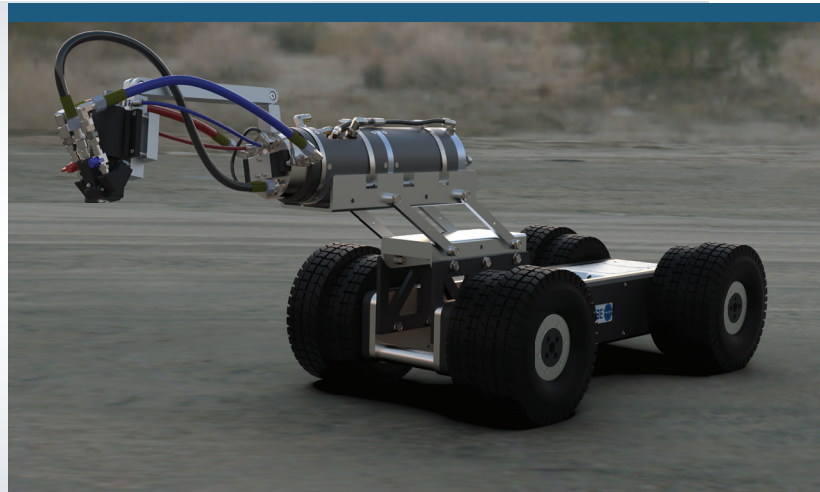




**Versatile, Proven  
Robotic Liner Technology**

**360Ringtech® Robotics** are capable to consistently apply high pressure, heated, fast set plural component elastomeric polyureas and polyurethanes for use as liners in the rehabilitation and new construction of liquid gathering, storage and distribution systems. The equipment can also apply all ancillary products required of any liner installation, including: single and plural component primers, surface cleaners and surface treatments.



**360Ringtech® Robotics** flexibility allow for their use in pipe, vaults and other structures. The Orbital Spray Head can be mounted on a remotely controlled self-propelled crawler drone or on a skid mounted winch driven assembly.

When used with Nukote Aegis system products, **360Ringtech® Robotics** provide a complete liner solution to our clients, regardless of the effluent type, structural integrity of the substrate, internal pressure, head pressure, soil conditions or expected ground movement.

**360Ringtech® Robotics** deliver a complete application process, all remotely controlled, from vault to vault or manhole to manhole. The products are processed and applied using complete 360-degree rotation, delivering consistent liner thicknesses, regardless of substrate type, diameters, transitions, risers or penetrations, with little disruption to traffic flow.

#### **360Ringtech® Robotics** Capabilities

- Perfect DFT Compliance with Specifications
- Lower Material Consumption
- Faster Application Speeds
- Data for use in QA/ITP
- Higher Performance of Applied Liner Systems



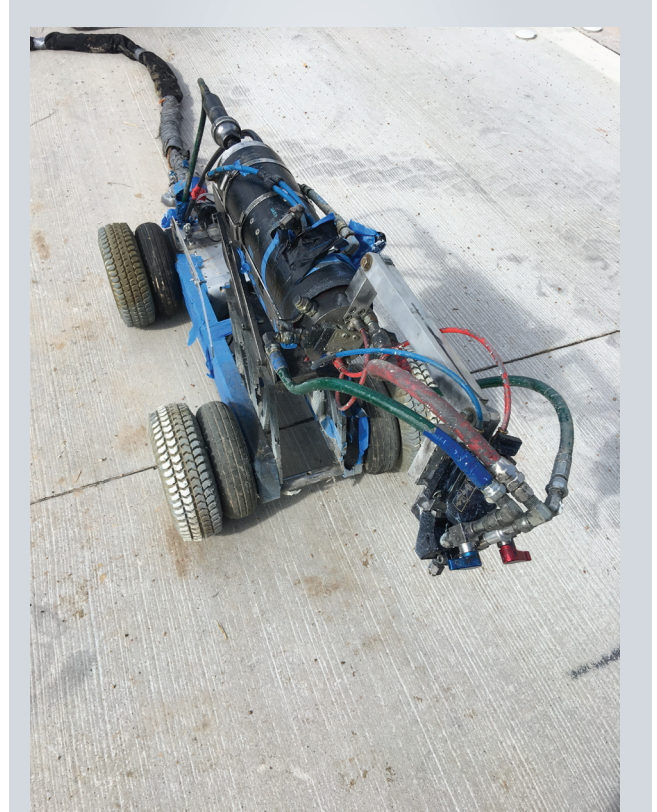
**360Ringtech® Robotics** equipment provides true efficiency, reduces manned entry by 85%, reduces costs of labor, material, and allows for application of multiple product delivery through a single device including:

- **Nukote Surface Conditioning Products**
- **Nukote Single and Plural Component Primers**
- **Nukote Plural Component Spray Foams**
- **Nukote Plural Component Elastomeric Liners**
- **Nukote Plural Component Structural Liners**

**360Ringtech® Robotics** are suitable for use in rehabilitation and new construction with all effluent types, including;

- **Storm Sewers**
- **Potable Water Systems**
- **Domestic Sanitary Sewers**
- **Industrial Waste Water Systems**
- **Petrochemical Liquid Storage and Distribution Systems**
- **Industrial Liquid Storage and Distribution Systems**
- **Nuclear Power Generation Cooling Systems**
- **Hydroelectric Power Generation Penstocks, Spillways and Silt Relief**
- **Road and Highway Water System Culverts**

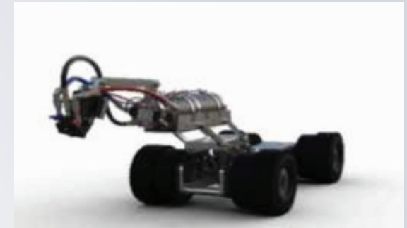
The combination of **Nukote Aegis® System** products and **360Ringtech® Robotics**, a total solution for your trenchless liner requirements.



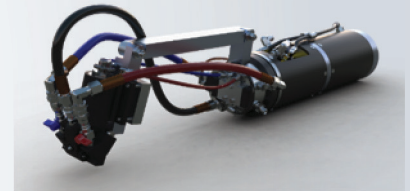
# RCOSH System Specifications

**RCOSH  
SLC24**
**360 RINGTECH 150 M/ 492 F REACH GEN 3  
RC ROBOTIC CRAWLER**

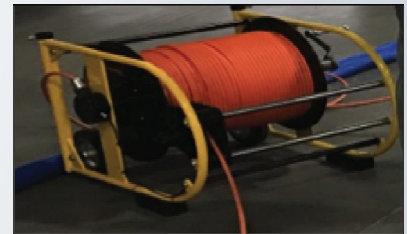
Wheel Set	10"
Wheel Set	12"
Pan Tilt Zoom Forward Camera & Link Cable	Bracket Mount
Reverse Camera	Fixed Mount
Spray Head Elevator	24-30"/ 610-762mm
Elevator Plate Set	30-36"/ 762-914mm
Elevator Plate Set	36-72"/ 914-1022mm
Tow Cable Set	15"

**DETAIL**
**STANDARD ROBOTIC CRAWLER**

**SLS24**
**OSH STANDARD PRESSURE SPRAY ASSEMBLY**

OSH Orbital Spray Head	1 Piece
Adjustable Spray Arm	20" - 72"
Spray Head Link Cable	OSH to RC
P2 Auto Gun Mount Kit	1 Piece Aluminum
Optional Fusion Auto Gun Mount Kit	1 Piece Aluminum
A Side Material Filter Assembly	1 Piece Stainless
Ancillary Material/Air Hose Whip Kit	Low Pressure 1M
Elastomeric Material/Hose Kit	High Pressure 1M

**STANDARD ORBITAL SPRAY HEAD**

**CCSR**
**CABLE BUNDLE 150M**

Manual Cable Reel With Counter	1 Piece
Link and Counter Cable	10 M
Multiconductor Cable Bundle	200 M
Tow Clamp	1 Piece Stainless

