



SCHERMER STUNNERS K LINE

Instructions for Use and Technical Description for SCHERMER-STUNNERS K-Line for Slaughter Animals



KS



KR



KL



KK

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The line of products K comprises the following four types of stunning devices

- Type KS:** Bolt-retraction system
see appendix 10.1.1 and 10.1.5
- Type KR:** Bolt damping by means of rubber buffers
see appendix 10.1.2 and 10.1.5
- Type KL:** Construction as type KR with elongated bolt
see appendix 10.1.3 and 10.1.5
- Type KK:** Construction as type KR with shortened bolt
see appendix 10.1.4 and 10.1.5

1.1 Basis safety indications



You have to obey always carefully the following appointments among the safety-related indications in the individual chapters of this manual.

1.2 Intended use

The stunners may only be used by the operator for stunning animals for slaughter.

1.3 State of the art

- The stunners are in accordance with the state of the art.
- Hazards may occur in case of use by untrained personnel or unintended use of the device and its utilities.

1.4 Unintended use



- Unintended use, e.g. pointing on, putting on or throwing on persons or parts of the body with the stunner may cause serious damages.
- Manipulations or modifications of the stunners are forbidden.
- Always use only original Schermer spares, cartridges and accessories or those of comparable quality.
- Always obey the advices for handling, maintenance and repair of this manual.
- Never give stunner out of your hands or leave it unattended in a cocked and/or loaded manner.
- Do not use the stunner in an explosive or inflammable surrounding.

1.5 Intended use

- Handle, maintain and control the stunner with the same respect and caution as you would do with a weapon.
- Before loading, unloading and/or secure the stunner.
- **Only release safety catch of the stunner, if the slaughter animal is ready for stunning.**
- The stunner may only be used hand driven.
- Insure a proper lightning and ventilation of the working area.
- Insure a air change rate >1,5/h if using lead containing cartridges.
- Insure safe footing and good ergonomic working conditions.
- When firing always be sure that you have a firm and safe grip on the stunner. Keep the reaching area of the hands dry and clean.
- Keep persons not involved into the working process away for the affected burden of the stunner.

1.6 General hazards caused by the stunner



- The stunner may be used in proper conditions for the intended use only.
- The red O-ring K10 is visible if you take off safety of the stunner.
- The bolt moves out through the muzzle. For U.S. only: Notice red danger mark on barrel's end (muzzle). The affected burden (penetrating length) is for type KS 85 mm (3.4 in.), for type KR 90 mm (3.6 in.), for type KL 125 mm (5.0 in.) and for type KK 75 mm (3.0 in.).
- Change worn-out or damaged parts immediately, the stunner may not be used any longer in this condition.
- Using of a too short bolt may damage the stunner and cause serious injuries. Therefore never use a bolt with an overall length of less than 194 mm (7.64 in.) for types KS and KR, 230 mm (9.05 in.) for type KL and 180 mm (7.09 in.) for type KK. Too short bolts have to be replaced immediately. Pay attention to a correct guidance of the bolt in the muzzle.
- Pay attention to a correct looking of the stunner as well to a tight fixation of the cartridge breech and the muzzle.
- Do not remove the cartridges from the stunner by force.
- Always unload and uncock the stunner before doing any cleaning or maintenance work.
- Store cartridges and stunners which are not in use in a cool and dry area. Store and transport the cartridges and stunners in a manner which avoids unintended use.
- Do not exceed the recommended limit value of shots/day to avoid an overheating of the stunner.
- Do not do any cleaning or maintenance work on a hot stunner.

1.7

Demands on the user

- Read this manual carefully before using the stunner for the first time and acquaint yourself with the handling and functions of the stunner.
- The stunner and the cartridges may only be handled by trained and authorized persons, who have to be especially instructed about possible hazards caused by them.
- The manufacturer does recommend to present the stunner every two years for a check test, in case of a serious defect immediately. Please observe the corresponding national laws and regulations in your country.
- The owner and/or the user of the stunner must obey national laws and regulations in effect, e.g. directive 2006/42/EC, directive 1099/2009/EC as well as guidelines for animal welfare or from government safety organisations.
- Always work with concentrated attention and stop working in case of lack of concentration or indisposition.

1.8 Personal protective equipment

- The user and any other persons nearby have to wear adequate protective equipment like ear protectors, safety shoes, head protection, safety goggles and safety gloves during the use of the stunner..

Csee appendix 10.1

2.1 General advice

To ensure a long, satisfactory life of your stunner the following instructions must be followed.

- a) Clean stunner daily after use.
- b) Each point of the instructions on cleaning and maintenance as detailed in chapter 8 must be followed carefully.
- c) Never fire into the air as this will damage your stunner. Use a strong piece of wood for testing purposes.
- d) Place stunner firmly against the animal's head when firing.
(see chapter 5 „Firing“)

CAUTION: If not in use, stunner and power loads must be secured until you are ready to shoot. To prevent accidental firing, stunning apparatus must be locked away until you are ready to shoot.

(see chapter 4 “Safety Features”)

2.2 Necessary daily check of the device before use

Caution: Check that there is no cartridge inside the device before doing any maintenance. Make a visual wear and tear check of the stunner (cracks, breaks etc.).

2.2.1 Type KS

Before using the stunner, make sure that bolt (20) slides smoothly in the apparatus and does not stick. Please take notice of the following points.

- a) Take off cartridge breech locking (14), loosen cartridge breech (19) and take away protecting cover (26).
- b) Check thread of barrel (24) and of cartridge breech whether they show cracks or other damages and replace if necessary.
- c) Withdraw bolt with O-ring (21) and the two rubber plates (22) as well as the 8 damping elements (23) from barrel.
- d) Put bolt without damping elements and rubber plates into the barrel.
- e) Bolt must slide easily out of the muzzle. In case of a jam repair the stunner.

2.2.2

Types KR, KL an KK

Before using the stunner, make sure that bolt (40, 46 or 48) slides smoothly in the apparatus and does not stick. Please take notice of the following points.

