POSITIONING & PROCESS SOLUTIONS

FOR TIRE MANUFACTURING

Your First Choice
for Positioning & Process Solutions
in the Tire Manufacturing Industry

Duff-Norton®
In the tire manufacturing industry, process equipment is used to heat and cool product during all stages of production, as well as to lift, move, and precisely position heavy loads under challenging conditions. Duff-Norton has the technical expertise and quality products to do both, and is a leading supplier for the tire manufacturing industry, along with many other heavy industrial applications.

From adjusting rolls, to handling cooling water and hot oil, Duff-Norton is one of the world’s leading suppliers of equipment to meet these needs.

**MIXING**
Mixing of carbon blacks, elastomers and chemicals in the internal batch mixer to form the rubber compounds.

Duff-Norton products are found throughout the manufacturing process

- DWA Rotary Unions® supply cold water that cools the mixer and calendar rolls

**CALENDERING**
Calendering woven plies with fabrics, steel cord, and rubber.

- Standard and anti-backlash screw jacks up to 75 tons capacity adjust the mixer, calendar, and steel coil rolls

**EXTRUDING**
Extruding the tread and sidewall components.

- Cut at proper angle, length, and width
- Tread Extrusion
- Cut to Length
**Bead Making**
Calendering the bead with rubber and extruding bead rings.

- 5000 Series Rotary Unions® provide hot oil to heat the rubber mixture

**ASSEMBLY & VULCANIZATION**
Assembly of the green tire components and vulcanizing with heat and pressure.

**TRIM & INSPECTION**
Final finishing, including inspection, storage and shipping.
Screw Jacks (Mechanical Actuators)

Wherever there is a need to lift, position, align and hold a load, Screw Jacks can be found. Accordingly, they are common throughout many industrial and manufacturing processes. The high reliability and synchronization make screw jacks suitable for a wide variety of uses especially those found in tire manufacturing. They are found in the following tire building processes:

- Twin screw mixer
- Tire tread grinder
- Quality measuring tester
- Mixers
- Calendars
- Steel coil rolls

Linear Actuators

Since 1883 Duff-Norton has been at the forefront of precision motion technology. Duff-Norton provides a continued commitment to leading-edge manufacturing and the highest quality engineered products for the most advanced industrial lifting, positioning, and transfer needs. Linear actuator products can be found in the following tire building processes:

- Strip builders
- Tire tread measurement
- Strip wrappers
- Roll lathes and grinders
- Profile inspection systems
- Bead assembling
- Tread and sidewall extruders
- Balance and force inspection

Duff-Norton Products Can Be Found In Nearly Every Process Within The Tire Manufacturing Industry
Rotary Unions transfer media (water, steam, air, oil, hydraulic fluid, etc), from a stationary source to rotating machinery, such as a drum or an indexing table. Rotary Unions can be found in the following processes for temperature control:

- Industrial mixers
- Extruders
- Calender train cooling stacks
- Rayon slashers
SCREW JACKS

- Imperial machine screw and ball screw actuators (screw jacks) ranging in size from 1/4 to 350 ton
- Specialty actuators: stainless steel, anti-backlash, anode jacks, micro-miniature, continuous duty
- Power transmission components: mitre boxes, couplings, connecting shafts, pillow and flange blocks, gear reducers, c-motor adaptors, hand wheels
- Broadest range of actuator capacities and types in the industry
- Modular concept allows for unlimited configurations
- Lifetime warranty

LINEAR ACTUATORS

- Capacities from 25 lb to 2000 lb
- Speeds up to 2.8 in/s
- Stroke lengths up to 24 in
- Multiple AC & DC voltages
- Custom actuators available
- Excellent replacement for hydraulic cylinders
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manufacturing industry. From adjusting rolls to handling cooling water and hot oil
suppliers of equipment to meet these needs.

WITH RELIABLE DUFF-NORTON PRODUCTS

Rotary Unions:
- Rotary Unions for water, steam, air, and hot oil applications
- Available in sizes from 1/8 in to 6 in inside diameter
- Mono flow and dual flow designs
- Multi-port units

Swivels:
- Swivels for hydraulic and pneumatic applications
- Available in sizes from 1/8 in to 12 in inside diameter
- Pressures up to 10,000 psi
134 YEARS OF POSITIONING & PROCESS SOLUTIONS

Since our beginning in 1883, Duff-Norton has earned a reputation for manufacturing reliable, high quality products meeting the industrial lifting, positioning and transfer needs of our worldwide customers. Lifetime warranty for Mechanical Actuators sets new standards for product quality and reliability. The Duff-Norton team is dedicated to customer service excellence. This is evident in our ISO 9001 certification and the high level of involvement of our Continuous Improvement Teams.

WORLDWIDE LOCATIONS

Manufacturing & Sales Facilities

- **Duff-Norton**
  Charlotte, NC USA
- **Duff-Norton Europe**
  Romany-sur-Marne, France
- **Pfaff/Alltec**
  Kissing, Germany

Sales Offices

- Chester, Great Britain
- Beijing, China
- Sao Paulo, Brazil
- Toronto, Canada
- Hyderabad, India
- Johannesburg, South Africa
- Melbourne & Sydney, Australia