



CAPPED T-SEAL

HIGH - PERFORMANCE PISTON SEAL



Capped T-Seal

Macrotech Polyseal Capped T-Seal

Macrotech's Capped T-Seal is a double-acting, high pressure, high performance piston seal, accommodating larger extrusion gaps when used with Macrotech close tolerance WGT wear rings. Major features are excellent extrusion resistance, low friction and low wear in a compact, stable design.

The Capped T-Seal assembly consists of a filled PTFE cap and an elastomeric energizer. These two components are protected from extrusion and foreign material by two plastic anti-extrusion rings.

Macrotech Capped T-Seals are available in a wide range of materials suitable for various fluid power and industrial services. The cap ring can be produced from almost any PTFE compound. However, compounds containing glass, carbon or bronze are the most popular. Nylon anti-extrusion rings are used for most hydraulic services. Other materials are available for more aggressive applications.

Basic 70 Shore A Nitrile, either low temp (-65° F) or standard is the most common energizer, however other elastomeric compounds may be used for specific applications. These materials are shown on page 4 of this brochure. You may want to check with Polyseal customer service for available tooling before designing non-standard materials.

Oversized Bores

The design criteria of the Macrotech Capped T-Seal allows for its use in oversized bores. To ensure maximum life and sealability when ordering for oversized bores, state **exact gland and bore dimensions!** Cap rings and back-up rings will be manufactured accordingly.

The actual range of oversized bore conditions in which the Macrotech Capped T-Seal can be used varies with the cross-section and diameter of the seal.

METAL SURFACE FINISH

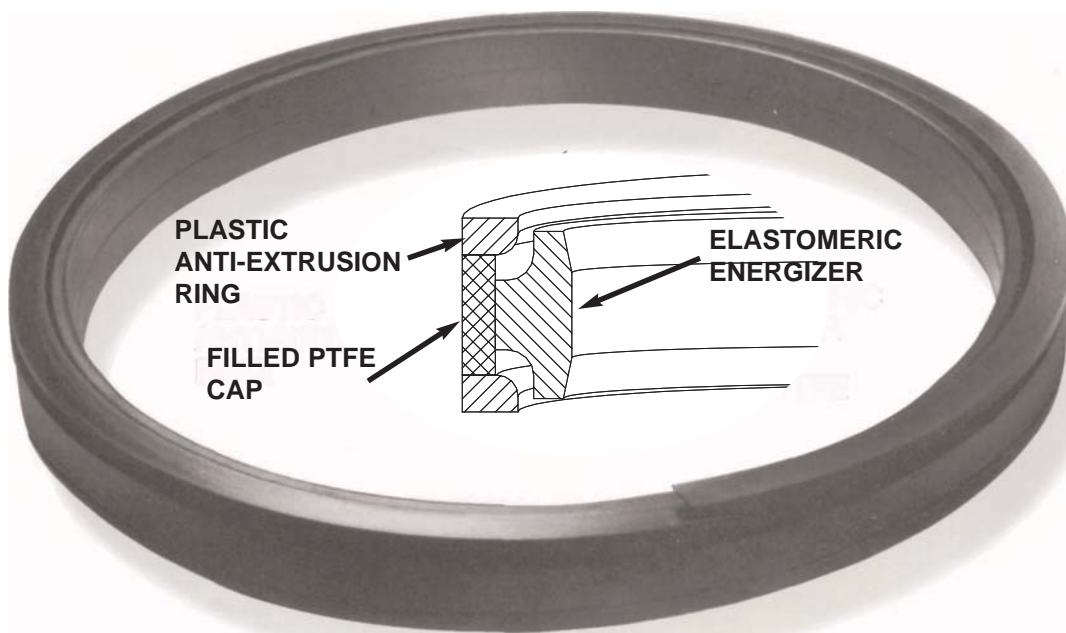
Static surfaces should not exceed 32 RMS. Dynamic surfaces should not exceed 16 RMS.

