



Writeup on 33XC/37XC/41XC as of May 2023

Background

After shooting a .338 Lapua Improved and then necking it up to .375 followed by 3 different .375 Cheytacs, I came to several conclusions about what I think would be a more efficient cartridge approach to shooting ELR.

A .338 Lapua Improved is too much work and there is an ill-conceived design flaw surrounding the .338 Lapua Improved (current reamer headspacing as well as available resize die parameters work together to create a short case life). While doing all that work for approximately 10 grains more powder capacity.

I chambered up 3 different .375 Cheytacs with the conclusion that the case is overbore (too much case capacity) along with too shallow a shoulder angle. The .375 Cheytac uses 20 grains more powder to get another 50 feet per second over a 37XC.

CheyTac issues are as follows:

1. Need to buy a new, larger reloading press.
2. Need to buy custom dies, which are overpriced, and they still may not work as you would like them to.
3. Need to buy a larger action diameter, so figure a new gun is in order.

Several thousand dollars later, after all of this has been accomplished, you now have a .375 Cheytac.

From shooting and borescoping the .375 Cheytacs, the barrel life was short (2 of the barrels made it to 600 rounds each with lathe turned solid bullets).

I prefer the best of both worlds, along with the ability to use the TUBBGUN™ platform, which allows “at the range/on the bench” caliber changes, so the 33XC (necked up to 37XC or 41XC if desired) came to life.

The 33XC (.338), 37XC (.375), and 41XC (.416) are based off of a .585” bolt head
The 33XC is the parent case for the 37XC and 41XC.

The 33XC/37XC/41XC uses standard reloading dies along with 7/8” x 14 tpi (threads per inch) reloading press.

There is no fireforming and all the case “improving” is done in a production case (over 20 grains more powder capacity, 35-degree shoulder, and longer neck when compared to a 338 Lapua).

This leaves the various .338 Lapua wildcats and the Remington Ultra mag improved into the also ran category. They simply can't compete with the velocity of the 33XC. **The 33XC (eXtra Capacity) has 139 gr of H2O capacity** while approaching 130 grains of useable powder capacity yet leaving the .393" neck unfilled (for bullet seating as it should be) - depending on the powder density and drop tube length. A fired case will extract with ease when using a properly polished chamber with a maximum powder charge after being full length resized in the Superior Shooting Systems A7 tool steel resize die.

Brass

Peterson Cartridge Company is making the XC brass for Superior Shooting Systems.

The 33XC (.338), 37XC (.375), and 41XC (.416) are based off of a .585" bolt head

The 33XC is the parent case for the 37XC and 41XC. Meaning the brass used for the 33XC is the same brass that is used for the 37XC and 41XC. The brass for the 37XC and 41XC is simply necked up to .375 for the 37XC and necked up to .416 for the 41XC. The brass will still say 33XC on the headstamp.

Brass is sold in 100 count bags. Both 33XC brass and 37XC brass (which is 33XC brass necked up to .375) can be purchased directly from Superior Shooting Systems. 33XC brass sold by Superior Shooting Systems that is necked up to 37XC will cost 15 cents additional cost per piece.

33XC brass necked to 41XC can be ordered by calling Superior Shooting Systems

Link for brass:

<http://www.davidtubb.com/index.php?route=product/search&search=brass> or call (806)-323-9488 to order brass.

Reloading Dies

The 33XC/37XC/41XC die set is designed to be useable with either bullet diameter (both the seater die and the resize die).

Link to dies: <http://www.davidtubb.com/index.php?route=product/search&search=die>

The 33XC has a 35-degree shoulder angle. It also has .350" more body length as well as less body taper. The neck is .065" longer when compared to a .338 Lapua case.

Total case overall length is 3.087" (.415" longer than a .338 Lapua and slightly longer than a Cheytac case).

