

1. CLOSING UNIT

1.1 SMELTED QUALITY STEEL REAR PLATEN

with Quality Certificate

1.2 MOTORIZED DIE HEIGHT ADJUSTMENT

By means of a gearmotor this device activates simultaneously all the four tie-bar nuts so that the die height is adjusted in an extremely precise way.

1.3 HORIZONTAL DOUBLE TOGGLE DIE CLOSING SYSTEM

It is made of steel and is controlled hydraulically. The joints consist of knuckle pins made of case-hardened steel fitted in calibrated bushes made of hardened steel.

1.4 MOVING PLATEN

The moving platen is obtained by machining a cast steel block (from IPZ/200 onwards it is made out of a forged steel block). The moving platen moves along especially grounded hardened steel shoes.

1.5 MOVING PLATEN MOVEMENT

Closing, opening, ejection and die safety strokes can be adjusted by means of cams and limit switches (on request: adjustments can be carried out via control board by means of an encoder bar).

1.5.1 CLOSING DISTRIBUTION CYLINDER

It is supplied with oil by means of high pressure flexible pipes fitted to a distributor especially designed to obtain smooth movements and gradual braking.

It is equipped with a mechanical hand wheel in order to obtain a very precise positioning of the moving platen, which is very useful when the castings are extracted automatically.

1.6 CENTRAL EJECTION GROUP

This group consists of a fixed piston and moving cylinders for easy serviceability, a pressure reducing valve to manually adjust the ejection force and limit switches to adjust the ejection cycle (on request: adjustments can be carried out via control board by means of an encoder bar)

Following adjustments can be carried out on the central ejection group:

- delayed times for forward / backward movements
- central ejection repeatability times (stroke limitation)
- stroke speed continuous adjustment

1.7 CORE PULL GROUPS

These groups can carry out the following functions:

- pressure supply to and pressure exhaust from the Moving Platen hydraulic core pull group as well as from the central ejection group by means of telescopic pipes made of chrome-plated steel
- pressure as well as speed manual adjustment.

The core pull groups are divided into:

- Moving Platen core pull group 1 with distributor block, electrovalve, limit-switch electrical plug and manually adjustable pressure reducing valve (STANDARD)
- Moving Platen core pull group 2 (OPTIONAL)
- Fixed Platen core pull group 1 (OPTIONAL)

1.8 FIXED PLATEN

It is obtained by machining a forged steel block; it is fitted with a cooling circuit. The platen has a special hole that makes it possible to use different injection positions. (from the IPZ-80 onwards)

1.9 MACHINE TIE-BARS

They are made out of special alloyed steel bars; they are chromium-plated (thickness: mm 0,25) and grinded. They are fixed onto the Fixed as well as the Rear Platen by means of special locknuts, while the Moving Platen moves along them sliding on lubricated bronze bushings.

1.10 MACHINE INCLINATION

A 5° inclination makes casting ejection easier as well as the backflow of melt zamak in to the crucible.

1.11 The machine platens are fitted on a saddle independent from the machine bed; this saddle can be lifted by means of a hydraulic cylinder in order to change the gate position on the Fixed Platen. (From the IPZ-80 onwards)

1.12 The gooseneck extension and the die gate are connected by means of two cylinders fitted to the injection platen. They are positioned by means of special limit switches.

2. INJECTION GROUP

It is composed of the following elements.

2.1 TWO PHASE VERTICAL INJECTION DEVICE

This is a newly-designed device. Its main components are:

- *injection cylinder (it is composed of an internally ground monoblock made of chromium-plated steel) with external cooling circuit*
- *injection plunger (it is made of steel and is equipped with a MERKEL leakproof seal)*
- *valves controlling the injection phases (Right speeds are obtained with minimum intervention times)*
- *accumulator with piston to control the 2nd injection phase*

2.2 SHOT END PLATEN

It is cooled by means of a special water lines circuit; it supports the GOOSENECK which is immersed in the furnace; an interchangeable SHOT-SLEEVE is fitted inside the gooseneck. The shot-sleeve can be chosen from our standard series.

2.3 NOZZLE AS WELL AS GOOSENECK EXTENSION DEVICE

This device is gas-heated (Electrical heating can be chosen from our optional items).

