

MICROCENTRIFUGE

TYPE 154.00

INSTRUCTION FOR USE

In order to utilize the MICROCENTRIFUGE type 154.00 to the best possible extent, it is absolutely essential that these instructions be read before taking the centrifuge into use.

After the actual instructions for use, guidance is provided in the rectification of minor operational failures together with instructions for the despatch (transport) of the centrifuge.

If the centrifuge cannot be made to function in the normal manner without dismantling, please contact us or our agents.

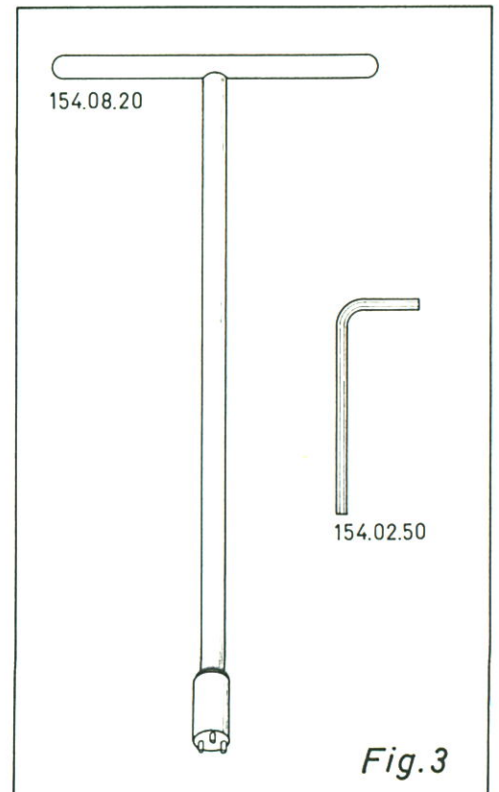
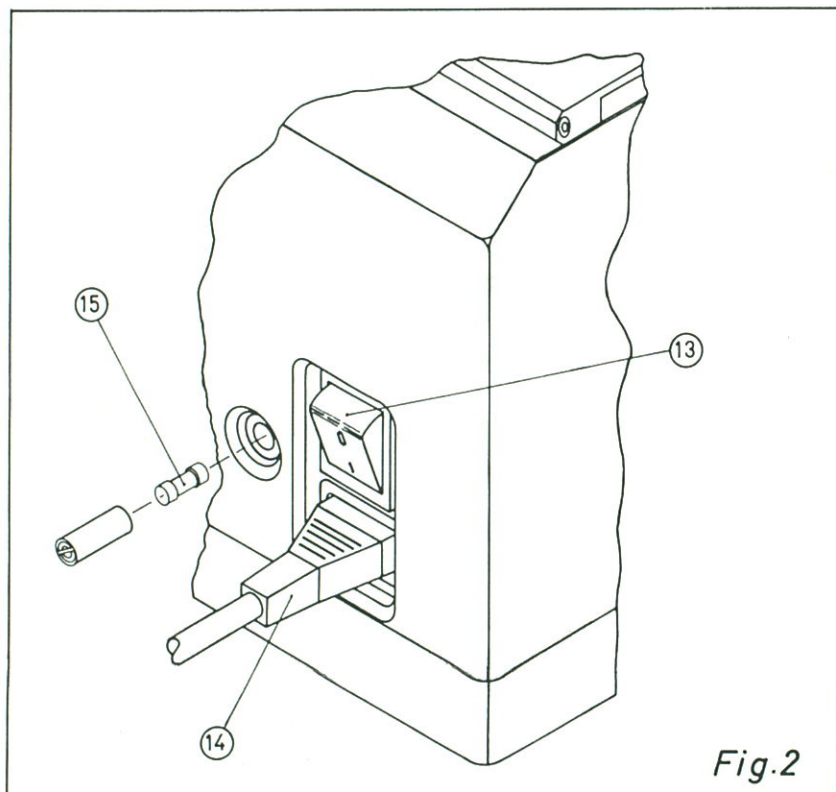
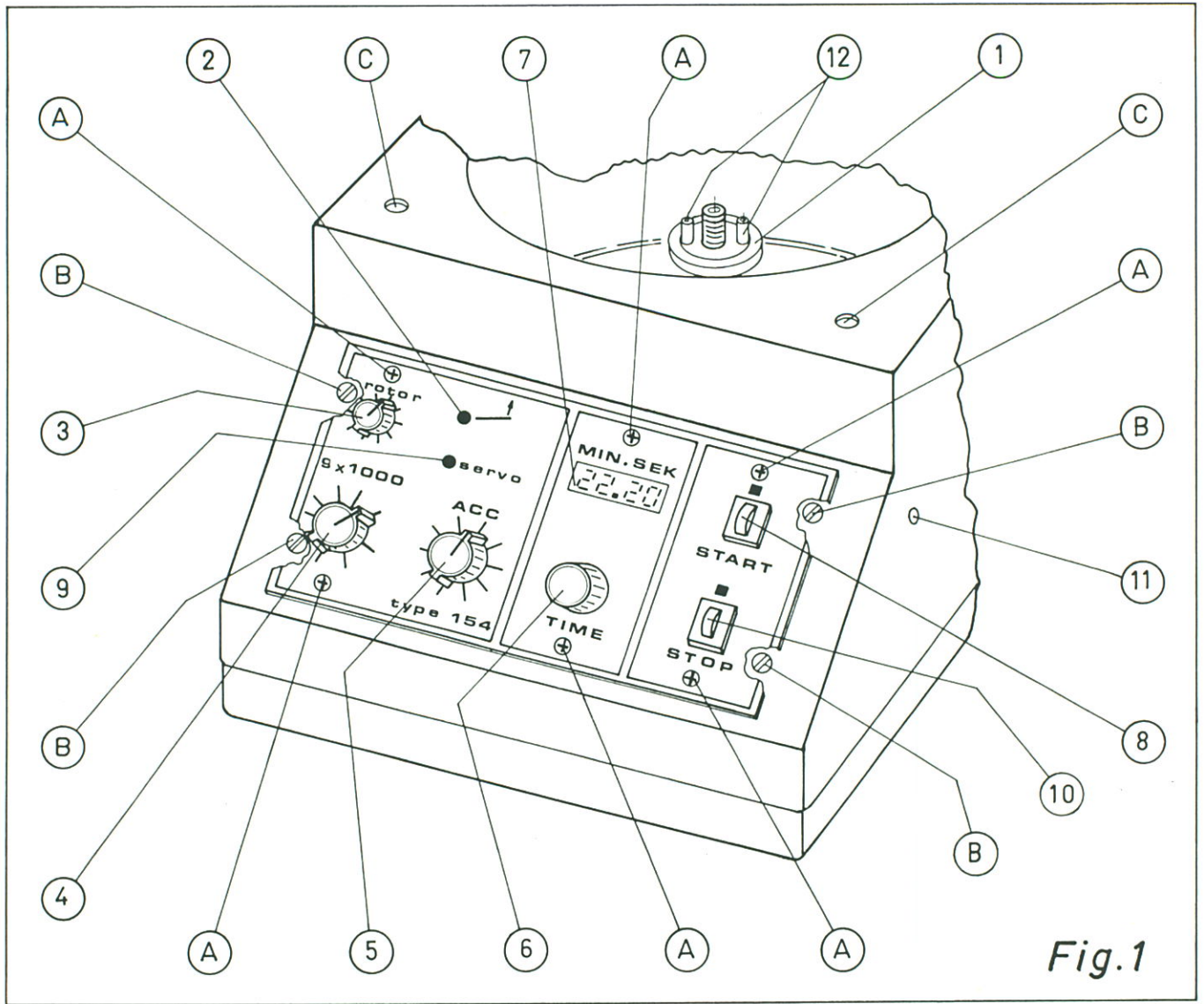
If the centrifuge is to be shipped or transported to another place of use, or returned for service (repair), it is essential that the packing instructions are followed carefully.

