

Dear business partners,

This is the first edition of cylindersnews, the newsletter which should inform you regularly about the latest developments in Cylinders Holding.

Central manufacturing operations in the Czech Republic which are dominant in the production of high-pressure seamless cylinders and its products are being used in an increasingly diverse range of industries. Due to an expanding use of cylinders, we are strongly motivated to develop and deliver new applications for a ever-increasing range of users. Cylinders Holding is thus increasingly engaged in the development of new products for such high pressure applications.

Almost 20% of the Cylinders Holding group technical staff is currently engaged in Research and Development, both for individual clients and to satisfy global development trends. Great emphasis is put on developing applications that will be used in the future, and seeking new solutions for novel applications in gas storage and transportation. During the meetings with our clients we have reached the conclusion that our new products and innovations satisfy an increasing demand. As a result, many clients have expressed a desire to see much faster information flow coming from the group. We have been repeatedly encouraged by our major customers to keep them updated with our innovations. That is why the first edition of the newsletter was created to fulfill your – our

customers - wishes. For 30 years we have been committed to innovation. We participated in the switch to 200 bar throughout Central Europe and we developed several commonly used cylinder types. We have been for many years developing and innovating the 300 bar cylinder, which still constitutes our main trend. Innovations in hydrogen, CNG, fire extinguishing systems and more are in strong demand. These will be the subject for further development. The tendency of using cylinders in other industries will continue and more cylinder applications will be developed.

In cylindersnews we would like to introduce you the latest trends in distribution of technical gases, transport of compressed gases and their storage. You will read about the innovations that Cylinders Holding is developing both for your current and your emerging industries.

We want to be open with you, so we have decided to widely publish our innovative products and everything that can be solved in high pressure systems. We believe that thanks to this you will be able to better invest your resources and decide what are the most suitable Cylinders Holding products and solutions for according you.



Jan Světlík

CEO of CYLINDERS HOLDING a.s.

By the end of 2018 Cylinders Holding had significantly reduced the weight of steel cylinders. Number of standard types with improved mechanical properties of steels was developer which have allowed to reduction of wall thicknesses and thereby achieve lower weight for the market.

SUPERLIGHT CYLINDERS HAVE SCORED A WORLD RECORD

Cylinders Holding has significantly reduced the weight of several existing cylinder types and pressure vessels mainly due to its unique CrMo steel. Currently we are able to achieve an average weight of 50 liters of 43 kg, a world-class hi-tech product.

CrMo steel has an extremely low content of elements such as sulfur, phosphorus, tin, copper and others that negatively affect the strength characteristics of the final products - cylinders. Another advantage of this steel is the optimally balanced content of the basic elements (C, Si, Cr, Mo). Due to the above-mentioned facts and know-how in the field of cylinder heat treatment, Cylinders Holding was able to achieve a finer grain structure and increase the strength level (Rm to 1300 MPa) along with maintaining a high level of notch toughness at -50 °C.

Successful product certifications of new lightweight cylinder types enable customers to transport higher volumes of gas at lower transported weight. This generally reduces the amount of emission gases generated during the transport of cylinders, bundles and other applications where cylinders of Cylinders Holding are used.

NEW COATING SYSTEMS WILL COPE WITH THE AGGRESSIVE INFLUENCES OF THE ENVIRONMENT

Cylinders Holding has invested in the development of new coating systems that are highly resistant to external influences, both in the open and in various facilities where the cylinders are exposed to various types of natural and artificial aggressive substances. The Holding now offers both a wide range of powder coatings and durable, waterborne coating systems.



SOURCE DATA

AND SPECIAL MARKINGS FULFILL THE WISHES OF CLIENTS

Cylinders Holding brings an interesting news to the customer service. Newly fulfills any requirements for the processing of source data with the parameters of its products, enables the registration by means of codes, etc. **"We are able to implement special engraving marking on customers' wishes, which is particularly applicable for special pressure cylinders for breathing systems,"** added commercial director Ivo Brabec.