With induction heating of the gooseneck extension and gas heating of gooseneck / gooseneck extension connection (for IP/MG-T machines)

3. HYDRAULIC CIRCUIT

The hydraulic circuit controls all machine movements; all standard components of the machine are designed to work with a flameproof hydraulic fluid (water-glycole).

The circuit is composed of:

3.1 HYDRAULIC FLUID TANK

Its structure is electrowelded; the tank supports the closing group. It is divided into two chambers in order to reduce vortexes in the hydraulic fluid; an optical level indicator as well as a thermometer to measure the temperature of the fluid are placed near the filling hub.

3.2 SPERRY RAND/VICKERS TWO STAGE VANE PUMP

The pump/motor group is fitted to one side of the machine bed; pump and tank are connected through flexible pipes in order to reduce the noise level.

3.3 PUMP GROUP SUCTION FILTER

This group is equipped with an electrical control that displays possible obstructions in the filter and gives off an alarm.

The filter cartridges can be disassembled in order to be cleaned without emptying the tank. The hydraulic fluid flows back through pipes fitted to the tank in a position under the minimum fluid level. The pump suction attack is positioned in order to obtain a perfect outflow.

3.4 HYDRAULIC FLUID THERMOREGULATION DEVICE

It is composed of a circulating pump (this is standard from IPZ/200 onwards) and 3 thermostatic probes with preset thermic values.

When the fluid temperature reaches 20°C the FIRST PROBE gives the consent to start the pump motors; when the fluid temperature reaches 35°C, the SECOND PROBE lets the cooling circuit valve open; when the temperature reaches 55°C, the THIRD PROBE stops the machine cycle (the temperature of the hydraulic fluid is displayed in the control board). The hydraulic fluid is pre-heated by means of resistances, while it is cooled by the water that circulates inside the heat exchanger fitted on the tank lid.

Our ENGINEERING STAFF will best advise you, should any particular arrangement be necessary.

3.5 SPERRY RAND/VICKERS ELECTROVALVES fitted onto special distribution blocks.

4. ELECTRICAL COMPONENTS

All electrical components comply with European standards.

All machine movements are controlled by adequate control logic devices.

4.1 ELECTRONIC CONTROLBOARD composed of:

- P.L.C. Siemens programmable logic control, type SIMATIC S7.
- SYSTEM PC colour monitor (optional: SYSTEM 3000 PC with injection parameters control) complete with: floppy disc for die data storing, diagnostics and function display

4.2 OPERATING CONSOLE (MOVABLE IF REQUIRED)

It is fitted to the fixed platen of the operator side; all functions to be carried out by both the die casting machine and the peripherals in manual and safety cycles are controlled by means of this panel.

4.3 ELECTRICAL MOTORS

They are three-phase (V 400 / 50 Hz). They are equipped with a star-triangle starter as well as protections magnetothermic. Should the voltage in your foundry be different from the standard one, please advise IP.

4.4 VIDEO DISPLAY VD5 equippecl with the following pages:

- video pages for machine data settings
- pages for diagnostic and machine - peripheral functioning visualization (electrovalves, limit switches, pressures, ecc.)
- pages for production data, production supervision, rejected, machine stops and periodic maintenance
- ongoing alarms visualization

VD5 allows:

- checking of PLC state
- storing of die data on E/EPROM modules

VD5 can be:

- connected to a printer
- interfaced with a shot monitoring and control system

VD5 CAN ALSO BE FITTED ON THE OPERATING CONSOLE

4.5 MACHINE ELECTRICAL WIRING

Wires are fitted in flexible pipes protected by a special metal sheath.



ITALPRESSE

ITALPRESSE "IP/Z-T, MG-T" DIE CASTING MACHINE TECHNICAL CHARACTERISTICS

N° 016511660

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5. MACHINE EXECUTION ACCORDING TO CE-STANDARDS

ITALPRESSE diecasting machines fully comply with the CE standards.

According to the CE Standards, whenever a diecasting machine is connected to one or more pieces of ancillary equipment, it must be surrounded by special protection barriers.

ITALPRESSE peripheral equipment is electrically prearranged to be integrated with such protective barriers, which, unless clearly specified while the supply contract is being signed, are to be supplied by the customer.

