

CT

HEAVY-DUTY CAPPED SEAL

Featuring special anti-extrusion technology

TECHNICAL DETAILS

The Hallite Capped T seal is a compact, double-acting, high-performance piston seal design capable of handling the high pressure and pressure spikes associated with high-performance systems. Hallite's industry-leading design maximizes performance by employing thicker anti-extrusion rings that protect the seal face and energizer from damaging high-pressure shocks well beyond what standard industry designs are capable of. This design, along with our exclusive high-performance Armorlene® HLX material and high-grade elastomers are what make Hallite's CT a high-performing seal.

The CT consists of a filled PTFE cap, high-grade elastomeric energizer, and two precision anti-extrusion rings. Hallite's CT is suitable for a wide range of PTFE materials, the most common being bronze, moly-glass, or carbon filled. MoS₂ filled PA AE rings are the most commonly used for fluid power service, though glass filled, PA, virgin PEEK, and other high-performance materials are also available to suit your needs. The most commonly used energizer is the NBR Shore 80A. However, your CT seal can be configured using several different elastomer compounds including HNBR, low temp. NBR, and FKM.



FEATURES

- Heavy-duty
- High-pressure capability
- PTFE cap ring
- Compact design
- Low friction
- Long life
- Range of material options to extend service application range

Part Number Structure

CTER08000NHLX27

CT	E	R	08000	N	HLX	27
PROFILE DESIGNATION	UNIT OF MEASUREMENT M = Metric E = Inch	APPLICATION Refer to <i>Installation Recommendations</i> and use designator for desired application (R, L, and N)	BORE DIAMETER Metric = mm X 10 Inch = inches X 1000	ENERGIZER MATERIAL Refer to <i>Energizer Table</i> for desired energizer material	PTFE MATERIAL Refer to <i>Material Table</i> for desired PTFE (face) material	AE RING MATERIAL Refer to <i>Anti-extrusion Ring Table</i>



OPERATING CONDITIONS

	metric	inch
Maximum Speed	Up to 1.5m/sec	Up to 5.0ft/sec
Temperature Range*	-45 to 200°C	-49 to 392°F
Maximum Dynamic Pressure**	600 bar	8700 psi

*Dependent upon energizer used (NBR, FKM, etc.). **For pressures above 500 bar (7250 psi), contact Hallite Engineering.

NOTE

Data given are maximum values and can apply depending on specific application. Maximum ratings of temperature, pressure, or operating speeds are dependent on fluid medium, surface, gap value, and other variables such as dynamic or static service. Maximum values are not intended for use together at the same time, e.g. max temperature and max pressure. Please contact your Hallite technical representative for application support.

SURFACE FINISH RECOMMENDATIONS

SURFACE ROUGHNESS	metric			inch			RMR*
	µMRA	µMRZ	µMRT	µINRA	µINRZ	µINRT	
Dynamic Sealing Face ØD₁	0.05 - 0.2	1.3 max	2 max	2 - 8	52 max	78 max	60% - 90%
Static Sealing Face Ød₁	1.6 max	7 max	10 max	63 max	276 max	394 max	
Static Housing Faces L₁	3.2 max	10 max	16 max	125 max	394 max	630 max	

*RMR is measured at a depth of 25% of the Rz value based upon a reference level (zero line) at 5% material/bearing area.

ENERGIZER TABLE

ENERGIZER MATERIAL, (SHORE A)	ENERGIZER TYPE	ENERGIZER DESIGNATION	ENERGIZER OPERATING TEMPERATURE °C	ENERGIZER OPERATING TEMPERATURE °F
NBR - 80A	Capped T	N	-30 to 100°C	-22 to 212°F
NBR - 80A Low temp.	Capped T	L	-45 to 80°C	-50 to 175°F
HNBR - 80A	Capped T	H	-25 to 150°C	-13 to 300°F
FKM - 85A	Capped T	F	-10 to 200°C	15 to 400°F

MACHINED PRECISION (AE RING TABLE)