- a) Take off cartridge breech locking (14), loosen cartridge breech (19) and take away protecting cover (25).
- b) Check threads of barrel (42, 47 or 29) and of cartridge breech locking whether they show cracks or other damages.
- c) Withdraw bolt with rubber buffers (41) from barrel.
- d) Put bolt without rubber buffers into the barrel.

see appendix 10.1

CAUTION: Never press the bolt into a loaded and/or cocked stunner.

Put safety catch on before loading.

- a) **Load and cock stunner only when the animal stands ready for stunning.**
- b) Insert power load in cartridge breech (19)
- c) Secure cartridge breech locking. (see chapter 4)
- d) Assemble stunner and turn cartridge breech locking firmly to the right. If it is not firmly screwed with the barrel, this will cause unnecessary wear and tear at the thread. When firing, power load may misfire and tear off the shell which can make escape hot combustion gas. Power load will not develop its full power.
- e) The operator must not cock the loaded stunner until he has a firm grip on it, and only when ready to stun the animal. Never walk around with a cocked stunner or leave it unattended.
- f) Cock the stunner by pulling firing pin (8) by means of pull cap (3) upwards until the trigger (11) catches.

see appendix 10.1

- a) Turn safety ring (9) counter-clockwise till limit.
The red O-ring (6) at the guide of firing pin is no longer visible. Firing pin (8) cannot strike on the power load and fire, even if trigger (11) is pressed. How to control function see point 8.1.2
- b) When trigger is not pressed firing pin cannot strike on the power load.
Replace weak trigger spring (13) without delay.
- c) The safety catch pin (28) avoids unintentional firing when cartridge breech locking (14) is put on. Replace worn out safety catch pins or weak springs for safety catch pin (29) without delay.

see appendix
10.1

Always wear goggles and ear protection

There must be an escape way in case of misfiring or strong excitation movement of the animal.

Very important: Please take notice of the following advice which must strictly be adhered to.

Do not shoot the stunner without a cartridge inserted, as otherwise firing pin will strike on cartridge chamber.

This may result in damages which may cause sticking of the cartridges in the cartridges chamber.

Take off safety of the stunner by turning safety ring (9) clockwise until limit; the red O-ring of guide of firing pin is entirely visible. The stunner is placed on the head of the animal as indicated (see Appendix 10.3.), so that the whole surface of the muzzle is pressed firmly on the front of the animal.

Thereafter trigger is pushed through and cartridge fires. Keep trigger pushed through.

At the type KS the bolt is retracted after firing by damping elements into the barrel, at the types KR, KL and KK it must be pushed back manually.

It is important to place the stunner vertically in order to avoid jamming of the bolt and sticking in the animal's head.

Lock away stunner and power loads after work.



see appendix 10.1

After opening the stunner, power load will be loosened in the cartridge breech by lifting cartridge ejector (15) and then can easily be taken away.

Jammed cartridges can be loosened as follows:

Push a screw driver between cartridge ejector and bayonet of cartridge breech and press ejector up on top.

Important: Before taking away cartridges that did not fire, secure device before opening it.

How to proceed when misfiring see point 9.1.

7. Power Loads

CAUTION: Use genuine Schermer power load cal. 6.8/15 only.

Keep out of reach of unauthorized persons and children.

Power load cal. 6.8/15 is available in three different charges. The colour of the top of the tin or the shade of the point of the cartridge indicates the charge of the power load.

Cal. 6.8/15 No. 3, Yellow for sheep, pigs, horses, cattle, sows and boars

Cal. 6.8/15 No. 4, Blue for cows, oxen and steers

Cal. 6.8/15 No. 5, Red for heavy bulls only

Power loads must be stored dry and locked away and protected against humidity, heat and cold. Store only a shift's requirement in the slaughtering area, the balance in the office area.

For K-line stunners only genuine Schermer power loads cal. 6.8/15 are to be used. If other power loads are used, the warranty will be voided and our company will not assume any liability for damages that may occur.

The different types of captive bolt stunners of the K-series can be used for stunning of all kind of slaughter animals in compliance with the guidelines of regulation 1099/2009/EC and/or national regulations, e.g. regulations for protection of animals in case of slaughtering, in consideration of the following restriction:

Type KS and KK: cattle up to 650 kg

Please contact the manufacturer in case of stunning exotic species.

see appendix 10.1

Pay attention to legal test specifications and maintenance instructions.

Allow only authorized and trained personnel to handle, maintain and check the stunner and the cartridges.

Wear safety goggles and safety shoes.

Wash your hands carefully after work.

Use only original Schermer spare part or parts with comparable quality.

By use of other spare parts any warranty will expire and there will be no liability for any damage.

The spare parts (K2,4,7,13,17,18 and K21, 22 23 for KS respectively K41, 44, 45 for KR,KL or KK) should be checked and replaced in case of wear and tear in case of proper use after 300 shots. A replacement has to be done at least after 1500 shots, All other parts have to be checked visually (cracks, breaks etc) and replaced in case of wear and tear.

All threads and slide faces, e.g. of firing pin (8), safety ring (9), cartridge breech (19), muzzle (27, 43 or 58) or bolt (20, 40, 46 or 48) have to be lubricated. Use gun oil, e.g. Ballistol or the assembly paste K72 respectively comparable qualities.

8.1 Cartridge breech locking

8.1.1 Dismantling

- 1) Loosen cap nut (1) and take away lock washer (2).
- 2) Unscrew pull cap for firing pin (3).
- 3) Pull off pull cap spring for firing pin (4).
- 4) Unscrew guide for firing pin (5).
- 5) Check red O-ring (6) and replace it if necessary.
- 6) Unscrew safety ring (9).
- 7) Check O-ring (10) and replace it if necessary.
- 8) Push trigger (11) through and pull out firing pin (8).
- 9) Take away firing pin spring (7).
- 10) Loosen guiding screw (12), pull out trigger slowly, take out trigger spring (13), safety catch pin (28) and spring for safety catch pin (29).
- 11) Clean all parts thoroughly.

