

SUPPLIER INTRODUCTION

2021

50 YEARS OF EXPERIENCE
WE SUPPORT YOUR COMPANY WITH

Horváth és Fia Part-Manufacturing Co., Ltd.
HUNGARY (Since 1969)



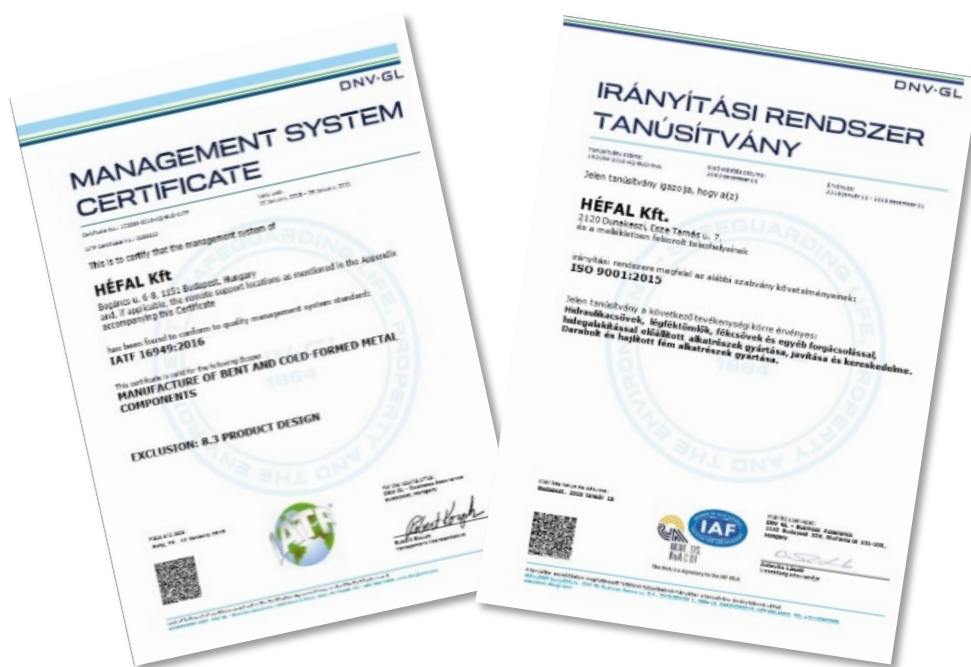
WELCOME

to **Horváth and Son Part Manufacturing Co., Ltd. !**

The **HÉFAL Co., Ltd. was founded by József Horváth in 1969. in Hungary!** The company has had a very varied path over its more than **50 years of operation**, as a result of which we have accumulated organized experience and knowledge. We worked with and for **hundreds of partners** all over the world, and manufactured **millions of different parts** for them! **In two facilities**, on two sites we are working with more than 50 qualified employees on more than 3500sm, where we are **using innovative, wide-spectrum and market-leading technologies**. We have two different, main product-families! We are supplying even the automotive market as a **TIER-2 subcontractor**, like **bent, laser-cut, metal-tubes** (rounded or squared tubes, hollow-sections), and **high-pressure rubber, PTFE and metal tubes** assembled with milled, drilled and crimped fittings on these for hydraulic and greasing systems, which are manufactured by us too.

We are manufacturing with more **than 50years of experience** and know-how with materials like carbon steel, stainless-steel, aluminum and copper, which portfolio would be expanded by your needs, by your request!

We passed the qualification processes for **ISO9001-2015 since 1998**, and **ISO/TS and IATF 16949-2016 since 2014!**



BENT and/or ARCHED METAL TUBES

The huge advantage of products made with CNC bending machines is that, we can (re)produce pipes, closed sections and shaped raw materials with repeatable, perfectly identical bendings, arching designed by customer in the 3D model space!

In our factory in Budapest, we work with four high-performance, high-precision bending machines that can be mounted with up to 8 levels of tooling, with capable of double-sided 3D bending. Our bending machines are receiving raw materials (*rounded-, rectangular-tubes, (hollow-sections), rod materials, profiles*) from 4mm to 90mm outer diameter to bending and arching them. Regarding pipes and hollow-sections, the maximum wall thickness that can be bent and curved with our tube bending equipment is 6 mm! To accurately measure deflections, deviations we are using a 3D arm (*tactile*) measuring device, and an image-evaluation-system with 16 high-resolution cameras, thus minimizing the number of setup scraps, and maximizing customer satisfaction.



