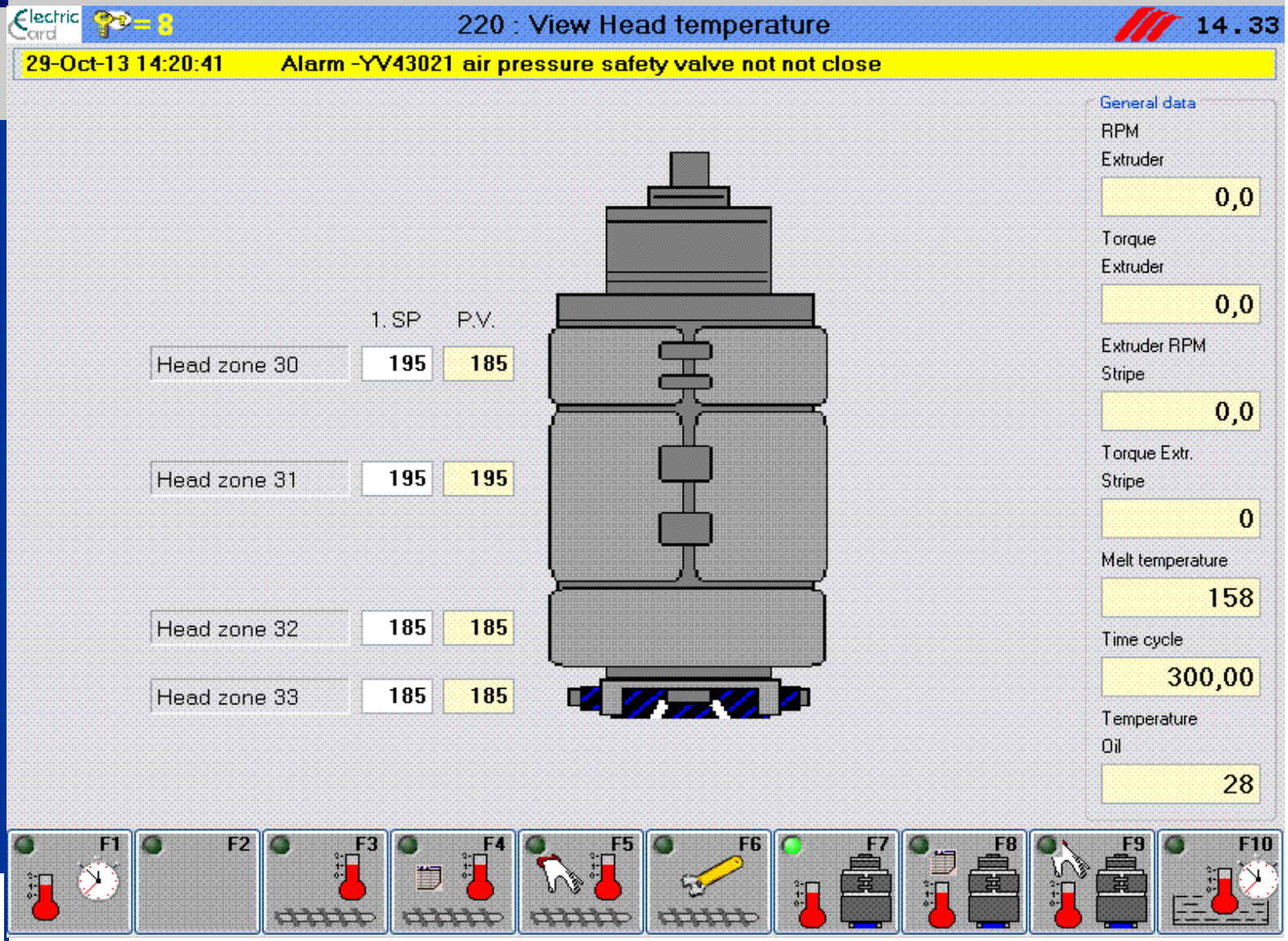

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Setting page thermoregulation

