3Bmagazin

2019

The **Catamaran**

MADE BY 3B

Pipe Conveyor

MEETING POINTS

We get it **GOING**

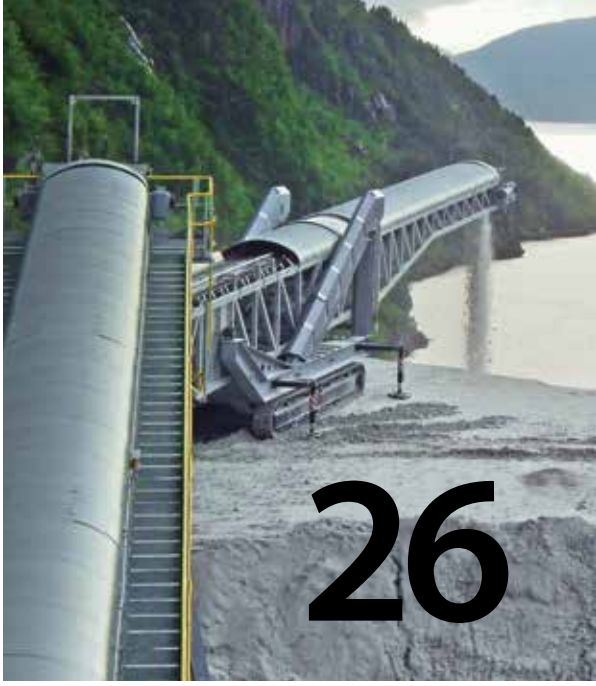
Design

CONCRETE

Succès en **PROVENCE**

Ossola project

EVERY DETAIL COUNTS



Contents

The next step

In 2017 our company celebrated the 25th anniversary of its operation. For the past quarter of a century 3B has become a successful company, one of the main players of the European markets. Such a noble jubilee always gives good reason to evaluate in retrospect all that we have achieved so far. 25 years ago the story of the company started with the enthusiastic work of three brave people and a handful of colleagues. At the moment of its establishment we did not even think that the company would exceed all our expectations and plans of that time, today we own an up-to-date, modern production base on over 22.000 m^2 with our own technical innovations and a great number of our own products.

What we are the most proud of is the fact that we provide a safe workplace for over 160 people. Our colleagues' knowledge and experience and the passion that they do their work with as well as their dedication to our company are all those things that make 3B successful. Their professional knowledge, flexibility and immediate operational readiness ensure us an optimistic look into the challenges of the future.

The achievements made by us in the past 25 years in joint effort give us strength to continue our success in the future as well. We keep abreast of the latest trends of the industry and the opportunities inherent in digitalisation. Thanks to our high-quality products and the dedicated work of our qualified colleagues we are going on to write the success story of our company. We know well that it is not easy but despite the several challenges we will go on doing our best for the trust of our clients.

On the pages of our magazine we are presenting you stories and products of interest, which have been determinant in the life of our company in recent years reflecting the versatility of our activity and the basic philosophy of our company that we should keep striving for something ground breaking and progressive.

In the next steps we set no greater goals than continuing our development work and retaining our success. This is the way how we are forming our future together in an optimistic way and with great expectations for the next 25 years.

Have a great time reading our magazine!

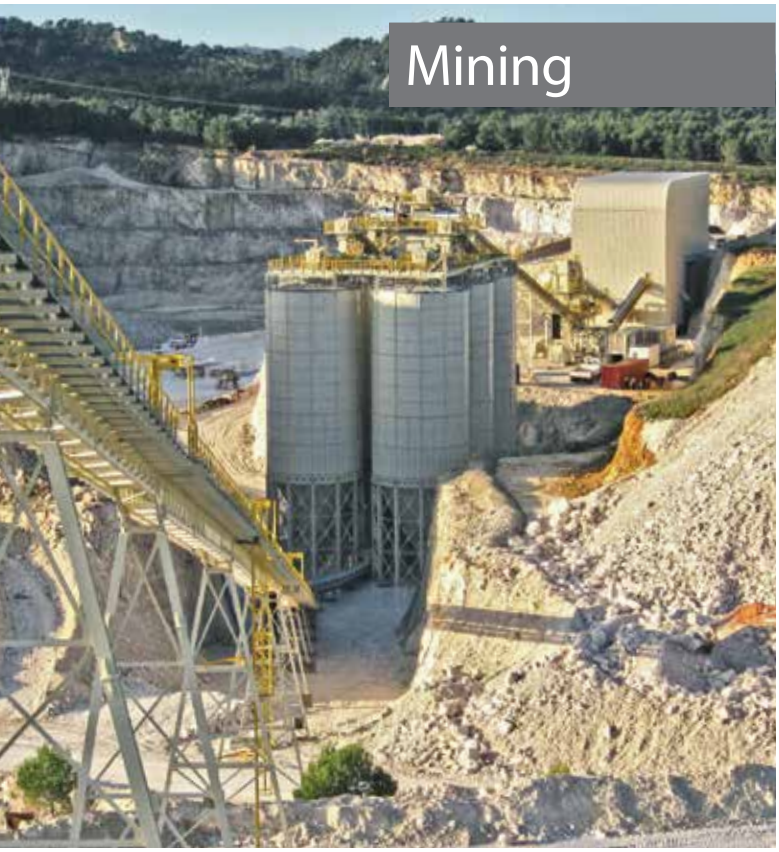
Zoltán Nagy
managing director

Zoltán Nagy Jr.
project manager

Industries where we are present

To enhance efficiency, reliability and quality

Mining



Sand & Gravel

Cement industry

Steel industry

We offer industry-specific machines and technologies. Our wide product range enables us to provide everything one-stop even for the establishment of a complete plant: machines, buildings, control management technologies as well as condition management systems. Stone, gravel, concrete, slag ... we have a solution for each material.

3B is the perfect partner for this

Process industries

Building material industry

Why is it worth choosing us?

- 3B has been present in the construction material industry for about 30 years.
- Our long-year experience and innovations have made our company one of the major players in the industry.
- Whether it be about the design of complete technologies or entire plants, their transport and assembly we are a partner in it.

