QUADREL
LABELING SYSTEMS

Operating & Maintenance
Manual
For

MAGIC SCIENCE SUPPLY LLC

SL200 SLEEVER
Automatic Labeling System

Labeler Model #: SL200 SLEEVER
Serial #: 84235-100

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 TERMAND CONDITIONS INCOSISTANT 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 REEQUIRMENTS. 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.

LIMITIATION 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 PURCHSER 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 PURCHSER'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 aft h 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.

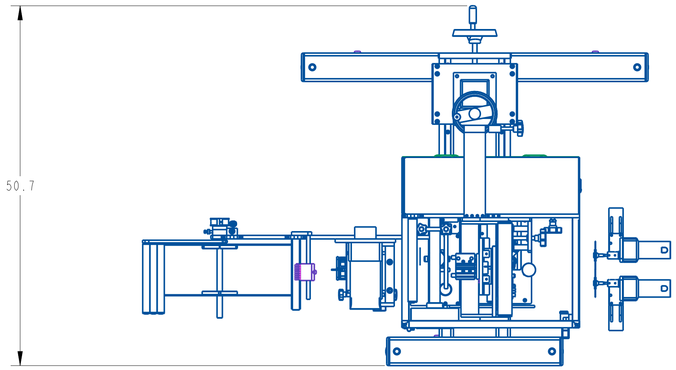
Any order put on hold or left dormant for any reason for 90 days will be considered cancelled. See Cancellation Policy below.

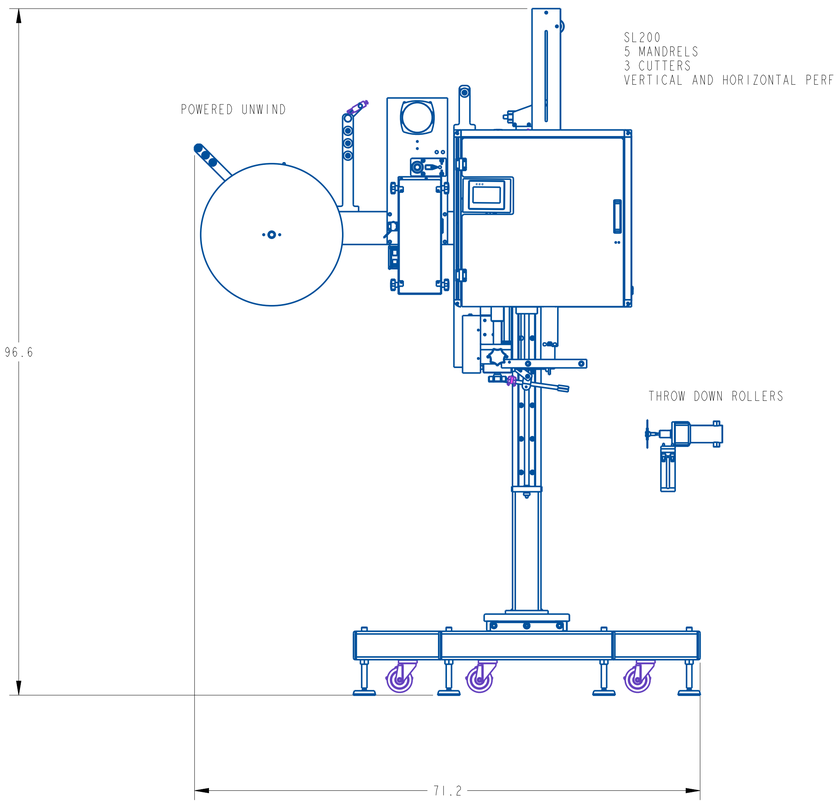
CANCELLATION POLICY:

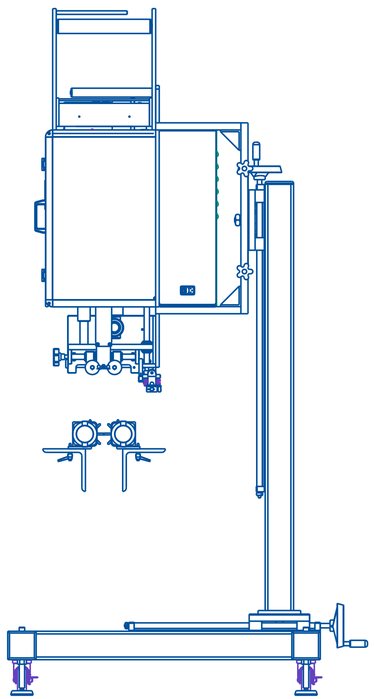
In the event of order cancellation, the 50% down payment is non-refundable. Customer may also be responsible for additional charges covering engineering resources expended and committed materials depending upon the custom nature of the project and the point in the order process in which the cancellation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

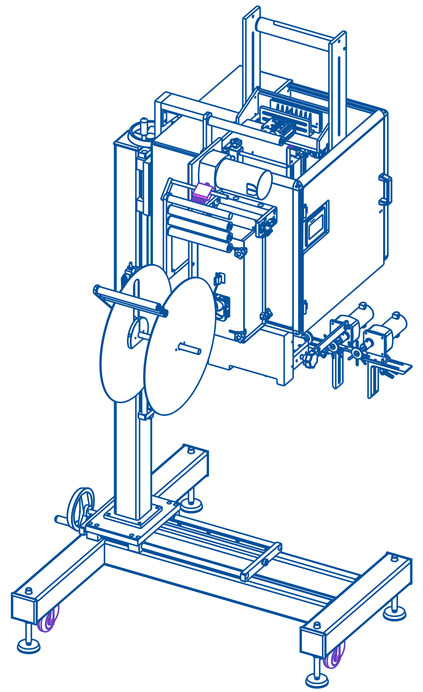
NOTE. No salesman, representative or agent of Quadrel is authorized to give a guarantee, warranty or make any representation contrary to above.

Please sign and acknowledge acceptance to these terms and conditions_____Date_____









SHEET 1 OF 1

REV	DATE	DESCRIPTION	BY
A	Oct-27-25	NEW DRAWING	TAZ

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
ALL ANGLES ARE 90°

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

SCALE:	3/32
DATE:	Oct-27-25
DRW BY:	TAZ
CHK BY:	
APPR BY:	

SL200 SLEEVE APPLICATION SYSTEM

MAT'L MAGIC SCIENCE SUPPLY LLC
APPROVAL DRAWING

84235-100

TABLE OF CONTENTS

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.

C. Wepl

Chuck Wepler
General Manager / President

Approved by: Jim Brazee
Issue Date: 1/1/2018

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.

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: ___120___ Volts, _SINGLE (1)_Phase, __60__Hz, __15__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.

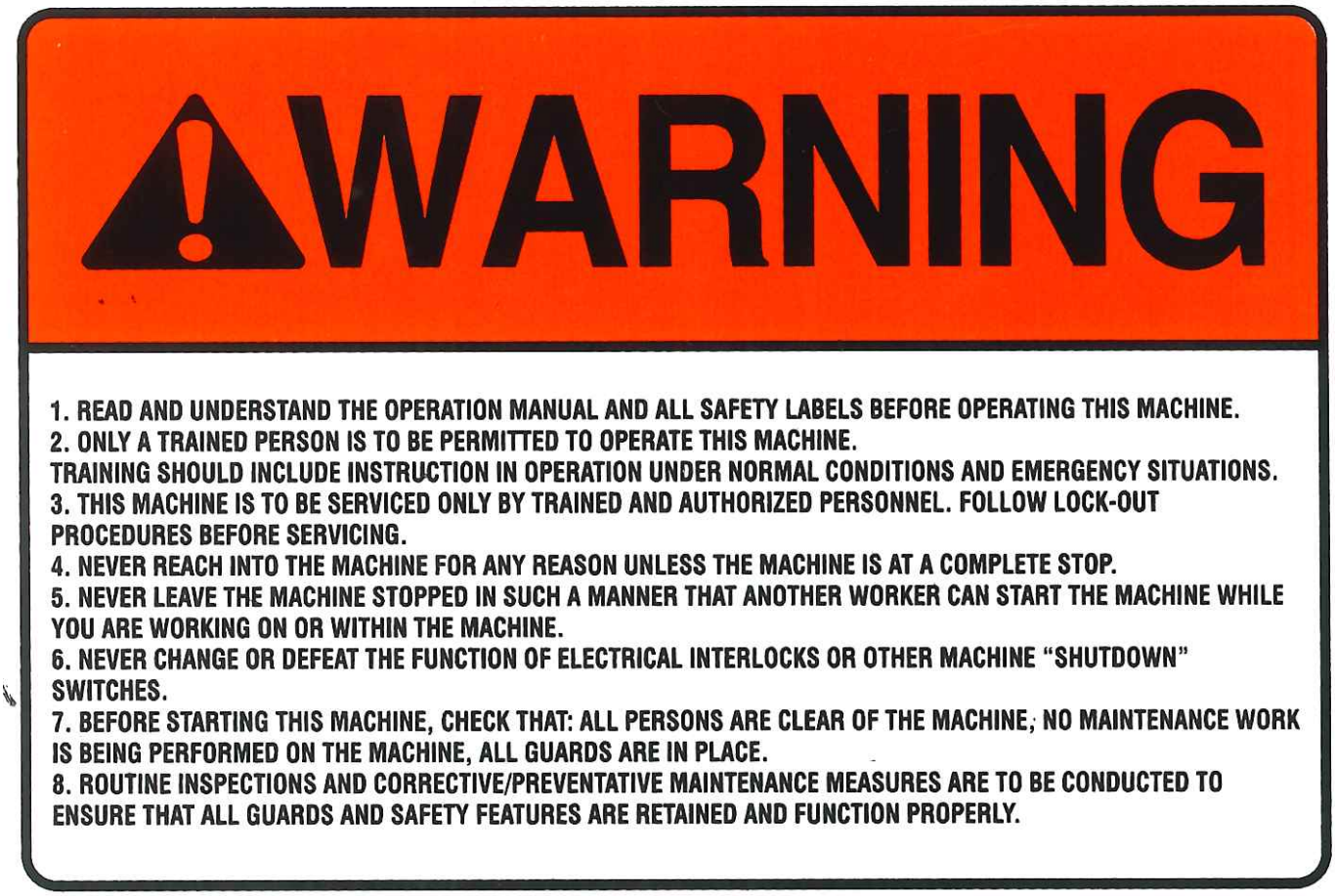
- Do not stand, sit, or allow any personnel to be within reach of the tamp cylinder/ swing arm activation (if so equip).
- Report any malfunctions, or problems with the equipment to qualified maintenance personnel for repair or adjustments that may be required.
- Keep hands clear of moving parts. Do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



Using VFDs On GFCI Devices

By Bill Szatkiewicz, Senior Software Engineer
KB Electronics
for more information, email: info@kbelectronics.net
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.

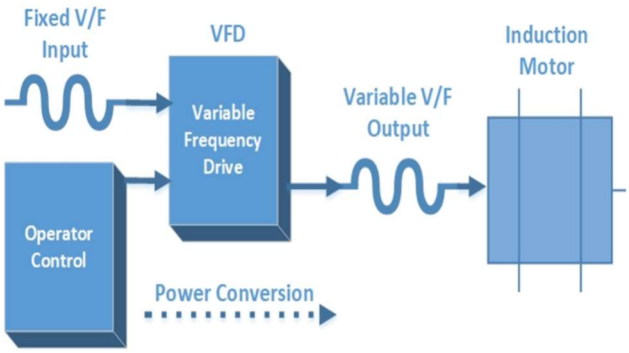


Figure-1: Typical VFD System

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).

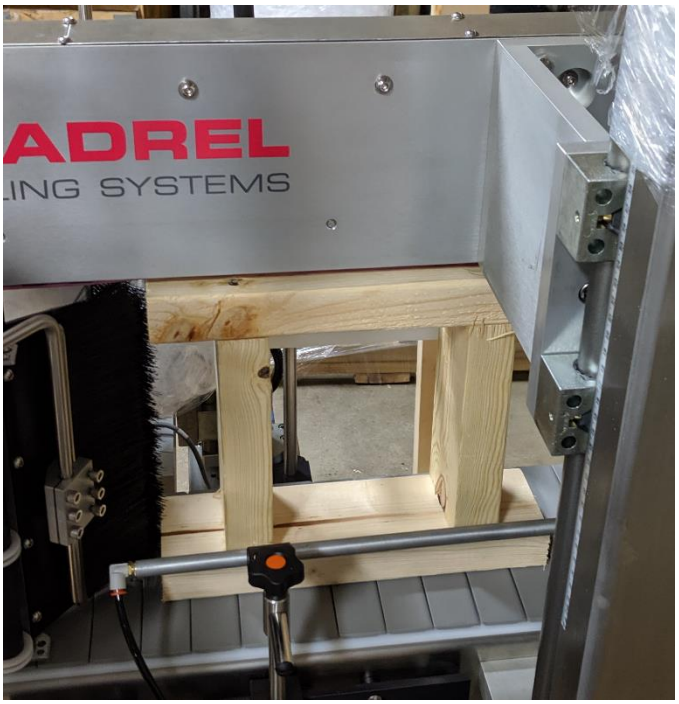
Let's get started…

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.



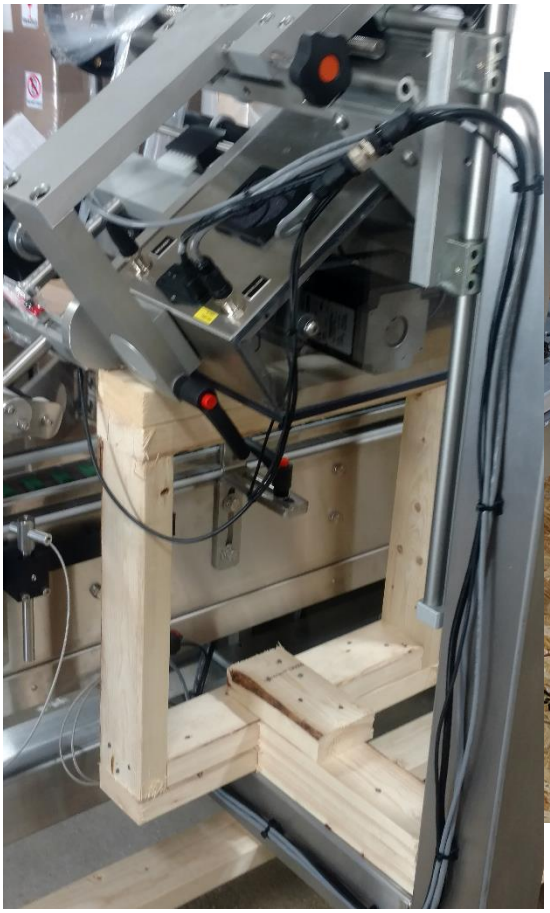
Most assemblies supported have a tool-less vertical adjustment using a knob or hand wheel.

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

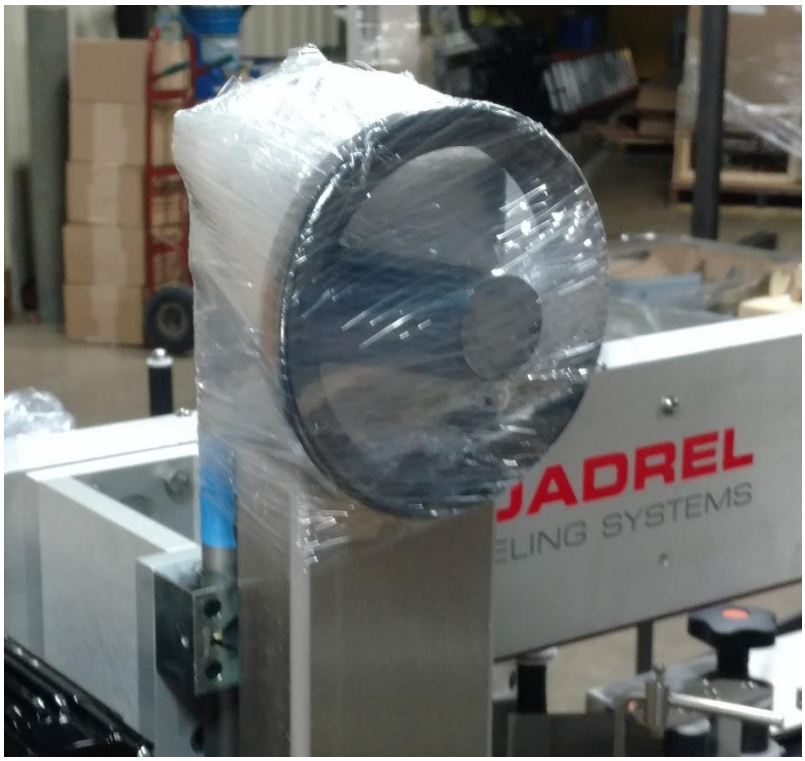
Remove the hand wheel from the wrap, then fasten the hand wheel to the square end on the lead screw using a 3/32 “L” handle Allen wrench.

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)



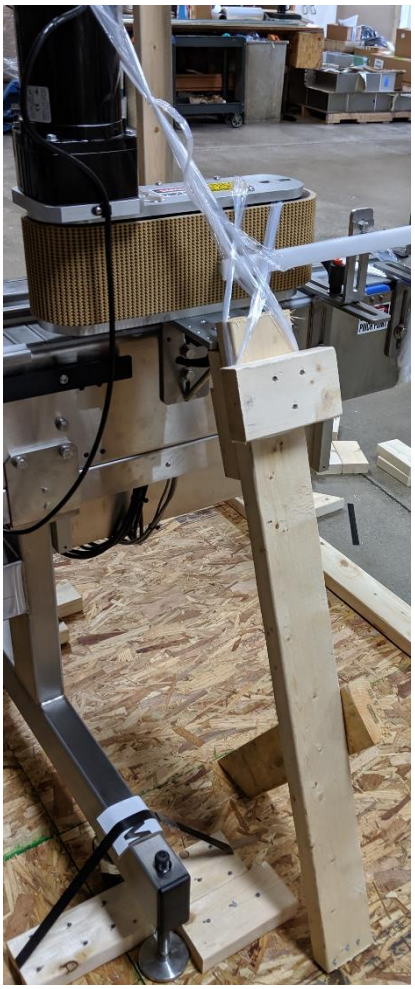
All top and bottom labeling heads will be supported



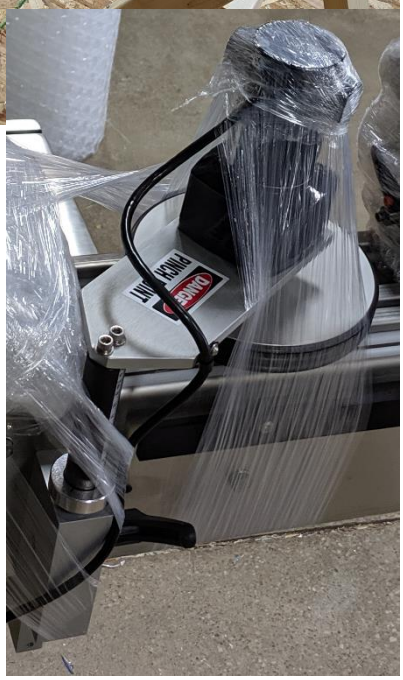
similar to the image shown on the left.

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

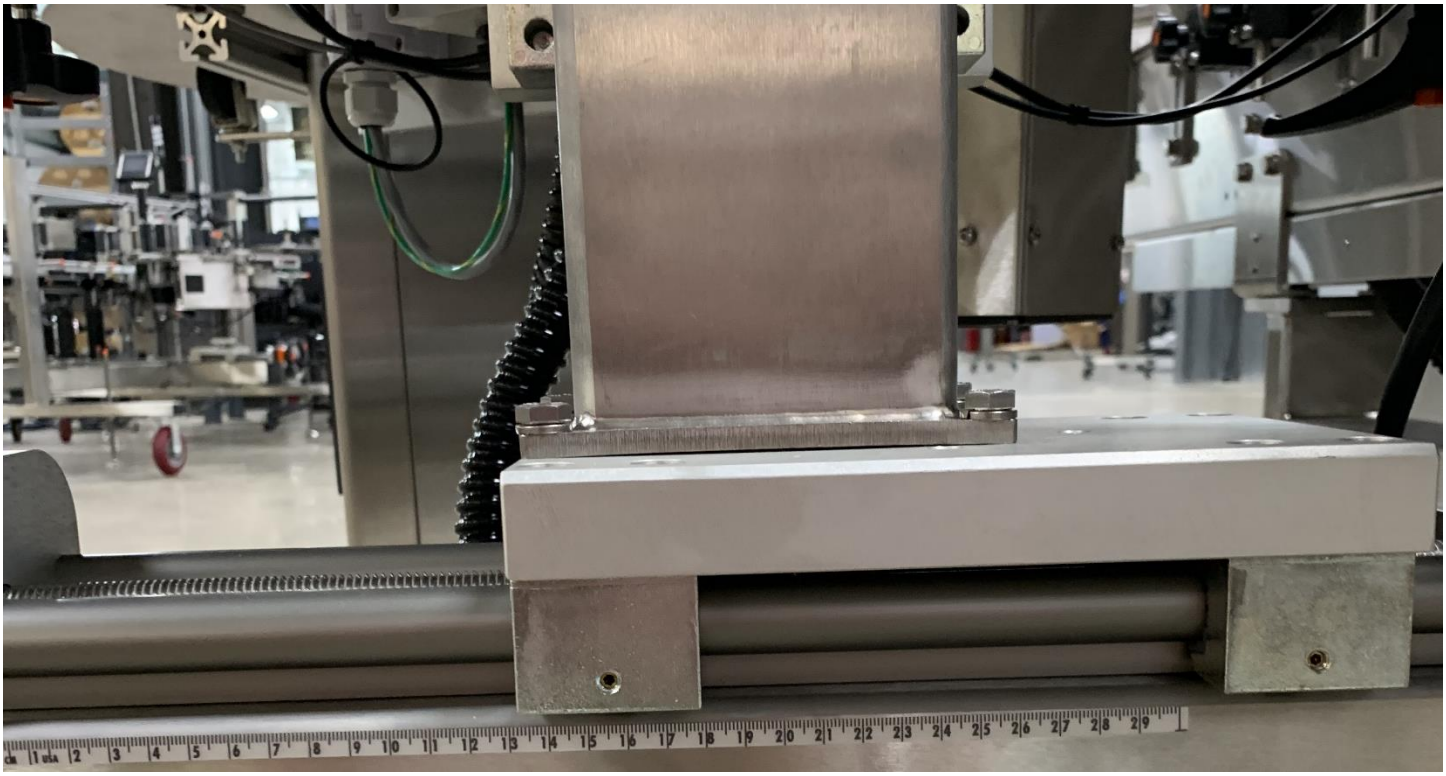
Pacing belt assembly supports can be removed will be without raising the assembly.



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.

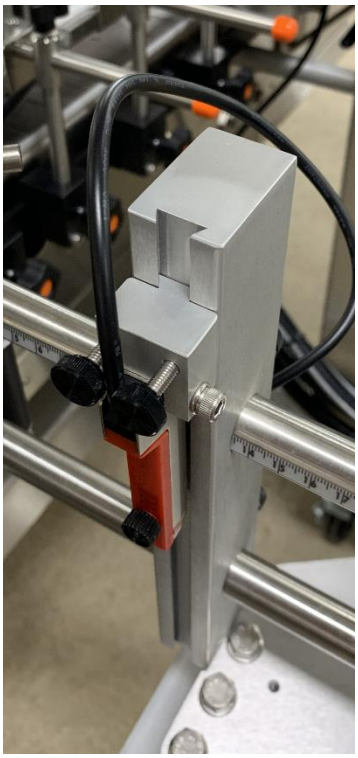
If you have the peel plate rods removed with the peel plate assembly and the label detect assembly (as shown below).

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.

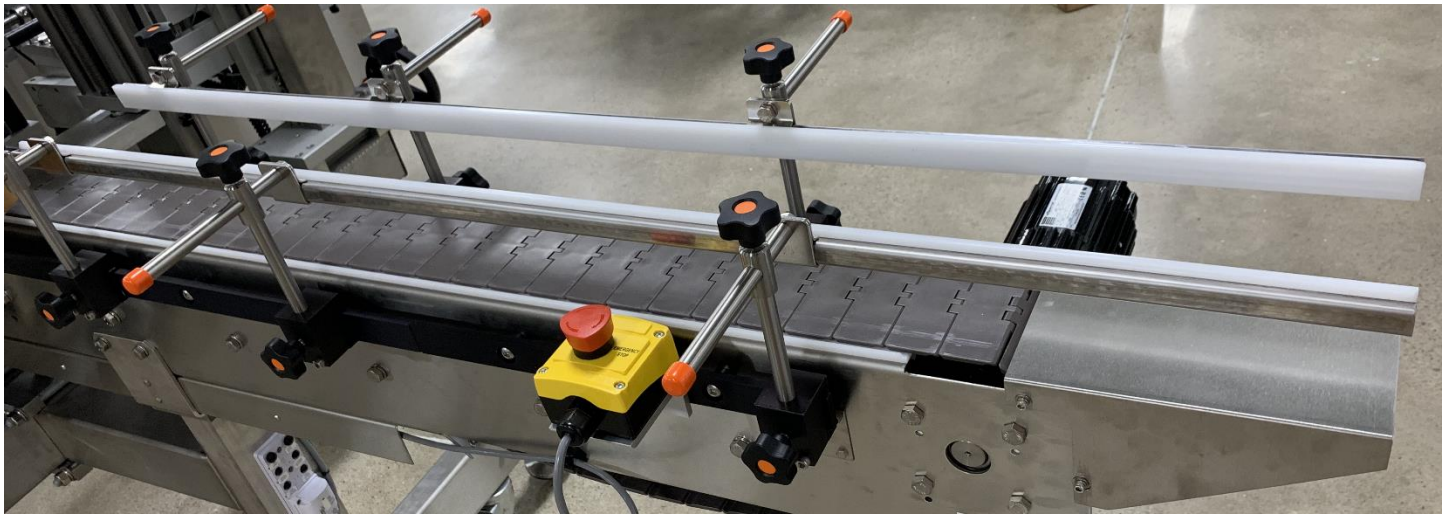
All assemblies removed will be bubble wrapped then plastic wrapped to the machine or in box on the pallet the machine is on.

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 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.

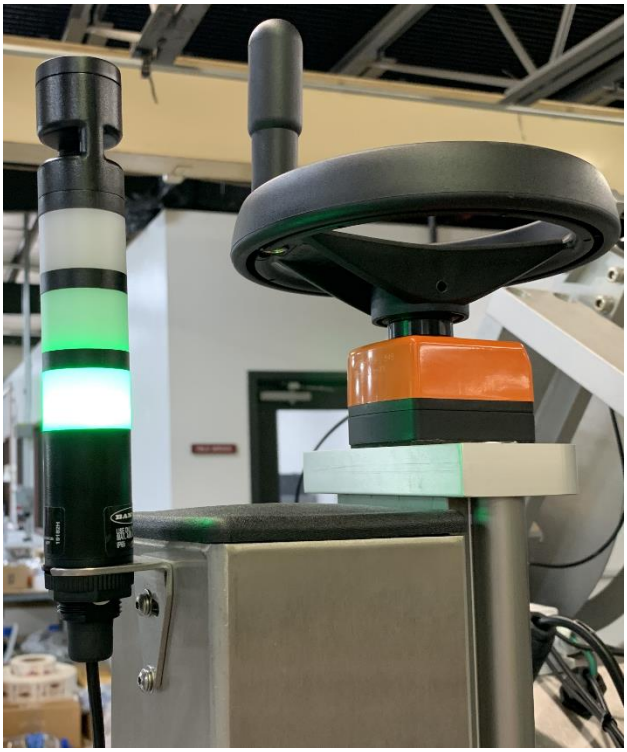
-3/32 L handle Allen wrench

-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.

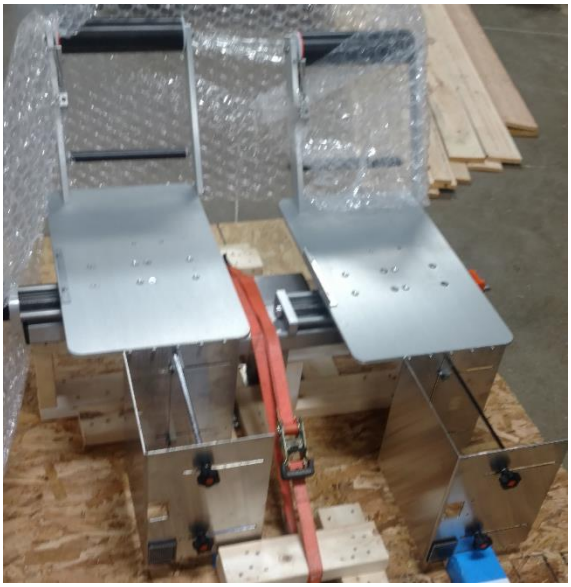
If HMI is located remotely off the enclosure it will still be supported during shipping.

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.

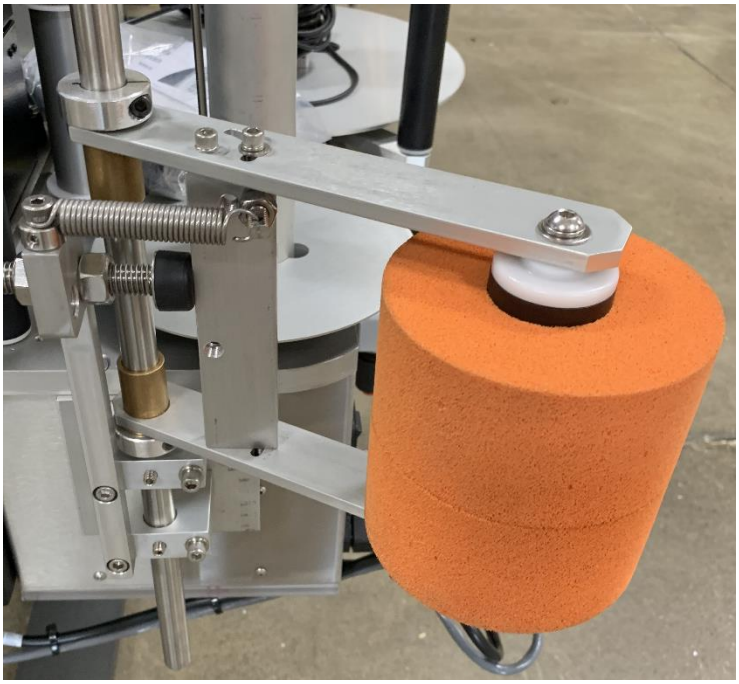
Table top printers with printer tables will ship in separate boxes or pallets (as shown to the left) the printer will be disconnected and placed in the manufacturer's box. The table will either get banded to the pallet with the machine or a separate pallet tethered to the machine pallet. Printer tables 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.

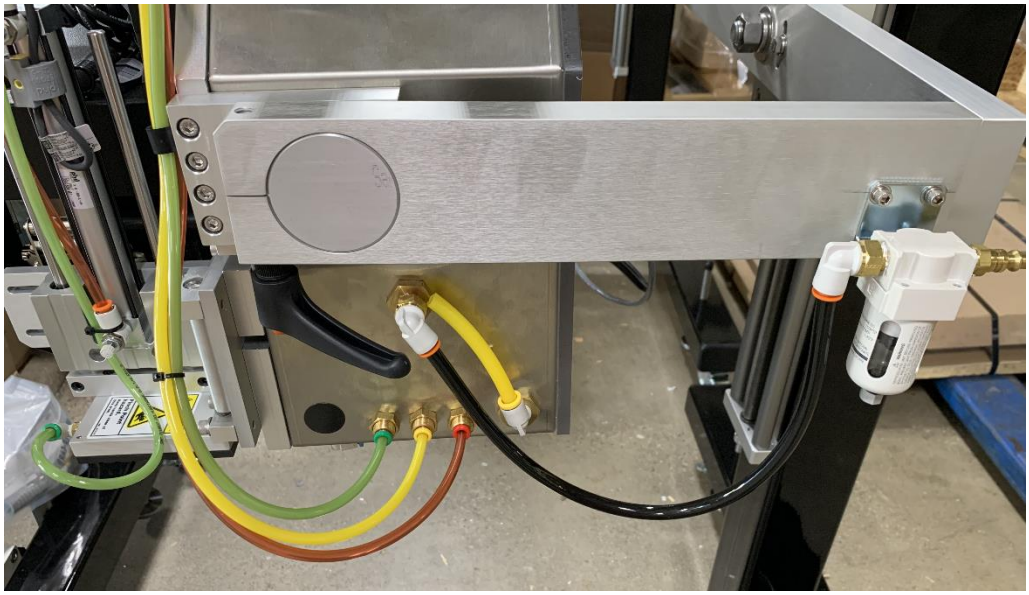


The corner wrap modules will be removed for shipping purposes. They will be wrapped in bubble wrap, plastic wrap, and placed into the box with the labeler.

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.

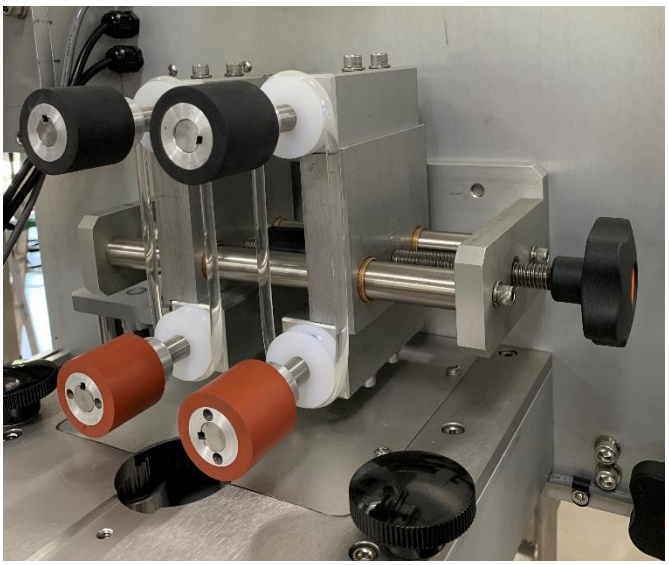
Carefully remove the banding and wrapping.

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 sleever 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 places 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.

HMI GUIDE

Operator Interface Guide

Shrink Sleeve Applicator System

For 22565_v003 files.

Delta 4” touch screen with Keyence Nano 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.

Opening Splash Screen

Upon initial power up, the terminal will initialize and display a splash screen. The PLC will start executing logic once this screen appears. Touch the screen to continue to the main screen.

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 as indicators if the current user does not have proper access.

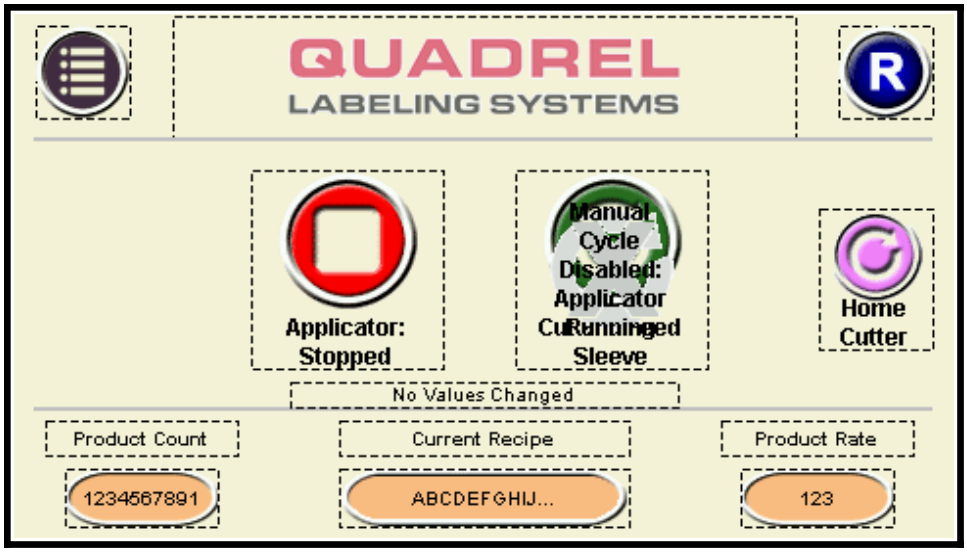
Indicators: Status and Mode/Toggle Indicators will be oval in shape and will change color based on states.

Numeric and Text Displays: Numbers or Text displays will be oval in shape and typically have a light orange background.

Numeric and Text Inputs: If a number or text can be entered, the button will be rectangular in shape with a white touch icon on the right side of the entry box.

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 Navigation Button:
This button in the top left will open up the System Menus page, which will contain the buttons to all of the system sub-screens.

Fault/Message window:
Displays current alarms and status messages about the status of the labeling system.
Pressing a reset button on the touch screen or optional physical button on the machine will clear these messages if the fault was remedied. When no faults or messages are active, the fault dialog box will be hidden.

Fault Reset:
Pressing this blue button with white "R" will clear and reset any active faults on the machine.

Applicator Run/Stop:
The Sleever Applicator 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 sleever is currently running. The sleever will only feed sleeves onto products while running. If threading or changeover is needed, the sleever must be stopped.

Red "Stopped" Button: This indicates the sleever is currently stopped.. While stopped, the sleever will ignore products passing by and can be manually fed. To **run** the sleever, press this button.

Sleever Cycle:
When the sleever is stopped, the Cycle button becomes available. Pressing the Cycle button will initiate a feeding process where the sleever will cut and then feed material based on settings. It is important to manually cycle sleeves when changing over and setting up.

Green "Cycle" Button: This indicates the sleever can be jogged. Press this button to start a jog process. This button will be grey while the sleever is jogging.

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

Home Cutter: When the cutter needs to be homed, this button will appear. Pressing it will cause the cutter to move at a slow speed until it reaches the home sensor. This verifies the cutter is operational before cycling or running the sleever.

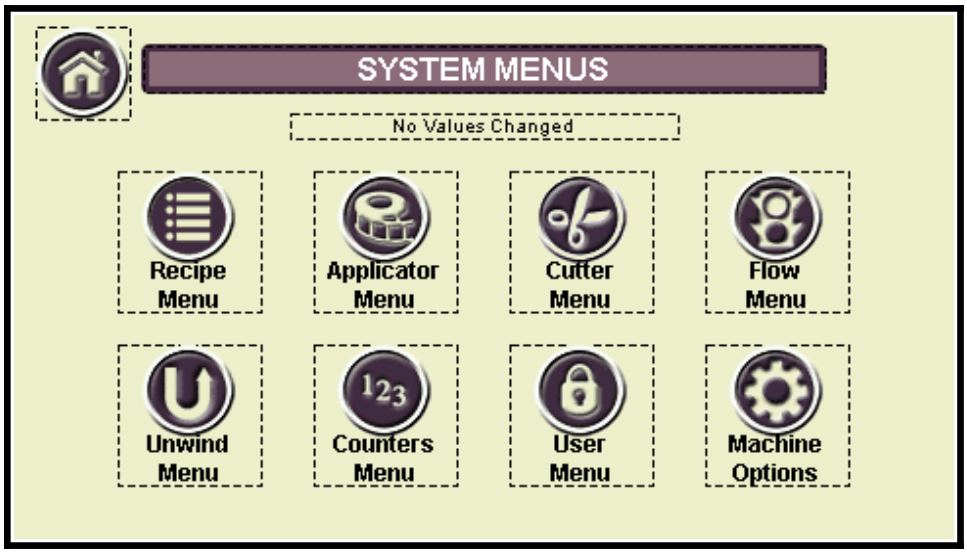
Product Count:
This indicator shows how many Products have passed the product detect sensor while the sleever is Running. This can be reset in the Counters Menu.

Current Recipe:
This indicator shows the description for the current recipe that is running.

Product Rate:
This indicator will show how many products are passing the product detect sensor every minute. It will average over a period of time and needs 5-10 products to begin averaging.

System Setup Menu:

The System Setup Menu contains shortcuts to the sub-menus that make up all components on the system. It also shows the status of some items and toggles.



Main Menu:
Press this to return to the Main Menu.

Recipe Menu:
The system can store 9 recipes. The Recipe Menu allows saving, copying, and changing the description.

Applicator Menu:
The Applicator Menu contains the parameters associated with applying sleeves onto products.

Cutter Menu:
The Cutter Menu contains the parameters and buttons associated with the cutting of material.

Flow Menu:
The Flow Menu has the timers and control for optional flow sensors and stop gate/pacing device.

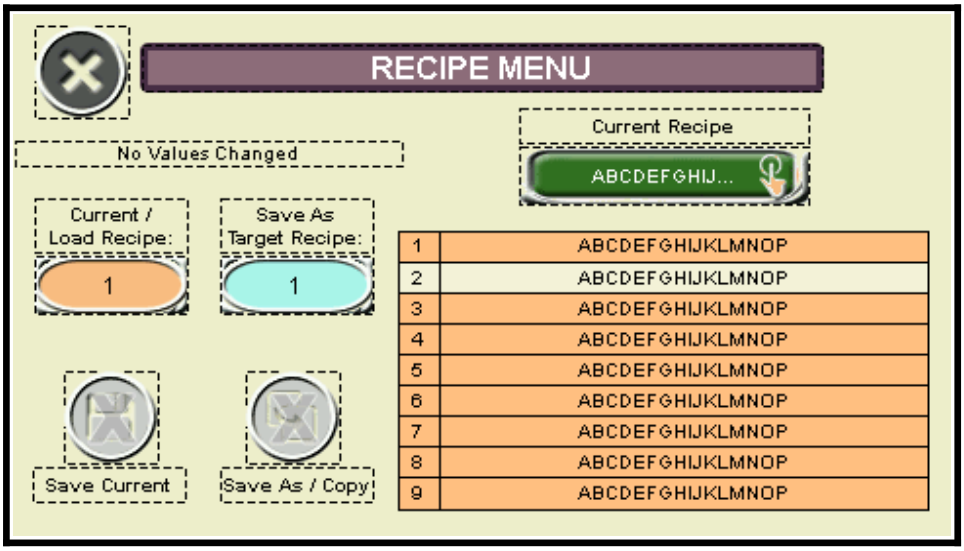
Unwind Menu:
The Unwind Menu will have the timers and controls for the optional attached powered unwind unit.

Counters Menu:
The Product and Label Counts can be viewed and reset in the Counters Menu.

User Menu:
The User Menu allows an operator to log in at different levels to change protected parameters and toggles.

Recipe Menu:

The Recipe Menu allows the user to change recipes, view all recipes by descriptions, save recipes, and save recipes as new.



Recipe:
Recipes are presets that contain parameters unique to each product. Setting Recipes for different products expedites changeover times. A total of 9 recipes can be stored and descriptions can be changed by pressing the bottom description box when logged in at a Supervisor Level.
Recipes store the following information:
Description (displayed in the list on the center of the screen)
Toggles/Options: Encoder, Unwind, Pacing, Wipers, Perforator Output, Button Option
Applicator Parameters: Product Delay, Feed Length, Max Feed, Gap Offset

Loading:
Recipes can be loaded by entering a new Recipe number on the left side. Once entered, all stored toggles and parameters will be loaded to the system. If a new recipe is loaded it can trigger the save button to appear in the event the system loaded default/non-zero values to various toggles and parameters.

Saving:
Pressing the pink Save button in the bottom corner will save all current recipe parameters to the current Recipe number.

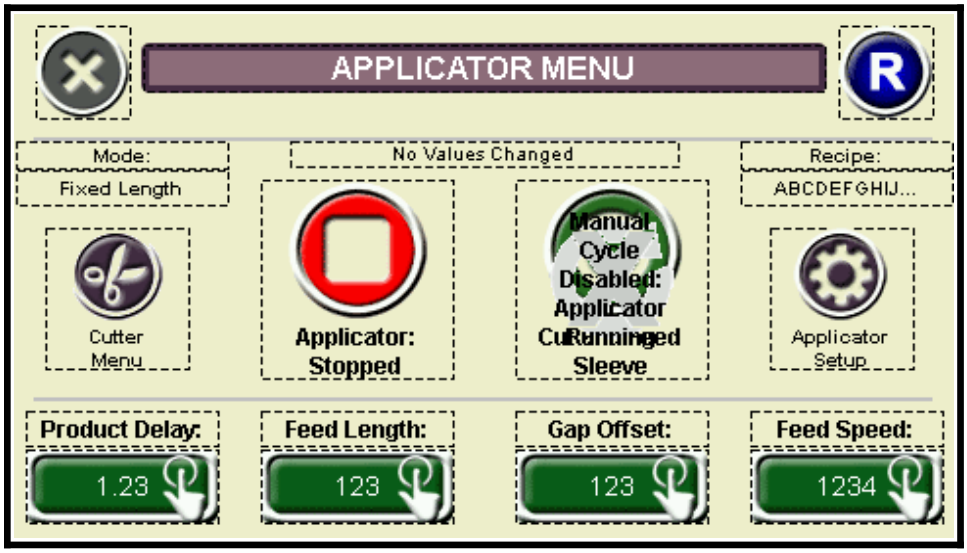
Save As Target Recipe (Supervisor Level):
This number can be used to create a copy of the current recipe when using the Save As button.

Save As / Copy (Supervisor Level):
Pressing the teal Save As button in the bottom left will save all current recipe parameters to the Save As Target Recipe number. Note that this button does not save the current values to the current recipe.

Change Description (Supervisor Level):
Pressing the Recipe Description at the top will bring up a keyboard that allows the user to enter a new description for the current recipe. The box will be green when the input is enabled.

Applicator Menu:

The Applicator Menu contains parameters related to dispensing sleeves on products.



Sleever Run/Stop:
The Sleever 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 sleever is currently running. The sleever will only feed sleeves onto products while running. If threading or changeover is needed, the sleever must be stopped.

Red "Stopped" Button: This indicates the sleever is currently stopped.. While stopped, the sleever will ignore products passing by and can be manually fed. To **run** the sleever, press this button.

Sleever Cycle:
When the sleever is stopped, the Cycle button becomes available. Pressing the Cycle button will initiate a feeding process where the sleever will cut and then feed material based on settings. It is important to manually cycle sleeves when changing over and setting up.

Green "Cycle" Button: This indicates the sleever can be jogged. Press this button to start a jog process. This button will be grey while the sleever is jogging.

Greyed out "Jog" Button: This indicates the sleever is currently running, and may not be manually cycled.

Product Delay:
The Product Delay is used to center the sleeve on the product in the left/right direction. A higher value in the Product Delay parameter will move the sleeve towards the infeed side of the conveyor.
If the Encoder is enabled this value is entered as inches.
If the Encoder is disabled this value is entered as seconds.

Feed Length:
The Feed Length (in mms) determines how much sleeve is fed when the Gap Detection is Disabled. This is usually equal or close to equal the length of the sleever's mandrel. This can only be altered while Gap Detection is Disabled.

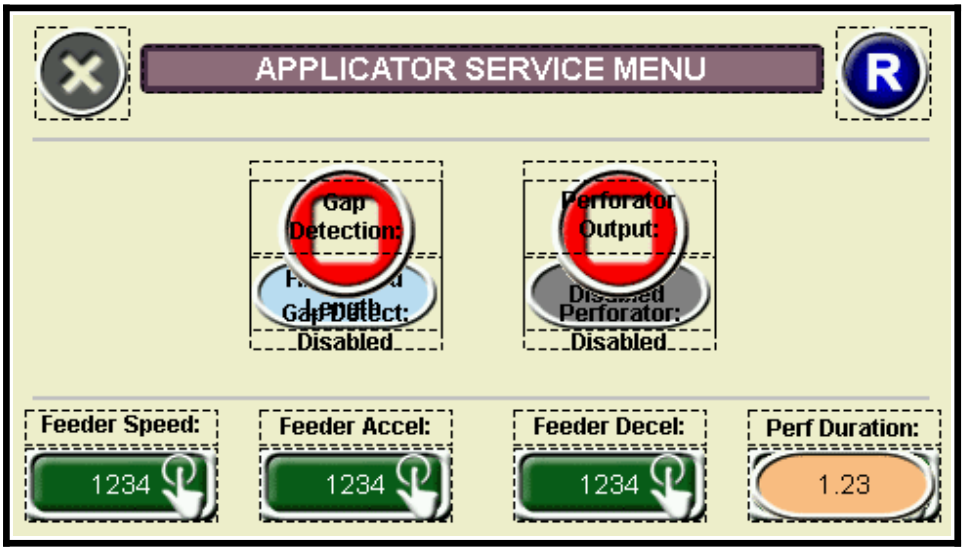
Max Feed Length:
The Max Length (in mms) determines how much sleeve can be fed when the Gap Detection is Enabled. This is used to prevent a runaway situation in the event a gap is not detected properly.

Gap Offset:
The Gap Offset (in mms) controls the sleeve's stop position when Gap Detection is Enabled. When feeding, the system will monitor the Gap Detect sensor. Once this sensor sees a gap in the sleeve, the system will continue feeding sleeve equal to this number. Adjust this number so the gap between artwork stops where the cutter blades are located.

Feed Speed:
The Feed Speed determines how fast the sleever will feed sleeve material and is entered as inches per minute. A speed that is too slow may result in missed products while a speed that is too high can result in slipping and inaccurate cut lengths.

Mode Display:
Fixed Length: The system will feed a set distance of sleeve material when requested.
Gap Mode: The system will feed and monitor a gap sensor to determine when to stop.

Applicator Service / Setup:



Gap Detection Mode (Supervisor Level):
The sleever can use a sensor to determine when to stop feeding or feed at a fixed length.

Green "Enabled" Button: The system will monitor a gap detect sensor to determine when the sleeve stops when feeding.

Red "Disabled" Button: The system will dispense sleeves at a fixed length.

Perforator Output Mode (Supervisor Level):
An output can be energized after every feed to be used by a perforator or other device.

Green "Enabled" Button: After the material comes to a stop, the system will energize an output for an amount of time determined by the Perforator Duration parameter.

Red "Disabled" Button: The output will not energize.

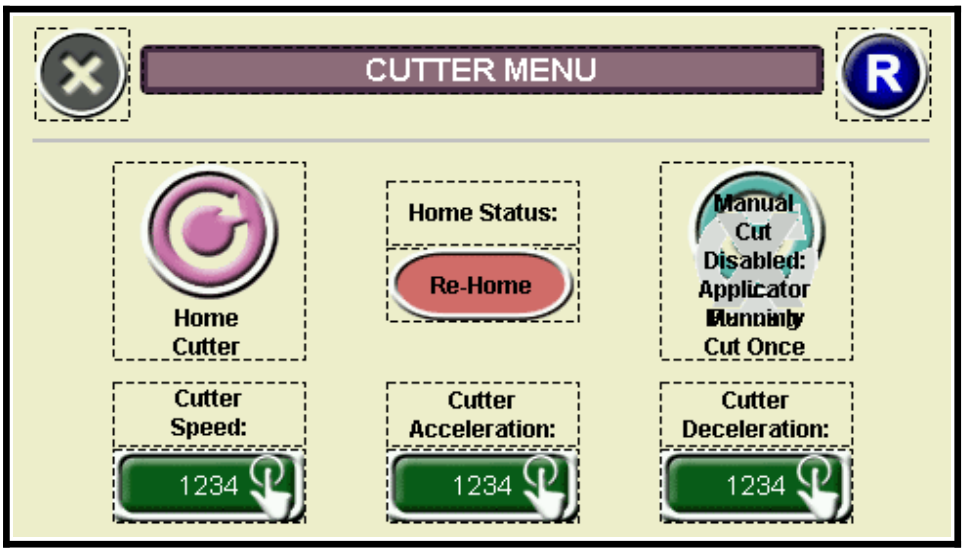
Feeder Speed (Maintenance Level):
The Feeder Speed determines how fast the sleever will feed sleeve material and is entered as inches per minute. A speed that is too slow may result in missed products while a speed that is too high can result in slipping and inaccurate cut lengths.

Accel (Supervisor Level):
The acceleration rate of the feeder (the time it takes the material to reach the target dispensing speed) can be changed here. A higher value increases the acceleration rate, but a value that is too high can lead to motor stalling. A lower number decreases the acceleration rate, but a value that is too low can lead to inaccuracy if system speed is frequently changed.

Decel (Supervisor Level):
The deceleration rate of the feeder (the time it takes the material to stop from the target dispensing speed) can be changed here. A higher value increases the deceleration rate, but a value that is too high can lead to inaccurate label stopping position. A lower number decreases the deceleration rate, but a value that is too low can lead to missed products if spacing between products is close.

Perforator Duration (Maintenance Level):
The Perforator Duration is the time (in seconds) that the perforator output will be active once requested.

Cutter Menu:



Home Cutter:
The cutter must be homed first for proper operation. If the Cutter has already been homed, pressing this button will not result in any action.

"Home" Button: The home cutter button will perform a homing process for the blades. The motor will turn at a slow speed until the home sensor is activated.

Home Status:
This indicator will show the home status of the cutter.

Manual Cut:
The cutter may be cycled independently of the feeder to test operation.

"Manual Cut" Button: The cutter will cycle once at the cutter speed. This will only execute if the Sleever is stopped and Cutter has been homed.

Greyed out "Cut" Button: This indicates the sleever is currently running, and cutter may not be manually cycled.

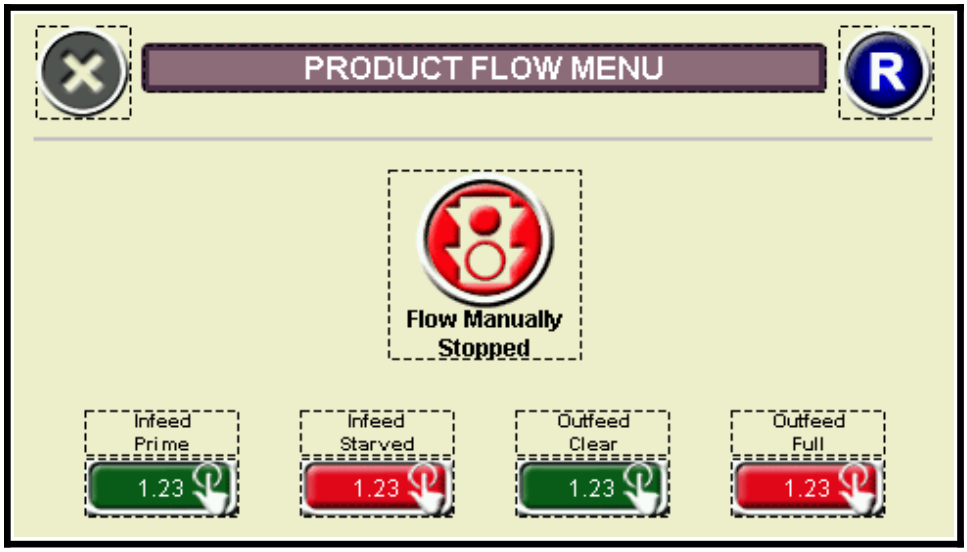
Cutter Speed (Maintenance Level):
The Cutter Speed determines how fast the cutter blades will rotate and is entered as inches per minute. A speed that is too slow may result in missed products and poor cut quality while a speed that is too high can result in motor stalling.

Accel (Supervisor Level):
The acceleration rate of the cutter (the time it takes the cutter to reach the target speed) can be changed here. A higher value increases the acceleration rate, but a value that is too high can lead to motor stalling. A lower number decreases the acceleration rate, but a value that is too low can lead to missed products or poor cut quality.

Decel (Supervisor Level):
The deceleration rate of the cutter (the time it takes the blades to stop from the target speed) can be changed here. A higher value increases the deceleration rate, but a value that is too high can lead to missed products.

Product Flow Menu:

The Product Flow has timers and toggles associated with an optional Pacing Wheel / Stop Gate and sensors.



Product Flow Mode:
An optional stop gate or pacing wheel can be added to help control product flow through the system.

Green "Automatic" Button: This indicates the flow device will open and close based on certain conditions listed below.

Product Flow will start when:
The mode is set to automatic, the infeed sensor is blocked by products, the outfeed sensor is clear of products, and the system is running. If any of those conditions are not met, the product flow will stop.

Red "Stopped" Button: This indicates the product flow is manually stopped and will not let products enter the system until it is toggled to the automatic mode.

Infeed Empty / Starved Time (Maintenance Level):
When the infeed sensor is not blocked by products, this timer will start. Once the timer expires, the Product Flow will stop.

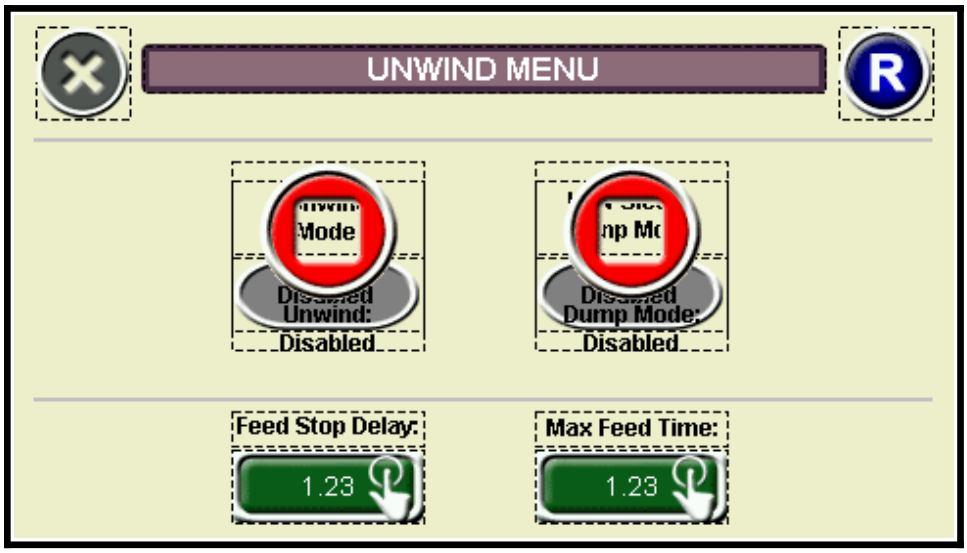
Infeed Full / Primed Time (Maintenance Level):
When the infeed sensor is blocked by products, this timer will start. Once the timer expires, the Product Flow will start.

Outfeed Clear / Empty Time (Maintenance Level):
When the outfeed sensor is not blocked by products, this timer will start. Once the timer expires, the Product Flow will start.

Outfeed Full / Backup Time (Maintenance Level):
When the outfeed sensor is blocked by products, this timer will start. Once the timer expires, the Product Flow will stop.

Unwind Menu:

The Unwind Menu contains the timers and indicators associated with the optional attached powered label unwind system.



Powered Unwind Mode (Supervisor Level):
A Powered Unwind system can be installed as an option. If installed, the indicator should reflect that it's enabled. This indicator does not change into a toggle based on any log in level.
Enabled: The system will control the unwind and monitor it for faults.
Disabled: The remote unwind unit will not function and all faults are ignored.

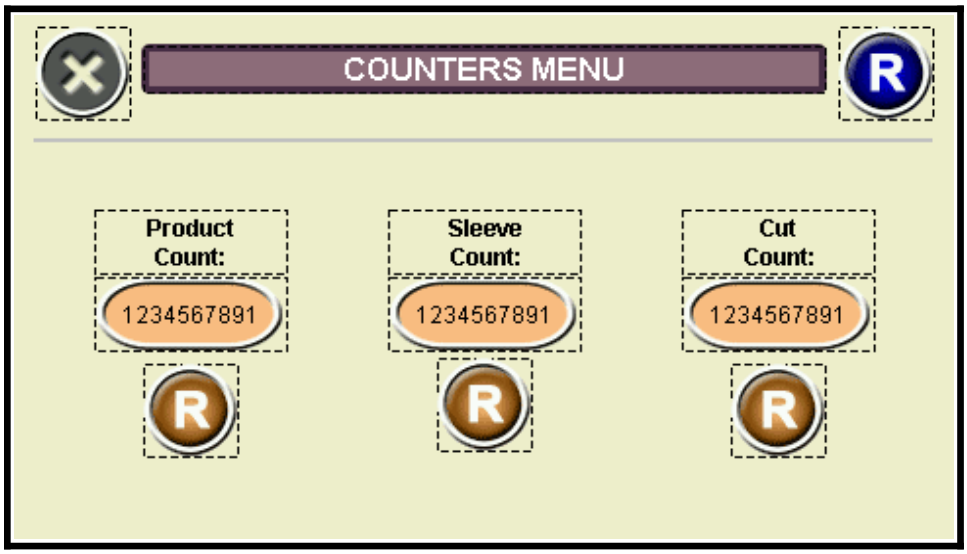
Low Sleeve Dump Mode (Supervisor Level):
The unwind system can dispense the rest of a sleeve roll into the bin when the low material sensor is triggered, which allows the operator time to splice on a new roll without stopping the system.
Enabled: When the Unwind is low on sleeves, it will continuously feed until the End of Web sensor on the unwind is activated. Once activated, the unwind will stop dispensing and will not process a system fault until the bin sensor is activated.
Disabled: The Low Material sensor will be a warning only.

