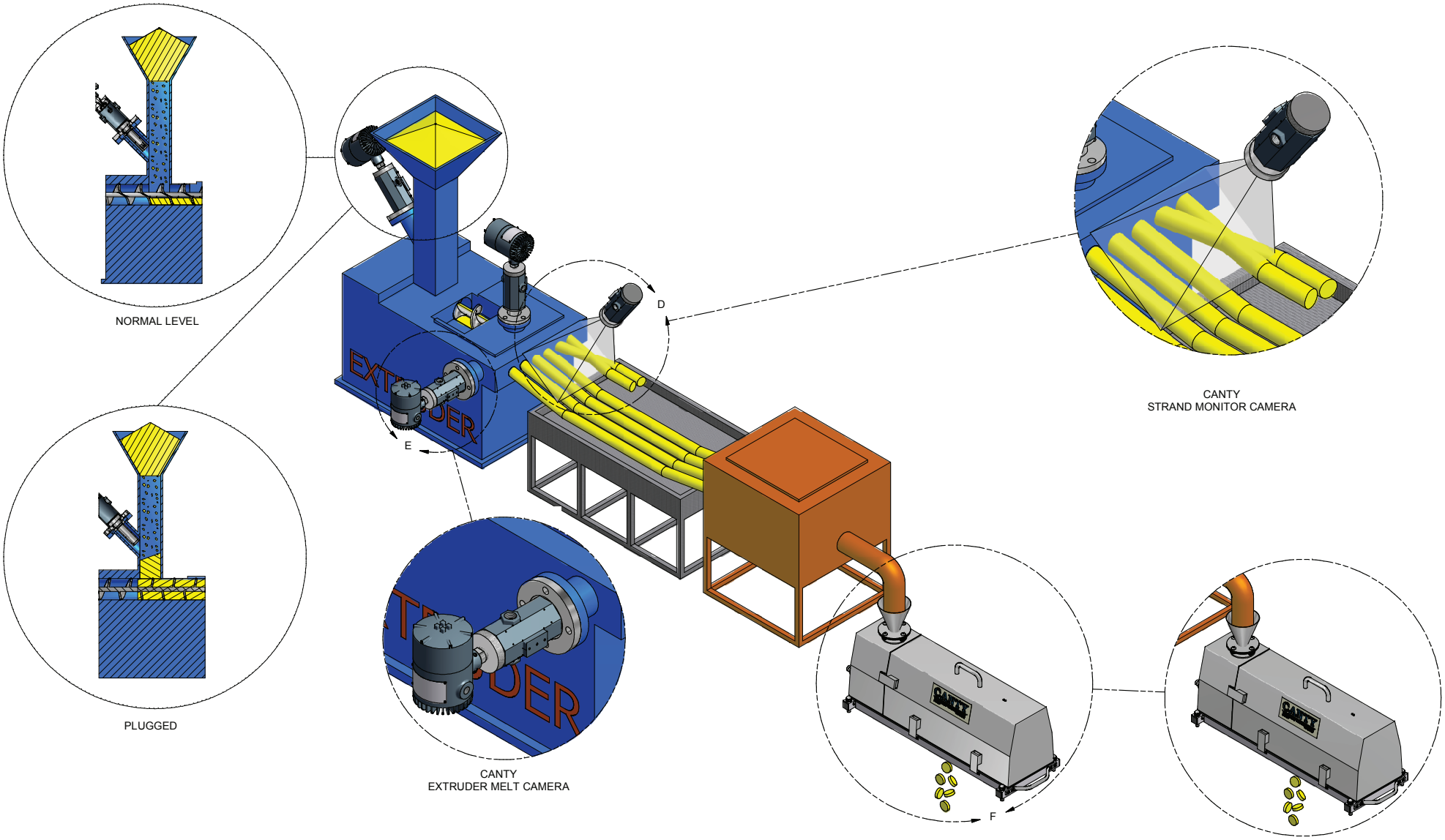

EXTRUDER PROCESS CONTROL

TD11235-100 REV0

CANTY

PROCESS TECHNOLOGY

CAMERA SYSTEMS

HOW IT WORKS

J.M. Canty cameras are patented systems designed to illuminate and view inside a pressure or process vessel through a single connection. There is no need for multiple vessel ports. Canty supplies an integrally mounted camera and lighting system (optional) in a connection as small as a 2" NPT. The industry standard video output can be displayed on a video monitor in the comforts of a control room, or recorded on any VCR. A standard video monitor or TV with video input may be used to display the image.

