INABA Review

vol.6
2024

Inaba Electric Work Co., Ltd.
https://www.inaba.com

Front Cover (Customer Installation)

Magome 3rd Elementary School, Ota City, Tokyo

Location: Ota City, Tokyo
Client: Ricoh Co., Ltd.

Back Cover (Customer Installation)

AUTOBACS East Japan Logistics Center

Location: Ichikawa, Chiba Prefecture
Client: AUTOBACS SEVEN CO., LTD.

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New Product Introduction

A Demonstration Experiment of Perovskite Solar Cells With Ricoh Co., Ltd., Ricoh Japan Corporation

Perovskite solar cells are lightweight components because they are made from organic materials. They can generate power even in areas with low illumination or in vertical installations, and they are attracting attention as a power generation technology that provides an alternative to conventional silicon solar cells. However, their durability in exterior installations remains in question. We therefore collaborated with Ricoh Co., Ltd., Ricoh Japan Corporation, and four other related companies in a demonstration project to study perovskite solar cells installed to power outdoor garden lights. As part of this project, we monitored the amount of power generated by these solar cells and the durability of the batteries. Magome 3rd Elementary School has also committed to participating in this initiative, which includes extracurricular classes intended to increase student interest in energy technologies and next-generation solar cells.

Garden light installation

Illuminated garden lights

Children learning about perovskite solar cells

Demonstration locations and schedule

- Magome 3rd Elementary School, Ota City, Tokyo: January 31, 2024 to January 30, 2025
- Main Building, Atsugi City Hall, Atsugi, Kanagawa Prefecture: March 1, 2024 to February 28, 2025

Details of collaboration in the demonstration project

Companies	Roles
Ricoh Co., Ltd.	・Management of demonstration project ・Development and production of perovskite solar cells
Ricoh Japan Corporation	・General customer contact point ・Planning and coordination
Inaba Electric Work Co., Ltd.	・Development and manufacture of street lighting products and outdoor enclosures ・Manufacturing and assembly of demonstration units
Takenaka Seisakusho Co., Ltd.	・Development of control circuit boards for street lighting
Tachibana Electronic Solutions Co., Ltd.	・Sales contact point for hardware and software related to LoRa® sensor boards
Osaka NDS Co., Ltd.	・Development of firmware for LoRa® sensor boards ・Development of cloud applications for obtaining sensing data ・Development of cloud infrastructure

