

CONVEYOR DRY LUBRICATION SYSTEM

RM2000 Lubrication Equipment and RM2000T Lubricant

Supplier: CHP bvba, August de Boeckstraat 9G, B-9100 Sint-Niklaas, Belgium

Scope: Automatic lubrication of plastic conveyors for transport of packages and bottles used in the packaging and filling industry

Specific operational and technical features:

- Food-industry approved micro-lubrication resulting in extremely low consumption of lubricant
- Purposive lubrication of topside (surface between chain and package) as well as bottom side (surface between chain and guiding plate) of chain elements
- Full automatic operation with no monitoring costs
- Highest reduction of friction rate between all surfaces
- No application of brushes (dust collectors) nor spraying devices (environmental load) to apply the lubricant to the chain elements
- Water on the outside of the packages and/or simple flushing with water after product spillages will not effect the lubricant layer because the lubricant is adhesive and water repellent
- Flow rate of lubricant is adjustable per individual conveyor according to the specific requirements:
 - o General lubrication interval through changed setting on the controller in the central control unit
 - o Lubrication volume per conveyor-element through simple change of the amount delivered by the individual dosing devices
- Apart from the volumetric pump and the dosing units there are no moving parts involved; as the liquid base is an oily product and the operating cycles are very low, the installation is free of maintenance costs (parts and labour)
- As the hydraulic losses are very limited, one central control unit can serve a total plant (within a radius of about 100m); the highest load for one central unit till date of document is the lubrication of an equivalent of about 400 single conveyors.

Specific safety and health advantages:

- Completely dry working environment resulting in better working conditions and less safety hazards
- The lubricant applies to the most severe criteria being used in the food industry and has the applicable NSF certification
- Other than in water based environments the lubricant does not create or support bacterial growth:
 - o No regular flushing of lubricant supply lines required
 - o No thorough washing and disinfecting activities to reduce the bacterial concentration on the conveyors requested
 - o No anti-bacteria products to be supplied possibly resulting in the disinfectant-resistant "anti-bug" syndrome

Economies of the CHP full dry lubricating system compared to no, "wet" or "half dry" lubrication:

- Direct material cost of lubricant: - 30% / - 80%
 - o Lubricant-consumption for top- and bottom-lubrication of 10 single conveyors: 3,00 till 5,00 cc/hour
- Effluent disposal costs: - 80% / - 90%
 - o Wastewater exclusively resulting from planned cleaning purposes (f.ex. once per year)
- Replacement costs of chain elements resulting in an increase of the chain-lifetime with a factor 3 till 5: - 70% / - 90%
 - o Through applying the prescribed lubricant on both sides of the chain the wear is significantly reduced
- Energy costs: - 40% / - 80%
 - o Reduced friction and elimination of stick/slip phenomena results in lower power consumption
- Production costs: - 30% / - 50%
 - o Lower friction rate creates higher operational reliability and line efficiency due too lower fall outs
 - o Reduced wear results in less replacement costs of packaging material
 - o The fully reliable operation of the lubrication system results in zero-intervention costs
- Maintenance costs of the chain and conveyors: - 50% / - 70%
 - o No corrosion of the metallic parts of the conveyor
 - o No grease washing-out of bearing houses and motors through penetration of water based products
 - o No break down of electronic components due too foam agitation
- Maintenance costs of the lubrication system: -100%
 - o The equipment is maintenance free and does not require any technical interventions during operation
- Safety and hygienic related costs: - 50% / - 90%
 - o Less accident costs
 - o Less disinfecting activities

Total operational cost savings depending upon the reference situation:	- 50% / - 80%
Average pay-back period of the investment in the lubricating equipment RM2000:	1.00 till 2.00 years

Organisational advantages against competition:

- CHP has more than 7 years of experience in full dry lubrication and built up an extensive reference list in the dairy-, juice-, water- and beverage-industry
- CHP manufactured and installed lubrication plants for in total more than 300 filling machines worldwide, and this to great customer satisfaction
- CHP developed together with our selected supplier the lubricant RM2000T which applies to all technical, operational and safety requirements within the food industry
- The sales of oil products is not the core-business of CHP which makes minimum oil consumption as our common target; the lubricant is offered at a reasonable sales price to the end-user
- CHP gives a 5 year guarantee on the delivery of equipment parts when applying the operating instructions and when using the prescribed lubricant RM2000T supplied by CHP
- CHP and its worldwide distributors give a total service to the end-user, including delivery and installation, training for the local employee(s) in charge, regular inspection and preventive cleaning of the conveyors (f.ex. every 3 till 5 years if requested by the customer)