CANTY LIGHTS MAKE IT POSSIBLE

The key to Canty Camera/Light combination systems is the Canty light. Canty uses fiber optic light guides to focus cool, effective light into a process vessel or area. Cool light eliminates product bake-over on the viewing window. Fiber optic light guides have been specifically designed to work in conjunction with cool light to maximize the light transmission into the vessel. The resulting live, remote video image from this illumination is unparalleled!

THE COMPLETE PACKAGE

Canty can meet all your needs! Included as standard equipment on every camera system are power supplies, a high resolution B & W, color or Ethernet camera, pre-focused lens and WP, IP66, explosion proof or flame proof enclosure. What's more – all wiring and maintenance are external. Many optional monitors, recording and control options are available. All cameras can be easily integrated with a Canty Vector System for various process measuring and control functions such as non-contact level control, particle sizing, etc. Please consult the factory for details.

APPLICATIONS

- Polymers – Verify empty, monitor level
- Crystallizers – Liquid and foam level
- Fermentors – Liquid and foam level
- High purity pharmaceutical applications
- Toxic Material – Remote viewing
- Foam and Fluid Level monitoring in:

Shredders	Hoppers
Nutsche Filters	Latex Applications
Strippers	Pressure Vessels

FEATURES

- FM, CSA and approvals to CENELEC on various models. World wide approval!
- 10,000 PSI ratings are available
- Up to 2000° F capabilities
- 2" NPT, 2" flange and larger, 2" Tri-Clamp® and larger connections are available.
- High resolution CCD cameras – available in B&W and color, NTSC, PAL and Ethernet output.
- Remotely view your process from the comforts of a control room
- Single nozzle viewing/illuminating (with light)
- Remote light dimming options
- Spray rings are available to keep your window clean

SPECIFICATIONS

CCD Sensor:	½" format. 811(H) x 508(V) typ.
Sensitivity:	Available from .0001 lux usable picture (low light B&W). 0.1 lux is typical (color). Varies with model.
Video Output:	1.0 V p-p, 75Ω typ.(analog) or Ethernet options.
Ambient Temp:	-30°C to 50°C
Current Req.:	500 mA typical
Cable:	RG 59/U, 75Ω coaxial cable suitable CCTV applications (analog) or Cat5e Ethernet (Ethernet Models)
Environmental ratings:	NEMA 4, IP66, Explosion proof (Class 1, Div. 1, Groups B, C & D, Class II, Div. 1, Groups E, F & G) or Flameproof EEx d IIC T6

OPTIONS

- Vector System - level/foam control, volume control, in-line particle sizing, color analysis
- Time/date generators – overlay time and date stamp onto video picture
- Data overlay – overlay pH, temp, pressure, etc. on-to video picture
- Fiber Optic Link – replaces coaxial cable, need for conduit

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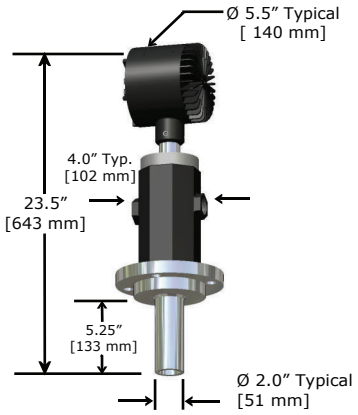
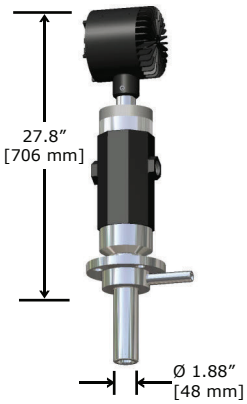
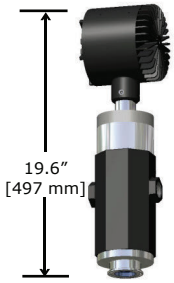


