



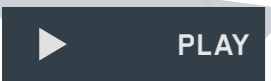
DARWINA

SMALL CALIBER AMMUNITION PRODUCTION LINE

PRODUCTION LINE

Design, manufacture & commissioning of complete production lines (including factory facilities when required).

VIDEO PRESENTATION

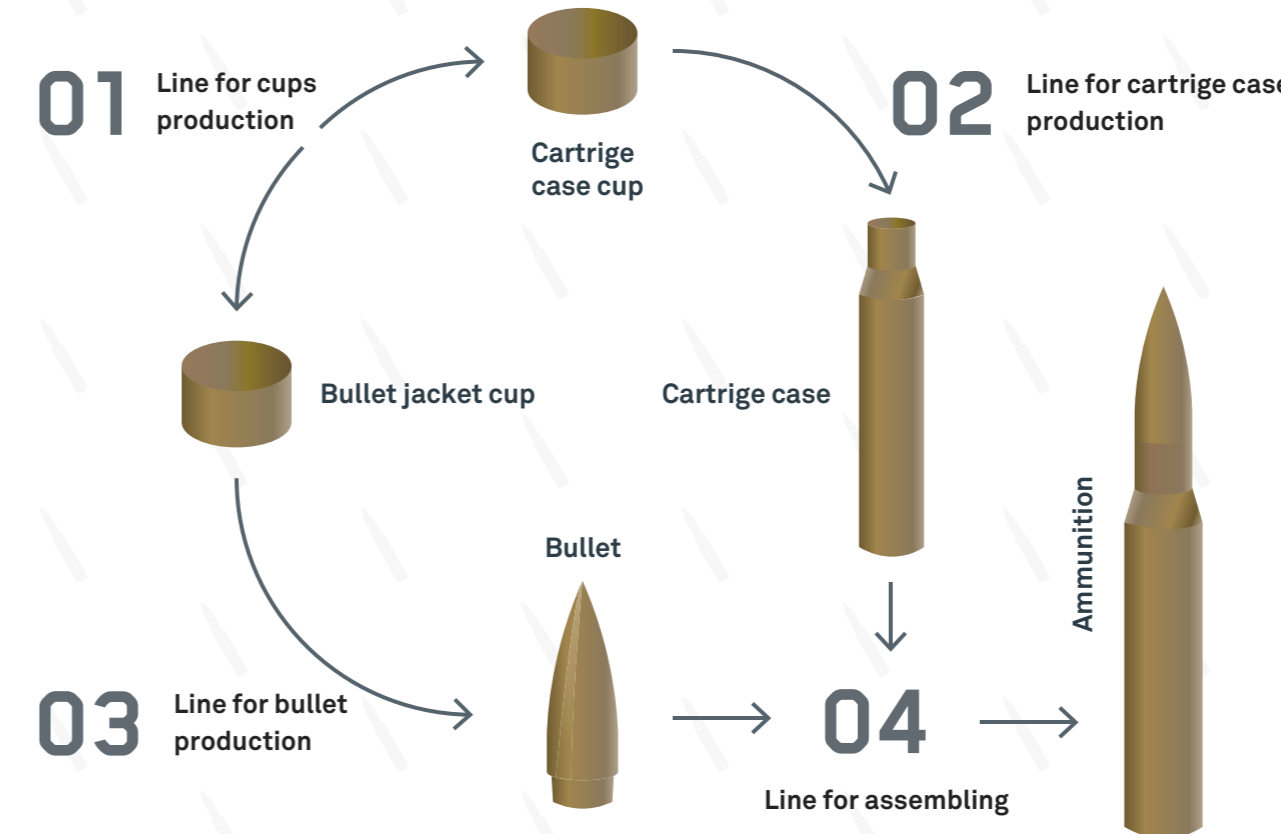


BASIC CHARACTERISTICS

Production of calibers* from 5.56 up to 12.7 (not incl. 12.7)	5.56x45, 7.62x39, 7.62x51, 7.62x54, 5.45x39, 308Win, 338LM, 9x19
Line capacity	200 pcs /min
Designed annual capacity for one eight-hour working shift / day	20.000.000 bullets
Cartridge case material	Brass
Bullet core material	Pb-Sb alloy wire (standard line) or steel (optional)
Bullet type	FMJ (standard) or AP / HP (optional)

* production of each caliber is enabled by use of appropriate working tools and transitional parts

