

QUADREL

LABELING SYSTEMS

Operating & Maintenance
Manual
For

**LILY OF THE DESERT
NUTRACEUTICALS**

PROLINE FRONT/BACK

Automatic Labeling System

Labeler Model #: Q125 SERVO
Serial #: 84211-100

QUADREL LABELING SYSTEMS
7670 Jenther Drive
Mentor, Ohio 44060
440.602.4700

customerservice@quadrel.com
parts@quadrel.com

TERMS AND CONDITIONS OF SALE
QUADREL, INC
D/B/A Quadrel Labeling Systems Hereinafter Referred to as Quadrel

PERFORMANCE GUARANTEE:

If the surface of the product to be labeled is free from contamination so as to ensure proper label adhesion, the labels are manufactured in accordance with label specifications provided and the equipment is operated and maintained in accordance with the instructions contained in the Quadrel manual (two copies of the manual will be supplied by Quadrel with the labeling system; one printed copy, and one electronic copy). Quadrel guarantees the EQUIPMENT to perform after installation as stated.

1. Provided a sufficient amount of products are presented to the labeling system.
2. Dimensional inconsistency from one like product to be labeled to the other may result in additional label placement inaccuracy in direct relationship to the product inconsistency.
3. Slitting inconsistency within a given roll of labels or from one like roll to another may result in additional label placement inaccuracy in direct relationship to the slitting inconsistency.
4. If the Quadrel labeling system proposed herein does not include physical control of the product during label application, additional placement inaccuracy can occur in direct relationship to the product control inconsistency.
5. Label Placement Accuracy: Within Sigma 2 (approximately 95.5%) to be normal.

In the event of the failure if the Quadrel system to meet customer's specifications, as quoted by Quadrel or subsequently agreed to by Quadrel. Quadrel upon written notice from buyer shall, at its option, repair the system, or refund the purchase price upon return of the system. The warranty provided in this article and the obligations and liabilities of Quadrel thereunder are exclusive and in lieu of, and buyer hereby waived, other remedies warranties, guarantees or liabilities, express or implied arising by law or otherwise (including without limitation, any obligations of Quadrel with respect to fitness for a particular purpose, merchantability, specific performance, incidental and consequential damages) whether or not occasioned by Quadrel's negligence. This warranty should not be extended altered or varied except by written instrument signed by Quadrel and buyer.

EXCLUSIVE TERMS OF SALE: The proposal attached hereto or to which these Terms and Conditions of Sale apply (the "Proposal"), together with these Terms and Conditions of sale (collectively, the "Sale Agreement"), constitutes the complete and exclusive statement of the agreement between Quadrel and the purchaser specified in the Proposal ("Purchaser") concerning the equipment and other goods specified in the Proposal (collectively, the "Equipment"), as well as any and all services specified in the Proposal (collectively, the "Services"), and supersedes all prior contemporaneous agreements, representations and/or communications, either oral or written, between Quadrel and Purchaser or any representative such as parties with the respect to the subject matter of the Sale Agreement. No change to the Sale Agreement or waiver of any provision thereof will be binding on Quadrel unless made in writing and signed off by and authorized officer of Quadrel. Acceptance of the Equipment, in whole or part, or other express or implied assent by Purchaser to the terms hereof shall constitute Purchaser's agreement to the terms of the Sale Agreement. Acceptance of any purchase order or other document of Purchaser by Quadrel is expressly made conditional on the Purchaser's assent to the Sale Agreement. ANY ATTEMPTED MEMORIALIZATION OF THIS SALE BY A PURCHASE ORDER OR OTHER DOCUMENT CONTAINING TERM AND CONDITIONS INCONSISTANT WITH OR IN ADDITION TO THE CONDITIONS CONTAINED IN THE SALE AGREEMENT SHALL NOT BE BINDING UPON QUADREL AND QUADREL HEREBY EXPRESSLY OBJECTS TO AND REJECTS THE SAME.

GENERAL WARRANTY (EXCLUDES TABLETOP LABELERS)

Time from date of shipment	Covered Expenses
Up to 90 Days	All Parts , service time, living and travel expenses
UP to 12 Months	All parts

THE WARRANTIES PROVIDED ABOVE ARE IN LIEU OF ANY AND ALL OTHER WARRANTIES AND LIABILITIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. NO OTHER WARRANTIES ARE OFFERED BY QUADREL WITH RESPECT TO THE EQUIPMENT OR SERVICES AND QUADREL HAS NOT AUTHORIZED ANY EMPLOYEE OR AGENT TO OFFER ANY WARRANTIES EXCEPT THOSE PROVIDED ABOVE. PURCHASER AND QUADREL EXPRESSLY AGREE THAT THE WARRANTIES PROVIDED ABOVE SHALL SERVE AS PURCHASER'S SOLE AND EXCLUSIVE REMEDY WITH RESPECT TO THE EQUIPMENT AND SERVICES.

PURCHASER REQUIREMENTS. Purchaser must provide Quadrel descriptions and specifications of all labels and items to be labeled, including, without limitation, label material, product and label dimensions, and any other items required by Quadrel. Further, purchaser shall furnish Quadrel one (1) production size roll of each label and 100 samples of each item to be labeled for testing purposes. **Quadrel shall have no liability (whether under its Limited One-Year Warranty or otherwise) for labeling performance on labels or items to be labeled:**

- (a) Which were not specified or sufficiently described in the Proposal: or**
- (b) With respect to which Purchaser fails to provide Quadrel the samples specified herein, even if such labels or items to be labeled were specified in the Proposal. Further, Quadrel shall have no liability for delays caused by Purchaser's failure to furnish samples as specified herein.**

LIMITATION OF WARRANTIES. Quadrel shall have no obligation to honor its warranties and shall have no liability with respect to defective Equipment if:

- (a) The Equipment has been modified, altered, damaged, abused or used for any other than those purposes intended by Quadrel.
- (b) The Equipment has been changed without prior written consent from Quadrel.
- (c) The equipment has not been operated and maintained in accordance with generally accepted commercial practices for similar equipment and Quadrel's specifications and instructions, as published in the Quadrel manual.
- (d) The surface if the product to be labeled is not clean and free of contamination, including, but not limited to, mold release agents, condensation, dirt and oil.
- (e) Labels are not manufactured in accordance with label specifications provided by Quadrel, or are not from defects such as cracked edges, deep die strikes, *etc.*
- (f) Labels and items to be labeled are not set forth in the Proposal.
- (g) Samples of all products and labels were not provided to Quadrel for testing prior to Equipment shipment as required under "Purchaser Requirements" outlined above.
- (h) There is dimensional inconsistency from one like roll of labels to another.
- (i) *The Equipment does NOT include physical control of the product.*

LIMITATION OF REMEDIES. All warranty claims shall be subject to review and approval by Quadrel. Quadrel's obligation to honor warranties is in all cases limited to, at Quadrel's sole option:

- (a) Repair of defective Equipment or components: or
- (b) Providing a cash refund or credit, after Purchaser has returned Equipment to Quadrel.

Where warranty service is to be provided at the Quadrel facility, Purchaser shall return Equipment claimed to be defective to Quadrel, freight prepaid, for review. No Equipment shall be returned to Quadrel, whether for inspection, repair, refund, or any other reason, without prior return authorization from Quadrel. Quadrel may charge Purchaser cost resulting from testing, handling and disposition of Equipment claimed to be defective by Purchaser which is found by Quadrel to conform to Quadrel's warranties.

LIMITATION OF LIABILITY. QUADREL SHALL HAVE NO LIABILITY FOR ANY CONSEQUENTIAL, INCIDENTAL, PUNITIVE OR SPECIAL DAMAGES BY REASON OF ANY ACT OR OMISSION OR ARISING OUT OF OR IN CONNECTION WITH THE (a) EQUIPMENT OR ITS SALE, DELIVERY, INSTALLATION, MAINTENANCE, OPERATION, OR PERFORMANCE, OR (b) SERVICES. IN NO EVENT SHALL QUADREL'S LIABILITY EXCEED THE PRICE OF THE EQUIPMENT (OR THE PRICE OF THE SERVICES IF A CLAIM IS MADE WITH RESPECT TO THE SERVICES) WITH RESPECT TO WHICH A CLAIM IS MADE REGARDLESS OF WHETHER SUCH CLAIM IS BROUGHT

AT LAS OR IN EQUITY AND REGARDLESS OF WHETHER SUCH CLAIM IS BROUGHT UNDER CONTRACT, BREACH OF WARRANTY, TORT OR ANY OTHER THEORY OF LAW OR EQUITY.

ORDERS:

Orders entered, verbal or written, cannot be cancelled except upon terms that will compensate Quadrel against any and all claims

START-UP SERVICE:

Quadrel will provide, at standard installation rates, the number of normal eight-hour working days for the Quadrel Field Service Technician to start the EQUIPMENT and to train PURCHASER'S operating and maintenance personnel. EQUIPMENT is not uncrated and emplaced in desired location by PURCHASER prior to arrival of Quadrel Field Service Technician, or if the EQUIPMENT cannot be made operational due to non-availability of products, labels, appropriate utilities and/or related production equipment, PURCHASER shall pay Quadrel for additional service time required including travel expenses, if applicable, in accordance with Quadrel's Field Service rates. It is PURCHASER's obligation to schedule the start-up service at a time when PURCHASER'S engineering, maintenance and selected production personnel are available.

SERVICE AFTER INSTALLATION:

Quadrel Field Service Technicians are available to customers who do not maintain their own service departments. This can be handles on a per visit basis. Field Service rates are available on request.

PAYMENT TERMS:

Payment terms are as follows: 50% of purchase with purchase order, 40% of purchase at the time of shipment, 10% of purchase (plus freight charges) due net 30 days. If shipment is delayed beyond 30 days after the EQUIPMENT has been made ready for shipment, and the delay is caused directly or indirectly by the PURCHASER, then the total of the unpaid balance, at option of Quadrel, may become immediately due and payable upon written notice. Payments not paid when due shall thereafter bear monthly service charges at the rate of 1.5% per month on the unpaid balance until paid. If, in Quadrel's opinion, PURCHASER'S financial condition does not justify continuance of production or shipment on the terms of payment specified above, Quadrel may require payments in advance.

FINANCIAL IMPAIRMENT. Quadrel may, at its option, suspend performance if in its opinion the credit of the Purchaser becomes impaired until such time as Quadrel has received full payment, including any general price increases or surcharges, is satisfactory security for deliveries made and is satisfied as to Purchasers credit for future deliveries. Quadrel reserves the right to cancel Purchaser's credit at any time for any reason. In addition, Quadrel reserves the right by written notice to cancel any order or require full or partial payment or adequate assurance of performance from Purchaser without Liability to Quadrel in the event of:

- (a) Purchaser's insolvency
- (b) Filing of a voluntary petition in bankruptcy by Purchaser
- (c) Filing of an involuntary petition in bankruptcy against Purchaser
- (d) Appointment of a receiver or trustee for Purchaser
- (e) Execution by Purchaser of an assignment for the benefit of creditors

TAXES:

The amount of any present or future federal, state, local or other taxes applicable to the sale of EQUIPMENT shall be added to the price and paid by PURCHASER unless PURCHASER provides a valid exemption certificate acceptable to Quadrel and the appropriate tax authority.

GOVERNING LAW AND JURISDICTION. The sale agreement shall be governed and construed in accordance with the domestic laws of the State of Ohio without giving effect to any choice or conflict of law provision or rule that would cause the application of the laws of any jurisdiction other than the State of Ohio. Any legal action, suit or proceeding relating to the Sale Agreement shall be heard and determined exclusively in the United States District Court for the Northern District of Ohio or the Court of Common Pleas of Lake County, Ohio, and each party irrevocably submits to the jurisdiction of either such courts and waives any objection which such party may have to the laying of venue of any such legal action, suit or proceeding in any such court.

The Sale Agreement shall not be governed by the United Nations Convention on the International Sales of Goods. No actions arising out of the sale of Equipment or Services may be brought by either party more than one (1) year after shipment.

RETURNS:

EQUIPMENT sold by Quadrel is returnable only in accordance with the provisions hereof. Before returning of any EQUIPMENT or items thereof, PURCHASER must obtain Quadrel's written return authorization and instructions.

FORCE MAJEURE:

Quadrel shall not be liable for any loss, damage, delay, changes in shipment schedules or failure to deliver due to act of God, accidents, fires, strikes, riots, civil commotion, insurrection, war, the elements, embargoes, failure of carriers, inability to obtain electricity or other type of energy, transportation facilities, raw material, equipment or any problem or any similar or different contingency beyond its reasonable control which would make performance commercially impractical whether or not the contingency is of the same class as those above. Quadrel shall in no event be liable for any consequential damages.

TITLE AND RISK OF LOSS:

Title and risk of loss to EQUIPMENT shall pass to PURCHASER upon delivery by Quadrel to a common carrier, regardless of the freight terms stated or method of payment for transportation charges. Quadrel reserves the right to specify routing of shipments.

ENTIRE AGREEMENT:

This agreement embodies the entire agreement and understanding between the parties, is intended as complete and exclusive statement of terms of the agreement between the parties and supersedes any prior agreements or understandings between the parties relating to the subject matter hereof. PURCHASER acknowledges that Quadrel has not made any representations to PURCHASER other than those which are contained herein. Except as provided in this agreement, no change in or addition to the terms contained herein shall be valid as between the parties unless set forth in writing which is signed by an authorized representative of both parties and which specifically states that it constitutes an amendment to this agreement.

The parties may use their normal commercial forms in connection herewith: however, any such forms shall be used for convenience only and any terms or provisions which may be contained therein inconsistent with or in addition to those contained herein shall have no force or effect whatsoever between parties hereto.

EFFECTIVE:

This proposal is based upon the current cost of labor and materials and shall remain in effect for a period of sixty (60) days from the date hereof unless revoked by Quadrel in writing prior to acceptance.

INDEMNIFICATION:

The purchaser of this product ("Customer") hereby agrees to release, indemnify and hold harmless Quadrel and its agents, assignees and representatives for any and all liabilities, losses, costs, damages and expenses (including attorneys' fees and expenses) arising, directly or indirectly, from any and all manner of claims, demands, actions and proceedings that may be instituted against Quadrel on any grounds.

The Customer agrees to, at the Customer's own expense, promptly defend and continue the defense of any such claim, demands, actions or proceeding that may be brought against Quadrel, provided that Quadrel shall, within thirty (30) days of Quadrel receiving notice thereof, notify the Customer of such claims, demand, action or proceeding.

Quadrel shall at all times retain the right to defend itself and/or to otherwise participate in the defense of any such claim or action, and no settlement or other resolution of any such claims or action shall be finalized without Quadrel's written approval. Any failure by Quadrel to give prompt notice or provide copies of documents or furnish relevant data shall not constitute a defense in whole or in part to any claim by Quadrel against the Customer except to extend that such failure by Quadrel shall result in a material prejudice to the Customer.

The forgoing notwithstanding, if suit shall have been against Quadrel and the Customer shall have failed, after the lapse of a reasonable time after written notice to it of such suit, to take action to defend the same. Quadrel shall have the sole right to

defend the claim and shall be entitled to charge the customer with the reasonable cost of any such defense, including reasonable attorney’s fees, and Quadrel shall have the right, after notifying but without consulting the Customer, to settle or compromise such claim on any terms reasonably provided by Quadrel.

This release and indemnification is and shall be binding upon the Customer, as well as the Customer’s respective heirs, subsidiaries, affiliates, successors, assigns, agents and employees. If any provision or provisions of this release and indemnification shall be held to be invalid, illegal or unenforceable for any reason whatsoever, the validity, legality and enforceability of the remaining provisions of this Agreement shall not in any way be affected or impaired thereby. No supplement, modification or amendment of this Agreement shall be binding unless executed in writing by all of the parties hereto.

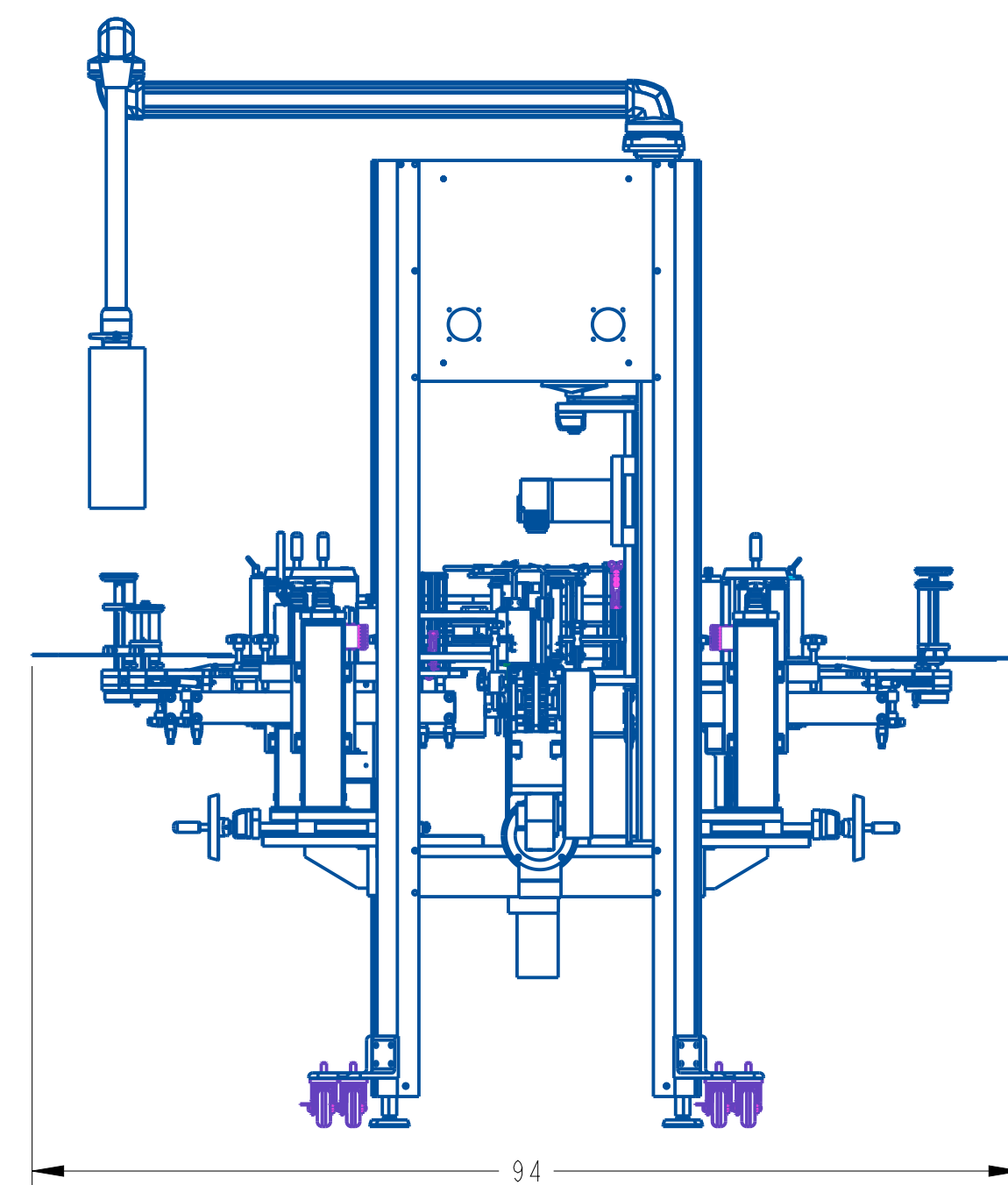
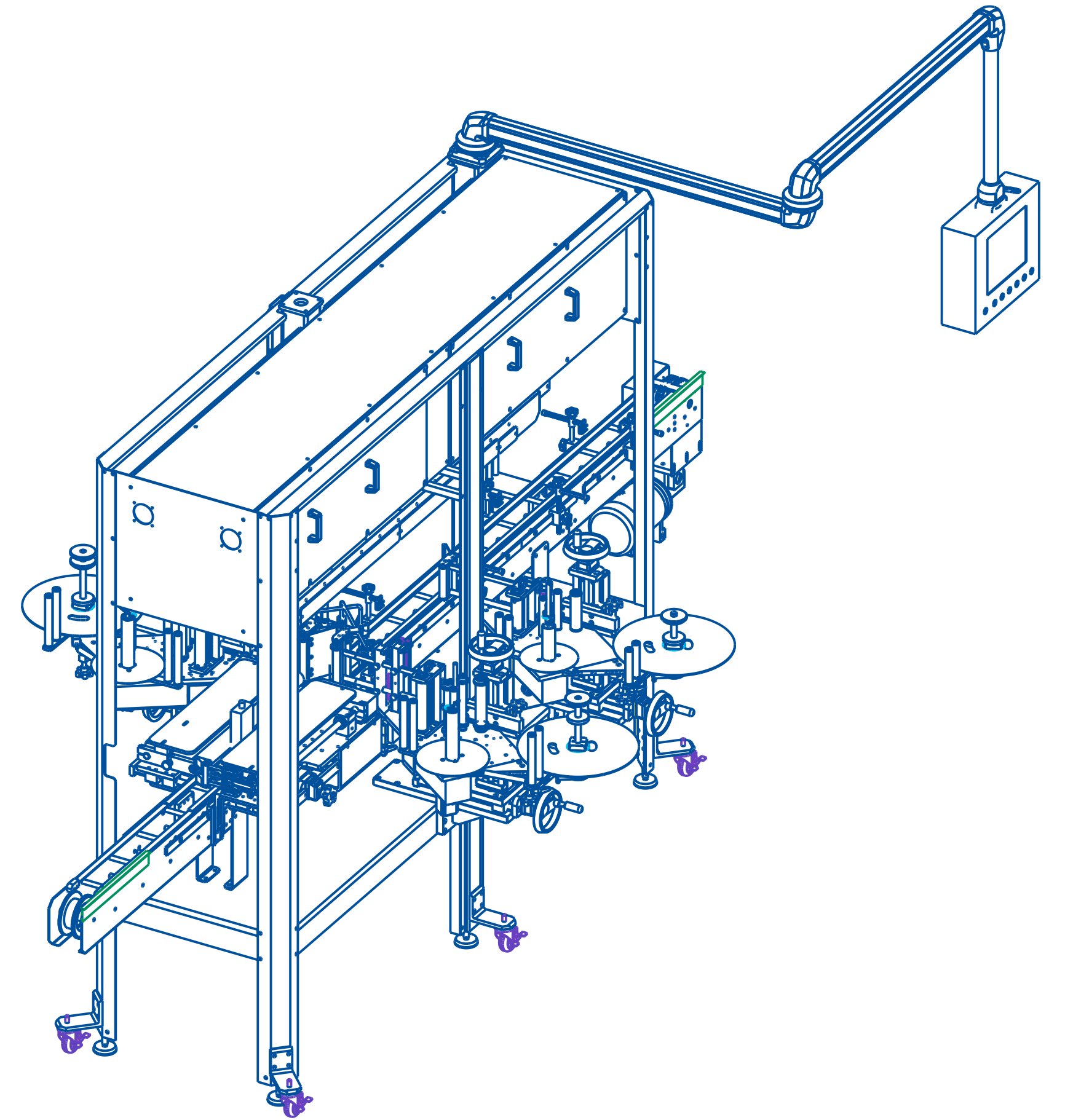
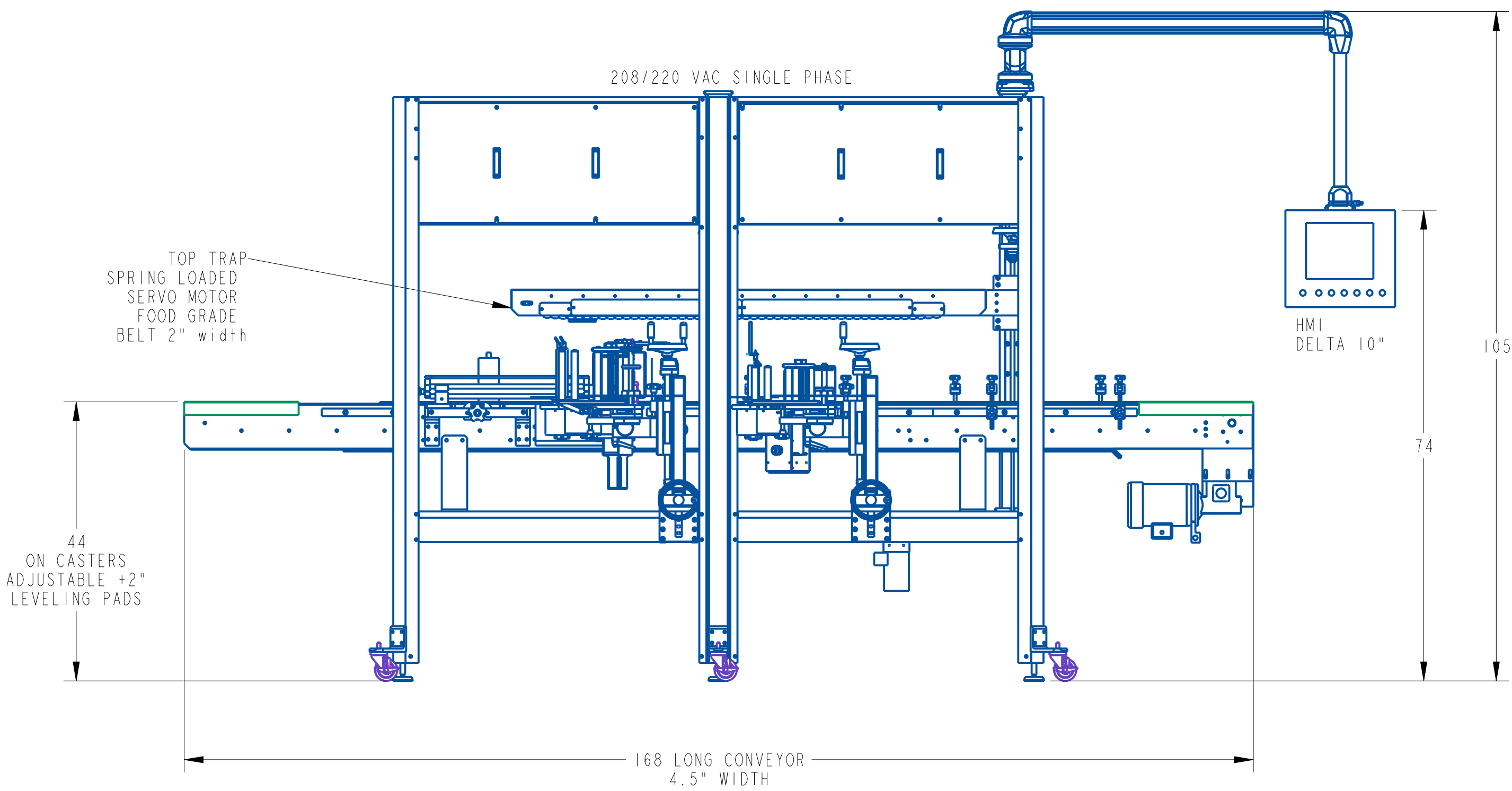
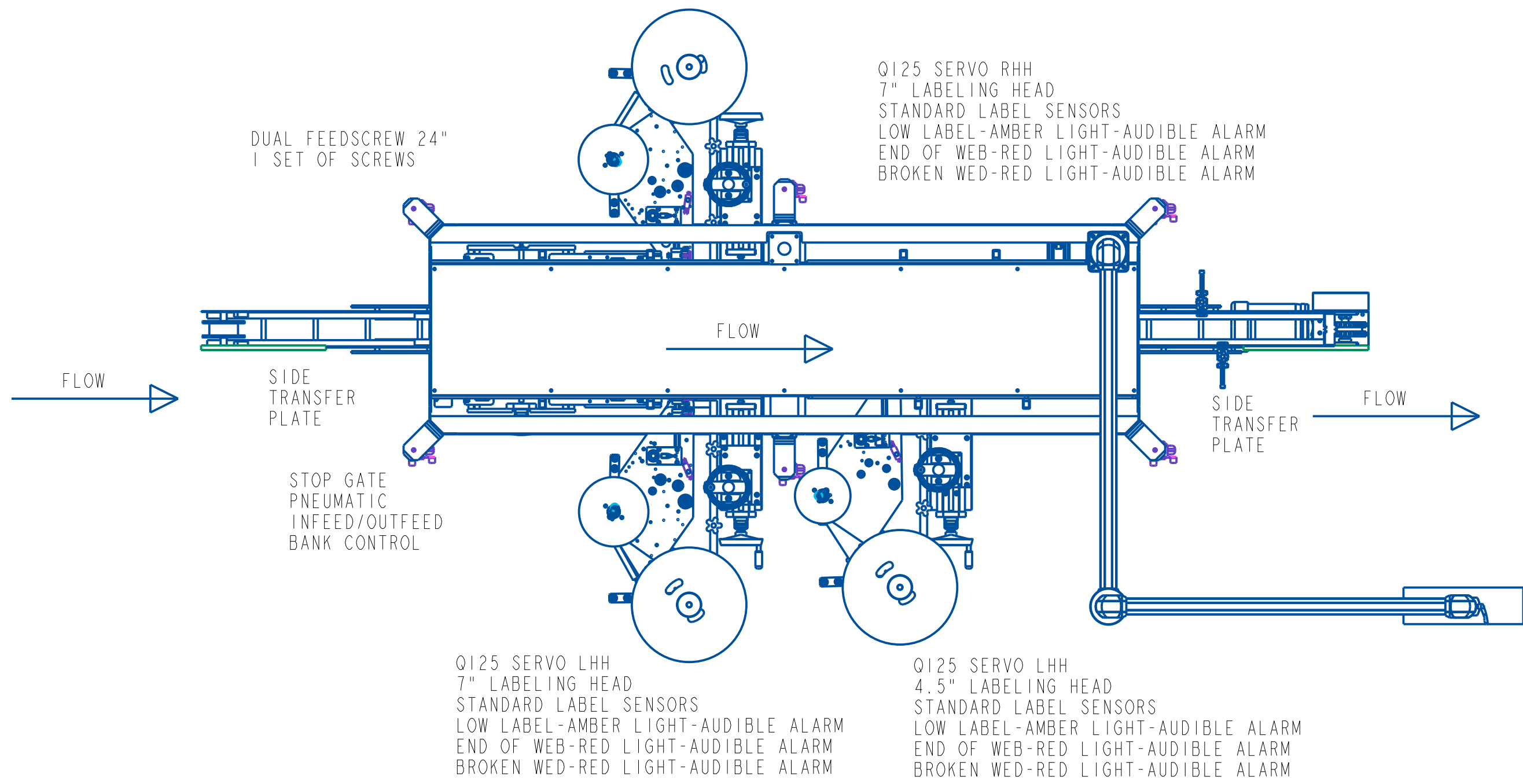
Any order put on hold or left dormant for any reason for 90 days will be considered cancelled. See Cancellation Policy below.

CANCELLATION POLICY:

In the event of order cancellation, the 50% down payment is non-refundable. Customer may also be responsible for additional charges covering engineering resources expended and committed materials depending upon the custom nature of the project and the point in the order process in which the cancellation occurs.

NOTE. No salesman, representative or agent of Quadrel is authorized to give a guarantee, warranty or make any representation contrary to above.

Please sign and acknowledge acceptance to these terms and conditions _____ Date _____



C	Aug-21-25	EXTENDED CONVEYOR TO 168"	RDL
B	Aug-21-25	UPDATED CONVEYOR HEIGHT TO 44"	RDL
A	Aug-19-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/16	
XX ± .01		DATE: Aug-20-25	
XXX ± .005		DRW BY: RDL	
ANGLES ± .00		CHK BY:	
SURFACE FINISH 125		APPR BY:	
BREAK ALL EDGES .005/.015		PROLINE Q125 FRONT/BACK	
CORNER RADIUS .010/.030		MAT'L LILY OF THE DESERT NUTRACEUTICALS	
ALL ANGLES ARE 90°		84211-100	

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Quadrel Labeling Systems Quality Manual

Quality Statment:

Quadrel Labeling Systems strives to provide our customers with the highest quality labeling/sleeving solutions available on the market. In order to achieve total customer satisfaction, we shall adhere to the following objectives:

100% on-time delivery

zero defects

Value added service and support

Engineered solutions

Employee development and diversity

We will commit to continuously improve each facet of our business operations through implementation of, and compliance of this manual.

Chuck Wepler
General Manager / President

1 **MANUAL PREFACE**

Thank you for choosing Quadrel Labeling Systems. We have designed and manufactured this equipment with the upmost pride and care ensuring you the absolute best quality, maximum versatility and reliability.

This equipment is intended to be used only as described in this document. Quadrel Labeling Systems Inc. cannot be held responsible for the improper use or functioning of non-described functions of this machinery. Liability for any personal injury, loss of production or revenues, or property damage occasioned by the use of this manual in effect maintenance, operation, or repair of the equipment is in no way assumed by Quadrel Labeling Systems Inc. Anyone one using a procedure not recommended by the end user should first completely satisfy himself/herself that personal safety and equipment integrity will not be jeopardized in the method selected.

DO NOT attempt to install, operate, or adjust the labeling system without first reading and understanding the contents of this manual.

Only a trained person is to be permitted to operate this equipment. Training should include instruction in operation under normal conditions and emergency situations. Under no circumstances should an untrained person operate this machine.

This manual will provide operating instructions, parts listing and schematics. The information contained in this manual will help the user in his/her operations, troubleshooting, and maintaining the machine in good operating conditions. Information, illustrations and specifications contained in this manual are based on the latest product information available at the time of this manual release. Quadrel Labeling Systems Inc. reserves the right to alter and substitute information contained herein at any time.

Due to the customization it is also possible that you have received a different variation of this equipment, with several different options. Some pictures used in this manual may not totally reflect your configuration, although the labeling is completely the same.

All rights reserved while every precaution has been taken in the preparation of this manual, Quadrel Labeling Systems Inc. cannot be held responsible for errors, omissions, damages, loss of production, or revenues resulting from the use of the information contain herein.

2 GENERAL DISCRIPTION - PROLINE

In-line labeling machines apply labels to a wide variety of container shapes. In addition to conventional cylindrical containers, the in-line labeler can be used with specially contoured, elliptical or flat-sided containers. In-line labelers are manufacturing in a variety of configuration. Diagrams illustrate standard in-line labeler arrangements for different container designs.

The Proline is designed for 24/7 operation and features all overhead electronics, full internationally compliant guarding, Allen-Bradley PLC control, AB Panel View color touchscreen HMI, servo driven label applicators, and product handling. This premium quality labeling system sets a new standard for pressure sensitive product decoration. The Proline labeling system was designed specifically for packagers that require globally supported internationally compliant factory standardization. This system applies paper or film labels to a wide variety of oval, rectangular, cylindrical and uniquely shaped containers at speeds up to 400 products per minute with $\pm 1/32$ " accuracy. Product infeed is controlled by 'no change parts' product alignment or self-powered electronically controlled feed screws. This unique feed screw drive unit eliminates the need for stop gates and ensures a smooth, jam-free product transition at high speeds. The Proline labeling system is available with up to six labeling stations for zero down time operation in most applications. The Proline is capable of being connected to an existing production Ethernet connection, which provides instant real time system status and machine coordination.

3 WARNING/CAUTION SAFETY INSTRUCTION

Where safety is dependent upon starting or stopping devices, or both, they are to be kept free of obstructions that could endanger personnel.

The areas around loading and unloading points are to be kept free of obstructions that could endanger personnel. Instruct personnel working on or near this equipment as to the location and operation of pertinent stopping devices.

This equipment is to be used only for the purpose for which it is constructed.

Under no circumstances are the safety characteristics of this equipment to be altered.

Conduct routine inspections and corrective / preventive maintenance measures to ensure that all guards are installed and function properly. Alert personnel to the potential hazards indicated by the safety labels on this equipment.

3.1 SAFETY INTEGRATION

The end user's safety risk assessment will be the guiding document for proper integration of the equipment provided. Consideration of the following guidelines is recommended in order to achieve a safe result:

- Open areas under the equipment are to be guarded by the end user to prevent entry.
- Where conveyor flight lugs or product enters or exits the equipment, proper guarding and interlock are put in place by the end user to ensure mitigation of shear/jam points.
- The end user is responsible for properly guarding drive components on equipment that requires mechanical drive integration.

3.2 GENERAL SAFETY INFORMATION

This Quadrel Labeling System is engineered to feed and apply labels on your products. In designing the device, Quadrel valued personal safety; however we would like to draw your attention to the following safety acknowledgments.



WARNING

Hazards or unsafe practices, which **COULD** result in severe personal injury or death.



CAUTION

Hazards or unsafe practices, which **COULD** result in minor injury



CAUTION

The presence of safety systems in these units does not exempt the operators to act cautiously, avoiding behaviors that could

endanger their health or the equipment. These models are engineered to feed and apply labels on your products. In designing this device, Quadrel valued personal safety; however we would like to draw your attention to the following safety acknowledgments.

- Operators should know the basic operations and setup procedures before operating this equipment.
- Safe operations should be maintained at all times.
- Know the location of E-stops and power switches prior to operating machinery such as this.

WARNING

To reduce risk of fire, electrocution, or other personal injury when operating. Follow basic safety precautions, including the following:

- This equipment must have an operator attending the machine at all times to monitor the operations. **DO NOT** leave this equipment unattended during maintenance or perform any maintenance unless the e-stop condition has been activated or power turned off.
- The electrical power to device is: ___220___ Volts, ___SINGLE (1)_Phase, ___60___Hz, ___25___Amps. While installing make sure it's properly configured and connected by a qualified electrical technician.
- **DO NOT** by pass any of the safety circuits or safety features designed into this equipment.



- ALWAYS turn off **power and pneumatics** before performing repairs.
- The doors on all electrical enclosures must be closed. All covers on labeling heads must be on labeling heads. (if applicable)
- This device is built to perform in humid conditions, but must not be pressure washed. Wiping down the device is the recommended cleaning method.



- Do not stand, sit, or allow any personnel to be within reach of the tamp cylinder/ swing arm activation (if so equip).
- Report any malfunctions, or problems with the equipment to qualified maintenance personnel for repair or adjustments that may be required.
- Keep hands clear of moving parts. Do not place hands near labeling head when in operation.

For systems containing conveyors, you must be vigilant with loose clothing or bodily parts as they can get caught in the conveyor's belt or chains as direct injury or death can incur. **DO NOT** use the conveyor as a working platform or walkway.

TUCK IN ANY LOOSE CLOTHING. DO NOT WEAR TIES. PENDANTS, JEWELRY OR ANY OTHER ARTICLE OF CLOTHING OR ACCESSORY THAT MAY GET CAUGHT ON ANY PORTION OF THE SYSTEM.

FOR PROLINE SYSTEMS ONLY

CASTERS WERE IMPLEMENTED FOR EASE OF SHIPPING PURPOSES ONLY. PLEASE USE CAUTION WHEN MOVING PROLINE THROUGH FACILITY. THE PROLINE RECOMMENDED USE: SET IN PLACE/POSITION WITH LEVELING PADS DOWN TO SECURE.

WARNING

1. READ AND UNDERSTAND THE OPERATION MANUAL AND ALL SAFETY LABELS BEFORE OPERATING THIS MACHINE.
2. ONLY A TRAINED PERSON IS TO BE PERMITTED TO OPERATE THIS MACHINE. TRAINING SHOULD INCLUDE INSTRUCTION IN OPERATION UNDER NORMAL CONDITIONS AND EMERGENCY SITUATIONS.
3. THIS MACHINE IS TO BE SERVICED ONLY BY TRAINED AND AUTHORIZED PERSONNEL. FOLLOW LOCK-OUT PROCEDURES BEFORE SERVICING.
4. NEVER REACH INTO THE MACHINE FOR ANY REASON UNLESS THE MACHINE IS AT A COMPLETE STOP.
5. NEVER LEAVE THE MACHINE STOPPED IN SUCH A MANNER THAT ANOTHER WORKER CAN START THE MACHINE WHILE YOU ARE WORKING ON OR WITHIN THE MACHINE.
6. NEVER CHANGE OR DEFEAT THE FUNCTION OF ELECTRICAL INTERLOCKS OR OTHER MACHINE "SHUTDOWN" SWITCHES.
7. BEFORE STARTING THIS MACHINE, CHECK THAT: ALL PERSONS ARE CLEAR OF THE MACHINE; NO MAINTENANCE WORK IS BEING PERFORMED ON THE MACHINE, ALL GUARDS ARE IN PLACE.
8. ROUTINE INSPECTIONS AND CORRECTIVE/PREVENTATIVE MAINTENANCE MEASURES ARE TO BE CONDUCTED TO ENSURE THAT ALL GUARDS AND SAFETY FEATURES ARE RETAINED AND FUNCTION PROPERLY.

Using VFDs On GFCI Devices

By Bill Szatkiewicz, Senior Software Engineer

KB Electronics

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or visit: www.kbelectronics.com

The National Electrical Code, or NEC, continues to expand protection requirements for safety reasons resulting in an increase in Ground-Fault Circuit-Interrupter (GFCI) outlets being used in more environments. As a result, the Variable Frequency Drives (VFDs) industry is finding more instances of VFDs being powered from GFCIs. VFDs introduce high frequency harmonic content which may cause nuisance tripping on some GFCI devices. This paper is intended to assist anyone that needs to use a VFD on a circuit with GFCI protection. KB Electronics has developed special VFDs suitable for use with most GFCIs*.

* Please contact KB Electronics with information regarding your specific GFCI.

What is a VFD?

A VFD (also termed adjustable frequency drive, variable speed drive, AC drive, adjustable speed drive, micro drive, motor control, or inverter drive) is a power conversion device that will accept normal fixed branch circuit voltage of (115V or 230V) and frequency (50 Hz or 60 Hz) and allow the operator to control the speed of an induction motor (AC Motor) by varying the output voltage and frequency. A simplistic version of a typical VFD system is shown in Figure-1.

In addition to operator controllability, the VFD with soft start/stop features offers extended equipment life, increased performance, reduced maintenance, protection from excessive currents and voltages, as well as energy savings.

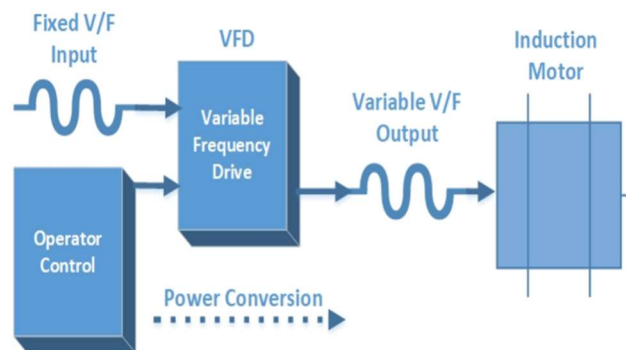


Figure-1: Typical VFD System

What is a GFCI?

A GFCI (shown in Figure-2) is a circuit breaker device which is designed to protect people from hazardous shock or electrocution by shutting off an electric power circuit when it detects current flowing in a way that it is not meant to, such as through water or a person.



Figure-2: Typical GFCI Outlet

The GFCI is intended to protect people from electrical shock, therefore, it is completely different from a fuse in the sense that it needs to shut off the electric power circuit at a low current, typically no more than 5 mA, in a quick amount of time (less than 1/10 of a second).

The GFCI does this by measuring and comparing the amount of current flowing in the ungrounded (hot) and grounded (neutral) conductors of the circuit. If the GFCI detects an imbalance in the circuit, it immediately shuts off the circuit.

Why Nuisance Trips Occur with Standard VFDs

Standard VFDs, when powered from GFCI outlets, can cause the GFCI to trip due to the leakage currents generated from the high switching frequency of the VFD's power devices and the harmonics associated with them. These high frequency leakage currents are not at the base frequency of the drive output which is normally 50 Hz or 60 Hz. These high frequency leakage currents, typically greater than 4 kHz, may cause the GFCI to trip because the GFCI is designed to work with 50 Hz or 60 Hz frequency inputs, not this higher value.

The high switching frequency of the VFD's power devices induce more capacitive-coupled currents, since a capacitor approximates a short circuit at high frequencies. This creates common-mode noise, referred to as leakage current, which travels through ground and can cause the GFCI to trip. The path to ground is made through the motor bearings or auxiliary equipment bearings.

In addition to the high switching frequency of the drive, there can be many other contributing factors which cause the GFCI to trip. Some drives have built-in filters which couple additional leakage current to earth ground. Other drives use external filters and replacing them with a low leakage filter may help.

One way to help determine if the GFCI tripping is occurring from the input filter or the VFD output is to remove either the input filter or the motor and observe if the GFCI still trips. For example, if the input filter is easily removed and doing so

prevents the GFCI from tripping, the source of the leakage currents tripping the GFCI was largely from the input filter.

Another method is to disconnect the motor. If doing so prevents the GFCI from tripping the contributing source of leakage current is most likely from the output stage of the VFD. However, most often than not, the GFCI is tripping from a combination of the two and improvements on both the input and output will help.

Long motor power cables can also create noise spikes. These long leads add more capacitance which increases noise spikes from the fast switching power devices of the VFD. Use a VFD rated cable with the shortest leads possible when connecting the motor power cables. A choke on the VFD's motor outputs may help reduce noise spikes.

In addition, ensure that motor cables are properly shielded, sized, routed, terminated, and grounded at both the motor and drive.

KB's GFCI Solution

KB's engineering team has studied VFDs powered from a variety of GFCI devices. A solution has been created which considers all contributing factors to get a best-case scenario that successfully works with most GFCIs.

KB investigated switching frequencies and developed custom switching frequency algorithms to reduce audible noise and leakage currents. High frequency noise spikes and ringing were reduced by modifying our proprietary power circuits for optimal results. In addition, output chokes, low leakage filters, and shielded cable were introduced, if needed, to find a GFCI solution.

Conclusion

KB has had great success providing VFDs that work with GFCIs for numerous original equipment manufacturers (OEMs). KB offers a full range of motor controls (shown in Figure-3) which can be customized to work with GFCIs. Let KB Electronics provide a solution for you.



Figure-3: VFDs Available from KB Electronics

Unboxing & Installation of your Quadrel Labeling Systems Machine

This section of your manual is aimed towards making the transition from Shipping Crate to Assembly line less Dramatic. If you have scheduled an install with one of our Professional Technicians the set-up of your machine will be a breeze. If not your manual as all of the information needed to get you going. In this section there may be some equipment shown that does not apply to the machine you purchased.

NOTE This is general instruction for all equipment (your equipment may vary slightly).

Let's get started...

First things first, check your crate/box/machine for damage. If there is damage please note the exception and contact Quadrel immediately. Any extra boxes or pallets will be either in your crate or tethered to the crate or pallet. Once you have inspected your shipment you can open the crate. Check packing slip Bill of lading against boxes received. Notify Quadrel of any discrepancies.



Carefully remove all banding on the legs, misc. boxes and assemblies in the crate or on the pallet. If your machine is



wrapped in bubble wrap or plastic wrap go ahead and carefully cut and remove that as well. Ensure you are wearing the appropriate safety gear when removing your machine from the crate.



Ensure all plastic wrap is removed from the assembly you are removing the support from before removing the support.

Remove the supports under your labeling heads, wrap station, top trap, HMI, Pacing wheel or belt. See images for various supported assemblies.



Most assemblies supported have a tool-less vertical adjustment using a knob or hand wheel.

The hand wheel may be wrapped to the assembly to prevent damage.

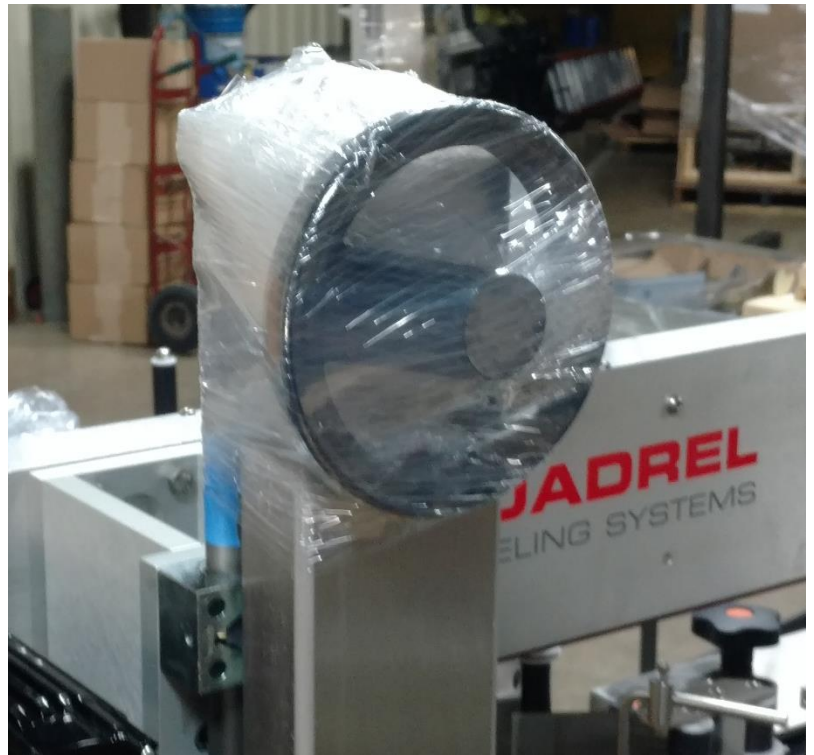
Remove the hand wheel from the wrap, then fasten the hand wheel to the square end on the lead screw using a 3/32 "L" handle Allen wrench.

Turn the handle/knob to raise the assembly this will take the weight off the supports so you can remove them.

Top Trap Support (top) Labeler Head Support (bottom) Plastic wrapped hand wheel (right)



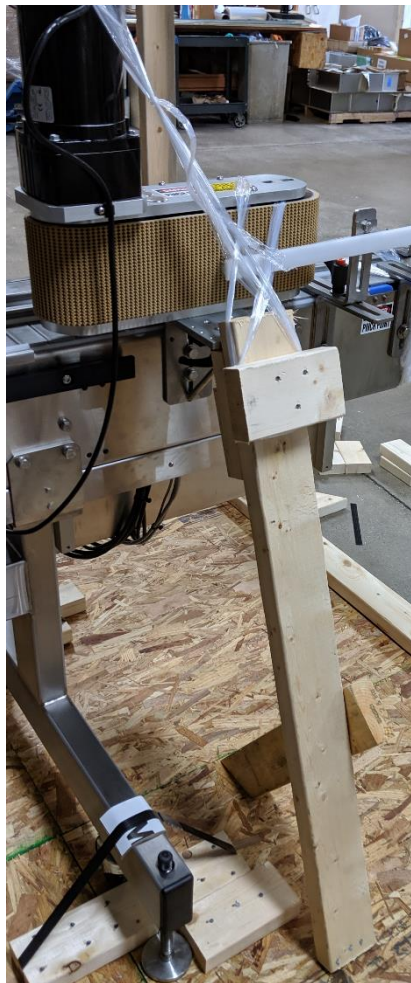
All top and bottom labeling heads will be supported



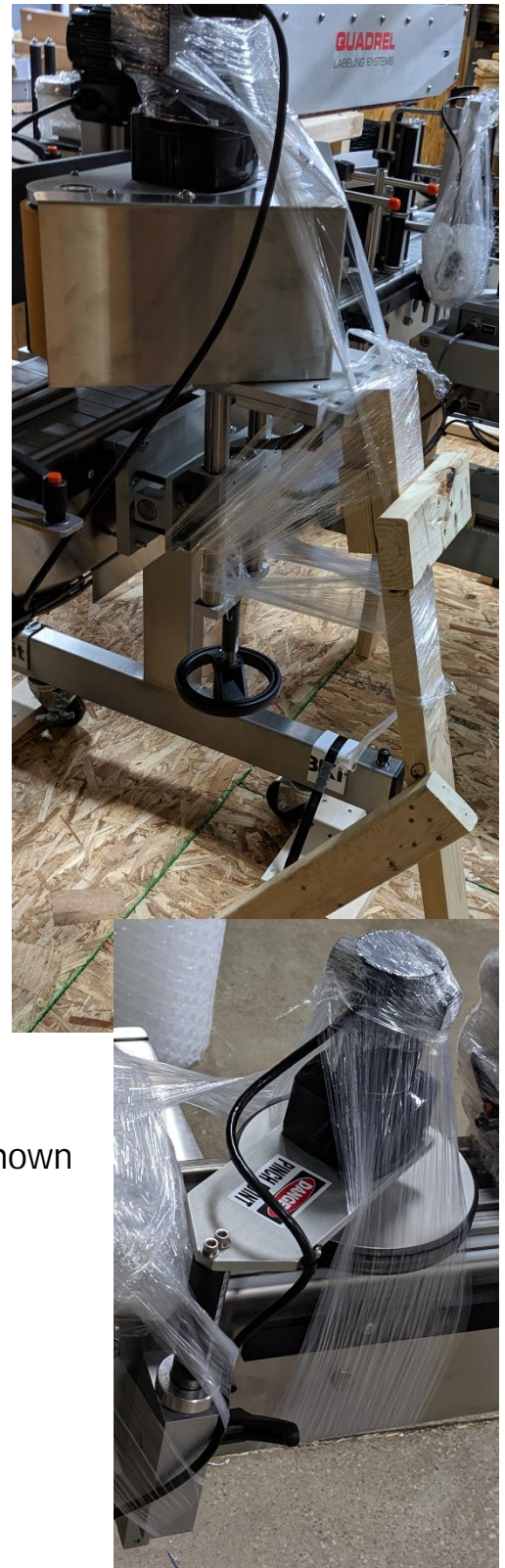
similar to the image shown on the left.

Wrap stations will have supports similar to the image to the right. These supports do not require moving the assembly.

Pacing belt
assembly
supports can
be removed
will be
without raising
the assembly.

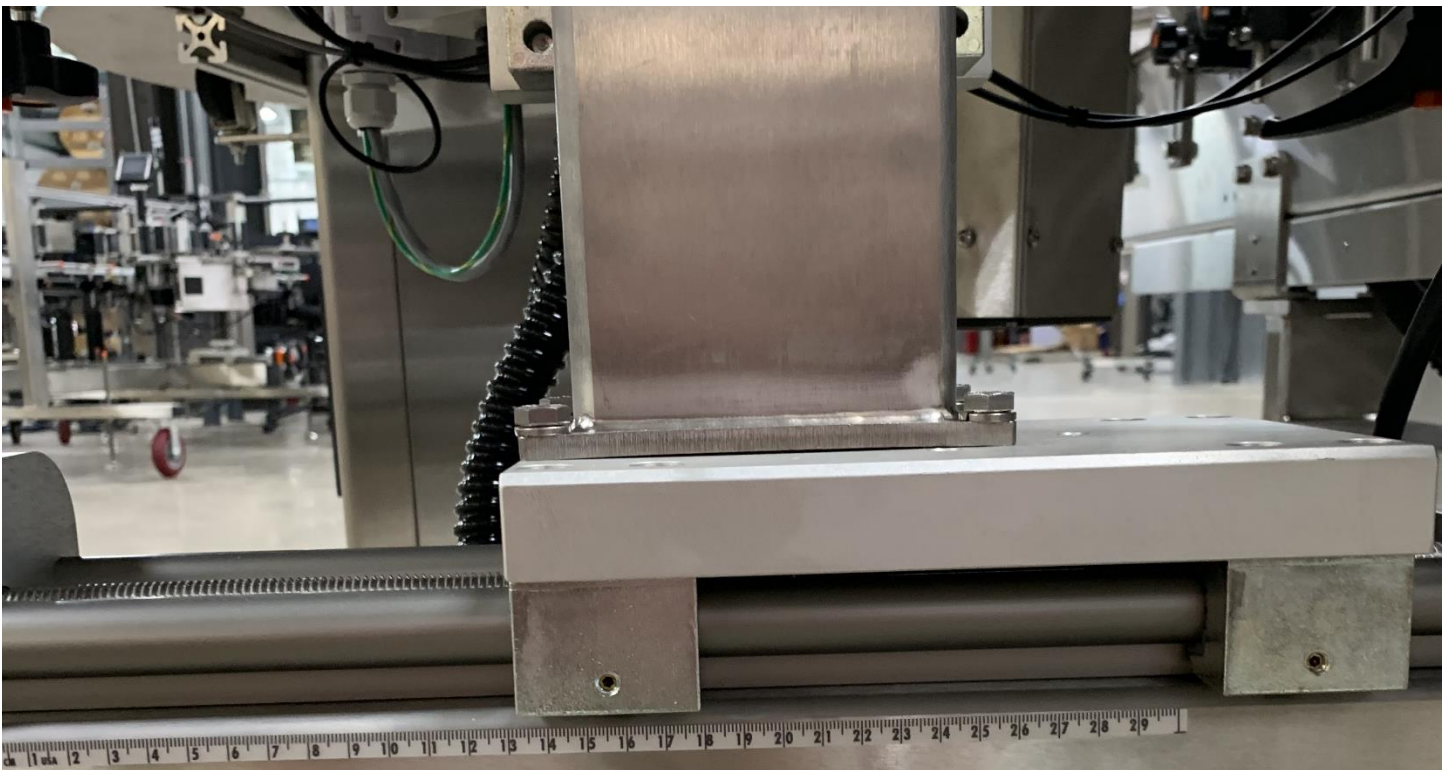


Pacing wheels
supported as shown





Often the head support will be moved in shipping or moved to be supported. When you are setting up your machine refer to your set up sheet in this manual. There are scales on the side of the assembly to line the carriage up to (as shown in the Image to the left and below).



Peel plates with or without the rods may be removed from the labeling head to move the head all the way in during shipping.

All assemblies removed will be bubble wrapped then plastic wrapped to the machine (as shown in image on the right) or in box on the pallet the machine is on (as shown in image below).



Mount the peel plate assembly using a 5/16 L handle Allen wrench (as shown in image on the left). The bolts are located in the assembly. You simply put the wrench in the quick change access holes to loosen or tighten the assembly.

NOTE When you are setting up your machine make sure the peel plate assembly is perpendicular to the conveyor. When the peel plate assembly is on the rods there is a small amount of play allowing you to make small adjustments to the assembly.

If you have the peel plate rods removed with the peel plate assembly and the label detect assembly (as shown below).

All assemblies removed will be bubble wrapped then plastic wrapped to the machine or in box on the pallet the machine is on.

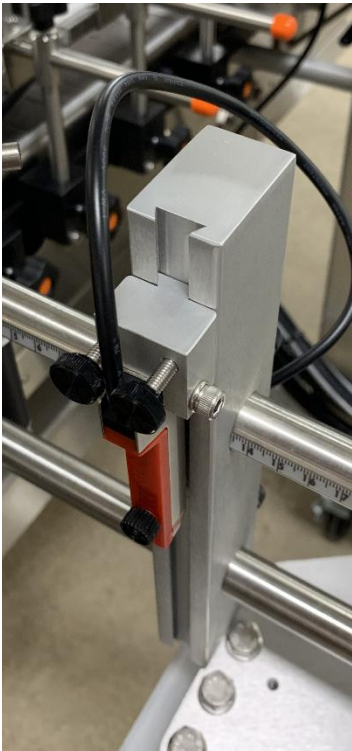


First back the head out all the way. Locate your peel plate assembly and slide it into the holes in the drive roll assembly (as shown on the left of the image above). Make sure you take the bolts out of the end of the rods before putting them into the drive roll assembly.



Fasten the assembly to the drive roll with the bolts supplied using a 5/16 L handle Allen wrench. Make sure you have the lock washers on the bolts.

NOTE When you are setting up your machine make sure the peel plate assembly is perpendicular to the conveyor. When the peel plate assembly is on the rods there is a small amount of play allowing you to make small adjustments to the assembly.



When the peel plate rods are removed the label detect sensor is removed with it (show in image to the left). The sensor is locked into place so it won't move or need adjusted. All that will need done is simply reconnect the sensor to the zip port. To re-connect the sensor first locate the zip port (as shown in image on the right). The zip port is located under the head on the chassis or mounting plate. Take the cable coming from the sensor, route it neatly under the head, and screw it into the zip port where it says "label detect".



Some machines may have the unwind flange (shown in image to the right) removed to protect the flange during shipping do to the width of the machine.

All assemblies removed will be bubble wrapped then plastic wrapped to the machine or in box on the pallet the machine is on.

First, slide the unwind flange (with the collar facing towards you as shown in image to the right) over the unwind shaft. Make sure the top of the flange is 1 ¼ inches off the side plate.

Then, lock into place by tightening the collar with a 5/32 L handle Allen wrench.

Slide the quick lock collar over the shaft by lining the set screw up with the flat. The collar locks into place by rotating the collar 90 degrees.



Some machines may have the rewind flange (shown in image to the right) removed to protect the flange during shipping do to the width of the machine.

All assemblies removed will be bubble wrapped then plastic wrapped to the machine or in box on the pallet the machine is on.

First, slide the rewind flange (with the collar facing away from you as shown in image to the right) over the rewind hub make sure the flange just above the rubber bumper roughly 1/2 inch off the side plate.

Then, lock into place by tightening the collar with a 5/32 L handle Allen wrench.



Rails and transfers on the infeed and outfeed may be removed for shipping purposes. They will be wrapped in bubble wrap and wrapped to the machine. Carefully remove wrap and place in position as shown lock into place by tightening the knobs or ratchet handles.

NOTE Your machine may have a different rail system either adjustment is tool-less and fastened by a knob of ratchet handle.



End transfers will be wrapped in bubble wrap and plastic wrap. They will be located in a box on the pallet with your machine or wrapped to the machine itself.

Fasten the end transfer plate to the machine using a 5/32 L handle Allen wrench and the supplied 10-32 socket head screws. Ensure the transfer plate is both level with the conveyor and DOES NOT hit the conveyor chain.

Stack lamps are usually placed at the highest point of the machine and for that reason they are either removed or rotated 180 degrees. The stack lamp will be wrapped in bubble wrap and wrapped to the machine.

If the stack lamp is rotated then all you need to do is remove one of the bolts, rotate the stack lamp and put the screw back in. We use various screws on stack lamps you will need one of the following tools for the job.

- 3/32 L handle Allen wrench
- 1/8 L handle Allen wrench
- 5/32 L handle Allen wrench
- 3/16 L handle Allen wrench
- 1/2 open end wrench



HMI over head touch screen displays may be laid flat across the top of the enclosure wrapped in bubble wrap and plastic wrap.

Carefully remove the plastic wrap and bubble wrap.

Rotate the HMI 90 degrees and slide into the mount on the enclosure.

Fasten the pole in place by tightening the 2 set screws on the mount with a 6MM L handle Allen wrench.



The HMI may be enclosed in a wooden support off the enclosure to hold it in place during shipping.

If HMI is located remotely off the enclosure it will still be supported during shipping.

If so, carefully remove the supports and you are done.

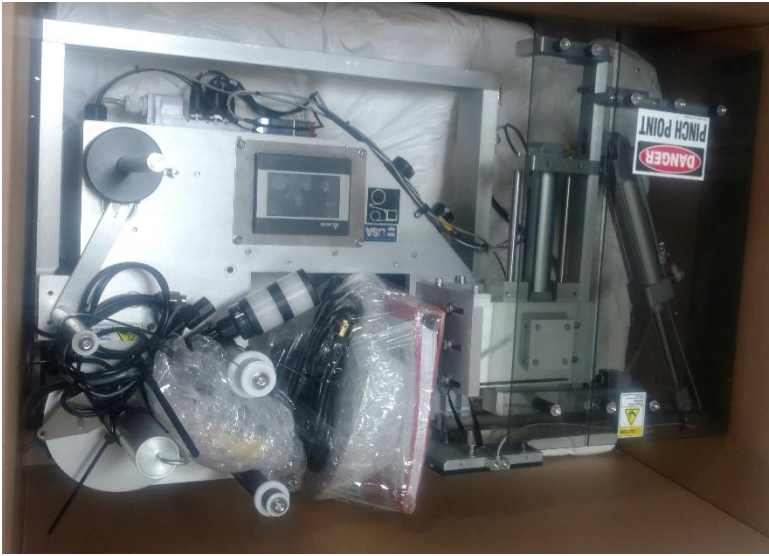
All printers, printer controllers and lasers are removed from the machine when shipping and placed in the manufacturer's box. The cabling will remain on the machine for ease of installation.

The printer is mounted to the printer mount with 1 ¼-20 ratchet handle. Make sure you line up the indents in the plates with the brass nut on the threaded rod. Then slide the ratchet handle through the center of all of the blocks and tighten. Plug in the cables and you are done.



Table top printers with printer tables will ship in separate boxes or pallets (as shown to the left) the printer will be disconnected and placed in the manufacturer's box. The table will either get banded to the pallet with the machine or a separate pallet tethered to the machine pallet. Printer tables may be connected to the machine via weldment or a remote from machine. If you have a weldment connected table, refer to the lay out drawing of your machine in this manual. Fasten the weldment to the frame of the conveyor using the supplied hardware and an open end wrench. If the table is remote then move into the desired position referring to your layout drawing. Remove the printer from the box set on the table and plug in the pre-wired connectors.





Print and apply printers will be removed from the labeling head as well and placed in the manufacturer's box. Your labeling head will likely ship in its own boxes with a few of the assemblies or flanges removed. Occasionally your head on a stand will ship on a framed pallet which will requires little work to get started.

The unwind flange is installed like the previous one discussed previously.

Remove the printer from the box and place it into the opening of the labeling head (as shown in image to the right). Fasten the printer to the side plate of the labeling head using the supplied (5) 10-32 socket head screws and a 5/32 L handle Allen wrench. Then, plug the printer in.

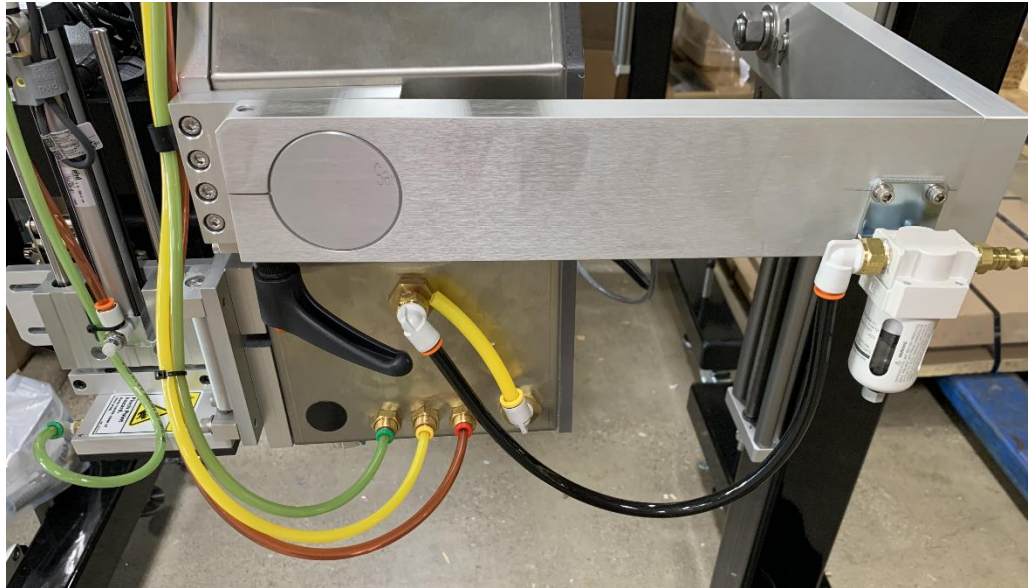


The corner wrap modules will be removed for shipping purposes. They will be wrapped in bubble wrap, plastic wrap, and placed into the box with the labeler.

Take out of the box, carefully remove the wrapping.

Then mount to the labeling head with (4) ¼-20 bolts using a 3/16 L handle Allen wrench.

To prevent kinking of the air lines during shipping on our q34 print and apply labeling heads. All lines are pulled and labeled to the corresponding color. The hoses are color coded and marked. Simply plug in hose into the matching color (as shown in image to the right).



Rotary accumulation tables are banded to a pallet and wrapped.

These tables usually operate independently to the machine.

Carefully un-band and unwrap the table.

Line it up to the transfer plate on the conveyor.

Level the table using the leveling pads.

Plus in and adjust speed through the control box.



Sleeving applicators are typically on a stand and will ship on a pallet. They will be banded have many supports and be wrapped to protect the machine during the shipping process.

Carefully remove the banding and wrapping.

Raise the head and remove the supports.

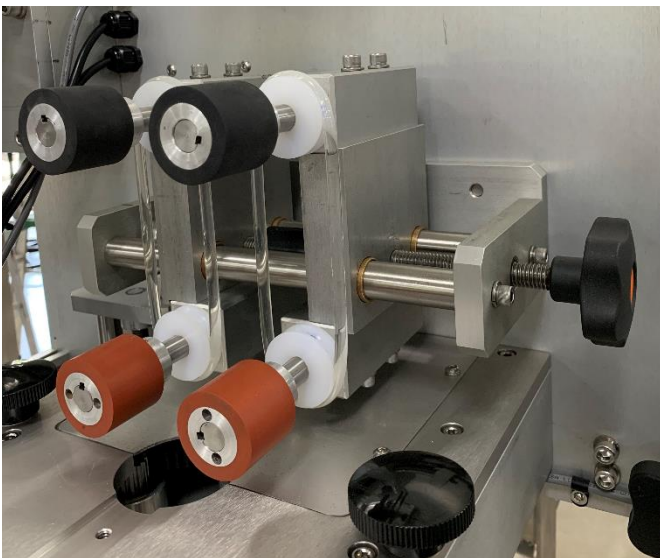
The pallet will contain boxes with. Misc assemblies and or parts (ie mandrels).



Below is an image of the mandrel. The mandrel is the most precise and important part of the sleeve system. Always handle the mandrel extremely carefully.



Your mandrel will be located on the machine pallet tethered to the machine. It will be wrapped and in a box or tube (as shown below).



Carefully remove the mandrel from the packaging.

Rotate the black handle to move the throw down rollers apart far enough to slide the mandrel in.

Ensure each roller is between 2 bearings, the fin on the top is between the sensor, and the cutter blades are in line with the cut in the mandrel.

Rotate the black handle to move the throw down rollers closer to the mandrel pinching it in the middle. DO NOT OVER TIGHTEN THE THROW

DOWN ROLLERS INTO THE MANDREL. They need to be just tight enough that the bearing spins and a label feeds through.

Proline machines with guarding will either be left on the machine and have wooden supports to protect during shipping or the guards are removed and placed on a pallet.

If the guarding has supports carefully remove the supports from the guarding.

If the guarding is removed from the machine each panel will be labeled and the machine will be labeled to make it easy to figure out which door goes where.



The doors are fastened to the frame of the machine with the supplied hardware.

Line the hinges up to the holes on the frame put the bolt through.

Tighten a nut on the opposite end with the supplied flat and lock washer.





During shipment if the conveyor gets skewed you may need to re-square it. First check the conveyor with a square to verify (as shown in images below). If the conveyor needs adjusted, adjust the conveyor by slightly loosening the 4 bolts connecting the 2 sections on conveyor you would like to adjust (as shown in image to left).

Make your adjustments and check the top and side with a square. Placing a square across the top will check the squareness vertically. Placing a square along the side will check squareness horizontally.



When the conveyor is square tighten the bolts and you are all set.

When shipping a proline with an extended boom the dual swiveling elbows in the center of the boom get flipped 180 degrees to allow the machine to have enough over head clearance to ship safely (shown in image below).



Below are the instructions to flip the elbows to the correct configuration (as shown in image below)



Ensure the overhead controls are safely supported by a tow motor or at least 2 people so it does not fall when disconnecting the elbows.

Locate the 2 screws on the top and 2 screw on the bottom holding the prospective covers on.



With a t25 torx bit screw driver, loosen the 2 bolts holding the cover on the top and bottom.

With the cover off you can now access the 4 bolts holding each of the tubes in place.

Ensure the overhead enclosure is supported enough to hold for a few minutes while you loosen the bolts and flip the elbow.

Using a 6MM L handle Allen wrench loosen the 4 bolts on the top and bottom tube.



Quickly pull the tubes out and rotate the elbow as shown below.



BEFORE



AFTER

Slide the tubes in. the overhead enclosures elevation is going to change when flipping the elbows if you have it supported via tow motor you will have to raise it.

Fasten the 8 bolts with a 6MM L handle Allen wrench.

Fasten the covers to the top and bottom elbow using a T25 torx bit screw driver.



To the left shows the correct orientation of the dual elbow boom for the overhead enclosure.

If you have any questions please give our professional technicians a call.

FAMILY GUIDE

QUADREL

LABELING SYSTEMS

Operator Interface Guide

Proline Labeling System

For Use with Files 84211_V000

**Allen Bradley Panel View Plus 1000 Touch Screen with Allen Bradley
CompactLogix L306 PLC**

General Overview:

The Operator interface communicates to one PLC through an Ethernet connection. The application file is stored in the terminal's internal memory area and is executed on power-up. The actual data written to any parameter is stored in the PLC and is saved in its battery backed-up memory area.

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Opening Splash Screen

Upon initial power up, the terminal will initialize and display a splash screen. Once this screen appears it sends a signal to the PLC to start executing logic.



Button / Indicator Reference:

Menu Navigation Buttons: Navigation buttons will be purple circles with white outlines and icons of the target screen. Some buttons will have text below them to identify the target screen.

Standard Buttons: Standard buttons are used to turn features on/off, reset faults, clear counters, or various other functions that require operator control. Toggle buttons will typically have icons to reflect the status of the function that is being toggled while momentary buttons like Resets are circular and do not change images/colors. Many buttons and toggles may be password protected, which will appear differently if the current user does not have proper access.

Indicators: Status Indicators will be circular and will change color based on states. Mode indicators will be oval in shape and will change colors and texts based on states.

Numeric and Text Displays: Numbers or Text displays will have a light orange background with black text, surrounded by a dark orange border. These are used to reflect numbers or recipe descriptions.

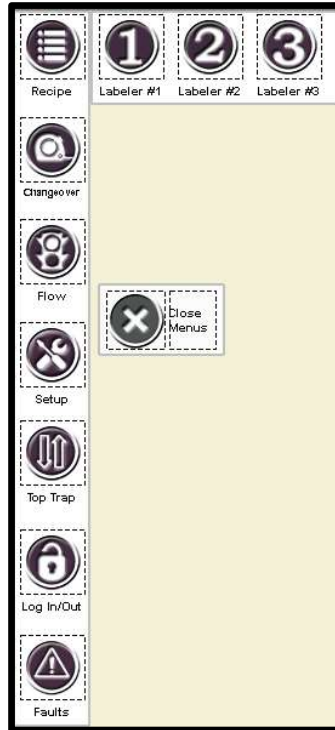
Numeric and Text Inputs: If a number or text can be entered, the button will have a dark green background with white text. The right side of the button will have a touch icon signify that it is an entry box.



System Menus:

Pressing the System Menu button in the top left corner of the screen will cause the menus to appear as pictured below.

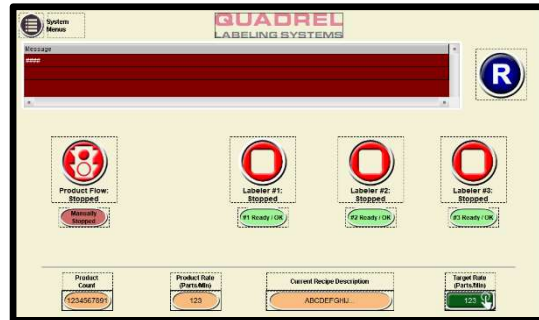
Press any button to navigate to that menu, or the Close Menus button to close the menu bar.





Main Screen:

After touching the splash screen, the touch screen will display the Main screen. You can also get to the Main screen by pressing the Home icon (pictured left).



Menu/Setup Navigation Buttons:

These purple buttons across the top allow the operator to access the various screens that make up the entire touchscreen application. If you are currently on one of the screens, that screen's button will be green in color.

Fault/Message window:

Displays current alarms and status messages about the status of the labeling system.

The Faults Menu button can be used to display more messages or a history if needed. Pressing a reset button on the touch screen or physical button on the machine will clear these messages if the fault was remedied.

Labeler Run/Stop:

Each Labeler can be toggled between Run and Stop (pending fault conditions). The Run/Stop button will change colors and text based on the current status.



Green “Running” Button: This indicates the labeler is currently running and cannot be jogged. While running, the labeler will automatically apply labels to passing products. To **stop** the labeler, press this button.



Red “Stopped” Button: This indicates the labeler is currently stopped and may be jogged. While stopped, the labeler will ignore products passing by. To **run** the labeler, press this button.

Labeler Status Indicator:

The status indicator below the Run/Stop button will identify which fault state the labeler is in.

Ready/OK(green): The labeler has no fault conditions and may operate normally.

Warning (yellow): The labeler has a warning present (typically low on labels). The labeler may operate normally, but will require attention soon.

Faulted (red): The labeler has a fault on it that will prevent it from dispensing labels.

Disabled (grey): Each labeler can be disabled in the Labeler Service menu. Faults and functions will be ignored.

Crossing (purple): If a crossover is in progress, the indicator under the running labeler will turn purple and indicate which direction the crossover is occurring.

Product Rate (Parts Per Minute):

This indicator will reflect how many parts per minute are being labeled by the system. This number will average out over a period of time and may need at least 10 products in order to start calculating a rate.

Product Count:

This counter reflects how many Products have passed the first product detect sensor while either labeler is Running. This count can be reset in either Labeler Menu.

Current Recipe Description:

This display reflects the description for the currently selected recipe. Recipes are explained in the Recipe / Labeler Menu.

Target Rate:

This entry box will change the speed of the system. It is entered as Parts per Minute.

Product Flow Mode:

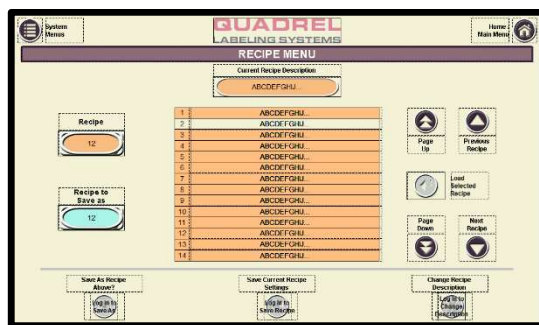
Green “Automatic” Button: Pressing this button will put the product flow into an automatic mode. The feedscrew/stop gate will stop/close and start/open based on the state of the system and any optional external sensors installed.



Red “Manually Stopped” Button: Pressing this button will stop the feedscrew/stop gate and keep them stopped/closed until placed into the Automatic mode.



Recipe Menu:



Current Recipe Description:

The description display at the top of the screen reflects the stored description for the recipe currently loaded.



Change Recipe Description (Supervisor Level): Pressing this button will allow the operator to change the current recipe description.

Note that the current recipe must be saved to retain the new description.

System Recipe (Load):

When the system is stopped, a new recipe number can be entered. When this number is changed, the newly entered recipe settings will automatically be loaded to the system.

Recipe to Save As (Supervisor Level):

Enter a target recipe to overwrite in this box. Note that the “Save As” button must be pressed in order to execute a save.



Save As Recipe Above (Supervisor Level): Pressing this button will save all current recipe values to the Recipe Number entered in the “Recipe to Save As” box. Note that pressing this button will not change the system recipe, it only writes values to the target recipe.



Save Current System Recipe (Supervisor Level): Pressing this button will save all current recipe values to the currently loaded recipe.

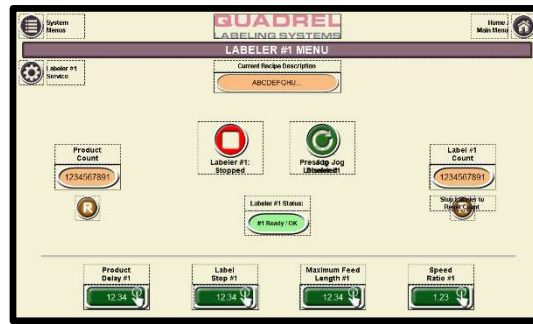
Load Recipe by Description:

The center table shows the stored description for each recipe. The navigation buttons to the right of the table can be used to select descriptions. When the desired recipe is highlighted, the “Load Selected” button must be pressed to load that recipe to the system.

1

Labeler Menu:

The Labeler Menu contains parameters related to dispensing labels on products.



Labeler Run/Stop:

Each Labeler can be toggled between Run and Stop (pending fault conditions). The Run/Stop button will change colors and text based on the current status.



Green “Running” Button: This indicates the labeler is currently running and cannot be jogged. While running, the labeler will automatically apply labels to passing products. To **stop** the labeler, press this button.



Red “Stopped” Button: This indicates the labeler is currently stopped and may be jogged. While stopped, the labeler will ignore products passing by. To **run** the labeler, press this button.

Labeler Status Indicator:

The status indicator below the Run/Stop button will identify which fault state the labeler is in.

Ready/OK (green): The labeler has no fault conditions and may operate normally.

Warning (yellow): The labeler has a warning present (typically low on labels). The labeler may operate normally, but will require attention soon.

Faulted (red): The labeler has a fault on it that will prevent it from dispensing labels.

Disabled (grey): Each labeler can be disabled in the Labeler Service menu. Faults and functions will be ignored.

Crossing (purple): If a crossover is in progress, the indicator under the running labeler will turn purple and indicate which direction the crossover is occurring.

Product Count and Reset:

This counter reflects how many Products have passed the product detect sensor while any labeler is Running. The reset button below the counter will set this value to 0. The Product count and reset are global, so they will be identical on all labeler menus.

Labeler Jog:

When the Labeler is stopped, the Jog button becomes available. Pressing the Jog button will cause the labeler to dispense one label (pending proper threading and label gap detection). It is important to jog labels upon threading or changing over to verify the labeler is threaded and functioning properly.



Green “Jog” Button: This indicates the labeler can be jogged. Press this button to start a jog process. This button will be grey while the labeler is jogging.



Greyed out “Jog” Button: This indicates the labeler is currently running, and may not be manually jogged.

Label Count and Reset:

This counter reflects how many Labels have been dispensed when Jogging and Running. Pressing the reset button below the counter will set this value to 0.

Product Delay:

Product Delay (in inches) controls the point at which the labeler dispenses a label. A lower product delay value will cause the labeler to dispense “earlier” as the product passes by. A higher product delay value will cause the labeler to dispense “later” as the product passes.

Label Stop:

Label Stop (in inches) controls the label’s stop position. Typically, the label should stop with 1/8” to 1/4” sticking off of the peel plate. A higher Label Stop will result in more label off of the peel plate.

Note that a high label stop can result in more than one label being dispensed at once.

Max Feed:

The Max Feed Length (in inches) determines how much of the liner will advance when no label division is detected by the Label Sensor. If this value is lower than the physical length of the label, poor label stop will result. This value is typically set to a value at least 1/4” longer than the actual label length.

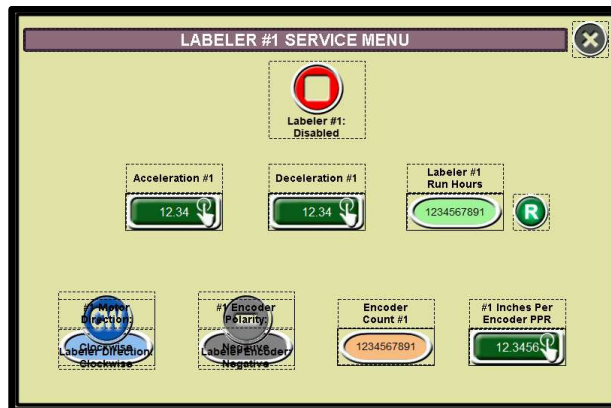
Labeler Speed Ratio:

Labeler Speed Ratio is the value that determines the speed of the labeler in relation to the conveyor belt.



Labeler Service Menu:

Each Labeler Service Menu contains parameters and toggles related to the Labeler that are not typically accessed on a regular basis. The Labeler Service Menu button is only visible when logged in.



Enable Button:

The Labeler can be Enabled and Disabled by using the toggle button in the middle of the screen.

Green “Enabled”: This indicates the labeler drive is enabled. While enabled, the labeler may be jogged, placed into run, and will be monitored for faults.

Red “Disabled”: This indicates the labeler is disabled. While disabled, the labeler drive roller will be free to spin so that any jams in the drive system can be cleared easily. Also, while disabled, the labeler will not jog or dispense labels when running. It is necessary to disable the labeler when clearing jams or changing settings found on this menu.

Acceleration and Deceleration (Supervisor Level):

These are the ramp values used by the labeler drive when dispensing labels while running. A lower value will result in a longer Acceleration or Deceleration rate.

Toggle the labeler from Stop to Run for new Ramp values to take effect.

Labeler Run Hours and Reset (Supervisor Level):

This counter will count the hours that the Labeler has been in the run mode while the conveyor is running. The reset button is only visible when logged in at the Supervisor Level.

Direction (Quadrel Level):

The Direction button sets the direction of the drive roller. This should be set at the factory and not need to be changed. Note that the drive must be re-enabled after changing the direction.

Polarity (Quadrel Level):

The polarity of the encoder count can be changed with this button. The encoder count must increment in a positive direction for the labeler to dispense labels while running. If the Encoder Count is counting in a negative direction, the Polarity button must be toggled. (note that the Polarity may not match the actual counting direction).

Encoder Count:

This is the current encoder count as interpreted by the Labeler drive. This value may not equal that of any other drives on the system.

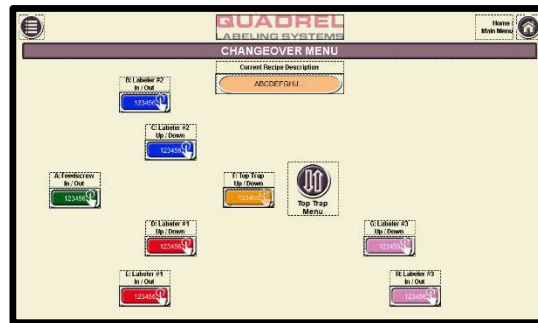
Labeler Inches per Encoder PPR (Quadrel Level):

This value determines the dispensing speed of the labeler in relation to the encoder. This value will equal the inches of conveyor travel per encoder pulses listed on the encoder itself.

Re-enable the drive after changing the settings to properly take effect.



Changeover Menu:

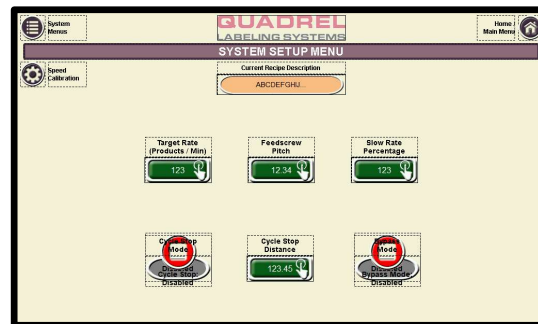


The Changeover / Dial settings menu contains indicators that make changing over from one product to another easier. These values can only be changed when logged in at the Supervisor level.



System Setup Menu:

The System Speed Menu contains parameters and indicators related to the optional equipment and motors installed on the system.



Target Rate:

This entry box will change the speed of the system. It is entered as Parts per Minute.

Slow Rate Percentage (Maintenance Level):

When product flow is stopped, the System will run at a slower rate, which is a percentage of the Target Rate.

Feedscrew Pitch (Maintenance Level):

The system uses the Product Pitch (entered as inches) to determine the speed of the conveyor belt. This value determines the spacing of the products as they exit the feedscrew. Each feedscrew is designed with a pitch, so refer to the feedscrew or documentation for the proper pitch for the screw being used. Note that the system must be stopped AND logged in to at least the Maintenance Level in order to change the Feedscrew Pitch value.

Cycle Stop Mode (Supervisor Level):

Enabled: When the Cycle Stop Mode is enabled, the system will continue running for a set amount of conveyor travel when a fatal fault occurs or the stop button is pressed. This is used to purge products out of the system when stopping.

Disabled: When disabled, the system will immediately stop when requested.

Cycle Stop Distance (Maintenance Level):

The Cycle Stop Distance is entered in inches and determines how long the cycle stop will be active when it is initiated.

Bypass Mode (Supervisor Level):

Enabled: When the Bypass Mode is enabled, only the conveyor will be allowed to run. The feedscrew, top trap, wrap belt, and all labelers will be permanently disabled.

Disabled: When disabled, the conveyor, feedscrew, top trap, wrap belt, and labelers will operate normally.



Speed Calibration Menu:

The System Speed Menu contains parameters and indicators related to the linear speed of the system.

Target Rate:

This entry box will change the speed of the system. It is entered as Parts per Minute.

Feedscrew Pitch (Maintenance Level):

The system uses the Product Pitch (entered as inches) to determine the speed of the conveyor belt. This value determines the spacing of the products as they exit the feedscrew. Each feedscrew is designed with a pitch, so refer to the feedscrew or documentation for the proper pitch for the screw being used. Note that the system must be stopped AND logged in to at least the Maintenance Level in order to change the Feedscrew Pitch value.

Target Conveyor Speed:

This indicator reflects the current target linear speed of the conveyor in Inches per Minute. It is calculated by the Current Target Rate x Feedscrew Pitch.

Conveyor Calibration (Supervisor Level):

This value allows the conveyor to run at the Target Main Conveyor speed. It is calibrated at the factory using a tachometer and should not be changed.

PLC Encoder Count:

This indicator shows the encoder counts as received by the PLC.

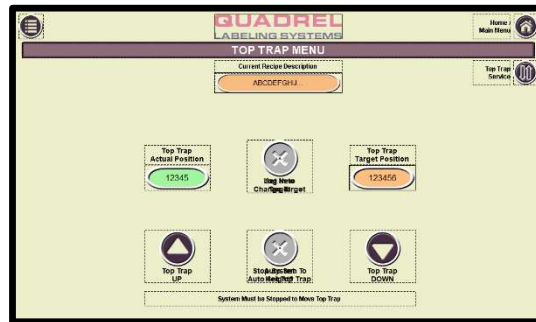
PLC Encoder Counts per Inch (Quadrel Level):

This value tells the PLC how many encoder counts it receives for every inch of conveyor travel.



Top Trap Menu:

The User Menu enables alternate login levels to access protected screens and buttons. You can access this Menu by pressing the Lock icon (pictured left).



Top Trap Actual Position:

This display shows the current output from the Top Trap height sensor. If this value is within 1% of the Target Position, the box will be green. If the value is +/- 5% of the value it will be yellow.

When the display box is red, the value is greater than 5% away from the Target Height.

Top Trap Target Position:

This display shows the target height for the Top Trap, based on the height sensor output.

Change Target Height (Supervisor Level):

When logged in at a supervisor level, pressing the Change button will take the Actual Position value and copy that to the Target Position setting.

Auto Set Height:

If the Current Height is not equal to the Target Height, the Auto Set Height button can be pressed to start the top trap movement. Note that pressing this button will pop up a movement confirmation page prior to actually moving.

Up / Down Buttons:

Press and hold these buttons to move the top trap up or down manually. Note that if the top trap reaches a limit sensor it will not travel any further in that direction.



Top Trap Confirmation Menu:

The Top Trap Confirmation Menu will appear at any time the top trap is requested to automatically move.



Confirm Movement:

Press this button to start the Top Trap movement to the Target Height. This pop-up screen will close automatically if the top trap reaches its target position after movement starts.

Cancel Movement:

Press this button to cancel any automatic movement. This pop-up screen will close if the Cancel button is pressed.

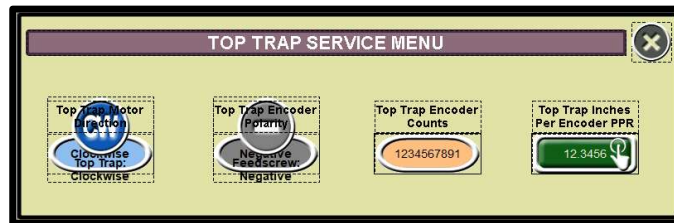
Movement Timeout:

Note that there is a 30 second timeout for the Top Trap movement. If the top trap times out, this pop-up screen will not close automatically. Close the screen by pressing the X button in the top right corner to start another movement request or manually move the Top Trap.



Top Trap Service Menu:

The Top Trap Service Menu allows the user to make changes to critical top trap settings.



Direction (Quadrel Level):

The Direction button sets the direction of the drive roller. This should be set at the factory and not need to be changed. Note that the drive must be re-enabled after changing the direction.

Polarity (Quadrel Level):

The polarity of the encoder count can be changed with this button. The encoder count must increment in a positive direction for the labeler to dispense labels while running. If the Encoder Count is counting in a negative direction, the Polarity button must be toggled (note that the Polarity may not match the actual counting direction).

Top Trap Encoder Count:

This is the current encoder count as interpreted by the Feedscrew drive.

Top Trap Inches per Encoder PPR (Quadrel Level):

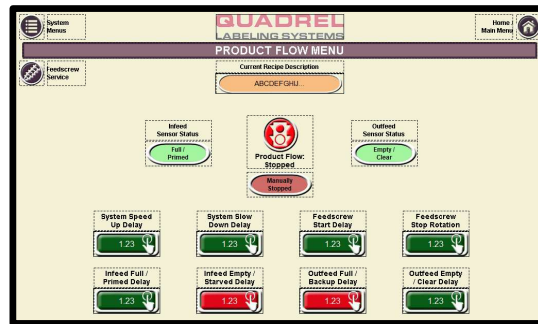
This value determines the running speed of the top trap in relation to the encoder. This value will equal the inches of conveyor travel per encoder pulses listed on the encoder itself.

Re-enable the drive after changing settings to properly take effect.



Product Flow Menu:

The Product Flow Menu controls timers and values associated with allowing products to enter the system.



Product Flow Control:

The pacing system can be stopped independently of the main system in order to prevent products from flowing into the system. This can be useful during setup or to purge the system. A pacing system can be a feedscrew, pacing wheel, pacing belt, stop gate, or combination of listed items.



Green “Automatic” Button: This indicates the pacing system will stop and start the pacing system based on external conditions.

The Pacing System will stop/close when:

- The system is stopped
- The infeed sensor is not blocked by products or “starved”.
- The outfeed sensor is blocked by products or “full”.
- The Product Flow button has been toggled to “Stopped”
- A Cycle Stop is active



Red “Stopped” Button: This indicates the pacing system is stopped and will not allow products into the system until toggled back to Automatic.

Product Flow Status Indicator:

The indicator below the Product Flow Control button identifies the actual status of the pacing system.

Green: Running. The pacing system is currently allowing products into the system.

Yellow: Waiting. The system is running but the pacing system is stopped because of a condition listed above.

Red: Stopped. The pacing system has been stopped manually and will not function until placed in the Automatic Mode.

System Speed Up Delay (Maintenance Level):

After the product flow system allows products to enter the system, the system will continue running at the slow rate for this amount of time (in seconds). This helps ensure products enter the system smoothly before ramping up to full speed. Note that this timer starts at the same time as the Screw Start Delay timer, not after.

System Slow Down Delay (Maintenance Level):

When the product flow system is requested to stop products from entering, the system will slow down for this amount of time (in seconds) before the flow system stops.

Screw Start Delay (Maintenance Level):

After the product flow is requested to start, this timer will start. While this timer is active, an optional stop gate will allow product to enter but the screw will remain stopped. This is to allow back pressure if needed into the pacing device.

Screw Stop Rotation (Maintenance Level):

When the feedscrew is requested to stop, it uses this parameter (entered in revolutions) to determine the actual stopping position while monitoring a position sensor. This is used to stop the screw with the last pocket open so that stopped products are not grabbed by the top trap. It is entered as revolutions of the feedscrew.

Infeed Starved / Empty Delay (Maintenance Level):

This timer will start when the Infeed sensor does NOT see products, which results in an Empty/Starved condition. After this timer expires, the product flow will stop.

Infeed Primed/ Full Delay (Maintenance Level):

This timer will start when the Infeed sensor sees products, which results in an Primed/Full condition. After this timer expires, the product flow will start.

Outfeed Clear / Empty Delay (Maintenance Level):

This timer will start when the Outfeed sensor does NOT see products, which results in a Clear/Empty condition. After this timer expires, the product flow will start.

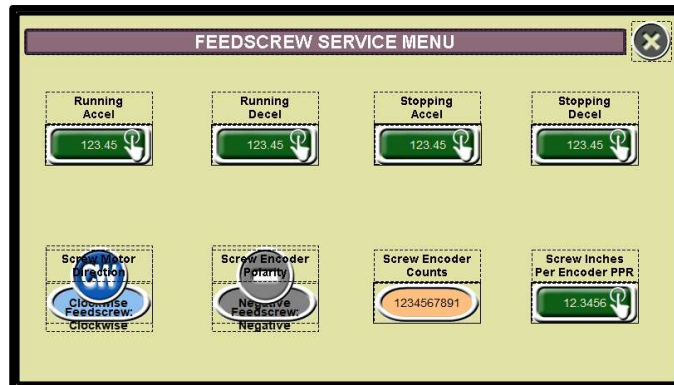
Outfeed Backup / Full Delay (Maintenance Level):

This timer will start when the Outfeed sensor sees products, which results in an Backed Up/Full condition. After this timer expires, the product flow will stop.



Feedscrew Service Menu:

The Feedscrew Service Menu allows the user to make changes to critical feedscrew settings.



Running Acceleration and Deceleration (Supervisor Level):

These are the ramp values used by the Feedscrew when it follows the conveyor's encoder signal - which is when it's running and allowing products into the system.

Stopping Acceleration and Deceleration (Supervisor Level):

These are the ramp values used by the Feedscrew when it is commanded to stop while the system continues running. These values can be changed so the feedscrew comes to a stop smoothly.

Direction (Quadrel Level):

The Direction button sets the direction of the drive roller. This should be set at the factory and not need to be changed. Note that the drive must be re-enabled after changing the direction.

Polarity (Quadrel Level):

The polarity of the encoder count can be changed with this button. The encoder count must increment in a positive direction for the labeler to dispense labels while running. If the Encoder Count is counting in a negative direction, the Polarity button must be toggled (note that the Polarity may not match the actual counting direction).

Feedscrew Encoder Count:

This is the current encoder count as interpreted by the Feedscrew drive.

Feedscrew Inches per Encoder PPR (Quadrel Level):

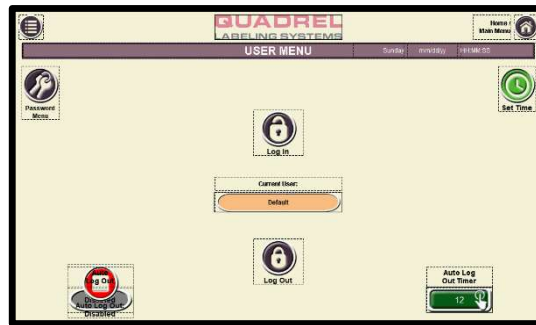
This value determines the running speed of the feedscrew in relation to the encoder. This value will equal the inches of conveyor travel per encoder pulses listed on the encoder itself.

Re-enable the drive after changing settings to properly take effect.



User Menu:

The User Menu enables alternate login levels to access protected screens and buttons. You can access this Menu by pressing the Lock icon (pictured left).



Log In: Press this button to enter a user password.



Log Out: Press this button to enter to log the current user out.



Password Menu: This will open up a security prompt before opening the password menu, where the passwords for the Maintenance and Supervisor levels are set.

Auto Log Out (Supervisor Level):

When Enabled (button will be Green), the logged in user will automatically be logged off at a set amount of time. Note that the system automatically enables the Auto Log Out feature upon startup.

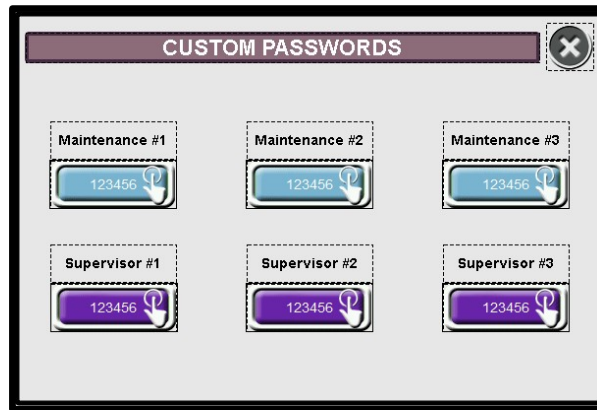
Log Out Timer (Supervisor Level):

This timer (in minutes) determines the time it takes to log off a user if Auto Log Out is enabled.



Password Menu:

The Password Menu allows the creation and editing of the passwords for different security levels.



Maintenance:

There can be 3 user defined passwords for the Maintenance level. Note that there is one hard coded Maintenance Level password that cannot be viewed or changed.

Supervisor:

There can be 3 user defined passwords for the Supervisor level. Note that there is one hard coded Supervisor Level password that cannot be viewed or changed.

If a Maintenance and Supervisor password are the same, the system will log that user in at the Maintenance level.

The password(s) to open the Password Menu are stored in the HMI and cannot be modified. This will prevent any password loss in the event the PLC logic is altered.

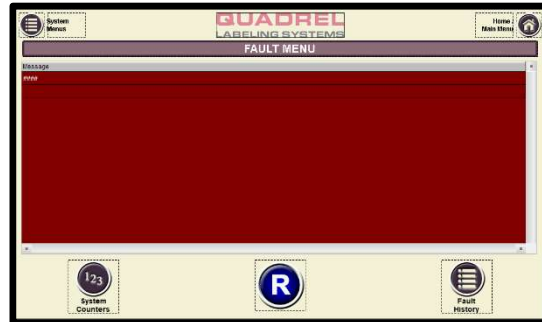
Quadrel:

There is a hard coded Quadrel level password that cannot be viewed or changed. This is typically only used when a machine is first commissioned to set motor directions or global variables that do not change on a regular basis.



Fault Menu:

The Fault Menu displays all fault messages, shows system level counters, and gives access to a Fault History. You can access this Menu by pressing the Alert icon.



Fault Display:

The Fault dialog box will display all of the active faults on the machine.

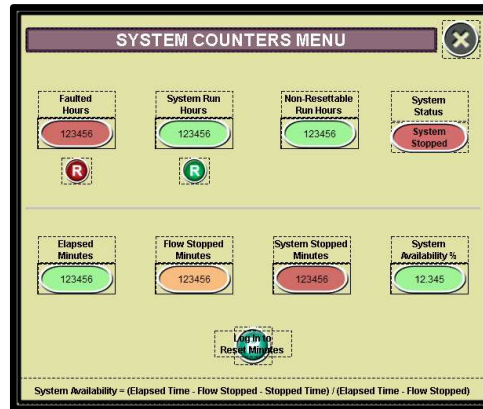
Fault Reset:

Used to reset active faults displayed above.



Counters Menu:

The Counters Menu shows system level counters and status indicators. Counters may be reset when logged in at the Supervisor level.





Fault History:

The Fault History will store the last 128 fault message events.

FAULT HISTORY TABLE			
Trigger	Message		Re...
hh:mm:ss.mmm	###	hh:mm:ss.mmm	

Fault Messages and Indicators:**Green Lamp:**

Steady: The Green lamp will be steady while the system is running.

Amber Lamp:

Flash: The Amber lamp will flash while a warning is active on the system.

Red Lamp:

Flash: The Red lamp will flash while a fatal fault is active.

Buzzer: The Audible Alarm will long pulse (1 second) when a fatal fault is present. The buzzer will short pulse before the system starts.

Overhead Light Strip:

White: No faults are present on the system.

Amber Steady: A Labeler has an active warning.

Amber Flashing: A system warning is active (does not include the labeler warnings). Red

Steady: A Labeler has an active fatal fault.

Red Flashing: A system fatal fault (does not include the labeler fatal faults).

Warning Messages: Warning messages identify a status or event that may need action soon. The machine will not stop from a warning message, but a warning may turn into a fatal fault that will stop the machine. Many warning messages will automatically clear once the problem is remedied.

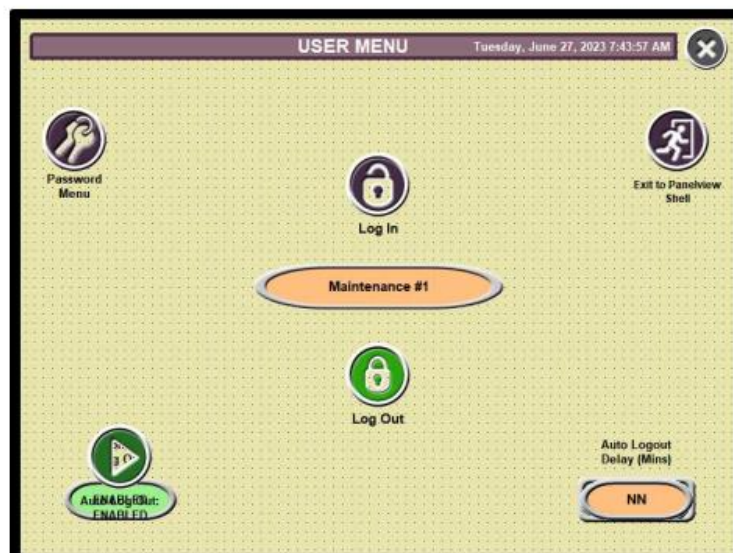
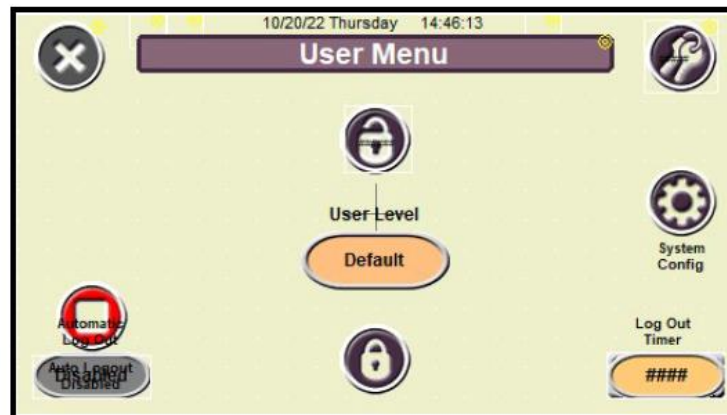
Fatal Messages: Fatal messages will cause the system to stop immediately or initiate a cycle stop. Fatal faults are typically associated to events that prevent labels being applied properly, safety related faults, or other events that may prevent proper machine operation.

Messages	Cause/Solution
Warning Messages	
PLC Cycled without Screen. Restart System or Touch Screen	The PLC waits for a signal from the touch screen after power-up to verify communications before executing logic. If the PLC is cycled from power or downloading, the screen must be cycled as well.
Feedscrew Torque Limit Reached Warning	The feedscrew drive has a warning on it, which is typically when it reaches a Torque Command limitation. Verify the feedscrew is not attempting to run at excessive speeds.
Feedscrew Drive (DR3) Faulted / Turned Off Warning	The drive that controls the feedscrew motor is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
Feedscrew Drive (DR3) Program Stopped Warning	The internal program of the feedscrew drive is not executing logic. Pressing the Reset button or re-enabling the drive should remedy this problem.
Top Trap (DR2) Warning / Torque Limit	The top trap drive has a warning on it, which is typically when it reaches a Torque Command limitation. Verify the top trap is not attempting to run at excessive speeds.
Conveyor Max Linear Speed Reached. Rate Reduced to 50/min	The maximum conveyor speed limit has been reached or exceeded. Verify proper target rate, feedscrew pitch, and conveyor calibration
Conveyor Max Speed Command Reached. Check Calibration or Drive Settings	The maximum conveyor speed limit has been reached or exceeded. Verify proper target rate, feedscrew pitch, and conveyor calibration
Cycle Stop in Progress. Please Wait or Press Stop	The machine is currently in a cycle stop and will stop once the cycle stop distance expires. Pressing the Stop button while a cycle stop is active will stop the machine

	immediately.
Feedscrew Stop Request Timed Out. Check Position Sensor	The Feedscrew was requested to stop, but did not stop within a set amount of time. This is typically due to the feedscrew position sensor not being set properly or an improper feedscrew parameter.
Top Trap Movement Timed Out. Check for Jams or Re-Start Movement	The top trap lift was requested to start, but did not stop within a set amount of time. This is typically due to the top trap position sensor not being set properly or an improper top trap parameter.
Top Trap Drive (DR2) Program Stopped Warning	The internal program of the top trap drive is not executing logic. Pressing the Reset button or re-enabling the drive should remedy this problem.
Top Trap Torque Limit Reached Warning	The top trap drive has a warning on it, which is typically when it reaches a Torque Command limitation. Verify the top trap is not attempting to run at excessive speeds.
Infeed Empty / Starved. Product Flow Stopped	The Product Flow has stopped because the infeed sensor is not satisfied.
Outfeed Backed Up / Full. Product Flow Stopped	The Product Flow has stopped because the Outfeed sensor is not satisfied.
Feedscrew Drive (DR3) Program Stopped Warning	The internal program of the feedscrew drive is not executing logic. Pressing the Reset button or re-enabling the drive should remedy this problem.
Labeler #x Drive (DRx) Power Off / Faulted	The drive that controls the listed labeler is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
Labeler #x End of Web Warning	The End Of Web sensor (between the drive system and unwind) on the Labeler is active and the Labeler is Stopped. Placing the Labeler into Run will generate a Fatal Fault.
Labeler #x Broken Web Warning	The Broken Web sensor (between the drive system and unwind) on the Labeler is active and the Labeler is Stopped. Placing the Labeler into Run will generate a Fatal Fault.
Labeler #x Drive (DRx) Program Stopped Warning	The internal program of the listed labeler drive is not executing logic. Pressing the Reset button or re-enabling the drive should remedy this problem.
Labeler #1 Disabled. Navigate to Labeler #1 Service Menu	The listed labeler has been disabled from its Service Menu. Re-Enable the drive before attempting to run it.
Labeler #1 Missing Label / Maximum Feed Length Reached	The labeler's drive has reported a maximum feed length movement while jogging. If there was no missing label on the web, ensure the "Max Feed Length" in the labeler menu is set to the proper value.
Labeler #x Low Label Supply	The label supply on the labeler has been determined low by the sensor fiber under the flange.

Messages	Cause/Solution
Fatal Messages	
Safety Relay Active. Check E-Stops, Reset	The Safety relay has been activated by an Emergency Stop. Unlatch all Emergency Stops, close all doors, and press the Reset button to reset the safety relay.
Conveyor Drive (DR1) Faulted / Turned Off	The drive that controls the conveyor motor is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
Feedscrew Drive (DR3) Faulted / Turned Off	The drive that controls the feedscrew motor is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
Feedscrew Drive (DR3) Program Stopped Fault	The internal program of the feedscrew drive stopped executing logic while it was running or attempted to run. Reset the drive or re-enable the drive.
Top Trap Drive (DR2) Faulted / Turned Off	The drive that controls the top trap motor is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
Encoder Signal Lost	The system was running but the PLC stopped receiving encoder counts. This can be from a faulty encoder, wiring, or conveyor drive.
Feed Screw Torque Limit Reached Fault	The feedscrew drive has a warning on it, which is typically when it reaches a Torque Command limitation. Verify the feedscrew is not attempting to run at excessive speeds.
Top Trap Torque Limit Reached Fault	The top trap drive has a warning on it, which is typically when it reaches a Torque Command limitation. Verify the top trap is not attempting to run at excessive speeds.
Feedscrew Clutch Tripped. Check for Jams and Reset	The sensor at the Feedscrew Clutch has been activated. Clear any jams and rotate the feedscrew by hand slowly until the clutch pops back into place.
PLC Faulted	The PLC has become faulted. If resetting power to the system does not clear this fault, contact Quadrel technical support.
Labeler #x Drive (DRx) Power Off / Faulted	The drive that controls the listed labeler is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
Labeler #x End of Web Fault	The End of Web sensor (between the drive system and rewind) on the Labeler is active and the Labeler was Running or placed into Run.
Labeler #x Broken Web Fault	The Broken Web sensor (between the drive system and rewind) on the Labeler is active and the Labeler was Running or placed into Run.
Labeler #x Drive (DRx) Program Stopped Fault	The internal program of the listed labeler drive stopped executing logic while it was running or attempted to run. Reset the drive or re-enable the drive.
Labeler #x Disabled. Navigate to Labeler #x Service Menu	The labeler has been disabled from its Service Menu while it was running or attempted to run. Re-Enable the labeler from its service menu.
Labeler #x Missing Label / Maximum Feed Length Reached	The listed labeler's drive has reported a maximum feed length movement while running. If there was no missing label on the web, ensure the "Max Feed Length" in the labeler menu is set to the proper value.

To set user passwords during initial setup navigate to the passwords screen, then Log in using password "7670" Once logged in users can set passwords per HMI Guide.




USER MENU


Sunday

mm/dd/yy

HH:MM:SS



Passwords




Current User:

Default

Auto Logout

Disabled



Log Out Timer:

12:34

Setup Sheets

QUADREL

LABELING SYSTEMS

PROLINE PARAMETERS

SERIAL NUMBER: 84211-100

LABEL SIZE: 2 3/4 x 6

PRODUCT: 16 oz

RECIPE # 1

FEEDSCREW P/N: B20660-1293 L-R

LABELER 1 MENU

PRODUCT DELAY	6.50
LABEL STOP	1.70
MAX FEED	6.00
SPEED RATIO	1.00

LABELER 2 MENU

PRODUCT DELAY	7.10
LABEL STOP	1.50
MAX FEED	6.00
SPEED RATIO	1.00

LABELER 3 MENU

PRODUCT DELAY	7.80
LABEL STOP	0.20
MAX FEED	1.00
SPEED RATIO	1.00

CHANGEOVER SETTINGS

FEED SCREW IN/OUT	1000
TOP TRAP UP/DOWN	1000
LABELER 1 UP/DOWN	1000
LABELER 1 IN/OUT	1000
LABELER 2 UP/DOWN	1000
LABELER 2 IN/OUT	1000
LABELER 3 UP/DOWN	1000
LABELER 3 IN/OUT	1000

TOP TRAP MENU

TOP TRAP TARGET POSITION	4338
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LABELER 1 SERVICE MENU

ACCEL	1.500
DECEL	1.500
MOTOR DIRECTION	COUNTER CLOCKWISE
ENCODER POLARITY	NEGATIVE
COUNTS PER INCH	0.7400

LABELER 2 SERVICE MENU

ACCEL	1.500
DECEL	1.500
MOTOR DIRECTION	COUNTER CLOCKWIES
ENCODER POLARITY	NEGATIVE
COUNTS PER INCH	0.7400

LABELER 3 SERVICE MENU

ACCEL	1.500
DECEL	1.500
MOTOR DIRECTION	COUNTER CLOCKWISE
ENCODER POLARITY	NEGATIVE
COUNTS PER INCH	0.7400

SYSTEM SPEED MENU

TARGET RATE	200
FEED SCREW PITCH	6
CYCLE STOP DISTANCE	80.00
BYPASS MODE	DISABLE
CYCLE STOP	DISABLE
SLOW RATE	75%

SPEED CALIBRATION MENU

TARGET RATE	200
FEED SCREW PITCH	6
CONVEYOR CALIBRATION	9.25
TARGET CONVYOR SPEED	900
ENCODER COUNTS PER INCH (PLC)	1028.04

PRODUCT FLOW MENU

SYSTEM SPEED UP DELAY	1.00
SYSTEM SLOW DOWN DELAY	2.00
FEEDSCREW START DELAY	3.00
FEEDSCREW STOP POSITION	0.40
INFEEED FULL/ PRIMED	1.00
INFEEED EMPTY/STARVED	1.00
OUTFEED FULL/BACKUP	1.00
OUTFEED EMPTY/CLEAR	1.00

FEEDSCREW SERVICE MENU

RUNNING ACCEL	0.5
RUNNING DECEL	0.5
STOPPING ACCEL	0.5
STOPPING DECEL	0.5
SCREW MOTOR DIRECTION	COUNTER CLOCKWISE
SCREW ENCODER POLARITY	NEGATIVE
SCREW ENCODER COUNTS/INCH	0.7400

Fuji ACE Setup

Job: 83688 Drive: DR1 Motor: Conveyor

SETUP AND ADJUSTMENTS: (Reference Fuji drive manual for detailed information)

Initial Power-Up:

The display will show "8.dES". Press the Func/Data Key.

"ASIA" will be displayed. Press the Stop and Up/Down keys until "ANEr" is displayed.

Press the Func/Data Key to save the setting.

Set Primary Parameters:

Parameter	Fuji Default	Quadrel Default Value	Quadrel Final Value	Description
F01	0	1 (0-10V Terminals) 12" (PG Card)	0	Frequency Command 12 Drives with PG Card
F02	2	1 (Terminals)	1	Operation
F03**	60.0	60.0	60.0	Max Frequency **If Max Frequency Exceeds 70.0 then adjust F15 First.
F07***	6.0	3.0	3.0	Accel Time *** Set to 0.0 if PG Card Installed
F08***	6.0	3.0	3.0	Decel Time *** Set to 0.0 if PG Card Installed
F15	70	70	90.0	Upper Freq Limit
F29	0	0 or 3	0	Terminal FM Function. 0 If wired to Another Drive 3 If wired to PLC Encoder Input
F42	0	2	2	Control Mode
H04	0	5	5	Auto Reset Attempts
H05	5.0	3.0	3.0	Auto Reset Delay
H30	0	4	4	Comm Function. 4 = Start Term, Freq 485 (2)
P99	0	1 (HP)	1	Motor Type
P02	Varies	See Motor Nameplate		Rated Capacity (HP)
E27	99	10		Status Relay Setting
Y01	1		1	Drive's Address
Y04	3	2	2	Baud Rate
Y10	1	2	2	Protocol 2= Fuji

Initialize Parameters

- Navigate to Parameter H03
- Use the STOP and UP Arrow to change H03 to "2"
- H03 will revert back to "0" once the parameters are automatically set.

Set the Motor Current based on the Motor Nameplate value. Entered as Amps.

Parameter	Fuji Default	Motor Nameplate	Quadrel Final value
P03	Varies		

Y01 = 1
Y04 = 2
Y05 = 0 (default)
Y10 = 2

WARNING



- KEEP HAND CLEAR OF MOVING PARTS. DO NOT PLACE HANDS NEAR LABELING HEAD WHEN IN OPERATION



- DO NOT OPERATE EQUIPMENT WITHOUT GUARDS OR COVERS INSTALLED



6.1 LABELING HEAD INFORMATION

6.1.1 LOADING AND UNLOADING STOCK ROLL



CAUTION

To avoid injuries, you must keep the labeler stopped/paused. You can manually jog labels with the JOG button.

Look carefully at the diagram and follow the threading procedures indicated below.

You will also find the threading diagram directly on the labeling head.

- 1) Place the label stock roll on the unwind shaft. Press the roll firmly against the flange. Then slide the locking collar over the unwind shaft aligning the set screw with the shaft. Press into the roll and twist to lock the collar in place.



- 2) Pull Approximately 36-40" of stock from label stock roll.

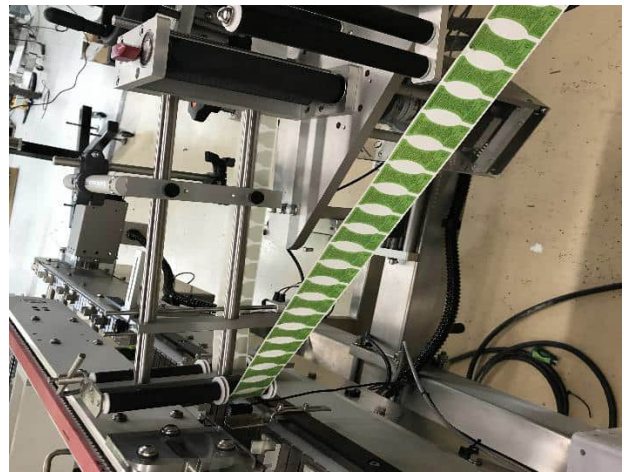
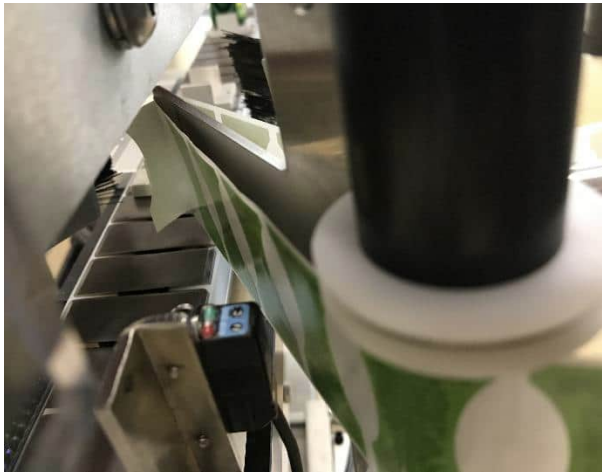


- 3) Follow the threading diagram on the labeling head for routing the web.
4) Thread through the dancer to the peel plate.

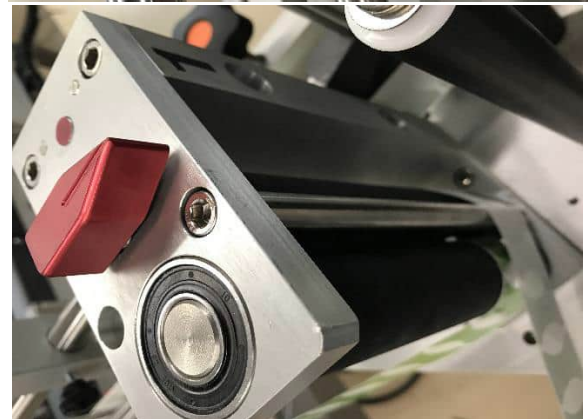
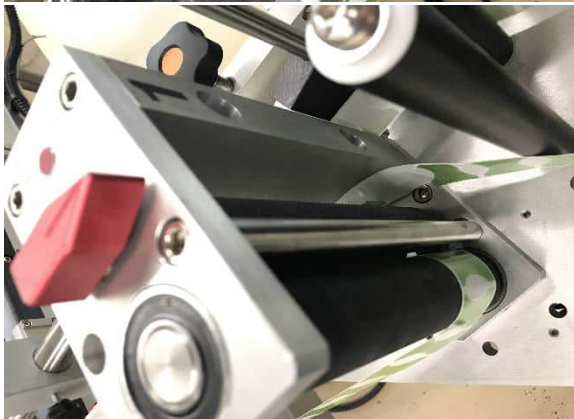
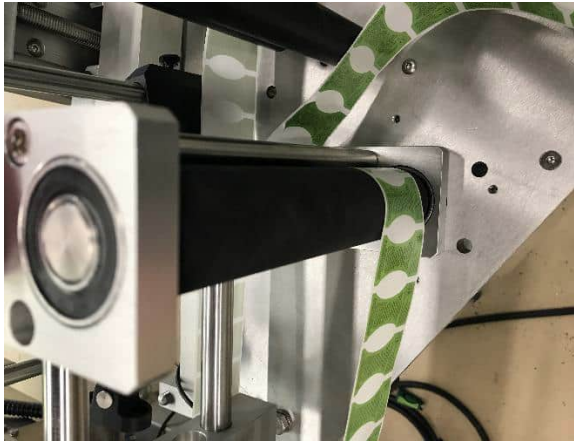




- 5) Feed the label around the peel plate and under the pressure shoe if (if there is one). Feed the label up the head to the pull roll. Pull all the slack out.



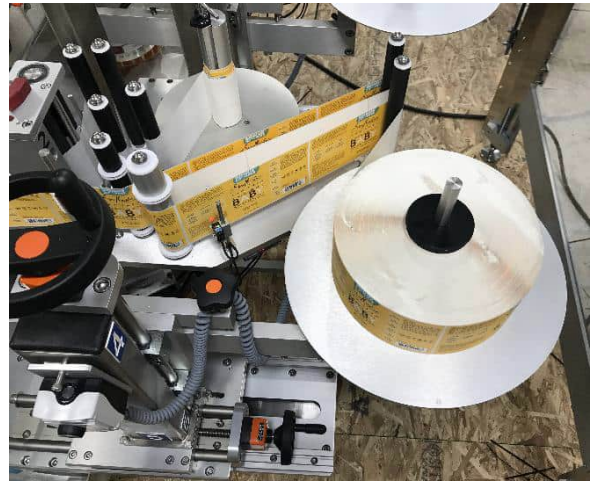
- 6) Wrap labels around the rubber roller as shown, then around the knurled roller. Make sure the knurled roller is not locked in by turning the red knob to the left or right of the red dot on the drive roll. When you have the labels completely threaded you can turn the knob to the red dot.



- 7) Thread the labels through the rewind dancers to the rewind shaft. Place the end of the label through the clip and rotate the rewind hub to take up the slack.



- 8) The finished product should look similar to the pictures below. Some heads are threaded differently depending on the style head you have. See threading diagrams on the head itself or the manual.



- 9) To unload the rewind loosen (counter clockwise) the “clevis” bolt on the top of the rewind hub. this will collapse the rewind and you can pull the liner off the hub.

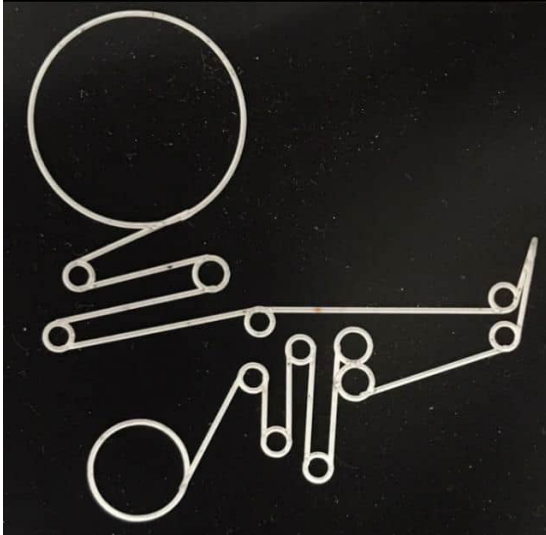


CAUTION

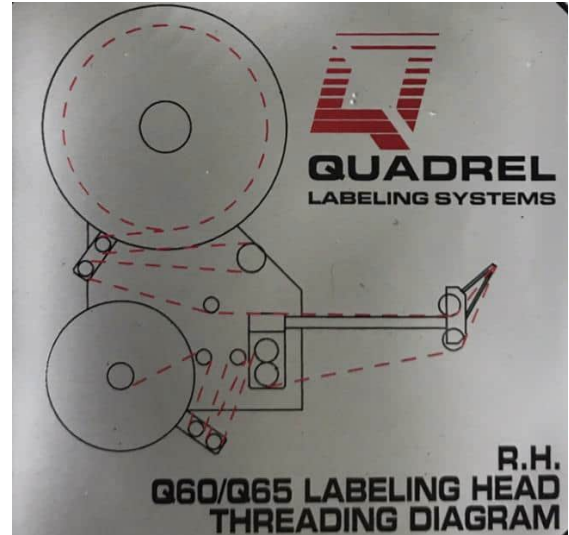
There are many pinch points on a labeler. to avoid injury read and understand the owner’s manual before operating.

6.1.2 THREADING DIAGRAMS

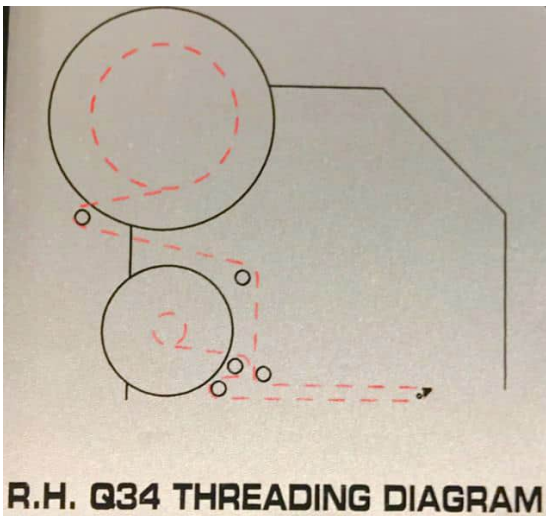
Here are the following threading diagrams for our standard labeling heads.



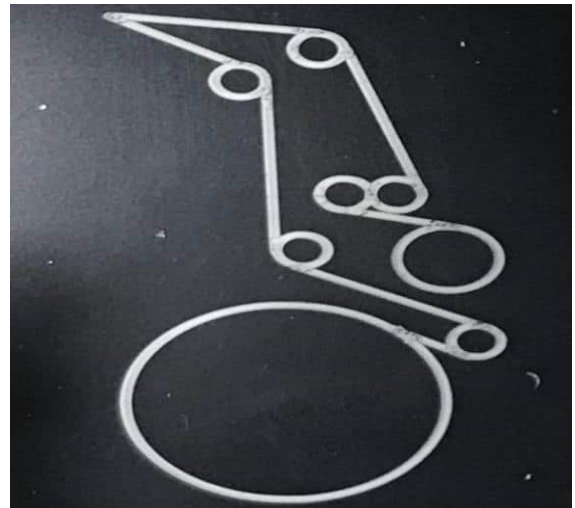
Q120/Q125/Q115/Q110



Q60/Q65



Q34



E100

6.1.3 LABELER ADJUSTMENTS

The vertical adjustment is to position the label on the container at different heights. It's practical if you have different size labels and/or containers. To adjust the height you simply rotate the handwheel at the top of the labeler counter clockwise to go down and clockwise to go up.



Horizontal adjustments are made the same way except you rotate the hand wheel under the labeler. Rotating the hand wheel counter clockwise will move the labeler in and rotating clockwise will move the labeler out.



To adjust the angle of the labeling head you first need to loosen the large $\frac{3}{4}$ -10 nut with a $1\frac{1}{4}$ " wrench and the $\frac{5}{16}$ -18 hex head bolt. The angular adjustment is very important to increase the repeatability of the process. A good adjustment is when the exit of the label is tangent with the surface of the application.



CAUTION

DO NOT remove the nut & bolt.



Now to adjust the tilt of the labeling head by tightening and loosening the jack screws.



Rotate adjustment is achieved by loosening the 2 ratchet handles under the labeling head. There is a jack screw holding the labeling head in place, but still use caution when loosening the ratchet handles the labeling head can rotate

freely when loose. This is a fine adjustment that increases the parallelism of the label to the shape of the container.



CAUTION

When loosening the labeling head, the head may rotate freely. Keep positive pressure against the head to prevent the head from rotating on its own.





QUADREL LABELING SYSTEMS

Q125

LABELING HEAD

GENERAL DESCRIPTION

- The Q125 has been developed as a heavy duty automatic labeling head system for integration into high speed, high rate production environments. The labeling head can be configured for either wrap or wipe on applications. The Q125 uses a servo drive and motor system that can be used independently or in conjunction with a PLC. All settings are controlled from a touch screen interface for easy setup and adjustments. In addition, a built in system of fault logic can easily interface with a host of optional sensors.

PRINCIPLE OF FUNCTION

- The Q125 labeling head applies pressure sensitive labels onto moving products. Various principles are involved to achieve accurate label application. In general, a labeling system integrates three (3) basic functions:
 - **Product Handling:** The most common product handling component is the conveyor. Conveyors allow the product to transport smoothly through the labeling station. The Q125 labeler can be supplied either as a stand alone head (head on a stand) or integrated into a complete conveying/product handling system. An encoder from the product handling system must be tied into the labeler's drive.
 - **Label Application:** Usually the label is "tacked" directly to the product during the label dispensing cycle. Secondary label applicators such as brushes, roller or wrap belts are used to finish the label application and to ensure good adhesion.
 - **Label Dispensing:** The Q125 utilizes two movement types to dispense labels. The first movement is a fixed speed, "jog" movement that is used during setup purposes. Jogging labels verifies proper label threading and labeler operation prior applying labels to products. The second movement is a synchronized "run" movement that is used to apply labels on passing products. The labeler's drive system will synchronize speed with the product handling system from an encoder. This eliminates the need to change settings based on system speed and allows for accurate and repeatable labeling.

SEQUENCE OF OPERATION:

- The electrical and mechanical operating sequence described below is intended only to acquaint the operator with the operation of the label dispensing head and its related control circuitry.
- The Jog function is used for manual set-up of label dispensing. Under proper conditions, a jog sequence will dispense one label. Labels must be threaded properly and the labeler stopped (indicated on the touch screen) before Jogging labels.
- The Jog cycle is described in the following manner:
 1. After verifying that labels are threaded properly and the labeler is stopped, a jog button (physical green button near the labeler or a button on the touch screen) must be pressed.
 2. The labeler will start dispensing labels at a fixed speed.
 3. The labeler's drive will monitor a label gap sensor input before finishing a dispensing cycle.
 4. Once the label's gap is detected by the sensor, the labeler will continue dispensing the label for a length defined by the "Label Stop" parameter on the touch screen. This distance is entered as inches.
 5. After the Label Stop distance is reached, the Jog cycle is complete and the labeler stops dispensing labels.
 6. If no label gap is detected, the labeler will only index a maximum distance which is set by the "Max Feed" parameter on the touch screen. This distance is entered as inches.
- When the labeler is in the "Run" mode it will automatically dispense labels on products that are passing by. Labels must be threaded properly and the labeler placed in the Run mode (indicated on the touch screen) to automatically dispense labels
 1. A product activates the Product Detect sensor.
 2. The labeler drive captures the position of the product on the product handling system and starts an internal delay, which is the "Product Delay" parameter on the touch screen.
 3. The Product Delay is equal to inches, so once the product travels the Product Delay distance from the product detect sensor, a label will be dispensed.
 4. The labeler dispenses a label at the speed of the product which is multiplied by the "Speed Ratio" parameter found on the touch screen. The ratio is a multiplier, so a value of 1.0 determines the labeler will dispense at the exact speed of the conveyor.
 5. The labeler monitors the label gap sensor in the same manner of the Jog movement before finishing the dispensing cycle.

ASSEMBLY TITLE: Q120 LABELING HEAD ASSEMBLY

DRAWING NO.: NONE

GENERAL FUNCTION:

- Applies labels to the front and/or back, top/bottom of the products
- Wraps labels around cylindrical products

SET-UP AND ADJUSTMENTS:

- Tighten all loose connections and screws
- As noted in each sub-assembly

MAINTENANCE:

- Remove glue residue and labels from all rollers and idlers
- As noted in each sub-assembly

TROUBLESHOOTING:

- As noted in each sub-assembly

ASSEMBLY TITLE:**Q120 LABELING HEAD - THREADING****GENERAL FUNCTION:**

- This section is used to guide the user through loading and feeding the label through the web path.

SET UP AND ADJUSTMENTS:

- Load label spool onto unwind hub. Secure unwind retainer onto hub and lock. Pull 3-4 feet of web from unwind and strip labels free of web.
- Unlock the drive roller locking handle.
- Using the threading diagram located on the labeling head, feed the web through the labeling head. Start at the unwind dancer assembly and work forward.
- Feed the web through the drive roller assembly.
- Feed the web around the rewind dancer assembly and onto the rewind hub. Wrap the web around the hub once. Lock the web in place with the rewind retaining bracket.
- Once the web has been threaded, lock down the drive roll assembly by rotating the drive roll locking arm into the locked position. (Towards the drive roller assembly)

MAINTENANCE:

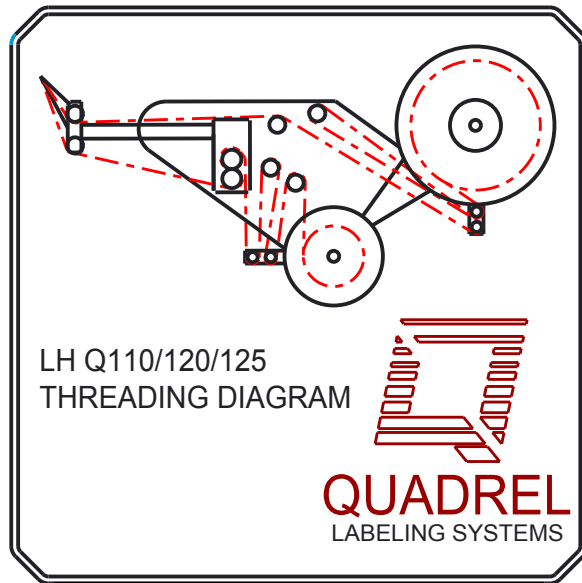
- None this section.

TROUBLESHOOTING:PROBLEM

- Web break
- No Web Tension

WHAT TO DO

- Check web path and insure web routed correctly.
- Debris causing web tear and break. Clear as needed.
- Check web path through unwind and dancer assembly.
- Check drive roller lock position.




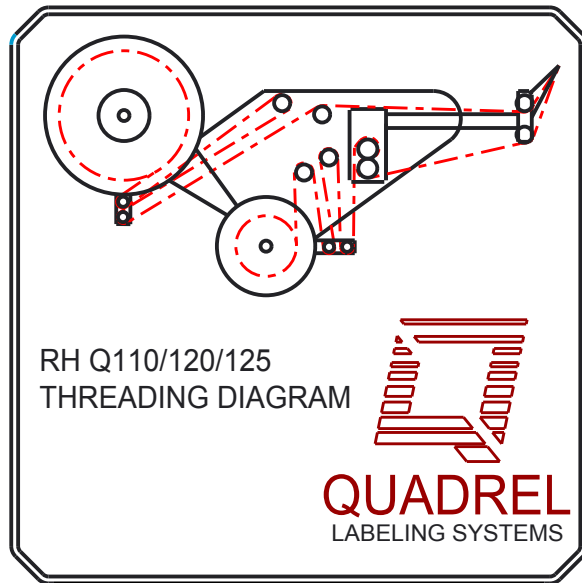
NOTES:

- 1) LABEL MATERIAL IS .003" ALUMINUM FOIL W/PERMANENT PRESSURE SENSITIVE ADHESIVE.
- 2) ALL LETTERING IS .125" HIGH EUROSTYLE 2, BOLD EXTENDED 2.
- 3) USE QUADREL STANDARD LOGO.
- 4) ALL LINES AND LETTERS ARE BLACK ON A SILVER BACKGROUND QUADREL AND (WEB PATH) ARE RED #(199c) LINES ARE DASHED LINES.
- 5) LABEL SIZE 3.0" X 3.0".

A	5-8-19	NEW DRAWING
REV	DATE	DESCRIPTION

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

<div>UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE</div> <div><div>X± .1 XX± .01 XXX± .005 ANGLES ± 30'</div></div> <div><div>SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030</div></div>	<div></div> <div><div>QUADREL LABELING SYSTEMS</div><div>7670 JENTHER DRIVE</div><div>MENTOR, OHIO 44060</div><div>(440) 602-4700</div></div>	SCALE: DRAWING SCALE
		DATE: 5-8-19
		DRW BY: TJS
		CHK BY:
		APPR BY:
Q110/120/125 L.H. THREADING DIAGRAM		
MAT'L	SEE NOTES	A26222-110LH



NOTES:

1) LABEL MATERIAL IS .003" ALUMINUM FOIL W/PERMANENT PRESSURE SENSITIVE ADHESIVE.

2) ALL LETTERING IS .125" HIGH EUROSTYLE 2, BOLD EXTENDED 2.

3) USE QUADREL STANDARD LOGO.

4) ALL LINES AND LETTERS ARE BLACK ON A SILVER BACKGROUND QUADREL AND (WEB PATH) ARE RED #(199c) LINES ARE DASHED LINES.

5) LABEL SIZE 3.0" X 3.0".