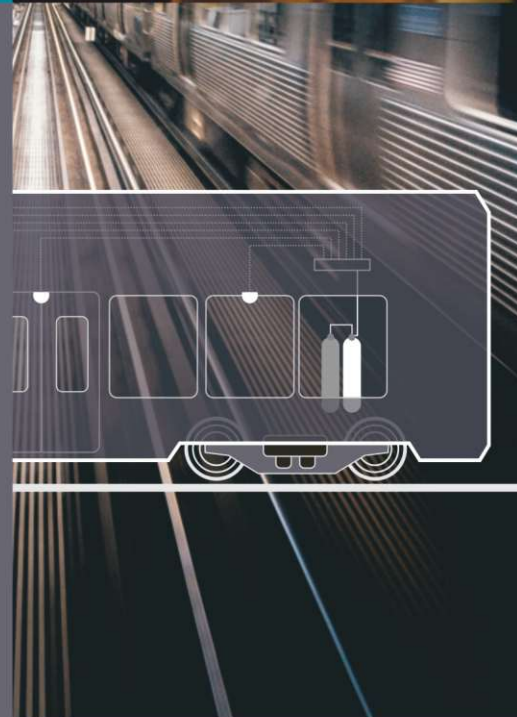
SPECIAL THREADS AND UNIQUE CYLINDER NECK

Recently, Cylinders Holding has also seen a significant increase in the requirements for special threads, both internal and external threads or their combinations, thus we are able to satisfy even the most demanding partners. These special types of threads require not only special machining on the machining center, but also special procedures for forming unique neckings of these cylinders.

The difficulty of production special sockets is due to the large thread sizes for special valves, which are used to quickly release the extinguishing media from the cylinder in stable fire extinguishing systems. Customers demand very narrow tolerance field for key cylinder parameters. It touches dimensions of the neck length and threads. For example, the internal height of the cylinder is a very important dimension for valve assembly and dip tube

APPLICATION OF OUR HIGH PRESSURE CYLINDERS IN SUPERCITY TRAIN FIRE PROTECTION SYSTEMS

Italian Pendolino trains are equipped with cylinders for modern fire extinguishing systems produced by Vitkovice Milmet, a member of Cylinders Holding. **Cylinders of fire extinguishing systems serve passenger safety and from 2018 they are on all European high-speed Pendolino trains.**



UNDER PRESSURE 1000 BAR !!!

Cylinders Holding is going to supply hydrogen pressure vessels in amount over € 2 million to its customers. Cylinders Holding, one of the world's largest manufacturers of seamless pressure cylinders and pressure vessels, with a tradition since 1906, has responded to the demand for hydrogen storage solutions by developing such a special high pressure vessels.

After a challenging testing process, the development led to the production of large series in the most demanded 500 bar and 1000 bar ranges.

By doing so, Cylinders Holding joined the elite group of storage hydrogen supply chain in 2018 and unleashed an invasion on the territory of competitors that had a hydrogen market still split between themselves.

BACKWARD EXTRUDED SEAMLESS STEEL VESSELS 500 BAR

OVERTOOK COMPETITION

Cylinders Holding can boast something that no one else in the world can boast of – the 500 bar seamless steel vessels for hydrogen storage, produced by the extrusion method and completely finished "under the same roof". With this enormously innovative and revolutionary step, the group has managed to reduce dependence on suppliers of seamless steel tubes, their delivery times and also significantly reduce the cost of purchased materials, which is now almost the same as for conventional, series-produced steel cylinders. "The possibility of use of our modular solution has already been accepted by many of our customers and we are proud to announce that by mid-2019 our innovative product will be serving in more than ten hydrogen stations across Europe," said Michal Brodacky of Business Development.

03 HYDROGEN
PRESSURE VESSELS,
CONTAINERS
AND BUNDLES



**Cylinders
Holding**



FIRST STATIONARY BUNDLE FOR CNG

OF WATER VOLUME 4280 L,
WORKING PRESSURE 300 BAR



55 MWH OF ENERGY STORED IN THE MEGC IMDG

The solution for transporting large amounts of energy to areas that are not connected to the public gas pipeline network is a unique MEGC container for transporting compressed gas at medium distances over roads, railways or by sea. Containers form a major part of the so-called virtual pipeline.

