

hmtMACH



**C FORCE
SERVO HYDRAULIC
HYBRID PRESS**

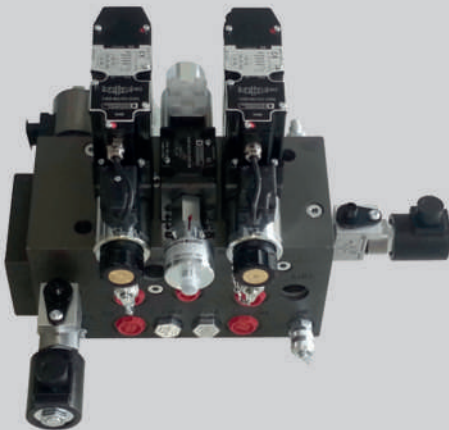
Our parent company Hidrometa was founded in 2003 by Mr. Ejmel Haziol, with his experience in hydraulic systems in popular global companies since 1994.

Hidrometa brings together hydraulic components with optimized ergonomic design and aesthetic assembly manufacturing for OEM Machine manufacturers exporting to 100 countries in the world.



Hidrometa produces sub-components such as;

- Hydraulic cylinder,
- Hydraulic control block,
- Hydraulic Power Unit.



hmtMACH



We aim to bring our expertise in servo hydraulic axis control and the experience we have gained by producing custom servo presses to the global market by turning them into low energy and high technology standardized presses under the brand "HMTMACH".



INTRODUCING THE NEXT GENERATION OF PRESSES

THE MOST COST-EFFECTIVE SOLUTION

C FORCE Servo Hydraulic Hybrid Press Series offers pressing force option between 70-160 tons. It is equipped with large table sizes in direct proportion to the pressing tonnage. All of our models can be equipped according to the safety requirements of the process.

C-Frame Construction designed for efficient working with upper table sizes between 550 mm and 1100 mm and lower table sizes between 600 mm and 1200 mm.



70 to 160
Tons

Required Oil
38-80 lt



500 mm
Die Height

250 mm
Stroke



$\pm 0,01$ mm
Precision
Positionin

Force accuracy
0.5% of the
press capacity



C FORCE SERVO HYDRAULIC HYBRID PRESS

HMTMACH Servo Hydraulic Hybrid Press combines the advantages of a closed loop hydraulic system with the advantages of a servo motor driven variable speed bi-directional pump and CNC control unit.

Thus, offers ideal solutions to our customers with energy-saving, high-precision press technology with low heat and noise emissions.

HYBRID RAM DESIGN

Our unique ram design, which provides the best harmony between the closed loop hydraulic system and the servo pump characteristics, forms the roof of our C FORCE presses. The ram cylinders are constructed from easily providable components using honed tubes in accordance with EN 10305-1 standard, standard Ck45 induction chrome plated shafts and low friction PTFE sealing and bearing materials.

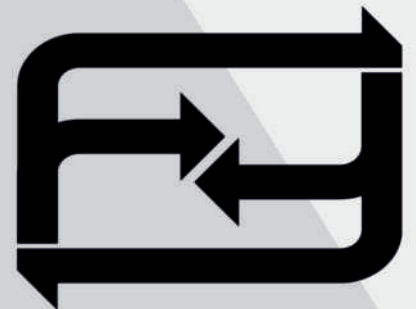


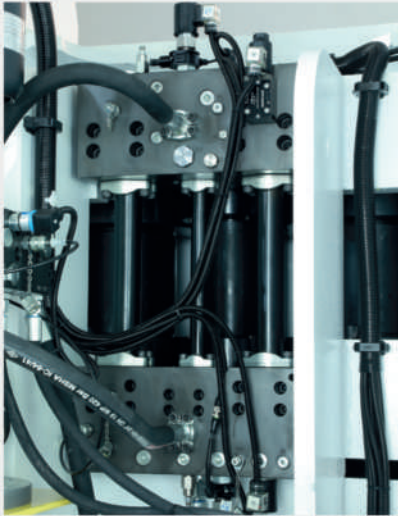
FULL FORCE ON TOTAL STROKE

Stepless precise speed adjustment and force control are possible at every point of the stroke. Thanks to these precision speed, position and force control features, it does not require regulation adjustments as in eccentric presses. No mold or machine deformation come out, no overload system required.