A	5-8-19	NEW DRAWING
REV	DATE	DESCRIPTION

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE</p> <p>X± .1 .XX± .01 .XXX± .005 ANGLES ± 30'</p> <p>SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030</p>	<p>QUADREL LABELING SYSTEMS</p> <p>7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700</p>	SCALE: DRAWING SCALE
		DATE: 5-8-19
<p>MAT'L</p> <p>SEE NOTES</p>	<p>Q110/120/125 R.H. THREADING DIAGRAM</p>	DRW BY: TJS
		CHK BY:
		APPR BY:
		A26222-110RH

ASSEMBLY TITLE: **Q110 SIDE PLATE ASSEMBLY**

DRAWING NO.:

GENERAL FUNCTION:

- To provide a rigid mounting surface for outboard labeling components, electronic components, and system components.
- The side plate also supports the system mount

SET UP AND ADJUSTMENTS:

- None

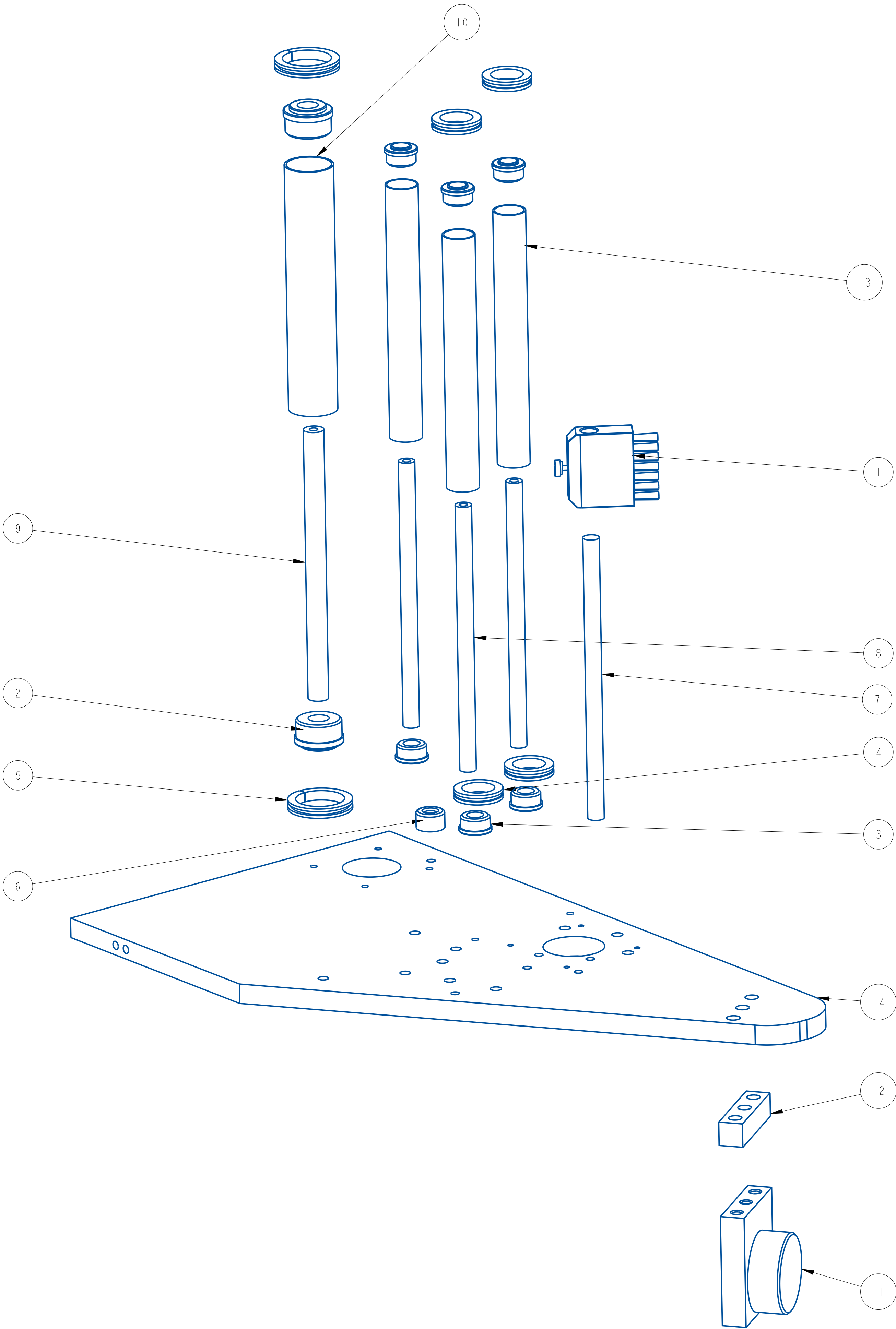
MAINTENANCE:

- None

TROUBLESHOOTING:

- None

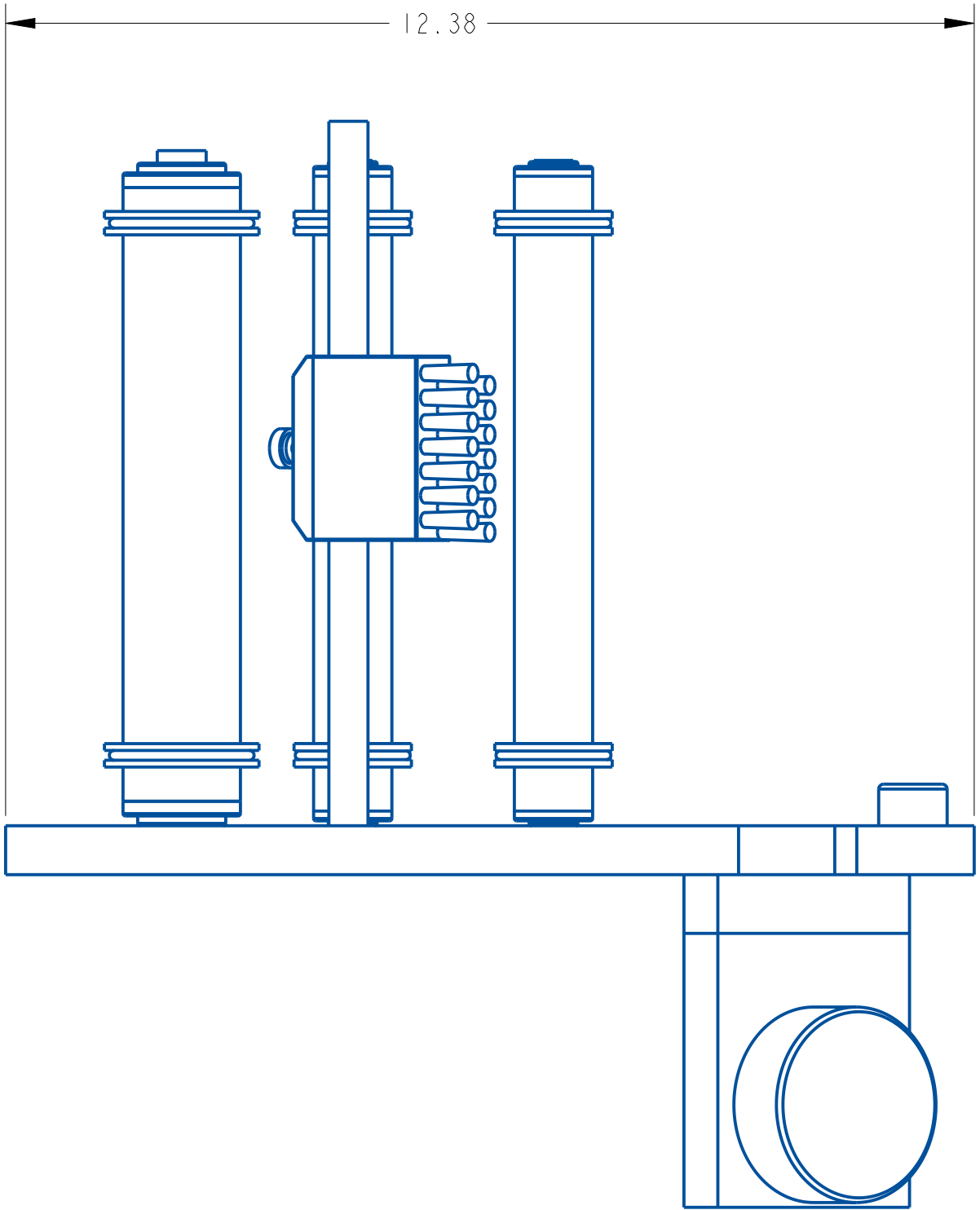
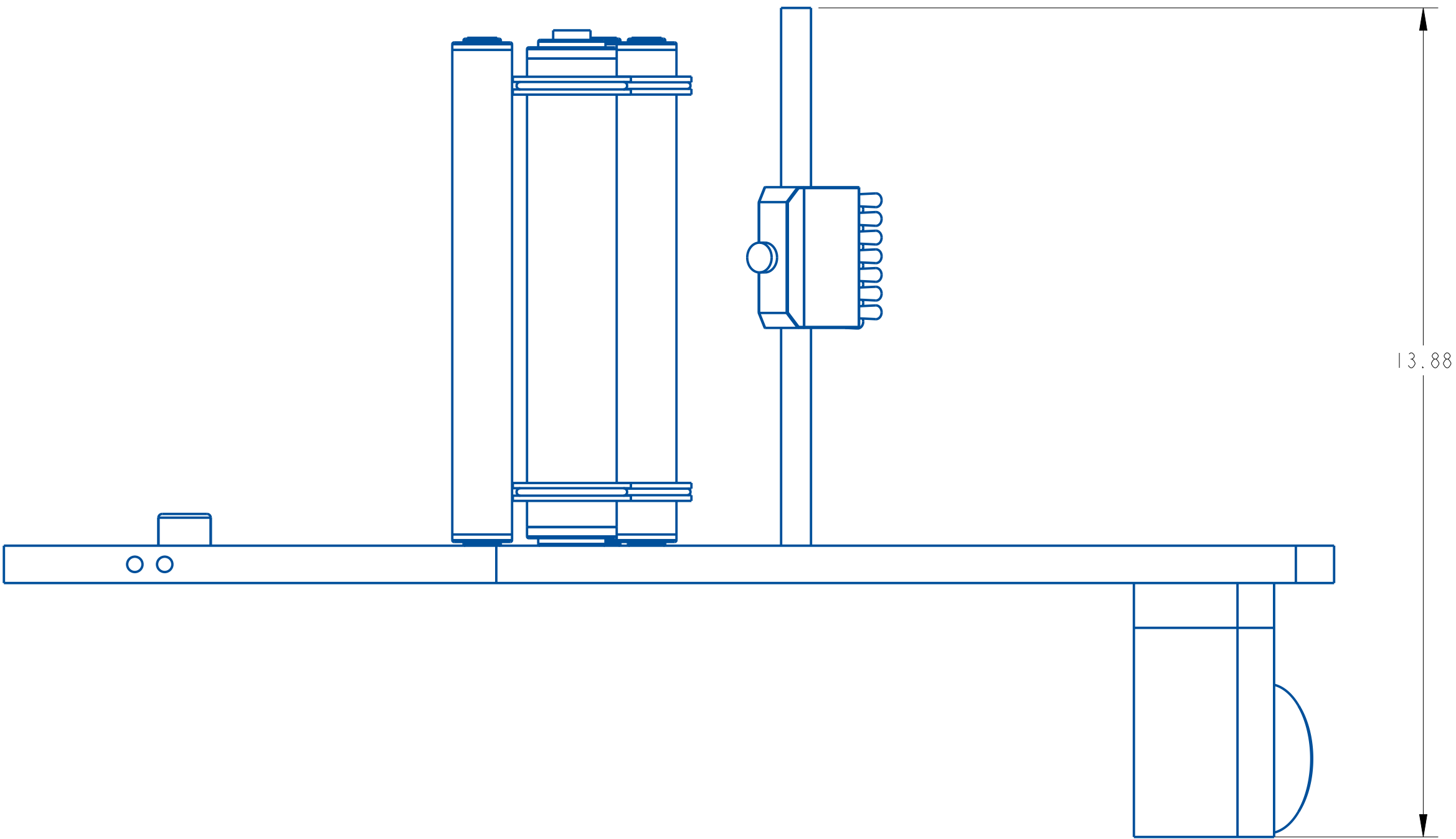
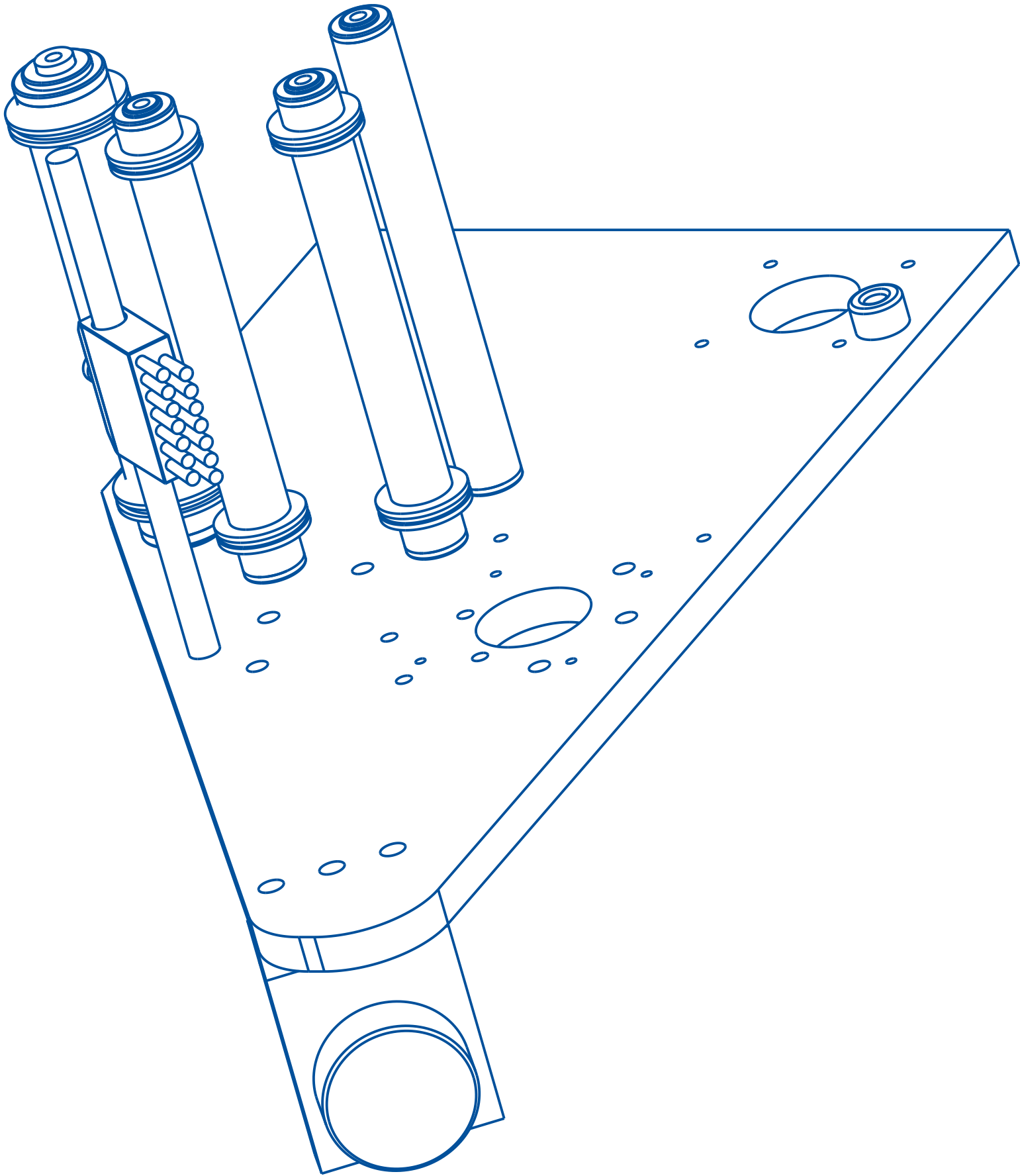
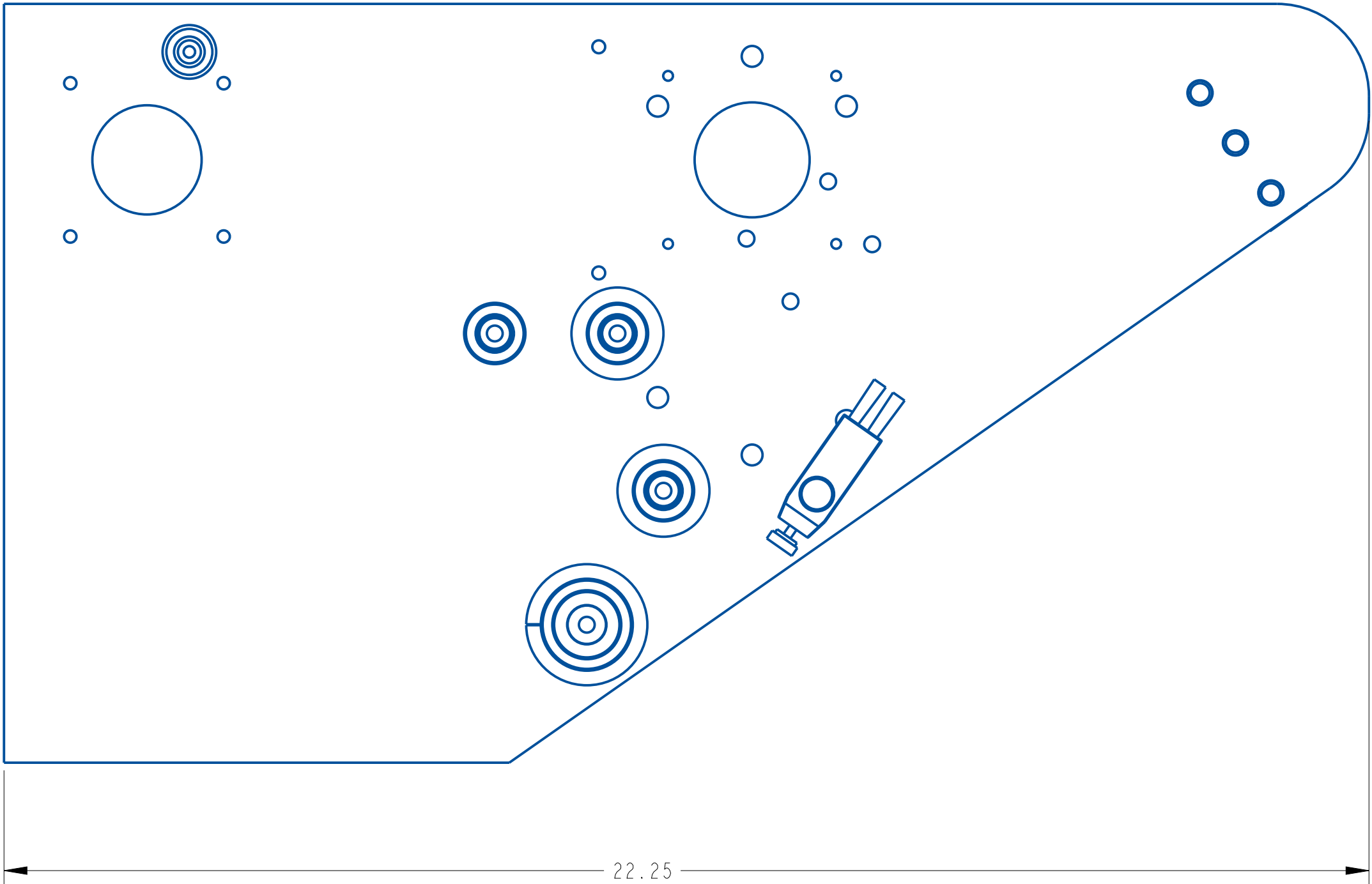




ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	00669-01	BRAKE BRUSH	22620SP-LHH
2	2	181062-000	BEARING, ROLL END	22620SP-LHH
3	6	181063-000	BEARING, ROLL END	22620SP-LHH
4	4	361198-000	COLLAR, GUIDE, 1" ID	22620SP-LHH
5	2	361199-000	COLLAR, GUIDE, 1-1/2 IN. ID	22620SP-LHH
6	1	791459-000	RUBBER BUMPER	22620SP-LHH
7	1	A20654-003	ADJ. ROD	22620SP-LHH
8	3	A20928-001	ROLLER SHAFT	22620SP-LHH
9	1	A21618-001	IDLER SHAFT	22620SP-LHH
10	1	A22291-006	ROLLER	22620SP-LHH
11	1	A24905-006	PIVOT PIN MOUNTING PLATE	22620SP-LHH
12	1	A25912-000	MOUNTING PIN SPACER	22620SP-LHH
13	3	B20071-002	IDLER ROLLER (DANCER)	22620SP-LHH
14	1	D22800-120	Q120 SIDE PLATE	22620SP-LHH

A	02-OCT-15	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY

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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.30		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
		SCALE: 1/2 DATE: 02-OCT-15 DRW BY: CRT CHK BY: 03/26/2024-SEM APPR BY:	
		Q120 7" SIDE PLATE ASSEMBLY, LHH	
		MAT'L	22620SP-LHH



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UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE

XX

±

.1

XXX

±

.005

ANGLES

±

30°

SURFACE FINISH 125

BREAK ALL EDGES .005/ .015

CORNER RADII .010/ .030

ALL ANGLES ARE 90°

QUADREL LABELING SYSTEMS

7670 JENTHER DRIVE

MENTOR, OHIO 44060

(440) 602-4700

SCALE: 1/2

DATE: 02-OCT-15

DRW BY: CRT

CHK BY: 03/26/2024-SEM

APPR BY:

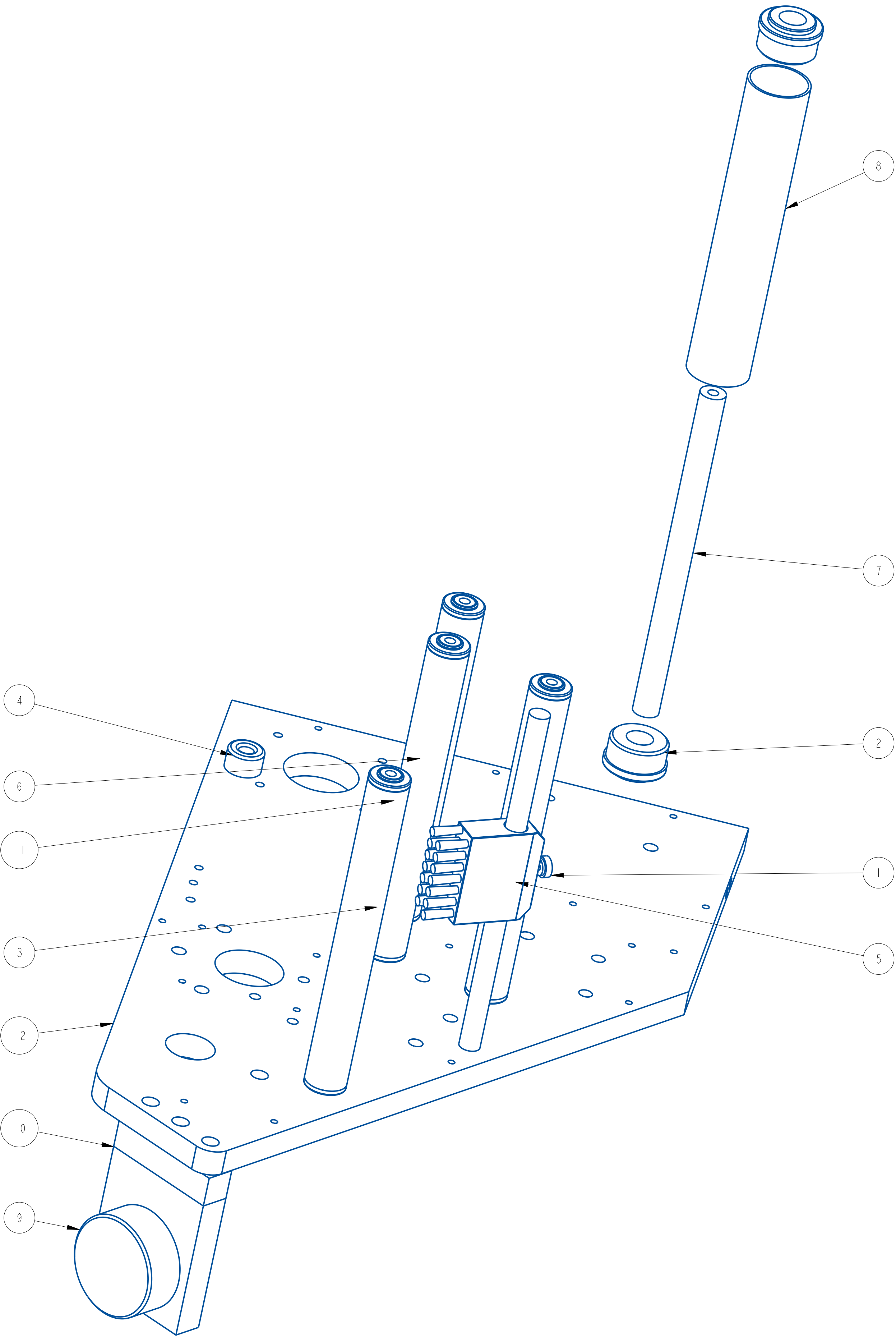
Q120 7" SIDE PLATE ASSEMBLY, LHH

MAT'L

22620SP-LHH

A	02-OCT-15	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY

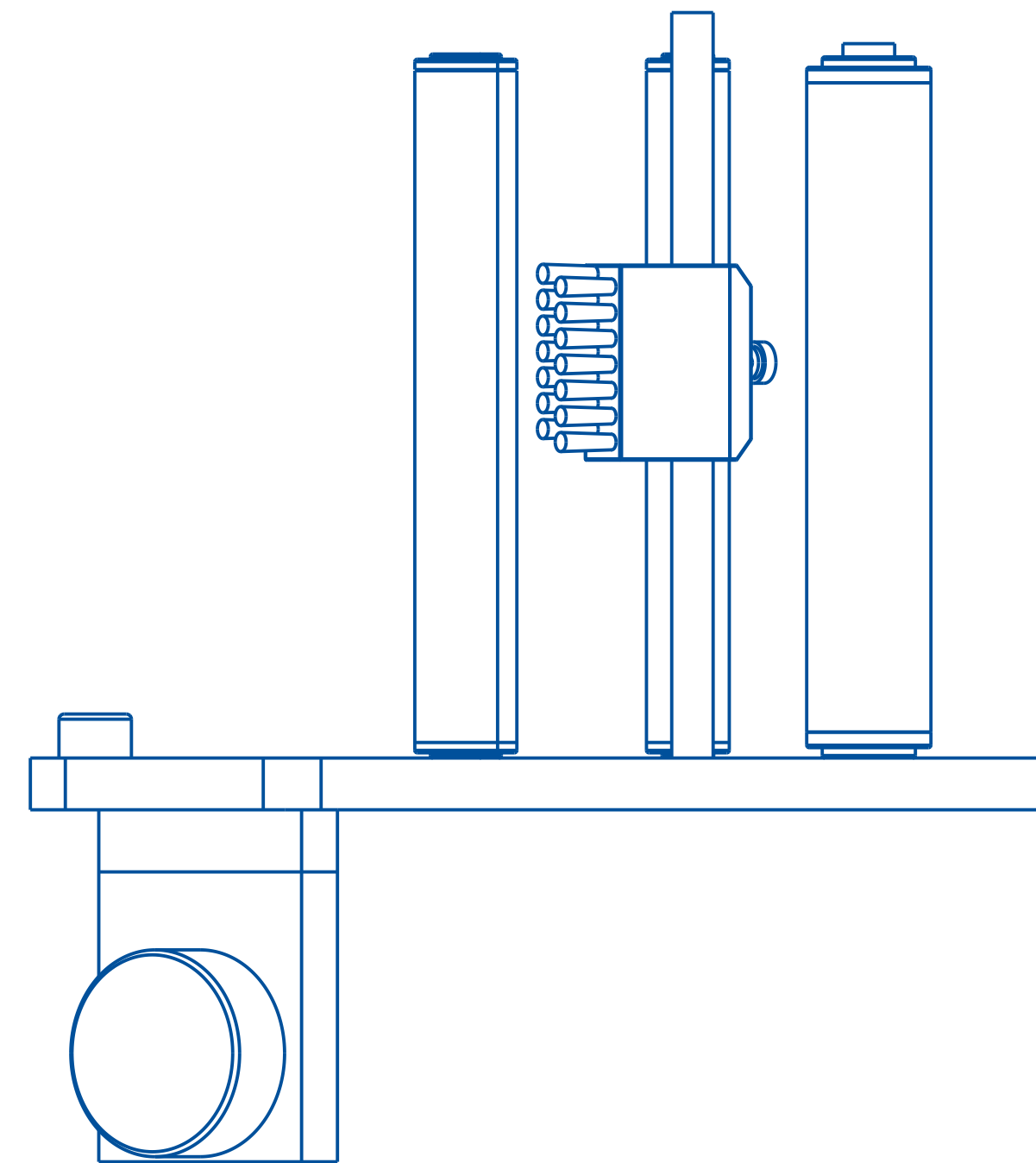
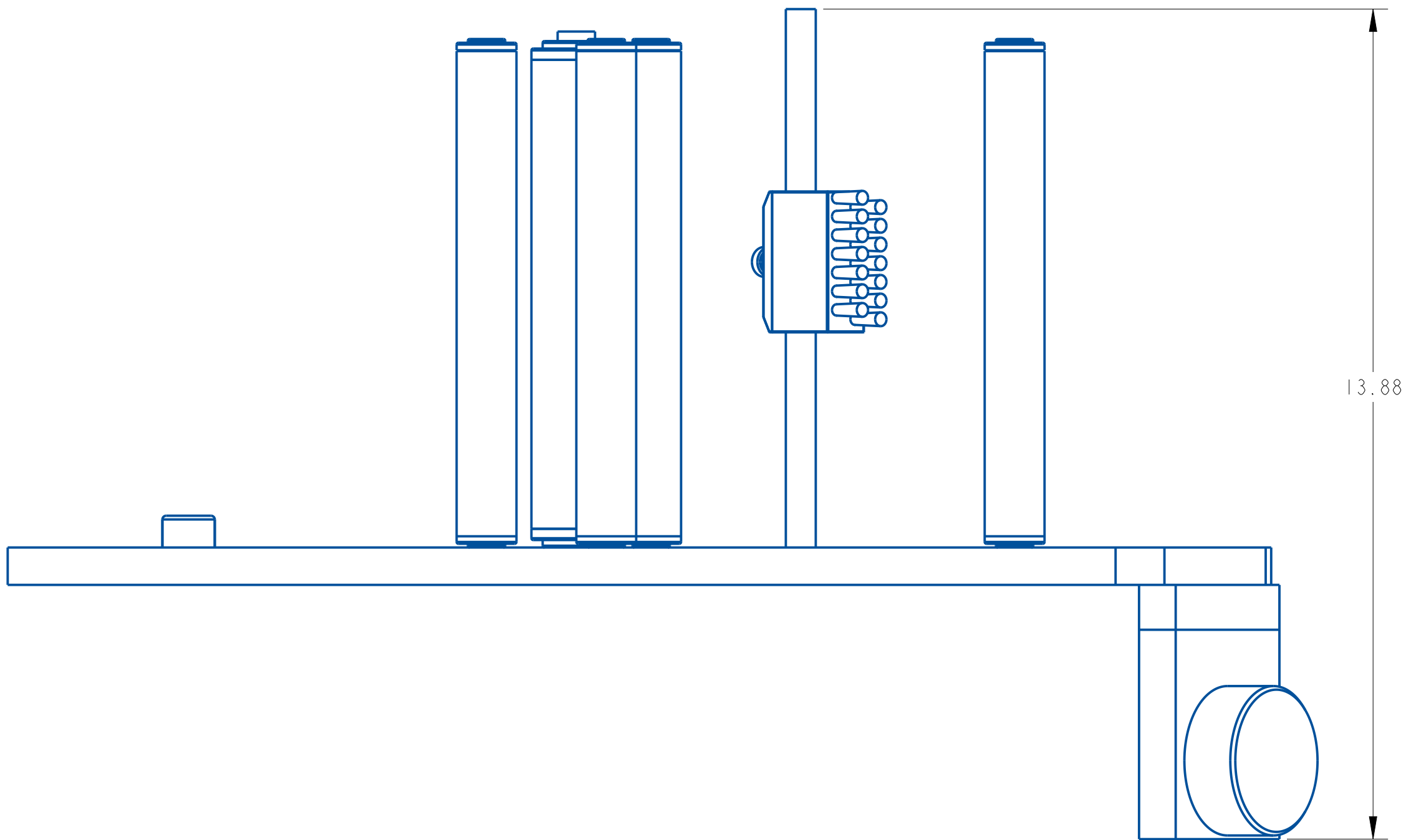
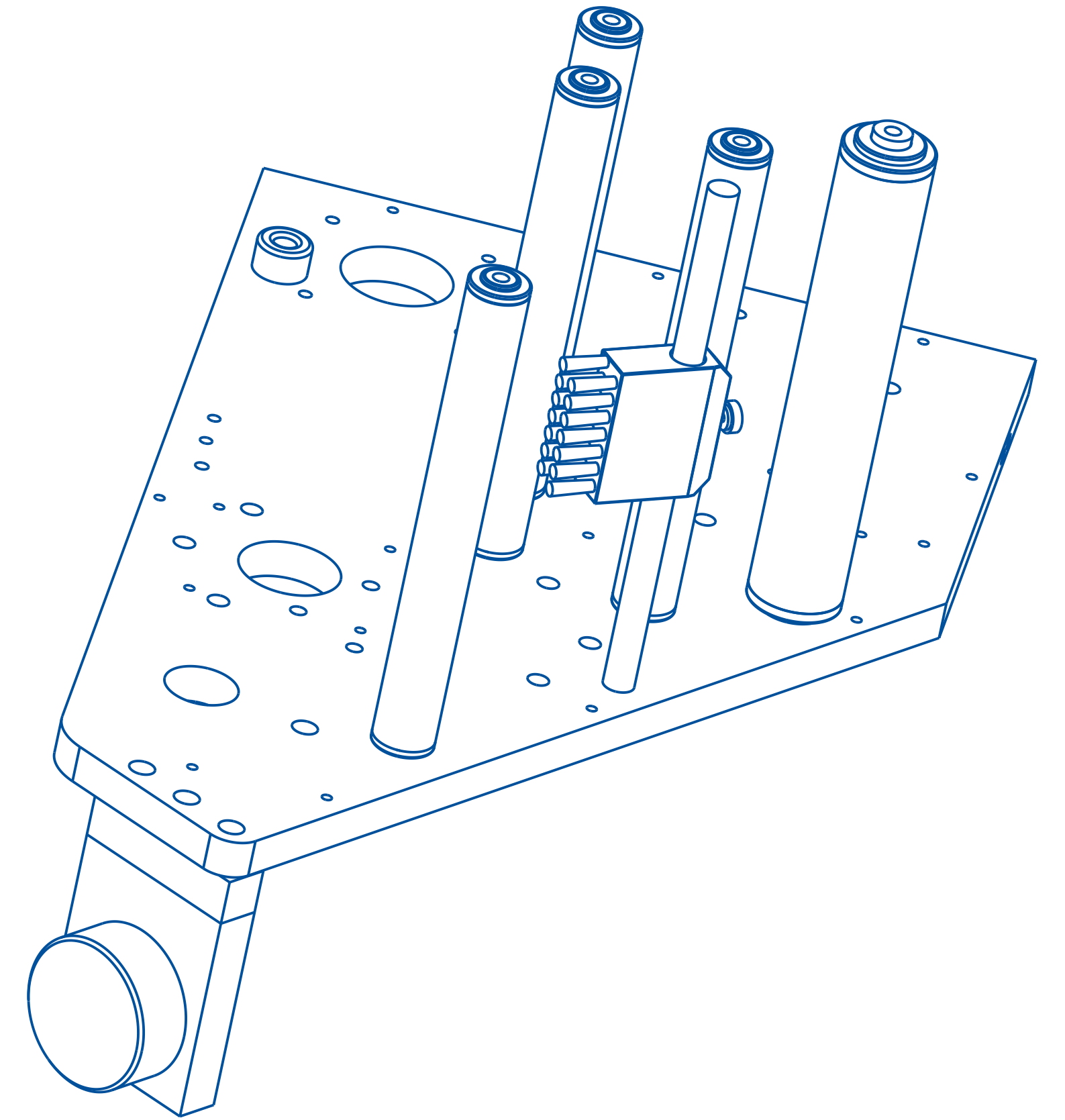
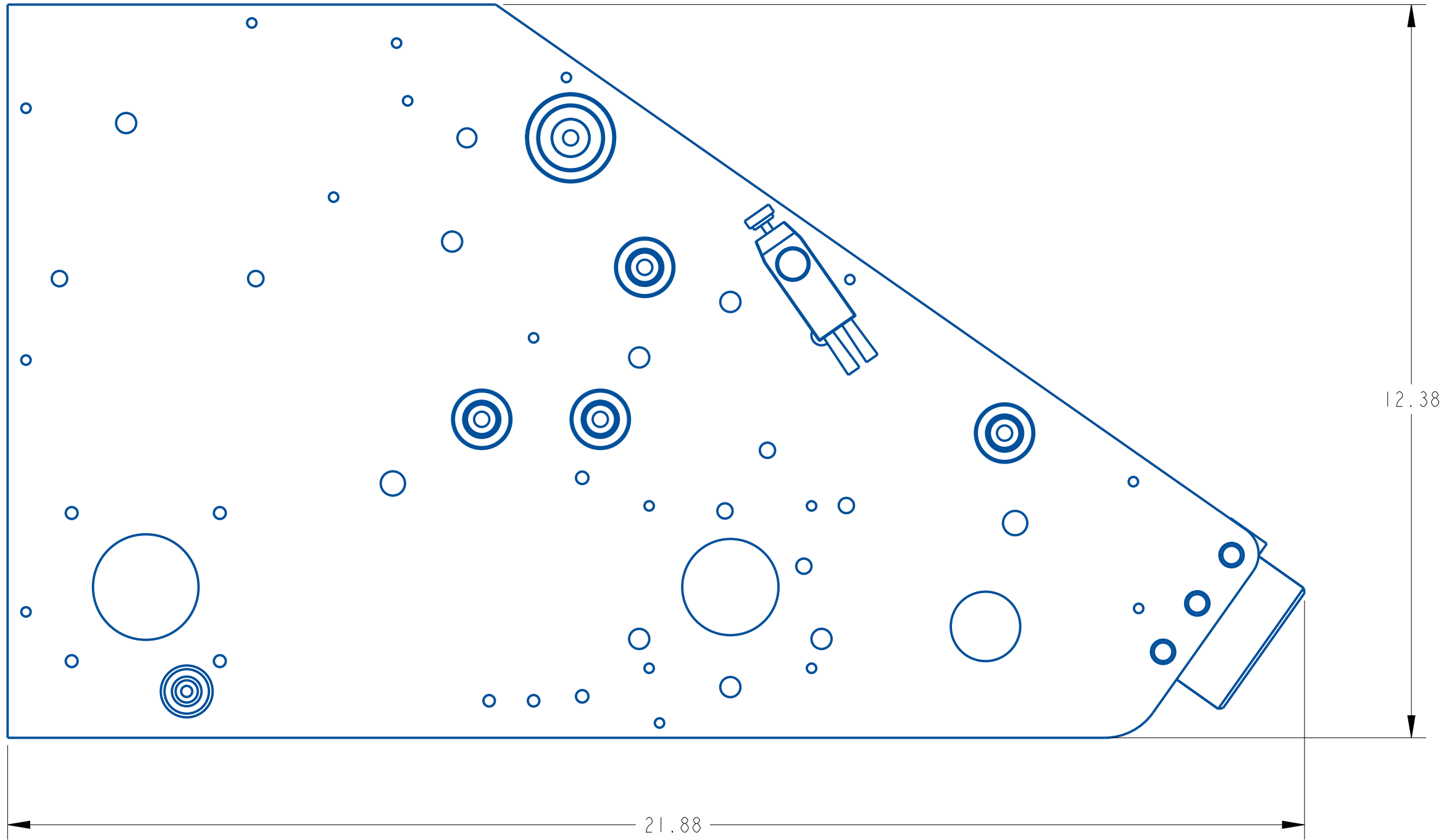
SHEET 2 OF 2



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
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2	2	181062-000	BEARING, ROLL END	22620SP-RHH
3	8	181063-000	BEARING, ROLL END	22620SP-RHH
4	1	791459-000	RUBBER BUMPER	22620SP-RHH
5	1	A20654-003	ADJ. ROD	22620SP-RHH
6	4	A20928-001	ROLLER SHAFT	22620SP-RHH
7	1	A21618-001	IDLER SHAFT	22620SP-RHH
8	1	A22291-006	ROLLER	22620SP-RHH
9	1	A24905-006	PIVOT PIN MOUNTING PLATE	22620SP-RHH
10	1	A25912-000	MOUNTING PIN SPACER	22620SP-RHH
11	4	B20071-002	IDLER ROLLER (DANCER)	22620SP-RHH
12	1	022800-120-REV0	Q125/Q120/Q110/Q105 SIDE PLATE	22620SP-RHH

A	11-26-13	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY				
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		7670 JENTHER DRIVE		DATE: 11-26-13
		MENTOR, OHIO 44060		DRW BY: CRT
		(440) 602-4700		CHK BY:
				APPR BY:
Q120 7" SIDE PLATE ASSEMBLY, RHH				
MAT'L			22620SP-RHH	



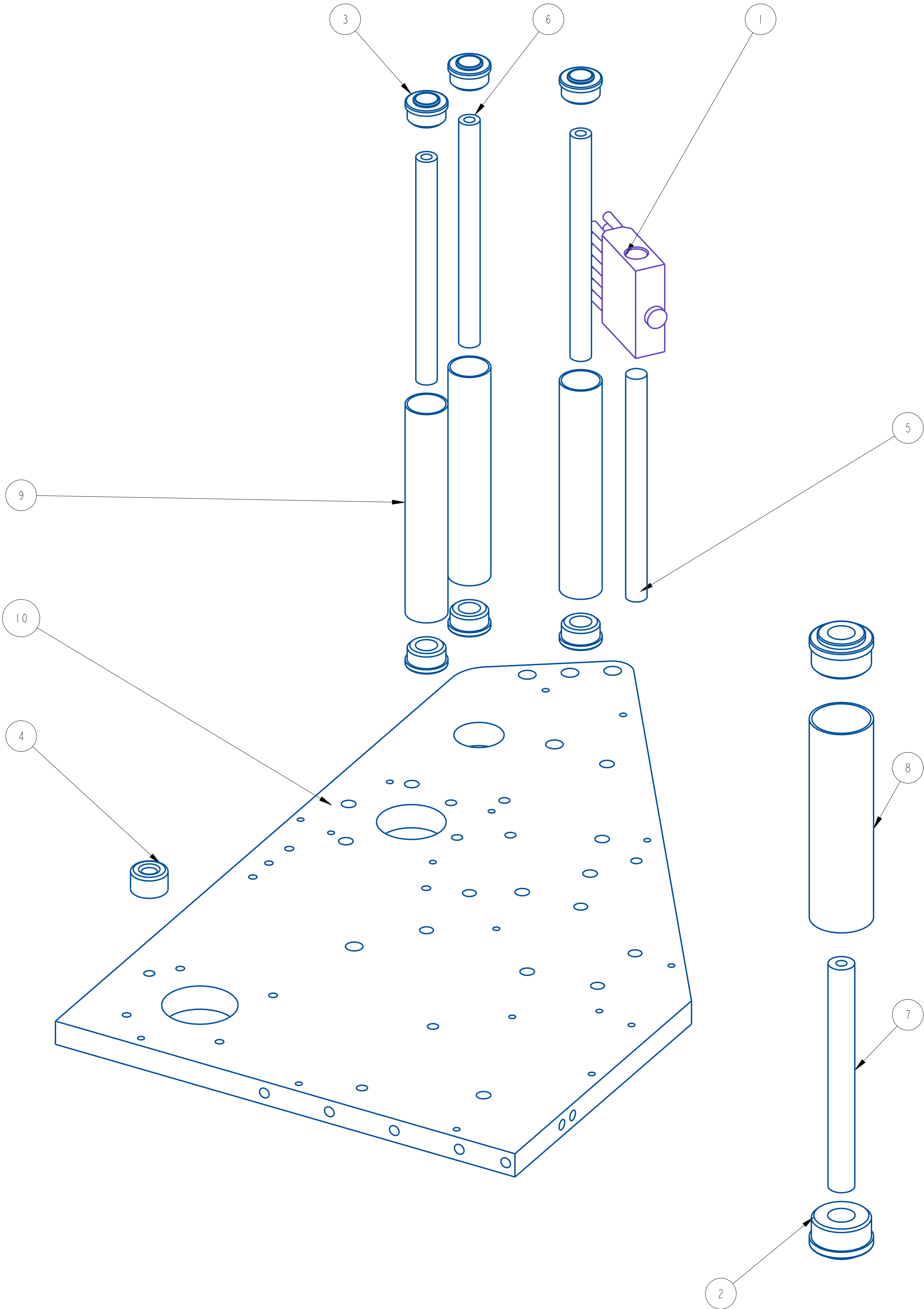
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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/2	
XX ± .1		DATE: 11-26-13	
XXX ± .005		DRW BY: CRT	
ANGLES ± .00		CHK BY:	
SURFACE FINISH 125		APPR BY:	
BREAK ALL EDGES .005/ .015		Q120 7" SIDE PLATE ASSEMBLY, RH	
CORNER RADIUS .010/ .030		22620SP-RHH	
ALL ANGLES ARE 90°			

A		NEW DRAWING	
REV	DATE	DESCRIPTION	BY
	11-26-13		CRT

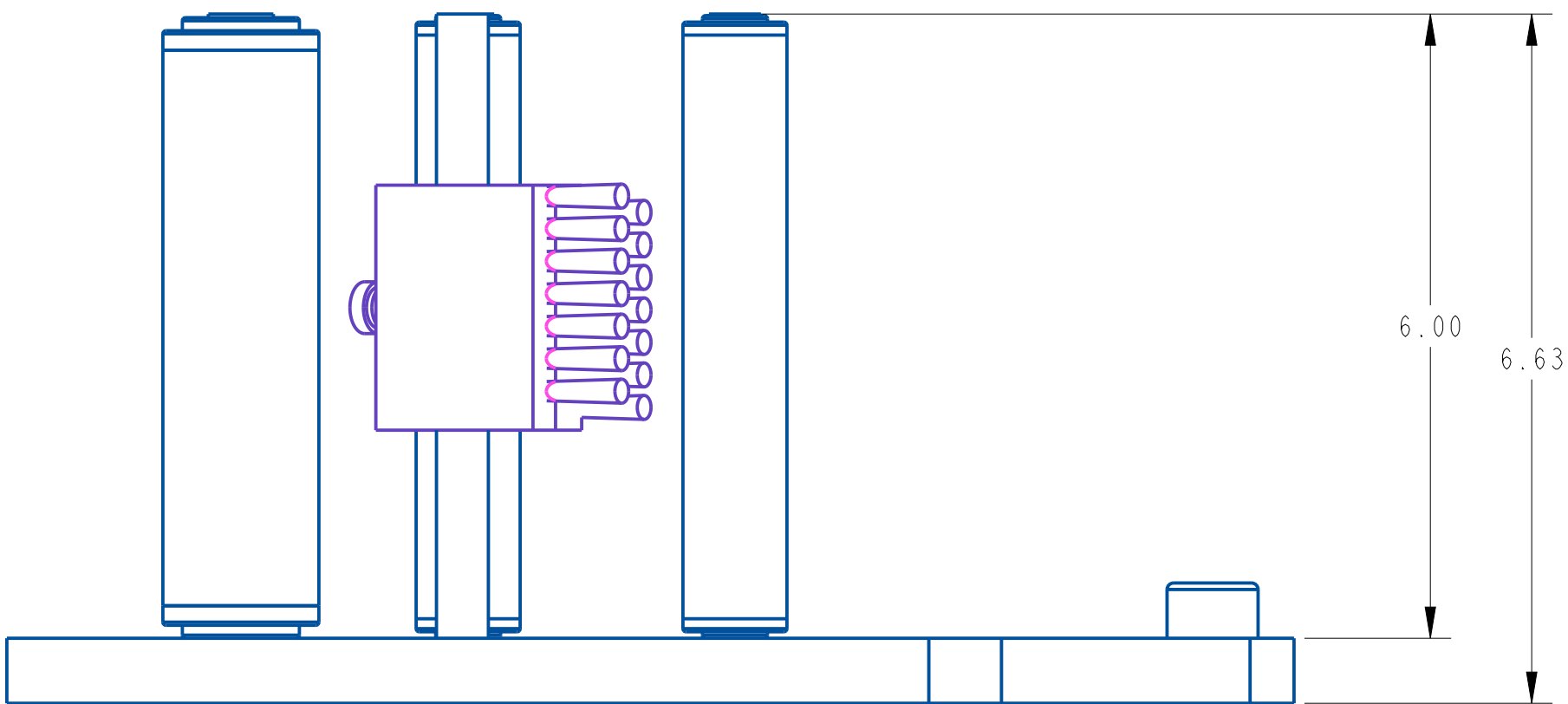
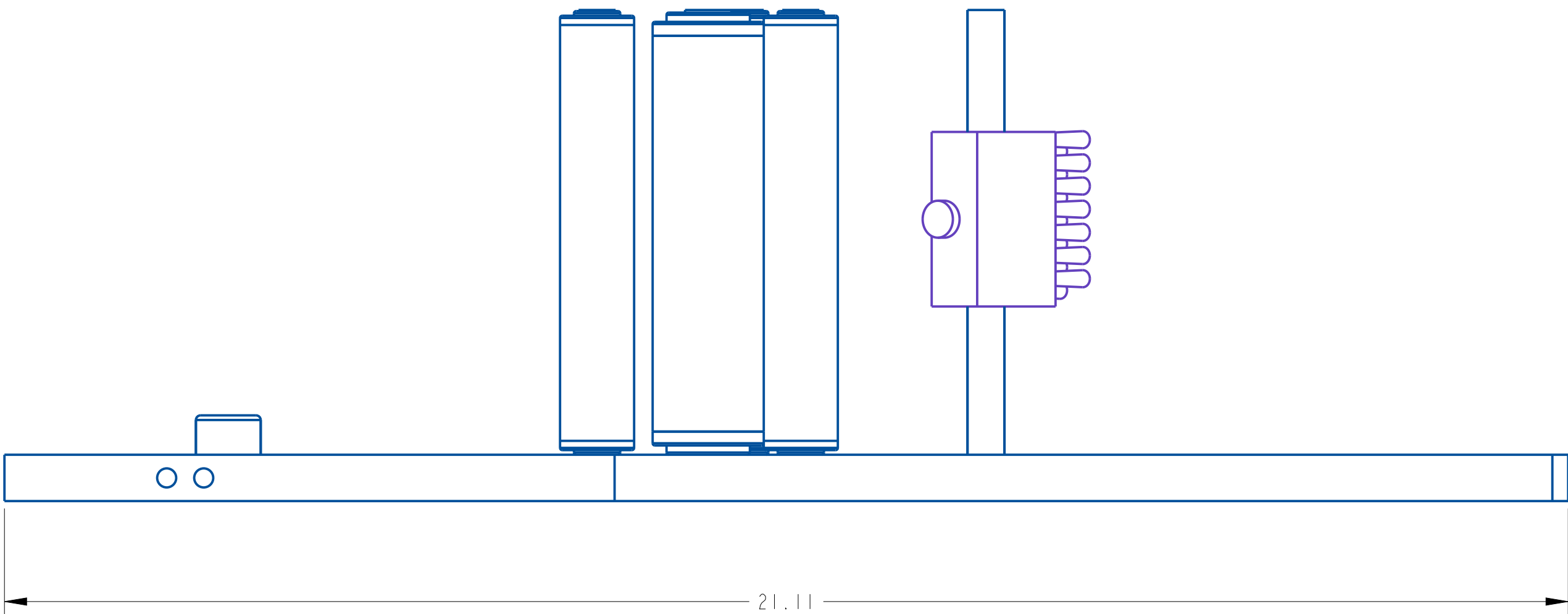
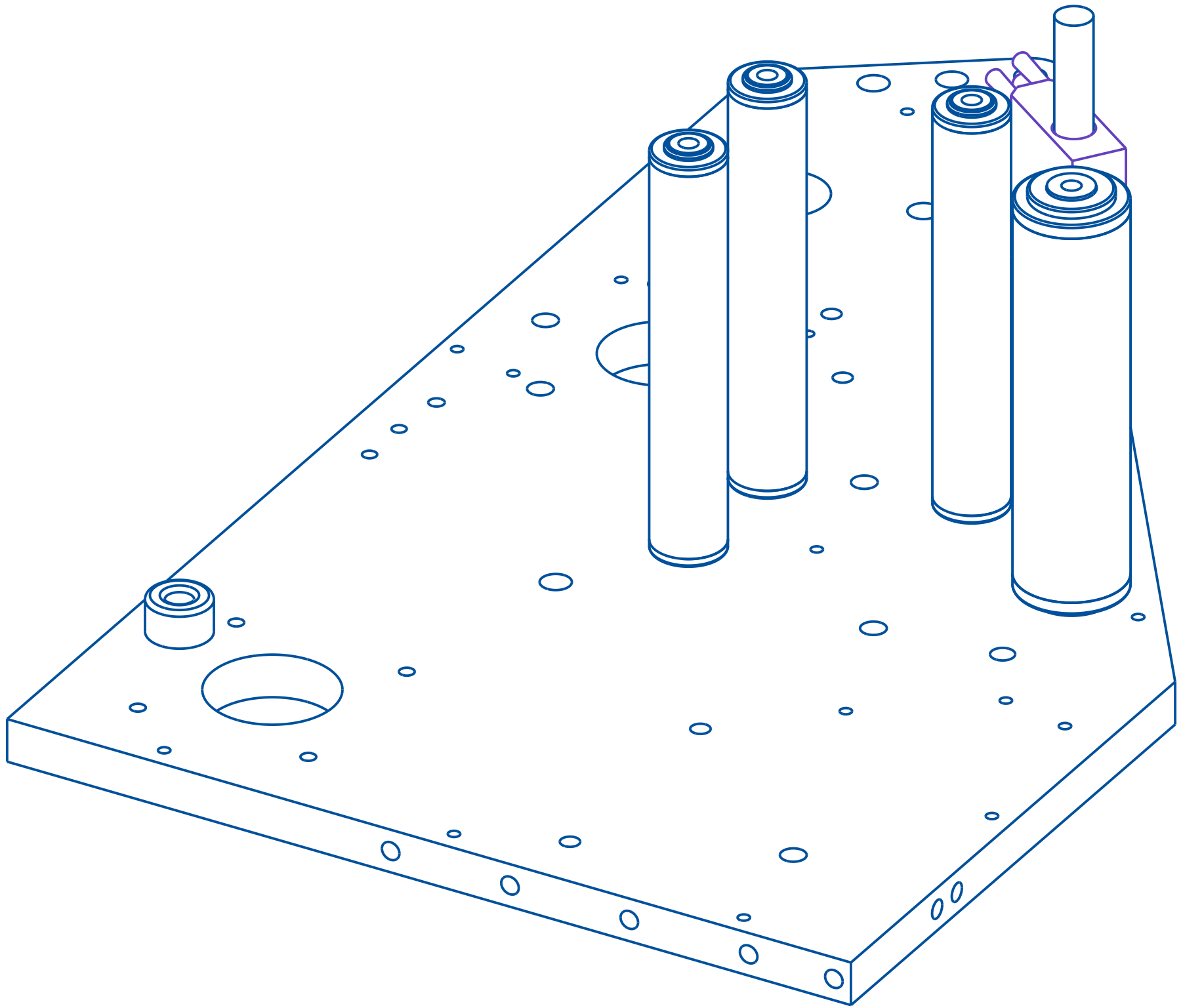
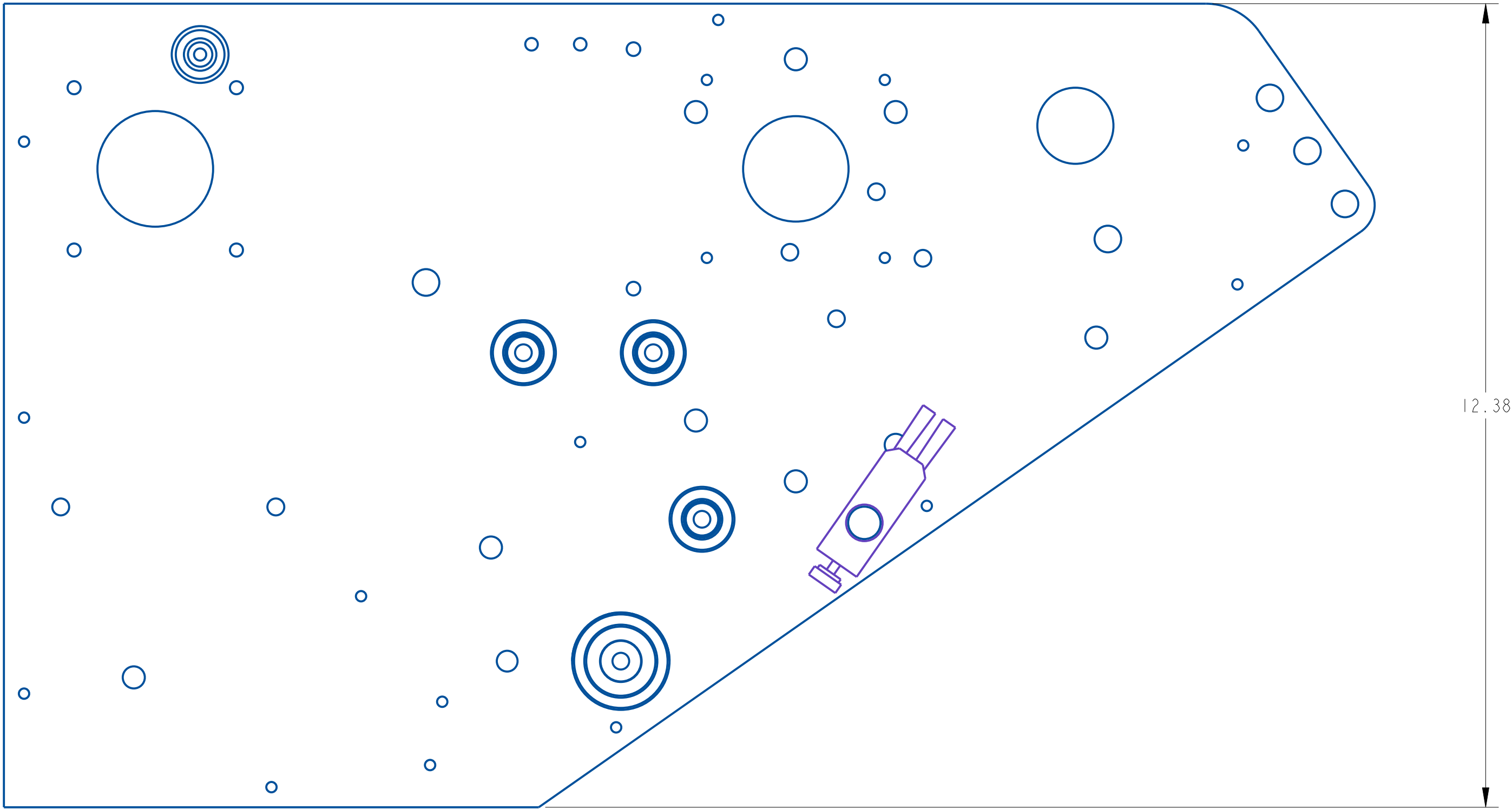
QUADREL LABELING SYSTEMS	
7670 JENTHER DRIVE	
MENTOR, OHIO 44060	
(440) 602-4700	

MAT'L	
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ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	00669-01	BRAKE BRUSH 2 x 7 nylon	23100SP-004LH
2	2	181062-000	BEARING, ROLL END	23100SP-004LH
3	6	181063-000	BEARING, ROLL END	23100SP-004LH
4	1	791459-000	RUBBER BUMPER	23100SP-004LH
5	1	A20653-008	CLAMPING ROD	23100SP-004LH
6	3	A20928-009	ROLLER SHAFT	23100SP-004LH
7	1	A21618-005	IDLER SHAFT	23100SP-004LH
8	1	A22291-021	ROLLER	23100SP-004LH
9	3	B20071-000	IDLER ROLLER (DANCER)	23100SP-004LH
10	1	D22800-120_REVC	SIDE PLATE, MOD.	23100SP-004LH



A		Sep-08-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY	
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE: 5/8 DATE: Sep-08-25 DRW BY: RDL CHK BY: APPR BY:
X ± .1 XX ± .01 XXX ± .005 ANGLES ± .30°		4 1/2" SIDE PLATE ASSEMBLY, LHH		
SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.50		MAT'L		23100SP-004LH



A	Sep-08-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
<div>UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE XX ± .1 XXX ± .005 ANGLES ± .00° SURFACE FINISH 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°</div>		SCALE: 5/8	
		DATE: Sep-08-25	
		DRW BY: RDL	
		CHK BY:	
<div>QUADREL LABELING SYSTEMS 7670 JENTER DRIVE MENTOR, OHIO 44060 (440) 602-4700</div>		APPR BY:	
		4 1/2" SIDE PLATE ASSEMBLY, LHH	
MAT'L			23100SP-004LH

ASSEMBLY TITLE:**Q120 UNWIND ASSEMBLY****GENERAL FUNCTION:**

- Unwind flange provides support for label rolls (side application)
- Dual flanges prevent roll and label movement (top application)
- Dancer arm prevents roll run-away.
- Idler roller with guide collars guides web through slot sensor.
- Brake brush prevents web buckling through slot sensor.

SET UP AND ADJUSTMENTS:

- Move flange to required height and tighten set screw in flange hub.
- For top labeling, add second flange and tighten ratchet knob.
- Adjust dancer tension by turning check nut so that dancer roll snaps back to braking position when labeling head is threaded.
- Slide brake brush so that center of brush lines up with center of web. Rotate brush to provide web tension, then lock into place using the locking knob.
- Position guide collars on idler roll, one slightly above, the other slightly below the web.

DANCER TENSION ADJUSTMENT LOCATION:

- The unwind tension adjustment is located on the middle underside of the Q120 head. Use the knurled ring to adjust the dancer tension.

MAINTENANCE:

- Clean all the parts that may acquire glue residue

TROUBLESHOOTING:**PROBLEM**

- Unwind roll run-away
- Unwind roll not stopping
- Drive roll stalling
- Brush taking fixed shape

WHAT TO DO

- Tighten dancer spring, check nut or replace dancer spring, if necessary.
- Replace brake ring-belt if broken, or unevenly worn.
- Release web tension produced by brake brush.
- Turn brush around



ASSEMBLY TITLE: **Q120 LABELING HEAD - DANCER ARM ASSEMBLY**

DRAWING NO.: **None Applicable**

GENERAL FUNCTION:

- The dancer arm and braking mechanism are used to control the unwind unit which will only advance a few inches of web at any time
- The position of the dancer arm affects the advancement of the web off the label roll.

SET UP AND ADJUSTMENTS:

- The dancer normal position of the dancer arm is reached when the dancer arm locks the supply reel.
- The spring tension can be adjusted to correctly locate the dance arm
- The spring may be adjusted by turning the threaded tensioner located near the unwind unit.
- The spring should be tight enough to bring the dancer arm back to its normal position and hold it with some force, but not tight enough to tear the web during label feed.
- Spring adjustment is also possible by rotating the spring mounting pin on the spring take up pulley around the mounting shaft.
- While in its normal position, the dancer arm roller should not interfere with the supply reel flange.

MAINTENANCE:

- Replace dancer spring if final spring tension is too soft.

TROUBLESHOOTING:

PROBLEM

- Web break
- Too much web slack
- Dancer arm hits supply flange position by loosening the brake cam.

WHAT TO DO

- Lower spring tension on dancer arm
- Increase spring tension
- Correct dancer arm final

ASSEMBLY TITLE:**Q120 LABELING HEAD - BRAKE BRUSH
ASSEMBLY****GENERAL FUNCTION:**

- The brake brush establishes web tension and controls backlash

SET UP AND ADJUSTMENTS:

- For accurate label feeds, the web must establish proper tension.
- Loosen the holding set screw in the brake brush body. The brake brush assembly can now be rotated on axis.
- Turn brush body into the web and tighten. To check for proper web tension, jog a label and check for web slack. If the web is tight and the label feeds correctly, the brush tension is set correctly.
- If backlash persists, continue to increase brake brush tension.

MAINTENANCE:

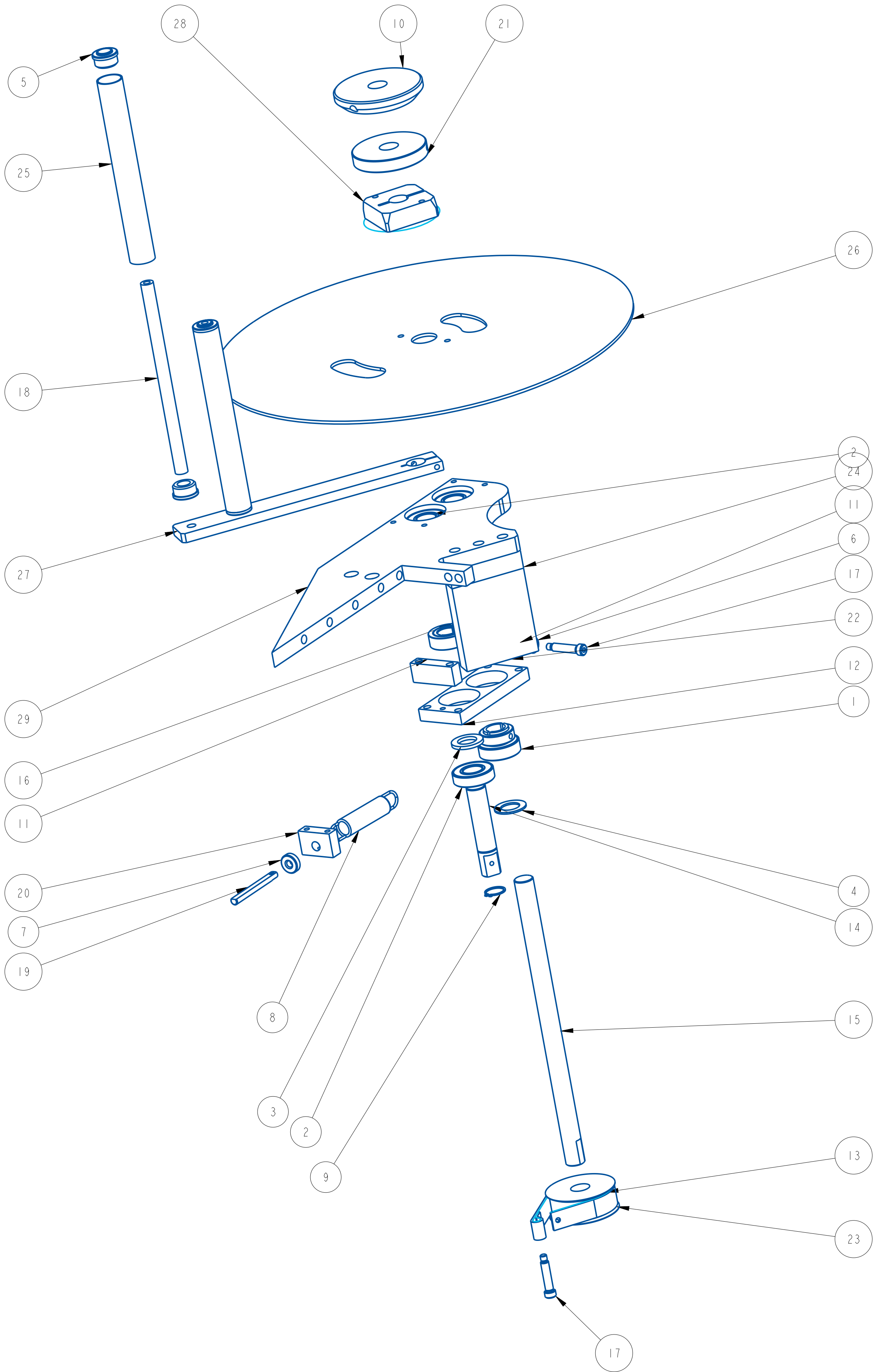
- Replace brake brush when brush body contour no longer viable or bristles are worn down.

TROUBLESHOOTING:PROBLEM

- Web break
- Motor stall
- Too much web slack

WHAT TO DO

- Too much brake tension. Decrease until no slack in web.
- Debris or brake flaw causing web tear
- Decrease brake tension
- Increase brake tension



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	111044-000	BEARING, 3/4 ID CLAMP TYPE	22620U-RHH
2	3	111074-000	BEARING, BALL	22620U-RHH
3	1	151001-000	BEARING, THRUST WASHER	22620U-RHH
4	1	151006-000	BEARING, THRUST WASHER	22620U-RHH
5	4	181063-000	BEARING, ROLL END	22620U-RHH
6	1	361165-000	COLLAR, SETSCREW, 5/16" BORE	22620U-RHH
7	1	801601-000	CHECK NUT	22620U-RHH
8	1	811216-000	EXTENSION SPRING, STAINLESS	22620U-RHH
9	1	871025-000	EXTERNAL SNAP RING	22620U-RHH
10	1	A20583-000	QUICK LOCK COLLAR REWORK	22620U-RHH
11	2	A20585-000	SUPPORT SPACER	22620U-RHH
12	1	A20590-000	BEARING PLATE	22620U-RHH
13	1	A20591-000	UNWIND BRAKE DRUM	22620U-RHH
14	1	A20592-200	UNWIND DANCER SHAFT	22620U-RHH
15	1	A20593-001	UNWIND SHAFT	22620U-RHH
16	1	A20595-000	DANCER COLLAR	22620U-RHH
17	2	A20596-000	DANCER BOLT	22620U-RHH
18	2	A20928-002	ROLLER SHAFT	22620U-RHH
19	1	A23131-000	STUD	22620U-RHH
20	1	A23298-000	BLOCK, SPRING TENSION	22620U-RHH
21	1	A23406-000	SUPPLY REEL CENTER HUB	22620U-RHH
22	1	A24905-006	PIVOT PIN MOUNTING PLATE	22620U-RHH
23	1	A25825-000_22620	BRAKE BAND	22620U-RHH
24	1	A25912-000	MOUNTING PIN SPACER	22620U-RHH
25	2	B20071-003	IDLER ROLLER (DANCER)	22620U-RHH
26	1	B20980-001	UNWIND FLANGE	22620U-RHH
27	1	B21113-000	DANCER ARM, 16" UNWIND	22620U-RHH
28	1	B21931-001	CORE HUB	22620U-RHH
29	1	C21236-120	UNWIND SUPPORT PLATE	22620U-RHH

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UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE

XXX ± .01

XXX ± .005

ANGLES ± .30°

SURFACE FINISH 125

BREAK ALL EDGES .005/.015

CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS

7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 3/8

DATE: 05-OCT-15

DRW BY: CRT

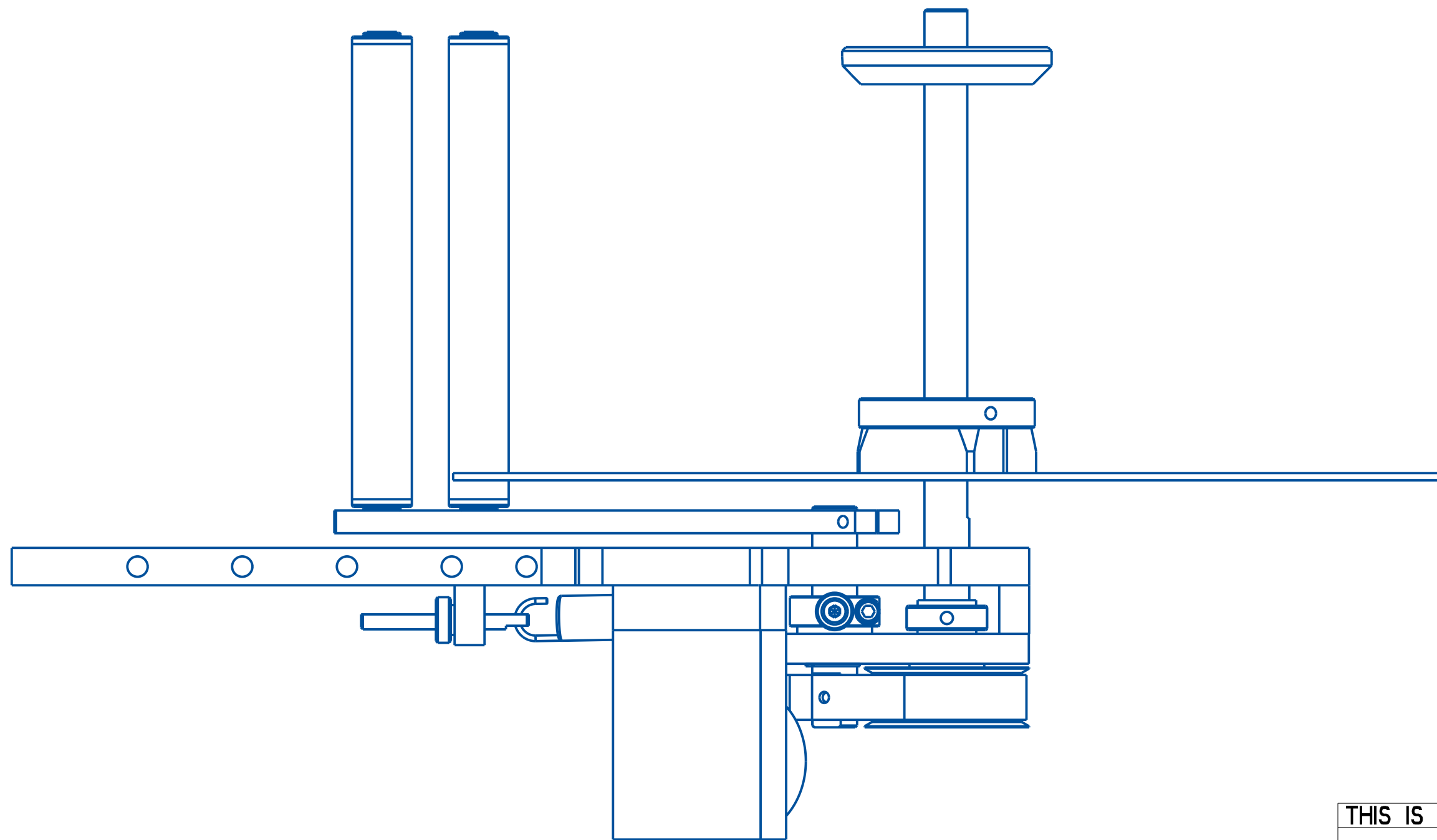
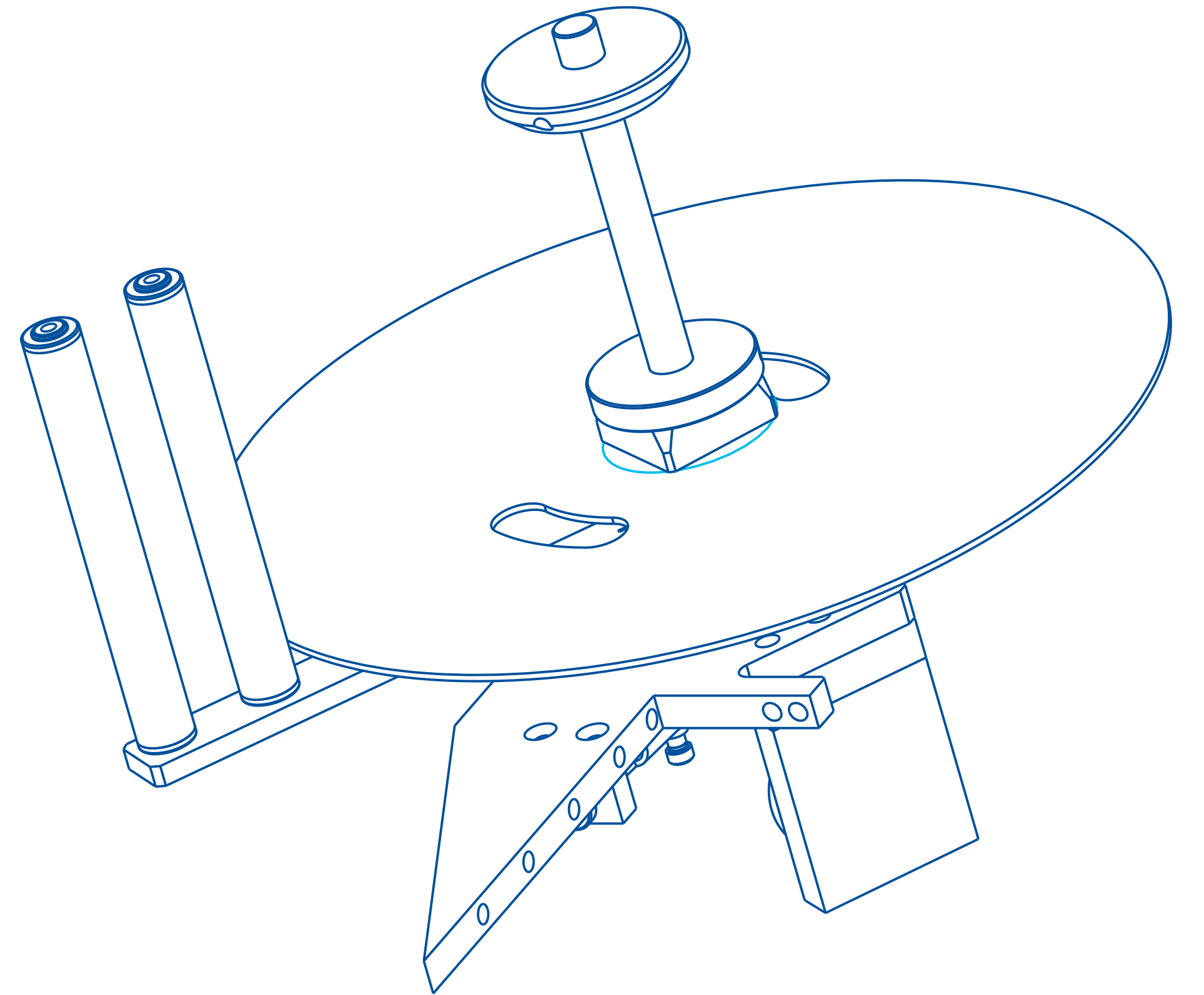
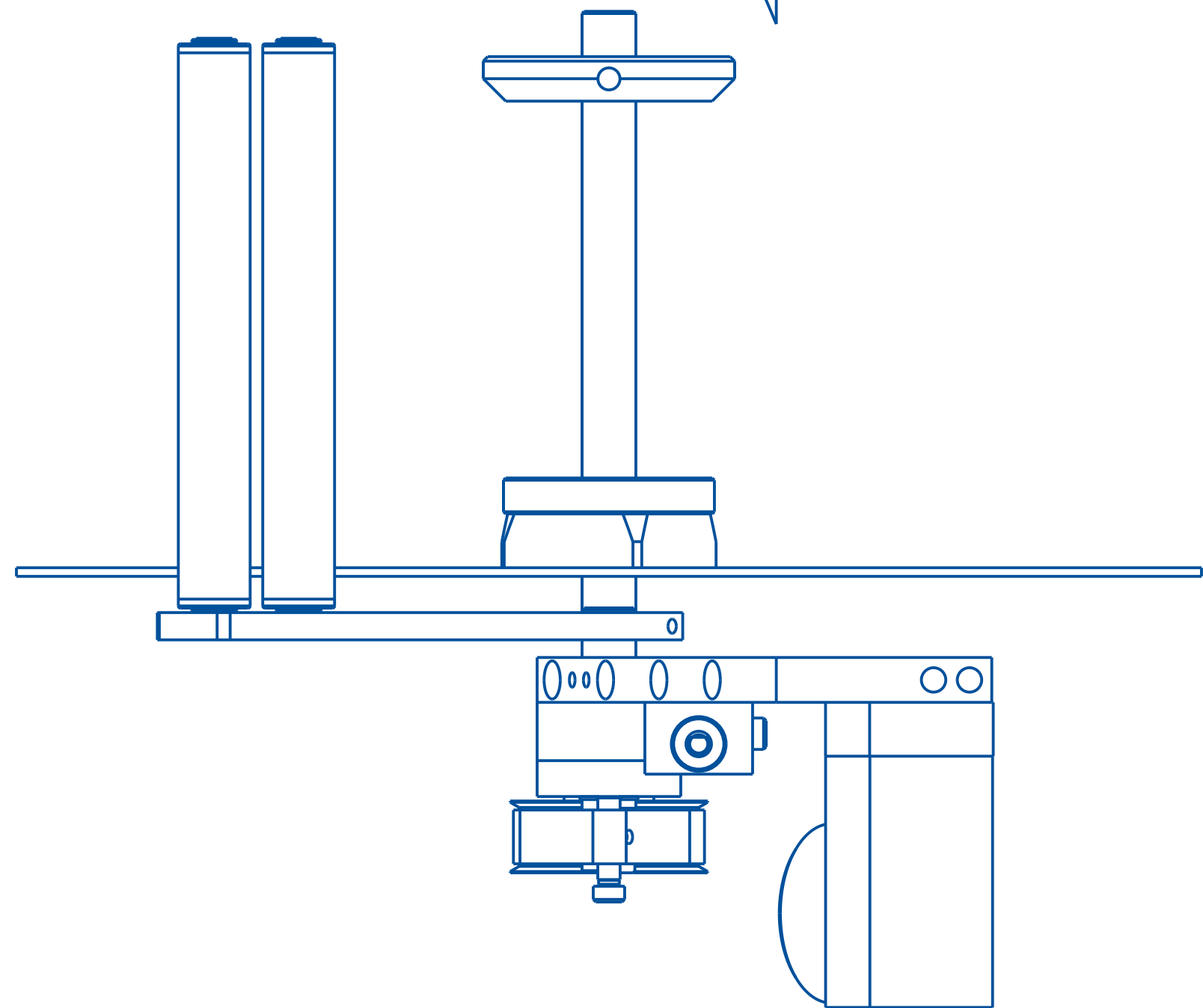
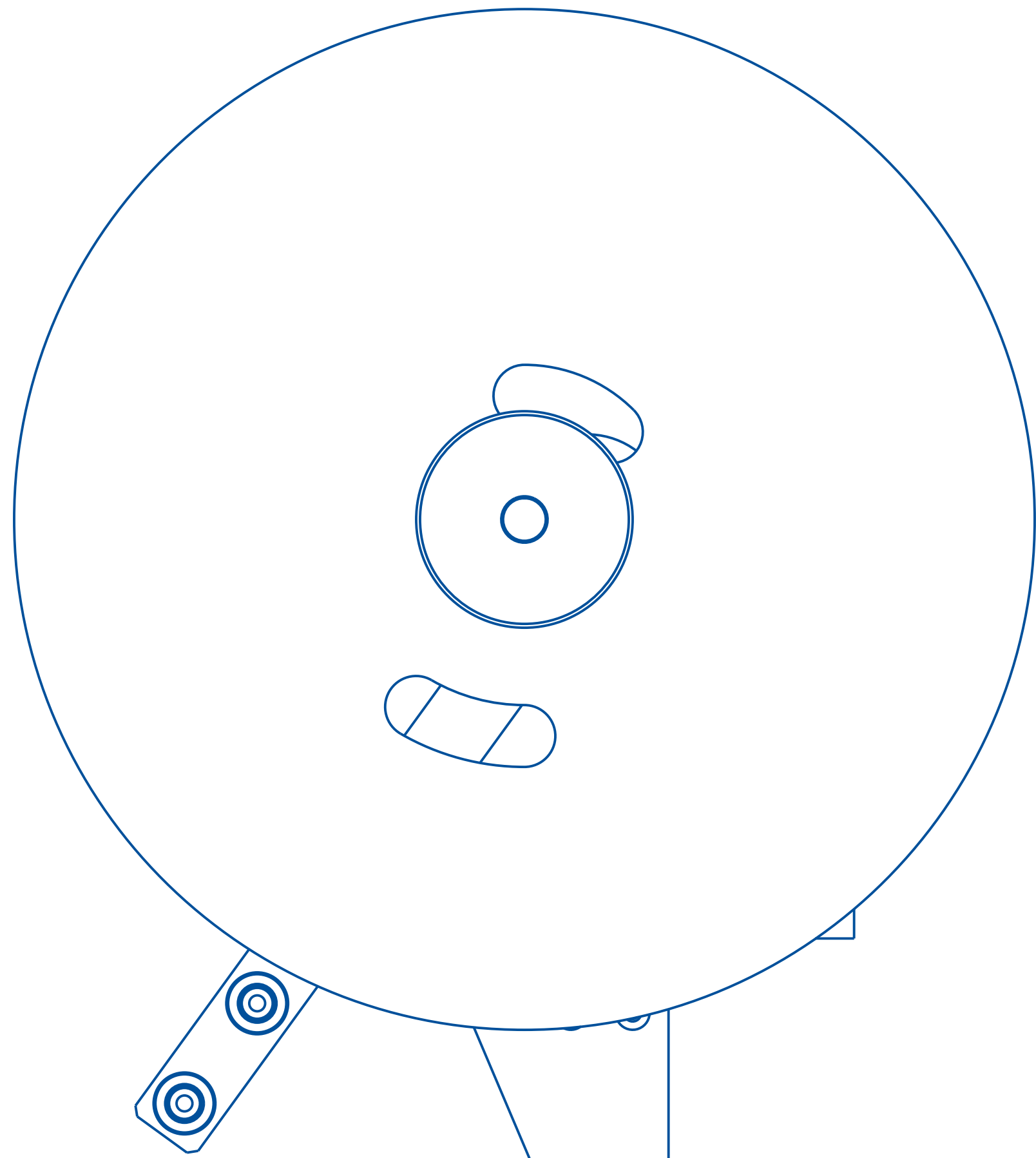
CHK BY: 02/29/2024-SEM

APPR BY:

Q120 7" UNWIND ASSEMBLY, RHH

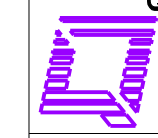
MAT'L

22620U-RHH



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE
XX ± .01
XXX ± .005
ANGLES ± .50°
SURFACE FINISH 125
BREAK ALL EDGES .005/ .015
CORNER RADIUS .010/ .030
ALL ANGLES ARE 90°



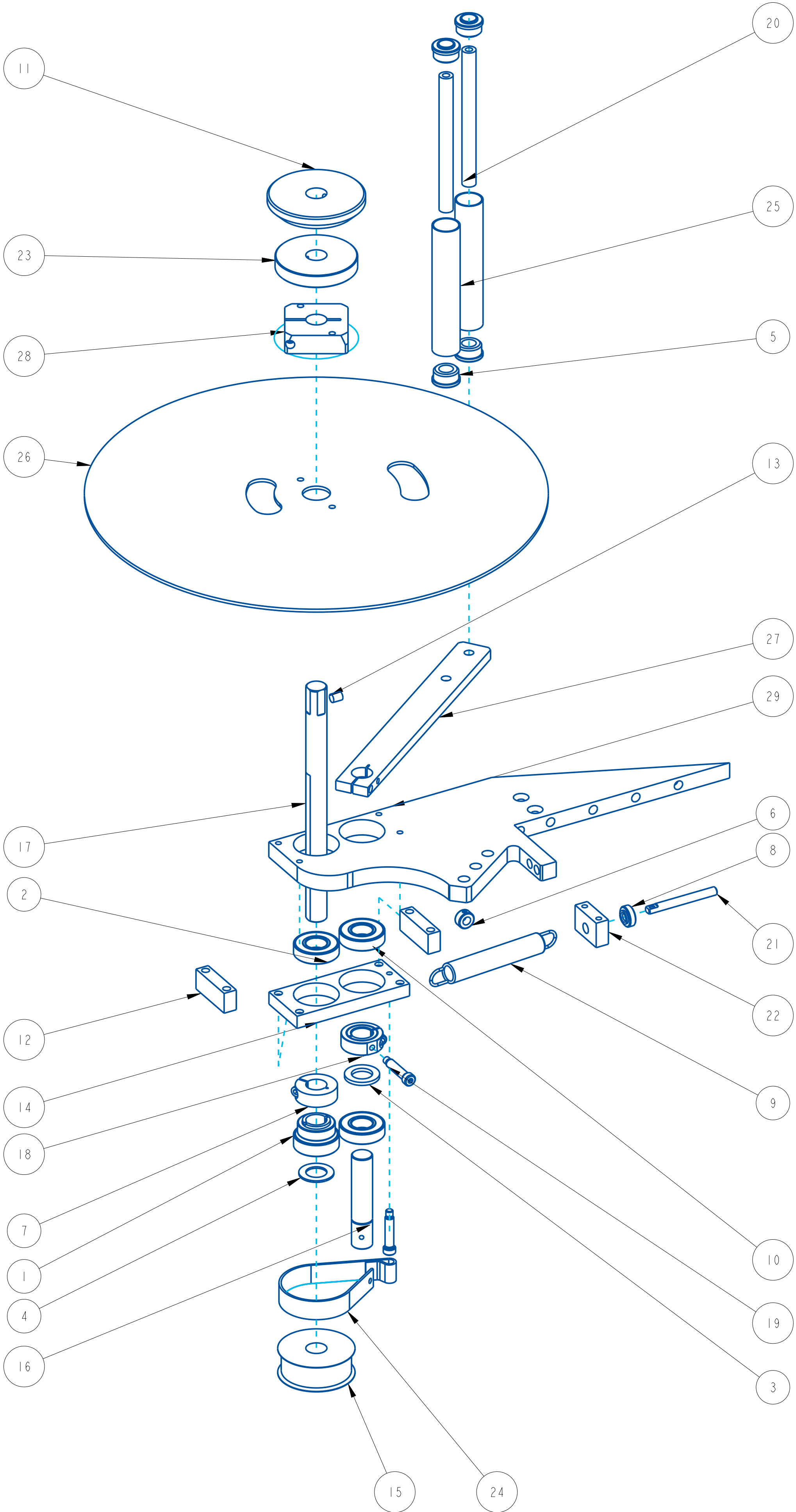
QUADREL LABELING SYSTEMS
7670 JENTER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 1/2
DATE: 05-OCT-15
DRW BY: CRT
CHK BY: 02/29/2024-SEM
APPR BY:

Q120 7" UNWIND ASSEMBLY, RHH

MAT'L

22620U-RHH



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	111044-000	BEARING, 3/4 ID CLAMP TYPE	23100U-004LH
2	3	111074-000	BEARING, BALL	23100U-004LH
3	1	151001-000	BEARING, THRUST WASHER	23100U-004LH
4	1	151006-000	BEARING, THRUST WASHER	23100U-004LH
5	4	181063-000	BEARING, ROLL END	23100U-004LH
6	1	361165-000	COLLAR, SETSCREW, 5/16" BORE	23100U-004LH
7	1	361183-000	COLLAR, 3/4 ID ONE PIECE- S.S.	23100U-004LH
8	1	801601-000	CHECK NUT	23100U-004LH
9	1	811216-000	EXTENSION SPRING, STAINLESS	23100U-004LH
10	1	871025-000	EXTERNAL SNAP RING	23100U-004LH
11	1	A20583-000	QUICK LOCK COLLAR REWORK	23100U-004LH
12	2	A20585-000	SUPPORT SPACER	23100U-004LH
13	1	A20586-000	WHITE NYLON SLUG	23100U-004LH
14	1	A20590-000	BEARING PLATE	23100U-004LH
15	1	A20591-000	UNWIND BRAKE DRUM	23100U-004LH
16	1	A20592-200	UNWIND DANCER SHAFT	23100U-004LH
17	1	A20593-000	UNWIND SHAFT	23100U-004LH
18	1	A20595-000	DANCER COLLAR	23100U-004LH
19	2	A20596-000	DANCER BOLT	23100U-004LH
20	2	A20928-004	ROLLER SHAFT	23100U-004LH
21	1	A23131-000	STUD	23100U-004LH
22	1	A23298-000	BLOCK, SPRING TENSION	23100U-004LH
23	1	A23406-000	SUPPLY REEL CENTER HUB	23100U-004LH
24	1	A25825-000	BRAKE BAND	23100U-004LH
25	2	B20071-001	IDLER ROLLER (DANCER)	23100U-004LH
26	1	B20980-001	UNWIND FLANGE	23100U-004LH
27	1	B21113-000	DANCER ARM, 16" UNWIND	23100U-004LH
28	1	B21931-001	CORE HUB	23100U-004LH
29	1	C21236-120	UNWIND SUPPORT PLATE	23100U-004LH

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UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE

XX ± .01
XXX ± .005
ANGLES ± .30°

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS

7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 3/8
DATE: Sep-04-25
DRW BY: RDL
CHK BY:
APPR BY:

4 1/2" UNWIND ASSEMBLY, LHH

MAT'L

REV

DATE

DESCRIPTION

BY

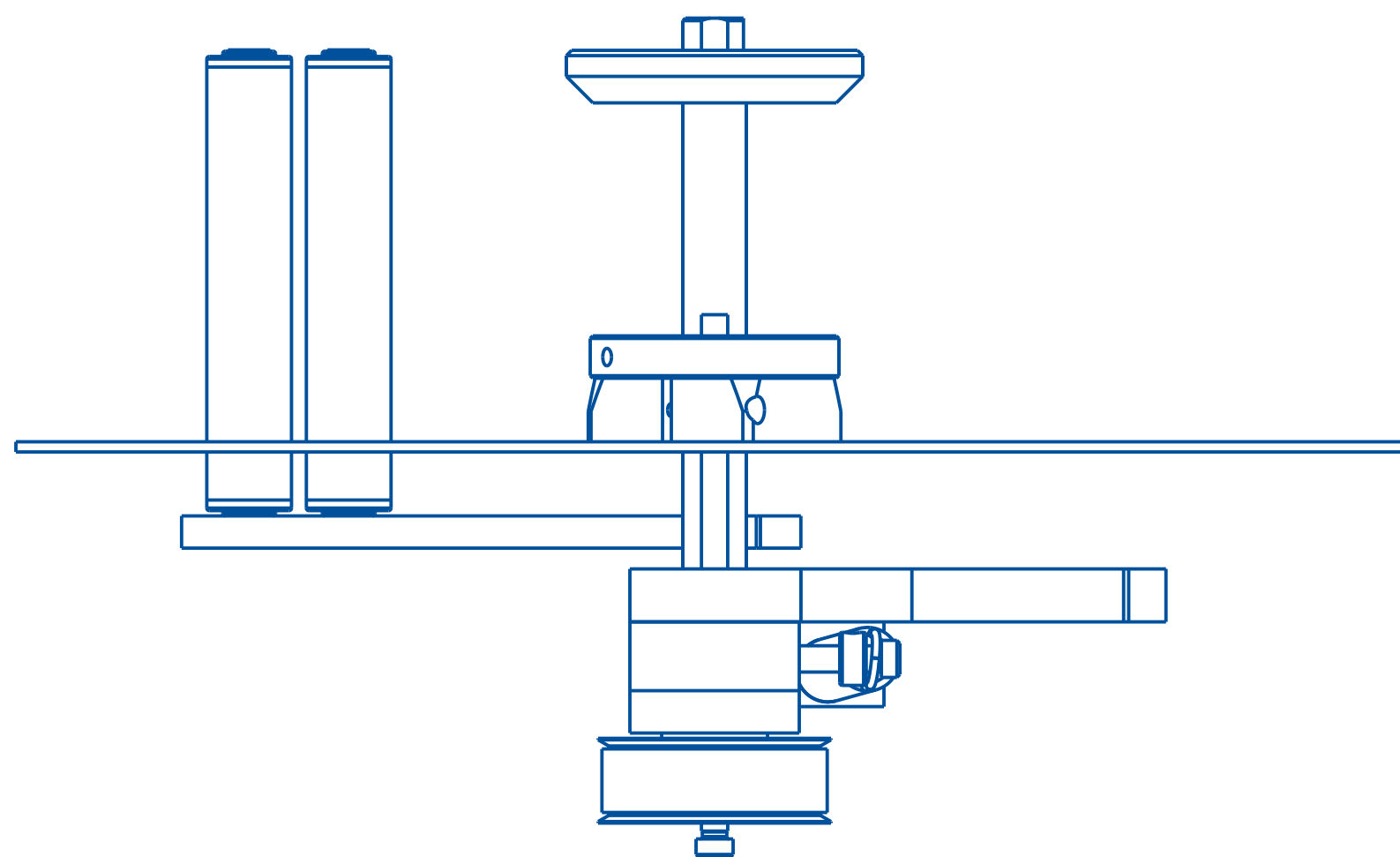
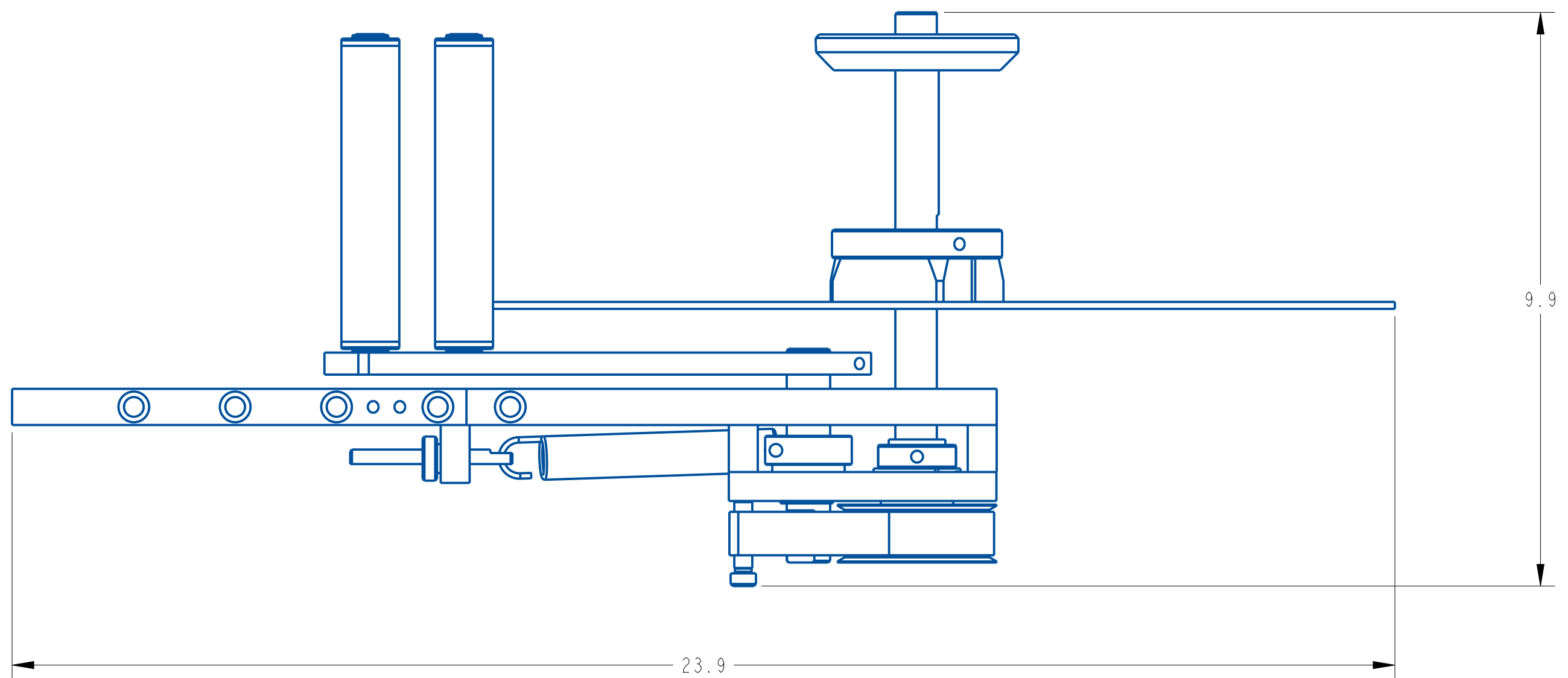
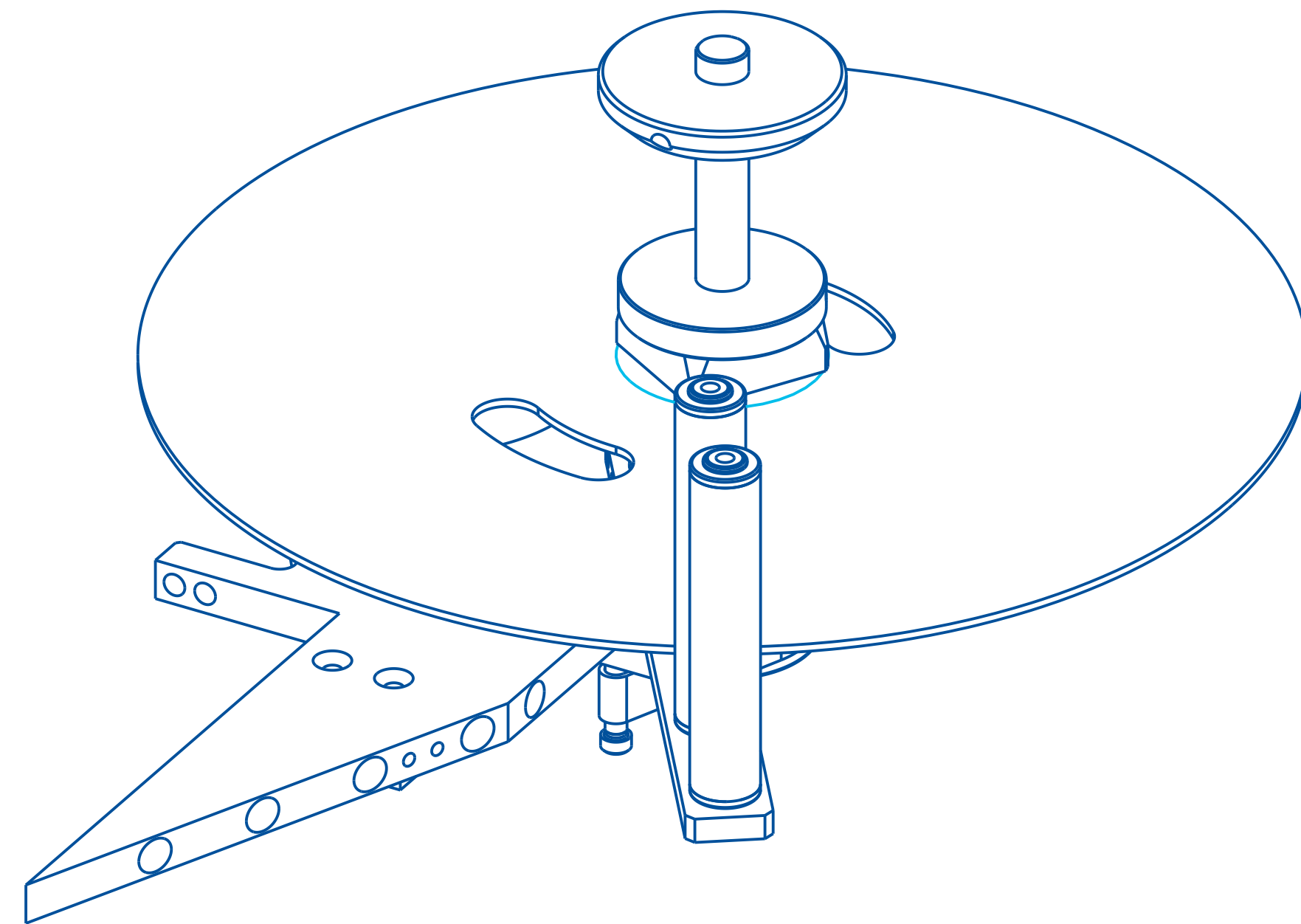
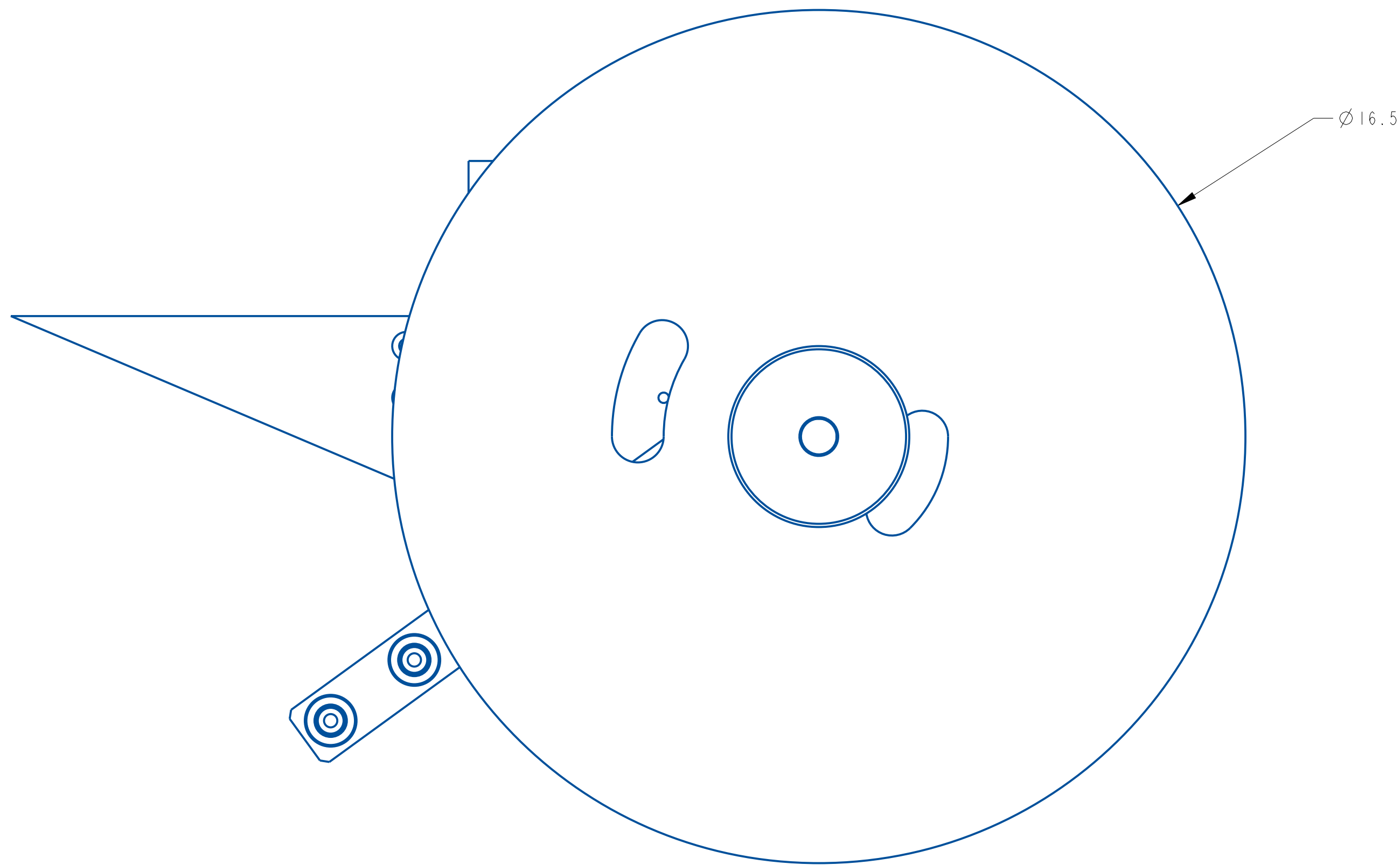
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Sep-04-25

NEW DRAWING

RDL

23100U-004LH



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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/2	
XX ± .1		DATE: Sep-04-25	
XXX ± .005		DRW BY: RDL	
ANGLES ± .00°		CHK BY:	
SURFACE FINISH 125		APPR BY:	
BREAK ALL EDGES .005/ .015		4 1/2" UNWIND ASSEMBLY, LHH	
CORNER RADIUS .010/ .030		MATERIAL	
ALL ANGLES ARE 90°		23100U-004LH	

ASSEMBLY TITLE: Q120 PEEL PLATE ASSEMBLY

GENERAL FUNCTION:

- The peel plate separates the label from the liner and puts the label in a "Flag" position.
- The mounting rods support the slot sensor assembly.
- The guide collars and the idler roller guide the web position over the peel plate
- The pivot pin provides for yoke mounting of the labeling head.

SET UP AND ADJUSTMENTS:

- On machines so equipped, the peel plate may be pivoted at various angles relating to the product by loosening the peel plate mounting bar. (The peel plate of all other models is mounted at a fixed angle and cannot be adjusted)
- To advance label flag on peel plate, move the slot sensor towards the peel plate. To decrease label flag, move slot sensor away from the peel plate.
- Position guide collars on idler roll, one slightly above and the other slightly below the web.

MAINTENANCE:

- Clean all the parts that may acquire labels or glue residue.

TROUBLESHOOTING:

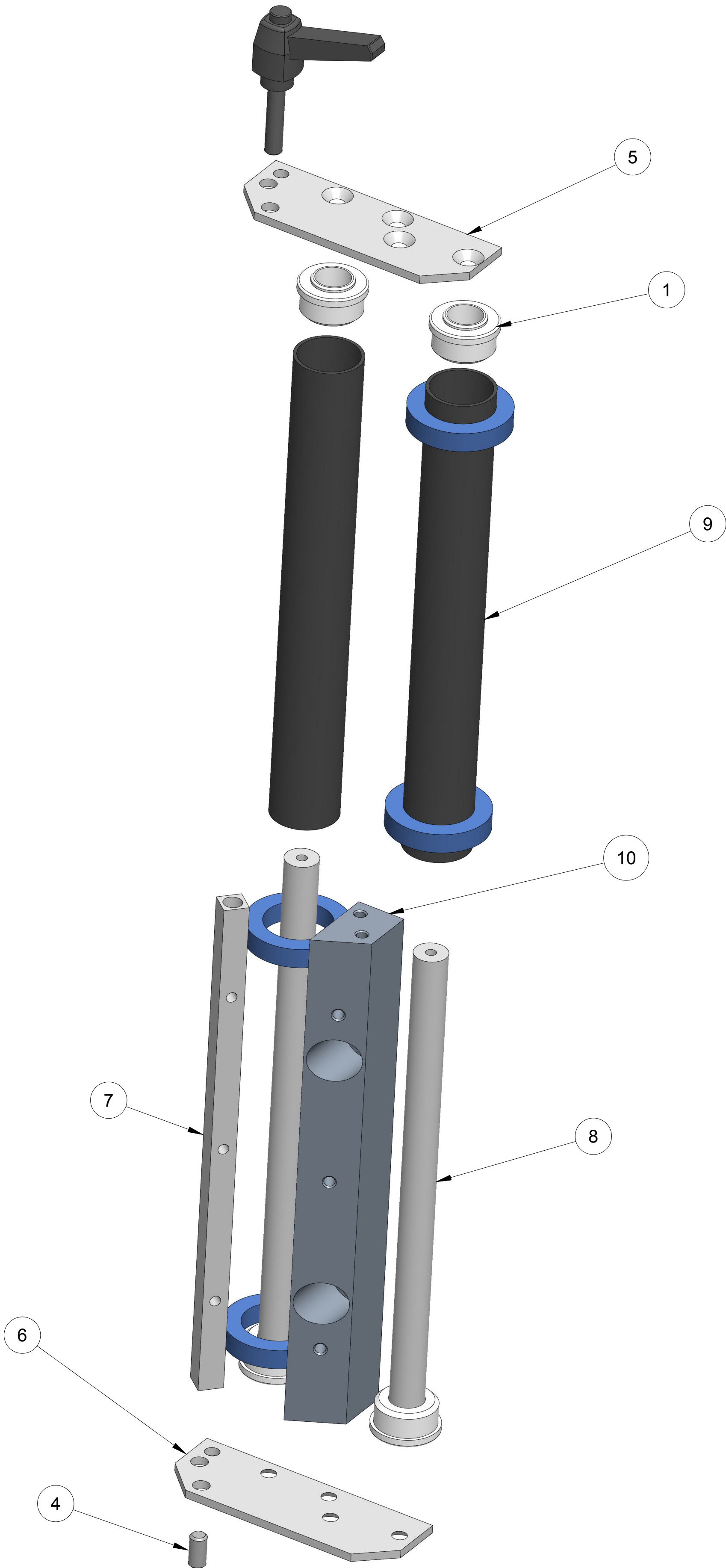
PROBLEM

- Too much label flag at peel plate
- Too little label flag at peel-
- Web moving up and down peel plate

WHAT TO DO

- Move slot sensor away from peel edge
- Move slot sensor towards peel plate edge
- Make sure guide collars are properly positioned on idler roll.




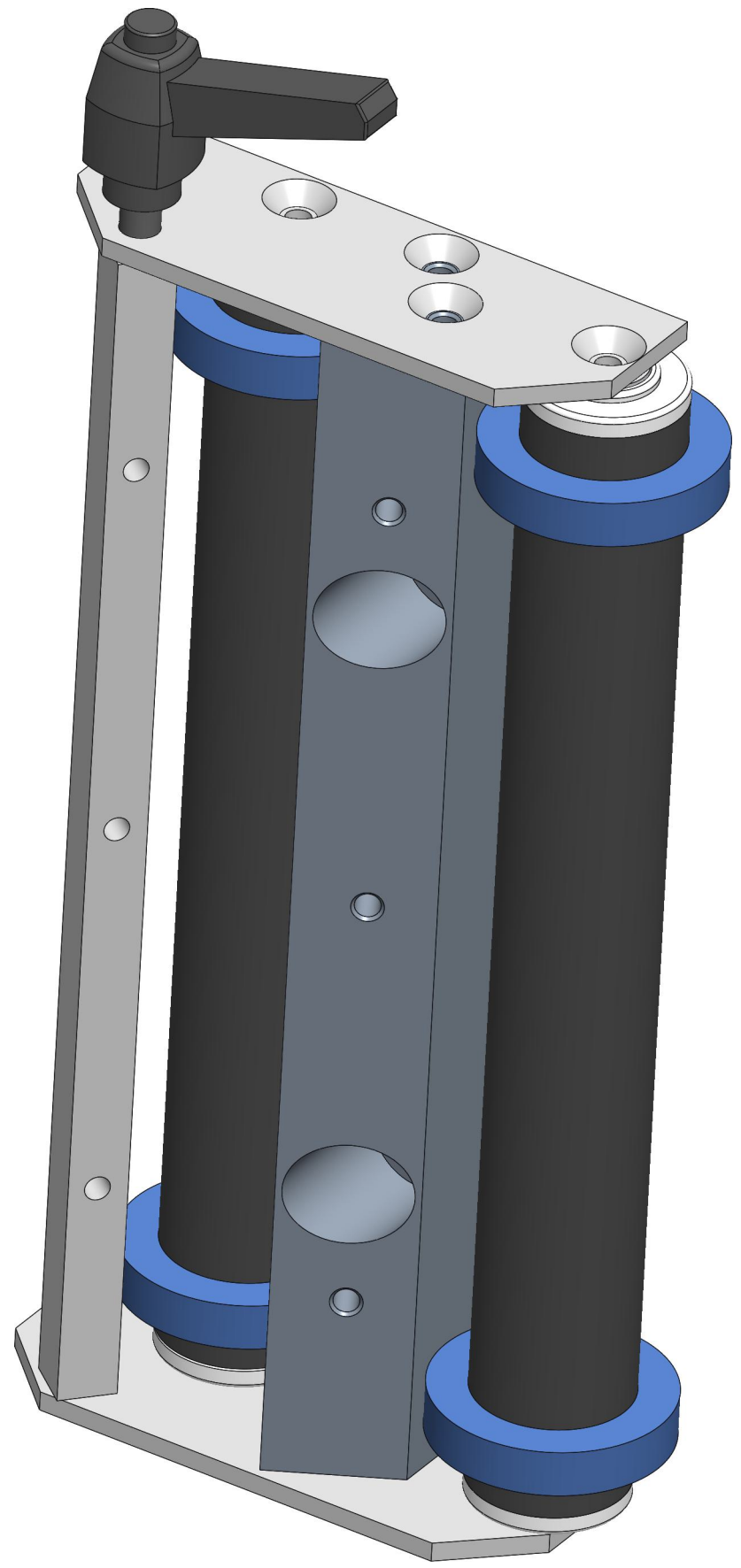
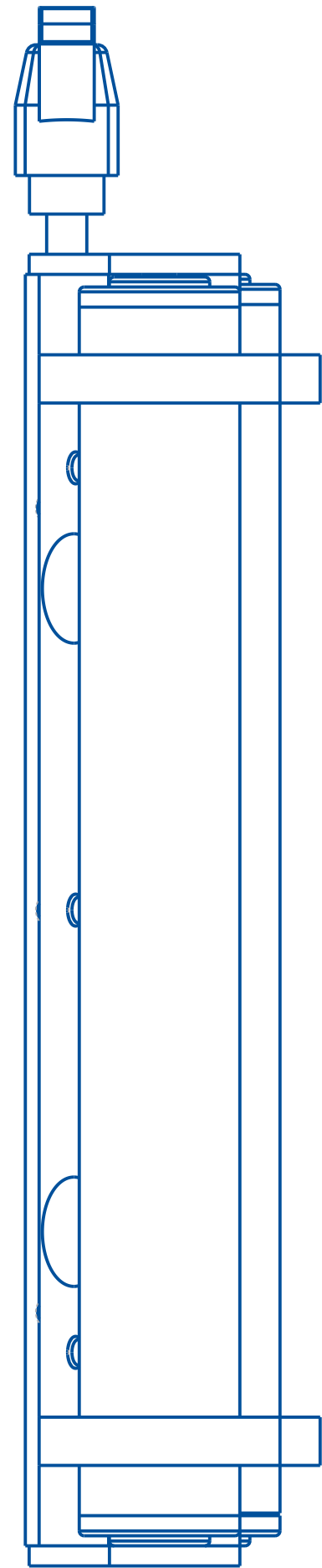
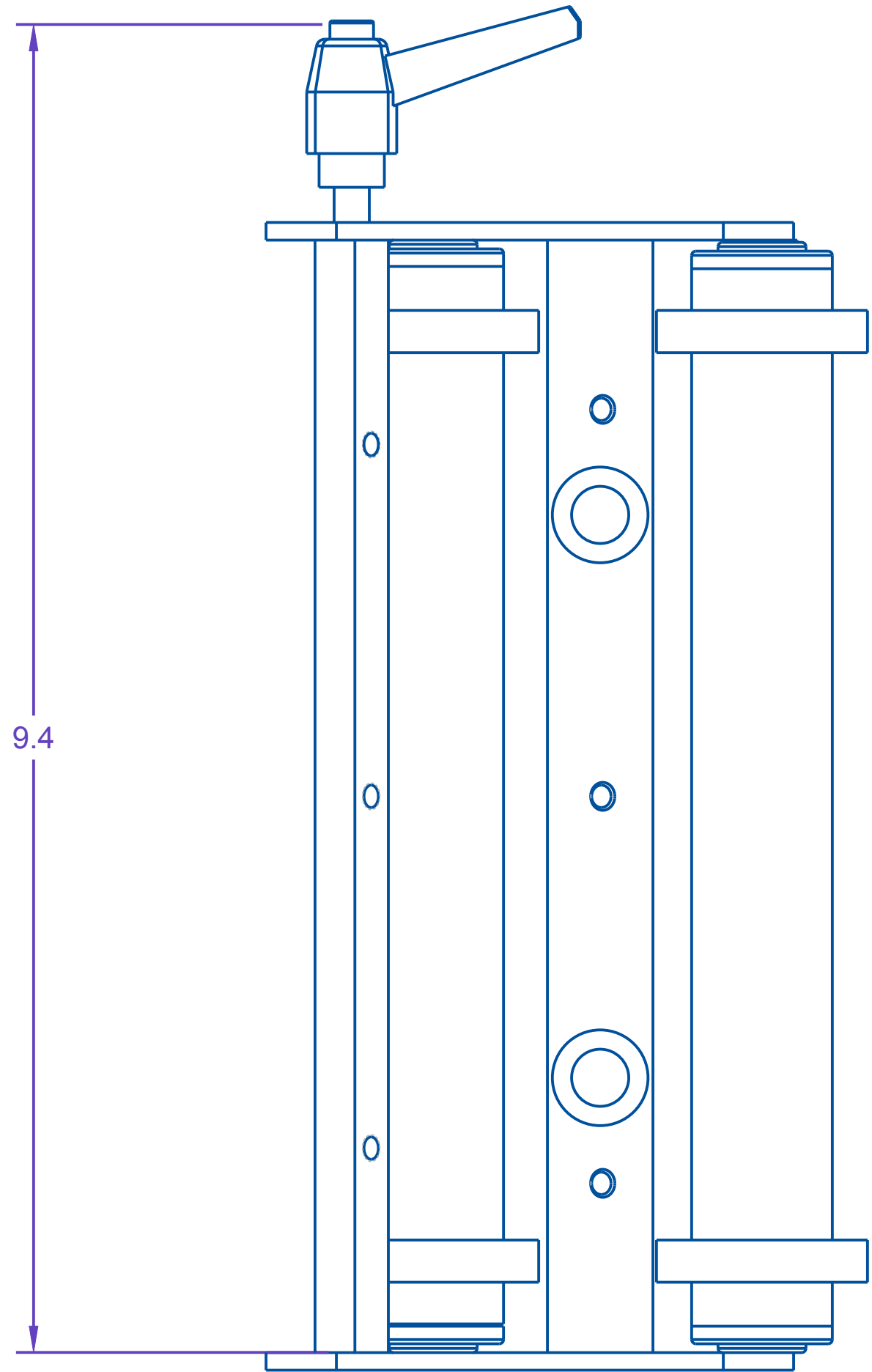
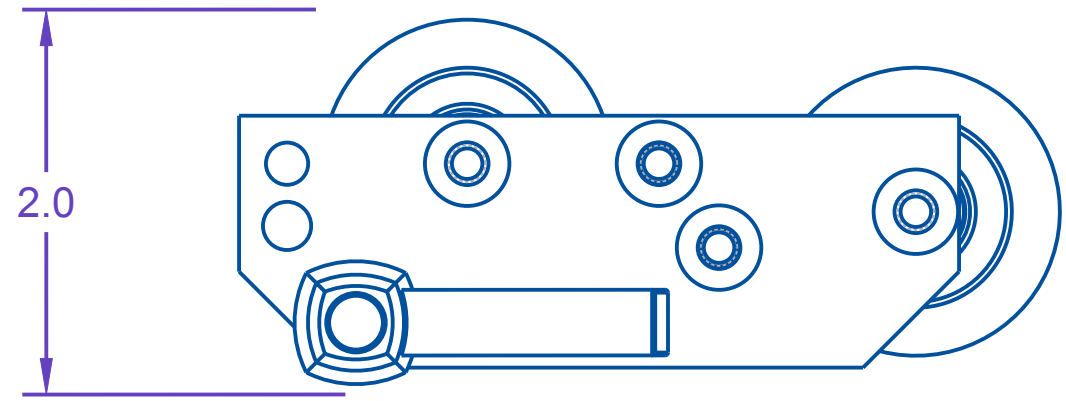


ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	4	181063-000	BEARING, ROLL END	21343PP-00L
2	1	22811-000	HANDLE ASSEMBLY, LEFT HANDED	21343PP-00L
3	4	361198-000	COLLAR, GUIDE, 1" ID	21343PP-00L
4	1	871369-000	DOWEL PIN, 1/4 DIA X 1/2 LONG	21343PP-00L
5	1	A21758-000	SIDE PLATE	21343PP-00L
6	1	A21758-001	SIDE PLATE	21343PP-00L
7	1	A22245-002	PRESSURE SHOE MOUNTING BAR - 7"	21343PP-00L
8	2	A23791-003	SHAFT, IDLER ROLLER	21343PP-00L
9	2	B21198-003	IDLER ROLLER-(PEEL PLATE)	21343PP-00L
10	1	B7639-000		21343PP-00L

NOT SHOWN:

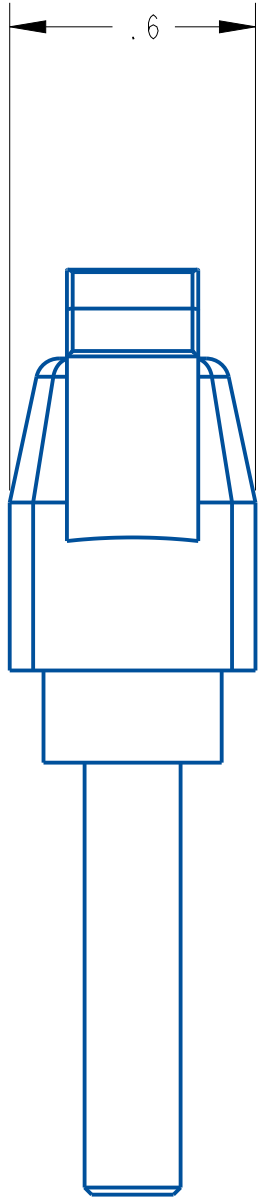
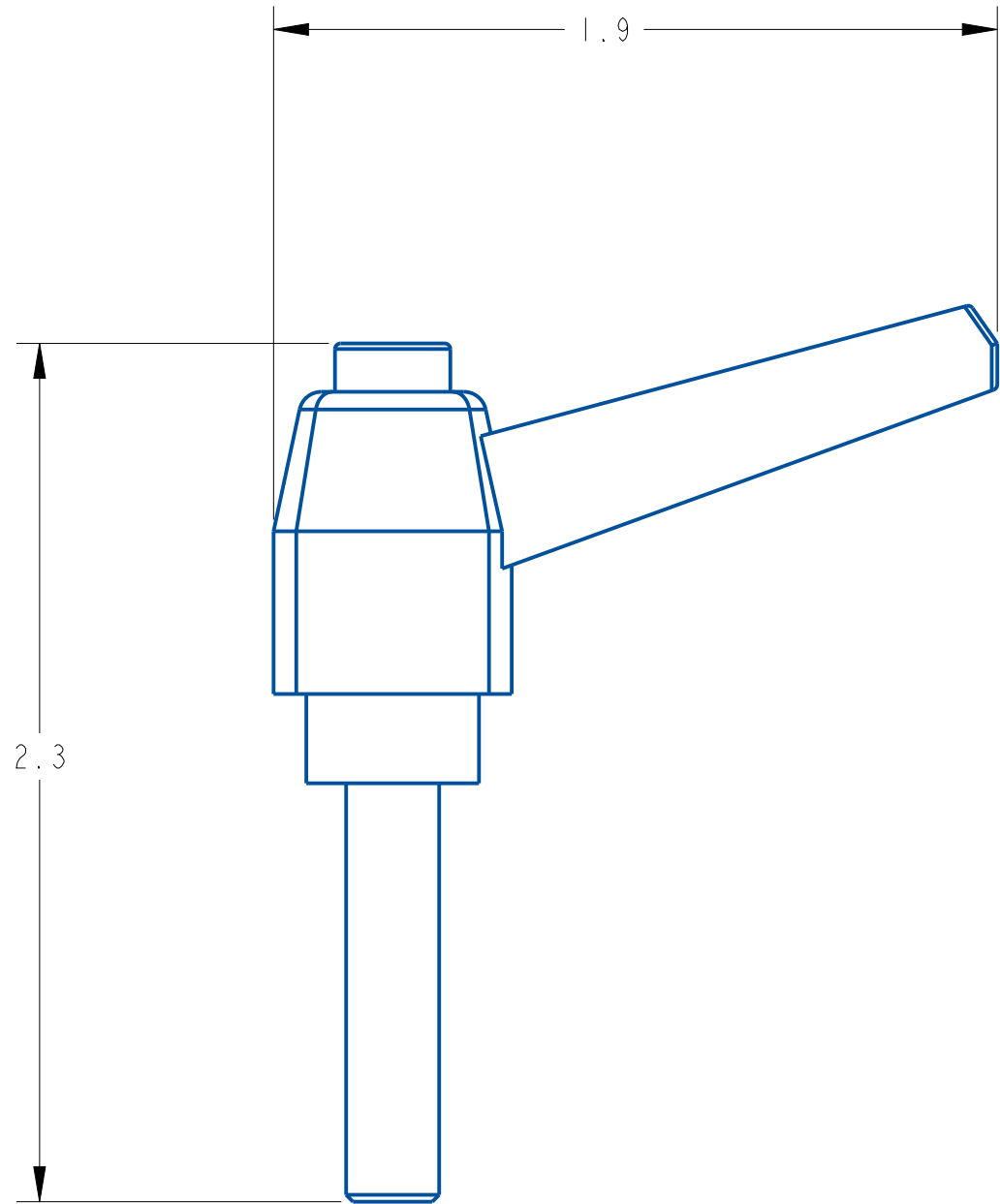
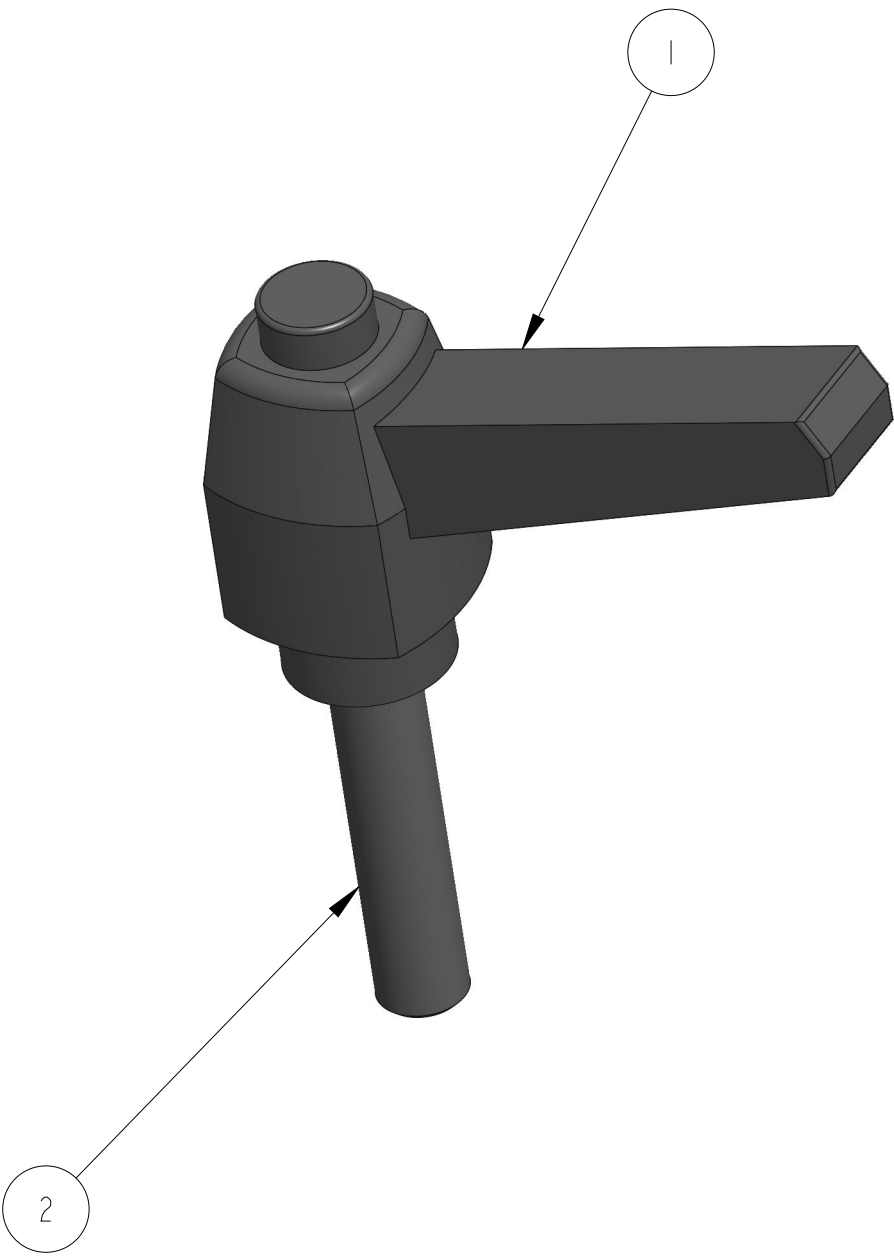
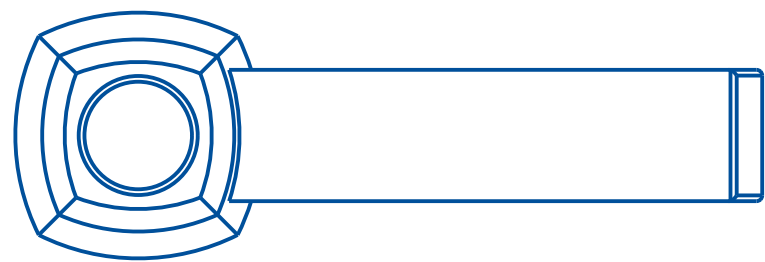
B21199-001 PEEL PLATE
A21372-000 PRESSURE SHOE
791852-000 PEEL PLATE TAPE

A			05-FEB-2024		NEW DRAWING	
REV			DATE		DESCRIPTION	
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY						
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.30			 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE: 0.875	
					DATE: 05-FEB-2024	
					DRW BY: CRT	
					CHK BY: 03/07/2024-SEM	
					APPR BY:	
			7" PEEL PLATE ASSEMBLY			
MAT'L			21343PP-00L			



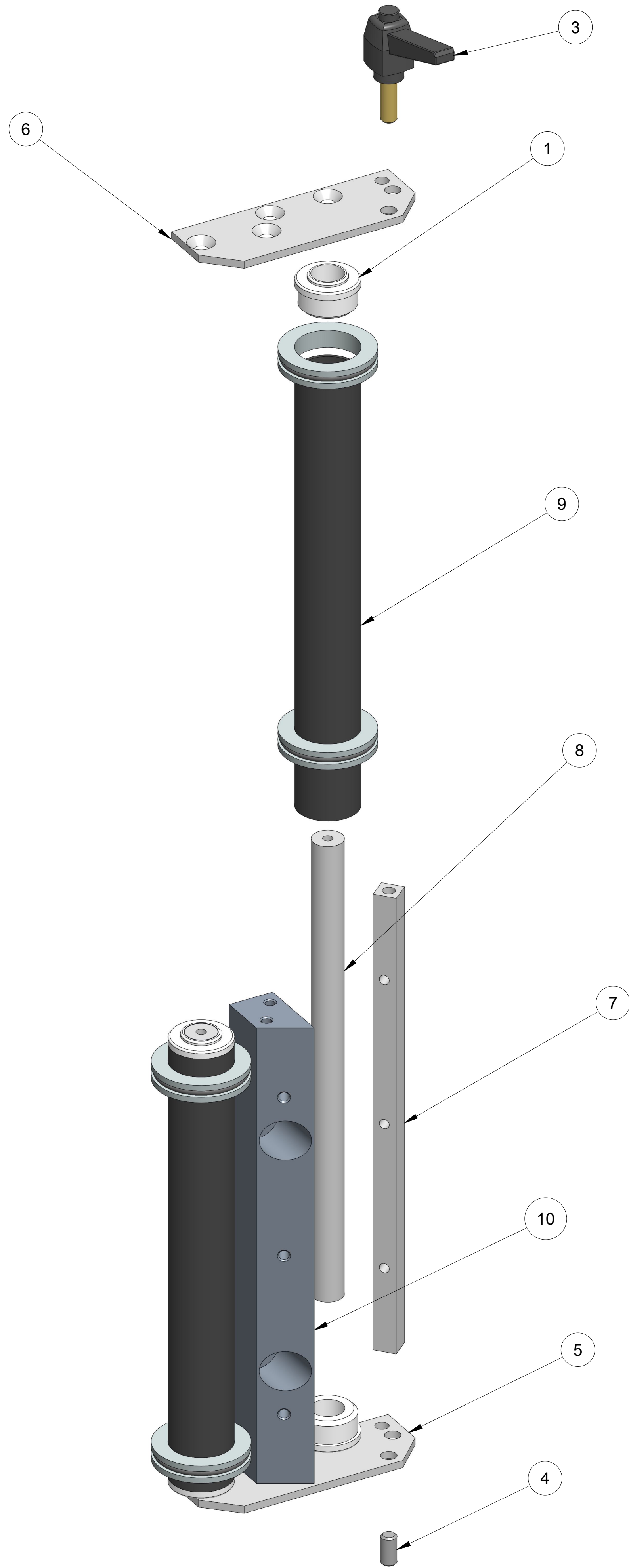
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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1.000	
X ± .1 XX ± .01 XXX ± .005 ANGLES ± .50°		DATE: 05-FEB-2024	
SURFACE FINISH 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°		DRW BY: CRT	
QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		CHK BY: &CREO.CHK	
7" PEEL PLATE ASSEMBLY		APPR BY:	
MATERIAL		21343PP-00L	

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	801899-000	HANDLE	22811-000
2	1	841812-000	STUD	22811-000



A	Feb-05-24	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE: 2/1 DATE: Feb-05-24 DRW BY: CRT CHK BY: APPR BY:
	HANDLE ASSEMBLY, LEFT HANDED THREAD		
	MAT'L		22811-000

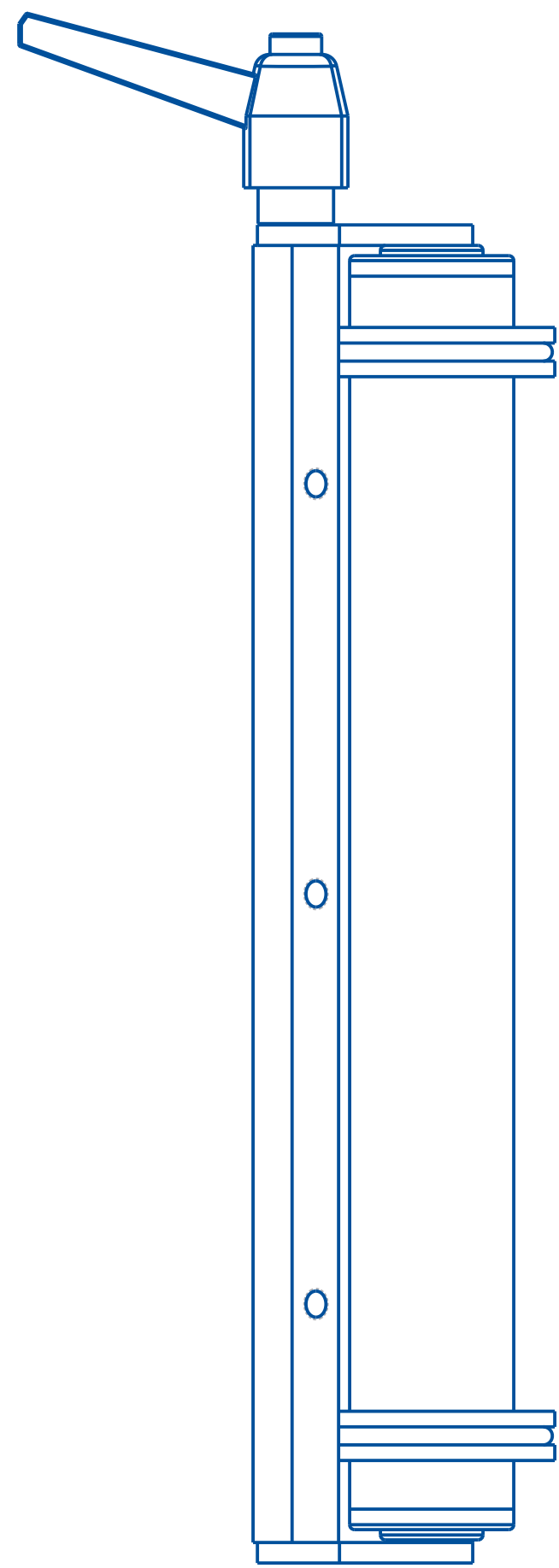
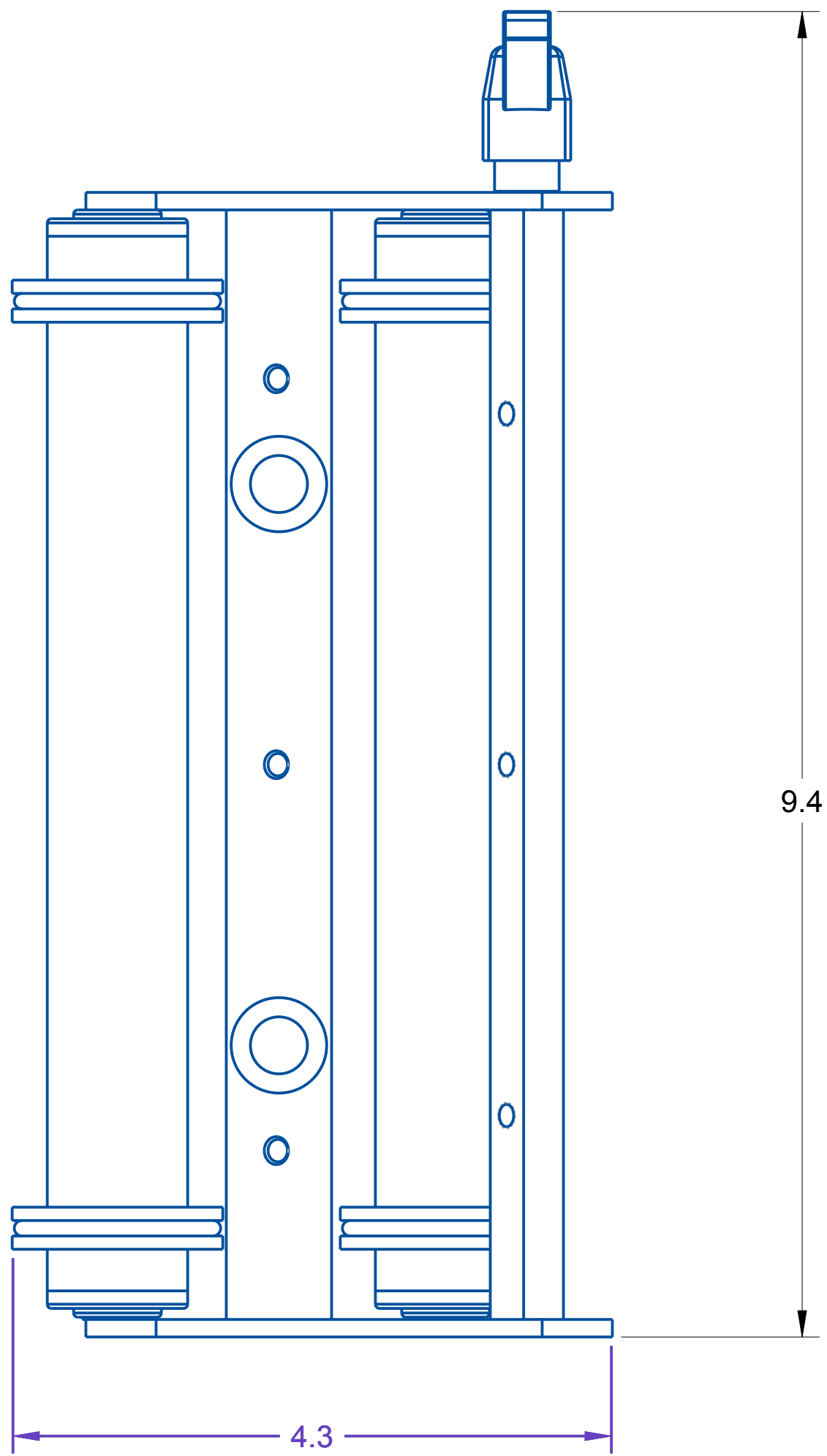
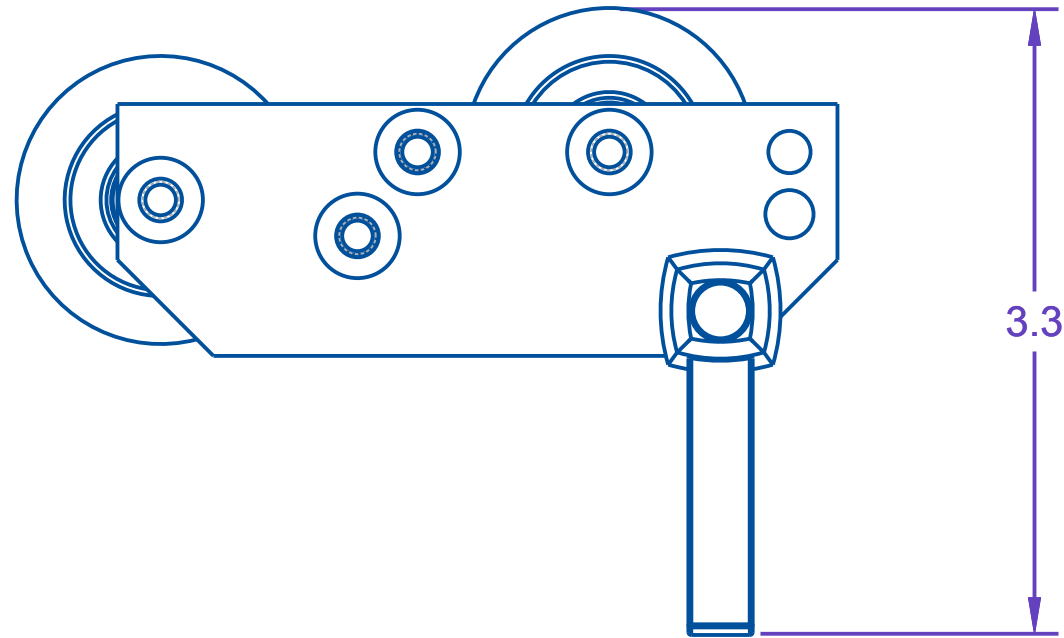


ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	4	181063-000	BEARING, ROLL END	21343PP-00R
2	4	361198-000	COLLAR, GUIDE, 1" ID	21343PP-00R
3	1	801857-000	ADJUSTABLE HANDLE	21343PP-00R
4	1	871369-000	DOWEL PIN, 1/4 DIA X 1/2 LONG	21343PP-00R
5	1	A21758-000	SIDE PLATE	21343PP-00R
6	1	A21758-001	SIDE PLATE	21343PP-00R
7	1	A22245-000	PRESSURE SHOE MOUNTING BAR - 7"	21343PP-00R
8	2	A23791-003	SHAFT, IDLER ROLLER	21343PP-00R
9	2	B21198-003	IDLER ROLLER-(PEEL PLATE)	21343PP-00R
10	1	B7639-000		21343PP-00R

NOT SHOWN:

B21199-001 PEEL PLATE
A21372-000 PRESSURE SHOE
791852-000 PEEL PLATE TAPE

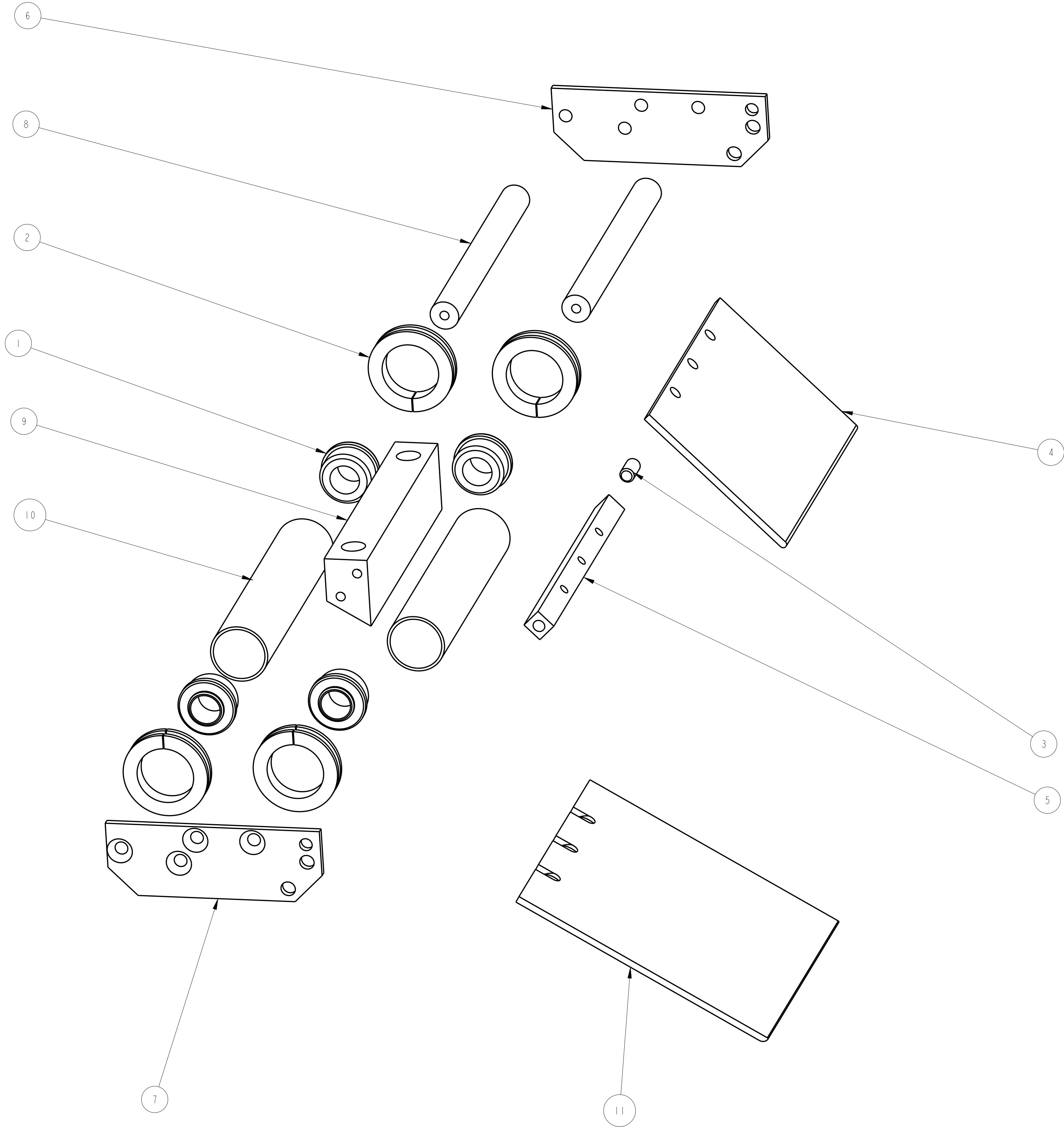
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY		NEW DRAWING	
REV	DATE	DESCRIPTION	
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DIMENSIONAL TOLERANCE		DATE: 05-FEB-2024	
XXX ± .01		DRW BY: CRT	
XXX ± .005		CHK BY: 03/07/2024-SEM	
ANGLES ± 30°		APPR BY:	
SURFACE FINISH 125		7" PEEL PLATE ASSEMBLY	
BREAK ALL EDGES .005/0.15		MAT'L	
CORNER RADIUS .010/0.50		21343PP-00R	



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	4	181063-000	BEARING, ROLL END	21343PP-00R
2	4	361198-000	COLLAR, GUIDE, 1" ID	21343PP-00R
3	1	801857-000	ADJUSTABLE HANDLE	21343PP-00R
4	1	871369-000	DOWEL PIN, 1/4 DIA X 1/2 LONG	21343PP-00R
5	1	A21758-000	SIDE PLATE	21343PP-00R
6	1	A21758-001	SIDE PLATE	21343PP-00R
7	1	A22245-000	PRESSURE SHOE MOUNTING BAR - 7"	21343PP-00R
8	2	A23791-003	SHAFT, IDLER ROLLER	21343PP-00R
9	2	B21198-003	IDLER ROLLER-(PEEL PLATE)	21343PP-00R
10	1	B7639-000		21343PP-00R

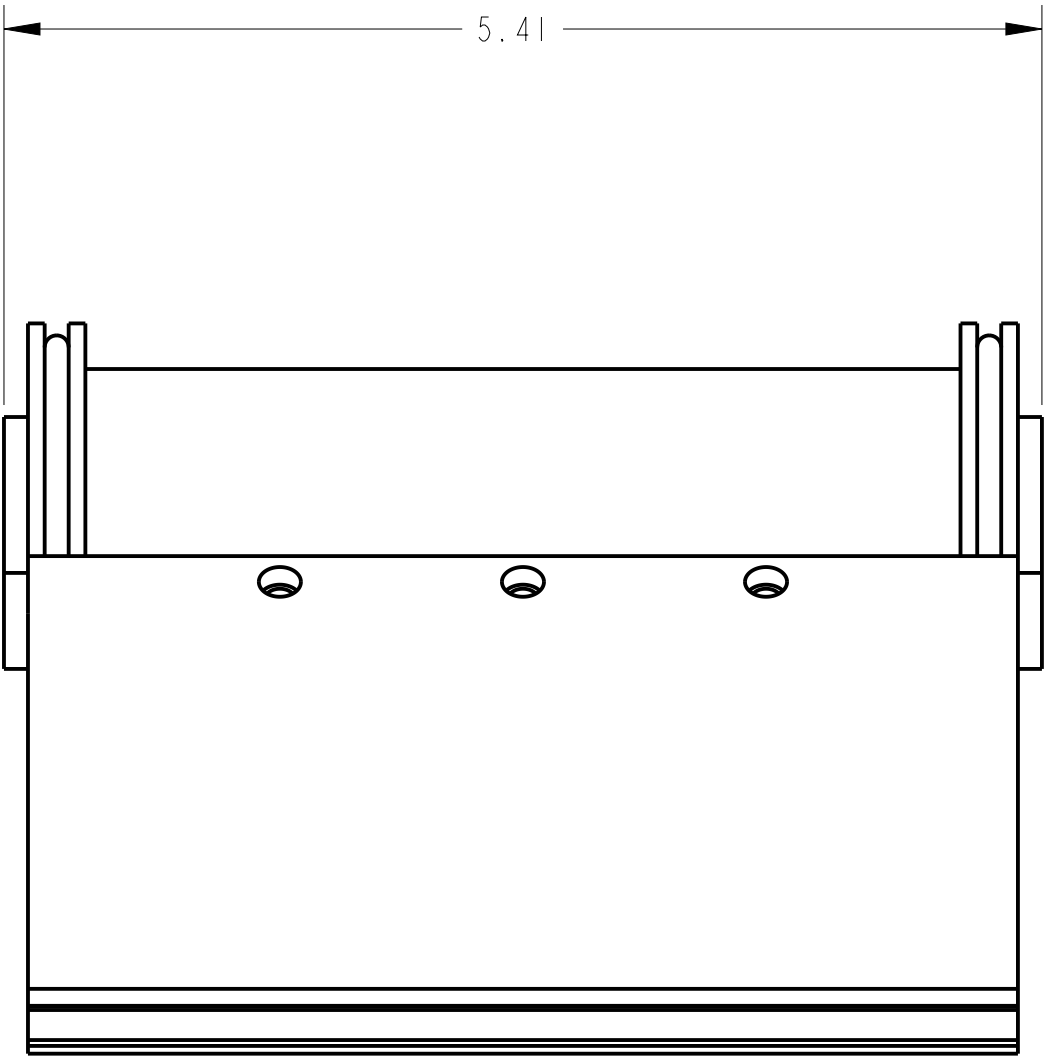
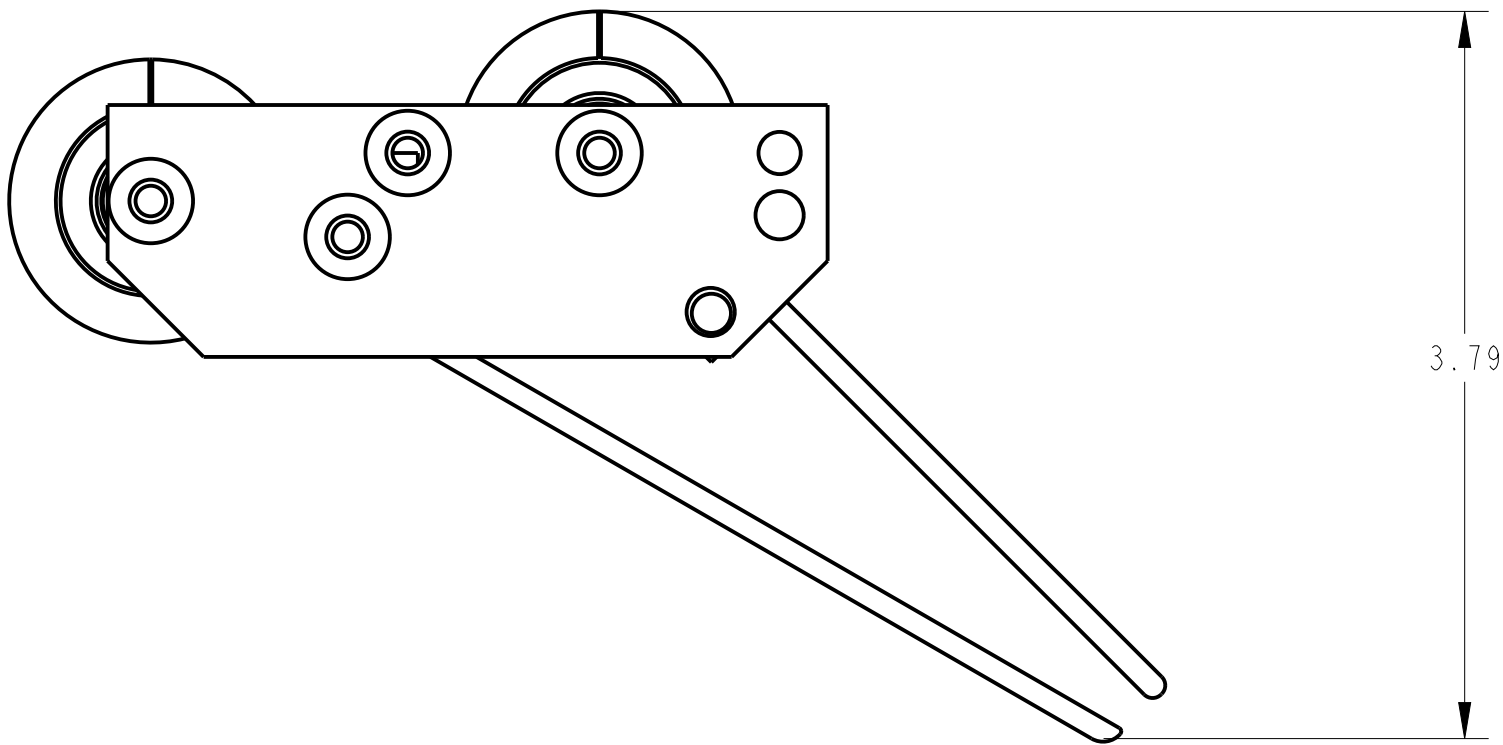
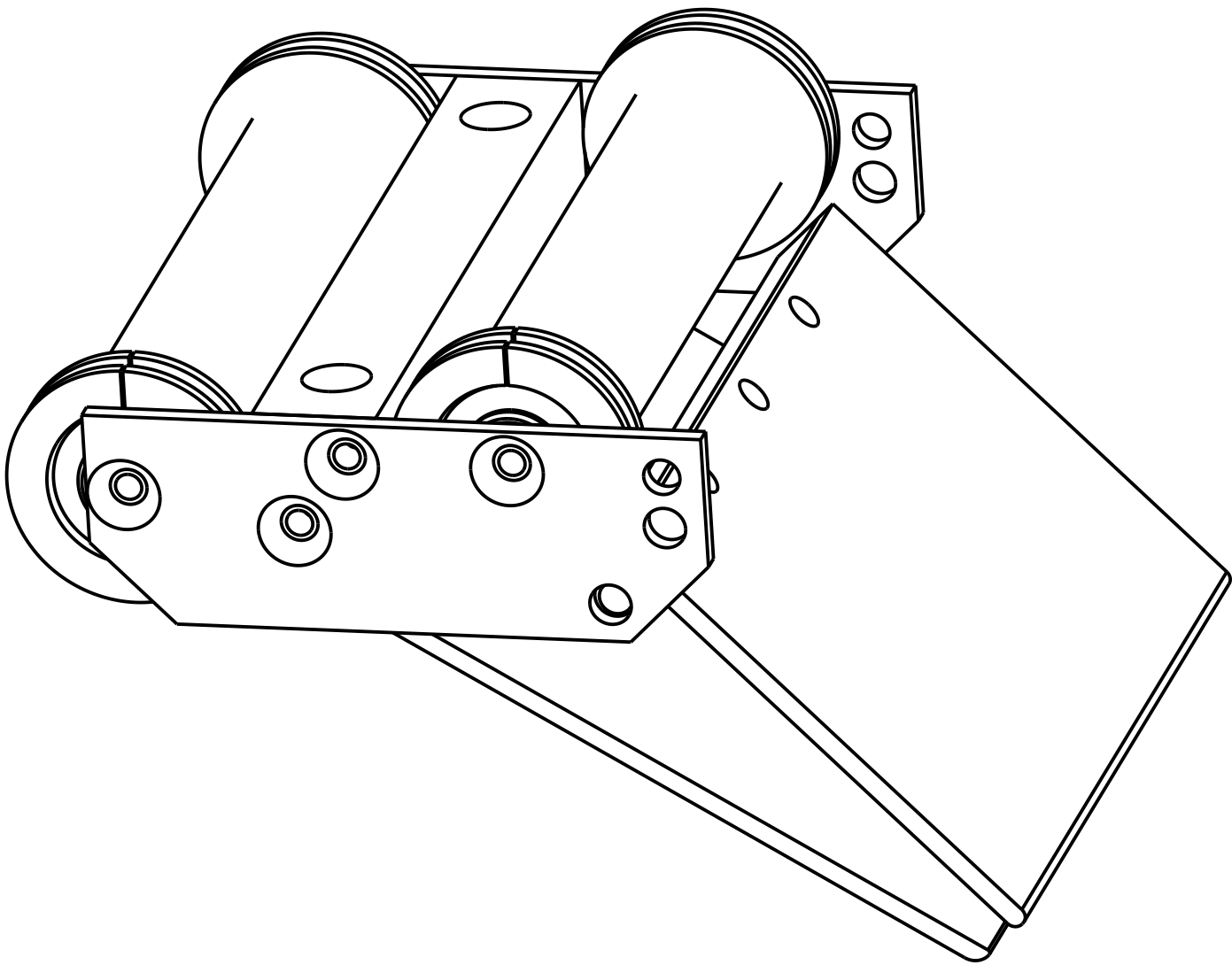
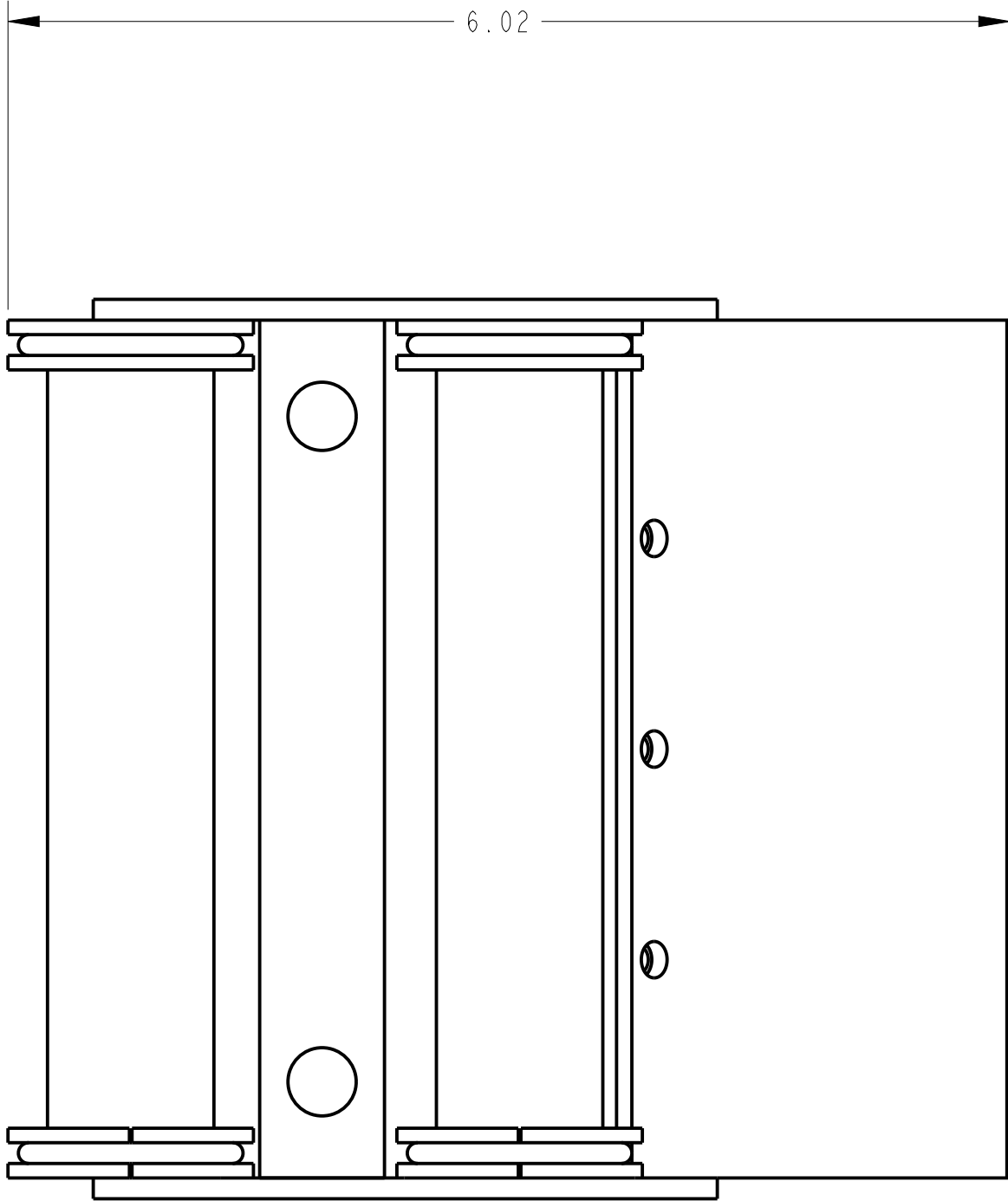
A	05-FEB-2024	NEW DRAWING
REV	DATE	DESCRIPTION

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
<div>UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $X \pm .1$ $XX \pm .01$ $XXX \pm .005$ ANGLES $\pm .30^\circ$ SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030</div>	<div>QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700</div> 	SCALE: 1.000	
		DATE: 05-FEB-2024	
		DRW BY: CRT	
		CHK BY: 03/07/2024-SEM	
		7" PEEL PLATE ASSEMBLY	
		MAT'L	
21343PP-00R			



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	4	181063-000	BEARING, ROLL END	22500PP-000
2	4	361198-000	COLLAR, GUIDE, 1 IN. ID	22500PP-000
3	1	871369-000	DOWEL PIN, 1/4 DIA X 1/2 LONG	22500PP-000
4	1	A21392-001	PRESSURE SHOE	22500PP-000
5	1	A21755-000	PRESSURE SHOE MOUNTING BAR - 4 1/2"	22500PP-000
6	1	A21758-000	SIDE PLATE	22500PP-000
7	1	A21758-001	SIDE PLATE	22500PP-000
8	2	A23791-000	SHAFT, IDLER ROLLER	22500PP-000
9	1	B21196-003	4-1/2" PEEL PLATE MOUNTING BAR	22500PP-000
10	2	B21198-000	IDLER ROLLER-(PEEL PLATE)	22500PP-000
11	1	B22731-000	PEEL PLATE, 4.5"	22500PP-000

A	6-22-23	NEW DRAWING		ATT	
REV	DATE	DESCRIPTION		BY	
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE XX ± .01 XXX ± .005 ANGLES ± 30° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE	1/1
				DATE	6-22-23
				DRAWN BY	ATT
FIXED PEEL PLATE , 4.50"					
MAT'L		22500PP-000		22500PP-000	



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
X ± .1 XX ± .01 XXX ± .005 ANGLES ± 30°		SCALE 1/1 DATE 6-22-23 DRAWN BY ATT	
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		FIXED PEEL PLATE , 4.50"	
MAT'L		22500PP-000	22500PP-000

ASSEMBLY TITLE: FIXED BRUSH IMPRESSER

DRAWING NO.: D21651-000

GENERAL FUNCTION:

- The fixed roller impresser is an option used in applications where a secondary wipe down or label wipe is necessary.

