

# Plasmax<sup>®</sup> Plasma Concentration System

Surgical Technique

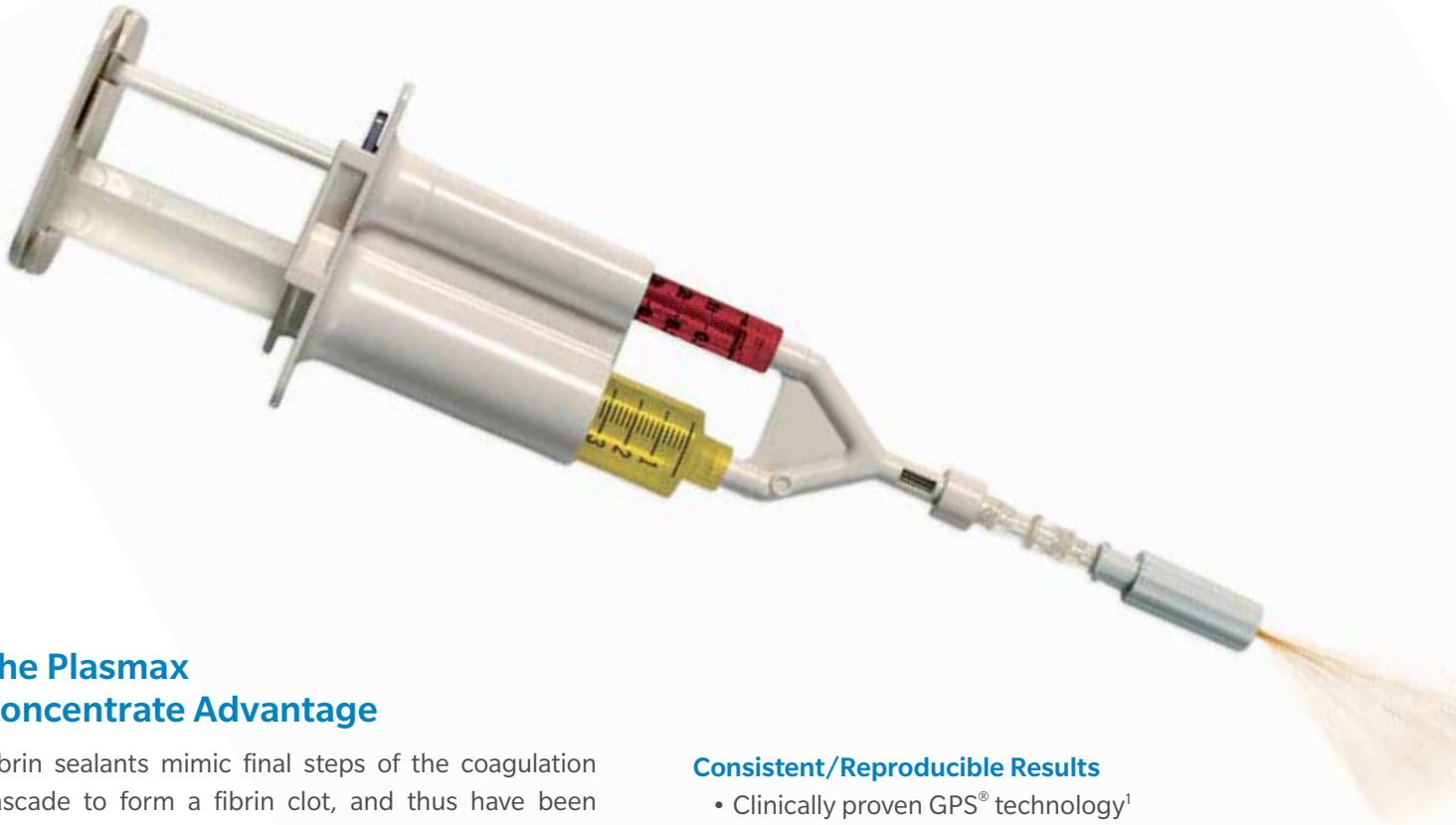




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## Plasmax Plus Plasma Concentration System



### The Plasmax Concentrate Advantage

Fibrin sealants mimic final steps of the coagulation cascade to form a fibrin clot, and thus have been used as haemostatic agents in many different surgical procedures. However, many commercially available fibrin sealants are derived from pooled sources or contain proteins of bovine origin. Potential disease transmission and the possibility of a patient developing an immunogenic response are two potential risks associated with these sources.

