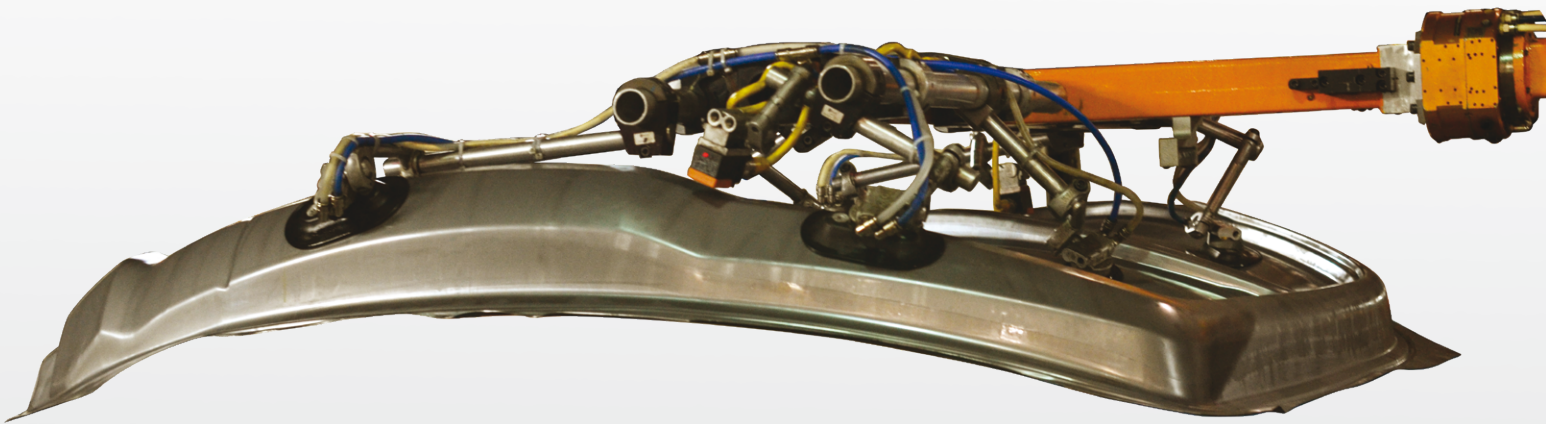




IMI NORGREN®

Auto In-plant

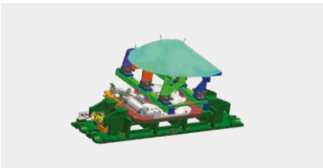
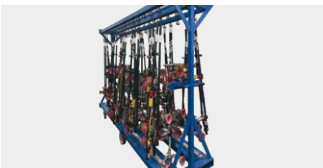


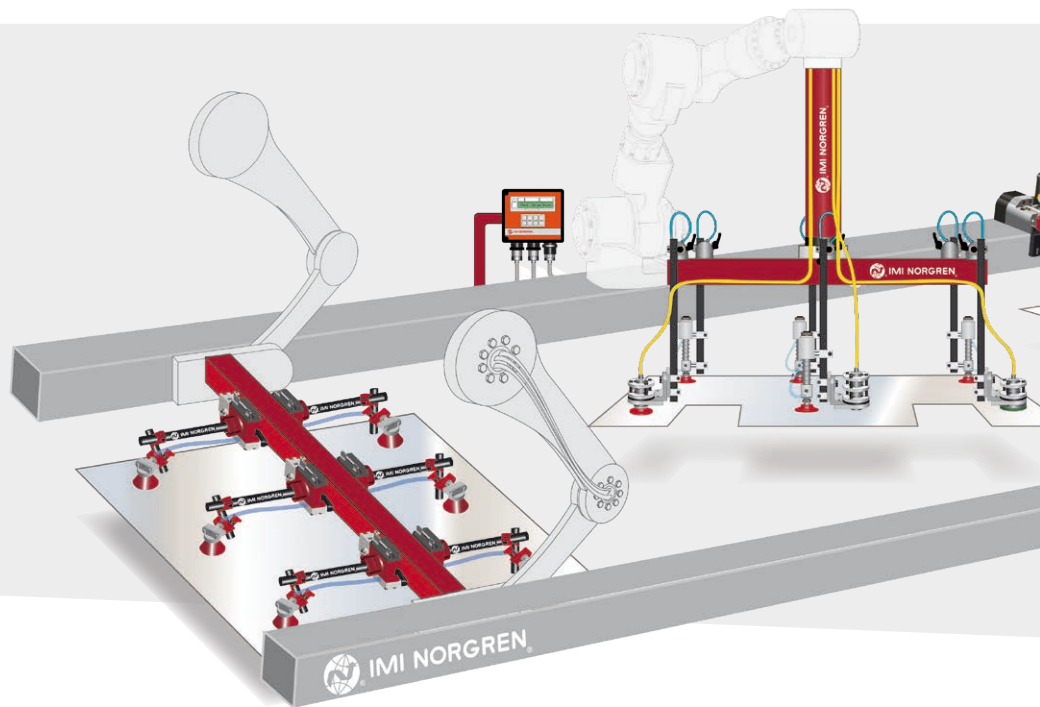
# Tandem Line Tooling

Engineering  
GREAT Solutions



# Contents

|   |                                                                                     |                         |                                                  |
|---|-------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------|
| 1 |    | TANDEM CONCEPTS         | 10 Tandem Concepts<br>11 Fast Find Guide         |
| 2 |    | IDLE STATIONS           | 14 Idle Stations<br>15 Fast Find Guide           |
| 3 |    | TOOLING CARTS           | 20 Tooling Carts<br>21 Fast Find Guide           |
| 4 |   | CARBON FIBER STRUCTURES | 28 Carbon Fiber Structures<br>29 Fast Find Guide |
| 5 |  | RECEIVERS AND ADAPTERS  | 36 Receivers and Adapters<br>37 Fast Find Guide  |
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# Engineering GREAT solutions

**IMI Precision Engineering** is a world leader in motion and fluid control technologies. Wherever precision, speed and engineering reliability are essential, we deliver exceptional solutions which improve the productivity and efficiency of our customers' equipment.

*We deliver **GREAT** solutions for our customers tackling the world's most demanding engineering challenges.*

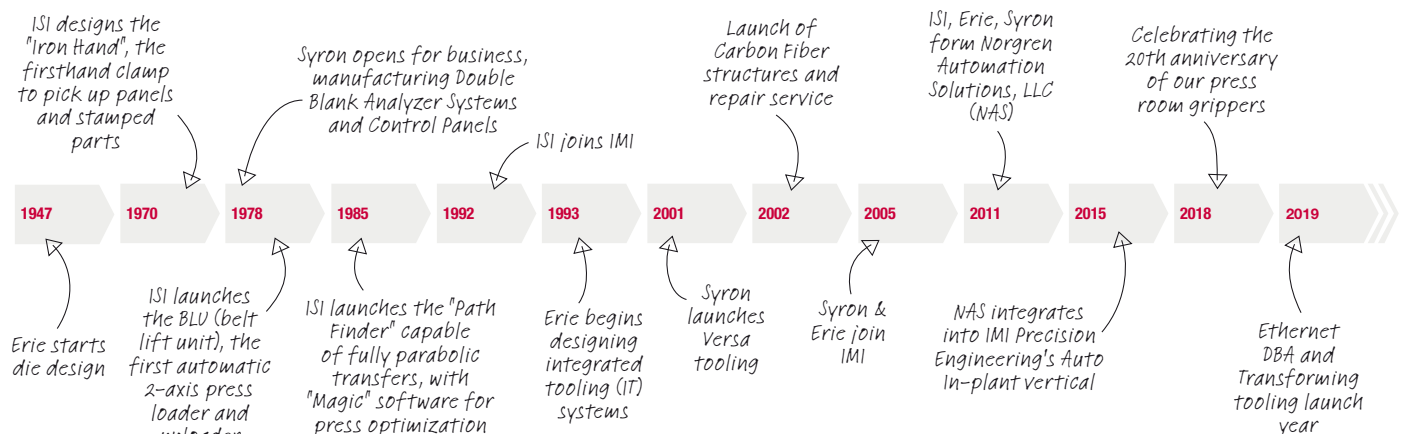
Part of IMI plc, (listed on the London Stock Exchange since 1966), IMI Precision Engineering has \$1,214m in sales generated from a sales and service network in 75 countries, as well as manufacturing capabilities in the USA, Germany, China, UK, Switzerland, Czech Republic, Mexico and Brazil. We support this with our global centers of technical excellence and facilities for CFD design and R&D testing. We employ a dedicated team of field engineers, sector specialists and key account managers – all committed to providing excellent service to our customers.

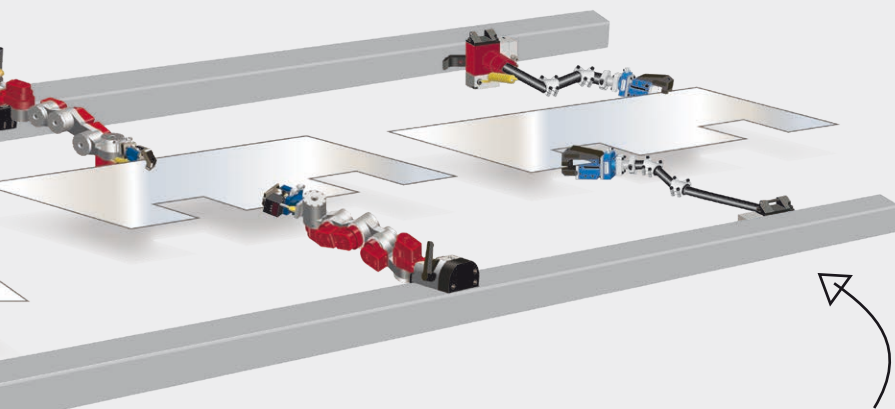
As a business, we aim to UNDERSTAND our customers' challenges. We then CONNECT our products, people and expertise in order to DELIVER exceptional

service and solutions. Together these actions IMPROVE the performance of our customers' machinery.

We call this Engineering Great. We deliver it to customers through a world-class portfolio of high performance products, and strong partnerships for problem-solving utilizing our global network of support.

**The Norgren Automation Solutions (NAS) Team creates capacity by designing and manufacturing automation and tooling that optimize production throughput in the press room and other material handling applications.**





*Made in the USA!*

# How we deliver value to our customers

## Partnerships & problem solving

We have a global team of key account managers and over 400 highly experienced engineers – many with in-depth expertise of key industry sectors.

We recruit and develop the industry's top talent, offering the best training and exposure to world-class products and technologies with some of the world's leading businesses. The deep and combined experience this gives us means we have the skills, confidence and know-how to get closer to our customers, enabling us to understand their exact challenges and resolve them precisely.

Because of this our problem-solving is more effective, our solutions more targeted, our partnerships more productive.

## High performance products

Our world-class products improve performance and productivity.

We have global manufacturing capability and technical centres of excellence, each dedicated to developing and rigorously testing new high performance products to meet precise industry and application needs. Helping improve performance and reduce downtime and energy consumption on production lines across the world, our world-class portfolio includes IMI Norgren, IMI Buschjost, IMI FAS, IMI Herion and IMI Maxseal. Having proven their value over years, they stand amongst the most trusted names in fluid and motion control. We are continuously adding to this portfolio through a programme of innovation and new product development.

Because of this, we're able help our customers solve the world's greatest engineering challenges – reliably, safely and efficiently.

## Reliability

We deliver and support our high quality products through our global service network.

We have world-class manufacturing and sales and service operations in 75 countries, supported by investment in robust project management systems and lean localised production. Together, with our integrated supply chain, and the speed of our Express service we have the systems, processes and support to deliver quality products and aftersales service precisely, reliably, in full and on time, anywhere.

*We get closer to our customers to understand their exact challenges*

# Our global reach

With established manufacturing facilities globally, we have the capability to cope with the most demanding of international projects. With a sales and service network in 75 countries, we have the reach and capability to ensure continuity of supply and local support where it is needed.



## Sales & Service

- 📍 IMI Precision Engineering sales, manufacturing and technical centers
- 📍 Value Added Resellers/ Distributors
- 🚗 IMI Precision Auto In-plant locations

Engineering  
GREAT Solutions



## GLOBAL LOCATIONS AND PARTNERS

### ● IMI Precision Engineering – Auto In-plant Locations

[www.imi-precision.com/autoinplant](http://www.imi-precision.com/autoinplant)

#### USA

##### **Norgren Automation Solutions, LLC (NAS)**

2871 Bond Street  
Rochester Hills, MI 48309 USA

Tel: 1-800-272-4511  
Fax: 1-734-429-2981  
Email: [NASInsideSales@imi-precision.com](mailto:NASInsideSales@imi-precision.com)  
Web: [www.imi-precision.com/autoinplant](http://www.imi-precision.com/autoinplant)

#### USA

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1325 Woodland Drive  
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Tel: 1-800-272-4511  
Fax: 1-734-429-2981  
Email: [NASInsideSales@imi-precision.com](mailto:NASInsideSales@imi-precision.com)  
Web: [www.imi-precision.com/autoinplant](http://www.imi-precision.com/autoinplant)

#### Mexico

##### **Norgren S.A. de C.V.**

Av. La Montaña No.120  
Parque Industrial Querétaro  
Sta. Rosa Jáuregui, Querétaro  
Mexico 76220

Tel: +52 442 229 50 00  
Email: [nas.mexico@imi-precision.com](mailto:nas.mexico@imi-precision.com)

#### Brazil

##### **IMI Norgren Brazil**

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04675-085 - São Paulo - Brazil

Tel: +55 11 5698 4000  
Fax: +55 11 5698 4001  
Email: [vendas@imi-precision.com](mailto:vendas@imi-precision.com)

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Tel: +86 21 24161800  
[sales@imi-precision.com.cn](mailto:sales@imi-precision.com.cn)

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Fax: +91 (0) 120 4089599  
Email: [india@imi-precision.com](mailto:india@imi-precision.com)

#### Spain

##### **IMI Norgren S.A.**

Colom, 391, 2º - Edificio Tecno  
08223 Terrassa

Tel: +34 937489800  
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#### Thailand

##### **Norgren Co., Ltd**

120/34 M. 12 Rachadhewa, Bangplee  
Samutprakarn  
10540 Thailand

Tel: +66 (0) 2 2750 3598  
Fax: +60 (0) 2 750 3855  
Email: [THSales@imi-precision.com](mailto:THSales@imi-precision.com)

## ● Value Added Resellers (VARs) and Distributors

### USA

#### **Kamco, Inc.**

326 Park St.  
Troy, MI 48083

Tel: 248-585-7400  
Fax: 248-585-7751  
Email: sales@kamcocontrols.com  
Web: www.kamcosales.com

#### **Mosier Fluid Power**

2475 Technical Drive  
Miamisburg, OH 45342

Tel: 800-232-0676  
Email: sales@mosierohio.com

#### **Motion Industries**

1605 Alton Road  
Birmingham, AL 35210

Tel: 800-526-9328  
Web: www.motionindustries.com

#### **Nicholas Press Sales, Inc.**

3077 Nationwide Parkway  
Brunswick, OH 44212

Tel: 440-652-6604  
Fax: 440-389-8666  
Email: sales@nicholaspress.com  
Web: www.nicholaspress.com

#### **Production Resources**

118 Seaboard Lane #106  
Franklin, TN 37067

Tel: 800-863-3164

#### **Sunsource**

2301 Windsor Ct  
Addison, IL 60101

Tel: 888-786-7723

#### **Wyco**

1310 Garlington Road, Suite L  
Greenville, SC 29615

Tel: 1-864-458-8000  
Fax: 1-864-458-8256  
Email: info@wyconet.com

### Canada

#### **Dyak Systems Inc.**

6810 Kitimat Road, Unit 8&9  
Mississauga, Ontario L5N 5M2  
Canada

Tel: 905-567-4157  
Fax: 905-567-4158  
Email: salesdesk@dyaksystems.com

### Mexico

#### **ART Robotics**

Pioneros del Cooperativismo N° 136  
México Nuevo Atizapán de Zaragoza  
Estado de México C.P 52966

Tel.: (52) (55) 5077 5603  
(52) (55) 5077 5604  
(52) (55) 5077 5605  
Fax: (52) (55) 5825 9739  
E-mail: mexico@artrobotics.com  
Web: www.artrobotics.com

### United Kingdom

#### **Coremo Automation Ltd**

Unit 9A – Three Springs Trading Estate  
Vincent Road  
Worcester  
WR5 1BW  
U.K.

Tel: +44 (0) 1905 360707  
Fax: +44 (0) 1905 360708  
Email address: sales@coremo.co.uk

### Japan

#### **Taihei Boeki Co., Ltd.**

Nikken-Sumisei bldg, 4-15-32  
Sakai, Naka-ku, Nagoya, 460-0008  
Japan

Tel: +81-(0)52-261-5517  
Fax: +81-(0)52-261-2017  
Email: nagoya@taiheiboeki.co.jp

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#### **Sankyo Desarrollos Tecnicos S.L.**

Calle Manisitu, 5 Bj Pabellón A, 01240,  
Álava, Spain

Tel: +34 945 420 840  
Fax: +34 945 420 841  
Email: info@sankyo-sdt.com  
Web: www.sankyo-sdt.com

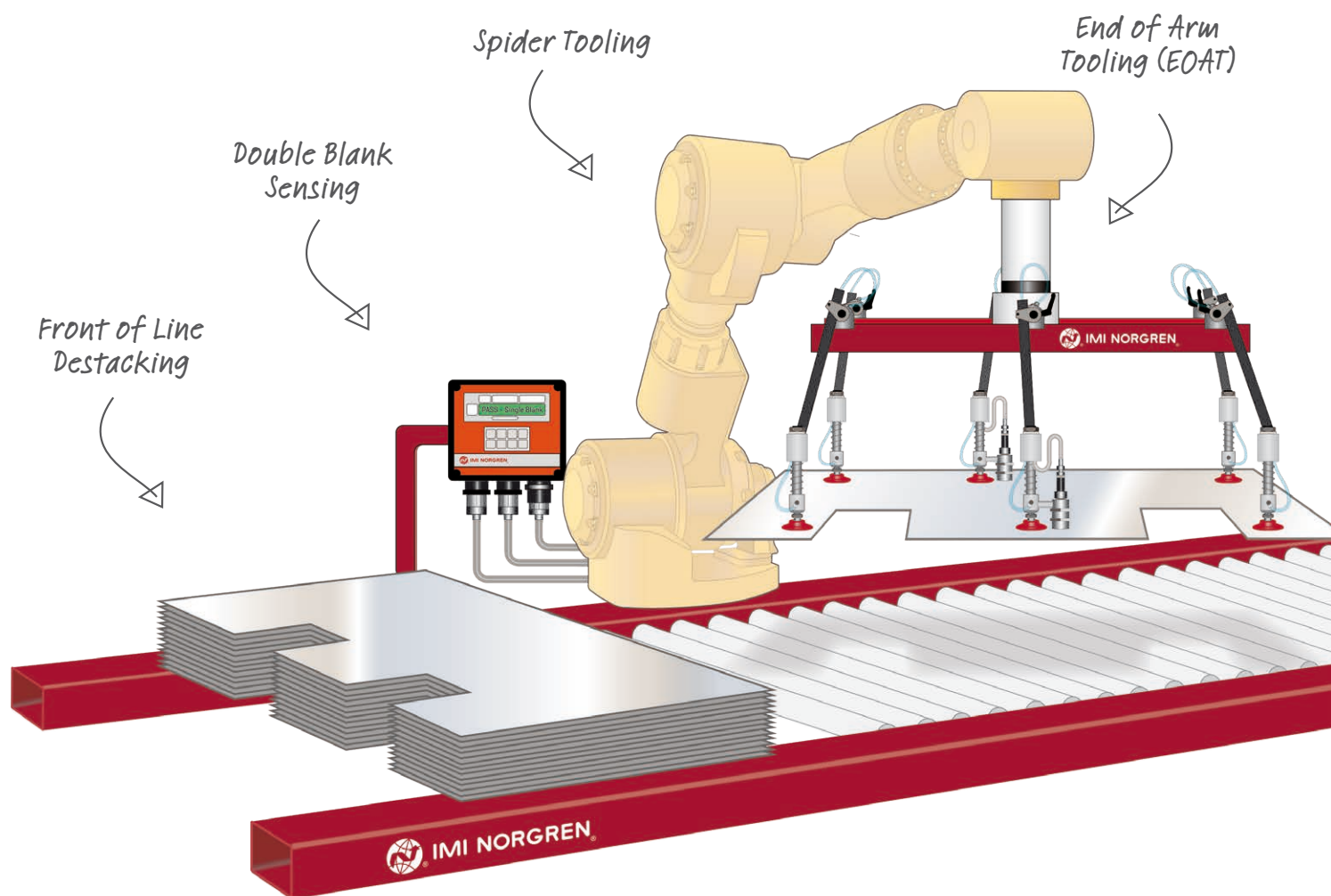
# TANDEM CONCEPTS

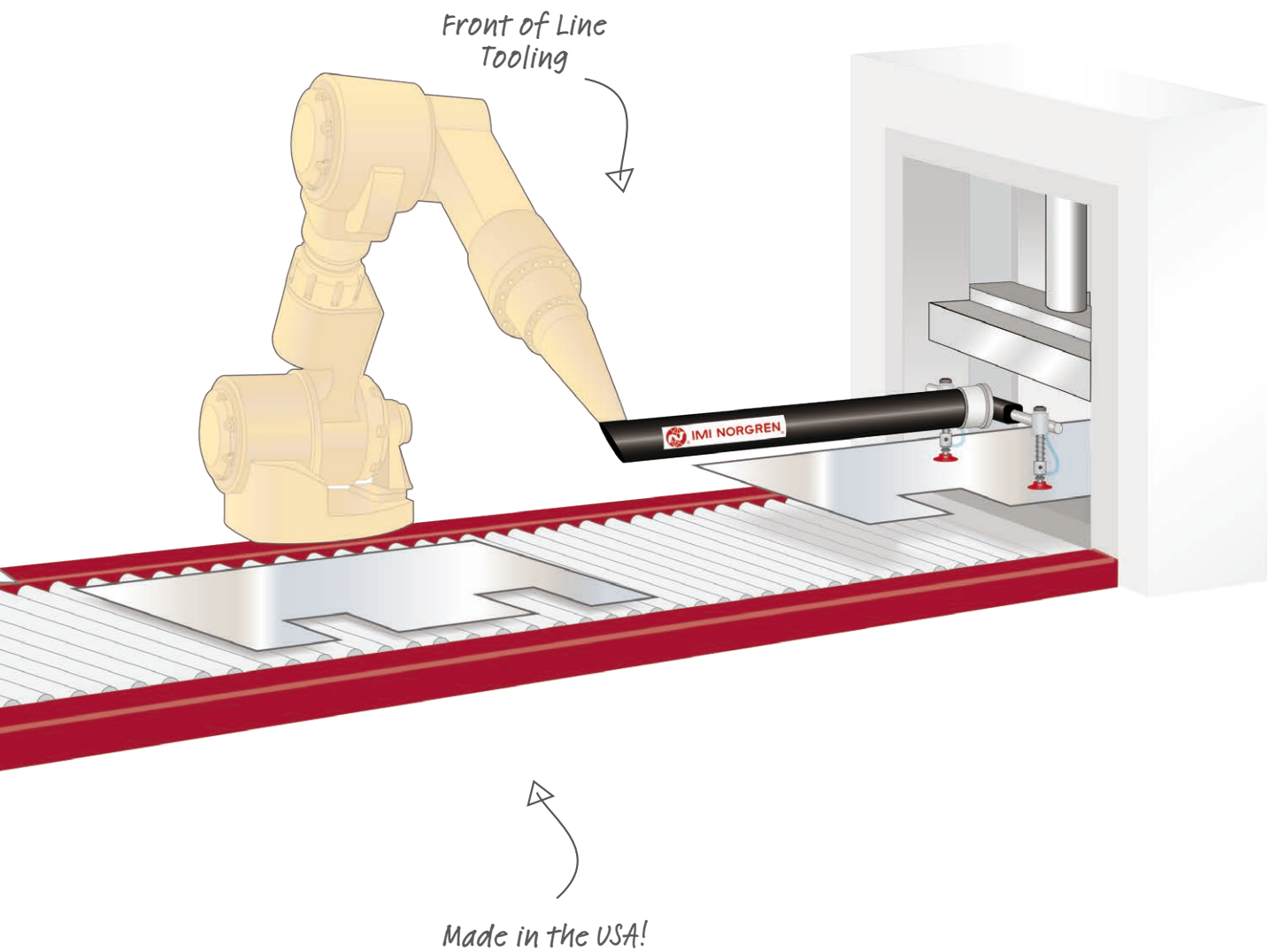


Through our 65 years of experience in Die Engineering and Press Room Automation, we provide an integrated tooling design that optimizes and stabilizes panel lift and transfer from Front of Line (FOL) to End of Line (EOL) of your Tandem Press.

● The IMI Norgren Applications Engineering Team:

- Maximizes throughput (strokes per minute, SPM) during loading of blanks and unloading of stamped parts
- Minimizes the cost of capital by overlaying blanks into the fewest possible panel size families
- Studies potential interference to prevent crashing, avoid downtime and costly repairs
- Designs the most efficient equipment design to reduce energy consumption and reduce footprint
- Provides options for reusing, repairing or recycling tooling to maximize program efficiency

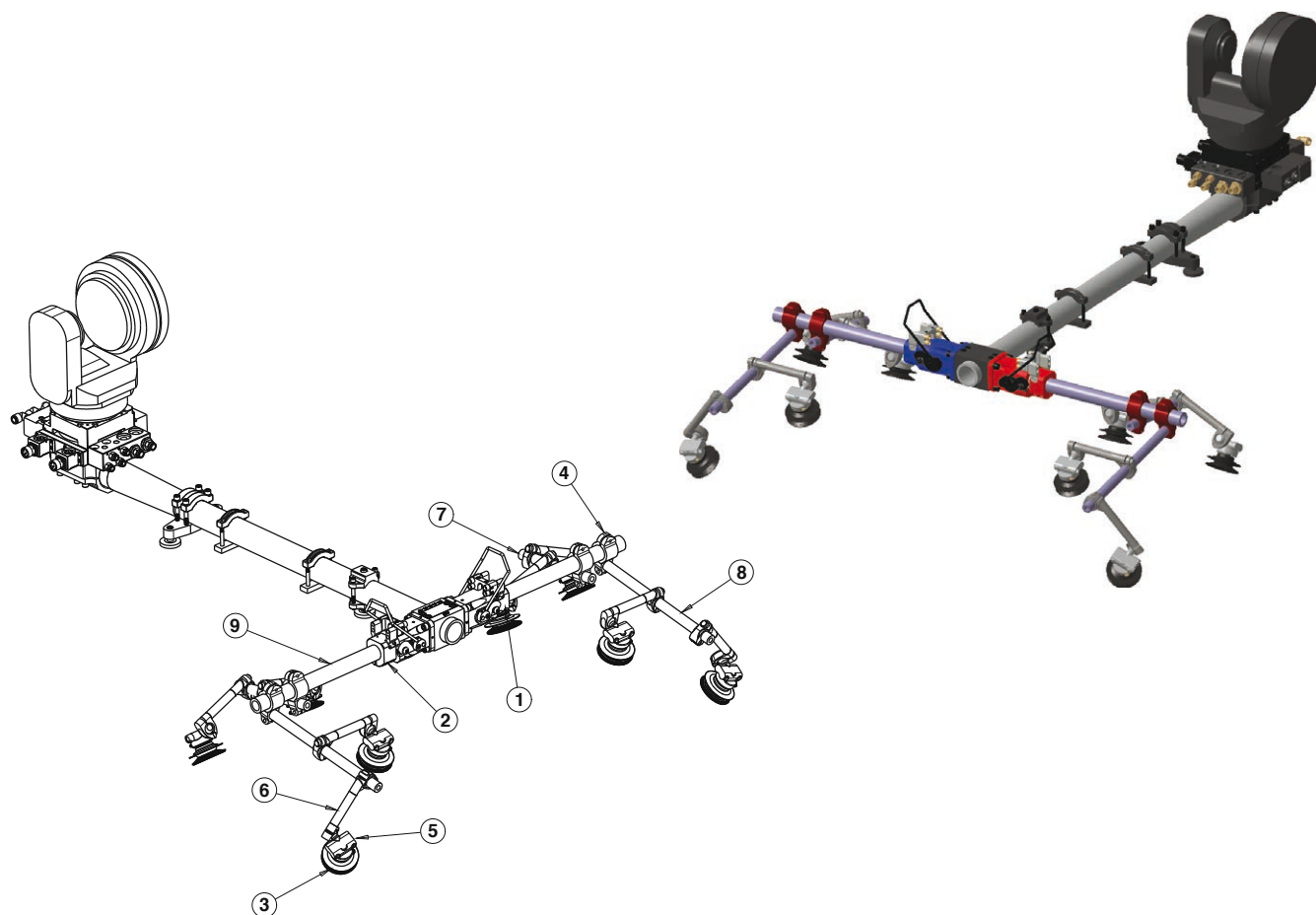




## TANDEM CONCEPTS



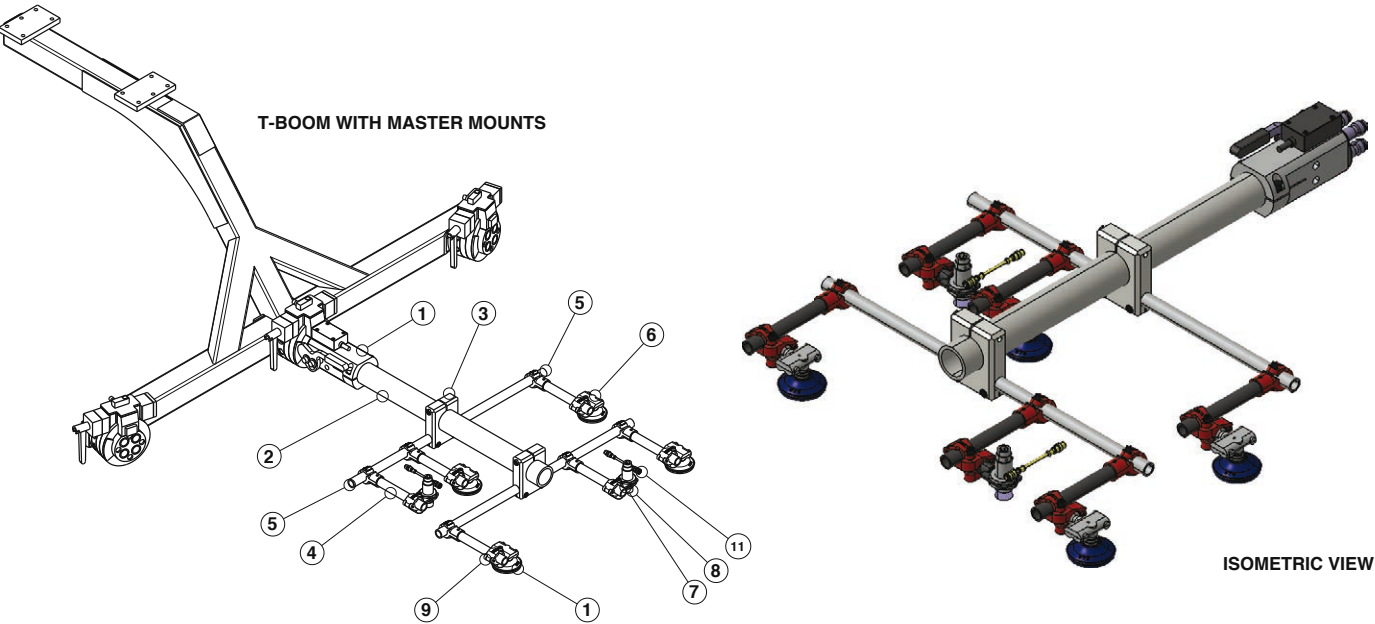
● NAS World Tool Concept



| Reference number | Quantity | Part number              | Description                                    | Page reference |
|------------------|----------|--------------------------|------------------------------------------------|----------------|
| 1                | 1        | LAA40091BN               | Mini bayonet 1.5" Tube 1 /4" NPT               | 26             |
| 2                | 1        | LAA40092BN               | Mini bayonet 1.5" Tube 1 /4" NPT               | 26             |
| 3                | 8        | CVC3                     | Bellows vacuum cup                             | 88             |
| 4                | 4        | LWTC10E15E               | Featherweight T- Clamp, 1.5" Tube to 1.0" Tube | 69             |
| 5                | 8        | TLBB-0                   | Twist-Lok Venturi                              | 80             |
| 6                | 8        | XUMB- 1 -155             | 1 X 155MM Ultra Arm                            | 63             |
| 7                | 2        | Z-10-A-250               | Poz-E-Lok 1.0 Boom rod tubing                  | 41             |
| 8                | 2        | Z-10-A-425               | Poz-E-Lok 1.0 Boom rod tubing                  | 41             |
| 9                | 2        | Z-15-A-500               | Poz-E-Lok 1.5 Boom rod tubing                  | 44             |
| 10               | 1        | Air fittings / Air lines | Not shown                                      |                |



● T-Boom with Master Mounts

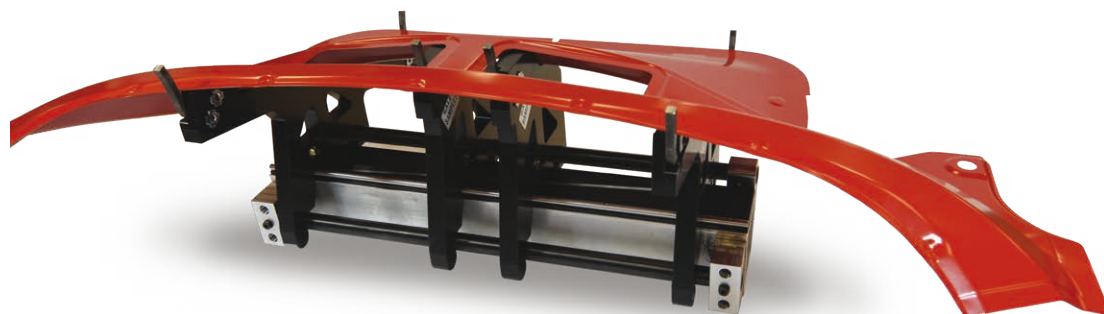


| Drawing reference | Quantity | Part number              | Description                                 | Page reference |
|-------------------|----------|--------------------------|---------------------------------------------|----------------|
| 1                 | 1        | Z-TBM-25-A3              | Bayonet mount 2.5" tube                     | 28             |
| 2                 | 1        | Z-25-A-800               | Poz-E-Lok 2.5" boom tubing                  | 47             |
| 3                 | 2        | ZA-025-010               | Poz-E-Lok clamp 2.5" to 1.0"                | 70             |
| 4                 | 6        | LWBS10E0225              | Featherweight bracket arm, single, M8 bolts | 57             |
| 5                 | 2        | LWTA10E30                | 1.00" Featherweight Aluminum tube           | 38             |
| 6                 | 4        | TPBB-0-1                 | Threaded post cup mount, 3/8 NPT            | 82             |
| 7                 | 2        | LAZ1047                  | Sensor mount, apple core, 30 mm sensor      |                |
| 8                 | 2        | B115-G30-ADZ30X2-B1131   | Barrel sensor 30 mm                         |                |
| 9                 | 6        | LWBC10E25                | Featherweight Clamp, 1" tube to ball        | 68             |
| 10                | 4        | LTC10-075                | Round Vacuum Cup                            | 90             |
| 11                | 2        | RSRK 301-738/6F          | Electrical cable                            |                |
| 12                | 1        | PL-215-250-DC            | Electrical box mount (not shown)            |                |
| 13                | 1        | A402DSC                  | Electrical box (not shown)                  |                |
| 14                | 1        | Air fittings / Air lines | Not shown                                   |                |

# IDLE STATIONS

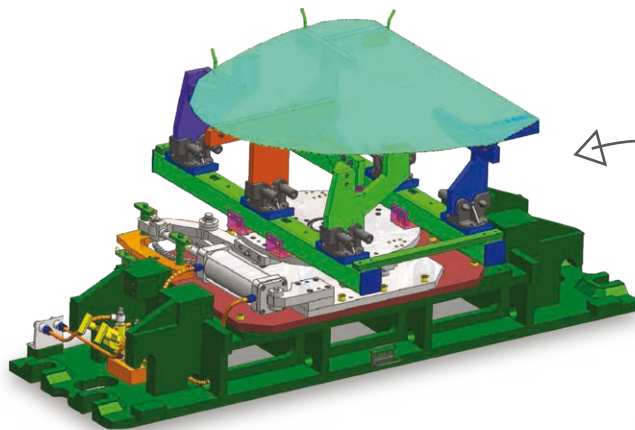


Idle stations are custom engineered solutions for supporting panels in presses. The ergonomic, removable system incorporates the concept of 'poka-yoke' using template location codes to prevent placement mistakes.