8.1.2. Assembly

(Oil all threads)

- 1) Insert trigger spring (13), safety catch pin (28) with spring for safety catch pin (29) and insert trigger (11) into cartridge breech locking (14).
- 2) Push trigger and screw in guiding screw (12), fix screw with Teflon band.
- 3) Oil flat thread and lift O-ring (10) onto cartridge breech locking.
- 4) Screw on safety ring (9).
- 5) Push through trigger and insert firing pin (8).
- 6) Put on firing pin spring (7).
- 7) Screw on guide for firing pin (5).
- 8) Put on pull cap spring for firing pin (4).
- 9) Screw on pull cap for firing pin (3) (till limit).

10) Operation check out

- a) Safety ring into position secured - red O-ring is not visible.

Point of firing pin is not to be pushed over the plane face of cartridge breech locking, not even when lever is pushed through.

- b) Safety ring into position take-off safety - red O-ring is visible. Point of firing pin is not to be pushed over the plane face of cartridge breech locking when trigger is not pushed.

- Point of firing pin must be able to be pushed ca. 1,5 mm (\approx 0.6 in) over plane face when trigger is pushed.

- c) Adjust, if necessary, lifting of firing pin correctly by turning back of pull cap for firing pin

11) Insert new lock washer (2).

12) Screw on cap nut (1).

8.2. Barrel

8.2.1 Type KS

- 1) Take off cartridge breech locking (14).
- 2) Clamp barrel (24) into the vice at the clamping surfaces.
- 3) Unscrew cartridge breech (19) with spanner (60) from barrel.
- 4) Take off protecting cover (26) together with O-rings (25).
- 5) Take out bolt (20), O-ring (21), both of the plates (22) and the 8 damping elements (23).
- 6) Chuck barrel and loosen muzzle (27).
- 7) Clean all parts, and pay attention to ventilating hole at the barrel as well as to the red mark (75). (USA only)
- 8) Slightly oil all threads and grease O-rings (25).
- 9) Examine all parts and replace worn out parts.
- 10) Reassemble device in the reverse order.

8.2.2 Types KR, KL and KK

- 1) Take off cartridge breech locking (14).
- 2) Clamp barrel (42, 47 or 49) into the vice at the clamping surfaces.
- 3) Unscrew cartridge breech (19) with spanner (60) from barrel.
- 4) Take off protecting cover (26) together with O-rings (25).
- 5) Take out bolt (40, 46 or 48) and rubber buffers (41), type KK only 2 pieces.
- 6) Chuck barrel and loosen muzzle (43 or 58).
- 7) Clean all parts, and pay attention to ventilating hole at the barrel, as well as to the red mark (75). U.S.A. only.
- 8) Slightly oil all threads and grease O-rings (25).
- 9) Examine all parts and replace worn out parts.
- 10) Reassemble device in the reverse order.

8.3. Replacing cartridge ejector (15), ejector guiding pin (16) or ejector springs (18)

CAUTION: Ejector guiding pin is under spring pressure and, therefore, it can easily trip when dismantling.

- 1) Push in guiding pin until limit stop with mounting hook (63).
- 2) Slowly pull cartridge ejector up and pull out ejector guiding pin with guiding pin spring (17), take out both ejector springs.
- 3) Clean parts and oil them slightly. Grease O-rings (25).
- 4) Insert ejector springs, guiding pin and guiding pin spring and push them in.
- 5) Put on cartridge ejector and let ejector guiding pin snap in.

8.4. Replacing clamp balls (44) and fixing ring (45) of the muzzle (43 or 58) (Types KR, KL and KK)

- 1) Take away fixing ring.
- 2) Take out worn out clamp balls.
- 3) Insert new clamp balls and pull over a new fixing ring, fix clamp balls if necessary with a little grease in the holes.
- 4) Check whether bolt can easily be moved in the barrel and snaps-in in the groove.

8.5. Check test

The manufacturer does recommend a check test every two years, in case of significant malfunction immediately at the manufacturer.

Please observe the corresponding national laws, legal test specifications, maintenance instructions and regulations in effect in your country.

9.1 The power load does not fire.

CAUTION: If ammunition fails to fire, do not hold stunner against persons or parts of body. Wait 30 seconds before clearing the fault.

Causes may be:

- a) A weak firing pin spring. If so, replace it by a new one.
- b) Firing pin bent through accidental dropping. Replace pin or set it straight.
- c) Operator's hand inadvertently obstructs the pull cap when firing thereby slowing down the firing pin. Keep hand away from pull cap for firing pin when firing.
- d) Stunner is not entirely released.
- e) Firing pin is not correctly adjusted. (see chapter 8.1.2)

9.2 Animals not dropped with the first shot.

Causes may be:

- a) Bolt is not entirely retracted, damping elements, O-ring or plates are worn out.
Replace the parts. (Type KS)
- b) Worn out rubber buffers. Replace them by new ones (Types KR, KL and KK).
- c) Power loads fired were humid. Store power loads dry.
- d) Insufficient power load.

9.3 Bolt sticks in the animal's head after firing.

Causes may be:

- a) The stunner may not have been held firmly and flatly against the animal's head.
See instruction „Firing“ (see point 5).
- b) Worn out rubber particles may be jamming the bolt. Replace worn out O-ring, plates or damping elements.
- c) Ensure whether bolt slides easily. (see point 2.2).

9.4. Bolt is not entirely retracted after firing

Causes may be:

- a) Worn out damping elements, O-rings or plates. Replace them (Type KS)
- b) Worn out rubber buffers or clamp balls. Replace them (Types KR, KL and KK)
- c) Dirty muzzle or bolt. Clean parts.
- d) Bent bolt. Replace it and have the defective one straightened expertly.

9.5 Bolt is jamming in the barrel

Causes may be:

- a) Insufficient cleaning of the barrel (24, 42, 47 or 49) The inner face of the barrel has to be residue-free in order to enable a easy sliding of the bolt (20, 40, 43 or 48)
- b) Worn out pieces of damping elements (23) or rubber puffers (41) may be wedged in between bolt and muzzle (27, 43 or 58) or bolt plate and barrel. Replace worn out damping elements, rubber plates (22), O-rings (21) or rubber puffers.
- c) Bolt may be bent. Replace it with a new one.
- d) Bolt may strike against the muzzle. Perhaps the stunner was not properly assembled. First make sure that muzzle and cartridge breech are screwed on tightly. Should bolt be too short due to frequent sharpening, it must be replaced by a new one. The minimum length of the bolt is 194 mm (≈ 7.64 in.) (type KS and KR), 230 mm (≈ 9.05 in.) (type KL or 180 mm (≈ 7.09 in.) (type KK).



