

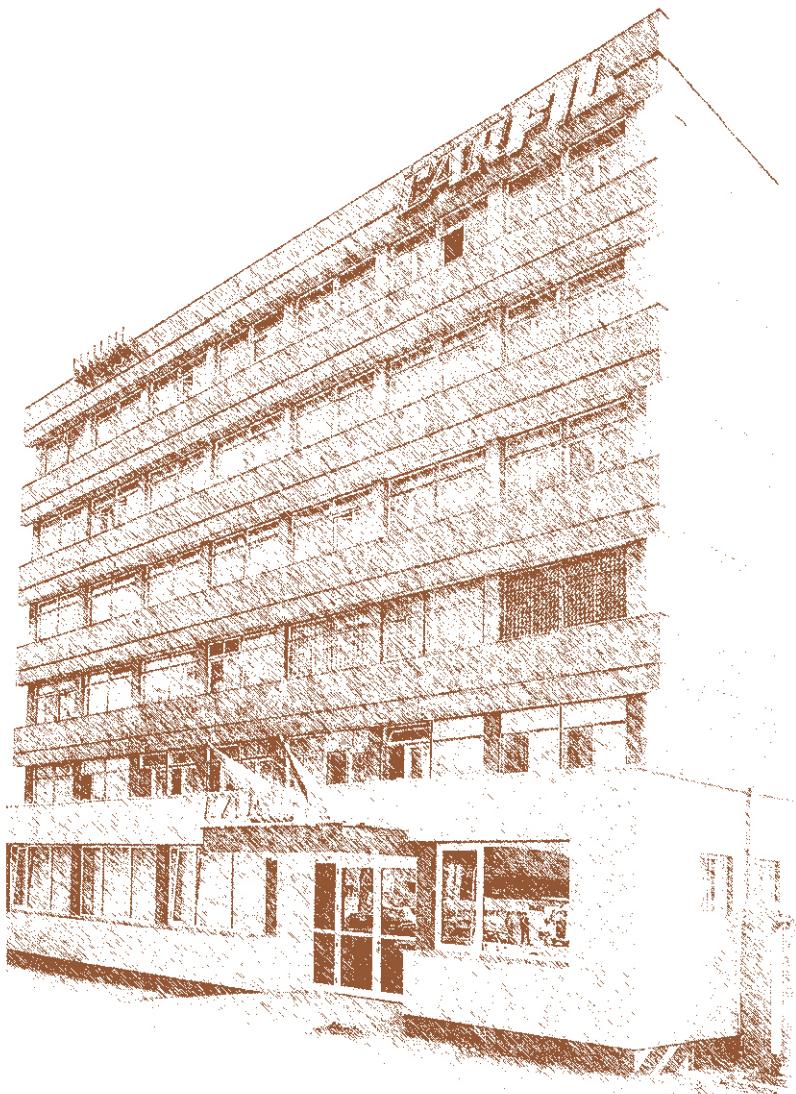


T. 00 40 268 331347
F. 00 40 268 330527

PRODUCTS
CARFIL SA / BRASOV







HISTORY

JULY 20, 1922	COMPANY'S ESTABLISHMENT UNDER THE NAME OF "THE FACTORY OF MACHINES AND FOUNDRY - DUMITRU VOINEA"
1922-1936	ACTIVITIES OF OVERHAULING FOR ROLLING STOCK ARE INITIATED
1936-1944	CASTING FOUNDRY, HOT-PRESSING, FORGING SHOPS AND CARDBOARDS ARE
1944-1948	DEVELOPED
	A FEW CAPACITIES ARE USED FOR REPAIRING AND MANUFACTURING SOME
1948-1952	AGRICULTURAL EQUIPMENTS AND TOOLS
1952-1965	THE FITTINGS PRODUCTION AND KITCHEN FURNITURE ARE INITIATED
1965-1988	THE FITTINGS PRODUCTION, GAS METERS AND ENGINES FOR BIKES ARE DEVELOPED THE MANUFACTURING PROFILE IS DIVERSIFIED BY CARBURETORS PRODUCTION, FILTERS, PUMPS, PRESSES, TEST STANDS AND SPECIAL MACHINES-TOOLS...

VIEWPOINT

TAKING INTO CONSIDERATION THE IMPORTANCE OF THE MARKET BY UNDERSTANDING THE CUSTOMER'S NEEDS, WE TRY TO FIND POSSIBILITIES IN ORDER TO IMPROVE AND TO DIVERSIFY PERMANENTLY OUR ACTIVITY, TO ASSURE AN ATMOSPHERE OF CONFIDENCE, FAVORABLE TO COMMUNICATE WITH OUR CUSTOMERS

THE HUMAN QUALITY AND THE PROFESSIONAL ABNEGATION OF THE EMPLOYERS, HAVE A DECISIVE ROLE IN THE PROGRESS OF THE ORGANIZATION

THE MANAGEMENT TEAM IS CONTINUOUSLY INTERESTED IN SELECTING A COMPETENT YOUNG AND STRONG STAFF, HAVING THE ADEQUATE TRAINING AND A GREAT INTELLECTUAL MOBILITY.

SC CARRIL SA

HISTORY / VIEWPOINT



S.C. **CARFIL** S.A.

