Series 2AJ & 2ANJ
Heavy Duty Pneumatic Cylinders
with
Piston Rod Lock

June 2007

Customer Value Statement

Series 2AJ / 2ANJ are **heavy-duty pneumatic cylinders** with Rod Lock that eliminate stored energy and the need for pilot operated check valves. They are shorter and have a more compact profile than competition, enabling them to be mounted in a more confined area.

Features and Benefits

- **True Bolt-on Modularity**
  - The cylinder is built and tested as a stand alone unit. The Rod Lock is then assembled and tested at rated holding force.
- **Large Rod Lock Clamping Surface**
  - Provides uniform force to the rod contact area that allow holding forces to resist up to 100 psi input on the cylinder cap end.
- **Spring-engaged, air release operation**
  - Ensures positive holding in power-off situations with minimal air volume required for release.
- **Manual release is standard**
  - Release by simple turn of a hex bolt. The default-to-lock function springs back to the engaged position when released.
- **Rod Lock is sealed to withstand harsh environments**
  - NEMA 4X rating protects internal components.

Features and Benefits

Standard Manual Override

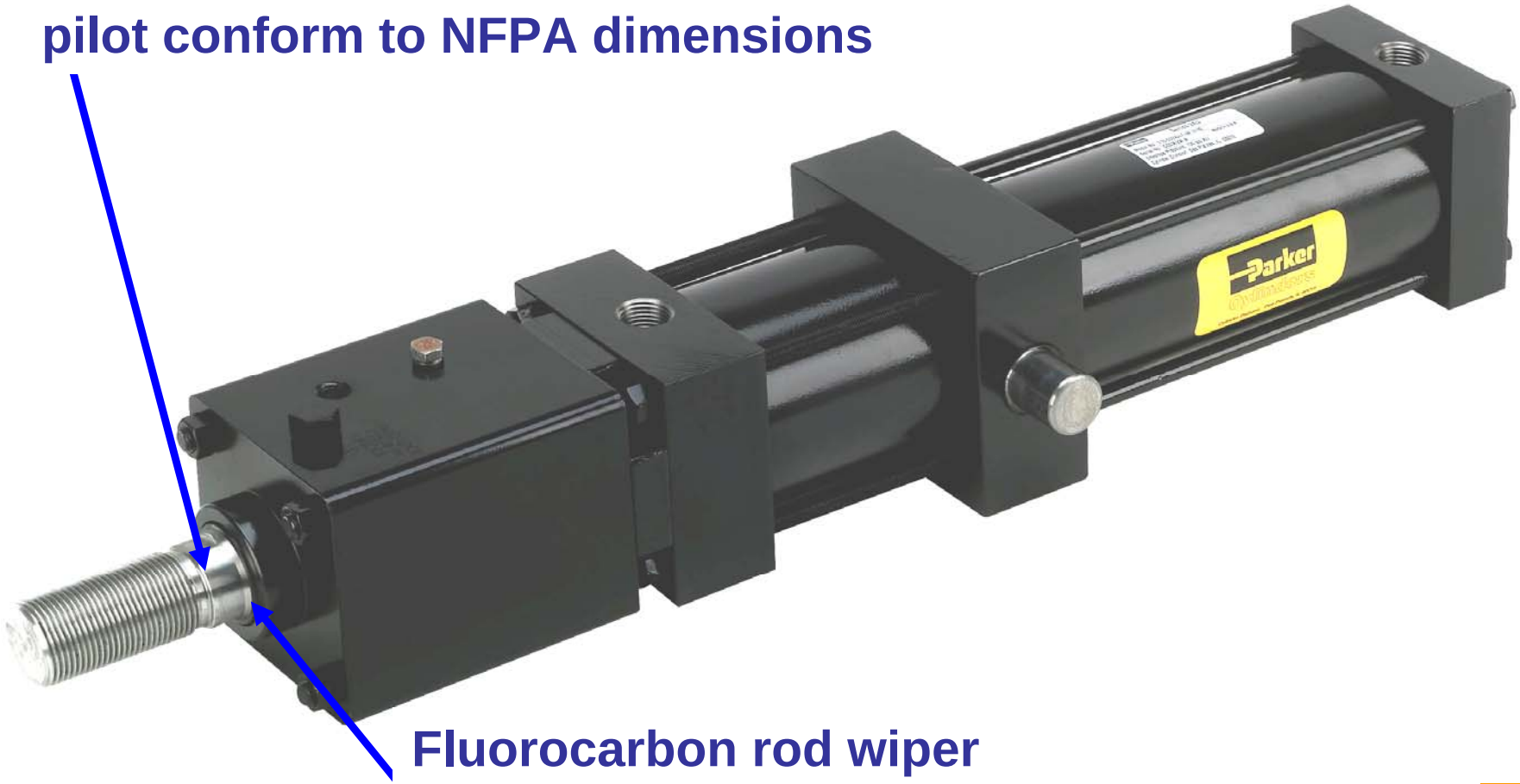
Allows release of the Rod Lock independent of pneumatic controls. Default-to-lock function engages the rod lock when the wrench is removed and the air signal is absent