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Electric Card = 8 — 200 : Heating control — 14.33

29-Oct-13 14:20:41 Alarm -YV43021 air pressure safety valve not not close

manual heating control selection

	Mode	Status
Group 1	1. SP	1. SP

timer heating control selection

Operating mode: Timed

En.	Mode	Group	Frequency	DD	MM	YY	Day	hh	mm
☑	1. SP	Group 1	Daily					14	00
☐	2. SP	Group 1	Weekly				Sunday	18	27
☐	1. SP	Both	Weekly				Monday	06	28
☐	2. SP	Group 1	Weekly				Thursday	12	10
☐	Stop	Both	Daily					12	11
☐	1. SP	Group 1	Single	11	09	13		03	00
☐	Stop	Both	Daily					12	13

General data

RPM Extruder	0,0
Torque Extruder	0,0
Extruder RPM Stripe	0,0
Torque Extr. Stripe	0
Melt temperature	158
Time cycle	300,00
Temperature Oil	28

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10

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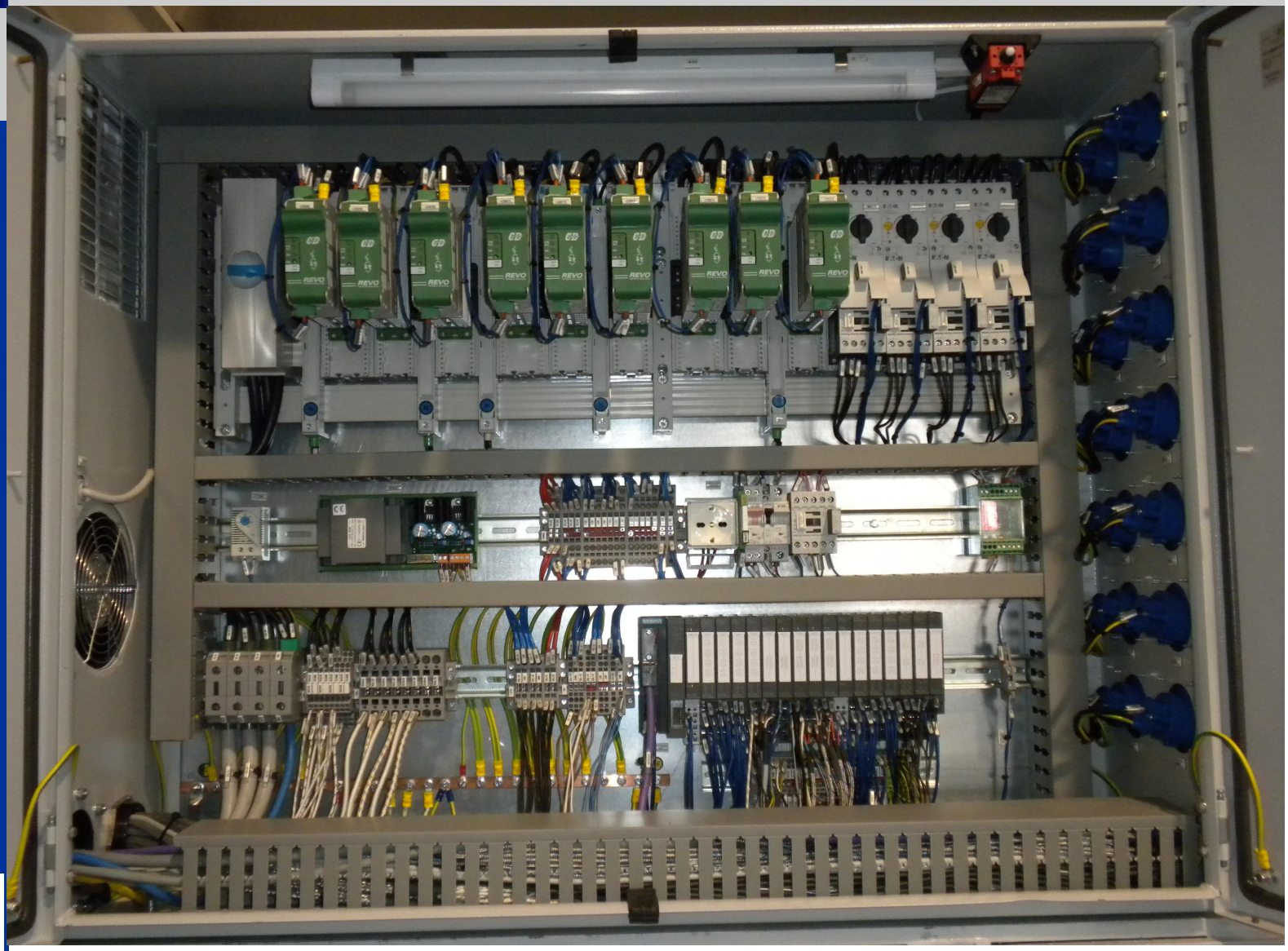
Thermoregulation electrical cabinet

