

# A legend

## named SKORPION

One of the most innovative products of the Czech arms production industry is the 'special submachine gun' named Skorpion. The gun successfully bridged the gap between duty pistols and submachine guns operating with pistol cartridges. Skorpion in its original, underperforming 7.65 mm Browning has long been insufficient for the purposes of security and armed services. Nevertheless, it still enjoys its world-wide reputation of a well-respected legend. It comes as no surprise that Česká zbrojovka had the Skorpion registered as a trademark in late 1990s and the brand name is now used again in the designation of the third generation of compact automatic handguns.

The story behind the development of Skorpion started when the Czechoslovak Ministry of Interior showed interest into a 'special submachine gun for duty purposes' in cal. 7.65 Browning (.32 ACP) that could be used both within special security activities and for rearmament of law enforcement and security forces. What weapon could best serve such diverse needs? In 1958, surprisingly, the Ministry of Interior came up with a very clear idea drafted as a list of requirements:

- 7.65 Browning Calibre;
- Weight 1 to 1.2 kg;

- Overall length with folded stock 250 mm;
  - Overall length with unfolded stock 440 mm;
  - Height with grip 150 mm;
  - Effective range 100m;
  - Two types of magazines – an 8- to 10-round and a 20- to 25-round magazine;
  - Fire to be conducted either in bursts or in single shots, so that the gun could also serve as a pistol.
- Such clear, pioneering ideas must have been the result of thorough research and analysis, of which no relevant records are available. The caliber selected

Although the vz. 61 Skorpions used underperforming cartridges, together with the vz. 58 Assault Rifles they represented, starting in the early 1960s, the backbone of rear-ammament of the Czechoslovak paratroopers. The picture, taken in spring 1974 by Oldřich Egem, features the 22nd parachute regiment. (photo: Czech Military Archives)



Cross-section of the Skorpion development prototype (S-59). It differs from the S-61 serial model by its fixed rear sight and non-removable shoulder stock.

was, in fact, very untypical for an automatic gun; moreover, it was very unsuitable either, since it featured relatively low performance and a cartridge case with a salient bottom. Today it is generally admitted that the 7.65 Browning was the Skorpion's biggest flaw. The Ministry of Interior, however, chose it for a specific reason. The caliber was a typical pistol cartridge that was routinely used by the Czechoslovak security forces, and it had a wide range of qualities ideal for 'special security activities'. That is why the Czechoslovak army did not object to its implementation – we will get back to this point later.

### A TASK FOR RYBÁŘ AND HIS TEAM

In the first half of the 1950s, the famous era of the independent construction design studios operating at Czechoslovak arms factories was concluded, following the centralization processes in the newly nationalized industry. In order to replace them, the Czechoslovak Communist Party decided to build a large, specialized research and development center that would satisfy the needs of the country's armed and security forces. The center, originally named Konstrukta Brno (after the City of Brno where it was situated), recruited the best Czechoslovak engineers specialized in anti-tank recoilless weapons and in firearms and ammunition up to 30mm calibers.

Requests on development of firearms was subjected to new, strict-confidentiality rules. For example, the Ministry of Interior was not allowed to place an order directly to the construction center. The request had to be first submitted to the Ministry of National Defence (MND), which, in case of the Skorpion, happened in autumn 1958. Experts from MND were deeply in-

