

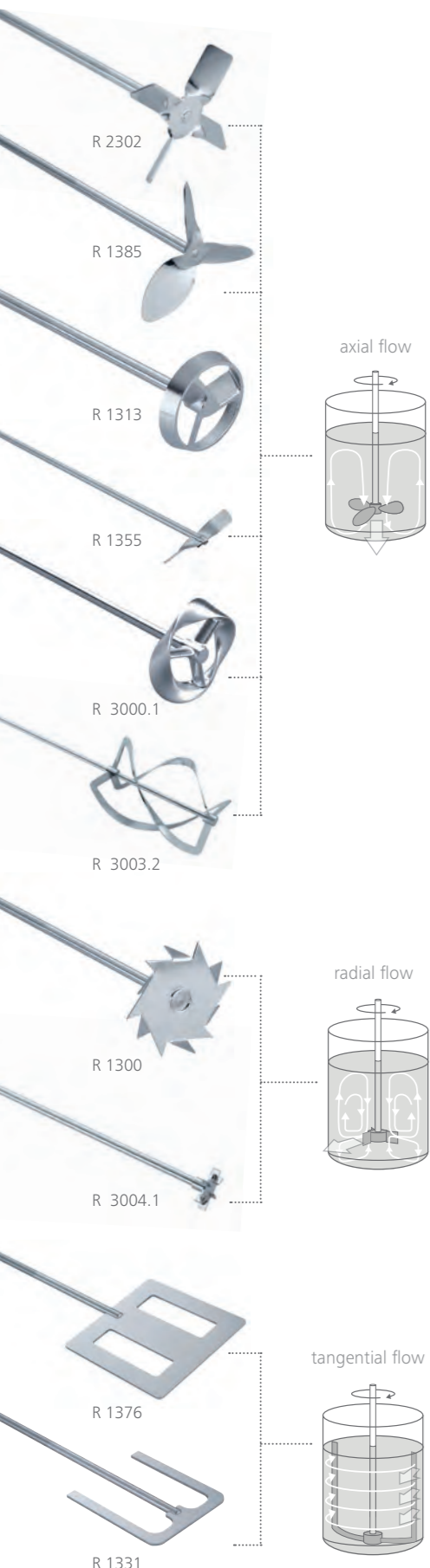


## GEOMETRY OF STIRRING TOOLS

/// The key to successful mixing

IKA overhead stirrers are strong, sturdy and safe because we understand the most important aspects during development. From low to high viscosities, and with up to 200 liters of stirring volume, all mixing and stirring tasks constitute no challenge for our stirrers. This is a good foundation for differentiated functionalities, which include: a safety circuit, a clear display, convenient control using labworldsoft® laboratory software and a wide range of stirring tools. Whether it is propeller stirrers, anchor stirrers or spiral stirrers – you will find the right tool for all applications in our range.










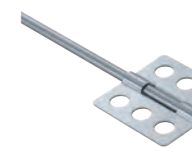
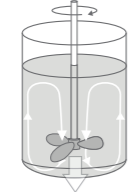
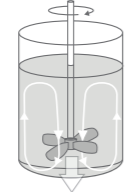
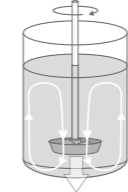
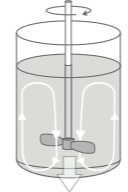
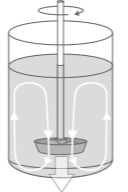
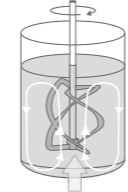
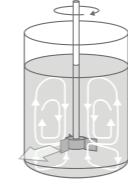
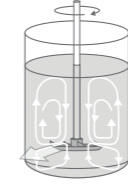
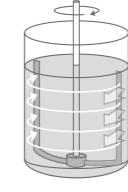
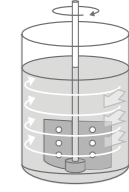