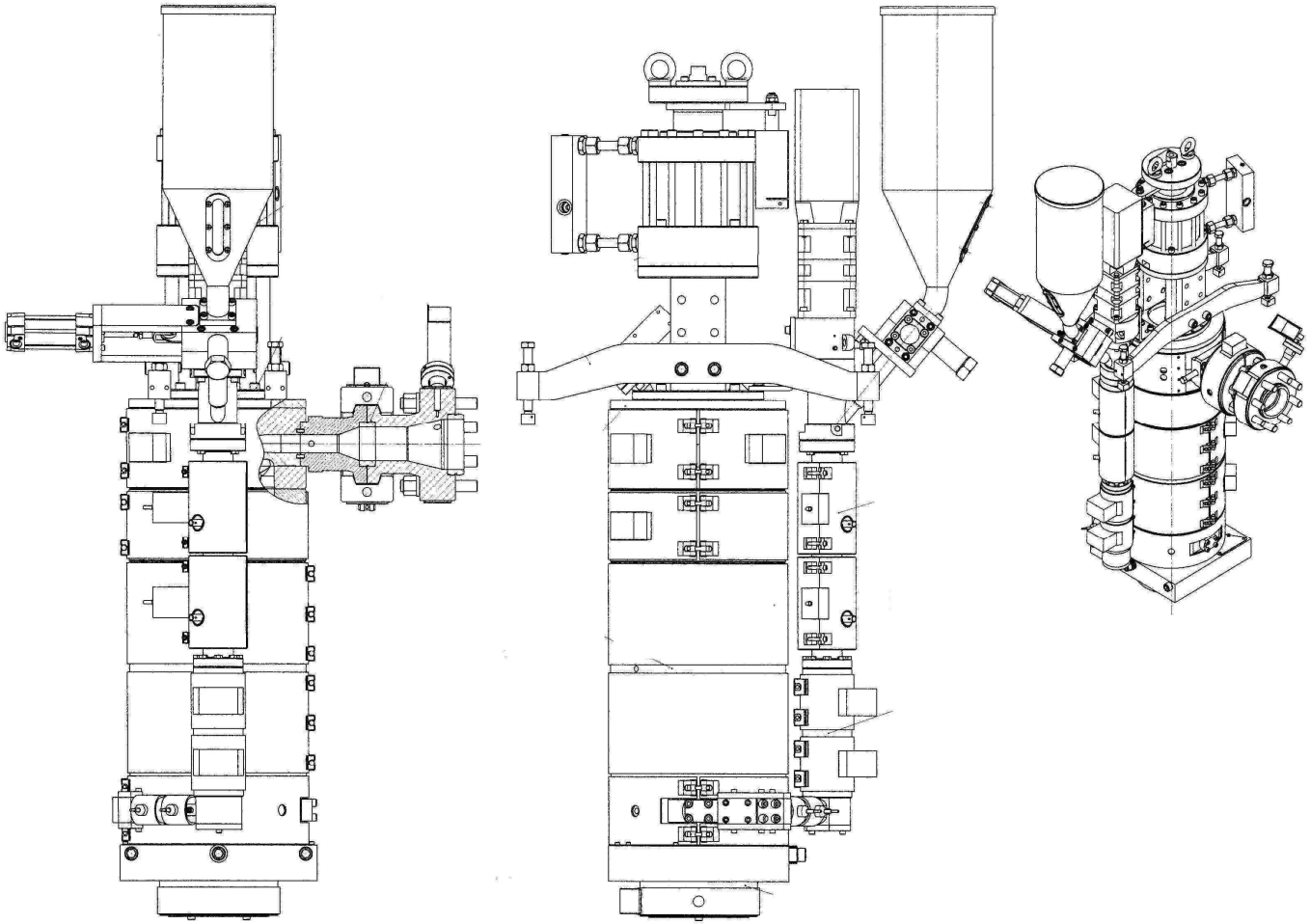


Blow Moulding

Main electrical cabinet PM30L