**STANDARD CABLE AND HOSE  
BUNDLE**

**SLCCU**
**PSU & CONTROL SYSTEM**

Field Case Shock Mounted Racks	14U
Detachable Legs For Case Seat	8 Pieces
Orion Daylight Readable Dual Monitors	9" Rack Mount
HID Touch Screen with Dual Joy Sticks	Portable Wired
Keyboard	Portable Wired
System Control Interface	Rack Mount
Furman Power Conditioner	Rack Mount
Cable and Manual Storage Tray	Rack Mount
HID Interface Cable	3M
IEC Power Cords and Composite Video Cables	3M
Pump Control Cable (RCT - ERTUMB - CBL001)	3M

**STANDARD CONTROL SYSTEM**




# RCOSH System Specifications

## RCOSH OPTIONS LDBF 1

### 360 RINGTECH

#### LARGE DIAMETER CRAWLER BASE FRAME

Base Frame with Chain Drive  
Elevator Kits 72" - 108"  
Wheel Set  
Adjustable Spray Arm 72" - 108"  
Material Supply Hoses OSH to Gun

### GEN 3

72" - 108"  
1 Set  
1 Kit  
1 Set  
1 Set  
1 Set

## DETAIL

### OPTIONAL LARGE DIAMETER ACCESSORIES



## LDBF 2

### LARGE DIAMETER CRAWLER BASE FRAME

Base Frame with Chain Drive  
Elevator Kits 109" - 144"  
Wheel Set  
Adjustable Spray Arm 109" - 144"  
Material Supply Hoses OSH to Gun

109" - 144"  
1 Set  
1 Kit  
1 Set  
1 Set  
1 Set

## RTC MON

### ORION MONITOR SET 19RCRSR

Two 19" Orion Daylight Readable Monitors  
Two 8u Field Cases Shock Mounted  
IEC Power Cords & Video Cables 3m

2 Pieces  
2 Pieces  
1 Set

### OPTIONAL LARGE MONITORS



## SLCCU-CI

### PROPORTIONER CONTROL INTEGRATION

Module Bundle for Proportioners  
Technical Labor for Installation

For Existing Proportions

### OPTIONAL INTEGRATION FOR PROPORTIONERS NOT SUPPLIED



## SLCCU-HH

Hose Heat Transformer for Proportioners  
Technical Labor for Installation

For Existing Proportions

## SLS24HP

5000 PSI Rated OSH Fittings and Hoses  
OSHHP Orbital Spray Head High Pressure  
High Pressure Material Supply Hoses

1 Set  
1 Set

### OPTIONAL HP OSH FOR 350 M REACH



## RTC MAES-LP LPLTS

### MODULAR ANCILLARY EQUIPMENT SYSTEM

Material Supply Assembly  
Two Stainless Insulated IBC's A&B Material  
Two 5:1 or 10:1 Pneumatic Piston Pumps 60 psi  
Dry Air Blanket

### STANDAR PRESSURE 150 M REACH 1-SKID (MOUNTED IN MODULE)

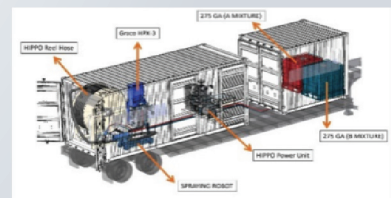


## EXRS

Material Proportioning Assembly  
PMHFR 3500 psi Proportioner  
Hose Heat Booster Kit  
Robotic to Manual Change-Over Manifold  
Material Volume Proportioner Control

## PDAS

Power and Dry Air Assembly  
Generator XX kW  
Compressed Air 120 psi @35 SCFM  
Air Drier, High Temp, 35F DP @35 SCFM



# RTCERT System Specifications

## RTC ERT SLS24HP

### 360 RINGTECH 350 METER REACH OSH HIGH PRESSURE SPRAY ASSEMBLY

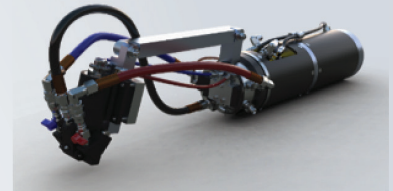
- OSH Orbital Spray Head
- Adjustable Spray Arm
- Spray Head Link Cable
- P2 Auto Gun Mount Kit
- Optional Fusion Auto Gun Mount Kit
- A Side Material Filter Assembly
- Ancillary Material/Air Hose Whip Kit
- Elastomeric Material/Air Hose Whip Kit

