

MCR

Counter-rotating Agitator



OPERATING PRINCIPLE

The agitator consists of two coaxial shafts connected to two geared motors that rotate in opposite directions. The central shaft rotates at higher speeds and has propellers optimized for dispersion and mixing in low-viscosity phases. The outer shaft is connected to an anchor with scrapers to homogenize and remove the product from the tank walls, preventing it from overheating and allowing faster and more homogeneous heat transfer. Additionally, it behaves as a deflector for the central propellers when the product has low viscosity. It can be configured with a wide range of powers and turning speeds, giving the mixer great application versatility.

APPLICATIONS

Hygienic design suitable for pharmaceutical, cosmetic and food products.
Indicated for complex and fluid agitation processes with extreme behaviours.
Mixing and homogenization of medium and high viscosity products.
Optimal for products with changes in viscosity throughout the process. Additionally, using a variable frequency drive, the speed of rotation can be modified in the different stages.
The scraper anchor helps to homogenize the temperature in processes with heat transfer.
Very suitable for heat exchange processes.

DESIGN AND FEATURES

Hygienic design according to EHEDG guidelines.
Optimized for CIP and SIP processes of all internal components.
Easy maintenance and replacement of wear parts such as mechanical seal and bearing.
Independent high-efficiency bevel gear motors for anchor and central shaft.
The mixing elements are adapted to the requirements of the equipment geometry and process parameters.

CONFIGURABLE ELEMENTS

The agitator has a modular design and is fully configurable with different options for surface finish, sealing system and elastomeric materials, type of anchor, different lower anchor support systems and, in addition, the possibility of ATEX certification.

Surface finish

Standard surface finish is $Ra \leq 0,8\mu m$.

Also available with $Ra \leq 0,4\mu m$ surface finish for pharmaceutical applications.

Gearmotor

Geared motor with H1 food grade oil and in RAL9016 white colour.

Versions available for various supply frequencies and voltages.

Sealing system

The agitator is available with mechanical seal or lip seal as sealing systems. Elastomers in EPDM or FPM.

Explosive atmospheres

ATEX certificate option for work in explosive atmospheres using certified gearmotors and mechanical seals as well as scrapers made of antistatic material.

Anchor

You can choose between a flat or helical anchor depending on the viscosity of the product. Both can be equipped with scrapers..

Impeller

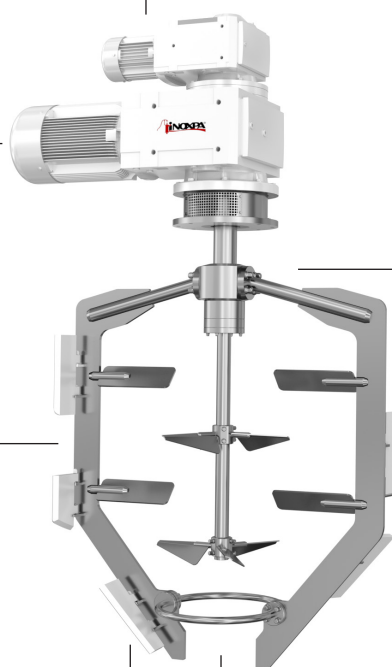
Available in a wide variety of impeller diameters depending on tank size. Recommended diameter is between $\frac{1}{3}$ and $\frac{1}{2}$ of the tank diameter.

Scrapers

Scraper system with hygienic design that prevents product stagnation and facilitates drainage and cleaning with CIP and SIP systems. The nut system facilitates disassembly and assembly for maintenance or manual cleaning. All internal areas are sealed to prevent product ingress.

Anchor support

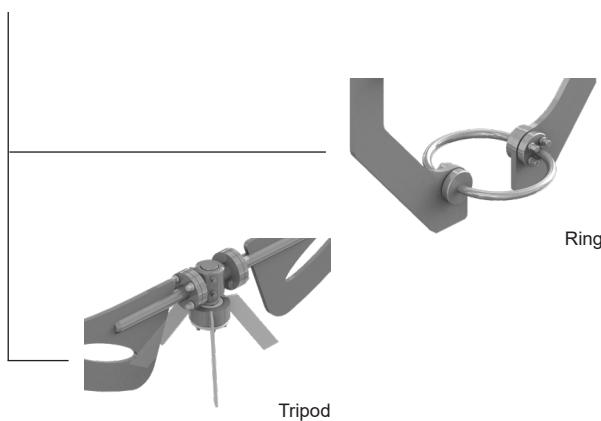
It incorporates a reinforcement ring or, optionally, a tripod in the lower part of the anchor if the size of the agitator requires it. Rings are available in sizes 235, 300, 400, 500 and 750 mm in diameter



Flat



Helicoidal



Ring

Tripod

TECHNICAL SPECIFICATIONS

Materials

Components in contact with product	1.4404 (AISI 316L)
Other steel components	1.4404 (AISI 316L)
Mechanical seal	SiC/C
Mechanical seal elastomers	EPDM / FPM
Lip seal	PTFE

