



ADAMUS
ANNIVERSARY

MORE THAN TOOLING







The company provides its clients with competitively priced products and services of the highest quality and maintains short order delivery dates at the same time.

ADAMUS S.A. is a leading supplier of compression tooling and spare parts for tablet presses, capsule fillers and blister lines for the pharmaceutical industry. With nearly 40 years of experience in designing and manufacturing tools and machine components used in various industrial sectors, ADAMUS S.A. continually delivers world class support and customer service, being a leader on the market of technological solutions of the highest quality and competitive price.

A modern machinery park with its own heat treatment facility, robotic production lines, a restrictive Quality Management System and an extensive sales network covering over 55 countries, on six continents, allows us to be recognized as one of the largest and well respected world supplier of this type of products.

Our Engineering Office operates with modern CAD / CAM system, 100% final quality control and ISO 9001: 2018 Quality Management System. We guarantee products and services of the highest quality, still at a competitive price. We know how to meet high demands and satisfy the needs of our clients, partners and customers on the global market. We know how important your trust is. We focus on development, continuous improvement and technology transfer.

We are continuously developing our products portfolio to be able to satisfy all needs of our customers.





ENVIRONMENTAL POLICY

In ADAMUS S.A. we care for harmonious coexistence with the natural environment, undertaking numerous activities that minimize the impact of our manufacturing process on the environment. We feel co-responsible not only for the immediate environment of the company, regarding the dimension of natural resources, but we are also aware that the global network of manufacturers regarding ecological standards, is as strong as its weakest link. Bearing this in mind, at every stage of production, maintenance, logistics or utilization we care about the environment, still minimizing the negative impact on the environment.

ADAMUS S.A. commitment to sustainable development is reflected in such activities as:

- using and implementing advanced environment-friendly technologies
- constant monitoring and minimizing pollutant emissions
- monitoring our industrial processes and their impact on environment
- making prudent use of raw materials
- promoting pro-ecological education and eco-friendly behaviours
- development and use of reusable packaging for transport and storage of manufactured components

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CUSTOMER SERVICE

You may contact with our Customer Service Department to get answers for all your questions regarding our products. Our specialized service is always ready to offer you help and support. The knowledge and passion of our engineers guarantee that all your problems will be solved quickly and effectively.

Due to years of experience we can organize the transportation of ordered goods to any place in the world. You will get the goods fast and safe and always delivered in the best transportation format.

ADAMUS.S.A. - MORE THAN TOOLING

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PUNCHES AND DIES

Punches and dies are the key elements of the tableting process. They are responsible for the final appearance and shape of the manufactured tablets. Therefore they must be designed and produced with high precision and accuracy. During use, the tooling is exposed to high compression forces and they often compress powders of abrasive and corrosive properties. Such products always require the tooling to be made of high quality steel, an appropriately selected heat treatment process and sometimes the application of a special coating which can prevent some common tableting problems such as sticking, corrosion or abrasion. On extreme cases materials such as sintered carbides have to be used.

Certain product applications (e.g. household chemicals or effervescent tablets require the use of Polymer inserts such as Teflon (PTFE) or Vulkolan which, additionally protect the punch pressing part and create a wear part which can be replaced. ADAMUS S.A. designs and manufactures punches and dies for tablet presses of all types according to EU (ISO), IPT (TSM) standards or specific standards of tablet presses manufacturers, following customer's needs. Besides classical single tipped tooling, we are experienced in manufacturing all forms of composite multi-tipped tooling. We also have all the machining capability to machine monoblock multi-tipped tooling with the specialist machining technology all under one roof. These tooling solutions can be supplied for the customers to produce all different designs of round and shaped tablets.

ADAMUS S.A. tools are delivered in special plastic boxes which are also adapted for their storage. Each batch is provided with a full measurement report.



TOOLING FOR STANDARD TABLETS

Depending on the client's requirements, punches and dies allow for the manufacturing of round or shaped, plain tablets or tablets with a breaking line, symbols, letters or even complicated logos. Upon the client's specification, different coatings can be applied.