DIMENSION AND GLAND DESIGNS

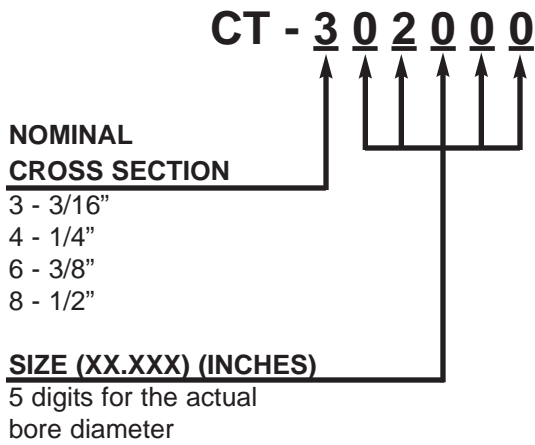
Macrotech Capped T-Seals are available in standard (CT, EK), metric (MK), mil std., and special series. Consult Polyseal Engineering for size or gland dimensions not shown.

USING CLOSE TOLERANCE WEAR GUIDES

By incorporating the use of Close Tolerance Wear Guides in the design of your piston seal package you greatly enhance the sealability and seal life of your Capped T Seal. Macrotech Polyseal Engineering people will work with you to design a total seal package including rod seals and excluders to fit your needs.



STANDARD INDUSTRIAL CAPPED T-SEAL NUMBERING SYSTEM - INCH

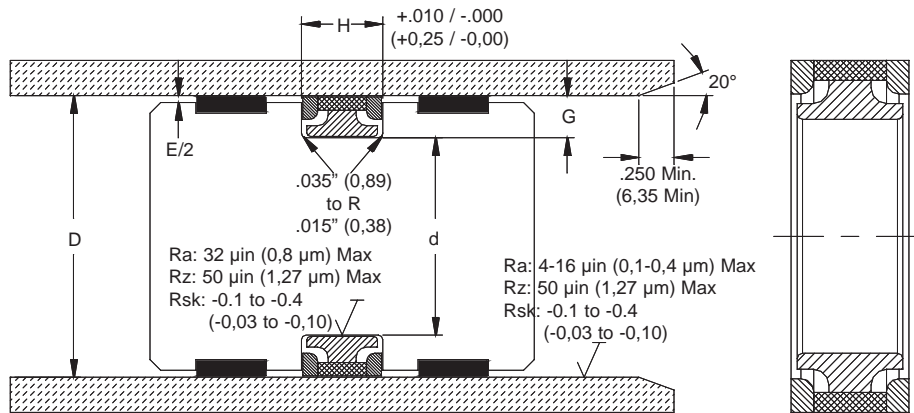


RECOMMENDED GLAND DIMENSIONS - INCH							
"D" BORE DIAMETER	BORE TOLERANCE	"d" GROOVE DIAMETER	GROOVE ϕ TOLERANCE	"H" GROOVE WIDTH	"G" GROOVE DEPTH	CAPPED T-SEAL C/S	E* DIAMETRICAL CLEARANCE
1.000 to 2.875	+0.002/-0.000	ϕ "D"-.374	+0.000/-0.002	.424	.187	3	.025 MAX
3.000 to 4.875	+0.003/-0.000	ϕ "D"-.480	+0.000/-0.003	.579	.240	4	.030 MAX
5.000 to 16.000	+0.004/-0.000	ϕ "D"-.730	+0.000/-0.004	.750	.365	5	.035 MAX
16.125 to 22.000	+0.005/-0.000	ϕ "D"-.940	+0.000/-0.005	.750	.470	6	.035 MAX

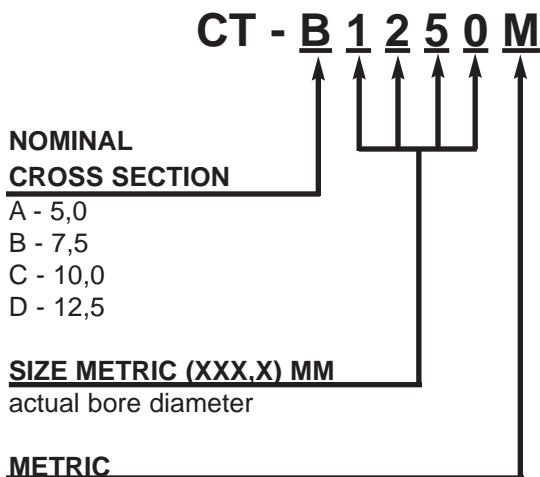
MIL-G-5514 CAPPED T-SEALS. Refer TO MIL-G-5514F Piston Seal groove standards.

Note: Standard groove dimensions shown above are recommended for new gland designs. Retrofitting requires all gland dimensions be measured, Polyseal Engineering can assist designing for oversized bores, etc.

