

Parallel Process Line (PPL)



Line overview

INFEEED EDGE DELETE
EDGE DELETE
INFEEED WASHER
WASHER
INSPECTION STATION
DOUBLE SHUTTLE
INFEEED SPACER APPLICATOR
SPACER APPLICATOR
OUTFEEED SPACER APPLICATOR
GRID STATION
FIRST SHUTTLE
DUAL GAS PRESS
SECOND SHUTTLE
IG SECONDARY SEALER
OUTFEEED INSPECTION STATION

Automation

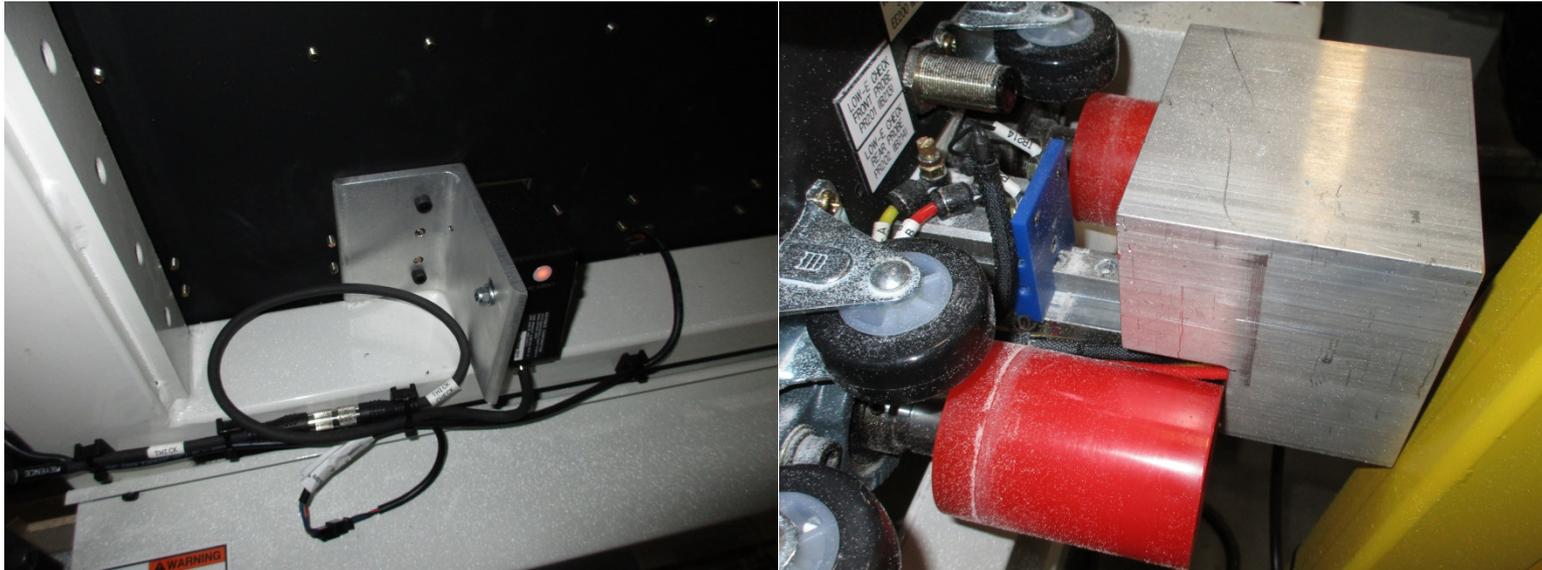
Automation has been achieved by various means including mechanical, pneumatic, electrical, electronic devices and computers, usually in combination. This document will help point out such devices to help you understand what makes your line perform.

Infeed Edge delete

Keyence sensor for thickness detect

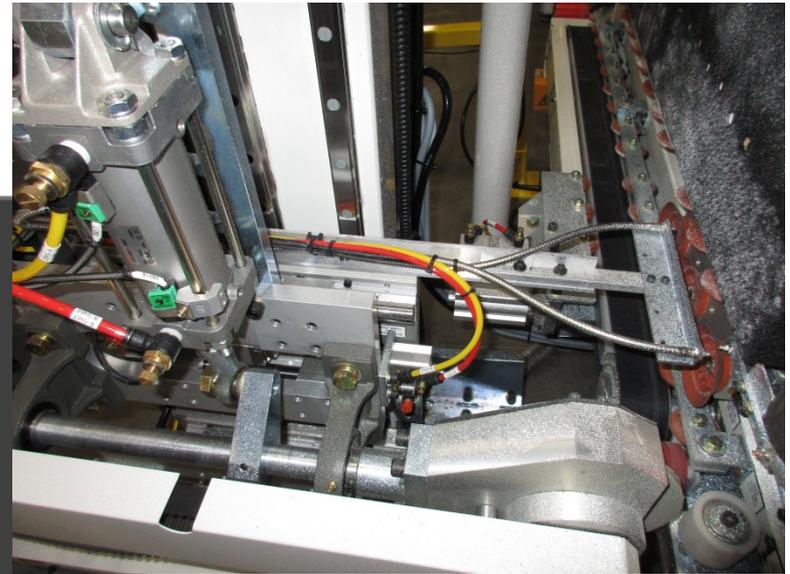
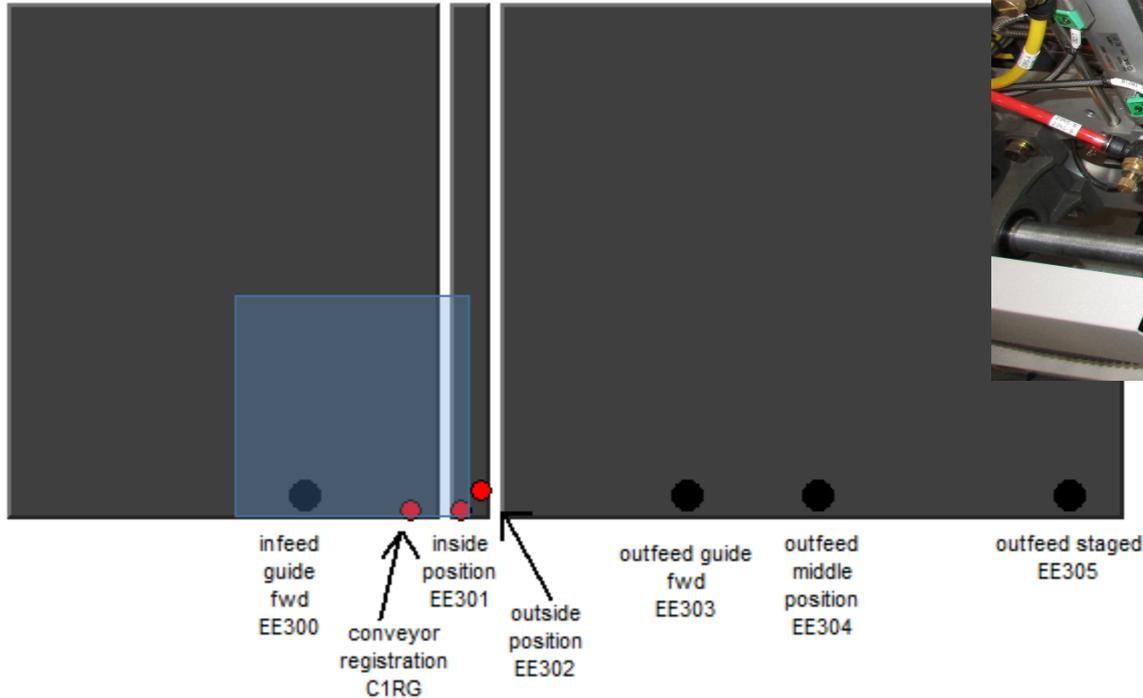
Low e check

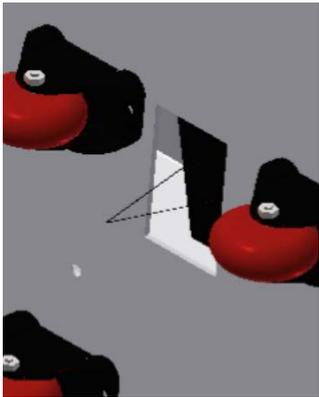
Product detect eye



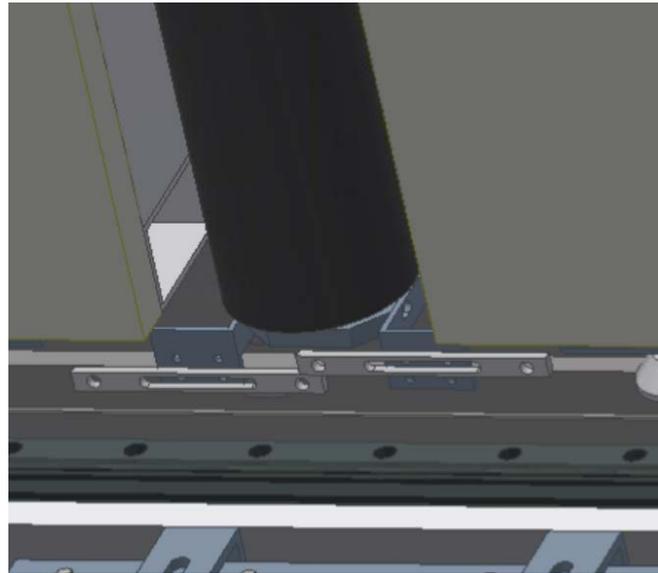
Edge delete

Sensors for positioning the glass and verifying size of glass

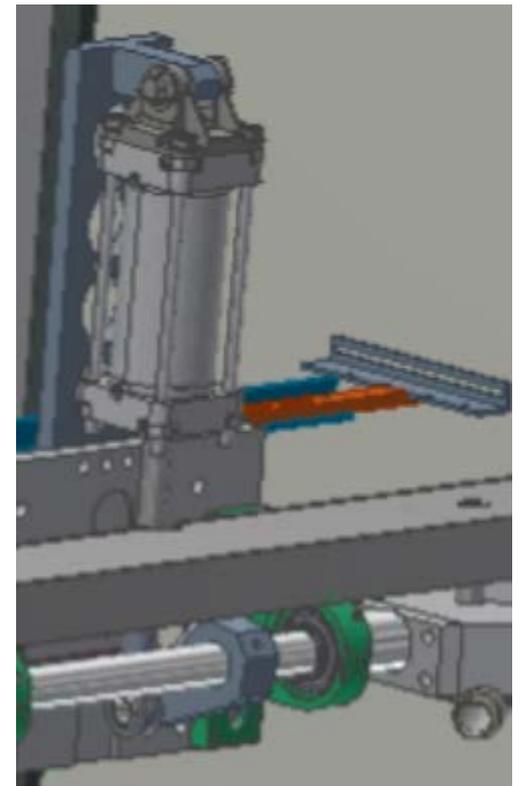




Thickness
Detect

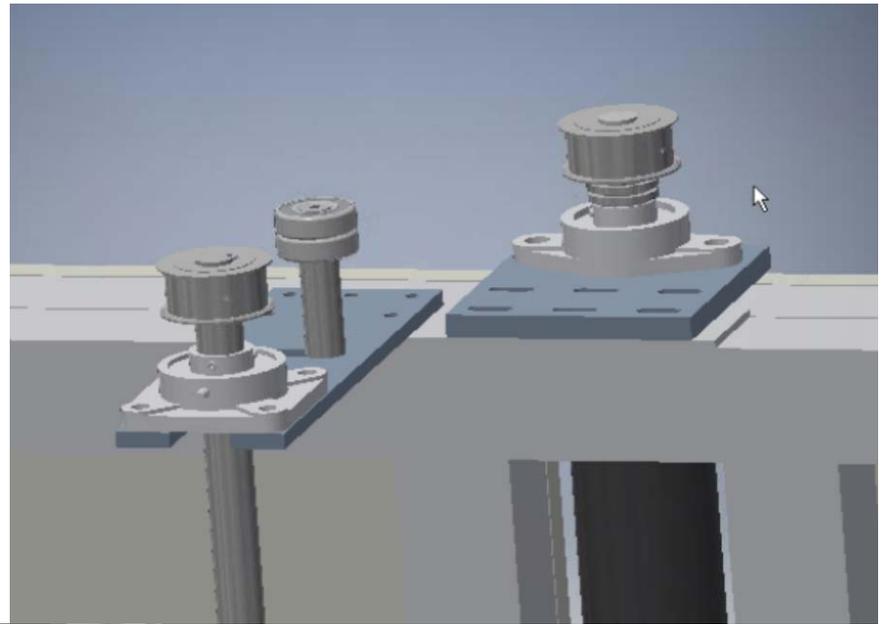


X Registration
Eye Bracket

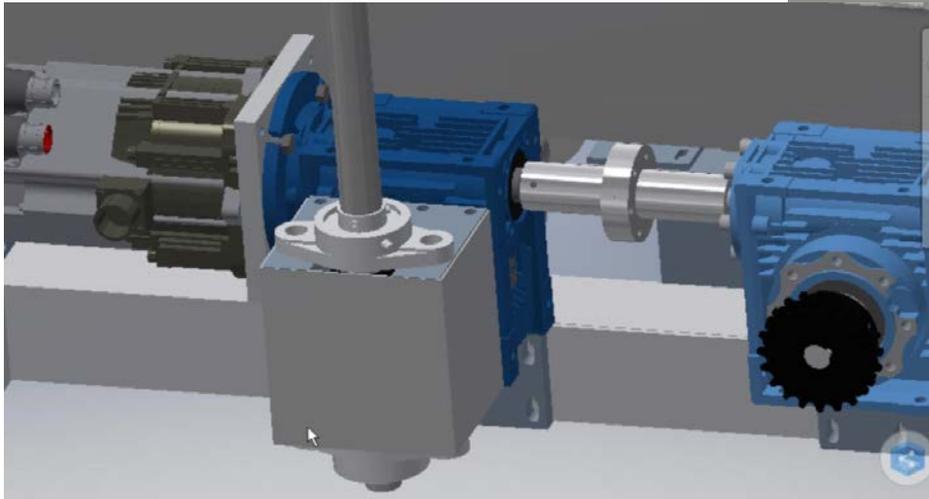


Y Registration
Eye Bracket

Servo Drive

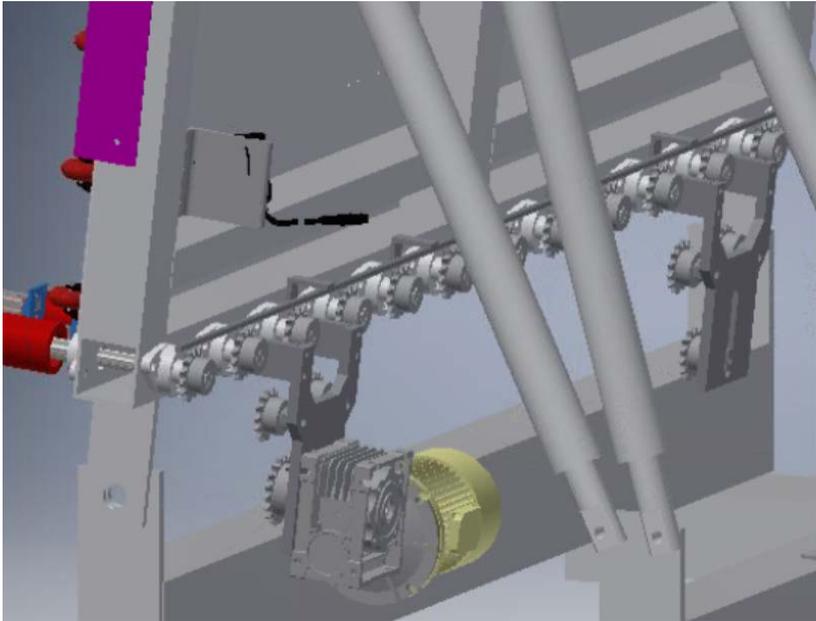


Upper Vertical
Support Roller
Drive /
Tensioner

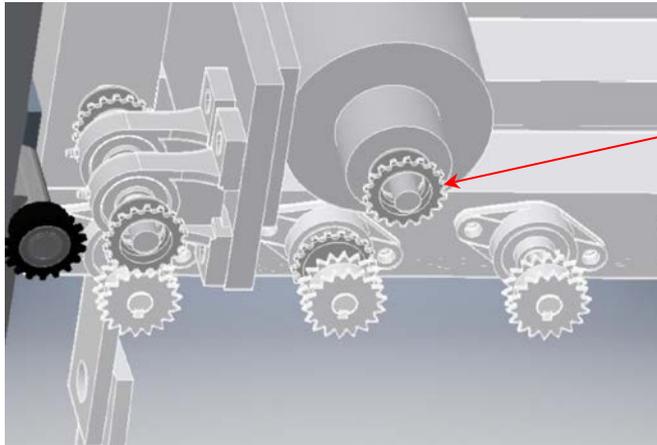


Lower Vertical
Support Roller
Drive
(Gearbox)

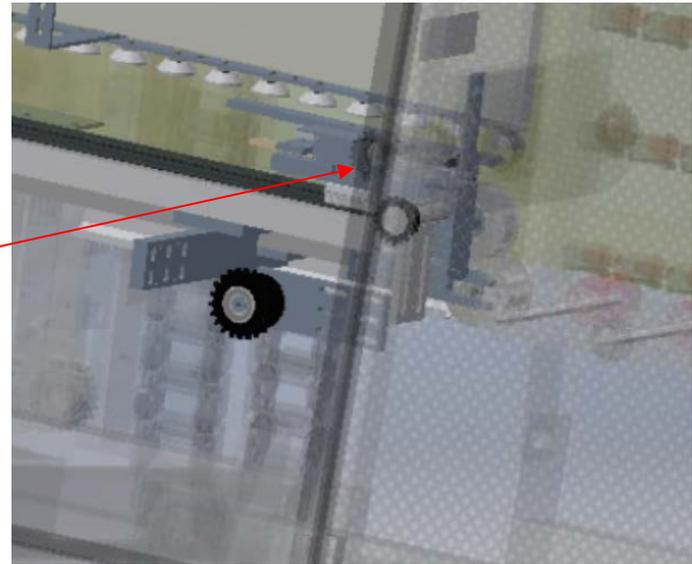
Drive to Gear
To Conveyor



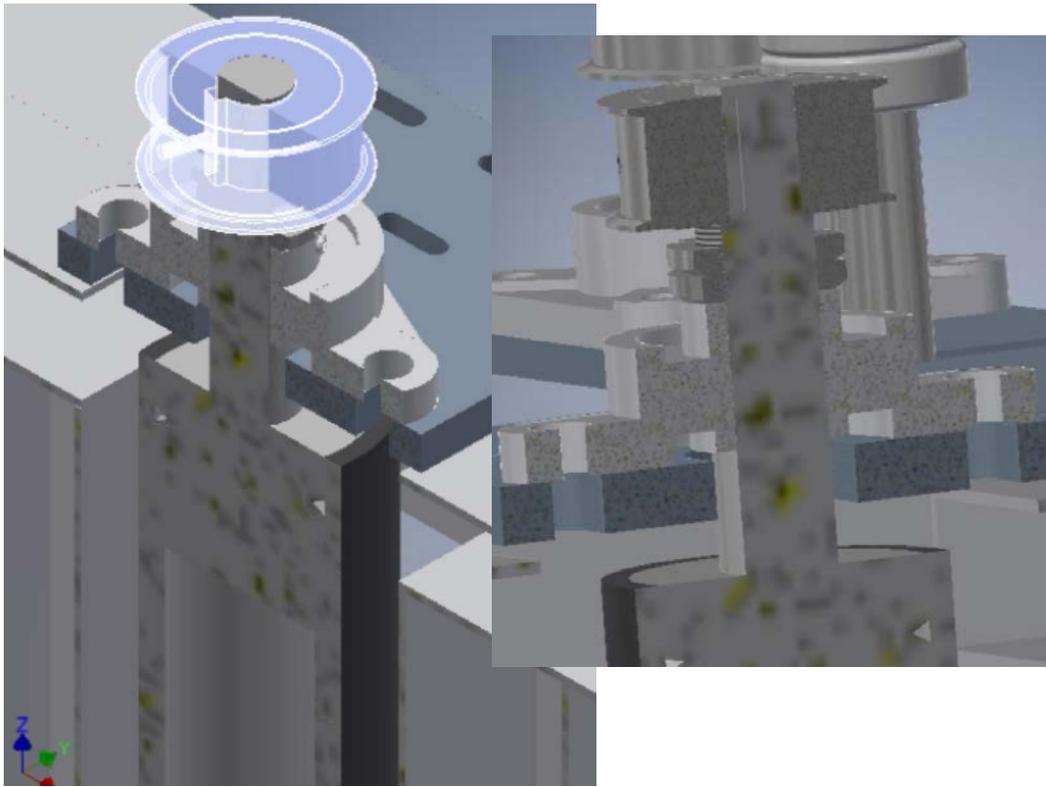
Denver / Tacoma
Infeed Conveyor
Drive System



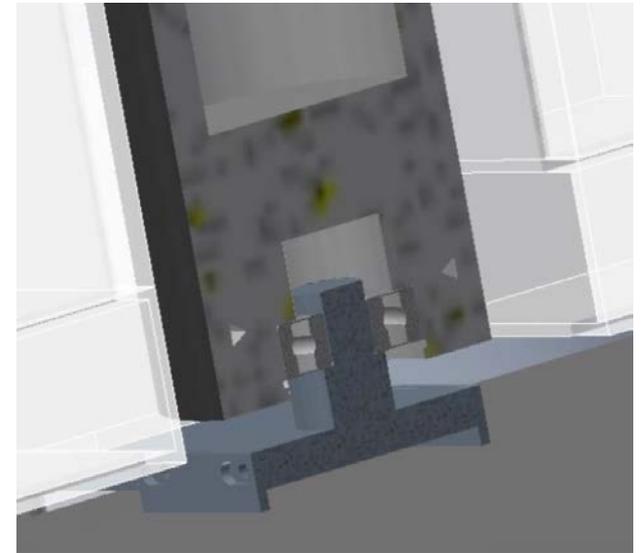
Sacramento Line Infeed
Conveyor Drive System



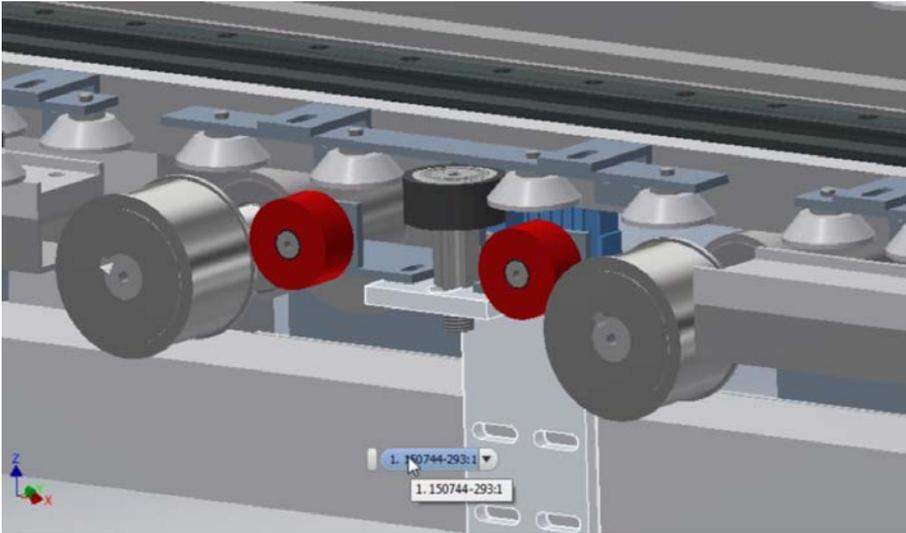
(Edge Delete Station 1
to Infeed Conveyor)



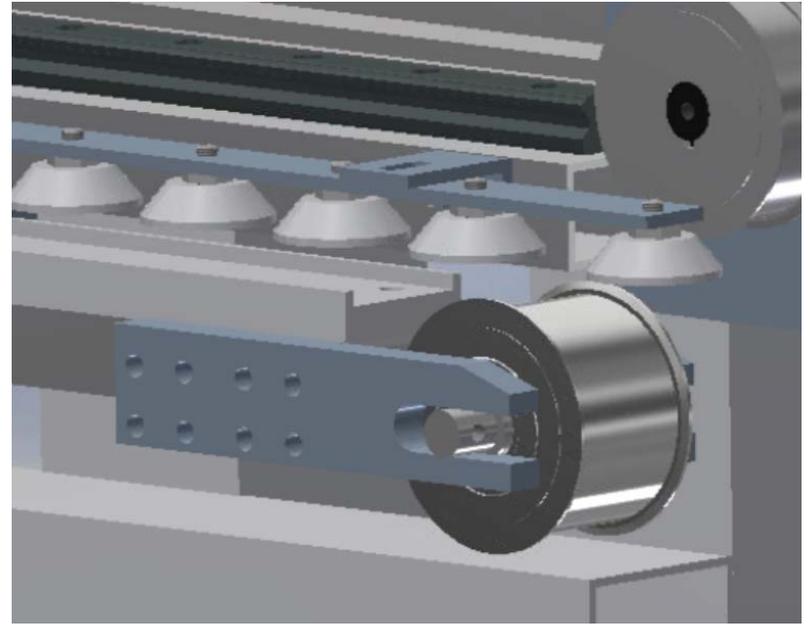
Cross Section of upper bearing / Vertical Support Roller



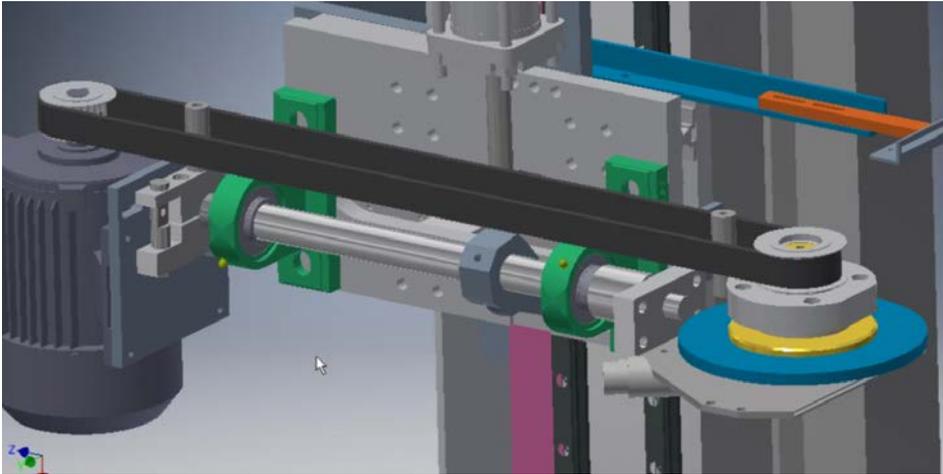
Cross Section of lower bearing / Vertical Support Roller



Version 1 Support
roller

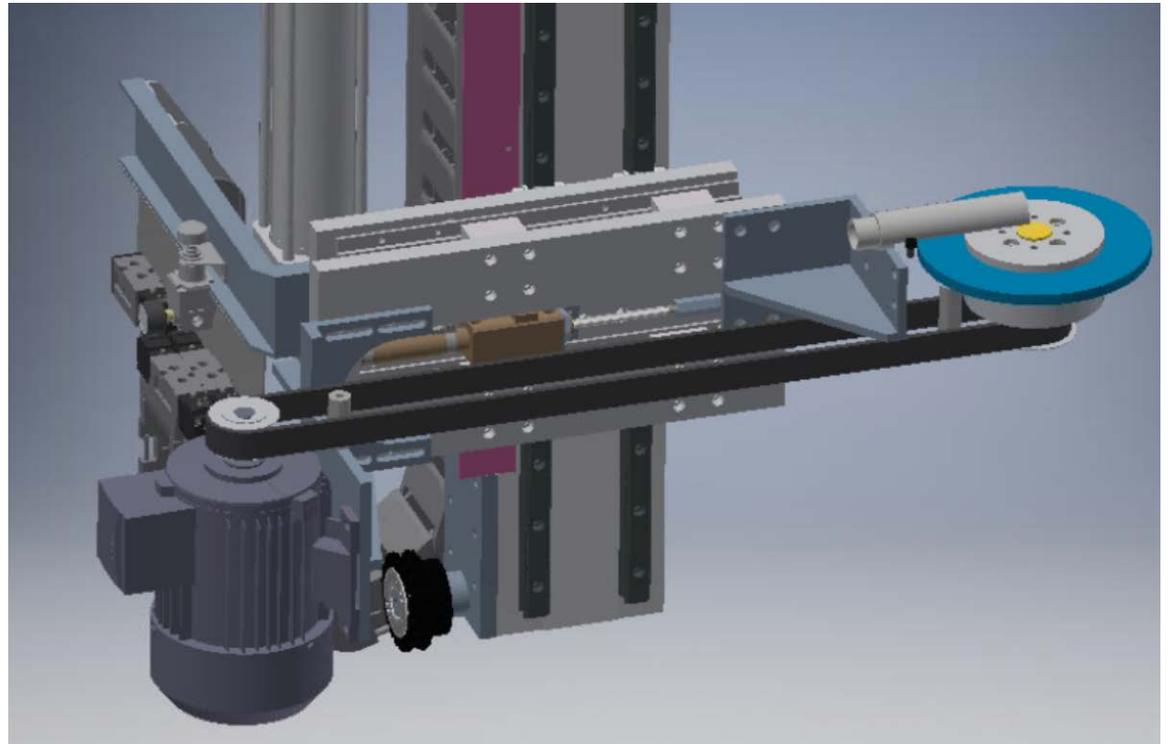


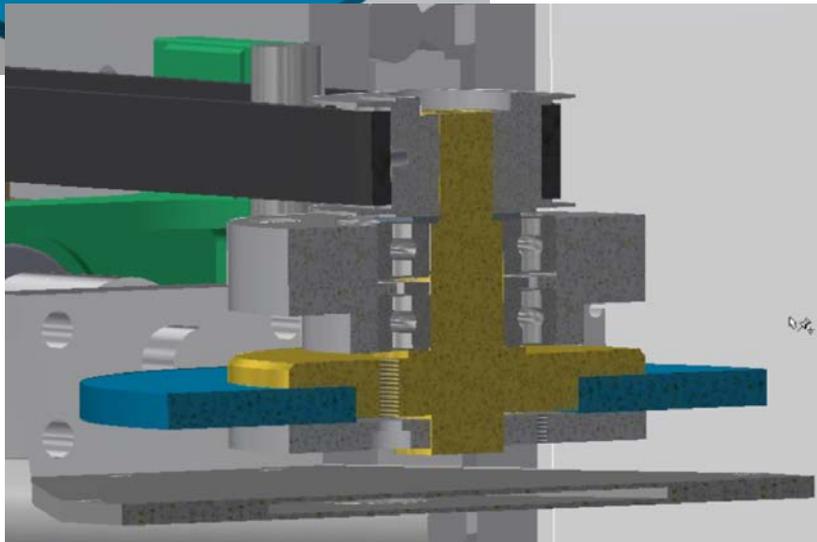
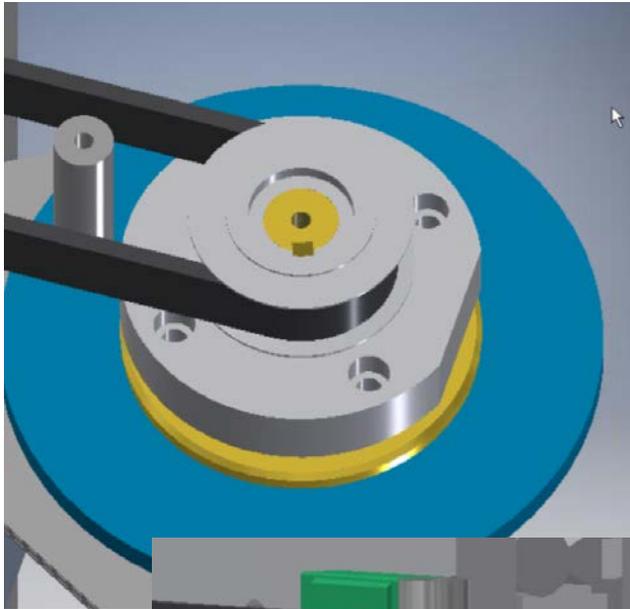
Edge Delete Conveyor
Belt Tensioner



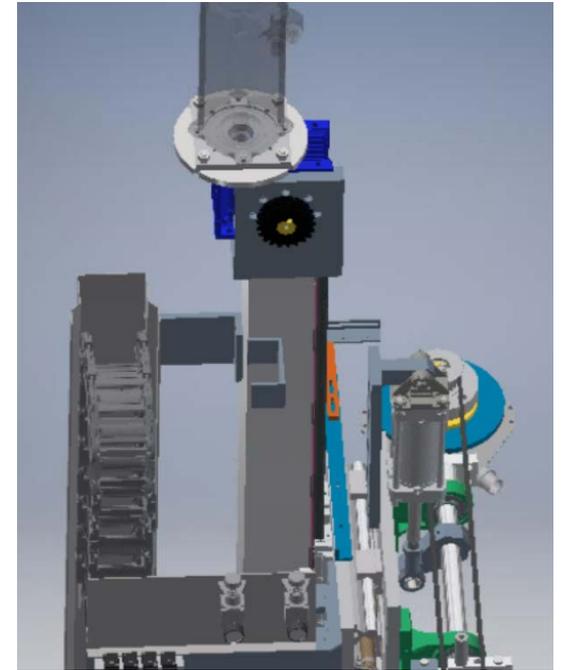
Exposed View Upper
Edge Delete

Exposed View Lower
Edge Delete

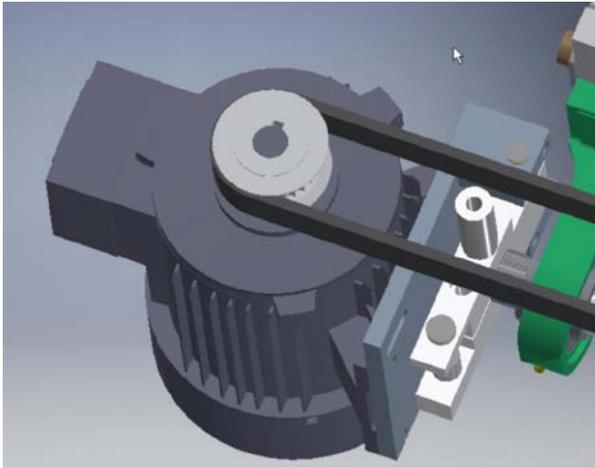




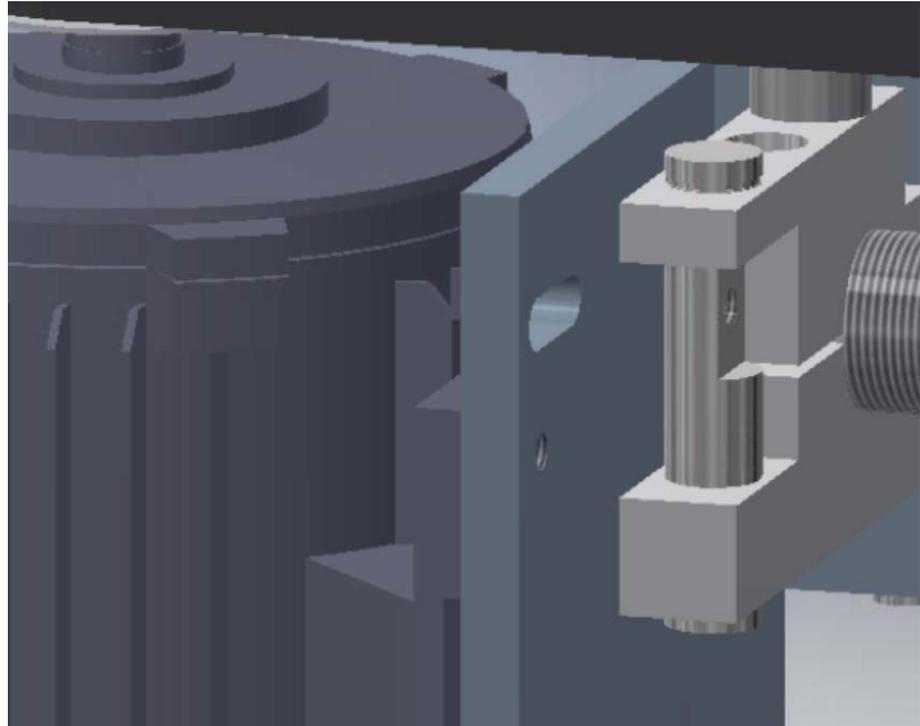
Cross Section
Of Edge Delete Wheel
Spindle



