PFAUDLER
GLASS-LINED
& ALLOY SYSTEMS

Pf Technologies

DIN BE REACTORS

ION SENSITIVE
pH
VALUE
2.0

<1
1
2
3
4
5
6
7
8
9
10
11+

GLASTEEL
ANTI CORROSION
STICK
STATIC

Pfaudler
Defining the standard

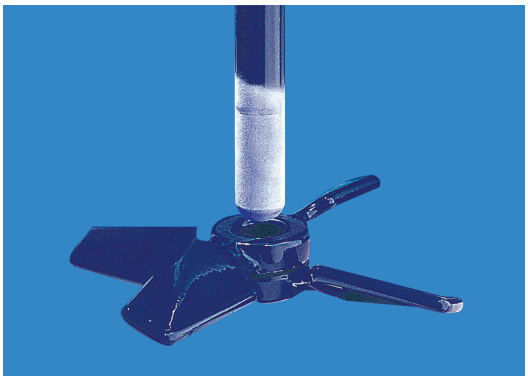
Pfaudler DIN BE Reactors

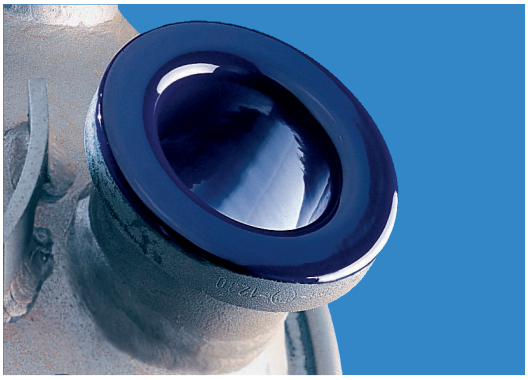
A solid design which can take a lot

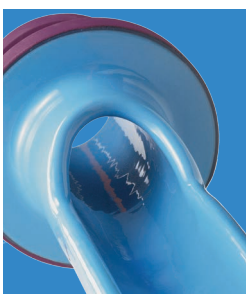
The DIN-BE reactors are used everywhere in the world and are considered a measure for security, reliability and an economic operation. This series includes our large reactors with the thick-walled jacket and a rated capacity starting with 1.600 litres. There are good reasons for the industry to opt in favour of Pfaudler reactors when it comes to DIN-reactors.

A reliable operation and service life

Our Pfaudler enamel WWG offers an excellent resistance when subjected to corrosive and mechanical/abrasive strains. This results into a long service life.



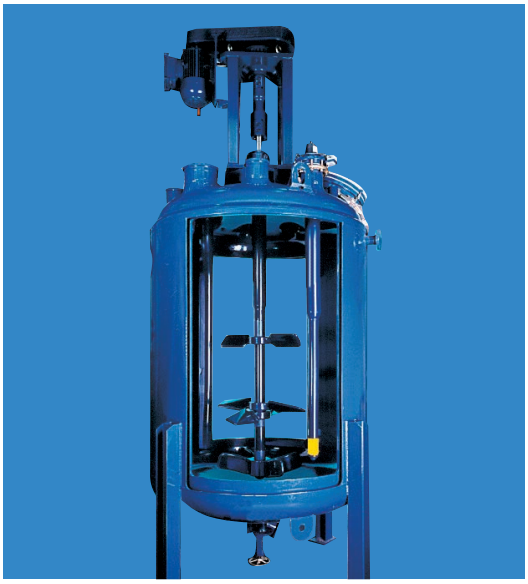




The lengths of the sealed surfaces have been reduced to a minimum since the manhole is the largest opening. This increases safety of operation. In addition, there is more room for more and larger nozzles.

More flexibility and more efficiency in agitation

Cryo-Lock® completes the range of Pfaudler DIN-BE-reactors. Using this fully enamelled agitating system which offers many variations it is possible to achieve an optimum adaptation to process requirements. From an economic point of view you will gain in two respects. The sequence of production and the quality of products can be optimesed. A quick change of turbines saves additional time.




