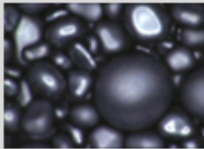


Semiconductor & Solar Cell Applications Polysilicon Manufacturing

Canty has many products that can handle needed applications within the Semiconductor and Solar Cell industry. In the manufacturing of semi-conductors and solar photovoltaic cells the first stage involves the production of high purity wafer material. To produce the wafer material it is common to first vaporize silicon gas followed by depositing the silicon as a rod or fine particle. The Canty product line can help silicon manufacturers understand the shape, size, color, and surface texture of the final product.

[View All Polysilicon Applications](#)



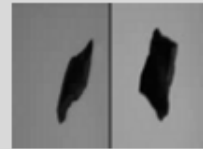
[Silicon Beads](#)

Monitor particle size to ensure the silicon beads are the proper size and detect contaminants after the fluidized bed with an two deminsional **On-Line SolidSizer**.



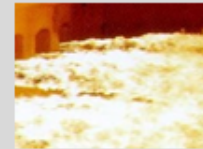
[Silicon Ingot](#)

Measure the diameter, straightness, and surface roughness to ensure the silicon ingots produced are repeatable and of high quality.



[Silicon Chunk, Chip, and Fines](#)

Analyze the particle shape, size, and color during the breaking process with the three deminsional **RockSizer and SolidSizer**.



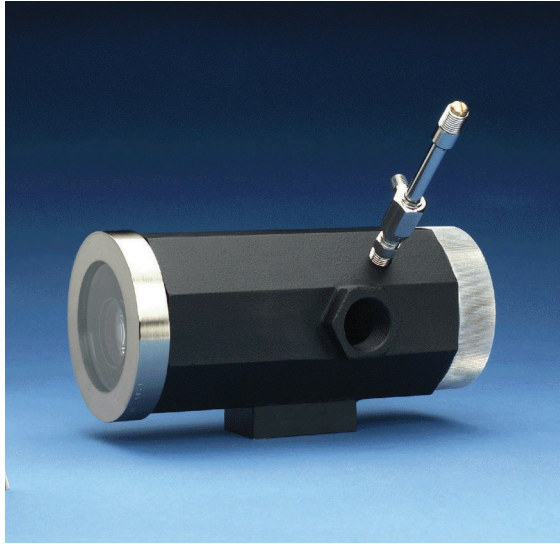
[High Temperature Cameras](#)

Canty High Temperature Cameras are ideal for demanding applications involving visual inspection or verification in extreme temperature environments.

CANTY

PROCESS TECHNOLOGY

Thickness Measurement System



HOW IT WORKS

The Cauty Thickness Measurement System can be setup in two separate configurations dependant on the process needs. One would be the STANDARD EDGE METHOD means to measure thickness, which would be to visually monitor the side of the product and determine it's thickness. The second means to determine thickness is with the SHADOW TRACKING METHOD. The shadow tracking method views the shadow, from a fixed object and light source, with a Cauty Surveillance Camera and measures the position change of the shadow on the surface of the material. The position change correlates directly to the change in thickness of the material being measured.

THE CANTY ADVANTAGE

INCREASE PRODUCTIVITY & YIELD

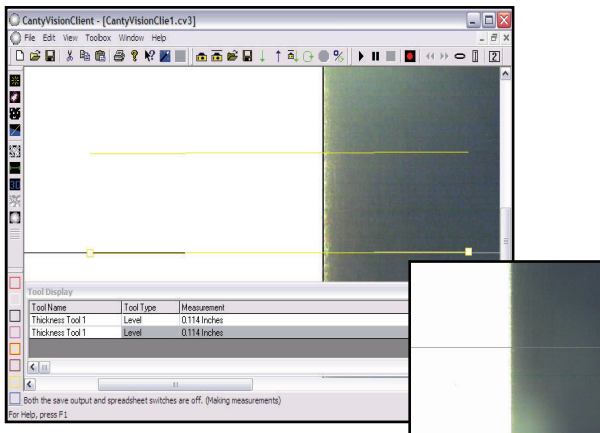
The Cauty Thickness Measurement System provides online thickness measurements that will allow for further process control and productivity. The ability to understand the thickness of a material allows operators to know exactly when the optimal thickness has been reached, reducing any time spent over-processing products. Not only can productivity be increased, but yield can be increase as well by providing high quality finished products with a uniform thickness.

FEATURES

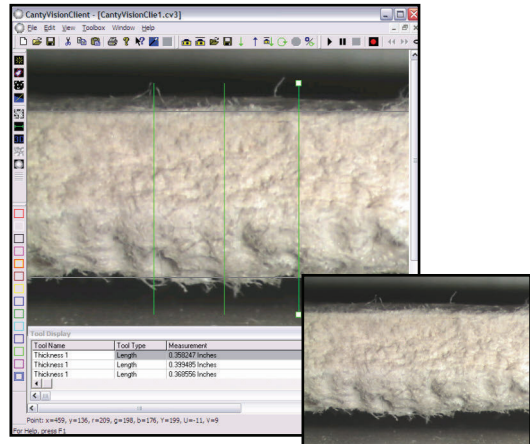
- Measurement Within 0.001 inches Resolution
- Real Time Thickness Measurement
- Ability To Use Multiple Measurement Tools
- Visual Verification Of Process

