



AUSTIN POWDER

AUSTIN DETONATOR

Product catalogue

VERSION 2025





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The E★STAR system is a fit for purpose electronic initiation system suitable for all blasting applications. It provides the highest level of quality, security, control, and precise timing to ensure compliant and consistent blasting results. The E★STAR detonators are lead-free with many parts made from renewable sources! The E★STAR system can bring significant benefits in areas that often require enhanced control and improvement, including reducing air-blast impact, minimizing vibration, mitigating back break damage, and enhancing fragmentation. E★STAR detonators are part of the E★STAR ELECTRONIC INITIATION SYSTEM, and the use of this system requires specific training in all components.

The E★STAR system includes the following components:

Detonators

- ♦ E★STAR GO
- ♦ E★STAR Tunnel
- ♦ E★STAR Gold / Gold HD
- ♦ E★STAR Diamond
- ♦ E★STAR Starter

Equipment

- ♦ E★STAR Tester
- ♦ E★STAR Logger 2
- ♦ E★STAR Remote Blaster
- ♦ E★STAR Mini Blaster
- ♦ E★STAR Remote 2.5i
- ♦ E★STAR Cube Portable Box

Software solution for E★STAR

- ♦ E★STAR Programmer
- ♦ Paradigm

E★STAR

Electronic Initiation System

Safe

Testable, Tunable, Total Solution

Accurate, Affordable, Autonomous

Rugged, Reliable, RoHS





STANDARD TECHNICAL DESCRIPTION

Detonator shell material	Copper
Base charge	720 mg (E★STAR Starter 180 mg)
Crimping	Triple crimp
Temperature range of application	-30 °C < T < +60 °C
Shelf life (storage conditions)	5 years (-30 °C to +40 °C)
Label marking	Data matrix code (traceability), Product name, Wire length, Detonator serial number (for RFID labels)

	E★STAR GO	E★STAR Tunnel Evol	E★STAR Gold / Gold HD	E★STAR Diamond
Water pressure resistance	0,3 MPa / 48 hours	0,3 MPa / 48 hours	1 MPa / 28 days	1 MPa / 28 days
Wires material	Iron coated with Cu	Iron coated with Cu	Iron coated with Cu	Iron coated with Cu
Wire color	Yellow	Yellow	Red / Orange	Neon Pink
Conector color	Neon Pink	Neon Pink / Transparent	Yellow / Orange	Dark Pink
Max. number of detonators per blast	400	400	1,600 12,800 with Remote 2.5i	1,600 12,800 with Remote 2.5i
Max Delay Time (ms)	3,000	20,000	30,000	40,000
Special features	Log by Walking or Direct Programming	Sections & Intervals Programming, RFID Tagging	RFID Tagging, Glove Friendly Connector	Built-in Temperature Sensor

STANDARD PACKAGING CLASSIFICATION

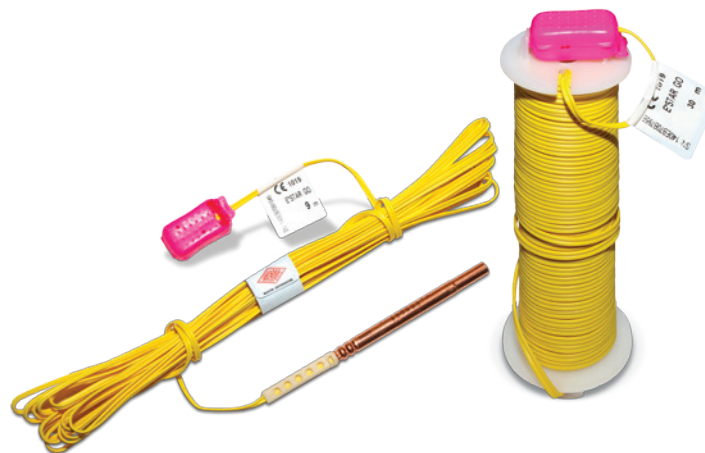
- ♦ **1.1B** **UN 0511**
- ♦ **1.4B** **UN 0512**
- ♦ **1.4S** **UN 0513**

E★STAR GO

The **E★STAR GO** system was developed as an easy-to-learn, entry-level product for users to experience and understand the advantages of working with E★STAR electronic detonators. The **E★STAR GO** system is most beneficial in smaller scale blasting of up to 400 detonators, such as quarries, trenches, road cuts, and foundations of buildings.

Designed for quick and easy use

- ♦ **Preset delays** which correspond to Shock★Star nonelectric or Rock★Star electric system
- ♦ **Log-By-Walking** programming method – the delays are set automatically upon connecting the detonator to the Bus-line
- ♦ **Easy-to-use**, tailor made, compact **light-weight** equipment to program and fire
- ♦ Special on-bench **carrying bag** with Logger and Bus-line inside



E★STAR GO →→→



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E★STAR TUNNEL Evol

E★STAR Tunnel Evol

Economical, Easy-to-Use, & Environmentally Responsible.

E★STAR Tunnel was developed for rapid tunnel blasting deployment. The yellow color wires and neon color connectors allow for quick detection of the E★STAR Tunnel detonators, even in a low-light underground environment. E★STAR Tunnel retains all the features and benefits of the E★STAR detonator, including the control equipment required for operating the system. E★STAR Tunnel is also suitable for underground mines, development headings.

Designed to Improve Cycle Times

- ◆ Specialized programming method **Sections & Intervals** for fast programming in a tunnel
- ◆ Proven reliability in demanding and extreme tunnel conditions
- ◆ Bus-line or Daisy-chaining connections
- ◆ Reduces scale, roof-bolt, and spray times
- ◆ Increases production and safety, 100% verification of the blast
- ◆ Touchless Programming (RFID technology)

Environmentally responsible

- ◆ Lead-free detonator
- ◆ Bio-based connector
- ◆ Components made from renewable materials
- ◆ Thin wire insulation minimizes plastic residue in muck piles



E★STAR Gold E★STAR Gold HD

E★STAR GOLD

E★STAR GOLD HD



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E★STAR Gold detonator is the **gold standard** among E★STAR detonator products.

It is most suitable for quarry and construction blasting applications.

E★STAR Gold HD is special detonator with more robust insulation suitable for open-pits and mining with the occurrence of highly abrasive rocks.

Designed to perform in most conditions

- ♦ Copper shell for high dynamic pressure resistance and corrosion resistance
- ♦ Extra-long molded crimp plug for additional mechanical protection
- ♦ Steel leg-wires with a high tensile strength
- ♦ Two different connector colors for easier distinction between the top and the bottom primer
- ♦ Daisy-Chaining / Bus-line connections
- ♦ RFID Technology for touchless logging
- ♦ Delays programmable in 1 millisecond increments offer solutions for vibration, fragmentation or back break
- ♦ The most reliable and easy-to-use connector in the industry
- ♦ Remote firing available for additional safety and security



E★STAR DIAMOND

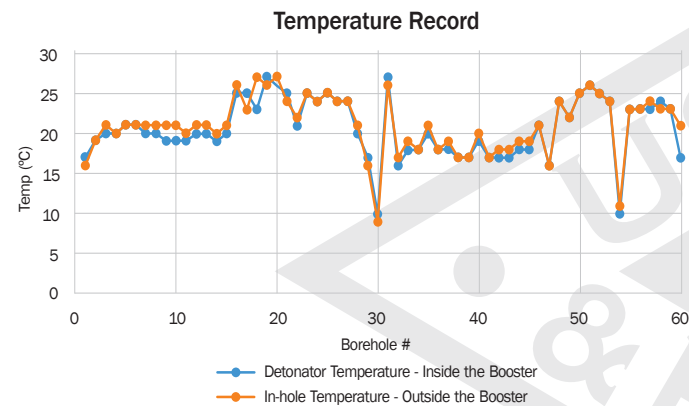
E★STAR Diamond

Top-tier product for most demanding & technically challenging applications

E★STAR Diamond detonator is a flag-ship edition of E★STAR detonator designed for harsh environment and the most demanding blasting operations. A built-in temperature sensor can measure in-hole temperature, a special safety feature for blasting in reactive ground.