Rod Lock body is lightweight aluminum

Anodized finish for corrosion protection

Features and Benefits

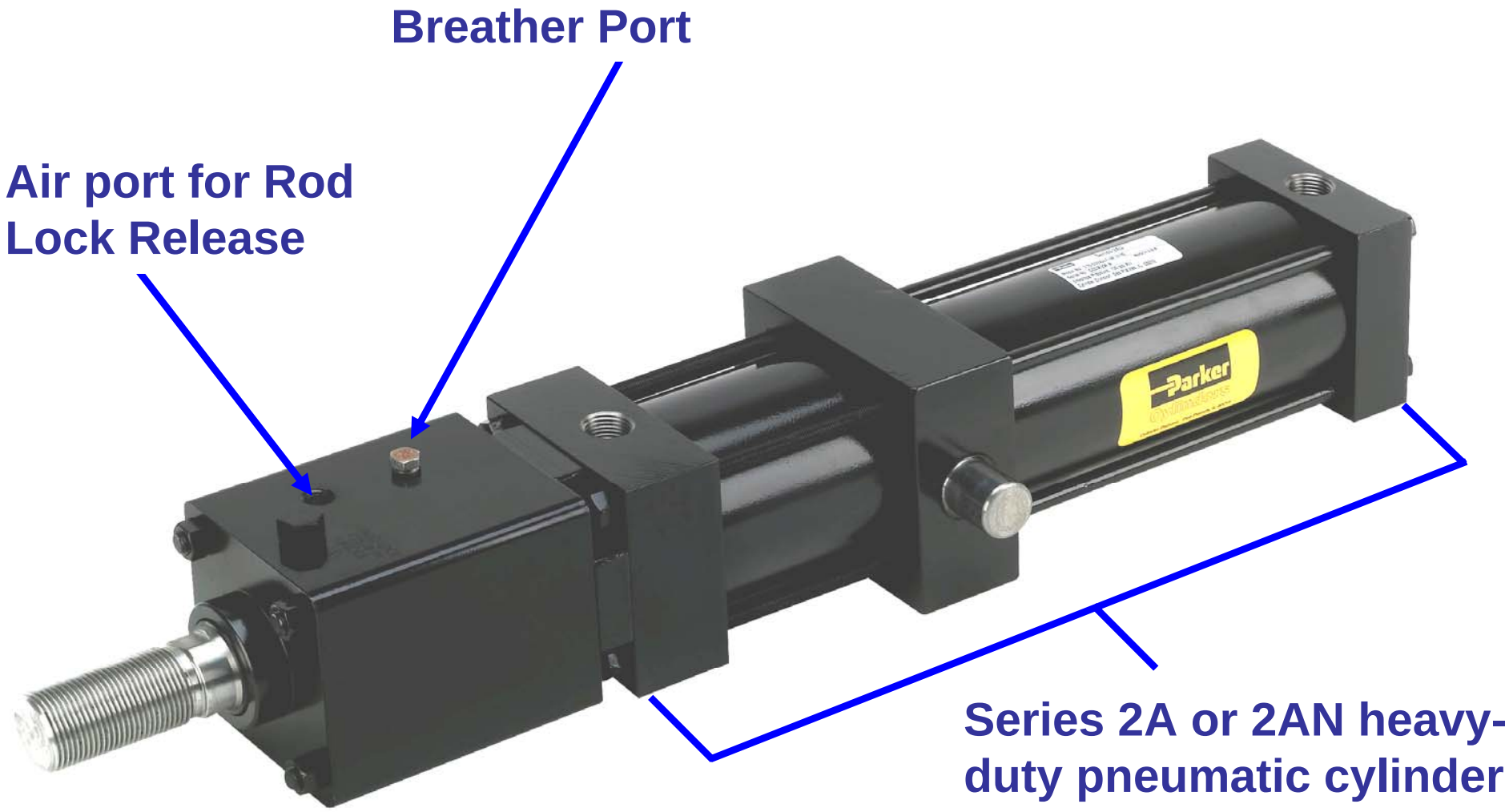
Piston rod extension and Rod Lock pilot conform to NFPA dimensions