Our machines in the world

Do you need professional assistance or spare parts?

Hungary
Gravel processing plant

Estonia
Heavy-duty conveyors
for transporting oil-shale 1750 t/h

South Africa
Glass processing system
Bucket elevators

Bulgaria
Stone quarry
Semi-mobile hydraulic screen stations

Austria
Coal feeding system to Dürnrohr
Power Station 650 m³/h

Algeria
Stone quarry
Belt conveyors, bucket elevators

Norway
Conveying system
to the storage/ship loader 600 t/h

Ukraine
Steel plant belt conveyors,
Z-conveyors

Contact us or our representations in Europe

Croatia
Stone processing plant

Poland
Mineral processing plant
Screw conveyors, belt conveyors,
bucket elevators

Germany
Feeding hoper (30 m^3) with belt
feeder 750 t/h

Our colleagues are pleased to be at your disposal

Belgium
Dolomite processing plant
Screw conveyors, belt conveyors,
bucket elevators

Made by 3B

How are a conveyor belt, an elevator or mobile track mounted equipment produced? How is a machine made from steel plates? What is the plant like which is owned by one of the most dynamically developing machine producers?

Our customers, partners and everybody interested are always welcome to us here in Zalaegerszeg. By some delicious coffee and refreshment we strive to ensure that you will be able to make the best of the cooperation with us. We would like to accompany those who have not visited us on a virtual tour in our factory.

Raw material supply for each work is carried out on individual orders. Production may start only from raw materials whose origins have been testified by our suppliers with certifications.

Our laser cutting machines care for the shredding of plate components. Each component gets an identification label so that it can be tracked down during the production process. This is greatly supported by our self-developed company management system, which we have been developing during our daily work continuously. We can see when the component gets into the KARDEX vertical storage system or whether its bending has not been done yet.


3B

The identification of the produced components is carried out continuously, so that we can get information about their conditions during the painting and assembly processes.

In the field of welding a separate robot cell has been installed this year, which carries out the welding of complete belt conveyor frames. With the installed rotation unit the robot itself moves the 3-metre-long elements independently. We feel that this could be the greatest innovation and we are planning to purchase further robots as well.

We possess all types of turning machines which are essential in the machining of the machine components produced by us. At the profile machining work station after drilling and sawing processes the components are cut to size and get into the production process of steel constructions.

Through the computer network system of our plant the automated machining equipment such as the bending machines or the laser cutting machines are provided with ready-to-use programmes and data about the preproduction process.

In our database each used component is available, if any of it happens not to be in stock, we can produce it within a short term and deliver it to its destination. The original spare parts greatly contribute to the performance of the machines, its safety and life span.

The impressive 5000-m² glass facade of our assembly hall lets through an immense amount of light. Here are the finished machines assembled and prepared for delivery by us. The components used in the machine production come from the best producers in the world. In consequence, there is no need to worry for our customers whichever part of the world they may come from as the suppliers of each element run extensive service systems all over the world.

In 2018 our premises were extended with a new 1500 m² production plant, where the steel-construction production and the paint-preparation units were set up. During the investment a new material warehouse was established next to the hall, too, thus we can store basic materials waiting for production under circumstances of high standard and as a result production preparation has become more organized, too.

The way is long from the idea to its implementation. We have been working hard so that our customers can feel that

3B is more than a simple machine factory

With our products and services we wish to ensure our customers a safe and flexible background on which they can build their long-term plans while feeling at ease.

Painting is more than a protective surface: it determines the appearance of the equipment and thus our customers' first impressions. At the same time it is the most energy consuming process in the machine production. Our new painting technology installed in 2015 enables the efficient utilisation of resources, enhances our competitiveness and parallelly it optimizes quality. By applying state-of-the-art technology we can carry out the following surface treatments:

Choose individual design for your products, too!

Surface preparation equipment (according to ISO 8501-1 standard)

1. Shot-blasting machine – pass-through system, roller conveyor equipment.
   Overload size: • width: 1500 mm
   • height: 500 mm
2. Shot-blasting room with automatic recovery system, where the surface cleaning is done in a closed system with manual shot blaster.
   Cabinet size: • width: 3.8 metres
   • height: 2,7 metres
   • length: 13 metres
   Max. work piece size: 2,5 x 2,5 x 12 metres
   Blasting material: steel abrasives (SAE-J-444 standard)

Liquid coating (according to ISO 12944 -5 standard)

We paint with 2-component paint and possess a computer controlled paint mixing equipment.

The painting may be carried out:

- horizontally in a cabinet (cabinet size: 6x24 metres, up to 20 tons)
- suspended in a cabinet (cabinet size: 6x24 metres, up to 2x3 tons)
- or on conveyor (the acceptable size of the elements that are allowed to be hung on the conveyor: 3000x600x 1800 mm)

Powder coating (according to ISO 12944-5 standard)

Max. work piece size for painting:

- width: 1000 mm
- height: 2000 mm
- length: 12.000 mm

Elements of technology:

- vertical spray type pre-treatment cleaning system
- powder spray booth (14x3,6x4,6 metres)
- curing oven (14x1,6x4,6 metres)
- overhead automatically conveyor and storage system

Facts and numbers

Number of employees

160

Year of foundation

1992

Reinvestment
on developments

6%

Annual revenue

13 m €

3BH

We create plants

design | produce | build

www.3bh.hu

ASSEMBLY HALL

4000 m²

PAINTING HALL

2000 m²

MANUFACTURING

HALL

7000 m²

2000 first laser cutting machine

2001 start of 3D design

2002 first CNC profile machining center

2004 new ERP system

2008 first welding robot

REPRESENTATIVES

ISO 9001
ISO 14001
DIN EN ISO 3834-3

Quantity of processed steel
1800 t/year

Our fields of activity:

- building industry
- waste processing
- power industry

Total area
23.000 m²

our machines work in
30
countries

Representations

Germany

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Olti-Pasca Zoltán

Be 3BH's sales partner!