GLASTEEL
ANTI
CORROSION
STICK
STATIC
MIXING
ACID
CONCENTRATION
H_2SO_4
HNO_3

Pfaudler Cryo-Lock®

A large degree of reliability

Onto an enameled agitator shaft turbines being enameled are also „shrunk on“. For this purpose, the agitator shaft is cooled down using liquid nitrogen - it shrinks. In this way, the turbine can easily be fitted. When the shaft heats up again it expands - and the turbine is absolutely safe and in position.

The advantages are self-evident:

- Shaft and drive unit remain in place when the turbine is exchanged. This saves both time and money.
- The turbines are introduced through the manhole. A larger opening is not necessary. This serves for a safe operation.
- The connection between shaft and turbine is fully enameled. This makes it corrosion resistant and no seals or gaskets are required.
- If the agitator shaft has to be dismantled, this can be done using the manhole for all reactors up to a rated capacity of 16.000 litres. The drive unit remains in place.

A free choice with agitators.

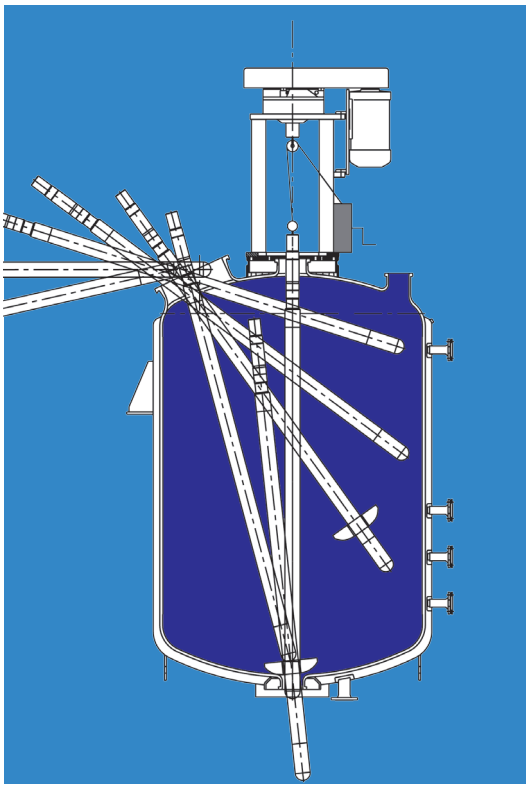
There are different agitators depending on process requirements:

- i.e. the CBT turbine with four impeller-like wings. High shearing effect. Highly performing especially during gas dispersion. Reduces mixing times for homogenization.
- i.e. the Crypo-Lock® Turbofoil, the energy saver among agitators, with a high degree of efficiency. It accelerates mixing processes and saves a lot of energy thanks to its shape.
- If necessary, it is possible to combine several turbines of different shape on one agitator shaft.

Quatro-Pipe – the baffle wich does more than just baffle.

Quatro-Pipe is also a sophisticated development from our research. The Quatro-Pipe is mounted onto one reactor flange. It can fulfill four different functions simultaneously:

- The Quatro-Pipe has the same properties as any other baffle and offers the same effect.
- At the same time, it assumes the function of a dip pipe.
- Using a temperature sensor, layed in enamel, the temperature inside the product can be measured and monitored quickly and exactly.
- Upon request, a probe for the detection and signalling of damage to the enamel in the agitator reactor can be provided.



Process of installing and removing a Cryo-Lock® agitator shaft into/from a DIN reactor BE through the manhole opening of the apparatus

Technical Information

General data of DIN BE reactors

The technical data summarized on this page applies to all Pfaudler BE reactors to DIN. For model-specific data, please refer to the following pages.

Operating conditions:

- The minimum/maximum temperature TS is -25 … +200 °C
- The maximum admissible pressure PS inside the reactor is -1 … +6 bar.
- The maximum admissible pressure PS in the jacket area is -1 … +6 bar.