CLOSED LOOP HYDRAULIC

Closed loop hydraulic system is a more advanced system where the hydraulic fluid constantly circulates within the circuit, returns to the system and is reused without leaking out. It provides 70% energy saving compared to similar systems. Energy efficiency and precise control are achieved with less fluid and fewer components in the ideal closed-loop system created between an optimized hydraulic actuator and a high-efficiency pump that responds to variable speeds..



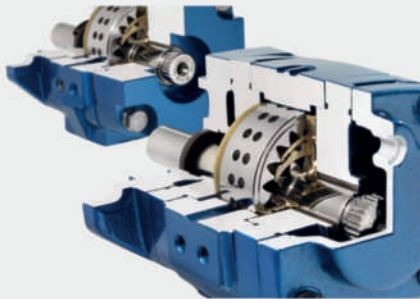


REVOLUTIONARY TECHNOLOGY OF THE FUTURE

The Servo Hydraulic Hybrid Technology of the future works without a complex infrastructure. This advanced technology based on a combination of a servo motor and a variable speed pump. The servo motor drives the system and precisely controls the force, movement, and position of the actuator. Control valves, hydraulic power units and complex piping are no longer required.

THE PERFECT SYSTEM COMBINATION

Our Press Ram Hydraulic Actuator design has enabled the application of a unique Hydraulic Hybrid system that combines the perfect harmony of closed loop hydraulic system and servo pump technology, thus positioning with 1% precision is possible.



GREEN TECHNOLOGY

Our environmentally friendly Hybrid system reduces electricity consumption and carbon emissions by increasing energy efficiency with 80% oil and 70% power savings, thus minimizing environmental impacts and ensuring more sustainable energy use.



SYSTEM COMPARISON	SERVO HYDRAULIC HYBRID PRESS	CONVENTIONAL HYDRAULIC PRESS	SERVO MECHANICAL PRESS	ECCENTRIC MECHANICAL PRESS
ELECTRIC CONSUMPTION	●○○○	●●○○	●●●●	●○○○
ENERGY EFFICIENCY	●●●●	●●○○	●●●○	●●●●
SPEEDS	●●○○	●○○○	●●●●	●●○○
OIL REQUIREMENT	◐○○○	●●●●	○○○○	○○○○
LUBRICATION	○○○○	○○○○	●●●●	●●●●
COOLING REQUIREMENT	●○○○	●●○○	●●●●	○○○○
POSITIONING ACCURACY	●●●●	●●○○	●●●●	○○○○
MACHINE & TOOL DEFORMATION	○○○○	●○○○	●●○○	●●●●

ACCORDING TO MECHANIC PRESSES	It has a structure that does not cause mold and machine deformation, therefore without needing precautions such as regulation adjustment and overload, does not require lubrication, and is safer.
ACCORDING TO SERVO MECHANIC PRESSES	It can reach maximum force at every point of the stroke. Although the speeds are not as much as the servo mechanical press, satisfactory speeds are achieved and the machine price is more economical.
ACCORDING TO CLASSIC HYDRAULIC PRESSES	It works with less oil, the hydraulic power unit does not need additional space, there are fewer components and the energy consumption is less.

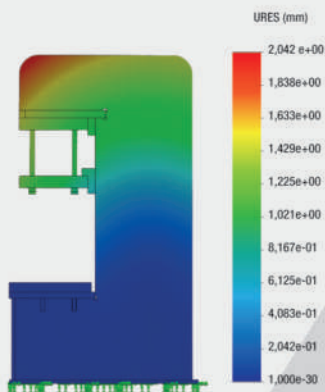


ROBUST FRAME (ON THE FLOOR)

The structural performance of the frame during forming process is one of the most important factors for the quality of products

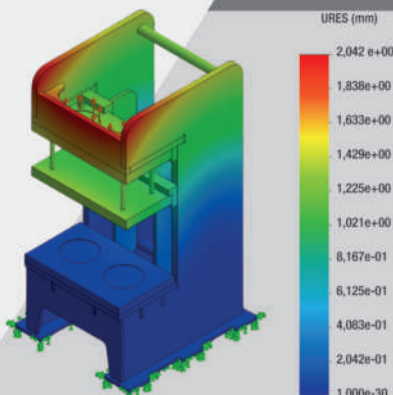
HIGH-TENSILE STEEL

The entire body is made of ST52 material. Sandblasting and stress relieving processes were applied after welding. Machining was done in a single fixture in the vertical machining center.