Designed to endure and perform

- ♦ Built-in temperature sensor to register temperature by Logger with an automatic warning when the temperature limit is exceeded
- ♦ Delay range options 1- 40,000 milliseconds programmable in 1 millisecond increments
- ♦ Super Heavy Duty leg wires
- ♦ Superb abrasion resistance and leakage immunity
- ♦ Robust copper shell for high dynamic pressure resistance and corrosion resistance
- ♦ Extra-long molded crimp plug for additional mechanical protection
- ♦ Two different connector colors for easier distinction between the top and the bottom primer
- ♦ RFID Technology for touchless logging
- ♦ The most easy-to-use and reliable connector in the industry
- ♦ Remote firing using latest Remote 2.5i equipment with the option of firing up to 12,800 detonators



E★STAR Starter

E★STAR STARTER



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E★STAR Starter is designed for Shock Tube or detonating cord initiation. It comes with a field programmability function for preferred delay timing in a wide variety of starter applications, specifically multiple bench blasts or separate underground headings.

Designed to be cost effective and the safest way to initiate a Shock★Star blast

- ♦ **Cost reduction, magazine space reduction** – elimination of long-length firing line using Shock Tube / electric firing line
- ♦ **Safety** – options to choose the safest firing point when used in combination with the E★STAR Remote initiation system
- ♦ **Plastic waste reduction**



E★STAR

Logger 2

E★STAR
Equipment

E★STAR Logger 2 is a multifunctional electronic device, with improved ergonomics and improved programming and verification features.

Designed to program, verify & diagnose prior to clearing the site to arm and fire

- ♦ Capacity to program **1,600 detonators**
- ♦ **Multiple Programming methods** – Manual, Auto-Delay, Sections and Intervals, Data from PC
- ♦ RFID tagging with **automatic switching** between **RFID and connect** programming in case a physical connection of the detonator is detected
- ♦ **Auto-leakage check** during the programming
- ♦ **Leakage measurement** for a single detonator or for the whole branch
- ♦ **Continuous verification** – to check the integrity of network connections when covered by heavy mats
- ♦ **Check all** – check of up to 400 detonators in multiple branches



Short cycle time



RFID tagging



Automatic monitoring



User friendly



E★STAR Remote Blaster

E★STAR Remote Blaster is multipurpose device and is able to verify, charge and fire up to 1600 detonators.

Main functions are:

- ♦ verify all detonators,
- ♦ charge detonators capacitors,
- ♦ fire detonators,
- ♦ E★STAR Remote Blaster is additionally able to connect to E★STAR Remote system for remote firing up to 3.2 km.



E★STAR GO →>>> Blasting Machine

E★STAR GO Blasting Machine is able to verify, charge and fire up to 400 detonators.

Main functions are:

- ♦ precise and safe initiation,
- ♦ compact design,
- ♦ user friendly interface,
- ♦ reliable performance in demanding conditions.



E★STAR Mini Blaster



E★STAR Mini Blaster (DBM1) can verify, charge and fire up to 4 detonators.

E★STAR

Remote 2.5i

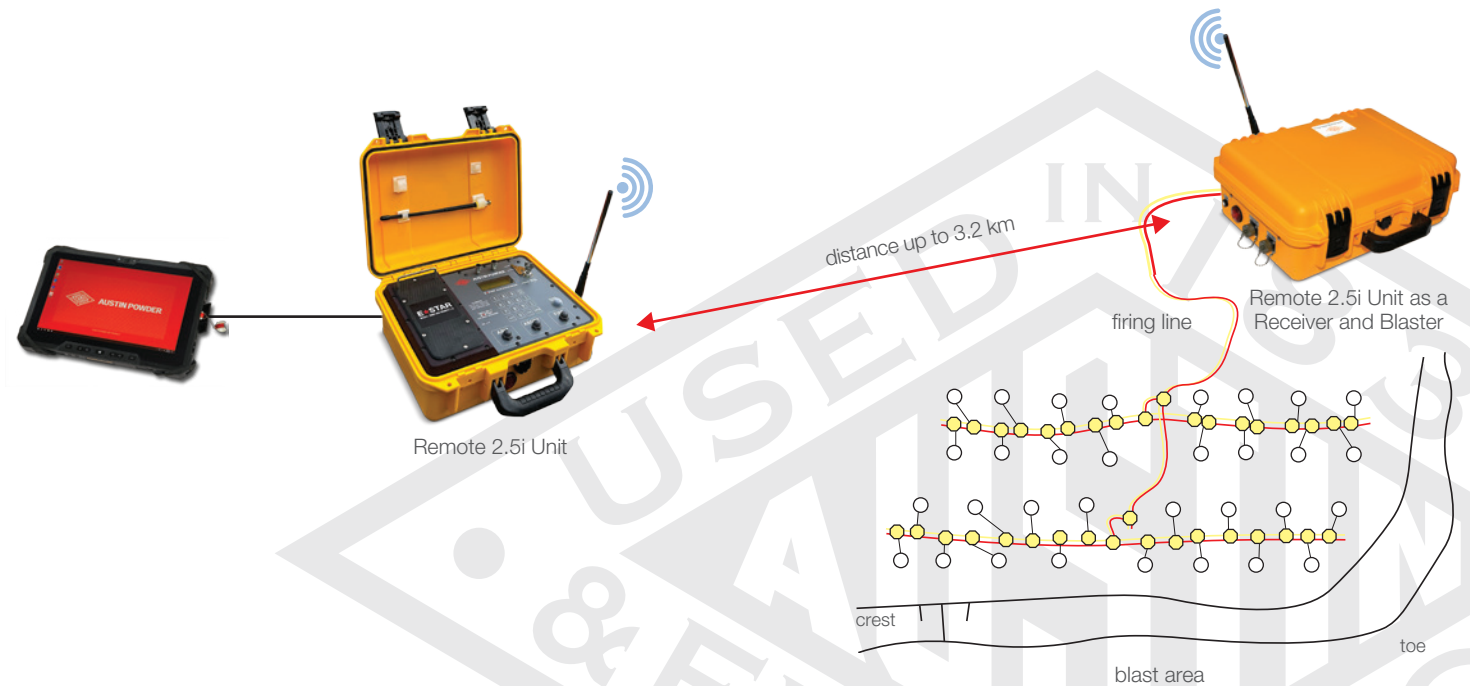
E★STAR
Equipment

E★STAR Remote 2.5i represents the most advanced method for remote blast initiation.

The set has a capacity of 12,800 detonators, which can be reached by controlling of up to 8 Remote 2.5i units by one Remote 2.5i unit.

The system allows a choice of blasting mode: One by One Firing, Simultaneous Firing or Offset Firing. The system is operated by the Austin Powder proprietary software installed in a tablet.