N A T O

COMPATIBLES MILITARY PRODUCTS

- **60 mm mortar, COMMANDO type Model 2001**
- **60 mm mortar, standard type 2001 Model**
- **60 mm A60 mortar, standard type 1988 Model**
- **81 mm mortar Model 1999**
- **81 mm mortar Model 1977**
- **60 mm round with smoke steel bomb, for COMMANDO Mortar**
- **60 mm round with explosive bomb, with steel body**
- **60 mm round with steel explosive bomb-heavy duty**
- **81 mm round with parachute and illuminating mine**
- **81 mm round with explosive bomb of enhanced range and effect for the mortar**
- **81 mm round with steel iron explosive bomb, for the mortar model 1977**
- **81 mm round with smoke bomb, for the 1977 model mortar**

SISTEM CAL. 60MM COMANDO



SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



2001 MODEL

60 MM MORTAR COMMANDO TYPE

DESTINATION:

- it is an individual means of fire;
 - it is a mortar with smooth barrel, for firing with curved trajectory;
 - it is designed for subunits of navy, air force, national guards as well as for intervention units;
 - it has the following main missions: to destroy the personnel and the sheltered or unsheltered means of fire, the command-observation posts, warehouses of weapon and ammunition, fuel and lubricants and radio electronic means of enemy, local fights.

MAIN TECHNICAL DATA:

- caliber	60 mm
- length of normal barrel	735 mm
- length of short barrel	640 mm
- firing range: maximum range with normal barrel	1.900 m
maximum range with short barrel	1.100 m
minimum	200 m
- vertical firing field	
for curved trajectory	45° - 85°
for direct trajectory (100 - 500 m)	0 - 6°
- horizontal firing field:	± 25°
- rate of fire in the first minute (without remake the aiming)	about 12 rounds/min
- weight of mortar ready for battle	8 kgs

DELIVERY

60 mm mortar, commando type 1988 model, together with the kit of spare parts, tools and accessories is delivered in his wooden packing case.

Kits for middle and capital repairs can be delivered on customer's request

1 mortar + 1 individual kit are packed in wooden case

dimension of case..... 1010x280x280 mm
gross weight..... 30 kgs
net weight..... 22 kgs



60 MM MORTAR COMMANDO

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND

60 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber	60 mm
Total length	296 mm
Net weight (round fully equipped).....	1,500 Kg
Fuze.....	M6R-M
Propelling charge:	
with „Standard“ mortar.....	1 cartridge + 3 extra charges
with „Commando“ mortar.....	1 cartridge + 2 extra charges
Maximum medium pressure.....	≤ 360 Kg/cm ²
Maximum range.....	3000 m
Precision:	$A_p^r/X \leq 1/90$
	$A_p^d/X \leq 1/190$

PACKING

Wooden case containing 12 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	35 Kg
Case overall dimensions.....	380x364x305 mm

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STEEL BOMB ROUND WITH ENHANCED RANGE AND SEALING RING
60 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber	60 mm
Total length	340 mm
Net weight (round fully equipped).....	2,200 Kg
Fuze.....	M6-R/B
Propelling charge:	1 cartridge + 4 extra charges
Maximum medium pressure.....	$\leq 500 \text{ Kgf/cm}^2$
Maximum range.....	4500 m
Precision:	- $A_p/X \leq 1/80$ - $A_p^d/X \leq 1/180$

PACKING

Wooden case containing 12 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	40 Kg
Case overall dimensions.....	450x365x305 mm



STEEL BOMB ROUND WITH ENHACED RANGE AND SEALING RING
60 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND FOR THE "COMMANDO" 2001 MODEL MORTAR
60 MM SMOKE STEEL BOMB

TECHNICAL CHARACTERISTICS

Caliber	60 mm
Total length	340 mm
Net weight (round fully equipped).....	1,900 Kg
Fuze.....	M6-R
Propelling charge:	
with "Commando" mortar.....	1 cartridge + 2 extra charges
Maximum medium pressure.....	$\leq 300 \text{ Kgf/cm}^2$
Maximum range.....	1400 m
Precision:	
- $A_p/X \leq 1/80$	
- $A_p^d/X \leq 1/175$	

PACKING

Wooden case containing 12 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	40 Kg
Case overall dimensions.....	450x365x305 mm

SISTEM CAL. 60MM STANDARD



SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



1988 MODEL

60 MM MORTAR STANDARD TYPE

DESTINATION:

- it is a mortar with smooth barrel, for firing with curved trajectory;
- it is designed for fire support of infantry subunits, parachute landing force and other subunits;
- it has the following main missions: to destroy the personnel and the sheltered or unsheltered means of fire, the commando-observation posts, to set on fire the warehouse, to make passages through the mine fields, to destroy the defense works of company.

MAIN TECHNICAL DATA:

- caliber.....	60 mm
- length of the barrel.....	1.080 mm
- firing range: maximum.....	3.000 m
minimum.....	100 m
- medium max. pressure of muzzle.....	$\leq 360 \text{ kgf/cm}^2$
- vertical firing field.....	$45^\circ \div 85^\circ$
- horizontal firing field: without moving the bipod.....	$\pm 3^\circ$
moving the bipod.....	$\pm 360^\circ$
- rate of fire in the first minute (without remake the aiming).....	about 20 rounds/min.
- weight of mortar ready for battle	about 20 kgs
of which: barrel with breechblock.....	about 7,5 kgs
base plate.....	about 4,7 kgs
sight mechanism.....	0,8 kgs

DELIVERY:

60 mm mortar, standard type 1988 model, with the individual kit of spare parts, tools and accessories is delivered in its wooden packing case.

Kits for middle and capital repairs can be delivered on customer's request.