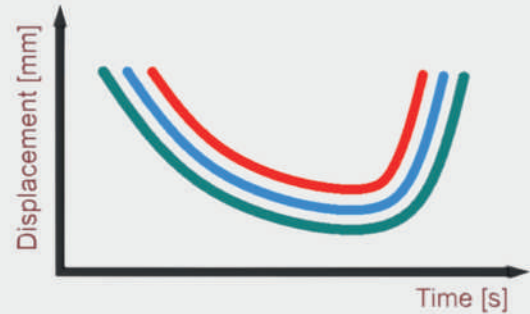
MONOBLOCK WALL

Static, structural and dynamic analyzes were performed out in the body design of the press. Side walls are manufactured from a single piece of sufficient thickness, without the use of welded reinforcements.



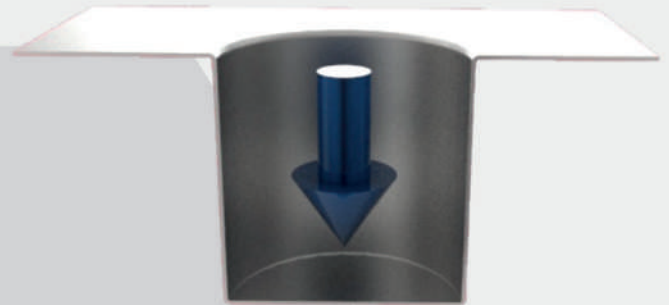
STEPLESS STROKE ADJUSTMENT

The stroke can be steplessly adjusted without need for any mechanical adjustment



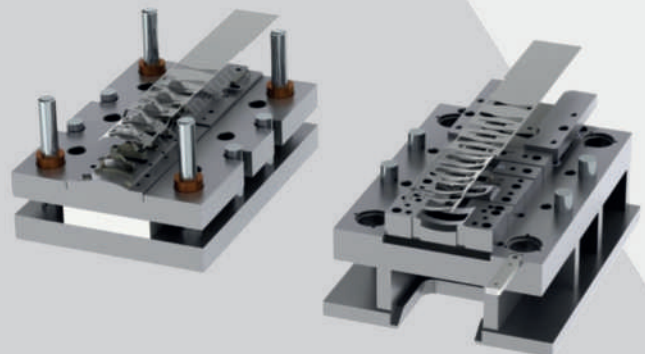
FORCE CAN BE APPLIED THROUGHOUT THE ENTIRE STROKE

Unlike mechanical presses, system can generate force throughout the entire stroke. Without loss of working force, deep drawing and pressing operations are possible.



REDUCTION OF MOLD WEAR

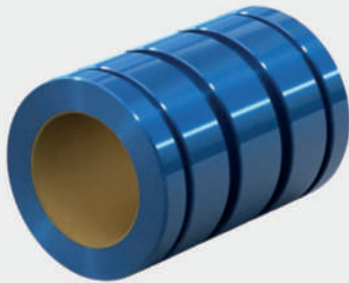
All movements can be performed in a controlled manner. In this way, the stroke is completed in the shortest time and without allowing mold deformation.





TO ENSURE YOU FORM CORRECTLY

Full working energy at any speed and the ability to occur anywhere in the stroke able to produce more accurate formed parts.



SELF-LUBRICATING MOVING TABLE

Simplicity Linear Bearings are self-lubricating and maintenance-free. Ideal for tough environments thanks to their proprietary PTFE Frelon liner, these oil-free linear bearings offer low wear and reduced friction.