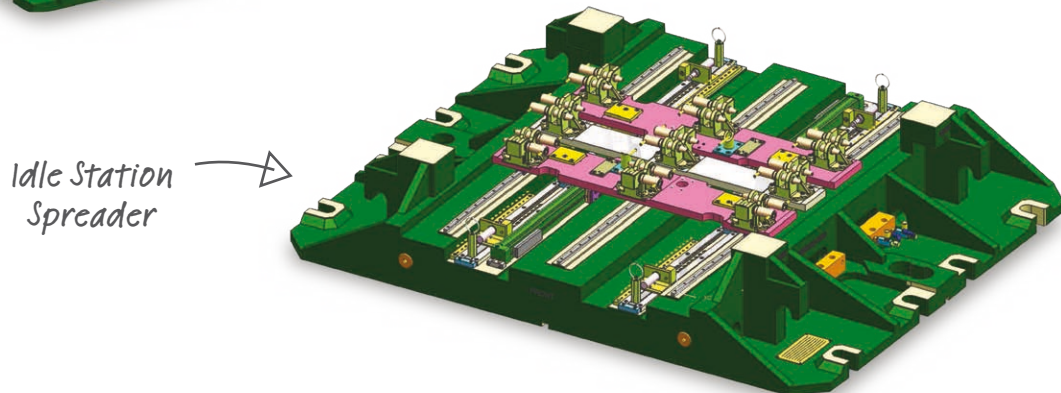


Black Slice

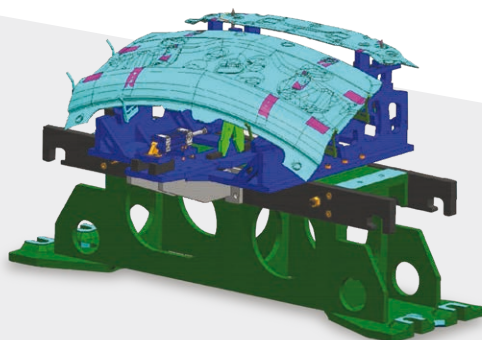




Idle Station Rotator



Idle Station Spreader

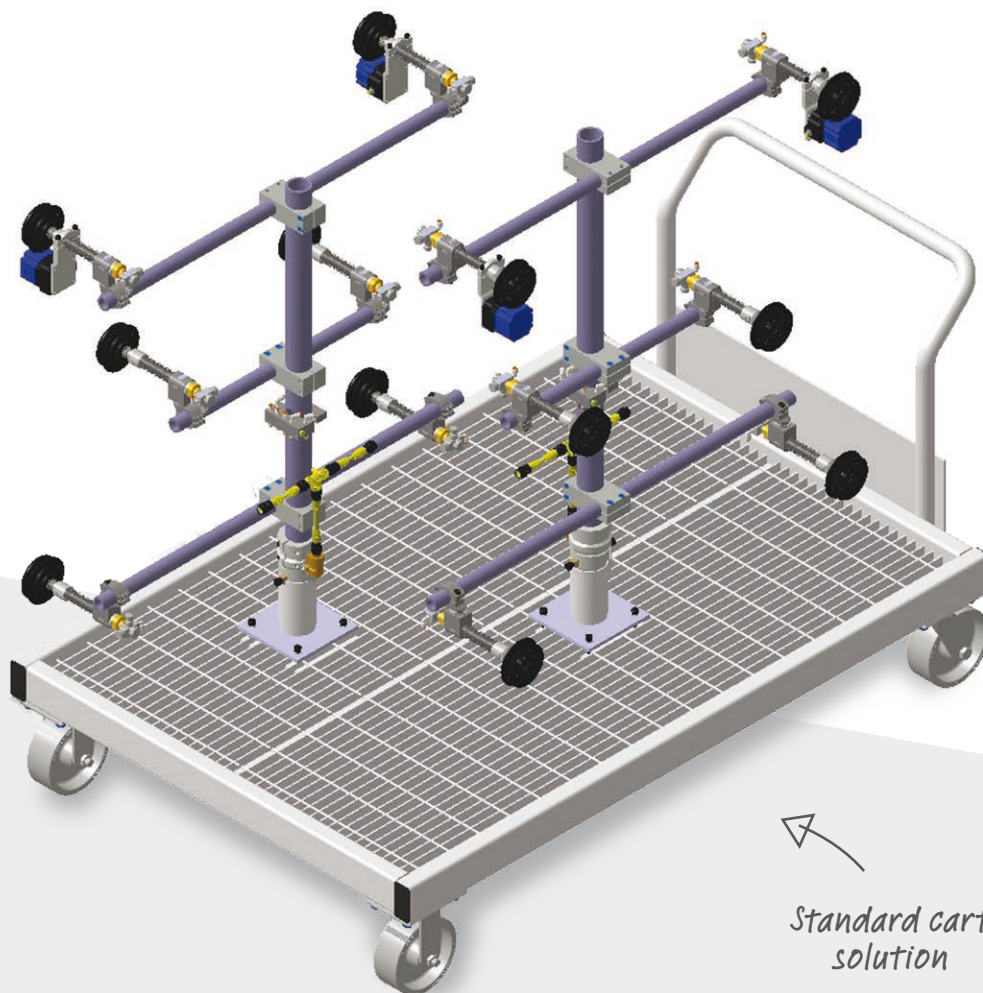


Idle Station Panel Tipper

# TOOLING CARTS



We offer tooling carts to protect your investment and provide an efficient and space saving solution to your storage needs.



Standard cart  
solution



End of arm tooling carts are designed to store up to 96 fingers to maximize storage capacity within a small footprint. Store your tooling safely and allow quick changeover to reduce downtime!

*Cart for storing  
end of arm tooling*



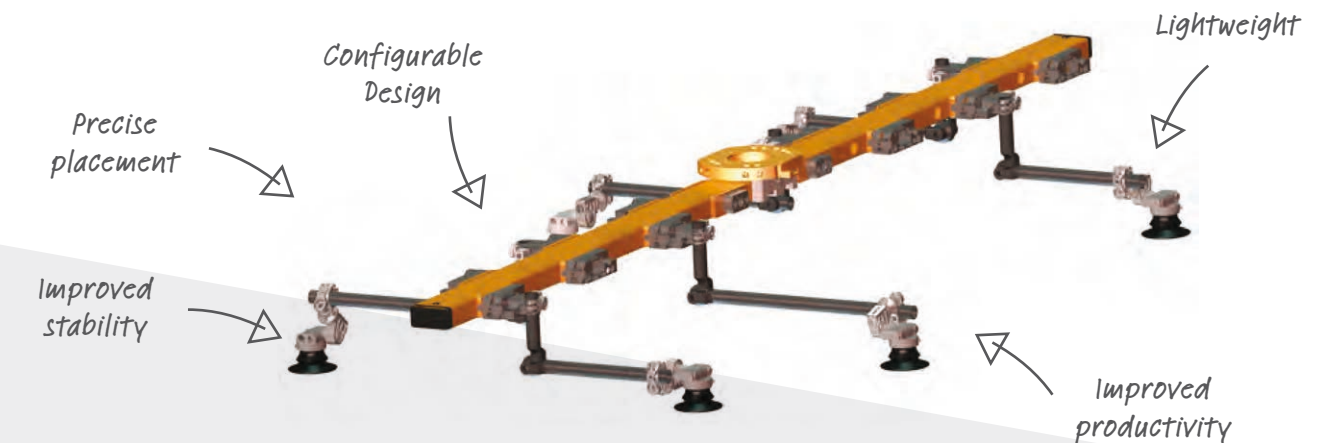
# CARBON FIBER STRUCTURES



Slow line speeds? Shaking and imprecise part placement are common challenges with steel and aluminum booms, due to their weight and rigidity. And because they can't be repaired, a crash means expensive replacement. Carbon fiber booms, in contrast, offer stability and precision. They are lightweight but high strength so they accommodate higher line speeds, and because they resist shaking, they place parts precisely, every time.

Carbon fiber is also valued in harsh operating environments for temperature stability and chemical resistance. IMI Precision Engineering has advanced carbon fiber technology by developing the capability to mold it into complex shapes, such as T-bars, with a variety of loading characteristics to meet user requirements. They can also repair carbon fiber booms, extending equipment life.

*Carbon Fiber Versatile Master Boom*



*Carbon Fiber Global Boom*





*Versatile  
Master Boom*



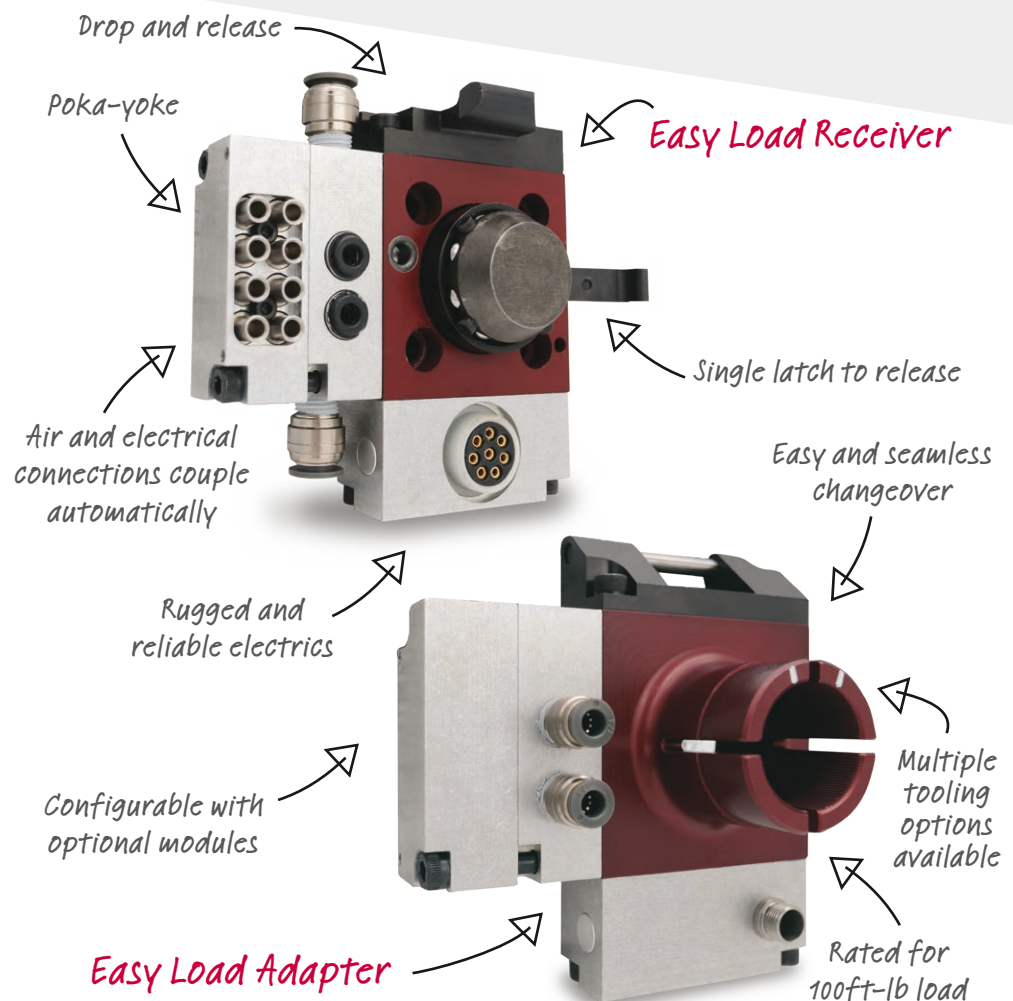
*Global Boom for  
front of line  
de-stacking*



*T-Boom in  
between dies*

# RECEIVERS AND ADAPTERS

- > Quick-change tooling mount/docking device
- > Steel locating pins ensure rotational stability
- > Lightweight and compact tool changer
- > Ease of use reduces downtime
- > Improved ergonomics and safety

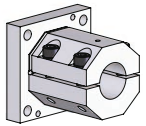


# Fast Find Guide

## ● RECEIVERS AND ADAPTERS

|                                                                                                                           |                                                                                                                          |                                                                                                                     |                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Easy Load Receiver</b><br><br>Page 22 | <b>Easy Load Adapter</b><br><br>Page 24 | <b>LRR Receiver</b><br><br>Page 26 | <b>LRA Adapter</b><br><br>Page 30 |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|

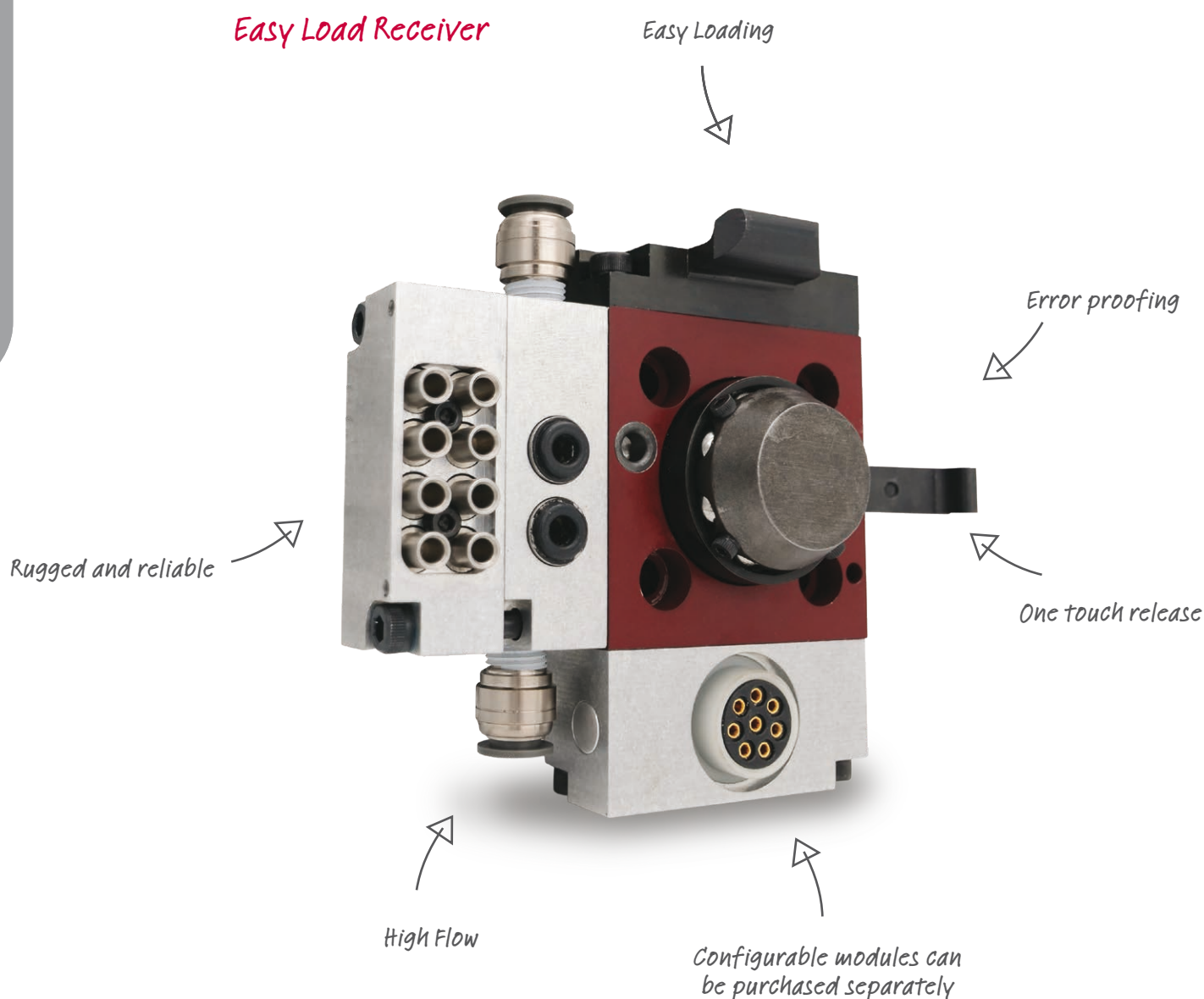
## ● FIELD ADAPTERS

|                                                                                                                           |                                                                                                                      |                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Bayonet Heavy Duty</b><br><br>Page 32 | <b>Bayonet Mount</b><br><br>Page 33 | <b>Tooling Flange</b><br><br>Page 34 |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|

# EASY LOAD RECEIVERS

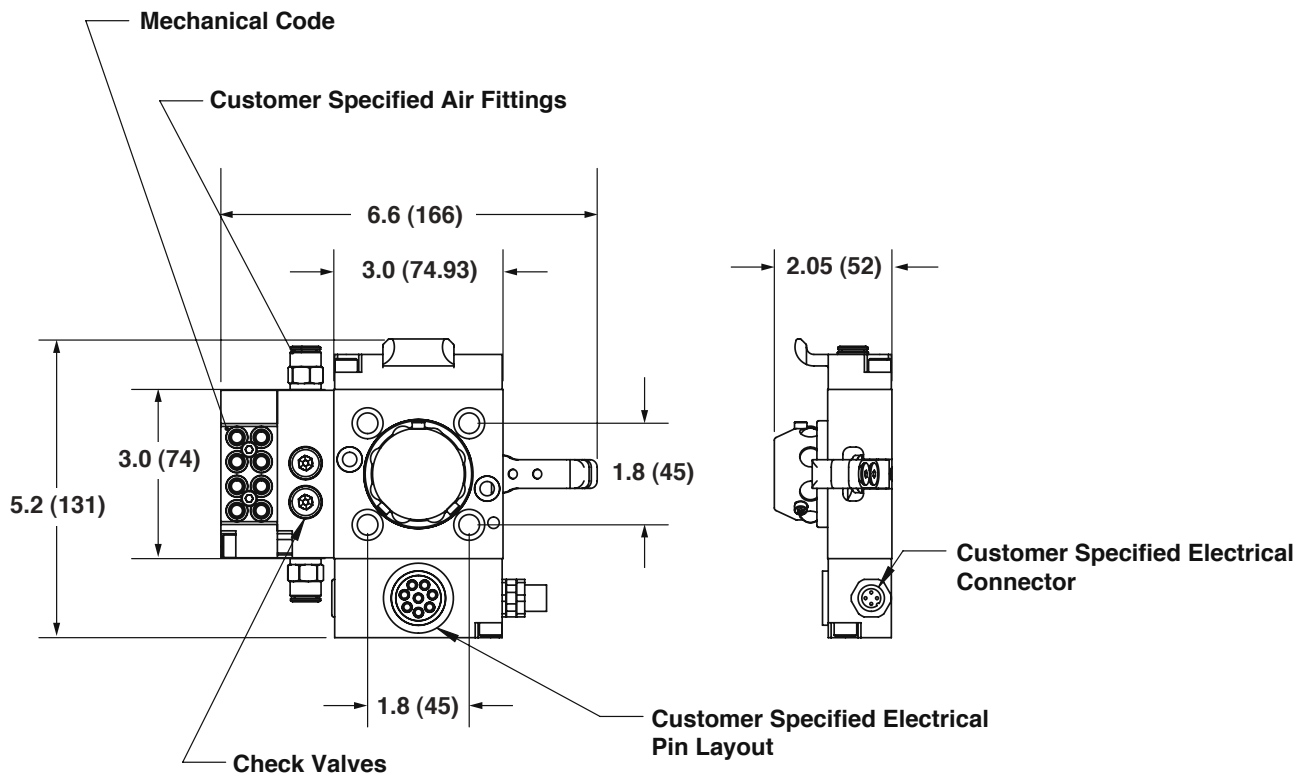


Easy Load receiver has been engineered with ease of use in mind. It's one-touch loading mechanism makes installation seamless. Optional air, electrics and mechanical coding are available for customization.





- Rated for 100 ft-lbs dynamic load
- Simple and safe with one-touch loading mechanism
- Uses M8 bolts on industry standard 45 mm pattern
- Optional 8 mm dowels for precise locating
- Staging position allows multiple tools to be carried in at one time
- Safety catch feature to prevent tools from falling
- Optional check valves allow up to 4 high-flow automatic air connections
- Optional electrics allow up to 8-pin automatic electrical connections
- Industry leading heavy duty, 6-point contact gold plated pins and sockets for durability and reliability in even the harshest environments
- Optional 8-pin mechanical code for error-proofing the entire press



Dimensions in inches (mm) are for reference only

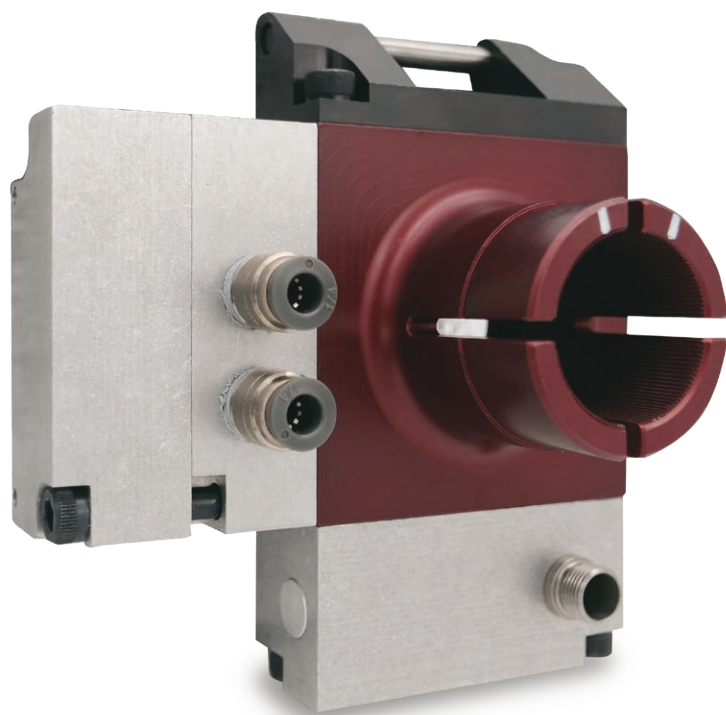
# EASY LOAD ADAPTER



Easy Load Adapter is tailored to meet harsh environments. Pick from 13 different tooling options to find what works best in your application. Simply latch the adapter to the receiver and you are ready to go.

*Easy storage*

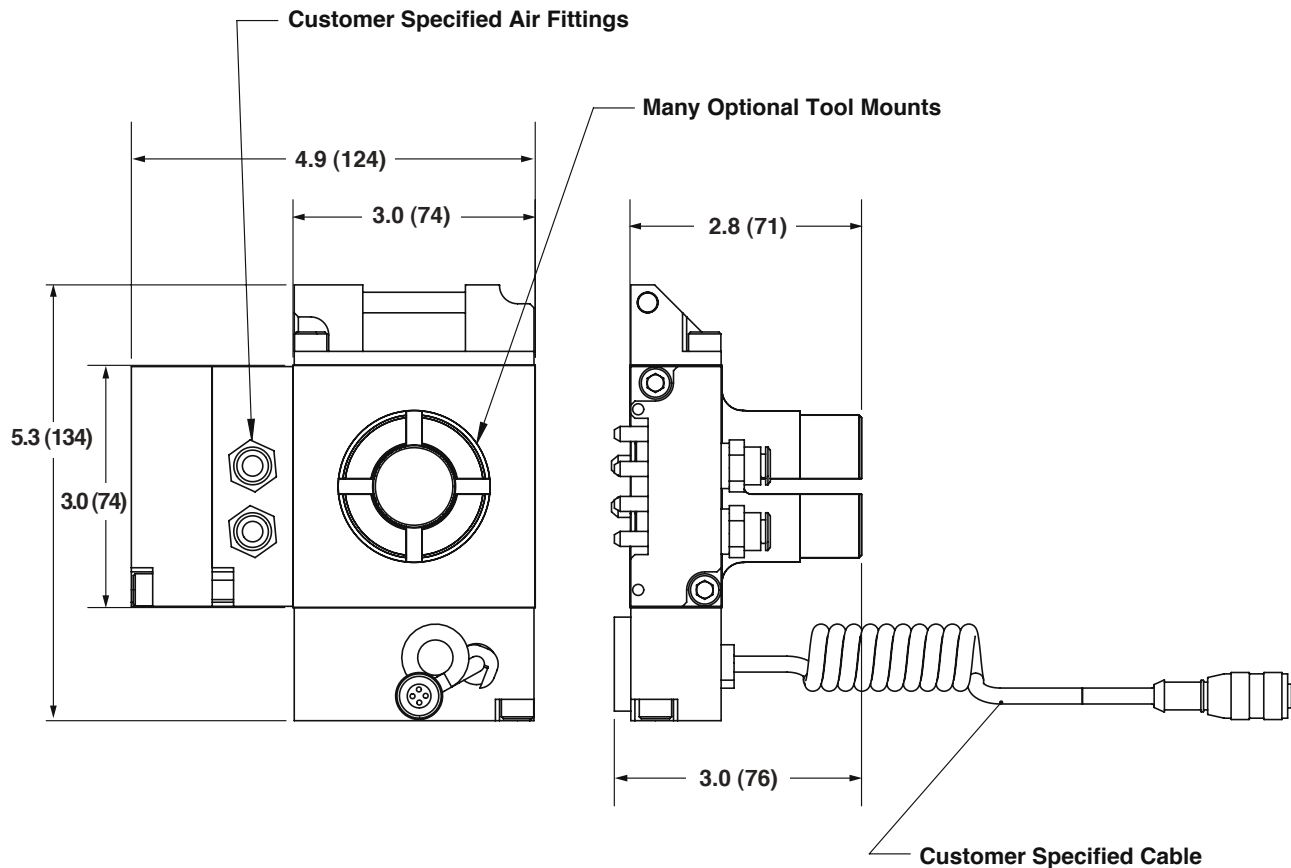
*Easy Load Adapter*



*Install where  
you need them*

*Configurable with  
optional modules*

- Compatible with Easy load receiver
- Rated for 100 ft-lbs dynamic load
- Simple and safe with one-touch loading mechanism
- Optional tooling mounts include: 1.0", 1.25" and 25 mm, Versa knuckle, 1.5" and 40 mm, either in straight (shown) or 90° connection
- Easy Swing-in tooling design for fast, easy loading
- Staging position allows multiple tools to be carried in at one time
- Safety catch feature to prevent the tool from falling
- Optional air ports allow up to 4 high-flow automatic air connections
- Optional electrics allow up to 8-pin automatic electrical connections
- Industry leading heavy duty, 6-point contact gold plated pins and sockets for durability and reliability in even the harshest environment
- Optional 8-pin mechanical code for error-proofing an entire press



Dimensions in inches (mm) are for reference only

# RECEIVER WITH REAR EXIT AIR AND/ OR ELECTRIC

LRR2XXXXXXXX



- Receiver bolts to transfer feedbar
- Acts as a docking device for quick changeover of transfer fingers
- Steel locating pins of receiver adapter slide into sleeved holes of receiver face for maximum rotational stability
- Finger held in receiver by simple one touch spring loaded latch – no locking handle required



## Order information

LRR2XXXXXXXX

| Finger Release Handle Type | Code |
|----------------------------|------|
| Mushroom Type              | 0    |
| "T" Type                   | 5    |

| Mount Type        | Code |
|-------------------|------|
| Long Keyplate     | A    |
| Mount Plate Short | B    |
| Mounting Plate    | E    |
| Short Keyplate    | K    |
| No Keyplate       | N    |

| Electric Connector Type and Location | Code |
|--------------------------------------|------|
| No Connector                         | NN   |
| 3-Pin Backplate Mount                | 3B   |
| 4-Pin Backplate Mount                | 4B   |
| 5-Pin Backplate Mount                | 5B   |

| Electric Connector Exit Orientation - Note 1 | Code |
|----------------------------------------------|------|
| No Connector                                 | N    |
| Rear Exit Connector                          | R    |
| RH Side Exit Connector                       | S    |
| LH Side Exit Connector                       | L    |
| Under Exit Connector                         | U    |

| Pneumatic Ports and Location - Note 1 | Code |
|---------------------------------------|------|
| No Pneumatic Ports                    | NN   |
| Rear Exit Pneumatic 2 Ports (1/4-18)  | RY   |
| Side Exit Pneumatic 2 Ports (1/4-18)  | SY   |
| Rear Exit Pneumatic 2 Port (1/4-19)   | BY   |
| Rear Exit Pneumatic 4 Port (1/4-18)   | C4   |
| Under Exit Pneumatic 2 Ports (1/4-18) | UY   |

| Tooling Coding                   | Code |
|----------------------------------|------|
| No coding                        | N    |
| Clear Mechanical Coding - Note 2 | M    |
| Red Mechanical Coding - Note 2   | R    |
| Mechanical Coding - Note 2       | C    |

**Note 1:** The exit location of the electrical connector and pneumatic ports must be the same. They must both exit the rear, the side or the bottom.

**Note 2:** Mechanical Coding block is installed. The actual code is not configured at the factory.

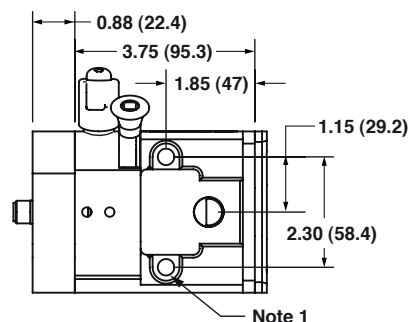
# RECEIVER WITH REAR EXIT AIR AND/ OR ELECTRIC LRR2XXXXXXXXX



## Technical data

### Weight:

1.64 lbs. (744 g)



Note 1

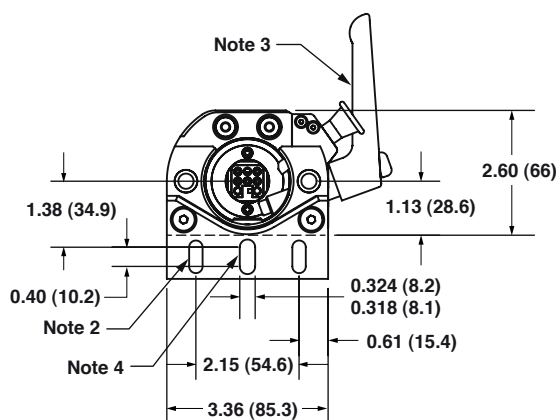
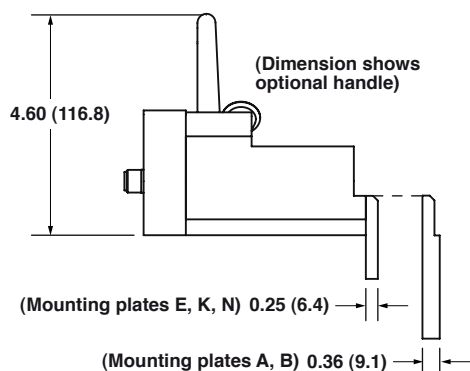
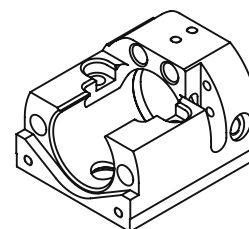
### General Table

Note 1: For 2X 8 mm SHCS

Note 2: For 2X 6 mm SHCS

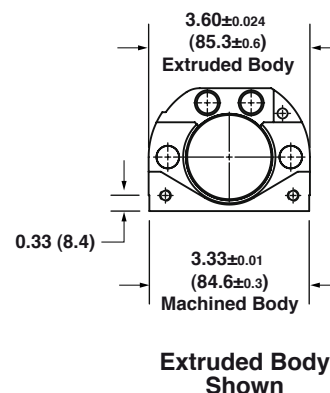
Note 3: Optional locking handle shipped loose for field installation if required

Note 4: For 8 mm locating pin



Note 2

Note 4



### Short Mounting Plate (K)

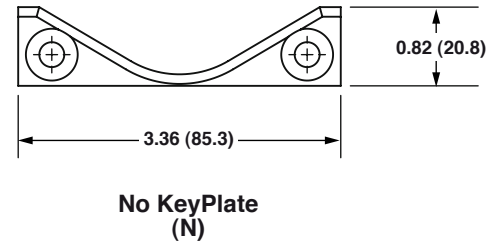
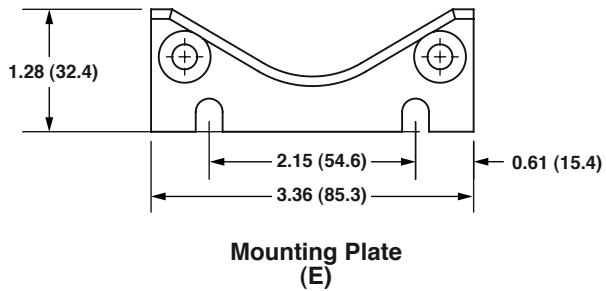
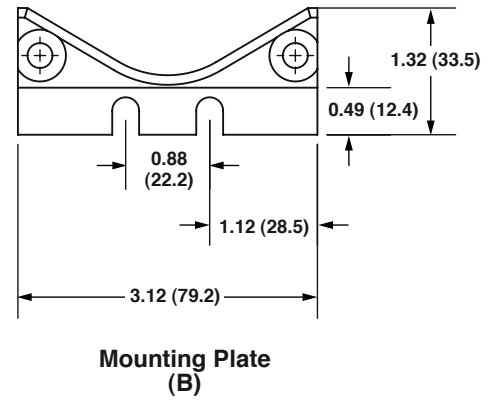
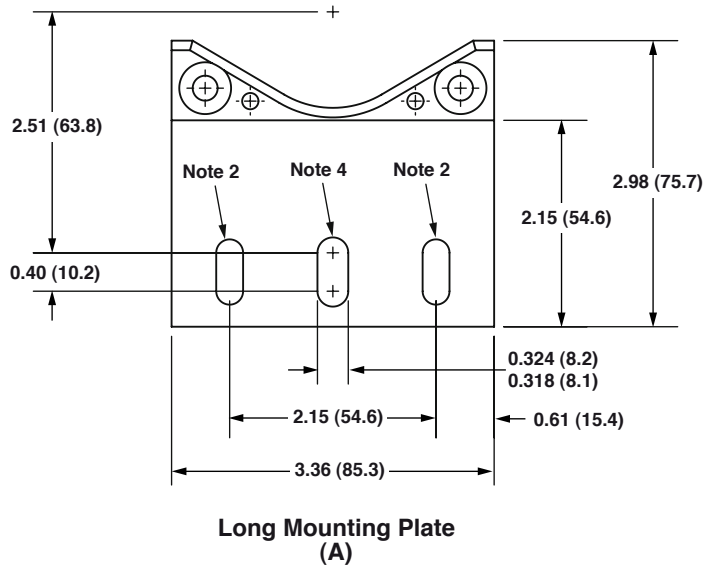
(See next page for additional mounting plate options)

Dimensions in inches (mm) are for reference only

# RECEIVER WITH REAR EXIT AIR AND/ OR ELECTRIC LRR2XXXXXXX

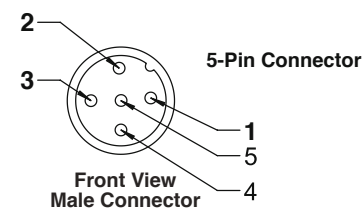
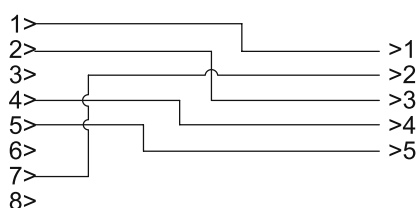
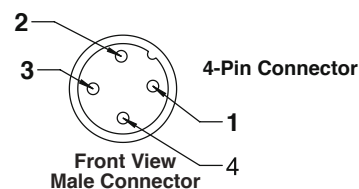
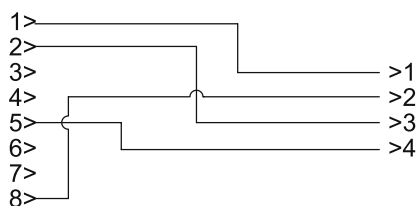
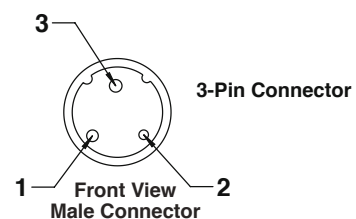
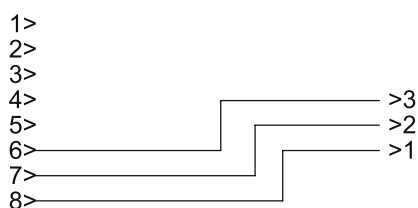
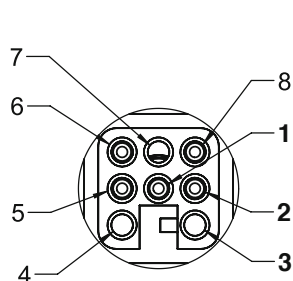
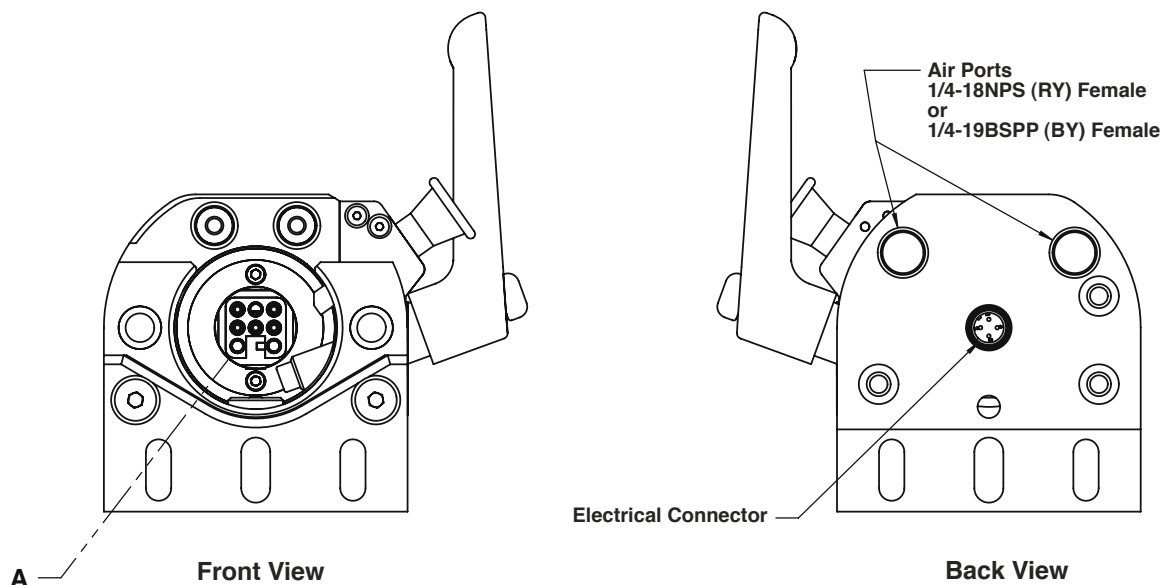


## Additional Mounting Plates



Dimensions in inches (mm) are for reference only

● Air/ Electric Connector Overview



# LRA20 RECEIVER ADAPTER UNIVERSAL STYLE

LRA20UNXXXXX

- Compatible with series LRR20 or LRR25 Rail Receiver for quick change of transfer finger
- Steel locating pins of receiver adapter slide into sleeved holes of receiver face for superior rotational stability
- Versa-Link tubes or branches with 1.25" outer diameter (O.D.) slide inside and are clamped in place with LCH1175 collar clamp
- 1.75" inner diameter (I.D.) branch clamps with stud can clamp on O.D. for immediate 90° offset