Operating limits

Working pressure	-1 to 6 bar
Working temperature	-7°C to 150°C

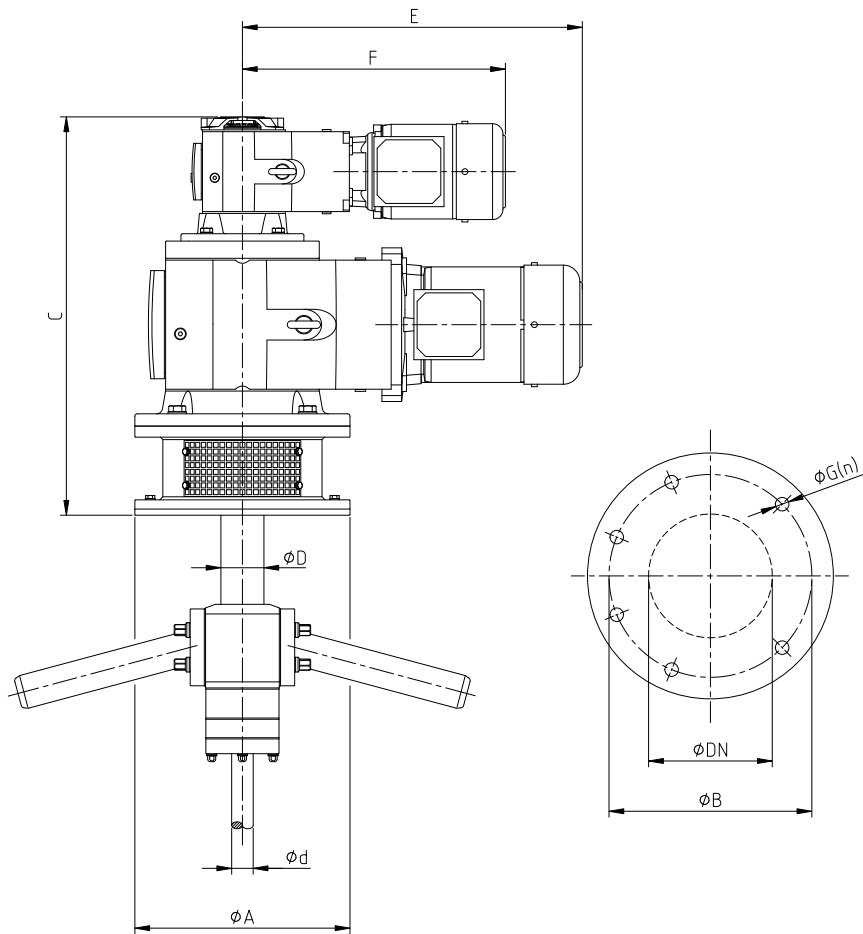
	MCR-1	MCR-2	MCR-3	MCR-4	MCR-5	MCR-6	MCR-7	MCR-8
Anchor power (Kw)	0,12 - 4	0,12 - 4	0,25 - 9,2	1,1 - 22	1,1 - 30	2,2 - 30	5,5 - 30	5,5 - 30
Anchor torque (Nm)	370	550	1500	3000	4200	6600	15500	24500
Central shaft power (Kw)	0,12 - 0,75	0,12 - 1,5	0,12 - 4	0,12 - 4	0,12 - 4	1,1 - 22	1,1 - 30	1,1 - 30
Tank flange	200	250	300	350	400	450	550	660
Upper seal Ø (mm)	40	45	55	70	80	100	125	125
Lower seal Ø (mm)	20	25	30	35	40	60	70	70

RECOMMENDED CONFIGURATIONS

The following table presents recommended agitator configuration for products with a viscosity of less than 20,000 cPs. For higher viscosities check with the technical department.

Agitator	Tank volume (l)	Tank Ø (mm)	Anchor power (kW)	Anchor speed (rpm)	Central shaft power (kW)	Central shaft speed (rpm)	Impeller (mm)
MCR-1/30	30	350	0,25	35	0,25	171	1x160
MCR-1/50	50	400	0,75	50	0,37	171	1x200
MCR-2/100	100	500	1,10	40	0,75	163	1x250
MCR-3/200	200	700	2,20	35	1,5	169	1x300
MCR-4/500	500	900	4,00	31	3,0	109	2x400
MCR-5/1000	1000	1200	5,50	23	4,0	108	2x500
MCR-6/2000	2000	1400	7,50	21	7,5	104	2x600
MCR-7/4000	4000	1800	11,00	17	7,5	66	2x800
MCR-8/6000	6000	2000	15,00	17	9,2	58	3x800
MCR-8/8000	8000	2000	15,00	17	9,2	58	3x800
MCR-8/10000	10000	22000	15,00	15	15	50	3x1000

DIMENSIONS



20.072.32.0015

	MCR-1	MCR-2	MCR-3	MCR-4	MCR-5	MCR-6	MCR-7	MCR-8
A (mm)	200	250	300	350	400	450	550	660
B (mm)	165	215	265	300	350	400	500	600
Ø DN	140	150	170	190	210	250	280	300
G(n) (mm)	11(4)	13(4)	14(4)	18(4)	18(4)	18(8)	18(8)	22(8)
C (mm)	475	525	600	670	780	910	1050	1175
D (mm)	40	45	55	70	80	100	125	125
d (mm)	20	25	30	35	40	60	70	70
E _{max} (mm)	547	570	642	881	936	1092	1420	1586
F _{max} (mm)	380	415	494	547	570	881	936	936