Ceremony for launch of the demonstration project

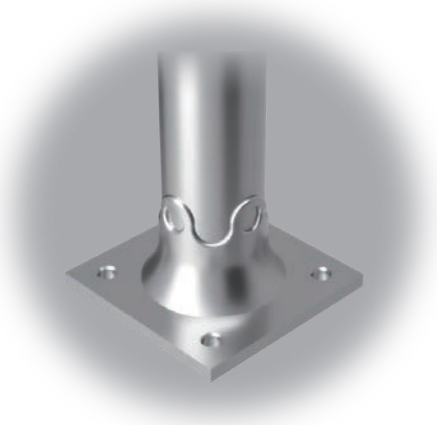
Lighting Division: Product Introduction

The Industry's First Enclosure with a Grade A Fatigue Rating

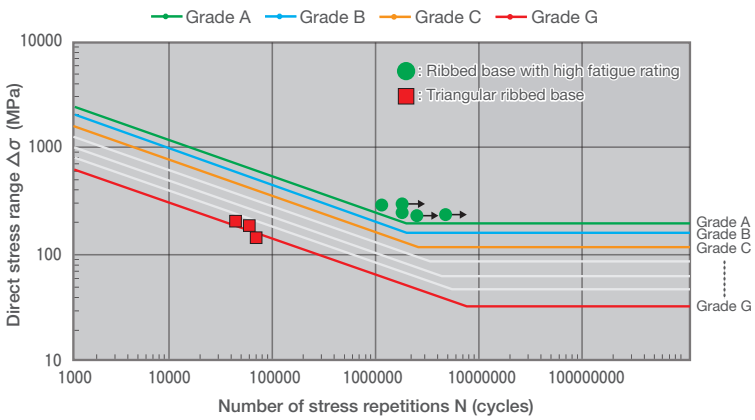
BASE NEW Model

Ribbed base with a high fatigue rating

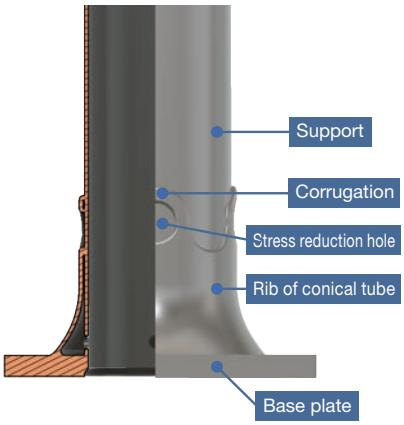
Developed the industry's first ribbed base with a Grade A fatigue rating



Fatigue design curve (joints subjected to direct stress)



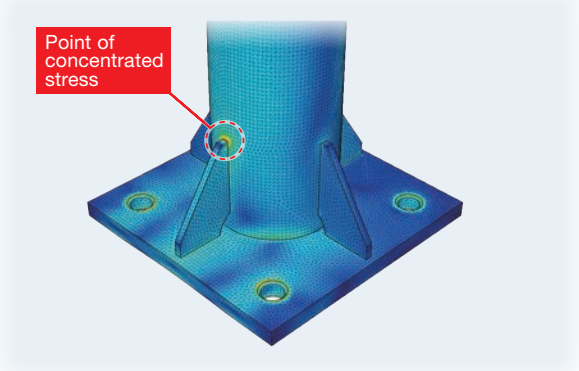
The base of the column is a conical tube with corrugated holes. When subjected to vibration imparting a bending load, the convex portion of the conical tube elastically deforms in the load direction to spread out the load. This relieves the stress by distributing the load through elastic deformation of the lower portion of the conical tube. This design contributes to the Grade A fatigue rating.



The ribless design allows for easier installation, as the wrench is not impeded during tightening of the anchor bolt. Moreover, it is aesthetically pleasing and does not impede foot traffic.

■Our conventional ribbed base

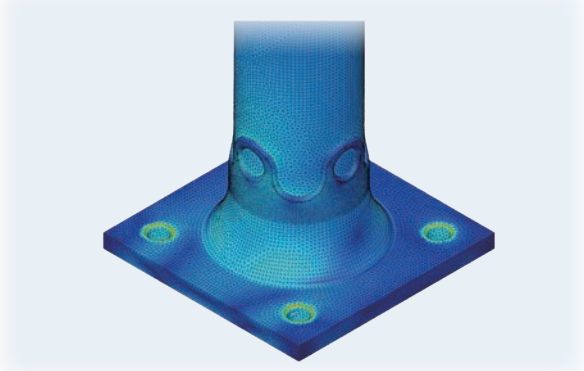
Load: 100 MPa



■ The shape of a conventional ribbed base tends to concentrate stress at specific points.

■Ribbed base with high fatigue rating

Load: 100 MPa



● Stress is relieved by forming the rib tips into a corrugated shape and providing stress reduction holes. In addition, a support is inserted into the base of the column and a conical shape is provided to distribute the load. These innovations result in the Grade A fatigue rating.

Electric Division: Product Introduction

Extending the Life of Outdoor Enclosures, Reducing the Environmental Load, and Contributing to Sustainability

Highly Corrosion-resistant Panel

Attractive appearance is suitable for exterior installations.

Compared to a typical hot-dipped galvanized surface, this painted panel presents an attractively smooth appearance.

Scratch-resistant surface minimizes the formation of rust.

Protected by two layers of paint and a highly corrosion-resistant plating, this scratch-resistant surface resists the type of damage that would typically contribute to the formation of rust.