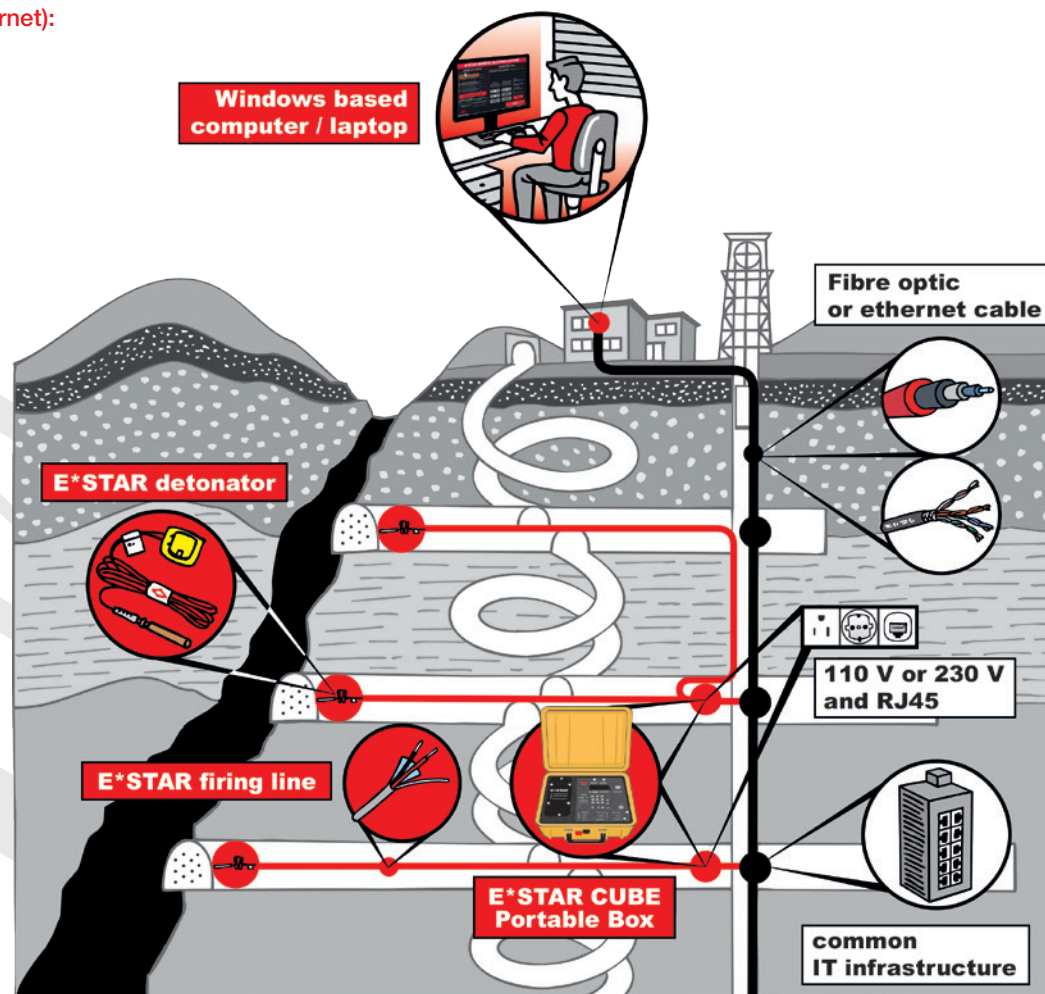
The maximum distance is 3.2 km line of sight.



E★STAR CUBE - CENTRALIZED UNDERGROUND BLASTING EQUIPMENT

E★STAR CUBE system is designed to verify and initiate blast rounds in an underground mine from the safety and comfort of an office at the surface. The system consists of the following functional blocks: Austin Powder proprietary control software to control the blasting operation from a distance via PC and E★STAR CUBE Portable Box with all-in-one-box solution for the connectivity to a local mine **Ethernet (Fibre Optic)**, **Wi-Fi**, or **4GLTE** communication infrastructure, whichever is present. Up to 8 Portable Box units can be operated using the control software and each unit has a capacity to verify and initiate 1,600 detonators. No need to have personnel inside the mine during the firing.

Example of CUBE instalation (Ethernet):



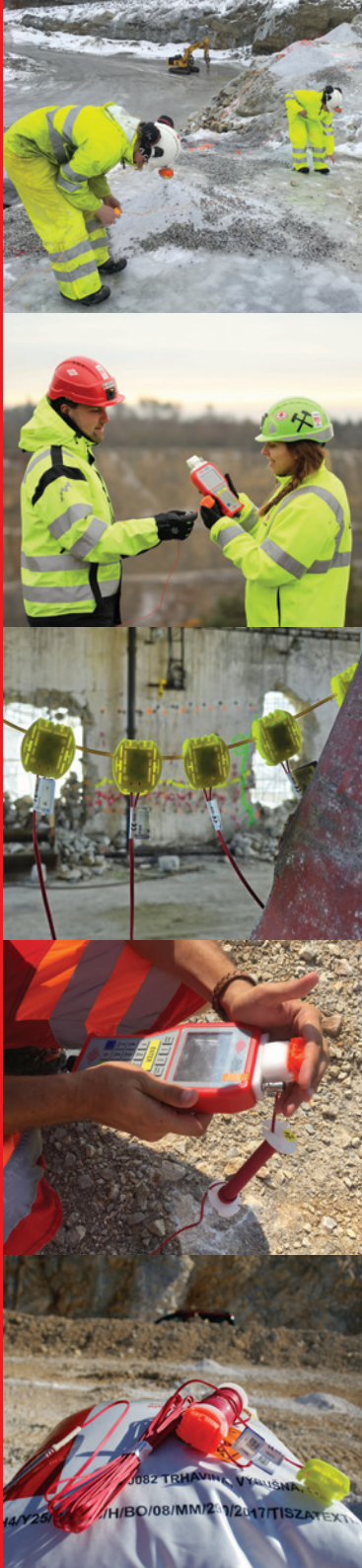
E★STAR
GOLD

THE BEST

ELECTRONIC DETONATOR CONNECTOR IN THE INDUSTRY

TWICE AS EASY • TWICE AS RELIABLE

- ◆ Industry-leading double connections on both the leg wires and duplex bus line wires ◆
- ◆ Innovative through-connector testing saves time as testing can occur without needing to open the connector ◆
 - ◆ Color-coded connectors for easy wire length identification ◆
 - ◆ Anti-slip friction grip is easy to use in all harsh conditions ◆
- ◆ Robust hinge not susceptible to breakage in cold conditions or multiple uses ◆
 - ◆ Enhanced sealant inside the connector ensures an environmental seal ◆
 - ◆ Advanced design allows for a one-finger opening of the connector ◆
- ◆ The useful flat back was designed for writing delays or other information ◆
 - ◆ Superior design is easy to use with winter gloves ◆





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Shock★Star
Nonelectric Detonators

Austin Detonator nonelectric detonators are designed to provide the precise control and accuracy for blasting in quarries, surface or underground metal or non-metal mines, and construction sites where the risk of ignition of the explosive air-methane or air-coal dust mixtures does not exist.

The complete Shock★Star nonelectric initiation system includes:

- ♦ Instantaneous, millisecond and long period in-hole detonators
- ♦ Shock★Star Surface detonator with connector able to start up to 8 Shock Tubes
- ♦ Instantaneous and delay detonator with Shock★Star Bunch
- ♦ Austin StarTube and Shock★Star StartLine

BENEFITS

High Initiation Strength of the in-hole detonators is ensured by base charge of 720 mg of PETN.

Protected primary charge enclosed inside heavy duty steel delay element.

Excellent Water Resistance is provided by antistatic sealing plug and triple crimp.

Shock Tube provides high tensile strength and is unaffected by static electricity, stray currents or radio frequency transmission. It is highly resistant to abrasion, impact, friction and ultraviolet radiation.

Initiating signal is transmitted at a constant velocity of 2,000 m/s and noiselessly passes through kinks, knots and sharp bends of Shock Tube without disrupting the explosive column.

"T" connector ("J" hook) can be provided on all in-hole detonators for quick and easy connection to detonating cord.

Wide range of delay time variability can reduce blasting vibration, improve fragmentation, and cut the cost of blasting.

Reliability and accuracy of timing is ensured by strict quality control in the production process together with vacuum sealed inner packages.

Possible packaging 1.1B, 1.4S and 1.4B depending on the customer's request. Strict 1.4S packaging makes possible the transportation of nonelectric detonators together with explosives in the same compartment.

Shock★Star MS, TS or LP detonators can be **equipped with** T-connector („J-hook“) upon special request.



Shock★Star

Standard Technical Description

STANDARD TECHNICAL DESCRIPTION

Detonator shell material	Aluminum
Producer's standard mark (shell bottom)	V
Crimping	triple crimp
Plug	semi-conductive rubber or plastic
Mechanical strength of detonator assembly	>40 N
Water pressure resistance	0.3 MPa/7 days
Electrical non-conductivity of Shock Tube	insulation resistance > 0.1 GOhm
	flash-over distance < 20 mm
Temperature range for application	-30 °C < T < +60 °C
Shelf life (storage conditions)	2 years (-30 °C to +40 °C, R.H. max. 65 %) in original sealed package
Traceability label marking	delay # detonator type delay ms Shock Tube length data matrix code
Shock Tube	
Material	Surlyn/PE
Velocity of detonation	2,000 ± 250 m/s
Standard colors	Yellow ● Red ● Light blue ●



Shock★Star MS



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DESCRIPTION

Shock★Star MS detonators are available in a sequence of 31 number periods from instantaneous (0 ms) to 1,000 ms. They are designed to be used as detonators for the initiation of cast boosters, high explosives or cap sensitive emulsions. In-hole delays can be equipped with a T-connector for compatibility with detonating cord initiation or can be initiated by another electric, electronic or nonelectric detonator.