Fluorocarbon rod wiper

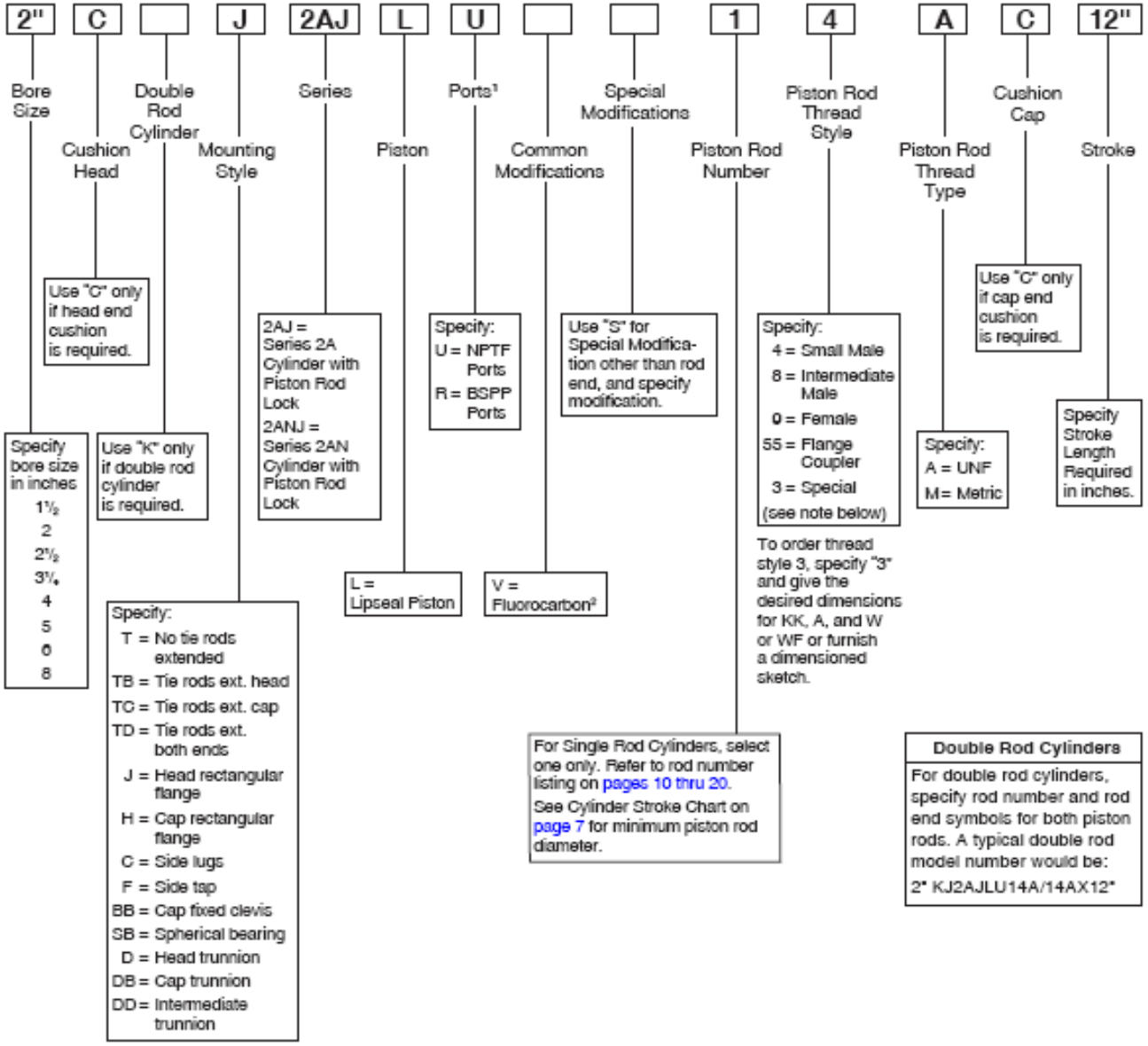
Cleans rod on retract stroke and excludes contamination from the Rod Lock