1 mortar + 1 individual kit are packed in wooden case:

dimension of case.....	1280x375x440 mm
gross weight.....	75 kgs
net weight.....	about 50 kgs



1988 MODEL
60 MM MORTAR STANDARD

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



2001 MODEL

60 MM MORTAR STANDARD TYPE

DESTINATION:

- it is a mortar with smooth barrel, for firing with curved trajectory;
- it is designed for fire support of infantry subunits, parachute landing force and other subunits;
- it has the following main missions: to destroy the personnel and the sheltered or unsheltered means of fire, the commando-observation posts, to set on fire the warehouse, to make passages through the mine fields, to destroy the defense works of company.

MAIN TECHNICAL DATA:

- caliber.....	60 mm
- length of the barrel.....	1.300 mm
- firing range: maximum.....	4.500 m
minimum.....	100 m
- vertical firing field.....	45° ÷ 85°
- horizontal firing field: without moving the bipod.....	± 3°
moving the bipod.....	± 360°
- rate of fire in the first minute (without remake the aiming).....	about 20 rounds/min.
- weight of mortar ready for battle.....	about 30 kgs
of which: barrel with breechblock.....	about 11 kgs
bipod.....	about 10 kgs
base plate.....	about 9 kgs
sight mechanism.....	0,8 kgs

DELIVERY:

60 mm mortar, standard type 2001 model, with the individual kit of spare parts, tools and accessories is delivered in its wooden packing case.

Kits for middle and capital repairs can be delivered on customer's request.

1 mortar + 1 individual kit are packed in wooden case:

dimension of case.....	1550x490x450 mm
gross weight.....	about 90 kgs
net weight.....	about 62 kgs



2001 MODEL
60 MM MORTAR STANDARD

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND

60 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber	60 mm
Total length	296 mm
Net weight (round fully equipped).....	1,500 Kg
Fuze.....	M6R-M
Propelling charge:	
with „Standard“ mortar.....	1 cartridge + 3 extra charges
with „Commando“ mortar.....	1 cartridge + 2 extra charges
Maximum medium pressure.....	≤ 360 Kg/cm ²
Maximum range.....	3000 m
Precision:	$A_p^r/X \leq 1/90$
	$A_p^d/X \leq 1/190$

PACKING

Wooden case containing 12 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	35 Kg
Case overall dimensions.....	380x364x305 mm

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND WITH ENHANCED RANGE AND SEALING RING
60 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber	60 mm
Total length	340 mm
Net weight (round fully equipped).....	2,200 Kg
Fuze.....	M6-R/B
Propelling charge:	1 cartridge + 4 extra charges
Maximum medium pressure.....	$\leq 500 \text{ Kgf/cm}^2$
Maximum range.....	4500 m
Precision:	- $A_p/X \leq 1/80$ - $A_p^d/X \leq 1/180$

PACKING

Wooden case containing 12 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	40 Kg
Case overall dimensions.....	450x365x305 mm



STEEL BOMB ROUND WITH ENHACED RANGE AND SEALING RING
60 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND FOR THE "COMMANDO" 2001 MODEL MORTAR
60 MM SMOKE STEEL BOMB

TECHNICAL CHARACTERISTICS

Caliber	60 mm
Total length	340 mm
Net weight (round fully equipped).....	1,900 Kg
Fuze.....	M6-R
Propelling charge:	
with "Commando" mortar.....	1 cartridge + 2 extra charges
Maximum medium pressure.....	$\leq 300 \text{ Kgf/cm}^2$
Maximum range.....	1400 m
Precision:	
- $A_p/X \leq 1/80$	
- $A_p^d/X \leq 1/175$	

PACKING

Wooden case containing 12 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	40 Kg
Case overall dimensions.....	450x365x305 mm

SISTEM CAL. 81 MM



SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



MODEL 1977

81 MM MORTAR

DESTINATION:

- it is a mortar with smooth barrel, for firing with curved trajectory;
- it is designed for fire support of infantry subunits and other subunits;
- it has the following main missions: to destroy the personnel and the sheltered or unsheltered means of fire, the command-observation posts, to make passages through the mine fields and barbed wire net, to separate infantry from tanks, for illuminating and to camouflage by smoke screen the objectives (ground).

MAIN TECHNICAL DATA:

- caliber.....	81,4 mm
- length of barrel.....	1220 mm
- firing range: maximum range with explosive bomb.....	4.460 m
minimum range.....	100 m
- vertical firing field.....	45° ÷ 85°
- horizontal firing field: without moving the bipod	± 3°
moving the bipod, without moving the base plate.....	± 360°
- rate of fire in the first minute (without remake the aiming).....	20 rounds/min
- weight of mortar ready for battle	43,5 kgs
of which: barrel with breechblock.....	16,5kgs
bipod	11 kgs
base plate.....	15 kgs
optical sight.....	0,8 kgs

DELIVERY:

81 mm mortar, 1977 model, together with the kit of spare parts, tools and accessories is delivered in its wooden packing case.

Kits for middle and capital repairs can be delivered on customer's request.

1 mortar + 1 individual kit are packed in wooden case:

dimension of case.....	1450x560x400 mm
gross weight.....	118 kgs
net weight.....	77 kgs



MODEL 1977
81 MM MORTAR

SC CARFIL SA / 119, ZIZINULLUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



MODEL 1999

81 MM MORTAR

DESTINATION:

- it is a mortar with smooth barrel, for firing with curved trajectory;
- it is designed for fire support of infantry subunits and other subunits;
- it has the following main missions: to destroy the personnel and the sheltered or unsheltered means of fire, the command-observation posts, to make passages through the mine fields and barbed wire net, to separate infantry from tanks, to destroy the defense works, to destroy or damage the communication ways, for illuminating and to camouflage by smoke-screen the objectives (ground).