Standards:

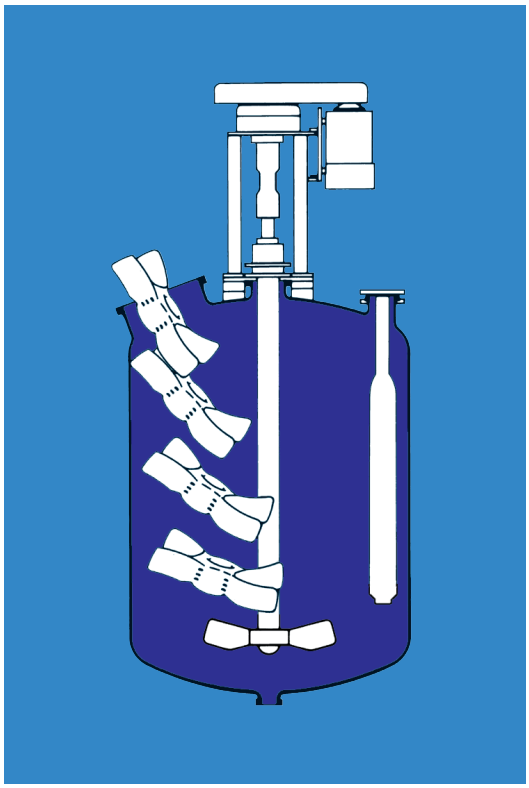
The reactors comply with the requirements of the Pressure Equipment Directive 2014/68/EU. Their design, production and testing complies with the AD2000 set of regulations.

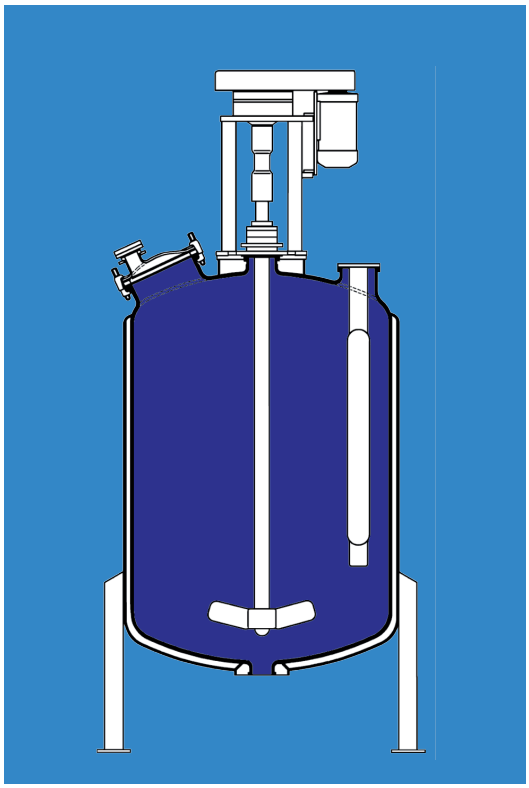
Glass-lining:

Glass-lining is achieved using Pfaudler glass. Testing and quality to DIN 28063.

Coat:

Preliminary treatment: Rust removal using a jet-blasting process, degree of purity Sa 2 1/2 to DIN EN ISO 12944-4. Base coat: Rust-proofing primer and welding primer type aluchrome, two layers of coating, minimum dry layer thickness 60 µm, temperature resistance up to 200 °C permanent load, color reddish brown (dull), similar to RAL 8004.





Nominal reactor size to DIN 28136-1	Nominal diameter of the manhole to DIN 28136-3	Nominal diameter of the outlet nozzle to DIN 28136-1	Agitator shaft removable through the manhole	Nominal diameter of the Pfaudler outlet nozzle (option)	Agitator shaft removable through the manhole	Nominal diameter of the agitator nozzle to DIN 28137-2	Agitator shaft removable through the agitator nozzle
1.600	DN 500	DN 100	Yes	DN 100	Yes	DN 150	Yes
2.500	DN 500	DN 100	Yes	DN 100	Yes	DN 150	Yes
4.000	DN 500	DN 100	No	DN 150	Yes	DN 200	Yes
6.300	DN 500	DN 150	Yes	DN 150	Yes	DN 200	Yes
8.000	DN 600	DN 150	Yes	DN 150	Yes	DN 200	Yes
10.000	DN 600	DN 150	Yes	DN 150	Yes	DN 250	Yes
12.500	DN 600	DN 150	Yes	DN 150	Yes	DN 250	Yes
16.000, D = 2600 mm	DN 600	DN 150	Yes	DN 150	Yes	DN 250	Yes
16.000, D = 2800 mm	DN 600	DN 150	No	DN 200	Yes	DN 250	Yes
20.000	DN 600	DN 150	No	DN 200	Yes	DN 250	Yes
25.000, D = 2800 mm	DN 600	DN 150	No	DN 200	Yes	DN 250	Yes
25.000, D = 3000 mm	DN 600	DN 150	No	DN 200	Yes	DN 250	Yes