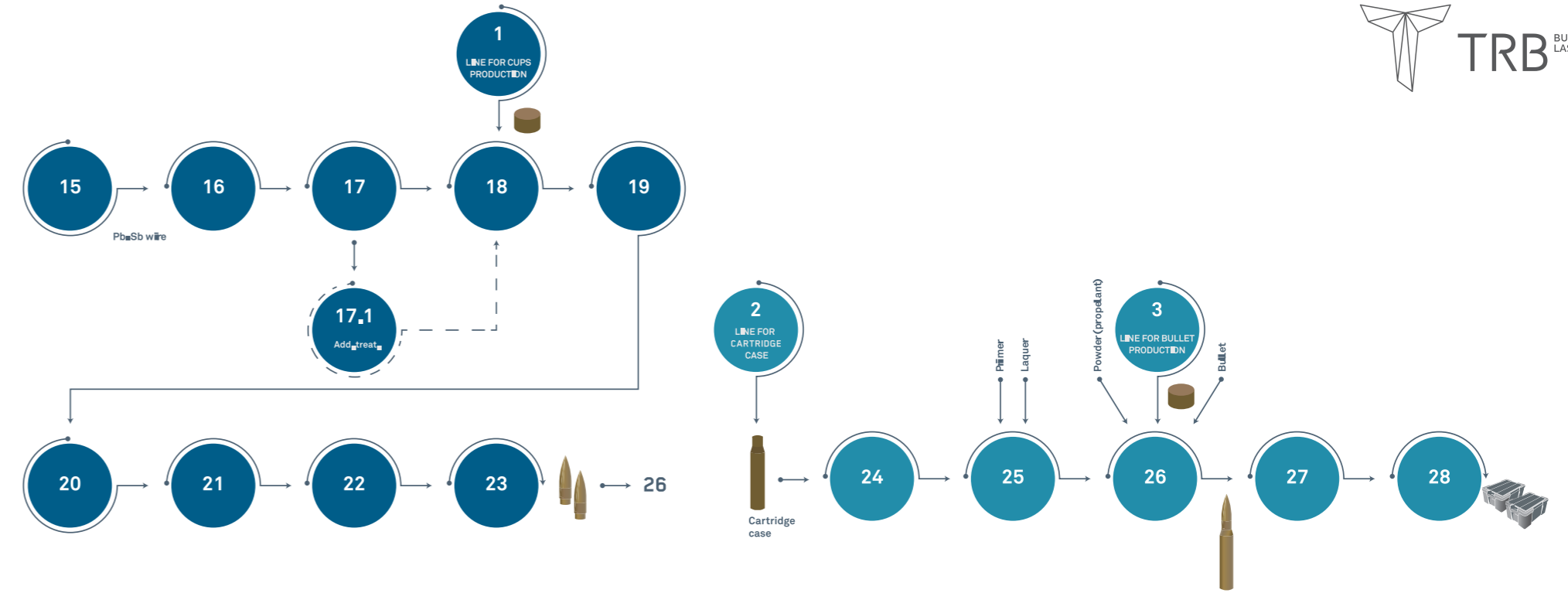
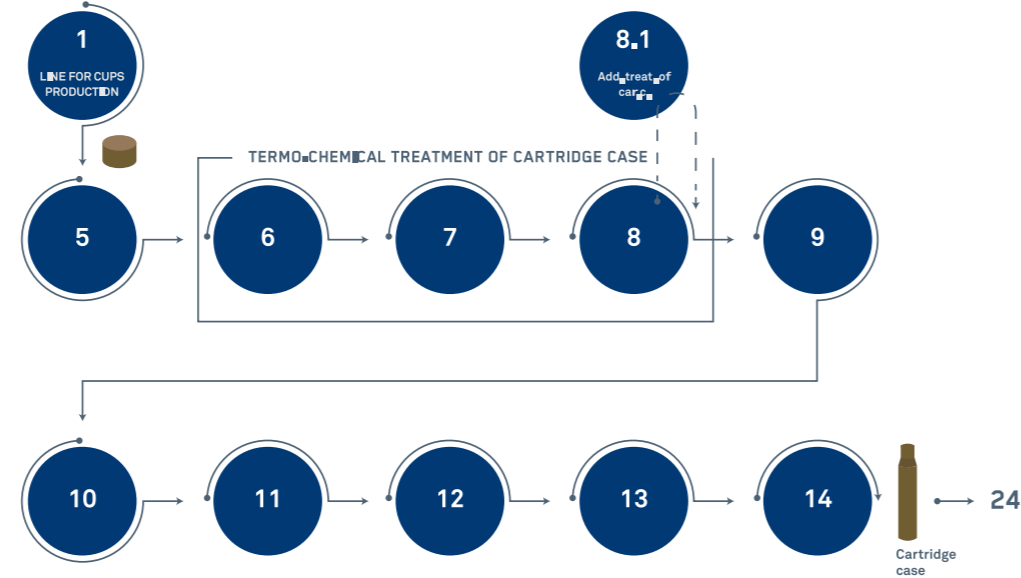
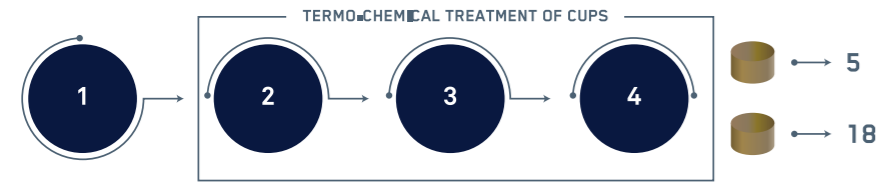
INSTALLATION OF AMMUNITION LINE



