

ComPact Air Drive II.

Air-driven system for a wide range of orthopaedic procedures.

User's Manual



Table of Contents

Introduction	Indications	2
	Drive Unit Specifications	2
	Attachments	3

Operating Instructions	Drive Unit	4
	Quick Coupling for K-Wires	6
	Quick Coupling for drill bits	7
	Large Quick Coupling	7
	Reduction Drive Unit	8
	Jacobs Chuck with Key	9

Product Information	Care and Maintenance	10
	Cleaning	11
	Lubricating	12
	Sterilization	13
	Troubleshooting	14
	Set List	15
	Cutting Tools	16

Indications

ComPact Air Drive II is an air powered drill. It is used for drilling, reaming, sawing, burring, filing and screw driving functions.

Specifications

ComPact Air Drive II (511.701)

- Speed (without attachment): 0–900 rpm (maximum speed varies with attachment)
- Torque (without attachment): 0–4.7 Nm (maximum torque varies with attachment)
- Weight: 0.780 kg
- Operating Pressure (with machine running): 6 bar (90 psi)
- Air consumption: 250 l/min
- Cannulation: 3.2 mm
- Cleaning Brush (519.40) and Autoclavable Oil (519.97) included



Attachments

Quick Coupling for Kirschner Wires (511.791)

- Speed: 0–900 rpm
- Torque: 0–4.7 Nm
- Cannulation: 3.2 mm (fully open)
- Function:
 - To insert/remove Kirschner wires and guide pins
0.6 – 3.2 mm diameter (any length)

Quick Coupling for drill bits (511.75)

- Speed: 0–900 rpm
- Torque: 0–4.7 Nm
- Cannulation: 1.3 mm
- Function:
 - Accepts cutting tools and instruments with AO ASIF
quick coupling fitting
 - Accepts Oscillating Drill Attachment (511.20) and
Radiolucent Drive (511.30)

Large Quick Coupling (511.761)

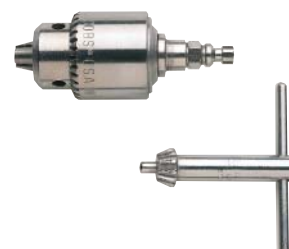
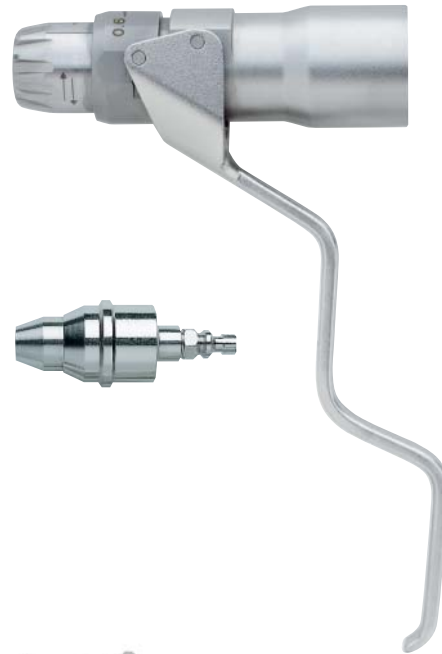
- Speed: 0–900 rpm
- Torque: 0–4.7 Nm
- Cannulation: 3.2 mm
- Function:
 - Accepts cutting tools and instruments with large quick
coupling fitting

Reduction Drive Unit (511.785)

- Speed: 0–340 rpm
- Torque: 0–13 Nm
- Cannulation: 3.2 mm
- Function:
 - Accepts cutting tools and instruments with AO ASIF
reaming fitting
 - Locks reverse trigger operation to prevent damage
to coiled flexible reaming shafts
 - Accepts Hudson, Trinkle and Modified Trinkle Adaptors

Jacobs Chuck with key (511.73)

- Speed: 0–900 rpm
- Torque: 0–4.7 Nm
- Cannulation: 3.2 mm
- Function:
 - Accepts round shafts up to 6.0 mm
 - Accepts triangle shafts up to 6.5 mm



Operating Instructions—Drive Unit

Important: Use only dry, filtered compressed air or nitrogen to power the ComPact Air Drive II. Never operate air powered machines with oxygen; it creates a danger of fire and explosion. Recommended operating pressure, with the instrument running, is 90 psi (6 bar).