The 33XC utilizes a unique design like the 6XC resize die by using A7 tool steel in a small base resize die (7/8 x 14). The 33XC/37XC/41XC resize die comes with your choice of 2 (.365" and .367") integral neck shoulder bushings and also a (.400") 37XC integral neck shoulder bushing which doubles as the 33XC headspace gauge. Keep in mind you will NOT need to buy a new reloading press as the die is designed to work in a standard (7/8x14) press. Additionally, the Superior Shooting System's 33XC/37XC/41XC competition bullet seater is designed to seat (with minor body height adjustments) all 3 bullet diameters. I am currently reloading both 33XC and 37XC and 41XC calibers on my Dillon 550.

Seating Die info

Link to dies for 33XC/37XC/41XC

<http://www.davidtubb.com/index.php?route=product/search&search=die>

Reamer info for 33XC, 37XC, and 41XC

*Current Reamer Prints are at the bottom of this write-up

Manson makes the reamers for the 33XC, 37XC, and 41XC.

Phone number is 810-953-0732.

Superior Shooting Systems is also selling Manson floating pilot reamers for 33XC and 37XC. All have a 1 ½ degree lead angle for the throat.

33XC has .225" straight section

37XC has .225" straight section

41XC has .330 straight section

These dimensions typically fit most all the bullets we have encountered.

<http://www.davidtubb.com/index.php?route=product/search&search=reamer>

41XC reamer can be purchased directly from Manson. I recommend a .330 freebore for the 41XC.

We also keep the 6XC Manson floating pilot reamers in stock. 6XC reamer has .160" straight section and a 1 ½ degree lead angle.

<http://www.davidtubb.com/index.php?route=product/search&search=reamer>

Go Gauge and No-Go Gauge info

33XC/37XC/41XC all use the same go gauge.

Superior Shooting Systems sells the Go Gauge for the 33/37/41XC

<http://www.davidtubb.com/index.php?route=product/search&search=gauge>

We use the go-gauge for the no-go and a piece of brass. We don't use No Go gauges. In my opinion, this lends itself to allowing excessive headspacing for precision ammo.

Your new piece of brass is always shorter than your go gauge.

Cut your chamber so you can barely feel resistance from the steel go-gauge when closing (take your firing pin assembly out) the bolt on the go gauge and the rifle will then close on a new piece of brass with no resistance.

This typically results in a new piece of brass stretching .003-.004" when fired.

Your brass life is greatly enhanced using these parameters.

If you are interested in a No-go gauge call Manson Reamers

Link to go-gauge and Hornady 33XC, 37XC case gauges

<https://www.davidtubb.com/index.php?route=product/search&search=gauge>

Reamer Discussion:

Reamer Prints for the 33XC, 37XC and 41XC are at the bottom of this writeup

All the reamers use a 1 ½ degree lead.

Please note: You will currently need to buy your own separate expander mandrel setup. (Sinclair sells one).

***As of May 2023, I am now recommending that anyone wanting to build a 33XC or 37XC, whether it be for turned solid bullets or jacketed/lead core bullets, use a reamer with a .225 freebore as it will cover both types of bullets. In my opinion, using a .225 freebore for the 33XC and 37XC aligns either type of bullet (turned solid or jacketed/leadcore) better into your barrel and provides even better accuracy.

Case Over All Length is 3.087" (.415" longer than a .338 Lapua and slightly longer than a Cheytac case).

I am single loading for accuracy.

Loaded Cartridge Over All Length approaches 4.4 to 4.9" depending on caliber and bullet selection.

***Info on lead core/jacketed bullets vs turned solid bullets

If you **plan to shoot a lead core/jacketed bullet** from either a 33XC, 37XC, or 41XC, then you want a **1:9 twist for the 33XC**, a **1:11 twist for the 37XC** and a **1:11 or 1:12 twist for the 41XC**, otherwise you could lose a bullet from the faster spin rate of quicker twist barrels.

If shooting turned solids from a 33XC, you can use a **1:9 twist or faster twist (1:8 or 1:7)**. **If shooting turned solids from a 37XC**, then you can use a **1:9 twist or faster twist (1:8 or 1:7)**. **If shooting 41XC with turned solids only**, I recommend a **1:9 twist**.

Load Information for 33XC, 37XC, and 41XC

Results of testing from 4 different Schneider barrels – use caution when reloading by starting with a 4-grain reduced charge.