The dies produced by our company meet the standards of the manufactured punches, which allows for a perfect cooperation of these tools in the tablet press. Dies can have tapers on both sides of the hole, which greatly improves deaeration in the powder compression process, lower tablets ejecting forces as well as minimize the rate of tablet expansion reducing the risk of capping.



TOOLING FOR EXOTIC SHAPED TABLETS

Thanks to the appropriate design software and the manufacturing based on computer controlled machines, we are able to deliver punches and dies with all complex shapes and forms.

The only limitation may be the mechanical strength of the tooling and process limitation during tablet compression. We gladly cooperate both with marketing and R&D departments of our customers to develop the new tablet shapes and forms. Our experienced engineers can provide a customized tablet design in 2D & 3D format. All our customers can get an access to our proprietary tablet designing software – TabGen – to check their own design ideas.



MULTI-TIP TOOLING

Multi-tip tooling applied by ADAMUS S.A. is a cost effective way to significantly increase the capacity of produced tablets without investing in the new tablet presses by reducing:

- labour costs
- maintenance costs
- energy costs
- investment costs

Multi-tipped tooling is available in two different configurations:

- assembly construction - composite
- solid construction - monoblock

The choice between those two options depends on the application, customer requirements, internal cleaning procedures and technical feasibility (the tablet dimensions and number of tips).

By using multi-tipped tooling the number of tablets produced per one turret revolution should be theoretically the multiple of the number of tips in the punch. However, due to the a bit lower turret speed connected with the necessity of the filling of more die holes, the real capacity can sometimes be lower. Depending on the product characteristic the measured capacity increase can vary but the mean values are ca. 1.5 for double-tip tooling, 2.8 for four-tip tooling and 4.5 for six-tip tooling.



SPECIAL STEELS

The main requirements for steels used in the manufacturing of compression tooling are the wear resistance, good resistance to chipping, high compressive strength, good through hardening properties, high hardness after high temperature tempering and good stability in hardening.

ADAMUS S.A. uses steel grades which fulfill those requirements and purchase them only from world leading steel producers.

Besides the standard steel grades used by all compression tooling suppliers, ADAMUS S.A. offers a series of different specialty steels which can solve the tableting problems with abrasive, sticky and corrosive products as well as products which requires the higher compression forces than recommended due to the tablet size and dimensions. Such steels with the combination of different coatings, the right surface finish and very narrow dimensional tolerances make the tooling supplied by ADAMUS S.A. one of the best in the world.



SPECIAL TOOLS

ADAMUS S.A. offers a wide variety of solutions used with regard to special client's requirements. This enables us to manufacture top quality special tools.

- punches with rotating heads
- tools made of sintered carbides or tool with ceramic inserts
- tools for special tablets with holes (eg. catalysts)
- large-size tooling



ASMT

ADAMUS S.A. has developed anti-adhesion solution, branded Adamus Special Mechanical Treatment (ASMT). The advanced mechanical treatment generates a superb anti-stick tip face for tablet production as it prevents adhesion by reducing the vacuum between the tablet and the punch tip surface. It has proved its functionality and performance in some extremely sticky products compression processes.





TOOLING COATINGS

ADAMUS S.A. continually implements the world class coating solutions in order to solve tablet compression problems with different product. We always look for improvements in the tooling's performance and lifetime by testing the new coatings, materials and design modifications to benefit our customers.

GALVANIC CHROME PLATING

One of the most commonly used of surface treatments is galvanic chrome plating which is perfect for a number of standard applications. The coating is applied by an electrolytic method which produces a surface coating up to 5-microns thick. Galvanic hard chrome increases abrasion resistance and prevents the powder from sticking to the surface of the punch. It also provides an effective anticorrosive cover. This coating solution can also be applied to die bores.

PVD COATINGS

There are created by physical metal deposition process. Compared to the galvanic coating, the benefits of PVD coatings are as follows:

- better edge stability
- better wear protection
- contour preservation
- better wear protection

CrN - CHROMIUM NITRIDE

A grey coloured coating of CrN give:

- excellent anti-stick performance
- superb corrosion resistance
- an exceptionally homogenous coating structure
- a very good price-quality ratio

TiN OR TiAl (TITANIUM NITRIDE OR TITANIUM ALUMINIUM NITRIDE)

Gold coloured coating which has:

- high tear and wear protection
- a smooth layer of low roughness
- very high hardness
- low thermal conductivity

DLC (DIAMOND LIKE CARBON)

A black DLC coating which has:

- great wear resistance performance
- good long-term non-stick solution
- corrosive resistant coating

Except for popular type of coatings described above, a full range of PVD coatings being their modifications are in use.