The Plasmax Plus Concentration System, which produces a totally autologous plasma concentrate, eliminates the concern of disease transmission through fibrin sealants derived from pooled sources. Plasmax concentrate is a quality plasma concentrate that is safe, simple to process, and has an elevated fibrinogen concentration that is optimal for haemostasis and improved bone graft handling in a variety of surgical procedures.

#### Consistent/Reproducible Results

- Clinically proven GPS® technology<sup>1</sup>

#### Improves Haemostasis/Graft Handling

- Three-fold increase in fibrinogen concentration<sup>2</sup>

#### Safe

- 100% autologous plasma concentrate

#### Simple

- Quality plasma concentrate in two minutes

**Consistent and Reproducible Results**

The Plasmax Plus Plasma Concentrate System provides a quality end product by utilizing.

- Clinically proven GPS technology, which will provide platelet poor plasma (PPP) and also a platelet concentrate, if needed<sup>1</sup>
- Polyacrylamide beads, which remove excess water from the platelet poor plasma, resulting in a plasma concentrate with a three-fold increase in fibrinogen concentration<sup>2</sup>

**Improves Haemostasis and Graft Handling**

- Useful as an adjunct to sutures and staples
- Optimal gel strength
- Increase in fibrinogen concentration is vital for graft containment

**Safe**

- 100% autologous plasma concentrate
- Provides a natural haemostatic alternative
- Eliminates concerns of fibrin sealants derived from pooled blood sources or from bovine origin

**Simple**

- Load blood, spin, extract plasma, load plasma, spin, extract plasma concentrate
- The Plasmax Plus Plasma Concentrate System contains all components needed to process a plasma (and a platelet) concentrate—no searching for individual items



## Preparation of Platelet Poor Plasma (PPP) with GPS III System



Figure 1



Figure 3



Figure 2

### Step One: Load

Slowly load blood-filled 60ml syringe (6ml of citrate anticoagulant and 54ml of blood) into the center port of GPS® III canister.

Remove protective cover on white cap and discard. Screw white cap onto center port.

Place GPS III canister into centrifuge. Fill the blue GPS counterbalance with 60ml of sterile saline and place into the opposite side of the centrifuge.



Figure 4

## Step Two: Spin

Close lid. Set speed at 3200 RPM and time at 15 minutes. Press green button to start spin.



Figure 5



Figure 6

## Step Three: PPP Extraction

Once spin is complete, press red button to open lid. Remove yellow cap on side port No. 2 of GPS III canister and withdraw approximately 25ml of PPP with a 30ml syringe. Replace yellow cap.

ⓘ **Note:** If Platelet Rich Plasma (PRP) is desired, take out the remaining PPP from the tube, if necessary. Remove red cap on side port No. 3 and connect 10ml syringe. Withdraw 2ml. With 10ml syringe attached, suspend the platelets by shaking the tube for 30 seconds. If the pellet between the buoys is not suspended completely, shake tube vigorously. Extract the remaining platelet rich plasma (PRP) into the attached 10ml syringe.

## Concentration of Platelet Poor Plasma (PPP) with Plasmax<sup>®</sup> Plus Concentrator



Figure 10



Figure 12



Figure 11

### Step Four: Load Plasma

Unscrew cap on port No. 1 of Plasmax Plus Concentrator and fill with 25ml of PPP. Replace cap.

Spin paddle by hand until plasma is fully mixed into beads. Mixing is complete when the white beads are completely saturated with plasma.

ⓘ **Note:** While spinning the paddle, be sure to push it firmly against the bottom to ensure adequate mixing.





Figure 13

### Step Five: Spin

Close lid. Set speed at 3200 RPM and time at 15 minutes. Press green button to start spin.



