

Laboratory Sample Preparation  
Centrifugation Solutions  
for the Lab



Jouan 3 Liter Centrifuges  
Quality, Power and Safety for Multiple Applications

## Precise Responses to Real Needs

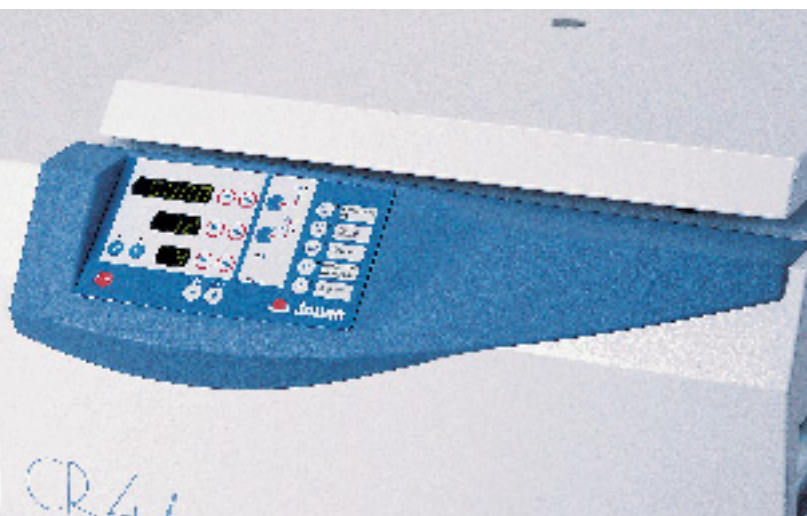
The latest in a broad range of proven centrifuges, the new C4i and G4i series represents a beneficial mix of power, reliability, safety, ease of use, versatility and value.

Quality, serviceability and safety are the main goals of every Thermo R&D project: we have manufactured centrifuges for more than 80 years, and our commitment to these goals has allowed us to achieve worldwide success.

Designed and manufactured in ISO9001 certified facilities, and compliant to all the relevant international standards, the new C4i and G4i centrifuges are a complete range of powerful, versatile and elegant 3-liter centrifuges.

## True Benefits for Your Money

- **Versatile accessories** for multiple applications: a choice of 8 rotors, from high capacity swing-out to sealed high speed.
- **Improved ergonomics** for comfortable and simple operation in complete safety.
- **Easy program** storage, protection and recall.
- **Complete control** of the process parameters, through a simple and intuitive control panel.
- **Adjustment of protocol parameters** allows protection of fragile samples.
- **Safety** for the **sample** and the **operator**, provided by certified accessories and proven with rigorous testing.
- **True sample temperature control**: superior cooling performance on the refrigerated models, minimum temperature increase on the ventilated, extended set range on the thermostated.
- **High reliability** and performance due to the use of a brushless induction drive motor.



### Reliable and Repeatable Runs

Direct rpm / RCF set and control permits immediate translation and application of all protocols, while a pulse key allows instant short runs with lightweight rotors.

For useful adjustment of protocols with very fragile samples, the software provides 5 acceleration and 5 braking profiles. This permits the minimum run time to be achieved while avoiding resuspension of the pellet.

### Ergonomics and Convenience

The low sound level of the C4i ensures a pleasant working environment. The simple and intuitive control panel is equipped with bright displays, allowing anyone to monitor operations from across the laboratory.

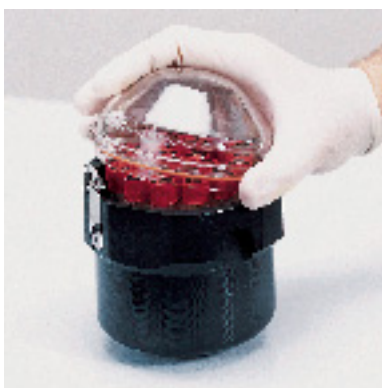
### Safety for the Sample and the Operator

The C4i family offers more than the basic safety features required of a modern centrifuge, allowing it to be safely operated by everyone. Audible and visual messages operate if any anomaly arises. In case of excessive imbalance the machine will stop within a few seconds. All the rotors are automatically identified and prevented from exceeding allowed speeds. A double lid locking system, armored chamber and a number of other important features allow easy and simple use in complete safety.

