SX4750A
# Swinging-Bucket Rotor

Specifications
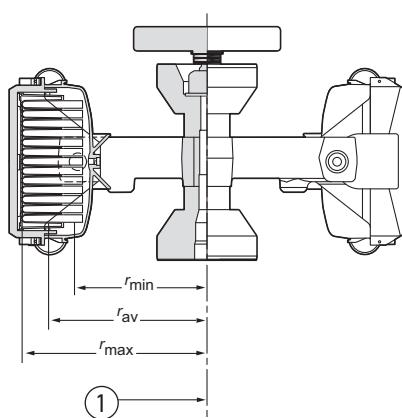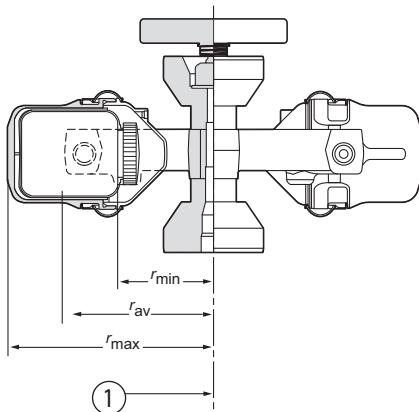
1. Axis of Rotation

Maximum speed
    Allegra X-15R (tube-and-bottle buckets) .... 4750 RPM
    Allegra X-15R (multiwell-plate carriers).............................. 4450 RPM
    Allegra X-14 series (tube-and-bottle buckets) .... 4300 RPM
    Allegra X-14 series (multiwell-plate carriers)..................... 4000 RPM
    Allegra X-12 series (all buckets) .... 3750 RPM

Critical speed range[a] ....580 to 720 RPM

Maximum solution density .... 1.2 g/mL

Relative Centrifugal Field[b] at maximum speed
    using tube-and-bottle buckets (r_{max} = 207.8 mm) .... $5250 \times g$[c]

    using multiwell-plate carriers (r_{max} = 183.2 mm)................ $4060 \times g$[c]

Conditions requiring speed reductions .... see Speed Derating

Number of buckets/carriers 4

Available tubes and bottles .... see Table 2

Maximum load allowed in each tube-and
    bottle bucket at rated speed
    (excluding weight of bucket and cover)........................... 1000 grams

Maximum load allowed in each multiwell-plate
    carrier at rated speed (excluding weight
    of carrier and cover).. 360 grams

Total maximum allowable imbalance of opposing loads ....50 grams

Maximum rotor capacity.. 3 liters

Approximate acceleration time .... 80 seconds

Approximate deceleration time... 81 seconds

Weight of fully loaded rotor (buckets with covers) .... 15.4 kg (33.9 lb)

Rotor yoke material .... stainless steel

Bucket and carrier material .... anodized aluminum

a. The critical speed range is the range of speeds over which the rotor shifts so as to rotate about its center of mass. Passing through or running at the critical speed range is characterized by some vibration.

b. Relative Centrifugal Field (RCF) is the ratio of the centrifugal acceleration at a specified radius and speed ($r\omega2$) to the standard acceleration of gravity (g) according to the following formula: RCF = rω2/g — where r is the radius in millimeters, ω is the angular velocity in radians per second (2π RPM /60), and g is the standard acceleration of gravity (9807 mm/s^2). After substitution: RCF = 1.12r (RPM/1000)^2

c. RCF inside buckets is 5095 ´ g (tube-and-bottle buckets—r_{max} 201.6 mm) or 3919 ´ g (multiwell plate carriers—r_{max} 176.7 mm).