THE PRESS

Consultancy on Hydro-Dyn Press Systems

No.2/2003

Hello from the Editor

Dr.-Ing. Ulrich Haupt

Dear Hydro-Dyn press user, dear user of Hydro-Dyn press consultancy, dear friend of the Hydro-Dyn press technology,

The work for the first edition of the Hydro-Dyn newsletter **THE PRESS** was really worthwhile, considering the overwhelming positive response of the readers it met with. This reaction encouraged the editor to continue with the next issue, which you are presently holding in your hands.

THE PRESS again provides continuous information on new developments related to the Hydro-Dyn system as well as on practical experience gathered during press operation. The keynote is the presentation of Flakeboard St. Stephen / N.B. Canada – a company operating three Hydro-Dyn presses. Furthermore, you will find a report on the grand opening of Trelleborg's new production line in Kalmar/Sweden. Articles from the silicone oil manufacturer Dow Corning, the producer of Hydro-Dyn spare parts FMH in Springe/Germany and from Brunel Automation complete this issue. An honouring article is dedicated to Ernst Brinkmann, the renowned specialist for the wood technology used in Hydro-Dyn presses.

During the past few years, the editor has consulted many Hydro-Dyn press users around the world. His work was characterised by the search for principal reasons for technical problems and their solutions or by setting the machines to optimum operating conditions. An important part of the work of the consultant was focused on system improvements or on training the operating personnel of the press.

Inspecting so many presses and collecting a wide range of experience allowed further developments of the press system to be achieved. The ideas and technical improvements developed were subject of a patent application. They should allow the great potential still hidden unused in the press system to be fully utilized and its efficiency to be additionally increased. At this point, the editor would like to express his gratitude to all companies using presses, which co-operated in the development and provided the platform for progress in this work.

In the present situation with the Hydro-Dyn technology being transferred to a new owner, the editor expresses his hope, that it will be acquired by a company that lays the foundation for a successful future of the system by producing new Hydro-Dyn presses. The great advantage of this technology described on page 11 of this newsletter should form the basis of its future use as a key component in new production lines.

The editor would like to invite again all persons involved in Hydro-Dyn press technology to contribute to this newsletter in the form of comments, questions and experiences, in order to ensure that all members of the Hydro-Dyn family can benefit from it in future editions of **THE PRESS**.

U. Haupt

CONTENTS

What‘s new on Hydro-Dyn

In this part of the newsletter **THE PRESS** regularly reports about advances in R&D and new technical experience made.

Improvements in labyrinth groove design
The Teflon pad system of many Hydro-Dyn presses is designed with labyrinth grooves on the edge pads. This groove system represents a flow resistance for the silicone oil leaving the pads in fluid film over the edges. Consequently, the grooves cause a higher pressure level in the area of the product edges, which contributes to higher pressure uniformity and a more uniform product in this zone.

For several years, a labyrinth system with grooves has been used, which are open towards the gaps between the pads. This design turned out to be unfavourable and it was found, that the walls between the labyrinth grooves systematically show wear or damage due to pressure oscillations in these channels. For this reason, a new design was developed and tested, which exhibits a much more stable behaviour.

New press infeed with lower PEEK.ledge and contact bar

Press users are invited to use the advanced design and to benefit from the longer life time and more efficient function of these elements in the press.

Lower position of PEEK ledge
The infeed and outfeed pads of the Hydro-Dyn press are equipped with PEEK ledges, in order to protect the Teflon zones against wear and damage. In the past, it occurred with several presses, that small metal particles got stuck in the PEEK-material cutting a longitudinal groove into the belt.

Today, the danger of such damage can be avoided by means of a new special design of the infeed and outfeed pad.

With this new design, the position of the PEEK bar is displaced by some mm away from the steel belt, which now enters directly on the surface of the Teflon pad or leaves from it. The infeed and outfeed pads are manufactured of black Teflon material and have a section without grooves. A contact bar is located in the press infeed across the width to release an alarm when the belt touches it, i.e. in case the Teflon inlet edge is worn and there is the risk that the steel belt touches any metal component.

This design has turned out to be very reliable and no visible wear could yet be observed. Press users are invited to modify their presses by integrating this technical feature and to eliminate a possible risk of damage to the steel belts.

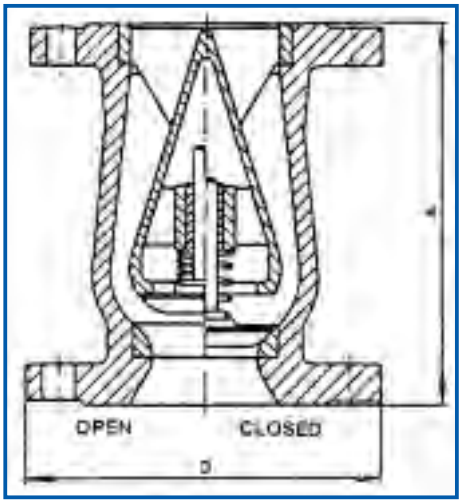
New Al-nozzles
The Al-nozzles in the pads of Hydro-Dyn presses do not act as typical nozzles, but serve to keep the Teflon in this area in a stable form and to avoid plugging of the feed or return hole. This Al-nozzle is applied in several presses, where no thread is provided in the Al-plate, but in the Teflon.

During long-term observations this design turned out to be unfavourable, due to the risk of oil leaks between the Teflon pad and the Al-plate. As a consequence, local wear in the Teflon surface occurs and – in addition to this – the leak flow bears a negative impact on the uniformity of the press pressure.