### Guaranteed Protection from Biohazards

The C4i family offers a wide range of accessories ensuring biocontainment, equipped with solvent-proof gasket and certified by CAMR, Porton Down (UK) according to IEC/EN 1010-2-020.

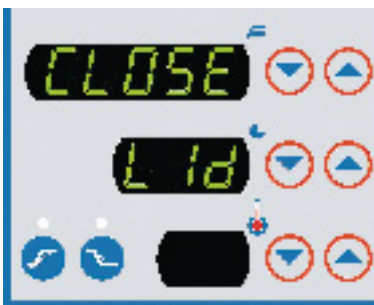
Five different sealing caps are easy to fit and clean, and are transparent to allow the immediate detection of biological risks. In case of tube breakage, the individually sealed bucket can be removed and opened in a biosafety cabinet. Moreover, should one tube break, the samples in the other sealed buckets are still viable. The simple act of putting on the caps ensures maximum safety!



The protocols developed in the lab must be tuned to achieve maximum efficiency.



The centrifuge must be a safe and convenient partner for everyone in the lab.



Laboratory staff must be protected against tube spillage or breakage.



## LONG TERM RELIABILITY

Centrifuges are essential equipment, expected to operate for years with minimum maintenance

The motor and corresponding power electronics are both designed and manufactured by Thermo, ensuring continuous quality control. Operation is very quiet and provides rapid acceleration and efficient braking during every run.

Optimized for this series of centrifuges, the design guarantees constant and reliable performance throughout the life of the centrifuge.



## Accurate Definition and Control of Every Run

### Intuitive Control Panel

A simple, intuitive watertight keyboard is easy to understand and fast to use. Reproducing the simplicity and quick settings of instruments based on analog technology, the precise microprocessor control assures reproducible runs in conformity with GLP standards. Protocols can be saved in five memory locations for instant recall with a single keystroke.

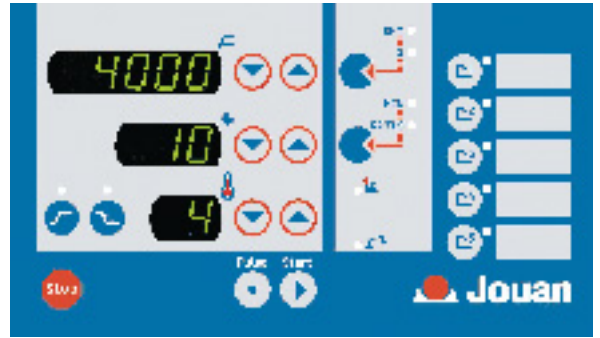
### Complete Programming

For each protocol, centrifugation time, speed, 'g' force, temperature, acceleration and braking rates can be selected. Both set parameters and actual conditions of centrifugation can be read on the display and can be modified in real time. Precise RCF setting and display is guaranteed when using any kind of adapter or container because the Radius can be programmed to within 1 mm (simple automatic rotor detection does not permit this). Using this feature the RCF can be selected for a specific boundary anywhere in the tube.

### Temperature Control

Ventilated units provide centrifugation at room temperature, with minimal sample temperature increase. Refrigerated models CR4i and GR4i are equipped with a powerful refrigeration system; settings from -9°C to 40°C are possible, and the centrifuge provides excellent cooling performance even at maximum speeds. 4°C is easily maintained at full load, full speed, and with any rotor. Thermostated versions, CT4i and GT4i, offer fast and homogeneous temperature control between -9°C and 60°C, ideal for operations at 37°C.

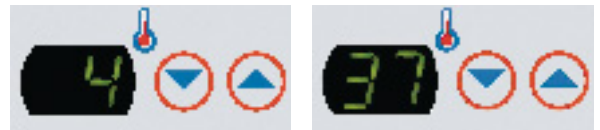
Daily routine demands simplicity.  
 Research requires superior versatility.