BLISTER FORMAT PARTS

Understanding the customer's requirements for fast launching of new products, ADAMUS S.A. offers high quality format parts for blistering machines of all types. Our well-equipped Engineering Department allows us to prepare reliable designs and documentation which assure correct blister line operations.

ADAMUS S.A.'s experience also includes the design and manufacturing of components for cartoning machines. This allows the execution of projects involving retooling of the whole chain of packaging.

Feeding tablets into the blisters is an extremely critical point in determining the speed and efficiency over the entire packaging process. The selection and design of a suitable filling is therefore one of the most important choices for the supplier of blister formats. For years, ADAMUS S.A. has been specializing in the design and delivery of dedicated plate feeders of different types.

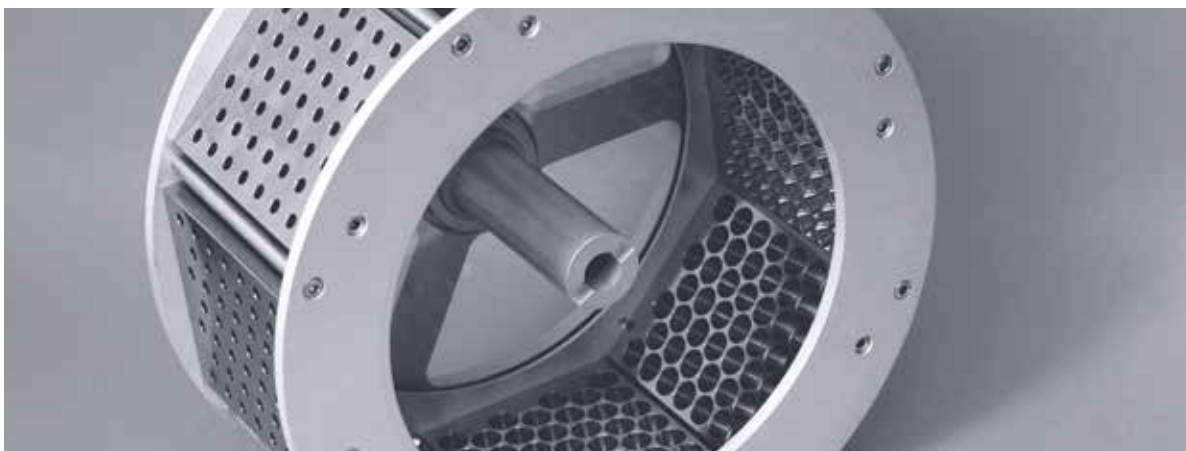
Our engineers work closely with customers at every stage of the design, starting from defining the possibility of feeding the requested tablets using the designed feeder. After the manufacture, before delivery to the customer, special FAT is carried out using real tablets and formed foil. On a specially built test station, we can verify the process of feeding tablets at different speeds of the foil, determining the optimum parameters of this operation.

Upon request, our engineers are also involved in the installation and commissioning of the format, helping to solve and remove potential problems.



SPARE PARTS FOR CAPSULING MACHINES

Many years of experience in cooperation with pharmaceutical industry allows us to provide a complete customer's support in all areas of activity, not only in tablet manufacturing but also in capsule filling production. Our engineers have a wide range of experience in format and spare parts for capsule filling machines what gives us opportunity to provide the variety of formats and parts for most of the brands of the capsuling machines.



