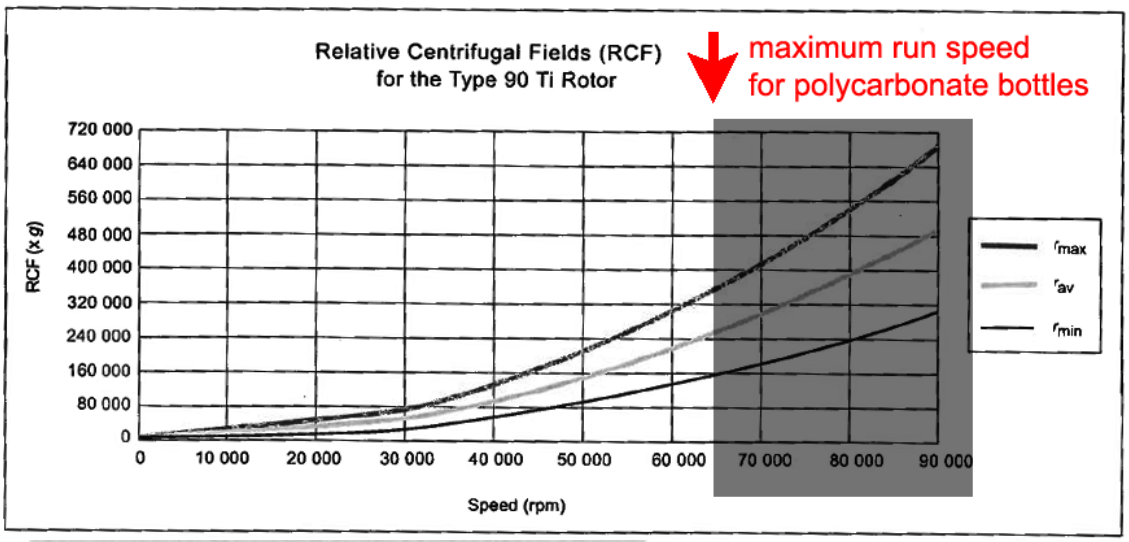
SHORT MANUAL USE OF BECKMAN-COULTER OPTIMA XE90 ULTRACENTRIFUGE

- Get instructions from the assistant on how to handle the equipment: check cleanliness of rotor and chamber, how to grease o-rings and screw, how to load tubes in cavities, how to insert the rotor on the axis of the machine and how to close the chamber door.
- Booking through bookings.science.ru.nl
- Prepare rotor and weight-balanced tubes (dry, clean; fill opposite positions). Bottle filled AT LEAST half. Tara difference between tubes should be less than 50 mg.

- Switch on machine (switch right side panel of the ultracentrifuge). The touch-screen monitor with setup menu lights up
- Insert the rotor in the chamber en close the lid (ALL THE WAY TO THE LEFT!)
- On the touch-screen, determine the run settings: 1 = velocity; 2 = duration of run, 3 = temperature, 4 = Acceleration (0 to 9 is rapid to very slow), 5 = deceleration (0 to 9 is rapid to very slow), 6 = vacuum pumping (or ventilation after run), 7 = Start run (8 = Stop)
  (Note that RPM/RCF button in set speed/rcf is only available when the rotor type has been enabled through options>reference)
- **<u>Fill Log book- Leave all clean (especially rotor and chamber)</u>**



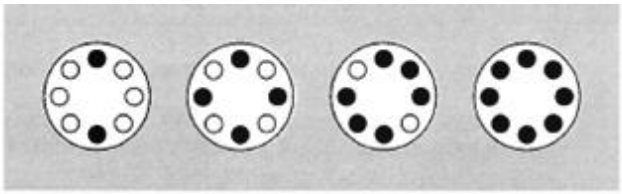


Figure 1. Arranging Tubes in the Rotor. Two, four, six, or eight tubes can be centrifuged per run, if they are arranged in the rotor as shown.

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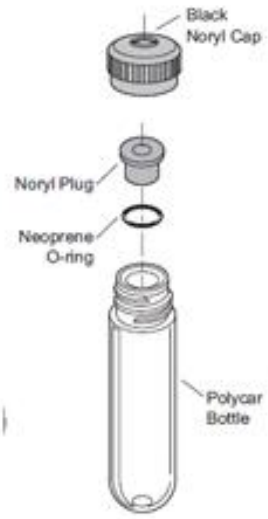
Bottle filled AT LEAST half.
Tara difference between tubes < 50 mg.



Cap bottles with three-piece cap assemblies as follows:

1. Be sure the O-ring, plug, and bottle lip are dry and free of lubrication.
2. Place the O-ring on the underside of the plug.
3. Insert the plug into the neck of the bottle, ensuring that no fluid contacts the O-ring.
4. Tighten the cap by hand.

Polycarbonate Bottles

The polycarbonate bottles may be centrifuged completely filled, or partially filled (not less than half full). Again, all opposing containers for a run must be filled to the same level. Be sure to note the reductions in run speed shown in Table 1 if bottles are partially filled.

Table 1. Available Tubes for the Type 90 Ti Rotor (continued)

Tube			Required Accessory		Tube Rack	Max Speed/ RCF/ *k* Factor
Dimensions and Volume	Description	Part Number	Description	Part Number		
16 × 76 mm 10.4 mL	polycarbonate bottle assembly (bottle only–355651)	355603 (pkg/6)	Noryl[d] cap	355604	none	65 000 rpm[e] 362 000 × *g* 48

Table 2. Relative Centrifugal Fields for the Type 90 Ti Rotor. Entries in this table are calculated from the formula $RCF = 1.12\, r\,(RPM/100)^2$ *and then rounded to three significant digits.*

Rotor Speed (rpm)	Relative Centrifugal Field (× *g*)			*k* Factor*
	At r_{max} (76.5 mm)	At r_{av} (55.4 mm)	At r_{min} (34.2 mm)	
90 000	694 000	503 000	310 000	25
85 000	619 000	448 000	277 000	28
80 000	548 000	397 000	245 000	32
75 000	482 000	349 000	215 000	36
70 000	420 000	304 000	188 000	42
65 000	362 000	262 000	162 000	48
60 000	308 000	223 000	138 000	57
55 000	259 000	188 000	116 000	67
50 000	214 000	155 000	95 800	82
45 000	174 000	126 000	77 600	101
40 000	137 000	99 300	61 300	127
35 000	105 000	76 000	46 900	166
30 000	77 100	55 800	34 500	227

*Calculated for all Beckman Coulter preparative rotors as a measure of the rotor's pelleting efficiency in water at 20°C.

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