For forward (clockwise) rotation, press the variable-speed trigger of the air drive.*

Press both triggers for reverse (counterclockwise) rotation.

Air Inlet Valve

The ComPact Air Drive II air inlet valve controls the maximum speed and power. It also turns the drive unit off for safety.

Important: To prevent injuries, the air inlet valve should always be turned to the “off” position when inserting or removing instruments and attachments.

*The variable-speed trigger allows control of the speed from 0 to maximum rpm. Maximum torque and speed vary, depending on the attachment.



Assembly/Disassembly

Connect air hose

- Retract the hose coupling collar
- Insert the double hose connector of the drive unit into the hose coupling
- Release the hose coupling collar



Disconnect air hose

- Press the drive unit and hose together and simultaneously retract the hose coupling collar.
- Remove the air hose.



Insert attachment

- Insert the attachment into the attachment coupling of the drive unit until it engages
- Pull lightly on the attachment to confirm it is held securely



Remove attachment

- Press the release button and remove the attachment.



Operating Instructions—Quick Couplings

Quick Coupling for Kirschner Wires (511.791)

For insertion of K-wires from 0.6 mm to 3.2 mm diameter.

See page 5 for installation and removal of attachments.

Important: To prevent injuries, the air inlet valve should always be turned to the “OFF” position when inserting or removing K-wires.

Insert a K-wire/guide pin in the attachment:

Open the cannulation fully by turning the adjustment collar to the open position (in the 3.2 mm direction).

Insert the wire and turn the adjustment collar as far as possible to the closed position (in the 0.6 mm direction) until the wire is clamped, keeping the wire centered in the attachment.

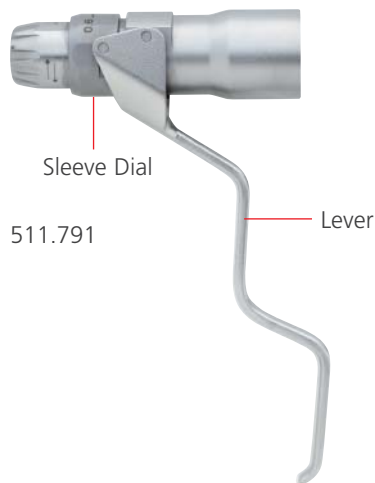
Turn the adjustment collar back 3 clicks (in the 3.2 mm direction). The spring-loaded mechanism will prevent the wire from falling out; however, it will allow the attachment to be repositioned on the wire. (Confirm that the wire can be repositioned; open the adjustment collar by another 2–4 clicks, if necessary).

Insert the K-wire/guide pin into the bone

Insert the wire by simultaneously pulling back the attachment lever and pressing the lower (variable-speed) trigger of the drive unit. To reposition the attachment on the wire, release the lever and move the Compact Air Drive to the desired position.

Remove the K-wire/guide pin from the bone

Open the adjustment collar fully (in the 3.2 mm direction) then guide the drive unit with attachment over the wire. Close the adjustment collar until the wire is clamped, then turn the collar back 3 clicks. Pull the attachment lever and press both triggers to remove the K-wire/guide pin.



Quick Coupling for Drill Bits (511.75)

- Accepts cutting tools and instruments with an AO ASIF quick coupling fitting
- Allows use of Oscillating Drill Attachment (511.20) and Radiolucent Drive (511.30)

Insert an instrument

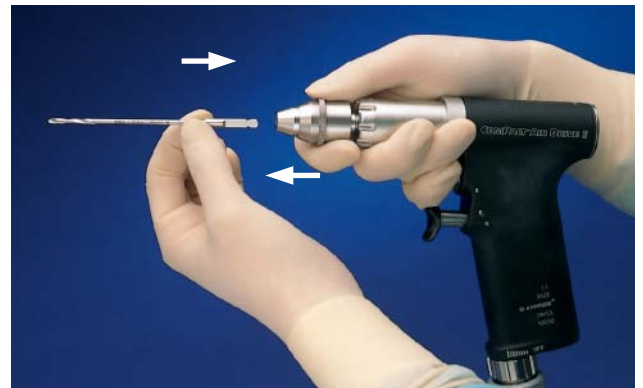
Push the collar of the Quick Coupling forward and insert the instrument shaft completely with a slight rotation. When the shaft is fully inserted, release the collar. Pull on the instrument slightly to be sure it is held securely.