KeyWrite™ control system with naming of the programs by the user.

Sensitive samples must be protected from damage by heat.

Cell cultures should be processed at incubating temperature.



## THERMOSTATING BENEFITS

Cell cultures are heat-sensitive: a run at incubating temperature greatly reduces stress risks. Oils reduce their viscosity at 60°C, improving the quality of the separation. Cryoglobulins precipitate below 37°C: a warm centrifuge run is essential for their preservation.



### The C4i Value Stands on its Own Feet

The Jouan G4i series takes the C4i benchtop centrifuges and converts them into compact floor-standing models, an ideal choice for today's laboratory where bench space is often limited.

Equipped with the same accessories, the G4i series offers all the same benefits as the C4i series, but in a format that can be stored, moved and installed almost everywhere: a real mobile alternative that doesn't give up the safety, comfort and wide accessory choice of the benchtop units.

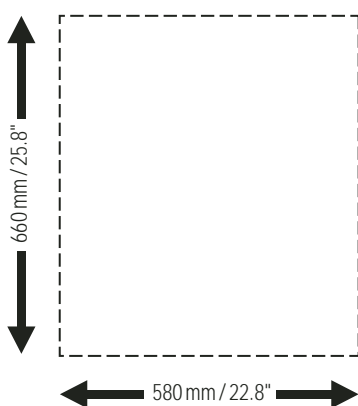
### Setting and Control: At a Glance

The G4i series provides easy operations at the control panel, which is angled for optimal visibility and keypad use while standing or sitting.

### Small Footprint

The compact dimensions of the Jouan G4i series ensure easy placement in any available space.

Doors, lifts, stairs and other passageways are no longer a concern.



### Silent and Powerful Temperature Control

The G4i series is available in ventilated, refrigerated and thermostated versions, providing the same powerful performance as the benchtop units.

### Full Access to the Top

At 86 cm (33.8") high, the G4i working height makes sample loading and rotor exchange a comfortable and easy operation.

Looking into the bowl, when the centrifuge is open, is trouble-free.

The lid can be opened and closed easily (the user is assisted by gas springs).

### Capacity and Convenience

The G4i series liberates expensive bench space while still being handily situated in the same laboratory.

Its portability optimizes the investment, because there is no need to permanently locate it in a dedicated room.

### Transportable and Secure

The G4i is designed to be easily moved and installed in a minimum of room space, allowing installation between benches or beside other floor standing instruments.

When the best location is found, the locking wheels allow the centrifuge to be safely set in place on the floor for undisturbed operation.



## WORLDWIDE COMPLIANCE

The C4i and G4i series are CE marked to the latest directives. Furthermore, Thermo has chosen to voluntarily comply to the international IEC 1010 family of standards, in its general and specific safety requirements for laboratory centrifuges.

## Versatile Accessories for Multiple Applications

### Power, Capacity and Performance

The C4i series accepts samples up to 750 mL, including tubes, bottles, microplates, special containers and blood bags.

A wide range of rotors and inserts can handle sample tubes of all shapes and sizes plus special carriers, and accommodate large batches of tubes in the pre-analytical preparation of samples.

With their capacity of 92 x 5/7 mL Vacutainers®, 28 x 50 mL conical tubes, 16 x microplates or 4 x deepwell blocks, the C4i family of centrifuges are the ideal solution for high volume laboratories.

### Time Savings

Laboratories equipped with automated hemostasis or biochemistry analyzers can easily spin their Stago/Hitachi racks directly in the Jouan C4i/G4i centrifuges. 12 Stago/Hitachi racks per run (for a total of 60 tubes) can be accepted by special buckets for the T4 rotor. Tubes can be placed in the racks as soon as they arrive at the laboratory eliminating inefficient, repetitive loading.

The limited manipulation required during transfer to the analyzer saves time and reduces the cost of an automated system.