### GEN 3

- 5000 psi
- 1 Piece
- 20" - 72"
- OSH to RC
- 1 Piece Aluminum
- 1 Piece Aluminum
- 1 Piece Stainless
- Low Pressure 10m
- Hight Pressure 10m

### DETAIL

#### HIGH PRESSURE ORBITAL SPRAY HEAD



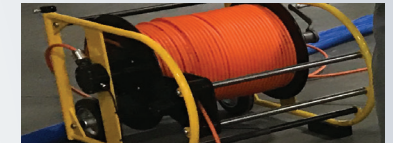
## RTC ERT UMB RTC-ERT UMB RTC-ERT UMB RTC-ERT UMB

### UMBILICAL BUNDLE AIR-ELECTRICAL-MATERIAL

- CBL001, CBL002, CBL003
- AH Air
- MSH Material Supply

- Control Umbilicals
- Pneumatic Umbilicals
- Material Umbilicals

### UMBILICALS



## SLCCU

### PSU & CONTROL SYSTEM

- Field Case Shock Mounted Racks
- Detachable Legs For Case Seat
- Orion Daylight Readable Dual Monitors
- HID Touch Screen with Dual Joy Sticks
- Keyboard
- System Control Interface
- Furman Power Conditioner
- Cable and Manual Storage Tray
- HID Interface Cable
- IEC Power Cords and Composite Video Cables
- Pump Control Cable (RCT - ERTUMB - CBL001)

- 11U
- 8 Pieces
- 9" Rack Mount
- Portable Wired
- Portable Wired
- Rack Mount
- Rack Mount
- Rack Mount
- 3M
- 3M
- 3M

### STANDARD CONTROL SYSTEM



## SLC24

### RC ROBOTIC CRAWLER

- Wheel Set
- Wheel Set
- Pan Tilt Zoom Forward Camera & Link Cable
- Reverse Camera
- Spray Head Elevator
- Elevator Plate Set
- Elevator Plate Set
- Tow Cable Set

- 10"/ 254mm
- 12"/ 305mm
- Bracket Mount
- Fixed Mount
- 24-30"/ 610-762mm
- 30-36"/ 762-914mm
- 36-72"/ 914-1022mm
- 15"/ 381mm

### STANDARD ROBOTIC CRAWLER



## SA18-30

### SKID ASSEMBLY 20-30"/ 508-762mm

1 KIT

### STANDARD SKID

## EXRHMS

### RTC ERT DRM HOS

### EXTENDED RANGE HOSE MANAGEMENT SYSTEM

- AIR, MATERIAL, ELECT BUNDLE
- Material Supply Hoses Low Perm
- System and Spray Head Multi-Conductor
- Concrol and Video Cable

350M/1148'

### HOSE MANAGEMENT SYSTEM

### RTC ERT DRM CAB

- Cable Reels & Interface

350M/1148'



# RTCERT System Specifications

## RTC MAES-LP LPLTS

### MODULAR ANCILLARY EQUIPMENT SYSTEM

Material Supply Assembly  
Two Stainless Insulated IBC's A&B Material  
Two 5:1 or 10:1 Pneumatic Piston Pumps 60 psi  
Dry Air Blanket

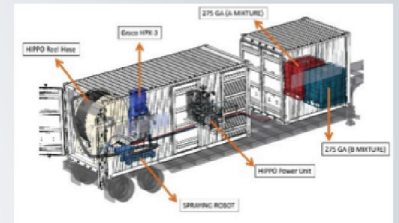
## EXRSHP

Material Proportioning Assembly  
PMHP 5000 psi Proportioner  
Hose Heat Booster Kit  
Robotic to Manual Change-Over Manifold  
Material Volume Proportioner Control

## PDAS

Power and Dry Air Assembly  
Generator XX kW  
Compressed Air 120 psi @35 SCFM  
Air Drier, High Temp, 35F DP @35 SCFM

