

# For demanding conditions in particle-board industries

## Your practical benefits



### Chain Oil

ADDINOL Belt Lube HT and Pin Lube HT are particularly developed for the application in continuous press lines in the manufacturing of particle boards of DIEFFENBACHER (CPS Conti-Panel-System) and SIEMPELKAMP (ContiRoll®-presses) as well as KÜSTERS presses operating discontinuously.



### Fit for extreme loads

The careful combination of selected synthetic, ester-based components and a highly effective additivation make ADDINOL Belt Lube HT and Pin Lube HT perfectly fit for various application conditions such as high loads and temperatures, strongly varying stresses as well as high and low frequency vibrations.



### Corrosion and wear protection

ADDINOL Belt Lube HT and Pin Lube HT form a highly stable lubricating film of optimum thickness efficiently protecting all types of steel and non-ferrous metal alloys against corrosion, friction and wear in a wide temperature range. Even changing loads and load peaks are mastered, energy loss is minimised. Outstanding friction behaviour reduces thermal and mechanical loads on all components and ensures increased plant efficiency. The extraordinary protection against corrosion on all materials in turn reduces the danger of deposit formation on contact surfaces.



### Component cleanliness

Due to highest thermal stability and an extremely low evaporation loss, ADDINOL Belt Lube HT & Pin Lube HT show a very low tendency to form residues and varnish at friction points. Deposits or sticky and solid residues on friction pads, chains and pins are successfully minimised. Moreover, the optimised compatibility with process chemicals prevents reactions with glues, release agents or water vapour. Residue formation is avoided, clean components and a reliable operation are ensured.

## The right product for each application



### Perfect suitability

- **Belt Lube HT 260 & HT 220:** applied to lubricate the contact surfaces between steel belts, rollers and friction pads as well as chain parts in the transport system.
- **Pin Lube HT 100 & Belt Lube HT 100:** applied to lubricate and protect the contact surfaces between chain bolts/pins and bending or rolling rods.



### Tested and approved

- **DIEFFENBACHER:** ADDINOL Belt Lube HT 260, ADDINOL Pin Lube HT 100
- **SIEMPELKAMP:** approval process pending

## Your benefit



### Low oil consumption

The extremely low evaporation loss results in lower oil consumption. A stable lubricating film is achieved as well economical operation.



### High efficiency

Due to its powerful additives the ADDINOL Belt Lube HT and Pin Lube HT series shows an optimum friction behaviour which reduces thermal and mechanical stress, increases efficiency and plant availability.



### Less deposits

High-quality oxidation-resistant base oils and the compatibility with process chemicals reduce the tendency to form encrustations. Less residues mean less cleaning and maintenance effort and ensure optimum lubrication performance.

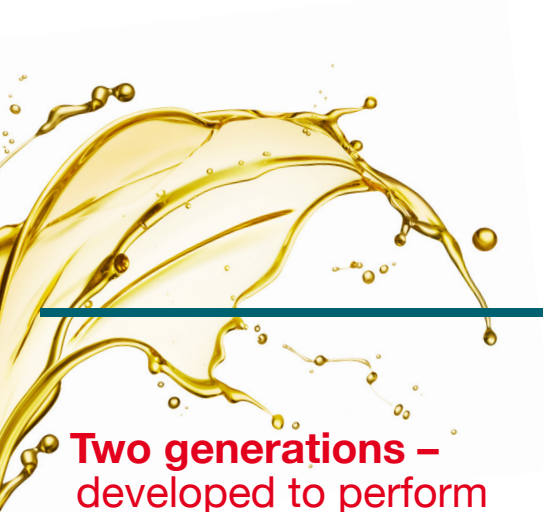
# Belt Lube HT & Pin Lube HT Series

High-performance lubricants

## Extreme requirements in wood-processing industries

Press lines place high and varied requirements on the lubricants used on belts, bending and rolling rods as well as chains:

- constantly high temperatures
- temperature peaks between +240 and +255 °C
- belt speed up to 1,700 mm/s
- pressures up to 600 N/mm<sup>2</sup>
- dusty, humid and chemically aggressive environment (glues, release agents)