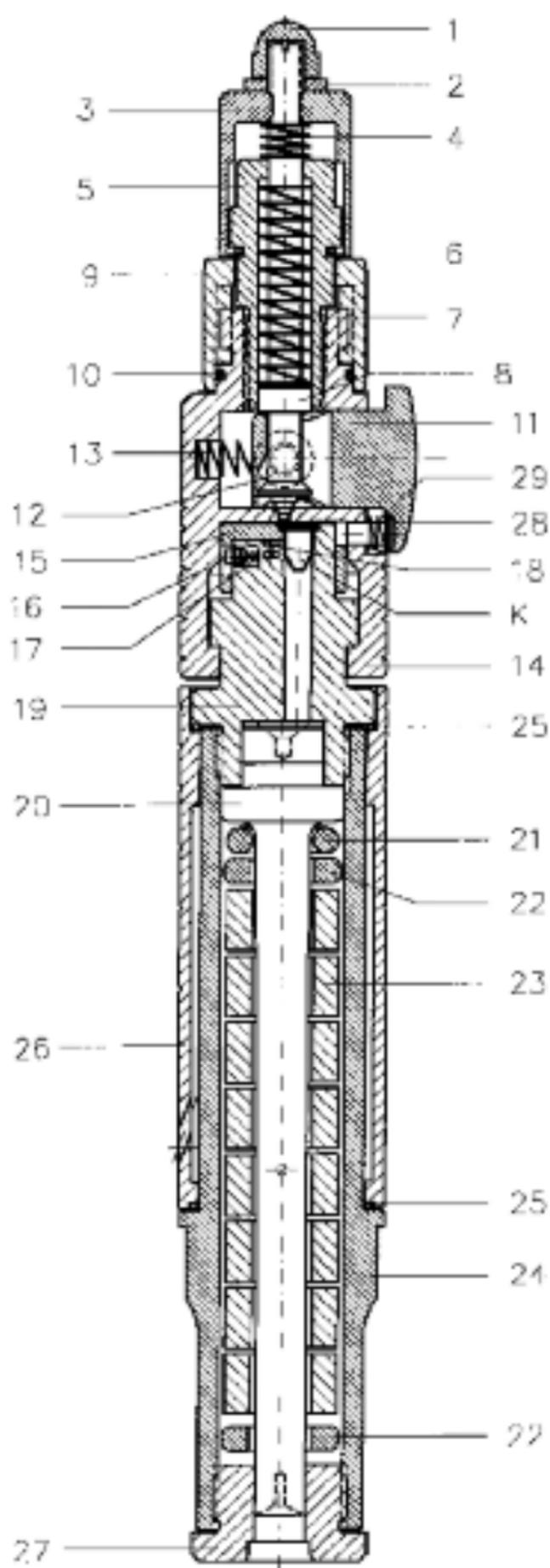
It is dangerous to fire the stunner with a bolt which is too short.

10.1. Parts list and sectional drawing**10.1.1 Stunner type KS**

Mechanical cartridge ejector and bolt retraction system

(see appendix 10.1.5)

K 1	Cap nut
K 2	Lock washer
K 3	Pull cap for firing pin
K 4	Pull cap spring for firing pin
K 5	Guide for firing pin
K 6	O-ring (red)
K 7	Firing pin spring
K 8	Firing pin
K 9	Safety ring
K10	O-ring
K11	Trigger
K12	Guiding screw
K13	Trigger spring
K14	Cartridge breech locking
K15	Cartridge ejector
K16	Ejector guiding pin
K17	Guiding pin spring
K18	Ejector spring (2 pieces)
K19	Cartridge breech
K20	Bolt
K21	O-ring
K22	Rubber plate (2 pieces)
K23	Damping element (8 pieces)
K24	Barrel
K25	O-ring (2 pieces)
K26	Protecting cover
K27	Muzzle
K28	Safety catch pin
K29	Spring for safety catch pin



10.1.2**Stunner type KR**

Mechanical cartridge ejector, bolt absorbing by rubber buffers

(see appendix 10.1.5)

K 1	Cap nut
K 2	Lock washer
K 3	Pull cap for firing pin
K 4	Pull cap spring for firing pin
K 5	Guide for firing pin
K 6	O-ring (red)
K 7	Firing pin spring
K 8	Firing pin
K 9	Safety ring
K10	O-ring
K11	Trigger
K12	Guiding screw
K13	Trigger spring
K14	Cartridge breech locking
K15	Cartridge ejector
K16	Ejector guiding pin
K17	Guiding pin spring
K18	Ejector spring(2 Pieces)
K19	Cartridge breech

K40 Bolt

K41 Rubber buffers (black, red, black)