6. MELTING AND HOLDING FURNACE

6.1 ELECTRICAL FURNACE

6.2 FURNACE WITH GAS BURNER

6.3 FURNACE WITH GAS OIL BURNER.

The furnace is protected against vibrations and can be easily moved away from the machine as it has iron wheels. A thermocouple to measure the temperature is fitted in the crucible body.

7 SAFETY EQUIPMENT

Every machine is equipped with:

7.1 OPERATOR SIDE AUTOMATIC SAFETY GATE

It is driven electrically (pneumatically for IPZ / 80 - 120) and covers the whole closing group. The front edge of the safety gate is equipped with a safety bar that automatically blocks the cycle if it is touched; the safety gate is equipped with a safety device with active / passive limit switches for the closing movement .

7.2 REAR SIDE AUTOMATIC SAFETY GATE

It is driven electrically (motorized) and covers the whole closing group. The front edge of the safety gate is equipped with a safety bar that automatically stops the cycle if it is touched; the safety gate is equipped with a safety device with active / passive limit switches for the closing movement. (IPZ 80 - 120 are equipped with non-automatic rear side safety gate with position control safety limit switch)

7.3 EMERGENCY KEY PAD

To stop the machine in case of emergency.

7.4 SAFETY COVERS

All moving parts in the closing group and the injection group have safety covers.

7.5 ELECTROHYDRAULIC SAFETY

It is equipped with independent input circuits in order to guarantee the safe closing and injection movements.