If the transport security is not carried out as described, the motor and rotor system can give rise to internal damage to the centrifuge.

We cannot be held responsible for any failure or damage arising during transport (despatch) as a result of poor packing and inadequate transport security not conforming with section 6.

The factory guarantee will no longer apply if, during the guarantee period, the centrifuge is interfered with (dismantled) without our express consent or the consent of our agents.

GB-0-B



Accessories

- 1 mains lead
- 1 three-hole key for changing rotor
- 1 hexagon key for emergency opening of cover

MICROCENTRIFUGE Type No.

G-B-1-B

1. Rotor-flange
2. Lamp which indicates that the cover can be opened.
3. Rotor radius in cm from 3.5 to 8.0
4. Setting of g-value 200 - 20.000 g.
5. Acceleration and braking time maximum/minimum.
6. Setting of centrifuging time min. secs. (max. 30 minutes).
7. Display for check on centrifuging time.
8. Start with indication of activated start function.
9. Servo-lamp which indicates that the set g-value has been reached and maintained.
10. Stop with indication that braking has commenced.
11. Hole for key for emergency opening.
12. Guide pins.
13. Main switch
14. Mains cable
15. 3,15 amp. fuse type FF

General

Check the centrifuge for possible transport damage. The red transport securing screw in the bottom of the centrifuge must be removed first, after which the 3 yellow screws can be removed, see fig. 12.

The centrifuge must only be connected to 220V AC, and is protected with a 3,15 amp. fuse.

The mains connection (14), the main switch (13) and the fuse (15) are located on the back of the cabinet.

The cover is always locked upon receipt, and no attempt must be made to open it by force. In the event of an emergency, it can be opened with the hexagon key 154.02.50 provided.

The cover can always be opened when the centrifuge is connected to the mains and the main switch (13) is on.

Check: Light in display.

Open the cover and press the start button (8). The last figure in the display (7) should now light constantly.

If, upon receipt, the centrifuge is not provided with a rotor, mount the rotor as described under "Changing the rotor".

The centrifuge is now ready for use.

Centrifuging

The rotor's number disc is marked with the radius and the max. g value, for example;

R-6.3
20.000 g max.

Adjust the rotor knob (3) to the correct setting (for example 6.3) corresponding to the radius indicated on the number disc.

- 1.0.0 Operational failures.
Testing and fault-finding without dismantling.
- 1.0 There is no light in the display or control lamps.
Check the following points:
- .1 Main power supply - 220v 50Hz.
 - .2 The mains cable (14) must be pushed right into the centrifuge's supply socket.
 - .3 The main switch (13) is on (I).
 - .4 The 3.15 amp fuse (15) has not blown.
 - .5 Check the mains cable (14) for periodic failure, for example by bending it at the plugs.
- 1.2.0 There is light in the display and control lamps, but the centrifuge does not function in the normal manner.
Check the following:
- .1 That the electronic clock (6) and (7) is set at, at least 10 secs.
The centrifuge cannot be started if the clock shows 00.00.
 - .2 That the lid is completely closed.
 - .3 Both microswitches 154.10.02 must be activated when the cover is opened and closed (can be heard).
 - .4 When the main switch (13) is switched on, the lid is normally able to be opened. The lid can always be opened with the hexagonal key, which is inserted in the hole (11) in the right-hand side of the centrifuge and turned clockwise.
 - .5 When the power supply is switched off, the lid must be locked.
 - .6 The lid must be able to be opened a few seconds after connecting the mains voltage by means of the main switch (13).

If the centrifuge does not function after all the points under the main section 1.0.0 have been checked, please contact us or our agent.

2.0.0 Testing of the centrifuge without dismantling.

1.0 Unbalance switch.

- .1 The last figure in the display (7) must blink when the side of the centrifuge cabinet is hit with the flat of the hand.
- .2 The indication of failure (blink) must always be able to be annulled by briefly pressing START (8).