MAIN TECHNICAL DATA:

- caliber.....	81,4 mm
- length of barrel.....	1440 mm
- firing range: maximum range with explosive bomb.....	6.000 m
minimum range.....	200 m
- vertical firing field.....	45° ÷ 85°
- horizontal firing field: without moving the bipod, with barrel at 45°	± 5°
moving the bipod, without moving the base plate.....	± 360°
- rate of fire in the first minute (without remake the aiming).....	15 rounds/min
- weight of mortar ready for battle	51 kgs
of which: barrel with breechblock.....	21 kgs
bipod	15 kgs
base plate.....	14 kgs
optical sight.....	0,8 kgs

DELIVERY:

81 mm mortar, 1999 model, together with the kit of spare parts, tools and accessories is delivered in its wooden packing case.

Kits for middle and capital repairs can be delivered on customer's request.

1 mortar + 1 individual kit are packed in wooden case:

dimension of case.....	1680x600x400 mm
gross weight.....	136 kgs
net weight.....	92 kgs

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB WITH ENHANCED RANGE AND EFFECT - "BIG"
81 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber .....	.....81 mm
Total length .....	.....515 mm
Net weight (round fully equipped).....	.....4,600Kg
Fuze.....	.....M6-R/A
Propelling charge.....	.....1 cartridge + 6 extra charges
Maximum medium pressure.....	.....\leq 880 Kg/cm ²
Maximum range:	
with long barrel.....	.....6500 m
with short barrel.....	.....5600 m
Precision:	- $A_p/X \leq 1/100$
	- $A_p/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	.....60 Kg
Case overall dimensions.....	.....745x622x260 mm



STEEL BOMB WITH ENHANCED RANGE AND EFFECT - "BIG"
81 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND FOR THE 1977 MODEL MORTAR
81 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber .....	.81 mm
Total length	360,16 mm
Net weight (round fully equipped)	3,100 Kg
Fuze	M6-R/A
Propelling charge.....	1 cartridge + 5 extra charges
Maximum medium pressure.....	$\leq 650 \text{ Kgf/cm}^2$
Maximum range:.....	4500 m
Precision:	- $A_p^f/X \leq 1/100$ - $A_p^d/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	50 Kg
Case overall dimensions.....	550x450x285 mm



STEEL BOMB ROUND FOR THE 1977 MODEL MORTAR
81 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



CAST IRON BOMB ROUND FOR THE 1977 MODEL MORTAR

81 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber .....	.81 mm
Total length	360,16 mm
Net weight (round fully equipped)	3,100 Kg
Fuze	M6-R
Propelling charge.....	1 cartridge + 5 extra charges
Maximum medium pressure.....	$\leq 650 \text{ Kgf/cm}^2$
Maximum range:.....	4500 m
Precision:	- $A_p^f/X \leq 1/100$ - $A_p^d/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	50 Kg
Case overall dimensions.....	550x450x285 mm



CAST IRON BOMB ROUND FOR THE 1977 MODEL MORTAR
81 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



CAST IRON BOMB ROUND FOR THE 1977 MODEL MORTAR
81 MM HIGH EXPLOSIVE BOMB

SL TYPE

TECHNICAL CHARACTERISTICS

Caliber .....	.81 mm
Total length	360,16 mm
Net weight (round fully equipped).....	3,100 Kg
Fuze.....	M6-R
Propelling charge.....	1 cartridge + 5 extra charges
Maximum medium pressure.....	$\leq 650 \text{ Kgf/cm}^2$
Maximum range:.....	5000 m
Precision:	- $A_p^{\prime}/X \leq 1/100$ - $A_p^{\prime\prime}/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	.50 Kg
Case overall dimensions.....	.550x450x285 mm



CAST IRON BOMB ROUND FOR THE 1977 MODEL MORTAR
81 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



ILLUMINATING BOMB ROUND

81 MM ILLUMINATING BOMB

TECHNICAL CHARACTERISTICS

Caliber	81 mm
Total length	363,6 mm
Net weight (round fully equipped).....	3,490 Kg
Fuze.....	T1
Fuze time setting range.....	0,45 - 46,1 s
Propelling charge.....	1 cartridge + 3 extra charges
Maximum medium pressure.....	≤ 450 Kgf/cm ²
Maximum range:.....	2670 m
Precision:	- $A_p^{\circ}/X \leq 1/90$ - $A_p^{\prime\prime}/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	50 Kg
Case overall dimensions.....	520x500x282 mm



ILLUMINATING BOMB ROUND
81 MM ILLUMINATING BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND FOR THE 1977 MODEL MORTAR
81 MM SMOKE STEEL BOMB

TECHNICAL CHARACTERISTICS

Caliber	81 mm
Total length	360,73 mm
Net weight (round fully equipped)	3,280 Kg
Fuze	M6-R
Propelling charge.....	1 cartridge + 5 extra charges
Maximum medium pressure.....	$\leq 650 \text{ Kgf/cm}^2$
Maximum range:.....	4300 m
Precision:	- $A_p/X \leq 1/100$ - $A_p^d/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	53 Kg
Case overall dimensions.....	550x450x285 mm



STEEL BOMB ROUND FOR THE 1977 MODEL MORTAR
81 MM SMOKE STEEL BOMB

SISTEM CAL. 82 MM



SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



MODEL 1977

82 MM MORTAR

DESTINATION:

- it is a mortar with smooth barrel, for firing with curved trajectory;
- it is designed for fire support of infantry subunits and other subunits;
- it has the following main missions: to destroy the personnel and the sheltered or unsheltered means of fire, the command-observation posts, to make passages through the mine fields and barbed wire net, to separate infantry from tanks, for illuminating and to camouflage by smoke screen the objectives (ground).