7.6 A PISTON ACCUMULATOR AND ACCUMULATOR SAFETY VALVES

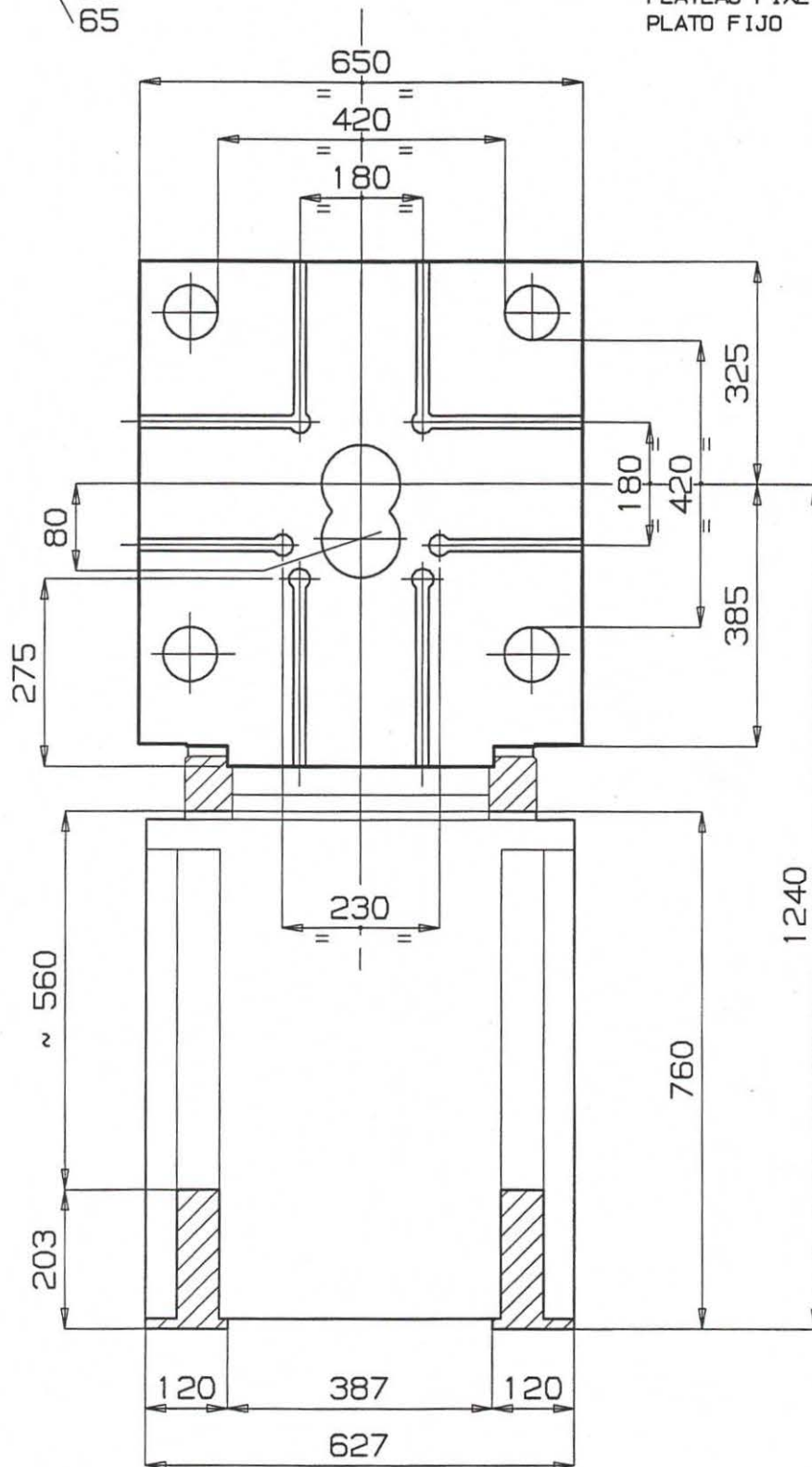
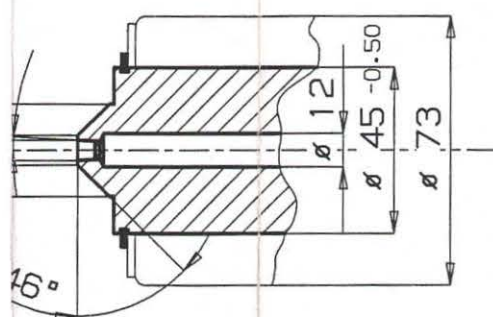
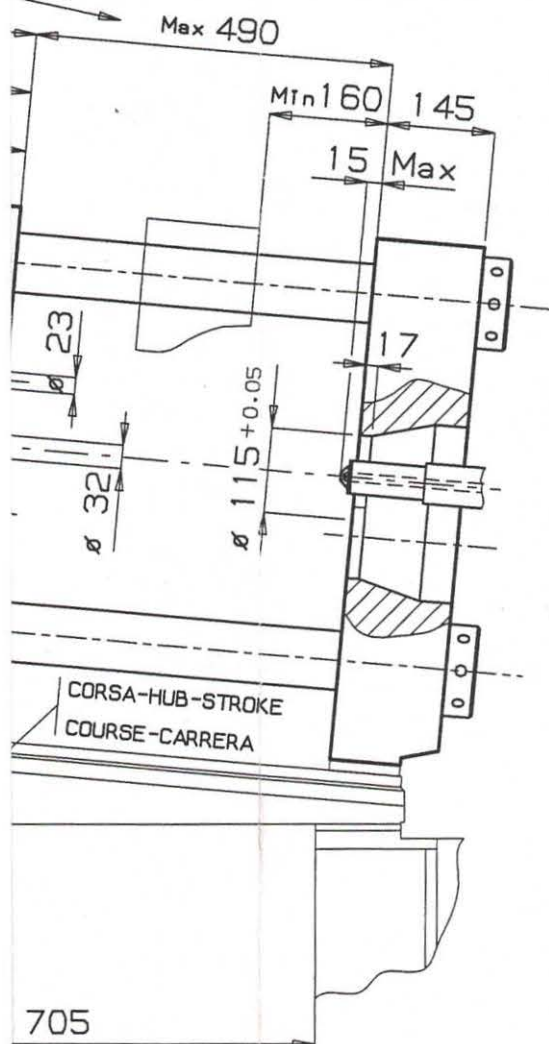
The accumulators are equipped with safety valves complying with all European standards.