We are about to extend our European sales network, therefore we are continuously looking for new partners. We wish to work together with reliable partners who strive for long-term business relationships and succeed in positioning and selling our products in various markets.

We are expecting you, please contact us!

The Catamaran

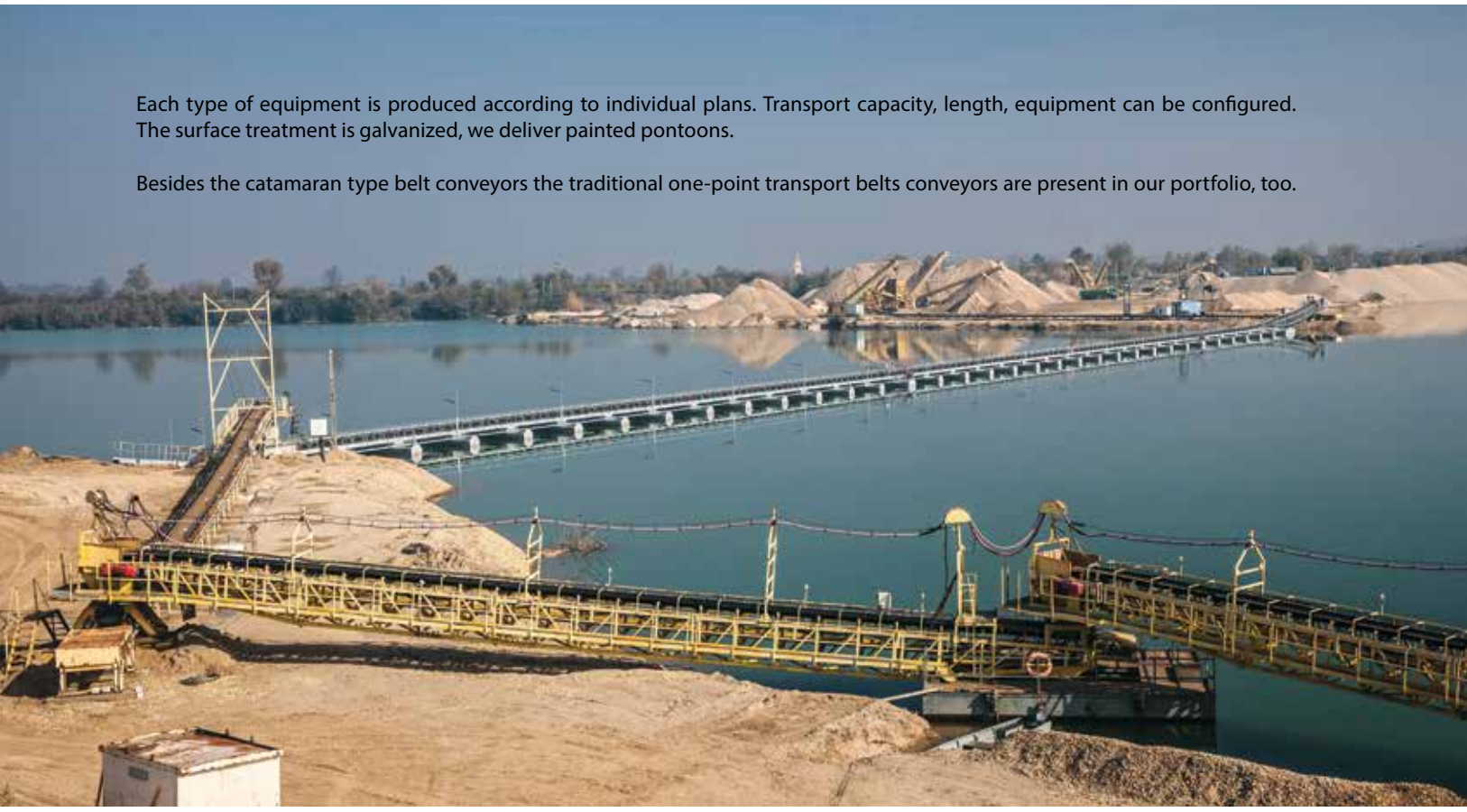
In July each year the Blue Ribbon Race, the longest and perhaps one of the most prestigious round the lake race takes place on Lake Balaton in Hungary. Over 600 sailboats set out on the 155-km distance, which anything but not a light pleasure trip. The competitors have 48 hours to cover the distance. Anybody who enters the competition must be aware of the fact that they might spend even over 24 hours on water depending on the actual wind conditions. They compete against their opponents and the elements at the same time. The competition puts to the test their sailing expertise, perseverance and willpower.

In the competition which has been held since 1934 prizes are awarded in up to 30 various boat categories. Of course, the absolute winner is only the one who breaks the finish line ribbon first. In light wind it might be even a sleek, agile mono-hull ship but in medium or stronger wind it is only the multihull sailboats that is the catamarans can gain laurels. Such a boat is the Blue Ribbon Winner Festipay or Fifty-Fifty holding a 7-hour-13-minute record.

Why did we start our product presentation with such an extreme topic? Many of us would have never thought that our catamaran floating belt conveyors are examined by a professional boat designer team stating which point they should be modified to reduce the peril of capsizing and to increase the hull-stability or to reduce the probability of leakage. Production is preceded by an overall design and thorough testing work. The static and dynamic analysis of a floating conveyor mooring that is the arrangement for anchoring the complete floating conveyor against the wind is an equally important task just like the calculation of the required motor power. These types of machines are always produced tailored to a specific task or the circumstances on a specific lake, thus from the very first moment on the ultimate goal is a 100% performance just like in the case of a professional sailing boat in a sailing competition.

Each type of equipment is produced according to individual plans. Transport capacity, length, equipment can be configured. The surface treatment is galvanized, we deliver painted pontoons.

Besides the catamaran type belt conveyors the traditional one-point transport belts conveyors are present in our portfolio, too.



Catamaran Length: 240 m

We get it going

Mobile equipment for special applications

We designed our first mobile equipment over 20 years ago and since then we have been creating such machines.

