

Beta







Pneumatic Tools


Beta
Beta
MECHANIX WEAR
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Pneumatic Tools

Beta Utensili is active worldwide, through a high-performance logistic structure and a global distribution network which includes 7 foreign branches, in France, Britain, Holland, Poland, Spain, Brazil, China, and over 250 importers and distributors in more than 100 countries.

The quality and reliability of Beta's products is guaranteed by over eighty years of experience and tradition. Ongoing growth has translated into the current product range, which exceeds 10,000 coded items, designed to satisfy the most demanding professionals' requirements.

For over 15 years Beta Utensili has supplemented its products with a comprehensive range of pneumatic tools and accessories developed for the automotive and industrial maintenance markets: impact wrenches,
ratchets, drills, grinders, sanders and many more items.
During this period close co-operation with professional users has been key to ongoing growth. It is on the basis of such growth that Beta's pneumatic tools can boast an excellent reliability/performance ratio.
In order to satisfy market requirements in the best possible way, Beta Utensili repairs the pneumatic tools in its Quality Department. This process has allowed the company to improve its know-how to a significant extent and become increasingly responsive to the customer base.



The operation and maintenance manuals, pictures, exploded views and product use videos are available on: www.beta-tools.com

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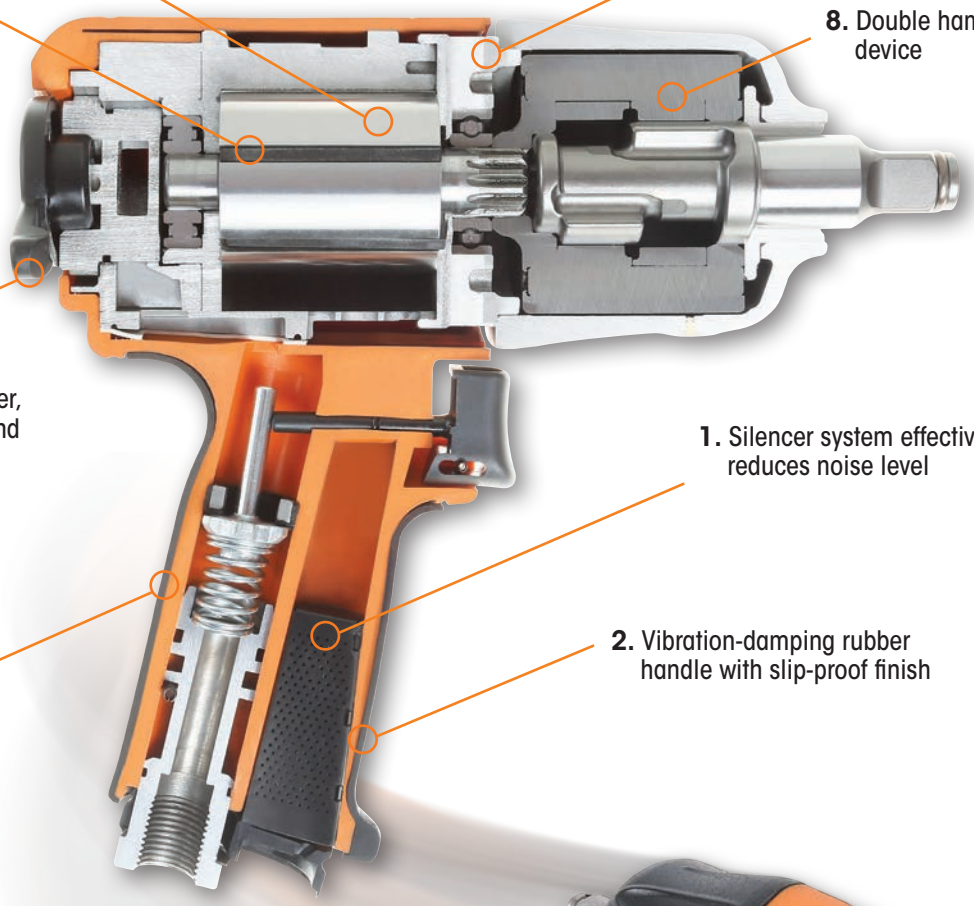


42 Hoses & Hose reels
Hoses & Recoil hoses / Hose reels



1927P > 1/2" Reversible impact wrench, made from composite material

1750Nm



1. Silencer system effectively reduces noise level

2. Vibration-damping rubber handle with slip-proof finish

3. Ergonomic handle design

4. Screwing/unscrewing lever, can be used with one hand

5. Special blades made from composite material, more reliable, cannot be deformed by humidity and temperature

6. Powerful rotor: high torque

7. Chrome-plated front plate

8. Double hammer device





Frame the QR code or go to the BETA YouTube channel to watch the demonstration video

IMPACT WRENCHES TABLE

	ALLUMINIUM				COMPOSITE MATERIAL			
	ITEM NUMBER	PICTURE	MAXIMUM TORQUE	DEVICE	ITEM NUMBER	PICTURE	MAXIMUM TORQUE	DEVICE
1 1/2"	1930ZL		4068 Nm	Double hammer				
1"	1930HLA		3661 Nm	Double hammer	1930NCD		2445 Nm	Double hammer
	1930LA		2445 Nm	Double hammer	1930CD		2445 Nm	Double hammer
	1930PA		2445 Nm	Double hammer				
3/4"	1928DAL		1695 Nm	Double hammer	1928CD		1800 Nm	Double hammer
	1928DA		1695 Nm	Double hammer				
	1928K4		1493 Nm	Pin clutch				
1/2"	1927MDA 1927MDA/K4		680 Nm	Double hammer	1927P		1750 Nm	Double hammer
	1927DA		650 Nm	Double hammer	1927CD		1020 Nm	Double hammer
	1927A		610 Nm	Pin clutch				
	1927K4		610 Nm	Pin clutch				
3/8"	1924B		353 Nm	Pin clutch	1924CD		410 Nm	Double hammer

TORQUE

IMPACT SYSTEMS

DOUBLE HAMMER:

Double hammer

It is composed of two forged, extremely sturdy hammers working alternatively.
This system results in a constant torque increase, and is thus extremely reliable for continuous operation.
The double hammer device is 2.5 times more resistant to wear than the pin clutch device.

Our models: 1924CD, 1927CD, 1927P, 1927MDA, 1927MDA/K4, 1927DA, 1928CD, 1928DA, 1928DAL, 1930CD, 1930NCD, 1930PA, 1930LA, 1930HLA, 1930ZL



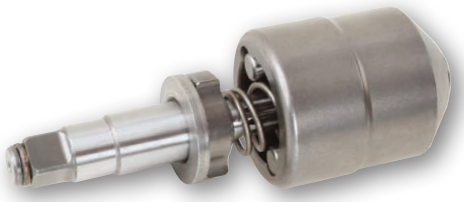




PIN CLUTCH:

It is composed of two hammer pins and hardened, turned parts working in the housing.
The pin clutch device can boast high inertia and an extremely low vibration level.

Our models: 1921I, 1924B, 1927A, 1927K4, 1928K4



Pin Clutch





Impact wrenches



1924B

3/8" CE

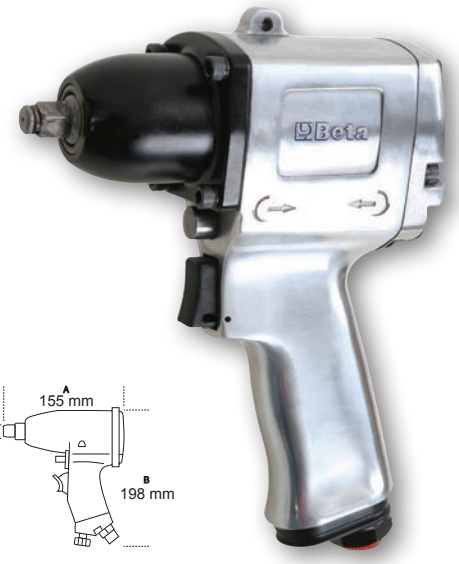
019240021

Pin Clutch

Compact reversible impact wrench

- "Pin Clutch" impulse device
- Lightweight and powerful
- Three power adjustable positions
- Exhaust through handle
- Balancing hook

Free speed	rpm	10.000
Max. torque	Nm	353
Bolt capacity	Cl 8.8	M16 ⬢ 24 mm
Bolt capacity	Cl 12.9	M14 ⬢ 21 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	8
Mean air consumption	l/min	80
Weight	Kg	1,5



1924CD

3/8" CE

019240007

Double Hammer

Reversible impact wrench, made from composite material

- Double hammer impulse device
- Lightweight and well-balanced for enhanced ease of use
- High torque
- Reversible lever
- Three power adjustable screwing positions
- Exhaust through handle
- Silenced

Free speed	rpm	10.000
Max. torque	Nm	410
Bolt capacity	Cl 8.8	M16 ⬢ 24 mm
Bolt capacity	Cl 12.9	M14 ⬢ 21 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	8
Mean air consumption	l/min	79
Weight	Kg	1,3



1927P

1/2" CE

019270008

Reversible impact wrench, made from composite material

- Double hammer impulse device
- Lightweight and well-balanced for enhanced ease of use
- Reversible lever
- Three power adjustable screwing positions
- Exhaust through handle

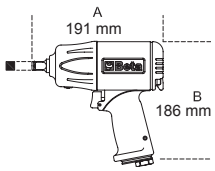


Double Hammer

Free speed	rpm	7.500
Max. torque	Nm	1.750
Bolt capacity	Cl 8.8	M24 ⬣ 36 mm
Bolt capacity	Cl 12.9	M20 ⬣ 30 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	290
Weight	Kg	2







1927CD

1/2" CE

019270007

Reversible impact wrench, made from composite material

- Double hammer impulse device
- Lightweight and well-balanced for enhanced ease of use
- High torque
- Reversible lever
- Three power adjustable screwing positions
- Exhaust through handle
- Silenced

Double Hammer



Free speed	rpm	7.000
Max. torque	Nm	1.020
Bolt capacity	Cl 8.8	M22 ⬣ 34 mm
Bolt capacity	Cl 12.9	M18 ⬣ 27 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	130
Weight	Kg	1,9

1927A

019270002

1/2" CE

Reversible impact wrench

- "Pin Clutch" impulse device
- Reversible lever
- Three power adjustable screwing positions
- Exhaust through handle
- Balancing hook

Pin Clutch

Free speed	rpm	7.000
Max. torque	Nm	610
Bolt capacity	CI 8.8	M22 ⬣ 34 mm
Bolt capacity	CI 12.9	M18 ⬣ 27 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	160
Weight	Kg	2,7



1927DA

019270033

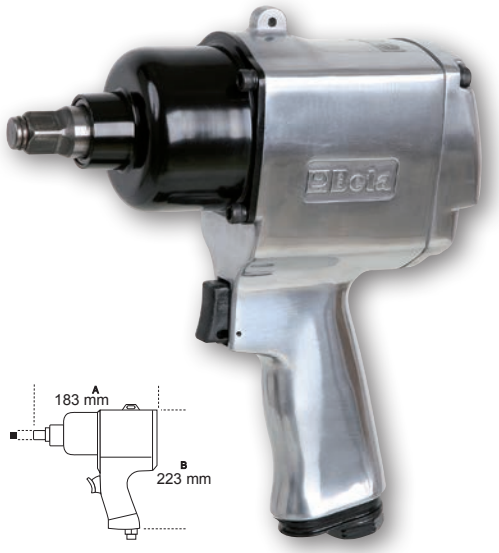
1/2" CE

Reversible impact wrench

- Double hammer impulse device
- Sturdy and powerful
- Reversible lever
- Three power adjustable screwing positions
- Exhaust through handle
- Balancing hook

Double Hammer

Free speed	rpm	7.000
Max. torque	Nm	650
Bolt capacity	CI 8.8	M22 ⬣ 34 mm
Bolt capacity	CI 12.9	M18 ⬣ 27 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	155
Weight	Kg	2,7



1927K4

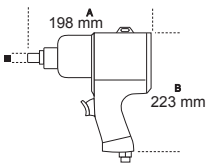
019270104

1/2" CE

Assortment of one reversible impact wrench and four impact sockets, long series

- "Pin Clutch" impulse device
- Reversible lever
- Three power adjustable screwing positions
- Exhaust through handle
- Balancing hook

Pin Clutch





◎ **720L** 17-19-21-22 mm

Free speed	rpm	7.000
Max. torque	Nm	610
Bolt capacity	CI 8.8	M22 ⬣ 34 mm
Bolt capacity	CI 12.9	M18 ⬣ 27 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	175
Impact wrench weight	Kg	2,7
Kit weight	Kg	4,7



360x320x85 mm

1927MDA

019270028

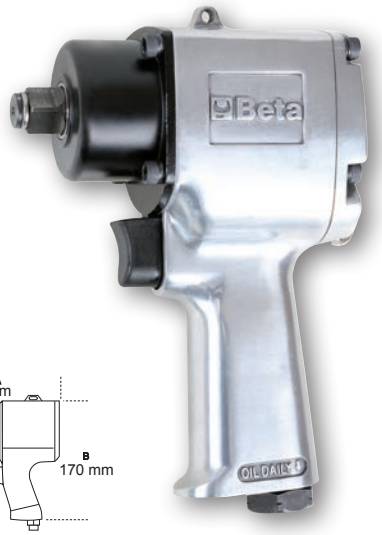
1/2" CE

Compact reversible impact wrench

- Double hammer impulse device
- Amazingly compact and powerful
- Reversible lever
- Three power adjustable screwing and unscrewing positions
- Exhaust through handle



Double Hammer



Free speed	rpm	11.000
Max. torque	Nm	680
Bolt capacity	CI 8.8	M22 ⬢ 34 mm
Bolt capacity	CI 12.9	M18 ⬢ 27 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	160
Weight	Kg	1,6

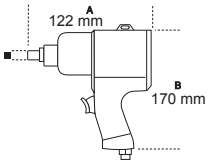
1927MDA/K4

019270128

1/2" CE

Assortment of one compact reversible wrench and four impact sockets

- Double hammer impulse device
- Amazingly compact and powerful
- Reversible lever
- Three power adjustable screwing and unscrewing positions
- Exhaust through handle
- Impact sockets
- 2 couplings