Reactor system BE

Technical information

The Pfaudler BE reactors to DIN consist ot the following modules:

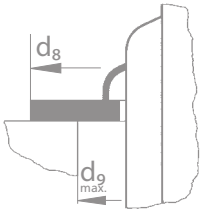
- Reactor
- Agitator
- Baffle
- Drive
- Accessories

The technical data have been provided on the following pages according to reactor sizes and marked in different colors.

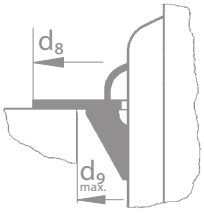
Supporting structures

All reactors are available with the following supporting structures:

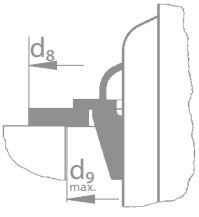
- rim-shaped support ring to DIN 28145-4
- ribbed support ring without loose ring to DIN 28145-4, design A
- ribbed support ring with loose ring to DIN 28145-4, design D
- brackets
- tubular feet to DIN of 28145-8 (up to BE 6,300)
- profiled steel feet to DIN of 28145-8



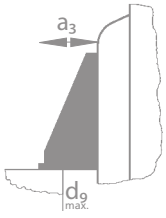
Rim-shaped support ring



Ribbed support ring

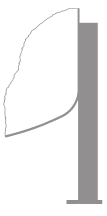


Support ring with loose ring

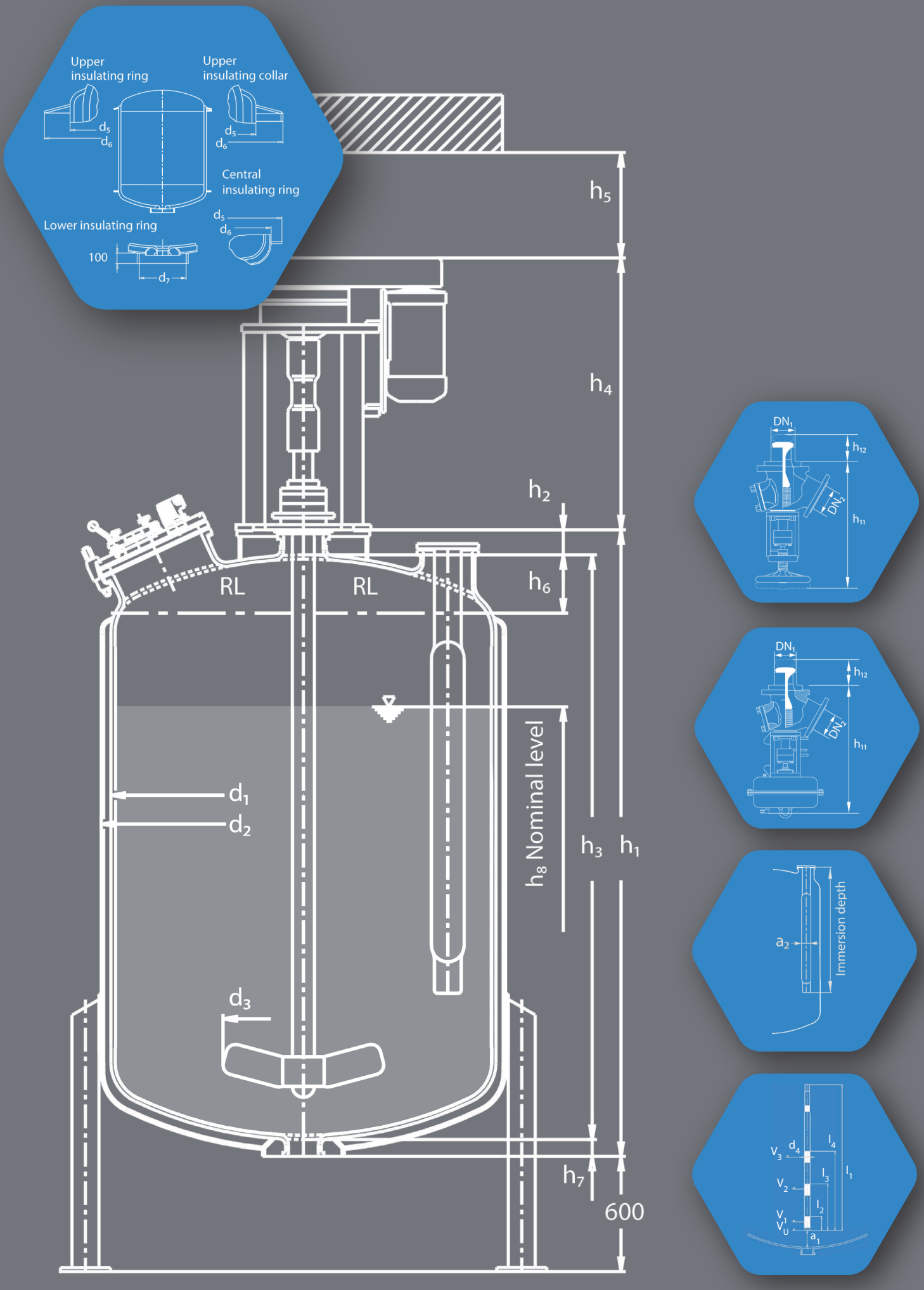


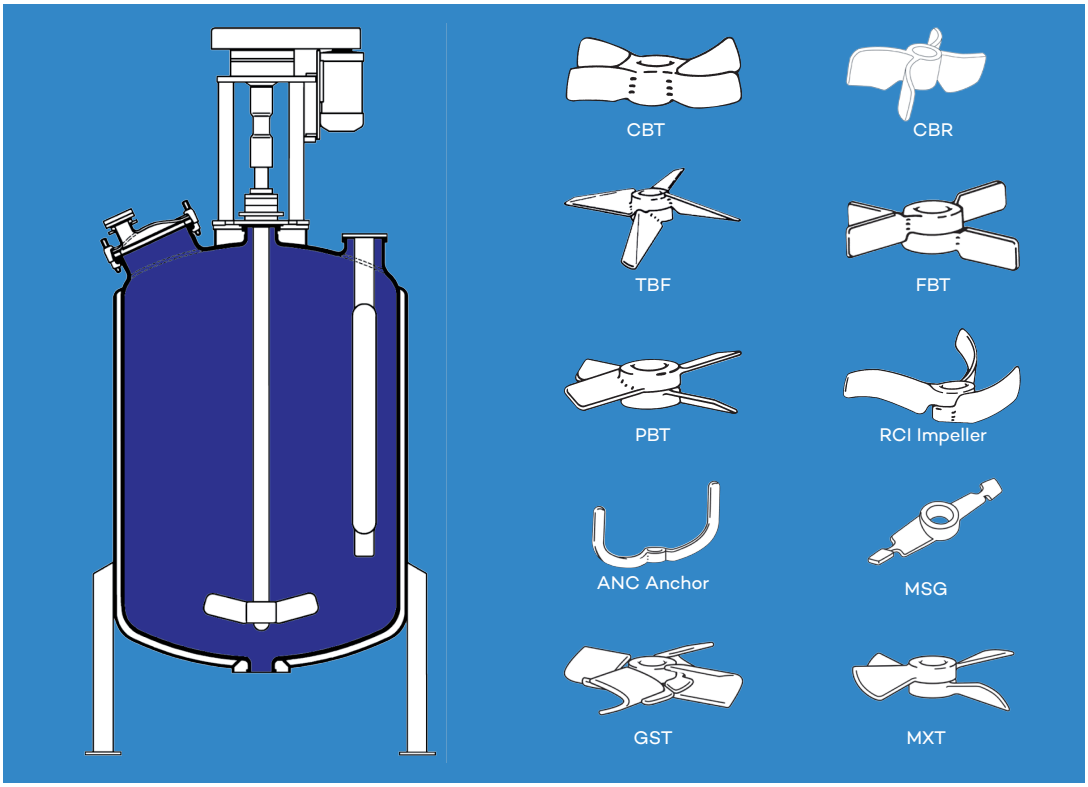
Brackets

Tubular feet up to BE 6300



Profiled feet for BE8000, diameter of 2200, and larger


Upper insulating ring
Upper insulating collar
Central insulating ring
Lower insulating ring
100
h5
h4
h2
h6
RL
RL
h8 Nominal level
h3
h1
d1
d2
d3
h7
600
DN1
h12
h11
DN2
Immersion depth
a2
V3
d4
l4
l3
l1
V2
l2
V1
VU
a1