Figure 14




Figure 15

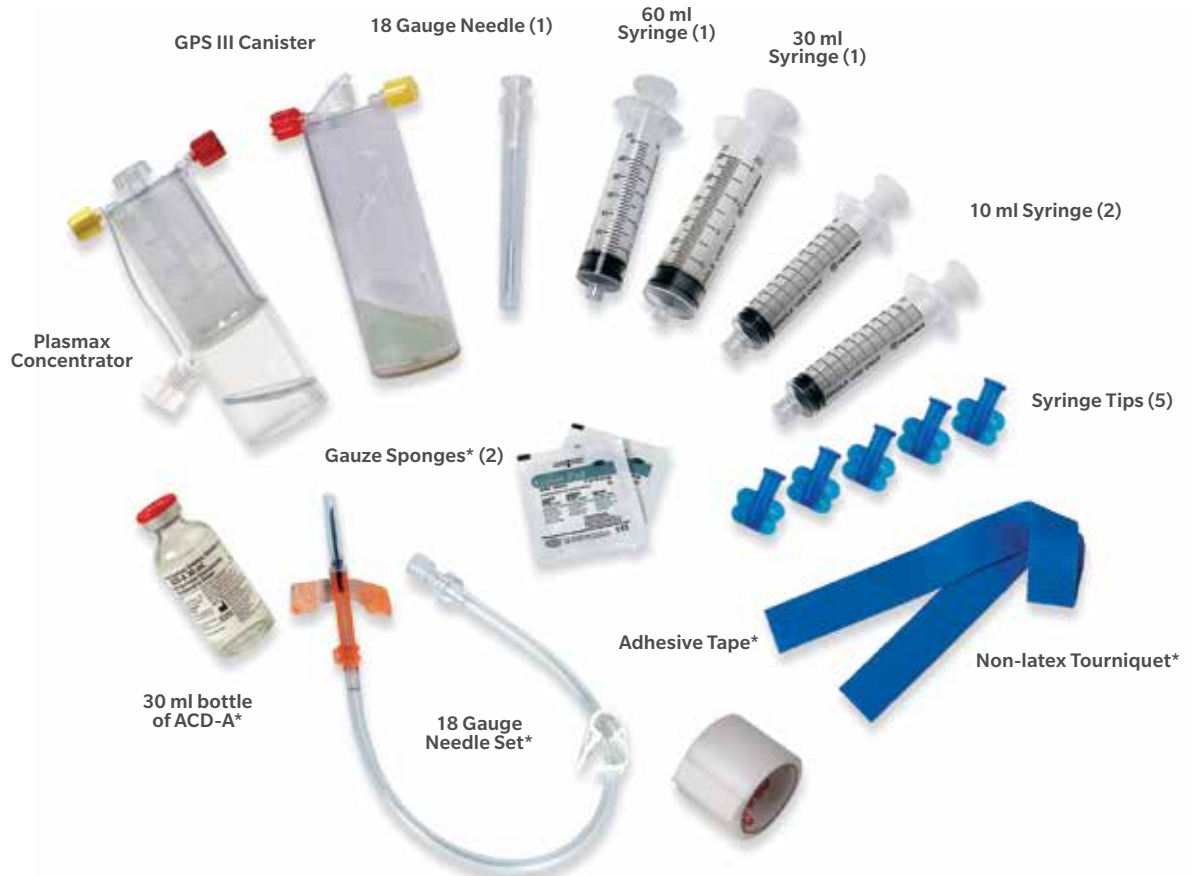
### Step Six: Plasma Concentrate Extraction

After the spin, the Plasmax Plus Concentrator contains 10ml of autologous plasma concentrate.

Unscrew red cap on port No. 2. Connect 10ml syringe on port No. 2 and extract approximately 10ml of concentrated plasma.

## Ordering Information

Product	Description	Part Number
	Plasmax Plus With GPS III Single & 30 ml ACD-A	800-0517



\*Denotes Blood Draw Kit Items

## Plasmax Hardware





Product	Description	Part Number
	Universal GPS Spare Bucket Kit for 755VES 60mL (2 Green Buckets)	7433
	Centrifuge 115V 50/60 HZ Drucker with Cord	755VES
	Aerosol Regulator	800-0211
	Plasmax® Plus Concentrator Counterbalance	800-0512
	GPS® Non-Sterile Counterbalance (Blue)	800-0508

