

Helping the world recycle



- Card
- Paper
- Cartons
- Glass
- Metal
- Plastic



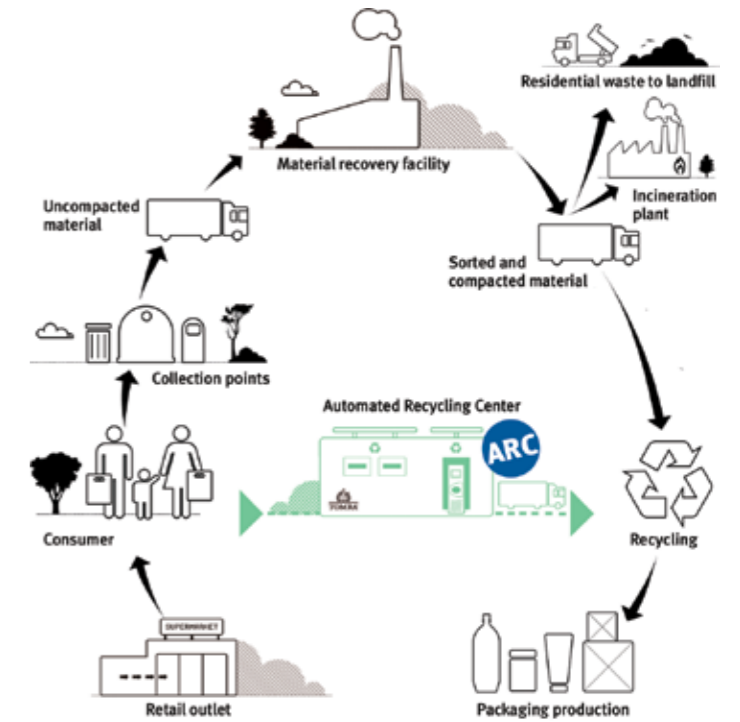
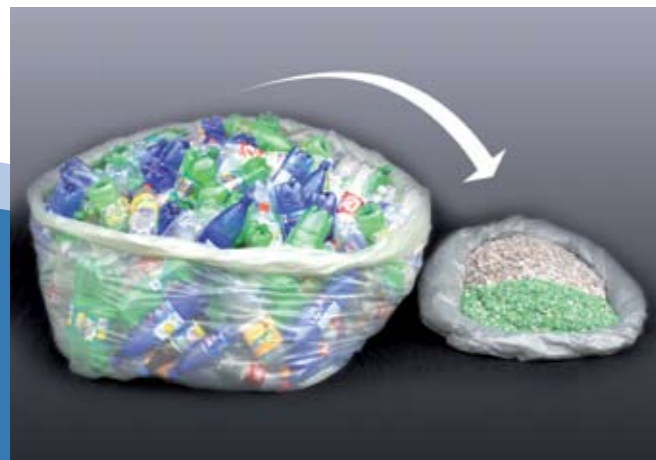
Automated Recycling Centers

– a new approach to recycling

Key features

TOMRA Automated Recycling Centers (ARC) enable highly efficient systems for recycling a wide range of consumer product packaging. The centers also provide consumers with a more attractive incentive to recycle, helping to raise the overall rate of recycling in the community.

- Automated high-tech collection and handling system for rigid containers made of plastic, glass and metal
- Collection of other materials such as paper and plastic bags can also be integrated
- Complements or replaces curbside and/or bottle bank collection solutions
- Flexible user interface and configuration of accepted materials
- Various possibilities for providing consumer incentives with local adaptations
- Integrated advertising displays and other marketing options available



BENEFITS

- High consumer-friendliness through clean and hygienic presentation of the recycling service
- User interface and incentive attractiveness drives traffic and collected volumes of recyclables
- Up to 15:1 volume reduction of materials for reduced transportation costs
- Pure material fractions ensures premium material value
- High-grade material enables short-cutting of the recycling loop
- Optimized logistics through connection to central operations center
- Added value achieved through various marketing capabilities

A new approach

Providing solutions for today's challenges in recycling of household packaging

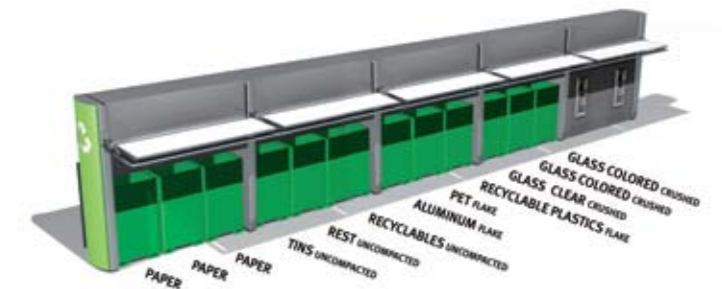
Recycling Centers installed in the UK

A leading retail chain in the UK, Tesco, is installing Automated Recycling Centers at their hypermarkets to improve customer friendliness, operational efficiency and drive UK recycling rates.