Remove an instrument

Push the collar of the Quick Coupling forward and remove the instrument.



511.75



Large Quick Coupling (511.761)

Accepts cutting tools and instruments with a large quick coupling fitting. These include DHS/DCS Triple Reamers, large quick coupling screwdriver shafts, and large quick coupling cannulated drill bits for Synthes intramedullary nailing systems.

Insert an instrument

Retract the collar of the Large Quick Coupling and insert the instrument shaft completely with a slight rotation. When the shaft is fully inserted, release the collar. Pull on the instrument slightly to confirm it is held securely.

Remove an instrument

Pull back the collar of the Large Quick Coupling and remove the instrument.



511.761

Important: To prevent injuries, the air inlet valve should always be turned to the "OFF" position when inserting or removing instruments from the Quick Couplings.

Operating Instructions—Reduction Drive Unit (511.785)

The Reduction Drive Unit (511.785) has the following features:

- Accepts cutting tools and instruments with AO ASIF reaming fitting
- Locks reverse-trigger operation to prevent damage to coiled flexible reaming shafts
- Accepts Hudson, Trinkle and Modified Trinkle Adaptors



511.785

See page 5 for installation and removal of attachments.

Important: To prevent injuries, the air inlet valve should always be turned to the “off” position when inserting or removing instruments from the Reduction Drive Unit.

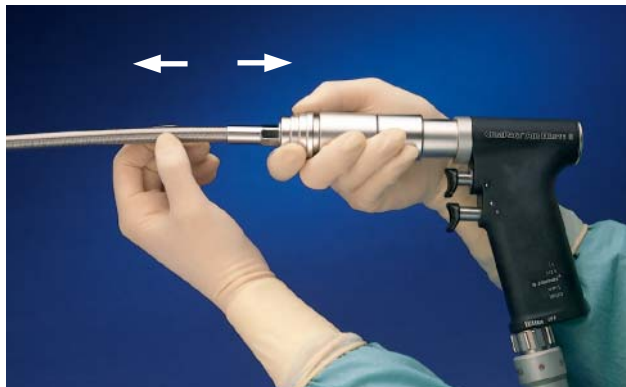
Insert an instrument

Insert the instrument shaft into the opening until it engages. Pull lightly on the instrument to confirm it is held securely.



Remove an instrument

Pull back the collar of the attachment and remove the instrument.



Operating Instructions—Jacobs Chuck with Key (511.73)

The Jacobs Chuck with Key (511.73) accepts round shafts up to 6.0 mm, and triangular shafts up to 6.5 mm.

See page 5 for installation and removal of attachments.

Important: To prevent injury, the air inlet valve should always be turned to the “OFF” position when inserting or removing an instrument.

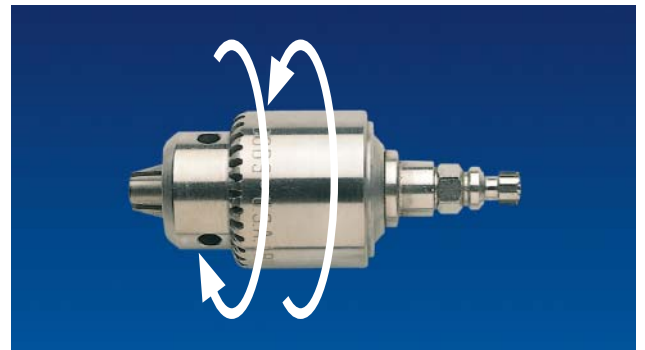
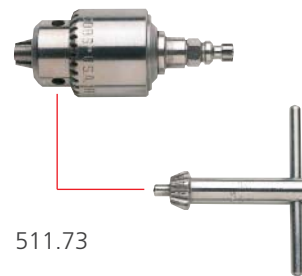
Insert an instrument

Open the chuck jaws by turning the key counter-clockwise, or by manually turning the collar. Insert the instrument shaft into the opened chuck.

Close the chuck manually by rotating the collar, keeping the shaft centered in the jaws. Tighten the chuck by turning the key clockwise.

