

# AUTO-RETRACTION SYSTEMS

THERMAL IMAGING SOLUTIONS



FOR NIR-B-656/-2K | NIR-B-640 | MWIR-B-640



**LAND**  
**AMETEK®**



QUALITY CUSTOMER SOLUTIONS

# AUTO-RETRACTION SYSTEMS

AMETEK LAND HAS BEEN MANUFACTURING PRECISION MEASURING EQUIPMENT SINCE 1947.

We are specialists in non-contact temperature measurement and combustion monitoring with our products finding applications across diverse industries such as steel and glass making, power generation, cement manufacture and hydrocarbon processing.

As part of AMETEK Process & Analytical Instruments Division since 2006, our customers benefit from the worldwide AMETEK sales and service team.

The furnace thermal imager series by AMETEK Lands offers a range of camera systems with advanced spectral responses and temperature ranges from 300 to 2000 °C (572 to 3632 °F). These systems can be equipped with either water cooling and air purging or air cooling and air purging, tailored to suit specific application requirements.

In the case of cooling or purge flow loss, the available camera retraction systems are engineered to automatically retract and safeguard the thermal imager, preventing overheating or damage.

## **WATER-COOLED & AIR-PURGED SYSTEM**

For furnace temperatures up to 2000 °C (572 to 3632 °F)

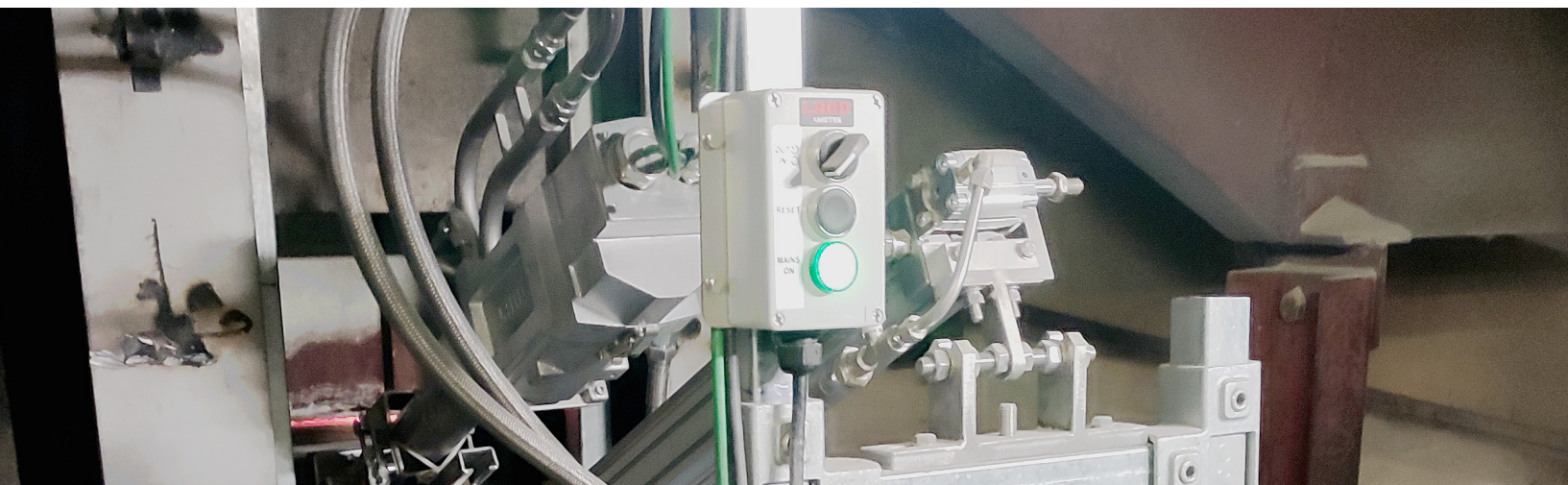


## **AIR-COOLED & AIR-PURGED SYSTEM**

For furnace temperatures up to 1200 °C / 2192 °F



As components of a comprehensive furnace imaging system or as standalone accessories or replacements, AMETEK Land offers complete Auto-Retraction systems, available in either pressured air or electrically driven configurations.