We fulfil special wishes with pleasure as we are keen on challenges. Our starting point is the assumption that for our designer colleagues nothing is impossible, what is more.
The mobile equipment delivered to Norway was such a challenge, too.
'What if?' – started the conversation about the technical data of the machine and after outlining the ideas we got down to work on the main construction line of the machine.
We designed the movement by means of track chain because of the difficult terrain. Our customer insisted on electric drive because of the short movement distance. He asked for a 30m-long conveyor belt on the chassis with a 1200 t/h transport capacity and hydraulically adjustable inclination angle.

The chasses alongside with the conveyor belt was designed by the static calculations of EUROCODE 3 with regard to the local meteorological conditions. The hydraulics was elaborated with REXTOTH. The auxiliary stabilizer was statically required due to the strong meteorological loads and a remote-control was needed for everyday use.

The benefits of the equipment are that it can be adjusted in the required position with the help of the track chain quickly and the inclination angle of the in-built conveyor belt can be hanged too, so in summer when the material is delivered from the depot area faster, it can be lowered to decrease the dust emission of the plant. The electric control cabinets had to be prepared with regard to the rough conditions as well. The machine control was adjusted to the plant system, its PLC can communicate through a WIFI module with the central control, which may be accessible via Internet too.

Please contact us for the exact technical data of the machine or visit our representations.

Set-up and operation of the hydraulic system

The hydraulics of a former 3B equipment served as basis for design but this job had to meet other technical conditions too. The hydraulics had to operate the following things:

1. conveyor belt rising and lowering
2. chain driven hydraulic motors
3. moving the four auxiliary stabilizer units, which ensure the stability of the equipment

As the equipment was supposed to work outdoors we had to pay special attention to ensure the most optimal oil temperature, the placement of the hydraulic control block separated from the oil tanks –near the cylinders and hydraulic motors – to simplify hydraulic piping.
The pump unit can be found on the 250-litre nominal volume power supply unit, where a high efficiency, pressure controlled axial piston pump has been installed. The pressure and flow control pump ensures that only the necessary amount of oil and pressure should get into the system to enhance energy-saving operation.

The warming up of the oil is monitored by an in-built analogue heat sensor.
This controls the on-and-off switches of the cooling fan of the oil air and gives warning about oil overheating too.
In-built heaters ensure operation in cold weather. To operate safely the cylinders and the moving drive can be operated independently from each other and when the track chain drive mode is permitted neither the auxiliary stabilizer cylinders nor the belt tilting cylinders can be operated.
Each of the auxiliary stabilizer cylinders can be operated only with a separate directional valve, independently of each other. During tilting the load of the construction ensures the synchronous run of the cylinders automatically. In an elevated position the brake valves mounted on the cylinders ensure to maintain position of the cylinders.
The speed and rotating direction of the track chains can be adjusted respectively on each side of the crawler and optimal tuning is ensured thanks to the LUDV control.
The braking and safe fixing of the track chains are ensured by the parking brakes and the diverter valves..

Rexroth
Bosch Group

We gladly take your special wishes – we enjoy challenges

Milestones of mobility

1993. DH-2 type diesel hydraulic screen
size: 2x1,4 m 2D

1999. The first mounted track diesel, hydraulically driven screen machine
size: 3,6x1,6 m 2D

2000. Further development of the mobile screen equipment with feeding hopper and tilting bar

1990 1995 2000

1995. Mobile grading machine with feeding hopper

2001. Further development of mobile screen machines with increased screen surface
size: 4,2x1,6 m 2D

2019. Track conveyor
Axis length: 17 m
Belt width: B=1000 mm
Transport capacity: 400 t/h
Motor capacity: 2x7,5 kW
Driving speed: v=1,0 km/h
Driving power: 2x22 kW

2018. Mobile Hopper Feeder
Bunker: 20 m^3
Transport capacity: 400 t/h
Belt feeder: B=1400 mm/10 m
Motor capacity: 2x5,5kW
Driving speed: v=1,0 km/h
Driving power: 2x22 kW

2005 2010 2015 2020

2005. Diesel electrically/hydraulically driven screen equipment, the opening/closing of the track chain and the belts are hydraulic while the conveyor belts and the screen are electrically driven. Our goal was to develop a machine which could be installed quickly and transported simply on the road without making compromises. The switch from operation mode to transport mode and vice versa was solved with hydraulics. The machine is remote controlled.

2018. Track conveyor
Axis length: 30 m
Belt width: B=1200 mm
Transport capacity: 1200 t/h
Motor capacity: 2 x 30 kW
Driving speed: v=0,5 km/h

Mobilink

We endeavour to think long term regarding our partners as this is the way how both parties can achieve remarkable results and success. With a technically well-prepared team creation in joint cooperation becomes highly successful. However, it takes a long way to go from the idea to its implementation. We began working with Kleemann on the development of Mobilink™ two years ago.

We had had several joint projects too before they started producing mobile machines.

The Mobilink belt conveyor system was designed with the aim that it can be connected to a mobile crusher and the belt conveyors can be moved both respectively and together. The mobility and flexibility of the machines ensures the shortest production standstill time whenever readjustment of the crusher and the belt conveyors is needed e.g. in the case of a blasting.

Technical data:

- Transport capacity max. 1200 t/h (specific gravity 1,7 t/m^3)
- Operational length: 2x36 m
- Belt width: 1200 mm
- Walkway on both sides
- All drives are electrical
- Built-in overfill protections and sensors for safe delivery
- Coating and lights all over the whole conveyor system
- Discharge hopper 15 m^3 (tracks with ca. 2800 mm distance between the rails)
- Can be supplemented with belt scale

How it works

Mobilink is a mobile transport system consisting of two, three (or even more) belt conveyors and a fixed or mobile discharge hopper. The first belt conveyor is connected to a mobile crusher which supplies electricity for driving the belt conveyors and a hydraulic system. The wheels of the belt conveyors are rotatable and elevatable, the swivel connection between them is ensured by slewing rings, thus thee whole system can be moved flexibly and almost all kinds of tracks can be created. The last belt conveyor feeds a discharge hopper, which can be fixed, with undercarriage or mounted on rails. From the discharge hopper a vibrating feeder delivers the material on the belt conveyor which supplies the processing unit with the crushed material. Moving the system and the adjustments can be carried out with remote controlling. Mobilink ensures optimal and flexible connection between the mobile crusher/ screening systems, which is an efficient middle and long term alternative of vehicle transport.