TECHNOLOGICAL PROCESS PHASES:

- ▶ Production of starting raw materials: cartridge case cup and bullet jacket cup
- ▶ Production of starting raw materials: lead wire
- ▶ Manufacture of cartridge case
- ▶ Bullet production
- ▶ Line for ammunition assembling

PRODUCTION PROCESS



NO	OPERATION	NUM. OF MACH.*
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1 LINE FOR CUPS PRODUCTION		
1	Double action press	1
2	Washing, rinsing and drying before annealing	2
3	Cups annealing	1
4	Pickling, washing, rinsing after annealing	1

2 LINE FOR CARTRIDGE CASE PRODUCTION		
5	Drawing and trimming of cartridge case	1
6	Rinsing, washing and drying	1
7	Flow strip furnace for stress relieving	1
8	Pickling, rinsing, greasing, draining and drying	1
9	Flash holes indenting. Cartridge case necking	1
10	Sieving of scraping	1
11	Visual inspection of cartridge case	2
12	Grooving of cartridge case	2
13	Mechanical control of dimensions	2
14	Induction annealing of cartridge case	2

3 LINE FOR BULLET PRODUCTION		
15	Lead antimony wire plant	1
16	Manufacture of lead core	2
17	Scrubbing and polishing	2
17.1	Additional treatment if necessary	2
18	Manufacture of bullet	2
19	Grooving of the bullet	2
20	Visual inspection of bullet	2
21	Scraping (scrubbing) bullet	2
22	Dimension control of bullet	2
23	Weight control of bullet	2

4 LINE FOR ASSEMBLING		
24	Visual inspection and mouth lacquering	2
25	Priming and joint lacquering	3
26	Cartridge assembling	1
27	Visual inspection and packing of cartridge	2
28	Weight control and labelling	1

*Designed annual capacity for one eight-hour working shift/day: 20.000.000 bullets

WHAT WE OFFER



STANDARD EQUIPMENT

Cartridge case production line;
Bullet production line;
Assembling line;



OPTIONAL

Cups production line;
Pb-Sb wire production line;
Equipment for ammunition quality testing (shooting range).



STANDARD ENGINEERING SERVICES

Equipment installation;
Supervision over installation;
Commissioning of production line;
Trial run and training;



OPTIONAL

Maintenance after commissioning;
Turnkey solution – ammunition factory

KNOW-HOW DOCUMENTATION



Technical and technological documentation for ammunition production;



Technical documentation for equipment;



TURNKEY SOLUTIONS

IMPROVING YOUR NATIONAL DEFENCE CAPABILITIES

We offer more than 65 years of experience and trust in national defence systems, thus we have the know-how to:

- ▶ Analyse your capability & gaps
- ▶ Define measures to enhance your potential
- ▶ Conduct project oriented joint development of requirements
- ▶ Outline statement of work
- ▶ Design and develop products and systems
- ▶ Offer civil construction and technology transfer
- ▶ Set up infrastructure and production lines
- ▶ Train technical staff and management
- ▶ Run facilities and logistics support
- ▶ Manage projects and facilities
- ▶ Assure quality and continuity
- ▶ Tailor your defence system 100% to your requirements

TRB offers turnkey solutions with state of the art technology.

Everything we build - WE BUILD TO LAST!



OUR MACHINES

DETAILED INFORMATION ABOUT BEST-SELLERS

DOUBLE ACTION PRESS

CUPS PRODUCTION



TECHNICAL SPECIFICATION

Production of starting elements, cartridge case cup and bullet jacket cup, out of the strip. Both types of cup could be produced on the same machine by changing working tools.