## Order information

LRA20UNXXXXX

| Pneumatic Ports                                | Code |
|------------------------------------------------|------|
| No Ports                                       | N    |
| 2 Ports - 1/4" tubing                          | A    |
| 2 Ports - 8 mm tubing (similar to 3/8" tubing) | B    |
| 2 Ports - 6 mm tubing                          | C    |

| Electrical Connections      | Code |
|-----------------------------|------|
| No Electrical Connection    | NNN  |
| 3-Pin Electrical Connection | 3EN  |
| 4-Pin Electrical Connection | 4EN  |

| Tool Coding       | Code |
|-------------------|------|
| No Coding         | N    |
| Device Net Coding | D    |
| Mechanical Coding | M    |

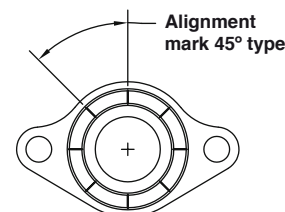
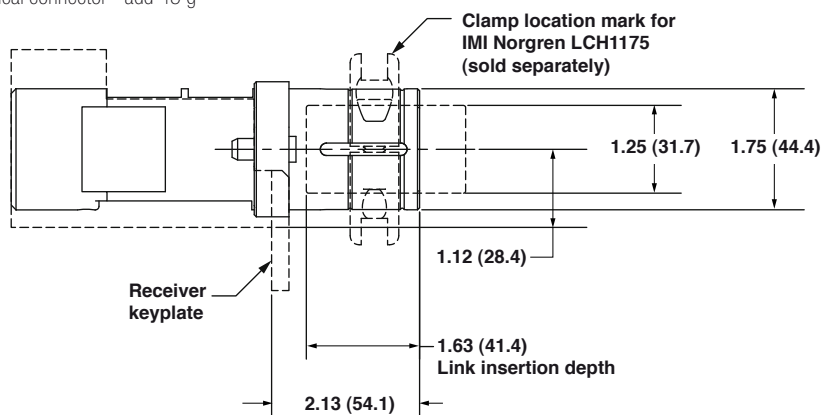
## Technical data

### Weight:

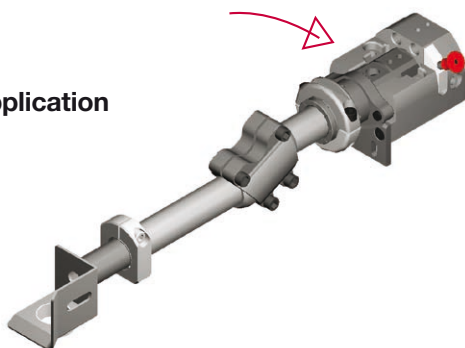
394 g

Pneumatic ports - add 66 g

Electrical connector - add 45 g



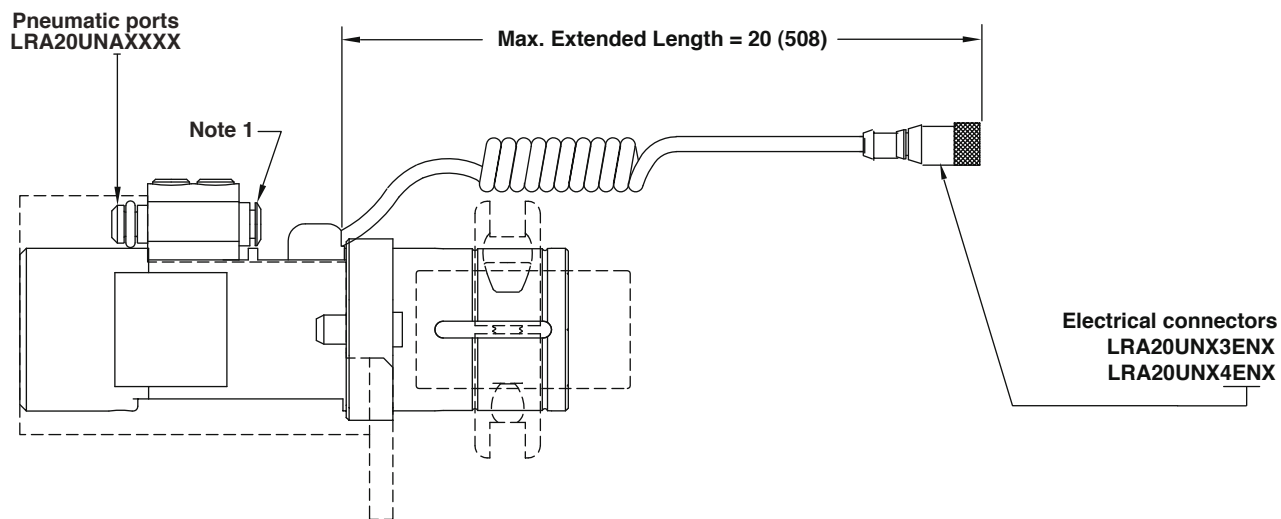
## Application



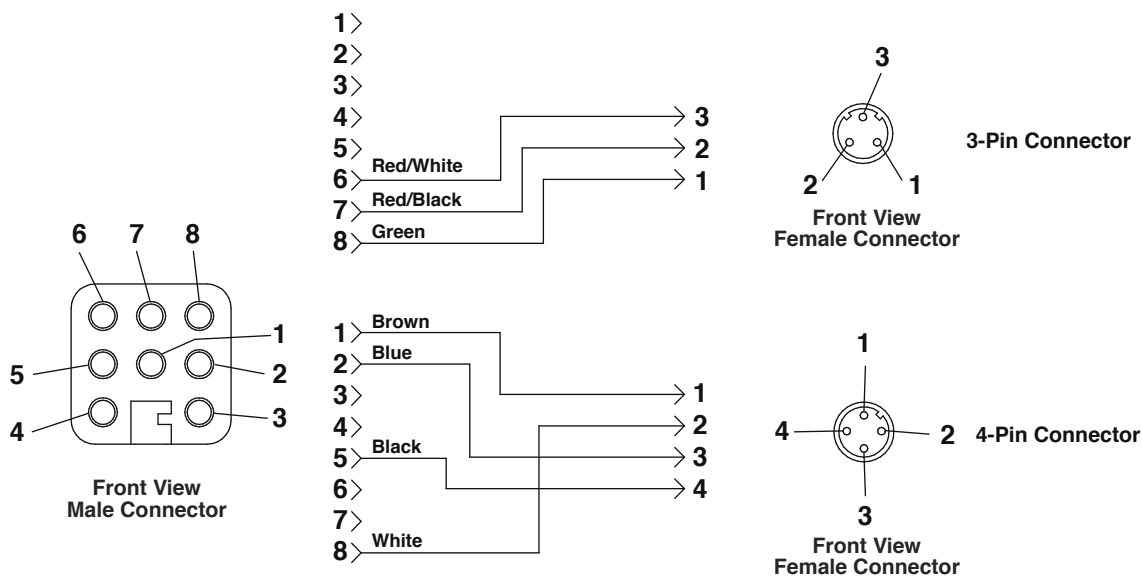
Dimensions in inches (mm) are for reference only

# LRA20 RECEIVER ADAPTER UNIVERSAL STYLE LRA20UNXXXXX

## ● Optional pneumatic ports and electrical connections



Note 1: Push-in fitting for corresponding plastic tubing utilized.



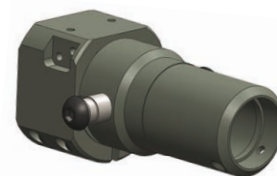
Dimensions in inches (mm) are for reference only

# HEAVY DUTY BAYONET, 15 SERIES

LAA4009XXXXX



- Adapter is used with alternative (non-IMI Norgren) quick connect housing



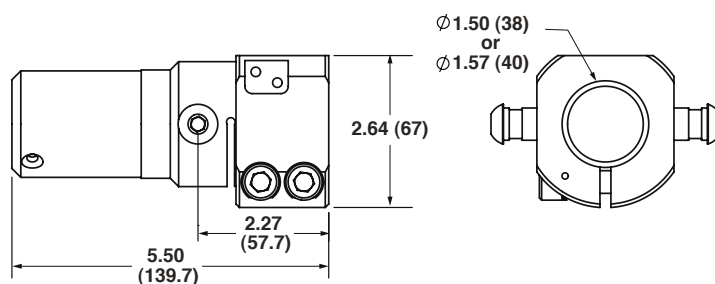
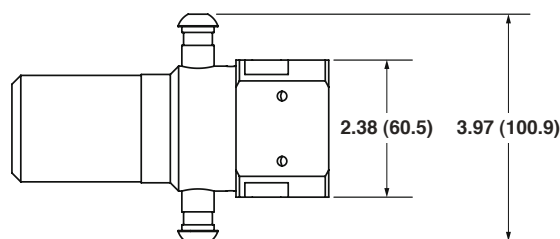
## Order information

LAA4009XXXXX

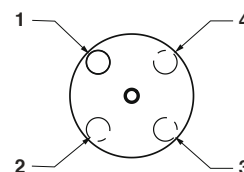
| Code Position | Code | Air Ports                  | Code | Electric Connections | Code | Tube Size               | Mini Bayonet Color | Code  |
|---------------|------|----------------------------|------|----------------------|------|-------------------------|--------------------|-------|
| Top left      | 1    | 1/8 NPT                    | A    | 3 Pin mini           | 3    | 1.50"                   | Natural            | Blank |
| Bottom left   | 2    | 1/4 NPT                    | B    | 5 Pin micro          | 5    | 1.50"                   | Blue               | B     |
| Bottom right  | 3    | 1/8 NPT 6 Port             | C    | None                 | N    | 1.50"                   | Green              | G     |
| Top right     | 4    | 1/4 NPT 3 Port             | D    |                      |      | 1.50"                   | Red                | R     |
| None          | N    | 1/4 NPT and 3/8 NPT 6 Port | E    |                      |      | 1.50"                   | Yellow             | Y     |
|               |      | None                       | N    |                      |      | 40 mm                   | Natural            | 40    |
|               |      |                            |      |                      |      | 1.50" with locking ring | Natural            | 1R    |

## Technical data

Weight:  
1.3 lbs / 583 g



## Coding positions



Dimensions in inches (mm) are for reference only

# BAYONET MOUNT

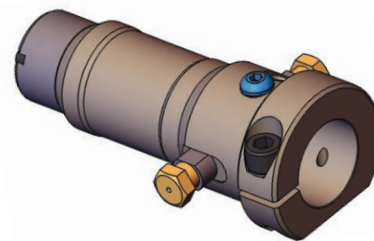
Z-TBM-15-XX-XX

- Works with alternative (non-IMI Norgren) housing



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RECEIVERS AND ADAPTERS

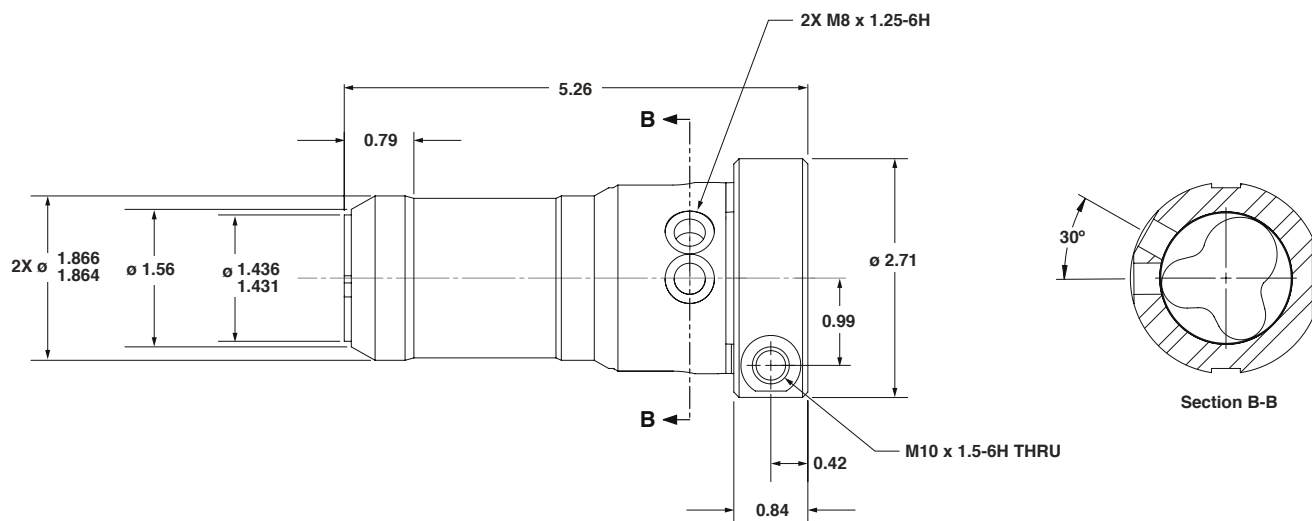


## Order information

Z-TBM-15-XX-XX

| Air Port             | Code | Key Location | Code |
|----------------------|------|--------------|------|
| None                 | A0   | Position 1   | K1   |
| 3 Internal Air Ports | A3   | Position 2   | K2   |

## Technical data



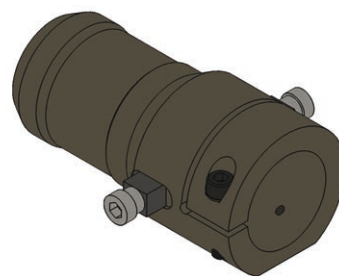
Dimensions in inches (mm) are for reference only

# BAYONET MOUNT

Z-TBM-XX-XX-XX-XX



- Adapter is used with alternative (non-IMI Norgren) quick connect housing



## Order information

Z-TBM-XX-XX-XX-XX

| Boom Diameter | Code |
|---------------|------|
| 2.5 in        | 25   |
| 60 mm         | 60   |

| Air Port | Code |
|----------|------|
| None     | A0   |
| 3 Port   | A3   |
| 6 Port   | A6   |

| Electrical Options | Code |
|--------------------|------|
| No Electric Plug   | E0   |

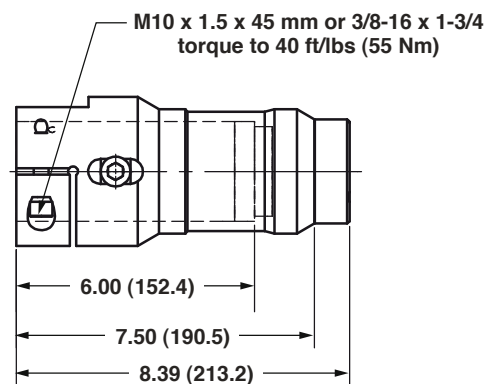
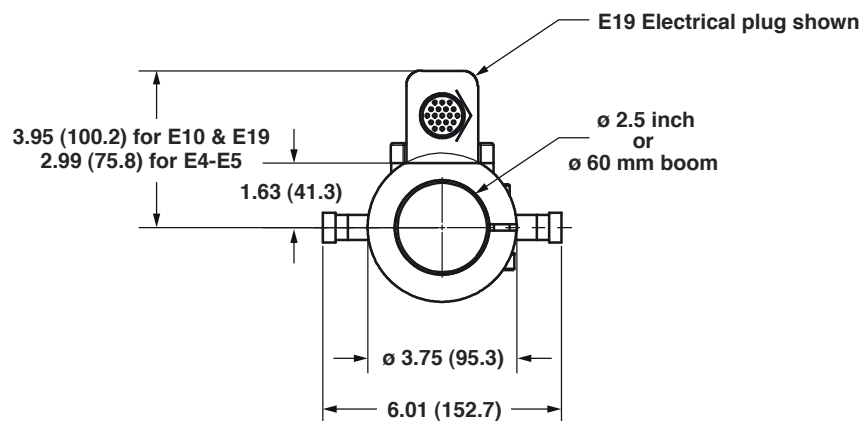
| Port Option | Code     |
|-------------|----------|
| MT          | Metric   |
| ST          | Standard |

## Technical data

### Weight:

A0 Option: 3.75 lbs (1.7 kg)

A6 Option: 4.00 lbs (1.8 kg)



Dimensions in inches (mm) are for reference only

# TOOLING FLANGE END MOUNT

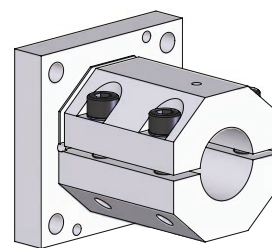
TFXE-NP



5

RECEIVERS AND ADAPTERS

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## ● Order information

### TFXE-NP

| Diameter | Code |
|----------|------|
| 1.50"    | 1    |
| 40 mm    | 4    |

| Mount     | Code |
|-----------|------|
| End Mount | E    |

| Pilot                          | Code |
|--------------------------------|------|
| Omit Pilot on Mounting Surface | NP   |

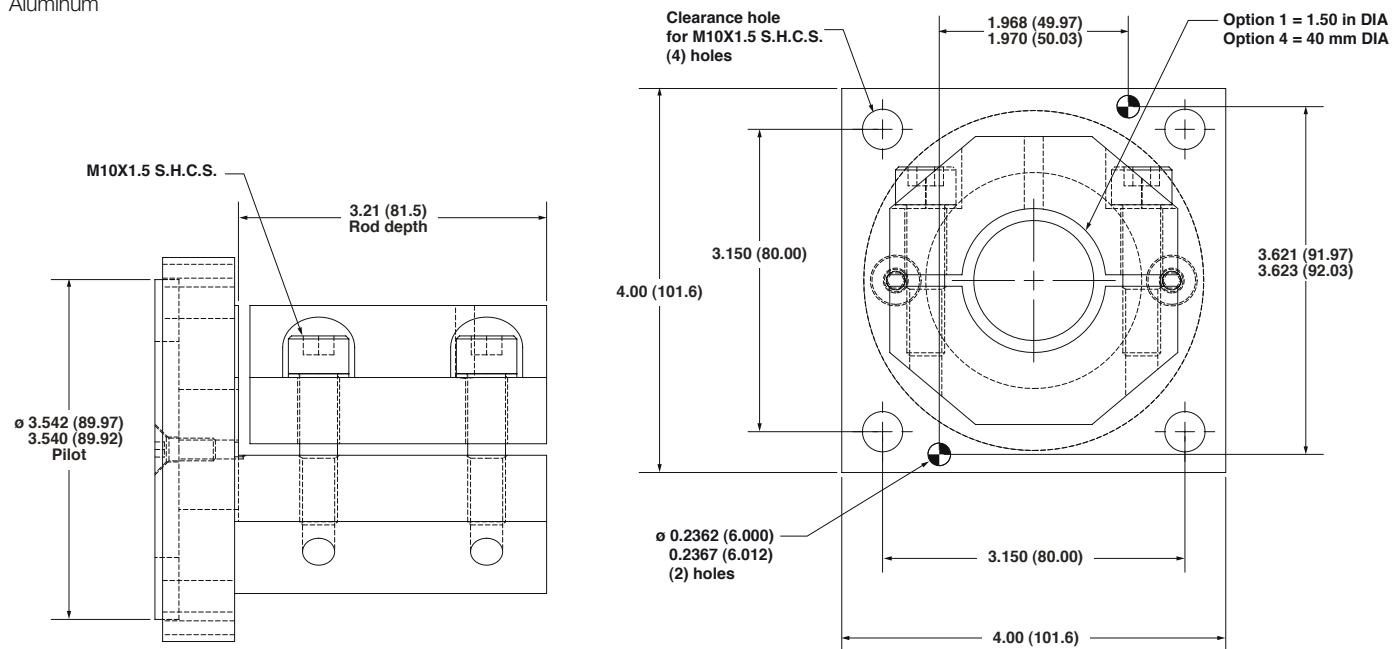
## Technical data

### Weight:

2.97 lbs. (1.35 kg)

### Material:

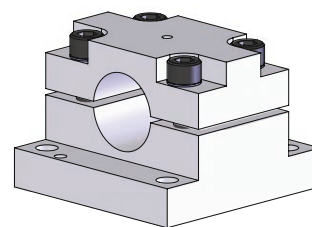
Aluminum



Dimensions in inches (mm) are for reference only

# TOOLING FLANGE SADDLE MOUNT

TFXS-NP



## Order information

| TFXS-NP                        |   |              |   |
|--------------------------------|---|--------------|---|
| Diameter                       |   | Mount        |   |
| Code                           |   | Code         |   |
| 1.50"                          | 1 | Saddle Mount | S |
| 40 mm                          | 4 |              |   |
| Pilot                          |   | Code         |   |
| Omit Pilot on Mounting Surface |   | NP           |   |

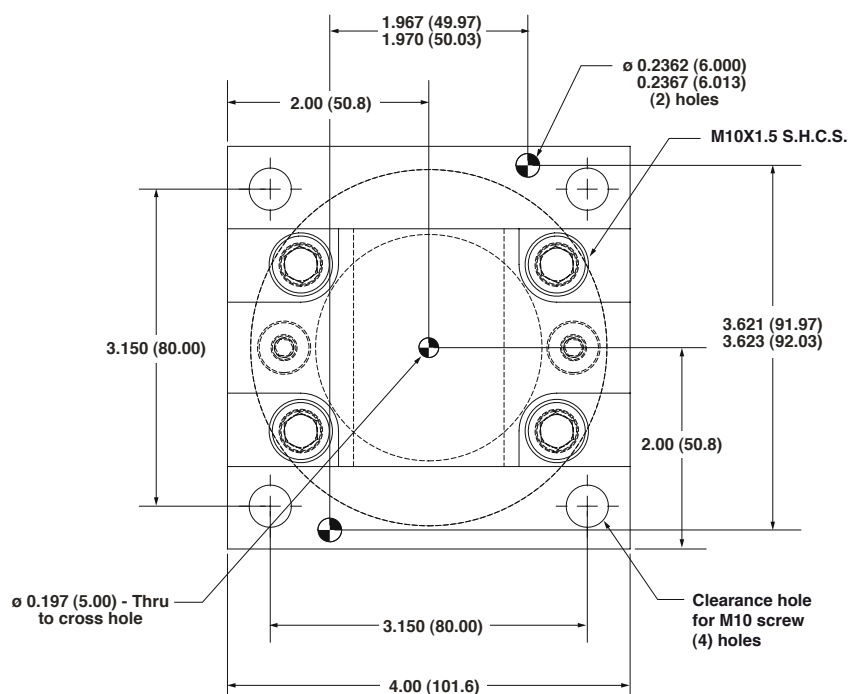
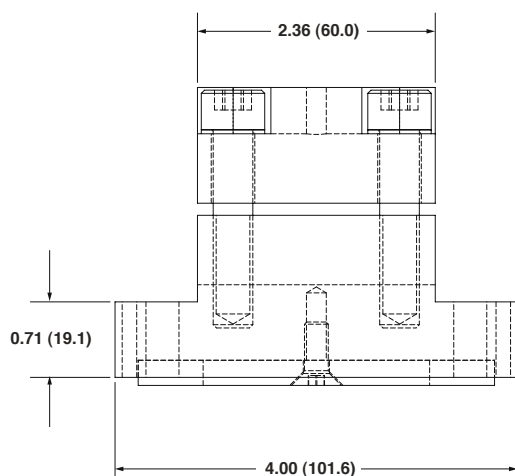
## Technical data

### Weight:

2.80 lbs. (1.27 kg)

### Material:

Aluminum

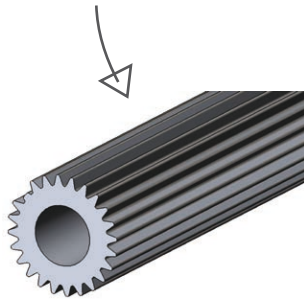


Dimensions in inches (mm) are for reference only

# ROUND TOOLING

- > Spline Rods
- > Aluminum, steel and Featherweight Tubing
- > Clamps
- > Ultra Arms
- > Bracket Arm

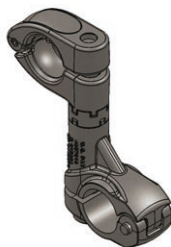
*Spline Rod*



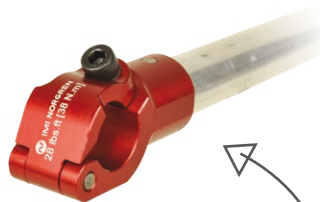
*Aluminum and Steel  
Tubing*



*Ultra Arm*



*Featherweight  
Tooling*



*T-clamp*



# Fast Find Guide

## ● SLINE RODS

**Spline Rods**



Page 34

## ● TUBING

**Featherweight Tooling Tubing**



Page 38

**Aluminum and Steel Tubing**



Page 39

## ● BRACKET ARM

**Featherweight Bracket Arm**



Page 57

**EA Bracket Arm**



Page 61

## ● ULTRA ARM

**Ultra Mount Bracket Metrc**



Page 69

**HD Ultra Arm Clamp Bracket**



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# Fast Find Guide

## ● TELESCOPING ULTRA ARM

**10T Telescoping Ultra Arm**



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## ● CLAMPS

**Featherweight Ball Clamp**



Page 74

**Featherweight Tooling T-clamps**



Page 75

**Poz-E-Lok Clamp**



Page 70

**Receiver Mounts**



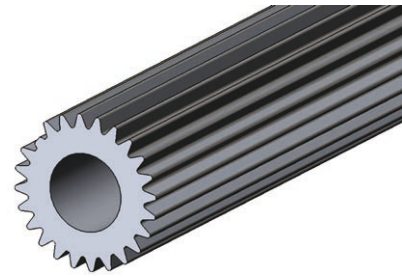
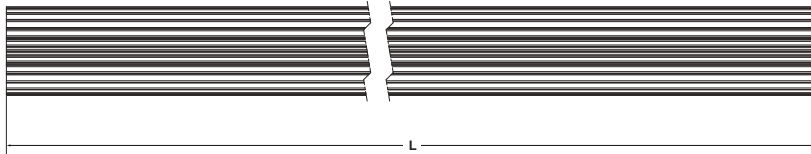
Page 71

# SPLINE ROD

TRS25-XXX



- 25 mm spline rod



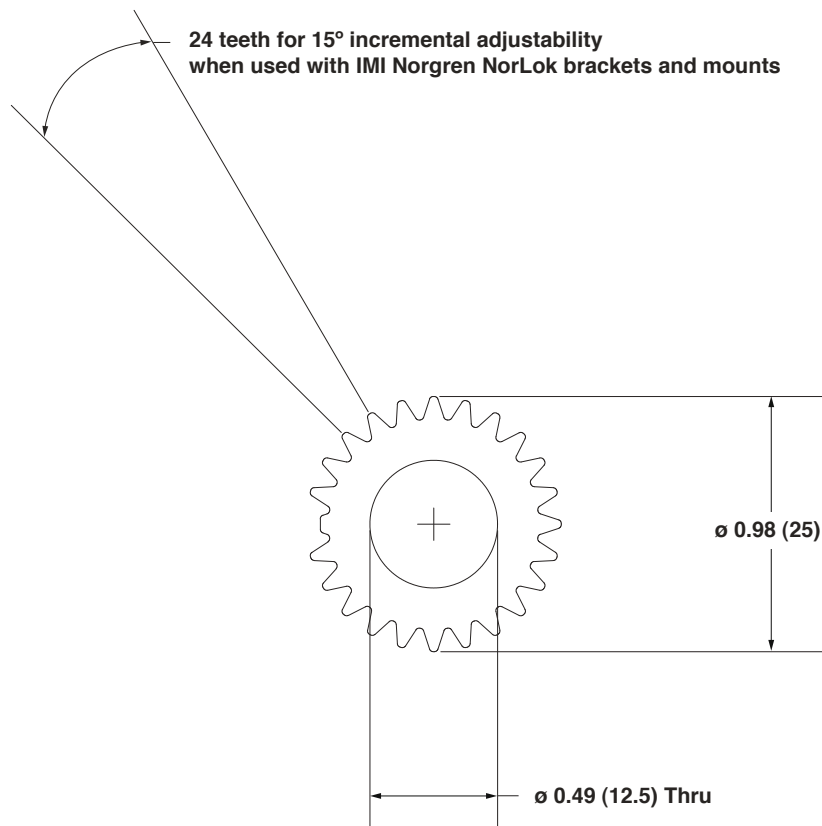
## Order information

TRS25-XXX

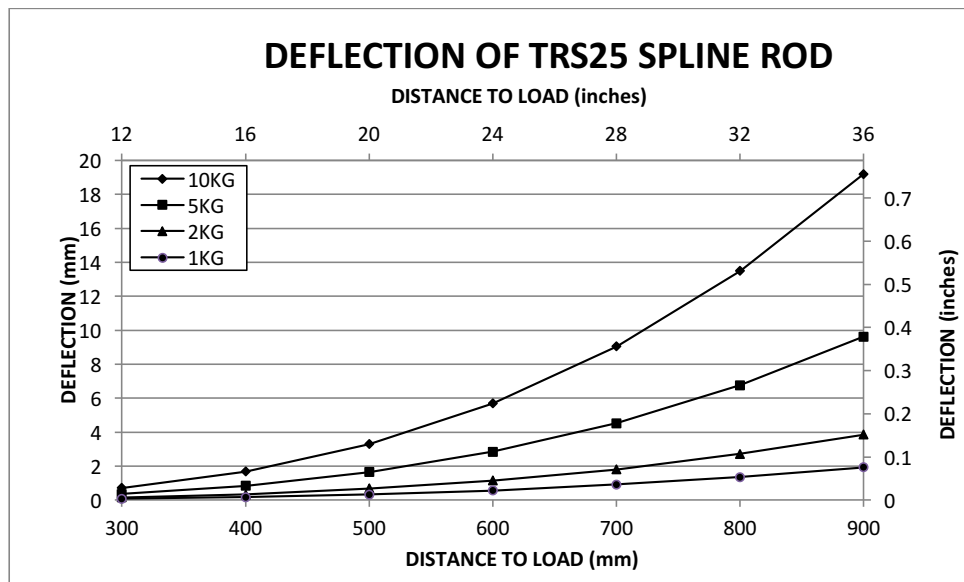
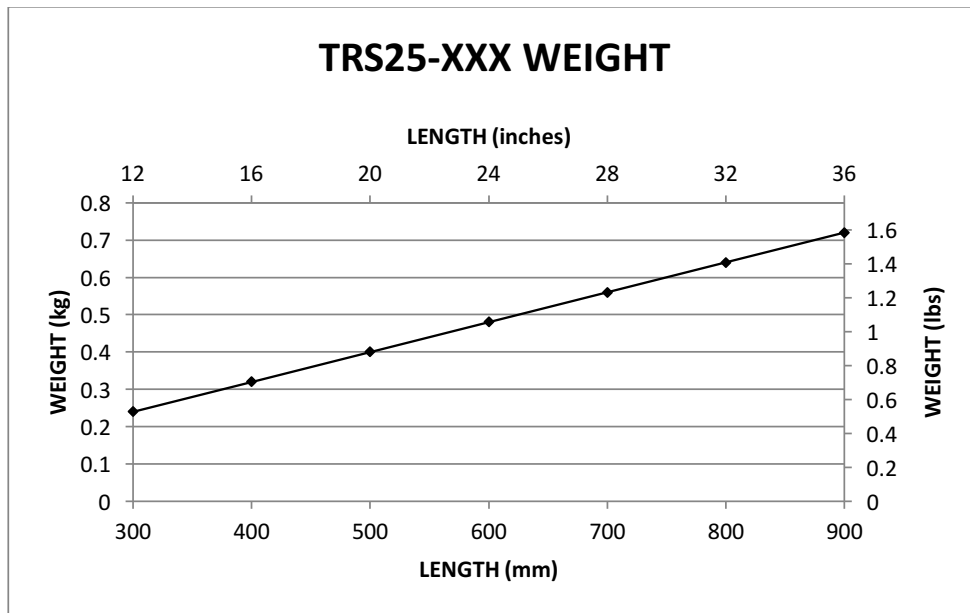
| Length, mm | Code |
|------------|------|
| 300        | 300  |
| XXX        | XXX  |
| 900        | 900  |

\*Lengths available: 300 mm to 900 mm,  
in 100 mm increments

## Technical data



Dimensions in inches (mm) are for reference only



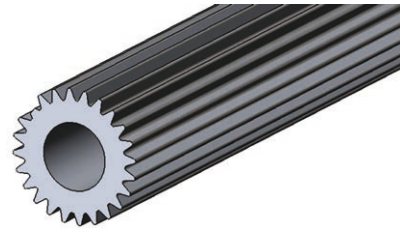
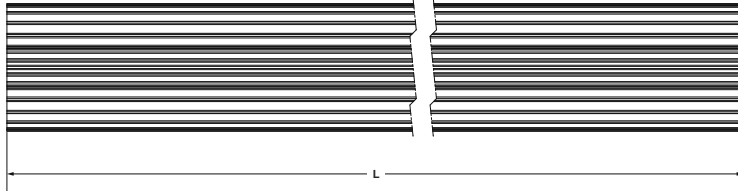
Material: Aluminum

Dimensions in inches (mm) are for reference only

# SPLINE ROD

TRS40-XXX

- 40 mm spline rod



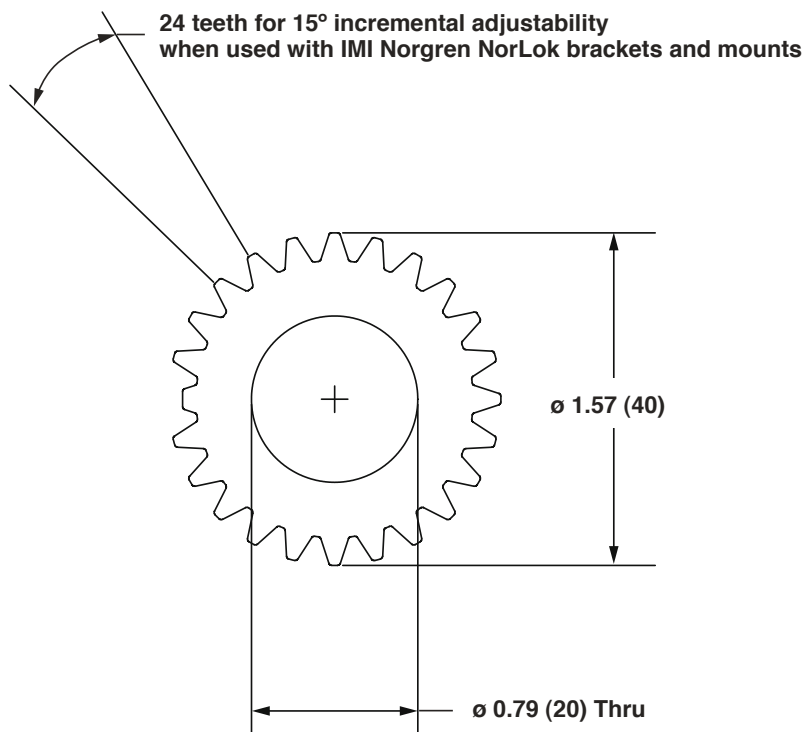
## Order information

TRS40-XXX

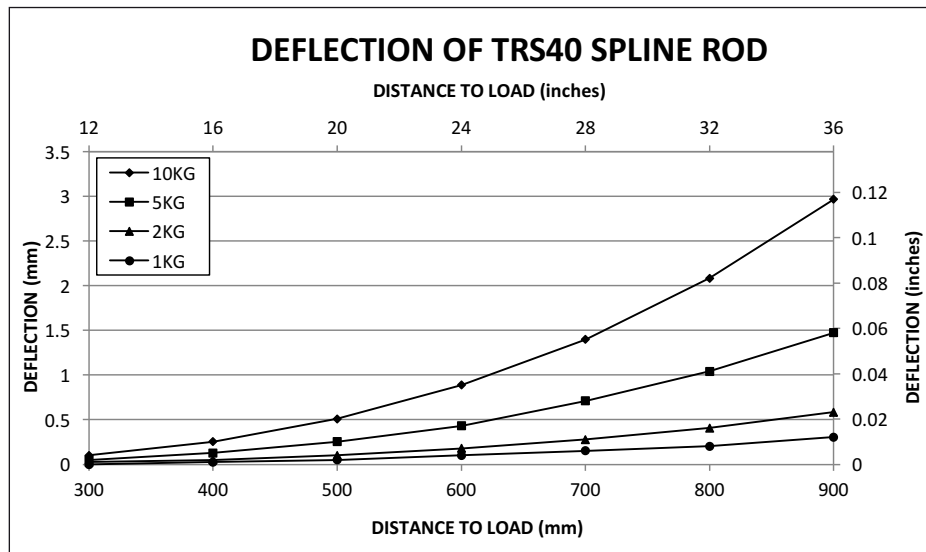
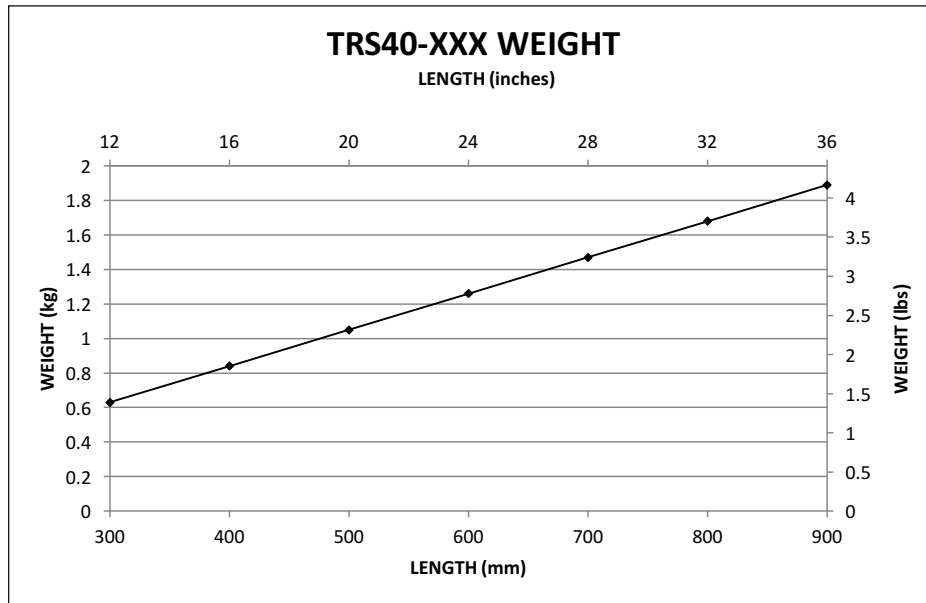
| Length, mm | Code |
|------------|------|
| 300        | 300  |
| XXX        | XXX  |
| 1500       | 1500 |