Peterson pressure testing indicates that the base head will withstand up to 87,000 psi before the primer pocket becomes loose. *If your primer pockets become loose, you need to let your load DOWN. We suggest operating in the 65,000psi range.*

33XC load information

If you already have a .338 Lapua and desire to rechamber, Superior Shooting Systems sells 33XC Manson reamers (type in reamer in search bar on davidtubb.com). You can also order your own reamer from Manson (810-953-0732).

The 33XC favors slower burn rate powders with 300 grain bullets. Bullets lighter than 300 grains perform optimally using slightly faster burn rate powders. 300 grain jacketed/lead core bullets leave at over 3150 fps and 250 grain jacketed/lead core bullets yield over 3450 fps. Monolithic 250 grain bullets achieve the same velocities with approximately 3 grains less powder.

If you intend on shooting leadcore/jacketed bullets for 33XC, then stick with a 1:9 twist, otherwise you may lose an occasional bullet from the excessive spin rate of quicker twist barrels. Turned solid bullets for 33XC can be shot with 1:9 twist or faster twist rate.

33XC with 33-inch Schneider barrel with P5 rifling, 1:9 twist

*When working up a load, start 3-4 grains lower to be safe.

111 grains of **H1000** with 299 DTACS with NOSERING™ going 3150 fps

115 grains of **IMR 8133** going 3175 fps with 299 DTACs with NOSERING™

120 grains of **H50 BMG** going 3160 fps with 300 grain Berger bullets: (start around 116gr of H50BMG with the 300grain Berger bullets and work your way up in 2 grain increments with the H50BMG (not 0.2 increments).

128 gr **H50 BMG** going 3380 fps with a 250 gr turned solid Badlands bullet

128 gr **H50 BMG** going 3320 fps with a 250 gr Sierra bullet

112gr **Vihtavuori N565** with 300 grain lead core bullet will go roughly

3200fps (start at 106gr and work your way up)

114 gr **N570** with 300 grain lead core bullet will go roughly 3200 fps (start at 106 grains and work your way up)

121 gr **Reloader 33** going 3120 fps with a Berger 300 grain bullet

125 gr **Reloader 33** going 3425 fps with a 250 gr Badlands turned solid

128 gr **Reloader 33** going 3460 fps with a 250 gr Sierra bullet

119.5 gr **Reloader 50** going 3200fps, 285gr Warner flatline, TUBB®

NOSERING

114gr **24n41** going 3020fps with 275 CE lasers (Schneider P5, 32in, 1:8 twist)

116.5gr **24n41** going 3050fps with 300 CE lasers (Schneider P5, 32in 1:8 twist)

Link to 33XC loaded ammo

https://www.davidtubb.com/index.php?route=product/product&product_id=237&search=33

Link to 299 DTACs

<https://www.davidtubb.com/index.php?route=product/search&search=dtac>

Link to NOSERING™ tool

<https://www.davidtubb.com/index.php?route=product/search&search=tool>

37XC load information

If you plan to shoot .375 jacketed /lead core bullets, stay with a 1:11 twist barrel, otherwise you may lose an occasional bullet from the excessive spin rate of quicker twist barrels.

If you plan on shooting turned solid bullets only, then you can shoot a 1:9 twist or faster.

In 37XC – H50 BMG and IMR 8133 burn rate powders work well. Warner Flatline 361gr easily fly at 3075fps with just over 120 grains of either powder. Test barrel -- 33- inch Schneider 5P barrel with a 1:9 twist.

37XC 33-inch Schneider barrel with P5 rifling. 1:9 twist

*When working up a load, start 3-4 grains lower to be safe.

118 gr H1000 with 400 grain Warner NR going 2950fps

121 gr H1000, 3075 fps, Warner 361 gr Flatline

122 gr RETUMBO, 3090 fps, Warner 361 gr Flatline

122 gr IMR 8133, around 3075f fps, Warner 361 gr Flatline

120.6 gr H1000, around 3075 fps, 361 grain Warner flatline bullet/TUBB® NOSERING™

119.5 gr IMR 8133, Warner 400 gr Flatlines with TUBB® NOSERING™, 2935fps

124-125.5 grains H50BMG, 400 grain Warner flatline bullet, around 2900 fps, (Start at 116 grains of H50BMG and work your way up 2 grains (not .2 grains) at a time with H50BMG.