Feed Stop Delay (Maintenance Level):
The Feed Stop Delay is a timer that starts once the Bin Sensor becomes Blocked / Full. While this timer is active, the Unwind motor will continue turning, filling the bin with more sleeve material.

Maximum Feed Time (Maintenance Level):
The Max Feed Time timer will start when the unwind motor is active. If this timer expires, a fault will occur. This prevents the unwind from continuously feeding in the event the sleeves are not being placed into the bin or to help identify other issues.

Counters Menu:

All system counters can be viewed and reset here.



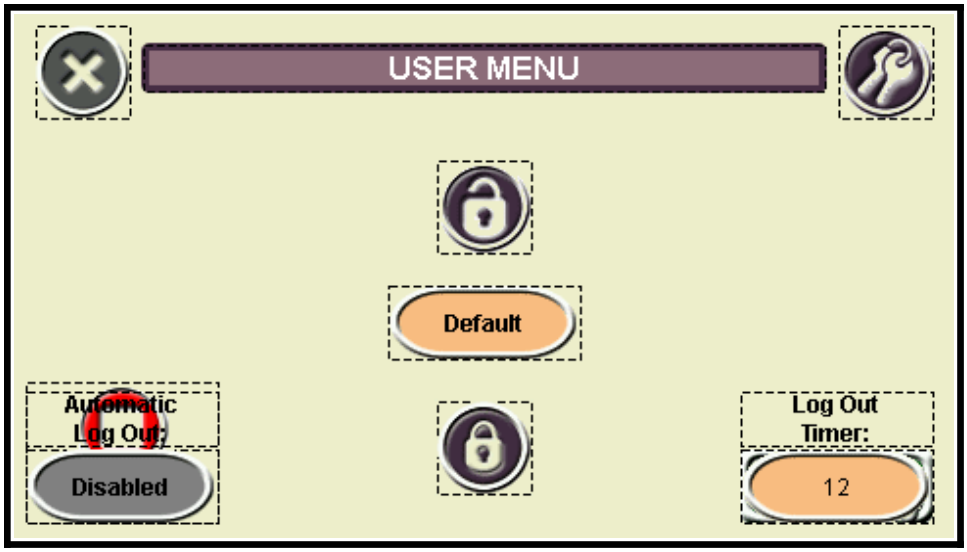
Product Count:
This counter reflects how many Products have passed the product detect sensor while the sleever is Running. This counter rolls over at 999,999 and can be reset by pressing the “R” button below the counter.

Sleeve Count:
This counter reflects how many Sleeves have been dispensed by the sleever while running and being manually fed. This counter rolls over at 999,999 and can be reset by pressing the “R” button below the counter.

Cut Count:
This counter reflects how many Cut cycles have been executed by the cutter while running, manually fed, homed, and manually cut. This counter rolls over at 999,999 and can be reset by pressing the “R” button below the counter.

User Menu:

The User Menu enables alternate login levels to access protected screens and buttons.



Password Input: Press this button to enter a user password.

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

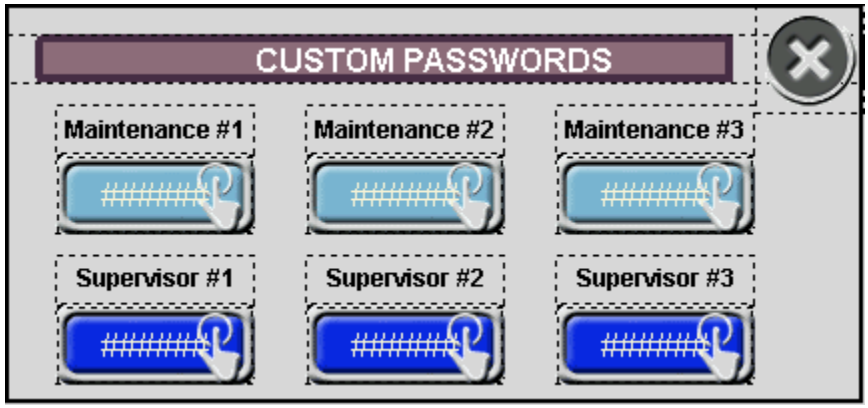
Auto Log Out (Supervisor Level):
When Enabled (button will be Green), the logged in user will automatically be logged off at a set amount of time. Note that the system automatically enables the Auto Log Out feature upon startup.

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 Manager:
Pressing the Password Manager button opens a numeric entry prompt. A hard-coded password must be entered in order to bring up the Password Manager Menu, which allows custom passwords to be entered.

Password Manager:

The Password Manager Menu allows the creation of multiple passwords for the 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.

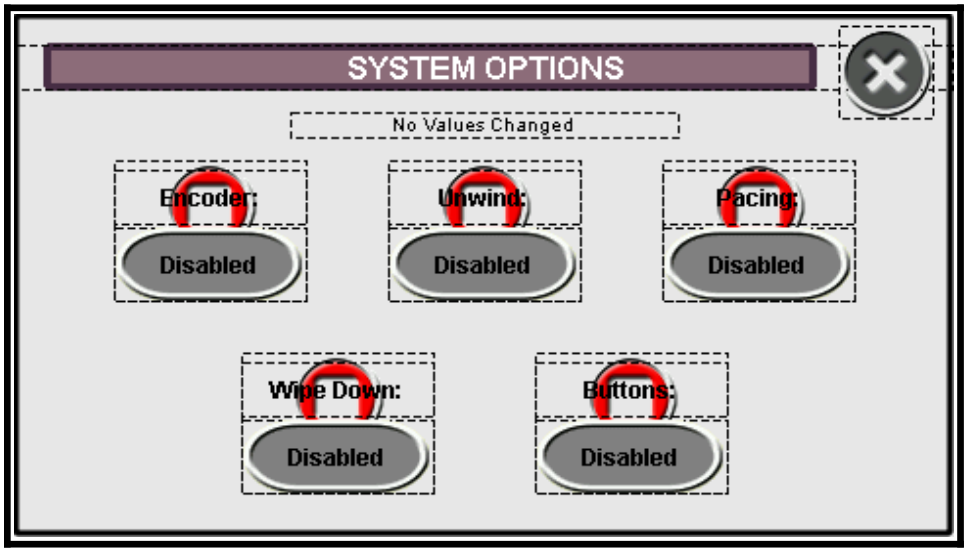
If a Maintenance and Supervisor password are the same, the system will log that user in at the Maintenance level.

The password(s) to open the Password Menu are stored in the PLC and would only be equal to a user defined password by coincidence.

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.

System Options:

All of the various system options can be changed here. All buttons are protected to the Supervisor level.



Encoder:
Enabled: The system will use an encoder to track products for application. This is useful in systems that vary speed frequently.
Disabled: The system will run in a time based setup to apply sleeves to products.

Unwind:
Enabled: The system will control the optional attached powered unwind and monitor it for faults.
Disabled: The attached unwind unit will not function and all faults are ignored.

Pacing:
Enabled: The system will monitor optional infeed and outfeed sensors to control an output that can be used for a stop gate, pacing wheel, or other device.
Disabled: The system will ignore the optional sensors and will not activate the pacing output.

Wipe Down:
Enabled: A set of secondary powered wipers can be turned on/off when the Sleever is running. These help push a sleeve down over the product as it travels down the conveyor.
Disabled: The system will not turn the wiper output on.

Buttons:
Enabled: The system will monitor external button signals that can run/stop the sleever, reset faults, and manually cycle / jog the sleever.
Disabled: The system will not process or rely on external signals.

Fault Messages and Indicators:

Green Lamp: The Green Lamp will be steady while the sleever is running and no warnings are active. The lamp will flash if the sleever is running and a warning is active.

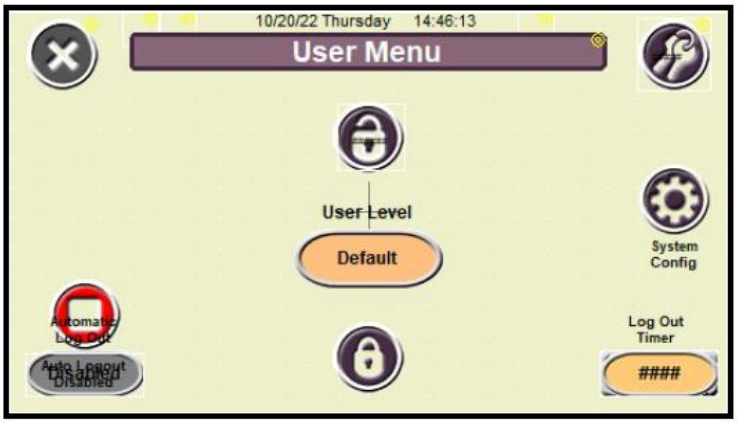
Amber Lamp: An Amber lamp will flash to signal that there is a warning condition present on the system. Warning conditions typically allow the system to function normally, but action will be needed soon. Some warning messages will turn into fatal faults if they are not addressed before taking additional actions.

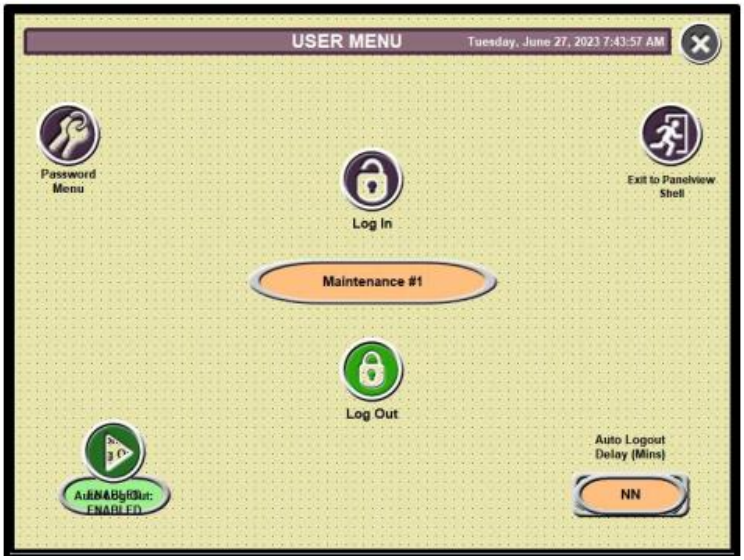
Red Lamp and Buzzer: A Red lamp and audible alarm indicates that a fatal fault occurred and the system is unable to run properly.

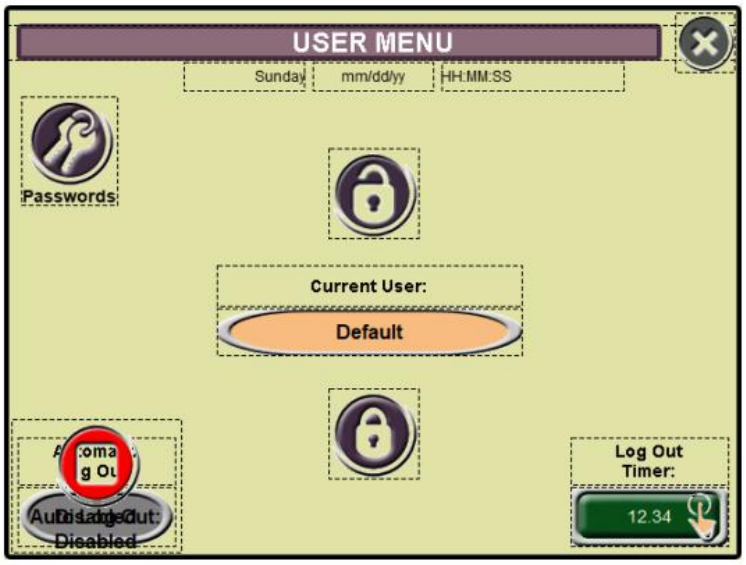
Messages	Cause/Solution
Warning Messages Warning messages identify a status or event that may need action soon. The machine will not stop from a warning message, but a warning may turn into a fatal fault that will stop the machine. Many warning messages will automatically clear once the problem is remedied.	
xxx Drive Faulted / Turned Off Warning (DRx)	The drive that controls the listed motor is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
Low Material Supply	The sleeve supply has been determined low by the sensor fiber under the flange or on the remote unwind unit.
End of Sleeve Material Warning. Correct Before Running.	The End Of Material sensor (between sleeve roll and mandrel on the sleever or prior to the splice plate on the remote unwind) is active and the System is Stopped. Placing the System into Run will generate a Fatal Fault.
Threading Switch ON. Turn Off when Finished Threading	The threading switch on the optional Powered Unwind is currently in the ON position. While on, the unwind will not function automatically but may be manually threaded. Turn the threading switch off before placing the sleever in Run.
Unwind Sleeve Material Dump in Process	The Powered Unwind is currently in a low material dump process. It will continue feeding sleeve material into the bin until the end of material sensor is triggered.
Unwind Sleeve Material Dump Process Finished	The Remote Unwind's Low Material Dump Process has finished. The operator may now splice a new roll without generating a fault. The reset button must be pressed once the splicing is finished.
PLC Power Cycled without Screen. Re-Start System or 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.
Cutter Not Homed Warning	The Cutter must be re-homed before operating. Navigate to the Cutter Menu to re-home the cutter.
Infeed Empty / Starved. Stop Gate Closed	The infeed sensor is not blocked by products, which closes the Stop Gate to prevent products from entering the system.
Outfeed Full / Backed Up. Stop Gate Closed	The outfeed sensor is blocked by products, which closes the Stop Gate to prevent products from entering the system.

Fatal Fault Messages Fatal messages will cause the system to stop immediately . Fatal faults are typically associated to events that prevent sleeves being applied properly, safety related faults, or other events that may prevent proper machine operation.	
xxx Drive Faulted / Turned Off (DRx)	The drive that controls the listed motor is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
End of Sleeve Material Fault	The End Of Material sensor (between sleeve roll and mandrel on the sleever or prior to the splice plate on the remote unwind) is active and the System was Running.
Threading Switch ON. Turn Off when Finished Threading	The threading switch on the optional Powered Unwind is currently in the ON position. While on, the unwind will not function automatically but may be manually threaded. Turn the threading switch off before placing the sleever in Run.
Unwind Maximum Feed Time Fault	The unwind motor was continuously running for a period of time defined by the Max Feed Timer. This indicates the bin did not fill up properly or the timer value is set too low.
Unwind Bin Empty Fault	The Low Label Dump process completed, but the sleever pulled material out of the bin and activated the bin sensor.
Safety Fault / EStop Active	The Safety relay has been activated by an Emergency Stop. Unlatch all Emergency Stops and press the Reset button to reset the safety relay.
Cutter Not Homed Fault	The Cutter must be re-homed before operating. Navigate to the Cutter Menu to re-home the cutter.

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
Log Out
Timer:
12.34
Disabled

Setup Sheets

QUADREL
LABELING SYSTEMS

SL 200 SETUP PARAMETERS

SERIAL # 84235-100

RECIPE #1

PRODUCT: 2oz LAY FLAT: 66.5mm LF x 106mm CL
4 Blade Cutter Box
Product Rate=150

APPLICATOR MENU

	FACTORY VALUES	USER VALUES
PRODUCT DELAY	0.44	
MAX FEED LENGTH	125	
GAP OFFSET	65	
FEED SPEED	2000	

CUTTER MENU

	FACTORY VALUES	USER VALUES
CUTTER SPEED	1800	
CUTTER ACCEL	800	
CUTTER DECEL	1000	

APPLICATOR SERVICE MENU

	FACTORY VALUES	USER VALUES
GAP DETECT	ENABLE	
PERFORATOR	DISABLE	
FEEDER SPEED	2000	
FEEDER ACCEL	100	
FEEDER DECEL	100	
PERF DURATION	0.04	

UNWIND MENU

	FACTORY VALUES	USER VALUES
POWER UNWIND MODE	ENABLED	
DUMP MODE	DISABLED	
FEED STOP DELAY	0.75	
MAX FEED TIME	2.00	

SYSTEM OPTIONS MENU

	FACTORY VALUES	USER VALUES
ENCODER	DISABLED	
UNWIND	ENABLED	
PACING	DISABLED	
WIPERS	ENABLED	
BUTTONS	DISABLED	

PRODUCT FLOW MENU

	FACTORY VALUES	USER VALUES
FLOW STATUS FUNCTION	N/A	
INFEED EMPTY	N/A	
INFEED FULL	N/A	
OUTFEED CLEAR	N/A	
OUTFEED FULL	N/A	

***MUST BE TURNED ON MANUALLY ON INITIAL POWER UP**

	FACTORY VALUES	USER VALUES
SLEEVER VERTICAL	87	
SLEEVER HORIZONTAL	266	
T PERFORATOR VERTICAL	n/a	
T PERFORATOR AIR PRESSURE	70 psi	
THROW DOWN ROLLER SPEED	5590 INCH/MIN	
UNWIND SPEED DIAL	30	
CONVEYOR SPEED	390 INCH/MIN	
BOTTLE SPACING/PITCH	2.50”	

QUADREL
LABELING SYSTEMS

SL 200 SETUP PARAMETERS

SERIAL # 84235-100

RECIPE #2

PRODUCT: 3.4oz LAY FLAT: 65.5mm LF x 155mm CL
4 Blade Cutter Box
Product Rate=130

APPLICATOR MENU

	FACTORY VALUES	USER VALUES
PRODUCT DELAY	0.44	
MAX FEED LENGTH	170	
GAP OFFSET	75	
FEED SPEED	2000	

CUTTER MENU

	FACTORY VALUES	USER VALUES
CUTTER SPEED	1800	
CUTTER ACCEL	800	
CUTTER DECEL	1000	

APPLICATOR SERVICE MENU

	FACTORY VALUES	USER VALUES
GAP DETECT	ENABLE	
PERFORATOR	DISABLE	
FEEDER SPEED	2000	
FEEDER ACCEL	100	
FEEDER DECEL	100	
PERF DURATION	0.04	

UNWIND MENU

	FACTORY VALUES	USER VALUES
POWER UNWIND MODE	ENABLED	
DUMP MODE	DISABLED	
FEED STOP DELAY	0.75	
MAX FEED TIME	2.00	

SYSTEM OPTIONS MENU

	FACTORY VALUES	USER VALUES
ENCODER	DISABLED	
UNWIND	ENABLED	
PACING	DISABLED	
WIPERS	ENABLED	
BUTTONS	DISABLED	

PRODUCT FLOW MENU

	FACTORY VALUES	USER VALUES
FLOW STATUS FUNCTION	N/A	
INFEED EMPTY	N/A	
INFEED FULL	N/A	
OUTFEED CLEAR	N/A	
OUTFEED FULL	N/A	

***MUST BE TURNED ON MANUALLY ON INITIAL POWER UP**

	FACTORY VALUES	USER VALUES
SLEEVER VERTICAL	174	
SLEEVER HORIZONTAL	268	
T PERFORATOR VERTICAL	n/a	
T PERFORATOR AIR PRESSURE	70 psi	
THROW DOWN ROLLER SPEED	5590 INCH/MIN	
UNWIND SPEED DIAL	30	
CONVEYOR SPEED	390 INCH/MIN	
BOTTLE SPACING/PITCH	3.00”	

QUADREL
LABELING SYSTEMS

SL 200 SETUP PARAMETERS

SERIAL # 84235-100

RECIPE #3

PRODUCT: 4oz LAY FLAT: 76.5mm LF x 105mm CL
5 Blade Cutter Box
Product Rate=150

APPLICATOR MENU

	FACTORY VALUES	USER VALUES
PRODUCT DELAY	0.43	
FEED LENGTH	130	
GAP OFFSET	5	
FEED SPEED	2000	

CUTTER MENU

	FACTORY VALUES	USER VALUES
CUTTER SPEED	1800	
CUTTER ACCEL	800	
CUTTER DECEL	1000	

APPLICATOR SERVICE MENU

	FACTORY VALUES	USER VALUES
GAP DETECT	ENABLE	
PERFORATOR	DISABLED	
FEEDER SPEED	2000	
FEEDER ACCEL	100	
FEEDER DECEL	100	
PERF DURATION	0.04	

UNWIND MENU

	FACTORY VALUES	USER VALUES
POWER UNWIND MODE	ENABLED	
DUMP MODE	DISABLED	
FEED STOP DELAY	0.65	
MAX FEED TIME	2.00	

SYSTEM OPTIONS MENU

	FACTORY VALUES	USER VALUES
ENCODER	DISABLED	
UNWIND	ENABLED	
PACING	DISABLED	
WIPERS	ENABLED	
BUTTONS	DISABLED	

PRODUCT FLOW MENU

	FACTORY VALUES	USER VALUES
FLOW STATUS FUNCTION	N/A	
INFEED EMPTY	N/A	
INFEED FULL	N/A	
OUTFEED CLEAR	N/A	
OUTFEED FULL	N/A	

***MUST BE TURNED ON MANUALLY ON INITIAL POWER UP**

	FACTORY VALUES	USER VALUES
SLEEVER VERTICAL	140	
SLEEVER HORIZONTAL	263	
T PERFORATOR VERTICAL	n/a	
T PERFORATOR AIR PRESSURE	70 psi	
THROW DOWN ROLLER SPEED	5590 INCH/MIN	
UNWIND SPEED DIAL	30	
CONVEYOR SPEED	390 INCH/MIN	
BOTTLE SPACING/PITCH	2.50”	

QUADREL
LABELING SYSTEMS

SL 200 SETUP PARAMETERS

SERIAL # 84235-100

RECIPE #4

PRODUCT: 8oz Tall LAY FLAT: 80mm LF x 202mm CL
5 Blade Cutter Box
Product Rate=110

APPLICATOR MENU

	FACTORY VALUES	USER VALUES
PRODUCT DELAY	0.43	
MAX FEED LENGTH	220	
GAP OFFSET	185	
FEED SPEED	2000	

CUTTER MENU

	FACTORY VALUES	USER VALUES
CUTTER SPEED	1800	
CUTTER ACCEL	800	
CUTTER DECEL	1000	

APPLICATOR SERVICE MENU

	FACTORY VALUES	USER VALUES
GAP DETECT	ENABLE	
PERFORATOR	DISABLE	
FEEDER SPEED	2000	
FEEDER ACCEL	100	
FEEDER DECEL	100	
PERF DURATION	0.04	

UNWIND MENU

	FACTORY VALUES	USER VALUES
POWER UNWIND MODE	ENABLED	
DUMP MODE	DISABLED	
FEED STOP DELAY	0.75	
MAX FEED TIME	2.00	

SYSTEM OPTIONS MENU

	FACTORY VALUES	USER VALUES
ENCODER	DISABLED	
UNWIND	ENABLED	
PACING	DISABLED	
WIPERS	ENABLED	
BUTTONS	DISABLED	

PRODUCT FLOW MENU

	FACTORY VALUES	USER VALUES
FLOW STATUS FUNCTION	N/A	
INFEED EMPTY	N/A	
INFEED FULL	N/A	
OUTFEED CLEAR	N/A	
OUTFEED FULL	N/A	

***MUST BE TURNED ON MANUALLY ON INITIAL POWER UP**

	FACTORY VALUES	USER VALUES
SLEEVER VERTICAL	298	
SLEEVER HORIZONTAL	264	
T PERFORATOR VERTICAL	n/a	
T PERFORATOR AIR PRESSURE	70 psi	
THROW DOWN ROLLER SPEED	5590 INCH/MIN	
UNWIND SPEED DIAL	30	
CONVEYOR SPEED	390 INCH/MIN	
BOTTLE SPACING/PITCH	3.50”	

QUADREL
LABELING SYSTEMS

SL 200 SETUP PARAMETERS

SERIAL # 84235-100

RECIPE #7

PRODUCT: 8oz Short LAY FLAT: 98.5mm LF x 160mm CL
6 Blade Cutter Box
Product Rate=111

APPLICATOR MENU

	FACTORY VALUES	USER VALUES
PRODUCT DELAY	0.50	
FEED LENGTH	180	
GAP OFFSET	107	
FEED SPEED	1800	

CUTTER MENU

	FACTORY VALUES	USER VALUES
CUTTER SPEED	1800	
CUTTER ACCEL	800	
CUTTER DECEL	1000	

APPLICATOR SERVICE MENU

	FACTORY VALUES	USER VALUES
GAP DETECT	ENABLE	
PERFORATOR	ENABLE	
FEEDER SPEED	1800	
FEEDER ACCEL	100	
FEEDER DECEL	100	
PERF DURATION	0.04	

UNWIND MENU

	FACTORY VALUES	USER VALUES
POWER UNWIND MODE	ENABLED	
DUMP MODE	DISABLED	
FEED STOP DELAY	0.65	
MAX FEED TIME	2.00	

SYSTEM OPTIONS MENU

	FACTORY VALUES	USER VALUES
ENCODER	DISABLED	
UNWIND	ENABLED	
PACING	DISABLED	
WIPERS	ENABLED	
BUTTONS	DISABLED	

PRODUCT FLOW MENU

	FACTORY VALUES	USER VALUES
FLOW STATUS FUNCTION	N/A	
INFEED EMPTY	N/A	
INFEED FULL	N/A	
OUTFEED CLEAR	N/A	
OUTFEED FULL	N/A	

***MUST BE TURNED ON MANUALLY ON INITIAL POWER UP**

	FACTORY VALUES	USER VALUES
SLEEVER VERTICAL	181	
SLEEVER HORIZONTAL	163	
T PERFORATOR VERTICAL	85	
T PERFORATOR AIR PRESSURE	70 psi	
THROW DOWN ROLLER SPEED	5590 INCH/MIN	
UNWIND SPEED DIAL	30	
CONVEYOR SPEED	390 INCH/MIN	
BOTTLE SPACING/PITCH	3.50”	

QUADREL
LABELING SYSTEMS

SL 200 SETUP PARAMETERS

SERIAL # 84235-100

RECIPE #8

PRODUCT: 8oz Short/Nipple Spray LAY FLAT: 96mm LF x 123mm CL
6 Blade Cutter Box
Product Rate=110

APPLICATOR MENU

	FACTORY VALUES	USER VALUES
PRODUCT DELAY	0.45	
FEED LENGTH	180	
GAP OFFSET	59	
FEED SPEED	1800	

CUTTER MENU

	FACTORY VALUES	USER VALUES
CUTTER SPEED	1800	
CUTTER ACCEL	800	
CUTTER DECEL	1000	

APPLICATOR SERVICE MENU

	FACTORY VALUES	USER VALUES
GAP DETECT	ENABLE	
PERFORATOR	ENABLE	
FEEDER SPEED	1800	
FEEDER ACCEL	100	
FEEDER DECEL	100	
PERF DURATION	0.04	

UNWIND MENU

	FACTORY VALUES	USER VALUES
POWER UNWIND MODE	ENABLED	
DUMP MODE	DISABLED	
FEED STOP DELAY	0.65	
MAX FEED TIME	2.00	

SYSTEM OPTIONS MENU

	FACTORY VALUES	USER VALUES
ENCODER	DISABLED	
UNWIND	ENABLED	
PACING	DISABLED	
WIPERS	ENABLED	
BUTTONS	DISABLED	

PRODUCT FLOW MENU

	FACTORY VALUES	USER VALUES
FLOW STATUS FUNCTION	N/A	
INFEED EMPTY	N/A	
INFEED FULL	N/A	
OUTFEED CLEAR	N/A	
OUTFEED FULL	N/A	

***MUST BE TURNED ON MANUALLY ON INITIAL POWER UP**

	FACTORY VALUES	USER VALUES
SLEEVER VERTICAL	163	
SLEEVER HORIZONTAL	256	
T PERFORATOR VERTICAL	85	
T PERFORATOR AIR PRESSURE	70 psi	
THROW DOWN ROLLER SPEED	5590 INCH/MIN	
UNWIND SPEED DIAL	30	
CONVEYOR SPEED	390 INCH/MIN	
BOTTLE SPACING/PITCH	3.50”	

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.

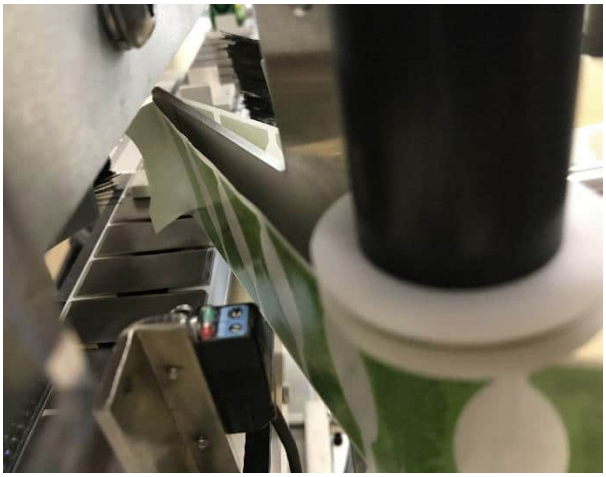
You will also find the threading diagram directly on the labeling head.

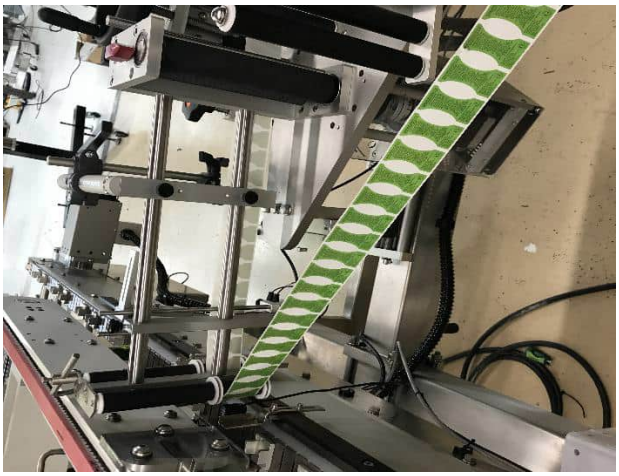
1) Place the label stock roll on the unwind shaft. Press the roll firmly against the flange. Then slide the locking collar over the unwind shaft aligning the set screw with the shaft. Press into the roll and twist to lock the collar in place.

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

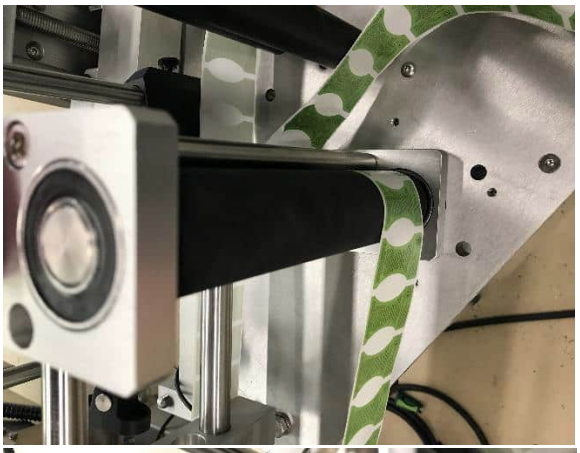
3) Follow the threading diagram on the labeling head for routing the web.
4) Thread through the dancer to the peel plate.

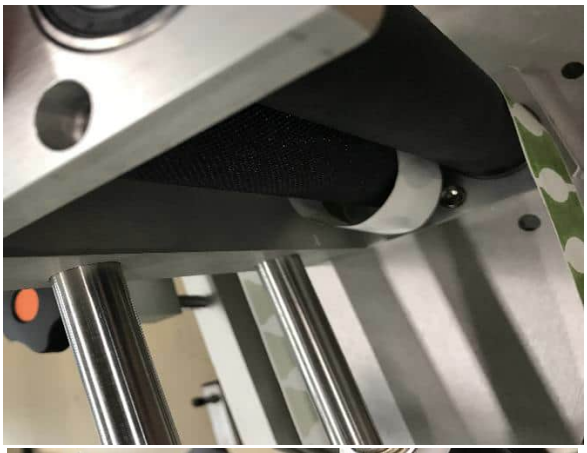
5) Feed the label around the peel plate and under the pressure shoe if (if there is one). Feed the label up the head to the pull roll. Pull all the slack out.

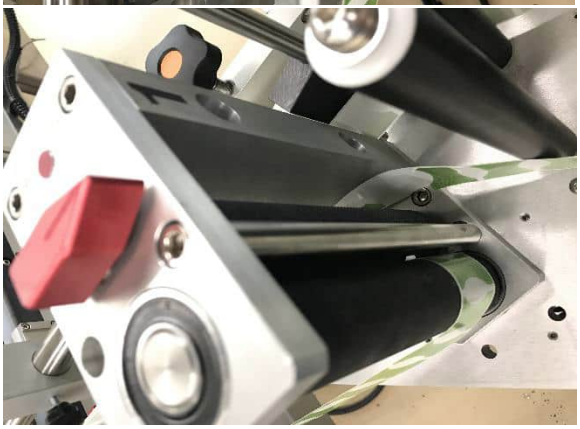




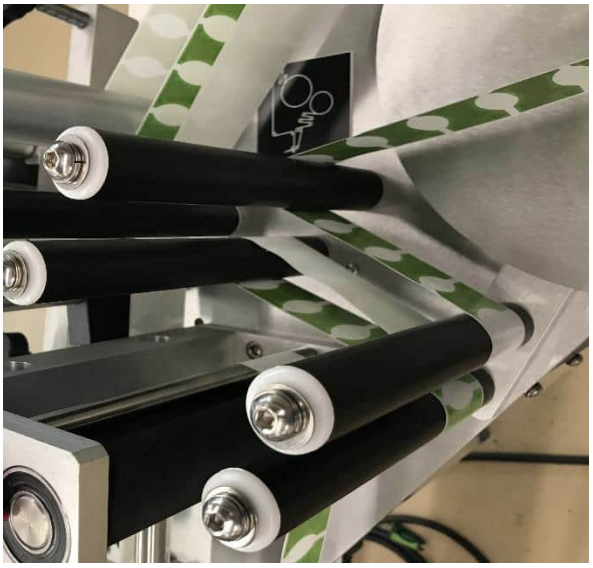
6) Wrap labels around the rubber roller as shown, then around the knurled roller. Make sure the knurled roller is not locked in by turning the red knob to the left or right of the red dot on the drive roll. When you have the labels completely threaded you can turn the knob to the red dot.



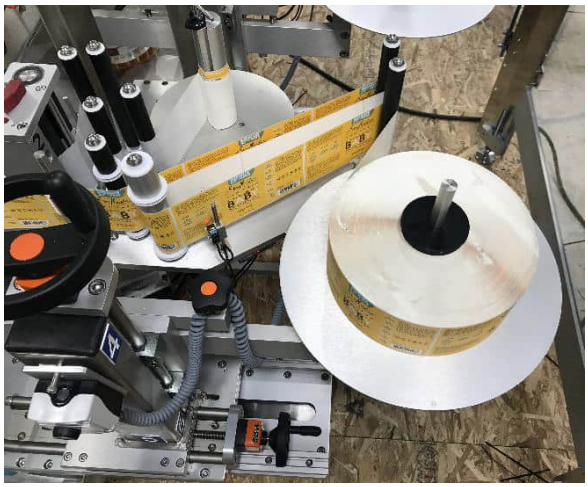




7) Thread the labels through the rewind dancers to the rewind shaft. Place the end of the label through the clip and rotate the rewind hub to take up the slack.



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.

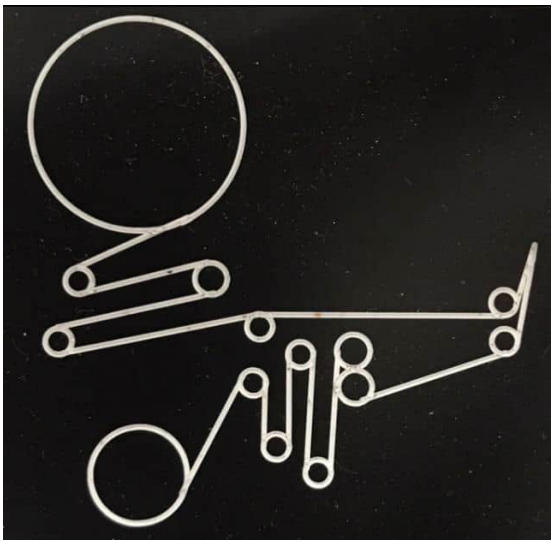


9) To unload the rewind loosen (counter clockwise) the “clevis” bolt on the top of the rewind hub. this will collapse the rewind and you can pull the liner off the hub.

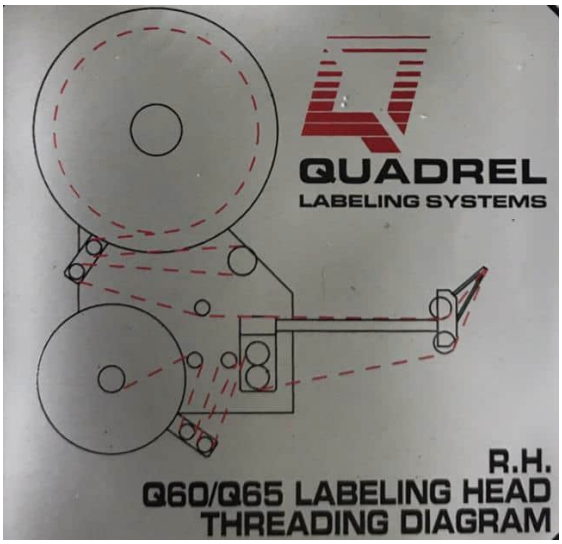
⚠ CAUTION There are many pinch points on a labeler. to avoid injury read and understand the owner’s manual before operating.

6.1.2 THREADING DIAGRAMS

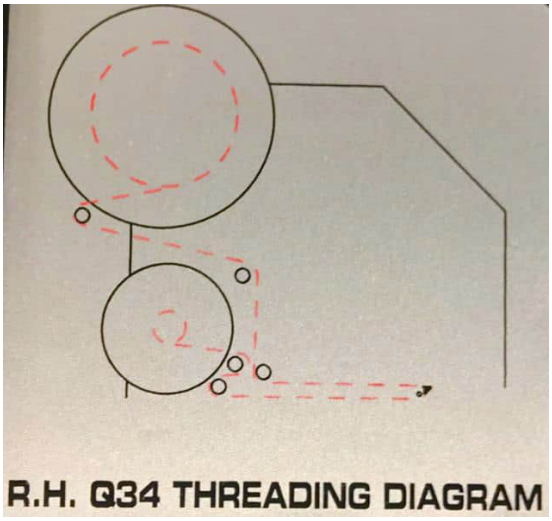
Here are the following threading diagrams for our standard labeling heads.



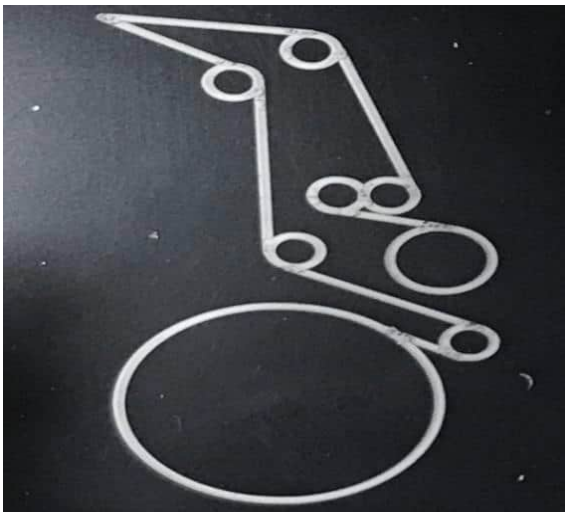
Q120/Q125/Q115/Q110



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 with move the labeler out.

To adjust the angle of the labeling head you first need to loosen the large ¾-10 nut with a 1 ¼ “wrench and the 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.

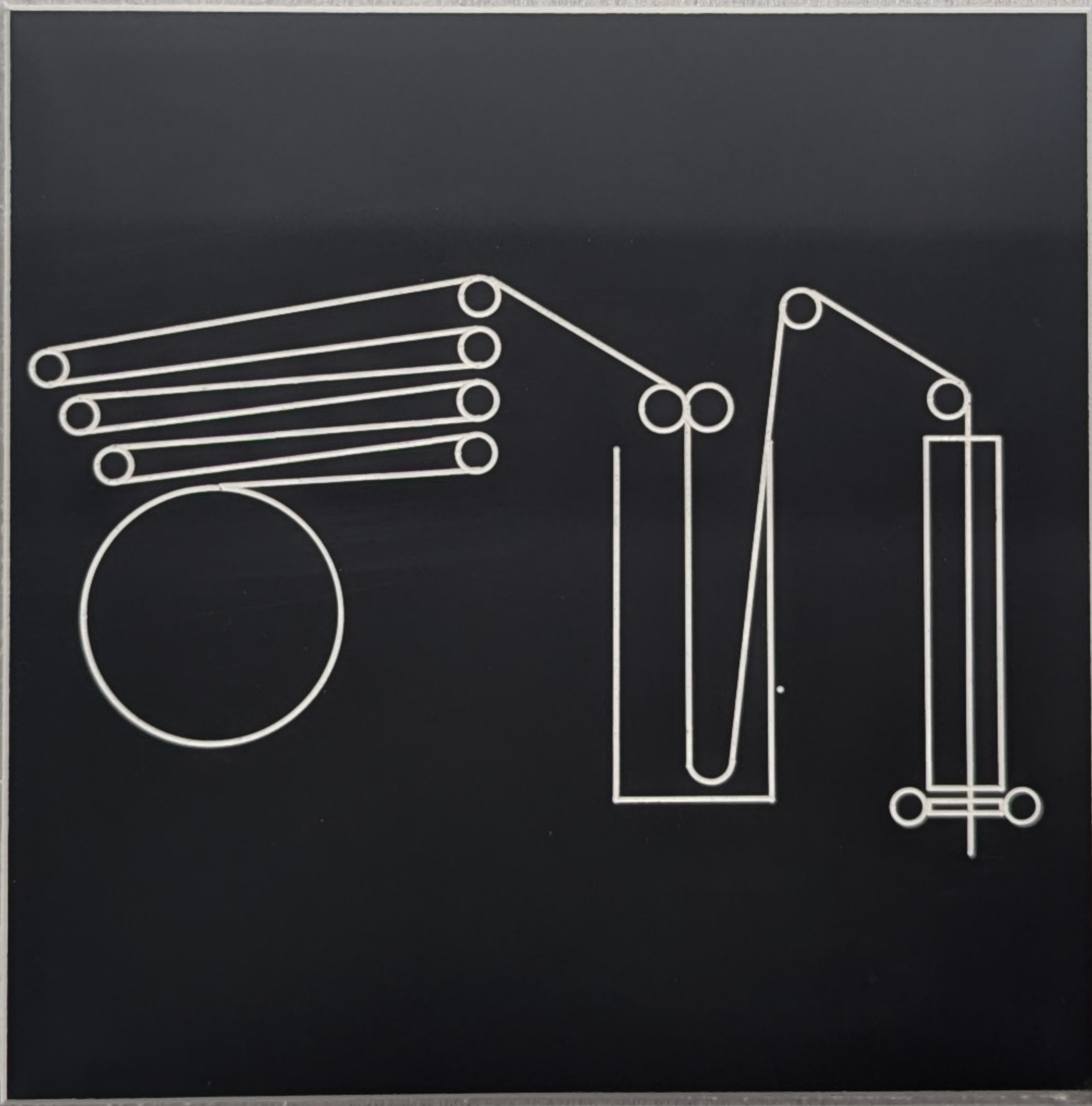
⚠ CAUTION DO NOT remove the nut & bolt.

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. `



ASSEMBLY TITLE: **SL200 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:

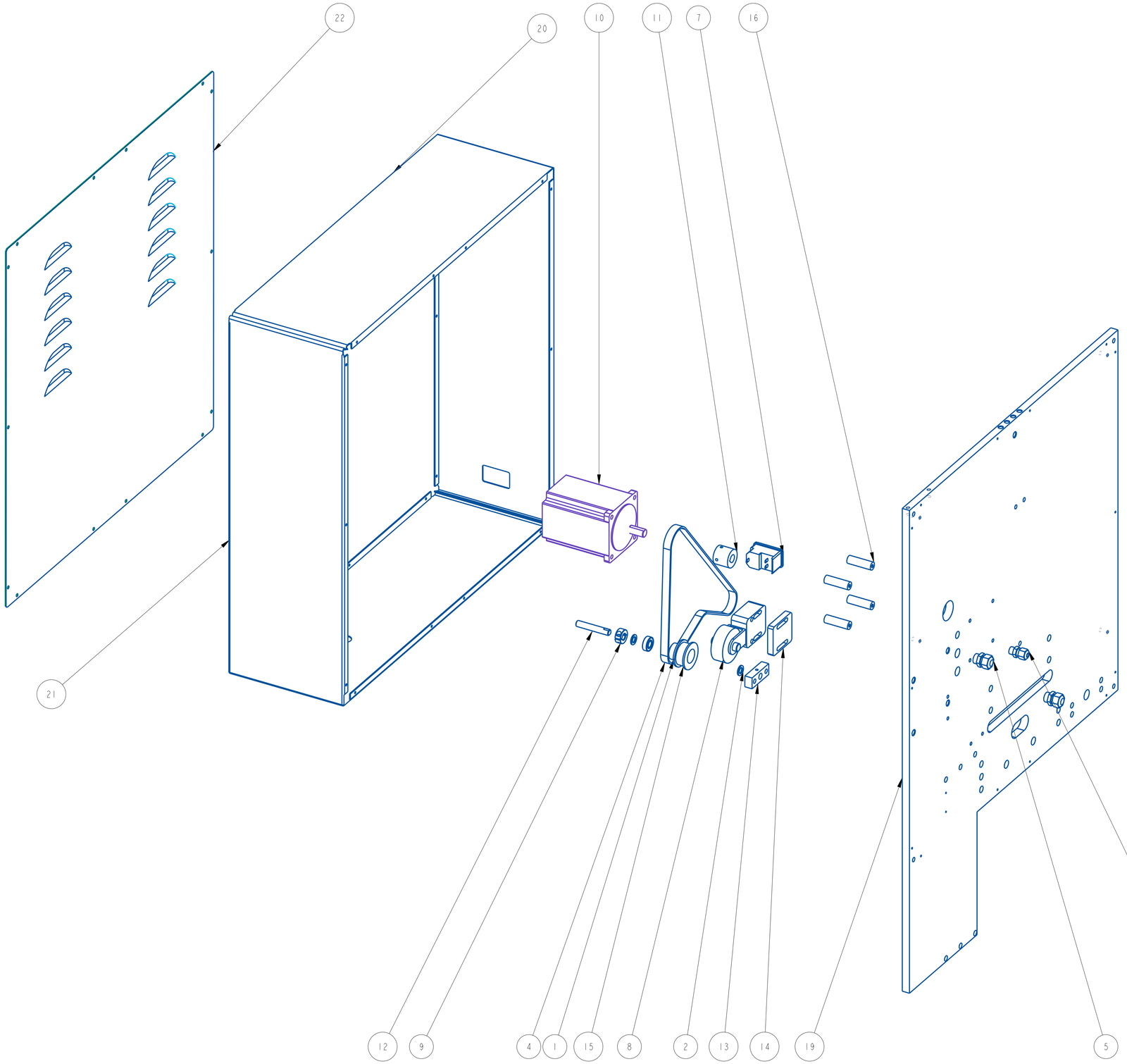
- None

MAINTENANCE:

- None

TROUBLESHOOTING:

- None



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	111073-000	BEARING, BALL	22565SP-000
2	2	151014-000	BEARING, THRUST WASHER	22565SP-000
3	2	181086-000	ROLL END BEARING	22565SP-000
4	1	191730-000	DOUBLE SIDED TIMING BELT	22565SP-000
5	2	241769-000	STRAIN RELIEF	22565SP-000
6	1	241793-000	STRAIN RELIEF	22565SP-000
7	1	262092-000	POWER ENTRY MODULE	22565SP-000
8	1	361320-000	SPANN-BOX	22565SP-000
9	1	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP	22565SP-000
10	1	412108-000	MOTOR,STEPPER 2 STACK,HITORQ	22565SP-000
11	1	A22335-003	THROW DOWN PULLEY	22565SP-000
12	1	A23669-001	IDLER PULLEY SHAFT	22565SP-000
13	1	A23670-001	IDLER SHAFT MOUNTING PLATE	22565SP-000
14	1	A23672-000	TENSIONER MOUNTING PLATE	22565SP-000
15	1	A23697-000	IDLER PULLEY	22565SP-000
16	4	A25934-000	MOTOR STAND OFF	22565SP-000
17	1	B21133-010	IDLER ROLLER SHAFT	22565SP-000
18	1	B21134-010	IDLER ROLLER	22565SP-000
19	1	D20745-003	SIDE PLATE	22565SP-000
20	1	D20860-012	ENCLOSURE	22565SP-000
21	1	D20861-012	ENCLOSURE	22565SP-000
22	1	D20874-014	BACK COVER	22565SP-000

REV	DATE	DESCRIPTION	BY
A	7-17-13	NEW DRAWING	MAW

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X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

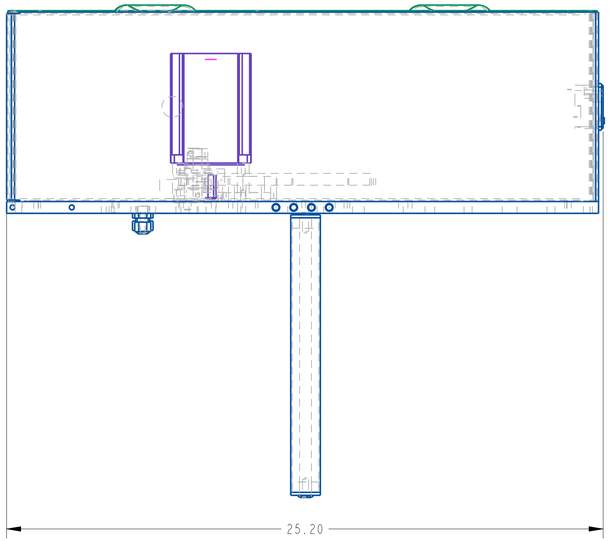
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

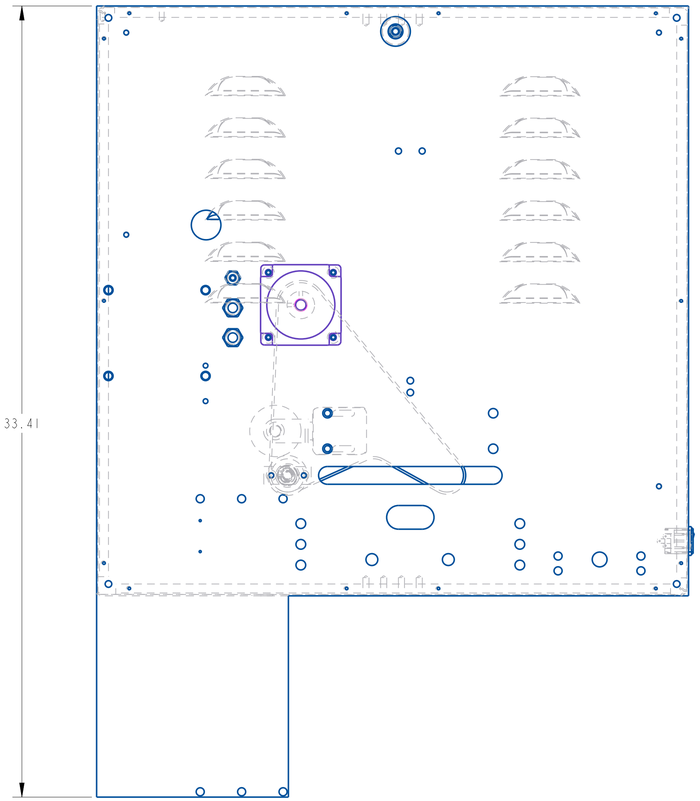
SCALE: 5/16
DATE: 7-17-13
DRW BY: MAW
CHK BY:07/15/2024-SEM
APPR BY:

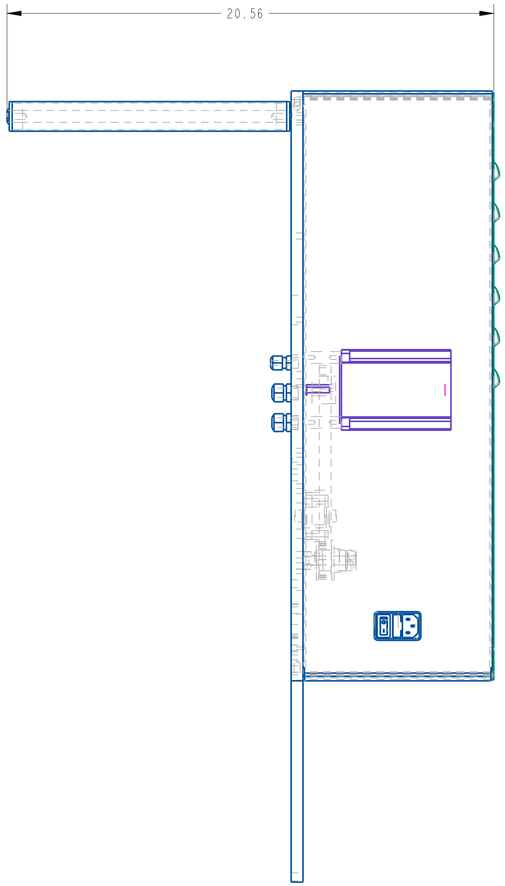
SIDE PLATE ASSEMBLY

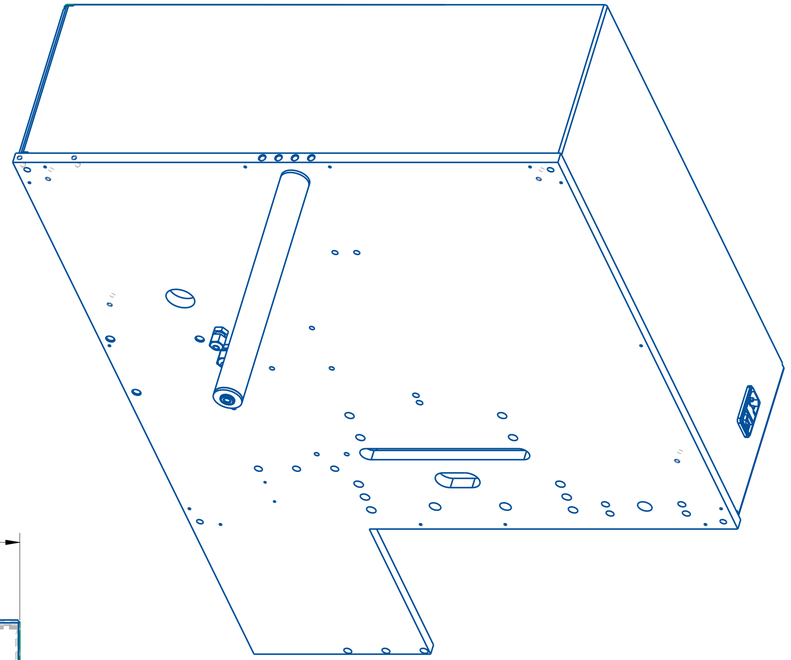
MAT'L 22565SP-000

D24798-000









REV	DATE	DESCRIPTION	BY
A	7-17-13	NEW DRAWING	MAW

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DIMENSIONAL TOLERANCE
X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030
ALL ANGLES ARE 90°

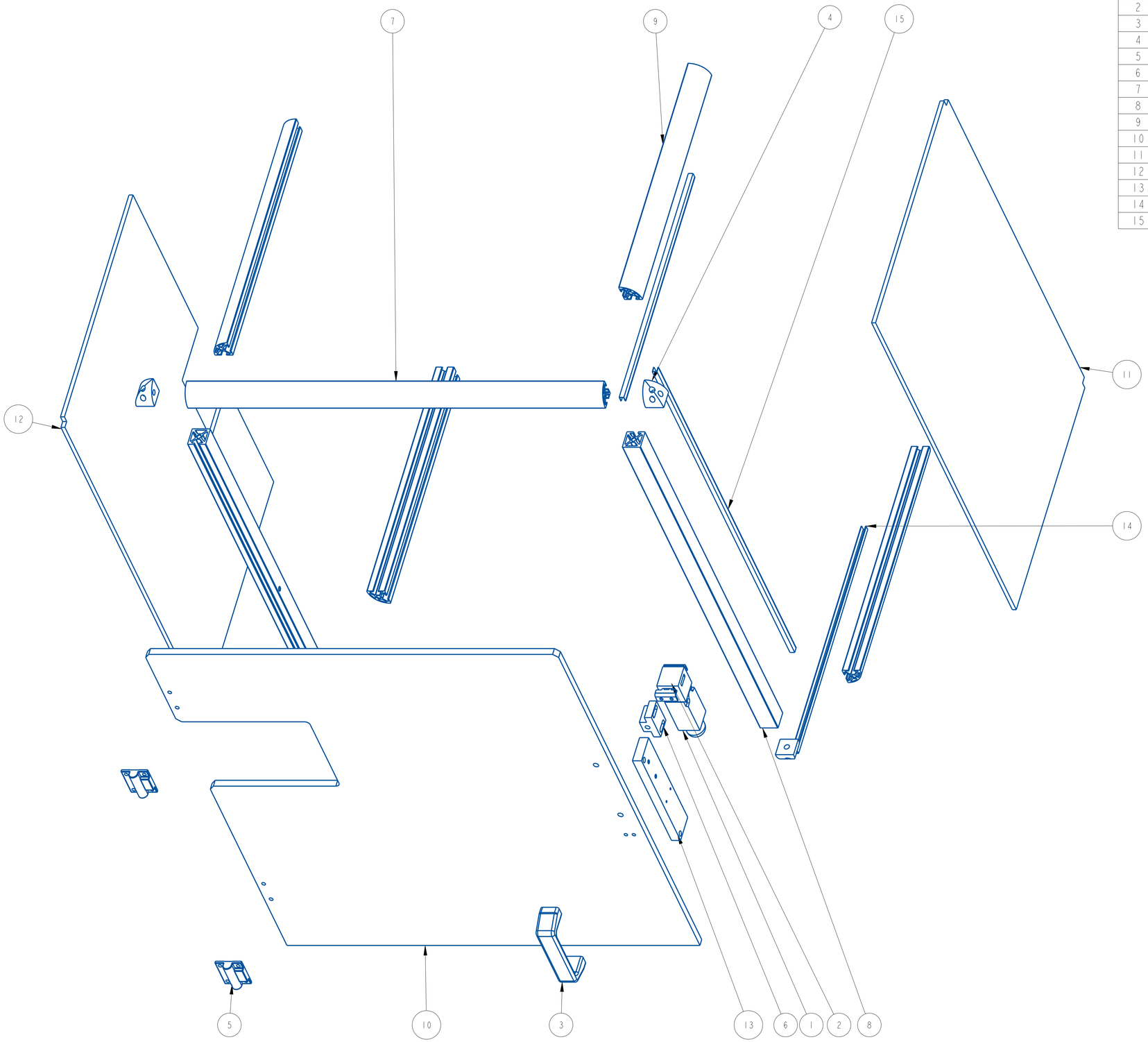
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 5/16
DATE: 7-17-13
DRW BY: MAW
CHK BY:07/15/2024-SEM
APPR BY:

SIDE PLATE ASSEMBLY

MAT'L 22565SP-000

D24798-000



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	272304-000	INTERLOCK SWITCH	22565G-000
2	2	272305-000	INTERLOCK KEY	22565G-000
3	1	792114-000	HANDLE, STD. DUTY	22565G-000
4	4	792234-000	CORNER JOINT	22565G-000
5	2	792236-000	HINGE	22565G-000
6	1	792682-000	MAGNETIC CATCH	22565G-000
7	1	B21258-002	TOP BAR	22565G-000
8	2	B21259-011	GUARD HINGE MOUNTING BRACE	22565G-000
9	4	B21260-000	GUARD RISER	22565G-000
10	1	B21261-013	FRONT GUARD DOOR	22565G-000
11	1	B21262-012	SIDE GUARD DOOR	22565G-000
12	1	B21262-013	SIDE GUARD DOOR	22565G-000
13	1	B22900-000	MOUNTING PLATE	22565G-000
14	2	B22901-000	PANEL RETAINING GASKET	22565G-000
15	1	B22901-001	PANEL RETAINING GASKET	22565G-000

REV	DATE	DESCRIPTION	BY
A	7-17-13	NEW DRAWING	TAZ

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

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

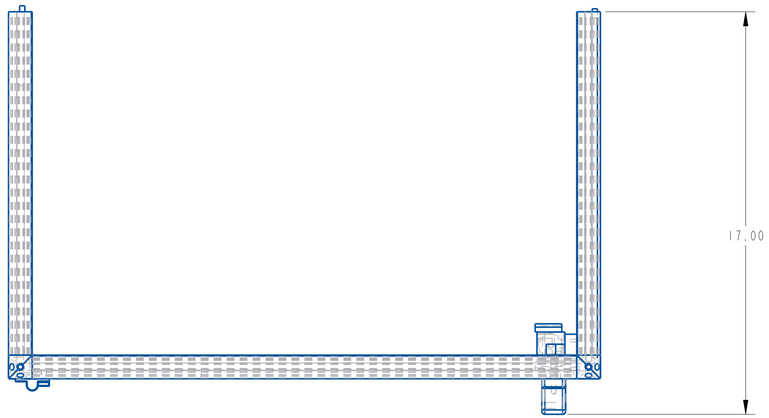
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

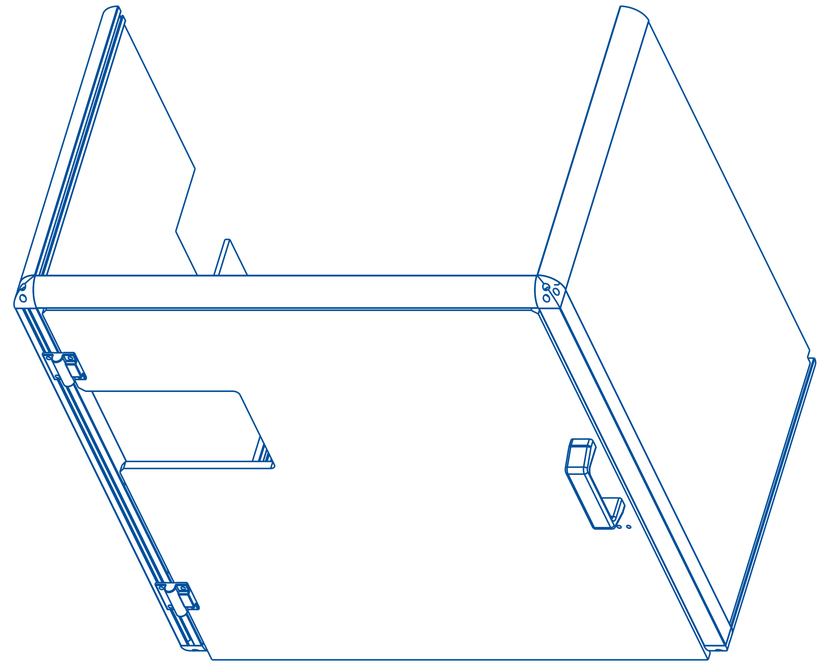
SCALE: 3/8
DATE: 7-17-13
DRW BY: MAW
CHK BY:05/27/2025-SEM
APPR BY:

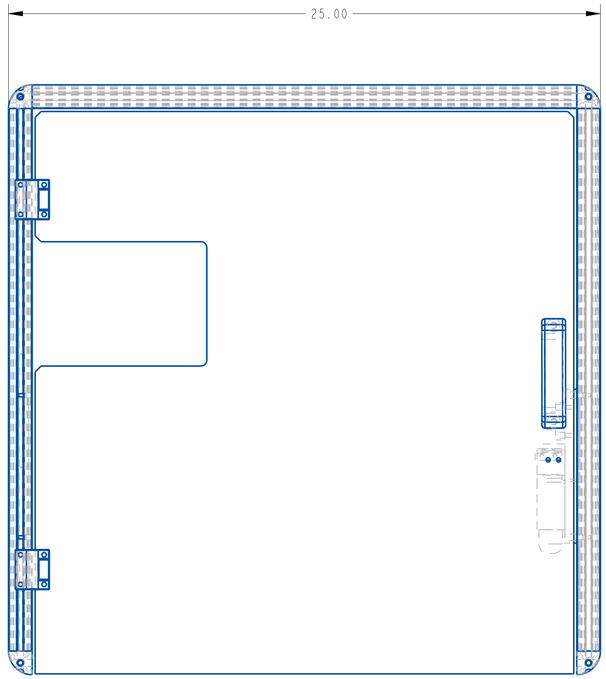
GUARD ASSEMBLY

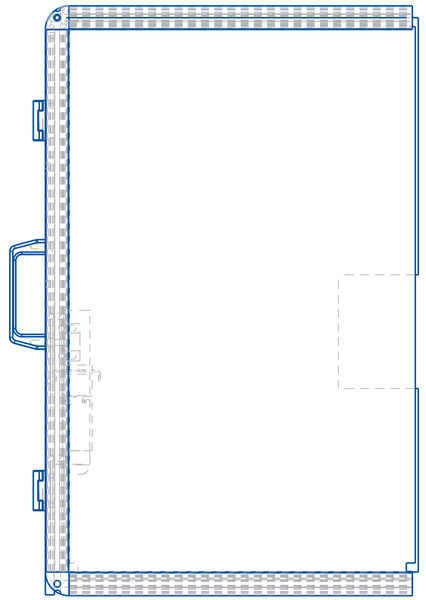
MAT'L 22565G-000

D24797-000









A	7-17-13	NEW DRAWING
REV	DATE	DESCRIPTION

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

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:	5/16
DATE:	7-17-13
DRW BY:	MAW
CHK BY:	05/27/2025-SEM
APPR BY:	MAW

GUARD ASSEMBLY

MAT'L 22565G-000

D24797-000

ASSEMBLY TITLE: UNWIND ASSEMBLY

GENERAL FUNCTION:

-The unwind flanges provide positional support for the sleeve rolls.

