

Phase One Industrial

iXM Series

High-Productivity Metric Camera



PHASE**ONE**
INDUSTRIAL

iXM Camera Series at a Glance

A Breakthrough Camera Platform – Created Uniquely for UAV-Based Imaging Missions

iXM Camera



Ready for full control over a wireless link for defining ISO, shutter speed, aperture, advanced functionalities, focus distance, and upload-flight plans.

Facts & Features:

High Resolution with a pixel count of

11664x8750
(iXM 100MP)

Super-fast XQD storage card

IMU/GNSS support for geo-tagging

Backside-Illuminated Sensor



The iXM is equipped with the first medium-format sensor to implement backside-illumination technology for enhanced light sensitivity and extended dynamic range.

Facts & Features:

- **3.76 μ m** (iXM 100MP)
- **33 x 44mm** Frame Size
- **83dB** Dynamic Range

RSM Lenses



Four new Phase One RSM lenses were specifically created to fit the pixel and sensor size while maintaining sharpness across the image. The lenses offer new uses for both inspection and mapping applications.

Facts & Features:

- **35mm & 80mm**
Fixed focus
- **80mm & 150mm**
Motorized focus

The use of UAV-based platforms in the aerial imaging market is on the rise. It is now becoming the preferred method for collecting qualitative aerial data.

As a major player at the forefront of aerial imaging, Phase One Industrial developed the iXM series – revolutionary and uniquely designed cameras for UAV-imaging applications that redefine the boundaries of technological innovation.

Leaf Shutter



The lenses' integrated leaf shutter offers high capture speed for an array of flight conditions.

UAV's Engineered



The iXM 100MP and the iXM 50MP were developed to meet the challenges of the growing UAV- imaging market.

Get on a Mission...

No Matter the
Weather!



**IP53
Compliant:**

Highly Resistant
to Vibration and
all Weatherproof

Facts & Features:

- **3fps** Capture
- **1/2500 sec.** Exposure Time
- **500K** Actuations Guaranteed

Facts & Features:

- **Lightweight, robust**
- **Easy-to-integrate cameras**
- **USB-C and 10G Ethernet** for versatility of connectivity to large UAVs and aircraft

Fully-Integrated Drone Solution

Phase One Industrial designed a powerful fully-integrated drone solution with DJI M600 PRO aerial platform, offering:

- Safe-and-easy aerial access to challenging areas
- Larger surface coverage in a single flight
- High Image resolution
- Cost-effectiveness and efficiency

Phase One's Drone Solution Combines State-of-the-art Hardware and Software Components

Phase One camera kit

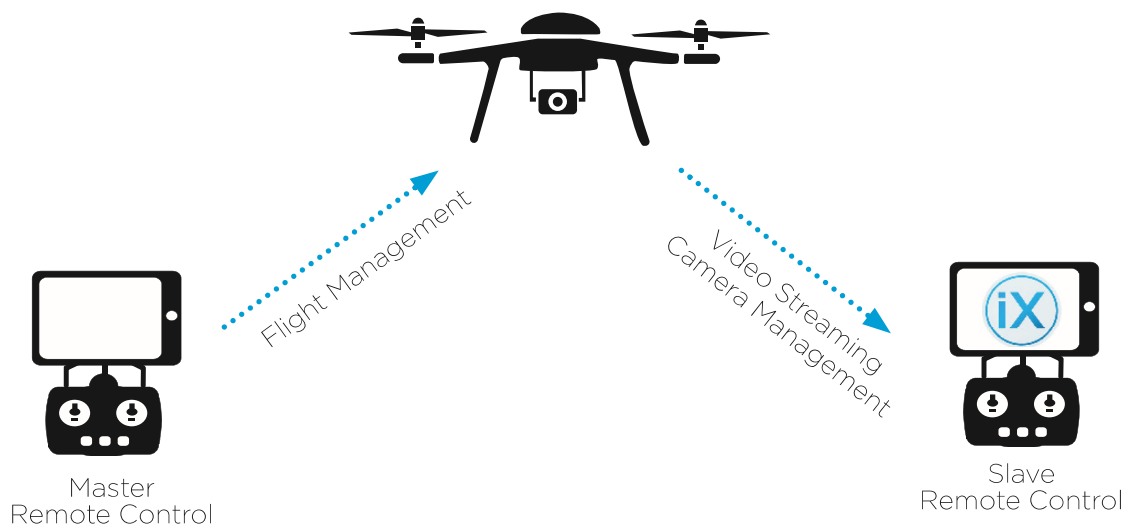
iXM 100MP or iXM 50MP metric cameras have a choice of four RSM lenses. With their small size and weight, these cameras are easily integrated into DJIM600 PRO, providing users with the advantages and high quality of medium-format cameras.