Closed loop hydraulic system

Bidirectional Internal gear pump

Servo Motors and Drivers

Advanced CNC Controller

Monitoring Safety Valves

User-friendly HMI

UNIQUE ADVANTAGES



± 70 % Energy Efficiency



± 50 % Faster Speeds



± 30 % Higher Productivity



± 80 % Reduces Oil Volume



LESS MAINTENANCE REQUIREMENTS



QUIET OPERATION



ADVANCED CNC CONTROLLER



± 0.01 mm Positioning Accuracy





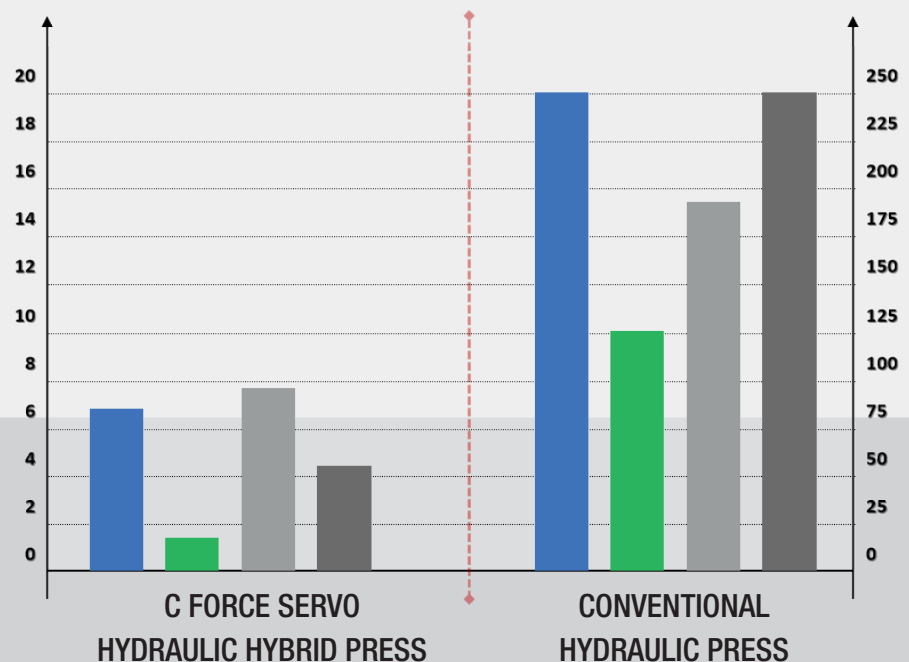
70 % Energy Efficiency

INCREASED ENERGY EFFICIENCY

With its innovative hydraulic and automation system design, up to 70% less energy consumption achieved compared to similar hydraulic presses. Advanced servo pump systems are used to increase savings and provide environmentally friendly production.

- ENERGY CONSUMPTION
- ENERGY CONSUMPTION (STAND-BY)
- COOLING CAPACTY
- OIL CONSUMPTION

• PRESS FORCE	100 kN
• RAM SPEEDS	200 mm/s
• POS. ACCURACY	±0,01 mm



LOW ENERGY AND OPERATING COSTS

In conventional hydraulic and mechanical presses, the system and motors work continuously but our hybrid system consumes energy only during movement, thus reducing operating costs with lower energy costs.