Double Hammer



◎ **720** 17-19-22-24 mm

Free speed	rpm	11.000
Max. torque	Nm	680
Bolt capacity	CI 8.8	M22 ⬢ 34 mm
Bolt capacity	CI 12.9	M18 ⬢ 27 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	160
Impact wrench weight	Kg	1,6
Kit weight	Kg	3,1



300x250x80 mm

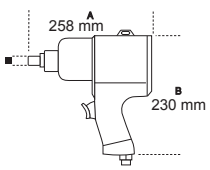
1928K4

019280104

3/4" CE

Assortment of one reversible impact wrench and four impact sockets, long series

- "Pin Clutch" impulse device
- Reversible lever
- Three power adjustable positions
- Exhaust through handle
- Slip-proof handle



Pin Clutch



◎ **728L** 27-30-32-36 mm

Free speed	rpm	4.000
Max. torque	Nm	1.493
Bolt capacity	CI 8.8	M27 ⬢ 41 mm
Bolt capacity	CI 12.9	M24 ⬢ 36 mm
Air inlet	GAS	3/8"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	260
Impact wrench weight	Kg	5,2
Kit weight	Kg	9,3



410x330x106 mm

1928DA

3/4" CE

019280022

Reversible impact wrench

- Double hammer impulse device
- Sturdy and compact; high torque
- Reversible lever
- Three power adjustable positions
- Exhaust through handle
- Slip-proof ergonomic handle

Double Hammer



Free speed	rpm	5.000
Max. torque	Nm	1.695
Bolt capacity	Cl 8.8	M27 ⬢ 41 mm
Bolt capacity	Cl 12.9	M24 ⬢ 36 mm
Air inlet	GAS	3/8"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	240
Weight	Kg	4,3

1928DAL

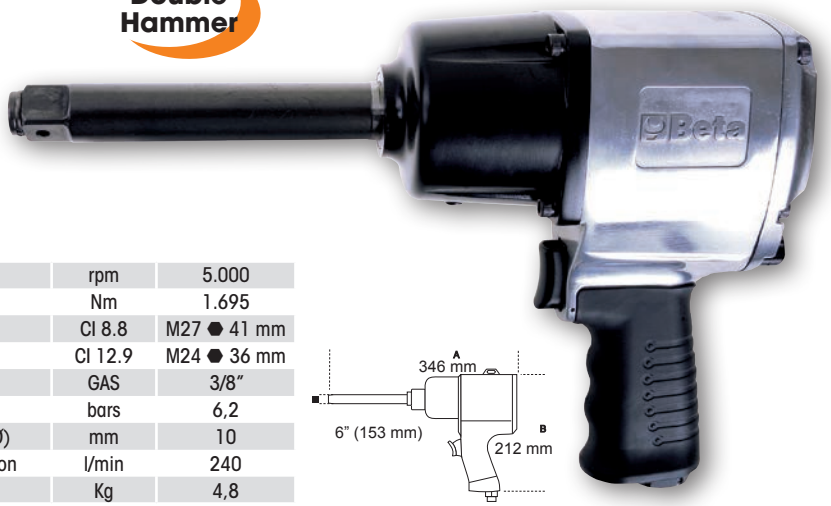
3/4" CE

019280023

Reversible impact wrench

- Double hammer impulse device
- 6" long anvil
- Sturdy and compact; high torque
- Reversible lever
- Three power adjustable positions
- Exhaust through handle
- Slip-proof ergonomic handle

Double Hammer



Free speed	rpm	5.000
Max. torque	Nm	1.695
Bolt capacity	Cl 8.8	M27 ⬢ 41 mm
Bolt capacity	Cl 12.9	M24 ⬢ 36 mm
Air inlet	GAS	3/8"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	240
Weight	Kg	4,8

1928CD

3/4" CE

019280007

Reversible impact wrench, made from composite material

- Double hammer impulse device
- High weight/power ratio
- Reversible lever
- Three power adjustable screwing positions
- Exhaust through handle
- Silenced

Double Hammer



Free speed	rpm	4.500
Max. torque	Nm	1.800
Bolt capacity	Cl 8.8	M27 ⬢ 41 mm
Bolt capacity	Cl 12.9	M24 ⬢ 36 mm
Air inlet	GAS	3/8"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	215
Weight	Kg	3,5

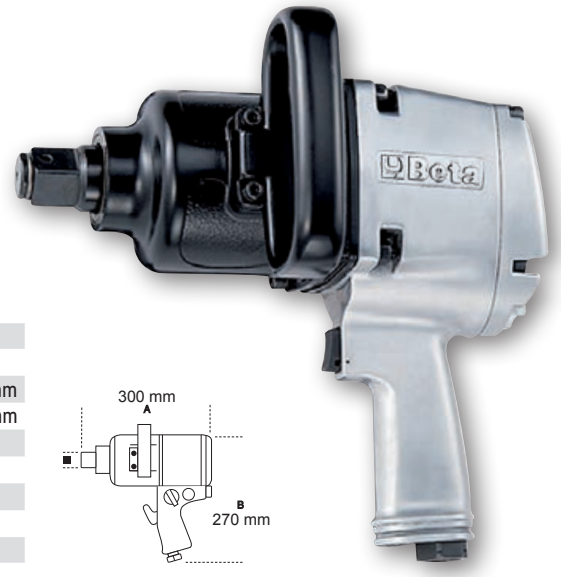
1930PA 1" CE

019300032

Reversible impact wrench

- Double hammer impulse device
- Extremely lightweight and compact
- Auxiliary handle
- Reversible lever
- Three power adjustable positions
- Exhaust through handle

Double Hammer



Free speed	rpm	3.500
Max. torque	Nm	2.445
Bolt capacity	CI 8.8	M36 ● 55 mm
Bolt capacity	CI 12.9	M30 ● 46 mm
Air inlet	GAS	1/2"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	13
Mean air consumption	l/min	350
Weight	Kg	9,6

1930LA 1" CE

019300037

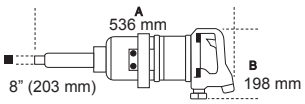
Reversible impact wrench

- Double hammer impulse device
- 8" long anvil
- Auxiliary handle
- Reversible lever
- Three power adjustable screwing positions
- Lower exhaust

Double Hammer



Free speed	rpm	4.000
Max. torque	Nm	2.445
Bolt capacity	CI 8.8	M36 ● 55 mm
Bolt capacity	CI 12.9	M30 ● 46 mm
Air inlet	GAS	1/2"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	13
Mean air consumption	l/min	460
Weight	Kg	10,6



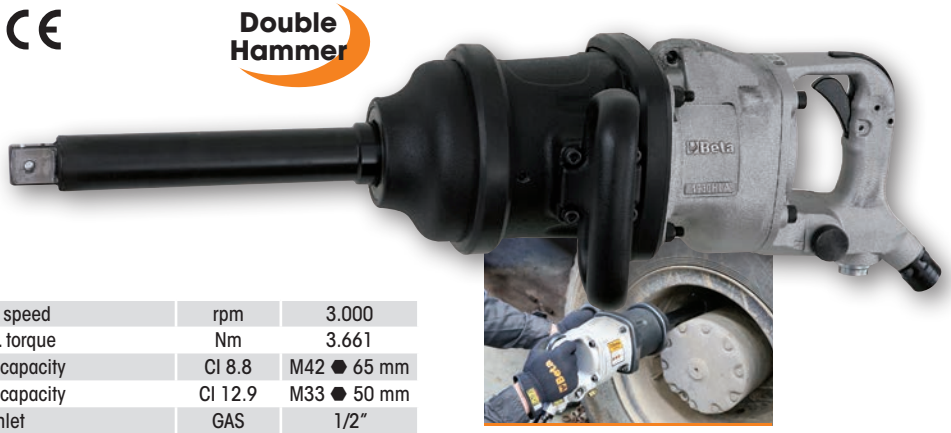
1930HLA 1" CE

019300040

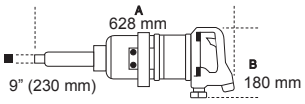
Reversible impact wrench

- Double hammer impulse device
- 9" long anvil
- Auxiliary handle
- Reversible lever
- Three power adjustable screwing positions
- Upper exhaust

Double Hammer



Free speed	rpm	3.000
Max. torque	Nm	3.661
Bolt capacity	CI 8.8	M42 ● 65 mm
Bolt capacity	CI 12.9	M33 ● 50 mm
Air inlet	GAS	1/2"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	13
Mean air consumption	l/min	460
Weight	Kg	16,4



1930CD

019300022

1" CE

Reversible impact wrench, made from composite material

Double Hammer

- Double hammer impulse device
- Extremely lightweight and compact
- Auxiliary handle
- Reversible lever
- Three power adjustable screwing positions
- Exhaust through handle



Free speed	rpm	4.000
Max. torque	Nm	2.445
Bolt capacity	Cl 8.8	M36 ⬢ 55 mm
Bolt capacity	Cl 12.9	M30 ⬢ 46 mm
Air inlet	GAS	1/2"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	13
Mean air consumption	l/min	320
Weight	Kg	7,1

1930NCD

019300027

1" CE

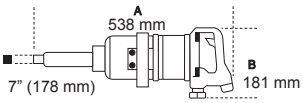
Reversible impact wrench, made from composite material

Double Hammer

- Double hammer impulse device
- One of the most lightweight in its category
- 7" long anvil
- Auxiliary handle
- Reversible lever
- Three power adjustable screwing positions
- Lower exhaust



Free speed	rpm	4.000
Max. torque	Nm	2.445
Bolt capacity	Cl 8.8	M36 ⬢ 55 mm
Bolt capacity	Cl 12.9	M30 ⬢ 46 mm
Air inlet	GAS	1/2"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	13
Mean air consumption	l/min	320
Weight	Kg	8,8



1930ZL

019300070

1½" CE

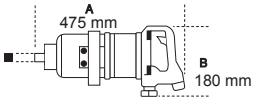
Reversible impact wrench

Double Hammer

- Double hammer impulse device
- Auxiliary handle
- Reversible lever
- Three power adjustable screwing positions
- Upper exhaust



Free speed	rpm	3.000
Max. torque	Nm	4.068
Bolt capacity	Cl 8.8	M42 ⬢ 65 mm
Bolt capacity	Cl 12.9	M36 ⬢ 55 mm
Air inlet	GAS	1/2"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	13
Mean air consumption	l/min	480
Weight	Kg	15





1921B1 > 1/4" CE

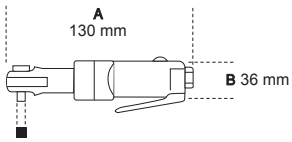
019210001

Baby reversible air ratchet

- Extremely lightweight and compact
- Housing made of composite material
- Screw speed regulator
- Silenced rear exhaust



Free speed	rpm	350
Max. torque	Nm	24
Bolt capacity	Cl 8.8	M7 ⬣ 11 mm
Bolt capacity	Cl 12.9	M6 ⬣ 10 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	8
Mean air consumption	l/min	68
Weight	Kg	0,4



1921M1 > 1/4" CE

019210005

1921M2 > 3/8" CE

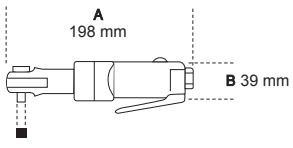
019210015

Compact reversible air ratchet

- Ergonomic rubber handle
- Rubber cap
- Knob speed regulator
- Silenced, adjustable rear exhaust
- Swivel air inlet



		1921M1	1921M2
Free speed	rpm	200	200
Max. torque	Nm	27	27
Bolt capacity	Cl 8.8	M7 ⬣ 11 mm	M7 ⬣ 11 mm
Bolt capacity	Cl 12.9	M6 ⬣ 10 mm	M6 ⬣ 10 mm
Air inlet	GAS	1/4"	1/4"
Working pressure	bars	6,2	6,2
Internal hose size (Ø)	mm	8	8
Mean air consumption	l/min	96	96
Weight	Kg	0,6	0,6



1921N3 ❯ 1/2" CE

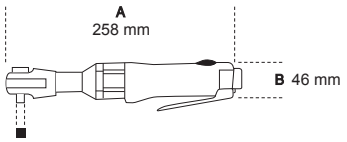
019210025

Reversible ratchet

- Ergonomic rubber handle
- Rubber cap
- Knob speed regulator
- Silenced, adjustable rear exhaust
- Swivel air inlet



Free speed	rpm	150
Max. torque	Nm	68
Bolt capacity	Cl 8.8	M10 ⬣ 16 mm
Bolt capacity	Cl 12.9	M8 ⬣ 13 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	140
Weight	Kg	1,2



19211 ❯ 1/2" CE

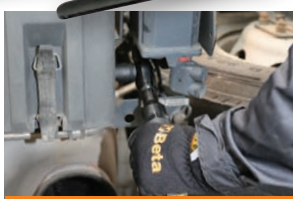
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Impact reversible ratchet

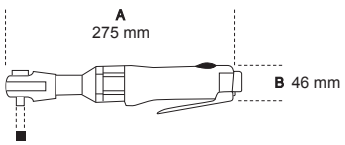
- "Pin Clutch" impulse device
- High Torque (101 Nm)
- Eliminates torque reaction
- Faster than standard ratchets
- Ergonomic rubber handle
- Rear exhaust



Pin Clutch



Free speed	rpm	400
Max. torque	Nm	101
Bolt capacity	Cl 8.8	M10 ⬣ 16 mm
Bolt capacity	Cl 12.9	M8 ⬣ 13 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	235
Weight	Kg	1,3



Beta's impact sockets





1935E

019350040

1/4 CE

Reversible air screwdriver

- Designed for universal and heavy-duty jobs on such materials as wood, plastic, resin and metal
- The power of the motor means this tool must be used with self-threading and self-drilling screws
- Quick release chuck
- Reversible lever
- Exhaust through handle



Free speed	rpm	1800
Torque range	Nm	12
Screw capacity	M	6-9
Bit holder	⬣	1/4"
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	150
Weight	Kg	1,2