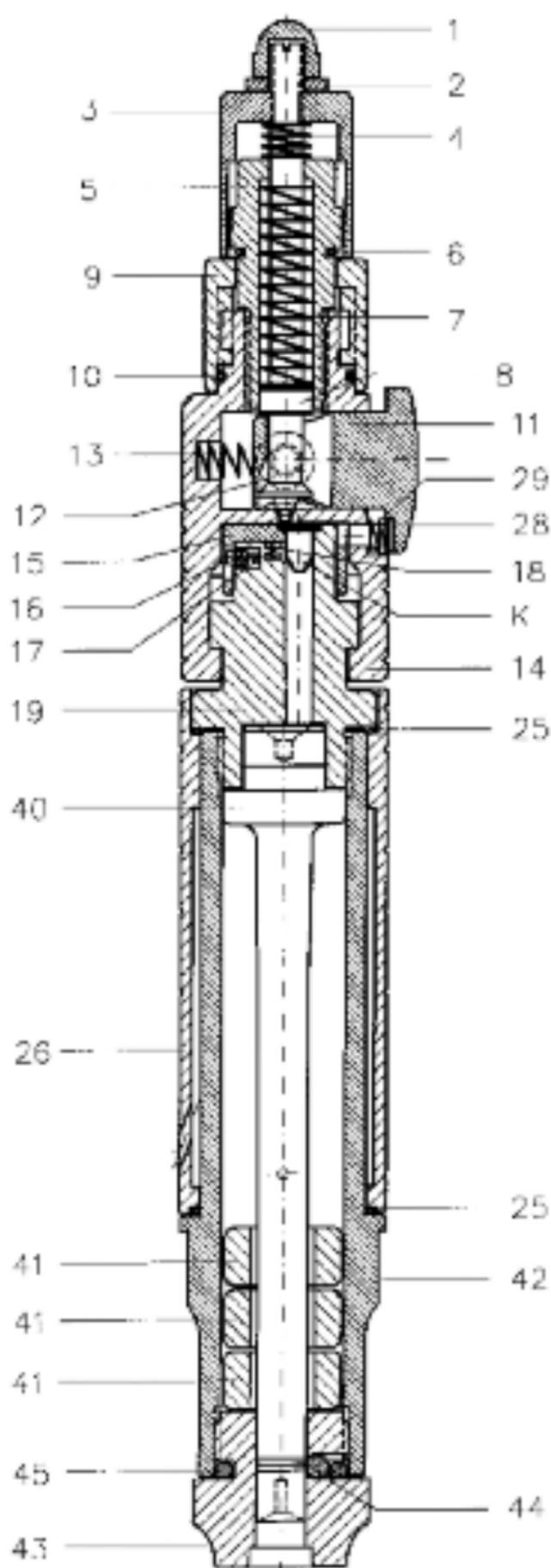
K42 Barrel

K25	O-ring (2 Pieces)
K26	Protecting cover
K28	Safety catch pin
K29	Spring for safety catch pin

K43 Muzzle

K44 Clamp balls (3 Pieces)

K45 Fixing ring

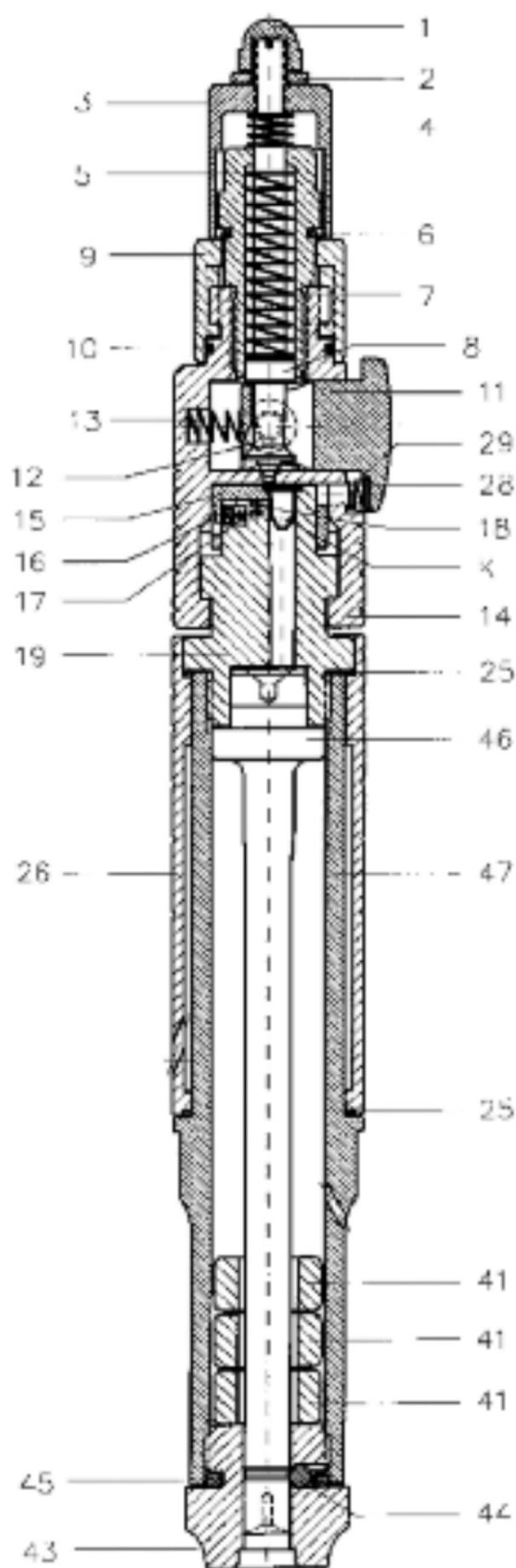


10.1.3 Stunner type KL

Mechanical cartridge ejector, extended bolt

(see appendix 10.1.5)