APPLICATIONS

- Industrial Filter Manufacturing
- Plate Steel Real Time Measurement
- Paper Thickness Measurement
- Textile Industry
- Measure Uniformity Across A Material
- And Many More

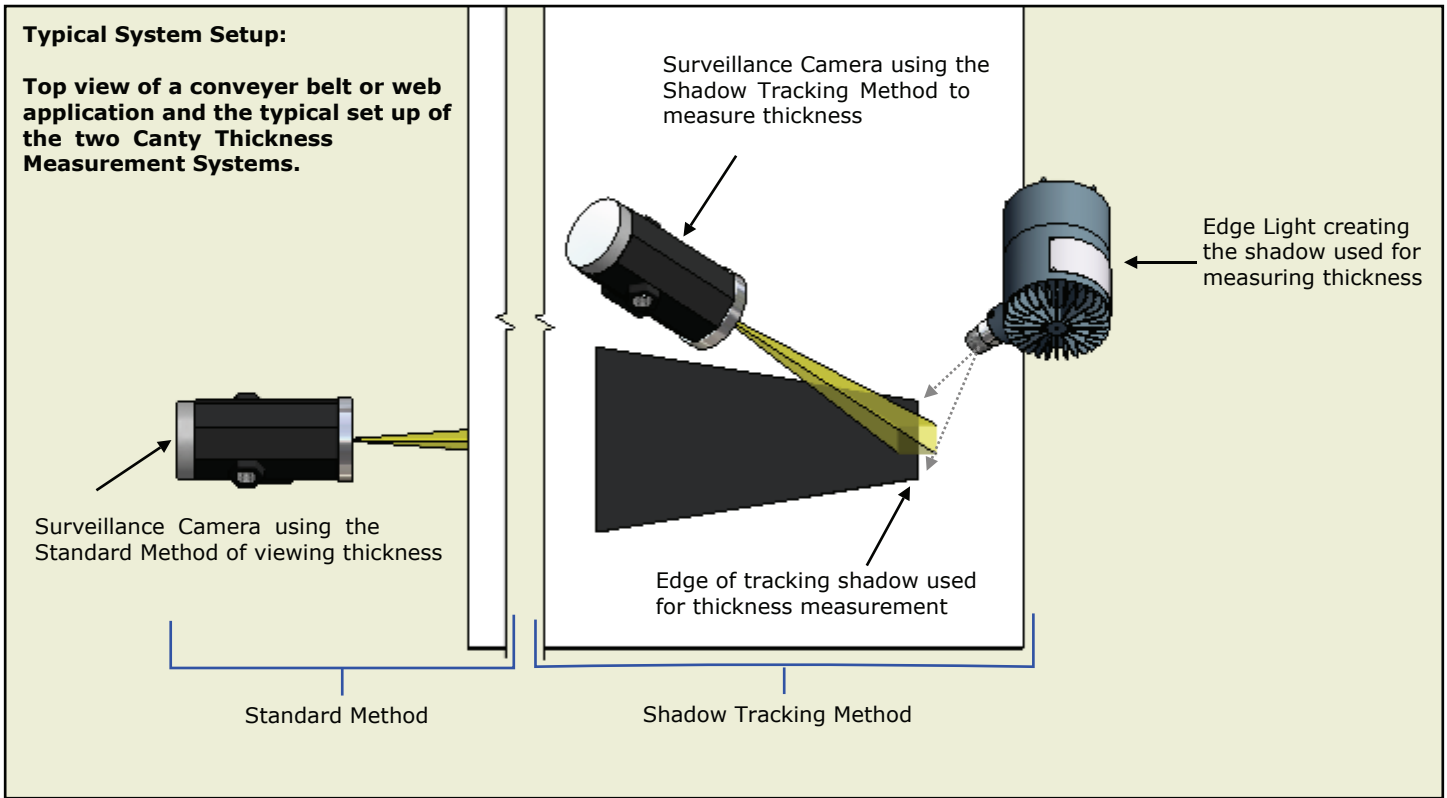


Analyzed Image by CautyVision™ with SHADOW TRACKING METHOD For Thickness Measurement



Analyzed Image by CautyVision™ with STANDARD EDGE METHOD Thickness Measurement

TECHNICAL INFORMATION



The part designated below is used in most of the applications for thickness measurement, additional options are available upon request

HOW TO ORDER: Select the appropriate symbols and build a part number for each camera:

EXAMPLE:

VTMSE5011-WP-1-1

VIDEO OUTPUT FORMAT

- VTMS - Vision System
NTSC (North American Standard)
- VTME - Vision System
PAL (European Standard)

CAMERA OPTIONS

- E - Ethernet Camera, Color
- R - Ethernet Camera, B & W Near IR

CAMERA APPLICATION

- 5 - Surveillance

CAMERA PSU ENVIRONMENTAL RATING

- 0 - [Non WP or EXP camera power supply](#)
- 1 - [WP camera power supply](#)