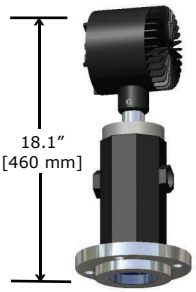
TYPICAL 3" [80mm] AND LARGER FLANGE MOUNT WITH INSER-



2" FLANGE INSERTION WITH INTEGRAL JET SPRAY RING



TYPICAL TRI-CLAMP® MOUNT



TYPICAL FLANGE MOUNT

Note: For cameras only (no light) subtract 8.25" from O.A.L. of camera/light combos shown above

Ordering Information

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

EXAMPLE: **V 6 B 2 1 B D 1 J**

VISION SYSTEM
V - North American standard
VE - European standard

ENVIRONMENTAL RATINGS
6 - NEMA 4 weather proof, IP66
7 - Explosion proof (US) or Flame proof (Europe)

CAMERA OPTIONS
B - B & W camera
L - Low Light B & W camera
C - Color camera
I - Infrared (near) B & W
E - Ethernet Network Video camera

LENS OPTIONS
(Note: Some lenses are not available with certain mounting connections. Consult your binder for details)
2 - 56° (H) x 43° (V) x 69° (D)
3 - 69° (H) x 53° (V) x 80° (D)
6 - 41° (H) x 31° (V) x 50° (D)

CAMERA POWER SUPPLY OPTIONS
1 - User supplies 120 V AC. Power supply in a non WP or EXP enclosure. User provides enclosure and switch as needed.
2 - No power supply required.
5 - User supplies 120 V AC. Power supply in a WP enclosure.
6 - User supplies 240 V AC. Power supply in an IP/WP enclosure.
7 - User supplies 120 V AC. Power supply in an EXP enclosure. PSU enclosure is rated Class I, Div 1, Groups C & D.
8 - User supplies 240 V AC. Power supply in non WP or FP enclosure. User provides enclosure and switch as needed.

WETTED MATERIAL OPTION
B - 316 L Stainless Steel*
D - Hastelloy® C-276 or equal
E - Hastelloy® C-22® or equal
F - Glass (BoroPlus™)**

MOUNTING CONNECTION
Consult factory for additional sizes and ratings.
B - 2" NPT, 5.25" insertion
C - 3" ANSI flange
D - 4" ANSI flange
E - 2" ANSI flange
F - 3" ANSI flange, 5.25" insertion
G - 100 mm DIN flange
H - 4" ANSI flange, 5.25" insertion
J - 100 mm DIN flange, 5.25" insertion
K - 2" ANSI flange, 5.25" insertion
M - 3" Tri-Clamp® 5.25" insertion
P - 4" Tri-Clamp® 5.25" insertion
U - 4" Tri-Clamp®
Q - 80 mm DIN flange
S - 80 mm DIN flange, 5.25" insertion
T - 2" ANSI flange, 5.25" insertion, with integral spray ring
2 - 2" Tri-Clamp®
3 - 3" Tri-Clamp®

NON WETTED MATERIAL
0 - No flange required (if selecting a flanged model). Select this option when choosing NPT or Tri-Clamp® models also.
1 - 150 # carbon steel ANSI flange
2 - 150 # 316L stainless steel ANSI flange
3 - 300 # carbon steel ANSI flange
4 - 300 # 316L stainless steel ANSI flange
6 - 16 Bar carbon steel DIN flange
7 - 16 Bar stainless steel DIN flange
8 - 10 Bar carbon steel DIN flange
9 - 10 Bar stainless steel DIN flange

LIGHT OPTIONS
G - HYL 80 1SRDO (240 V)
J - HYL 80 1SRDO (120 V)
N - Camera only - will not accept an integral light
0 - Combo w/o light - will accept an existing light (Note: Without a light source the camera cannot maintain WP or EXP integrity)

