

T-MAC CYLINDERS, INC.

*HEAVY DUTY ALUMINUM CYLINDERS
AND ACCESSORIES*

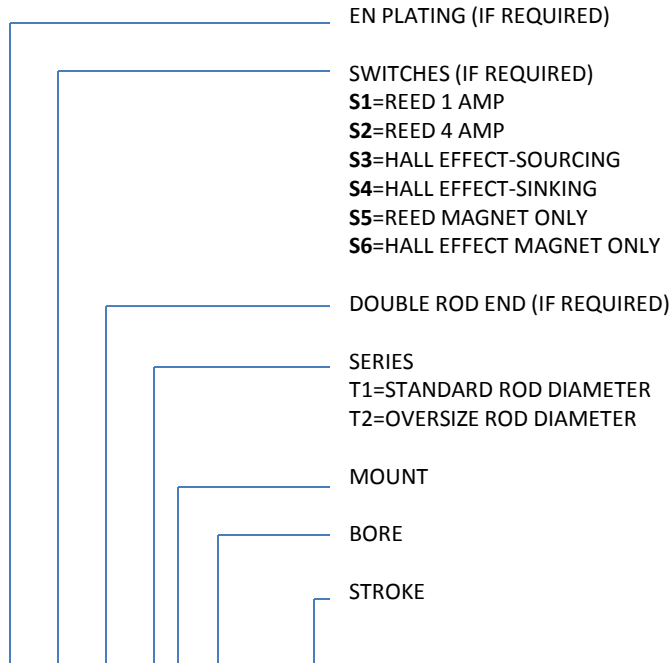


**HIGH QUALITY, DEPENDABLE, NFPA INTERCHANGEABLE
CYLINDERS - MADE IN THE USA.**

9014 SWANSON DRIVE
ROSCOE, IL 61073
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SPECIFICATIONS AND ORDERING INFORMATION



E-S1-D-T1F-4.0X6.0-HC-2-BB-EE1-R-N-SP

CUSHIONS (IF REQUIRED)

N = NON CUSHION
H = CUSHION HEAD
C = CUSHION CAP
HC = CUSHION BOTH

ROD END STYLE

1 = LARGE MALE (CC THD)
1F = FULL DIA. MALE (FT THD)
2 = STANDARD MALE (KK THD)
4 = FEMALE (KK THD)
MOD = NON STANDARD THREAD (SPECIFY)

BUMPERS (IF REQUIRED)

BH = BUMPER HEAD
BC = BUMPER CAP
BB = BUMPERS BOTH

PORT SIZE

EE1 = STANDARD
EE2 = OVERSIZE

R = RETAINER PLATE (IF REQUIRED)

FOR HYDRAULIC SERVICE TO 500 PSI MAX

SEAL MATERIAL

N = NITRILE (STD)
V = VITON – HIGH TEMP
LF = LOW FRICTION

SP = SPECIAL MODIFICATIONS (PLEASE SPECIFY)

STANDARD SPECIFICATIONS

- N.F.P.A. interchangeable.
- Pressure ratings:
T1 and T2 series – 250 psi air/oil service.
(HT and CT trunnion mounts 125 psi max.)
- Bore sizes - 1 ½", 2", 2 ½", 3 ¼", 4", 5", 6", 8" and 10".
- Rod diameters - Standard and one size over standard.
- Rod ends – Four available standards, specials upon request.
- Strokes – Any practical stroke length.
- Cushions – Optional at head, cap, or both ends.
- Single or double end rod configurations.
- 16 mounting styles to choose from.
- Temperature range -10 degrees F. to +225 degrees F.