\*Lengths available: 300mm to 1500 mm,  
in 100 mm increments

## Technical data



Dimensions in inches (mm) are for reference only



**Material:** Aluminum

Dimensions in inches (mm) are for reference only

# FEATHERWEIGHT TOOLING TUBING

LWTA10EXXXX



- 1.00" diameter aluminum tubing



## ● Order information

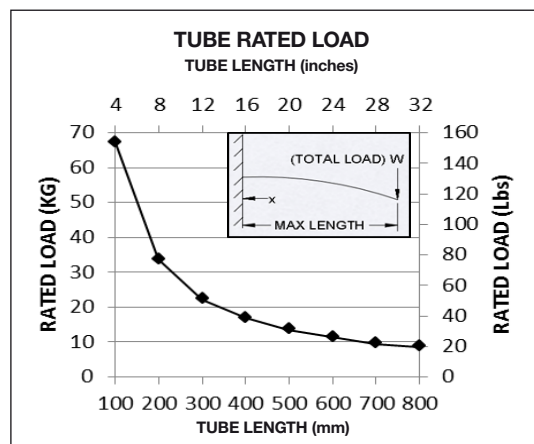
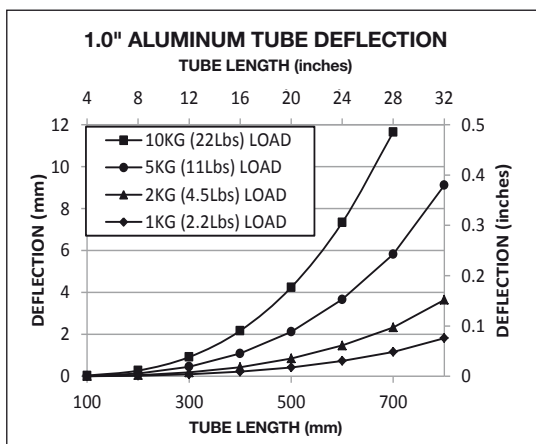
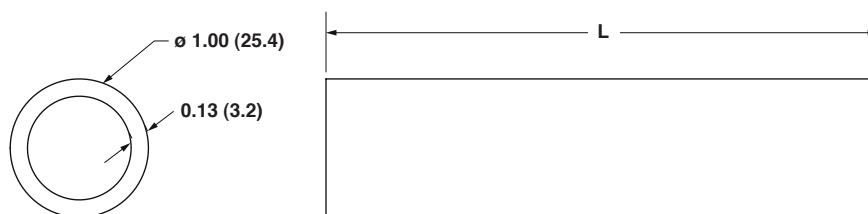
LWTA10EXXXX

| Length* | Code |
|---------|------|
| 100     | 0100 |
| XXXX    | XXXX |
| 3650    | 3650 |

\*Lengths available: 100 mm to 3650 mm  
in 25 mm increments

## ● Application notes

**Tubes weight**  
0.03 lbs/in (589 g/m)



Dimensions in inches (mm) are for reference only

# FEATHERWEIGHT TOOLING TUBING

LWTA15EXXX

- 1.50" diameter aluminum tubing



## Order information

LWTA15EXXX

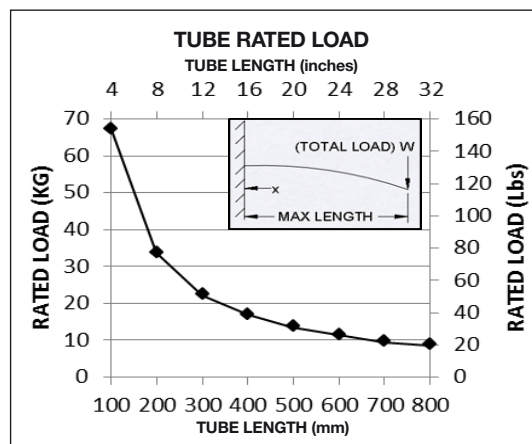
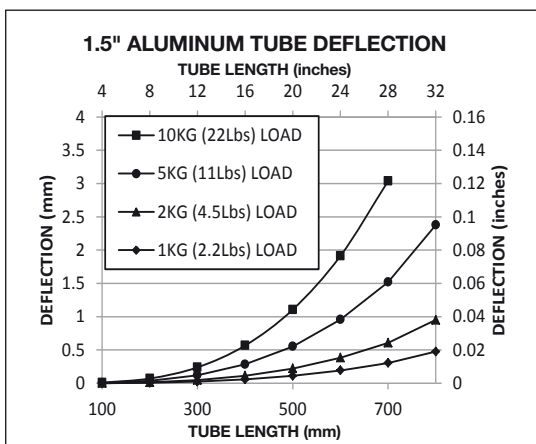
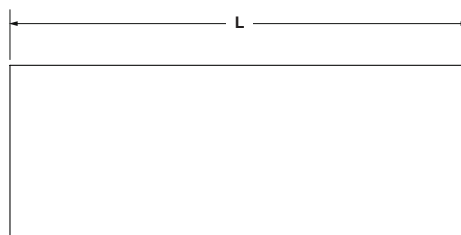
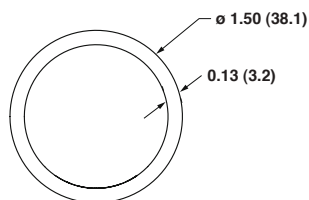
| Length* | Code |
|---------|------|
| 100     | 0100 |
| XXX     | XXX  |
| 3650    | 3650 |

\*Lengths available: 100 mm to 3650 mm in 25 mm increments

## Application notes

Tubes weight

0.05 lbs/in (928 g/m)



Dimensions in inches (mm) are for reference only

# FEATHERWEIGHT TOOLING TUBING

LWTS10EXXXX

- 1.00" diameter steel tubing



## Order information

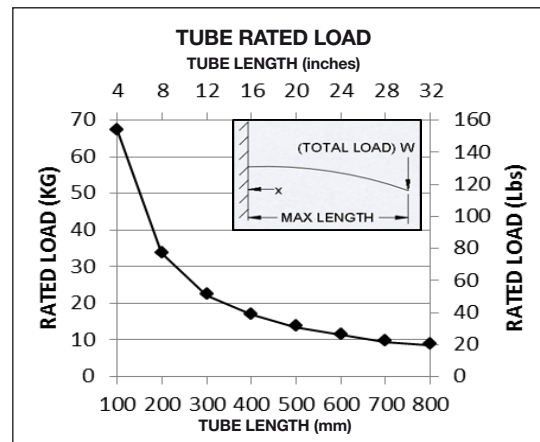
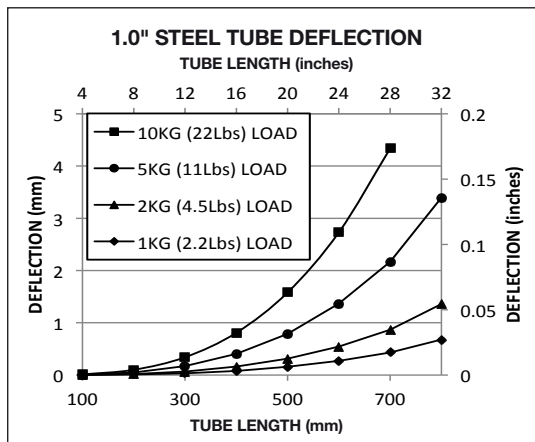
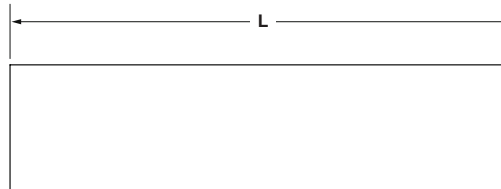
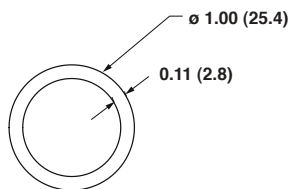
LWTS10EXXXX

| Length* | Code |
|---------|------|
| 100     | 0100 |
| XXX     | XXX  |
| 3650    | 3650 |

\*Lengths available: 100 mm to 3650 mm in 25 mm increments

## Application notes

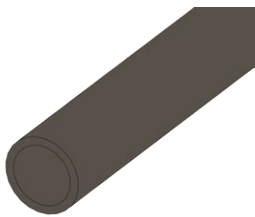
Tubes weight  
0.09 lbs/in (1607 g/m)



Dimensions in inches (mm) are for reference only

# ALUMINUM AND STEEL TUBING

Z-10-X-XXXX



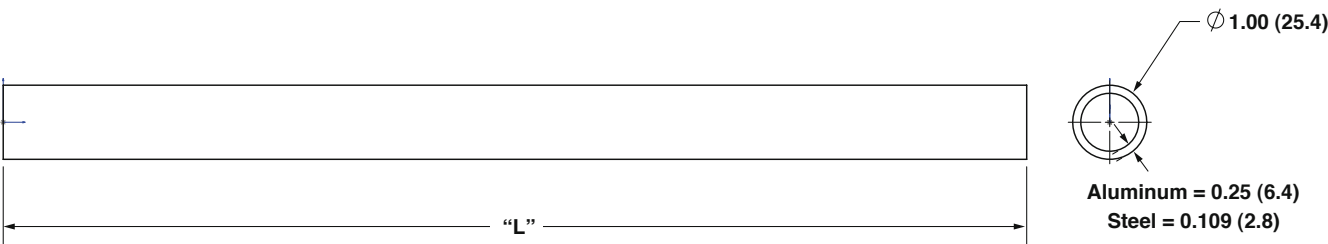
## ● Order information

Z-10-X-XXXX

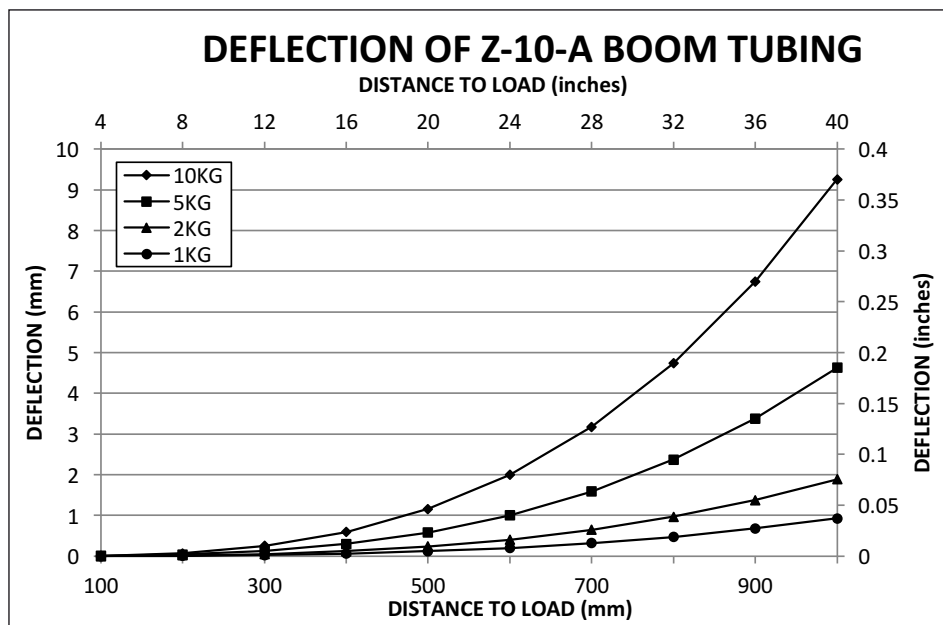
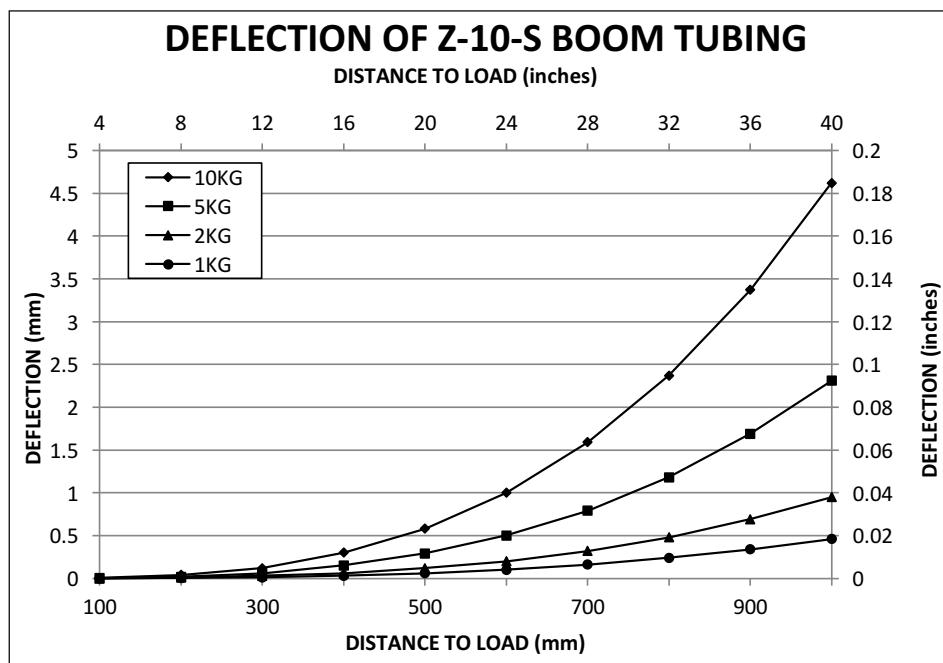
| Diameter              |  | Material |   | Length, mm |      |
|-----------------------|--|----------|---|------------|------|
| Code                  |  | Code     |   | Code       |      |
| 1.00" Boom Rod Tubing |  | Steel    | S | 75         | 75   |
| 10                    |  | Aluminum | A | XXXX       | XXXX |
|                       |  |          |   | 900        | 900  |

\*Lengths available: 75 mm to 900 mm, in 25 mm increments

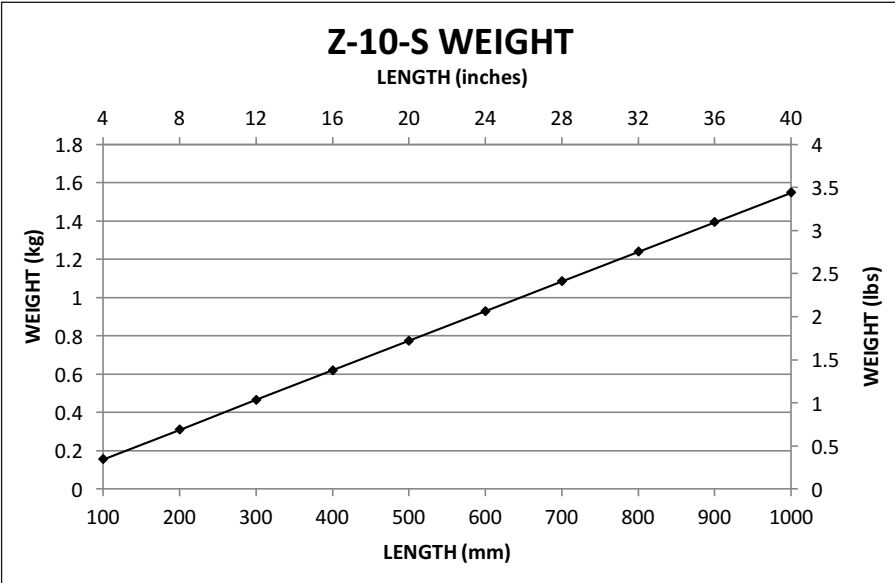
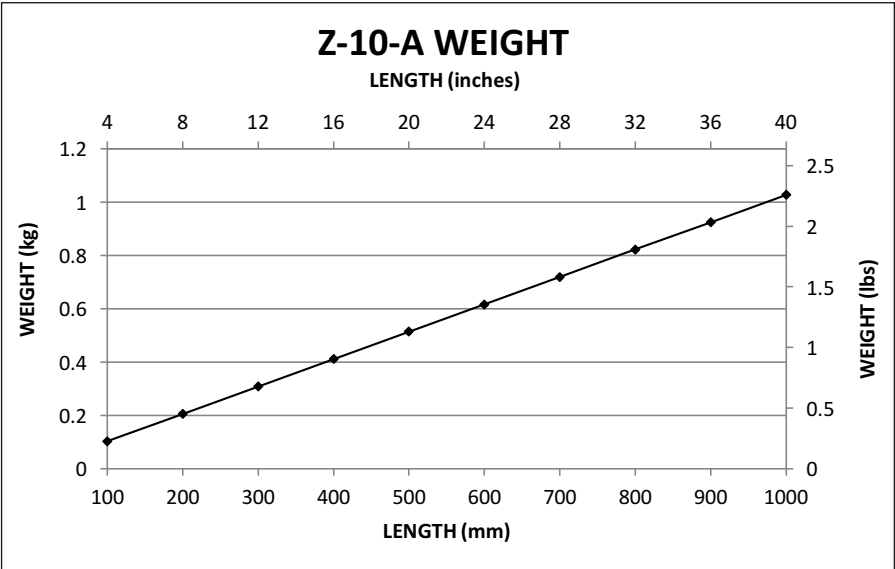
## Technical data



Dimensions in inches (mm) are for reference only



Dimensions in inches (mm) are for reference only



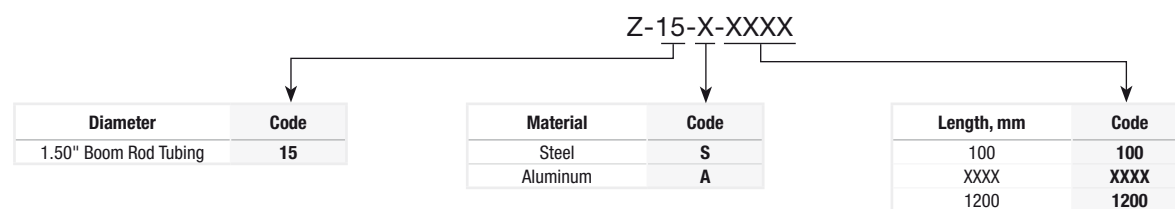
Dimensions in inches (mm) are for reference only

# ALUMINUM AND STEEL TUBING

Z-15-X-XXXX

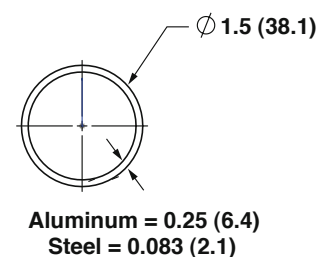
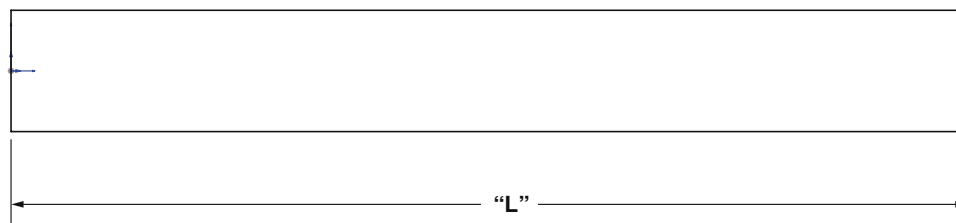


## ● Order information

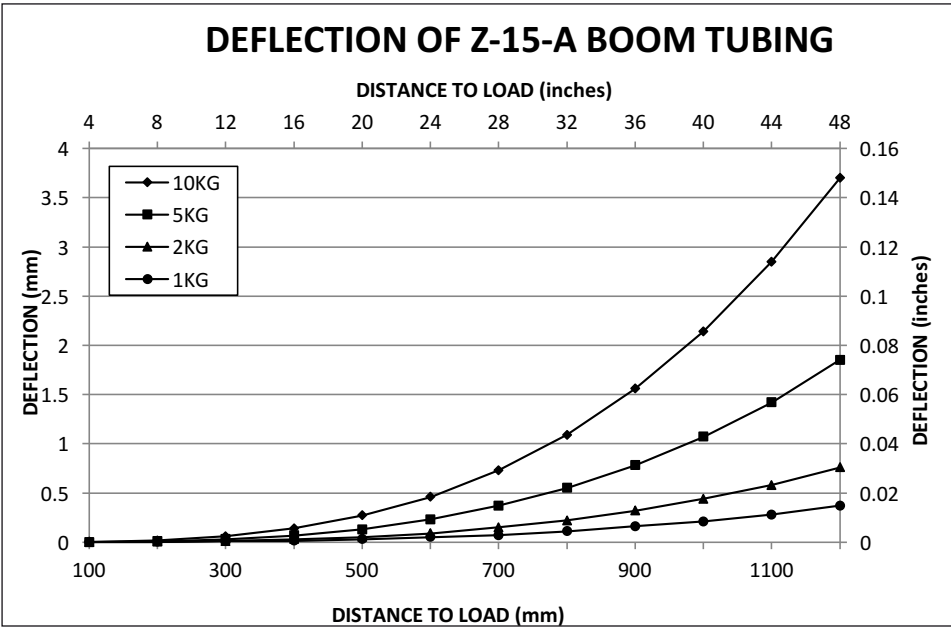
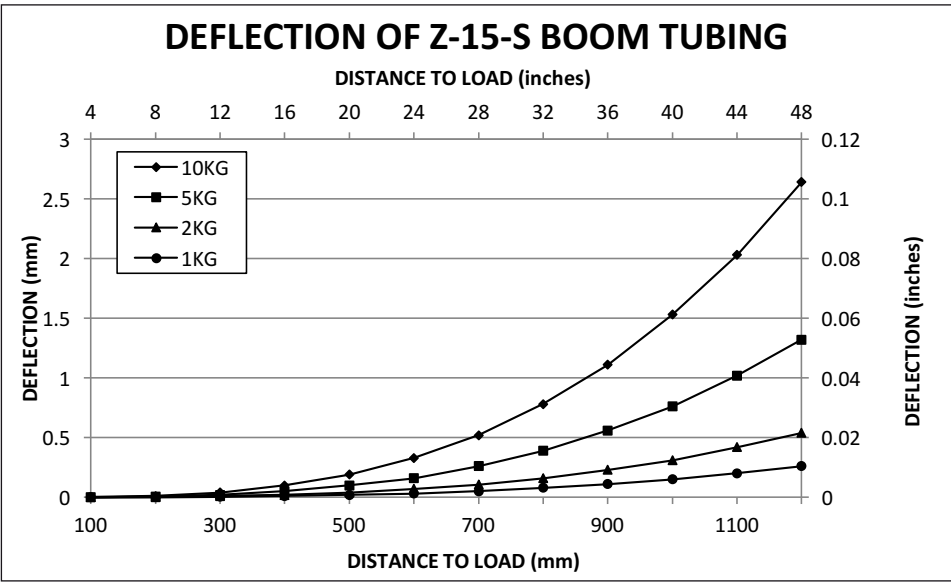


\*Lengths available: 100 mm to 1200 mm in 100 mm increments

## Technical data



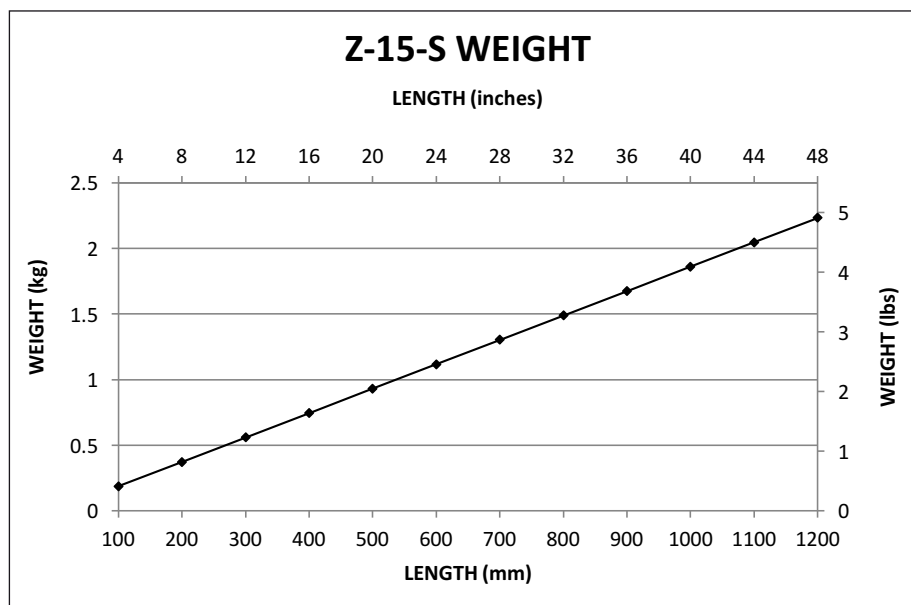
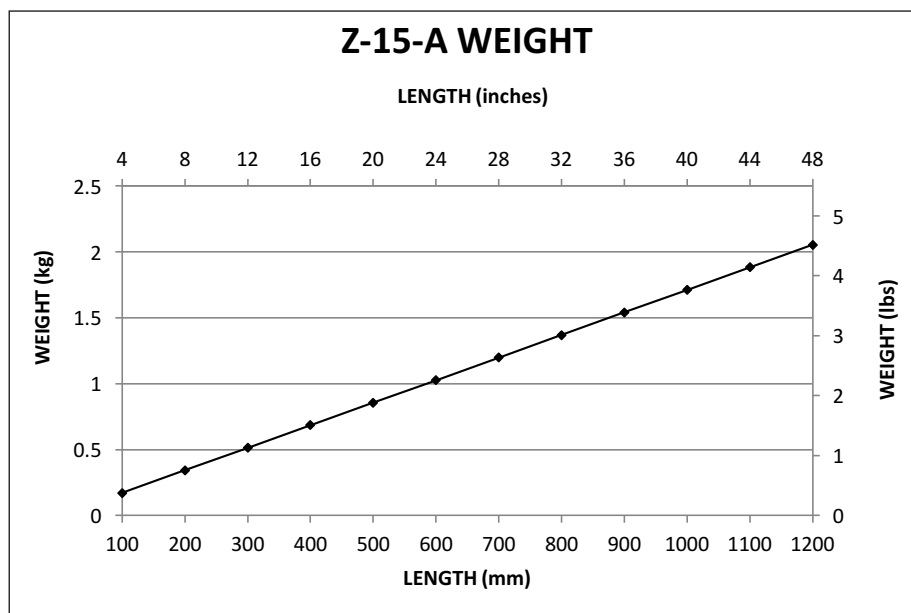
Dimensions in inches (mm) are for reference only



Dimensions in inches (mm) are for reference only

# ALUMINUM AND STEEL TUBING

## Z-15-X-XXXX



Dimensions in inches (mm) are for reference only

# ALUMINUM AND STEEL TUBING

Z-25-X-XXXX



## ● Order information

Z-25-X-XXXX

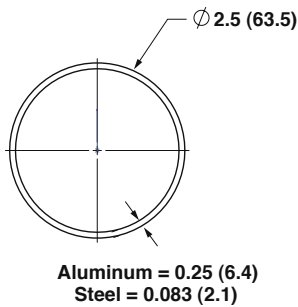
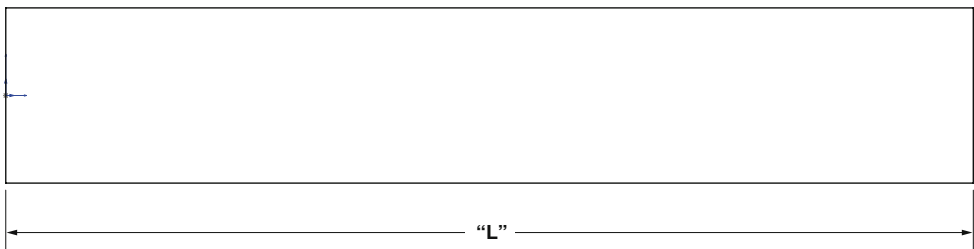
| Diameter              | Code |
|-----------------------|------|
| 2.50" Boom Rod Tubing | 25   |

| Material | Code |
|----------|------|
| Steel    | S    |
| Aluminum | A    |

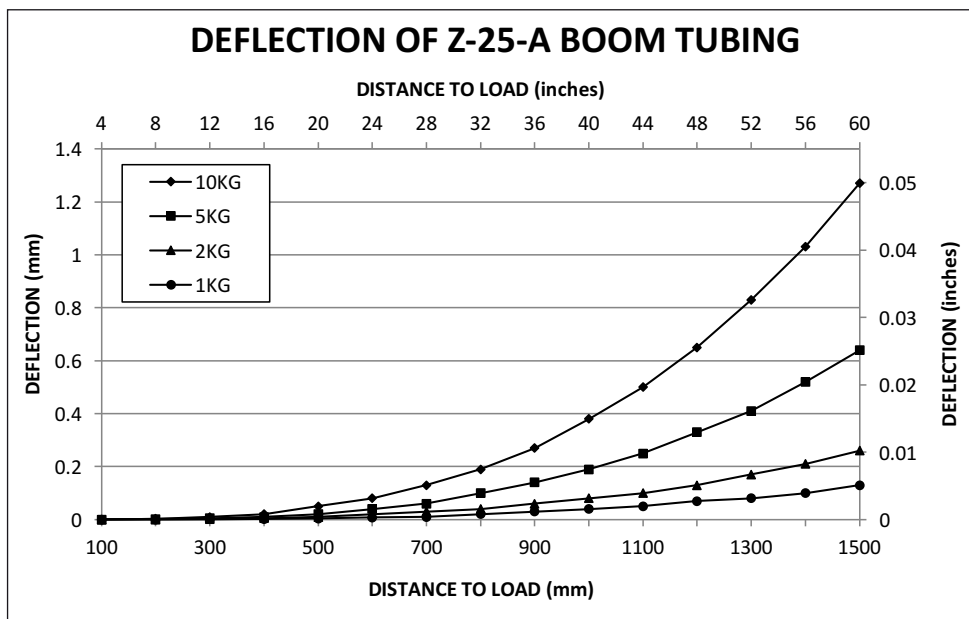
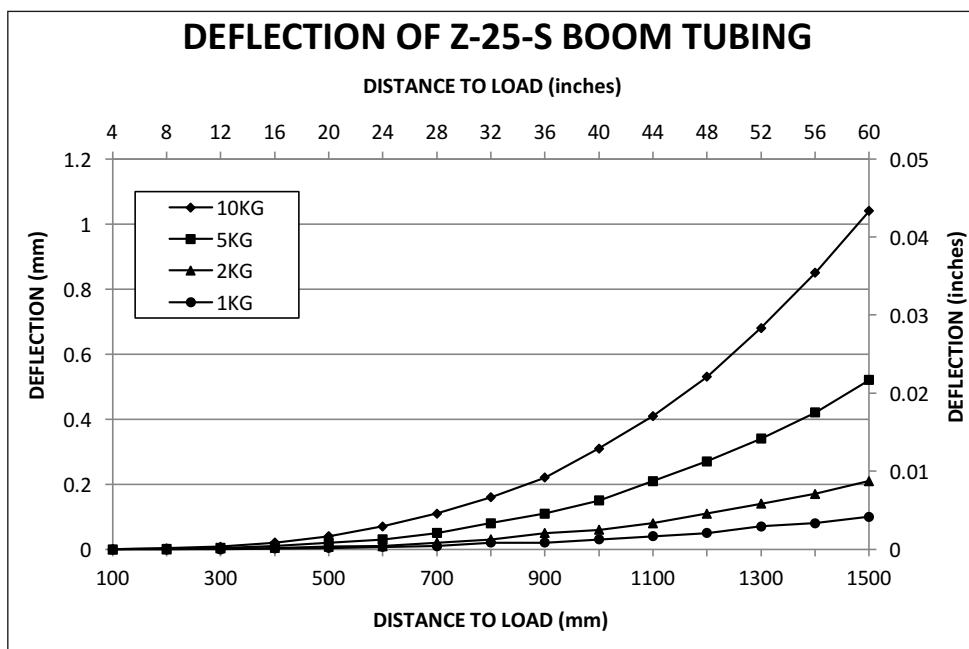
| Length, mm | Code |
|------------|------|
| 300        | 300  |
| XXXX       | XXXX |
| 1500       | 1500 |

\*Lengths available: 300 mm to 1500 mm in 300 mm increments

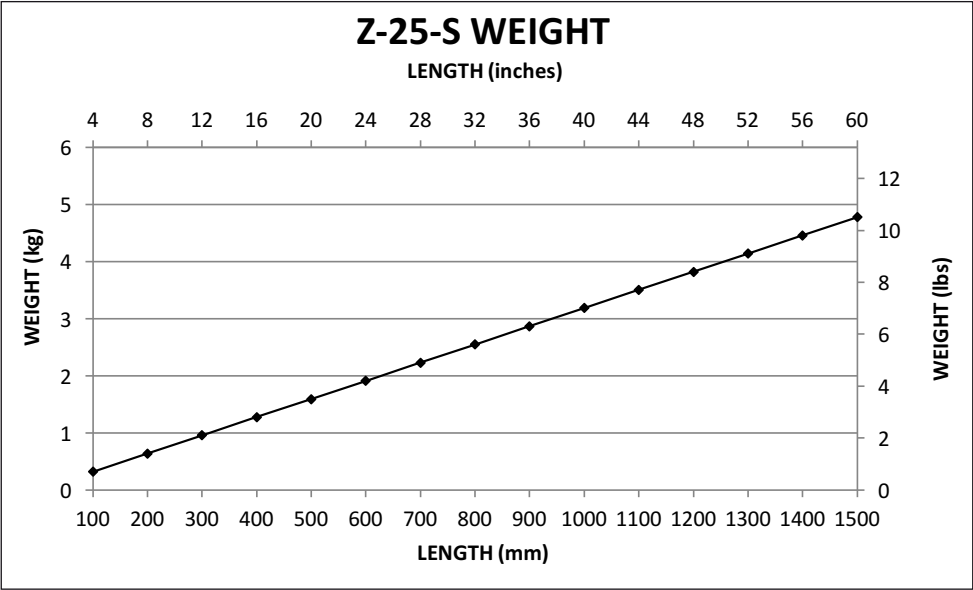
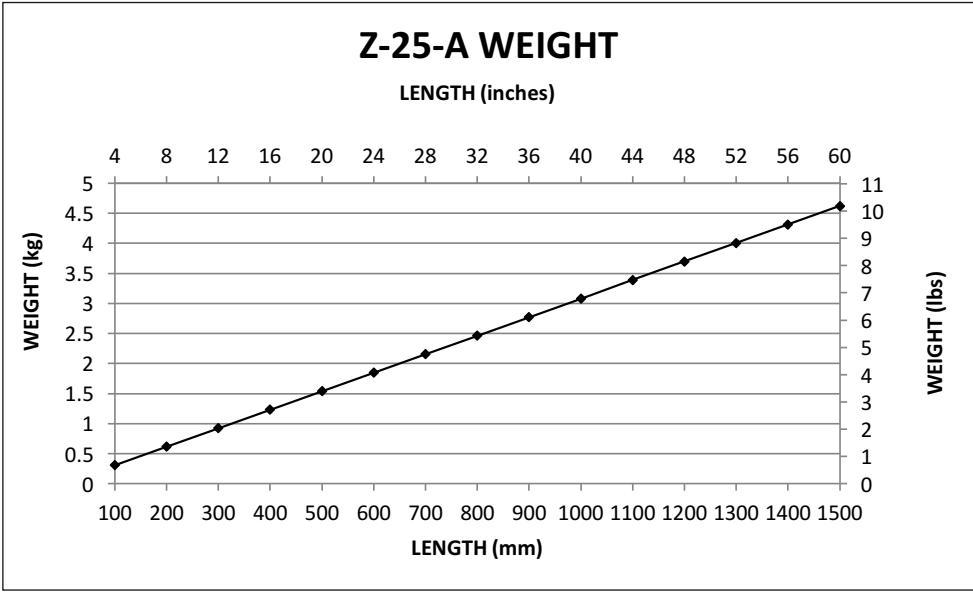
## Technical data



Dimensions in inches (mm) are for reference only



Dimensions in inches (mm) are for reference only



Dimensions in inches (mm) are for reference only

# ALUMINUM AND STEEL TUBING

Z-25MM-X-XXX



## Order information

**Z-25MM-X-XXX**

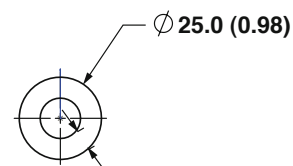
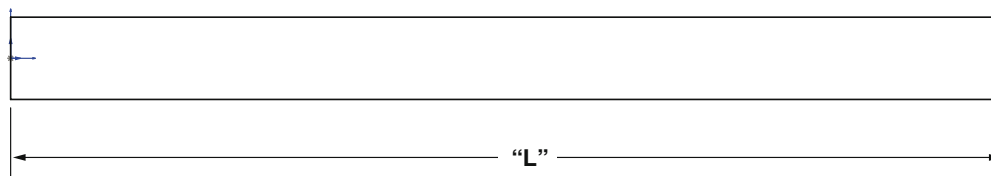
| Diameter              | Code        |
|-----------------------|-------------|
| 25 mm Boom Rod Tubing | <b>25MM</b> |

| Material | Code     |
|----------|----------|
| Steel    | <b>S</b> |
| Aluminum | <b>A</b> |

| Length, mm | Code       |
|------------|------------|
| 75         | <b>75</b>  |
| XXX        | <b>XXX</b> |
| 900        | <b>900</b> |