41XC load data

Schneider barrel, 33inches, 1:9 twist with P5 rifling.

*When working up a load, start 3-4 grains lower to be safe

128 grains H1000 with 500gr Cutting Edge Bullets going 2850fps

128 grains of H1000 with TUBBDUST™ mixed into powder to negate copper fouling, 505 grain Warner Flatline bullet with TUBB® NOSERING™, using Federal 215 primers, I shot a 10-shot group with SD of 3.1, average velocity 2850fps

120gr Reloader 26 will work with 475 gr Cutting Edge bullet. I don't think the reloader 26 is good to use with the heavier bullets because it swells the case head (too much pressure too quick). If case head gets bigger than .587 that's too much pressure. Case head diameter is directly related to how well the primer fits.

Primers and additional loading information

I use Federal 215 primers and Winchester primers for 33XC/37XC/41XC

All of these data loads were gauged by the bolt opening WITHOUT any stickiness associated with pressure / the same group of cases were used and reused for entire barrel testing.

Keep in mind I did load up to velocities with which I did experience pressure signs. My standard for the above listed loads was to back off the charge by 2 grains and then do a retest for confirmation.

I loaded a single 33XC case over 20 times when breaking in one of the Schneider .338 barrels with TMS bullets.

Link to TMS kits

<https://www.davidtubb.com/index.php?route=product/search&search=t.m.s>

Link to TUBBDUST® mixed in gun powder to negate copper fouling

https://www.davidtubb.com/index.php?route=product/product&product_id=186&search=dust

Link to TUBB® original 6XC and 33XC/37XC/41XC Facebook group page in which I answer questions: <https://www.facebook.com/groups/2201832056730901/?ref=share>

Link to Adaptive Target Rifle (TUBBGUN™) Facebook group page:

<https://www.facebook.com/groups/1774506762636152/?ref=share>

Picture below is (left to right):

338 Lapua (empty)--33XC Warner 256gr Flatline – 33XC head – 37XC Warner 361gr Flatline – 375 Cheytac (empty) Note - the XC case length VS. the 375 Cheytac



Seater die on left (black), resize die on right, this die will accommodate 33XC/37XC/and 41XC calibers and comes with two seating stems.



