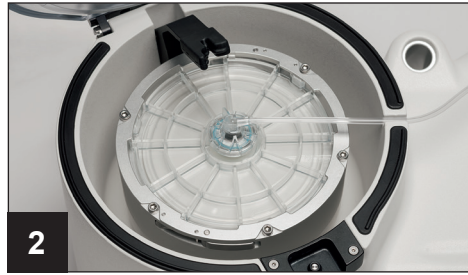
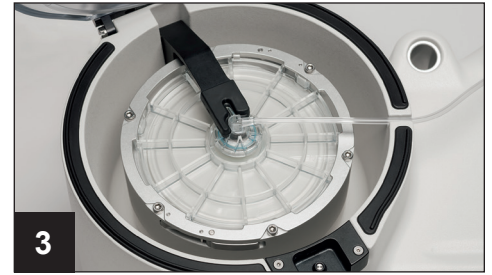




1 Turn on the Arthrex Angel system. Open the centrifuge lid cover and lift the centrifuge stator arm. Remove the Angel processing set from the tray and place it on top of the machine.



2 Ensure that the three 3 threaded Luer caps on each bag compartment **WHOLE BLOOD**, **RBC**, and **PPP** are securely tightened prior to proceeding further. Insert the variable-volume separation chamber into the centrifuge adapter by aligning the notches.



3 Once aligned, press down and turn clockwise until the position indicators snap into place. Lower the centrifuge stator arm and align it with the raised tab on top of the separation chamber.



4 Place the tube leading from the separation chamber through the centrifuge well slot. Close the centrifuge lid.



5 Place the pump loop tubing over the pump rotor. The pump loop will automatically load when the processing cycle is initiated.



6 Press down firmly on the backside of the platelet cuvette until the assembly is snapped into place. *Note: It is essential that the platelet cuvette/valve assembly seats fully on the machine to obtain proper sensing of blood components.*



7 Hang the 3-compartment reservoir bag on the 2 support pins located on the side of the Angel system. Remove the blue cap from the PRP valve port located on the valve assembly. If desired, attach the syringe-activated PRP valve to the PRP valve port. Attach the 20 mL luer lock syringe to the PRP valve port.



8 Touch the button labeled “Disposable set is loaded.” Select the desired processing protocol and change the whole blood/bone marrow aspirate volume if necessary.



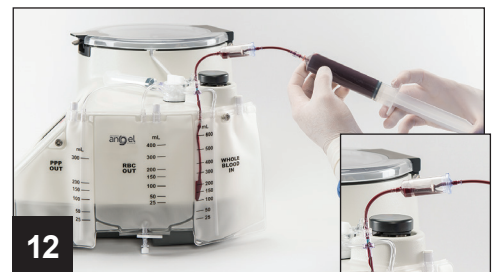
9 Prepare the heparin flush by diluting 5000 units of heparin (1000 U/mL) with 5 mL of sterile saline to achieve a final concentration of 500 U/mL. Transfer heparin flush to sterile field. Transfer ACD-A solution to the sterile field. Each 60 mL syringe will contain 8 mL ACD-A, 30 mL syringes will contain 4 mL of ACD-A and 20 mL syringes require 3 mL of ACD-A.



10 At the sterile field, draw up the heparin flush in the first 30 mL collection syringe. Flush the bone marrow harvest needle. Return the remaining heparin flush solution to the medicine cup. Draw 4 mL of ACD-A solution into the first 30 mL collection syringe and cap.



11 At the sterile field, use the second 30 mL collection syringe to draw up the remaining heparin solution. Flush the bone marrow processing filter. Discharge the remaining heparin solution. Draw 4 mL of ACD-A solution into the second 30 mL collection syringe and cap.



12 After the Angel system has been assembled and the operator has connected the heparin-flushed bone marrow filter to the “WHOLE BLOOD IN” compartment, the citrated bone marrow aspirate may be introduced. The ratio of citrate anticoagulant to whole blood, bone marrow aspirate, or a mixture of both is 1:7.



13 The Angel system can process 40 - 180 mL of whole blood, bone marrow aspirate, or a mixture of both in a single cycle. The approximate spin time for a 40 mL sample is 15 minutes. The spin time for a 180 mL sample is 26 minutes.



14 The first component to be collected is PPP. The Angel system will then adjust the valve position to collect PRP until RBCs are detected and the preset hematocrit is reached.



15 PRP collection is automated. No manual steps are required for preparation and there are no syringes to change, buffy coats to resuspend, or plasma to decant.



16 The cycle is complete with the collection of the red blood cells in the “RBC OUT” compartment. To increase the volume of the PRP syringe by diluting with PPP, simply pull back on the plunger of the syringe or withdraw the PPP from the port on the PPP compartment. If another cycle is desired, touch “new cycle” on the touch screen. If a new cycle is not desired, touch “end case” on the touch screen to finalize processing. *Note: The Angel system can process up to 180 ml of blood/bone marrow aspirate in 1 cycle or a total of 3 consecutive cycles for the same patient with the same processing set.*

Whole Blood / Bone Marrow Aspirate vs. Citrate Anticoagulant Mixture

(approximately a 7:1 ratio; 7 parts blood/bone marrow aspirate to 1 part citrate anticoagulant)

Total Volume of Anticoagulated Whole Blood/Bone Marrow Aspirate (mL)	Volume of ACD-A (mL)	Volume of Whole Blood/Bone Marrow Aspirate Drawn (mL)
40	5	35
50	6	44
60	8	52
70	9	61
80	10	70
90	12	78
100	13	87
110	14	96
120	16	104
130	16	114
140	18	122
150	19	131
160	20	140
170	21	149
180	24	156

Directions for Use

US

- DFU-0259: Arthrex Angel® Concentrated Platelet Rich Plasma (cPRP) Processing Set IFU
- DFU-0262: Angel® Concentrated Platelet Rich Plasma (cPRP) System - Operator's Manual

EU

- DFU-0260: Arthrex Angel® Concentrated Platelet Rich Plasma (cPRP) Processing Set IFU
- DFU-0263: Angel® Concentrated Platelet Rich Plasma (cPRP) System - Operator's Manual

NOTE: Refer to the most current version of each document.