Workable raw materials:

- carbon steel,
- food grade stainless steel,
- chemical industrial stainless steel,
- pharmaceutical stainless steel,
- stainless steel (*inox*),
- aluminum,
- copper.

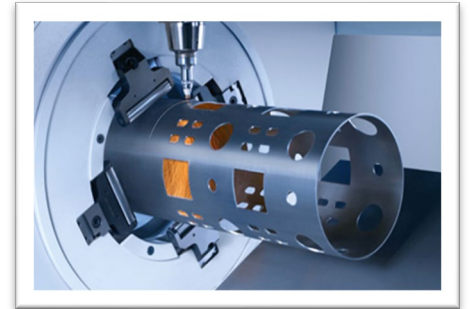
Recommended areas of use:

- automotive industry,
- means of transport (eg. trailers),
- mechanical engineering,
- agricultural machinery,
- food-processing industry,
- animal husbandry,
- production of sports equipment,
- construction (eg. railings).



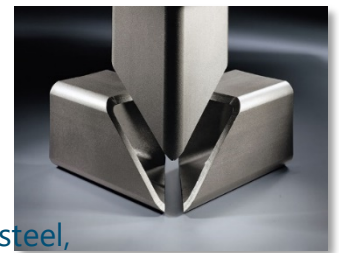
LASER CUT, LASER DRILLED TUBES and HOLLOW SECTIONS

Our company purchased its BLM tube-laser equipment for the production plant in Budapest in 2020, with which we made another technological advance towards serving our partners faster, with higher quality. Thanks to the laser pipe cutting equipment, the quality of the machining surface of the machined raw material is outstanding, and the cutting and drilling dimensions are ten times as accurate as in the case of single-disc cutting, drilling bit drilling! In the case of smaller pieces, a significant amount of raw material can be saved when cutting with a tube laser due to the cutting width of the laser beam used for cutting to one tenth of that of a disc cut! It can be up to 1-2mm per cut! With the equipment specially suitable for machining pipes (circular, square, rectangular (closed section)) we can achieve significant time savings of up to 80-90% even in the case of a large number of orders, ie we can fulfill the order up to 5x faster than disk cutting. we would then drill with previous technologies, which could mean a significant cost reduction for our customers and partners.



Workable raw materials:

- carbon steel,
- food grade stainless steel,
- chemical industrial stainless steel,
- pharmaceutical stainless steel,
- stainless steel (*inox*),
- aluminum,
- copper.



Recommended areas of use:

- automotive industry,
- means of transport (eg. trailers),
- mechanical engineering,
- agricultural machinery,
- food-processing industry,
- animal husbandry,
- production of sports equipment,
- furniture production,
- construction (eg. railings).



TESTING OF BENT PIPES, HOLLOW SECTIONS and OTHER BENT PRODUCTS

It is a unique and an extremely accurate technology we are using to perform the conformity of the parts and products manufactured by us with a device is suitable for rapid (*approx. 2sec*) determination of measurements, especially on the filed of measuring and locate the angles-, curves-, and bending radii, and straight sections on the product/part, and the exact position of the placed holes.

With this measuring equipment, we also undertake the inspection, quality control measurements and the comparison tasks of the designed 3D models with the final product, the modifications/corrections would be applied on the bending programs to be able to minimize implementation of errors of programming in the future tasks. Our HEXAGON equipment is perfectly suitable for testing and inspecting 2D - 3D bent products of any (!) length!

If interested, please feel free to contact our factory in Budapest through your contact person!



TUBE END-FORMING

Our Budapest plant is prepared in all aspects to fully meet the unique needs and the highest engineering expectations in the field of pipe machining. This includes the forming of special designed endings of the pipes/tubes, which needs special connections, bondings and sealing properties and capabilities even on a simple straight, or bent metal pipes/tubes.

If a professional, pre-machined pipe end design is required for connecting, fastening and receiving seals on the pipe/tube, your engineers allowed to design special pipe endings, HÉFAL Co., Ltd. undertakes their implementation!

