

## Waukesha® UZD®

The Service-Proven Load Tap Changer!

With more than 7,000 units installed, Waukesha's UZD load tap changers boast an excellent field performance record. Design improvements made in the 1990s reduced the already low failure rate to one of the lowest in our industry, reduced maintenance costs and increased maintenance intervals. When compared to the cost of downtime, out-of-service operation and costly repairs, the UZD LTC system is a cost-effective way to keep your transformer operating as smoothly as the day it was installed!

A load tap changer, regardless of manufacturer, is a complex engineered device with numerous moving parts requiring precise engineering, correct material selection and controlled manufacturing to operate reliably for a long period of time.

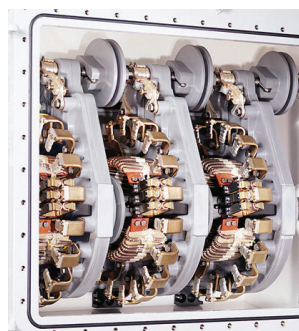
In many cases, the true reliability of a load tap changer becomes evident only when a transformer has been in service for several years and the load tap changer accumulates 100,000 plus mechanical operations.

Since the UZD's initial introduction in 1970, it has accumulated in excess of 110,000 YEARS of operational service and an estimated 550 MILLION switching operations. Ongoing continuous improvement programs, in coordination with our customers, resulted in several design enhancements that help increase overall operational life as well as virtually eliminate the need to perform maintenance inside the oil.

### KEY ADVANTAGES OF THE WAUKESHA® UZD® LOAD TAP CHANGER

#### Re-Engineered Reversing Switch and Current Collector ("Bow-tie") System

Since the re-engineered reversing switch and current collector system were introduced in 1997, no known failures due to coking have occurred.



**Silver-Plated Copper Contacts with Tungsten Copper Inserts**  
Stationary contacts for long life and low temperature rise.

#### Resistive Bridging

High-speed operation results in extremely low contact wear and manageable levels of arcing by-products. For optimal results, we recommend applying an oil filtration system.

#### LTC and Series Transformer System

For applications with greater than 600 ampere current ratings, a series transformer is recommended to allow for an optimal volts/turn design of the main transformer windings, even step regulation and smaller leads, while facilitating a reduction in current through the LTC contacts for less contact wear and longer life; a power-class series transformer design is recommended for high reliability.

#### Spring Drive Mechanism

Stored energy system delivers split-second operation for minimum arcing time. In addition, each tap change is uniform and unaffected by possible auxiliary voltage fluctuations.

## OTHER NOTABLE FEATURES OF THE WAUKESHA® UZD® LTC

### Single Set of Spare Contact Parts

Due to the design flexibility of the series transformer, we utilize a single model LTC across a wide range of transformer voltage and power ratings.

### Easy to Maintain with Few Moving Parts

A single collector arm incorporates both the arcing contacts and tap selector contacts which reduces linkages, wear points and potential maintenance.

## RECOMMENDED ACCESSORIES

Clean, dry oil increases dielectric strength, thereby reducing arcing time. The accessories below help keep carbon particles, metal particles and moisture out of tap changer oil:

### OF2 Oil Filtration System

Designed to remove carbon and metallic particles produced during normal LTC operation. The system includes an adjustable timer for customized configuration and a 1/2 HP, fully enclosed, continuous run rated, auto-thermal resetting motor.



Another feature of the OF2 is a tilt-out, tool-free filter replacement system which allows the filter cartridge to be changed without disconnecting oil lines or reversing the pump—dirty oil stays in the filter while LTC compartment oil stays clean. Additionally, our OF2 ships standard with a unique, high-efficiency, depth-type filter that offers long element life and provides the capability to filter more efficiently than pleated-type models. The system is also adaptable to a variety of industry standard filters. Other features include low flow and high pressure alarms, anti-condensation cabinet heater and remote system shut down relay.

### Single and Dual Column Breathers

An economical solution for LTCs, our single column breather efficiently dehydrates the air coming into your transformer then regenerates the desiccant while the transformer is not “inhaling,” keeping moisture out.

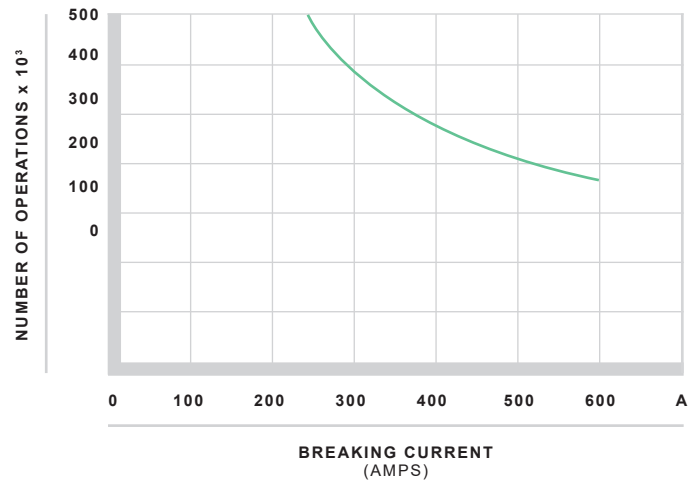
The dual column design provides a continuous stream of dry air to a transformer, regardless of the amount of moisture being absorbed. This feature allows customers to standardize on one breather to support every transformer on their system, maximizing spend and limiting the number of parts needed to manage inventory and/or new orders.



## CONTACT LIFE

Predicted contact life of the selector switches' fixed and moving contacts is shown below. Since most transformers are not consistently operated at maximum nameplate rating, some tap changes will be made at lower currents. These lower currents allow for less contact erosion due to arcing, so contact life may be longer than what is illustrated on this curve.

PREDICTED CONTACT LIFE WITH BREAKING CURRENTS



## WAUKESHA® UZD® LOAD TAP CHANGER SYSTEM DESIGNED FOR HIGH RELIABILITY AND LOW TOTAL OPERATING COST

- Economical LTC solution to total transformer cost
- Well accepted in the US market
- Now available for sale to transformer manufacturers

Contact us for more information. To download a technical manual, field maintenance manual and/or technical paper, visit our website.

To continually improve its products and services, Prolec-GE Waukesha, Inc., reserves the right to change specifications and features without notice. Please contact us for certified dimensions and drawings.

transformers | service | training | components

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