Remove an instrument

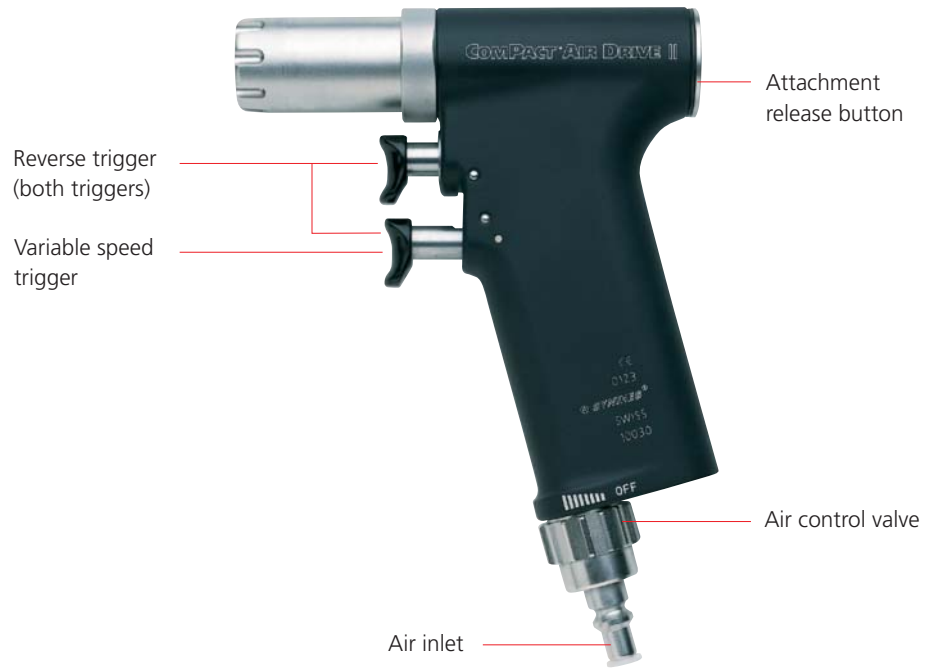
Turn the key counterclockwise to open the jaws and remove the instrument.



Care and Maintenance

General Maintenance

ComPact Air Drive II (511.701)



Before cleaning, remove all instruments, attachments and hose from the air drive unit.

Do not immerse in water.

Do not clean in automatic washer or ultrasonic cleaner.

Use a neutral pH cleaning solution.

Clean and lubricate drive unit, attachments and air hose by hand immediately after each use.



Cleaning

Before cleaning, turn air control valve to the "OFF" position. Manipulate moving parts under running water to loosen and remove debris. Open and close chucks, and move quick couplings back and forth.

1

Manually clean air drive and attachments under running water. Use a mild cleaning solution (neutral pH) and a soft brush.



Do not allow water to enter the air inlet of the drive unit.

2

Clean cannulations of the air drive and attachments with the cleaning brush. Do not insert cleaning brush into the air inlet.



The Quick Coupling for K-wires (511.791) must be fully open to its maximum diameter of 3.2 mm before inserting the brush. Dry all instrumentation with a soft cloth.

3

Retract and clean the quick coupling hose end with a soft brush and mild cleaning solution.



Do not allow water to enter the air inlets.

4

Clean hose with a mild cleaning solution and a soft brush or cloth.



Keep hose ends out of water.

Dry all instrumentation with a soft cloth.

Lubricating

Lubricate the ComPact Air Drive II after every cleaning and before sterilization.

Use Synthes Autoclavable Oil (519.97).

Important: Never lubricate the Radiolucent Drive.

1

Before lubrication, open air control valve. Apply approximately five drops of oil into the air intake of the drive unit. Lubricate triggers.

2

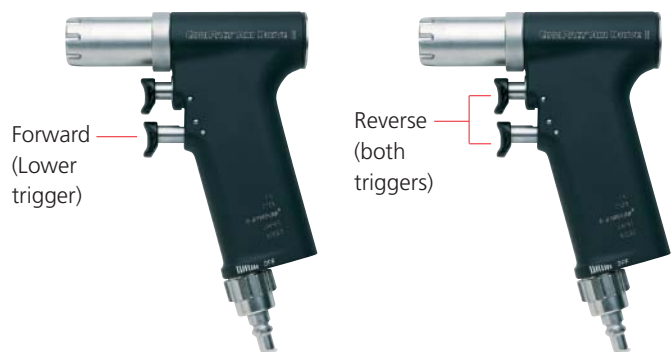
Connect the air drive to an air hose. Run the air drive for 20 seconds in both directions.