For this reason, it is recommended to install Al-nozzles with a new design having a thread in the area of the Al-plate body. Corresponding threads should be machined into the infeed and return holes of the Al-plate.

These modifications proved advantageous in terms of wear reduction. The use of the new Al-nozzle is thus highly recommended in presses, which are provided with the unfavourable nozzle / Al-plate connection.

New non-return valve
In the Hydro-Dyn press system, the main circulation pump transports the fluid from



Sketch of new Venturi non return valve

the silicone oil tank to the following pipe system and to the HP pumps. A non-return valve is installed downstream from the main circulation pump, in order to allow these pumps to be opened for working on them. It could be observed with many press systems, that the existing non-return valve showed local overheating effects that may have been caused by vibrations of the valve plate, which is supported by a spring system in the housing. In addition to this, the vibrating element may act as a foam producer.

Modified Al-nozzle with new thread

Consequently, some presses were modified by replacing the non-return valve by a Venturi-type valve. This valve version exhibits a very low flow resistance and is characterised by vibration-free operation. Owing to the positive experience made with this modification in some presses, the Venturi-type non-return valve is highly recommended to all press users.

MDF – Production on Hydro-Dyn Press in Xinxiang/China

In 2002, technical assistance for Hydro-Dyn press operation was requested from customers all over the world and the editor travelled to many plants in order to inspect presses, solve technical problems, set new parameters and train the operating personnel for the press.

Invited by Xinxiang Pingyuan Wood Based Panel Plant, the editor travelled to Xinxiang in China, located southwest of Zhenzhou, the capital of the province Henan. This visit and the work performed on the press allowed a significant improvement in the production of thin MDF board to be achieved.

The editor would like to acknowledge the hospitality and friendship of the Chinese colleagues as well as the good co-operation during this work, that formed the basis for the success.

From left to right:
Mr. Sun Zhiqiang (driver), Mr. Yue Xin (translator), Dr. U. Haupt, Mr. Yao Dehuai (Secretary of the Board), Mr. Ma Hong (Deputy General Manager and currently Chief Engineer), Mr. Zhang Lichen (Director of General Manager Office)

Hydro-Dyn Presses in Operation Flakeboard Company Ltd./ St. Stephen N.B. – Canada

Kelly Shotbolt

Flakeboard Company Ltd. was founded in 1960 and started with a production facility for particleboard in St. Stephen, New Brunswick, located on the Atlantic coast of Canada and sitting right at the border of the United States. From these early days the Company has developed to multiple production sites in Canada. The St. Stephen site now has several production lines, 3 for the production of particleboard and 2 thin MDF lines, which are complemented with a variety of upgrading processes such as lacquering, print, hot roll lamination and melamine.

The primary area of investment over the past decade has been thin MDF and Flakeboard in now the largest North American supplier of thin MDF in thickness of 1.6 - 4.0 mm. Over 50 % of the production is decoratively surfaced or otherwise upgraded.

Flakeboards particle board Hydro-Dyn press

Melamine Faced Chipboard (MFC-) press

Flakeboard has a long tradition of producing particleboard and MDF on double-belt presses. Three Hydro-Dyn presses and two Mende-presses represent the key equipment of the board production, completed by a single daylight-press for particleboard and two daylight-presses for board lamination.

The first Hydro-Dyn press for particleboard erected in St. Stephen in 1983 was one of the first double belt presses of this type for industrial application after a time of the development of this system. With its 12,5 m long heating platen the press produces 230 m^3 of board, 4 ft. ($^3/_4$" basis) per day. The speed of this press is between 6 to 11,5 m/min depending on thickness. Mat formation is critical on the Hydro-Dyn platform and the quality of the board from this press was improved by improving the forming two years ago.

The second Hydro-Dyn press system in the St. Stephen plant is the continuous Melamine Faced Chipboard (MFC) press. Sanded board of 12,7 to 19,05 mm thickness and 4 ft. width is continuously laminated at a specific of 20 bars at a line speed between 15 and 16,5 m/min. Besides the system belts of the press two additional structured steel belts enable in-line structuring of both board surfaces. The production capacity of this line is 350 boards per hour.

In 1994 a third Hydro-Dyn press for the production of thin MDF was erected in the St. Stephen plant. This press, called Fibrex II, has a heat platen length of 20 m and enables 2,0 to 12 mm board production of 4 and 5 ft. width. The press works with a specific pressure in the high-pressure zone of about 50 bars. The press is equipped with a second silicone oil circuit at a lower temperature level and enables cooling down to 100 - 120 °C. It is a feature of this system that the heating and cooling zone of the press can be lengthened or shorted for optimum technological results.

This press allowed for production speeds of about 60 m/min for 3 mm MDF. A complete retrofit of the line in 2001 modernized the press line. Changes included installing larger

Press infeed of Flakeboard's thin MDF-press Fibrex II

press drives to bigger units and changing to frequency controlled operation. Additional changes and improvements to the board transport and handling system increased the maximum press speed to 75 m/min and the daily capacity to over 400 m^3/day.

Flakeboard is very satisfied with the performance and the possibilities of this press system, being ideal for the production of thin MDF. The ability of this robust machine system is completed by its capability to accept the passage of double or even triple mat without damage, eliminating a major risk in thin board production.

Fibrex II was once operated for a period in the past with direct laminating of foil at speeds up to 45 m/min. Today, the market requires high volumes of unfinished thin MDF and this led to the decision to eliminate direct lamination to un-complicate the handling processes in order to maximize daily production capacity. The range of product from this line was increased further by developing lower-density and higher density boards (over 1000 kg/m^3).

