

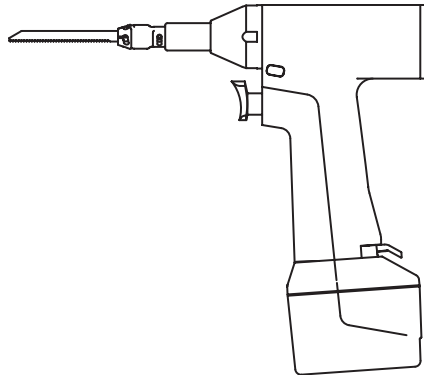
**System 6**  
**Reciprocating Saw**  
REF 6206

**stryker**®

**Instructions For Use**

**R<sub>x</sub> ONLY**

**CE** 0197



US Patents: 5,747,953; 6,013,991 and other patents pending.

2006/05

6206-001-700 Rev-

[www.stryker.com](http://www.stryker.com)

## Important Information

The words WARNING, CAUTION and NOTE have special meaning and should be reviewed.

**WARNING:** Disregarding WARNING information may compromise the safety of the patient and/or health care staff and may result in injury.

**CAUTION:** Disregarding CAUTION information may compromise product reliability and may result in damage.

**NOTE:** NOTE information supplements and/or clarifies procedural information.



A triangle with an exclamation point alerts the health care professional to read and understand the accompanying instructions, especially the operating, maintenance, and safety information.

## Intended Use

The Stryker System 6 Battery Powered Heavy Duty Reciprocating Saw is a linear cutting device used for cutting bone and bone related tissue.

## Accessory Information\*



### WARNINGS:

- Use only Stryker-approved components and accessories, unless otherwise specified. Other accessories may result in increased electromagnetic emissions or decreased electromagnetic immunity of the system. DO NOT modify any component or accessory. Failure to comply may result in patient and/or health care staff injury.
- ALWAYS use Stryker reciprocating blades REF 277-96-xxx series only. Failure to comply may result in patient and/or health care staff injury.

<u>DESCRIPTION</u>	<u>REF</u>
Short Blade .....	277-96-250
Offset Reciprocating Blade .....	277-96-251
Double Sided Blade .....	277-96-275
Double Sided Blade, Offset.....	277-96-276
Double Sided Blade, Offset.....	277-96-277
Double Sided Blade, Offset, Long.....	277-96-278
Double Sided Blade, Long .....	277-96-281
Long Blade.....	277-96-300
Heavy Duty Reciprocating Blade .....	277-96-325
Offset Reciprocating Blade .....	277-96-326
Large Battery Pack .....	6215

\*Contact your Stryker sales representative for a complete list of additional accessories.

## User/Patient Safety\*



### WARNINGS:

- Only trained and experienced health care professionals should use this equipment. Before using any system component or any component compatible with this system, read and understand the instructions. Pay special attention to WARNING information. Become familiar with the system components prior to use. Failure to comply may result in patient and/or health care staff injury.
- Upon initial receipt and before each use, operate the equipment and inspect each component for damage. DO NOT use any component if damage is apparent. Failure to comply may result in patient and/or health care staff injury.
- Perform recommended periodic maintenance as indicated in the instructions for use. Only trained and experienced health care professionals should maintain this equipment.
- Clean and sterilize handpieces and batteries before first and every use.
- DO NOT use this equipment in the presence of a mixture consisting of flammable anesthetic and air or with oxygen or nitrous oxide.
- Take special precautions regarding electromagnetic compatibility (EMC) when using medical electrical equipment like the handpiece. Install and place the handpiece into service according to the EMC information in this manual. Portable and mobile RF communications equipment can affect the function of the handpiece.
- ALWAYS place the handpiece in the safe mode while the handpiece is idle, before installing or removing any accessory, or when passing the handpiece to another person. Failure to comply may result in patient and/or health care staff injury.
- DO NOT apply excessive pressure, such as bending or prying, with a cutting accessory to prevent fracturing the accessory. Failure to comply may result in patient and/or health care staff injury.
- DO NOT reuse single use cutting accessories. Failure to comply may result in patient and/or health care staff injury.

