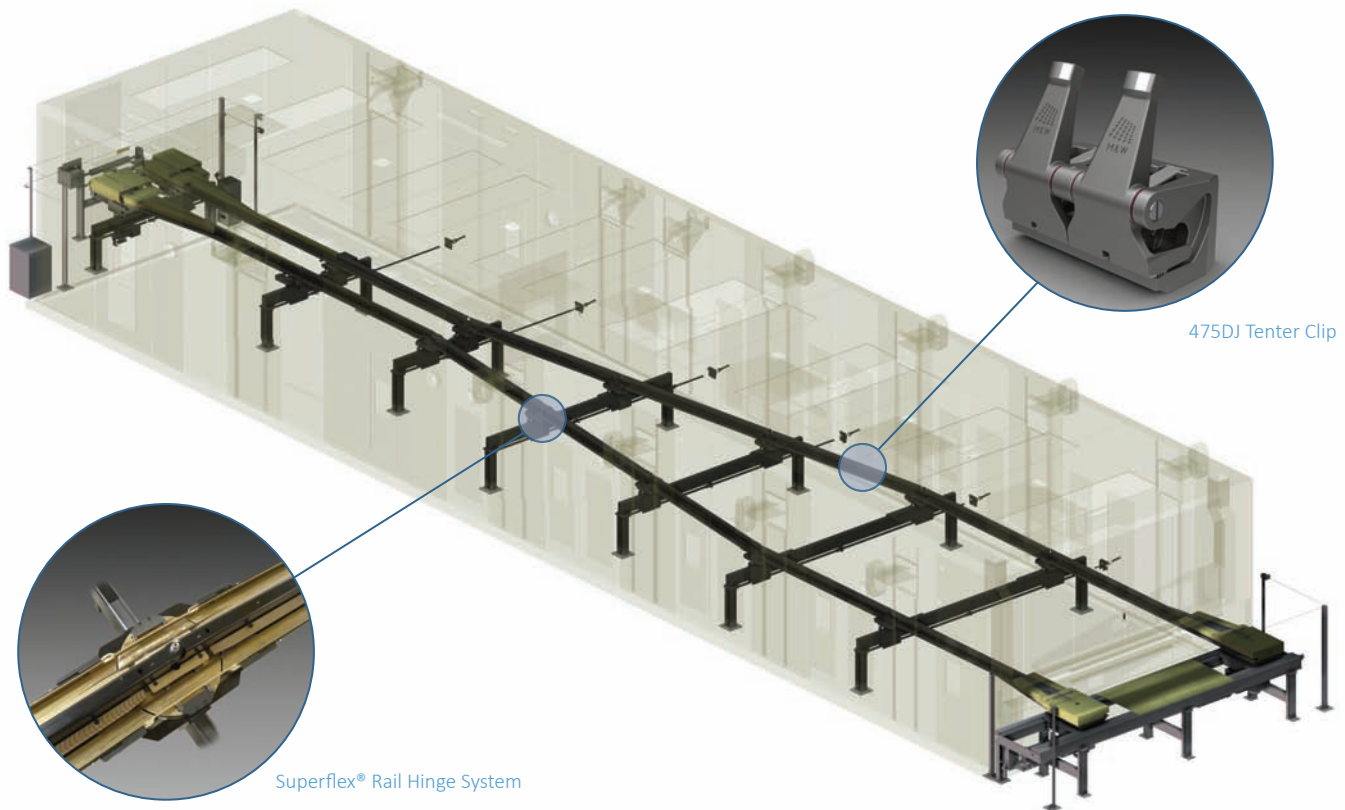




**MARSHALL AND WILLIAMS PLASTICS**  
PARKINSON TECHNOLOGIES INC

## Transverse Direction Orientation (TDO) Systems

### Uniaxial In-Line or Off-Line Cross-Web Stretching



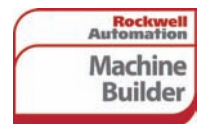
475DJ Tenter Clip

Superflex® Rail Hinge System

Marshall and Williams Plastics is a recognized global leader and innovator in plastics orientation and casting equipment. Founded in 1920, Marshall and Williams built tenter frame systems for the textile industry and was the first to adapt this technology to orient plastic film and sheet. Transverse direction orientation of plastic film and sheet is accomplished by heating the web and stretching it in the transverse (or cross) direction on a tenter frame. The tenter frame consists of two horizontal chain tracks, on which clip and chain assemblies ride, enclosed in an oven.



**Plastics  
Orientation**



# Transverse Direction Orientation (TDO) Systems

## Uniaxial In-Line or Off-Line Cross-Web Stretching

### Superflex® Rail Hinge System

- Smooth transition of chain during stretching
- Deflection angle up to 20°
- Compact design requires less space
- Reduced lubrication requirements



### TDO Systems Specifications



Tenter Chain Options	475DJ Clips or Pin Plates
Stretch Ratios	Up to 30:1
Line Speeds	1500 fpm (450 mpm)
Heat Source Options	Gas, Electric, Steam, IR, Other
Inlet Widths	As low as 4" (100 mm); clip to clip
Exit Widths	Up to 33' (10 m)

## Model 475DJ High Speed TDO/Tenter Clips

Parkinson Technologies has developed a new Marshall and Williams 475DJ Tenter Clip designed to be used on either new TDO's or as replacements on existing Marshall and Williams machines for transverse direction orientation of polypropylene, polystyrene, PET and many other specialty films. The convenient low profile design enables the oven nozzles to be positioned close to the film, resulting in precise control and high heating efficiency.

The clips have an advanced high strength 4 3/4" (120 mm) pitch chain, and a dual jaw with a low profile. The increased holding power significantly improves the handling of wide films at high speeds.

Each TDO clip has two hardened steel jaws which firmly close against a precision machined surface. The resulting accurate contact means close gripping tolerances for finished material over a wide range of thicknesses.



- Snap latch design allows the clip to remain open after releasing material
- Improved anti-wrap device prevents film entanglement
- High tensile strength base is heavily ribbed for added strength and long life
- Improved lubrication passages reduce oil consumption
- Profiled gripping surface
- Optimal performance for line speeds up to 1,500 fpm (450 mpm)
- Designed to fit existing or new Marshall and Williams tenter frame systems

All TDO systems are custom engineered and are not limited to the specifications shown. Please contact a Parkinson Technologies Regional Sales Manager to discuss your application.



### PARKINSON TECHNOLOGIES INC

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[www.parkinsontechnologies.com](http://www.parkinsontechnologies.com)  
[sales@parkinsontechnologies.com](mailto:sales@parkinsontechnologies.com)