From the early days of the use of Hydro-Dyn presses, Flakeboard has cooperated with Dr. Haupt. Through his input, Flakeboard has incrementally improved the equipment and the quality of the board from the Hydro-Dyn presses. Ongoing developments in this successful cooperation are focused to further improve the efficiency of the press, board quality as well as further educating and qualifying the press operating personal.

Flakeboard's thin MDF-press with 20 m heating platen length and the ability to operate at 75 m/min

Grand Opening of Trelleborg Rubores new Production Line in Kalmar/S.

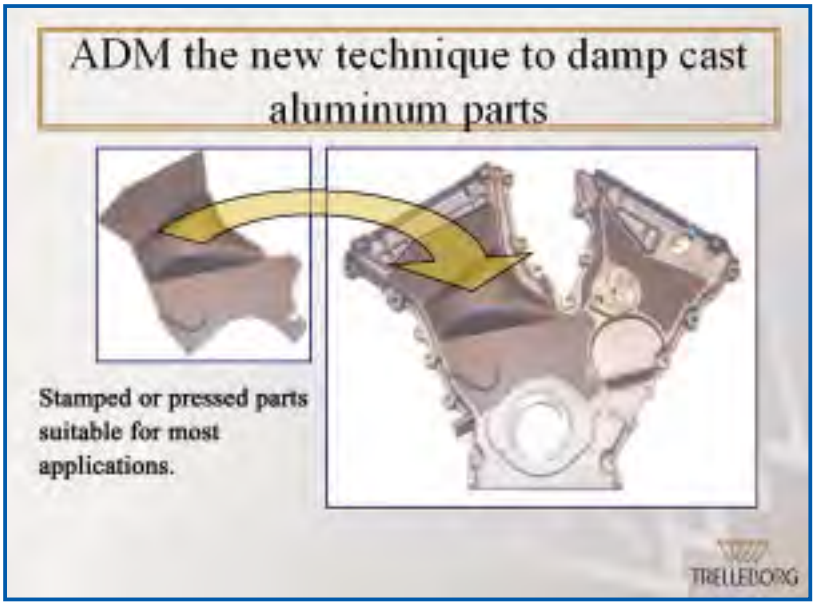
Ulf Johansson

The Erection of Line 5 in Kalmar
Rubore is producing thin laminate of multiple layers of metal and rubber sheets used in the automotive industry mainly to reduce noise and vibration.

Strategy
Trelleborg Rubore's strategy is to expand its business within the segments and niches of the automotive industry.

There is a strong market demand for our quality and solutions in terms of technology and material in these new fields of application.

Extensive tests have been performed to develop materials for these new applications, and we are currently working on more than 60 different projects.



Project
By the end of the first quarter of 2002, the available AUMA capacity in Trelleborg was fully utilised. The project consisted of two investments: one short-term investment to keep up with customer demands and to continue to grow in an interesting market; the other a long-term, technological investment aimed at increasing the capacity to give us the means of expansion in line with our strategy.

Hydro-Dyn Press
This is **an investment in a new technology**. During the last ten years, automotive laminates have opened up new possibilities for the AUMA technology. Considering the point we have reached today, we don't believe that we can go much further.

On the basis of the double belt press technology we will considerably improve capacity, quality, pressure and heat transfer.

These factors are of vital importance for the success of the Duru-lam material.

History
The project started in September 1997, with four persons from Trelleborg and four persons from Kalmar being involved. The project was developed over the years and from August ' 98 to April ' 99, four test runs with coils on existing equipment in Germany were carried out. All test runs showed perfect results.

In this context, not only the Hydro-Dyn press had to be tested, but also the complete material handling within the line had to be developed. Gabella Macchine from Crevacoure in Italy – the supplier of four lines for Rubore before "line 5" – was charged with the challenging task of finding a way to continuously supply two steel layers together with rubber into the press without any interruptions.

The Erection
The Trelleborg Board of Directors approved the investment of Euro 9 million in May 2001.

Most of the pre-studies had been made and the authorities had granted the required approvals.

The installation of the press was quite difficult to be carried out, as it was a used line that had been dismantled by Rubore and stored in disassembled condition for more

Trelleborgs new Hydro-Dyn press with the team of specialists for the assembly and commissioning durin the grand opening in August 2002

than two years. When Kvaerner Panel System sold the Hydro-Dyn press to Metso, many experts left the company and were widely scattered. For this reason, Rubore charged Ulrich Haupt with finding competent persons not only for the installation but also for upgrading and redesigning the silicone system.

To mention some of the persons involved:

- Klaus-Dieter Theur
  Design of the silicone system
- Wolfgang Kuhlmann
  Press control system and electrical installation
- Gunther Finke
  Mechanical installation

In the period from October to November 2001, rebuilding of the silicone oil system was started, the cooling section was removed and the high-pressure pipes were replaced. A new factory was built to house the new line 5

Pipe installation in the pump room of the press system

Pipe system on the reverse side of the press

Outfeed of Hydro-Dyn press

and in February 2002 it was ready, so that the installation of the press could be started.

As it was estimated that the installation would take about 4 months, the first test run was scheduled for June 30.

And with a delay of only a few days, the first material passed through the line on July 8. The grand opening took place on August 22 with suppliers and customers from all over the world.

Satisfaction with regard to the new production line
From left to right:
Mikael Holm, Production Manager
Percy Josefsson, President
Ulf Johansson, Plant Manager

About the Need for Press Assistance

After nearly three years of consulting activities for Hydro-Dyn press systems, important experience has been gathered by the editor as to the use, the need and the various forms of this type of assistance.