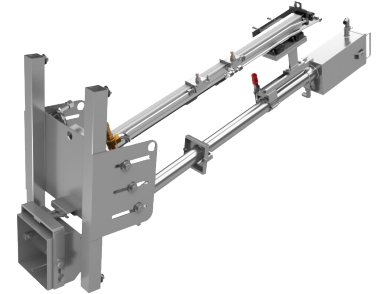
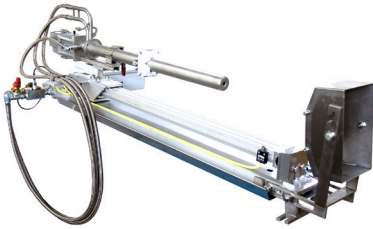


# RETRACTION SYSTEMS OVERVIEW

EAR

LPAR

PAR



Electrical  
Auto-Retractor  
System

LPAR  
Pneumatic  
Auto-Retractor  
System

Pneumatic  
Auto-Retractor  
System

Basic  
system

**Recommended retraction  
system option**

Retraction system  
for use at  
Glass Furnaces only

Electrical & battery driven  
Auto-Retractor system

LPAR Pneumatic & air  
driven Auto-Retractor  
system with or without  
framing

Pneumatic & air driven  
Auto-Retractor system  
with or without framing.

To be used with:  
NIR-B-640  
NIR-B-656/-2K  
MWIR-B-640  
(2 or 3 ft. Probe length)

To be used with:  
NIR-B-640  
NIR-B-656/-2K  
MWIR-B-640  
NIR-B-2K-GLASS  
(2 or 3 ft. Probe length)

To be used with:  
NIR-B-656/-2K-GLASS  
(3 ft. Probe length)

## WHICH AUTO-RETRACTOR SYSTEM TO CHOOSE? ▼

LPAR is recommended for most installations. It is engineered for reliability and has a maximum ambient temperature of 80 °C at the mounting point. It can be installed with up to 35° inclination from horizontal.

EAR is simple to install and only requires instrument air for purging. Maximum ambient temperature is 60 °C and maximum inclination is 20° from horizontal.

PAR is recommended for use on glass furnaces where its reliability has been proven in many installations worldwide. Maximum ambient temperature 80 °C at the mounting point and maximum inclination is 45° from horizontal.

# AUTO-RETRACTION SYSTEMS

## LPAR – PNEUMATIC AUTO-RETRACTION SYSTEM



The LPAR - Pneumatic Auto-Retraction System is the preferred choice for all applications, as it operates using pressured air and electricity alone. It seamlessly integrates with both water-cooled and air-cooled furnace camera systems, making it suitable for a wide range of furnaces and applications. Engineered to endure the most challenging industrial environments, it reliably operates 24/7.

The LPAR can be supplied as part of a complete furnace camera system or as an upgrade to existing systems lacking a retraction mechanism. While the LPAR system comes fully equipped, the frame assembly can either be provided by the customer or included as an accessory from AMETEK Land.

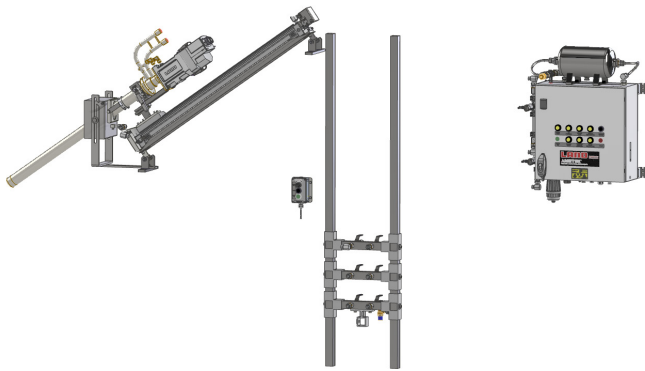
The LPAR - Pneumatic Auto-Retraction System will remove the instrument from the process if:

- Mains Power is lost
- Air pressure to cylinder is lost
- Cooling air or water flow to the system drops below requirements, or exceeds media temperature limits
- Purge Flow to the system drops below requirements, or exceeds media temperature limits
- The borescope lens system temperature reaches its alarm level
- Camera temperature exceeds limit (MWIR-B-640, NIR-B 656 & NIR-B-2k only)
- Manual retract is initiated