LENS OPTION AND APPROXIMATE LENS VIEW ANGLES

- 1 - Manual iris lens with standard view angle, 41°H x 31°V
 - 4 - Manual iris lens with standard view angle, 22°H x 17°V
 - 6 - Manual iris lens with narrow view angle, 7°H x 5°V
 - 7 - 6x Zoom Lens with Auto Iris, 8 - 48mm FL
- Provides view angles: 43°H x 33°V at 8mm

EDGELIGHT OPTIONS

- 1 - HYL 80 (120 V), w/ Shadow Edge
- 2 - HYL 80 (240 V), w/ Shadow Edge
- N - No Lighting Needed

THICKNESS MEASUREMENT METHOD

- 1 - Shadow Tracking Method
- 2 - Standard Edge Method

CAMERA ENCLOSURE ENVIRONMENTAL RATING/INPUT VOLTAGE

- WP - Weather Proof, NEMA 4 and IP66 rated.
User supplies 120V AC
- IP - Weather Proof, NEMA 4 and IP66 rated.
User supplies 240V AC

ADDITIONAL OPTIONS

- 1 - No additional options
- 2 - Cooling Tube
- 3 - Spray Ring
- 4 - Spray Ring and Cooling Tube

Reference Data Sheet VD10474-110 for optional mounting bracket details.

*4-20 mA output available by selecting module from datasheet TA9688-1 Ethernet Current Loop Output Options. Sold separately.

* Please Note That A Customer Supplied Shroud Above The Viewing / Measuring Area Is Needed To Reduce Ambient Light To A Minimal. This Allows For Optimal Thickness Measurement

CANTY

JM Cauty Inc
JM Cauty Intl Ltd

Buffalo, NY USA
Dublin, Ireland

Ph: (716) 625 4227
Ph: + 353 (01) 882 9621

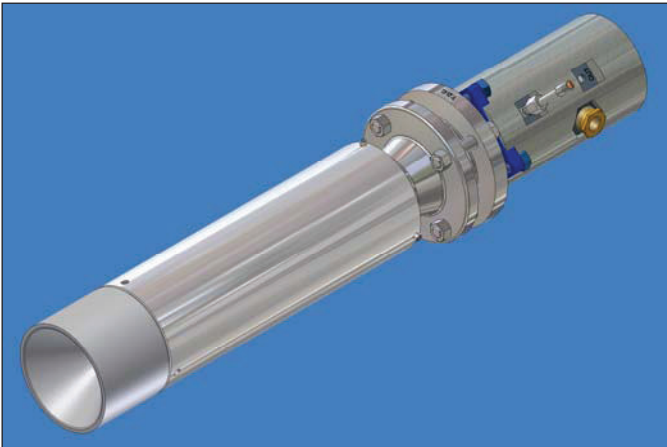
Fax: (716) 625 4228
Fax: +353 (01) 882 9622

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CANTY

PROCESS TECHNOLOGY

EXTREME^{TEMP}™ FURNACE CAMERAS



UNMATCHED PERFORMANCE

Canty EXTREME^{TEMP}™ Cameras are ideal for demanding applications involving visual inspection or verification in extreme temperature environments.

- Computer designed optics for a crystal-clear picture.
- A digital electronic auto-iris provides an exceptional image of your application without the problems associated with manual apertures. Non-blooming CCD or Ethernet cameras.
- High temperature lenses designed to survive in process temperatures even in the event of air loss for short time periods.

SAFETY IS A PRIMARY CONCERN

Canty EXTREME^{TEMP}™ Camera Systems feature a fused glass seal standard with every model. This unique seal provides an impenetrable safety barrier to protect the camera electronics from the harsh process environment.

ACCESSORIES

- This system provides the ability to remotely view a process that may not normally be watched. Multiple viewing stations may be linked to the system output so various departments may monitor a process. Customers may purchase video monitors, amplifiers or screen splitters to enhance the system.
- Ethernet systems allow the additional functionality of being able to remotely view through a Gigabit network system. Users can have access to live system images from their office networked computer.
- CANTYVISIONCLIENT™ software is available for customers that require additional functionality over simple viewing of a live image. Liquid level, position of an arc or ladle, and location of an ingot or bar are typical outputs customers utilize.

FEATURES

- Replaceable ceramic nose cone
- Disposable quartz protective shield
- High temperature furnace lens - Process temp. to 3000° F
- Auto electronic iris
- High quality quartz optics
- Fused glass seal separates electronics from process
- Insertion lens available up to 36" long
- Non-blooming CCD or Ethernet cameras in an insulated electronics housing
- 100-1000 SCFH and 60-600 SCFH Flowmeters
- High intensity light filters and hot mirrors available

APPLICATIONS

- Furnaces
- Glass Production
- Plasma ARC Furnaces
- Incinerators
- Kilns
- Melting Chambers
- Vitrification

SPECIFICATIONS

Video Formats: NTSC, PAL or Ethernet outputs available.

Video Output: 1.0 V p-p, 75 ohm(NTSC, PAL models) or Ethernet output to PC available

Cable: RG59/U, RG11/U, RG6/U coaxial cable suitable for CCTV applications is recommended for analog cameras. Ethernet cameras require CAT5e or better cabling.

Power Req.: User supplies 120 VAC, 60 Hz or 230 VAC, 50 Hz power. Canty supplies transformer to 12 VDC, .5A Typ.

