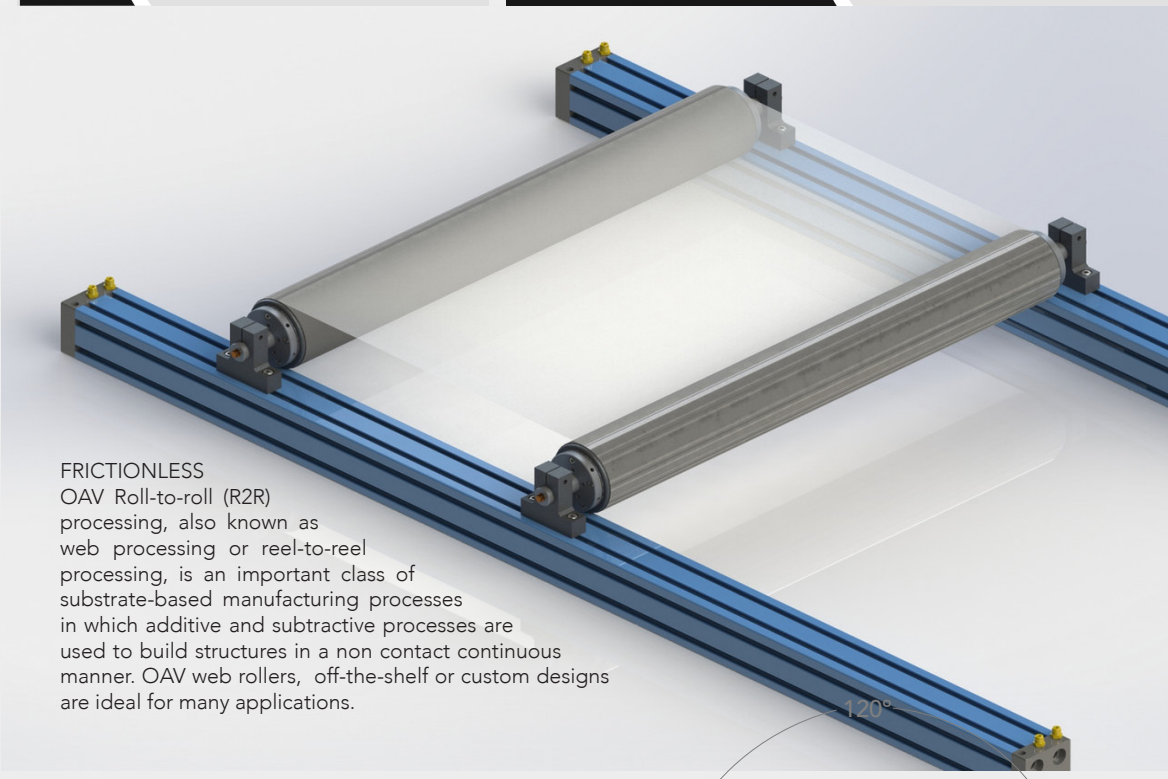
FRICTIONLESS R2R

CONTACTLESS STATIC WEB ROLLER



FRICTIONLESS
OAV Roll-to-roll (R2R) processing, also known as web processing or reel-to-reel processing, is an important class of substrate-based manufacturing processes in which additive and subtractive processes are used to build structures in a non contact continuous manner. OAV web rollers, off-the-shelf or custom designs are ideal for many applications.