Undertaking machining processes like:

- pipe/tube end machining,
- pipe/tube end shaping,
- pipe/tube end flange,
- pipe/tube end narrowing,
- pipe/tube end expanding.



COLLARING of METAL TUBES

We often faced with a demand of our customers, when they want to realize one or more branches on a tube to connect to an another one.

Joining of curved surfaces together, especially on tube/pipe on the walls, can cause serious headaches! Especially in cases where these tubes/pipes would have to be converted into a



completely system with with numerous

closed

an insoluble bond. Our company is prepared for this task T-Drill devices, with which we can create a "necks" suitable for receiving other tubes/pipes connecting into the wall. Should such a "pipe neck" need arise during design or manufacturing, feel free to contact our plants or our engineering colleagues, who will help you designing, inspecting and of course, implementing the connections on the parts according to your needs!

Recommended areas of use:

- automotive industry,
- machinery manufacturing,
- agricultural machinery,
- chemical and food plants, and production line setup,
- construction (*water and gas pipe-lines*).

FLEXIBLE and RIGID WALLED BRAKE PIPES/HOSES

Our company is operating in close, continuous cooperation with the domestic and international partners of car manufacturers and parts dealers are using brake hoses for more than 50 years. During the production of parts that meets the international automotive standards and the strict regulations of Hungarian inspection organizations, we supplying the well-known domestic and international manufacturers of vehicle and agricultural machinery manufacturers, as well as wholesalers of vehicle parts with the desired ones! Individual needs are also catered based on available samples, 3D models, drawings or factory IDs.



Workable raw materials:

- Ø6-38mm inner diameter,
- vulcanized rubber hose with steel insert (1SN, 1SC, 2SN, 2SC, 3SPC, 4SH, 4SHP, 4SP),
- vulcanised rubber with textile inserts (1,2,3 inserts),
- hoses with textile inserts covered with metal mesh,
- foodgrade stainless steel,
- chemical industrial stainless steel,
- pharmaceutical stainless steel,
- stainless steel (*inox*),
- galvanized steel,
- aluminum,
- copper.



Recommended areas of use:

- automotive industry,
- parts trade (*after-market*),
- renovation of veteran (*old-timer*) cars,
- machinery manufacturing,
- agricultural machinery.

FLEXIBLE and RIGID WALLED HYDRAULIC PIPES/HOSES

Depending on the application, operating pressure and fastening method, different hydraulic pipes and hydraulic hoses can be encountered during the assembly and manufacture of machines, vehicles and systems. We undertake and carry out the production of the mentioned hydraulic pipes and washing hoses in a very wide spectrum, from 6mm to 38mm inner diameter, from simple single-layered to up to four-layered, meeting the needs of special applications, including available samples, 3D models, drawings or based on factory part numbers!



Workable raw materials:

- Ø6-38mm inner diameter,
- vulcanized rubber hose with steel insert (*1SN, 1SC, 2SN, 2SC, 3SPC, 4SH, 4SHP, 4SP*),
- vulcanised rubber with textile inserts (*1,2,3 inserts*),
- thermoplast (*R7, R7 twin, steel inserted, twin steel inserted, paint-blasted*),
- hoses with textile inserts covered with metal mesh,
- high-pressure washing hose (*1SN, 2SN*),
- carbon steel,
- stainless steel (*inox*),
- galvanized steel.

Recommended areas of use:

- automotive industry,
- parts trade (*after-market*),
- renovation of veteran (*old-timer*) cars,
- machinery manufacturing,
- agricultural machinery.



FLEXIBLE and RIGID WALLED PIPES/HOSES for OTHER PURPOSES

Our company has been undertaking and/or repairing flexible and/or rigid-walled piping for motor vehicles and heavy machinery for decades, in accordance with the applicable EU and other international regulations, standards and rules! The brake hoses manufactured by us are tested at a pressure of 400 bar, while the other hoses (*hydraulic hoses and/or pneumatic hoses*) are tested at a pressure of 130 bar, if required by the regulation or if a request is received from our partner. Reconstruction, conversion, repair, or remanufacturing (*production of a new product to replace an imported, used, and non-functioning part*) can be done based on the imported sample, on a model, or on drawing. With regard to the pipes imported for repair, in case of customer demand we can reduce the customer's costs by reusing the used metal parts if it is in good condition but used, but usually we install it with completely new parts manufactured by HÉFAL Co., Ltd.