OPTIONAL FEATURES

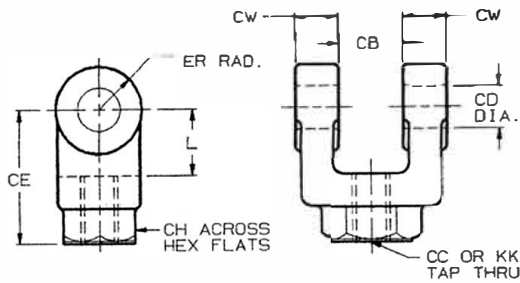
- Viton seals for high temperature service.
-10 degrees F. to +350 degrees F.
- Bumpers (noise reduction)
Available at head end, cap end, or both ends of cylinder. Each bumper increases cylinder length by ¼". (Not available in viton material.)
- Adjustable stroke – Allows adjustment of the retracted position of the piston rod.
- Metallic rod scraper – Wipes harsh particles from rod to protect rod seal.
- End of stroke switches – Reed and hall effect available.
- Retainer plate – For hydraulic service above 250 psi up to 500 psi max.
500 psi non-shock on 1 ½" thru 6" bores.
350 psi non-shock on 8" and 10" bores.
(Note: 125 psi max. non-shock for head and cap trunnion mounts.)
- Air/oil piston – Allows cylinder to operate on air while controlling travel with oil for smooth operation.
- Stainless steel piston rods and tie rods.
- Stop tubes. (see page 15 for details.)
- Electroless nickel plating for corrosive environments.

SPECIALTY CYLINDERS

- Duplex cylinders - Essentially doubles cylinder force.
- Three position cylinders.
- Back to back cylinders.
- Spring extend or spring retract cylinders.
- Stainless steel cylinders.
- Specials welcome. Call for quotations.

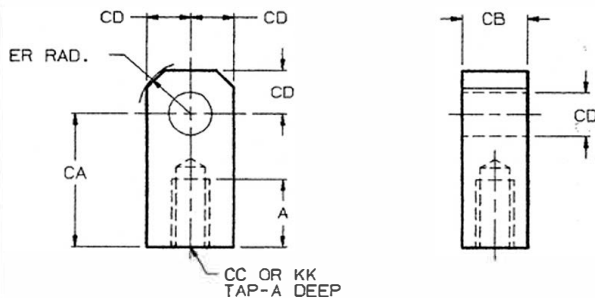
NFPA ACCESSORIES

ROD CLEVIS



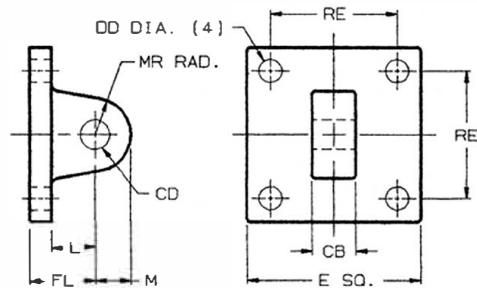
PART NO.	CB	CC	CD	CE	CH	CW	ER	KK	L
T1-820-63	3/4	---	1/2	1 1/2	1	1/2	1/2	7/16-20	3/4
T1-820-63C	3/4	1/2-20	1/2	1 1/2	1	1/2	1/2	---	3/4
T1-820-100	1 1/4	---	3/4	2 3/8	1 1/4	5/8	3/4	3/4-16	1 1/4
T1-820-138	1 1/2	---	1	3 1/8	1 1/2	3/4	1	1-14	1 1/2
T1-820-138C	1 1/2	1 1/4-12	1	3 1/8	1 1/2	3/4	1	---	1 1/2
T1-820-175	2	---	1 3/8	4 1/8	2	1	1 3/8	1 1/4-12	2 1/8
T1-820-200	2 1/2	---	1 3/4	4 1/2	2 3/8	1 1/4	1 3/4	1 1/2-12	2 1/4

