EDITION 1/21

MAGAZIN

THE Q DEPARTMENT · FIREARMS TRAINING - PART 5 · NEW INTRODUCTION .300 AAC BLACKOUT

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We have big Plans!
2020 was a highly successful year for MEN and in 2021, we will also effectively implement new projects.

On the following pages, we talk about our new QD cartridge in .300 AAC Blackout, the reopening of our canteen, our virtual showroom and much more. So, we invite you to read on and enjoy our interesting articles…

Ann-Kathrin Hommrich
Manager Sales / Marketing

GREETING

Dear Customers, Business Partners and Colleagues,

The past year was a special and eventful year in many aspects. On the one hand, our professional and private lives were dominated by a new virus, but on the other hand, MEN was able to write history with you!

Despite all the restrictions and challenges which marked 2020, we are proud and happy to look back on 2020 as MEN's most successful business year ever. Of course, this would not have been possible without all of you, and therefore, I would like to thank you for your trust, cooperation and commitment.

As in previous years, development continues to top MEN's agenda and covers a variety of areas. For example, we created a page on the social network “Facebook” several weeks ago where we provide anyone interested with insights into MEN as an employer. We were also able to successfully implement electronic invoicing (“X-invoice”).

In addition, we have extended our portfolio in the .300 AAC Blackout caliber with a deformation cartridge, and construction of our hall C aimed at optimising our processes in relation to component availability is due for completion in August 2021.

These examples represent a series of optimisations, developments and improvements which we have already implemented or which we still aim to implement.

None of us knows what 2021 has in store for us, but I am optimistic regarding the future and hope that we will soon be able to meet in person again and also welcome you here in Nassau.

One highlight of your visit to our small peninsula will certainly be our new canteen designed in MEN style, where we look forward to chatting with you in a relaxed atmosphere.

Until then, we wish you well, stay healthy in the next weeks and months.

Kind regards,
Ann-Kathrin Hommrich

Andrea Keiels & her team

NEW IN 2021

Canteen refurbishment

We ended the past year on a positive and optimistic note, which is how we also started into 2021. The reason for this included our very successful refurbishment and reopening of our canteen as well.

For a long time, our canteen had been a somewhat dreary place and we realised that we had to give it a whole new look. Which is exactly what we did.

We completely gutted the dining and kitchen areas and then quickly proceeded with the transformation. Gone are the dark colours and furniture that had seen better days, replaced by a bright, welcoming and modern atmosphere. Finally, a canteen which meets the MEN standard.

Additionally, we also changed the menu options. Aside from a selection of warm lunch options, there are also freshly filled rolls and lots of other delicious items on offer. The core of it all is our friendly canteen team. Mrs. Keiels and her two colleagues will always serve your freshly brewed coffee with a smile. Friendly service for our employees and business partners..

NEW IN 2021

„MEN goes digital“

If we have learned anything in the last year, it is that the digital and virtual world is becoming more and more important. For this reason we have further expanded our “MEN goes digital” project.

We have been on Facebook since the end of last year, where we provide information about the latest news about MEN.

As one of the largest employers in the region, we also report regularly on the benefits we offer our employees.

So that our customers and business partners also stay up to date, we looked for ways to present MEN and their news professionally and found a solution: Our new virtual MEN exhibition stand.

On the start page of our homepage you will find a digital insight into new and proven products as well as general information about Metallwerk Elisenhütte GmbH. We look forward to your online visit.

Virtual MEN-Showroom:

Christian Kraft
Manager Quality

THE Q DEPARTMENT

Quality & Customer satisfaction

MEN's comprehensive quality remit (Q) comprises a number of departments working hand in hand to ensure maximum quality and customer satisfaction.

Apart from the traditional tasks of a quality department, such as inspection of incoming goods, quality assurance and management, this also includes the areas of documentation, e.g. preparation of quality test certificates, technical terms of delivery (“TTD”) or configuration management.

A special feature of the area of ammunition manufacturing is the Ballistic Measuring Laboratory. It is known to our customers as the location of the final inspection, but it also plays a key role during the entire manufacturing process of all semi-finished products and in the incoming goods area. Due to the highly dynamic processes of our products of more than 1000 m/s and at a pressure of 4000 bar, the only option is often to test single components by proof firing since other measuring tools would never fully simulate the subsequent use.