-The inboard flange is located by loosening the locking screw. The outboard flange by rotating the flange until the set screw lines up with the flat on the unwind shaft.

- 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:

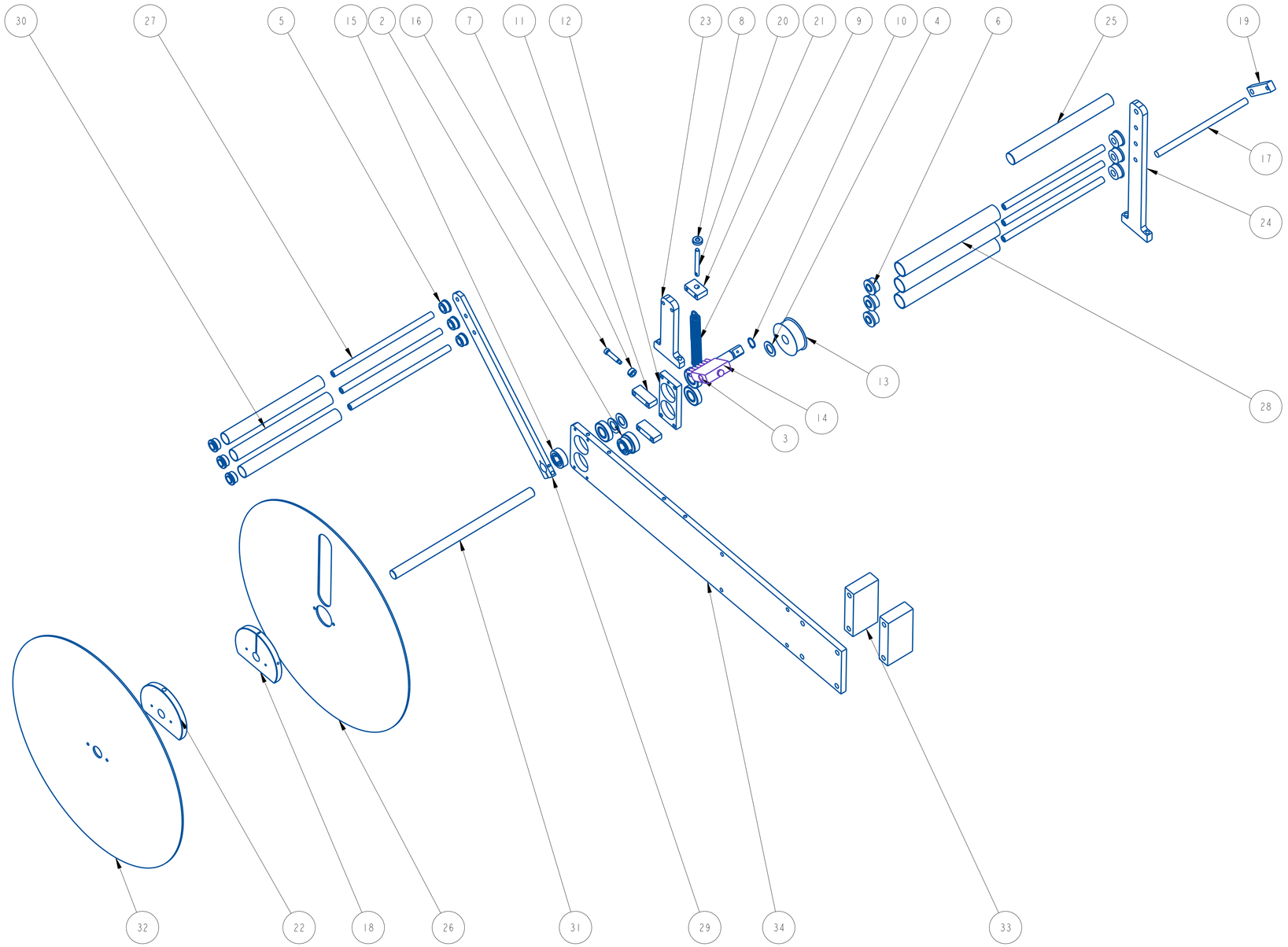
- Move flanges to required position to allow sleeves the be centered through the sleever.
- Adjust dancer tension by turning check nut so that dancer roll snaps back to braking position when sleeves are threaded.
- Slide brake brush so that center of brush lines up with center of web.
- Rotate brush 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.

MAINTENANCE:

- Clean all the parts that may acquire glue residue

TROUBLESHOOTING:

PROBLEM	**WHAT TO DO**
- Unwind roll run-away	- Tighten dancer spring, check nut or replace dancer spring, if necessary.
- Unwind roll not stopping	- Replace brake ring-belt if broken, or unevenly worn.
- Drive roll stalling	- Release web tension produced by brake brush.
- Brush taking fixed shape	- Turn brush around



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	00669-01	BRAKE BRUSH 2 x 7 nylon	22565U-250
2	1	111044-000	BEARING, 3/4 ID CLAMP TYPE	22565U-250
3	3	111074-000	BEARING, BALL	22565U-250
4	3	151063-000	BEARING, THRUST WASHER	22565U-250
5	6	181063-000	BEARING, ROLL END	22565U-250
6	6	181086-000	ROLL END BEARING	22565U-250
7	1	361165-000	COLLAR, SETSCREW, 5/16" BORE	22565U-250
8	1	801601-000	CHECK NUT	22565U-250
9	1	811216-000	EXTENSION SPRING	22565U-250
10	1	871025-000	EXTERNAL SNAP RING	22565U-250
11	2	A20585-000	SUPPORT SPACER	22565U-250
12	1	A20590-000	BEARING PLATE	22565U-250
13	1	A20591-000	UNWIND BRAKE DRUM	22565U-250
14	1	A20592-000	UNWIND DANCER SHAFT	22565U-250
15	1	A20595-000	DANCER COLLAR	22565U-250
16	1	A20596-000	DANCER BOLT	22565U-250
17	1	A20654-003	ADJ. ROD	22565U-250
18	1	A21225-002	SUPPLY REEL LOCKING HUB	22565U-250
19	1	A21535-001	BRAKE BRUSH MTG. BAR	22565U-250
20	1	A23131-000	STUD	22565U-250
21	1	A23298-000	BLOCK, SPRING TENSION	22565U-250
22	1	A23833-003	OUTSIDE FLANGE HUB	22565U-250
23	1	A24646-000	RETAINING BLOCK MOUNTING PLATE	22565U-250
24	1	A24646-010	RETAINING BLOCK MOUNTING PLATE	22565U-250
25	1	A25936-001	FIXED IDLER	22565U-250
26	1	B20524-002	SUPPLY REEL FLANGE	22565U-250
27	6	B21133-000	IDLER ROLLER SHAFT	22565U-250
28	3	B21134-000	IDLER ROLLER	22565U-250
29	1	B21141-003	DANCER ARM	22565U-250
30	3	B21142-000	DANCER ROLLER	22565U-250
31	1	B21143-000	UNWIND SHAFT	22565U-250
32	1	B21634-000	SUPPLY REEL FLANGE	22565U-250
33	2	B22801-000	SPACER	22565U-250
34	1	D20748-050	20" UNWIND PLATE	22565U-250

REV	DATE	DESCRIPTION	BY
A	Feb-16-23	NEW DRAWING	

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.X ± .1
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.XXX ± .005
ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

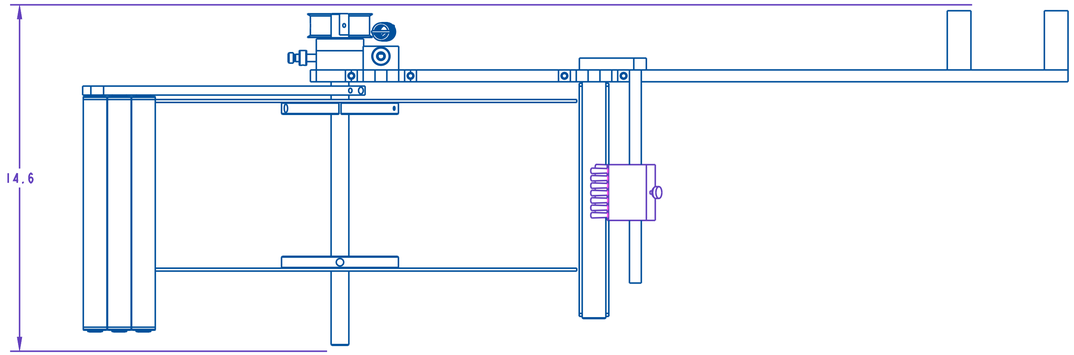
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

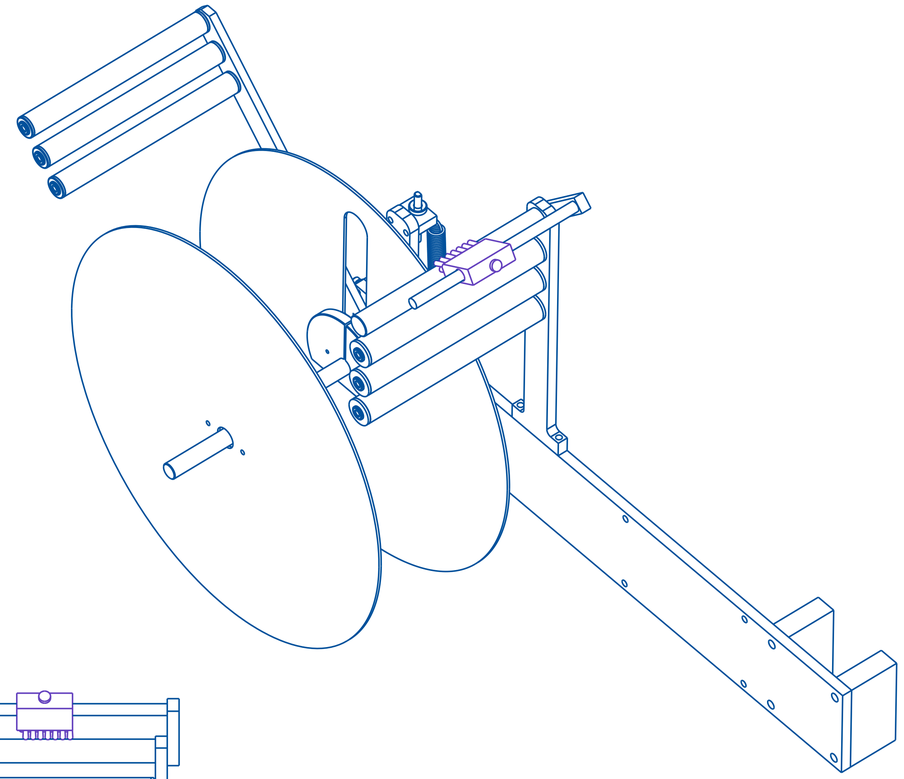
SCALE: 7/32
DATE: Feb-16-23
DRW BY: TAZ
CHK BY: 07/17/2024-SEM
APPR BY:

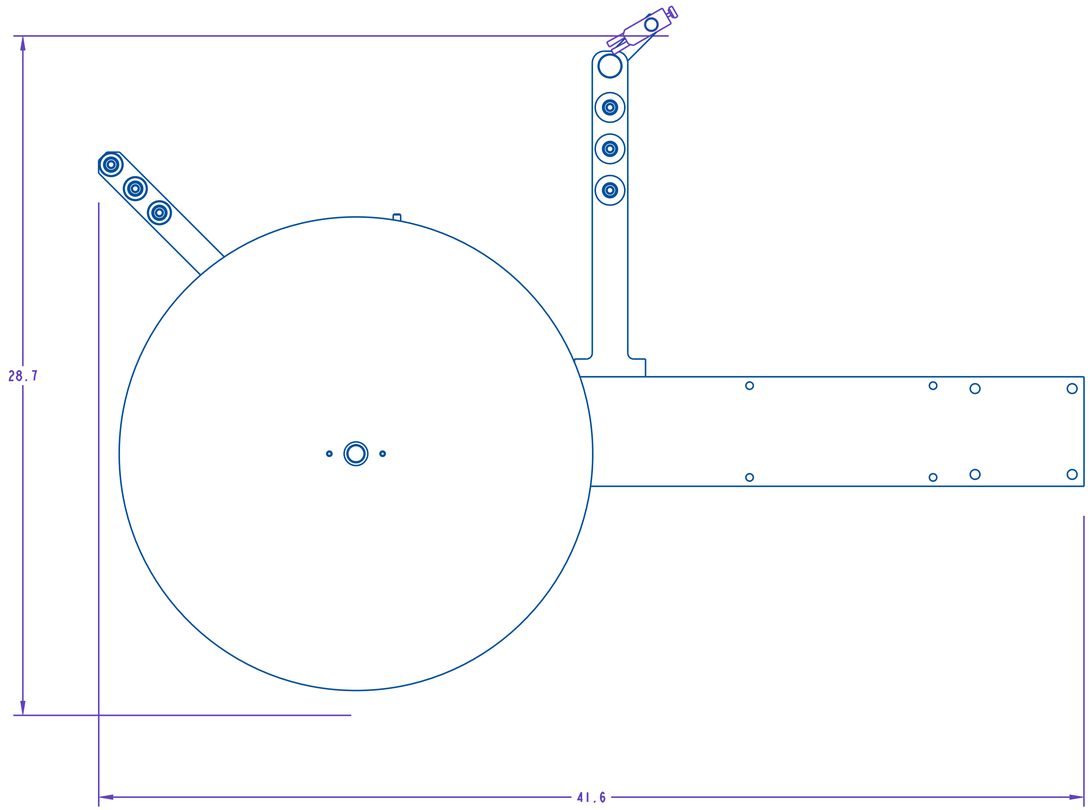
20" UNWIND ASSEMBLY

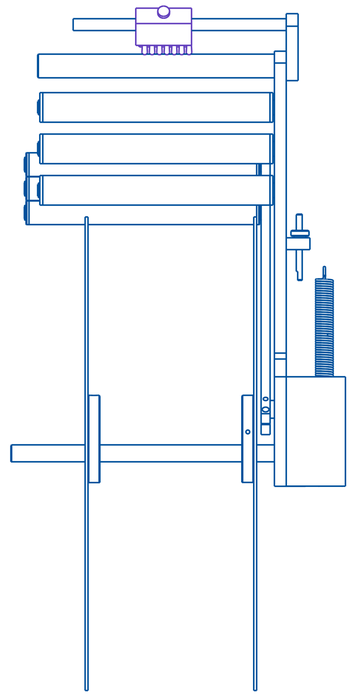
MAT'L 22565U-000

22565U-250









SHEET 2 OF 2

REV	DATE	DESCRIPTION	BY
A	Feb-16-23	NEW DRAWING	TAZ

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.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030
ALL ANGLES ARE 90°

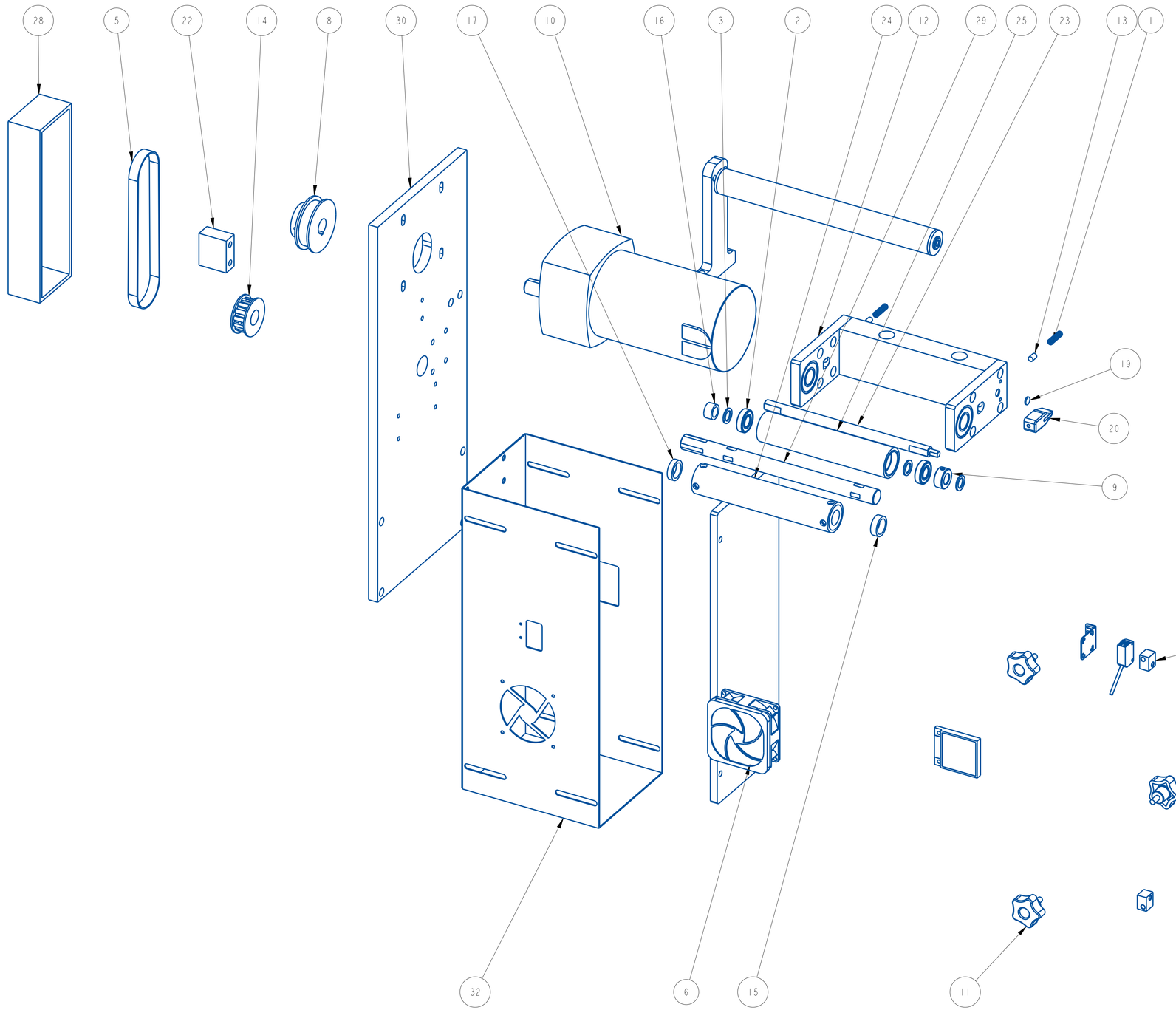
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 5/16
DATE: Feb-16-23
DRW BY: TAZ
CHK BY:07/17/2024-SEM
APPR BY:

20" UNWIND ASSEMBLY

MAT'L 22565U-000

22565U-250



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	00301-17	SPRING, .275 x .052 x .94	22899-000
2	2	111072-000	BEARING, BALL	22899-000
3	3	151004-000	BEARING, THRUST WASHER	22899-000
4	2	181086-000	ROLL END BEARING	22899-000
5	1	191746-000	TIMING BELT	22899-000
6	1	202032-000	FAN, 24V DC	22899-000
7	1	262111-000	FAN COVER, GRID & FILTER	22899-000
8	1	351307-000	TIMING PULLEY	22899-000
9	1	362161-000	COLLAR, SETSCREW, 1/2 IN. ID	22899-000
10	1	411295-000	MOTOR, DC	22899-000
11	4	801308-000	KNOB W/ 1/4-20 STUD	22899-000
12	1	21700DY-000	7" 3-PIECE DRIVE ROLL YOKE	22899-000
13	2	A20567-000	WHITE NYLON SLUG	22899-000
14	1	A21325-001	PULLEY	22899-000
15	1	A23125-000	SPACER	22899-000
16	1	A23751-000	SPACER	22899-000
17	1	A23752-000	SPACER	22899-000
18	1	A24646-003	RETAINING BLOCK MOUNTING PLATE	22899-000
19	1	A25249-000	INDEX DOT	22899-000
20	1	A25250-000	IND KNOB	22899-000
21	4	A25622-000	PANEL MOUNTING BLOCK	22899-000
22	1	A26270-001	SPACER	22899-000
23	1	B20125-001	KNURLED ROLL SHAFT,	22899-000
24	1	B20137-002	PULL ROLL, 7"	22899-000
25	1	B20922-000	SILICONE ROLLER	22899-000
26	1	B21133-010	IDLER ROLLER SHAFT	22899-000
27	1	B21134-010	IDLER ROLLER	22899-000
28	1	B21157-002	REAR ENCLOSURE	22899-000
29	1	C20097-002	PULL ROLL DRIVE SHAFT	22899-000
30	1	D23284-250	DRIVE MOTOR MOUNTING PLATE	22899-000
31	2	D23286-200	DUMP BIN SIDE	22899-000
32	1	D25120-751	DUMP BUCKET	22899-000

REV	DATE	DESCRIPTION	BY
A	May-05-25	NEW DRAWING	TAZ

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 .0107.030

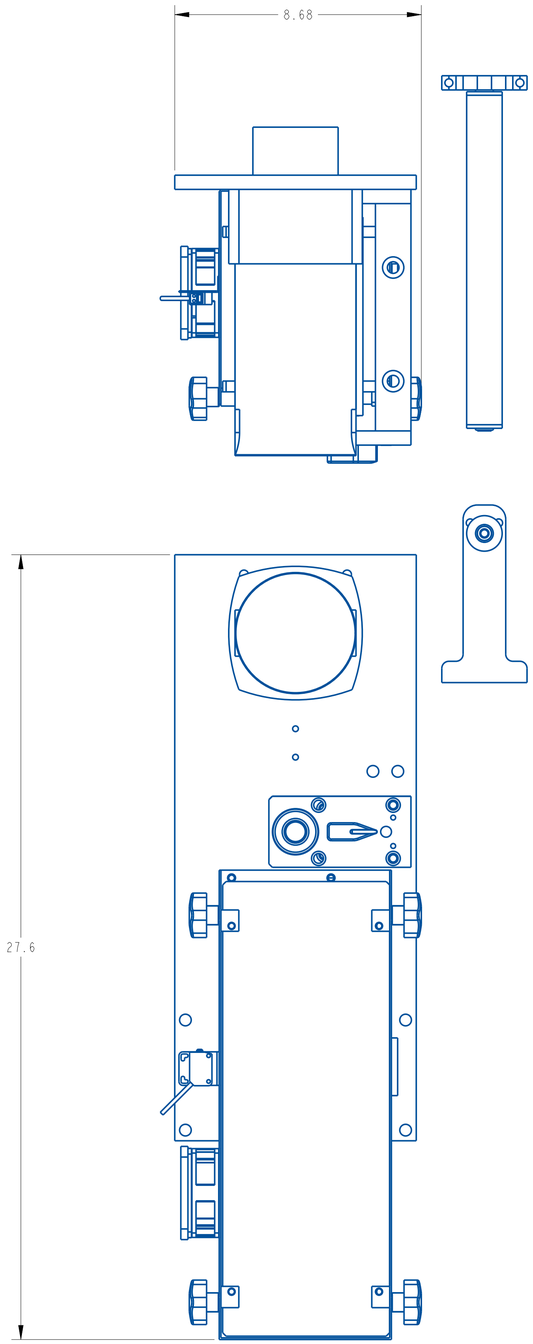
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

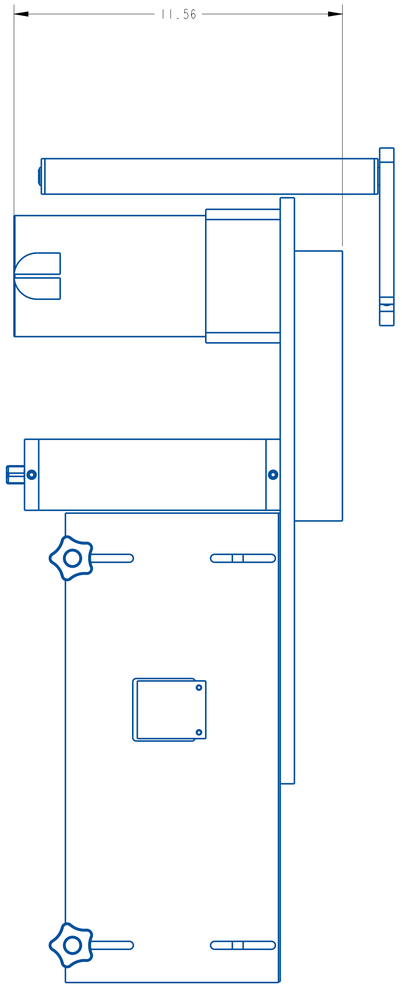
SCALE: 3/8
DATE: May-05-25
DRW BY: TAZ
CHK BY:05/27/2025-SEM
APPR BY:

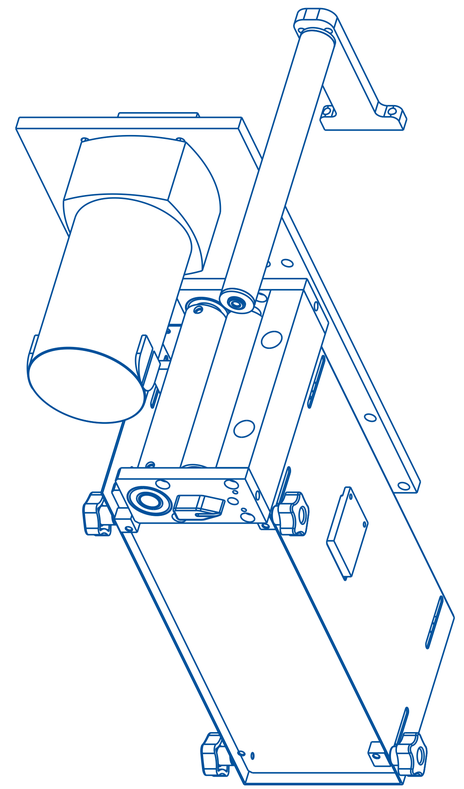
POWERED UNWIND

MAT'L

22899-000







REV	DATE	DESCRIPTION	BY
A	May-05-25	NEW DRAWING	TAZ

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
ALL ANGLES ARE 90°

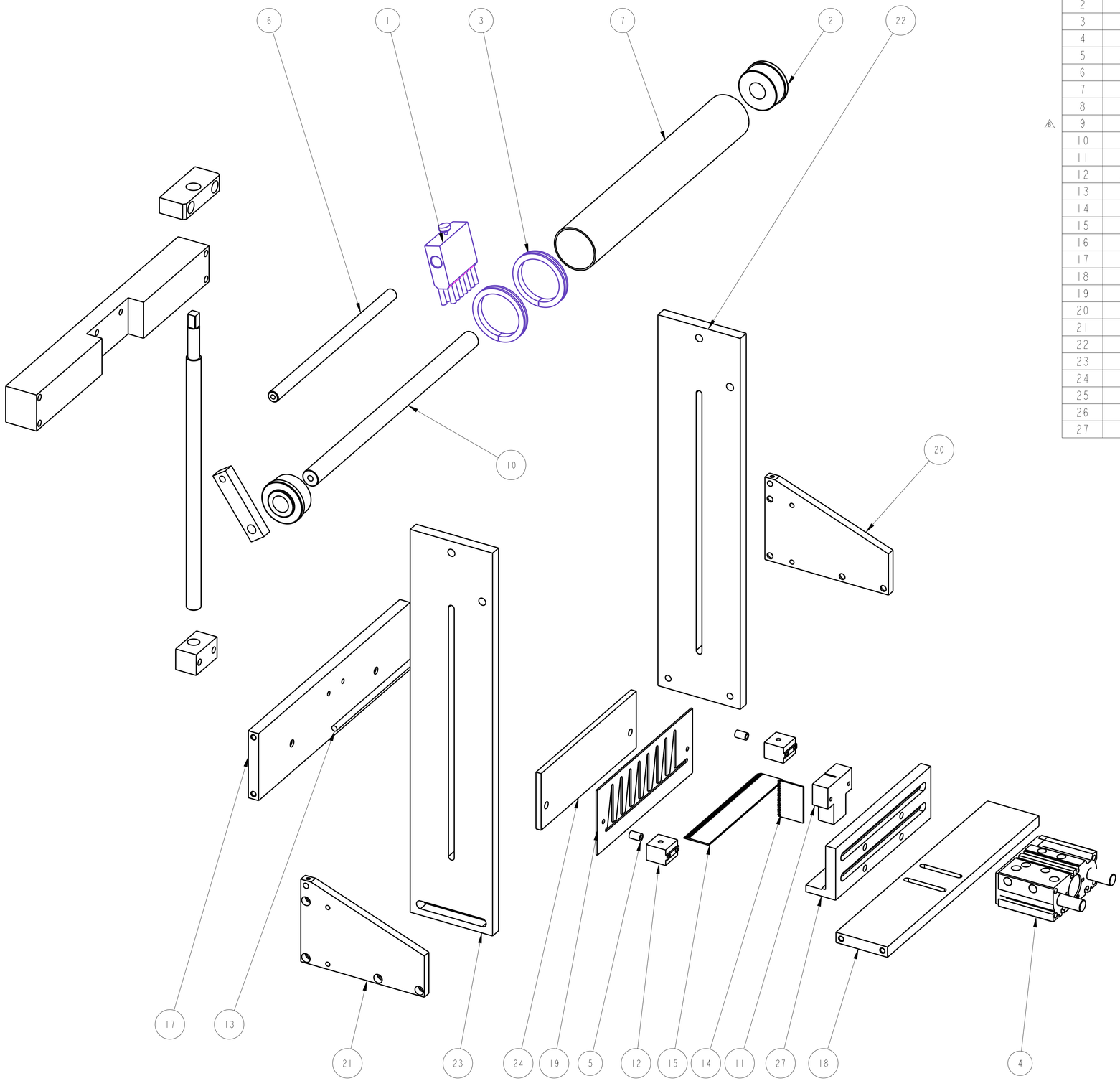
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 3/8
DATE: May-05-25
DRW BY: TAZ
CHK BY:05/27/2025-SEM
APPR BY:

POWERED UNWIND

MAT'L

22899-000



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	00669-01	BRAKE BRUSH 2 x 7 nylon	22518-001
2	2	181090-000	BEARING, ROLL END	22518-001
3	2	361200-000	COLLAR, GUIDE, 2" ID	22518-001
4	1	394436-000	PNEUMATIC SLIDE, 1" STROKE	22518-001
5	2	791252-000	SPACER, GUIDE	22518-001
6	1	A20654-004	ADJ. ROD	22518-001
7	1	A21395-012	IDLER ROLLER	22518-001
8	1	A21535-001	BRAKE BRUSH MTG. BAR	22518-001
9	1	A24077-000	BRONZE NUT, RH	22518-001
10	1	A25220-003	SHAFT IDELER	22518-001
11	1	A25896-001	KNIFE HOLDER	22518-001
12	2	A25897-000	LOCKING BLOCK	22518-001
13	1	A25901-001	MOUNTING ROD	22518-001
14	1	A25902-001	PERFORATION KNIFE	22518-001
15	1	A25902-006	PERFORATION KNIFE	22518-001
16	1	B21620-001	BEARING PLATE	22518-001
17	1	B22763-001	BOTTOM PLATE	22518-001
18	1	B22764-001	BOTTOM PLATE	22518-001
19	1	B22765-001	KNIFE SUPPORT PLATE	22518-001
20	1	B22766-000	SIDE PLATE	22518-001
21	1	B22766-001	SIDE PLATE	22518-001
22	1	B22767-000	MOUTING SUPPORT ARM	22518-001
23	1	B22767-001	MOUTING SUPPORT ARM	22518-001
24	1	B22773-001	CUTTING PAD, RUBBER	22518-001
25	1	B23271-000	MOUTING SUPPORT ARM	22518-001
26	1	C20801-000	THREADED ROD	22518-001
27	1	D24320-001	KNIFE MOUNTING BLOCK	22518-001

NOT SHOWN:

A25902-004 - KNIFE, PERFORATION 0.75"
A25902-005 - KNIFE, PERFORATION 1.80"

REV	DATE	DESCRIPTION	BY
B	Dec-04-25	CHANGED KNIFE HOLDER	TAZ
A	Oct-12-21	NEW DRAWING	

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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 .0107/.030

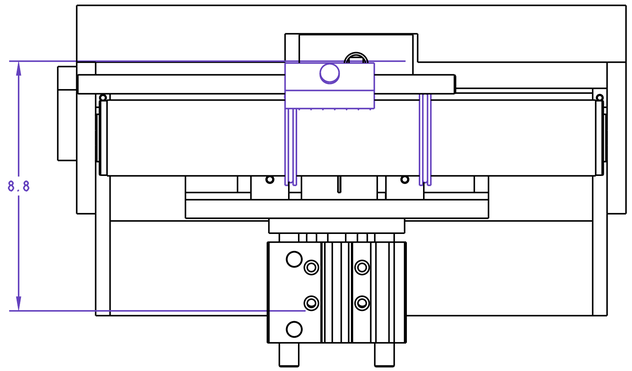
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

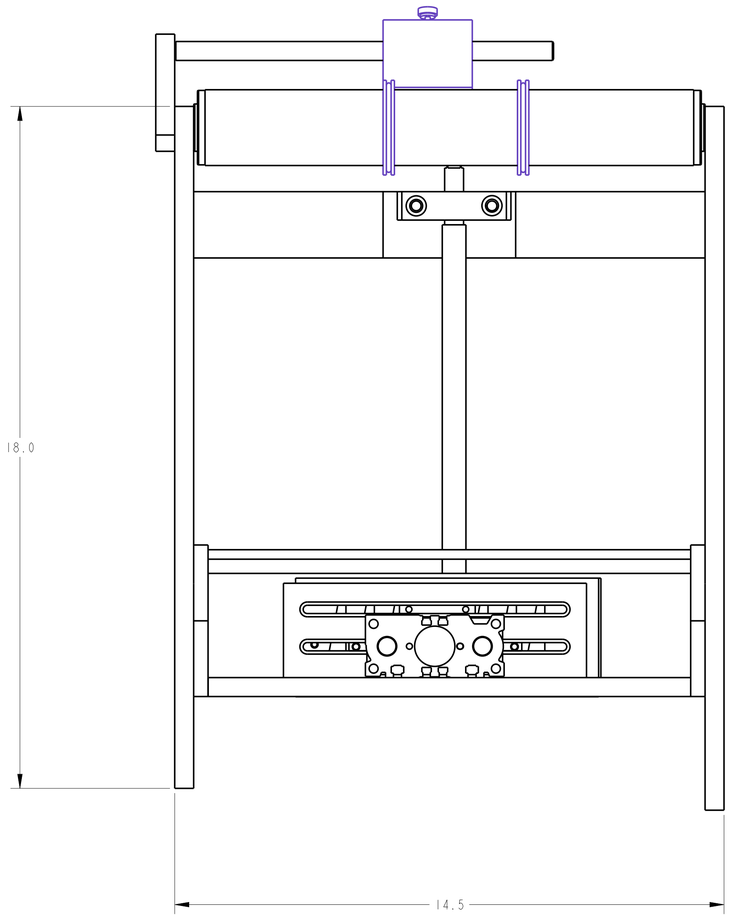
SCALE: 1/16
DATE: Oct-12-21
DRW BY: TAZ
CHK BY: 11/10/2025-SEM
APPR BY:

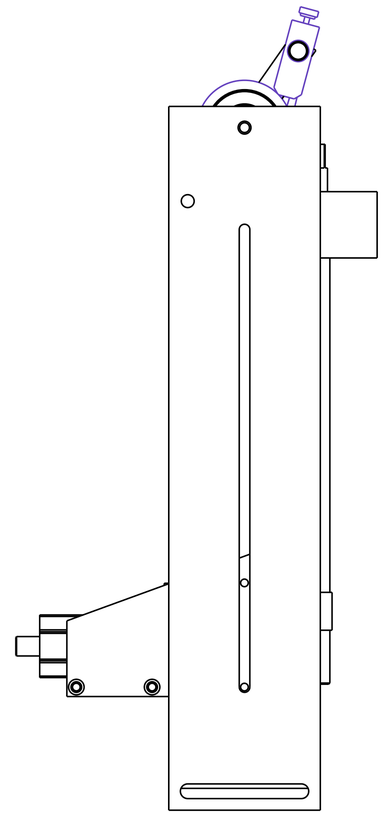
HORIZONTAL PERFORATION ASSEMBLY

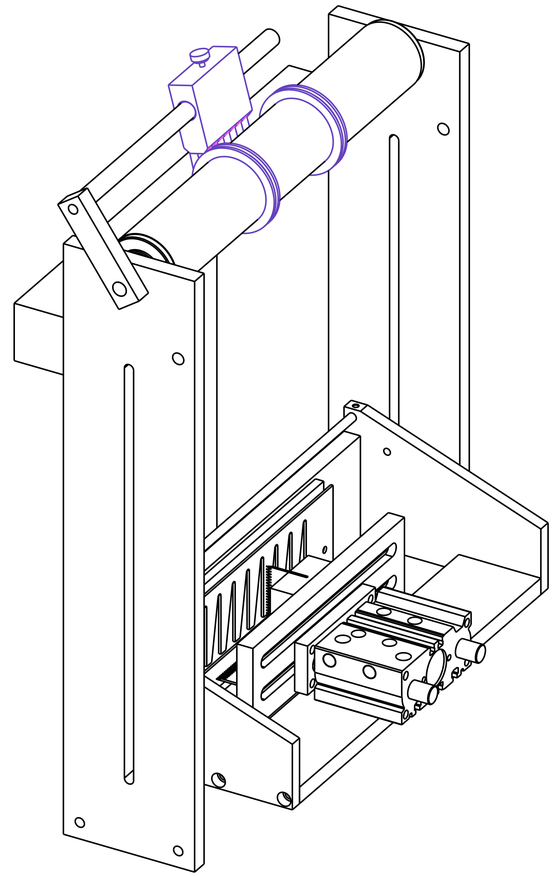
MAT'L

22518-001









REV	DATE	DESCRIPTION	BY
B	12/17/25	REVIESED	SEM
A	Oct-12-21	NEW DRAWING	TAX

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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
ALL ANGLES ARE 90°

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

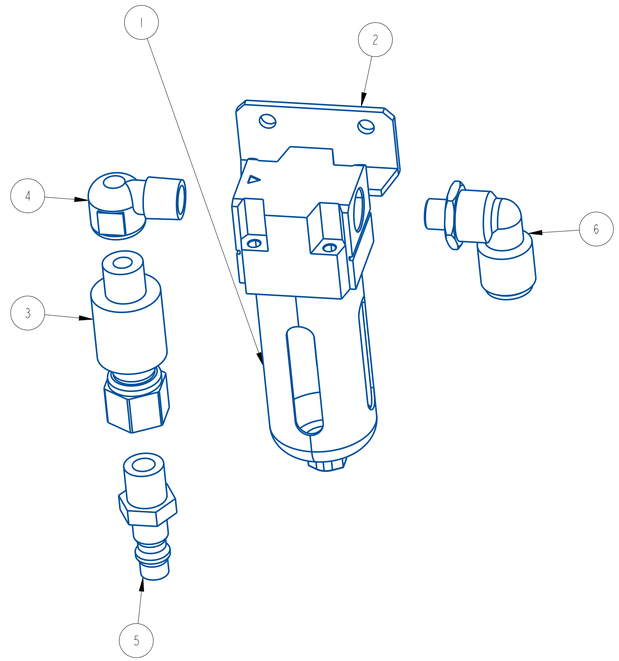
SCALE:	1/2
DATE:	Oct-12-21
DRW BY:	TAZ
CHK BY:	11/10/2025-SEM
APPR BY:	

HORIZONTAL PERFORATION ASSEMBLY

MAT'L

22518-001

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	391201-000	FILTER, AIR	22677-000
2	1	391201-MTG	FILTER / REGULATOR W/GUAGE & BRK	22677-000
3	1	391811-000	DISCONNECT, SLEEVE	22677-000
4	1	391906-000	90 ELBOW	22677-000
5	1	391954-000	FITTING, 1/4 NPT QUICK DISCONNECT	22677-000
6	1	392111-000	3/8" TUBE TO 1/8" THREAD MALE ELBOW	22677-000



REV	DATE	DESCRIPTION	BY
A	8-17-22	NEW DRAWING	ATT

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

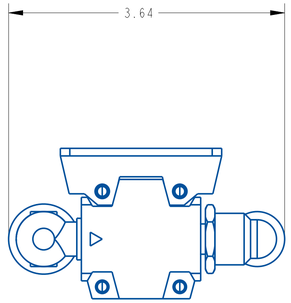
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

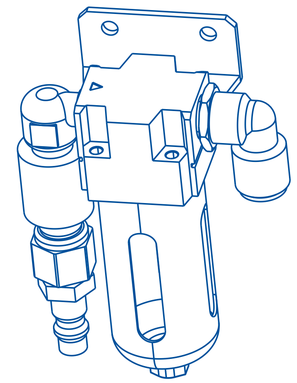
SCALE: 1/1
DATE: 8-17-22
DRW BY: ATT
CHK BY: 03/05/2024-SEM
APPR BY:

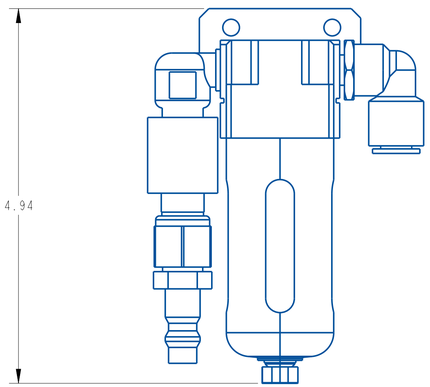
PNEUMATIC INLET

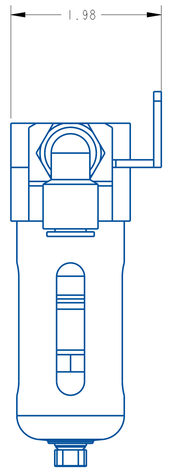
MAT'L

22677-000









REV	DATE	DESCRIPTION	BY
A	8-17-22	NEW DRAWING	ATT

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
ALL ANGLES ARE 90°

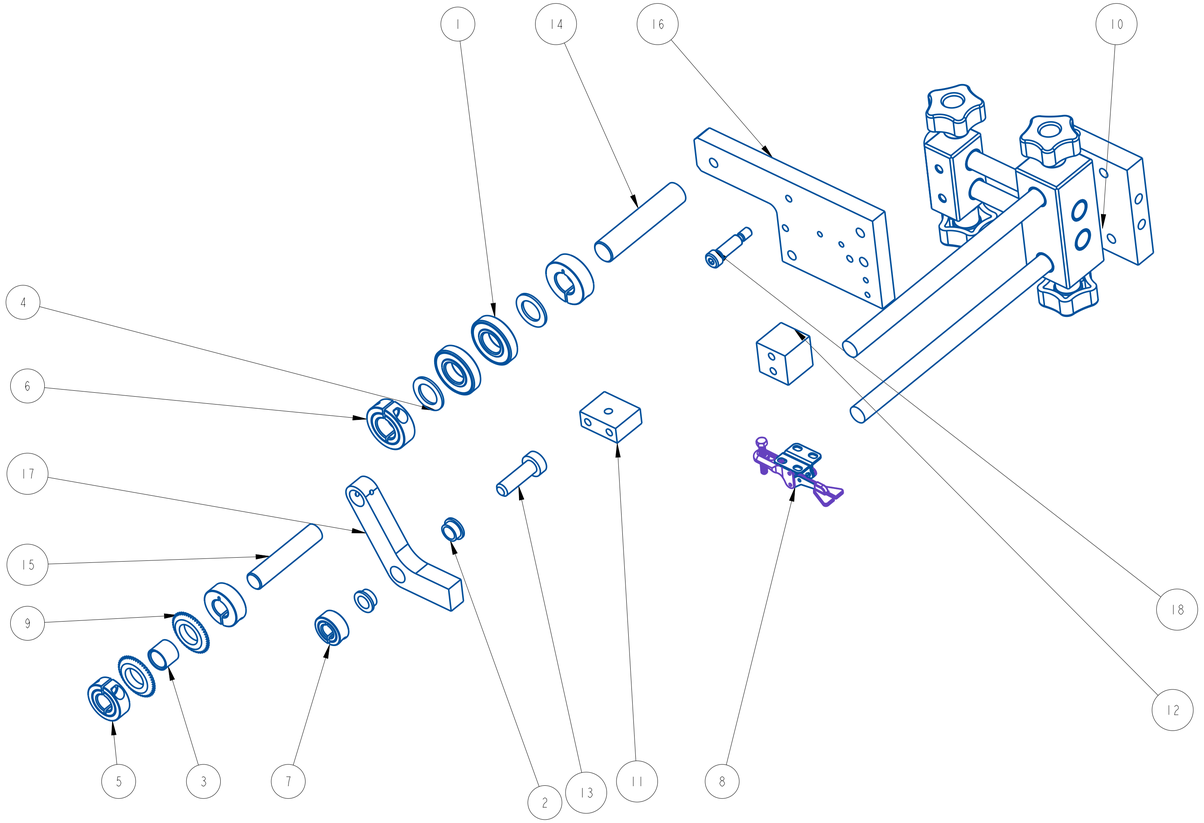
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE:	1/1
DATE:	8-17-22
DRW BY:	ATT
CHK BY:	03/05/2024-SEM
APPR BY:	

PNEUMATIC INLET

MAT'L

22677-000



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	111075-000	BEARING, BALL	22459-200
2	2	131078-000	FLANGE BEARING	22459-200
3	1	141018-000	BEARING, SLEEVE	22459-200
4	2	151008-000	BEARING, THRUST WASHER	22459-200
5	2	361169-000	COLLAR, 1/2 IN. ID ONE-PIECE CLAMP	22459-200
6	2	361182-000	COLLAR, 5/8 IN. ID ONE-PIECE CLAMP	22459-200
7	1	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP	22459-200
8	1	792676-000	TOGGLE CLAMP	22459-200
9	2	792677-002	PERFORATOR WHEEL	22459-200
10	1	22459PM-000	PERFORATOR MOUNTING	22459-200
11	1	A25426-001	BLOCK, MOUNTING	22459-200
12	1	A25814-000	CLAMP MOUNTING BLOCK	22459-200
13	1	A25816-000	PIVOT PIN	22459-200
14	1	A25817-002	BEARING SHAFT	22459-200
15	1	A25818-002	PERFORATOR WHEEL SHAFT	22459-200
16	1	B22679-000	PERFORATOR MOUNTING PLATE	22459-200
17	1	B22680-000	PIVOT ARM	22459-200
18	1	CSSD0206		22459-200

REV	DATE	DESCRIPTION	BY
A	2-6-24	NEW DRAWING	ATT

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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
ALL ANGLES ARE 90°

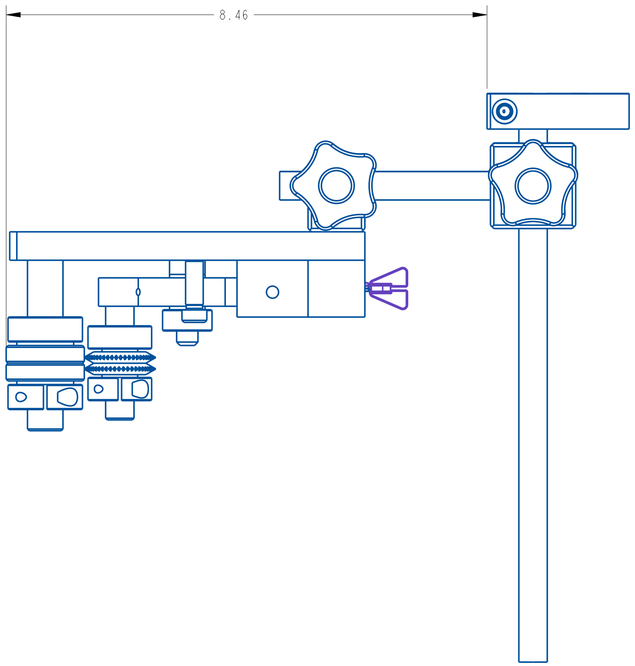
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

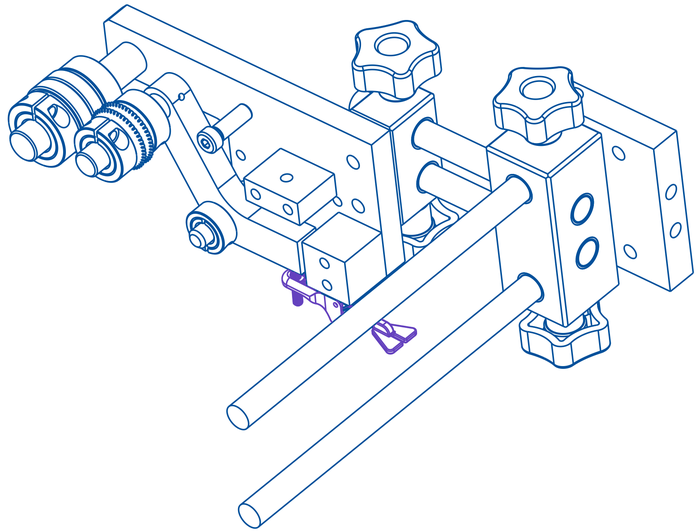
SCALE: 1/2
DATE: 2-6-24
DRW BY: ATT
CHK BY: 11/11/2025-SEM
APPR BY:

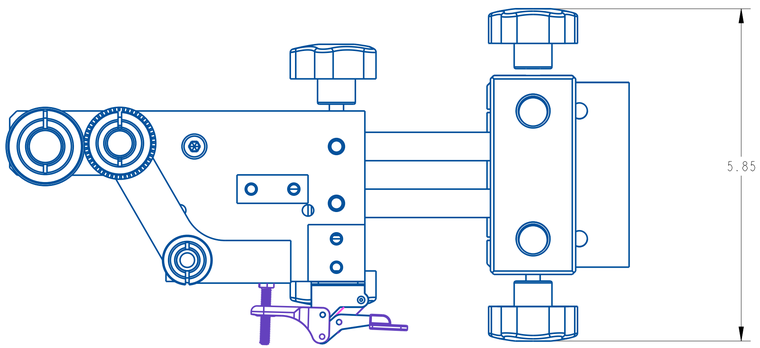
DUAL PERFORATOR & MOUNTING

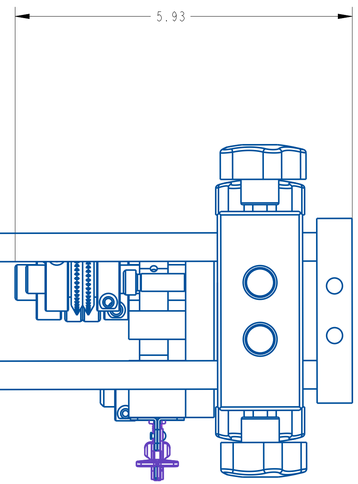
MAT'L

22459-200









REV	DATE	DESCRIPTION	BYE
A	2-6-24	NEW DRAWING	ATT

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

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DIMENSIONAL TOLERANCE
X ± .1
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XXX ± .005
ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030
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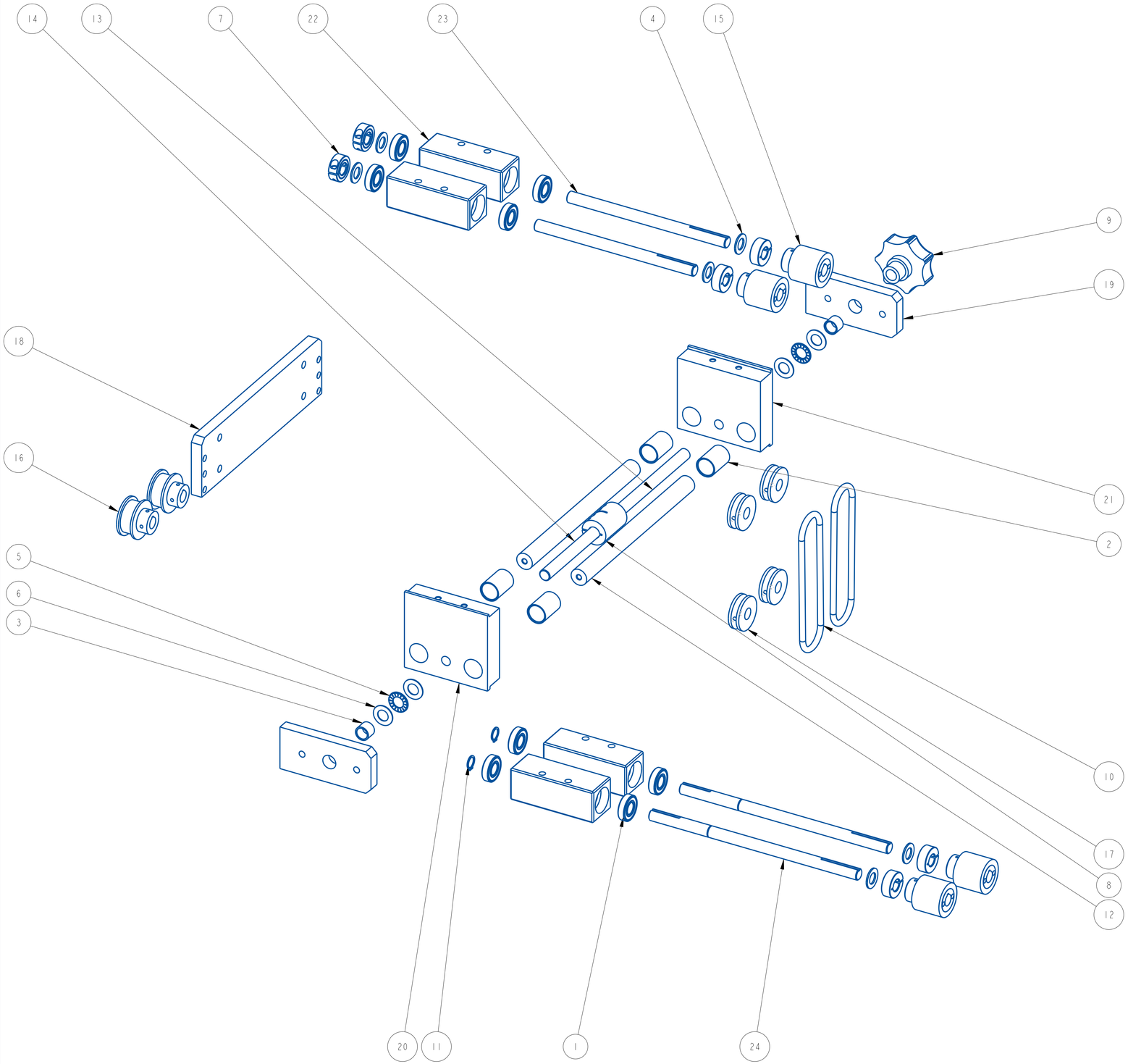
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 3/4
DATE: 2-6-24
DRW BY: ATT
CHK BY:!!/!!/2025-SEM
APPR BY:

DUAL PERFORATOR & MOUNTING

MAT'L 22459-200

22459-200



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	8	111072-000	BEARING, BALL	22565DR-000
2	4	141097-001	BEARING, SLEEVE	22565DR-000
3	2	141166-000	BEARING, SLEEVE	22565DR-000
4	6	151062-000	BEARING, THRUST WASHER	22565DR-000
5	2	181079-000	BEARING, NEEDLE ROLLER	22565DR-000
6	4	181080-000	BEARING, THRUST WASHER	22565DR-000
7	6	361169-000	COLLAR, 1/2 IN. ID ONE-PIECE CLAMP	22565DR-000
8	1	361259-000	COUPLING, ONE PIECE CLAMP-ON	22565DR-000
9	1	801320-000	HAND KNOB	22565DR-000
10	2	841586-000	O-RING BELT	22565DR-000
11	2	871030-000	EXTERNAL SNAP RING	22565DR-000
12	2	A23581-010	GUIDE ROD	22565DR-000
13	1	A23583-000	R.H. ADJUSTMENT ROD	22565DR-000
14	1	A23584-000	R.H. ADJUSTMENT ROD	22565DR-000
15	4	A23587-000	DRIVE ROLLER	22565DR-000
16	2	A25276-000	TIMING PULLEY	22565DR-000
17	4	A25940-000	ROUND BELT PULLEY	22565DR-000
18	1	B21164-001	SIDE PLATE MOUNTING PLATE	22565DR-000
19	2	B21165-000	GUIDE ROD MOUNTING PLATE	22565DR-000
20	1	B21166-002	BEARING MOUNTING PLATE-R.H.	22565DR-000
21	1	B21166-003	BEARING MOUNTING PLATE-L.H.	22565DR-000
22	4	B21167-000	DRIVE SHAFT MTG. BLOCK	22565DR-000
23	2	B21168-000	IDLER ROLLER SHAFT	22565DR-000
24	2	B21169-000	DRIVE ROLLER SHAFT	22565DR-000

REV	DATE	DESCRIPTION	BY
A	7-18-13	NEW DRAWING	MAW

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

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIOS .0107.030

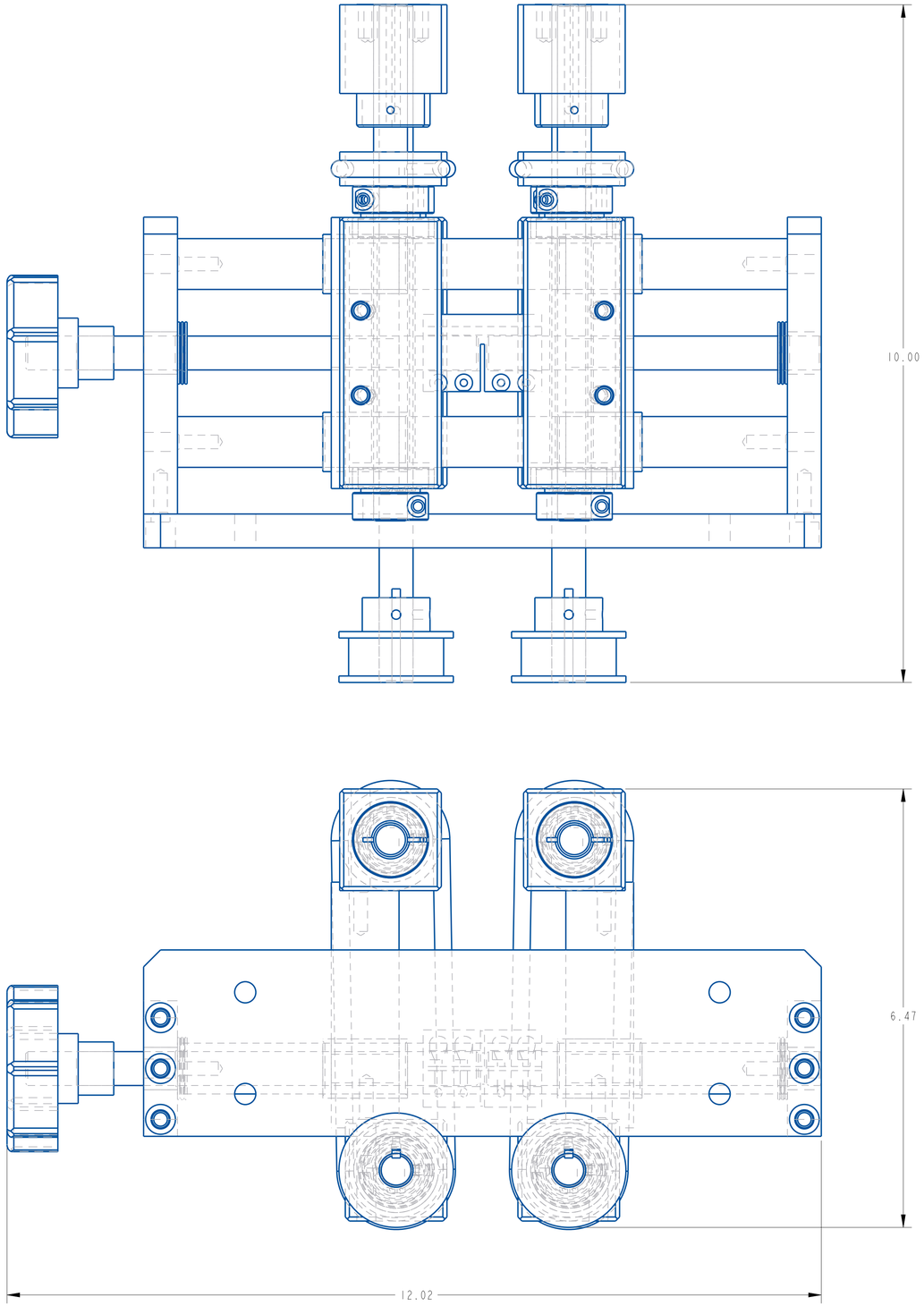
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

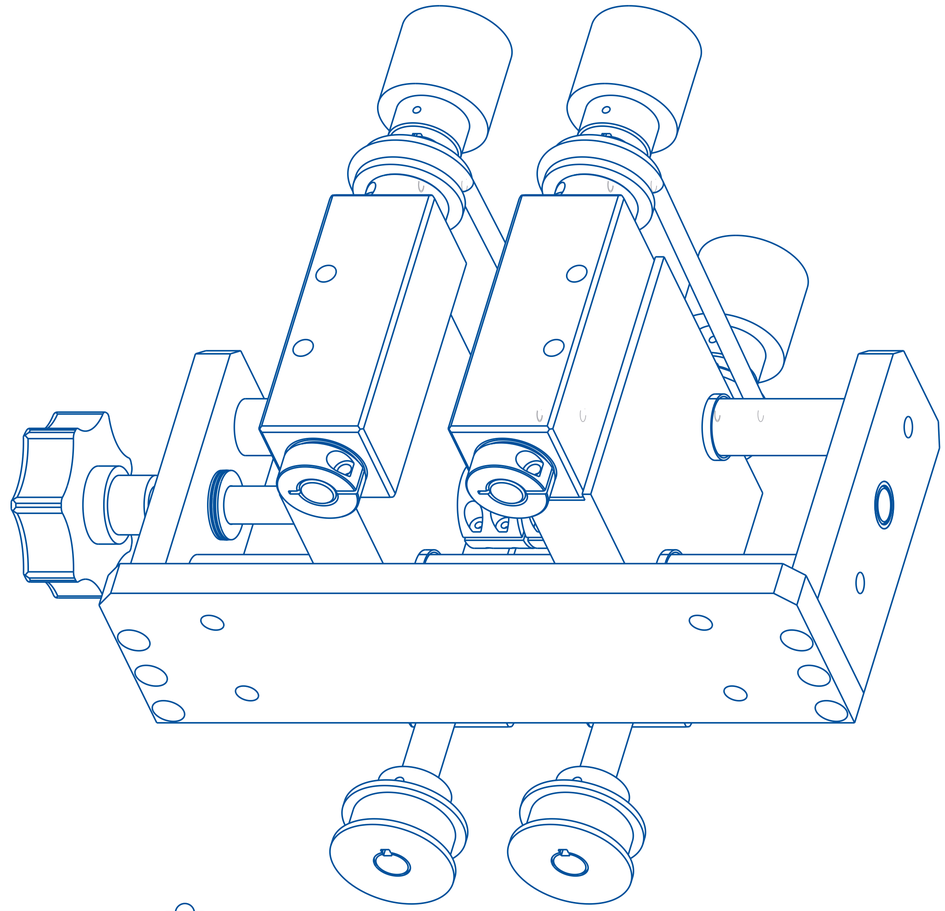
SCALE: 7/16
DATE: 7-18-13
DRW BY: MAW
CHK BY: 07/16/2024-SEM
APPR BY:

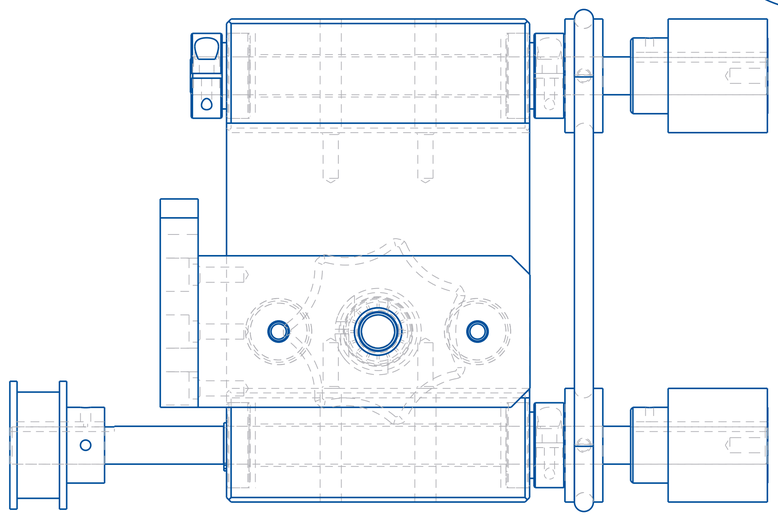
DRIVE ROLLER

MAT'L 22565DR-000

D24801-000







SHEET 2 OF 2

REV	DATE	DESCRIPTION	BY
A	7-18-13	NEW DRAWING	MAW

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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
ALL ANGLES ARE 90°

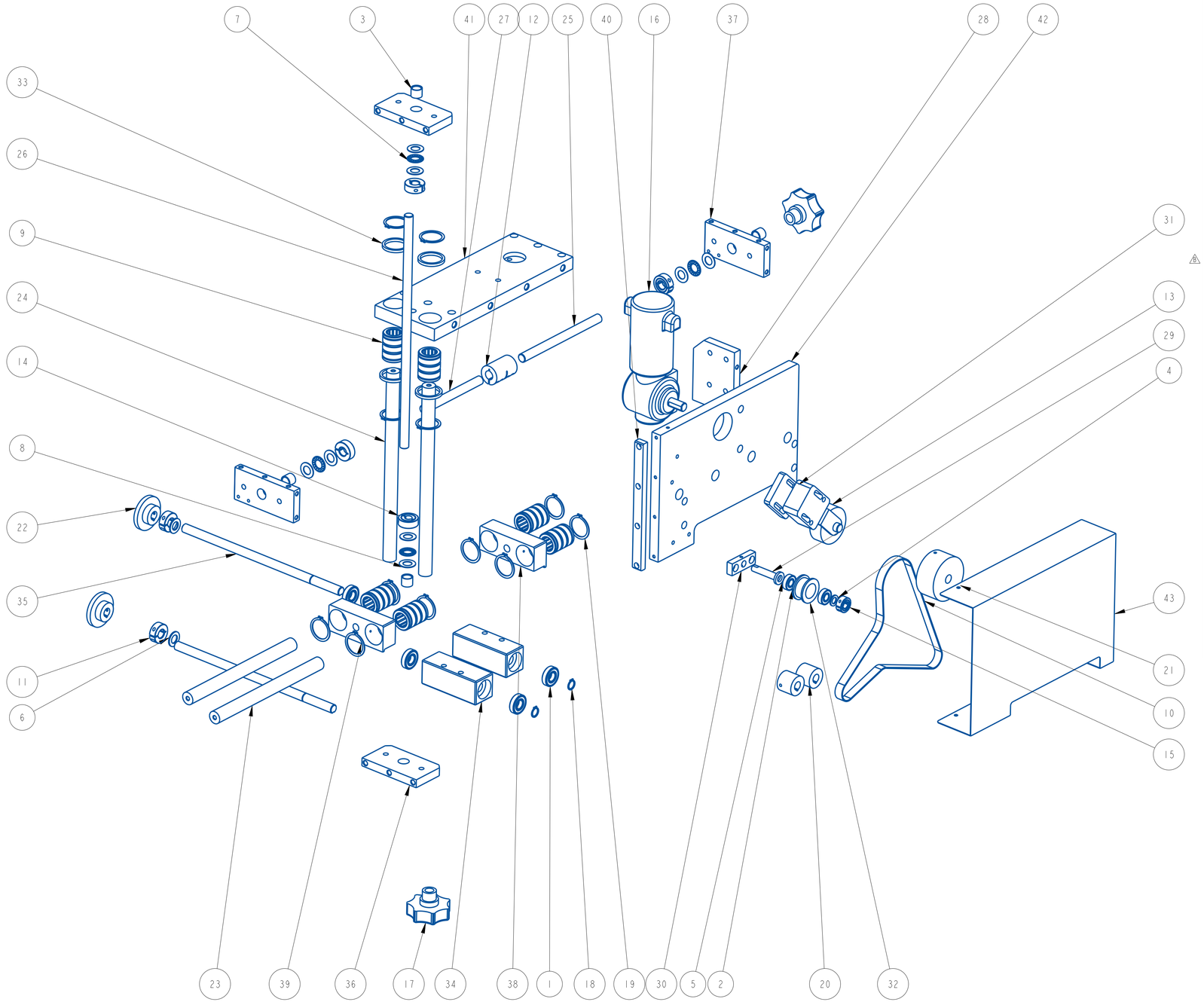
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 1/1
DATE: 7-18-13
DRW BY: MAW
CHK BY:07/16/2024-SEM
APPR BY:

DRIVE ROLLER

MAT'L 22565DR-000

D24801-000



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	4	111072-000	BEARING, BALL	21490TDR-003
2	2	111073-000	BEARING, BALL	21490TDR-003
3	4	141166-000	BEARING, SLEEVE	21490TDR-003
4	1	151014-000	BEARING, THRUST WASHER	21490TDR-003
5	1	151021-000	BEARING, THRUST WASHER	21490TDR-003
6	2	151062-000	BEARING, THRUST WASHER	21490TDR-003
7	4	181079-000	BEARING, NEEDLE ROLLER	21490TDR-003
8	8	181080-000	BEARING, THRUST WASHER	21490TDR-003
9	6	181148-000	LINER BEARING	21490TDR-003
10	1	191732-000	DOUBLE SIDED TIMING BELT	21490TDR-003
11	5	361169-000	COLLAR, 1/2 IN. ID ONE-PIECE CLAMP	21490TDR-003
12	1	361259-000	COUPLING, ONE PIECE CLAMP-ON	21490TDR-003
13	1	361320-000	SPANN-BOX	21490TDR-003
14	1	362167-000	COLLAR, 1/2 IN. ID ONE-PIECE CLAMP	21490TDR-003
15	1	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP	21490TDR-003
16	1	412141-000	1/17 HP RIGHT ANGLE GEARMOTOR	21490TDR-003
17	2	801320-000	HAND KNOB	21490TDR-003
18	2	871030-000	EXTERNAL SNAP RING	21490TDR-003
19	12	871046-000	EXTERNAL SNAP RING	21490TDR-003
20	2	A22335-003	THROW DOWN PULLEY	21490TDR-003
21	1	A22335-007	STEPPER MOTOR PULLEY	21490TDR-003
22	2	A23429-011	THROW DOWN DRIVE ROLLER	21490TDR-003
23	2	A23581-000	GUIDE ROD	21490TDR-003
24	2	A23581-001	GUIDE ROD	21490TDR-003
25	1	A23583-000	R.H. ADJUSTMENT ROD	21490TDR-003
26	1	A23583-001	R.H. ADJUSTMENT ROD	21490TDR-003
27	1	A23584-000	L.H. ADJUSTMENT ROD	21490TDR-003
28	1	A23645-000	MOTOR MOUNTING PLATE	21490TDR-003
29	1	A23669-000	IDLER PULLEY SHAFT	21490TDR-003
30	1	A23670-000	IDLER SHAFT MOUNTING PLATE	21490TDR-003
31	1	A23672-000	TENSIONER MOUNTING PLATE	21490TDR-003
32	1	A23697-001	IDLER PULLEY	21490TDR-003
33	4	A24044-000	SLEEVE BRG RETAINER SPACER	21490TDR-003
34	2	B21167-000	DRIVE SHAFT MTG. BLOCK	21490TDR-003
35	2	B21169-001	DRIVE ROLLER SHAFT	21490TDR-003
36	2	B21170-000	GUIDE ROD MTG PLATE	21490TDR-003
37	2	B21171-000	GUIDE ROD MOUNTING PLATE	21490TDR-003
38	1	B21174-000	R.H. BEARING MOUNTING PLATE	21490TDR-003
39	1	B21174-001	L.H. BEARING MOUNTING PLATE	21490TDR-003
40	1	B21175-000	WEAR STRIP	21490TDR-003
41	1	C20561-000	BEARING MOUNTING PLATE	21490TDR-003
42	1	C20563-000	MOTOR MOUNTING PLATE	21490TDR-003
43	1	C20593-000	GUARD	21490TDR-003

REV.	DATE	DESCRIPTION	BY
B	Apr-19-23	WAS -002	TAZ
A	Feb-13-23	NEW DRAWING	TAZ

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

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .0107.030

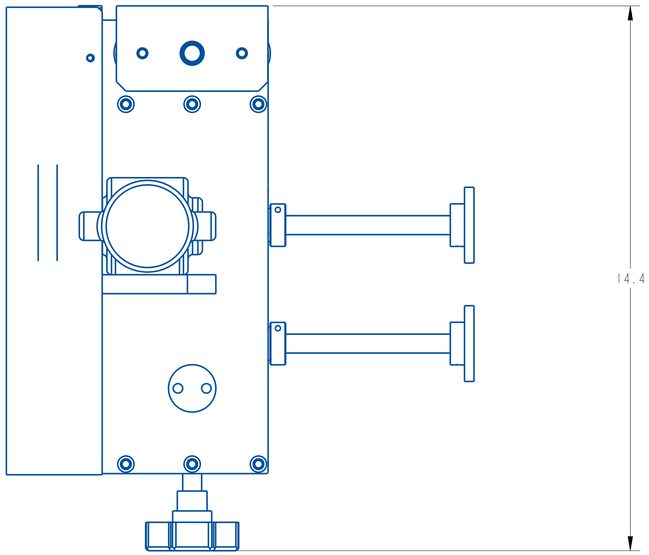
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

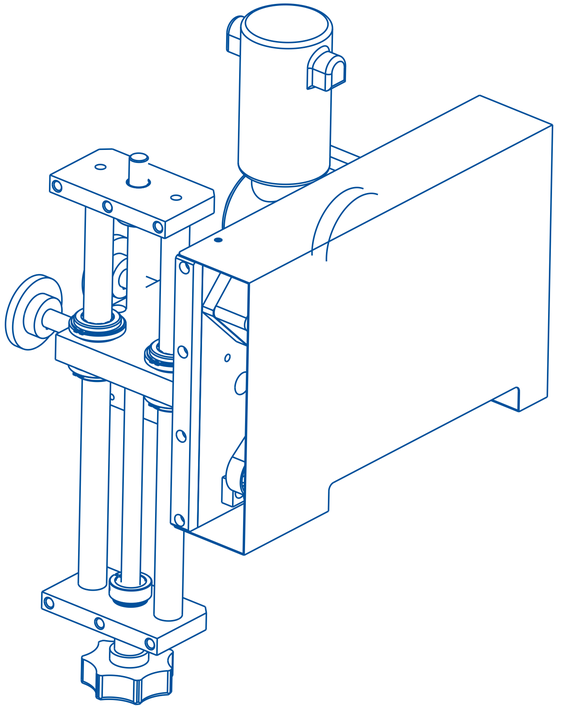
SCALE: 5/16
DATE: Feb-13-23
DRW BY: TAZ
CHK BY:07/16/2024-SEM
APPR BY:

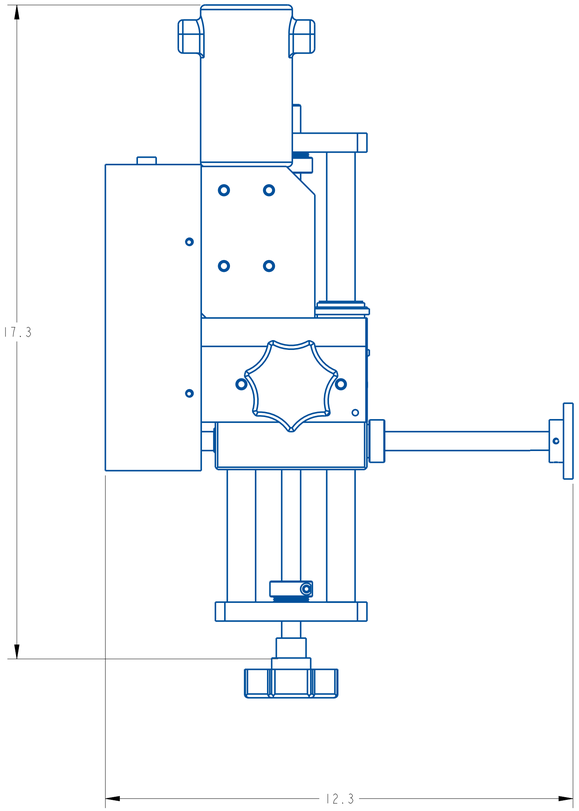
THROW DOWN ROLLER ASSEMBLY

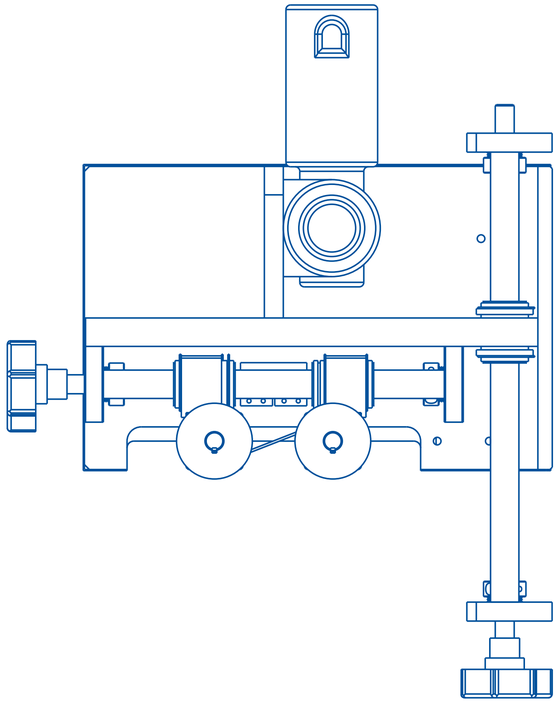
MAT'L 21490TDR-000 CLEAR ANODIZE

21490TDR-003









REV	DATE	DESCRIPTION	BY
A	Feb-13-23	NEW DRAWING	TAZ

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DIMENSIONAL TOLERANCE
X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'

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: 1/2
DATE: Feb-13-23
DRW BY: TAZ
CHK BY:07/16/2024-SEM
APPR BY:

THROW DOWN ROLLER ASSEMBLY

MAT'L
21490TDR-000
CLEAR ANODIZE

21490TDR-003

ASSEMBLY TITLE: **SLOT SENSOR ASSEMBLY**

GENERAL FUNCTION:

- The slot sensor detects the cut length eyemark on the sleever material if applicable. This signals the electronics to stop the drive motor and operate the cutter.
- 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:

- Follow the adjustment procedure provided with this manual for the appropriate sensor.

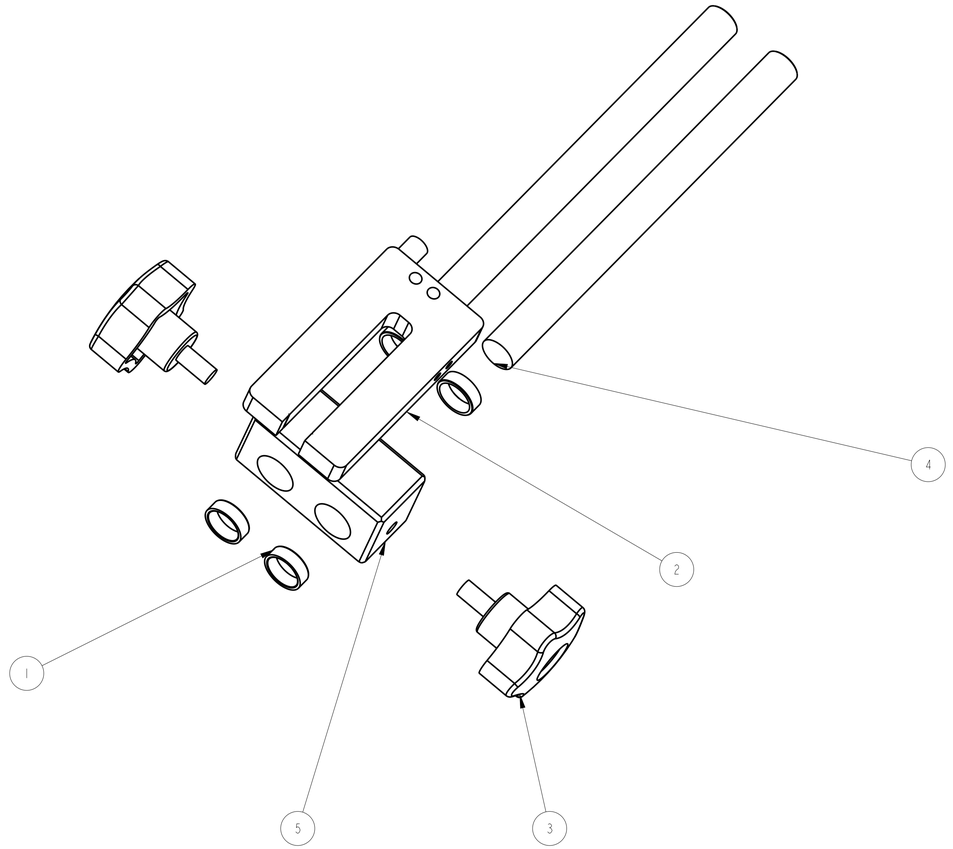
MAINTENANCE:

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

TROUBLESHOOTING:

PROBLEM	WHAT TO DO
- 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

ITEM	QTY	PART NO.	DESCRIPTION
1	4	141171-000	SLEEVE BEARING
2	1	202625-001	SLOT SENSOR
3	2	801308-000	KNOB W/ 1/4-20 STUD
4	2	A23898-001	HORIZONTAL GUIDE ROD
5	1	B21256-000	SENSOR MOUNTING PLATE



REV	DATE	DESCRIPTION
A	1-8-13	NEW DRAWING

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

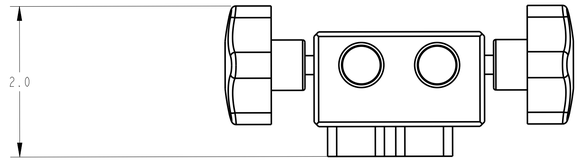
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

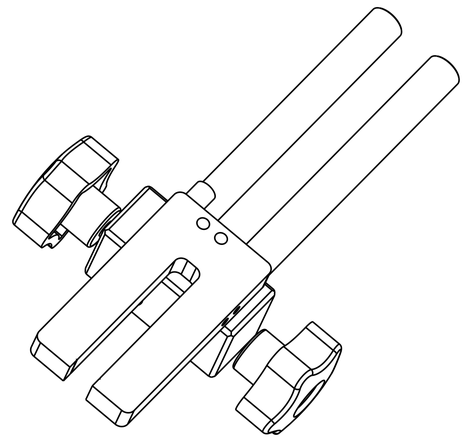
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

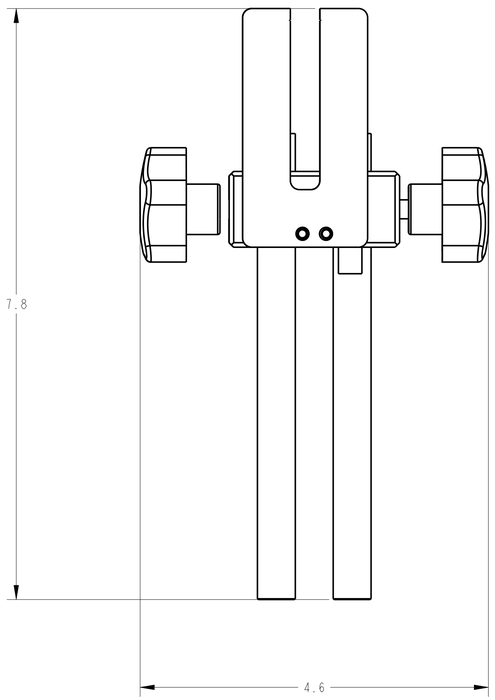
	1/1
	1-8-13
	DC

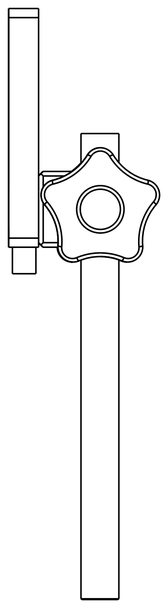
MATERIAL GAP SENSOR ASSY

21490LS-001 | D22379-001









A	1-8-13	NEW DRAWING
REV	DATE	DESCRIPTION

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DIMENSIONAL TOLERANCE
X ± .1
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QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

	1/1
	1-8-13
	DC

MATERIAL GAP SENSOR ASSY

21490LS-001 | D22379-001

SLM Series Slot Sensors

Datasheet

- An easy-to-use, self-contained, opposed-mode sensor pair in a U-shaped housing
- Rugged, sealed, die-cast metal housing is rated IEC IP67 (NEMA 6)
- Easy and economical to mount; molded-in beam guides simplify beam placement
- Eight slot widths from 10 mm to 220 mm for a wide variety of sensing applications
- Current sourcing (PNP), current sinking (NPN), or bipolar (one NPN and one PNP) output, depending on model
- Fast 500-microsecond response time
- 10 V dc to 30 V dc supply voltage
- Single-turn potentiometer sensitivity adjustment
- Visible red beam
- Selectable Light Operate (L.O.) or Dark Operate (D.O.) with sealed switch

WARNING: Not To Be Used for Personnel **Protection**

Never use this device as a sensing device for personnel **protection.** Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

Models

QD Models [1]	Slot Width	Output Type
SLM10P6Q	10 mm (0.39 in)	PNP
SLM10N6Q		NPN
SLM20P6Q	20 mm (0.79 in)	PNP
SLM20N6Q		NPN
SLM30P6Q	30 mm (1.18 in)	PNP
SLM30N6Q		NPN
SLM50P6Q	50 mm (1.97 in)	PNP
SLM50N6Q		NPN
SLM80P6Q	80 mm (3.15 in)	PNP
SLM80N6Q		NPN
SLM120P6Q	120 mm (4.72 in)	PNP
SLM120N6Q		NPN
SLM180P6Q	180 mm (7.09 in)	PNP
SLM180N6Q		NPN
SLM220P6Q	220 mm (8.66 in)	PNP
SLM220N6Q		NPN

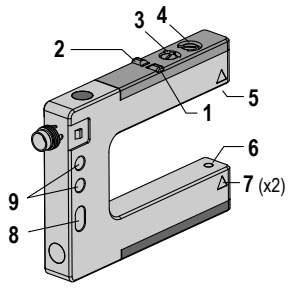
Cabled Models [2]	Slot Width	Output Type
SLM10B6	10 mm (0.39 in)	Bipolar (one NPN and one PNP)
SLM20B6	20 mm (0.79 in)	
SLM30B6	30 mm (1.18 in)	
SLM50B6	50 mm (1.97 in)	
SLM80B6	80 mm (3.15 in)	
SLM120B6	120 mm (4.72 in)	
SLM180B6	180 mm (7.09 in)	
SLM220B6	220 mm (8.66 in)	

[1] Integral 3-pin M8/Pico-style quick disconnect models are listed. Models with a quick disconnect require a mating cordset.
[2] Integral 2 m (6.5 ft) unterminated cable models are listed.
- To order the 9 m (30 ft) PVC cable model, add the suffix "W/30" to the cabled model number. For example, SLM10B6 W/30.
- To order the 150 mm (6 in) PUR cable model with a 4-pin M12/Euro-style quick disconnect, add the suffix "QPMA" to the model number. For example, SLM10B6QPMA.
- Models with a quick disconnect require a mating cordset.

Overview

The SLM Series Slot Sensor (sometimes called a “fork sensor”) comprises an opposed-mode emitter and its receiver inside a single convenient housing.

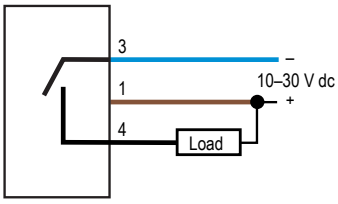
Opposed-mode sensing is very reliable, and the single, self-contained housing provides easy installation, with no sensor alignment required. In addition, molded-in arrows on the housing show at a glance the position of the beam, simplifying installation placement. Applications include counting, gear tooth detection, edge detection, part sensing on conveyor rails and belts, position and orientation verification, dimension verification, tool break monitoring, and level monitoring.



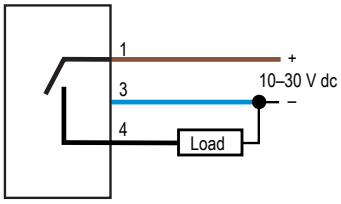
1. Output LED (amber)
2. Power on LED (green)
3. Dark/Light Operate select switch
4. Sensitivity potentiometer
5. Receiver aperture
6. Emitter aperture
7. Beam position arrows
8. Mounting hole (all models except SLM10 and SLM20)
9. Mounting holes (all models)

Wiring Diagrams

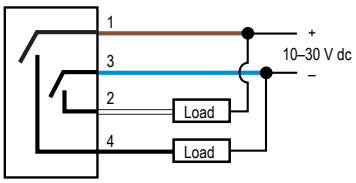
NPN



PNP



Bipolar



Key

1. Brown
2. White
3. Blue
4. Black

Configuring the Sensor

For the best results, place the objects to be detected midway between the emitter and receiver.

Adjusting the **Sensitivity**

Adjust the sensor’s sensitivity by turning the 270-degree-turn Sensitivity potentiometer with a small flat-blade screwdriver.

Apply power to the sensor and turn the potentiometer all the way clockwise (maximum gain). If the object to be sensed does not block the beam at the maximum gain, turn the gain down a little at a time, testing with the object, until the object can be sensed reliably.

If adjusting the sensitivity with the potentiometer does not provide reliable object detection, investigate alternative sensing methods.

Selecting Light or Dark Operate

Select dark operate (D.O.) or light operate (L.O.) by turning the DO/LO selector switch to the desired setting using a small flat-blade screwdriver.

If dark operate is selected, the output conducts when the receiver element does not see the emitted light (object is present). If light operate is selected, the output conducts when the receiver element sees the emitted light (object is absent).

Specifications

Supply Voltage and Current
10 V dc to 30 V dc (10% max. ripple) at less than 25 mA, exclusive of load

Supply **Protection** Circuitry
Protected against reverse polarity and transient voltages

Output **Configuration**
Cabled and Euro-style QD models: Bipolar: One current sourcing (PNP) and one current sinking (NPN)
Pico-style QD models: Current sourcing (PNP) or current sinking (NPN), depending on model

Output **Rating**
100 mA with short circuit protection
OFF-state leakage current:
NPN: < 200 µA
PNP: < 10 µA
ON-state saturation voltage:
NPN: 1.6 V at 100 mA
PNP: 2.0 V at 100 mA

Output **Protection** Circuitry
Protected against output short-circuit and false pulse on power up
100 ms max. delay at power up; outputs do not conduct during this time

Output Response Time
500 microseconds

Repeatability
95 microseconds

Operating Conditions
–20 °C to +60 °C (–4 °F to +140 °F)
95% at +55 °C maximum relative humidity (non-condensing)

Slot Opening
10 mm, 20 mm, 30 mm, 50 mm, 80 mm, 120 mm, 180 mm, or 220 mm (depending on model); beam is 5 mm (0.2 in) from outer edge

Adjustments
1-turn potentiometer sensitivity adjustment
Light/dark operate selection switch

Indicators
Two LED Indicators: Power (green) and Output (amber)
Green on: Power on
Green flashing: Sensor short circuit
Amber on: Output is activated

Construction
Housing: die-cast zinc with nickel plating
Endcaps: ABS
Optic windows: acrylic

Connections
Cabled models: 2 m (6.5 ft) or 9 m (30 ft) 4-conductor, PVC-jacketed cable
Pico-style QD models: 3-pin, threaded integral QD connector
Euro-style QD models: 150 mm (6 in) PUR cable with 4-pin, threaded connector

Environmental **Rating**
IEC IP67; NEMA 6

Required Overcurrent **Protection**

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to *www.bannerengineering.com*.

Supply Wiring (AWG)	Required Overcurrent **Protection** (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

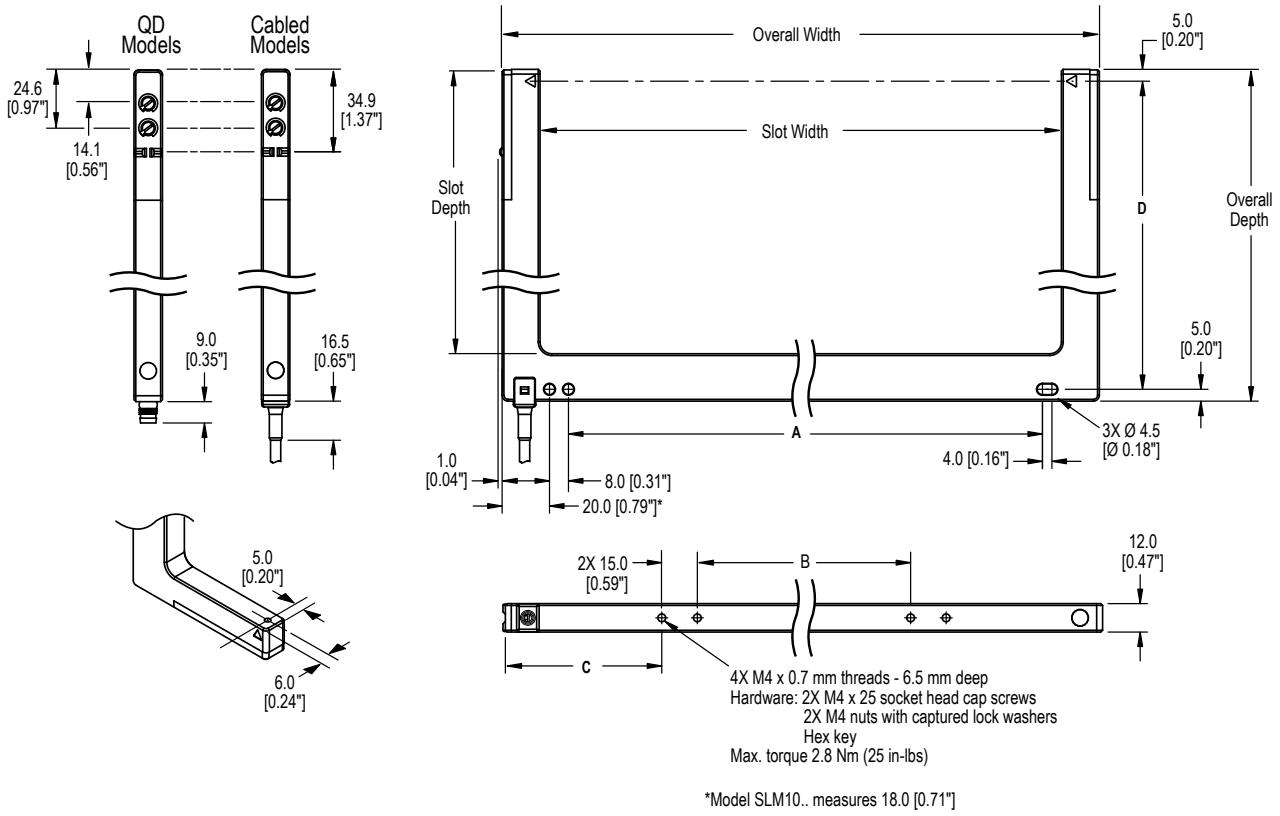
Certifications

IND. CONT. EQ. E224071

	SLM10	SLM20	SLM30	SLM50	SLM80	SLM120	SLM180	SLM220
Minimum object **detection** at maximum gain [3]	1.00 mm (0.040 in)	1.25 mm (0.050 in)	1.50 mm (0.060 in)	1.65 mm (0.065 in)	1.80 mm (0.070 in)	1.80 mm (0.070 in)	1.80 mm (0.070 in)	2.40 mm (0.095 in)
Minimum object **detection** at 2 **times** excess gain[3]	0.30 mm (0.012 in)	0.30 mm (0.012 in)	0.40 mm (0.016 in)	0.60 mm (0.024 in)	0.75 mm (0.030 in)	0.90 mm (0.035 in)	0.90 mm (0.035 in)	1.00 mm (0.039 in)
Hysteresis[4]	0.10 mm (0.004 in)	0.10 mm (0.004 in)	0.10 mm (0.004 in)	0.10 mm (0.004 in)	0.20 mm (0.008 in)	0.20 mm (0.008 in)	0.20 mm (0.008 in)	0.20 mm (0.008 in)
Repeatability [5]	0.02 mm (0.001 in)	0.02 mm (0.001 in)	0.02 mm (0.001 in)	0.04 mm (0.002 in)	0.06 mm (0.002 in)	0.08 mm (0.003 in)	0.08 mm (0.003 in)	0.08 mm (0.003 in)

[3] The smallest diameter rod that can be detected when passed slowly through sensing beam. Minimum object detection is measured midway between the emitter and receiver. For best results, place the object to be detected in the midway position when possible. The minimum object detection size may increase if the object is very close to the receiver side.
[4] The distance an object must move to toggle between output OFF and output ON state.
[5] The variation in switching distance for a standard target at controlled sensing conditions.

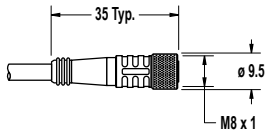
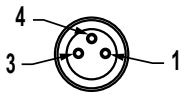
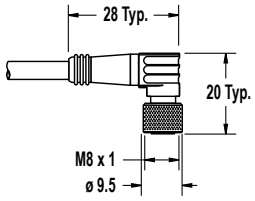
Dimensions

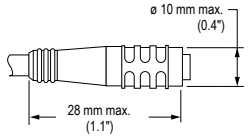
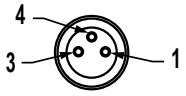
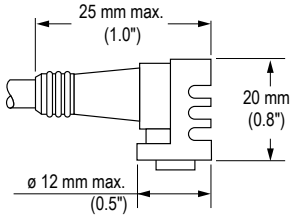


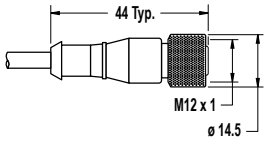
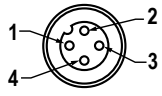
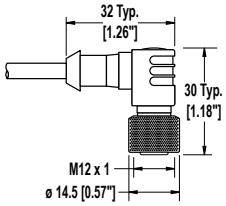
All measurements are listed in millimeters [inches], unless noted otherwise.

Models	Slot Width	Slot Depth	Overall Width	Overall Depth	A Side Mount	B Back Mount	C	D
SLM10	10 mm (0.39")	60.8 mm (2.39")	42 mm (1.65")	80 mm (3.15")	n/a	n/a	n/a	70 mm (2.76")
SLM20	20 mm (0.79")		52 mm (2.05")					
SLM30	30 mm (1.18")		62 mm (2.44")		10 mm (0.39")			
SLM50	50 mm (1.97")		82 mm (3.23")		30 mm (1.18")	15 mm (0.59")	33.5 mm (1.32")	
SLM80	80 mm (3.15")		112 mm (4.41")		60 mm (2.36")		48.5 mm (1.91")	
SLM120	120 mm (4.72")	120.7 mm (4.75")	152 mm (5.98")	140 mm (5.51")	100 mm (3.94")	30 mm (1.18")	46 mm (1.81")	130 mm (5.12")
SLM180	180 mm (7.09")		212 mm (8.35")		160 mm (6.30")	70 mm (2.76")	56 mm (2.20")	
SLM220	220 mm (8.66")		252 mm (9.92")		200 mm (7.87")	90 mm (3.54")	66 mm (2.60")	

Accessories

3-Pin Threaded M8/Pico-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
PKG3M-2	2 m (6.56 ft)	Straight		 1 = Brown 3 = Blue 4 = Black
PKG3M-5	5 m (16.40 ft)			
PKG3M-7	7 m (22.97 ft)			
PKG3M-9	9 m (29.53 ft)			
PKG3M-10	10 m (32.81 ft)			
PKW3M-2	2 m (6.56 ft)	Right-Angle		
PKW3M-5	5 m (16.40 ft)			
PKW3M-9	9 m (29.53 ft)			

3-Pin Snap/Pico-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
PKG3Z-2	2 m (6.56 ft)	Straight		 1 = Brown 3 = Blue 4 = Black
PKW3-2	2 m (6.56 ft)	Right-Angle		

4-Pin Threaded M12/Euro-Style Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406	1.83 m (6 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black
MQDC-415	4.57 m (15 ft)			
MQDC-430	9.14 m (30 ft)			
MQDC-450	15.2 m (50 ft)			
MQDC-406RA	1.83 m (6 ft)	Right-Angle		
MQDC-415RA	4.57 m (15 ft)			
MQDC-430RA	9.14 m (30 ft)			
MQDC-450RA	15.2 m (50 ft)			

Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.

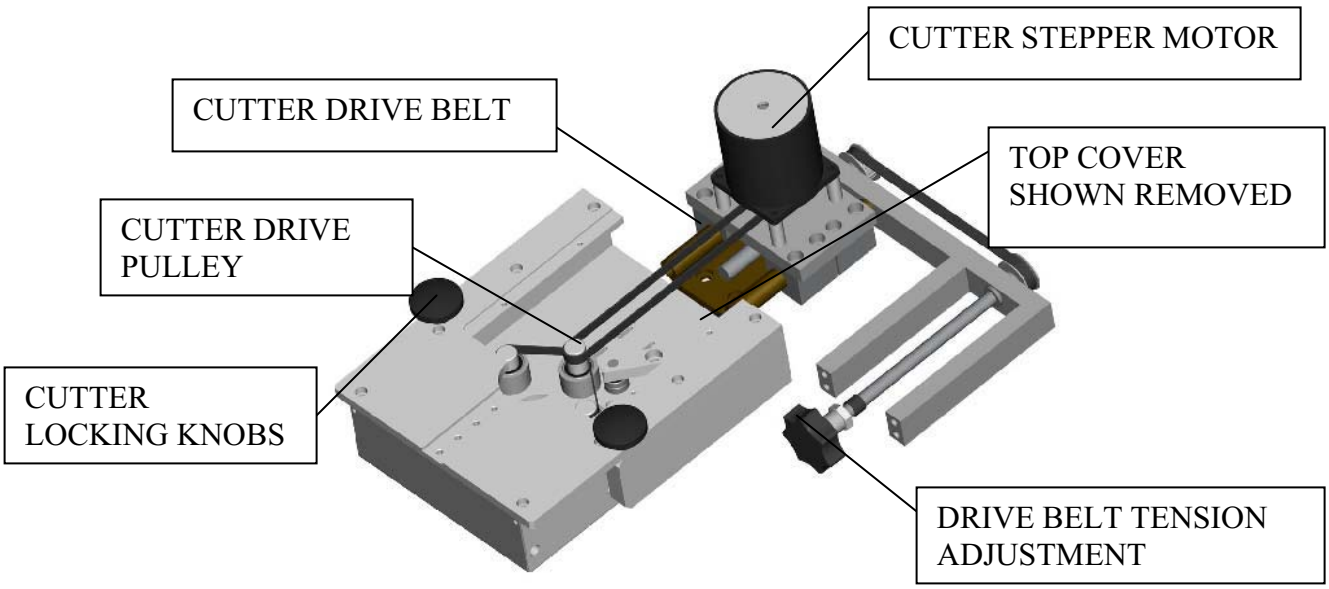
Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: *www.bannerengineering.com*.

CUTTER ASSEMBLY

SEQUENCE OF OPERATION:

The cutter assembly provides the appropriate cut length for the application. It is controlled by a stepper motor and utilizes a series of replaceable blades. Once a product is detected the drive rolls will advance the sleeve material to the appropriate length. The cutter blades will rotate and cut the material. The cut material will remain on the lower portion of the mandrel until the next product is detected.

When the material advances it will push the cut material into the throw down rollers and the rollers will push the material onto the product.



REMOVAL AND REPLACEMENT:

The cutter assembly is removable for maintenance and replacement for multiple size sleeves. Before removal, ensure that all power is turned off. The cutter blades are located in the bottom half of the cutter. **Ensure that the blade cover is installed before removing assembly.**

REMOVAL:

1. Remove the sleever mandrel assembly.

2. Remove the top cover to access the drive belt. Turn the drive belt tension adjustment clockwise to loosen belt tension and remove drive belt from the drive pulley on the cutter.

3. Remove the cutter locking knobs and slide the cutter assembly from the sleever.

REPLACEMENT:

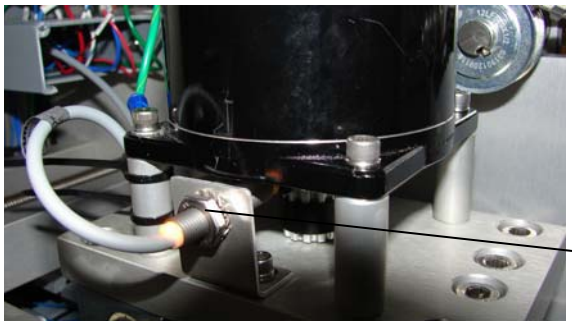
Before replacing the cutter assembly, the cutter drive motor and blades must be preset.

1. Before installing the cutter assembly, rotate the cutter drive pulley until the blades are as illustrated below.

2. Apply power to the sleever and press the cutter home button on operator's panel to preset the cutter drive motor to the correct position.

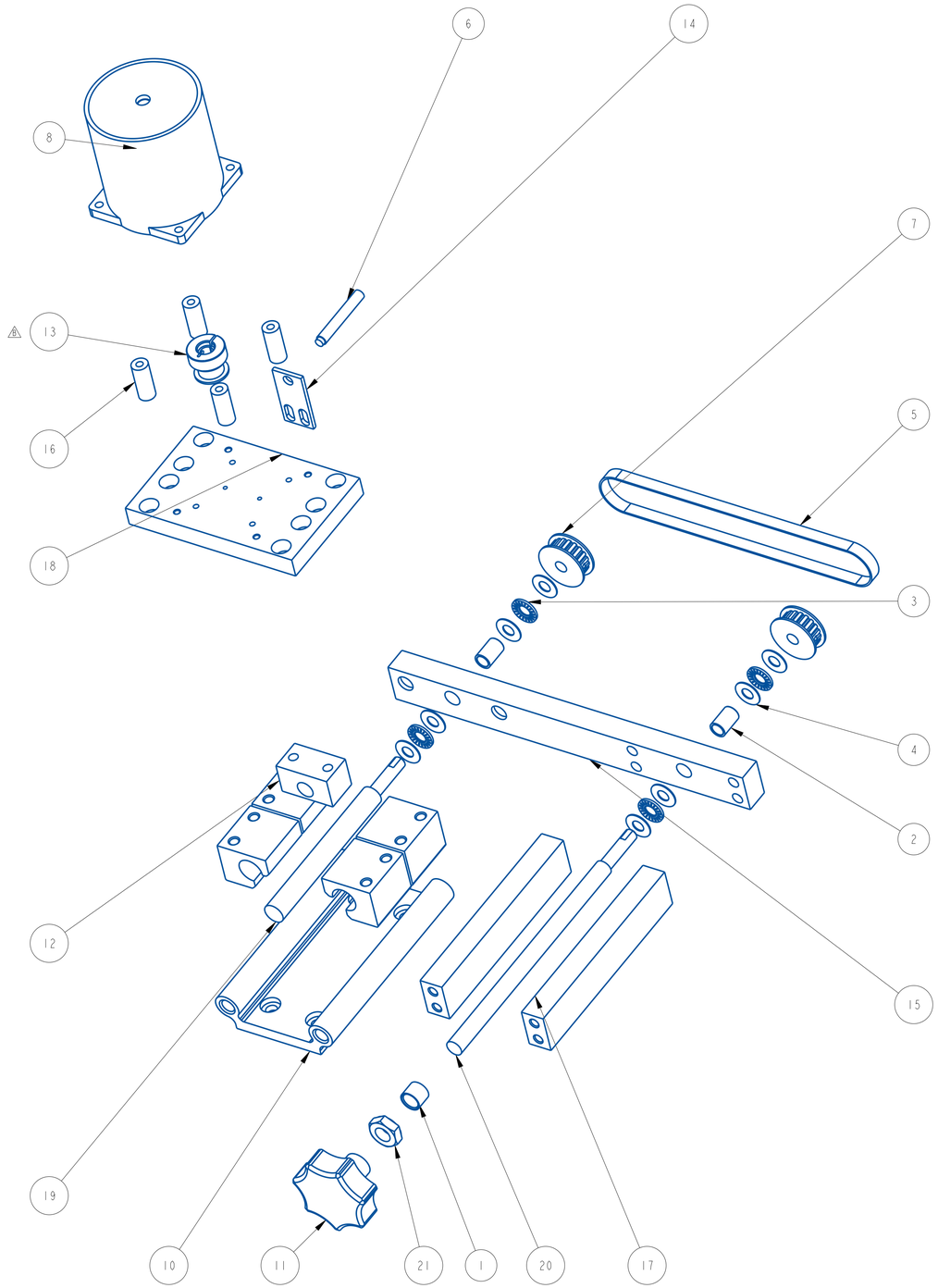
3. Slide the cutter assembly into position and tighten the cutter locking knobs.

4. Slide the cutter drive belt onto the drive pulley and rotate the tension adjustment knob CCW until belt is tight. Replace the top cover.