3

Lubricate all moving parts of the attachments with one or two drops of oil. Operate the parts to distribute the oil. Wipe off excess oil.

4

Lubricate the quick coupling hose end with one or two drops of oil.



Sterilization

To sterilize the Synthes ComPact Air Drive II equipment and air hoses:

- If the handpiece is new, remove the plastic stopper in the nitrogen inlet
- Disassemble all parts, including hoses, attachments, adaptors and instruments

The Synthes ComPact Air Drive II should be steam sterilized in the graphic case in accordance with the following guidelines:

Wrapped	Temperature	Minimum Exposure Time
Prevacuum	132°–135°C (270°–275°F)	4 minutes
Unwrapped (Flash)		
Prevacuum	132°–135°C (270°–275°F)	4 minutes

Times represent exposure times only, and not total cycle times.

To minimize hose deformation during autoclaving:

- Place absorbent muslin between handpieces and hoses
- Do not place weight on the hose

Important: Do not accelerate the cooling process. In emergencies, a partially cooled saw or drill can be brought to room temperature by cycling filtered compressed nitrogen or air through it.

Hot air and ethylene oxide gas (ETO) sterilization are not recommended. Hot air can damage air hoses, and steam sterilization is a safer alternative than ETO sterilization.



150.16

Troubleshooting

Problem	Possible Causes	Remedy
<i>Machine does not start.</i>	Safety system may be activated.	Slide air inlet to the "ON" position.
	Rotor may jam if machine is not used for a long time.	Mout quick coupling, then rotate chuck manually, without pressing trigger.
<i>Machine lacks power.</i>	Operating power is too low.	Adjust operating pressure to 90 psi (6 bar) on regulator.
	Air inlet is blocked.	Clean air inlet: remove solid particles with pickups. Important: Do not use sharp tools. Turn air inlet valve to the "OFF" position.
	Air inlet valve may not be completely open.	Slide the inlet valve to the "ON" position.
	Air hose is too long.	Overall hose length should not exceed 26 feet (8 meters).
<i>Machine continues to run after trigger is released.</i>	Trigger is jammed by residue.	Immediately turn the mode switch to "OFF". Operate trigger several times, clean, and oil according to instructions. Important: Use only Synthes autoclavable oil.)
<i>Attachments cannot couple to Drive Unit.</i>	Coupling is blocked by residue.	Remove solid particles with pickups. Oil according to instructions. Important: Do not use sharp tools. Turn air inlet valve to the "OFF" position.
<i>Cannot remove attachments from Drive Unit.</i>	Release inhibited by pulling on attachment while pressing release buttons.	Press release buttons before attempting to remove attachments.
<i>Cannot attach instrument or difficulty attaching instruments.</i>	Instrument excessively worn, especially insertion part.	Replace attachment.
<i>K-wire completely inserted into coupling, cannot be advanced.</i>	K-wire inserted incorrectly into rear of machine.	Disconnect Quick Coupling, hold Drive Unit with opening down, and shake out K-wire. Important: Turn mode switch to "OFF".

If suggested solutions are unsuccessful, call the Synthes Service Department at 1-800-288-6698 for servicing information.

Annual servicing by qualified Synthes personnel is recommended.

ComPact Air Drive II Set (150.16)