1935F

019350045

1/4 CE

Reversible air screwdriver

- Designed for universal and heavy-duty jobs on such materials as wood, plastic, resin and metal
- The power of the motor means this tool must be used with self-threading and self-drilling screws
- Quick release chuck
- Reversible lever
- Exhaust through handle





Free speed	rpm	800
Torque range	Nm	16
Screw capacity	M	6-9
Bit holder	⬣	1/4"
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	150
Weight	Kg	1,3



1931CD6

019310006

ø6 CE

Reversible drill, made from composite material

- Extremely compact, designed for working in small areas
- Autochuck
- Reversible lever
- Exhaust through handle
- Silenced

Free speed	rpm	2.600
Chuck capacity	mm	1÷6
Power	kW	0,23
Spindle thread		3/8" -24UNF
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	8
Mean air consumption	l/min	130
Weight	Kg	0,6



1931CD10

019310010

ø10 CE

Reversible drill, made from composite material

- Lightweight and handy
- Autochuck
- Reversible lever on both sides of machine
- Exhaust through handle
- Silenced



Free speed	rpm	1.800
Chuck capacity	mm	1÷10
Power	kW	0,38
Spindle thread		3/8" -24UNF
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	170
Weight	Kg	1

1931CD13

019310013

ø13 CE

Reversible drill, made from composite material

- Accurate and sturdy
- Autochuck
- Auxiliary handle
- Reversible lever on both sides of machine
- Exhaust through handle
- Silenced



Free speed	rpm	800
Chuck capacity	mm	1÷13
Power	kW	0,38
Spindle thread		1/2" -20UNC
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	170
Weight	Kg	1,3

1931AN10

019310030

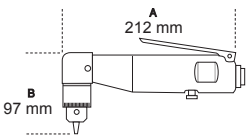
ø10 CE

Reversible angle drill

- Extremely handy
- Slip-proof housing and handle
- Key chuck
- Reversible ring
- Rear exhaust
- Silenced



Free speed	rpm	1.400
Chuck capacity	mm	1÷10
Power	kW	0,38
Spindle thread		3/8" -24UNF
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	150
Weight	Kg	1,1



1932B10

019320040

ø10 CE

Reversible drill

- Sturdy and handy
- Autochuck
- Reversible lever
- Slip-proof handle
- Exhaust through handle



Free speed	rpm	1.800
Chuck capacity	mm	1÷10
Power	kW	0,44
Spindle thread		3/8" -24UNF
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	160
Weight	Kg	1,2

1932RS13

019320043

ø13 CE

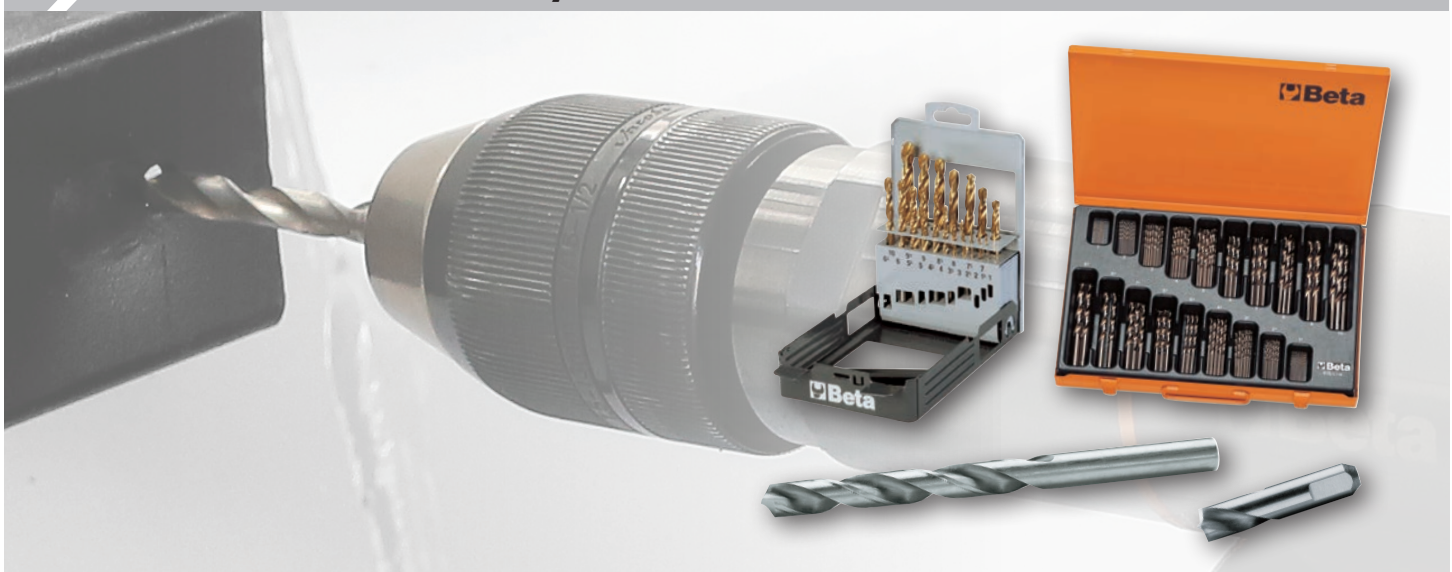
Reversible drill

- Powerful and sturdy
- Autochuck
- Reversible lever
- Slip-proof handle
- Exhaust through handle



Free speed	rpm	750
Chuck capacity	mm	1,5÷13
Power	kW	0,55
Spindle thread		1/2" -20UNC
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	160
Weight	Kg	1,4

Beta's twist drills with cylindrical shanks





Die grinders

1933
019330001

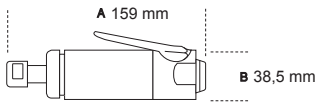
CE



Die grinder

- Lightweight and handy
- Slip-proof housing and handle
- Excellently balanced through two ball bearings
- Knob speed regulator
- Swivel air inlet
- Silenced rear exhaust
- Safety lever device
- Collect chuck, 3 mm and 6 mm

Free speed	rpm	25.000
Chuck capacity	mm	3-6
Power	kW	0,20
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	230
Weight	g	380



1933I
019330005

CE

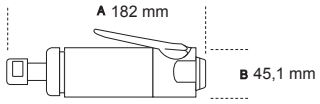




Die grinder

- Designed for heavy and long duty jobs, as the result of high power
- Slip-proof housing and handle
- Mounted on ball bearings
- Knob speed regulator
- Swivel air inlet
- Silenced rear exhaust
- Safety lever device
- Collect chuck, 3 mm and 6 mm

Free speed	rpm	20.000
Chuck capacity	mm	3-6
Power	kW	0,38
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	220
Weight	g	670



1933L

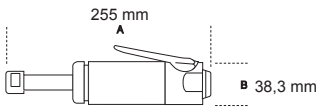
019330015

Long spindle die grinder

- Due to its 4" long spindle, this tool can be used to reach deep cavities and small areas
- Slip-proof housing and handle
- Mounted on ball bearings
- Knob speed regulator
- Swivel air inlet
- Silenced rear exhaust
- Safety lever device
- Collect chuck, 3 mm and 6 mm



Free speed	rpm	25.000
Chuck capacity	mm	3-6
Power	kW	0,20
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	230
Weight	g	670



1933IL

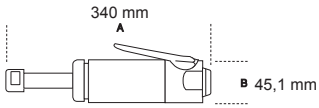
019330010

Long spindle die grinder

- Based on its high power, it is recommended for heavy-duty, prolonged jobs
- Antislip housing and handle
- Mounted on ball bearings
- Knob speed regulator
- Swivel air inlet
- Silenced rear exhaust
- Safety lever device
- Collect chuck, 3 mm and 6 mm



Free speed	rpm	20.000
Chuck capacity	mm	3-6
Power	kW	0,38
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	230
Weight	Kg	1,4



1933AN90

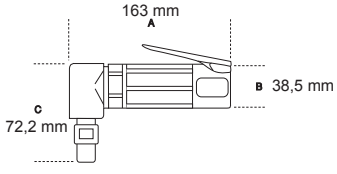
019330020

Angle grinder

- The 90° slanted head and the spindle mounted on ball bearings translate into accurate jobs in small areas
- Slip-proof housing and handle
- Mounted on ball bearings
- Knob speed regulator
- Swivel air inlet
- Silenced rear exhaust
- Safety lever device
- Collect chuck, 3 mm and 6 mm



Free speed	rpm	20.000
Chuck capacity	mm	3-6
Power	kW	0,20
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	230
Weight	g	510



1934BV

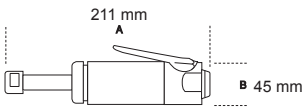
019340000

Low-speed tyre buffer

- Ideal for patching, roughing up, recapping and cleaning tyre mouldings
- Double sided tape residue removal
- Lightweight and handy
- Knob speed regulator
- Safety lever device
- Collect chuck, 3 mm and 6 mm
- Rear exhaust



Free speed	rpm	3.700
Chuck capacity	mm	3-6
Power	kW	0,37
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	113
Weight	g	840



Micro die grinders

1934MAV

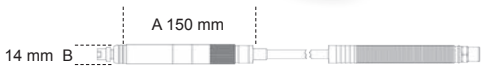
019340010

Micro die grinder

- High speed
- Compact, lightweight, for remarkable ease of handling
- Protected 1.5 m-long cable
- 56,000 rpm



Free speed	rpm	56.000
Chuck capacity	mm	3
Power	kW	0,4
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	4,5
Mean air consumption	l/min	115
Weight	g	200



1934MAV70

019340030

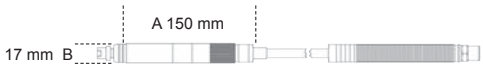
High-speed micro die grinder

- High-speed
- Compact, lightweight, for remarkable ease of handling
- Protected 1.5-m-long hose
- 70,000 rpm





Free speed	rpm	70.000
Chuck capacity	mm	3
Power	kW	0,8
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	4,5
Mean air consumption	l/min	115
Weight	g	210



Angle grinders

1936/4A 019360024 — 1936/5A 019360025 CE

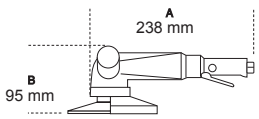
Angle grinder

- Extremely compact and handy
- Air governor for automatically controlling top speed
- Right-hand/left-hand auxiliary handle
- Spindle lock button
- Accessory for quickly changing discs
- Safety cap can be quickly adjusted in nine different positions through quick release





		1936/4A	1936/5A
Free speed	rpm	11.000	10.000
Grinding disc size	mm	115	125
Power	kW	0,66	0,66
Spindle thread	M	14	14
Air inlet	GAS	1/4"	1/4"
Working pressure	bars	6,2	6,2
Internal hose size (Ø)	mm	10	10
Mean air consumption	l/min	390	390
Weight	Kg	1,8	1,9



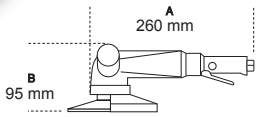
1936/5 019360005 CE

Angle grinder

- Powerful and compact
- Auxiliary handle
- "Lever Lock" safety device prevents accidental starting
- Adjustable side exhaust



Free speed	rpm	10.500
Grinding disc size	mm	125
Power	kW	0,7
Spindle thread	M	14
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	380
Weight	Kg	2



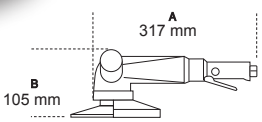
1936/7 019360007 CE

Angle grinder

- Extremely powerful and reliable
- Auxiliary handle
- "Lever Lock" safety device prevents accidental starting
- Adjustable side exhaust



Free speed	rpm	7000
Grinding disc size	mm	178
Power	kW	1,4
Spindle thread	M	14
Air inlet	GAS	3/8"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	13
Mean air consumption	l/min	500
Weight	Kg	3,4





1937

019370001

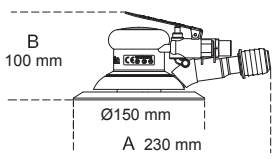
CE

Roto-orbital palm sander, lubrication free, made from composite material

- No lubrication required
- Extremely compact and easy to handle
- Orbit diameter: 5 mm
- 6-hole Velcro pad
- Continuous motor speed adjustment
- Antislip, soft material handle
- Designed for connection to suction systems with swivel fittings
- Revolving exhaust



Free speed	rpm	12.000
Power	kW	0,18
Pad size	mm	150
Orbit diameter	mm	5
Spindle thread		5/16"-24
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	170
Weight	Kg	1



1937R/P

019370002

6-hole pad, Ø 150 mm, for item 1937



1937M

019370011

Multi-use sander with 16 accessories

- 1 rubber wheel eraser for paint films (Ø105x30.5 mm)
- 1 rubber wheel eraser for water paint films (Ø101x30.5 mm)
- 1 coarse-grain rotary brush (11 mm), angled (for under body protection and mastic, for paint stripping with sandblasting effect)
- 1 coarse-grain rotary brush (23 mm), angled (for under body protection and mastic, for paint stripping with sandblasting effect)
- 1 fine-grain rotary brush (11 mm), straight (for paints, bonds and rust with sandblasting effect)
- 1 fine-grain rotary brush (23 mm), straight (for paints, bonds and rust with sandblasting effect)
- 6 disks made of abrasive fabric
- 1 adaptor for rotary brushes (11 mm)
- 1 adaptor for rubber wheels and rotary brushes (23 mm)
- 1 adaptor for single removal disk
- 1 adaptor for double removal disk

In plastic case

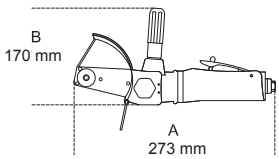






458x495x116 mm

Free speed	rpm	3.500
Power	kW	0,34
Air inlet	GAS	1/4"
Working pressure	Bar	6,2
Internal hose size (Ø)	bars	10
Mean air consumption	l/min	113
Sander weight	Kg	1,5
Kit weight	Kg	4,5