Provision of cups consists of blanking cups from the strip and plastic deformation into cup shape.

The machine is equipped with a system for electro control and strip coil carrier and strip flattener – straightener for mechanization and synchronization of work.

MACHINE DIMENSIONS

Length	2.580 mm
Width	1.380 mm
Height	3.050 mm
Weight	cca 11.500 kg

Machine capacity	80 - 120 blows per min
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Power	cc 200 kW
Total max press force	1.000 kN
Max blanking force	600 kN
Input air pressure	6 bar
Control and signal voltage	24 VAC, 24 VDC
Protection degree	IP 54
Working temperature	10 – 40°C
Working humidity	< 70%
Conection on network	400 VAC, 50 Hz

INDUCTION ANNEALING OF CARTRIDGE CASE



TECHNICAL SPECIFICATION

Machine with automatic feeder of cartridge case for induction annealing after cartridge case necking, in order to remove retained stress from the material and gain required hardness.

Hardness and height of induction annealing are controlled on the machine.

Machine capacity	80 - 240 pcs/min
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MACHINE DIMENSIONS

Length	2.700 mm
Width	1.300 mm
Height	1.600 mm
Weight	cca 1.400 kg

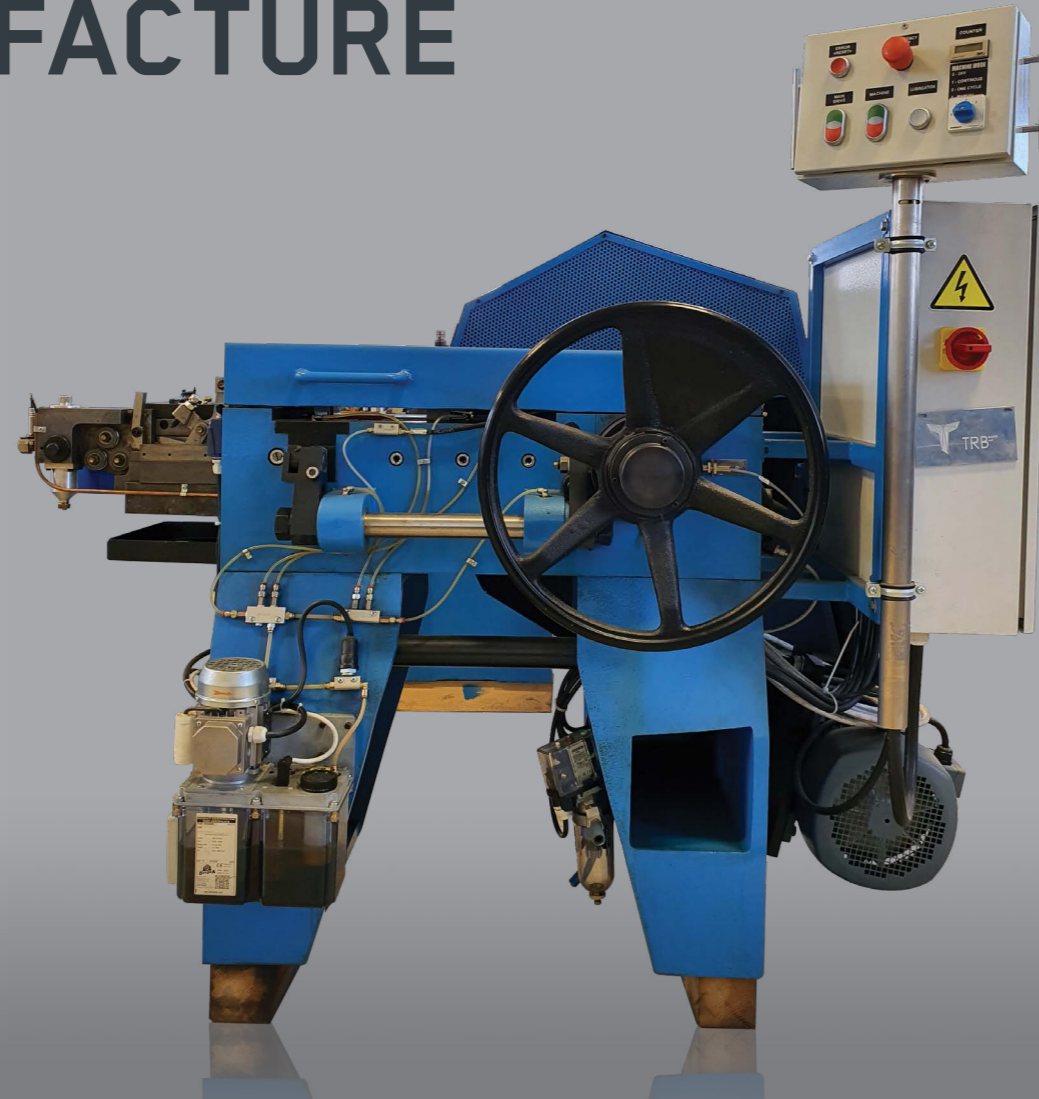
Medium frequency generator with water cooling