2.0 Lid-locking system.

- .1 The locking system with opto-tacho unit is tested by turning the rotor shaft (1) quickly with the fingers, whereby the locking system must shift. This can be heard and observed in the locking-pin holes (C) in the cabinet.

G-B-3-B

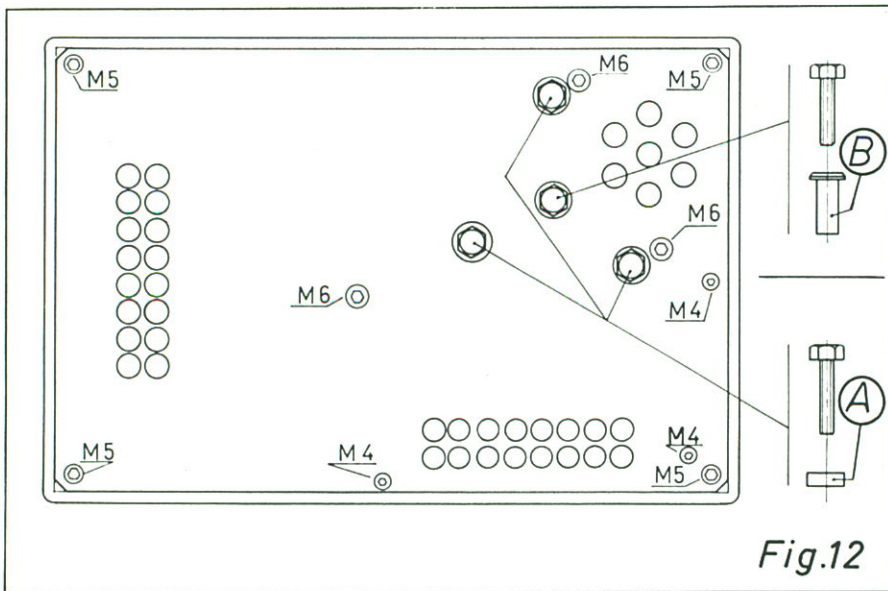


Fig.12

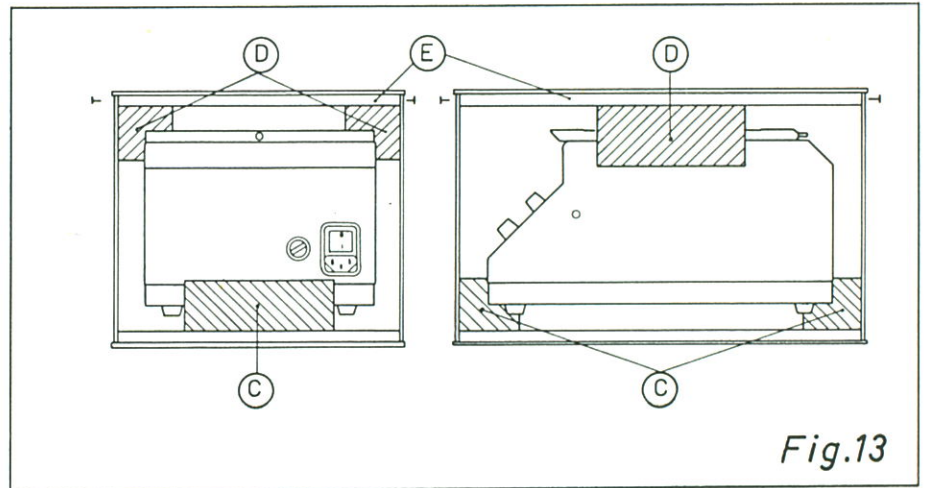