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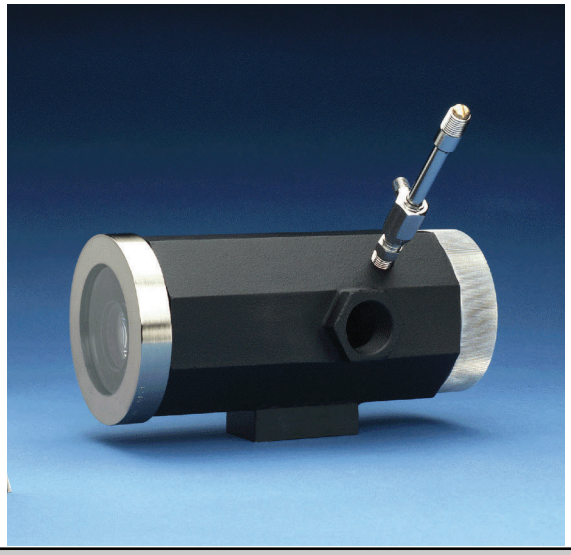
*Canty reserves the right to upgrade to Hastelloy® C family of alloys or equal at their own cost
** Not available with all models

CANTY

PROCESS TECHNOLOGY

Thickness Measurement System



HOW IT WORKS

The Canty 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 Canty 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

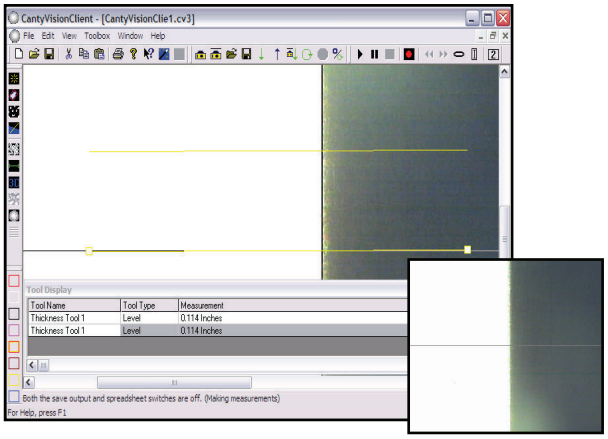
The Canty Thickness Measurement System provides online thickness measurements that will allow for further process control and productivity. The ability to understand the thickness of a material allows operators to know exactly when the optimal thickness has been reached, reducing any time spent over-processing 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

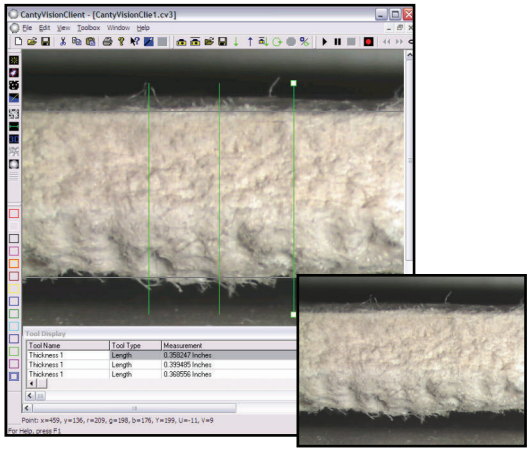
- Measurement Within 0.001 inches Resolution
- Real Time Thickness Measurement
- Ability To Use Multiple Measurement Tools
- Visual Verification Of Process

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 CantyVision™ with SHADOW TRACKING METHOD For Thickness Measurement