A very efficient form of technical support is presently provided to a number of customers on a contractual basis, with the consultant taking part in the main inspections of the press system during the year. On this occasion, he provides advice for repair measures and modifications, evaluates parts of the press with regard to reuse or exchange and sets the machine parameters to optimum operating conditions. A detailed report about these activities prepared at regular intervals documents the history of the press and is helpful to the customer's maintenance personnel.

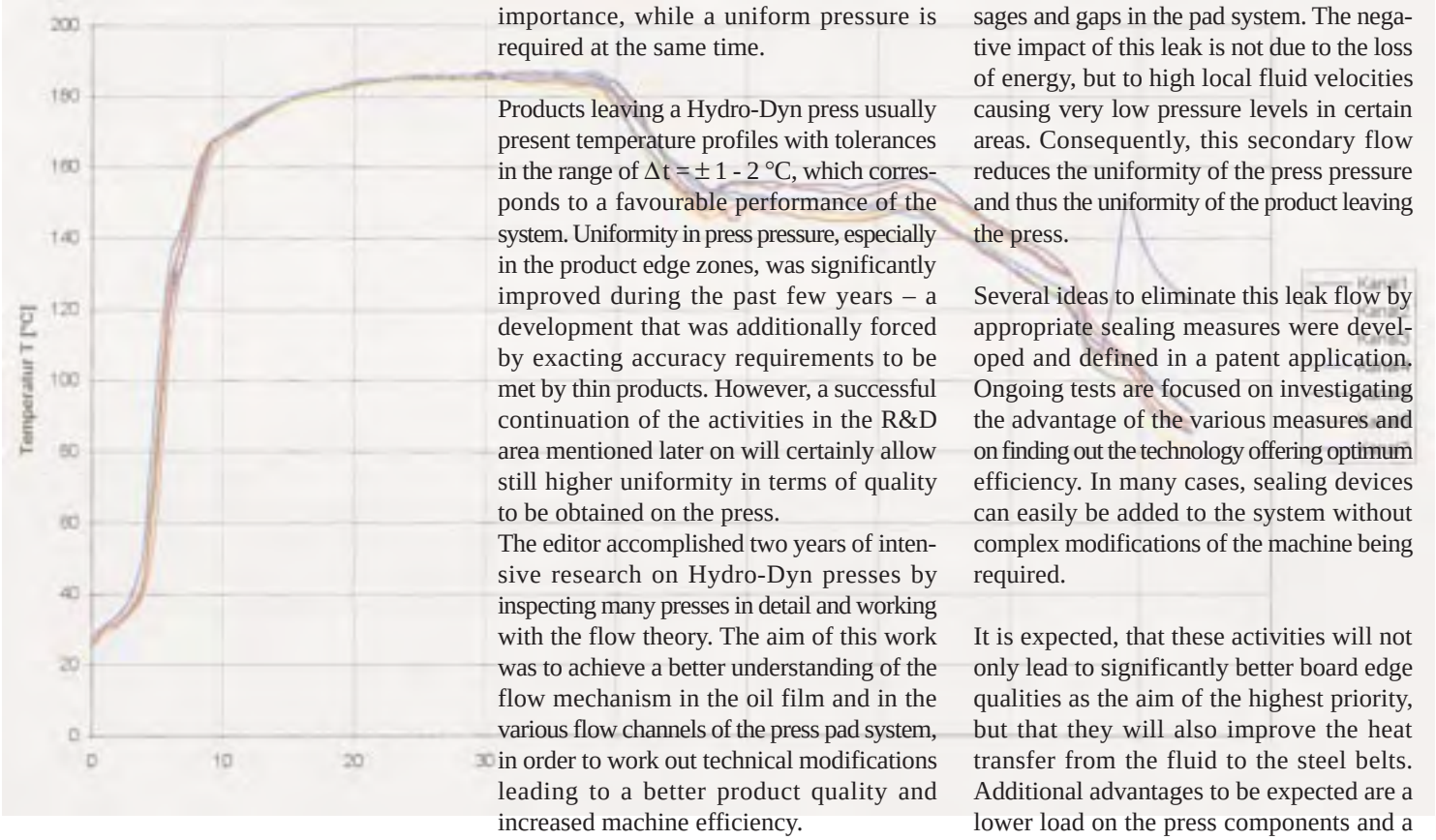
The advantage of the consultant getting detailed information about the press, the technical history and the operating parameters during this work has turned out to be extremely important with regard to any later support provided by the consultant. The costs for this regular technical assistance pay off after short time, considering the benefits obtained by a reduction of downtime due to sudden technical problems and by operating the machine at optimum conditions for a long period of time.

An additional aspect of the close contact with the consultant has turned out to be very beneficial to the press user. This co-operation provides access not only to the extensive specific technical experience of the consultant, but also to new developments, which offers the possibility of integrating improvements into the customer's system with the objective to achieve still higher product quality, higher availability of the system or a reduction of the operating costs.

Other customers prefer a more occasional technical assistance, ask for a single inspection and advice for correct operating parameters or for renovating the equipment.

The access to the wide technical know-how in form of a close contact to the consultant is especially important in a time like this with the manufacturer of the press leaving the business area.

Improving the Hydro-Dyn Press System



Hydro-Dyn is a system for a great variety of technical applications and thus has to comply with very different demands. Particle board or fibre board production, for example, requires an efficient heat transfer with a favourable board thickness profile being a key issue. For other products – like HP laminates or technical laminates – a very uniform temperature distribution is of decisive importance, while a uniform pressure is required at the same time.