1937M-01÷11

Accessories for item 1937M

		L mm	1937M-
019370101	**1937M-01**	30	
019370102	**1937M-02**	30	
019370103	**1937M-03**	11	
019370104	**1937M-04**	23	
019370105	**1937M-05**	11	
019370106	**1937M-06**	23	
019370107	**1937M-07**	16	
019370108	**1937M-08**	13	07
019370109	**1937M-09**	26	07
019370110	**1937M-10**	23	01, 02, 04, 06
019370111	**1937M-11**	11	03, 05



1937M-01
1937M-02



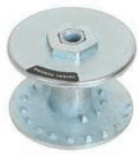
1937M-07



1937M-03
1937M-04



1937M-05
1937M-06



1937M-08
1937M-09
1937M-10
1937M-11

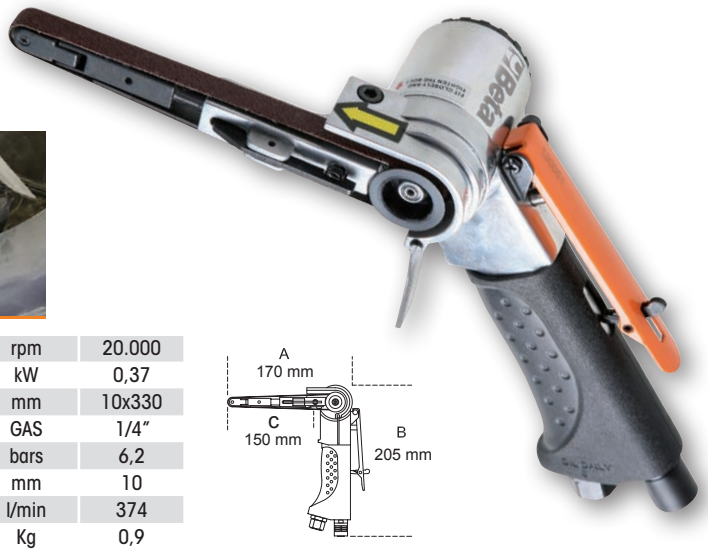
1937N10

019370041

10-mm pneumatic belt sander

- Sander for belts 10x330 mm
- Antislip handle
- Quick-to-replace belt
- Adjustable swivel sanding arm
- Belt safety guard
- Swivel air inlet
- Silenced rear exhaust
- Safety lever device



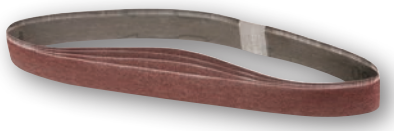


Free speed	rpm	20.000
Power	kW	0,37
Belt size	mm	10x330
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	374
Weight	Kg	0,9

1937N10-GR

Sand belts for item 1937N10

		P
019370146	**1937N10-GR60**	60
019370148	**1937N10-GR80**	80
019370150	**1937N10-GR100**	100
019370152	**1937N10-GR120**	120



1937N20

019370051

20-mm pneumatic belt sander

- High removal capacity based on 20-mm belt
- Antislip handle
- Quick-to-replace belt
- Adjustable swivel sanding arm
- Belt safety guard
- Swivel air inlet
- Silenced rear exhaust
- Safety lever device



Free speed	rpm	16.000
Power	kW	0,45
Belt size	mm	20x520
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	400
Weight	Kg	1,6

1937N20-GR

Sand belts for item 1937N20

		P
019370156	**1937N20-GR60**	60
019370158	**1937N20-GR80**	80
019370160	**1937N20-GR100**	100
019370162	**1937N20-GR120**	120





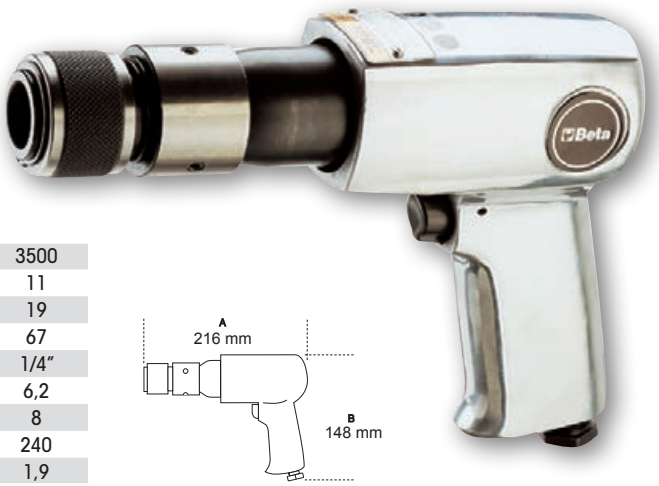
1940

019400001

Air hammer

- This tool can be used for cutting sheet, bolts and bodies, removing welding slags, rivets, plaster and tiles
- Supplied with a spring and a bayonet retainer for hexagon chisels





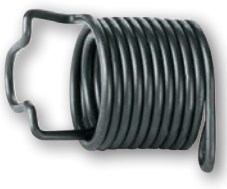
Strokes per minute		3500
Chisel inlet	⬡ mm	11
Piston size	mm	19
Piston stroke	mm	67
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Ø internal hose size	mm	8
Mean air consumption	l/min	240
Weight	Kg	1,9

1940MT

019400110

Spare retainer spring for item 1940

Weight	g	620
Length	mm	47

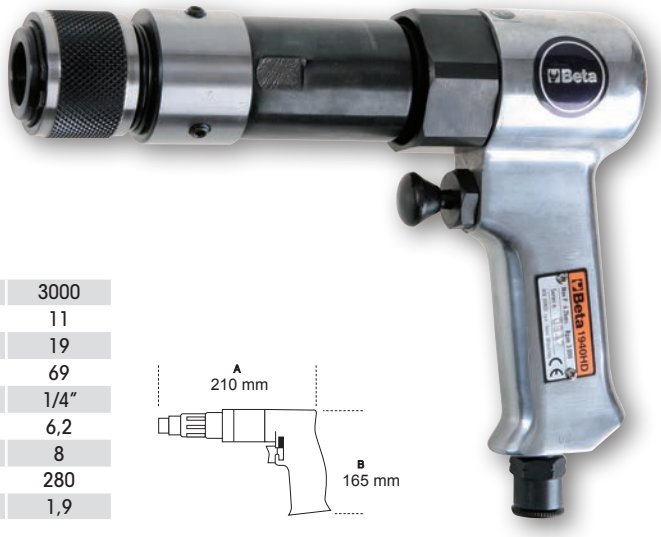


1940HD

019400002

Air hammer

- Designed for long and heavy duty jobs
- Supplied with a spring and a bayonet retainer for hexagon chisels



Strokes per minute		3000
Chisel inlet	⬡ mm	11
Piston size	mm	19
Piston stroke	mm	69
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Ø internal hose size	mm	8
Mean air consumption	l/min	280
Weight	Kg	1,9

1940MT/HD

019400111

Spare retainer spring for item 1940HD

Weight	g	620
Length	mm	47



1940S...

Chisels for air hammers items 1940 and 1940HD

SN Flat chisel
ST Sheet cutting and releasing chisel
SD Pointed chisel
SPS Rivet and welding slag chisel
SDT Sheet angle chisel

		⬢ mm	L mm	g
019400020	**1940SN**	11	175	146
019400021	**1940ST**	11	175	146
019400022	**1940SD**	11	175	140
019400023	**1940SPS**	11	175	146
019400024	**1940SDT**	11	175	146



1940S/5

019400030

Set of 5 chisels for air hammers items 1940 and 1940HD





Windscreen remover

1938 019380021 CE

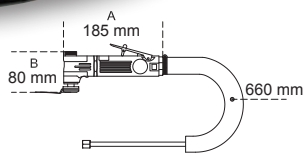
Windscreen remover

- Supplied with 1 57-mm straight blade
- Piped exhaust





Oscillations/minute		20.000
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	6,5
Mean air consumption	l/min	200
Weight	Kg	1

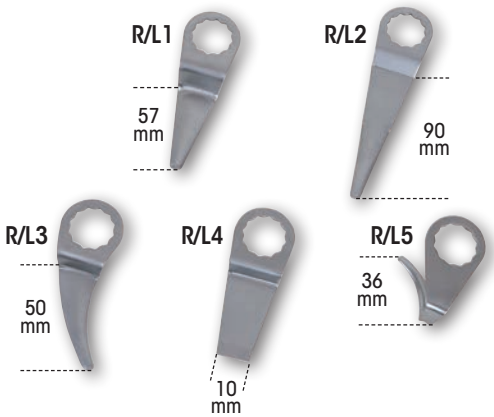


1938R/L

Blades for windscreen removers

1938R/L1 Short straight blade for windscreen removal from inside vehicle
1938R/L2 Long straight blade for windscreen removal from inside vehicle
1938R/L3 Curved flat blade for hard-to-reach areas
1938R/L4 Scraping blade
1938R/L5 Blade with hook for windscreen removal from outside vehicle

019380041	**1938R/L1**
019380042	**1938R/L2**
019380043	**1938R/L3**
019380044	**1938R/L4**
019380045	**1938R/L5**



1938R/S5 019380055 — Set of 5 blades for item 1938

Saws

1942

019420001

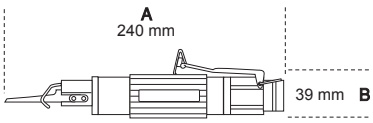
CE



Air saw

- Due to the reduced number of strokes, this handy, powerful tool makes it possible to accurately work on several different materials
- Complete with speed regulator, adjustable blade guide, rubber handle, PVC exhaust and air-feeding hose
- Supplied with a mini-lubricator and two Bimetal blades (32 teeth)
- Rear exhaust

Strokes per minute		5000
Stroke length	mm	10
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Ø internal hose size	mm	6
Mean air consumption	l/min	200
Weight	Kg	1,1



1942S

019420002

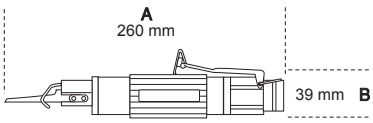
CE



Silenced air saw

- Designed for cutting bodies, exhausts and silencers, aluminium and plastic
- Reduced vibration
- Rear exhaust

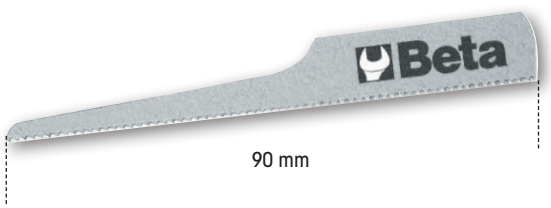
Strokes per minute		9000
Stroke length	mm	10
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Ø internal hose size	mm	8
Mean air consumption	l/min	210
Weight	Kg	0,7



1942LR

019420032

Bimetal blades for air saws items 1942 and 1942S



Riveters

1946

019460001

CE

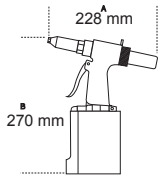
Air riveter

- Lightweight, well-balanced and easy to use
- Supplied with interchangeable nozzles, 2.4 -3.2 – 4.0 – 4.8 mm long, a safety nail container and a balancing hook

Material/ rivet	2,4	3,2	4	4,8
Copper	✔	✔	✔	✔
Aluminium	✔	✔	✔	✔
Steel	✔	✔		
Stainless steel	✔	✔		

Traction power	N	8.000
Stroke length	mm	14
Maximum rivet capacity	Ø aluminium	4,8 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	6
Mean air consumption	l/cycles	1,2
Weight	Kg	1,5





1946C4,8

019460006

CE

Automatic air suction riveter

- Professional air riveter for use with 2.4 - 3.2 - 4.0 - 4.8 mm long steel, stainless steel, aluminium and copper rivets
- Pointed cone-shaped spout
- Powerful and handy, with handle made of composite material
- Complete with safety nail container and oil gun

Material/ rivet	2,4	3,2	4	4,8
Copper	✔	✔	✔	✔
Aluminium	✔	✔	✔	✔
Steel	✔	✔	✔	✔
Stainless steel	✔	✔	✔	✔

Traction power	N	8.900
Stroke length	mm	15
Maximum rivet capacity	Ø aluminium	4,8 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/cycles	2,6
Weight	Kg	1,5



1946C7,8

019460008

CE

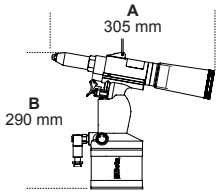
Automatic air suction riveter

- Professional air riveter for use with 4.8 - 5.6 - 6.4 - 7.8 mm long steel, stainless steel, aluminium and copper rivets
- Pointed cone-shaped spout
- Powerful and handy, with composite material handle
- Complete with safety nail container and oil gun

Material/ rivet	4,8	5,6	6,4	7,8
Copper	✔	✔	✔	✔
Aluminium	✔	✔	✔	✔
Steel	✔	✔	✔	✔
Stainless steel	✔	✔	✔	✔

Traction power	N	16.900
Stroke length	mm	22,5
Maximum rivet capacity	Ø aluminium	7,8 mm
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/cycles	4,9
Weight	Kg	1,8





1946KF

019460012

Air riveter for threaded rivets

- Powerful and handy, with handle made of composite material
- For use with steel, stainless steel, aluminium and copper threaded rivets, M4, M5, M6, M8

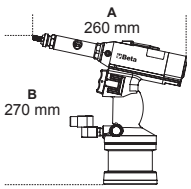
Material/ rivet	M4	M5	M6	M8
Copper	✔	✔	✔	✔
Aluminium	✔	✔	✔	✔
Steel	✔	✔	✔	✔
Stainless steel	✔	✔	✔	✔



340x320x100 mm

Traction power	N	14.235
Stroke length	mm	7
Maximum rivet capacity	Ø stainless steel	M8
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Air consumption	l/cycles	2,1
Air riveter weight	Kg	2,1
Kit weight	Kg	3,4





1946KF/M...

Spare pins for item 1946KF

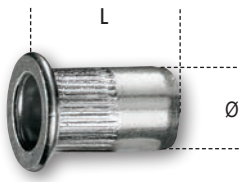
019460124	**1946KF/M4**
019460125	**1946KF/M5**
019460126	**1946KF/M6**
019460128	**1946KF/M8**



1742R-AL/M...