## HIGH PRESSURE 350 M REACH 1-SKID (MOUNTED IN MODULE)



## RTC ERT OPTIONS

### 360 RINGTECH

**SLPTZ001**  
SA31-48  
SA49-60  
SA61-100  
SA101-144

Pan Tilt Zoom Forward Camera Assembly  
Skid Assembly 30-48"/ 762-1219mm  
Skid Assembly 48- 60"/ 1219-1524mm  
Skid Assembly 60-100"/ 1524-2540mm  
Skid Assembly 100-144"/ 2540-3658mm

### GEN 3

1 Set  
1 Set  
1 Kit  
1 Set  
1 Set

### DETAIL

#### OPTIONAL OSHA COMPONENTS



*Note: Skid Assemblies inc sized spray arms and material and air supply hoses*

## LDBF 1

### LARGE DIAMETER CRAWLER BASE FRAME

Base Frame with Chain Drive  
Elevator Kits 72" - 108"  
Wheel Set  
Adjustable Spray Arm 72" - 108"  
Material Supply Hoses OSH to Gun

72" - 108"  
1 Set  
1 Kit  
1 Set  
1 Set  
1 Set

#### OPTIONAL LARGE DIAMETER ACCESSORIES

## LDBF 2

### LARGE DIAMETER CRAWLER BASE FRAME

Base Frame with Chain Drive  
Elevator Kits 109" - 144"  
Wheel Set  
Adjustable Spray Arm 109" - 144"  
Material Supply Hoses OSH to Gun

109" - 144"  
1 Set  
1 Kit  
1 Set  
1 Set  
1 Set



## RTC MON

### ORION MONITOR SET 19CRSR

Two 19" Orion Daylight Readable Monitors  
Two 8u Field Cases Shock Mounted  
IEC Power Cords & Video Cables 3m

2 Pieces  
2 Pieces  
1 Set

#### OPTIONAL LARGE MONITORS





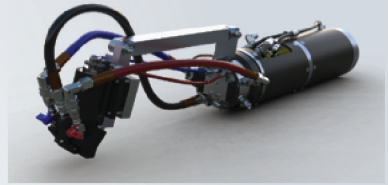
# OSHA System Specifications

## OSHA SLS24-HP

### 360 RINGTECH 150 METER REACH GEN 3 OSH STANDARD PRESSURE SPRAY ASSEMBLY

OSH Orbital Spray Head	1 Piece
Adjustable Spray Arm	20" - 72"
Spray Head Link Cable	OSH to RC
P2 Auto Gun Mount Kit	1 Piece Aluminum
Optional Fusion Auto Gun Mount Kit	1 Piece Aluminum
A Side Material Filter Assembly	1 Piece Stainless
Ancillary Material/Air Hose Whip Kit	Low Pressure 1m
Elastomeric Material/Air Hose Whip Kit	High Pressure 1m

### DETAIL HIGH PRESSURE ORBITAL SPRAY HEAD



## CCSR

### CABLE BUNDLE 150M

Manual Cable Reel With Counter	1 Piece
Material Supply Hoses Low Perm	10 M
Link and Counter Cable	10 M
Multiconductor Cable Bundle	150 M
Tow Clamp	1 Piece Stainless

### STANDARD CABLE AND HOSE BUNDLE



## SLCCU

### PSU & CONTROL SYSTEM

Field Case Shock Mounted Racks	11U
Detachable Legs For Case Seat	8 Pieces
Orion Daylight Readable Dual Monitors	9" Rack Mount
HID Touch Screen with Dual Joy Sticks	Portable Wired
Keyboard	Portable Wired
System Control Interface	Rack Mount
Furman Power Conditioner	Rack Mount
Cable and Manual Storage Tray	Rack Mount
HID Interface Cable	3M
IEC Power Cords and Composite Video Cables	3M
Pump Control Cable (RCT - ERTUMB - CBL001)	3M