SET UP AND ADJUSTMENTS:

- When installed, the brush assembly will be mounted by an adjustable clamp. The mounting assembly is fastener to the option rail located on the peel plate side wall.
- Four axis of adjustment is available by loosening the set screw locking the roller arm in place.
- Locate the brush as necessary and re-tighten the clamping screws.
- Run a product through the brush area and insure the brush layed on the product but do not impede product travel. The brush can be adjusted too close to the product which will prevent the product from smoothly traversing through the brush area.

MAINTENANCE:

- Keep the brush free of label flash, glue and debris. This will prevent jamming and web tears.

NOTE: Exercise caution when removing bad labels from brush. Careless removal can result in brisals being pull out which may leave the labeler inoperable until the brush is replaced!

TROUBLESHOOTING:

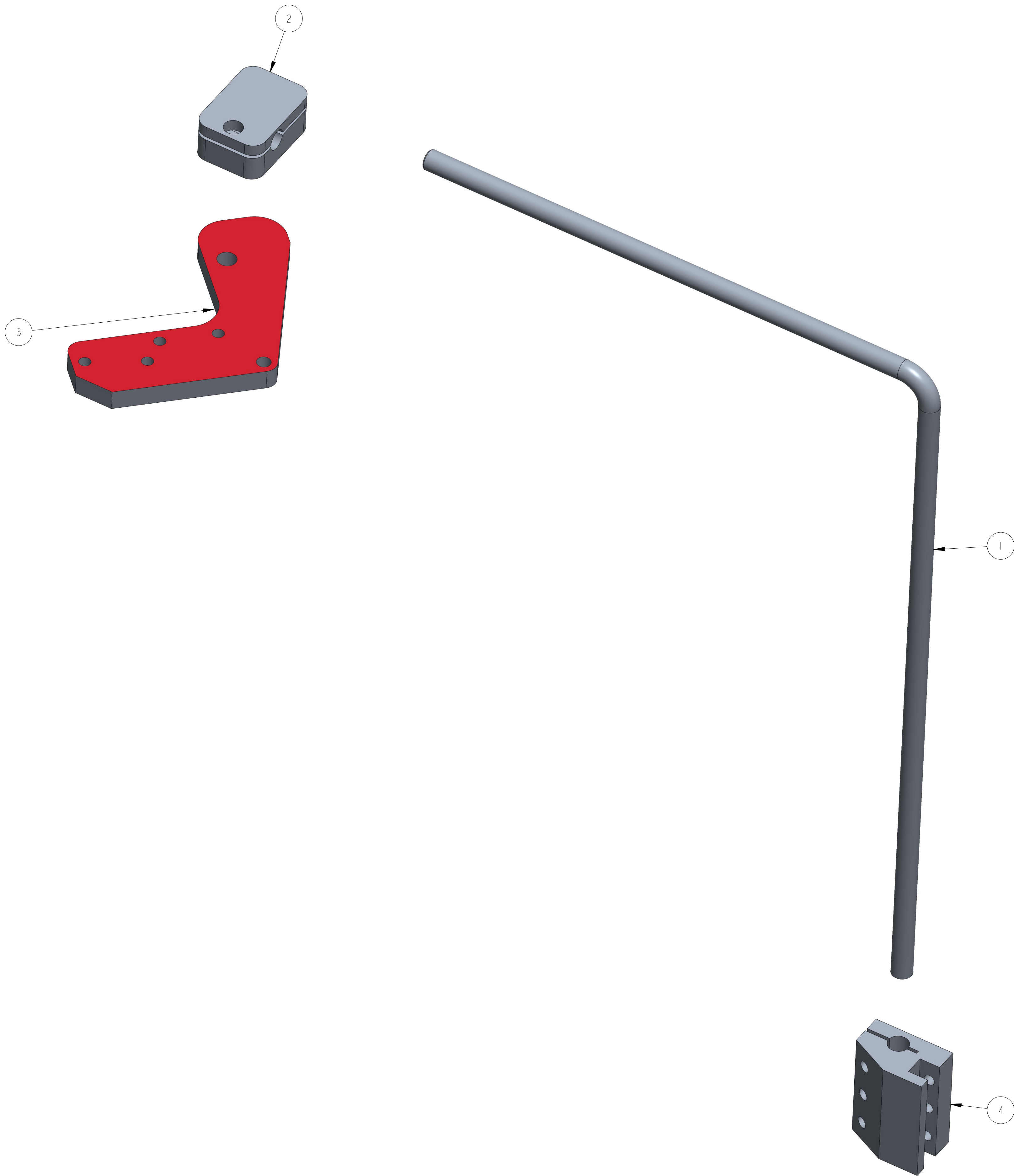
PROBLEM

- Product jams at brush area
- Bubbles in label
- Label edge curling
- Wipedown inadequate

WHAT TO DO

- Increase brush spacing.
- Decrease labeling speed
- Decrease product delay
- Decrease brush spacing.

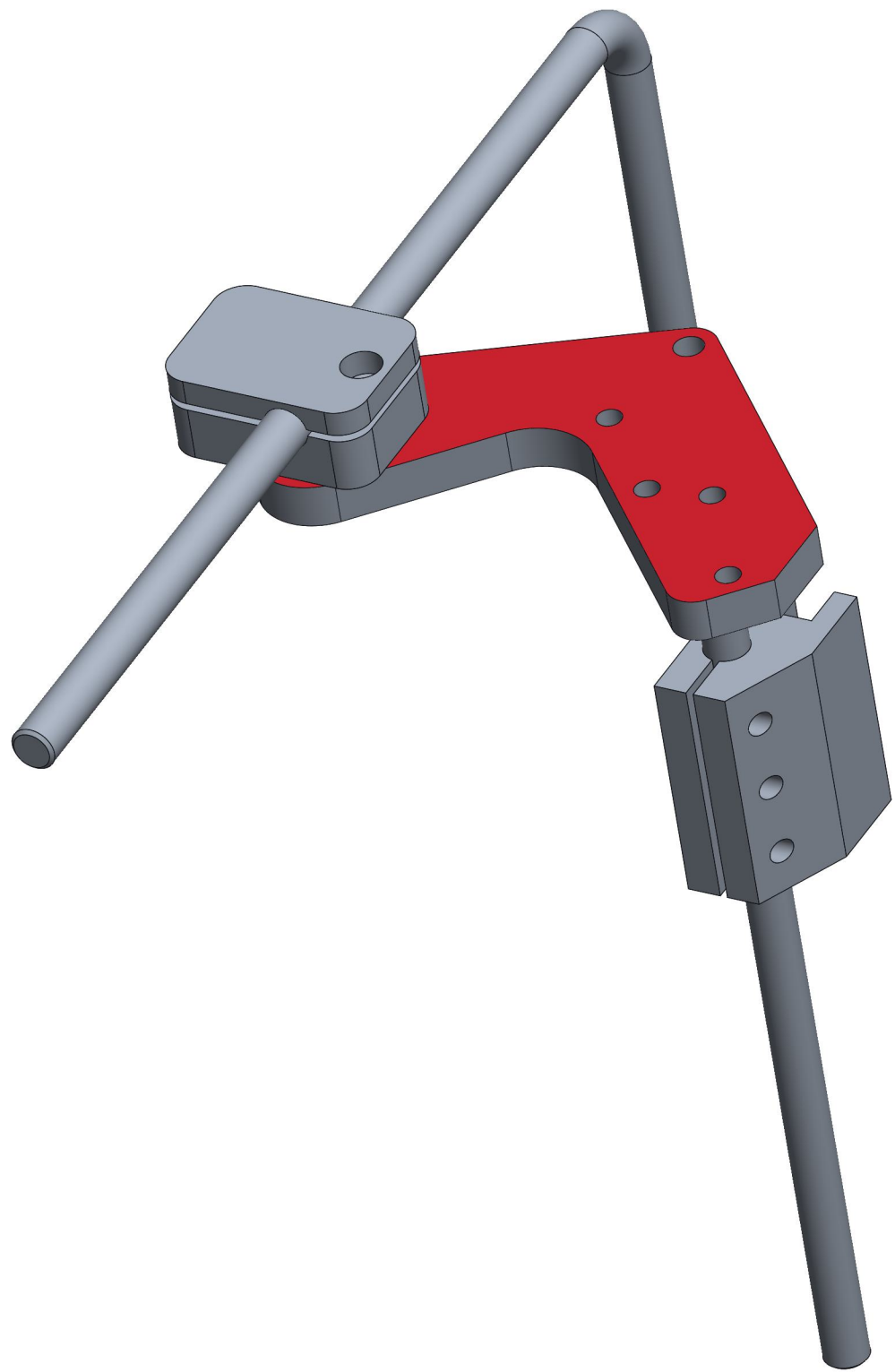
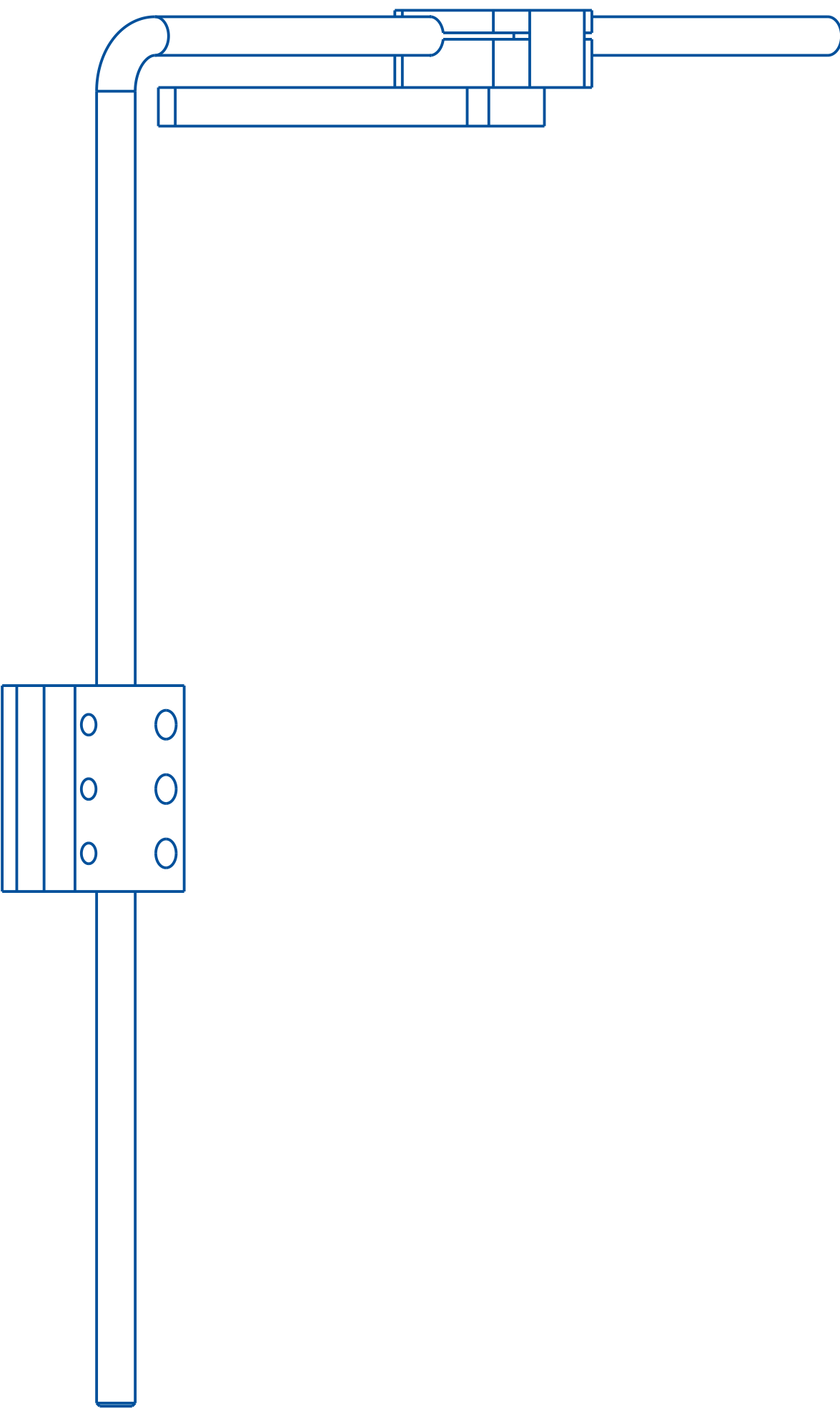
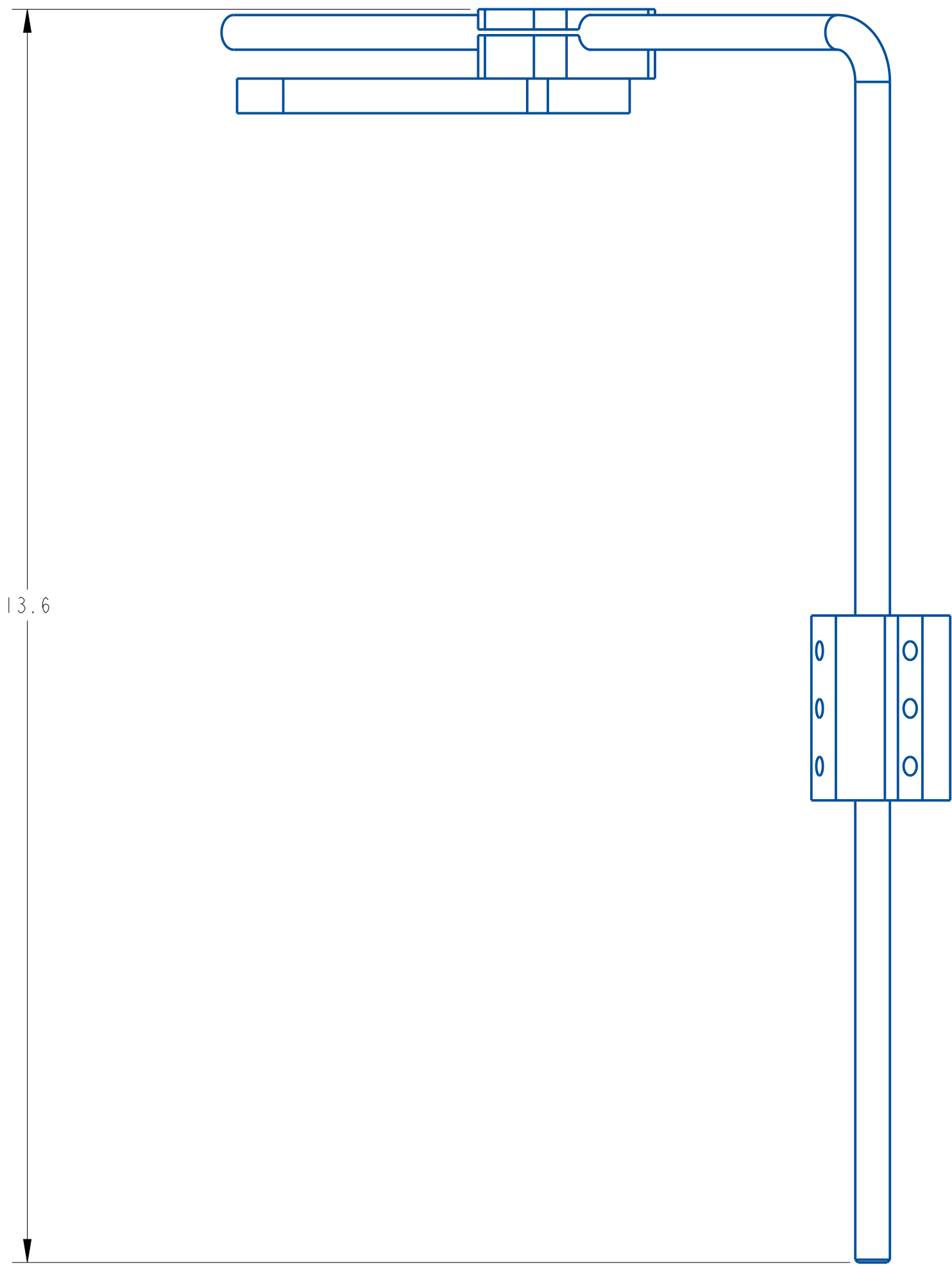
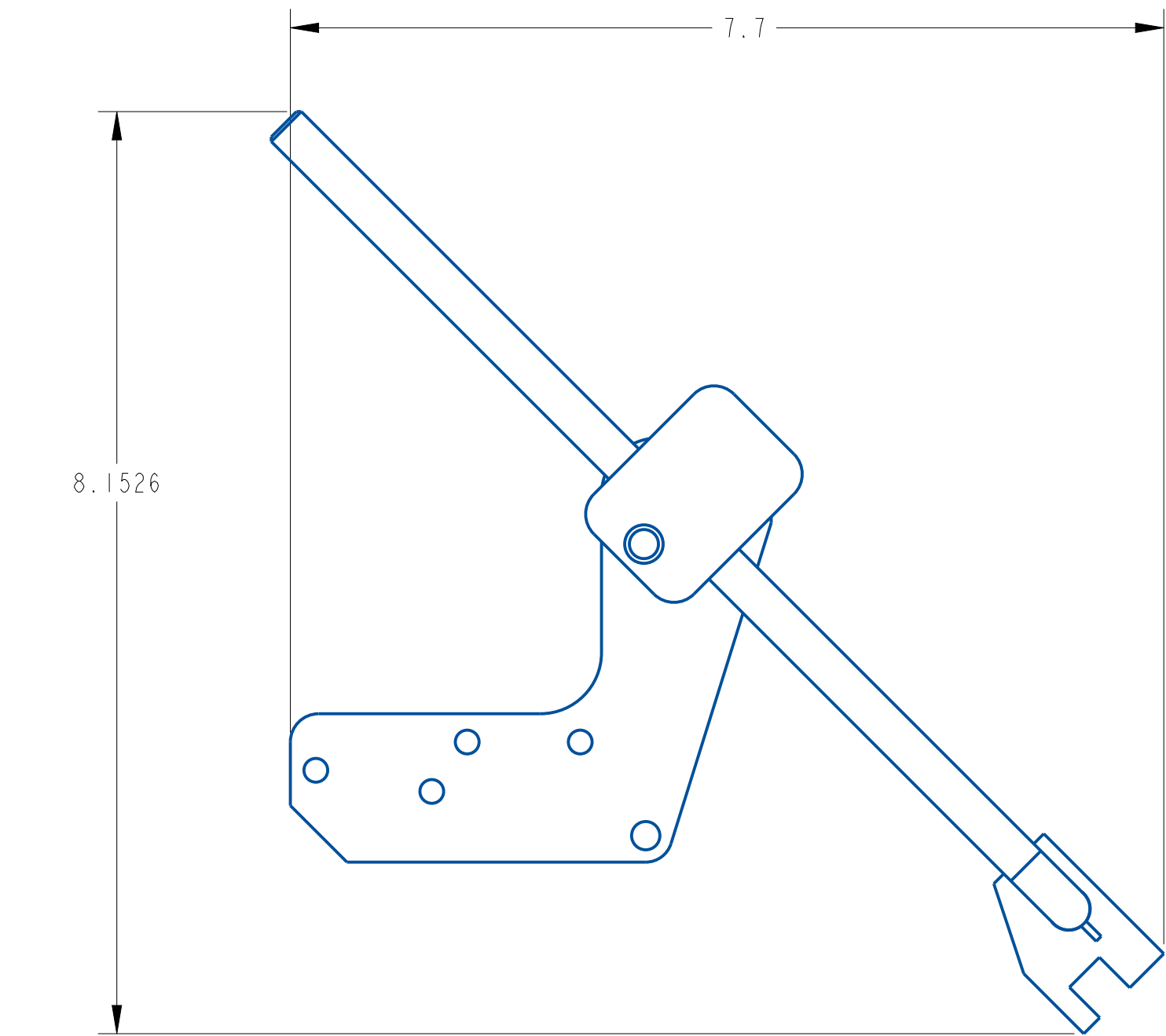
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	A21264-018	CROSS ARM	10228-005_R
2	1	A21693-300	IMPRESSOR MOUNTING BLOCK	10228-005_R
3	1	A21758-300	PEEL PLATE SIDE PLATE .375"THK	10228-005_R
4	1	A23463-100	BRUSH HOLDER	10228-005_R



A	Mar-02-20	NEW DRAWING	TJS
REV	DATE	DESCRIPTION	BY

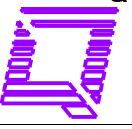
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE: 1/1 DATE: Mar-02-20 DRW BY: TJS CHK BY: 03/06/2024-SEM APPR BY:
	HEAVY DUTY IMPRESSOR		
	MAT'L		10228-005



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 3/4	
XX ± .1		DATE: Mar-02-20	
XXX ± .005		DRW BY: TJS	
ANGLES ± .00°		CHK BY: 03/06/2024-SEM	
SURFACE FINISH: 125		APPR BY:	
BREAK ALL EDGES .005/ .015		HEAVY DUTY IMPRESSOR	
CORNER RADIUS .010/ .030		MAT'L	
ALL ANGLES ARE 90°		10228-005	

A	Mar-02-20	NEW DRAWING	TJS
REV	DATE	DESCRIPTION	BY

**QUADREL LABELING SYSTEMS**
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

ASSEMBLY TITLE:**Q120 DRIVE AND PINCH ROLL ASSEMBLY****GENERAL FUNCTION:**

- The drive roll pulls the liner through the entire labeling head. As the liner is pulled over the peel edge, the label dispenses.
- The spring-loaded pinch roll squeezes the liner against the drive roll to provide positive drive.
- The primary roll is the pull or drive roll as shown. The knurl roll provides a constant pressure against the pull roll.

SET UP AND ADJUSTMENTS:

- When threading the labeling head, use the pinch roll lever to release the pinch roll from the drive roll.
- Use the spring plunger adjustment screws to adjust the contact pressure between the knurl and pull rollers.
- The pressure should be adjusted as tight as necessary to prevent a loose liner, while still allowing full rotation of the pressure release arm.

MAINTENANCE:

- Clean all parts that may have acquired label or glue residue

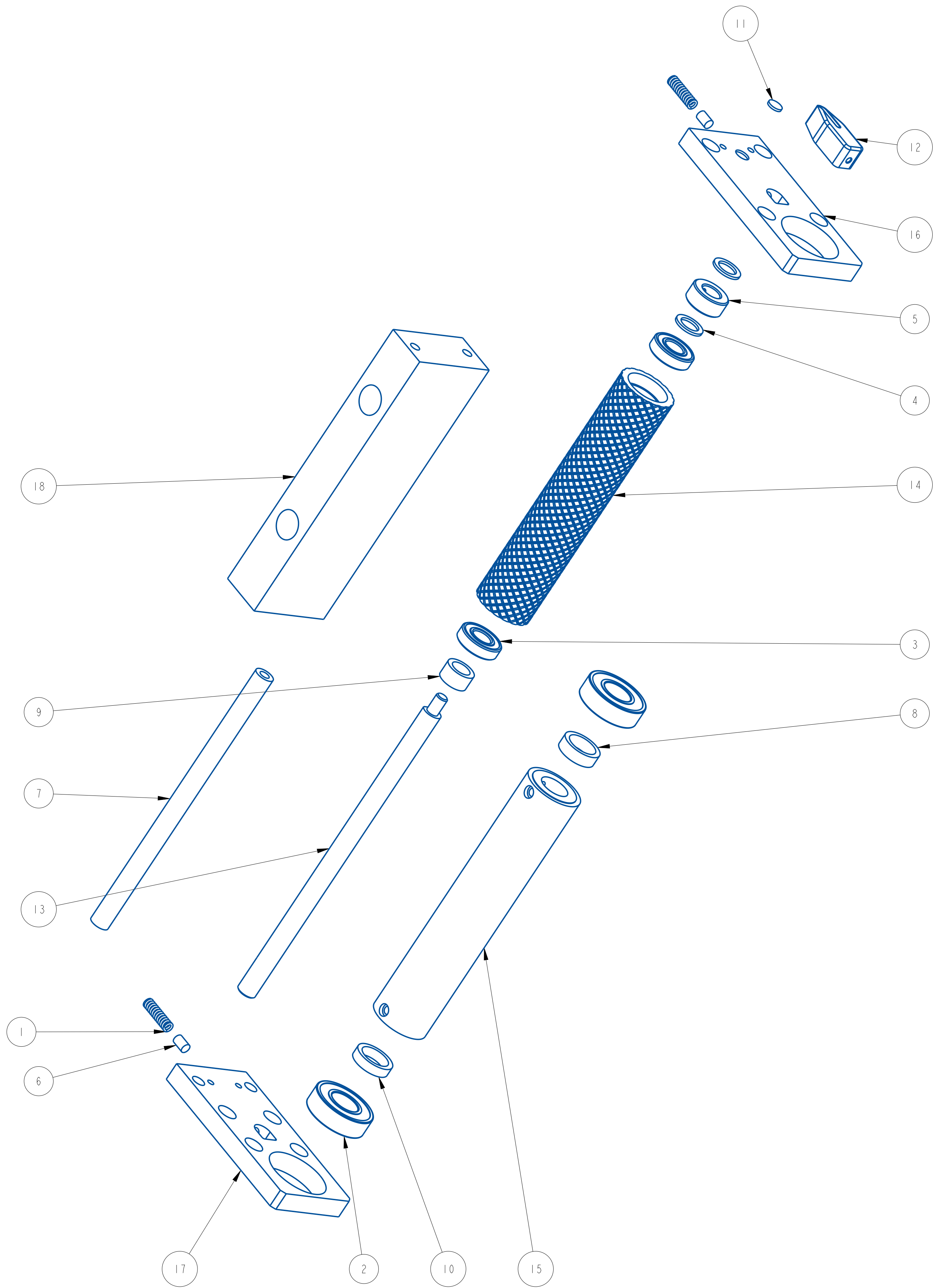
TROUBLESHOOTING:**PROBLEM**

- Meter pulley rubbing against side plate
- Web slips
- Drive roll not rotating when stepping motor rotates
- Pinch roll not providing enough pressure against drive roll
- Drive roll unevenly worn causing tracking problem

WHAT TO DO

- Center pulley on motor shaft and tighten two (2) set screws in pulley.
- Drive roller not closed. Turn drive roll arm to closed position.
- Replace timing belt from motor to drive roll
- Replace pinch roll spring
- Increase tension on drive roll by adjusting spring loaded locking pins.
- Replace drive roll



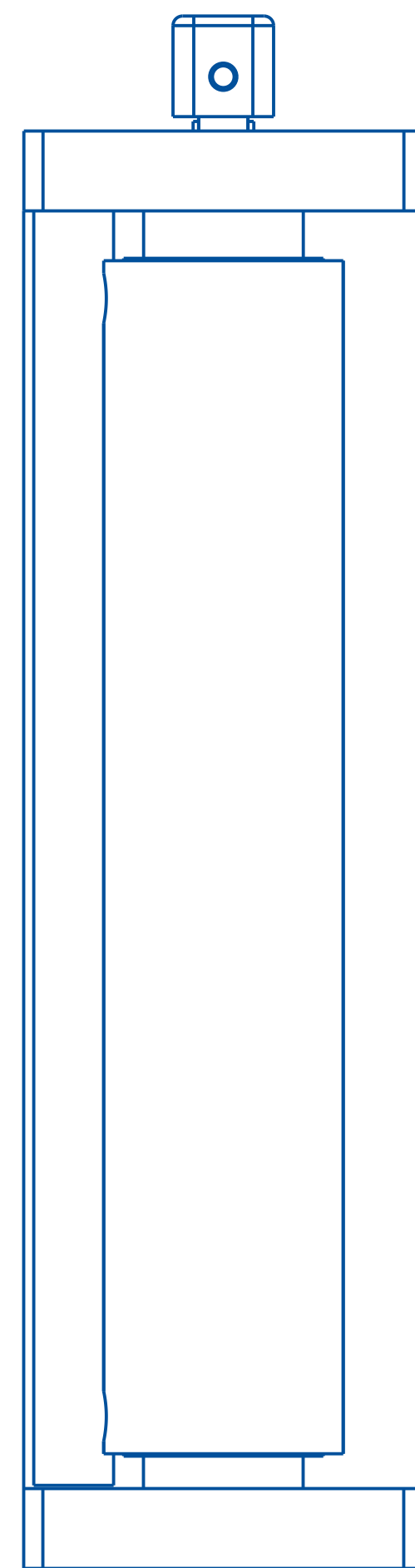
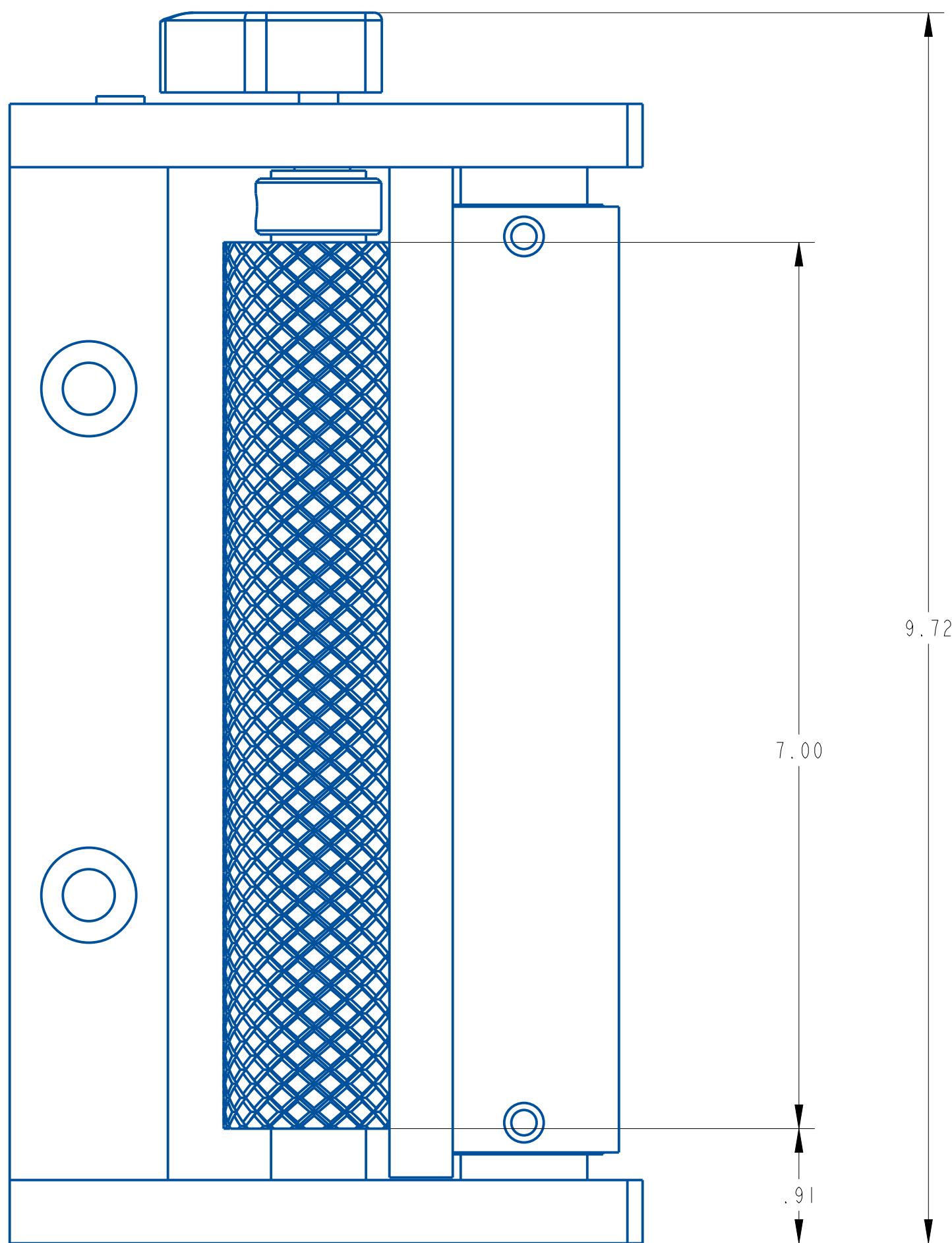
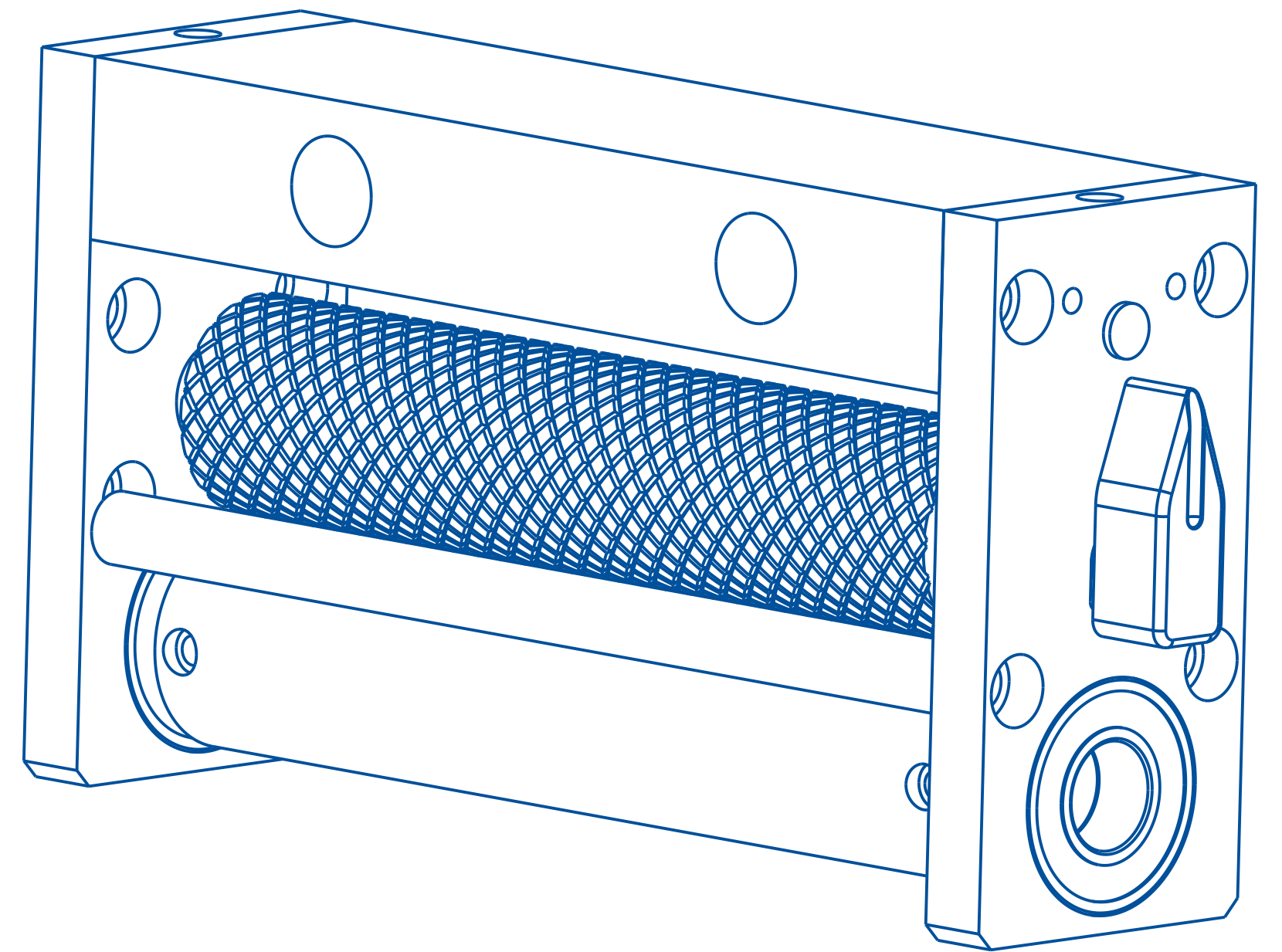
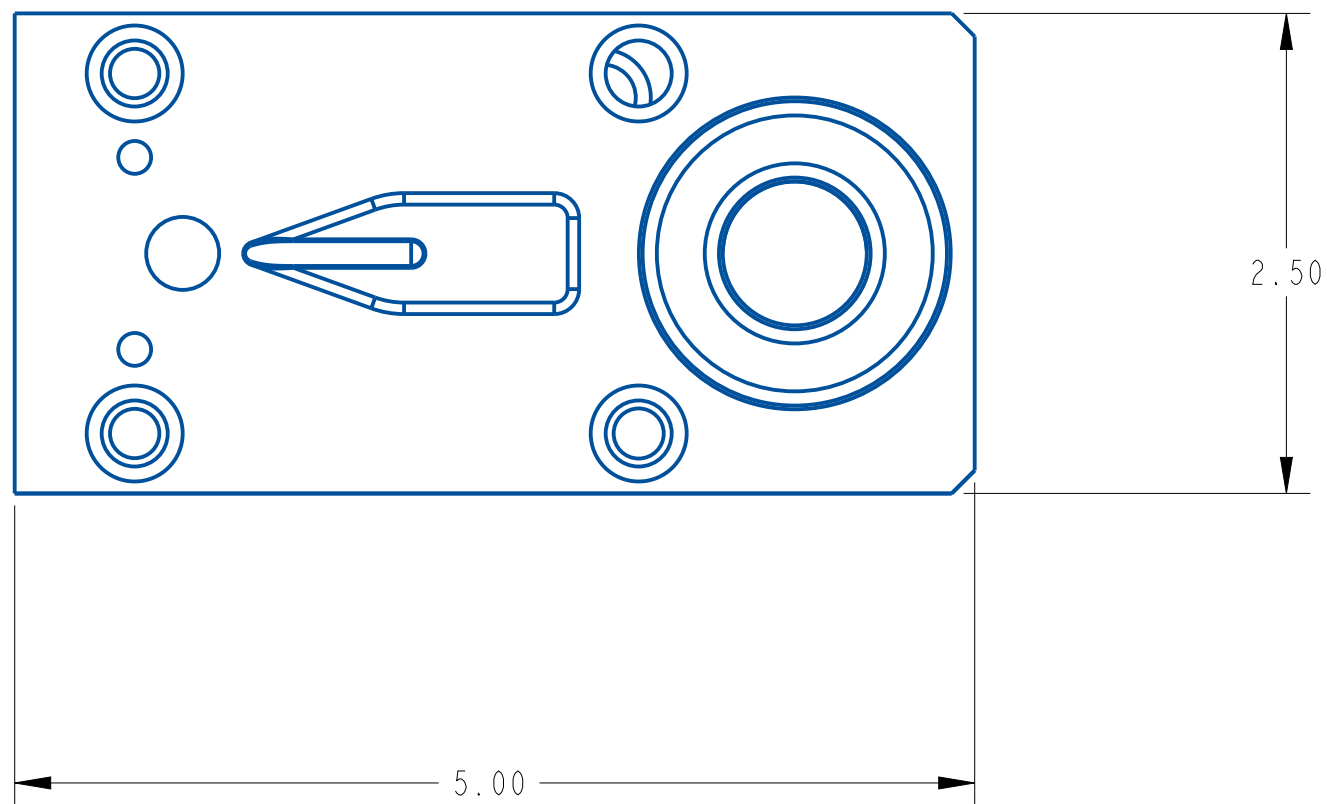


ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	00301-17	SPRING, .275 x .052 x .94	22620D-LHH
2	2	111052-000	BEARING	22620D-LHH
3	2	111072-000	BEARING, BALL	22620D-LHH
4	2	151004-000	BEARING, THRUST WASHER	22620D-LHH
5	1	362161-000	COLLAR, SETSCREW, 1/2 IN. ID	22620D-LHH
6	2	A20567-000	WHITE NYLON SLUG	22620D-LHH
7	1	A21750-000	PINCH POINT GUARD ROD	22620D-LHH
8	1	A23125-000	SPACER	22620D-LHH
9	1	A23751-000	SPACER	22620D-LHH
10	1	A23752-000	SPACER	22620D-LHH
11	1	A25249-000	INDEX DOT	22620D-LHH
12	1	A25250-000	IND KNOB	22620D-LHH
13	1	B20125-001	KNURLED ROLL SHAFT,	22620D-LHH
14	1	B20126-001	KNURLED ROLL	22620D-LHH
15	1	B20137-002	PULL ROLL, 7"	22620D-LHH
16	1	B21614-000	YOKE OUTSIDE PLATE	22620D-LHH
17	1	B21615-000	YOKE INSIDE PLATE	22620D-LHH
18	1	B21616-001	YOKE FILLER BAR	22620D-LHH



B	19-FEB-2024	UPDATED DRAWING AND BOM	CRT
A	01-OCT-2015	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY

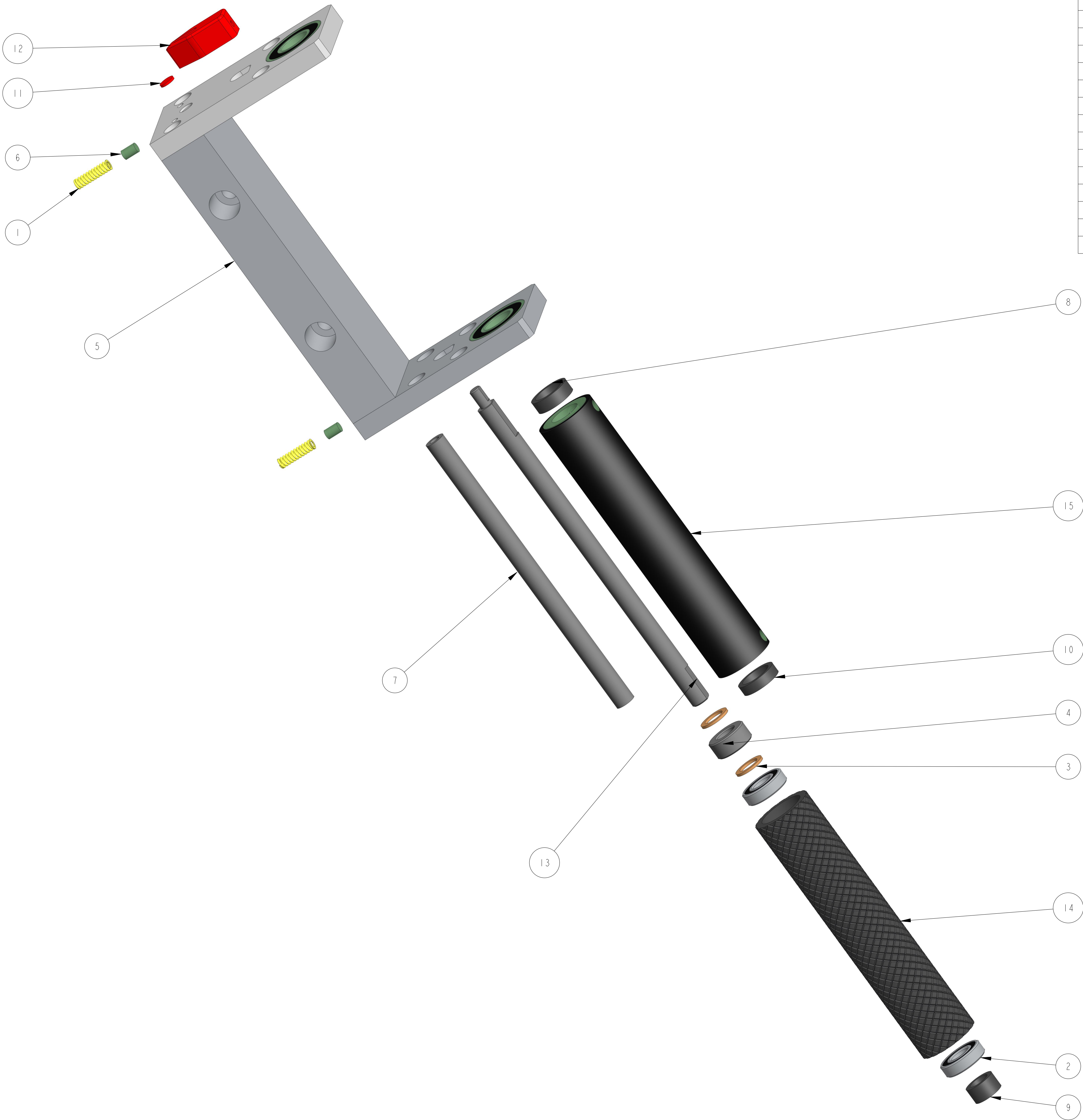
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
<div>UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .01 XX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030</div>	<div>QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700</div>	SCALE: 5/8 DATE: 05-OCT-15 DRW BY: CRT CHK BY: 03/26/2024-SEM APPR BY:	
		Q120 DRIVE ASSEMBLY, LHH	
		MAT'L	
		22620D-LHH	22620D-LHH



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/1	
XX ± .1		DATE: 05-OCT-15	
XXX ± .005		DRW BY: CRT	
ANGLES ± 90°		CHK BY: 03/26/2024-SEM	
SURFACE FINISH: 125		APPR BY:	
BREAK ALL EDGES .005/ .015		Q120 DRIVE ASSEMBLY, LHH	
CORNER RADIUS .010/ .030		MAT'L	
ALL ANGLES ARE 90°		22620D-LHH	

A	CRT	NEW DRAWING	
REV	DATE	DESCRIPTION	BY

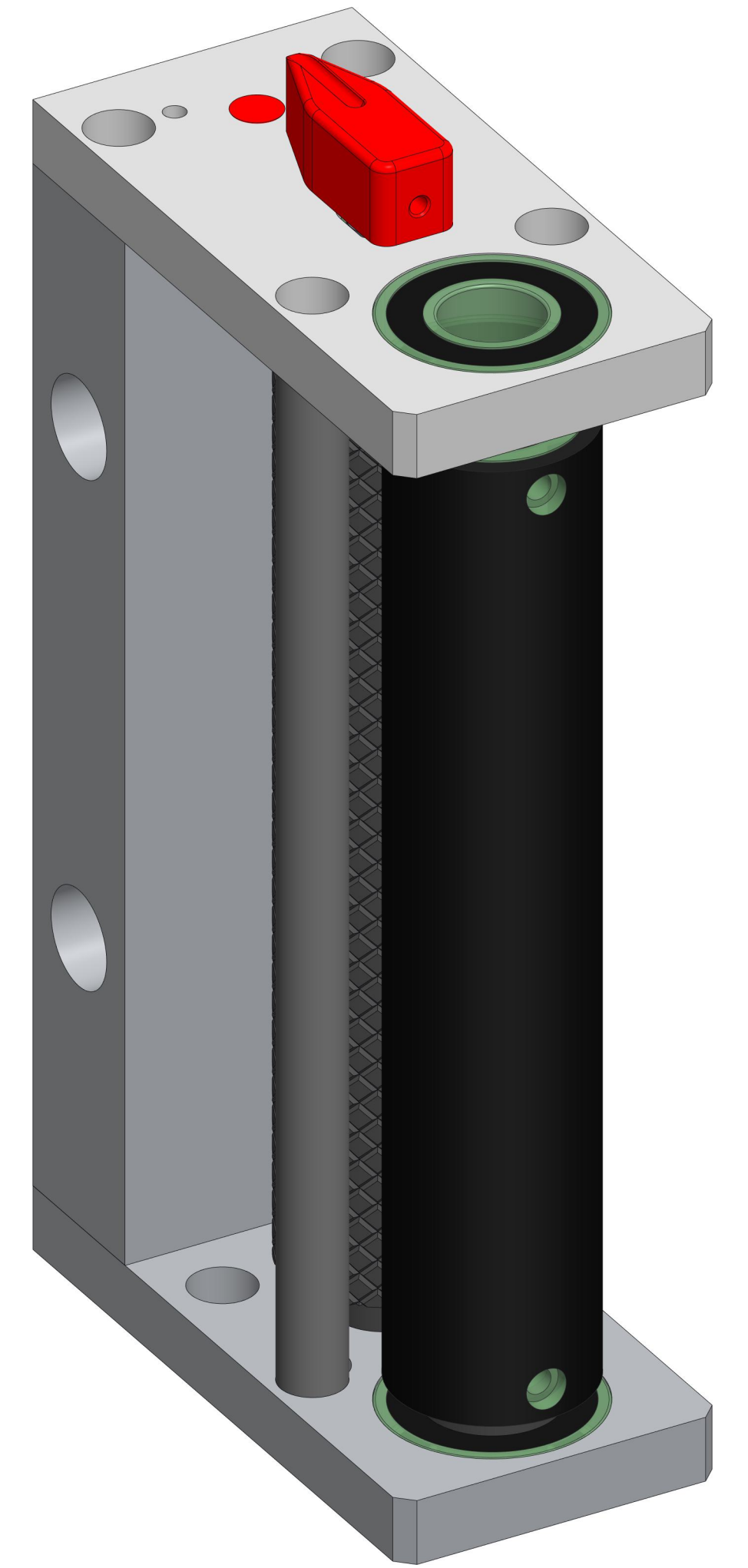
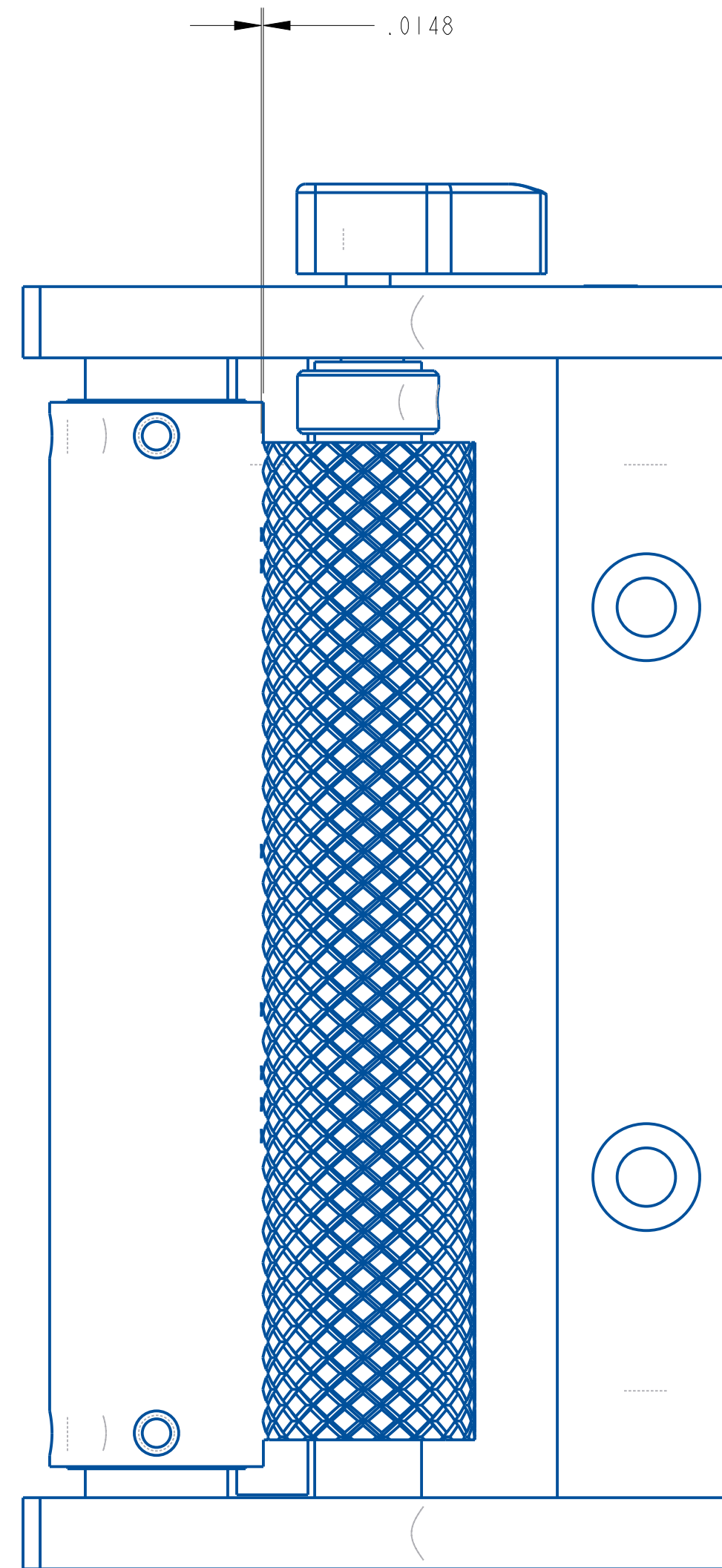
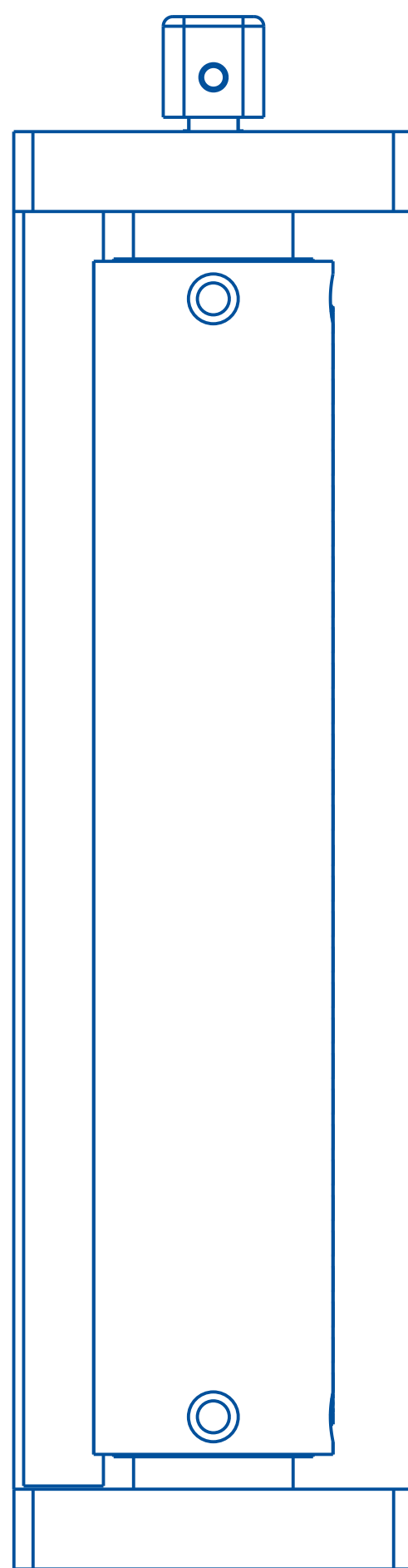
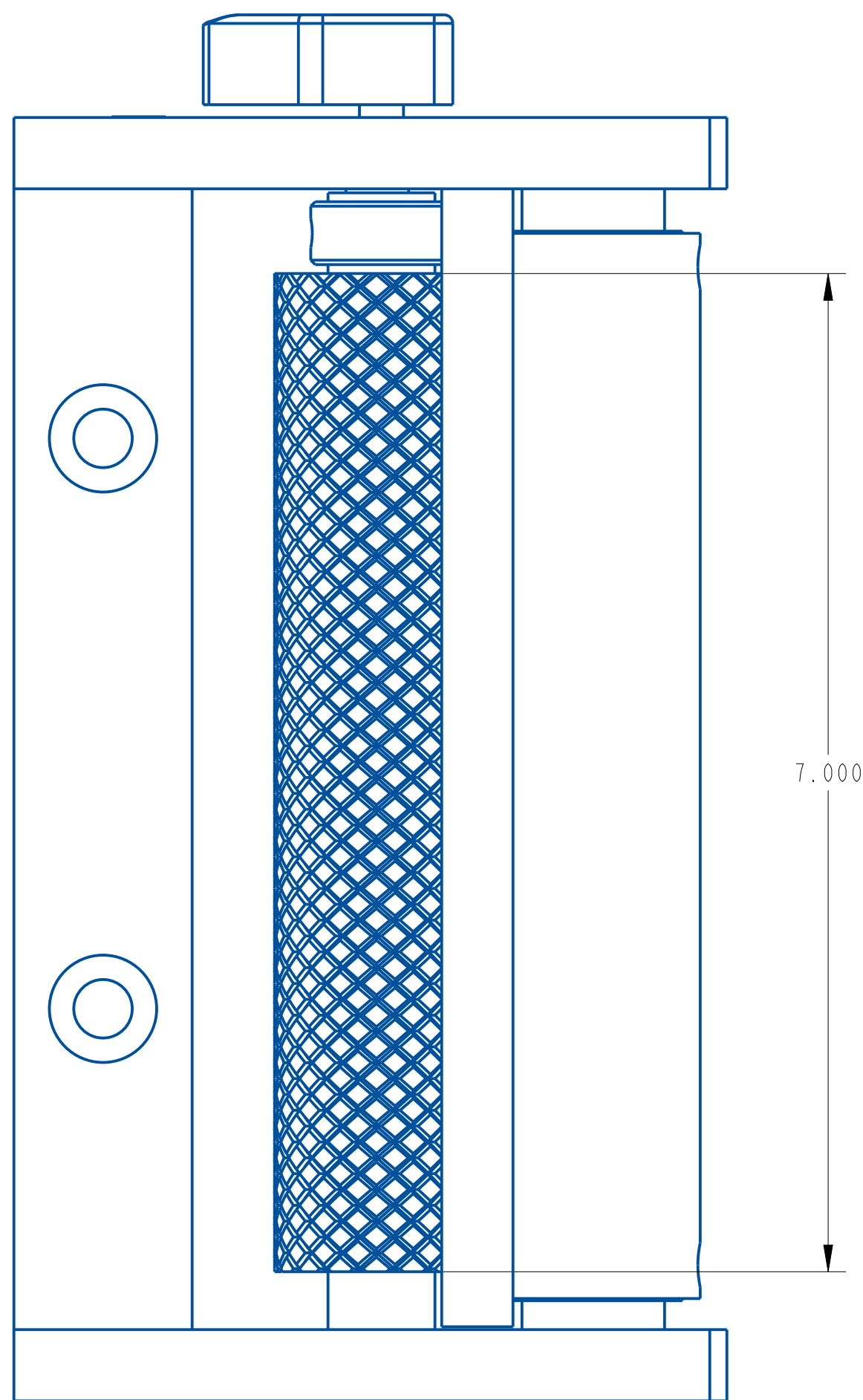
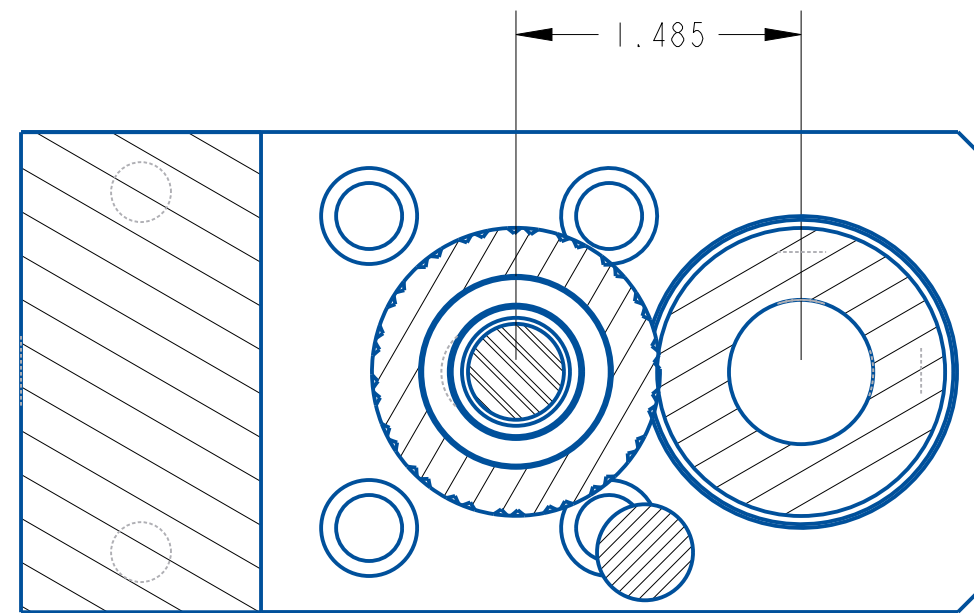
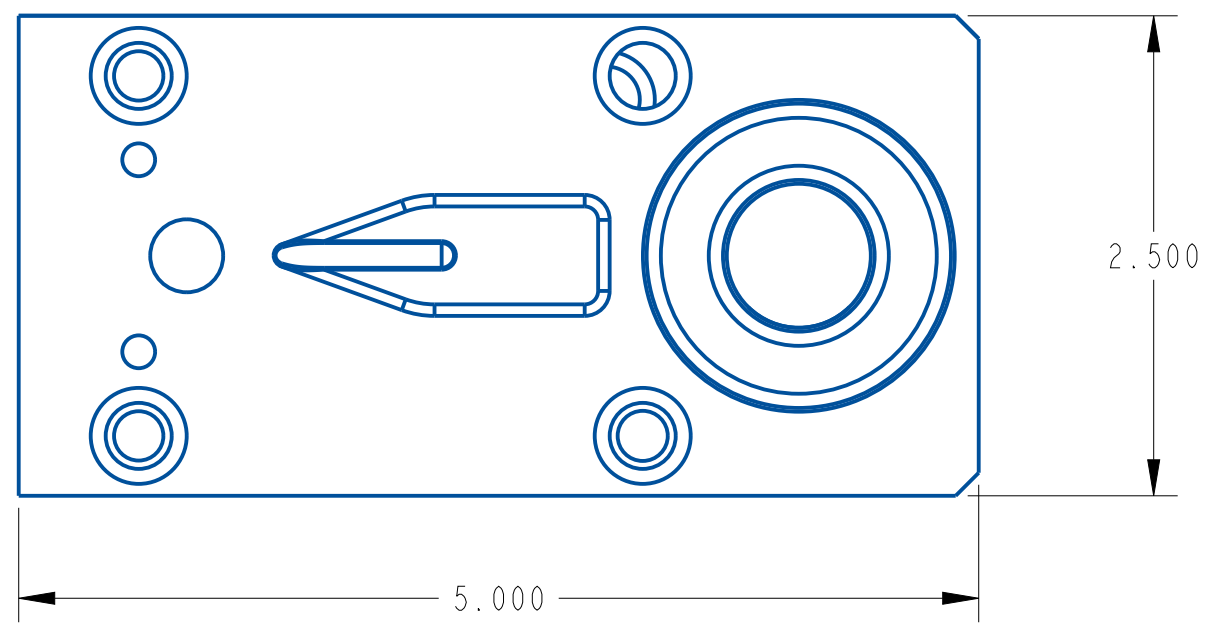
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700



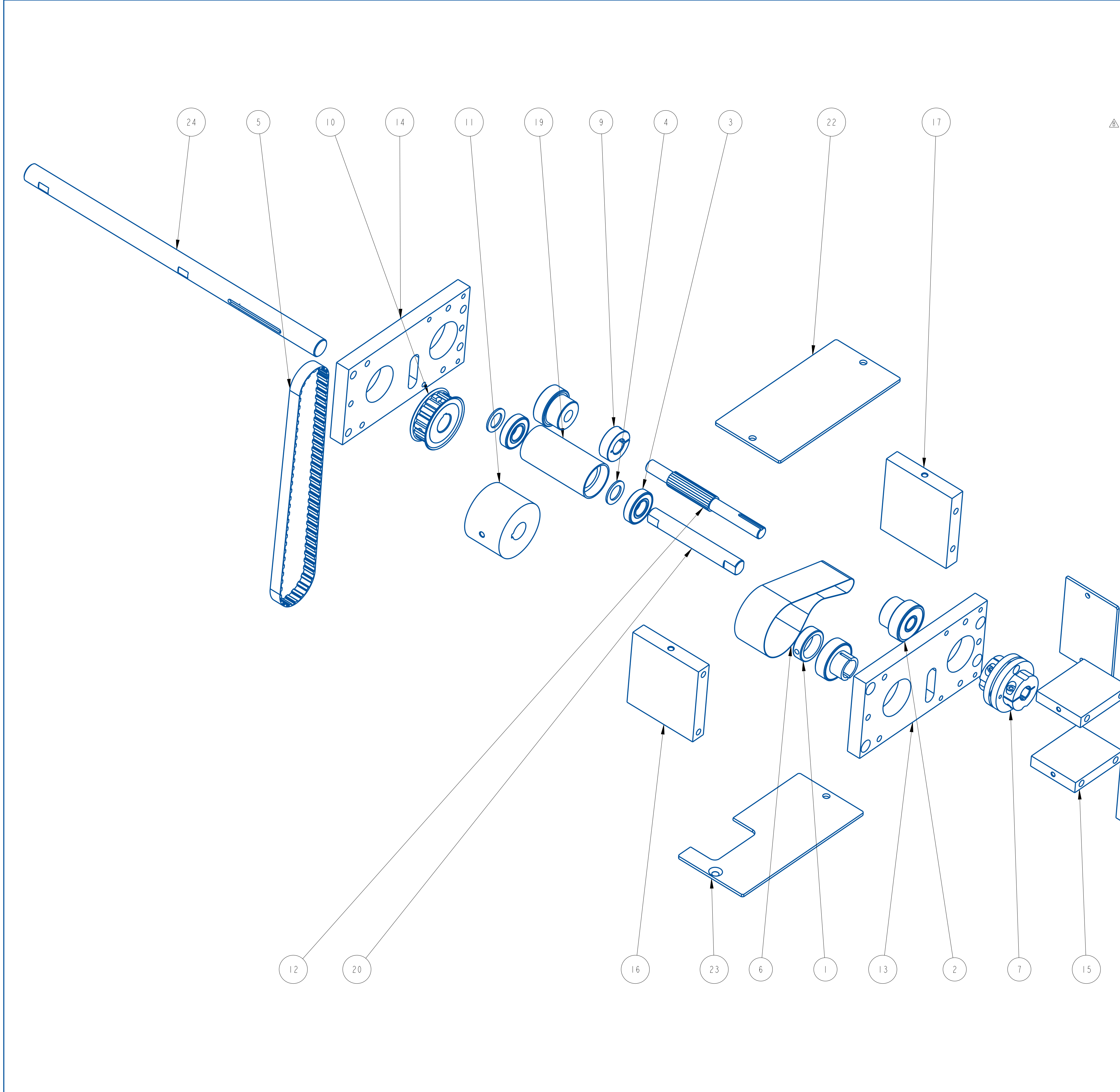
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	00301-17	SPRING, .275 x .052 x .94	22620D-RHH
2	2	111072-000	BEARING, BALL	22620D-RHH
3	2	151004-000	BEARING, THRUST WASHER	22620D-RHH
4	1	362161-000	COLLAR, SETSCREW, 1/2 IN. ID	22620D-RHH
5	1	21700DY-000	3 PIECE ROLL ASSEMBLY	22620D-RHH
6	2	A20567-000	WHITE NYLON SLUG	22620D-RHH
7	1	A21750-000	PINCH POINT GUARD ROD	22620D-RHH
8	1	A23125-000	SPACER	22620D-RHH
9	1	A23751-000	SPACER	22620D-RHH
10	1	A23752-000	SPACER	22620D-RHH
11	1	A25249-000	INDEX DOT	22620D-RHH
12	1	A25250-000	IND KNOB	22620D-RHH
13	1	B20125-001	KNURLED ROLL SHAFT,	22620D-RHH
14	1	B20126-001	KNURLED ROLL	22620D-RHH
15	1	B20137-002	PULL ROLL, 7"	22620D-RHH

A	02-OCT-15	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $X \pm .01$ $XX \pm .01$ $XXX \pm .005$ ANGLES $\pm .30^\circ$ SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		QUADREL LABELING SYSTEMS		SCALE: 3/4
		7670 JENTER DRIVE		DATE: 02-OCT-15
		MENTOR, OHIO 44060		DRW BY: CRT
		(440) 602-4700		CHK BY:
		Q60 7" SERVO DRIVE		APPR BY:
MAT'L	22620D-RHH		22620D-RHH	



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY		QUADREL LABELING SYSTEMS	
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE	7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 1/1 DATE: 02-OCT-15 DRW BY: CRT CHK BY: APPR BY:	
Q60 7" SERVO DRIVE		22620D-RHH	
MATERIAL			



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	111044-000	BEARING, 3/4 ID CLAMP TYPE	22620DR-LHH
2	2	111072-100	BEARING BALL, LOCKING COLLAR .5"IDx1.574"OD	22620DR-LHH
3	2	111075-000	BEARING, BALL	22620DR-LHH
4	2	151008-000	BEARING, THRUST WASHER	22620DR-LHH
5	1	191592-000	BELT, TIMING, 1/2P	22620DR-LHH
6	1	192503-150	TIMING BELT	22620DR-LHH
7	1	363159-000	SERVO COUPLING-1/2"BORE & KEY 14 MM BORE	22620DR-LHH
8	1	413025-001	SERVO MOTOR	22620DR-LHH
9	1	A20595-120	COLLAR REWORK	22620DR-LHH
10	1	A21421-001	DRIVE PULLEY (MODIFIED)	22620DR-LHH
11	1	A26003-100	DRIVE PULLEY	22620DR-LHH
12	1	A26004-120	SERVO MOTOR PULLEY	22620DR-LHH
13	1	B22842-100	BEARING PLATE	22620DR-LHH
14	1	B22842-101	BEARING PLATE	22620DR-LHH
15	2	B22844-100	SPACER	22620DR-LHH
16	1	B22844-220	SPACER	22620DR-LHH
17	1	B22844-320	SPACER	22620DR-LHH
18	1	B22847-100	MOTOR MOUNTING PLATE	22620DR-LHH
19	1	B22848-120	TENSION ROLLER	22620DR-LHH
20	1	B22849-120	TENSIONER SHAFT	22620DR-LHH
21	2	B22850-100	COVER	22620DR-LHH
22	1	B22850-120	COVER	22620DR-LHH
23	1	B22850-121	COVER	22620DR-LHH
24	1	C20097-120	PULL ROLL DRIVE SHAFT	22620DR-LHH

WARNING
Keep hands clear.
Moving parts.

WARNING
Avoid injury.
Do not operate with guard removed.
Replace guard before operating machine.

B	Jun-20-17	WAS 363157-000	MW
A	29-OCT-15	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE

X ± .01
XX ± .005
XXX ± .005
ANGLES ± .30°

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 JENTER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

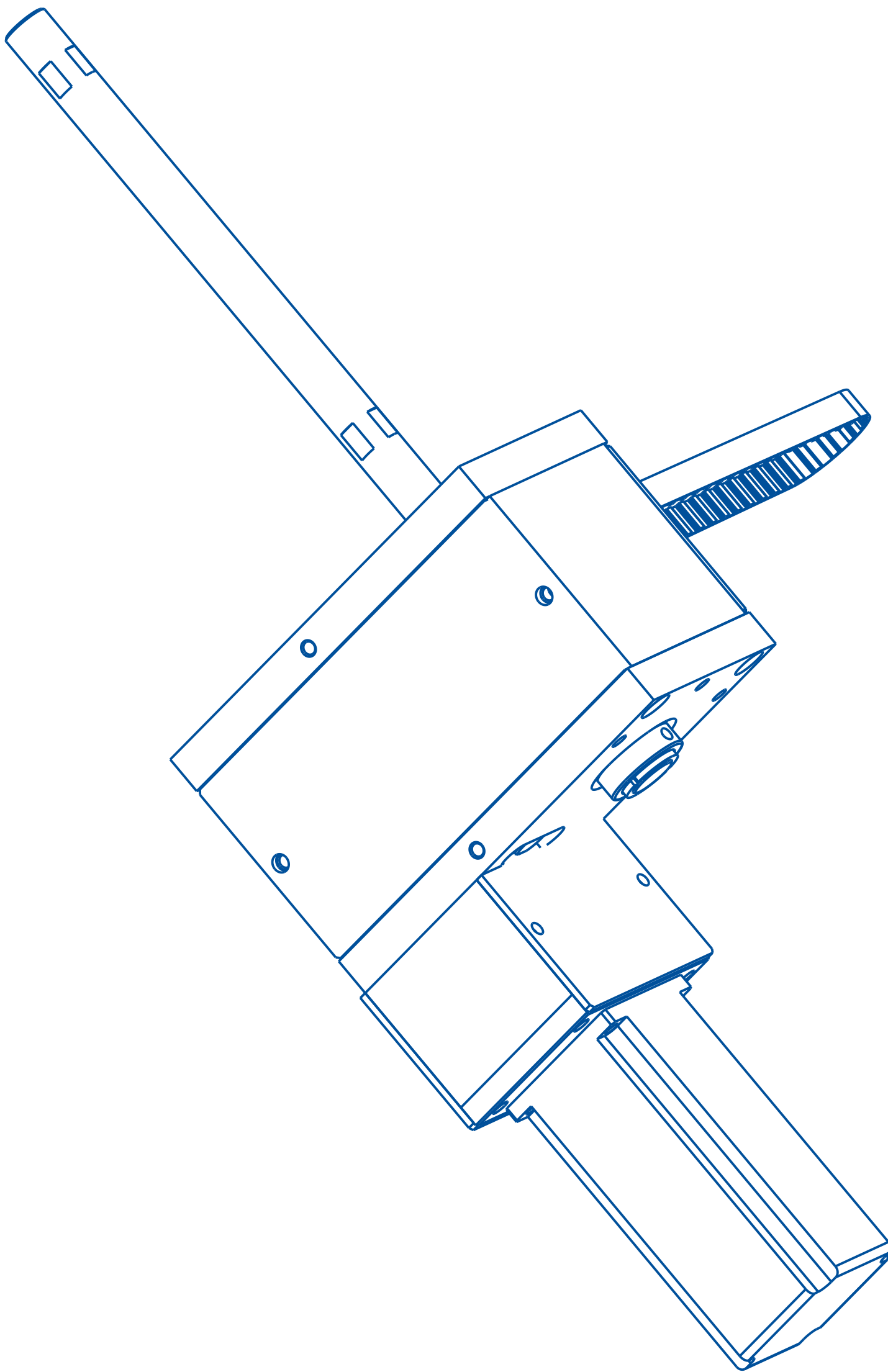
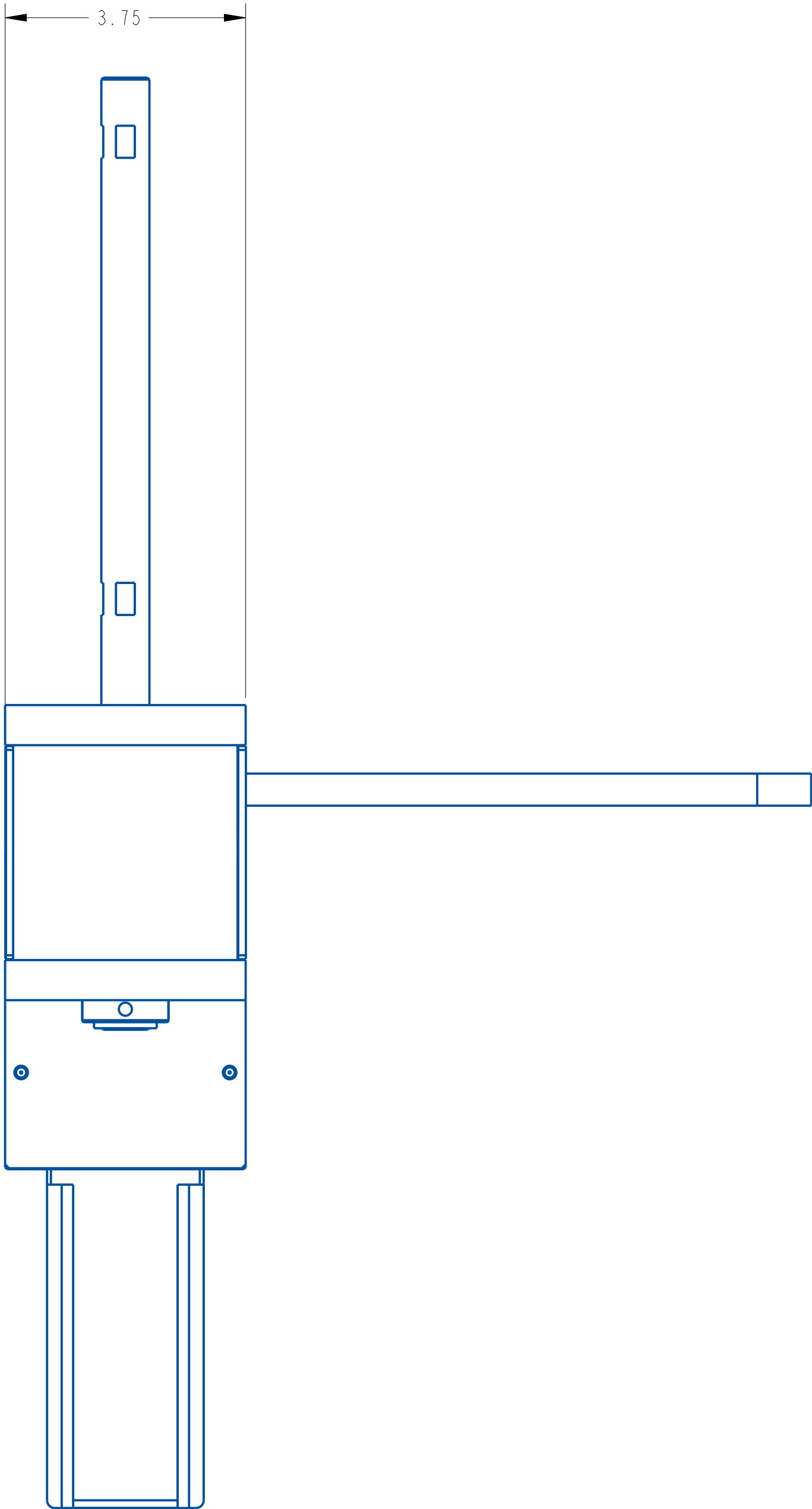
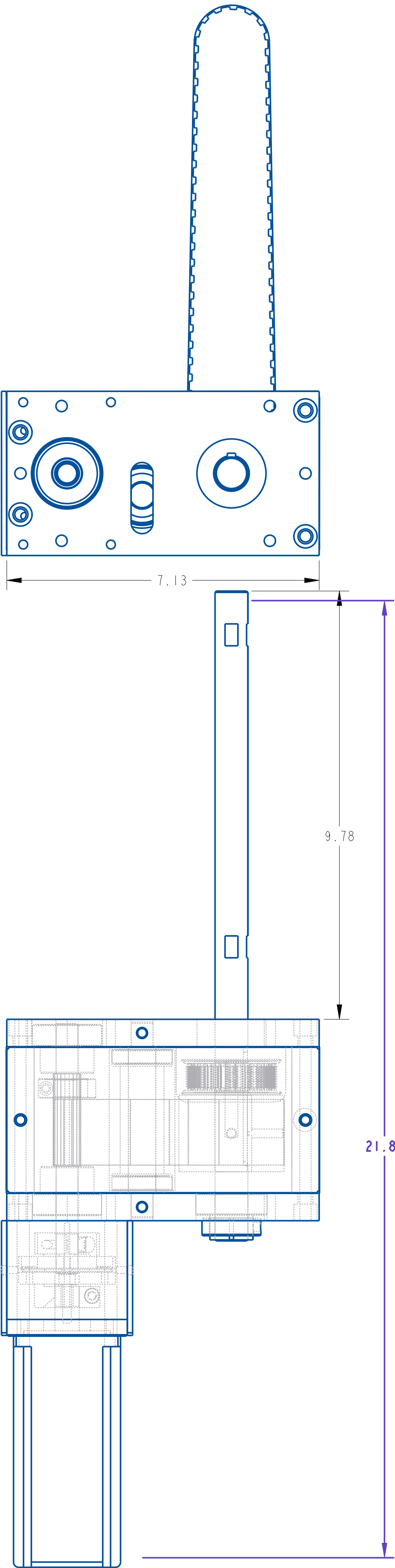
SCALE: 1/2
DATE: 29-OCT-15
DRW BY: CRT
CHK BY: 03/26/2024-SEM
APPR BY:

Q120 7" SERVO DRIVE & REWIND, LHH

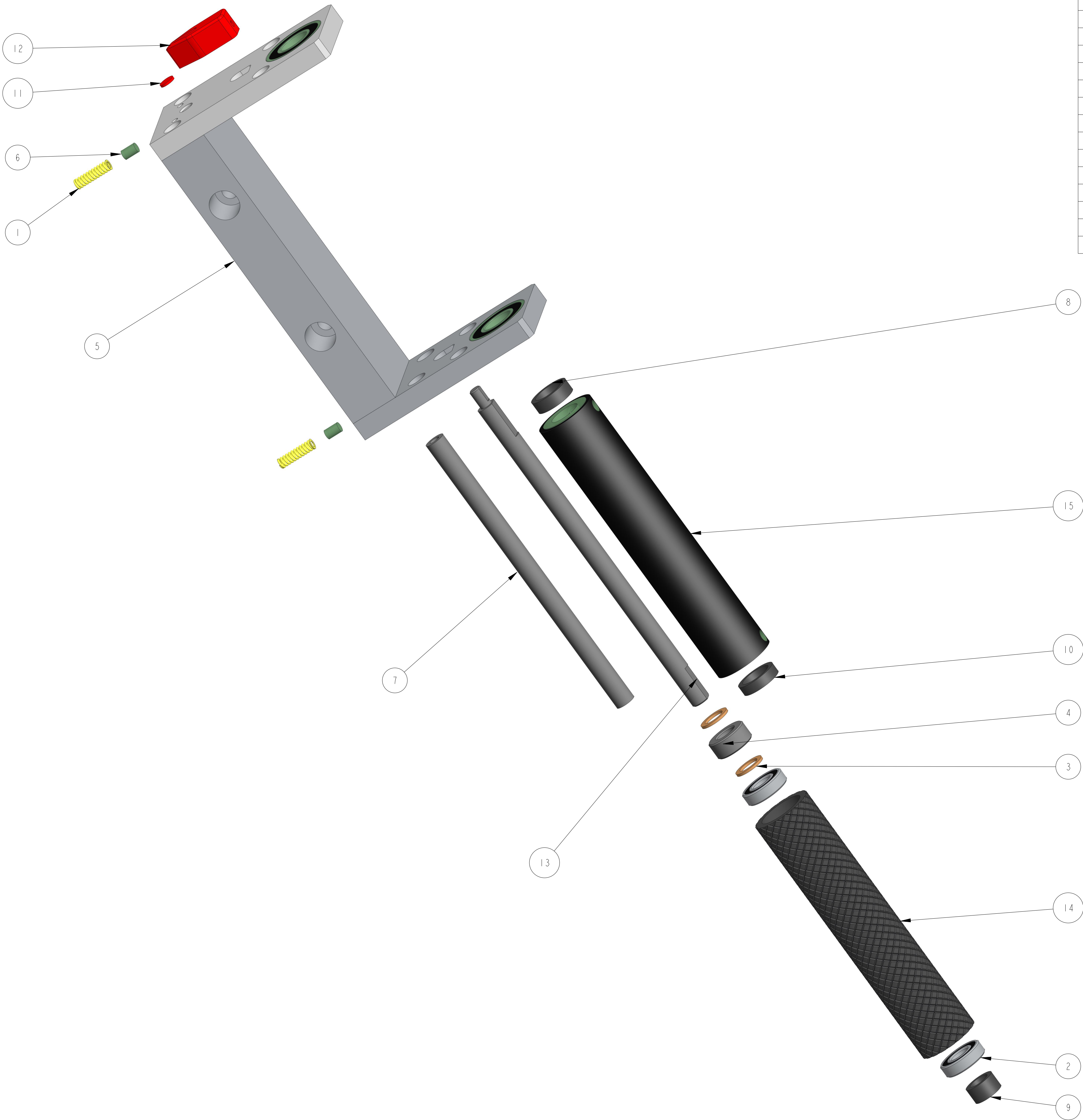
MAT'L

22620DR-LHH

SHEET 1 OF 2



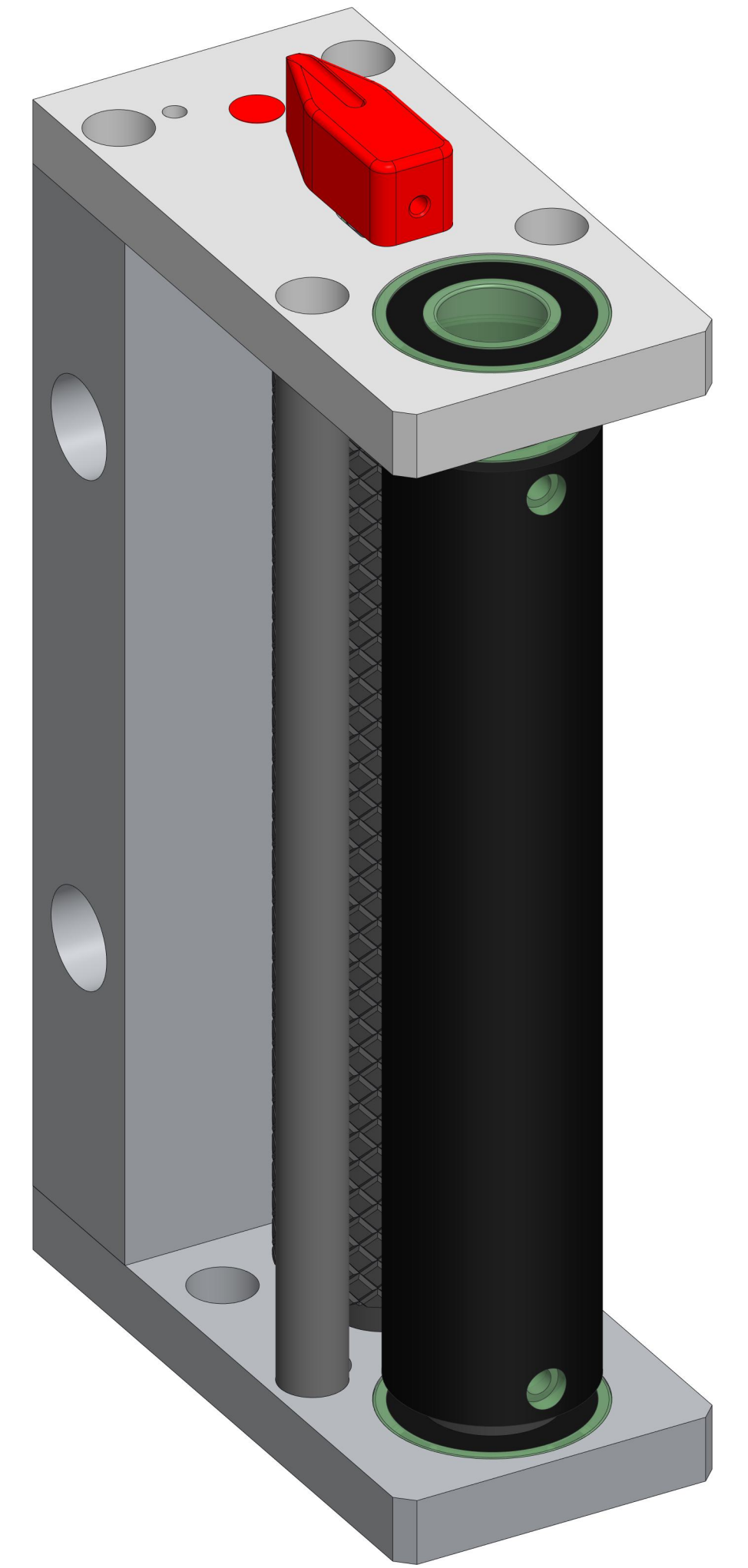
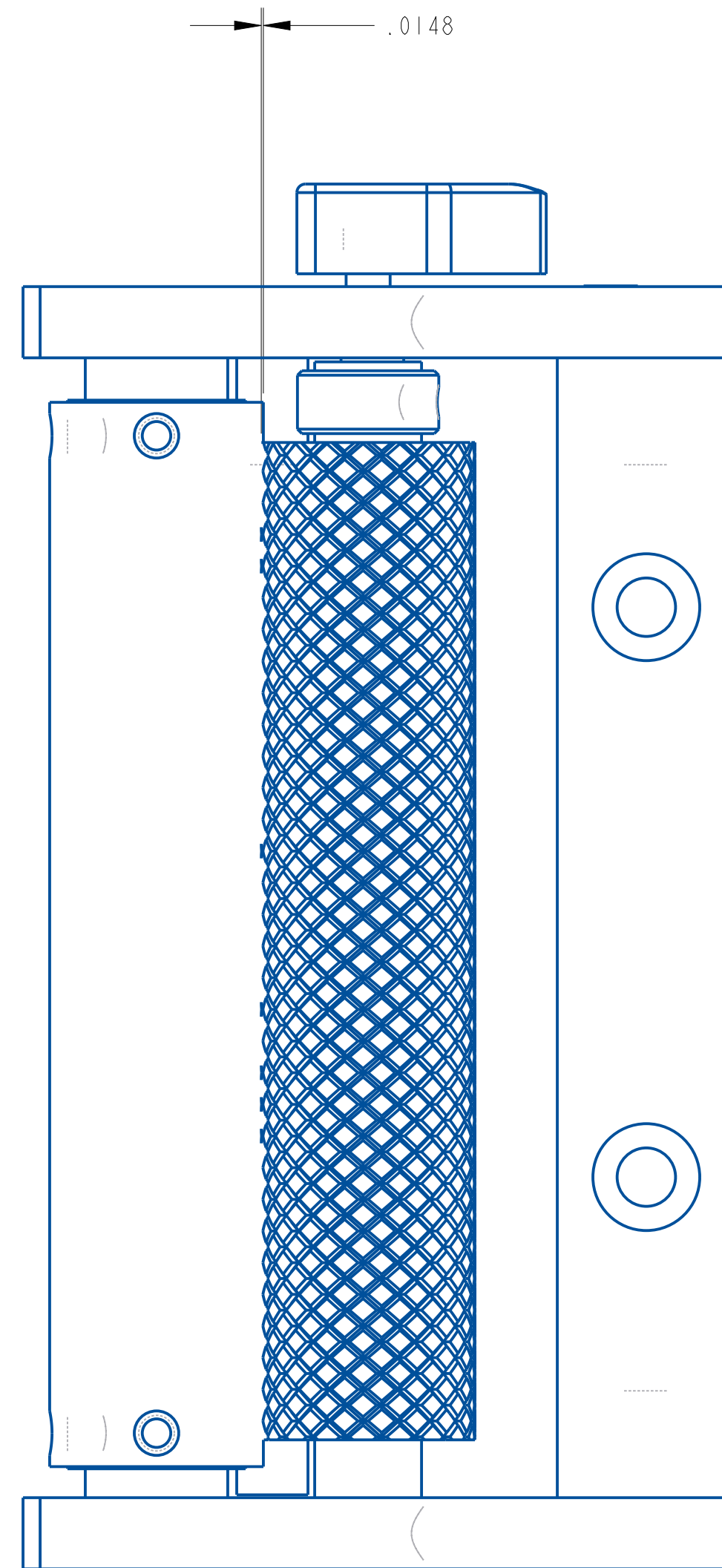
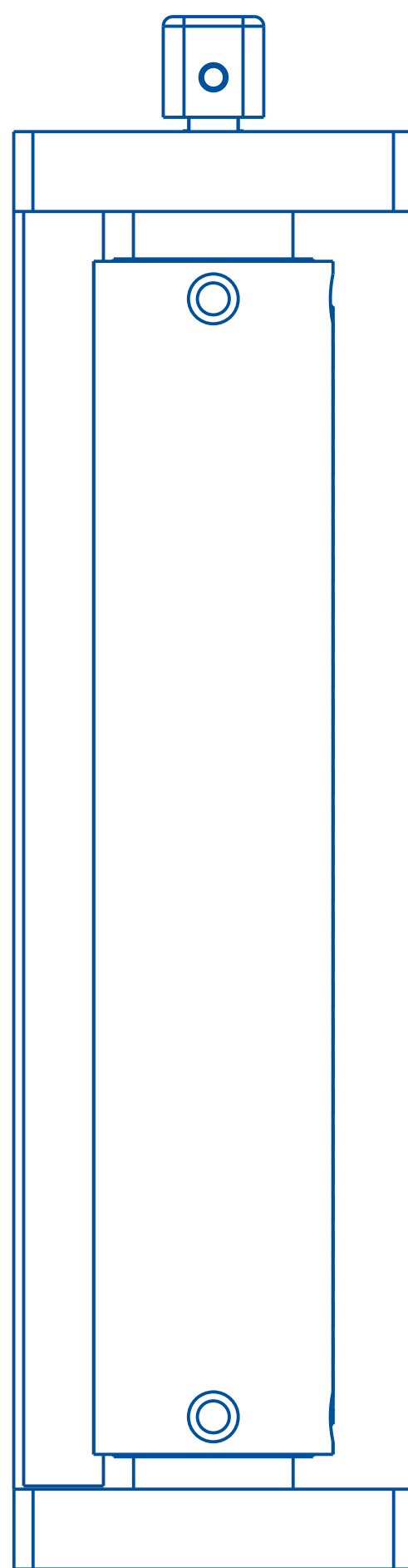
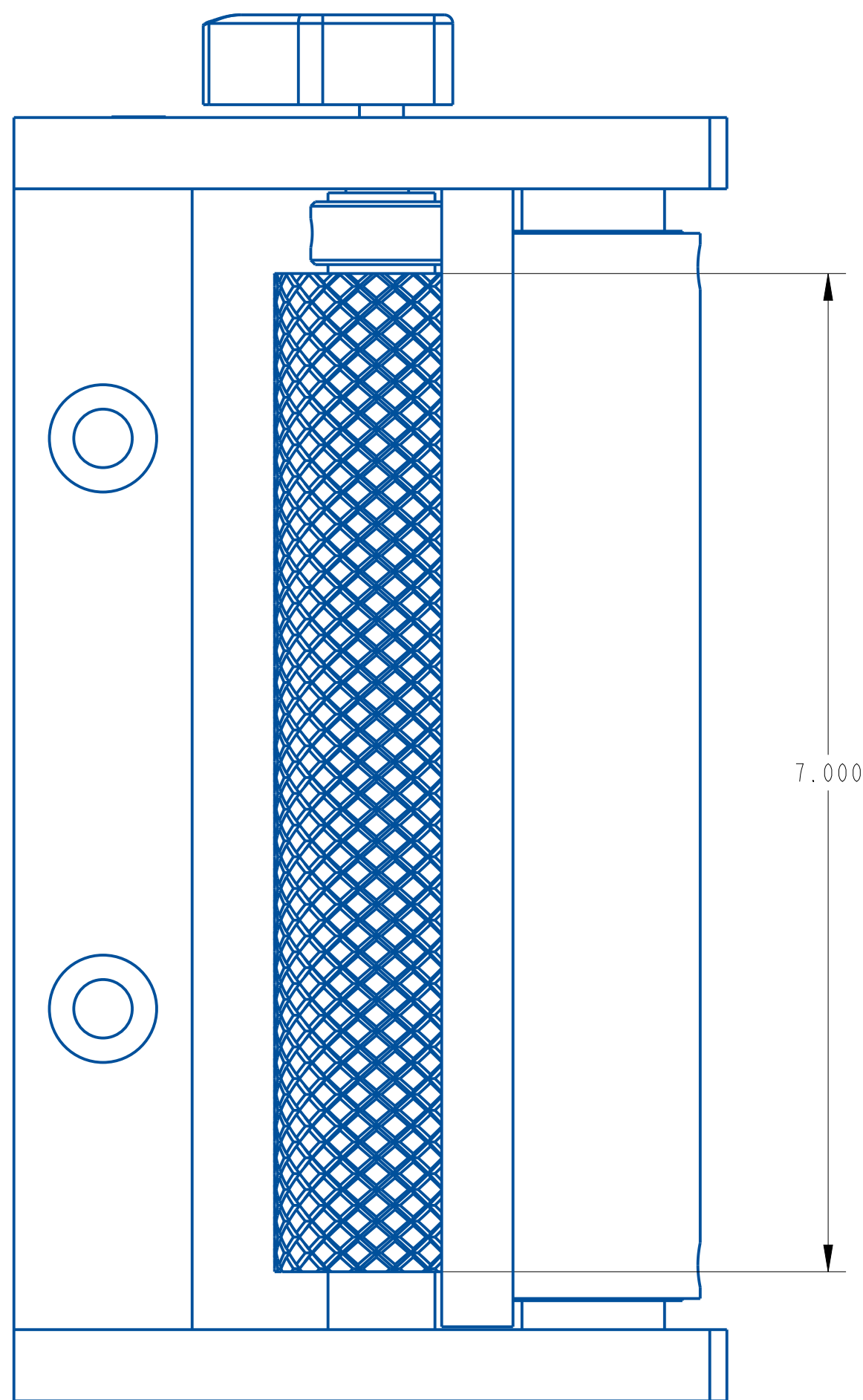
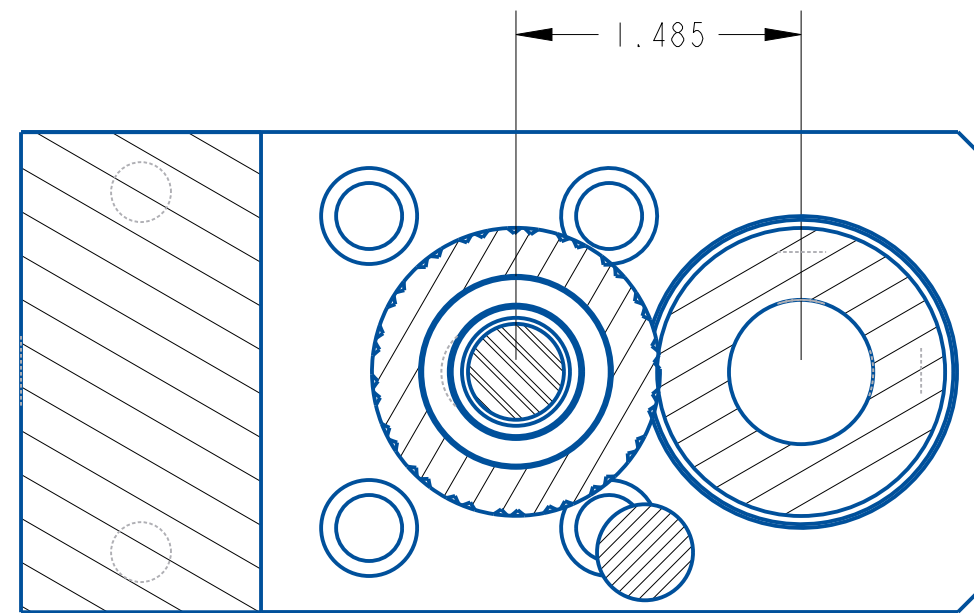
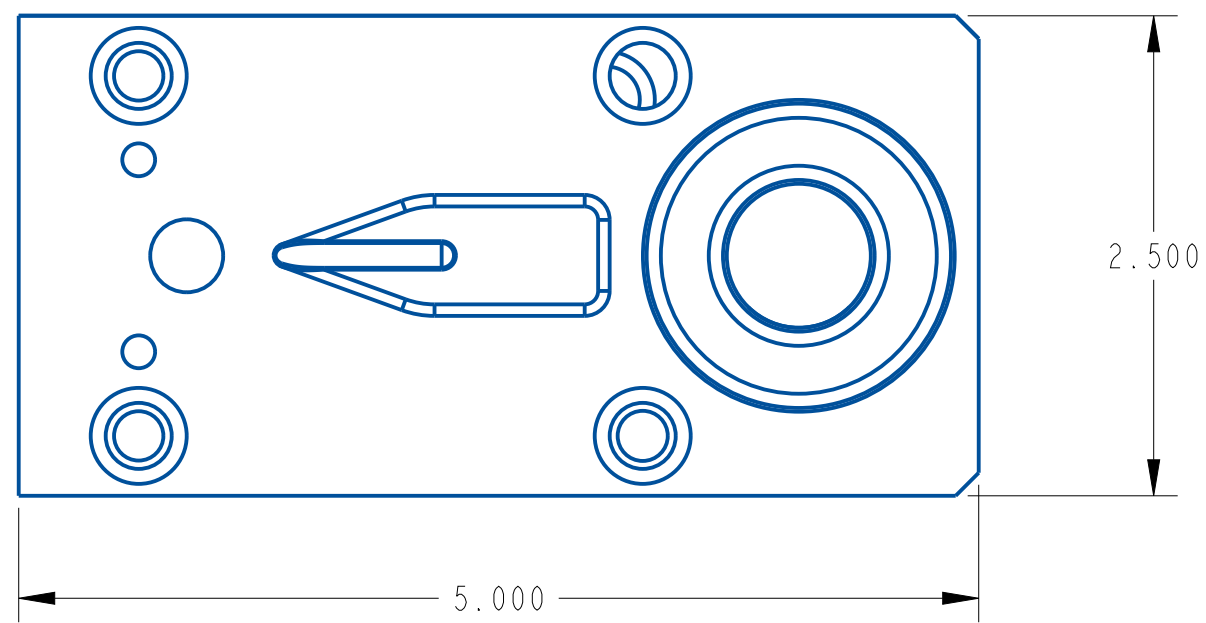
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 9/16	
X ± .1		DATE: 06-OCT-15	
XX ± .01		DRW BY: CRT	
XXX ± .005		CHK BY: 03/26/2024-SEM	
ANGLES ± .00		APPR BY:	
SURFACE FINISH 125		Q120 7" SERVO DRIVE & REWIND, LHH	
BREAK ALL EDGES .005/ .015		MATERIAL	
CORNER RADIUS .010/ .030		22620DR-LHH	
ALL ANGLES ARE 90°			



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	00301-17	SPRING, .275 x .052 x .94	22620D-RHH
2	2	111072-000	BEARING, BALL	22620D-RHH
3	2	151004-000	BEARING, THRUST WASHER	22620D-RHH
4	1	362161-000	COLLAR, SETSCREW, 1/2 IN. ID	22620D-RHH
5	1	21700DY-000	3 PIECE ROLL ASSEMBLY	22620D-RHH
6	2	A20567-000	WHITE NYLON SLUG	22620D-RHH
7	1	A21750-000	PINCH POINT GUARD ROD	22620D-RHH
8	1	A23125-000	SPACER	22620D-RHH
9	1	A23751-000	SPACER	22620D-RHH
10	1	A23752-000	SPACER	22620D-RHH
11	1	A25249-000	INDEX DOT	22620D-RHH
12	1	A25250-000	IND KNOB	22620D-RHH
13	1	B20125-001	KNURLED ROLL SHAFT,	22620D-RHH
14	1	B20126-001	KNURLED ROLL	22620D-RHH
15	1	B20137-002	PULL ROLL, 7"	22620D-RHH

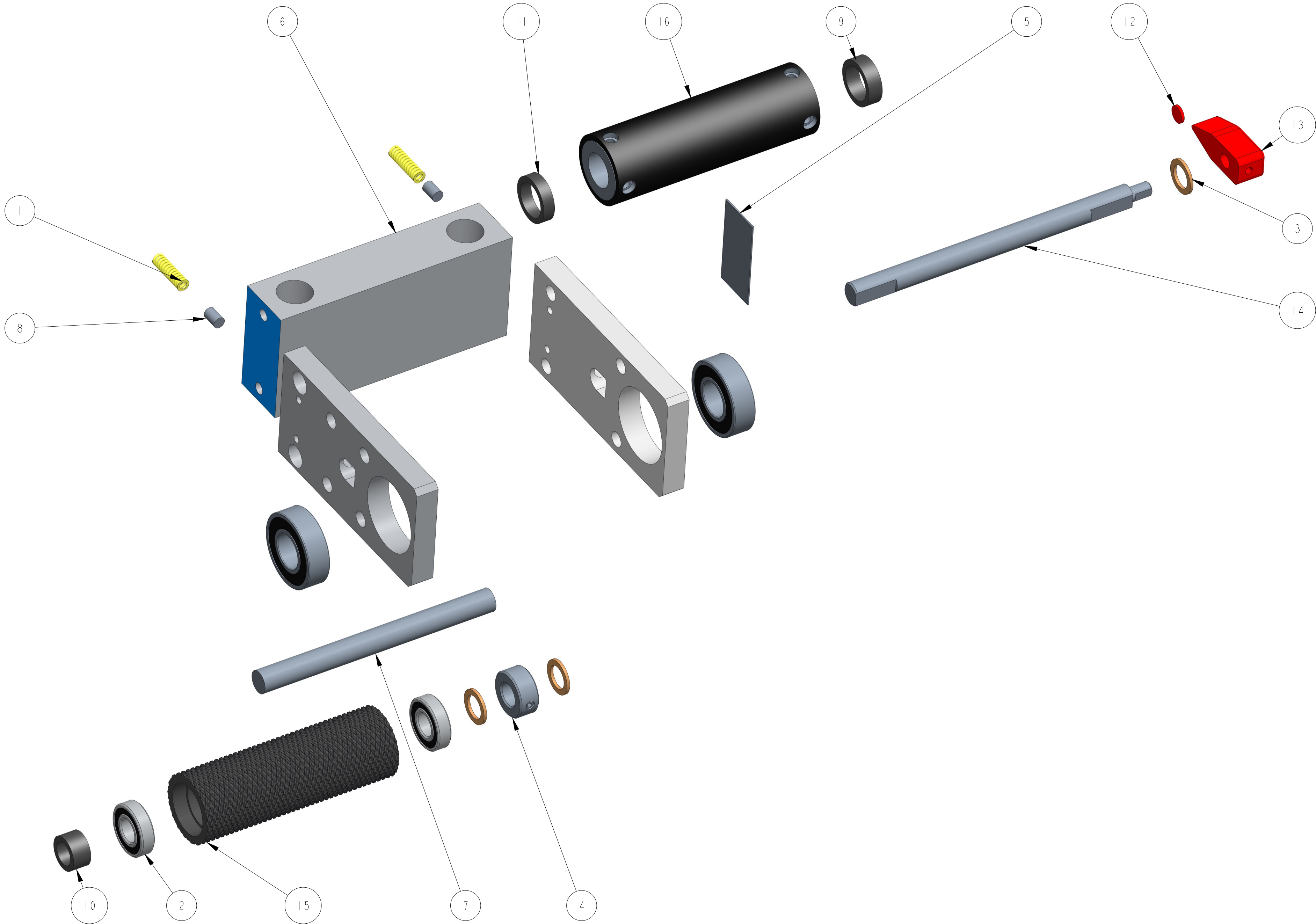
A	02-OCT-15	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY


THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $X \pm .01$ $XX \pm .01$ $XXX \pm .005$ ANGLES $\pm .30^\circ$ SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		QUADREL LABELING SYSTEMS		SCALE: 3/4
		7670 JENTER DRIVE		DATE: 02-OCT-15
		MENTOR, OHIO 44060		DRW BY: CRT
		(440) 602-4700		CHK BY:
		Q60 7" SERVO DRIVE		APPR BY:
MAT'L		22620D-RHH		22620D-RHH

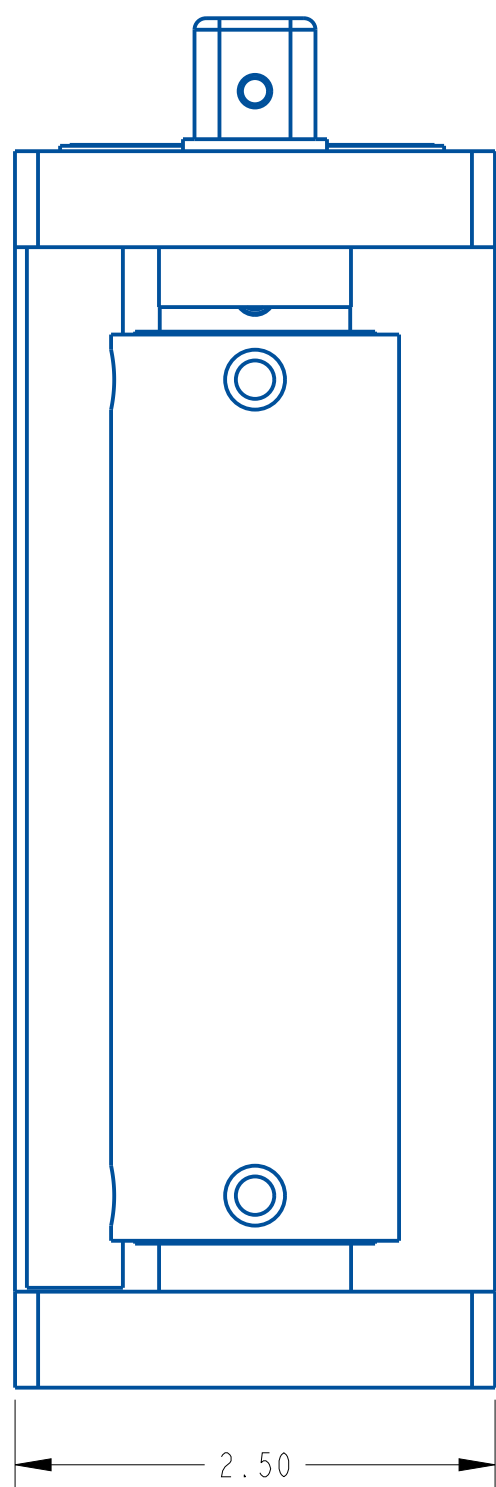
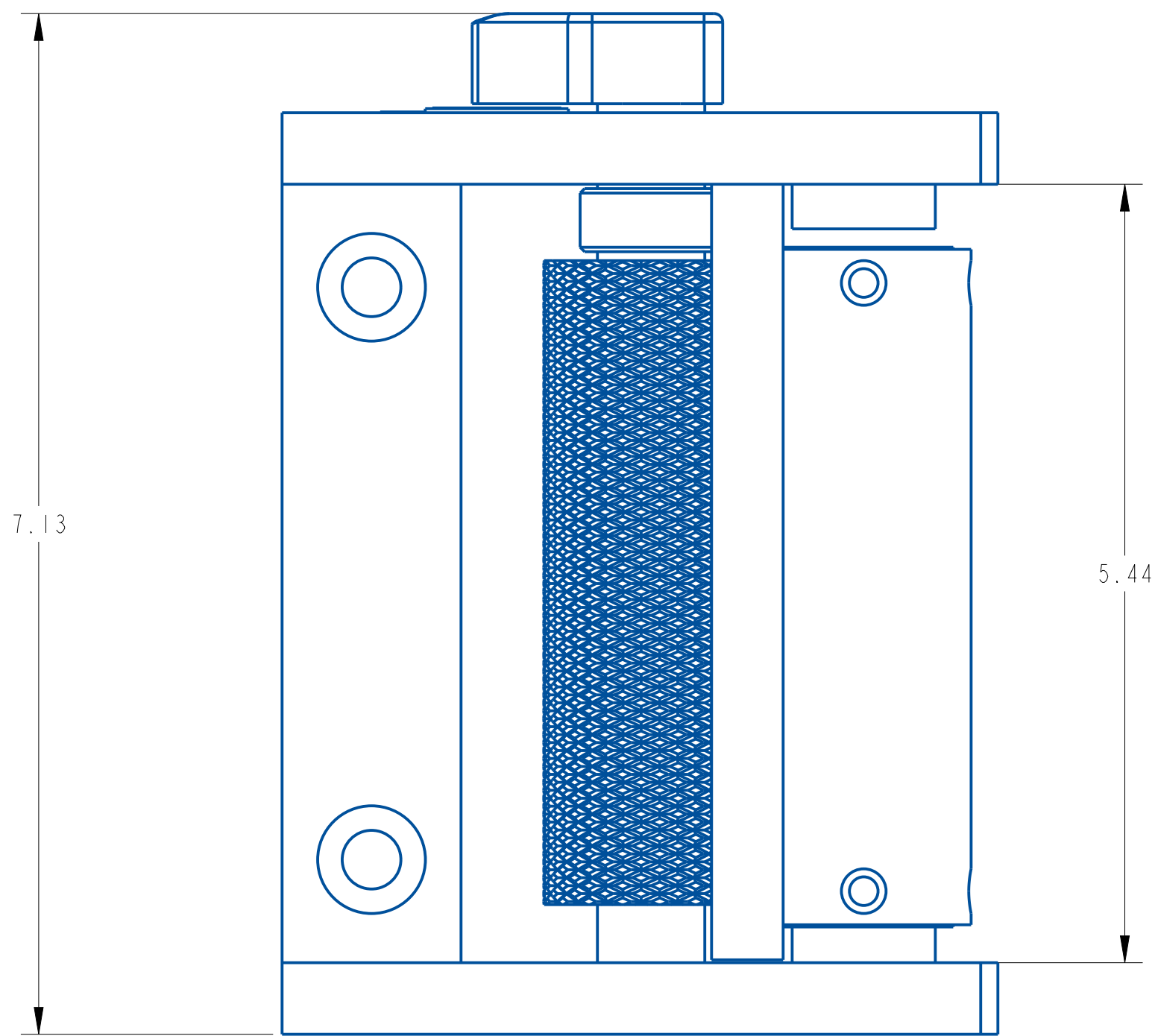
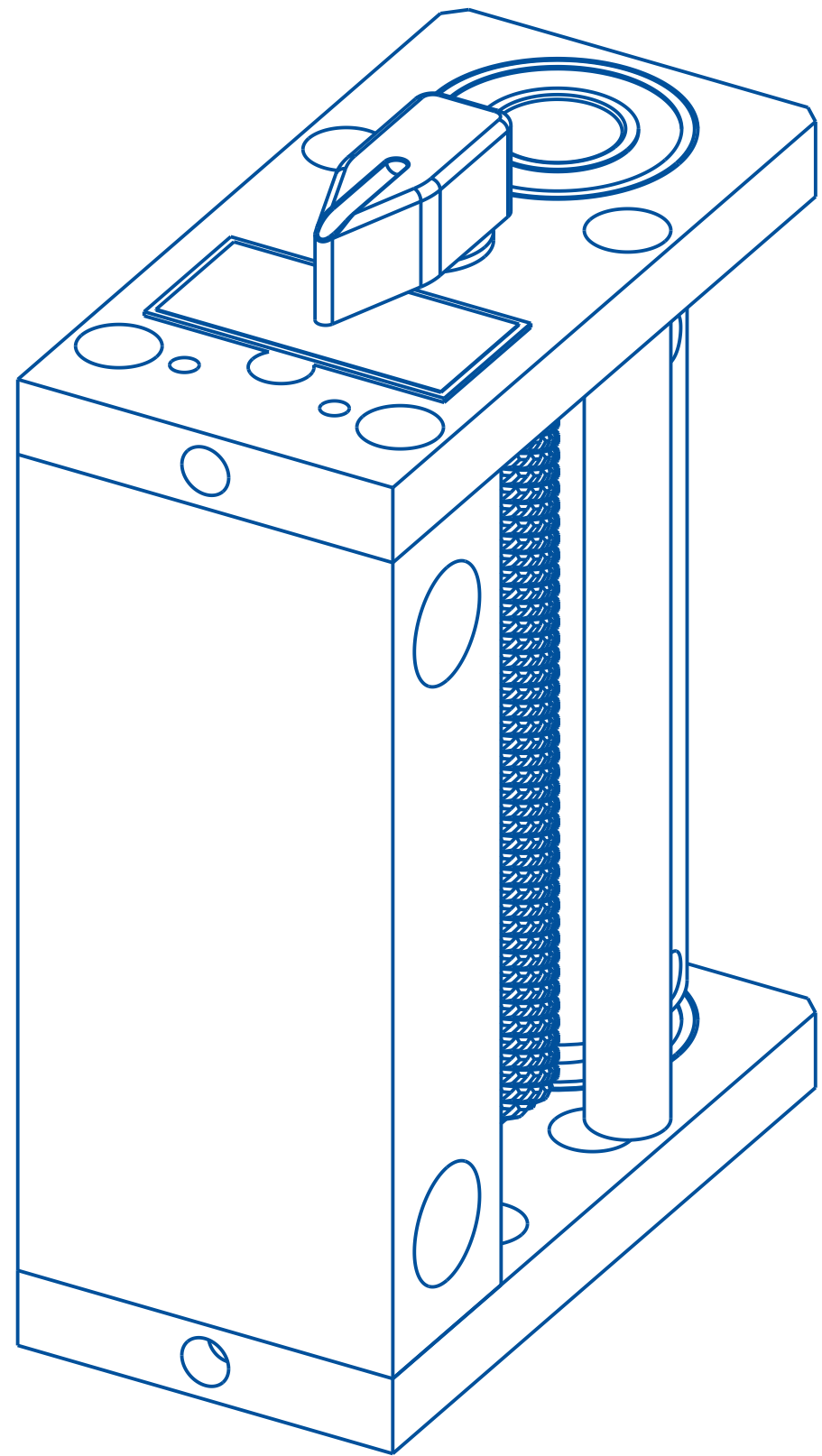
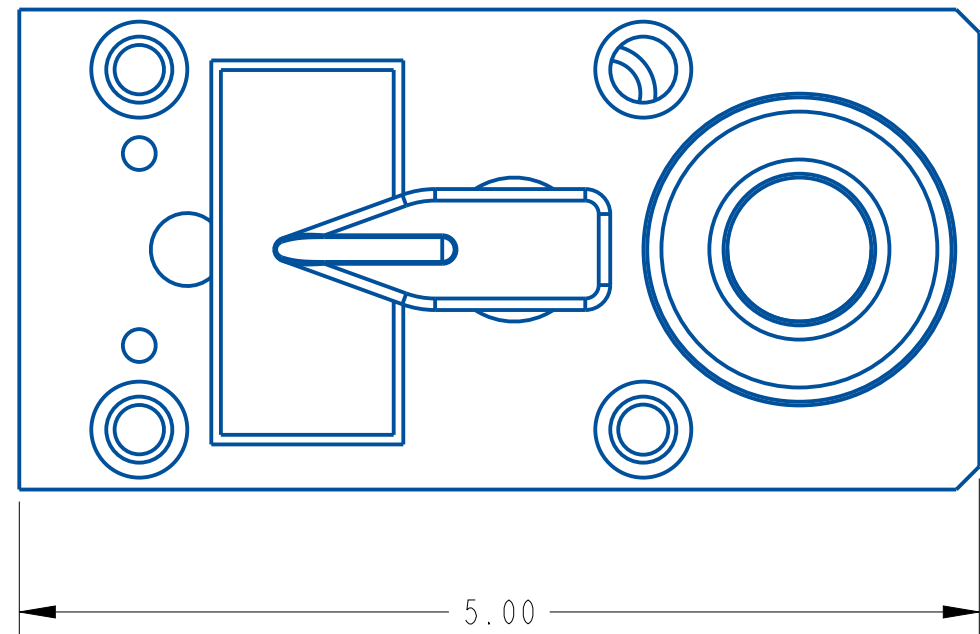


THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY		QUADREL LABELING SYSTEMS	
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE	XX ± .01 XXX ± .005 ANGLES ± .50°	7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 1/1 DATE: 02-OCT-15 DRW BY: CRT CHK BY: APPR BY:
SHEET 2 OF 2		Q60 7" SERVO DRIVE	
MATERIAL		22620D-RHH	

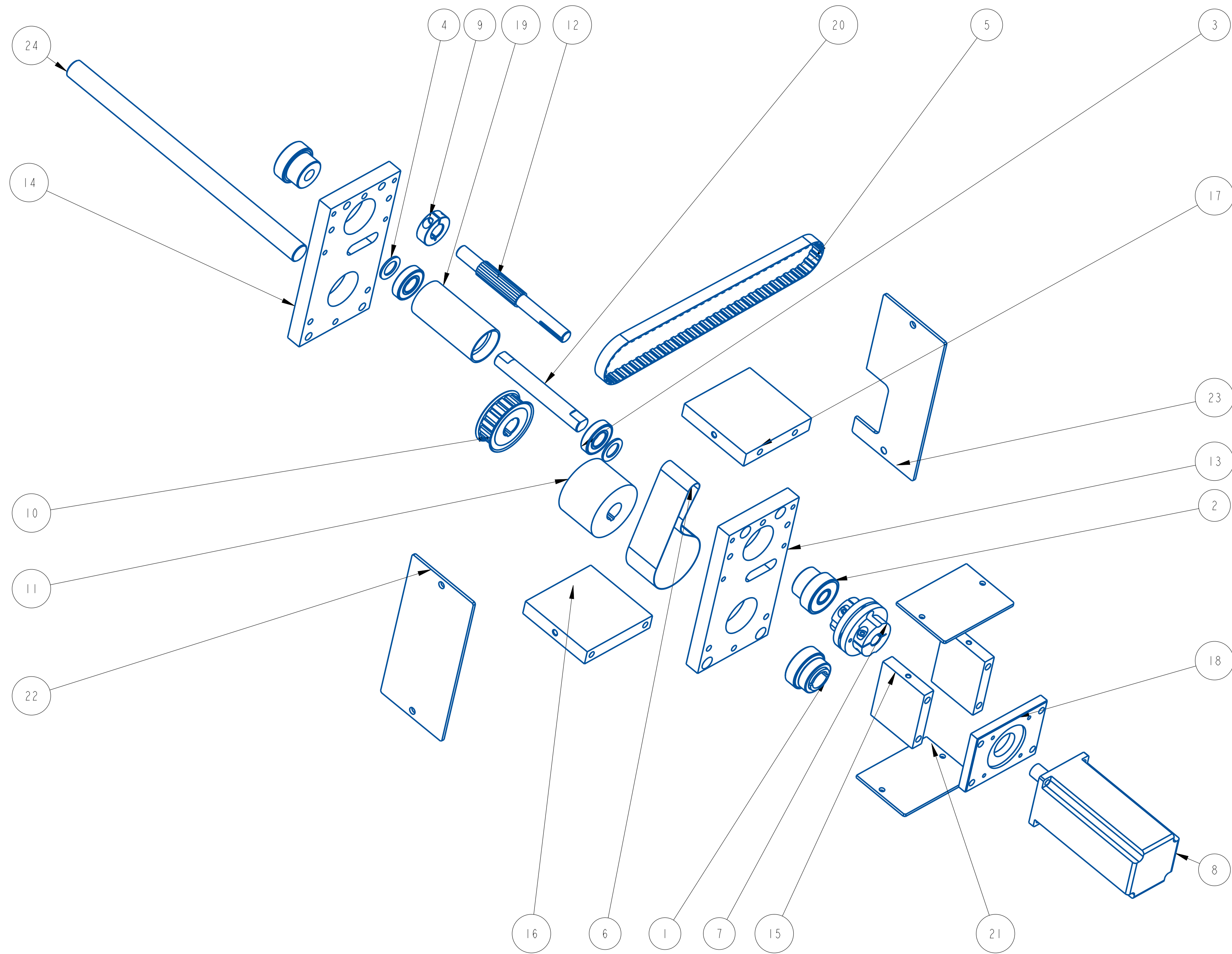
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1	2	00301-17	SPRING, .275 x .052 x .94	23100DR-004RH
2	2	111072-000	BEARING, BALL	23100DR-004RH
3	3	151004-000	BEARING, THRUST WASHER	23100DR-004RH
4	1	362161-000	COLLAR, SETSCREW, 1/2 IN. ID	23100DR-004RH
5	1	791789-000	NAMEPLATE	23100DR-004RH
6	1	21699DY-000	3 PIECE ROLL ASSEMBLY	23100DR-004RH
7	1	A20566-000	PINCH POINT GUARD ROD 4 1/2 WEB	23100DR-004RH
8	2	A20567-000	WHITE NYLON SLUG	23100DR-004RH
9	1	A23125-000	SPACER	23100DR-004RH
10	1	A23751-000	SPACER	23100DR-004RH
11	1	A23752-000	SPACER	23100DR-004RH
12	1	A25249-000	INDEX DOT	23100DR-004RH
13	1	A25250-000	IND KNOB	23100DR-004RH
14	1	B20125-000	KNURLED ROLL SHAFT,	23100DR-004RH
15	1	B20126-000	KNURLED ROLL	23100DR-004RH
16	1	B20137-000	PULL ROLL, 4-1/2"	23100DR-004RH



		A	Sep-04-25	NEW DRAWING	RDL
		REV	DATE	DESCRIPTION	BY
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE XX ± .1 XXX ± .01 XXXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°	 7670 JENTER DRIVE MENTOR, OHIO 44060 (440) 602-4700			SCALE: 3/4 DATE: Sep-04-25 DRW BY: RDL CHK BY: APPR BY:	
	4 1/2" DRIVE ROLL ASSEMBLY, RHH				
MAT'L				23100DR-004RH	
23100DR-004RH				23100DR-004RH	

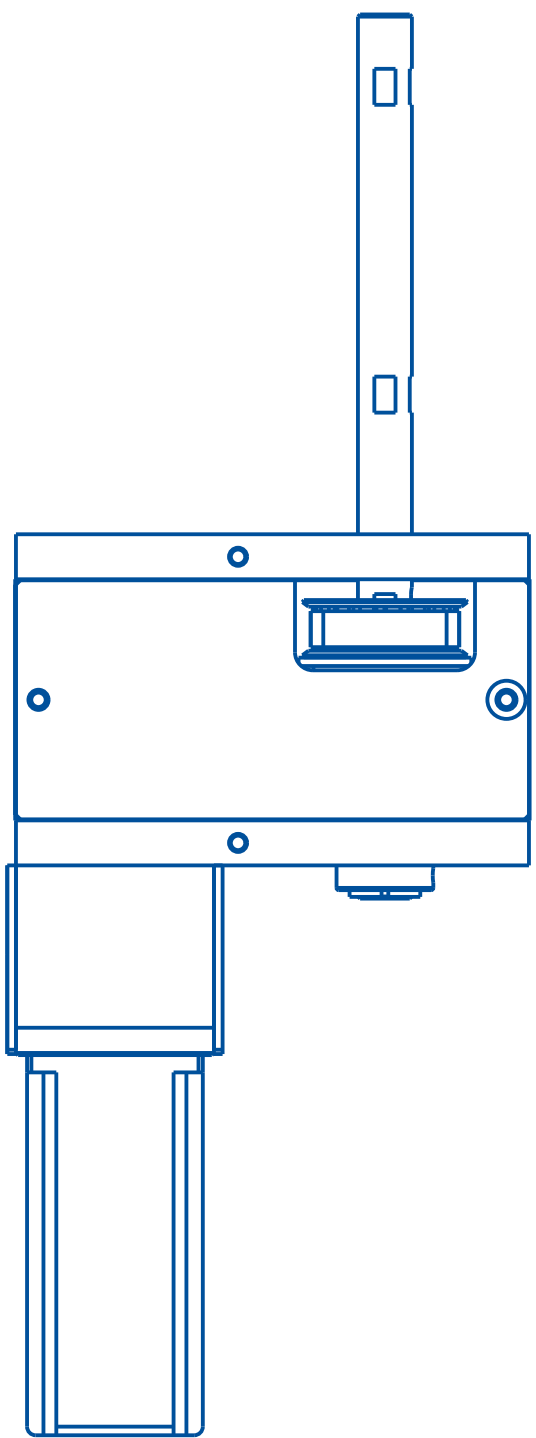
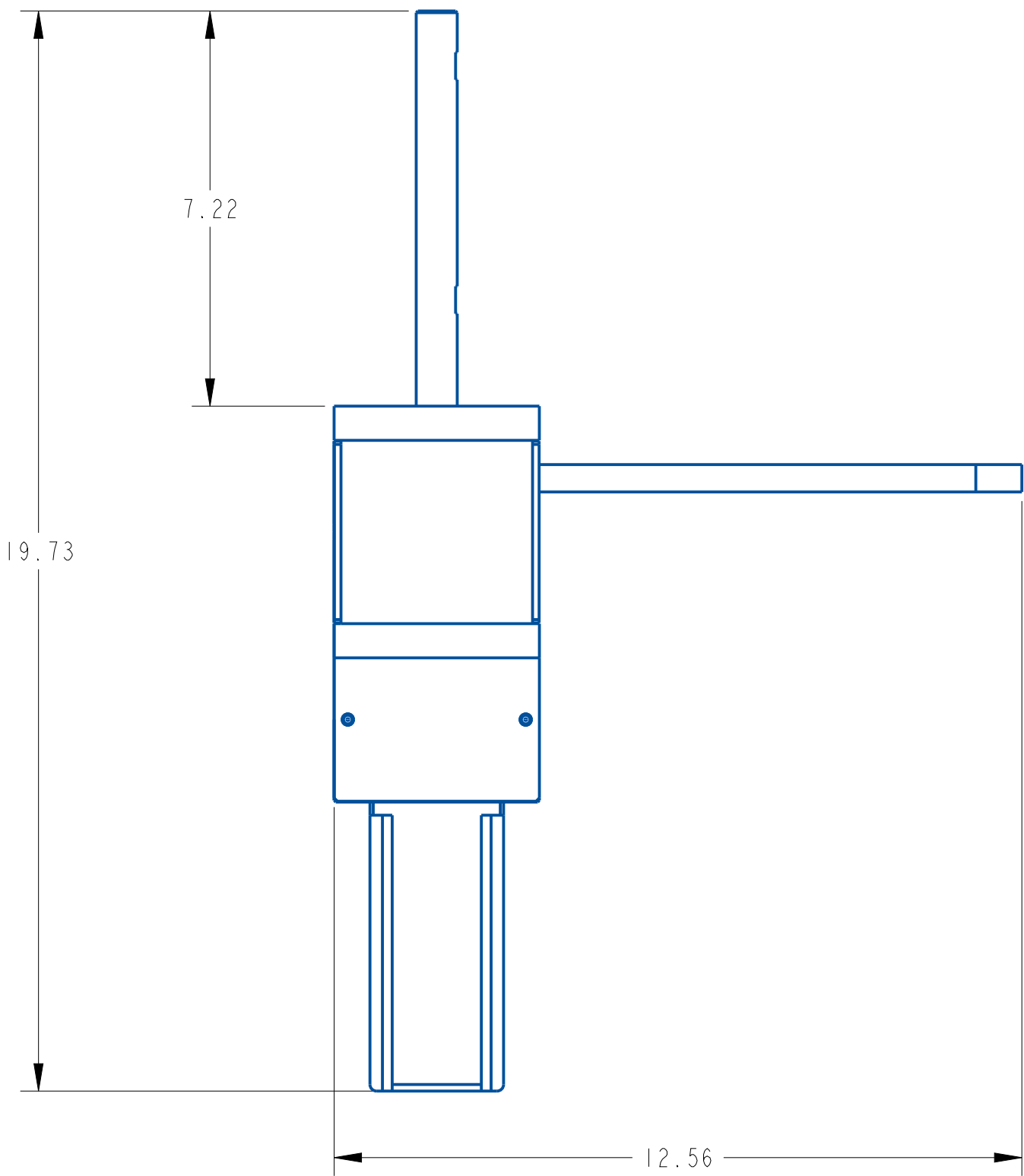
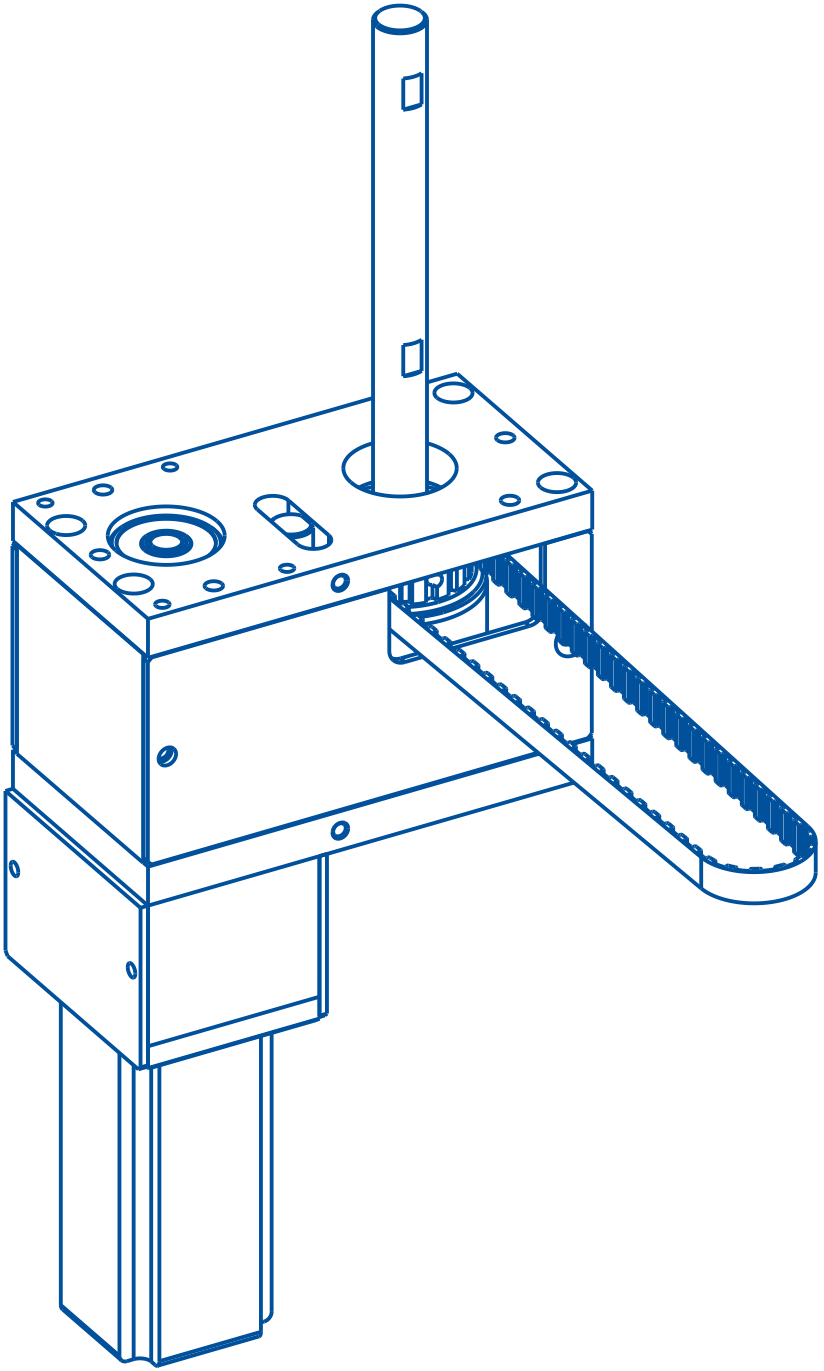
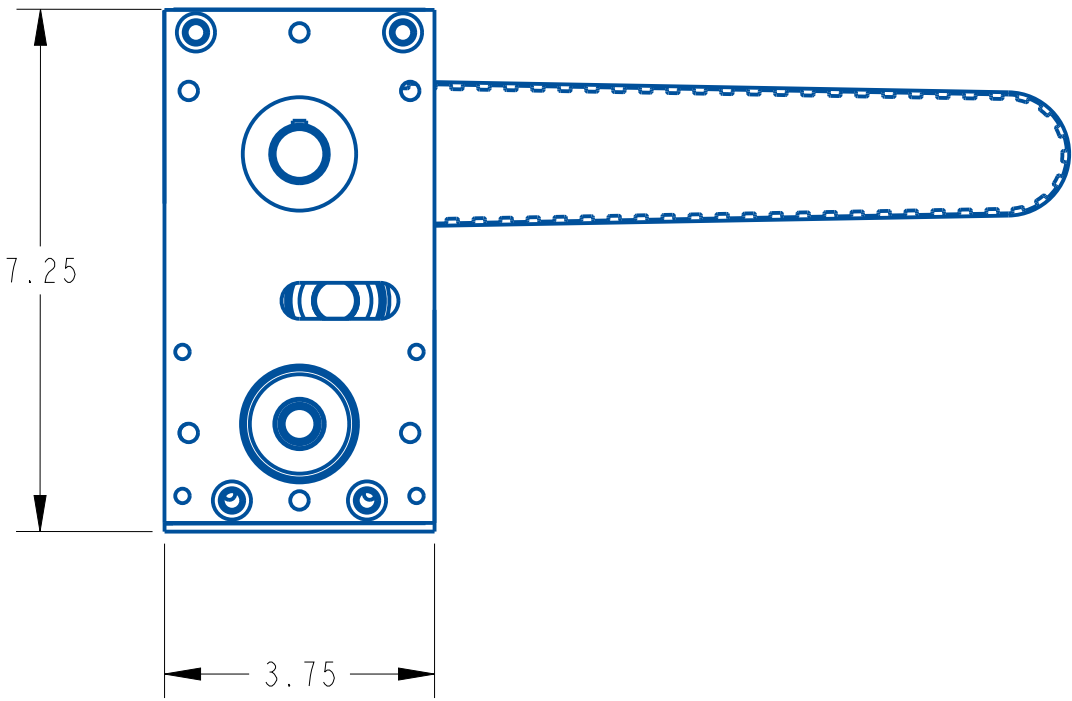


THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/1	
X ± .1		DATE: Sep-04-25	
XX ± .01		DRW BY: RDL	
XXX ± .005		CHK BY:	
ANGLES ± .00°		APPR BY:	
SURFACE FINISH 125		4 1/2" DRIVE ROLL ASSEMBLY, RHH	
BREAK ALL EDGES .005/ .015		MATERIAL	
CORNER RADIUS .010/ .030		23100DR-004RH	
ALL ANGLES ARE 90°		23100DR-004RH	



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	111044-000	BEARING, 3/4 ID CLAMP TYPE	23125D-004RH
2	2	111072-100	BEARING BALL, LOCKING COLLAR .5"IDx1.574"OD	23125D-004RH
3	2	111075-000	BEARING, BALL	23125D-004RH
4	2	151008-000	BEARING, THRUST WASHER	23125D-004RH
5	1	191592-000	BELT, TIMING, 1/2P	23125D-004RH
6	1	192503-150	TIMING BELT	23125D-004RH
7	1	363159-000	SERVO COUPLING-1/2"BORE & KEY 14 MM BORE	23125D-004RH
8	1	413025-001	SERVO MOTOR	23125D-004RH
9	1	A20595-120	COLLAR REWORK	23125D-004RH
10	1	A21421-001	DRIVE PULLEY (MODIFIED)	23125D-004RH
11	1	A26003-100	DRIVE PULLEY	23125D-004RH
12	1	A26004-120	SERVO MOTOR PULLEY	23125D-004RH
13	1	B22842-100	BEARING PLATE	23125D-004RH
14	1	B22842-101	BEARING PLATE	23125D-004RH
15	2	B22844-100	SPACER	23125D-004RH
16	1	B22844-220	SPACER	23125D-004RH
17	1	B22844-320	SPACER	23125D-004RH
18	1	B22847-100	MOTOR MOUNTING PLATE	23125D-004RH
19	1	B22848-120	TENSION ROLLER	23125D-004RH
20	1	B22849-120	TENSIONER SHAFT	23125D-004RH
21	2	B22850-100	COVER	23125D-004RH
22	1	B22850-120	COVER	23125D-004RH
23	1	B22850-122	COVER	23125D-004RH
24	1	C20097-424	PULL ROLL DRIVE SHAFT	23125D-004RH

A	Sep-04-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 3/8	DATE: Sep-04-25
.XX ± .01 XX ± .005 ANGLES ± 90°		DRW BY: RDL	CHK BY:
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030 ALL ANGLES ARE 90°		APPR BY:	
QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		4 1/2" SERVO DRIVE, RHH	
MAT'L		23125D-004RH	



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 3/8	
X ± .1		DATE: Sep-04-25	
XX ± .01		DRW BY: RDL	
XXX ± .005		CHK BY:	
ANGLES ± .00°		APPR BY:	
SURFACE FINISH 125		4 1/2" SERVO DRIVE, RHH	
BREAK ALL EDGES .005/.015		MAT'L	
CORNER RADIUS .010/.030		23125D-004RH	
ALL ANGLES ARE 90°			

Servo Belt Removal & Installation

Remove the clear cover on the side of the coupling of the servo motor. Then loosen the 4 5/16-18 socket heads holding the motor mounting plate to the spacer blocks. (Shown in image on the right)



Loosen the 2 bolts on the coupling. Then remove the motor and coupling assembly. (Shown in image on the left)

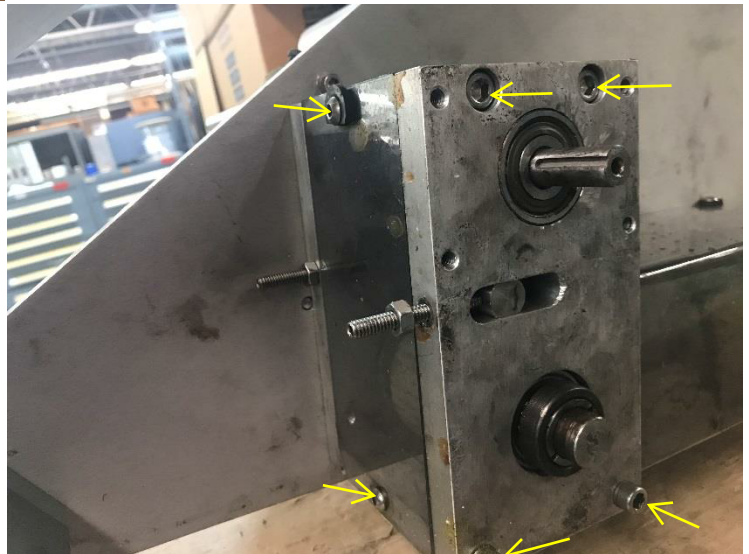
Loosen the tension on the servo belt by removing loosening the 2 jam nuts on the set screws shown and removing the set screws. (Shown in image on the right)





Loosen set screw in the collar on the end of the drive shaft. Then remove the collar. (Shown in image on the left)

Remove the 4 5/16-18 socket head bolts that hold the bottom plate to the spacer blocks. Then remove the two button head screws holding the lexan cover on and remove cover. (Shown in image on the right)



Remove the set screw on the eccentric collar then spin the collar to loosen from shaft. (Shown in image on the left)

Once the bolts are removed, remove the bottom plate. This may take some prying and finessing, be careful to not bend the plate, shafts, or ruin the bearings during the removal of the plate. Once removed clean the plate and bearings. (Shown in image on the right & bottom)



If Equipped

Remove the cover over the rewind kinetrol and other side of the servo belt. (Shown in image on the left)

Remove the tensioner, belt and smaller diameter shaft with the pulley teeth on it. (Shown in image on the right)



Once removed clean all surfaces shafts bearing and check the rewind belt for cracks or uneven wear. You can use a scotch brite pad the clean up the shafts and ect. (Shown in image on the left)

Check the lock collar on the shaft with the pulley grooves ensure the collar is tight and the stack up is correct. The washer goes on top of the collar and shall be flush with the end of the pulley grooves as shown in the image below. Slide the collar over the end of the shaft as shown. This stack up is extremely important.