- Collection of glass, plastic and metal in up to 9 fractions. Paper bins are integrated
- Used to replace bottle banks (igloos) at retail parking lots
- Retailer owns the technology, but is supported by local authorities
- Incentives used are loyalty points, lotteries and donations to charities
- Fun and easy way for consumers to recycle
- Tesco won UK recycling award 2006 for implementation of ARCs



Capacity



Configuration example



Incentive solutions

Break-through

In the UK, Tesco has revolutionized recycling through use of ARC technology

Recycling centers installed in Japan and Greece



JAPAN

- ARCs used to replace manual collection bins at supermarket locations
- Municipalities are buyers of the technology
- ARCs complement expensive curbside systems
- Incentives are loyalty points and discount coupons
- Consumers are rewarded for recycling and can recycle any time they want



GREECE

- ARCs located at central places in the city
- ARCs receive bottles and cans made of plastic, glass and metal
- Independent operator owns technology and operates these centers on behalf of local municipalities
- Advertising and material value are key revenue sources

Efficient

Small or large, TOMRA ARCs increase recycling rates and reduce costs of the total recycling system

The technology inside

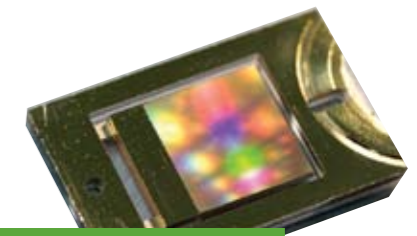
TOMRA's significant R&D investment in recent years has resulted in many patented innovations for the technology used in the TOMRA ARCs. These innovations, combined with our over 35 years of experience in developing automated collection and handling solutions for used beverage containers, ensures that the ARC family provides a highly efficient and reliable system for recycling.

HIGHLIGHTS

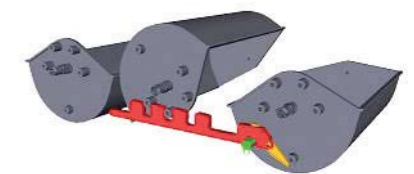
- Single objects accepted by camera-controlled infeed device
- Sorting based on recognition of material, shape and weight
- Plastics and glass recognized by NIR spectroscopy and metals by inductive sensors
- Volume reduction by flattening or flaking/granulation (system specific). Up to 15:1 volume reduction
- Storage bin solutions ranging from 0.3m³ to 2.1m³ (system dependant)
- Incentive options integrated into user interface through modular software solutions



TECHNOLOGY COMPONENTS



HoloChip



Elevator



Granulator

Innovative

TOMRA's highly skilled and experienced development staff and strong connections to reputed research institutes ensure the best quality in performance and endurance of technical solutions

Different needs, different solutions

As each country or market has different needs depending on their existing recycling infrastructure, the TOMRA ARC family provides a range of platforms and configuration possibilities. So regardless of available space or whether it is to be operated by a retailer, municipality, WMC or other private operator, we can provide an optimal solution.

CONSIDERATIONS

- Location and available space for installation
- Assumed collected volumes and traffic patterns
- Types of materials and market mix
- Pick-up equipment and logistics operation
- Material recycling requirements
- Funding mechanism for initial investment and upkeep

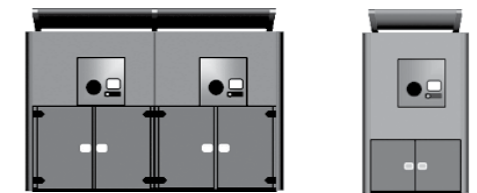


SOLUTION PLATFORMS



Single

Single machine for convenience stores and other locations with very limited space



Kiosk

Kiosks for smaller installations in urban areas, few material fractions and simple logistics



Center

Centers for stand-alone installations, full-range material fractions, high volumes and optimized logistics

Flexible

Choose from a range of incentive schemes and platforms for material recognition, sorting, compaction, and storage to configure an appropriate system for your needs

Why hesitate? Automate!



- *Less material transport, less vehicle emissions*
- *Less energy required to process collected materials*
- *Higher rates of recycling, less material loss*
- *Accurate sorting, clean material fractions for closed-loop recycling*
- *Optimized, environmentally friendly collection routines*

TOMRA Reliability

With 35 years' experience in developing the reverse vending business, TOMRA has unique expertise in this field. Today, TOMRA has more than 60,000 installations operating in more than 45 countries worldwide.

For quality and reliability, choose TOMRA

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