## Ordering Information

### Plasmax Disposables

Product	Description	Part Number
	Applicator Tip	800-0201
	Malleable Dual Cannula Tip 20 Gauge x 4 inch Length	800-0202
	Malleable Dual Cannula Tip 20 Gauge x 7 inch Length	800-0203
	Blending Connector Tip Single Cannula	800-0204
	Malleable Dual Lumen Endoscopic Tip 5 mm x 12 inch Length	800-0207
	Aerosol Spray Kit with Two Tips	800-0260
	12 inch Aerosol Endoscopic Rigid Tip 1 to 1 Ratio (Tubing included)	800-0208
	16 inch Aerosol Endoscopic Rigid Tip 1 to 1 Ratio (Tubing included)	800-0217
	Biomet Biologics Manual Spray Applicator Kit (Tip not included) Contents include: Two 12ml Syringes, Two 1ml Syringes, Two Syringe Assembly Sets, Three Liquid Transfer Cups and Lids, One Plastic Tray Spray Applicator Tip	800-0250

## Clotalyst Autologous Thrombin Collection System

Product	Description	Part Number
	Clotalyst/GPS III Single Kit & Reagent	800-0726
	Clotalyst Heater Cord	7760006
	Clotalyst Non-Sterile Counterbalance	800-0760
	Centrifuge 115V 50/60 HZ Drucker with Cord	755VES

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**PLASMAX™ PLUS PLASMA CONCENTRATOR  
USED WITH GPS® III PLATELET CONCENTRATE SEPARATION KIT  
WITH ACD-A**

ATTENTION OPERATING SURGEON

FOR INTERNATIONAL USE ONLY

NOTE: FOR SINGLE USE ONLY. Discard the entire disposable kit after one use, using acceptable disposal method for potentially contaminated blood products.

**DESCRIPTION**

Plasmax™ Plus Plasma Concentrator

Plasmax™ Plus Plasma Concentrator aids in the concentration of the patient's own plasma proteins by centrifugation, utilizing a Biomet Biologics centrifuge. Excess water is removed from the platelet-poor-plasma (PPP) when mixed with desalting beads.

GPS® III Platelet Concentrate Separation Kit with ACD-A

The GPS® III Platelet Concentrate Separation Kit with ACD-A aids separation of the patient's own blood components by density using a Biomet Biologics centrifuge.

**MATERIALS**

The Plasmax™ Plus Plasma Concentrator consists of medical-grade polymers suitable for use in medical devices, and contains porous polyacrylamide desalting beads.

GPS® III Platelet Concentrate Separation Kit with ACD-A includes syringes, needles, tubing, connectors, and platelet separators which also consist of medical grade polymers, elastomers and stainless steels suitable for use in medical devices. Blood-draw kit components in this kit are packaged, labeled and sterilized as indicated by the manufacturer's labeling. All components in this kit are latex free.

ACD-A is an anticoagulant supplied by Citra Anticoagulants, Inc., Braintree, MA, and manufactured by Cytosol Laboratories, Inc., Braintree, MA. For further information regarding ACD-A, please contact the supplier at 1-800-299-3411.

The ACD-A included in this kit is only for use with the Plasmax™ Plus Plasma Concentrator used with GPS® III Platelet Concentrate Separation Kit.

**INDICATIONS**

Plasma from the Plasmax™ Plus Plasma Concentrator may be used as an autologous alternative to wound closure and hemostasis, and it may be used to improve bone graft handling.

**CONTRAINDICATIONS**

1. Use as a dialyzer or for dialysis with a dialysate.
2. Direct connection to patient's vascular system of circulating blood volume.

**WARNINGS AND PRECAUTIONS**

1. Use proper safety precautions to guard against needle sticks.
2. Follow manufacturer instructions when using the centrifuge. Use only a Biomet Biologics centrifuge (GPS® - IEC centrifuge or the Drucker Company centrifuge). Outcomes using centrifuges from other manufacturers are unknown.
3. Do not use sterilized components of this kit if package is opened or damaged.
4. Single use device. Do not reuse.
5. The surgeon is to be thoroughly familiar with the equipment and the surgical procedure prior to using this device.
6. The patient is to be made aware of the general risks associated with treatment and possible adverse effects.
7. Use prepared plasma concentrate material within 4 hours after drawing blood from patient.

**POSSIBLE ADVERSE EFFECTS**

1. Damage to blood vessels, hematoma, delayed wound healing and/or infection.
2. Temporary or permanent nerve damage that may result in pain or numbness.
3. Early or late postoperative infection.

