Electric Cylinders

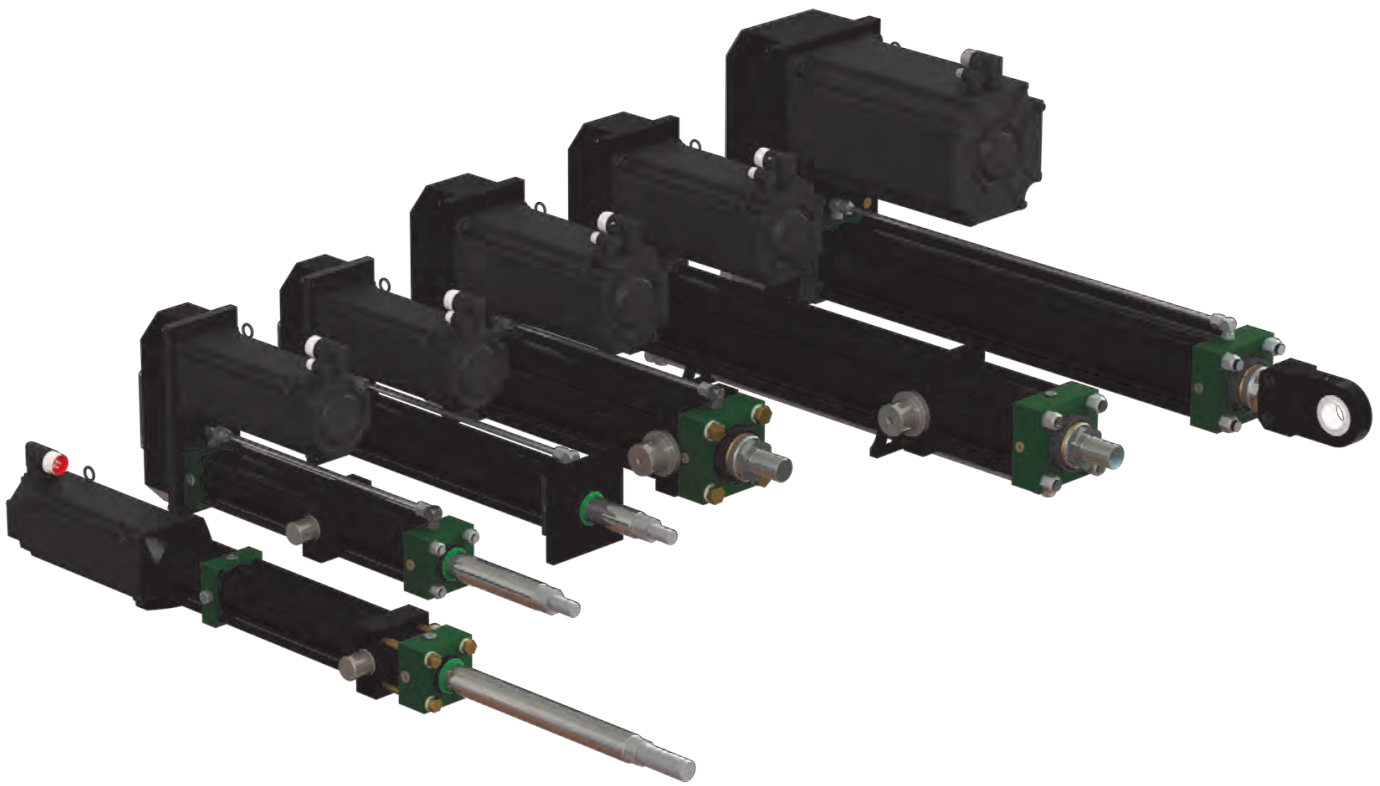
series E

ROYAL CYLINDERS

Bulletin 032018E

Electric Cylinders

Roller Screw and Ball Screw Technology



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Why Choose Royal

Royal actuators have been used in heavy duty applications in the resource industry since 1960. Our new E-Series actuators incorporate all of our proven features to provide a long life, heavy duty, and dependable solution that will exceed your expectations.

Why Choose an Electric Actuator

Electric actuators offer a number of performance benefits compared to hydraulic & pneumatic actuators:

- Higher positional accuracy
- Direct control of the actuator without external influences – each actuator is independently controlled
- Eliminates fluid leaks – no line losses or environmental damage
- High energy efficiency – energy is only consumed during operation, not when idle
- Very High Stiffness – no bounce or “give” during operation
- Low maintenance requirements
- Less Noise for Quieter Operation

Roller Screw or Ball Screw?

Our Roller Screw and Ball Screw actuators share the same advantages listed above with the only differences being the screw type and the load characteristics of that screw. Depending on your application, *Royal* will help you to determine which style is right for you.

Ball Screw:

+/-23µm/300mm lead accuracy
23,000 lbs max thrust loads

- ✓ Lighter Loads
- ✓ Long Life
- ✓ Less Precision
- ✓ Lower Cost

Roller Screw:

+/- 23 µm/300mm lead accuracy
70,000 lbs max thrust loads

- ✓ High Loads
- ✓ Longer Life
- ✓ Higher Speeds
- ✓ Repeatable Precision

The *Royal* Advantage

HEAVY DUTY CONSTRUCTION

All Steel Construction

- Designed around our proven hydraulic cylinder line

Industrial Mounts

- Trunnion mounts come with wearable pins
- Plate mounts oversized for more support
- Custom mounts available