Ensure your belt is riding properly on the kinetrol pulley. The belt should be running in the middle of the pulley of as close to centered as you can get. Spin the kinetrol and ensure the belt is tracking well. (Shown below)



To adjust this rotate the pulley until you see the set screw. Loosen the set screws and slide the pulley accordingly. Slide the larger pulley down or up as well these pulleys should be together. (Shown in image on the right)

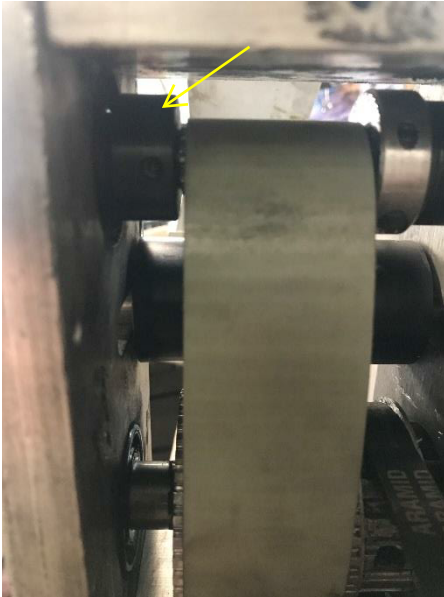


After you have cleaned everything up, checked the rewind belt and properly checked alignment of the pulleys. It is now time to re-assemble. Start by putting the belt in then the tensioner. Ensure the idler has the oil lite washers installed on the top and bottom of the idler. (Shown in the image to the left)

NOTE Blue Loctite is recommended on all fasters.

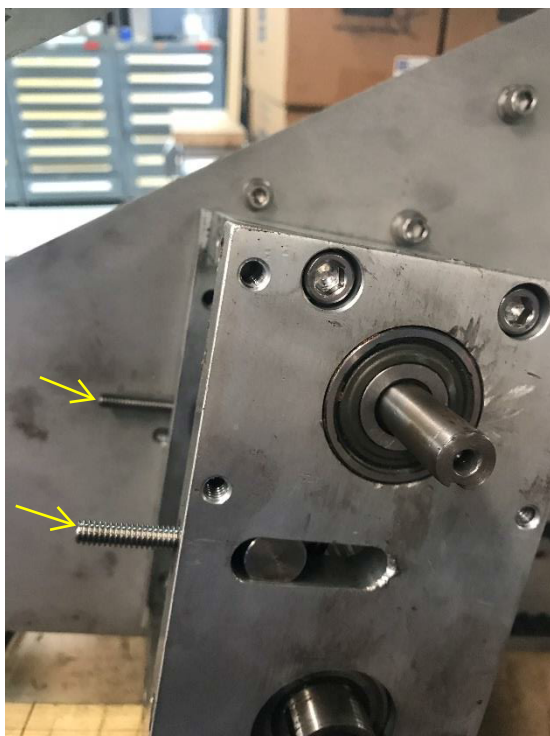
Place the eccentric collar over the smaller diameter shaft and slide the bottom servo plate on. Ensure the tensioner is positioned properly in the slot on the bottom plate with the oil lite washer in place. Fasten the plate to the spacer blocks. Once fastened rotate the eccentric collar to lock it into place make sure it is tight this is very important. Lock into place with set screw. (Shown in image below)

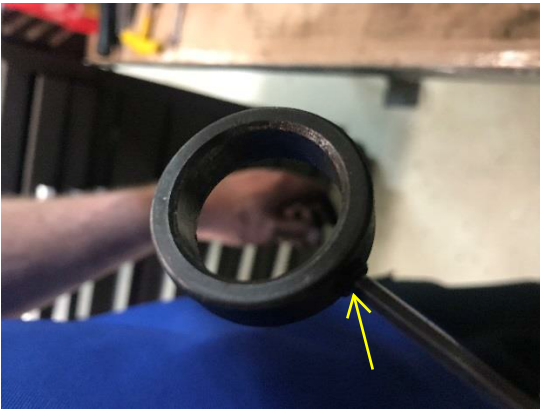
NOTE Blue Loctite is recommended on all fasteners.



Thread in the set screws evenly to set tension on the belt the belt should not be too tight if you reach around the back you can push against the belt as you tighten it. This is more of a touch setting you do not want the belt to be solid to the touch more like 1/8th - 1/4th inch of travel when you push on the belt. If it is too loose it can skip teeth. When the tension is set lock into place using the jam nuts. (Shown in image below)

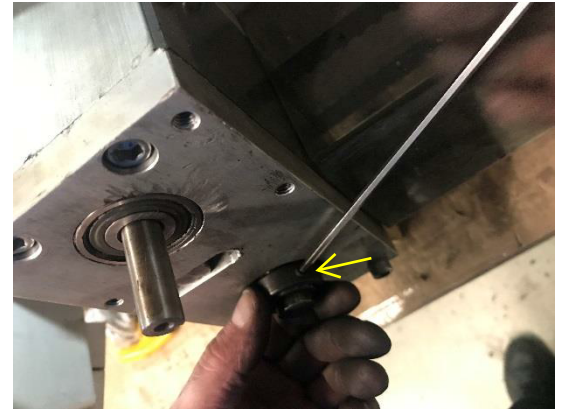
NOTE Do NOT loctite set screws for the tensioner.





Fasten the collar to the end of the larger diameter shaft as shown.

NOTE Blue Loctite is recommended on all fasteners.



Place the lexan covers on the 2 sides of the servo belt assembly and the cover over the rewind kinetrol assembly. Make sure the fasteners has blue Loctite and rubber grommets. (Shown in image on the left)

Place the servo motor coupling over the end of the smaller diameter shaft. Fasten the motor mounting assembly to the bottom plate using blue Loctite. Align the coupling centered between the shafts so the coupling has enough to fasten to on each of the shafts. Fasten the coupling to the shafts. Mount the lexan covers make sure the fasteners has blue Loctite and rubber grommets. (Shown in image on the right)

NOTE Blue Loctite is recommended on all fasteners.



ASSEMBLY TITLE:**Q120 REWIND ASSEMBLY****GENERAL FUNCTION:**

- The rewind drum rolls up the liner
- The rewind pin, when pulled out, allows the liner to be released from the rewind drum.
- The rewind flange supports and guides the liner.
- The friction clutch allows for slippage to accommodate for varying speeds between the drive roll and rewind drum.
- The adjusting knob controls the torque adjustment of the drum.

SET UP AND ADJUSTMENTS:

- Position the rewind flange slightly below the web path and lock with the set screw in the hub.
- When threading liner to the rewind, place the liner between the drum and pin.
- Tighten adjusting knob just enough to allow the rewind drum to keep up with the drive roll.

NOTE: Excessive tightening will cause the web to be wound very tight, causing difficulty in removal and possible step motor stall.

MAINTENANCE:

- Clean all parts that have acquired label or glue residue
- Replace friction disc when worn out.

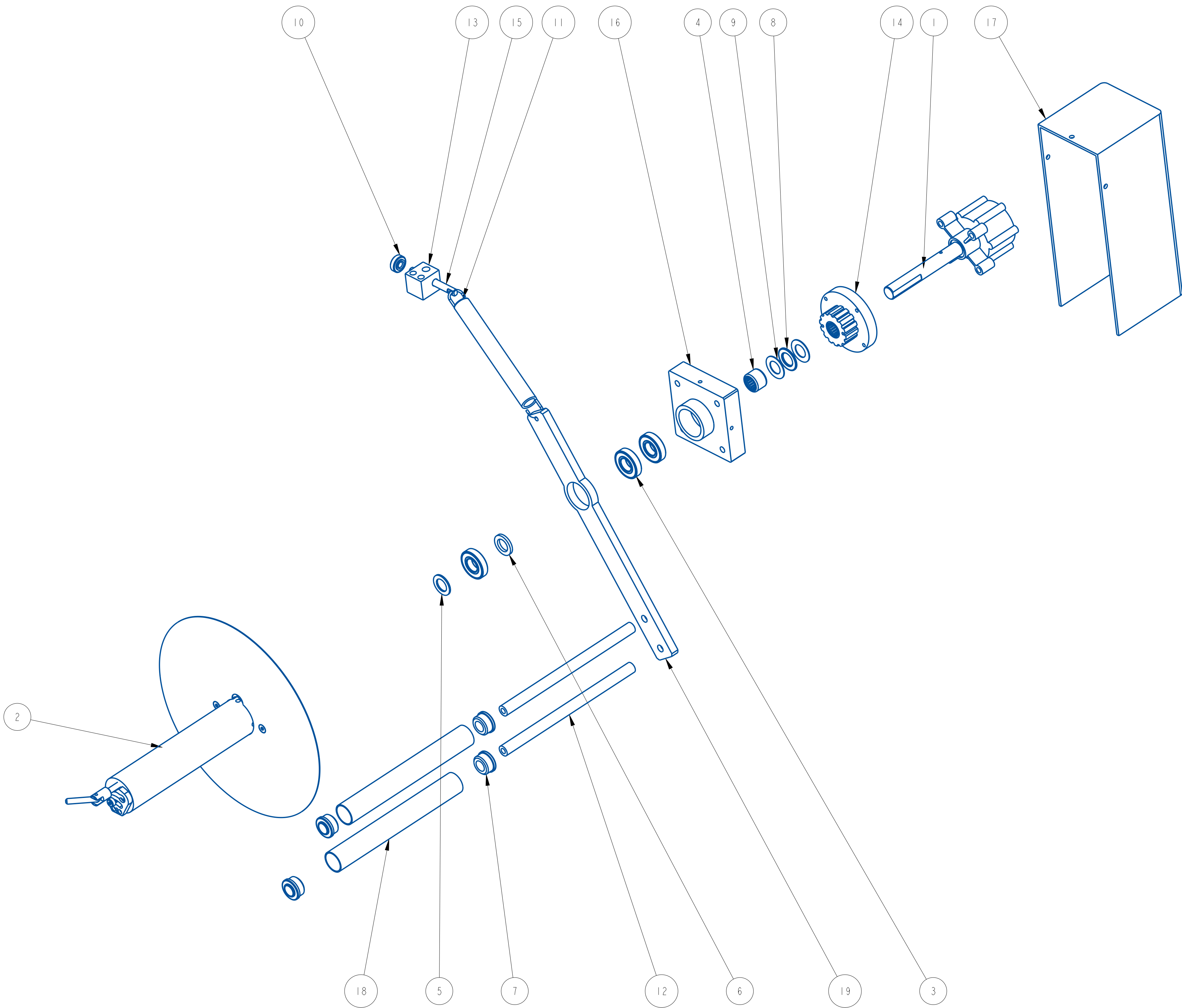
TROUBLESHOOTING:**PROBLEM**

- Rewind drum not rotating when stepping motor rotates
- Rewind drum not keeping up with drive roll
- Web winding too tight on hub
- Grinding in rewind hub

WHAT TO DO

- Replace timing belt from motor to rewind
- Tighten adjusting knob
- Loosen adjusting knob
- Replace friction disc by removing knob and sliding off rewind drum

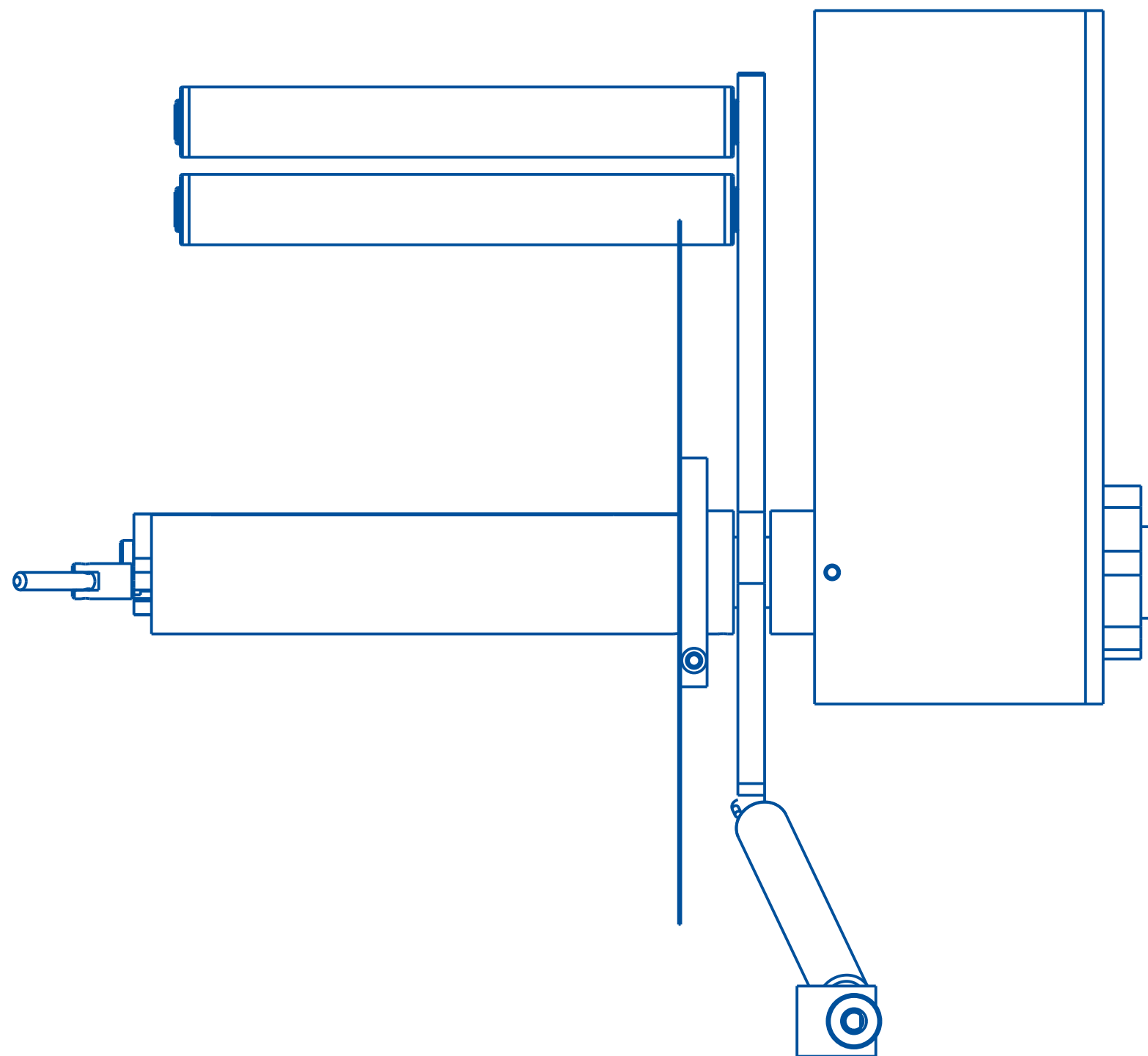
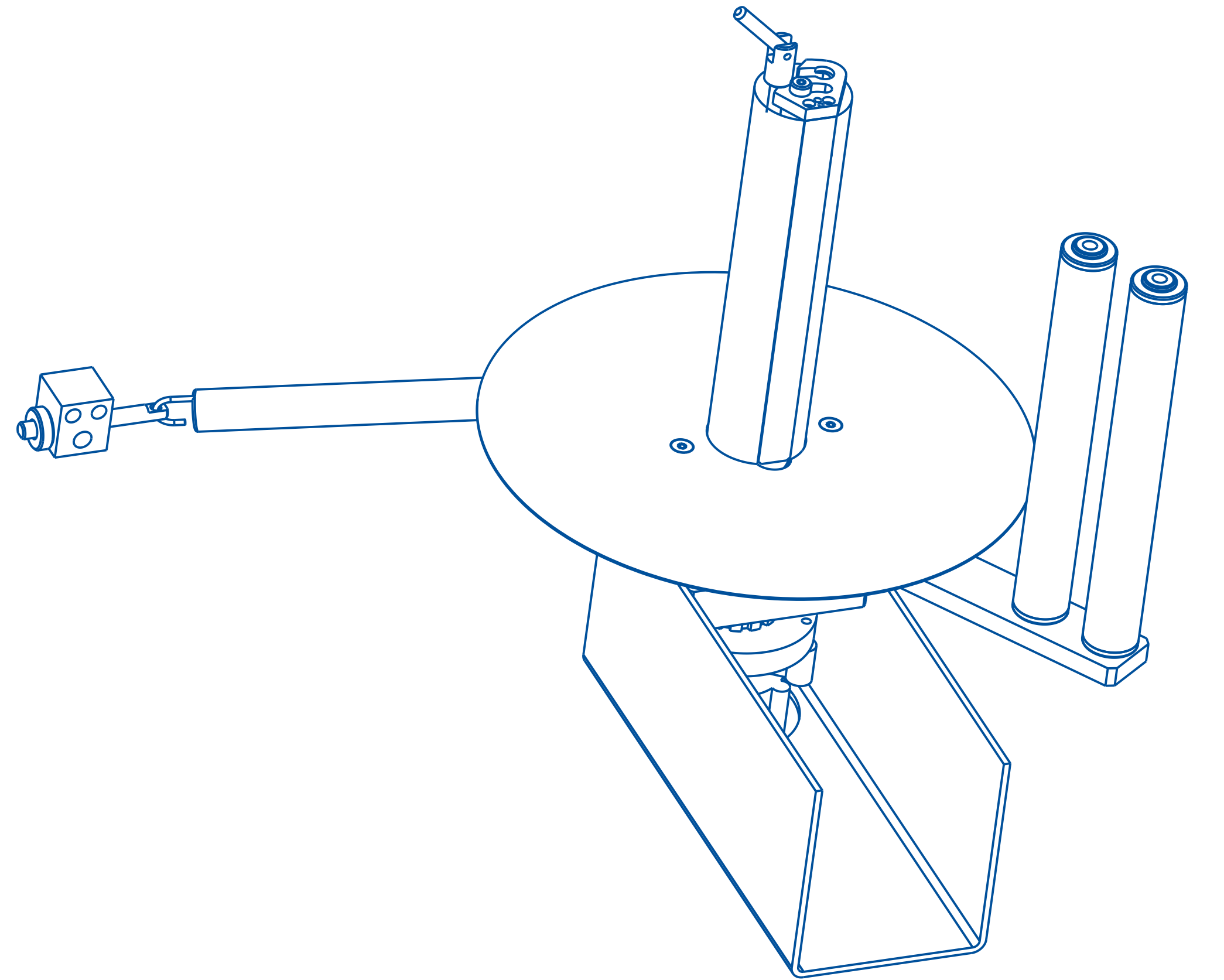
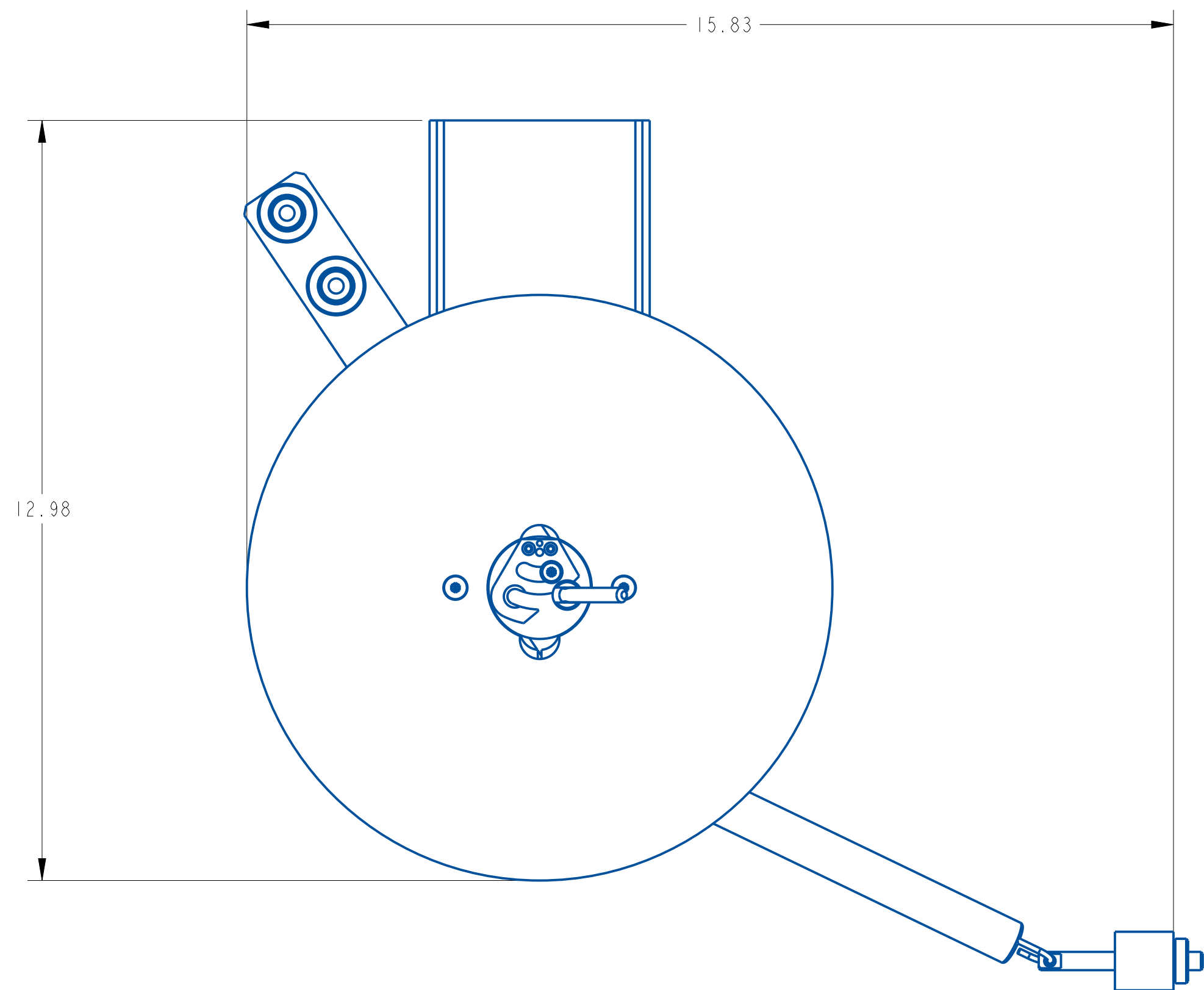
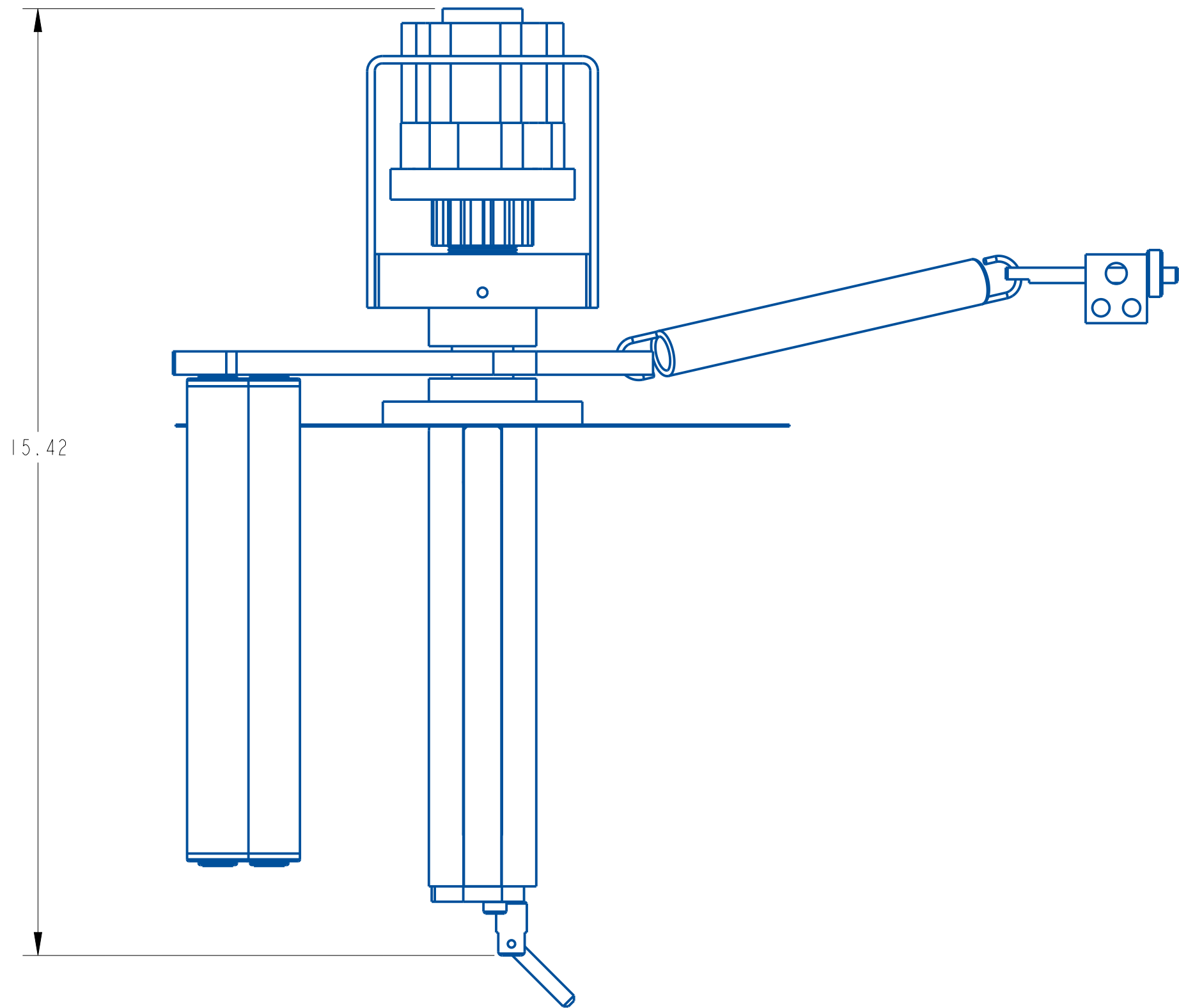




ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	20499-001	DASHPOT & SHAFT ASSEMBLY	22620R-LHH
2	1	22188-000	7" COLLAPSIBLE REWIND ASSEMBLY	22620R-LHH
3	3	111075-000	BEARING, BALL	22620R-LHH
4	1	121067-000	BEARING, NEEDLE	22620R-LHH
5	1	151008-000	BEARING, THRUST WASHER	22620R-LHH
6	1	151017-000	BEARING, THRUST WASHER	22620R-LHH
7	4	181063-000	BEARING, ROLL END	22620R-LHH
8	1	181081-000	BEARING, NEEDLE ROLLER	22620R-LHH
9	2	181082-000	BEARING, THRUST WASHER	22620R-LHH
10	1	801601-000	CHECK NUT	22620R-LHH
11	1	811216-000	EXTENSION SPRING, STAINLESS	22620R-LHH
12	2	A20928-002	ROLLER SHAFT	22620R-LHH
13	1	A21479-000	SPRING ADJUSTMENT BLOCK	22620R-LHH
14	1	A22120-000	REWIND PULLEY ASSEMBLY	22620R-LHH
15	1	A23131-000	STUD	22620R-LHH
16	1	B20004-120	REWIND BEARING PLATE	22620R-LHH
17	1	B20005-120	GUARD	22620R-LHH
18	2	B20071-003	IDLER ROLLER (DANCER)	22620R-LHH
19	1	C20894-004	REWIND DANCER ARM	22620R-LHH

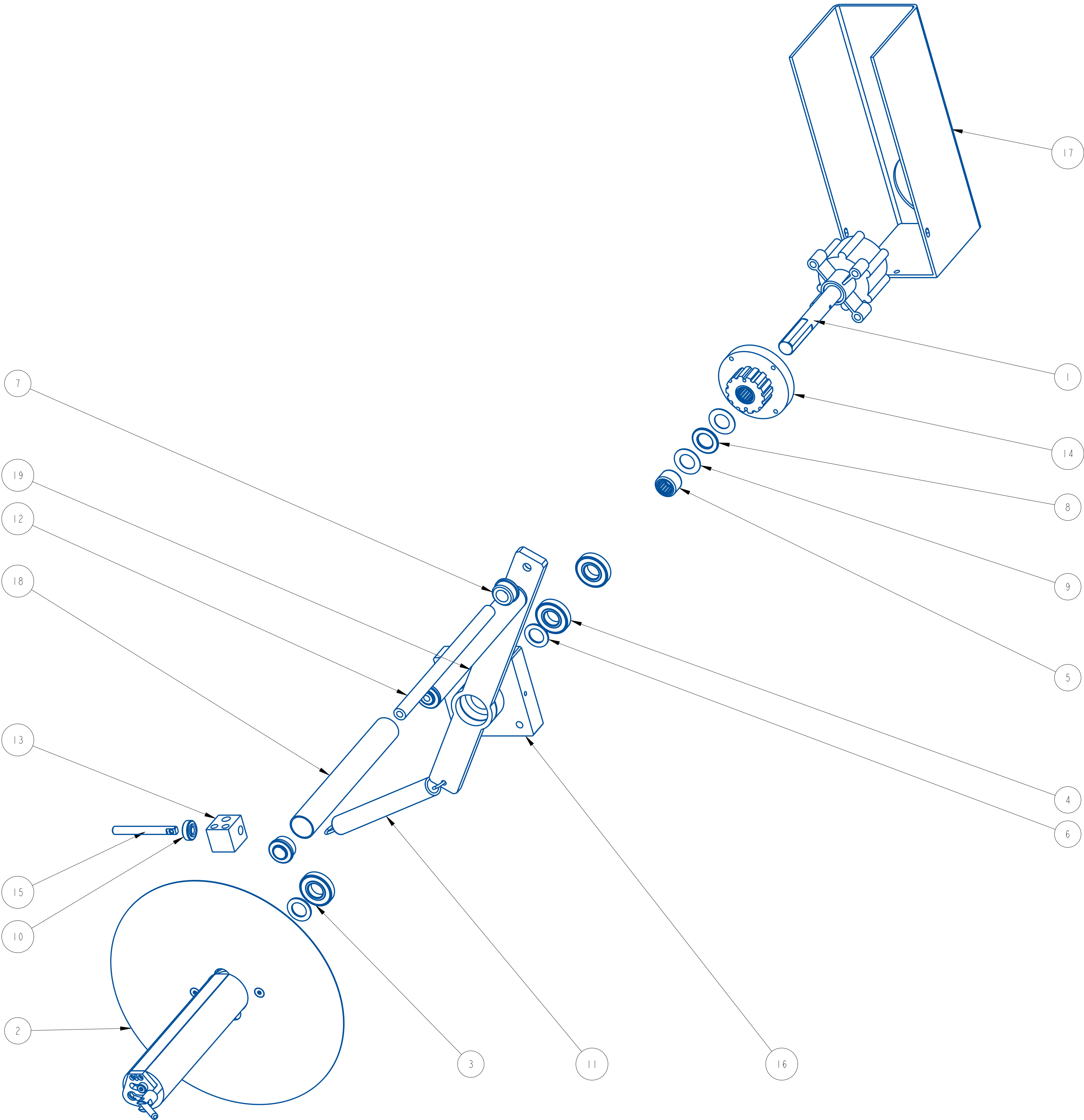


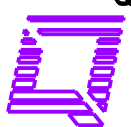
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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 3/8	
X ± .01 XXX ± .005 ANGLES ± .30°		DATE: 06-OCT-15	
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		DRW BY: CRT	
		CHK BY: &CREO.CHK	
		APPR BY:	
		Q60 REWIND & DANCER ASSEMBLY w/KINETROL, 7"	
		MAT'L	
		22620R-LHH	

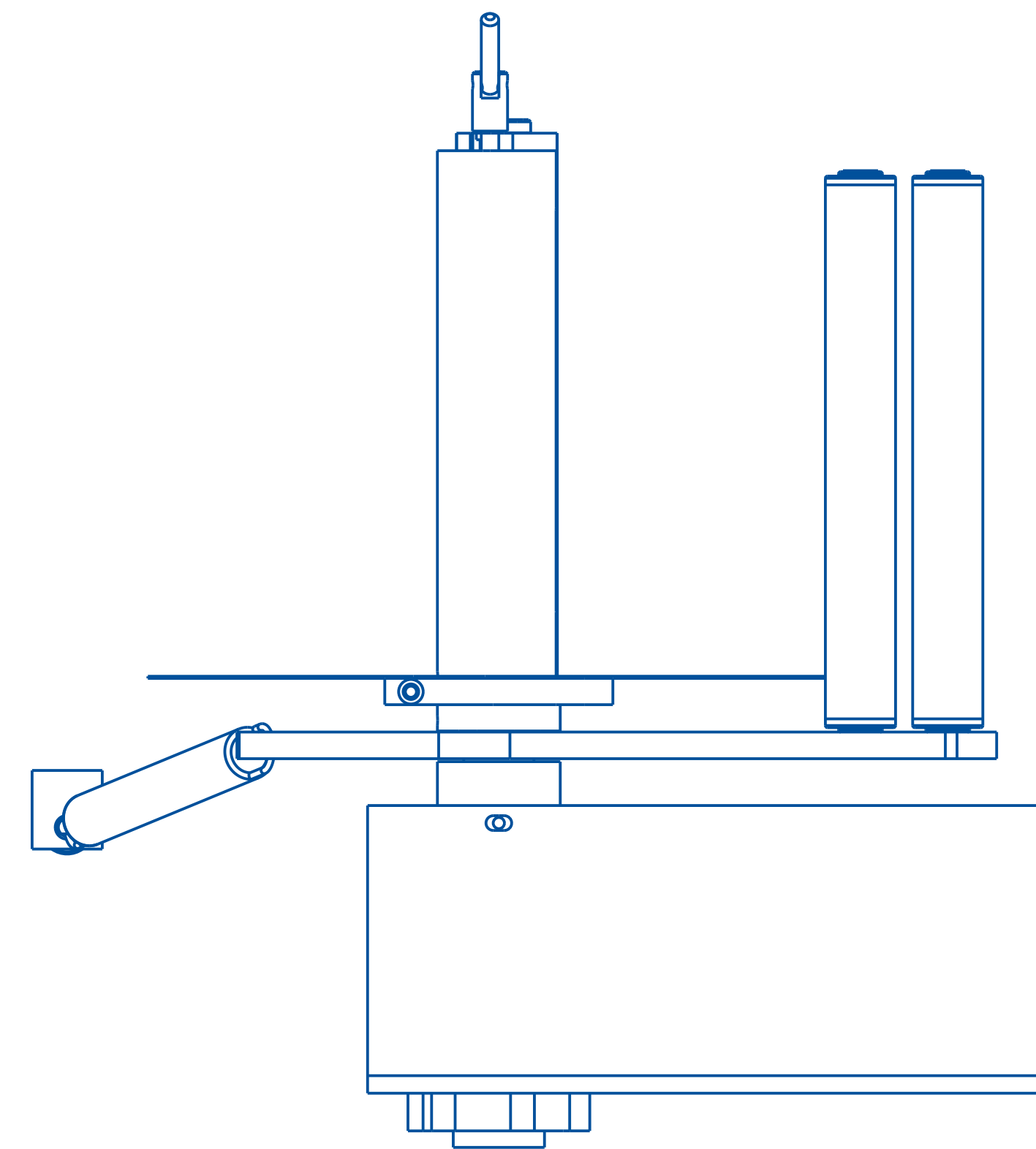
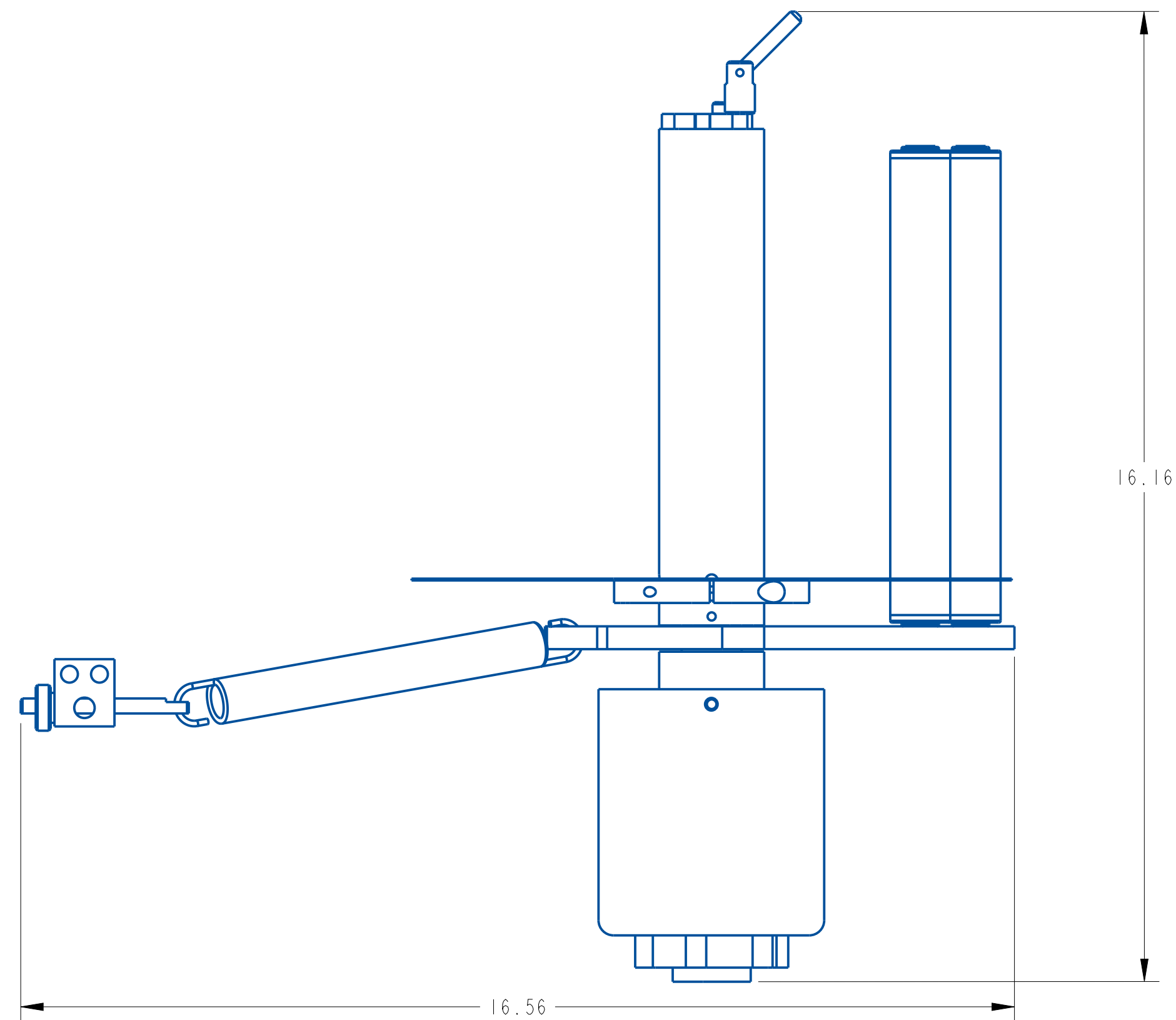
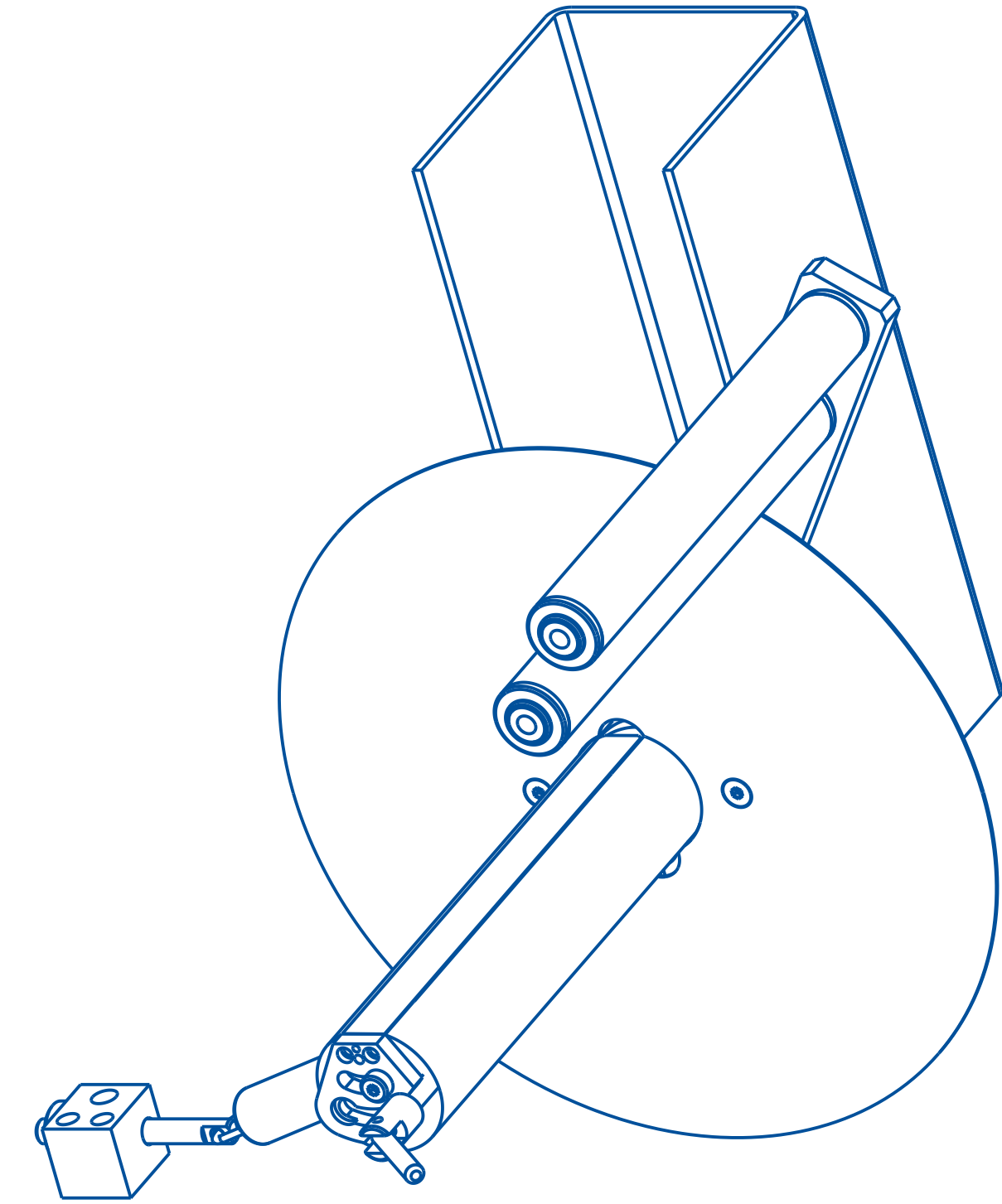
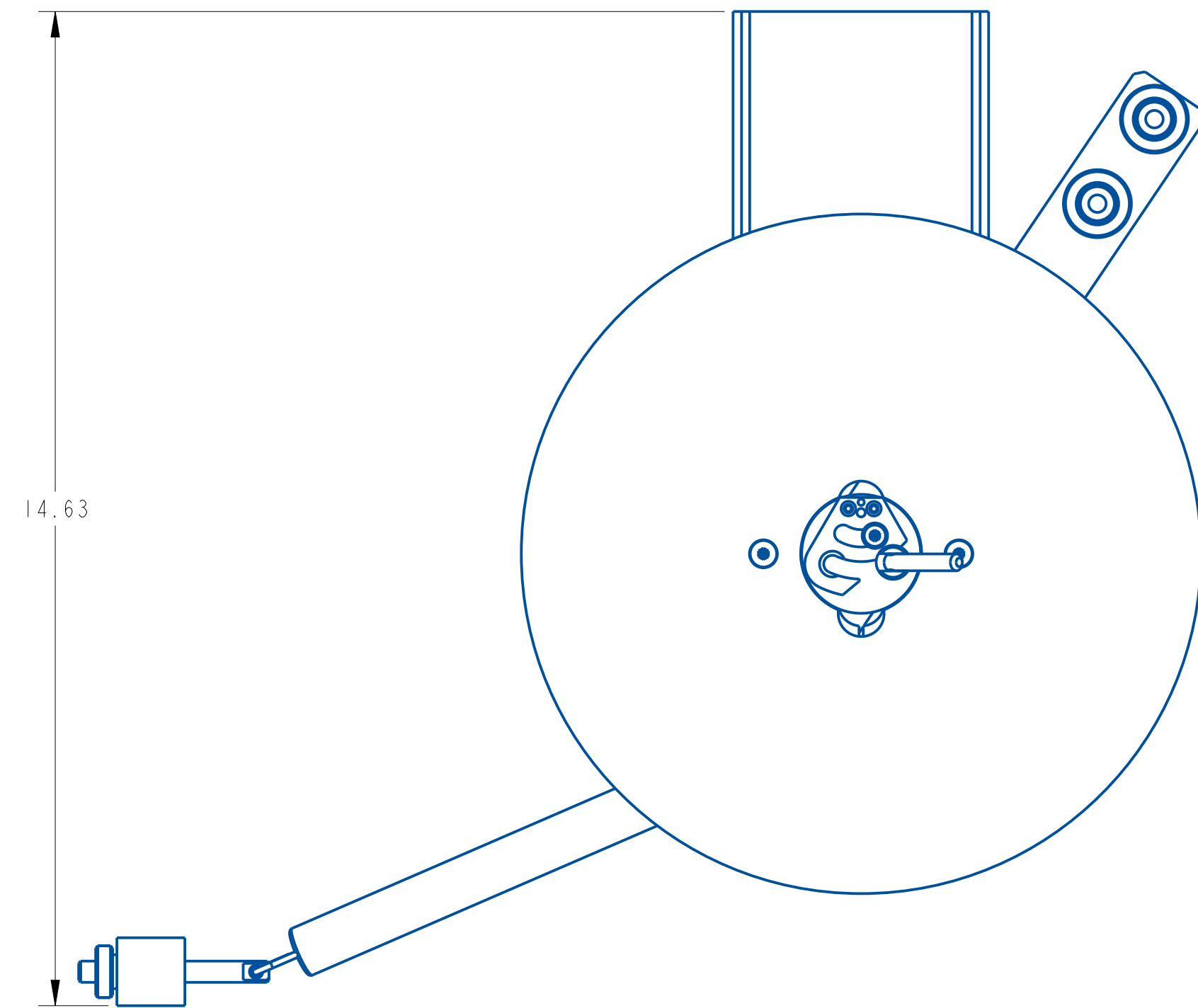


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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/2	
XXX ± .01		DATE: 06-OCT-15	
XXX ± .005		DRW BY: CRT	
ANGLES ± .00		CHK BY: 03/27/2024-SEM	
SURFACE FINISH 125		APPR BY:	
BREAK ALL EDGES .005/ .015		Q60 REWIND & DANCER ASSEMBLY w/KINETROL, 7"	
CORNER RADIUS .010/ .030		MAT'L	
ALL ANGLES ARE 90°		22620R-LHH	

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	20499-001	DASHPOT & SHAFT ASSEMBLY	22620R-RHH
2	1	22188-000	7" COLLAPSIBLE REWIND ASSEMBLY	22620R-RHH
3	1	111001-000	BEARING, BALL	22620R-RHH
4	2	111075-000	BEARING, BALL	22620R-RHH
5	1	121067-000	BEARING, NEEDLE	22620R-RHH
6	2	151008-000	BEARING, THRUST WASHER	22620R-RHH
7	4	181063-000	BEARING, ROLL END	22620R-RHH
8	1	181081-000	BEARING, NEEDLE ROLLER	22620R-RHH
9	2	181082-000	BEARING, THRUST WASHER	22620R-RHH
10	1	801601-000	CHECK NUT	22620R-RHH
11	1	811216-000	EXTENSION SPRING, STAINLESS	22620R-RHH
12	2	A20928-002	ROLLER SHAFT	22620R-RHH
13	1	A21479-000	SPRING ADJUSTMENT BLOCK	22620R-RHH
14	1	A22120-000	REWIND PULLEY ASSEMBLY	22620R-RHH
15	1	A23131-000	STUD	22620R-RHH
16	1	B20004-007	REWIND BEARING PLATE	22620R-RHH
17	1	B20005-120	GUARD	22620R-RHH
18	2	B20071-003	IDLER ROLLER (DANCER)	22620R-RHH
19	1	C20894-004	REWIND DANCER ARM	22620R-RHH



A	06-OCT-15	NEW DRAWING		CRT	
REV	DATE	DESCRIPTION		BY	
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .01 XX ± .005 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		 QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE: 7/16	
				DATE: 06-OCT-15	
				DRW BY: CRT	
				CHK BY: 03/08/2024-SEM	
				APPR BY:	
REWIND & DANCER ASSEMBLY w/KINETROL, 7"					
MAT'L		22620R-LHH		22620R-RHH	



A	06-OCT-15	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
--	--	--	--	--	--

UNLESS OTHERWISE
SPECIFIED
DIMENSIONAL TOLERANCE

.XX ± .01

QUADREL LABELING SYSTEMS

7670 JENTER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 1/2

DATE: 06-OCT-15

DRW BY: CRT

CHK BY: 03/08/2024-SEM

APPR BY:

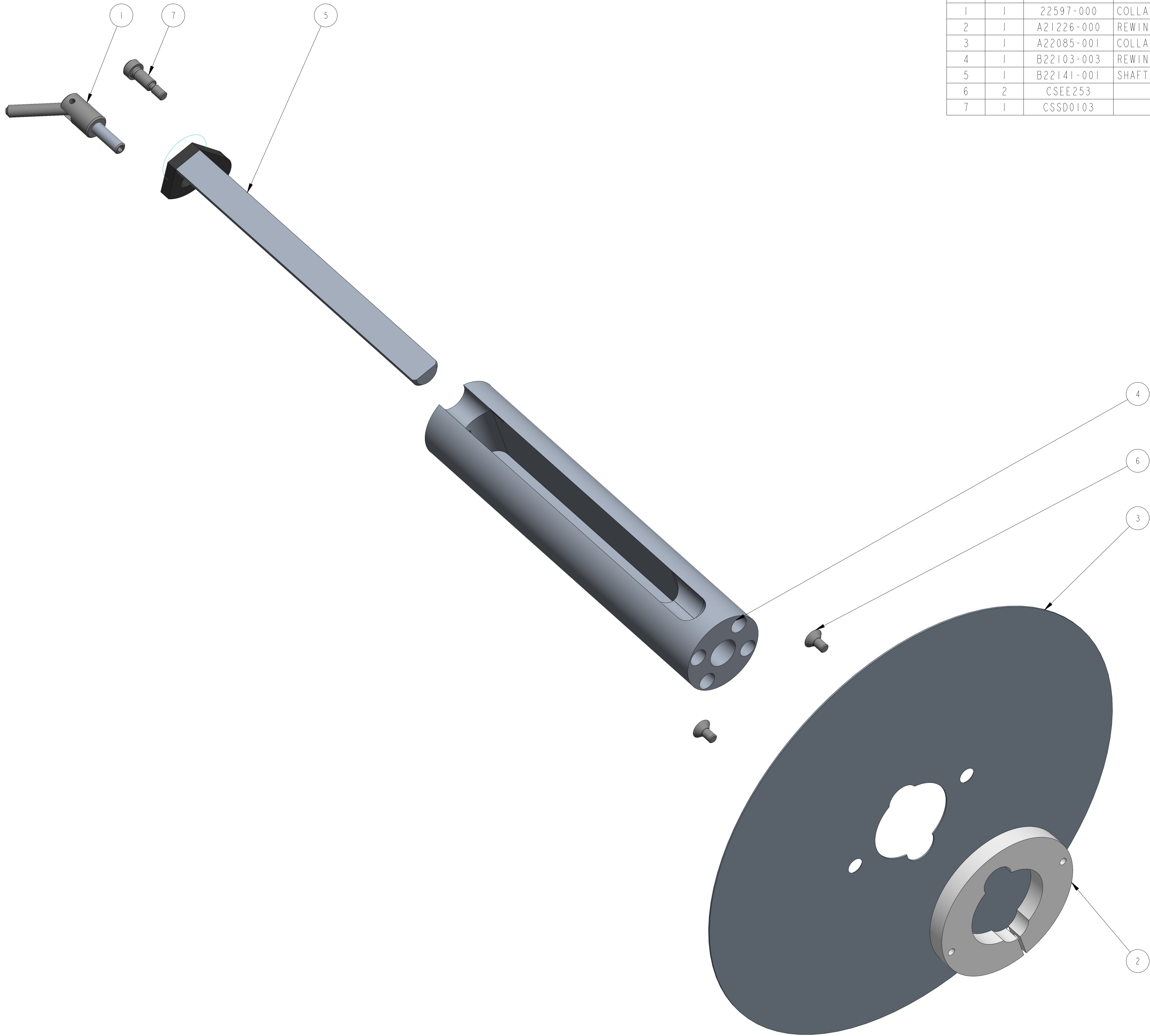
REWIND & DANCER ASSEMBLY w/KINETROL, 7"

BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030
ALL ANGLES ARE 90°

MAT'L

22620R-BHH

SHEET 2 OF 2

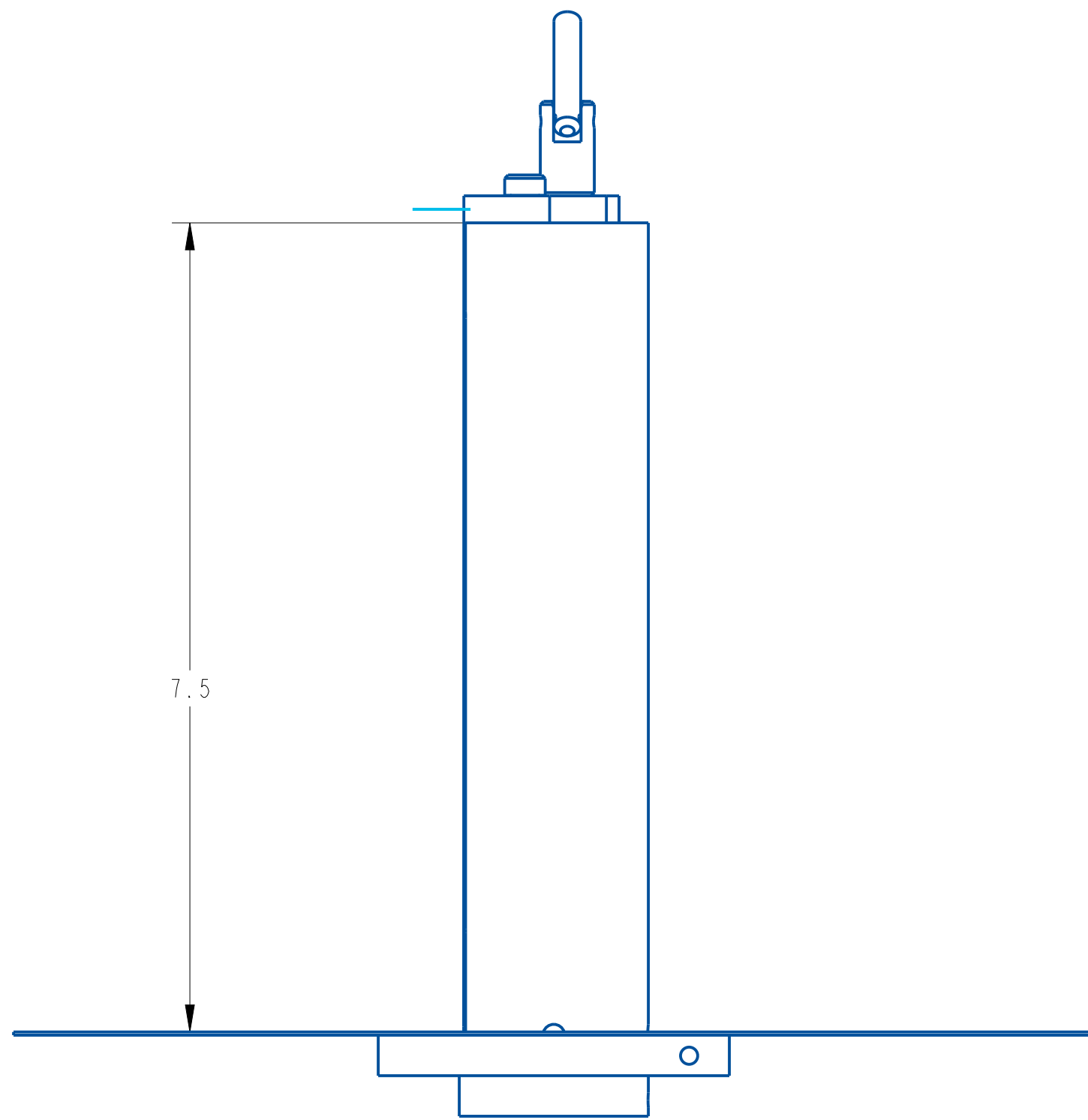
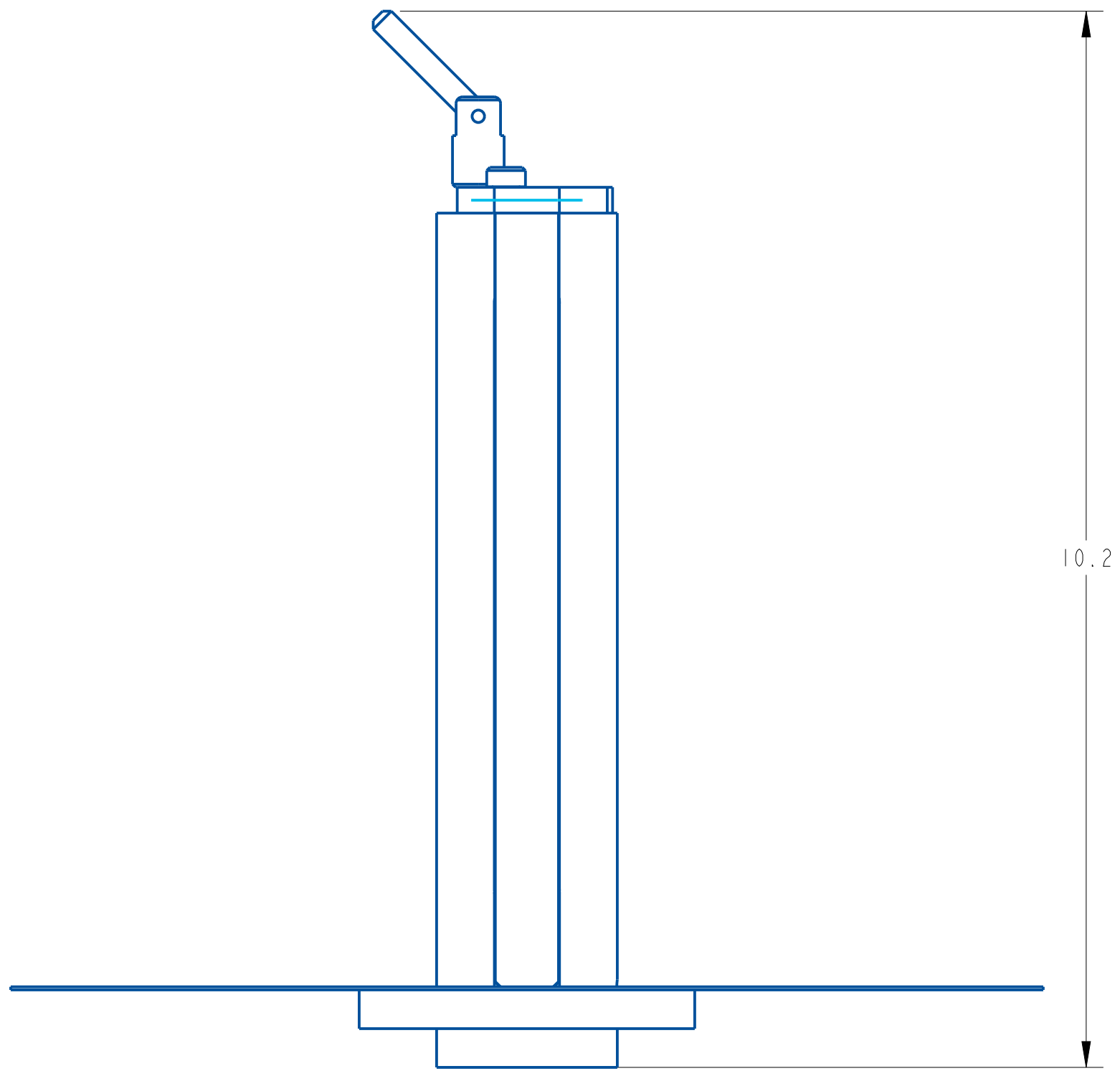
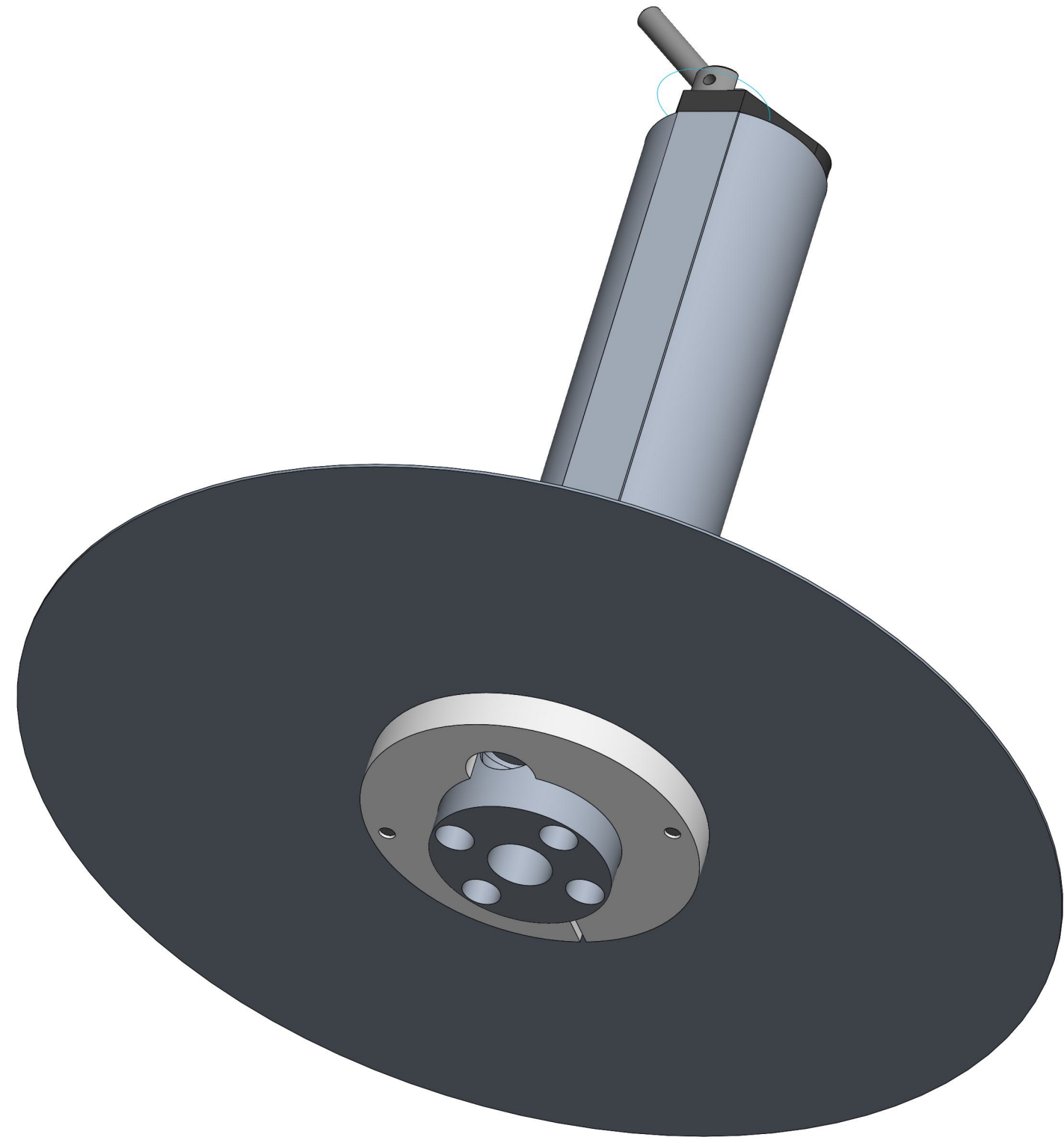
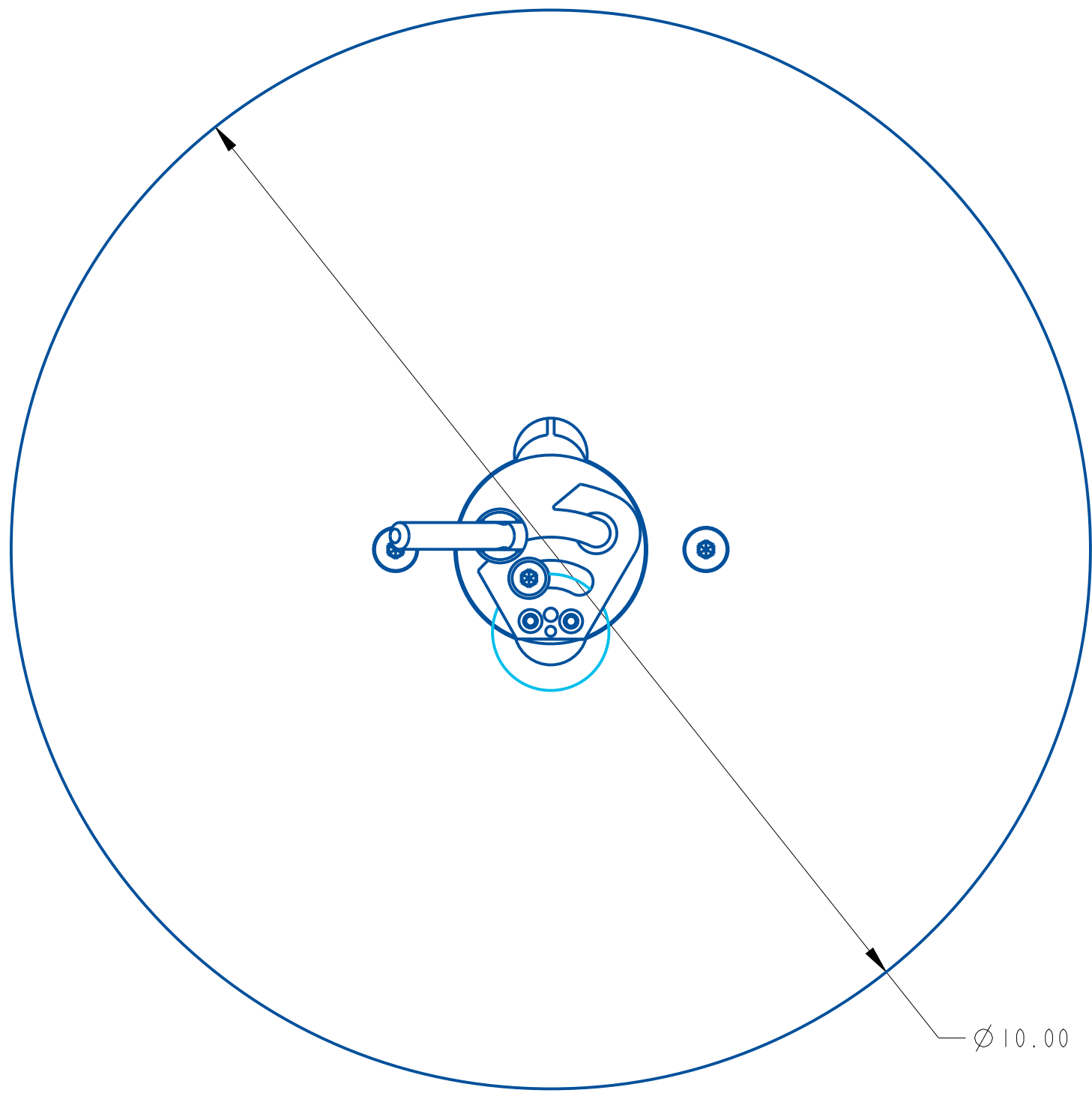


ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	22597-000	COLLAPSIBLE REWIND LOCKING HANDLE	22188-000
2	1	A21226-000	REWIND FLANGE HUB COLLAR	22188-000
3	1	A22085-001	COLLAPSIBLE REWIND REEL	22188-000
4	1	B22103-003	REWIND HUB 7"	22188-000
5	1	B22141-001	SHAFT ASSEMBLY	22188-000
6	2	CSEE253		22188-000
7	1	CSSD0103		22188-000

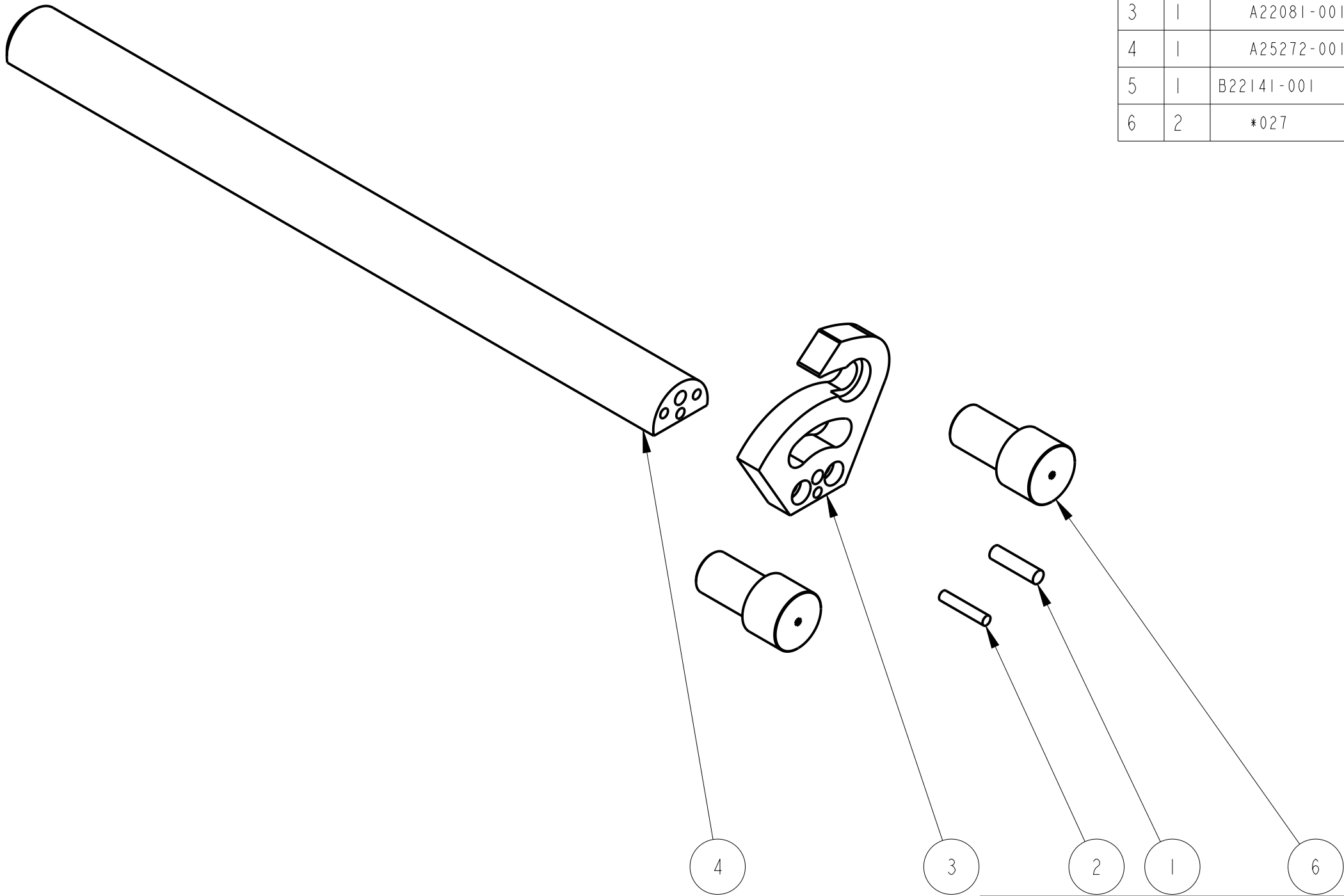


A	MAR-30-21	NEW DRAWING	TJS
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .50° SURFACE FINISH 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
SCALE: 1/1 DATE: MAR-30-21 DRW BY: TJS CHK BY: 02/29/2024-SEM APPR BY:		7" COLLAPSIBLE REWIND ASSEMBLY	
MAT'L		22188-000	22188-000




THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 3/4	
XX ± .1		DATE: MAR-30-21	
XX ± .005		DRW BY: TJS	
ANGLES ± .00		CHK BY: 02/29/2024-SEM	
SURFACE FINISH 125		APPR BY:	
BREAK ALL EDGES .005/ .015		7" COLLAPSIBLE REWIND ASSEMBLY	
CORNER RADIUS .010/ .030		MATERIAL	
ALL ANGLES ARE 90°		22188-000	
		22188-000	



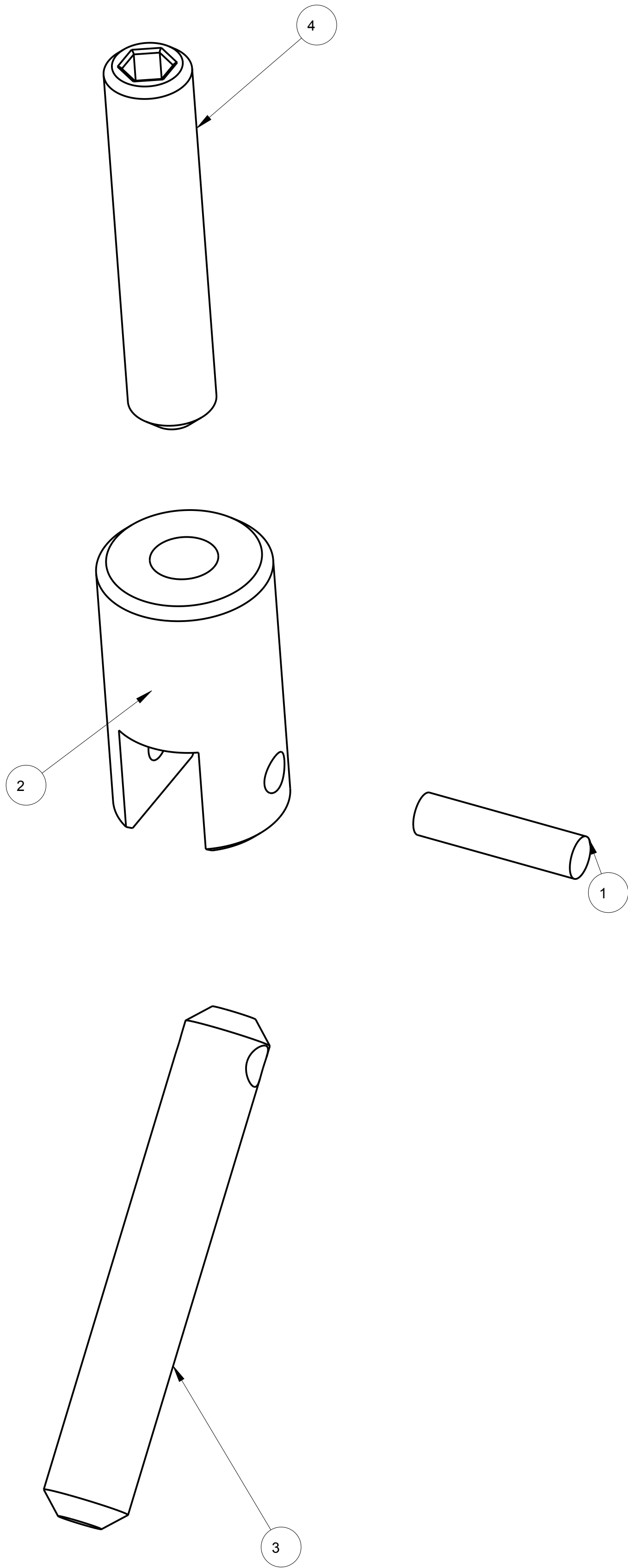
ITEM	QTY	PART NO.	DESCRIPTION
1	1	871352-000	DOWELL,PIN 1/8" x 1/2" SS.
<div>△B</div> 2	1	871371-000	DOWELL,PIN 3/32" x 1/2" SS.
3	1	A22081-001	COLLAPSIBLE REWIND CAM
4	1	A25272-001	COLLAPSIBLE REWIND SHAFT
5	1	B22141-001	SHAFT ASSEMBLY
6	2	*027	4-40 X 1/2 LG. SHCS

B	Sep-27-22	WAS 871352-000
A	06/09/2008	NEW DRAWING
REV	DATE	DESCRIPTION

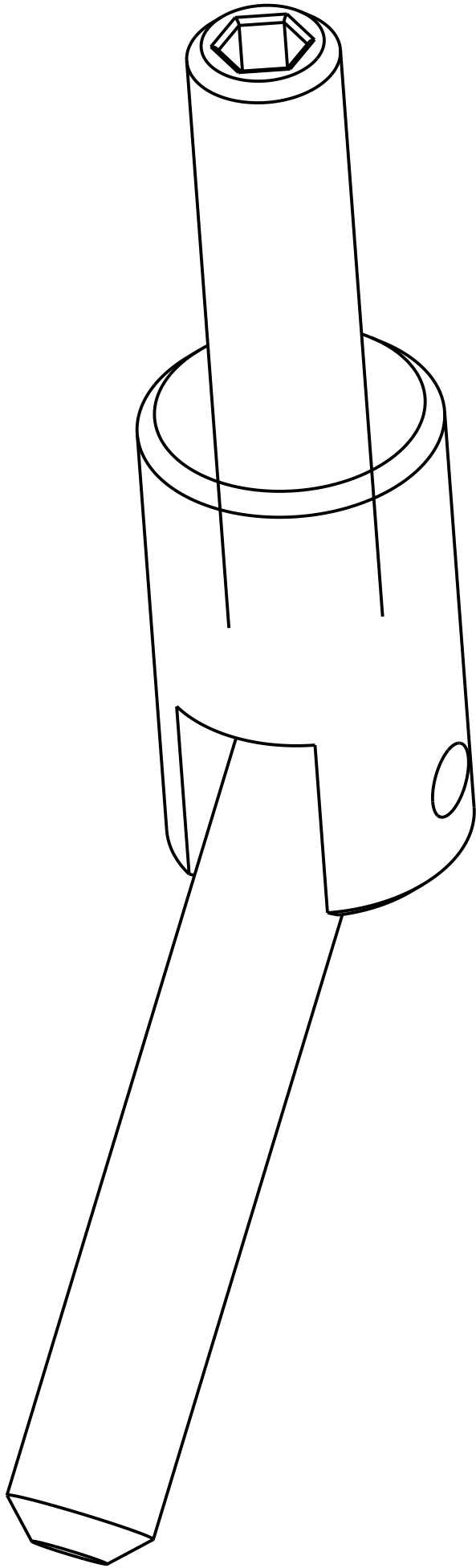
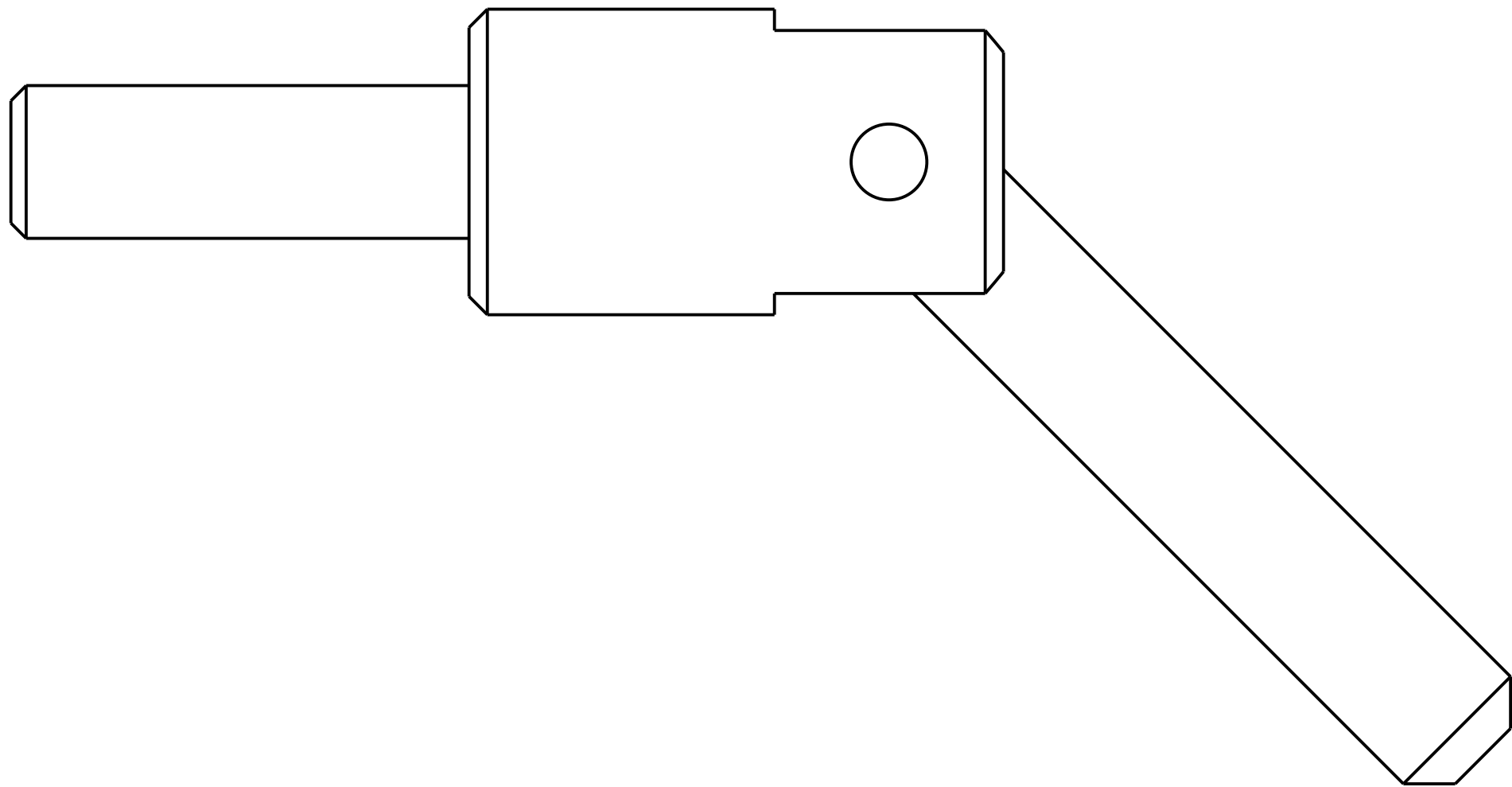
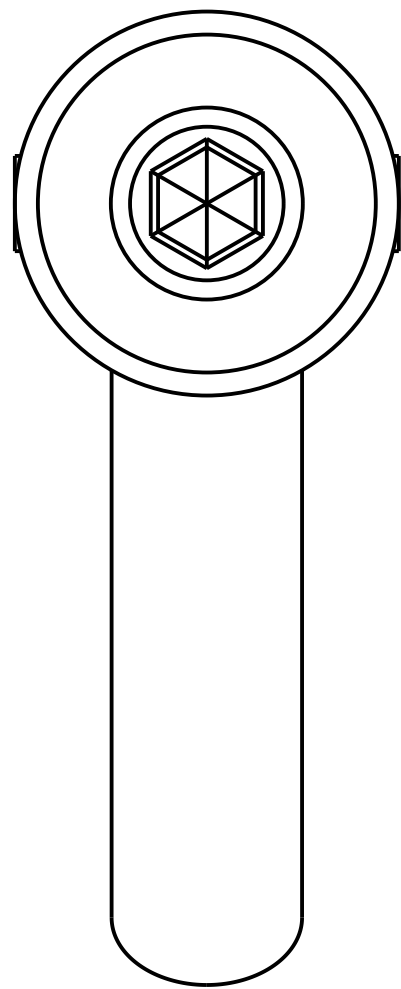
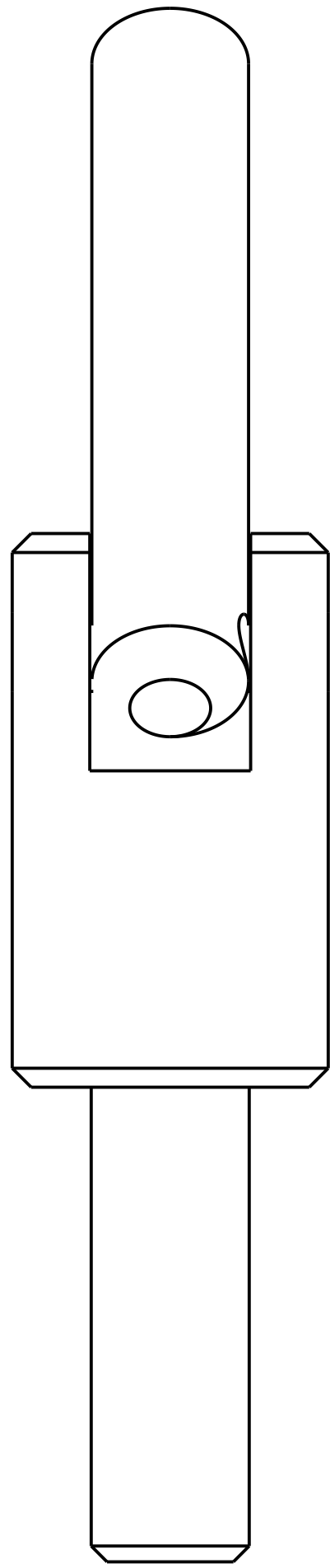
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE .X ± .1 .XX ± .01 .XXX ± .005 ANGLES ± 30' SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030	 QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (216) 975-0006	SCALE: 1/1
		DATE: 06/09/2008
		DRW BY: SEM
		CHK BY:
		APPR BY:
SHAFT ASSEMBLY 7.0"		
MAT'L		B22141-001

ITEM	QTY	PART NO.	DESCRIPTION
1	1	871352-000	DOWELL,PIN 1/8" x 1/2" SS.
2	1	A26128-000	CLEVIS
3	1	A26129-000	HANDLE
4	1	SYE601	1/4-20 X 1-1/4 LG. SET SCREW

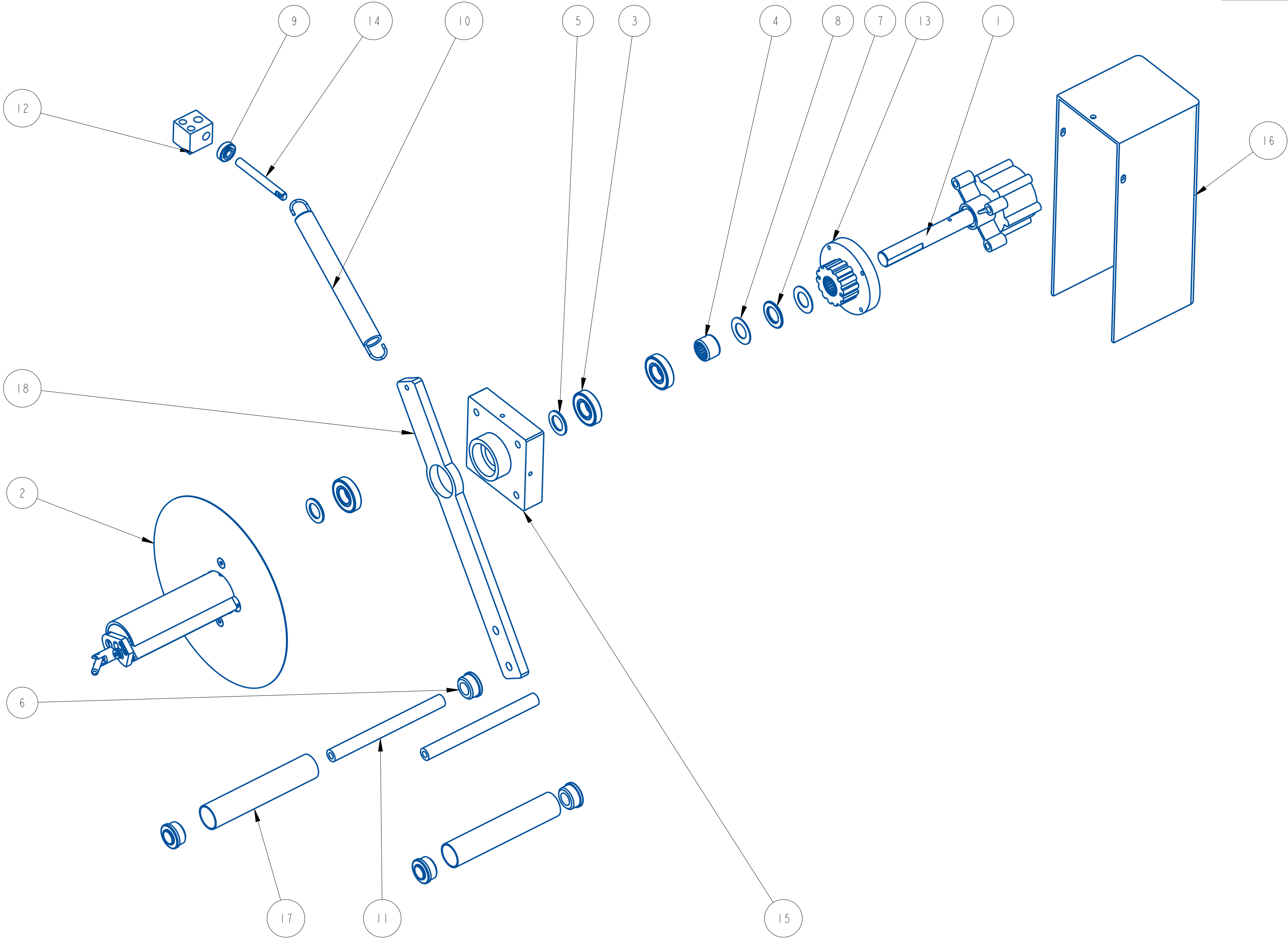



A		12-11-14		NEW DRAWING	
REV	DATE	DESCRIPTION		BY	
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X± .1 XX± .01 XXX± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE	4/1
				DATE	12-11-14
				DRAWN BY	ATT
				COLLAPSIBLE REWIND LOCKING HANDLE	
MAT'L		22597-000		22597-000	

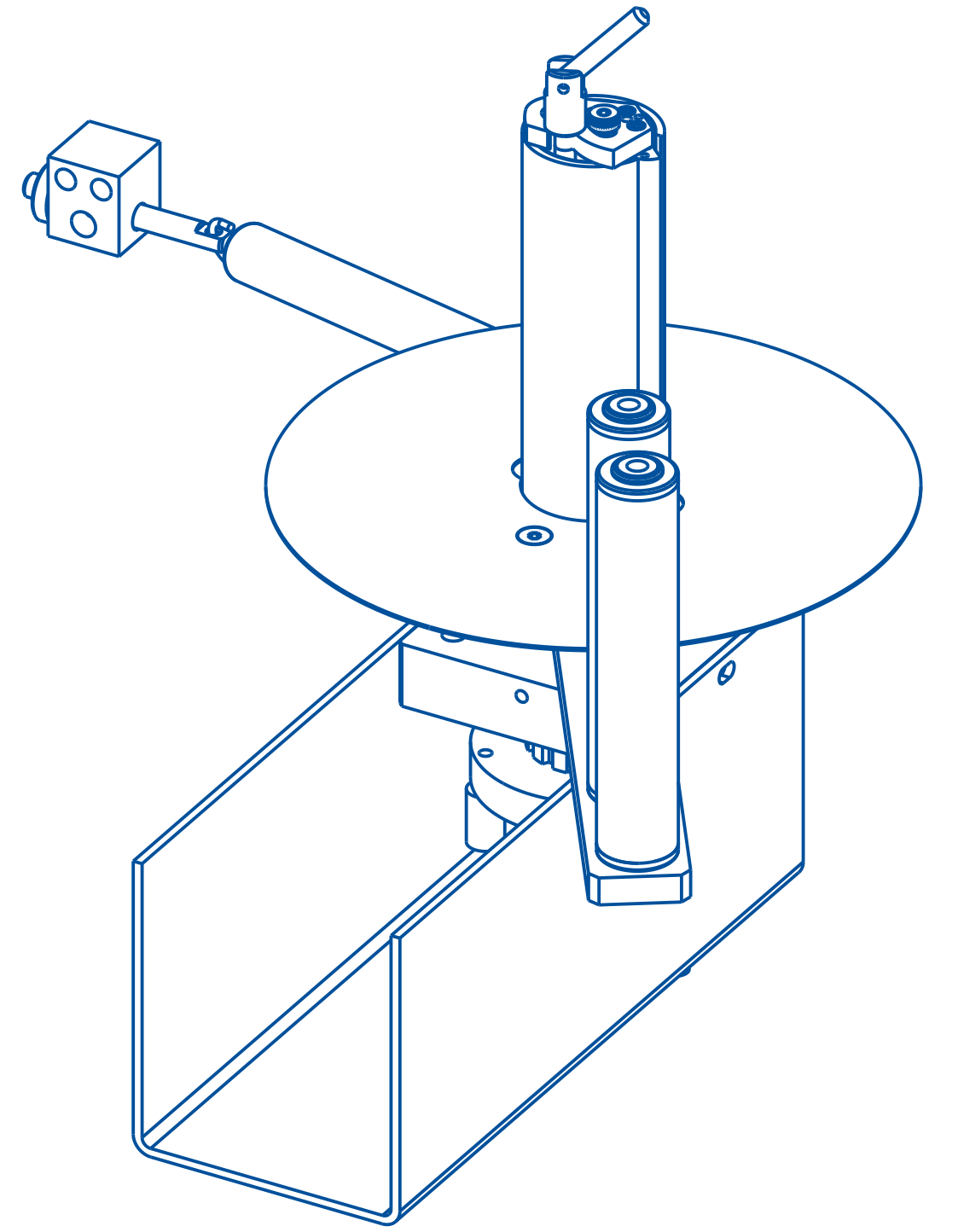
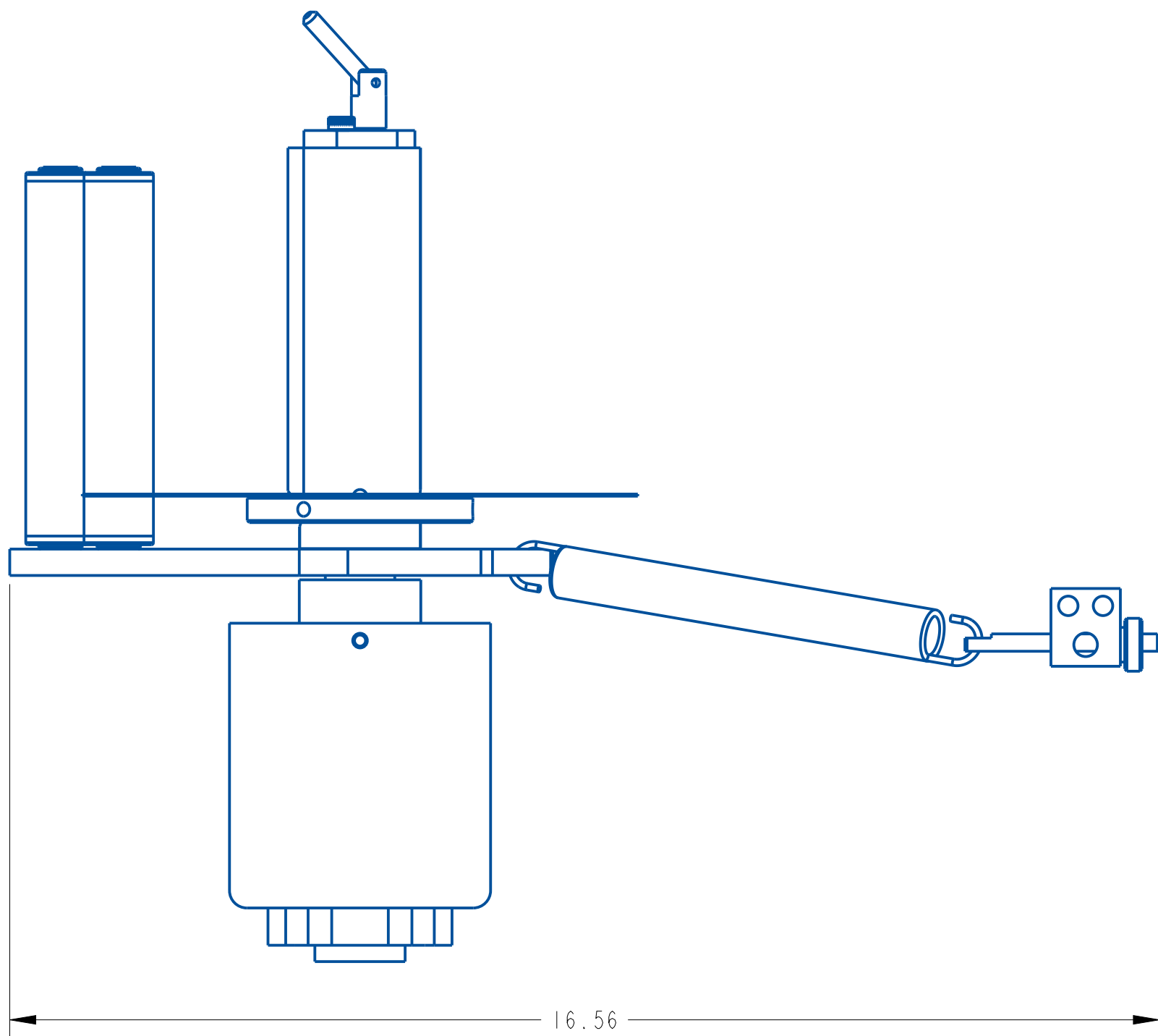
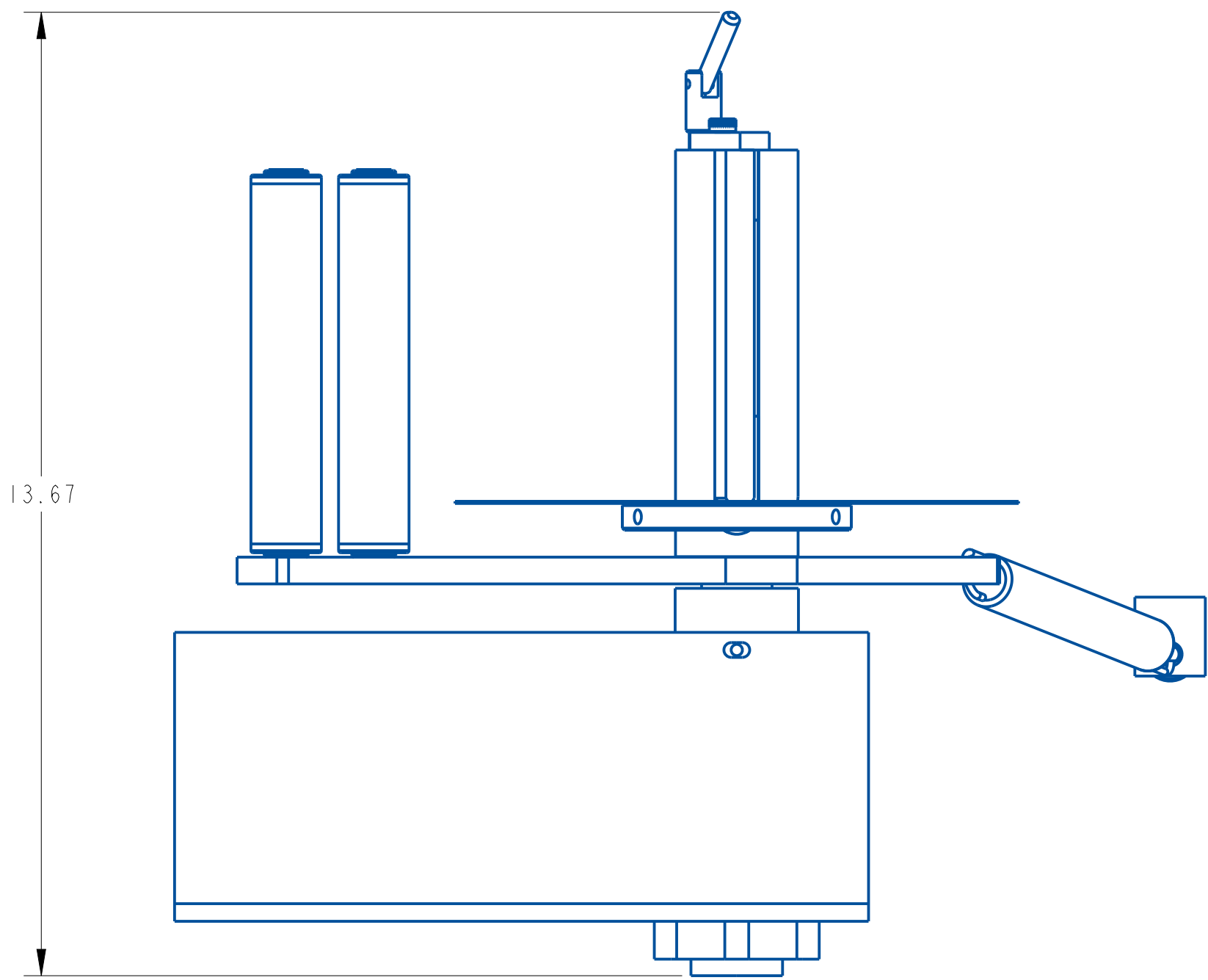
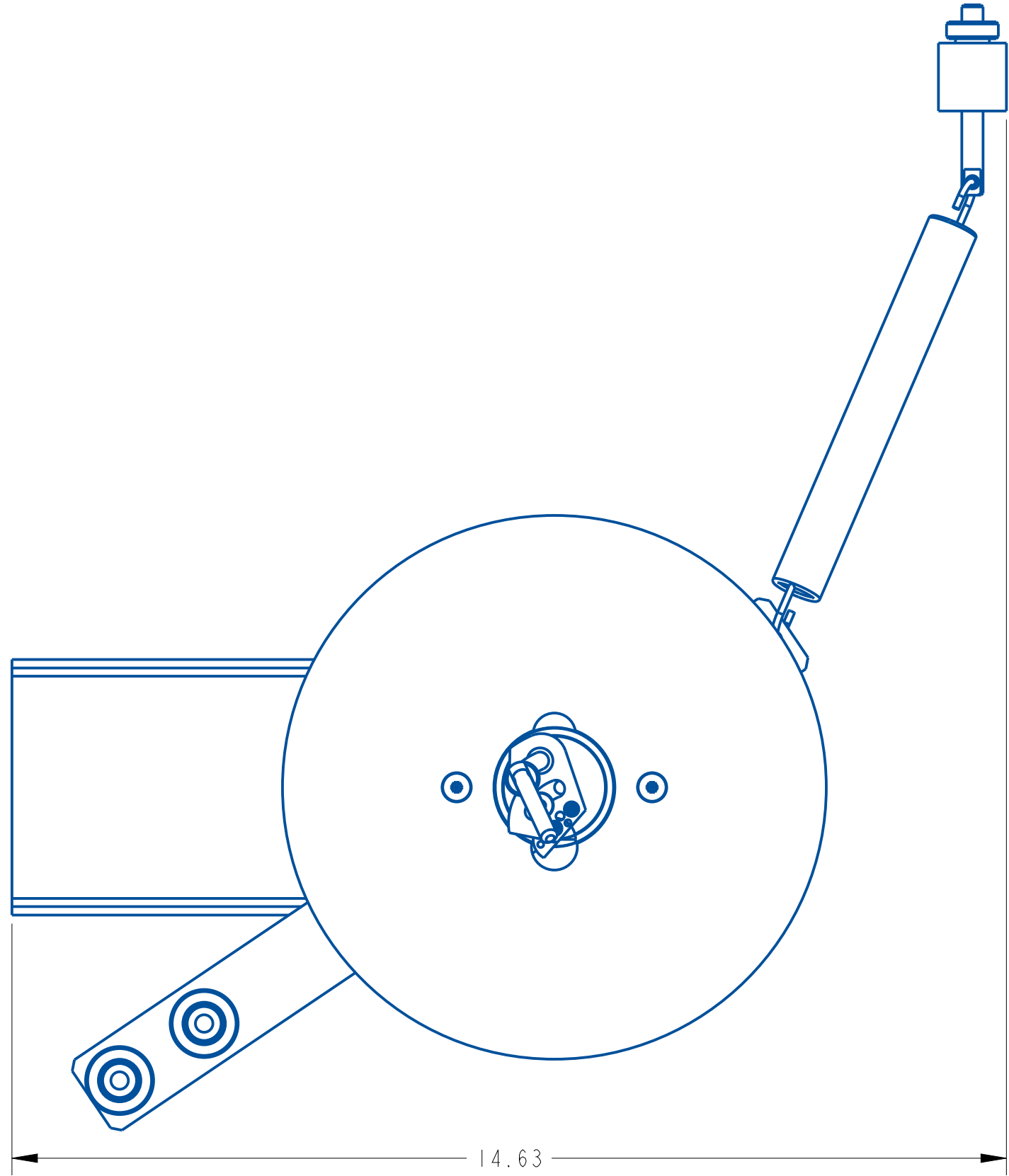



A	12-11-14	NEW DRAWING		
REV	DATE	DESCRIPTION		BY
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X± .1 XX± .01 XXX± .005 ANGLES ± .30°	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE	4/1
			DATE	12-11-14
			DRAWN BY	ATT
COLLAPSIBLE REWIND LOCKING HANDLE				
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		MAT'L	22597-000	22597-000

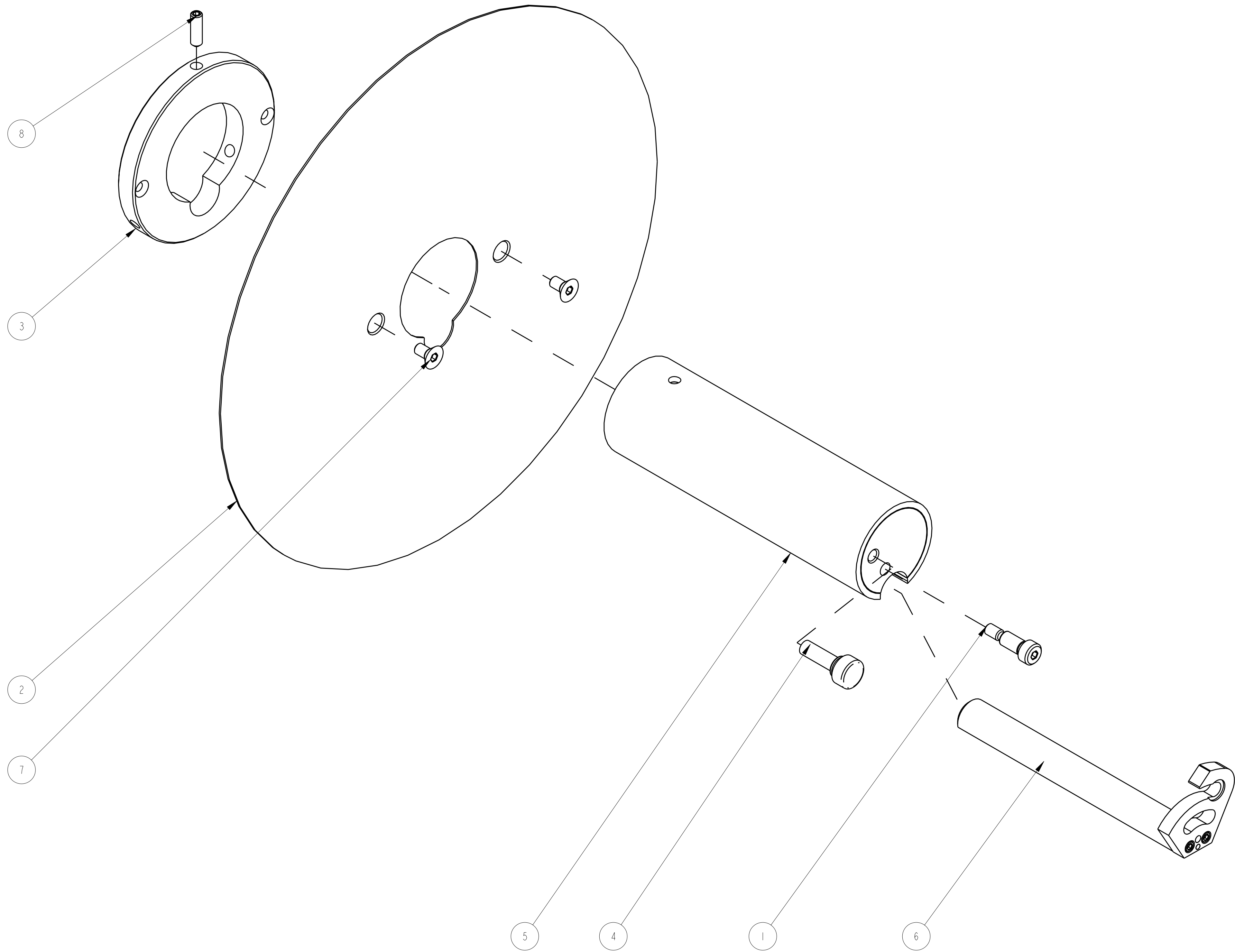
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	20499-001	DASHPOT & SHAFT ASSEMBLY	23100R-004LH
2	1	22187-000	COLLAPSIBLE REWIND ASSEMBLY, 4-1/2"	23100R-004LH
3	3	111075-000	BEARING, BALL	23100R-004LH
4	1	121067-000	BEARING, NEEDLE	23100R-004LH
5	2	151008-000	BEARING, THRUST WASHER	23100R-004LH
6	4	181063-000	BEARING, ROLL END	23100R-004LH
7	1	181081-000	BEARING, NEEDLE ROLLER	23100R-004LH
8	2	181082-000	BEARING, THRUST WASHER	23100R-004LH
9	1	801601-000	CHECK NUT	23100R-004LH
10	1	811216-000	EXTENSION SPRING, STAINLESS	23100R-004LH
11	2	A20928-004	ROLLER SHAFT	23100R-004LH
12	1	A21479-000	SPRING ADJUSTMENT BLOCK	23100R-004LH
13	1	A22120-000	REWIND PULLEY ASSEMBLY	23100R-004LH
14	1	A23131-000	STUD	23100R-004LH
15	1	B20004-007	REWIND BEARING PLATE	23100R-004LH
16	1	B20005-120	GUARD	23100R-004LH
17	2	B20071-001	IDLER ROLLER (DANCER)	23100R-004LH
18	1	C20894-004	REWIND DANCER ARM	23100R-004LH



A	Sep-08-25	NEW DRAWING		RDL
REV	DATE	DESCRIPTION		BY
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY				
<div>UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .01 XX ± .01 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADII .010/.030</div>				SCALE: 3/8
		7670 JENTHER DRIVE		DATE: Sep-08-25
		MENTOR, OHIO 44060		DRW BY: RDL
		(440) 602-4700		CHK BY: APPR BY:
4 1/2" REWIND ASSEMBLY LHH				
MAT'L		23100R-004LH	23100R-004LH	



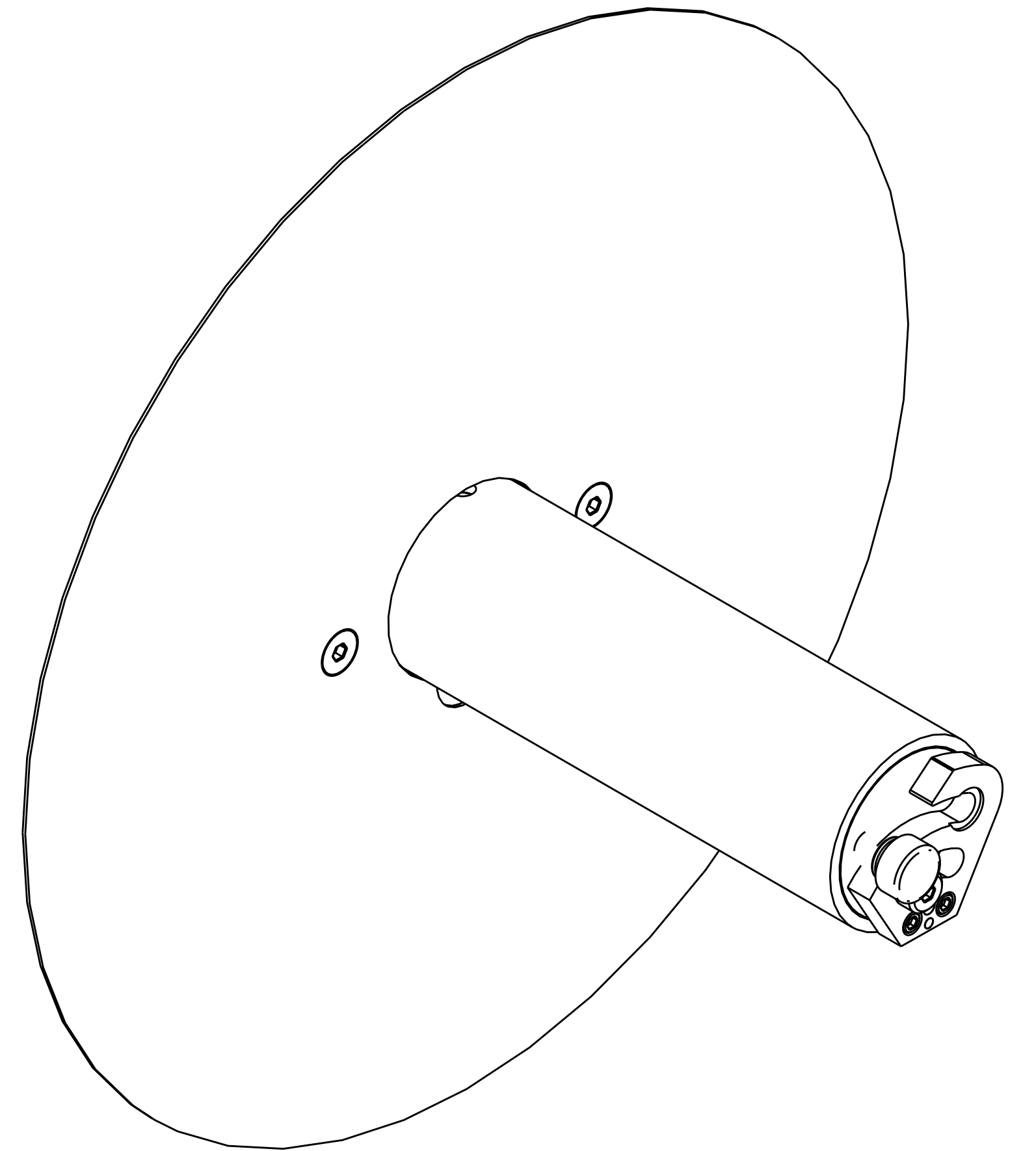
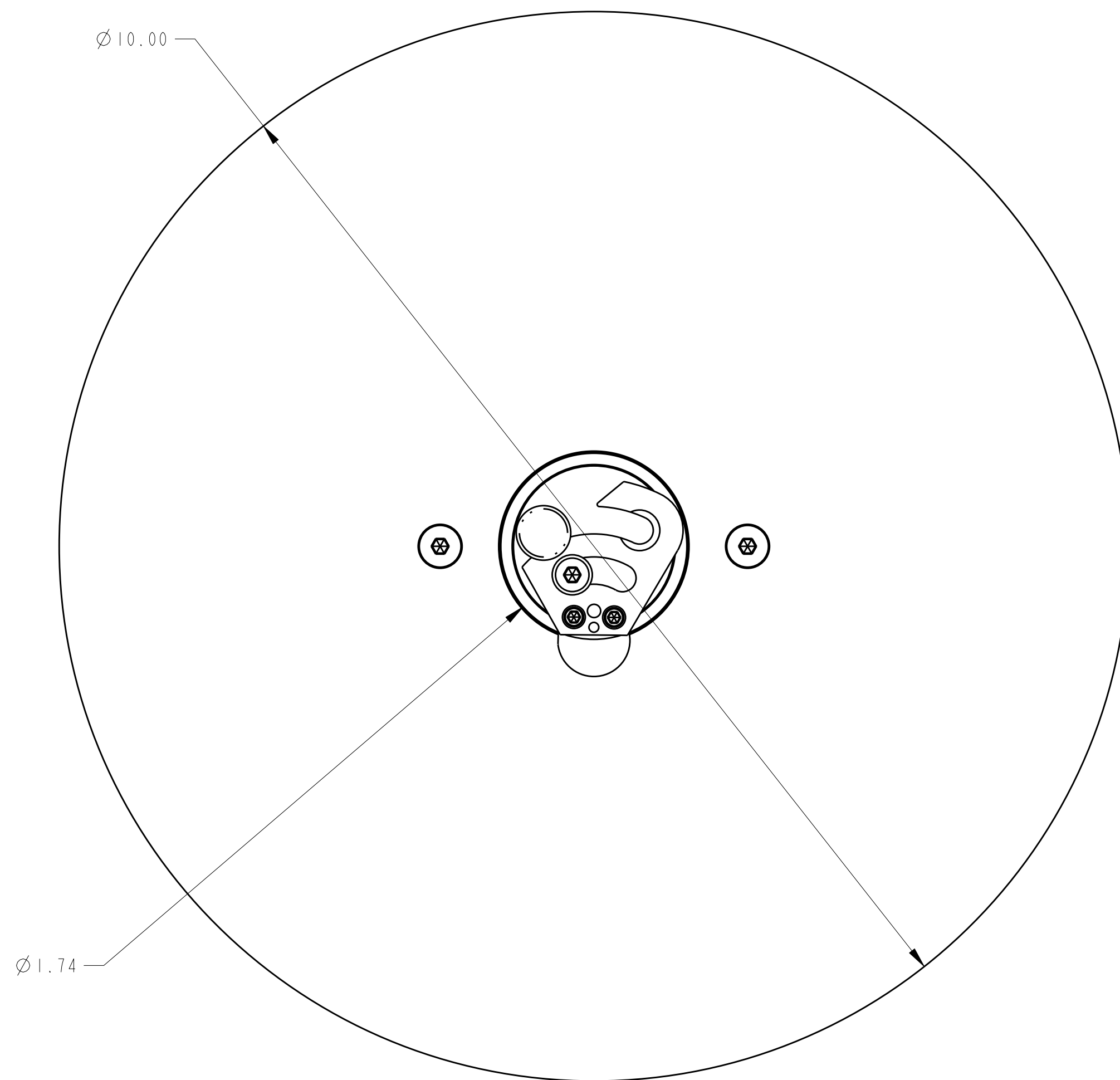
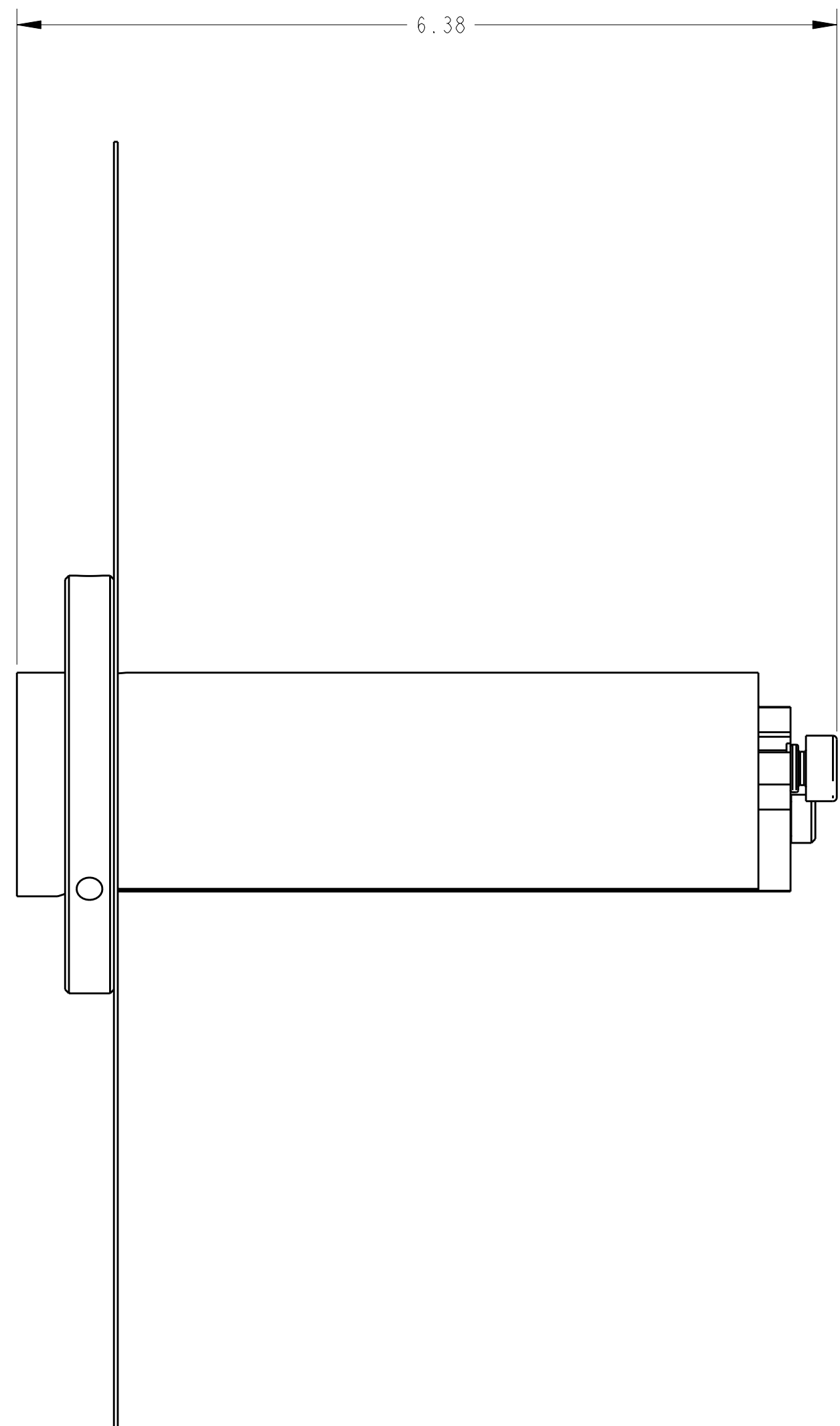
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
 UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE XX ± .01 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030 ALL ANGLES ARE 90°		A	Sep-08-25	NEW DRAWING	RDL
		REV	DATE	DESCRIPTION	BY
QUADREL LABELING SYSTEMS					
7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700				SCALE: 1/2	DATE: Sep-08-25
4 1/2" REWIND ASSEMBLY LHH				DRW BY:	RDL
				CHK BY:	
MAT'L				APPR BY:	
				23100R-004LH	
				23100R-004LH	



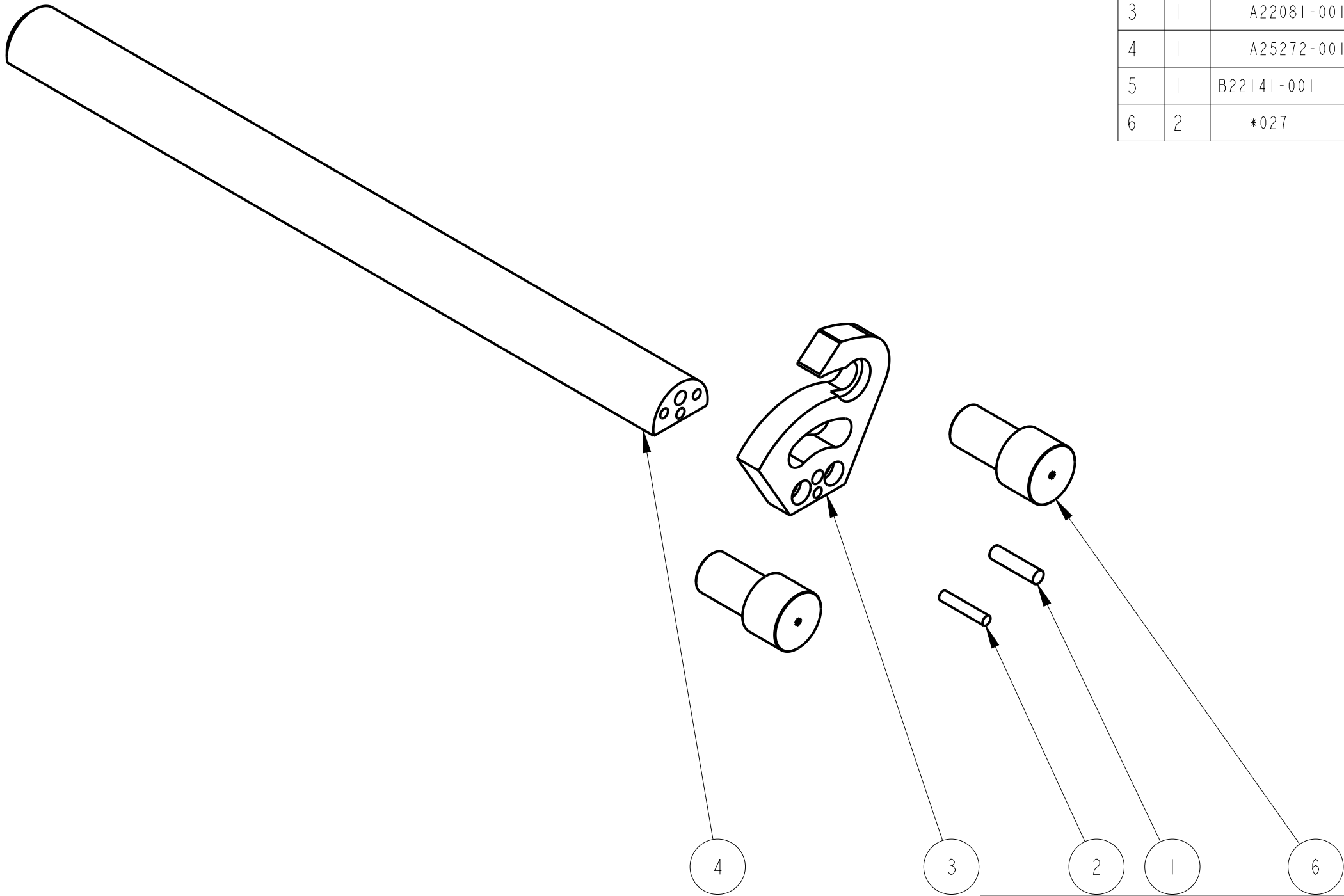
ITEM	QTY	PART NO.	DESCRIPTION
1	1	841145-000	1/4 X 1/2 LG. SHOULDER BOLT
2	1	A22085-001	COLLAPSIBLE REWIND REEL
3	1	A22090-001	COLLAPSIBLE REWIND REEL HUB
4	1	A25263-000	KNOBE, THUMB SCREW
5	1	B22103-000	HUB ASSEMBLY
6	1	B22141-000	SHAFT ASSEMBLY
7	2	SHFS	10-32 X 3/8 LG. FLAT HEAD
8	1	SHSS	10-32 X 5/8 LG. SET SCREW

A	06/09/2008	NEW DRAWING
REV	DATE	DESCRIPTION

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY		
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE XX ± .01 XXX ± .005 ANGLES ± .50° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
	SCALE:	1/1
	DATE:	06/09/2008
	DRW BY:	SEM
	CHK BY:	
COLLAPSIBLE REWIND ASSEMBLY, 4-1/2"		
MAT'L	BOM 22187-000	D22391-000




THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY		
A	06/09/2008	NEW DRAWING
REV	DATE	DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/1
XX ± .1		DATE: 06/09/2008
XXX ± .005		DRW BY: SEM
ANGLES ± 30°		CHK BY:
SURFACE FINISH 125		APPR BY:
BREAK ALL EDGES .005/.015		
CORNER RADIUS .010/.030		
QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		
COLLAPSIBLE REWIND ASSEMBLY, 4-1/2"		
MAT'L	BOM 22187-000	D22391-000



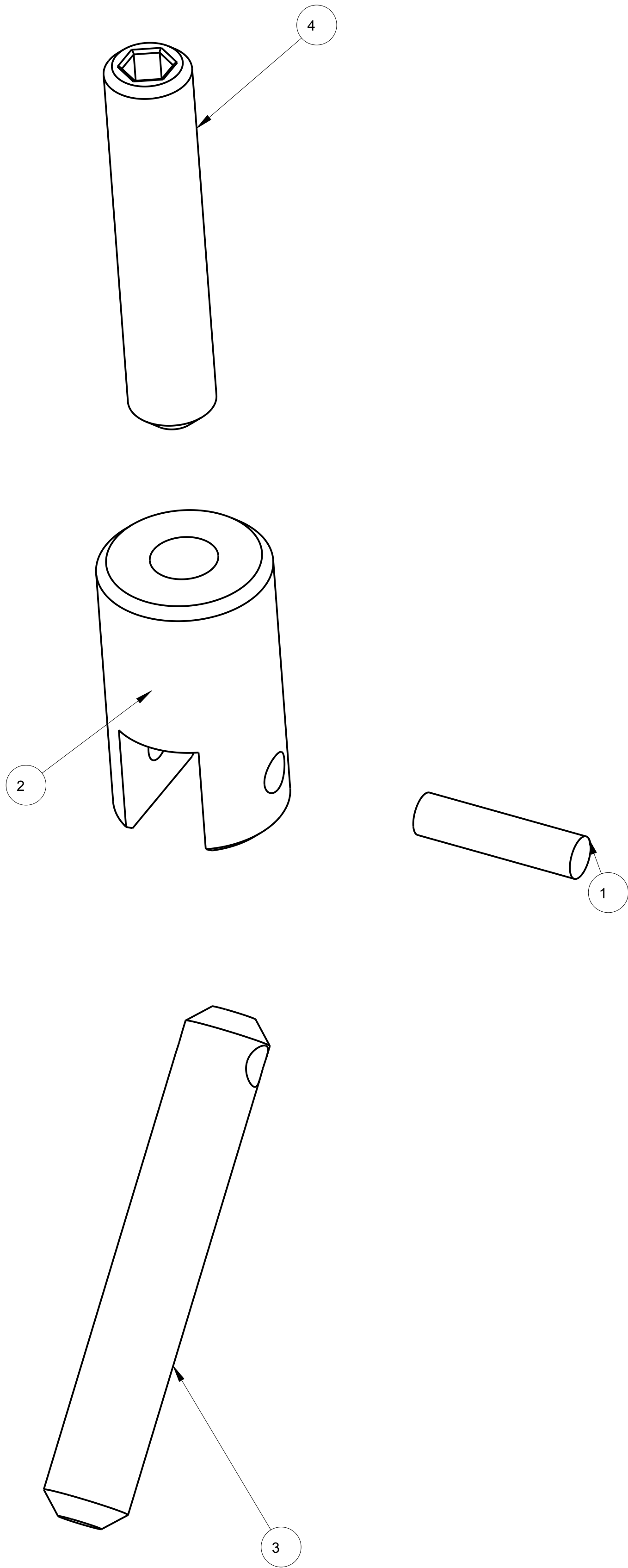
ITEM	QTY	PART NO.	DESCRIPTION
1	1	871352-000	DOWELL,PIN 1/8" x 1/2" SS.
<div>△B</div> 2	1	871371-000	DOWELL,PIN 3/32" x 1/2" SS.
3	1	A22081-001	COLLAPSIBLE REWIND CAM
4	1	A25272-001	COLLAPSIBLE REWIND SHAFT
5	1	B22141-001	SHAFT ASSEMBLY
6	2	*027	4-40 X 1/2 LG. SHCS

B	Sep-27-22	WAS 871352-000
A	06/09/2008	NEW DRAWING
REV	DATE	DESCRIPTION

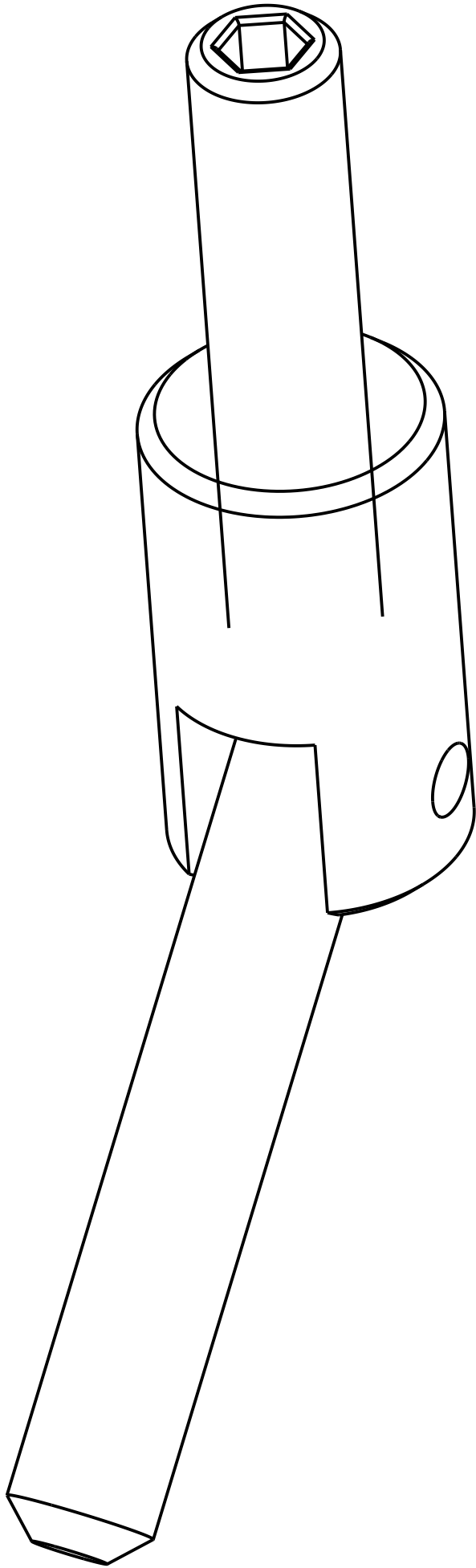
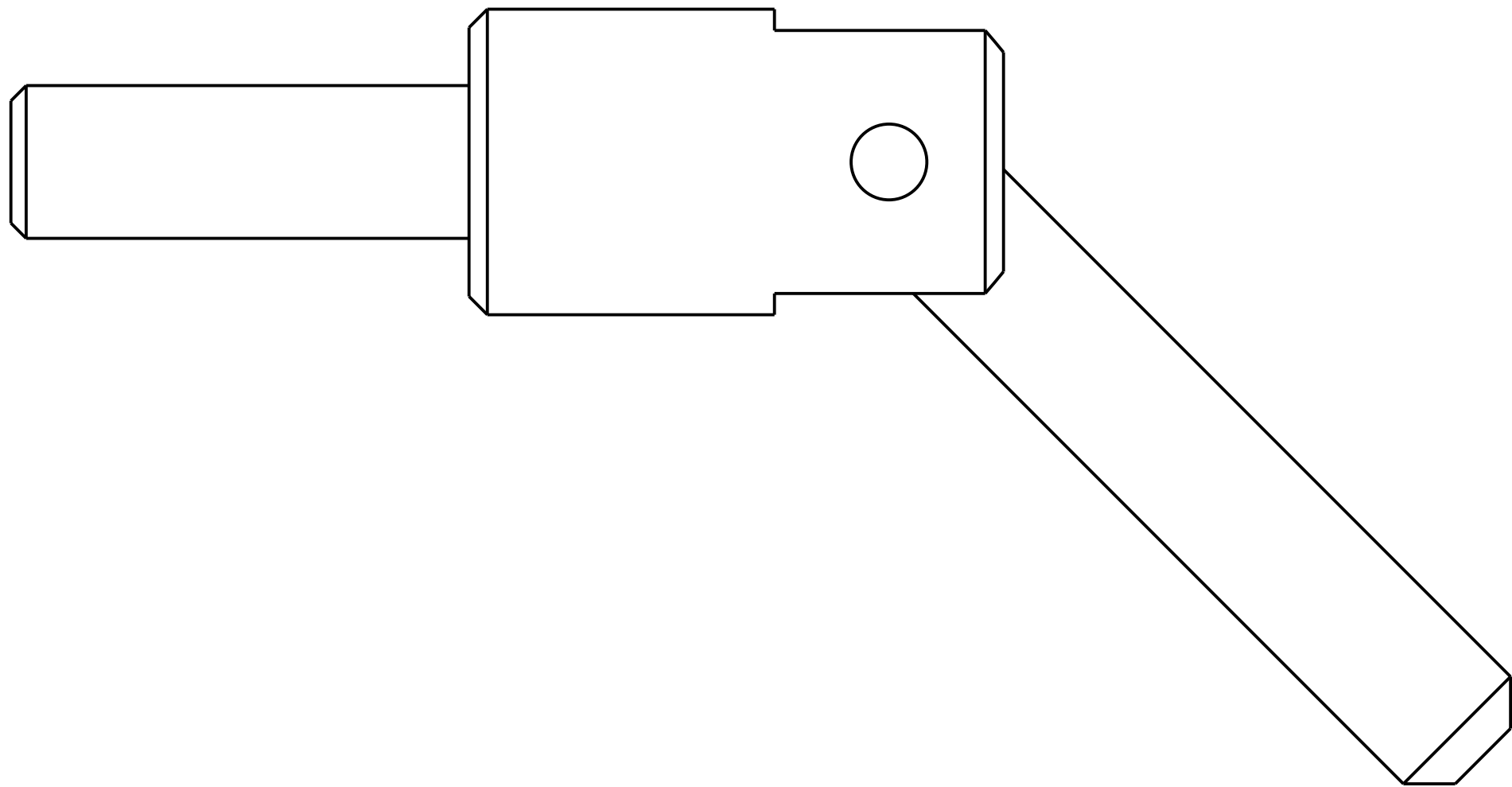
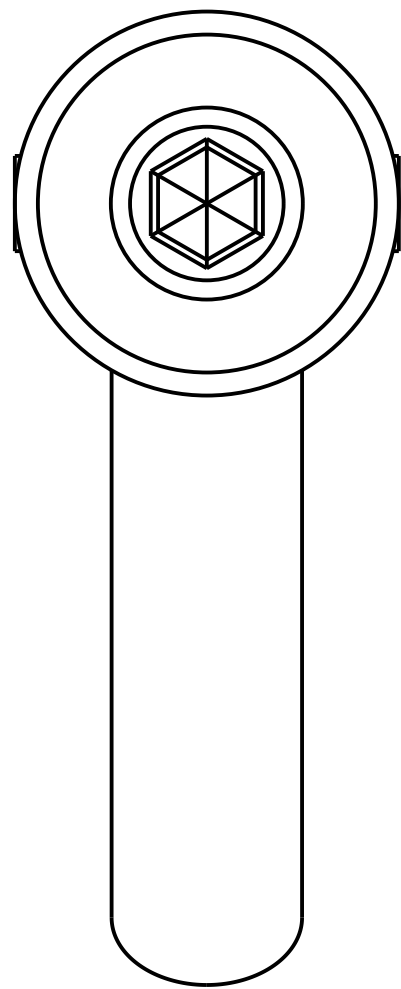
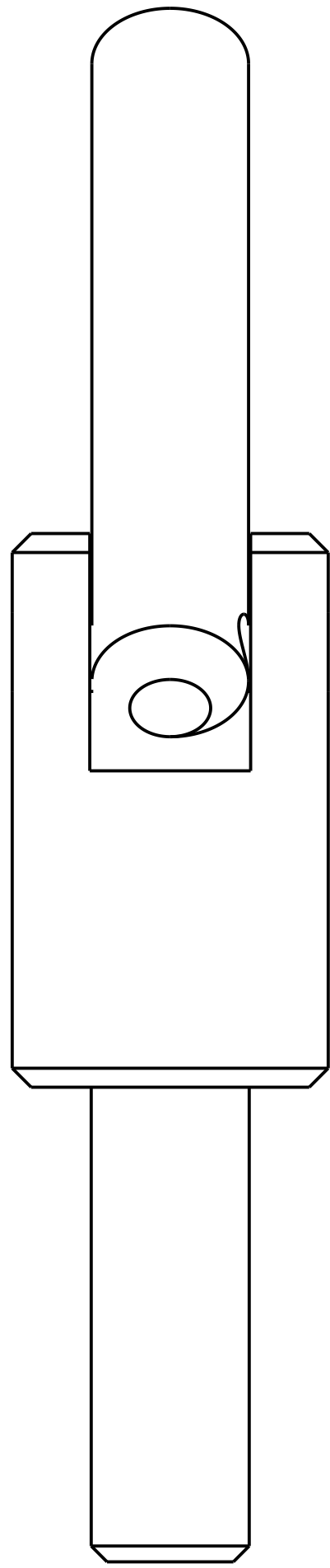
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE .X ± .1 .XX ± .01 .XXX ± .005 ANGLES ± 30' SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030	 QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (216) 975-0006	SCALE: 1/1
		DATE: 06/09/2008
		DRW BY: SEM
		CHK BY:
		APPR BY:
SHAFT ASSEMBLY 7.0"		
MATERIAL		B22141-001

ITEM	QTY	PART NO.	DESCRIPTION
1	1	871352-000	DOWELL,PIN 1/8" x 1/2" SS.
2	1	A26128-000	CLEVIS
3	1	A26129-000	HANDLE
4	1	SYE601	1/4-20 X 1-1/4 LG. SET SCREW



A		12-11-14		NEW DRAWING	
REV	DATE	DESCRIPTION		BY	
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X± .1 XX± .01 XXX± .005 ANGLES ± .30°	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700			SCALE	4/1
				DATE	12-11-14
				DRAWN BY	ATT
COLLAPSIBLE REWIND LOCKING HANDLE					
MAT'L		22597-000		22597-000	
SURFACE FINISH 125 BREAK ALL EDGES .005/015 CORNER RADIUS .010/030					



A	12-11-14	NEW DRAWING		
REV	DATE	DESCRIPTION		BY
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X± .1 XX± .01 XXX± .005 ANGLES ± .30°	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE	4/1
			DATE	12-11-14
			DRAWN BY	ATT
COLLAPSIBLE REWIND LOCKING HANDLE				
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		MAT'L	22597-000	22597-000

ASSEMBLY TITLE: Q60 KINETROL REWIND

GENERAL FUNCTION:

- The rewind drum rolls up the liner
- The collapsible rewind shaft when closed allows the liner to be removed easily. The normal running position for the shaft is in the open position
- The rewind flange supports and guides the liner
- The Kinetrol clutch allows for slippage to accommodate for varying speeds between the drive roll and rewind drum
- The adjusting knob controls the torque adjustment of the drum and is set at the factory.