DELAY SEQUENCE

Delay #	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal delay (ms)	0	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375
Delay #	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Nominal delay (ms)	400	425	450	475	500	550	600	650	700	750	800	850	900	950	1,000	

PROPERTIES & PACKAGING

Base charge	720 mg PETN		
Shock Tube color	Yellow ● Light blue ●		
Transport classification	1.1B	1.4S	1.4B (at special request)
UN No.	0360	0500	0361 (at special request)



Shock★Star TS

DESCRIPTION

Shock★Star TS detonators are available in a sequence of 40 number periods from 25 ms to 9,000 ms.

Delay sequence is appropriate for applications such as tunneling and shaft or raise mining where long delays are required between holes to allow for movement of blasted rock.

They are designed to be used as down hole detonators for the initiation of cast boosters, high explosives or cap sensitive emulsions. In-hole delays may be equipped with a T-connector for connecting to detonating cord.



DELAY SEQUENCE

Delay #	0	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	6 1/2	7
Nominal delay (ms)	25	100	150	200	250	300	350	400	450	500	550	600	650	700
Delay #	7 1/2	8	8 1/2	9	9 1/2	10	11	12	14	16	18	20	25	30
Nominal delay (ms)	750	800	850	900	950	1,000	1,100	1,200	1,400	1,600	1,800	2,000	2,500	3,000
Delay #	35	40	45	50	55	60	65	70	75	80	85	90		
Nominal delay (ms)	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500	9,000		

PROPERTIES & PACKAGING

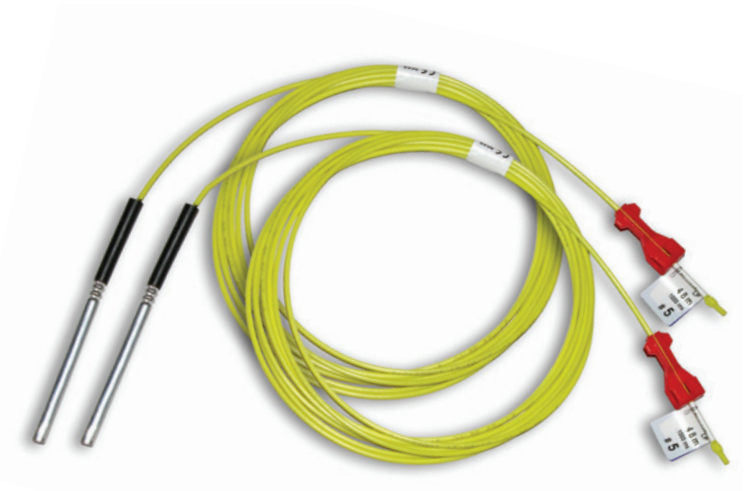
Base charge	720 mg PETN		
Shock Tube color	Yellow ●		
Transport classification	1.1B	1.4S	1.4B (at special request)
UN No.	0360	0500	0361 (at special request)



Shock★Star LP

DESCRIPTION

Shock★Star LP detonators are available in a sequence of 16 delays from 25 ms to 9,600 ms. Delay sequence is appropriate for underground mining applications, raising and shaft sinking operations. Shock★Star LP is designed as in-hole detonators for the initiation of cast boosters and high explosives. In-hole delays may be equipped with a T-connector for compatibility with detonating cord initiation.



DELAY SEQUENCE

Delay #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Nominal delay (ms)	25	200	400	600	1,000	1,400	2,000	2,500	3,000	3,500	4,500	5,500	6,500	7,500	8,500	9,600

PROPERTIES & PACKAGING

Base charge	720 mg PETN					
Shock Tube color	Yellow ●					
Transport classification	1.1B		1.4S		1.4B (at special request)	
UN No.	0360		0500		0361 (at special request)	



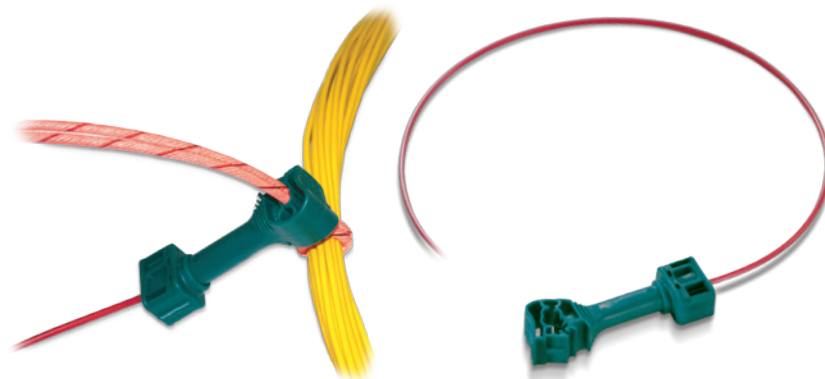
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Shock★Star Bunch

DESCRIPTION

Shock★Star Bunch detonators are designed to initiate a bundle of Shock Tubes. The attached detonating cord loop can initiate up to 20 Shock Tubes. Shock★Star Bunch is supplied with a detonating cord loop attached to it. In case of transportation issues, the Shock★Star Bunch and the detonating cord loop (5 g/m) can be supplied separately to be completed by the customer on site.



DELAY SEQUENCE



PROPERTIES & PACKAGING

Base charge	160 mg PETN	
Shock Tube color	Red ●	
Transport classification	1.1B	1.4S (without detonating cord)
UN No.	0360	0500

Shock★Star Surface



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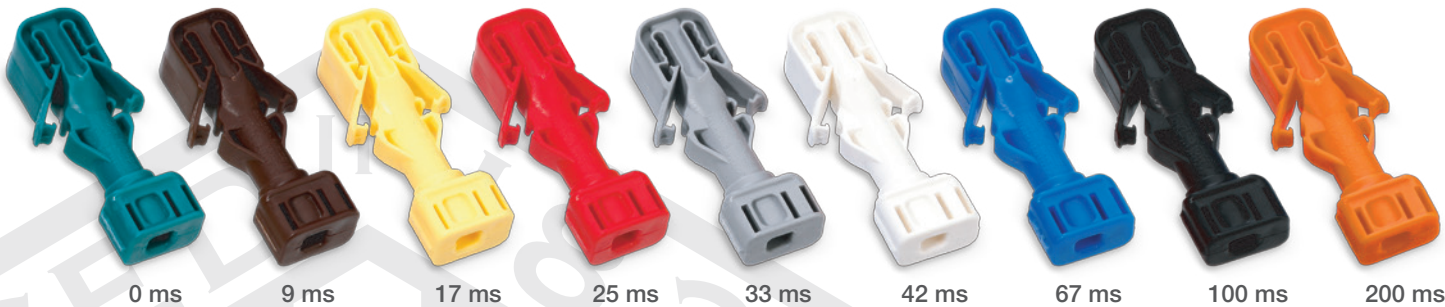
DESCRIPTION

Shock★Star Surface detonators are designed for the initiation of other Shock Tube detonators to provide a delay between holes. The connector block is designed to work reliably in two positions: **unlocked** position for normal working conditions and **locked** position for the most demanding working conditions with a risk of disconnection (e.g. under heavy mats). Shock★Star Surface detonators are equipped with connector blocks able to contain 8 outgoing Shock Tubes. Connectors have a reduced base charge to reduce noise levels and eliminate shrapnel cut-off concerns. These detonators are available in 9 delays from instantaneous (0 ms) to 200 ms.

Shock★Star Surface detonators cannot be used for initiation of detonating cord.



DELAY SEQUENCE



PROPERTIES & PACKAGING

Base charge	120 mg PETN
Shock Tube color	Red ●
Transport classification	1.4S
UN No.	0500



Shock★Star Surface

- ★ The most ergonomic
 - ★ The most user-friendly
 - ★ The most reliable
 - ★ No shrapnel effect
 - ★ The ability to connect and split the signal up to 8 Shock Tubes
- } on the market



Shock★Star Dual Delay

Surface & Tunnel Version



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DESCRIPTION

Surface Version & Tunnel Version

Shock★Star Dual Delay detonator combine the in-hole delay detonator and the surface connector in one product. Special delay sequence combination is appropriate either for surface or underground applications. This combination offers convenience for storage and inventory in one product instead of two and often reduces space requirements for transportation. Connecting blast patterns is generally faster with Shock★Star Dual Delays as less connections are required in total. Additionally, the lower number of individual products used in the blast pattern reduces disorder at connection points and makes visual inspections easier.