Products leaving a Hydro-Dyn press usually present temperature profiles with tolerances in the range of $\Delta t = \pm 1 - 2$ °C, which corresponds to a favourable performance of the system. Uniformity in press pressure, especially in the product edge zones, was significantly improved during the past few years – a development that was additionally forced by exacting accuracy requirements to be met by thin products. However, a successful continuation of the activities in the R&D area mentioned later on will certainly allow still higher uniformity in terms of quality to be obtained on the press.
The editor accomplished two years of intensive research on Hydro-Dyn presses by inspecting many presses in detail and working with the flow theory. The aim of this work was to achieve a better understanding of the flow mechanism in the oil film and in the various flow channels of the press pad system, in order to work out technical modifications leading to a better product quality and increased machine efficiency.

The functional principle of the Hydro-Dyn press is based on the oil flow from the feed nozzles in the heating platen guided by the pad grooves to the steel belt, where the heat is transferred under pressurised conditions. From there, the oil continues its path via the return nozzles towards the oil return system.

In addition to the main oil circuit in a well sealed flow passage, a secondary oil flow could be observed, which considerably affects the uniformity of the press parameters. This secondary flow is a leak oil flow using passages and gaps in the pad system. The negative impact of this leak is not due to the loss of energy, but to high local fluid velocities causing very low pressure levels in certain areas. Consequently, this secondary flow reduces the uniformity of the press pressure and thus the uniformity of the product leaving the press.

Several ideas to eliminate this leak flow by appropriate sealing measures were developed and defined in a patent application. Ongoing tests are focused on investigating the advantage of the various measures and on finding out the technology offering optimum efficiency. In many cases, sealing devices can easily be added to the system without complex modifications of the machine being required.

It is expected, that these activities will not only lead to significantly better board edge qualities as the aim of the highest priority, but that they will also improve the heat transfer from the fluid to the steel belts. Additional advantages to be expected are a lower load on the press components and a more gentle treatment of the silicone oil. Press users are invited to contact the editor in this matter in order to discuss the use of these measures in their press and in order to benefit from these advances.

Press heating platen with pads

New Silicone Fluid Technology Development for the Hydro-Dyn

James Habermehl

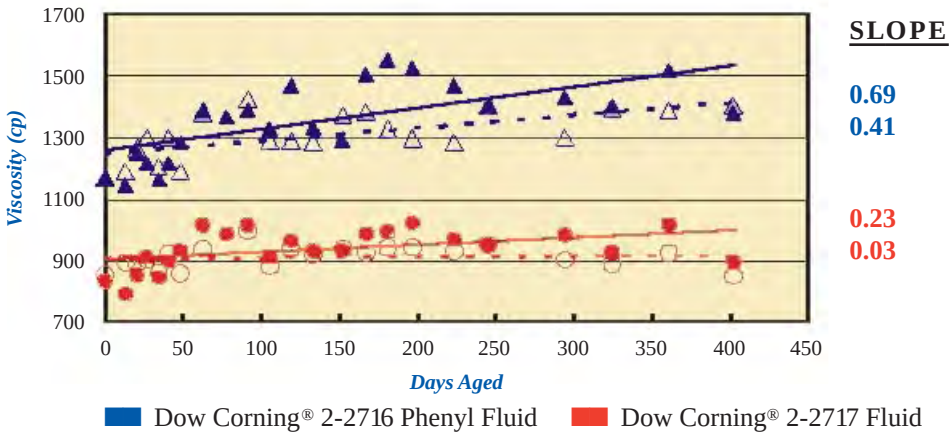
In the first issue of **THE PRESS**, it was noted that optimization of the silicone fluid flow dynamics as well as improvements in the silicone fluid itself successfully reduced higher operating costs typically associated with the Hydro-Dyn in the past. In the early 1990's, Dow Corning Corporation, in close cooperation with North American Hydro-Dyn press operators and Dr. Haupt, worked to develop its first generation of silicone fluid for the Hydro-Dyn.

The first generation fluid technology, **Dow Corning®** 2-2716 Phenyl Fluid, was introduced at the 28th International Particleboard and Composites Symposium in April of 1994. Concurrently, Dow Corning also introduced a lower viscosity product (~150mPas), Dow Corning 2-2726 Phenyl Fluid, for use as a diluent to lower viscosity of the silicone fluid in press applications where the original fluid was beginning to reach the end of its service life.

Based on industry concerns regarding the high operational costs associated with the rapid degradation of the silicone fluid in the Hydro-Dyn and expressed interest in a silicone fluid technology that could withstand higher operating temperatures, Dow Corning scientists continued their research to develop a product that could meet these needs. This research identified slight modifications in molecular architecture of the 2-2716 Phenyl Fluid that would likely result in dramatic improvement in heat stability and hence, provide longer service life. Further research, product development and, laboratory testing resulted in the commercialization of the newest silicone fluid for the Hydro-Dyn.

Dow Corning 2-2717 Fluid was introduced at the 35th International Particleboard and Composites Symposium in Pullman, Washington in April of 2001. Extensive laboratory testing of this new fluid, which is fully compatible with Dow Corning 2-2716 Phenyl Fluid, has consistently demonstrated superior thermal stability relative to 2-2716 Phenyl Fluid. **Figure 1** illustrates the outstanding performance of this new product at temperatures of 185 degC and 200 degC for a test period of over one year. The change in viscosity over time (or slope of the trendline data) of the 2-2717 Fluid is significantly lower than the 2-2716 Phenyl Fluid at both test temperatures.