### Industry Standard for Genomics

The swing-out deepwell rotor QG 2.5 permits deep-well plates, even those with columns / filter units, to be spun and perfect separation to be achieved. The C4i/G4i can spin columns and blocks from many manufacturers.

A specially designed holder accommodates deepwell blocks, allowing direct loading of the centrifuge with the bucket in place.

Providing high RCF, the QG2.5 rotor permits high throughput for nucleic acid isolation, allowing purification of nucleic acids from 192 samples in parallel.

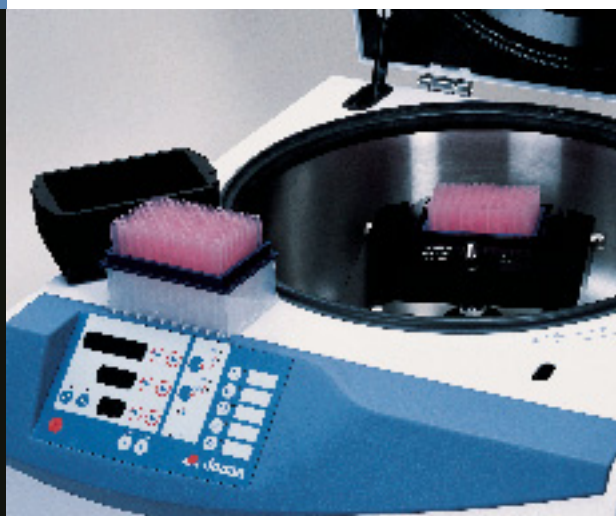
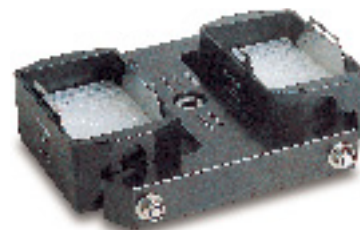
The centrifuge must be suitable for a wide range of protocols and containers.



Analzers require tubes to be loaded into racks.



Deep-well microplate kits require high centrifugal force.



## M4 Swing-Out Rotor

- Cat N°: 1175338
- 4500 rpm / 4822 x g
- For 4 x 750 mL bottles
- Up to 148 x 5 mL tubes
- Up to 80 x 5/7 mL vac tubes
- Up to 28 x 50 mL con tubes
- Up to 16 microplates
- Safety covers are available



## M4 Accessories

### Standard buckets

- 11174154 Standard buckets (4)
  - 62813600 PTFE coated buckets (4)
  - 81005750 750 mL bottles (6)
  - 85240471 Cushion (4) for 750 mL bottles
- Inserts : see M4 inserts and performance table

### Sealed buckets

- 11174218 Sealed buckets (4)
  - 62814801 PTFE coated sealed buckets (4)
  - 81005750 750 mL bottles (6)
  - 85240471 Cushions (4) for 750 mL bottles
  - 25144058 Spare sealing lid (cert. biocontainment)
  - 85241381 Spare seal
- Inserts : see M4 inserts and performance table



### Sealed bucket with liner

- 11175385 For 450 mL blood triple bags (depends upon brand/model)

### Bucket for Corning® conical

- 11175372 For 250 mL bottles
- 11175378 Sealed bucket for 250 mL conical bottles



### Bucket for Nalgene 500 mL

- 11175370 For 500 mL flat
- 11175371 Adapters (4) for 250 mL conical bottle
- 85240513 Adapters (4) for 2 x 60 mL

### Microplate carriers

- 11174168 Microplate carriers (4)
- 11174207 Rubber cushion for flexible microtiter plates
- 11174223 Sealed carriers (4)
- 11178216 Spare sealing lid (cert. biocontainment)



### 600 mL stainless steel beakers

- 11174203 600 mL SS beakers (4)
- 41176423 Lid for 600 mL beakers

### Cytology accessories

- 11172499 Cytobuckets®\* (2)
  - 11203558 Cytobucket slides\* (50)
  - 11203559 Cytobucket foam layers\* (50)
  - 11203561 Tube of silicone
  - 11203562 Blotting paper pad
- \*for use with the insert 11174202