### STANDARD CONTROL SYSTEM



## SA18-30

### SKID ASSEMBLY 20-30"/ 508-762"

1 KIT

### STANDARD SKID

## OSHA OPTIONS

### 360 RINGTECH

### GEN 2

<b>SLPTZ001</b>	Pan Tilt Zoom Forward Camera Assembly	1 Set
SA31-48	Skid Assembly 30-48"/ 762-1219mm	1 Set
SA49-60	Skid Assembly 48-60"/ 1219-1524mm	1 Kit
SA61-100	Skid Assembly 60- 100"/ 1524-2540mm	1 Set
SA101-144	Skid Assembly 100-144"/ 2540-3658mm	1 Set

### DETAIL OPTIONAL OSHA COMPONENTS



Note: Skid Assemblies inc sized spray arms and material and air supply hoses



# OSHA System Specifications

## OSHA OPTIONS SLCCU-CI

**360 RINGTECH  
PROPORTIONER CONTROL INTEGRATION**  
Module Bundle for Proportioners  
Technical Labor for Installation

**GEN 3**  
For Existing Proportioners

**DETAIL  
OPTIONAL INTEGRATION  
FOR PROPORTIONERS  
NOT SUPPLIED**

## SLCCU-HH

Hose Heat Transformer for Proportioners  
Technical Labor for Installation

For Existing Proportioners



## SLS24HP

5000 PSI Rated OSH Fittings and Hoses  
OSHHP Orbital Spray Head High Pressure 1 Set  
High Pressure Material Supply Hoses 1 Set

**OPTIONAL HP OSH  
FOR 350 M REACH**



## RTC MAES-LP LPLTS

**MODULAR ANCILLARY EQUIPMENT SYSTEM**  
Material Supply Assembly  
Two Stainless Insulated IBC's A&B Material  
Two 5:1 or 10:1 Pneumatic Piston Pumps 60 psi  
Dry Air Blanket

**STANDARD PRESSURE 150 M REACH  
1-SKID (MOUNTED IN MODULE)**

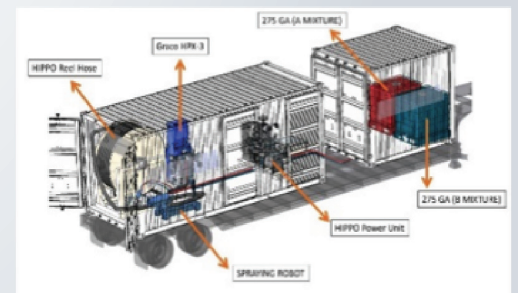
## EXRS

Material Proportioning Assembly  
PMHP 3500 psi Proportioner  
Hose Heat Booster Kit  
Robotic to Manual Change-Over Manifold  
Material Volume Proportioner Control



## PDAS

Power and Dry Air Assembly  
Generator XX kW  
Compressed Air 120 psi @35 SCFM  
Air Drier, High Temp, 35F DP @35 SCFM



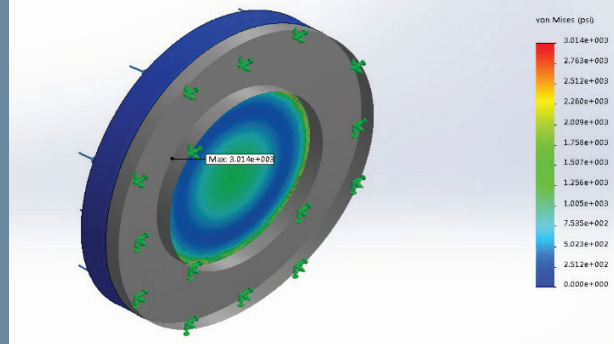
**360Ringtech® Robotics** are capable of liner application to any specification requirement, including **AWWA M28 Classifications**:

- **Class I** Resurface and protect against corrosion
- **Class II** Semi-structural: MAOP less than host, low ring stiffness
- **Class III** Same as II +: 50-yr design life, high ring stress, 6" dia breaks
- **Class IV** Same as III + dynamic, catastrophic rupture

**360Ringtech® Robotics** liners are designed by **Nukote Coating Systems®** engineers to the requisite AWWA classification of the specification. The **Nukote Aegis®** liner formulation and ancillary products utilized are selected based on;

- Effluent Type
- Substrate Type and Condition
- Internal Pressure
- AWWA Classification
- Environmental Conditions
- Geological Conditions
- Depth of Bury and Soil Conditions
- Design Life
- DOT Standards Applicable

Pipe wall with 6 inch diameter breach and 150 psi internal pressure with lining unsupported in breach



**Nukote Coating Systems®** engineering software calculates the liner thickness of the formulation required to meet all conditions and the design life parameters specified. Other conditions may apply including expected abrasion, erosion, effluent temperature, effluent chemistry, expected ground movement, changes due to ageing and other factors.