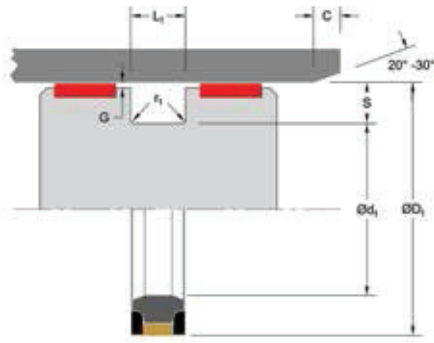
AE RING MATERIAL	AE RING DESCRIPTION	AE RING MATERIAL COLOR	NOMENCLATURE PREFIX	TEMPERATURE RANGE °C	TEMPERATURE RANGE °F
MoS₂ Filled PA	707	Black	-	-57 to 130°C	-70 to 265°F
Glass Filled PA	710	Green	10	-57 to 150°C	-70 to 300°F
Glass Filled PA	727	Black	27	-57 to 150°C	-70 to 300°F
POM	728	White	28	-57 to 130°C	-70 to 265°F
Virgin PEEK	745	Tan	45	-45 to 200°C	-49 to 392°F

MATERIALS

MATERIAL FEATURES AND APPLICATIONS	FILLER	MATERIAL DESIGNATOR	COLOR	TEMPERATURE RANGE °C	TEMPERATURE RANGE °F	MAXIMUM DYNAMIC PRESSURE - BAR	MAXIMUM DYNAMIC PRESSURE - PSI
ARMORLENE® HLX <ul style="list-style-type: none"> Standard material for hydraulic applications High compressive strength Excellent extrusion resistance Extended wear resistance 	Special Bronze Compound	HLX	Gold	-73 to 288°C	-100 to 550°F	500 bar	7250 psi
ARMORLENE® 702 <ul style="list-style-type: none"> Excellent in lubricating and non-lubricating hydraulic fluids Good low-friction properties Excellent extrusion resistance Good chemical resistance 	Glass Molybdenum Disulfide	702	Gray	-73 to 260°C	-100 to 500°F	400 bar	5800 psi
ARMORLENE® 706 <ul style="list-style-type: none"> Excellent in lubricating and non-lubricating hydraulic fluids Excellent extrusion resistance Good chemical resistance Good dielectrical properties 	15% Glass	706	Off-White	-73 to 260°C	-100 to 500°F	400 bar	5800 psi
ARMORLENE® 713 <ul style="list-style-type: none"> High compressive strength Excellent extrusion resistance Excellent wear properties 	60% Bronze Content	713	Bronze	-73 to 288°C	-100 to 550°F	600 bar	8700 psi
HYTHANE® 9270061 - POLYESTER, 55D <ul style="list-style-type: none"> Positive position load holding High chemical resistance Excellent extrusion resistance Excellent wear properties 	Standard	061	Red	-40 to 120°C	-40 to 250°F	500 bar	7250 psi
HYTHANE® 9270111 - POLYESTER, 55D <ul style="list-style-type: none"> Positive position load holding Hydrolysis stabilized Strong chemical resistance Excellent extrusion resistance Excellent wear properties 	Hydrolysis Stabilized	111	Gray	-40 to 120°C	-40 to 250°F	500 bar	7250 psi
HYTHANE® 9270261 - POLYESTER, 55D <ul style="list-style-type: none"> Positive position load holding Internal lubrication provides extended wear in high-speed applications Excellent extrusion resistance Excellent wear resistance 	Internally Lubricated	261	Off-White	-40 to 120°C	-40 to 250°F	500 bar	7250 psi
HU5 - POLYURETHANE, 55D <ul style="list-style-type: none"> Positive position load holding Excellent extrusion resistance Excellent wear resistance 	Standard	HU5	Yellow	-20 to 115°C	-20 to 240°F	500 bar	7250 psi
HU9 - POLYURETHANE, 95A <ul style="list-style-type: none"> Positive position load holding Excellent extrusion resistance Excellent wear resistance 	Standard	HU9	Red	-20 to 115°C	-20 to 240°F	500 bar	7250 psi
HE5 - POLYESTER, 55D <ul style="list-style-type: none"> Positive position load holding Excellent extrusion resistance Excellent wear resistance 	Standard	HE5	Gray/Black	-20 to 115°C	-20 to 240°F	500 bar	7250 psi
ARMORLENE® H1G <ul style="list-style-type: none"> Excellent in lubricating and non-lubricating fluids Excellent extrusion resistance Good chemical resistance Good dielectrical properties 	15% Glass	H1G	Gold	-73 to 260°C	-100 to 500°F	300 bar	4350 psi
ARMORLENE® H2B <ul style="list-style-type: none"> Excellent in lubricating and non-lubricating fluids Excellent extrusion resistance Good chemical resistance Good dielectrical properties 	25% Glass	H2B	Blue	-73 to 260°C	-100 to 500°F	500 bar	7250 psi

For other material options consult the Master Materials Index at the front of the catalog. If you do not find the material that you require, please contact your local Hallite sales office.