M600 PRO

A flying platform designed for professional aerial photography and industrial applications. M600 PRO is easy to set up and ready to use in a short time. Its Ronin-MX gimbal provides full control and functionality with solid locks, flexible rotation, and direct connection to the flight control system.

Phase One's iX Capture mobile application

A uniquely designed assisting application for iOS, enabling full camera control and remote management of the camera. The application enables complete and easy control of the camera via DJI's remote control system, with an intuitive and user-friendly interface.



The application offers diverse operating modes:

- Video streaming
- Auto or manual capture settings, to control the values of the ISO, shutter speed, and aperture
- Auto capture mode, to enable image capturing by waypoints, fixed distance, or by time intervals
- Focus distance
- Flight plans upload
- Camera control via DJI Lightbridge's two dials

Unique Features

- Smart triggering of the camera by waypoints, fixed distance, or fixed time
- Support for mission planning applications (such as DJI Ground Station pro) – for waypoint missions
- Geo-tagging of all images' location and gimbal position
- Remotely set target distance
- Dual remote controllers (drone and camera) enable each operator (UAV pilot and camera operator) to focus on their respective mission goals
- Industrial-grade build of the camera and aerial lenses, all of which are designed specifically for tough use in harsh environments



Complete Visibility Across Dynamic Environments

Phase One Industrial's cameras for UAVs open the door to new mission types and applications, including:

- Inspection
- Photogrammetry
- Mapping
- Homeland security

Combining aerial platforms with Phase One iXM cameras, delivers higher quality images and larger imagery coverage – in a shorter time and risk-free.



Mapping

Phase One Industrial offers a precision-driven solution that simplifies surveying and mapping processes. It provides professionals with unlimited aerial data while saving time, money, and human resources.

Our metric cameras, with a selection of 35mm or 80mm RSM lens, enable the user to effortlessly execute mapping missions, capture high-resolution images, and create 2D and 3D maps.



Wind-Turbine Inspection

Wind turbines require millimeter-sized damage-spotting detection, with fast repair and minimal influence on the turbine's performance or on the environment. The iXM's large-area sensor provides a close and detailed look at all a turbine's parts. This can prevent a sudden failure, by detecting impending damage and signs of wear.

Phase One Industrial cameras were proven the best solution for wind-turbine inspection by Aerial Technology International (ATI) during an inspection mission in Washington. Stephen Burt, ATI's CEO says, ***"Once we showed***

our clients the images, they were shocked by the level of detail. By using these images, they were able to determine the blade was still in good health and they could avoid sending up a climber or removing the blades for ground inspection. We eliminated the human liability factor and saved the major cost of taking the turbine offline to remove the blades.”



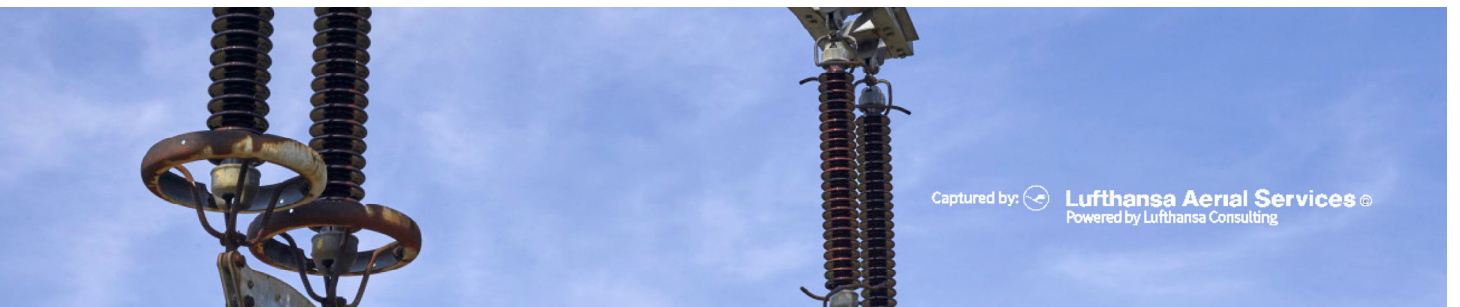
Railway Inspection

One of the major challenges that railroads face is preventing failures in track. Inspecting thousands of miles of track has to be performed quickly to avoid traffic interference.