# Why Use 360RINGTECH® ROBOTICS?

## >> Liner DFT

Meeting liner design thickness assures performance

Manually applied thickness vary greatly

## >> Consumption

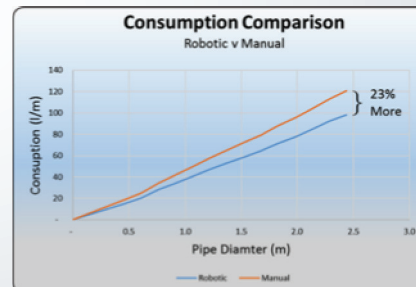
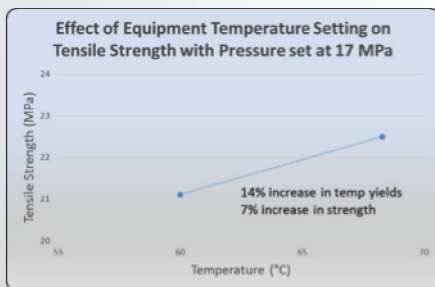
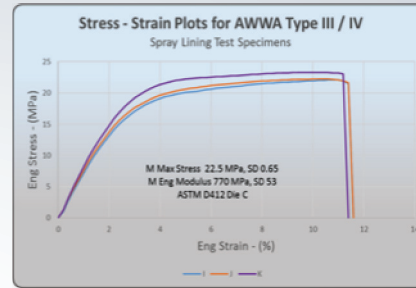
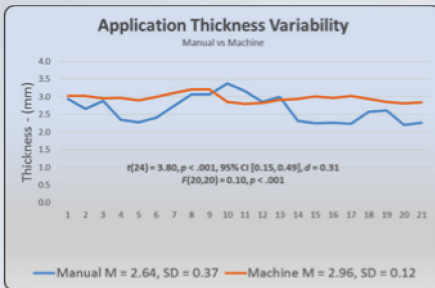
Material consumed is controlled, costs are reduced

## >> Speed

Robotic applications are much faster, costs are reduced

## >> HSE

Confined space man hours reduced, costs and risk are reduced







#### **Global Headquarters**

Nukote Coating Systems International  
Houston Texas USA

#### **US Central Manufacturing North American Operations**

Bedford, Texas USA

#### **US West Manufacturing Research & Development Center**

Santa Fe Springs, California USA

#### **Asean Operations & Distribution**

Creative Engineering / Ho Chi Minh, Vietnam

#### **Australia Operations & Distribution**

Nukote Distributors / New Castle NSW Australia

#### **China Distribution**

Creative Engineering / Shanghai China

#### **Eastern Canada Distribution**

Infrastructure Coatings Corporation  
Toronto, Ontario Canada

#### **India Distribution**

Structural Specialties & Projects / Mumbai India

#### **Japan Distribution**

Kanamori Co Ltd / Tokyo Japan

#### **Mexico Distribution**

Nukote Mexico, Monterey Mexico

#### **Middle East Manufacturing & Operations**

Nukote Arabia /Dammam Kingdom of Saudi Arabia

#### **Mongolia Distribution**

Mergen Engineering Services / Ulaanbaatar  
Mongolia

#### **South American Manufacturing & Operations**

FCC Nukote Industria E Comercio SA  
Campo Bono Brasil

#### **Taiwan Distribution**

Integral / Kaohsiung Taiwan

#### **Turkey Distribution**

CRAS Solutions / Istanbul Turkey

#### **Western Canada Distribution**

Infrastruct / Edmonton Canada

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