SET UP AND ADJUSTMENTS:

- Position the rewind flange slightly below the web path and lock with the set screw in the hub
- When threading liner to the rewind, place the liner between the drum and pin
- Tighten adjusting knob just enough to allow the rewind drum to keep up with the drive roll.
- Loosen set screw before adjustment and re-tighten after adjustment

NOTE: Excessive tightening will cause the web to be wound very tight, causing difficulty in removal and possible step motor stall.

MAINTENANCE:

- Clean all parts that have acquired label or glue residue

TROUBLESHOOTING:

PROBLEM

- Rewind drum not rotating when stepping motor rotates
- Rewind drum not keeping up with drive roll
- Web winding too tight on hub
- Grinding in rewind hub

WHAT TO DO

- Replace timing belt from motor to rewind
- Adjust clutch dial (1 being loosest & 10 being tightest)
- Loosen adjusting knob
- Replace Kinetrol

Set screw location



ASSEMBLY TITLE: SLOT SENSOR ASSEMBLY

GENERAL FUNCTION:

- The slot sensor detects the separation between labels. This signals the electronics to stop the drive motor.
- The two (2) liner support rods prevent the liner from wearing out the slot sensor.
- The knob and thumbscrew lock the sensor firmly on the mounting rods.
- The male connector provides quick connection to the labeling head.

SET UP AND ADJUSTMENTS:

- See attached cut sheet

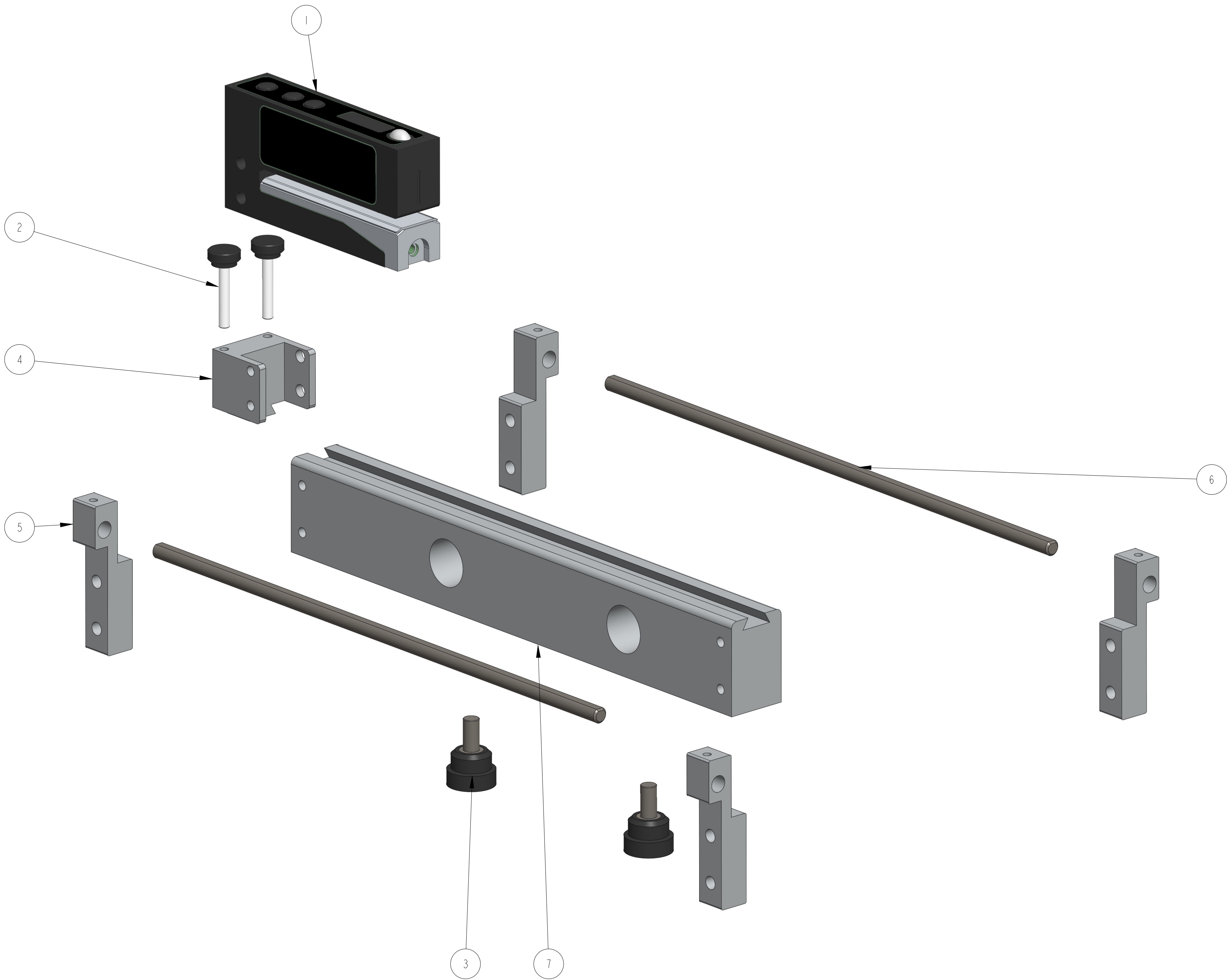
MAINTENANCE:

- Keep the sensor optical area clean from label and glue residue

TROUBLESHOOTING:

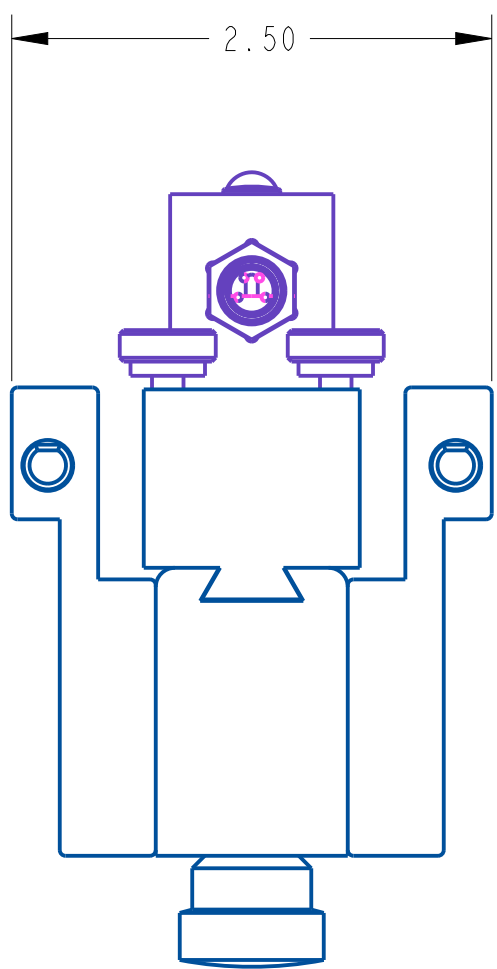
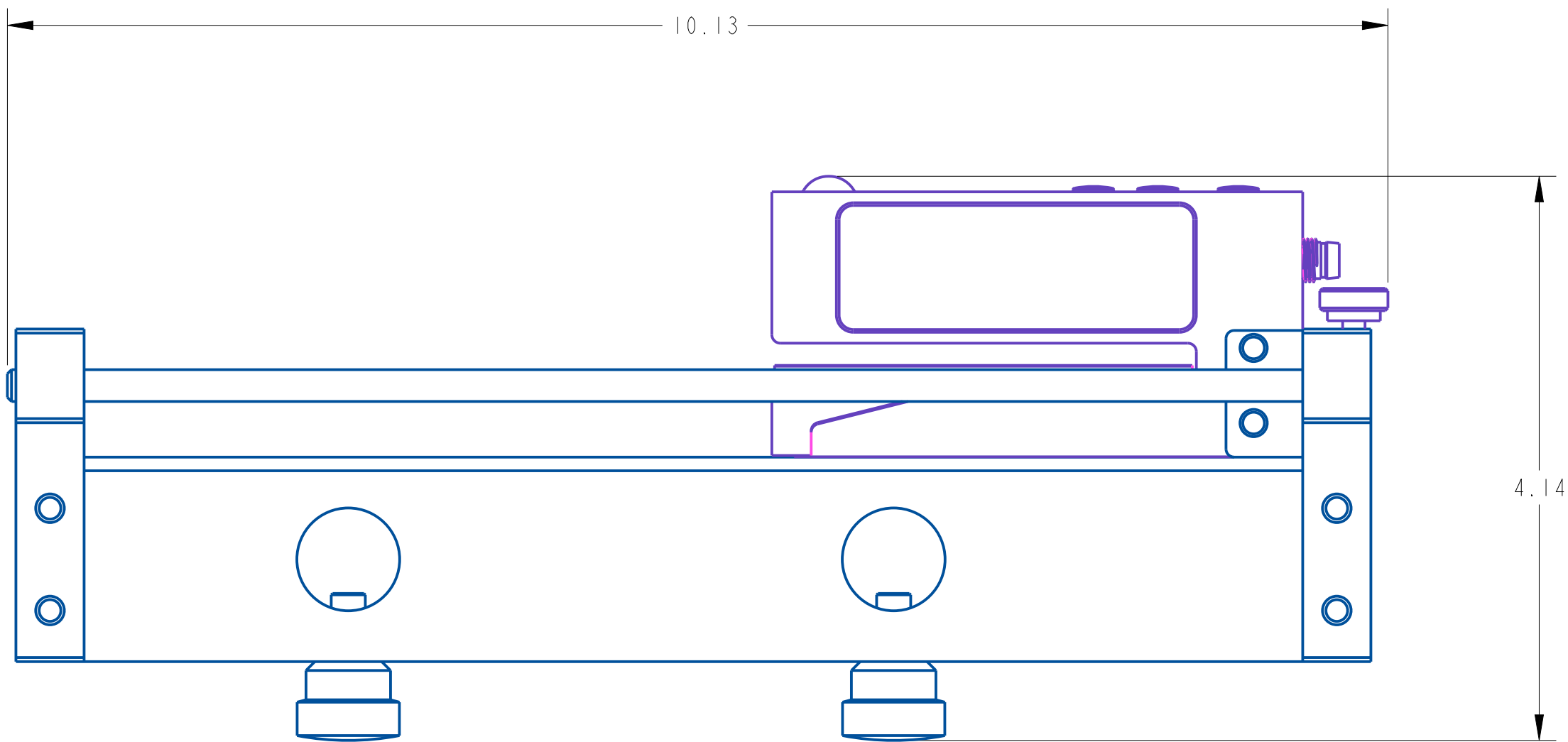
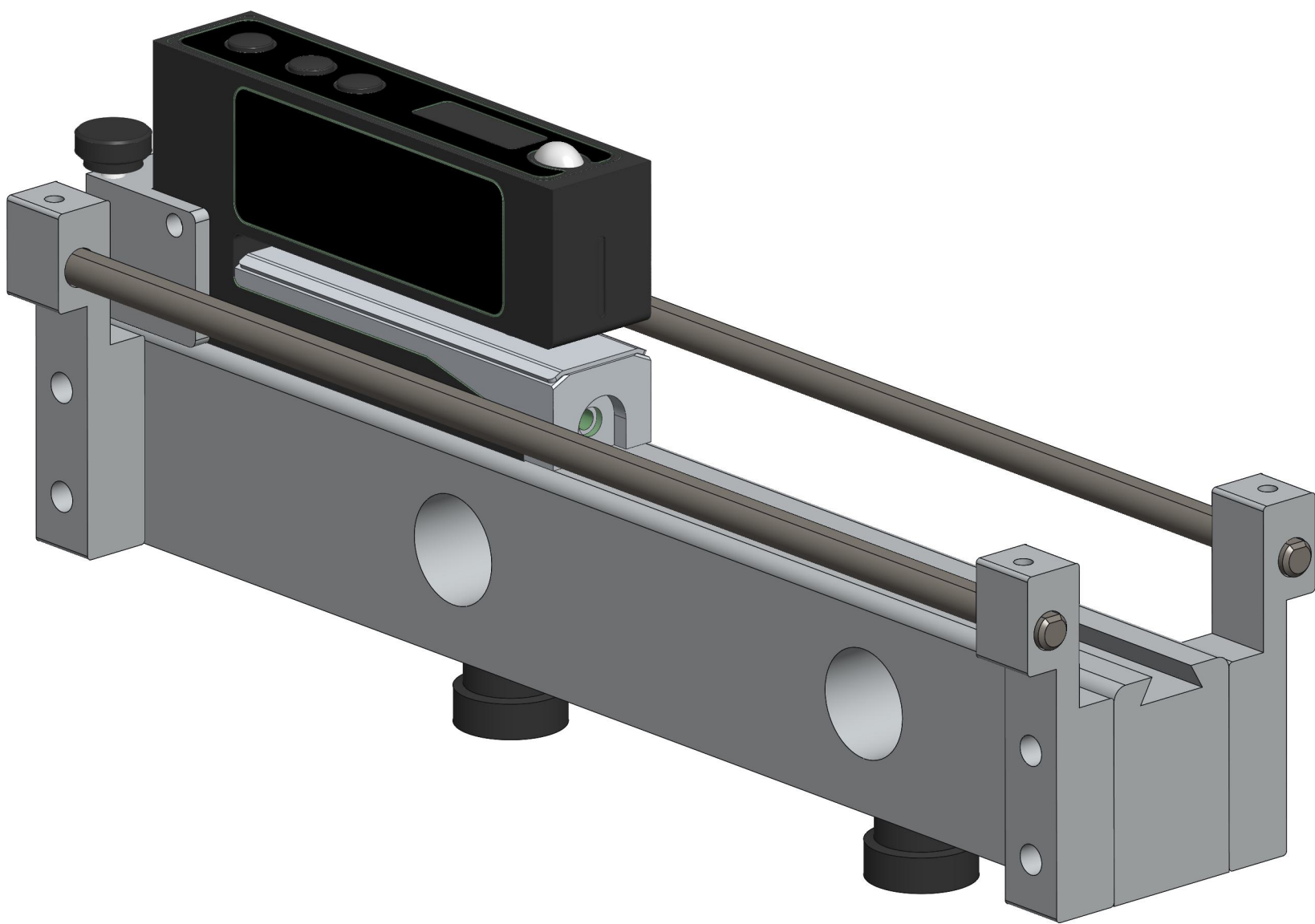
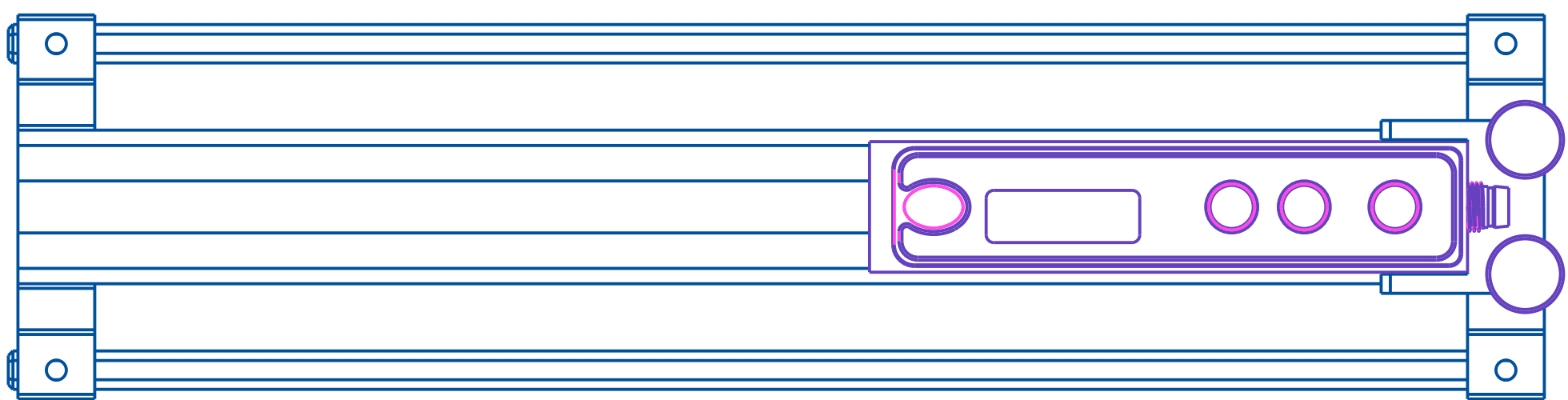
<u>PROBLEM</u>	<u>WHAT TO DO</u>
- No power to the sensor	- Check male connector and tightly secure connection to the head.
- Liner dragging over the slot	- Loosen knob and rotate slot sensor slot sensor surface liner rests on both support rods
- Too much slack through slot sensor	- Adjust brake brush tension
- Slot sensor moving with web	- Tighten all three (3) adjusting knobs

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	201444-301	SENSOR	20033-301
2	2	801297-000	THUMB SCREW PLSTC HEAD 8-32x1	20033-301
3	2	801299-000	KNOB WITH STUD	20033-301
4	1	A21391-300	SLOT SENSOR ADAPTER	20033-301
5	4	A21749-300	SLOT SENSOR SUPPORT ROD MTG BLOCK	20033-301
6	2	A21770-300	SUPPORT ROD WITH FLAT	20033-301
7	1	B20852-300	7 IN. WEB SLOT SENSOR MTG. BAR	20033-301
8	1	203035-000	CABLE, M8, 4COND	NOT SHOWN



A	JAN-05-21	NEW DRAWING	TJS
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .01 XX ± .005 XXX ± .005 ANGLES ± .30°		SCALE: 1/1 DATE: JAN-05-21 DRW BY: TJS CHK BY: 03/19/2024-SEM APPR BY:	
SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.50		LABEL DETECT ASSEMBLY	
MAT'L		20033-301	



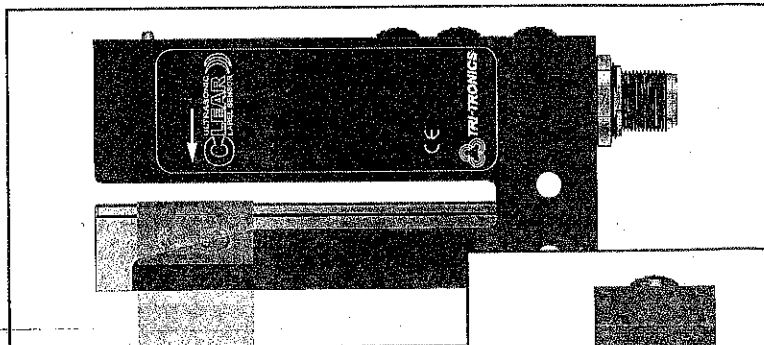
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY		QUADREL LABELING SYSTEMS	
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
X ± .1 XX ± .01 XXX ± .005 ANGLES ± .50°		SCALE: 1/1 DATE: JAN-05-21 DRW BY: TJS CHK BY: 03/19/2024-SEM APPR BY:	
SURFACE FINISH: 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°		LABEL DETECT ASSEMBLY	
MAT'L		20033-301	

Installation Manual



CLSC-1M8LEX185

1. Position Label



Align Label to Arrow (above)

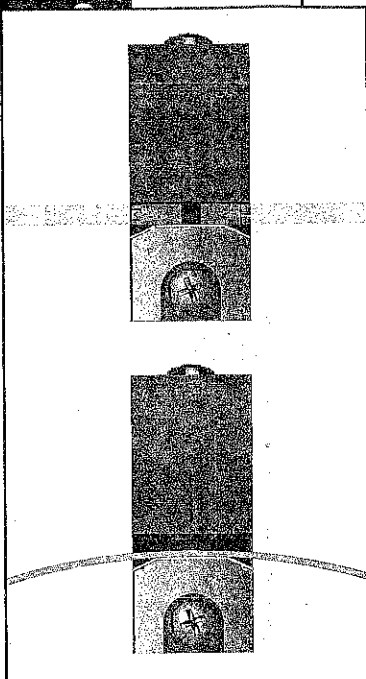
Place the label web so that it is centered on the arrow. The arrow is where the transducers are aligned.

Align Gap to Line (right top)

Place label gap in center of the sensor using the alignment line as shown on right. When viewing from the top of the sensor, use the output LED to center label gap.

Gentle Tension (right bottom)

Place label webbing so that it slides along the bottom of the sensor gap plate. This will ensure a more consistent setup and performance.



2. Setup Instructions

Once the Gap is in view, press and hold the AUTOSET/GAP button for two seconds. This will result in a stable setup most every time. If you have any false triggers, put the Label in view, push and hold the AUTOSET/LABEL button for two seconds. This two-point setup will create a new threshold setting resulting in a more consistent signal span between web and label.

Note: Manual adjust by tapping arrows.

MULTI-FUNCTION OUTPUT INDICATOR

1. Illuminates when outputs are ON.
Note: Flashes when short circuit is detected.
2. Rapid flash indicates AUTOSET start (wait two seconds to complete).
3. Single flash during manual adjust.

AUTOSET/GAP Δ BUTTON

1. Push and Hold with gap in view for two seconds for AUTOSET.
2. Tap for UP to lower threshold.

AUTOSET/LABEL ∇ BUTTON

1. Push and Hold with label in view after GAP AUTOSET on rare occasions when labels have multiple layers.
2. Tap DOWN to increase threshold.

LT/DK Toggle

Light / Dark output toggle (inverts output).



P.O. BOX 25135, TAMPA, FL 33622-5135
813-886-4000 / 800-237-0946
ttco.com / info@ttco.com

Specifications



SUPPLY VOLTAGE

- 12 to 30 VDC
- Polarity Protected
- Note: For use in Class 2 Circuits*

CURRENT REQUIREMENTS

- 95mA @ 12 VDC, 45mA @ 30 VDC

DIGITAL OUTPUTS

- (1) NPN and (1) PNP open collector output 150mA Max; <2V Residual Voltage
- All outputs are continuously short circuit protected

DIAGNOSTIC INDICATOR

- Illuminates when outputs are ON.
- Note: Flashes when short circuit is detected.*
- Rapid flash indicates AUTOSET start (wait two seconds to complete).
- Single flash during manual adjust.

PUSHBUTTON CONTROL

- Three (3) push button controls
- Gap (for Gap AUTOSET)
- Label (for multi-layered labels)
- LT/DK= Light / Dark toggle

HYSTERESIS

- Dynamic – adjusted by AUTOSET

RESPONSE TIME

- 200µs

REPEATABILITY

- 125µs

AMBIENT TEMPERATURE

- 4°C to 50°C (39°F to 122°F)

RUGGED CONSTRUCTION

- Chemical resistant, high impact Aluminum housing
- Waterproof ratings: IP65
- Conforms to heavy industry grade CE requirements

THRESHOLD SET

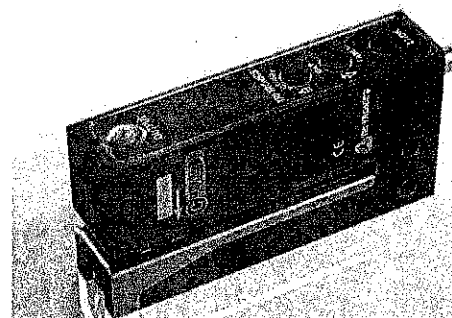
- 1-Point, 2-Point.

THRESHOLD ADJUST

- Manual Adjust

CONNECTOR

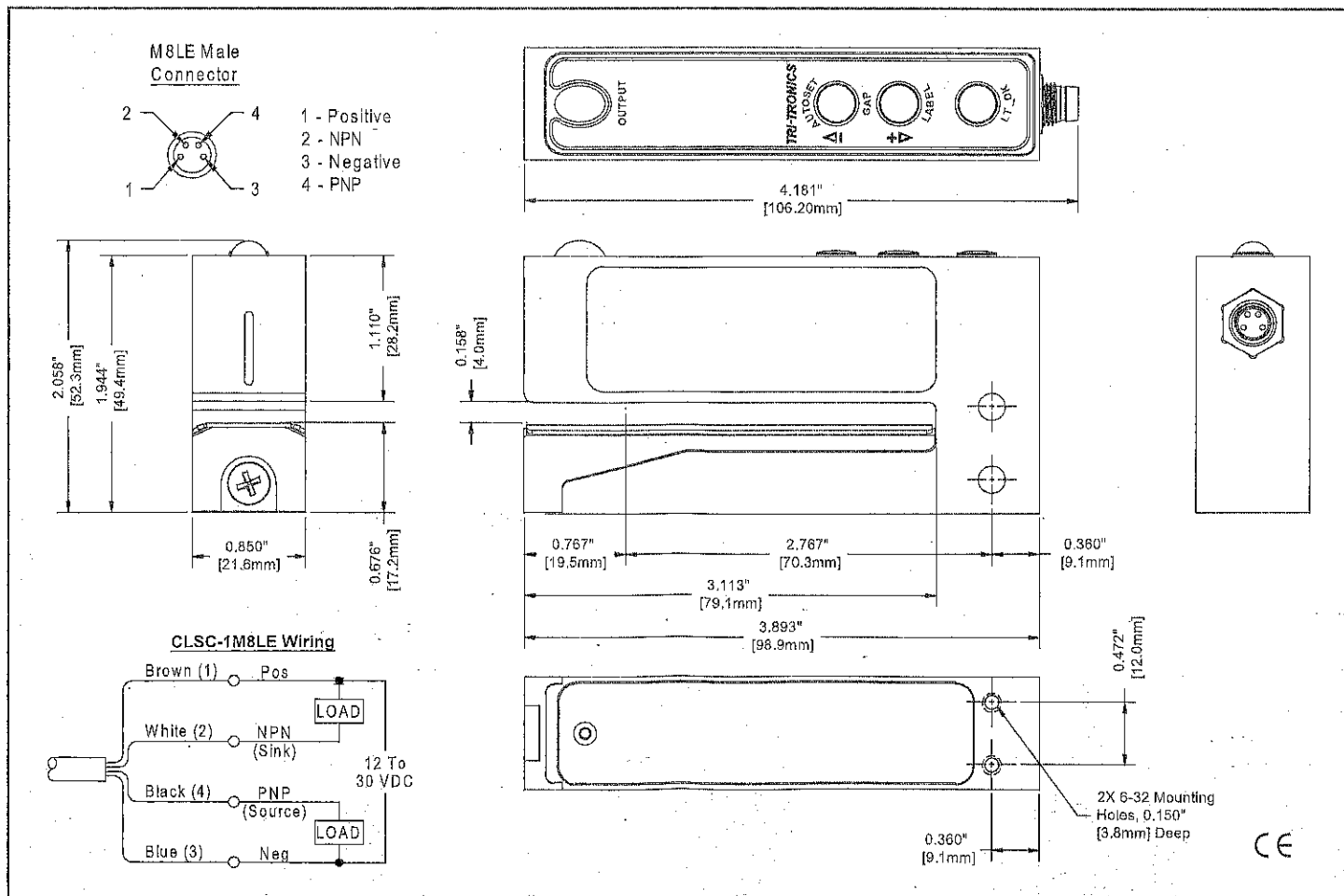
- M8 4-Pin



RoHS Compliant
Product subject to change without notice

Connections and Dimensions

Ultrasonic Clear Label Sensor X185



ASSEMBLY TITLE: SLOT SENSOR ASSEMBLY

GENERAL FUNCTION:

- The slot sensor detects the separation between labels. This signals the electronics to stop the drive motor.
- The two (2) liner support rods prevent the liner from wearing out the slot sensor.
- The knob and thumbscrew lock the sensor firmly on the mounting rods.
- The male connector provides quick connection to the labeling head.

SET UP AND ADJUSTMENTS:

- See attached cut sheet

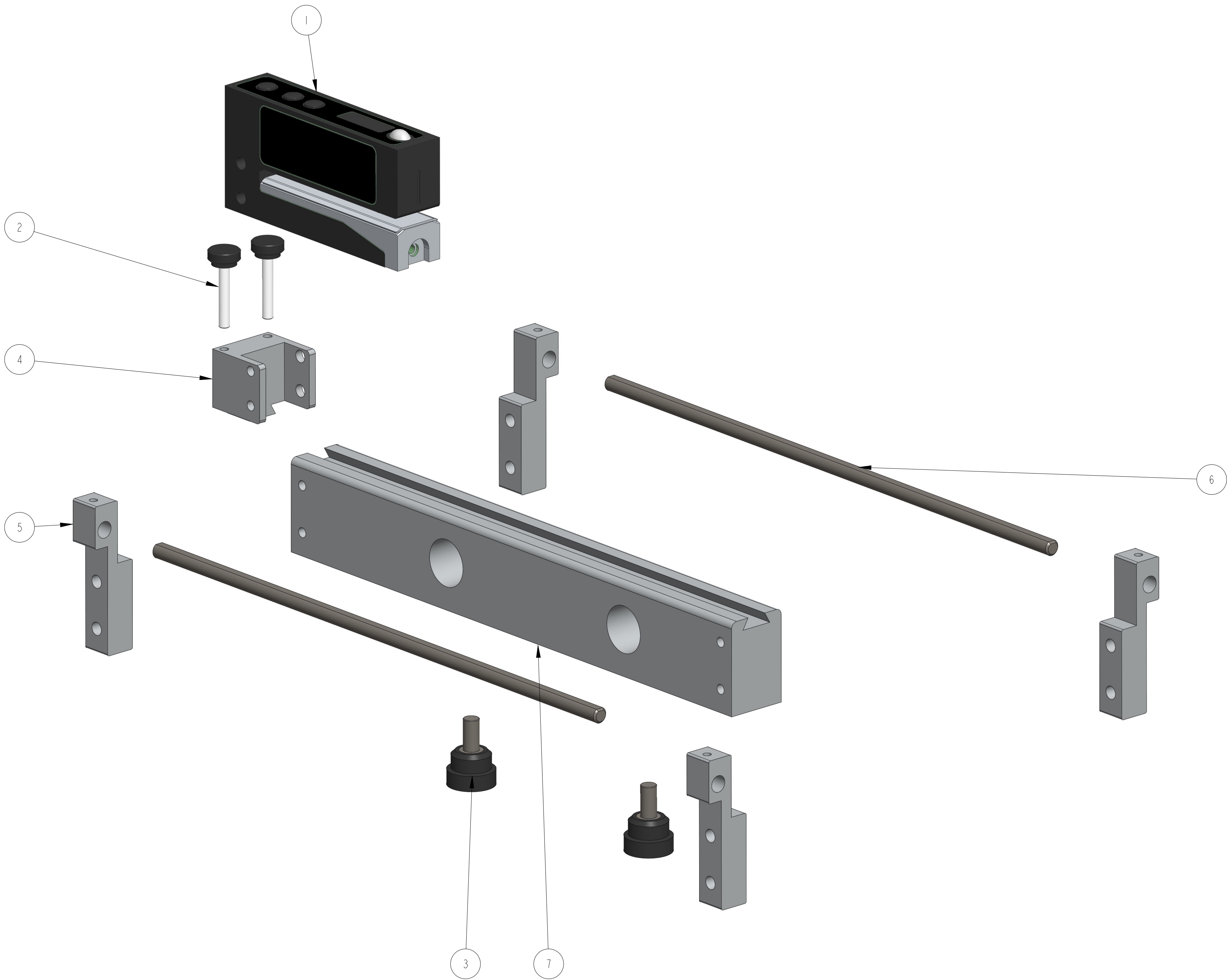
MAINTENANCE:

- Keep the sensor optical area clean from label and glue residue

TROUBLESHOOTING:

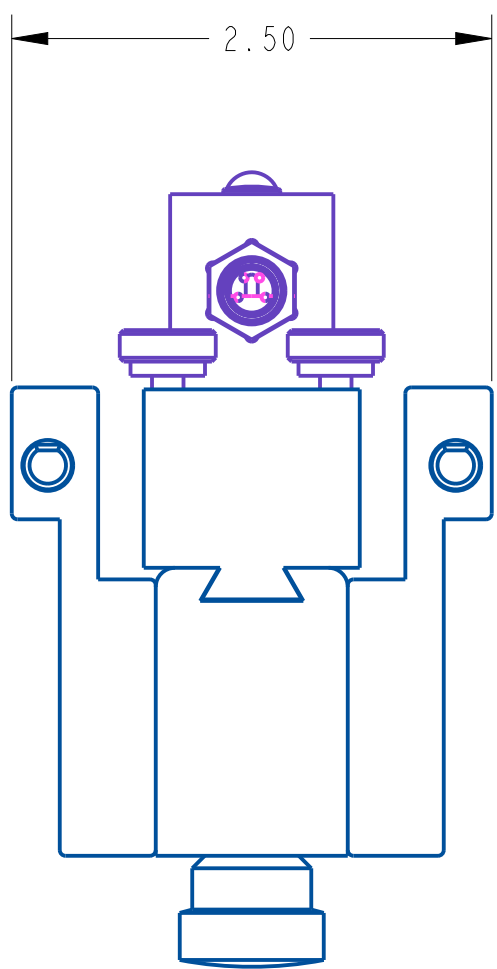
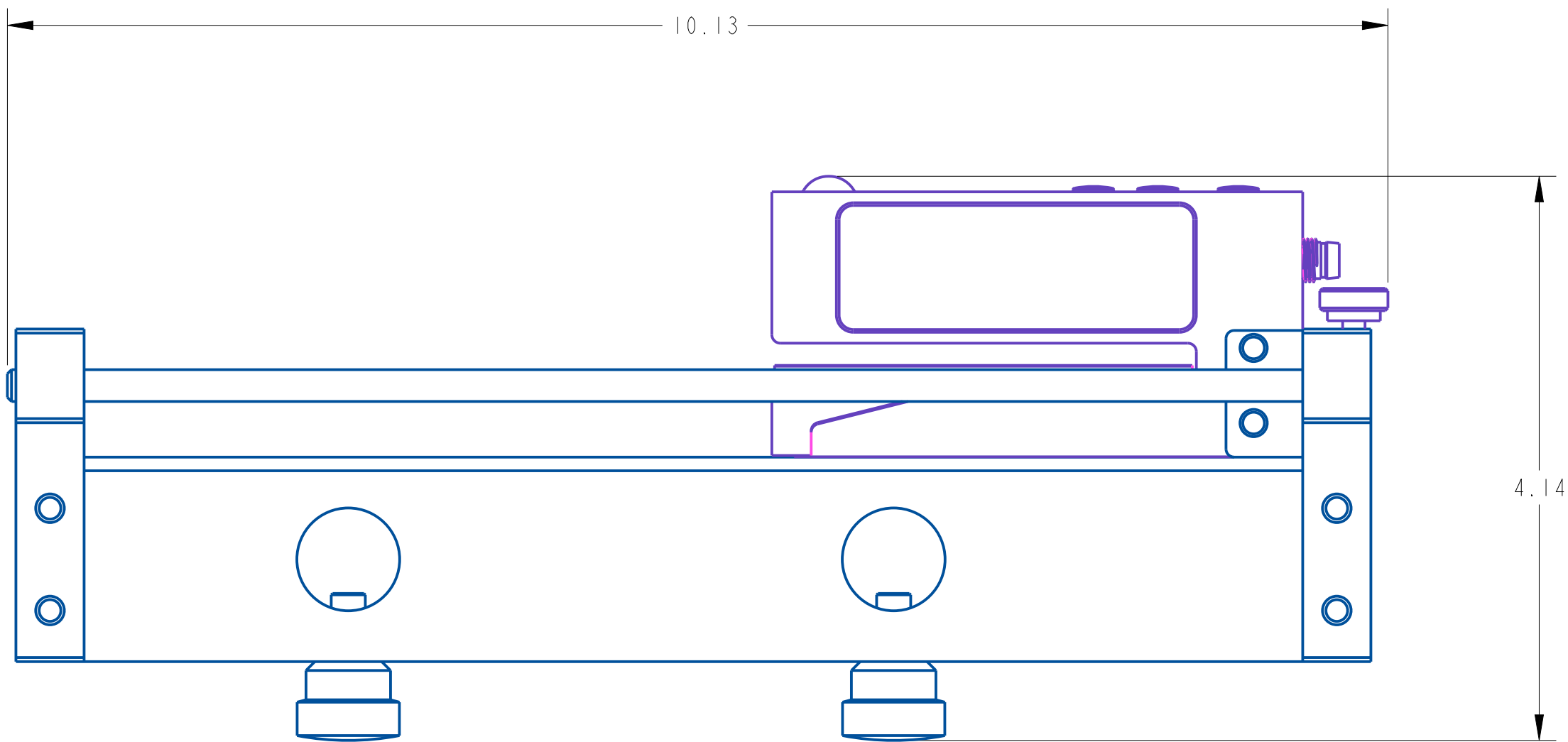
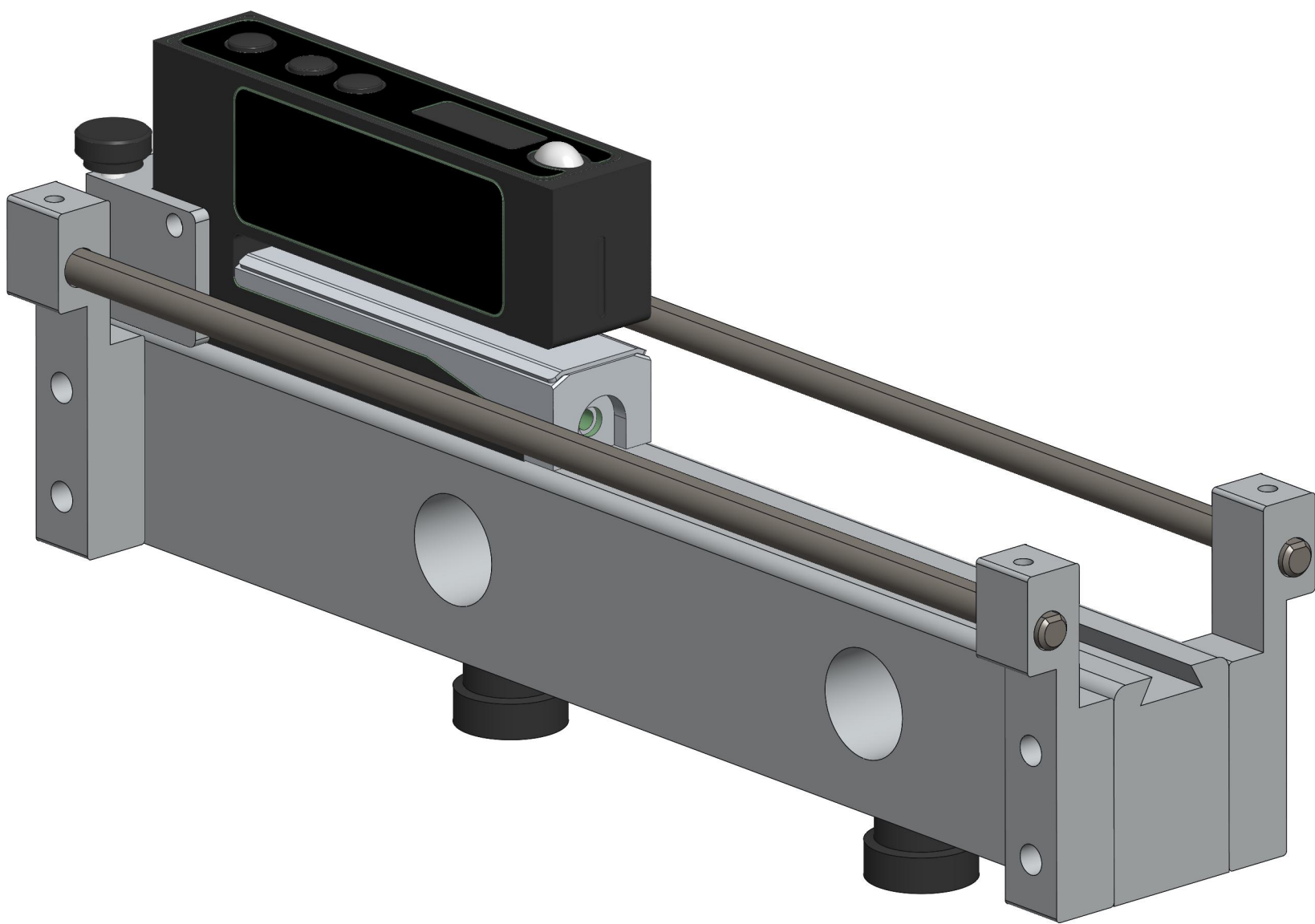
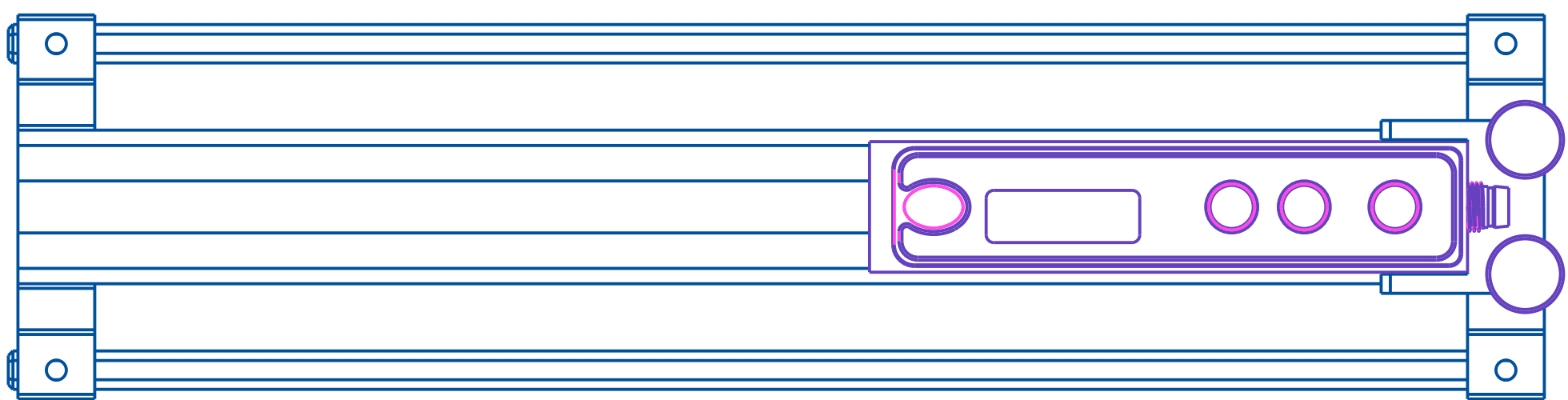
<u>PROBLEM</u>	<u>WHAT TO DO</u>
- No power to the sensor	- Check male connector and tightly secure connection to the head.
- Liner dragging over the slot	- Loosen knob and rotate slot sensor slot sensor surface liner rests on both support rods
- Too much slack through slot sensor	- Adjust brake brush tension
- Slot sensor moving with web	- Tighten all three (3) adjusting knobs

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	201444-301	SENSOR	20033-301
2	2	801297-000	THUMB SCREW PLSTC HEAD 8-32x1	20033-301
3	2	801299-000	KNOB WITH STUD	20033-301
4	1	A21391-300	SLOT SENSOR ADAPTER	20033-301
5	4	A21749-300	SLOT SENSOR SUPPORT ROD MTG BLOCK	20033-301
6	2	A21770-300	SUPPORT ROD WITH FLAT	20033-301
7	1	B20852-300	7 IN. WEB SLOT SENSOR MTG. BAR	20033-301
8	1	203035-000	CABLE, M8, 4COND	NOT SHOWN



A	JAN-05-21	NEW DRAWING	TJS
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .30°		SCALE: 1/1 DATE: JAN-05-21 DRW BY: TJS CHK BY: 03/19/2024-SEM APPR BY:	
SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.50		LABEL DETECT ASSEMBLY	
MAT'L		20033-301	



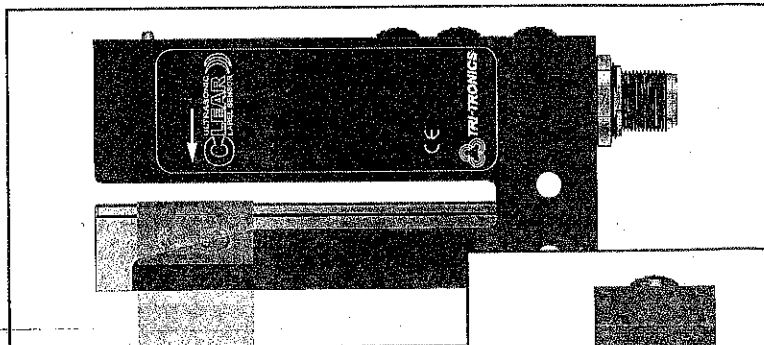
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY		QUADREL LABELING SYSTEMS	
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .50°		7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
SURFACE FINISH: 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°		SCALE: 1/1 DATE: JAN-05-21 DRW BY: TJS CHK BY: 03/19/2024-SEM APPR BY:	
MAT'L		20033-301	

Installation Manual



CLSC-1M8LEX185

1. Position Label



Align Label to Arrow (above)

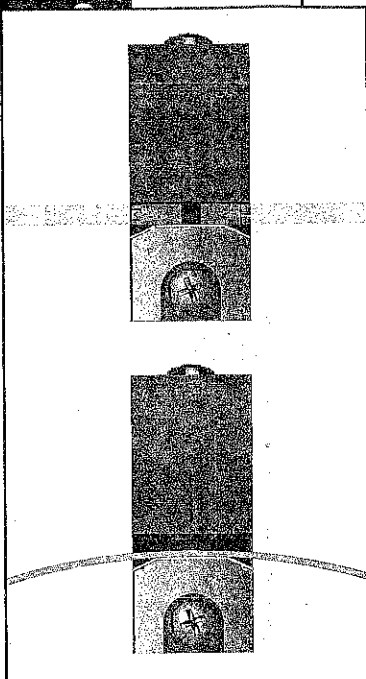
Place the label web so that it is centered on the arrow. The arrow is where the transducers are aligned.

Align Gap to Line (right top)

Place label gap in center of the sensor using the alignment line as shown on right. When viewing from the top of the sensor, use the output LED to center label gap.

Gentle Tension (right bottom)

Place label webbing so that it slides along the bottom of the sensor gap plate. This will ensure a more consistent setup and performance.



2. Setup Instructions

Once the Gap is in view, press and hold the AUTOSET/GAP button for two seconds. This will result in a stable setup most every time. If you have any false triggers, put the Label in view, push and hold the AUTOSET/LABEL button for two seconds. This two-point setup will create a new threshold setting resulting in a more consistent signal span between web and label.

Note: Manual adjust by tapping arrows.

MULTI-FUNCTION OUTPUT INDICATOR

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Note: Flashes when short circuit is detected.
2. Rapid flash indicates AUTOSET start (wait two seconds to complete).
3. Single flash during manual adjust.

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2. Tap for UP to lower threshold.

AUTOSET/LABEL ∇ BUTTON

1. Push and Hold with label in view after GAP AUTOSET on rare occasions when labels have multiple layers.
2. Tap DOWN to increase threshold.

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Specifications

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 - Polarity Protected
- Note: For use in Class 2 Circuits*

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PUSHBUTTON CONTROL

- Three (3) push button controls
- Gap (for Gap AUTOSET)
- Label (for multi-layered labels)
- LT/DK= Light / Dark toggle

HYSTERESIS

- Dynamic – adjusted by AUTOSET

RESPONSE TIME

- 200µs

REPEATABILITY

- 125µs

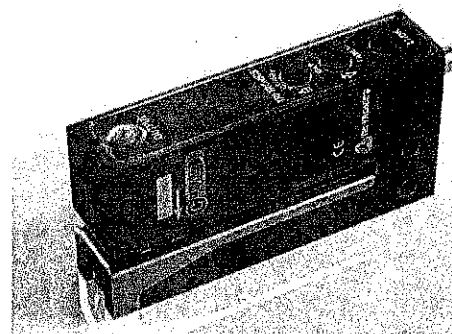
AMBIENT TEMPERATURE

- 4°C to 50°C (39°F to 122°F)

RUGGED CONSTRUCTION

- Chemical resistant, high impact
- Aluminum housing
- Waterproof ratings: IP65
- Conforms to heavy industry grade CE requirements

ULTRASONIC
CLEAR
LABEL SENSOR



THRESHOLD SET

- 1-Point, 2-Point.

THRESHOLD ADJUST

- Manual Adjust

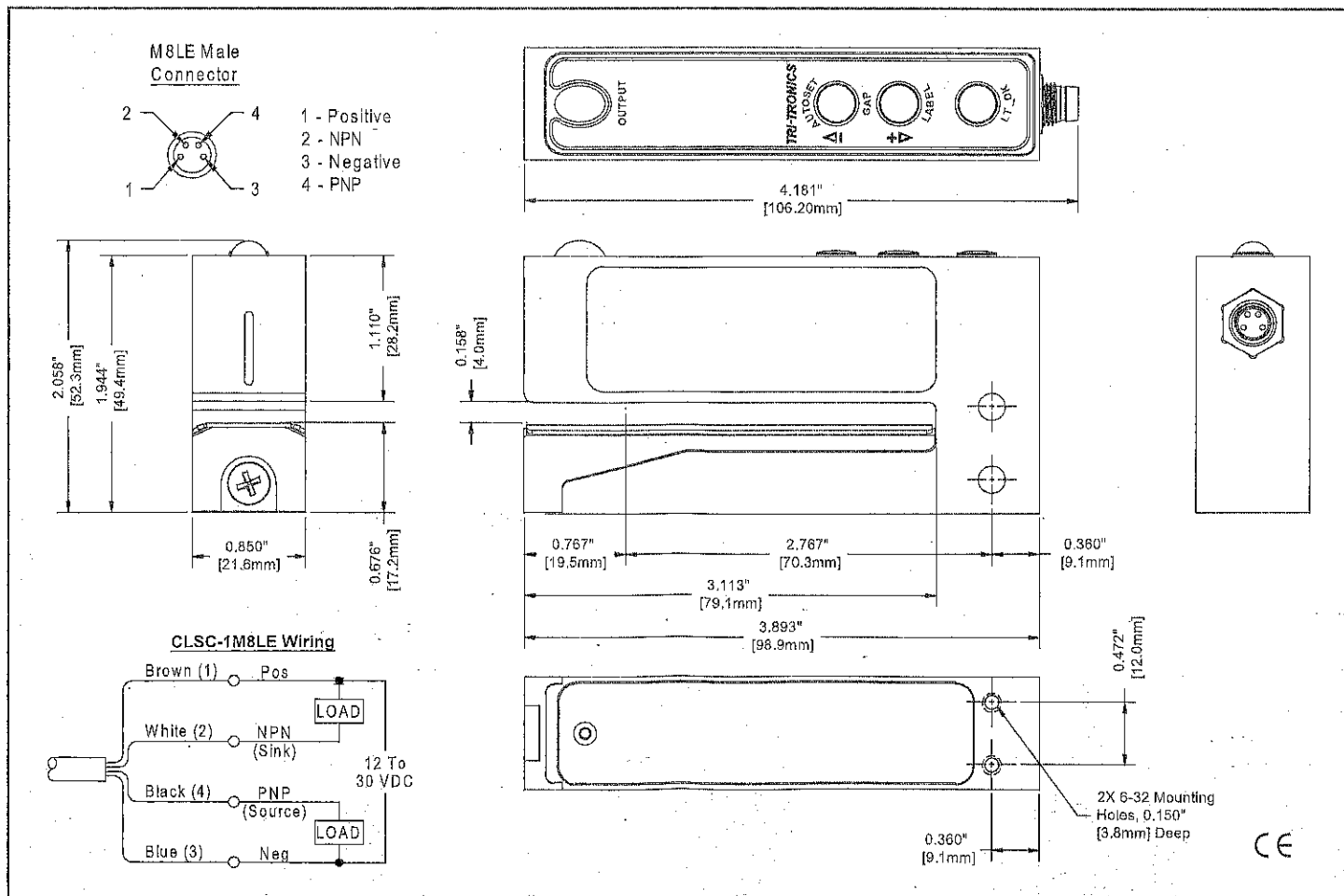
CONNECTOR

- M8 4-Pin

RoHS Compliant
Product subject to change without notice

Connections and Dimensions

Ultrasonic Clear Label Sensor X185



ASSEMBLY TITLE: LOW LABEL FAULT ASSEMBLY

DRAWING NO.:

GENERAL FUNCTION:

- The low label supply fault indicates a depleting supply of labels. It consists of a fiber optic sensor that is set at the desired position on the roll of labels.
- When the label supply passes below the sensor range, a signal is generated this will light the yellow stack lamp and enunciate a low label condition on the operator's touch screen display.
- The male connector provides quick connection to the labeling head.

SET UP AND ADJUSTMENTS:

- Set the sensor eye just before the cardboard inner core, approximately $\frac{1}{4}$ " below the supply reel flange and lined up with the sensing hole in the flange.

MAINTENANCE:

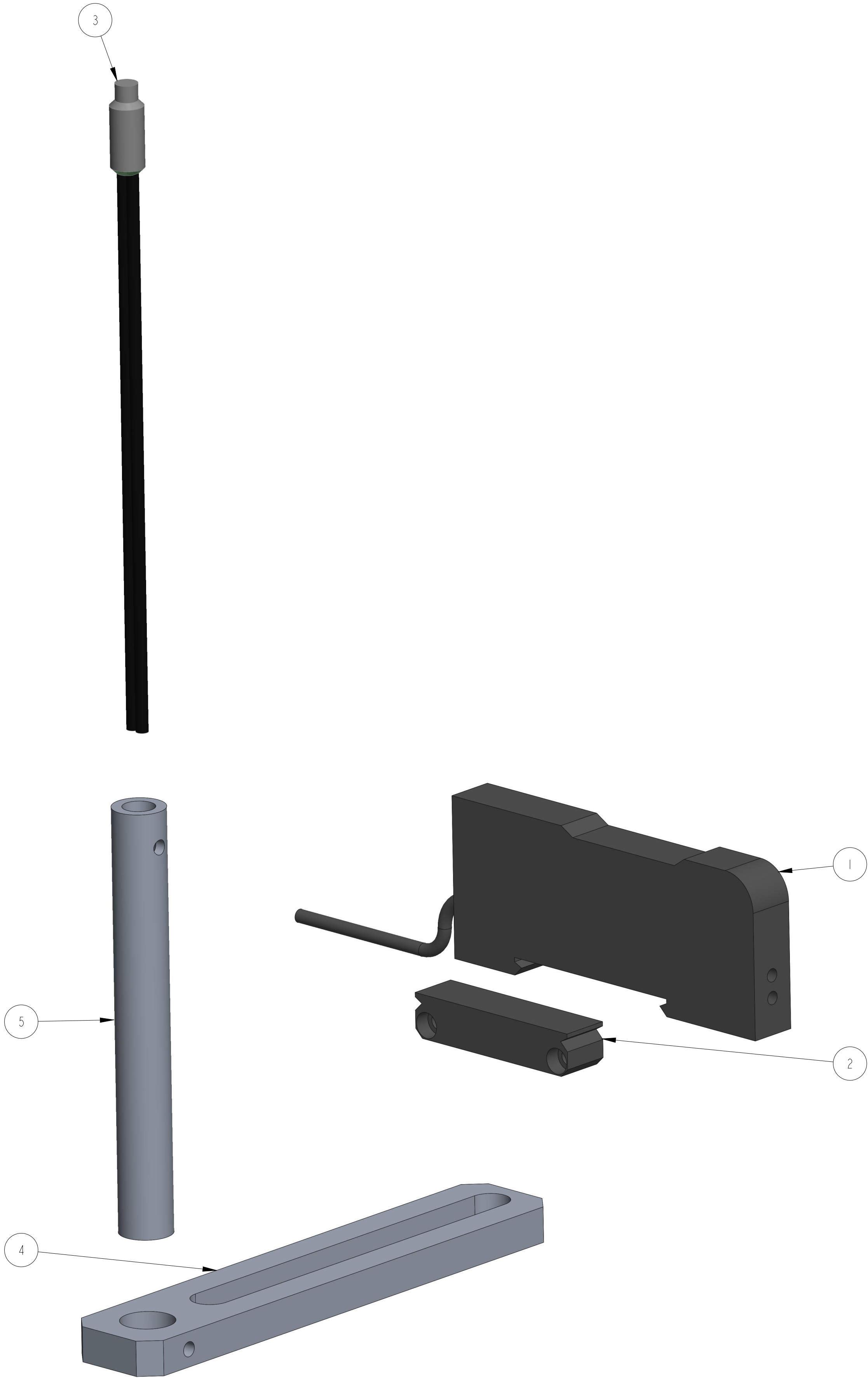
- Keep the sensor optical area clean from label and glue residue

TROUBLESHOOTING:

<u>PROBLEM</u>	<u>WHAT TO DO</u>
- No power to the sensor	- Check male connector and tightly secure connection to the head.

NOTE: The labeler will continue to operate until the operator pauses the labeler or the label supply completely depletes past the broken web sensor.

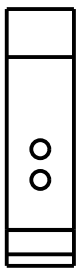
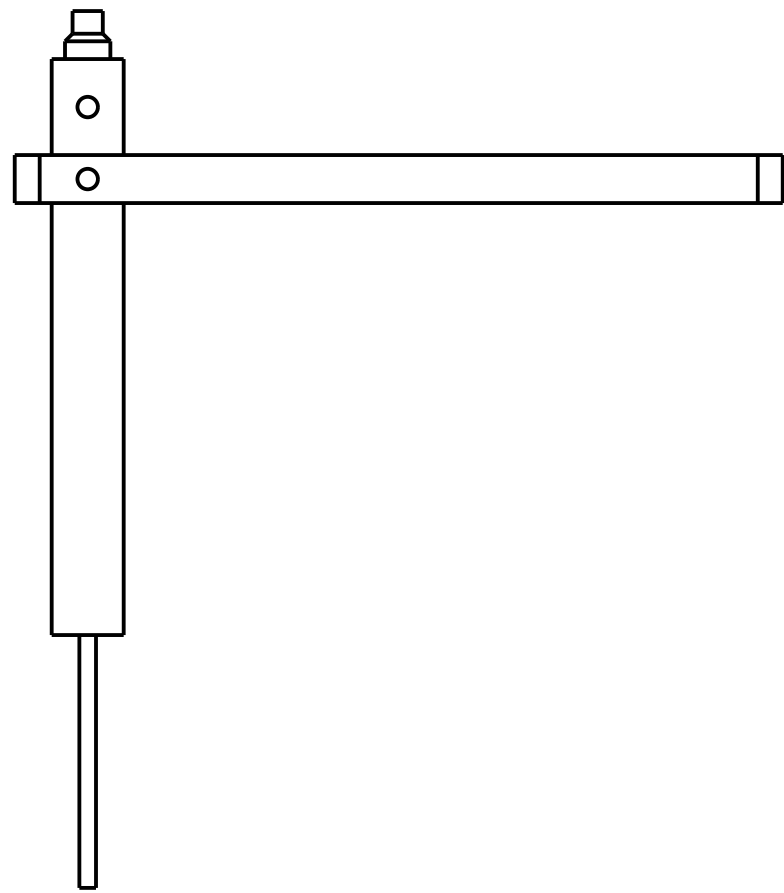
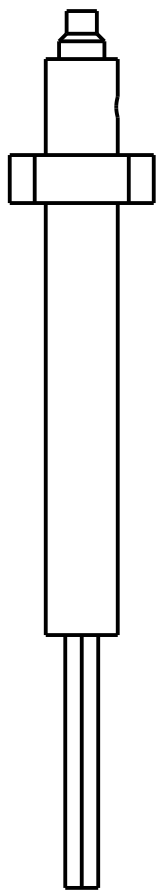
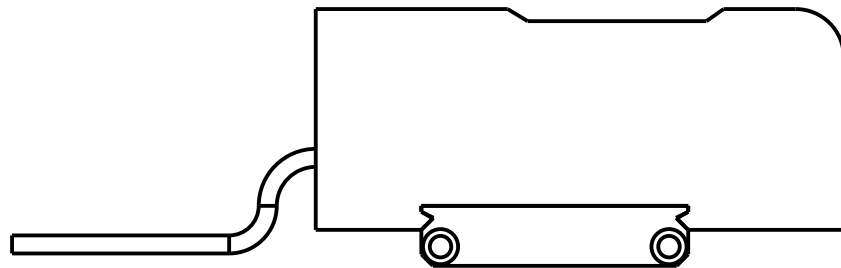
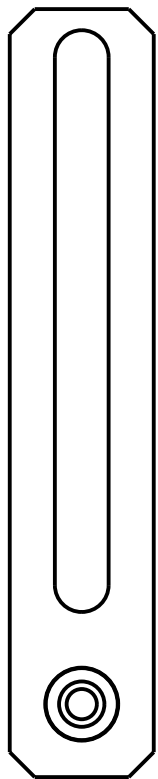
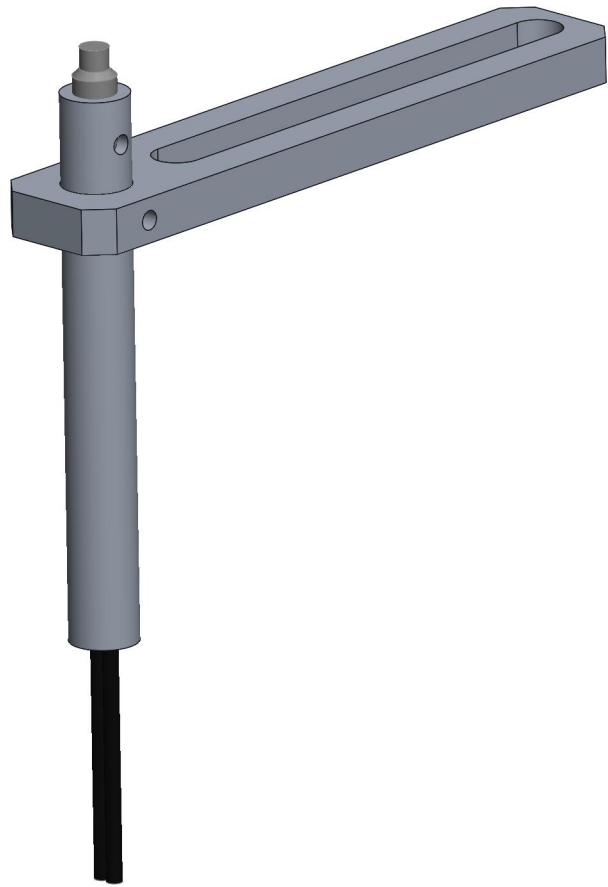
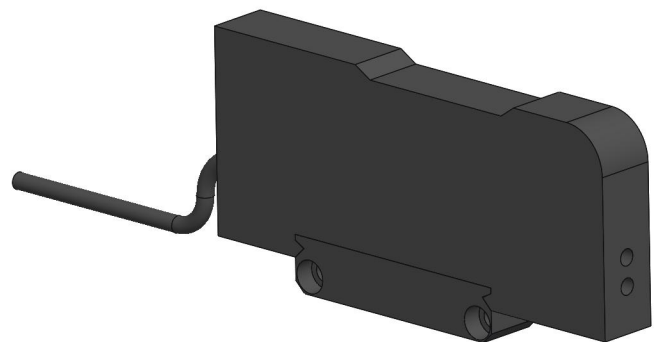
To reset the fault condition, replenish the label supply and press the labeler run button from run to pause and back to run.



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	202201-000	DUAL DIGITAL FIBER AMPLIFIER	20776-006
2	1	202201-001	DUAL DIGITAL FIBER AMPLIFIER	20776-006
3	1	203170-000	CABLE,FIBER , REFLECTIVE, KEYENCE #FU-67V	20776-006
4	1	A23727-000	LOW LEVEL BRACKET	20776-006
5	1	A23728-000	LOW LEVEL SENSOR TUBE	20776-006

*NOT SHOWN
252019-000 CONNECTOR

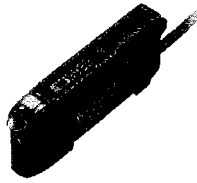
A		Apr-07-21		NEW DRAWING	
REV		DATE		DESCRIPTION	
				BY	
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .01 XXX ± .005 ANGLES ± 30° SURFACE FINISH .125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE	
				DATE	
				DRAWN BY	
		LOW LABEL			
MAT'L		20776-006 & 20776-006P		20776-006	



A	Apr-07-21	NEW DRAWING	TJS
REV	DATE	DESCRIPTION	BY
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± 30°		SCALE	1/1
		DATE	Apr-07-21
		DRAWN BY	TJS
LOW LABEL			
MAT'L		20776-006 & 20776-006P	20776-006
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030			



Digital Fiberoptic Sensor FS-N40 Series Instruction Manual



Read this manual before using the product in order to achieve maximum performance. Keep this manual in a safe place after reading it so that it can be used at any time.

For detailed FS-N40 Series setting methods and for details on the functions of the FS-N40 Series, see the "FS-N40 Series User's Manual".

■ Symbols

The following symbols are used in this instruction manual to enable the recognition of important information at a glance. Be sure to read these messages carefully.

	It indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	It indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	It indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	It indicates a situation which, if not avoided, could result in product damage as well as property damage.

1 Before Operation

Safety Precautions

	<ul style="list-style-type: none"> This product is only intended to detect objects. Do not use this product for the purpose of protecting a human body or a part of a human body. This product is not intended for use as an explosion-proof product. Do not use this product in a hazardous location and/or potentially explosive atmosphere.
	<ul style="list-style-type: none"> This is a direct current (DC) power supply type sensor. Application of an alternating current may result in explosion or fire.
	<ul style="list-style-type: none"> Use separate conduits for power lines and high-voltage lines. Use of a common conduit may result in device malfunction due to noise or damage to the sensor. Always ground the frame ground terminal when using an off-the-shelf switching regulator. Do not use this product outdoors.

Precautions on Regulations and Standards

■ CE Marking

KEYENCE Corporation has confirmed, on the basis of the following specifications, that this product complies with the essential requirements of the applicable EU Directive(s). Be sure to consider the following specifications when using this product in the member states of the European Union.

● EMC Directive, applicable standard: EN60947-5-2, Class A

Ensure that the cable length is 30 meters or less. These specifications do not give any guarantee that the end-product with this product incorporated complies with the essential requirements of the EMC Directive. The manufacturer of the end-product is solely responsible for confirming the compliance of the end-product itself according to the EMC Directive.

■ UL Certificate

This product is a UL/c-UL certified product.

- UL File No.: E301717
- Category: NRKH/NRKH7(NRKH2/NRKH8: FS-N42N(P))
- Enclosure Type 1 (based on UL50)

Be sure to consider the following specifications when using this product as a UL/c-UL certified product.

- Use a power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Connect the power supply, external input, and control output to a single power supply with Class 2 output.
- Use OP-73864, OP-73865 or OP-85498 cable with FS-N41C when the field wiring is required.

■ FCC Regulations

This product complies with the following regulations specified by the FCC.

- Applicable regulation FCC Part 15 Subpart B Class A
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

• FCC Caution

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Package Contents

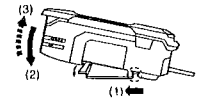
- Main unit
- Instruction manual

2 Installation and Wiring

Mounting the Main Unit

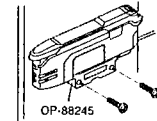
■ Mounting the Main Unit on a DIN rail

- Align the claw at the bottom of the main unit with the DIN rail, as shown in the figure. While pushing the main body in the direction of arrow 1, push down in the direction of arrow 2.
- To remove the sensor, raise the main body in the direction of arrow 3 while pushing the main body in the direction of arrow 1.



■ Installation on a wall (main unit only)

- Attach the main unit to the optional mounting adapter (OP-88245), and then insert M3 screws into the two locations shown in the figure to secure the main unit in place.

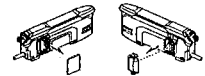


Connecting Multiple Amplifiers

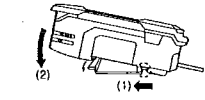
Up to 16 expansion units can be connected to 1 main unit. However, each dual output type will be treated as 2 expansion units.

	When connecting to multiple amplifiers or when mounting main units together, mount the units on a DIN rail installed on a metal surface.
	<ul style="list-style-type: none"> Be sure to turn the power off before connecting multiple expansion units. Do not touch the expansion connector.

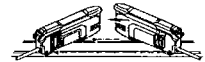
- Remove the protection covers from the main unit and expansion unit(s).



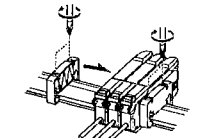
- Install the amplifiers on the DIN rail one at a time.



- Slide the main unit and expansion unit(s) together. Mate the two claws of the expansion unit with the recesses on the main unit side until a click is heard/felt.



- Attach the end units (optional, sold separately: OP-26751) to the DIN rail on both sides of the amplifiers in the same way as step (2).



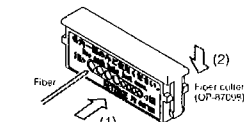
- Secure the amplifiers between the end units. Tighten the screws from the top (two screws x two units) with a Phillips screwdriver to fix the end units in place.

OP-26751 (a set of two)

Fiber Unit Installation

■ Using a fiber cutter

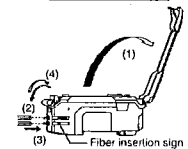
- Insert the fiber into the cutter hole.
- Bring down the blade in a single, swift motion to cut the fiber. (Do not use a hole that has already been used.)



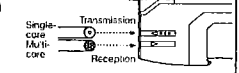
Always insert fiber from the side with writing

■ Connecting to the amplifier unit

- Open the cover (1), and then lower the lever in the direction indicated by (2).
- Insert the fiber unit into the installation holes (approximately 14 mm). (3)
- Move the lever back in the direction indicated by (4).

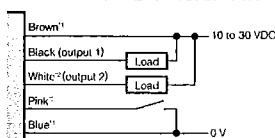


	When installing a coaxial reflective fiber in the main unit, install the single-core fiber in the transmission installation hole and the multi-core fiber in the reception installation hole.
--	---



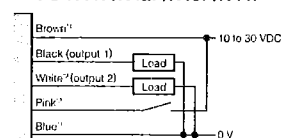
Wiring (Cable Type)

● FS-N41N/N42N/N43N/N44N



- *1 FS-N41N/N43N only
- *2 FS-N43N/N44N only

● FS-N41P/N42P/N43P/N44P



- *1 FS-N41P/N43P only
- *2 FS-N43P/N44P only

Wiring (M8 Connector Type: FS-N41C)

Select NPN or PNP and the function of I/O pin (2) during the initial settings.

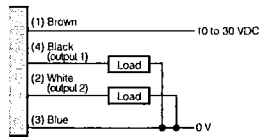
Sensor pin layout



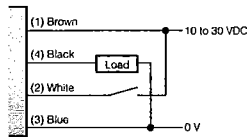
FS-N41C supports "IO-Link: Specification V.1.1/COM2 (38.4 kbps)". The setting file (IODD) can be downloaded from Keyence's web site (<http://www.keyence.com>).

When using the sensor in PNP mode

OUT1 + OUT2

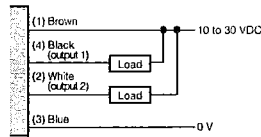


OUT1 + INPUT

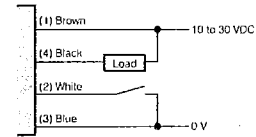


When using the sensor in NPN mode

OUT1 + OUT2



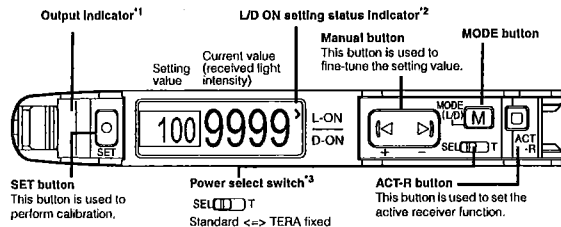
OUT1 + INPUT



The wire colors indicate the colors when using an OP-73864/73865 M8 connector cable (sold separately).

3 Basic Settings

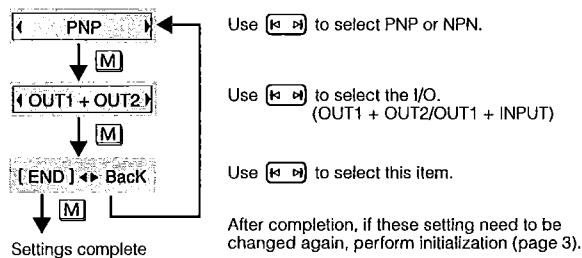
Names and functions



- *1 On dual output types (including the FS-N41C), the indicator operates according to the output channel selected with the output channel selection switch.
- *2 On dual output types (including the FS-N41C), this becomes the output indicator. It displays the current output status of channels 1 and 2.
- *3 On dual output types (including the FS-N41C), this becomes the output channel selection switch. It is not present on zero line types (FS-N40).

Initial settings (FS-N41C only)

When turning on the sensor for the first time, or when the sensor has been initialized, select the initial settings shown below.



Basic settings

Switching the output style (Light ON/Dark ON)

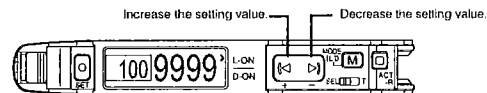
- 1 Press [M] once. Switch L-On/D-On
- 2 Use [K] to switch the output style.
- 3 Press [M] three times.

Switching the display language

- 1 Press [M] twice. Language / 语言
- 2 Use [K] to select the language.
- 3 Press [M] twice.

Fine-tuning the setting value (threshold)

Use [K] to adjust the value. Hold down the button to make adjustments more quickly.



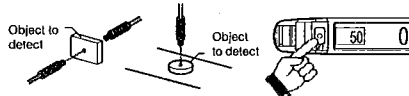
Basic calibration methods

2-point calibration (the most basic setting method)

- 1 Press [SET] with no object to detect present.



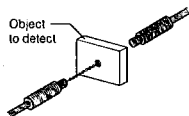
- 2 Press [SET] with an object to detect present.



This sets the setting value to the midpoint between the received light intensities of points 1 and 2. If "----" blinks for 2 seconds on the display, the difference between the received light intensities is small, and detection may be unstable.

Maximum sensitivity calibration

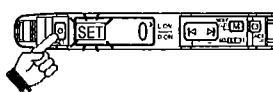
Through model: With an object to detect present



Reflective model: With no object to detect present



- 1 With the items arranged as shown in the figures on the left, hold down [SET] for 3 seconds or more. When SET blinks, release this button.



The setting value is set slightly higher than the received light intensity when the setting was configured.

4 Useful Functions

● Initialization

Initialize all the settings and return the sensor to its factory default state.

- 1 Hold down and for 3 seconds or more.
- 2 Press once.
- 3 Press once.
- 4 Press once.

● Key lock

Disable button operations.

- 1 Hold down and for 3 seconds or more.

Cancel: Use the same procedure.



● Saturation avoidance function

Use this function when the received light intensity does not change from the maximum displayed value.

- 1 Press and simultaneously.

Cancel: Use the same procedure.

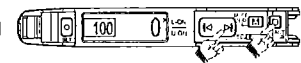


● Zero shift function

Use this function to change the received light intensity display to zero.

- 1 Press and simultaneously.

Cancel: Hold down and for 3 seconds or more.



● Active receiver (ACT-R)

This function makes the fiber unit's receiver blink in green.

Operation when the sensor is shipped from the factory

When the sensor output is ON, the fiber unit's receiver lights in green. (This is linked to the output.)

To change the normal lighting status of the receiver (change the settings)

- 1 Press three times.
- 2 Use to select the status from those shown below.
 Output Link: The receiver will light when the output is ON.
 Reversed Op: The receiver will light when the output is OFF.
 Always On: The receiver will be lit always.
 Disable: The receiver will be off always.
- 3 Press twice to return to the normal status.

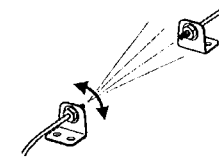
To force the receiver to blink in green (pairing mode)

- 1 Press once.
- 2 Press .
- 3 The light-receiving side blinks in green.
- 4 Press four times to return to the normal status.

To make it easy to perform optical-axis alignment (optical-axis alignment assist mode)

- 1 Press twice.
- 2 Press to make the light-receiving side blink in green.
- 3 Move the tip of the fiber unit within the movable range.

The light-receiving side lights in green near the peak light intensity within the range in which the tip moved.
Align the optical axis within the middle of the range in which the light-receiving side lights.



- 4 When you finish the alignment, press three times.
The sensor returns to the normal status.

5 Specifications

The response times are listed on the following page.

Model	NPN output PNP output	FS-N41N FS-N41P	FS-N42N FS-N42P	FS-N43N FS-N43P	FS-N44N FS-N44P	FS-N41C ¹ (selectable output) FS-N44P	FS-N40
Cable/connecter	Cable Main unit/Expansion unit						MS connector ²
Unit expansion (excluding the FS-N41C)	Main unit	Expansion unit	Main unit	Expansion unit	Main unit	Expansion unit	None ⁴
Number of control outputs	1	1	2	2	2 ³	2 ³	None ⁴
Number of external inputs	-	-	1	1	1	1 ³	-
Light source LED	Transmitter side: Red, four-element LED (wavelength: 660 nm)						-
Control output	Open-collector, 30 V or less 100 mA or less per output, 100 mA or less total for 2 outputs (when used as a solitary unit) 20 mA (when used as an expansion unit)						-
Residual voltage	NPN 1.4 V or less (output current: 10 mA or less) 2 V or less (output current: 10 to 100 mA) PNP 1.6 V or less (output current: 10 mA or less) 2.2 V or less (output current: 10 to 100 mA)						-
External input	Input time: 2 ms (ON)/20 ms (OFF) or longer ⁵						-
Unit expansion (excluding the FS-N41C)	Up to 16 units (17 units connected in total including the main unit). However, each two output type will be treated as two expansion units.						-
Protection circuit	Protection against reverse power connection, output overcurrent, output surge, and reverse output connection						-
Mutual interference prevention	S-HSPD/HSPD: 0 units, FINE: 4 units, TURBO/SUPER/ULTRA/MEGA/TERA: 8 units (The mutual interference prevention values are twice those shown here when Double is set.)						-
Power supply voltage	10 to 30 VDC (including 10% ripple (P-P) or less), class 2 or LPS ⁶						-
Power consumption ⁷	NPN FS-N40 During normal operation: 870 mW or less (34 mA or less at 24 V/62 mA or less at 12 V) ECO ON: 800 mW or less (31 mA or less at 24 V/56 mA or less at 12 V) ECO FULL: 710 mW or less (28 mA or less at 24 V/49 mA or less at 12 V)						-
Power supply	PNP FS-N41C One output type (FS-N41P/N42P) and FS-N41C During normal operation: 910 mW or less (36 mA or less at 24 V/65 mA or less at 12 V) ECO ON: 840 mW or less (33 mA or less at 24 V/60 mA or less at 12 V) ECO FULL: 750 mW or less (30 mA or less at 24 V/52 mA or less at 12 V)						-
Ambient light	Incandescent lamp: 20,000 lx or less, sunlight: 30,000 lx or less						-
Ambient temperature	-20°C to +55°C (no freezing) ⁸						-
Vibration resistance	10 to 55 Hz; double amplitude 1.5 mm, 2 hours each for X, Y, and Z axes						-
Shock resistance	500 m/s ² ; 3 times each for X, Y, and Z axes						-
Case material	Main unit and cover: polycarbonate						-
Weight	Approx. 79 g	Approx. 48 g	Approx. 83 g	Approx. 73 g	Approx. 25 g	Approx. 23 g	-

¹ IO-Link Specification V1.1 MCOM2 (38.4 kbps) is supported.
² Ensure the cable length is 30 m or less for the MS connector type. In case of connecting with IO-Link, set it to 20 m or less.
³ Output 2 and the external input are selectable.
⁴ This counts as 1 output when connecting multiple units to the FS-MCBNP, NU Series.
⁵ The input time becomes 25 ms (ON)/25 ms (OFF) when external calibration input is selected.

⁶ When expanding the system to 9 or more units, use a power supply voltage of 12 V or higher.
⁷ The load current is excluded. The power consumption including the load when the maximum number of units are connected is 38 W max.
⁸ When expanded by 1 to 2 units: -20°C to +55°C. When expanded by 3 to 10 units: -20°C to +50°C. When expanded by 11 to 16 units: -20°C to +45°C. When using 2 outputs, 1 unit is counted as 2 units. Note that all the temperature prescriptions assume that the sensor has been mounted on a DIN rail installed on a metal surface. Exercise special care when installing the product in an airtight space.

WARRANTIES AND DISCLAIMERS

- (1) KEYENCE warrants the Products to be free of defects in materials and workmanship for a period of one (1) year from the date of shipment. If any models or samples were shown to Buyer, such models or samples were used merely to illustrate the general type and quality of the Products and not to represent that the Products would necessarily conform to said models or samples. Any Products found to be defective must be shipped to KEYENCE with all shipping costs paid by Buyer or offered to KEYENCE for inspection and examination. Upon examination by KEYENCE, KEYENCE, at its sole option, will refund the purchase price of, or repair or replace at no charge any Products found to be defective. This warranty does not apply to any defects resulting from any action of Buyer, including but not limited to improper installation, improper interfacing, improper repair, unauthorized modification, misapplication and mishandling, such as exposure to excessive current, heat, coldness, moisture, vibration or outdoors air. Components which wear are not warranted.
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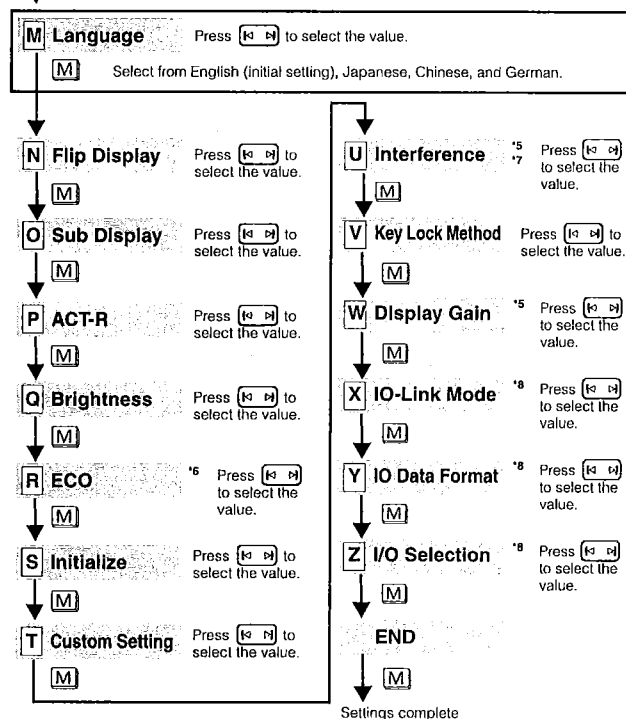
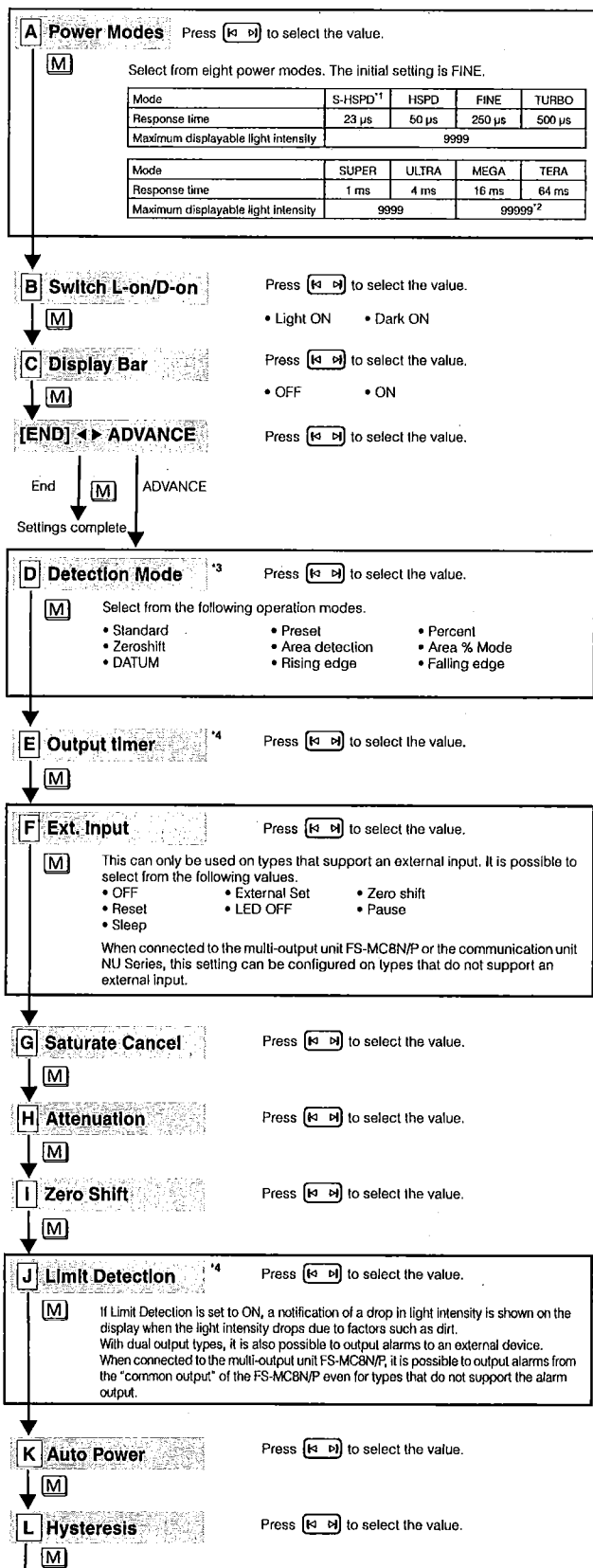
BUYER'S TRANSFER OBLIGATIONS:

If the Products/Samples purchased by Buyer are to be resold or delivered to a third party, Buyer must provide such third party with a copy of this document, all specifications, manuals, catalogs, leaflets and written information provided to Buyer pertaining to the Products/Samples.

E 1101-3

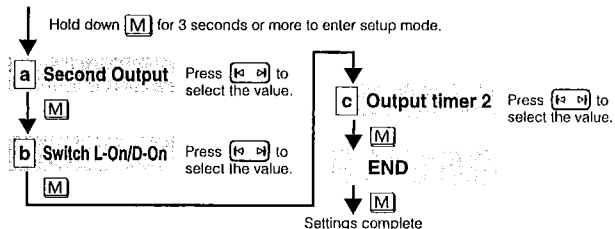
6 Detailed Settings

Hold down **[M]** for 3 seconds or more to enter the settings menu. Then, press **[M]** to change the item and press **[← →]** to switch the setting value. Press **[M] + [END]** when an item is being set to return to the previous item.



■ Output 2 setting

1 **[1] [2]** When using a dual output type, if the output channel selection switch is set to the "2" side, output 2 can be set.



- ^{*1} When S-HSPD is selected for Power Modes, Output 2 of dual output types is fixed to OFF.
^{*2} This is 65535 when connected to an NU Series unit.
^{*3} When S-HSPD is selected for Power Modes, Area detection, Area % Mode, DATUM, Rising edge, or Falling edge cannot be selected.
^{*4} This cannot be used when S-HSPD is selected for Power Modes.
^{*5} This cannot be used when S-HSPD or HSPD is selected for Power Modes.
^{*6} When S-HSPD is selected for Power Modes, FULL cannot be selected for the ECO function.
^{*7} The IO-Link communication cannot be used when FULL is selected for ECO (FS-N41C).
^{*8} This item is not displayed on the FS-N41C.

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Specifications are subject to change without notice.

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ASSEMBLY TITLE: BROKEN WEB / END OF WEB

DRAWING NO:

GENERAL FUNCTION:

- The broken web fault indicates that the labeler label stock has broken after the labeler pull roll. It consists of a reflective sensor and a reflector. The sensor is capable of reading clear or opaque label liner.

-When the broken web passes through the sensor, a signal is generated, that signal will shut the conveyor system down and light the red lamp on the stack lamp assembly.

-To reset the fault condition, rethread labels and press labeler run/pause to turn off the red light and place the labeler in run mode. The conveyor will restart and the labeling process will continue.

SET-UP AND ADJUSTMENTS:

- The sensor is set in light on operation mode. It is a retro-reflective operation. To set the sensor, refer to the following manufacture's instruction sheet.

- Ensure that all label material is removed from the sensor and reflector area for proper set up.

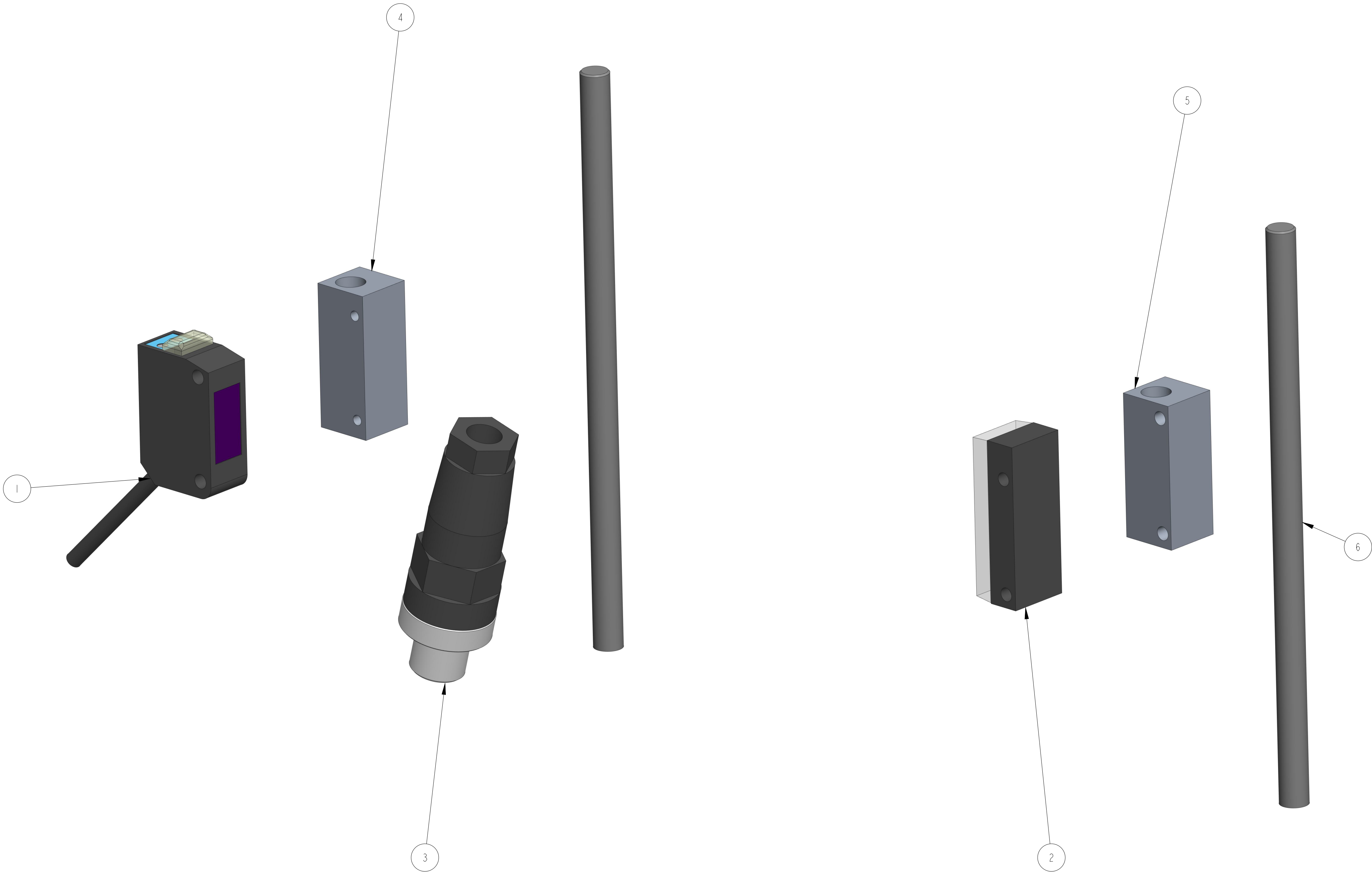
MAINTENANCE:

- See Maintenance Section

TROUBLESHOOTING:


- See Troubleshooting Section

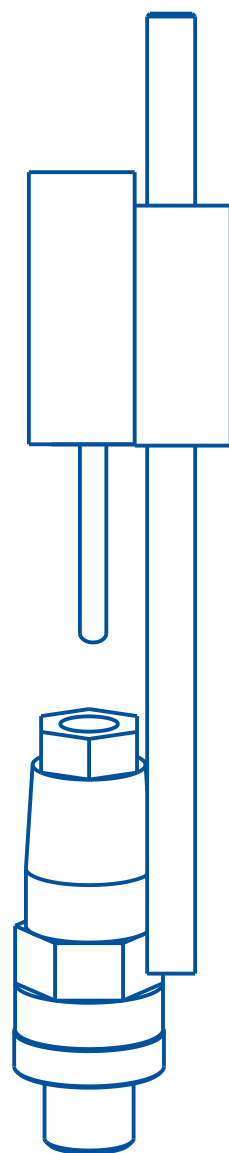
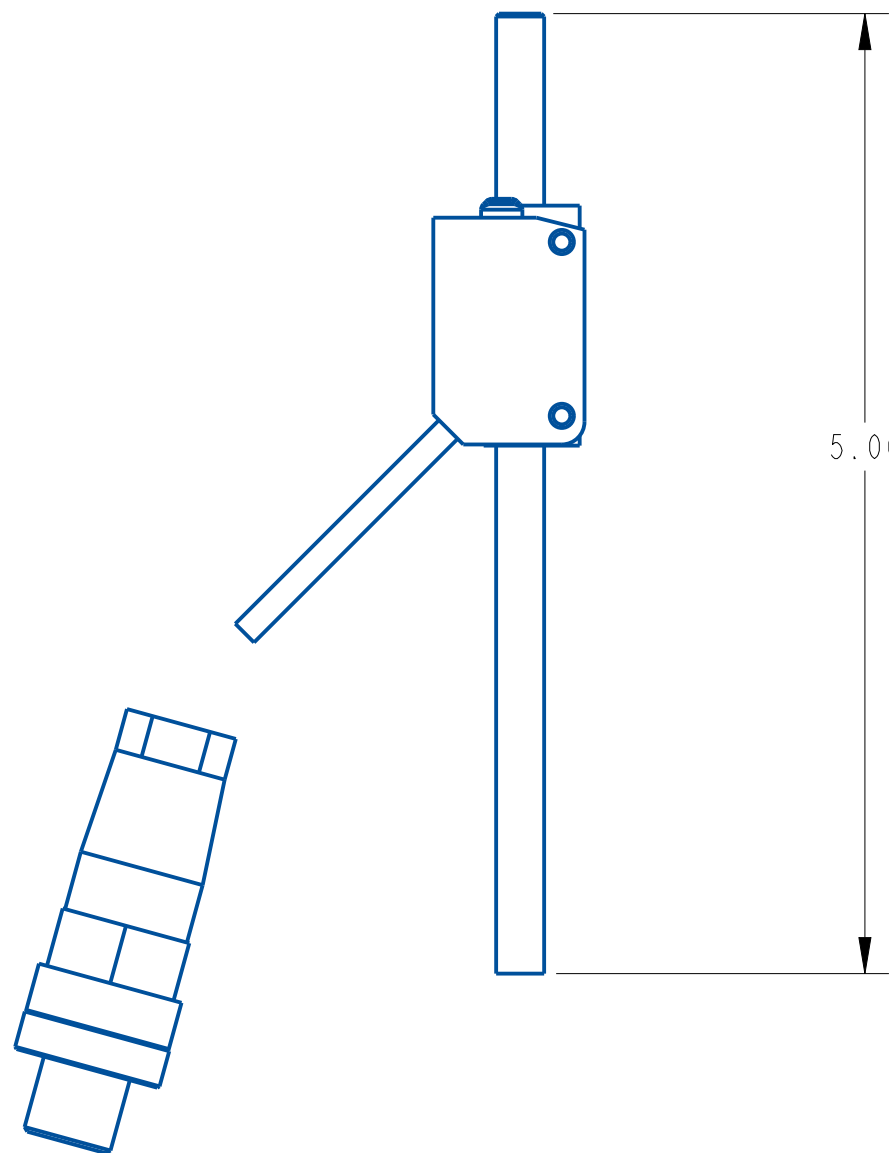
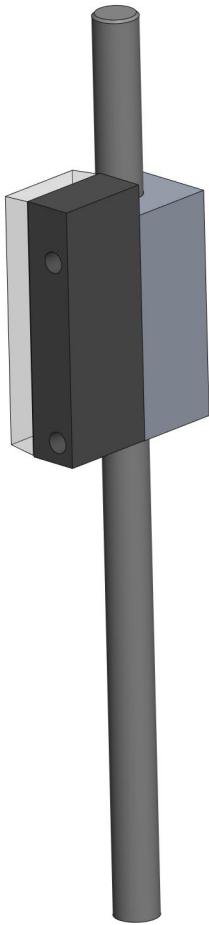
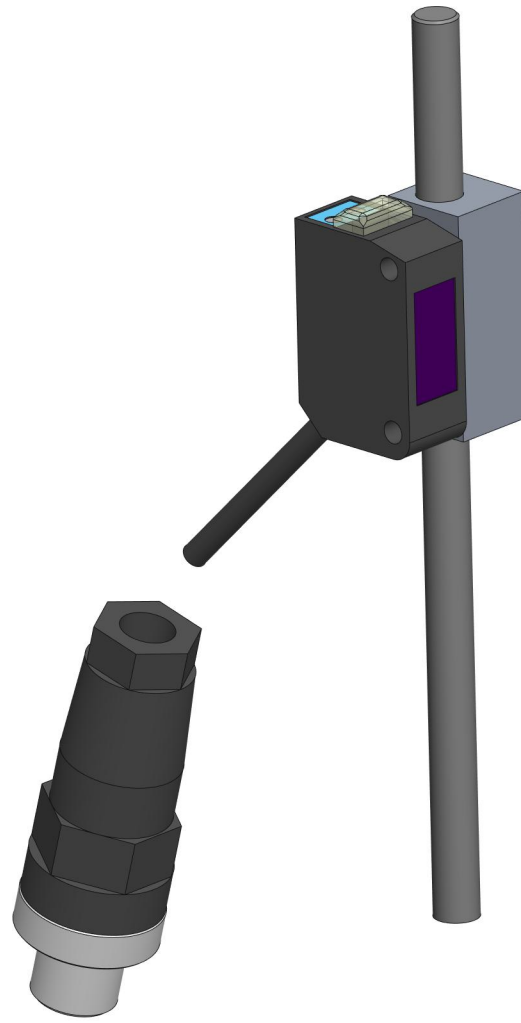
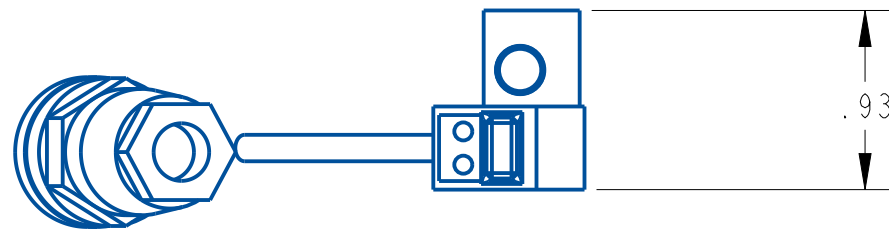
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	202192-002	CLEAR PRODUCT SENSOR	21606-012
2	1	203161-000	REFLECTOR	21606-012
3	1	252019-000	4 PIN MALE CONNECTOR	21606-012
4	1	A24242-000	SENSOR MTG. BLOCK	21606-012
5	1	A24243-000	REFLECTOR MTG. BLOCK	21606-012
6	2	A25772-000	POST, SENSOR	21606-012



A	11/11/24	NEW DRAWING	SEM
REV	DATE	DESCRIPTION	BY

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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $X \pm .01$ $XX \pm .005$ ANGLES $\pm .30^\circ$ SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030	 QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 2/1	
		DATE: 11/11/24	
		DRW BY: SEM	
		CHK BY: CREO.CHK	
		BROKEN WEB/END OF WEB, PNP DUAL POSTS, USE PZ-G62P	
		MAT'L	
		21606-012	



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/1	
XX ± .01		DATE: 11/11/24	
XXX ± .005		DRW BY: SEM	
ANGLES ± .00		CHK BY: CREO.CHK	
SURFACE FINISH 125		APPR BY:	
BREAK ALL EDGES .005/.015		BROKEN WEB/END OF WEB, PNP DUAL POSTS, USE PZ-G62P	
CORNER RADIUS .010/.030		MATERIAL	
ALL ANGLES ARE 90°		21606-012	

QUADREL LABELING SYSTEMS

7670 JENTHER DRIVE

MENTOR, OHIO 44060

(440) 602-4700

11/11/24

SEM

CREO.CHK

PZ-G Series

Instruction Manual

Read this manual thoroughly before using the product.
Keep this manual readily available for future reference.

Safety precautions

- Avoid running the PZ-G cable along with power and high voltage lines, as this may cause interference and/or permanent damage.
- When using a commercially available switching regulator, ground its chassis grounding and earth grounding terminals.
- Do not use in locations where direct ambient light or external light directly shines on the light receiving surface.
- With retro-reflective type sensors, when detecting highly reflective materials (such as mirrored surfaces), stabilization may be difficult. To correct this, change the angle of the sensor head, or adjust the sensitivity.
- Avoid using power which exceeds the specifications for ripple (10% max)
- Avoid using excess force when rotating the operation mode selector switch (Light-on, Dark-on) and the sensitivity adjustment trimmer.
- This product is just intended to detect the object(s). Do not use this product for the purpose to protect a human body or a part of human body.
- This product is not intended for use as explosion-proof product. Do not use this product in a hazardous location and/or potentially explosive atmosphere.

Precautions on Regulations and Standards

UL Certificate

This product is an UL/C-UL Listed product.

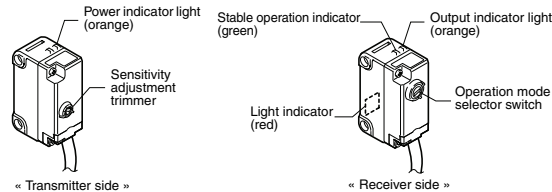
- UL File No. E301717
- Category NRKH,NRKH7
- Enclosure Type 1 (Based on UL50)

Be sure to consider the following specifications when using this product as an UL/C-UL Listed Product.

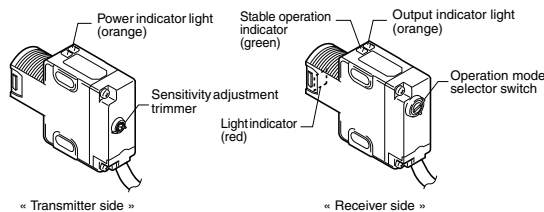
- Use the power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Power supply/ Control input/ Control output circuits shall be connected to a single Class 2 source only.
- Use with the over current protection device which is rated 30V or more and not more than 1A.

Part Names

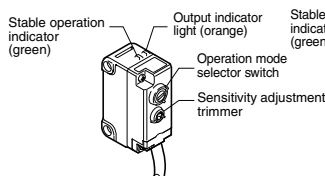
PZ-G5xN/G5xP



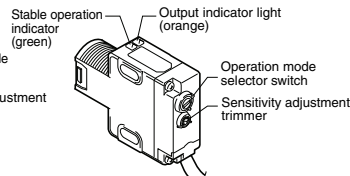
PZ-G5xB



PZ-G4xN/G4xP/G10xN/G10xP/G6xN/G6xP



PZ-G4xB/G10xB/G6xB

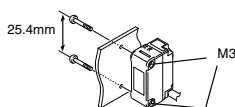


* The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

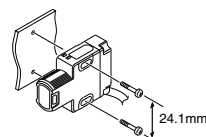
Mounting Method

Side Mounting (Prepare M3 screws)

Tightening torque: 0.5 N·m or less



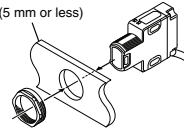
Tightening torque: 0.5 N·m or less



Mounting with the M18 nut (includes nut type)

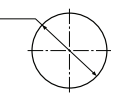
The M18 nut is also available separately as OP-84225 (2 pcs. supplied).
Tightening torque: 1.0 N·m or less

Panel (5 mm or less)



Panel cut size

$\phi 18.5 \pm 0.2$ mm



Note

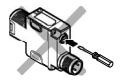
- Mount the M18 nut (supplied) straight in. If mounted at an angle it cannot be tightened properly.
- When tightening the M18 nut (supplied), firmly hold the main body down. The case of the main body may be damaged if held in place with a tool such as pliers.
- When tightening the M18 nut (supplied), if excess force is applied to the nut with a tool such as pliers, it may bend it out of shape. Therefore, do not apply excess force.

Sensitivity Adjustment Method

Caution



Avoid using excess force when rotating the sensitivity adjustment trimmer and operation mode selector switch as it may cause damage.



Operation mode selector switch

With the operation mode selector switch, you can select either the LIGHT-ON mode (L) or the DARK-ON (D) mode.



LIGHT-ON setting



DARK-ON setting

Reflective type (PZ-G41/G42/G101/G102/G10R/G10G/G10B Series)

The following assumes LIGHT-ON (L) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Position target in place. Slowly rotate the sensitivity trimmer from the MIN position towards the MAX position until the (orange) output indicator turns on (Position "A"). If the output indicator does not turn off, even at MIN, then MIN is considered Position "A".	
②	Remove the target. Adjust the sensitivity trimmer from MIN towards MAX until the (orange) output indicator turns on (Position "B"). If the output indicator does not light up, the MAX position is considered Position "B".	
③	Adjust the sensitivity trimmer to the midpoint between "A" and "B". Verify that the (green) stable operation light turns on with and without a target in place.	

Reference To use the sensor in DARK-ON mode, adjust the mode selector switch to "D".

Thrubeam type (PZ-G51/G52 Series) / Retro-reflective type (PZ-G61/G62 Series)

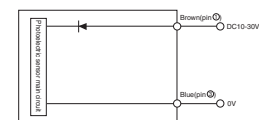
The following assumes DARK-ON (D) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Remove the target. Adjust the sensitivity trimmer to MAX. Mount the sensor heads in place so the (orange) output indicator turns off (on thrubeam models, the red light on the receiver face will turn on).	
②	Position target in place. Verify that the orange output indicator turns on (on thrubeam models, the red light on the receiver face will turn off). Adjust sensitivity lower if the output indicator does not turn on (or if the red light on the receiver face does not turn off on thrubeam models).	

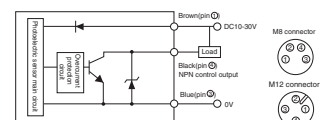
Reference To use the sensor in LIGHT-ON mode, adjust the mode selector switch to "L".

I/O Circuit Diagram

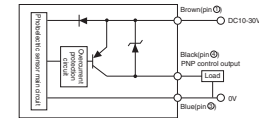
PZ-G5xN/G5xP/G5xB (Transmitter side)



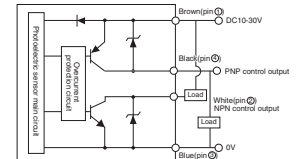
PZ-G5xN (Receiver side)/G4xN/G10xN/G6xN



PZ-G5xP (Receiver side)/G4xP/G10xP/G6xP



PZ-G5xB (Receiver side)/G4xB/G10xB/G6xB



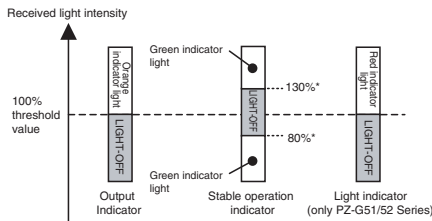
* The pin numbers represent those of the connector type / pigtail quick disconnect type.
The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

[PZ-GxxCN/GxxCP..... M8 connector
PZ-GxxCB/GxxEN/GxxEP..... M12 connector]

Indicators

The following describes each ON/OFF condition of indicator when LIGHT-ON (L) is set.

Reference When the DARK-ON (D) is set, the output indicator ON/OFF will reverse.



* For PZ-G62, the upper limit is 107% and the lower limit is 93%.

If the stable operation indicator turns off during operation, readjust or fine-adjust the sensitivity.

Mutual interference

- For reflective type / retro-reflective type sensors, mutual interference protection can be set for up to 2 units. However, when the sensors are mounted facing each other, change the angle of the sensor head to prevent light being emitted into each unit. (The mark detection type does not include the mutual interference function.)
- Mutual interference prevention can be set when mounting a polarizing filter attachment (optional with thru-beam type sensors). (If operation is unstable even after mounting the polarizing filter, slightly lower the sensitivity.)
- For more detailed information about mutual interference or attachment, see the PZ-G Series catalog or contact your nearest KEYENCE office.

Specifications

Type			Thrubeam		Reflective				Retro-reflective		Mark detection			
Configuration	Cable shape	Output mode	Normal	High-power	Diffuse-reflective Long-detecting distance	Diffuse-reflective Short-detecting distance	Narrow-view reflective	Definite reflective	Long detecting distance (with P.R.O. function)	Transparent target detection (without P.R.O. function)	Red	Green	Blue	
Rectangular	Cable	NPN	PZ-G51N	PZ-G52N	PZ-G41N	PZ-G42N	PZ-G101N	PZ-G102N	PZ-G61N	PZ-G62N	-			
		PNP	PZ-G51P	PZ-G52P	PZ-G41P	PZ-G42P	PZ-G101P	PZ-G102P	PZ-G61P	PZ-G62P				
	M8 connector	NPN	PZ-G51CN	PZ-G52CN	PZ-G41CN	PZ-G42CN	PZ-G101CN	PZ-G102CN	PZ-G61CN	PZ-G62CN	PZ-G10RCN	PZ-G10GCN	PZ-G10BCN	
		PNP	PZ-G51CP	PZ-G52CP	PZ-G41CP	PZ-G42CP	PZ-G101CP	PZ-G102CP	PZ-G61CP	PZ-G62CP	PZ-G10RCP	PZ-G10GCP	PZ-G10BCP	
Nut	M12 pigtail quick disconnect	NPN	PZ-G51EN	PZ-G52EN	PZ-G41EN	PZ-G42EN	PZ-G101EN	PZ-G102EN	PZ-G61EN	PZ-G62EN	-			
		PNP	PZ-G51EP	PZ-G52EP	PZ-G41EP	PZ-G42EP	PZ-G101EP	PZ-G102EP	PZ-G61EP	PZ-G62EP				
	Cable	Bipolar	PZ-G51B	PZ-G52B	PZ-G41B	PZ-G42B	PZ-G101B	PZ-G102B	PZ-G61B	PZ-G62B	-			
		(NPN+PNP)	PZ-G51CB	PZ-G52CB	PZ-G41CB	PZ-G42CB	PZ-G101CB	PZ-G102CB	PZ-G61CB	PZ-G62CB				
Detecting distance ^{*1}			20 m	40 m	1 m (30 × 30 cm white mat paper)	300 mm (10 × 10 cm white mat paper)	200 mm	5 to 45 mm	0.1 to 4.2 m (when R-2L reflector is used)	0.1 to 1 m (when R-2L reflector is used)	8 to 15 mm			
Spot diameter			-	-	-	-	Approx. φ 5 mm (when the detecting distance is 100 mm)	Approx. φ 2 mm (when the detecting distance is 40 mm)	-	-	Approx. 1.5 × 4 mm (when the detecting distance is 10 mm)			
Light source (LED)			Red LED	Infrared LED × 2	Red LED					Infrared LED	Red LED	Green LED	Blue LED	
Sensitivity adjustment			1-turn trimmer (230 degrees)											
Response time			500 μs								50 μs			
Operation mode			LIGHT-ON/DARK-ON, trimmer-selectable											
Indicator (LED)			Transmitter: power (orange) Receiver: output (orange), stable operation (green), light (red)		Output (orange), stable operation (green)									
Control output			Open-collector 100 mA max. (30 V max.), Residual voltage 1 V max.											
Protection circuit			Reverse-polarity protection, over-current protection, output surge absorber											
Ratings	Power voltage	10 to 30 VDC, Ripple (P-P): ±10% max, Class 2.												
	Current consumption	Transmitter: 20 mA max. Receiver: 28 mA max.	Transmitter: 25 mA max. Receiver: 28 mA max.	34 mA max.										
Environmental resistance	Enclosure rating	IEC/JEM: IP67 / NEMA: 4X,6,12 / DIN: IP69K												
	Ambient light	Incandescent lamp: 5,000 (lx) max, Sunlight: 20,000 (lx) max.												
	Ambient temperature	-20 °C to +55°C (No freezing)												
	Relative humidity	35 to 85 % RH (No condensation)												
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude in X, Y, Z directions, 2 hours each												
Shock resistance	1000 m/s ² in X, Y, Z directions, 6 times each													
Interference prevention			2 units (when polarizing filter attachment is used)		2 units (with the automatic different cycle function)						-			
Material			Case, M18 nut (nut type only): reinforced glass polybutylene terephthalate (PBT), Trimmer: reinforced glass polyamide (PA) Cable (Cable type / pigtail quick disconnect type only): Polyvinyl chloride (PVC), Screw (Case connection): Steel, zinc-nickel plated, Packing (Case connection): Nitrile-butadiene rubber (NBR) Connector (pigtail quick disconnect type only): Brass-nickel plated, Polybutyleneterephthalate (PBT), Polyvinyl chloride (PVC)											
	Lens cover	Polyarylate (PAR)							Acrylic plastic (PMMA)		Polyarylate (PAR)			
Tightening torque			Rectangular type (side screw part): 0.5 N·m max. Nut type (front M18 part): 1.0 N·m max., (side slot part): 0.5 N·m max.											
Accessory ^{*2}			Instruction manual, M18 nut × 2 (nut thrubeam type), M18 nut × 1 (other nut types)											
Weight			Rectangular cable type: Approx. 60 g (Approx. 50 g for thrubeam transmitter), Rectangular M8 connector type: Approx 10 g, rectangular M12 pigtail quick disconnect type: Approx. 30 g Nut type cable type: Approx. 65 g (Approx. 55 g for thrubeam transmitter), Nut type M12 connector type: Approx 15 g											

*1 The detection distance is measured with the maximum sensitivity.

*2 The cable for the connector type / pigtail quick disconnect type is sold separately. The reflector for the retro-reflective type is sold separately.

WARRANTY

KEYENCE products are strictly factory-inspected. However, in the event of a failure, contact your nearest KEYENCE office with details of the failure.

1. WARRANTY PERIOD

The warranty period shall be for one year from the date that the product has been delivered to the location specified by the purchaser.

2. WARRANTY SCOPE

- If a failure attributable to KEYENCE occurs within the abovementioned warranty period, we will repair the product, free of charge. However, the following cases shall be excluded from the warranty scope.
 - Any failure resulting from improper conditions, improper environments, improper handling, or improper usage other than described in the instruction manual, the user's manual, or the specifications specifically arranged between the purchaser and KEYENCE.
 - Any failure resulting from factors other than a defect of our product, such as the purchaser's equipment or the design of the purchaser's software.
 - Any failure resulting from modifications or repairs carried out by any person other than KEYENCE staff.
 - Any failure that can certainly be prevented when the expendable part(s) is maintained or replaced correctly as described in the instruction manual, the user's manual, etc.
 - Any failure caused by a factor that cannot be foreseen at a scientific/technical level at the time when the product has been shipped from KEYENCE.
 - Any disaster such as fire, earthquake, and flood, or any other external factor, such as abnormal voltage, for which we are not liable.
- The warranty scope is limited to the extent set forth in item (1), and KEYENCE assumes no liability for any purchaser's secondary damage (damage of equipment, loss of opportunities, loss of profits, etc.) or any other damage resulting from a failure of our product.

3. PRODUCT APPLICABILITY

KEYENCE products are designed and manufactured as general-purpose products for general industries.

Therefore, our products are not intended for the applications below and are not applicable to them. If, however, the purchaser consults with us in advance regarding the employment of our product, understands the specifications, ratings, and performance of the product on their own responsibility, and takes necessary safety measures, the product may be applied. In this case, the warranty scope shall be the same as above.

- Facilities where the product may greatly affect human life or property, such as nuclear power plants, aviation, railroads, ships, motor vehicles, or medical equipment
- Public utilities such as electricity, gas, or water services
- Usage outdoors, under similar conditions or in similar environments

E 1040-1

KEYENCE CORPORATION

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PHONE: +81-6-6379-2211 www.keyence.com

Specifications are subject to change without notice.

A7WW1-MAN-0069

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Printed in Japan



* 9 6 M 1 1 2 2 7 - 1 *

ASSEMBLY TITLE: BROKEN WEB / END OF WEB

DRAWING NO:

GENERAL FUNCTION:

- The broken web fault indicates that the labeler label stock has broken after the labeler pull roll. It consists of a reflective sensor and a reflector. The sensor is capable of reading clear or opaque label liner.

-When the broken web passes through the sensor, a signal is generated, that signal will shut the conveyor system down and light the red lamp on the stack lamp assembly.

-To reset the fault condition, rethread labels and press labeler run/pause to turn off the red light and place the labeler in run mode. The conveyor will restart and the labeling process will continue.

SET-UP AND ADJUSTMENTS:

- The sensor is set in light on operation mode. It is a retro-reflective operation. To set the sensor, refer to the following manufacture's instruction sheet.

- Ensure that all label material is removed from the sensor and reflector area for proper set up.

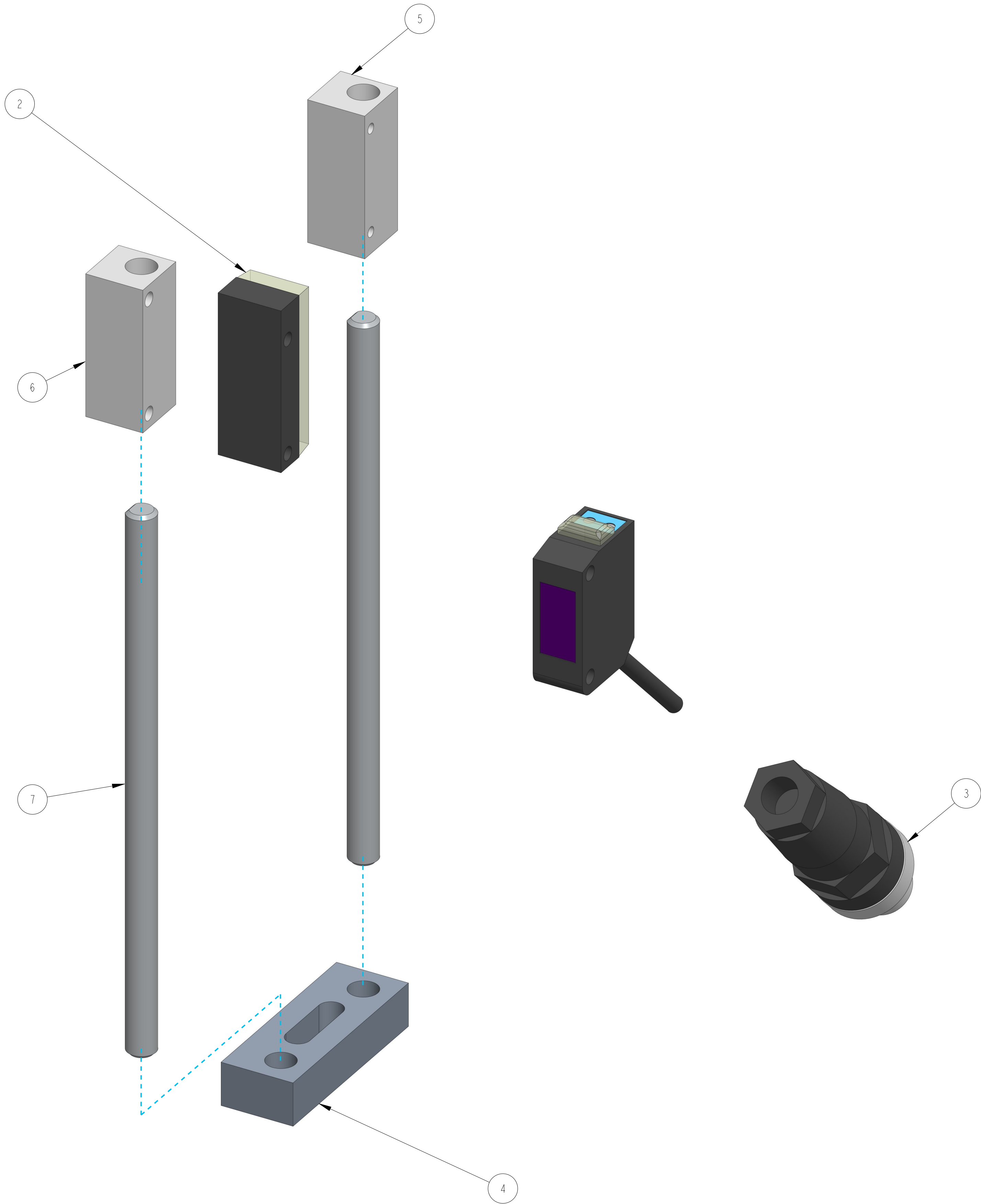
MAINTENANCE:

- See Maintenance Section

TROUBLESHOOTING:

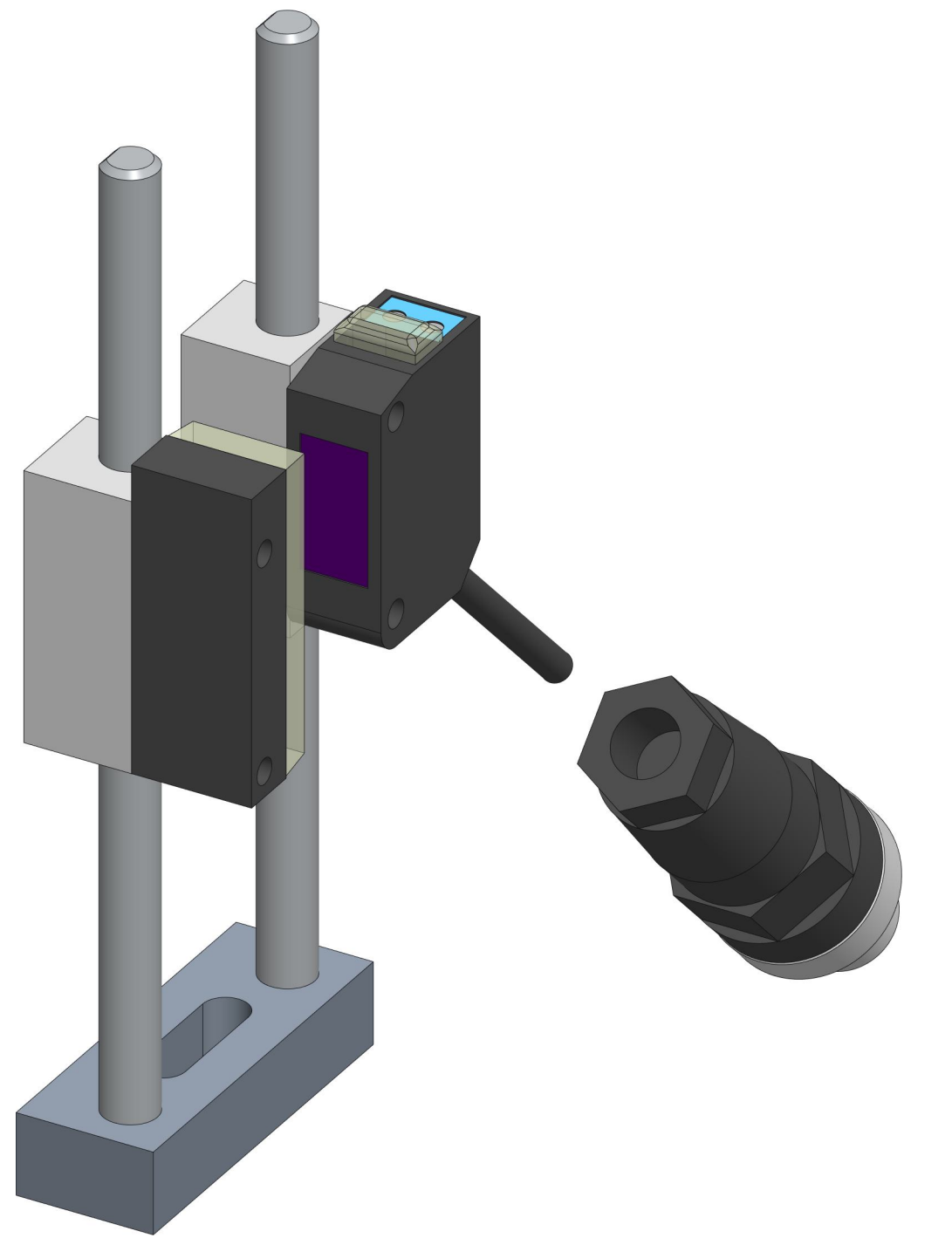
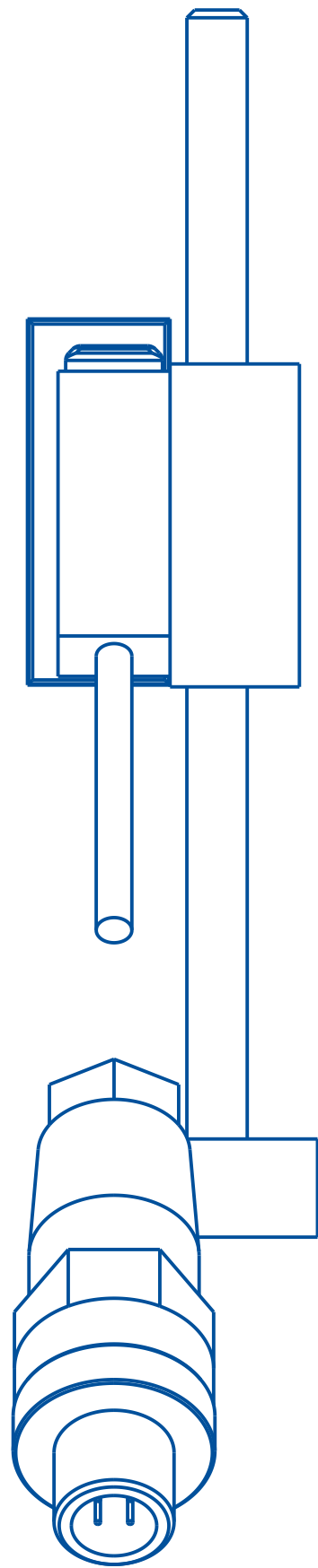
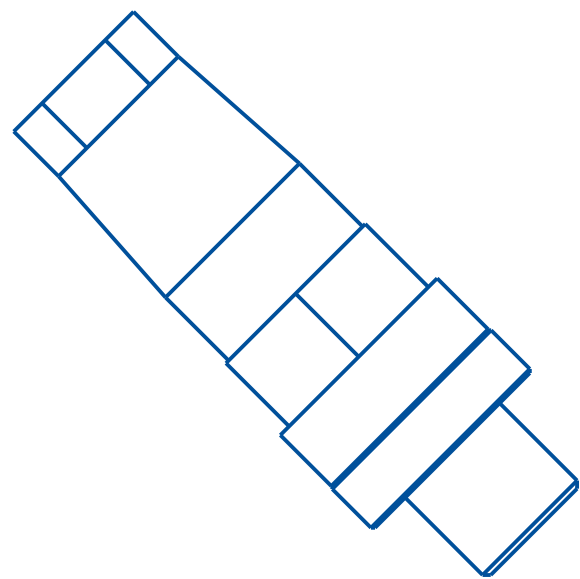
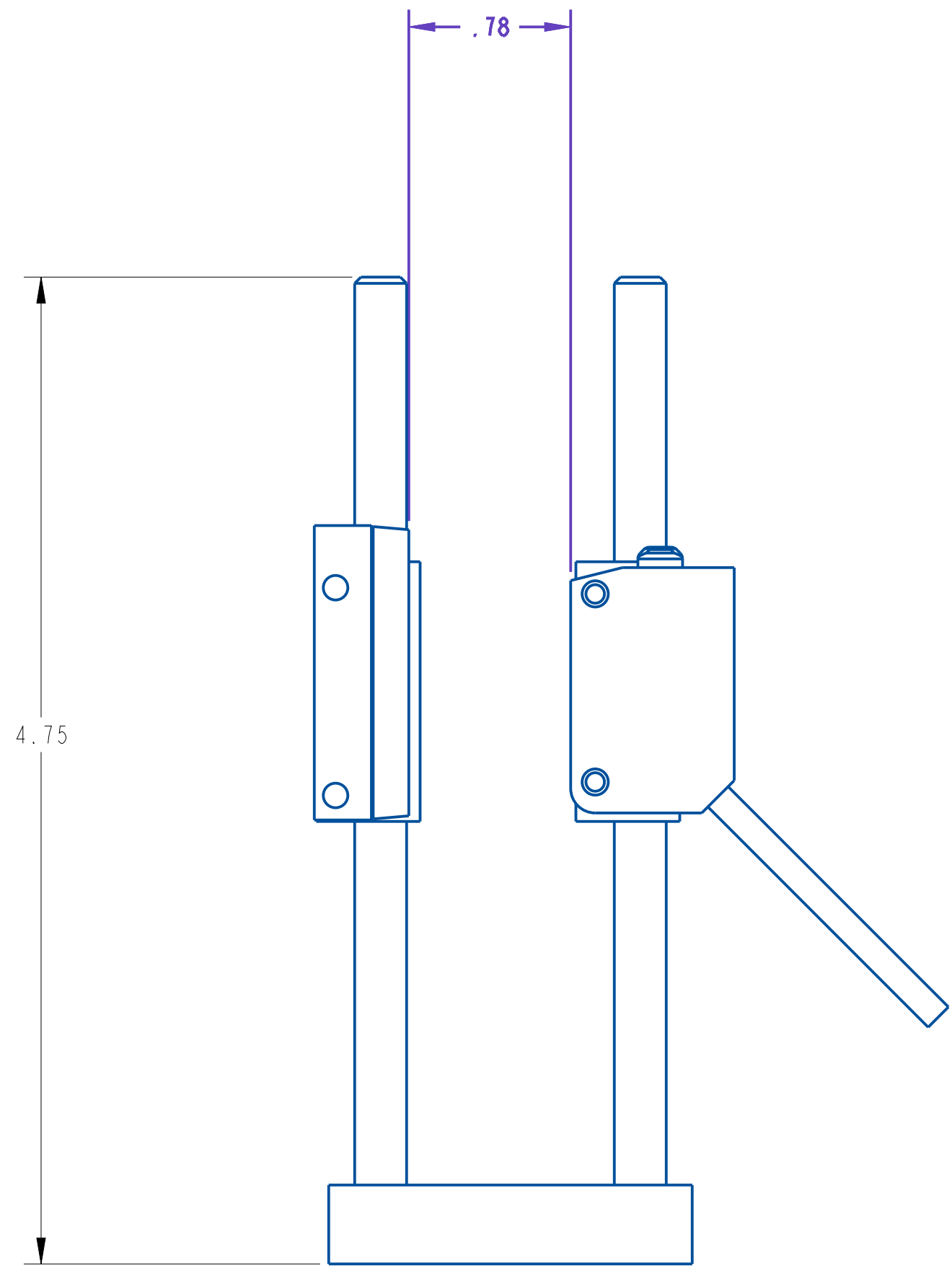
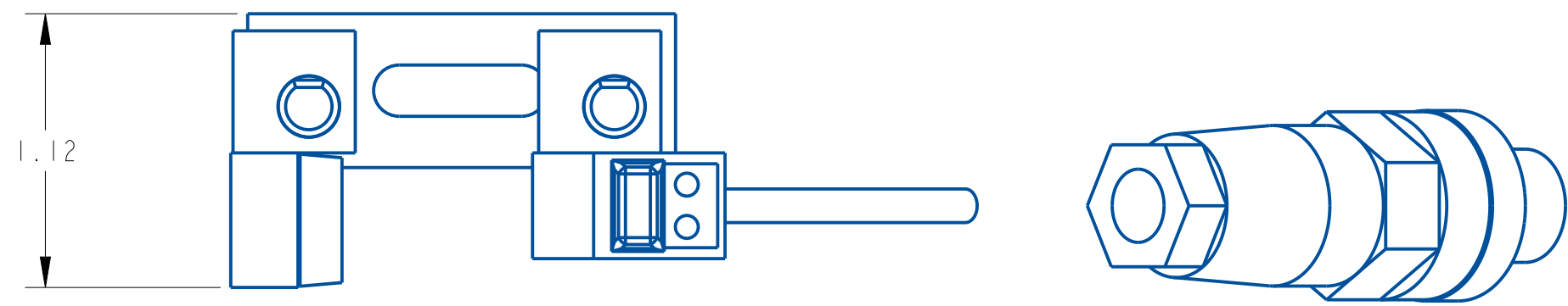
- See Troubleshooting Section

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	202192-002	CLEAR PRODUCT SENSOR	21606-013
2	1	203161-000	REFLECTOR	21606-013
3	1	252019-000	4 PIN MALE CONNECTOR	21606-013
4	1	A24241-000	MOUNTING BLOCK	21606-013
5	1	A24242-000	SENSOR MTG. BLOCK	21606-013
6	1	A24243-000	REFLECTOR MTG. BLOCK	21606-013
7	2	A24244-000	SUPPORT ROD WITH FLAT	21606-013



A	11/11/24	NEW DRAWING	SEM
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE XX ± .01 XXX ± .005 ANGLES ± .30°		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		SCALE: 2/1 DATE: 11/11/24 DRW BY: SEM CHK BY: &CREO.CHK APPR BY:	
BROKEN WEB/END OF WEB, PNP SINGLE BASE, USE PZ-G62P		MAT'L	
		21606-013	



A	11/11/24	NEW DRAWING	SEM
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 3/2	
X ± .1		DATE: 11/11/24	
XX ± .01		DRW BY: SEM	
XXX ± .005		CHK BY: CREO.CHK	
ANGLES ± .00°		APPR BY:	
SURFACE FINISH 125		BROKEN WEB/END OF WEB, PNP SINGLE BASE, USE PZ-G62P	
BREAK ALL EDGES .005/.015		MAT'L	
CORNER RADIUS .010/.030		21606-013	
ALL ANGLES ARE 90°			

PZ-G Series

Instruction Manual

Read this manual thoroughly before using the product.
Keep this manual readily available for future reference.