# CONFIGURATIONS

## Standard System

New system installation



### System Includes:

- Retraction System
- Camera, Housing & cables
- IMAGEPro

### System Options

#### Cable Lengths

- 25 m
- 50 m

#### Housing Cooling

- Water
- Air

#### Imager Types

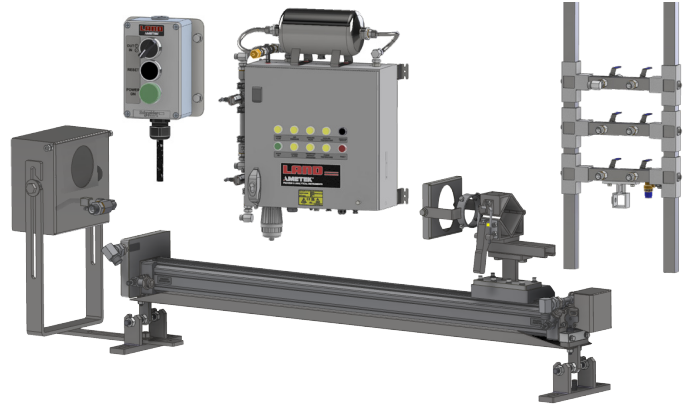
- NIR-B-656
- NIR-B-2k
- NIR-B-2k-Glass
- NIR-B-640
- MWIR-B-640

#### Camera & Housing Lengths

- 2 ft
- 3 ft

## Upgrade System

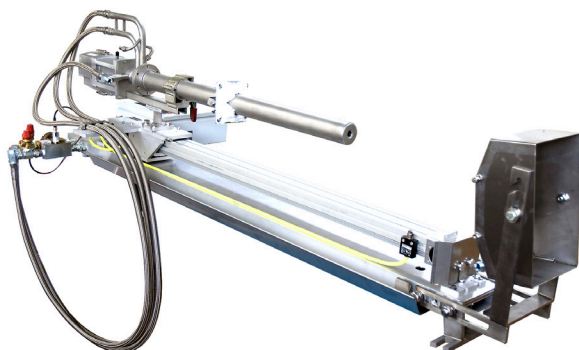
To upgrade an existing furnace camera installation



### System Includes:

- Retraction System
  - Control Unit
  - Remote Box with 50 m Cable
  - Media Bar
  - Retraction Slide
  - 7 x Hoses 2.7 m (808485)

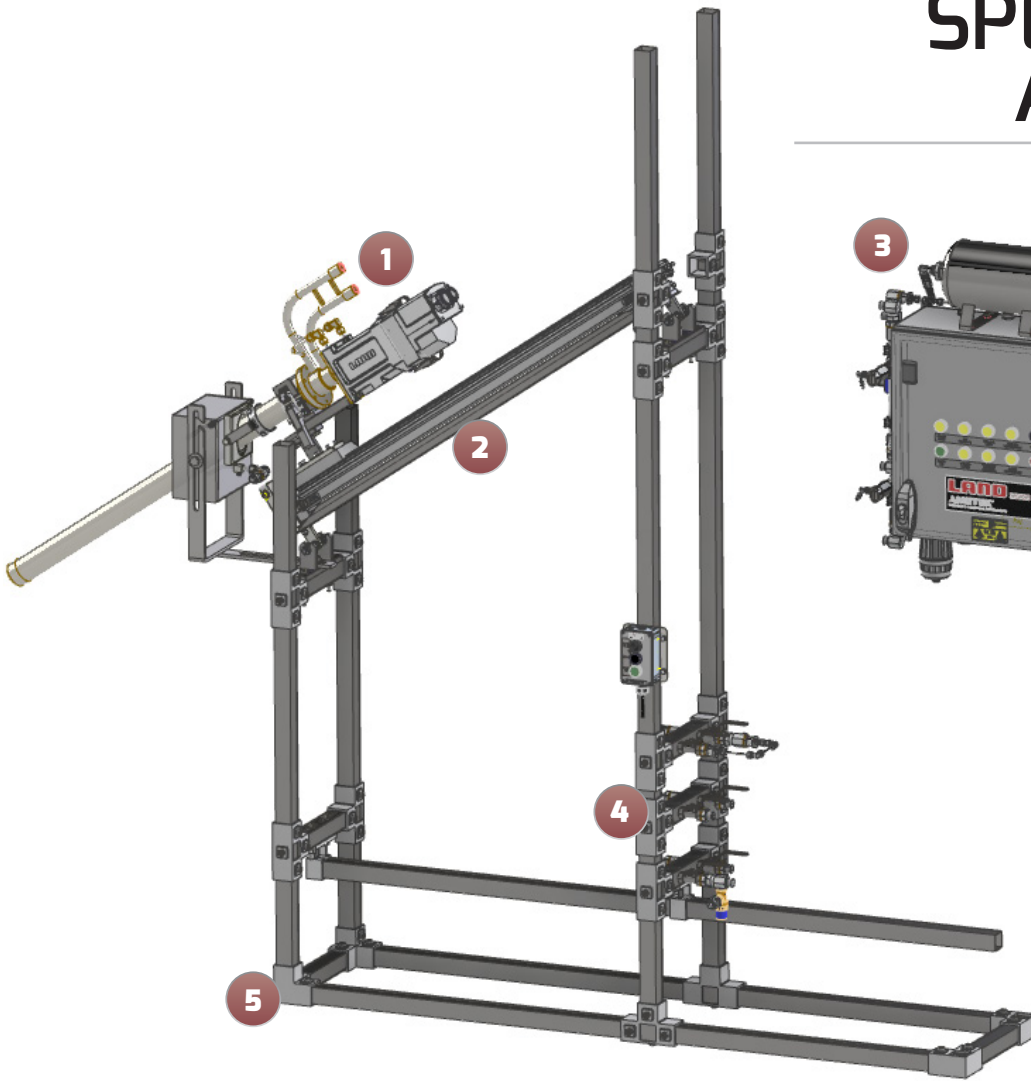
## EAR – ELECTRICAL AUTO-RETRACTION SYSTEM