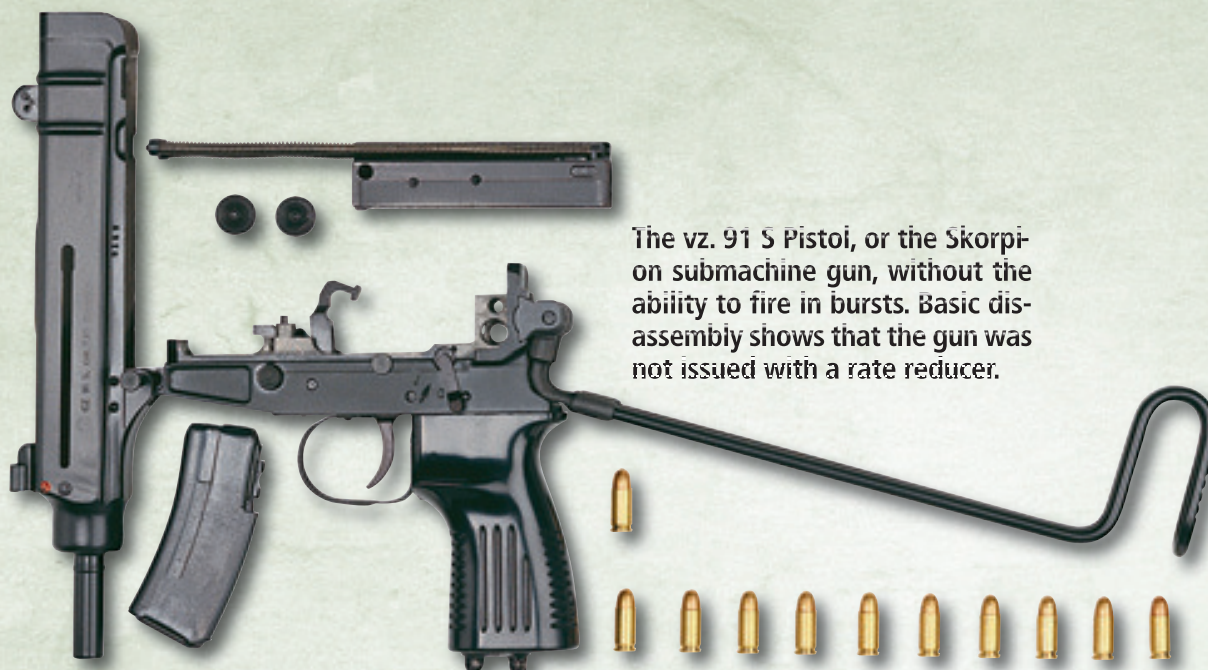
trigued by the plans of the Ministry of Interior to produce such an arm, and immediately decided to approve of the request. Moreover, MND decided that the Skorpions would be used also by the Czechoslovak national army. Initially, the Army ordered just a few pieces for their intelligence units but at the very beginning, they came with substantial observations and recommendations, which had a significant impact on the final version of the Skorpion.

The requirement of the Ministry of National Defence to produce a 'special submachine gun' (also known as 'multi-purpose' among soldiers) was sent to the Brno firearms research and development center at a time when the engineers on the site were swamped with work. All the senior engineers were busy completing other projects, such as the UK vz. 59 multi-purpose machine gun or the vz. 58 submachine gun. Due to their overload, the task to develop a new special submachine gun was assigned to **Ing. Miroslav Rybář (1924-1970)** who worked at the small-bore arms construction department. It turned out to be an extremely fortunate decision.

Ing. Rybář was a talented engineer with exceptionally deep technical skills and credentials from civil and military area. He had been involved in firearms construction since 1948, but had until then served only as a team member, supervised by senior engineers. The Skorpion was to be his first individual project, the pinna-



The standard vz. 61 Skorpion submachine gun in cal. 7.65 from the first phase of serial production



The vz. 91 S Pistoľ, or the Skorpion submachine gun, without the ability to fire in bursts. Basic disassembly shows that the gun was not issued with a rate reducer.

cle of his career that, unfortunately, ended prematurely.

Unlike previous generations of firearms engineers who considered mathematical calculations a dull part of their work delegating them gladly to others, Rybář started with a comprehensive theoretical analysis. In fact, he wrote his doctoral thesis on the Skorpion, and presented it successfully at the Military Technical Academy in Brno in 1958.

With such a sound background, the development of the new type of special submachine gun, aptly named Skorpion, proceeded really fast, lasting only from February 1959 to summer 1961.