Safety precautions

- Avoid running the PZ-G cable along with power and high voltage lines, as this may cause interference and/or permanent damage.
- When using a commercially available switching regulator, ground its chassis grounding and earth grounding terminals.
- Do not use in locations where direct ambient light or external light directly shines on the light receiving surface.
- With retro-reflective type sensors, when detecting highly reflective materials (such as mirrored surfaces), stabilization may be difficult. To correct this, change the angle of the sensor head, or adjust the sensitivity.
- Avoid using power which exceeds the specifications for ripple (10% max)
- Avoid using excess force when rotating the operation mode selector switch (Light-on, Dark-on) and the sensitivity adjustment trimmer.
- This product is just intended to detect the object(s). Do not use this product for the purpose to protect a human body or a part of human body.
- This product is not intended for use as explosion-proof product. Do not use this product in a hazardous location and/or potentially explosive atmosphere.

Precautions on Regulations and Standards

UL Certificate

This product is an UL/C-UL Listed product.

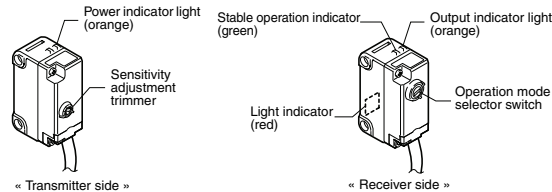
- UL File No. E301717
- Category NRKH,NRKH7
- Enclosure Type 1 (Based on UL50)

Be sure to consider the following specifications when using this product as an UL/C-UL Listed Product.

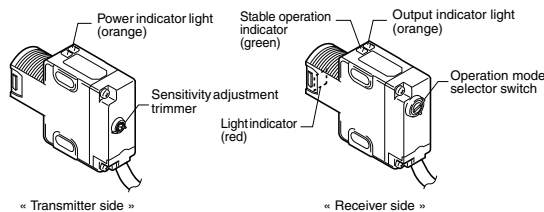
- Use the power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Power supply/ Control input/ Control output circuits shall be connected to a single Class 2 source only.
- Use with the over current protection device which is rated 30V or more and not more than 1A.

Part Names

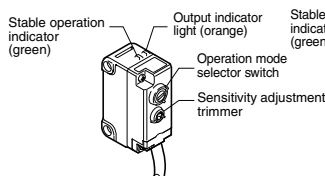
PZ-G5xN/G5xP



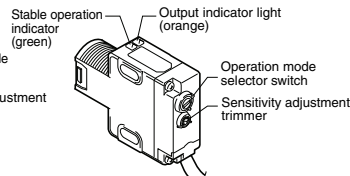
PZ-G5xB



PZ-G4xN/G4xP/G10xN/G10xP/G6xN/G6xP



PZ-G4xB/G10xB/G6xB

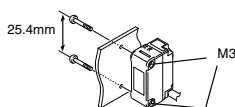


* The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

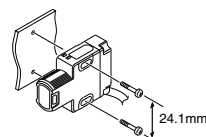
Mounting Method

Side Mounting (Prepare M3 screws)

Tightening torque: 0.5 N·m or less



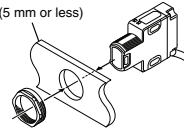
Tightening torque: 0.5 N·m or less



Mounting with the M18 nut (includes nut type)

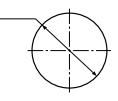
The M18 nut is also available separately as OP-84225 (2 pcs. supplied).
Tightening torque: 1.0 N·m or less

Panel (5 mm or less)



Panel cut size

$\phi 18.5 \pm 0.2$ mm



Note

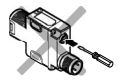
- Mount the M18 nut (supplied) straight in. If mounted at an angle it cannot be tightened properly.
- When tightening the M18 nut (supplied), firmly hold the main body down. The case of the main body may be damaged if held in place with a tool such as pliers.
- When tightening the M18 nut (supplied), if excess force is applied to the nut with a tool such as pliers, it may bend it out of shape. Therefore, do not apply excess force.

Sensitivity Adjustment Method

Caution



Avoid using excess force when rotating the sensitivity adjustment trimmer and operation mode selector switch as it may cause damage.



Operation mode selector switch

With the operation mode selector switch, you can select either the LIGHT-ON mode (L) or the DARK-ON (D) mode.



LIGHT-ON setting



DARK-ON setting

Reflective type (PZ-G41/G42/G101/G102/G10R/G10G/G10B Series)

The following assumes LIGHT-ON (L) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Position target in place. Slowly rotate the sensitivity trimmer from the MIN position towards the MAX position until the (orange) output indicator turns on (Position "A"). If the output indicator does not turn off, even at MIN, then MIN is considered Position "A".	
②	Remove the target. Adjust the sensitivity trimmer from MIN towards MAX until the (orange) output indicator turns on (Position "B"). If the output indicator does not light up, the MAX position is considered Position "B".	
③	Adjust the sensitivity trimmer to the midpoint between "A" and "B". Verify that the (green) stable operation light turns on with and without a target in place.	

Reference To use the sensor in DARK-ON mode, adjust the mode selector switch to "D".

Thrubeam type (PZ-G51/G52 Series) / Retro-reflective type (PZ-G61/G62 Series)

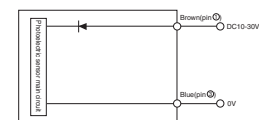
The following assumes DARK-ON (D) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Remove the target. Adjust the sensitivity trimmer to MAX. Mount the sensor heads in place so the (orange) output indicator turns off (on thrubeam models, the red light on the receiver face will turn on).	
②	Position target in place. Verify that the orange output indicator turns on (on thrubeam models, the red light on the receiver face will turn off). Adjust sensitivity lower if the output indicator does not turn on (or if the red light on the receiver face does not turn off on thrubeam models).	

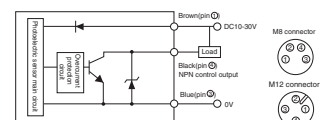
Reference To use the sensor in LIGHT-ON mode, adjust the mode selector switch to "L".

I/O Circuit Diagram

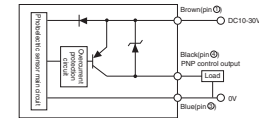
PZ-G5xN/G5xP/G5xB (Transmitter side)



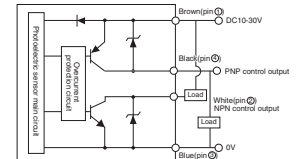
PZ-G5xN (Receiver side)/ G4xN/G10xN/G6xN



PZ-G5xP (Receiver side)/ G4xP/G10xP/G6xP



PZ-G5xB (Receiver side)/ G4xB/G10xB/G6xB



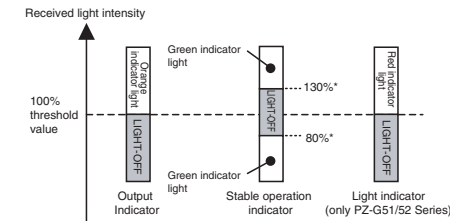
* The pin numbers represent those of the connector type / pigtail quick disconnect type.
The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

[PZ-GxxCN/GxxCP..... M8 connector
PZ-GxxCB/GxxEN/GxxEP..... M12 connector]

Indicators

The following describes each ON/OFF condition of indicator when LIGHT-ON (L) is set.

When the DARK-ON (D) is set, the output indicator ON/OFF will reverse.



* For PZ-G62, the upper limit is 107% and the lower limit is 93%.

If the stable operation indicator turns off during operation, readjust or fine-adjust the sensitivity.

Mutual interference

- For reflective type / retro-reflective type sensors, mutual interference protection can be set for up to 2 units. However, when the sensors are mounted facing each other, change the angle of the sensor head to prevent light being emitted into each unit. (The mark detection type does not include the mutual interference function.)
- Mutual interference prevention can be set when mounting a polarizing filter attachment (optional with thru-beam type sensors). (If operation is unstable even after mounting the polarizing filter, slightly lower the sensitivity.)
- For more detailed information about mutual interference or attachment, see the PZ-G Series catalog or contact your nearest KEYENCE office.

Specifications

Type			Thrubeam		Reflective				Retro-reflective		Mark detection		
Configuration	Cable shape	Output mode	Normal	High-power	Diffuse-reflective Long-detecting distance	Diffuse-reflective Short-detecting distance	Narrow-view reflective	Definite reflective	Long detecting distance (with P.R.O. function)	Transparent target detection (without P.R.O. function)	Red	Green	Blue
Rectangular	Cable	NPN	PZ-G51N	PZ-G52N	PZ-G41N	PZ-G42N	PZ-G101N	PZ-G102N	PZ-G61N	PZ-G62N	-		
		PNP	PZ-G51P	PZ-G52P	PZ-G41P	PZ-G42P	PZ-G101P	PZ-G102P	PZ-G61P	PZ-G62P			
	M8 connector	NPN	PZ-G51CN	PZ-G52CN	PZ-G41CN	PZ-G42CN	PZ-G101CN	PZ-G102CN	PZ-G61CN	PZ-G62CN	PZ-G10RCN	PZ-G10GCN	PZ-G10BCN
		PNP	PZ-G51CP	PZ-G52CP	PZ-G41CP	PZ-G42CP	PZ-G101CP	PZ-G102CP	PZ-G61CP	PZ-G62CP	PZ-G10RCP	PZ-G10GCP	PZ-G10BCP
	M12 pigtail quick disconnect	NPN	PZ-G51EN	PZ-G52EN	PZ-G41EN	PZ-G42EN	PZ-G101EN	PZ-G102EN	PZ-G61EN	PZ-G62EN	-		
		PNP	PZ-G51EP	PZ-G52EP	PZ-G41EP	PZ-G42EP	PZ-G101EP	PZ-G102EP	PZ-G61EP	PZ-G62EP			
Nut	Cable	Bipolar	PZ-G51B	PZ-G52B	PZ-G41B	PZ-G42B	PZ-G101B	PZ-G102B	PZ-G61B	PZ-G62B	-		
	M12 connector	(NPN+PNP)	PZ-G51CB	PZ-G52CB	PZ-G41CB	PZ-G42CB	PZ-G101CB	PZ-G102CB	PZ-G61CB	PZ-G62CB			
Detecting distance*1			20 m	40 m	1 m (30 × 30 cm white mat paper)	300 mm (10 × 10 cm white mat paper)	200 mm	5 to 45 mm	0.1 to 4.2 m (when R-2L reflector is used)	0.1 to 1 m (when R-2L reflector is used)	8 to 15 mm		
Spot diameter			-	-	-	-	Approx. φ 5 mm (when the detecting distance is 100 mm)	Approx. φ 2 mm (when the detecting distance is 40 mm)	-	-	Approx. 1.5 × 4 mm (when the detecting distance is 10 mm)		
Light source (LED)			Red LED	Infrared LED × 2	Red LED					Infrared LED	Red LED	Green LED	Blue LED
Sensitivity adjustment			1-turn trimmer (230 degrees)										
Response time			500 μs										
Operation mode			LIGHT-ON/DARK-ON, trimmer-selectable										
Indicator (LED)			Transmitter: power (orange) Receiver: output (orange), stable operation (green), light (red)		Output (orange), stable operation (green)								
Control output			Open-collector 100 mA max. (30 V max.), Residual voltage 1 V max.										
Protection circuit			Reverse-polarity protection, over-current protection, output surge absorber										
Ratings	Power voltage		10 to 30 VDC, Ripple (P-P): ±10% max, Class 2.										
	Current consumption		Transmitter: 20 mA max. Receiver: 28 mA max.	Transmitter: 25 mA max. Receiver: 28 mA max.	34 mA max.								
Environmental resistance	Enclosure rating		IEC/JEM: IP67 / NEMA: 4X,6,12 / DIN: IP69K										
	Ambient light		Incandescent lamp: 5,000 (lx) max, Sunlight: 20,000 (lx) max.										
	Ambient temperature		-20 °C to +55°C (No freezing)										
	Relative humidity		35 to 85 % RH (No condensation)										
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude in X, Y, Z directions, 2 hours each										
	Shock resistance		1000 m/s ² in X, Y, Z directions, 6 times each										
Interference prevention			2 units (when polarizing filter attachment is used)		2 units (with the automatic different cycle function)							-	
Material			Case, M18 nut (nut type only): reinforced glass polybutylene terephthalate (PBT), Trimmer: reinforced glass polyamide (PA) Cable (Cable type / pigtail quick disconnect type only): Polyvinyl chloride (PVC), Screw (Case connection): Steel, zinc-nickel plated, Packing (Case connection): Nitrile-butadiene rubber (NBR) Connector (pigtail quick disconnect type only): Brass-nickel plated, Polybutyleneterephthalate (PBT), Polyvinyl chloride (PVC)										
	Lens cover		Polyarylate (PAR)						Acrylic plastic (PMMA)		Polyarylate (PAR)		
Tightening torque			Rectangular type (side screw part): 0.5 N·m max. Nut type (front M18 part): 1.0 N·m max., (side slot part): 0.5 N·m max.										
Accessory*2			Instruction manual, M18 nut × 2 (nut thrubeam type), M18 nut × 1 (other nut types)										
Weight			Rectangular cable type: Approx. 60 g (Approx. 50 g for thrubeam transmitter), Rectangular M8 connector type: Approx 10 g, rectangular M12 pigtail quick disconnect type: Approx. 30 g Nut type cable type: Approx. 65 g (Approx. 55 g for thrubeam transmitter), Nut type M12 connector type: Approx 15 g										

*1 The detection distance is measured with the maximum sensitivity.

*2 The cable for the connector type / pigtail quick disconnect type is sold separately. The reflector for the retro-reflective type is sold separately.

WARRANTY

KEYENCE products are strictly factory-inspected. However, in the event of a failure, contact your nearest KEYENCE office with details of the failure.

1. WARRANTY PERIOD

The warranty period shall be for one year from the date that the product has been delivered to the location specified by the purchaser.

2. WARRANTY SCOPE

- (1) If a failure attributable to KEYENCE occurs within the abovementioned warranty period, we will repair the product, free of charge. However, the following cases shall be excluded from the warranty scope.
- Any failure resulting from improper conditions, improper environments, improper handling, or improper usage other than described in the instruction manual, the user's manual, or the specifications specifically arranged between the purchaser and KEYENCE.
 - Any failure resulting from factors other than a defect of our product, such as the purchaser's equipment or the design of the purchaser's software.
 - Any failure resulting from modifications or repairs carried out by any person other than KEYENCE staff.
 - Any failure that can certainly be prevented when the expendable part(s) is maintained or replaced correctly as described in the instruction manual, the user's manual, etc.
 - Any failure caused by a factor that cannot be foreseen at a scientific/technical level at the time when the product has been shipped from KEYENCE.
 - Any disaster such as fire, earthquake, and flood, or any other external factor, such as abnormal voltage, for which we are not liable.
- (2) The warranty scope is limited to the extent set forth in item (1), and KEYENCE assumes no liability for any purchaser's secondary damage (damage of equipment, loss of opportunities, loss of profits, etc.) or any other damage resulting from a failure of our product.

3. PRODUCT APPLICABILITY

KEYENCE products are designed and manufactured as general-purpose products for general industries.

Therefore, our products are not intended for the applications below and are not applicable to them. If, however, the purchaser consults with us in advance regarding the employment of our product, understands the specifications, ratings, and performance of the product on their own responsibility, and takes necessary safety measures, the product may be applied. In this case, the warranty scope shall be the same as above.

- Facilities where the product may greatly affect human life or property, such as nuclear power plants, aviation, railroads, ships, motor vehicles, or medical equipment
- Public utilities such as electricity, gas, or water services
- Usage outdoors, under similar conditions or in similar environments

E 1040-1

KEYENCE CORPORATION

1-3-14, Higashi-Nakajima, Higashi-Yodogawa-ku,
Osaka, 533-8555, Japan

PHONE: +81-6-6379-2211 www.keyence.com

Specifications are subject to change without notice.

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11227E 1070-1 96M11227

Printed in Japan



system

ASSEMBLY TITLE:

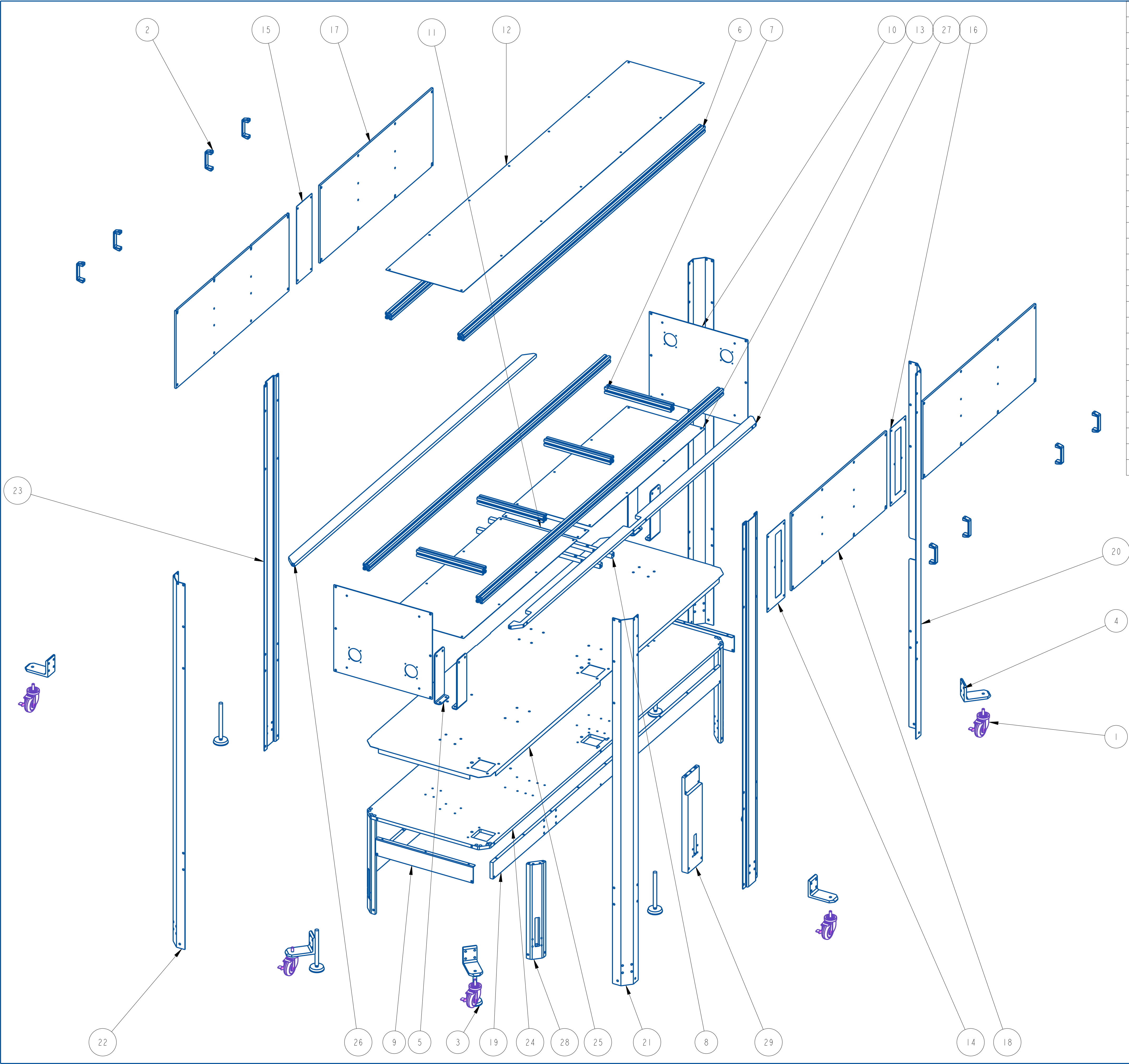
PROLINE BASE ASSEMBLY

GENERAL FUNCTION:

- To house the electronics and, To provide support for the head supports, conveyor, top trap, pacing wheel, wrap station and the guide rails.

SET-UP AND ADJUSTMENTS:

- Adjust leveling pads by turning the threaded rod by the flats to adjust table top chain to the proper height. Secure lock nut when proper height is achieved.
- Safety doors must be closed for operation.



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	6	791449-000	CASTERS, SWIVEL 3-1/2"	84211B-000
2	8	792114-000	HANDLE, STD. DUTY	84211B-000
3	6	793020-000	LEVELING MOUNT	84211B-000
4	6	A23151-000	CASTER MOUNTING ANGLE	84211B-000
5	4	B20208-120	CONVEYOR RISER	84211B-000
6	4	B22644-001	SMOOTH EXTRUDED ALUMINUM	84211B-000
7	4	B22644-750	SMOOTH EXTRUDED ALUMINUM	84211B-000
8	2	B22681-002	SUPPORT BAR	84211B-000
9	2	C21237-090	SHORT GUSSET PANEL	84211B-000
10	2	C21237-754	ELECTRICAL ENCLOSURE END PANEL	84211B-000
11	1	D23861-019	ELECTRICAL ENCLOSURE COVER	84211B-000
12	1	D23861-026	TOP ELECTRICAL ENCLOSURE COVER	84211B-000
13	2	D23861-108	BOTTOM ELECTRICAL ENCLOSURE COVER	84211B-000
14	1	D23861-504	ELECTRICAL ENCLOSURE COVER	84211B-000
15	1	D23861-516	ELECTRICAL ENCLOSURE COVER	84211B-000
16	1	D23861-518	ELECTRICAL ENCLOSURE COVER	84211B-000
17	3	D23861-916	ELECTRICAL ENCLOSURE COVER	84211B-000
18	1	D23861-919	ELECTRICAL ENCLOSURE COVER	84211B-000
19	2	D24004-229	SUPPORT PLATE	84211B-000
20	1	D24215-005	CORNER ANGLE	84211B-000
21	2	D24215-006	CORNER ANGLE	84211B-000
22	1	D24215-007	CORNER ANGLE	84211B-000
23	2	D24216-001	MID SUPPORT	84211B-000
24	1	D24217-982	BASE TOP PLATE, PRO LINE	84211B-000
25	1	D24217-983	BASE TOP PLATE COVER, PRO LINE	84211B-000
26	1	D24219-405	BASE TOP SUPPORT	84211B-000
27	1	D24219-410	BASE TOP SUPPORT	84211B-000
28	4	D24220-118	LEVELING PAD MOUNTING PLATE	84211B-000
29	2	D24221-003	LEVELING PAD MOUNTING PLATE	84211B-000

UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE

X ± .1
XX ± .01
XXX ± .005
ANGLES ± .30°

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

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QUADREL LABELING SYSTEMS

7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

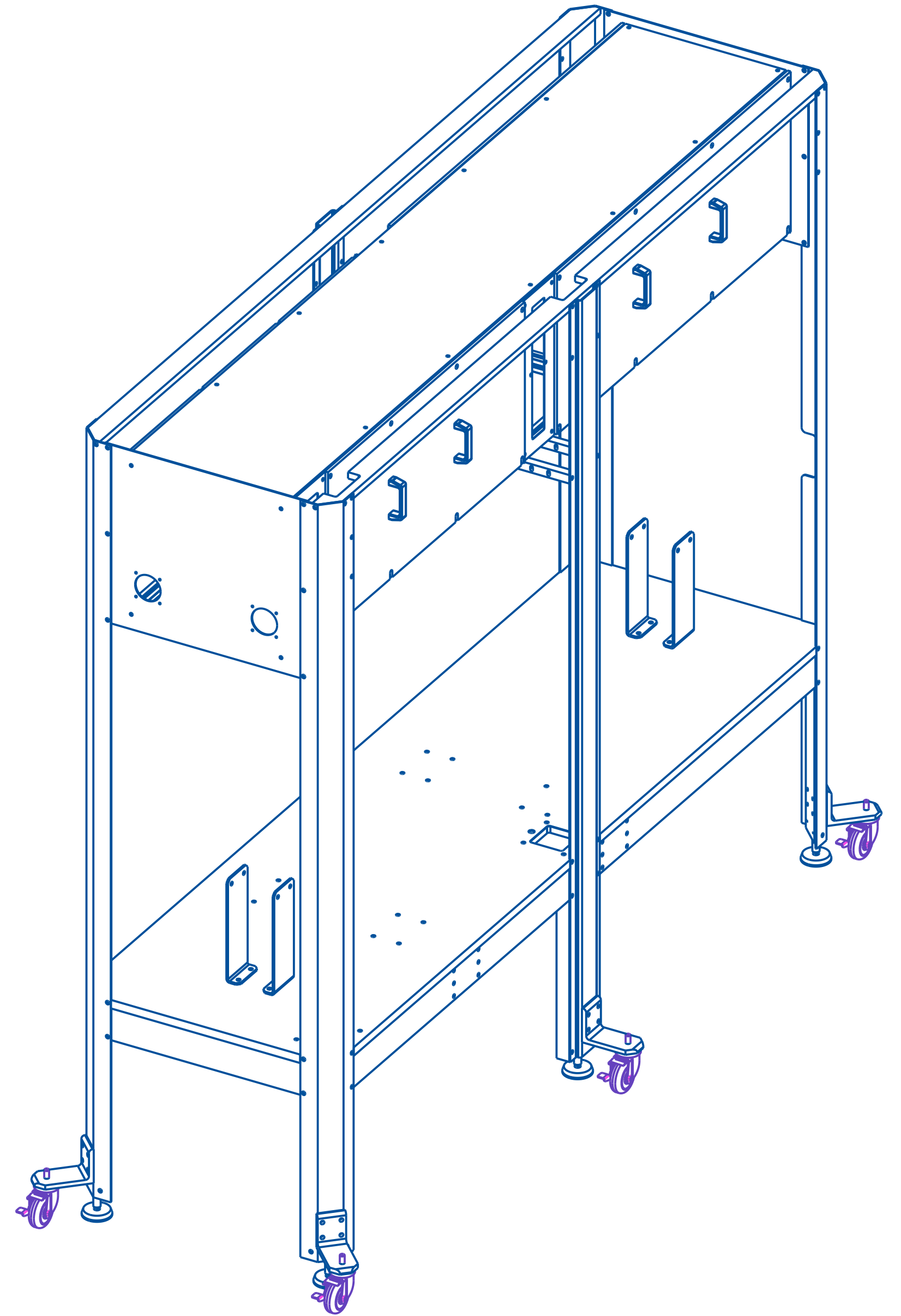
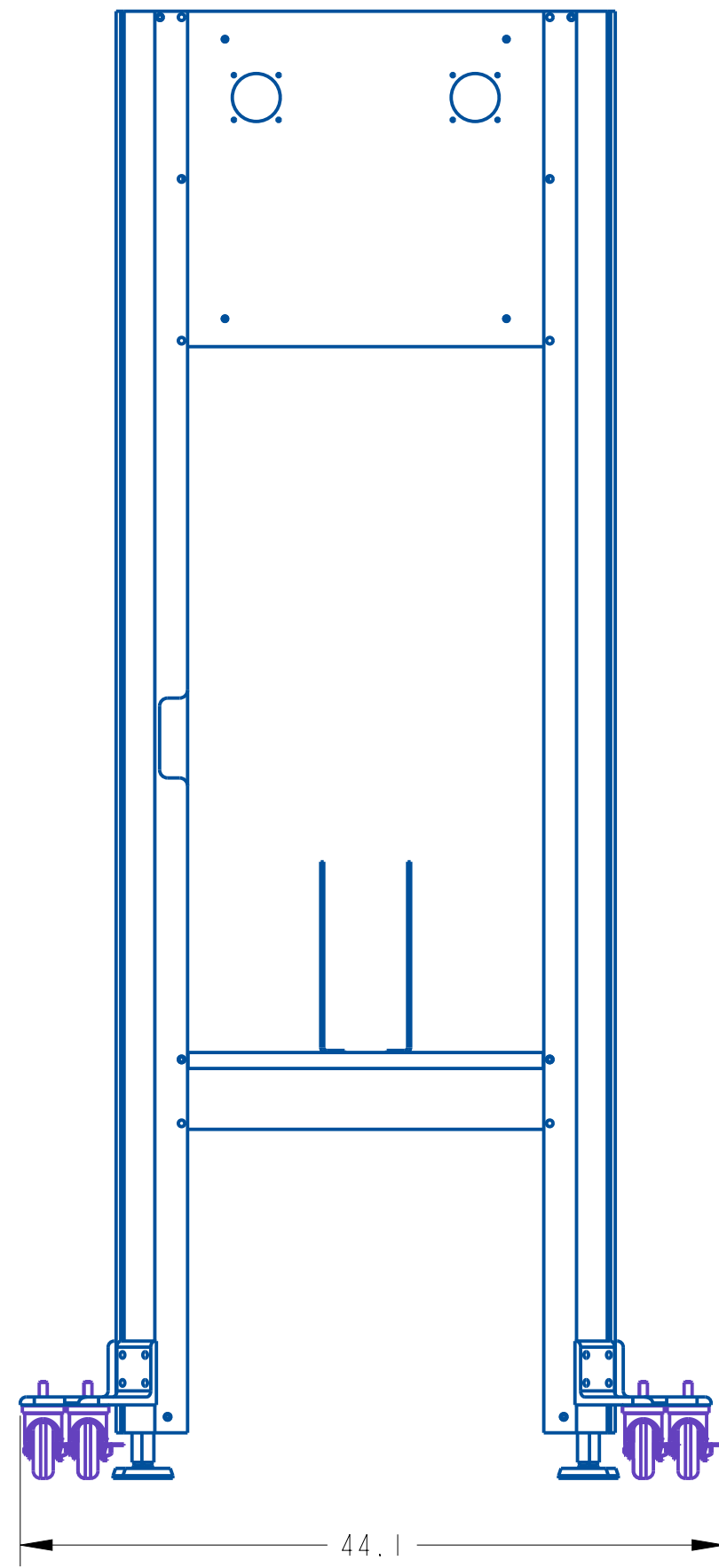
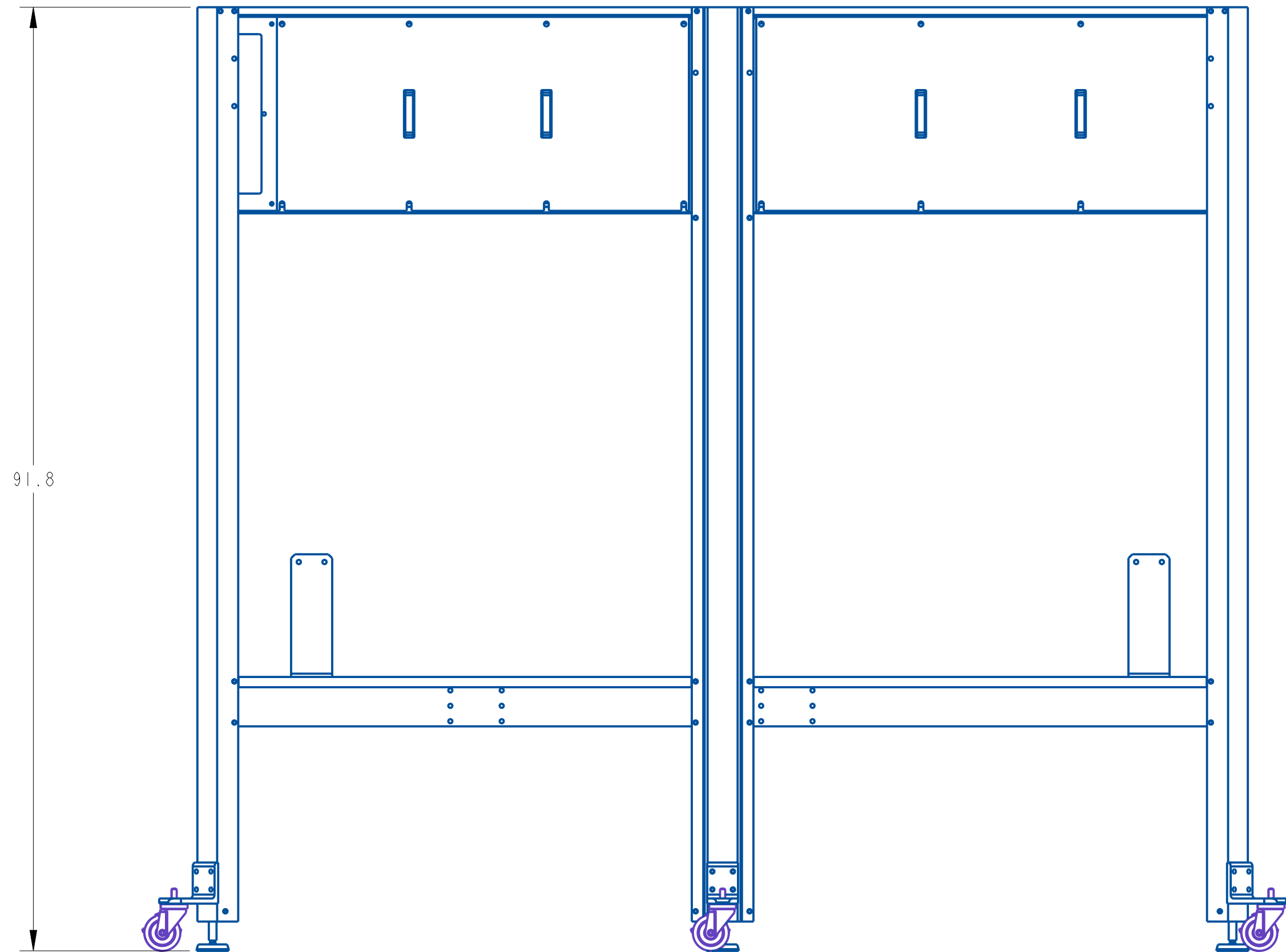
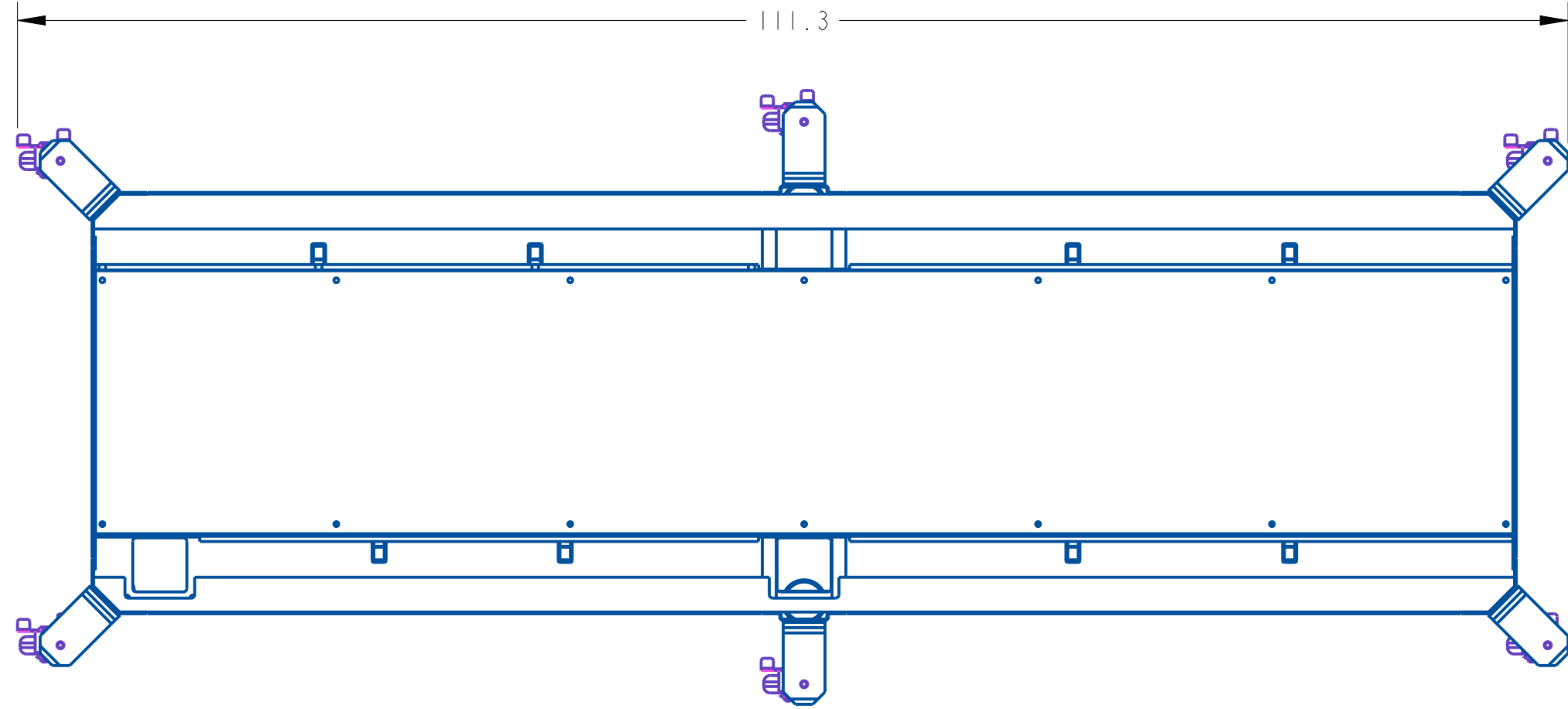
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DATE: Aug-22-25
DRW BY: RDL
CHK BY: 07/23/2025-SEM
APPR BY:

A	Aug-22-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY

PROLINE BASE

MAT'L

84211B-000



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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .00°		7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
SURFACE FINISH 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°		SCALE: 3/32 DATE: Aug-22-25 DRW BY: RDL CHK BY: 07/23/2025-SEM APPR BY:	
PROLINE BASE		84211B-000	
MATERIAL			

ASSEMBLY TITLE: NON-INTEGRATED CONVEYOR

GENERAL FUNCTION:

- To transfer the product to the labeling heads at a predetermined speed.
- To provide retention for the head support and guide rails.

SET-UP AND ADJUSTMENTS:

- Adjust conveyor to proper working height by rotating leveling pads to appropriate position. Secure locknut when proper height is achieved.
- Using ratchet handles, adjust guide rails to the product.
- Adjust conveyor speed by means of conveyor speed potentiometer (if applicable) located in the remote electronics enclosure mounted to the conveyor, or through the operator's touchscreen if provided.

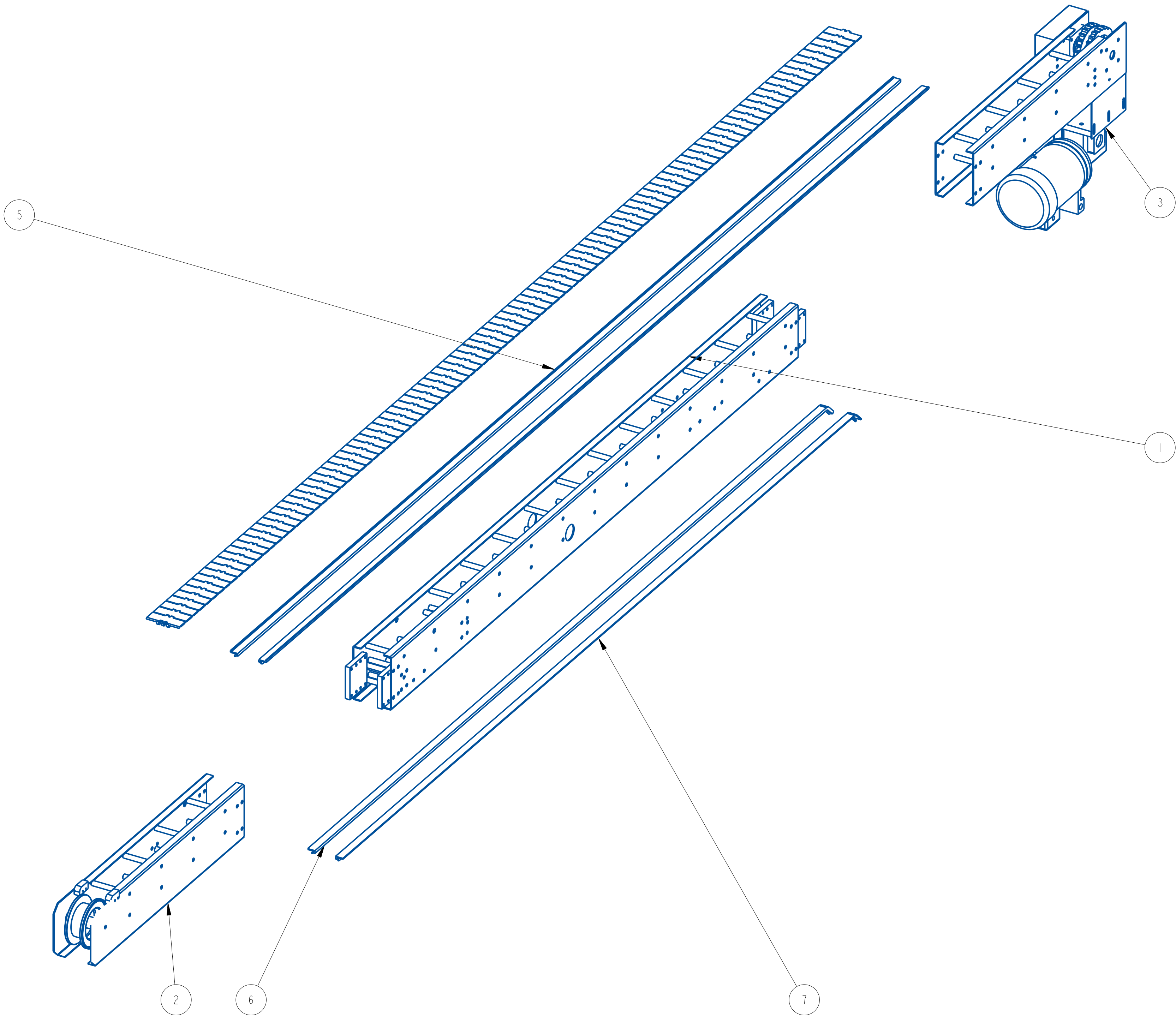
MAINTENANCE:

- The conveyor drive chain must be greased with white lithium grease.
- Do not allow chain and sprockets to run dry, lubricate periodically.
- The gear motor gearbox should be checked quarterly and filled with Synthetic based Tivela Oil SC320 or an ISO320 Gear Lube lubricant.
- Grease flange bearings often to prevent them from running dry.

TROUBLESHOOTING:

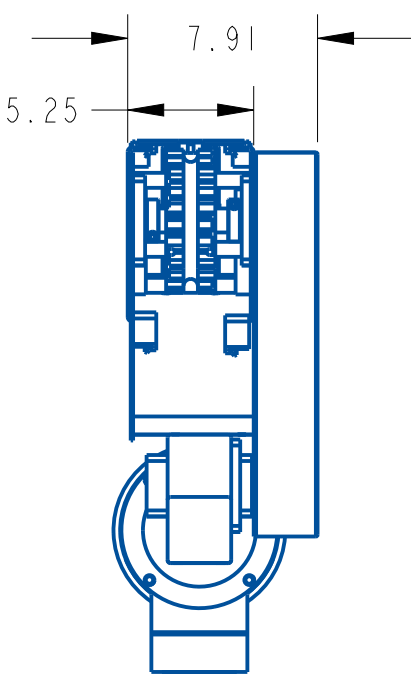
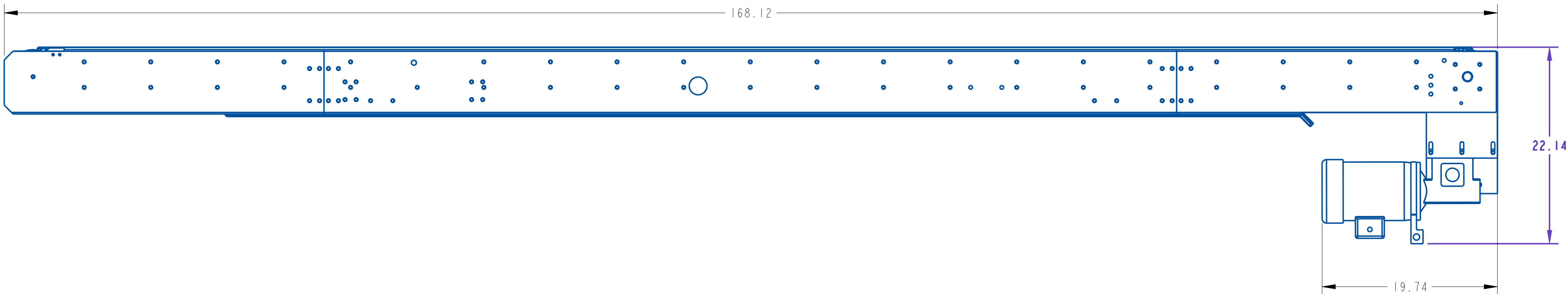
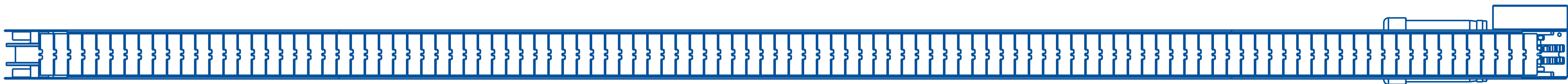
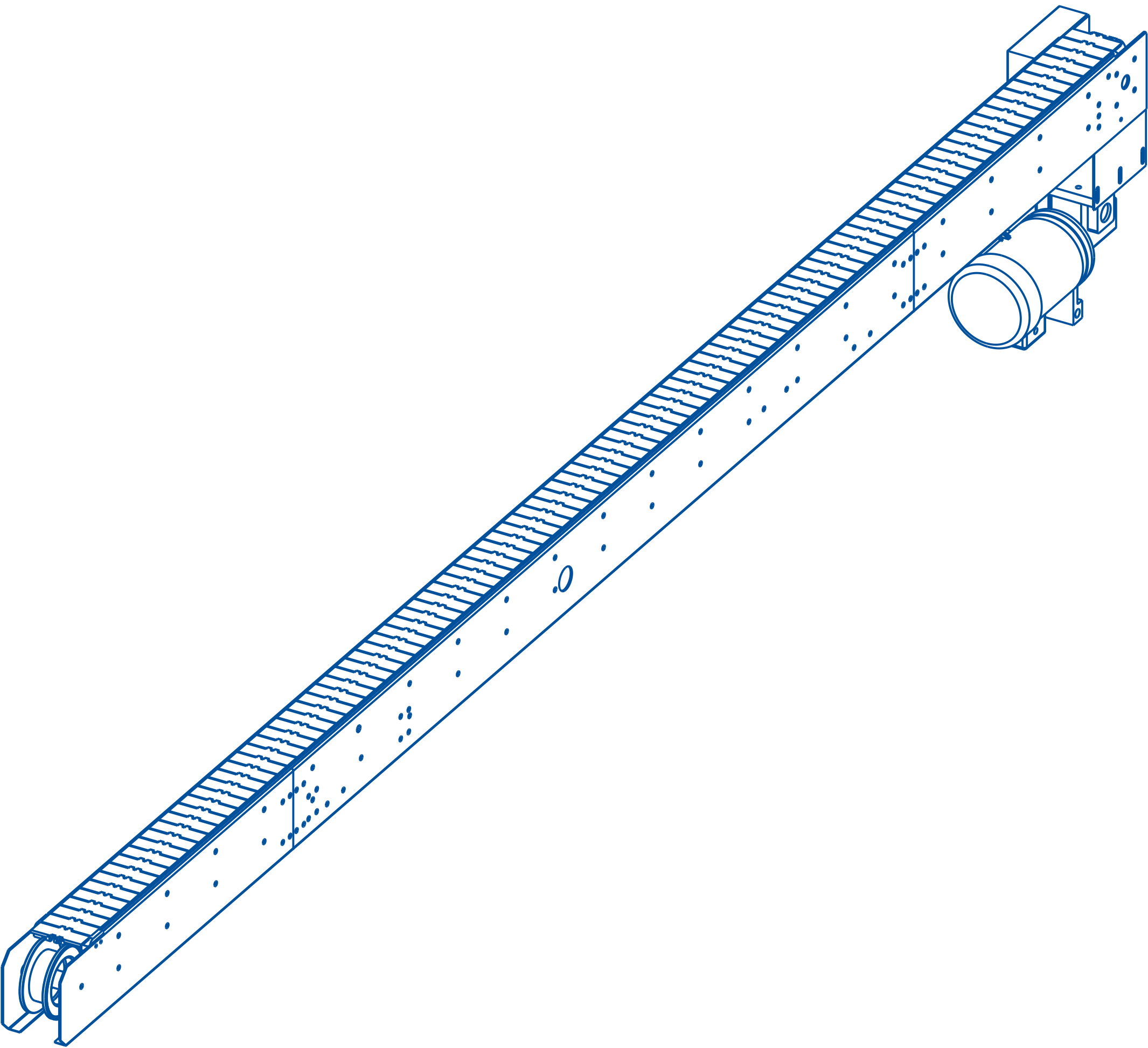
<u>PROBLEM</u>	<u>WHAT TO DO</u>
- Excessive Noise	- Realign sprocket.
	- Check if chain and sprockets are lubricated. If dry, lubricate as discussed above.
- Chain too loose	- Slide gear motor downward to create more tension on chain.
- Uneven wear on sprockets.	- Realign sprockets.
- Shaft not running concentric	- Replace flange bearing.

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	22610-602	CONVEYOR PROLINE CENTER FEEDSCREW	84211C-000
2	1	22612-036	CONVEYOR INFEED 3'	84211C-000
3	1	22613-750	PROLINE 36" OUTFEED CONVEYOR	84211C-000
4	1	361174-168	TABLE TOP CHAIN 4-1/2	84211C-000
5	2	791884-000_156-5	WEAR STRIP, FLAT BAR CLIP-ON	84211C-000
6	1	792361-00L_121	WEAR STRIP, FLAT BAR CLIP-ON (6ft)	84211C-000
7	1	792361-00R_121	WEAR STRIP, FLAT BAR CLIP-ON (6ft)	84211C-000



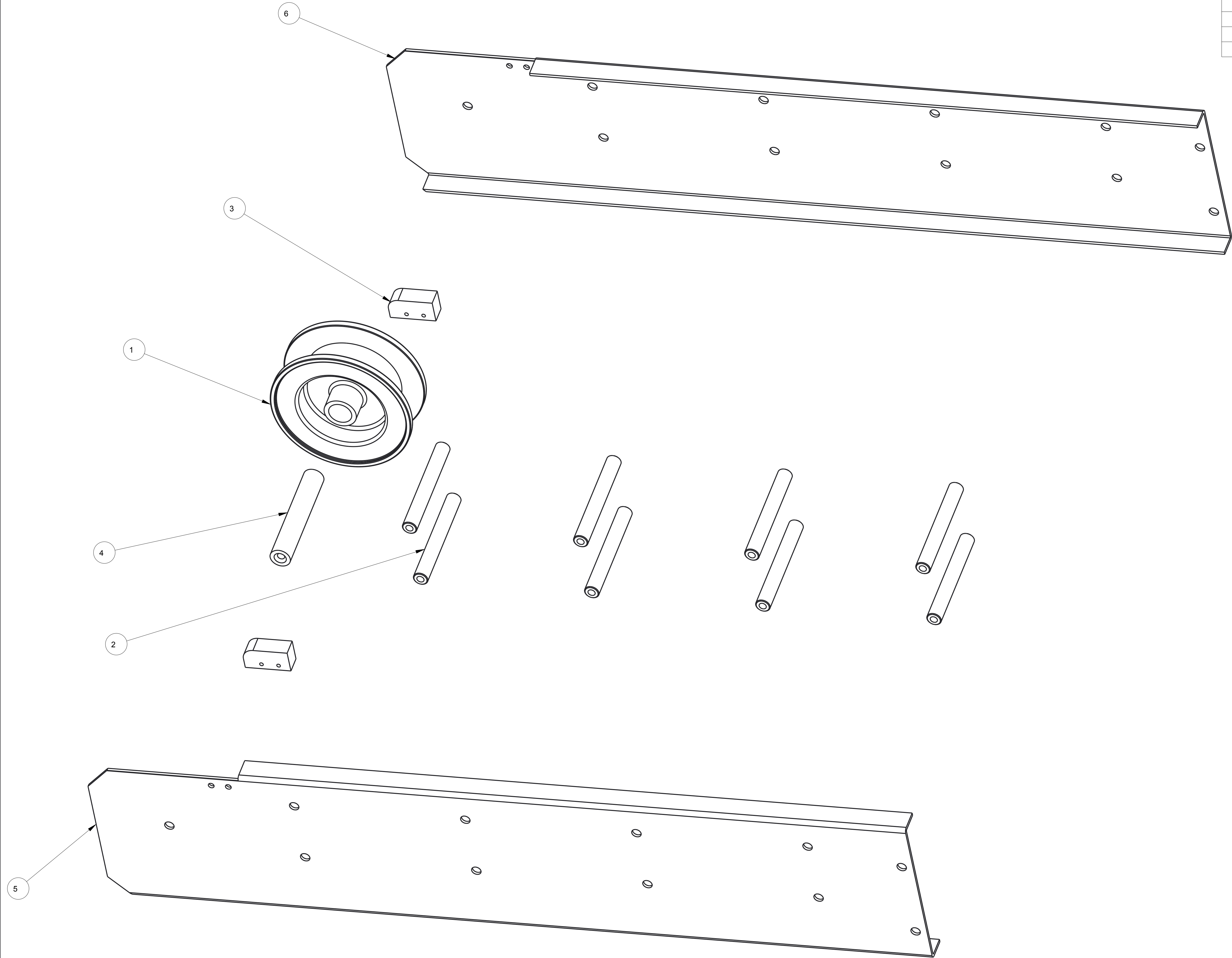
A	Aug-25-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY

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		SCALE:	1/8
		DATE:	Aug-25-25
		DRW BY:	RDL
		CHK BY:	
		APPR BY:	
PROLINE CONVEYOR			
MAT'L			84211C-000

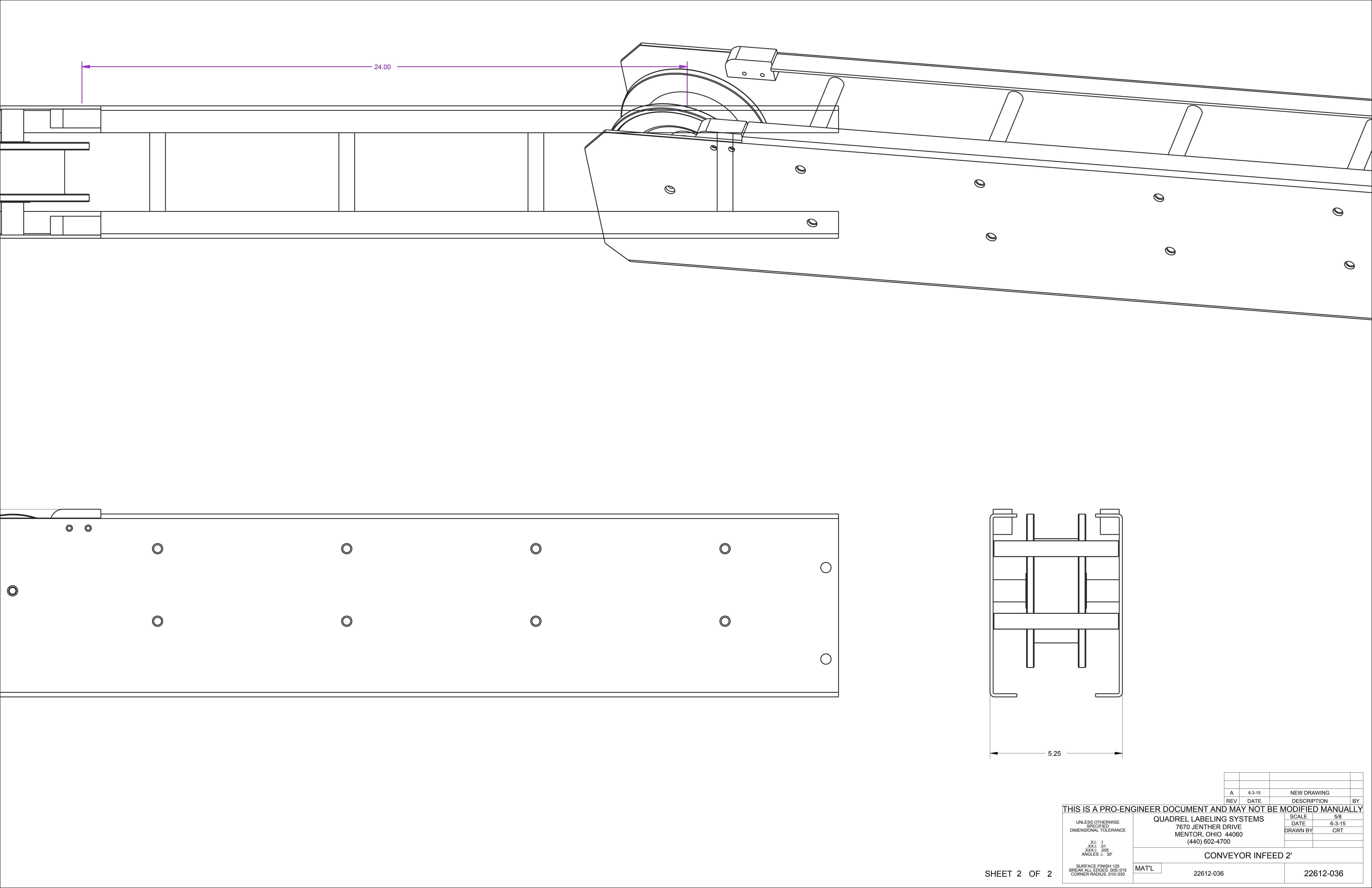


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		DATE: Aug-25-25	
		DRW BY: RDL	
		CHK BY:	
		APPR BY:	
		QUADREL LABELING SYSTEMS	
		7670 JENTHER DRIVE	
		MENTOR, OHIO 44060	
		(440) 602-4700	
		PROLINE CONVEYOR	
MAT'L		84211C-000	

ITEM	QTY	PART NO.	DESCRIPTION
1	1	342018-000	IDLER WHEEL
2	8	791838-000	SPACER
3	2	A23099-000	CHAIN BELT GUIDE
4	1	A25302-004	SPACER
5	1	D25007-036	SIDE WALL EXTENTION INFEED
6	1	D25007-037	SIDE WALL EXTENTION INFEED

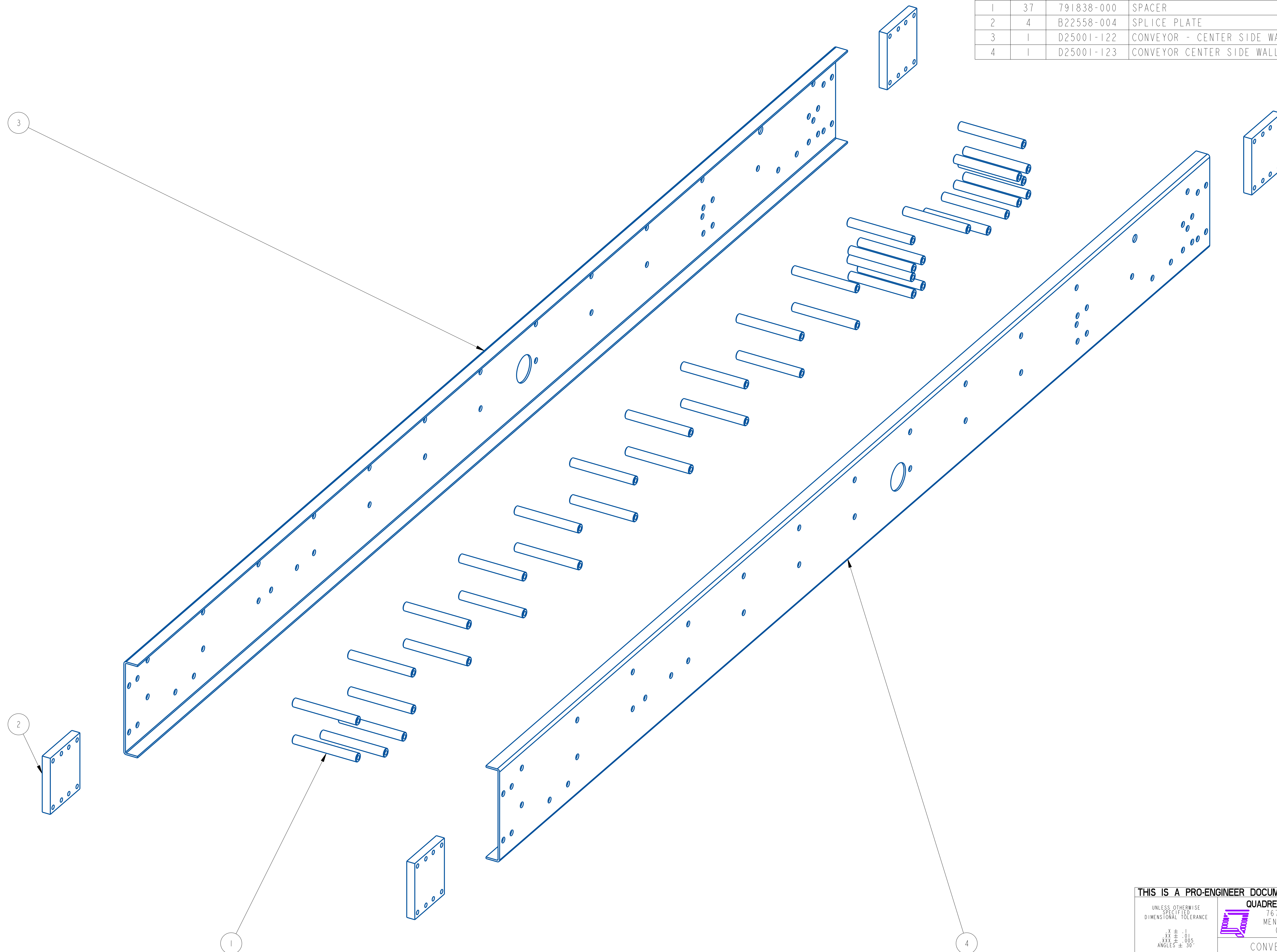


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REV	DATE	DESCRIPTION		BY
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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X±.1 XX±.01 XXX±.005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/015 CORNER RADIUS .010/030	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE DATE DRAWN BY	1/2 05-AUG-15 CRT
	CONVEYOR INFEED 2'			
	MAT'L	22612-036	22612-036	




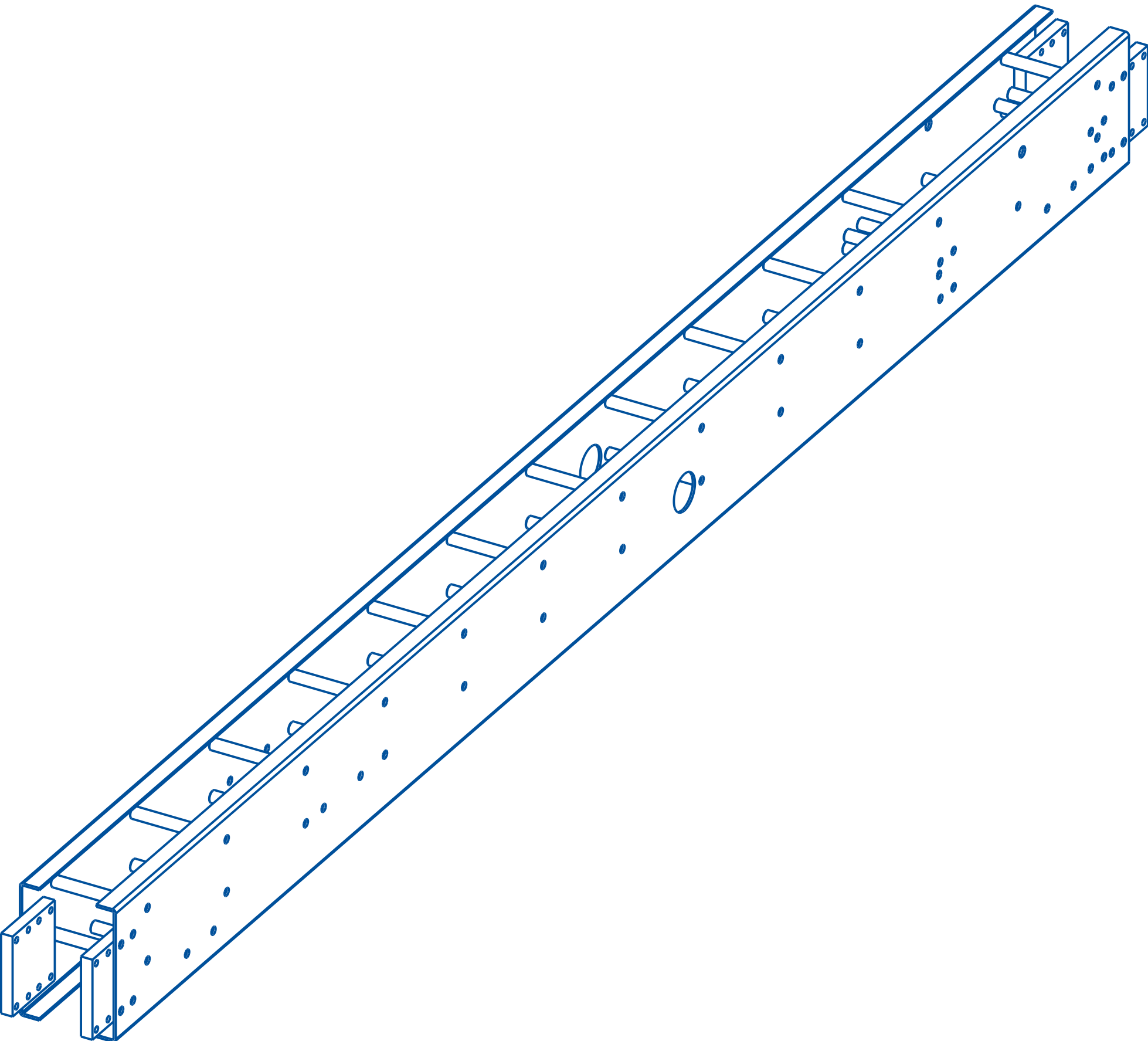
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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X± .1 XX± .01 XXX± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/015 CORNER RADIUS .010/030	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE	5/8
			DATE	6-3-15
			DRAWN BY	CRT
CONVEYOR INFEEED 2'				
MAT'L		22612-036	22612-036	

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	37	791838-000	SPACER	22610-602
2	4	B22558-004	SPLICE PLATE	22610-602
3	1	D25001-122	CONVEYOR - CENTER SIDE WALL	22610-602
4	1	D25001-123	CONVEYOR CENTER SIDE WALL	22610-602

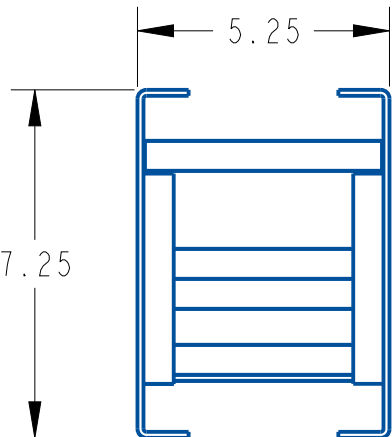
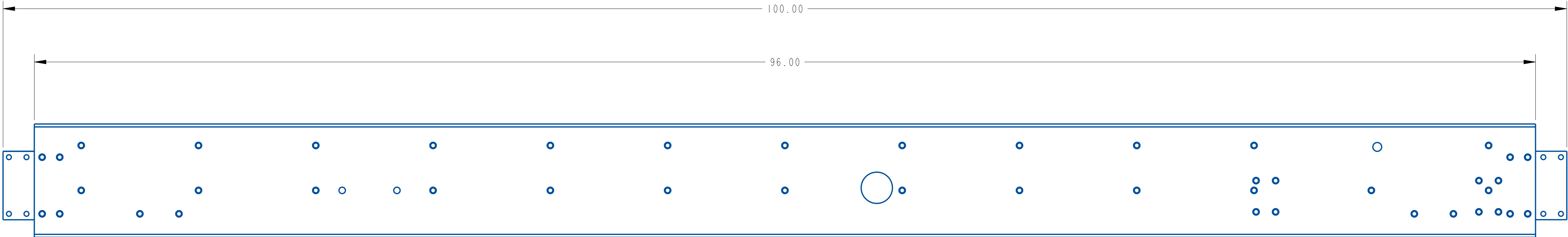
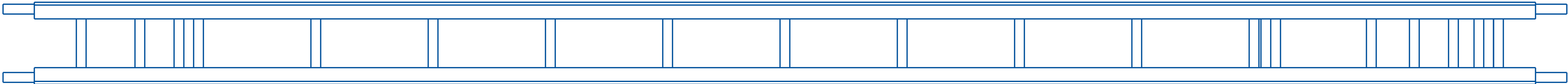


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REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
UNLESS OTHERWISE SPECIFIED:		QUADREL LABELING SYSTEMS		SCALE: 1/8" = 1"	
DIMENSIONAL TOLERANCE		7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		DATE: Aug-25-25	
XX ± .01 XX ± .005 ANGLES ± .30°				DRAW BY: ROL	
				CHK BY: 03/04/2024-SEM	
				APPR BY:	
CONVEYOR PROLINE CENTER FEEDSCREW					
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADII .007/.030		MAT'L		22610-602	



SCALE 3/16



A	Aug-25-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY

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UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE

$x \pm .1$
 $xx \pm .01$
 $xxx \pm .005$
ANGLES $\pm .50^\circ$

SURFACE FINISH 125
BREAK ALL EDGES .005/ .015
CORNER RADIUS .010/ .030
ALL ANGLES ARE 90°

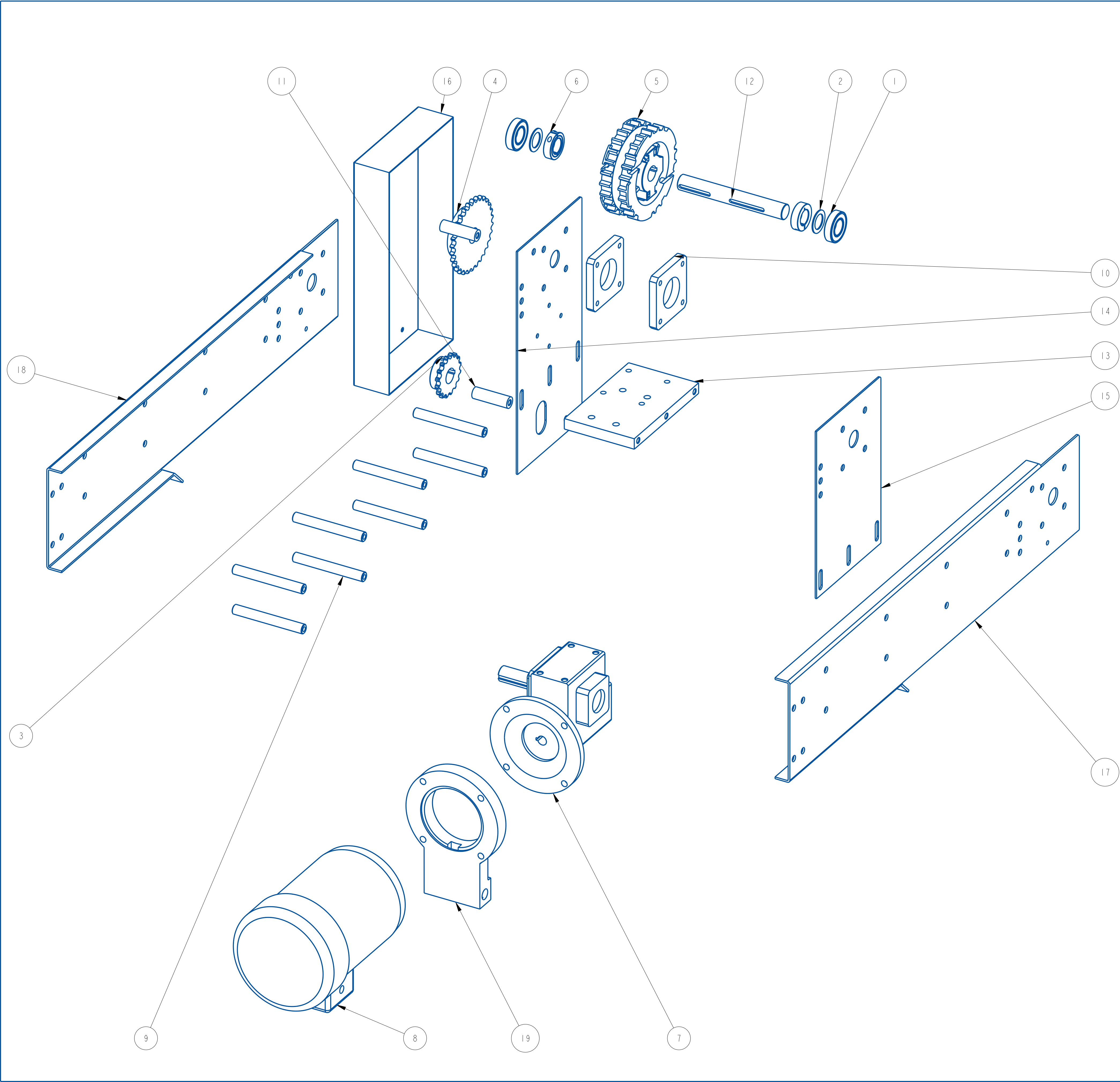
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 1/4
DATE: Aug-25-25
DRW BY: RDL
CHK BY: 08/29/2025-SEM
APPR BY:

MAT'L

CONVEYOR PROLINE CENTER FEEDSCREW

22610-602



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	111064-000	BEARING, BANDED THRUST BALL	22613-750
2	2	151038-000	BEARING, THRUST WASHER	22613-750
3	1	322103-000	SPROCKET, 16 TOOTH, 1" BORE	22613-750
4	1	322172-000	SPROCKET, 30 TEETH	22613-750
5	1	342019-000	DRIVE SPROCKET, MODULINE	22613-750
6	2	361170-000	COLLAR, 1 IN. ID ONE-PIECE CLAMP	22613-750
7	1	412529-120	GEARBOX 20:1 RH	22613-750
8	1	413005-000	MOTOR, 1 HP, 3 PHASE WASHGUARD	22613-750
9	8	791838-000	SPACER	22613-750
10	2	A21846-000	INTERNAL CONVEYOR BEARING BLOCK	22613-750
11	2	A25452-012	GUARD STAND OFF	22613-750
12	1	B20883-003	CONVEYOR DRIVE SHAFT	22613-750
13	1	B22283-002	GEAR BOX MOUNTING PLATE	22613-750
14	1	C20448-015	OUTFEED CONVEYOR CAP	22613-750
15	1	C20478-004	OUTFEED CONVEYOR CAP	22613-750
16	1	C21126-101	DRIVE GUARD	22613-750
17	1	D25008-036P	OUT FEED CONVEYOR SIDE WALL	22613-750
18	1	D25008-037P	SIDEWALL EXTENTION OUTFEED	22613-750
19	1	203328-000	ENCODER	22613-750

A	Aug-22-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY

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UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE
XX ± .01
XXX ± .005
ANGLES ± .30°
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

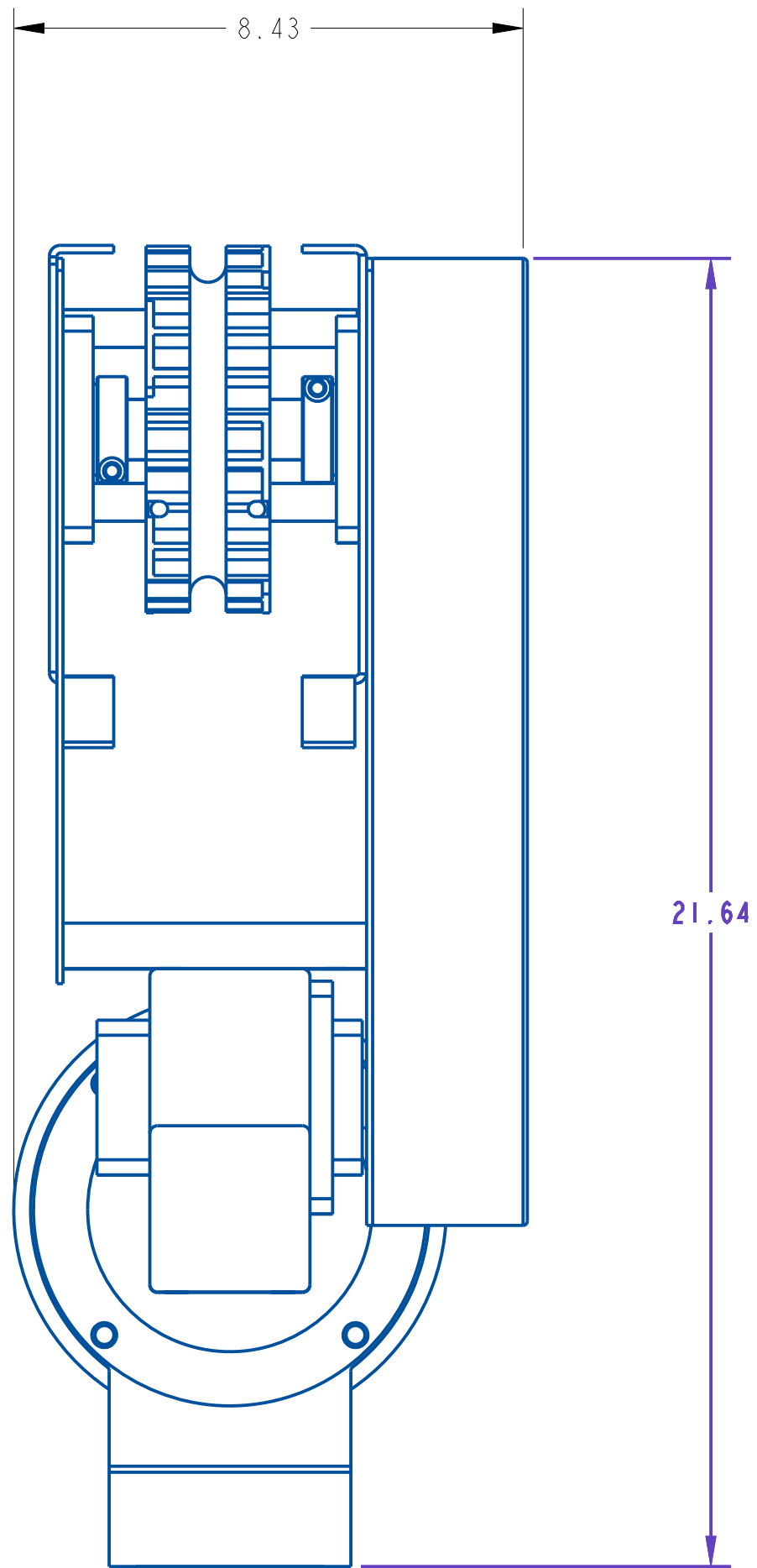
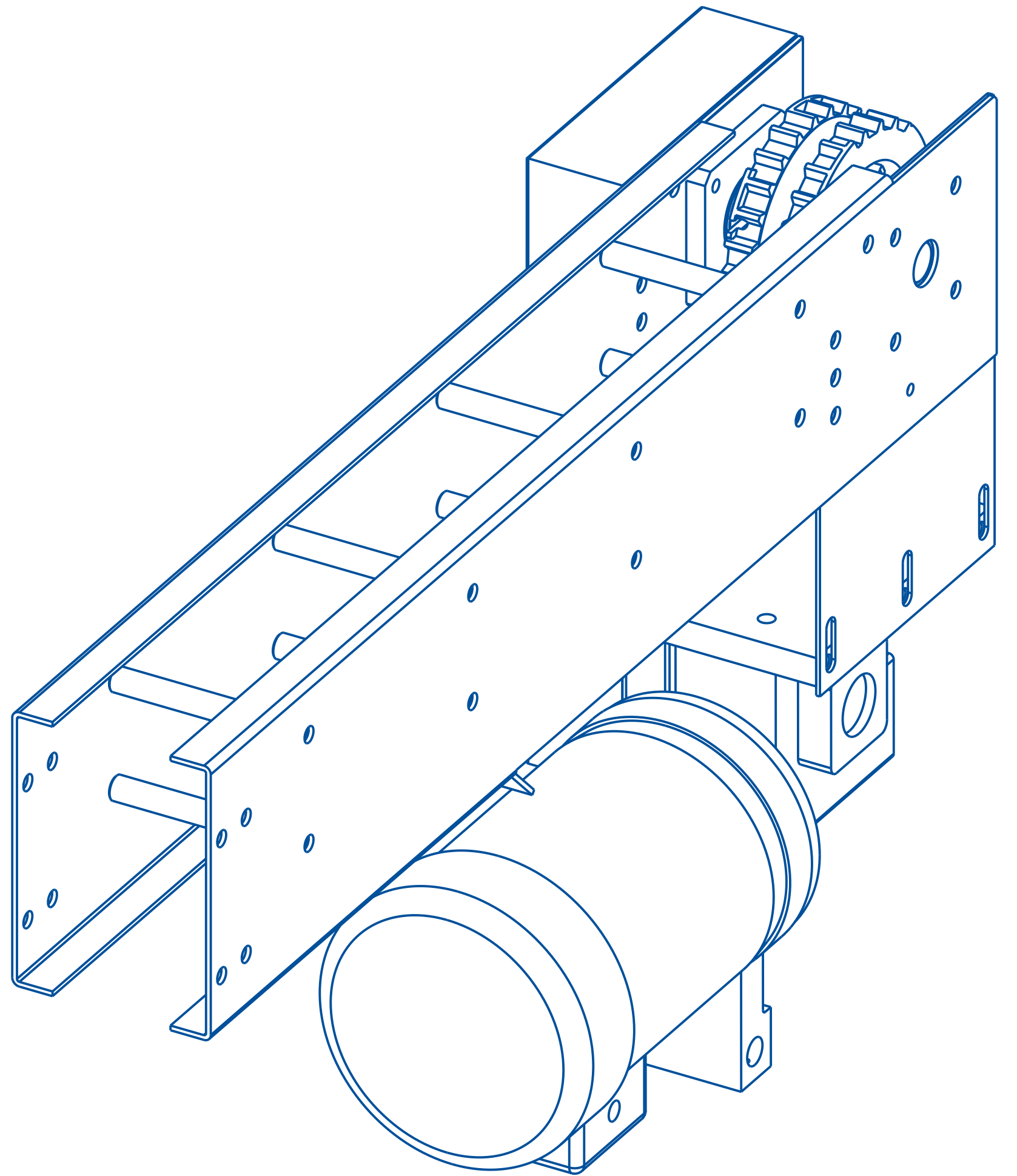
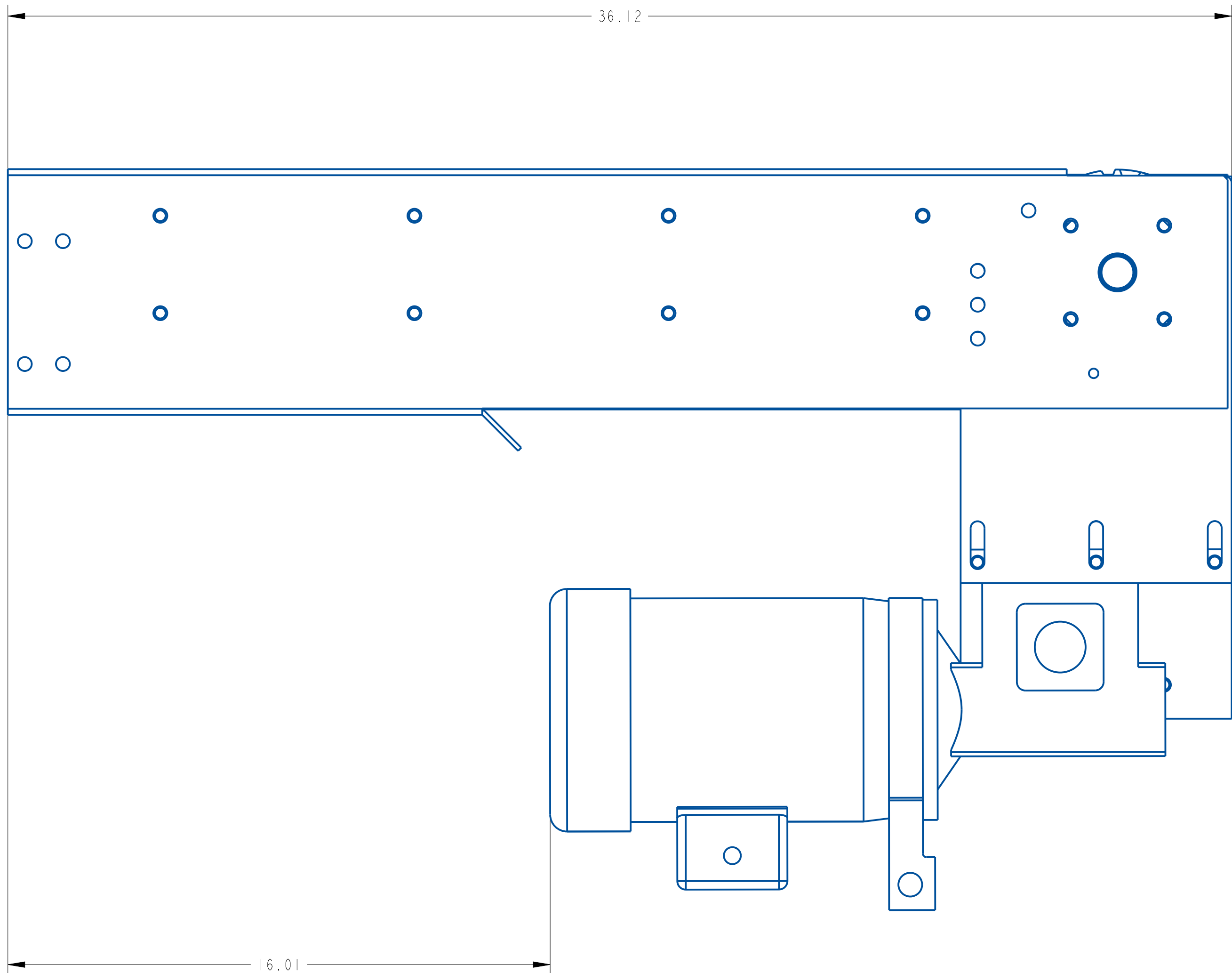
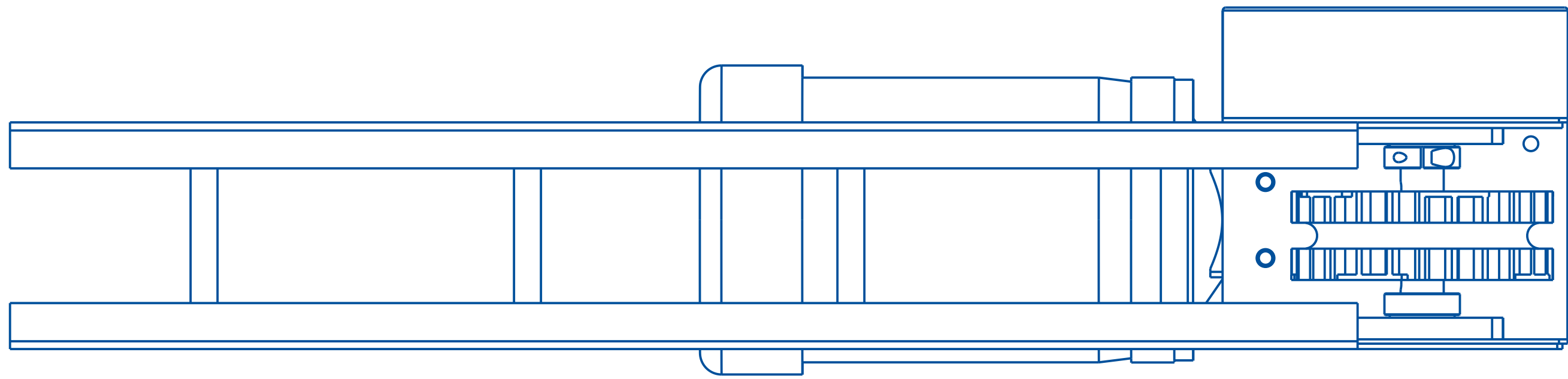
QUADREL LABELING SYSTEMS
7670 JENTER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 5/16
DATE: Aug-22-25
DRW BY: RDL
CHK BY:
APPR BY:

PROLINE 36" OUTFEED CONVEYOR

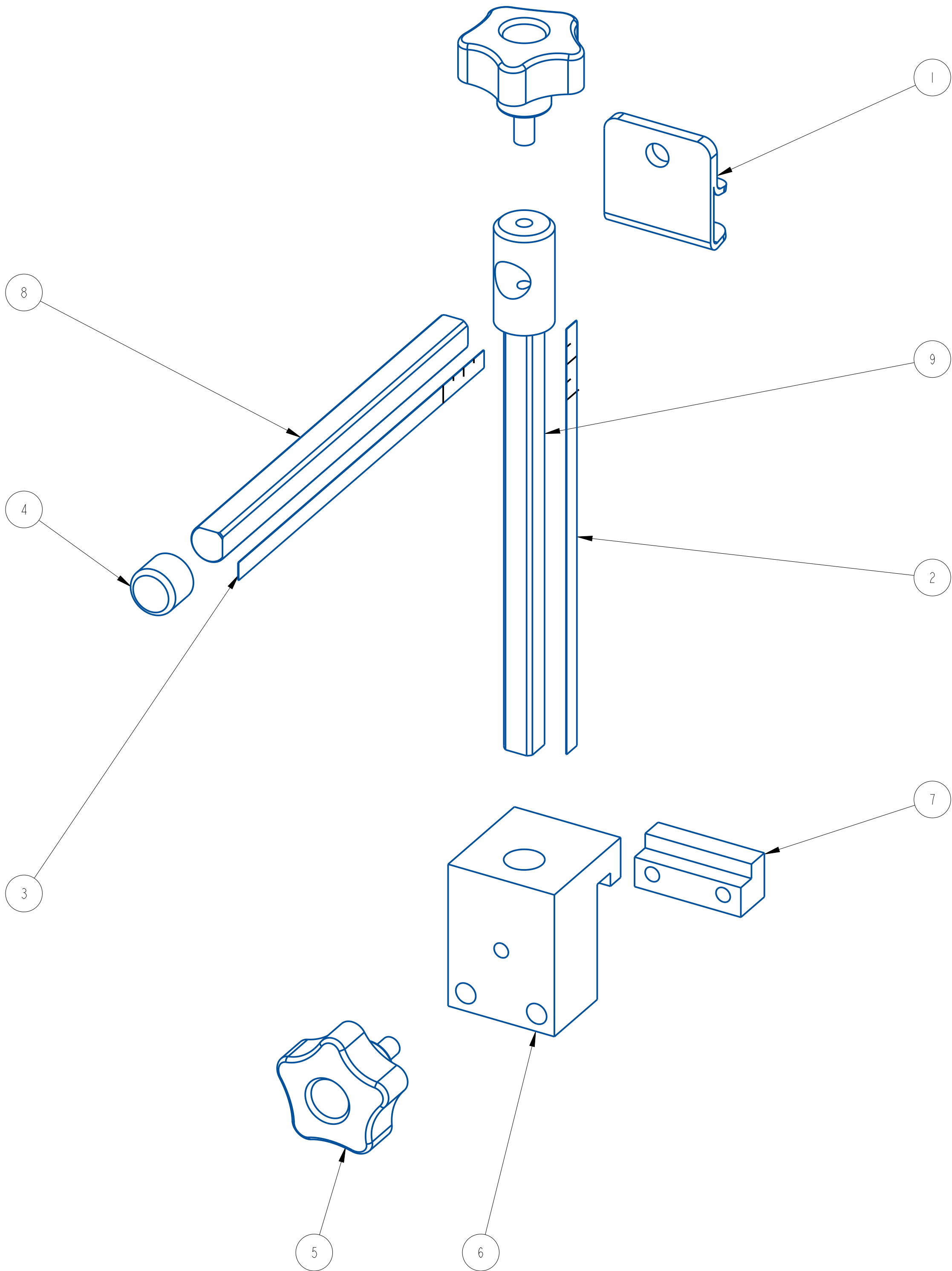
MAT'L 22613-750

22613-750



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XX ± .01 XXX ± .005 ANGLES ± .00°		SURFACE FINISH 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°		DRW BY: RDL	
A		Aug-22-25		NEW DRAWING	
REV		DATE		DESCRIPTION	
RDL		BY		APPR BY:	
MATERIAL		22613-750		22613-750	

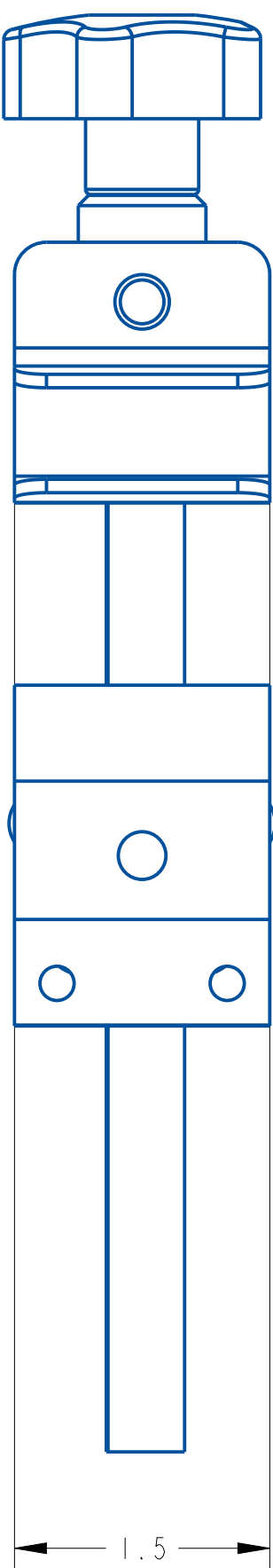
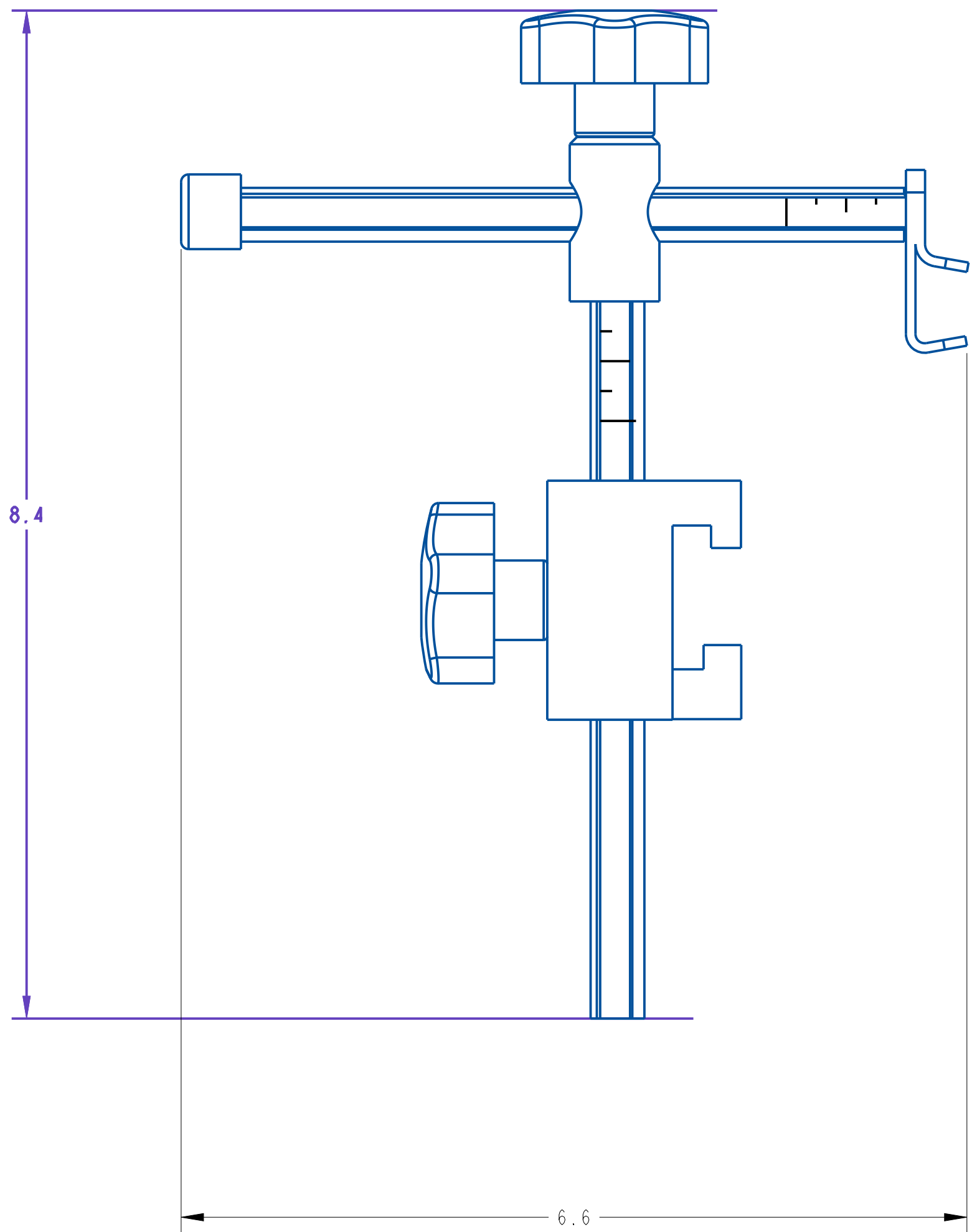
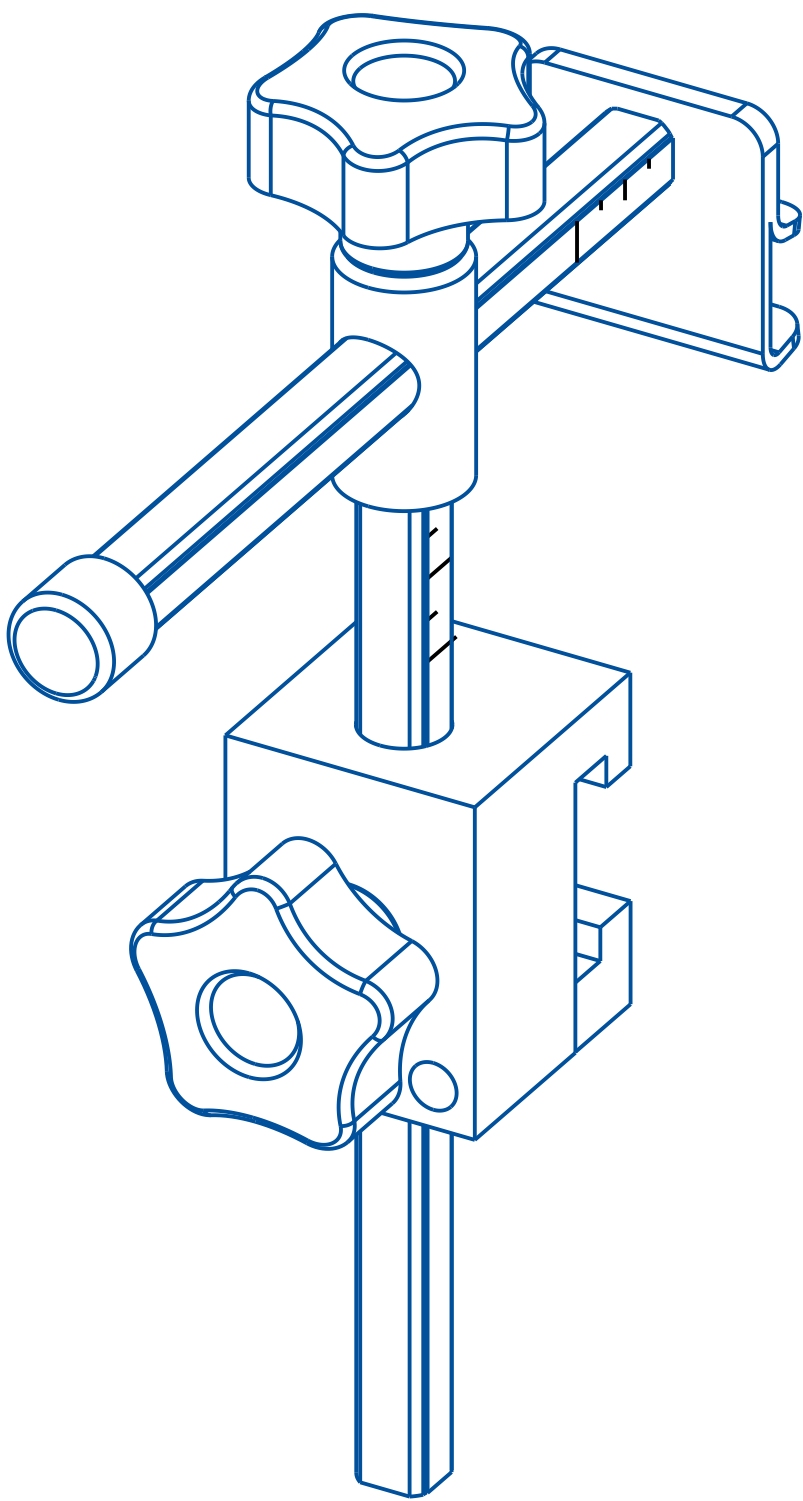
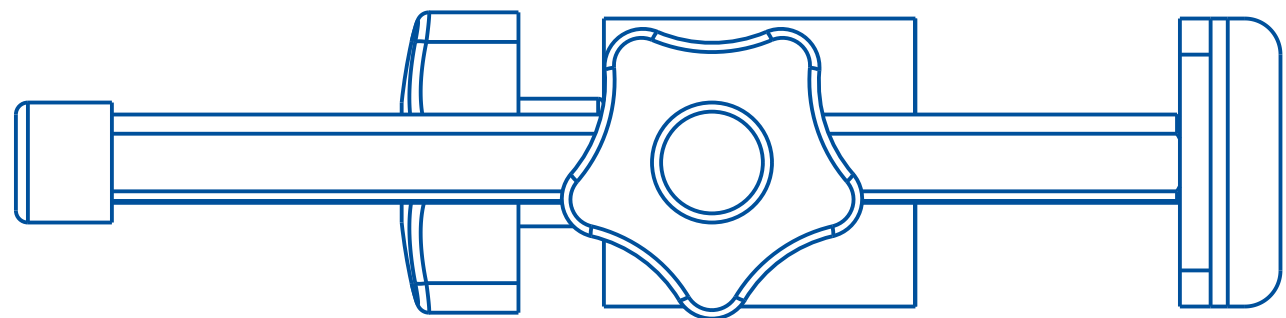
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	791732-000	CLAMP FOR CONICAL SIDE GUIDE	22435-034
2	1	791914-002_06	MYLAR SCALE, QUADREL LOGO	22435-034
3	1	791914-003_06	MYLAR SCALE, QUADREL LOGO, 6" LG.	22435-034
4	1	792711-000	CAP, ORANGE	22435-034
5	2	801308-000	KNOB W/ 1/4-20 STUD	22435-034
6	1	A20875-000	RETAINER BLOCK, CONV. RAIL	22435-034
7	1	A20876-000	RETAINER BLOCK	22435-034
8	1	A21198-199	ADJUSTMENT ROD	22435-034
9	1	A28000-000	CLAMPING ROD ASSEMBLY 6"	22435-034



A	Aug-07-25	NEW DRAWING	TAZ
REV	DATE	DESCRIPTION	BY

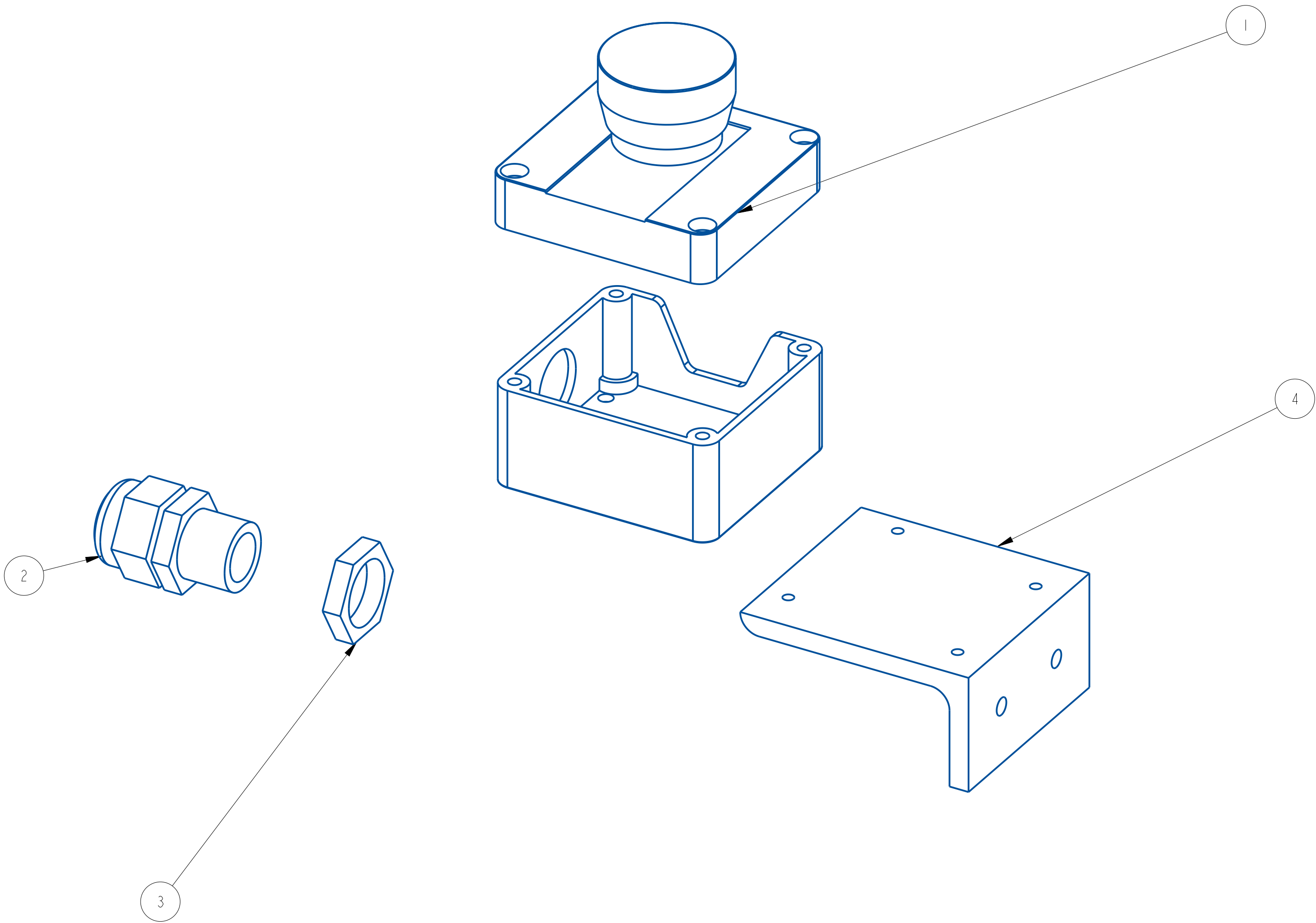
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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE XX ± .01 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADII .010/.030 ALL ANGLES ARE 90°		QUADREL LABELING SYSTEMS		SCALE: 1/1
		7670 JENTHER DRIVE		DATE: Aug-07-25
		MENTOR, OHIO 44060		DRW BY: TAZ
		(440) 602-4700		CHK BY:08/28/2025-SEM
				APPR BY:
				RAIL KIT WITH SCALES
MAT'L		22435-034		



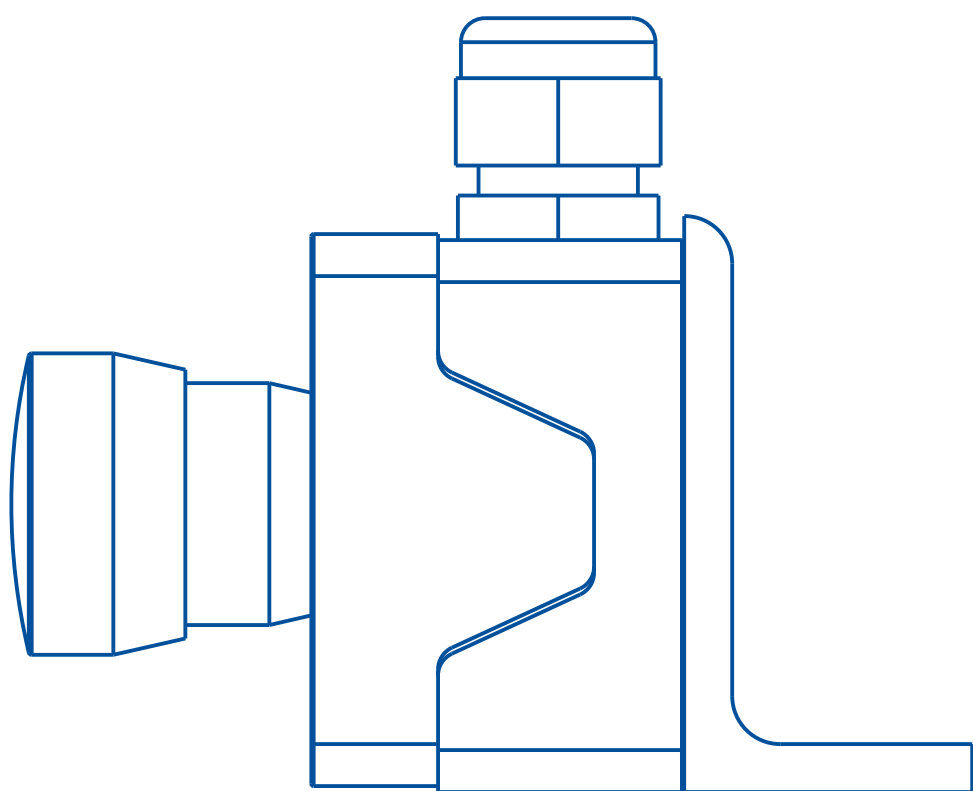
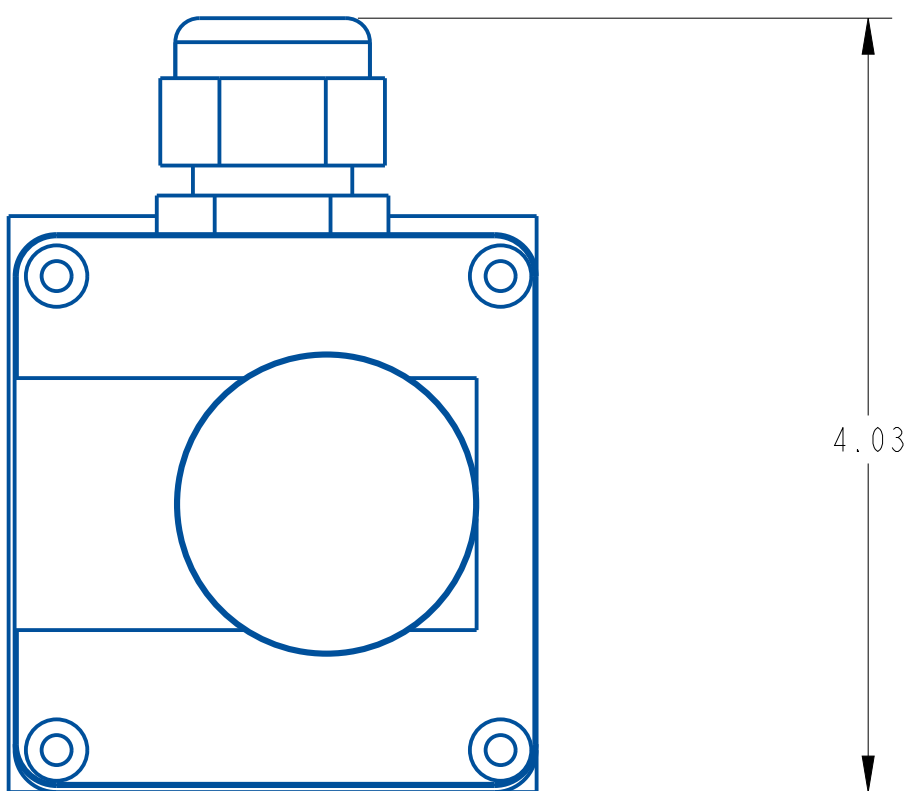
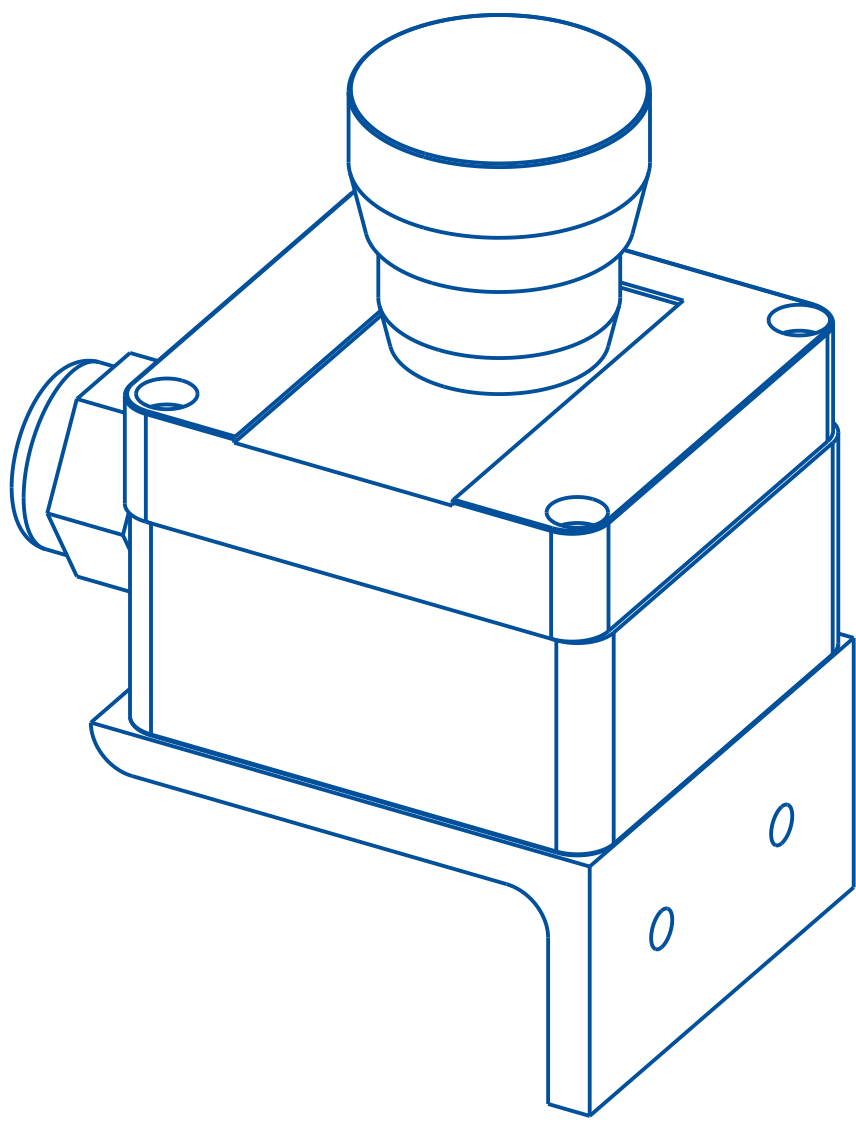
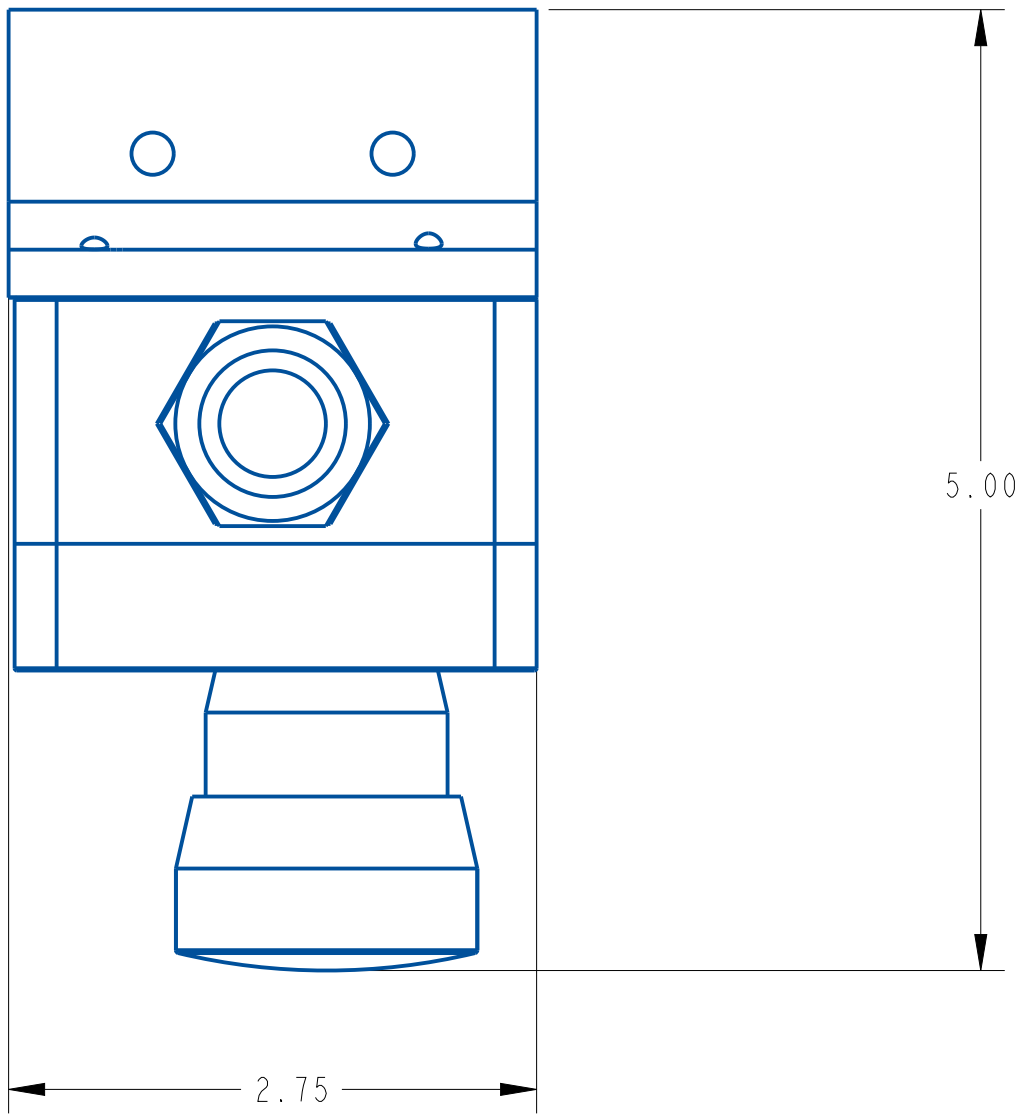
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE			
X ± .1 XX ± .01 XXX ± .005 ANGLES ± .00°			
SURFACE FINISH 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°			
QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE: 1/1 DATE: Aug-07-25 DRW BY: TAZ CHK BY: 08/28/2025-SEM APPR BY:	
RAIL KIT WITH SCALES			
MAT'L		22435-034	

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	221152-005	ENCLOSURE, E-STOP W/ BUTTON	20789-000
2	1	241780-000	STRAIN RELIEF, CABLE	20789-000
3	1	241780-001	STRAIN RELIEF, CABLE PANEL	20789-000
4	1	A25719-000	CYLINDER MOUNTING ANGLE	20789-000



A	8-29-16	NEW DRAWING	TJS
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.50		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
		SCALE: 1/1 DATE: 8-29-16 DRW BY: TJS CHK BY: 03/08/2024-SEM APPR BY:	
		EMERGENCY STOP ASSEMBLY	
		MAT'L	20789-000



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/1	
XX ± .01		DATE: 8-29-16	
XXX ± .005		DRW BY: TJS	
ANGLES ± 90°		CHK BY: 03/08/2024-SEM	
SURFACE FINISH 125		APPR BY:	
BREAK ALL EDGES .005/ .015		EMERGENCY STOP ASSEMBLY	
CORNER RADIUS .010/ .030		MAT'L	
ALL ANGLES ARE 90°		20789-000	

QUADREL LABELING SYSTEMS

7670 JENTHER DRIVE

MENTOR, OHIO 44060

(440) 602-4700

NEW DRAWING

DATE

DESCRIPTION

BY

TJS

8-29-16

TJS

03/08/2024-SEM

ASSEMBLY TITLE: HEAD SUPPORT ASSEMBLY

GENERAL FUNCTION:

The head support assembly keeps the labeling head in a “locked position” and prevents head vibration and wobbling as the label motor is engaged. The head support assembly is also used to set the camber or front/back tilt of the head.

SETUP AND ADJUSTMENTS:

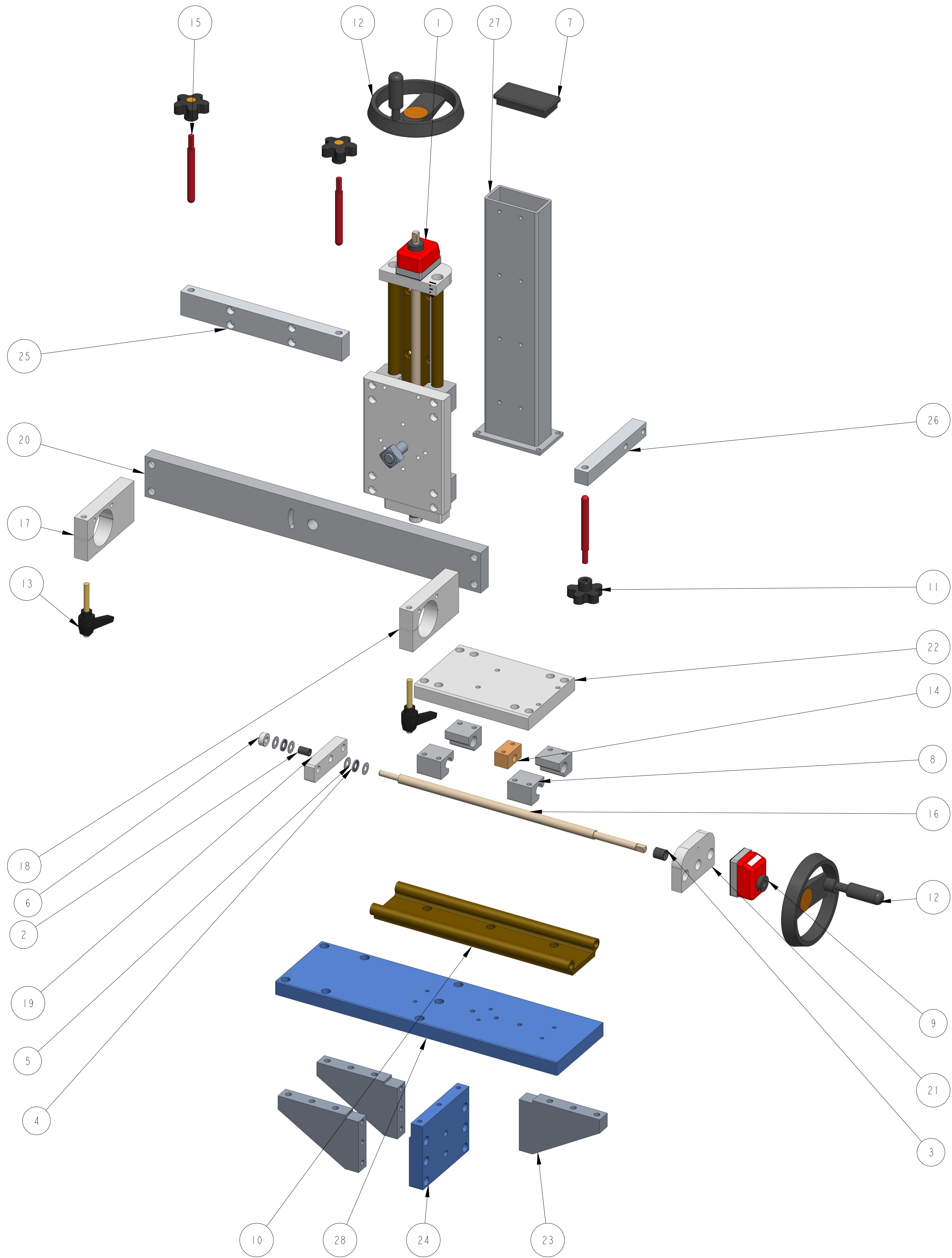
HORIZONTAL ADJUSTMENT: To set the horizontal position of the labeling head, use the side mount wheel handle (some older systems may feature the ratcheted handle). Turn the handle clockwise to move the head towards the conveyor. Turn it counter clockwise to move the head away from the conveyor.

VERTICAL ADJUSTMENT: Using the lower wheel handle to set the vertical position of the labeling head. Turn the wheel clockwise to lower labeling head. Turn the wheel counter clockwise to raise the labeling head.

MAINTENANCE:

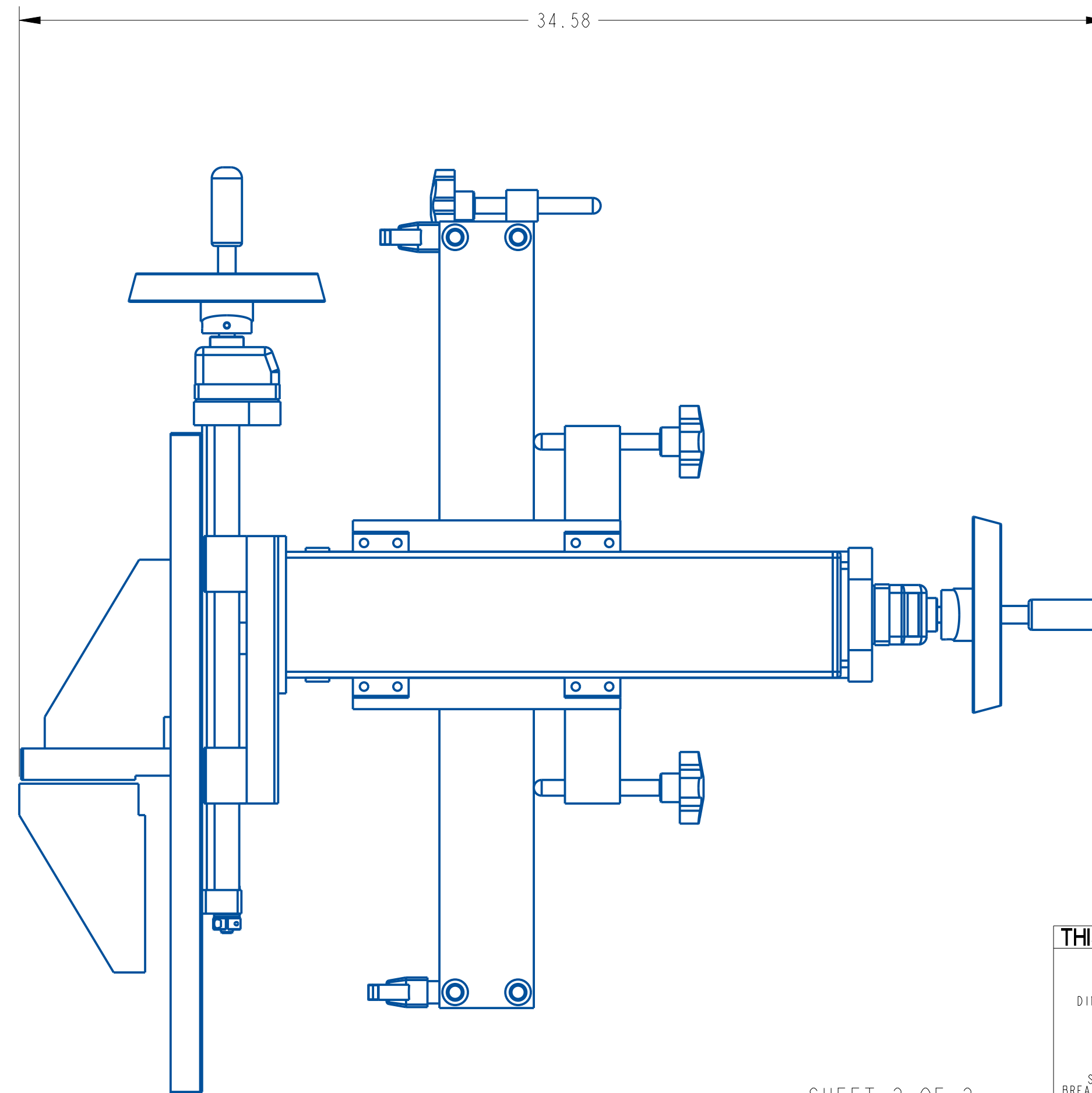
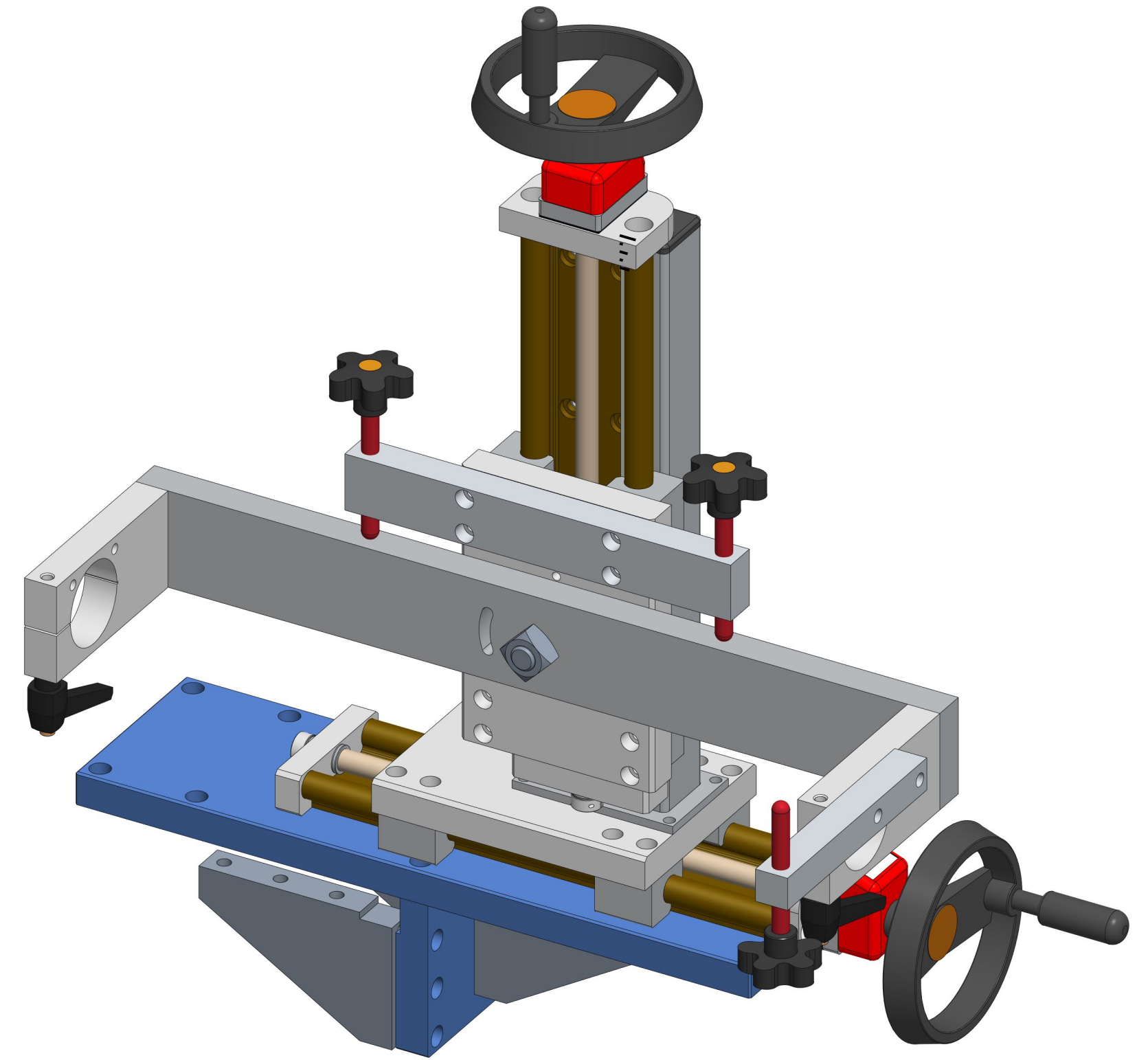
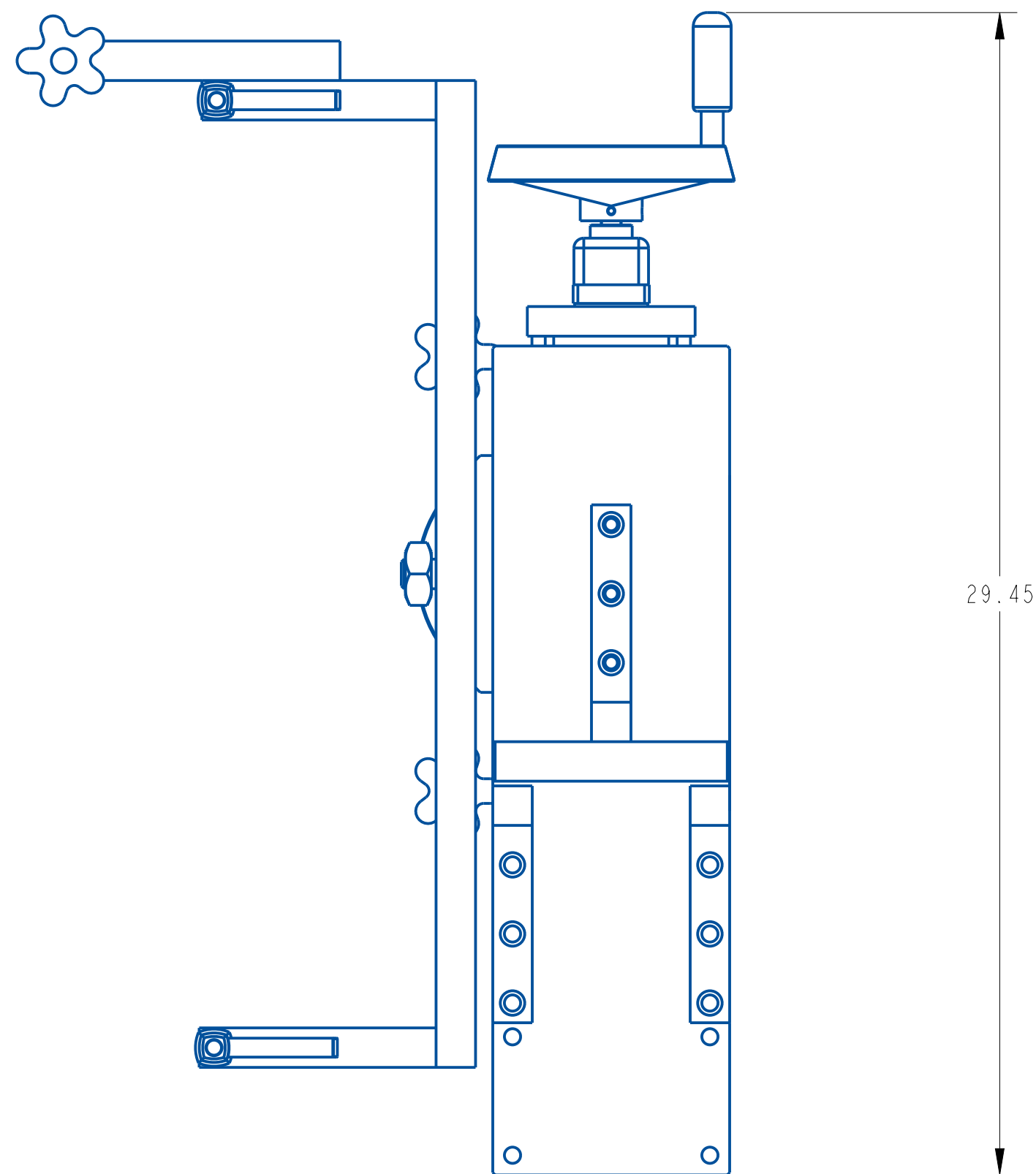
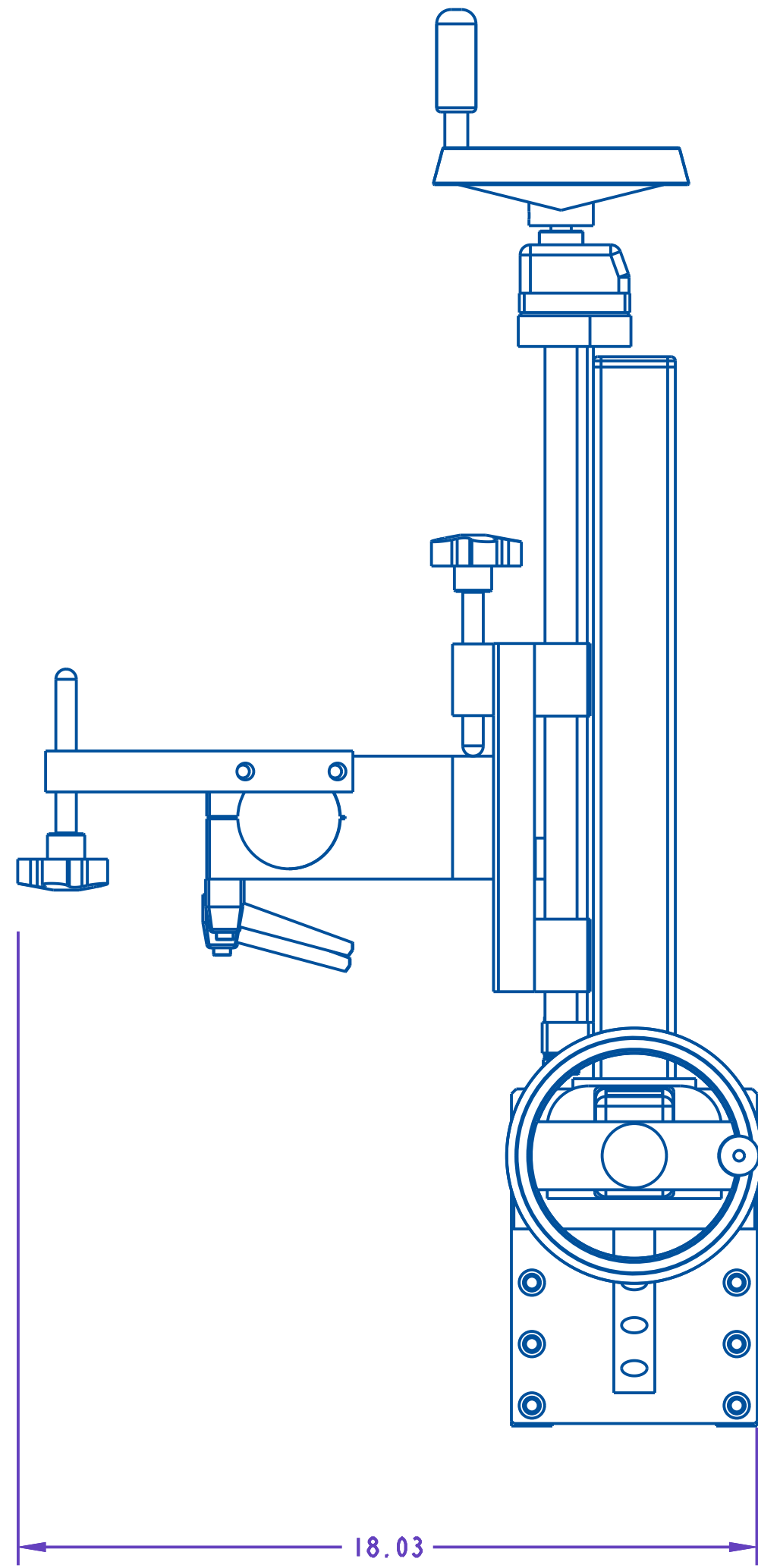
No scheduled maintenance is required for this assembly. Always keep the drive areas free of label flash and debris.

TROUBLESHOOTING: None this section.