Do you like what you have read,

yet you are looking for something else?

Please visit our website

Portable radial conveyor

Technical data:
Axis length: 35 m
Belt width: B=800 mm
Transport capacity: 300 t/h
Motor capacity: 18,5 kW

or contact us or our representations!

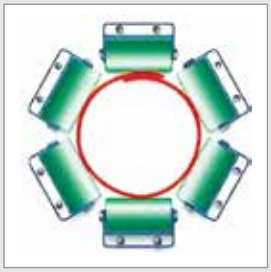
Pipe Conveyors

the Material Conveyances of the Future

Its most effective use is on longer conveying distances, via long-distance belts, which is particularly effective for conveying powdery or loose material. In accordance with this, dependent on the conveying distance and the load, textile lined (EP), aramid lined, in addition to steel lined belts, must be used.

The Start

The first pipe conveyor was developed in 1978 by Japan Pipe Conveyor, who registered a world patent for this fundamental technical solution. Following this, the first pipe conveyor was successfully put into operation in 1979. The basis for this patent was the formation of a pipe shape from a troughed belt with the aid of a unique belt construction and special pipe-shaping rollers.
In the original plans, six rollers were placed on one side of a supporting panel.



Following successful installations, the new construction expanded into a number of different locations. At first only shorter pipe conveyors were constructed, though longer examples arrived later, the longest being 16.4 km. Conveying performance also improved in the meanwhile. Performance started at 100 t/h, while today it can be as high as 2500 t/h.

Technical data of the pipe conveyor:

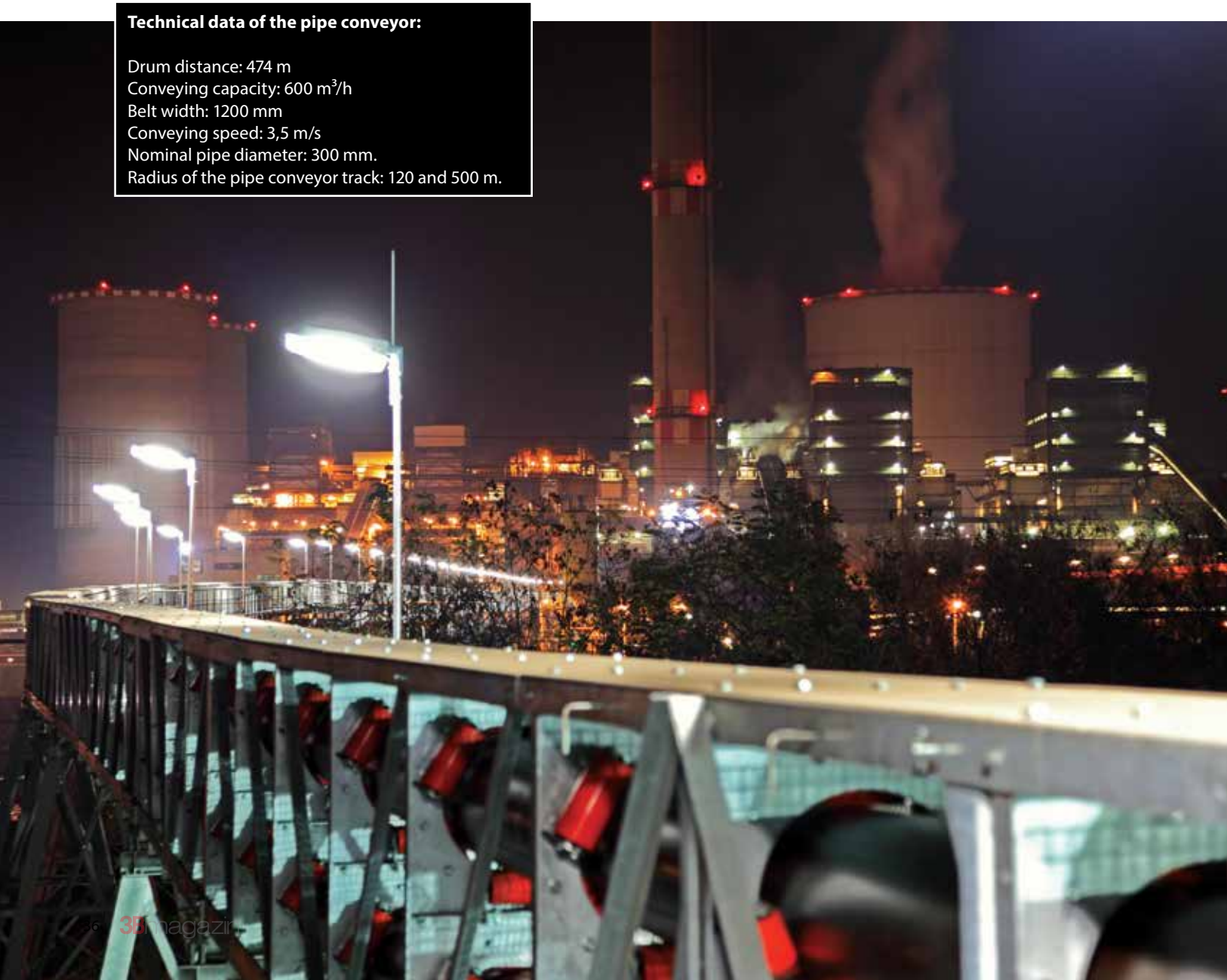
Drum distance: 100 m
Conveying capacity: 200 m^3/h
Belt width: 1200 mm
Conveying speed: 1,52 m/s
Nominal pipe diameter: 300 mm

The "pipebelt" is typically between 150 – 500 mm wide, working therefore with 600- 1900 mm wide belts. Depending on the physical and chemical properties of the conveyed material, various qualities of cover may be necessary, including abrasion-resistant, heat-resistant, oil- and grease-resistant, and flame-resistant. Contitech always manufactures the necessary belts for pipe belts by special order.

