Briquetting presses for metal chips

MACHINE EXPORT S.R.O.

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HYDRAULIC BRIQUETTING PRESSES FOR METAL CHIPS

Chips coming from metal machining are a valuable raw material which should be handled as economically as you treat the initial material. Using the briquetting presses for processing the chips provides you with one of the possible and economically favourable solutions. Our customers have repeatedly assessed the return of the briquetting presses for metal processing from six months to one year. Our design engineers shall design for each customer the most favourable type of the briquetting press in order to make the use of waste as high-yielding as possible. The briquetting technology is intended for machine works companies that deal with cutting economy, and also for companies engaged in the secondary processing of metal chips.

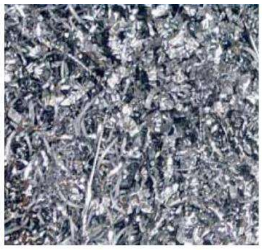
Suitability of the material for pressing is best verifi ed by material tests. Metal chips must be short, loose, and suitable for feeding screw. Aluminium chips may contain a small proportion of long chips, which must not create large clumps. The feeding screw is able to pick up a small clump but almost always it will reduce the output of the press and uneven size of the briquettes. Chips of stronger materials than aluminium must not contain these clumps. It is also important tc sort out the large pieces.

The content of cutting fluids in chips is not limited. It is important to process the material at standard temperatures to achieve the required properties of briquettes with low content of liquids. High oil or emulsion viscosity at low temperatures enhances the adhesion of the liquid or the surface of the material and reduces the effi ciency of the process.

Re-using of cooling fluid from machining every briquetting press is equiped with cooling fluid separator in standart, which is in specified amount evacuated from the machine with chips by chip conveyor. After separation of liquid from chips the liquid goes through the sieve for catching other dirts contained in liquid from machining. After that cooling liquid can be reused in machining centre without any other treatments. also if it is required cooling liquid can go from press through paper filtration if machining centre is equiped with it.

Briquettes always have a cylindrical shape with a diameter of 40 - 100 mm. Some briquetting machines are able to squeeze the contained cutting fl uid out of aluminium chips reaching the humidity value less than 2 %. The briquettes are mechanically resistant. Their density ranges from 60 to 90 % of the density of the original material. Density of aluminium briquettes can be up to 2 350 kg/m^3, density of the cast iron briquettes up to 5 300 kg/m^3, density of the brass briquettes up to 6 500 kg/m^3.

Materials suitable for briquetting:

aluminium	copper	brass - bronze	lead	titan
				

cast - iron	zinc dust	grinding sludge	steel	other materials
				Your sample ?

Advantages of Briquetting:

+ Enables metal chips recycling, reduces melting loss.
+ Minimizes generation of dangerous waste.
+ Increases the purchasing price of the waste material.
+ Saves space, manipulation and storage costs.
+ Extrusion followed by filtration save costs for a new cutting fluid.
+ Reduces the amount of cutting fluids as well as centrifugation.
+ Increases operations safety by implementing ecological production.

Competitive advantages

+ We make pressing tests of material on diffe rent types of briquetting machines in our test centre in Malšice free of charge.
+ We will recommend the most suitable briquetting machine with respect to test results and production hall conditions: iSwarf - universal, the most adaptable with the variable working pressure 130-360 MPa BrikStar M, MD - for the highest quality briquettes, for steel and cast iron chips and sludge with the pressure up to 350 MPa
+ We are able to dose and press different shapes of chips with a wide variety of hopper types that we offer.
+ We can design and deliver atypical equipment and custom modifi cations.
+ We supply complete technology with warranty on all equipment including the pur chased equipment.
+ We provide wide-ranging training

BRIQUETTING PRESS - iSwarf 50

Press for processing metal swarfs and chips from machining as a standard equipment for machining center. Small and compact briquetting press suitable for direct connection under the conveyor belt of machining center or as a standalone machine with manual filling.

iSwarf 50 offers:

+ **Increases the price of produced swarfs and chips**
+ **Reduces the volume of produced swarfs in place of its production in ratio up to 1:10**
+ **Reduces the frequency of swarfs and chips disposal from machining center, other manipulations and transport in general**
+ **Separates the fluids contained in material and allows of its reuse**
+ **Increases the cleanliness of work environment**
+ **Reduces the risk of ecological pollution by oil substances leaked from swarfs and chips**
+ **Eliminates the requirement for central swarf conveyor system**

Type	Briquette diameter мм	Throughput kg / h ±10%	Pump motor kW	Machine dimesions мм
iSwarf 50	60	40	4	1360 x 1180 x 1390

Machine placement:

+ **Directly under the swarf conveyor belt of machining center - automatical operation according material in the machine hopper**
+ **Freestanding, unconnected with other machines - material filling manually or tipping of material into the machine hopper**

Key characteristics:

+ **Compact, simple and reliable machine design**
+ **Easy operation and maintenance**
+ **Simple installation and machine manipulation**
+ **Possibility to equip the machine with additional module to process the long swarfs**

BRIQUETTING PRESSES – iSwarf 440 / 550

Presses iSwarf are economical machines with low power consumption. They process chips from machining steel, cast iron and non-ferrous metals particularly aluminium. The standard range of presses iSwarf is large and off ers many variants of throughputs and equipments. The combination of hydraulic pump motor input ranging from 4 kW to 15 kW and the diameter of the pressing tools from 55 mm do 100 mm resolves the requirement for the briquettes quality and the throughput of the briquetting press. The advantage of the briquetting press iSwarf is the use of the patented hydraulic system construction which enables very easily to increase the pressing power in case of increased production. The hopper type can be selected with respect to the material and the way of connection to the technological line. Thanks to their modular construction the presses iSwarf can fulfil the most demanding requirements for operation automation and other technology equipment.