ROD EYE



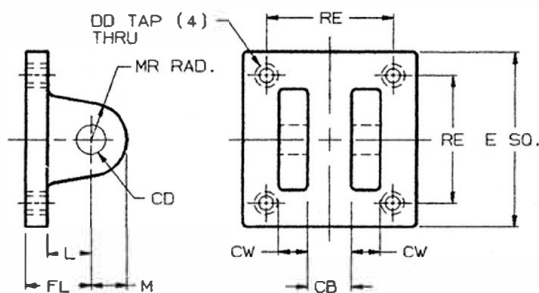
PART NO.	A	CA	CB	CC	CD	ER	KK
T1-821-63	3/4	1 1/2	3/4	---	1/2	9/16	7/16-20
T1-821-63C	3/4	1 1/2	3/4	1/2-20	1/2	9/16	---
T1-821-100	1 1/8	2 1/16	1 1/4	---	3/4	15/16	3/4-16
T1-821-138	1 5/8	2 13/16	1 1/2	---	1	1 1/8	1-14
T1-821-138C	2	2 13/16	1 1/2	1 1/4-12	1	1 1/8	---
T1-821-175	2	3 7/16	2	---	1 3/8	1 3/8	1 1/4-12
T1-821-200	2 1/4	4	2 1/2	---	1 3/4	1 3/4	1 1/2-12

EYE BRACKET



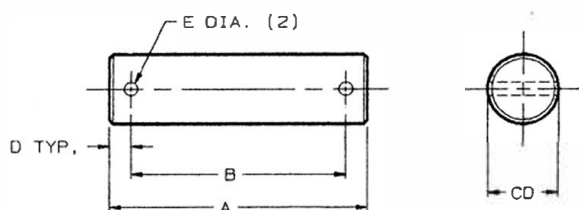
PART NO.	CB	CD	DD	E	FL	L	M	RE
T1-822-63	3/4	1/2	13/32	2 1/2	1 1/8	3/4	1/2	1.63
T1-822-100	1 1/4	3/4	17/32	3 1/2	1 7/8	1 1/4	3/4	2.56
T1-822-138	1 1/2	1	21/32	4 1/2	2 1/4	1 1/2	1	3.25
T1-822-175	2	1 3/8	21/32	5	3	2 1/8	1 3/8	3.81
T1-822-200	2 1/2	1 3/4	29/32	6 1/2	3 1/8	2 1/4	1 3/4	4.95

CLEVIS BRACKET



PART NO.	CB	CD	CW	DD	E	FL	L	M	RE
T1-823-63	3/4	1/2	1/2	3/8-24	2 1/2	1 1/8	3/4	1/2	1.63
T1-823-100	1 1/4	3/4	5/8	1/2-20	3 1/2	1 7/8	1 1/4	3/4	2.56
T1-823-138	1 1/2	1	3/4	5/8-18	4 1/2	2 1/4	1 1/2	1	3.25
T1-823-175	2	1 3/8	1	5/8-18	5	3	2 1/8	1 3/8	3.81
T1-823-200	2 1/2	1 3/4	1 1/4	7/8-14	6 1/2	3 1/8	2 1/4	1 3/4	4.95

PIVOT PIN



PART NO.	A	B	CD	D	E
T1-824-63	2 9/32	1 15/16	1/2	0.17	0.106
T1-824-100	3 3/32	2 23/32	3/4	0.19	0.140
T1-824-138	3 19/32	3 7/32	1	0.19	0.140
T1-824-175	4 21/32	4 1/4	1 3/8	0.20	0.173
T1-824-200	5 21/32	5 1/4	1 3/4	0.20	0.173

MAGNETIC PROXIMITY SWITCHES

T-MAC series switches are designed to sense position of piston/rod assembly on T1 and T2 series cylinders. Two reed switches and two hall effect switches are available as standard. These switches mount easily to the tie rods with a unique clamp that allows it to be positioned anywhere along the tie rod giving you infinite position capabilities. Multiple switches can be mounted for sequencing. All switches have a LED indicator light which illuminates when the switch circuit is closed by the presence of a magnet. Optional switches with varying specifications also available. Please consult factory.