Technical enquiries from the sales department or quality issues on the part of the customer are recorded via a project centre within the quality department and coordinated appropriately. This ensures that any emerging issues can be thoroughly processed within the quality remit. Due to the technological progress made in the area of camera-supported quality control, we also established this field. Today, specialists are touring the building around the clock; their sole job is to supervise the camera systems in all manufacturing areas.

The Q department comprises a total of 36 people who give their best every single day to meet the highest demands of a premium supplier in the field in which our customers operate. As the divisional head, it is my responsibility and privilege to work on these varied and multi-faceted topics with my team every day. The regular feedback on the user side highlights particularly impressively the wealth of exciting topics we are able to work on.

FIREARMS TRAINING

If you are interested in practical training, please send an email to: sales@men-defencetec.de

Part 5: Fast single Shots – Medium-range Weapons

In our last article, we described the drawing process using a hand gun. Similarly, in today's article, we discuss fast single shots using a medium-range rifle. The weapon has been introduced in almost all areas of policing, while, of course, it has always been the standard tool in the military. The current state of a medium-range rifle is usually a semi-automatic (sometimes automatic) rifle in 5.56mm x 45 calibre or lately also .300 AAC Blackout with a red dot sight and various add-on parts such as slings, additional grips, lamps/lasers, etc.

The process of a fast single shot (and, of course, various other activities) is the same in a medium-range rifle used by the police and a military assault rifle. To keep things simple, we will only talk about MRR in this article, and this is meant to include assault rifles. By definition, sub machine guns are not considered medium-range weapons or assault rifles, but their handling is generally speaking the same or at least similar. Some points can even be applied to hunting rifles.

To clarify before we start: The process is based on an exercise or training session, performed at a shooting range with fixed targets (no tactical situation, no enemy threat, etc). Any activities after shooting (e.g. search and assess) are also excluded.

The description of the process is based on the following:
- We assume that the shooter is right-handed and also aims with his right eye.
- He holds the MRR comfortably in front of his body, right hand holding the grip and left hand holding the hand guard (muzzle pointing diagonally downwards).
- The shooter's posture is relaxed, but he has already turned towards the target (i.e. he does not need to turn or align his body).
- The distance to the target is 5 meters.
- In some instances, several activities must be performed simultaneously, which is either apparent from the context or mentioned accordingly.

All shooting technique elements stated in the previous articles also remain valid for the fast single shot from a medium-range rifle. To ensure good training, we recommend recalling the points outlined in the article about training mindset (MEN Magazine 3/2019).

As described in the last article, drawing a pistol is quite a complex process with diverse simultaneous movements. With rifles, the shooting technique is often easier as they are more “forgiving” in case of errors. Let's firstly break down the fast single shot (limited to our circumstance) into four very rough elements:

1. Stand
2. Presenting the gun
3. Aiming/sight picture
4. Pulling the trigger

In principle, this breakdown is not incorrect, but it is missing some (more or less important) points which affect speed, precision/accuracy, etc. and should therefore not be disregarded.

So, a detailed breakdown of the entire process looks as follows:
- I receive a starting signal (from the timer, the instructor or from myself).
- I look at the point of aim (and keep looking at it).
- I assume the correct posture (body transverse to the target and leaning forwards so that the ball of the foot bears the weight – one foot may require repositioning in order to create a stable stand).
- I position the stock on my chest (not my shoulder) in a vertical line under the shooting eye. The muzzle points forwards under the target (low ready). The left arm is extended so that the hand grips as near to the front of the handguard as possible (the left arm does not pull the weapon into the body).
- By now, the body already has the correct posture so that only the arms move with the weapon (and of course the trigger finger etc.).
- I tilt the weapon upwards so that the muzzle moves towards the point of aim.
- In my peripheral vision, I see that the weapon is guided vertically from bottom upwards towards the point of aim. In case the direction is incorrect, the movement can still be adjusted.
- As soon as the muzzle points to the target (not only on the point of aim), the safety of the weapon may be released according to safety rule no. 3. At the same time, the trigger finger may touch the trigger (but no firing yet!).
- Eyes are still focused on the point of aim but at some stage during the upward movement, the view will be obscured by the upper part of the red dot sight. This rim is usually not very large (depending on the model) and will soon disappear.
- When the upper rim of the red dot sight disappears, the lens/ocular follows. In my peripheral vision, I can already see the red dot coming into visual field and moving vertically from bottom upwards towards the point of aim.
- The red dot sight provides us with the great advantage that we can see both the target and the red dot clearly. Unlike iron sights, I do not need to perform a focus change here.
- As soon as the red dot is on the point of aim (or in the area of aim), the movement stops, I hold my breath and tense all the muscles in my body (except, of course, the trigger hand so that the trigger finger can be pulled in a controlled manner).
- Now, the trigger finger moves backwards in a controlled motion, while I focus on the red dot remaining on the point of aim (or the area of aim) until the shot is fired (see also firearms training Part 1 – Do not stop taking aim! In MEN Magazine 1/19).
- With the correct posture and by tensing the body, the weapon will drift only slightly in recoil (visible to the shooter by the movement of the red dot) and automatically “re-locks” into the old position. When this has happened, I readjust slightly if necessary so that I have a correct (second) sight picture again.