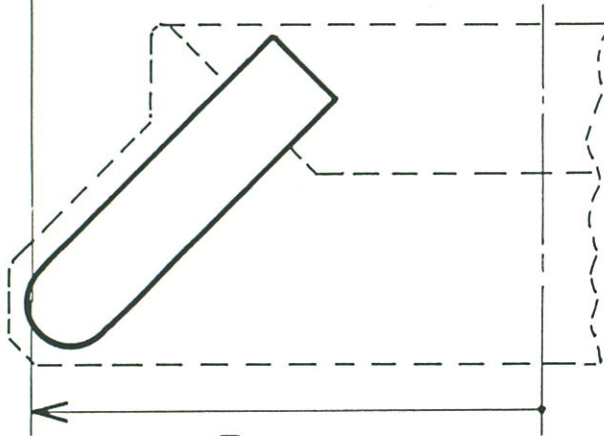
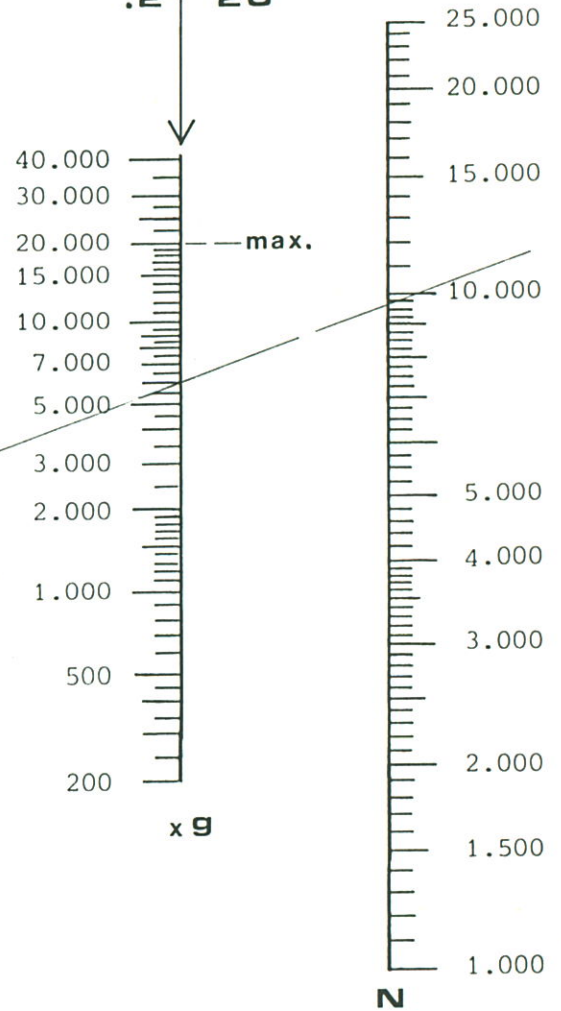
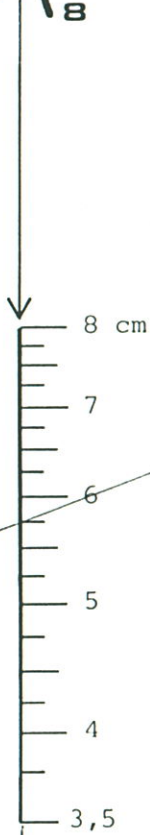
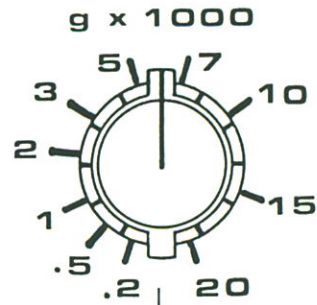
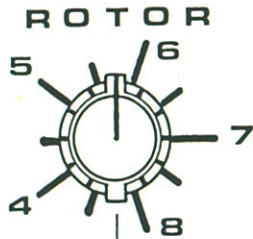
Fig.13

The following instructions must be observed very closely in order to avoid damage to the centrifuge during transport.