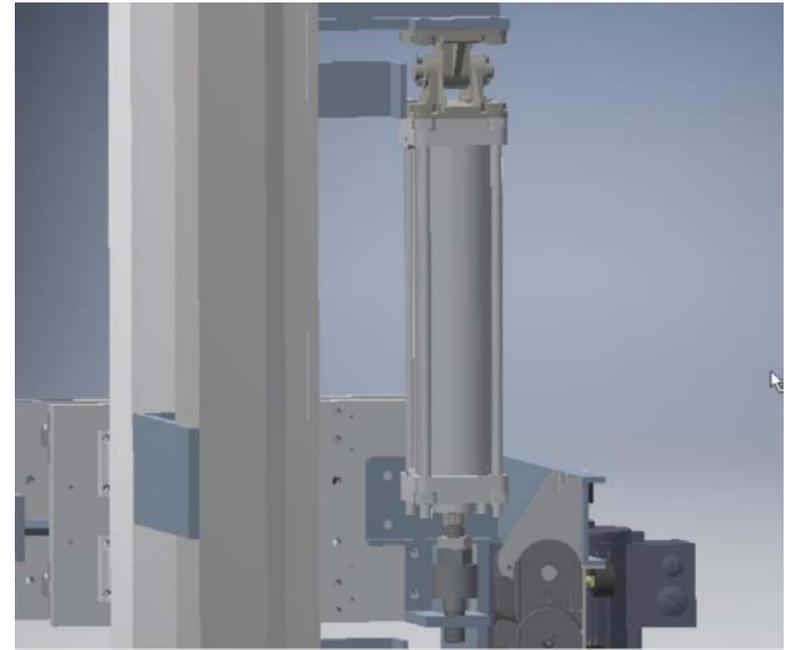
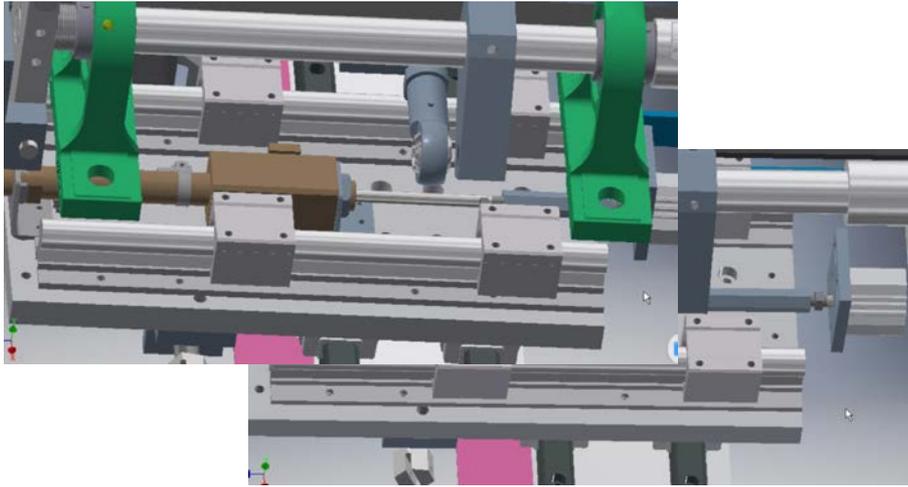
Upper Head Drive
Assembly



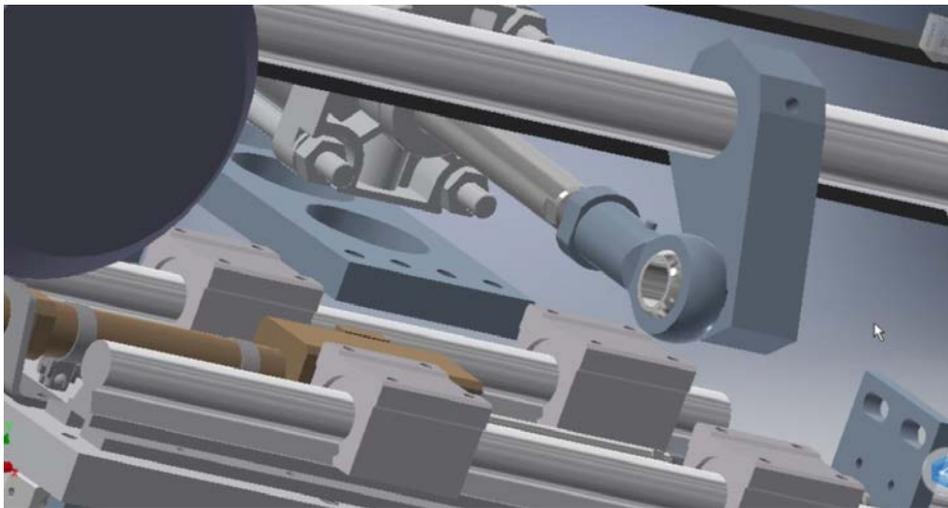
Edge Delete Drive Belt
Tensioner



Exposed View Upper & Lower Z Axis Motion



Lower Head
Positioning Cylinder

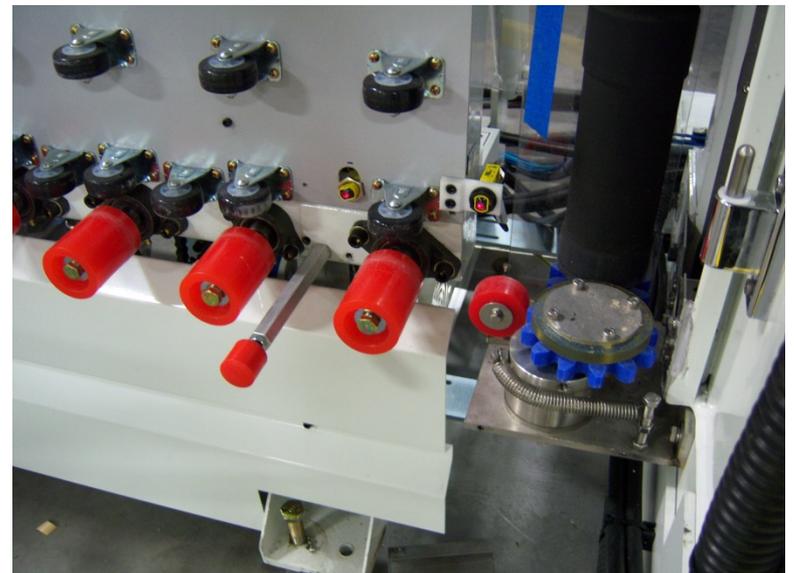


Upper Head Rotate
Assembly

Infeed washer

Product detect eyes

Sensors for monitoring water temp, level and quality

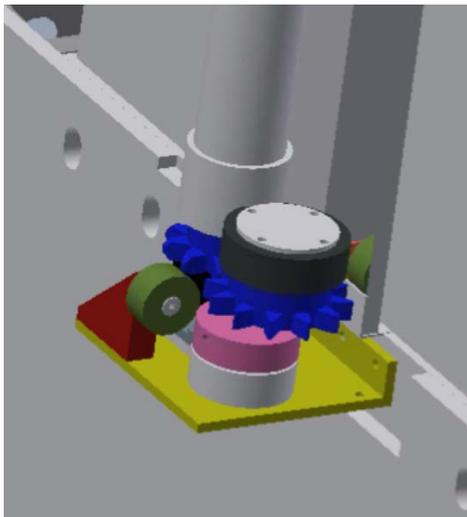
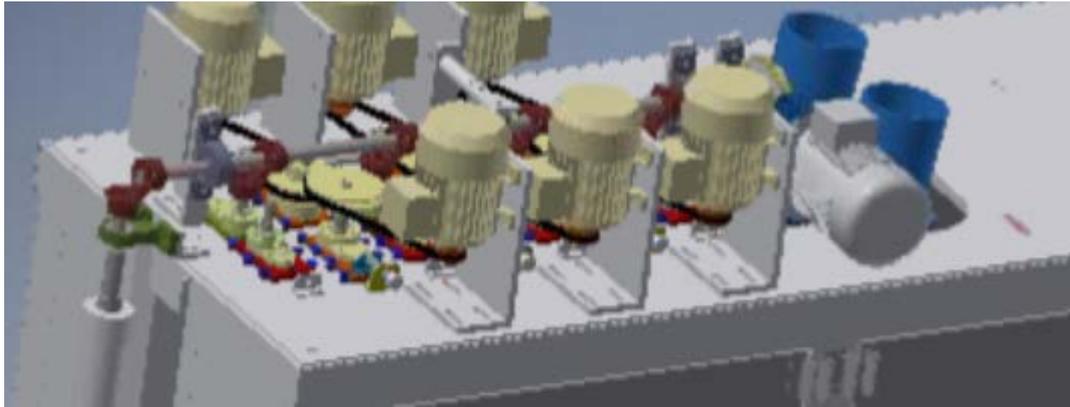


Washer

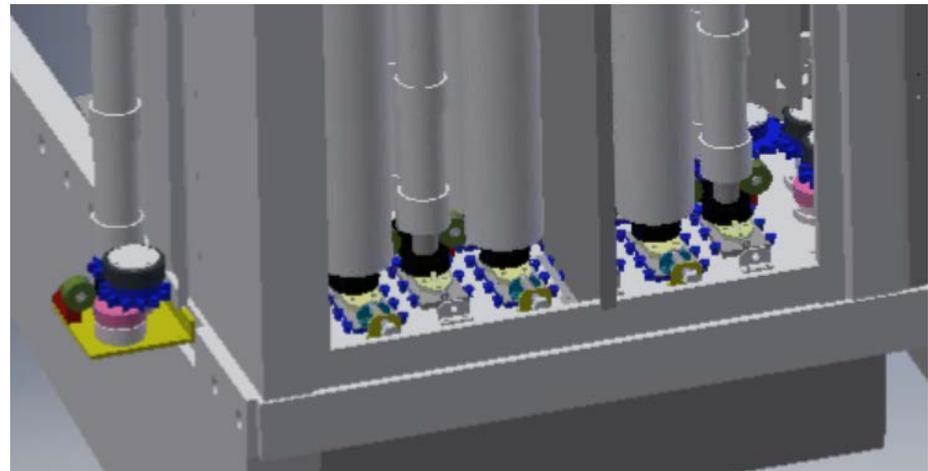
Safety door interlock
Drive components



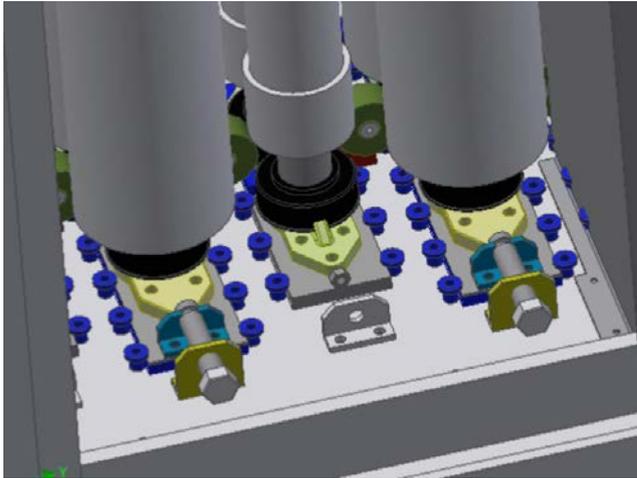
Exposed View of Washer Top / Belt Drive System



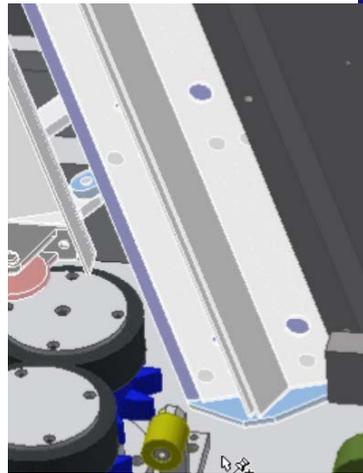
Washer Infeed Pinch
Roller



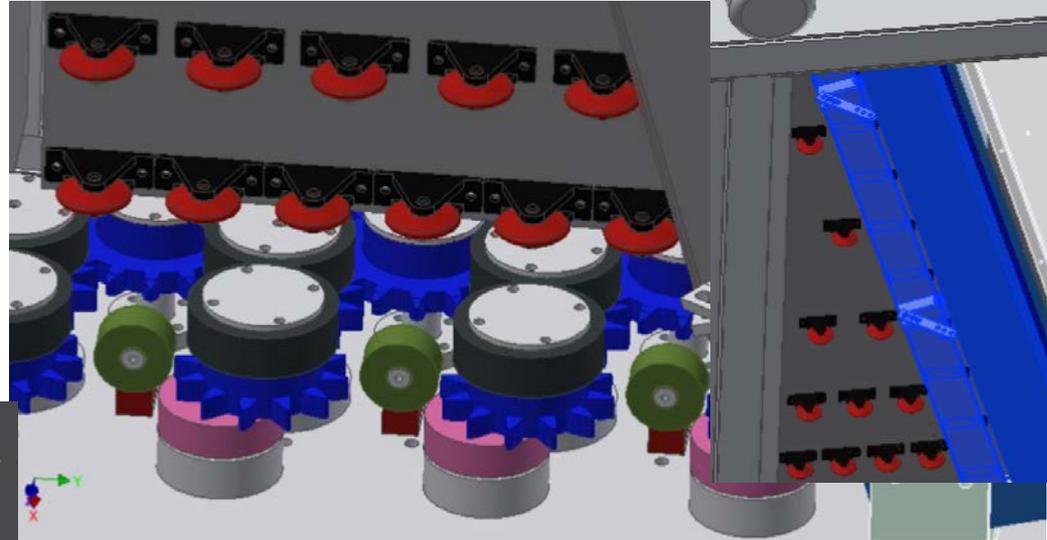
Exposed View Washer
Brush Adust and Spring
Tension Pinch Roller



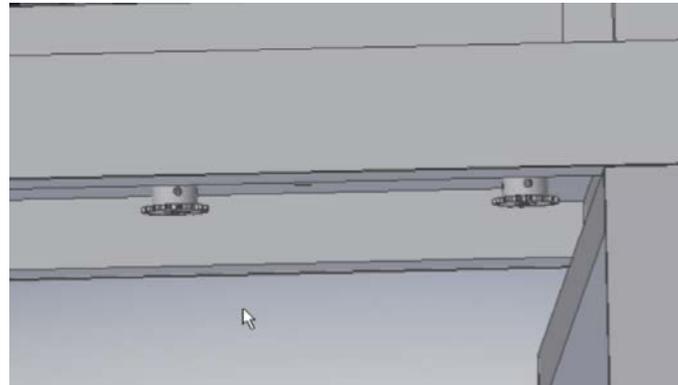
Wash Side / Brush
Adjust



Exposed View of
Air Knife

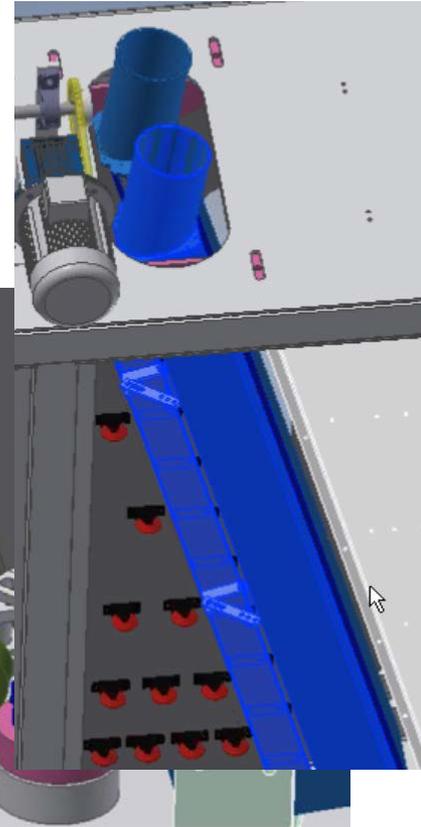


Dryer Side Pinch
Rollers



Drive Sprockets
for Final Pinch
Rollers / Dryer
Side

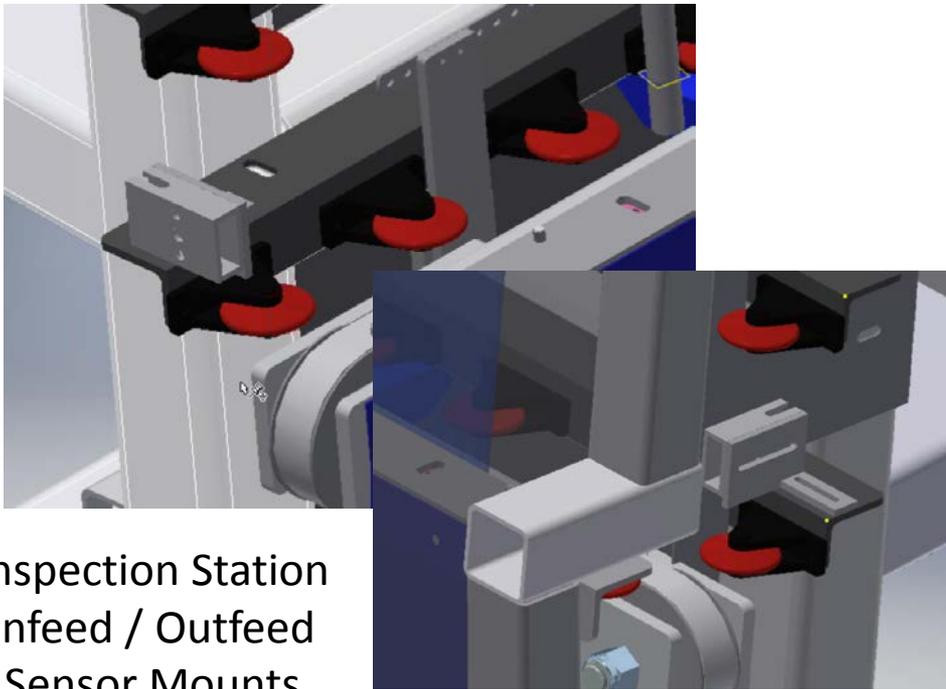
Air Knife /
Blower Inlet



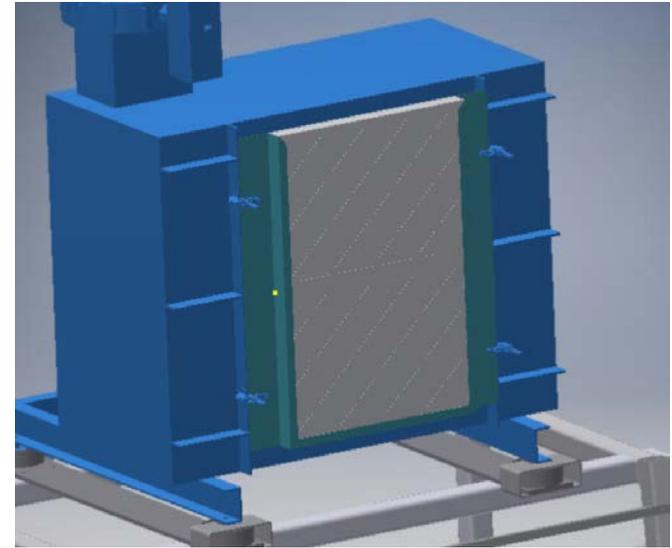
Inspection station

Infeed and outfeed product detect eyes
Conveyor drive

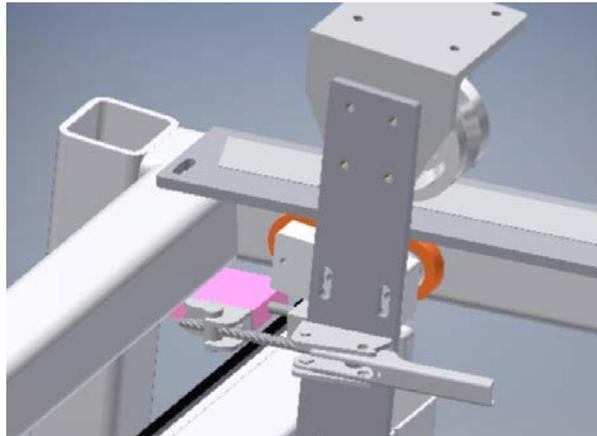




Inspection Station
Infeed / Outfeed
Sensor Mounts



Air Knife Blower / Filters

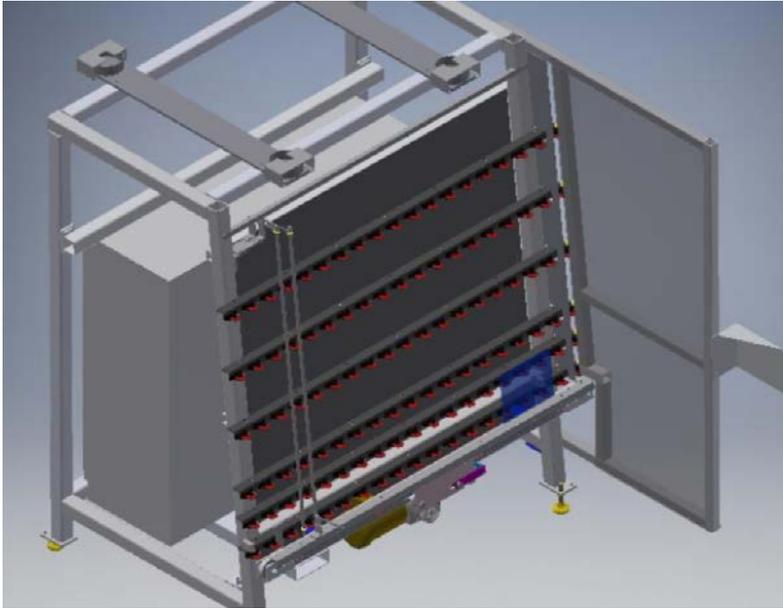


Back Lane Access Turn-
buckles



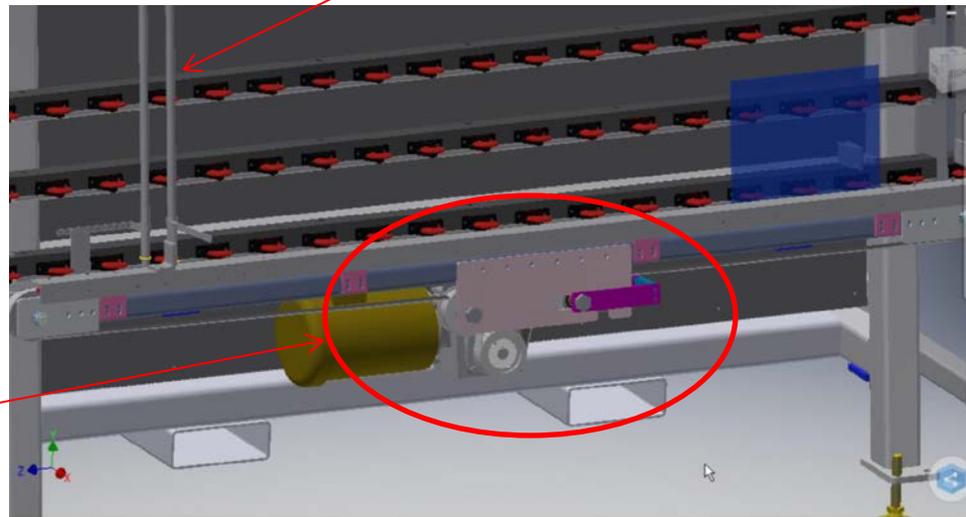
SAM Infeed Drive
System

Back Lane Caster
(For Manual Access)



Inspection station

Static bars on infeed
of inspection station



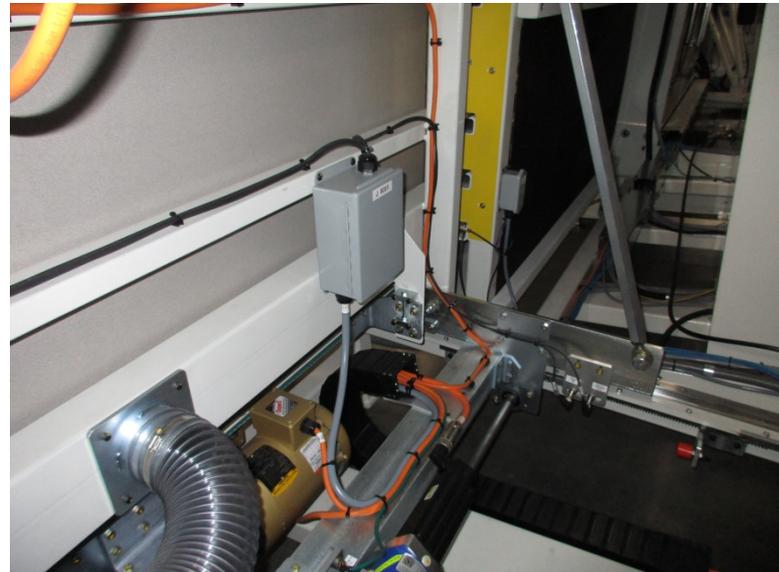
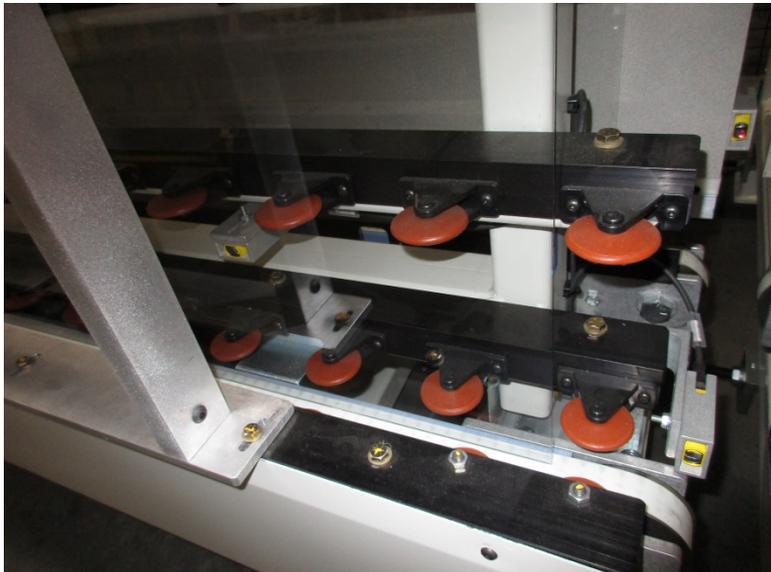
Conveyor belt
tensioning on
inspection station

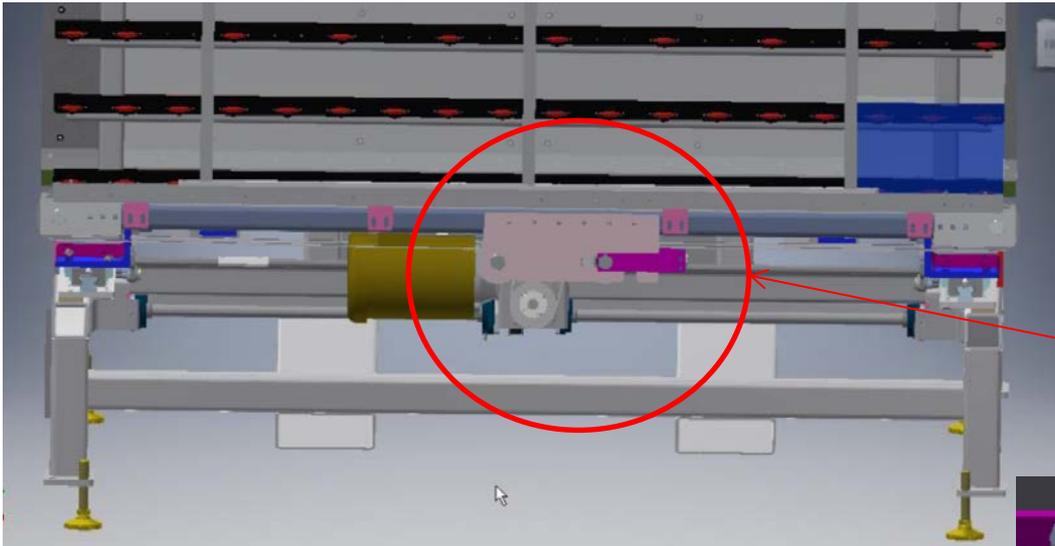
Double shuttle

Home and over travel prox

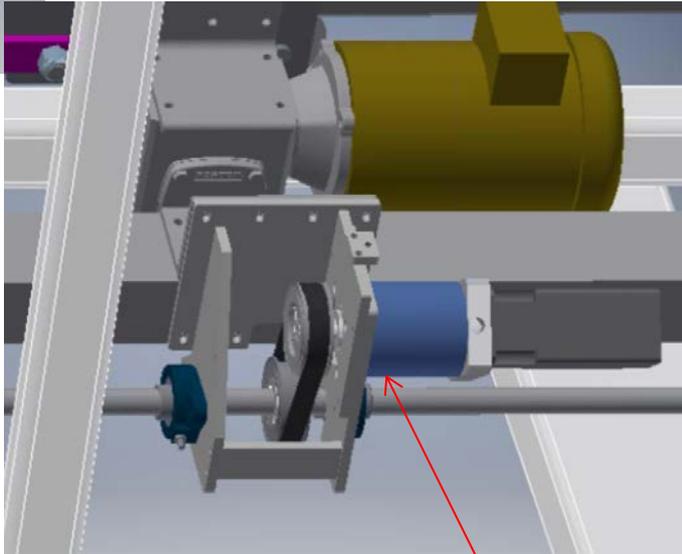
Conveyor drive

Product detect eyes

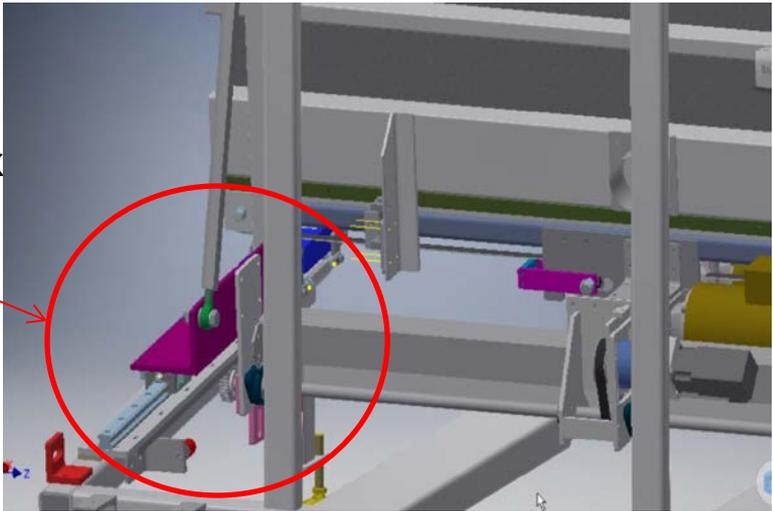




Conveyor belt
tensioning on
shuttle



Shuttle servo drive



Shuttle guide
bearings / rack
and pinion

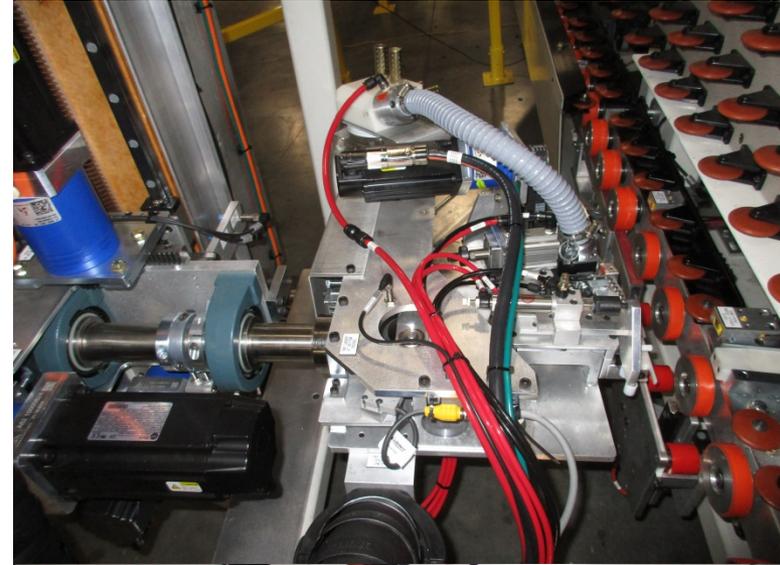
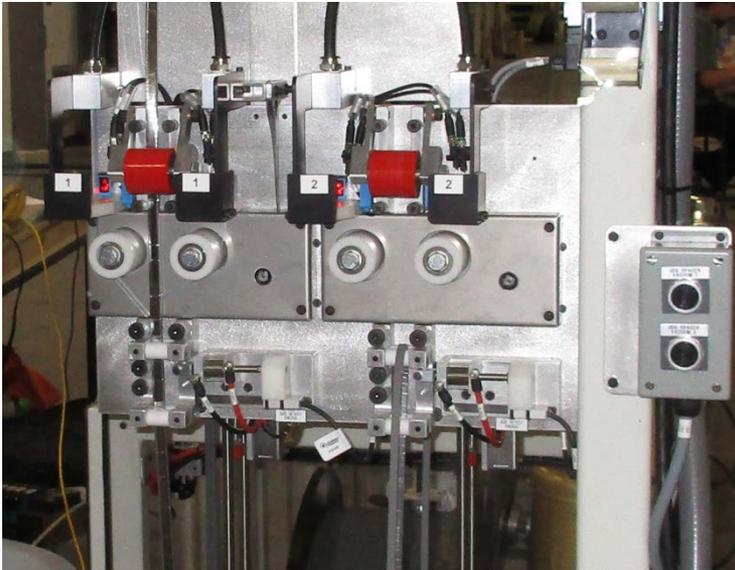
Infeed spacer applicator

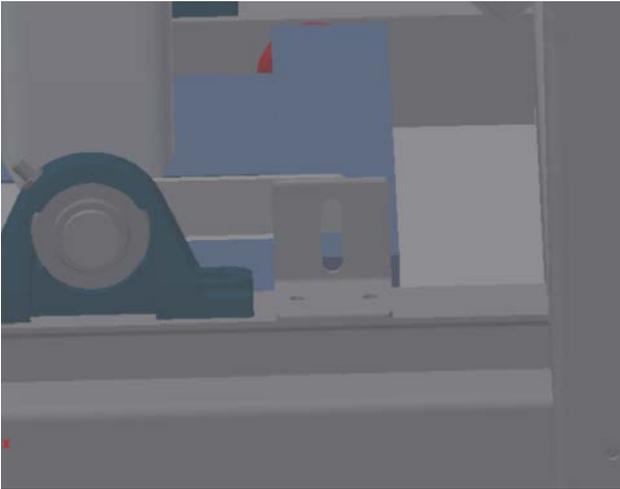
Back lane closed prox
Product detect eyes