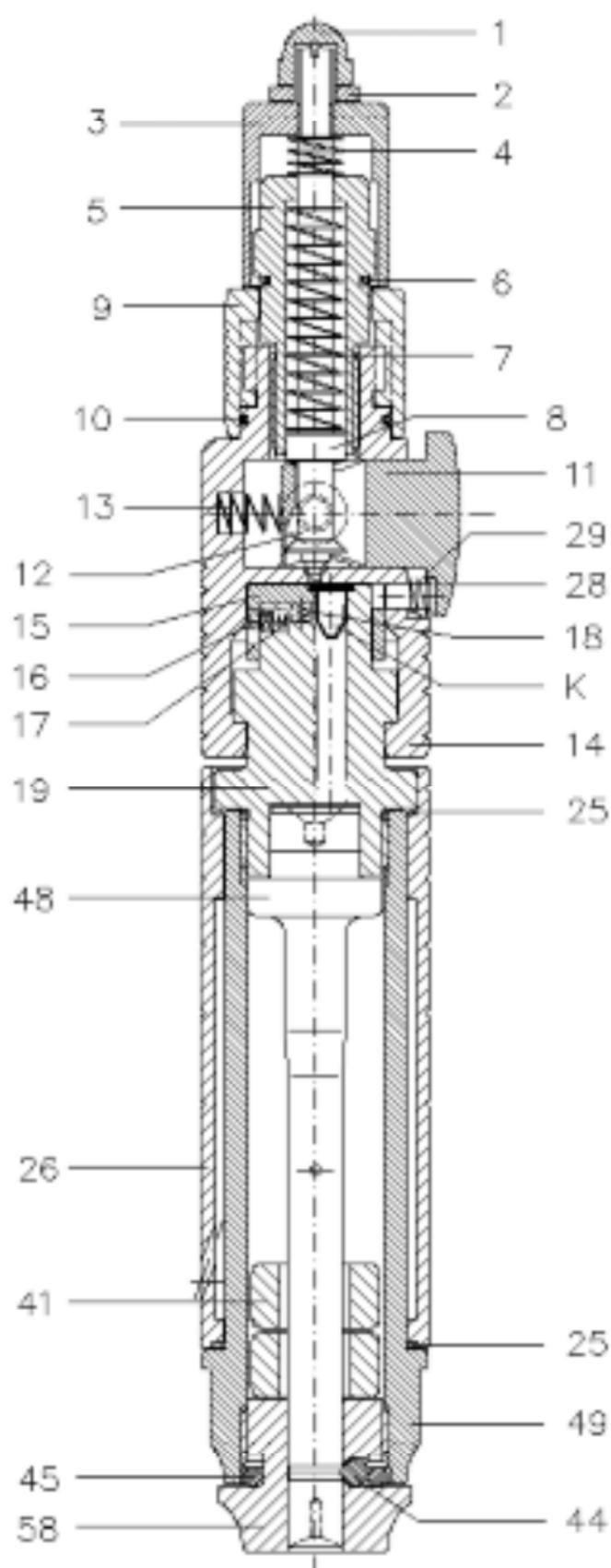
K 1	Cap nut
K 2	Lock washer
K 3	Pull cap for firing pin
K 4	Pull cap spring for firing pin
K 5	Guide for firing pin
K 6	O-ring (red)
K 7	Firing pin spring
K 8	Firing pin
K 9	Safety ring
K10	O-ring
K11	Trigger
K12	Guiding screw
K13	Trigger spring
K14	Cartridge breech locking
K15	Cartridge ejector
K16	Ejector guiding pin
K17	Guiding pin spring
K18	Ejector spring (2 pieces)
K19	Cartridge breech
K46	<i>Bolt (long)</i>
K41	<i>Rubber buffers (black, red, black)</i>
K47	<i>Barrel (long)</i>
K25	O-ring (2 pieces)
K26	Protecting cover
K28	Safety catch pin
K29	Spring for safety catch pin
K43	<i>Muzzle</i>
K44	<i>Clamp balls (3 pieces)</i>
K45	Fixing ring