MAIN TECHNICAL DATA:

- caliber.....	82 mm
- length of barrel.....	1220 mm
- firing range: maximum range with explosive bomb.....	4.460 m
minimum range.....	100 m
- vertical firing field.....	45° - 85°
- horizontal firing field: without moving the bipod.....	± 3°
moving the bipod, without moving the base plate.....	± 360°
- rate of fire in the first minute (without remake the aiming).....	20 rounds/min
- weight of mortar ready for battle	43,5 kgs
of which: barrel with breechblock.....	16,5 kgs
bipod	11 kgs
base plate.....	15 kgs
optical sight.....	0,8 kgs

DELIVERY:

82 mm mortar, 1977 model, together with the kit of spare parts, tools and accessories is delivered in its wooden packing case.

Kits for middle and capital repairs can be delivered on customer's request.

1 mortar + 1 individual kit are packed in wooden case:

dimension of case.....	1450x560x400 mm
gross weight.....	118 kgs
net weight.....	77 kgs

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



MODEL 1999

82 MM MORTAR

DESTINATION:

- it is a mortar with smooth barrel, for firing with curved trajectory;
- it is designed for fire support of infantry subunits and other subunits;
- it has the following main missions: to destroy the personnel and the sheltered or unsheltered means of fire, the command-observation posts, to make passages through the mine fields and barbed wire net, to separate infantry from tanks, to destroy the defense works, to destroy or damage the communication ways, for illuminating and to camouflage by smoke-screen the objectives (ground).

MAIN TECHNICAL DATA:

- caliber.....	82 mm
- length of barrel.....	1440 mm
- firing range: maximum range with explosive bomb.....	6.000 m
minimum range.....	200 m
- vertical firing field.....	45° - 85°
- horizontal firing field: without moving the bipod, with barrel at 45°.....	± 5°
moving the bipod, without moving the base plate.....	± 360°
- rate of fire in the first minute (without remake the aiming).....	15 rounds/min
- weight of mortar ready for battle	51 kgs
of which: barrel with breechblock.....	21 kgs
bipod	15 kgs
base plate.....	14 kgs
optical sight.....	0,8 kgs

DELIVERY:

82 mm mortar, 1999 model, together with the kit of spare parts, tools and accessories is delivered in its wooden packing case.

Kits for middle and capital repairs can be delivered on customer's request.

1 mortar + 1 individual kit are packed in wooden case:

dimension of case.....	1680x600x400 mm
gross weight.....	136 kgs
net weight.....	92 kgs



MODEL 1999
82 MM MORTAR

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND WITH ENHANCED RANGE AND EFFECT - "BIG"
82 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber .....	.....82 mm
Total length .....	.....515 mm
Net weight (round fully equipped).....	.....4,600 Kg
Fuze.....	.....M6-R/A
Propelling charge.....	.....1 cartridge + 6 extra charges
Maximum medium pressure.....	.....$\leq 880 \text{ Kgf/cm}^2$
Maximum range:	
with long barrel.....	.....6500 m
with short barrel.....	.....5600 m
Precision:	- $A_p'/X \leq 1/100$
	- $A_p''/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	.....60 Kg
Case overall dimensions.....	.....745x622x260 mm



STEEL BOMB ROUND WITH ENHANCED RANGE AND EFFECT- "BIG"
82 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND FOR THE 1977 MODEL MORTAR
82 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber	82 mm
Total length	360,16 mm
Net weight (round fully equipped).....	3,100 Kg
Fuze.....	M6-R/A
Propelling charge.....	1 cartridge + 5 extra charges
Maximum medium pressure.....	$\leq 650 \text{ Kgf/cm}^2$
Maximum range:.....	4500 m
Precision:	- $A_p/X \leq 1/100$ - $A_p/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	50 Kg
Case overall dimensions.....	550x450x285 mm



STEEL BOMB ROUND FOR THE 1977 MODEL MORTAR
82 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL CAST IRON BOMB ROUND FOR THE 1977 MODEL MORTAR
82 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber	82 mm
Total length	360,16 mm
Net weight (round fully equipped).....	3,100 Kg
Fuze.....	M6-R
Propelling charge.....	1 cartridge + 5 extra charges
Maximum medium pressure.....	$\leq 650 \text{ Kgf/cm}^2$
Maximum range:.....	4500 m
Precision:	- $A_p/X \leq 1/100$ - $A_p^d/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	50 Kg
Case overall dimensions.....	550x450x285 mm