ALTEZZA STAMPI
HÖHE
HEIGHT
HAUTEUR MOULES
JIRA MOLDES

CONTENITORI
PRESSKAMMER
PRESSURE CHAMBER
CONTENEURS
CONTENIDORES

50
55
60
65

PIANO FISSO
FESTE PLATTE
FIXED PLATEN
PLATEAU FIXE
PLATO FIJO



Data: 24-11-04

Disegnato: Franzoni

Scala: 1/10

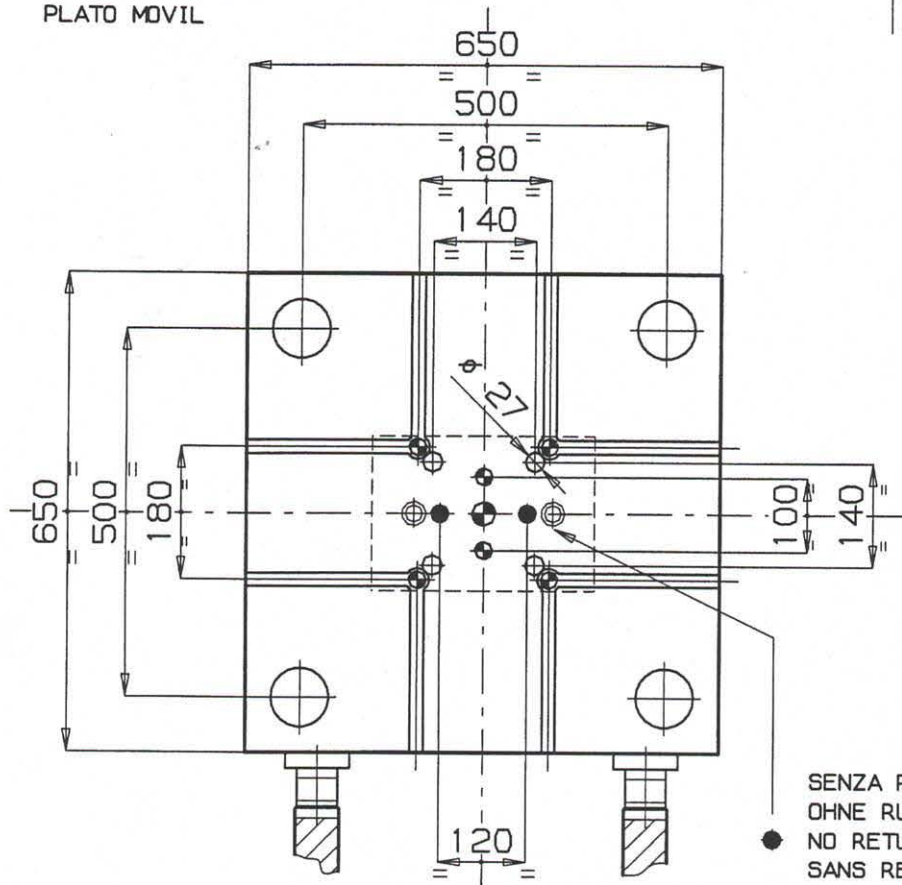
DATI APPLICAZIONE STAMPI FORMAUFSpannung
PLATENS SCHEME- FIXATION DU MOULE- FIJACION DEL MOLDE



