System Test Platform

Our test room is one of the best equipped in Europe.
Our internal test area measures 3600 square meters with platforms that are fully equipped with MV AC and DC power supply and the necessary auxiliary circuits to run functional and performance tests on induction, synchronous and DC machines including full load testing capability up to 60 MW in back-to-back configuration.
We also have an additional 1500 mq external test area for complete system tests.

Summary of Test benches in our facility
- 7 test bays for large machines
- 5 test bays for small machines
- 3 test bays for vertical testing

Our facility is also able to handle special tests such as heat run tests, inertia moment evaluation, shaft voltage and ring tests (on stator cores before winding assembly).

The following is a list of the routine tests carried out on all induction motors produced in the Monfalcone factory.

- **Windings ohmic resistance measurement**
  Test Method: **IEEE 118**
- **Direction of rotation check**
  Test Method: **IEC 60034 - 8**
  Acceptance Criteria: **IEC 60034 - 8**
- **Phase sequence check**
  Test Method: **IEC 60034 - 8**
  Acceptance Criteria: **IEC 60034 - 8**
- **No-load characteristic determination**
  Test Method: **IEEE 112**
- **Locked rotor test**
  Test Method: **IEEE 112**
  Acceptance Criteria: **IEC 60034 - 1**
- **Overspeed test**
  Test Method: **IEC 60034 - 1**
  Acceptance Criteria: **IEC 60034 - 1**
- **Vibration level measurement**
  Test Method: IEC 60034-14
  Acceptance Criteria: IEC 60034 - 14
- **High voltage test**
  Test Method: **IEC 60034 - 1**
  Acceptance Criteria: **IEC 60034 - 1**
- **Insulation resistance measurement**
  Test Method: **IEEE 43**
  Acceptance Criteria: **IEEE 43**
- **Visual and dimensional check**
  Test Method: **as per drawing**
  Acceptance Criteria: **as per drawing**

Special tests which may be carried out in the Monfalcone factory:

- Heat run test
- Current, speed and torque vs. time during acceleration (squirrel cage motors only)
- Inertia moment evaluation
- Shaft voltage
- Noise (SPL, sound pressure level) at no load (according to IEC 60034 - 9)
- Breakdown torque evaluation
- Polarization index
- Dielectric loss factor on test coils
- Impulse voltage test
- Ring test (on stator cores before winding assembly)

Nidec
All for dreams

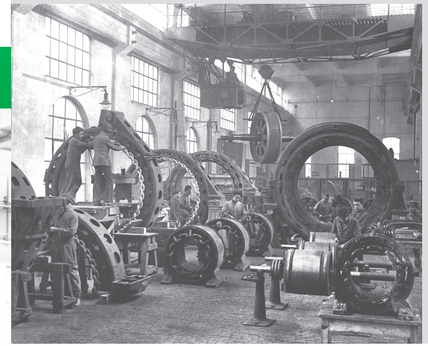
INDUSTRIAL SOLUTIONS

DEP2016.08.65.002N

Nidec
All for dreams

Motors & Generators

Nidec ASI, a tradition in excellence



Nidec ASI: destined to be number one in industrial drive solutions

With over 150 years of experience in the energy, metal, environmental, marine and industrial markets, Nidec ASI has the experience to deliver process oriented power quality and control solutions, from components to complete engineered systems.

Nidec ASI is a global supplier of power electronic equipment and automation systems as well as electric motors and generators.

This combination of technologies and background is the base of our expertise in engineering flexible, customized solutions for global industrial markets at competitive prices.

Our ultimate goal is Total Customer Success

At Nidec we know that quality is determined by the Customer.
Our 3Q6S quality model is designed to continuously improve and control the quality of our products and services.
For you, our customer, this means:
- advanced, robust product and system designs
- seamless integration with your existing systems
- maximum performance, high efficiency, and long term reliability

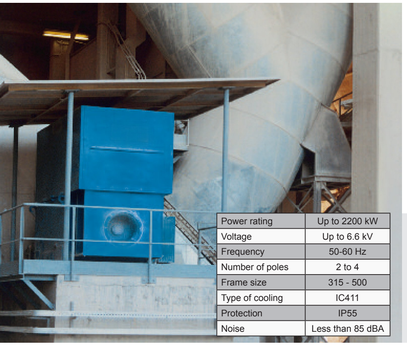
We are committed to your quest for success.

3Q6S | Driving Continuous Improvement Among Workers, Company and Products

Engineering capabilities for all industrial applications

Nidec ASI has built its reputation in the electric motors & generators market based on the ability to engineer and manufacture machines to meet Customer specifications right down to the choice of color. It should come as no surprise that our motors and generators are widely used in demanding applications such as oil and gas where new technical challenges emerge with each new project. We also have a line of standard motors that offer the highest level of efficiency available on the market today. Key features such as our rigid shaft design for 2 pole machines, long life bearings, rugged fabricated steel frames, standard aggressive environment painting cycle, and one of the most advanced test rooms in Europe - able to perform full load testing up to 60 MW (in back-to-back configuration) - ensure maximum reliability.

Induction Machines



Power rating	Up to 2200 kW
Voltage	Up to 6.6 kV
Frequency	50-60 Hz
Number of poles	2 to 4
Frame size	315 - 500
Type of cooling	IC411
Protection	IP55
Noise	Less than 85 dBA

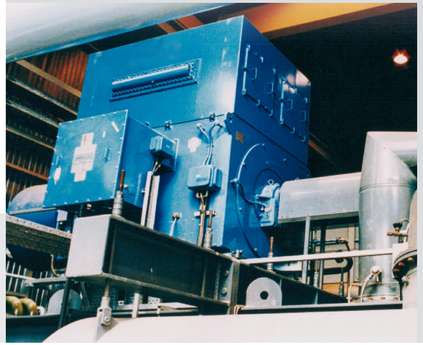
Applications:

• Pipeline, Refinery, Petrochemical, Centrifugal, General Industry, Hazardous and Safe Areas

CAplus

New generation of Nidec ASI's Totally Enclosed Fan Cooled motors.