The MEGC container is unique in its technical solution mainly in the area of maximum

utilization of gas transmission capacity in relation to the permissible transport weight of the whole and in proportion to the minimum external dimensions. Cylinders Holding has achieved this through a well thought-out container design and the use of specially treated steel cylinders. **The advantage of the MEGC is also the compact, standardized 1CC container, the so-called twenty-foot boat container, which minimizes shipping costs.**



In January 2019 an ultra-modern dividing Linsinger line was installed in the company Vítkovice Cylinders, member of the Cylinders Holding group. New device substantially increases billet breaking capacity and improves the efficiency of the seamless pressure cylinders extrusion node. The saw allows to divide steel billets with a diameter of 150 to 240 mm.

Vitkovice Milmet, a member of Cylinders Holding, put into operation a new robotized workplace for palletizing steel cylinders, at the beginning of 2019. Surface protection of cylinders is a fundamental assumption for success in the automotive industry and usage products for passenger cars or trucks powered by natural gas. The palletizing line enables accurate storage of CNG-1 cylinders in bundles, without damaging the paint.



In 2019, the internal surface washing line, designed for natural gas, food industry and health care cylinders, was also put into operation in Vitkovice Milmet.

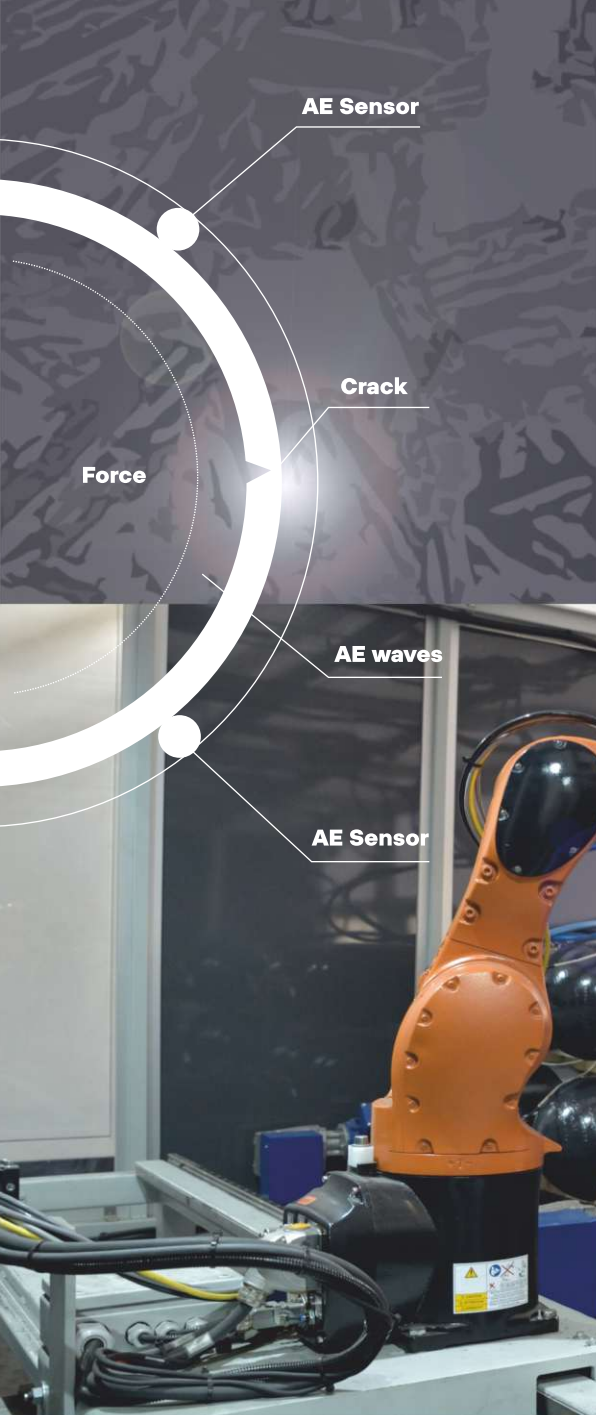


04

SPECIAL
TECHNOLOGY,
INNOVATIONS,
INVESTMENTS



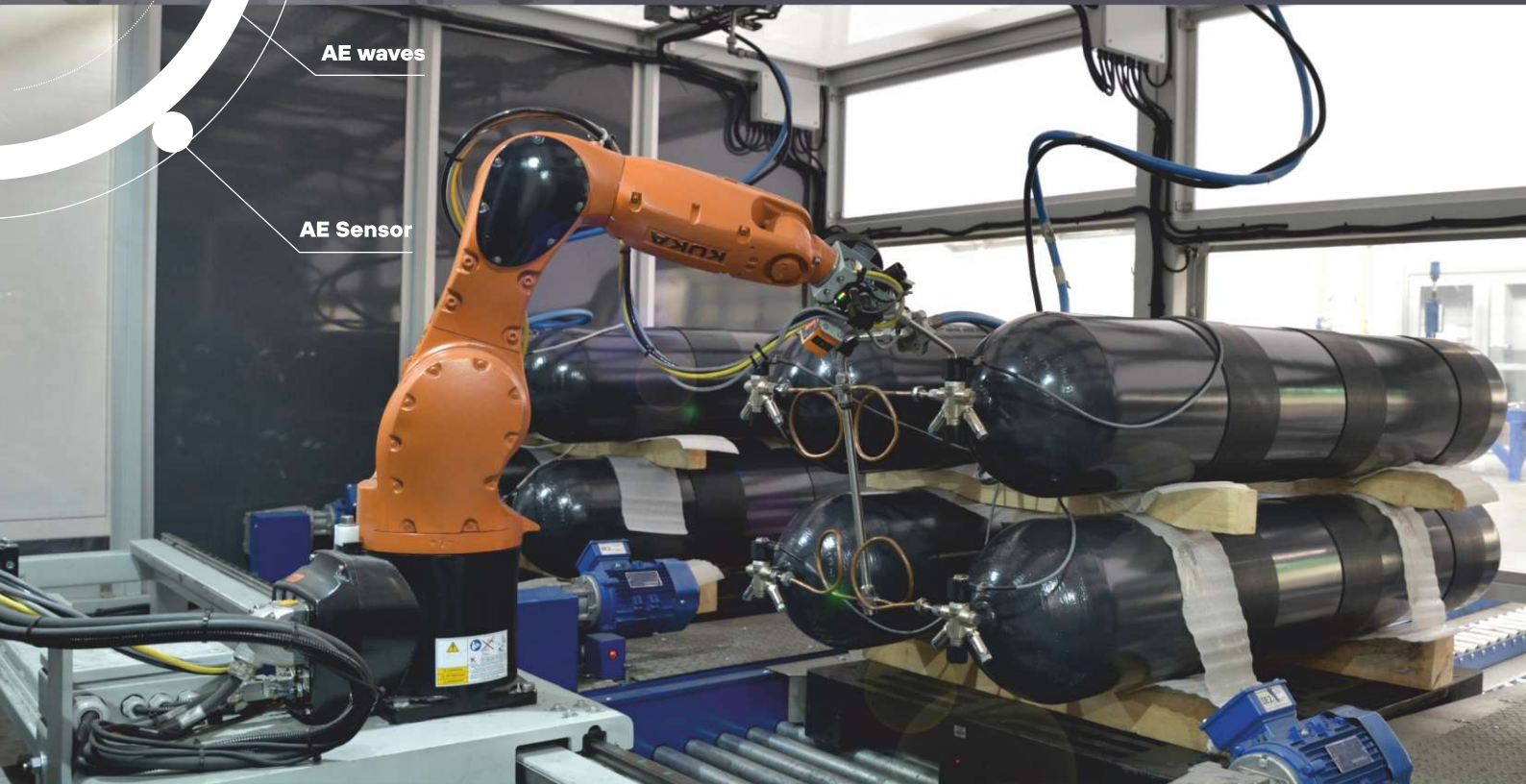
**Cylinders
Holding**



SPECIAL NON-DESTRUCTIVE TESTING

IS AVAILABLE ANYWHERE IN THE WORLD

Cylinders Holding has implemented a unique non-destructive test method, the so-called acoustic emission, which can be used to test group of products and their applications for other pressure systems (pressure pipes, pressure fittings, boilers, etc.). This method is unique due to the range of tested pressure levels and mobility, which allows testing anywhere in the world in a short time.



