MAGNETEK
ELEVATOR

JOIN THE MOVEMENT

PLANNING A SUCCESSFUL **QUATTRO DC DRIVE** INSTALLATION

HIGH RISE BUILDINGS, regarded as taller than 100 meters and constructed before 2000, **primarily used gearless DC machines to operate elevators.** Controlling those machines was accomplished by either **motor generator (MG) sets** or **SCR-controlled static DC drives.**

Updating older elevator machines with modern DC drive technology can significantly reduce energy costs for your building, provide a longer useful life, and offer substantial savings in installation versus a complete AC motor replacement.

Virtually all parts of DC machines can be rebuilt or repaired at reasonable costs.

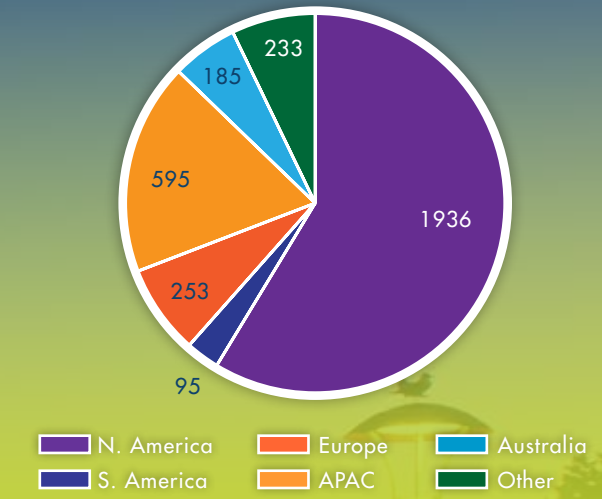
Maintenance and repair can be provided by independent service companies.

Magnetek's Quattro DC is the optimal choice for a successful modernization project, offering:

- **Energy Savings**
- **Lower Installation Costs Compared to AC Motor and Drive Replacements**
- **Superior Ride Quality**
- **Improved Performance**
- **Long Usable Life**

Some of the most iconic buildings across the globe have incorporated Quattro DC elevator drives, achieving significantly improved ride quality and energy savings.

GLOBAL BUILDINGS > 100M BUILT BEFORE 2000

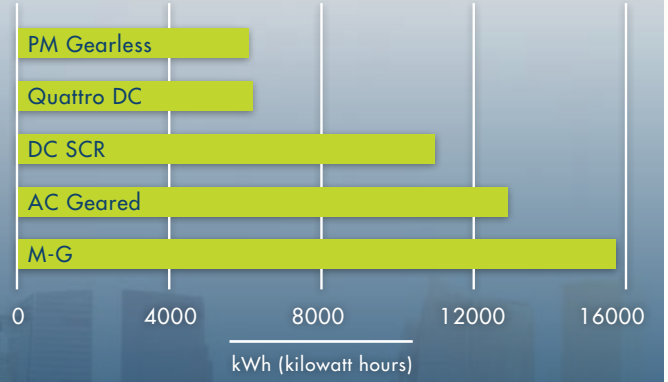


Buildings around the world can still benefit from a DC modernization.

PREPARING FOR A MODERNIZATION

DC MODERNIZATION* has **comparable energy savings** to replacement AC PM at a lower cost.

POWER CONSUMPTION BY CONTROL TYPE



*Comparison based on 500ft/min. elevator, 2200 lb, 13 floors and 301,000 starts per year

ONCE YOU DECIDE TO **MODERNIZE,** IT IS KEY TO **PREPARE:**

MODERNIZATION TASKS

1. **Evaluate the existing DC machine**
2. **Clean the DC machine**
   a. **Make any required repairs**
   b. **Verify repairs**
3. **Properly match AC mains voltage to DC armature voltage**
   a. **Use of an auto-transformer or isolation transformer is recommended**
4. **Install Quattro® DC motor controls**
   a. **Optimize settings as necessary**
5. **Confirm and baseline modernization performance**

Our proven track record, technical expertise, and superior customer service make Magnetek a leading worldwide source for high-performance, built-to-last DC elevator drives.

With over 40 years of innovation, you can count on Magnetek for your drive modernization solutions.

PREPARATION OF DC MACHINES

KEY DC MACHINE TESTING

1. Identification of the motor and control system
2. Condition assessment and inspection: inspection of machine should be performed, making note of
    a. Armature, field coil, interpole, and brake coil insulation condition
    b. Commutator condition and commutation
    c. Brush and brush rigging condition
    d. Bearing and lubrication condition
    e. Brake condition (pad, drum/disk, bushings and pins, linkage)
    f. Fitment and mechanical integrity (shaft, laminations, sheave)
    g. Air gap
3. Testing of above components in accordance with ANSI/EASA AR100-2015 guidelines
    a. High Potential (Hi-pot) testing should ONLY be performed after acceptable cleaning
4. Cleaning
    a. All windings and parts should be cleaned (NitroClean™ or equivalent), removing carbon dust, grit, oils, and cleaning agent residue
5. Repair as necessary
6. Upon completion of modernization and prior to returning the elevator to service, a System Dynamic Test should be conducted and performance metrics documented for future use

*NitroClean ™ is a trademark of McIntosh Industries, Hillside, NJ

For a list of available motor evaluation providers, visit www.elevatordrives.com/motorevaluation.

VOLTAGE MATCHING

Before installing modernized motor controls, it is important to correctly match the voltage of AC mains (incoming line power) to the armature voltage of the DC elevator machine. This can be achieved by adding an input auto-transformer or isolation transformer.

Magnetek offers a wide selection of pre-engineered auto-transformers in a variety of voltage and frequency combinations.

INPUT **AUTO-TRANSFORMER** OR **ISOLATION TRANSFORMER** USAGE

Rated Armature Voltage Is Less Than Input AC Mains Voltage

- **If rated armature voltage is more than 12% lower than AC mains voltage (0.88 x VAC Input)**

Rated Armature Voltage Is Greater Than Input AC Mains Voltage

- **If rated armature voltage is more than 50% higher than AC mains voltage (1.5 x VAC Input)**

Pre-engineered auto-transformers available with primary and secondary voltages from 200V-600V.

OUTPUT FILTER OPTION

Since the first commercial installation of Quattro DC, Magnetek has continued to improve drive designs and refine installation requirements.

New optional output filtering technology improves the long-term reliability of low voltage DC motors.

THE **OUTPUT** FILTER

- **Decreases risk of field and/or armature winding failures over time**
- **Meets goal of a ≤ 500 V/µsec of voltage change with respect to time, in accordance the NEMA MG 1 guidelines**
- **Available with a variety of armature and field design/installation options**

For more information on modernizing with the Quattro DC elevator drive, visit www.elevatordrives.com

SUCCESS OF QUATTRO® DC

SAN ANTONIO, TEXAS

FRANKFURT, GERMANY

BOSTON, MASSACHUSETTS

MELBOURNE, AUSTRALIA

LONDON, ENGLAND

SINGAPORE

NEW YORK CITY, NEW YORK

BARCELONA, SPAIN

DALLAS, TEXAS

CHICAGO, ILLINOIS

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