SWITCH SPECIFICATIONS

PART NO.	DESCRIPTION	FUNCTION	SWITCHING VOLTAGE	SWITCHING CURRENT	SWITCHING POWER	SWITCHING SPEED	VOLTAGE DROP
S1-04-9	REED, MOV, 2 WIRE	NORMALLY OPEN-SPST	5-240VDC/VAC 50 / 60 Hz	1 AMP. MAX. .005 AMP MIN.	30 WATTS MAX.	0.6 MS OPERATE 0.05MS RELEASE	3 VOLTS
S2-24-9	REED, MOV 2 WIRE	NORMALLY OPEN TRIAC OUTPUT	24-240VAC 50 / 60 Hz	4 AMP MAX. 50 AMP INRUSH .005 AMP MIN.	100 WATTS MAX.	0.6MS OPERATE 0.05 RELEASE	1 VOLT
S3-31-9	HALL EFFECT, REED MAGNET, SOURCING - 3 WIRE	NORMALLY OPEN PNP OUTPUT	6-24VDC	1 AMP MAX.	24 WATTS MAX.	1.5 MICROSEC. OPERATE 0.5 MICROSEC. RELEASE	0.5 VOLTS
S4-32-9	HALL EFFECT, REED MAGNET, SINKING - 3 WIRE	NORMALLY OPEN NPN OUTPUT	6-24VDC	1 AMP MAX.	24 WATTS MAX.	1.5 MICROSEC. OPERATE 0.5 MICROSEC. RELEASE	0.5 VOLTS

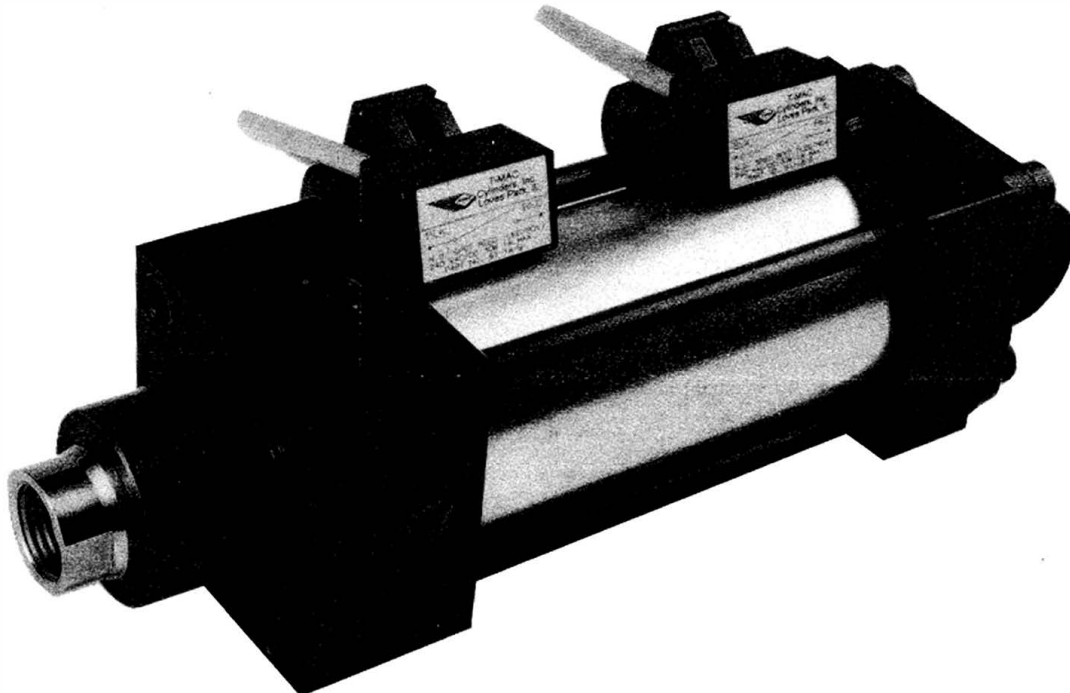
Switch Technical Data

Temperature Range - minus 20 degrees F to plus 175 degrees F.

Shock - reed switch only, 30G max. (11 msec.). Not applicable for hall effect switches.

Vibration - reed switch only, 20G max. (10-55 Hz). Not applicable for hall effect switches.