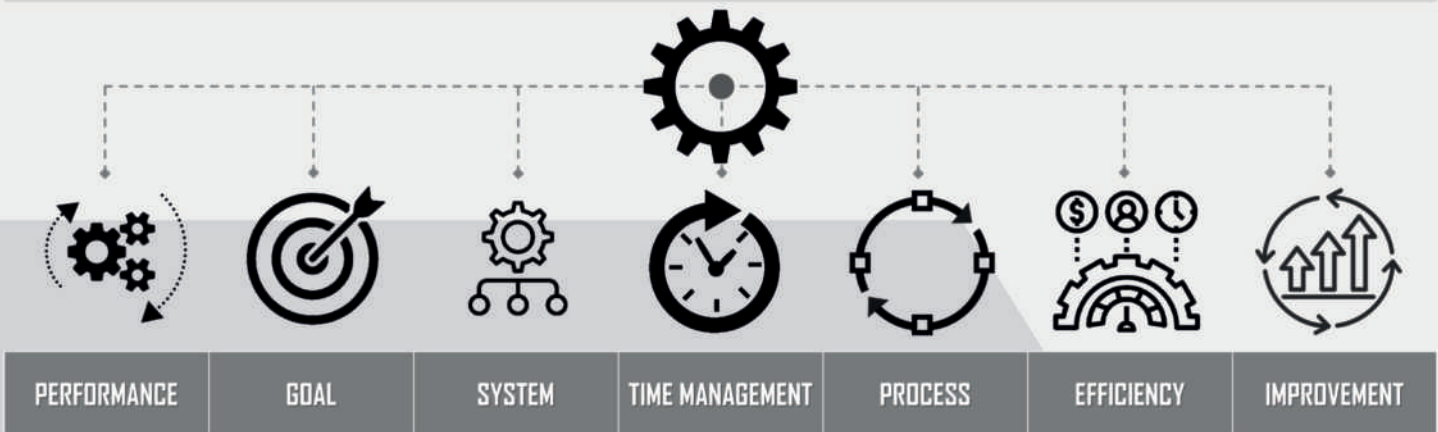
MORE EFFICIENT PRODUCTION

C FORCE Servo Hydraulic Hybrid Presses increase the efficiency of production processes up to 30% with their innovative technologies. Our advanced hybrid system, which works in harmony with the innovations of CNC technology, uses the workforce more effectively, allowing products to be obtained in larger quantities.



up to **30%** Higher Productivity

IMPROVED PRODUCTIVITY



MAXIMUM PRODUCTION FLEXIBILITY

Combining the advantages of Hydraulic and Servo presses, our Hybrid system offers versatility and delivers more efficient results while forming more complex parts.





50% Faster
Speeds

THE COMBINATION OF SPEED AND RELIABILITY

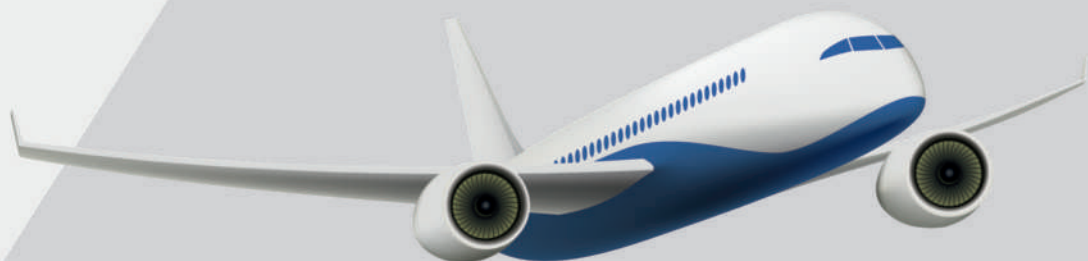
Our C FORCE Servo Hydraulic Hybrid Presses operates up to 50% faster than standard conventional hydraulic presses and achieves similar speeds to mechanical presses.

APPROACH SPEED	mm/s	200
WORKING SPEED	mm/s	10*/20**
RETURN SPEED	mm/s	200

*Accordance with EU regulations working speed must be less than 10 mm/s
**Automation/Robotic systems can be used up to 20 mm/s

HIGH SPEEDS UNDER CONTROLLED

Higher speeds means, more parts per hour and a lower cost per part. With advanced servo motor and driver combination, 200 mm/s idle speed can be achieved.



PRECISE POSITION CONTROL

Thanks to the specially designed closed loop hydraulic and servo control system, high speeds and position accuracy are achieved. Beside this, our advanced system eliminates all disadvantages of hydraulic presses.



$\pm 0.01 \text{ mm}$ Positioning Accuracy



CONTROLLABLE POWER

Force can be precisely control at every point of the stroke within 0.5% accuracy of the press capacity



Force Accuracy 0,5%
the press capacity

REDUCED OIL VOLUME



to 80 % Reduces Oil Volume

LESS OIL, GOOD FOR THE WORLD

As a result of less energy consumption, heat input into the hydraulic medium and necessary cooling effort are reduced. Hereby Hydraulic fluid can be reduced by up to 90 %.