\*If you need more information, contact your Stryker sales representative or call Stryker customer service at 1-800-253-3210. Outside the US, contact your nearest Stryker subsidiary.

## User/Patient Safety (cont'd)



**WARNING:** If you are using one of the following blades, watch for blade whip when the handpiece is operated below the maximum speed:

Double Sided Reciprocating Blade -  
REF 277-96-275

47.5 x 6 x 0.77mm Offset Reciprocating  
Blade - REF 277-96-251

70 x 12.5 x 8mm Double Sided Reciprocating  
Blade - REF 277-96-276

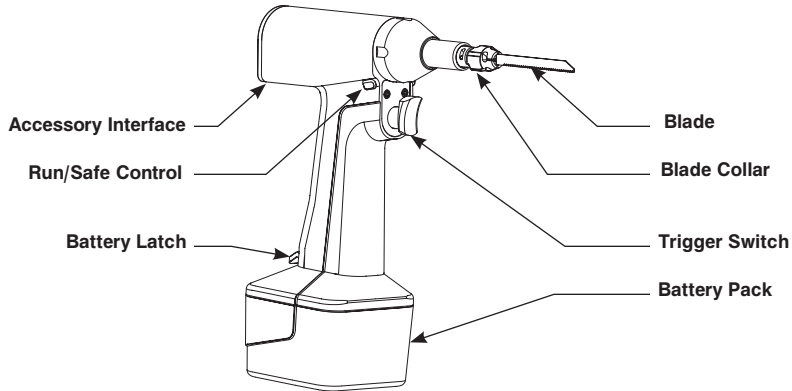
70 x 12.5 x 1mm Double Sided Reciprocating  
Blade - REF 277-96-277

Long Heavy Duty Reciprocating Blade -  
REF 277-96-325

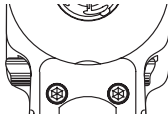
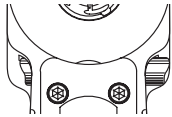
Blade whip increases the chance of blade fracture and may result in patient and/or health care staff injury.

## Features

- **Battery Latch** - To release the battery pack from the handpiece, depress the battery latch.
- **Battery Pack** - Rechargeable battery pack provides power to the handpiece.
- **Trigger Switch** - The trigger is pressure sensitive for variable speed operation.
- **Run/Safe Control** - Based on its position, allows the handpiece to operate in the run or safe mode; safe mode prevents the inadvertent operation of the handpiece.
- **Blade** - Several Stryker blades are available.
- **Blade Collar** - The spring-loaded blade collar allows the insertion and release of the blade.
- **Accessory Interface** - Connector provides power and communication for future accessories.



## Symbol Definitions



Slide the run/safe control to either run position (two available) to allow the handpiece to operate while the trigger is depressed.



Slide the run/safe control to the safe position to lock the trigger and prevent inadvertent operation of the handpiece; the handpiece cannot be operated.

## Instructions

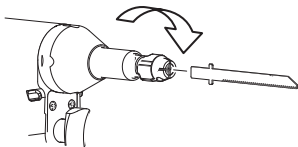
### To Install Cutting Accessory



**WARNING:** To prevent the inadvertent running of the handpiece, ALWAYS place the run/safe control in the safe position before installing or removing any cutting accessory.

1. Slide the run/safe control to the safe position.
2. Rotate the spring-loaded blade collar clockwise aligning the slots. Insert the blade (see figure 1).

**NOTE:** The blade teeth may be directed in any of four positions.



**Figure 1 To Install Blade**

3. Release the blade collar. Ensure the blade collar springs back to its original position indicating the blade is properly seated.
4. Gently tug the blade back and forth to ensure it is secure.