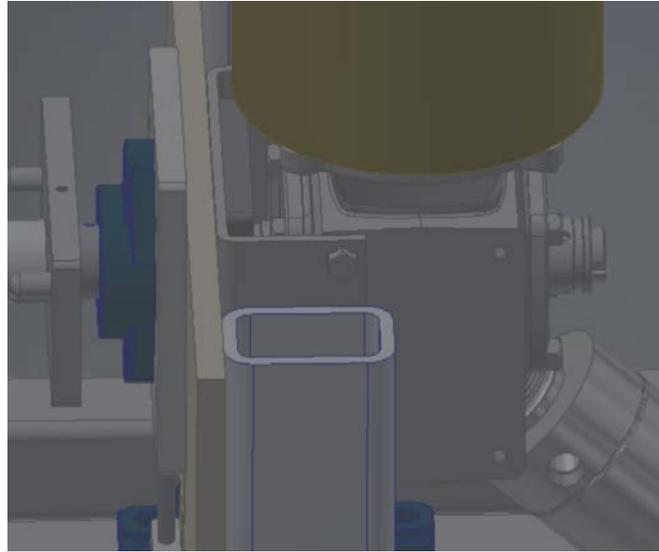
Spacer applicator

Backer removal station
Conveyor components
Application head
Eyes and sensors



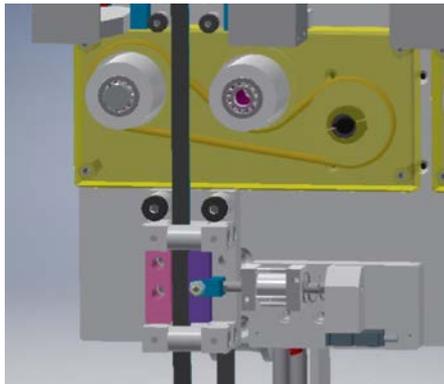
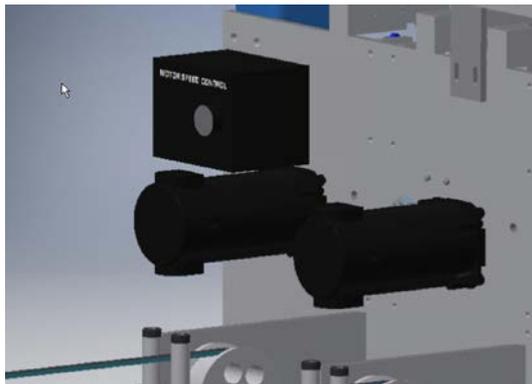


Spacer Drive Box Prox
Mount Bracket
(Reel Tip Angle)



Reel Drive Box

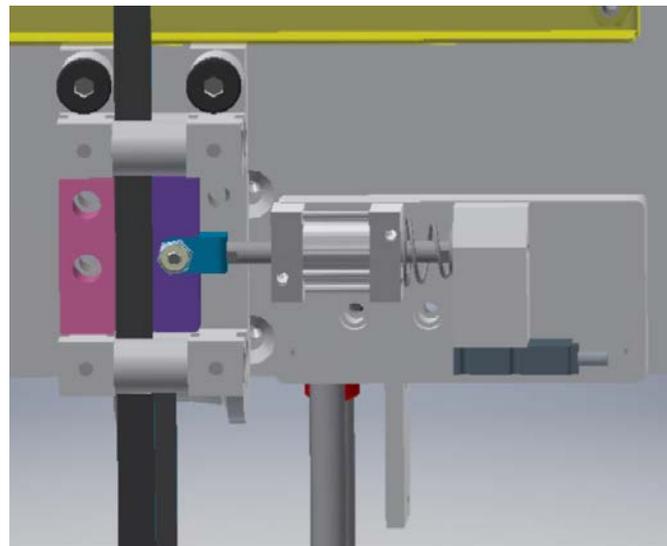
Blue Backer Friction Wheel Drive & Motors



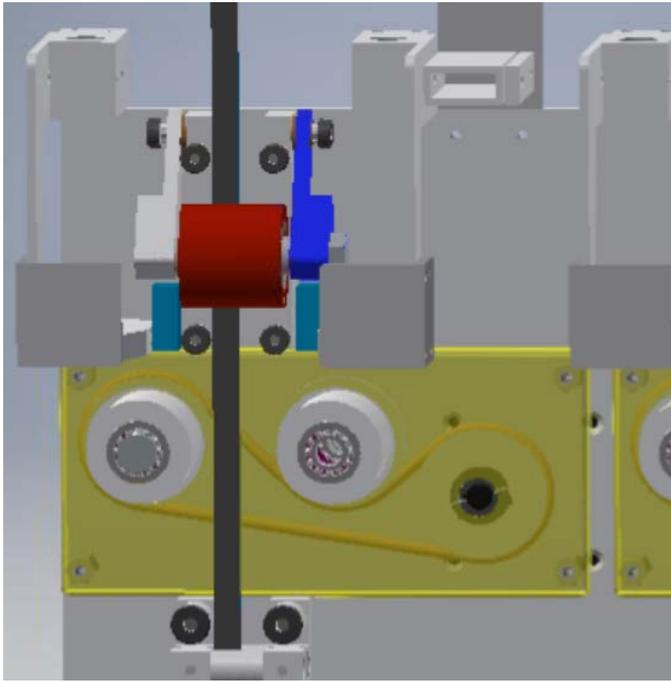
View of Blue Backer
Friction Roller Drive
Belt



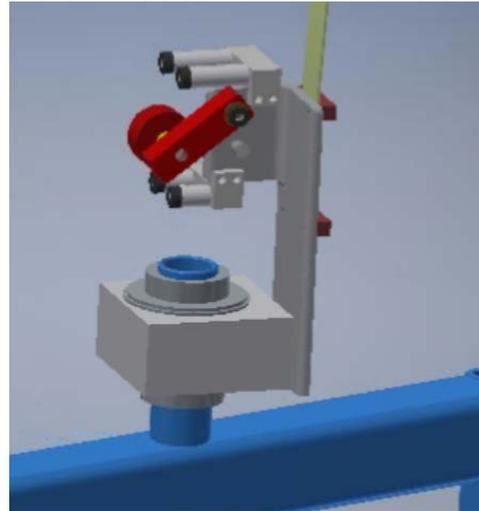
Big Dancer Laser
Mount



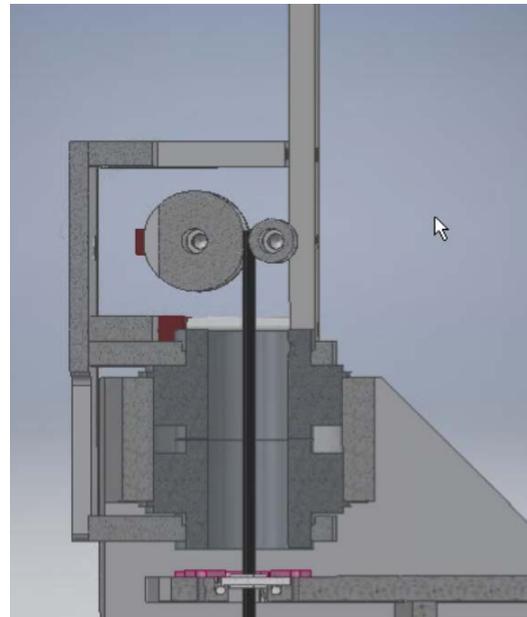
Spacer Thickness (Size)
Detector



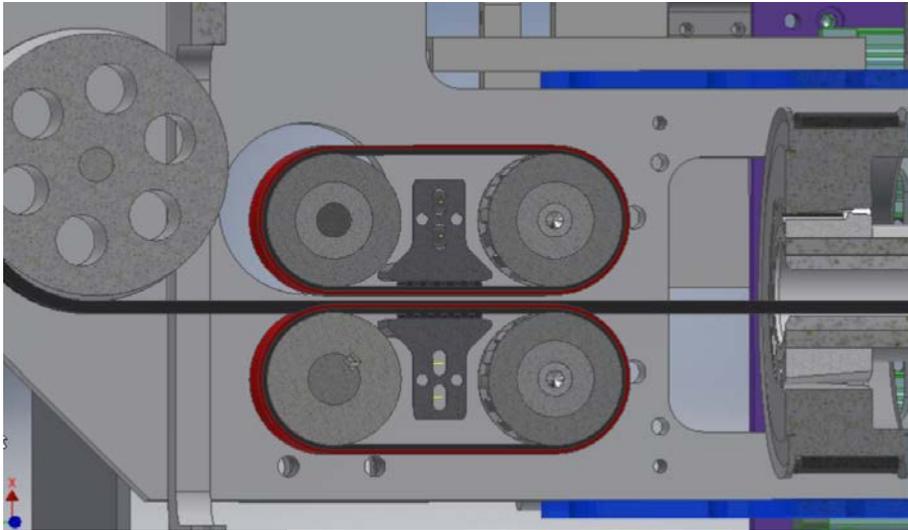
Spacer Hold Down Roller (In conjunction with Blue Backer Removal Sensors)



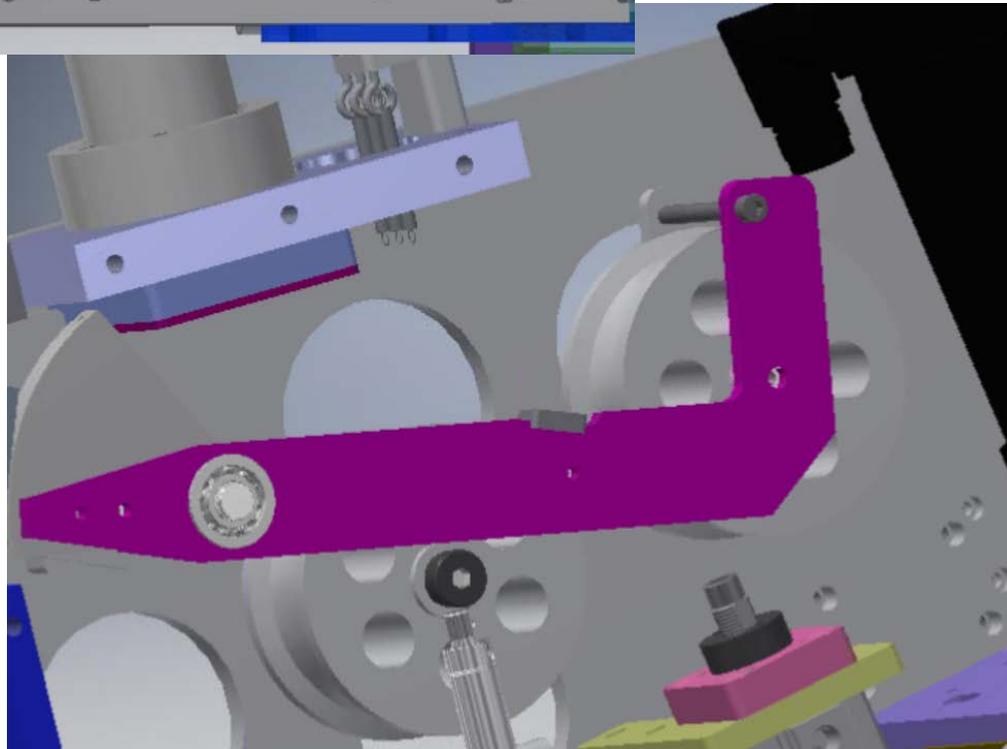
Spacer Hoop Support Pivot and Hold Down Roller



Section View of Spacer Support Pivot

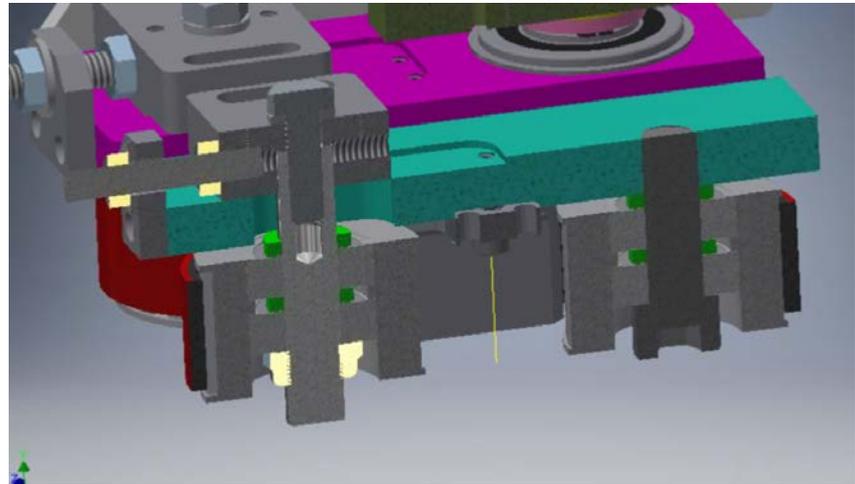
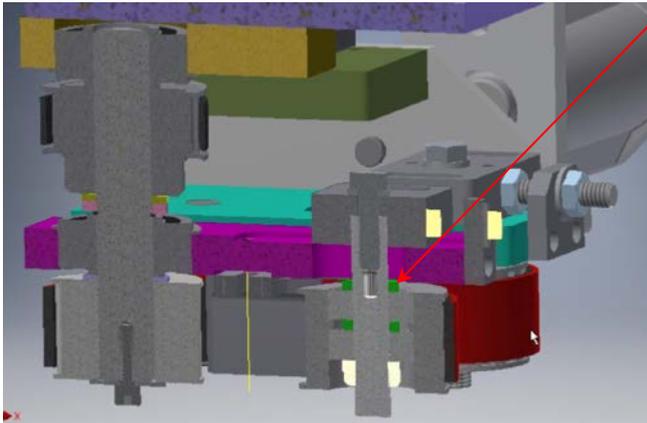
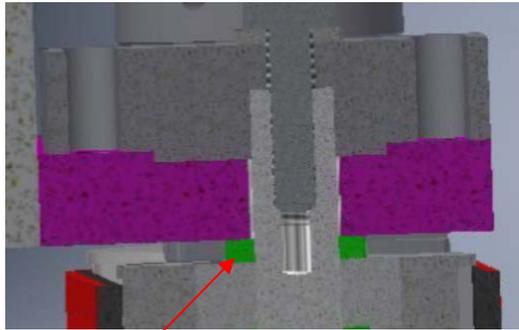


Section View of
Infeed Tractor
Drive



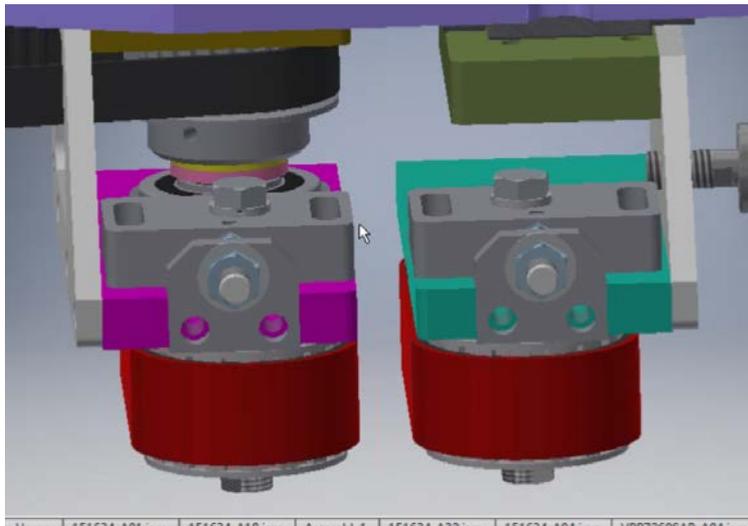
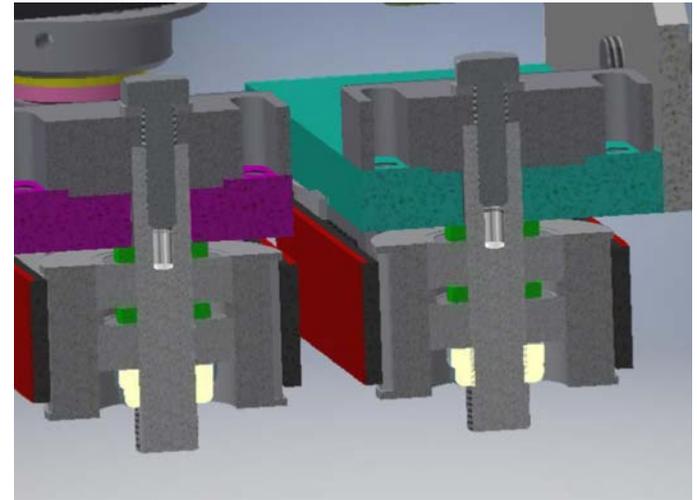
Exposed View
of Tiny Dancer

Drive Side
Side Section
View of Tractor
Drive

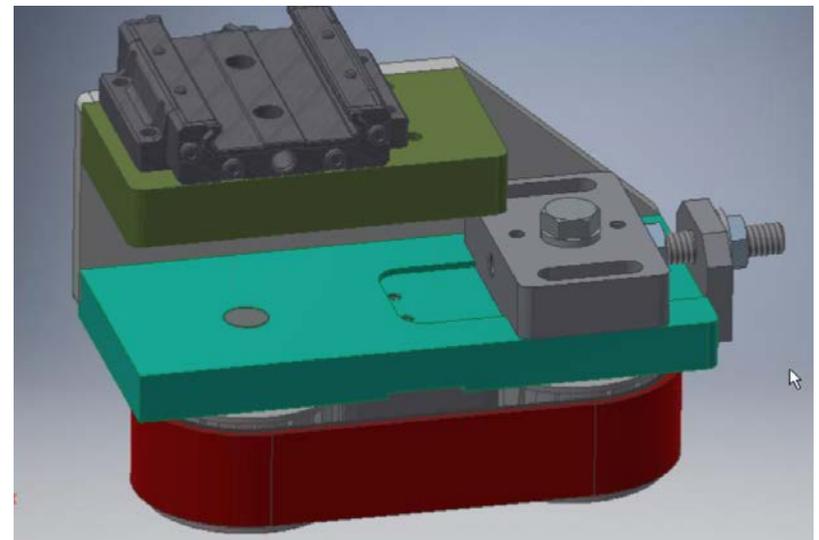


Floating Side
Side Section View of
Tractor Drive

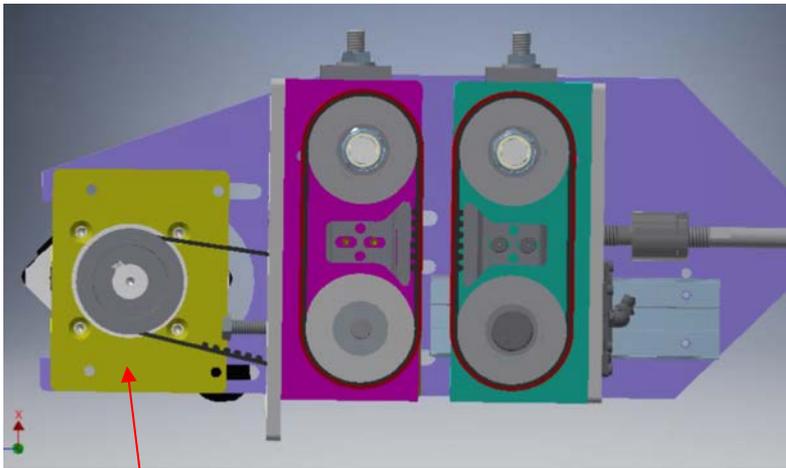
Tensioning End
Section View of
Tractor Drive



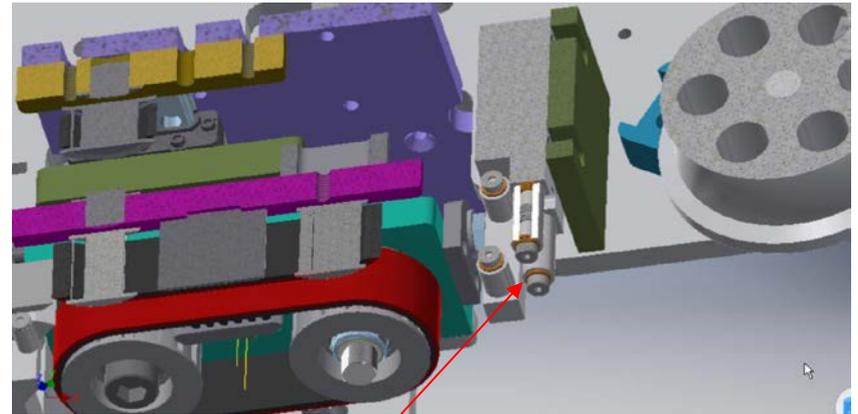
Tensioning End
View of Tractor
Drive



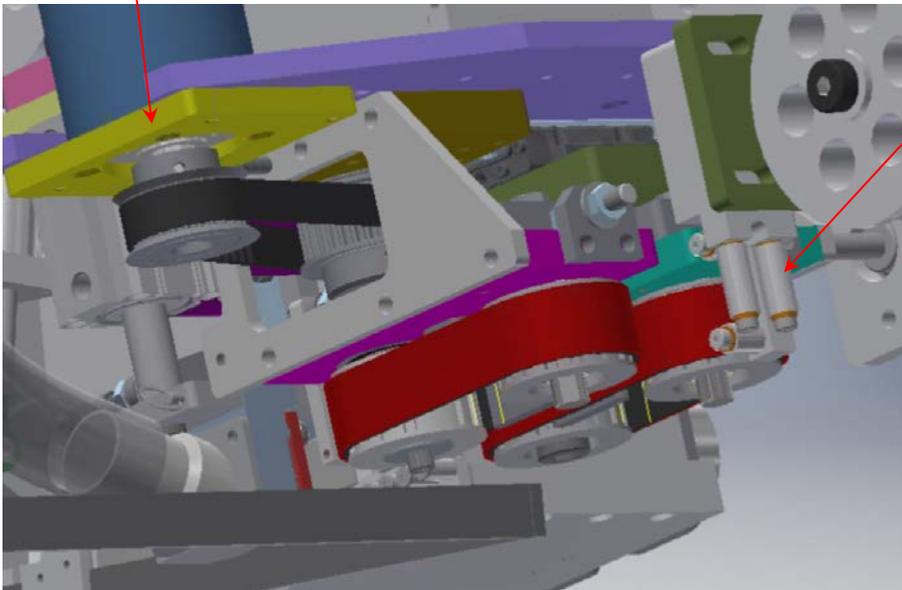
Tensioning Side View of
Tractor Drive

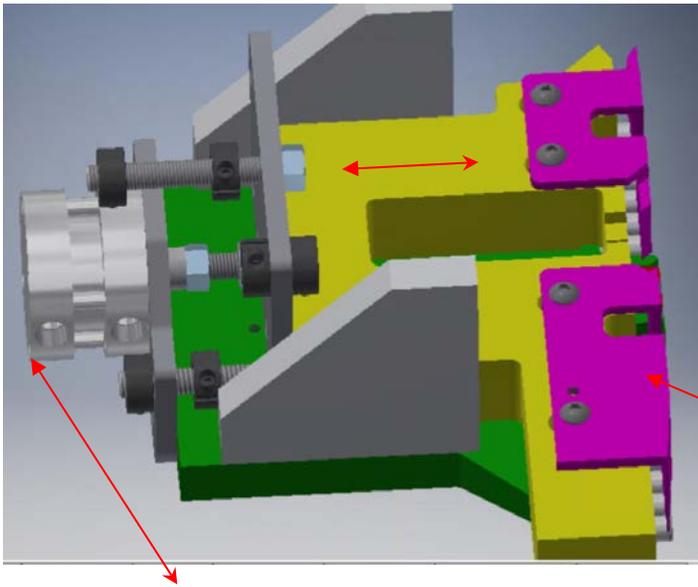


Section View of
Outfeed Tractor Drive



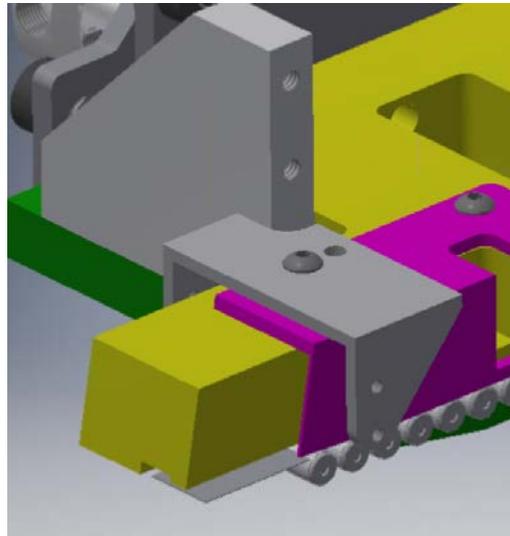
Section View of
Outfeed Tractor Drive
Floating Side



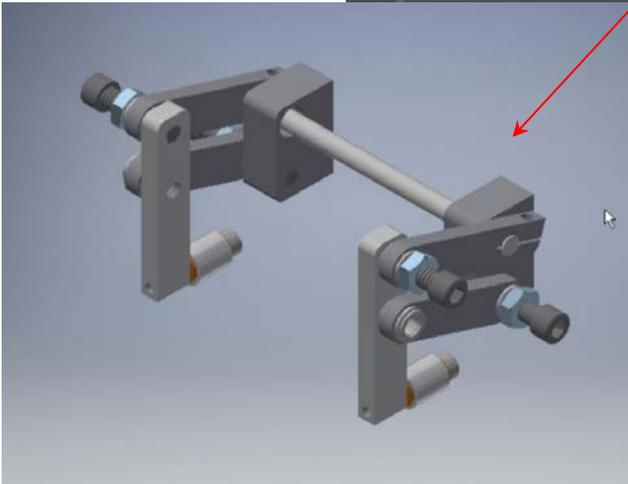
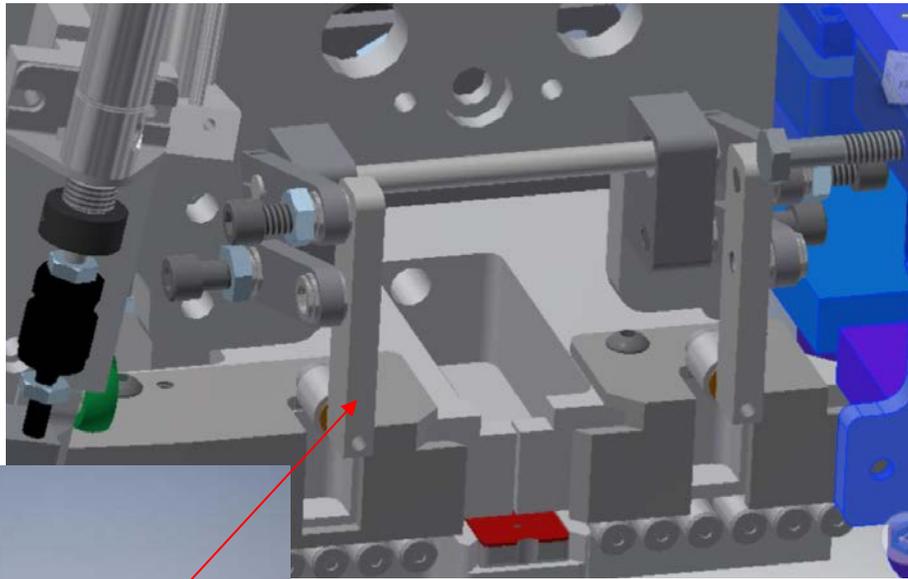


Spacer Clamping
Assembly for
Knife Cutting

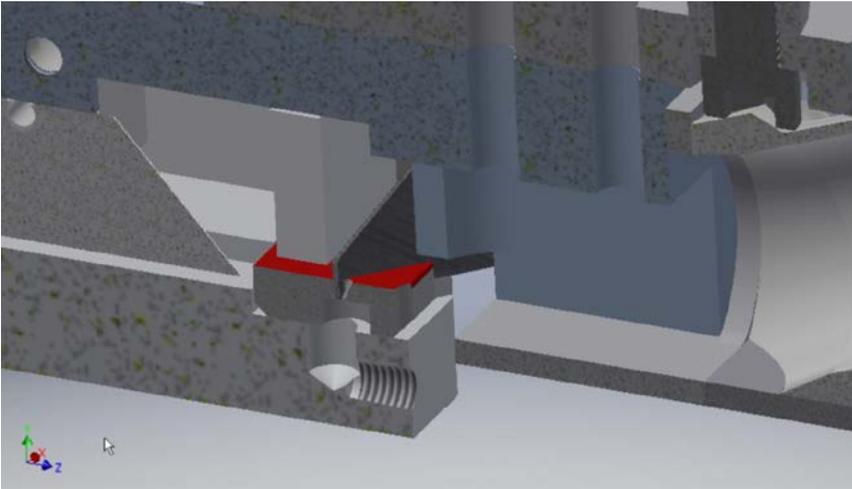
Spacer Guide
Work Assembly



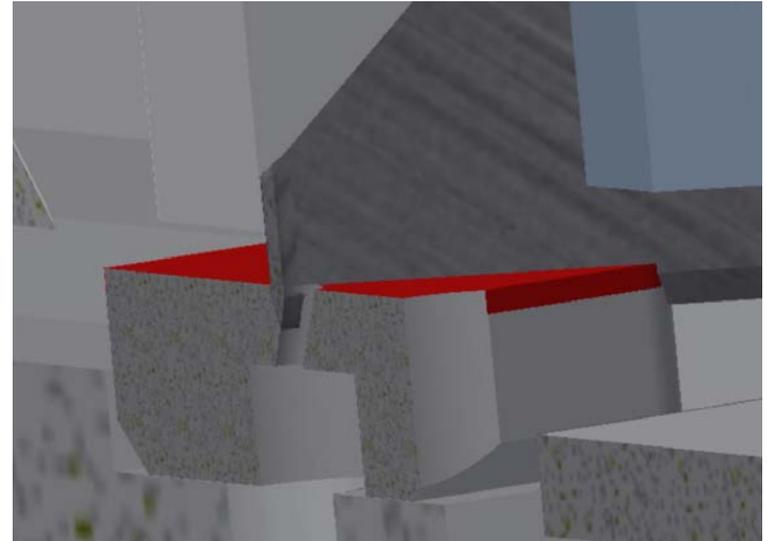
Spacer Prestart
Measuring
Fiber Optics
Mount



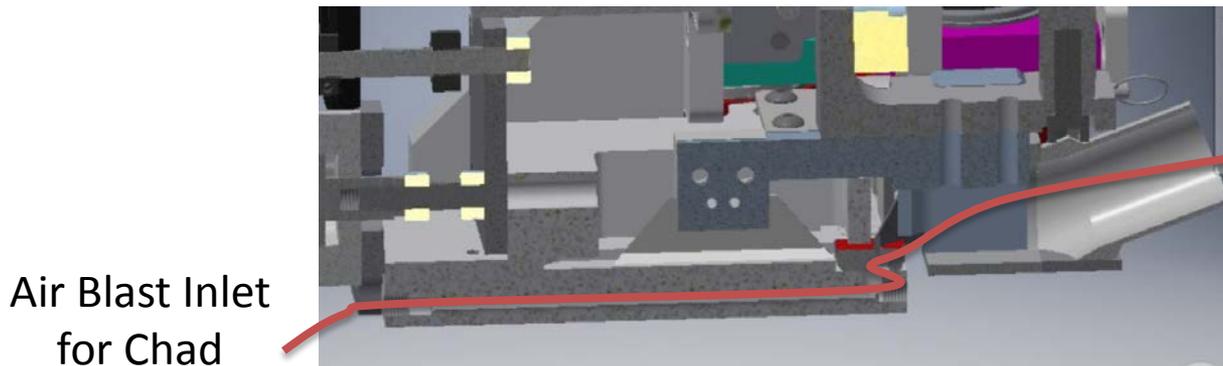
Down Roller
Assembly at
Knife Cutting
Area



Section View
showing Knife
Backer

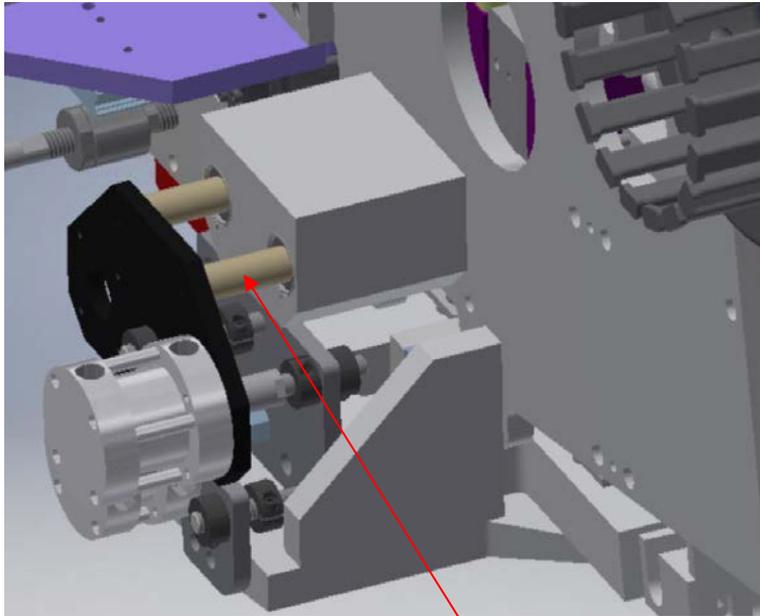


Section View
showing Knife
Cut Depth



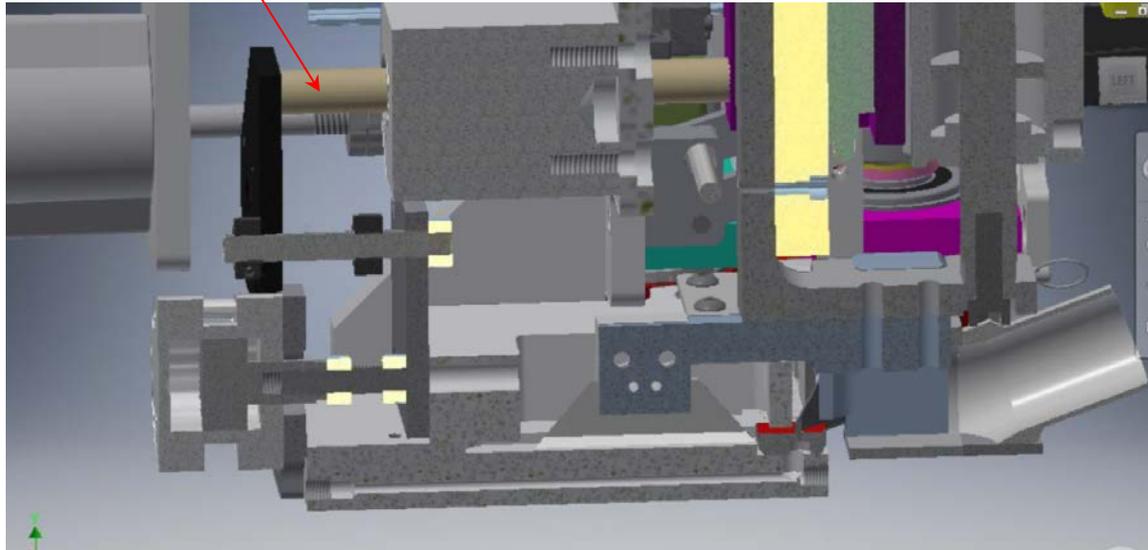
Air Blast Inlet
for Chad
Removal

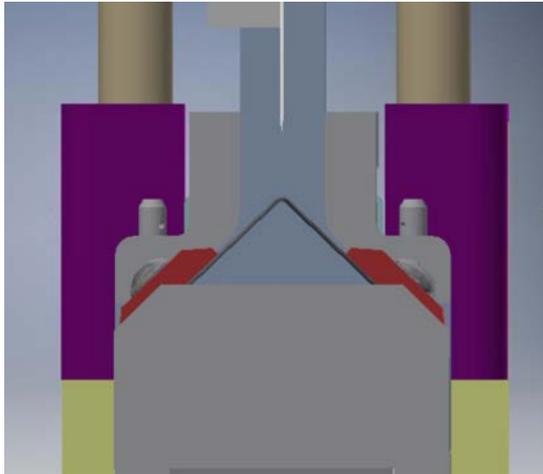
Hose Fitting for
Chad Collector



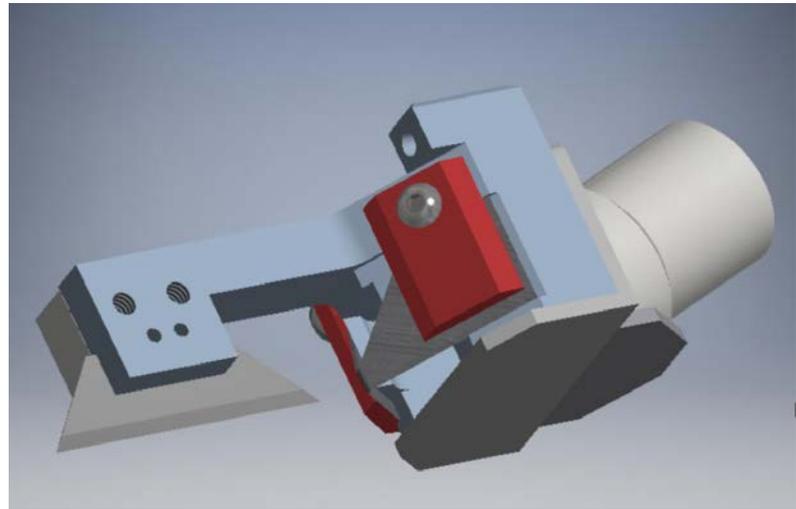
Side Clamping and
Knife shift
(Straight vs
V-Notch Cut)