DELAY SEQUENCE

Shock★Star Dual Delay - Surface version		
Nominal delay (ms)	Surface Connector	Shock★Star MS
	25	475, 500 (other delays at special request)
Shock★Star Dual Delay - Tunnel version		
	Surface Connector	Shock★Star TS
	100, 200	9,000

PROPERTIES & PACKAGING

Base charge	120 mg PETN (Surface Connector) + 720 mg PETN (MS, TS)		
Shock Tube color	Yellow ●		
Transport classification	1.1B	1.4S	1.4B (at special request)
UN No.	0360	0500	0361 (at special request)

Blasting Machines

Blasting Machines are designed to initiate detonators in surface and underground applications in the environments without the hazard of ignition or explosive air-methane and air-coaldust mixture.

HR-22

HR-22 blasting machine is fully mechanical blasting machine designed for Shock Tube initiation.



Mushroom Stomper Starter

Mushroom/Stomper Starter is a mechanical blasting machine designed for Shock Tube initiation.



VP-01

VP-01 excellent Shock Tube initiator with charging time less than 3 s.



Shock★Star StartLine StarTube

Shock★Star StartLine

is designed for blasting initiation. Factory-spoiled tubing with lengths 50-800 m is equipped with the Shock★Star Bunch or Shock★Star Surface.



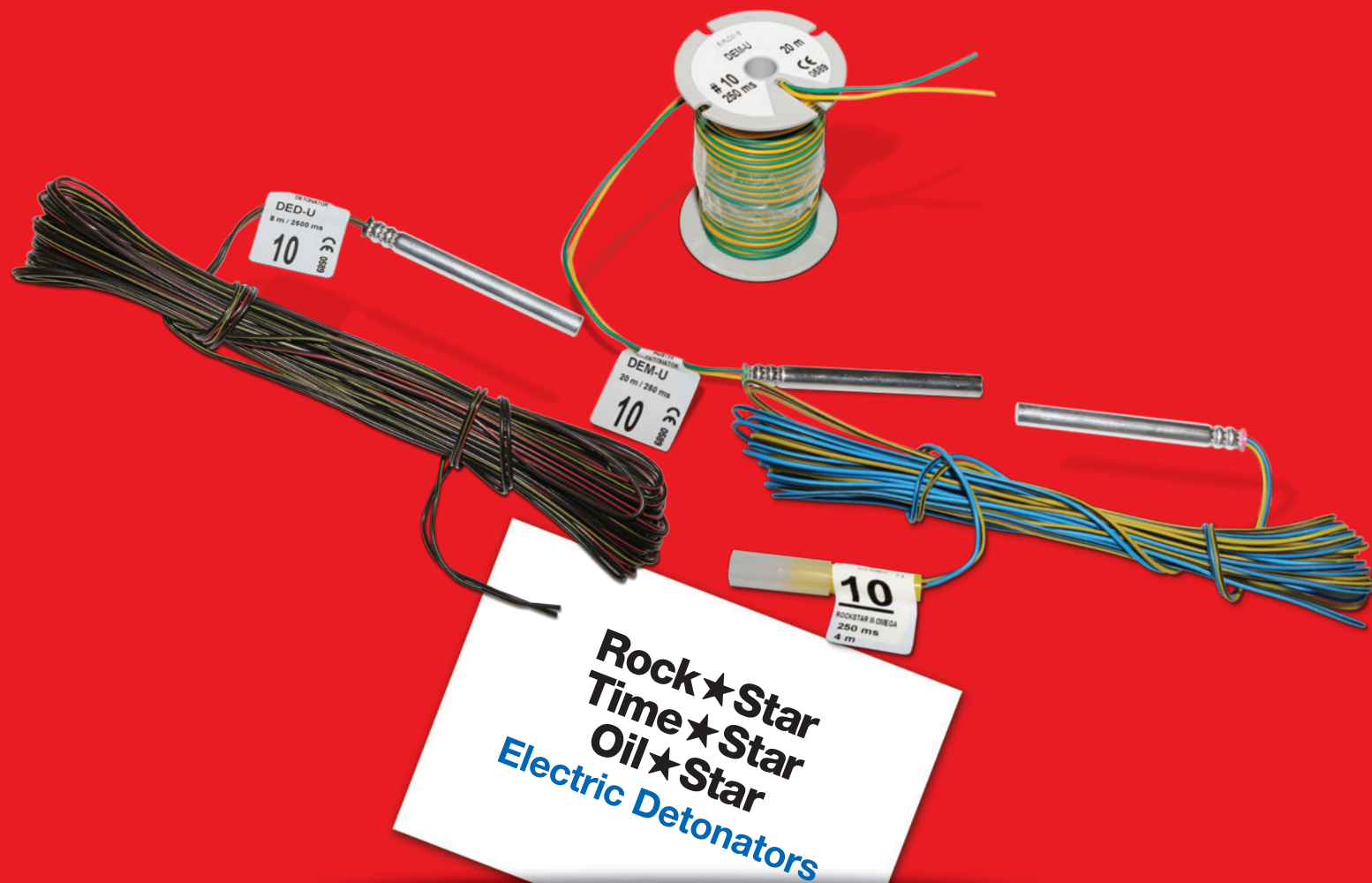
StarTube

Factory-spoiled tubing can be used for starting of an initiation network. Shock Tube is available in 400, 600, 800 and 3,000 m on the spool.



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Austin Detonator electric detonators are specially designed to provide the precise control necessary to produce accurate and consistent blasting results.

BENEFITS

High initiation strength 720 mg PETN base charge ensures reliable initiation of all cap sensitive explosives.

Detonator shell and delay element design reduces the possibility of any mechanical damages as well as water hammer effect.

High level safety features due to an antistatic sleeve surrounding the fusehead with safeguarding spark gap.

Protected primary charge enclosed inside heavy duty steel delay element.

Superior fusehead design unmatched for reliability.

Multi-step quality control system tests components and finished products to ensure reliable performance.

High level accuracy and delay intervals permit greater flexibility in blast design to control vibration, frequencies and fragmentation, with no overlap.

Excellent water resistance is provided by triple crimping.

Magnetic wire insulation on demand.

Reliability over wide temperature range.

High compatibility with all blasting machine types.

Marking by means of traceability label.

High quality packaging in a strict conformity with the International Agreement of Road, Train, Sea and Air Transport.

Strict 1.4S packaging makes transportation of electric detonators together with explosives in the same compartment possible.

Excellent storage characteristics and easy handling.





STANDARD TECHNICAL DESCRIPTION

Detonator shell material	Aluminum, Copper	
Base charge	720 mg PETN (600 mg PETN in permissible detonators)	
Primary charge	Lead azide or PFD	
Producer's mark (shell bottom)	V (M with permissible detonators) and delay number	
Crimping	triple crimp	
Plug	antistatic PVC (moulded antistatic rubber for seismic detonators)	
Water pressure resistance	0.3 MPa / 24 hours or 1 MPa / 6 months (Seismic)	
Leg wires insulation material	PVC (PE for longer wire lengths and for special detonators)	
Shelf life (storage conditions)	2 years (-30 °C to +40 °C)	
Standard leg wires	Cu ø 0.5, 0.6 or 0.8 mm; Fe ø 0.65 mm ¹⁾	
Traceability label marking	delay # detonator type delay ms wire length data matrix code	
Transport Classification	1.4B	1.4S
UN No.	0255	0456

¹⁾Appropriate type of leg wire must be chosen depending on given application.