CUTTER DRIVE MOTOR
HOME SENSOR: 202086-002

CUTTER BLADES
ROTATED 180* FROM
MANDREL



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	141166-000	BEARING, SLEEVE	22480CD-000
2	2	141172-000	SLEEVE BEARING, 1/2OD. x 3/8ID. x 3/4LNG	22480CD-000
3	4	181108-000	BEARING, NEEDLE ROLLER	22480CD-000
4	8	181111-000	THRUST WASHER	22480CD-000
5	1	191728-002	TIMING BELT	22480CD-000
6	1	202086-005	PROX. SWITCH	22480CD-000
7	2	352189-001	PULLEY, 1/5P 20 GROOVE	22480CD-000
8	1	411385-000	MOTOR, STEPPER	22480CD-000
9	4	792248-001	PILLOW BLOCK	22480CD-000
10	1	793036-000	DRYLIN RAIL	22480CD-000
11	1	801320-000	HAND KNOB	22480CD-000
12	1	A24077-000	BRONZE NUT, RH	22480CD-000
13	1	A25911-001	PULLEY/COLLAR ASSEMBLY	22480CD-000
14	1	A25983-000	PROX. MTG PLATE	22480CD-000
15	1	B21346-050	BEARING PLATE	22480CD-000
16	4	B22713-000	SPACER	22480CD-000
17	2	B22797-000	SPACER	22480CD-000
18	1	C20626-060	MOTOR MTG. SLED	22480CD-000
19	1	C20717-010	THREADED ROD	22480CD-000
20	1	C20717-020	THREADED ROD	22480CD-000
21	1	HHJN02		22480CD-000

REV	DATE	DESCRIPTION	BY
B	8/11/21	CHANGED PULLEY	TAZ
A	10-7-20	NEW DRAWING	ATT

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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

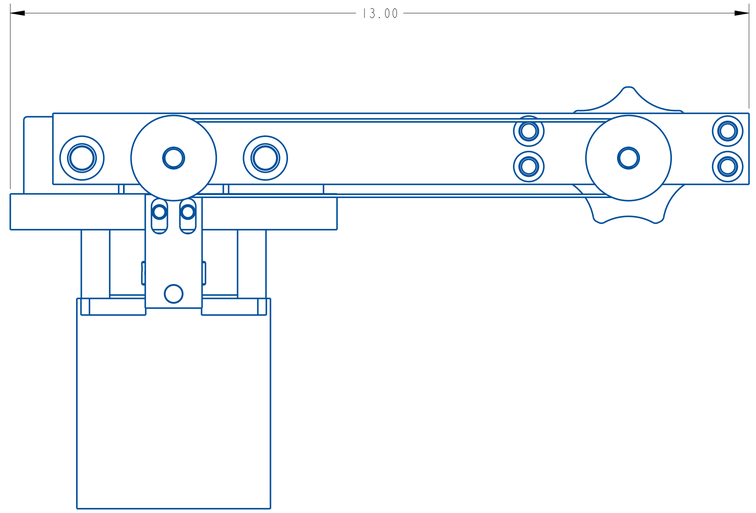
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

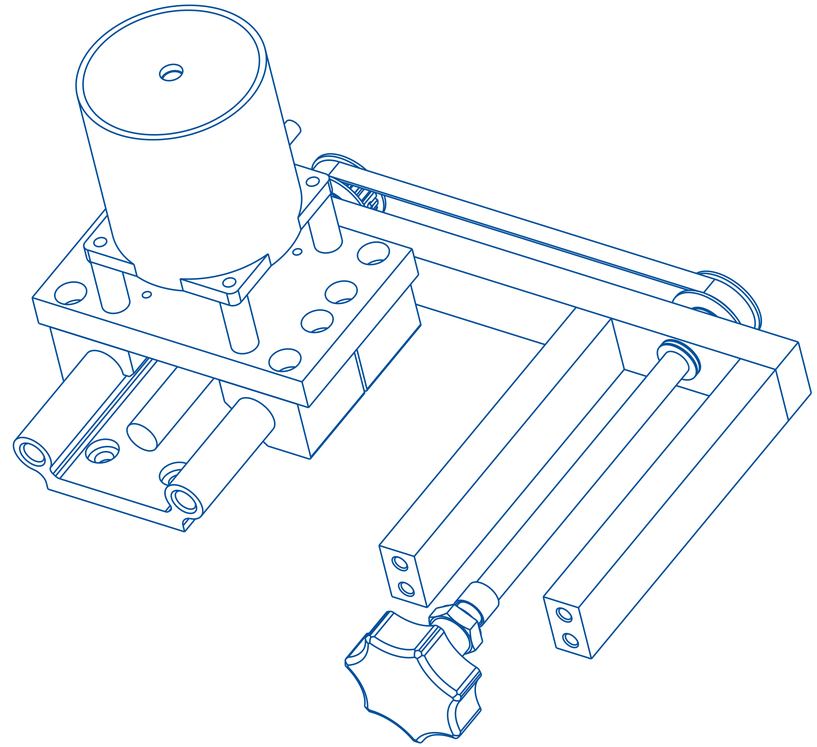
SCALE: 1/2
DATE: 10-7-20
DRW BY: ATT
CHK BY: 05/28/2025-SEM
APPR BY:

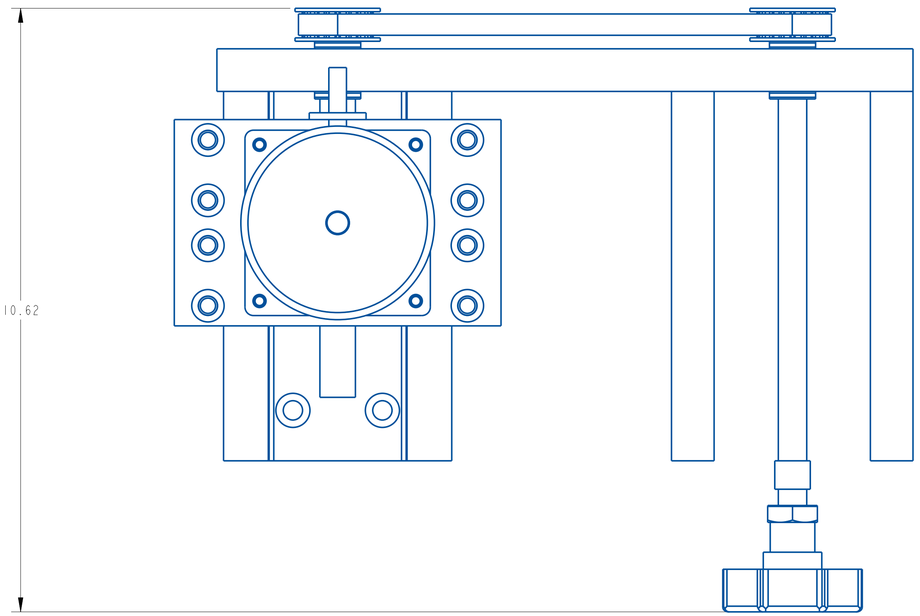
SLEEVER CUTTER ASSEMBLY

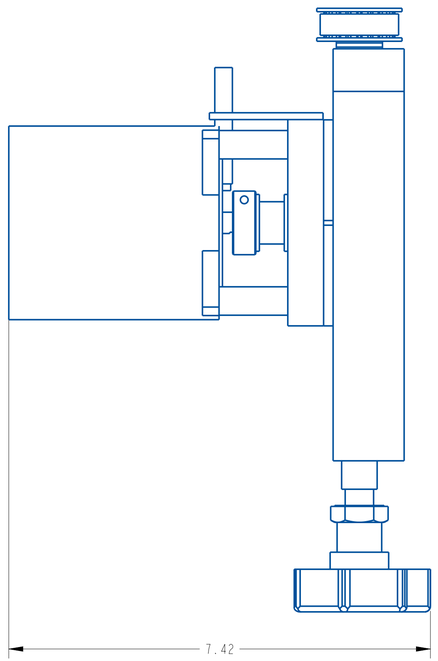
MAT'L: 22480C-000

22480CD-000









REV	DATE	DESCRIPTION	BY
B	8-11-21	CHANGED PULLEY	TAZ
A	10-7-20	NEW DRAWING	ATT

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
ALL ANGLES ARE 90°

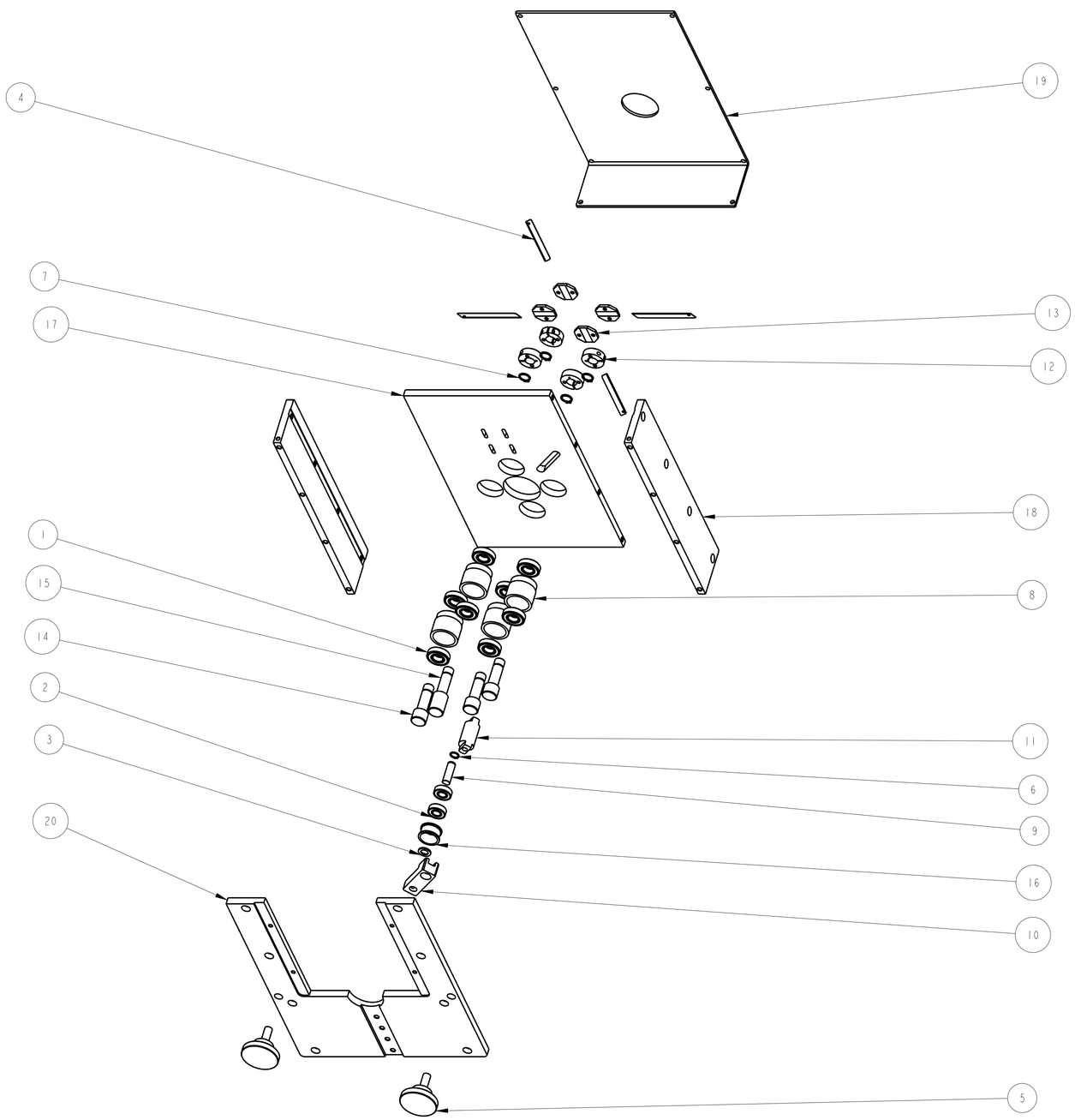
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE:	3/4
DATE:	10-7-20
DRW BY:	ATT
CHK BY:	05/28/2025-SEM
APPR BY:	

SLEEVER CUTTER ASSEMBLY

MAT'L 22480C-000

22480CD-000



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	8	111072-000	BEARING, BALL	22480C-014
2	2	111073-000	BEARING, BALL	22480C-014
3	1	151014-000	BEARING, THRUST WASHER	22480C-014
4	4	792230-001	SPARE BLADE	22480C-014
5	2	801255-000	KNOB, 3/8-16 X 1	22480C-014
6	1	871019-000	EXTERNAL SNAP RING	22480C-014
7	4	871030-000	EXTERNAL SNAP RING	22480C-014
8	4	A23846-000	BEARING STAND OFF	22480C-014
9	1	A23885-000	TENSIONER SHAFT	22480C-014
10	1	A23886-003	TENSIONER SHAFT MTG. PLATE	22480C-014
11	1	A23887-002	TENSIONER RISER	22480C-014
12	4	A25495-000	COLLAR, 1/2 IN. ID REWORK	22480C-014
13	4	A25496-002	BLADE CLAMP PLATE	22480C-014
14	3	B21244-002	PULLEY/SHAFT	22480C-014
15	1	B21244-003	PULLEY/SHAFT	22480C-014
16	1	B22902-000	TENSION PULLEY	22480C-014
17	1	C20585-005	BEARING STAND OFF MTG. PLATE	22480C-014
18	2	C20587-000	SIDE PLATE	22480C-014
19	1	C20592-014	BOTTOM COVER	22480C-014
20	1	D20847-014	TOP PLATE	22480C-014

REV	DATE	DESCRIPTION	BY
B	Apr-19-23	REMOVED C20591-014 TOP COVER	TAZ
A	3-17-17	NEW DRAWING	

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X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

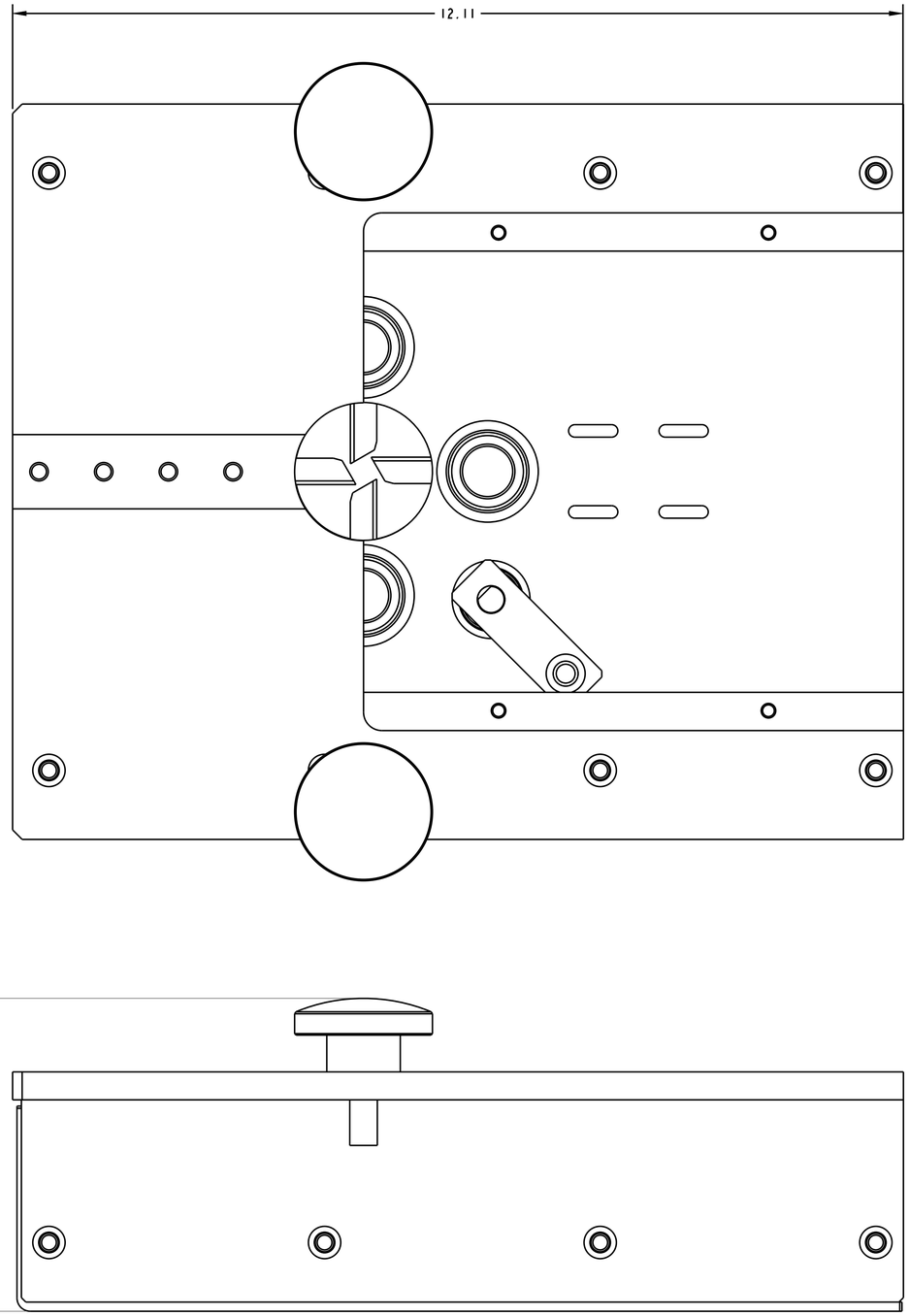
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

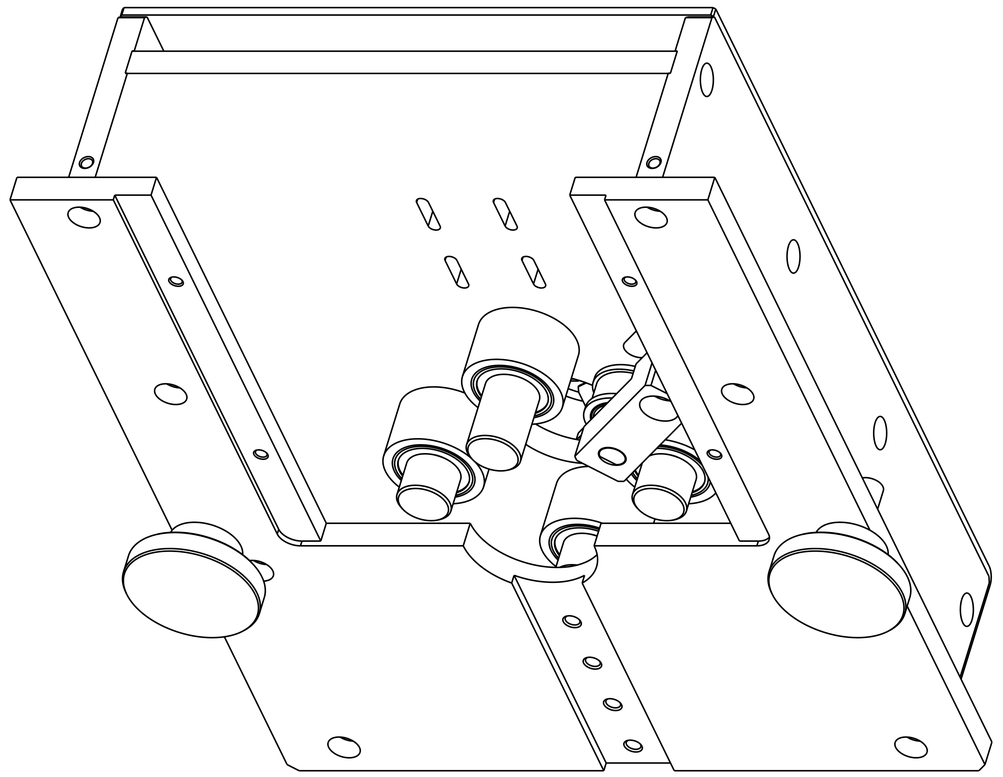
SCALE	5/16
DATE	3-17-17
DRAWN BY	ATT

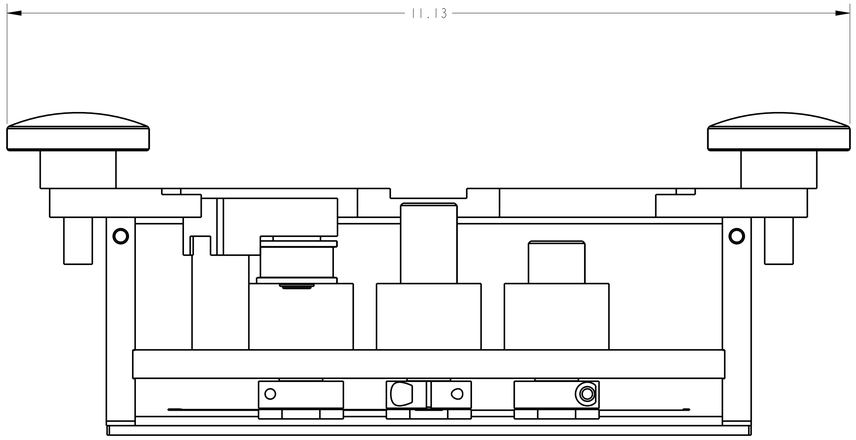
SLEEVER CUTTER ASSEMBLY- 4 BLADE

MAT'L 22480C-014

22480C-014







REV	DATE	DESCRIPTION	BY
A	3-17-17	NEW DRAWING	

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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	1/1
DATE	3-17-17
DRAWN BY	ATT

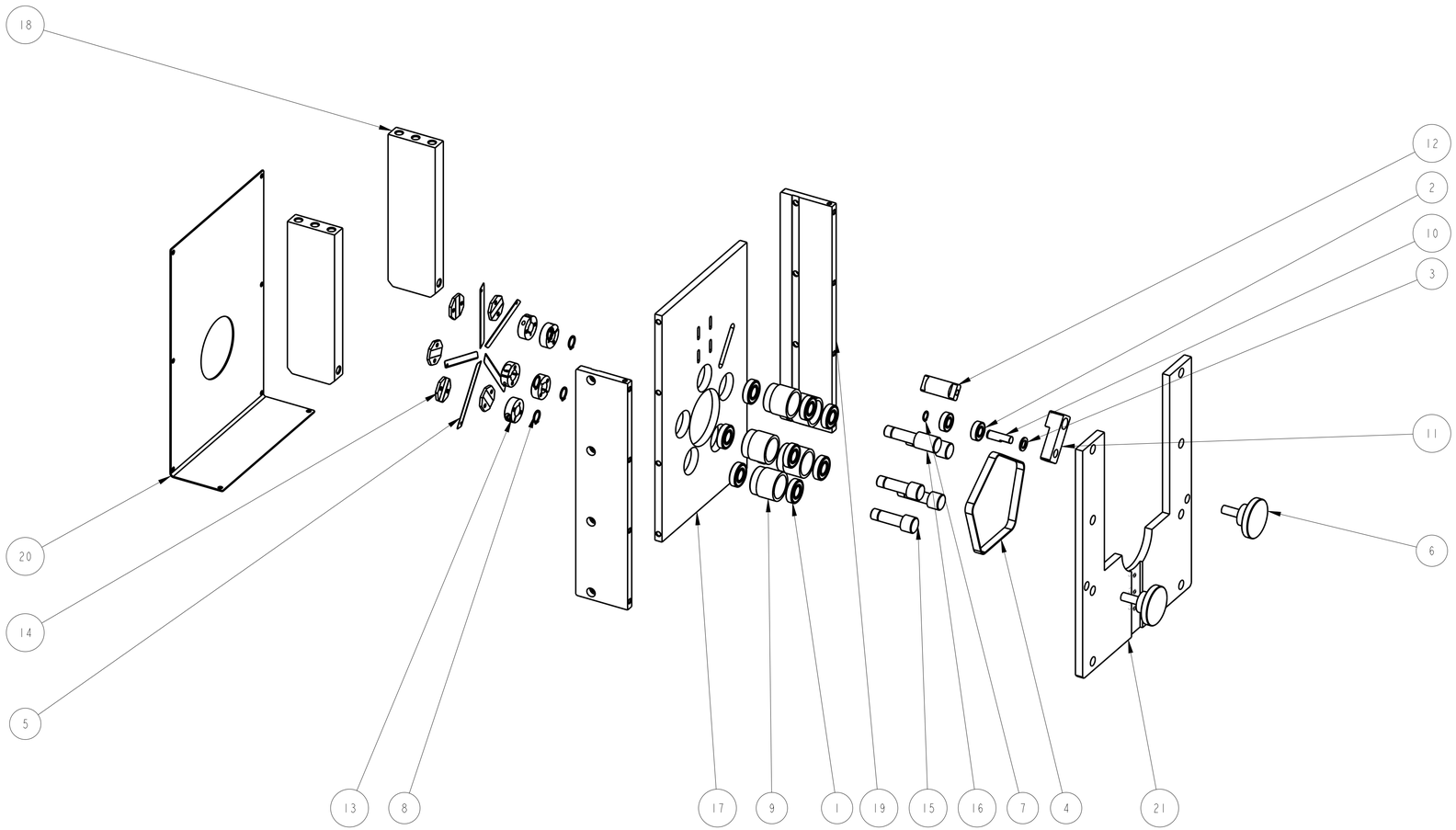
SLEEVER CUTTER ASSEMBLY- 4 BLADE

MAT'L

22480C-014

22480C-014

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	10	111072-000	BEARING, BALL	22480C-000
2	2	111073-000	BEARING, BALL	22480C-000
3	1	151014-000	BEARING, THRUST WASHER	22480C-000
4	1	192571-000-5	TIMING BELT	22480C-000
5	5	792230-003	SPARE BLADE	22480C-000
6	2	801255-000	KNOB, 3/8-16 X 1	22480C-000
7	1	871019-000	EXTERNAL SNAP RING	22480C-000
8	5	871030-000	EXTERNAL SNAP RING	22480C-000
9	5	A23846-000	BEARING STAND OFF	22480C-000
10	1	A23885-000	TENSIONER SHAFT	22480C-000
11	1	A23886-003	TENSIONER SHAFT MTG. PLATE	22480C-000
12	1	A23887-002	TENSIONER RISER	22480C-000
13	5	A25495-000	COLLAR, 1/2 IN. ID REWORK	22480C-000
14	5	A25496-002	BLADE CLAMP PLATE	22480C-000
15	4	B21244-002	PULLEY/SHAFT	22480C-000
16	1	B21244-003	PULLEY/SHAFT	22480C-000
17	1	C20585-015	BEARING STAND OFF MTG. PLATE	22480C-000
18	2	C20586-000	KNIFE ASSEMBLY MOUNTING BAR	22480C-000
19	2	C20587-000	SIDE PLATE	22480C-000
20	1	C20592-015	BOTTOM COVER-5 BLADES	22480C-000
21	1	D20847-015	TOP PLATE	22480C-000



REV	DATE	DESCRIPTION
C	Aug-19-24	REMOVED DRIVE-TAZ
B	Apr-19-23	REMOVED C20561-015 TOP COVER
A	9-20-12	NEW DRAWING

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DIMENSIONAL TOLERANCE
X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030
ALL ANGLES ARE 90°

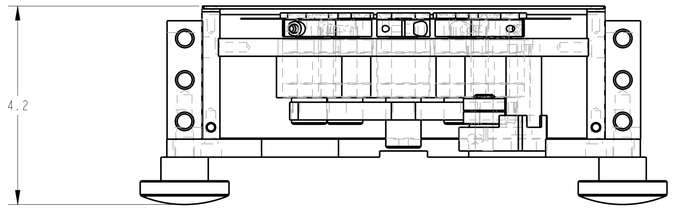
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

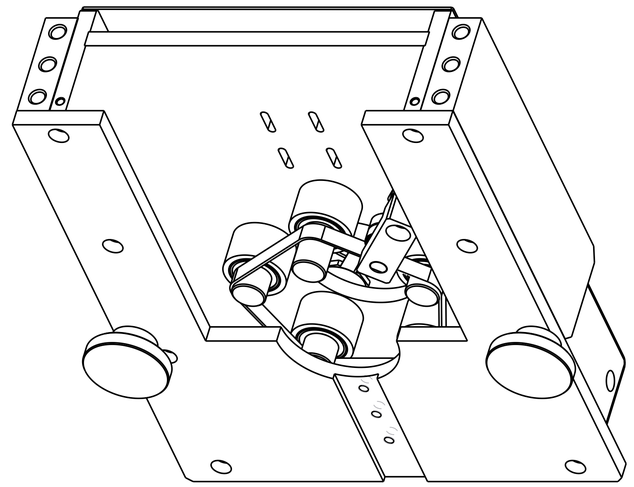
SCALE: 5/16
DATE: 9-20-12
DRW BY: MAW
CHK BY:07/17/2024-SEM
APPR BY: MAW

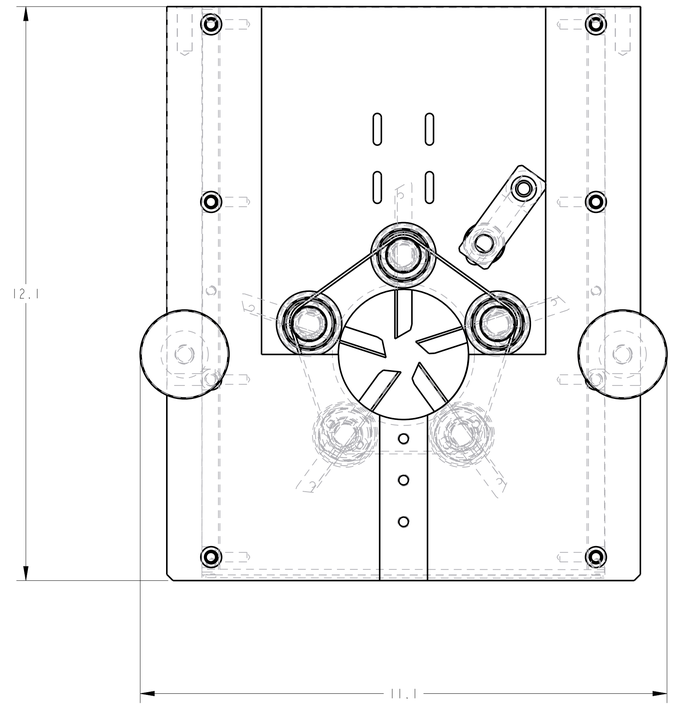
SLEEVER CUTTER ASSEMBLY

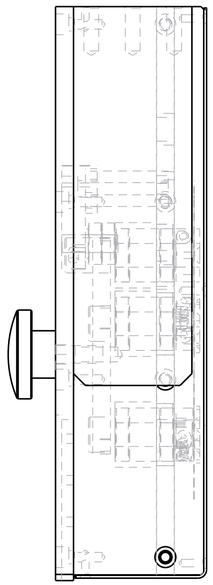
MAT'L 22480C-000

D24505-000









C	Aug-19-24	REMOVED DRIVE
A	9-20-12	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
ALL ANGLES ARE 90°

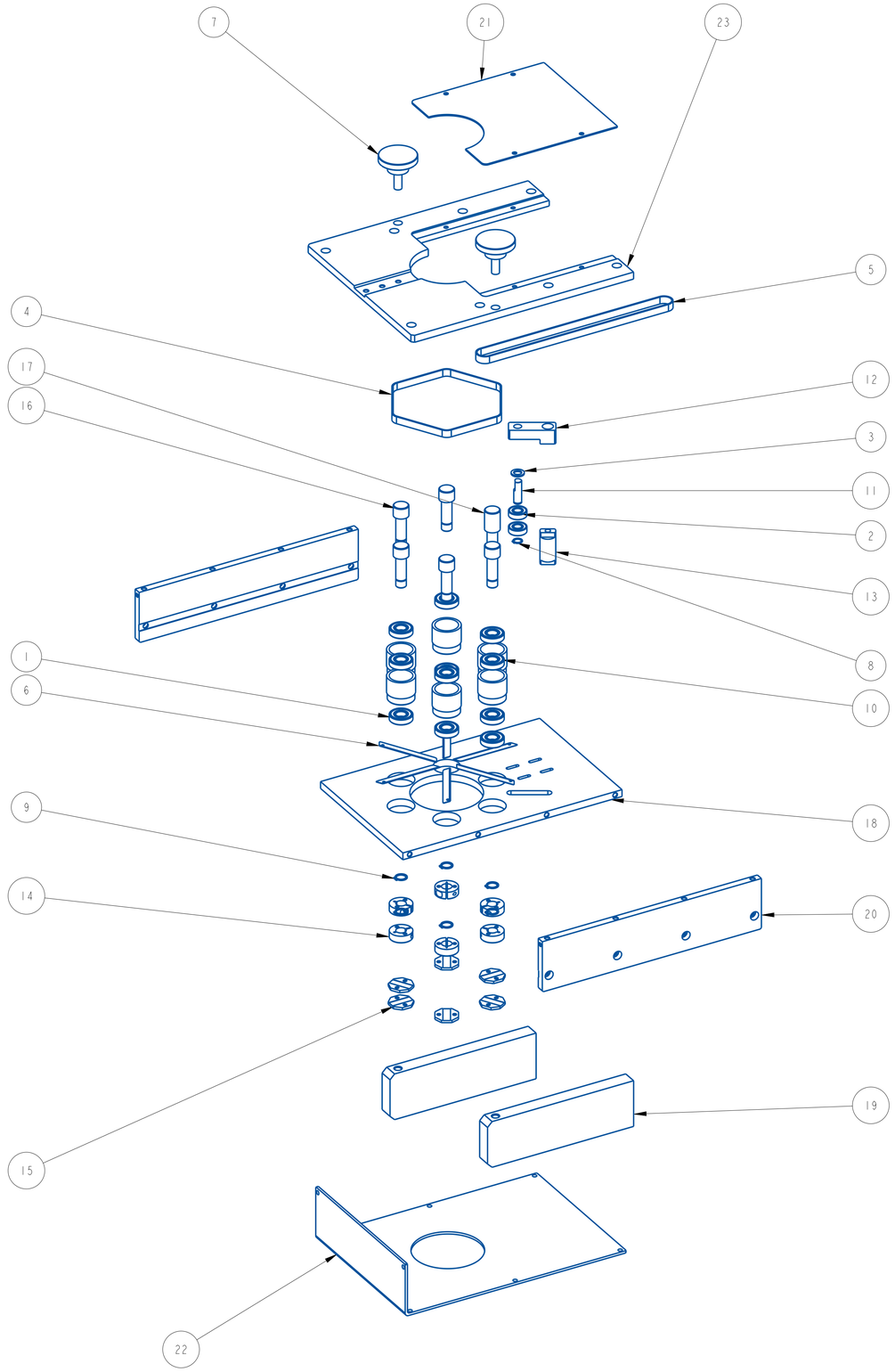
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 5/8
DATE: 9-20-12
DRW BY: MAW
CHK BY:07/17/2024-SEM
APPR BY: MAW

SLEEVER CUTTER ASSEMBLY

MAT'L 22480C-000

D24505-000



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	13	111072-000	BEARING, BALL	22480C-016
2	2	111073-000	BEARING, BALL	22480C-016
3	1	151014-000	BEARING, THRUST WASHER	22480C-016
4	1	191644-000-6	TIMING BELT	22480C-016
5	1	191728-001	TIMING BELT	22480C-016
6	6	792230-003	SPARE BLADE	22480C-016
7	2	801255-000	KNOB, 3/8-16 X 1	22480C-016
8	1	871019-000	EXTERNAL SNAP RING	22480C-016
9	6	871030-000	EXTERNAL SNAP RING	22480C-016
10	6	A23846-000	BEARING STAND OFF	22480C-016
11	1	A23885-000	TENSIONER SHAFT	22480C-016
12	1	A23886-003	TENSIONER SHAFT MTG. PLATE	22480C-016
13	1	A23887-002	TENSIONER RISER	22480C-016
14	6	A25495-000	COLLAR, 1/2 IN. ID REWORK	22480C-016
15	6	A25496-002	BLADE CLAMP PLATE	22480C-016
16	5	B21244-002	PULLEY/SHAFT	22480C-016
17	1	B21244-003	PULLEY/SHAFT	22480C-016
18	1	C20585-016	BEARING STAND OFF MTG. PLATE	22480C-016
19	2	C20586-000	KNIFE ASSEMBLY MOUNTING BAR	22480C-016
20	2	C20587-000	SIDE PLATE	22480C-016
21	1	C20591-016	TOP COVER	22480C-016
22	1	C20592-016	BOTTOM COVER-5 BLADES	22480C-016
23	1	D20847-016	TOP PLATE	22480C-016

REV	DATE	DESCRIPTION	BY
A	9-23-13	NEW DRAWING	ATT

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE
.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIOS .0107.030

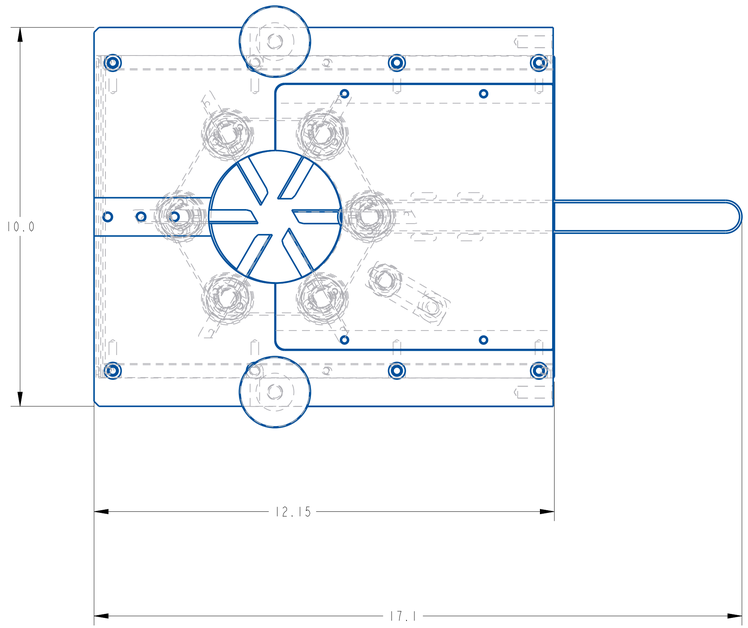
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

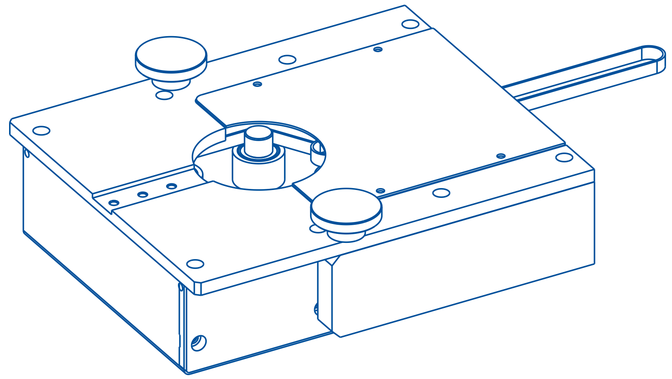
SCALE: 5/16
DATE: 9-23-13
DRW BY: ATT
CHK BY: 07/18/2024-SEM
APPR BY:

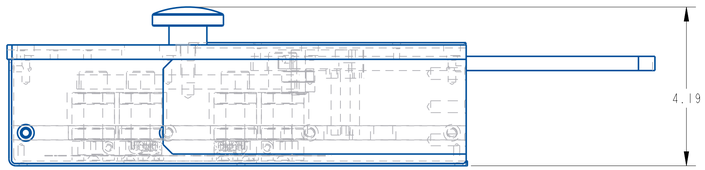
SLEEVER CUTTER ASSEMBLY

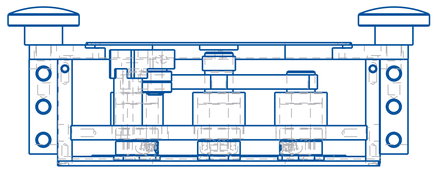
MAT'L 22480C-016

D24505-016









REV	DATE	DESCRIPTION	BY
A	9-23-13	NEW DRAWING	ATT

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
ALL ANGLES ARE 90°

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

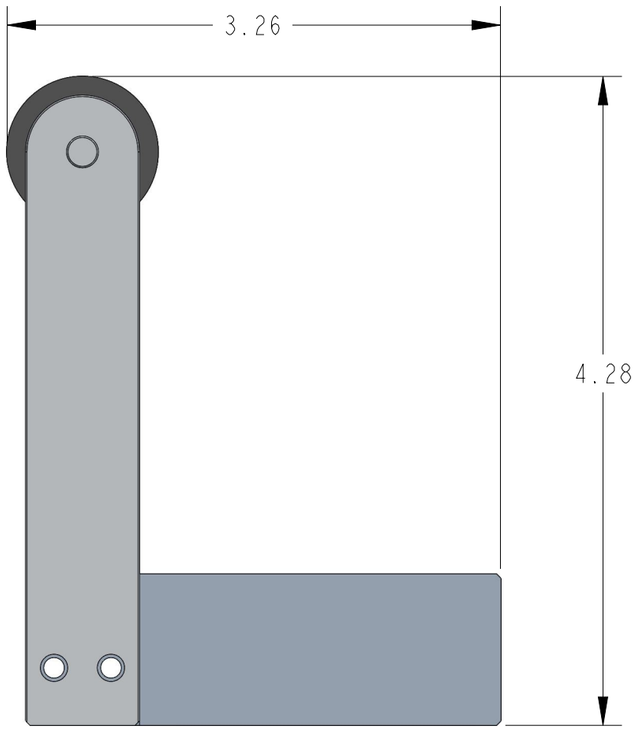
SCALE: 1/2
DATE: 9-23-13
DRW BY: ATT
CHK BY:07/18/2024-SEM
APPR BY:

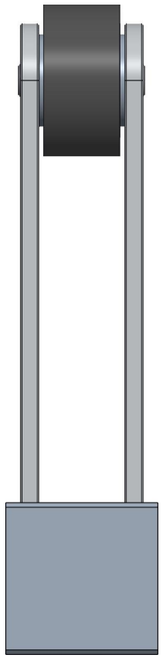
SLEEVER CUTTER ASSEMBLY

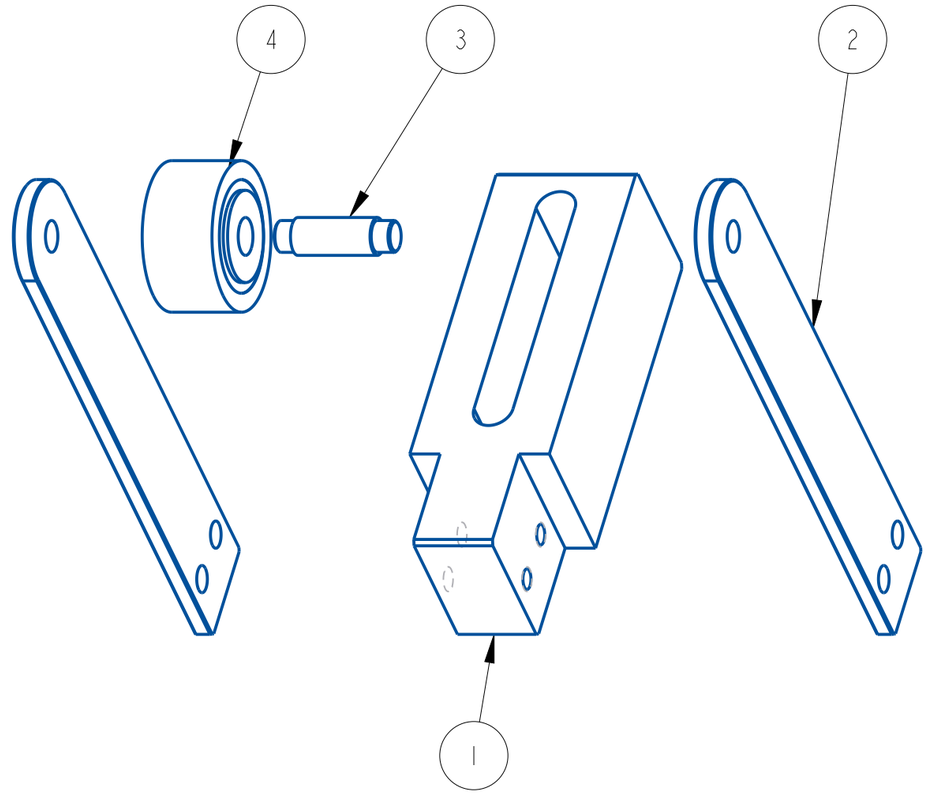
MAT'L 22480C-016

D24505-016

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	A23888-000	MOUNTING BAR	21490SRF-000
2	2	A23889-000	SIDE ROLLER PLATE	21490SRF-000
3	1	A23890-000	CAMROL SHAFT	21490SRF-000
4	1	A23891-000	CAMROL	21490SRF-000







A	5-29-08	NEW DRAWING	MAW
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 .0107.030

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

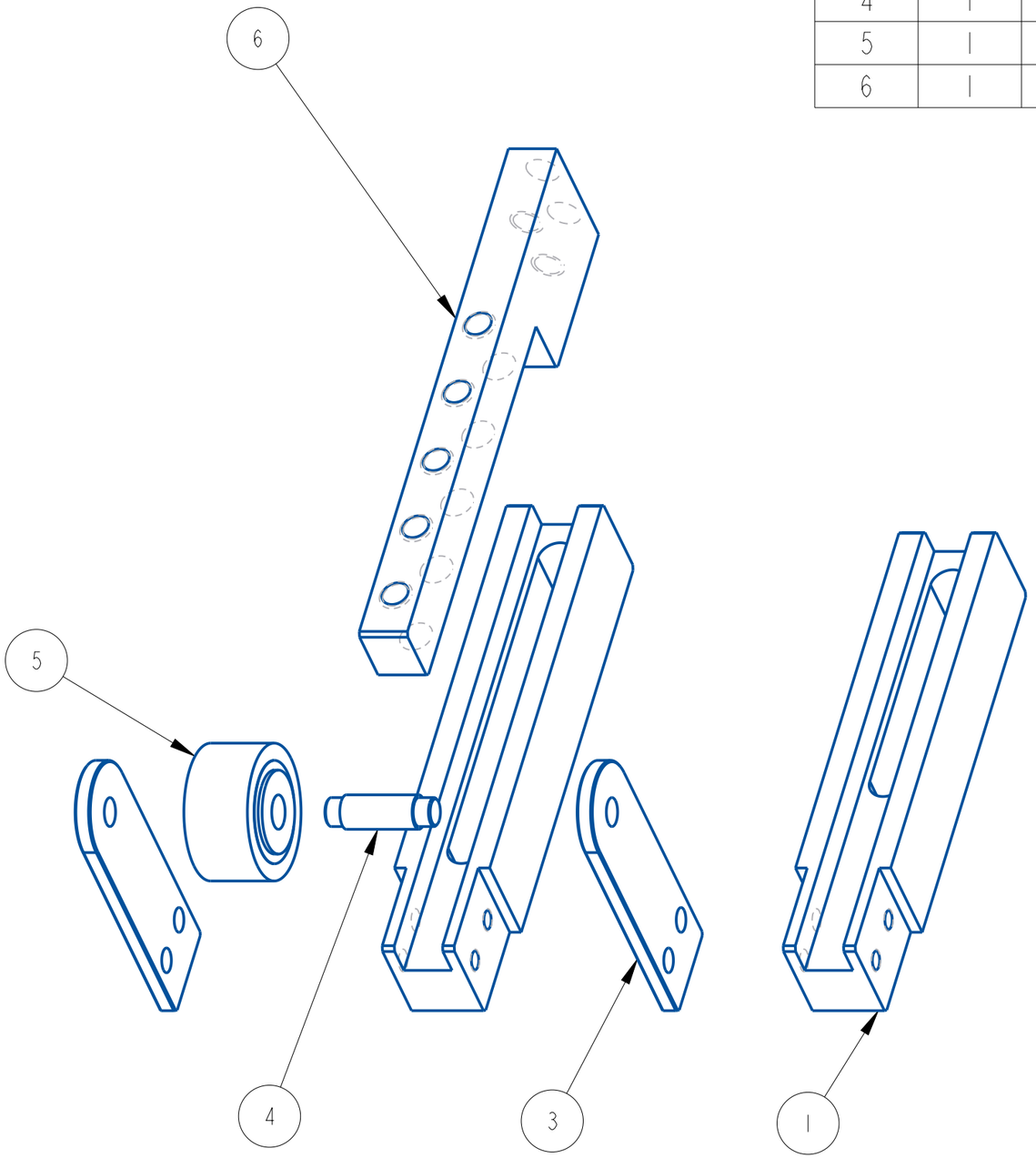
SCALE:	1/1
DATE:	5-29-08
DRW BY:	MAW
CHK BY:	07/19/2024-SEM
APPR BY:	

STABILIZER ROLLER ASSEMBLY-FRONT

MAT'L 21490SRF-000

21490SRF-000

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	A23888-001	MOUNTING BAR	21490SRB-000
2	1	A23888-003	MOUNTING BAR	21490SRB-000
3	2	A23889-001	SIDE ROLLER PLATE	21490SRB-000
4	1	A23890-000	CAMROL SHAFT	21490SRB-000
5	1	A23891-000	CAMROL	21490SRB-000
6	1	A23896-000	MOUNTING BAR MOUNTING PLATE	21490SRB-000



REV	DATE	DESCRIPTION	BY
A	5-29-08	NEW DRAWING	MAW

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

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

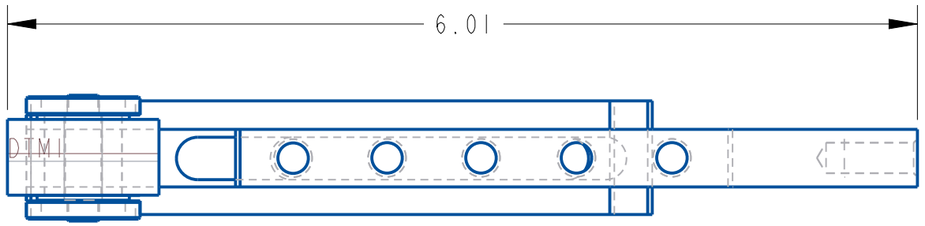
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

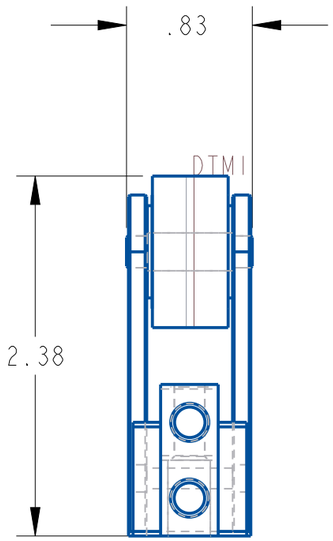
SCALE:	1/1
DATE:	5-29-08
DRW BY:	MAW
CHK BY:	07/19/2024-SEM
APPR BY:	

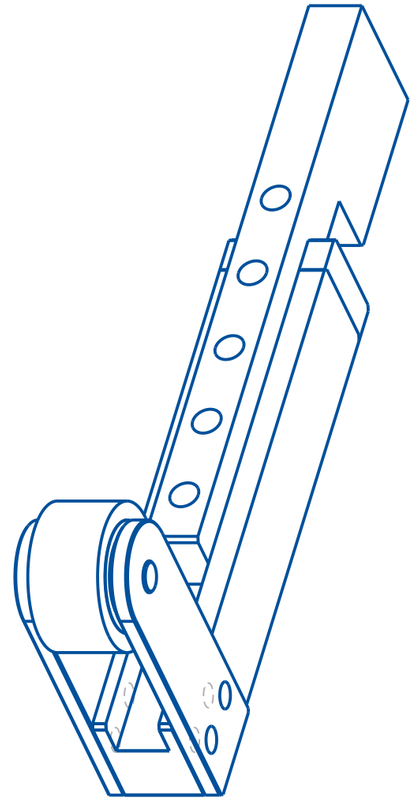
STABILIZER ROLLER ASSEMBLY-BACK

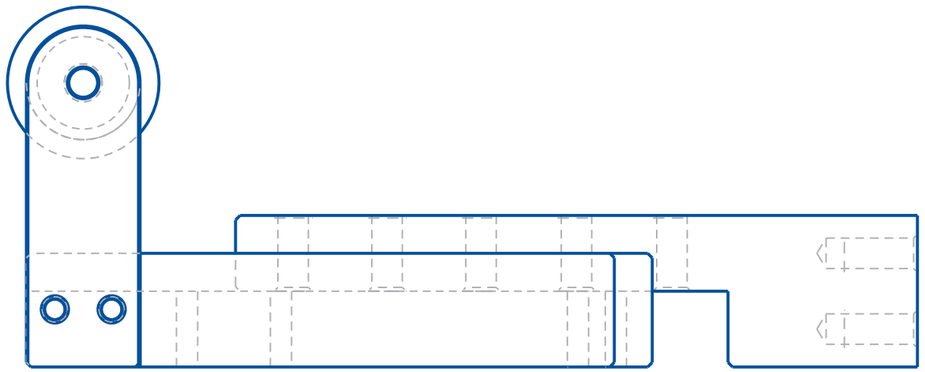
MAT'L 21490SRB-000

21490SRB-000









REV	DATE	DESCRIPTION	BY
A	5-29-08	NEW DRAWING	MAW

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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

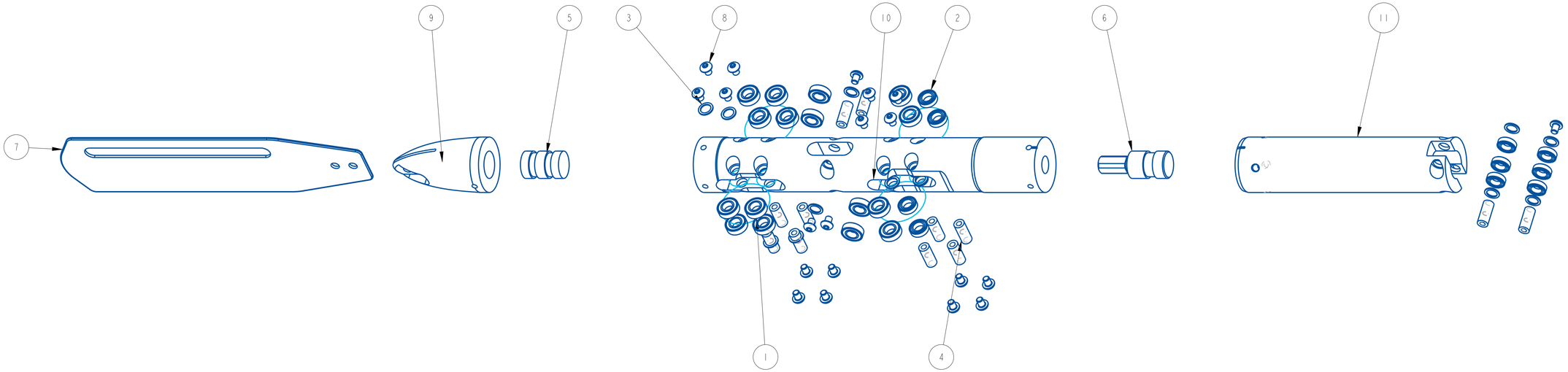
SCALE:	1/1
DATE:	5-29-08
DRW BY:	MAW
CHK BY:	07/19/2024-SEM
APPR BY:	

STABILIZER ROLLER ASSEMBLY-BACK

MAT'L 21490SRB-000

21490SRB-000

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	16	111080-000	BALL BEARING,16mmOD 8mmID 5mmW	84235M-066
2	10	111082-000	BALL BEARING, 14mmOD 8mmID 4mmW SEALED	84235M-066
3	28	841798-000	HARDENED FLAT WASHER	84235M-066
4	12	A24063-003	BEARING SHAFT	84235M-066
5	1	A24522-000	STUD	84235M-066
6	1	A25287-003	STUD	84235M-066
7	1	B22678-066	MANDREL INFEED PLATE, 66mm	84235M-066
8	21	CSFF56		84235M-066
9	1	D23982-066	SLEEVER MANDREL - TOP	84235M-066
10	1	D23983-066	SLEEVER MANDREL - MIDDLE	84235M-066
11	1	D23984-152	MANDREL - BOTTOM 66mm LF x 152mm CL	84235M-066



REV	DATE	DESCRIPTION	BY
A	Oct-27-25	NEW DRAWING	TAZ

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

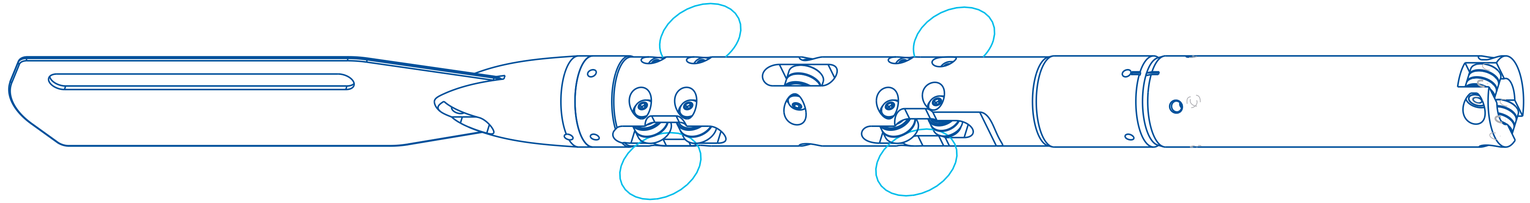
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

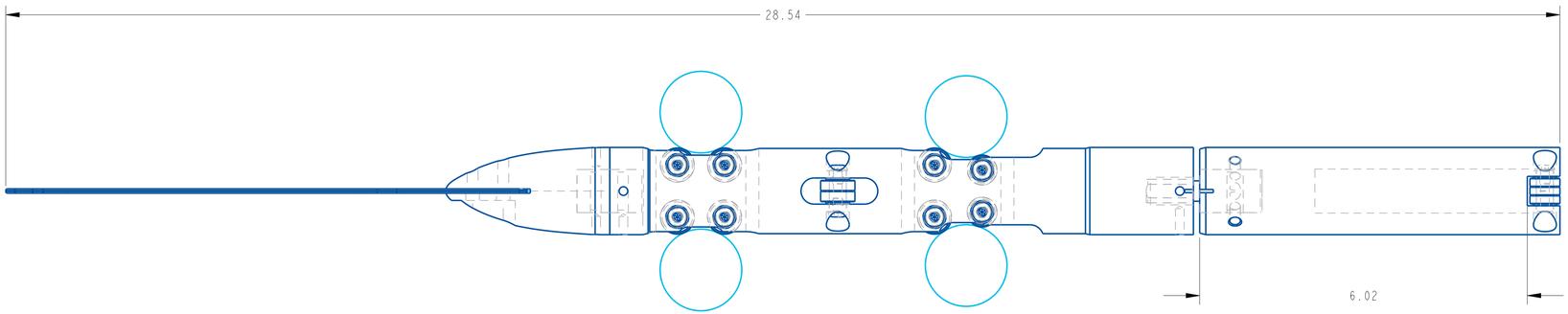
SCALE: 5/8
DATE: Oct-27-25
DRW BY: TAZ
CHK BY:
APPR BY:

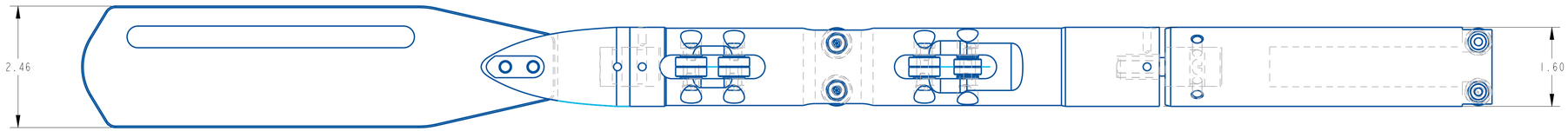
MANDREL, 66mm LAY FLAT X 152mm CUT LENGTH

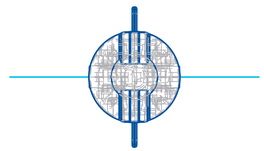
MAT'L 84235M-066

84235M-066









REV	DATE	DESCRIPTION	BY
A	Oct-27-25	NEW DRAWING	TAZ

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
ALL ANGLES ARE 90°

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

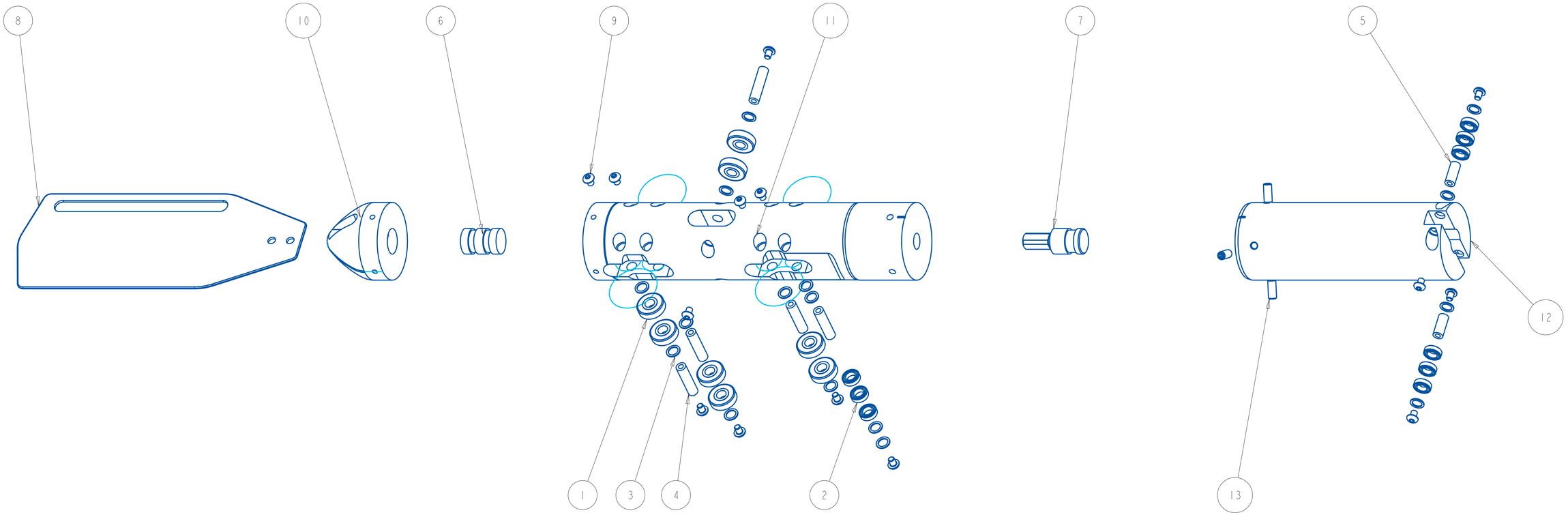
SCALE: 3/4
DATE: Oct-27-25
DRW BY: TAZ
CHK BY:
APPR BY:

MANDREL, 66mm LAY FLAT X 152mm CUT LENGTH

MAT'L
84235M-066

84235M-066

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	16	111070-000	BALL BEARING, 22mmOD 8mmID 7mmW, SEALED	84235M-098
2	12	111082-000	BALL BEARING, 14mmOD 8mmID 4mmW SEALED	84235M-098
3	28	841798-000	HARDENED FLAT WASHER	84235M-098
4	10	A24063-002	BEARING SHAFT	84235M-098
5	2	A24063-003	BEARING SHAFT	84235M-098
6	1	A24522-000	STUD	84235M-098
7	1	A25287-009	STUD	84235M-098
8	1	B22878-098	MANDREL INFEED PLATE, 98mmLF	84235M-098
9	24	CSFF56		84235M-098
10	1	D24769-098	SLEEVER MANDREL - TOP 98mmLF	84235M-098
11	1	D24770-098	SLEEVER MANDREL - MIDDLE 98mmLF	84235M-098
12	1	D24771-160	MANDREL - BOTTOM 98mm LF x 160mm CL	84235M-098
13	4	SYE103		84235M-098



REV	DATE	DESCRIPTION	BY
A	Oct-27-25	NEW DRAWING	TAZ

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

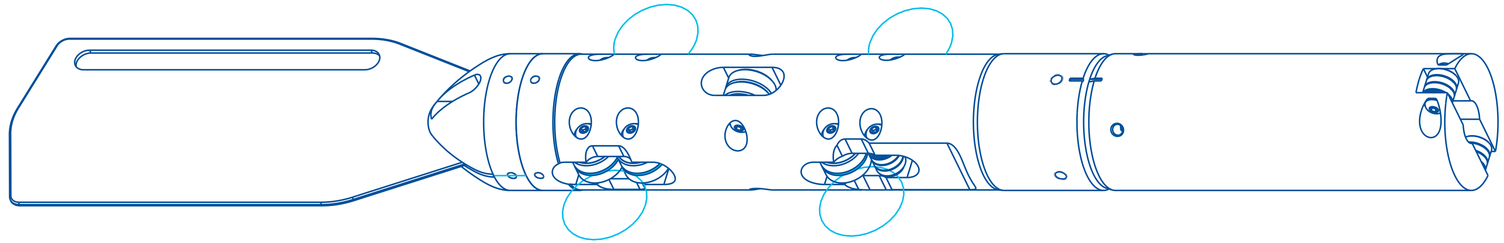
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

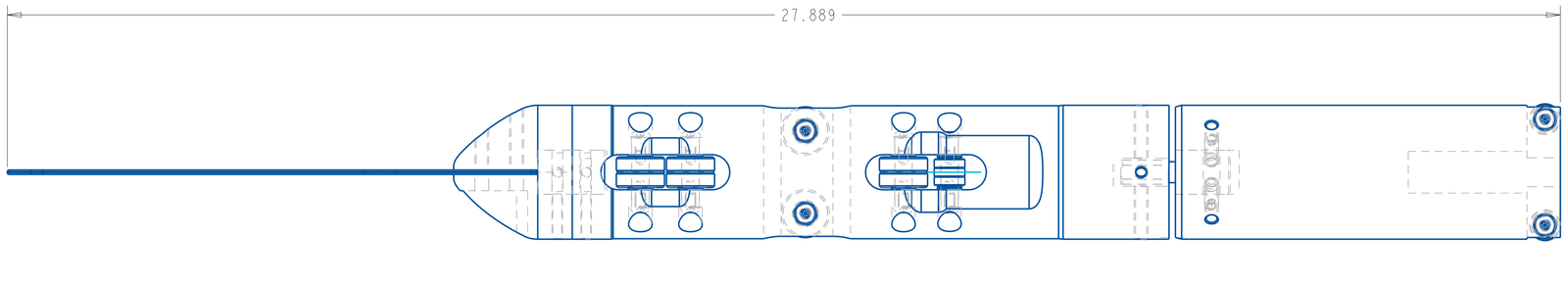
SCALE: 0.625
DATE: Oct-27-25
DRW BY: TAZ
CHK BY:
APPR BY:

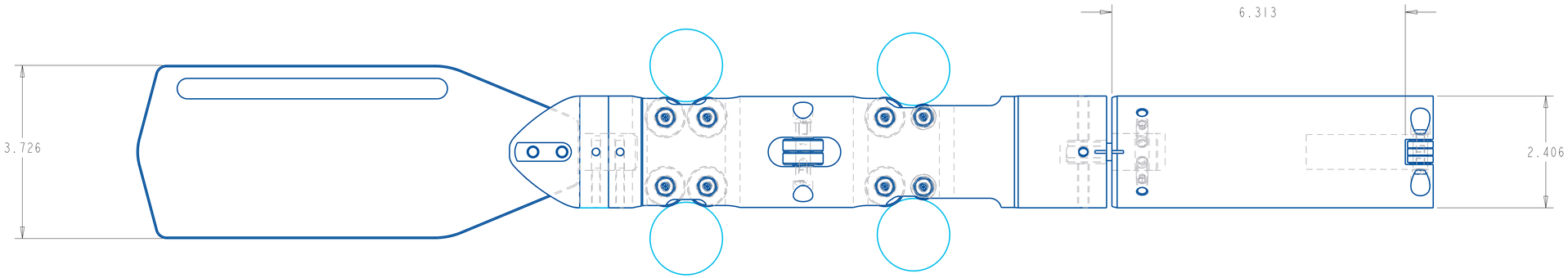
MANDREL, 98mm LAY FLAT X 160mm CUT LENGTH

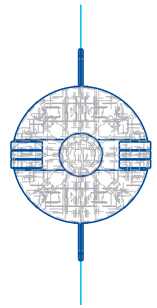
MAT'L 84235M-098

84235M-098









REV	DATE	DESCRIPTION	BY
A	Oct-27-25	NEW DRAWING	TAZ

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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
ALL ANGLES ARE 90°

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

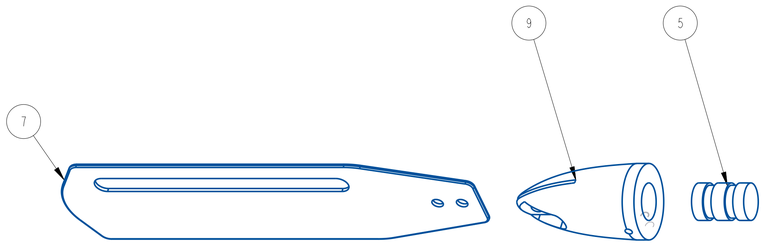
SCALE: 0.750
DATE: Oct-27-25
DRW BY: TAZ
CHK BY:
APPR BY:

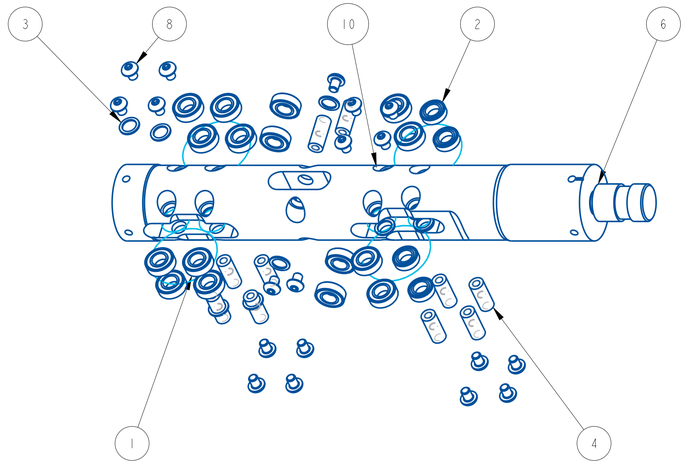
MANDREL, 98mm LAY FLAT X 160mm CUT LENGTH

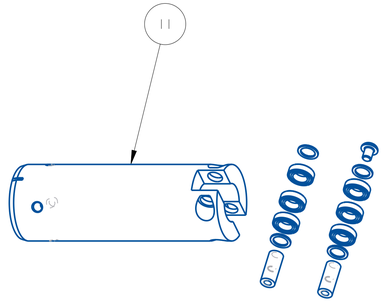
MAT'L
84235M-098

84235M-098

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	16	111080-000	BALL BEARING,16mmOD 8mmID 5mmW	84235M-665
2	10	111082-000	BALL BEARING, 14mmOD 8mmID 4mmW SEALED	84235M-665
3	28	841798-000	HARDENED FLAT WASHER	84235M-665
4	12	A24063-003	BEARING SHAFT	84235M-665
5	1	A24522-000	STUD	84235M-665
6	1	A25287-003	STUD	84235M-665
7	1	B22678-665	MANDREL INFEED PLATE, 66.5mm	84235M-665
8	21	CSFF56		84235M-665
9	1	D23982-665	SLEEVER MANDREL - TOP 66.5mmLF	84235M-665
10	1	D23983-665	SLEEVER MANDREL - MIDDLE 66.5mmLF	84235M-665
11	1	D23984-665	MANDREL - BOTTOM 66.5mmLF X 106mmCL	84235M-665







REV	DATE	DESCRIPTION	BY
A	Oct-27-25	NEW DRAWING	TAZ

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

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

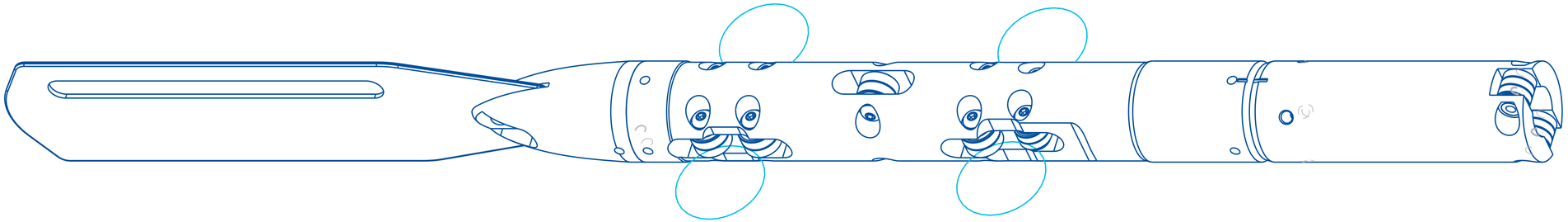
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

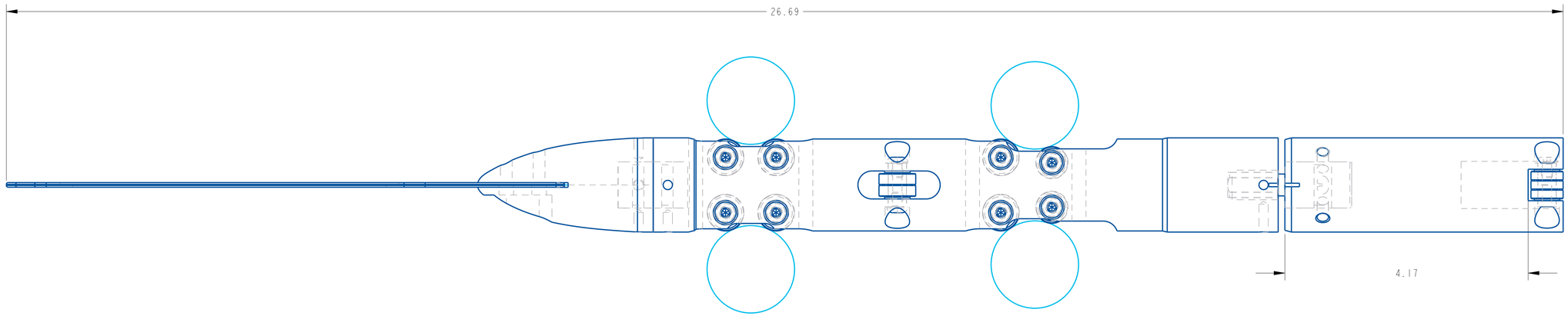
SCALE: 5/8
DATE: Oct-27-25
DRW BY: TAZ
CHK BY:
APPR BY:

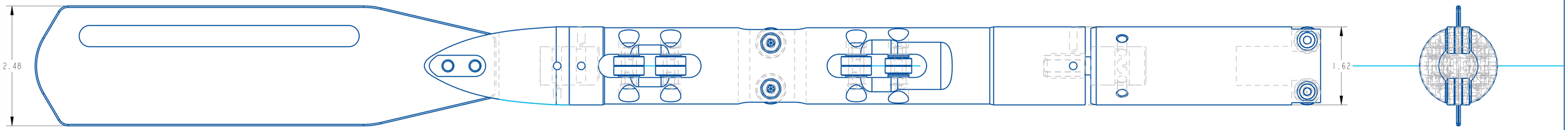
MANDREL, 66.5mm LAY FLAT X 106mm CUT LENGTH

MAT'L 84235M-665

84235M-665







REV	DATE	DESCRIPTION	BY
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DIMENSIONAL TOLERANCE
.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'

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

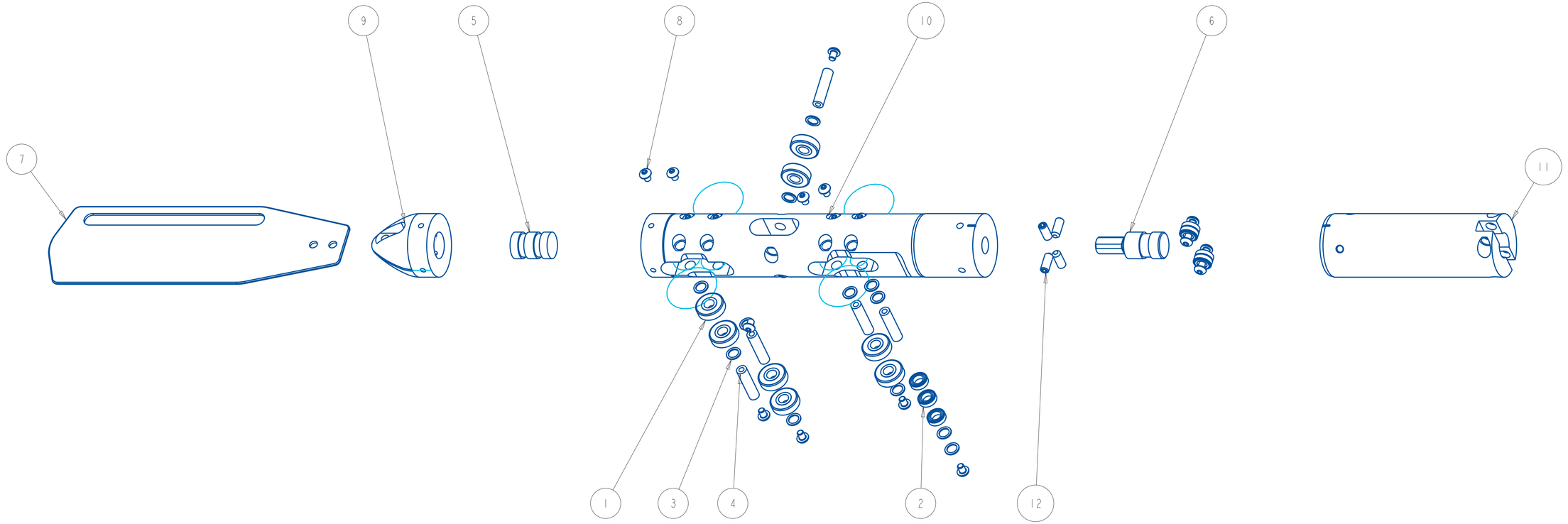
SCALE:	1/1
DATE:	Oct-27-25
DRW BY:	TAZ
CHK BY:	
APPR BY:	

MANDREL, 66.5mm LAY FLAT X 106mm CUT LENGTH

MAT'L 84235M-665

84235M-665

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	16	111070-000	BALL BEARING, 22mmOD 8mmID 7mmW, SEALED	84235M-775
2	10	111082-000	BALL BEARING, 14mmOD 8mmID 4mmW SEALED	84235M-775
3	28	841798-000	HARDENED FLAT WASHER	84235M-775
4	10	A24063-002	BEARING SHAFT	84235M-775
5	1	A24522-000	STUD	84235M-775
6	1	A25287-003	STUD	84235M-775
7	1	B22878-775	MANDREL INFEED PLATE, 77.5mmLF	84235M-775
8	24	CSFF56		84235M-775
9	1	D24769-775	SLEEVER MANDREL - TOP 77.5mmLF	84235M-775
10	1	D24770-775	SLEEVER MANDREL - MIDDLE 77.5mmLF	84235M-775
11	1	D24771-775	MANDREL - BOTTOM 77.5mm LF x 127mm CL	84235M-775
12	4	SYE103		84235M-775



REV	DATE	DESCRIPTION	BY
A	Oct-27-25	NEW DRAWING	TAZ

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DIMENSIONAL TOLERANCE
.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'

SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .0107.030

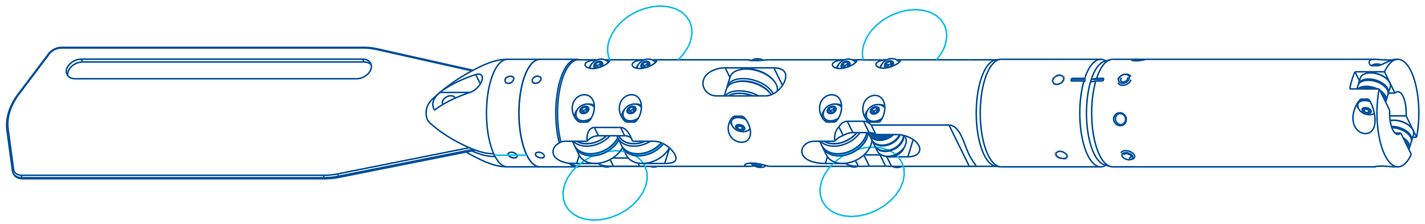
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

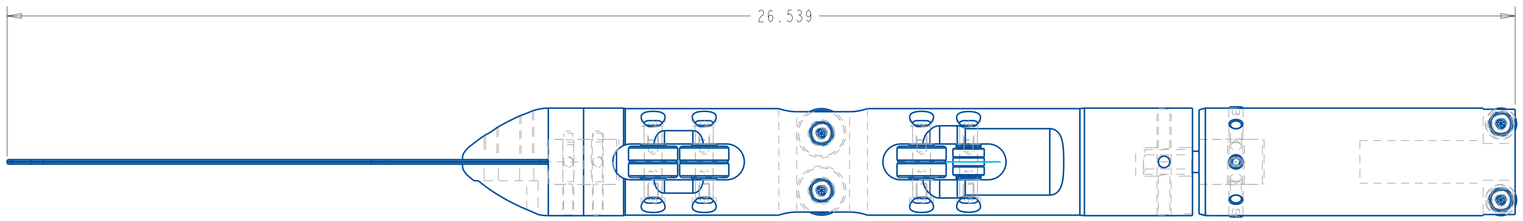
SCALE: 0.625
DATE: Oct-27-25
DRW BY: TAZ
CHK BY:
APPR BY:

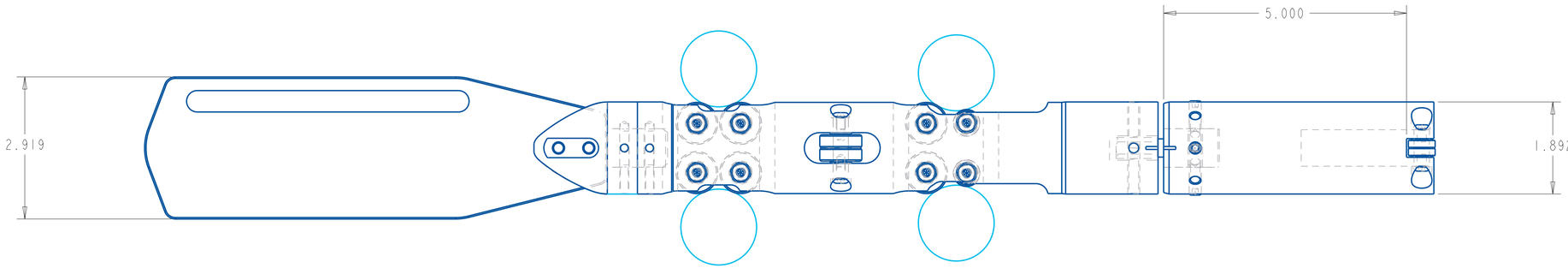
MANDREL, 77.5mm LAY FLAT X 127mm CUT LENGTH

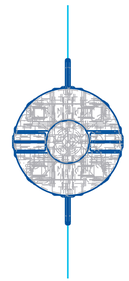
MAT'L 84235M-775

84235M-775









REV	DATE	DESCRIPTION	BY
A	Oct-27-25	NEW DRAWING	TAZ

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
ALL ANGLES ARE 90°

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

SCALE: 0.750
DATE: Oct-27-25
DRW BY: TAZ
CHK BY:
APPR BY:

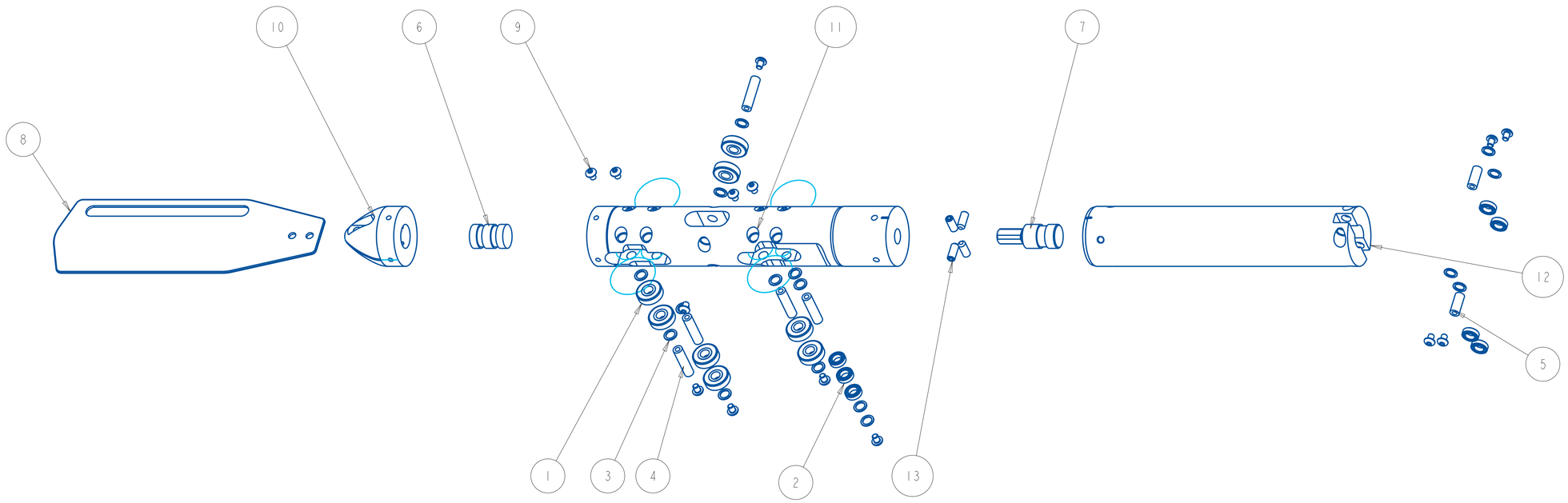
MANDREL, 77.5mm LAY FLAT X 127mm CUT LENGTH

MAT'L: 84235M-775

84235M-775

SHEET 2 OF 2

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	16	111070-000	BALL BEARING, 22mmOD 8mmID 7mmW, SEALED	84235M-081
2	10	111082-000	BALL BEARING, 14mmOD 8mmID 4mmW SEALED	84235M-081
3	28	841798-000	HARDENED FLAT WASHER	84235M-081
4	10	A24063-002	BEARING SHAFT	84235M-081
5	2	A24063-003	BEARING SHAFT	84235M-081
6	1	A24522-000	STUD	84235M-081
7	1	A25287-003	STUD	84235M-081
8	1	B22878-810	MANDREL INFEED PLATE, 81mmLF	84235M-081
9	24	CSFF56		84235M-081
10	1	D24769-810	SLEEVER MANDREL - TOP 81mmLF	84235M-081
11	1	D24770-810	SLEEVER MANDREL - MIDDLE 81mmLF	84235M-081
12	1	D24771-810	MANDREL - BOTTOM 81mm LF x 227mm CL	84235M-081
13	4	SYE103		84235M-081



REV	DATE	DESCRIPTION	BY
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.XX ± .01
.XXX ± .005
ANGLES ± 30'

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

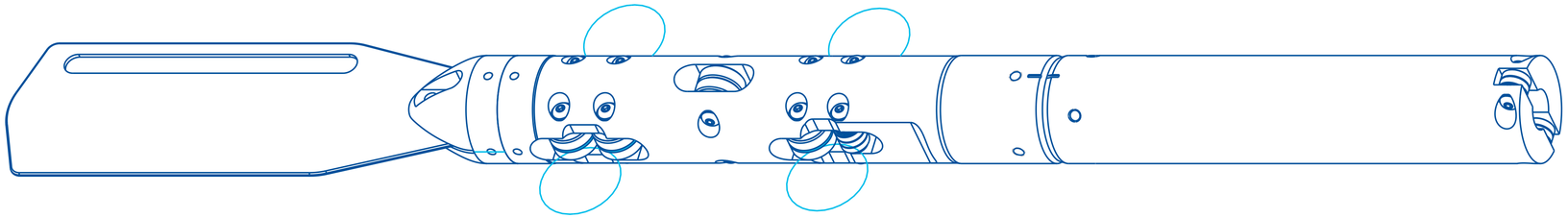
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

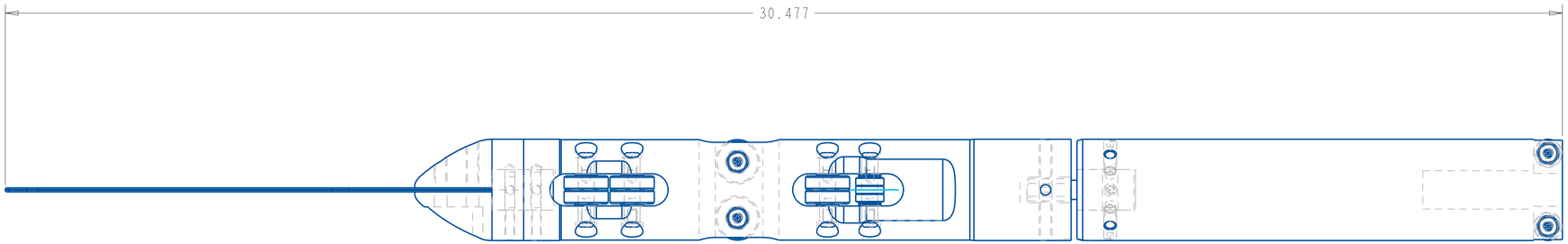
SCALE: 0.500
DATE: Oct-27-25
DRW BY: TAZ
CHK BY:
APPR BY:

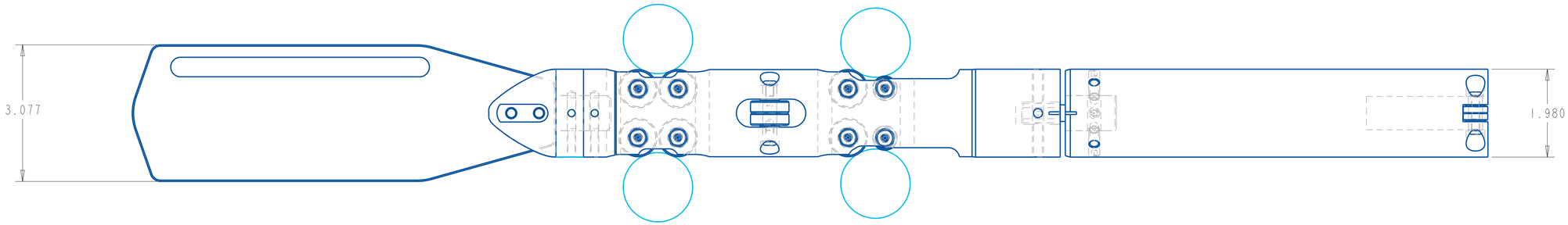
MANDREL, 81mm LAY FLAT X 227mm CUT LENGTH

MAT'L 84235M-081

84235M-081







REV	DATE	DESCRIPTION	BY
A	Oct-27-25	NEW DRAWING	TAZ

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X ± .1
XX ± .01
XXX ± .005
ANGLES ± 30'
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: 0.750
DATE: Oct-27-25
DRW BY: TAZ
CHK BY:
APPR BY:

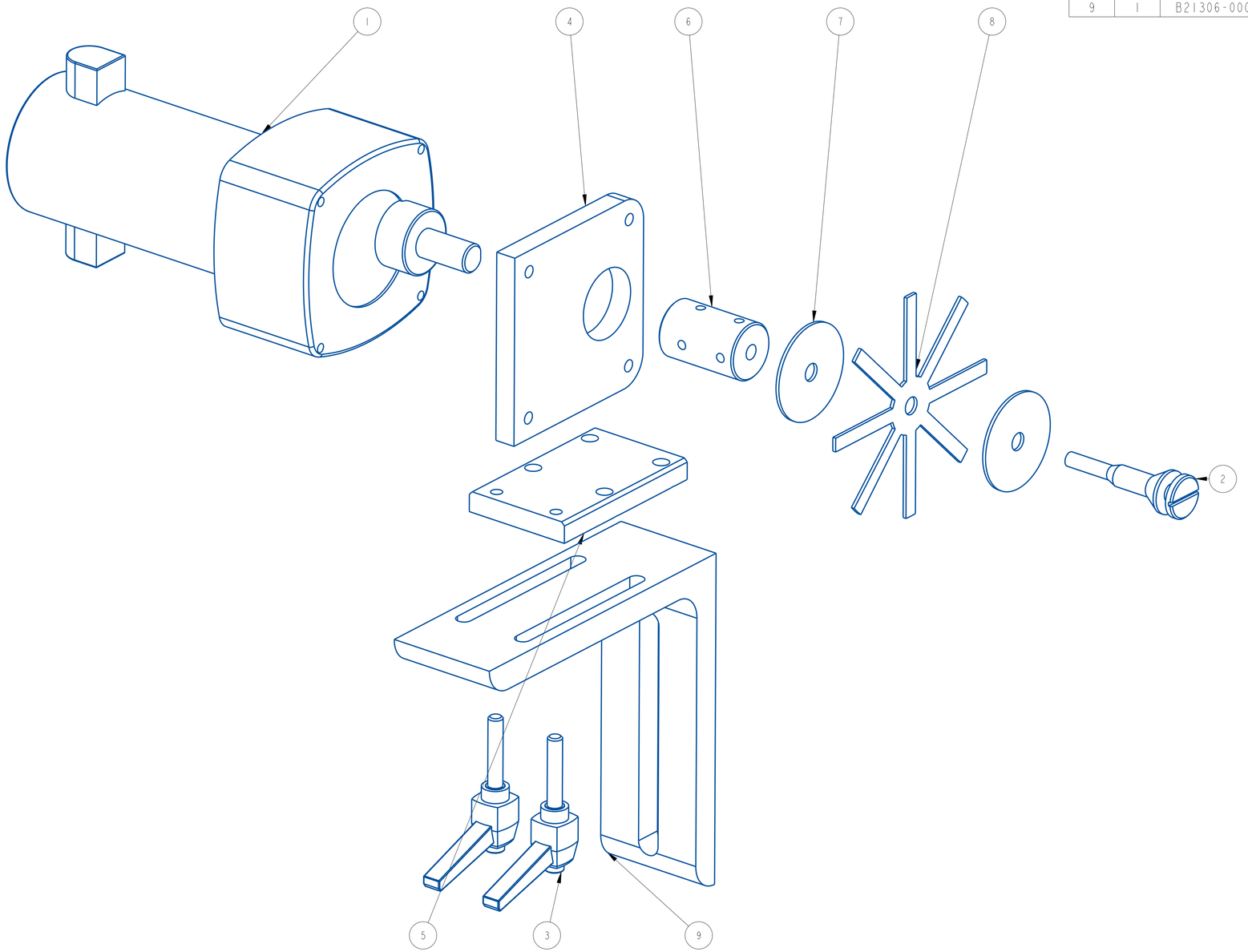
MANDREL, 81mm LAY FLAT X 227mm CUT LENGTH

MAT'L: 84235M-081

84235M-081

SHEET 2 OF 2

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	412124-000	MOTOR	22840-000
2	1	792760-000		22840-000
3	2	801857-002	ADJUSTABLE HANDLE	22840-000
4	1	A23999-100	MOTOR MOUNTING PLATE	22840-000
5	1	A23999-101	MOTOR MOUNTING SLIDE PLATE	22840-000
6	1	A24001-100	IDLER SHAFT	22840-000
7	2	A26318-000	WIPE DOWN HUB	22840-000
8	1	A26319-000	WIPE DOWN FINGERS	22840-000
9	1	B21306-000	ADJUSTMENT ANGLE	22840-000



REV	DATE	DESCRIPTION	BY
A	05/16/2022	NEW DRAWING	TJS

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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
ALL ANGLES ARE 90°

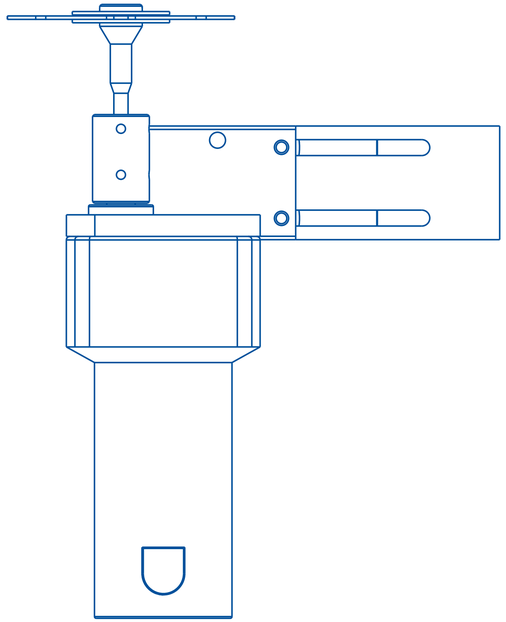
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

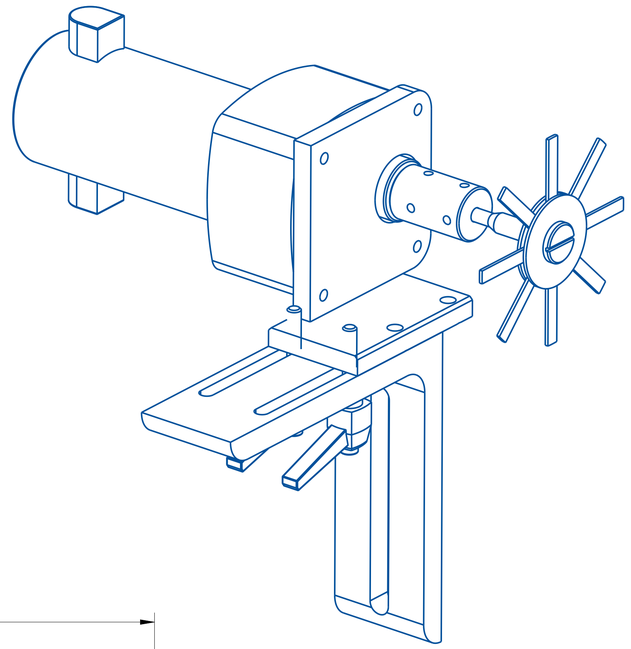
SCALE: 1/1
DATE: 05/16/2022
DRW BY: TJS
CHK BY:04/11/2024-SEM
APPR BY:

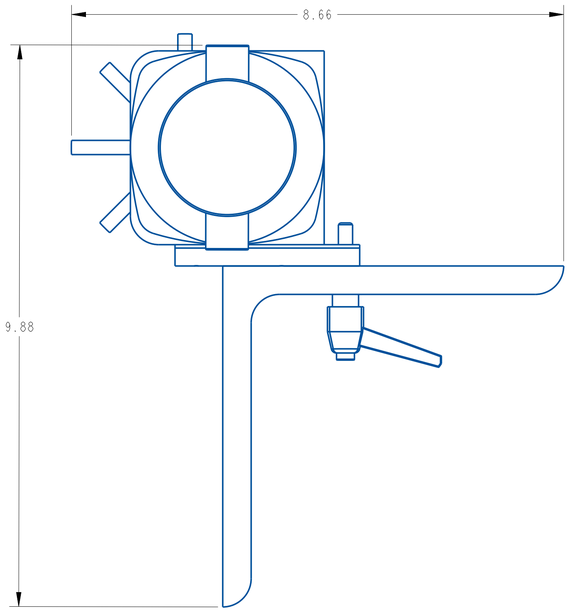
SLEEVER WIPE DOWN MODULE

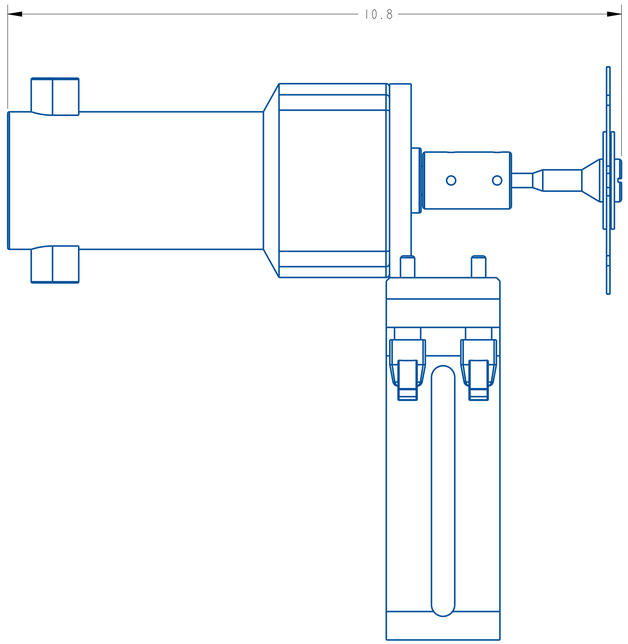
MAT'L

22840-000









REV	DATE	DESCRIPTION	BYE
A	05/16/2022	NEW DRAWING	TJS

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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
ALL ANGLES ARE 90°

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

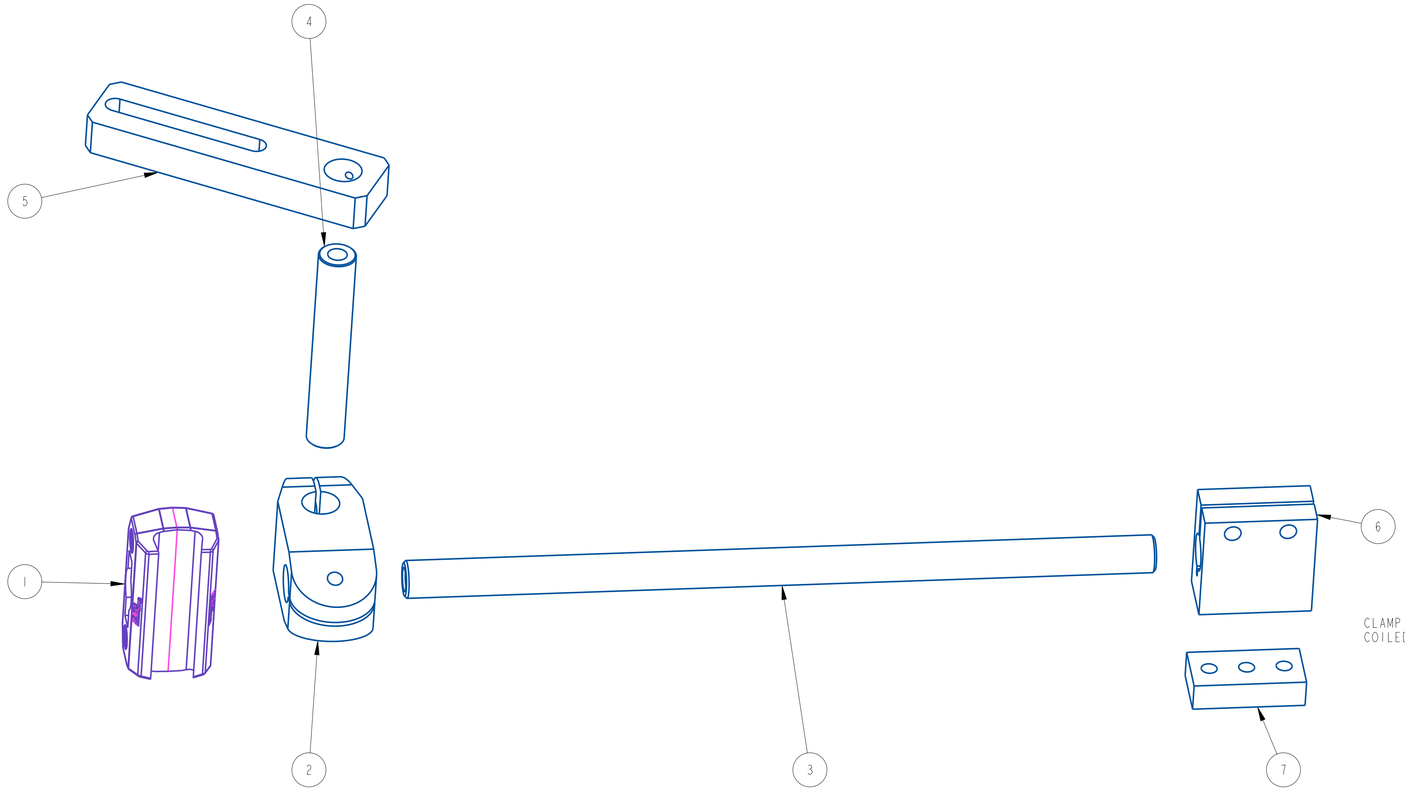
SCALE: 3/4
DATE: 05/16/2022
DRW BY: TJS
CHK BY:04/11/2024-SEM
APPR BY:

SLEEVER WIPE DOWN MODULE

MAT'L

22840-000

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	791460-000	CLAMP RAIL,ROUND HOLE	22823-000
2	1	792067-000	1/2" ROD CROSS CLAMP	22823-000
3	1	A21198-002	ADJUSTMENT ROD	22823-000
4	1	A21198-300	ADJUSTMENT ROD	22823-000
5	1	A23017-500	MOUNTING BRACKET	22823-000
6	1	A23463-500	HOLDER	22823-000
7	1	A23463-501	HOLDER BOTTOM PLATE	22823-000



CLAMP 791464-000
COILED WITH FINGER STICKING OUT

REV	DATE	DESCRIPTION	BY
A	9-21-20	NEW DRAWING	ATT

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X ± .1
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ANGLES ± 30'

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

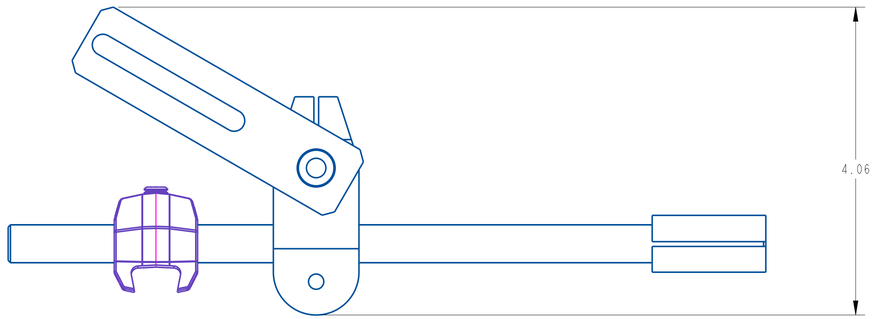
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

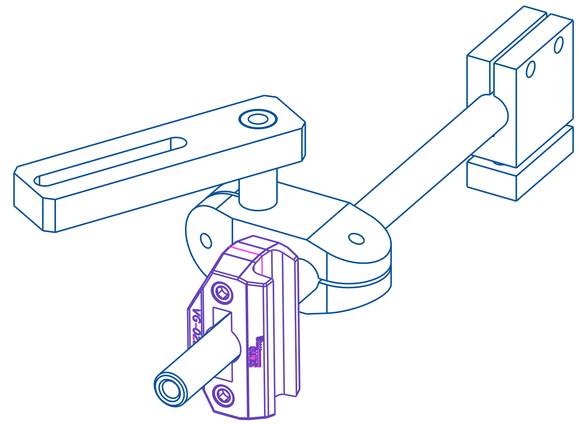
SCALE: 1/1
DATE: 9-21-20
DRW BY: ATT
CHK BY: 07/18/2024-SEM
APPR BY:

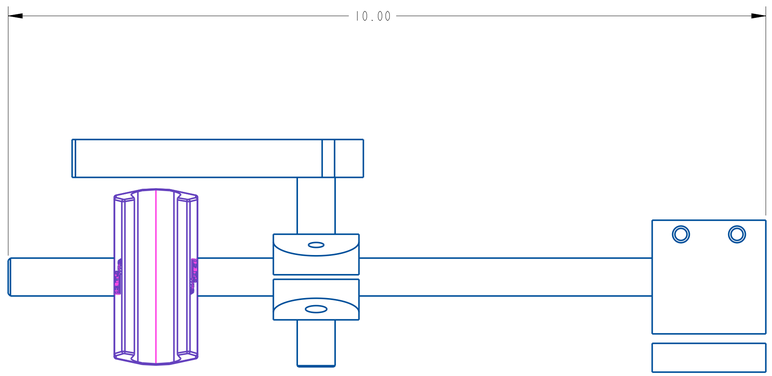
SLEEVE STOP

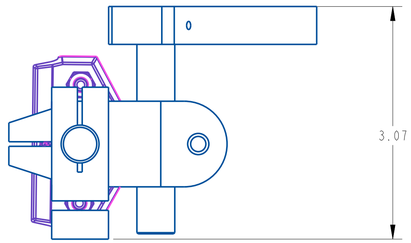
MAT'L

22823-000









SHEET 2 OF 2

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CORNER RADIUS .010/.030
ALL ANGLES ARE 90°

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

SCALE:	1/1
DATE:	9-21-20
DRW BY:	ATT
CHK BY:	07/18/2024-SEM
APPR BY:	

SLEEVE STOP

MAT'L

22823-000

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-steam 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:

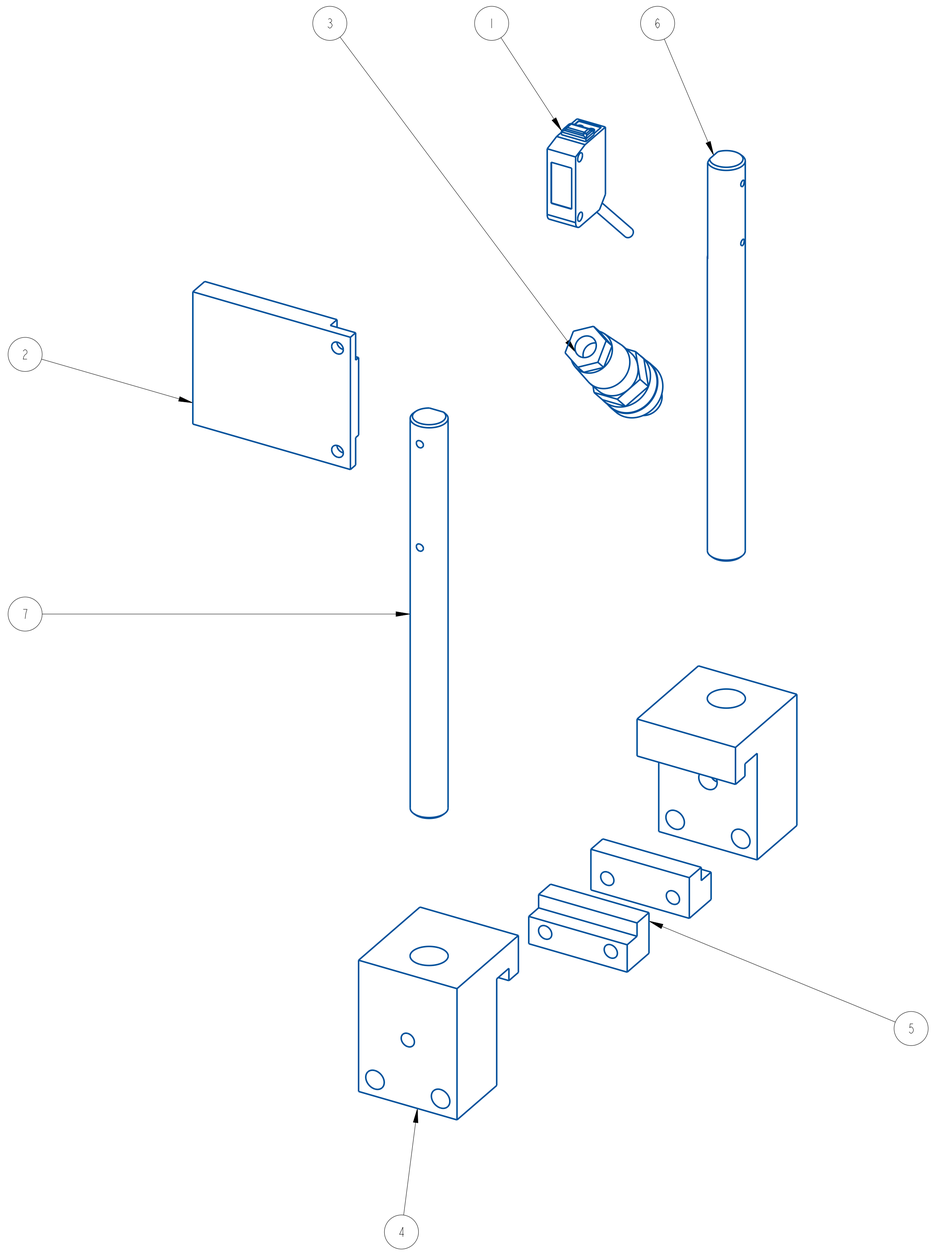
No scheduled maintenance is required for this assembly. Always keep the drive areas free of label flash and debris.

CAUTION: Before performing any maintenance or cleaning make sure the system is powered down.

TROUBLESHOOTING:

PROBLEM:	**WHAT TO DO:**
- No label trigger or intermittent trigger.	- 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).

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	202192-002	CLEAR PRODUCT SENSOR	21560-012
2	1	203160-000	REFLECTOR	21560-012
3	1	252019-000	4 PIN MALE CONNECTOR	21560-012
4	2	A20875-000	RETAINER BLOCK, CONV. RAIL	21560-012
5	2	A20876-000	RETAINER BLOCK	21560-012
6	1	A24278-000	SENSOR MTG. SHAFT	21560-012
7	1	A24279-000	REFLECTOR MTG. SHAFT	21560-012



REV	DATE	DESCRIPTION	BY
A	07/18/2024	NEW DRAWING	SEM

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

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

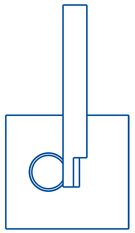
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

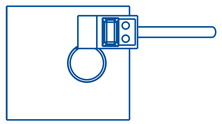
SCALE: 1/1
DATE: 07/18/2024
DRW BY: SEM
CHK BY: 07/18/2024-SEM
APPR BY:

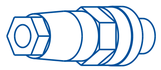
CLEAR PRODUCT DETECT, PNP

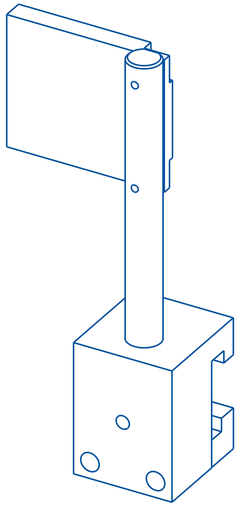
MAT'L 21560-002

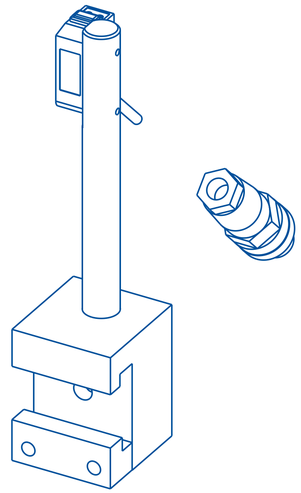
21560-012

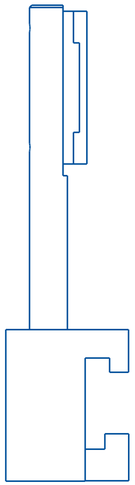


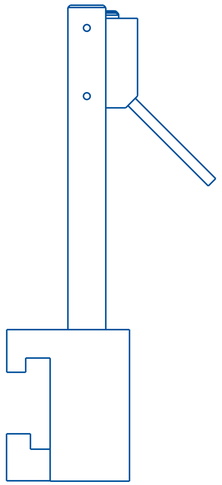


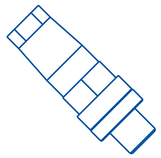


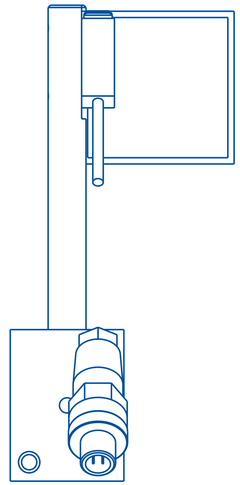












SHEET 2 OF 2

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X ± .1
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XXX ± .005
ANGLES ± 30'

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: 07/18/2024
DRW BY: SEM
CHK BY:07/18/2024-SEM
APPR BY:

CLEAR PRODUCT DETECT, PNP

MAT'L
21560-002

21560-012

KEYENCE

96M11227

Self-contained
Photoelectric Sensor

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.

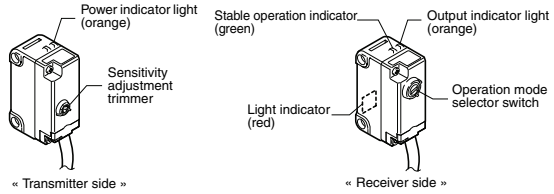
- UL File No. E301717
- Category NRKH,NRKH7
- Enclosure Type 1 (Based on UL50)

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

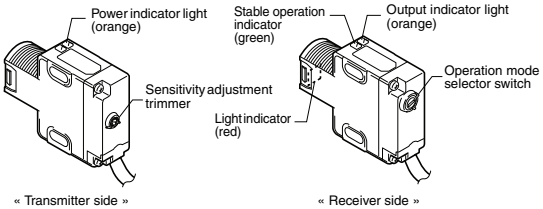
- Use the power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Power supply/ Control input/ Control output circuits shall be connected to a single Class 2 source only.
- Use with the over current protection device which is rated 30V or more and not more than 1A.

Part Names

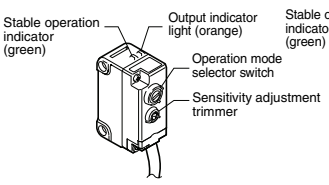
● **PZ-G5xN/G5xP**



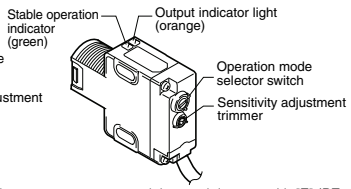
● **PZ-G5xB**



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



● **PZ-G4xB/G10xB/G6xB**

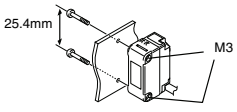


* The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

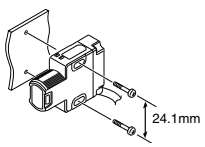
Mounting Method

■ Side Mounting (Prepare M3 screws)

Tightening torque: 0.5 N·m or less

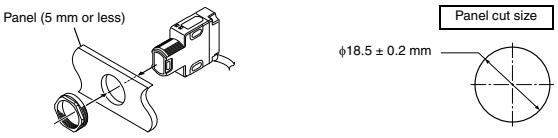


Tightening torque: 0.5 N·m or less



■ Mounting with the M18 nut (includes nut type)

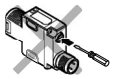
The M18 nut is also available separately as OP-84225 (2 pcs. supplied).
Tightening torque:1.0 N·m or less



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

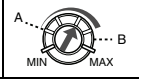
With the operation mode selector switch, you can select either the LIGHT-ON mode (L) or the DARK-ON (D) mode.

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)

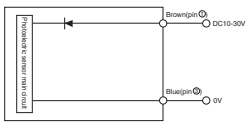
The following assumes DARK-ON (D) is set.

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)	

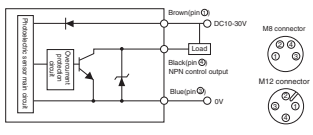
Reference To use the sensor in LIGHT-ON mode, adjust the mode selector switch to "L".

I/O Circuit Diagram

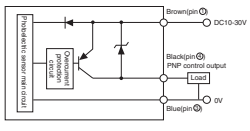
● **PZ-G5xN/G5xP/G5xB (Transmitter side)**



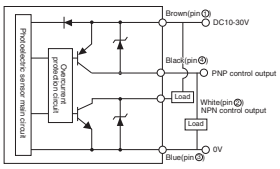
● **PZ-G5xN (Receiver side)/ G4xN/G10xN/G6xN**



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



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



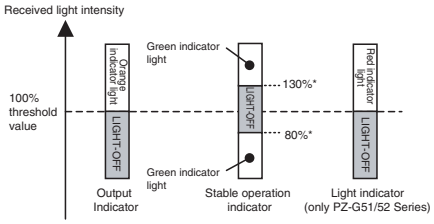
* The pin numbers represent those of the connector type / pigtail quick disconnect type. The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

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 thrubeam 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 (NPN+PNP)	PZ-G51B	PZ-G52B	PZ-G41B	PZ-G42B	PZ-G101B	PZ-G102B	PZ-G61B	PZ-G62B			
	M12 connector		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, Polybutyleneterephtalate (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 x 2 (nut thrubeam type), M18 nut x 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

11227E 1070-1 96M11227
Printed in Japan

ASSEMBLY TITLE: **HORIZONTAL & VERTICAL ADJUSTMENT STAND**

DRAWING NO.: **D21115-000**

GENERAL FUNCTION:

- Provides solid mounting for labeling head if not installed on a system that allows for vertical and horizontal adjustment.
- Minimizes possible damage to the labeling head.

SET-UP AND ADJUSTMENTS:

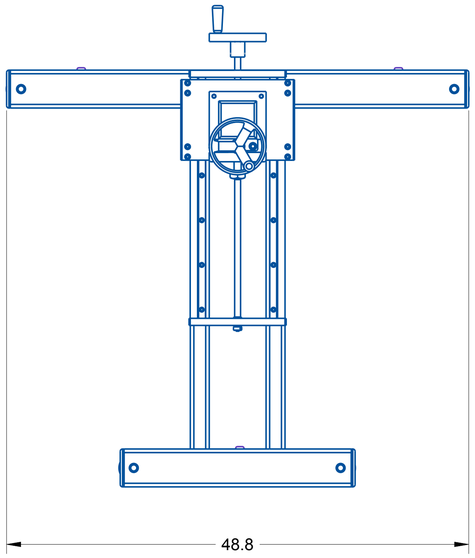
- Rotate leveling pads to appropriate position. Secure locknut when proper height is achieved.
- Using ratchet handle, adjust labeling head vertical and horizontal position.

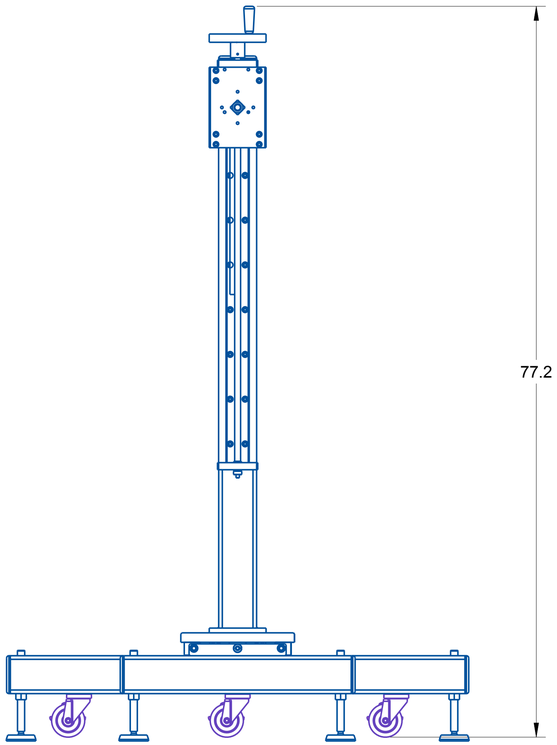
MAINTENANCE:

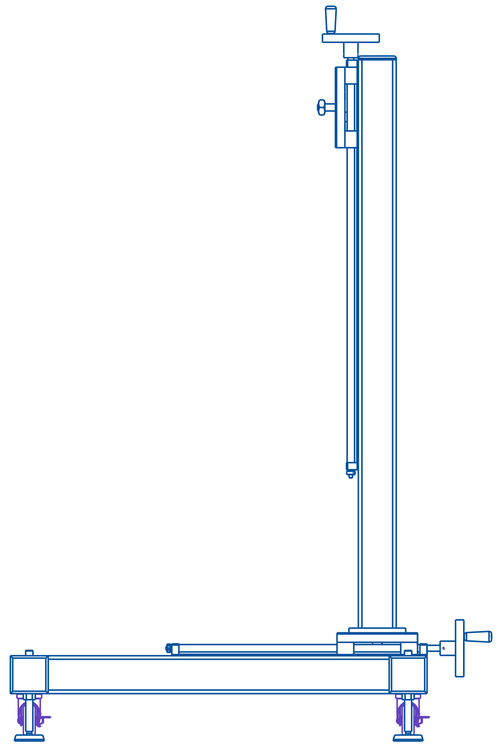
No scheduled maintenance is required for this assembly. Always keep the drive areas free of label flash and debris.