### To Install Battery Pack

#### NOTES:

- This handpiece is designed to accept a Stryker Large Battery Pack REF 6215 only. This battery pack can be charged in the Stryker System 6 Battery Charger REF 6110-120 configured with the appropriate battery charger module.
  - See the instructions supplied with the battery charger and/or battery pack for charging details and specifications.
1. Slide a fully charged battery pack firmly into the handpiece until the battery latch snaps, indicating the battery pack is secure (see figure 2).



**Figure 2 To Install Battery Pack**

2. Test the operation of the handpiece by sliding the run/safe control to a run position and squeezing the trigger.
3. Slide the run/safe control to the safe position until you are ready to use the handpiece.

## Instructions (cont'd)

### To Operate Handpiece



**WARNING:** ALWAYS place the run/safe control in the safe position while the handpiece is idle, before installing or removing an accessory, or when passing the handpiece to another person. Failure to comply may result in patient and/or health care staff injury.

### CAUTIONS:

- When operating the handpiece, let the blade do the cutting. Applying too much pressure will bend the blade and reduce the cutting quality.
  - DO NOT stall the handpiece. Failure to comply may damage the electric motor and/or battery pack. If the handpiece jams, release the trigger immediately. Remove any obstructions before continuing the procedure.
  - If any power loss is experienced while using a handpiece, ALWAYS replace the battery pack with a fully charged battery pack. Failure to comply may result in a drained, damaged battery pack with a shortened life.
1. Slide the run/safe control to the either position to allow the handpiece to operate.
  2. Squeeze the pressure sensitive trigger for variable speed operation.
  3. Slide the run/safe control to the safe position when you are finished operating the handpiece.

### To Remove Battery Pack

Depress the battery latch and pull the battery pack out.

### To Remove Cutting Accessory

Rotate the spring-loaded blade collar clockwise to realign the slots and remove the cutting accessory.

## Periodic Maintenance

INTERVAL	ACTIVITY
Prior to each use.	Inspect, operate and test the handpiece to ensure that it is working properly. Ensure that there are no loose or missing components. Check all moving parts for free movement. Be alert for unusual sounds or vibrations and note the operating speed.

## Storage and Handling

To ensure the longevity, performance and safety of this equipment, use the original packaging materials when storing or transporting this equipment.

## Troubleshooting Guide\*

<b>PROBLEM</b>	<b>CAUSE</b>	<b>ACTION</b>
Handpiece does not run or reciprocates at a reduced speed making cutting difficult.	Battery pack is discharged.	Recharge the battery pack in Stryker charger.
	Battery pack is expended.	Replace the battery pack.
	Run/safe control is in the safe position.	Slide the run/safe control to the run position.
Motor runs but blade does not move.	Drivetrain is malfunctioning.	Return the handpiece for repair.
	Drivetrain is malfunctioning.	Return the handpiece for repair.
Battery pack becomes unusually hot during use.	Circuitry is malfunctioning.	Check the battery pack on the charger. Replace the battery pack if required. See the instructions supplied with the battery charger.
Blade will not fit into the blade collar.	Debris is inside the end of the blade collar.	Clean the handpiece with a small brush.
	Blade collar is damaged.	Return the handpiece for repair.
Blade collar does not spring back to retain the blade.	Debris inside of blade collar.	Clean the handpiece with a small brush. Actuate the blade collar several times to obtain smooth operation.
Handpiece has become noisy and vibrates.	Drivetrain is malfunctioning.	Return the handpiece for repair.
Sporadic electrical interference is experienced.	Electrical noise is present.	Turn off all electrical equipment not in use in the operating room.
		Relocate electrical equipment; increase spatial distance.
		Plug operating room equipment into different operating room outlets.

\*DO NOT service this equipment. If you require service, contact your Stryker sales representative or call Stryker customer service at 1-800-253-3210. Outside the US, contact your nearest Stryker subsidiary.