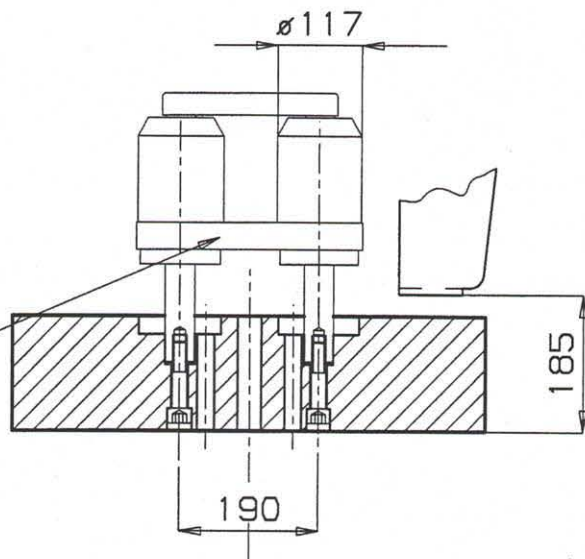
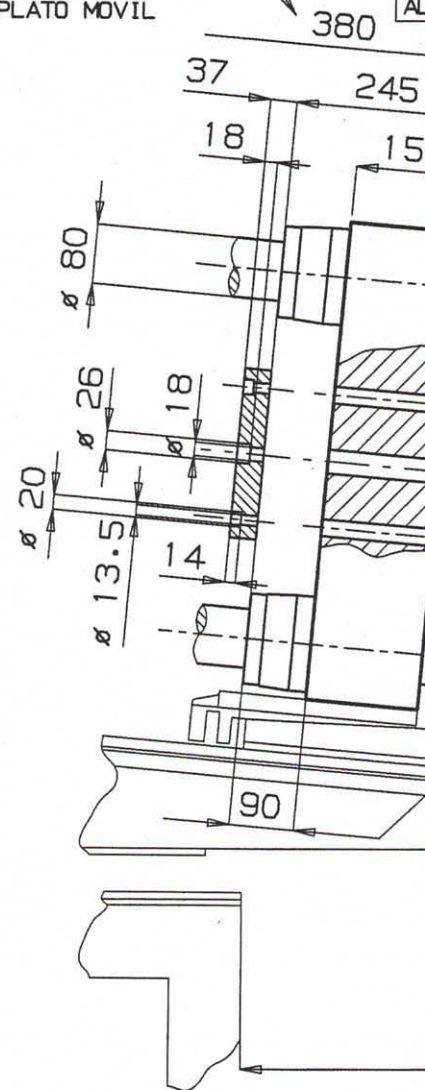
ITALPRESSE
BRESCIA-ITALY

PIANO MOBILE
BEWEGLICHE PLATTE
MOVING PLATEN
PLATEAU MOBILE
PLATO MOVIL

CORSA PIANO MOBILE
FORMHUB
MOVING PLATEN STROKE
COURSE PLATEAU MOBILE
CARRERA PLATO MOVIL

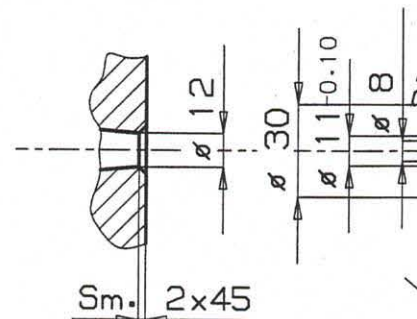
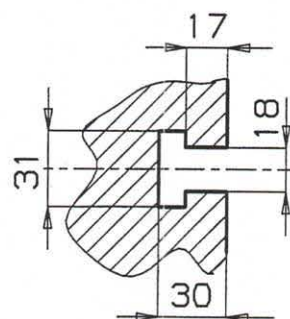


SENZA RITORNO
OHNE RUCKZUG
NO RETURN PINS
SANS RETOUR
SIN REGRESO



KN 93

FORZA ESTRAZIONE CENTRALE
AUSWERFERKRAFT
EJECTION FORCE
PUISSANCE EJECTION CENTRALE
FUERZA DE EXPULSION CENTRAL





ITALPRESSE

FIGURES AND FORMULAS FOR FORGING

N° 016261100

1

$$\text{Pressure of metal in the die Kg/cm}^2 = \frac{\text{injection force KN} \times 102}{\text{injection piston sur. area}} \quad P = \frac{f \times 102}{S}$$