Features and Benefits

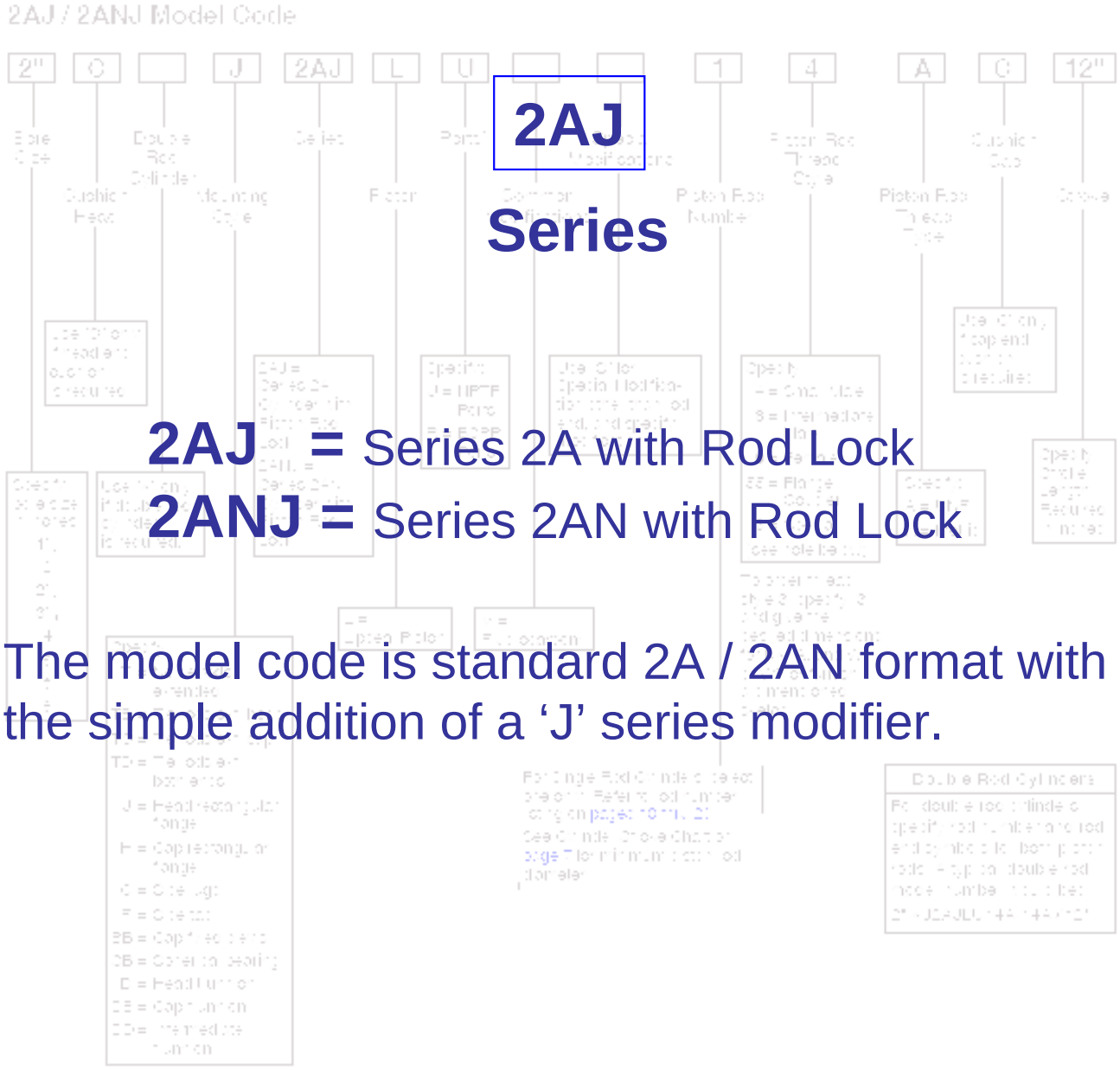


How to order

2AJ / 2ANJ Model Code



How to order



2AJ = Series 2A with Rod Lock

2ANJ = Series 2AN with Rod Lock

The model code is standard 2A / 2AN format with the simple addition of a ‘J’ series modifier.

Series 2AJ/2ANJ Standard Specifications

- **13 Standard mounting styles**
  - **All current standard mounting styles except JB & HB**
- **Bore sizes 1½" - 8"**
- **Strokes – up to 120"**
- **Piston Rod Diameters – ⅝" to 2½"**
  - 1½" bore with code 1 rod
  - 2"- 3¼" bores with code 1 & 3 rods
  - 4"- 6" bores with code 1, 3, & 4 rods
  - 8" bore with code 1, 3, & 5 rods

Series 2AJ/2ANJ Standard Specifications

- **Working pressure up to 100 psi**
  - Except 80 psi for
    - 2” bore, 1” rod
    - 4” & 5” bore, 1¾” rod
    - 6” bore, 2” rod
    - 8” bore, 2½” rod.
- **Single and double rod construction available**
- **Temperature range – -10°F (-23°C) to +165°F (+74°C)**
  - Fluorocarbon seals do not increase temperature resistance of the cylinder and Rod Lock assembly. They only should be specified for chemical compatibility.

Series 2AJ/2ANJ Standard Specifications

- **Minimum Rod Lock release pressure is 60 psi**
- **The Rod Lock is not intended to stop a moving load.**
  - The piston rod must not be moving when the Rod Lock release signal is removed!
- **The Rod Lock holding force is the same in both directions.**
- **The piston rod must not be rotated when the Rod Lock is engaged.**
  - The Rod Lock cannot be used for torsional braking.
- **An unrelated, redundant safety system is recommended to help ensure personal safety.**