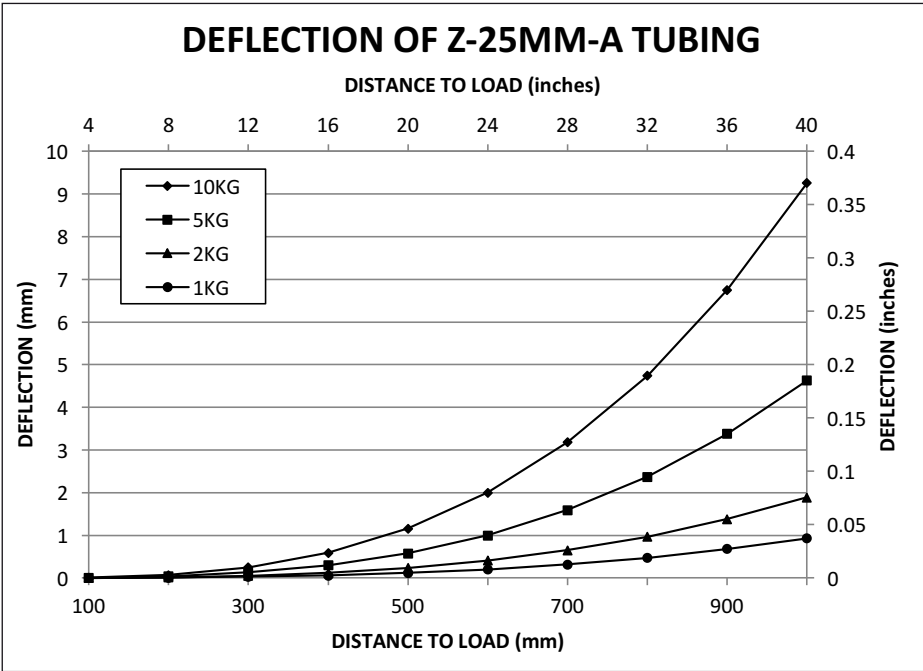
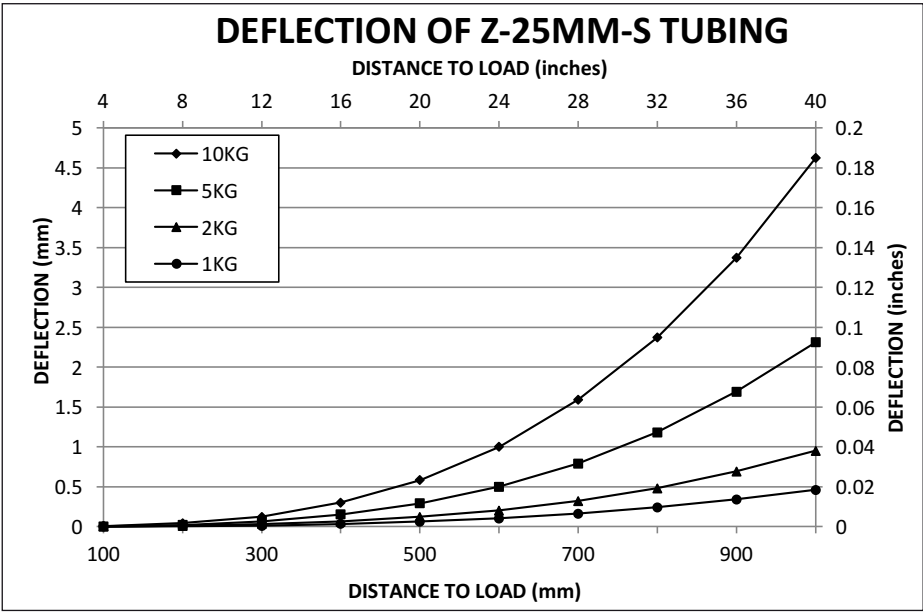
\*Lengths available: 75 mm to 900 mm, in 25 mm

## Technical data



Aluminum = 6.2 (0.25)  
Steel = 2.5 (0.109)

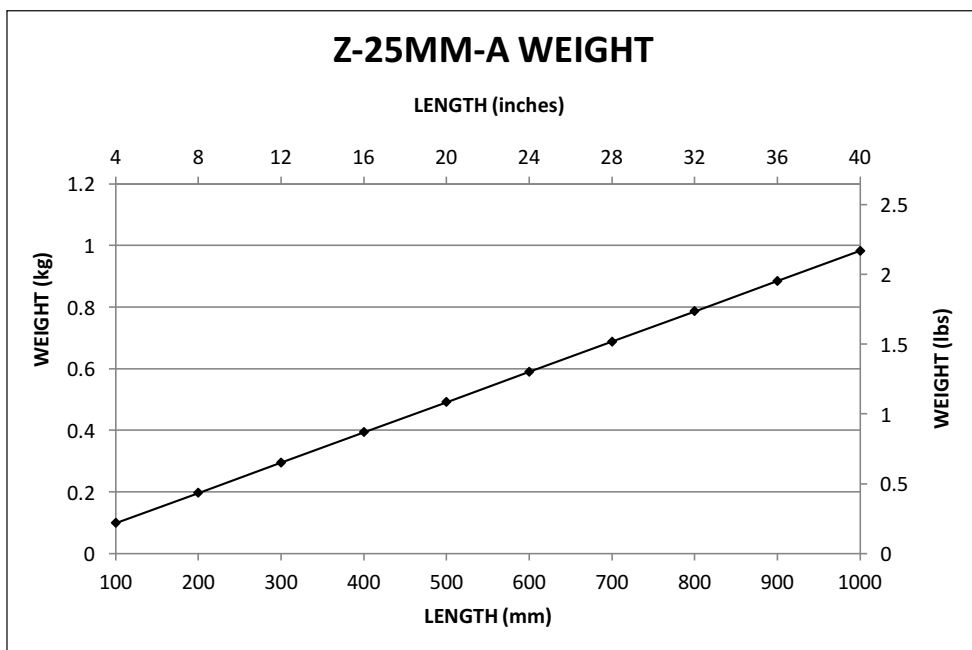
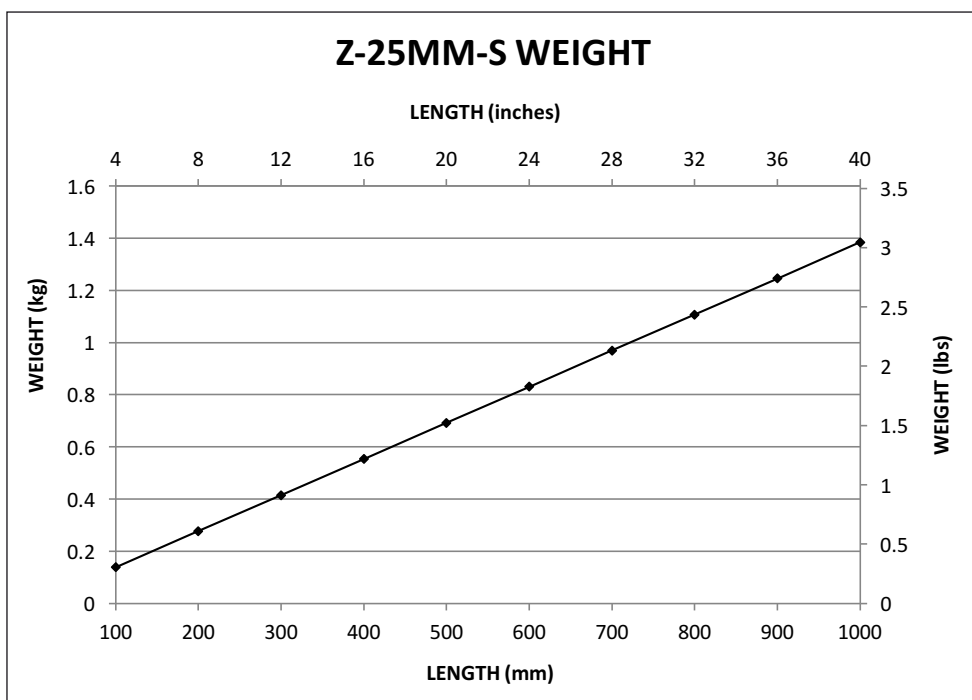
Dimensions in inches (mm) are for reference only



Dimensions in inches (mm) are for reference only

# ALUMINUM AND STEEL TUBING

## Z-25MM-X-XXX



Dimensions in inches (mm) are for reference only

# ALUMINUM AND STEEL TUBING

Z-40MM-X-XXXX



## ● Order information

Z-40MM-X-XXXX

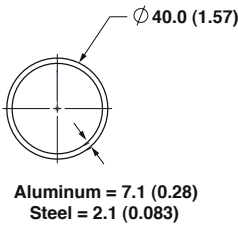
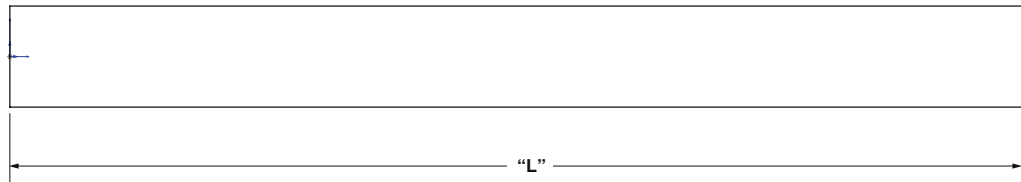
| Diameter              | Code |
|-----------------------|------|
| 40 mm Boom Rod Tubing | 40MM |

| Material | Code |
|----------|------|
| Steel    | S    |
| Aluminum | A    |

| Length, mm | Code |
|------------|------|
| 100        | 100  |
| XXX        | XXX  |
| 1200       | 1200 |

\*Lengths available: 100 mm to 1200 mm, in 100 mm increments

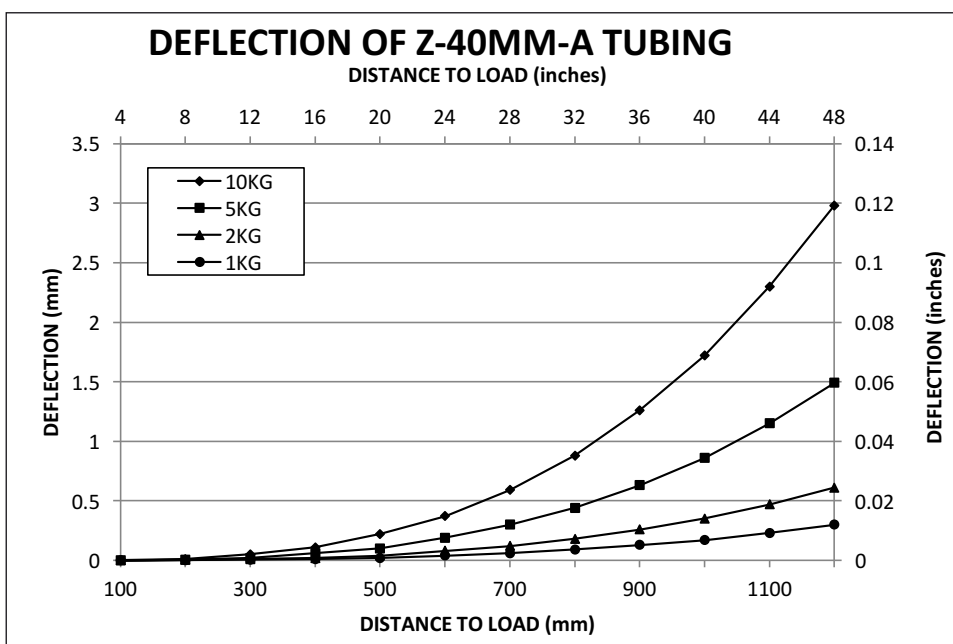
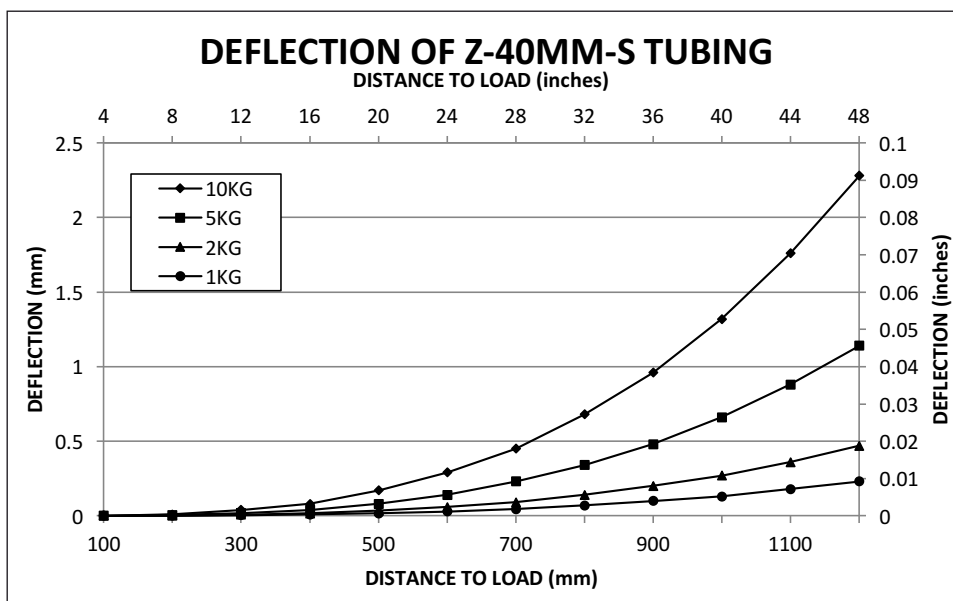
## Technical data



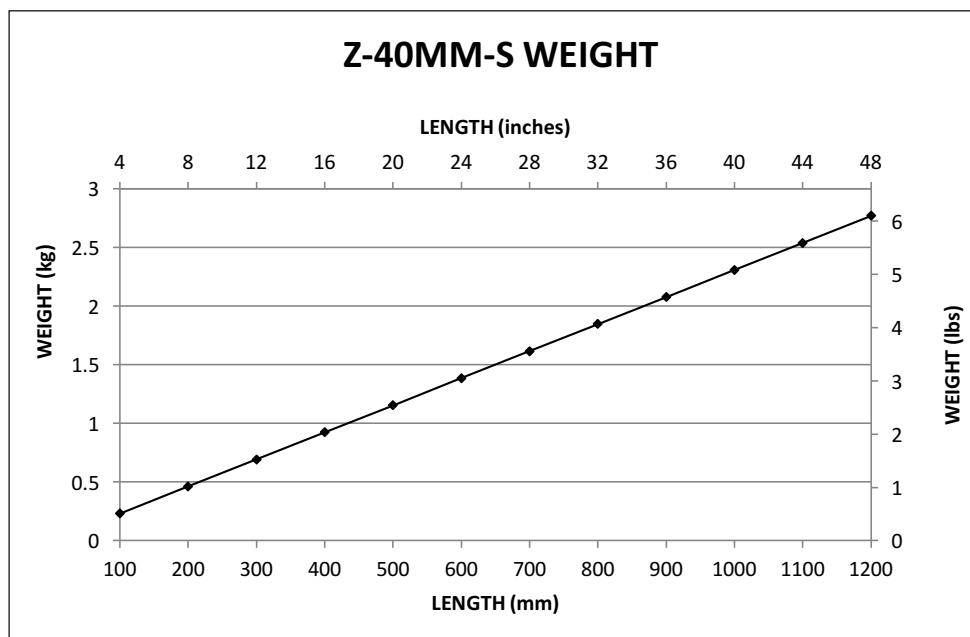
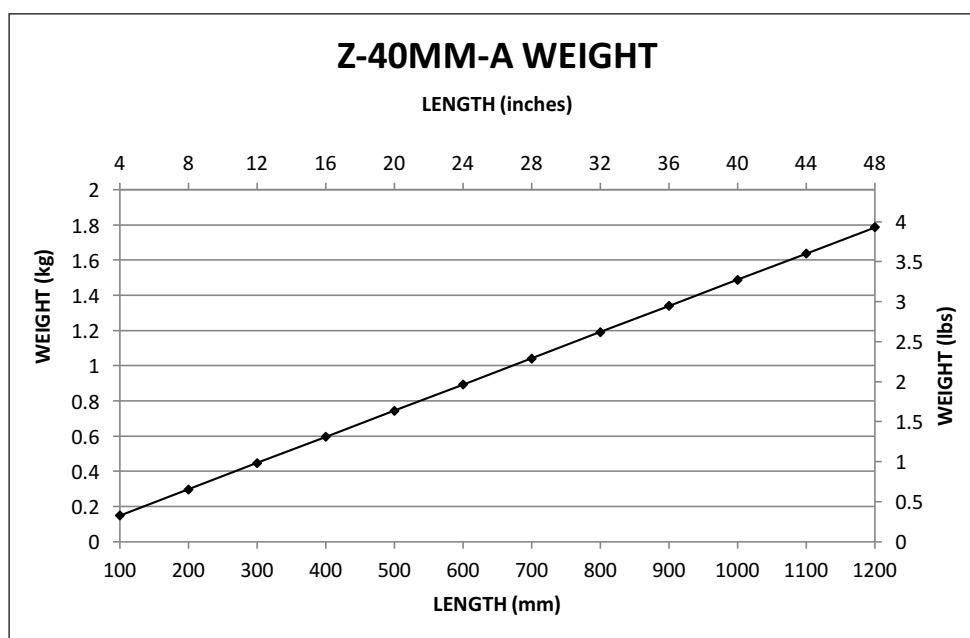
Dimensions in inches (mm) are for reference only

# ALUMINUM AND STEEL TUBING

## Z-40MM-X-XXXX



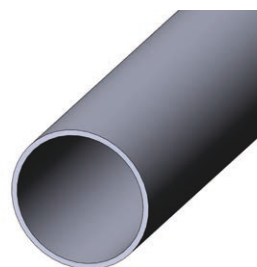
Dimensions in inches (mm) are for reference only



Dimensions in inches (mm) are for reference only

# ALUMINUM AND STEEL TUBING

Z-60MM-X-XXXX



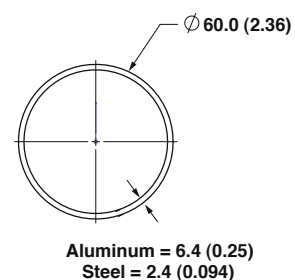
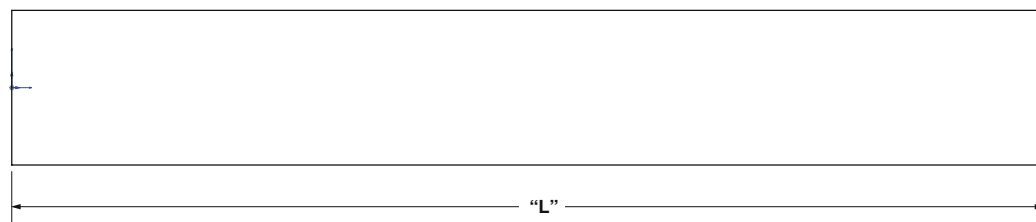
## Z-60MM-X-XXXX

| Diameter              | Code        |
|-----------------------|-------------|
| 60 mm Boom Rod Tubing | <b>60MM</b> |

| Material | Code     |
|----------|----------|
| Steel    | <b>S</b> |
| Aluminum | <b>A</b> |

| Length, mm | Code        |
|------------|-------------|
| 300        | <b>300</b>  |
| XXXX       | <b>XXXX</b> |
| 1500       | <b>1500</b> |

Lengths available: 300 mm to 1500 mm, in 300 mm increments



Dimensions in inches (mm) are for reference only

# FEATHERWEIGHT BRACKET ARMS

LWBS10EXXXX

- 50% weight reduction from steel version
- Made with aircraft aluminum
- 1.00" clamp diameter, 1.00" aluminum stem diameter

## ● Order information

LWBS10EXXXX

↓

Single

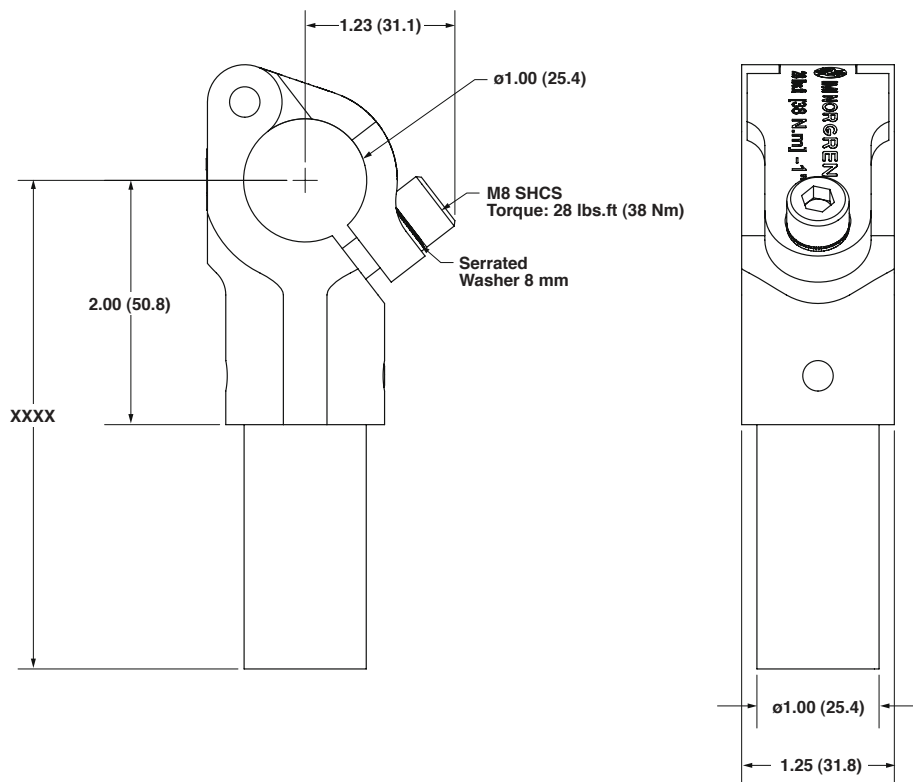
| Length* | Code |
|---------|------|
| 100     | 0100 |
| XXX     | 0XXX |
| 800     | 0800 |

\*Lengths available: 100 mm to 800 mm  
in 25 mm increments



## Application notes

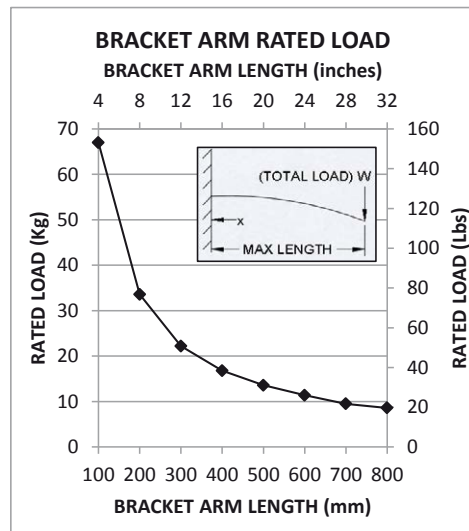
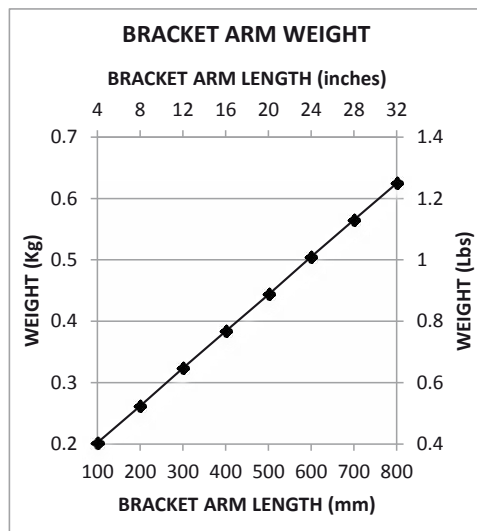
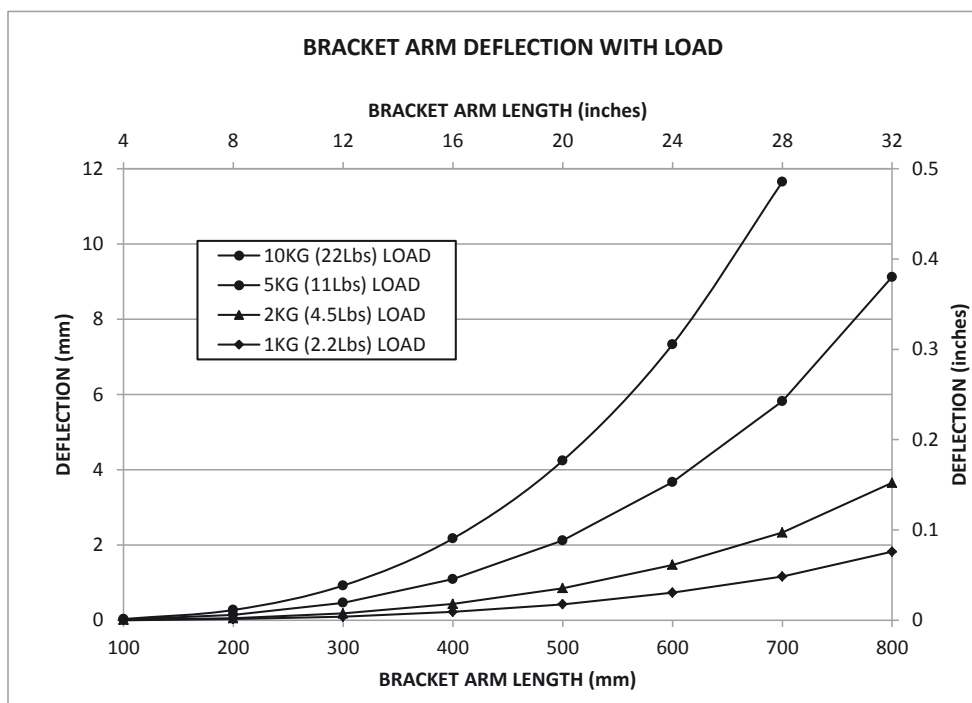
Load limits of 50 lbs-ft (67.5 Nm) recommended for 1.00" bracket arms



Dimensions in inches (mm) are for reference only

# FEATHERWEIGHT BRACKET ARMS

## LWBS10EXXXX



Dimensions in inches (mm) are for reference only

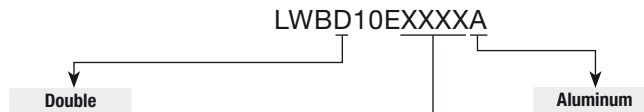
# FEATHERWEIGHT BRACKET ARMS

LWBD10EXXXXXA

- Aluminum version
- .00" clamp diameter, 1.00" steel stem diameter



## Order information

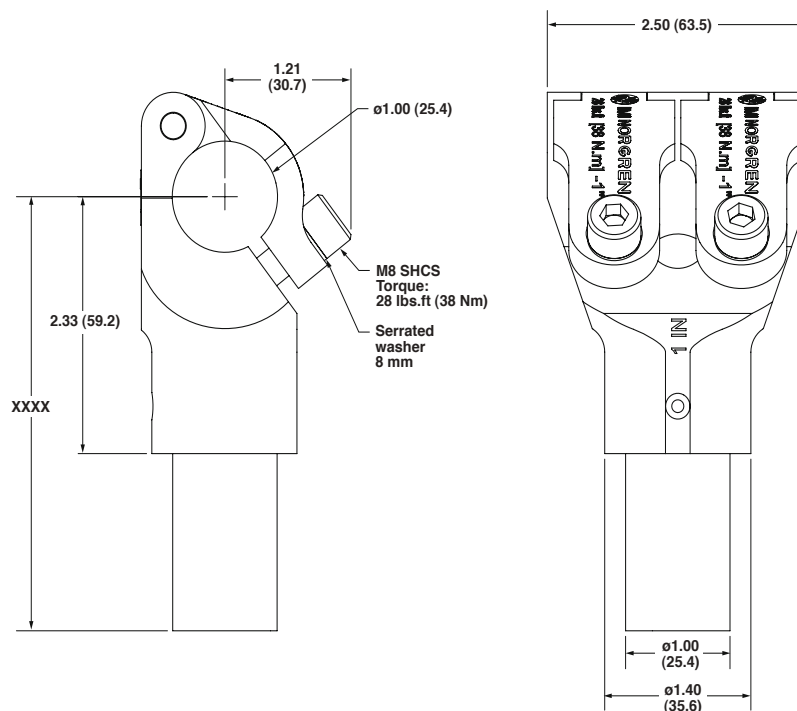


| Length* | Code |
|---------|------|
| 100     | 0100 |
| XXX     | 0XXX |
| 800     | 0800 |

\*Lengths available: 100 mm to 800 mm  
in 25 mm increments

## Application notes

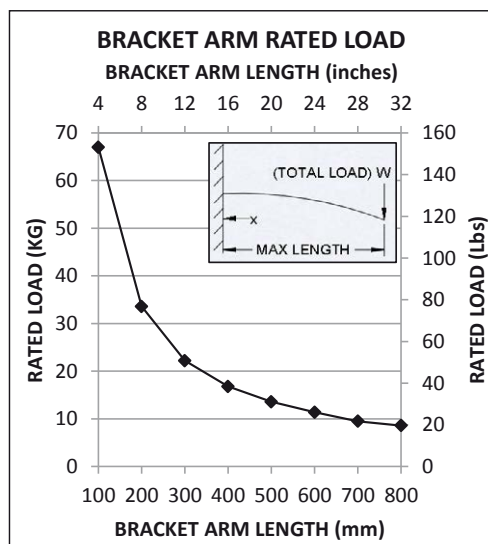
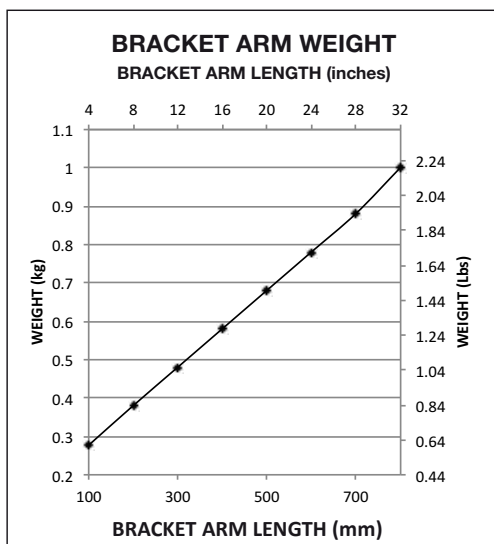
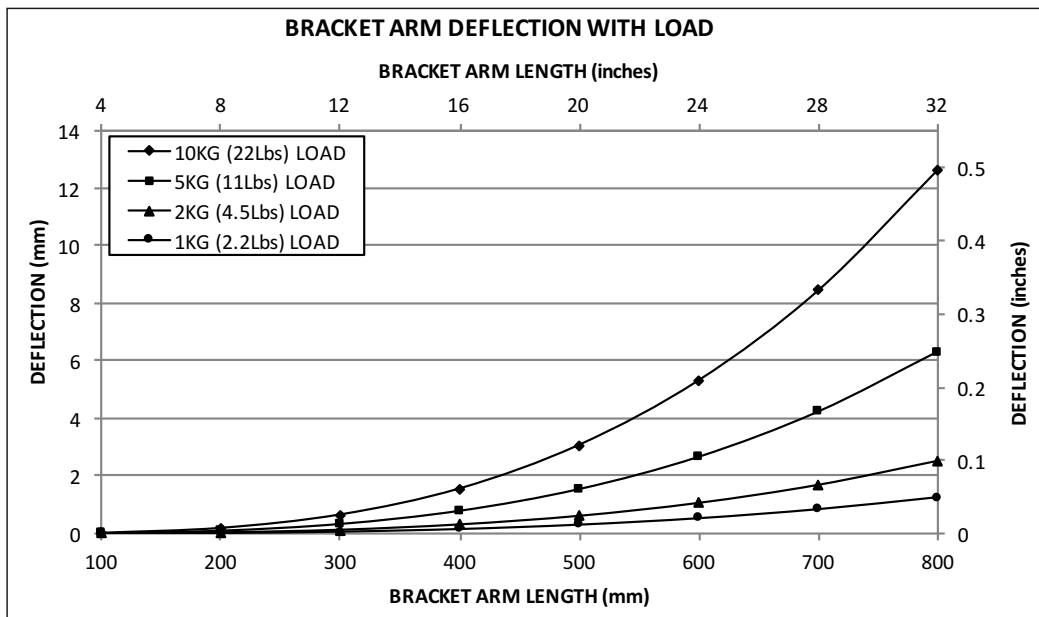
Load limits of 50 lbs-ft (67.5Nm) recommended for 1.00" bracket arms



Dimensions in inches (mm) are for reference only

# FEATHERWEIGHT BRACKET ARMS

LWBS10EXXX



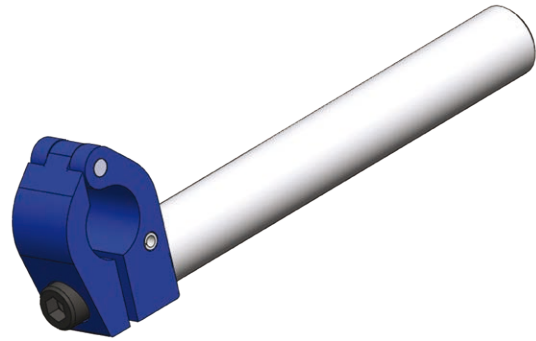
Dimensions in inches (mm) are for reference only

# EA BRACKET ARM

## EA-00712-XXX



- 25 mm clamp to 25 mm aluminum stem
- Made with aircraft aluminum



### ● Order information

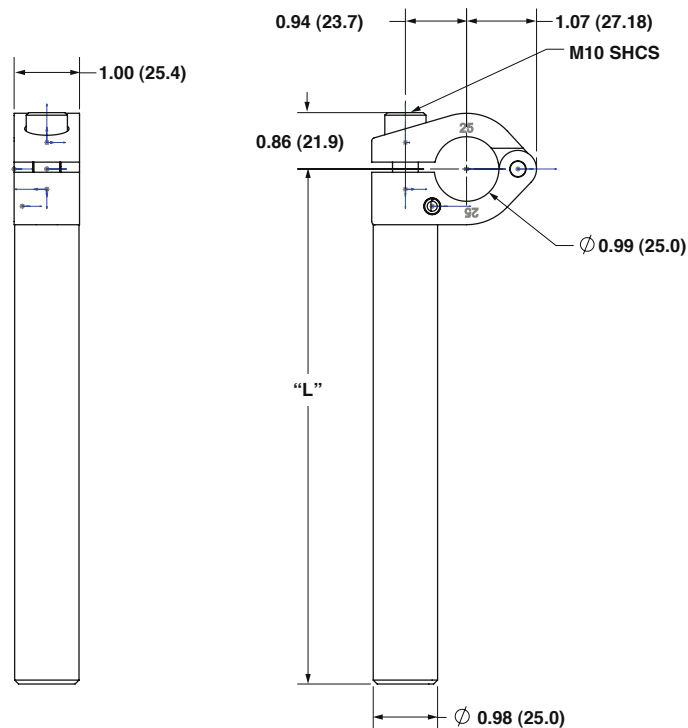
EA-00712- XXX

| Length, mm | Code |
|------------|------|
| 75         | 75   |
| XXX        | XXX  |
| 600        | 600  |

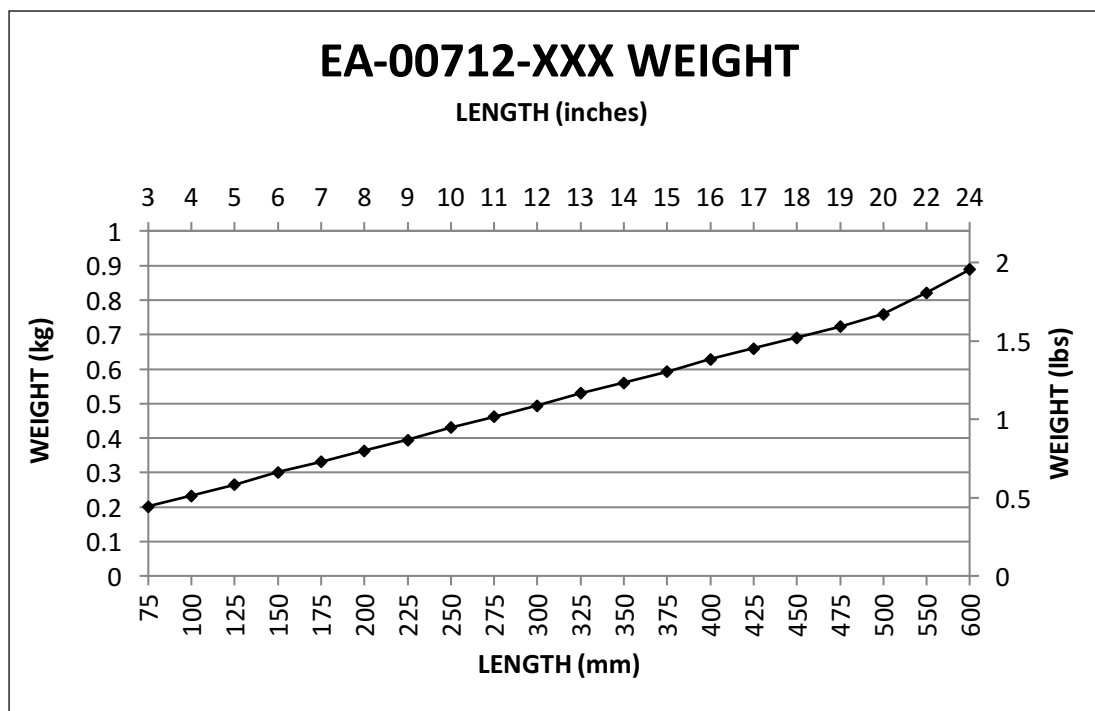
\*Lengths available: 75 mm to 600 mm, in 25 mm increments

### Application notes

Load limits of 50 lbs-ft (67.5 Nm) recommended for 25 mm bracket arms



Dimensions in inches (mm) are for reference only



Dimensions in inches (mm) are for reference only

# ULTRA MOUNT BRACKET – METRIC HARDWARE

XUMB-XX-XXX-X



69

ROUND TOOLING

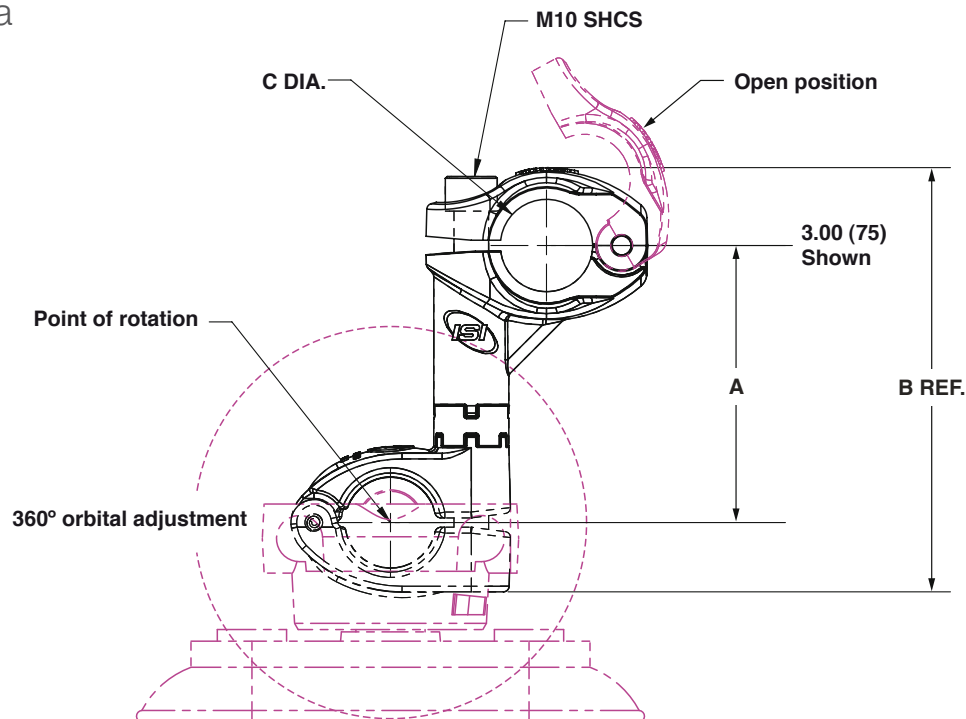
- Clamps to tooling arms and extends out to a ball or core clamp
- Locking rotation adjusts in 30° increments