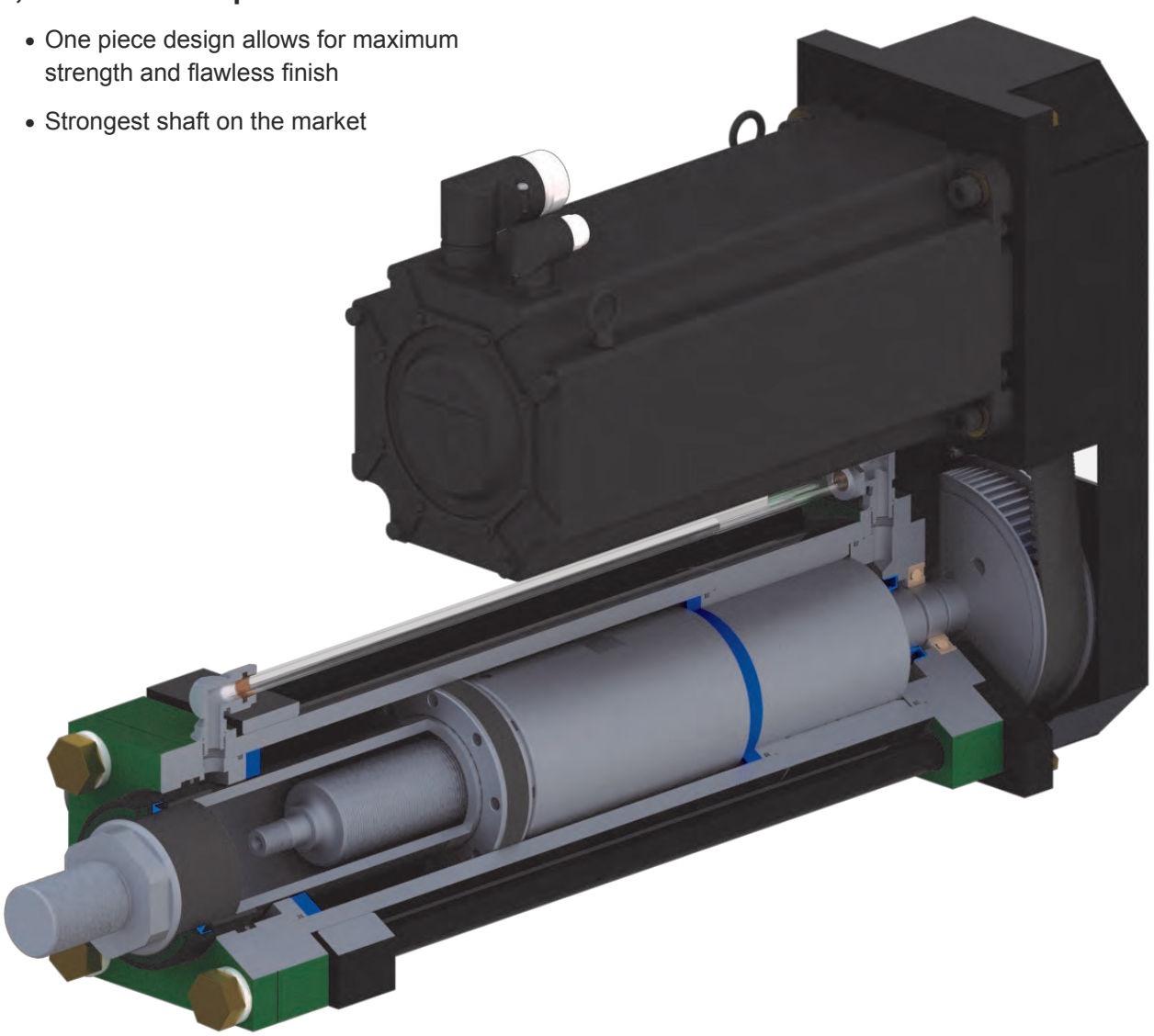
Solid, One Piece Output Shaft

- One piece design allows for maximum strength and flawless finish
- Strongest shaft on the market

HIGH QUALITY MATERIALS

Nitrided Piston Rods

- Higher Corrosion Resistance
- Better Wear ability
- Resists Impacts better than chrome
- Increase life of seals and wipers

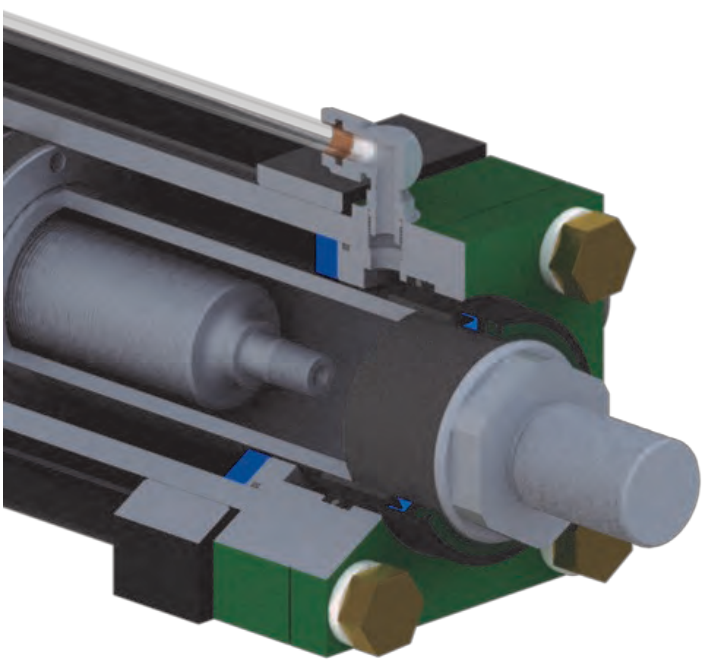


IMPACT PROTECTION

Designed for high impact forces

Heavy Duty Internal Bumpers

- Reduce unintended impact on the expensive internal components



INDUSTRIAL ADVANTAGES

Durable Wipers and Scrapers

- Heavy duty rod wipers or optional solid brass scrapers protect the internals from damage in the toughest of applications

Dual Gland Wear Strips

- Wear Strips eliminates gland bushing wear leading to longer life

Selection

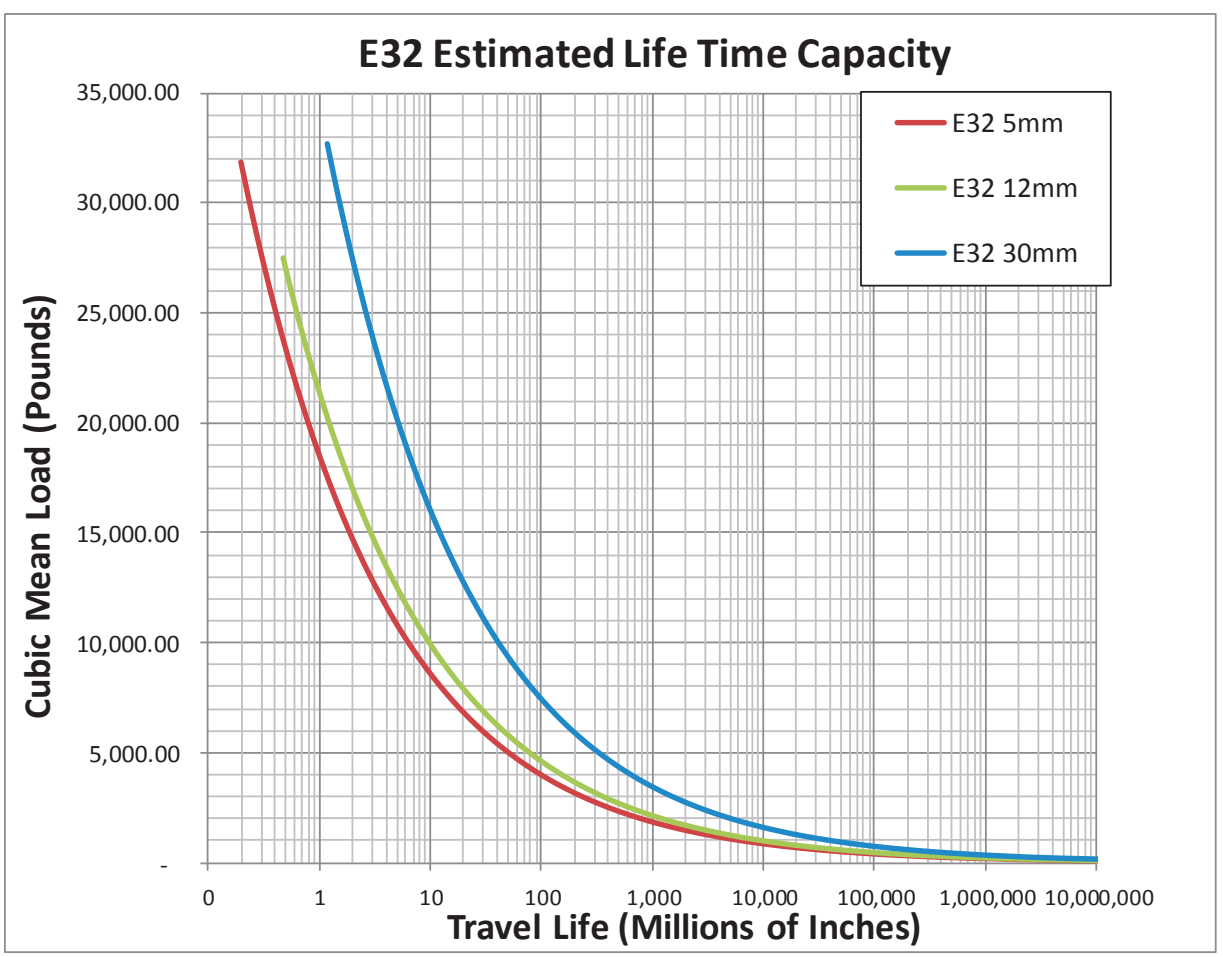
We can work with you to custom design a cylinder for your application