HELIUM TIGHTNESS TEST

MEETS THE REQUIREMENTS OF AUTOMOBILE MANUFACTURERS

The trailing test allows leakage detection of the valve-cylinder connection (bundles of cylinders) at a pressure up to 260 bar. The test is carried out using a helium detector in automatic mode, without operator intervention. The device operates in a closed circuit (gas recuperation) and allows leakage detection at level 10-6 mbarl/s. This method meets all requirements of the automotive industry and demanding customers.

05

QUALITY
AND TESTING



**Cylinders
Holding**

Stay informed



cylanders.holding • Sledování

cylanders.holding Back to the past with Cylinders Holding 📍 Destructive test of steel cylinders in Vitkovice 1938. Most important is that after destruction cylinder stayed as whole piece and didn't burst 🙌🔥 #cylinders #ostrava #vitkovice #lahvarna #cylindersholding

16 To se mi líbí



Cylinders Holding @cyl_hol · 15. 1.

Although we ship cylinders to many countries on all continents every day, sometimes happens that we are distributing to a market for the first time. We are happy to expand our global network of Oman in January by shipping 300 pieces of 30L 300Bar technical gas bottles 🇧🇪 🇮🇲 🇵🇸



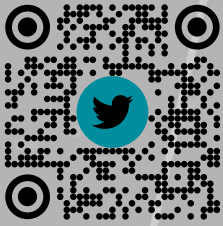
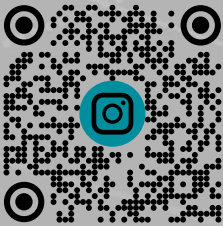
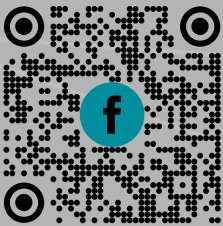
Cylinders Holding @cyl_hol · 23. 1.

Who wants this saw in his garden? 🌲🌳🌳🌳 The latest innovation - Austrian saw Linsinger KSA 800 is the world's top facility 🏆 and after 12 days of installation in Vitkovice Cylinders is already in full operation! If you are interested, more information at [linsinger.com/portfolio/s37/...](https://linsinger.com/portfolio/s37/)



Cylinders Holding

Do you know what the Pendolino trains and Cylinders Holding have in common? 🚄🚆 Our cylinders from Vitkovice Mimet are part of important fire systems in these supermoders train units 🚒🚒 We wish you a pleasant journey!



Cylinders Holding
30 ledna

Ladies and gentlemen, let us introduce you our colleague, Mr. Kawasaki 🤖 With his unique magnetic gripping hand, he's important part of Vitkovice Cylinders 🇨🇪. You can find him working 24/7 in Vitkovice at Production plant 2.

cylanders.holding

Cylinders Holding
Průmyslová společnost

Tradiční Den otevřených dveří ve Vitkovicích na Vás čeká opět 1. května 🌸 Připravujeme zajímavý a zábavný program at už přijdete s dětmi, s partnerem, nebo samostatně 🙌🔥 Provozy budou otevřené od 8:00 do 13:00 a již brzy zveřejníme další podrobnosti k programu!

1. května 2019
Den otevřených dveří
ve Vitkovice Cylinders
výrobní provozy a areál od 8:00 do 13:00 hod.

To se mi líbí 373 · Komentář · Sdílet

Komunita
373 lidem se to líbí
394 lidí to sleduje

Informace
Contact Cylinders Holding on Messenger
www.cylinders.cz
Průmyslová společnost

Lidé
373 To se mi líbí

Související stránky
ZO Kovo Těžká mechanika - Vit...