Section View of Side
Clamping and Knife shift

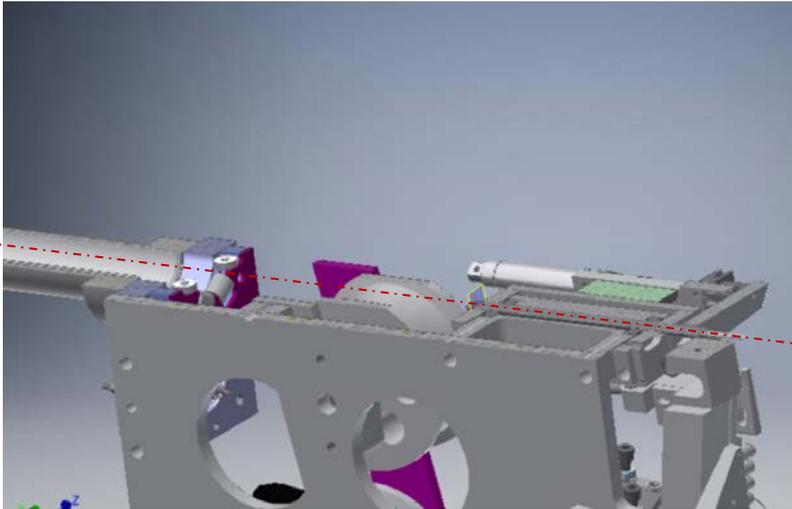




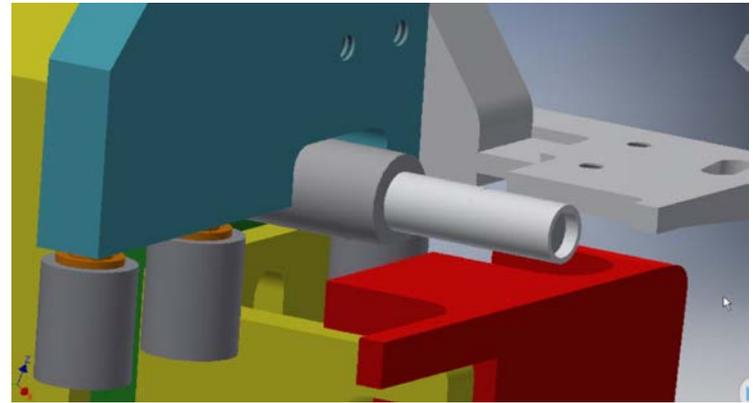
Alignment View of Bottom
Side of Knife Assembly



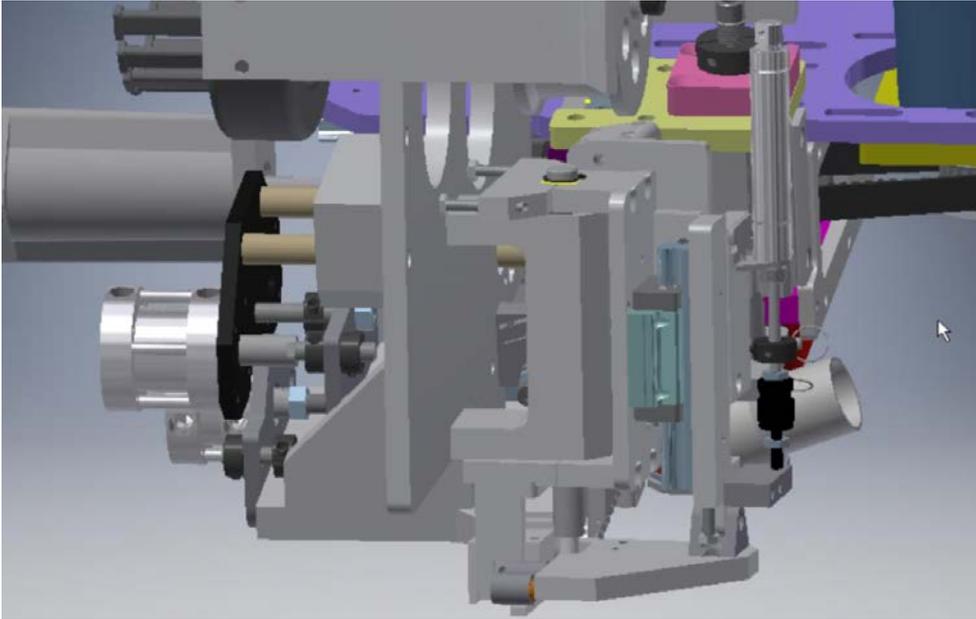
Model of Knife Holder
Assembly



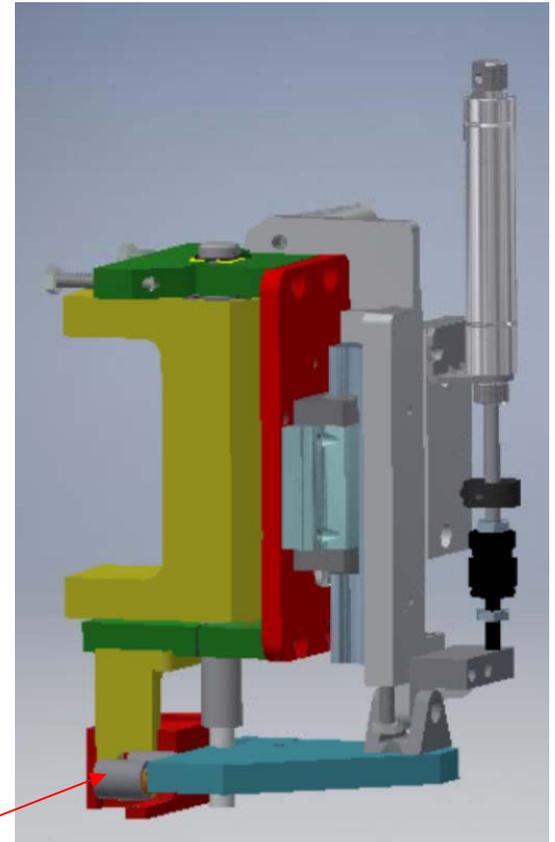
Section View of Center Line
(Index Shaft to Corner Pin)



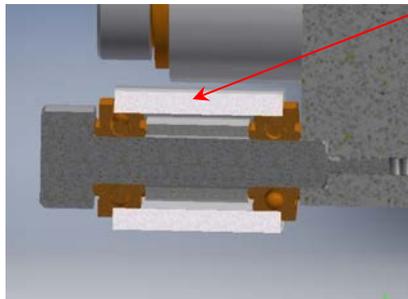
View of Corner Pin Through
Hold Down Roller Assembly



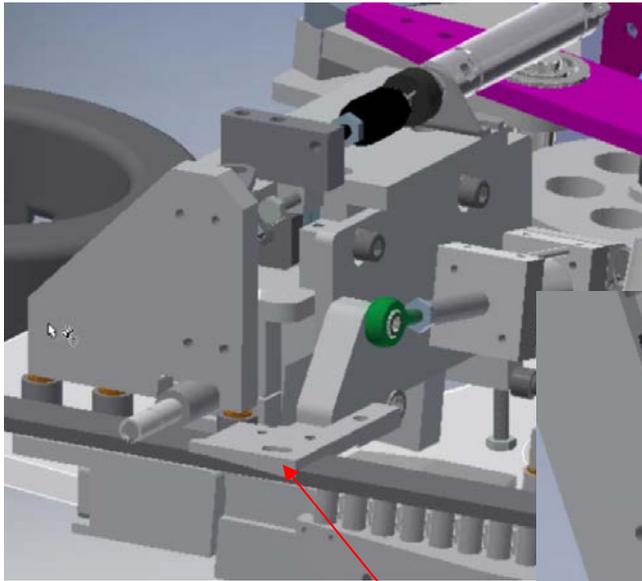
Assembly View of Hold Down Roller Assembly on SAM Head



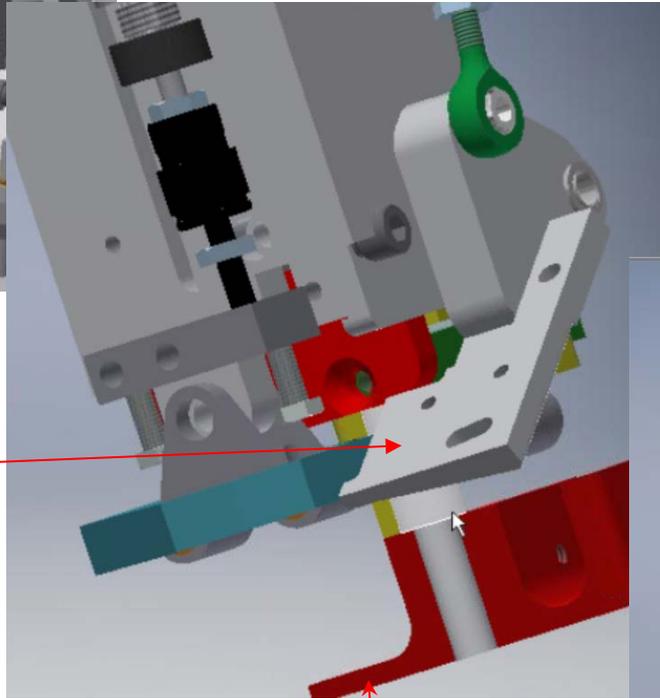
Hold Down Roller Assembly



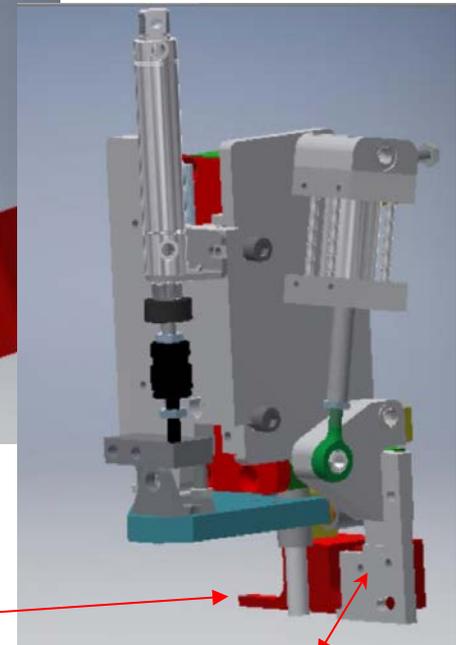
Section View of Application Down Rollers



(Retractable Guide Work
(During Start / Stop
Corners))



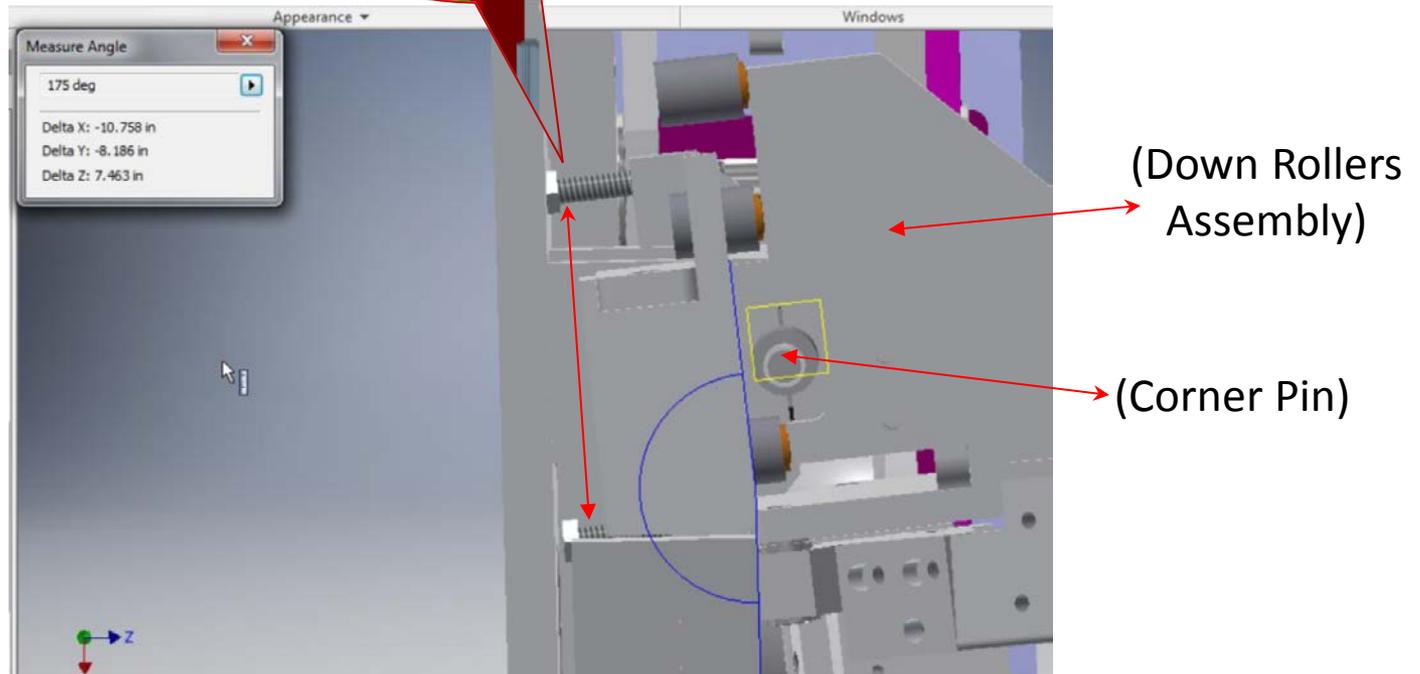
(Delrin Stationary
Guide Block)



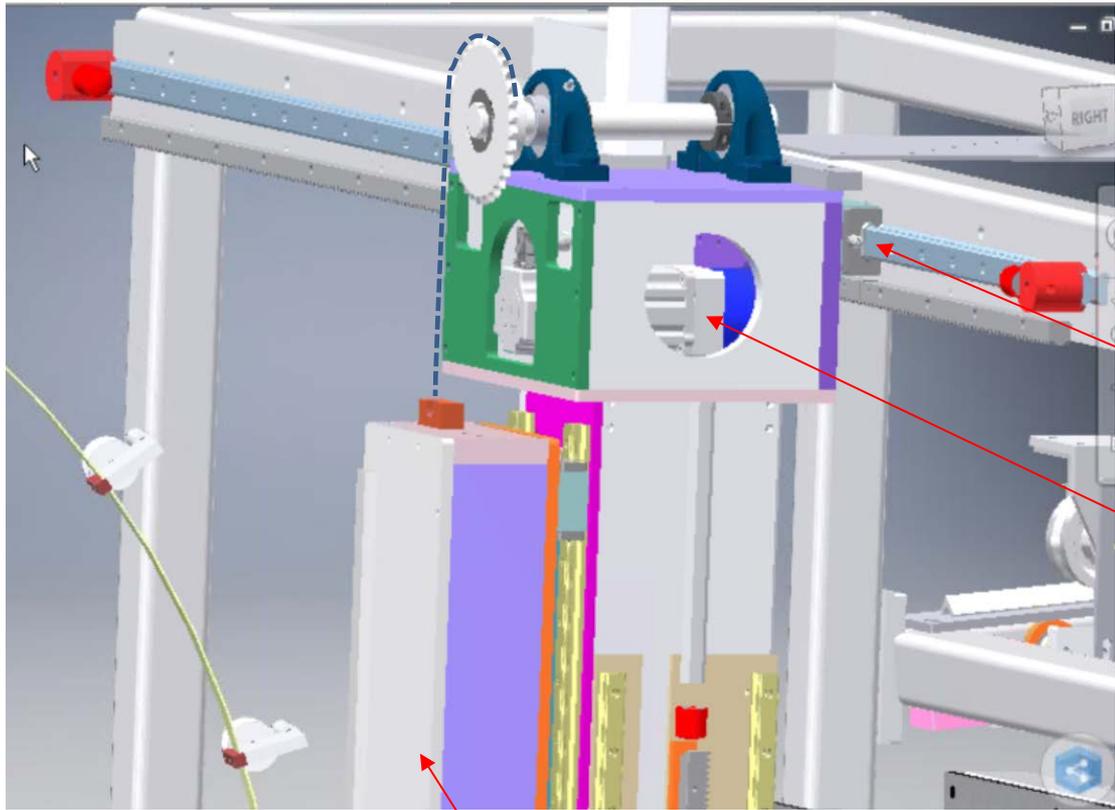
(Retractable Guide
Work....Extended View
(During Application))

Views of Motion of
Retractable Guide Work

(Down Rollers & Stationary
Guide Block
Assembly Adjustment Bolts)



Bottom View of Stationary
Guide Block
Showing Application Angle
(5 degrees (Parameter
Controlled))



Exposed View of SAM Gantry at the TOP Showing Drive & Counterweight

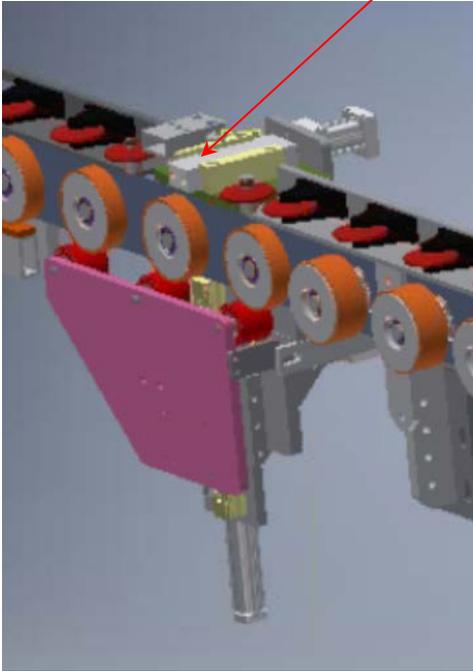
(X Axis Linear Bearings & Rail)

(Upper X Axis Servo Drive)

(Counterweight Assy)

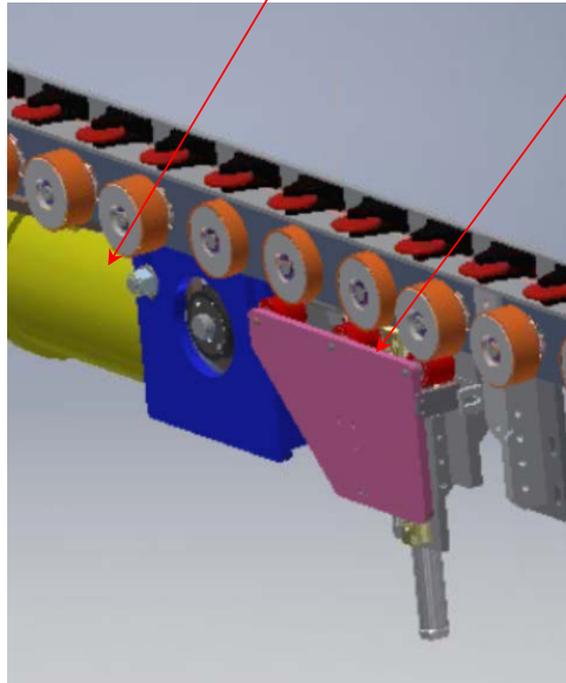
Exposed Rear View of SAM IG Transfer Roller Drive System

(Infeed Stop)

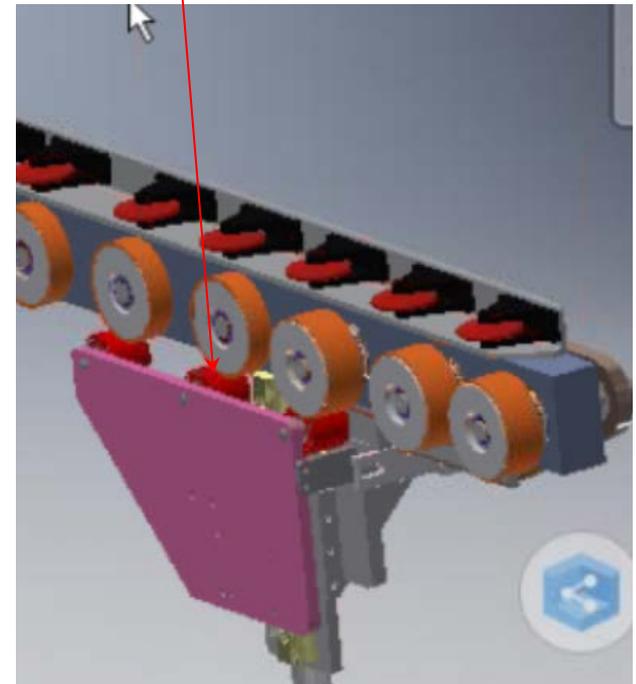


Front View of SAM
IG Transfer Roller Drive
At Infeed Stop

(Drive Motor)



(Retractable Support
Rollers – Used During
Transfer Only)



Front Views of SAM IG
Transfer Roller Drive System

Outfeed spacer applicator

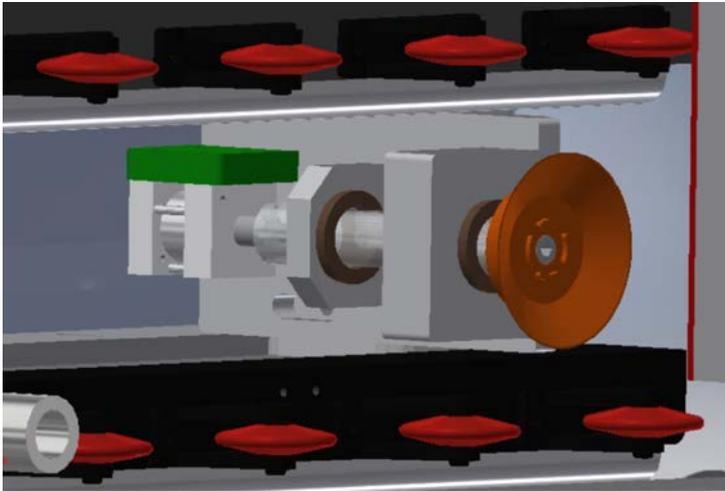
Print station

Cap tube station prox

Front and back lane product

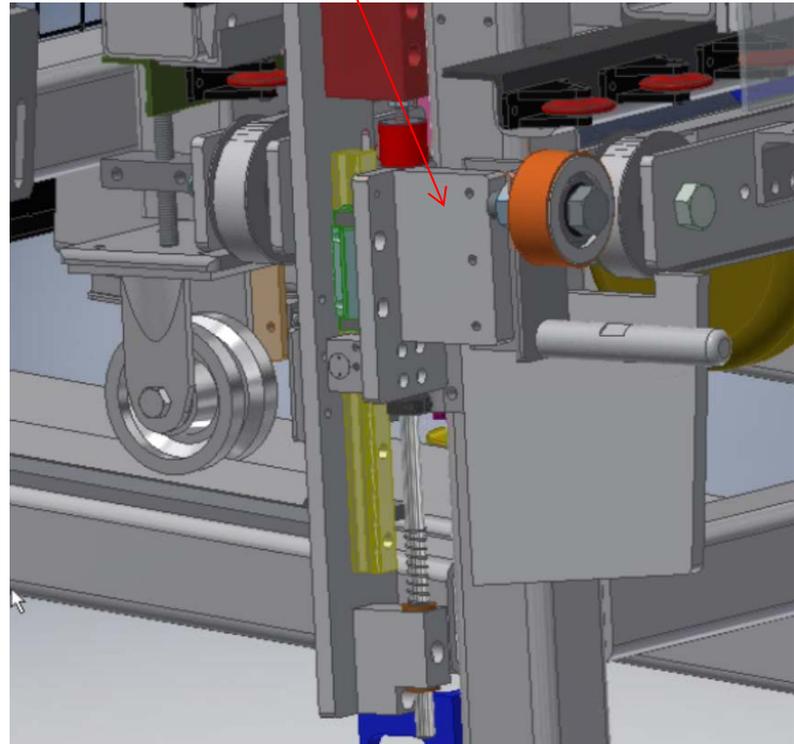
Detect eyes

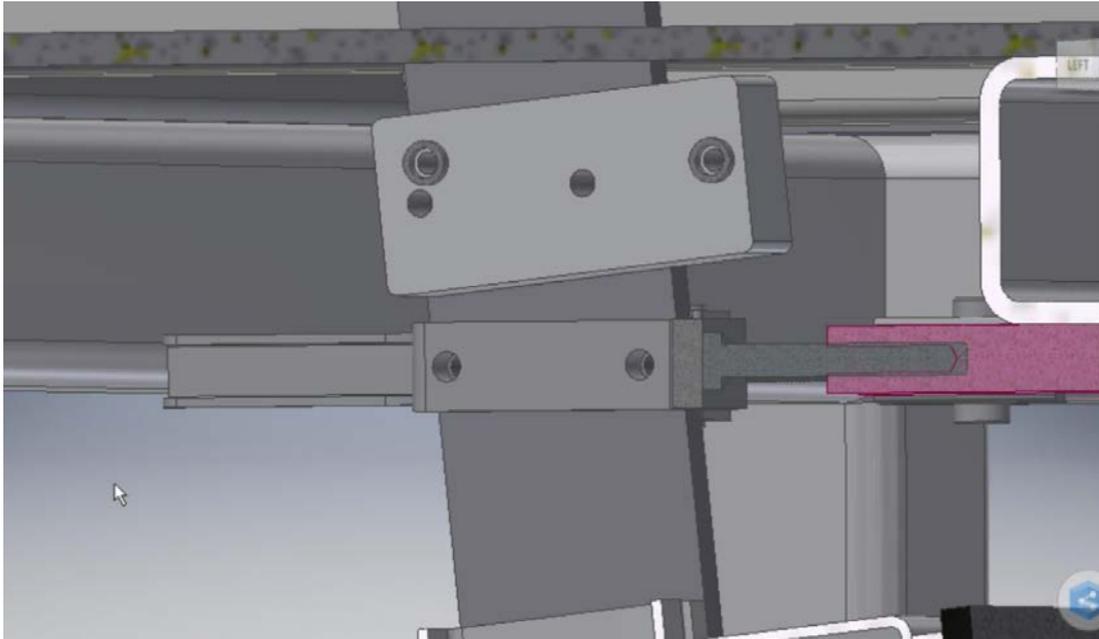




Cap tube station support cup assy

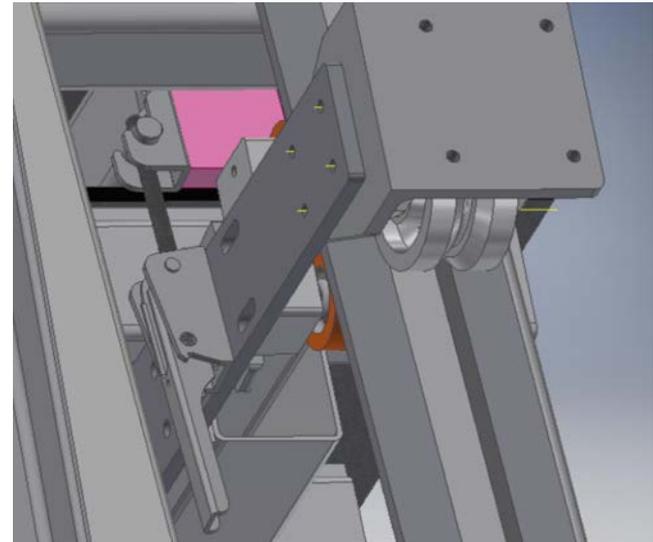
Cap tube station drop roller
assy.

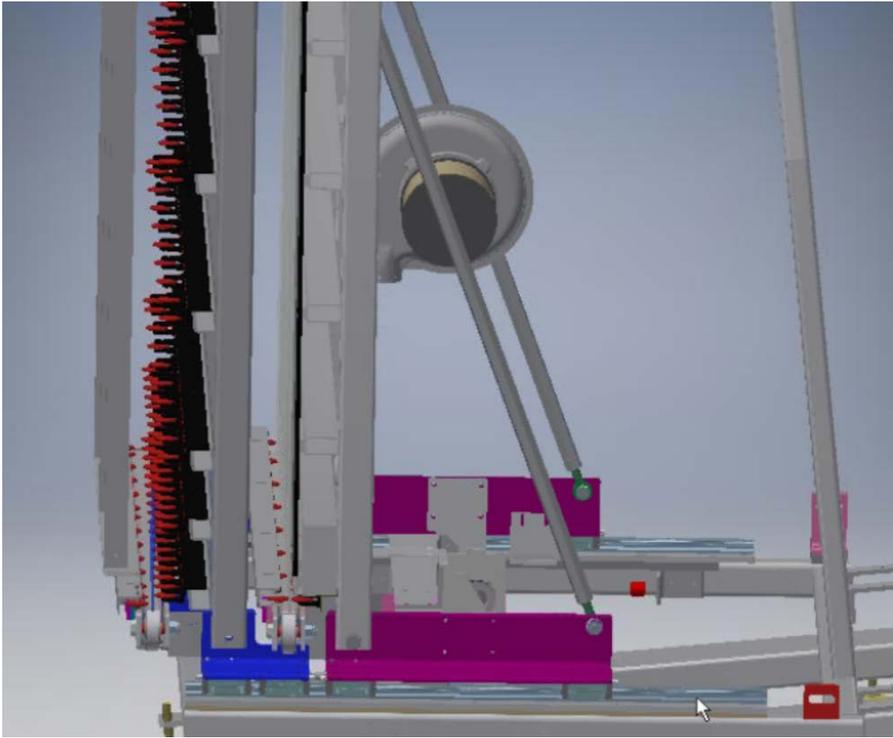




Section view of back lane clamp

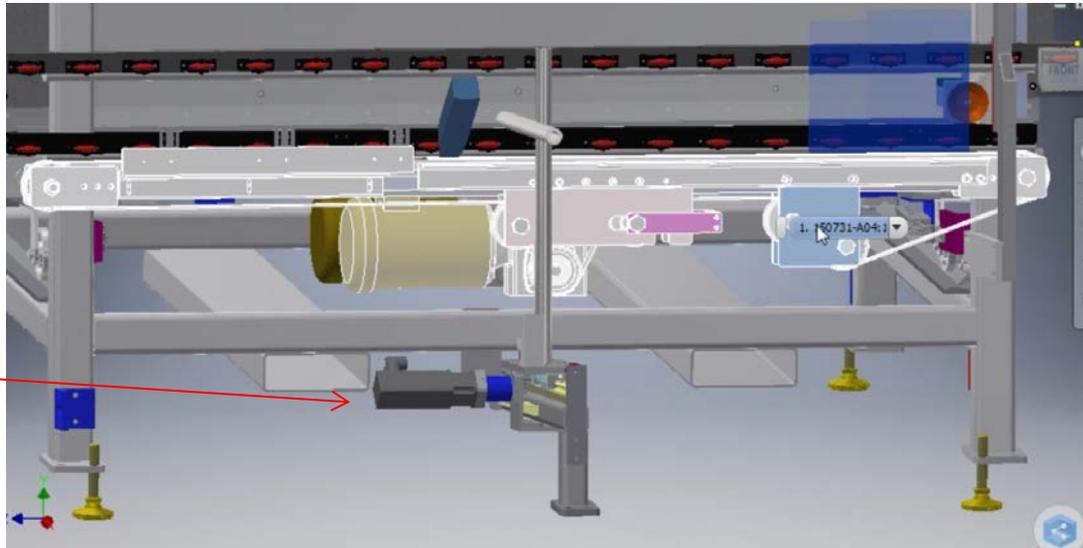
Top view showing
back lane clamp
and v-wheel