## Cleaning Recommendations



### WARNINGS:

- Clean and sterilize handpieces and batteries before first and every use.
- Prior to cleaning and sterilization, remove all accessories from the handpieces.
- DO NOT use solvents, lubricants, or other chemicals unless otherwise specified.

### CAUTIONS:

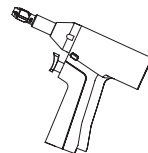
- DO NOT immerse a handpiece or battery pack in liquid. Moisture may enter the equipment, cause corrosion, and damage the electrical and/or mechanical components.
- DO NOT allow liquid to run directly into any electrical connection. Moisture may cause corrosion to electrical components.

### To Clean Battery Packs and Accessories

See the care instructions supplied with the battery packs, battery pack modules and battery charger.

### To Clean Handpiece

1. Remove the battery pack and cutting accessory from the handpiece.
2. Using a brush with stiff, non-metallic bristles and hospital enzymatic cleaner, scrub the debris from the handpiece. Pay special attention to crevices and other hard to reach areas such as seams, joints, and details around the blade retainer, trigger, and connector areas.
3. Rinse all the external surfaces of the handpiece under running water. Hold the handpiece upright to prevent water from running into the battery pack contact area.
4. If water leaks into the handpiece, tip the handpiece back as shown below to allow drainage from a small opening in the battery pack contact area.



### To Drain Water From Handpiece

5. Visually inspect the handpieces for any remaining debris; if any debris is present, repeat the cleaning and rinsing procedure using fresh hospital enzymatic cleaner.
6. Dry the handpiece with a lint-free towel.
7. After cleaning, sterilize as directed. See *Sterilization Recommendations*.

## Sterilization Recommendations\*



### WARNINGS:

- Clean and sterilize handpieces and batteries before first and every use.
- Prior to cleaning and sterilization, remove all accessories from the handpieces.

### To Sterilize Battery Packs

See the care instructions supplied with the battery packs.

### To Sterilize Handpieces

To obtain optimal performance and prevent damage, perform one of the following sterilization procedures:

#### “Flash” Autoclave:

- Gravity displacement sterilizer
- 270-272 °F (132-134 °C)
- Unwrapped in an instrument tray
- 10-minute minimum exposure time

#### Hi Vac:

- Pre-vacuumed sterilizer
- 270-272 °F (132-134 °C)
- Wrapped or unwrapped
- 4-minute minimum exposure time
- 8-minute minimum dry time

#### ETO:

- 100% ETO
- 120-135 °F (49-57 °C)
- Wrapped in an instrument tray or fully perforated sterilization box
- 2-hour 30-minute exposure time, 8-hour minimum aeration time

#### 250 °F Gravity:

- Gravity displacement sterilizer
- 250-254 °F (121-123 °C)
- Wrapped in an instrument tray or fully perforated sterilization box
- 50-minute exposure time
- 8-minute minimum drying time








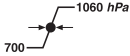
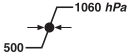
#### 270 °F Gravity:

- Gravity displacement sterilizer
- 270-272 °F (132-134 °C)
- Wrapped in an instrument tray or fully perforated sterilization box
- 35-minute minimum exposure time
- 8-minute minimum dry time

\*Validation is based on the Association for the Advancement of Medical Instrumentation (AAMI) protocol.

**NOTE:** After sterilization, allow the equipment to cool to room temperature to ensure a comfortable operating temperature.

## Specifications\*


<b>Model:</b>	REF 6206 Reciprocating Saw	
<b>Size:</b>	8.60 in. [218 mm] height (with large battery pack) 1.475 in. [37 mm] width 7 in. [178 mm] length	
<b>Weight:</b>	3.25 lbs. [1.46 kg] (with large battery pack)	
<b>Speed:</b>	13,000 CPM	
<b>Excursion:</b>	0.152 in. [3.9mm]	
<b>Duty Cycle:</b>		Intermittent Operation - 1 minute on / 4 minutes off 5 times with a 3 hour rest
<b>Approval:</b>		CSA International CAN/CSA-C22.2 No. 601.1-M90 UL 60601-1 IEC 60601-1
<b>Equipment Type:</b>		Type BF Applied Part
<b>Power Supply:</b>	Internally Powered 9.6 V $\text{---}$	
<b>Enclosure Protection:</b>	IPX0 Ordinary Equipment	
<b>Environmental Conditions:</b>	<b>Operation</b>	<b>Storage and Transportation</b>
<b>Temperature:</b>		
<b>Relative Humidity:</b>		
<b>Atmospheric Pressure:</b>		