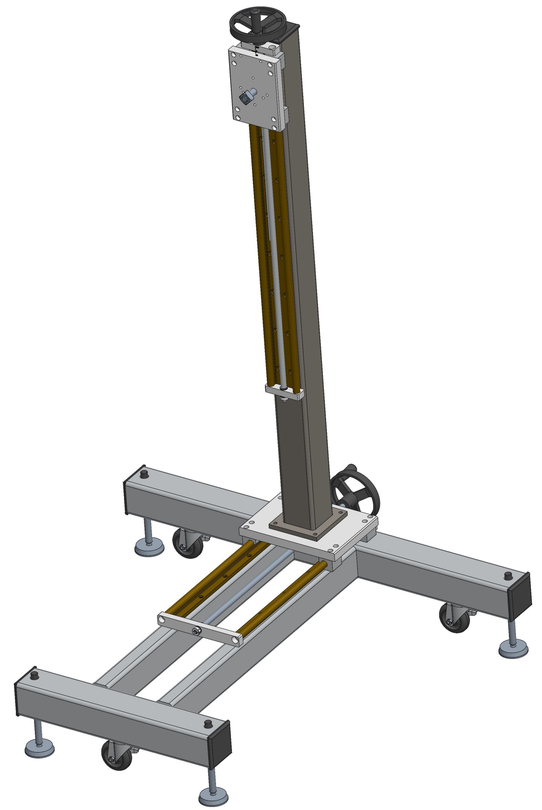
TROUBLESHOOTING: None this section

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	21654-001	VERTICAL STAND W/ IGUS SLIDE	21692-001
2	1	21691-000	HORZ. ADJ. FRAME ASSEMBLY	21692-001









REV	DATE	DESCRIPTION	BY
A	12-FEB-2024	NEW DRAWING	CRT

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 RADIOS .0107.030

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

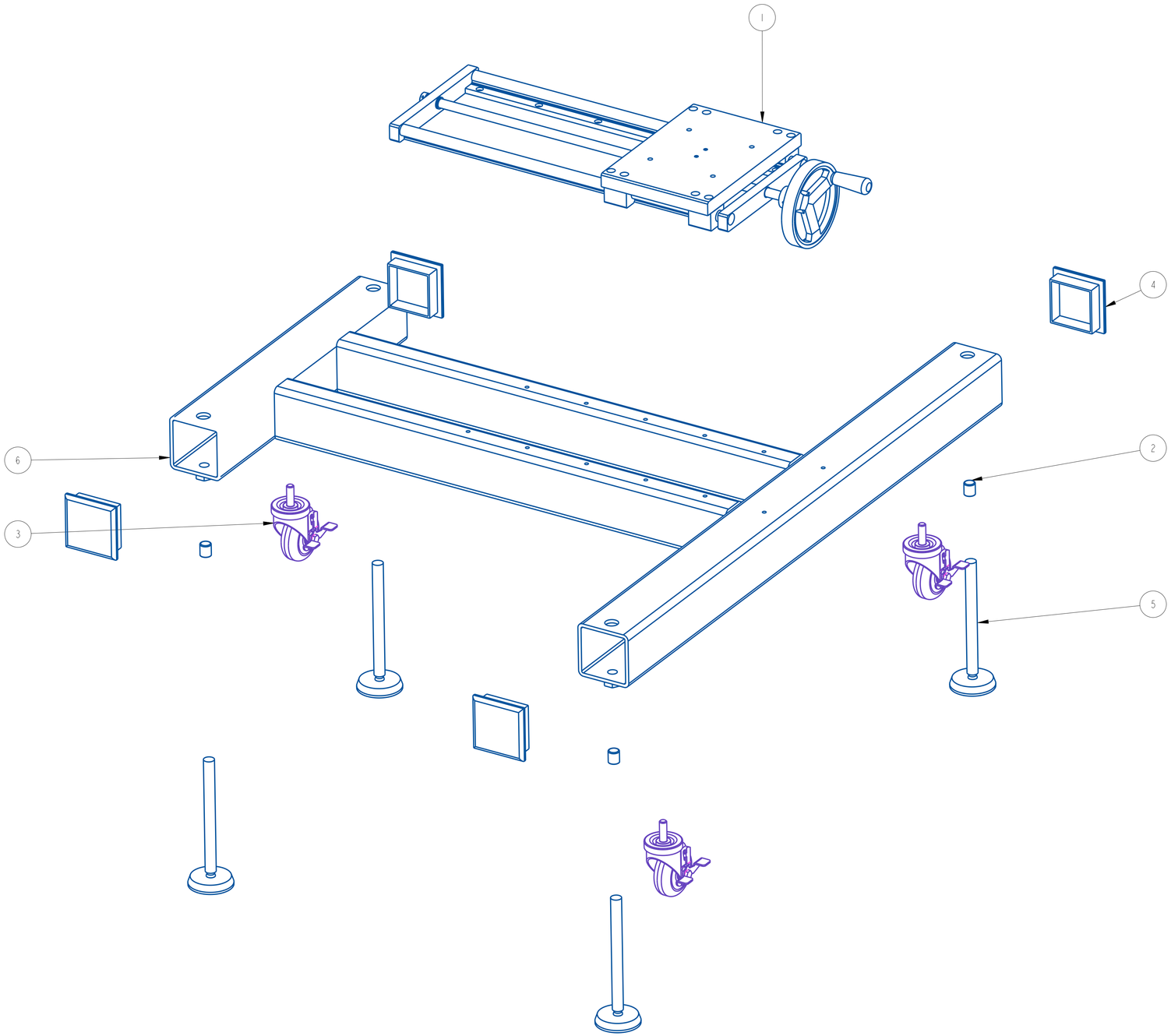
SCALE: 0.125
DATE: 12-FEB-2024
DRW BY: CRT
CHK BY:
APPR BY:

HORIZ, AND VERT. ADJ. H-BASE STAND

MAT'L BOM 21692-000

21692-001

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	21691-100	HORIZONTAL ADJUSTMENT	21691-000
2	4	791436-000	CAP, 3/4" HIGH X 5/8" I.D.	21691-000
3	3	791449-000	CASTERS, SWIVEL 3-1/2"	21691-000
4	4	792065-000	CAP INSERT FOR 4X4 TUBE (1/4WALL)	21691-000
5	4	793020-000	LEVELING MOUNT	21691-000
6	1	D21114-006	WELDMENT, HORIZONTAL ADJ.	21691-000



REV	DATE	DESCRIPTION	BY
A	09/22/2009	NEW DRAWING	SEM

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.X ± .1
.XX ± .01
.XXX ± .005
ANGLES ± 30'
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

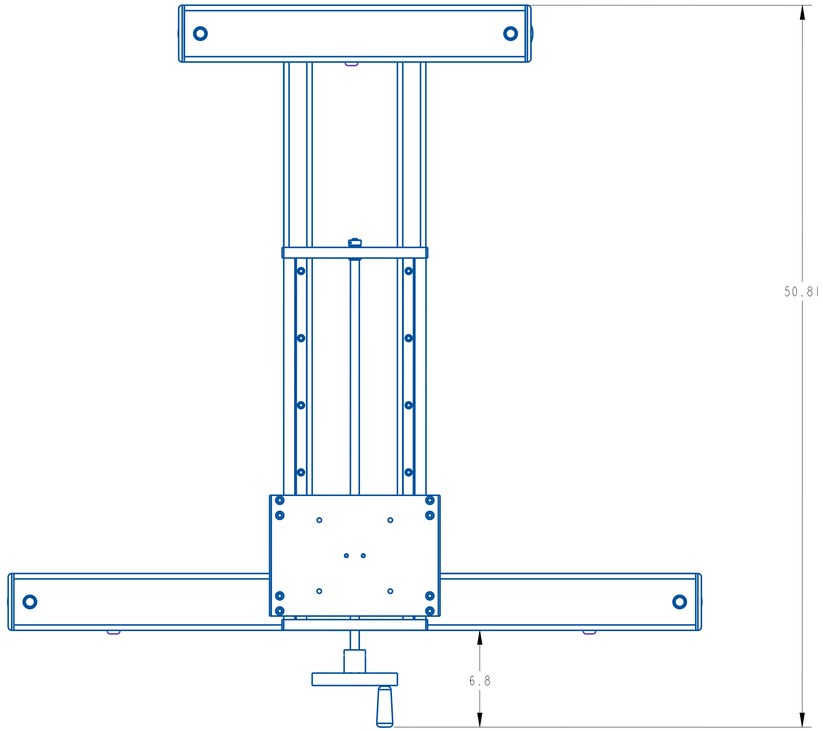
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

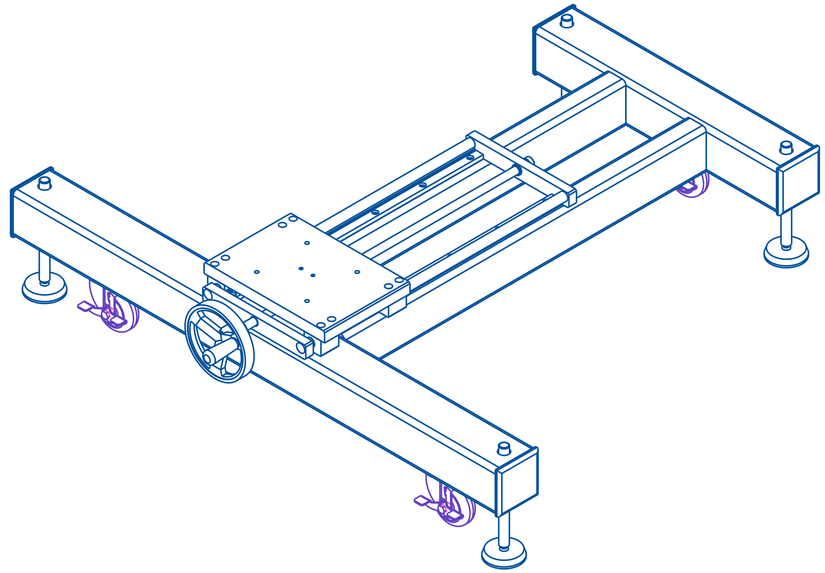
SCALE: 1/4
DATE: 09/22/2009
DRW BY: SEM
CHK BY: 07/15/2024-SEM
APPR BY:

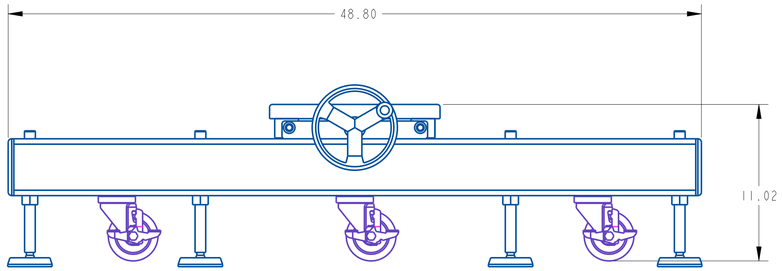
HORZ. ADJ. FRAME ASSEMBLY

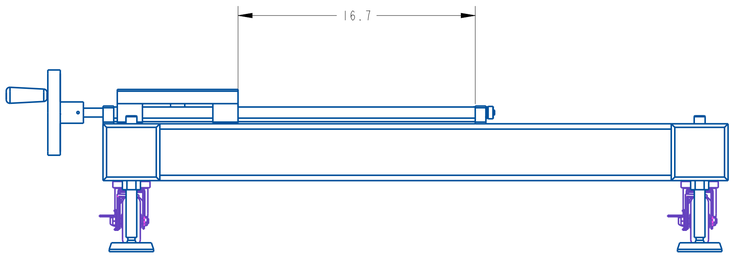
MAT'L BOM 21691-000

D22998-000









REV	DATE	DESCRIPTION	BY
A		NEW DRAWING	SEM

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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
ALL ANGLES ARE 90°

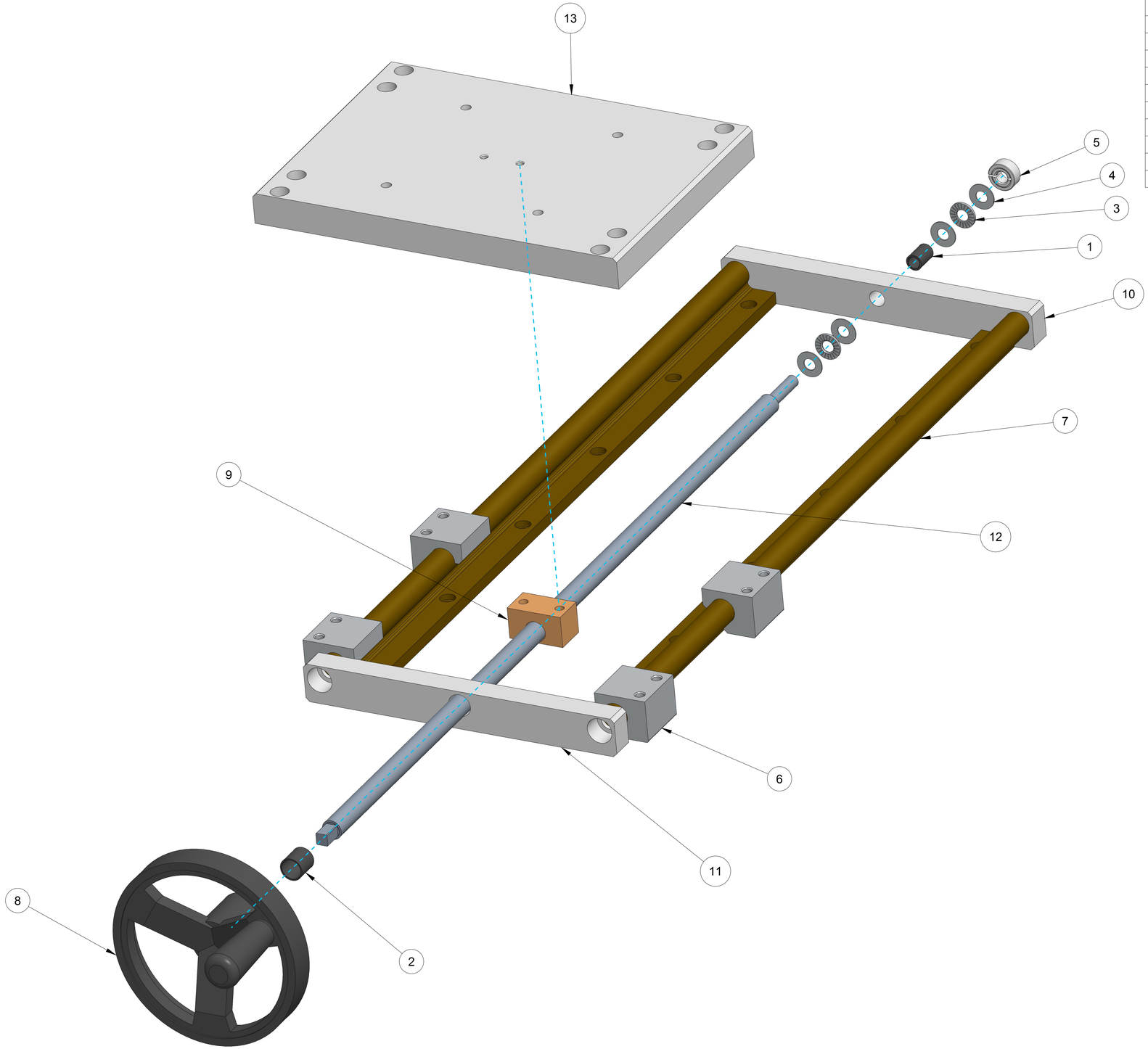
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 3/16
DATE: 09/22/2009
DRW BY: SEM
CHK BY:07/15/2024-SEM
APPR BY:

HORZ. ADJ. FRAME ASSEMBLY

MAT'L
BOM 21691-000

D22998-000



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	141172-000	SLEEVE BEARING, 1/2OD. x 3/8ID. x 3/4LNG	21691-100
2	1	141173-000	SLEEVE BEARING, 23/32OD. x 5/8ID. x 3/4LNG	21691-100
3	2	181108-000	BEARING, NEEDLE ROLLER	21691-100
4	4	181111-000	THRUST WASHER	21691-100
5	1	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP	21691-100
6	4	792248-001	PILLOW BLOCK	21691-100
7	2	792331-000	DRYLIN RAIL	21691-100
8	1	801080-000	HANDLE WHEEL, MODIFIED	21691-100
9	1	A24077-000	BRONZE NUT, RH	21691-100
10	1	B21529-000	OUTER BEARING PLATE	21691-100
11	1	B21530-000	INNER BEARING PLATE	21691-100
12	1	C20729-008	THREADED ROD	21691-100
13	1	C20753-000	HORIZONTAL SLED, WIDE VERSION	21691-100

REV	DATE	DESCRIPTION	BY
B	12-FEB-2024	UPDATED BOM TO REMOVE P & B BOM	CRT
A	12-FEB-2024	NEW DRAWING	CRT

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

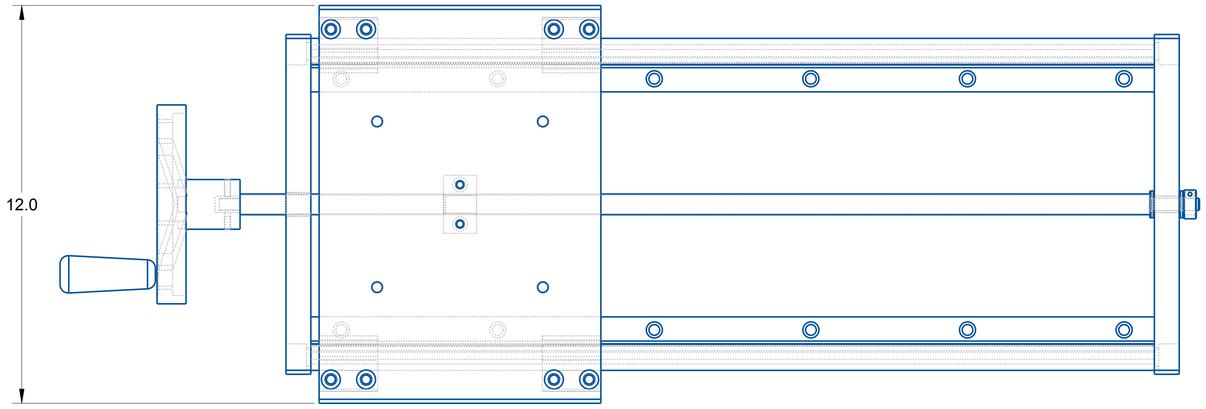
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

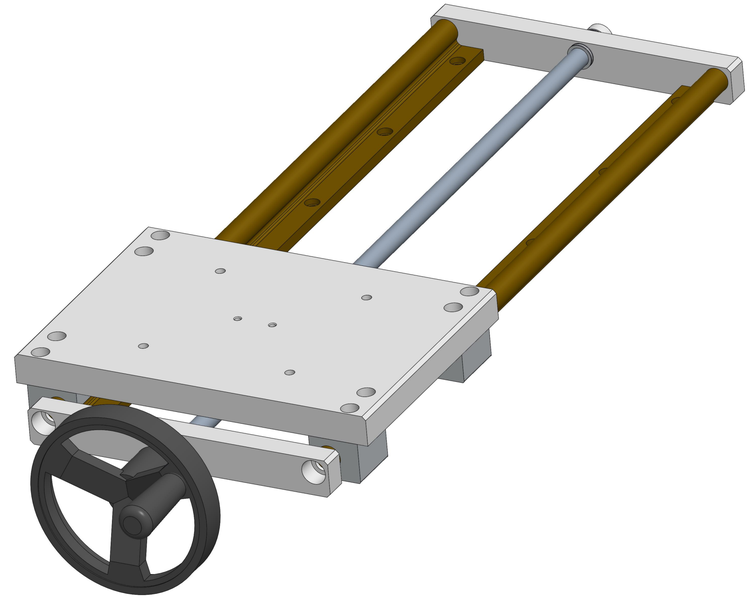
SCALE: 0.625
DATE: 12-FEB-2024
DRW BY: CRT
CHK BY:
APPR BY:

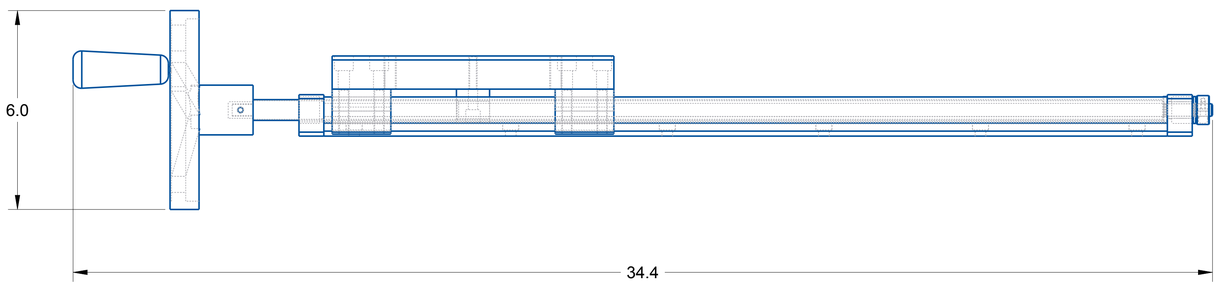
HORIZONTAL ADJUSTMENT SLED ASSEMBLY

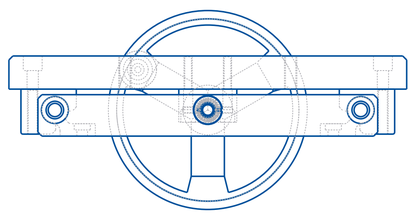
MAT'L

21691-100









REV	DATE	DESCRIPTION	BY
B	12-FEB-2024	UPDATED BOM TO REMOVE P & B BOM	CRT
A	12-FEB-2024	NEW DRAWING	CRT

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

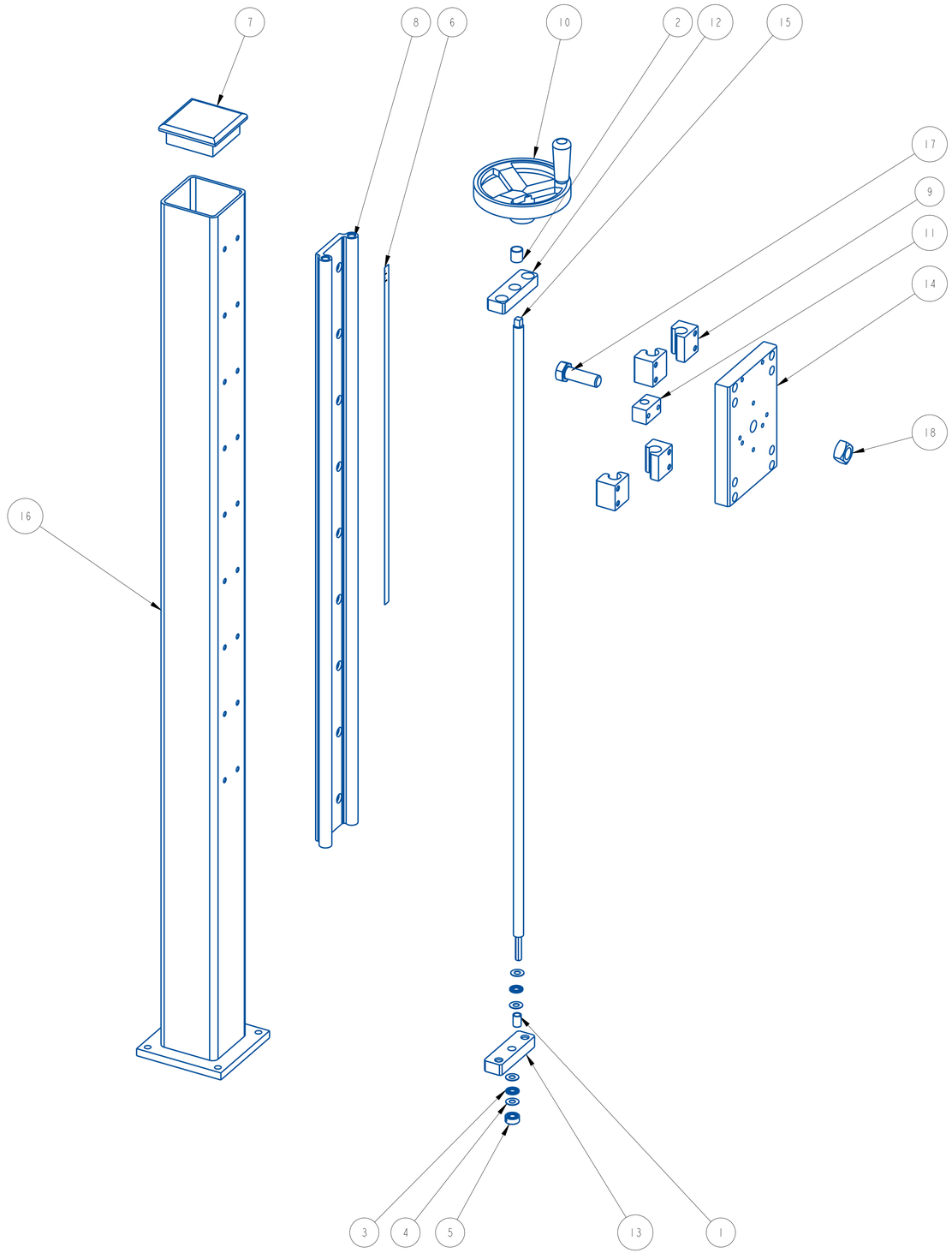
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 0.438
DATE: 12-FEB-2024
DRW BY: CRT
CHK BY:
APPR BY:

HORIZONTAL ADJUSTMENT SLED ASSEMBLY

MAT'L

21691-100



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	141172-000	SLEEVE BEARING, 1/2OD. x 3/8ID. x 3/4LNG	21654-001
2	1	141173-000	SLEEVE BEARING, 23/32OD. x 5/8ID. x 3/4LNG	21654-001
3	2	181108-000	BEARING, NEEDLE ROLLER	21654-001
4	4	181111-000	THRUST WASHER	21654-001
5	1	362186-000	COLLAR, 3/8 IN. ID ONE-PIECE CLAMP	21654-001
6	1	791914-001	MYLAR SCALE, QUADREL LOGO	21654-001
7	1	792065-000	CAP INSERT FOR 4X4 TUBE (1/4WALL)	21654-001
8	1	792247-000	DRYLIN RAIL	21654-001
9	4	792248-000	PILLOW BLOCK *NOTE USE 792248-001*	21654-001
10	1	801080-000	HANDLE WHEEL, MODIFIED	21654-001
11	1	A24077-000	BRONZE NUT, RH	21654-001
12	1	B21345-000	TOP BEARING PLATE	21654-001
13	1	B21346-000	BOTTOM BEARING PLATE	21654-001
14	1	C20626-000	STAND SLED	21654-001
15	1	C20835-000	THREADED ROD, SQUARE END	21654-001
16	1	D21045-000	VERTICAL RISER, 60"	21654-001
17	1	HCS281		21654-001
18	1	SQN022		21654-001

REV	DATE	DESCRIPTION	BY
A	4-17-09	NEW DRAWING	ATT

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 .0107.030

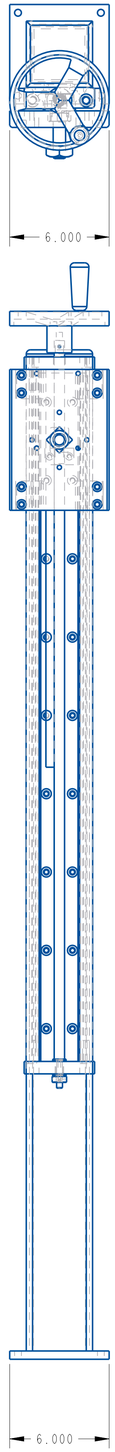
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

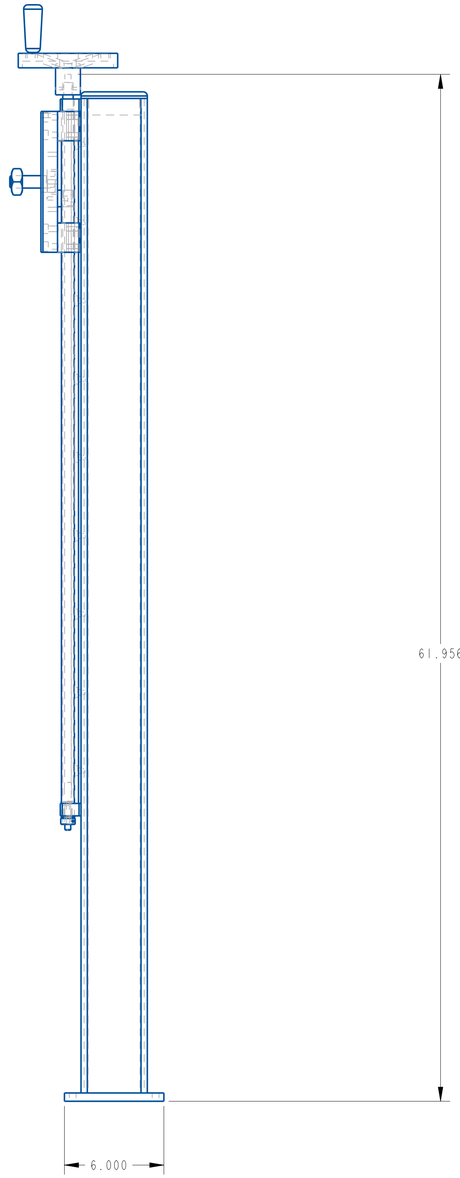
SCALE: 1/4
DATE: 4-17-09
DRW BY: ATT
CHK BY: 07/15/2024-SEM
APPR BY:

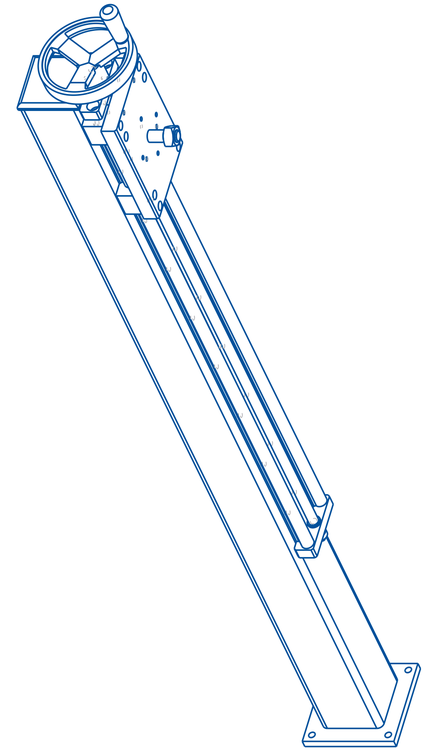
VERTICAL STAND W/ IGUS SLIDE

MAT'L 21654-001

D22807-000







REV	DATE	DESCRIPTION	BY
A	4-17-09	NEW DRAWING	ATT

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
ALL ANGLES ARE 90°

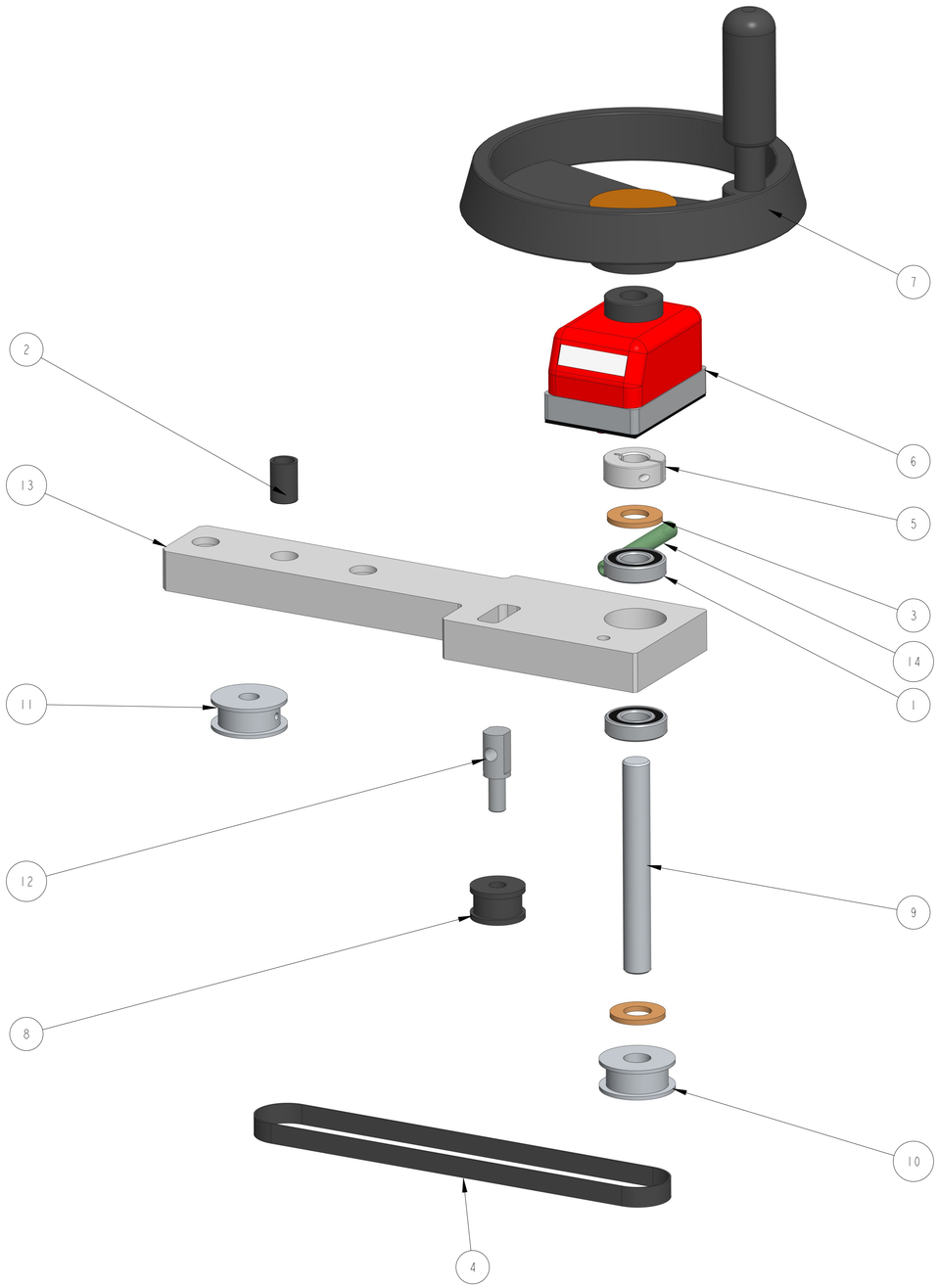
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 1/32
DATE: 4-17-09
DRW BY: ATT
CHK BY:07/15/2024-SEM
APPR BY:

VERTICAL STAND W/ IGUS SLIDE

MAT'L 21654-001

D22807-000



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	111072-000	BEARING, BALL	22489-005S
2	1	141172-000	SLEEVE BEARING, 1/2OD. x 3/8ID. x 3/4LNG	22489-005S
3	2	151018-000	BEARING, THRUST WASHER	22489-005S
4	1	191644-000	TIMING BELT	22489-005S
5	1	361169-000	COLLAR, 1/2 IN. ID ONE-PIECE CLAMP	22489-005S
6	1	792354-000	DIGITAL POSITION INDICATOR	22489-005S
7	1	801080-000	6" HANDWHEEL	22489-005S
8	1	A20738-002	IDLER PULLEY	22489-005S
9	1	A25701-005	HANDLE SHAFT	22489-005S
10	1	A25702-000	TIMING PULLEY	22489-005S
11	1	A25881-000	TIMING PULLEY	22489-005S
12	1	A28408-000	IDLER SHAFT	22489-005S
13	1	B22738-005S	BOTTOM BEARING PLATE	22489-005S
14	1	SYE616	5/16-18 x 2.50" SHSS	22489-005S

REV	DATE	DESCRIPTION	BY
A	11-6-19	NEW DRAWING	TJS

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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

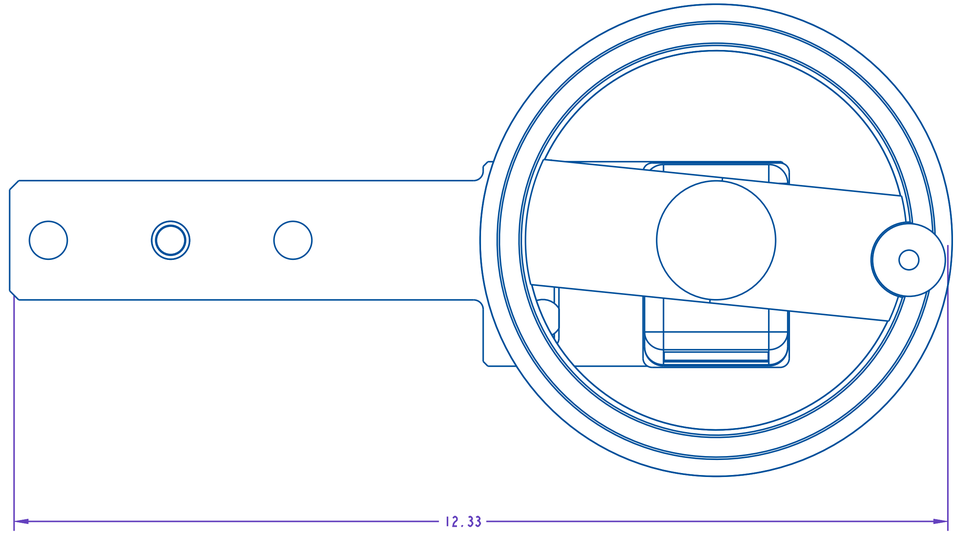
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

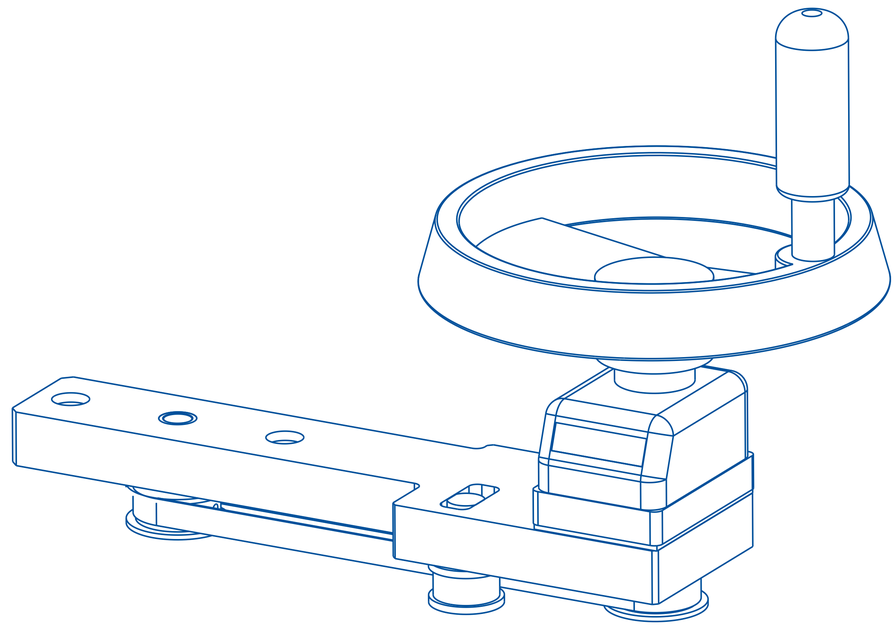
SCALE: 3/4
DATE: 11-6-19
DRW BY: TJS
CHK BY: 08/26/2024-SEM
APPR BY:

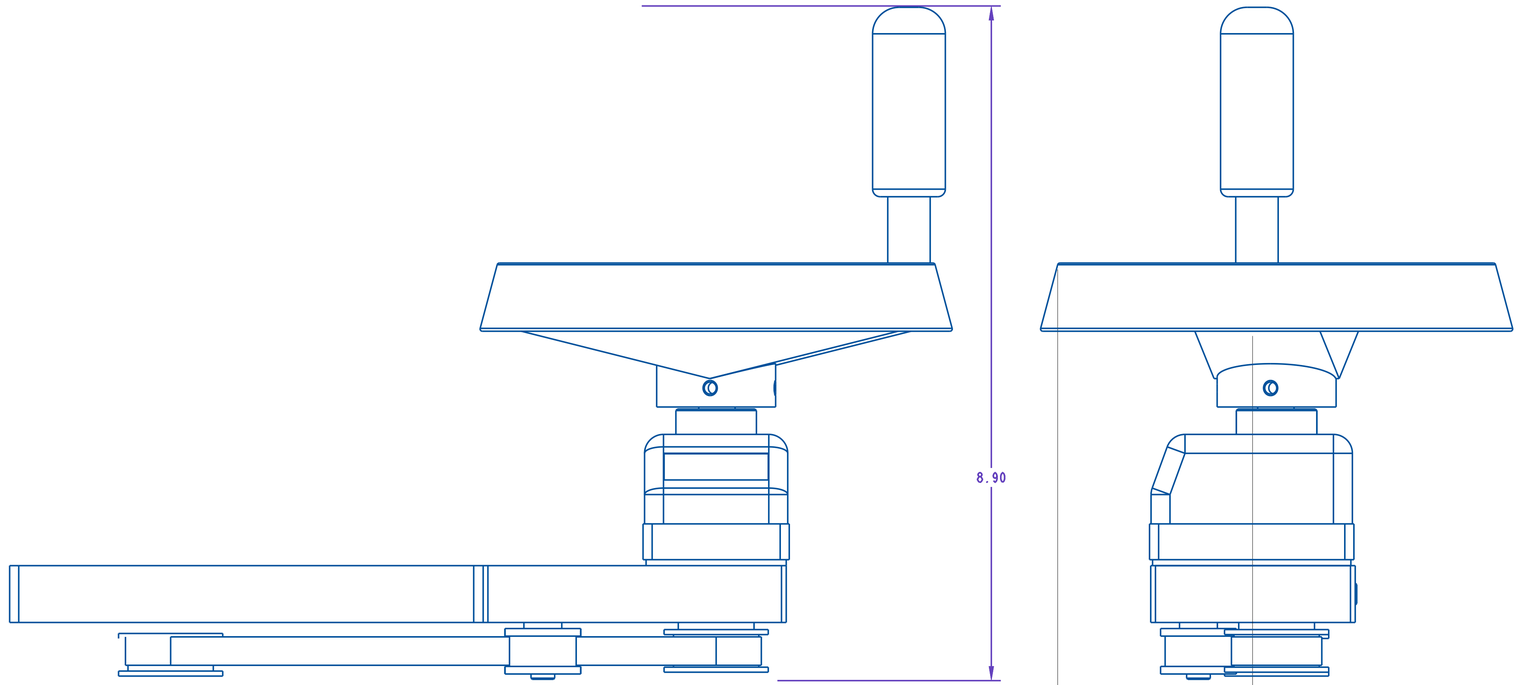
HAND WHEEL EXTENTION KIT W/SIKO

MAT'L

22489-005S







REV	DATE	DESCRIPTION	BY
A	11-9-16	NEW DRAWING	TJS

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
ALL ANGLES ARE 90°

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

SCALE: 1/1
DATE: 11-6-19
DRW BY: TJS
CHK BY:08/26/2024-SEM
APPR BY:

HAND WHEEL EXTENTION KIT W/SIKO

MAT'L

22489-005S

ASSEMBLY TITLE: **YOKE ASSEMBLY**

DRAWING NO.:

GENERAL FUNCTION:

- The yoke assembly is the main mounting bracket assembly to mount the labeling head to the stand.
- Adjustments are provided to set the labeling head up for top apply

SET UP AND ADJUSTMENTS:

-

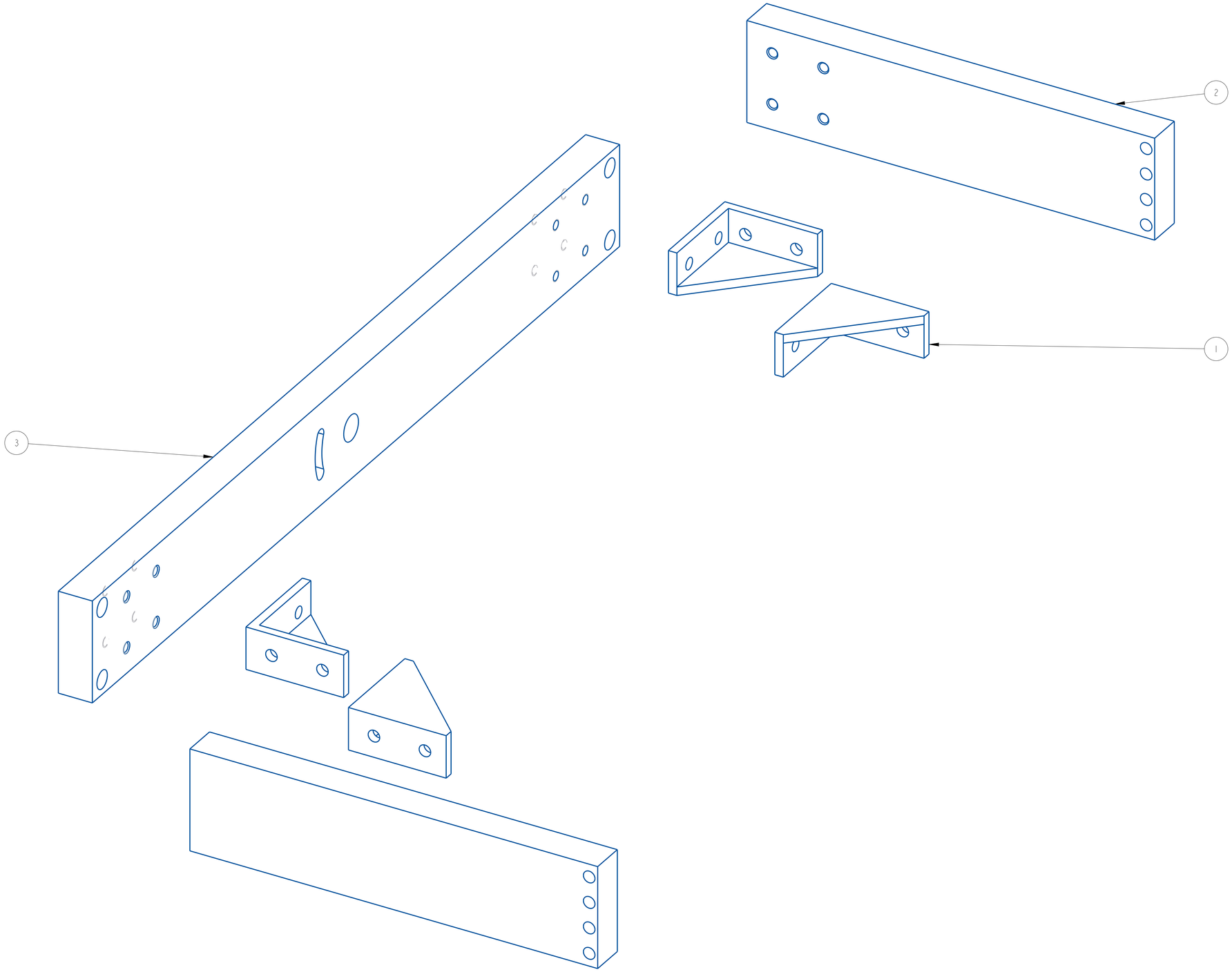
MAINTENANCE:

- No scheduled maintenance for this assembly.

TROUBLESHOOTING:

-

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	4	791889-000	CORNER GUSSET	22565Y-000
2	2	B21287-001	YOKE SIDE ARM	22565Y-000
3	1	B21288-001	YOKE BACK PLATE	22565Y-000



REV	DATE	DESCRIPTION	BY
A	7-18-13	NEW DRAWING	MAW

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 .0107.030

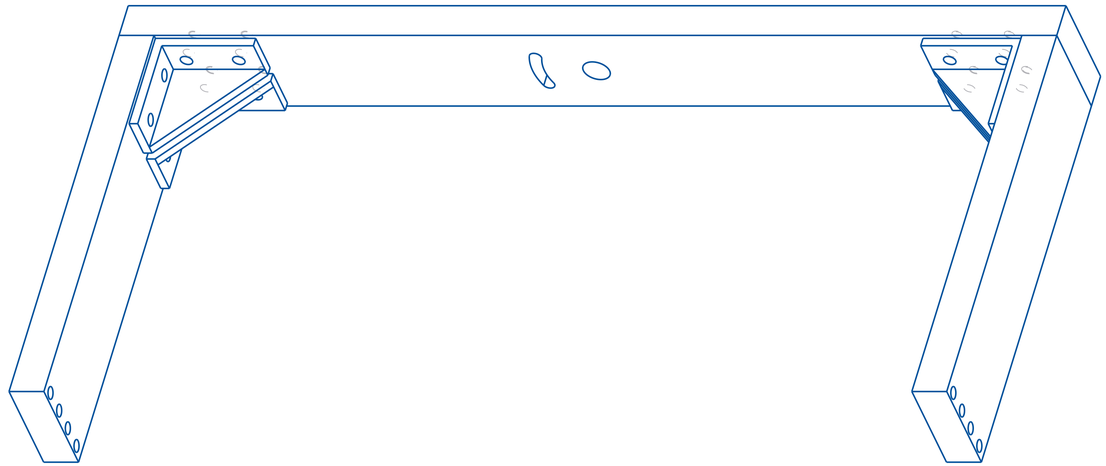
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

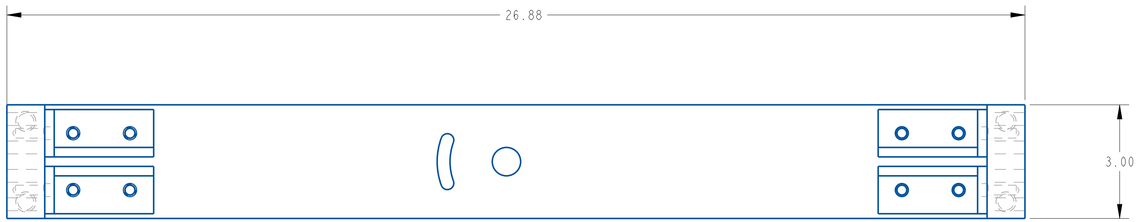
SCALE: 3/4
DATE: 7-18-13
DRW BY: MAW
CHK BY:07/15/2024-SEM
APPR BY:

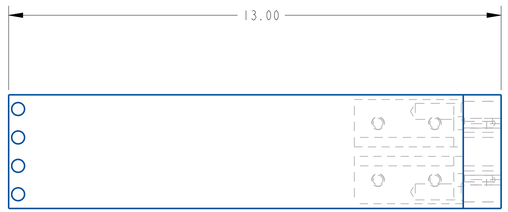
MOUNTING YOKE

MAT'L 22565Y-000

D24802-000







REV	DATE	DESCRIPTION	BY
A	7-18-13	NEW DRAWING	MAW

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
ALL ANGLES ARE 90°

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

SCALE: 1/2
DATE: 7-18-13
DRW BY: MAW
CHK BY:07/15/2024-SEM
APPR BY:

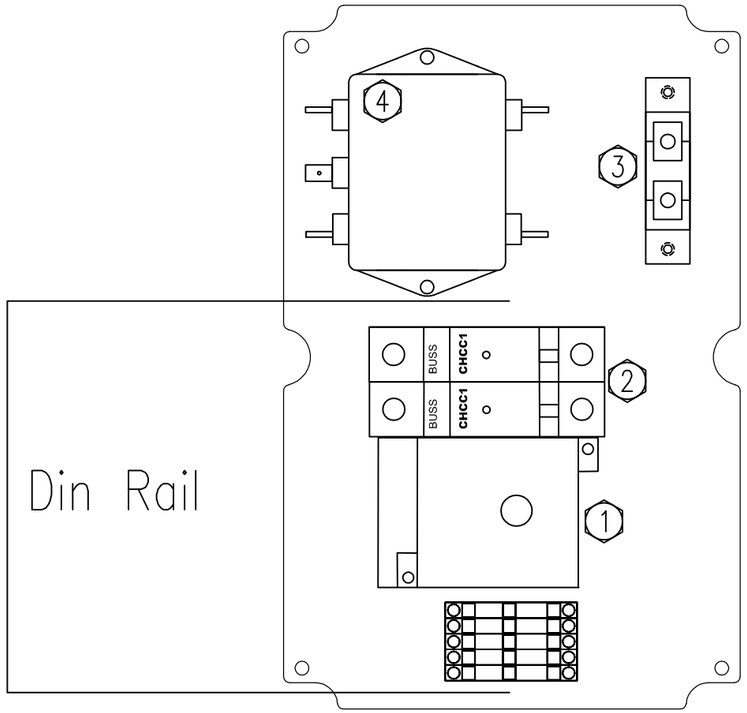
MOUNTING YOKE

MAT'L
22565Y-000

D24802-000


Electronics

Panel 222380-001



Din Rail: 5″
Din Rail Hardware: #8-32 BHCS
Component Hardware: #8-32 SHCS

4	202830-000	1	Line Filter 20 Amp
3	261629-000	1	Transient Suppressor
2	241285-000	2	CC Fuse Holder
1	272117-000	1	Disconnect, 25A Base Mount

UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE
.X ± .XTOL
.XX ± .XXTOL
.XXX ± .XXXTOL
ANGLES ± ANGTOL
SURFACE FINISH FINISHTOL
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 Jenther Drive
Mentor, Ohio 44060
(440) 602-4700

SCALE: SCALE
DATE: 11MAR14
DRAWN BY: CAV
REVISED:

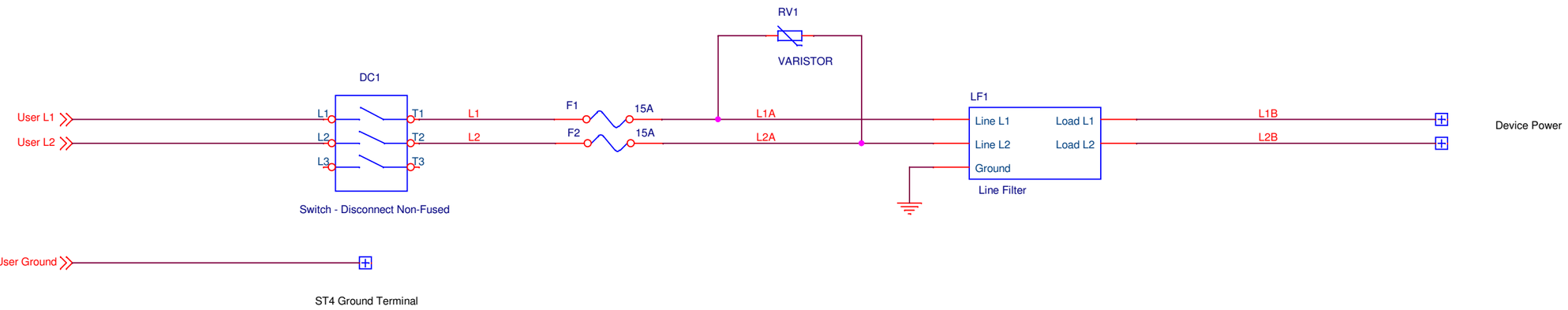
Panel Modification

MAT'L 222380-001

B7817-000

External Fused Disconnect
CC Style Fuses

120V/220V
Single PH. 15A



Wiring Size/Color

AC: 14AWG BLACK

Ground: 14AWG Green/Yellow

QUADREL
LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH
44060

Drawn By: CAV

REV	DESCRIPTION	BY	DATE
	Release	CAV	06JUN2023

Title: DISCONNECT

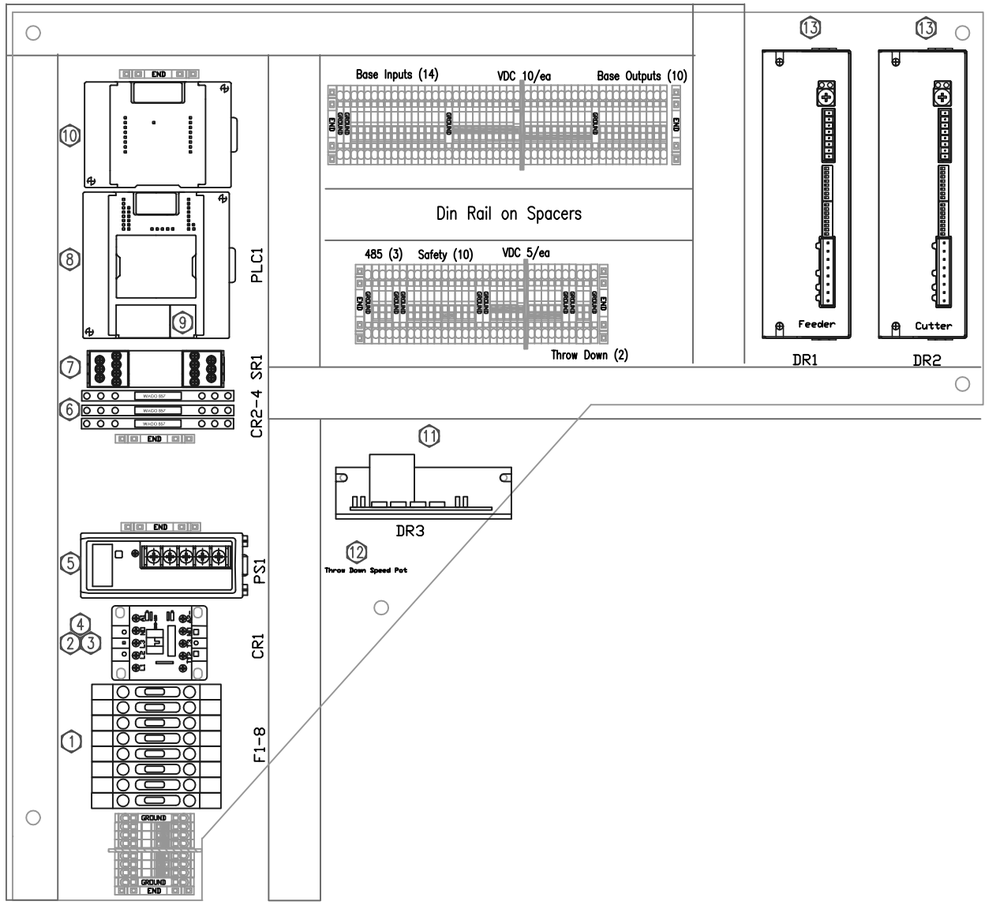
Schematic # SB5182-000

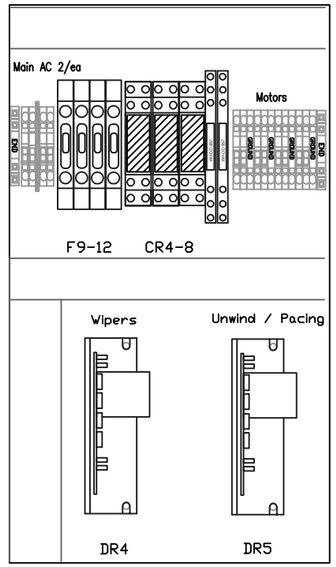
Rev:

Date: Tuesday, June 06, 2023

Sheet 1 of 1

Accessory Plate Components: BOM 22565DC-000





NO.	PART NO.	QTY	DESCRIPTION
13	412476-000	2	Applied Motion STRAC8 Stepper Drive
12	A24852-000	1	Potentiometer Mounting Bracket
11	411457-000	1	Minarik MM23001C DC Drive Kit
10	221720-005	1	In/Out Expansion, Keyence KV-N8EXR
9	262821-000	1	Cable, RJ12, 1ft
8	221717-001	1	PLC, Keyence KV-N24DTP
7	221650-004	1	Safety Relay
6	202628-000	3	24V Relay, SPDT
5	211528-003	1	Power Supply, 24V, 2.1A
4	202620-000	1	Contactor Aux 2 NO
3	202607-000	1	Contactor Surge Suppressor
2	202604-000	1	Contactor, 24V, 12A
1	251788-001	8	Fuse Holder, 1.25 x .25
--	263824-000	1	DC Drive Inhibit Connector
--	251855-000	6	Jumper, 2 Position, ST1,5
--	251858-000	2	Jumper, 5 Position, ST1,5
--	251859-000	2	Jumper, 10 Position, ST1,5
--	251854-000	12	Phoenix Contact 3031513 Ground Terminal
--	251853-000	60	Phoenix Contact 3031076 Terminal Block
--	251802-000	2	Jumper, 3 Position, ST2,5
--	251799-000	3	Phoenix Contact End Cover Plate
--	251798-000	3	Phoenix Contact Partition Plate
--	251797-000	6	Phoenix Contact Terminal Block (AC)
--	251796-000	2	Phoenix Contact Ground Terminal (AC)
--	251795-000	8	Phoenix Contact End Terminal
-	241053-000	2	3A Fuse (F7 -8)
-	241062-000	6	5A Fuse (F1-6)

Wireway: 1" Unless Noted
Wireway Hardware: 8/32 BHCS

Drive Hardware: 8/32 SHCS

UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE
.X ± .XTOL
.XX ± .XXTOL
.XXX ± .XXXTOL
ANGLES ± ANGTOL
SURFACE FINISH FINISHTOL
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

QUADREL LABELING SYSTEMS
7670 Jenther Drive
Mentor, Ohio 44060
(440) 602-4700

SCALE:
DATE: 27JUN2024
DRAWN BY: CAV
REVISED:

SL200 Panel Layout

MAT'L Layout Only

B22565-006P

SLEEVER
120/240VAC
KEYENCE NANO PLC
APPLIED MOTION STRAC8 STEPPER DRIVES
MINARIK DC DRIVES

Page Descriptions

WIRE SIZE/COLOR TABLE (UNLESS OTHERWISE NOTED)

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: CAV

REV	DESCRIPTION	BY	DATE
A	Safety Relay, Perforator	CAV	08AUG2025
-	Draft	CAV	27JUN2024