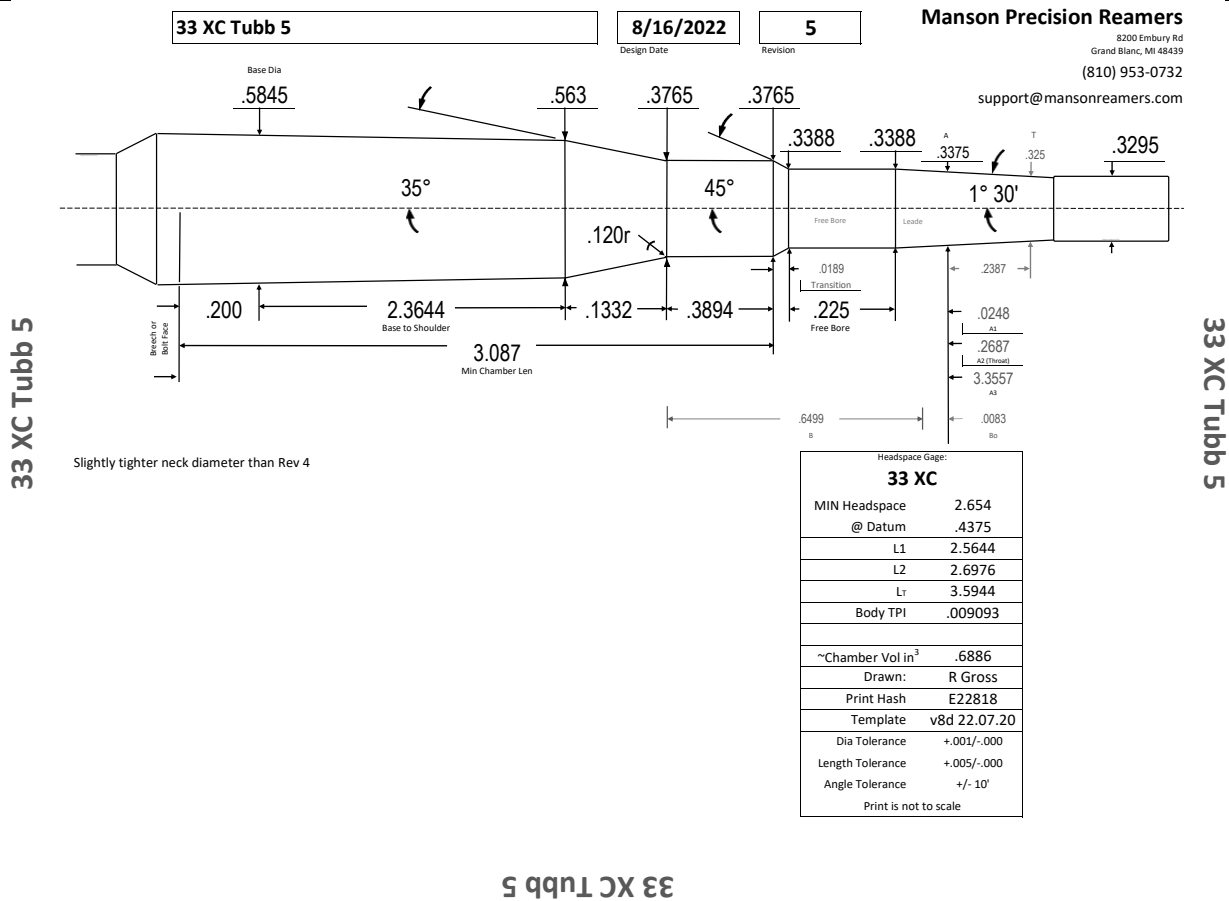
You will still need to insert the bullet at the seating stage of the 550 and then manually remove the loaded round. Pictures are of loading a 33XC with Berger 300 grain bullet that engages the rifling in the photo below.