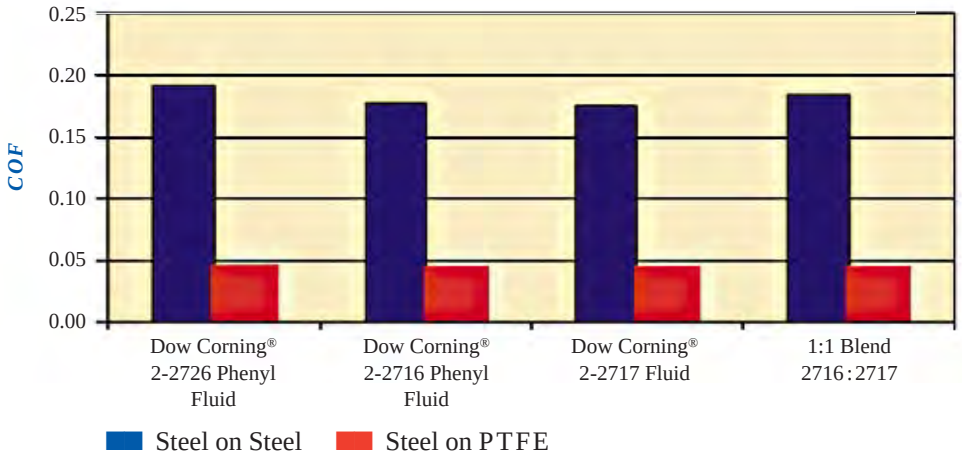
Figure 1: Comparative stability testing



In addition to accelerated heat aging studies noted above, coefficient of friction values were measured using a Cambron-Plint Model TE77 Tribology Analyzer using a Rockwell C60 hardness reciprocating ball on both a Rockwell C20 hardness steel plate and on a Teflon plate. **Figure 2** compares the coefficient friction values for Dow Corning 2-2717 Fluid, Dow Corning 2-2716 Phenyl Fluid, a 1:1 by weight blend of Dow Corning 2-2716 Phenyl fluid and Dow Corning 2-2717 Fluid and, Dow Corning 2-2726 Phenyl Fluid. As shown, the lubricities of all fluids tested are comparable on both the steel and Teflon test surfaces.

Based on laboratory testing completed to date, this new fluid technology should provide Hydro-Dyn press operators with a choice in operating strategies: #1. lower overall fluid cost or, #2. increased production rates at equivalent overall fluid cost. In other words, they could choose to operate the press at their present silicone fluid temperature and subsequently obtain a longer fluid service life or, in short, lower overall fluid costs between

Figur 2: Coefficient of friction testing (TE77, ball on plate, 5 Hz, 8.96 mm, stroke)



fills. Alternatively, the press operator could elect to run the silicone fluid at a higher temperature and increase press production capacity while maintaining a fluid service life and cost equal to the current fluid technology in use.

This new silicone fluid is currently used in two presses in North America and has multiple patent applications pending. Dow Corning looks forward to continuing to work to develop and supply cost effective solutions to Hydro-Dyn Press operators globally.

For further information regarding, please contact Dow Corning directly or via the editor.

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Hydro-Dyn's Place in the Family of Double Belt Presses

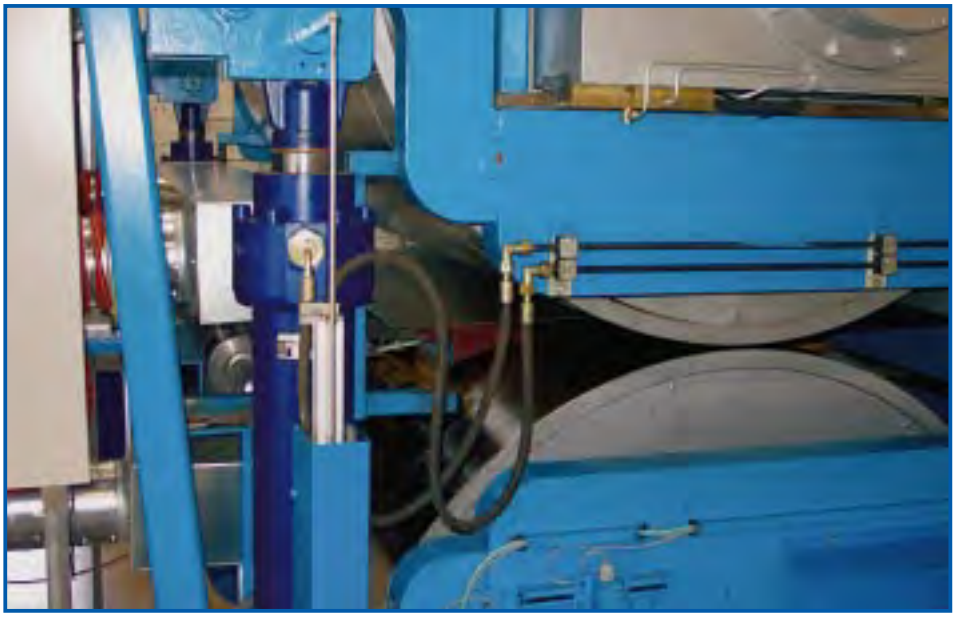
There is a continuous discussion about advantages and disadvantages of the different types of double belt presses offered on the market for the huge variety of different products. The comparison between the press systems shows very different key characteristics of the individual machine types. Consequently, this comparison results in favourable application of a certain press for a specific product or product group, while its position is weaker with regard to other products.