Aluminium threaded rivets for item 1946KF

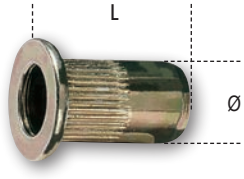
		ØxL mm	M mm
017420024	**1742R-AL/M4**	6x12	4
017420025	**1742R-AL/M5**	7x13	5
017420026	**1742R-AL/M6**	9x15	6



1742R-A/M...

Steel threaded rivets for item 1946KF

		ØxL mm	M mm
017420014	**1742R-A/M4**	6x11	4
017420015	**1742R-A/M5**	7x13	5
017420016	**1742R-A/M6**	9x17	6
017420018	**1742R-A/M8**	11x17	8



Scalers

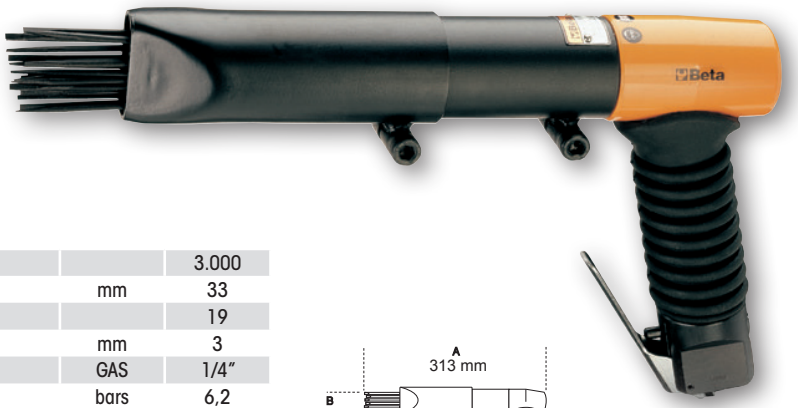
1944

019440001

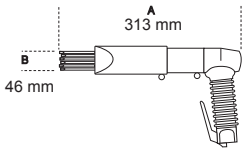
CE

Needle scaler

- This powerful descaler is suitable for removing rust, paint and welding slags from large metal surfaces
- The independently moving 19 steel needles allow access to any kind of fissure, which is necessary for removing mud, lime and concrete from building equipment
- Exhaust through handle



Strokes per minute		3.000
Stroke length	mm	33
N°. of needles		19
Needle size (Ø)	mm	3
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	8
Mean air consumption	l/min	140
Weight	Kg	2,6



1944L

019440021

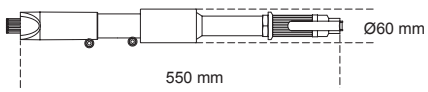
CE

Straight needle scaler

- This extremely powerful descaler is suitable for removing rust, paint and welding slags from large metal surfaces
- The independently moving 28 steel needles allow access to any kind of fissure, which is necessary for removing mud, concrete and mortar residues from building equipment
- Exhaust through handle



Strokes per minute		2.800
Stroke length	mm	33
N°. of needles		28
Needle size (Ø)	mm	3
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	8
Mean air consumption	l/min	250
Weight	Kg	5,4



1944AR

019440005

Set of 19 needles for needle scaler item 1944



1944L/AR

019440025

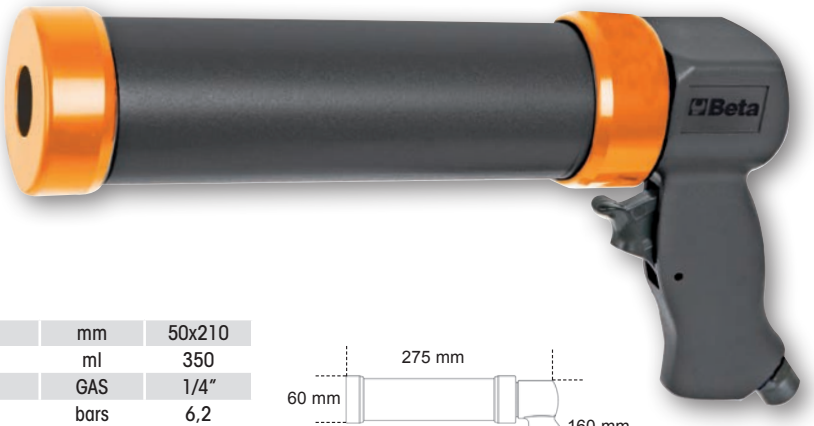
Set of 28 needles for item 1944L

Bonding gun

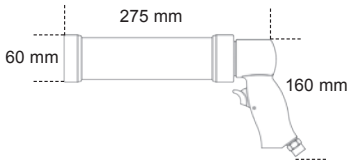
1947 CE
019470001

Bonding gun

- Pneumatic gun for medium-density silicone, adhesives and bonds
- Supports standard cartridges (210 x 50 mm), hard and soft
- Trigger-controlled material flow



Tube size	mm	50x210
Cartridge capacity	ml	350
Air inlet	GAS	1/4"
Working pressure	bars	6,2
Internal hose size (Ø)	mm	10
Mean air consumption	l/min	120
Weight	Kg	1,1

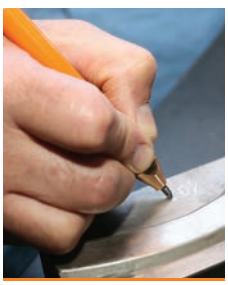


Engraving pen

1948 CE
019480001

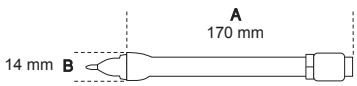
Engraving pen

- Due to its carbide tungsten bit, it allows such materials as steel, glass, stone and ceramics to be marked
- Provided with a speed regulator and a 1.5-m-long PVC air feeding hose





Air inlet	GAS	1/4"
Working pressure	bars	6,2
Mean air consumption	l/min	50
Weight	g	150



1948PR
019480005

Spare carbide bit for item 1948



Blow and tyre inflators



Blow inflators

1949BC

019490022

Progressive blow gun with rubber nozzle

- Durable, shockproof composite material body
- Replaceable scratchproof rubber nozzle

Aluminium threaded insert	GAS	1/4"
Operating pressure	bars	6-8
Maximum operating pressure	bars	15
Mean air consumption	l/min	87
Operating temperature	°C	-20÷70
Weight	g	110



1949BC/RU

019490122

Rubber nozzle for item 1949BC



1949T

019490040

Telescopic progressive blow gun

- Hard-wearing, shockproof composite material body
- Telescopic steel swivel tube: 165 mm ÷ 300 mm



Aluminium threaded insert	GAS	1/4"
Operating pressure	bars	6-8
Maximum operating pressure	bars	15
Mean air consumption	l/min	144
Operating temperature	°C	-20÷70
Weight	g	160



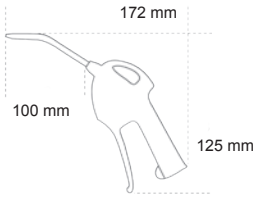
1949F

019490027

Progressive blow gun

- Made from durable, shock-proof, scratch-proof, thermally insulated plastic material
- The special valve and the lever allow the circuit to be progressively opened, thus optimizing air flow





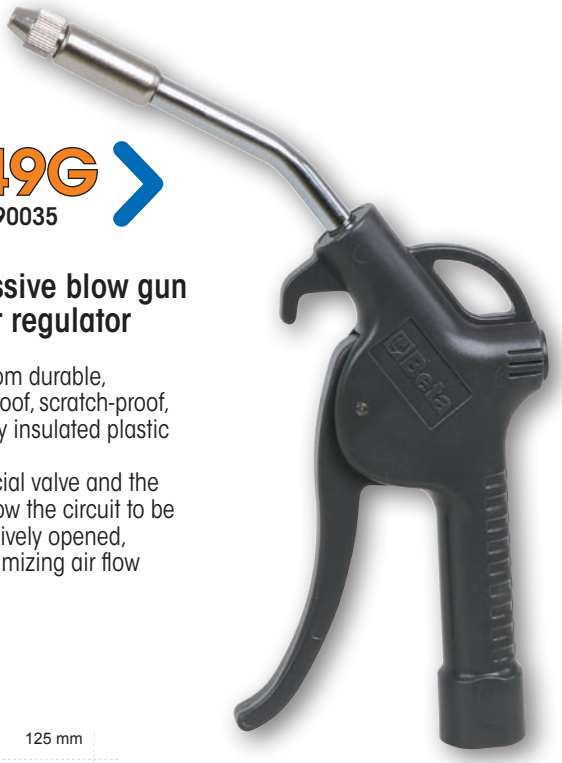
Brass threaded insert	GAS	1/4"
Operating pressure	bars	6-8
Maximum operating pressure	bars	10
Operating temperature	°C	-15÷70
Weight	g	130

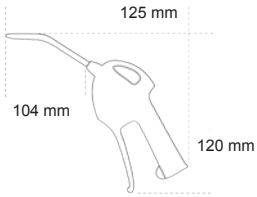
1949G

019490035

Progressive blow gun with air regulator

- Made from durable, shock-proof, scratch-proof, thermally insulated plastic material
- The special valve and the lever allow the circuit to be progressively opened, thus optimizing air flow





Brass threaded insert	GAS	1/4"
Operating pressure	bars	6-8
Maximum operating pressure	bars	10
Operating temperature	°C	-15÷70
Weight	g	140

Tyre inflators

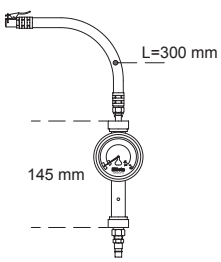
1949GPE

019490008

Tyre inflator

- Operating pressure: 0÷11 bar 10÷160 psi
- Pressure release function
- Pressure measurement function gauge coated with shockproof rubber
- 360 degree hose rotation
- Weight: 640g



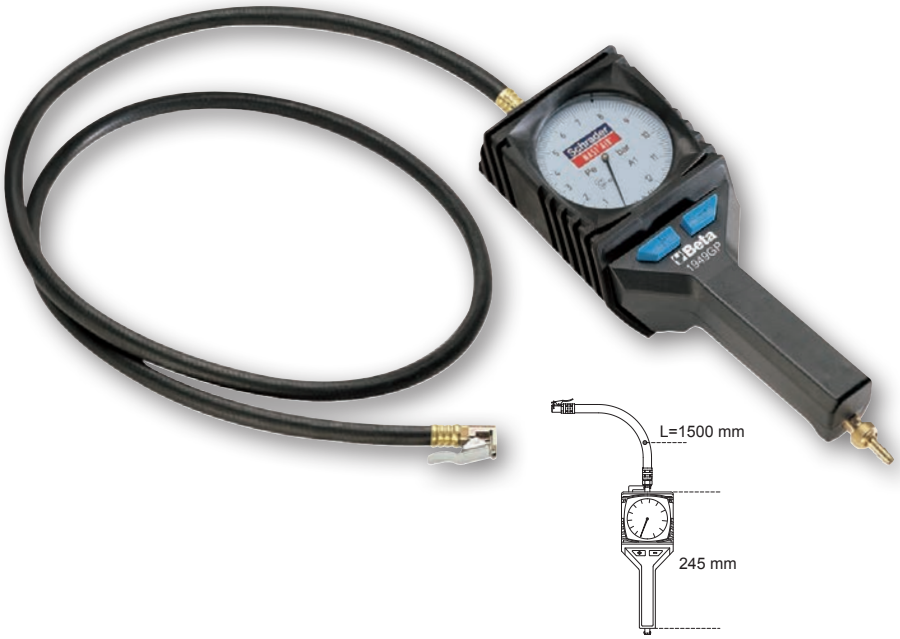


1949GP

019490010

Tyre inflator ABS housing

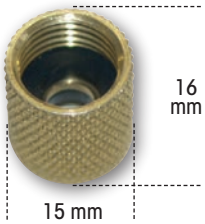
- ABS housing
- The two servo-controlled buttons allow accurate, quick tyre inflating (+) and deflating (-)
- Fitted with a shockproof, protective shell and an eyelet
- Swivel air inlet for rubber hose, Ø 7 mm
- EEC certified pressure gauge with scale 0.7 ÷ 12 bars (graduation: 1/10 bars)
- Weight: 810 g



1949R/NIP

019490113

1/4" GAS threaded coupling for item 1949GP



1949DGT

019490020

Digital tyre inflator

- Operating pressure: 0÷11 bar (2.0÷160 psi)
- 4 units of measurement: psi/bar/ kgcm²/kpa
- Backlit LCD display
- Reset feature
- Self-power off after 3 minutes
- Pressure release button
- Hose length: 53 cm
- Resolution: 0.05 bar
- ABS housing, protective rubber shell on gauge, shockproof, nonslip handle grip
- Power supply: 2 AAA size 1.5 V batteries
- Weight: 500 g



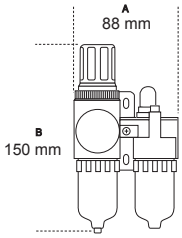


1919FE1/4 ø1/4"

019190200

Filter-regulator-lubricator

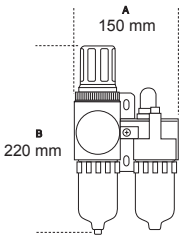
- Modular unit consisting of one condensate separator-filter and one lubricator
- The unit comprises the following: pressure regulator with locking device, air/oil micro-fog mixer with intensity regulator, polycarbonate cups with semiautomatic water exhaust valve, double graduated (bars-psi) analogue pressure gauge and fixing support



Pressure gauge inlet	GAS BSPT	1/4"
Pressure gauge inlet	GAS BSPT	1/8"
Maximum air capacity	l/min	750
Maximum pressure	bars	9,5
Working pressure	bars	0,5-8,5
Working temperature	°C	5÷60
Filter capacity	micron	5
Cup capacity	cc	15 air/25 oil
Weight	Kg	0,7



1919F 1/4-3/8-1/2 ø1/4" ø3/8" ø1/2"