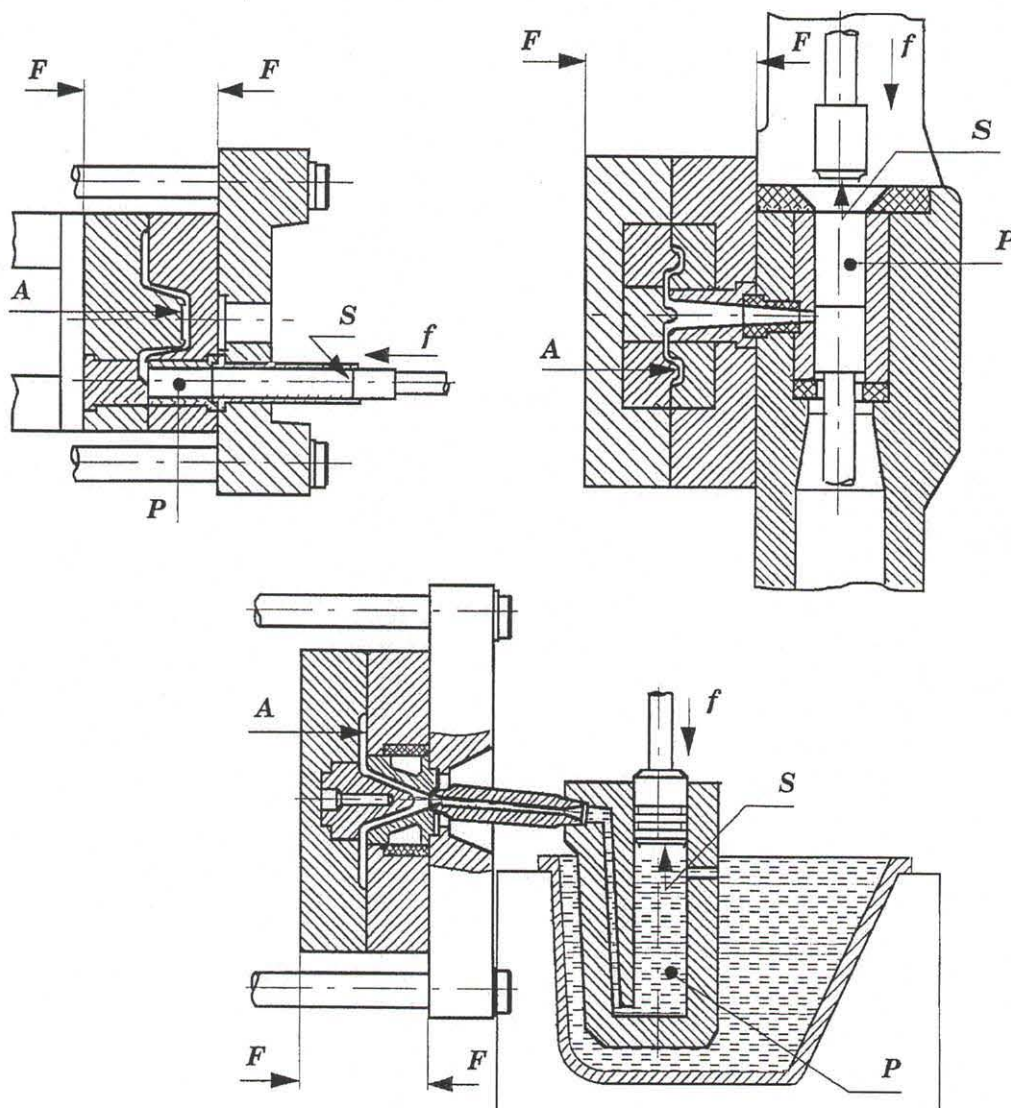
$$\text{Max. forging area cm}^2 = \frac{\text{closing force KN} \times 102}{\text{pressure of metal in the die Kg/cm}^2} \quad A = \frac{F \times 102}{P}$$

$$\text{Pressure of metal in the die Kg/cm}^2 = \frac{\text{closing force KN} \times 102}{\text{max. forging area cm}^2} \quad P = \frac{F \times 102}{A}$$

IMPORTANT:

min. pressure of metal in the die for white metal	Kg/cm ²	160
min. pressure of metal in the die for aluminium	Kg/cm ²	350
min. pressure of metal in the die for brass	Kg/cm ²	500
min. pressure of metal in the die for magnesium	Kg/cm ²	200

1 MP = KN 9,81





ITALPRESSE

- CARATTERISTICHE TECNICHE: LIVELLI SONORI
 - DONNEES TECHNIQUES: NIVEAU SONORE
 - TECHNICAL DATA: NOISE LEVEL
 - TECHNISCHE DATEN: SCHALLPEGEL
 - DATOS TECNICOS: NIVEL SONORO
 - ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ: УРОВЕНЬ ЗВУКА

