



Oil-free Air Helps Meet  
Growing Demand for ...

# PET Bottles





**The rapid growth in PET bottles in Thailand has resulted in the largest Atlas Copco PETPack oil-free air compressor installation in Southeast Asia.**



The market for PET (polyethylene terephthalate) bottles in Thailand is growing rapidly, with the market share of PET versus glass rising 200% over the past three years. Growth is especially strong in the soft drinks market, where changing consumer buying patterns have been dramatic. Until just a few years ago, soft drink sales came mostly from smaller retail outlets, but the development in Thailand of a widespread mini-mart sector and the emergence of supermarkets and hypermarkets have fueled a move to lightweight PET bottles.

This tremendous growth has resulted in the largest Atlas Copco PETPack oil-free air compressor installation in Southeast Asia. The system, featuring two PP 3400 high pressure compressors plus a ZR 400 water cooled oil-free air compressor, has been installed in one of the largest Coca-Cola bottling plants in the

region, the Thai Pure Drinks, Ltd., plant in the Bangkok suburb of Rangsit.

Thai Pure Drinks Ltd (TPDL) is 49% owned by the Coca-Cola Company and 51% by local Thai shareholders. The largest soft drink company in Thailand for bottling and distributing Coca-Cola products, TPDL is headquartered in Bangkok and has 61 sales offices and six bottling plants throughout the country, employing 10,000 people.

TPDL's Rangsit plant has recently undergone a major expansion. Built on a greenfield site and surrounded by largely agricultural country, the plant is strategically placed for the highway system that takes so much of its output into Bangkok and the city environs. Here, Coca-Cola products are bottled in both glass and PET containers.



According to Cherdasak Srikitiphun, the plant manager at Rangsit, during the planning of the latest expansion it was decided to incorporate Atlas Copco technology for both the bottle blowing and the bottle filling lines, as Atlas Copco equipment was already providing compressed air for other parts of the plant.

“The new production line has a minimum capacity of 36,000 bottles per hour and it is working 24 hours a day, seven days a week,” says Mr. Srikitiphun. “We knew that we could rely on Atlas Copco’s technology and on the service as the demands on the compressors were going to be very high.”

Compressed air is an essential resource in the production of PET packaging, and the total absence of oil or pollutants in process air is critical. The only way to guarantee oil-free air in the bottling process is to totally ban oil from the air circuit. With Atlas Copco’s oil-free compressors, air that is compressed, stored and distributed for use in the plant is never in contact with oil.

Atlas Copco’s PETPack is a combination of an Atlas Copco ZR 400-10 screw compressor, a MD 400 W absorption air dryer and a D 50 booster. This combination of compressor technologies is endorsed by ISO9001 quality assurance certification and ISO14001-certified for its environmental management. The booster brings the air to 40 bar or more, which is required for PET blowing. Because compression can start from dry 7 bar air instead of atmospheric air, the booster needs only half of the suction and discharge valves of traditional piston compressor solutions.



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TPDL's PET bottle blowing line produces 660 bottles in the 1.25 liter size per minute. The machines work at a maximum pressure of 42 bar, delivering air at 3,370 m/min, or 3,100 Nm/min. To exclude all contamination, the air at the booster inlet is thoroughly filtered from impurities, down to 0.01 micron in size. Charcoal and submicronic filters have been added to obtain air that is odorless and tasteless.

The production lines are in sealed units, with workers and visitors wearing special clothing before being allowed on the premises. "Hygiene is a complete and utter priority here," said Mr. Srikitiphun. "Atlas Copco not only thinks in the same way as we do, they are able to match our extremely exacting specifications with ease."

While the blow molding machines form the centerpiece of the TPDL operation, the filling machines and peripheral equipment including cappers, labelers and instrumentation also need a highly reliable supply of quality air. PETPack therefore comes with a larger model screw compressor, ready to handle 7 bar needs in addition to feeding the 7 to 40 bar booster. This approach saves substantially over extra stand-alone compressors.

The bottle filling line is supported by an Atlas Copco medium pressure oil-free air compressor type ZR 145- 7.5 with an air dryer FD 700, pre filter model DD 780 F, final filter PD

780 F and a 3,000 liter capacity air receiver. This compressor is working at a maximum pressure of 7.5 bar and has a free air delivery of 1,416 m/min.

Mr. Srikitiphun says that Atlas Copco PETPack technology has helped keep maintenance expenditures at realistic levels and the enormous production volume with its diversity of products can be achieved. "We have relied upon Atlas Copco for many years, and are delighted with the service they provide us."