- Any Stroke
- Any Mounting Style

E32 Model

Model Specifications

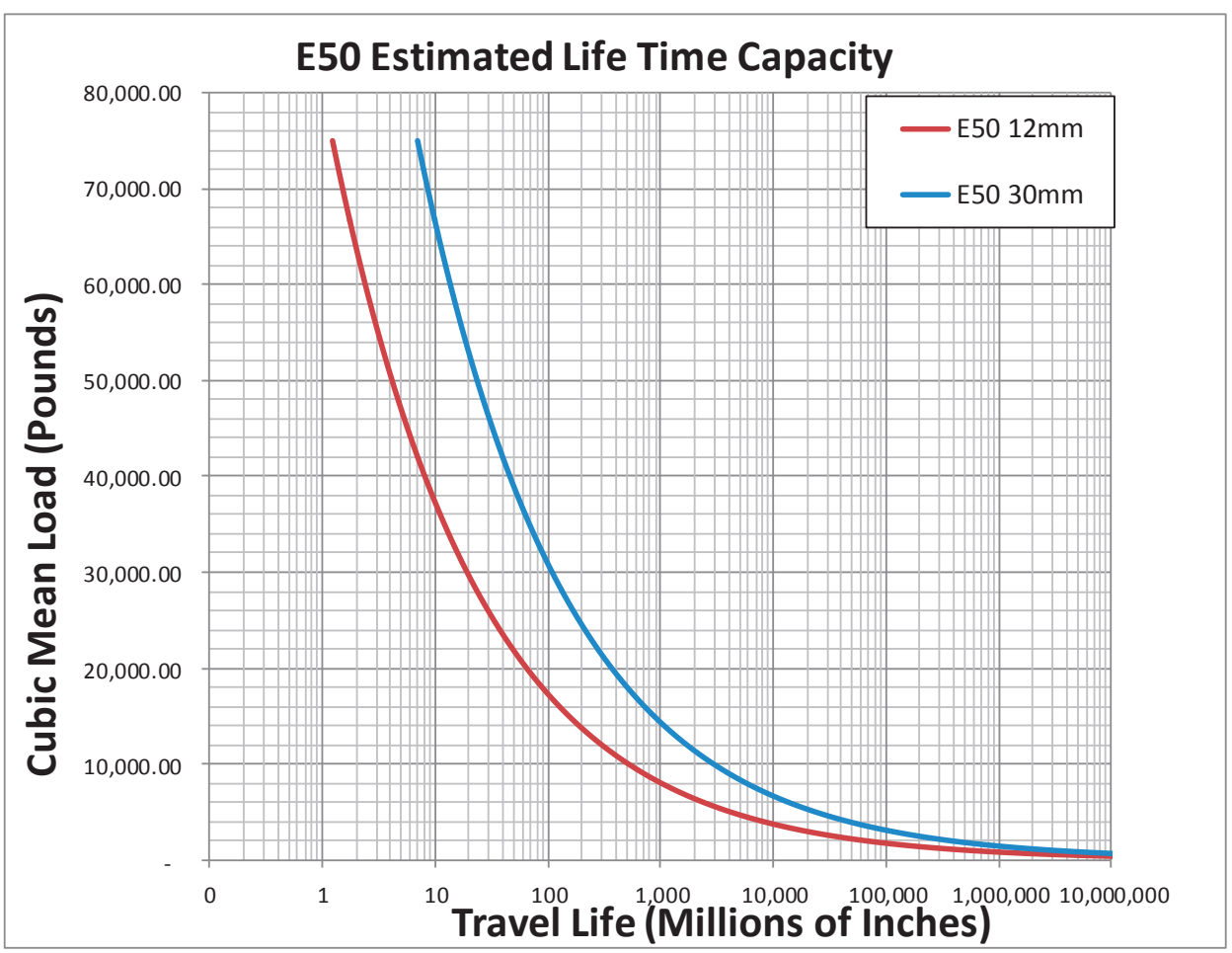
Base Model No.	Housing Bore Size (in)	Screw Dia. (mm)	Screw Lead (mm)	Stroke (in)	Max Linear Screw Speed (in/sec)	Screw Dynamic Load Ratings* (lbf)	Max Screw Static Force (lbf)	Max Screw Rotational Speed (rpm)	Max Allowable Thrust Load (lbs)
E32	3 1/4	30	**5**	6	15.7	31,855	67,000	4,800	38,000
E32	3 1/4	30	**5**	12	15.7	31,855	67,000	4,800	38,000
E33	3 1/4	30	**5**	24	15.7	31,855	67,000	4,800	38,000
E32	3 1/4	30	**30**	6	94.5	32,686	69,000	4,800	38,000
E32	3 1/4	30	**30**	12	94.5	32,686	69,000	4,800	38,000
E32	3 1/4	30	**30**	24	94.5	32,686	69,000	4,800	38,000
E32	3 1/4	36	**12**	6	31.5	27,494	58,000	4,000	38,000
E32	3 1/4	36	**12**	12	31.5	27,494	58,000	4,000	38,000
E32	3 1/4	36	**12**	24	31.5	27,494	58,000	4,000	38,000



E50 Model

Model Specifications

Base Model No.	Housing Bore Size (in)	Screw Diameter (mm)	Screw Lead (mm)	Stroke (in)	Max Linear Screw Speed (in/sec)	Screw Dynamic Load Ratings* (lbf)	Max Screw Static Force (lbf)	Max Screw Rotational Speed (rpm)	Max Allowable Thrust Load (lbs)
E50	5 00	56	**12**	6	20.5	103,055	217,500	2,600	70,000
E50	5 00	56	**12**	12	20.5	103,055	217,500	2,600	70,000
E50	5 00	56	**12**	24	20.5	103,055	217,500	2,600	70,000
E50	5 00	56	**30**	6	51.2	135,528	293,000	2,600	70,000
E50	5 00	56	**30**	12	51.2	135,528	293,000	2,600	70,000
E50	5 00	56	**30**	24	51.2	135,528	293,000	2,600	70,000
E50	5 00	56	**30**	36	51.2	135,528	293,000	2,600	70,000