Analyzed Image by CantyVision™ with STANDARD EDGE METHOD Thickness Measurement

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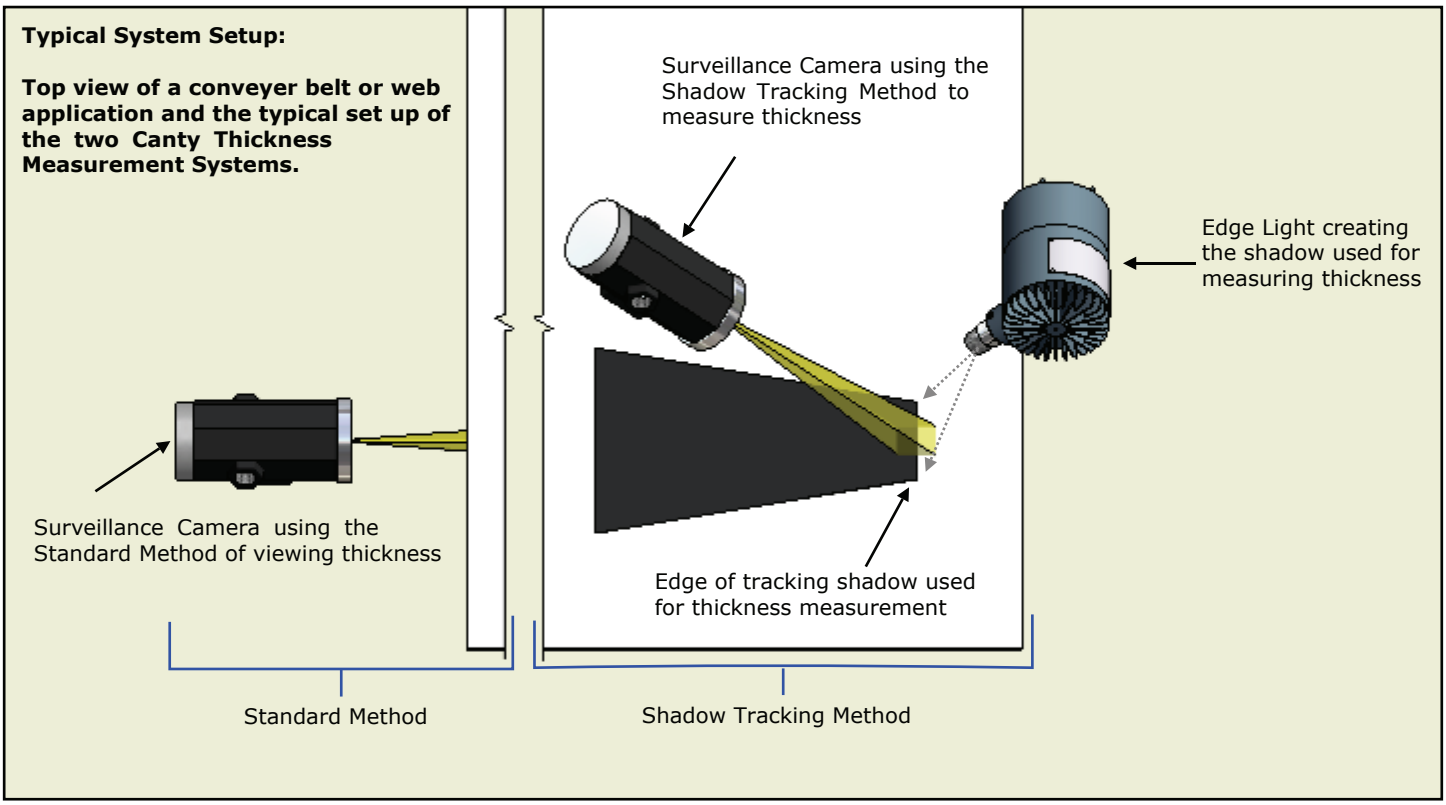
TECHNICAL INFORMATION

Typical System Setup:

Top view of a conveyer belt or web application and the typical set up of the two Canty Thickness Measurement Systems.



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

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

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

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

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CANTY

PROCESS TECHNOLOGY

INDUSTRIAL SOLIDSIZER™ Particle Analysis System

ONLINE PARTICLE SIZING

The Canty Industrial SolidSizer™ is an on-line particle sizing tool for lab environments to determine particle size, shape and distribution, thereby eliminating the need for sieve analysis.

THE CANTY ADVANTAGE

The JM Canty Industrial SolidSizer™ is a vision-based sensor used with the Vector System for dry particle size measurement in a production environment as an on-line production tool. The SolidSizer™ includes a B & W camera with a shutter speed control and a variable magnification lens, a light source with a flexible fiber optic light guide to generate a uniform light field to display silhouette images of opaque particles, and a vibratory feeder to present sample material to the camera / lights in free fall. The weatherproof camera is equipped with a spray ring that can be charged intermittently to control dust buildup on the outside of the camera view port. The camera video is provided to the Vector System for
analysis that extracts particle size information. This sheet identifies the features of the SolidSizer™ and provides ordering information. Typical installations also include the Vector System.