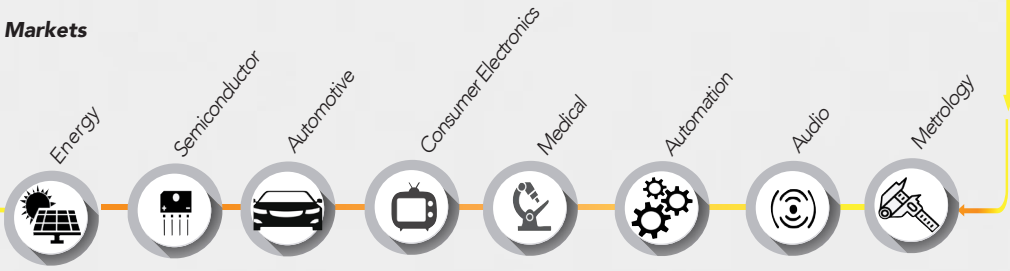
Option
Rotate Face Plate 60 deg to
turn on ZONE - A , ZONE - B or ZONE A and B

OAV DISRUPTIVE TECHNOLOGY SIGNIFICANTLY ALTERS THE WAY THE INDUSTRIES OPERATE

OAV WEB ROLLER INFORMATION

For fine film and web substrate handling, OAV Air Turns AT75600 feature porous media variable surface activation - 120 deg, 240 deg, 360 deg - and combined with pressure adjustment to suit the application, allow for optimized flow, web suspension, and web tension control. This is controlled with simple rotation of the end cap that only takes moments to secure.
Air turns can be retrofit to replace existing traditional contact roll conveyors, either with the standard size or custom fitting to match the existing assembly. Contactless handling reduces handling damage and material contamination, reducing costs associated with material scrap and rework. Costs associated with maintenance are reduced as well, with little scheduled maintenance and an indefinite operating life when run within recommended guidelines.
Application markets include flexible electronics, flexible photovoltaics, printed/flexible thin film batteries, fuel cells and electrolyzers, multilayer capacitors, thick film sensor materials, anti-static, release, reflective and anti-reflective coatings, barrier coatings, building products, chemical separation membranes.
Can be used with Air Bearing Bars OAVCB6060 to suit material handling needs for combined linear conveyance.

Markets



Recent Areas of non-contact requirement

Flexible electronics: Super-capacitors, electronic circuits, radio frequency identification tags and labels (such as Smart Labels / Smart Tags that includes chip, antenna, and bonding wires), organic light-emitting diodes), displays, sensors and so on.

Flexible PVs: Copper-indium gallium-selenide, cadmium telluride, and other flexible PV products

Printed/flexible thin-film batteries: Laminar lithium-ion batteries

Fuel cells and electrolyzers: Planar solid oxide fuel cells, proton exchange membranes, membrane electrode assemblies, and gas diffusion media

Multilayer capacitors: High-frequency dielectric capacitors for power conversion

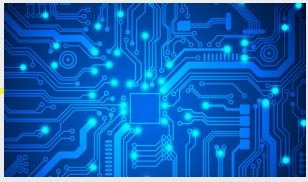
Thick-film sensor materials: Temperature sensors, positioners, negative temperature coefficient thermistors, piezoelectric lead zirconate titanate actuators, active/passive transducers, selective gas sensors

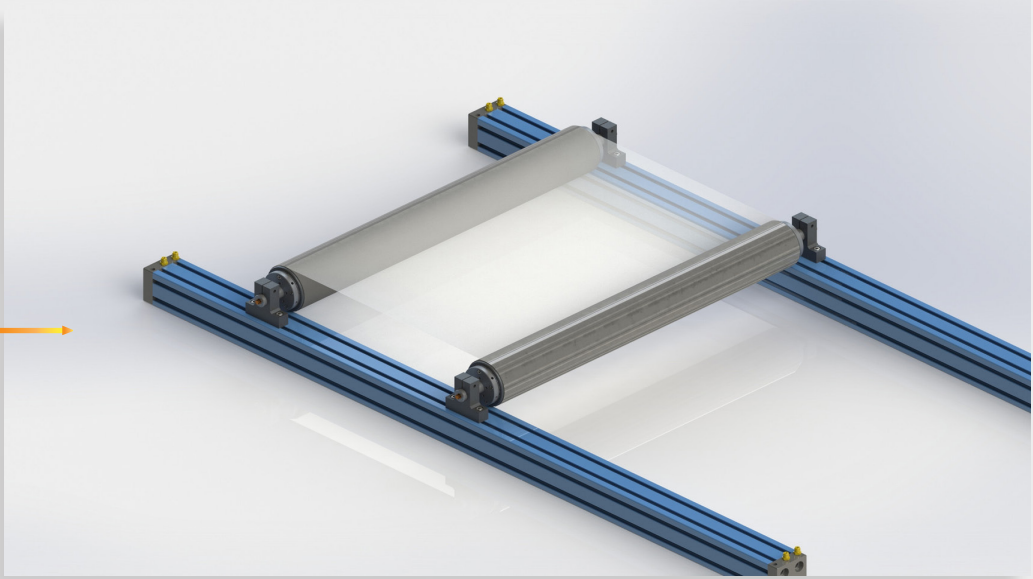
Barrier coatings: Thermal and environmental barrier layers