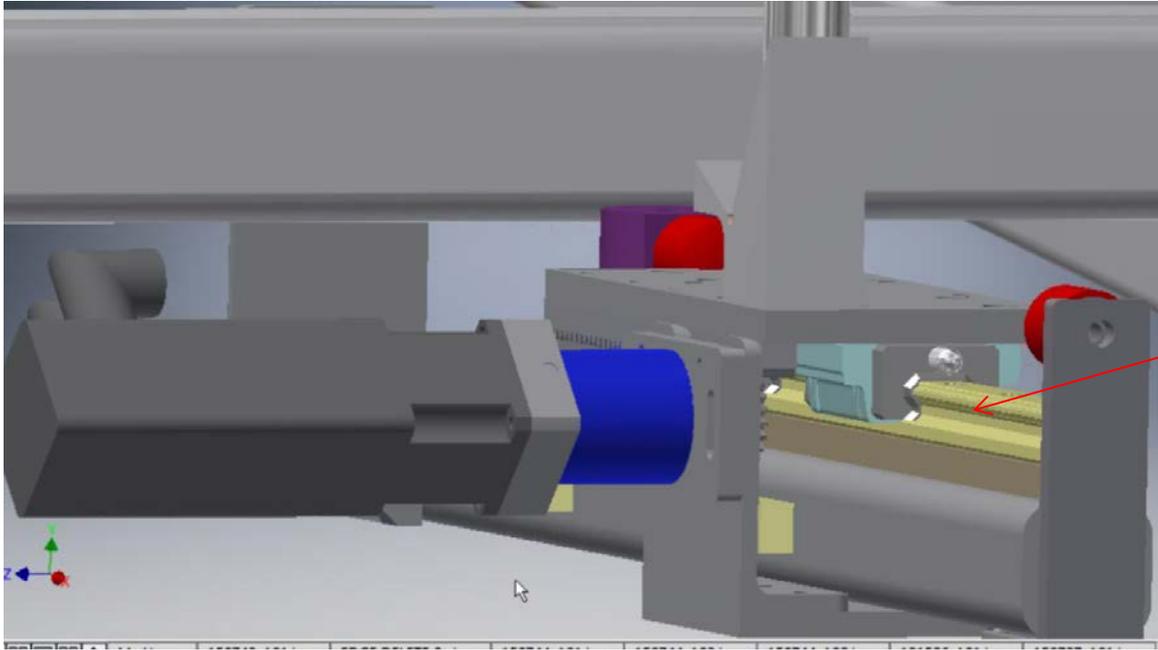




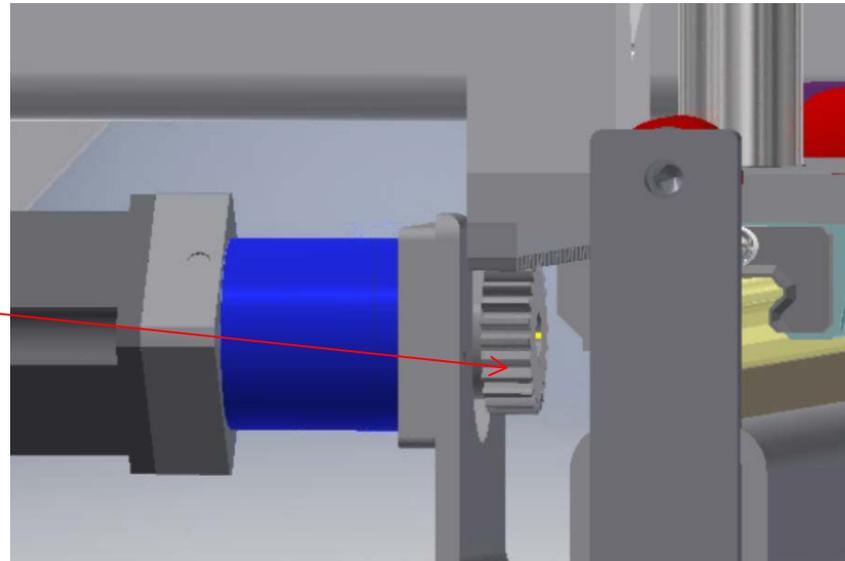
Shuttle station

Optional Printer assy
mounted to queue
station





Optional printer station
servo drive guide rail

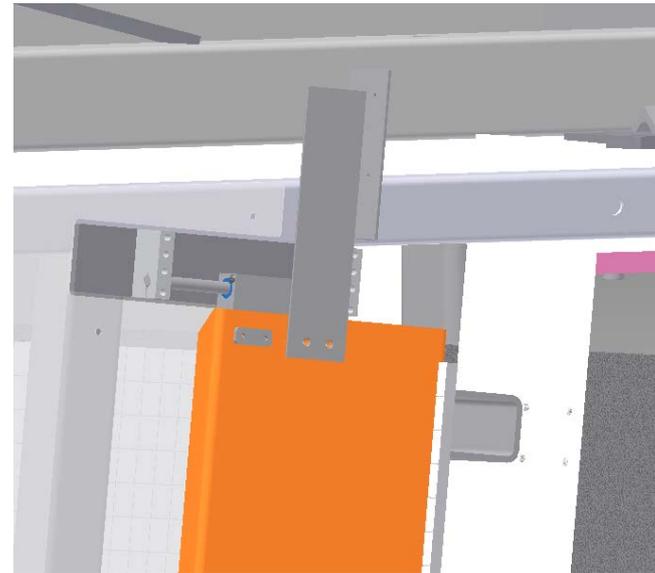


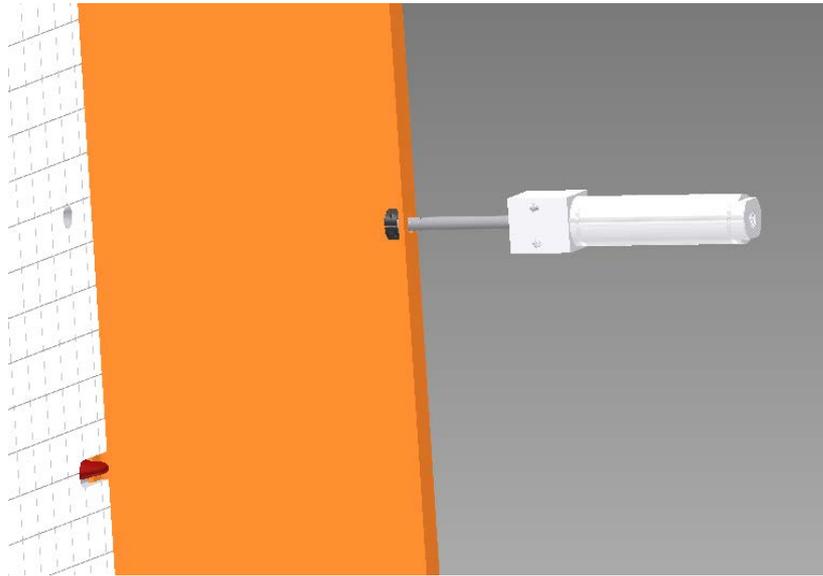
Optional printer station
servo rack and pinion
drive

Grid apply

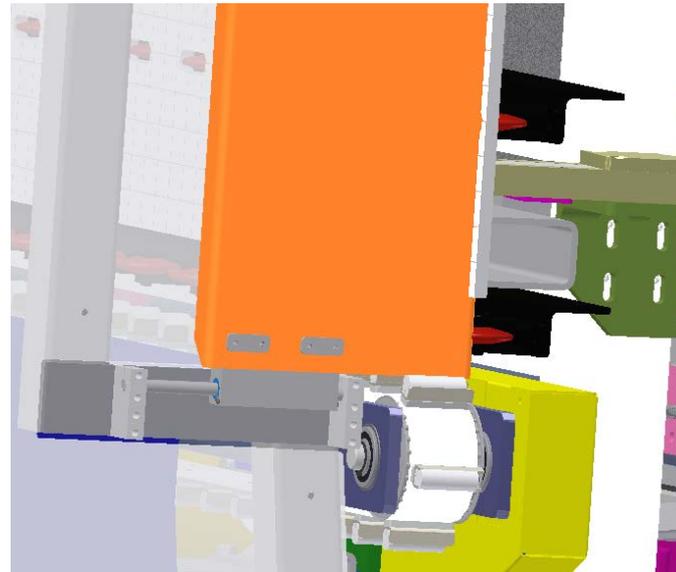
Safety gate magnetic safety switch

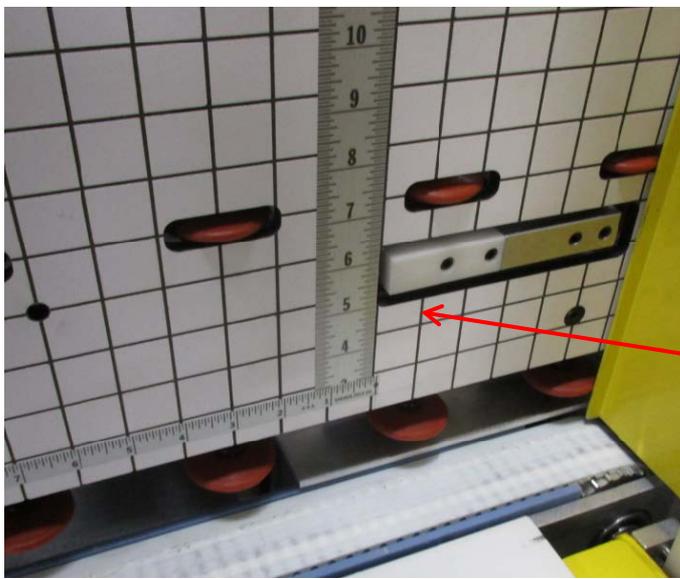
Front and back lane product detect eyes





Safety gate operation powered open
spring assist close





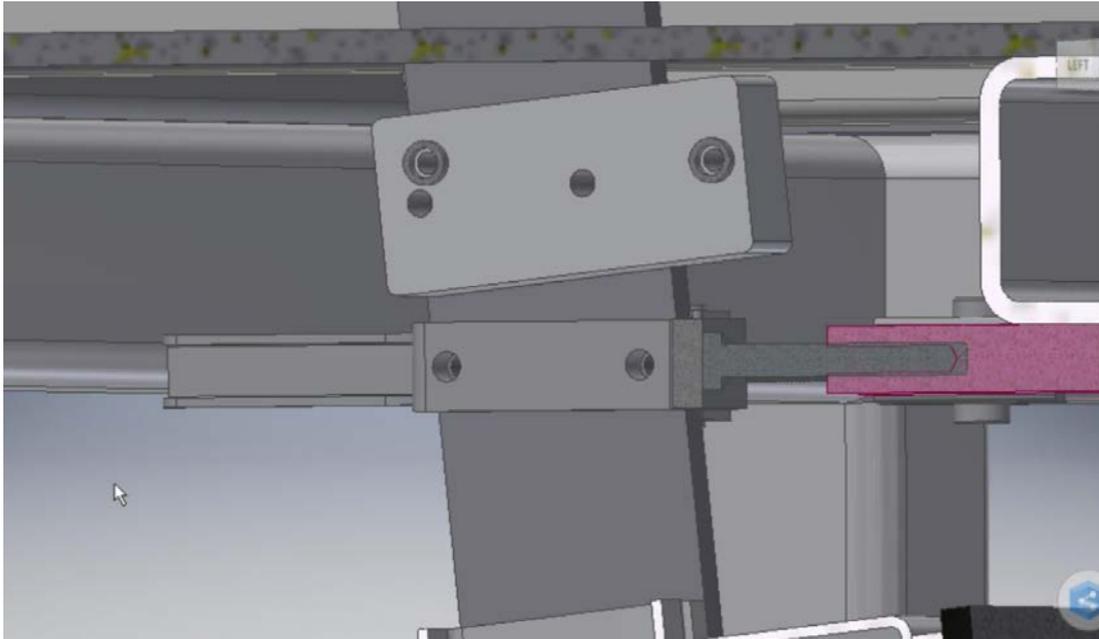
Grid station
reference stop



Grid laser display unit

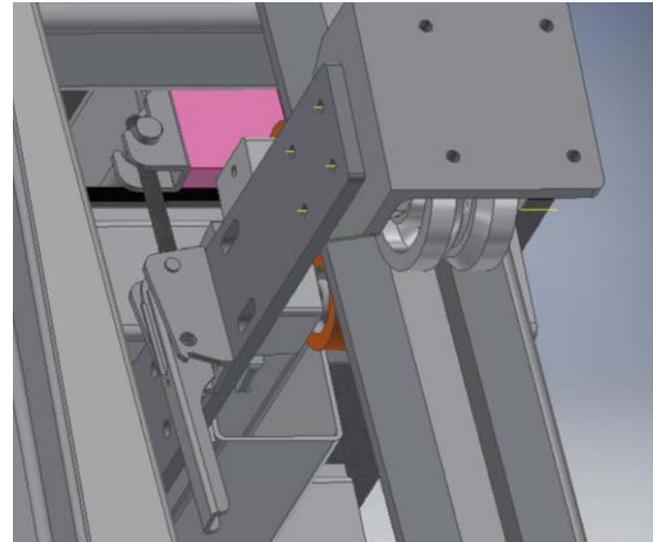


Grid apply station



Section view of back lane clamp

Top view showing
back lane clamp
and v-wheel



First shuttle

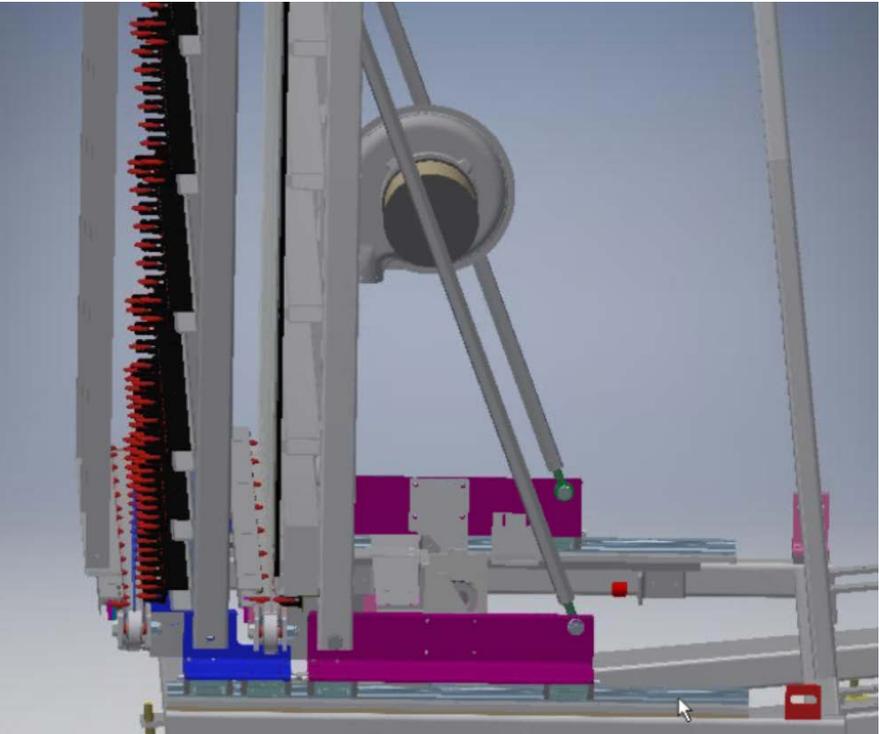
Infeed and outfeed product detect eyes
Home and over travel proxs



Gas press infeed Shuttle station



Staged and outfeed eye

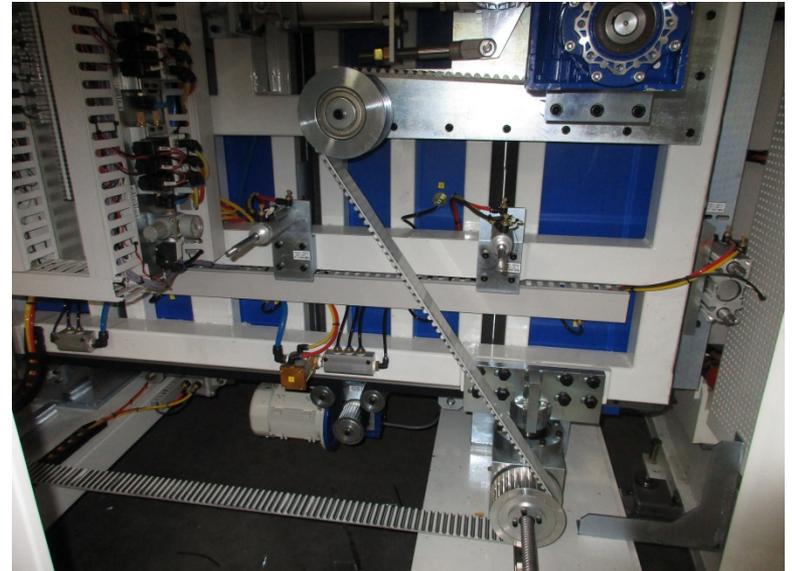
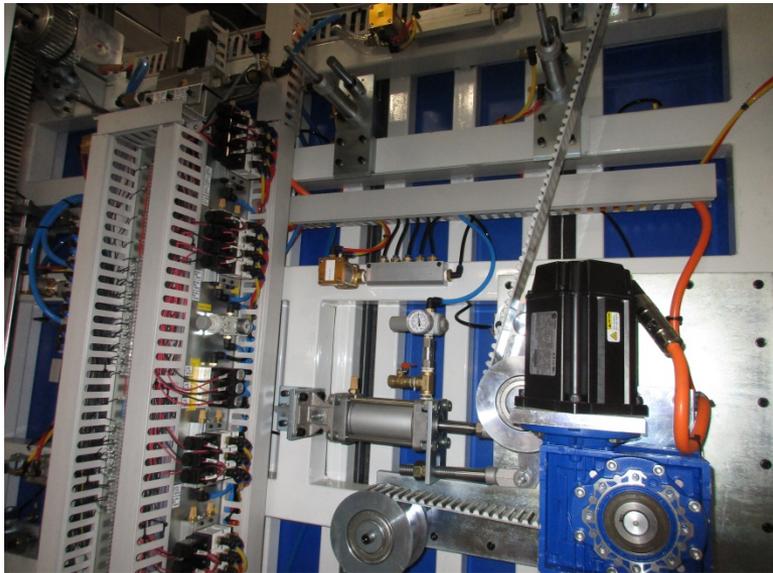
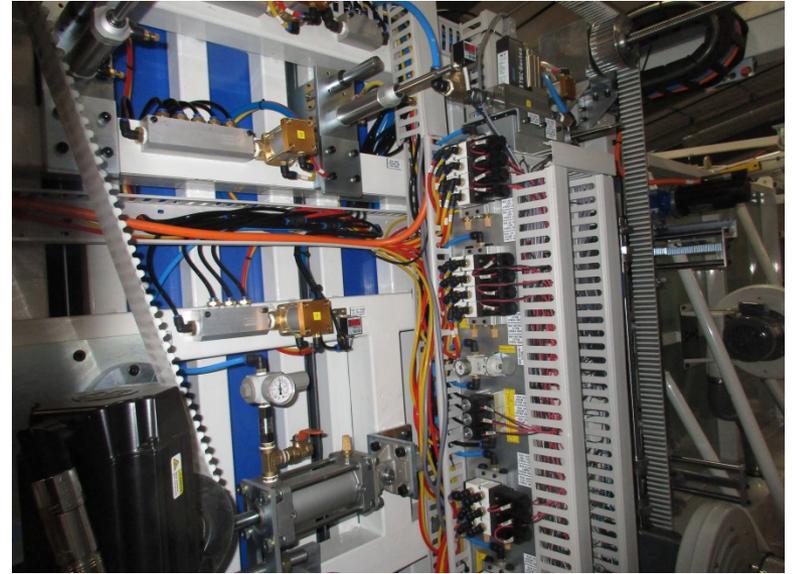


Dual chamber gas press

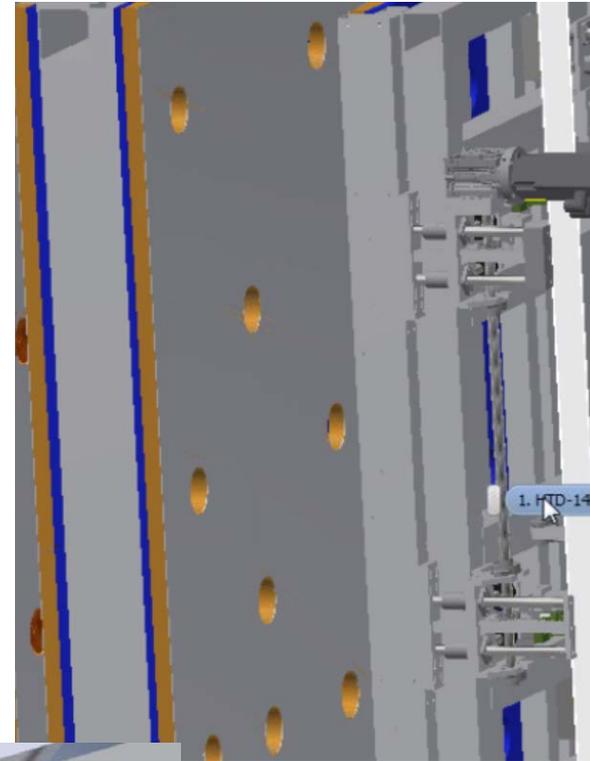
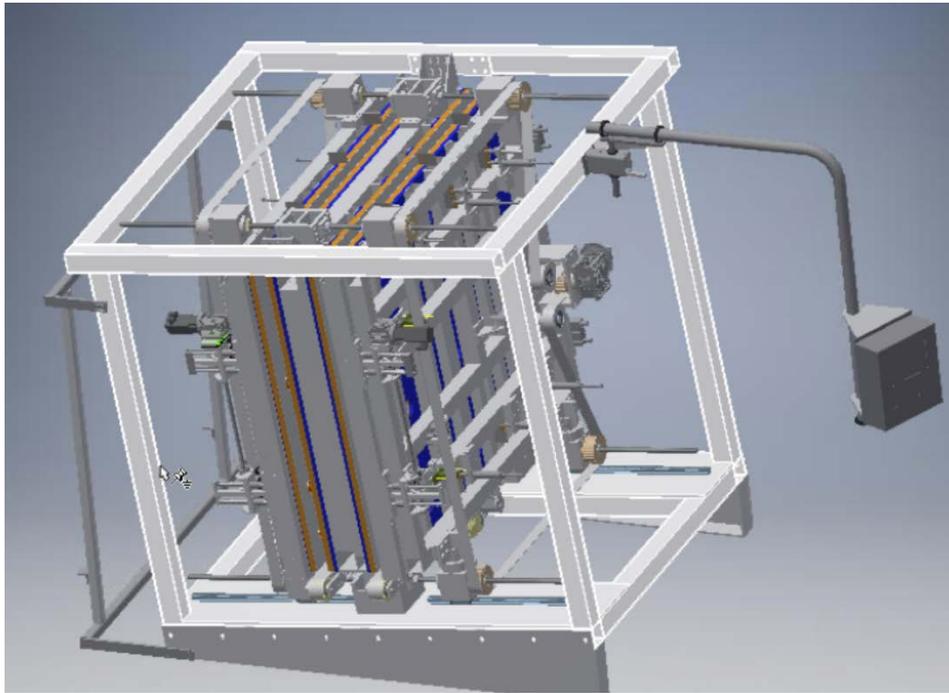
Drive components

Vac, gas sensors

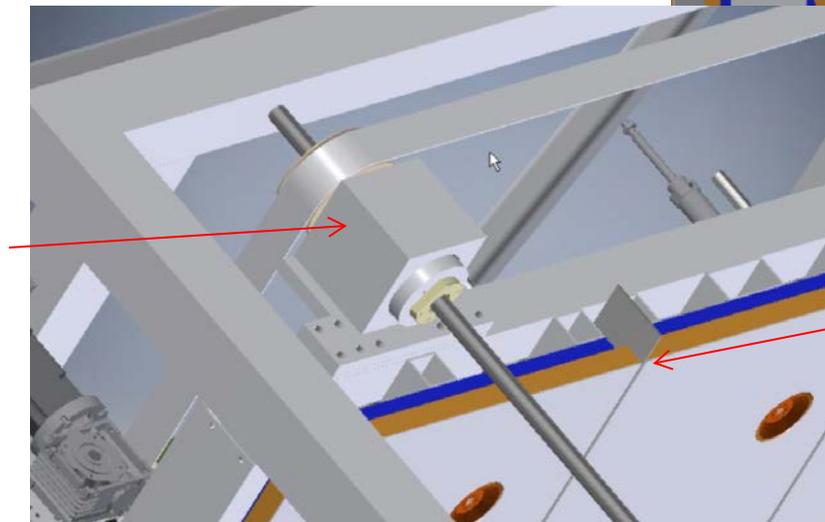
Prox and Halifax switches



Gas press guarding removed



Upper ball nut housing

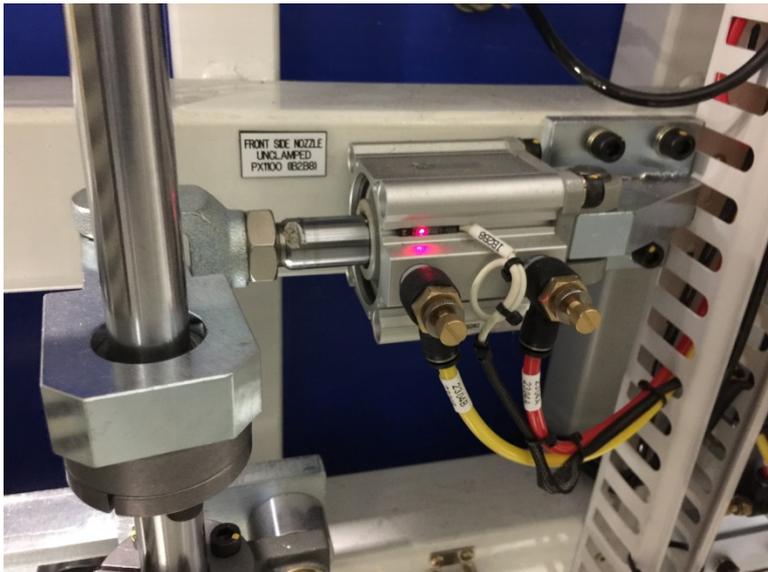


Top view showing Partition

Home corner vacuum sensor

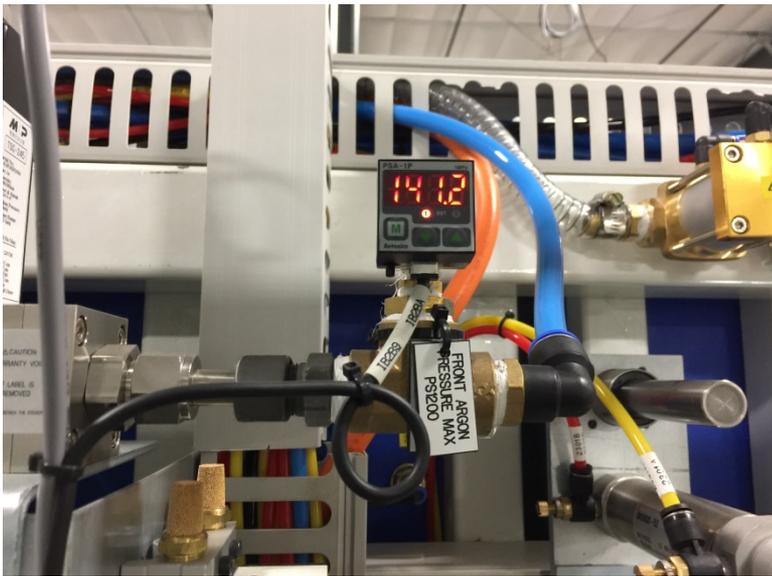


Gas nozzle extend retract actuator

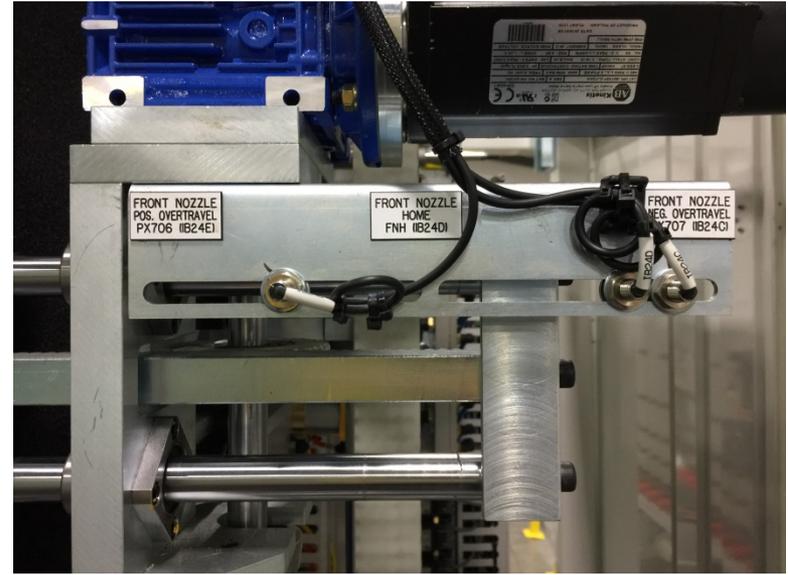


Partition position sensor

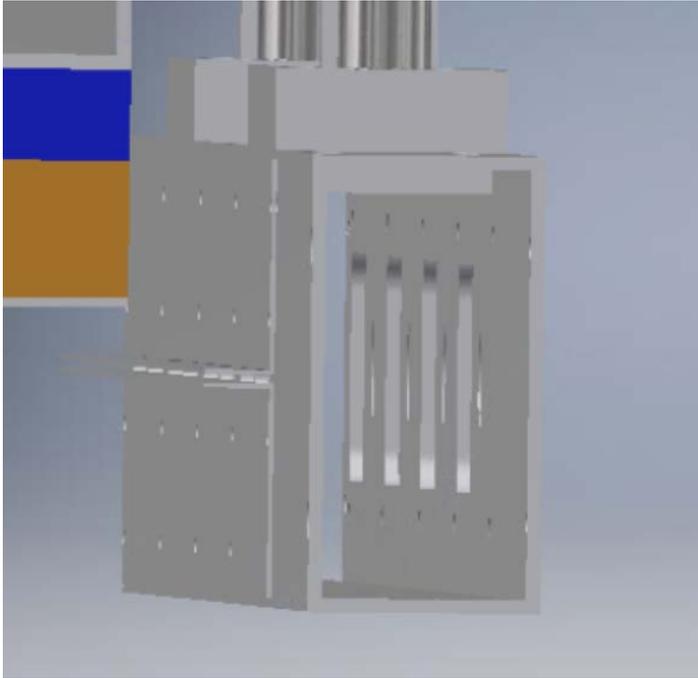




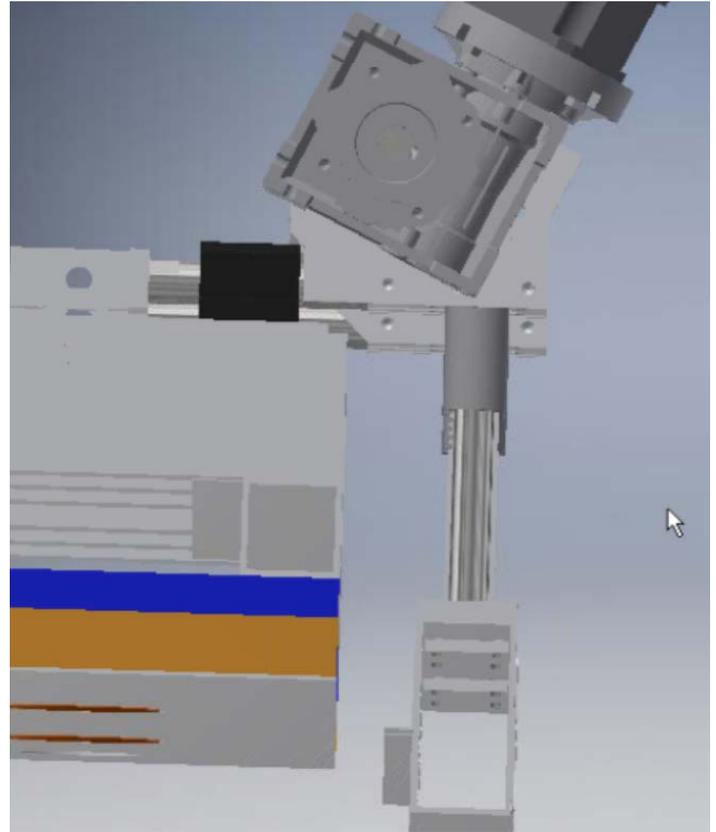
Gas pressure sensor



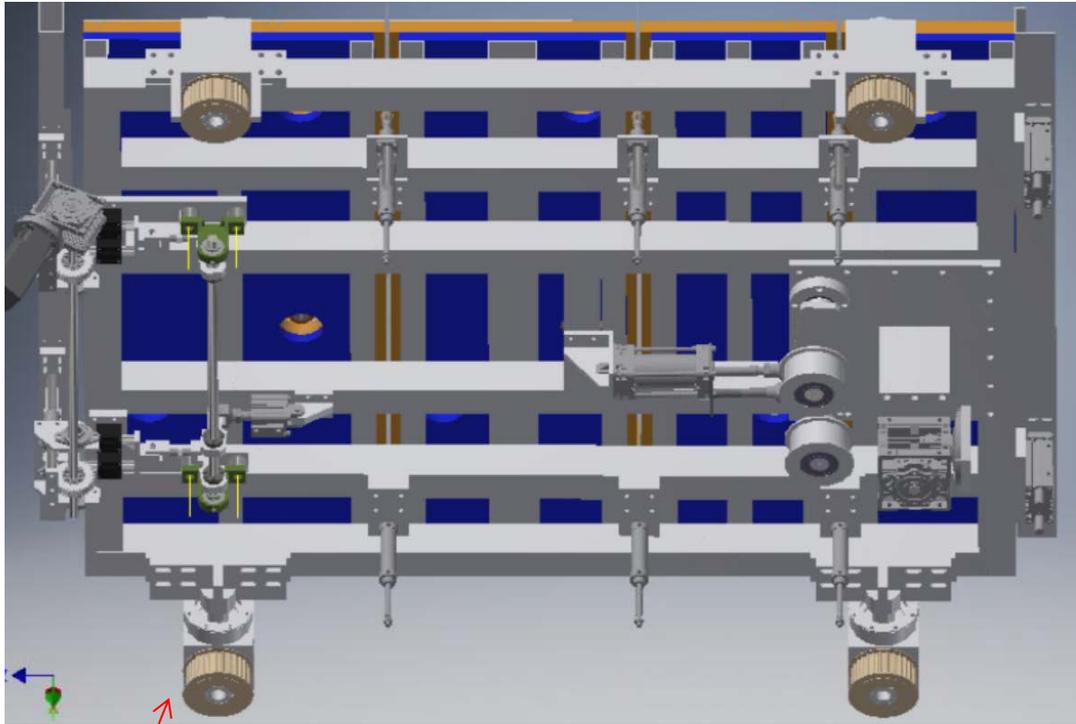
Gas nozzle positioning proxs



Gas nozzle
housing



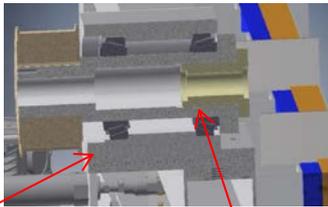
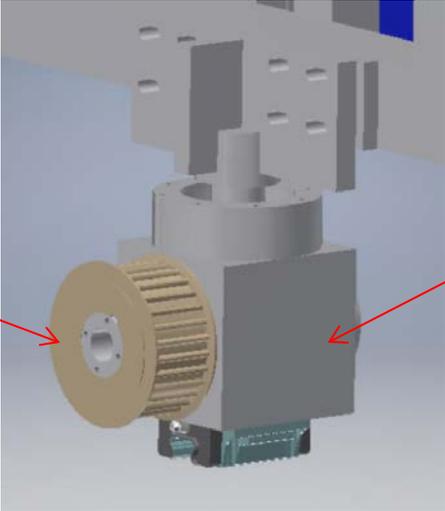
Top view of
Gas nozzle
assembly