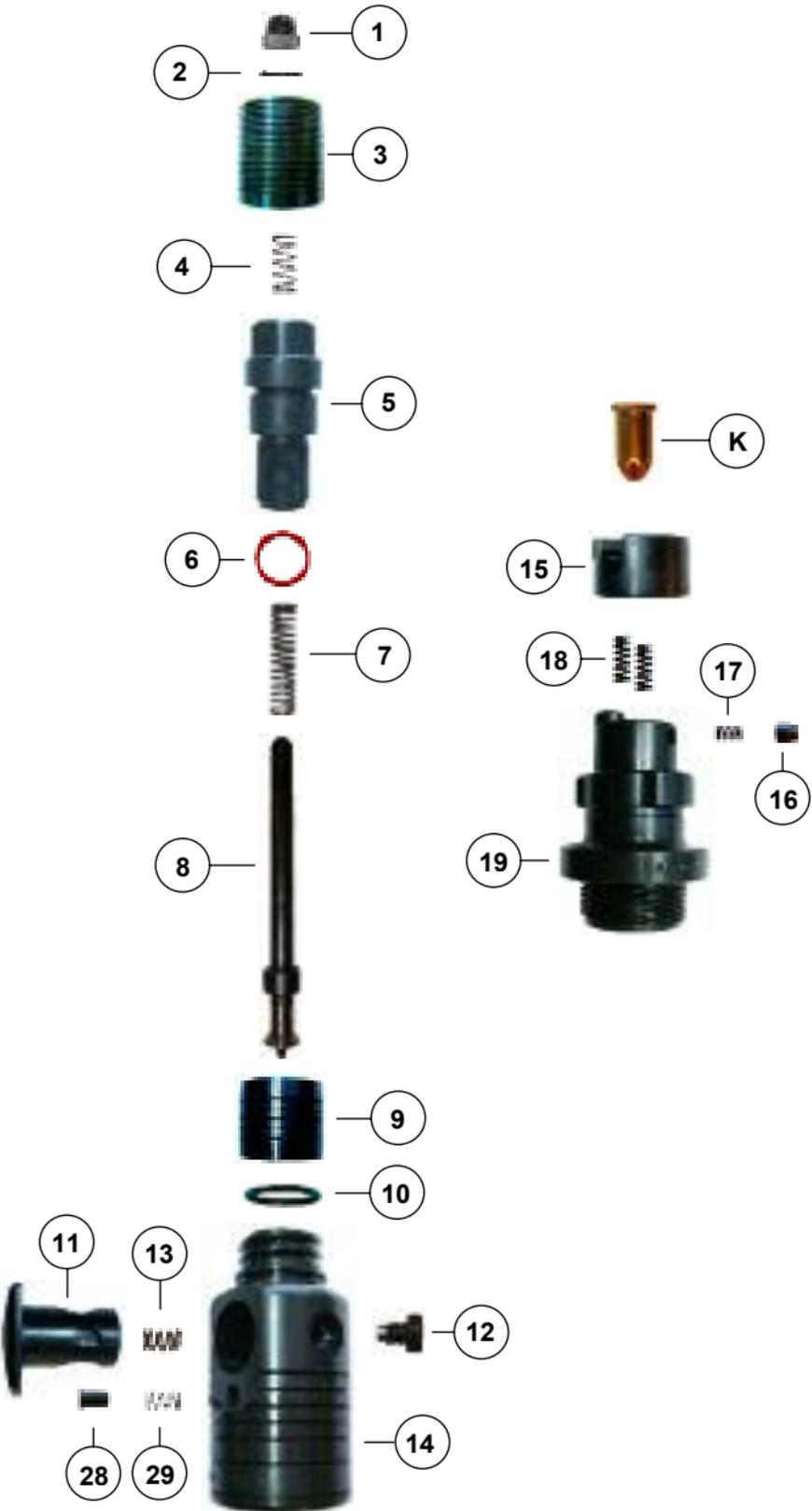
10.1.4 Stunner type KK

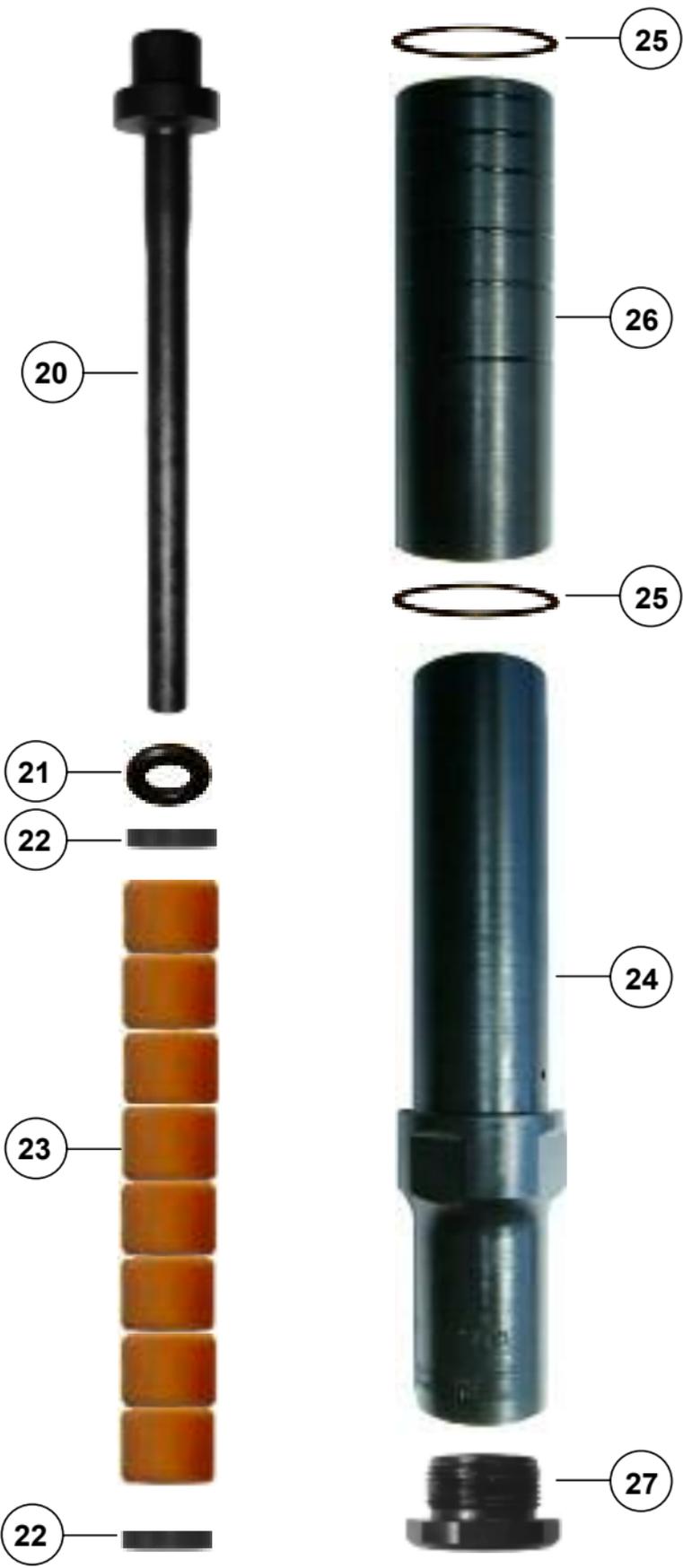
mechanical cartridge ejector, shortened bolt
(see appendix 10.1.5))

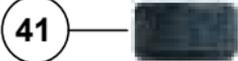
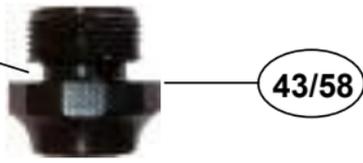
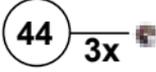
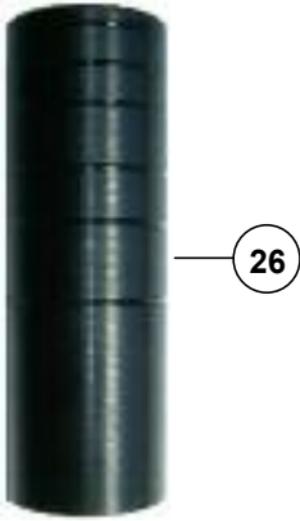
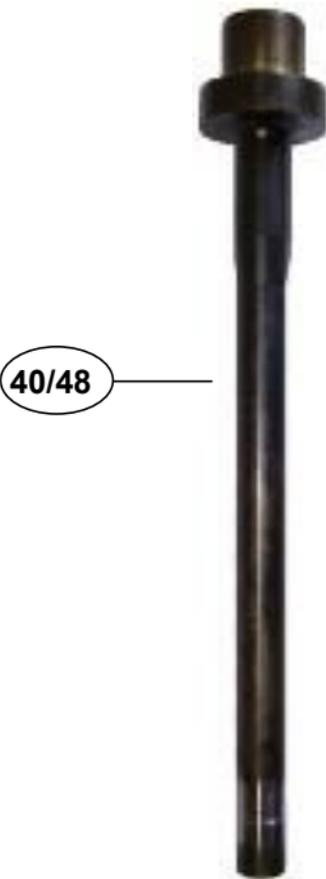
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K 8	Firing pin
K 9	Safety ring
K10	O-ring
K11	Trigger
K12	Guiding screw
K13	Trigger spring
K14	Cartridge breech locking
K15	Cartridge ejector
K16	Ejector guiding pin
K17	Guiding pin spring
K18	Ejector spring (2 pieces)
K19	Cartridge breech
K48	<i>Bolt (short)</i>
K41	<i>Rubber puffers (red, black)</i>
K49	<i>Barrel (short)</i>
K25	O-ring (2 pieces)
K26	Protecting cover
K28	Safety catch pin
K29	Spring for safety catch pin
K44	<i>Clamp balls (3 pieces)</i>
K45	<i>Fixing ring</i>
K58	<i>Muzzle</i>