**STERILITY**

Plasmax™ Plus Plasma Concentrator and the GPS® III Platelet Separator are sterilized by exposure to a minimum dose of 25 kGy gamma radiation. All other components supplied in this kit are sterilized by the respective suppliers using radiation or ethylene oxide gas (ETO). Do not re-sterilize. Do not use after expiration date.

**INSTRUCTIONS FOR USE**

NOTE: Use standard aseptic technique throughout the following procedures.

PROCEDURE ONE: Use the GPS® III Platelet Concentrate Separation Kit with ACD-A to prepare PPP and platelet-rich-plasma (PRP).

1. **DRAW:** Draw 6ml of anticoagulant into 60ml syringe. Attach to 18- gauge apheresis needle and prime with ACD-A. Slowly draw 54ml of patient's own blood into the 60ml syringe primed with ACD-A. Gently, but thoroughly mix the whole blood and ACD-A upon collection to prevent coagulation.
2. **LOAD:** ENSURE BLOOD FROM ONLY ONE PATIENT IS PROCESSED PER SPIN, and that the platelet separator remains upright. Unscrew clear cap on center blood port #1. Remove and discard cap and green packaging post. Slowly load blood-filled 60ml syringe (6ml of ACD-A mixed with 54ml of patient's whole blood) into center blood port #1. Unscrew and discard clear protective inner piece from white cap tethered to port #1. Screw white cap back onto port #1. Place platelet separator filled with anticoagulated blood in a Biomet Biologics centrifuge.
3. **BALANCE:** Fill blue GPS® counterbalance tube (800-0508) with 60ml of sterile saline/water (equal to amount of whole blood plus ACD-A dispensed in the platelet separator). Place filled counterbalance directly opposite from the platelet separator in the centrifuge.
4. **SPIN:** Close centrifuge lid. Set RPM to 3.2 (x 1,000) and the time to 15 minutes. Press the start button. Once spin is complete, open centrifuge.
5. **EXTRACT PPP:** Unscrew yellow cap on port #2 and save yellow cap. Connect 30ml syringe to port #2, invert platelet separator, and extract exactly 25ml of PPP. Remove 30ml syringe from port #2, cap with a sterile syringe cap, and set aside. Replace yellow cap on port #2.
6. If (PRP) is desired, follow steps 7 – 8.
7. **SUSPEND PRP:** Holding platelet separator in the upright position, unscrew red cap on port #3. Attach sterile 10ml syringe to port #3. Extract 2ml of PRP into the 10ml syringe. Leave the syringe attached. Shake platelet separator gently for 30 seconds.
8. **EXTRACT PRP:** Immediately after suspending the platelets, extract remaining PRP into the attached 10ml syringe. Remove 10ml syringe from port #3, and cap with a sterile syringe cap.

PROCEDURE TWO: Use the Plasmax™ Plus Plasma Concentrator to prepare platelet-poor-plasma concentrate (PPPC).

1. **LOAD:** Unscrew cap on port #1. Slowly load the 25ml PPP collected in 30ml syringe into port #1. Unscrew and discard clear protective inner piece from white cap tethered to port #1. Screw white cap onto port #1.
2. **MIX:** Twist and piston the mixing paddle for 30 seconds. Be sure to push and twist the paddle to the floor of the Plasmax™ Plus Plasma Concentrator's upper chamber to saturate the beads. There should be no white beads visible. Place into centrifuge.
3. **BALANCE:** Place the green Plasmax™ Plus counterbalance (800-0512) directly opposite from the Plasmax™ Plus Plasma Concentrator in the centrifuge.
4. **SPIN:** Close centrifuge lid and set RPM to 2.0 (x 1,000) and the time to 2 minutes. Press the start button. Once spin is complete, open centrifuge.
5. **EXTRACT PPPc:** Unscrew red cap on port #2 and extract PPPc using a sterile 10ml syringe. Remove 10ml syringe from port #2, and cap with a sterile syringe cap.

Comments regarding this device can be directed to Attn: Regulatory Dept, Biomet. P.O. Box 587, Warsaw, IN 46581 USA, FAX: 574-372-1683.

These devices are only approved for distribution outside the United States.

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1679.1-US-en-REV1117



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