Gas nozzle assembly

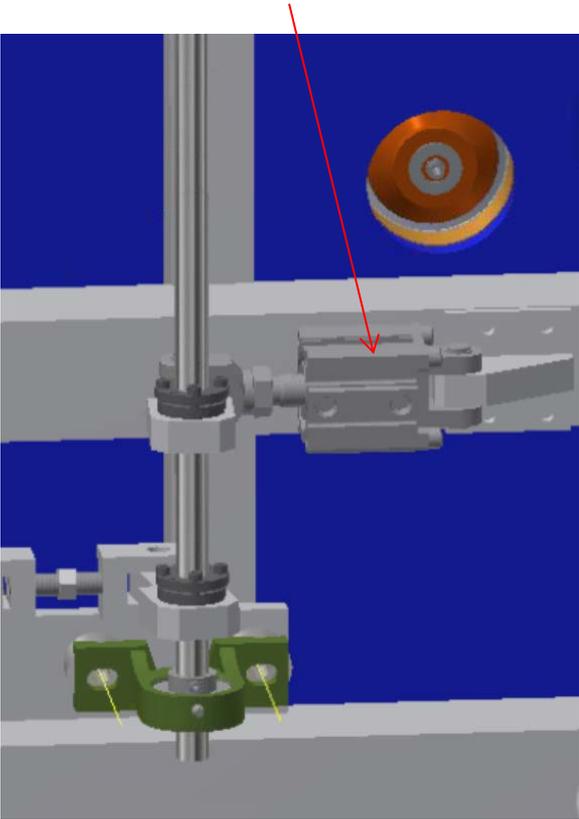


Ball screw drive pulley

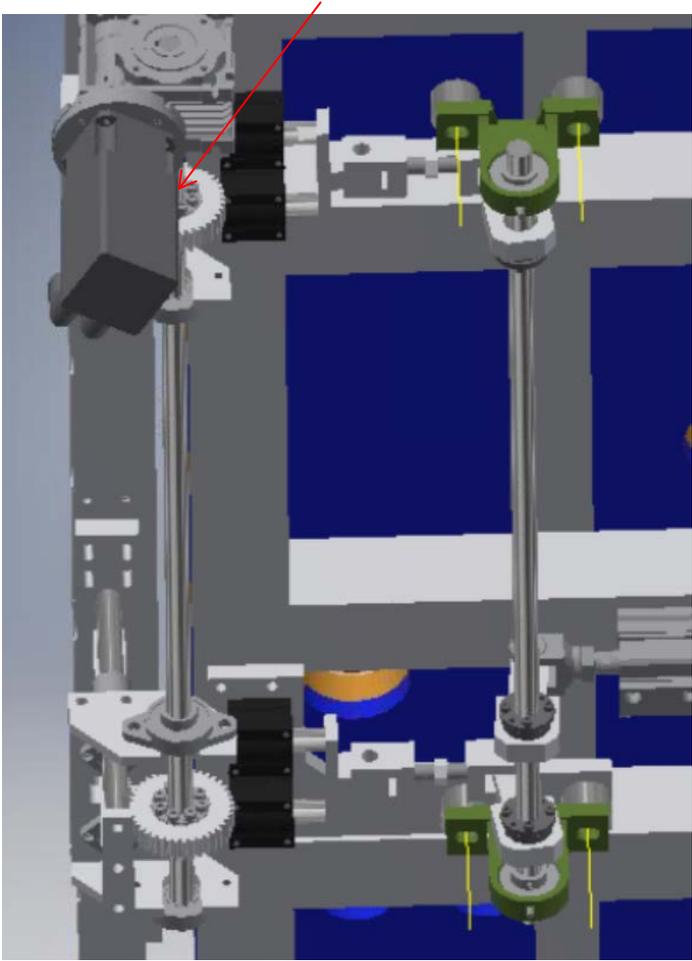


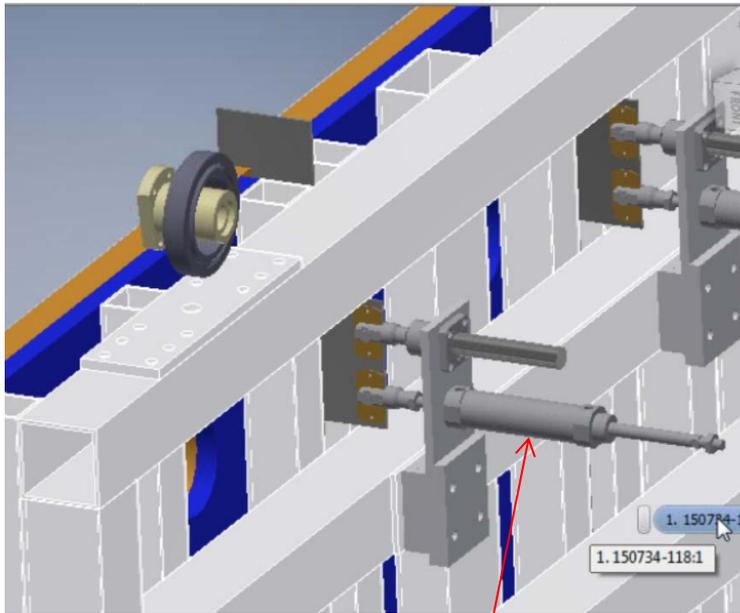
Section view of Ball nut and housing

Argon nozzle extend and retract actuator

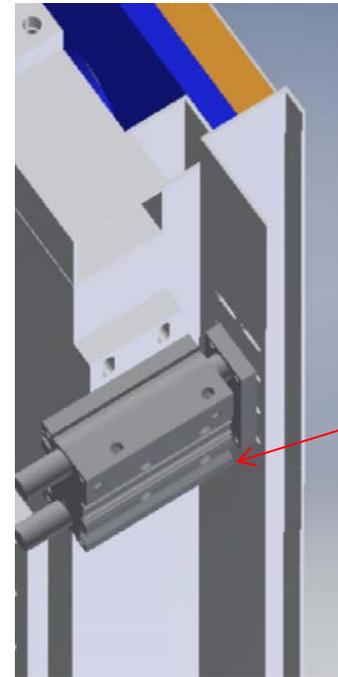


Argon nozzle positioning drive assy



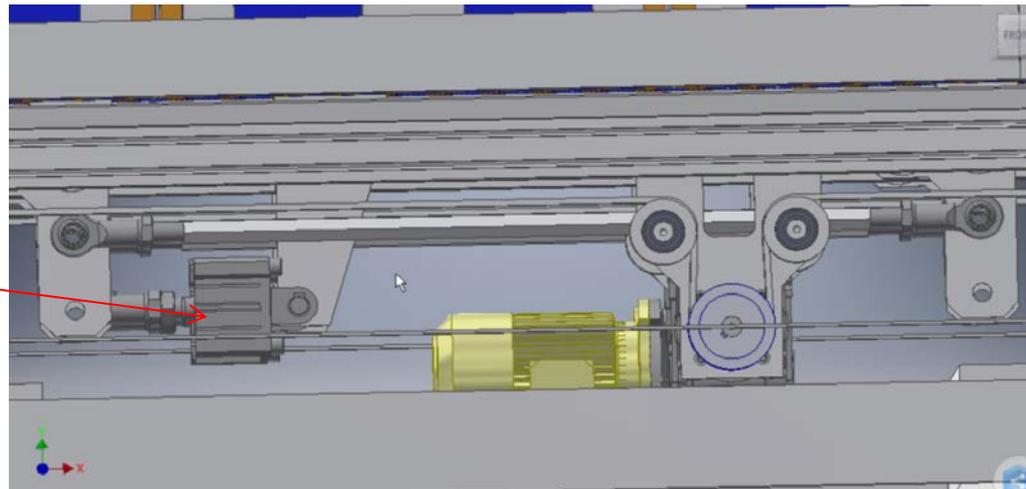


Partition Actuator

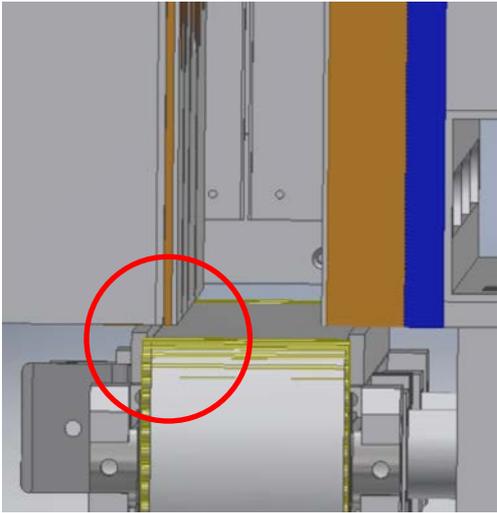
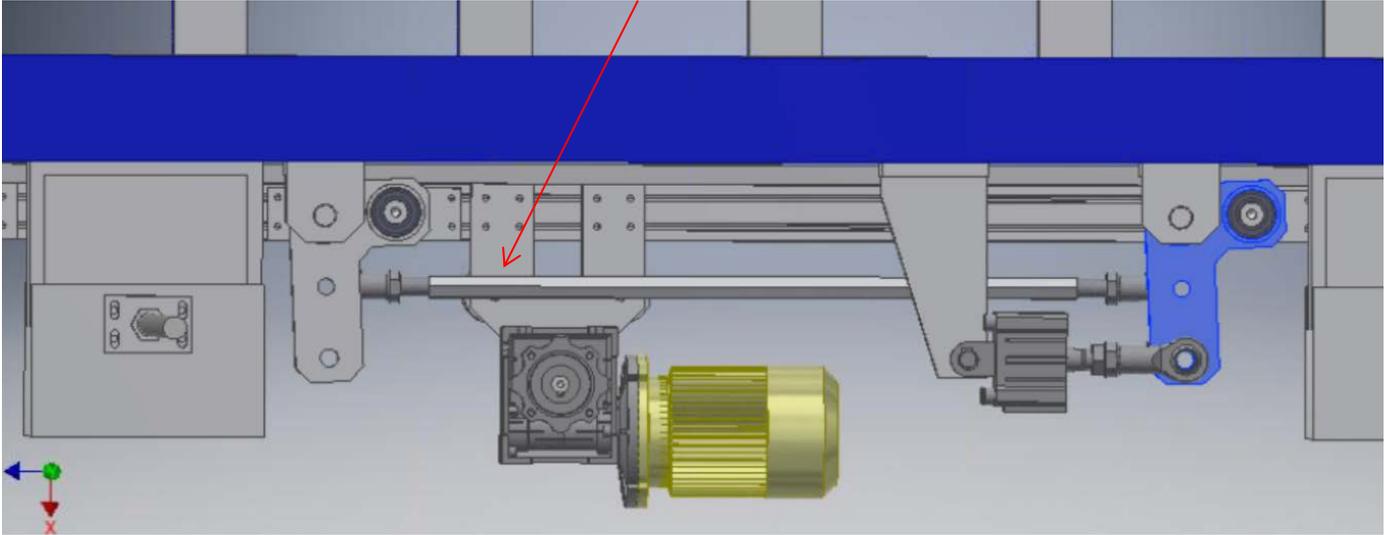


End partition thruster

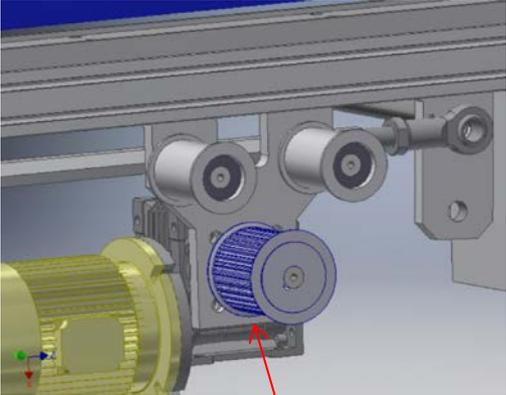
Raise lower Actuator



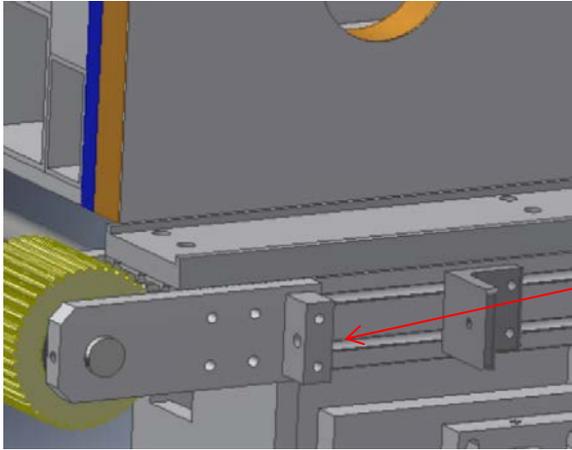
Conveyor raise/lower linkage



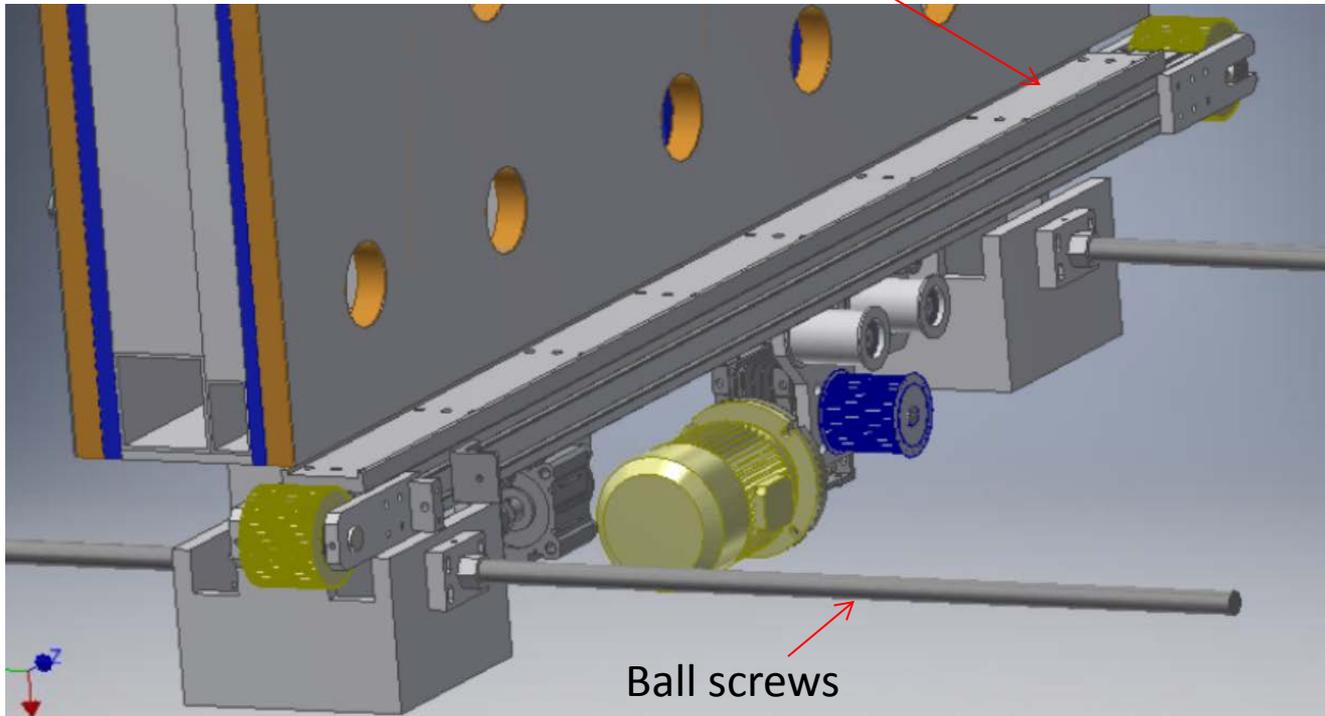
Conveyor raised sealing against platen



Conveyor drive

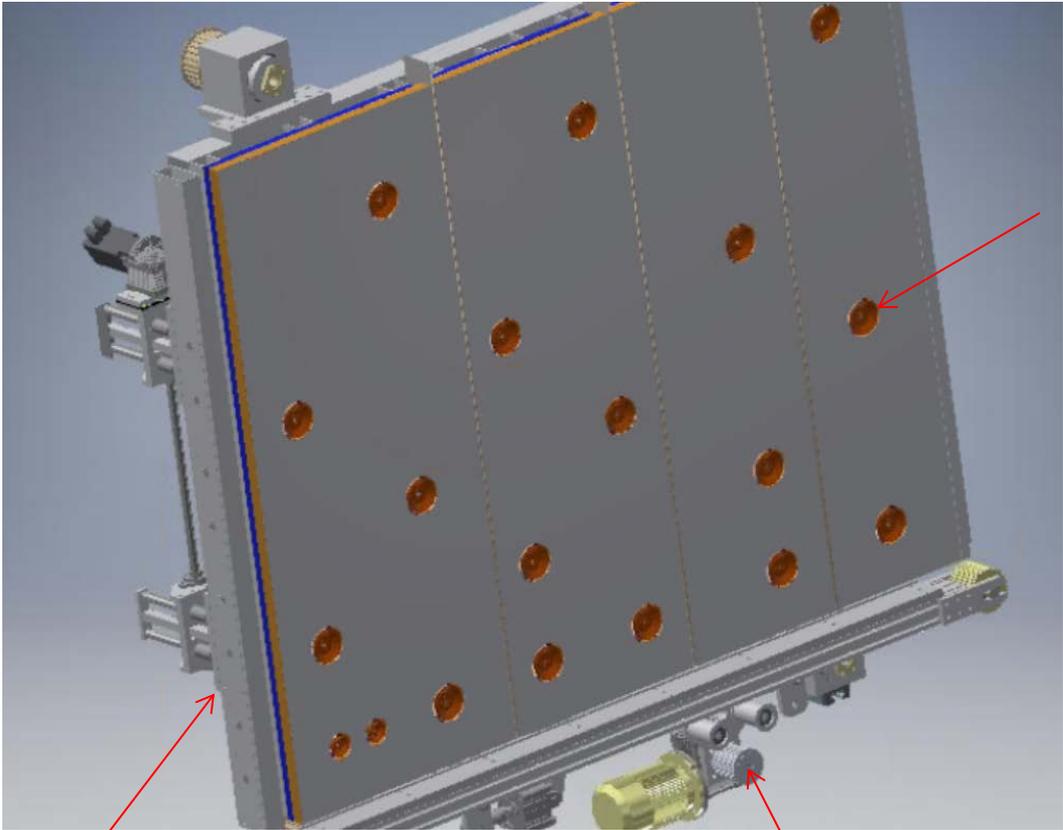


Conveyor Belt tensioner



Belt guide

Ball screws



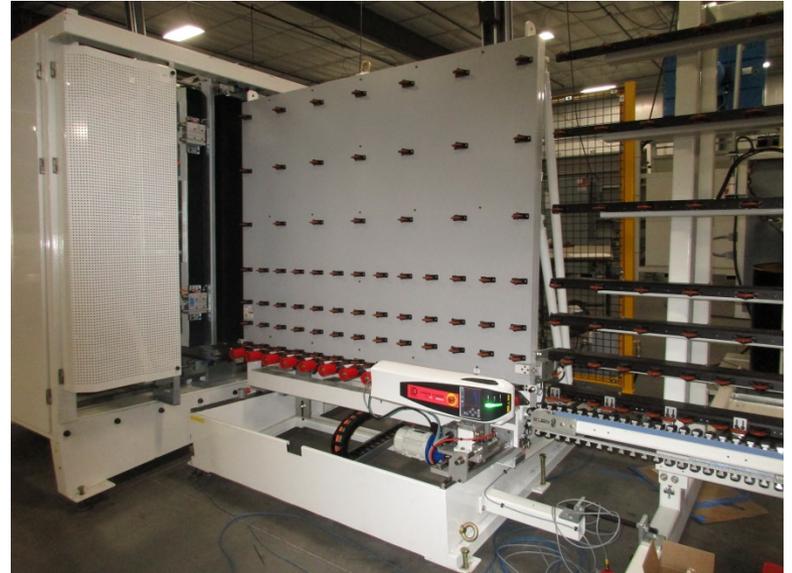
Front platen suction cups

Argon nozzle assy

Belt drive assy

Second shuttle

Drive components
Product detect eyes
Home and over travel



(Optional laser etcher shown)

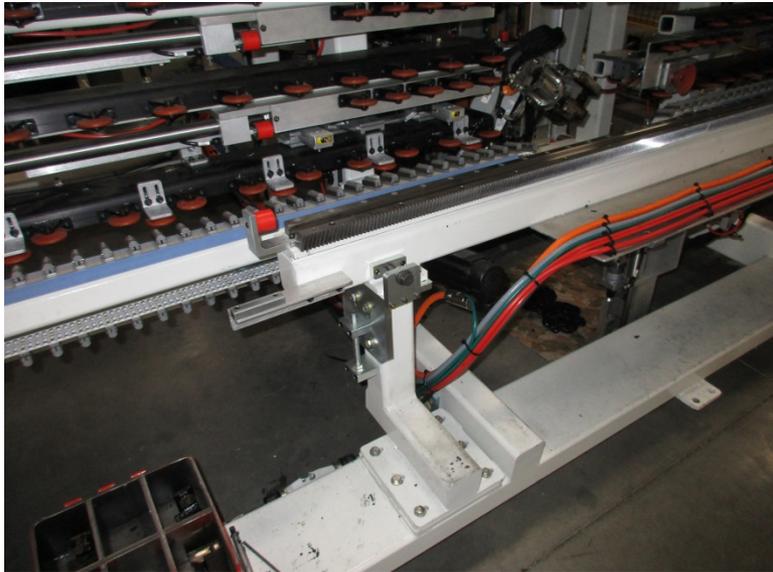


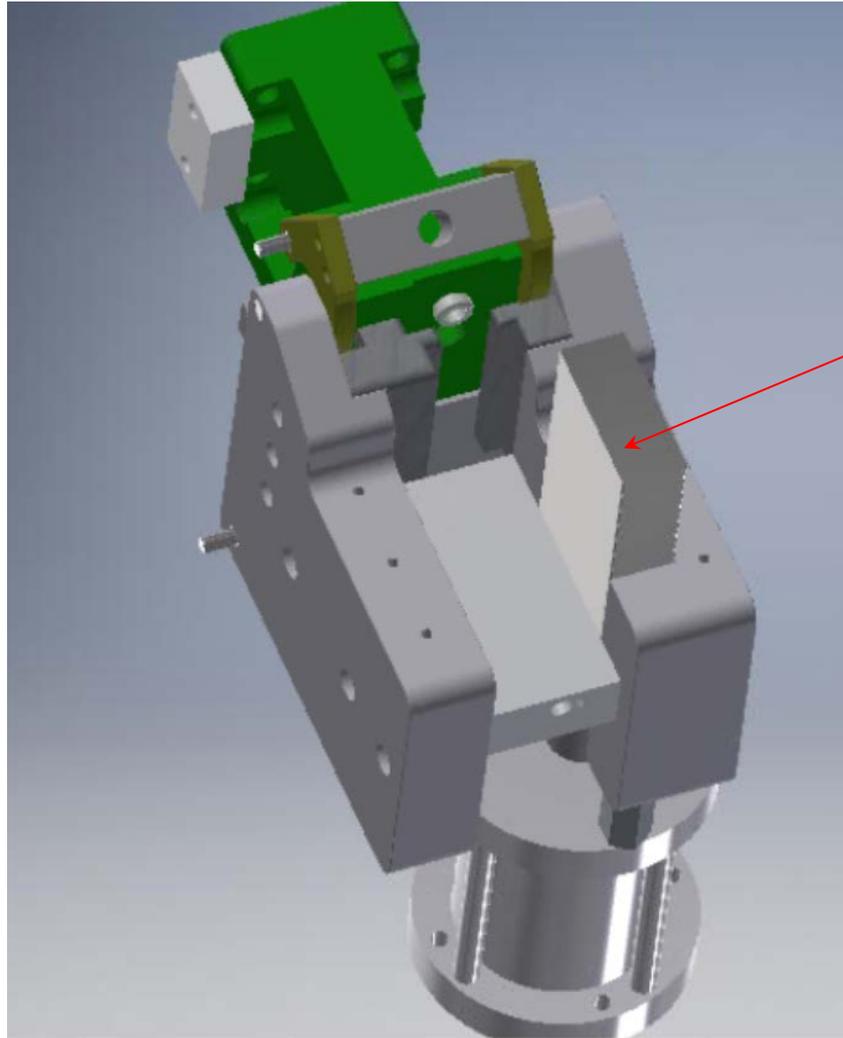
IG Secondary Sealer

Product detect eyes

Vacuum trolley H/OT

Sealer head operation

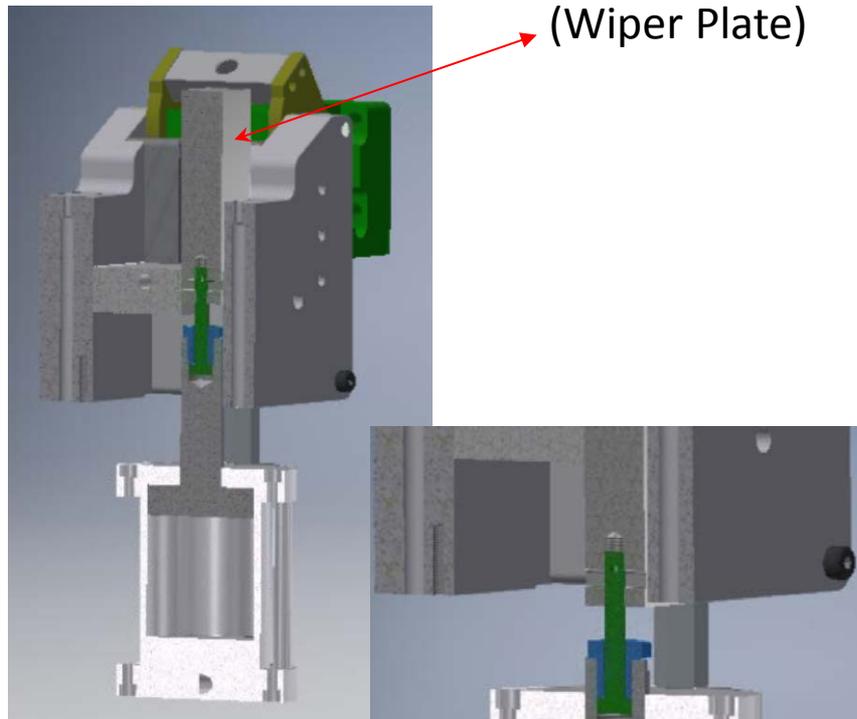




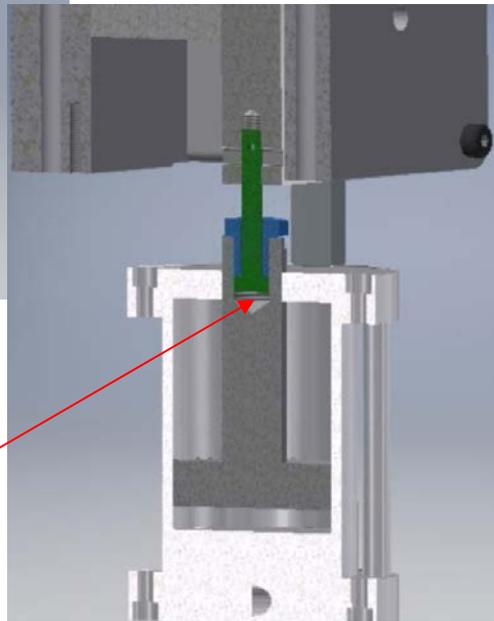
(View of Extended
Bottom Wiper)

View of Bottom Wiper
Assembly

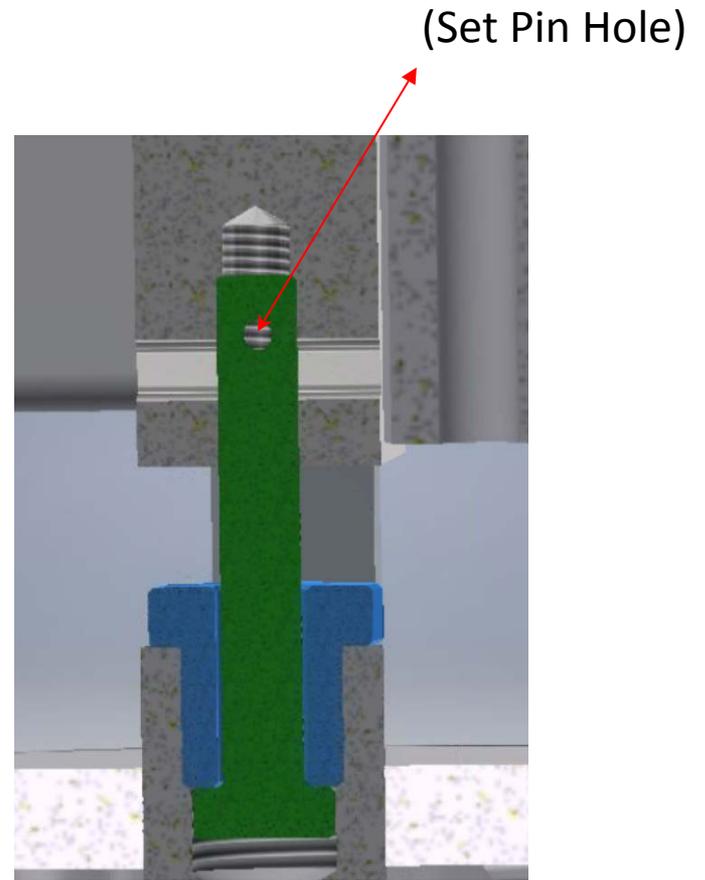
Section View of Bottom Wiper Assembly (Shown Extended)



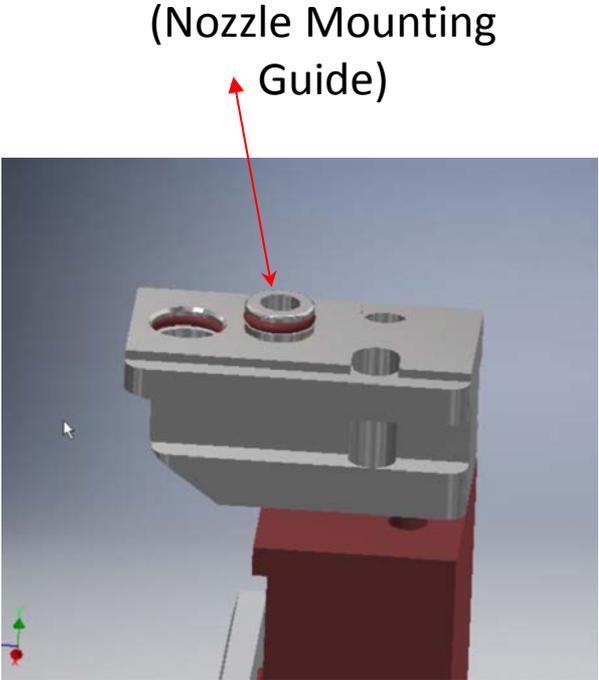
(Designed Alignment Coupler)



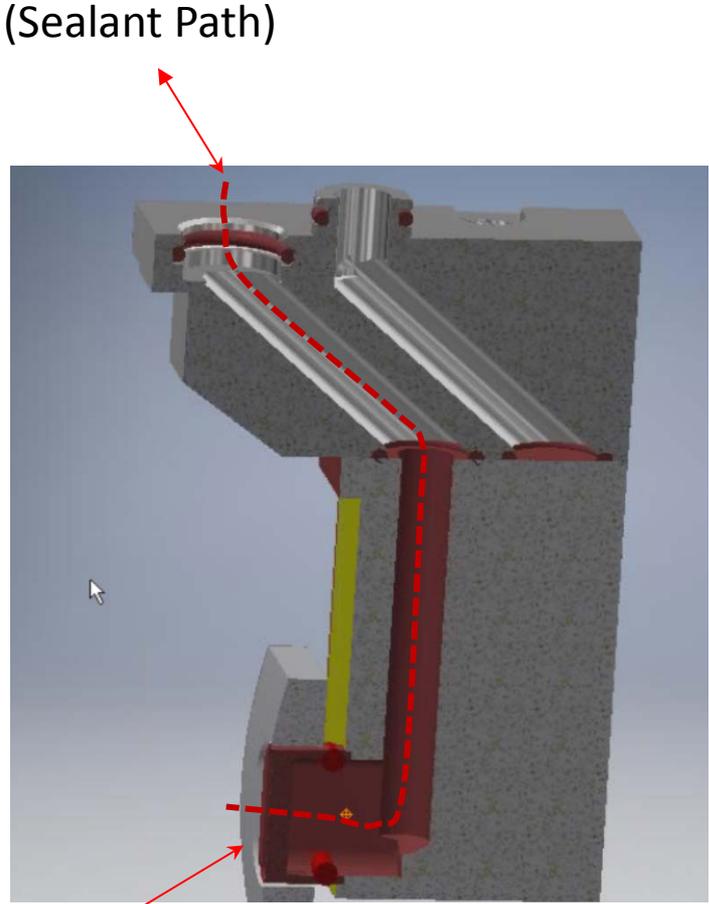
Section View of Bottom Wiper Assembly Air Cylinder (Shown in Retract Position)



Section View of Bottom Wiper Assembly (Showing Attachment Coupler)



Top View of Nozzle Assembly



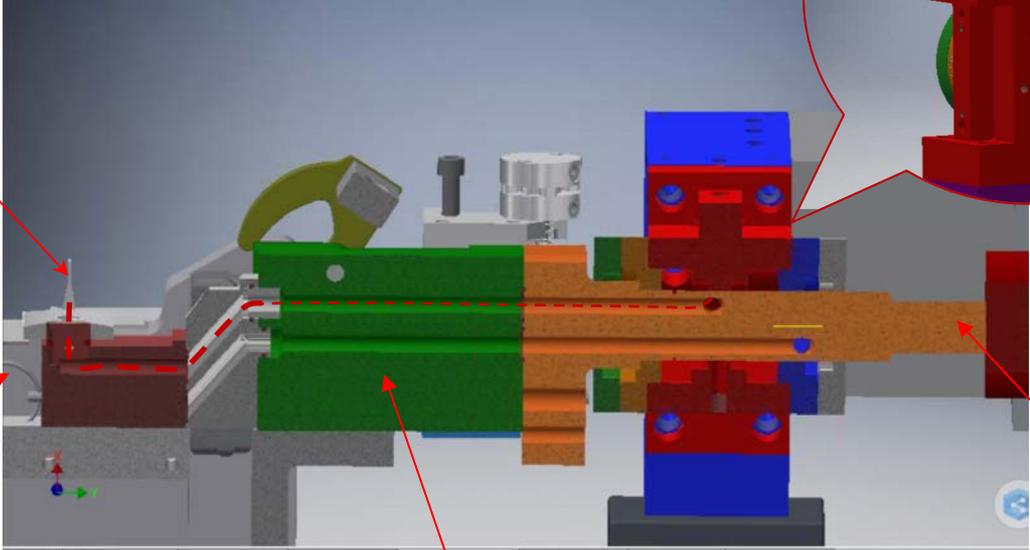
Section View of Nozzle Assembly

Section View of Lower Sealant Head (Sealant Path)

(Sealant Path)

(Nozzle Assy)

(Nozzle Adpater)



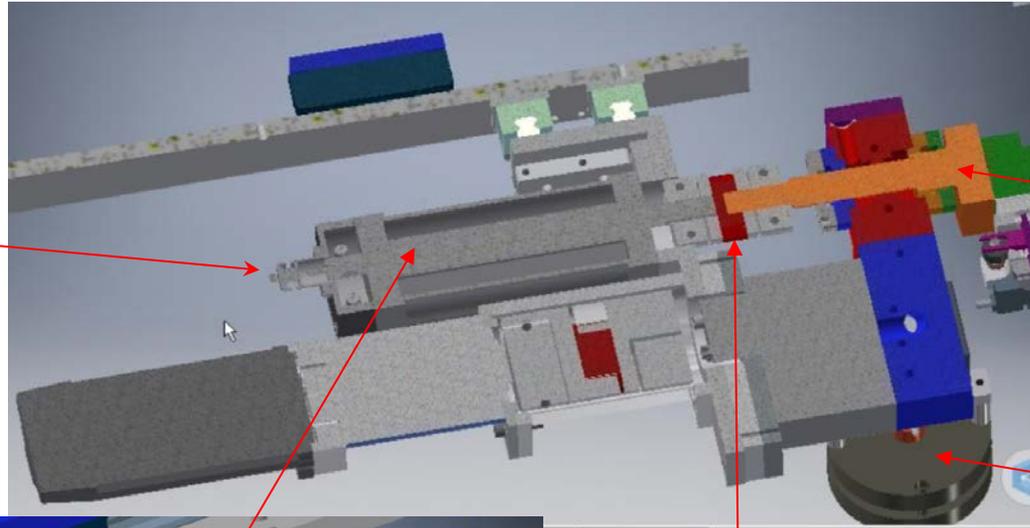
(Metering Gear Pump)

(Indexer Housing "H-Block")

(Index Shaft)

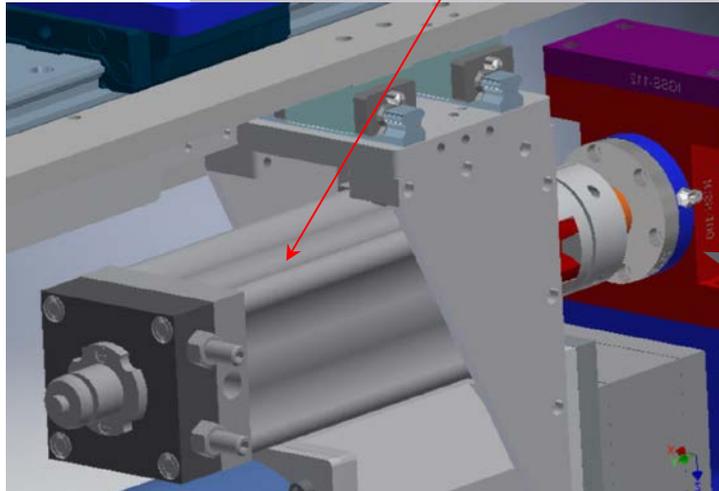
Section View of Lower Sealant Head (Rotate Actuator)