Ratings: Available in NEMA 4x or IP66 enclosures

Mountings:

- 6" clearance hole into an insulation block when mounted horizontally with adequate system support.
- Weld on sleeved collar for attachment to curved walls and allows for insertion length adjustment.
- 6", 150# ANSI flange for sealed mount

Requirements

Requirements: Electronics housing-supply 90 PSI, 8 SCFM clean, dry instrument air.

Insertion lens - may require 13 SCFM clean, dry gas depending on application.

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JM Canty Inc | Buffalo, NY USA
JM Canty Intl Ltd | Dublin, Ireland

Ph: (716) 625 4227
Ph: + 353 (01) 882 9621

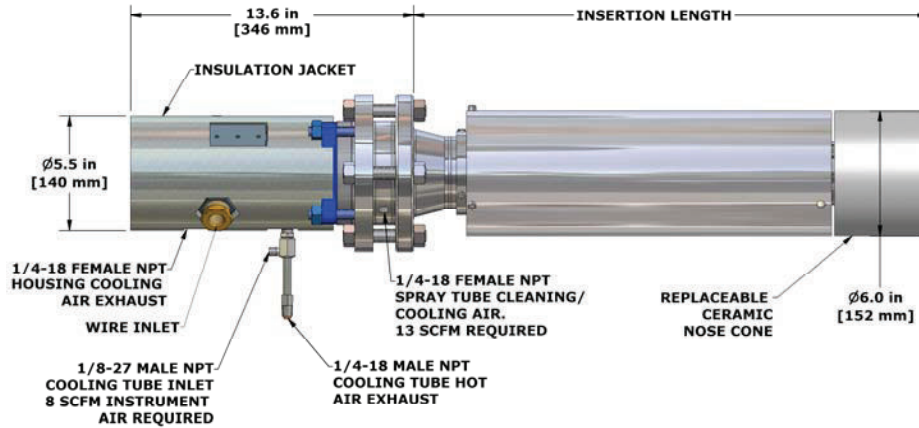
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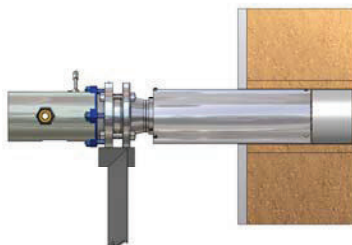
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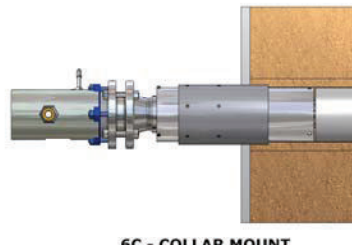
DIMENSIONAL INFORMATION



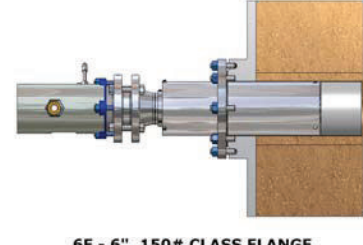
Dimensional Information For Diagram and Part Number Selection	
Combined Refractory/ Wall thickness	Insertion Length
Special	12"
6" - 16"	24"
17" - 30"	36"



6H - MOUNT CONFIGURATION



6C - COLLAR MOUNT CONFIGURATION



6F - 6", 150# CLASS FLANGE MOUNT CONFIGURATION

Notes:

- 6H Mounting Configuration requires a 6.1" hole through the outer wall and refractory. Customer provides support brackets to hold camera in required position. Customer must seal the joint between the camera and shell while in position.
- 6C Mounting Configuration requires a 6.1" hole through the refractory and 6.7" counterbore for the included mounting collar to slip into. Once in position the customer welds the collar to the outer shell. Customer must seal the joint between the camera and collar while in position. Includes mounting collar and setscrews.
- 6F Mounting Configuration requires a 6.1" hole through the outer wall and refractory. Customer welds included carbon steel stud pad to the outer shell. Customer then welds the stainless steel mount flange to the camera to create the appropriate insertion length. Includes stud pad, mounting flange, hardware and gasket.
- For installation manual see TA8823-1.PDF.

Ordering Information

HOW TO ORDER: Select the appropriate symbols and build a part number as shown:

EXAMPLE:

VSH DC 6 8 C 1 - S - 6C - 24INS

<p>VIDEO OUTPUT FORMAT</p> <p>VSH - North American Standard (EIA, NTSC) VEH - European Standard (CCIR, PAL)</p>	<p>INSERTION LENGTHS</p> <p>12INS - 12" [305mm] 24INS - 24" [610mm] 36INS - 36" [914mm]</p>
<p>CAMERA OPTION</p> <p>DL - Black & White Analog DC - Color Analog DE - Color Ethernet</p>	<p>MOUNTING CONNECTION</p> <p>6H - 6" Clearance Hole, Horizontal 6C - 6" Weld On Collar 6F - 6", 150# ANSI Flange</p>
<p>ENVIRONMENTAL RATING</p> <p>6 - Weatherproof</p>	<p>WETTED METAL MATERIAL</p> <p>S - 304L Stainless Steel H - Hastelloy® C276 or equal N - Inconel®</p>
<p>TEMPERATURE RATING</p> <p>8 - Furnace Operating at 3,000°F. Temperature at lens: 2,200°F</p>	<p>CAMERA POWER SUPPLY OPTIONS</p> <p>1 - Non WP or EXP Power Supply (120 VAC Input) 2 - Non WP or EXP Power Supply (230 VAC Input) 5 - Power Supply in WP NEMA 4X Enclosure (120 VAC Input) 6 - Power Supply in IP66 Enclosure (230 VAC Input)</p>
<p>LENS VIEW ANGLE</p> <p>B - 30°(H) x 22°(V) C - 45°(H) x 34°(V) D - 65°(H) x 49°(V)</p>	