## T4 Swing-Out Rotor

- Cat N°: 11175366
- 4500 rpm / 4098 x g
- For 4 x 250 mL bottles
- Up to 168 x 8.5 mL tubes
- Up to 72 x 5/7 mL vac tubes
- Up to 12 x 50 mL con tubes
- Up to 12 microplates.
- Safety covers are available



## T4 Accessories

### Standard buckets

- 11175367 Standard buckets (4)
  - 25250022 T4 rubber cushion
  - 11175343 5 sets of decanting rubber pads (4) for 11175360
  - 11175368 Spare sealing lid (cert. biocontainment)
  - 25439074 Lid seal - for 11175368
- Inserts : see T4 inserts and performance table



### Microtitration

- 11175377 Microtitration buckets (4)
- 11174207 Rubber cushion for microtiter plates



### Buckets for Stago/Hitachi racks

- 11175381 Buckets (4)



### Blank insert

- 25322578 For custom made carrier
- 25250022 Insert base to accept slices



### Cytology accessories

- 11172499 Cytobuckets®\* (2)
- 11203558 Cytobucket slides\* (50)
- 11203559 Cytobucket foam layers\* (50)
- 11203561 Tube of silicone
- 11203562 Blotting paper pad

\*For use with the insert 11175359

## QG 2.5 Deepwell Rotor

- Cat N°: 11175382
- Max speed : 5400 rpm
- Max RCF : 4140 x g
- Angle : 0 -90°
- Max capacity : 2 x 1 column filter blocks, 2 x 6 microplates



## APPLICATION

The Jouan C4i centrifuge series meets the needs of customers for the extraction of DNA from whole blood and related body fluids (plasma, serum, body fluids, lymphocytes, bone marrow, cultured cells).

Laboratory tests have demonstrated the high quantity and quality of DNA extracted from biological samples (whole blood) running the most common kits / protocols in the Jouan C4i series.

Ask your Thermo representative for related application notes.