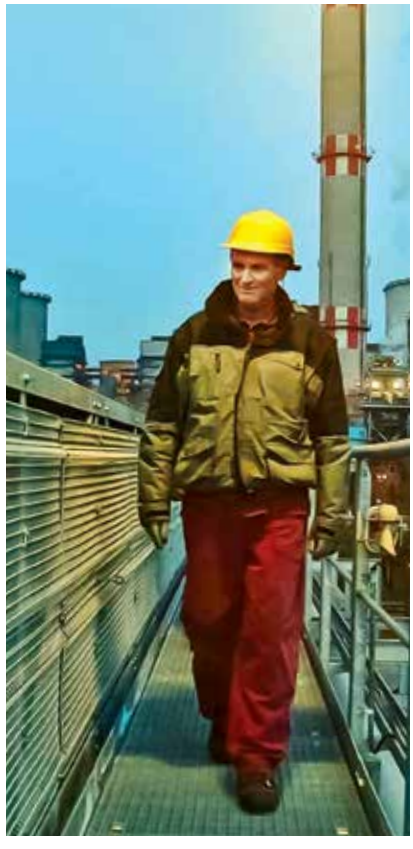
The input and output points are identical to those of traditional, open conveyor belts. The difference from classic conveyor belts starts after the loading point, where hexagonal rollers sculpt the belt into a round shape. The belt automatically opens at the output point, and propels the material to its destination. Due to the round shape, the conveyor belt makes spacial-material conveying possible – adapted to topographical conditions – with relatively small space requirements.

Technical data of the pipe conveyor:

Drum distance: 474 m
Conveying capacity: 600 m^3/h
Belt width: 1200 mm
Conveying speed: 3,5 m/s
Nominal pipe diameter: 300 mm.
Radius of the pipe conveyor track: 120 and 500 m.



The pipe shape does not only protect the conveyed material from outside conditions, but also avoids material spills, while additionally protecting the environment by providing dust-free conveying. Typical areas of use are the conveying of cement, gypsum, limestone, coke, clinker and coal.



Designed for you

Everybody would like to have a perfectly operating plant or a reliable machine. Our colleagues take pleasure in assisting you to find a solution for the accomplishment of your tasks whether it be the selection of the appropriate equipment, the elaboration of a technology or the design of an entire factory plant.

We are genuinely interested in your ideas and expectations. We can have a talk about them in our office or we can also gladly pay a visit to your company. If necessary, we can take the missing measurements on the venue so that we can get the most accurate picture of your demands.

Following the first encounter we draw up ideas, offers to make the most of your ideas. In addition, if you wish, we arrange for you to be able to visit our reference plants.

As each project is different, thus there are no identical design processes, either. We consider the environmental conditions, if need be, the already existing machines as well. Our designers make amazing models in 3D. To revive the image it helps a lot that we can discuss the details. We pay attention to proportions, colours as we like nice things.

However, there are some areas where we are quite rigid in our thinking. We are especially inflexible in issues such as high-class construction, performance and quality – we hardly know compromise in these areas. We design our machines for 24-hour operations. Besides reliability and availability we pay great attention to the solidity of our constructions and their optimal workmanship.

Szabolcs Németh
chief designer

If you feel like it, please contact us or our representations!

We would like to make the most of all our jobs so that after a creative cooperation with us you will have positive feelings about the outcome.

Ossola project

Black Forest

Southern Germany is not only one of the economically strongest regions of the country but it is the home to many amazing sights. One of them where we are inviting our readers is the fairytale-like Black Forest. Its name 'silva nigra' was granted by the oncoming Romans as they found the large forest not only dark but also impenetrable and frightening. It serves as the scene of several Grimm tales, legends and stories and it is famous for its legendary mysticity. The Baden-Württemberg mountain range as its names reveals are a thick, dark-coloured pine forest but now not without interruptions. In it fertile pastures, orchards, meadows, shiny lakes and running brooks alternate. Only few of us would think that it is the sunniest regions of Germany. One of its most famous towns is Baden-Baden, whose thermal wells were discovered by the Romans and since then it has been well-known as one of the most renowned spa resorts in Europe. In the 19th and 20th centuries ruling and noble families moved here for the thermal spas. However, Baden-Baden is not only about bathing. There are elegant retail shops, cafés with flair, well-kept gardens – the ultimate chic and elegance along with Europe's second largest opera house and one of the most beautiful casino buildings in the world.

For an outing in the Black Forest Freiburg is an excellent choice with its medieval old town, cobbled streets and half-timbered houses. Hiking is a must for the visitor, the untouched scenery attracts even the ones who are less experienced in hiking. Exploring the region we should think of the fact that it was the place where hiking was actually invented. It happened in 1900 and the trail still exists. Popular destinations are the clear, shiny lakes, waterfalls and the Wine Route in Baden existing since 1954.

One of the most beautiful wine routes of Germany leads from Baden-Baden at the western feet of the Black Forest through the grape-growing areas of the region. The hiking tour leads after Ortenaut and Breisgaut in the Upper Rheine Valley after Kaiserstuhl and Tuniberg towards south ending in Weil am Rhein, near the Swiss border. The travellers go on a 500-km route past historical castles and peaceful vineyards. The stunning view of the sunny valleys, lovely little towns as well as modern and classic wineries are typical of this wine region.

One of the important stations of the wine route is Archen below Ortenau. In this small town is one of the gravel mines of the area, from where we were approached concerning the extension of an existing plant. The meeting about the project was arranged by our South German representative. During the negotiations the managing director of the enterprise told us that he had already been to Hungary, at the wedding of one of his relatives in the famous Villány wine region. In addition to the experienced hospitality he was deeply impressed by the delicious wines and meals. He still has good memories of this celebration.

However, negotiations between the parties were not that easy concerning the project contract awarding. There were several German companies present who were also interested in acquiring the business. Eventually we succeeded in making a deal and 3B Hungária was awarded the assignment for this job.