ENVIRONMENTAL PERFORMANCE

C FORCE Series aims to optimize environmental performance like servo mechanical press and ensures the same technical performance and practicability as conventional hydraulic presses.

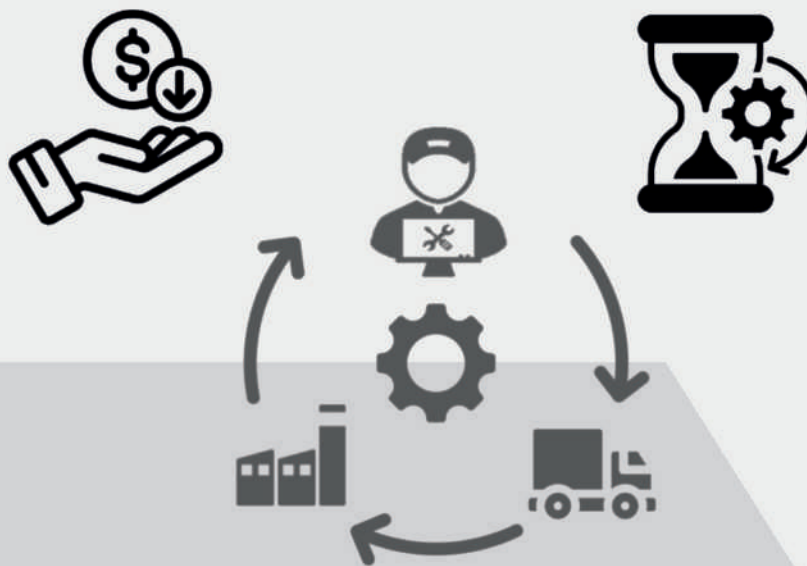
MODEL	C FORCE 70	C FORCE 100	C FORCE 125	C FORCE 160
REQUIRED OIL	38 lt	48 lt	64 lt	80 lt

MAINTENANCE-FRIENDLY

Easier maintenance and reduced maintenance cost compared to conventional mechanic or hydraulic presses due to fewer mechanical components.



LESS MAINTENANCE
REQUIREMENTS

**FRIENDLY DESIGN**

C FORCE presses are designed in such a way that each component can be supplied from different brands, thanks to our unique hybrid press architecture, which avoids the disadvantages of depending on a single brand.



QUIET OPERATION

LOW NOISE LEVEL

C FORCE Servo Hydraulic Hybrid Presses achieved 20% quieter operation thanks to its internal gear pump with optimized hydrodynamic design, low friction teflon moving table bearing and closed loop hydraulic system with low energy loss.



NO HARMFUL NOISE

Reduced hydraulic components with advanced hybrid technology also reduces the noise level, which is a great benefit for machine operators and the environment impact.



COMPACT AND FUNCTIONAL CNC CONTROLLER

C FORCE Presses are equipped with state-of-the-art CNC Control units. It has been optimized for ease of use to maximize machine performance.

Thanks to the 12-inch touch screen, you can view all necessary program and process information on a single screen. It offers many advantages such as ideal organization, low error rate and flexibility by shortening the training period of operators.

As a result: with its easy-to-use interface, it enables production processes to become more efficient and economical.

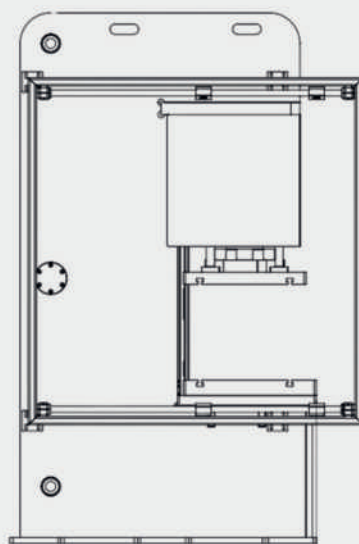
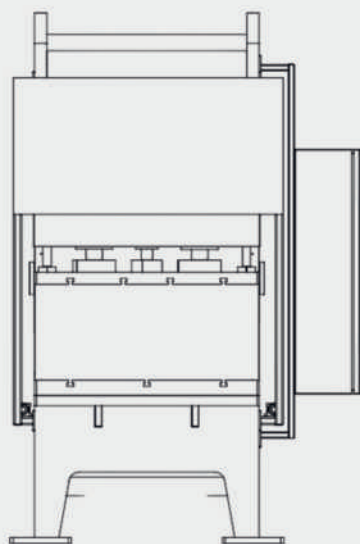
- Automatic Local backup of machine parameters
- Remote Service (Team Wiever & DWservice.net)
- Industry 4.0
- IoT support
- Production Management based on MYSQL Data Base
- Alarms for filters and temperatures
- Safety System Message Wiever
- True Force Wiever and protection against unexpected force
- DXF Tools import
- Attachments (pdf, video and photo)
- Time adjustable screen saver
- Scheduled Maintenance Management for a machine always efficient