## M4 Inserts and Performance

Cat. N° (set of 4)	Color of insert or type	Insert Capacity	Rotor Capacity	Max tube Ø [mm]	Max* tube height [mm]	Tube volume [mL]	Max Radius [mm]	C4i-G4i			CT/CR4i - GT/GR4i	
								Max Speed [rpm]	Max RCF [x g]	Max Speed [rpm]	Max RCF [x g]	
11174204	Black / light blue	30	120	8.5	40	0.8	165	4000	2952	4500	3736	
11174201	Black / light blue	30	120	11.5	40	1.5 / 2	160	4000	2862	4500	3622	
11174206	Black / coral	12	48	16.5	40	4 flat	184	4000	3291	4500	4166	
11174205	Black / beige	9	36	18	40	4 flat	184	4000	3291	4500	4166	
11174216	Black	16	64	17	60	5 flat	173	4000	3095	4500	3917	
11174157	Black / grey	37	148	12.5	100	5	172	4000	3077	4500	3894	
11174193	Black / grey	decanting	-	12.5	-	5	172	4000	3077	4500	3894	
11174158	Black / light blue	30	120	13.5	100	6	172	4000	3077	4500	3894	
11174224	Black	19	76	13.5	107	5 / 7 ven	172	4000	3077	4500	3894	
11174159	Black / yellow	20	80	13.5	107	5 / 7 vac	172	4000	3077	4500	3894	
11177574	Black	23	92	13.5	107	5 / 7 vac	172	4000	3077	4500	3894	
11174160	Black / red	19	76	16.5	107	7 / 10 vac	172	4000	3077	4500	3894	
11174219	White	16	64	17	120	5 / 10 flat	180	4000	3220	4500	4075	
11174208	Black / orange	12	48	16.5	125	10 flat	184	4000	3291	4500	4166	
11174188	Beige	9	36	18	120	10 flat	172	4000	3077	4500	3894	
11174161	Brown	7	28	17.7	134	15 vac	185	4000	3309	4500	4188	
11175781	Black	10	40	18	122	15 con	188	4000	3363	4500	4256	
11177573	Black	12**	48**	18	122	15 con	188	4000	3363	4500	4256	
11174190	Orange	12	48	16.5	125	15	184	4000	3291	4500	4166	
11174163	Coral	12	48	22.2	108	20	177	4000	3166	4500	4007	
11174532	Black	7	28	25.5	93.5	25 flat	173	4000	3095	4500	3917	
11174186	Dark red	7	28	30	115	25 flat	172	4000	3077	4500	3894	
11174164	Dark red	7	28	30	115	50	182	4000	3256	4500	4120	
11174225	Black	3	12	35.5	120	50	184	4000	3291	4500	4166	
11174529	Black	7**	28**	30	116	50 con	185	4000	3309	4500	4188	
11177572	Black	5	20	30	116	50 con	-	4000	3363	4500	4256	
11174199	Light blue	4	16	30	120	50 flat	172	4000	3077	4500	3894	
11174165	Dark blue	4	16	35	120	50	185	4000	3309	4500	4188	
11174166	Dark green	2	8	45	118	100	185	4000	3309	4500	4188	
11174167	Turquoise	1	4	63	134	250 flat	185	4000	3309	4500	4188	
11174227	Black	1	4	65	-	300 flat	185	4000	3309	4500	4188	
11174192	Navy blue	1	4	80.5	125	450	185	4000	3309	4500	4188	
11174202	Black	1	4	-	-	cytoblock	180	4000	3220	4500	4075	
11174203	-	1	4	-	-	600 flat	190	4000	3399	4500	4302	
See Corning for adapters		1	4	-	-	500 con	190	4000	3399	4500	4302	
81005750	Bottle (set of 6)	1	4	100	133	750	178	4000	3184	4500	4098	
11174169	-	1	4	Blood bag (pediatric)	-	-	190	4000	3399	4500	4302	
11174168	Carriers	3	12	Microplates	-	-	160	4000	2853	4500	3611	
11174223	Carriers	3	12	Microplates (sealed)	-	-	173	4000	3095	4300	3917	
11174223	Carriers	4	16	Microplates	-	-	173	4000	3095	4500	3917	
11175372	Buckets	1	4	Corning 250 mL	-	250 con	213	4000	3810	4500	4822	
11175378	Sealed buckets	1	4	Corning 250 mL	-	250 con	213	4000	3810	4500	4822	
11175370	Buckets	1	4	Nalgene 500 mL	-	500 flat	208	4000	3721	4500	4709	
Insert available for the 11175370 bucket - for Nalgene 500 mL flat bottomed bottle:												
11175371	-	1	4	-	-	250 con	213	4000	3810	4500	4822	