We offer a platform that enables predictive maintenance, which not only reduces the costs and the risky operations of ground teams but also increases the speed and precision of collecting data.

The value of Phase One Industrial's cameras was demonstrated successfully by Plowman Craven, in the digital railway project done in the UK. The ultra-high-resolution imagery enabled the generation of high-accuracy survey-grade data and ensured a complete visual record that was backed up by measurement data. The superb quality of the raw photography captured, enabled studying smallest markings on the sleepers and identification of specific rail clips. It also made it possible to clearly view flash butt welds – objects that were highly problematic for surveyors when working on the tracks at night.

The value of Phase One cameras was also proven by Lufthansa Aerial Services, in a railway-inspection project, in Germany.



Power-Line Monitoring

Power-line inspection using drones is taking off as the ultimate solution thanks to its ability to cover a large surface during each flight and provide accurate visualization of power-line components – as well as surrounding objects.

Phase One cameras enable a faster and more accurate collection of visual information. They also enable power

companies to focus on fault-finding, effective repairing, strategic constructions, and maintenance planning, while minimizing the risks to surveying teams.

Tobias Wentzler, UAV Flight Systems Manager at Lufthansa Aerial Services said, *"Phase One fully-integrated drone solution, with the extraordinary camera systems, built the basis for further developments. We are confident to solve the challenging task of automating inspection process with Phase One to the highest degree possible as previous manually and semi-automated inspections have shown the most satisfying results to the customer."*



Roads and Bridges Inspection (Civil Engineering)

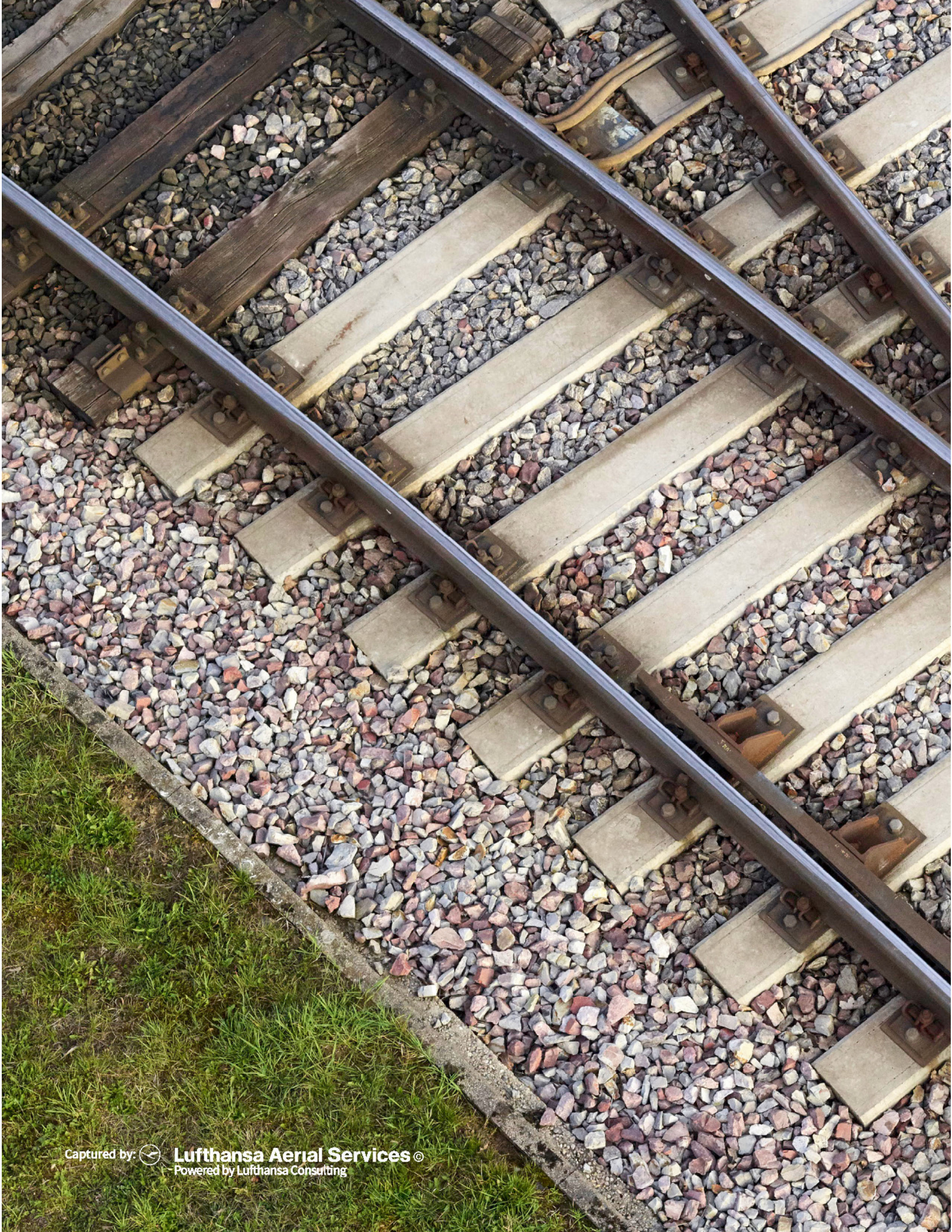
Geospatial products enable better planning, construction, and maintenance of infrastructure projects, including roads and bridges. Effective inspection of aging infrastructure and fast identification of fundamental weaknesses is crucial.