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	22173-750-83710	VERTICAL IGUS SLIDE, 17.5"	22530-120-LH
2	1	141172-000	SLEEVE BEARING, 1/20D. x 3/8ID. x 3/4LNG	22530-120-LH
3	1	141173-000	SLEEVE BEARING, 23/320D. x 5/8ID. x 3/4LNG	22530-120-LH
4	2	181108-000	BEARING, NEEDLE ROLLER	22530-120-LH
5	4	181111-000	THRUST WASHER	22530-120-LH
6	1	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP	22530-120-LH
7	1	729006-000	CAP INSERT FOR 2 X 4 TUBE	22530-120-LH
8	4	792248-001	PILLOW BLOCK	22530-120-LH
9	1	792354-000	DIGITAL POSITION INDICATOR	22530-120-LH
10	1	793023-010	DRYLIN RAIL	22530-120-LH
11	3	793045-000	DIAMOND KNURL KNOB	22530-120-LH
12	2	801080-000	6" HANDWHEEL	22530-120-LH
13	2	801850-000	CLAMPING LEVER	22530-120-LH
14	1	A24077-000	BRONZE NUT, RH	22530-120-LH
15	3	A26179-000	KNOB STUD	22530-120-LH
16	1	B20045-112	THREADED ROD	22530-120-LH
17	1	B21190-014	YOKE SIDE PLATE	22530-120-LH
18	1	B21190-114	YOKE SIDE PLATE	22530-120-LH
19	1	B21346-000	BOTTOM BEARING PLATE	22530-120-LH
20	1	B21555-000	MTG YOKE BACK PLATE	22530-120-LH
21	1	B22005-006	BEARING PLATE,	22530-120-LH
22	1	C20626-216	STAND SLED	22530-120-LH
23	3	C21327-000	GUSSET	22530-120-LH
24	1	C21346-000	MTG. PLATE	22530-120-LH
25	1	C21348-120	ADJUSTMENT PLATE	22530-120-LH
26	1	C21349-120	ADJUSTMENT BLOCK	22530-120-LH
27	1	D24433-125	HEAD SUPPORT RISER	22530-120-LH
28	1	D24941-000	HEAD SUPPORT MTG PLATE	22530-120-LH

A		11-26-13	NEW DRAWING	MAW
REV	DATE	DESCRIPTION	DESCRIPTION	BY
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY				
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		QUADREL LABELING SYSTEMS 7670 JENTER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE: 1/4 DATE: 11-26-13 DRW BY: MAW CHK BY: 10/17/2024-SEM APPR BY:
X ± .01 XX ± .01 XXX ± .005 ANGLES ± .30°		Q120 LH HEAD SUPPORT		
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		MAT'L		22530-120-LH

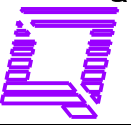


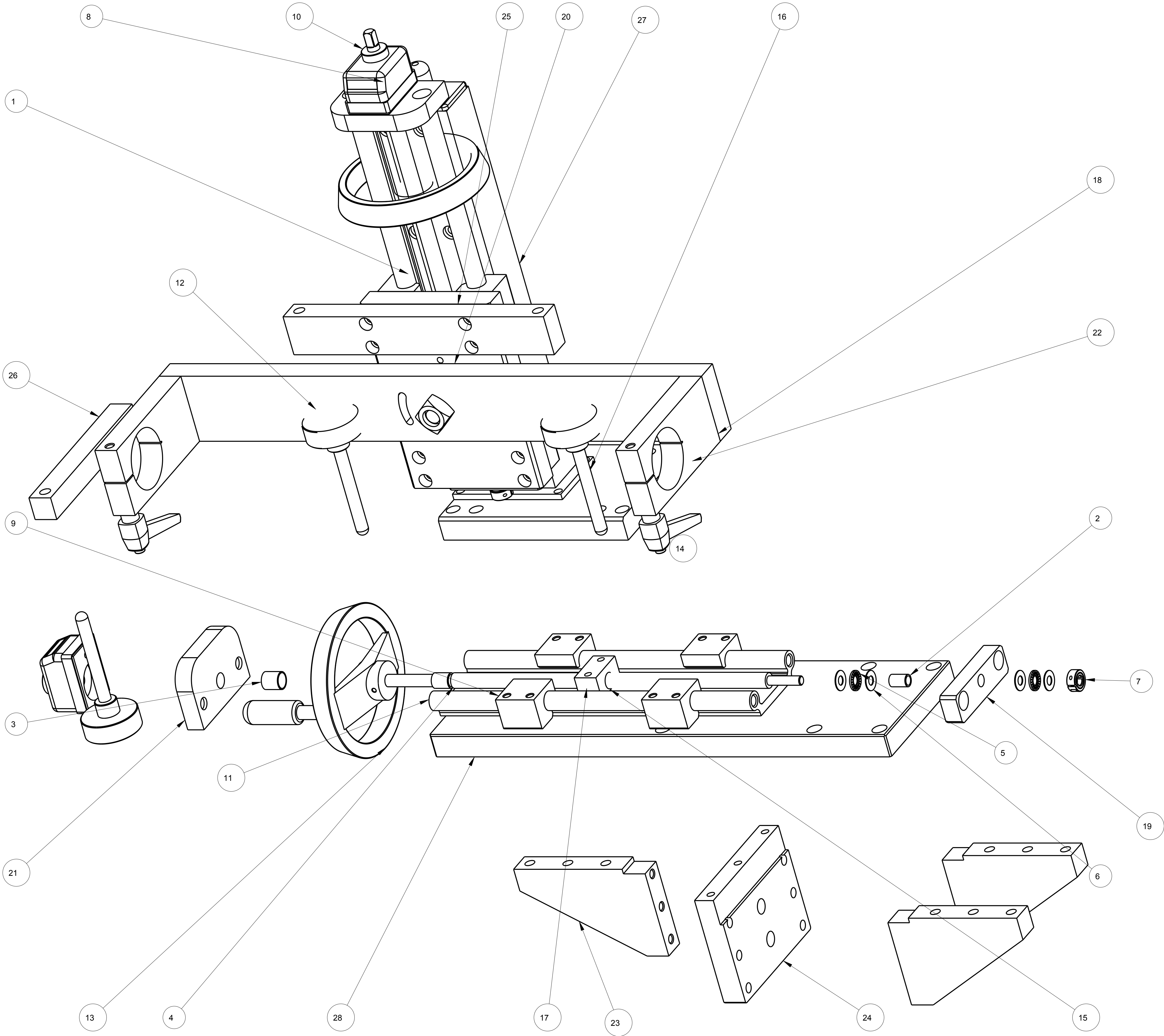
SHEET 2 OF 2

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 9/32	
XX ± .01		DATE: 11-26-13	
XXX ± .005		DRW BY: MAW	
ANGLES ± .00°		CHK BY: 10/17/2024-SEM	
SURFACE FINISH 125		APPR BY:	
BREAK ALL EDGES .005/ .015		Q120 LH HEAD SUPPORT	
CORNER RADIUS .010/ .030		MAT'L	
ALL ANGLES ARE 90°		22530-120-LH	

A	11-26-13	NEW DRAWING	MAW
REV	DATE	DESCRIPTION	BY

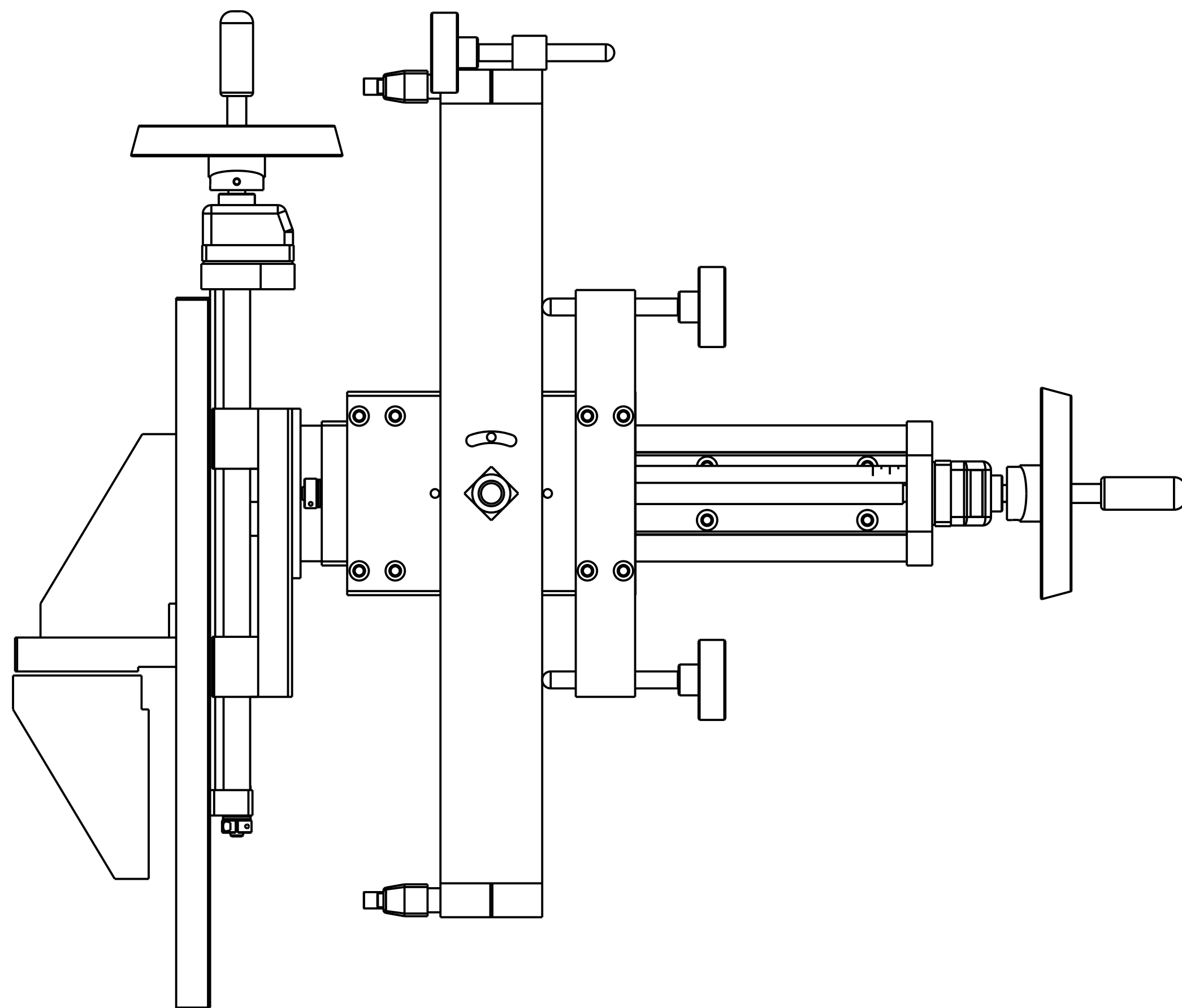
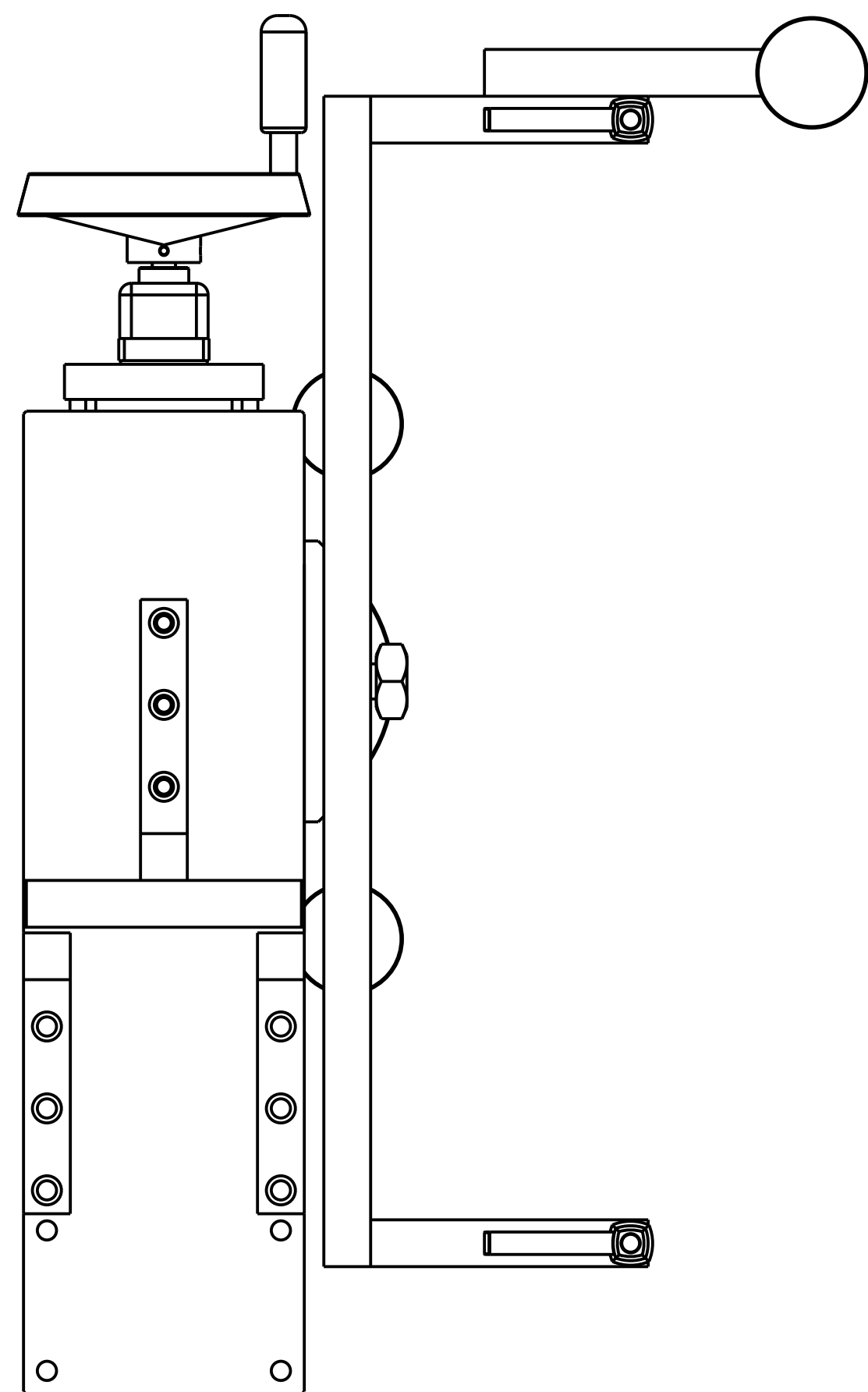
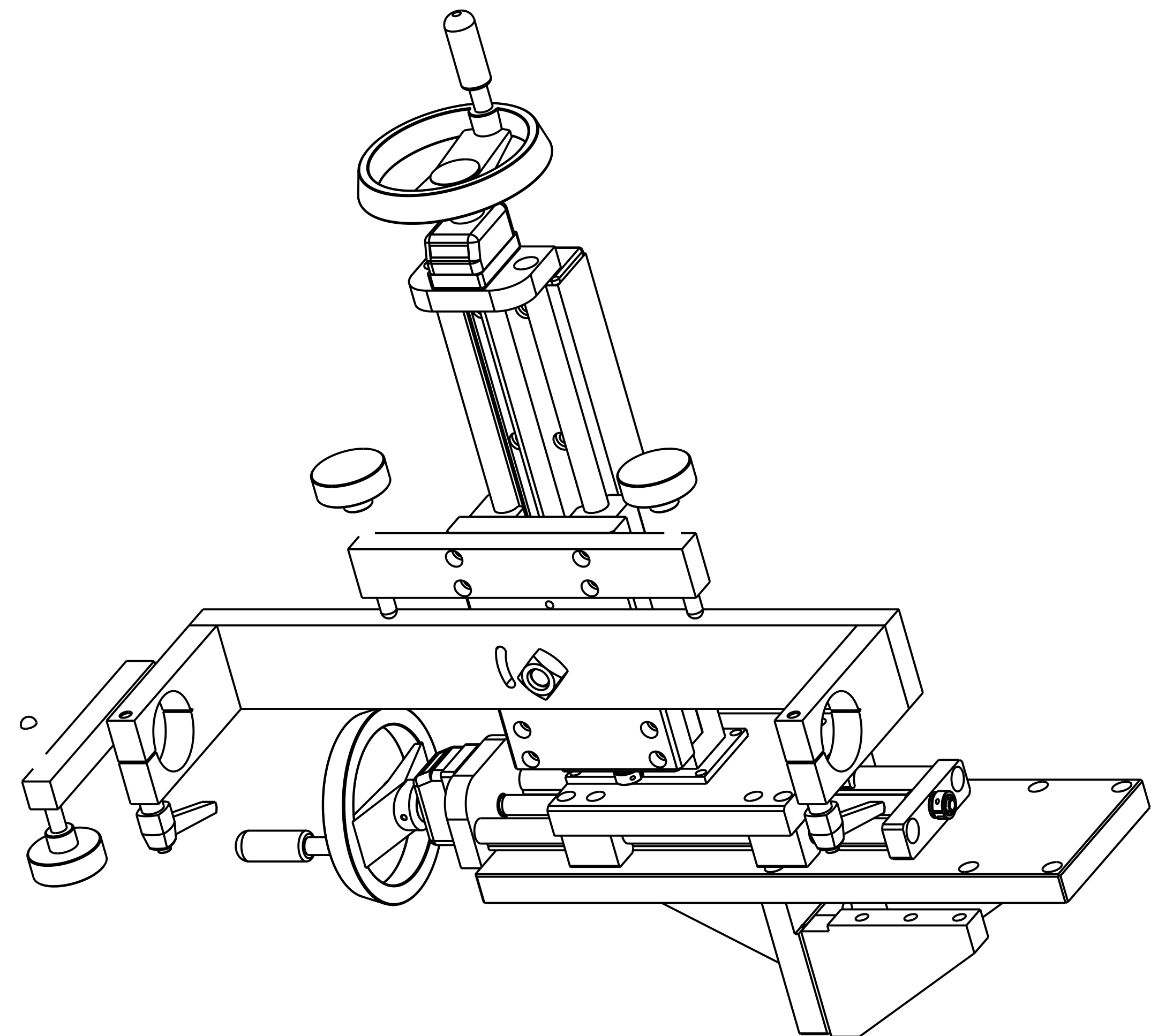
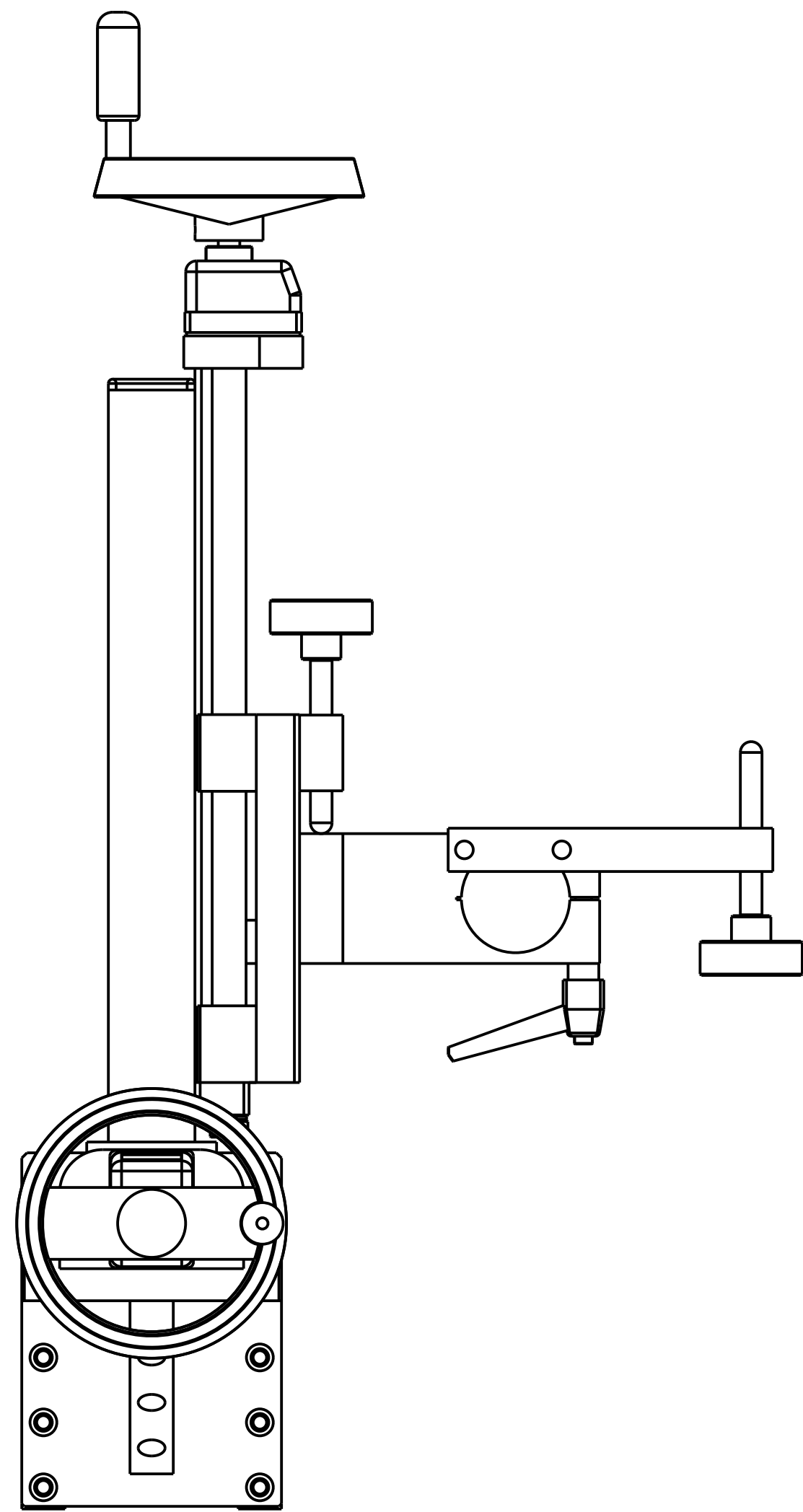
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700





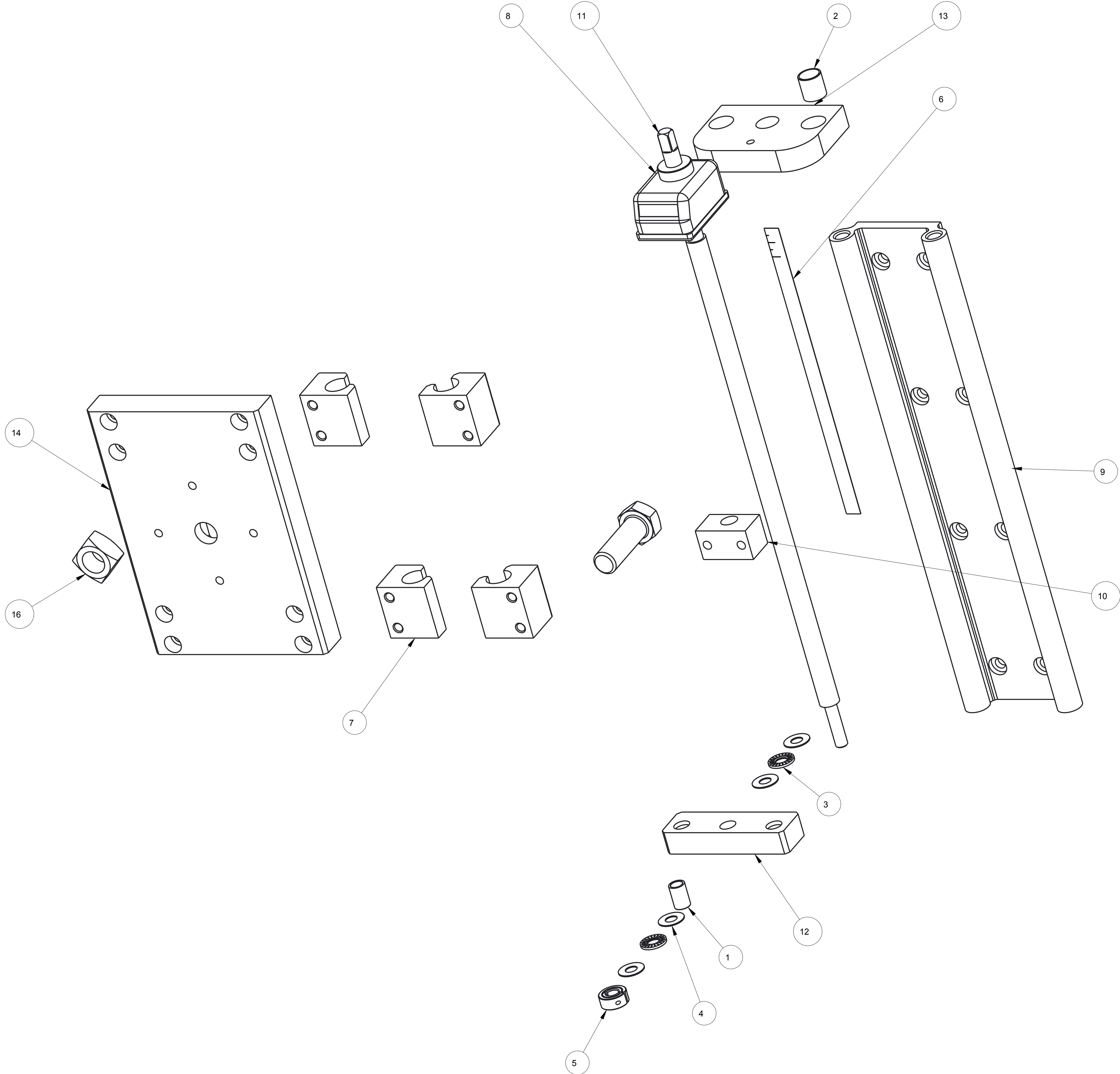
ITEM	QTY	PART NO.	DESCRIPTION
1	1	22173-750	VERTICAL IGUS SLIDE, 17.5"
2	1	141172-000	SLEEVE BEARING
3	1	141173-000	SLEEVE BEARING-5/8 O.D. X .75 LG.
4	1	141177-000	SLEEVE BEARING
5	2	181108-000	BEARING, NEEDLE ROLLER
6	4	181111-000	THRUST WASHER
7	1	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP
8	1	729006-000	CAP INSERT FOR 2 X 4 TUBE
9	4	792248-001	PILLOW BLOCK
10	2	792354-000	DIGITAL POSITION INDICATOR
11	1	793023-010	DRYLIN RAIL
12	3	793045-000	DIAMOND KNURL KNOB
13	2	801080-001	6" HANDWHEEL
14	2	801850-000	CLAMPING LEVER
15	1	A24077-000	BRONZE NUT, RH
16	3	A26179-000	KNOB STUD
17	1	B20045-112	THREADED ROD
18	2	B21190-014	YOKE SIDE PLATE
19	1	B21346-000	BOTTOM BEARING PLATE
20	1	B21555-000	MTG YOKE BACK PLATE
21	1	B22005-001	BEARING PLATE
22	1	C20626-216	STAND SLED
23	3	C21327-000	GUSSET
24	1	C21346-000	MTG. PLATE
25	1	C21348-120	ADJUSTMENT PLATE
26	1	C21349-120	ADJUSTMENT BLOCK
27	1	D24433-125	HEAD SUPPORT RISER
28	1	D24941-000	HEAD SUPPORT MTG PLATE

A		11-26-13		NEW DRAWING	
REV		DATE		DESCRIPTION	
				BY	
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X±.1 XX±.01 XXX±.005 ANGLES ± .30°		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE	1/2
				DATE	11-26-13
				DRAWN BY	MAW
Q120 RH HEAD SUPPORT					
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030		MAT'L		22530-120-RH	
		22530-120-RH		22530-120-RH	



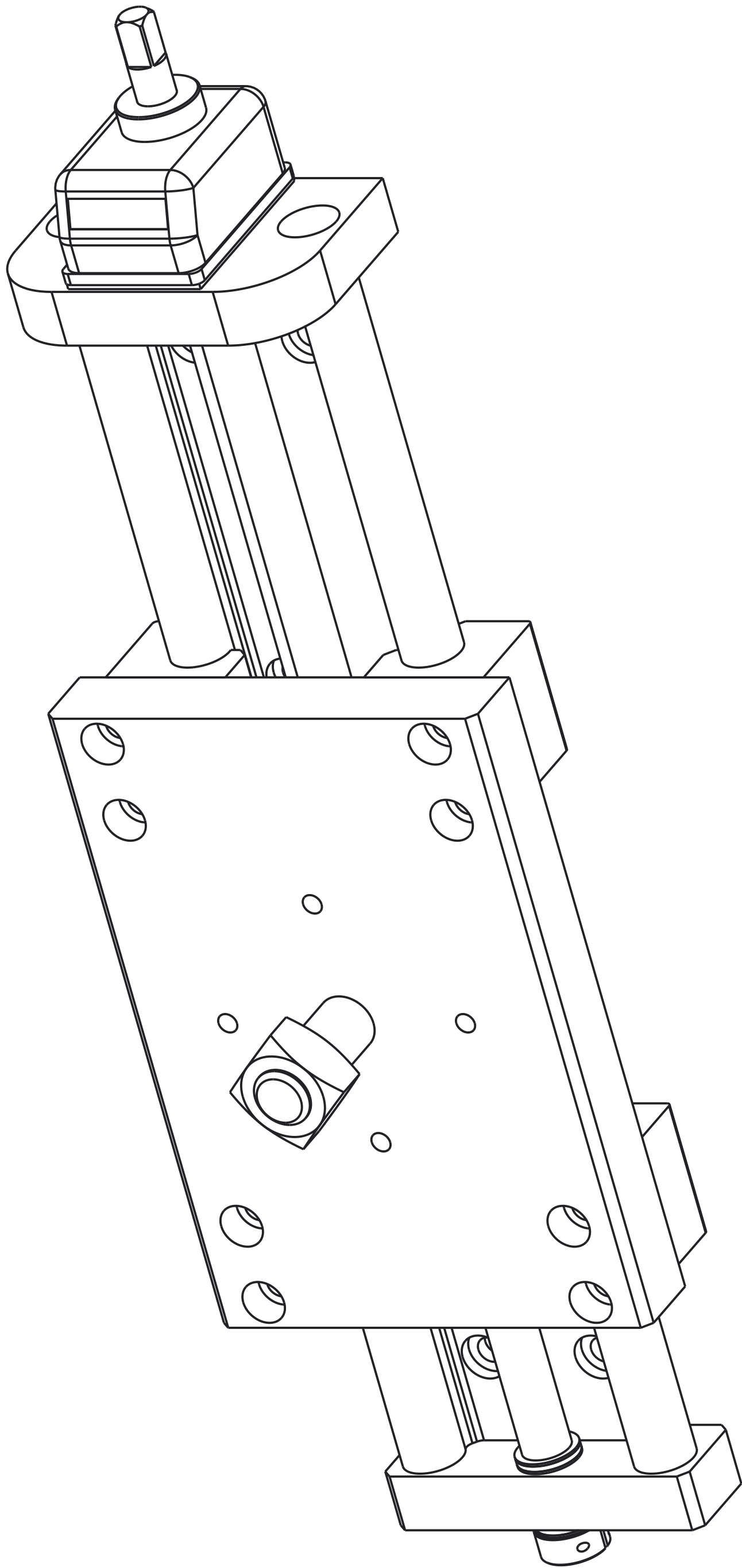
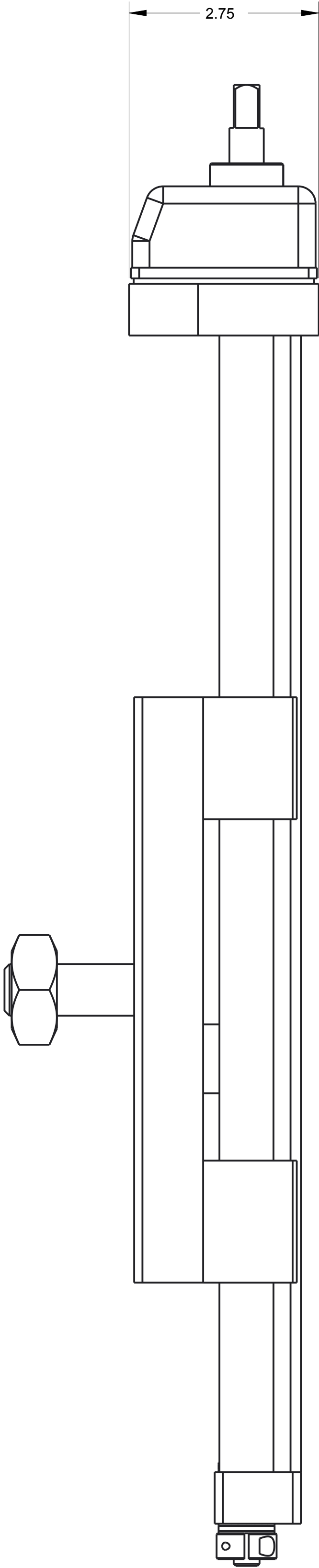
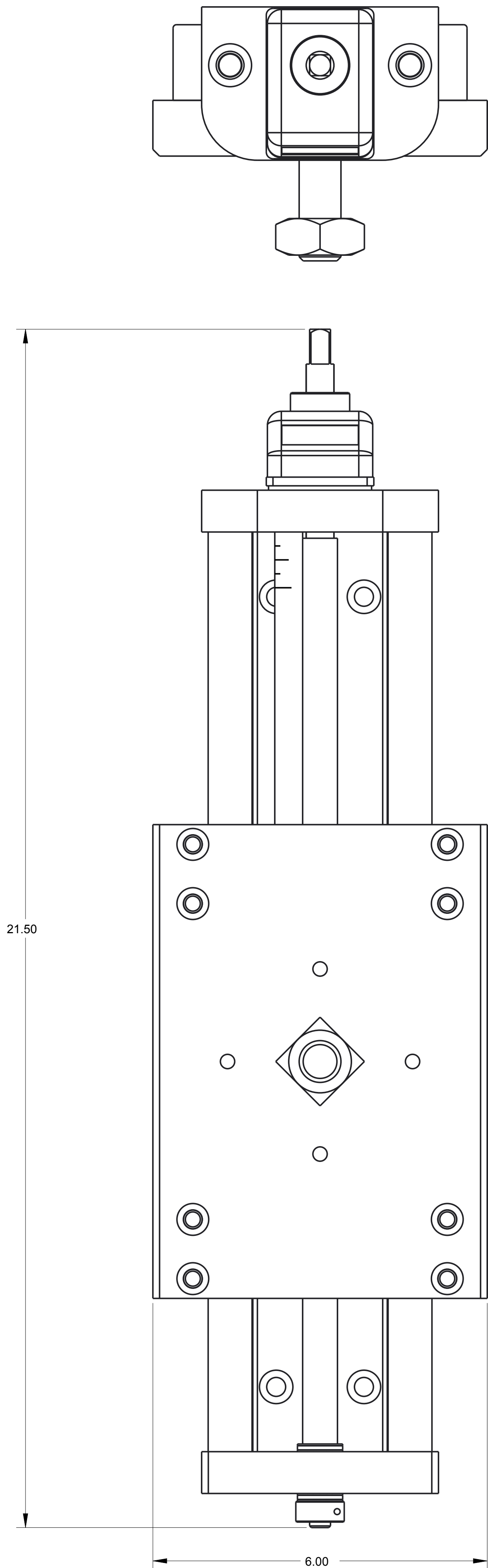
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REV	DATE	DESCRIPTION			BY
D MAY NOT BE MODIFIED MANUALLY					
G SYSTEMS		SCALE	5/16		
DRIVE		DATE	11-26-13		
44060		DRAWN BY	MAW		
700					
RH HEAD SUPPORT					
RH		22530-120-RH			

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ITEM	QTY	PART NO.	DESCRIPTION
1	1	141172-000	SLEEVE BEARING
2	1	141173-000	SLEEVE BEARING-5/8 O.D. X .75 LG.
3	2	181108-000	BEARING, NEEDLE ROLLER
4	4	181111-000	THRUST WASHER
5	1	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP
6	1	791914-001_10	MYLAR SCALE, QUADREL LOGO
7	4	792248-001	PILLOW BLOCK
8	1	792354-000	DIGITAL POSITION INDICATOR
9	1	792355-000	DRYLIN RAIL
10	1	A24077-000	BRONZE NUT, RH
11	1	B20045-111	THREADED ROD
12	1	B21346-000	BOTTOM BEARING PLATE
13	1	B22005-006	BEARING PLATE
14	1	C20626-000	STAND SLED
15	1	HCS281	3/4-10 X 2-1/4 LG. HEX HEAD BOLT
16	1	SQN022	SQUARE NUT

		A		20-SEP-16		NEW DRAWING		CRT				
		REV		DATE		DESCRIPTION		BY				
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY												
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X±.1 XX±.01 XXX±.005 ANGLES ± .30°		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700					SCALE		5/8			
							DATE		20-SEP-16			
									DRAWN BY		CRT	
VERTICAL IGUS SLIDE, 17.5"												
SURFACE FINISH 125 BREAK ALL EDGES .005/015 CORNER RADIUS .010/030		MAT'L		22173-750				22173-750				



A		20-SEP-16	NEW DRAWING		CRT
REV	DATE	DESCRIPTION	BY		
UNLESS OTHERWISE SPECIFIED		QUADREL LABELING SYSTEMS		SCALE	
DIMENSIONAL TOLERANCE		7670 JENTHER DRIVE		3/4	
X± .1		MENTOR, OHIO 44060		DATE	
XX± .01		(440) 602-4700		20-SEP-16	
XXX± .005				DRAWN BY	
ANGLES ± .30°				CRT	
SURFACE FINISH 125		VERTICAL IGUS SLIDE, 17.5"			
BREAK ALL EDGES .005/.015		MAT'L			
CORNER RADIUS .010/.030		22173-750		22173-750	

7.4 FEEDSCREW ASSEMBLY

7.4.1 GENERAL INFORMATION

The feedscrew assembly is an optional module that is generally placed at the entrance of the conveyor. Each screw is custom designed for your product to a specifically engineered pitch that meets or exceeds your specified product per minute goal. This creates perfect absolute spacing of products as they travel towards the labeling head. Found primarily in high speed systems. This unit can be controlled by a DC, AC, or Servo motor paired with the appropriate drive located in the electrical enclosure.

7.4.2 ADJUSTMENTS

The feedscrew assembly is easily manageable. Adjusting the height is achieved by pivoting the top portion of the screw assembly up and down. To loosen the assembly to pivot simply loosen the (4) 3/8-16 socket head bolts that hold the bar in place. When at the proper height tighten the bolts and the height will be locked in place. To move the assembly in and out rotate the handle clockwise or counter clockwise.



CAUTION

Do not make any adjustments when assembly or conveyor are running. Read and understand manual before making any adjustments.

ASSEMBLY TITLE: FEEDSCREW ASSEMBLY

GENERAL FUNCTION:

- The feed screw assembly provides proper spacing of the product for labeling application.
- The screws are self powered and electronically matched to the speed of the conveyor and top trap.

SET-UP AND ADJUSTMENTS:

- To adjust, loosen the bolts on the pivot clamps and rotate the screw assembly to the desired height.
- The horizontal position is set to align the product to the centerline of the top trap. To adjust, loosen to clamp bolts and turn the adjustment screw CW to move the screw across the conveyor, CCW to back the screw away from the conveyor.
- To change screws, remove the screw change bracket and feed-screw. Realign new feed-screw to placement pins on drive shaft and replace bracket.
- To change the speed of the feed-screw for proper products per minute, press the pacing speed button on the operator's touch-screen and enter the products per minute.

MAINTENANCE:

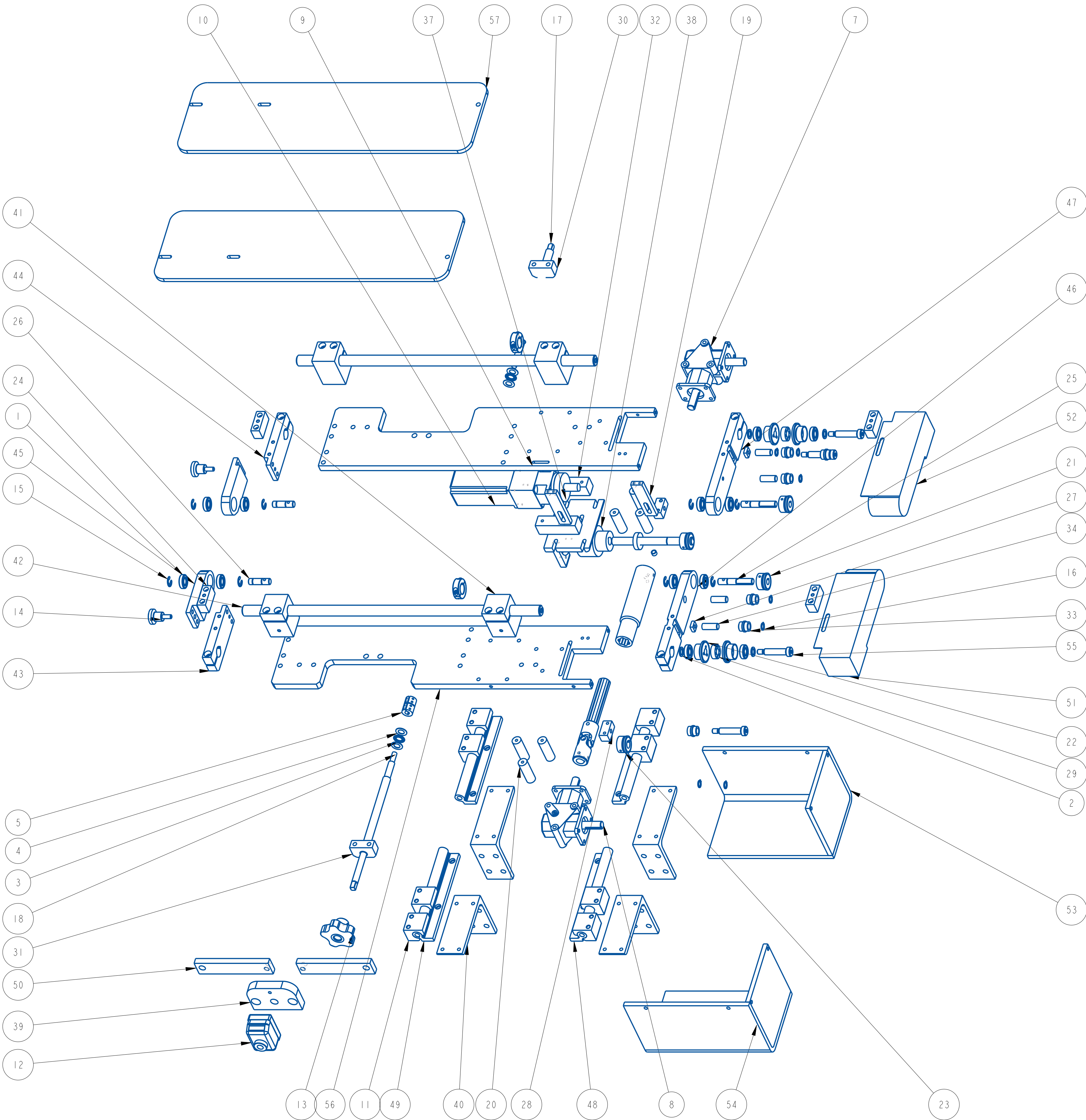
- Remove glue residue and labels from feed-screws
- Lubricate grease fittings and bearings with quality multi-purpose grease.

TROUBLESHOOTING:

- | | |
|--|---|
| - Several products are going through assembly at once. | -Adjust horizontally to increase pressure on the product. |
| - Products will not travel through feed-screw assy. | -Adjust horizontally to apply less pressure to the product. |



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	12	111072-000	BEARING, BALL	22438-200
2	4	151004-000	BEARING, THRUST WASHER	22438-200
3	2	181079-000	BEARING, NEEDLE ROLLER	22438-200
4	4	181080-000	BEARING, THRUST WASHER	22438-200
5	1	362164-000	COUPLING, ONE PIECE CLAMP-ON	22438-200
6	2	363150-000	2 PIECE CLAMP-ON COLLAR	22438-200
7	1	412526-000	3-WAY GEAR BOX	22438-200
8	1	412530-000	GEARBOX, 2-WAY	22438-200
9	1	412542-002	SERVO GREARHEAD	22438-200
10	1	413025-000	SERVO MOTOR	22438-200
11	8	792248-000	PILLOW BLOCK *NOTE USE 792248-001*	22438-200
12	1	792354-000	DIGITAL POSITION INDICATOR	22438-200
13	1	801332-000	LOBE KNOB W/ ORANGE CENTER	22438-200
14	2	801885-000	ERGOSTYLE KNURLED KNOBS	22438-200
15	8	871009-000	E-RING	22438-200
16	12	871039-000	EXTERNAL SNAP RING	22438-200
17	1	A21559-010	THREADED ROD	22438-200
18	1	A21560-020	THREADED ROD	22438-200
19	2	A25139-002	PROXIMITY SWITCH MOUNTING PLATE	22438-200
20	6	A25242-010	GEARBOX SPACER	22438-200
21	2	A25380-000	SPROCKET REWORK	22438-200
22	4	A25380-001	SPROCKET REWORK	22438-200
23	2	A25380-002	SPROCKET REWORK	22438-200
24	4	A25398-000	GUARD MOUNTING BLOCK	22438-200
25	2	A25409-000	DRIVE PIN	22438-200
26	2	A25410-000	IDLER PIN	22438-200
27	2	A25413-000	TENSIONER MOUNTING PLATE	22438-200
28	2	A25415-000	TENSIONER MOUNTING BLOCK	22438-200
29	2	A25505-000	SPROCKET SPACER	22438-200
30	1	A25507-000	ADJUSTMENT BLOCK	22438-200
31	1	A25507-001	ADJUSTMENT BLOCK, LH	22438-200
32	2	A25528-010	MOTOR SPACER	22438-200
33	6	A25539-000	IDLER PULLEY	22438-200
34	4	A25541-000	TENSIONER SHAFT	22438-200
35	1	A25663-100A	SPLINE ADAPTER SLEEVE	22438-200
36	1	A25665-100A	U-JOINT MALE SPLINE ASSEMBLY	22438-200
37	1	A25886-000	SERVO MOTOR MOUNTING ANGLE	22438-200
38	1	A25893-000	TORQ TENDER MODIFICATION	22438-200
39	1	B22005-012	BEARING PLATE	22438-200
40	4	B22104-010	MOUNTING ANGLE	22438-200
41	4	B22106-000	PIVOT MOUNTING BLOCK	22438-200
42	2	B22245-000	PIVOT SHAFT	22438-200
43	1	B22246-000	LOWER PIVOT ARM	22438-200
44	1	B22246-001	LOWER PIVOT ARM	22438-200
45	2	B22247-001	UPPER PIVOT ARM	22438-200
46	1	B22248-002	PIVOT ARM	22438-200
47	1	B22248-003	PIVOT ARM	22438-200
48	2	B22381-000	DRYLIN RAIL	22438-200
49	2	B22381-001	DRYLIN RAIL	22438-200
50	2	B22874-000	MOUNTING PLATE	22438-200
51	1	C21104-002	PIVOT ARM COVER	22438-200
52	1	C21104-003	PIVOT ARM COVER	22438-200
53	2	C21159-010	REAR COVER	22438-200
54	2	C21160-010	GUARD END PLATE	22438-200
55	4	CSSD0411		22438-200
56	2	D22325-011	FEEDSCREW MAIN PLATE	22438-200
57	2	D22675-010	FEEDSCREW GUARD	22438-200



PARTS NOT SHOWN:
361131-001 (4) CONNECTING LINK
361130-001 3/8" CHAIN (4 FT)
B20660-1293L FEEDSCREW
B20660-1293R FEEDSCREW

B

21-MAR-16

ADDED 801332-000

B

21-MAR-16

REMOVED 801080-000

A

30-SEP-15

NEW DRAWING

REV

DATE

DESCRIPTION

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DIMENSIONAL TOLERANCE

$XX \pm .01$

$XXX \pm .005$

ANGLES $\pm .30^\circ$

SURFACE FINISH 125

BREAK ALL EDGES .0057/015

CORNER RADIUS .0107/030

7/32

DATE: 30-SEP-15

DRW BY: CRT

CHK BY: 03/04/2024-SEM

APPR BY:

7670 JENTHER DRIVE

MENTOR, OHIO 44060

(440) 602-4700

QUADREL LABELING SYSTEMS

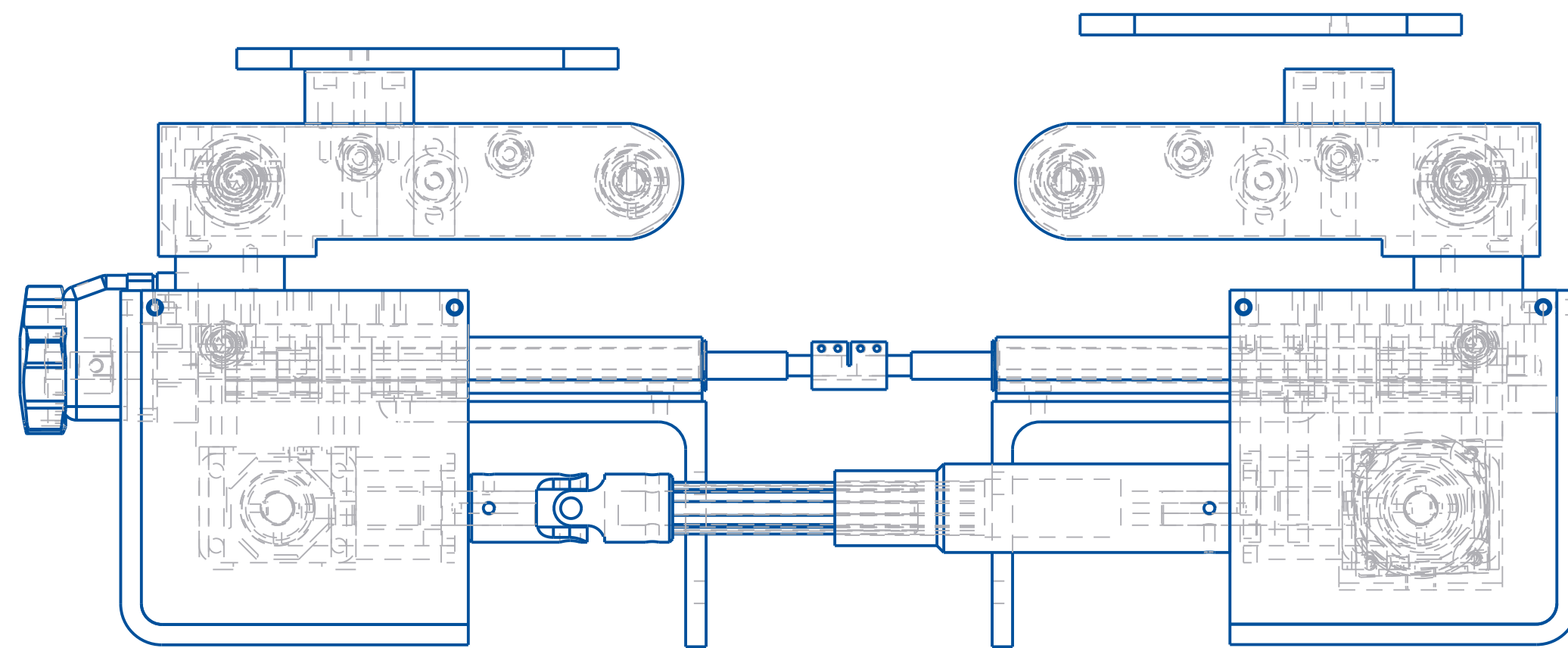
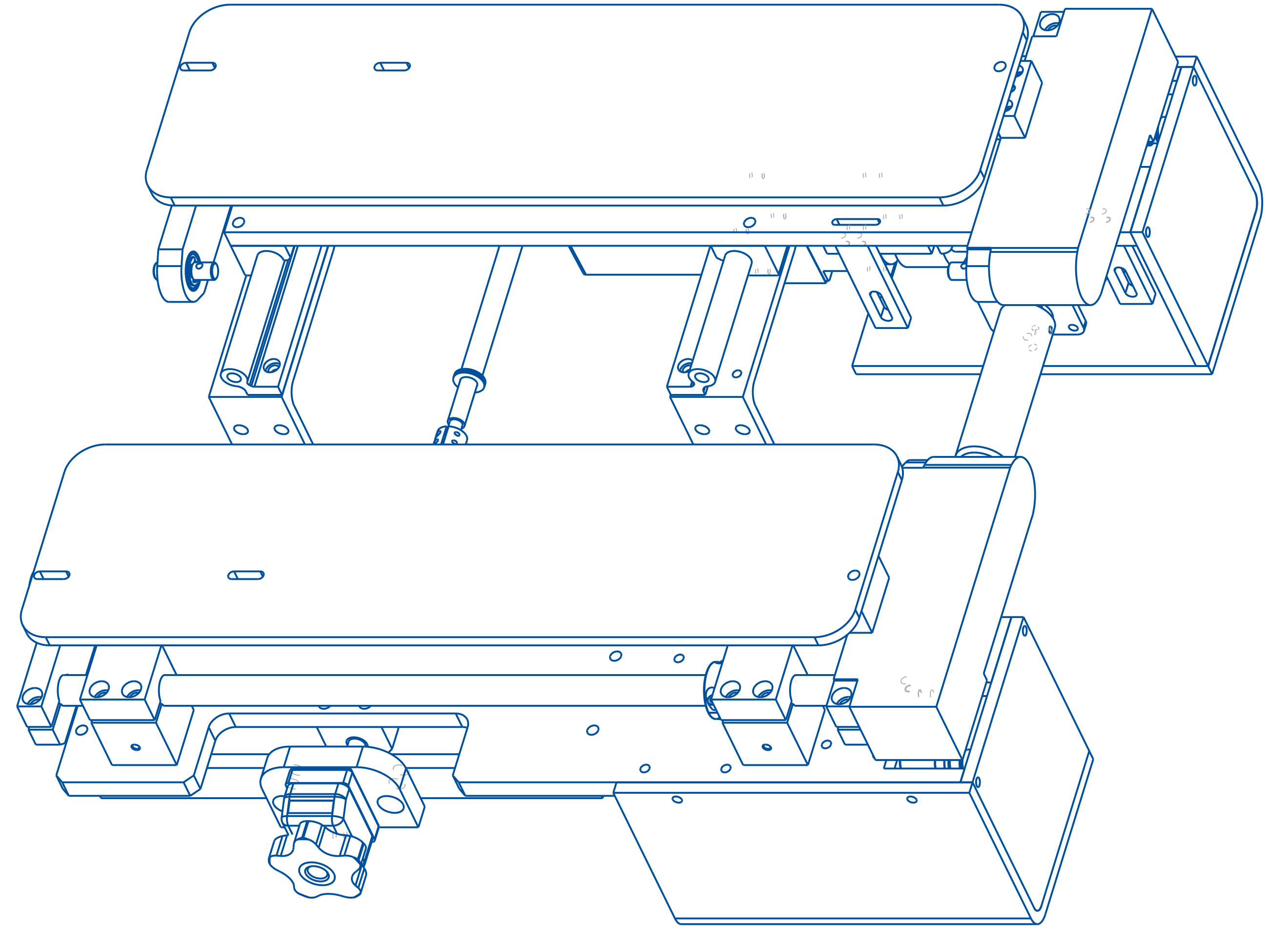
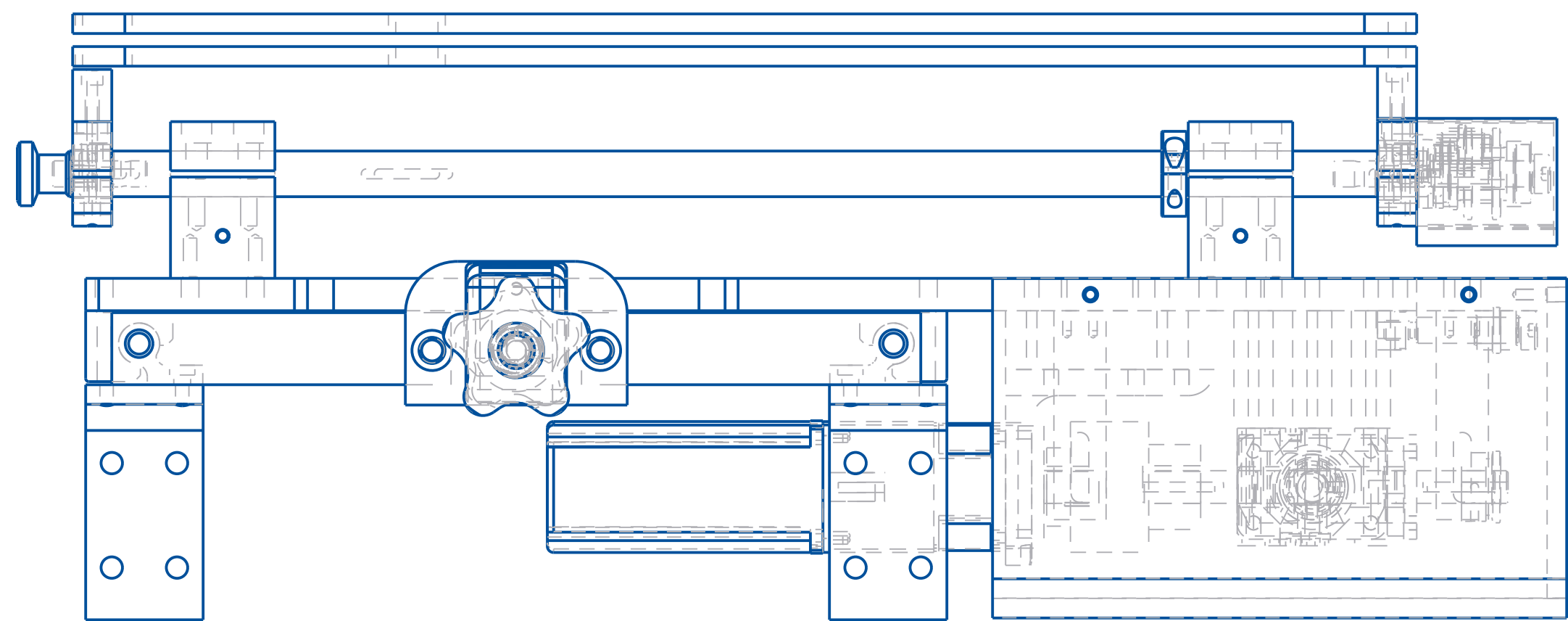
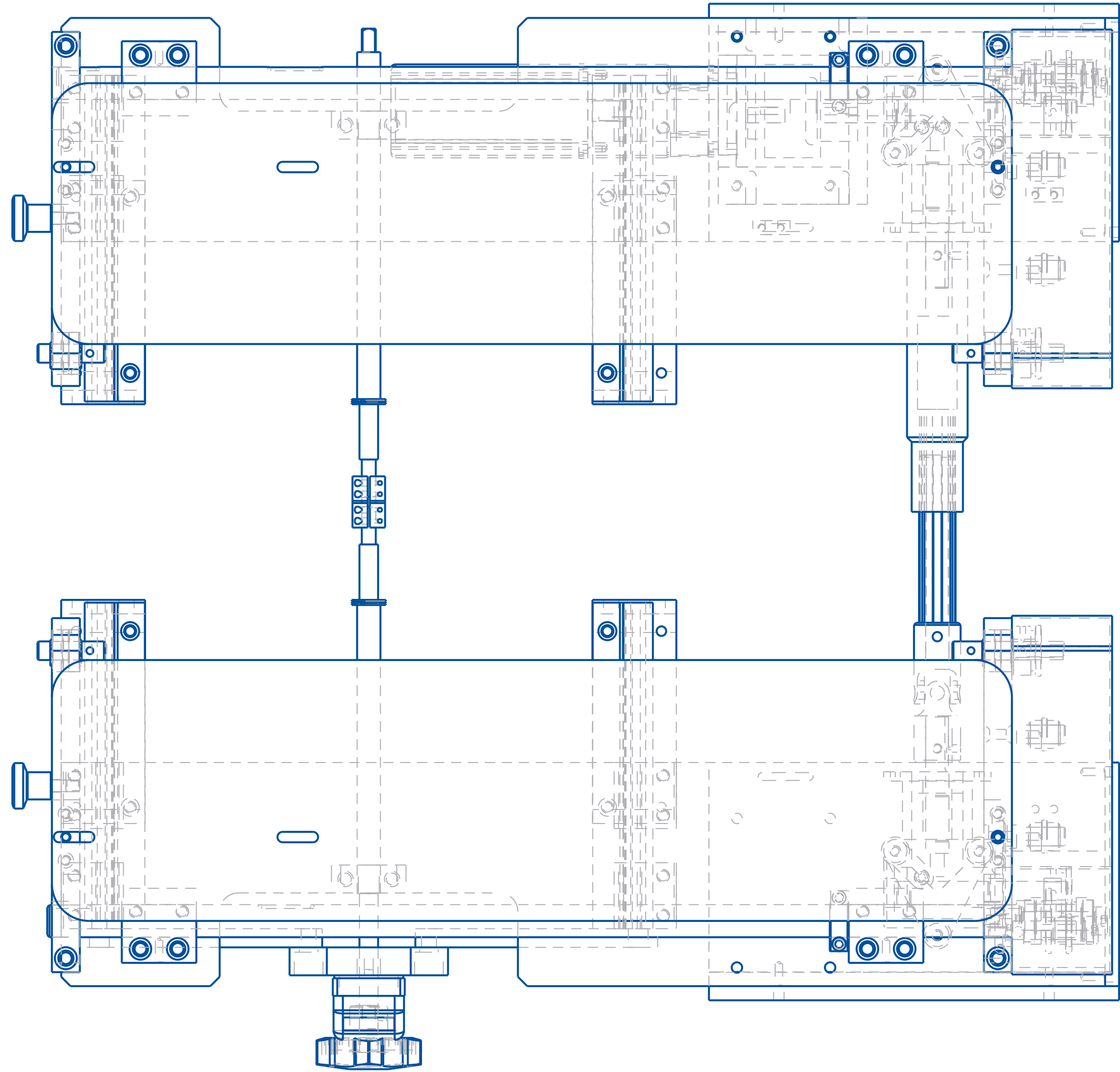
24" DUAL SELF POWERED FEEDSCREWS

MAT'L

22438-000

22438-200

SHEET 1 OF 2



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 3/8	
XX ± .01 XXX ± .005 ANGLES ± .00°		DATE: 7-9-11	
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030 ALL ANGLES ARE 90°		DRW BY: MAW	
		CHK BY: 03/04/2024-SEM	
		APPR BY:	
		24" DUAL SELF POWERED FEEDSCREWS	
		MAT'L 22438-000	22438-200

Items: 21559-004 Thru 21559-004 Location: 01 QUADREL WHSE

Activity Codes: Active Items Only

1 Levels With No Blow Through

No Selection On Basis Of Effectivity Date

No Selection On Basis Of Obsolete Date

Level	Seq	Component-Item	Component-Description			Opr	UOM	Scrap	Act	Stk	B/I	Qty	On-Hand	Qty-Per-Parent
			Loc	LLC	Draw	REV	P/M	Ctl	B/F	Qty-Allocated		Qty-On-Order		

Parent Item: 21559-004 PROX SENSORS, POS & CLUTCH Loc: 01 LLC: 2
FEEDSCREWS, STANDARD

1	5 202086-002	SWITCH, PROXIMITY, PNP, 55mm	0 EA	.0 A Y N	2.000000
		"TURCK" NI3			

1	10 252019-000	CONNECTOR, M12, 4P, MALE "LUMBERG" F	0 EA	.0	A	Y	N	2.000000
---	---------------	---	------	----	---	---	---	----------

7.7 TOP HOLD DOWN ASSEMBLY

7.7.1 GENERAL INFORMATION

The top hold down module is a motor driven spring loaded belt that applies overhead pressure to the containers and enables the product to remain stable as the label is applied. This assembly is powered by an AC motor or servo motor. Ideal for front / back or single side applications.

7.7.2 ADJUSTMENTS

Adjusting the height of the top hold down is achieved by turning the hand wheel on the top of the assembly counter clockwise or clockwise.



ASSEMBLY TITLE:**SERVO TOP TRAP ASSEMBLY****GENERAL FUNCTION:**

- As a product enters the label application area near the labeling head, it needs additional support to prevent it from being upset as a label is applied. A product hold down conveyor or more commonly known as a "top trap" is used to provide product support. The cantilever top trap adjusts vertically by a handwheel and is driven directly by a servo motor that is synchronized to match the conveyor speed. The top trap is spring loaded to accommodate slight product variations.

-

SETUP AND ADJUSTMENTS:

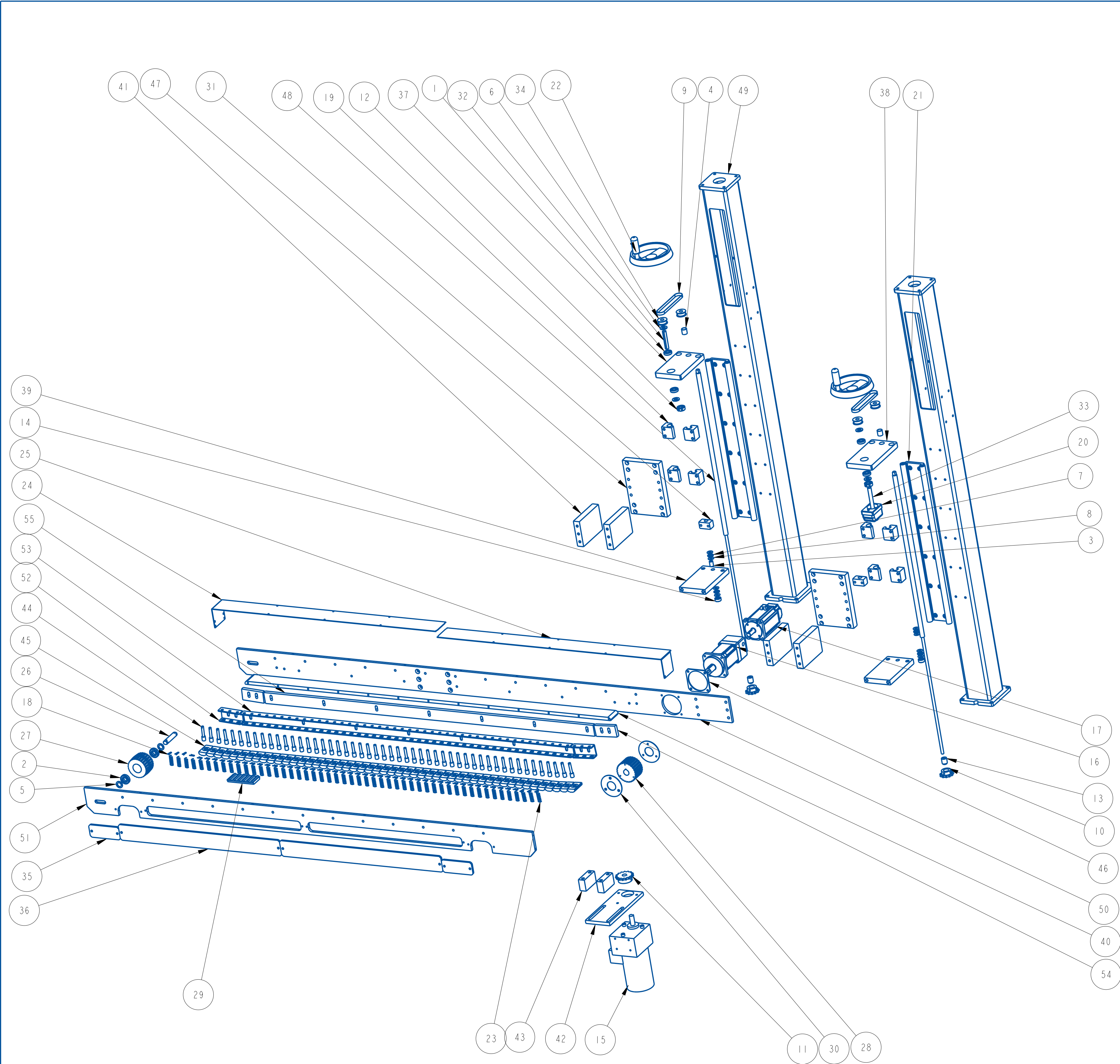
- Place the product to be labeled under the top trap. turn the handwheel so that the rubber belt of the top trap compresses the product slightly.
- Top trap belt tension can be adjusted by tightening or loosening the set screws at the infeed end of the top trap.

MAINTENANCE:

- No maintenance is required except for an occasional belt replacement.

TROUBLESHOOTING:**PROBLEM****WHAT TO DO**

- | | |
|--------------------------------------|--------------------------------|
| - Top trap jumping teeth | - Tighten top trap belt |
| - Too much pressure on product | - Raise top trap |
| - Top trap not moving | - Check servo drive for faults |
| - Product moving while being labeled | - Add top trap pressure |



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	4	111072-000	BEARING, BALL	22442-253
2	2	111075-000	BEARING, BALL	22442-253
3	1	141172-000	SLEEVE BEARING, 1/20D. x 3/8ID. x 3/4LNG	22442-253
4	2	141173-000	SLEEVE BEARING, 23/320D. x 5/8ID. x 3/4LNG	22442-253
5	2	151008-000	BEARING, THRUST WASHER	22442-253
6	4	151018-000	BEARING, THRUST WASHER	22442-253
7	4	181108-000	BEARING, NEEDLE ROLLER	22442-253
8	8	181111-000	THRUST WASHER	22442-253
9	2	191562-000_	TIMING BELT	22442-253
10	2	322093-000	SPROCKET, 11 TOOTH	22442-253
11	1	322191-000	SPROCKET	22442-253
12	2	361169-000	COLLAR, 1/2 IN. ID ONE-PIECE CLAMP	22442-253
13	2	361314-000	TRANSTORQUE KEYLESS BUSHING	22442-253
14	2	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP	22442-253
15	1	411817-000	GEARMOTOR	22442-253
16	1	412562-000	SERVO GEARBOX, 16:1	22442-253
17	1	413002-000	SERVO MOTOR	22442-253
18	50	791975-001	R-CLIP	22442-253
19	8	792248-001	PILLOW BLOCK	22442-253
20	1	792354-000	DIGITAL POSITION INDICATOR	22442-253
21	2	793019-000	DRYLIN RAIL	22442-253
22	2	801080-000	6" HANDWHEEL	22442-253
23	50	811256-000	COMPRESSION SPRING	22442-253
24	1	A21578-611	TOP TRAP COVER PLATE	22442-253
25	1	A21578-612	TOP TRAP COVER PLATE	22442-253
26	1	A21823-100	IDLER SHAFT	22442-253
27	1	A21824-201	IDLER PULLEY	22442-253
28	1	A21826-101	DRIVE PULLEY	22442-253
29	1	A21830-211	TOP TRAP BELT	22442-253
30	2	A23403-000	FLANGE	22442-253
31	2	A24077-000	BRONZE NUT, RH	22442-253
32	1	A25701-000	HANDLE SHAFT	22442-253
33	1	A25701-010	HANDLE SHAFT	22442-253
34	4	A25702-000	TIMING PULLEY	22442-253
35	2	A26084-000	COVER	22442-253
36	2	A26084-240	COVER	22442-253
37	1	B21345-002	TOP BEARING PLATE	22442-253
38	1	B21345-012	TOP BEARING PLATE	22442-253
39	2	B21346-023	BOTTOM BEARING PLATE	22442-253
40	1	B21769-110	TOP TRAP SPACER	22442-253
41	4	B22465-102	TOP TRAP MTG PLATE	22442-253
42	1	B22473-000	MOTOR MOUNTING PLATE	22442-253
43	2	B22474-000	STAND OFF PLATE	22442-253
44	50	B22784-000	SPRING BLOCK STEM	22442-253
45	50	B22785-100	SPRING BLOCK PLATE	22442-253
46	1	B23069-000	GEARBOX SHIM	22442-253
47	2	C20626-020	TOP TRAP SLED	22442-253
48	2	C20910-517	THREADED ROD	22442-253
49	2	D21636-535	VERTICAL RISER	22442-253
50	1	D23228-226	INSIDE TOP TRAP PLATE	22442-253
51	1	D23228-624	INSIDE TOP TRAP PLATE	22442-253
52	2	D24415-001	SPRING BLOCK MOUNTING CHANNEL	22442-253
53	1	D24415-010	SPRING BLOCK MOUNTING CHANNEL	22442-253
54	2	D24415-201	SPRING BLOCK MOUNTING CHANNEL SPACER	22442-253
55	1	D24415-210	SPRING BLOCK MOUNTING CHANNEL SPACER	22442-253

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DIMENSIONAL TOLERANCE
X ± .1
XXX ± .005
ANGLES ± .50°
SURFACE FINISH 125
BREAK ALL EDGES .005/ .015
CORNER RADII .010/ .030
ALL ANGLES ARE 90°

QUADREL LABELING SYSTEMS

7670 JENTER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

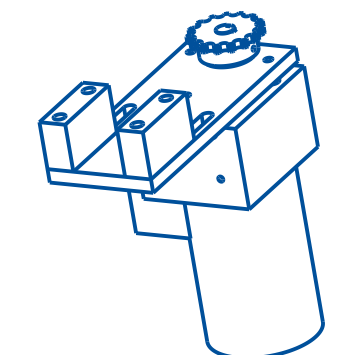
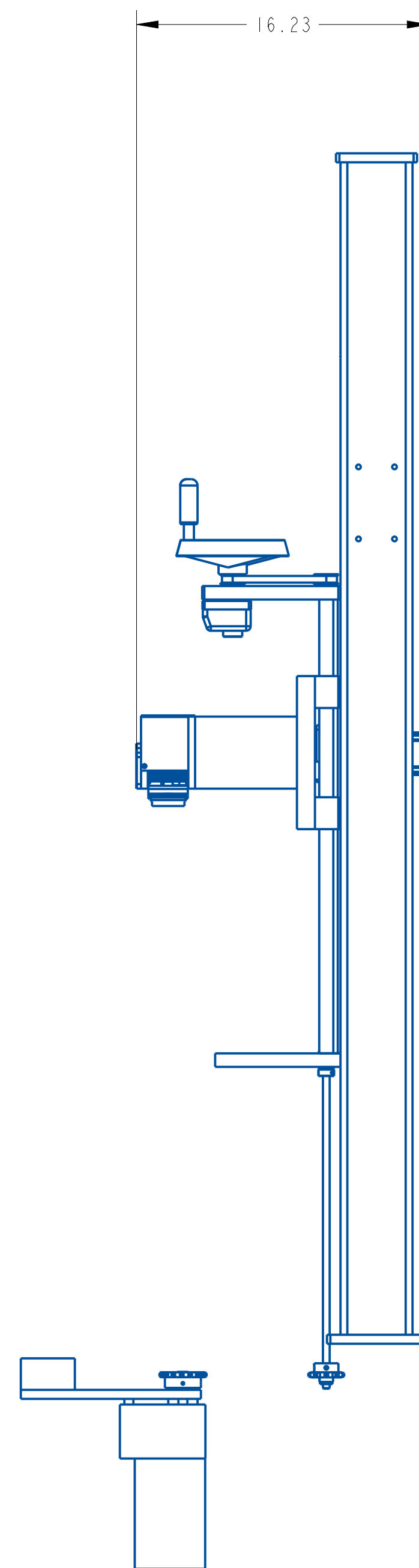
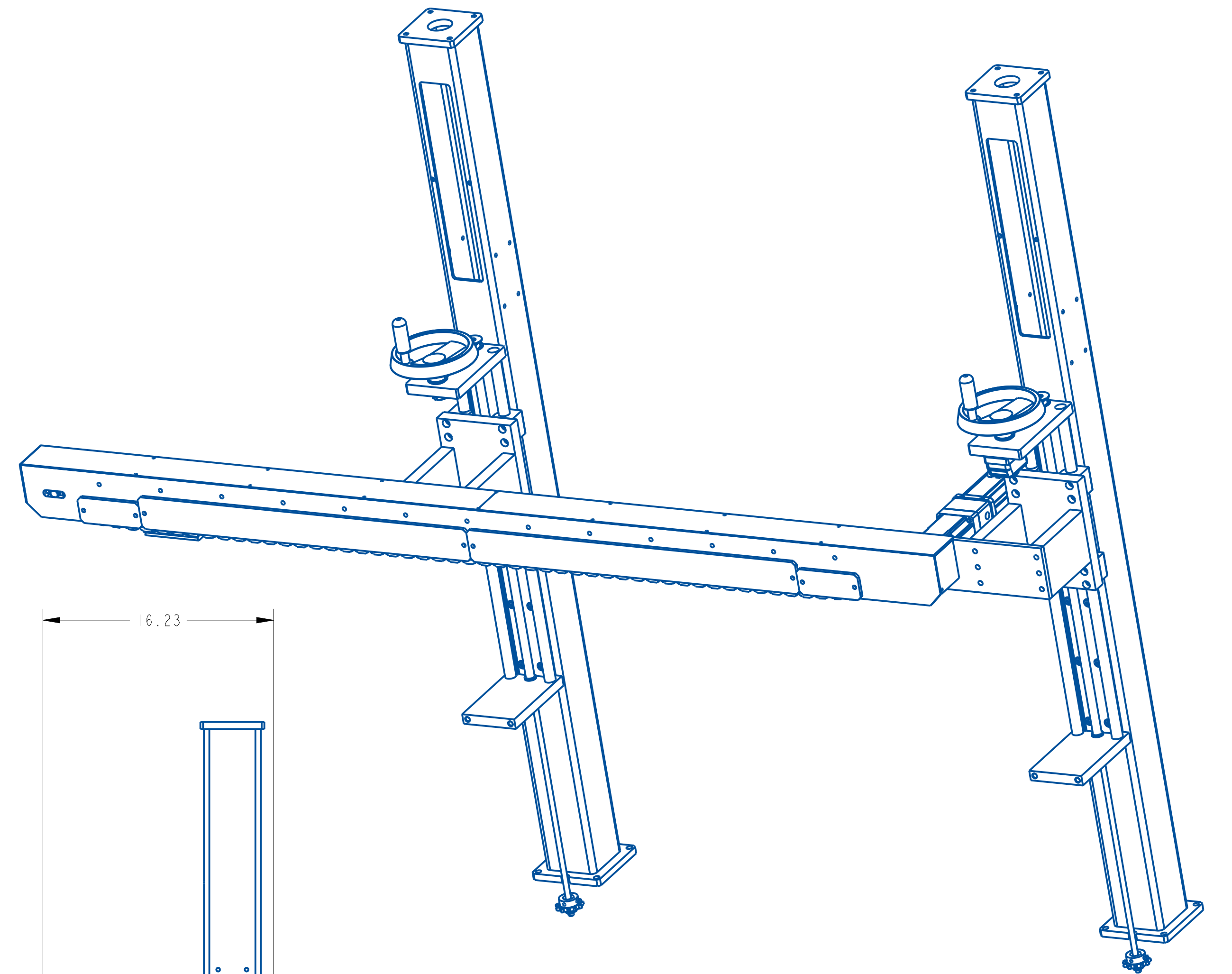
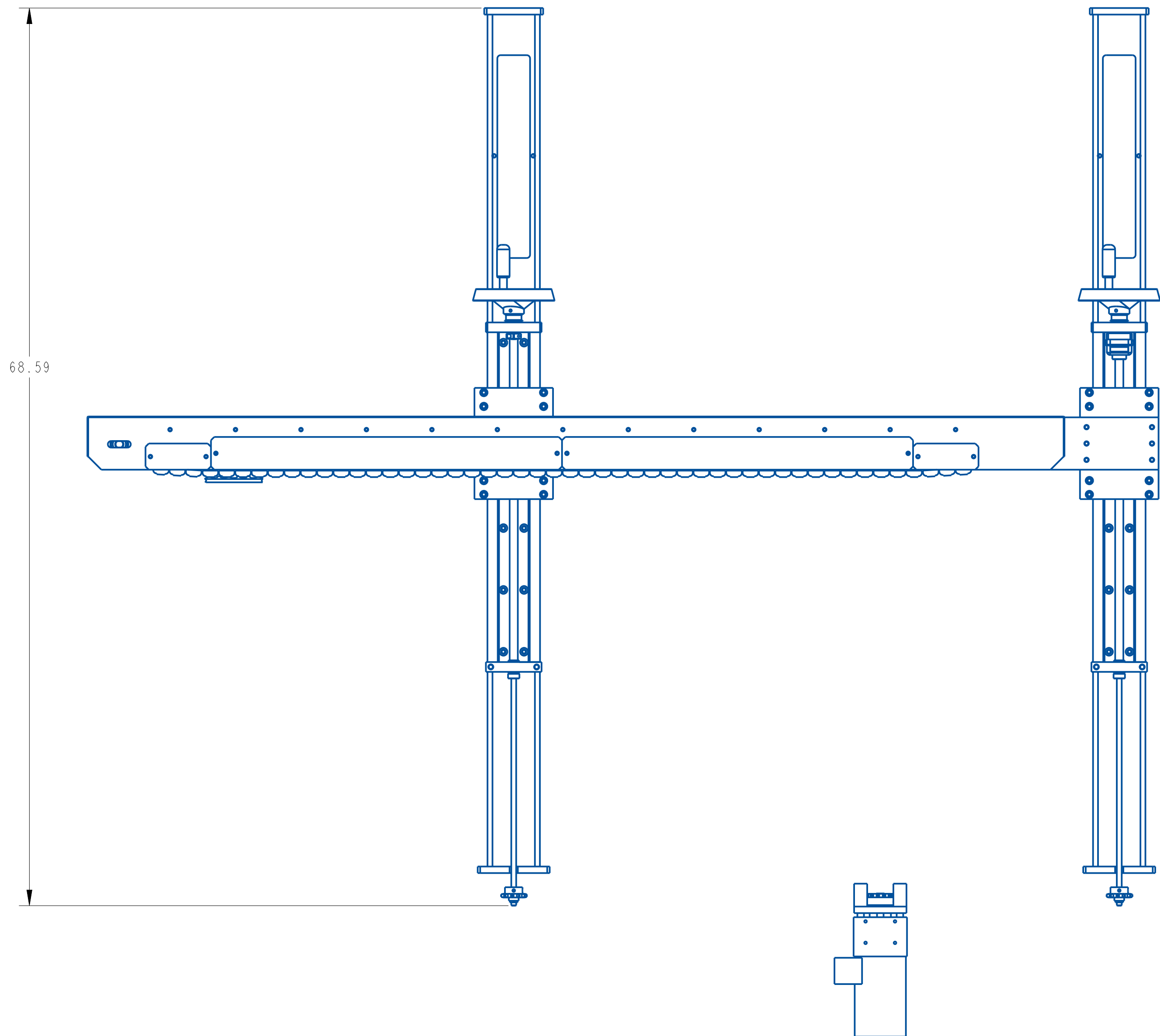
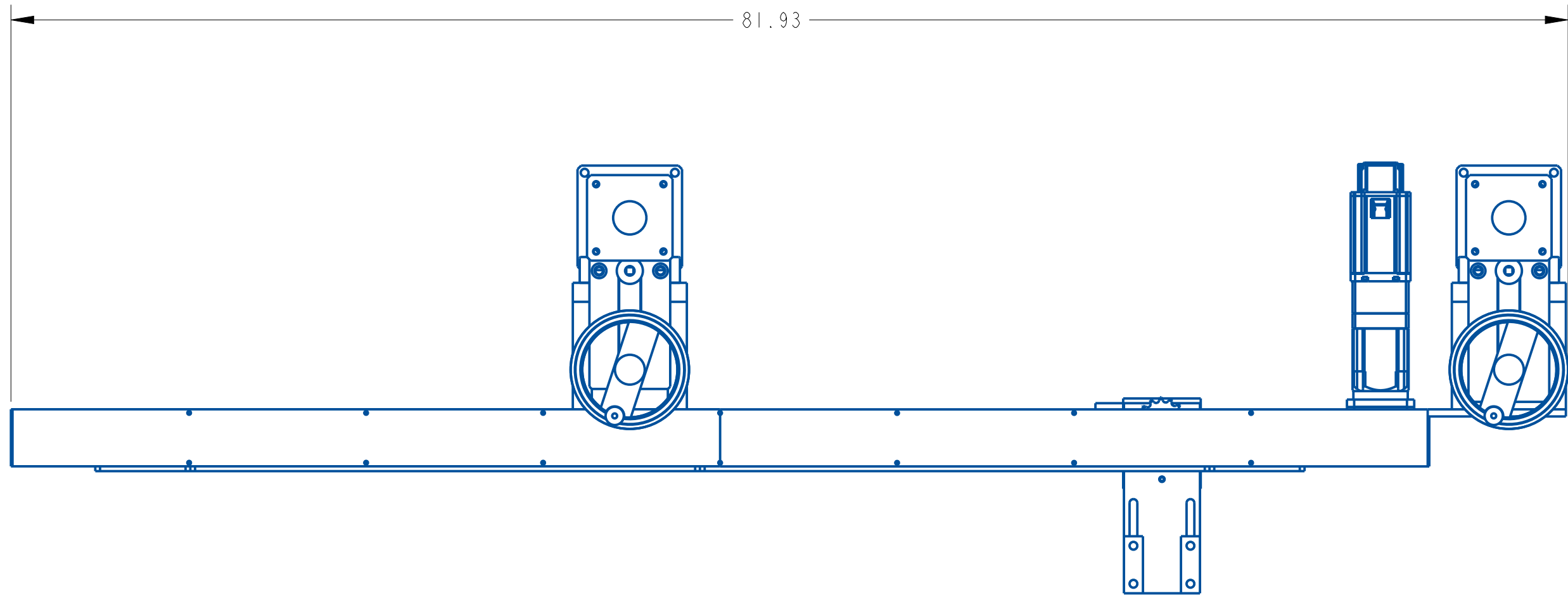
SCALE: 1/8
DATE: 7-18-25
DRW BY: ATT
CHK BY: 07/23/2025-SEM
APPR BY:

PROLINE SERVO TOP TRAP-WIDE BELT

MAT'L

22442-253

A	7-18-25	NEW DRAWING	ATT
REV	DATE	DESCRIPTION	BY



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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 5/32	
XX ± .01		DATE: 7-18-25	
XXX ± .005		DRW BY: ATT	
ANGLES ± .00		CHK BY: 07/23/2025-SEM	
SURFACE FINISH 125		APPR BY:	
BREAK ALL EDGES .005/ .015		PROLINE SERVO TOP TRAP-WIDE BELT	
CORNER RADIUS .010/ .030		MAT'L	
ALL ANGLES ARE 90°		22442-253	

ASSEMBLY TITLE:**PRODUCT DETECT ASSEMBLY****GENERAL FUNCTION:**

The product detect signal is used to trigger the labeling cycle. Optimum placement and setup of the product detect sensor is critical to accurate and repeatable label placement.

SETUP AND ADJUSTMENTS:

Set the position of the product detect sensor at a point up-stream of the peel plate area. Set the vertical position of the sensor at a point on the product that provides a stable and repeatable sense area. Loosen the vertical adjustment knobs to move the assembly along the vertical axis.

Follow the manufactures data sheet for a particular set and calibration.

MAINTENANCE:

No scheduled maintenance is required for this assembly. Always keep the drive areas free of label flash and debris.

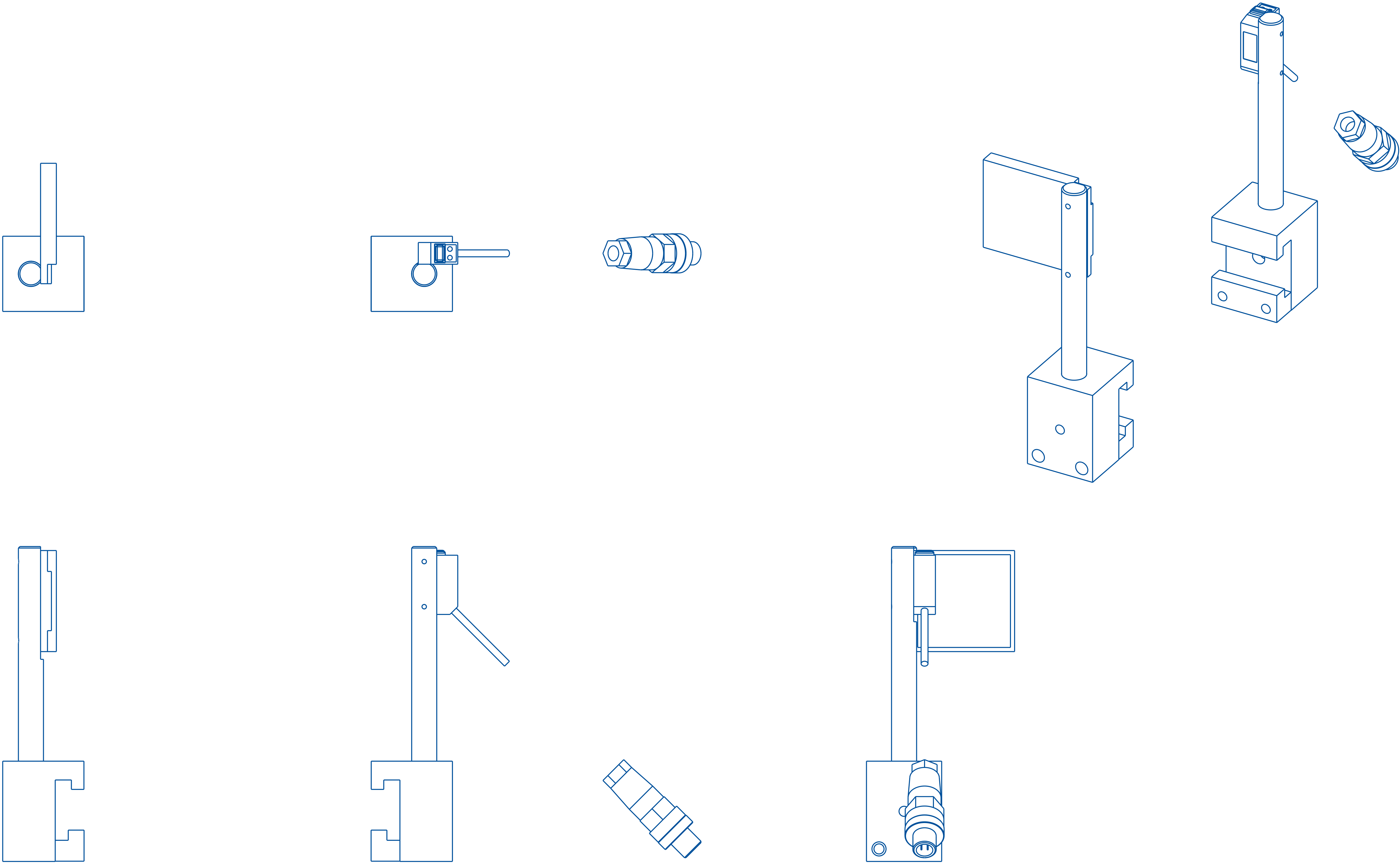
CAUTION: Before performing any maintenance or cleaning make sure the system is powered down.

TROUBLESHOOTING:**PROBLEM:**

- No label trigger or intermittent trigger.

WHAT TO DO:

- Product does not intersect sensor scan field. Adjust sensor position until sensor detects product.
- Sensor gain set is too low. Increase gain until sensor indicator displays ON status(with product in sensor field).



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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/1	
X ± .1		DATE: 07/18/2024	
XX ± .01		DRW BY: SEM	
XXX ± .005		CHK BY: 07/18/2024-SEM	
ANGLES ± .00°		APPR BY:	
SURFACE FINISH 125		CLEAR PRODUCT DETECT, PNP	
BREAK ALL EDGES .005/ .015		MATERIAL	
CORNER RADIUS .010/ .030		21560-002	
ALL ANGLES ARE 90°		21560-012	

PZ-G Series

Instruction Manual

Read this manual thoroughly before using the product.
Keep this manual readily available for future reference.

Safety precautions

- Avoid running the PZ-G cable along with power and high voltage lines, as this may cause interference and/or permanent damage.
- When using a commercially available switching regulator, ground its chassis grounding and earth grounding terminals.
- Do not use in locations where direct ambient light or external light directly shines on the light receiving surface.
- With retro-reflective type sensors, when detecting highly reflective materials (such as mirrored surfaces), stabilization may be difficult. To correct this, change the angle of the sensor head, or adjust the sensitivity.
- Avoid using power which exceeds the specifications for ripple (10% max)
- Avoid using excess force when rotating the operation mode selector switch (Light-on, Dark-on) and the sensitivity adjustment trimmer.
- This product is just intended to detect the object(s). Do not use this product for the purpose to protect a human body or a part of human body.
- This product is not intended for use as explosion-proof product. Do not use this product in a hazardous location and/or potentially explosive atmosphere.

Precautions on Regulations and Standards

UL Certificate

This product is an UL/C-UL Listed product.

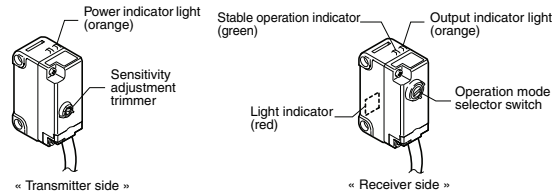
- UL File No. E301717
- Category NRKH,NRKH7
- Enclosure Type 1 (Based on UL50)

Be sure to consider the following specifications when using this product as an UL/C-UL Listed Product.

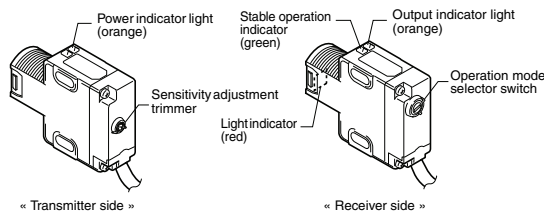
- Use the power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Power supply/ Control input/ Control output circuits shall be connected to a single Class 2 source only.
- Use with the over current protection device which is rated 30V or more and not more than 1A.

Part Names

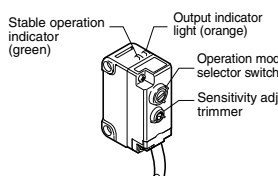
PZ-G5xN/G5xP



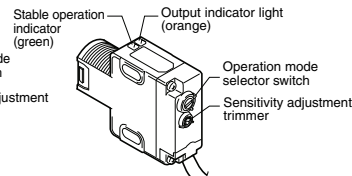
PZ-G5xB



PZ-G4xN/G4xP/G10xN/G10xP/G6xN/G6xP



PZ-G4xB/G10xB/G6xB

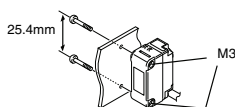


* The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

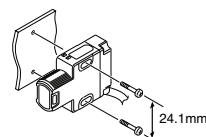
Mounting Method

Side Mounting (Prepare M3 screws)

Tightening torque: 0.5 N·m or less



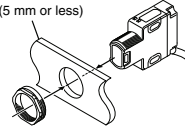
Tightening torque: 0.5 N·m or less



Mounting with the M18 nut (includes nut type)

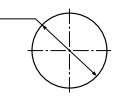
The M18 nut is also available separately as OP-84225 (2 pcs. supplied).
Tightening torque: 1.0 N·m or less

Panel (5 mm or less)



Panel cut size

$\phi 18.5 \pm 0.2$ mm



Note

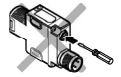
- Mount the M18 nut (supplied) straight in. If mounted at an angle it cannot be tightened properly.
- When tightening the M18 nut (supplied), firmly hold the main body down. The case of the main body may be damaged if held in place with a tool such as pliers.
- When tightening the M18 nut (supplied), if excess force is applied to the nut with a tool such as pliers, it may bend it out of shape. Therefore, do not apply excess force.

Sensitivity Adjustment Method

Caution



Avoid using excess force when rotating the sensitivity adjustment trimmer and operation mode selector switch as it may cause damage.



Operation mode selector switch

With the operation mode selector switch, you can select either the LIGHT-ON mode (L) or the DARK-ON (D) mode.



LIGHT-ON setting



DARK-ON setting

Reflective type (PZ-G41/G42/G101/G102/G10R/G10G/G10B Series)

The following assumes LIGHT-ON (L) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Position target in place. Slowly rotate the sensitivity trimmer from the MIN position towards the MAX position until the (orange) output indicator turns on (Position "A"). If the output indicator does not turn off, even at MIN, then MIN is considered Position "A".	
②	Remove the target. Adjust the sensitivity trimmer from MIN towards MAX until the (orange) output indicator turns on (Position "B"). If the output indicator does not light up, the MAX position is considered Position "B".	
③	Adjust the sensitivity trimmer to the midpoint between "A" and "B". Verify that the (green) stable operation light turns on with and without a target in place.	

Reference To use the sensor in DARK-ON mode, adjust the mode selector switch to "D".

Thrubeam type (PZ-G51/G52 Series) / Retro-reflective type (PZ-G61/G62 Series)

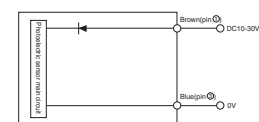
The following assumes DARK-ON (D) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Remove the target. Adjust the sensitivity trimmer to MAX. Mount the sensor heads in place so the (orange) output indicator turns off (on thrubeam models, the red light on the receiver face will turn on).	
②	Position target in place. Verify that the orange output indicator turns on (on thrubeam models, the red light on the receiver face will turn off). Adjust sensitivity lower if the output indicator does not turn on (or if the red light on the receiver face does not turn off on thrubeam models).	

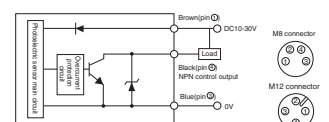
Reference To use the sensor in LIGHT-ON mode, adjust the mode selector switch to "L".

I/O Circuit Diagram

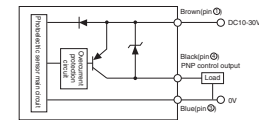
PZ-G5xN/G5xP/G5xB (Transmitter side)



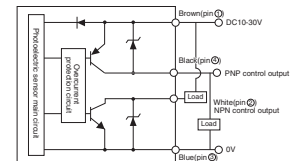
PZ-G5xN (Receiver side)/ G4xN/G10xN/G6xN



PZ-G5xP (Receiver side)/ G4xP/G10xP/G6xP



PZ-G5xB (Receiver side)/ G4xB/G10xB/G6xB



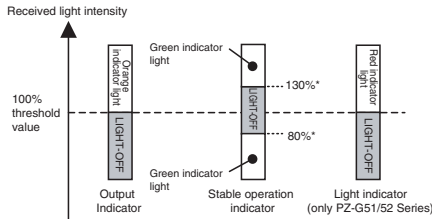
* The pin numbers represent those of the connector type / pigtail quick disconnect type.
The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

[PZ-GxxCN/GxxCP..... M8 connector
PZ-GxxCB/GxxEN/GxxEP..... M12 connector]

Indicators

The following describes each ON/OFF condition of indicator when LIGHT-ON (L) is set.

Reference When the DARK-ON (D) is set, the output indicator ON/OFF will reverse.



* For PZ-G62, the upper limit is 107% and the lower limit is 93%.

If the stable operation indicator turns off during operation, readjust or fine-adjust the sensitivity.

Mutual interference

- For reflective type / retro-reflective type sensors, mutual interference protection can be set for up to 2 units. However, when the sensors are mounted facing each other, change the angle of the sensor head to prevent light being emitted into each unit. (The mark detection type does not include the mutual interference function.)
- Mutual interference prevention can be set when mounting a polarizing filter attachment (optional with thru-beam type sensors). (If operation is unstable even after mounting the polarizing filter, slightly lower the sensitivity.)
- For more detailed information about mutual interference or attachment, see the PZ-G Series catalog or contact your nearest KEYENCE office.

Specifications

Type			Thrubeam		Reflective				Retro-reflective		Mark detection			
Configuration	Cable shape	Output mode	Normal	High-power	Diffuse-reflective Long-detecting distance	Diffuse-reflective Short-detecting distance	Narrow-view reflective	Definite reflective	Long detecting distance (with P.R.O. function)	Transparent target detection (without P.R.O. function)	Red	Green	Blue	
Rectangular	Cable	NPN	PZ-G51N	PZ-G52N	PZ-G41N	PZ-G42N	PZ-G101N	PZ-G102N	PZ-G61N	PZ-G62N	-			
		PNP	PZ-G51P	PZ-G52P	PZ-G41P	PZ-G42P	PZ-G101P	PZ-G102P	PZ-G61P	PZ-G62P				
	M8 connector	NPN	PZ-G51CN	PZ-G52CN	PZ-G41CN	PZ-G42CN	PZ-G101CN	PZ-G102CN	PZ-G61CN	PZ-G62CN	PZ-G10RCN	PZ-G10GCN	PZ-G10BCN	
		PNP	PZ-G51CP	PZ-G52CP	PZ-G41CP	PZ-G42CP	PZ-G101CP	PZ-G102CP	PZ-G61CP	PZ-G62CP	PZ-G10RCP	PZ-G10GCP	PZ-G10BCP	
Nut	M12 pigtail quick disconnect	NPN	PZ-G51EN	PZ-G52EN	PZ-G41EN	PZ-G42EN	PZ-G101EN	PZ-G102EN	PZ-G61EN	PZ-G62EN	-			
		PNP	PZ-G51EP	PZ-G52EP	PZ-G41EP	PZ-G42EP	PZ-G101EP	PZ-G102EP	PZ-G61EP	PZ-G62EP				
	Cable	Bipolar	PZ-G51B	PZ-G52B	PZ-G41B	PZ-G42B	PZ-G101B	PZ-G102B	PZ-G61B	PZ-G62B	-			
		(NPN+PNP)	PZ-G51CB	PZ-G52CB	PZ-G41CB	PZ-G42CB	PZ-G101CB	PZ-G102CB	PZ-G61CB	PZ-G62CB				
Detecting distance ^{*1}			20 m	40 m	1 m (30 × 30 cm white mat paper)	300 mm (10 × 10 cm white mat paper)	200 mm	5 to 45 mm	0.1 to 4.2 m (when R-2L reflector is used)	0.1 to 1 m (when R-2L reflector is used)	8 to 15 mm			
Spot diameter			-	-	-	-	Approx. φ 5 mm (when the detecting distance is 100 mm)	Approx. φ 2 mm (when the detecting distance is 40 mm)	-	-	Approx. 1.5 × 4 mm (when the detecting distance is 10 mm)			
Light source (LED)			Red LED	Infrared LED × 2	Red LED					Infrared LED	Red LED	Green LED	Blue LED	
Sensitivity adjustment			1-turn trimmer (230 degrees)											
Response time			500 μs								50 μs			
Operation mode			LIGHT-ON/DARK-ON, trimmer-selectable											
Indicator (LED)			Transmitter: power (orange) Receiver: output (orange), stable operation (green), light (red)		Output (orange), stable operation (green)									
Control output			Open-collector 100 mA max. (30 V max.), Residual voltage 1 V max.											
Protection circuit			Reverse-polarity protection, over-current protection, output surge absorber											
Ratings	Power voltage		10 to 30 VDC, Ripple (P-P): ±10% max, Class 2.											
	Current consumption		Transmitter: 20 mA max. Receiver: 28 mA max.	Transmitter: 25 mA max. Receiver: 28 mA max.	34 mA max.									
Environmental resistance	Enclosure rating		IEC/JEM: IP67 / NEMA: 4X,6,12 / DIN: IP69K											
	Ambient light		Incandescent lamp: 5,000 (lx) max, Sunlight: 20,000 (lx) max.											
	Ambient temperature		-20 °C to +55°C (No freezing)											
	Relative humidity		35 to 85 % RH (No condensation)											
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude in X, Y, Z directions, 2 hours each											
Shock resistance			1000 m/s ² in X, Y, Z directions, 6 times each											
Interference prevention			2 units (when polarizing filter attachment is used)		2 units (with the automatic different cycle function)							-		
Material			Case, M18 nut (nut type only): reinforced glass polybutylene terephthalate (PBT), Trimmer: reinforced glass polyamide (PA) Cable (Cable type / pigtail quick disconnect type only): Polyvinyl chloride (PVC), Screw (Case connection): Steel, zinc-nickel plated, Packing (Case connection): Nitrile-butadiene rubber (NBR) Connector (pigtail quick disconnect type only): Brass-nickel plated, Polybutyleneterephthalate (PBT), Polyvinyl chloride (PVC)											
	Lens cover		Polyarylate (PAR)						Acrylic plastic (PMMA)		Polyarylate (PAR)			
Tightening torque			Rectangular type (side screw part): 0.5 N·m max. Nut type (front M18 part): 1.0 N·m max., (side slot part): 0.5 N·m max.											
Accessory ^{*2}			Instruction manual, M18 nut × 2 (nut thrubeam type), M18 nut × 1 (other nut types)											
Weight			Rectangular cable type: Approx. 60 g (Approx. 50 g for thrubeam transmitter), Rectangular M8 connector type: Approx 10 g, rectangular M12 pigtail quick disconnect type: Approx. 30 g Nut type cable type: Approx. 65 g (Approx. 55 g for thrubeam transmitter), Nut type M12 connector type: Approx 15 g											

*1 The detection distance is measured with the maximum sensitivity.

*2 The cable for the connector type / pigtail quick disconnect type is sold separately. The reflector for the retro-reflective type is sold separately.

WARRANTY

KEYENCE products are strictly factory-inspected. However, in the event of a failure, contact your nearest KEYENCE office with details of the failure.

1. WARRANTY PERIOD

The warranty period shall be for one year from the date that the product has been delivered to the location specified by the purchaser.

2. WARRANTY SCOPE

- If a failure attributable to KEYENCE occurs within the abovementioned warranty period, we will repair the product, free of charge. However, the following cases shall be excluded from the warranty scope.
 - Any failure resulting from improper conditions, improper environments, improper handling, or improper usage other than described in the instruction manual, the user's manual, or the specifications specifically arranged between the purchaser and KEYENCE.
 - Any failure resulting from factors other than a defect of our product, such as the purchaser's equipment or the design of the purchaser's software.
 - Any failure resulting from modifications or repairs carried out by any person other than KEYENCE staff.
 - Any failure that can certainly be prevented when the expendable part(s) is maintained or replaced correctly as described in the instruction manual, the user's manual, etc.
 - Any failure caused by a factor that cannot be foreseen at a scientific/technical level at the time when the product has been shipped from KEYENCE.
 - Any disaster such as fire, earthquake, and flood, or any other external factor, such as abnormal voltage, for which we are not liable.
- The warranty scope is limited to the extent set forth in item (1), and KEYENCE assumes no liability for any purchaser's secondary damage (damage of equipment, loss of opportunities, loss of profits, etc.) or any other damage resulting from a failure of our product.

3. PRODUCT APPLICABILITY

KEYENCE products are designed and manufactured as general-purpose products for general industries.

Therefore, our products are not intended for the applications below and are not applicable to them. If, however, the purchaser consults with us in advance regarding the employment of our product, understands the specifications, ratings, and performance of the product on their own responsibility, and takes necessary safety measures, the product may be applied. In this case, the warranty scope shall be the same as above.

- Facilities where the product may greatly affect human life or property, such as nuclear power plants, aviation, railroads, ships, motor vehicles, or medical equipment
- Public utilities such as electricity, gas, or water services
- Usage outdoors, under similar conditions or in similar environments

E 1040-1

KEYENCE CORPORATION

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Osaka, 533-8555, Japan

PHONE: +81-6-6379-2211 www.keyence.com

Specifications are subject to change without notice.

A7WW1-MAN-0069

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11227E 1070-1 96M11227

Printed in Japan



* 9 6 M 1 1 2 2 7 - 1 *

ASSEMBLY TITLE: STOP GATE

DRAWING NO.: D20218-000

GENERAL FUNCTION:

- The stop gate assembly is usually used to create a bank of products into a feed or pacing screw. In some instances it is used to inhibit the flow of products if the labeler should go into a fatal fault condition, or if a sensor is used on the out feed end of the conveyor to sense a back up of products.

SET UP AND ADJUSTMENTS:

- The Stop gate assembly is generally mounted to versaline rail and can be slid back and forth by loosening the clamping blocks on the mounting plate. If used in conjunction with pacing or feed screws the stop gate should be placed as close as possible without inhibiting the operation or change over of the screws. To adjust the in and out of the stop gate loosen the 3/8-16 H.H.C.S. or ratchet handle located under the air cylinder and move to the desired location and retighten.

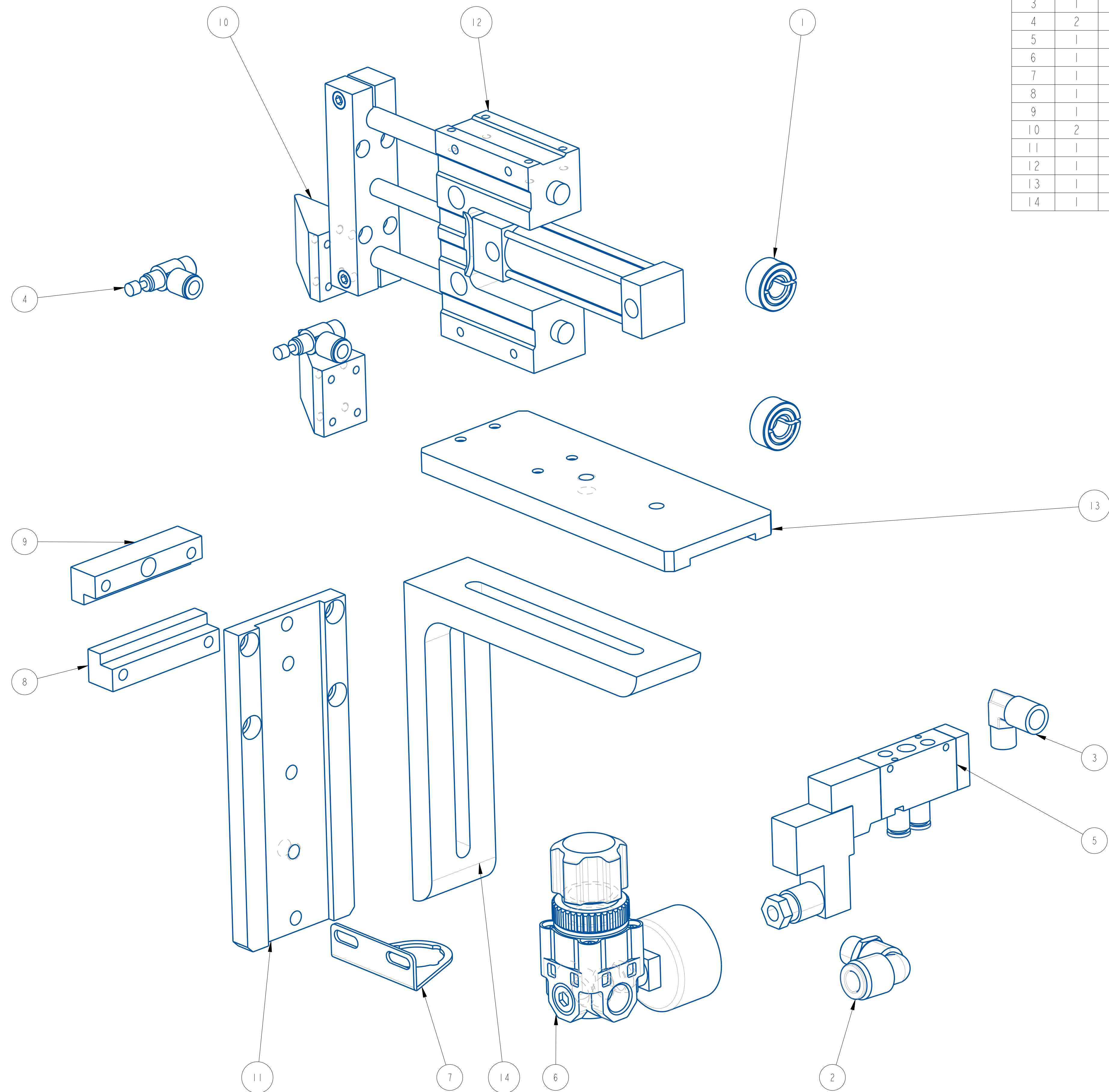
MAINTENANCE:

- Keep the stop gate free of discarded labels and debris. This will allow for free product movement.

CAUTION:

- Before performing any maintenance or cleaning make sure the system is powered down.

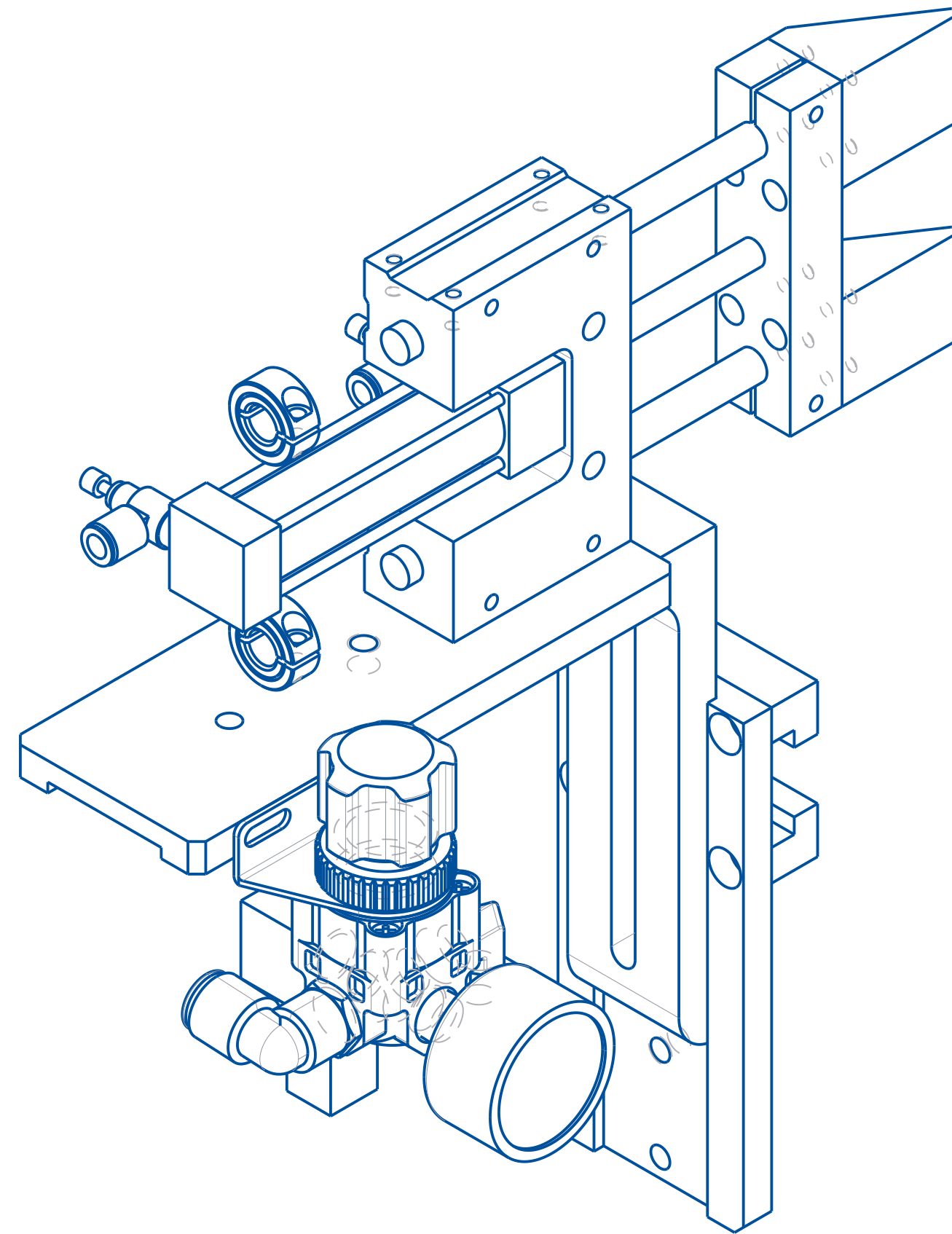
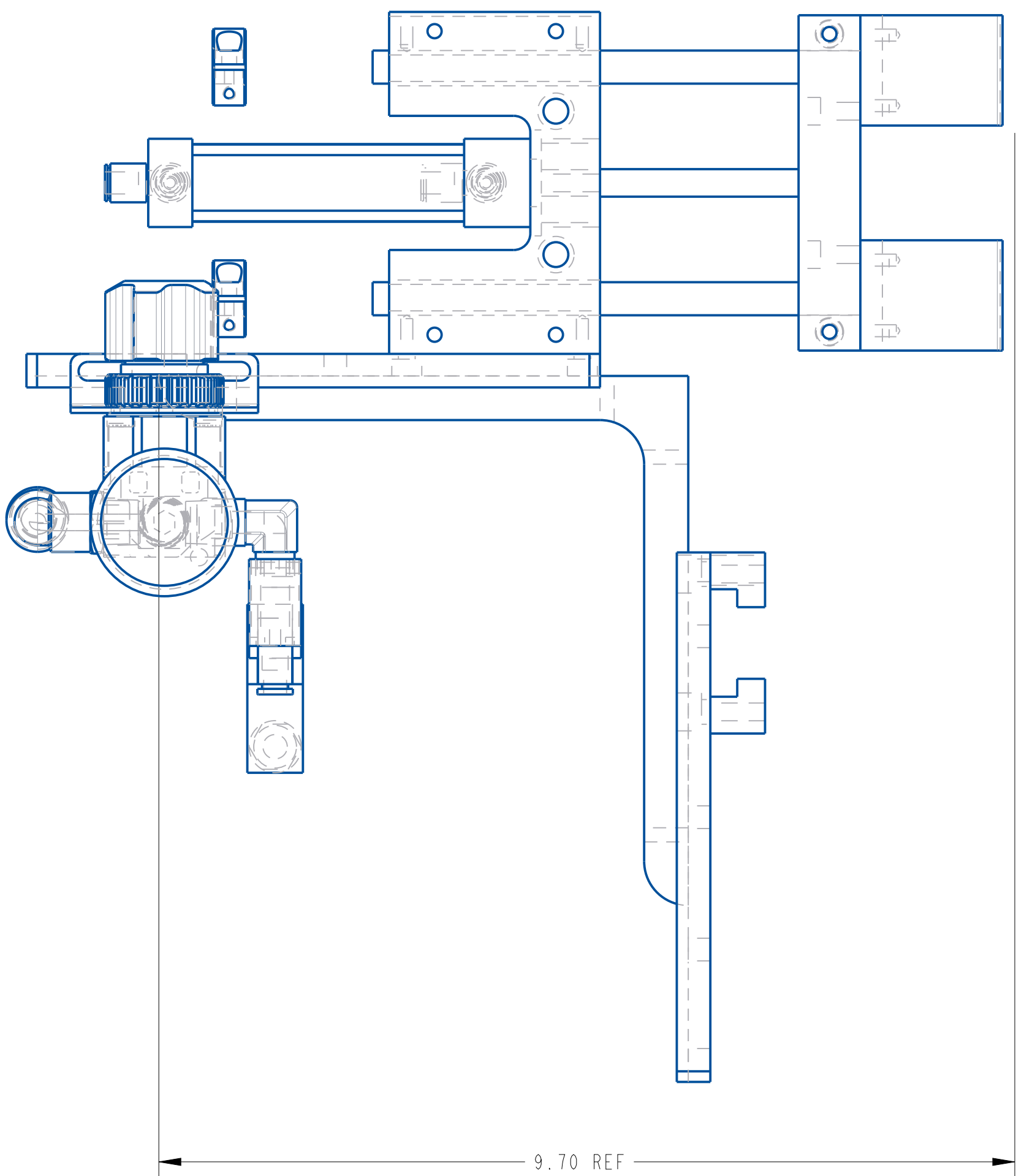
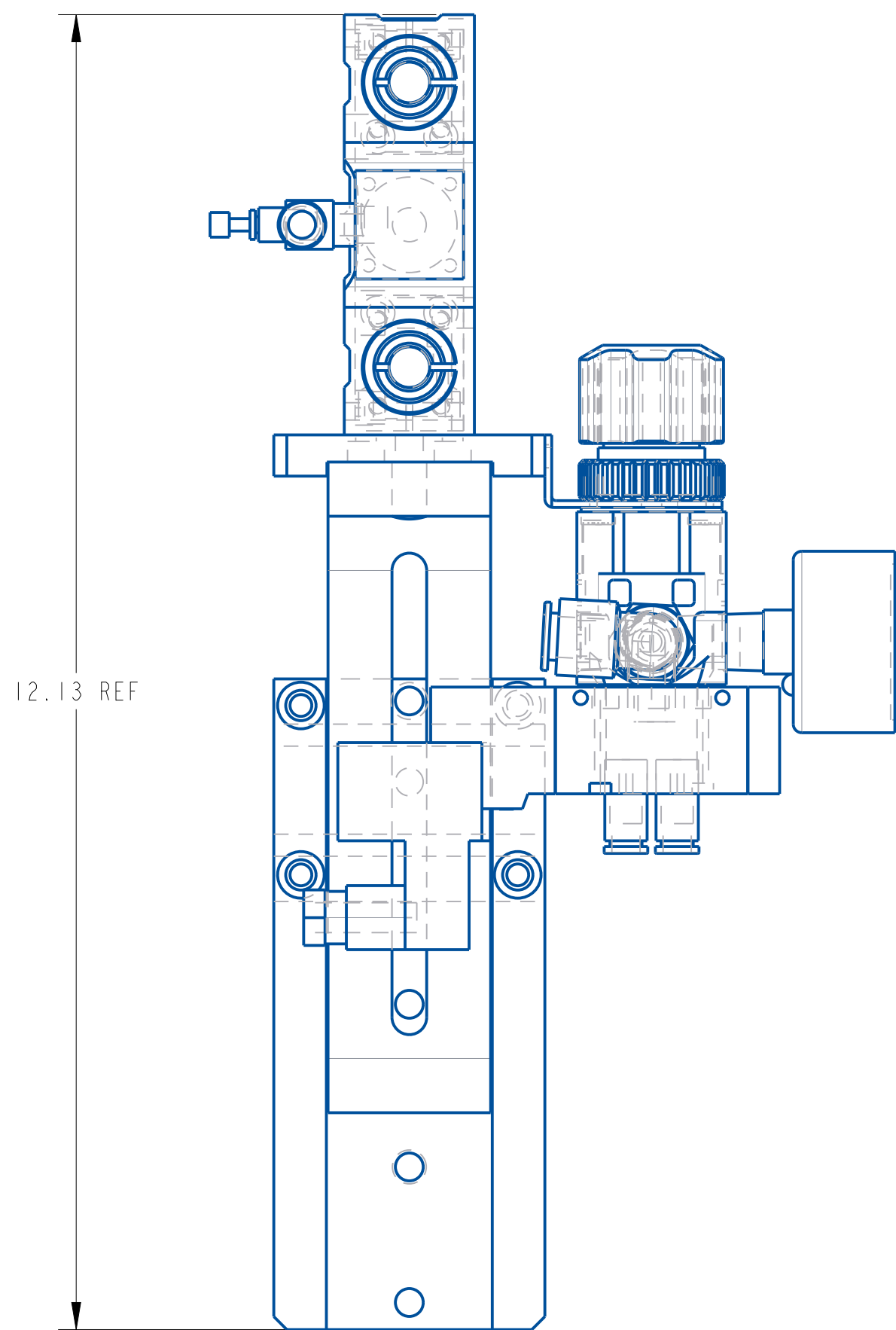
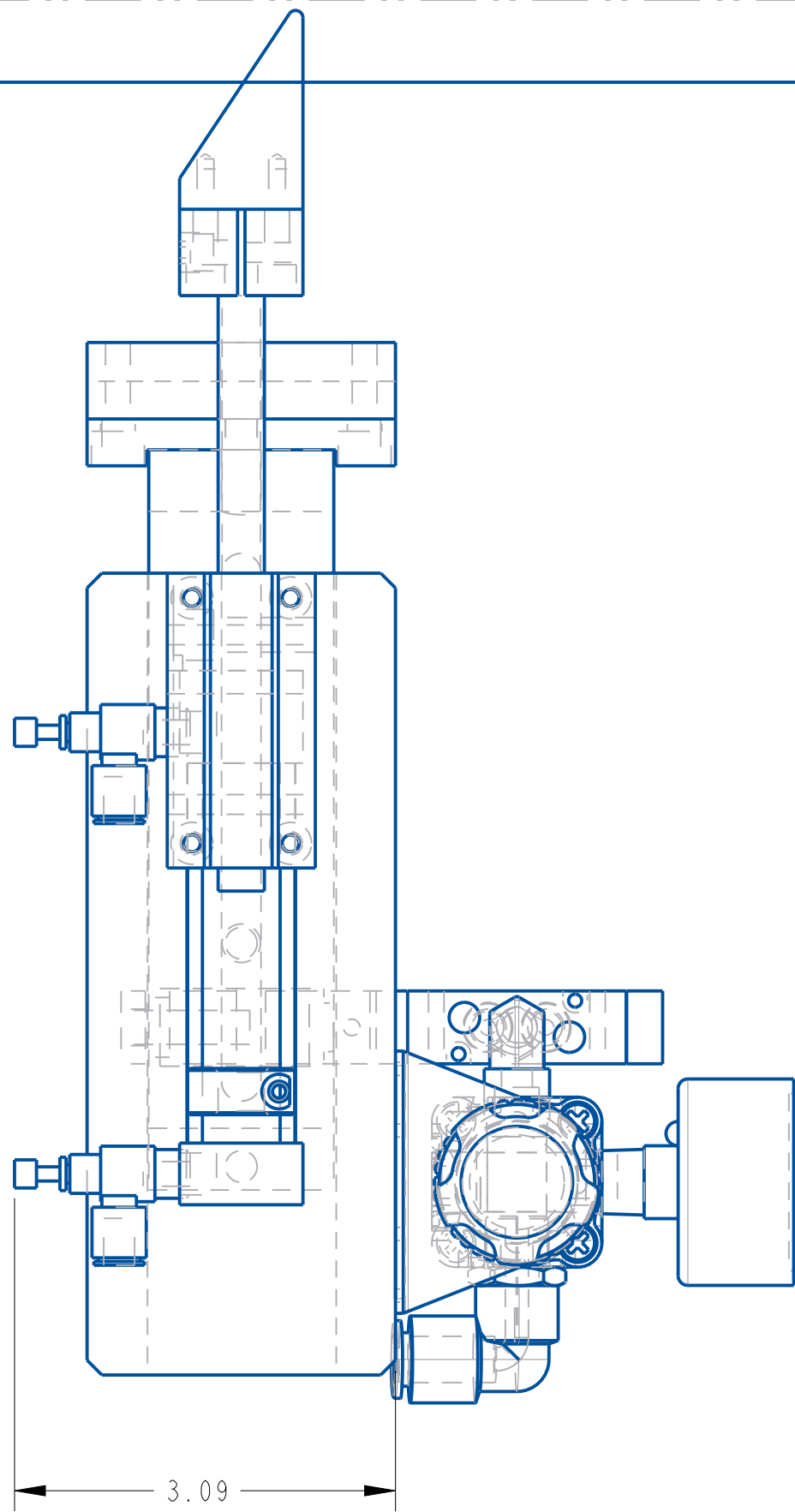




ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP	21081-000
2	1	391809-000	FITTING, ELBOW 3/8" X 1/4"	21081-000
3	1	391969-000	ELBOW, 1/8NPT MALE X 1/4NPT MALE, 90°	21081-000
4	2	392029-000	FLOW CONTROL FITTING	21081-000
5	1	392268-000	VALVE,	21081-000
6	1	392270-000	REGULATOR W/GAUGE (INCL.NUT)	21081-000
7	1	392809-000	REGULATOR, MOUNTIN BRACKET	21081-000
8	1	A20844-000	GUIDE RAIL CLAMP BAR	21081-000
9	1	A20845-000	GUIDE RAIL CLAMP BAR	21081-000
10	2	A20859-008	PRODUCT STOP	21081-000
11	1	B20266-000	CONVEYOR MOUNTING PLATE	21081-000
12	1	B20277-000	PNEUMATIC SLIDE	21081-000
13	1	B20278-000	CYLINDER MOUNTING PLATE	21081-000
14	1	C20175-000	MOUNTING ANGLE	21081-000

B	06/07/2005	UPDATE BILL OF MATERIAL	SEM
A	10-18-02	NEW DRAWING	JMC
REV	DATE	DESCRIPTION	BY

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE: 1/1	
XX ± .01		DATE: 10-18-02	
XXX ± .005		DRW BY: JMC	
ANGLES ± 30°		CHK BY: 04/11/2024-SEM	
SURFACE FINISH 125		APPR BY: MAW	
BREAK ALL EDGES .005/0.15		PRODUCT STOP GATE ASSEMBLY	
CORNER RADIUS .010/0.50		MAT'L	
		21081-000	



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± .30°		SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.50	
QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (216) 975-0006		SCALE: 3/4 DATE: 10-18-02 DRW BY: JMC CHK BY: 04/11/2024-SEM APPR BY: MAW	
PRODUCT STOP GATE ASSEMBLY		21081-000	
MAT'L			

ASSEMBLY TITLE: INFEED / OUTFEED BANK SENSOR

DRAWING NO.:

GENERAL FUNCTION:

- The Infeed & Outfeed bank sensors are usually used to create a bank of products into a feed or pacing screw. In some instances it is used to inhibit the flow of products if the labeler should go into a fatal fault condition, or if a sensor is used on the out feed end of the conveyor to sense a back up of products.

SET UP AND ADJUSTMENTS:

- The Infeed / Outfeed bank sensors are generally mounted to versaline rail or guide rail and can be slid back and forth by loosening the clamping blocks on the mounting plate or rail clamp. If used in conjunction with pacing or feed screws the sensors should be placed as close as possible without inhibiting the operation or change over of the screws.

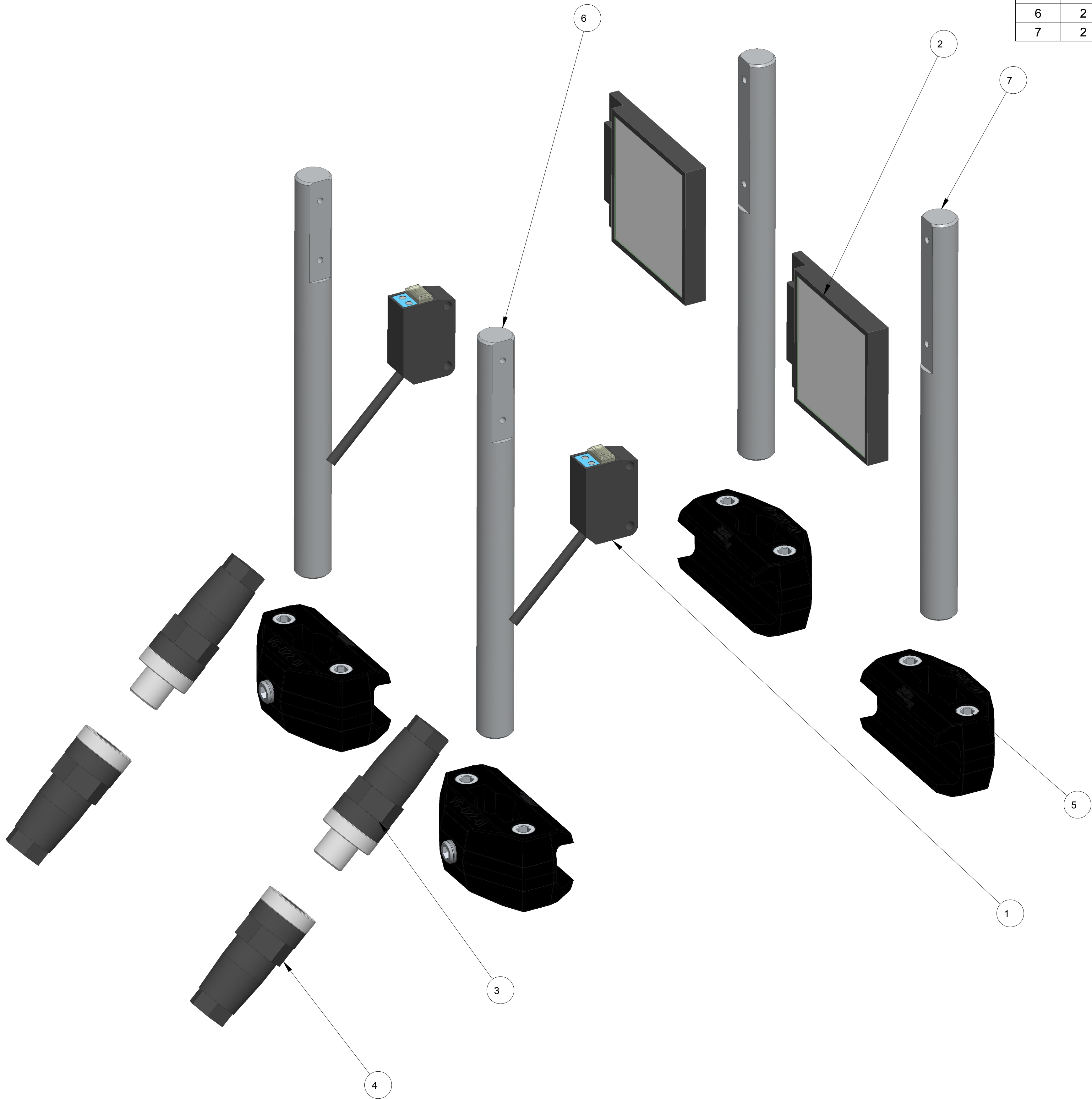
MAINTENANCE:

- Keep the sensor and reflectors clean of debris and dirt.
- Clean at regular intervals

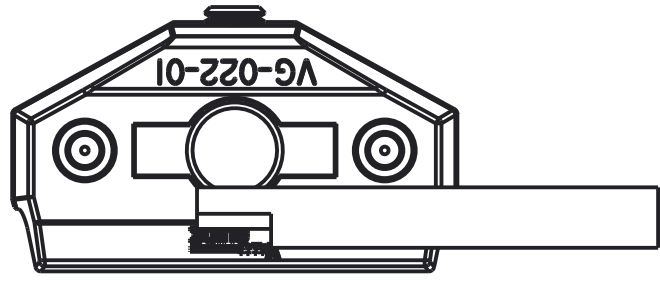
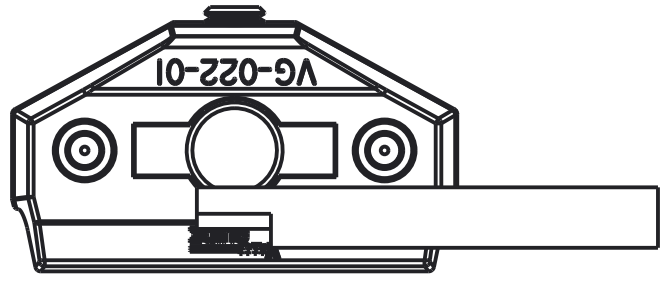
CAUTION:

- **Before performing any maintenance or cleaning make sure the system is powered down.**

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	202192-002	CLEAR PRODUCT SENSOR, PNP	22546-001
2	2	203160-000	REFLECTOR	22546-001
3	2	252019-000	4 PIN MALE CONNECTOR	22546-001
4	2	252019-001	4 PIN MALE CONNECTOR	22546-001
5	4	791460-000	GUIDE RAIL CLAMP, SENSOR MOUNT	22546-001
6	2	A24278-001	SENSOR MTG. SHAFT	22546-001
7	2	A24279-000	REFLECTOR MTG. SHAFT	22546-001

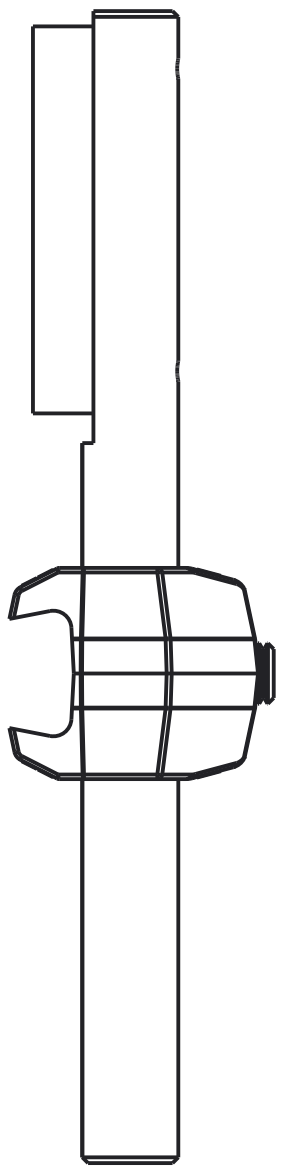
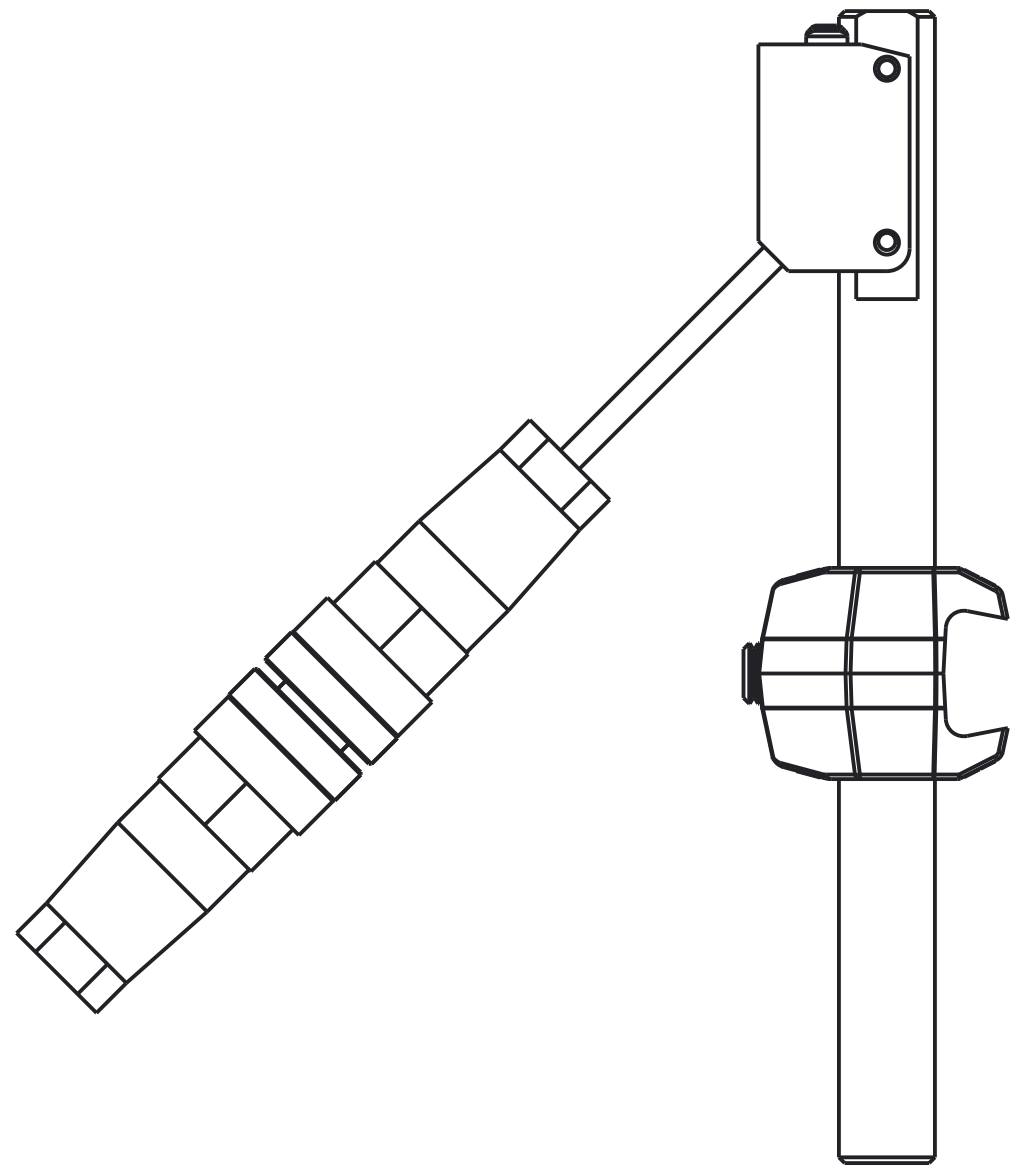
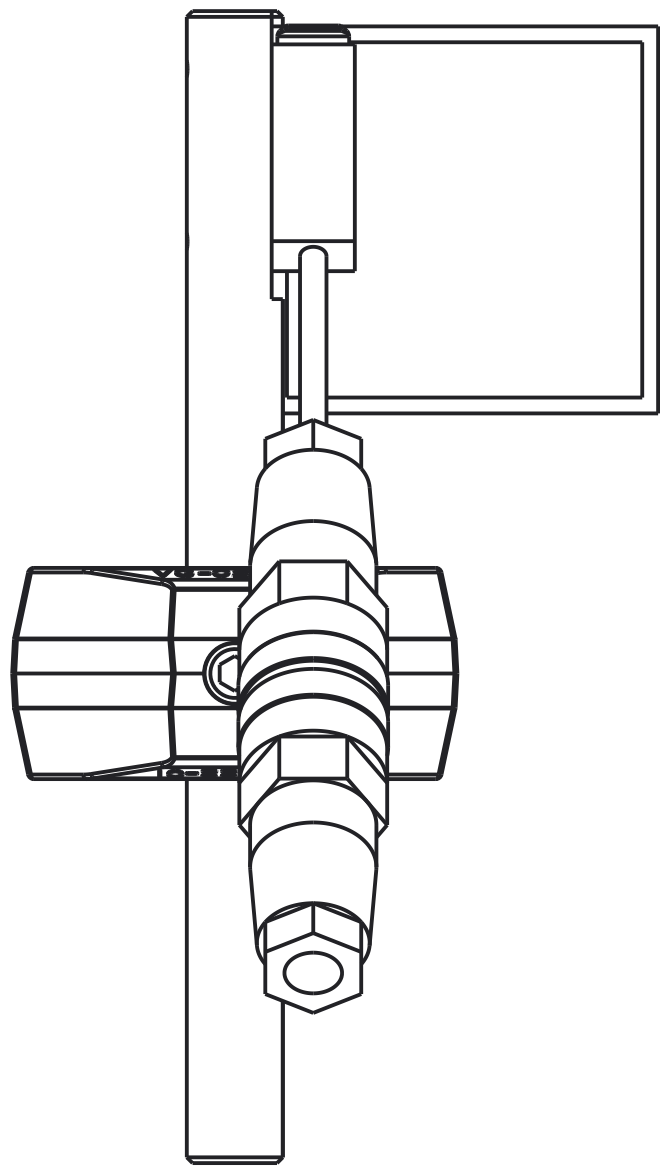
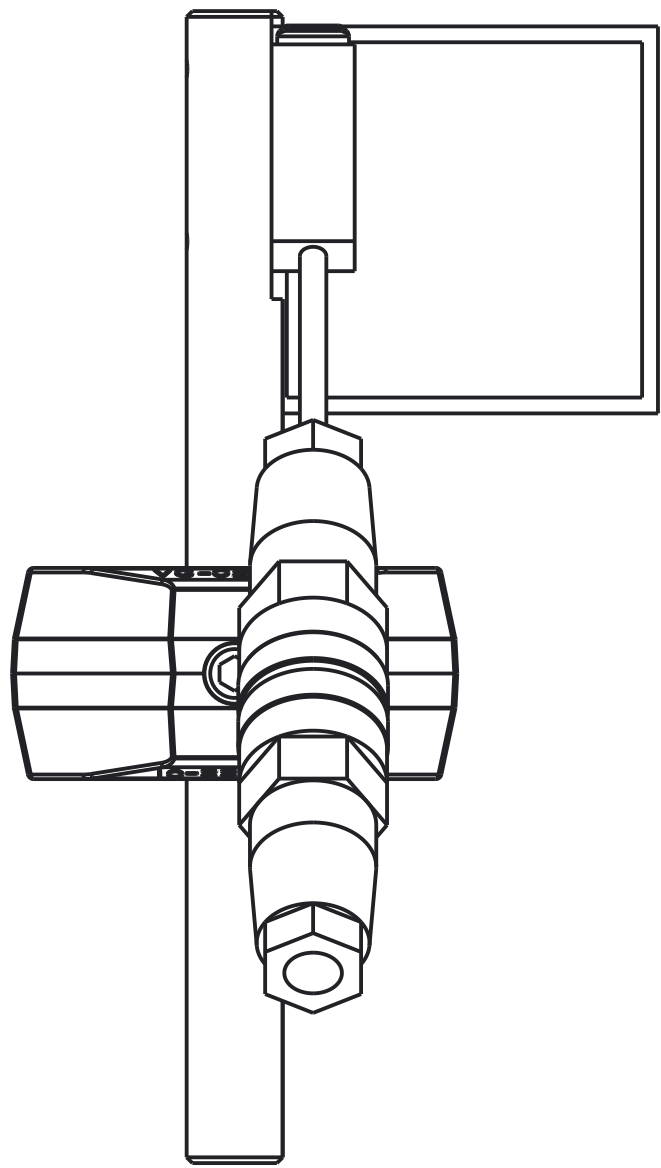
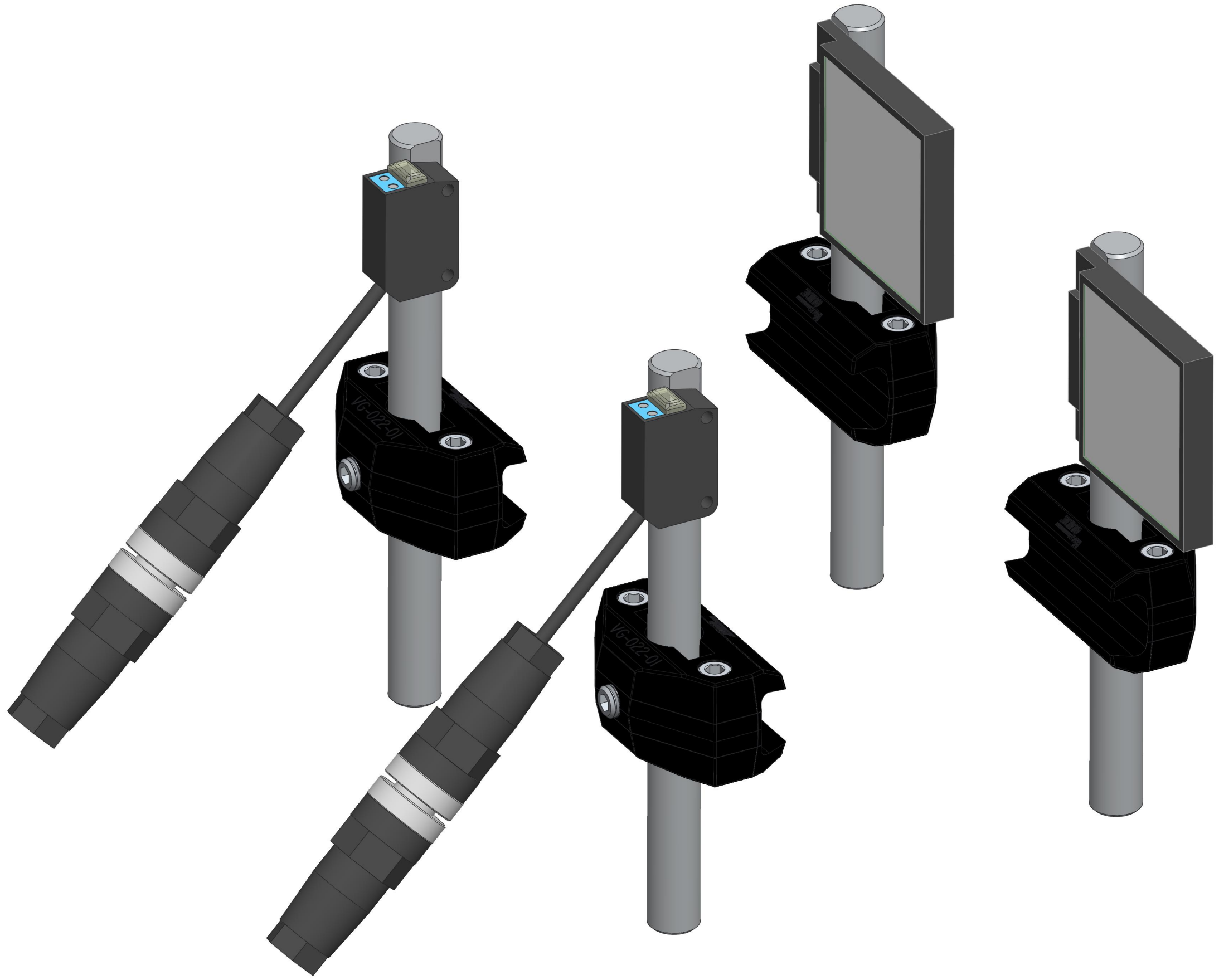
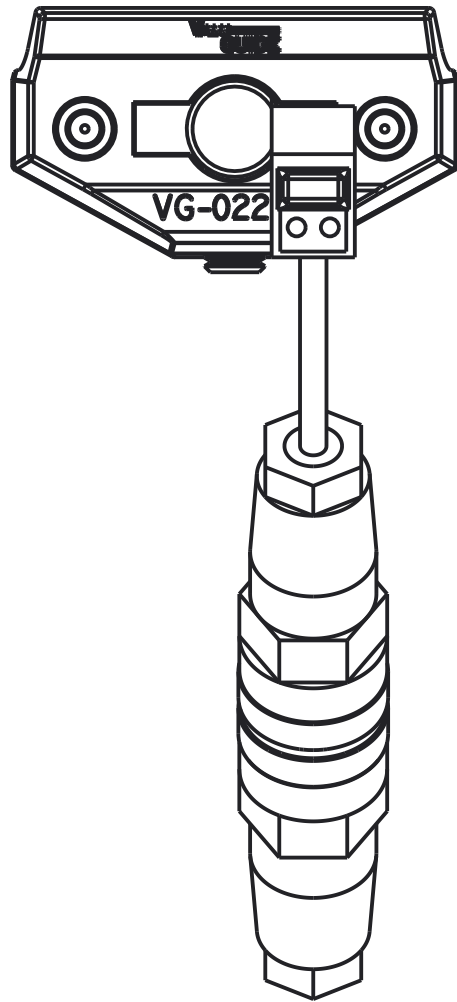
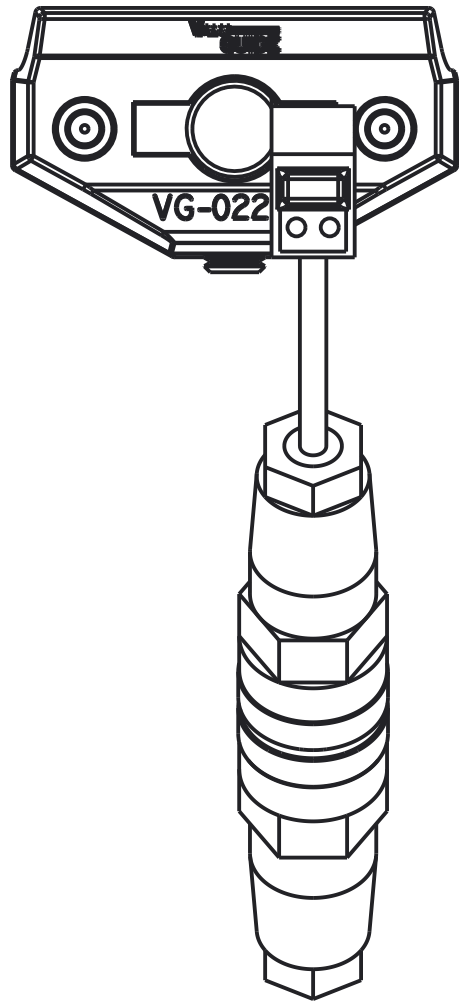


A		Mar-12-20		NEW DRAWING	
REV		DATE		DESCRIPTION	
				BY	
THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY					
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE XX±.01 XXX±.005 ANGLES ±.30°		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE	
				5/4	
				DATE	
				Mar-12-20	
		DRAWN BY		TJS	
INFEED & OUTFEED BANK SENSOR ASSEMBLY					
SURFACE FINISH 125 BREAK ALL EDGES .005/015 CORNER RADIUS .010/030		MAT'L			
		22546-003		22546-003	



INFEEED

OUTFEED



THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY		NEW DRAWING		TJS
REV	DATE	DESCRIPTION	BY	
A	Mar-12-20			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		SCALE	1/1	
X± .1		DATE	Mar-12-20	
XX± .01		DRAWN BY	TJS	
XXX± .005				
ANGLES ± .30°				
SURFACE FINISH 125		INFEED & OUTFEED BANK SENSOR ASSEMBLY		
BREAK ALL EDGES .005/.015		MAT'L	22546-003	22546-003
CORNER RADIUS .010/.030				

PZ-G Series

Instruction Manual

Read this manual thoroughly before using the product.
Keep this manual readily available for future reference.