STEEL CAST IRON BOMB ROUND FOR THE 1977 MODEL MORTAR
82 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



ILLUMINATING BOMB ROUND

82 MM ILLUMINATING BOMB

TECHNICAL CHARACTERISTICS

Caliber .....	.82 mm
Total length	363,6 mm
Net weight (round fully equipped).....	.3,490 Kg
Fuze	T1
Fuze time setting range.....	.0,45 - 46,1 s
Propelling charge.....	1 cartridge + 3 extra charges
Maximum medium pressure.....	\leq 450 Kgf/cm ²
Maximum range:.....	2670 m
Precision:	- $A_p'/X \leq 1/90$ - $A_p''/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	.50 Kg
Case overall dimensions.....	.543x533x282 mm



ILLUMINATING BOMB ROUND
82 MM ILLUMINATING BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ROUND FOR THE 1977 MODEL MORTAR
82 MM SMOKE STEEL BOMB

TECHNICAL CHARACTERISTICS

Caliber	82 mm
Total length	360,73 mm
Net weight (round fully equipped).....	3,280 Kg
Fuze.....	M6-R
Propelling charge.....	1 cartridge + 5 extra charges
Maximum medium pressure.....	$\leq 650 \text{ Kgf/cm}^2$
Maximum range:.....	4300 m
Precision:	- $A_p/X \leq 1/100$ - $A_p^d/X \leq 1/200$

PACKING

Wooden case containing 10 polyethylene cases, each polyethylene case containing one round fully equipped.

Full case weight.....	53 Kg
Case overall dimensions.....	550x450x285 mm



STEEL BOMB ROUND FOR THE 1977 MODEL MORTAR
82 MM SMOKE STEEL BOMB

SISTEM CAL. 40 MM



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ANTITANK GRENADES AND EXPLOSIVE BOMBS LAUNCHER
40 MM LAUNCHER AG7DS/RPG 7

DESTINATION:

The antitank grenades and explosive bombs launcher, 40 mm caliber, is a means of fire landing force and submachine gunners squads in special missions.

The launcher is designed for destroying the tanks, truck-borne cannons, any type of car and other armored mean of fire of the enemy. For destroying the living force and the fire means of enemy, existing in wooden and earth buildings, of light type or brick buildings.

MAIN TECHNICAL DATA:

- caliber.....	40 mm
- maximum range with hollow round	500 m
- maximum range with: explosive bomb 40 mm	1.000 m
explosive bomb 60 mm	1.500 m
- weight of the launcher: without sight mechanism	6,5 kg
equipped with PG07V sight mechanism.....	7,1 kgs
equipped with IOAG7V sight mechanism.....	7,6 kgs
- rate of fire	4 - 6 rounds/min
- length of the launcher : for firing.....	908 mm
for transportation.....	610 mm
- dangerous area, behind the launcher	70°x30m

DELIVERY:

40 mm grenade launcher, together with the individual kit of spare parts, tools, and accessories is delivered in its wooden packing case. Kits for middle and capital repairs can be delivered on customer's order.

9 40 mm launchers + 9 individual kits (partial) is packed in wooden case:

- dimensions of case.....	1240x640x440 mm
- gross weight.....	100 kgs
- net weight.....	60 kgs

The bags of individual kit and the other part of individual kit are packed in wooden case:

- dimensions of case.....	1500x640x340 mm
- gross weight.....	68 kgs
- net weight.....	36 kgs

9 sight mechanisms with individual kits are packed in wooden case:

- dimensions of case.....	620x320x320 mm
- gross weight.....	15 kgs
- net weight.....	7 kgs



ANTITANK GRENADES AND EXPLOSIVE BOMBS LAUNCHER
40 MM LAUNCHER AG7DS/RPG7

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



ANTITANK GRENADES AND EXPLOSIVE BOMBS LAUNCHER
40 MM LAUNCHER AG7S/RPG 7

DESTINATION:

The antitank grenades and explosive bombs launcher, 40 mm caliber, is a means of fire of infantry subunits and landing force.

The launcher is designed for destroying the tanks, truck-borne cannons, any type of car and other armored mean of fire of the enemy. Besides, the launcher can be used also for destroying the living force and the fire means of enemy, existing in wooden and earth buildings, of light type or brick buildings.

MAIN TECHNICAL DATA:

- caliber.....	40 mm
- maximum range with hollow round	500 m
- maximum range with: explosive bomb 40 mm	1.000 m
explosive bomb 60 mm	1.500 m
- weight of the launcher: without sight mechanism	6 kg
equipped with PG07V sight mechanism.....	6,5 kgs
equipped with IOAG7V sight mechanism.....	7,1 kgs
- rate of fire.....	4 - 6 rounds/min
- length of the launcher.....	908 mm
- maximum pressure	1080 Kg/cm ²
- dangerous area, behind the launcher	70°x30 m

DELIVERY:

40 mm grenade launcher, together with the individual kit of spare parts, tools, and accessories is delivered in its wooden packing case. Kits for middle and capital repairs can be delivered on customer's order.