INSTALLATION RECOMMENDATIONS - STANDARD INDUSTRIAL CT (4 PIECE CAPPED T SEAL)

Nomeclature designation: "R" or "L" in part number

metric		BORE DIAMETER ØD ₁ H9	GROOVE DIAMETER	GROOVE WIDTH	CHAMFER	GROOVE SECTION	RADIAL CLEARANCE G max*		
DIAMETER RANGE							Ød ₁ h9	L ₁ + 0.2	C
Standard Duty Application - R	Light Duty Application - L								
25.0 - 74.0	-	D ₁ - 10.0	8.00	4.00	5.00	1.0	0.8	0.6	
75.0 - 124.0	125.0 - 405.0	D ₁ - 15.0	12.00	5.00	7.50	1.0	0.8	0.6	
125.0 - 405.0	-	D ₁ - 20.0	16.00	7.00	10.00	1.0	0.8	0.6	
406.0 - 560.0	-	D ₁ - 25.0	20.00	8.00	12.50	1.0	0.8	0.6	

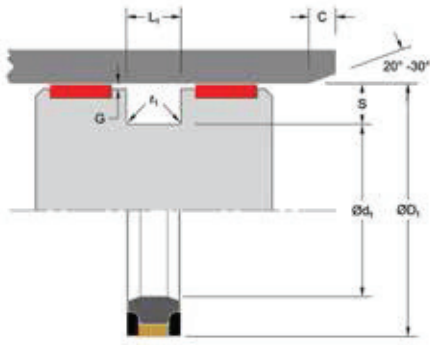
For pressures >500 bar use diameter tolerance H7/f8.

*Radial Clearance G max. = maximum permissible gap all on one side using max. tube diameter and min. clearance diameter.

inch		BORE DIAMETER ØD ₁ H9	GROOVE DIAMETER	GROOVE WIDTH	CHAMFER	GROOVE SECTION	RADIAL CLEARANCE G max*		
DIAMETER RANGE							Ød ₁ h9	L ₁ +0.008	C
Standard Duty Application - R	Light Duty Application - L								
1.000 - 2.999	-	D ₁ - 0.374	0.424	0.160	0.187	0.040	0.030	0.024	
3.000 - 4.999	5.000 - 16.000	D ₁ - 0.478	0.579	0.200	0.240	0.040	0.030	0.024	
5.000 - 16.000	-	D ₁ - 0.725	0.750	0.250	0.365	0.040	0.030	0.024	
16.001 - 22.000	-	D ₁ - 0.940	0.750	0.250	0.470	0.040	0.030	0.024	

For pressures >7250 psi use diameter tolerance H7/f8.

*Radial Clearance G max. = maximum permissible gap all on one side using max. tube diameter and min. clearance diameter.



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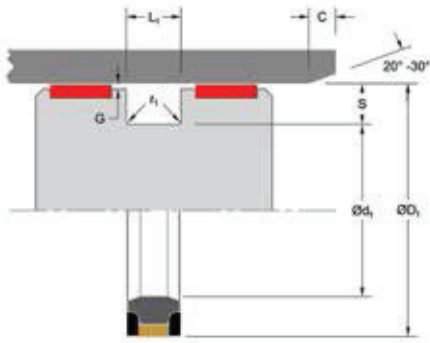
PART NUMBER RANGE (INCH)* L AND R DESIGNATION