Fast single shot firing also requires the speed to be right. If it is too high, the movement becomes unclean and must be readjusted because the red dot does not land on the point of aim. However, movements which are too slow will only improve the shooter to a very limited extent.

Author: Torben Schmidt

BALLISTIC CORNER

Part 2: Lead Free Bullets - Special Requirements

Latest news and detailed product data sheets can be found on our Website: www.men-defencetec.com

In the second part of our topic “Lead-free, small-caliber ammunition”, we talk about bullets.
Lead is still the most widely used metal in the production of bullets. The period table lists it under the abbreviation “pb”. It has a very high density of 11.34 g/cm³ and can easily be shaped into the desired form, e.g. by pressing. Lead is relatively inexpensive and available in large quantities. These properties are the reason why the material is so attractive for the production of bullets.

If lead is to be replaced, a material is required which can boast the same properties. But that is exactly the problem. Of course, the industry could also use gold. This precious metal has a high density and is easy to process. But I think we all agree that this alternative is too costly.
So which materials remain which have a suitable density, are non-toxic, available in sufficient quantity and easy to process while not being that expensive to source? They can be counted on two hands. The short-list includes, among others, brass, copper, tin and zinc.

To slightly complicate things further, the material has to meet different requirements, depending on the intended purpose. The requirements in terms of the deformation already throw up major differences. In the military field, the bullets must not deform. Authorities, however, do not only desire a controlled deformation, but actually request it with stringent guidelines. Naturally, there may be some overlaps between the two areas. This includes the police's use of full metal jacketed ammunition in training. The objective is not only to save costs, but also to minimise damage to a soft target in case of a shooting accident and to preserve the materials in the bullet collector. In military applications, only fully jacketed bullets (which are safe according to international law of war) are permitted, both in training and in operation.

So, which replacement material did MEN opt for?

The first attempts using lead-free bullets go back to the time when MEN produced various hunting calibres in “homoeopathic” quantities. This is when, approximately 40 years ago, the well-known SFS bullet (“Schrägflächen-Scharfrand-Geschoss” = beveled sharp rim bullet) made from copper was born. We developed this bullet through the years, right up to our current deformation bullet SFC (“Schrägflächengeschoss Coated”). One thing has remained, however - copper or copper alloys with which MEN has achieved many positive results up to this day.

The advantage of copper as a material is that it has a viable density and can be shaped as desired by turning and pressing. Moreover, owing to its flexibility and toughness, it yields good results with the desired deformation and generates little loss of mass when hitting soft targets or when penetrating hard materials. Little wonder, therefore, that we use the material for several bullets in different calibers. In the 9mmx19 caliber, they are the PEP 2.0, the QD1 and the PTP 2.0. For the rifle calibers, the 5.56mm x 45 QD2.0 and the SFC in the two calibers .308 Win. and .300 Win. Mag. The first series types are now also available in the .300 AAC Blackout caliber alias 7.62mm x 35.

Our fully jacketed bullets are subject to entirely different requirements, both in a military and regulatory sense. We will look at these separately and only in part as otherwise, the scope of our ballistics segment would be exceeded.

The regulatory area placed high demands on a new ammunition which were not always easy to implement and required several attempts. To name but a few, the following come to mind: as toxin-free as possible, low wear of the shooting range materials, good partition properties on steel targets and the point of impact conformity with the service ammunition. In addition, the ammunition must function perfectly in the service weapons and produce as little wear as possible. In any case, the precision of the ammunition should be similar to the one achieved with regular leaded cartridges.