(Rotate Actuator)



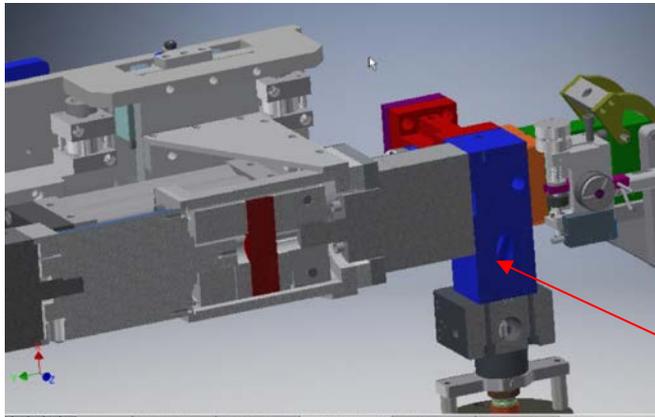
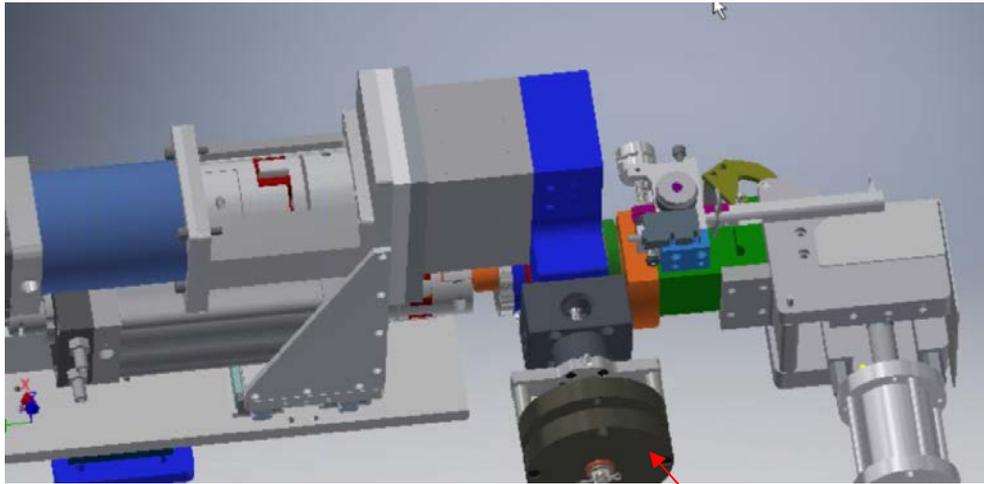
(Index Shaft)

(High Flow Sealant Valve)



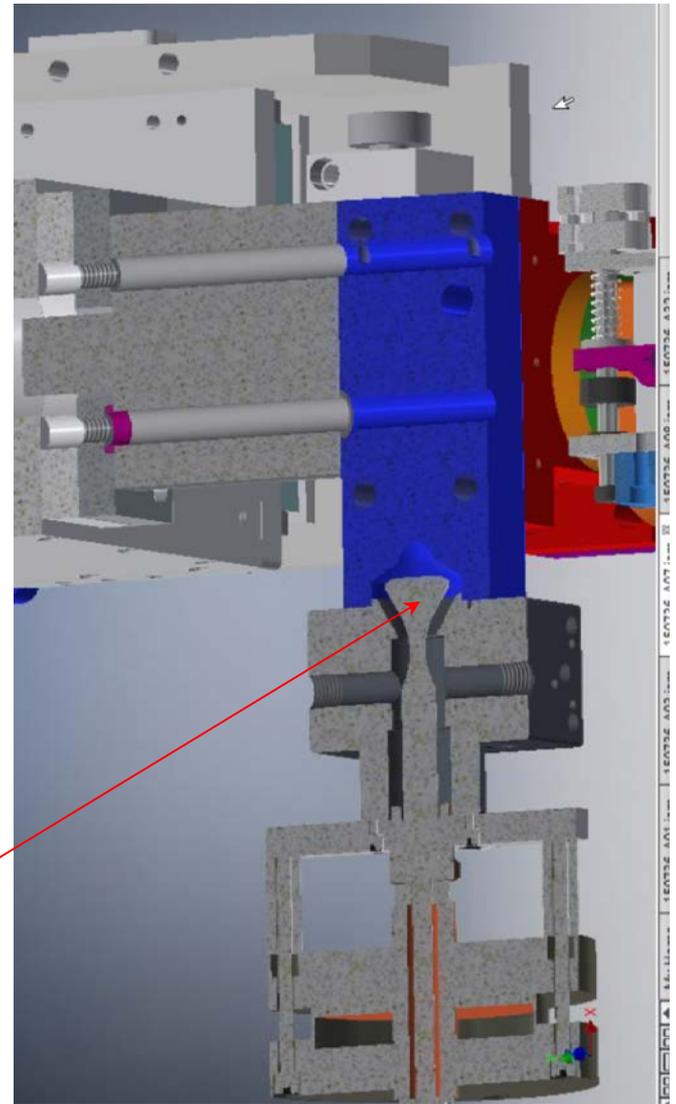
(Rotating Actuator Coupler)

Exposed View of Lower Sealant Metering Assy

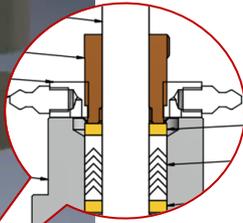
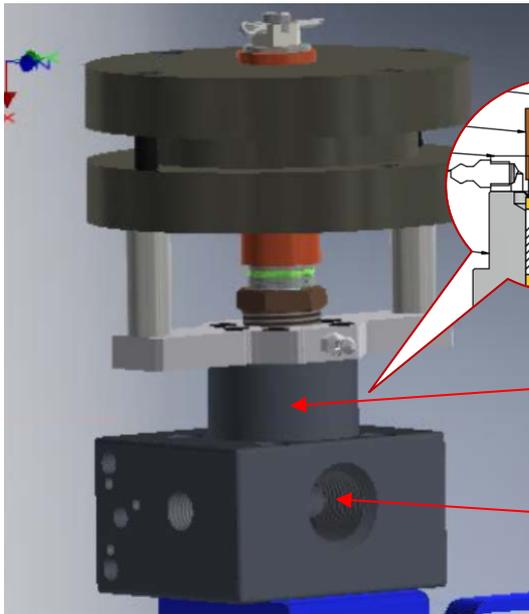


(High Flow Sealant Valve)

(Metering Pump Adapter)

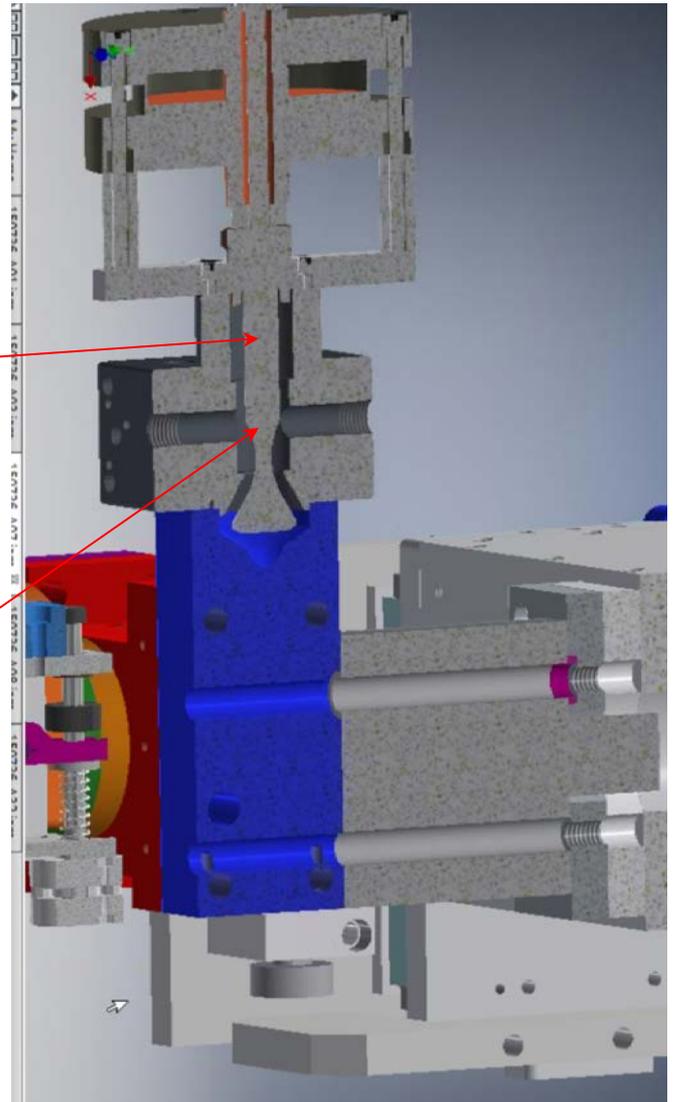
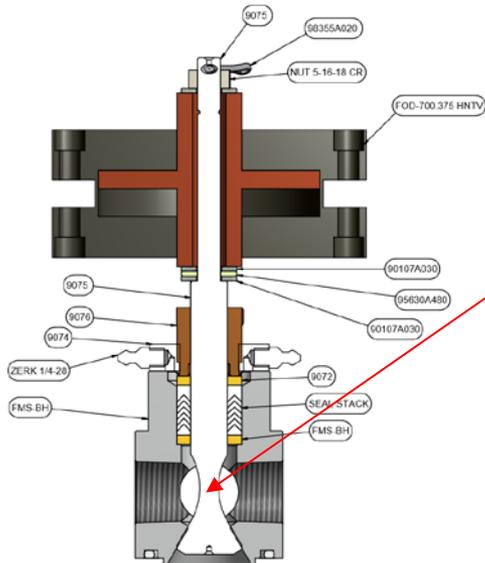


High Flow Sealant Valve



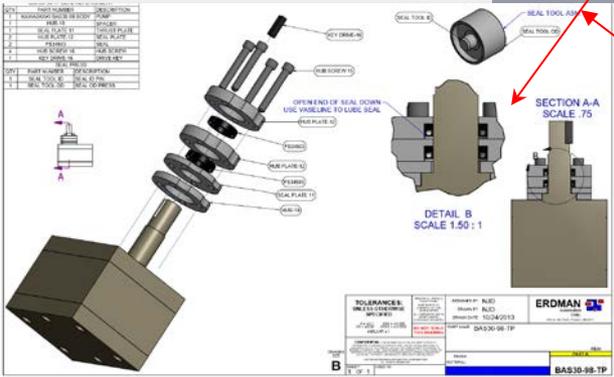
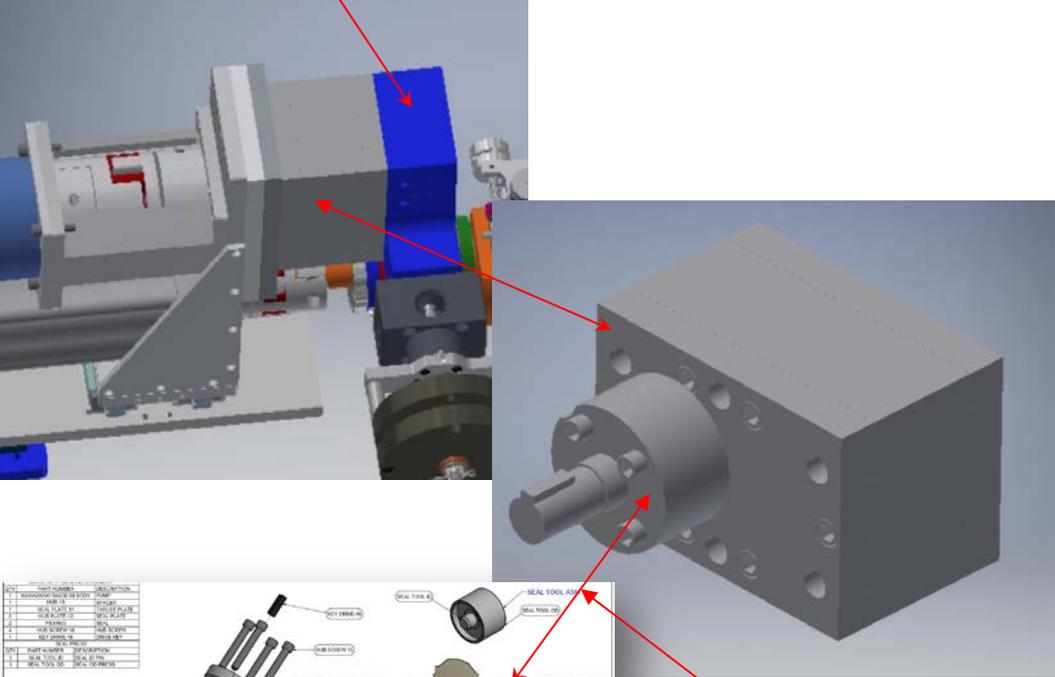
Valve Packing Assy

Sealant Hose Attachment point from Mastic Regulator



Kawasaki Sealant Metering Pump (K Series)

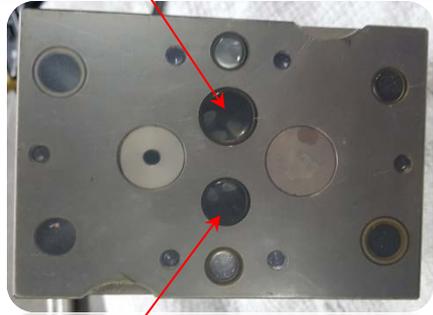
(Pump Adapter)



(High Pressure Lip Seals)

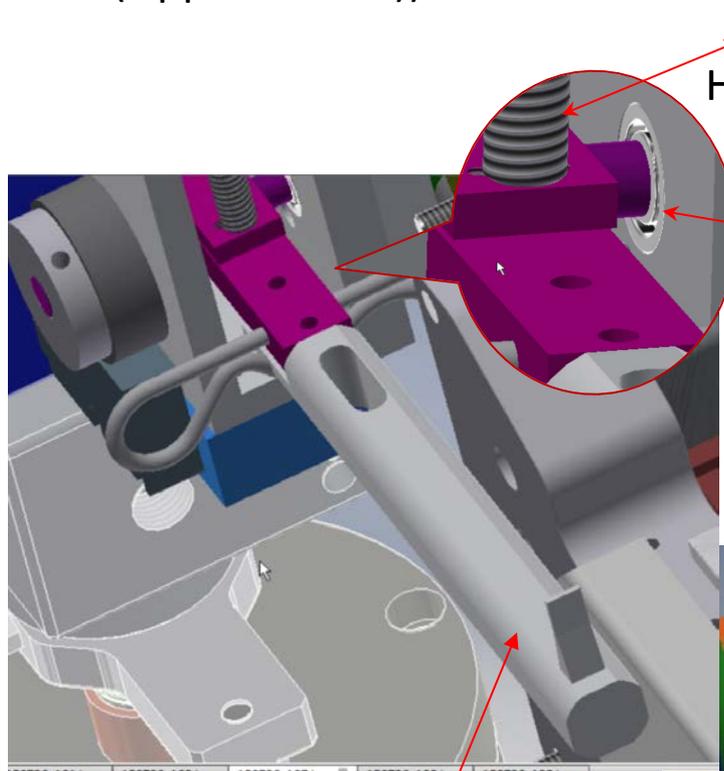


(Inlet)



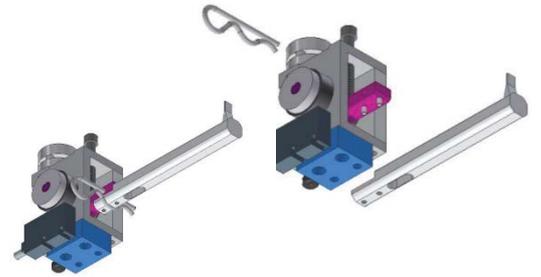
(Outlet)

Depth Probe Assembly (Lower Shown (Upper Similar))



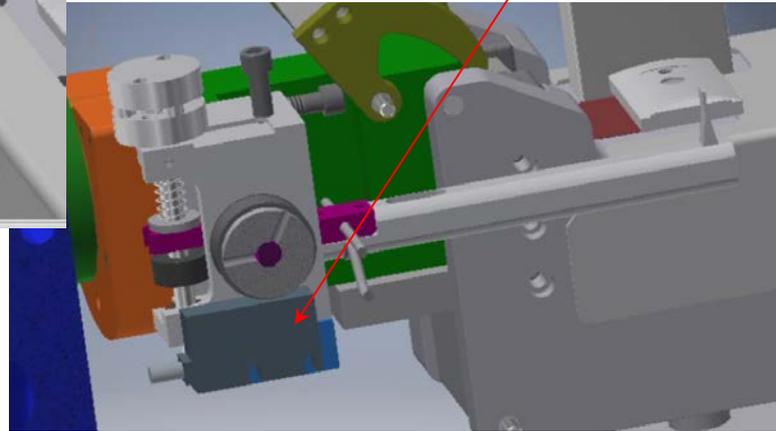
Depth Probe Home Position Bolt

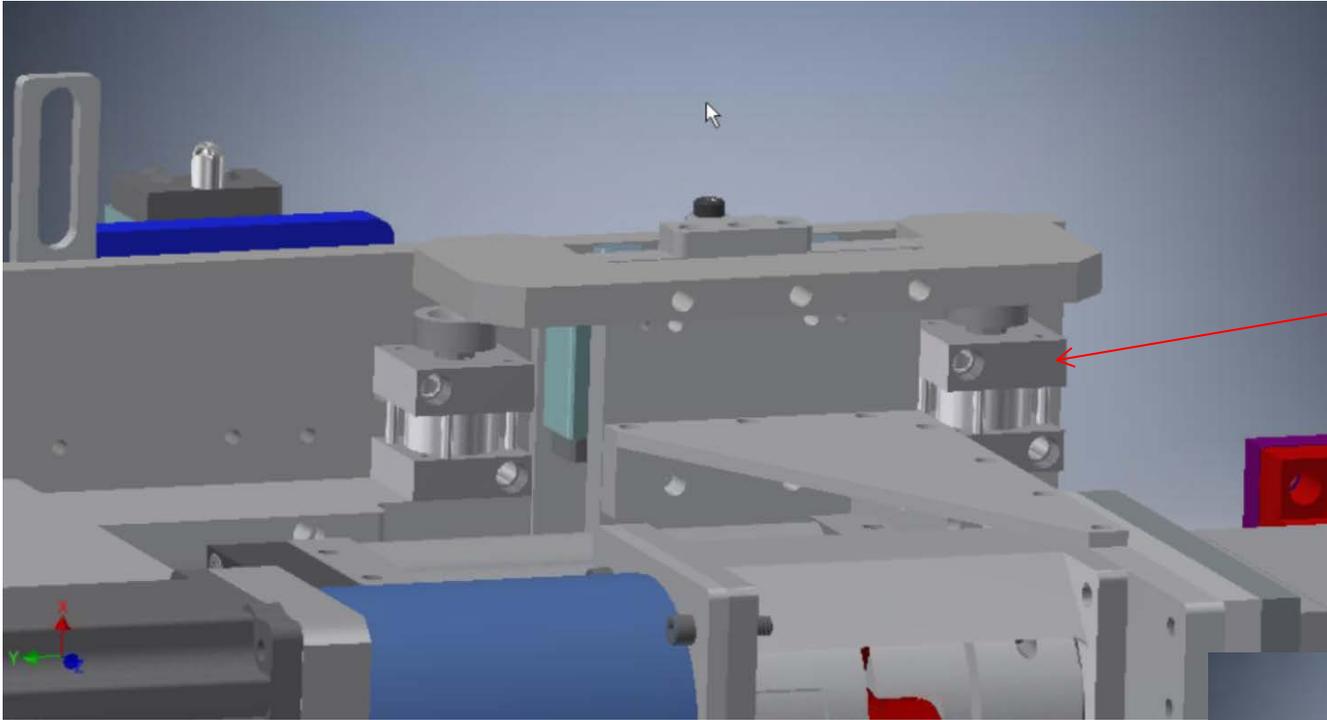
Depth Probe Rotational Bearings



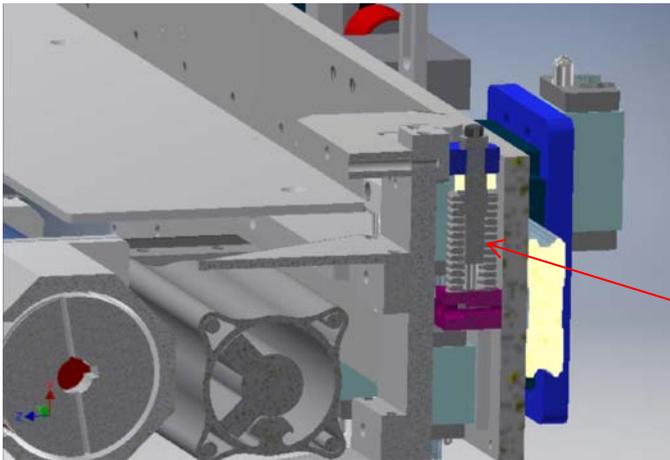
Depth Probe Encoder for Position Monitoring

Depth Probe (Replaceable Probe Tip)

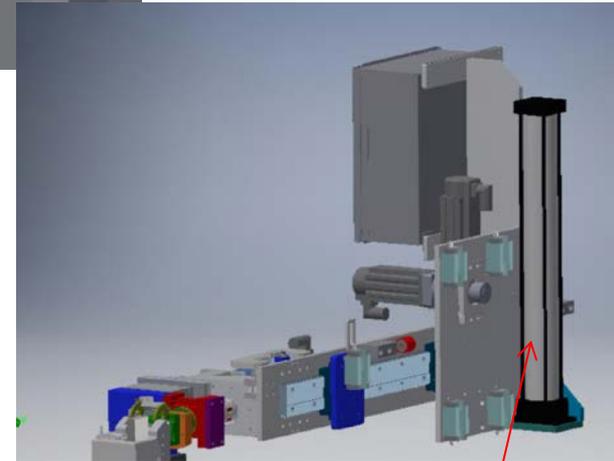




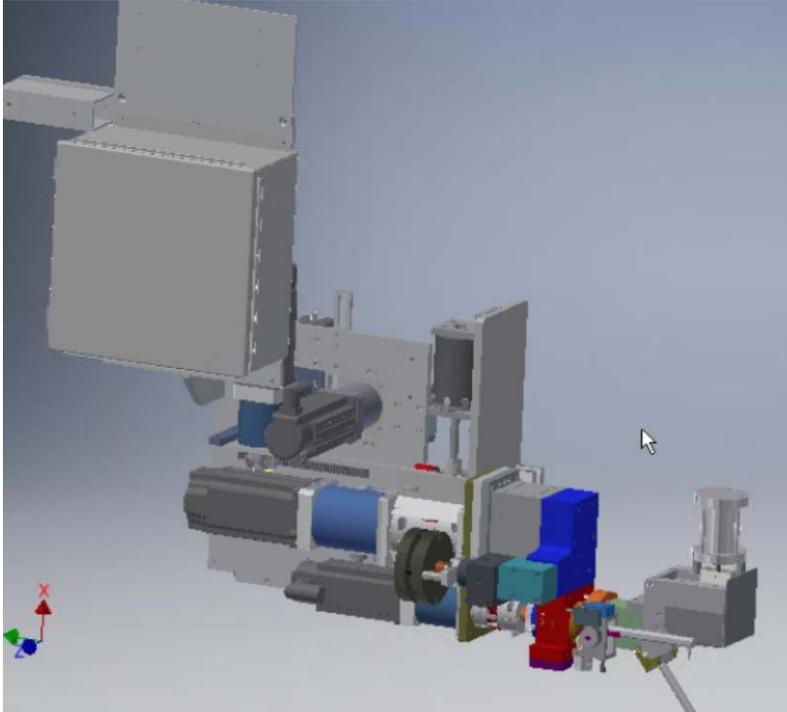
Locking cylinders
lower head y axis



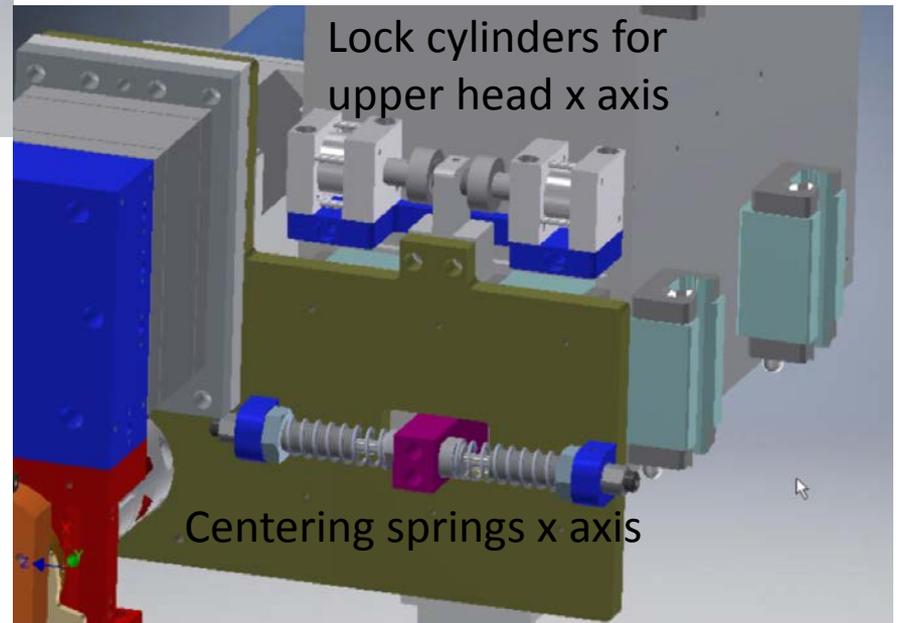
Support spring
lower head y axis



Counter balance
cylinder for lower
head

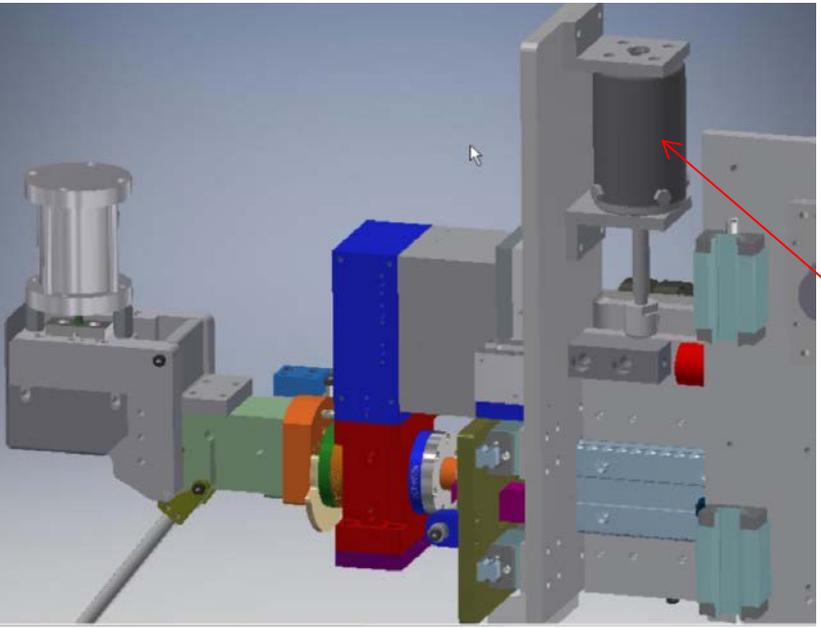


Upper floating
head assembly

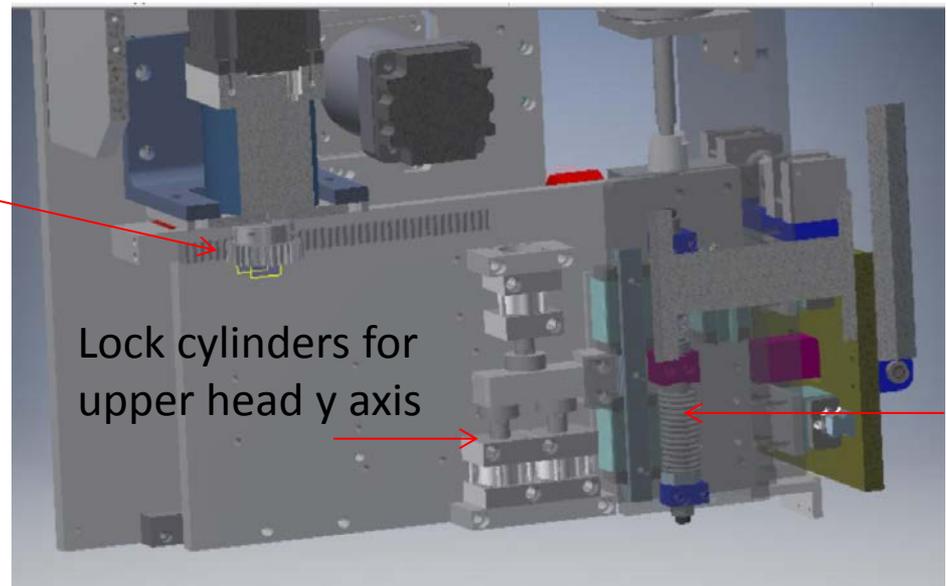
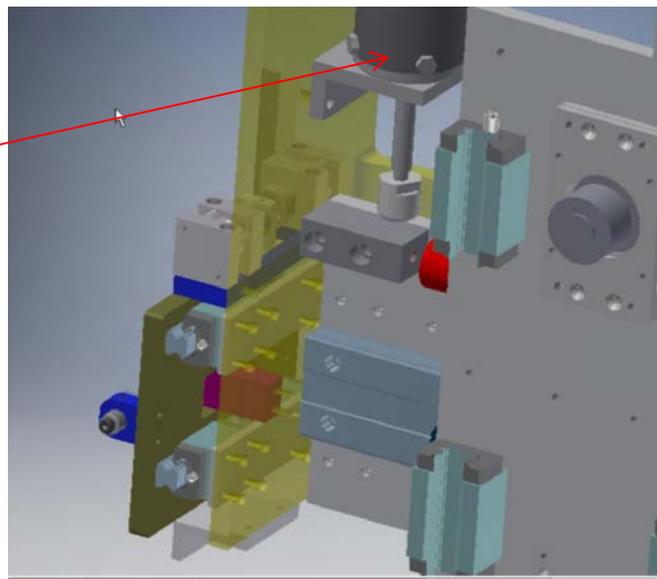


Lock cylinders for
upper head x axis

Centering springs x axis



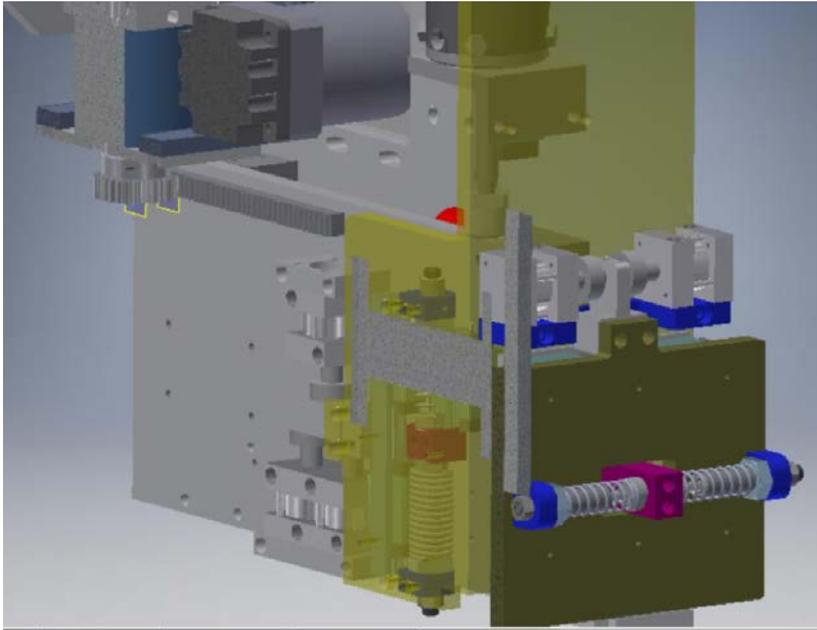
Upper head diaphragm cylinder for floating y axis