*Recommended for systems up to 6000 PSI. For pressures higher than 6000 PSI consult Macrotech Polyseal Engineering.



STANDARD INDUSTRIAL CAPPED T-SEAL NUMBERING SYSTEM - METRIC



RECOMMENDED GLAND DIMENSIONS - METRIC							
"D" BORE DIAMETER	BORE TOLERANCE	"d" GROOVE DIAMETER	GROOVE ϕ TOLERANCE	"H" GROOVE WIDTH	"G" GROOVE DEPTH	CAPPED T-SEAL C/S	E* DIAMETRICAL CLEARANCE
25 to 74	+0,05/-0,00	ϕ "D"-10,0	+0,00/-0,05	8,0	5,0	A	0,64 MAX
75 to 124	+0,08/-0,00	ϕ "D"-15,0	+0,00/-0,08	12,0	7,5	B	0,76 MAX
125 to 405	+0,10/-0,00	ϕ "D"-20,0	+0,00/-0,10	16,0	10,0	C	0,89 MAX
406 to 560	+0,13/-0,00	ϕ "D"-25,0	+0,00/-0,13	20,0	12,5	D	0,89 MAX

Capped T-Seal

MATERIALS INFORMATION

CAP RINGS				
PTFE COMPOUNDS			TEMP. RANGE* (°F)	TYPICAL SERVICE
702	15% glass 5% moly		- 100 to +450	General purpose hydraulic, hydrocarbon and water.
711	25% carbon graphite			High pressure hydraulic, hydrocarbon and water. Low friction
714	55% bronze 5% moly			High speed, pressure and abrasion resistance.
741	40% bronze			High speed with improved sealability.
771	CaO SiO ₂ MoS ₂			Long wear, General Purpose.
PTFE is inert to most fluids, however the fillers may be affected by certain fluids. If suitability is in doubt, please contact Polyseal Engineering Department.				

ENERGIZERS				
ELASTOMERS			TEMP. RANGE* (°F)	TYPICAL SERVICE
A-8501	NBR Nitrile	70A durometer	-35 to +265°F	General purpose hydraulic, hydrocarbon fluid service.
A-8504	NBR Nitrile	70A durometer	-65 to +240°F	Low temperature hydraulic fluid service.
V-7501	FKM Fluoroelastomer	70A durometer	-40 to +400°F	High temperature and harsh media applications: Hydrocarbons and di-esters.

ANIT-EXTRUSION RING				
PLASTICS			TEMP. RANGE* (°F)	TYPICAL SERVICE
703	PTFE PPS Filled		-100 to +450°F	Extended temperature and media resistance.
707	POLYAMIDE		-40 to +225°F	General purpose hydraulic, hydrocarbon service.
745	PEEK Virgin		-40 to +450°F	Extended temperature, pressure and media resistance.

*Temperature ranges shown are limited by the functional range of the CT assembly. Materials shown may have different operating ranges when used in other seal designs. The information contained herein is based on laboratory test believed to be reliable. It is offered for comparison and guidance to persons who will conduct their own test in order to determine suitability for any purpose.

NOTE: Macrotech Polyseal has been a leader in designing seals for most hydraulic applications. The Engineering department should be contacted for design criteria if your application exceeds the limits of the above materials.

Capped T-Seal

MK AND EK SERIES NUMBERING SYSTEM

CT - 140 MK

CT - 07500 EK

BORE SIZE (MM)

BORE SIZE (INCHES)