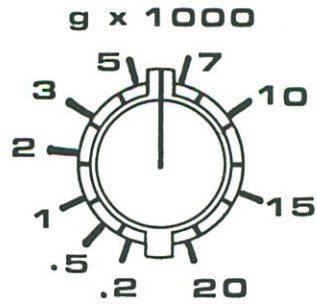
- 6.0.0 The centrifuge motor and rotor system must be secured with one red and three yellow securing screws.
- .1 Place the centrifuge bottom upwards.
 - .2 Screw the three yellow screws with washers (A) into the baseplate as shown.
 - .3 The system is finally secured with the red screw and the associated bush (B).
- 6.1.0 Packing.
- .1 Protect the centrifuge with plastic foil.
 - .2 Place the centrifuge in a special wooden crate and secure it firmly with four angle blocks of plastic (C) and (D).
 - .3 Ensure that the centrifuge is held firmly in all directions before nailing on the lid of the crate.
 - .4 Bind the crate with at least two steel or plastic bands.

G-B-4-B

$$g = 11,18 \times R(\text{cm}) \times N^2 \times 10^{-6}$$

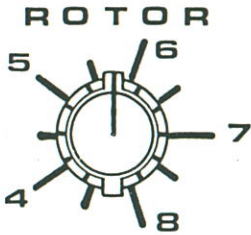


N = { Umdrehungen
Omdrejninger
Revolutions } / Minute



20.000 | 10.000 | 5.000 | 2.000 | 1.000 | 500 | 200

	20.000	10.000	5.000	2.000	1.000	500	200
3,5	22.608	15.986	11.305	7.150	5.055	3.575	2.261
4	21.148	14.954	10.574	6.688	4.729	3.344	2.115
4,5	19.938	14.098	9.969	6.305	4.458	3.153	1.994
5	18.915	13.375	9.458	5.981	4.230	2.991	1.891
5,5	18.035	12.753	9.017	5.703	4.033	2.852	1.803
6	17.267	12.210	8.634	5.460	3.861	2.730	1.727
6,5	16.590	11.731	8.295	5.246	3.710	2.623	1.659
7	15.986	11.304	7.993	5.055	3.574	2.528	1.598
7,5	15.444	10.920	7.722	4.884	3.453	2.442	1.544
8	14.954	10.574	7.477	4.729	3.343	2.364	1.495



Umdrehungen
Omdrejninger | / Minute
Revolutions

ROTORS

For OLE DICH MICROCENTRIFUGES there is a wide selection of standard inserts of glass, polypropylene, polystyrene etc.

For the most popular inserts we can offer a large programme of standard rotors, as shown on the next page.

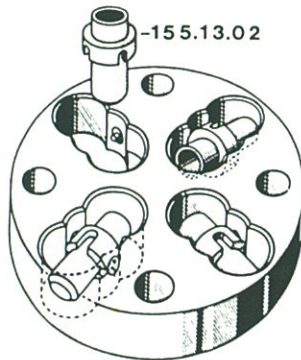
The type designations (order numbers) of the rotors are stated in the right-hand column opposite the relevant inserts.

All rotors are of aluminium and produced with great precision. Rotors, holders and slides are anodized.