9 40 mm launchers + 9 individual kits (partial) are packed in wooden case:

- dimensions of case.....	1240x640x440 mm
- gross weight.....	100 kgs
- net weight.....	60 kgs

The bags of individual kit and the other part of individual kit is packed in wooden case:

- dimensions of case.....	1500x640x340 mm
- gross weight.....	68 kgs
- net weight.....	36 kgs

9 sight mechanisms with individual kits are packed in wooden case:

- dimensions of case.....	620x320x320 mm
- gross weight.....	15 kgs
- net weight.....	7 kgs



ANTITANK GRENADES AND EXPLOSIVE BOMBS LAUNCHER
40 MM LAUNCHER AG7S/RPG 7

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PREFRAGMEDNTED BODY STEEL BOMB ROUND FOR THE RPG 7 PORTABLE LAUNCHER
40 MM HIGH EXPLOSIVE STEEL BOMB

TECHNICAL CHARACTERISTICS

Caliber	40 mm
Total length	635 mm
Net weight (round fully equipped)	1,750 Kg
Fuze	V5K - MD
Propelling charge	PG - 7PM
Maximum medium pressure	$\leq 900 \text{ Kgf/cm}^2$
Maximum range	1000 m
Precision:	- $A_p/X \leq 1/50$ - $A_p^d/X \leq 1/200$

PACKING

Wooden case containing 12 round fully equipped.	
Full case weight	30 Kg
Case overall dimensions	660x495x275 mm



PREFRAGMEDNTED BODY STEEL BOMB ROUND FOR RPG 7
40 MM HIGH EXPLOSIVE BOMB

SC CARFIL SA / 119, ZIZINULUI STREET / 500407 BRASOV / ROMÂNIA / T. 00 40 268 331347 / F. 00 40 268 330527



STEEL BOMB ACTIVE REACTIVE ROUND FOR THE RPG 7 PORTABLE LAUNCHER
60 MM HIGH EXPLOSIVE STEEL BOMB

TECHNICAL CHARACTERISTICS

Caliber	60 mm
Total length	830 mm
Net weight (round fully equipped).....	2,300 Kg
Fuze.....	V5K - MD
Reactive engine.....	PG - 7M
Propelling charge.....	PG - 7PM
Maximum medium pressure.....	$\leq 900 \text{ Kgf/cm}^2$
Maximum range.....	1500 m
Precision:	- $A_p/X \leq 1/40$
	- $A_p^d/X \leq 1/280$

PACKING

Wooden case containing 12 round fully equipped.

Full case weight..... 40 Kg

Case overall dimensions..... 895x490x280 mm



ACTIVE REACTIVE ROUND FOR THE RPG 7 PORTABLE LAUNCHER
60 MM HIGH EXPLOSIVE BOMB

PG7 – EI THERMOBARIC ACTIVE – REACTIVE ROUND



PG7 – EI THERMOBARIC ACTIVE – REACTIVE ROUND

Intended for destroying the enemy emplacements (battlefield fortifications, reinforced building, stone brick or concrete fortifications), light armoured vehicles and automobiles and enemy troops in the open and in shelters.

ROUND CHARACTERISTICS

Caliber	40x105 mm.
Weight.....	4,5 Kg.
Length.....	940 mm.
Pressure.....	\leq 900 Kg.f/cm ² .
Max. range.....	\approx 800 m.
Precision.....	
Firing rate.....	4÷6 shots/min.

PACKING

Wooden case containing 3 rounds fully equipped and 3 propelling charges PG7-PM

separately packed

Brutto weight.....30 Kg

Case overall dimensions 850x470x225 mm

SISTEM CAL. 73 MM



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ANTITANK GRENADES AND EXPLOSIVE BOMBS LAUNCHER
73 MM LAUNCHER SPG 9M

DESTINATION:

The antitank grenades and explosive bombs launcher, 73 mm caliber, is a strong means of fire of infantry subunits and landing force.

The launcher is designed for destroying the tanks, truck-borne cannons, any type of car and other armored mean of fire of the enemy. Besides, the launcher can be used also for destroying the living force and the fire means of enemy, existing in wooden and earth buildings, of light type or brick buildings.

MAIN TECHNICAL DATA:

- caliber	73 mm
- maximum range with hollow round	1.300 m
- maximum range with explosive bomb with iron cast body	4.500 m
- maximum range with explosive bomb with steel body	5.400 m
- weight of the launcher AG-9M with sight mechanism	52 ± 1,5 kg
- rate of fire	.4÷6 rounds/min
- range of fire with launcher put on the ground:	
Vertical	- from the elevating mechanism 7°40'
	- from mechanism and foot -3° ÷ +25° (0-50 ÷ 4-20)
Horizontal	- without moving the tripod 15° (±2-50)
	- moving the tripod n x 360°
- length of the launcher	2110 mm
- maximum length of the launcher in fight position	900 mm
- height of barrel shaft on tripod:	- minimum 399 mm
	- maximum 850 mm
- dangerous area, behind the launcher	90°x30 m

DELIVERY:

73 mm grenades and explosive bombs launcher, together with the individual kit of spare parts, tools, and accessories is delivered in its wooden packing case.

Kits for middle and capital repairs can be delivered on customer's request.

1 x 73 mm grenade and explosive bombs launcher + 1 individual kit are packed in wooden case:

dimension of case 2167x445x450 mm

gross weight 115 kgs

net weight about 68 kgs



ANTITANK GRENADES AND EXPLOSIVE BOMBS LAUNCHER
73 MM LAUNCHER SPG 9M

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STEEL CAST IRON BOMB ROUND FOR THE SPG 9M LAUNCHER
73 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber	73 mm
Total length	806,37 mm
Net weight (round fully equipped).....	4,630 Kg
Fuze	UB-2M
Propelling charge.....	PG - 9P
Maximum medium pressure.....	$\leq 600 \text{ Kgf/cm}^2$
Maximum range:	
at 42°	5420 m
at 25°	4500 m
Precision:	- $A_p/X \leq 1/140$
	- $A_p^d/X \leq 1/500$

PACKING

1 wooden case containing 6 rounds with fuze on and 6 propelling charges packed in thin polyethylene cases.