To implement the project we had to carry out several measures on the spot to ensure that the new system could be adapted to the existing equipment. The planning process was greatly assisted by the fact that our client knew exactly what he wanted.

Earlier the raw gravel used to be transported from the ship immediately into the screening plant, where the actual fractions were separated. The goal of the new extension was that the raw gravel should get into a separate depot allowing the unclassified gravel to become saleable, too. With the help of the reversible belt conveyor this opportunity is still ensured as the material gets loaded either towards the plant or the new line. If the material goes towards the new depot area than the 0/45 material is uploaded on a 41m long conveyor belt onto a 2-level 6x2 m screen. On the screen it gets screened into 0/32 and 32/45 sizes. The 32/45 size can be delivered into a depot with the help of a 25m radial stacking conveyor and this way a 1600 m^3 depot can be filled up. The 0/32 material gets after a short conveyor on a large 54 m long radial stacking conveyor allowing to produce a 22.500 m^3 depot with a ca. 100 m long tunnel with belt feeders at its bottom.

The chute of the screen and the conveyor under it were designed so that the 0/32 material can be blended with the 32/45 fraction and the total 0/45 material can be stored in the large depot area.

In the tunnel there are currently 4 feeders installed with the intention that in case of a later extension it will be possible to install altogether 8 belt feeders: 6 feeder units for the tunnel conveyor and 2 feeder units for truck-loading.

The material taken out with the feeders from the tunnel gets on a 29,5 m long conveyor into the former screen.

The production of the new 400 t/h plant took 5 months including planning, production and installation.

Concrete

The Universal Building Material

In 1824 Joseph Aspdin, a mason from Leeds patented the modern Portland cement. In the production process lime is blended with a little clay to be burnt in a furnace at least at 1450 °C in order to gain clinker. On leaving the furnace the clinker is cooled down and after some additives have been added it is ground finely with steel balls in a cement mill. The ready-made cement is blended with water and gravel to produce concrete with a great tensile strength.
With a hauling and twisting resistant steel construction inside we gain a cheap, almost everywhere producible and universal construction material, the reinforced concrete – one of the most common building materials of our times. Its bearing capacity can be planned very well to make it durable for its whole lifetime. Its application allows the highest life-cycle performance. Thanks to its unique characteristics and features it may greatly contribute to the challenges of the 21th century. We can build affordable flats from concrete, its production creates workplaces and enhances economic growth. Our world can be made durable while we are creating an aesthetically pleasant environment at the same time. When it has reached the end of its life-cycle, it can be recycled nowadays thus construction and demolition debris will not contaminate our environment.

Concrete is a building material, where it depends on us what we create from it. It has a wide range of adaptability from facade systems and interior design solutions to production of aesthetic building materials. Its surface can be formed in various ways. Its texturability is infinite, it provides an ideal raw material for roof tile production.

With our partner who we may present you now we have been working together for over 10 years. Just like 3B Hungária they are a family-run enterprise, too. They grew out of a tile producing manufactory into Central Europe's leading tile producing enterprise. They have 4 production plants where their products are made with the most-developed production technology. The founder of the company started concrete-based roof tile production in 1920. At the time one worker could produce with heavy physical work under small-scale business conditions only 400 roof tiles a day. Today a total of 272.000 pieces of roof tiles are produced a day in the four factories requiring 1250 tons of raw materials (data of 2018), the majority of which is sand. The concerning reception-storage system was delivered by 3B Hungária to their two Hungarian factories.

TERRAN

The oncoming trucks dump into a 25 m^3 bunker the sand which is dumped by the belt conveyors into the storage containers. The dimensions of the containers were calculated in compliance with their own technologies to produce puffer in the required amount for the production. Outfeeding is carried out from the containers with belt feeders on a weighing conveyor, where after weighing the control unit sends the sand prescribed by the formula into the mixer.

With its products our company supports high-quality concrete production in several areas. We produce complete technologies for gravel plants, weighing conveyors for concrete production plants and feeder stations for paving stone production as well as raw material storage containers.

Each equipment is produced to individual needs for specific projects. We elaborate the best possible technical solutions for our partners, besides the process is optimized to their smart factories: sensors, weighing technology, electric control as well as visual display are offered by us to them.

Succès en Provence

There is a sunny Mediterranean land stretching between the sea and the mountains in southern France, which everyone associates with purple lavender fields, grape and olive plantations, Roman monuments and hot summer days under the plane trees. This is Provence.

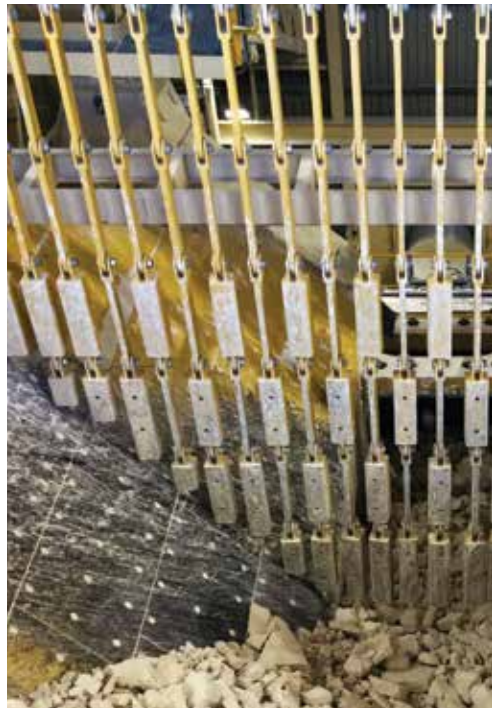
Scents in the air, picturesque tiny villages and small towns, blue sky, cypresses and delicious wine, all these things mean this wonderful region. It has evoked such famous artists like Van Gogh, Cezanne and Picasso and expects the visitors with several cosy places and delicious dishes. We should not miss the sights of Aix-en-Provence, Bonnieux, Ménerbes, and Gordes once we get there.