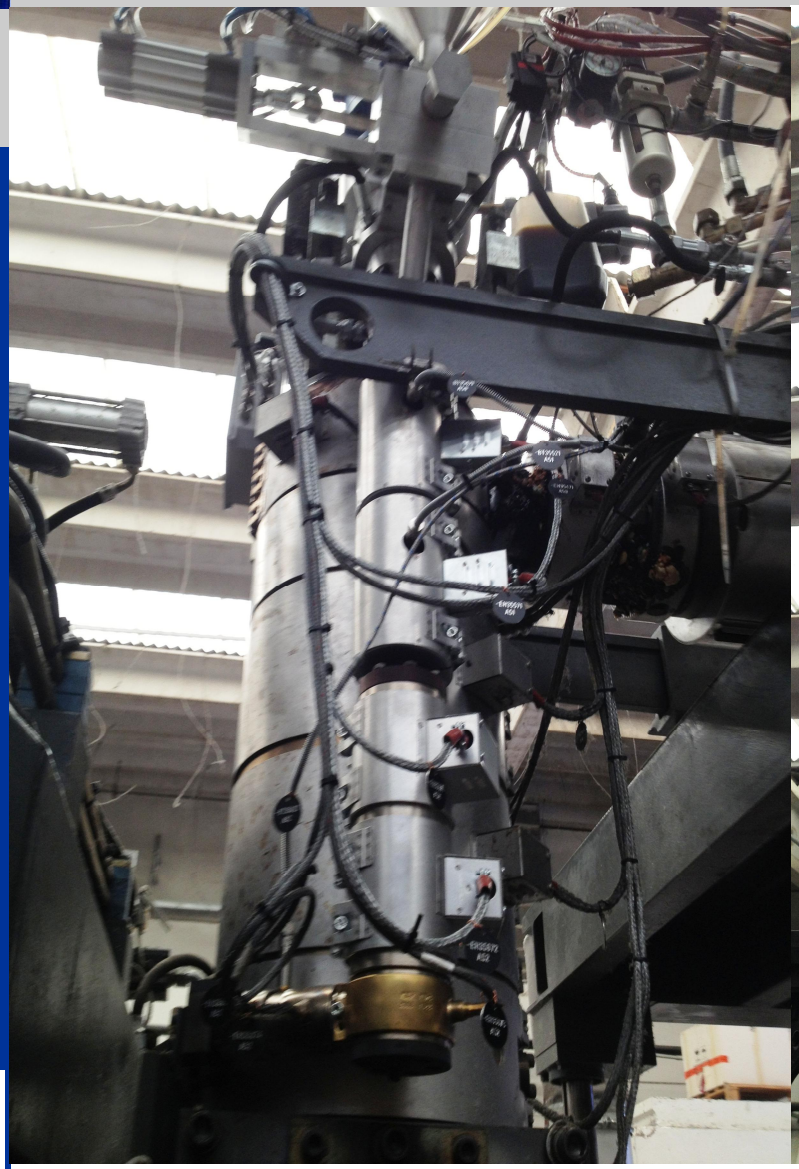
Option View Stripe Extruder to Head WV200