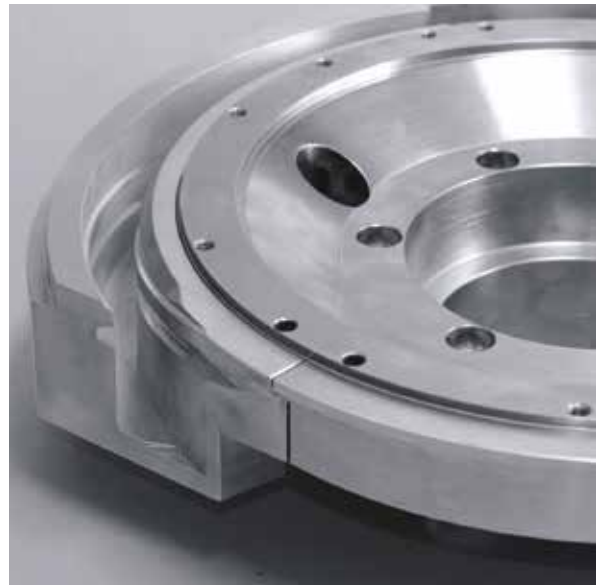
SPARE PARTS FOR TABLET PRESSES

Our extensive knowledge about compression process, helps us to solve customers' manufacturing problems. Our modern machinery park enables us to deliver also spare parts for tablet presses.

The high quality of the produced parts, their reliability and lower competitive price, give our customers the possibility to achieve substantial savings without the risk of deteriorating working parameters of their tablet presses.

OUR SPARE PARTS PORTFOLIO CONSISTS OF:

- cams from different materials
- pressing rolls
- feeders
- scrapers
- turrets
- other mechanical parts