\*Specifications are approximate and may vary from unit to unit or as a result of power supply fluctuations.

## Specifications (cont'd)

<b>Guidance and manufacturer's declaration - electromagnetic emissions</b>		
The System 6 handpiece is intended for use in the electromagnetic environment specified below. The customer or the user of the System 6 handpiece should assure that it is used in such an environment.		
<b>Emissions test</b>	<b>Compliance</b>	<b>Electromagnetic environment - guidance</b>
RF emissions CISPR 11	Group 1	The System 6 handpiece uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.  The System 6 handpiece is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
RF emissions CISPR 11	Class B	
Harmonic emissions IEC 61000-3-2	n/a	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	n/a	

## Specifications (cont'd)

Guidance and manufacturer's declaration - electromagnetic immunity			
The System 6 handpiece is intended for use in the electromagnetic environment specified below. The customer or the user of the System 6 handpiece should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6  Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz  3 V/m 80 MHz to 2.5 GHz	n/a n/a  3 V/m 80 MHz to 2.5 GHz	<p>Portable and mobile RF communications equipment should be used no closer to any part of the System 6 handpiece, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d=1.67\sqrt{P}$ $d=1.67\sqrt{P}$ $d=2.33\sqrt{P}$ <p>80 MHz to 800 MHz 800 MHz to 2.5 GHz</p> <p>Where <math>P</math> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <math>d</math> is the recommended separation distance in meters (m)</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
NOTE 1: At 80 MHz and 800MHz the higher frequency range applies.			
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

## Specifications (cont'd)

<b>Guidance and manufacturer's declaration - electromagnetic immunity</b>			
The System 6 handpiece is intended for use in the electromagnetic environment specified below. The customer or the user of the System 6 handpiece should assure that it is used in such an environment.			
<b>Immunity test</b>	<b>IEC 60601 test level</b>	<b>Compliance level</b>	<b>Electromagnetic environment - guidance</b>
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±2, 4, 6 kV contact ±2, 4, 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	n/a n/a	
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	n/a n/a	
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% $U_T$ (>95% dip in $U_T$ ) for 0,5 cycle	n/a	
	40% $U_T$ (60% dip in $U_T$ ) for 5 cycles	n/a	
	70% $U_T$ (30% dip in $U_T$ ) for 25 cycles	n/a	
	<5% $U_T$ (>95% dip in $U_T$ ) for 5 sec	n/a	
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristics of a typical location in a typical commercial or hospital environment.
NOTE: $U_T$ is the alternating current mains voltage prior to application of the test level.			

## Specifications (cont'd)

### Recommended separation distances between portable and mobile RF communications equipment and the System 6 handpiece

The System 6 handpiece is intended for use in the electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the System 6 handpiece can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the System 6 handpiece as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter  W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz  $d = \left[ \frac{3,5}{V_1} \right] \sqrt{P}$	80 MHz to 800 MHz  $d = \left[ \frac{3,5}{E_1} \right] \sqrt{P}$	800 MHz to 2.5 GHz  $d = \left[ \frac{7}{E_1} \right] \sqrt{P}$
0.01	n/a	0.12	0.23
0.1	n/a	0.37	0.74
1	n/a	1.17	2.33
10	n/a	3.70	7.37
100	n/a	11.70	23.30

For transmitters rated at a maximum output power not listed above, the recommended separation distance  $d$  in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where  $P$  is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

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