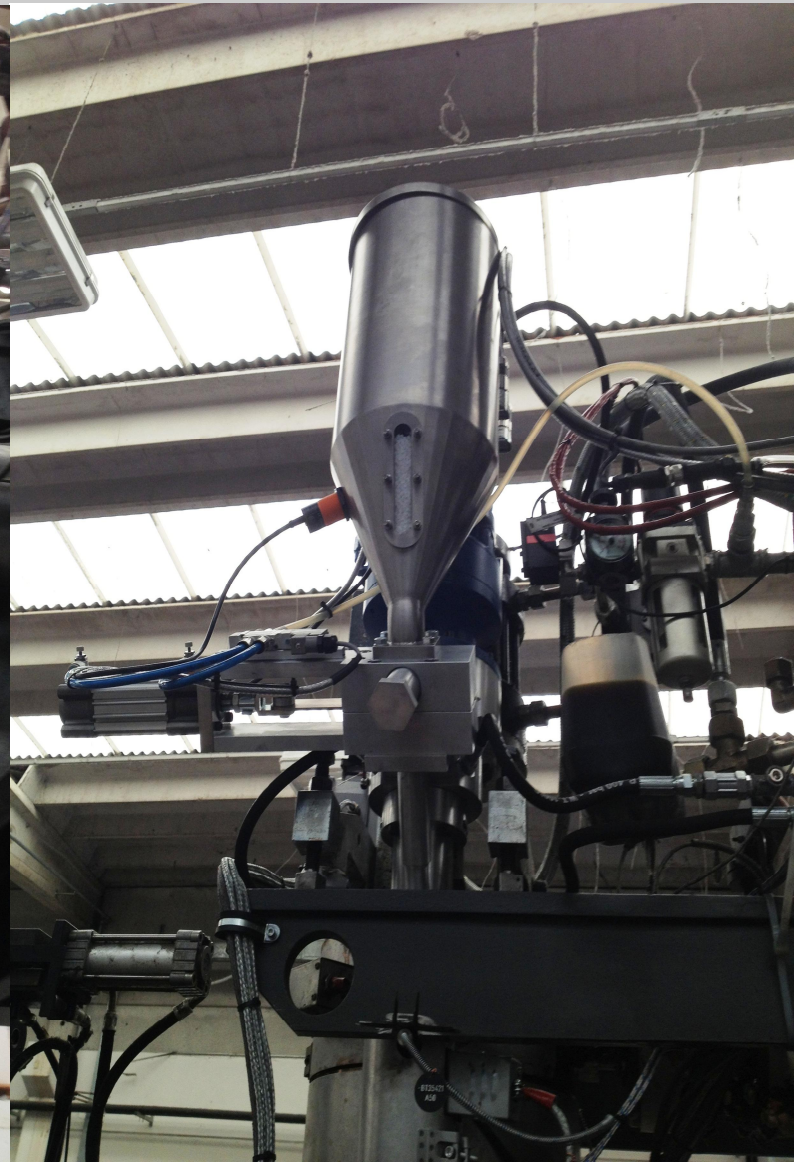
Blow Moulding



Option View Stripe Extruder to Head WV200

Blow Moulding





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