## ● Order information

| XUMB-XX-XXX-X |      |            |       |
|---------------|------|------------|-------|
| Bore Diameter |      | Length     |       |
| Length        | Code | Length, A  | Code  |
| 1 in          | 1    | 75 mm      | 75    |
| 25 mm         | 25   | 105 mm     | 105   |
|               |      | 125 mm     | 125   |
|               |      | 155 mm     | 155   |
|               |      | 175 mm     | 175   |
|               |      | 205 mm     | 205   |
|               |      | Mount      | Code  |
|               |      | Core Mount | C     |
|               |      | None       | Blank |

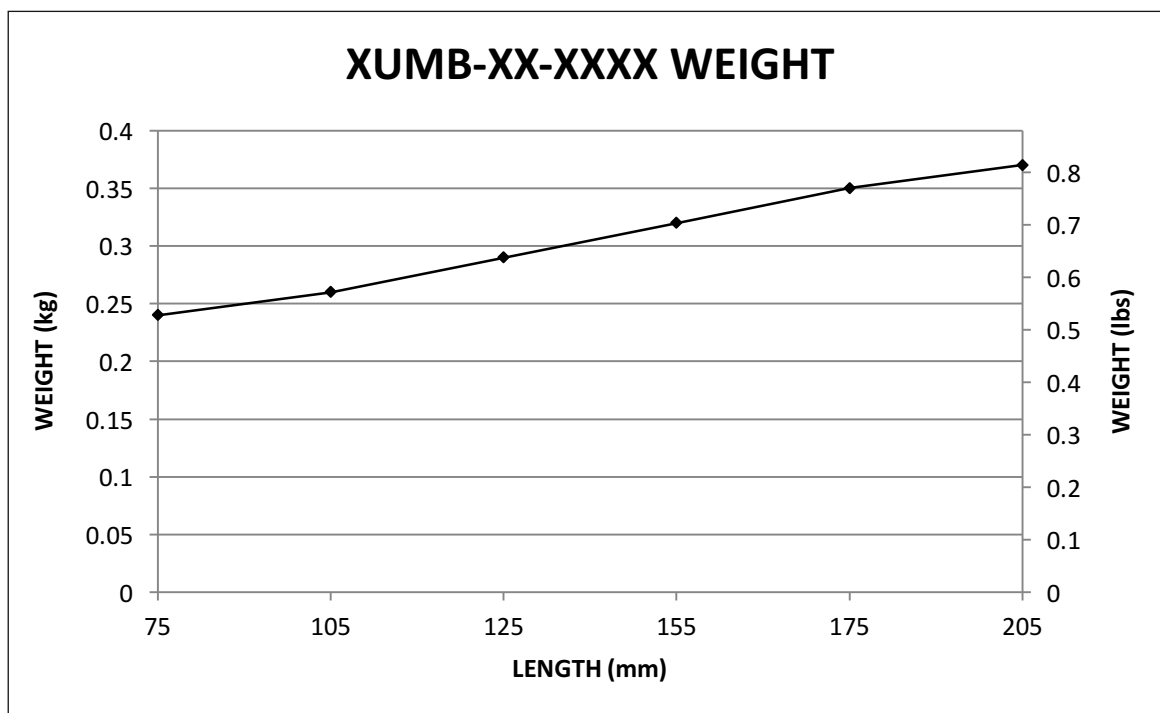
## Technical data



Dimensions in inches (mm) are for reference only

# ULTRA MOUNT BRACKET – METRIC HARDWARE

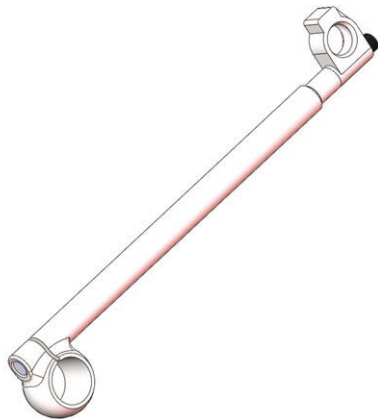
XUMB-XX-XXX-X



Dimensions in inches (mm) are for reference only

# HD ULTRA ARM CLAMP BRACKET

TB1A-XXX-XXX-X

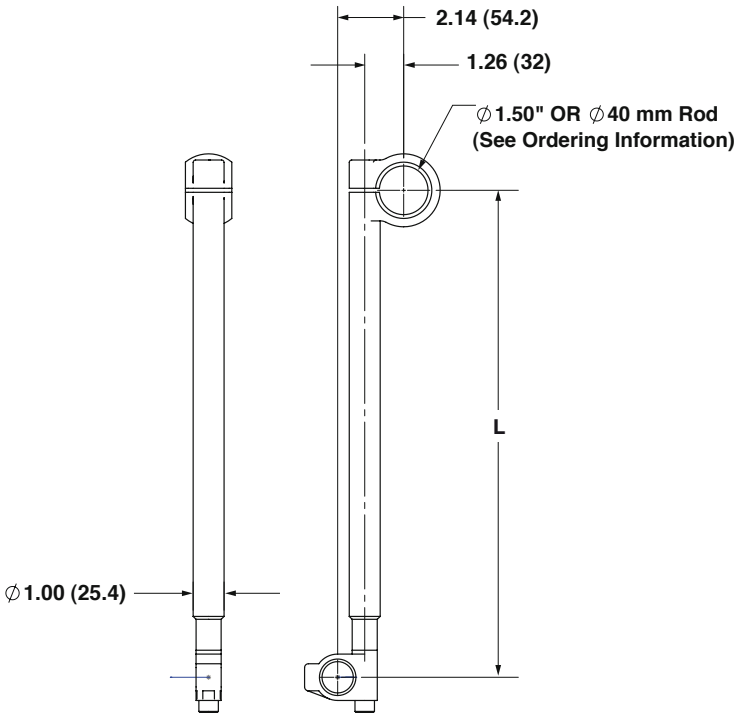


## ● Order information

| TB1A-XXX-XXX-X |  |           |  |            |  |
|----------------|--|-----------|--|------------|--|
| Bore Diameter  |  | Length, A |  | Mount      |  |
| Code           |  | Code      |  | Code       |  |
| 1.50"          |  | 100mm     |  | Core Mount |  |
| 15E            |  | 100       |  | C          |  |
| 40 mm          |  | XXX       |  | None       |  |
| 40M            |  | XXX       |  | Blank      |  |
|                |  | 600mm     |  |            |  |
|                |  | 600       |  |            |  |

\*Lengths available: 300 mm to 1500 mm in 300 mm increments

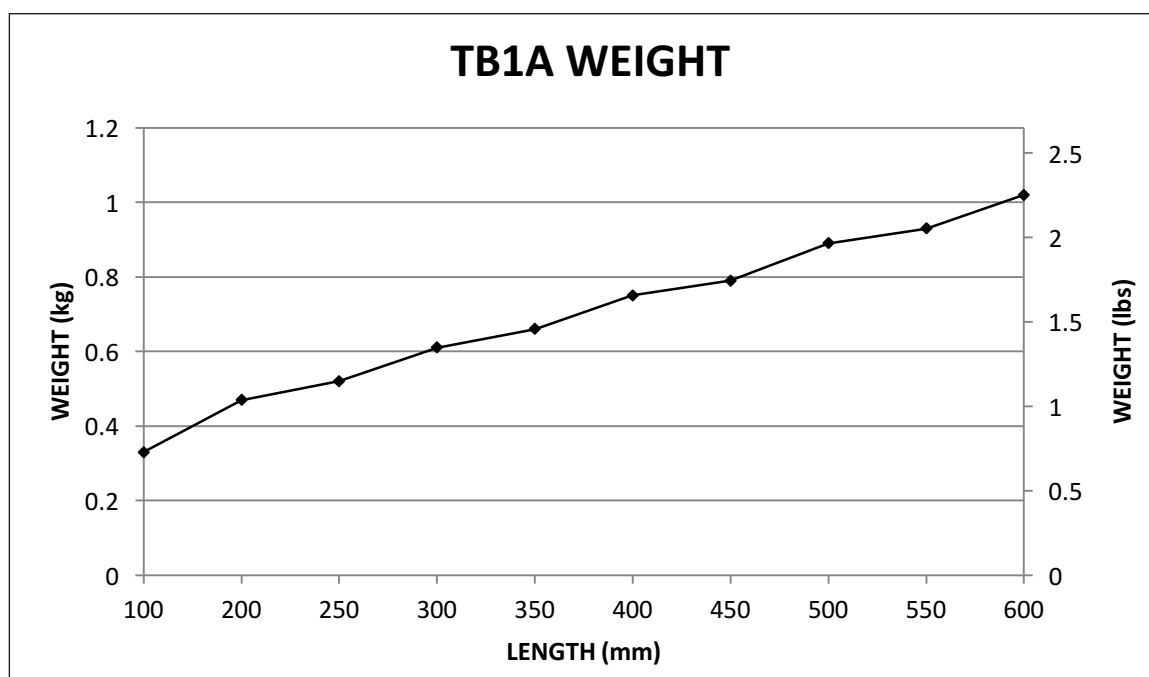
## Technical data



Dimensions in inches (mm) are for reference only

# ULTRA ARM

## TB1A-XXX-XXX-X



Dimensions in inches (mm) are for reference only

# IOT TELESCOPING ULTRA ARM

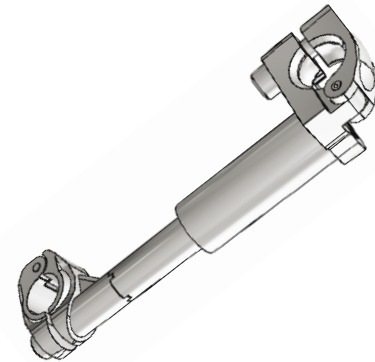
IOTXXXXXX



C

ROUND TOOLING

- Interchangeable with IMI Norgren XUMB Ultra Arm tooling
- Mounts to various cup mounts and venturi
- Easy to adjust and lock in place



## ● Order information

IOTXXXXXXX

Type

Code

Telescoping Ultra Arm

IOT

Tube Diameter

Code

1.00 inch

100

25 mm

025

Description

Code

Metric

M

Min. Lengths

Code

2.5"

2

3"

3

4"

4

6"

6

7"

7

8"

8

9"

9

11"

11

13"

13

15"

15

Code

Clamp Type

B

Ball

Code

Travel

Extended Min. Travel Length

2.5"

3"

4"

6"-9"

11"-15"

0

0.5"

√

-

-

-

-

1

1"

-

√

-

-

-

2

2"

-

-

√

√

-

4

4"

-

-

-

√

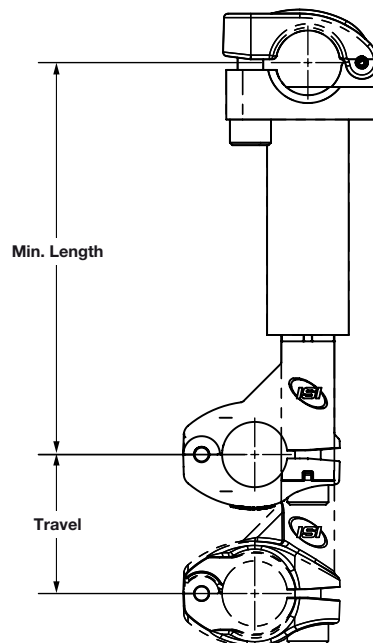
√

√

Avialable configuration

## Technical data

Weight:  
1.56 lbs / 707 g



Dimensions in inches (mm) are for reference only

# FEATHERWEIGHT BALL CLAMP

LWBC10E0025



- Can be used in applications where ball rotation is not required
- Can be used with 1.125" ball or 1.125" ball
- Lighter than IMI Norgren Ultra Arm Series



## ● Order information

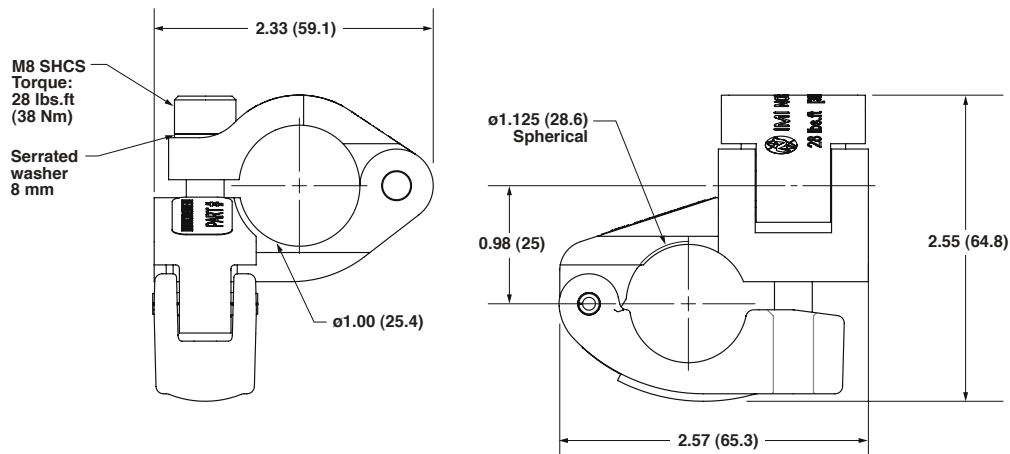
LWBC10E0025



Model Designation

## Application notes

Load limits of 50 lbs-ft (67.5 Nm) recommended for 1.00" ball clamp.  
Weight 0.35 lbs. (0.16 Kg)



Dimensions in inches (mm) are for reference only

# FEATHERWEIGHT TOOLING T-CLAMPS

LWTCXXXXXX



C

ROUND TOOLING

- Lightweight clamp to provide a 90° connection between tubes



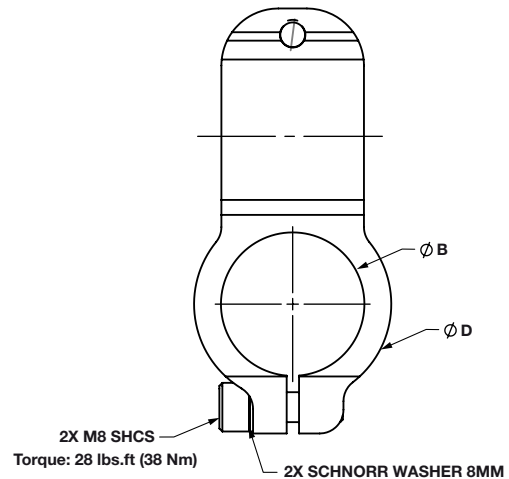
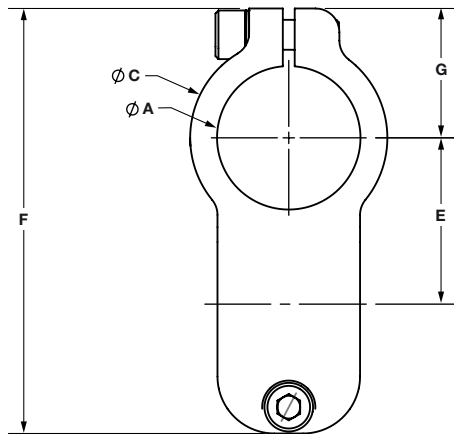
## Order information

LWTCXXXXXX

| Clamp 1 Description | Code | Clamp 2 Description | Code |
|---------------------|------|---------------------|------|
| 1.00"               | 10E  | 1.00"               | 10E  |
| 1.50"               | 15E  | 1.50"               | 15E  |
| 25mm                | 25M  | 25mm                | 25M  |
| 40mm                | 40M  | 40mm                | 40M  |

## Application notes

Load limits of 100 ft-lbs [135 Nm] recommended for 1.50" and 40mm clamps  
Load limits of 50 ft-lbs [67.5 Nm] recommended for 1.00" and 25mm clamps



## Standard parts

| CATALOG # | LWTC10E10E      | LWTC10E15E       | LWTC15E15E       | LWTC25M25M      | LWTC25M40M       | LWTC40M40M       |
|-----------|-----------------|------------------|------------------|-----------------|------------------|------------------|
| "A"       | 1.00 (25.4)     | 1.50 (38.1)      | 1.50 (38.1)      | .984 (25)       | 1.57 (40)        | 1.57 (40)        |
| "B"       | 1.00 (25.4)     | 1.00 (25.4)      | 1.50 (38.1)      | .984 (25)       | .984 (25)        | 1.57 (40)        |
| "C"       | 1.40 (35.6)     | 2.08 (52.8)      | 2.08 (52.8)      | 1.40 (35.6)     | 2.08 (52.8)      | 2.08 (52.8)      |
| "D"       | 1.40 (35.6)     | 1.40 (35.6)      | 2.08 (52.8)      | 1.40 (35.6)     | 1.40 (35.6)      | 2.08 (52.8)      |
| "E"       | 1.16 (29.5)     | 1.50 (38.1)      | 1.75 (44.5)      | 1.16 (29.5)     | 1.50 (38.1)      | 1.75 (44.45)     |
| "F"       | 3.36 (85.3)     | 3.96 (100.6)     | 4.47 (113.5)     | 3.36 (85.3)     | 3.96 (100.6)     | 4.47 (113.5)     |
| "G"       | 1.10 (27.9)     | 1.36 (34.5)      | 1.36 (34.5)      | 1.10 (27.9)     | 1.36 (34.5)      | 1.36 (34.5)      |
| Weight    | 0.19 lbs (86 g) | 0.36 lbs (163 g) | 0.56 lbs (252 g) | 0.19 lbs (86 g) | 0.34 lbs (152 g) | 0.44 lbs (199 g) |

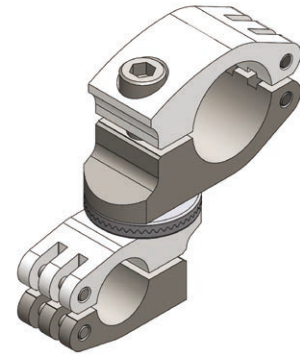
Dimensions in inches (mm) are for reference only

# POZ-E-LOK

## ZA-XXX-XXX



- Toothed clamps provide a locked system which delivers excellent holding strength
- All clamps are interchangeable with adapters that use the gear tooth interface
- Toothed gear provides 7.5° of incremental adjustment



### ● Order information

| Model |  | Code |  |
|-------|--|------|--|
|       |  | ZA   |  |

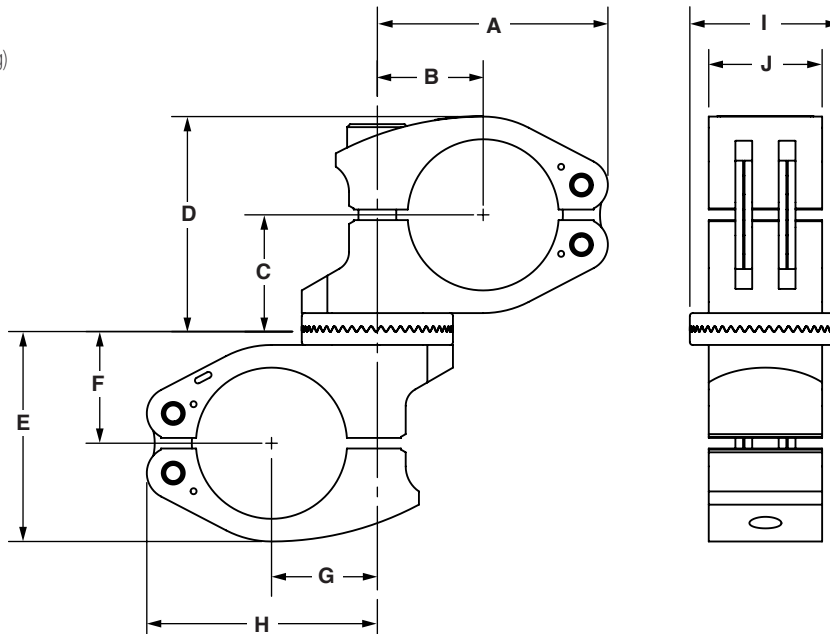
| Clamp 1                 |  | Code |  |
|-------------------------|--|------|--|
| Ø 1.00 in Clamp, Smooth |  | 10   |  |
| Ø 1.50 in Clamp, Smooth |  | 15   |  |
| Ø 25 mm Clamp, Smooth   |  | 25   |  |
| Ø 25 mm Clamp, Toothed  |  | 25N  |  |
| Ø 40 mm Clamp, Smooth   |  | 40   |  |
| Ø 40 mm Clamp, Toothed  |  | 40N  |  |

| Clamp 2                 |  | Code |  |
|-------------------------|--|------|--|
| Ø 1.00in Clamp, Smooth  |  | 10   |  |
| Ø 1.50 in Clamp, Smooth |  | 15   |  |
| Ø 25 mm Clamp, Smooth   |  | 25   |  |
| Ø 25 mm Clamp, Toothed  |  | 25N  |  |
| Ø 40 mm Clamp, Smooth   |  | 40   |  |
| Ø 40 mm Clamp, Toothed  |  | 40N  |  |

### Technical data

Weight:  
0.98 lbs (445 g)



| ZA-40N-40N |             |
|------------|-------------|
| A          | 2.40 (61)   |
| B          | 1.10 (28)   |
| C          | 1.21 (30.8) |
| D          | 2.24 (56.8) |
| E          | 2.24 (55.6) |
| F          | 1.16 (29.6) |
| G          | 1.10 (28)   |
| H          | 2.40 (61)   |
| I          | 1.57 (40)   |
| J          | 1.18 (30)   |

Dimensions in inches (mm) are for reference only

# SINGLE MOUNT, 2.5" BOOM TO 1.0" RODS

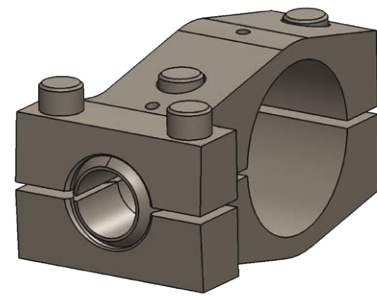
TM2A



C

ROUND TOOLING

- Single 90° tube clamp
- Made with aircraft aluminum



## ● Order information

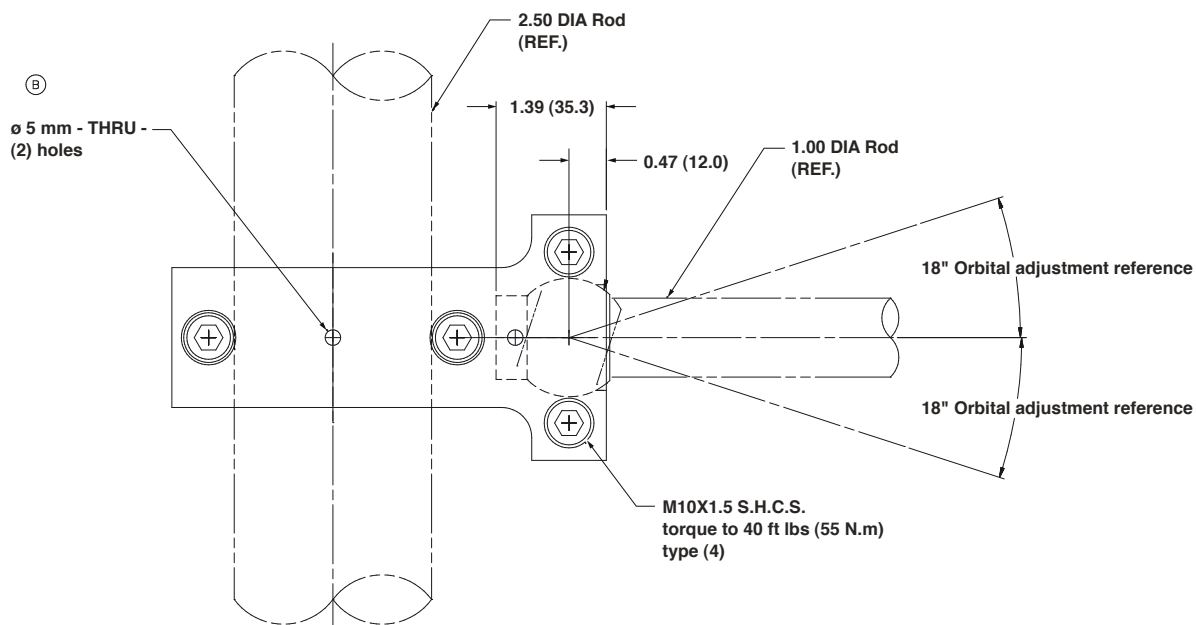
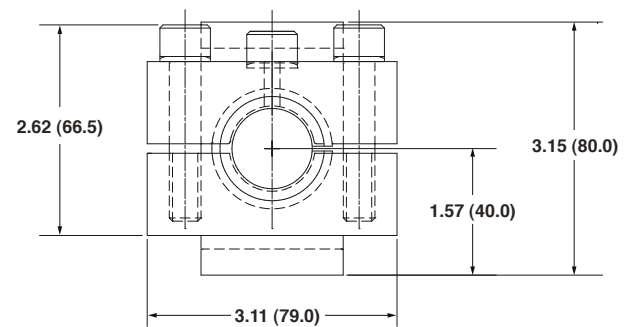
TM2A



Model Designation

## Technical data

**Weight:**  
1.77 lbs (0.80 kg)  
**Material:**  
Aluminum



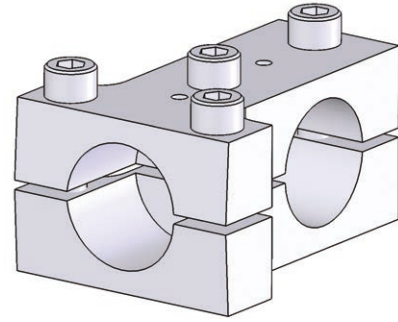
Dimensions in inches (mm) are for reference only

# SINGLE MOUNT, 40 MM BOOM TO 40 MM ROD

TM4B



- Single 90° tube clamp
- Made with aircraft aluminum



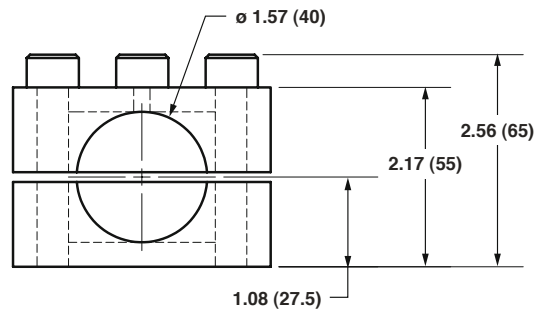
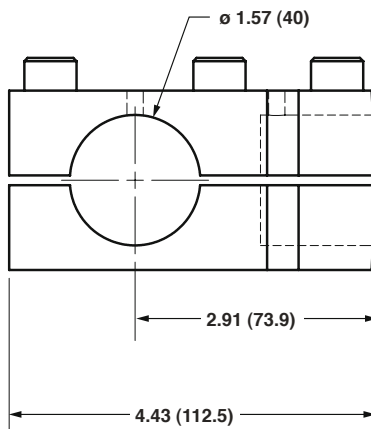
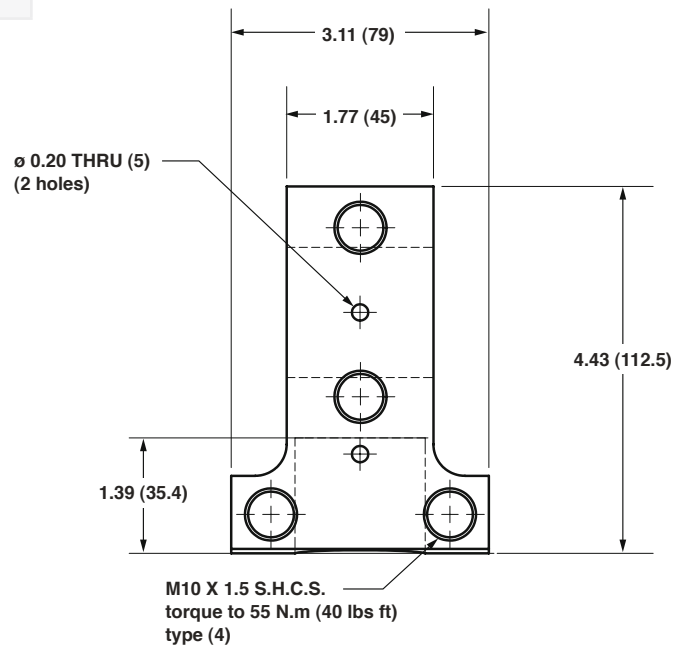
## Order information

TM4B

Model Designation

## Technical data

Weight:  
1.64 lbs. (0.74 kg)  
Material:  
Aluminum



Dimensions in inches (mm) are for reference only

## TMXX

## ROUND TOOLING

- ## ● Order information

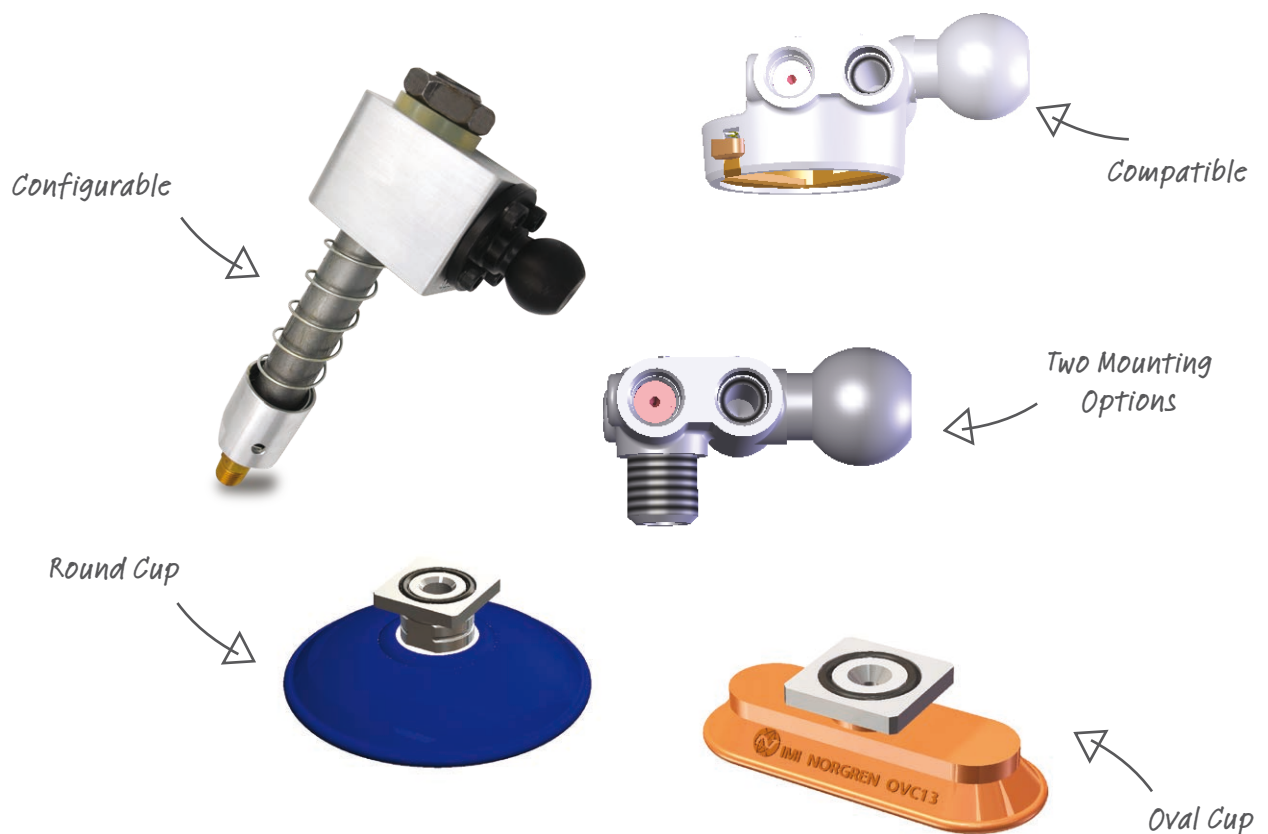


## Technical data

Dimensions in inches (mm) are for reference only

# VACUUM AND ACCESSORIES

- > Spring Mounts
- > Venturis
- > Vacuum Cups

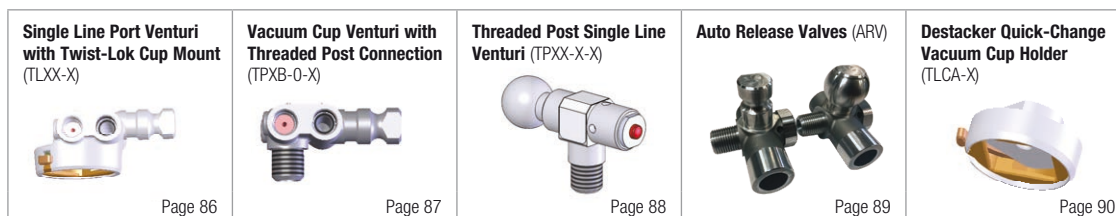


# Fast Find Guide

## ● SPRING MOUNT



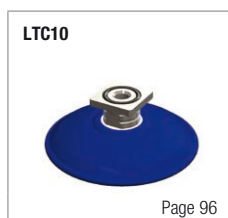
## ● VENTURI AND CUP MOUNTS



## ● BELLOWS VACUUM CUP

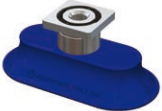


## ● ROUND VACUUM CUP



# Fast Find Guide

## ● OVAL CUPS

|                                                                                                              |                                                                                                              |                                                                                                              |                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>OVC15</b><br><br>Page 97 | <b>OVC13</b><br><br>Page 98 | <b>OVC16</b><br><br>Page 99 | <b>LTC31-XXX-XXX</b><br><br>Page 100 |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|

## ● OVAL BELLOW VACUUM CUPS

|                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------|
| <b>LTC37-XXX-XXX</b><br><br>Page 101 |
|-----------------------------------------------------------------------------------------------------------------------|

# SPRING MOUNT

SMX



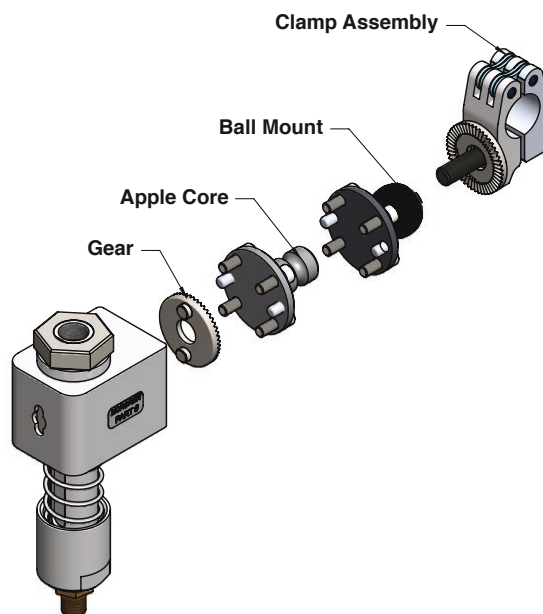
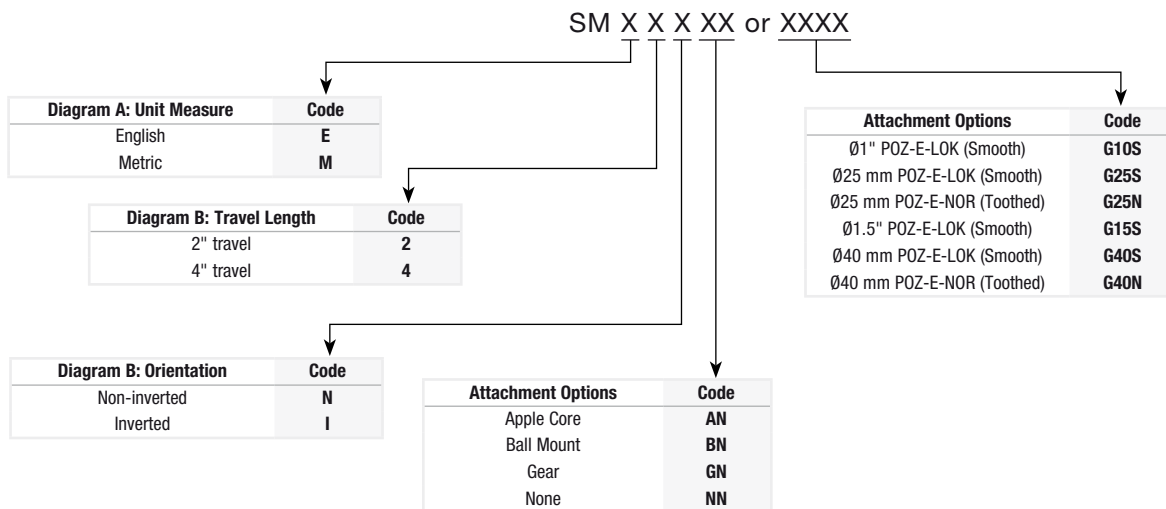
7

VACUUM AND ACCESSORIES

- Act as an interface connecting a cup to a venturi/ vacuum source
- Used primarily in destacking applications
- Allows for different height stacks to be used with the same system
- Connects to a vacuum pump, air source, or venturi on one end and either a suction cup or a line to a venturi cup combo on the other end
- Various options available to give maximum versatility to fit a wide variety of tooling situations