Series 2AJ/2ANJ Standard Specifications

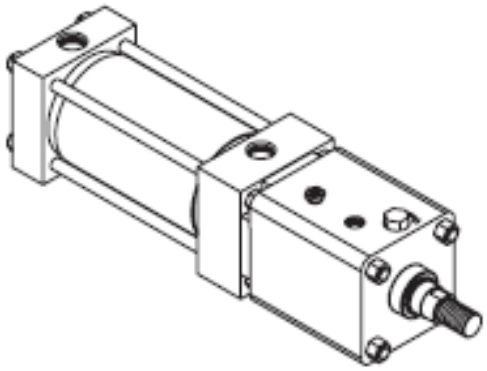
Rod Lock Specifications

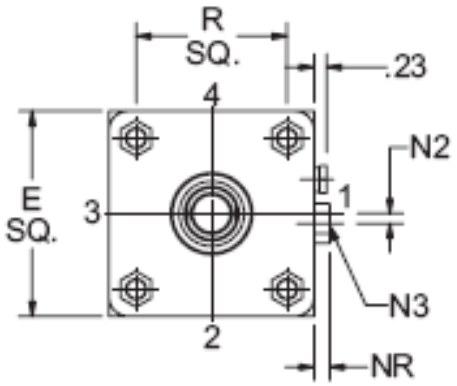
Bore Ø	Rod No.	Rod Ø	Air Chamber Volume (in^3)	Rated Holding Force (lbs)	Minimum Override Torque (ft-lbs applied to hex shaft)	Cylinder Pressure Rating (psi)
1.50	1	0.625	0.25	180	2	100
2.00	1	0.625	0.71	314	5	100
	3	1.000	0.68	250	5	80
2.50	1	0.625	1.26	491	7	100
	3	1.000	1.49	491	7	100
3.25	1	1.000	3.20	830	17	100
	3	1.375	2.11	830	17	100
4.00	1	1.000	6.73	1256	45	100
	3	1.375	4.78	1256	45	100
	4	1.750	3.36	1005	45	80
5.00	1	1.000	11.50	1963	72	100
	3	1.375	9.50	1963	72	100
	4	1.750	8.28	1570	72	80
6.00	1	1.375	14.08	2830	135	100
	3	1.750	12.75	2830	135	100
	4	2.000	12.30	2264	135	80
8.00	1	1.375	22.66	5026	160	100
	3	1.750	23.21	5026	160	100
	5	2.500	17.53	4020	160	80

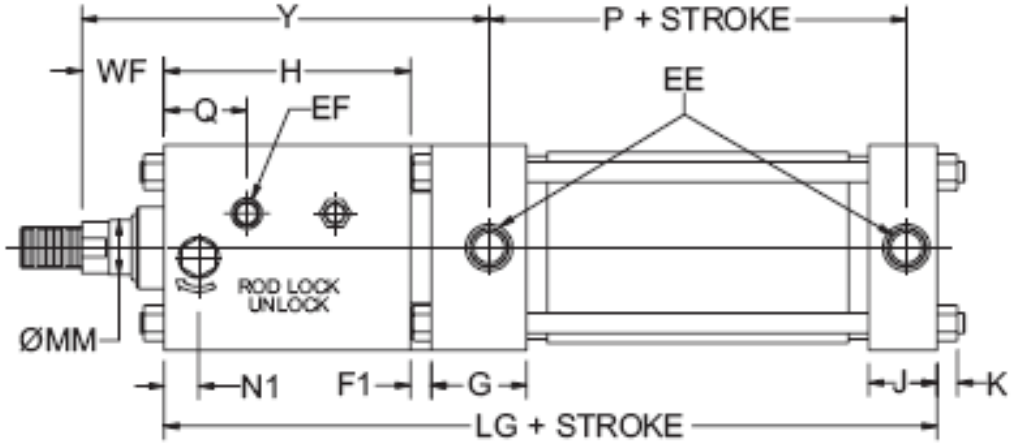
Rated Rod Lock holding force applies only to static load conditions. If the rated load value is exceeded, slippage and other problems (including damage to Rod Lock and piston rod) may occur.

Dimensions T Mount - Single Rod End

All typical product attributes are dimensioned







T Mount Single Rod End – Envelope and Mounting Dimensions

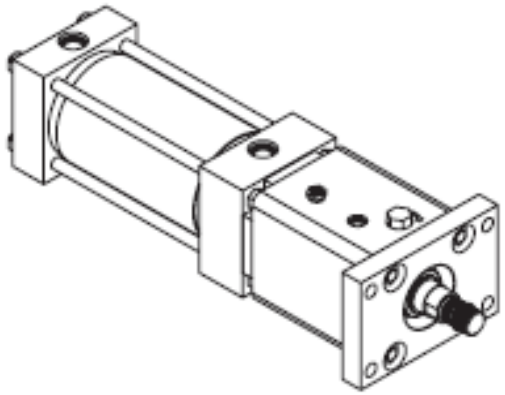
Bore Ø	E	EE NPTF	EF NPTF	F1	G	J	K	N3 Hex	NR (Max.)	R	P Add Stroke
1.50	2.00	3/8	1/8	0.25	1.50	1.00	0.25	5/16	0.24	1.43	2.25
2.00	2.50	3/8	1/8	0.31	1.50	1.00	0.32	1/2	0.32	1.84	2.25