Safety precautions

- Avoid running the PZ-G cable along with power and high voltage lines, as this may cause interference and/or permanent damage.
- When using a commercially available switching regulator, ground its chassis grounding and earth grounding terminals.
- Do not use in locations where direct ambient light or external light directly shines on the light receiving surface.
- With retro-reflective type sensors, when detecting highly reflective materials (such as mirrored surfaces), stabilization may be difficult. To correct this, change the angle of the sensor head, or adjust the sensitivity.
- Avoid using power which exceeds the specifications for ripple (10% max)
- Avoid using excess force when rotating the operation mode selector switch (Light-on, Dark-on) and the sensitivity adjustment trimmer.
- This product is just intended to detect the object(s). Do not use this product for the purpose to protect a human body or a part of human body.
- This product is not intended for use as explosion-proof product. Do not use this product in a hazardous location and/or potentially explosive atmosphere.

Precautions on Regulations and Standards

UL Certificate

This product is an UL/C-UL Listed product.

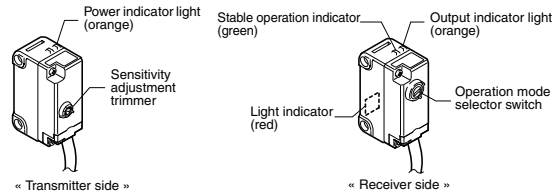
- UL File No. E301717
- Category NRKH,NRKH7
- Enclosure Type 1 (Based on UL50)

Be sure to consider the following specifications when using this product as an UL/C-UL Listed Product.

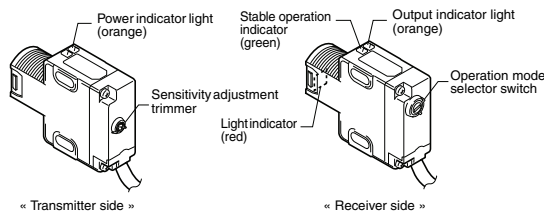
- Use the power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Power supply/ Control input/ Control output circuits shall be connected to a single Class 2 source only.
- Use with the over current protection device which is rated 30V or more and not more than 1A.

Part Names

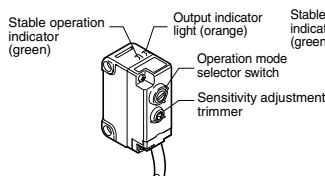
PZ-G5xN/G5xP



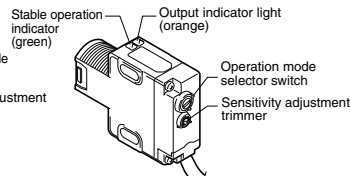
PZ-G5xB



PZ-G4xN/G4xP/G10xN/G10xP/G6xN/G6xP



PZ-G4xB/G10xB/G6xB

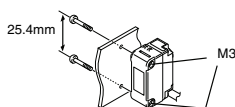


* The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

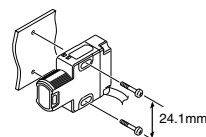
Mounting Method

Side Mounting (Prepare M3 screws)

Tightening torque: 0.5 N·m or less



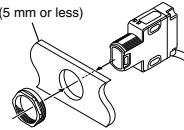
Tightening torque: 0.5 N·m or less



Mounting with the M18 nut (includes nut type)

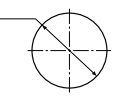
The M18 nut is also available separately as OP-84225 (2 pcs. supplied).
Tightening torque: 1.0 N·m or less

Panel (5 mm or less)



Panel cut size

$\phi 18.5 \pm 0.2$ mm



Note

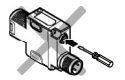
- Mount the M18 nut (supplied) straight in. If mounted at an angle it cannot be tightened properly.
- When tightening the M18 nut (supplied), firmly hold the main body down. The case of the main body may be damaged if held in place with a tool such as pliers.
- When tightening the M18 nut (supplied), if excess force is applied to the nut with a tool such as pliers, it may bend it out of shape. Therefore, do not apply excess force.

Sensitivity Adjustment Method

Caution



Avoid using excess force when rotating the sensitivity adjustment trimmer and operation mode selector switch as it may cause damage.



Operation mode selector switch

With the operation mode selector switch, you can select either the LIGHT-ON mode (L) or the DARK-ON (D) mode.



LIGHT-ON setting



DARK-ON setting

Reflective type (PZ-G41/G42/G101/G102/G10R/G10G/G10B Series)

The following assumes LIGHT-ON (L) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Position target in place. Slowly rotate the sensitivity trimmer from the MIN position towards the MAX position until the (orange) output indicator turns on (Position "A"). If the output indicator does not turn off, even at MIN, then MIN is considered Position "A".	
②	Remove the target. Adjust the sensitivity trimmer from MIN towards MAX until the (orange) output indicator turns on (Position "B"). If the output indicator does not light up, the MAX position is considered Position "B".	
③	Adjust the sensitivity trimmer to the midpoint between "A" and "B". Verify that the (green) stable operation light turns on with and without a target in place.	

Reference To use the sensor in DARK-ON mode, adjust the mode selector switch to "D".

Thrubeam type (PZ-G51/G52 Series) / Retro-reflective type (PZ-G61/G62 Series)

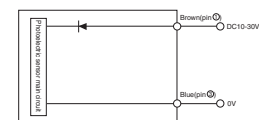
The following assumes DARK-ON (D) is set.

Sequence	Adjustment method	Sensitivity adjustment trimmer
①	Remove the target. Adjust the sensitivity trimmer to MAX. Mount the sensor heads in place so the (orange) output indicator turns off (on thrubeam models, the red light on the receiver face will turn on).	
②	Position target in place. Verify that the orange output indicator turns on (on thrubeam models, the red light on the receiver face will turn off). Adjust sensitivity lower if the output indicator does not turn on (or if the red light on the receiver face does not turn off on thrubeam models).	

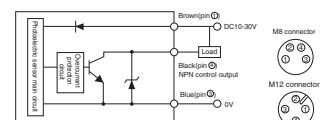
Reference To use the sensor in LIGHT-ON mode, adjust the mode selector switch to "L".

I/O Circuit Diagram

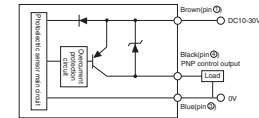
PZ-G5xN/G5xP/G5xB (Transmitter side)



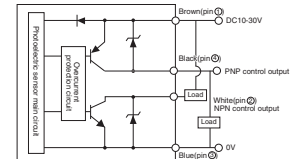
PZ-G5xN (Receiver side)/G4xN/G10xN/G6xN



PZ-G5xP (Receiver side)/G4xP/G10xP/G6xP



PZ-G5xB (Receiver side)/G4xB/G10xB/G6xB



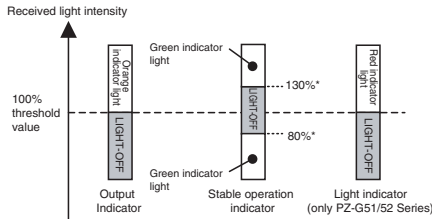
* The pin numbers represent those of the connector type / pigtail quick disconnect type.
The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

[PZ-GxxCN/GxxCP..... M8 connector
PZ-GxxCB/GxxEN/GxxEP..... M12 connector]

Indicators

The following describes each ON/OFF condition of indicator when LIGHT-ON (L) is set.

Reference When the DARK-ON (D) is set, the output indicator ON/OFF will reverse.



* For PZ-G62, the upper limit is 107% and the lower limit is 93%.

If the stable operation indicator turns off during operation, readjust or fine-adjust the sensitivity.

Mutual interference

- For reflective type / retro-reflective type sensors, mutual interference protection can be set for up to 2 units. However, when the sensors are mounted facing each other, change the angle of the sensor head to prevent light being emitted into each unit. (The mark detection type does not include the mutual interference function.)
- Mutual interference prevention can be set when mounting a polarizing filter attachment (optional with thru-beam type sensors). (If operation is unstable even after mounting the polarizing filter, slightly lower the sensitivity.)
- For more detailed information about mutual interference or attachment, see the PZ-G Series catalog or contact your nearest KEYENCE office.

Specifications

Type			Thrubeam		Reflective				Retro-reflective		Mark detection			
Configuration	Cable shape	Output mode	Normal	High-power	Diffuse-reflective Long-detecting distance	Diffuse-reflective Short-detecting distance	Narrow-view reflective	Definite reflective	Long detecting distance (with P.R.O. function)	Transparent target detection (without P.R.O. function)	Red	Green	Blue	
Rectangular	Cable	NPN	PZ-G51N	PZ-G52N	PZ-G41N	PZ-G42N	PZ-G101N	PZ-G102N	PZ-G61N	PZ-G62N	-			
		PNP	PZ-G51P	PZ-G52P	PZ-G41P	PZ-G42P	PZ-G101P	PZ-G102P	PZ-G61P	PZ-G62P				
	M8 connector	NPN	PZ-G51CN	PZ-G52CN	PZ-G41CN	PZ-G42CN	PZ-G101CN	PZ-G102CN	PZ-G61CN	PZ-G62CN	PZ-G10RCN	PZ-G10GCN	PZ-G10BCN	
		PNP	PZ-G51CP	PZ-G52CP	PZ-G41CP	PZ-G42CP	PZ-G101CP	PZ-G102CP	PZ-G61CP	PZ-G62CP	PZ-G10RCP	PZ-G10GCP	PZ-G10BCP	
Nut	M12 pigtail quick disconnect	NPN	PZ-G51EN	PZ-G52EN	PZ-G41EN	PZ-G42EN	PZ-G101EN	PZ-G102EN	PZ-G61EN	PZ-G62EN	-			
		PNP	PZ-G51EP	PZ-G52EP	PZ-G41EP	PZ-G42EP	PZ-G101EP	PZ-G102EP	PZ-G61EP	PZ-G62EP				
	Cable	Bipolar	PZ-G51B	PZ-G52B	PZ-G41B	PZ-G42B	PZ-G101B	PZ-G102B	PZ-G61B	PZ-G62B	-			
		(NPN+PNP)	PZ-G51CB	PZ-G52CB	PZ-G41CB	PZ-G42CB	PZ-G101CB	PZ-G102CB	PZ-G61CB	PZ-G62CB				
Detecting distance ^{*1}			20 m	40 m	1 m (30 × 30 cm white mat paper)	300 mm (10 × 10 cm white mat paper)	200 mm	5 to 45 mm	0.1 to 4.2 m (when R-2L reflector is used)	0.1 to 1 m (when R-2L reflector is used)	8 to 15 mm			
Spot diameter			-	-	-	-	Approx. φ 5 mm (when the detecting distance is 100 mm)	Approx. φ 2 mm (when the detecting distance is 40 mm)	-	-	Approx. 1.5 × 4 mm (when the detecting distance is 10 mm)			
Light source (LED)			Red LED	Infrared LED × 2	Red LED					Infrared LED	Red LED	Green LED	Blue LED	
Sensitivity adjustment			1-turn trimmer (230 degrees)											
Response time			500 μs								50 μs			
Operation mode			LIGHT-ON/DARK-ON, trimmer-selectable											
Indicator (LED)			Transmitter: power (orange) Receiver: output (orange), stable operation (green), light (red)		Output (orange), stable operation (green)									
Control output			Open-collector 100 mA max. (30 V max.), Residual voltage 1 V max.											
Protection circuit			Reverse-polarity protection, over-current protection, output surge absorber											
Ratings	Power voltage	10 to 30 VDC, Ripple (P-P): ±10% max, Class 2.												
	Current consumption	Transmitter: 20 mA max. Receiver: 28 mA max.	Transmitter: 25 mA max. Receiver: 28 mA max.	34 mA max.										
Environmental resistance	Enclosure rating	IEC/JEM: IP67 / NEMA: 4X,6,12 / DIN: IP69K												
	Ambient light	Incandescent lamp: 5,000 (lx) max, Sunlight: 20,000 (lx) max.												
	Ambient temperature	-20 °C to +55°C (No freezing)												
	Relative humidity	35 to 85 % RH (No condensation)												
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude in X, Y, Z directions, 2 hours each												
	Shock resistance	1000 m/s ² in X, Y, Z directions, 6 times each												
Interference prevention			2 units (when polarizing filter attachment is used)		2 units (with the automatic different cycle function)						-			
Material			Case, M18 nut (nut type only): reinforced glass polybutylene terephthalate (PBT), Trimmer: reinforced glass polyamide (PA) Cable (Cable type / pigtail quick disconnect type only): Polyvinyl chloride (PVC), Screw (Case connection): Steel, zinc-nickel plated, Packing (Case connection): Nitrile-butadiene rubber (NBR) Connector (pigtail quick disconnect type only): Brass-nickel plated, Polybutyleneterephthalate (PBT), Polyvinyl chloride (PVC)											
	Lens cover	Polyarylate (PAR)							Acrylic plastic (PMMA)		Polyarylate (PAR)			
Tightening torque			Rectangular type (side screw part): 0.5 N·m max. Nut type (front M18 part): 1.0 N·m max., (side slot part): 0.5 N·m max.											
Accessory ^{*2}			Instruction manual, M18 nut × 2 (nut thrubeam type), M18 nut × 1 (other nut types)											
Weight			Rectangular cable type: Approx. 60 g (Approx. 50 g for thrubeam transmitter), Rectangular M8 connector type: Approx 10 g, rectangular M12 pigtail quick disconnect type: Approx. 30 g Nut type cable type: Approx. 65 g (Approx. 55 g for thrubeam transmitter), Nut type M12 connector type: Approx 15 g											

*1 The detection distance is measured with the maximum sensitivity.

*2 The cable for the connector type / pigtail quick disconnect type is sold separately. The reflector for the retro-reflective type is sold separately.

WARRANTY

KEYENCE products are strictly factory-inspected. However, in the event of a failure, contact your nearest KEYENCE office with details of the failure.

1. WARRANTY PERIOD

The warranty period shall be for one year from the date that the product has been delivered to the location specified by the purchaser.

2. WARRANTY SCOPE

- If a failure attributable to KEYENCE occurs within the abovementioned warranty period, we will repair the product, free of charge. However, the following cases shall be excluded from the warranty scope.
 - Any failure resulting from improper conditions, improper environments, improper handling, or improper usage other than described in the instruction manual, the user's manual, or the specifications specifically arranged between the purchaser and KEYENCE.
 - Any failure resulting from factors other than a defect of our product, such as the purchaser's equipment or the design of the purchaser's software.
 - Any failure resulting from modifications or repairs carried out by any person other than KEYENCE staff.
 - Any failure that can certainly be prevented when the expendable part(s) is maintained or replaced correctly as described in the instruction manual, the user's manual, etc.
 - Any failure caused by a factor that cannot be foreseen at a scientific/technical level at the time when the product has been shipped from KEYENCE.
 - Any disaster such as fire, earthquake, and flood, or any other external factor, such as abnormal voltage, for which we are not liable.
- The warranty scope is limited to the extent set forth in item (1), and KEYENCE assumes no liability for any purchaser's secondary damage (damage of equipment, loss of opportunities, loss of profits, etc.) or any other damage resulting from a failure of our product.

3. PRODUCT APPLICABILITY

KEYENCE products are designed and manufactured as general-purpose products for general industries.

Therefore, our products are not intended for the applications below and are not applicable to them. If, however, the purchaser consults with us in advance regarding the employment of our product, understands the specifications, ratings, and performance of the product on their own responsibility, and takes necessary safety measures, the product may be applied. In this case, the warranty scope shall be the same as above.

- Facilities where the product may greatly affect human life or property, such as nuclear power plants, aviation, railroads, ships, motor vehicles, or medical equipment
- Public utilities such as electricity, gas, or water services
- Usage outdoors, under similar conditions or in similar environments

E 1040-1

KEYENCE CORPORATION

1-3-14, Higashi-Nakajima, Higashi-Yodogawa-ku,
Osaka, 533-8555, Japan

PHONE: +81-6-6379-2211 www.keyence.com

Specifications are subject to change without notice.

A7WW1-MAN-0069

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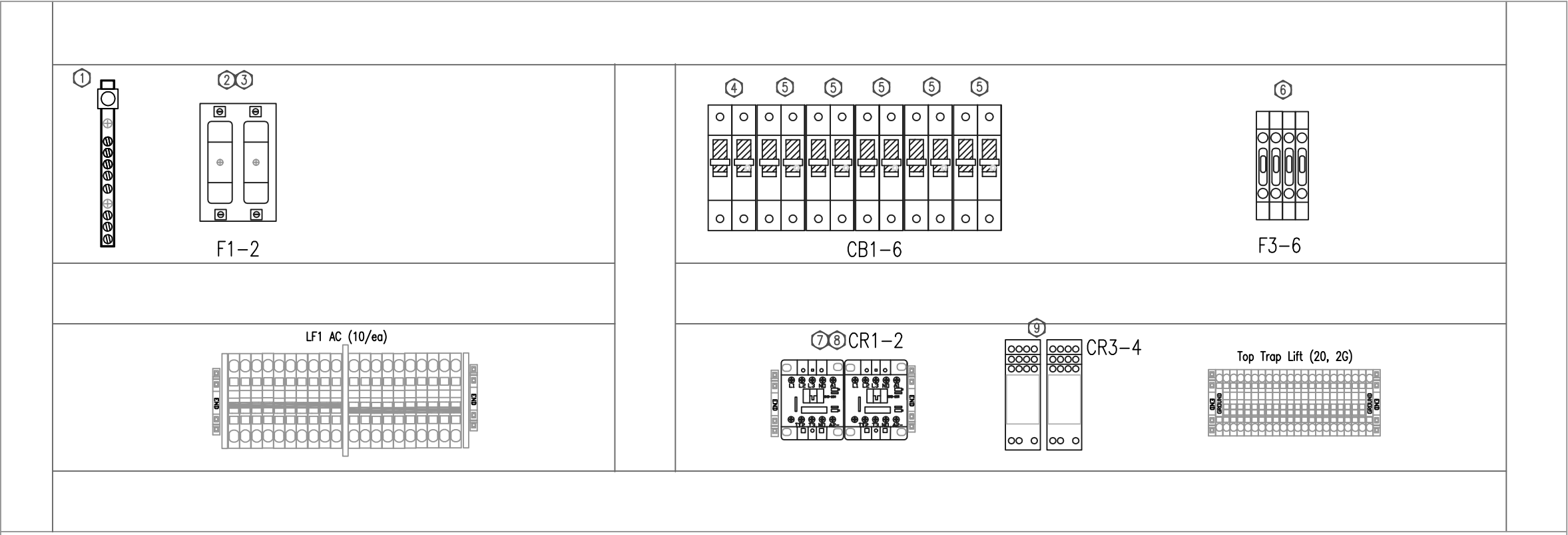
11227E 1070-1 96M11227

Printed in Japan



Electronics

Power Panel



--	251797-000	20	Phoenix Contact 3031212 Terminal Block
--	251796-000	2	Phoenix Contact 3031238 Ground Terminal
--	251795-000	2	Phoenix Contact 3022276 End Terminal
--	241060-000	4	Fuse, 5A
--	241294-000	2	Fuse, 25A, J
--	251841-000	2	End Cover, ST6
--	251840-000	1	Partition Plate, ST6
--	251852-000	2	10 Position Jumper, ST6
--	251842-000	20	Phoenix Contact Terminal Block, ST6

9	203347-000	2	Relay, 24V, 4 Pole
8	202607-000	2	Contactor Surge Suppressor
7	202604-000	2	Contactor, 24V, NO
6	251788-001	4	Fuse Holder, 250V AC Indicating
5	241116-001	5	Circuit Breaker, 2 Pole, 10A
4	241319-001	1	Circuit Breaker, 2 Pole, 6A
3	241311-001	2	Fuse Cover, 30A
2	241314-002	1	Fuse Holder, J-Class, 30A
1	251830-002	1	Ground Bar

NO.	PART NO.	QTY	DESCRIPTION
-----	----------	-----	-------------

Wireway Hardware: 8-32 BHCS
Wireway: 1.5” unless noted

Component Hardware: 8-32 SHCS

UNLESS OTHERWISE SPECIFIED

DIMENSIONAL TOLERANCE

.X ± .08

.XX ± .01

.XXX ± .005

ANGLES ± 30°

SURFACE FINISH 125√

BREAK ALL EDGES .005/√.015

CORNER RADIUS .010/√.030

QUADREL

LABELING SYSTEMS

7670 Jenther Drive

Mentor, Ohio 44060

(440) 602-4700

Power Panel Layout

BOM: 84211E1-000

MAT'L

84211E-000

SCALE: NONE

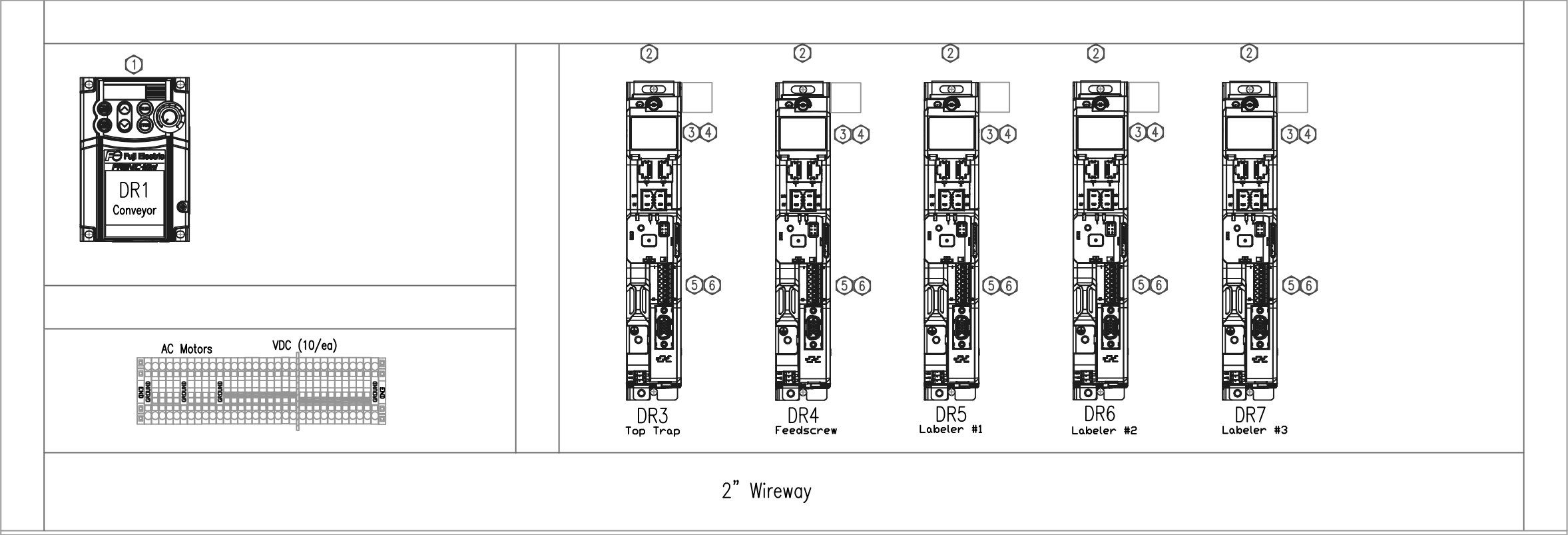
DATE: 18AUG2025

DRAWN BY: CMT

REVISED:

B84211E1-000

Drive Panel



Wireway: 1” unless noted

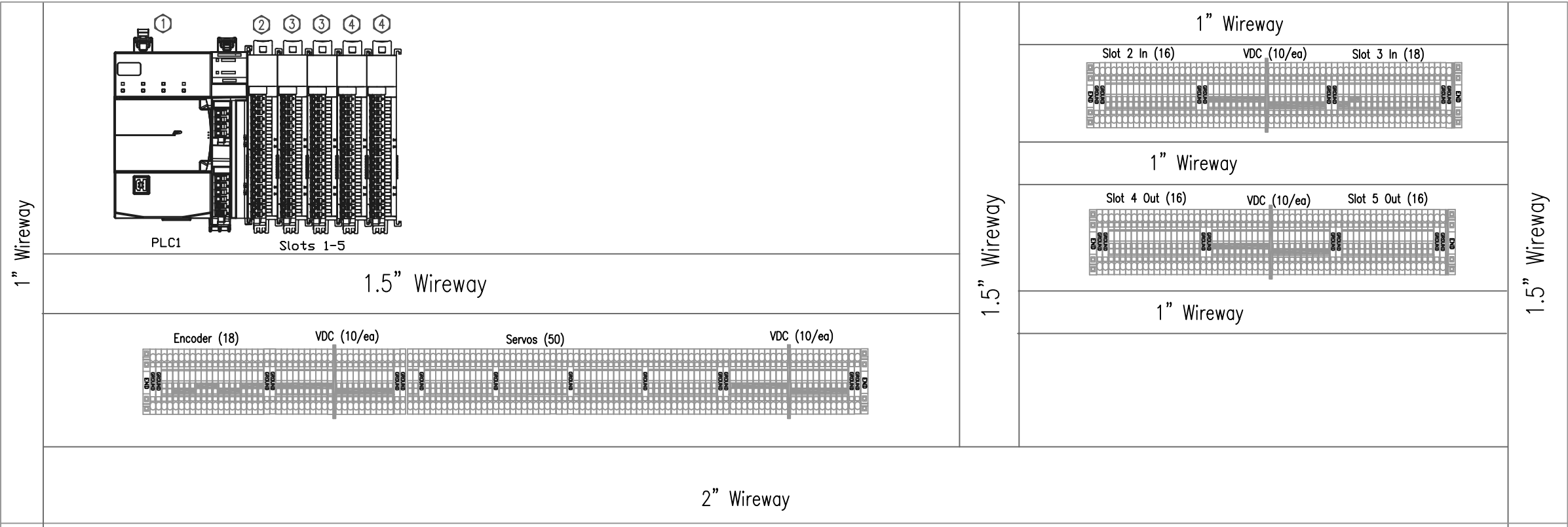
Wireway Hardware: 8–32 BHCS

Component Hardware: 8–32 SHCS

--	251805-000	2	Jumper, 10 Position
--	251799-000	2	Phoenix Contact 3030417 End Cover
--	251797-000	48	Phoenix Contact 3031212 Terminal Block
--	251796-000	5	Phoenix Contact 3031238 Ground Terminal
--	251795-000	2	Phoenix Contact 3022276 End Terminal
6	412410-002	5	DB44 Cable, Female, for IO Plus
5	411902-001	5	IO 24 Plus Module
4	411902-000	5	PTi Module
3	411901-000	5	Option Card Mounting Kit
2	411900-000	5	Servo Drive, Digitax HD M750
1	411458-001	1	AC Drive, Fuji Mini, 1HP
NO.	PART NO.	QTY	DESCRIPTION

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE .X ± .08 .XX ± .01 .XXX ± .005 ANGLES ± 30' SURFACE FINISH 125√" BREAK ALL EDGES .005/015 CORNER RADIUS .010/030	QUADREL LABELING SYSTEMS 7670 Jenther Drive Mentor, Ohio 44060 (440) 602-4700	SCALE: NONE
		DATE: 18AUG2025
	Drive Panel Layout BOM: 84211E2-000	
	MAT'L 84211E-000	B84211E2-000

PLC Panel



All Terminal Block Din Rail on 1" Spacers

Wireway Hardware: 8-32 BHCS

Component Hardware: 8-32 SHCS

--	251857-000	4	4 Position Jumpers
--	251855-000	1	2 Position Jumpers
--	251859-000	10	10 Position Jumpers
--	792356-000	12	1" Spacers, 8-32
--	251798-000	5	Phoenix Contact Partition Plate
--	251799-000	8	Phoenix Contact 3030417 End Cover
--	251853-000	241	Phoenix Contact ST1.5 Terminal Block
--	251854-000	38	Phoenix Contact ST1.5 Ground Terminal
--	251795-000	8	Phoenix Contact 3022276 End Terminal

4	221486-001	3	Output Expansion Module
3	221489-001	3	Input Expansion Module
2	221545-001	1	High Speed Counter Module
1	221616-005	1	PLC, AB CompactLogix L306
NO.	PART NO.	QTY	DESCRIPTION

UNLESS OTHERWISE SPECIFIED

DIMENSIONAL TOLERANCE

.X ± .08

.XX ± .01

.XXX ± .005

ANGLES ± 30°

SURFACE FINISH 125√

BREAK ALL EDGES .005/√.015

CORNER RADIUS .010/√.030

QUADREL LABELING SYSTEMS

7670 Jenther Drive

Mentor, Ohio 44060

(440) 602-4700

PLC Panel Layout

BOM: 84211E3-000

MAT'L

84211E-000

SCALE: NONE

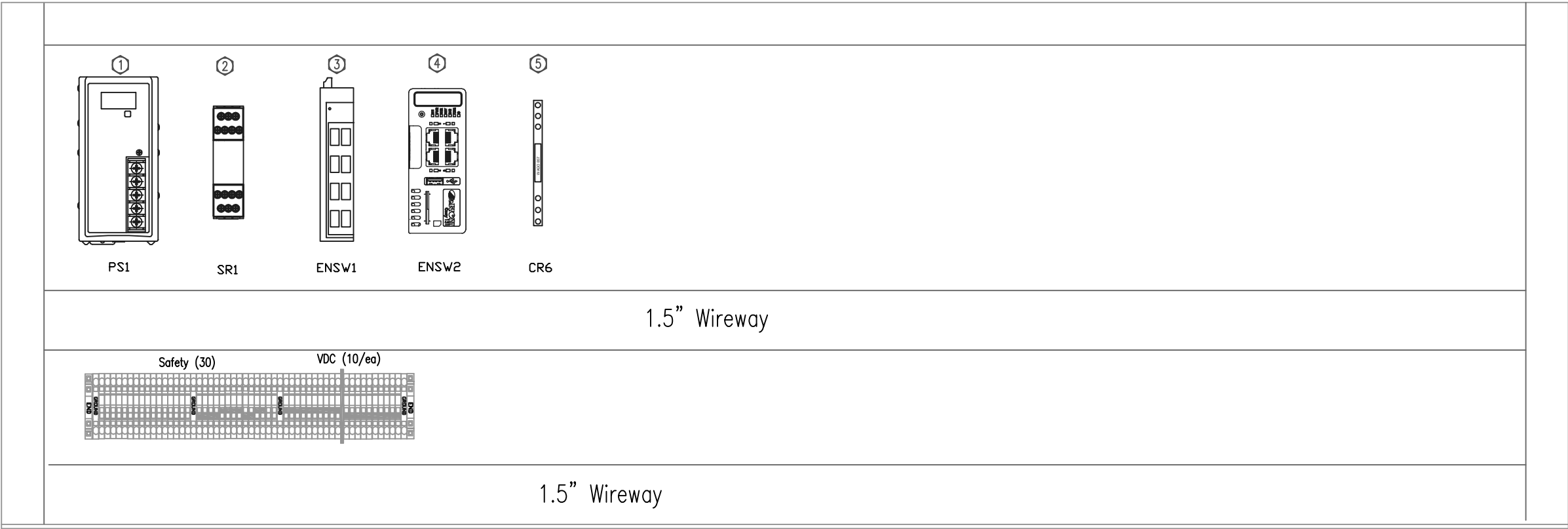
DATE: 18AUG2025

DRAWN BY: CMT

REVISED:

B84211E3-000

Accessory Panel



--	251857-000	2	4 Position Jumpers
--	251859-000	2	10 Position Jumpers
--	251855-000	6	2 Position Jumpers
--	792356-000	6	1" Spacers, 8-32
--	251798-000	1	Phoenix Contact Partition Plate
--	251799-000	4	Phoenix Contact 3030417 End Cover
--	251853-000	70	Phoenix Contact ST1.5 Terminal Block
--	251854-000	9	Phoenix Contact ST1.5 Ground Terminal
--	251795-000	4	Phoenix Contact 3022276 End Terminal

Wireway Hardware: 8-32 BHCS
Wireway: 1" unless noted

Component Hardware: 8-32 SHCS

5	202628-000	1	Relay, 24V, Single
4	221690-000	1	Secure Router, Ewon Cosy
3	221683-000	1	Ethernet Switch, 8 Port
2	221650-005	1	Phoenix Safety Relay
1	211532-002	1	Power Supply, 24V, 6.5A
NO.	PART NO.	QTY	DESCRIPTION

UNLESS OTHERWISE SPECIFIED

DIMENSIONAL TOLERANCE

.X ± .08

.XX ± .01

.XXX ± .005

ANGLES ± 30°

SURFACE FINISH 125√

BREAK ALL EDGES .005/√.015

CORNER RADIUS .010/√.030

QUADREL

LABELING SYSTEMS

7670 Jenther Drive

Mentor, Ohio 44060

(440) 602-4700

Accessory Panel Layout

BOM: 84211E4-000

MAT'L

84211E-000

SCALE: NONE

DATE: 18AUG2025

DRAWN BY: CMT

REVISED:




B84211E4-000

PROLINE LABELING SYSTEM
220VAC, 25A
COMPACTLOGIX PLC
NIDEC SERVO DRIVES
FUJI INVERTERS

- Page Listing:
- 1: Main AC
 - 2: Safety Relay
 - 3: Conveyor
 - 4: Feedscew
 - 5: Top Trap
 - 6: Labeler #1
 - 7: Labeler #2
 - 8: Labeler #3
 - 9: PLC #1 Slots 1 & 2
 - 10: PLC #1 Slots 3-5 & Ethernet
 - 11: Operator Enclosure & System Sensors
 - 12: Labeler Sensors & Encoders
 - 13: Top Trap Lift

WIRE SIZE/COLOR TABLE (UNLESS OTHERWISE NOTED)

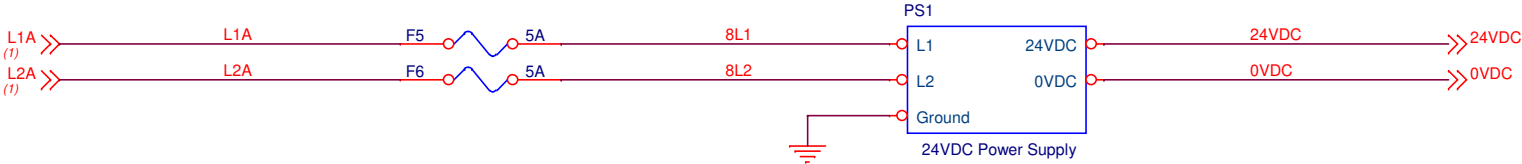
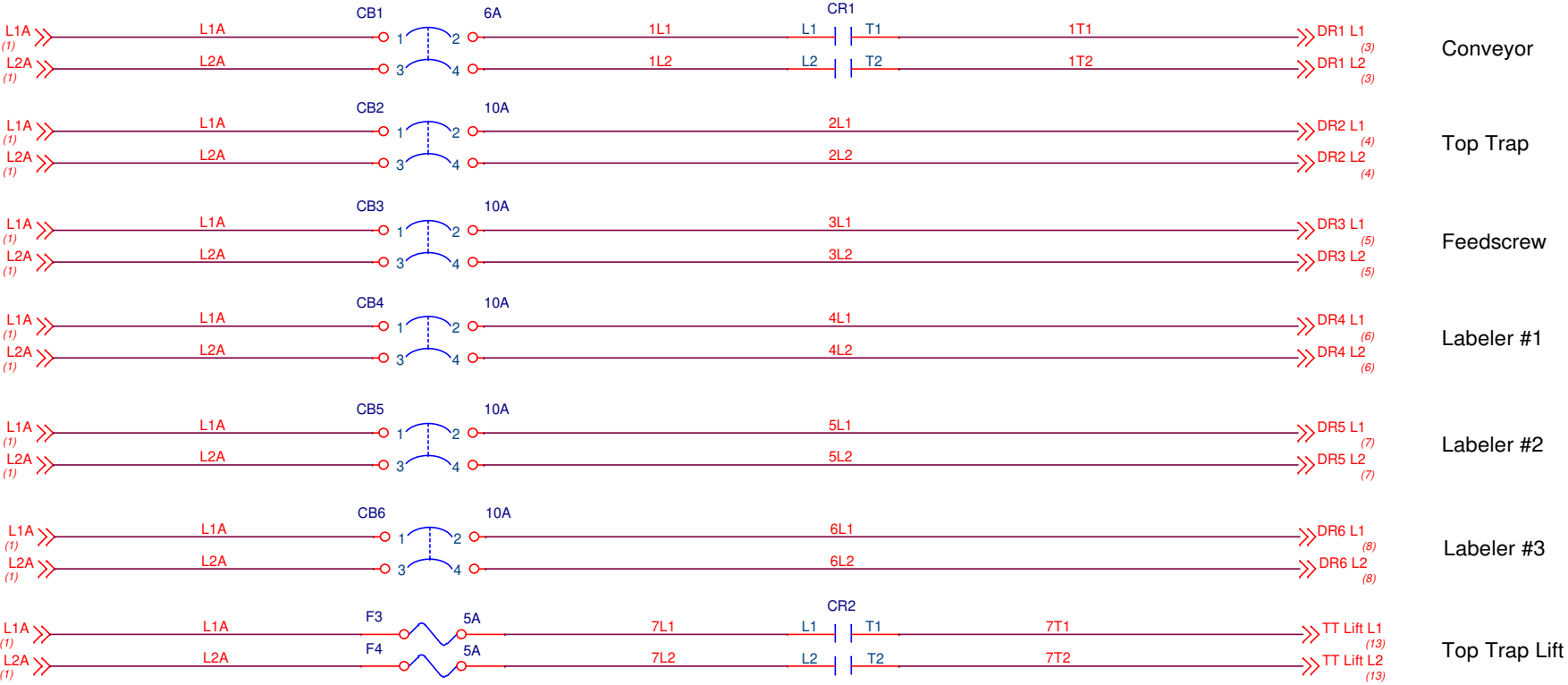
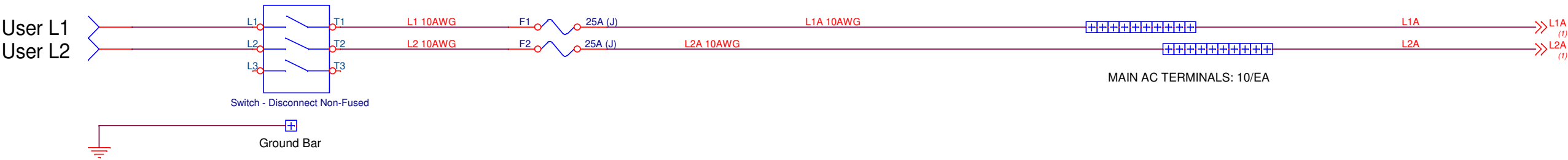
120,240VAC:14AWG BLACK
24VDC/SIGNAL: 18AWG BLUE
0VDC: 18AWG WHITE/BLUE
EARTH GROUND WIRES: 14 AWG GREEN/YELLOW
AC MOTOR WIRES: 4-16AWG

-  : Terminal Block
-  : 2 Jumpered Terminal Blocks
-  : 3 Jumpered Terminal Blocks, etc

QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060				
Drawn By: CMT	REV	Release	CMT	22OCT2025
Title		PROLINE LABELING SYSTEM		
Schematic #		SB84211-000		Rev -
Date: Wednesday, October 22, 2025		Sheet 0 of 13		

220VAC , 25AMP

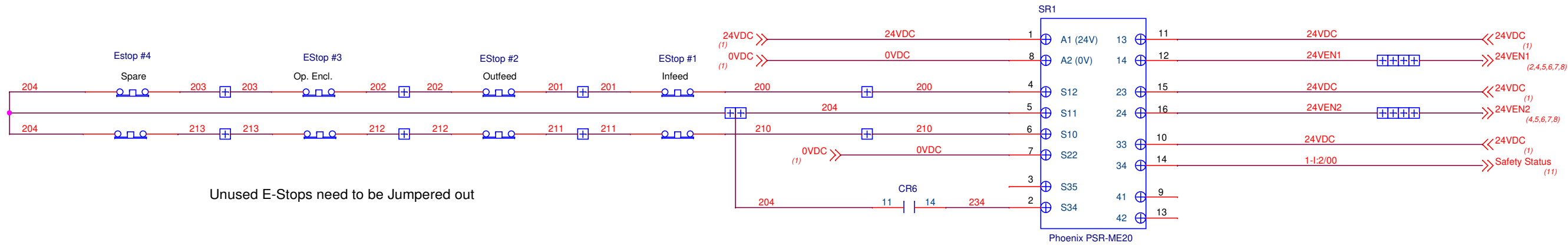
Main AC
Page 1



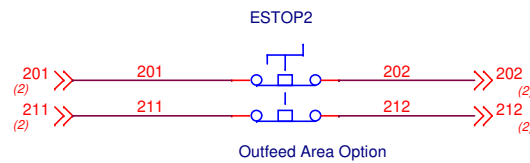
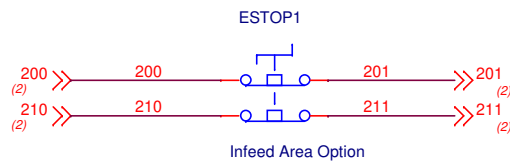
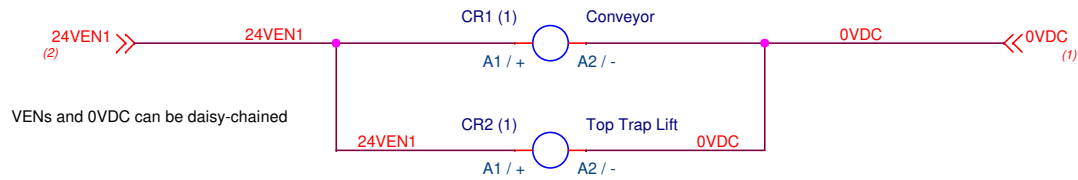
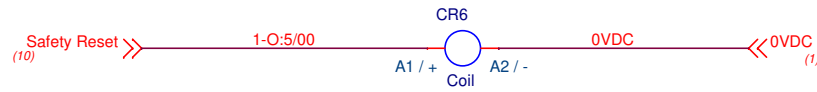
COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060					
Drawn By: CMT		Release	CMT	22OCT2025	
Title		REV	DESCRIPTION	BY	DATE
MAIN AC DISTRIBUTION					
Schematic #		Rev			
SB84211-000		-			
Date: Wednesday, October 22, 2025		Sheet 1 of 13			



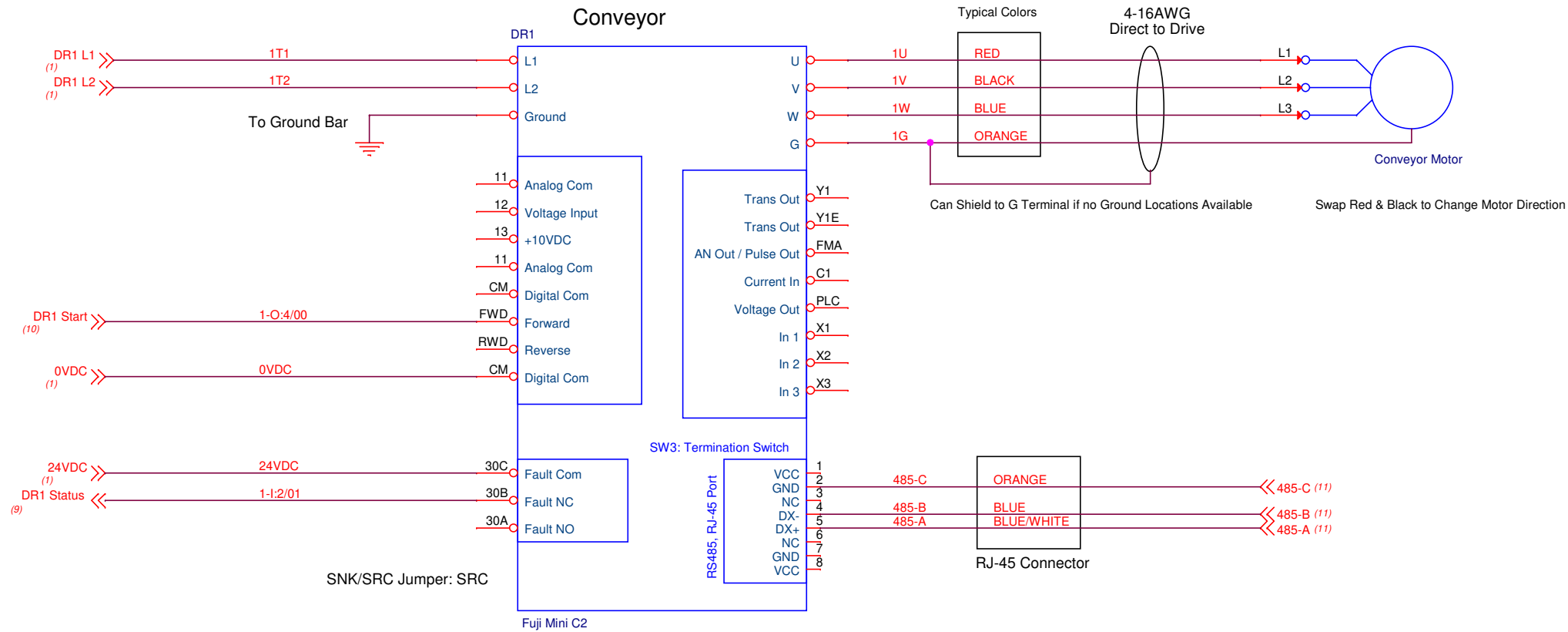
Unused E-Stops need to be Jumped out



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

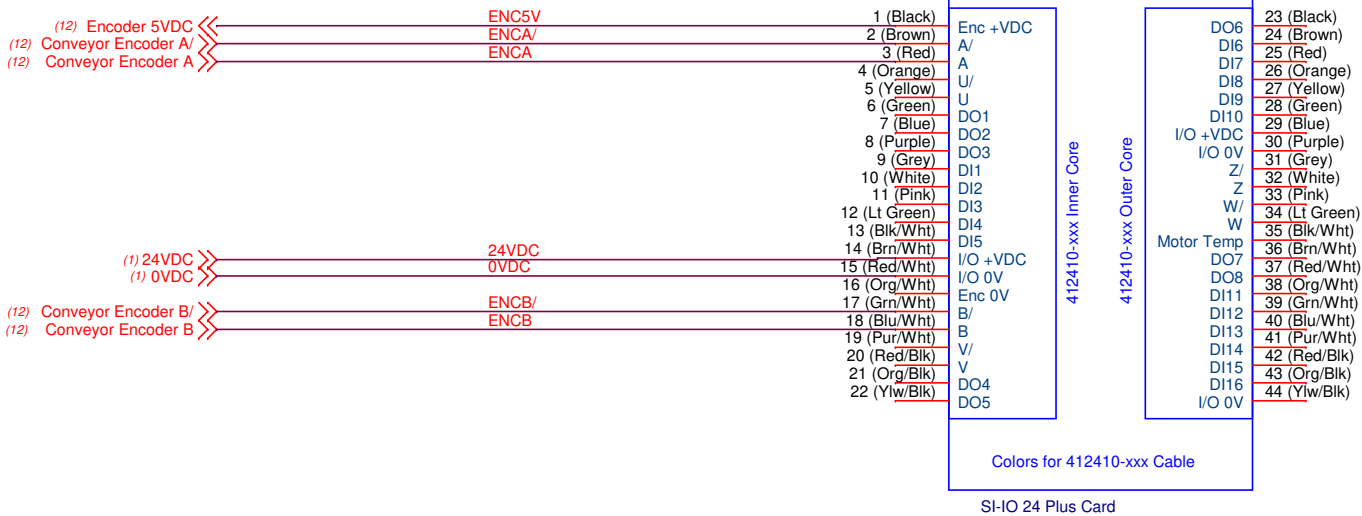
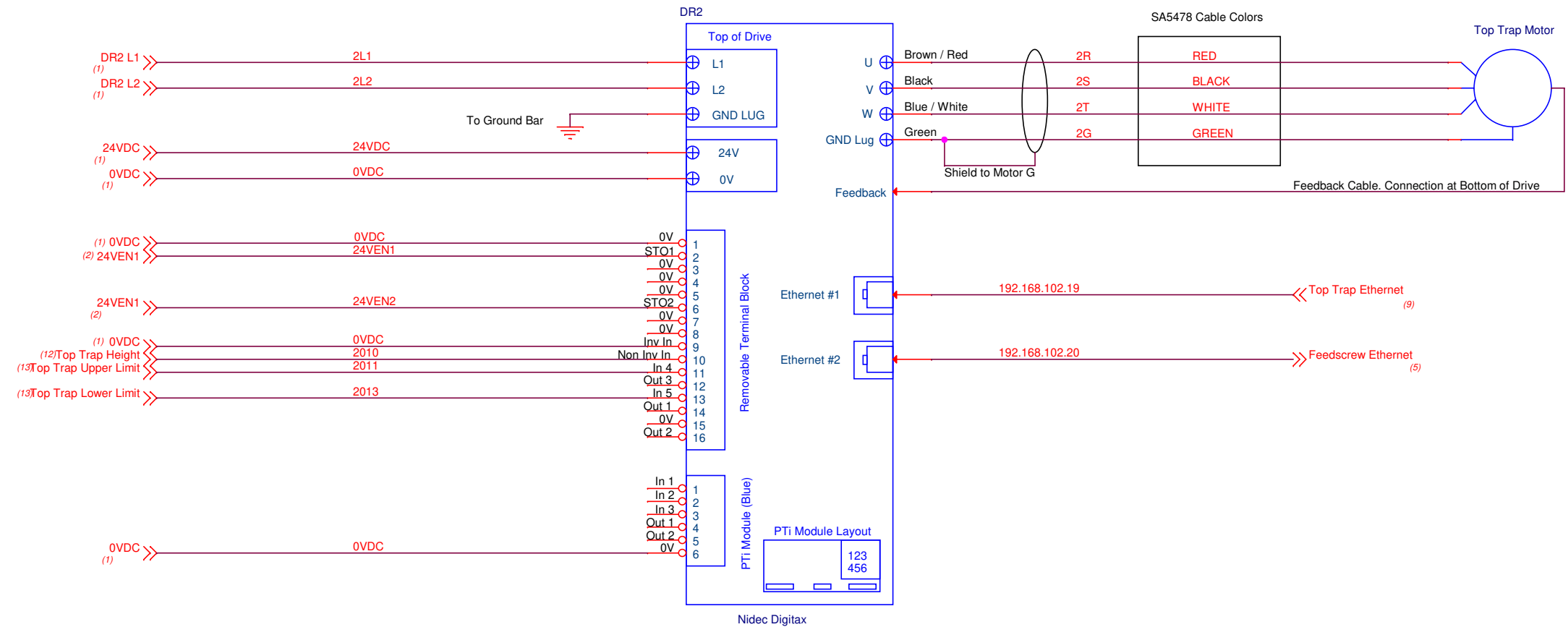
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Drawn By: CMT	REV	Release	CMT	22OCT2025
Title				
SAFETY RELAY				
Schematic #				Rev
SB84211-000				-
Date: Wednesday, October 22, 2025				
Sheet 2 of 13				



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

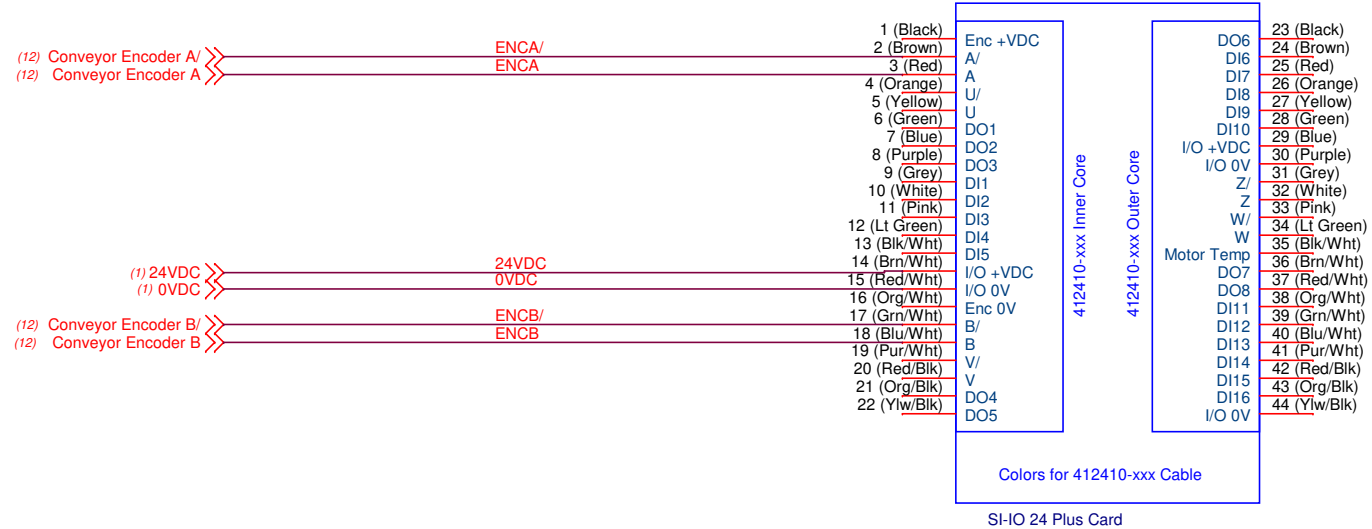
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Drawn By: CMT		REV	Release	CMT	22OCT2025
Title		CONVEYOR			
Schematic #		SB84211-000			Rev
					-
Date: Wednesday, October 22, 2025		Sheet 3 of 13			



COLOR	TECHNICIAN	DATE

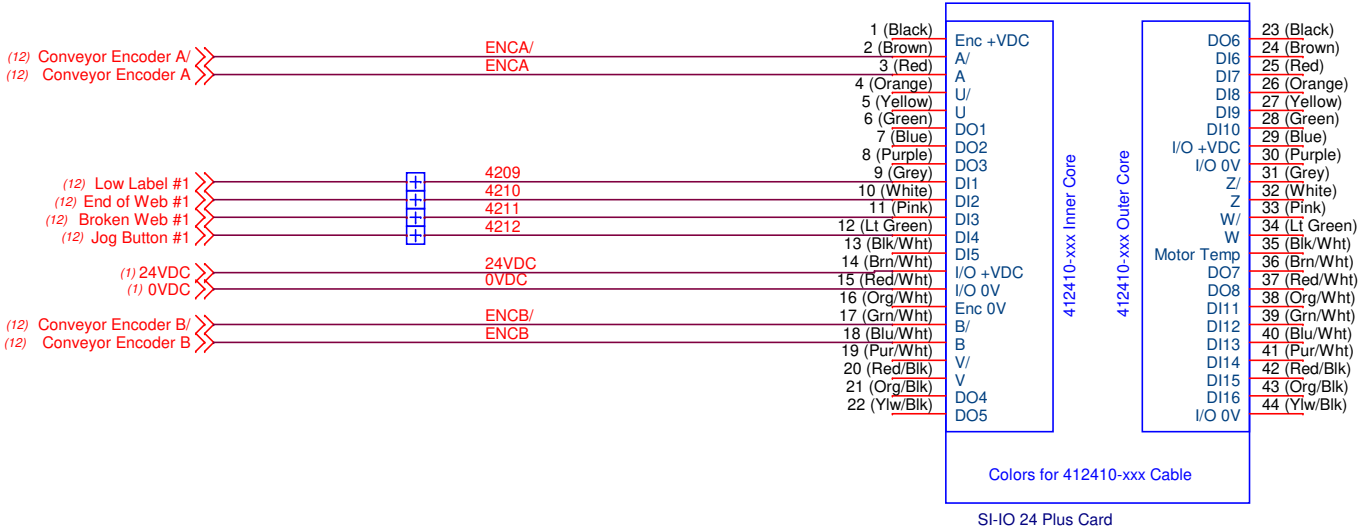
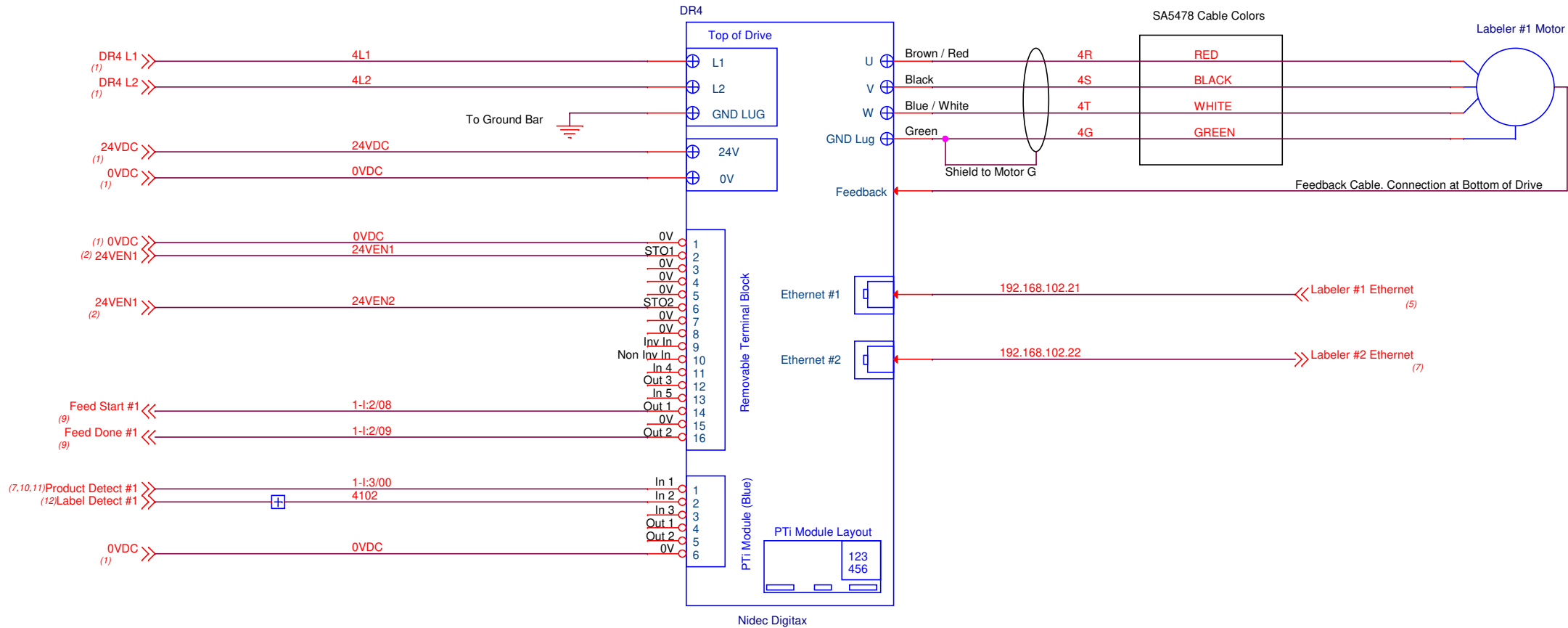
For Quadrel Assembly Use

QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060					
Drawn By: CMT	REV	Release	DESCRIPTION	CMT	22OCT2025
Title					
TOP TRAP					
Schematic #					Rev
SB84211-000					-
Date: Monday, October 27, 2025					
Sheet 4 of 13					



For Quadrel Assembly Use

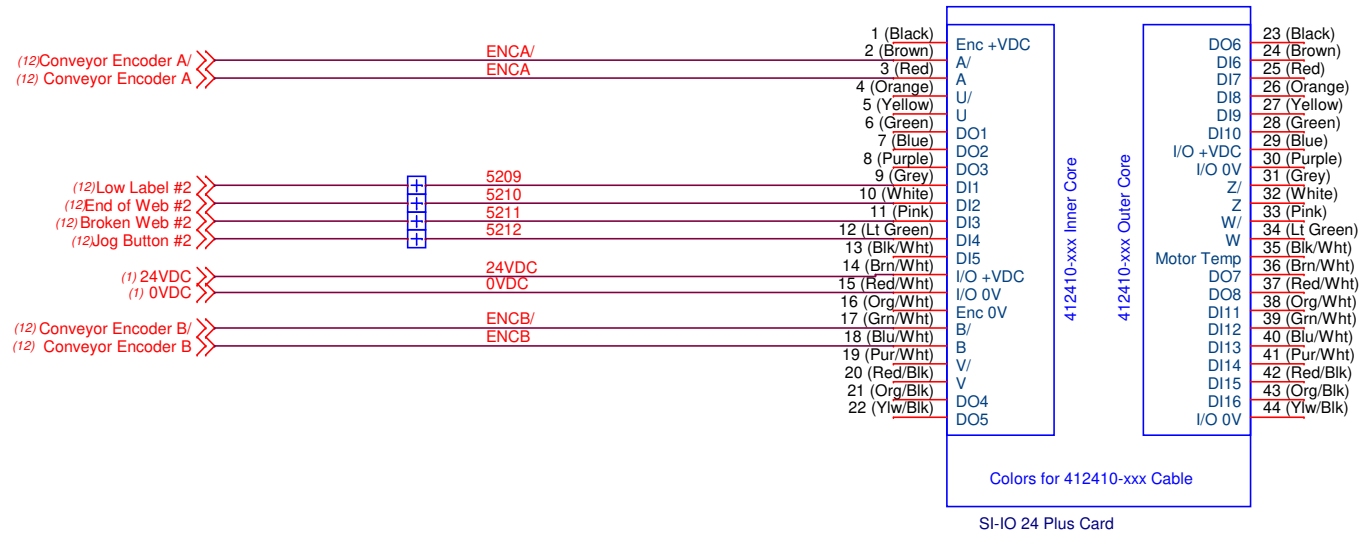
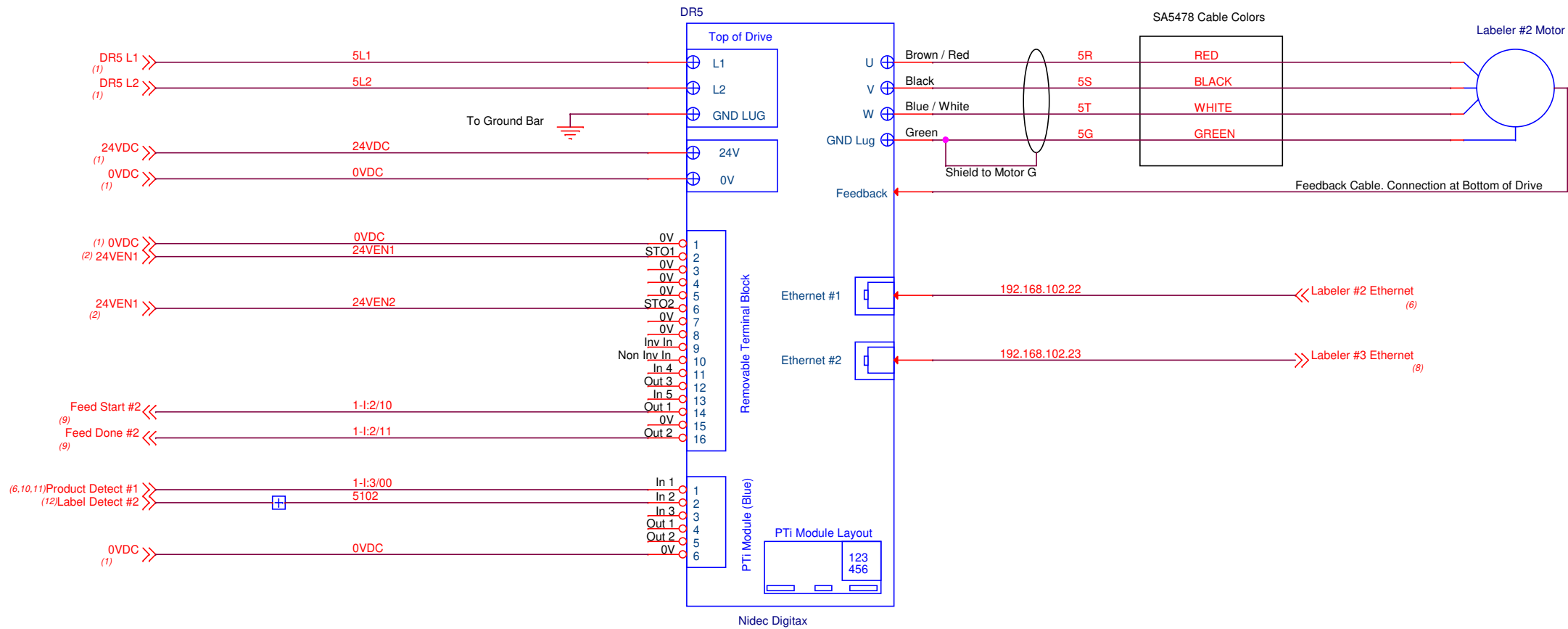
Date: Wednesday, October 22, 2025 Sheet 5 of 13



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

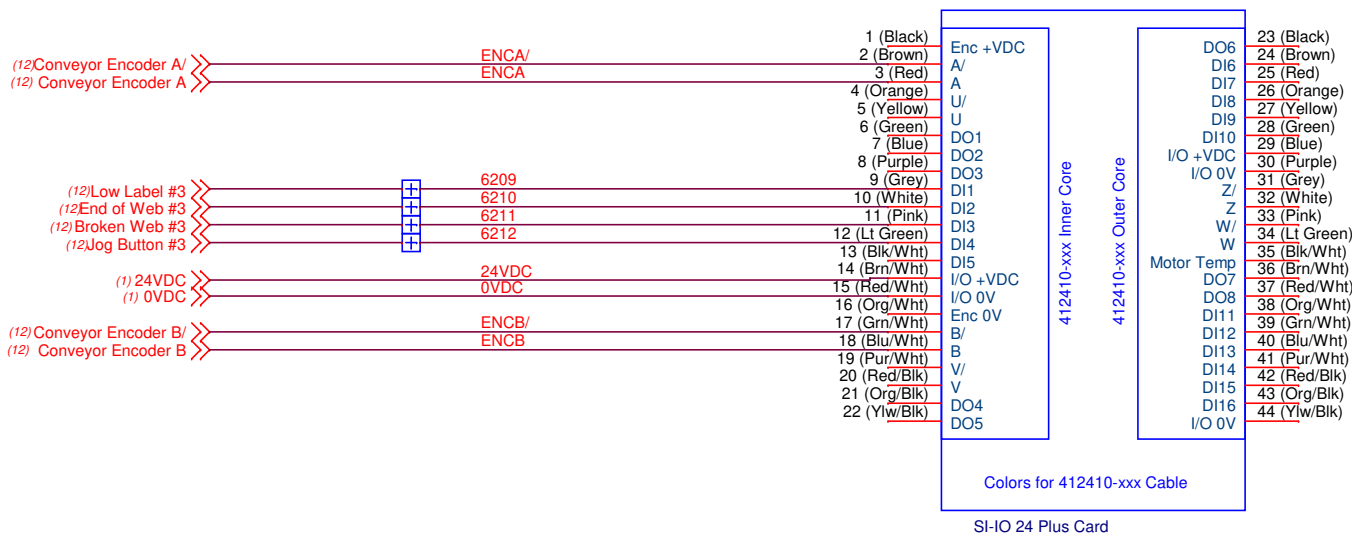
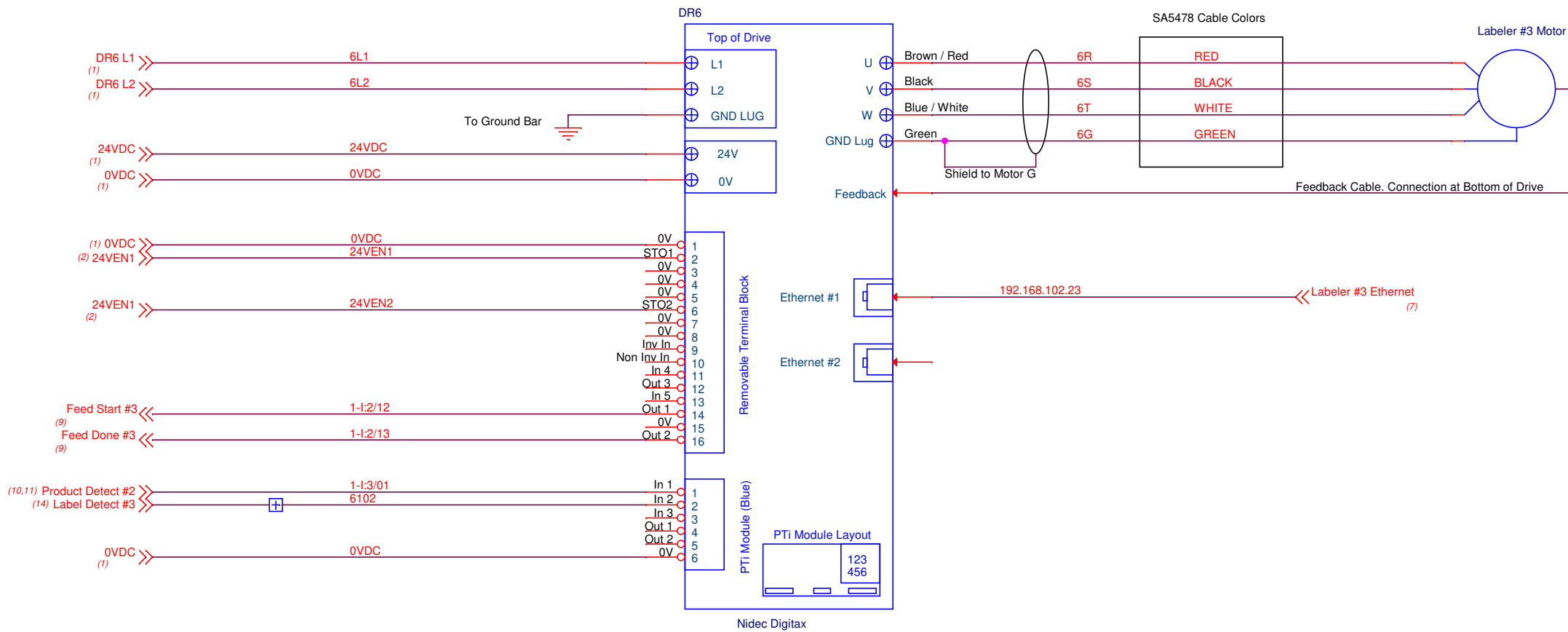
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Drawn By: CMT	REV	Release	CMT	22OCT2025
Title				
LABELER #1				
Schematic #				Rev
SB84211-000				-
Date: Monday, October 27, 2025		Sheet 6 of 13		



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060				
Drawn By: CMT	REV	Release	CMT	22OCT2025
Title				
LABELER #2				
Schematic #				Rev
SB84211-000				-
Date: Monday, October 27, 2025		Sheet 7 of 13		

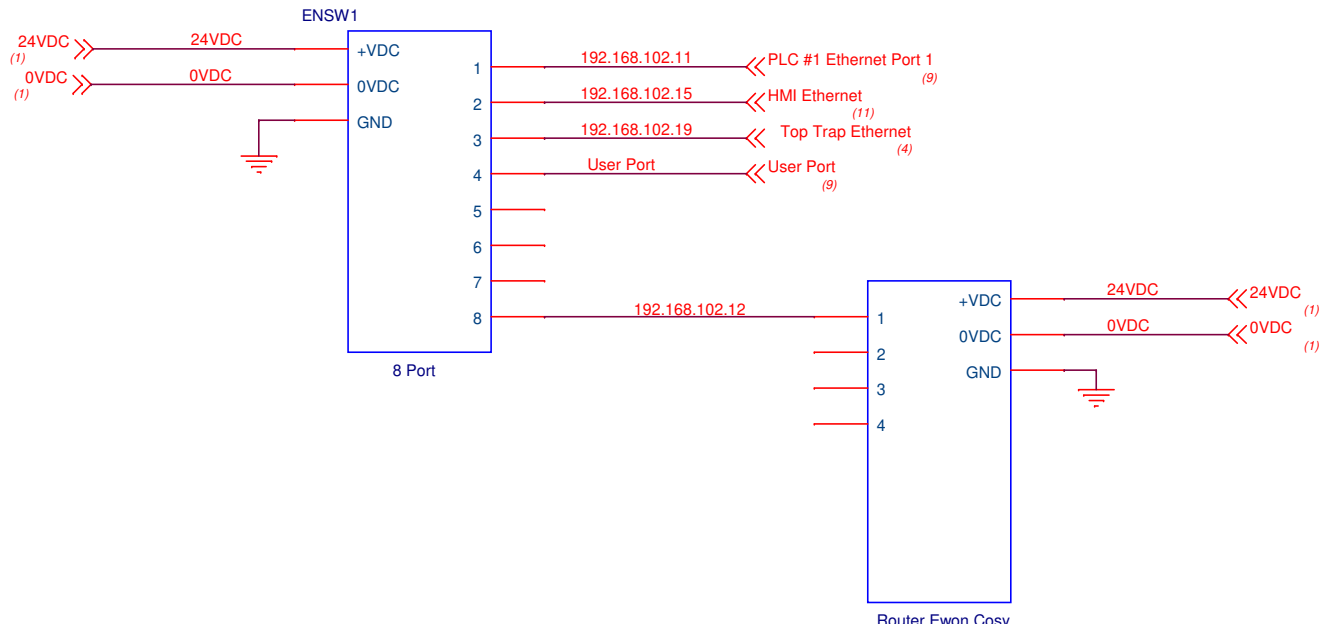
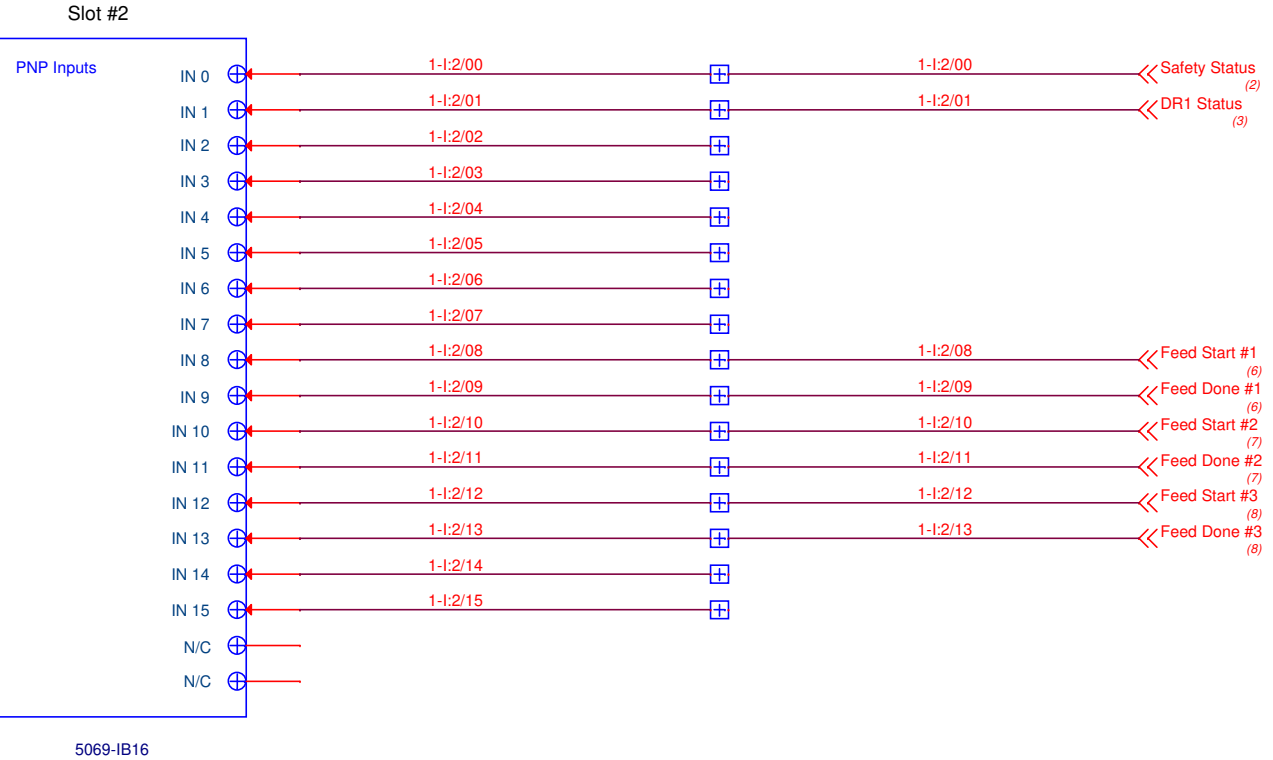
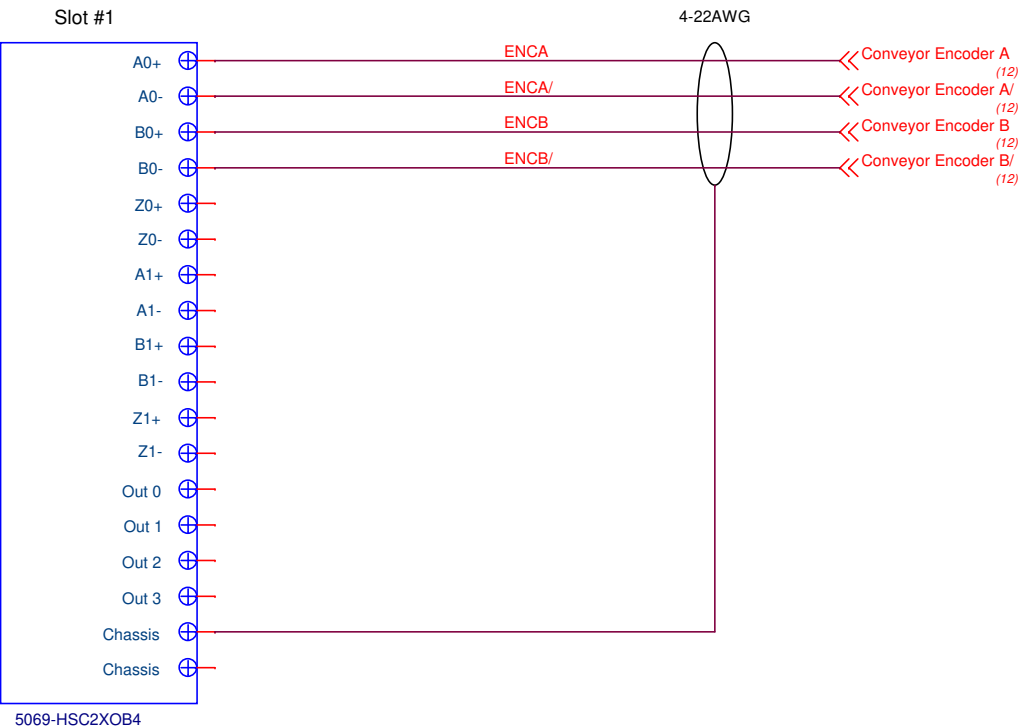
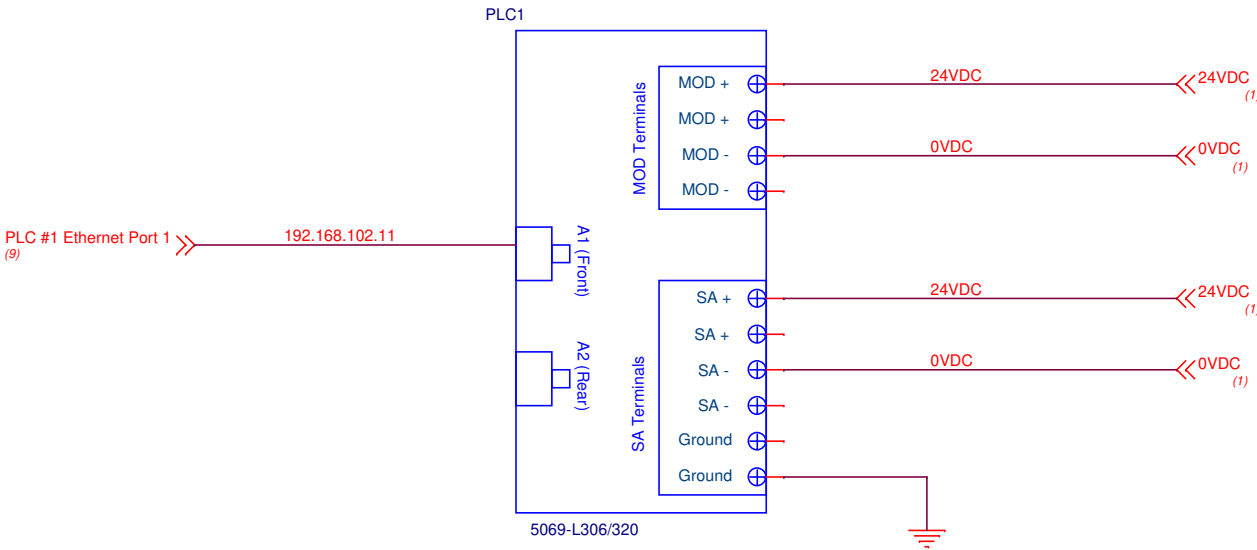


COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060				
Drawn By: CMT	REV	Release	CMT	22OCT2025
Title				
LABELER #3				
Schematic #				Rev
SB84211-000				-
Date: Wednesday, October 22, 2025				

PLC #1 Slots
1 & 2,
Ethernet
Page 9

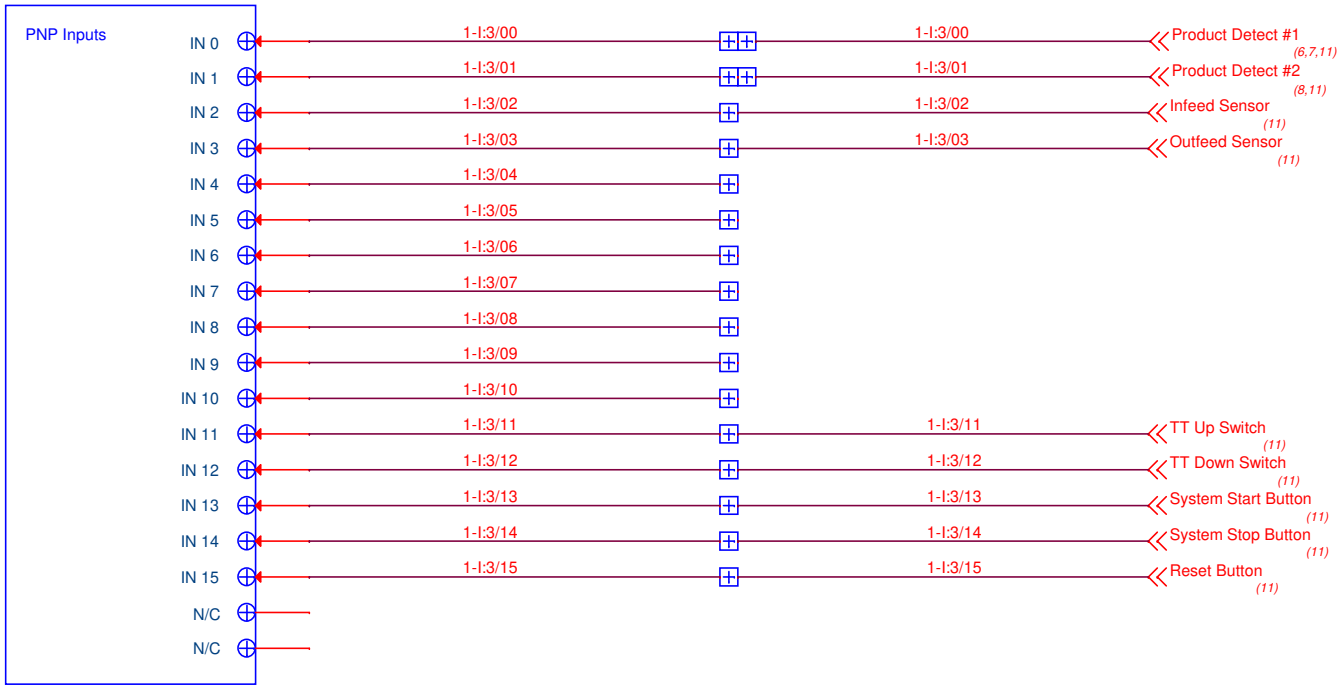


COLOR	TECHNICIAN	DATE

QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060							
Drawn By: CMT				Release	CMT	22OCT2025	
Title				REV	DESCRIPTION	BY	DATE
PLC SLOTS 1-2, ETHERNET							
Schematic #				SB84211-000			Rev
Date: Wednesday, October 22, 2025				Sheet 9 of 13			-

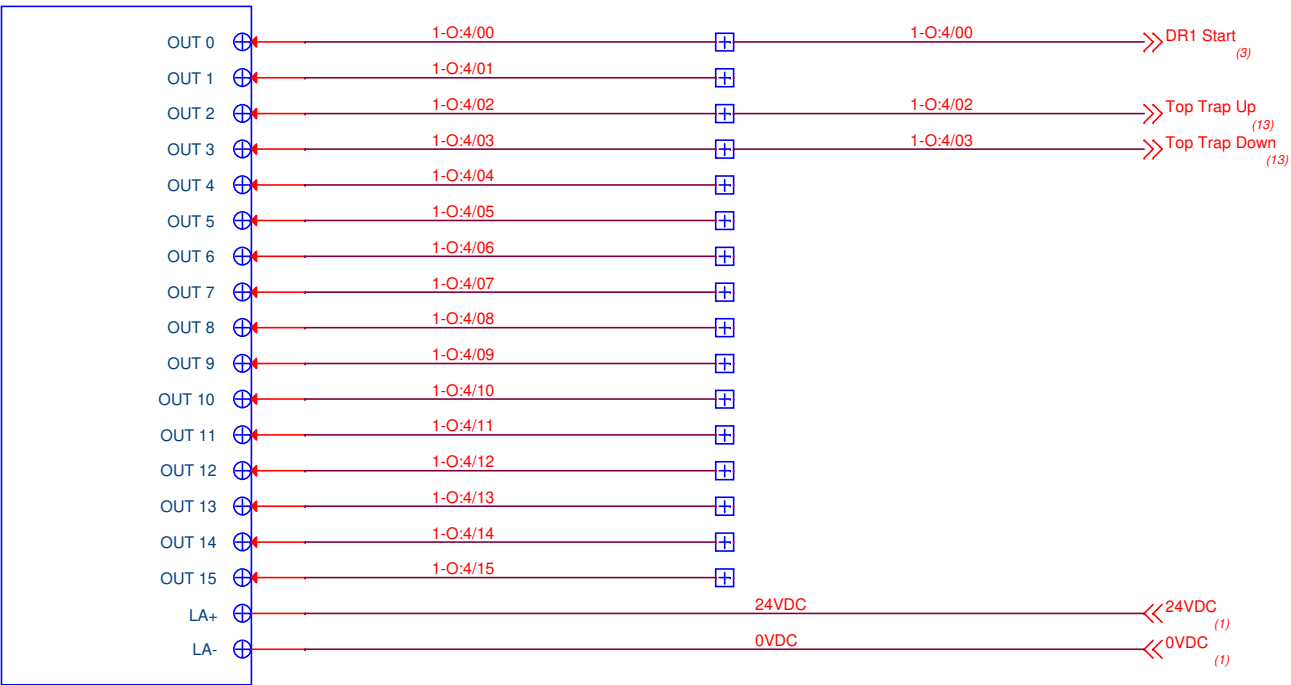
For Quadrel Assembly Use

Slot #3



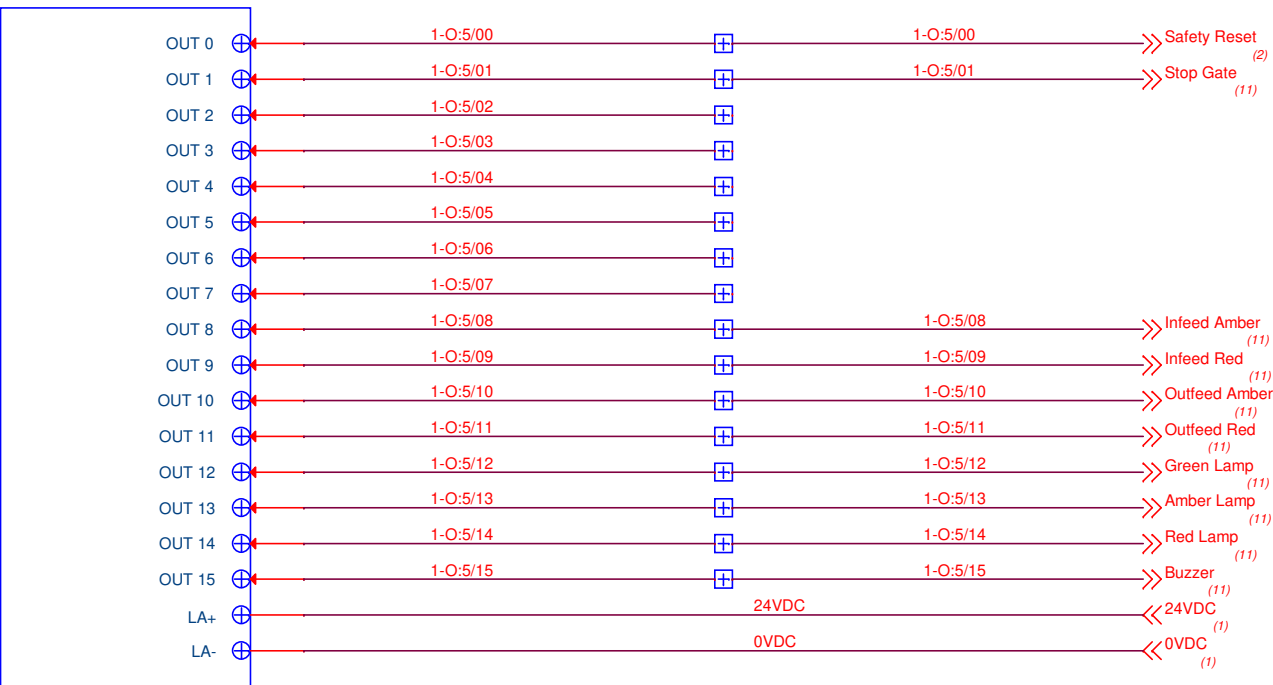
5069-IB16

Slot #4



5069-OB16

Slot #5

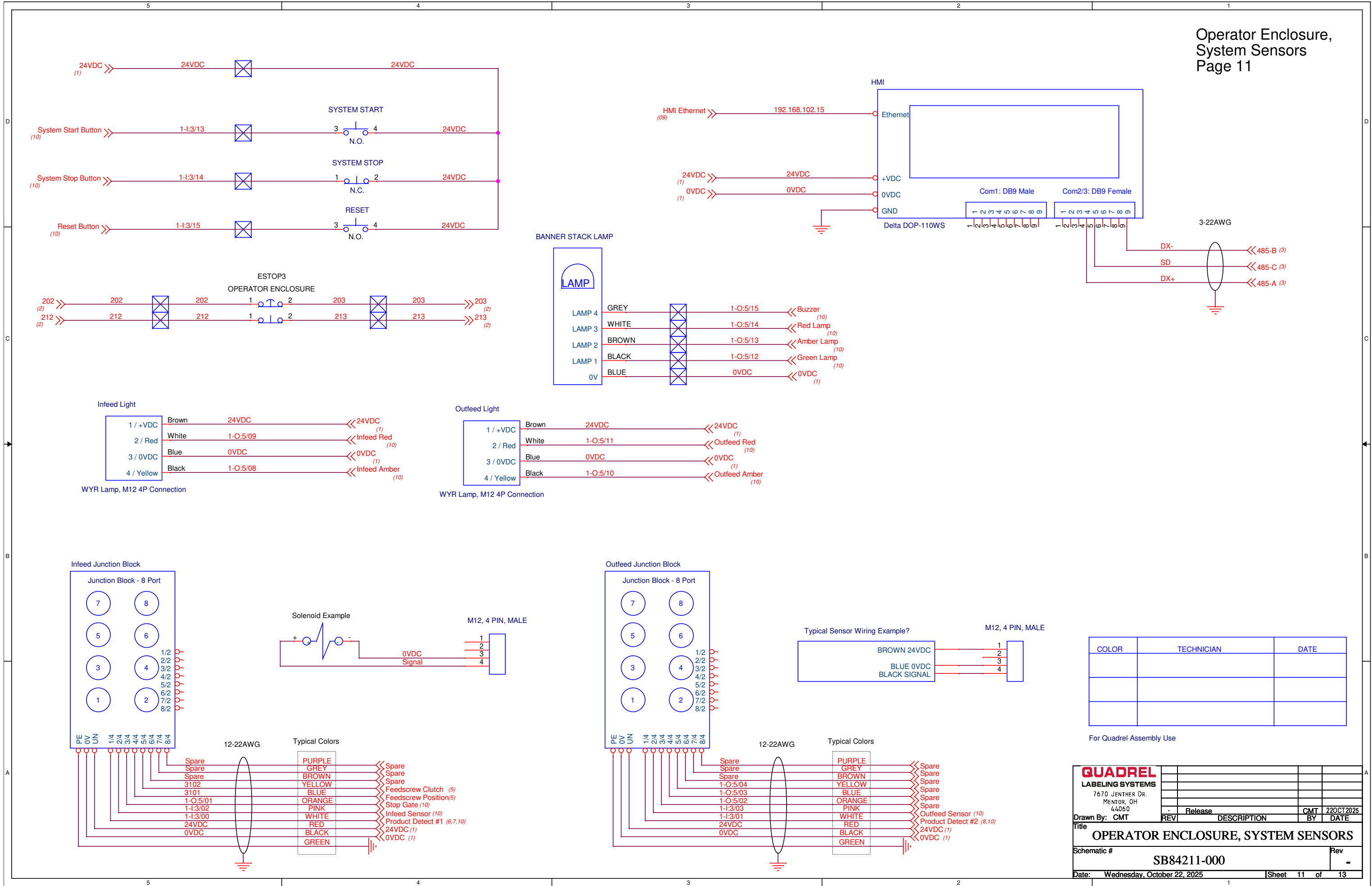


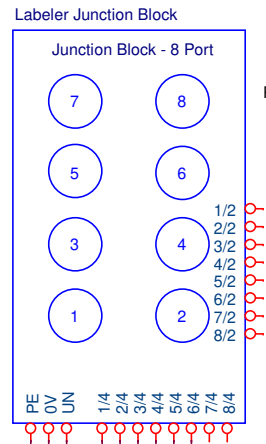
5069-OB16

COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

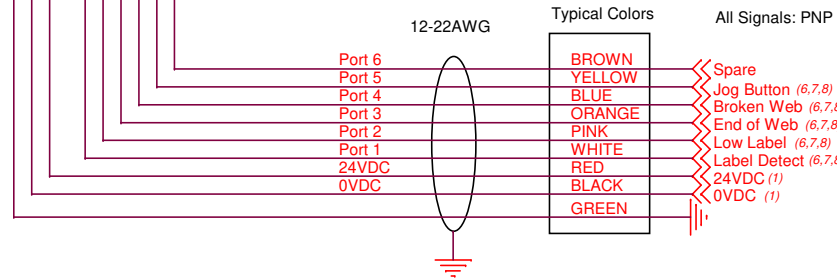
QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060					
Drawn By: CMT	REV	Release	DESCRIPTION	CMT BY	22OCT2025 DATE
Title					
PLC SLOTS 3-5, PLC SLOT B					
Schematic #					Rev
SB84211-000					-
Date: Friday, October 24, 2025			Sheet 10 of 13		



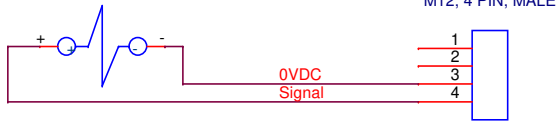


Ports 7 and 8 not Wired/Used

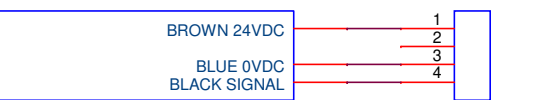
Sensor	Labeler #1	Labeler #2	Labeler #3
Label Detect	4102	5102	6102
Low Label	4209	5209	6209
End of Web	4210	5210	6210
Broken Web	4211	5211	6211
Jog Button	4212	5212	6212



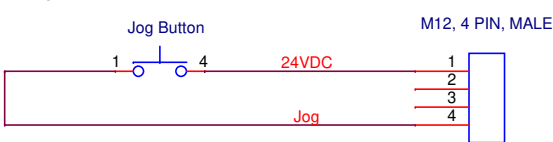
Solenoid Example



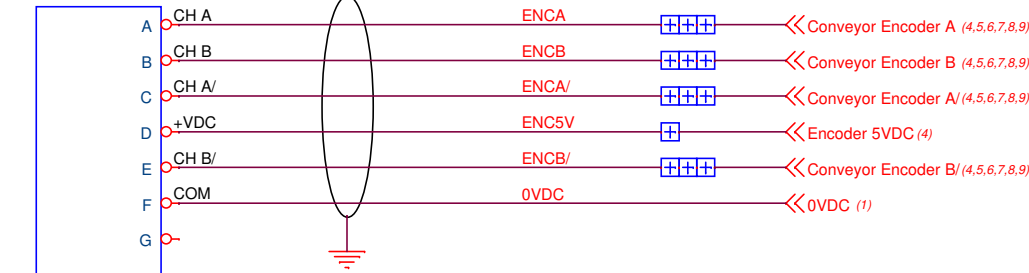
Typical Sensor Wiring Example



Jog Button in Remote Enclosure

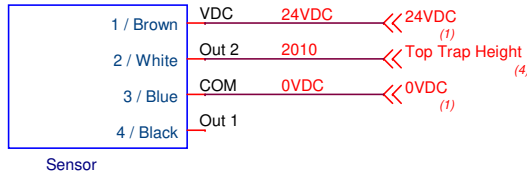


Conveyor Encoder



Encoder - 770 with 7P Connector

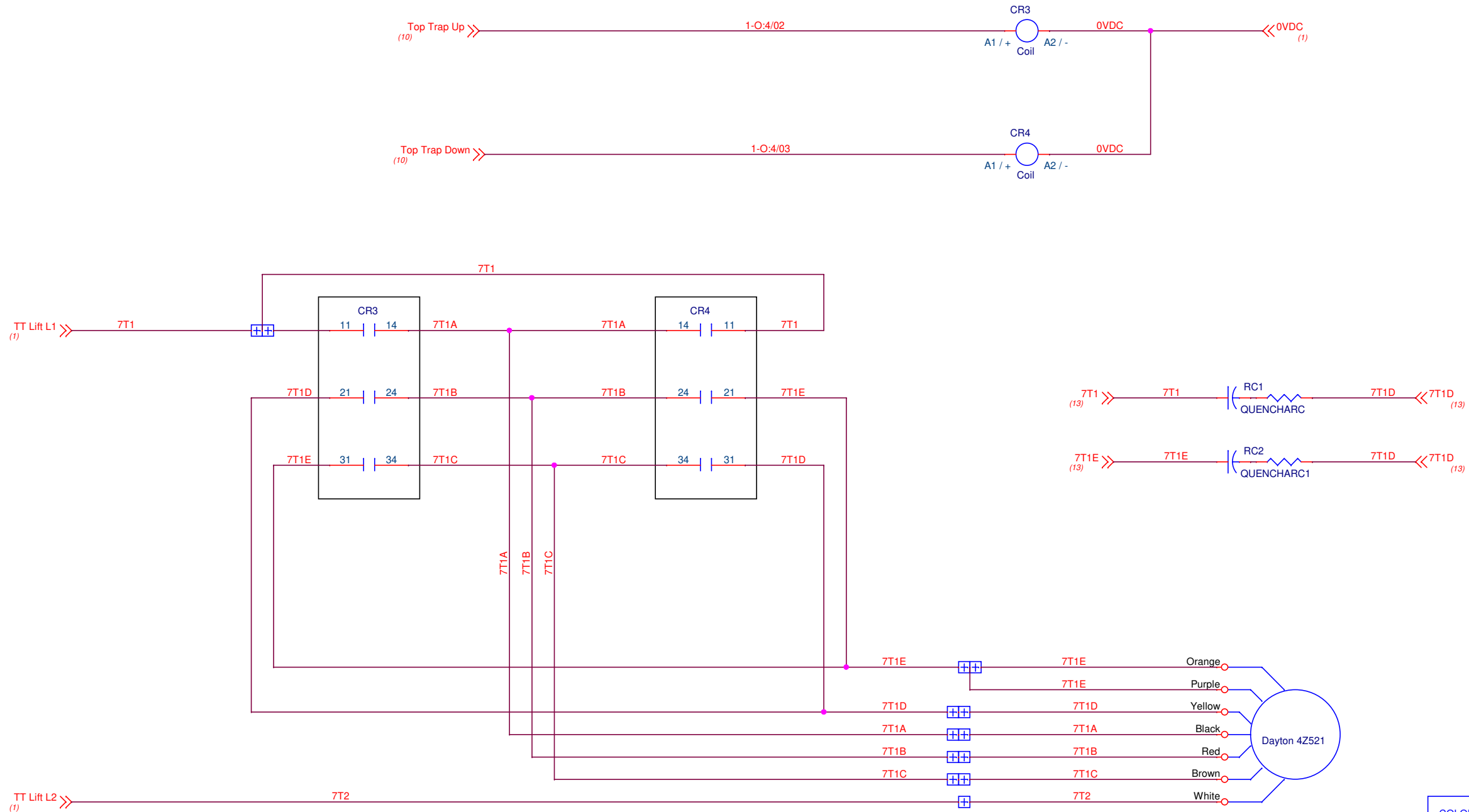
Top Trap Height Sensor



COLOR	TECHNICIAN	DATE

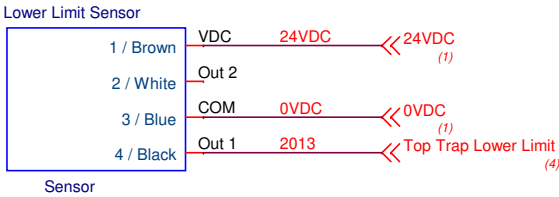
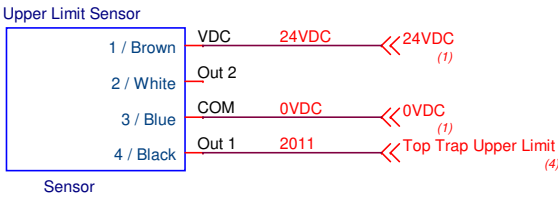
For Quadrel Assembly Use

QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060				
Drawn By: CMT	REV	Release	CMT	22OCT2025
Title				
LABELER SENSORS, ENCODER				
Schematic # SB84211-000				Rev -
Date: Friday, October 24, 2025				
Sheet 12 of 13				



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use



QUADREL LABELING SYSTEMS 7670 JENTHER DR. MENTOR, OH 44060				
Drawn By: CMT	REV	Release	CMT	22OCT2025
Title				
TOP TRAP LIFT				
Schematic # SB84211-000				Rev -
Date: Wednesday, October 22, 2025				
Sheet 13 of 13				

9 MAINTENANCE

9.1 GENERAL INFORMATION

This labeler has been designed with the minimal maintenance requirement possible. There are however some things to take into consideration.

The system is built to perform in humid conditions, but must not be pressure washed. In case of wash down conditions, it is recommended to cover each labeling head with a plastic tarp.

For the overall cleaning, it is recommended to use compressed air and clean, damp wipes.

Always turn off the system before proceeding with cleaning and maintenance.

The following section explains the preventive maintenance for each section

After every 100 hours of operation, a visual inspection of the system should be done and where it is necessary, lubricate and cleaning should be performed.



CAUTION

WEAR PROTECTIVE EYEWEAR when performing any maintenance on this equipment.



CAUTION

To reduce risk of fire, electrocution or other personal Injury when operating or maintaining the labeling head, follow basic safety precaution, including the following:

DO NOT perform any servicing or maintenance with the power ON.

Always disconnect the electrical plug from the wall socket

Make sure that the power is OFF or that the available E-stop buttons have been activated.

Quadrel labeling heads are reliable, versatile and durable. They will operate for years with very light maintenance. Most of the maintenance takes only a few minutes and substantially increases the operational life of the machine and maintains label placement accuracy. Not all items listed below are applicable to every machine. See sections that apply to your equipment

Daily: D
Weekly: W
Monthly M
Semi-Annually S

ASSEMBLY TITLE: LABELING HEAD ASSEMBLY

- D- Remove glue residue and labels from all rollers and idler
- M- Check and tighten all fasteners.

ASSEMBLY TITLE: UNWIND ASSEMBLY

- W- Check and adjust dancer spring if final spring tension is too soft. Replace
- W- Check and inspect band brake. Replace if torn

ASSEMBLY TITLE: REWIND ASSEMBLY

- W- Check and inspect friction disc, Replace when worn out. (A-DRIVE only)
- W- Check kinetrol for leaks, Replace if necessary. (B-DRIVE only)

ASSEMBLY TITLE: BRAKE BRUSH ASSEMBLY

- W- Reverse brake brush direction.
- M- Inspect Brake brush when brush body contour no longer viable or bristles are worn down. Replace

ASSEMBLY TITLE: SLOT SENSOR ASSEMBLY

- D- Keep the sensor optical area clean from label and glue residue

ASSEMBLY TITLE: SIDE PLATE ASSEMBLY

- S- Check and inspect and grease all rollers and idler.

ASSEMBLY TITLE: PEEL PLATE ASSEMBLY

- D- Clean all the parts that may acquire labels or glue residue.
- W- Inspect Teflon tap on peel plate tip
- S- Check and inspect and grease all rollers and idler.

ASSEMBLY TITLE: DRIVE AND PINCH ROLL ASSEMBLY

- D- Remove glue residue and labels from drive roller.
- W- Clean with soft brass brush knurled roll.
- W- Check and inspect drive roll, No play when powered up
- S- Replace springs and slugs.

ASSEMBLY TITLE: ROLLER/BRUSH IMPRESSER

- D- Check the rollers/brushes free of label flash, glue and debris. This will prevent jamming and web tears.
- W- Check the foam rollers. If foam wear is noticeable, replace as necessary.

NOTE: Exercise caution when removing bad labels from foam. Careless removal can result in torn foam which may leave the labeler inoperable until the roller is replaced!

ASSEMBLY TITLE: OPERATOR PANEL

- No maintenance is required for the operator panel
- Occasionally, the keypad may be cleaned with any non-solvent based cleaning solution.

ASSEMBLY TITLE: ELECTRICAL

- W- Check the foam for fan clean or replace.

ASSEMBLY TITLE: ROLLER/BRUSH IMPRESSER

- D-** Check the rollers/brushes free of label flash, glue and debris. This will prevent jamming and web tears.
- W-** Check the foam rollers. If foam wear is noticeable, replace as necessary.

NOTE: Exercise caution when removing bad labels from foam. Careless removal can result in torn foam which may leave the labeler inoperable until the roller is replaced!

ASSEMBLY TITLE: TAMP PAD ASSEMBLY

- D** – Check the tamp pad for label flash, glue residue and debris on tamp pad. If found clean tamp pad with adhesive remover and/or cleaner
- D** – (**RFID REJECT PADDLE ONLY**) – Remove rejected labels from reject paddle at least 1 time per shift and/or as needed. **No more than 5-6 labels are to be on reject paddle at any time. Once 5-6 labels are on reject paddle they should be removed to ensure proper operation**
- W** – Lightly run scotch bright across pad to ensure it is lightly scuffed. A shiny pad could cause label to stick to the pad as it is dispensing
- W** – Check for air leaks around tamp pad block and pad. Reseal as necessary with RTV silicon sealant.
- W** – Inspect all pneumatic components for wear.
- W** – Lubricate Pneumatic cylinder slide rods

ASSEMBLY TITLE: OPERATOR PANEL

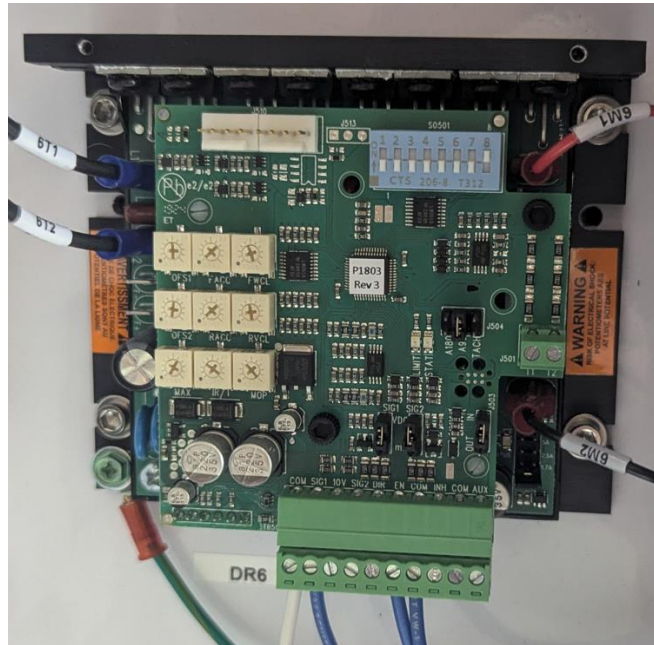
- No maintenance is required for the operator panel
- Occasionally, the keypad may be cleaned with any non-solvent based cleaning solution.

ASSEMBLY TITLE: ELECTRICAL

- W-** Check the foam for fan clean or replace.

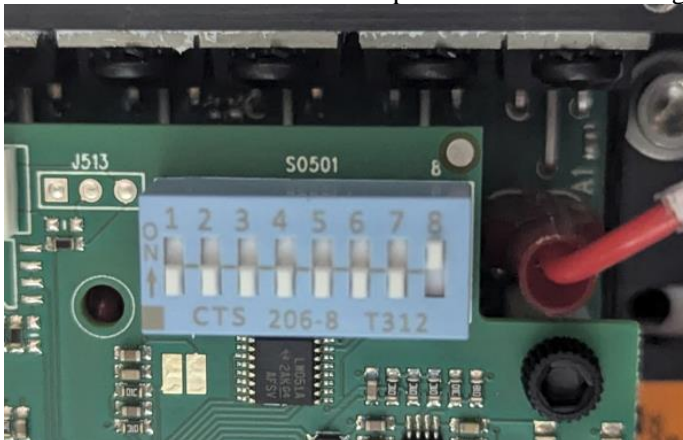
NOTES:

Setup procedure for Powered rewind using MGC403-11-00MD drive

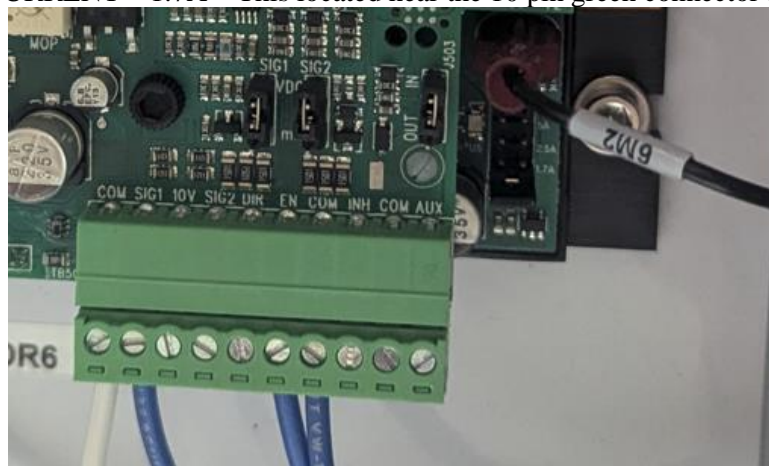


Upon receiving drive set the following **BEFORE** installing in the machine.

1. Dip switches - set all switches to the off position. This is the Light blue row of switches shown in the image below

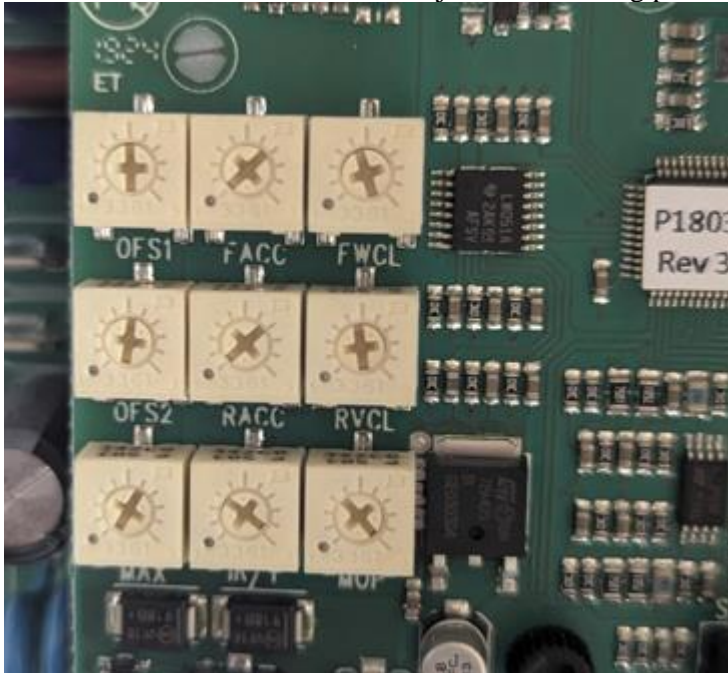


- a.
2. Set Jumpers on drive based on electrical schematic for your machine
 - a. SIG1 – VDC
 - b. SIG2 – VDC
 - c. J504 – A90
 - d. AMP CURRENT – 1.7A – This located near the 10 pin green connector that



i.

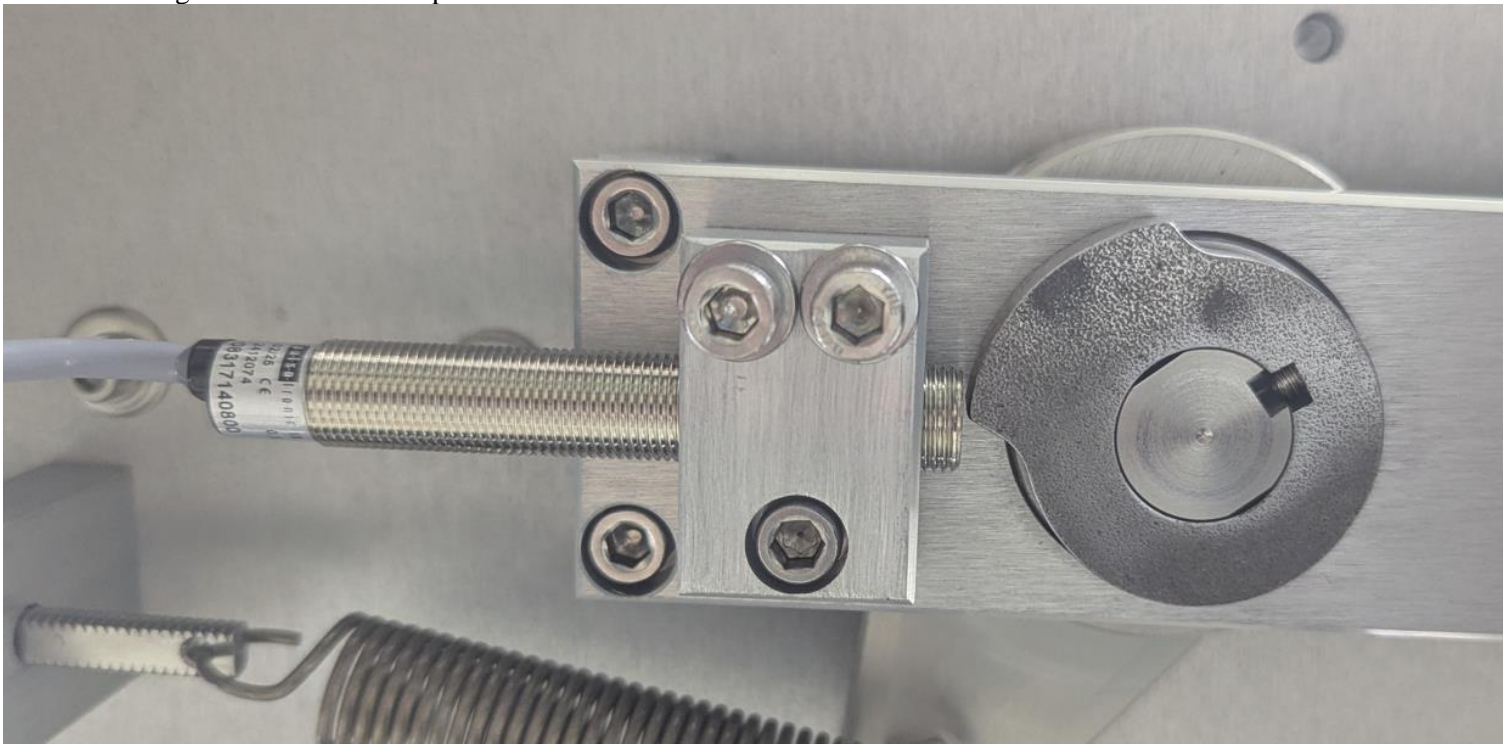
3. Using a small flat blade / Slot screwdriver adjust the following pots as indicated in the image below:



- a.
- i. Top row **OFS1** – WILL BE ADJUSTED AT LATER STEP
 - ii. Top row – **FACC** - turn counter clockwise until it stops.
 - iii. Top row **FWCL** – set to half way point – midpoint
 - iv. Middle row - **OFS2** – turn counter clockwise until it stops. This turns the pot OFF
 - v. Middle row – **RACC** - turn counter clockwise until it stops
 - vi. Middle row – **RVCL** – set to half way point – midpoint
 - vii. Bottom row – **MAX** – Set to 3/4 point
 - viii. Bottom row – **Leave other 2 pots at factory setting – DO NOT ADJUST**

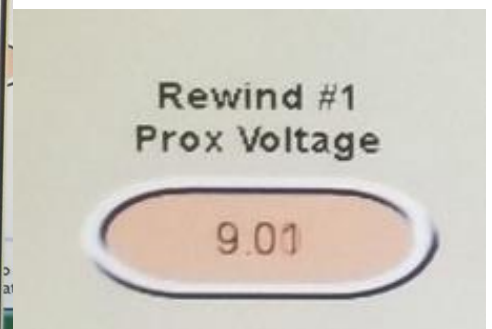
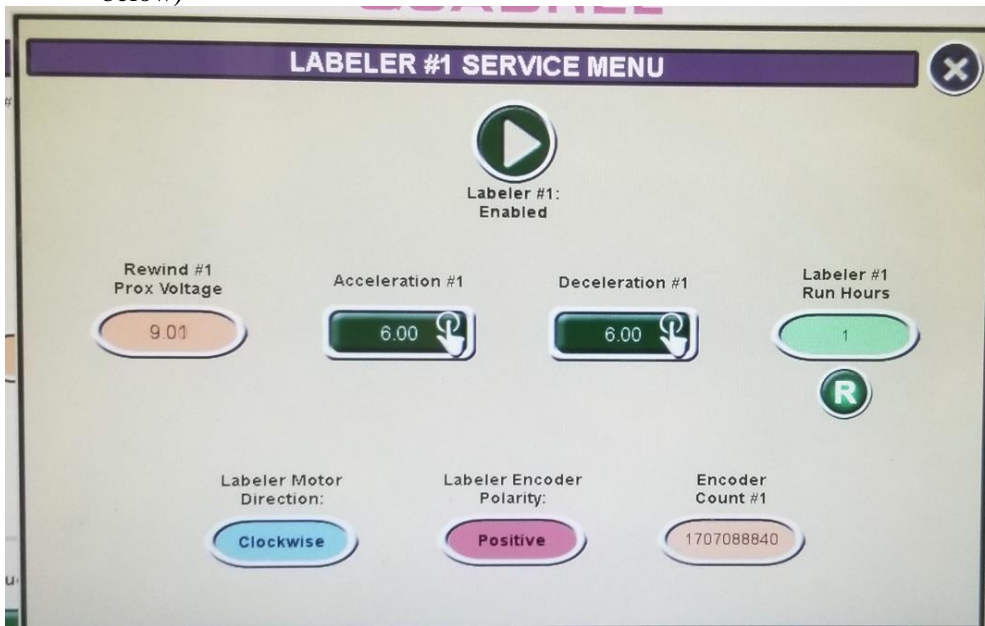
4. Install drive in machine then proceed to next steps

5. Set the Cam on the rewind dancer per image below when the dancer arm is at rest. Rest is when the arm is all the way back against the rubber bumper as shown

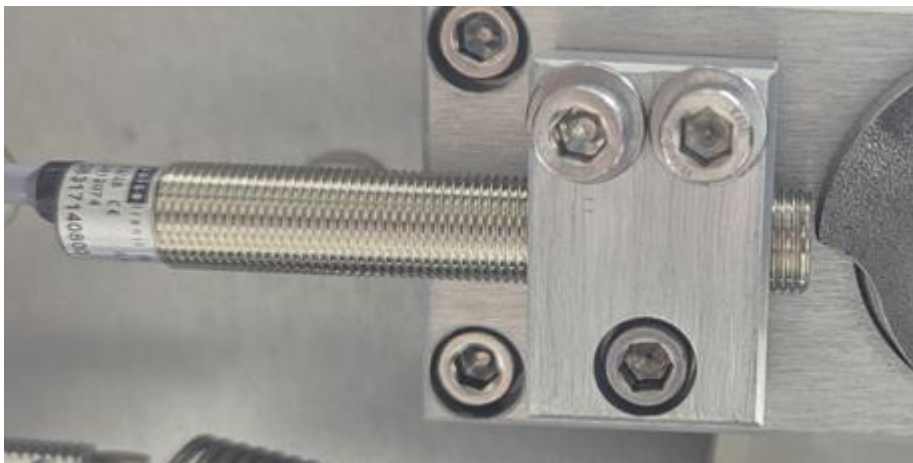




6. On the HMI go to into labeling head service menu. You will be looking at the REWIND PROX VOLTAGE (example below)



7. Adjust the sensor gap at the cam by loosening the bolt using an allen key so that the sensor can be moved forward or backward. The bolt does NOT touch the sensor. Loosening it opens the clamp so you can adjust.
8. Set the gap so the REWIND PROX VOLTAGE on the HMI reads **.90 it must be under 1 volt.**
 - a. **Retighten screw so the clamp sensor no longer moves**



b.

9. Test by moving the rewind dancer arm forward. When doing this you should see the rewind prox voltage on the HMI increase up to 9 volts

a. If you do not see the voltage increase steadily, recheck cam sensor gap in step 7

10. Turn on rewind switch on the back of the labeler. This will engage / turn on the motor.
11. Move the rewind dancer arm forward the rewind hub should start to turn clockwise. It will slow then stop as you move forward. Rewind hub should ALWAYS be turning clockwise. If it moves counter clockwise move to **step 11a**
 - a. While holding the arm in the position where it started to run counter clockwise, it MUST be running counter clockwise, you will adjust **OFS1** until the rewind hub stops moving.



i.

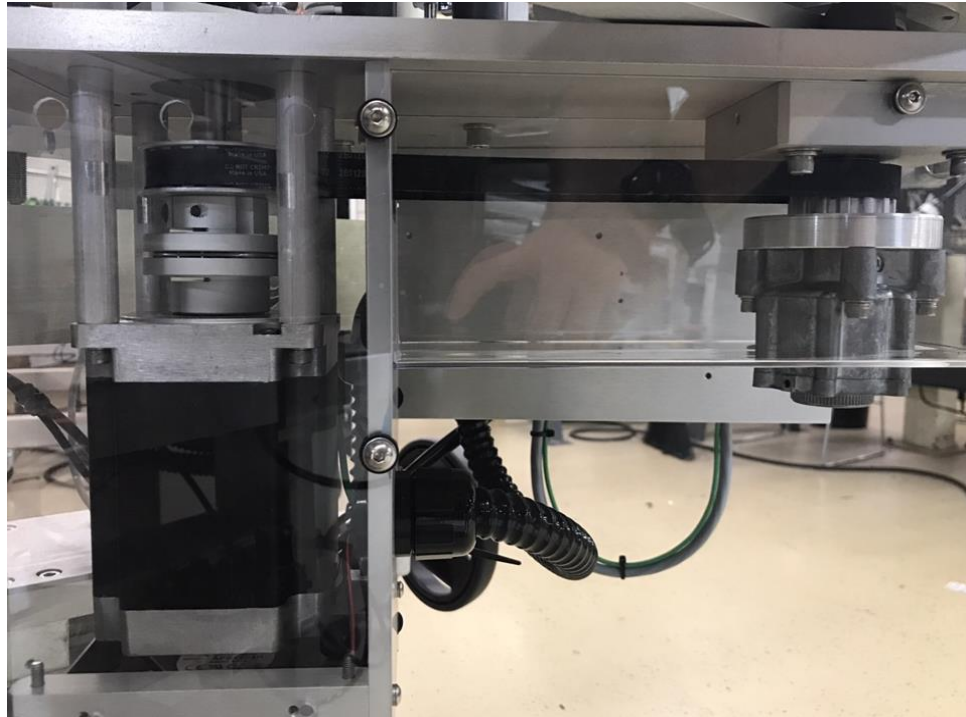
- b. This adjustment may need to be done multiple times until it no longer moves counter clockwise when rewind arm is all the forward and at rest.

9.2 BELTS

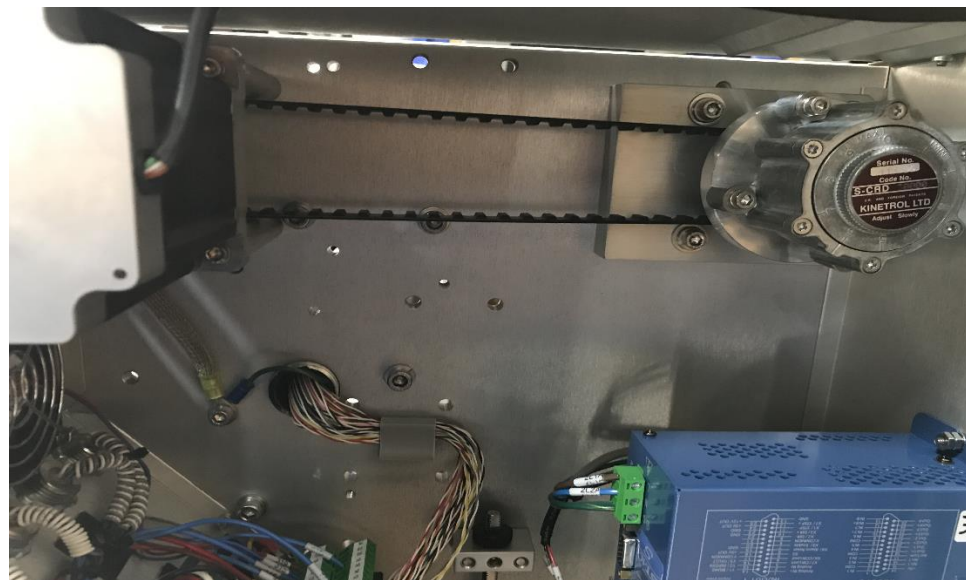
Monthly, a visual inspection of the rewind belt and timing belt, to do this depending on the labeling head you may need to remove the bottom cover on the head.

Refer to photos below.

Servo labeling head.



Stepping labeling head.



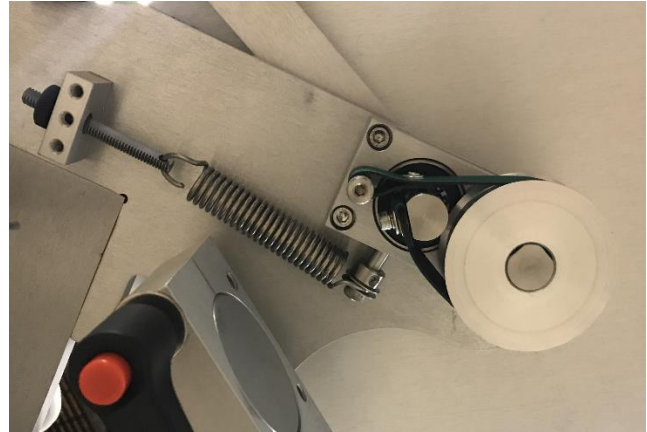
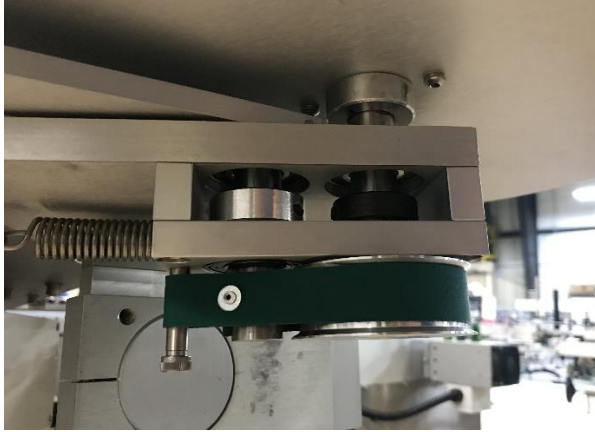
CAUTION

DO NOT ATTEMPT doing this with the equipment under tension (with power on).

The visual inspection should consist of looking for cracks or defects in the belts. If this is the case, change the belts that are defective. Refer to the parts listing in the labeling head section of this manual.

The brake band mechanism requires a monthly visual inspection as well. Also once every 12 months you should consider replacing the belt (it is possible that you may need to change it later or earlier than 12 months depending the usage of the labeling head).

The brake band belt assembly is located at the base of the unwind assembly. See images below for reference.

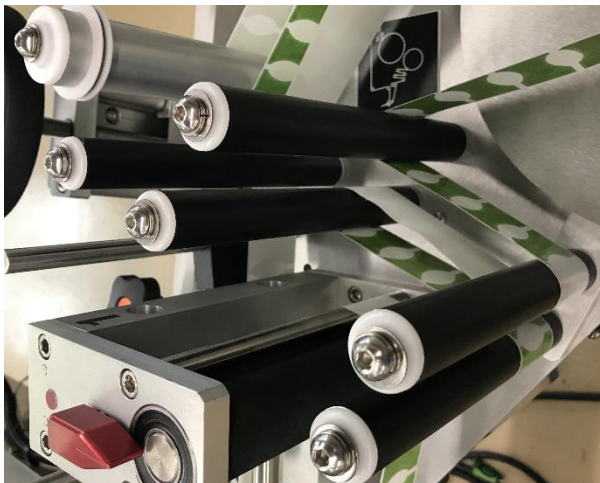


For replacement parts see the unwind assembly drawing for your labeling head in this manual.

9.3 ROLLERS

It is important that your labeler is as clean as possible in its environment in order for it to perform properly. Daily, it is suggested to clean all the rollers including the drive roller (the rubber roller), the pressure shoe and peel plate using a damp cloth with alcohol. Make sure those parts have no glue or labels on it.

Weekly, spray a silicone base lubricant on each end of the plastic bearing.



9.4 SENSORS

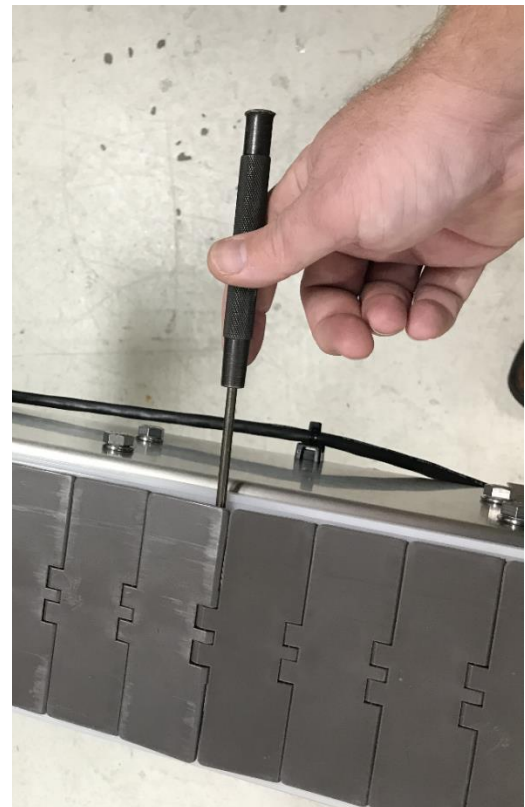
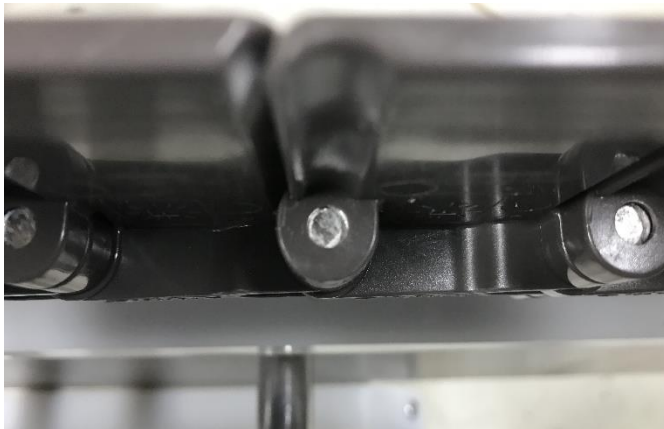
The sensors all have an electronic eye called a photocell; these must be free of lint or dirt. Since the photocells are generally made with glass or plastic lenses. They naturally attract substances which could easily trigger the sensor, use a cotton swap to gently clean the eye of the sensor as you would any lens, in a circular motion.

9.5 CONVEYOR

Always keep the belt or (chain) clean. To clean it simply use compressed air with an osha approved nozzle and/or damp wipes. If necessary, a soft cleaning agent can be used.

9.5.1 CLEANING

To clean the under carriage portion of the conveyor, simply remove the belt using an punch or similar tool and hammer to tap out the retaining belt link pin. (see images below, the chain has an orientation to the pins, you must tap it out from the narrow diameter) Clean the desired portion with a damp cloth and replace the pin to the belt. The pin will be tapped in the opposite side you tapped it out. *You can also lift the chain and wipe under it.



10 CLEARING A JAM

In the event a jam occurs on your Quadrel Labeler reference the following steps to clear.

1. Press the conveyor stop button or the emergency stop if you are unable to reach the stop button.
2. Clear the jam manually in the affected area of the equipment where jam is located
3. Once jam is cleared reenergize the estop, if pressed, and press the reset button (where applicable) to clear faults.
4. Put equipment back into "run" and press start to turn the system back online to continue labeling

11 WARRANTY

The standard warranty period for Quadrel equipment is 12 months following invoicing. The warranty covers all parts with consideration taken towards reasonable use and normal wear and tear. Not covered by warranty are parts that have a limited wear factor, any required labor by Quadrel. Prior to return to Quadrel, parts must be verified defective.

Return of defective parts

To return a defective part, you will need to get an RMA number from Quadrel. All RMA's are issued through our parts department. Please specify the serial number of the equipment, the client's name, address, phone number, contact name and the nature of the problem. To get a replacement part, a purchase order is required. You will be billed for the new part and credited for the defective part after return and evaluation. If the part is determined to be defective due to improper use, no credit will be issued.

Appropriate Use of Equipment

The equipment supplied to the end user by Quadrel are to be used for the sole purpose for which they were intended and must follow Quadrel's specifications on usage as well as appropriate functions. Quadrel will not assume any responsibility for any inappropriate use or modifications to the said equipment other than for the use it was initially built for.

The warranty will cease to apply forthwith, in Quadrel's opinion, the equipment has been used abnormally or in an abusive manner, if it has not been properly maintained, if it has not been carried on a truck equipped with an air-ride suspension when required by Quadrel or if it has been used, or maintained contrary to the owners manual provided by Quadrel.

Responsibility Limits

The solution put forth has been prepared with the information that has been provided to Quadrel by the end user. Subsequently, Quadrel cannot assume any responsibility for the exactitude, precision, and the validity of the information which was supplied. Moreover, Quadrel cannot be responsible for (a) any damages, direct or indirect, secondary, or

accessory, including without limitations, the loss of profit, workflow interruption, loss of production, loss of profits and other; (b) any and all damages claimed against the end user by a third party; (c) any or all damages caused to the property of end user or any other third party; (d) any or all resulting in an act from the end user or third party, major force, or act of god, unforeseen cause, or event.

With all reservation, in the eventuality where the responsibility is that of Quadrel relative to any defect of quality of said equipment or proposed solution Quadrel would be able to accept the responsibility, to its entire discretion, with the replacement of part of the said equipment or solution. By a compatible or identical equipment or solution or by a reimbursement of value agreed upon. In no case can Quadrel's responsibility exceed the total monetary sums received for the said defective equipment or solution.