It is worth mentioning that although Rybář was the main architect of the new handgun, he did not work

alone on this project. The team counted as many as 13 engineers, among them **Otakar Galaš (1904–1968)**, known for designing hunting and sniper rifles (the most famous worldwide being the ZG 47 Rifle). Galaš contributed substantially to the development of the Skorpion: not only he was in charge of the elaboration of sound suppressors and the firearm's accessories but having enlarged the thread of the barrel bore he also satisfactorily solved the accuracy issue of the 7.65 Browning caliber when firing at distances between 25 and 150 meters. Moreover, he became an excellent advocate of the new handgun. Galaš found a very original way of demonstrating that the Skorpion could be carried covert-



The development model of the future CZ SKORPION 9x19 outfitted with a sight-through collimator, sound suppressor and a front vertical handle and a flashlight. The butt plate was designed in such a way that it could be folded when the collimator was mounted.

ly underneath one's clothing: he came to a meeting bringing the sub-machine gun stuck in the shoulder holster underneath his jacket without anyone noticing it. During the meeting, when he suddenly opened his jacket and took out the gun, there was no doubt that the Skorpion was suitable for concealed carry.

**Jiří Čermák (1926 – 2006)**, another engineer-genius, who had become known for the development of the vz. 58 submachine gun, also helped Rybář in his project. Although Čermák didn't work on Skorpion directly, he was the co-author of one small but very smart structural element and he professed to the key idea of implementing the rate-reducing mechanism. This concept was taken over by Rybář who implemented it into the weapon.

## BETWEEN PISTOL AND SUBMACHINE GUN

Rybář and his team created a gun that combined, in a unique way, the features of both submachine gun and pistol. The Skorpion was similar to sub-machine guns because it featured a dynamic (unlocked) bolt, a magazine placed in front of the trigger guard, and a folding stock that enabled shooting from the shoulder. At the same time, it used the same cartridges as pistols and, to certain extent, it was provided with a similar hammer-striking mechanism and the option to fire with the bolt in front position, which rendered the shooting much more accurate when shooting single shots.

For shooting in bursts, the rate of fire and the muzzle lift were managed by a vertical fire-rate reducer, which provided full control of the arm also in the automatic mode. (The arm was slightly heavier than the Ministry of Interior had requested but still, it enabled to be held effectively, with some effort, in one hand and move the center of gravity more to the front.) Va-



The Skorpions traditionally attracted a lot of attention on the part of armies and security forces in 'friendly communist countries', including the Soviet Union. They were often offered as presents to high-ranking civilian and army officials. The picture taken in 1974, features Stanislav Růžák, managing director of the Arms Factory from Uherský Brod, demonstrating the Skorpion to the delegation of the Lieutenant General Peter Klimentovič Vorošilov (first from the left). On the table, we can also see the version in 9 mm Luger.

rious rate-reducing mechanisms had been known even before the Skorpion, but Rybář's patent belongs to the most performing ones – both simple from the point of design and construction, and extremely reliable at the same time.

Five different Rybář's patents applied to the basic development of the Skorpion. Another four were registered for the following variants in other calibers, one of which was used additionally in serial production of the firearm. Apart from the rate reducer, the patents concerned the shoulder stock, the trigger mechanism, the spring-loaded bolt release and the so called detent plate of the trigger case that prevented the hammer pin from falling out (co-authored by Mr. Čermák).

Furthermore, wire shoulder stock was also designed in an original way. Made from aluminum alloy and folded along the rear of the trigger case, the stock could be removed when necessary. The length and solidity of the stock, given the compact design, are on the extreme edge of the practicability of the weapon but the fixation and release in both utmost positions made for a wonderfully simple solution. The stock folded using an amazing, and yet simple mechanism: the shooter would use the palm of his non-shooting hand and strike the bottom of the butt-plate. The spring of the stock pin would then do the rest – you would hardly find a comparable solution.