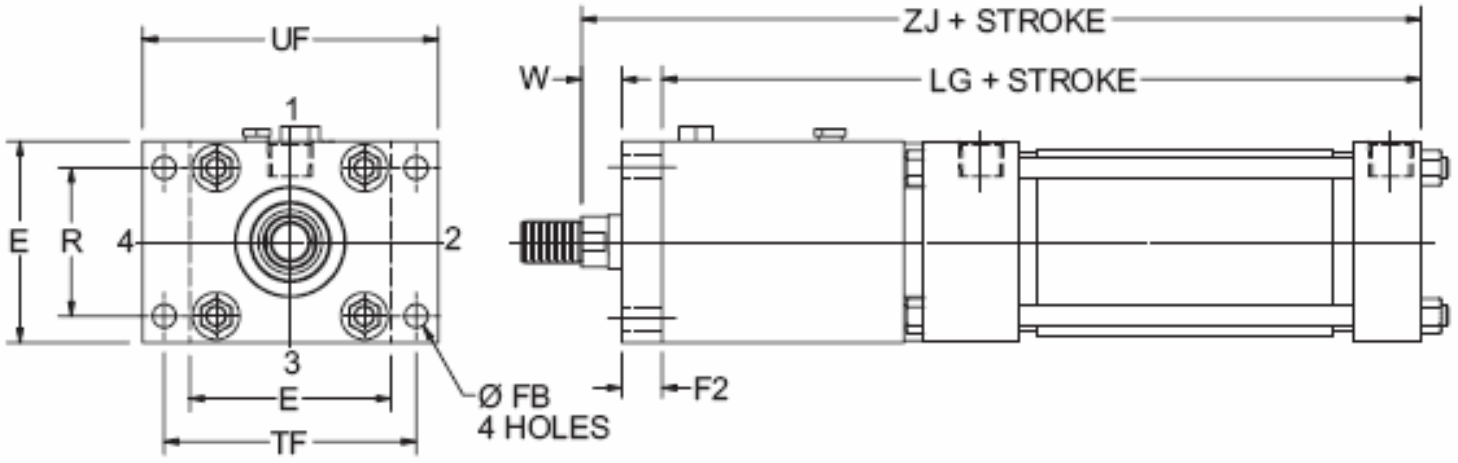
T Mount Single Rod End – Rod Dimensions

Bore Ø	Rod No.	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions												
			CC Style 8	KK Style 4 & 9	A	B +.000 -.002	C	D	H	N1	N2	NA	Q	VD	WF	Y	LG Add Stroke
1.50	1	0.625	1/2-20	7/16-20	0.75	1.124	0.38	0.50	2.63	0.22	0.14	0.56	0.72	0.38	1.00	4.81	6.50
2.00	1	0.625	1/2-20	7/16-20	0.75	1.124	0.38	0.50	2.88	0.34	0.13	0.56	0.90	0.38	1.00	5.13	6.81
	3	1.000	7/8-14	3/4-16	1.13	1.499	0.50	0.88	3.88	0.34	0.15	0.94	1.07	0.50	1.38	6.50	7.81

Dimensions J Mount - Single Rod End

Only mounting-specific product attributes are dimensioned





J Mount Single Rod End – Envelope and Mounting Dimensions

Bore Ø	E	F2	FB (Bolt)	R	TF	UF
1.50	2.00	0.63	0.25	1.43	2.75	3.38
2.00	2.50	0.63	0.31	1.84	3.38	4.13

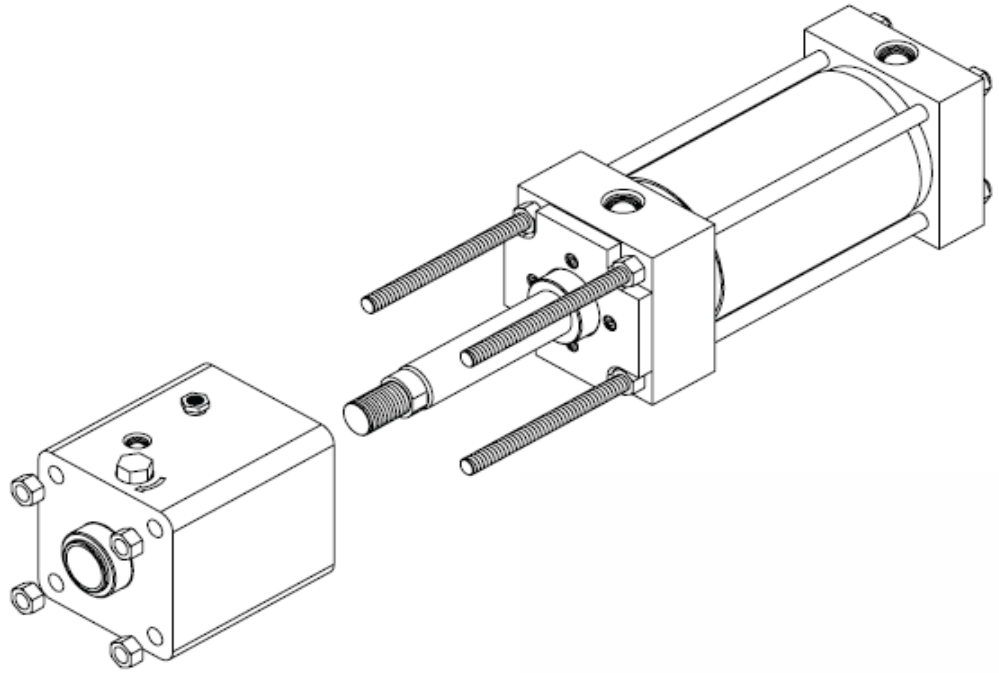
J Mount Single Rod End – Rod Dimensions

Bore Ø	Rod No.	MM Rod Ø	Thread		Rod Extensions and Pilot Dimensions							Add Stroke	
			CC Style 8	KK Style 4 & 9	A	B +.000 -.002	C	D	NA	V	W	LG	ZJ
1.50	1	0.625	1/2-20	7/16-20	0.75	1.124	0.38	0.50	0.56	–	0.63	6.50	7.75
2.00	1	0.625	1/2-20	7/16-20	0.75	1.124	0.38	0.50	0.56	–	0.63	6.81	8.06
	3	1.000	7/8-14	3/4-16	1.13	1.499	0.50	0.88	0.94	–	1.00	7.81	9.44