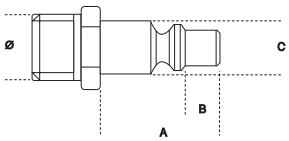
		019190250 1919F1/4	019190350 1919F3/8	019190450 1919F1/2
Pressure gauge inlet	GAS BSPT	1/4"	3/8"	1/2"
Maximum air capacity	l/min	1000	1350	2500
Maximum pressure	bars	9,5	9,5	9,5
Working pressure	bars	0,5-8,5	0,5-8,5	0,5-8,5
Working temperature	°C	5÷60	5÷60	5÷60
Filter capacity	micron	5	5	5
Cup capacity	cc	60 air/90 oil	60 air/90 oil	60 air/90 oil
Weight	Kg	1,3	1,3	1,3



1919ML

Mini lubricators

- Designed to lubricate tool where a filter group may not be used



	Ø	A mm	B mm	C mm	g
019190030	1/4"	63	48	33	55
019190032	3/8"	69	52	34	62

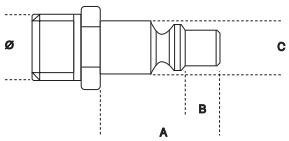


1919SC

019190035

Mini water separator

- Designed for tools to be used in the open air and in areas with sudden changes in temperature



Ø	A mm	B mm	C mm	g
1/4"	88	78	40	111



1919L

019190050

ISO 32 lubricating oil

- Specially formulated for high performance on air tools
- The paraffin bases and the special additives allow:
  - unparalleled wear resistance
  - remarkable water resistance
  - low carbon residue
  - low freezing point and high rust resistance

Bottle quantity	cc	500
Density 20°C	Kg/m³	875
Viscosity 40°C	cSt	32
Flammability COC	°C	210
Freezing	°C	-33
Weight	g	620



1750M

017500025

Mini grease gun

- With micro nozzle
- Particularly suitable for pneumatic tools

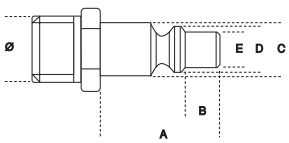




1916I

Quick couplings Italian profile

- Made of zinc-plated carbonitrided steel, male threaded (BSP)



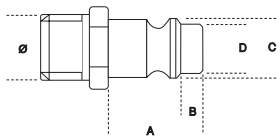
	Ø BSP	A mm	B mm	C mm	D mm	E mm	g
019160001	1/4"	24,5	7,7	12	10,4	7,5	23
019160002	3/8"	24,5	7,7	12	10,4	7,5	28



1916G

Quick couplings European profile

- Made of zinc-plated carbonitrided steel, male threaded, tapered (BSPT)



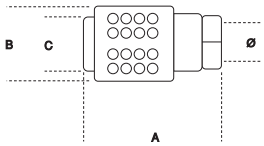


	Ø BSPT	A mm	B mm	C mm	D mm	g
019160005	1/4"	21	6	12	10	19
019160010	3/8"	21	6	12	10	24
019160012	1/2"	21	6	12	10	38

1917M

Universal ball quick couplers, shockproof rubber

- Made from nickel-plated brass
- Specially designed for all couplings with Italian and European profiles
- Male threaded (BSP)



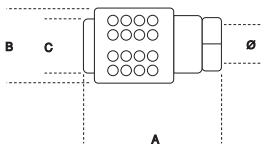


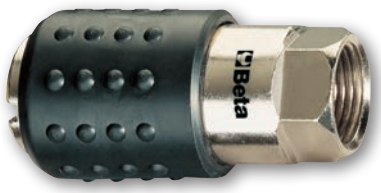
	Ø BSP	A mm	B mm	C mm	g
019170001	1/4"	53,3	27	19,5	85
019170003	3/8"	53,3	27	19,5	71
019170004	1/2"	54,5	27	19,5	88

1917F

Universal ball quick couplers, shockproof rubber

- Made from nickel-plated brass
- Specially designed for all couplings with Italian and European profiles
- Female threaded (BSP)





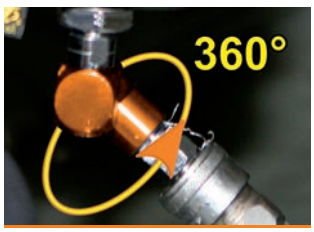
	Ø BSP	A mm	B mm	C mm	g
019170005	1/4"	50	27	19,5	108
019170010	3/8"	54	27	19,5	100

1917RS

019170250

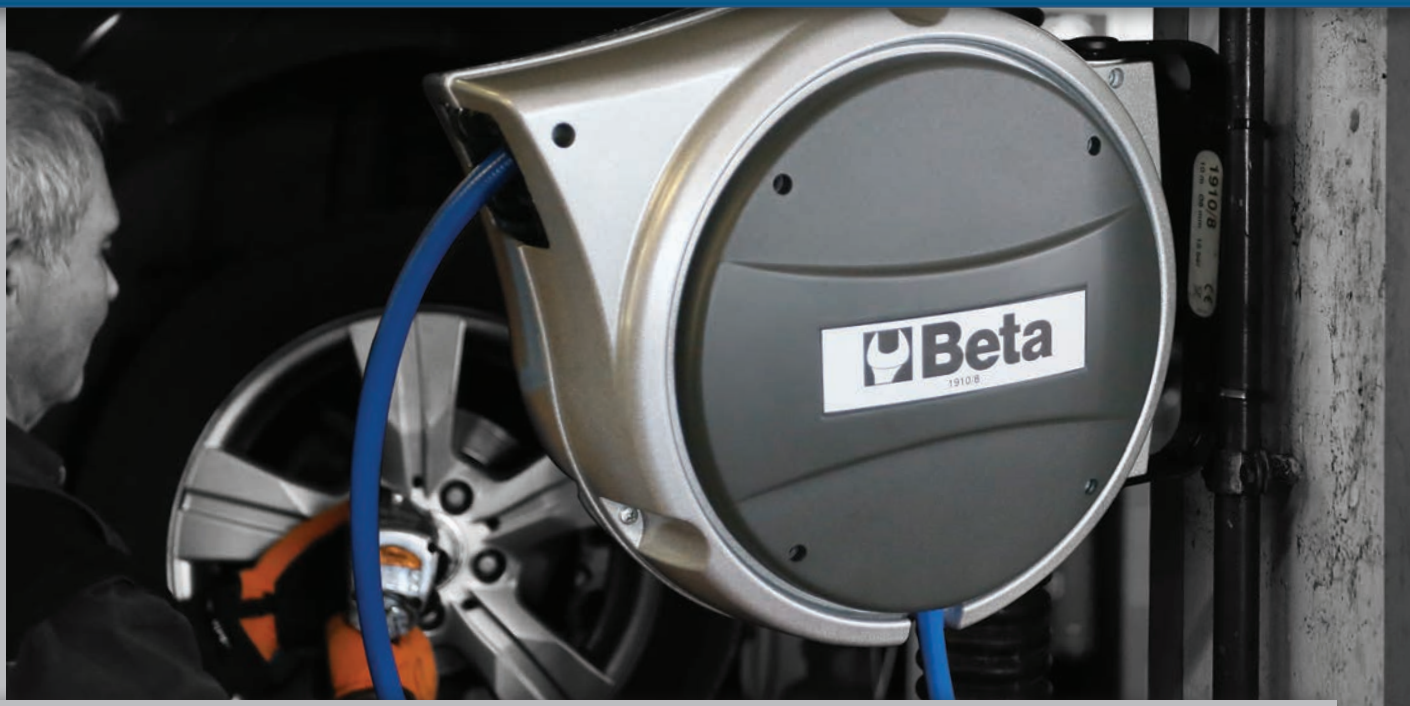
Rotary universal coupler

- Made of orange anodized aluminium female threaded, GAS cylindrical (BSP) male threaded, GAS conical (BSPT)
- Matches all joints with Italian and European profiles



Ø BSP	Ø BSPT	g
1/4"	1/4"	57



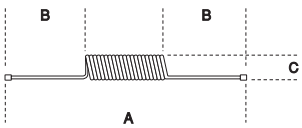


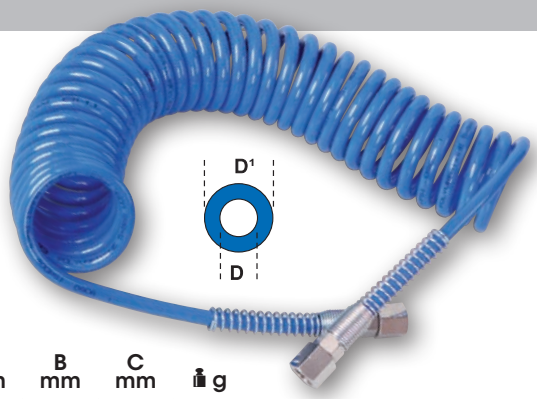
Hoses & Recoil hoses

1914

Polyurethane recoiled hoses, 98 Shore, extendable

- Made up of polyester elastomers, which enhance flexibility even at low temperatures, thereby producing an outstanding memory effect
- Female/female threaded connectors with spring



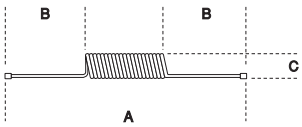


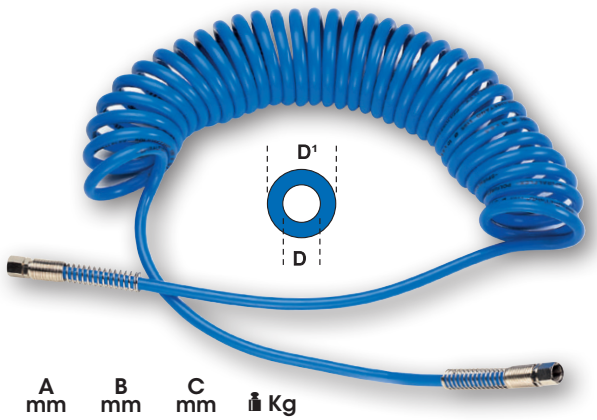
		Ø BSP	DxD1 mm	A mm	B mm	C mm	g
4 m	019140054	1/4"	5x8	200	180	60	250
6 m	019140056	1/4"	5x8	300	220	60	320
10 m	019140060	1/4"	5x8	500	250	60	500

1915B 1915C

Polyurethane recoil hoses, 95 Shore, 9 m and 12 m long

- Consisting of polyester elastomers, which enhance flexibility at low temperatures, thereby producing an outstanding memory effect
- Female/female threaded connectors with spring



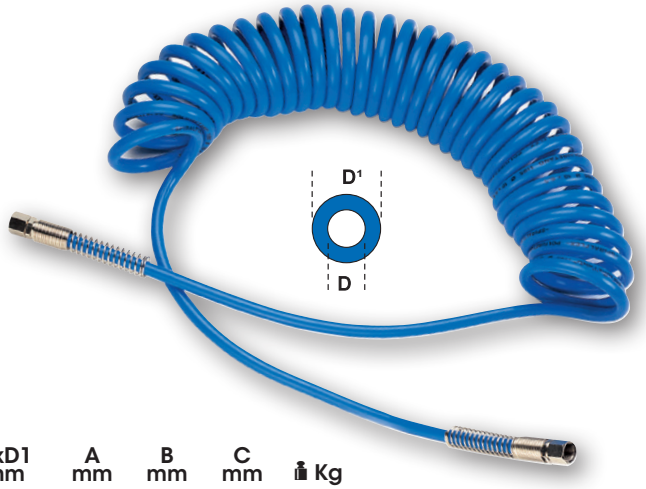


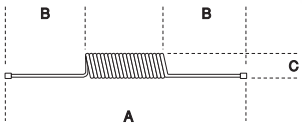
		Ø BSP	DxD1 mm	A mm	B mm	C mm	Kg
9 m	019150011	1/4"	6,5x10	1290	410	65	0,8
	019150012	1/4"	8x12	1260	410	80	1,1
	019150013	3/8"	11x16	1260	410	110	1,5
12 m	019150014	1/4"	6,5x10	1500	435	65	1
	019150015	1/4"	8x12	1400	400	80	1,4
	019150016	3/8"	11x16	1550	435	110	2,3

1915C/L

Polyurethane recoil hoses, 95 Shore, extendable up to 15 m

- Consisting of polyester elastomers, which enhance flexibility - for example, at low temperatures -, thereby producing an outstanding memory effect
- Female/female threaded connectors with spring





		Ø BSP	DxD1 mm	A mm	B mm	C mm	Kg
15 m	019150115	1/4"	8x12	163	420	80	1,2
	019150116	3/8"	11x16	179	440	110	2,1

1915D 1915E

Braided polyurethane hose, 95 Shore, 9 m and 12 m long

- Flexible, lightweight, durable hoses, designed for maintenance jobs in small and open areas
- Resistant to low temperature (– 40 °C)
- Female/female threaded connectors





		Ø BSP	DxD1 mm	Kg
9 m	019150017	1/4"	8x12	0,85
	019150018	3/8"	11x16	1,5
12 m	019150019	1/4"	8x12	1,2
	019150020	3/8"	11x16	1,9

1915E/XL

Braided polyurethane coils, 95 Shore, 50 m long

- Flexible, lightweight, hard-wearing
- Resistant to low temperatuare (-40 °C)





		Ø BSP	DxD1 mm	Kg
50 m	019150519	1/4"	8x12	3,6
	019150520	3/8"	11x16	6

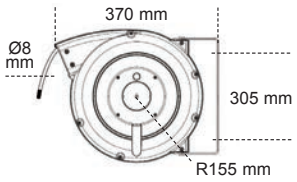
Hose reels

1901BM/8 CE

019010111

Automatic hose reel

- Shock-proof plastic body, for compressed air or cold water
- Maximum operating pressure: 12 bars



Air inlet	GAS	1/4"
Hose length	m	9
Maximum pressure	bars	12
Weight	Kg	3,5

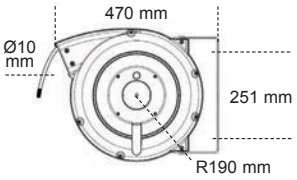


1901/10 CE

019010010

Automatic hose reel

- Shock-proof plastic body, for compressed air or cold water
- Maximum operating pressure: 12 bars