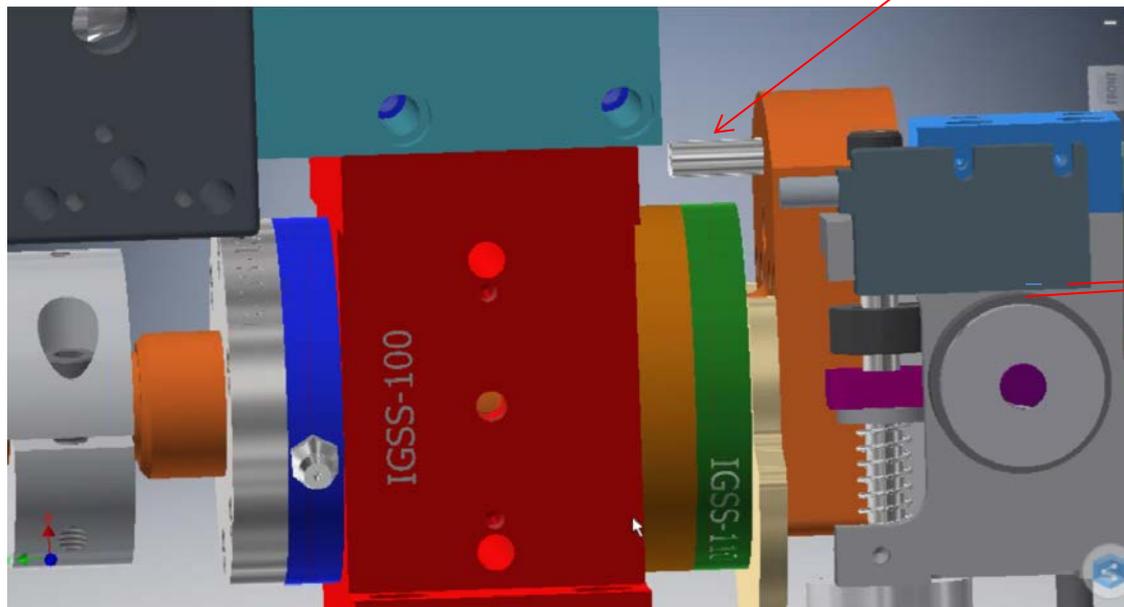
Z axis drive

Lock cylinders for upper head y axis

Upper head support spring y axis

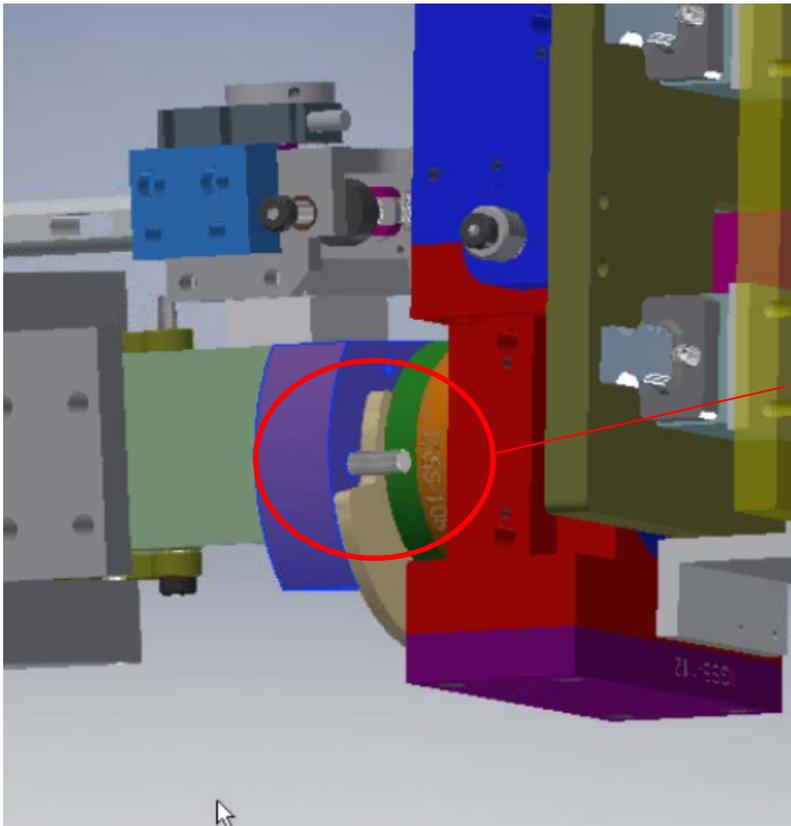


Cross view showing upper floating head springs

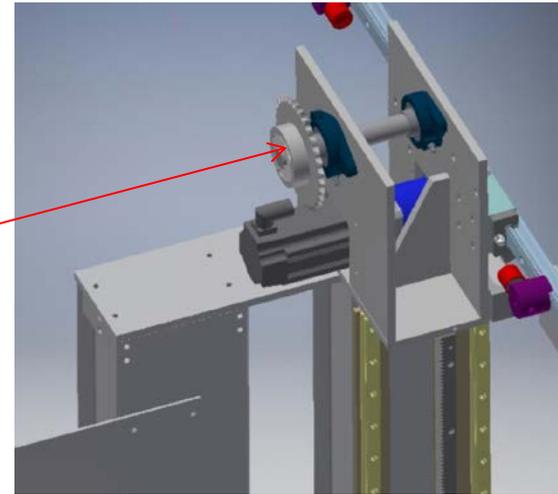


Index home pin

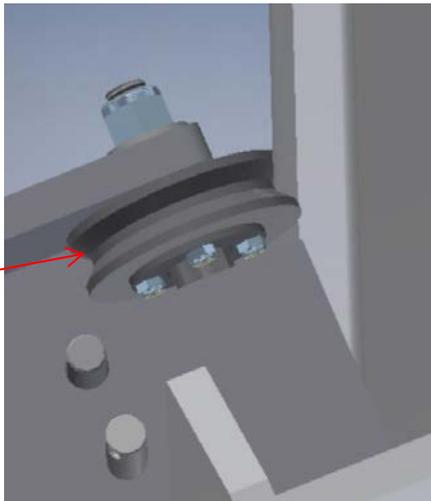
.015 gap between encoder and wheel



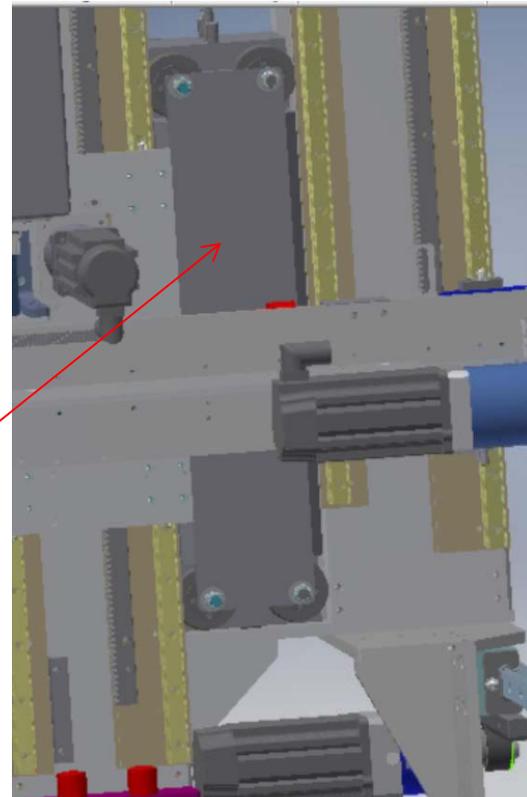
Index home position



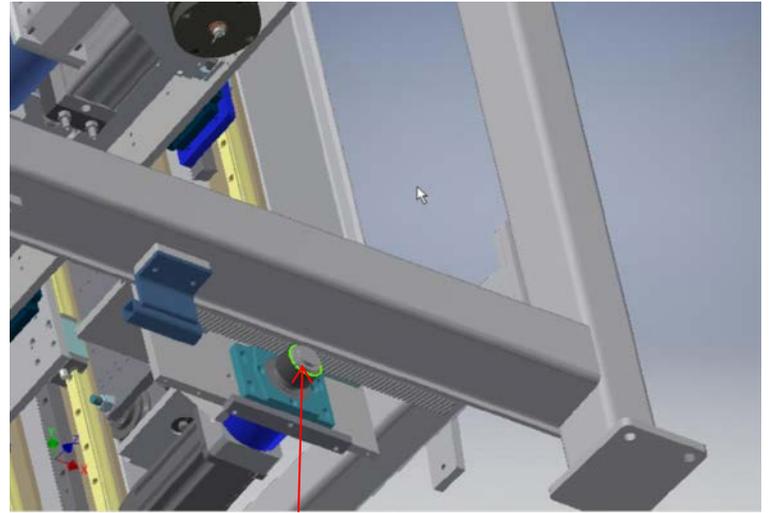
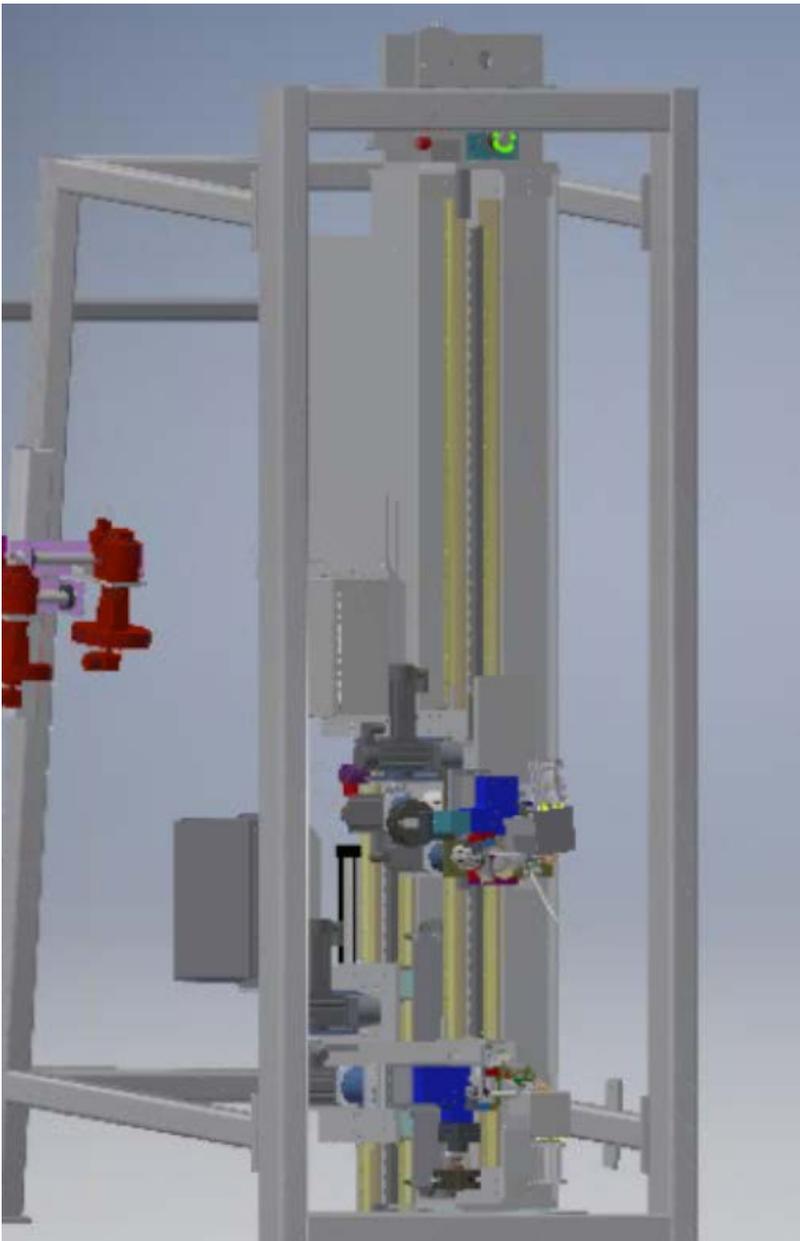
Counter weight sprocket



Counter weight guide rollers



Counter weight assembly

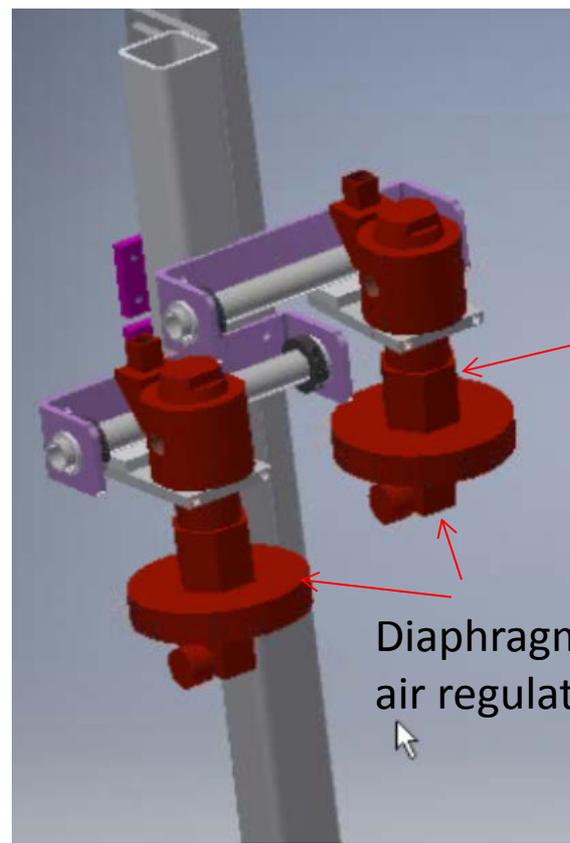
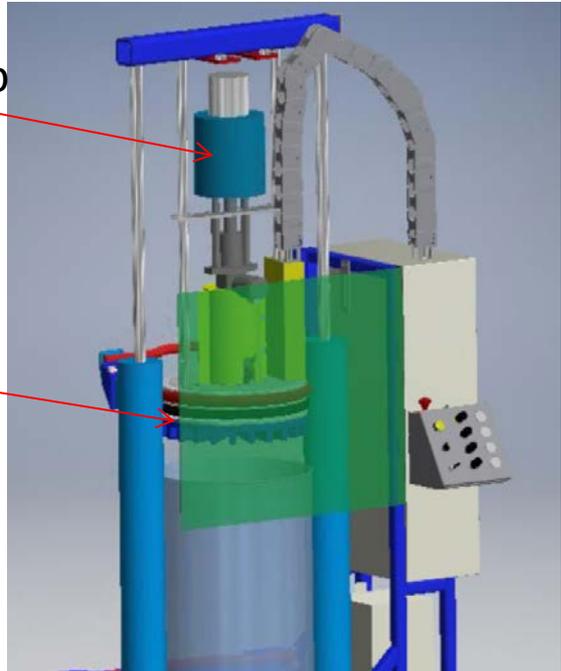


Lower x axis drive

Sealer gantry with upper
and lower head

Unloader pump motor

Heated finned platen



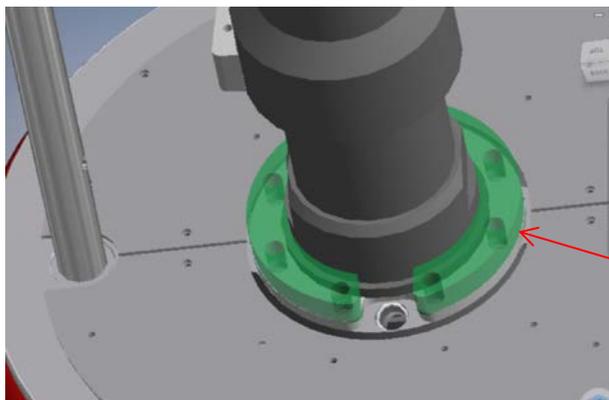
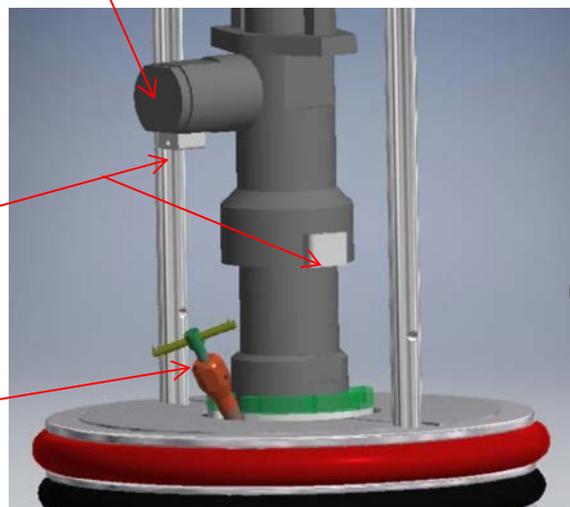
Mastic regulators

Diaphragm and air regulator

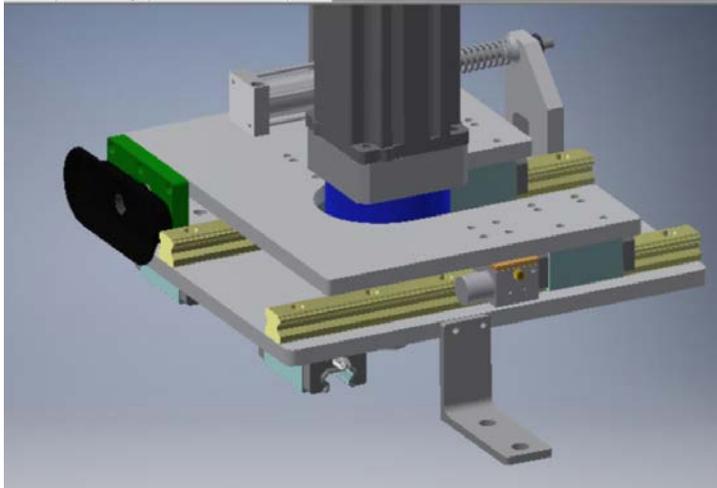
Check valve

Rtd housings

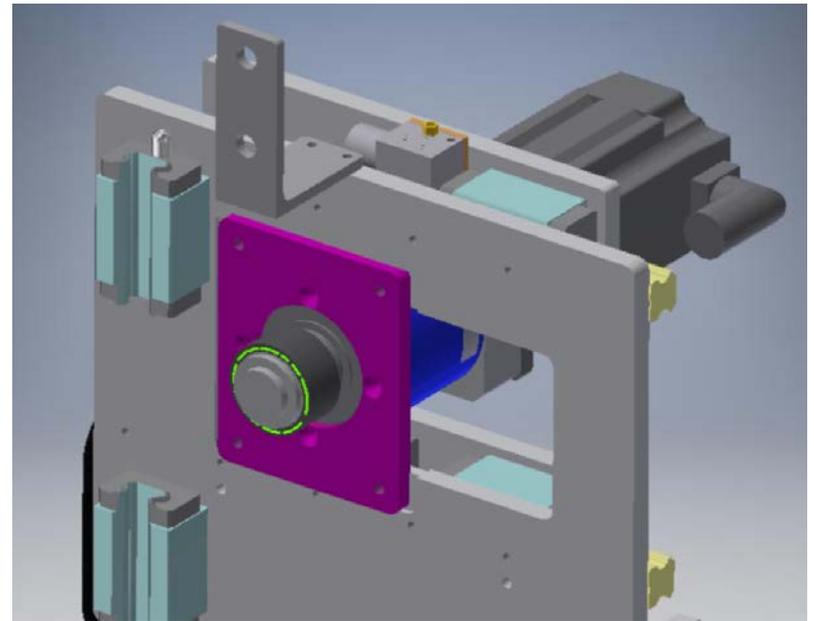
Aeration valve



Pump retainer ring

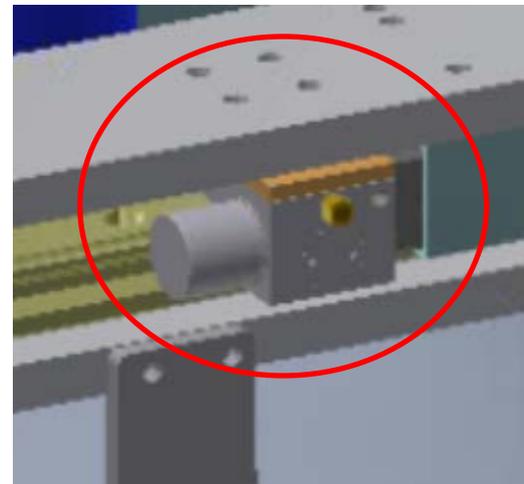
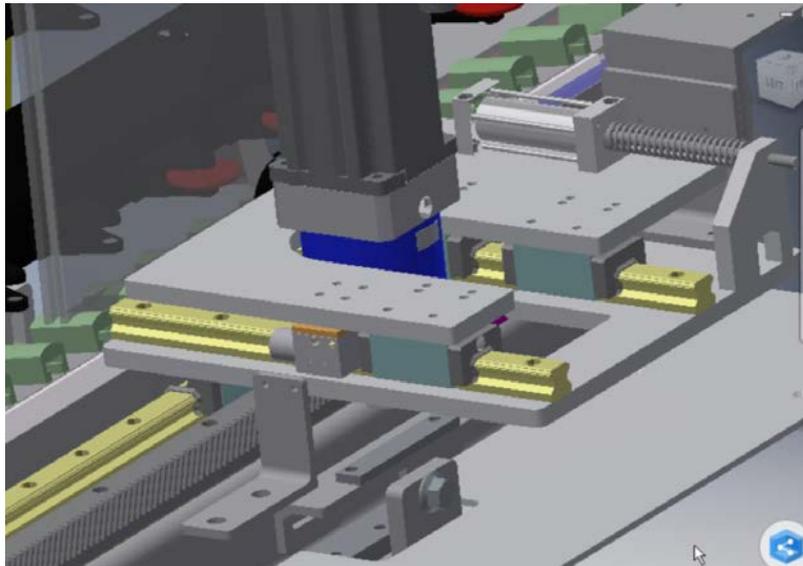


Isolated view of Vacuum trolley

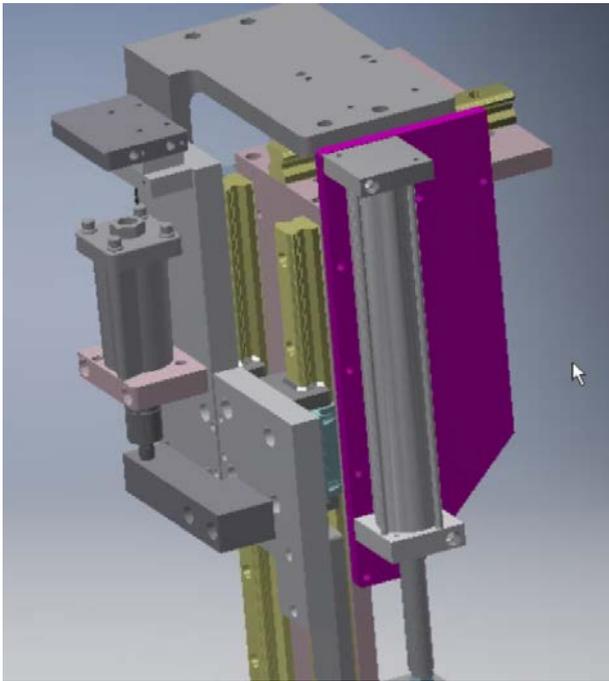


Bottom view of trolley showing pinion gear and bearings

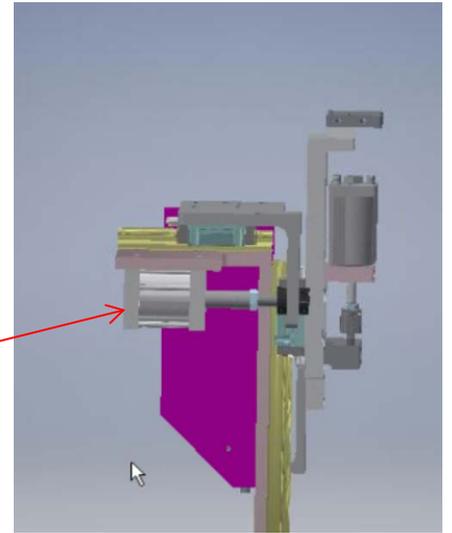
Vacuum trolley main view



Rail brake for vacuum cup pick up plate (Zimmer brake)

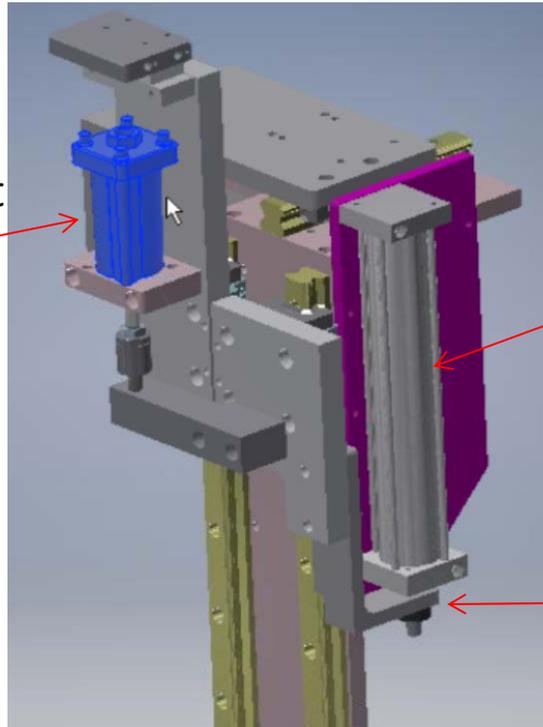


Exposed view of lower fixed wiper

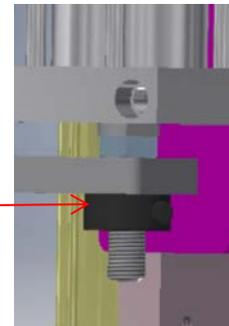


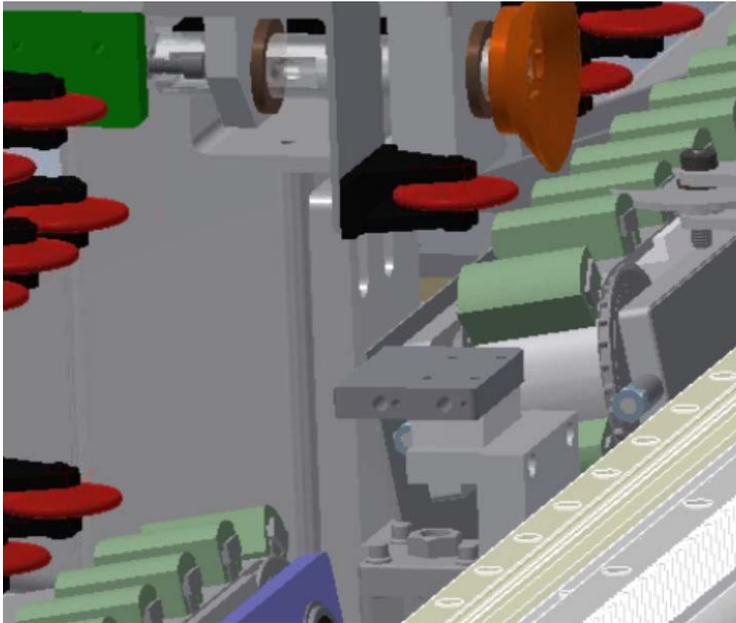
Lower fixed wiper in/out shift cylinder

Lower fixed wiper Float cylinder

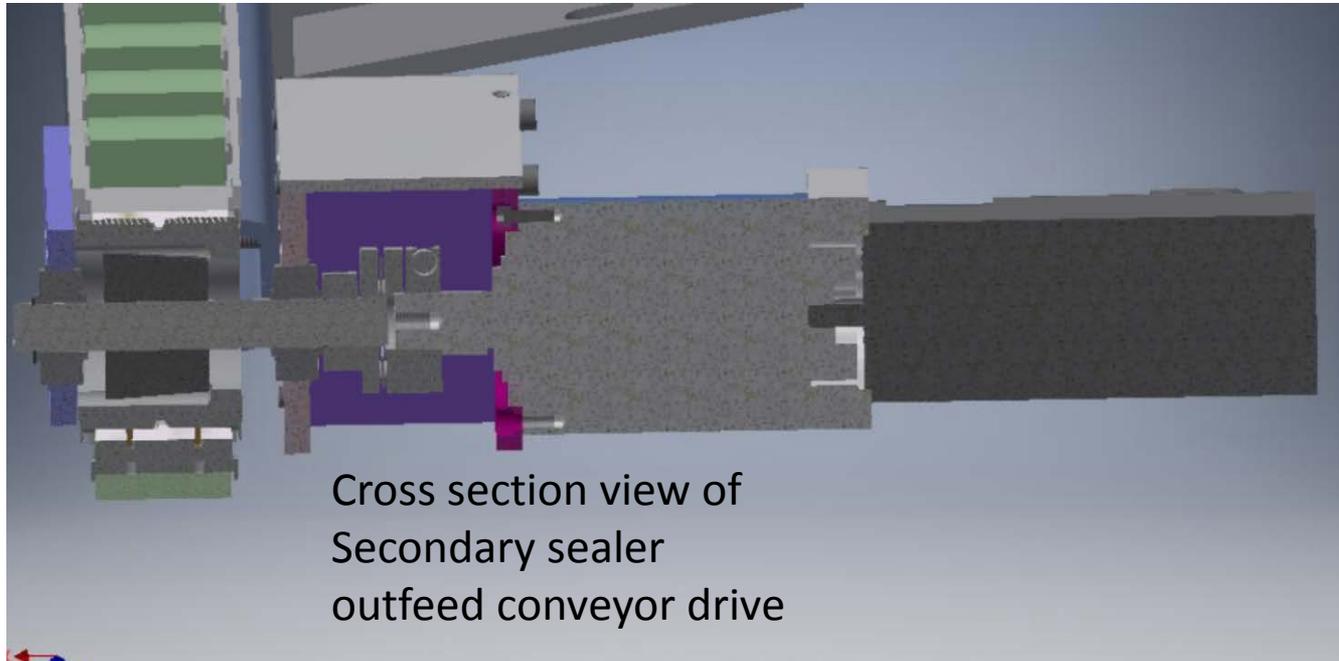


Lower fixed wiper raise / lower cylinder

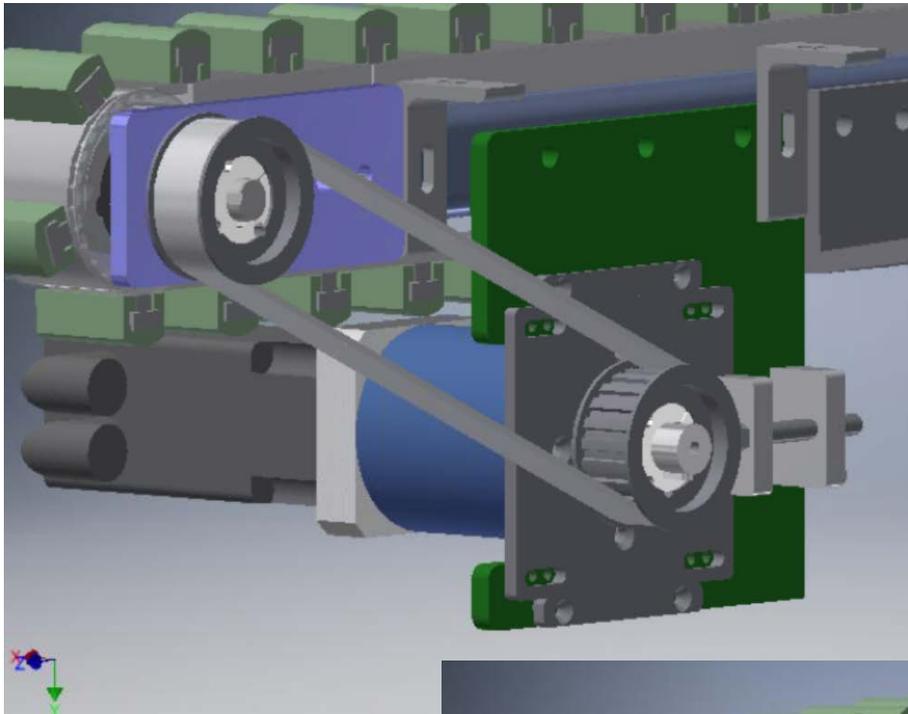




Fixed wipers shown in position

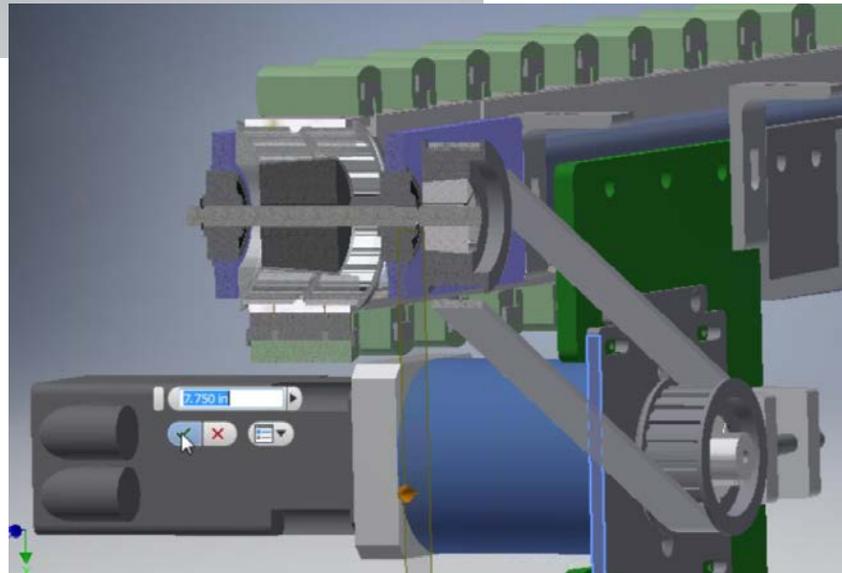


Cross section view of
Secondary sealer
outfeed conveyor drive

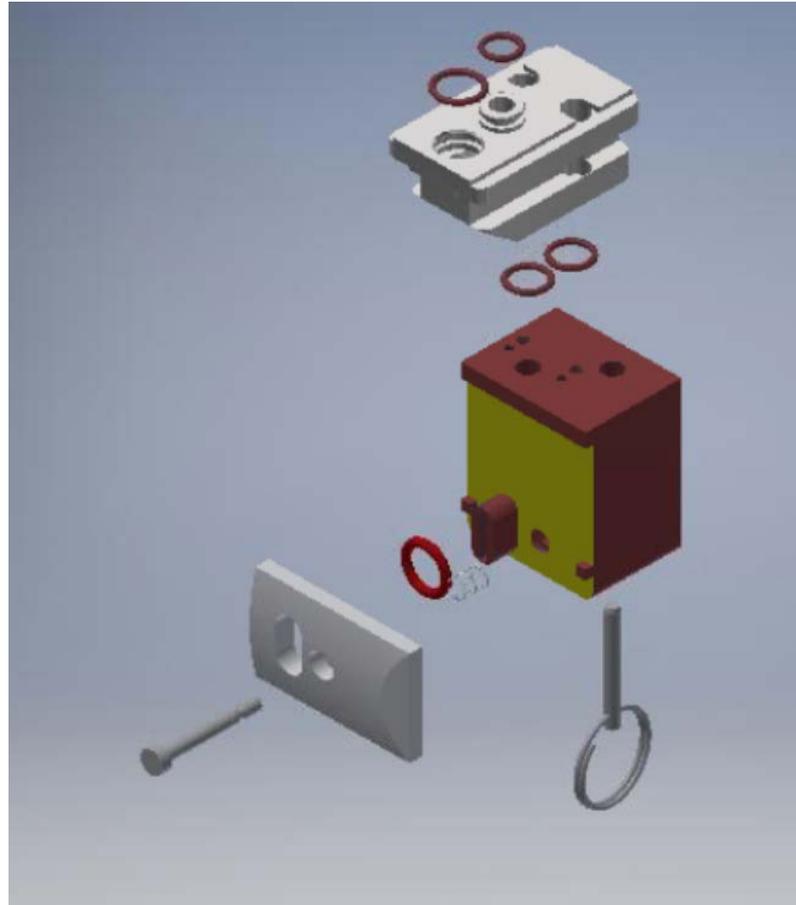


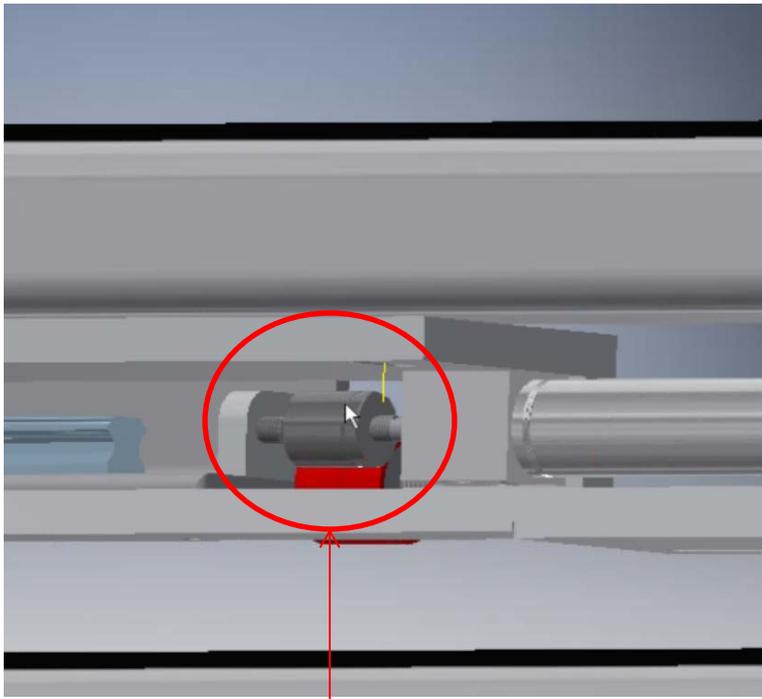
Secondary sealer infeed conveyor drive

Cross section of Secondary sealer infeed conveyor drive bearings and pulleys

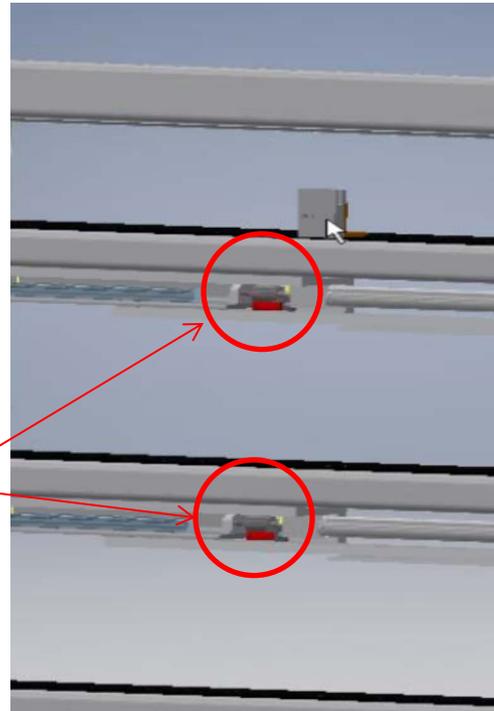


Exploder view of
sealing nozzle
assembly





Alignment couplers
for pop out supports
on secondary sealer



Out feed Inspection station

Conveyor drive

Product detect eyes