The XCZ 868 prototype

Most of the parameters requested originally by the Ministry of Interior were, in the end, slightly exceeded. Basic technical data of the standard Skorpion can be found in a table at the end of the article. Just to summarize, the maximum requested weight was satisfied (the limit was exceeded only by less than ten grams), as well as the overall length with folded stock (the difference being only 20mm) and the height (exceeded by mere 17mm). With the stock unfolded, the final model measured 522mm instead of the required 440mm – a measure which was too unrealistic, in fact. Still, many users of the vz. 61 consider the weapon too short, supporting the butt-plate against their face in order to achieve a better sight picture. Thanks to the well-chosen bore, the effective range of the weapon was extended up to 150m when shooting from one's shoulder, of course. The required magazine capacity

for the 7.65 caliber Skorpion was complied with – the standard version of the Skorpion in 7.65mm Browning includes one ten-round curved magazine and four pieces of twenty-round magazines.

Although the Skorpion may seem subtle, it was developed and tested according to the strictest military methods, corresponding to an extremely resistant and reliable firearm. It can also be easily and quickly disassembled, a mark left by the Czechoslovak engineering school. Rybář, however, made a few civilian mistakes when designing the weapon because it is necessary to manipulate the gun carefully – small cocking knobs could get lost and the hammer stop pin tends to fall out.

### DESIGNED NOT ONLY FOR INTELLIGENCE SERVICES

The Skorpion gradually developed into a compact automatic handgun suitable for the police and the army. Nevertheless, it still kept its 'special' features, such as rounded cocking knobs on the sides of the receiver. Thanks to this feature the weapon was a very compact one and allowed shooting close to the body, from under the clothing or even from a luggage, which was the explicit requirement from the Ministry of Interior. Intelligence units were also taken into account when the Ministry requested reliable functions with commercial versions of 7.65 Browning cartridges. It was often said that 'the 7.65 cartridge is routinely produced in both socialist and /so called/ capitalist countries and can be bought in any shop carrying sports and hunting guns.' The special edition of the weapon included the already mentioned shoulder holster (for carrying the weapon overtly, a belt holster was used) and a newly designed sound suppressor.

The Skorpion was unique also because its introduction into the armament of the forces of the Ministry of Interior as 'the 7.65 mm vz. 61 Skorpion submachine gun', was approved in 1961 by the Central Committee of the Czechoslovak Communist Party. Skorpions were primarily used for 'special units' of the State Police but gradually became standard equipment of all law enforcement units that fell under the authority of the Ministry of Interior. Skorpions continue to be used by Czech and Slovak police forces, though to a lesser extent than before.

The Czechoslovak Army was supplied by the Skorpions in a relatively large quantity in the end, since



The 61 E submachine gun from the small production series originating in 1992 from aside: the user can hold the butt of the folded stock with the non-shooting hand to support the gun.

the weapon was assigned to 'specialists', i. e. selected reconnaissance, guard and special forces. It did not, however, make their use official by issuing a relevant decree. Nevertheless, the Czech and Slovak armies still list the vz. 61 Skorpion in cal. 7.65 as their standard equipment. The Penal Institution Units, restructured to the Prison Guard in 1993, which under the administrative authority of the Ministry of Justice have also been an important customer, though not in terms of quantity, using the Skorpion even today.

### SERIAL PRODUCTION

The serial production of the vz. 61 Skorpion submachine gun in caliber 7.65mm was assigned to the current Česká zbrojovka a.s., Uherský Brod which was not excited by this project at all. It was no easy undertaking since the new arm was technologically much more challenging than the vz. 58 submachine gun manufactured in the factory. Moreover, the Ministry of Interior originally ordered only 12 000 pieces, which could – even in a centrally planned economy of the time – negatively affect the profitability of the economic balance of the factory. However, before the fac-

tory management could come with any objections and concerns, the commission was increased to 70 000 pieces and further business negotiations continued.