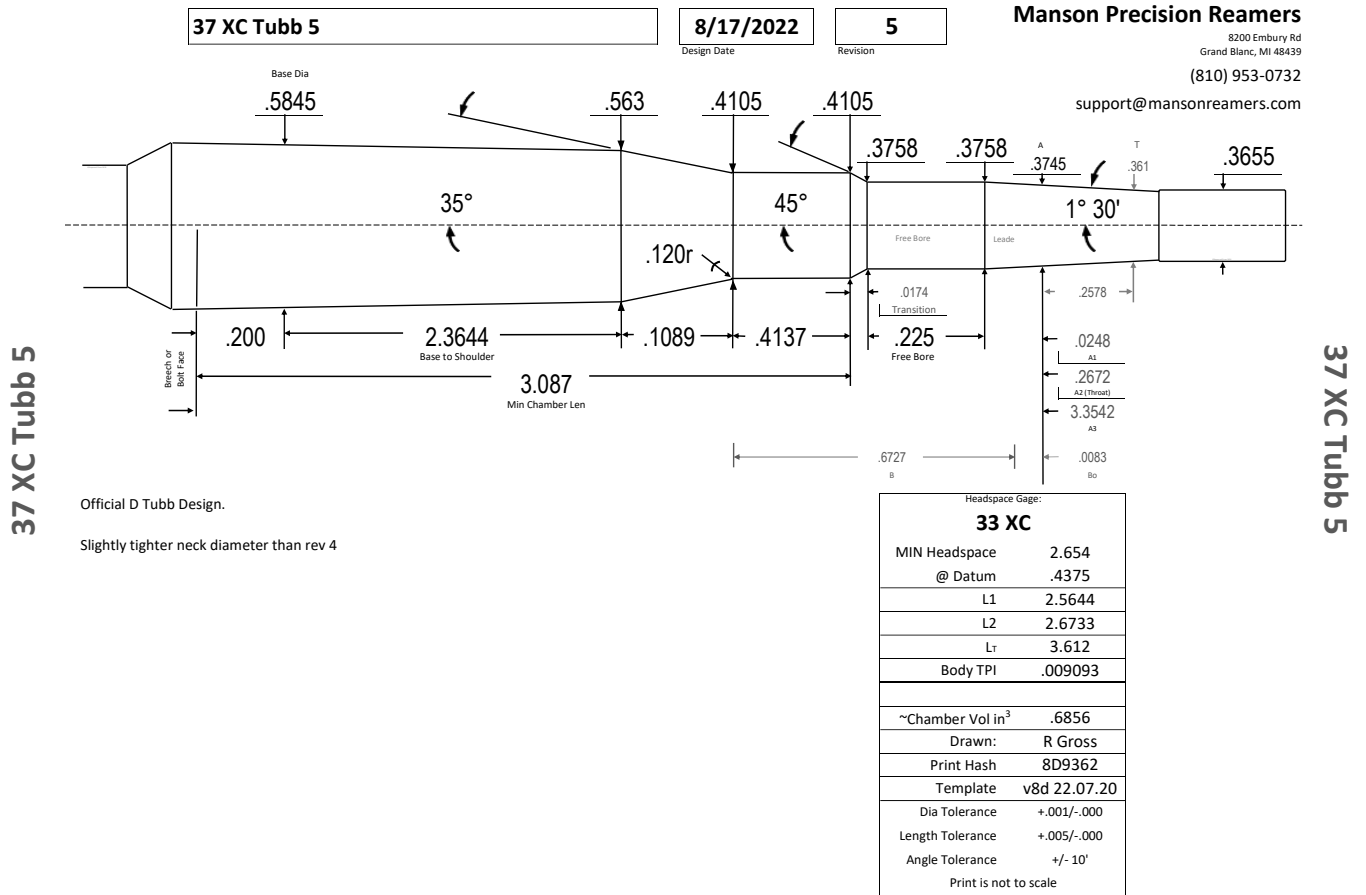
Discussion of Reamer Prints

Attached below is the most current reamer print for 33XC and 37XC, with .225 freebore for either turned solid bullets or leadcore/jacketed bullets and the current 41XC reamer print with a .330 freebore. All the reamers use a 1 ½ degree lead.

Newest Reamer Print for 33XC with .225 freebore



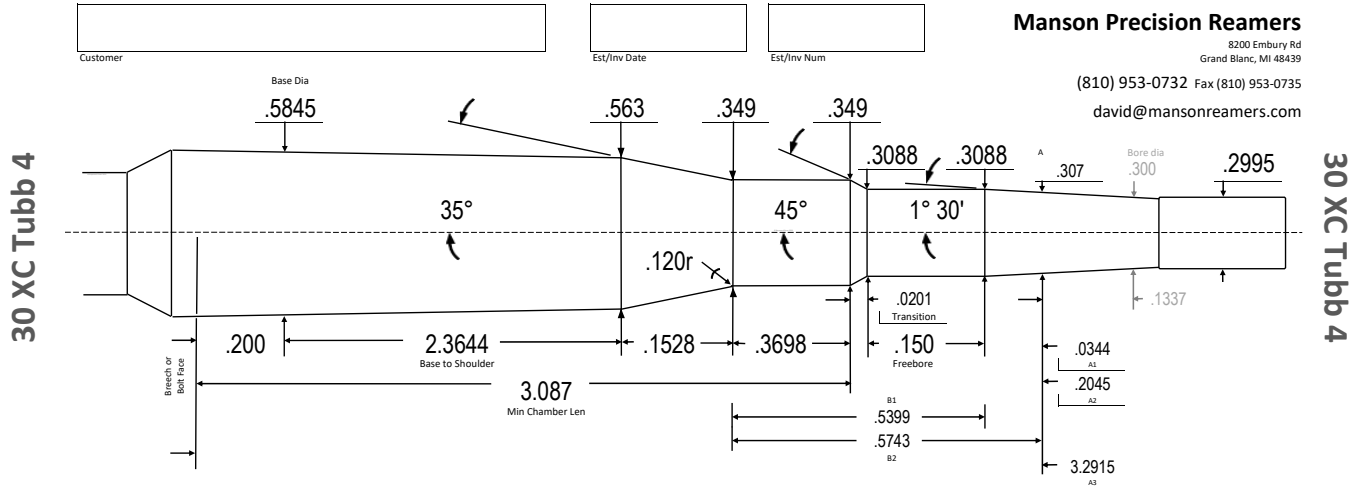
Newest Reamer Print for 37XC with .225 freebore