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Document P/N : TA10889-1 Rev. 1

JM Canty Inc

JM Canty Intl Ltd

Buffalo, NY USA

Dublin, Ireland

Ph: (716) 625 4227

Ph: + 353 (01) 882 9621

Fax: (716) 625 4228

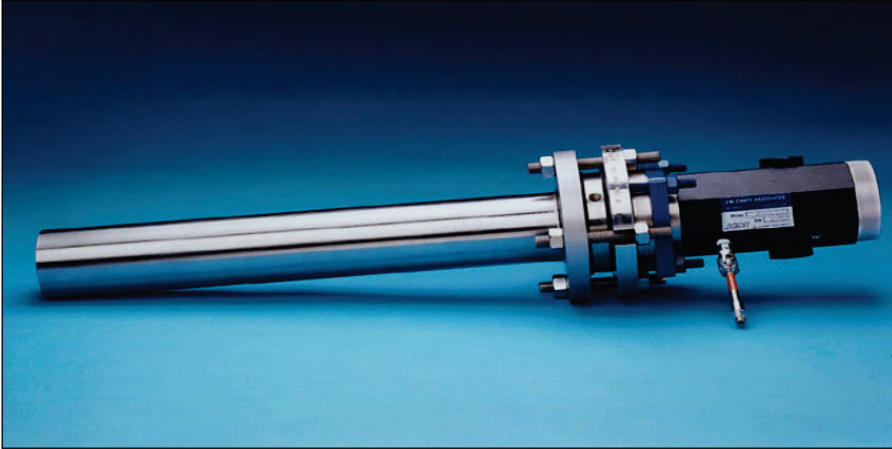
Fax: +353 (01) 882 9622

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CANTY

PROCESS TECHNOLOGY

ULTRATEMP™ HIGH TEMPERATURE CAMERAS



UNMATCHED PERFORMANCE

Canty ULTRATEMP™ Cameras are ideal for demanding applications involving visual inspection or verification in extreme temperature environments.

- Computer designed optics for a crystal-clear picture.
- All cameras feature state of the art camera technology.
- A digital electronic auto-iris provides an exceptional image of your application without the problems associated with manual apertures.
- High temperature lenses designed to survive in process without cooling air.

SAFETY IS A PRIMARY CONCERN

Canty ULTRATEMP™ Camera Systems feature a fused glass seal standard with every model. This unique seal provides an impenetrable safety barrier to protect the camera electronics from the harsh process environment and preventing hazardous vapors from escaping into your plant.

NO LENS AIR PURGING REQUIRED

Unlike other manufacturers, Canty does not require air to keep the lenses cool.

Loss of air will not destroy our camera system!

A positive air flow is used for maintenance purposes only to keep dust and soot from accumulating on the lens.

As a result, many applications will not require any air purge, which can save thousands of dollars per year!

APPLICATIONS

- Furnaces
- Power Boilers
- Black Liquor Recovery Boilers
- Incinerators
- Kilns
- Melting Chambers

FEATURES

- No cooling air required. Air is used for cleaning only!
- Disposable Quartz Protective Shield
- High Temperature Furnace Lens - Models Up To 2500°F
- Auto Electronic Iris
- High Quality Quartz Optics
- Fused Glass Seal Separates Electronics From Process
- Insertion Lens Available Up To 36" Long
- Non-Blooming CCD Cameras

SPECIFICATIONS

Video Formats: NTSC, PAL, EIA, CCIR, or Ethernet outputs available.

Video Output: 1.0 V p-p, 75 ohm(NTSC, PAL, EIA, CCIR models) or Ethernet output to PC available

Cable: RG 59/U, RG 11/U, RG 6/U coaxial cable suitable for CCTV applications is recommended for analog cameras. Ethernet cameras require CAT5e or better cabling.

Power Req.: User supplies 120V AC, 60 Hz or 230V AC, 50 Hz power. Canty supplies transformer To 12V DC, .5A TYP.

Ratings: Available in NEMA TYPE 1, NEMA TYPE 4, IP20, IP66

Mounting: 3" 150# ANSI or 80 mm DIN flange for Flush Mount units. Insertion units require a Ø3.5" hole that the wall mount tube will insert into and be welded to.