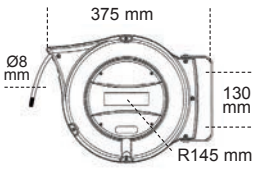
Air inlet	GAS	3/8"
Hose length	m	15
Maximum pressure	bars	12
Weight	Kg	6

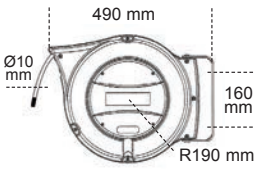


1910/8 019100008 — 1910/10 019100010 CE

Automatic hose reel

- Aluminium body, for compressed air or cold water
- Maximum operating pressure: 15 bars
- Polyurethane hose
- Frame made of die-cast aluminium painted with epoxy powder
- Metal clamp, revolving
- Device for automatically fixing hose at desired length



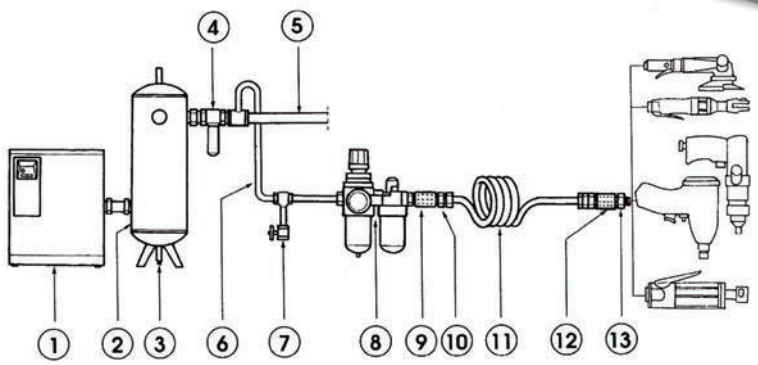


		1910/8	1910/10
Air inlet	GAS	1/4"	3/8"
Hose length	m	9+1	15+1
Maximum pressure	bars	15	15
Weight	Kg	6	9



SYSTEM DIAGRAM

1. Compressor
2. Air tank
3. Automatic condensate drainage system
4. Main filter
5. Centralized system pipe
6. Operating pipe
7. Condensate outlet
8. Filter-regulator-lubricator
9. Tap
10. Quick coupling
11. Pipe
12. Coupler
13. Quick coupling



RULES AND WARNINGS CONCERNING THE CORRECT USE OF PNEUMATIC TOOLS

• It is Beta Utensili's goal to supply pneumatic tools for working efficiently and totally safely.
Pneumatic tools should only be used by trained personnel. The professional user is the most important safety device for any tool, since care and attention provide the best protection against injury. We cannot list all types of risks here; nevertheless, we have tried to emphasize some of the most significant.
• Compressed air can cause severe damage to people.
Periodically check if any pipes and/or couplers are loose and/or damaged.
Before carrying out any jobs on the tool, close the main system, release residual pressure from the pipe and disconnect the tool when it is not working.
Do not exceed the maximum pressure of 6.2 bars measured at the air inlet of the tool while working, or the value stated on the tool plate.
Do not direct air towards yourself or others.
Hose whiplash can cause severe damage.
Pay attention to excessively long pipes left in the workplace. Stumbles and falls are the main cause for severe injury.
• Maintain a sufficient safety distance from the rotating parts of the tools. Do not wear any accessories, like chains, necklaces and bracelets, or loose clothes. Avoid contact between accessories or tools and your hair. Avoid direct contact with moving accessories during and after use. Always wear work gloves to reduce the risk of cuts and burns.
• Pay attention to splinters and smaller fragments, which can cause damage to the eyes. During any jobs (use, maintenance, replacement of accessories, replacement of spare parts) wear protective goggles. The same precaution should be taken by anybody who works in the immediate vicinity. Avoid inhaling dust or slag, partially protecting yourself with anti-dust masks.
• High noise levels can cause permanent hearing loss; use ear protection recommended by your employer and/or regulations. Maintain a safe, balanced body position. Repetitive movements and uncomfortable positions combined with exposure to vibration can damage your hands and arms. Operators and maintenance staff should be physically fit to handle pneumatic tools.
• Periodically remove water from the compressor tank and the feeding system. Correct use of the main system allows for correct operating pressure in all the connected tools.
• With ratchets and impact wrenches, use impact sockets with square drives, fixing them, if the shaft makes it possible, by means of locking pins and O-rings.
• The maximum torque data (Nm) are obtained by testing the machine under optimal (laboratory) conditions.



MAINTENANCE

• Connect the tool to a line filter-lubricator unit (item 1919F...), set at two drops per minute, letting in special oil ISO 32 (item 1919L). Using the above-mentioned accessories will result in remarkable performance and reduced wear of the mechanical parts.
• Do not use oil or diesel.

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• No part of this catalogue may be reproduced without the prior written consent of Beta Utensili S.p.A.
• Beta Utensili S.p.A. reserves the right to remove the items shown in this catalogue from production and the market.
• All figures concerning weights, sizes and performance in this catalogue are approximate and may be modified.

WARRANTY

• The pneumatic tools are manufactured and tested with the utmost care, according to current safety rules, and are covered by 12-month warranty. Any failures due to defective materials or production will be repaired by restoring or replacing the defective pieces at our discretion. Carrying out one or more jobs during the warranty period will not change the date of expiry thereof. The warranty will not cover any defects due to wear, misuse or breakdowns caused by blows and/or falls. In addition, the warranty will no longer be valid if any changes are made, or if the tool is forced or sent to the customer service in pieces. The warranty explicitly excludes any damage caused to people and/or things, whether direct or consequential.

PRELOADS AND DRIVING TORQUES

						Classes of coarse-pitch bolts and nuts											
						4.8		5.8		6.8		8.8		10.9		12.9	
	mm	mm	Coarse pitch mm	Resistant section mm²	Friction coefficient	Preload N	Driving torque Nm	Preload N	Driving torque Nm	Preload N	Driving torque Nm	Preload N	Driving torque Nm	Preload N	Driving torque Nm	Preload N	Driving torque Nm
M2	1,5	4	0,40	2,07	0,10 0,14	488,0 449,5	**0,15** **0,19**	610,6 561,9	**0,19** **0,23**	732,7 674,3	**0,23** **0,28**	976,9 899,0	**0,31** **0,37**	1373,8 1264,3	**0,43** **0,52**	1648,6 1517,1	**0,52** **0,63**
M2,5	2	5	0,45	3,39	0,10 0,14	813,5 749,9	**0,31** **0,38**	1016,9 937,4	**0,39** **0,48**	1220,2 1124,9	**0,47** **0,58**	1627,0 1499,8	**0,63** **0,77**	2288,0 2109,1	**0,88** **1,08**	2745,6 2531,0	**1,06** **1,30**
M3	2,5	5,5	0,50	5,03	0,10 0,14	1219,9 1125,9	**0,54** **0,60**	1524,9 1407,4	**0,68** **0,83**	1829,9 1688,9	**0,82** **1,00**	2439,9 2251,9	**1,09** **1,34**	3431,0 3166,7	**1,53** **1,88**	4117,2 3800,0	**1,84** **2,26**
M3,5	-	6	0,60	6,78	0,10 0,14	1638,2 1511,3	**0,84** **1,03**	2047,8 1889,2	**1,05** **1,28**	2457,3 2267,0	**1,26** **1,54**	3276,4 3022,6	**1,68** **2,05**	4607,5 4250,6	**2,36** **2,89**	5528,9 5100,7	**2,84** **3,47**
M4	3	7	0,70	8,78	0,10 0,14	2115,4 1950,9	**1,25** **1,53**	2644,3 2438,7	**1,56** **1,91**	3173,1 2926,4	**1,88** **2,29**	4230,8 3901,9	**2,50** **3,06**	5949,6 5487,0	**3,52** **4,30**	7139,5 6584,4	**4,22** **5,16**
M5	4	8	0,80	14,2	0,10 0,14	3461,6 3196,8	**2,46** **3,02**	4327,0 3996,0	**3,08** **3,78**	5192,3 4795,2	**3,70** **4,53**	6923,1 6393,7	**4,93** **6,04**	9735,7 8991,1	**6,93** **8,50**	11682,8 10789,3	**8,32** **10,20**
M6	5	10	1	20,1	0,10 0,14	4874,7 4499,1	**4,24** **5,19**	6093,4 5623,9	**5,30** **6,48**	7312,1 6748,6	**6,35** **7,78**	9749,4 8998,2	**8,47** **10,37**	13710,1 12653,7	**11,92** **14,59**	16452,2 15184,4	**14,30** **17,51**
M7	-	11	1	28,9	0,10 0,14	7134,5 6599,6	**6,97** **8,60**	8918,2 8249,5	**8,71** **10,76**	10701,8 9899,4	**10,45** **12,90**	14269,1 13199,2	**13,94** **17,21**	20065,9 18561,4	**19,60** **24,20**	24079,1 22273,6	**23,52** **29,04**
M8	6	13	1,25	36,6	0,10 0,14	8947,1 8265,6	**10,20** **12,54**	11183,9 10332,0	**12,75** **15,67**	13420,7 12398,4	**15,30** **18,80**	17894,2 16531,2	**20,41** **25,07**	25163,7 23247,0	**28,70** **35,26**	30196,5 27896,5	**34,44** **42,31**
M10	8	16	1,50	58	0,10 0,14	14244,5 13167,4	**20,11** **24,76**	17805,6 16459,2	**25,14** **30,95**	21366,8 19751,1	**30,16** **37,14**	28489,0 26334,8	**40,22** **49,52**	40062,7 37033,3	**56,56** **69,64**	48075,3 44439,9	**67,87** **83,56**
M12	10	18	1,75	84,3	0,10 0,14	20766,6 19204,0	**34,43** **42,42**	25958,3 24005,0	**43,03** **53,03**	31149,9 28806,0	**51,64** **63,63**	41533,2 38408,0	**68,86** **84,84**	58406,1 54011,2	**96,83** **119,31**	70087,3 64813,5	**116,20** **143,17**
M14	12	21	2	115	0,10 0,14	28389,9 26261,2	**54,77** **67,56**	35487,4 32826,5	**68,46** **84,45**	42584,9 39391,8	**82,15** **101,34**	56779,8 52522,4	**109,53** **135,13**	79846,6 73859,6	**154,03** **190,02**	95816,0 88631,5	**184,84** **228,03**
M16	14	24	2	157	0,10 0,14	39242,1 36364,2	**85,14** **105,80**	49052,7 45455,3	**106,43** **132,26**	58863,2 54546,3	**127,72** **158,71**	78484,3 72728,5	**170,29** **211,61**	110368,5 102274,4	**239,47** **297,58**	132442,2 122729,3	**287,36** **357,09**
M18	14	27	2,50	192	0,10 0,14	47533,0 43986,1	**117,48** **145,16**	59416,3 54982,7	**146,85** **181,45**	71299,6 65979,2	**176,22** **217,74**	95066,1 87972,3	**234,96** **290,32**	133686,7 123711,0	**330,41** **402,26**	160424,1 148453,2	**396,49** **489,92**
M20	17	30	2,50	245	0,10 0,14	61238,0 56747,1	**166,08** **206,39**	76547,5 70933,9	**207,61** **257,98**	91857,0 85120,6	**249,13** **309,58**	122476,0 113494,2	**332,17** **412,78**	172231,9 156601,2	**467,11** **580,47**	206678,2 191521,5	**560,54** **696,56**
M22	17	34	2,50	303	0,10 0,14	76305,2 70791,9	**227,22** **283,79**	95381,5 88489,8	**284,02** **354,74**	114457,8 106187,8	**340,82** **425,69**	152610,4 141583,7	**454,43** **567,58**	214608,3 199102,1	**639,05** **798,16**	257530,0 238922,5	**766,85** **957,80**
M24	19	36	3	353	0,10 0,14	88232,4 81761,8	**287,16** **356,84**	110290,5 102202,2	**358,94** **446,05**	132348,6 122642,7	**430,73** **535,26**	176464,9 16,523,6	**574,31** **713,68**	248153,7 229955,1	**807,63** **1003,61**	297784,4 275946,1	**969,15** **1204,33**
M27	19	41	3	459	0,10 0,14	115778,8 107441,5	**420,04** **525,08**	144723,5 134301,9	**525,05** **656,35**	173668,2 161162,2	**630,06** **787,62**	231557,6 214883,0	**840,08** **1050,16**	325627,9 302179,2	**1181,36** **1476,79**	390753,4 362615,0	**1417,63** **1772,15**
M30	22	46	3,50	561	0,10 0,14	140999,5 130770,6	**572,83** **714,49**	176249,4 163463,3	**716,03** **893,11**	211499,3 196155,9	**859,24** **1071,73**	281999,0 261541,2	**1145,65** **1428,97**	396561,1 367792,3	**1611,08** **2009,49**	475873,4 441350,8	**1933,29** **2411,39**
M33	24	50	3,50	694	0,10 0,14	175618,1 163058,0	**774,65** **970,43**	219522,6 203822,5	**968,32** **1213,03**	263427,1 244587,0	**1161,98** **1455,64**	351236,2 326115,9	**1549,31** **1940,86**	493925,8 458600,5	**2178,72** **2729,33**	592711,0 550320,6	**2614,46** **3275,19**
M36	27	55	4	817	0,10 0,14	206081,7 191241,8	**998,60** **1248,41**	257602,2 239052,3	**1248,25** **1560,51**	309122,6 286862,7	**1497,89** **1872,61**	412163,5 382483,6	**1997,19** **2496,81**	579604,8 537867,6	**2808,55** **3511,14**	695525,8 645441,1	**3370,26** **4213,37**
M39	-	60	4	976	0,10 0,14	247520,0 229902,6	**1291,81** **1620,96**	309400,0 287378,3	**1614,77** **2026,20**	371279,9 344853,9	**1937,72** **2431,44**	495039,9 459805,2	**2583,63** **3241,92**	696149,8 646601,0	**3633,23** **4558,96**	835379,8 775921,3	**4359,88** **5470,75**
M42	32	65	4,50	1120	0,10 0,14	283225,0 262939,0	**1601,25** **2005,46**	354031,2 328673,8	**2001,57** **2506,83**	424837,4 394408,5	**2401,88** **3008,20**	566449,9 525878,0	**3202,51** **4010,93**	796570,1 739516,0	**4503,53** **5640,37**	955884,2 887419,2	**5404,23** **6768,44**
M45	-	70	4,50	1310	0,10 0,14	332751,5 309151,8	**2005,51** **2519,55**	415939,4 386439,7	**2506,89** **3149,43**	499127,3 463727,7	**3008,26** **3779,32**	665503,0 618303,6	**4011,02** **5039,09**	935863,6 869489,3	**5640,50** **7086,23**	1123036,0 1043387,0	**6768,60** **8503,47**
M48	36	75	5	1470	0,10 0,14	372429,3 345862,9	**2406,51** **3018,11**	465536,6 432328,7	**3008,14** **3772,64**	558644,0 518794,4	**3609,77** **4527,17**	744858,6 691725,8	**4813,03** **6036,23**	1047457,0 972739,4	**6768,32** **8488,45**	1256949,0 1167287,0	**8121,98** **10186,14**
M52	-	80	5	1760	0,10 0,14	448108,9 416499,0	**3099,96** **3900,52**	560136,1 520623,8	**3874,95** **4875,65**	672163,4 624748,5	**4649,93** **5850,78**	896217,8 832998,0	**6199,91** **7801,04**	1260306,0 1171404,0	**8718,63** **10970,21**	1512368,0 1405684,0	**10462,36** **13164,25**
M56	41	85	5,50	2030	0,10 0,14	516202,9 479683,4	**3838,14** **4824,40**	645253,6 599604,2	**4797,68** **6030,50**	774304,4 719525,1	**5757,21** **7236,60**	1032406,0 959366,8	**7676,29** **9648,80**	1451821,0 1349110,0	**10794,78** **13568,63**	1742185,0 1618931,0	**12953,73** **16282,36**
M60	-	90	5,50	2360	0,10 0,14	602498,5 560267,5	**4754,64** **5992,71**	753123,1 700334,4	**5943,30** **7490,88**	903747,8 840401,2	**7131,96** **8989,06**	1204997,0 1120535,0	**9509,28** **11985,42**	1694527,0 1575752,0	**13372,43** **16854,49**	2033432,0 1890903,0	**16046,91** **16282,36**
M64	46	95	6	2680	0,10 0,14	683339,5 635299,9	**5746,71** **7235,13**	854174,4 794124,9	**7182,71** **9043,92**	1025009,0 952949,8	**8619,25** **10852,70**	1366679,0 1270600,0	**11492,34** **14470,27**	1921892,0 1786781,0	**16161,10** **20348,82**	2306271,0 2144137,0	**19393,32** **24418,58**
M68	-	100	6	3060	0,10 0,14	782799,9 728201,8	**6939,64** **8758,24**	978499,8 910252,2	**8674,55** **10947,80**	1174200,0 1092303,0	**10409,46** **13137,36**	1565600,0 1456404,0	**13879,28** **17516,48**	2201625,0 2048068,0	**19517,74** **24632,55**	2641950,0 2457681,0	**23421,29** **29559,06**