## ● Order information



Dimensions in inches (mm) are for reference only

## SPRING MOUNT SMX



### ● Diagram A: Unit Measure

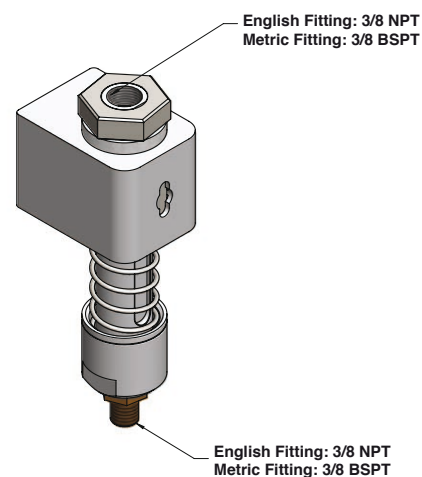
- All threads are offered in English (NPT) or Metric (BSPT) units to ensure compatibility with any system
- 3/8 male pipe fitting located on the bottom of the shaft optimal for suction cup attachment
- 3/8 female pipe thread located at the top of the shaft allowing for a IMI Norgren venturi or other vacuum source attachment

**Note:** Unit Measure option affects the shaft's ID thread on Top and the OD thread at the bottom.

### ● Order information

SM X XXXX

| Unit Measure | Code |
|--------------|------|
| English      | E    |
| Metric       | M    |



### ● Diagram B: Travel Length and Orientation

- Travel provides compensation for the height change in the sheet metal stack
- A non-inverted or inverted orientation of the spring mount provides flexibility to align the cup to be mounted on the same plane as the sheet metal

### ● Order information

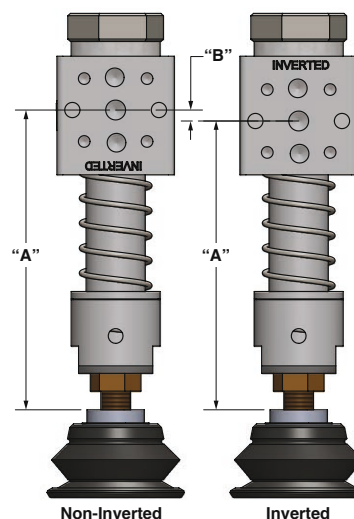
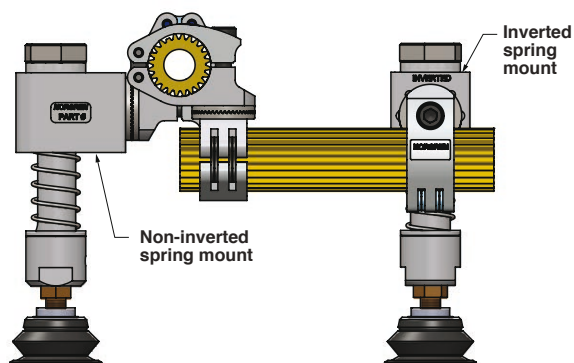
SMX X X XX

| Travel Length | Code | Orientation  | Code |
|---------------|------|--------------|------|
| 2" travel     | 2    | Non-Inverted | N    |
| 4" travel     | 4    | Inverted     | I    |

## Technical data

### Weight:

1.57 lbs (712 g) - 2.26 lbs (1027 g)



### ● Dimensions

| Stroke Options           | "A" in (mm)   | "B" in (mm) |
|--------------------------|---------------|-------------|
| 2" travel (non-inverted) | 5.05 (128.40) | 0.185 (4.7) |
| 2" travel (inverted)     | 4.87 (123.70) | 0.185 (4.7) |
| 4" travel (non-inverted) | 7.01 (178.07) | 0.185 (4.7) |
| 4" travel (inverted)     | 6.82 (173.37) | 0.185 (4.7) |

Dimensions in inches (mm) are for reference only

## ● Diagram C: Attachment Options

- Various mounting options available to allow the spring mount to be attached to any tooling system

## ● Order information

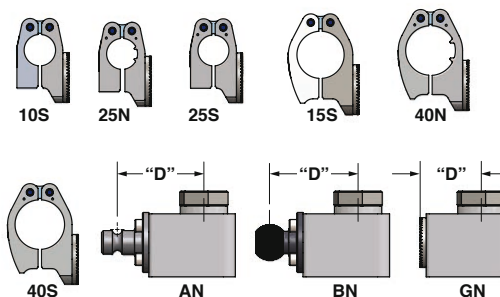
SMXXX XX or XXXX

| Attachment Options | Code |
|--------------------|------|
| Apple Core         | AN   |
| Ball Mount         | BN   |
| Gear               | GN   |
| None               | NN   |

| Attachment Options         | Code |
|----------------------------|------|
| Ø1" POZ-E-LOK (Smooth)     | G10S |
| Ø25 mm POZ-E-LOK (Smooth)  | G25S |
| Ø25 mm POZ-E-NOR (Toothed) | G25N |
| Ø1.5" POZ-E-LOK (Smooth)   | G15S |
| Ø40 mm POZ-E-LOK (Smooth)  | G40S |
| Ø40 mm POZ-E-NOR (Toothed) | G40N |

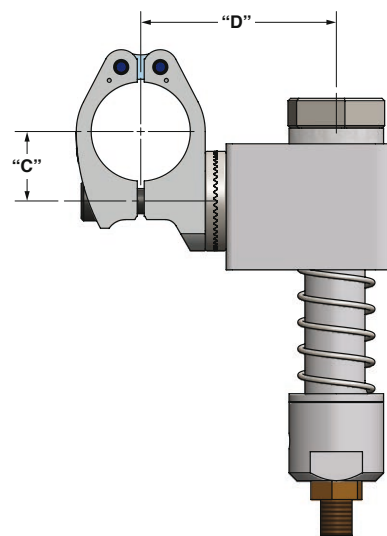
## Technical data

Weight:  
1.57 lbs (712 g) - 2.26 lbs (1027 g)



## ● Dimensions

| Clamp Assembly | "C"         | "D"           |
|----------------|-------------|---------------|
| 10S            | 0.8661 (22) | 2.81 (71.38)  |
| 15S            | 1.1024 (28) | 3.105 (78.88) |
| 25S            | 0.8661 (22) | 2.81 (71.38)  |
| 25N            | 0.8661 (22) | 2.81 (71.38)  |
| 40S            | 1.1024 (28) | 3.105 (78.88) |
| 40N            | 1.1024 (28) | 3.105 (78.88) |
| AN             | 0 (0)       | 2.75 (69.85)  |
| BN             | 0 (0)       | 2.80 (71.12)  |
| GN             | 0 (0)       | 1.94 (49.33)  |
| NN             | 0 (0)       | 1.75 (44.45)  |



Dimensions in inches (mm) are for reference only

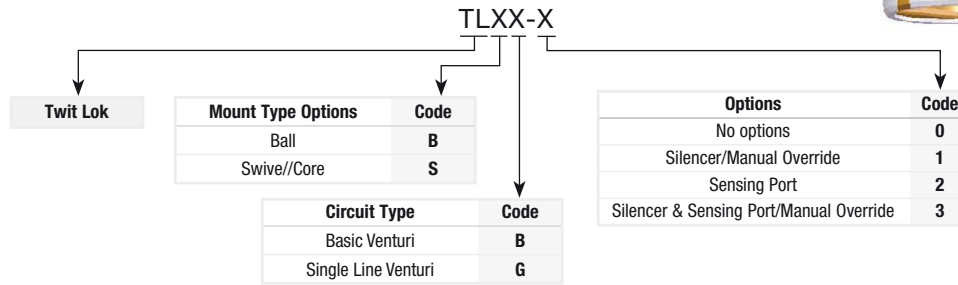
# SINGLE LINE PORT VENTURI WITH TWIST-LOK CUP MOUNT

TLXX-X

- Compatible with cups that have the IMI Norgren (formerly "ISI") Vac-Lok adapter
- Ball is compatible with most tooling mounting arms
- Optional sensing eliminates the need for a part present switch



## Order information



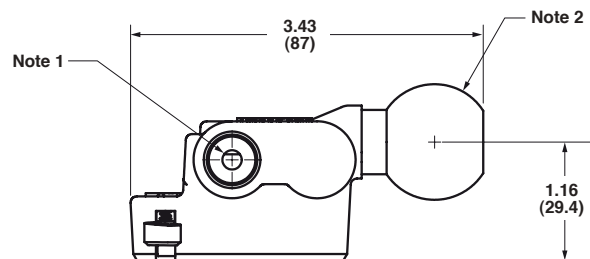
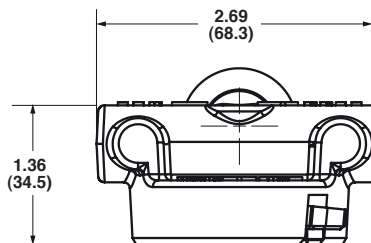
## Technical data

Material:

Brass, Aluminum, Nitrile, Steel

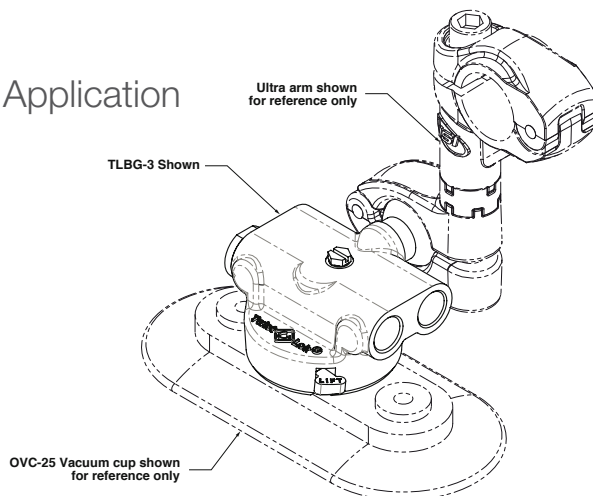
Weight:

0.50 lbs (0.20 g)



Note 1: Vacuum port compatible with 1/4 NPT, ISO G, ISO R, BSSP, BSPT (thread sealant is recommended for all tapered fittings)

## Application

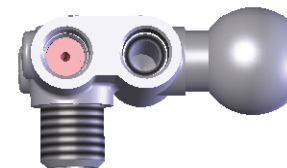
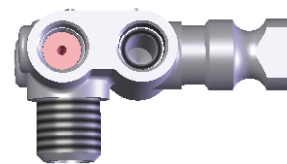


Dimensions in inches (mm) are for reference only

# VACUUM CUP VENTURI WITH THREADED POST CONNECTION

TPXB-0-X

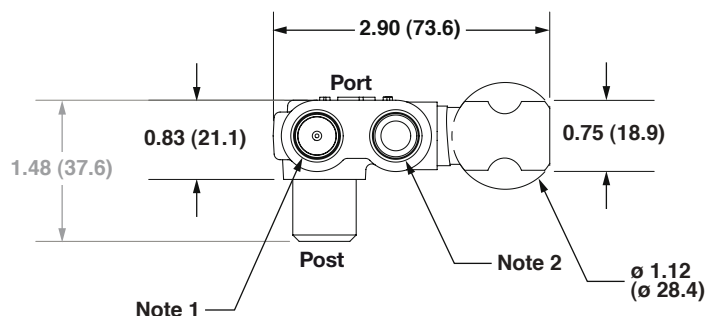
- Venturi cup mount for use with vacuum cups that have 3/8"-18 NPT or 3/8"-19 BSP female threaded mounting connections.
- 3/4" diameter shaft (tooling mount option "S") or 1-1/8" diameter ball (tooling mount option "B") are compatible with most brands of tooling mounting arms.



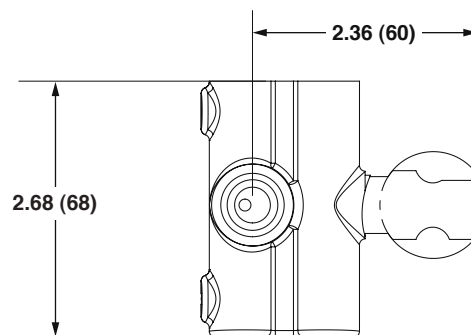
## Order information

| TPXB-0-X             |      |                    |      |
|----------------------|------|--------------------|------|
| Tooling Mount        | Code | Post Thread Option | Code |
| 3/4" diameter shaft  | S    | 3/8 NPT            | 1    |
| 1-1/8" diameter ball | B    | 3/8 BSPT/ISO R     | 2    |

## Technical data



## Application



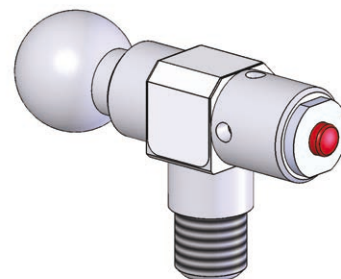
Dimensions in inches (mm) are for reference only

# THREADED POST SINGLE LINE VENTURI

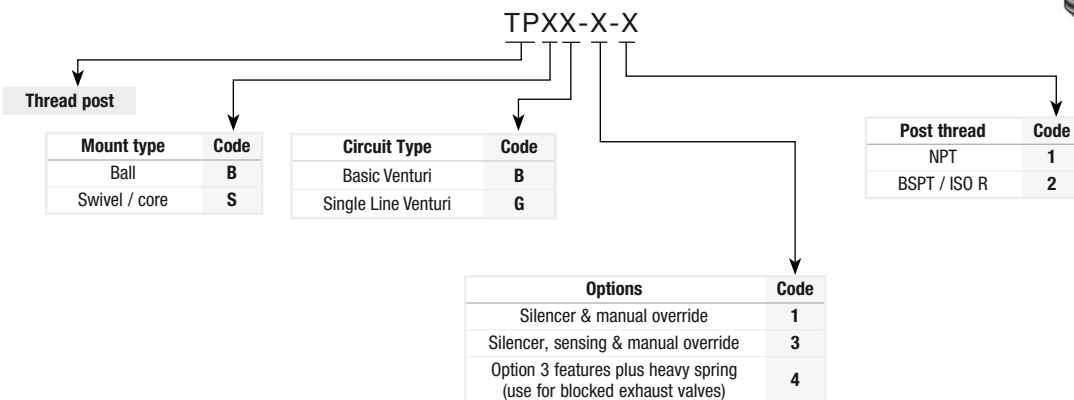
TPXX-X-X



- Optional manual override button available for instant vacuum release

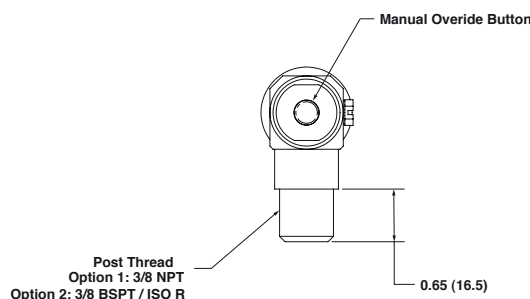
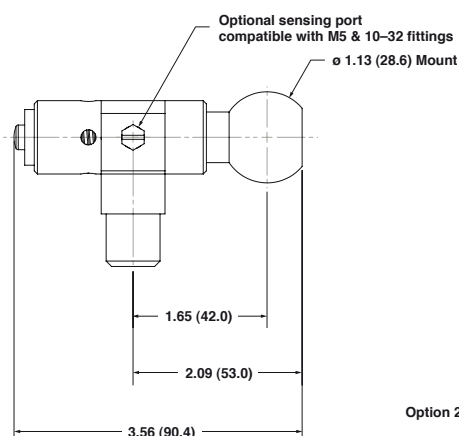


## Order information

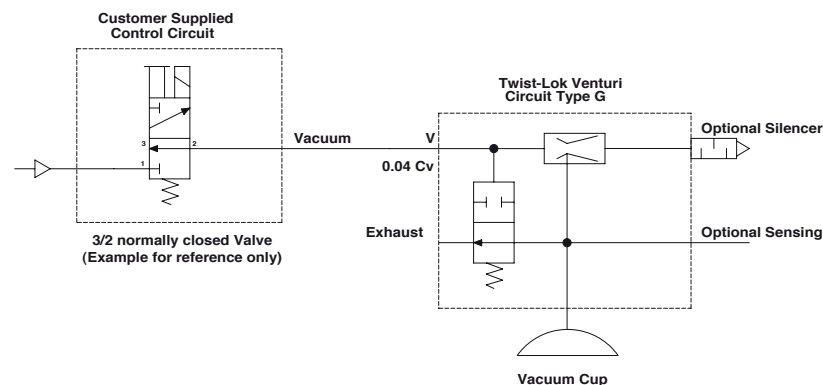


## Technical data

**Material:**  
Aluminum/Viton  
**Weight:**  
0.17 lbs (0.075 kg)



## Application



Dimensions in inches (mm) are for reference only

# AUTO RELEASE VENTURI

ARVX-XXXX-XXX



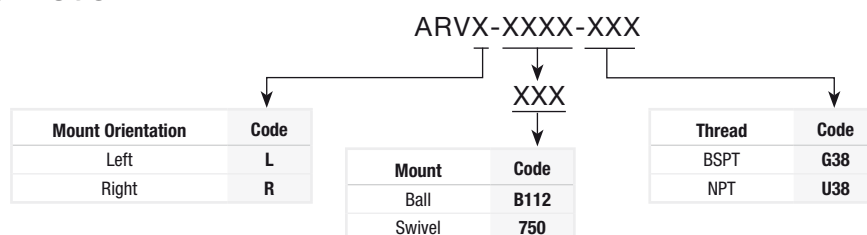
7

VACUUM AND ACCESORIES

- ARVs connect the cups to the tooling while creating vacuum for panel transfer
- Only one airline is required for vacuum generation
- Blow off is automatic when air pressure is released
- For faster tooling set-up and adjustment, a manual override push button releases vacuum
- Ball and swivel mount options allow mounting the ARV to Ultra Arms (XUMB and IOT) or other clamps



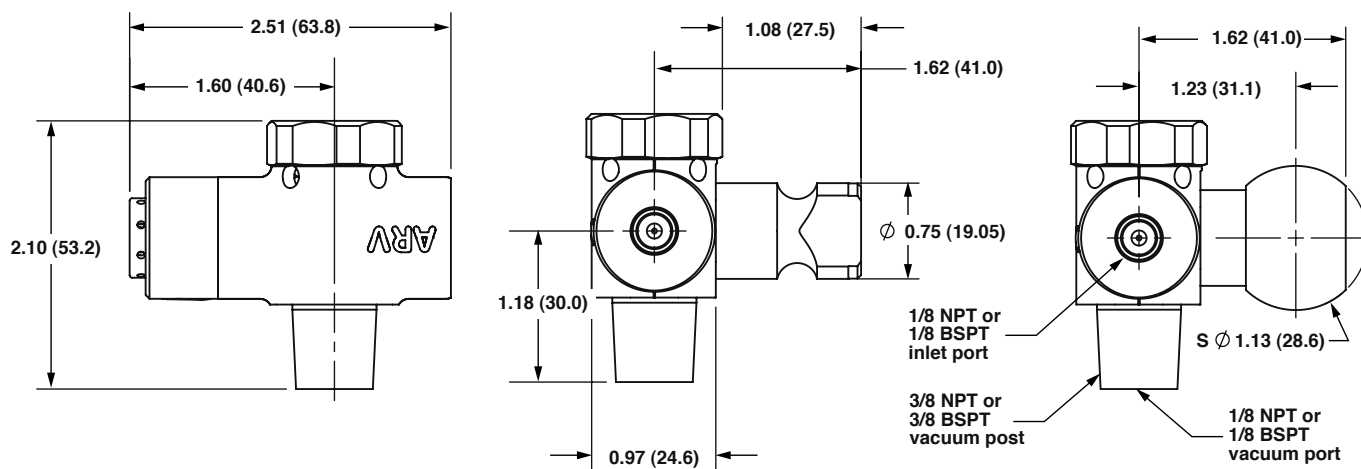
## Order information



## Technical data

### Weight:

0.28 lbs. (129 g)



Dimensions in inches (mm) are for reference only

# DESTACKER QUICK-CHANGE VACUUM CUP HOLDER

TLCA-X



- Quick change mount for vacuum cups with IMI Norgren (formerly "Syron") Vac-Lok adapter
- Female thread connects directly to pogo-stick lifters in destacker
- Insert and rotate vacuum cup 1/4 turn to lock in place
- Combine: Easy 1/4 turn vacuum cup inserting and releasing



## Order information

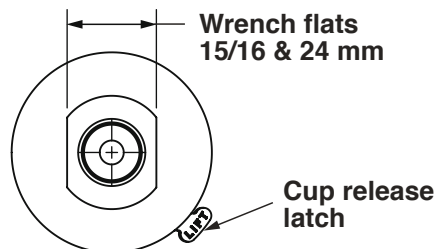
TLCA-X

| Code | Mounting options      |
|------|-----------------------|
| 1    | Female 3/8 NPT        |
| 2    | Female 3/8 BSPT/ISO R |
| 3    | Male 1/4 NPT          |

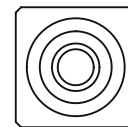
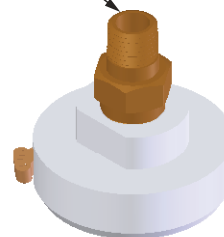
## Technical data

Weight:

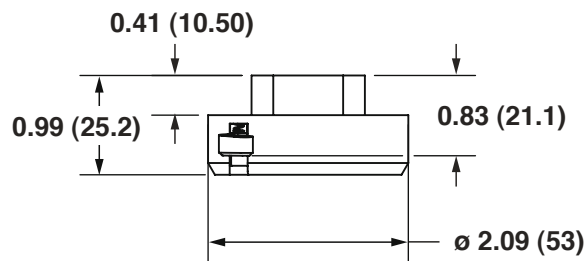
0.2 lbs (0.1 g)



Male 1/4 NPT  
TLCA-3 option



Syron/ISI Vac-Loc square  
Cup mount adapter. Order vacuum cup with  
mounting adapter option "B".



Dimensions in inches (mm) are for reference only

# BELLOWS VACUUM CUP (1.3" DIAMETER)

CVC10



7

VACUUM AND ACCESORIES

91



## Order information

XCVC10-X

| Thread Type | Code        |
|-------------|-------------|
| Metric      | X           |
| English     | Leave Blank |

| Mount Type           | Code        |
|----------------------|-------------|
| Vac-Lok Adapter      | Leave Blank |
| 10M Thread Insert    | T           |
| 3/8 BSPP Thread Stud | PN          |

## Technical data

### Cup material:

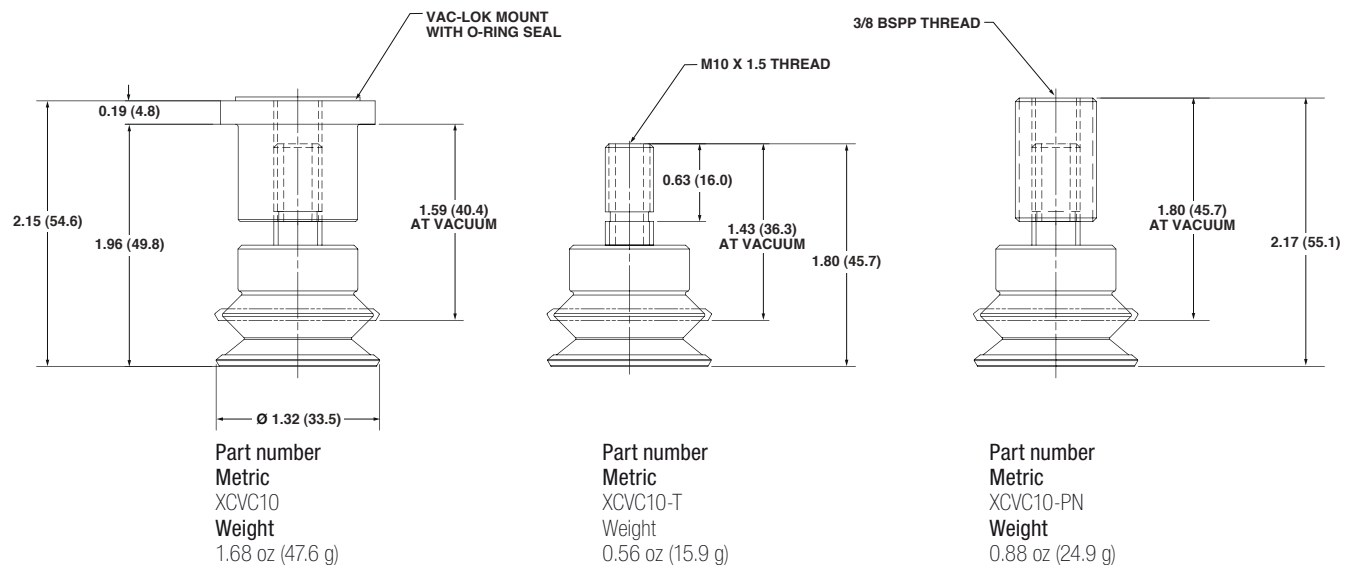
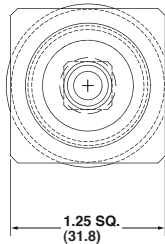
Urethane, Durometer 45 Shore A

### Insert material:

Brass/Aluminum

### Threaded stud material:

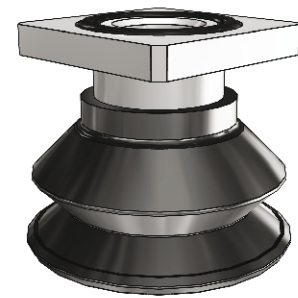
Steel



Dimensions in inches (mm) are for reference only

# BELLOWS VACUUM CUP (1.7" DIAMETER)

CVC15



## ● Order information

XCVC15 -X

| Thread Type | Code        |
|-------------|-------------|
| Metric      | X           |
| English     | Leave Blank |

| Mount Type                | Code        |
|---------------------------|-------------|
| Vac-Lok Adapter           | Leave Blank |
| 1/4 BSPP Port Metric Only | P           |

## Technical data

### Cup material:

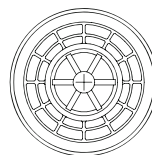
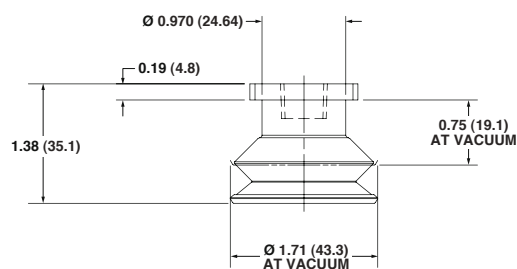
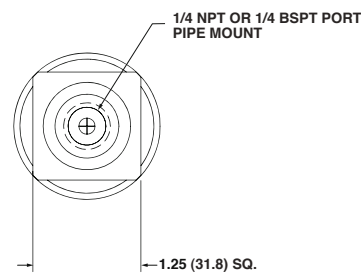
Urethane, Durometer 45 Shore A

### Insert material:

Brass/Aluminum

### Weight:

1.12 oz (31.8 g)



Dimensions in inches (mm) are for reference only

# BELLOWS VACUUM CUP (2" DIAMETER)

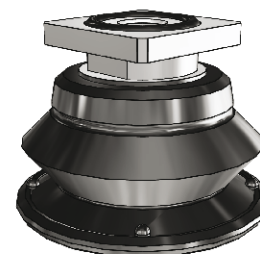
CVC2



7

VACUUM AND ACCESSORIES

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## Order information

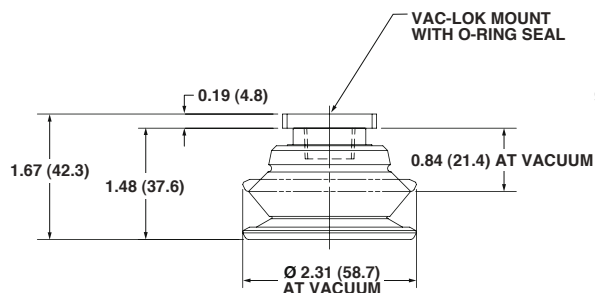
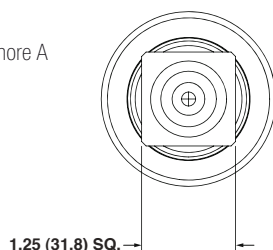
XCVC2-X

| Thread Type | Code        |
|-------------|-------------|
| Metric      | X           |
| English     | Leave Blank |

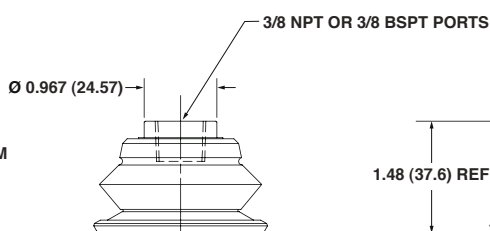
| Mount Type                                                           | Code        |
|----------------------------------------------------------------------|-------------|
| Vac-Lok Adapter                                                      | Leave Blank |
| Pipe Mount (3/8 BSPP Port METRIC ONLY)                               | P           |
| Pipe Mount (3/8 NPT Port ENGLISH ONLY,<br>3/8 BSPT Port METRIC ONLY) | T           |

## Technical data

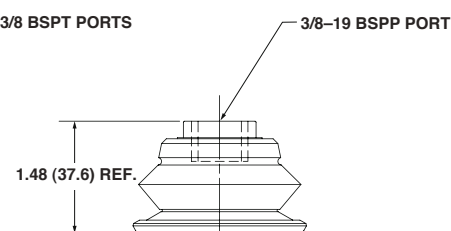
Cup material:  
Urethane,  
Durometer 45 Shore A



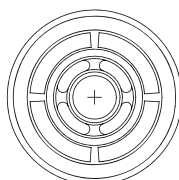
**Part number**  
**English** CVC2  
**Metric** XCVC2  
**Weight**  
3.14 oz (89.0 g)



**Part number**  
**English** CVC2-T  
**Metric** XCVC2-T  
**Weight**  
2.26 oz (64.1 g)



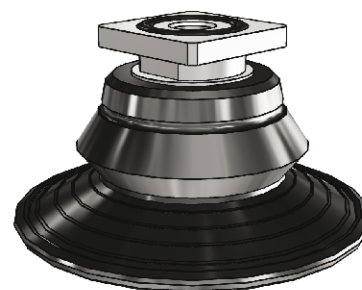
**Part number**  
**Metric** XCVC2-1  
**Weight**  
2.26 oz (64.1 g)



Dimensions in inches (mm) are for reference only

# BELLOWS VACUUM CUP (3" DIAMETER)

CVC3



## Order information

XCVC3-X

| Thread Type | Code        |
|-------------|-------------|
| Metric      | X           |
| English     | Leave Blank |

| Mount Type                                                        | Code        |
|-------------------------------------------------------------------|-------------|
| Vac-Lok Adapter                                                   | Leave Blank |
| Pipe Mount (3/8 BSPP Port METRIC ONLY)                            | P           |
| Pipe Mount (3/8 NPT Port ENGLISH ONLY, 3/8 BSPT Port METRIC ONLY) | T           |

## Technical data

### Cup material:

Urethane, Durometer 35 Shore A

### Insert material:

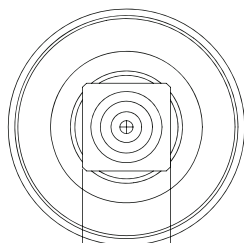
Brass/Aluminum

### Threaded stud material:

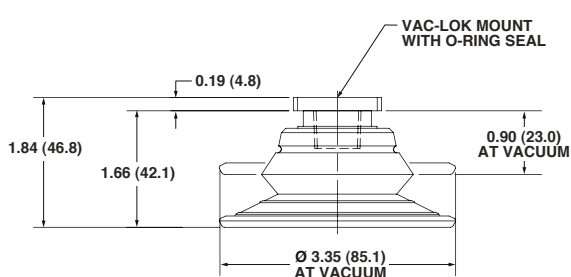
Steel

### Vac-Lok material:

Aluminum



1.25 (31.8) SQ.

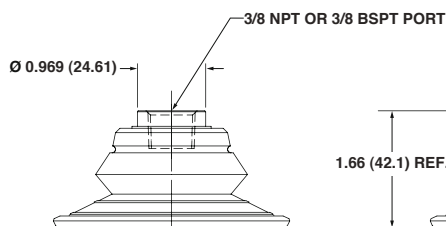


### Part number

**English** CVC3  
**Metric** XCVC3

### Weight

3.78 oz (107.2 g)

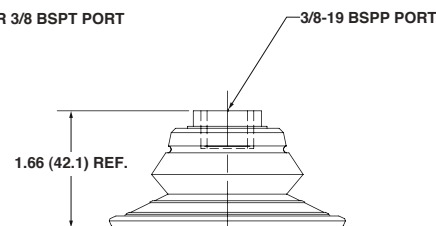


### Part number

**English** CVC3-T  
**Metric** XCVC3-T

### Weight

3.22 oz (91.3 g)

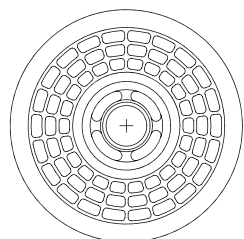


### Part number

**Metric** XCVC3-P

### Weight

3.22 oz (91.3 g)

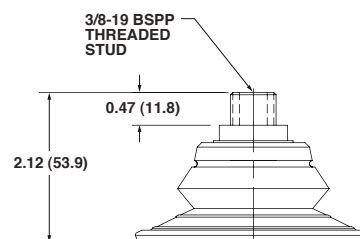


### Part number

**Metric** XCVC3-PN

### Weight

3.54 oz (100.3 g)



Dimensions in inches (mm) are for reference only

# BELLOWS VACUUM CUP (4" DIAMETER)

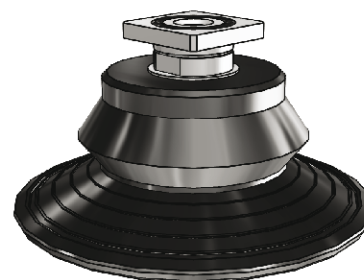
CVC4



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## ● Order information

XCVC4-X

| Thread Type | Code        |
|-------------|-------------|
| Metric      | X           |
| English     | Leave Blank |

| Mount Type                                                        | Code        |
|-------------------------------------------------------------------|-------------|
| Vac-Lok Adapter                                                   | Leave Blank |
| Pipe Mount (3/8 BSPP Port METRIC ONLY)                            | P           |
| Pipe Mount (3/8 NPT Port ENGLISH ONLY, 3/8 BSPT Port METRIC ONLY) | T           |

## Technical data

### Cup material:

Urethane, Durometer 45 Shore A

### Insert material:

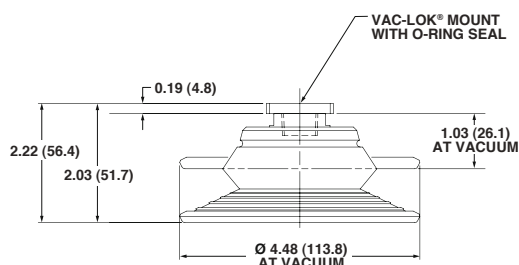
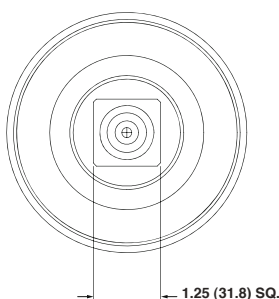
Brass/Aluminum

Threaded stud material:

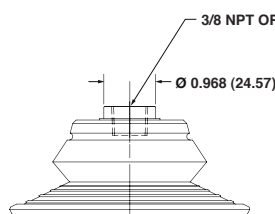
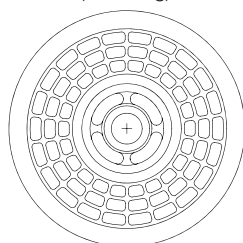
Steel

### Vac-Lok material:

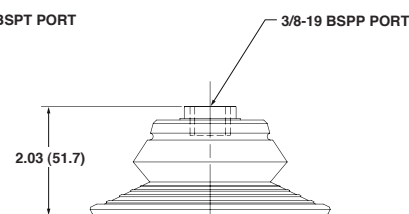
Aluminum



**Part number**  
**English** CVC4  
**Metric** XCVC4  
**Weight**  
 6.64 oz (188.21 g)

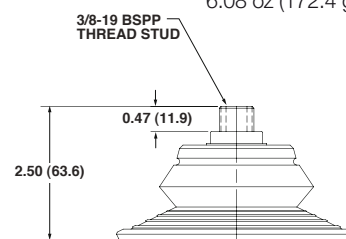


**Part number**  
**English** CVC4-T  
**Metric** XCVC4-T  
**Weight**  
 6.08 oz (172.4 g)



**Part number**  
**Metric** XCVC4-P  
**Weight**  
 6.08 oz (172.4 g)

**Part number**  
**Metric** XCVC4-35PN  
**Weight**  
 6.49 oz (184 g)



Dimensions in inches (mm) are for reference only

# FLAT ROUND VACUUM CUP

LTC10



Used on flat surfaces

Nitrile rubber has superior abrasion and chemical erosion characteristics

Triangle pad design provides higher shear force, grip strength and prevents dimpling of material

Aluminum core design improves part stability

No silicone content



## Order information

| Part number | Weight   |
|-------------|----------|
| LTC10-050   | 45 grams |
| LTC10-075   | 76 grams |
| LTC10-100   | 99 grams |

\*Ratings are based on 24 in-Hg and oily surface

LTC10-XXX-X

| Size (mm) | Code |
|-----------|------|
| 050 mm    | 050  |
| 075 mm    | 075  |
| 100 mm    | 100  |

| Mount Interface | Code |
|-----------------|------|
| 3/8 NPT         | None |
| Square Mount    | B    |

## Technical data

Material:

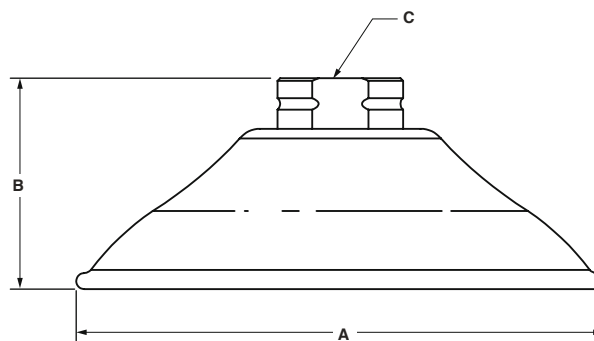
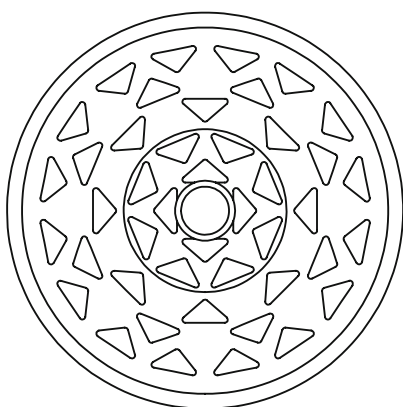
Nitrile Rubber