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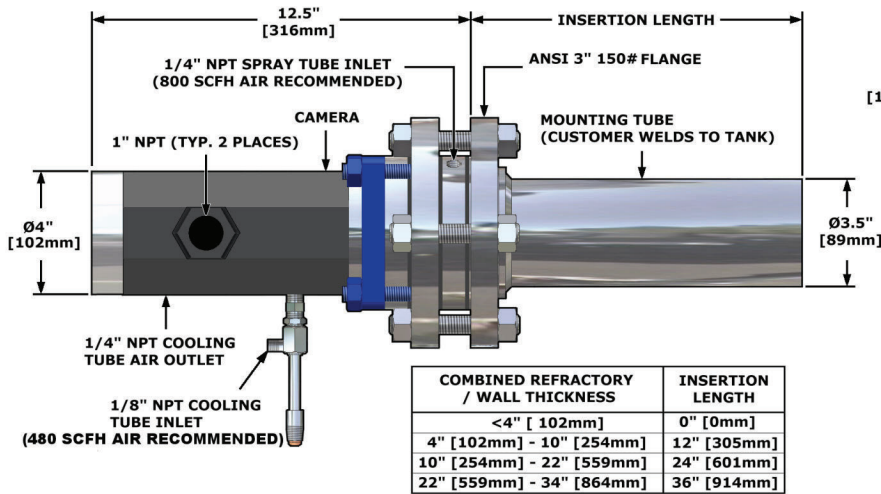
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Fax: (716) 625 4228
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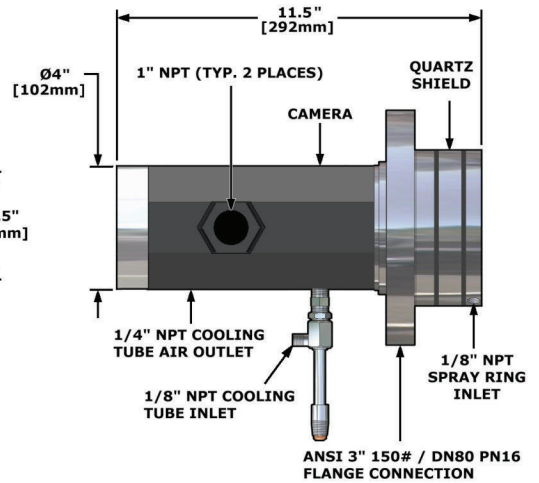
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DIMENSIONAL INFORMATION

Insertion sizes 12" and Larger



Non Insertion Models



- For 0" Insertion models, customer must provide a 3", 150# ANSI (U.S.) or DN80 PN16 (Europe) flange connection to mount camera.
- For all other insertion lengths, customer must provide a 3.5" [89 mm] diameter mounting hole to weld Cauty supplied mounting tube to furnace.
- Layout drawings and additional insertion lengths available. Consult factory.

Ordering Information

HOW TO ORDER: Select the appropriate symbols and build a part number as shown:

EXAMPLE:

VSH DC 6 6 C 1 - S - 3FL150S - 24INS

VIDEO OUTPUT FORMAT

VSH - North American Standard
VEH - European Standard

CAMERA OPTION

DL - B&W camera
DC - Color camera
DE - Ethernet camera
DR - Near IR Ethernet camera

ENVIRONMENTAL RATING

6 - Weather Proof

TEMPERATURE RATING

5 - Furnace operating 2000°F
Temp at lens 1300°F (No insertion)
6 - Furnace operating 2000°F
Temp at lens 1300°F (Insertion models)
7 - Furnace operating 2500°F
Temp at lens 1600°F (Insertion models)

Note: For higher temperature requirements, see the EXTREME^{TEMP}™ model: TA10889-1.

LENS VIEW ANGLES

Insertion Models

B - 30°(H) X 22°(V)
C - 45°(H) X 34°(V)
D - 65°(H) X 49°(V)

Non-Insertion

E - 7°(H) X 5°(V)
F - 22°(H) X 16°(V)
G - 41°(H) X 31°(V)
H - 69°(H) X 53°(V)

INSERTION LENGTHS

0INS - Flush Mount - No Insertion
12INS - 12" [305mm] Insertion
24INS - 24" [610mm] Insertion
36INS - 36" [914mm] Insertion

MOUNTING CONNECTION

3FL150S - 3" 150# ANSI Flange Mount
80FL16S - 80mm 16 Bar DIN Flange
(option for flush mount only)

MATERIAL OF CONSTRUCTION

S - 304 L Stainless Steel
H - Hastelloy® C276

CAMERA POWER SUPPLY OPTIONS

- 1 - [Power supply in NEMA Type 1 enclosure \(120V AC input\)](#)
- 2 - [Power supply in IP 20 enclosure \(230V AC input\)](#)
- 5 - [Power supply in WP NEMA 4X enclosure \(120V AC input\)](#)
- 6 - [Power supply in IP66 enclosure \(230V AC input\)](#)

NOTE: Accessory Kit part number: V401-KIT available to aid in installation contains 100-1000 SCFH and 60-600 SCFH Flowmeters along with a 0.5 micron oil/vapor removal filter.



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Document P/N : TA7355-I Rev. 8

JM Cauty Inc

Buffalo, NY USA

Ph: (716) 625 4227

Fax: (716) 625 4228

JM Cauty Intl Ltd

Dublin, Ireland

Ph: + 353 (01) 882 9621

Fax: +353 (01) 882 9622

CANTY

PROCESS TECHNOLOGY

SOLIDSIZER™ TS SOLID PARTICLE ANALYSIS SYSTEM



SYSTEM DESIGN

The Canty SolidSizer TS unit is a versatile tool for lab environments to determine particle size and shape, thereby eliminating the need for sieving. The system also has multiple configurations that allow color analysis and defect detection, as well as a tilting stage for flat particle analysis.