Classes of fine-pitch bolts and nuts

						4.8		5.8		6.8		8.8		10.9		12.9	
			Fine pitch	Resistant section	Friction coefficient	Preload	Driving torque	Preload	Driving torque	Preload	Driving torque	Preload	Driving torque	Preload	Driving torque	Preload	Driving torque
	mm	mm	mm	mm²		N	Nm	N	Nm	N	Nm	N	Nm	N	Nm	N	Nm
M8	6	13	1	39,2	0,10 0,14	9798,1 9079,5	**10,87** **13,53**	12247,6 11349,4	**13,59** **16,91**	14697,1 13619,3	**16,31** **20,29**	19596,1 18159,1	**21,75** **27,05**	27557,1 25536,2	**30,58** **38,04**	33068,5 30643,4	**36,70** **45,65**
M10	8	16	1,25	61,2	0,10 0,14	15296,9 14175,0	**21,13** **26,27**	19121,1 17718,8	**26,41** **32,84**	22945,3 21262,6	**31,69** **39,41**	30593,8 28350,1	**42,25** **52,55**	43022,5 39867,3	**59,42** **73,89**	51627,0 47840,8	**71,30** **88,67**
M10	8	16	1	64,5	0,10 0,14	16383,6 15221,6	**22,12** **27,80**	20479,5 19027,0	**27,66** **34,75**	24575,4 22832,5	**33,19** **41,70**	32767,2 30443,3	**44,25** **55,61**	46078,8 42810,8	**62,23** **78,20**	55294,6 51373,0	**74,67** **93,84**
M12	10	18	1,50	88,1	0,10 0,14	22020,7 20405,8	**35,83** **44,53**	27525,9 25507,2	**44,79** **55,66**	33031,0 30608,7	**53,75** **66,79**	44041,4 40811,6	**71,67** **89,06**	61933,2 57391,3	**100,78** **125,24**	74319,8 68869,5	**120,94** **150,29**
M12	10	18	1,25	92,1	0,10 0,14	23333,7 21669,2	**37,26** **46,70**	29167,1 27086,5	**46,57** **58,38**	35000,6 32503,8	**55,88** **70,06**	46667,4 43338,4	**74,51** **93,41**	65626,1 60944,6	**104,78** **131,36**	78751,3 73133,5	**125,74** **157,63**
M14	12	21	1,50	125	0,10 0,14	31610,0 29345,9	**59,04** **73,92**	39512,5 36682,4	**73,80** **92,40**	47415,0 44018,9	**88,57** **110,89**	63220,0 58691,9	**118,09** **147,85**	88903,1 82535,4	**166,06** **207,91**	106683,7 99042,5	**199,27** **249,49**
M16	14	24	1,50	167	0,10 0,14	42581,3 39587,8	**89,78** **113,06**	53226,6 49484,7	**112,33** **141,32**	63871,9 59381,6	**134,67** **169,59**	85162,5 79175,5	**179,56** **226,12**	119759,8 111340,6	**252,51** **317,98**	143711,8 133608,7	**303,02** **381,57**
M18	14	27	2	204	0,10 0,14	51457,2 47751,7	**124,03** **155,02**	64321,5 59689,6	**155,03** **193,78**	77185,8 71627,5	**186,04** **232,53**	102914,4 95503,3	**248,06** **310,05**	144723,3 134301,6	**348,83** **436,00**	173668,0 161161,9	**418,59** **523,20**
M18	14	27	1,50	216	0,10 0,14	55415,1 51577,6	**130,17** **164,67**	69268,9 64472,0	**162,72** **205,84**	83122,7 77366,4	**195,26** **247,01**	110830,3 103155,2	**260,35** **329,35**	155855,1 145062,1	**366,12** **463,15**	187026,1 174074,5	**439,34** **555,77**
M20	17	30	2	258	0,10 0,14	65534,1 60886,2	**173,72** **218,17**	81917,7 76107,8	**217,16** **272,71**	98301,2 91329,3	**260,59** **327,26**	131068,3 121772,4	**347,45** **436,34**	184314,8 171242,5	**488,60** **613,61**	221177,8 205491,0	**586,32** **736,33**
M20	17	30	1,50	272	0,10 0,14	70114,7 65319,1	**181,58** **230,55**	87643,3 81648,4	**226,97** **288,19**	105172,0 97978,6	**272,36** **345,82**	140229,3 130638,1	**363,15** **461,10**	197197,5 183709,9	**510,68** **648,42**	236637,0 220451,9	**612,82** **778,10**
M22	17	34	2	318	0,10 0,14	81220,8 75533,9	**236,88** **298,75**	101526,0 94417,4	**296,10** **373,43**	121831,2 113300,9	**355,32** **448,12**	162441,5 151067,8	**473,76** **597,49**	228433,4 212439,1	**666,23** **840,22**	274120,1 254927,0	**799,48** **1008,27**
M22	17	34	1,50	333	0,10 0,14	86164,2 80331,8	**246,02** **313,41**	107705,3 100414,7	**307,53** **391,76**	129246,4 120497,7	**369,04** **470,11**	172328,5 160663,6	**492,05** **626,82**	242337,0 225933,2	**691,94** **881,46**	290804,3 271119,8	**830,33** **1057,75**
M24	19	36	2	384	0,10 0,14	98515,6 91693,3	**308,56** **390,33**	123144,5 114616,6	**385,70** **487,92**	147773,4 137539,9	**462,84** **585,50**	197031,1 183386,5	**617,12** **780,67**	277075,0 257887,3	**867,83** **1097,82**	332490,0 309464,8	**1041,40** **1371,38**
M24	-	36	1,50	401	0,10 0,14	104079,4 97096,0	**319,62** **408,12**	130099,2 121370,1	**399,52** **510,15**	156119,0 145644,1	**479,43** **612,18**	208158,7 194192,1	**639,23** **816,24**	292723,2 273082,6	**898,92** **1147,84**	351267,9 327699,1	**1078,71** **1377,41**
M27	19	41	2	496	0,10 0,14	127922,3 119185,0	**448,43** **569,67**	159902,9 148981,3	**560,54** **712,09**	191883,5 178777,5	**672,65** **854,51**	255844,7 238370,1	**896,87** **1139,34**	359781,6 335207,9	**1261,22** **1602,20**	431737,9 402249,5	**1513,46** **1922,64**
M30	22	46	2	621	0,10 0,14	160817,5 149957,0	**623,80** **795,14**	201021,8 187446,3	**779,75** **993,93**	241226,2 224935,5	**935,70** **1192,72**	321635,0 299914,0	**1247,60** **1590,29**	452299,2 421754,2	**1754,43** **2236,34**	542759,0 506105,0	**2105,32** **2683,61**
M33	24	50	2	761	0,10 0,14	197716,9 184490,1	**835,81** **1068,24**	247146,1 230612,6	**1044,76** **1335,30**	296575,4 276735,1	**1253,72** **1602,36**	395433,8 368980,2	**1671,62** **2136,49**	556078,8 518878,4	**2350,72** **3004,43**	667294,5 622654,0	**2820,87** **3605,32**
M36	27	55	3	865	0,10 0,14	221916,8 206548,9	**1048,15** **1326,13**	277396,0 258186,2	**1310,18** **1657,66**	332875,1 309823,4	**1572,22** **1989,19**	443833,5 413097,9	**2096,29** **2652,26**	624140,9 580918,9	**2947,91** **3729,74**	748969,0 697102,7	**3537,49** **4475,68**
M39	-	60	3	1030	0,10 0,14	265219,6 247027,0	**1351,70** **1715,15**	331524,5 308783,8	**1689,63** **2143,94**	397829,5 370540,5	**2027,56** **2572,72**	530439,3 494054,1	**2703,41** **3430,30**	745930,2 694763,5	**3801,67** **4823,86**	895116,2 833716,1	**4562,00** **5788,63**
M42	32	65	3	1210	0,10 0,14	312529,3 291268,7	**1709,52** **2174,59**	390661,6 364085,9	**2136,90** **2718,24**	468793,9 436903,1	**2564,28** **3261,89**	625058,5 582537,4	**3419,04** **4349,18**	878988,6 819193,3	**4808,02** **6116,04**	1054786,0 983031,9	**5769,62** **7339,24**
M45	-	70	3	1400	0,10 0,14	362551,7 338067,8	**2118,52** **2700,72**	453189,7 422584,7	**2648,14** **3375,90**	543827,6 507101,7	**3177,77** **4051,08**	725103,5 676135,5	**4237,03** **5401,43**	1019677,0 950815,6	**5958,33** **7595,77**	1223612,0 1140979,0	**7149,99** **9114,92**
M48	36	75	3	1600	0,10 0,14	415279,0 387415,3	**2581,68** **3297,46**	519098,7 484269,2	**3227,11** **4121,83**	622918,5 581123,0	**3872,53** **4946,20**	830558,0 774830,6	**5163,37** **6594,93**	1167972,0 1089606,0	**7260,99** **9274,12**	1401567,0 1307527,0	**8713,18** **11128,94**
M52	-	80	3	1900	0,10 0,14	494405,2 461482,7	**3299,14** **4222,62**	618006,5 576853,3	**4123,92** **5278,28**	741607,8 692224,0	**4948,71** **6333,94**	988810,4 922965,3	**6598,28** **8445,25**	1390515,5 1297920,0	**9278,83** **11876,13**	1668618,0 1557504,0	**11134,60** **14251,36**
M56	41	85	4	2140	0,10 0,14	552738,4 515137,2	**4008,26** **5097,95**	690923,0 643921,5	**5010,32** **6372,43**	829107,5 772705,8	**6012,39** **7646,92**	1105477,0 1030274,0	**8016,51** **10195,89**	1554577,0 1448823,0	**11273,22** **14337,98**	1865492,0 1738588,0	**13527,87** **17205,57**
M60	-	90	4	2480	0,10 0,14	642235,1 598863,8	**4950,24** **6309,01**	802793,9 748579,8	**6187,80** **7886,27**	963352,7 898295,7	**7425,36** **9463,52**	1284470,0 1197728,0	**9900,49** **12618,02**	1806286,0 1684304,0	**13922,56** **17744,10**	2167544,0 2021165,0	**16707,07** **21292,92**
M64	46	95	4	2850	0,10 0,14	739716,3 690084,3	**6039,07** **7710,76**	924645,4 862605,3	**7548,84** **9638,45**	1109574,0 1035126,0	**9058,60** **11566,14**	1479433,0 1380169,0	**12078,14** **15421,52**	2080452,0 1940862,0	**16984,88** **21686,51**	2496543,0 2329034,0	**20381,86** **26023,81**
M68	-	100	4	3240	0,10 0,14	842588,5 786380,1	**7263,31** **9288,98**	1053236,0 982975,1	**9079,14** **11611,23**	1263883,0 1179570,0	**10894,97** **13933,47**	1685177,0 1572760,0	**14526,62** **18577,96**	2369780,0 2211694,0	**20428,06** **26125,26**	2843736,0 2654033,0	**24513,68** **31350,31**



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