## Two generations – developed to perform

### Belt Lube HT 260 and Pin Lube HT 100 – the perfect combination with increased stability

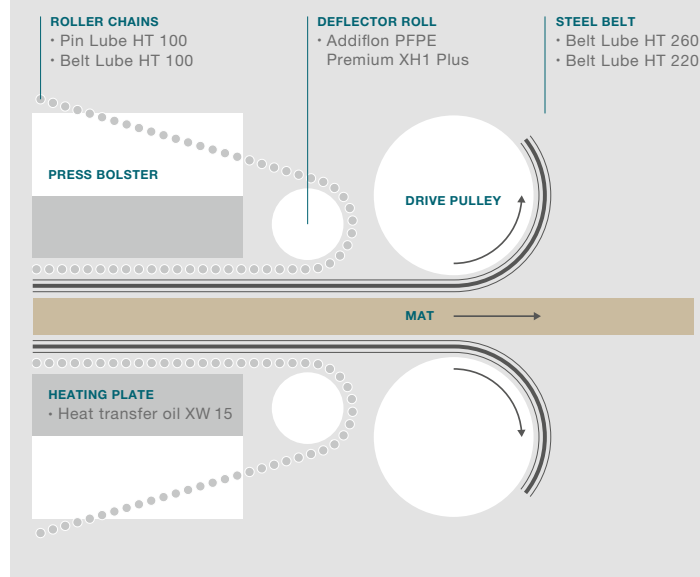
Newer generations and larger press lines of DIEFFENBACHER and SIEMPELKAMP work at higher thermal loads due to larger heating surfaces. These conditions call for the use of accordingly designed lubricants with increased performance.

ADDINOL Belt Lube HT 260 for belts in combination with ADDINOL Pin Lube HT 100 for pins are the perfect solution for these plants. With their advanced formulation the formation of residues could be further reduced, even at extended thermal stress. Furthermore, they display an improved compatibility with other carbon-based process chemicals and operating materials, in particular PMDI glues, release agents, process water and superheated steam. This allows a highly stable operation. Especially for the widely applied PMDI glues in OSB production lines, the increased compatibility of Pin Lube HT 100 pays off. It minimises the formation of deposits and prevents stubborn incrustations. Mechanical cleaning is not necessary.

➔ recommended for harsh conditions typical in the production of OSB (Oriented Strand Board) and PB (Particle/Chip Board)

➔ also applicable on MDF (Medium Density Fibre Boards), LDF (Low Density Fibre Boards) or HDF (High Density Fibre Boards) production lines

### Scheme of continuous press line



### Belt Lube HT 220 and Belt Lube HT 100 – the proven solution for older plants

ADDINOL Belt Lube HT 220 and Belt Lube HT 100 are being successfully applied in older generations of press lines of DIEFFENBACHER and SIEMPELKAMP.

In operation, this combination has proven itself many times over. It ensures high thermal stability and reliable protection against corrosion and wear. It is preferably applied for removing deposits on belts in dry-running presses and has proven in the manufacturing of MDF, HDF, LDF and PB. Especially in HDF lines running at high speed, Belt Lube HT 220 and Belt Lube HT 100 achieve an extraordinarily smooth and stable lubrication. For the application in OSB lines, compatibility has to be checked before application. The ADDINOL Application Technology and the sales team are available for individual support.

➔ preferred for older generations of DIEFFENBACHER and SIEMPELKAMP press lines



## Highest thermal stability

The high-temperature chain lubricants of the ADDINOL Belt Lube HT and Pin Lube HT range are based on fully synthetic components and carefully selected additives guaranteeing highest thermal-oxidative stability. Because of their high flash point, ADDINOL Belt Lube HT and Pin Lube HT chain lubricants are perfectly suited for the use at extreme temperatures. They do not form any incrustations or varnish on surfaces or components which could disturb the run of belt and chain. Deposits on friction pads of drive pulleys recede and are reduced. Therefore, time consuming manual cleaning by the help of dry ice is not necessary. Furthermore, the high flash point ensures maximum technical safety.

### Simulation of ageing behaviour with cup test at 260 °C, 48 h



Belt Lube HT 260

Belt Lube HT 220

Competitor A

Competitor B

Competitor C

## Reliable protection against wear

Plants in wood-processing industry operate under changing loads and sliding speeds. To prevent friction efficiently and to ensure maximum lifetimes of all components, their stable and reliable lubrication is essential.

The lubricants of the ADDINOL Belt Lube HT range achieve best results in relevant wear and friction tests like SRV and the Four ball tester. This means, the lubricants are applied evenly to the whole friction surface and the stable wetting of components is ensured. The homogeneous and stable lubricant film ensures reliable wear protection and low friction even under difficult ambient conditions such as dust, splints and other chemicals.

The above-average wear protection of the ADDINOL Belt Lube HT range in turn reduces deposits and incrustations on roll and chain components and ensures an outstanding cleanliness of the chains.

### Outstanding component cleanliness



Deposits on friction pads with competitive product



Clear reduction of deposits on friction pads about 6 months after changing to ADDINOL Belt Lube HT



Deposits and incrustations on chain components with competitive product



Clean chains with applying ADDINOL Belt Lube HT 260 and Pin Lube HT 100

## Reliable protection against corrosion and aggressive ambient influences

During the manufacturing of particle boards the dusty environment and aggressive ambient influences in the form of humidity, glues and separating agents can cause corrosion or erosion on chains and rods. Because of their outstanding chemical stability the ADDINOL Pin Lube HT and Belt Lube HT range offer superior protection against wear of components and damages on surfaces. This way they contribute to prolonging the operating life of belts, rods and rollers and reduce maintenance as well as related costs and also spare parts costs.