Synchronous Machines



Applications:

• Pipeline, Refinery, Petrochemical, Centrifugal, General Industry, Hazardous and Safe Areas

• Generators: Marine, Diesel Genertors, Gas turbine

High Speed VFD Packages

Applications:

• Pipeline, Gas treatment, Test Room

DC Machines

Applications:

• All industrial and heavy-duty applications (Metals, Rubber and Plastics, Industry, Ropeway systems)
• Large high-torque steel mill motors
• Silent Marine (propulsion thruster)
• Small steel mill armored motors (AISE Std)

Our standard Induction Machines are built with an aluminum squirrel cage rotor. Rotor packs are made from single punch laminations up to size 1000. Larger packs are made using lamination segments.

End rings are made of a special aluminum alloy which is welded to the cage using state of the art techniques.

Stators are built as self contained units which are mounted into the frame after the coils have been inserted and the whole unit has undergone our Micasystem® VPI process.

Micasystem®
Our micasystem® VPI insulation system is one of the best on the market. This system is based on a special mica tape and a blend of solventless expoy resins.

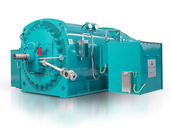
Horizontal or vertical mountings available. Variable speed option available (with suitable design).

Induction Machines

Power rating:
150 ÷ 25,000 kW
200 ÷ 33,000 HP
Voltage:
up to 15 kV
Mass:
1,500 ÷ 120,000 kg
Number of poles:
2 ÷ 36
Frame size:
315 mm through 1120, 10, 11, 12, 13
Type of Cooling:
IC 611 - 81W - 31 - 01 - 411 - 416

General Compliance to SHELL DEP, API Standard, Saudi Aramco, SEC

Flame-proof Machines (Exd)



Power rating:
160 ÷ 4,500 kW
Voltage:
up to 15 kV
Mass:
1,800 ÷ 25,000 kg
Number of poles:
2 ÷ 36
Frame size:
400 mm through 800, 900, 1000
Type of Cooling:
IC 511 - 411
Gas group:
up to II C
Operating temperature:
up to -60°

As a standard our synchronous machines are built with either salient pole or cylindrical rotors, depending on the speed and size of the machine.

Designed to meet specific application needs on a job-by-job basis, our synchronous motors provide outstanding performance and reliability.

Nidec ASI also has consolidated experience in generators coupled to diesel engines and turbines of all types.

The construction features on our synchronous machines are basically the same as those on our induction motors for similar applications.

Horizontal or vertical mountings available. Variable speed option available (with suitable design).

Synchronous Motors

Power rating:
150 - 60,000 kW
200 - 80,000 HP
Voltage:
up to 15 kV
Mass:
1,500 - 160,000 kg
Number of poles:
2- 36
Frame size:
450 - 1120 mm, 10, 11, 12, 13
Type of cooling:
IC 01 - 81W - 611 - 31

Synchronous Generators

Power rating:
150 - 60,000 kVA
Voltage:
up to 15 kV
Mass:
1,500 - 160,000 kg
Number of poles:
2- 36
Frame size:
450 - 1120 mm, 10, 11, 12, 13
Type of cooling:
IC 01 - 81W - 611 - 31

Nidec ASI has over 10 years of experience in the manufacture of high-speed motors.

Reaching over 20,000 r/min these hi-tech machines are the epitome of our superb engineering capabilities.

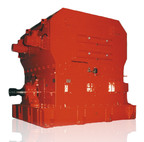
Generally used in pump and compressor applications, these packages offer energy efficiency and low maintenance advantages over traditional motors with gear box.

Coupled with our stateof-the-art variable speed drive controls, these packages are pushing the edge of electric drive technology as a replacement for mechanical prime movers.

HS Series

Power rating:
500-20,000 kW
Voltage:
13,2 kV
Mass:
4000-40,000 kg
Speed range:
70% - 105%
Top speed:
20,000 r/min
Type of cooling:
IC 86 W - 37 - 616 - 06

HSMS Series



Power rating:
5000 - 75,000 kW
Voltage:
13,2 kV
Mass:
10,000-160,000 kg
Speed range:
70% - 105%
Top speed:
8,000 r/min
Type of cooling:
IC 86 W - 37 - 616 - 06V

Our DC motors and generators come in 22 different shaft heights and nearly 100 different frame sizes to cover all applicable industry applications.

All DC machines are laminated frame design and can be supplied by any DC converter system.

Our DC series offers outstanding performance features:

• High dynamic response
• Wide speed range
• High maximum speeds
• High efficiency
• High commutating capacity during current transients

Insulating systems on DC line are class H; large frames (above 225) always provided with compensating windings.

We can replace legacy brands.

Series GH/DH

Power rating:
100 - 2500 kW
Voltage:
up to 1,000 V
Mass:
800 - 35,000 kg
Frame size:
225- 900 mm
Type of cooling:
IC 06 - 666 - 86 W - 37

Series MD 800-MDL 800

Power rating:
up to 500 kW
Voltage:
up to 500 V
Mass:
400 - 9000 Kg
Number of poles:
4 - 6
Frame size:
804 - 824 (split frame)
810 - 816 (laminated frame)

Comply with AISE
(Association of Iron and Steel Engineers - Usa) n. 1 Std