Magnet sensitivity - 85 gauss parallel.



STANDARD TERMS OF SALE

- 1. Payment.** Subject to credit approval. Payment shall be made by buyer net 30 days from the date of delivery of merchandise purchased herein. Payment made post 30 days shall incur interest at the maximum rate permitted by law for each month or portion thereof that Buyer is late in making such payment. Payment shall not prejudice claims on account of omissions or shortage in shipment, but no such claim will be allowed unless made within 30 days after receipt of Buyer.
- 2. Delivery.** Unless otherwise specified, delivery shall be F.O.B. Seller's plant. Risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Seller shall not be liable for any delays in or failures of delivery due to acts of God or public authority, labor disputes, accidents, fires, floods, extreme weather conditions, failures of and delays by carriers, shortages of materials, delays of a supplier due to causes beyond its control, or any other cause beyond the control of the Seller. Seller shall notify Buyer of any such delays as soon as it becomes apparent. In no event shall Seller be liable for consequential damage arising from delays or failure of delivery. Buyer's requested delivery date shall be approximate and subject to Seller's approval and acceptance.
- 3. Packaging.** All goods shall be packed in containers for protection in shipment. No special packing or crating shall be made unless specifically listed as an additional charge on Seller's quotation or acceptance of Buyer's order.
- 4. Warranty.** All goods sold hereunder are warranted to be free from defects in material and workmanship for a period of 24 months from date of shipment from Seller's plant. These express warranties are in lieu of and exclude all other warranties, express or implied. Seller's sole obligation under these warranties shall be to issue credit, repair, or replace any item or part thereof which is provided to be other than is warranted; no allowance shall be made for any labor charges of Buyer for replacement of parts, adjustment or repairs, or any other work, unless such charges are authorized in advance by Seller. If goods are claimed to be defective in material and/or workmanship, Seller upon notice by Buyer will issue shipping instructions for return of defective product with shipping costs prepaid by Buyer. These warranties shall not extend to any goods or parts thereof which have been subjected to misuse or neglect, damage by accident, rendered defective by reason of improper installation, or by misapplied applications. All design criteria for the use of Seller's products on Buyer's equipment is the sole responsibility of the Buyer.
- 5. Cancellations, changes, or rescheduling.** Buyer may request changes be made in the specifications relating to any goods, quantities and/or schedule dates, or cancellation of goods in part or hole, however, no such requested change shall become part of the contract between Seller and Buyer unless accepted by Seller in a written amendment to this Agreement. If necessary, a equitable adjustment, upward or downward, shall be made in price in so far as warranted.
- 6. Buyer's property.** Any designs, drawings, material, patterns, tools, or equipment furnished by Buyer, or any special tools made or acquired for the Buyer by the Seller which becomes Buyer's property, shall be used only in the production of the goods called for herein and not otherwise, unless by Buyer's written consent. Seller shall not be responsible for any loss or damage to such property while in Seller's possession.
- 7. Special tooling.** A tooling charge may be imposed for special tooling, including but not limited to, fixtures, molds, patterns, or dies. Such tooling shall remain Seller's property notwithstanding payment of any charges by Buyer. Seller may discard obsolete special tooling in its possession at any time, providing two years have passed without Buyer placing an order for such mentioned merchandise.
- 8. Taxes.** Unless otherwise specified on the face hereof, all charges and prices are exclusive of sales, excise, property, use, occupational or like taxes which may be imposed by any taxing authority upon the sale or delivery of the goods sold hereunder. If any such taxes must be paid by Seller, the amount thereof will be in addition to the amount of the goods sold. Buyer agrees to pay all such taxes upon receipt of its invoice. If not collected at time of payment of sales price, Buyer will hold Seller harmless.
- 9. Restocking policy.** Merchandise that is returned must be accompanied by pre-approved Return Goods Authorization (RGA). Return authorizations shall be approved by Seller. When goods are received, inspection of such goods will be performed to determine restocking charges. Goods returned without authorization will be returned to Buyer at Buyer's expense.