Series 2A / 2ANJ

Rod Lock Removal & Installation

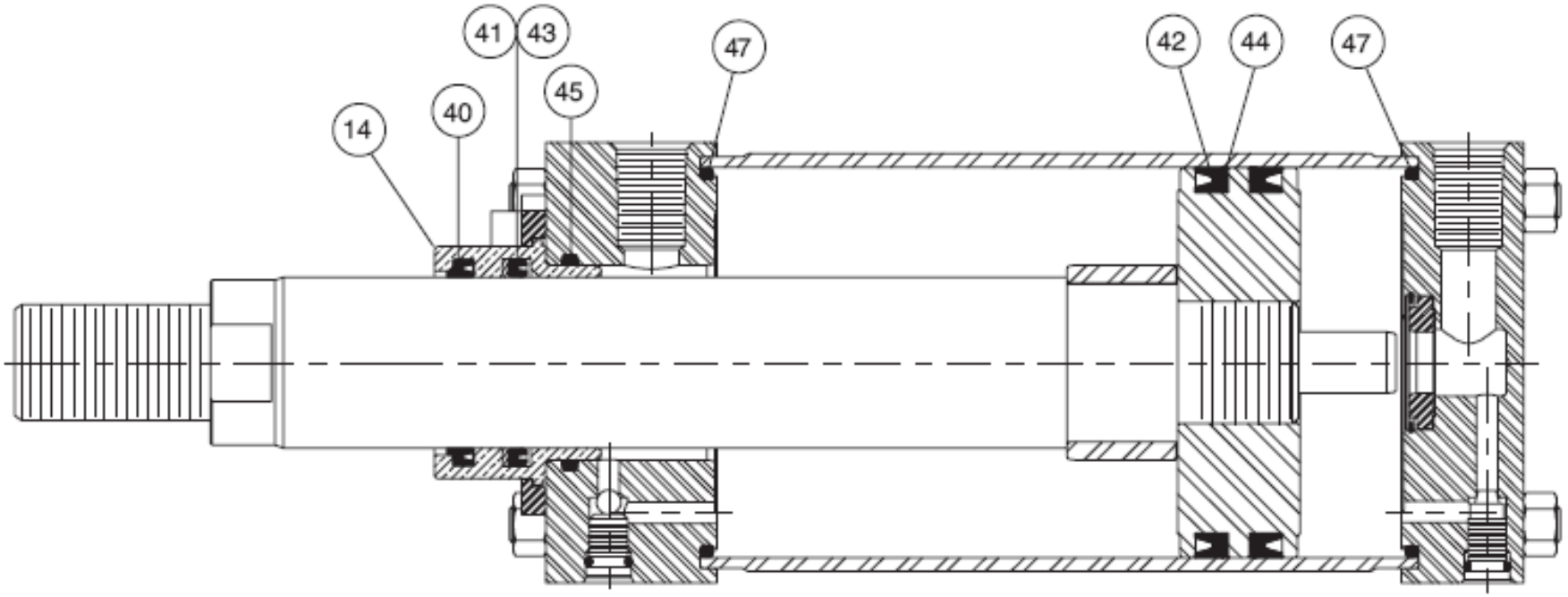
- Remove the four hex tie rod nuts at the face of the Rod Lock.
- Apply a minimum 60 psi to the Rod Lock release port, or apply the appropriate torque to the manual override shaft to disengage the Rod Lock.
- Carefully slide the Rod Lock off the cylinder. The Rod Lock is piloted and sealed to the gland OD which may necessitate carefully prying the unit from the gland retainer.
- The 2AJ or 2ANJ cylinder can now be serviced per normal practice.



Note: The Rod Lock cannot be serviced nor is it considered a service item. The 2AJ or 2ANJ cylinder must be returned to the factory for Rod Lock service.

Series 2A / 2ANJ

Parts Identification & Service Kits



- Because the Rod Lock pilots on the gland and is sealed to the gland OD with an o-ring, a Jewel Gland with spanner wrench slots could not be used.
- The gland used on Rod Lock cylinders is unique to Series 2AJ / 2ANJ.
- Piston seals and body o-rings are standard for Series 2A or 2AN.

Series 2A / 2ANJ

Service Kits

Rod Gland & Rod Seal Kits

Rod Ø	Series 2AJ				Series 2ANJ	
	Class 1		Class 5		Class 1	
	Gland Cartridge Kits (Contains: 1 Each Sym. # 14, 40, 41, 43, & 45)	Rod Seal Kits (Contains: 1 Each Sym. # 40, 41, 43, & 45)	Gland Cartridge Kits (Contains: 1 Each Sym. # 14, 40, 41, 43, & 45)	Rod Seal Kits (Contains: 1 Each Sym. # 40, 41, 43, & 45)	Gland Cartridge Kits (Contains: 1 Each Sym. # 14, 40, 41, & 45)	Rod Seal Kits (Contains: 1 Each Sym. # 40, 41, & 45)
0.625	RG2AJ00061	RK2AJ00061	RG2AJ00065	RK2AJ00065	RG2ANJ0061	RK2ANJ0061
1.000	RG2AJ00101	RK2AJ00101	RG2AJ00105	RK2AJ00105	RG2ANJ0101	RK2ANJ0101
1.375	RG2AJ00131	RK2AJ00131	RG2AJ00135	RK2AJ00135	RG2ANJ0131	RK2ANJ0131
1.750	RG2AJ00171	RK2AJ00171	RG2AJ00175	RK2AJ00175	RG2ANJ0171	RK2AN00171
2.000	RG2AJ00201	RK2AJ00201	RG2AJ00205	RK2AJ00205	RG2ANJ0201	RK2ANJ0201
2.500	RG2AJ00251	RK2AJ00251	RG2AJ00255	RK2AJ00255	RG2ANJ0251	RK2ANJ0251