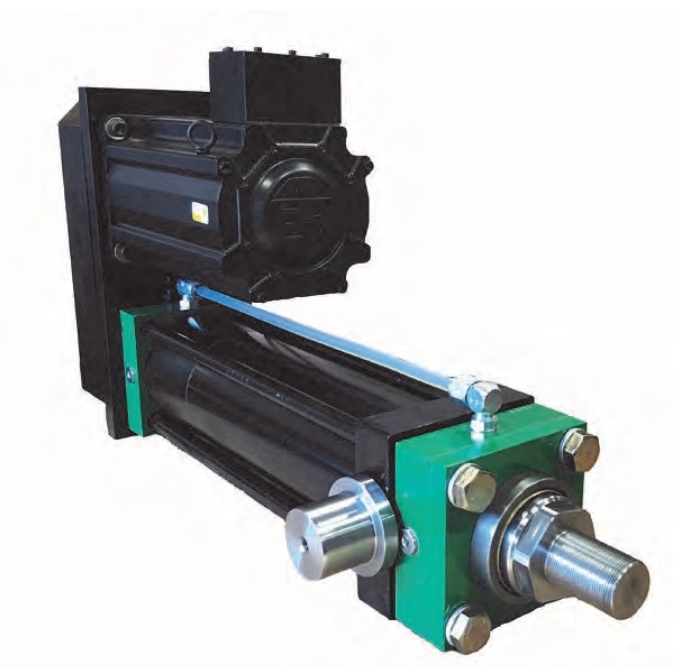
Applications

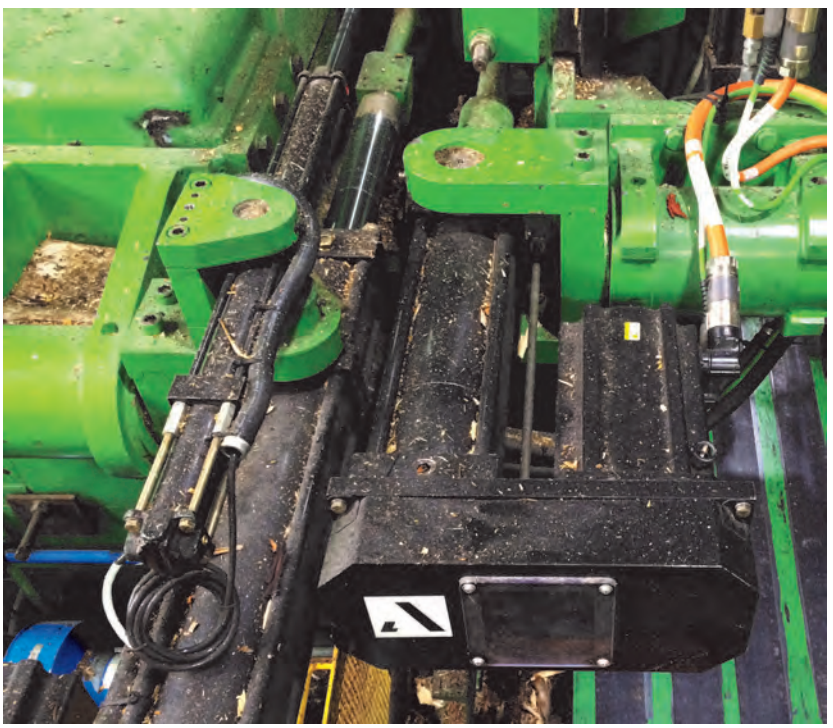
Royal Electric E-series cylinder was designed originally to solve the high demands of the veneer and plywood productions industry. With our experience in designing durable cylinders we set out and developed the toughest electric cylinder on the world market today.

Working with *Altec Integrated Technology*, who designs and builds the machinery and systems controls for the veneer industry, we introduced our cylinders in the toughest application imaginable, a Veneer Charger and Lathe Carriage.

To date in <u>this application:</u>

- Trusted in over 15 different Mills in North America
- 125 Cylinders Engineered and Manufactured
- Successful running hours and increased reliability

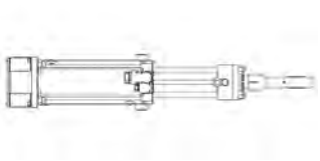




Application Specification Worksheet

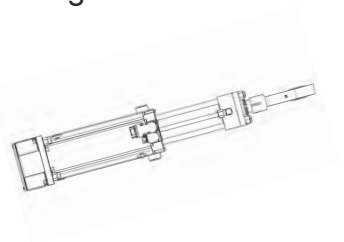
Fill in below data as best you can.
Not all information is required, contact us for questions

☐ Horizontal



☐ Vertical

☐ Angle



MOUNTING STYLE

☐ Clevis ☐ Foot ☐ Rod End Sq. Flange ☐ Rod End Rect. Flange

☐ Side Tapped ☐ Trunnion Head ☐ Mid-Trunnion XI=____ ☐ Other: _____

LIFE PROFILE

Number of Cycles: _____ Use hours per day: _____ Days per week _____

☐ per minute ☐ per hour

MOVEMENT AND LOADS

EXTEND

Load _____☐ lbs ☐ kg

Travel _____☐ inches ☐ mm

Time _____secs

Max Speed _____☐ in/secs ☐ mm/sec

RETRACTED

Load _____☐ lbs ☐ kg

Travel _____☐ inches ☐ mm

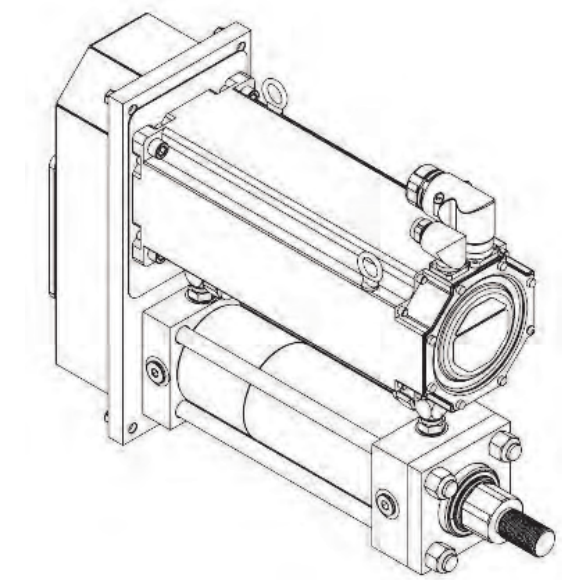
Time _____secs

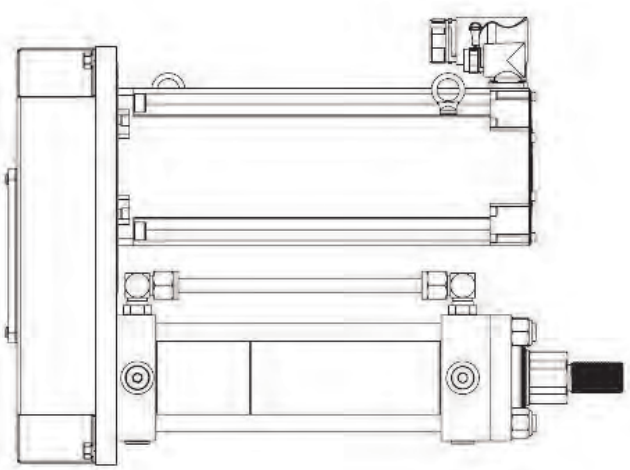
Max Speed _____☐ in/secs ☐ mm/sec

Additional Information:

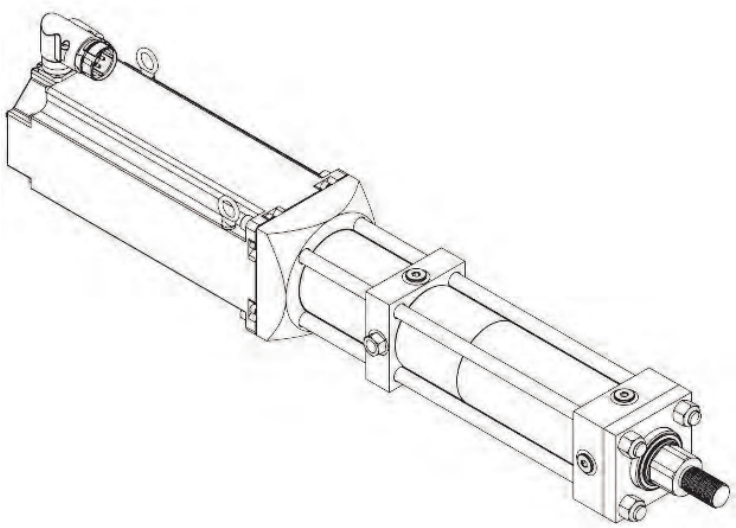
Motor Mounting Orientation

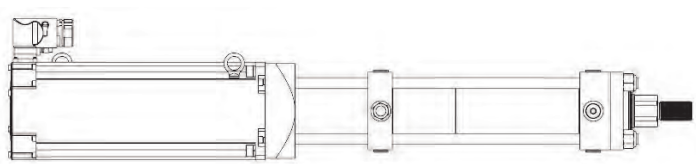
Parallel





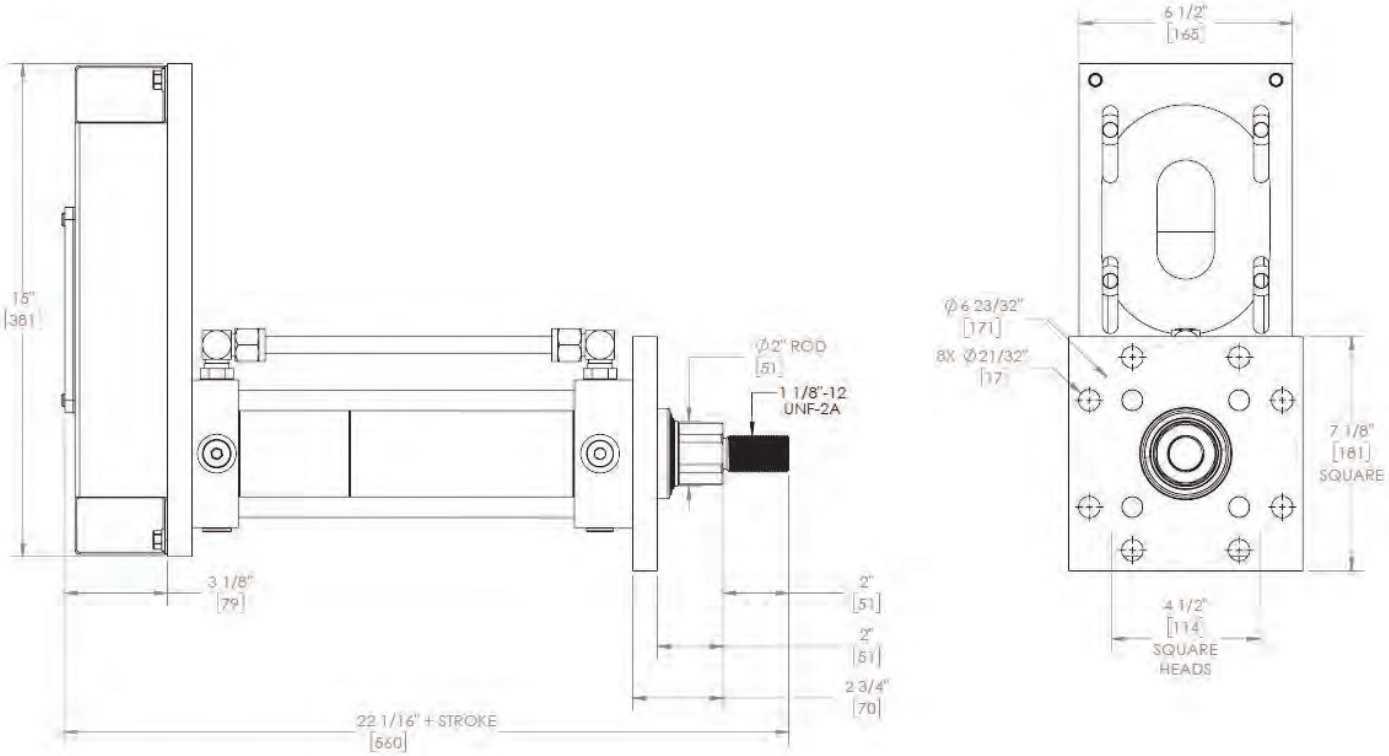
Inline



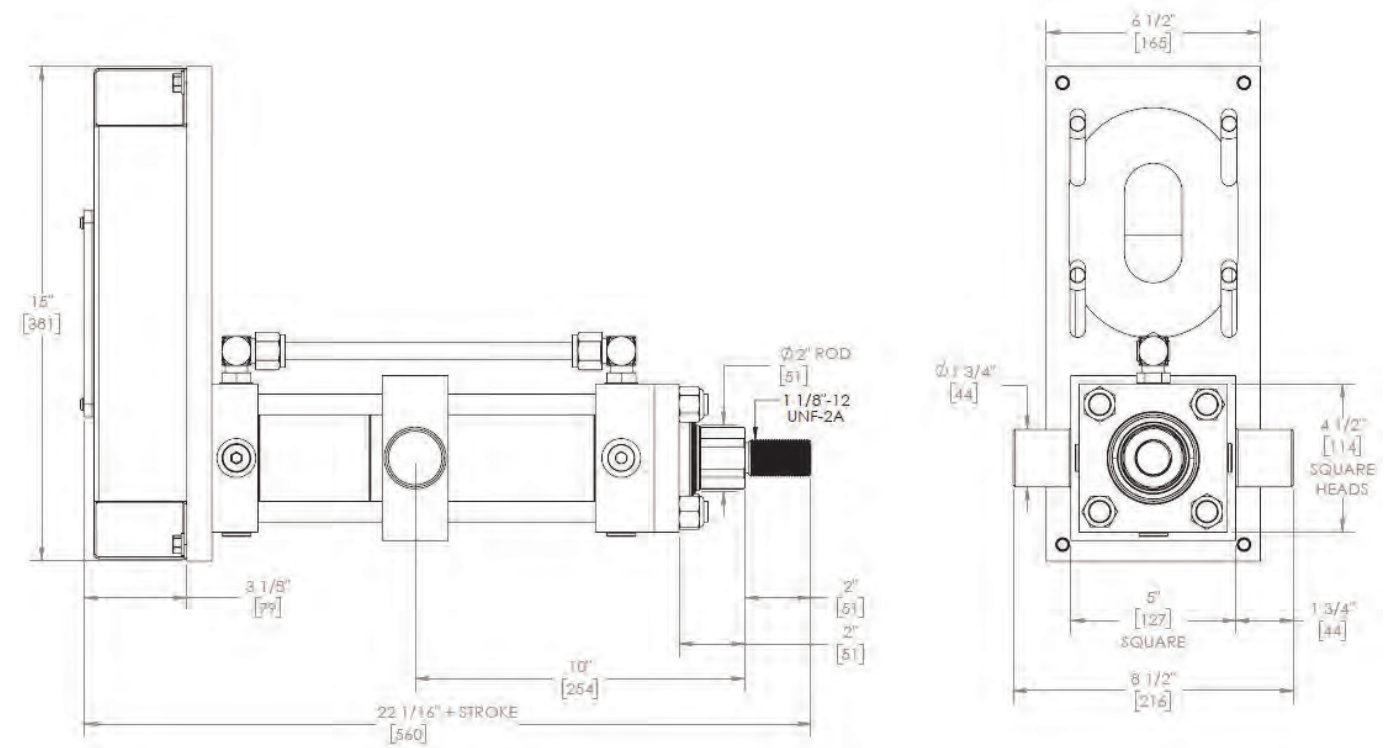


Mounting Styles

3.25 inch Bore Rod End Sq. Flange

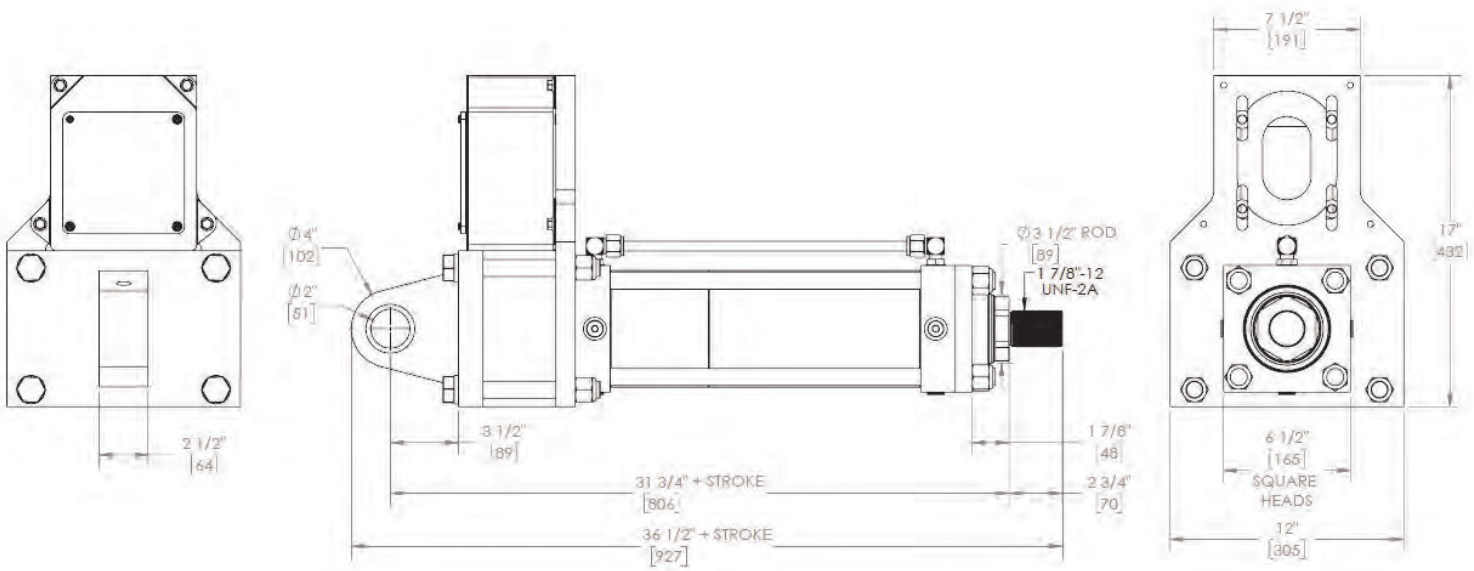


3.25 inch Bore Rod Mid Trunnion



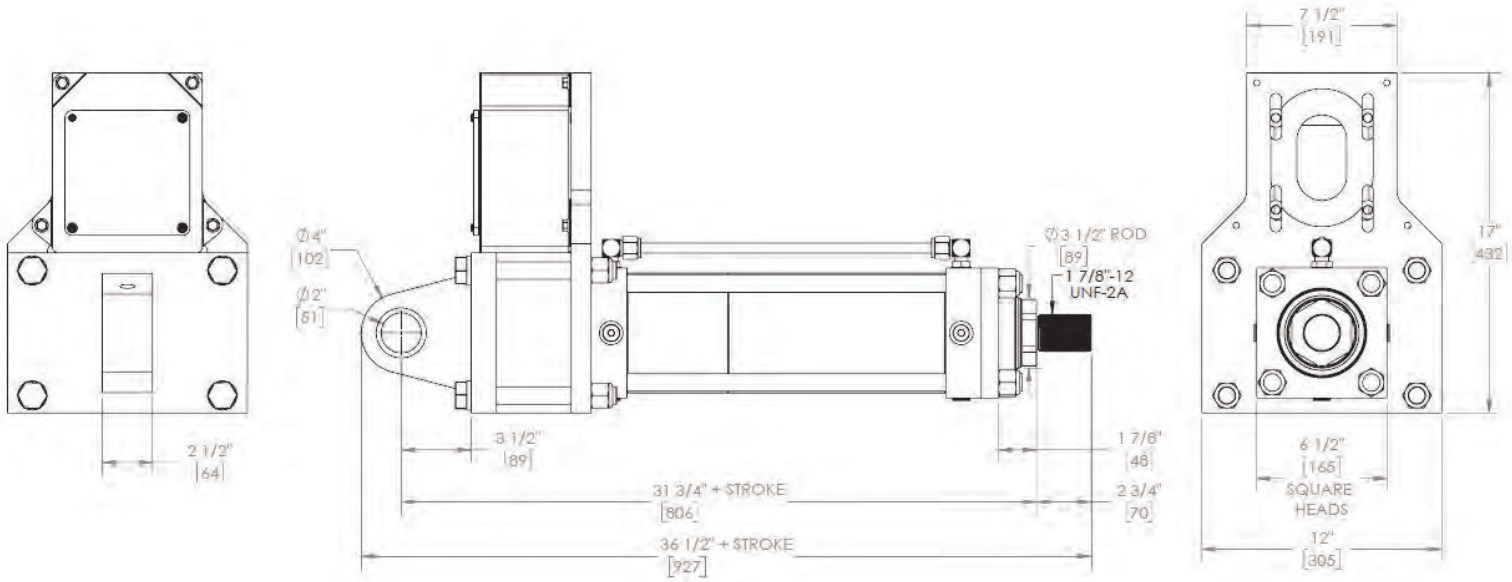
Mounting Styles