## T4 Inserts and Performance

Cat. N° (set of 4)	Color of insert or type	Insert Capacity	Rotor Capacity	Max tube Ø [mm]	Min/max* tube height [mm]	Tube volume [mL]	Max Radius [mm]	C4i-G4i			CT/CR4i - GT/GR4i	
								Max Speed [rpm]	Max RCF [x g]	Max Speed [rpm]	Max RCF [x g]	
11175340	Black	42	168	8.5	35 / -	0.5 / 0.8	174	4000	3113	4500	3939	
11175341	Salmon	20	80	11	35 / -	1.5 / 2.2	174	4000	3113	4500	3939	
11175342	Beige	30	120	11	65 / 107	3 / 5	174	4000	3113	4500	3939	
11175343	Grey	26	104	12.7	67 / 107	5	174	4000	3113	4500	3939	
11175357	White	7	28	18	35 / -	5 flat	174	4000	3113	4500	3939	
11175344	Light blue	20	80	13.5	65 / 107	6	174	4000	3113	4500	3939	
11175345	Yellow	18	72	13.5	65 / 108	7 vac	174	4000	3113	4500	3939	
11175346	Red	12	48	16.5	65 / 112	10 vac	174	4000	3113	4500	3939	
11175373	Black	14	56	13.5	- / 112	10	162	4000	2898	4500	3368	
11175347	Cream	12	48	17.5	65 / 112	10 flat	174	4000	3113	4500	3939	
11175358	White	7	28	18	90 / 122	12 flat	174	4000	3113	4500	3939	
11175348	White	7	28	18	90 / 122	15 con	176	4000	3148	4500	3985	
11175349	Orange	7	28	16.5	90 / 127	15 vac	174	4000	3113	4500	3939	
11175350	Brown	4	16	16.5	90 / 133	15 vac	176	4000	3148	4500	3985	
11175351	Coral	8	32	22.2	90 / 116	20	176	4000	3148	4500	3985	
11175352	Light yellow	5	20	25	90 / 120	25	176	4000	3148	4500	3985	
11175375	Light yellow	5	20	25	90 / 120	25 flat	176	4000	3148	4500	3985	
11175353	Dark red	4	16	30.5	90 / 122	50	176	4000	3148	4500	3985	
11175354	Light blue	3	12	30	90 / 117	50 con	176	4000	3148	4500	3985	
11175376	Light blue	3	12	30	90 / 117	50 flat	176	4000	3148	4500	3985	
11175374	Dark red	4	16	30	- / 122	50 flat	162	4000	2898	4500	3368	
11175361	Dark blue	2	8	35	90 / 122	50	176	4000	3148	4500	3985	
11175355	Green	1	4	45	90 / 132	100	176	4000	3148	4500	3985	
11175356	Turquoise	1	4	63	65 / 125	250 flat	172	4000	3077	4500	3894	
11175359	Black (set of 2)	1	4	Cytobucket	-	-	181	4000	3238	4500	4098	
11175377	Microplates	3	12	-	-	-	158	4000	2826	4500	3577	

\* All holes filled in sealed buckets. Smaller quantities of taller tubes may be accommodated by omitting the outer rings of holes. \*\* In open buckets only

## Fixed Angle Rotors

A range of six angle rotors, covering the range of microtubes to 100 mL tubes with high batch capacity (such as 40x15 mL), responds to requirements for higher speeds and for sample concentration systems.



## Angle Rotor Features

	CD1	CD2	CD3	CD4	CD5	Microvolumes
Catalogue numbers	11175181	11175183	11175186	11175180	11175187	11174217
Max capacity	8 x 100 mL	10 x 50 mL	40 x 15 mL	40 x 15 mL	40 x 15 mL	30 x 1.5 mL
Max tube Ø	44.5 mm	34 mm	18.5 mm	16.5 mm	16.5 mm	11 mm
L min / max	106 / 115 mm	97 / 115 mm	93 / 110 mm	93 / 131 mm	115 / 130 mm	-
Max speed [rpm]	7800	7800	7800	7800	7800	7800
Max RCF [x g]	8000 (R / T)	8000 (R / T)	8000 (R / T)	8000 (R / T)	8000 (R / T)	8000 (R / T)
	9115	8842	9863	9795	10271	7822
Angle	9588 (R / T)	9302 (R / T)	10375 (R / T)	10303 (R / T)	10804 (R / T)	8228 (R / T)
	35°	35°	35°	35°	35°	45°
Bottom	Round	Round	Round	Round	Round	-
Sealing lid	-	-	-	-	•	-

## Accessories for Fixed Angle Rotors

Cat. N°	Insert capacity	Max tube Ø [mm]	Description	CD1	CD2	CD3	CD4	CD5
64662300	1	16.5	Set of 8 adaptors for 10 mL vac tubes	•				
64726601	1	30	Set of 10 isolators		•			
64724502	1	29	Set of 10 adaptors for 50 mL conical tubes		•			
11174535	1	26	Set of 8 adaptors for 38 mL tubes		•			
11174536	1	24	Set of 10 adaptors for 30 mL Corex® tubes		•			
64814700	1	17.5	Set of 10 adaptors for 15-20 mL tubes		•			
64726602	1	16	Set of 10 adaptors for 15 mL vac tubes		•			
25250012	1*	16.5	Adaptors for 15 mL conical tubes			•		
11174607	1	13	Set of 10 adaptors for 6 mL tubes				•	•

\* Only external row, 20 total









## APPLICATION

For spinning microplates, the best choice of carriers when using any of the Jouan C4i and G4i series centrifuges is the sealed microplate carriers (11174223).