ADVANCED
CNC CONTROLLER



CONFIGURATIONS & OPTIONS SECURITY NORMS VS...



MODEL	#	C FORCE 70	C FORCE 100	C FORCE 125	C FORCE 160
MAX. PRESS FORCE	TON/kN	70/700	100/1000	125/1250	160/1600
ENERGY CONSUMPTION	KW/h	4,8	6,6	8,3	10,6
REQUIRED OIL	lt	38	48	64	80
POSITIONING ACCURACY	mm	±0,01			
FORCE ACCURACY	kg	%0,5 of Max capacity			
APPROACH SPEED	mm/s	200	200	200	200
WORKING SPEED	mm/s	10*/20**	10*/20**	10*/20**	10*/20**
RETURN SPEED	mm/s	200	200	200	200
TABLE HEIGHT	mm	800	800	800	800
DIE HEIGHT (MAX)	mm	500	500	500	500
STROKE (MAX)	mm	250	250	250	250
UPPER TABLE DIMENSIONS	mm	550*950	600*1000	650*1050	700*1100
LOWER TABLE DIMENSIONS	mm	600*1050	650*1100	700*1150	750*1200

Legal Notice: Design and specifications are subject to change without notice.

* Accordance with EU regulations working speed must be less than 10 mm/s

** Automation/Robotic systems can be used up to 20 mm/s

CONFIGURATIONS & OPTIONS

Advanced CNC Controller	Standard
Monitoring Safety Valves	Standard
User-friendly HMI	Standard
Closed loop hydraulic system	Standard
Bidirectional Internal gear pump	Standard
Servo Motors and Drivers	Standard
Pressure Switch & Transmitter	Standard
Table Parking Lock	Standard
Monitoring Safety Valves	Standard
Dual Channel Safety	Standard
Side Guards	Standard
Safety Light Curtains	Standard
Table Safety Lock	Optional
Die Cushion	Optional
Quick Die Change System	Optional
Automatic Feeding System	Optional

**SECURITY NORMS****SAFETY FEATURES**

Designed according to regulations and harmonized standards:

TS - EN ISO 16092-1

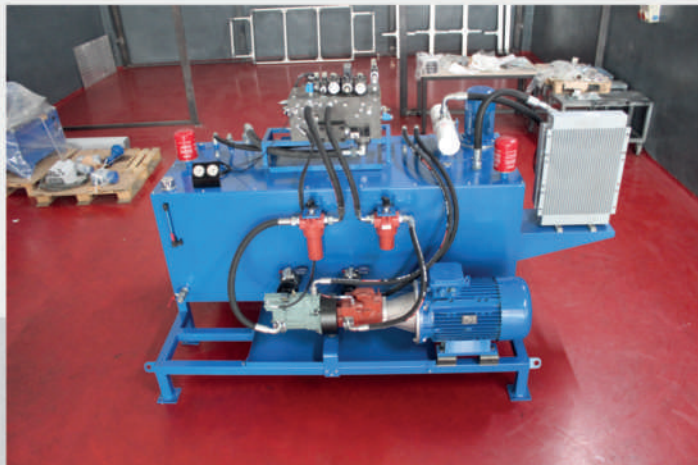
TS - EN ISO 16092-3

TS - EN ISO 60204-1

Directives:

- Machinery Directive 2006/42/EC
- LVD Directive 2014/35/EU





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**C FORCE
SERVO HYDRAULIC
HYBRID PRESS**

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