Piston Seal Kits

Bore Ø	Series 2AJ		Series 2ANJ
	Piston Seal Kits (Contains: 2 Each Sym. # 42, 44 & 47)		Piston Seal Kits (Contains: 2 Each Sym. # 42 & 47)
	Class 1	Class 5	Class 1
1.500	PK1502A001	PK1502A005	PK1502AN01
2.000	PK2002A001	PK2002A005	PK2002AN01
2.500	PK2502A001	PK2502A005	PK2502AN01
3.250	PK3202A001	PK3202A005	PK3202AN01
4.000	PK4002A001	PK4002A005	PK4002AN01
5.000	PK5002A001	PK5002A005	PK5002AN01
6.000	PK6002A001	PK6002A005	PK6002AN01
8.000	PK8002A001*	PK8002A005*	PK8002AN01*

Note: Class 5 seals do not increase temperature resistance of the cylinder and rod lock assembly

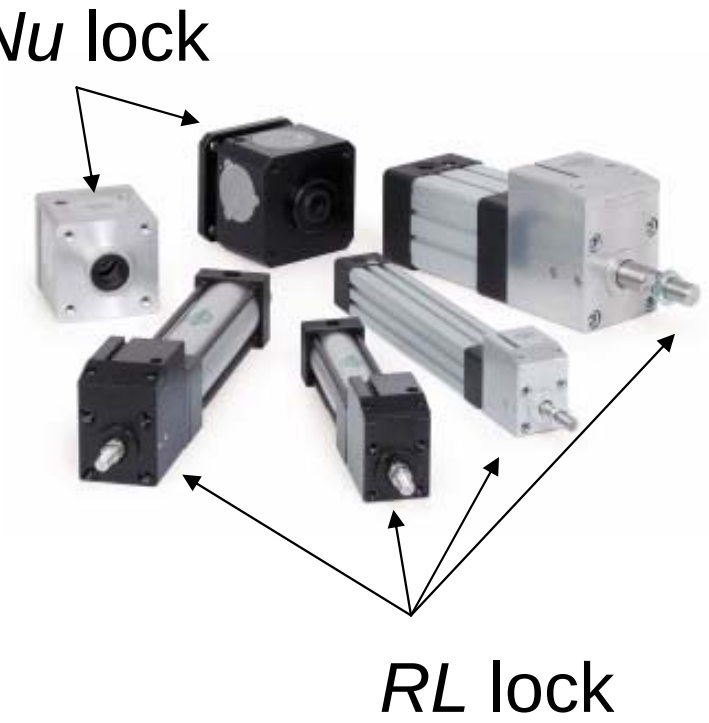
Specify Class 5 seals only for chemical compatibility.

*Kit also includes one each item #121.

Series 2AJ & 2ANJ

Competitive Landscape – Numatics Nu and RL options

- Numatics has ISO/NFPA rod lock cylinder *option*
- Only available through 5” bore
- Oversize rods are not available
- 2 versions: *Nu* and *RL*
- *Nu* lock - no manual override
- *Nu* lock - release pressures may be as high as 90 PSI
- *RL* lock - detented manual override, must manually reset – safety issue!
- *RL* lock – tilt-lock mechanism, 60 PSI minimum to release rod lock
- Lower aesthetic quality due to size



Series 2AJ & 2ANJ

Competitive Landscape – StarCyl ST3RL

- StarCyl has NFPA rod lock cylinder
- No manual override
- Only available through 6” bore
- Oversize rods are special
- Niche player, customer base is small
- Utilizes distribution to generate and support sales
- Sells only pneumatic cylinders

Series 2AJ & 2ANJ

Competitive Landscape – Others

- All other major cylinder manufacturers have ISO 6431 cylinders and possibly rod lock versions through 125mm (5”) bore
- Only ISO 6431 mounting dimensions
- Only 1 rod size per bore (ISO standards)
- Strong focus on automotive market
- NFPA markets are heavily diversified

2AJ & 2ANJ - 2A / 2AN Cylinder with Rod Lock

Current Status

- Stocking rod locks in Plymouth
- 2AJ shipment is 11-15 days ARO
- Catalog in stock at Catalog Services
- Electronic catalog on Cylinder Division web site
- Six cutaway Rod Lock samples available
- Pricing list posted to SNL site
- Branded Parker and soon to be Schrader Bellows

Series 2AJ & 2ANJ
Heavy Duty Pneumatic Cylinders
with
Piston Rod Lock

Thank-you.