Why? When used without lids, the lack of a top cross bar allows plates to be inserted and removed without taking the bucket off of the rotor. Up to 16 plates per run!

## Technical Specifications

	C4i	CR4i	CT4i	G4i	GR4i	GT4i
						
<b>Catalog numbers</b>						
230V - 50/60 Hz	11177560	11177563	11177578	11177566	11177569	11177575
120 V - 60 Hz	11177561	11177564	11177579	11177567	11177570	11177576
<b>Product Dimensions</b>						
Height (lid open) [cm / in]	92 / 36.2	92 / 36.2	92 / 36.2	134 / 58.8	134 / 58.8	134 / 58.8
Height / lid closed) [cm / in]	42 / 16.5	42 / 16.5	42 / 16.5	86 / 33.8	86 / 33.8	86 / 33.8
Width [cm / in]	58 / 22.8	85 / 33.5	85 / 33.5	58 / 22.8	58 / 22.8	58 / 22.8
Depth [cm / in]	66 / 26.0	66 / 26.0	66 / 26.0	66 / 26.0	66 / 26.0	66 / 26.0
Weight unpacked [kg / lb.]	80 / 176	106 / 233	106 / 233	95 / 209	115 / 253	115 / 253
<b>Packing Dimensions</b>						
Height [cm / in]	50 / 19.7	50 / 19.7	50 / 19.7	99 / 38.9	99 / 38.9	99 / 38.9
Width [cm / in]	70 / 27.6	97 / 38.2	97 / 38.2	68 / 26.7	68 / 26.7	68 / 26.7
Depth [cm / in]	67 / 26.4	67 / 26.4	67 / 26.4	78 / 30.7	78 / 30.7	78 / 30.7
Weight packed [kg / lb.]	91 / 201	116 / 256	116 / 56	120 / 264	145 / 319	145 / 19

		C4i-G4i	CT/CR4i-GT/GR4i
<b>Specification Parameters</b>			
Max capacity	Swing-out Fixed Angle	(4 x 750 mL) 3000 mL (8x100 mL) 800 mL	(4 x 750 mL) 3000 mL (8x100 mL) 800 mL
Max density		1.2	1.2
Max load		3.6 kg	3.6 kg
Max speed	Swing-out (M4) Swing-out (QG2.5) Fixed Angle	4000 rpm 5400 rpm 7800 rpm	4500 rpm 5400 rpm 8000 rpm
Max RCF	Swing-out (M4) Swing-out (QG2.5) Fixed Angle	3810 x g 4140 x g 10270 x g	4822 x g 4140 x g 10804 x g
Control system		Microprocessor	Microprocessor
Programs		5 (direct recall)	5 (direct recall)
Speed set/display	Range Step	500 - 7800 rpm 10 rpm at less than 1000 rpm 100 rpm at above 1000 rpm	500 - 8000 rpm 10 rpm at less than 1000 rpm 100 rpm at above 1000 rpm
RCF set/display	Accuracy Range Step	±20 rpm (display) 20 - 10300 x g 10 x g at less than 1000 x g 100 x g at above 1000 x g	±20 rpm (display) 20 - 10800 x g 10 x g at less than 1000 x g 100 x g at above 1000 x g
Timer set/display	Accuracy	±20 x g (display)	±20 x g (display)
Temperature set/display		30 s - 99 min + continuous	30 s - 99 min + continuous
Acceleration rates		-	-9°C to 40°C ("R") -9°C to 60°C ("T")
Braking rates		5	5
Drive system		5	5
Motor type		Direct	Direct
		Brushless induction	Brushless induction



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