Additional devices that can help to build up tailor-made technologies

Tipping equipment tips containers with chips into the hopper of the briquetting press. Crusher of the chips adjust long chips and their clumps to dimensions suitable for briquetting. Vibration, magnetic or drum separators separate material unsuitable for briquetting. Screw or plate conveyors transport the material into the briquetting press from a high-capacity container or from the production line. Fencing of the tipping equipment workspace protects the operator from injury. Filtering of the entrained liquid from mechanical impurities allows its reuse.

Type	Briquette diameter мм	Working Pressure in die MPa	Throughput kg / h ±10%	Pump motor kW	Machine dimesions мм
iSwarf 440 - 4	45 - 60	130 - 280	60 - 170	4	2250 x 2050 x 1590
iSwarf 440 - 5	45 - 60	130 - 280	80 - 220	5,5	2250 x 2050 x 1590
iSwarf 550 - 7	60 - 100	130 - 360	85 - 405	7,5	2300 x 2160 x 1630
iSwarf 550 - 11	60 - 100	130 - 360	110 - 500	11	2300 x 2160 x 1630
iSwarf 550 - 15	60 - 100	130 - 360	130 - 600	15	2300 x 2160 x 1630
iSwarf 550 - 2x15	60 - 100	130 - 360	260 - 900	30	2920 x 2340 x 1610

BRIQUETTING PRESS – iSwarf 800

+ **Energy efficient – Low power input and big power output thanks to effective organization of movements of pressing tools. Consumption for pressing 1 kg of aluminium chips is 0,02 W.**
+ **Efficient – volume of this press is up to 1,400 kg/h of aluminium chips**
+ **High level of briquettes squeezing – achieved by very high briquetting pressure.**
+ **Minimal residual humidity – also achieved by using very high briquetting pressure**
+ **Optimal dispositional solution – Achieved by separated pressing unit with hopper and hydraulic aggregate which allows easily optimalization to the space and technology**
+ **Voluminous hopper – in standart.**
+ **Automatic work – with possibility of communication with other technologies which are situated before or after briquetting and lowering the knowledge of operators.**
+ **High level of press diagnostics – Allows recognize the press status and the types of eventual defects which allows faster diagnostics and press repair.**
+ **Possibility of connect to the company net – possibility of press far monitoring by manufacturer or customer, possibility of getting running reports, informations about press status on computer.**

BRIQUETTING PRESSES – BrikStar M / MD

Presses BrikStar M process chips of cast iron, steel, non-ferrous metals, and grinding sludge. Pressing takes place in a cylindrical die closed from both sides by pressing tools. Working pressure in the die operates on both sides of the cylindrical briquette. The unique method of material pressing ensures uniform compression of material in the whole volume of the briquette. The briquettes are pushed out of the pressing chamber to the space above the vibrating trough and are transported into the containers by this trough. If there is required transportation of briquettes to greater height or distance, the press can be completed with a chain conveyor.

Presses BrikStar MD use a special hydraulic cylinder with an internal linear hydraulic motor which accelerates the movement of tools back to the starting positions. This solution provides up to 30 % performance increase with the same power of the briquetting press.

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Type	Briquette diameter мм	Working Pressure in die MPa	Throughput kg / h ±10%	Pump motor kW	Machine dimesions мм
BrikStar M - 7	40	320	100	7,5	2050 x 1200 x 1740
BrikStar M/MD - 15	55 - 60	290 - 350	200 / 280	15	3320 x 2080 x 1940
BrikStar M/MD - 22	60 - 70	290 - 350	300 / 400	22	3620 x 2300 x 2460
BrikStar M/MD - 30	70 - 80	290 - 350	500 / 650	30	4620 x 2590 x 2800
BrikStar M - 40	80 - 90	290 - 350	600 / 800	40	4620 x 2590 x 2800

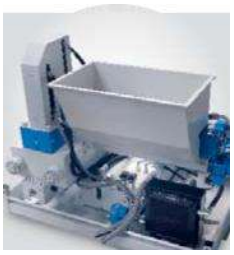
Optional accessories for briquetting presses

+ System for catching fluids with a delivery pump prevents leakage of fluids during pressing and mainly allows to collect squeezed cutting fl uids and bring them back into production.
+ Level sensor signals in the hopper allows to control the press operation or to control the ex ternal conveyor.
+ Hydraulic oil for ambient temperature below +5 °C allows operation in unheated rooms or in outdoor environments down to -15 °C.
+ Connection of remote status reporting on the state of technology using GSM network or LAN is used for higher safety and comfort.

Optional Hoppers and Containers

+ **Hopper with four screws (4SN) is suitable** for longer chips which are not loose, but which can be easily disentangled. The set of screws disintegrates long clumps and breaks long chips in such a way that they can be dosed into the pressing chamber. The hopper size is 0.7 m3or 1.2 m3.

+ **Hopper on the feeding screw through** with dimensions 200 x 400 mm or 600 x 1000 mm can be equipped with a disrupter shaft, which prevents the formation of material dome above the feeding screw. This type of hopper has a minimum storage capacity and it is designed for connection to an external transport system.



+ **High-volume hopper** with capacity 1 m3 is equipped with an extracting cutter with a separate engine and feeding screw on the bottom of the hopper. It is suitable only for short loose chips of light metals.

+ **Chip container with vibrating bottom** capacity from 1 to 10 m3 for storage material is a solid steel hopper with vibrating bottom, which delivers material in a required layer into the screw conveyor over the integrated separating screen for the separation of the piece waste.

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