This is not an easy task since the barrel twist is specified for standard bullets and the lead-free bullets usually have to become longer (due to the slightly lower density of the substitute materials). This is the only way to achieve the required mass in order to ensure safe function. The conflicts which can arise between the technology and the requirements for the ammunition become clear.

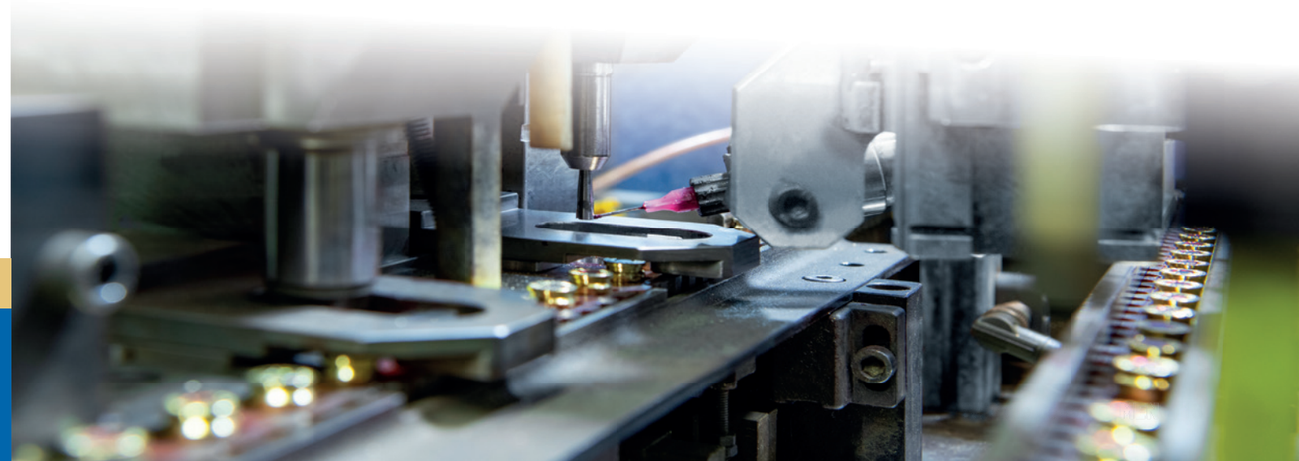
Finally, we found our “all singing, all dancing” LFI cartridges (lead-free indoor). Here, we have replaced the lead with the alternative material zinc. The advantages of zinc are the moderate price for the raw material and its good workability through pressing technology. Zinc's high brittleness provides us with the major advantage that the bullets break down very quickly and effectively on steel targets which, in turn, protects the shooter from injury through rebounding bullet fragments.

When shooting into the rebound protection in the various shooting range structures, the bullet behaves analogously to a fully jacketed projectile and the rubber mats reclose almost fully (on the side of the hit), ensuring long durability.

In order to increase the performance of the lead-free bullets, additional alternative materials are very often used which enable penetrating protected targets. Worth mentioning here are hardened steel points, so-called dual core cartridges, within the bullets, but also special bullets with tungsten carbide cores. The lead in these bullets can also be replaced with zinc, if desired. Tracer bullets should be mentioned here as a particular challenge. The light tracer charge which reduces even further during combustion means that the bullet lengths are already within the limit range in relation to the barrel's twist rate.

Author: Kay Laux

QD 2.0 - 4,2 g	LFI	LFI	SFC	SFC
5,56 mm x 45	5,56 mm x 45	.300 AAC Blackout	.308 Win.	.300 Win.Mag
Art.-No. 231075	Art.-No.231071	Art.-No. 231090	Art.-No. S231087	Art.-No. S231093