ANGLE ROTOR

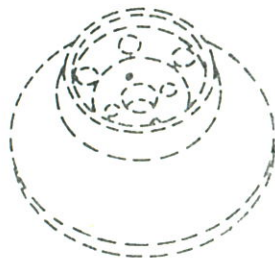


SWING-OUT ROTOR



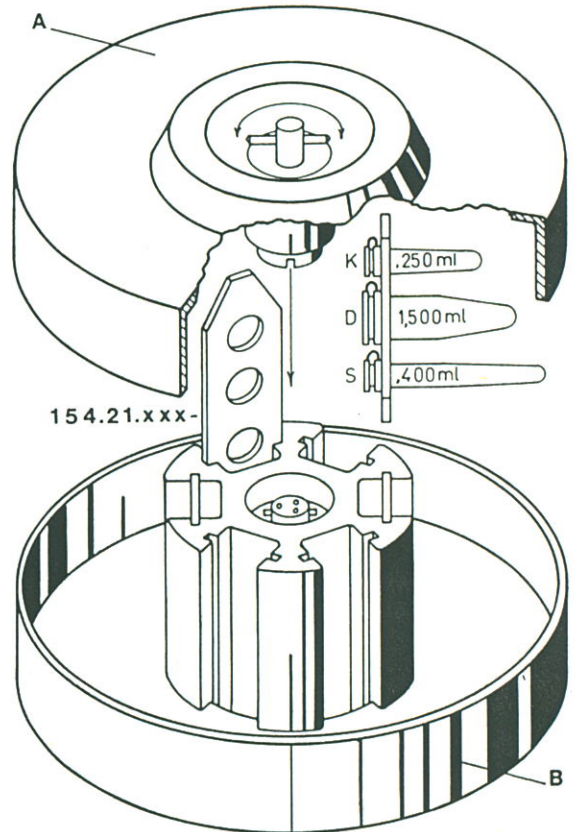
The Swing-out ROTOR type 154.120.U is available with 4 type 155.13.02 holders for type »H« inserts.

SPECIAL ROTORS



Special accessories can be provided upon request, for example:
 Rotors for special inserts.
 Reduction inserts (adaptors).
 Combi-rotors.
 Slides for special inserts.

SLIDE ROTOR



SLIDE ROTOR type 154.012.23 has a max. capacity of 6 slides (holders) of the type 154.21.xxx.

Type designations (order numbers) for standard slides for different inserts are stated in the table.


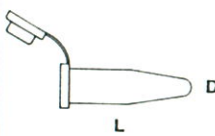

TYPE	INSERTS	CAPACITY
154.21.KS.5	K N S	5
154.21.KS.8	K N S	8
154.21.D.3	D	3
154.21.P.4	P	4

TYPE 154.012.02 is SLIDE ROTOR 154.012.23 without the closed two-part casing (part A and B).

INDSATSE

ROTORER

Rotortyper mærket med ** kan ikke anvendes i KØLECENTRIFUGE type 154.RF

TYPE	Ø D x L mm	ml	MATERIALER						R cm	g max.	TYPE		
			POLYPROPYLEN	POLYSTYROL	GLAS	KAPACITET	SLIDE ROTOR	VINKELROTOR					
	A	8x30	0,5	●				12	●	4,4	20.000	154.099.A	
	B	10x30	1	●				10	●	4,5	20.000	154.099.B	
	B2	9x50	1,5	●				20	●	6,1	15.000	** 154.150.B2	
	C	12x35	2	●				6	●	4,3	20.000	154.099.C	
	E	13x50	4		●	●			6	●	5,3	20.000	154.120.E
					●	●			12	●	6,7	20.000	154.140.E
	F	11x70	3,5		●	●			10	●	7,2	15.000	** 154.150.F
	G	10x75	3,9	●					8	●	7,2	15.000	** 154.150.G
	H	12,5x38	2,5			●			6	●	4,4	20.000	154.099.H
	L	7x50	0,8		●				16	●	5,3	20.000	154.119.L
					●								
	M	8,2x41	1			●			12	●	4,9	20.000	154.105.M
	O	16x65	6		●				6	●	6,5	15.000	154.137.O
	R	11x56	3		●				6	●	5,6	20.000	154.119.R
	T	13x75	7		●	●			8	●	7,2	15.000	** 154.150.T
	X	17x67	10		●	●			6	●	6,5	15.000	154.139.X
					●	●			6	●	6,5	15.000	154.TT.139.X
	Z	20x47	8,5			●			8	●	6,3	15.000	154.135.Z
01	8x45	0,8			●			24	●	6,1	20.000	** 154.145.01	
02	25x55	14			●			6		6,6	10.000	154.140.02	
	D	10,8x39	1,5			●		8	●	5,0	20.000	154.110.D	
						●		12	●	6,2	20.000	154.130.D	
						●		20	●	5,4	15.000	154.137.D	
						●		24	●	6,1	15.000	** 154.150.D	
						●		18	●	6,2	9.000	** 154.012.02	
						●		18	●	6,2	17.200	** 154.012.23	
						●		20	●	5,4	15.000	154.TT.137D	
						●		12	●	4,3	20.000	154.099.P	
P	7,8x30	0,75		●			24	●	5,3	11.000	** 154.012.02		
				●			24	●	5,3	14.700	** 154.012.23		
				●			24	●	5,1	20.000	154.127.P		
K	5,8x29	0,25			●		16	●	5,0	20.000	154.119.N		
					●		48	●	5,3	10.000	** 154.012.02		
					●		48	●	5,3	14.700	** 154.012.23		
					●								
S	5,8x47,5	0,4			●		16	●	5,5	20.000	154.119.N		
					●		48	●	7,2	7.000	** 154.012.02		
					●		48	●	7,2	20.000	** 154.012.23		
N	5,8x47,5	0,45			●								
					●		16	●	5,5	20.000	154.119.N		
					●		48	●	7,2	7.000	** 154.012.02		
W	13x46	2			●								
					●		6	●	5,3	20.000	154.120.E		
I	11x45				●								
					●		12	●	6,7	20.000	154.140.E		
	I	11x45				●		6	●	4,7	20.000	154.114.I	
						●		12	●	6,1	20.000	154.140.I	