THE CANTY ADVANTAGE

The SolidSizer TS is a vision based sensor that combines with the Canty Vector processor to provide a complete particle analysis system. Operating features are remotely controlled at the processor screen view and include zoom and focus, calibration, feed speed and level control, as well as all camera functions such as shutter, gain and resolution. The system comes with back and front lighting for maximum versatility. The modular design allows for easy assembly of different configurations depending upon product type and/or analysis desired. The tilt stage feature is similar to the technology patented in the Canty RockSizer and is especially effective for analyzing flat, stone-like particles. The stage is designed for both back and front lighting use.

FEATURES

- Particle distribution by major, minor diameter, area, perimeter available with Canty Vector System.
- Remote processor control of system settings.
- Adjustable lens magnification (sub micron through boulders-no upper size limit). Consult factory for details.
- Fiber optic backlighting for true shape illumination. Front lighting for color detection.
- Shape analysis.
- External video connectors for signal processing by Canty Vector System (optional).
- Optional light filters available for wavelength sensitive materials.
- Tilt tray for flat particle analysis.

APPLICATIONS

- Pharmaceutical powders
- Polymer pellets and beads
- Agricultural products
- Aggregates
- Color analysis
- Glass bead applications
- Color/black speck detection
- Agglomeration control
- Spray dryers and fluid bed applications
- Replaces existing lab screen/sieve systems
- End product Q.C. and lot certification
- Many, many more!

SPECIFICATIONS

- Power: 120 VAC / 60 Hz (230 VAC / 50 Hz)
- Shutter Speed: variable up to 1/100,000 sec
- Instrument Air: 20 to 30 PSI when required

BENEFITS

- Virtually Eliminates Lab Screening Labor
- Output Matches Sieve/Screen Data - Direct Replacement
- Three Month Pay Back

Ordering Information

HOW TO ORDER: Select the appropriate symbols and build a model number as shown:

EXAMPLE:

S T - H 1 L 1 1 1 1

STYLE SELECTION

T - T.S.

VIDEO SYSTEM FORMAT

E - Ethernet (Color) 1600x1200, 800x600

G - Black & White Gigabyte, 1600x1200

H - Color, 1600x1200

ENVIRONMENTAL RATING

1 - Lab Enclosure

SYSTEM ILLUMINATION

K - Back Light

ACCESSORIES

1 - No Accessories

TRAY MATERIAL

1 - Anodized Aluminum

2 - SS Tray

3 - Steel Tray (Rocksizer Only)

INPUT POWER

1 - 120 VAC 60Hz

2 - 240 VAC 50Hz

LENS

2 - Particle Size Stage 1 [3 - 1500 microns]

3 - Particle Size Stage 2 [50 - 3000 microns]

6 - Kit - Includes both Particle Size Stages 1 & 2



CANTY

PROCESS TECHNOLOGY

3-D ROCKSIZER™ ONLINE SIZING SYSTEM



THE CANTY ADVANTAGE

The control of rock and aggregate size is critical, as crushing mills tend to have a high rate of out of spec production. Sizing the crushed rock and detecting when it is not the optimum size saves a significant amount of time and money by avoiding product return and rework. The JM Canty RockSizer™ allows quick sizing of aggregate to allow for real time adjustments to the process and to keep the output in spec. The RockSizer™ is a vision-based measurement system used with a Canty Vector for aggregate, determining particle size, shape, and distribution thereby eliminating the need for sieve analysis.

The RockSizer™ includes two B&W cameras, dual lighting systems, a hopper and gate system, and a vibratory feeder to present the sample material to the cameras and lights in free fall. The RockSizer™ electronics are packaged in a rugged, weather proof, skid mounted frame designed to meet the demanding requirements of many industries, including the aggregate industry. The camera video is provided to the Canty Vector System for quick and precise particle size analysis. The vector output matches sieve and screen data directly.

FEATURES

- Outdoor Lab Analyzer
- Particle Distribution by Major, Minor Diameter, Area, Perimeter Available with the Canty Vector System
- Real-time, On-line Particle Size Analysis
- Dual Backlighting for True Shape Illumination
- Easy, Rapid System Configuration
- Rugged, Skid Mounted Frame
- Large Hopper to feed the product into the RockSizer™
- Gate system allows for precise feed control of the product
- Dual camera systems to allow for twice the feed rate of single camera system

APPLICATIONS

- Aggregate
- Crusher Control
- Iron Ore Pellets
- Milling Controls
- Potato & Agricultural Product
- Screen Break
- Screen Blinding
- Wood chip
- Many, Many More

SPECIFICATIONS

- Aggregate: 1/10" – 2" Particle/Object.
50-6000 micron, .75"-9" Models also available. Consult Factory.
- Rating: NEMA 4 Weather proof
- Power: 120V AC, 60Hz, (230V AC, 50Hz available) Single Phase, 900W
- Dimensions: Approx. 6 ft. (L) X 3 ft. (W) X 5 ft. (H)
- Weight: Approx. 1250 lbs