inch			LEGACY REF NUMBER	PART NUMBER
ØD ₁	Ød ₁	L ₁		
Tol. H9	Tol. h9	Tol. +0.008		
1.500	1.126	0.424	71002XX	CTER01500*****
1.750	1.376	0.424	71003XX	CTER01750*****
2.000	1.626	0.424	71005XX	CTER02000*****
2.250	1.876	0.424	71006XX	CTER02250*****
2.500	2.126	0.424	71007XX	CTER02500*****
2.750	2.376	0.424	71008XX	CTER02750*****
3.000	2.522	0.579	71010XX	CTER03000*****
3.250	2.772	0.579	71015XX	CTER03250*****
3.500	3.022	0.579	71020XX	CTER03500*****
3.750	3.272	0.579	71025XX	CTER03750*****
4.000	3.522	0.579	71030XX	CTER04000*****
4.250	3.772	0.579	71035XX	CTER04250*****
4.500	4.022	0.579	71040XX	CTER04500*****
4.750	4.272	0.579	71043XX	CTER04750*****
5.000	4.522	0.579	71048XX	CTEL05000*****
5.500	5.025	0.579	71060XX	CTEL05500*****
6.250	5.772	0.579	71069XX	CTEL06250*****
6.500	6.022	0.579	71080XX	CTEL06500*****
5.000	4.275	0.750	71045XX	CTER05000*****
5.250	4.525	0.750	71050XX	CTER05250*****
5.500	4.775	0.750	71055XX	CTER05500*****
6.000	5.275	0.750	71065XX	CTER06000*****
6.030	5.305	0.750	71070XX	CTER06030*****
6.500	5.775	0.750	71075XX	CTER06500*****
7.000	6.275	0.750	71085XX	CTER07000*****
7.500	6.775	0.750	71090XX	CTER07500*****
8.000	7.275	0.750	71095XX	CTER08000*****
8.500	7.775	0.750	71100XX	CTER08500*****

inch			LEGACY REF NUMBER	PART NUMBER
ØD ₁	Ød ₁	L ₁		
Tol. H9	Tol. h9	Tol. +0.008		
9.000	8.275	0.750	71105XX	CTER09000*****
10.000	9.275	0.750	71110XX	CTER10000*****
11.000	10.275	0.750	71115XX	CTER11000*****
12.000	11.275	0.750	71120XX	CTER12000*****
12.500	11.775	0.750	71122XX	CTER12500*****
13.000	12.700	0.750	71124XX	CTER13000*****
14.000	13.275	0.750	71140XX	CTER14000*****
14.500	13.775	0.750	71128XX	CTER14500*****
15.000	14.275	0.750	71130XX	CTER15000*****
16.000	15.275	0.750	71132XX	CTER16000*****
18.000	17.060	0.750	71138XX	CTER18000*****

*Please contact Hallite for custom sizes, material selection, or seal design.





INSTALLATION RECOMMENDATIONS - NARROW GROOVE CT (4 PIECE CAPPED T SEAL)

Nomenclature designation: "N" in part number

metric							
BORE DIAMETER ØD ₁ H9	GROOVE DIAMETER	GROOVE WIDTH	CHAMFER	GROOVE SECTION	RADIAL CLEARANCE G max*		
					up to 160 bar	up to 250 bar	up to 500 bar
DIAMETER RANGE	Ød ₁ h9	L ₁ + 0.2	C	S			
Standard Duty Application - N							
50.0 - 60.0	D ₁ - 14.0	9.00	4.00	7.00	1.0	0.8	0.6
61.0 - 95.0	D ₁ - 15.0	11.00	5.00	7.50	1.0	0.8	0.6
96.0 - 120.0	D ₁ - 15.0	12.50	5.00	7.50	1.0	0.8	0.6
121.0 - 245.0	D ₁ - 23.0	16.00	6.35	11.50	1.0	0.8	0.6
241.0 - 420.0	D ₁ - 28.0	17.50	7.00	14.00	1.0	0.8	0.6

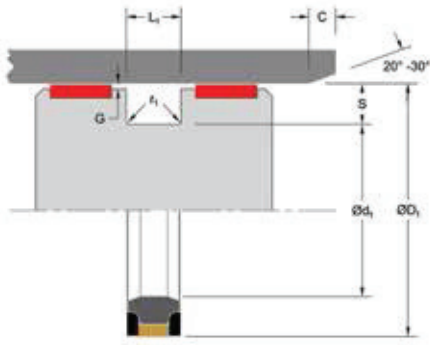
For pressures >500 bar use diameter tolerance H7/f8.

*Radial Clearance G max. = maximum permissible gap all on one side using max. tube diameter and min. clearance diameter.

inch							
BORE DIAMETER ØD ₁ H9	GROOVE DIAMETER	GROOVE WIDTH	CHAMFER	GROOVE SECTION	RADIAL CLEARANCE G max*		
					up to 2300 psi	up to 3625 psi	up to 7250 psi
DIAMETER RANGE	Ød ₁ h9	L ₁ + 0.008	C	S			
Standard Duty Application - N							
1.750 - 2.375	D ₁ - 0.551	0.354	0.160	0.275	0.040	0.030	0.024
2.500 - 3.500	D ₁ - 0.591	0.433	0.200	0.295	0.040	0.030	0.024
3.750 - 4.750	D ₁ - 0.591	0.492	0.200	0.295	0.040	0.030	0.024
5.000 - 9.750	D ₁ - 0.906	0.630	0.250	0.453	0.040	0.030	0.024
10.000 - 15.000	D ₁ - 1.102	0.689	0.280	0.551	0.040	0.030	0.024

For pressures >7250 psi use diameter tolerance H7/f8.