	∅ D x L mm	ml.	MATERIALE	LEVERANDØR	ORDRE NR.
A	8 x 30	0,5	GLAS	OLE DICH	A/8 x 30
B	10 x 30	1	GLAS	OLE DICH	B/10 x 30
B2	9 x 30	1,5	GLAS	OLE DICH	B2/9 x 50
C	12 x 35	2	GLAS	OLE DICH	C/12 x 35
D	10,8 x 39	1,5	POLYPROPYLEN	SARSTEDT	72.690
E	13 x 50	4	POLYPROPYLEN	NUNC	341 378
			POLYSTYREN	NUNC	361 239
F	11 x 70	3,5	POLYETHYLEN	NUNC	466 982
G	10 x 75	3,9	POLYSTYREN	SARSTEDT	55.480
H	12,5 x 38	2,5	POLYPROPYLEN	NUNC	349 638
I			F.EKS.	SARSTEDT	CB.300
K	5,8 x 29	0,25	POLYETHYLEN	MILIAN INSTRUMENTS	ETH-26
L	7 x 50	0,8	POLYSTYREN	SPEC. HOLLAND	
M	8,2 x 41	1	POLYPROPYLEN	MILIAN INSTRUMENT	
N	5,8 x 47,5	0,55	POLYPROPYLEN	MILIAN INSTRUMENT	PAT-22
O	15 x 65	6	POLYSTYREN	NUNC	341 440
P	7,8 x 30	0,75	POLYPROPYLEN	SARSTEDT	72.699
R	11 x 56	3	POLYSTYREN	ELLERMANN	
S	5,8 x 47,5	0,4	POLYPROPYLEN	MILIAN INSTRUMENT	PRO-22
			POLYETHYLEN	MILIAN INSTRUMENT	EET-23
			POLYETHYLEN	SARSTEDT	72.700
			POLYPROPYLEN	SARSTEDT	72.701
T	13 x 75	7	POLYPROPYLEN	SARSTEDT	55.525
			POLYSTYREN	SARSTEDT	55.475
W	13 x 46	2	POLYPROPYLEN	NUNC	341 173
X	16,8 x 67	10	POLYPROPYLEN	SARSTEDT	55.533
			POLYSTYREN	SARSTEDT	55.481
Z	20 x 47	8,5	POLYPROPYLEN	SPEC. BELGIEN	
01	8 x 45	0,8	POLYPROPYLEN	MILIAN INSTRUMENT	
02	25 x 55	14	POLYPROPYLEN	OLE DICH	01/25 x 55