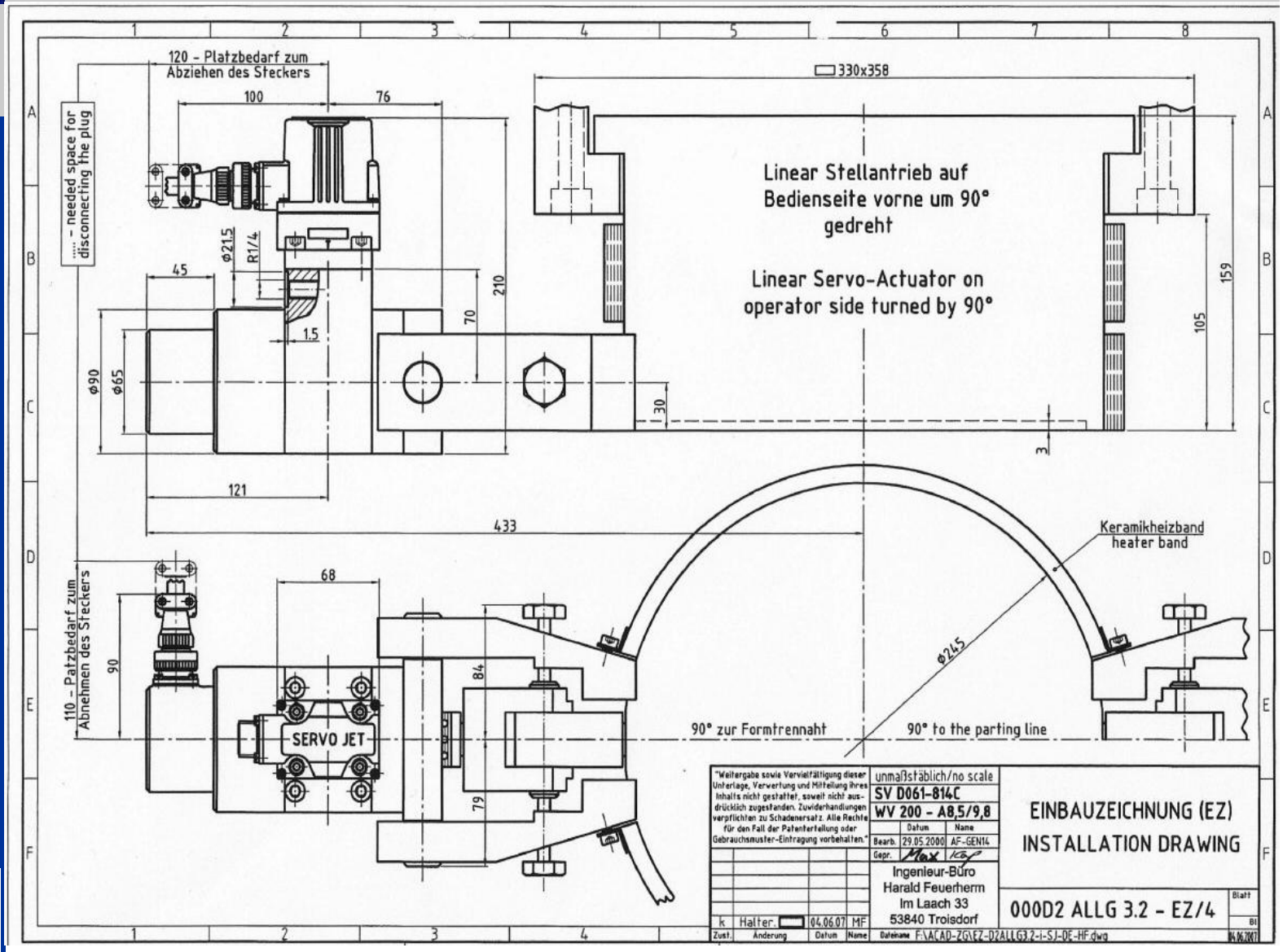
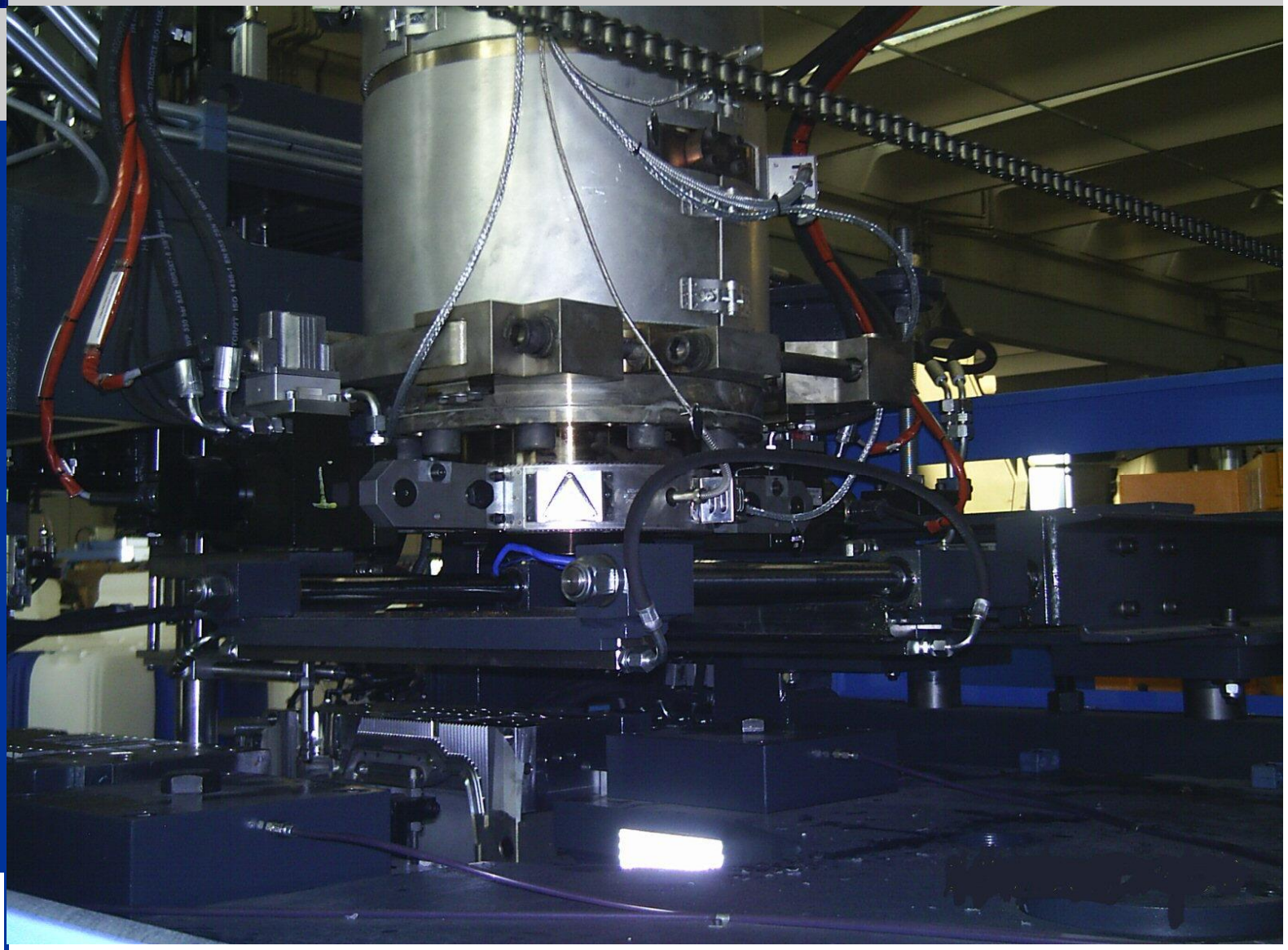
Option Radial Thinness controls for PM30L head WV200

Blow Moulding



Blow Moulding

Option Radial Thinness controls for PM30L head WV200



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Silo & Mixing

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