Power	cca 30 kW
Conection on network	400 VAC, 50 Hz
Control and signal voltage	24 VAC/DC
Protection degree	IP 54
Working temperature	10 – 40°C
Working humidity	< 70%
Ignition	125 V

INGOING TEMPERATURE OF COOLING

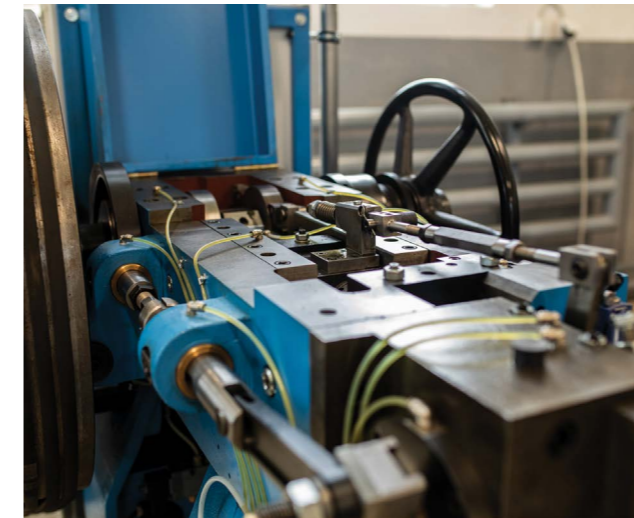
Water max	25°C
Pressure of cooling water per min	4 bar

LEAD CORE MANUFACTURE



TECHNICAL SPECIFICATION

Machine for provision of lead core out of antimony-lead wire as an input element.



Machine capacity	150 pcs/min
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MACHINE DIMENSIONS

Length	1.640 mm
Width	900 mm
Height	1.200 mm
Weight	cca 1.100 kg

Power	3 kW
Pressing force	10 kN
Punch stroke	60 mm
Ejector stroke	15 - 40 mm
Feeder stroke	15 - 35 mm
Control and signal voltage	24 VAC/DC
Protection degree	IP 54
Working temperature	10 - 40°C
Working humidity	< 70%
Conection on network	400 VAC, 50 Hz

MACHINE FOR ASSEMBLING



TECHNICAL SPECIFICATION

Special purpose machine designed for assembling ammunition.

There are eight stations for case feeding, inspection of cartridge case mouth shape, loading gun powder, control of height of gun powder within the case, bullet feeding, injection of bullet into cartridge case, tightening of bullet, bullet height control and bullet shape control.

This complex machine is designed with easy settings and is completely automatic which implies reliable operating and large productivity.

Machine capacity	250 pcs/min
Number of stations	8

MACHINE DIMENSIONS	
Length	3.000 mm
Width	900 mm
Height	1.750 mm
Weight	cca 3.000 kg

Power	4 kW
Control and signal voltage	24 VAC/DC
Protection degree	IP 54
Working temperature	10 – 40°C
Working humidity	< 70%
Conection on network	400 VAC, 50 Hz

QUALITY & BENEFITS

Realisation of the project assumes design of technological ammunition procedures at the **HIGHEST TECHNOLOGICAL LEVEL** with a **HIGH QUALITY PRODUCT** and **OPTIMUM NUMBER OF OPERATIONS** and **MANPOWER**.

The ammunition produced in accordance with this technological procedure, fully **SATISFIES GLOBAL STANDARDS**. Furthermore, installation of the production equipment enables the investor or end-user in production of almost all calibers of small arms ammunition, with **MINIMAL INVESTMENTS**.

OTHER TRB PRODUCTS

- ▶ Despot - 4x4 armoured multi-purpose vehicle
- ▶ MH-17 - Demining machine
- ▶ RS9 Vampir - semi-automatic 9mm pistol
- ▶ Fuzes for military use
- ▶ Electronic systems
- ▶ Mobile security systems
- ▶ Mobile power & water systems

For further information please contact your TRB representative or:

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