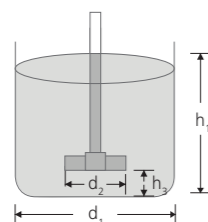
Product	Shaft length Shaft diameter Stirrer diameter	Max. speed	Material	Ident. No.
<b>PROPELLER STIRRERS, 4-BLADED</b>				
R 1342	350   8   50 mm	≤ 2000 rpm	Stainless steel	0000741000
R 1345	550   8   100 mm	≤ 800 rpm	Stainless steel	0000741300
R 2302	800   13   150 mm	≤ 600 rpm	Stainless steel	0000739000
<b>PROPELLER STIRRERS, 3-BLADED</b>				
R 1381	350   8   45 mm	≤ 2000 rpm	Stainless steel	0001296000
R 1382	350   8   55 mm	≤ 2000 rpm	Stainless steel	0001295900
R 1385	550   10   140 mm	≤ 800 rpm	Stainless steel	0000477700
R 1388	800   10   140 mm	≤ 400 rpm	Stainless steel	0000477800
R 1389*	350   8   75 mm	≤ 800 rpm	PTFE-coated	0002343600
<b>TURBINE STIRRERS</b>				
R 1311	350   8   30 mm	≤ 2000 rpm	Stainless steel	0002332900
R 1312	350   8   50 mm	≤ 2000 rpm	Stainless steel	0002333000
R 1313	400   10   70 mm	≤ 800 rpm	Stainless steel	0002333100
<b>CENTRIFUGAL STIRRERS</b>				
R 1352	350   8   60/15 mm	≤ 2000 rpm	Stainless steel	0000756900
R 1355	550   8   100/24 mm	≤ 800 rpm	Stainless steel	0001132700
<b>DISSOLVER STIRRERS</b>				
R 1300	350   8   80 mm	≤ 2000 rpm	Stainless steel	0000513500
R 1302	350   10   100 mm	≤ 1000 rpm	Stainless steel	0002387900
R 1303	350   8   40 mm	≤ 2000 rpm	Stainless steel	0002746700
<b>PADDLE STIRRERS</b>				
R 1375	550   8   70 mm	≤ 800 rpm	Stainless steel	0000757700
R 1376	550   10   150 mm	≤ 800 rpm	Stainless steel	0000757800
R 2311	800   13   150 mm	≤ 600 rpm	Stainless steel	0000739500
<b>ANCHOR STIRRERS</b>				
R 1330	350   8   45 mm	≤ 1000 rpm	Stainless steel	0002022300
R 1331	350   8   90 mm	≤ 1000 rpm	Stainless steel	0002022400
R 1333	550   10   150 mm	≤ 800 rpm	Stainless steel	0002747400
<b>MOEBIUS STIRRERS</b>				
R 3000.1	565   10   100 mm	≤ 800 rpm	Stainless steel	0020001192
R 3001.1	575   10   100 mm	≤ 800 rpm	Stainless steel	0020001195
<b>SPIRAL STIRRERS</b>				
R 3003	350   8   50 mm	≤ 800 rpm	Stainless steel	0020001203
R 3003.1	550   10   100 mm	≤ 800 rpm	Stainless steel	0020001204
R 3003.2	800   10   150 mm	≤ 800 rpm	Stainless steel	0020001205
<b>BLADE STIRRERS</b>				
R 3004	359   8   30 mm	≤ 1000 rpm	Stainless steel	0020001206
R 3004.1	565   10   50 mm	≤ 1000 rpm	Stainless steel	0020001207
R 3004.2	819   10   70 mm	≤ 1000 rpm	Stainless steel	0020001208
<b>PADDLE STIRRERS   SCREW-TYPE STIRRERS</b>				
R 1001	160   4   34 mm	2000 rpm	Stainless steel	0000527400
R 1002	140   4   12 mm	2000 rpm	Stainless steel	0000527500

\* (PTFE-coated)

NANO-STAR 7.5 digital	MICRO-STARS digital   control	MINI-STARS digital   control	EUROSTAR 20   40 digital	EUROSTAR 60 digital   control	EUROSTAR 100 digital   control	EUROSTAR 200 digital   control	EUROSTAR 400 digital   control	EUROSTAR 100 & 200 control P4	RW 20 digital	RW 28 digital	RW 47 digital
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STIRRER	PROPELLER 3-BLADED	PROPELLER 4-BLADED	TURBINE	CENTRIFUGAL	MOEBIUS	SPIRAL	BLADE	DISSOLVER	ANCHOR	PADDLE
Image										
Flow direction (Diagram)										
Tip speed / circumferential speed (m/s)	2 – 15	2 – 15	2 – 15	2 – 15	2 – 10	2	3 – 7	8 – 20	1 – 5	1 – 3
Direction	AXIAL	AXIAL	AXIAL	AXIAL	AXIAL	AXIAL	RADIAL	RADIAL	TANGENTIAL	TANGENTIAL
Mixing speed	Medium – high	Medium – high	Medium – high	Medium – high	Medium	Low – medium	Medium – high	Medium – high	Low	Low – medium
Shear forces	Medium	Medium	Low	Low	Very low	low	High	Very High	Low	Low
Viscosity	Low – medium	Low – medium	Low	Low	Low – medium	Medium – high	Low – medium	Low	High	Medium – high
Applications	Flow-efficient design to provide up and bottom flow pattern while creating minimum shearing forces.	Standard stirring element for general mixing applications. It creates local shearing forces and axial flow in the vessel.	This stirrer is used for drawing the material to be mixed from above within the vessel. It carries a minimum level of danger of injury when contact is made with sensor or vessel.	Two-bladed stirrer whose blades open with increasing speed. Perfect for stirring in round vessels with narrow necks and the effect is similar to that of a 4-bladed propeller stirrer.	Drawing the material to be mixed from the top and the bottom while creating minimum shearing forces.	Medium is conveyed from the bottom upwards. For homogeneous mixing and heat exchange of medium.	This stirrer draws the material to be mixed from the top and the bottom while creating high turbulence and high shearing forces for dispersion or gassing of liquid.	This stirrer provides drawing the material to be mixed from the top and the bottom while creating high turbulence and high shearing forces for particle reduction or break down agglomeration.	This stirrer creates tangential flow, high shearing rate at the edges, minimum deposits on the vessel wall making them great for polymer reactions and even distribution of high mineral contents in liquids.	This stirrer creates tangential flow, minimum turbulence, good heat exchange, and gentle treatment of the product.
Prefered geom. dimension $d_2/d_1$	0,1 – 0,5	0,2 – 0,5	0,2 – 0,5	0,2 – 0,5	0,2 – 0,5	0,9 – 0,98	0,2 – 0,5	0,2 – 0,5	0,9 – 0,98	0,5 – 0,7
Prefered geom. dimension $h_3/d_1$	0,3 – 3	0,3 – 3	0,3 – 3	0,3 – 3	0,3 – 3	–	0,3 – 3	0,3 – 3	–	–
Prefered geom. dimension $h_1/d_1$	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	0,75

$d_1$ : container diameter  
 $d_2$ : stirrer diameter  
 $h_1$ : fill height  
 $h_3$ : bottom distance



Mixing Range	Speed
Low	< 150 rpm
Medium	150 to 800 rpm
High	> 800 rpm

Viscosity Range	mPas	Example (at 20 °C)
Low	< 1000	Water to motor oil
Medium	< 10 000	Honey
High	> 10 000	Asphalt