Manufacturing and/or repairing services:

- oil pipe repair,
- turbocharger pipe repair,
- power steering tube repair,
- car air conditioning pipe repair,
- truck climate pipe repair,
- fuel line repair*,
- production of water pipes for veteran cars,
- production of fuel pipes for veteran cars,
- production of oil pipes for veteran cars,
- production of pipe fittings for veteran cars,
- washing pipe (*damaged*) repair or production,
- high pressure WOMA-hose repair or production,
- automotive industry,
- mechanical engineering,
- agricultural machinery manufacturing,
- food processing industry.

* Exceptions are the injector tubes, and the metal tubes between the dosing and atomizing tips!

HYDRAULIC PIPE/HOSE FITTINGS and/or ENDINGS

We are manufacturing connectors and fittings for brake pipes, other hydraulic pipes, washer hoses and pneumatic pipes, ie the terminals, fasteners and spacers are necessary for their manufacturing! We manufacturing connections and fittings for orders including several million pieces of course mainly based on individual needs, and even one piece in case of special orders too!



Recommended areas of use:

- automotive industry,
- machinery manufacturing,
- agricultural machinery,
- food-processing industry.

Workable raw materials:

- leaded free machining-steel,
- unleaded free machining-steel,
- stainless steel,
- aluminum,
- copper.

TOOL MANUFACTURING, MACHINING, MILLING

We undertake the production of various pipe bending- and any other tools with our many, modern CNC milling and CNC lathe machines put into production at our Dunakeszi site, as we already have outstanding experience in the tool production of BLM and other pipe bending machines.



These components are essential for plants with bending machines, as many bending so much bending tools are required to achieve the desired result, depends on the diameter, side dimensions, wall thickness, bending angle and/or bending radius of the raw material. Based on the 3D model of the product to be manufactured, we undertake the design and production of



individual tools within a very short period of time, and our engineers are happy to help you scale and transform the tools of the appropriate geometry and design, required for the production of the imagined final product.



EQUIPMENTS

which we can put at Your service!



Cutting, machining
BLM LT5 TUBE-LASER
ADIGE TT640

Bending, arching and shaping

BLM ELECT 90
BLM E-TURN 52
BLM DYNAMO
BLM SMART



Tube/pipe endforming
BLM AST-30 (2x)



Collaring
T-DRILL (2x)



Measurement and testing
HEXAGON TUBEINSPECT-P16
BLM MT-5

In addition, there are CNC 3-axis machining centers, thread-guided CNC lathes, thread-guided CNC lathes, CNC saws, 21 different other presses, lathes, induction and flame soldering workstations at your service... without the need for completeness!

Megmunkálás technológiai információk / Machining technology informations

DUNAKESZI

	Külső átmérő/outside diameter (mm)		hossz/length (mm)	alapanyag hossz/raw material length (mm)	magasság/height (mm)
	legkisebb/minimum	legnagyobb/maximum			
CNC esztergálás/turning	D3,0	D60,0	300,0	3000,0	
CNC marás/milling			500,0	800,0	300,0
Hagyományos esztergálás/turning lathe	D3,0	D60,0	500,0	3000,0	
Hagyományos marás/milling			250,0	650,0	500,0
Láng kemény forrasztás/Welding	minta lapján (gáz:oxigén+acetilén; forrasztanyag: ezüst, réz)/by sample (gas: O2+C2H2; solder: Ag, Cu)				
Indukciós forrasztás/Inductive welding	teljesítmény: 10kW; forrasztanyag: ezüst/output: 10kW; solder: Ag				

BUDAPEST

	Külső átmérő/outside diameter (mm)		falvastagság legnagyobb átmérőn (mm)/wall thickness	hossz/length (mm)	alapanyag hossz/raw material length (mm)
	legkisebb/minimum	legnagyobb/maximum			
Gépi cső darabolás/tube cutting with LASER machine	D10,0	D120,0 + 20,0mm	12,0	6450,0	6450,0
Gépi cső darabolás/tube cutting with machine	D10,0	D100,0	30,0	3000,0	6000,0
Kézi cső darabolás/tube cutting	D8,0	D100,0	30,0	6000,0	6000,0