BENEFITS

- Reduces Lab Screening Labor
- Output Matches Sieve / Screen Data - Direct Replacement
- Fast Pay Back

CANTY

JM Canty Inc | Buffalo, NY USA
JM Canty Intl Ltd | Dublin, Ireland

Ph: (716) 625 4227
Ph: + 353 (01) 882 9621

Fax: (716) 625 4228
Fax: +353 (01) 882 9622

www.jmcanty.com

Document P/N: TA9308-1 Rev 7

Ordering Information

HOW TO ORDER: Select the appropriate symbols and build a part number as shown:

EXAMPLE:

SR - K 5 3 1

STYLE SELECTION
R = RockSizer™

VIDEO SYSTEM FORMAT (B&W)
A = EIA 640 x 480 (North American Standard)
C = CCIR 768 x 576 (European Standard)
F = Ethernet 659 x 493
G = Gigabit Ethernet 1600 x 1200

ENVIRONMENTAL RATING
2 - Weatherproof
3 - Explosionproof

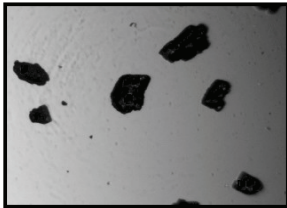
SYSTEM ILLUMINATION
K = Backlighting

ACCESSORIES
1 = No accessories

TRAY MATERIAL
3 = Steel Tray

INPUT POWER
1 = 120 VAC 60 Hz
2 = 230 VAC 50 Hz

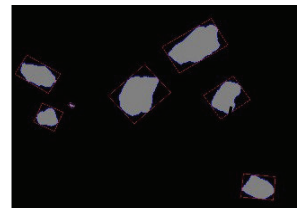
LENS
5 = Fixed Lens



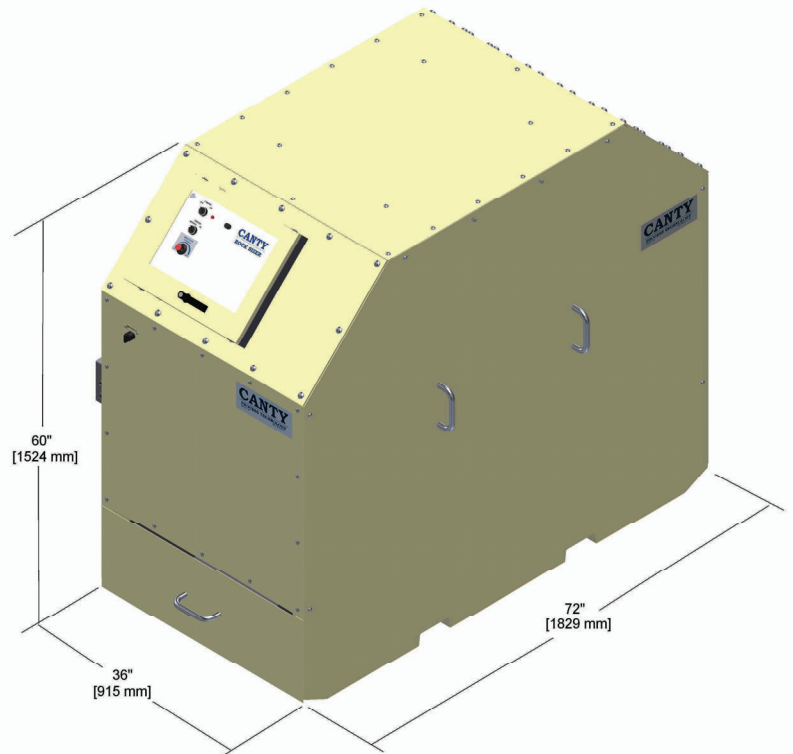
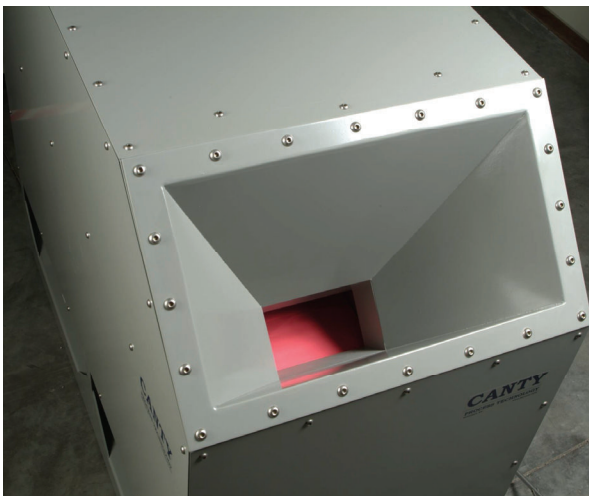
Live Image



Digitizer Image



Sizing Image



CANTY

JM Canty Inc | Buffalo, NY USA
JM Canty Intl Ltd | Dublin, Ireland

Ph: (716) 625 4227
Ph: + 353 (01) 882 9621

Fax: (716) 625 4228
Fax: +353 (01) 882 9622