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## A CHANGING CULTURE

HOW ARE PULP AND PAPER MILLS IN CANADA  
APPROACHING THE SKILLS GAP?

# PAPER PUSHERS

How the power of air keeps paper processing facilities on a roll



BY RANDY MANUS

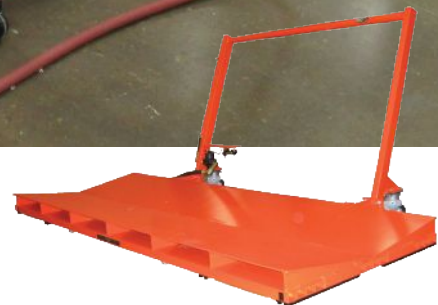
Daily paper production and processing operations require the safe and precise movement of multi-ton paper, tissue, diaper and corrugated rolls. Bulky loads, such as three-metre wide, 5,000-kilogram (11,023-pound) parent paper rolls, must move from one station to another for conversion into smaller rolls.

Enter air bearing machinery, specifically an air caster rigging system capable of transporting mega rolls of paper products simply by floating them from point of origin to the intended destination, be it splitter, spindle or saw. First, operators load massive rolls onto a pallet. Underneath, standard factory-available compressed air then creates a cushion that lifts the entire load. As the load floats on this thin film of air, its movement is controlled by an operator with no risk of impact damage, vibration or friction of any type.

## Manipulating the roll

In general, air bearing-based equipment functions similar to a forklift pallet, with the exception of its legs, which are shaped in a 45-degree angle to slide under the paper roll. When operators turn on the compressed air, the air casters lift the pallet and engage the bottom edge of the roll. At that point, the casters can move any size roll via nearly frictionless movement, making it possible for a single operator to manoeuvre in all directions in an unrestricted manner for precise positioning of the roll at its final location.

In some cases, facilities might install a small pit of a depth less than four centimetres (1.5 inches) in the floor underneath the paper loading area. An air-rigging pallet will then sit in that pit, flush with the floor around it. That enables the facility to place rolls in front of the paper machines, rolling them by hand onto the air pallet while a chock



underneath locks the rolls in place.

Facilities can choose from a wide-ranging selection of air bearing equipment to accommodate a variety of roll widths and complete different operational requirements. Smooth operations require facility- and product-friendly equipment. Air casters do not create pits or scrapes in the floor surface. However, it's not just the facility floor that is protected by the equipment – so are the loads.

## Taking care of tissue

Sometimes special steps may be needed to protect the load at the point of interface between the load-moving equipment and the roll. For example, tissue paper rolls are very delicate, so users will



typically apply a protective layer, e.g. ultra-high molecular weight polyethylene, to act as a buffer between the load-moving equipment and the paper roll.

Once the load has been moved to its destination, it's time to put it to work. An air bearing system eases the process here. These paper rolls may be spinning at thousands of rotations per minute, so precision and balance are critical. Friction, vibration and even slight imbalances can place both machinery and people at risk. An air bearing system helps alleviate the risk because the load is literally floating and therefore frictionless. It allows operators to line the load up perfectly, so that the machine can then pick up the roll from the pallet and start to unwind it.

### Reducing safety risk

Long before the emphasis on ergonomics, rolls were loaded by people, which meant ongoing serious safety concerns.

**As the load floats on a thin film of air, its movement is controlled by an operator with no risk of damage.**

Only certain workers – very strong ones – were able to manipulate the loads, and they were not always able to complete their task safely. In 2017, Canadian workers suffered more than 56,000 back injuries in the workplace, accounting for the most injuries of any body part and 22 per cent of the total work injuries that year, according to the Association of Workers' Compensation Boards of Canada.

Air-based moving systems greatly reduce the risk of these types of injuries. All the torque is eliminated because the load moves in zero friction. Virtually any team member can move the load. Strength requirements are unnecessary

when a cushion of air is doing the work. Omni-directional movement requires only minimal force to move or turn up to a 5,443-kilogram (12,000-pound) load in any direction.

With an air rigging system, one person can smoothly transport, rotate and precisely position heavy paper without the use of a forklift or floor track system. For paper facilities, more reliable processing coupled with increased operator safety can result in production gains. **PPC**

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