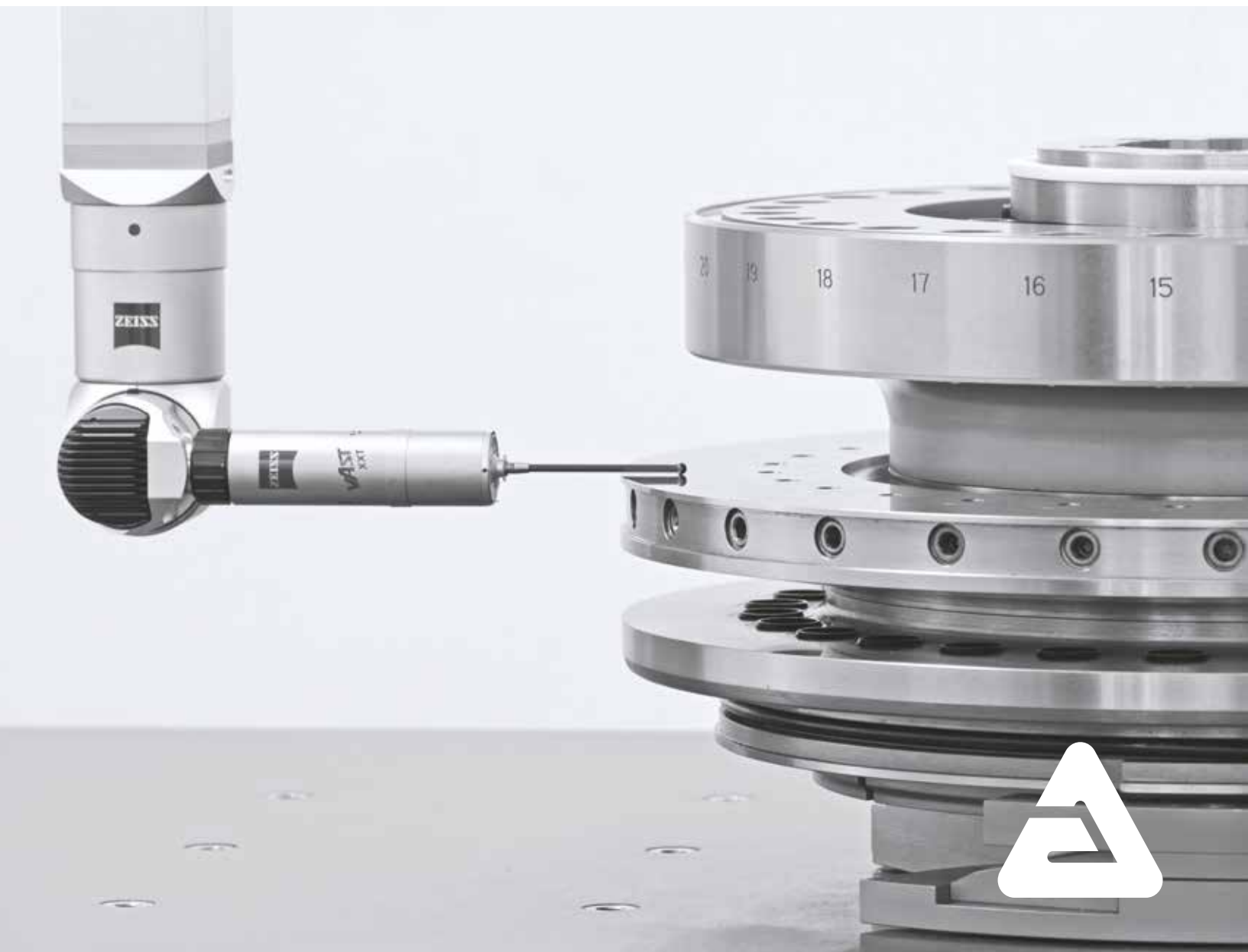
TURRET OVERHAUL

Additionally, we specialize in restoring the proper turret working parameters. The key factor is our knowledge and experience of all technical conditions which are essential for proper operations of the tablet press according to the manufacturer's specification.

WE OFFER:

- assistance in turret diagnosis
- regeneration of the complete turret or its individual parts
- new turret production
- we also offer turret storage containers





TABLET PRESS SERVICE AND REBUILDING

Customer satisfaction is an absolute priority for us so, we constantly make improvements in our quality and broaden the range of our products and services. ADAMUS S.A., as a long-time press tools and spare parts producer, knows tablet presses very well. This knowledge allows us to offer our customers technical service support and overhauling or rebuilding of their tablet presses.

We start from inspection of all tablet press areas and recommend the necessary scope of work.

By reworking or replacing the damaged parts we can re-establish factory alignments and specifications, putting your tablet press back to the production in the shortest possible time. The highest quality materials and experienced staff ensure that our spare parts can match original manufacturer's specifications.

ADAMUS S.A. also offers second-hand overhauled tablet presses along with documentation in line with GMP standards. Mechanical, electrical and hydraulic systems, as well as drive systems (motor, gears, bearings, etc.) are repaired or replaced. We can also re-design and modify the press casing and upgrade or change the control system.

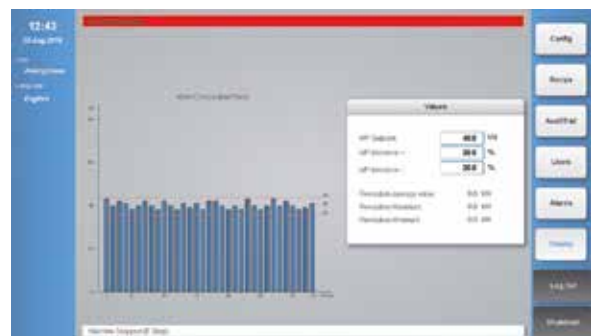






ADAMUS TABLET PRESS CONTROL SYSTEM

ATC can be an excellent solution for old machines in particular which, are still in good mechanical condition and suffering from issues with malfunctioning of regulatory and control systems or where the control equipment replacement is impossible or not cost effective.



OPTIONS	ATC BASIC	ATC ADVANCE	ATC PRO
MAXIMUM NUMBER OF STATIONS	12	45	45
INDICATION OF MAIN COMPRESSION FORCE	X	X	X
DOSING ADJUSTMENT	X	X	X
FULL CONTROL OF THE TABLET PRESS	-	-	X
ANALYSIS OF THE COMPRESSION FORCE AND INPUT LIMIT VALUES	X	X	X
DATA RECORDING	X	X	X
BATCH VOLUME PROTOCOL	X	X	X
INDUSTRIAL PC WITH COLOR TOUCHSCREEN 12"	X	X	-
INDUSTRIAL PC WITH COLOR TOUCHSCREEN 15"	-	-	X