*Radial Clearance G max. = maximum permissible gap all on one side using max. tube diameter and min. clearance diameter.



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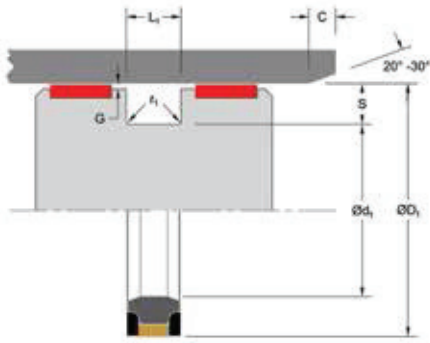
PART NUMBER RANGE (METRIC)* N DESIGNATION

metric			LEGACY REF NUMBER	PART NUMBER
ØD ₁	Ød ₁	L ₁		
Tol. H9	Tol. h9	Tol. +0.2		
50.0	36.0	9.0	71510XX	CTMN00500*****
60.0	46.0	9.0	71515XX	CTMN00600*****
63.0	48.0	11.0	71520XX	CTMN00630*****
65.0	50.0	11.0	71525XX	CTMN00650*****
70.0	55.0	11.0	71530XX	CTMN00700*****
75.0	60.0	11.0	71535XX	CTMN00750*****
80.0	65.0	11.0	71540XX	CTMN00800*****
85.0	70.0	11.0	71545XX	CTMN00850*****
90.0	75.0	11.0	71550XX	CTMN00900*****
95.0	80.0	11.0	71555XX	CTMN00950*****
100.0	85.0	12.5	71560XX	CTMN01000*****
105.0	90.0	12.5	71565XX	CTMN01050*****
110.0	95.0	12.5	71570XX	CTMN01100*****
115.0	100.0	12.5	71575XX	CTMN01150*****
125.0	102.0	16.0	71585XX	CTMN01250*****
120.0	105.0	12.5	71580XX	CTMN01200*****
130.0	107.0	16.0	71590XX	CTMN01300*****
135.0	112.0	16.0	71595XX	CTMN01350*****
140.0	117.0	16.0	71600XX	CTMN01400*****
145.0	122.0	16.0	71605XX	CTMN01450*****
150.0	127.0	16.0	71610XX	CTMN01500*****
160.0	137.0	16.0	71615XX	CTMN01600*****
165.0	142.0	16.0	71620XX	CTMN01650*****
170.0	147.0	16.0	71625XX	CTMN01700*****
175.0	152.0	16.0	71628XX	CTMN01750*****
180.0	157.0	16.0	71630XX	CTMN01800*****
185.0	162.0	16.0	71635XX	CTMN01850*****
190.0	167.0	16.0	71640XX	CTMN01900*****

metric			LEGACY REF NUMBER	PART NUMBER
ØD ₁	Ød ₁	L ₁		
Tol. H9	Tol. h9	Tol. +0.2		
200.0	177.0	16.0	71645XX	CTMN02000*****
210.0	187.0	16.0	71650XX	CTMN02100*****
215.0	192.0	16.0	71653XX	CTMN02150*****
220.0	197.0	16.0	71655XX	CTMN02200*****
225.0	202.0	16.0	71660XX	CTMN02250*****
230.0	207.0	16.0	71665XX	CTMN02300*****
235.0	212.0	16.0	71668XX	CTMN02350*****
240.0	217.0	16.0	71670XX	CTMN02400*****
250.0	222.0	17.5	71675XX	CTMN02500*****
260.0	232.0	17.5	71680XX	CTMN02600*****
270.0	242.0	17.5	71682XX	CTMN02700*****
275.0	247.0	17.5	71683XX	CTMN02750*****
280.0	252.0	17.5	71684XX	CTMN02800*****
290.0	262.0	17.5	71685XX	CTMN02900*****
300.0	272.0	17.5	71687XX	CTMN03000*****
310.0	282.0	17.5	71688XX	CTMN03100*****
320.0	292.0	17.5	71689XX	CTMN03200*****
330.0	302.0	17.5	71691XX	CTMN03300*****
350.0	322.0	17.5	71695XX	CTMN03500*****
360.0	332.0	17.5	71696XX	CTMN03600*****
400.0	372.0	17.5	71699XX	CTMN04000*****

*Please contact Hallite for custom sizes, material selection, or seal design.