STANDARD FIRING PARAMETERS

	Class I	Class II	Class III	Class IV
Fusehead resistance	1.50 - 1.90 Ω	0.40-0.80 Ω	0.16 - 0.20 Ω	0.032 - 0.040 Ω
No fire current	0.18 A	0.45 A	1.2 A	4 A
No fire energy	0.8 mJ/Ω	8 mJ/Ω	80 mJ/Ω	1,100 mJ/Ω
All fire current	1 A	1.5 A	3.5 A	25 A
All fire energy in series	2.5 mJ/Ω	16 mJ/Ω	140 mJ/Ω	2,500 mJ/Ω

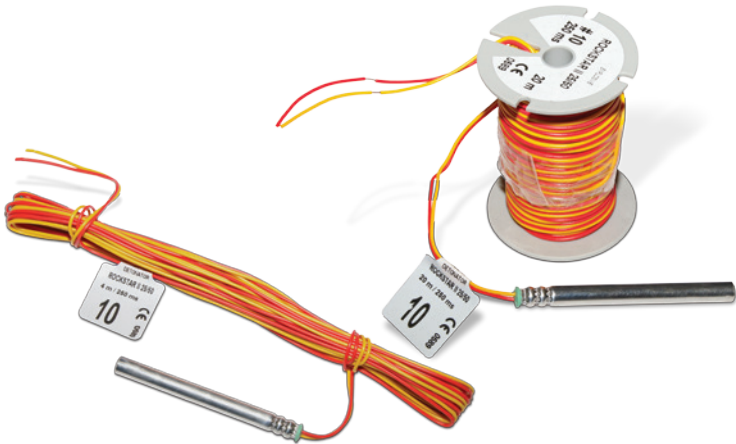
In case of use of electric detonators in residential areas or in special applications with a risk of initiation from foreign sources of energy, the appropriate detonator sensitivity must be chosen.

Rock★Star 25/50

DESCRIPTION

Rock★Star 25/50 are electric millisecond detonators designed to provide the precise control necessary to produce accurate and consistent blasting results in a variety of blasting applications in the mining, quarrying and construction industries.

Available Firing parameters - Rock★Star 25/50:
Class "I" Class "II" Class "III" Class "IV"



DELAY SEQUENCE

Delay #	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal Delay (ms)	0	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375
Delay #	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Nominal Delay (ms)	400	425	450	475	500	550	600	650	700	750	800	850	900	950	1,000	



AUSTIN POWDER



DESCRIPTION

Rock★Star III Omega are electric millisecond detonators designed to provide the precise control necessary to produce accurate and consistent blasting results in a variety of blasting applications in the mining, quarrying and construction industries. The detonator is equipped with a VA connector for easy wire connection even in gloves. Extra strong wires insulation provides protection in the most demanding working conditions (e.g. under heavy mats).

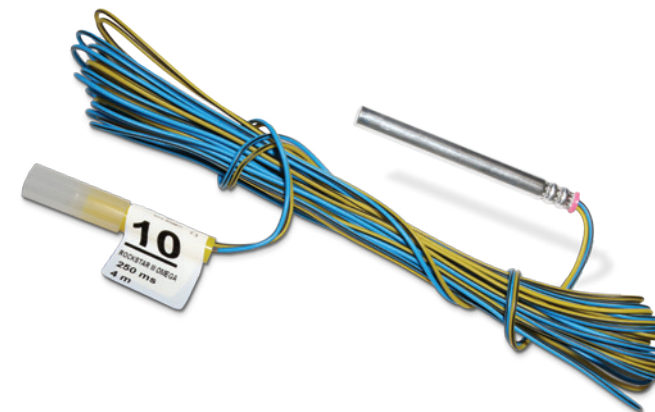
Total detonator resistance is $3.6 \pm 0.3 \Omega$ regardless of the lead wires length, which is the biggest advantage of Rock★Star III Omega.

Available Firing parameters - Rock★Star III Omega:
Class "III"

DELAY SEQUENCE

Delay #	0	1	2	3	4	5	6	7	8	9	10
Nominal Delay (ms)	0	25	50	75	100	125	150	175	200	225	250
Delay #	11	12	13	14	15	16	17	18	19	20	21
Nominal Delay (ms)	275	300	325	350	375	400	425	450	475	500	550
Delay #	22	23	24	25	26	27	28	29	30		
Nominal Delay (ms)	600	650	700	750	800	850	900	950	1,000		

Rock★Star III Omega



Time★Star 250

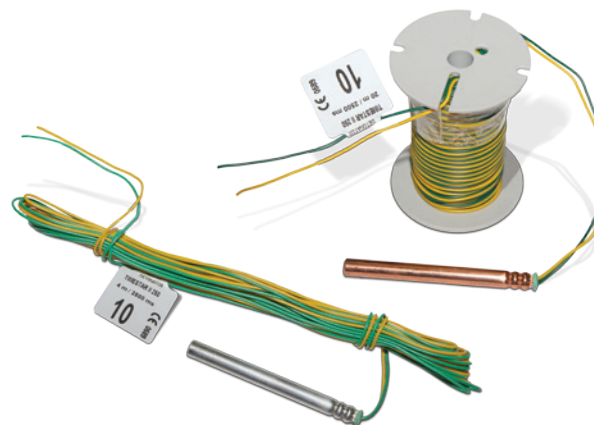
DESCRIPTION

Time★Star 250 long period electric delay detonators provide sufficient time for rock movement necessary for successful blasting of trenches, sewers, tunnels, shafts, drifts and raises.

Offered in 36 delays, they are consistently accurate to prevent overlap, assure better fragmentation and reduce vibration.

Available firing parameters - Time★Star 250:

Class "I" Class "II" Class "IV"



DELAY SEQUENCE

Delay #	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Nominal Delay (ms)	250	500	750	1,000	1,250	1,500	1,750	2,000	2,250	2,500	2,750	3,000	3,250	3,500
Delay #	15	16	17	18	20	22	24	26	28	30	32	34	36	
Nominal Delay (ms)	3,750	4,000	4,250	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500	9,000	

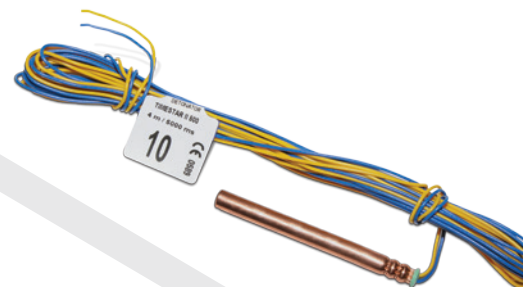
Time★Star 500

DESCRIPTION

Time★Star 500 long period electric delay detonators provide sufficient time for rock movement necessary for successful blasting of trenches, sewers, tunnels, shafts, drifts and raises. Offered in 12 delays, they are consistently accurate to prevent overlap, assure better fragmentation and reduce vibration.

Available firing parameters - Time★Star 500:

Class "I" Class "II" Class "IV"



DELAY SEQUENCE

Delay #	1	2	3	4	5	6	7	8	9	10	11	12
Nominal Delay (ms)	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000



AUSTIN POWDER



BART-2AS

Blasting machine is designed for initiation of all electric detonators in series and in series-parallel connection at all blasting operations as well as in the underground coal mines where the risk of explosion of coal dust or methane-air mixture exists. The high-voltage source with an alternator serves for charging a capacitor.