Serial production of the Skorpion began in early 1963. Thanks to the fact that besides the Czechoslovak Ministry of National Defense, the weapon was ordered also by the Ministry of Foreign Trade, which would export the gun, the factory produced around 100 000 pieces of the Skorpions by 1966, followed by a few years of downtime.

Skorpions returned into the production program of the factory in 1973 after they had gone through a series of less important technological adjustments. The Skorpion from the later production batches are easily recognizable since their surface is protected by a gray baking enamel. Overall, almost 55 000 pieces were produced during the second phase of the serial production between 1973 and 1976 and they were primarily manufactured for the Ministry of Interior and largely also for export.

The third, last phase of their serial production, lasted from 1978 to 1979 when the factory dispatched over 45 000 pieces of Skorpions. Almost 30 000



Three generations  
of the Skorpion:  
vz. 61 E,  
CZ SKORPION 9x19,  
CZ SCORPION EVO 3 A1

pieces were delivered to former Yugoslavia, which also negotiated a license to manufacture the submachine gun. Most of the remaining pieces of Skorpions were destined for export, too.

After the fall of communism in 1989, the newly privatized Česká zbrojovka made a lot of effort to introduce the 7.65mm Browning Skorpions in the newly opened markets, presenting the weapon in many venues. Between 1992 and 1994, the factory manufactured a small series of Skorpions which represented the swan song of the weapon, however. The sophisticated technical solution of the Skorpion (known as the vz. 61 E after 1989) was still admired but an automatic weapon in 7.65 Browning caliber was already a matter of past.

### OTHER VERSIONS

Scorpion's biggest flaw was its low-power cartridge. Mr. Rybář knew it very well and started, immediately after the basic vz. 61 version had been accomplished, to design its new, more performing versions. By 1968, he introduced the vz. 64 Skorpion in cal. 9 mm Browning, the vz. 65 in cal. 9 mm Makarov and, finally, the more robust vz. 68 in cal. 9 mm Luger. The first and the third version were manufactured for a potential export (not on a particular demand – it was how the research and development center in Brno kept its engineers' know-how up to date). The vz. 65 represented the first

attempt to equip the Czechoslovak national army with a compact, automatic firearm using new, standard Soviet pistol cartridges. Nevertheless, none of the above mentioned projects continued after prototypes had been developed.

Mr. Rybář suddenly died in December 1970 in the age of 46, succumbing to a heart failure. His concept of an original, compact automatic handgun was still embraced by others: In late 70s and early 80s, Rybář's colleagues from the research and development center in Brno, supervised by Mr. Čermák, elaborated his concept into what was later known as the vz. 82 submachine gun in caliber 9 mm Makarov – a sort of counterpart to the new vz. 82 duty pistol – with several more or less substantial technological adjustments and improvements which eliminated practically all the flaws of the Rybář's original solution. The most interesting element of the new Skorpion consisted in its telescoping shoulder stock that could be unfolded into an open position. However, not even such modernization helped the Skorpion to be introduced into mass production and its development ended up in the phase of samples.

After 1989, Česká zbrojovka returned to the concept of the Skorpion in other calibers and developed the vz. 82 in cal. 9 mm Makarov and vz. 83 in caliber 9mm Browning Short (.380 Auto), which were conceptually similar to the vz. 65 and vz. 64, but, unfortunately, did not turn out to be attractive for the market. The company also tried its chance by developing the self-loading Skorpion or the pistol for civilian use, also designated the CZ vz. 91 S. To make the Skorpion available to civilians by eliminating its ability to fire in bursts represented a groundbreaking idea in former Czechoslovakia which, unfortunately, did not gain enough support. Firstly, relevant authorities refused to license the weapon, later on, in 1995, the legislation made such attempts impossible for introduction in the civilian market. Nevertheless, Česká zbrojovka, or its American subsidiary, the CZ-USA, respectively, has recently begun to offer the CZ vz. 61 Skorpion Pistol, as semi-automatic firearm in caliber 7.65mm Browning without the folding stock.