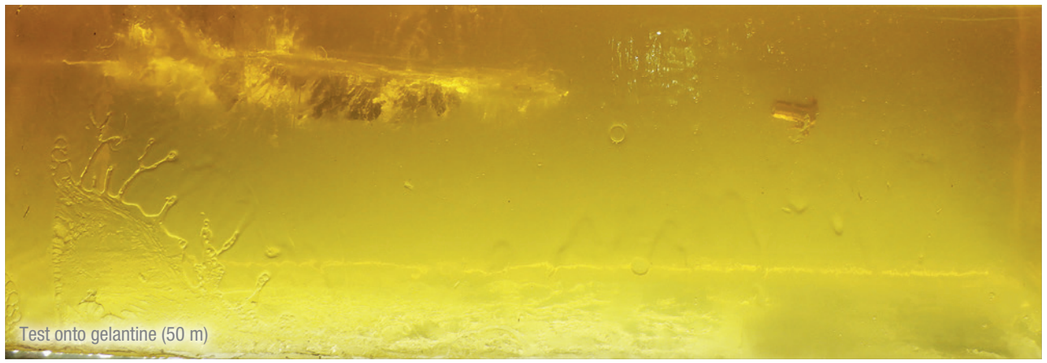
NEW INTRODUCTION

.300 AAC Blackout – QD 7,8 g Deformation

The dependable deformation projective for use during operations. The projectile has an impressive high energy output in the target and thus minimises background hazard during deployment. The cartridge is also lead-free and low-emission.

Important features in the overview:
· Service cartridge
· Match-grade precision
· Lead-free and low-emission

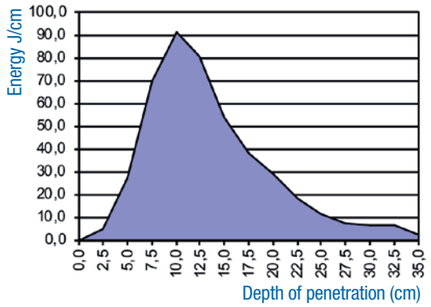
1 Cupper bullet 2 Hollowpoint



Technische Daten:

· Cartridge weight:	231 gr	· Temperature range	-22 to +122 °F	· Velocity:	11 yds 2133 fps (±49 fps)
· Bullet weight:	120 gr	· Bullet energy 11 yds:	1216 ft/lbs	· Precision:	SD ≤ 2 inches to 110 yds
· Powder charge:	18 gr	· Gas pressure $_{max}$:	≤ 390 Mpa		

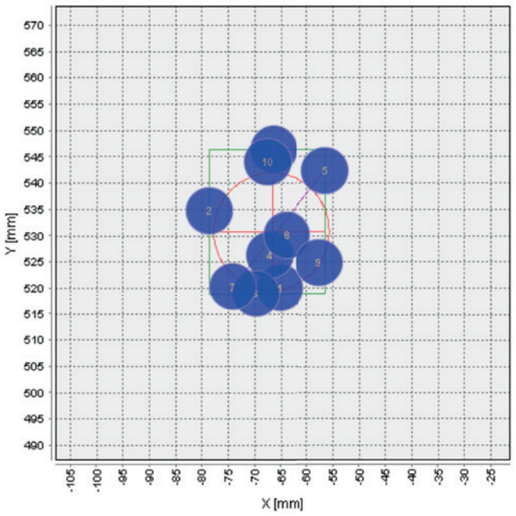
QD 7,8 g Deformation - 50 m Energytransfer (J/cm)



Distance 50 m:

· Velocity:	536,46 m/s
· Energy target:	1122,38 J g
· Depth of penetration:	33,5 cm

Extract from the firing protocol (Distance 100 m):



Hermann Mayer
CEO

CLOSING WORDS

Full Steam ahead!

Dear Readers, Customers and Business Partners,

In our latest MEN magazine, we have again shared a multitude of news and information about MEN. New products, introducing our Q department, transformed buildings, ballistic topics and much more.

This shows you that our company is striving for constant, positive change. For the benefit of our customers and also our employees.

For the benefit of our customers through further enhanced processes and technologies in order to manufacture our products even more efficiently, but also more safely. For the benefit of our employees, to utilise these improved technologies in the creation of ergonomic and modern workspaces which are beneficial to our employees' health.

We will just briefly look back on an extraordinary, eventful 2020 – what a year it was! It will leave lasting memories for us all and have a sustained impact on the way we think and act in respect of some topics.

Now, it's full steam ahead – we all hope that the vaccinations against COVID-19 will enable us to control the pandemic so that larger-scale personal meetings, especially at trade fairs, will once again be possible. The pandemic has taught us one thing – digital aids are a great support, but they cannot replace face-to-face contact.

I look forward to seeing you soon.

Stay healthy.

Yours truly, Hermann Mayer

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