OPTIONS	ATC BASIC	ATC ADVANCE	ATC PRO
INDICATION OF THE TURRET ROTARY SPEED	X	X	X
CONNECTION, SIGNAL CONTROL, TESTS	X	X	X
ENCODER INSTALLATION	-	X	X
ELECTRICAL WIRING REPLACEMENT (WITHOUT EQUIPMENT REPLACEMENT)	-	-	X
INTERFACE, CONNECTION OF THE TABCHECK TO CONTROLS DURING THE PRODUCTION	X	X	X
CASING MADE OF STAINLESS STEEL 1.4301/304	X	X	-
INCORPORATION OF EXISTING CONTROL CABINET	-	-	X
DOMENSIONS WIDTH X HEIGHT X DEPTH	500 X 350 X 220		-
WEIGHT	12 KG		-



TOOL INSPECTOR TI-2

TI-2 is the newest version of the system for precise and automated dimensioning of punches and also for die bore wear assessment, which is based on the latest technological developments in the field of optical measurements. The patented algorithm for combining the simultaneous measurement of the synchronous movement in the XY plane enables the determination of the geometric parameters of the most complex pressing parts. Moreover, the presence of a dedicated video system with a resolution of 5 Mpix, on the one hand allows for the facilitation of optical Quality Assessment of the tools, and opens the path to perform the automatic dimensioning of multi-tip punches and die wear assessment.

BASIC PARAMETERS OF THE MEASURING MACHINE:

- fully automatic measurement regardless of the complexity of the tool
- non-contact measurement with a resolution of 0.001mm for punches
- non-contact and tactile measurement of wear with a resolution of 0.001mm for dies
- camera with autofocus and 5 Mpix resolution with illuminator and controllable power and wavelength
- dedicated, built-in controller of the measuring machine with communication interface USB 2.0

BASIC PROPERTIES OF THE SOFTWARE:

- open-architecture application coded in .NET Framework 4.5 technologies
- the ability to run on any PC with Windows 7 and above
- easy and intuitive interface
- automatic loading of the CAD files for the measured tooling
- saving protocols, the possibility of personalization and export to Excel or pdf
- view from the camera with a maximum resolution with the possibility of controlling the position of the punch or die under the camera by using the space mouse
- recording of the image to a file
- pairing of punches function
- multilingual application with the ability to quickly add new languages
- open-architecture allows for the expansion of measuring capabilities of the machine by installing new measurement libraries
- adjusted GUI for the user comfort

The machine is supplied with the basic measurement libraries that enable automatic sizing of single tipped punches (plus internal die bore profile assessment) of the following standards: EURO-B, EURO-D, TSM-(IPT)-B, TSM-(IPT)-B2, TSM-(IPT)-D, FETTE EU1 441, PHARMA, 20/28, ST-328-2, 25/32, 25/32 SLOTTED, FS12:

- in case of the punches, the basic library enables automatic measurement of geometrical sizes of the following: the total height, LO, working height L1, depth of convex (LO-L1), longer and shorter dimensions A and B of the shape tooling or diameter D for the round tooling and shaft diameter d1, d2
- measuring library for multi-tip punches and dies
- in case of dies the basic library enables automatic measurement the shape of profile of the inner bore
- visual quality control of working part

TECHNICAL SPECIFICATION:

- the supply voltage 110V / 230V; 50-60Hz
- recommended operating temperature 20°C
- available control system languages: English, German, Polish (other languages available as an option on request)
- set of dedicated holders for punches and dies to facilitate work



NEW GENERATION AUTOMATIC DRAG POLISHERS

During the tablet production process, due to natural wear, gradually, the quality of the working surfaces of the punch tip face and die bore deteriorate mainly due to the abrasive and/or corrosive effects of the powder blend. Because of this, periodic restoration of the working surfaces is needed.

DRIVE COVER

Stainless steel cover allows for easy cleaning of the polishing chamber

CONTROL PANEL

Coloured 7" touch screen. User friendly menu.

CONTROL CABINET

Machine has the control cabinet integrated with the frame. The wiring is placed on the side of the panel.

CONTAINER CONTROL

Position and fixture of the container is controlled by mechanic sensor.

STORAGE SPACE

The lower part of the machine is dedicated for storing of tooling holders and polishing materials.