10.1.5 Line K
Exploded view

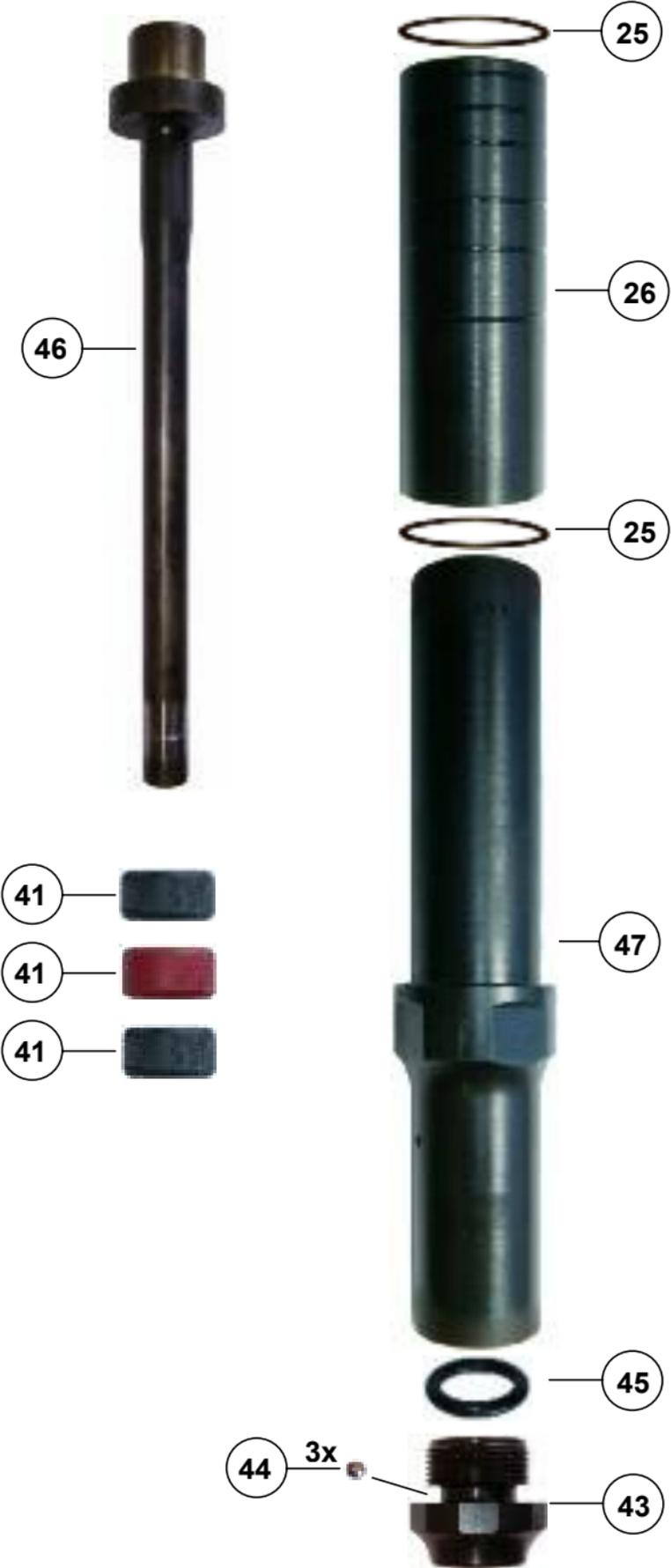






41/
n/a for
KK





Delivered with device:

- K60 Spanner for cartridge breech K19
- K61 Bar for spanner (K60) and cleaning brush K62
- K62 Cleaning brush (short)
- K63 Mounting hook

To be ordered separately:

- K70 Drill for sharpening
- K71 Ballistol-oil
- K72 Assembly paste
- K73 Cleaning brush (long)
- K74 Bar for cleaning brush K73
- K75 Red mark to indicate bolt outlet (U.S. only)



10.3.

Correct application of the stunner to the various types of animals



10.4 Technical data and disposal

	length	weight
KS:	385 mm	3,2 kg
KR:	385 mm	3,1 kg
KL:	425 mm	3,3 kg
KK:	345 mm	2,9 kg

The component parts of the stunners can be disposed according their basis material.

Metal parts are: K1, K2, K3, K4, K5, K7, K8, K9, K11, K12, K13, K14, K15, K16, K17, K18, K19, K20, K24, K27, K28, K29, K40, K42, K43, K44, K46, K47, K48, K49, K58, K60, K61, K62, K63, K73 and K74.

Plastic parts are: K6, K10, K21, K22, K23, K25, K26, K41, K45, and K75

10.5 Noise information

	KS	KR/KK	KL
sound power level [dB(A)]	110,9	120,7	111,9
uncertainty of measurement [dB(A)]	2,5	2,5	2,5
acoustic pressure at workplace [dB(A)]	79,5	90,8	80,1
uncertainty of measurement [dB(A)]	2,5	2,5	2,5

Test was carried out on the basis of DIN EN 12549.

10.6 Vibration information

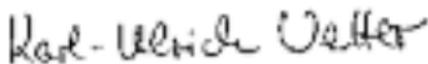
	KS	KR/KK	KL
valuated acceleration [m/s²]	19,2	14,1	18,9
limit value [shots/day]	650	1180	668

Test was carried out on the basis of DIN ISO 5349-1 and 20643 as well as DIN/TS 15694 and 8662-11.

10.7 Declaration of conformity

We hereby declare that the stunners KS, KR, KL and KK comply with the directive 2006/42/EC and the standard DIN EN ISO 12100:2010.

The conformity is based on the type test, certificate DE-11-MaRLIV18-PTB09, by notified body, Physikalisch-Technische Prüfanstalt, NB 0102, Brunswick Germany. The stunners are conform with the C.I.P. resolutions and do have a approval mark, PTB-no. 882.



Ettlingen, 2013/10/07

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