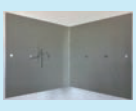
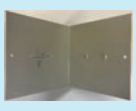
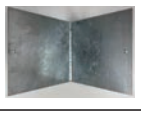
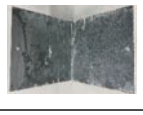
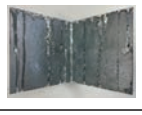
Features ZEXEED®, a highly corrosion-resistant plated steel product from Nippon Steel Corporation.

ZEXEED is a metal that offers excellent corrosion resistance. It is more economical than stainless steel and provides excellent resistance to rust — 10 times that of hot-dip galvanized plating and about twice that of ZAM® general-purpose zinc-plated steel sheet. It resists the damaging effects of salt and humidity and maintains its high resistance to corrosion for years.

*ZEXEED and ZAM are registered trademarks of Nippon Steel Corporation.

Combined Cycle Testing* (Neutral Salt Spray Combined Cycle Testing)

These highly corrosion-resistant panels demonstrate excellent resistance to rust because corrosion of the plating layer occurs very slowly and the protective film on the plating layer maintains its barrier effect, ensuring a long service life.

	Initial stage	20 cycles	40 cycles	60 cycles
Highly corrosion-resistant panel				
Hot-dip galvanizing				
Bonded steel panel				

*Combined cycle testing involves repeatedly subjecting the test material to cyclic exposure to salt spray, drying, moisture, and humidity.

Trade Show Exhibits

The 72nd Electrical Construction Equipment and Materials Fair
JECA FAIR 2024

Period: May 29 to 31, 2024
Venue: Tokyo Big Sight

We exhibited our new products in keeping with the theme of JECA FAIR 2024
“Electrical installation technology designs the future! — For a sustainable society”

Products on Exhibit

❶ Sigfox R503-ZCT Leakage Current Measuring Device (exhibited at the product competition)
❷ Standard Design New Street Light ❸ Assembled Renewal Pole
❹ Aiarch, a safety device incorporating AI technology
❺ Moss Panel, an eco-friendly distribution panel offering improved ease of maintenance
❻ Choikaru Panel ❼ Kan-kannon Door ❽ I Looking ❾ Mini Choiraku Panel ❿ Main Center Panel
⓫ Highly Corrosion-resistant Panel



Period: November 7 to 8, 2024
Venue: Intex Osaka

At this event, we exhibited our high-efficiency street lights offering greater energy efficiency, high-grade ribbed bases offering improved fatigue resistance, renewal poles that can make use of existing poles and foundations, the Sigfox R503-ZCT Leakage Current Measuring Device, and high-span railing lighting.

Technical Topics

Sigfox R503-ZCT Leakage Current Measuring Device

This device makes it possible to visualize ghost leakage currents from a smartphone or computer at any time and from any location. The integrated battery ensures the capture of data that reveals trends throughout the year.

By installing the Sigfox R503-ZCT Leakage Current Measuring Device at any branch point you want to isolate, you can easily narrow down the location of a fault and limit the scope of your investigation.
In addition to reducing labor and manpower requirements, this innovative device reveals faults quickly, contributing to enhanced safety and security.

Our Sandblasting Facility

Designed for reduced labor requirements and an improved work environment

Our Gunma Plant has introduced a sandblasting facility that prepares the surfaces of poles for painting. Compared to conventional manual cleaning processes, this method reduces work time, minimizes dust for an improved work environment, and contributes to significant improvements in paint adhesion.

Company Outline

Company name	Inaba Electric Work Co., Ltd.
Head office	Osaka Toyopet Building 7F, 3-1-1 Itachibori, Nishi-ku, Osaka 550-0012 Japan TEL +81 6-532-2301 FAX +81 6-532-2307
Establishment	May 10, 1962
Employees	263 (as of September 30, 2024)
Capital stock	130 million yen
Sales offices	Osaka, Tokyo, Sapporo, Yamagata
Plants	Habikino Plant, Enmyo Plant, Nara Plant, Gunma Plant