In the following list, the editor defines the performance of the Hydro-Dyn press system by describing the features ensuring an economically efficient use of this system in many industrial processes.

The key characteristics of the Hydro-Dyn press system are as follows:

- Simple functional principle without roller elements
  Low risk of steel belt damage, low steel belt wear, low risk of damage due to other reasons
- No sealing elements, no wear of seals
- Very high availability of the press system
- Wide range of application of the press system due to isobaric and isochoric press characteristics
  Suitable for particle board, fibre board, lamination of wooden board, HP-laminate, technical laminate, plastic flooring, etc.
  Ideal for the production of thin MDF board and all kind of laminates
- Efficient heat transfer in the press due to direct contact between the heating fluid and the steel-belt and product
  Very low heating time values
- Temperature profiles across product width
  $\Delta t = \pm 1 - 2$ °C
- Possibility of direct board lamination in the press

- Heating and cooling in the press
  Cooling very efficient
  Possibility of cooling down to 30 °C
- Variable length of cooling zone to adapt the process to various product thickness
- Variable product widths
- Possibility of very high speed for thin products (~ 75 m/min)
- No mechanical damage in case of double or triple mats
- Low operational costs due to long life time of Teflon pads, silicone oil and steel belts
- No risk of fire at press outlet when producing wooden board
- Suitable for extended lower steel belt to locate spreading units and unwinding stations
- Continuous start-up for thin material as well as for thick products by means of special continuous start-up procedure
- Press is suitable for rough industrial application with variable spreading thickness during start-up or during product change.



Competence in Plastics, Aluminium and Rubber at Work

Guido Metzig

Nearly all Hydro-Dyn presses worldwide are operating with Teflon pads, which were manufactured in Springe by the team of Guido Metzig, the co-owner of FMH. For 15 years, these people have been specialised in the production of specific spare parts for Hydro-Dyn presses and gathered extensive technical experience in this field.

In 1999, this group of specialists founded the company FMH Produktions-GmbH and started their own business. Since 2002, the company has offered services and delivery directly to Hydro-Dyn customers, with significant cost benefits due the direct relation between customer and manufacturer.

At FMH, the production of Teflon pads is carried out on modern NC-machines for complex product geometries with a direct connection between programming unit and machine. This solution ensures a rapid data exchange and offers the possibility of making geometry changes and modifications without any delay.

The technical co-operation with Dr. Haupt provides the possibility to use the latest and most favourable pad design, as well as information on optimum construction and current standards.

The pads are manufactured either in virgin material or in black Teflon for press zones that are subject to high load, for example the edges of the press area. In addition to Teflon parts for the press, FMH also manufactures complete Al plates, Al bars, side bars with Torlon strip, PEEK bars and all components belonging to the pad system.

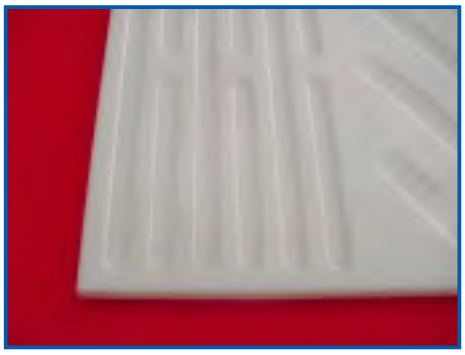
FMH additionally offers the complete range of rubber scrapers and lip seals in the form of rolls or as material that is cut to length and bored, i. e. completely prepared for the installation into the press. The special wiper pad at the press outlet, lip seals of Viton material and special rubber profiles used in the press also belong to the product range offered by FMH.

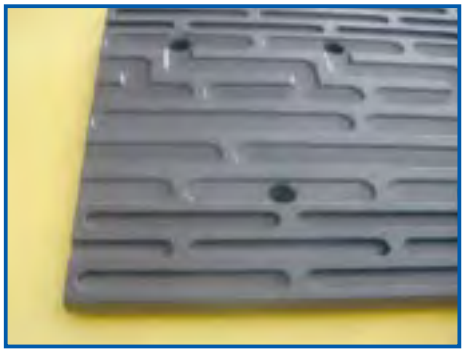
FMH
Produktions-GmbH

FMH – Spare-parts for Hydro-Dyn presses









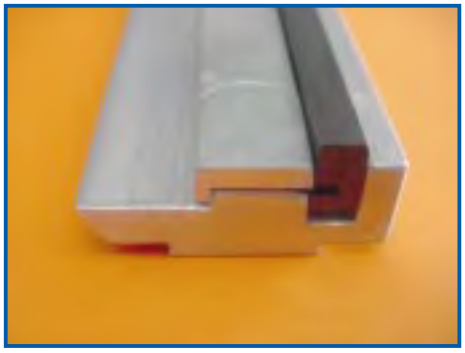

It should be mentioned, that silicone rubber scrapers or lip seals from FMH are pre-treated in hot silicone oil and subject to a swelling process. Due to this treatment damage to and wear of these parts have been significantly reduced.

Other products delivered by FMH to Hydro-Dyn customers are O-rings and nozzles for the heating platen with a constant diameter/length ratio.