Phase One Industrial's cameras provide an advanced tool for road and bridge monitoring. They help in the execution of such projects while minimizing time, the risk to people, and traffic-flow disruption.



Pipeline Inspection

Pipeline infrastructures must be constantly monitored because of the potential threat to lives and economic losses. The oil and gas companies' demand for a reliable inspection tool is fully addressed by Phase One's cameras, which provide maximum coverage and operational flexibility. It enables fast assessment of the pipes' condition, precise identification of erosion, exposed pipes, vegetation overgrowth, and much more. It also helps decision makers with prioritizing maintenance and repair missions.



Technical Specifications

| | iXM 100MP | iXM 50MP |
|----------------------------------|---|-------------------|
| Resolution | 100MP | 50MP |
| | 11664x8750 | 8280x6208 |
| Dynamic range | 83dB | 84dB |
| Aspect ratio | 4:3 | |
| Pixel size | 3.76µm | 5.3µm |
| Effective sensor size | 43.9x32.9 | |
| Light sensitivity (ISO) | 50-6400 | 100-6400 |
| Capture rate | 3fps | 2fps |
| Camera type | Medium-format camera for aerial imaging | |
| Lens mount | Phase One RSM | |
| Data interfaces | USB3, Ethernet 10G | |
| I/O interfaces | Trigger, Mid exposure, Ready, Serial | |
| HDMI | 3840x2160 30p | 1920x1080 25p/30p |
| | 1920x1080 60p | 1280x720 50p/60p |
| Data storage | XQD card | |
| Synchronization speed | 50 microseconds in an array of cameras | |
| Raw file compression 14bit | IIQ large: 100MB | IIQ large: 50MB |
| | IIQ small: 65MB | IIQ small: 33MB |
| IR cut-off filter | Yes | |
| Connection to pod | 4xM4 bolts | |
| Power input | 12 - 30 VDC | |
| Max. power consumption | 14W | 12W |
| Weight (excluding lens) | 630gr | |
| Weight (including 80mm lens) | 1100gr | |
| Dimensions (excluding lens) | 90x90x68mm | |
| Dimensions (including 80mm lens) | 90x90x164mm | |
| Approvals | FCC Class A, CE, RoHS | |
| Temperature | -10°C to 40°C | |
| Humidity | 15% - 80% (non-condensing) | |

RSM Lenses

Technical Specifications

| | 35mm f/5.6 | 80mm f/5.6 | 80mm AF f/5.6 | 150mm AF f/5.6 |
|------------------------------------|-------------------------|------------------------|------------------|------------------------|
| Lens composition | 12 elements in 8 groups | 8 elements in 5 groups | | 8 elements in 7 groups |
| Minimum focusing range | Infinity | | 3m to Infinity | 10m to Infinity |
| Shutter speed max | 1/2500 | | | |
| Exposure control | 1/3 f-stop increments | | | |
| Aperture range | f/5.6 to f/22 | | | |
| Filter diameter | 58mm | | | |
| Total length [mm] | 77.5 | 97.5 | | 132.5 |
| Weight [gr] | 540 | 470 | 630 | 744 |
| Angle of view (long side) | 63 | 30.4 | | 17.1 |
| Angle of view (short side) | 49.4 | 23 | | 12.9 |
| Entrance pupil to image plane [mm] | 72 | 85 | | 107 |





About Phase One Industrial

Phase One Industrial is a division of Phase One A/S that researches, develops, and manufactures specialized industrial camera systems and imaging software solutions. The company focuses on specific applications such as aerial mapping; and surveying; ground and aerial inspection; agriculture; machine vision and homeland security.

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DJI M600 PRO is a trademark of SZ DJI Technology Co., Ltd

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