FEATURES

- Particle distribution by major, minor diameter, area, perimeter available with Canty Vector System
- Real time, on-line particle size analysis
- Adjustable lens magnification (sub micron through boulders – no upper size limit). Consult factory
- Fiber optic lighting backlighting for true shape illumination
- Shape Analysis
- External video connectors for signal processing by Canty Vector System (optional)
- Optional light filters available for wavelength sensitive materials

APPLICATIONS

- Pharmaceutical powders
- Polymer pellets and beads
- Agricultural products
- Aggregates
- Crushed rock
- Glass bead applications
- Screen break 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: 120V AC / 60 Hz (230V AC / 50 Hz)
- Shutter Speed: variable up to 1/100,000 sec
- Instrument Air: 20 to 30 PSI when required

BENEFITS

- Reduces Lab Screening Labor by 99%
- Output Matches Sieve/Screen Data - Direct Replacement
- Three Month Pay Back

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Ordering Information

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

EXAMPLE: **S C - _ _ _ 1 _ 2**

STYLE SELECTION
C - Industrial

VIDEO SYSTEM FORMAT
G - Gigabit Ethernet, B&W, 1600 x 1200
H - Gigabit Ethernet, Color, 1600 x 1200

ENVIRONMENTAL RATING
2 - Weatherproof
3 - Explosionproof

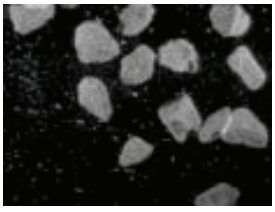
SYSTEM ILLUMINATION
K - Backlighting
L - Back / Front (Ringlight), Black Speck Only

LENS
1 - Macro Zoom
PS range 10-6000 Microns

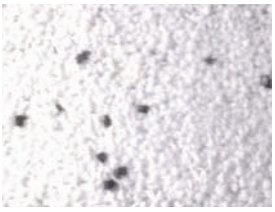
INPUT POWER
1 - 120 V AC 60Hz
2 - 230 V AC 50Hz

TRAY MATERIAL
2 - Stainless Steel

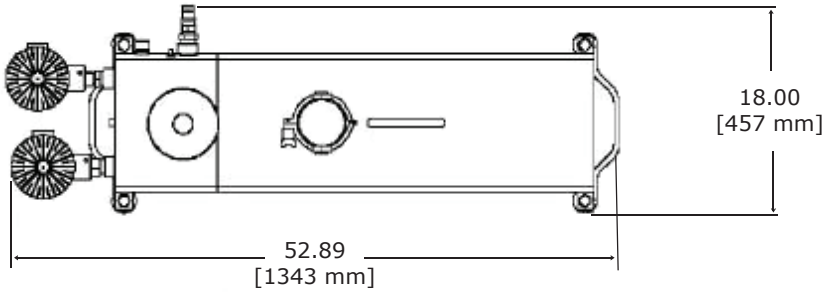
ACCESSORIES
1 - No Accessories
2 - Black Speck Only
3 - Particle Size and Black Speck

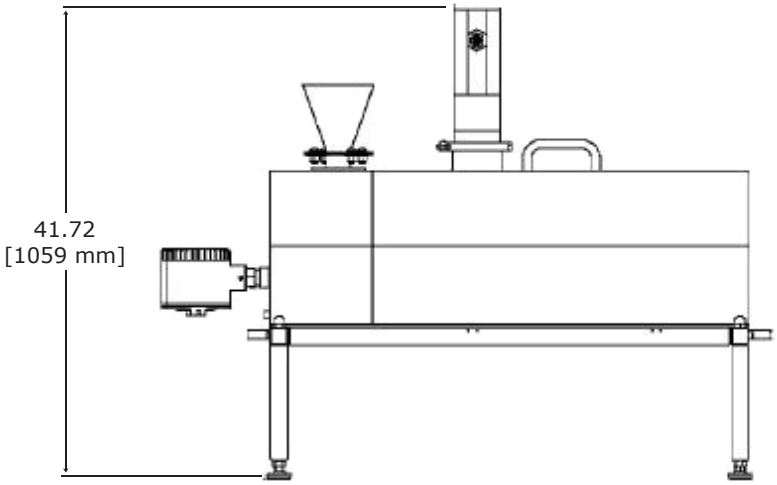


Live Image



Black Speck Detection





* Fines separator is used to separate small particles (under 80 micron) for optimal particle orientation. Consult factory if required for your application.

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