Capacitor energy 70 J

Capacitor voltage 1,250 V



Blasting Machine

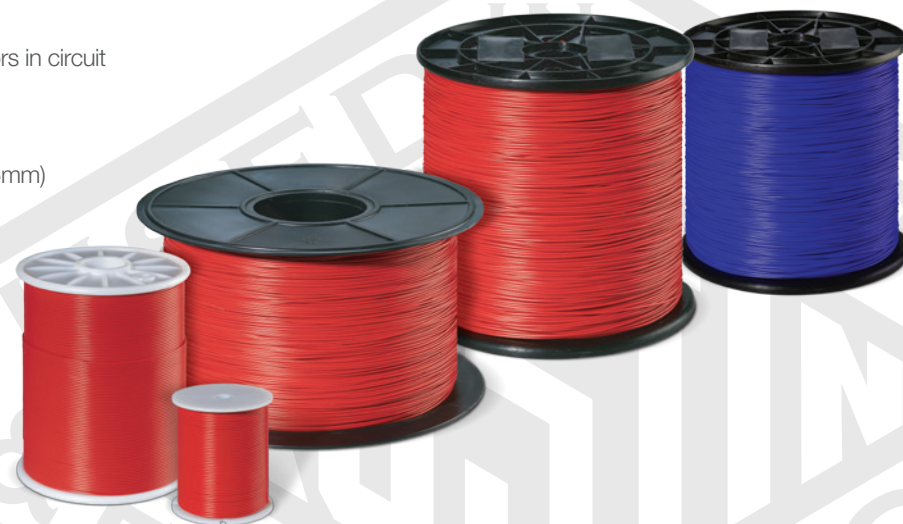
Connecting Wires

CONNECTING WIRES

- providing connection between firing line and detonators in circuit

parameters:

- ♦ PVC, PVC magnetic, PE insulation
- ♦ Wire core dia: Cu (0.60mm) or Cu coated steel (0.65mm)
- ♦ Resistance (ohm/100m): 3.60-40
- ♦ Packaging on spools: 100-1,500m



Seismic-S

DESCRIPTION

Seismic detonators are specially designed to provide the precise control that is necessary to achieve accurate seismic records from individual shots or pattern shooting. Austin Detonator guarantees reaction time shorter than 1 ms between application of current (minimum 6 A for detonators connected in series) and firing of the detonator. A high level of protection from electrostatic discharge and water pressure is provided.

Seismic-S

- ♦ basic type of a seismic detonator for less demanding applications
- ♦ typically with copper shell (aluminium shell on special request)
- ♦ antistatic rubber sealing plug
- ♦ PVC-coated separate leg wires

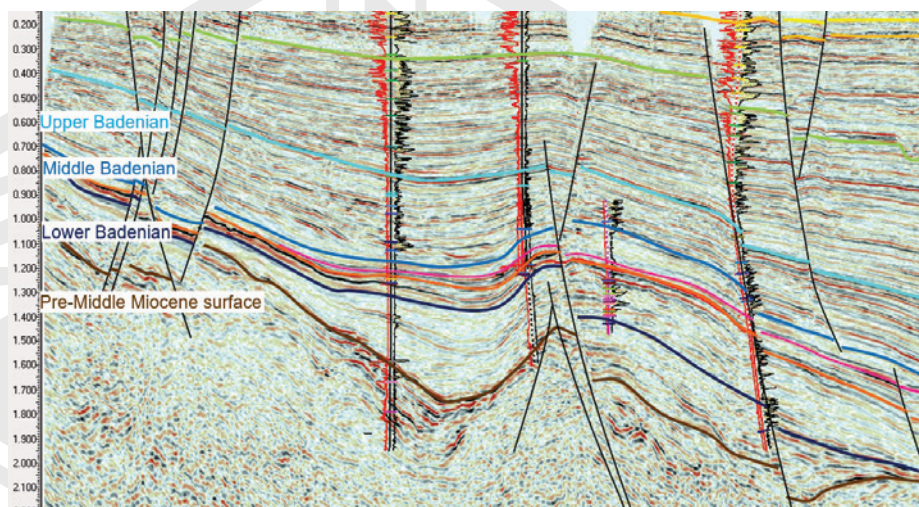
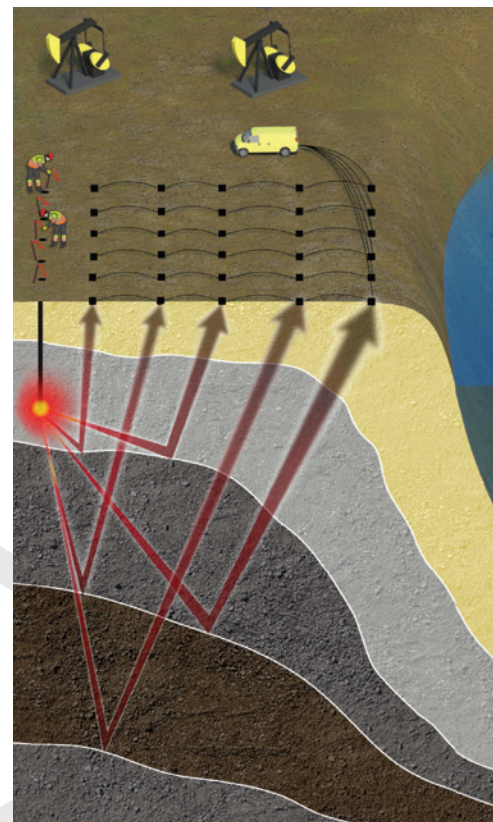
BENEFITS

No fire energy of 8 mJ/Ω provides additional protection from stray electric currents.

Copper shell resists corrosive environments such as salt and brackish water.

Water pressure resistance 1 MPa/6 months.

Resistant to temperature extremes from -30 to +80 °C.



AUSTIN POWDER

DESCRIPTION

Oil★Star Detonators are specially designed thermostable electric detonators used in the Oil and Gas industry for wireline performed blasting operations (perforations, plug setting etc.). For that purpose, they exhibit high temperature and, for some types, also high water pressure resistance. Most of them are resistorised to increase their electric energy immunity, and all are provided with antistatic sleeve and spark gap for low electrostatic discharge sensitivity. Some versions are equipped with adapters to easily connect detonating cord and some exhibit fluid disabled feature.

BENEFITS

Temperature resistance:

up to 177 °C or 246 °C (A-161) for 1 hour

Water pressure resistance:

up to 100 MPa (A-96L and A-105) for 4 hours

High immunity against electrostatic energy:

25 kV/2500 pF (resistorised: resistance 52-59 Ω)

Detonating cord adapter:

A-140F/Block, A-85, A-105

optional add-on (A-140F, A-161)

Packaging 1.4B: 500 pcs/box (A-140F/Block 220 pcs)

Packaging 1.4S: A-150T

High reliability and easy handling

Broad range available:

- ♦ Temperature resistant detonators: A-140, A-140H, A-140YJ, A-161
- ♦ Pressure resistant detonators: A-96L, A-105
- ♦ Temperature resistant and fluid disabled detonators: A-85, A-140F/Block, A-140S, A-161



A-150T

instantaneous fluid dissabled temperature resistant detonator (up to 150 °C)



Fluid disabled:

A-85

A-140F/block

A-140S

A-161



No fluid disabled:

A-96L

A-105

A-140

A-140H

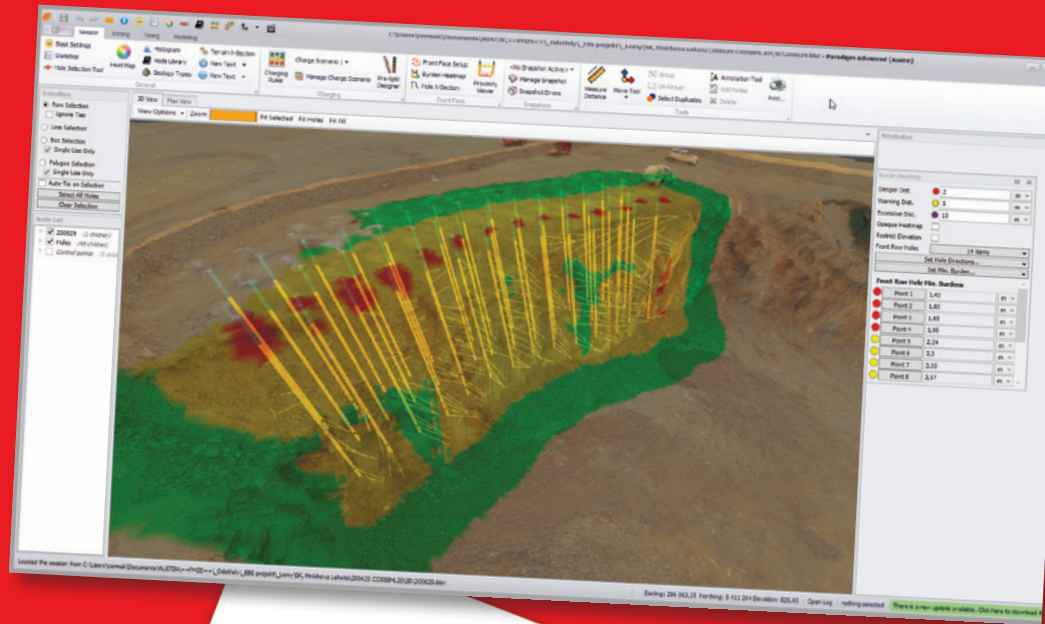
A-140YJ





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Blast Optimization



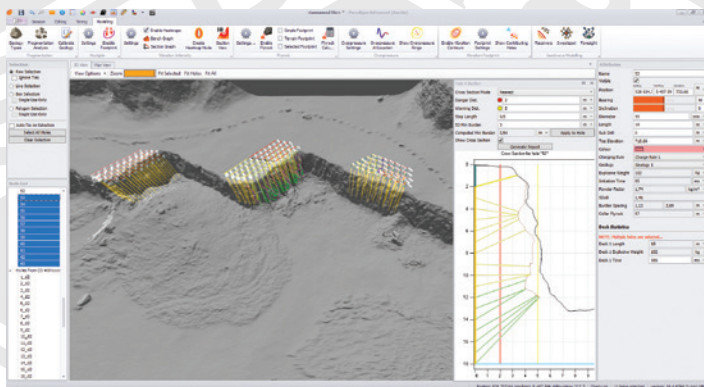
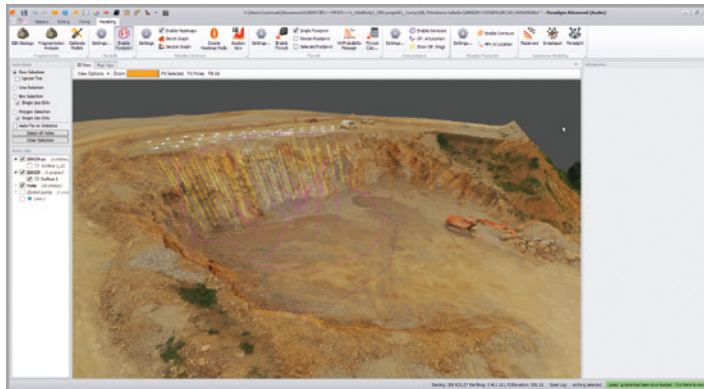
AUSTIN POWDER

Austin E★BLAST Consulting offers comprehensive consulting service in all blasting applications.

We use state-of-the-art software and hardware solutions for our blast optimizations.

Examples of possible solutions:

- ♦ Blast Efficiency
- ♦ Reduction of Blast Vibration
- ♦ Fragmentation Optimization
- ♦ Wall Stability
- ♦ Muck Pile Control (Height, Reach, Uniformity, Throw)
- ♦ Effective Loading Operations
- ♦ Flyrock
- ♦ Crusher Throughput



Tools

Technology is changing the world! We, at Austin Powder, are doing our best to keep up with the newest technology trends in order to improve efficiency and have satisfied customers.

DRONES

- ◆ Cost-effective and Efficient Surveying Solutions
- ◆ Time-saving Measurement Process
- ◆ High-Resolution Photos
- ◆ Operator Safety
- ◆ Modeling 3D - Before and After the Blast
- ◆ Muck Pile Fragmentation Analysis



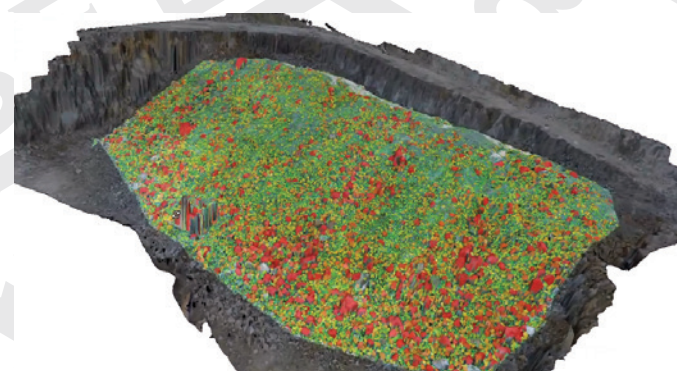
GPS

- ◆ High Level of Accuracy
- ◆ Portability
- ◆ Time, Cost and Labor-saving Technique



FRAGMENTATION ANALYSIS SOFTWARE

- ◆ Combined 2D and 3D analysis
- ◆ Fully automated
- ◆ Scales automatically
- ◆ Statistic evaluation





AUSTIN POWDER





Environmentally
responsibly



Evol is the new Austin Powder brand
of lead-free detonators!



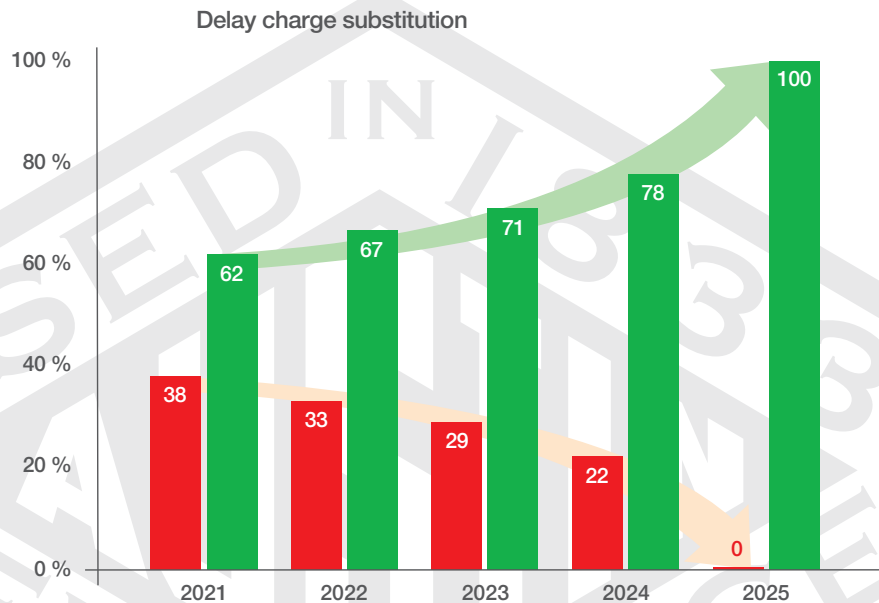
AUSTIN POWDER

AUSTIN POWDER

We are living our values by ensuring we are safe, compliant and environmentally responsible in everything we do.

Environmentally responsible manufacturing and company initiatives:

- ◆ Environmentally responsible product development
- ◆ Engineering lead-free products
- ◆ E*STAR ignition system development
- ◆ Cutting-edge automation and safety measures
- ◆ Investing in state-of-the-art Plant & Equipment upgrades
- ◆ Employee protection
- ◆ Implementing recycling/reusing/reducing programs
- ◆ Reducing and reusing waste and circular economy strategies
- ◆ Using sophisticated, clean water exchange systems
- ◆ Monitoring and reducing energy consumption
- ◆ Environment protection by minimizing resource consumption
- ◆ Practicing good stewardship of water resources





Environmentally
responsibly

Radical but Invisible Redesigns

Historically, lead has been an integral part of manufacturing charges and detonators. Austin Detonator has invested time and resources in the R&D of lead substitutions. Our teams have developed new lead-free products and components and are proud to share that we have developed and are now manufacturing new, environmentally responsible detonators.

Environmental Advancements for Shock*Star Nonelectric Detonators:

- ◆ Lead free charges
- ◆ Production processes are now utilizing lead-free components
- ◆ Reusing the waste from Shock Tube production in manufacturing of connectors, spools, minibooster shells etc.

Environmental Advancements for Rock*Star Electric Detonators:

- ◆ Lead-free charges
- ◆ Lead-free fuse heads

Environmental Advancements for E*STAR Electronic Detonators:

- ◆ No heavy metals in DELAY CHARGES as the delay is created by an electronic module
- ◆ Superior lead-free fuse head design
- ◆ Lead-free soldering on electronic modules
- ◆ E*STAR Tunnel with bio-based material in connectors



For Austin Powder, environmental and social responsibility will be at the forefront as we strive to be the best explosives manufacturer, as defined by our customers, our family, and our communities for generations to come.



Waste Recycling





For more detailed information see our webpage or do not hesitate to contact us on above mentioned contacts.

www.austin.cz



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