The historic limestone mine where we will guide you is located 50 km from Marseille in Provence. The negotiations with our partner started in 2012 concerning the construction of a crushing and puffer station, which would have to ensure the continuous supply of the existing plant. During the design we had to meet several local regulations and requirements as the mine is situated in a touristic destination of excellence. The new building and the silos were erected in a lower-lying part of the area so that they couldn't be seen even from the church standing on the top of the mountain well above the village.

The system contains magnets, metal detectors, belt scales and many linear unit diverter chutes.

The raw material (particle size 0-1000 mm) arrives by trucks from the mine and it will be emptied into the 50 m^3 hopper station in the new technological building.

Under the bunker a 7,5x1,5 m vibro screen selects the 0-50 mm fraction while the fraction over 50 mm is fed into the crusher.



Building: 26,5x12,5 m floor space with stage arrangement, for maintenance purposes an overhead travelling crane was installed too. Height: 11,5 and 23 m.

The 0/80 crushed aggregate gets onto a control screen, where the stones over 70 mm are carried back by another belt into the feeding bunker in front of the crusher.

The 0-70 mm material will be stored by means of conveyor belts and diverter chutes in 6 pieces of 1500 m^3 silos. The feeding line capacity is 400 t/h.

Screen capacity: 600 t/h

Each conveyor belt, steel construction and the building itself were constructed according to the static calculations of EUROCODE 3.

The limestone is transported from the silos with belt feeders, than with 2 long conveyor belts with a capacity of 200 t/h to the processing plant, where fine limestone powder is produced in a special process for the paper, pharmaceutical and food industries.

The plant works 24 hours a day on 6 days of the week. Moreover, two Italian firms participated in the project, either of them executed the electronic work while the other one supplied and assembled the silos. Besides doing the complete project planning work our company produced and assembled the buildings, the conveyor belts, the platforms on the silos, the pavements, the feeding bunker and the related steel constructions.

The project was constructed with utilisation of 430 tons of steel (data irrespective of the silos).

Project data:

Order: 2012
Start installation: April 2014
Take over: January 2015
Length of the conveyor belt system: 500 m
Installed motor power: 334 kW (without crusher)

Vertically

Bucket elevators are special types of equipment suitable for delivering bulk materials vertically. 20 years ago we started the development of these machines specifically for heavy duty industrial usage. The casing, the head unit and the take-up unit are dimensioned for 24-hour operation, they are robust but free of unnecessary parts. They operate reliably under all circumstances. Likewise, bucket and chain elevators are also available in our product range. Their performances are listed in the following chart:

BUCKET ELEVATORS										
Bucket width b (mm)	160	200	250	315	400	500	630	800	1000	1250
Transport capacity (m^3/h), Bucket DIN 15 234	13,5	21	33	53	77	120	191	268	428	555
Belt speed (m/s)	1,3	1,3	1,32	1,32	1,4	1,5	1,55	1,6	1,66	1,66

They are widely applicable as they are considered commonly used technological equipment in the construction, chemical and mineral powder industries. We supply ca. 100 pieces of equipment annually. 70-80% of the bucket elevators produced by us are sold for recycling purposes, primarily for glass processor companies.

The delivered materials: glass scrap, gravel, sand, limestone, marble, dolomite

The machine parts which may come in contact with material are equipped with wear protection. It could be HARDOX or even chromium carbide overlay wear steel plate. This way a long, undisturbed operation period is guaranteed.

Belarus
Sweden
Russia
Norway Turkey
Poland
Malaysia
Australia Hungary

Innovation

Stereolithography was invented by the American Chuck Hill in the early 80s laying the foundations of the up-to-date 3D printing, which can be applied in several areas today. 3D printing is used in a wide range of areas in the space and aviation industries, in medical technology, in the fashion and of course in the automotive industries. Why not use it in the machine industry? 3D printing gives us free reign e.g. in technical form design. We can see great potential in the direct production of complex machine parts, which could be produced only at very high costs earlier. We started showing intense interest in this issue 2–3 years ago both in the research development and production areas. We got in contact with many companies for the production of the first machine parts.

We had been working with 3D models, therefore it was easy to provide all the necessary information. The most important thing during printing is that the dimensions of the printed machine parts are absolutely identical to the original ones. As its substance properties are not equivalent to the conventionally produced metal elements, they could be applied successfully in machine parts where the in-built elements are not exposed to such high loads that would require metal substances. Thus our first choice was given to the labyrinth sealing of the elevators. Tests on the printed machine parts are still running, we are expecting the results with great optimism. We wish to play a ground-breaking role in this area, too and we are looking forward to the results of the advancement of this technology with great interest. The 3D printing method usually lays down substances in thin layers such as plastic, ceramics or metal which gets solidified afterwards. This is what we call additive production.

The two most popular methods are FDM and SLA.

FDM *(Fused Deposition Modeling)* – is a process where with a small amount of melted plastic a spatial construction is built up layer by layer.

In the case of SLA *(Steriolithography)* technology photopolymer (light-sensitive synthetic resin) material is used, where the laser beam is directed along the surface of the liquid synthetic resin, as a result the substance gets crosslinked and later on solidified.

In the industries mainly SLA-laser and dust-based SLS systems have become widespread rather than the FDM operated models used for hobby DIY 3D printing. The former types of machines are much more complicated and expensive, but only they can guarantee the production of machine parts in the desired quality.

Every detail counts

We love what we do. Since the beginning we have thought that a machine should be not only good but attractive, functional and affordable as well. We have been searching the best solutions and with the assistance of a couple of selected suppliers perhaps we have reached our goals. Our modular machines work with professional performance, they have been designed for continuous, 24-hour operation in a compact form and robust design.

Safety? The most important factor. Grids, covers, sensors… everything that is needed to save human life.

Design

Practical? The functions necessary for everyday utilisation cannot be missing. Listening to our customers' advice and experience we have been working on new ideas.

Drive station, bearings, framework, each component has got an immense significance respectively, but these all constitute the machine together.

Perfect technological solutions for our customers, that is our goal

Quality and performance under extreme conditions

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