### Corrosion protection under laboratory conditions (DIN ISO 2160, 3 h, 150 °C)



Competitive product



ADDINOL Pin Lube HT 100 and Belt Lube HT 100

### Corrosion protection under practical conditions



Bending rod after application of competitive product showing clear signs of corrosion, wear and discolouration/staining



Intact bending rod after application of ADDINOL Pin Lube HT 100 showing normal signs of use



## Reduced energy and oil consumption = Increased efficiency

The tailored selection of special base components for the ADDINOL Belt Lube HT range ensures optimum lubricating film thickness for high-speed plants under highest loads and temperatures. This way an improved rolling movement of all components is possible.

The ADDINOL Belt Lube HT range possesses outstanding friction coefficients\* compared to competitive products based on its powerful additivation. A lower frictional resistance produces reduced thermal and mechanical loads on the components involved having positive effects on the operating life of the whole plant. At the same time, efficiency is improved and less energy input is required for driving the chains.

At optimum adjustment of the lubrication with both lubricant generations a significant saving potential concerning energy and oil consumption can be achieved in practical applications.

### Field test

Over a period of 81 days power input of press drives and oil consumption of belts has been measured and documented. Over the first two months a competitive product was being used. After changing to the ADDINOL Belt Lube range a reduction of oil and energy consumption of about 30 % has been accomplished under comparable operating conditions → see chart 1.

### ADDINOL 360° Service

Each plant has to be considered individually. In order to make the most of the benefits of the Belt Lube HT range it might be necessary to adjust lubricant supply. When changing over to ADDINOL Belt Lube HT, central lubrication systems as well as lubricant and energy consumption should be monitored. Only if considering all factors the efficiency increase can be proven. The ADDINOL team accompanies the changeover and optimum adjustment of the plants individually and on site.

\*Friction coefficient = ratio for friction losses caused by the lubricant



CHART 1 Oil and power consumption over a period of 3 months

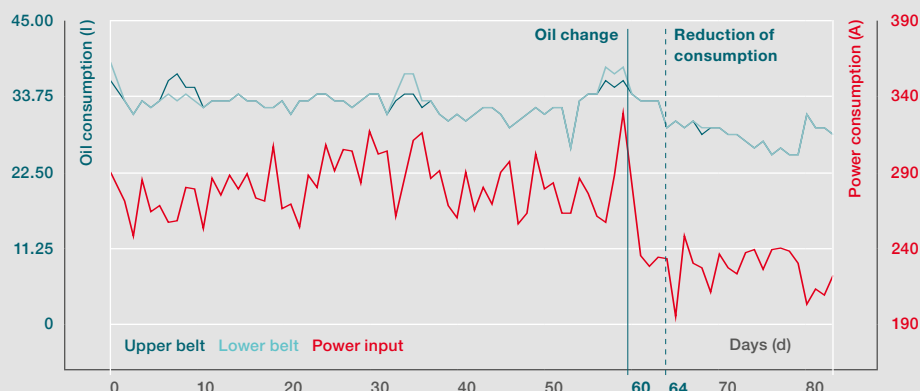


Chart 1:

Oil and energy consumption at a Siempelkamp MDF press line before and after changing to ADDINOL

#### Result:

Significant reduction of oil and energy consumption after changing to Belt Lube HT 220. These results could also be achieved after changing to the new product generation of Belt Lube HT 260 combined with Pin Lube HT 100. The parameters of cleanliness and energy transmission could even be improved further.



## Tips for practice

### Optimum cleaning

For chains and bolts operating under extreme conditions we recommend the cleaning with **ADDINOL System Cleaner HT** before changing over to Pin Lube HT 100 and Belt Lube HT 100. Thanks to its excellent penetrating capacity the product loosens solid and sticky residues thoroughly and cleans actively. These are transported safely by bending and rolling rods and chains to the scrapers or to the blow-out unit. This way they do not disturb the run of the chain. ADDINOL System Cleaner HT can be applied at temperatures up to +240 °C and provides reliable wear protection for all components. With ADDINOL System Cleaner HT deposits and residues of lubricants previously applied are removed efficiently and Pin Lube HT 100 and Belt Lube HT 100 can unfold their full and targeted performance immediately.

### Safe operation for your plant all along the line

In addition to the ground-breaking lubricants for chain and pin lubrication, ADDINOL offers a comprehensive range of high-performance lubricants for the entire production process of engineered wood products, developed and adapted to the specific operating conditions.

- ADDINOL Eco Gear 220 S and Eco Gear 320 S
- ADDINOL Hydraulic oil HLP 46 and HV Synth 46
- ADDINOL Heat transfer oil XW 15
- ADDINOL greases: Longlife Grease MG 1, Assembly paste HTP 700 PG, Addiflon PFPE Premium XH 1 Plus, Addiflon Super 2 EP Plus, Hightemp XFT 2 Plus