3.25 inch Bore Rear Clevis

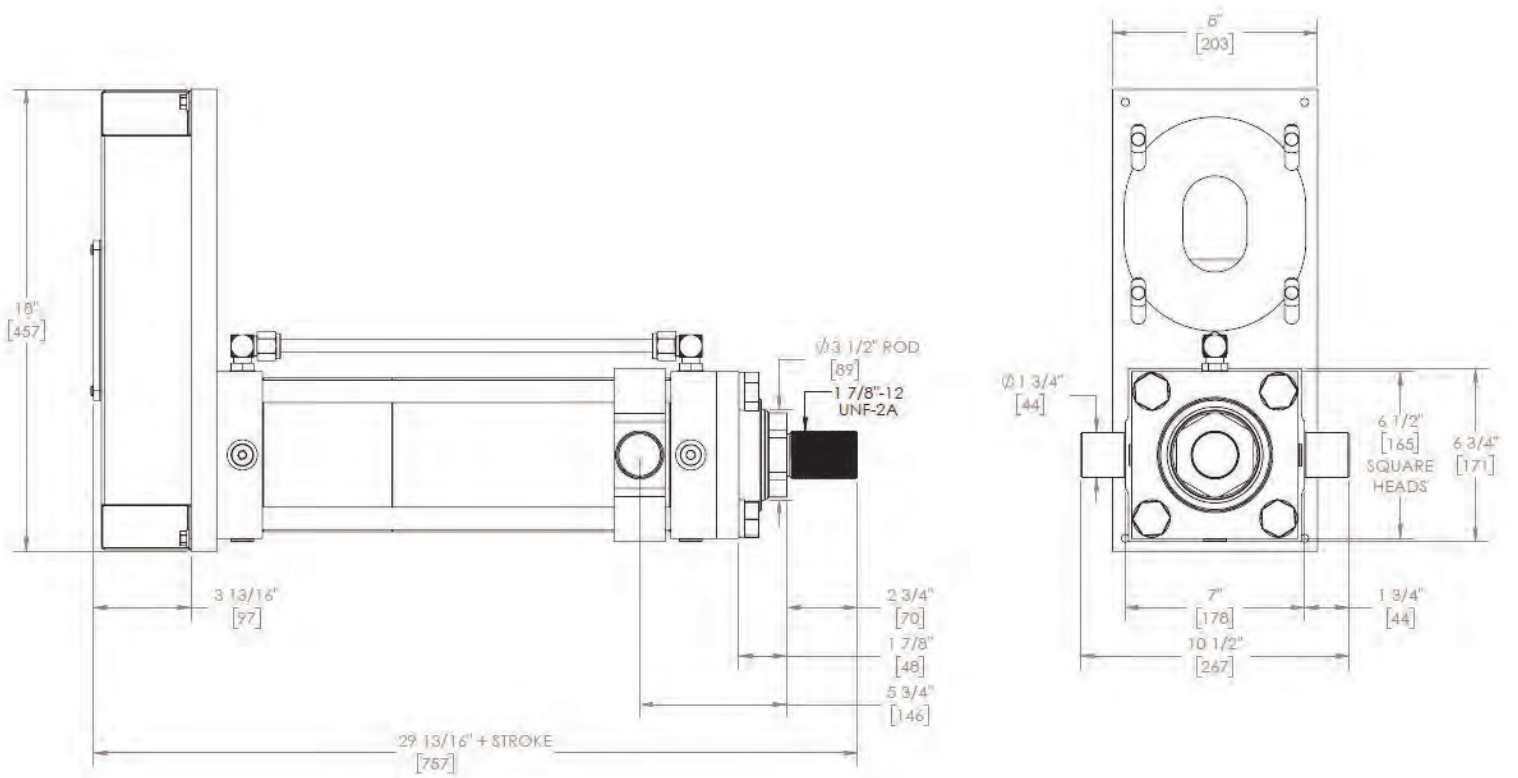


Mounting Styles

5 inch Bore Rod Rear Clevis

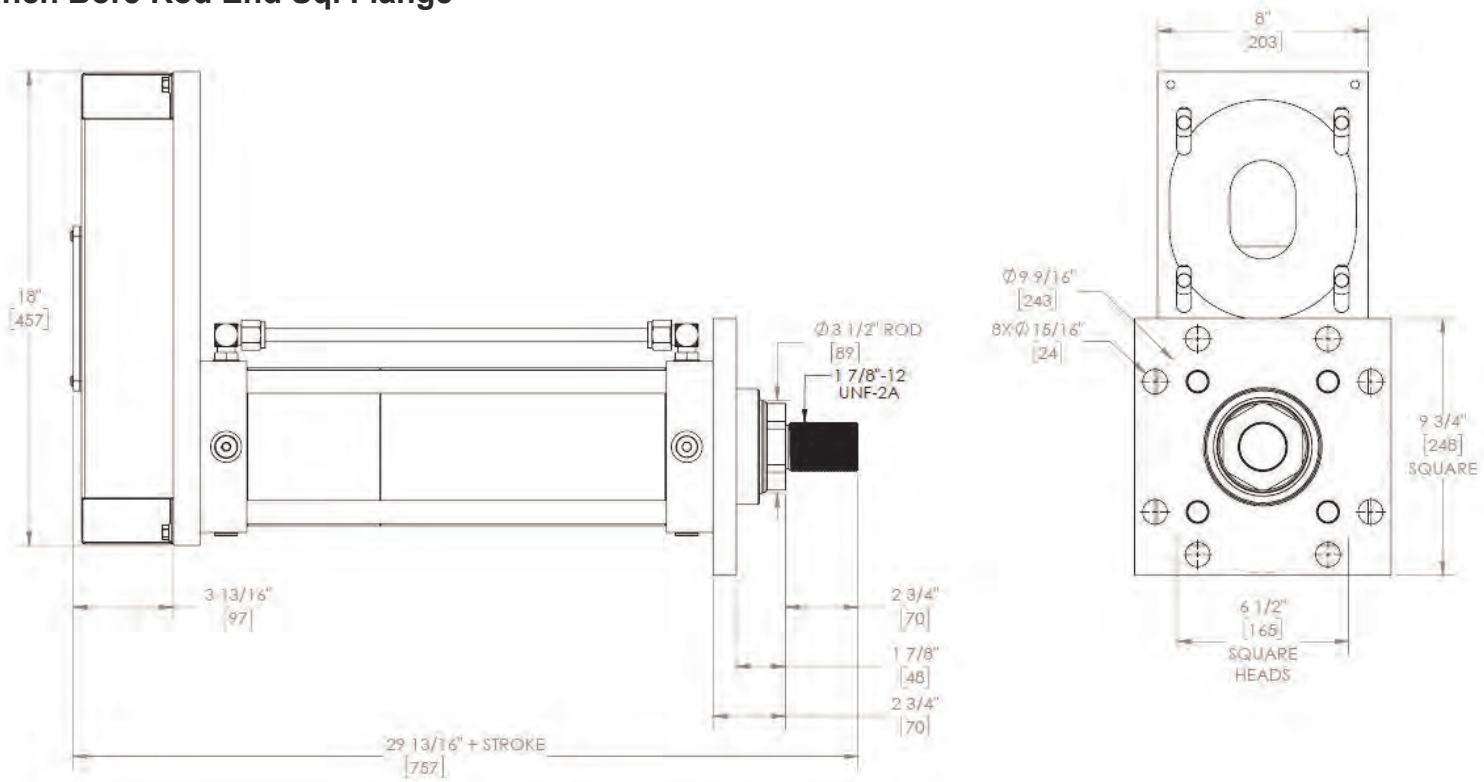


5 inch Bore Rod Head Trunnion

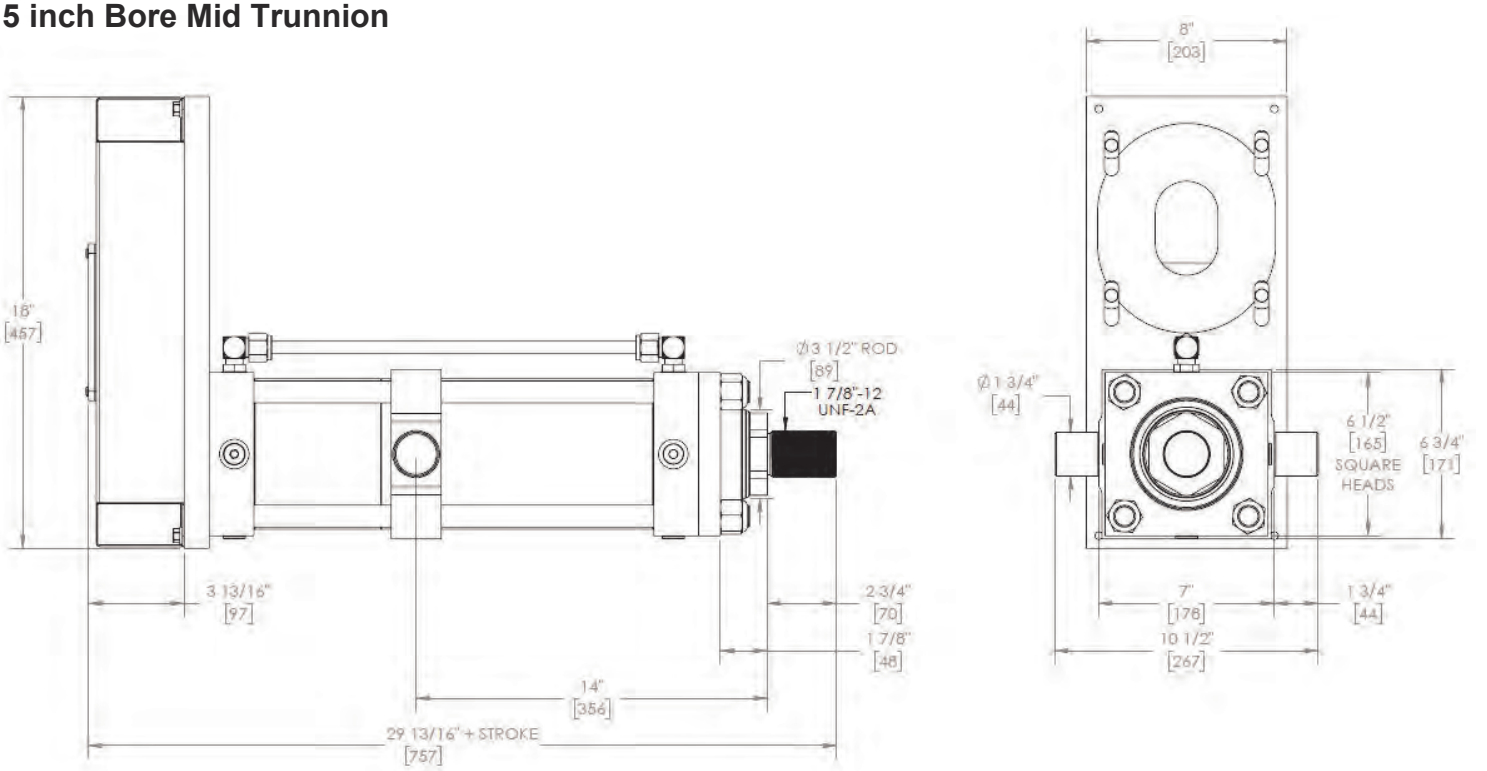


Mounting Styles

5 inch Bore Rod End Sq. Flange



5 inch Bore Mid Trunnion



How to Order

Base Unit		Options					Drive Configurations			
E										
	Bore	Mounting Style	Stroke	Rod Material	Rod Thread	Options	Screw Type	Screw Lead	Motor Conf.	Gear Reduction

Bore	
3.25”	32
5”	50

Style	
Blind End Clevis	C
Foot Mount	F
Rod End Rect. Flange	R
Rod End Sq. Flange	RS
Side Tapped Heads	S
Mid Trunnion	T

Stroke	
6 inch	6
12 inch	12
18 inch	18
24 inch	24
36 inch	36
Custom	-

Rod	
Nitro Steel	A
Induction Hardened	C

Thread	
Standard Male	A
Oversized Male	B
Female Thread	D
Male Metric	M
Female Metric	F
Custom	X

Options	
Thread Length	A
Rod Scraper	D
Piston Stop	PS
High Temp. Seals	V
Rod Extension	W
Other	X
None	BLANK

Screw Type	
R	Roller Screw

Screw lead	
05	5 mm
10	10 mm
12	12 mm
20	20 mm
30	30 mm
36	36 mm
40	40 mm

Motor Confi.	
I	Inline direct Drive
U	Parallel Drive

00	n/a
10	1:1
15	1.5:1
20	2:1

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