PROCESS CONTAINER

Machine is equipped with octagonal process container, which allows the optimal movement of the granulate during polishing process. In option available cooling jacket.



TECHNICAL SPECIFICATION

Polishing machines allow to polish in an automatic cycle up to 80 EU19" B punches and up to 60 EU1" (D) punches or up to 80 EU B (EU BB) / EU D dies. Holders have been designed to fit a whole set of upper and lower punches or dies in the most common production tablet press sizes. The polishing machine is equipped with the advanced control system.

CONTROL SYSTEM FEATURES:

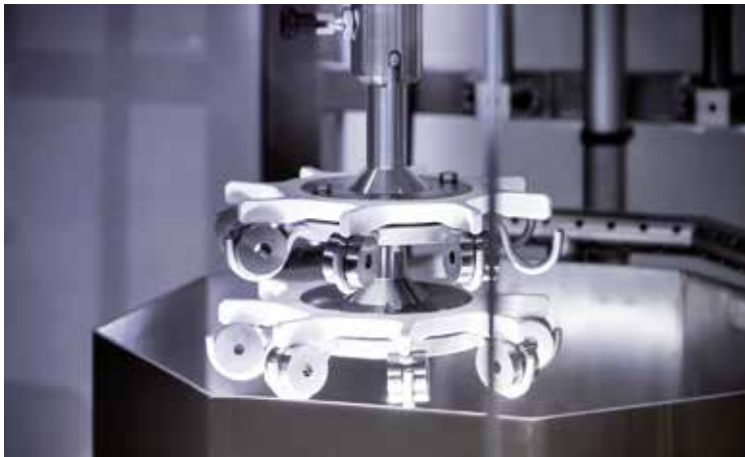
- coloured touch screen operating panel
- clear indication of the polishing media replacement time
- user-friendly menu with easy setting of parameters
- messages from the alarm list about actual state of the device
- the operator is provided with only basic necessary information needed for proper operation of the machine

POLISHING MEDIA:

- dry walnut granulate or plastic dry granulate
- dry polishing paste
- impregnation oil

STANDARD RANGE OF ADAMUS P&D POLISHERS:

- 12-36 P&D Polisher (for 1 holder)
- 36-48 P&D Polisher (for 3 holders)
- 60-80 P&D Polisher (for 5 holders)





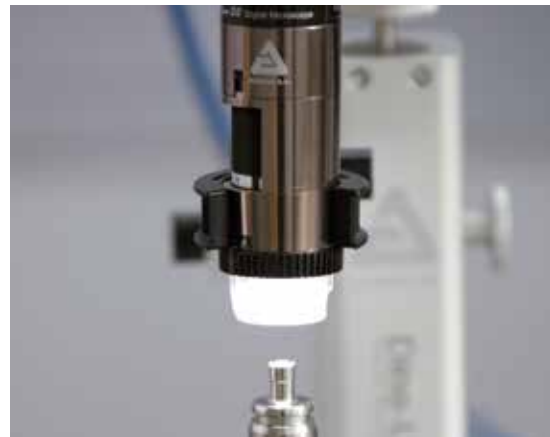


DIGITAL CAMERA FOR OPTICAL ASSESSMENT

Digital camera with cutting-edge optics, with brand new 5 Mpix sensor is the best choice for optical assessment in high-demanding pharma industry.

THE MAIN FEATURES ARE:

- 5 Mpix EDGE sensor
- magnification up to 220 times
- Extended Depth of Field (EDOF) - feature automatically stacks images at different focus level to improve the depth of the field on rough or uneven surfaces of tablets or punches tips
- Extended Dynamic Range (EDR) - the details of darker or brighter areas within the object can be revealed by stacking images at different exposure levels
- Automatic Magnification Reading (AMR) - with the built-in functionality measurements can be performed easily and quickly
- adjustable polarizer - because of the built-in polarization filter, this model is ideal when working with shiny or reflective objects such as punch tips
- aluminium housing
- extensive measurement functions
- calibration
- exchangeable front caps
- Flexible-LED-Control (FLC)
- dedicated software with wide range of measuring possibilities





THE ONE SINGLE STATION TABLET PRESS

The One Station Tablet Press is a perfect solution for research and laboratory purposes where small amounts of tablets are needed without loss of time and expensive powders.