The AMETEK Land Electrical Auto-Retraktion System is designed specifically for environments where pressurised air is the sole option for purging. It integrates a battery to guarantee safe retraction in case of air flow loss, power supply interruption, or a high borescope tip temperature alarm.

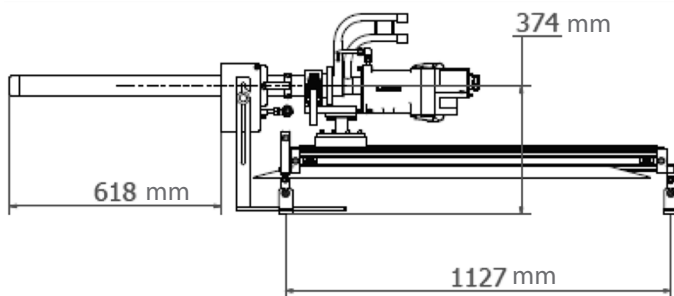
Please contact AMETEK Land for the best choice for auto-retraction systems.

# SPECIFICATION AND DESIGN

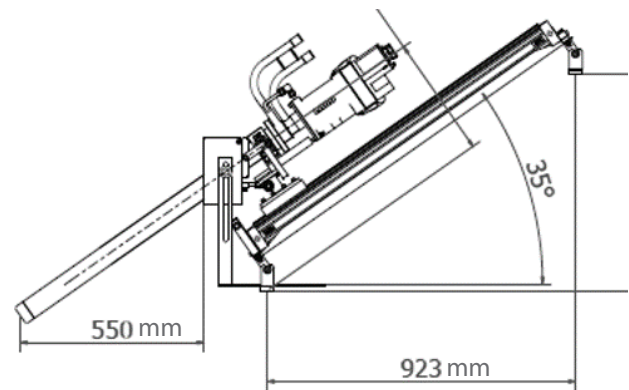


- 1: FURNACE IMAGER UNIT**  
(full imager unit contains camera, cooling jacket, power supply, cables and IMAGEPro software)
- 2: LPAR – PNEUMATIC AUTO- RETRACTION SYSTEM**
- 3: LPAR – CONTROL UNIT**
- 4: LPAR MEDIA BAR**
- 5: LPAR – FRAME ASSEMBLY (ACCESSORY)**