METRIC DESIGN

EK DESIGN

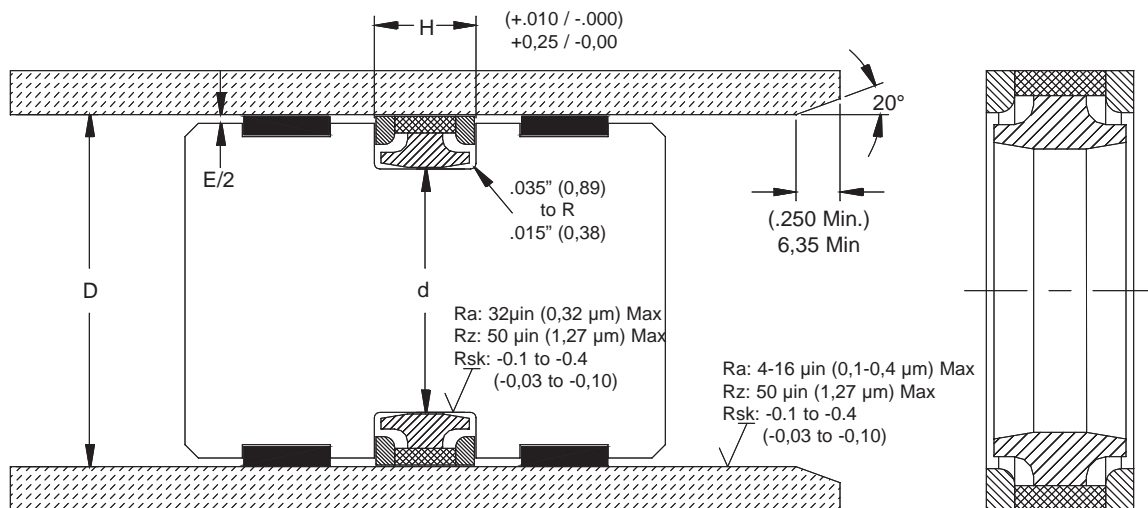
The MK/EK design is primarily used in narrow groove pistons often seen in equipment manufactured in the Pacific Rim area. It is always recommended that groove dimensions are measured before retrofitting Capped T Seals.

RECOMMENDED GLAND DIMENSIONS FOR MK AND EK SERIES

"D" BORE DIAMETER (INCHES) MM	BORE TOLERANCE (INCHES) MM	"d" GROOVE DIAMETER (INCHES) MM	GROOVE Ø TOLERANCE (INCHES) MM	"H" GROOVE WIDTH (INCHES) MM	E* DIAMETRICAL CLEARANCE
(1-3/4 - 2-3/8) 50 - 60 MM	(+.002/- .000) +0,05/-0,00	(0"D"-.551) 0"D"- 14,00	(+.000/- .002) +0,00/-0,05	(.354) 9,00	(.025 MAX) 0,64 MAX
(2-1/2 - 3-1/2) 65 - 90 MM	(+.003/- .000) +0,08/-0,00	(0"D"-.591) 0"D"- 15,00	(+.000/- .003) +0,00/-0,08	(.433) 11,00	(.025 MAX) 0,64 MAX
(3-3/4 - 4-3/4) 95- 120 MM	(+.004/- .000) +0,10/-0,00	(0"D"-.591) 0"D"- 15,00	(+.000/- .004) +0,00/-0,10	(.492) 12,50	(.030 MAX) 0,76 MAX
(5 - 9-3/4) 125 -245 MM	(+.005/- .000) +0,13/-0,00	(0"D" - .906) 0"D" - 23,00	(+.000/- .005) +0,00/-0,13	(.630) 16,00	(.035 MAX) 0,89 MAX
(10 - 12-1/2) 250 - 320 MM	(+.005/- .000) +0,13-0,00	(0"D"-1.102) 0"D" - 28,00	(+.000/- .005) +0,00/-0,13	(.689) 17,50	(.035 MAX) 0,89 MAX

Note: Standard groove dimensions shown above are recommended for new gland designs. Retrofitting requires all gland dimensions be measured, Polyseal Engineering can assist designing for oversize bores etc.

* Recommended for systems up to 6000 PSI. For pressures higher than 6000 PSI consult Macrotech/Polyseal Engineering.



IMPORTANT NOTICE

We reserve the right to make changes without notice in our products and in the information and content of this brochure. The statements and information in the brochure are intended to serve only as guides. They are not warranties or binding descriptions of the products.

NOTICE OF EXCLUSIVE WARRANTY AND REMEDY

Briefly, our exclusive warranty is against defects in materials and workmanship at the time of shipment. It is lieu of all other warranties. *There is no implied warranty of merchantability or fitness for a particular purpose.* The exclusive remedy is replacement of defective products or, at our option, refund of the purchase price. *All damages exceeding the purchase price are excluded,* whether consequential or otherwise and regardless of cause. The terms and conditions on our printed quotation contain a much more complete statement of our Exclusive Warranty and Remedy.



MACROTECH POLYSEAL, INC.

P.O. BOX 26627
(801) 973-9171

Salt Lake City, Utah 84126
FAX: (800) 825-7325