Color:

Blue

Hardness:

60° Shore ±5°



| Part number | A         | B           | C       | Compression Stroke | Lift Force   | Shear Force  |
|-------------|-----------|-------------|---------|--------------------|--------------|--------------|
| LTC10-050   | 2.0 (50)  | 1.28 (32.5) | 3/8 NPT | 0.20 (5.0)         | 94 N 21 lbs  | 53 N 12 lbs  |
| LTC10-075   | 3.0 (75)  | 1.44 (36.5) | 3/8 NPT | 0.30 (7.6)         | 249 N 56 lbs | 89 N 20 lbs  |
| LTC10-100   | 4.0 (100) | 1.64 (41.7) | 3/8 NPT | 0.51 (13.0)        | 405 N 91 lbs | 169 N 38 lbs |

Dimensions in inches (mm) are for reference only

# OVAL VACUUM CUP

OVCS15

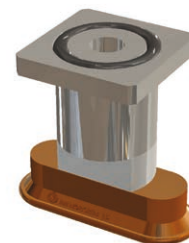


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## ● Order information



XOVCS-15X

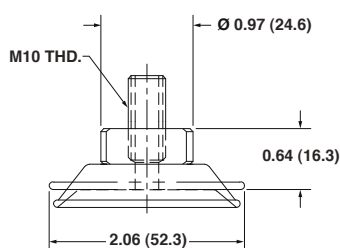
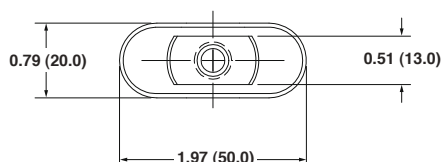
| Thread Type | Code        |
|-------------|-------------|
| Metric      | X           |
| English     | Leave Blank |

| Omit this designator to order cup with Vac-Lok mount | Code |
|------------------------------------------------------|------|
| M10 Thread Insert                                    | T    |
| 3/8 BSPP Thread Stud                                 | PN   |

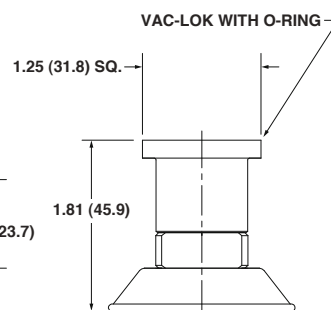
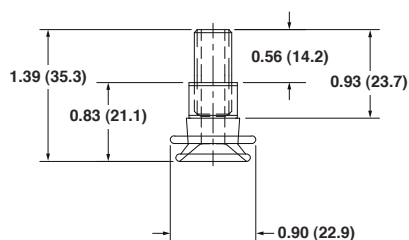
## Technical data

**Cup material:**  
Urethane, Durometer 35 Shore A  
**Insert material:**  
Brass/Aluminum

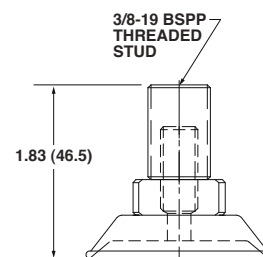
**Threaded stud material:**  
Steel  
**Vac-Lok material:**  
Aluminum



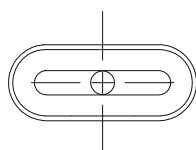
Part number  
XOVCS-15T  
Weight  
1.68 oz (0.048 g)



Part number  
XOVCS-15  
Weight  
1.68 oz (0.048 g)



Part number  
XOVCS-15PN  
Weight  
1.68 oz (0.048 g)



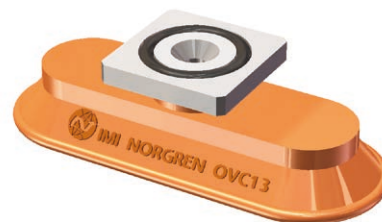
Dimensions in inches (mm) are for reference only

# OVAL VACUUM CUP

OVCS13



## Order information



XOVCS-13X

| Thread Type | Code        |
|-------------|-------------|
| Metric      | X           |
| English     | Leave Blank |

| Omit this designator to order cup with Vac-Lok mount      | Code |
|-----------------------------------------------------------|------|
| Pipe Mount (3/8 NPT Port ENGLISH or 3/8 BSPT Port METRIC) | T    |
| Pipe Mount (3/8 BSPP Port METRIC Only)                    | P    |
| Threaded Stud (3/8 BSPP METRIC Only)                      | PN   |

## Technical data

### Cup material:

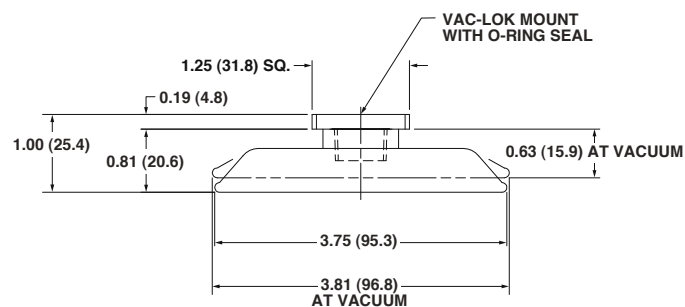
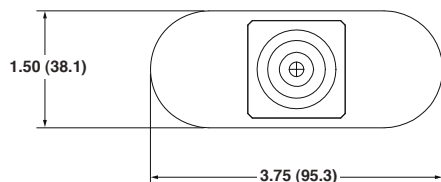
Urethane, Durometer 35 Shore A

### Insert material:

Brass/Aluminum

### Threaded stud material:

Steel

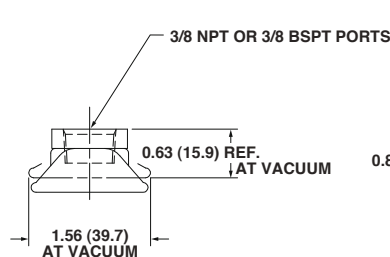


### Part number

English OVCS13  
Metric XOVCS13

### Weight

2.00 oz (56.7 g)

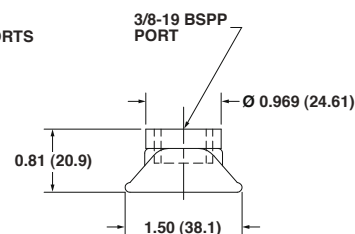


### Part number

English OVCS13T  
Metric XOVCS13T

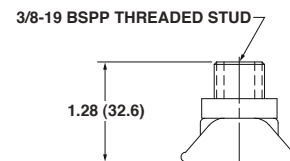
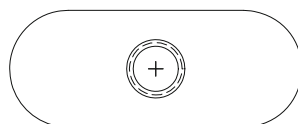
### Weight

1.44 oz (40.8 g)



### Part number

Metric XOVCS13P  
Weight 1.44 oz (40.8 g)



### Part number

Metric XOVCS13PN  
Weight 1.76 oz (49.9 g)

Dimensions in inches (mm) are for reference only

# OVAL VACUUM CUP

OVCS16

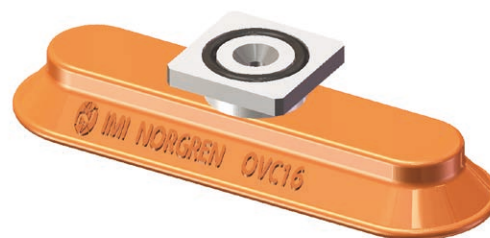


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## ● Order information



XOVCS-16X

| Thread Type | Code        |
|-------------|-------------|
| Metric      | X           |
| English     | Leave Blank |

| Omit this designator to order cup with Vac-Lok mount           | Code |
|----------------------------------------------------------------|------|
| Pipe Mount (3/8 NPT Port English or 3/8 BSPT Port Metric Only) | T    |
| Pipe Mount (3/8 BSPP Port METRIC Only)                         | P    |
| Threaded Stud (3/8 BSPP METRIC Only)                           | PN   |

## Technical data

### Cup material:

Urethane, Durometer 35 Shore A

### Insert material:

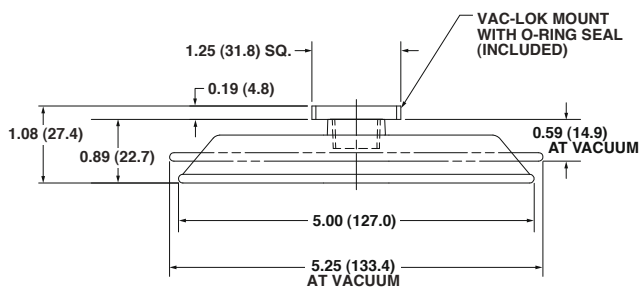
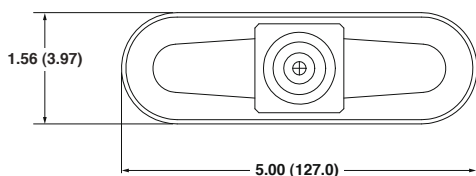
Brass/Aluminum

### Threaded stud material:

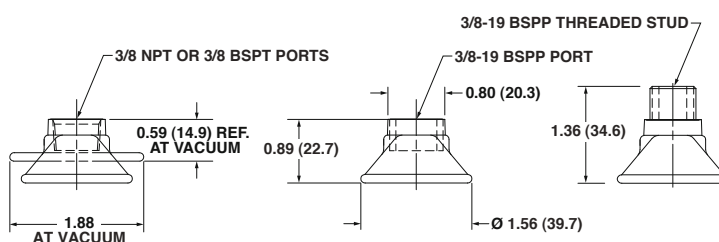
Steel

### Vac-Lok material:

Aluminum



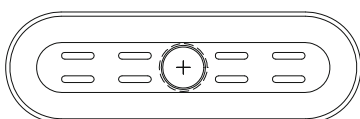
Part number  
English OVCS16  
Metric XOVCS16  
Weight  
2.56 oz (72.6 g)



Part number  
English OVCS16T  
Metric XOVCS16T  
Weight  
2.00 oz (56.7 g)

Part number  
XOVCS16P  
Weight  
2.00 oz (56.7 g)

Part number  
XOVCS16PN  
Weight  
2.32 oz (65.8 g)



Dimensions in inches (mm) are for reference only

# OVAL VACUUM CUP

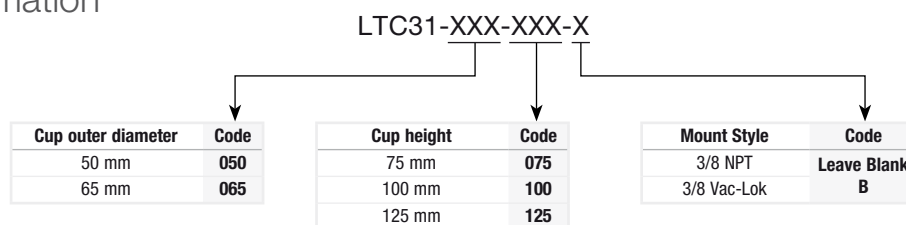
LTC31



- Typically used on aluminum or steel panels
- Provides maximum surface contact on narrow panels or material handled parts
- Triangular tread pattern provides superior shear grip force strength on oily or wet surfaces
- Prevent dimple or damage to panel surface
- Cup's nitrile rubber material has superior abrasion and chemical erosion characteristics



## Order information



| Part Number     | Outer diameter               | Weight | Mounting |
|-----------------|------------------------------|--------|----------|
| LTC31-050X100   | 2.0" x 4.0" (50 mm x 100 mm) | 45 g   | NPT      |
| LTC31-065X125   | 2.5" x 5.0" (65 mm x 125 mm) | 76 g   | NPT      |
| LTC31-050X100-B | 2.0" x 4.0" (50 mm x 100 mm) | 45 g   | Vac-Lok  |
| LTC31-065X125-B | 2.5" x 5.0" (65 mm x 125 mm) | 76 g   | Vac-Lok  |

## Technical data

Cup material:

Nitrile rubber

Color:

Blue

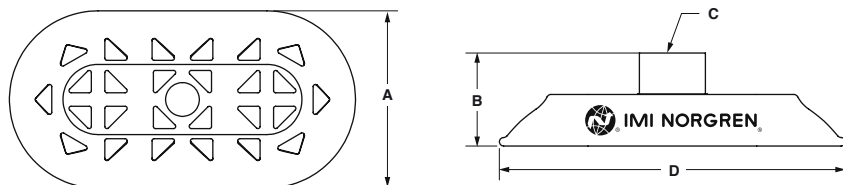
Hardness:

60° Shore  $\pm 5^\circ$ 

| Part Number     | A             | B               | C           | D              | Compression Stroke | Minimum radius of curvature (Note 1) | Lifting force  | Shear force    |
|-----------------|---------------|-----------------|-------------|----------------|--------------------|--------------------------------------|----------------|----------------|
| LTC31-050X100   | 2.00" (50 mm) | 1.28" (32.5 mm) | 3/8 NPT     | 4.00" (100 mm) | 0.20" (5.0 mm)     | 4.0" (101.6 mm)                      | 56 lbs (249 N) | 22 lbs (98 N)  |
| LTC31-065X125   | 2.50" (65 mm) | 1.44" (36.5 mm) | 3/8 NPT     | 5.00" (125 mm) | 0.30" (7.6 mm)     | 7.90" (200.7 mm)                     | 90 lbs (400 N) | 41 lbs (180 N) |
| LTC31-050X100-B | 2.00" (50 mm) | 1.28" (32.5 mm) | 3/8 Vac-Lok | 4.00" (100 mm) | 0.20" (5.0 mm)     | 4.0" (101.6 mm)                      | 56 lbs (249 N) | 22 lbs (98 N)  |
| LTC31-065X125-B | 2.50" (65 mm) | 1.44" (36.5 mm) | 3/8 Vac-Lok | 5.00" (125 mm) | 0.30" (7.6 mm)     | 7.90" (200.7 mm)                     | 90 lbs (400 N) | 41 lbs (180 N) |

\*Ratings are based on 24 in-Hg and oily surface

Note 1: Minimum radius of surface at point of contact where the vacuum cup is placed



Dimensions in inches (mm) are for reference only

# OVAL BELLOW VACUUM CUP

LTC37



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VACUUM AND ACCESSORIES

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- Suitable for sensitive panel surfaces such as aluminum or steel blanks
- Prevents dimple or damage to panel surface
- Accommodates variations in panel position and/or surface contour
- Less internal volume, therefore requiring less time to draw suction when vacuum is applied
- Triangular tread pattern provides superior shear force and grip strength on oily or wet surfaces
- Lip design reduces roll-under effect when the panel hits the cup
- Cup's nitrile rubber material has superior abrasion and chemical erosion characteristics
- Silicon-free design provides safe transfer of different panel materials

## Order information

LTC37-XXX-XXX-X

| Cup outer diameter | Code |
|--------------------|------|
| 45 mm              | 045  |
| 65 mm              | 065  |

| Cup height | Code |
|------------|------|
| 90 mm      | 090  |
| 125 mm     | 125  |

| Mount Style | Code        |
|-------------|-------------|
| 3/8 NPT     | Leave Blank |
| 3/8 Vac-Lok | B           |

| Part number     | Outer diameter                | Weight | Mounting |
|-----------------|-------------------------------|--------|----------|
| LTC37-045X090   | 1.75" x 3.55" (45 mm x 90 mm) | 55 g   | NPT      |
| LTC37-065X125   | 2.5" x 5.0" (65 mm x 125 mm)  | 87 g   | NPT      |
| LTC37-045X090-B | 1.75" x 3.55" (45 mm x 90 mm) | 55 g   | Vac-Lok  |
| LTC37-065X125-B | 2.5" x 5.0" (65 mm x 125 mm)  | 87 g   | Vac-Lok  |

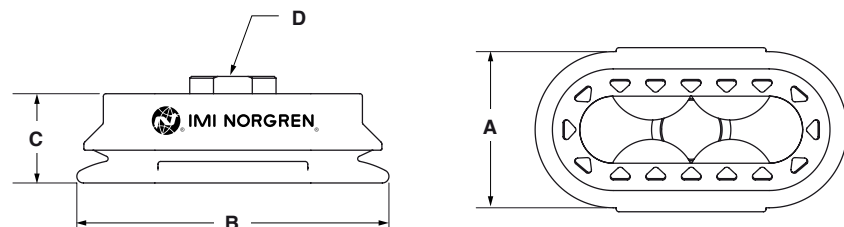
## Technical data

Cup material:  
Nitrile rubber  
Color:  
Black

Hardness:  
60° Shore  $\pm 5^\circ$

| Part number     | A             | B             | C             | D           | Compression stroke | Lifting force  | Shear force    |
|-----------------|---------------|---------------|---------------|-------------|--------------------|----------------|----------------|
| LTC37-045X090   | 1.75" (45 mm) | 3.55" (90 mm) | 1.00" (25 mm) | 3/8 NPT     | 0.39" (9.9 mm)     | 33 lbs (147 N) | 16 lbs (71 N)  |
| LTC37-065X125   | 2.5" (65 mm)  | 5.0" (125 mm) | 1.38" (35 mm) | 3/8 NPT     | 0.55" (13.9 mm)    | 80 lbs (356 N) | 24 lbs (107 N) |
| LTC37-045X090-B | 1.75" (45 mm) | 3.55" (90 mm) | 1.00" (25 mm) | 3/8 Vac-Lok | 0.39" (9.9 mm)     | 33 lbs (147 N) | 16 lbs (71 N)  |
| LTC37-065X125-B | 2.5" (65 mm)  | 5.0" (125 mm) | 1.38" (35 mm) | 3/8 Vac-Lok | 0.55" (13.9 mm)    | 80 lbs (356 N) | 24 lbs (107 N) |

\*Ratings are based on 24 in-Hg and oily surface

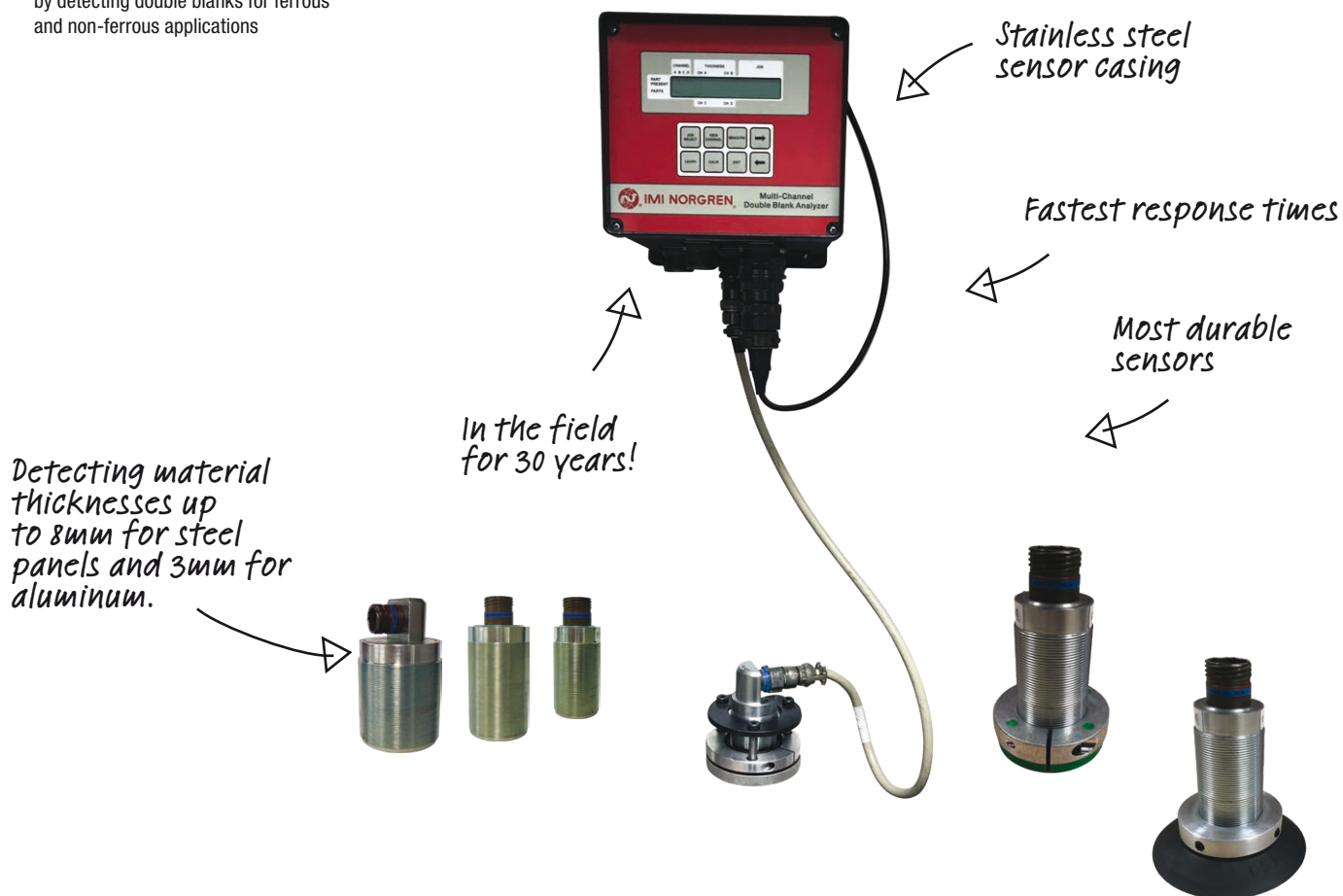


Dimensions in inches (mm) are for reference only

# DOUBLE BLANK ANALYZER

Recent trends in vehicle manufacturing found automotive stampers faced with the need to process increasingly thicker blanks while working within smaller size constraints.

- Increase productivity in the pressroom by detecting double blanks for ferrous and non-ferrous applications



\*Maximum recommended single sheet thickness

## ● Features and Benefits

- Greater flexibility with capacity to detect single sheet material thickness range up to 6 mm, compared to 4.6 mm with “legacy” sensors.”
- Ability to detect both ferrous and non-ferrous material reducing the number of cable runs
- Greater tolerance of air gaps for ease of setup, increased uptime and reliability
- Upgraded driver boards that are backwards compatible with old style sensors reducing inventory and enabling potential future system upgrades
- Greater size to measurement ratio – 42 mm sensors have the same range as “legacy” 54 mm sensors
- The ability to sense aluminum up to 3.0 mm
- Up to four independent sensors that can be operated from a single controller for greater flexibility at reading different stations

Double Blank  
Analyzer



# DOUBLE BLANK ANALYZER

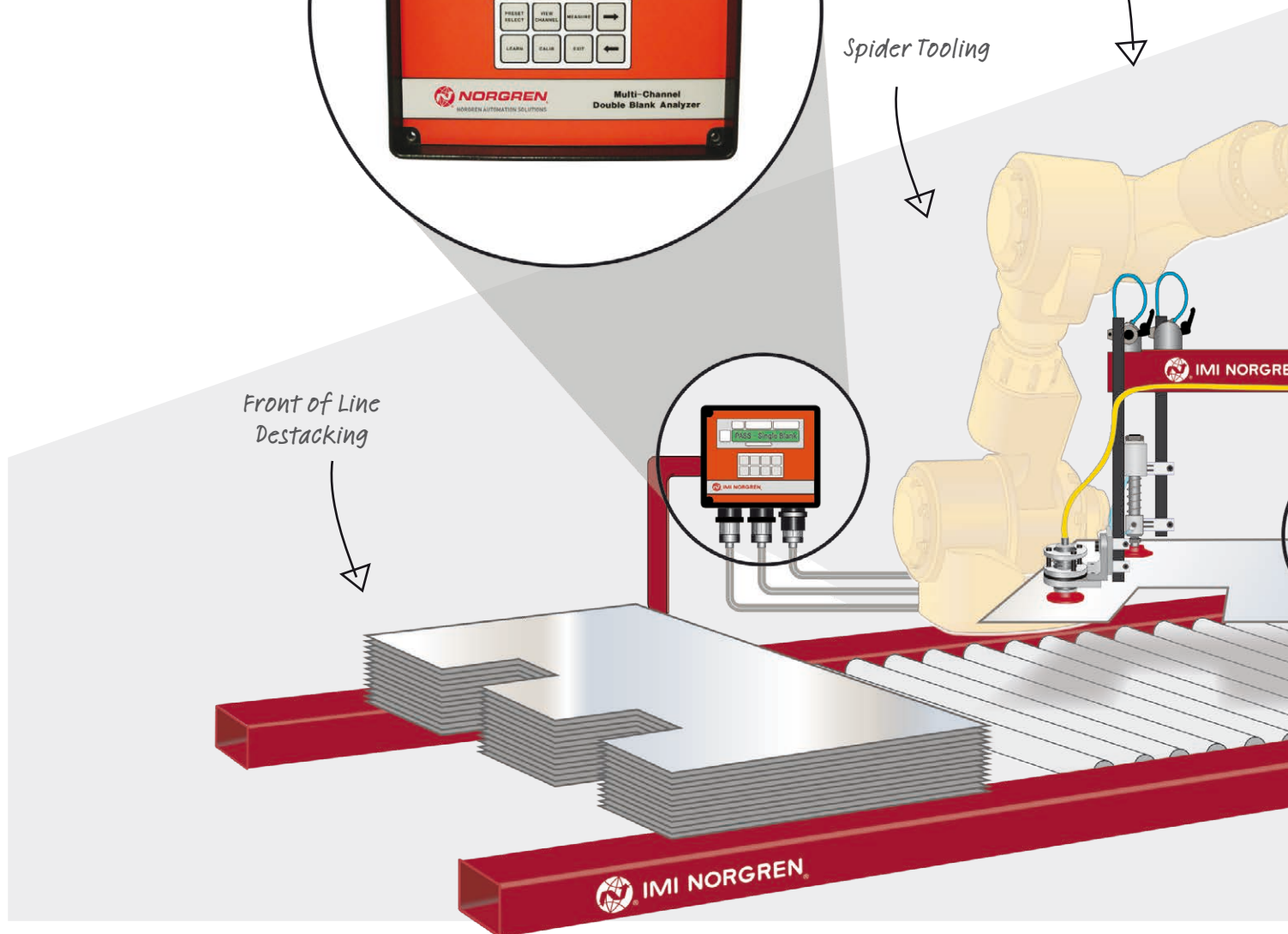
Double Blank Sensing



End of Arm Tooling (EOAT)

Spider Tooling

Front of Line Destacking



### > Intelligent Systems

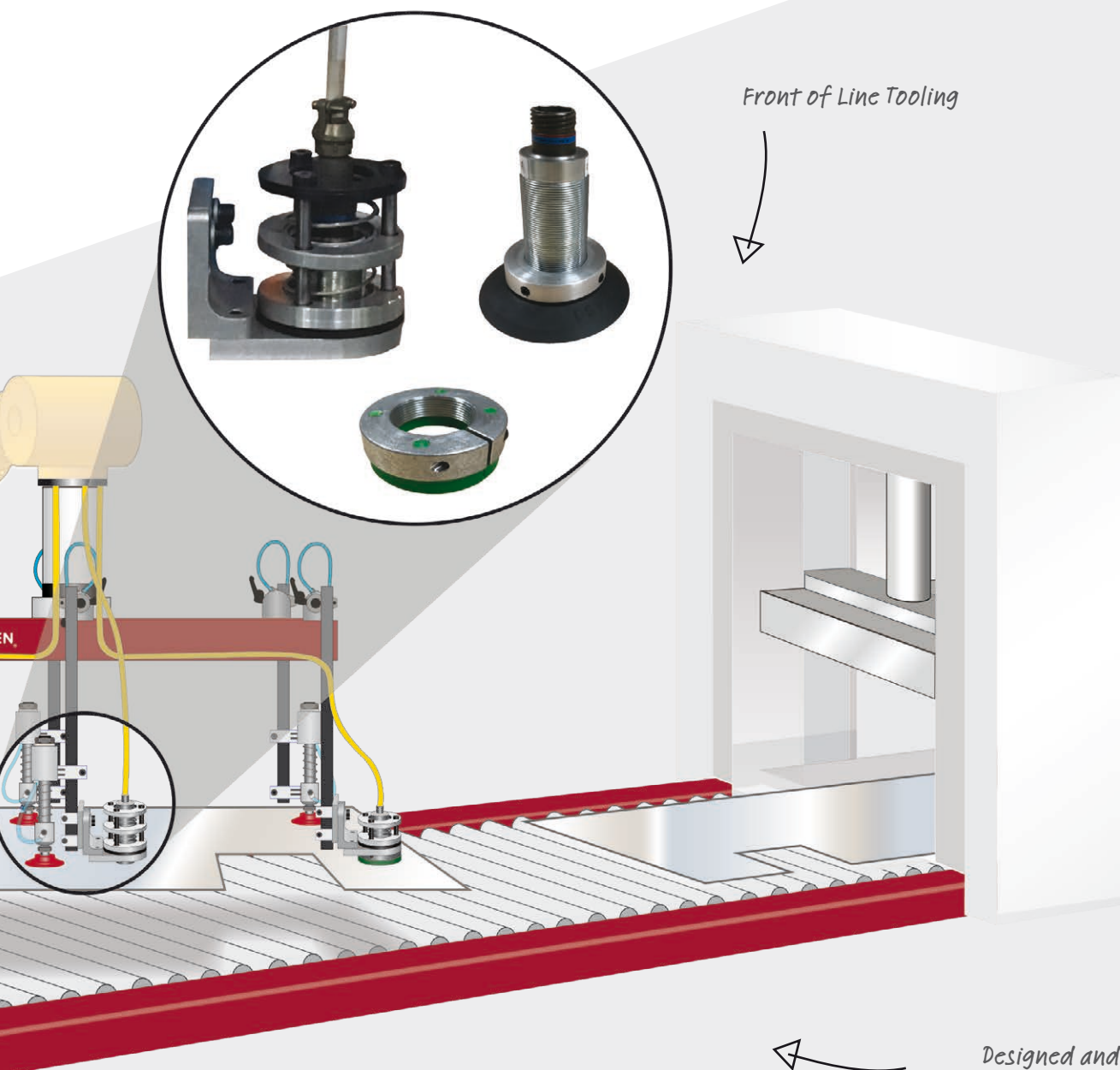
World class press automation requires integration of SMART sensing solutions. From increasing strokes per minute (SPM) to improving ergonomics and safety, IMI Norgren's intelligent systems increase productivity in the pressroom.

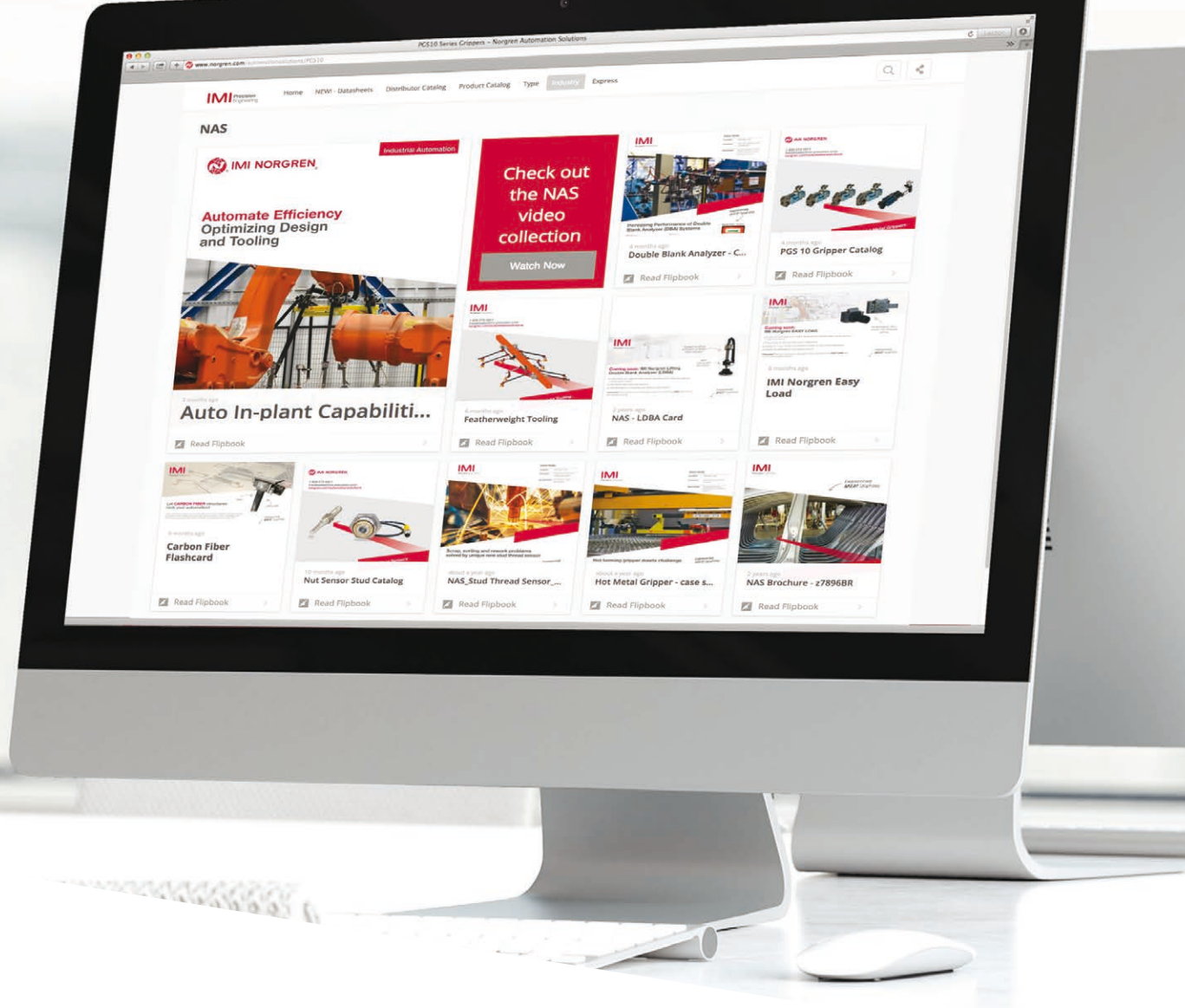
### > Made in the USA

From front of line to end of line, our sensors, grippers, carbon fiber components, finger tooling and vacuum cup solutions are designed and built to last in the most challenging press environments all in the USA!

### > Engineering Solutions

Engineering GREAT solutions for our customers is at the heart of everything we do. We help customers gain an advantage through increased output or capacity, reduced energy usage, and lower cost of ownership.





## Did you know?

You can download Press Room Automation catalogs, case studies and more right at your fingertips!

Check out our **Auto In-plant Uberflip** page at:

<http://onenorgren.uberflip.com/h/c/226804-nas>



*Engineering  
GREAT Solutions*

## Warning

These products are intended for use in industrial systems only. Do not use these products where pressures and temperatures can exceed those listed under Specifications.

Before using these products with fluids other than those specified, for nonindustrial applications, life-support systems, or other applications not within published specifications, consult Norgren.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure modes.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided. System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products, or posted on the Norgren website under "Downloads." System designers should also provide for all OSHA requirements including Title 29 CFR 1910.147 Lockout/Tagout.

It should be recognized that warnings are valid for any product, regardless of manufacturer, and are not restricted to products manufactured by Norgren. Norgren's reputation for product quality and performance is well established. We feel we have the additional obligation to provide information or warnings to customers to assist them in applying our products in a reasonable and safe manner.

**Proposition 65:** These products may contain chemicals known to the state of California to cause cancer, or birth defects, or other reproductive harm.

## Disclaimer

The use of the IMI Norgren Nut Thread Detector is limited in certain stainless steel and aluminum grades or allows. We encourage an evaluation be made for specific materials prior to purchase. Sample parts can be evaluated by your Sales Representative or can be sent to our Engineering office for evaluation. Please contact [insidesales@imi-precision.com](mailto:insidesales@imi-precision.com) for more information.

## Warranty

Items sold by Norgren are warranted to be free from defects in materials and workmanship for a period of two years\* from the date of invoice, provided said items are used according to Norgren's recommended usages. NORGREN'S LIABILITY IS LIMITED TO THE REPAIR OF, REFUND OF PURCHASE PRICE PAID FOR, OR REPLACEMENT IN KIND OF, AT NORGREN'S SOLE OPTION, ANY ITEMS PROVED DEFECTIVE, PROVIDED THE ALLEGEDLY DEFECTIVE ITEMS ARE RETURNED TO NORGREN PREPAID. THE WARRANTIES EXPRESSED ABOVE ARE IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, EXCEPT AS STATED HEREIN.

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Norgren reserves the right to discontinue manufacture of any product or change product materials, design, or specifications.

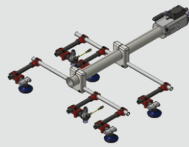


For further information, scan this QR code or visit  
[norgren.com/automationsolutions](http://norgren.com/automationsolutions)

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## TANDEM CONCEPTS

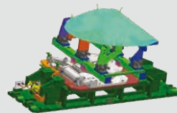
EXAMPLES OF INTEGRATED TOOLING FOR TANDEM PRESSES



2

## IDLE STATIONS

STAGING AREA FOR PANELS IN BETWEEN DIE STATIONS



3

## TOOLING CARTS

SPACE SAVING AND EASY ACCESS SOLUTIONS FOR TOOLING STORAGE



4

## CARBON FIBER STRUCTURES

STRONG, LIGHTWEIGHT STRUCTURES FOR HIGH SPEED AND STABLE PANEL TRANSFER



5

## RECEIVERS AND ADAPTERS

COUPLING DEVICE FOR QUICK CHANGEOVER



6

## ROUND TOOLING

PRE-ENGINEERED MODULAR COMPONENTS FOR TRANSFER TOOLING



7

## VACUUM AND ACCESSORIES

SPRING MOUNTS, CUPS, AND VENTURIS FOR MATERIAL HANDLING



8

## DOUBLE BLANK ANALYZER

ENSURES TRANSFER OF SINGLE BLANKS THROUGH DIES



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