Title: SL200 SLEEVER

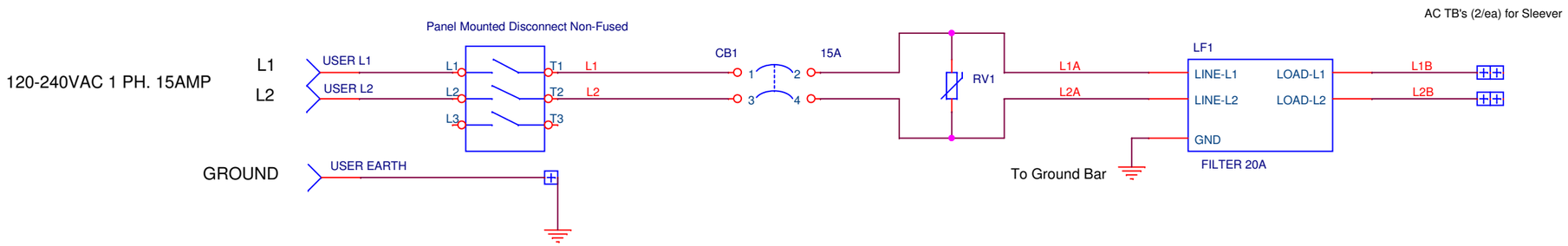
Schematic #: SB22565-003

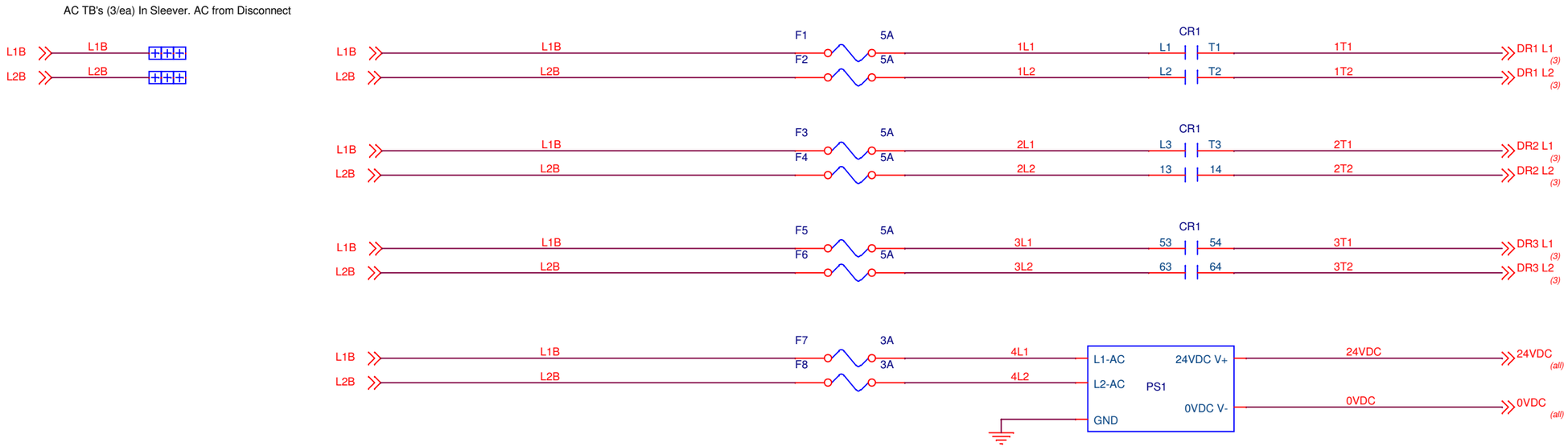
Rev: A

Date: Friday, August 08, 2025

Sheet 00 of 07

Disconnect Wiring





COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL
LABELING SYSTEMS
7670 Jenther Dr.
Mentor, OH
44060

Drawn By: CAV

REV	DESCRIPTION	BY	DATE
A	Safety Relay, Perforator	CAV	08AUG2025
-	Draft	CAV	27JUN2024

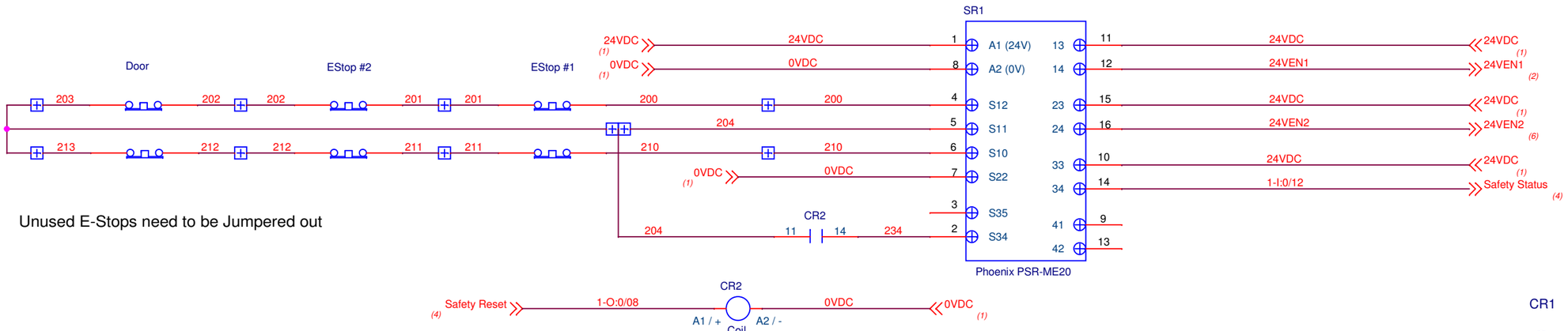
Title
POWER

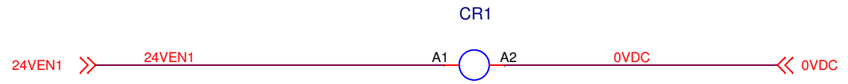
Schematic #
SB22565-003

Rev
A

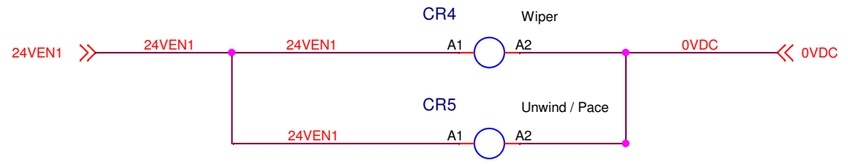
Date: Tuesday, August 12, 2025

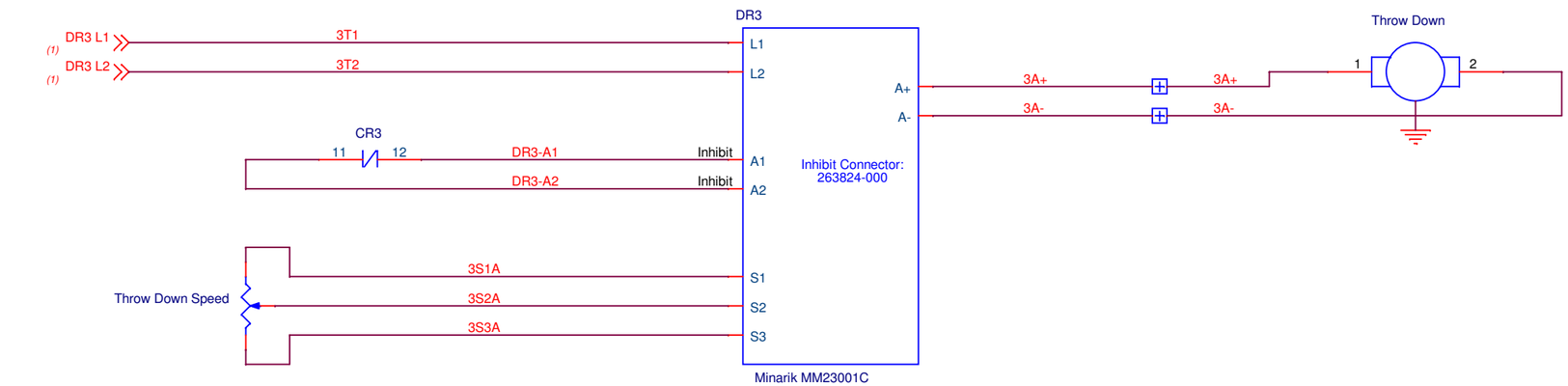
Safety Relay
DC Drive
Page 2





CR4 and CR5 on Optional Accessory Panel





COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL
LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH
44060

Drawn By: CAV

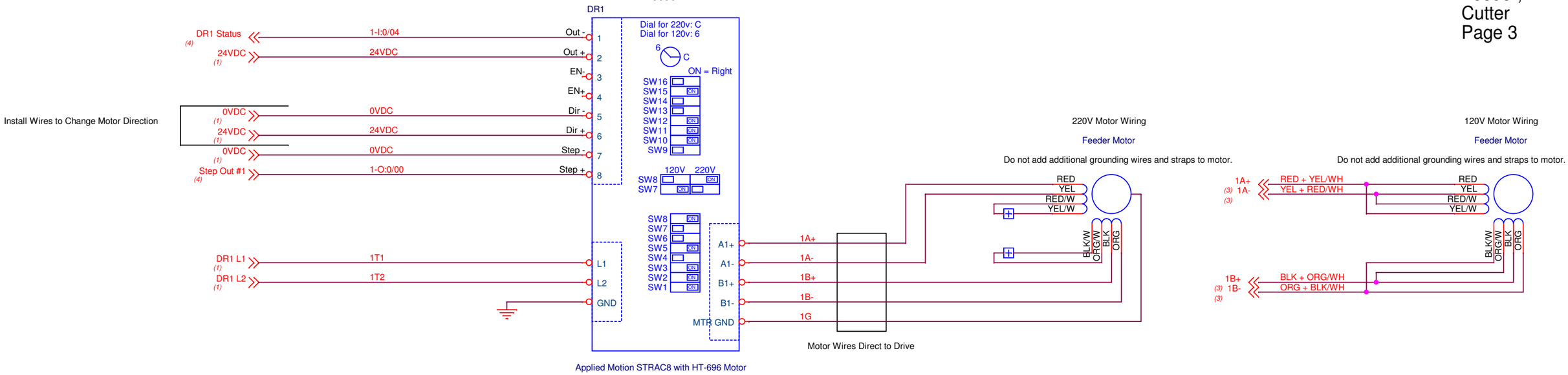
REV	DESCRIPTION	BY	DATE
A	Safety Relay, Perforator	CAV	08AUG2025
-	Draft	CAV	27JUN2024

Title: SAFETY, DC DRIVE

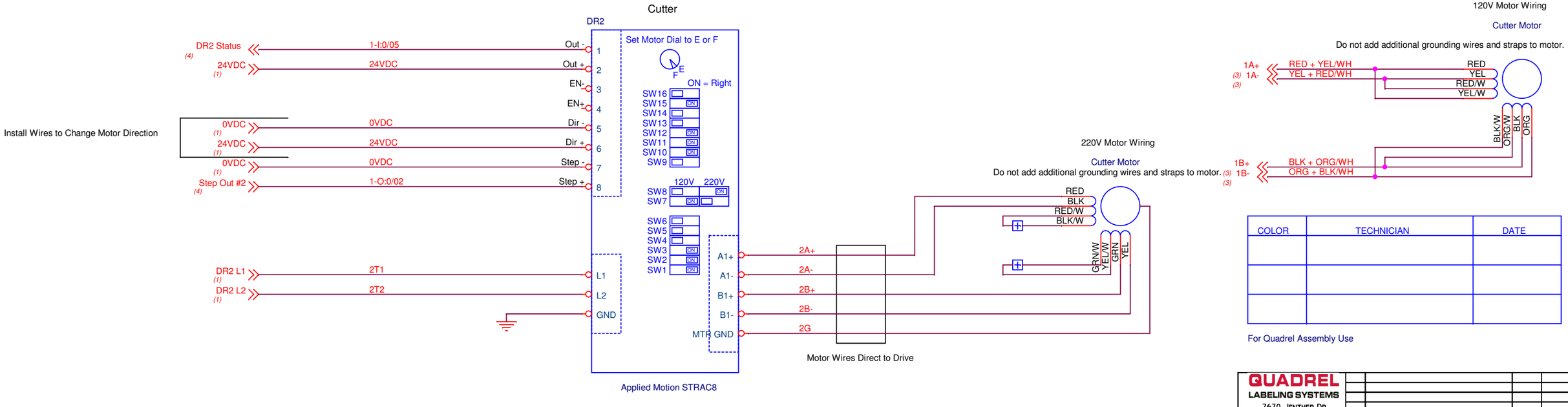
Schematic # SB22565-003 Rev A

Date: Friday, August 08, 2025 Sheet 02 of 07

Feeder



Cutter



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL
LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH
44060

Drawn By: CAV

REV	DESCRIPTION	BY	DATE
A	Safety Relay, Perforator	CAV	08AUG2025
-	Draft	CAV	27JUN2024

Title: **STEPPER DRIVES**

Schematic # **SB22565-003**

Rev **A**

Date: Friday, August 08, 2025

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PLC Base
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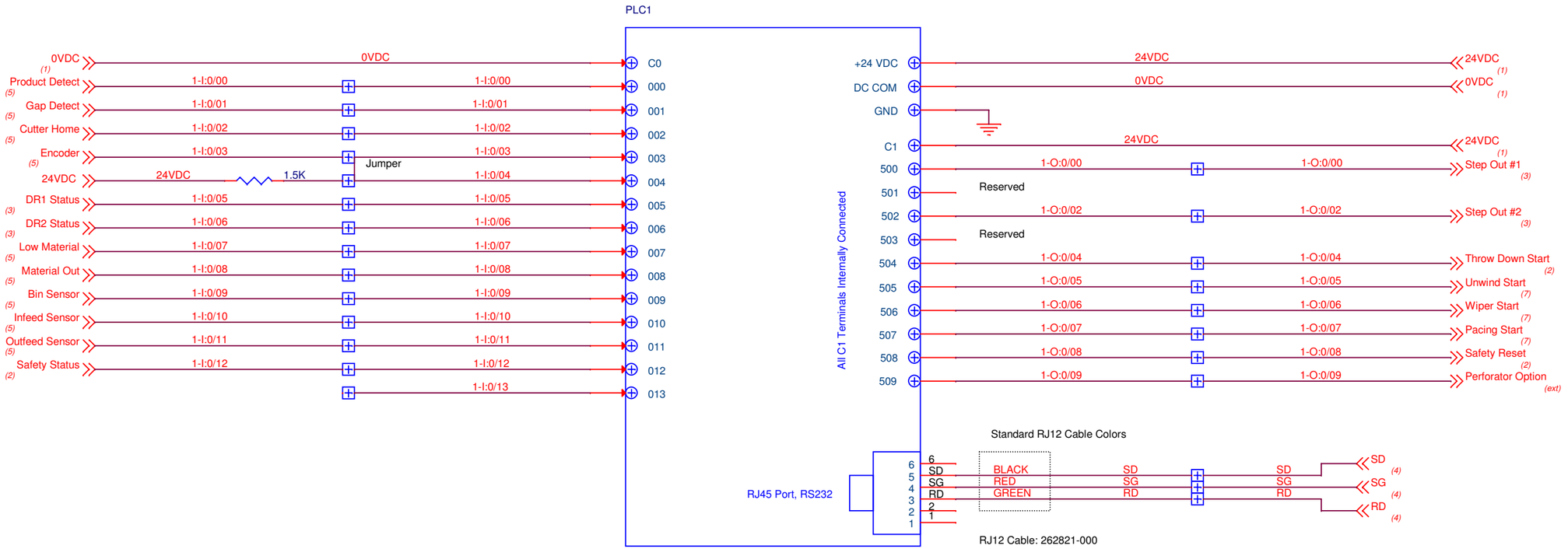

COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL LABELING SYSTEMS
7670 Jenther Dr.
Mentor, OH
44060

Drawn By: CAV

REV	DESCRIPTION	BY	DATE
A	Safety Relay, Perforator	CAV	08AUG2025
-	Draft	CAV	27JUN2024

Title: PLC, HMI

Schematic # SB22565-003

Rev A

Date: Tuesday, August 12, 2025

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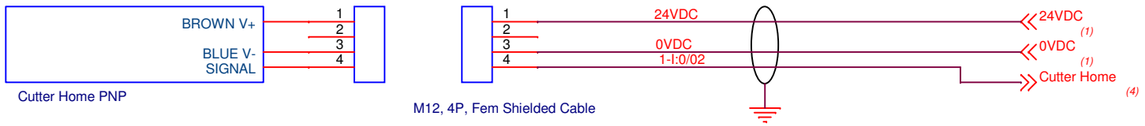
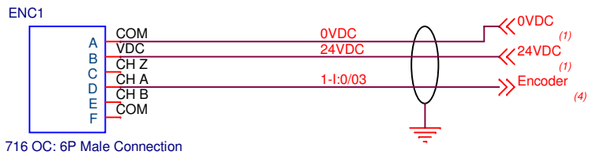
Sensors
Page 5

Cable Routed Through Strain Relief

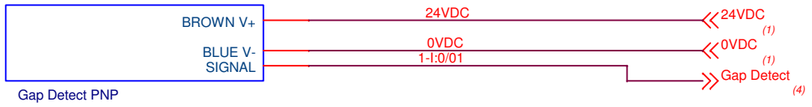


Encoder Option



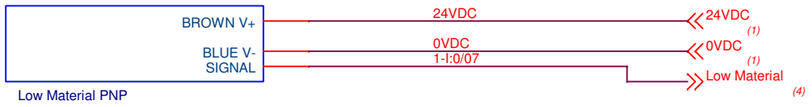
Cable Routed Through Strain Relief

Optional



Cable Routed Through Sideplate

Optional



Cable Routed Through Strain Relief

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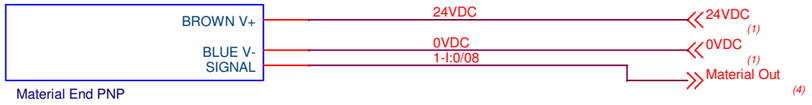
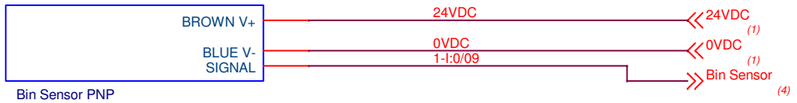


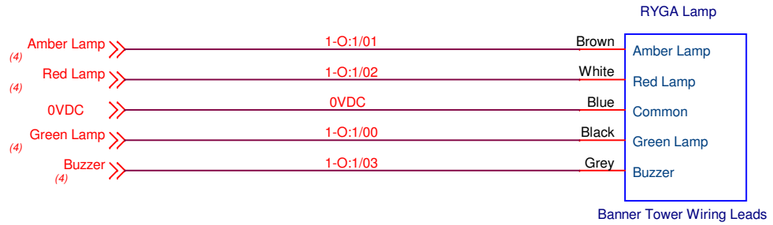
Cable Routed Through Strain Relief

Optional

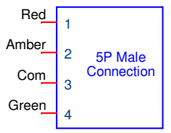


Cable Routed Through Strain Relief

Tower Lamp Option

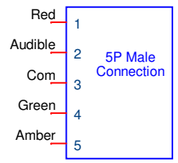


K50 Dome Lamp Option (-000)



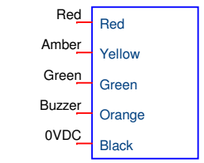
Red / Amber / Green

K50 Dome Lamp Option (-002)



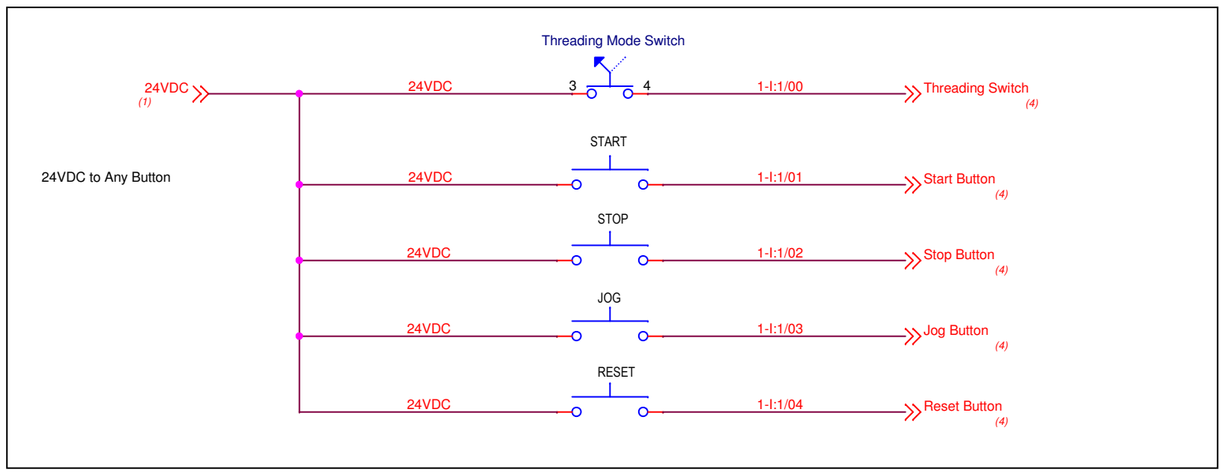
Red / Amber / Green / Audible

Dome Lamp Option (-010)



Red / Amber / Green / Audible

Optional Buttons



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL LABELING SYSTEMS
7670 Jenther Dr.
Mentor, OH
44060

Drawn By: CAV

REV	DESCRIPTION	BY	DATE
A	Safety Relay, Perforator	CAV	08AUG2025
-	Draft	CAV	27JUN2024

Title: SENSORS

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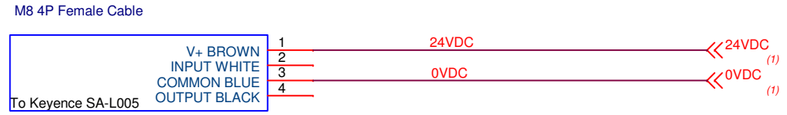
Ionizer Options Page 6

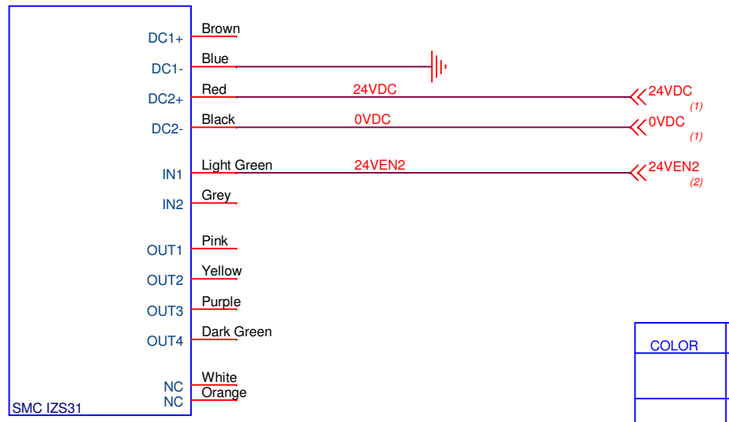
Keyence

Keyence



Panasonic

SMC



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL LABELING SYSTEMS
7670 Jenther Dr.
Mentor, OH
44060
Drawn By: CAV

REV	DESCRIPTION	BY	DATE
A	Safety Relay, Perforator	CAV	08AUG2025
-	Draft	CAV	27JUN2024

Title: IONIZERS

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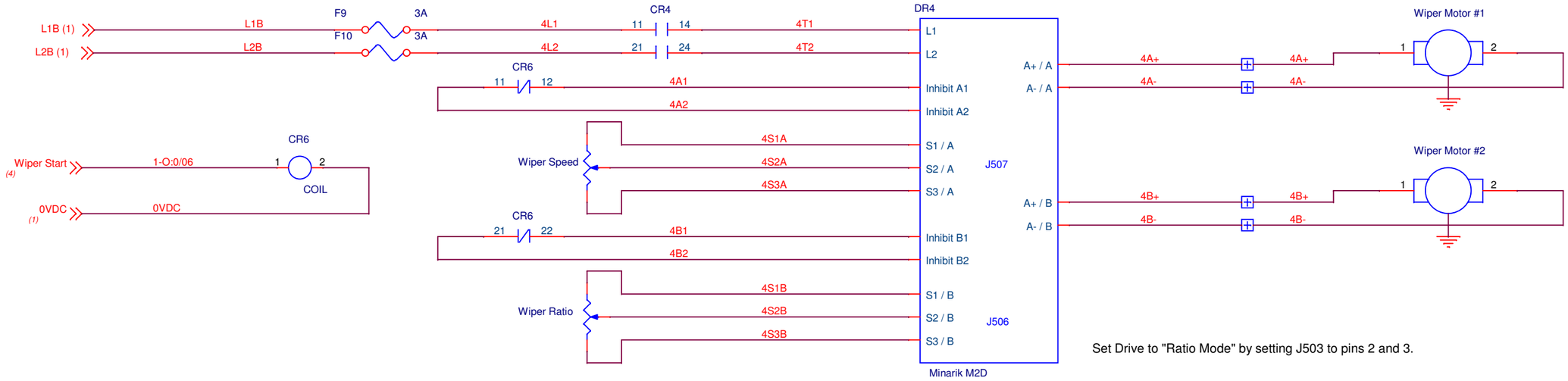
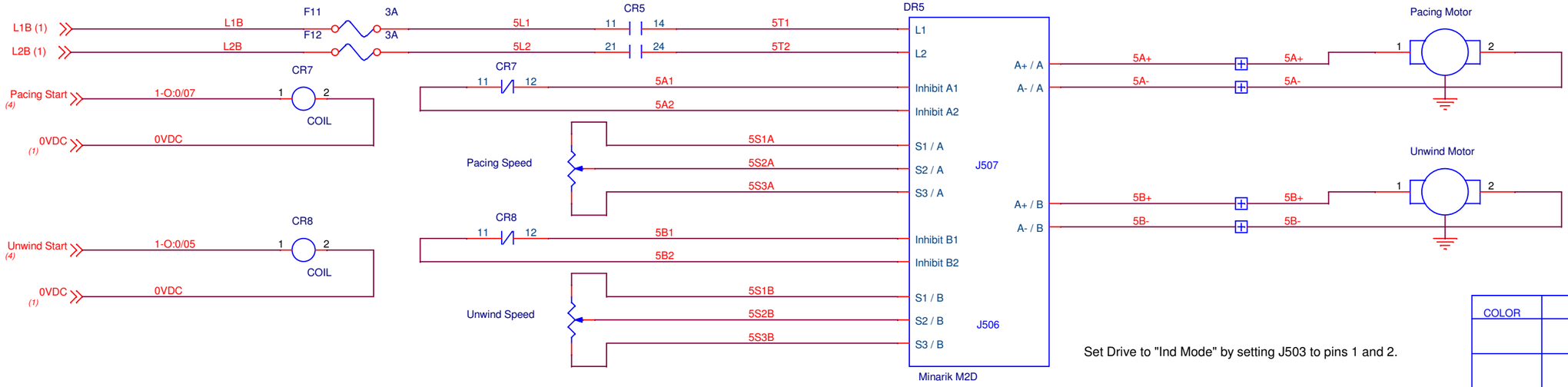
Accessory
Panel
Page 7



Set Drive to "Ratio Mode" by setting J503 to pins 2 and 3.



Set Drive to "Ind Mode" by setting J503 to pins 1 and 2.

COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

QUADREL
LABELING SYSTEMS
7670 Jenther Dr.
Mentor, OH
44060

Drawn By: CAV

REV	DESCRIPTION	BY	DATE
A	Safety Relay, Perforator	CAV	08AUG2025
-	Draft	CAV	27JUN2024

Title: ACCESSORY PANEL

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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 maintaning 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.

LABELING SYSTEM

This labeling system is reliable, versatile and durable. It will operate for years with very light maintenance if it is performed regularly. Most of the maintenance takes only a few minutes and substantially increases the operational life of the system and maintains label placement accuracy.
Not all sections may apply to your equipment.

Daily:	**D**
Weekly:	**W**
Monthly	**M**
Quarterly	**Q**
Semi-Annually	**S**

ASSEMBLY TITLE: LABELING HEAD ASSEMBLY

D- Remove glue residue and labels from all rollers and idler. DO NOT use a knife or other tool to scrape the rollers. Adhesive Remover such as Goo-Gone or 3M Adhesive Remover is recommended. DO NOT use an adhesive remover that reacts with plastics or sensor lenses will be damaged.

M- Check for loose idlers and components and tighten as needed.

S – Lubricate all idler rollers shafts using 80w-90w gear lube on the white bearings where they contact the axle.

ASSEMBLY TITLE: UNWIND ASSEMBLY

S- Check and adjust dancer spring. If final spring tension is too soft then replace.

S- Check and inspect band brake. Replace if torn

ASSEMBLY TITLE: REWIND ASSEMBLY

S- Check and inspect friction disc (if applicable), Replace when worn out.

S- Check Kinetrol (if applicable) for leaks, Replace if necessary.

ASSEMBLY TITLE: BRAKE BRUSH ASSEMBLY

S- Reverse brake brush direction

S- 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- Lubricate all idler rollers shafts using 80w-90w gear lube on the white bearings where they contact the axle.

ASSEMBLY TITLE: **PEEL PLATE ASSEMBLY**

D- Clean all the parts that may acquire labels or glue residue. DO NOT use a knife or other tool to scrape the rollers. Adhesive removers are recommended.

W- Inspect Teflon tape on peel plate tip. Replace if the steel is exposed.

S – Lubricate all idler rollers shafts 80w-90w gear lube

ASSEMBLY TITLE: **DRIVE AND PINCH ROLL ASSEMBLY**

D- Remove glue residue and labels from drive roller. DO NOT use a knife or other tool to scrape the rollers. Isopropyl alcohol and adhesive removers are recommended.

W- Clean the knurled roll with a soft brass brush and adhesive remover.

M- Check and inspect drive roll. No play should be present when powered up. If there is a groove the width of the label liner, replace the worn roller.

M – Lubricate knurled roll shafts using 80w-90w gear lube.

S- Inspect and Lubricate, springs and slugs.

ASSEMBLY TITLE: **ROLLER/BRUSH IMPRESSER**

D- Check the rollers/brushes. They should be 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. Glass cleaner on a clean towel then wipe the membrane.

ASSEMBLY TITLE: **ELECTRICAL**

W- Check the foam filter for the fan. Clean or replace.

ASSEMBLY TITLE: **CONVEYOR**

D – Inspect conveyor chain for broken flights of table top chain

W – Inspect conveyor for labels / adhesive and remove as needed

S – Check gearbox oil levels and add as needed.
American Lubricants SHC-90W oil.

ASSEMBLY TITLE: **FEEDSCREW**

W – Remove glue residue and labels from feed screws

W – Lubricate internal feedscrew drive assembly, with muti-purpose grease.

S – Lubricate grease fittings / chains / bearings with quality muti-purpose grease – as needed

ASSEMBLY TITLE: **VERTICAL ROLLER**

W – Remove labels from rollers with adhesive remover / cleaner

W – Lubricate chains with food grade grease.

ASSEMBLY TITLE: **EJECT STATION**

D – Clean all parts that have acquired label or glue residue

ASSEMBLY TITLE: **INFEED / OUTFEED BANK SENSOR**

W – Clean and glue residue or labels off sensor and/or reflectors

ASSEMBLY TITLE: **SLEEVER**

M – Drive rollers – Inspect for wear and clean with a citrus based adhesive removal

M – Inspect tension belts for cutter blade and cutter assembly for wear. Replace as needed.

M – Inspect cutter blades and bearings for wear. Replace as needed

M – Inspect perforation blades / bearings for wear and free of debris. Replace as needed.

S- Check, inspect, and grease all lead screws (threaded rods)

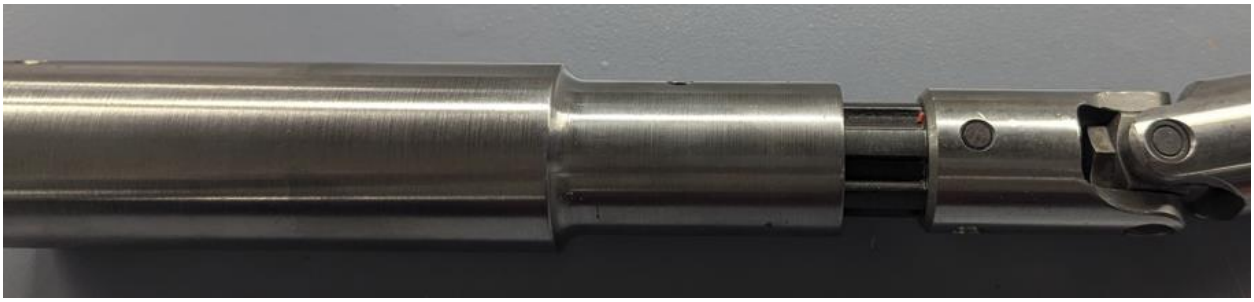
S – Inspect mandrel and bearings for wear. Ensure they spin freely Replace as needed.

NOTES:

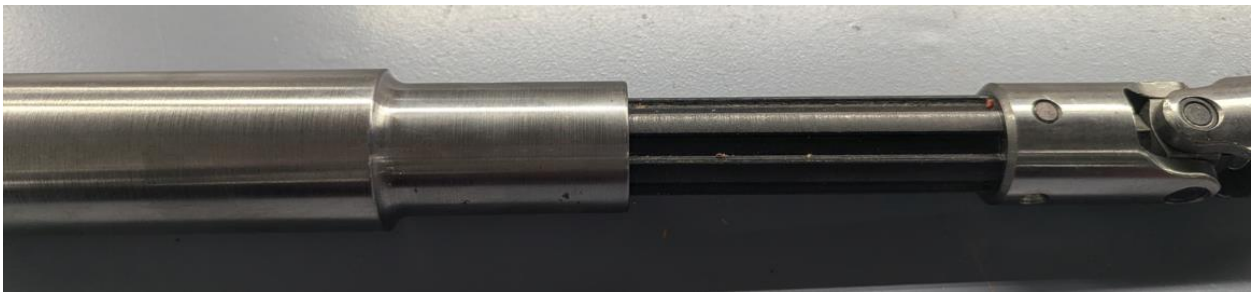
GENERAL PURPOSE FEEDSCREW LUBRICATION GUIDE

During your weekly maintenance of your Quadrel Labeling Systems equipment follow the steps below to ensure proper lubrication of the internal drive system for your feedscrew assembly.

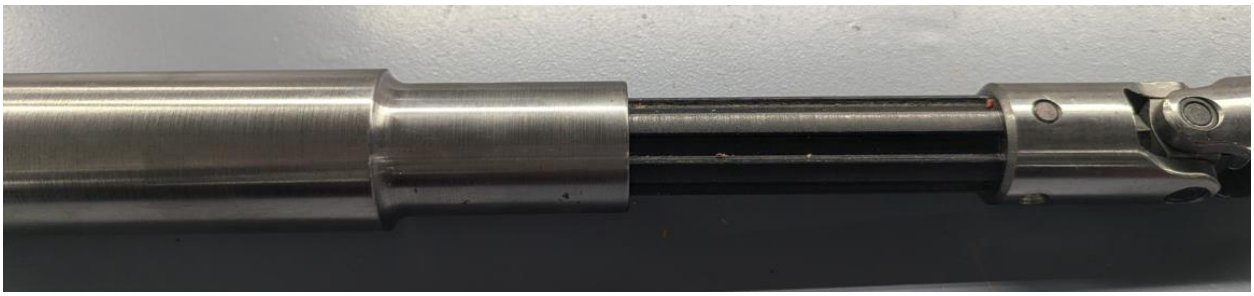
Step 1 – Your dual feedscrews are connected inside the conveyor with a spline shaft assembly. First remove the chain so you have easy access to the this.



Step 2 – Open your feedscrews to your largest product. This will expose the spline assembly shaft that you will be applying the muti-purpose grease to.



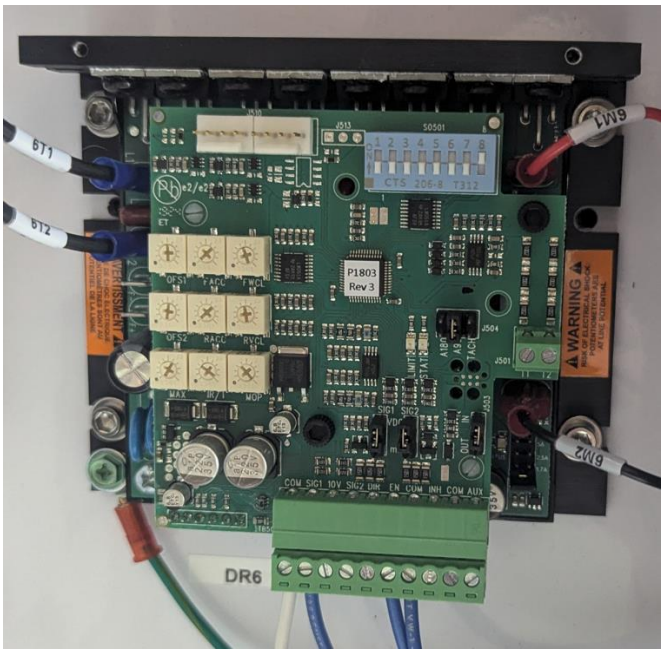
Step 3 – Apply muti-purpose grease to the now exposed spline shaft assembly. Ensure to apply multi-purpose grease all the way around the spline shaft– Top, bottom and sides



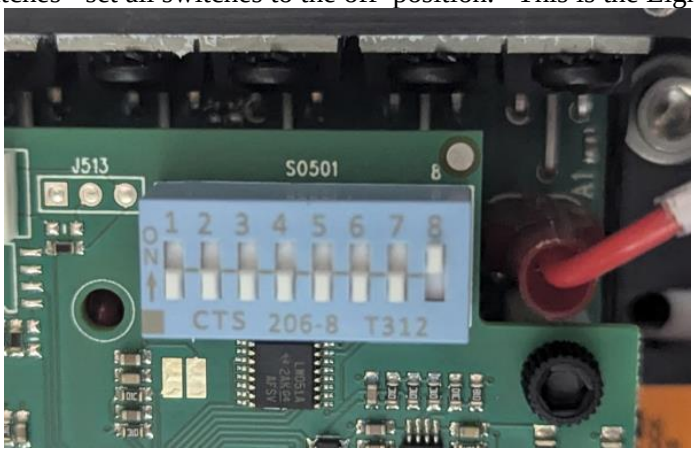
Step 4 – Slowly move the feedscrews in and out to so the grease can spread evenly over the length of entire spline shaft assembly.

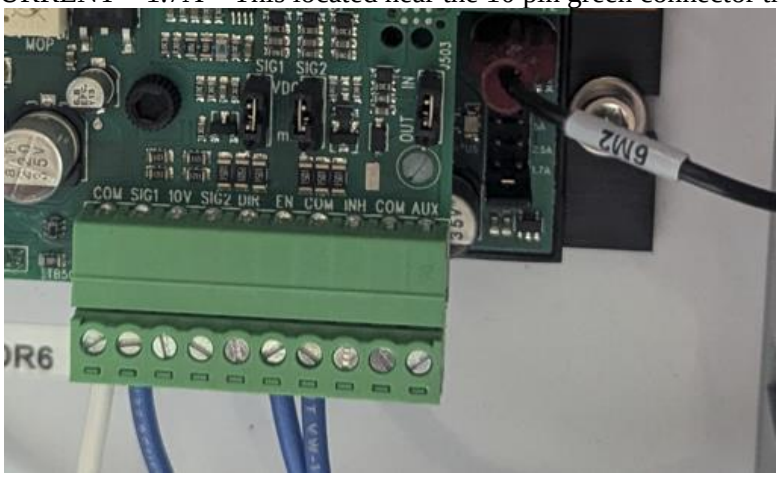
Step 5 – Reconnect conveyor chain

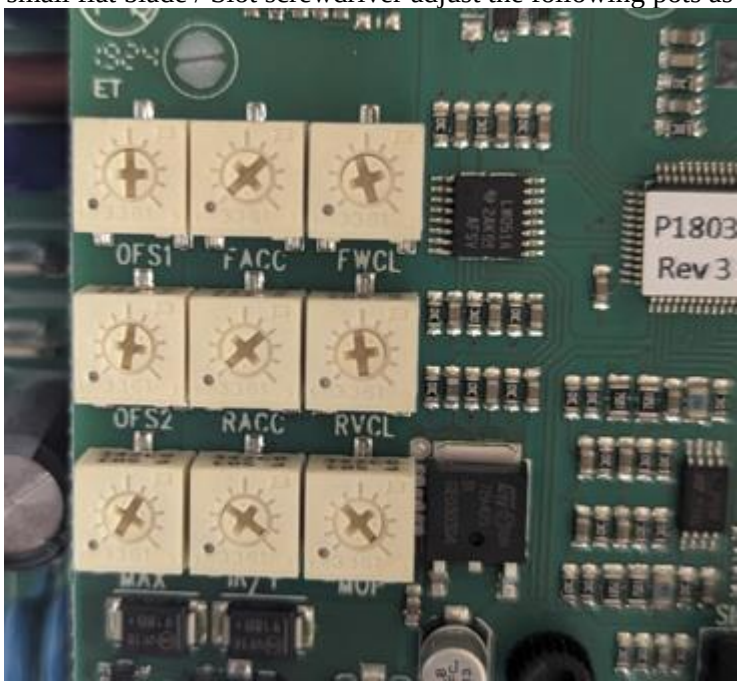
Setup procedure for Powered rewind using MGC403-11-00MD drive



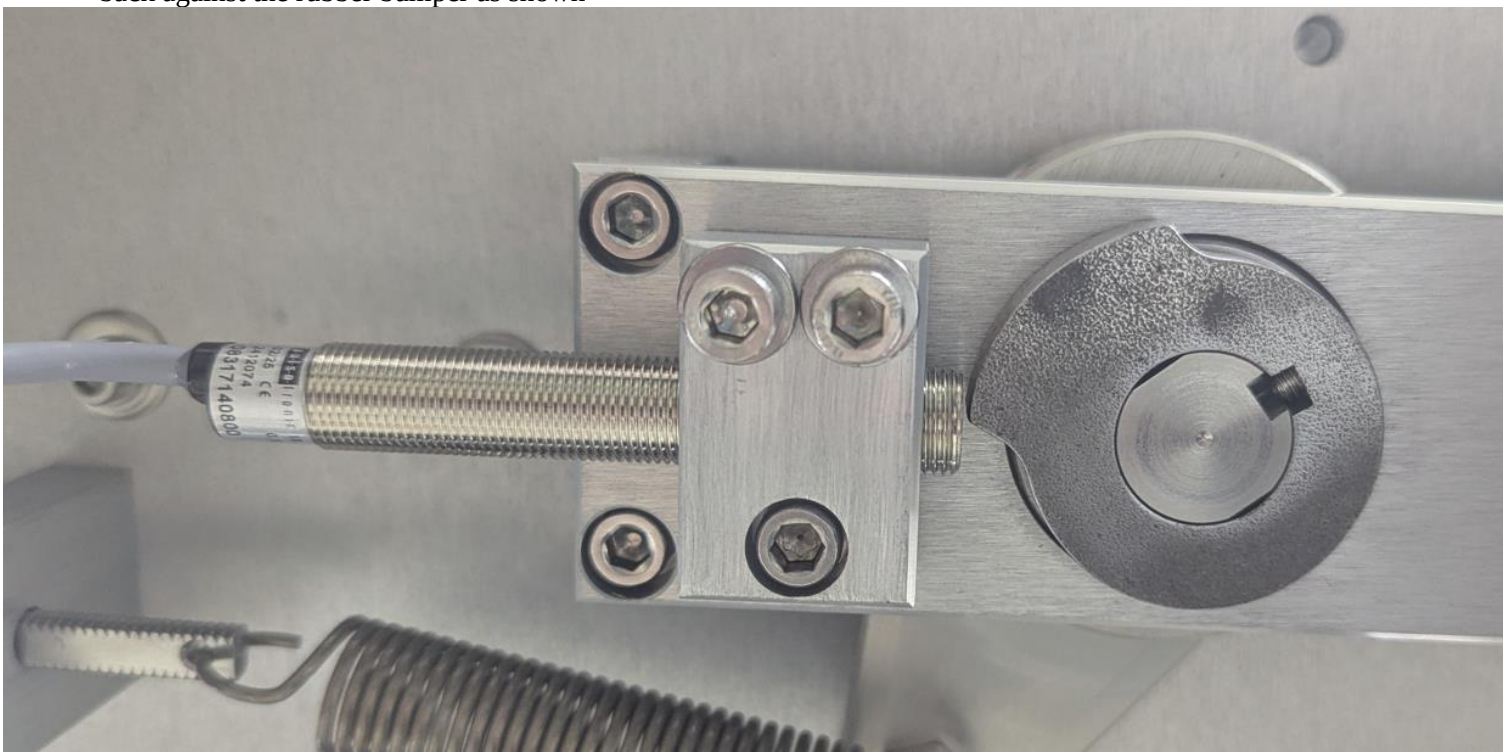
Upon receiving drive set the following BEFORE installing in the machine.

1. Dip switches - set all switches to the off position. This is the Light blue row of switches shown in the image below
   a. 

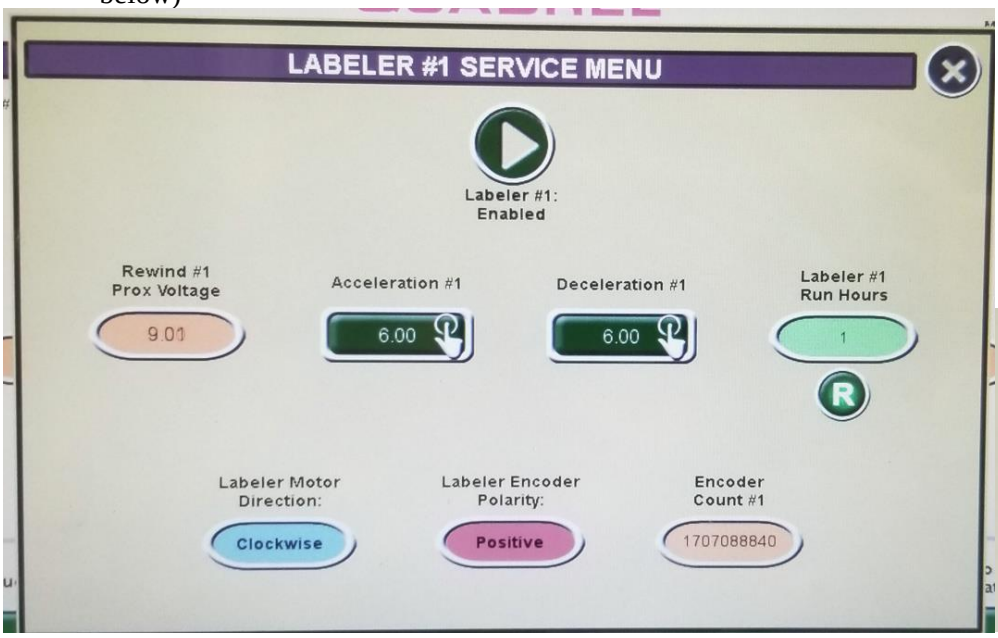
2. Set Jumpers on drive based on electrical schematic for your machine
   a. SIG1 – VDC
   b. SIG2 – VDC
   c. J504 – A90
   d. AMP CURRENT – 1.7A – This located near the 10 pin green connector that
      i. 

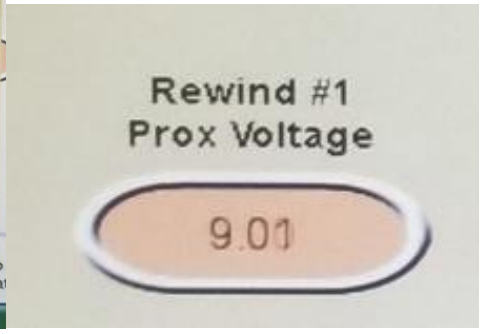
3. Using a small flat blade / Slot screwdriver adjust the following pots as indicated in the image below:
   a. 

      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

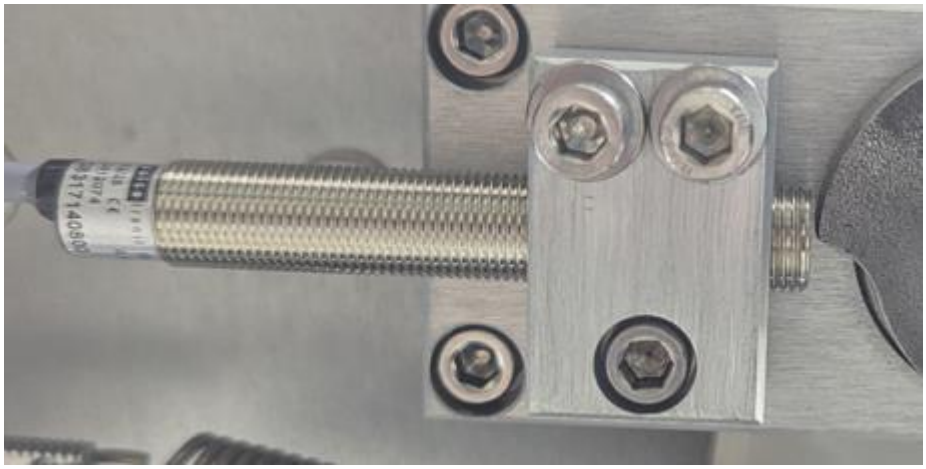


6. On the HMI go to into labeling head service menu. You will be looking at the REWIND PROX VOLTAGE (example below)

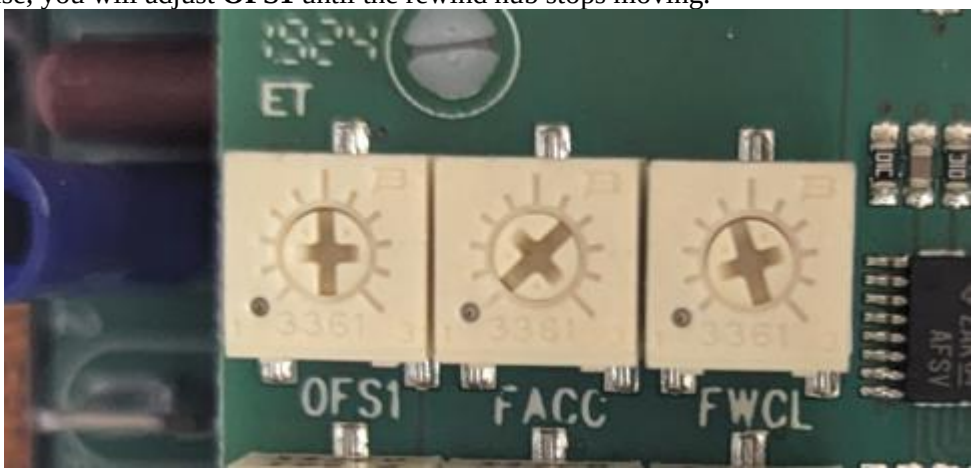




7. Adjust the sensor gap at the cam by loosening the bolt using an allen key so that the sensor can be moved forward or backward. The bolt does NOT touch the sensor. Loosening it opens the clamp so you can adjust.
8. Set the gap so the REWIND PROX VOLTAGE on the HMI reads .**90 it must be under 1 volt.**
    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. 

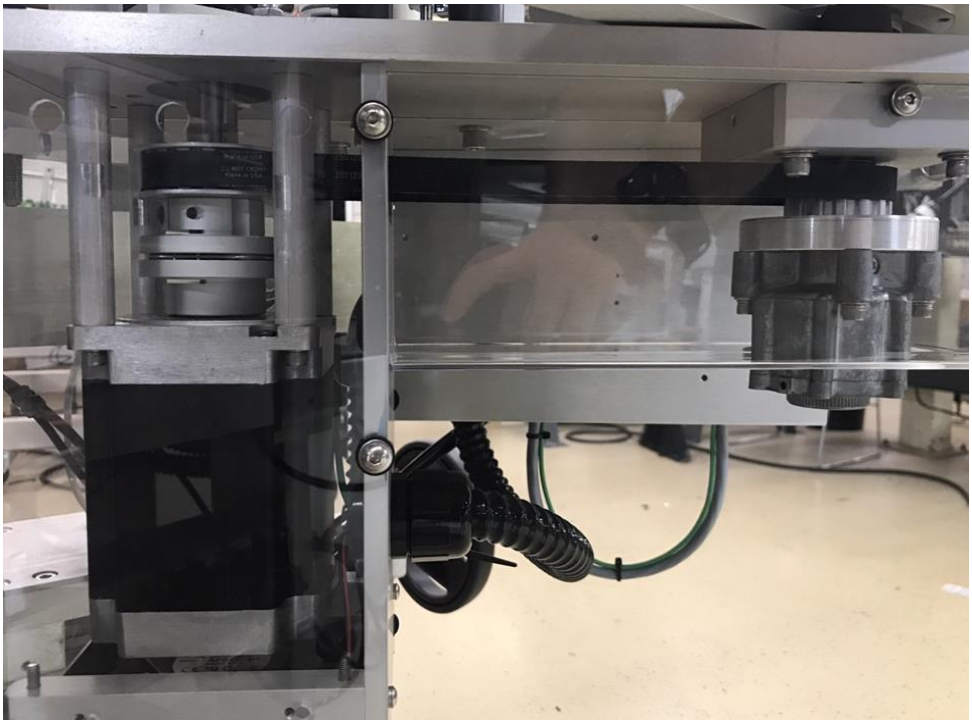
    b. This adjustment may need to be done multiple times until it no longer moves counter clockwise when rewind arm is all the forward and at rest.

9.2 BELTS

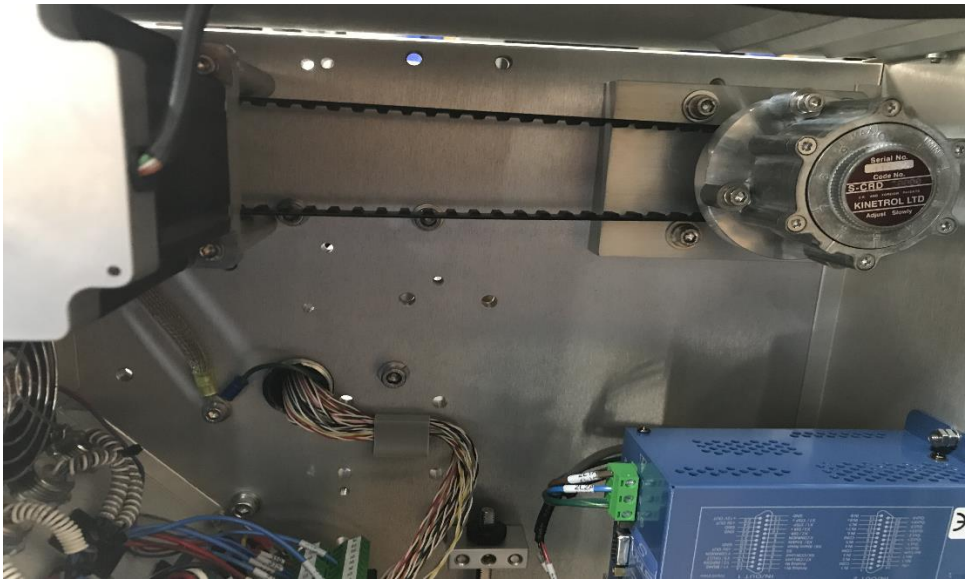
Monthly, a visual inspection of the rewind belt and timing belt, to do this depending on the labeling head you may need to remove the bottom cover on the head.

Refer to photos below.

Servo labeling head.

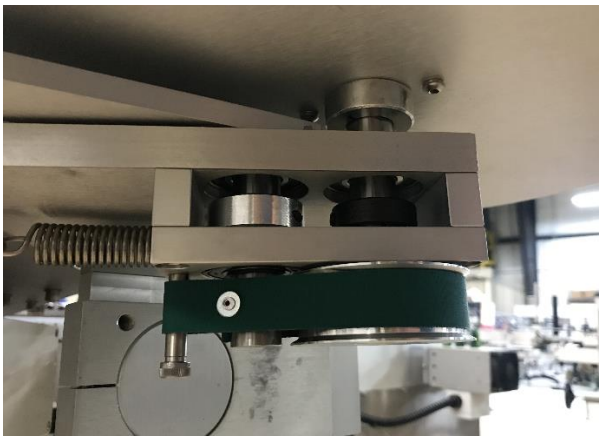


Stepping labeling head.



⚠ 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.

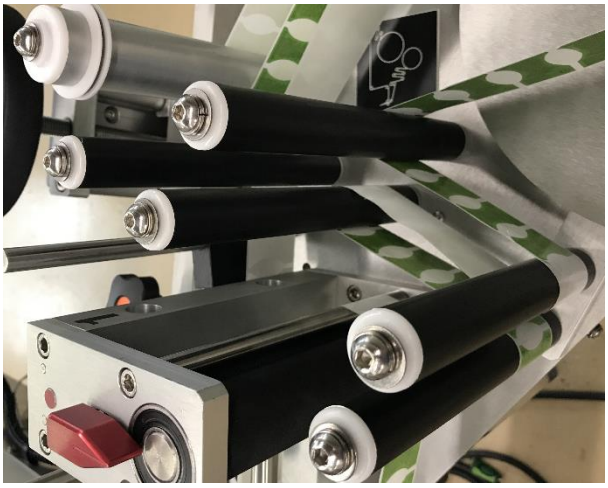


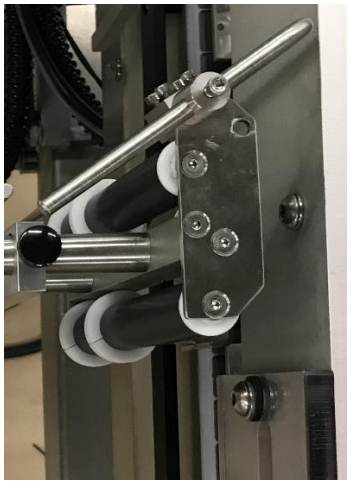
For replacement parts see the unwind assembly drawing for your labeling head in this manual.

9.3 ROLLERS

It is important that your labeler is as clean as possible in its environment in order for it to perform property. 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

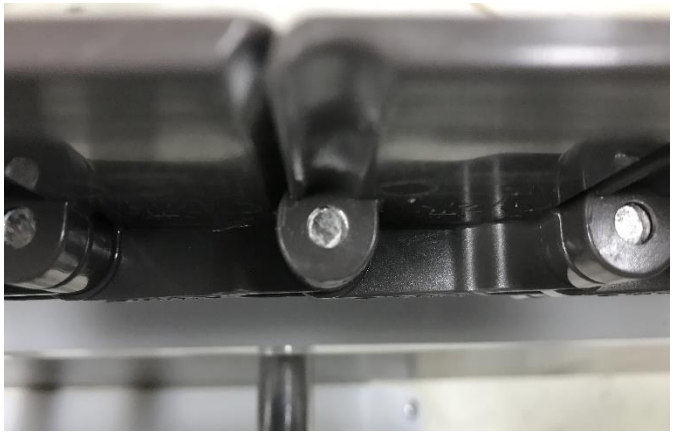
The sensors all have an electronic eye called a photocell; these must be free of lint or dirt. Since the photocells are generally made with glass or plastic lenses. They naturally attract substances which could easily trigger the sensor, use a cotton swap to gently clean the eye of the sensor as you would any lens, in a circular motion.

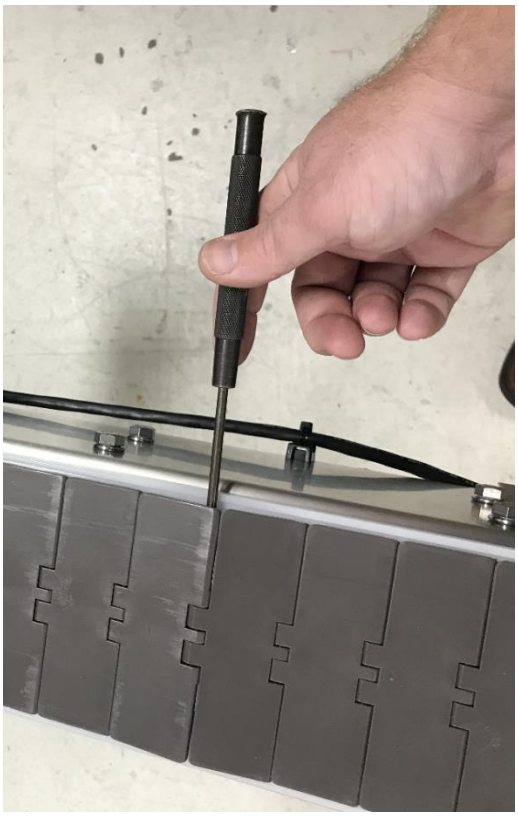
9.5 CONVEYOR

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 oriention 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 are 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 though our parts department. Please specify the serial number of the equiptment, the client’s name, address, phone number, contact name and the nature of the problem. To get a replacment 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.