

Saves belt driving power with a reduction of conveyor rolling resistance.

Energy-saving Conveyor Belt (ECO Carry)

Features

- Contributes to CO₂ reduction by energy saving (power saving).
- No facility modification is required.
- Used safely (with a high belt safety factor).



ECO Carry

Overview

(Technical principles, actions, etc.)

A number of resistance factors occur when driving a conveyor belt. The rolling resistance of a conveyor belt is the greatest one of them, and occurs when the conveyor belt gets over the roller (see Fig. 1). For example, the rolling resistance occupies 61% of the total resistance of a horizontal line (see Fig. 2). The reduction of the rolling resistance is the most effective way to reduce the total resistance of the whole conveyor system.

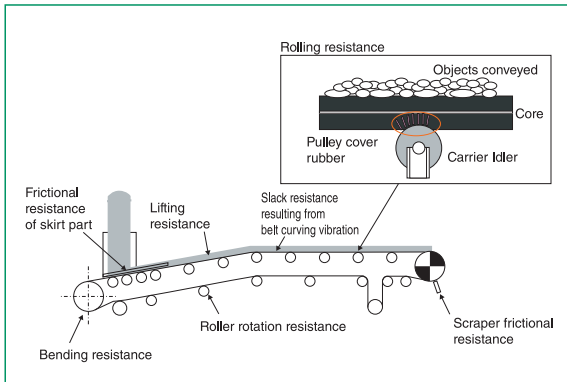


Fig. 1 Cause of Travel Resistance

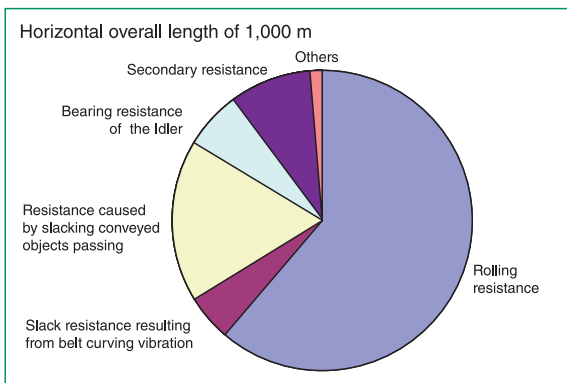


Fig. 2 Rate of Each Cause of Travel Resistance

To be concrete, the undersurface cover rubber will be compressed and deformed when the conveyor belt gets over the idlers. The rubber will return to the original thickness after the conveyor belt passes the idlers. Energy loss that will occur at that time is the rolling resistance. The Eco Carry adopted a cover rubber that returns to the original thickness quickly from the deformed state reduces the energy loss, which resulted in low rolling resistance compared with conventional conveyor belts (see Fig. 3).

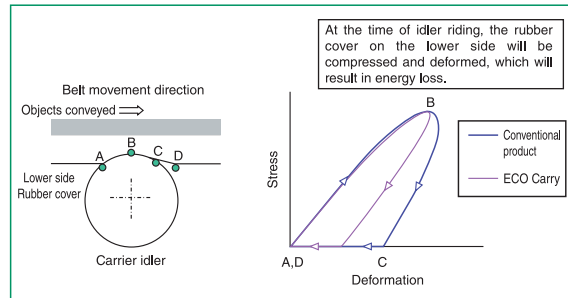


Fig. 3 Stress and Deformation at Idler Riding

The ECO Carry has a track record in applications ranging from canvas belts to the longest steel cord belts, the energy-saving effect of which has been confirmed from the measurement results of the power consumption of the delivered lines (see Fig. 4).

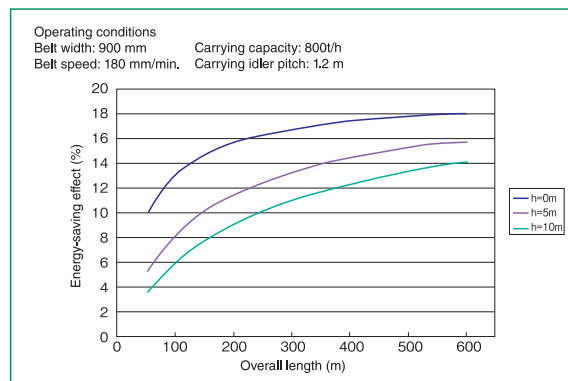


Fig. 4 Expected Energy-saving Effects with Overall Length and Lifting Range Changes

Introductory Track Record

- Mines, cement plants, steel plants, power plants, etc.

Effects

Market Evaluation Example 1

The belts on the conveyor facilities (with a motor capacity of 1,200 kW) for a long-distance limestone conveyance line (with an overall length of 8,800 m) were replaced with ECO Carry belts, which attained an energy reduction of 17%.

(Amount of CO₂ reduction: 140 t/year)

Market Evaluation Example 2

The belts on the conveyor facilities (with a motor capacity of 110 kW) for a long-distance macadam conveyance line (with an overall length of 1,300 m) were replaced with ECO Carry belts, which attained an energy reduction of 15%.

(Amount of CO₂ reduction: 25t/year)

Applicable field
Cement and Steel Production Equipment
and Limestone and Ore Conveyance

Water

Energy saving/Energy recovery

ENERGY
Energy storage/Energy creation

New energy

Waste disposal/
Recycling/
Resource saving

Air

Soil

Other

Bando Chemical Industries, Ltd

Industrial Materials Operation Division, Marketing Department (Tokyo) Mita NN Building 4-1-23 Shiba, Minato-ku, Tokyo 108-0014

● TEL / +81-3-5484-9100 ● FAX / +81-3-5484-9106 ● E-Mail / san@bando.co.jp ● http://www.bando.co.jp