### SECOND GENERATION

The Skorpion in caliber 9mm Luger was not forgotten either – quite the opposite. In late 1990s, after several other concepts of compact, automatic handguns had been tested, Česká zbrojovka decided to start up a substantial modernization of the original vz. 68 model.

The final product, **CZ SKORPION in caliber 9x19**, differed from the vz. 86, designed by Mr. Rybář, only in small details, the most important being that its pistol grip and stock were made from polymer instead of wood. Further improvements of the Skorpion ensued: a small production series, introduced in the market in 2003 was even more sophisticated and included a mounting rail under the front part of the receiver. This was a major improvement since it enabled to mount the front vertical pistol grip, among other things. The absence of grip elements for the non-shooting hand was not perceived a major issue in the Skorpions in low-power calibers; the most important aspect of the weapon was its measures and compact design. Its low



weight and the effective rate reducer facilitated to hold the weapon by its magazine or somewhere next to it, or by its wire butt which was protruding under the barrel when the stock was folded. However, this was not the case of the 9mm Luger model. When shooting bursts, the Luger caliber is livelier, noisier and heavier than its predecessors, but still perfectly controllable thanks to overall higher weight and the spring-loaded insert in the rear part of a somewhat heavy breech block which slows down the bolt's opening and reduces the recoil felt in the front and the rear part of the stock. When grasped tight by the non-shooting hand the control of the weapon is even increased, thus facilitating smooth handling in combats.

The development of the CZ SKORPION in caliber 9x19 finally resulted in the 'embellished' XCZ 868 prototype in 2005 (designed by **Vítězslav Guryča** and produced in two samples) and represents the biggest achievement in the development of the second generation of Skorpions. The weapon successfully combined Rybář's original concept with the state-of-the-art ergonomic features, such as the new, telescoping shoulder stock, the polymer pistol grip at the angle of 18° and the removable front vertical grip. The most important novelty included the removable cocking handle that did not move with the bolt but it remained in the front position during the fire and did not endanger or disadvantage the shooter in any way. The operating handle could be mounted on either right or left side of the weapon. Following the current trends, the receiver was equipped with mounting rails in two levels, according to MIL-STD-1913. Standard accessories included a reflex sight, a tactical light, an efficient sound suppressor and a three-point sling. Its unique elements feature a tactical adapter with an assault knife (originally designed by J. Kafka for CZ 75 pistols). There were even some discussions to develop the weapon also in .40 S&W caliber.

### EVO 3

Although Česká zbrojovka dedicated a lot of time to the modernization of the Skorpion in caliber 9 mm Luger and invested substantial funds in its development, the company took a completely different path after the XCZ 868 prototype had been accomplished. It was the result of the overall modernization of the company's duty program leading to the development of the new CZ SKORPION EVO 3 A1 in caliber 9 mm Luger. Based on the Slovak prototype called LAUGO, the new Scorpion was officially presented in May 2009 at the IDET exhibition in Brno after a sub-



Comparison of the Skorpion muzzles in calibers 9 mm Luger and 7.65 Browning. The CZ SKORPION 9x19 dated from 2001 on the left; vz. 61 E from 1992 on the right.



The trigger and firing mechanisms and the rate-reducer of the CZ SKORPION 9x19

stantial re-development and improvements had been conducted. It represents the third generation of compact, automatic Skorpions – that is why it is called EVO 3. You can read the remarkable story of this brand new weapon on page 24 of this special issue. ■

## SKORPION SUBMACHINE GUNS

	vz. 61	CZ SKORPION 9x19
Caliber	7.65 Browning	9mm Luger
Overall length with folded stock (mm)	270	305
Overall length with unfolded stock (mm)	522	595
Barrel length (mm)	115	130
Weight without magazine (kg)	1,3	2,1
Magazine capacity (cartridges)	10; 20	20; 30
Rate of fire (shots/min)	750	850