Graphic Case

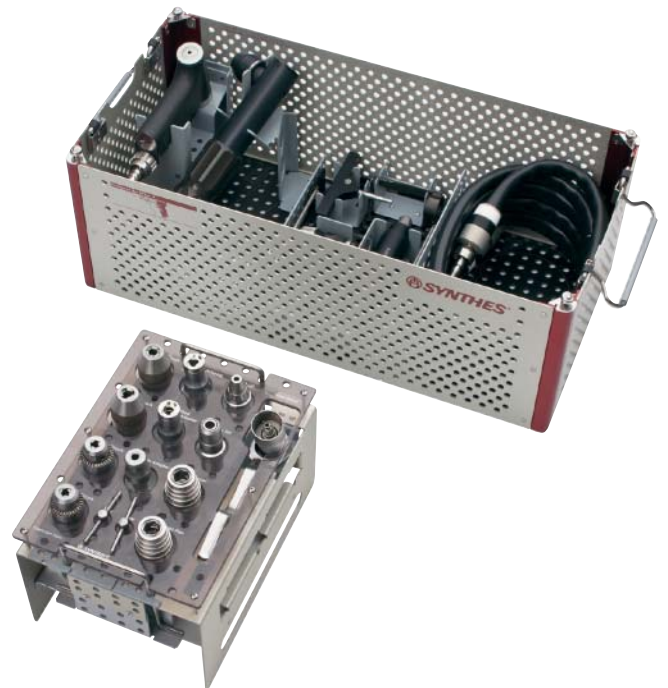
- 60.550.030 Graphic Case Base Assembly for CAD II
- 60.550.031 Lid for CAD II Graphic Case
- 60.550.032 Attachment Rack for CAD II Graphic Case
- 60.550.033 Insert Tray for CAD II Graphic Case
- 2500 ComPact Air Drive II Binder

Instruments

- 511.701 ComPact Air Drive II
- 511.73 Jacobs Chuck with Key
- 511.75 Quick Coupling for drill bits
- 511.761 Large Quick Coupling
- 511.785 Reduction Drive Unit
- 511.791 Quick Coupling for Kirschner wires
- 519.40 Cleaning Brush
- 519.515 Double Air Hose—3 meters with Schrader Stem
- 519.97 Autoclavable Oil

Also Available

- 690.577.06 Grommets for CAD II Attachment Rack
- 511.20 Oscillating Drill Attachment
- 511.30 Radiolucent Drive
- 511.731 Keyless Jacobs Chuck
- 511.782 Hudson Adaptor
- 511.783 Modified Trinkle Adaptor
- 511.784 Trinkle Adaptor
- 511.786 Reduction Drive Unit with Reverse
- 511.80 Oscillating Saw Attachment
- 511.801 Oscillating Saw Attachment II
- 511.902 Reciprocating Saw Attachment
- 511.904 Sternum Top for 511.902
- Double Air Hoses, with Synthes stem
 - 519.50 2 mm
 - 519.51 3 mm
 - 519.53 5 mm
- Double Air Hoses, with Schrader stem
 - 519.50S 2 mm
 - 519.53S 5 mm
- 519.98 Spare Container with Autoclavable Oil



Cutting Tools

Saw blades, calibrated, sterile

	Blade Width (mm)	Calibrated Length (mm)	Cutting Thickness (mm)
519.100S	27	50	0.6
519.103S	10	25	0.6
519.104S	10	50	0.6
519.105S	20	50	0.6
519.106S	19	70	1.0
519.113S	18	70	1.2
519.150S	14	50	0.6
519.170S	27	70	0.8
519.190S	50	70	0.8
519.200S	27	70	1.0
519.210S	27	70	1.2
519.230S	6	25	0.6
519.250S	14	25	0.6



519.100S



519.104S



519.250S

Saw Blades, calibrated, aggressive tooth, sterile only

	Width (mm)	Calibrated Length (mm)	Cutting Thickness (mm)
519.107S	19	95	0.9
519.108S	25	95	0.9
519.109S	25	60	0.9
519.114S	19	95	1.25
519.115S	25	95	1.25
519.116S	19	95	1.4
519.117S	25	95	1.4
519.118S	12.5	90	0.9



519.108SS

Reciprocating Saw Blades, sterile

	Cutting Length (mm)	Cutting Thickness (mm)
511.905S	80	1.1
511.907S	55	1.1
511.909S	55	0.9
511.912S	68	1.1
511.915S	42	0.8



511.905S



511.907S



511.909S



511.912S

Service and Extended Warranty Programs for ComPact Air Drive II Set

W1.150.16 One-Year Extended Warranty and Service Program

W3.150.16 Three-Year Extended Warranty and Service Program



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Palm Beach Gardens, FL 33410
Telephone: (561) 627-1080
To order: (800) 327-6887
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To order: (800) 668-1119
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