	Kosár méret/Basket size (mm)		Max hőfok/Max. Temperature	Tisztítószer/detergent
	átmérő/diameter (mm)	magasság/height (mm)		
Alkatrész mosás/ Washing	D700,0	400,0	80°C	víz+passziválószappan/ water+passivator
Alkatrész koptatás/Trowaling	D800,0	300,0		víz+passziválószappan/ water+passivator

	Kosár méret/Basket size (mm)	Max hőfok/Max. Temperature	Tisztítószer/detergent	
DÜRR - Ultrahangos alkatrészmosás/ DÜRR - Ultrasound cleaning	1x : 600x430x3502x : 280x430x250	85°C	Dowlene	Ultrahang/ultrasound

	belső átmérő/inside diameter (mm)		Átlóvési hossz/translation length (mm)	Szenzor/sensor	elérhető tisztaság, szemcsenagyság/particle size
	legkisebb/minimum	legnagyobb/maximum			
Jet Clean patronos csőtisztítás/inner cleaning with Jet Clean	D3,0	D50,0	6000,0	lézer	0,05

	Külső átmérő/outside diameter (mm)		Falvastagság legnagyobb átmérőn (mm)/wall thickness	Tömör átmérő/solid diameter (mm)	Két irányú hajlítás/2 side bending max. diameter (mm)
	legkisebb/minimum	legnagyobb/maximum			
2D - 3D Gépi csőhajlítás/ 2D - 3D tube bending	D4,0	D90,0	6,0	D60,0	D52,0

	Külső átmérő/outside diameter (mm)		Falvastagság legnagyobb átmérőn (mm)/wall thickness
	legkisebb/minimum	legnagyobb/maximum	
Csővég formázás/ End forming	D4,0	D30,0	2,0

	Külső átmérő/outside D (mm)	MIN. Falvastagság (mm)/ MIN. wall thickness	MAX. Falvastagság (mm)/ MAX. wall thickness	Legkisebb furat átmérő (mm):	Legnagyobb furat átmérő (mm):
	T-Drill nyakazás/	Copper: D8,0 - 104,0 Steel: D10,0 - 104,0	Copper: 0,5 Steel: 0,8	Copper: 2,5 Steel: 1,6	Copper: D6,0 Steel: D10,0

	Robot mozgási átmérője/ movement diameter (m)		Adagoló hossz/Feeder length (m):	Robotkar terhelhetősége/Robotarm max. loadability :	
	C1	C3		C1	C3
Cellagyártás/Cellmanufacturing	D3,0	D1,0	1,5	50,0	5,0

	Kar mozgási rádiusz/ Arm movement radius (mm)	Fordulási szög/Turning angle	Pontosság/accuracy (mm):	Mérés típusa / Measurement type
	3D mérőgépes mérés/ 3D Measuring	2000,0	180°	0,001

	Pontosság/accuracy (mm):	MAX. MÉRHETŐ HOSSZ / MAX. Measurable length	MÉRHETŐ SZÉLESSÉG / Measurable width	MÉRHETŐ MAGASSÁG / Measurable height	MÉRHETŐ TERMÉK / Measurable product
	HEXAGON p16.2 mérés / HEXAGON measuring & reverse engineering	0,008	NINCS MAX NO MAX	1100,0	1000,0

	Max. átmérő / Max. D (mm)	Jelölhető termék MAX. hossz/ MAX. Part length (mm)	Jelölés szélessége / Engraving width (mm)	Jelölés hossza / Engraving length (mm)	Jelölhető anyag / Engraving material
	LÉZERES TERMÉK JELÖLÉS/ LASER ENGRAVING	450,0	NINCS MAX NO MAX	250,0	500,0



HEFAL KFT.
50 éves

SITE I.

Fóti street 45, DUNAKESZI H-2120

Manufacturing and repairing of hydraulic, pneumatic, brake and other flexible pipes, manufacturing of fittings.

SITE II.

Óradna street 8., BUDAPEST H-1044

Laser tube machining resp. pipe, closed section and profile steel bending, bending, necking, pipe end design, laser engraving, cutting

<http://www.hefal.hu>

order@hefal.hu