37 XC Tubb 5



30XC Reamer Print



Manson Precision Reamers

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(810) 953-0732 Fax (810) 953-0735

david@mansonreamers.com

30 XC Tubb 4

10/31/2020

4

Design Date

Revision

This is the 33 XC Tubb Rev 4, necked down the 30 caliber.

Long neck provides versatility in bullet selection. Throat is sized for the Warner 198 Flatline, Berger 205 EH, 208 LR, 210 VLD, 215 H, 220 LR H, 230 H, Sierra 195 TMK, 210 MK, 200 MK, Hornady 178 & 208 ELD, 212 ELDX. Other bullets with longer or shorter bearing surface lengths can be seated in or out accordingly.

Headspace Gage:	
33 XC	
MIN Headspace	2.654
Datum	.4375
L1	2.5644
L2	2.7172
Body TPI	.009093
Dia Tolerance	+.001/- .000
Length Tolerance	+.005/- .000
Angle Tolerance	+/- 10'
~Chamber Vol in ³	.6906
Transition Fwd	1.1445
Min Blank Len	4.2315
Drawn:	R Gross
Template	v6.6g

35XC Reamer Print



8200 Embury Rd
Suite 1
Grand Blanc, MI 48439

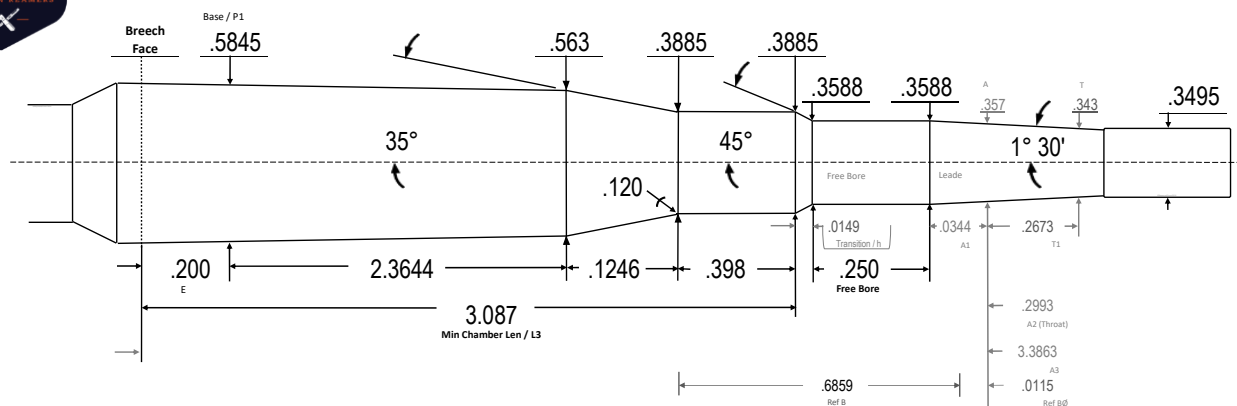
Contact us at:
support@mansonreamers.com
(810) 953-0732

35 XC

1/24/2023

Design Date

Revision



Official D Tubb Design

Headspace Gauge:	
33 XC	
MIN Headspace	2.654
@ Datum	.4375
L1	2.5644
L2	2.689
A3+T1	3.6536
Body TPI	.0090933
Breech Face Dia	.5863
~Chamber Vol in ³	.6876
Drawn:	Ray Gross
Print Hash	BD5158
Template	V8F 2023.01.24b
Dia Tolerance	+.001/- .000
Length Tolerance	+.005/- .000
Angle Tolerance	+/- .01°
Print is not to scale	