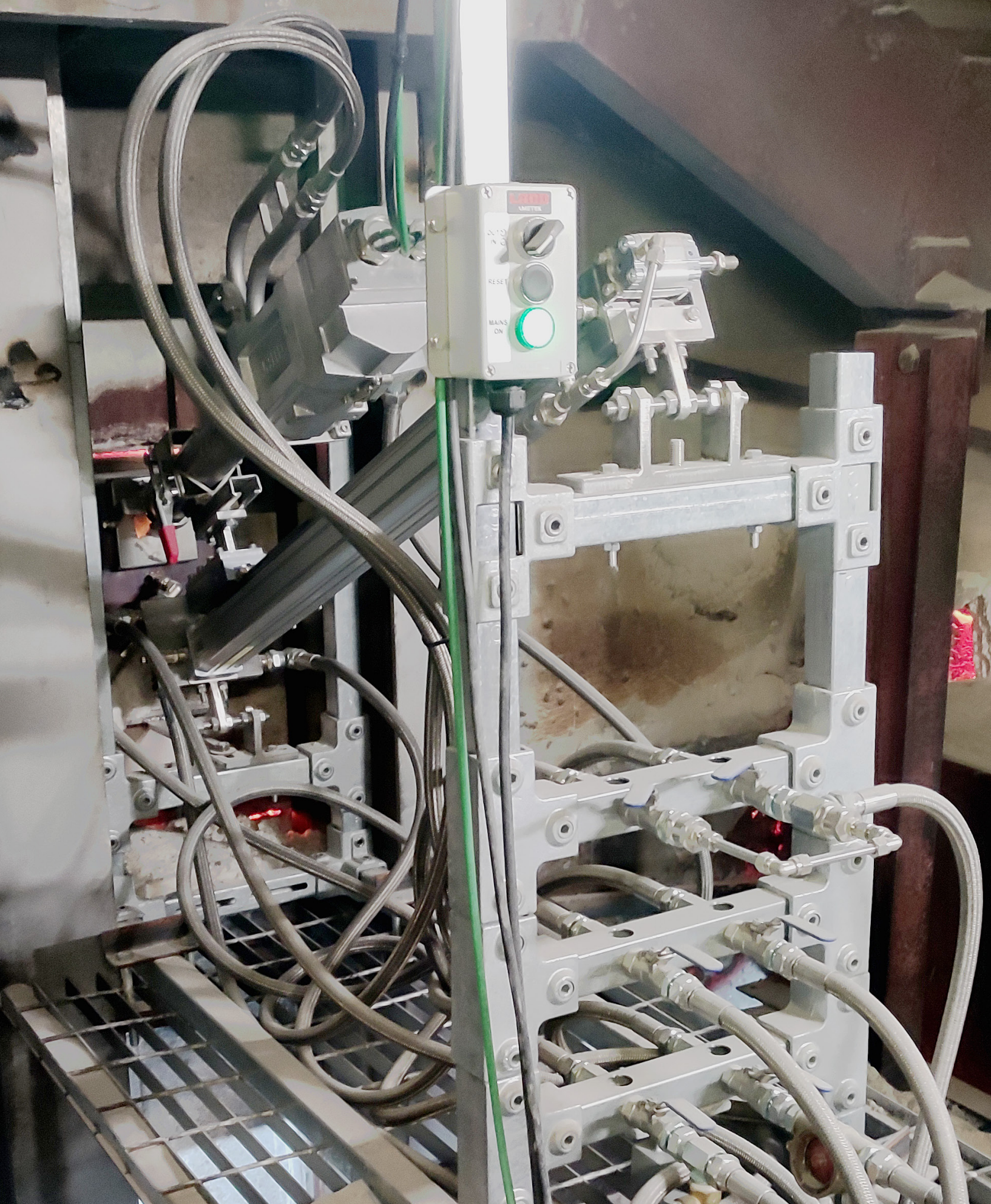
MOUNTING ANGLES – 0° TO 35° ▼



0° mounting



35° mounting



## LPAR SPECIFICATIONS

### OPERATING CONDITIONS

**Ambient Temperature:** 0 °C to 80 °C

### MECHANICS

**Size:** 2050 x 2450 x 500 mm (with 816085 accessory)

**System Weight:** 88 kg (camera, retraction system, frame)

**Probe:** 5 kg

**Cooling Jacket:** 15 kg

**Retraction System:** 35 kg (modular sections, Max 17 kg)

**Port Seal:** 7 kg

**Cylinder Assembly:** 12 kg

**Media Frame:** 17 kg

**Frame Accessory:** 33 kg (816085)

### CONTROL UNIT

**Voltage:** 100-240 VAC

**Current:** 2.4 A - 1.2 A

**Frequency:** 50/60 Hz

**Operating Temperature:** 0 °C to 60 °C

### I/O

**Input:** 4-20 mA, 0-200 °C (lens temperature) (Max loop Resistance 300 ohms , Isolated)

**Relay:** 'System OK' (250 VAC, 8 A contact rating)

### SEALING

**Sealing:** IP54

### PNEUMATIC AIR SUPPLY

**Air supply – Pneumatic cylinder**

**Pressure:** Angle Dependant (MAX 7 bar)

**Temperature:** -10 °C to 80 °C (at inlet)

**Connection:** 1/2" BSPP threads

**Air quality:** ISO 8573-1:2010 [4.7.4]

**Particles:** < 100/m<sup>3</sup> (> 1 µm diameter)

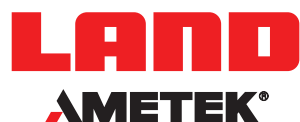
**Water:** < 500 mg/m<sup>3</sup>

**Oil:** < 5 mg/m<sup>3</sup>



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[www.ametek-land.com](http://www.ametek-land.com)



[land.enquiry@ametek.com](mailto:land.enquiry@ametek.com)



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