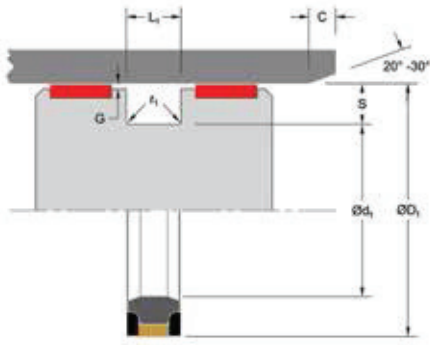




PART NUMBER RANGE (INCH)*

inch			LEGACY REF NUMBER	PART NUMBER
ØD ₁	Ød ₁	L ₁		
Tol. H9	Tol. h9	Tol. +0.008		
4.500	3.909	0.492	71039XX	CTEN04500*****
4.750	4.159	0.492	71042XX	CTEN04750*****
5.000	4.094	0.630	71044XX	CTEN05000*****
5.500	4.594	0.630	71054XX	CTEN05500*****
6.000	5.094	0.630	71064XX	CTEN06000*****
6.250	5.344	0.630	71068XX	CTEN06250*****
6.500	5.594	0.630	71074XX	CTEN06500*****
7.000	6.094	0.630	71084XX	CTEN07000*****
7.250	6.344	0.630	71086XX	CTEN07250*****
7.500	6.594	0.630	71089XX	CTEN07500*****
7.750	6.844	0.630	71092XX	CTEN07750*****
8.250	7.344	0.630	71097XX	CTEN08250*****
8.500	7.594	0.630	71099XX	CTEN08500*****
10.000	8.898	0.689	71109XX	CTEN10000*****
10.250	9.148	0.689	71700XX	CTEN10250*****
10.500	9.398	0.689	71112XX	CTEN10500*****
11.500	10.398	0.689	71117XX	CTEN11500*****
14.000	12.898	0.687	71127XX	CTEN14000*****

*Please contact Hallite for custom sizes, material selection, or seal design.



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OTHER GROOVE SIZES



Part Number Structure

CTEZ71021NHLX

CT	E	Z	71021	N	HLX	
PROFILE DESIGNATION	UNIT OF MEASUREMENT M = Metric E = Inch	APPLICATION Z = Non-Standard Grooves	BODY SIZE Legacy serial part number designation (First 5 digits)	ENERGIZER MATERIAL Refer to Energizer Table for desired energizer material	PTFE MATERIAL Refer to Material Table for desired PTFE (face) material	AE RING MATERIAL Refer to Anti-extrusion Ring Table

PART NUMBER RANGE Z DESIGNATION

inch					metric				
ØD ₁	Ød ₁	L ₁	LEGACY REF NUMBER	PART NUMBER	ØD ₁	Ød ₁	L ₁	LEGACY REF NUMBER	PART NUMBER
Tol. H9	Tol. h9	Tol. +0.008			Tol. H9	Tol. h9	Tol. +0.2		
3.525	3.020	0.584	71021XX	CTEZ71021*****	105.0	88.0	14.0	71566XX	CTMZ71566*****
4.500	3.835	0.500	71038XX	CTEZ71038*****	115.0	98.0	14.0	71576XX	CTMZ71576*****
5.000	4.225	0.630	71047XX	CTEZ71047*****	125.0	108.0	14.0	71584XX	CTMZ71584*****
5.500	4.725	0.630	71053XX	CTEZ71053*****					
6.030	5.300	0.755	71066XX	CTEZ71066*****					
8.250	7.255	0.630	71096XX	CTEZ71096*****					
8.250	7.344	0.635	71097XX	CTEZ71097*****					
8.500	7.505	0.630	71101XX	CTEZ71101*****					
8.500	7.594	0.635	71099XX	CTEZ71099*****					
10.000	8.898	0.693	71109XX	CTEZ71109*****					
10.500	9.398	0.693	71112XX	CTEZ71112*****					
11.500	10.398	0.693	71117XX	CTEZ71117*****					