Full case weight.....	32 Kg
Case overall dimensions.....	822x504x320 mm

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STEEL BOMB ROUND FOR THE SPG 9M LAUNCHER

73 MM HIGH EXPLOSIVE STEEL BOMB

TECHNICAL CHARACTERISTICS

Caliber	73 mm
Total length	930,3 mm
Net weight (round fully equipped)	5,300 Kg
Fuze	UB - 2M
Propelling charge.....	PG - 9P
Maximum medium pressure.....	$\leq 660 \text{ Kgf/cm}^2$
Maximum range.....	5500 m
Precision:	$- A_p^{\circ}/X \leq 1/140$
	$- A_p^{\circ}/X \leq 1/500$

PACKING

Wooden case containing 6 rounds with fuze and 6 propelling charges packed in thin polyethylene cases.

Full case weight.....	45 Kg
Case overall dimensions.....	1105x450x305 mm



STEEL BOMB ROUND FOR THE SPG 9M LAUNCHER
73 MM HIGH EXPLOSIVE BOMB

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STEEL BOMB ROUND FOR THE 42, 43 AND 82 MODEL MORTARS
120 MM HIGH EXPLOSIVE BOMB

SL TYPE

TECHNICAL CHARACTERISTICS

Caliber .....	.120 mm
Total length	680 mm
Net weight (round fully equipped).....	16 Kg
Fuze.....	MF/SL
Propelling charge.....	1 cartridge + 6 extra charges
Maximum medium pressure.....	$\leq 820 \text{ Kgf/cm}^2$
Maximum range	6500 m
Precision:	- $A_p/X \leq 1/125$ - $A_p^d/X \leq 1/250$

PACKING

1 wooden case containing 2 rounds fully equipped.	
Full case weight.....	45 Kg
Case overall dimensions.....	950x360x240 mm



STEEL BOMB ROUND FOR THE 42, 43 AND 82 MODEL MORTARS
120 MM HIGH EXPLOSIVE BOMB

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STEEL BOMB ROUND FOR THE 42, 43 AND 82 MODEL MORTARS
120 MM HIGH EXPLOSIVE BOMB

TECHNICAL CHARACTERISTICS

Caliber	120 mm
Total length	600 mm
Net weight (round fully equipped).....	13 Kg
Fuze.....	MF/SL
Propelling charge.....	1 cartridge + 6 extra charges
Maximum medium pressure.....	$\leq 880 \text{ Kgf/cm}^2$
Maximum range	6500 m
Precision:	- $A_p/X \leq 1/100$ - $A_p^d/X \leq 1/260$

PACKING

1 wooden case containing 2 rounds fully equipped.	
Full case weight.....	42Kg
Case overall dimensions.....	885x360x240mm



STEEL BOMB ROUND FOR THE 42, 43 AND 82 MODEL MORTARS
120 MM HIGH EXPLOSIVE BOMB

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PARACHUTE ILLUMINATING MINE ROUND FOR THE 42, 43 AND 82 MODEL MORTARS
120 MM ILLUMINATING MINE

TECHNICAL CHARACTERISTICS

Caliber	120 mm
Total length	735,6 mm
Net weight (round fully equipped)	16,189 Kg
Fuze.....	T1
Fuze time setting range.....	0,45 ÷ 46,1 s
Propelling charge.....	1 cartridge + 6 extra charges
Maximum medium pressure.....	≤ 1030 Kgf/cm ²
Maximum range:.....	5300 m
Precision:	- $A_p/X \leq 1/70$ - $A_p^d/X \leq 1/180$

PACKING

Wooden case containing 2 rounds fully equipped.

Full case weight.....	46 Kg
Case overall dimensions	952x361x216 mm



PARACHUTE ILLUMINATING MINE ROUND
120 MM ILLUMINATING MINE

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SMOKE STEEL BOMB ROUND
120 MM SMOKE BOMB

TECHNICAL CHARACTERISTICS

Caliber	120 mm
Total length	600,49 m
Net weight (round fully equipped).....	13 Kg
Fuze.....	M6-R
Propelling charge.....	1 cartridge + 6 extra charges
Maximum medium pressure.....	$\leq 880 \text{ Kgf/cm}^2$
Maximum range:.....	6400 m
Precision:	- $A_p/X \leq 1/100$ - $A_p^d/X \leq 1/260$

PACKING

Wooden case containing 2 rounds fully equipped.

Full case weight..... 42 Kg

Case overall dimensions..... 885x360x240 mm



SMOKE STEEL BOMB ROUND
120 MM SMOKE BOMB

**120 MM HIGH EXPLOSIVE STEEL BOMB ROUND,
WITH ENHANCED RANGE**



ROUND CHARACTERISTICS

Caliber 120 mm.
Weight ~25 Kg.
Length ~950 mm.
Type of fuze M6-R/A (pyrotechnical).
Propelling charge 1 cartridge+6 relays.
Pressure ≤ 1030 Kg.f/cm².
Max. range ≈ 15000 m.

PACKING

Wooden case containing 1 rounds fully equipped, in vacuum polyethylene bags.

Weight of full case 50 kg



CARFIT SA



119 Zizinului str. Code: 500407
BRAŞOV - ROMÂNIA

Phone: +40 (0) 268 331347
+40 (0) 268 330264
Fax: +40 (0) 268 330527



Brașov, str. Zizinului nr. 119

tel: +40 268 331347

Fax: +40 268 330527

E-mail carfil@rdsbv.ro

www.carfil.ro