Building products: Window films (electrochromics, reflectives, etc.), composite structural members

Chemical separation membranes: Reverse osmosis membranes, catalyst membranes, gas separation membranes

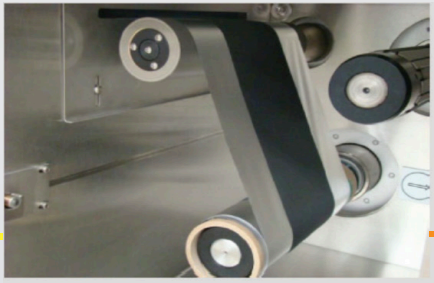


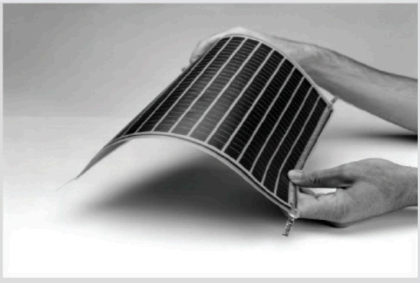




Both industry and the research community have pursued advancements in R2R processing, including new and improved processes as well as the application of those processes to new material sets. Here are some examples.

- ***High-resolution printing:*** A wide range of processes have been developed to meet the challenges of high resolution printing.
- ***Flexible glass substrates:*** Flexible glass substrates with excellent surface quality, transparency, and high-temperature processing stability.
- ***Semiconductor thin films:*** Low-cost, low-energy intense pulsed-light treatment for rapid thermal annealing of materials, including cadmium sulfide and cadmium telluride.
- ***High-efficiency solar cells***
- ***Single chip integration***
- ***Membranes for carbon dioxide capture:*** Advances in carbon dioxide capture membranes fabricated with R2R processing have shown improvements in selectivity and permeability by improving bonding on novel active layers with polymer substrates.
- ***Thin-film transistors:*** Thin Film Technologies polymer substrates using R2R techniques. Their approach combines plasma deposition and etching with self-aligned imprint lithography.
- ***Organic photovoltaics:*** Including simultaneous multilayer coating,18 aqueous processing,19 and advanced drying and post-processing.
- ***Membrane electrode assemblies***





The benefits of roll-to-roll

There are numerous benefits of roll-to-roll frictionless web roller. Some of the very basics are;

Precision control of web tension; If your end product requires precision, a roll-to-roll system is for you. The best way to maintain control of sensitive material is in a roll. You can advance this material with precision while maintaining tightly controlled web tension throughout the entire roll of material. With pressure adjustment OAV R2R allows optimized flow, web suspension, and precision web tension control.

Tight tolerance rollers

Ability to perform multiple processes

Reduced cost; R2R processing can reduce the costs of new clean energy on variable areas; (fuel cells, battery electrode products), along with that our roll to roll solutions are designed for ease of use, these reduce the amount of handling with great control.

Improved efficiency; Less setup time and less down time improve the efficiency of your operation and maximize throughput, as operators are able to run multiple process lines at once, providing the best return on investment with the most consistent results.

No contact

No wear or tear

Ultimate precision

High speed and acceleration

No vibration

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