N° 016276780

3

	- Livello della pressione acustica sulla superficie di riferimento - Level of acoustic pressure on reference surface - Niveau de pression acoustique sur la surface de repère - Schalldruck auf der Bezugsfläche - Nivel de presión acústica en la superficie de referencia - Уровень акустического давления на эталонной поверхности	- Livello di intensità acustica - Level of acoustic intensity - Niveau d'intensité acoustique - Schallintensität - Nivel de intensidad acústica - Уровень акустической силы	- Livello posizione operatore - Operator position level - Niveau position opérateur - Niveau Bedienerposition - Nivel posición operario - Уровень позиции оператора
	LPA [dB]	LWA [dB]	[dB (A)]
PA 25 N (SL)	84,5 (65,78)	103,3 (85,23)	90,8 (71,30)
PA 35 N (SL)	68,4 (68,29)	88,5 (88,61)	73,2 (73,0)
PA 50 N (SL)	70,07	89,98	74,10
PA 75 N (SL)	65,06	86,26	71,02
IPZ 30 T	71,75	90,46	76,10
IPZ 60 T	67,55	86,74	73,80
IPZ 90 T	67,70	87,27	73,80
IPZ/MG 130 T	67,35	87,26	73,10
IPZ/MG 200 T	70,45	90,97	76,40
IPZ/MG 300 T	68,80	90,38	74,50
IPZ/MG 400 T	69,60	91,18	73,80
IPZ/MG 550 T	67,90	90,17	73,00
IPZ/MG 750 T	70,10	93,00	75,00
IP 200 SC	72,18	91,93	77,10
IP 300 SC	68,81	89,53	74,50
IP 400 SC	69,58	90,75	73,80



- CARATTERISTICHE TECNICHE: LIVELLI SONORI
 - DONNEES TECHNIQUES: NIVEAU SONORE
 - TECHNICAL DATA: NOISE LEVEL
 - TECHNISCHE DATEN: SCHALLPEGEL
 - DATOS TECNICOS: NIVEAU SONORO
 - ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ: УРОВЕНЬ ЗВУКА

N° 016276780

4

- Livello della pressione acustica sulla superficie di riferimento - Level of acoustic pressure on reference surface - Niveau de pression acoustique sur la surface de repère - Schalldruck auf der Bezugsoberfläche - Nivel de presión acústica en la superficie de referencia - Уровень акустического давления на эталонной поверхности	- Livello di intensità acustica - Level of acoustic intensity - Niveau d'intensité acoustique - Schallintensität - Nivel de intensidad acústica - Уровень акустической силы	- Livello posizione operatore - Operator position level - Niveau position opérateur - Niveau Bedienerposition - Nivel posición operario - Уровень позиции оператора
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LPA [dB]

LWA [dB]

[dB (A)]

IP 750 SC

70,15

92,66

75,00

IP 900 SC

66,80

90,10

76,00

IP 1100 SC

66,80

90,10

76,00

IP 1350 SC

73,05

97,15

81,10

IP 1650 SC

68,46

93,13

75,60

IP 1850 SC

67,57

92,91

75,20

IP 2150 SC

67,60

93,59

75,70

IP 2500 SC

67,65

93,04

75,50

IP 3000 SC

74,21

99,96

82,30

IP 3500 SC

75,3

101,77

83,20

IP 4000 SC

75,63

102,58

83,80



CONTROL CABINET - TECHNICAL DATA

- Alternating current supply with reference to the data indicated in the plates on the electrical cabinet

Voltage: nominal voltage $\pm 10\%$

Frequency: nominal frequency $\pm 1\%$

With regard to harmonic waves, disturbances in the three-phase supply voltage, voltage pulses and black-outs, the supply line must comply with the standards set in EN60204-1 (4.3.1).

- Environmental and operational compatibility

Electromagnetic compatibility:

electrical interferences higher than those laid down in EN60204 (4.4.1) must be avoided.

- Room temperature

The room temperature in the place where the machine is installed must be between $+5$ and $+40^{\circ}\text{C}$; average room temperature over a 24 hours' period must not exceed 35°C .

Note: *The control cabinet must be positioned in such a way that the air can circulate freely along all of its walls*

- Room humidity

Relative room humidity must be between 30 and 95%.

- Contaminants

The environment where the machine is placed must not contain excessive quantities of contaminants such as dust, acids, corrosive gases and salt.

The protection degree of the electrical components is at least IP 54.

- Ionizing and non-ionizing radiations

The electrical equipment must be protected from any kind of radiation such as microwaves, ultraviolet rays, lasers or X-rays.