BENEFITS:

- transparent shields for safety reasons
- tablet ejection rod
- stainless steel frame and parts
- digital display indicating:
 - compression force
 - ejecting force
- hydraulic pressure gauge
- easy cleaning of the unit after using granulate
- control of tablet parameters
- easy access to compression chamber
- easy transport

TECHNICAL FEATURES:

- maximum pressing force: up to 100kN
- maximum depth of the filling: 20mm
- maximum tablet diameter: 25mm
- supports standards "EUB", "EUD" (H=133,6)
- digital controller for compression pressure and upper punch withdrawal for tablet ejection
- power supply 230V 50Hz / 110 / 60Hz
- dimensions: 650x700x1660mm (with table)
- available with dedicated table





STORAGE SOLUTIONS

ADAMUS S.A. provides standardized and tailor made tools storage cabinets to maximize existing storage area capacity. The cabinets are equipped with 9 or 15 drawers. The drawer contains 2-4 inserts depending on configuration. Along with the standard range of inserts, we can offer various new types according to the customer needs.

FEATURES:

- stainless steel construction
- inserts configurations accomodating all types of punches and dies
- anti-tilt system (standard option)
- lockable drawers / cabinet (standard option)
- wheels or feet (standard option)
- under chassis channels for operation with fork-lift

STANDARD RANGE:

- SS-A9 Series (9 drawers)
- SS-A 15 Series (15 drawers)





ULTRASONIC CLEANERS

Using an ultrasonic bath enables to achieve the maximum cleanliness in shorter time than applying traditional methods. Ultrasounds clean very effectively due to very intensive cavitation that does not harm the tooling.

ADAMUS S.A. supplies different sizes of the ultrasonic cleaners with the special holders adapted for very effective compression tooling and other parts cleaning. The offer includes special washing fluids and rust inhibitors.

FEATURES:

- self-explanatory symbols and well recognizable parameters
- LED display showing both the target and actual values
- 20-80°C heater, thermostatically adjustable, with LED display for target value and actual value of temperature
- optical signal in case of excess temperature
- Timer for the countdown and continuous operation
- DEGAS - adjustable pulse sound level for venting, visible at LCD display
- automatic short-time ultrasound during heating
- process for permanent sound field oscillation ensures even and gentle cleaning
- automatic safety shut-down 12 hours after last keypress
- safe dosage fill level
- unique one-piece welded drain bow
- PZT - transducers with high efficiency

ADAMUS ULTRASONIC RANGE:

- USC - 18a: maximum tank volume 18,7 ltr (4,94 US gal)
- USC - 28a: maximum tank volume 28 ltr (6 US gal)
- USC - 45a: maximum tank volume 45 ltr (11,88 US gal)



PROTECTION, CLEANING & POLISHING MEDIA

ADAMUS S.A. focuses consistently on high-quality protection and cleaning solutions for steel tools. We offer a comprehensive range of high-performance easy-to-handle, fully synthetic corrosion protection fluid with excellent yield for use in machinery in the food, pharma and beverage processing which provides a thin, highly efficient molecular film on components.

The fluids are characterized by a fast and residue-free. That solution is a highly effective combination of active ingredients ensuring washing and degreasing. Fluids approved by NSF, Kosher and Halal.



PLASTIC GRANULATES FOR POLISHING MACHINES

According to customers' needs and parallel to the walnut granulate we deliver, we offer plastic granulate with very similar properties.

Perfect solution where non-organic granulates are required.

- Urea resin with maximum hardness of 3,5 Mohs (Barcol 54-62)
- Melamine resin with maximum hardness of 4,0 Mohs (Barcol 64-74)

GRANULATE SIZES

- 40/60: 250-420 μm
- 30/40: 420-600 μm
- 20/30: 600-850 μm
- 16/20: 850-1200 μm
- 12/20: 850-1700 μm
- 12/16: 1200-1700 μm

Our recommendation – type 40/60 for perfect smooth polishing.



ADAMUS S.A.

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