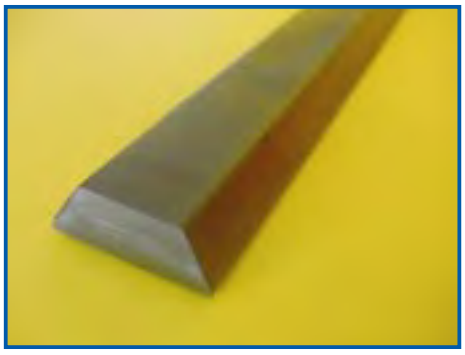
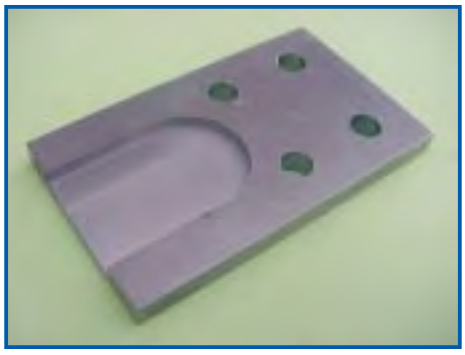
FMH offers its services for all cases of need, i. e. even for other Hydro-Dyn spare parts, such as all kinds of seals, repair kits, filters, insulation stones, valves, pipe components and others.

Reconditioning and refurbishing of press-pads is a new service FMH offers to press customers, i. e. if pads have to be cleaned, to be partly exchanged, to be evaluated for reuse, to be machined to correct dimensions, etc. The competent specialist will provide you with the complete service package.

Press users are invited to take advantage of the experience of the specialists of this company in manufacturing or delivering spare parts and to benefit from a favourable quality/cost ratio combined with the flexibility of a small company characterised by fast reaction to customer demands.





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Brunel Automation: Enhanced competence through networked know-how

Bernd Sommermeyer

Only a few steps along the corridor separate the staff of Brunel Automation and their colleagues working in the competence centres of Brunel Form und Technik and Brunel IT. And in the event of additional know-how being required, the experts of the Brunel network all over Germany can be contacted. ”Owing to this networking of complementary know-how, the scope of our services goes far beyond mere control technology“, explains Bernd Sommermeyer – the manager of Brunel Automation. ”We do not only deliver switch-cabinets, but also elaborate the corresponding process control and drive technology. In addition to this, we are also in a position to integrate, for example, completely new functional components into existing lines.“

”Such an integrated co-operation of different lines of business is a typical example of Brunel’s philosophy“, adds Sommermeyer.

Owing to their professional background in the wood industry, the engineers of Brunel Automation are able to realize line automation projects all over the world – e.g. for fibreboard producers in Canada and Brazil and – more recently – in connection with the setting-up of a new company for board and furniture production in Nigeria.

”With our staff comprising twelve employees and the partners within the Brunel network, we can offer almost any solution you could think of“, says Sommermeyer. ”The tasks we have already tackled in completely new areas, such as the foundry industry, and the problems solved for the Volkswagen group as well as our good references in the automotive supplier industry have confirmed our decision to take this path“.

The proven competence of Brunel Automation has also been reflected by positive results at other levels: ”In the meantime, we have become a system partner of Wonderware and a system integrator for Lenze“, says the project engineer, Werner Teichert. This basis will now be used for further expansion of the specialist in particular in the fields of drive technology and visualization.

As a matter of course, the support offered in connection with the Hydro-Dyn presses installed worldwide has not lost in importance. Based on the positive results obtained during the installation of the Hydro-Dyn press in the works of Trelleborg in Sweden, Brunel is also prepared to assume more extensive responsibility for projects with new presses being involved.

brünel Automation

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Ernst Brinkmann – Pioneer of Hydro-Dyn

Ernst Brinkmann

The first activities for the development of BISON's double belt press were focused on the production of particle board. Consequently, the technological process of a particle board mat passing a press from inlet to outlet and its conversion into a final board played a key role in the design of the machine at that time, i. e. before the Hydro-Dyn press turned out to be ideal for other products as well. The person, who contributed to the development of the Hydro-Dyn press by his knowledge and experience in wood technology within the BISON team, was Ernst Brinkmann.

In his capacity as BISON's chief wood technologist from 1957 to 1996, he was deeply involved in the company's efforts to develop the continuous press from its first prototype towards improvements in board quality and higher capacity. Ernst Brinkmann's contribution was highly appreciated in the technological development of direct board lamination on the Hydro-Dyn press and in the design of a separate cooling zone, the length of which is clearly determined by the curing process in the board.

Today, Ernst Brinkmann is 69 years old. He has retired, is still in good health and very interested in further development steps of the Hydro-Dyn press and other areas of his former work. He looks back on a rich working life with R&D activities in wood technology, laboratory projects, commissioning of more than 100 production lines with various types of presses in 30 different countries and finally sharing his technical experience with companies in the particle board and fibre board industry.

Consequently, Ernst Brinkmann is well-known in this branch of industry, also due to his activities in various German or European committees for particle board quality and standardisation.

The editor enjoyed seven years of co-operation with Ernst Brinkmann, who was responsible for the wood technology part in projects relating to production lines combined with a Hydro-Dyn press.

A portrait of Ernst Brinkmann would not be complete without mention of his human character. Ernst is not only a professional specialist, but he is extremely reliable in his work and private life. His special kind of humour was always a great pleasure for colleagues and people who worked with him.

He presented many of his mottos after work in private meetings forming a scope of life experience. Let us hear his advices: "Any day of your life you did not laugh, is a lost day" or "It takes 13 muscles for a smile, but 30 for a grim-looking face. Don't waste your calories. Just smile!"

The editor is sending a hello to Ernst Brinkmann with best wishes for health and the hope, that he will keep his humour of life in the future.

Acknowledgements

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