Reactor system BE

Technical information

Reactor

- Inner vessel form BE to DIN 28136. The reactors size BE 10,000, BE 12,500 and BE 16,000 with a diameter of 2,600 are manufactured with larger baffling nozzles DN300 (N4 and N9) contrary to the DIN standard
- Jacket
- Agitator flange to DIN 28137-2
- Split flanges to DIN 28150
- Gaskets for glass-lined nozzles to DIN 28148 optionally with gasket insert made of AF3000, AF3000m or GR3000

Jacket connections

to DIN EN 28151-1, optionally:

- In position A1/A2, without agitating nozzles
- In position B1/B2, with agitating nozzles; the agitating nozzles are included in the part numbers

Manhole unit

The manhole unit is available in two different designs:

- Glasslook® with up to two fused-in sight glasses DN 100 and an optional lamp.
- Fillook® with Fillook® cover DN 150 and fused-in sight glass DN 100.
- Fillook® Multiport with Fillook® cover DN 150 as well as separate fused-in sight glass ON 100; with lamp (optional) and two additional flange connections DN 50 PN 16.
- Folding manhole cover with opening device to DIN 28153-1, form KE1, sight glass DN 100 to DIN 28121, form EB, and manhole protection ring to DIN 28153-1.
- Manhole cover with swiveling device to DIN 28153-1, from SE 1, sight glass DN 100 to DIN 28121, form EB, and manhole protection ring to DIN 28153-1.

Glasslook®, Fillook® or Fillook® Multiport are optionally availyble in different designs.

Coating system

Rust-proofing aluchrome primer, 2 layers, 60 µm minimum dry layer thickness, temperature resistance -25/+200 °C

Agitators

Specifically for the BE reactor to DIN: Cryo-Lock®, the flexible agitator system made by Pfaudler:

- A shaft to which different turbines can be attached quickly and easily depending on the process requirements. Great selection of agitator shapes, including multi-step turbine arrangements, are possible.
- The economical system: Energy-saving turbine shapes. Quick, low-cost turbine replacement with shaft installed and drive unit in place. Turbines are introduced through the manhole. Shaft replacement can also be achieved through the manhole with most types.
- The safe system: The manhole is the biggest opening - shorter gasket length, higher resistance to pressure, lower leakage rate.

Turbines

CBT The universal stirrer, high shearing force, radial flow.
CBR The turbine for residual quantities, stirring properties similar to CBT; in connection with an extended shaft, the stirrable residual quantity is dramatically reduced compared to the CBT turbine.
TBF The economical turbofoil: high axial flow with cornparatively low baffling effect, low torques/low power consumption.
FBT High shearing forces, pure radial flow
PBT Medium shearing force, combined radial/axial flow.
RCI The „classic“ impeller in a modern shape: strong radial flow, relatively strong baffling equipment required.
ANC The anchor-type agitator for highly viscous products, low shearing forces, tangential flow, high torque.
MSG Multi-step countercurrent agitator, suitable for homogenization and suspension.
GST The gas dispersion turbine, especially suitable for mixing gases and fluids, superior homogeneity of gas admixture.
MXT Maxflow turbine, high-performance agitator for mixing substances with a higher viscosity.

Single or multistorage configurations can be proposed. The Pfaudler mixing department will recommend the optimal agitator and turbine configuration for each process.

Baffles

- Paddle type in flange design
- C baffle in flange design
- Quatro-Pipe, a multifunctional baffle performing up to four functions in a single reactor nozzle
- Baffling function - like a flange-type baffle with homogeneous baffling effect
- Dip pipe function
- Temperature monitoring
- Glass monitoring reports glass damages inside the reactor (as an option).

Drives

- Top-mounted belt drives or direct drives
- Connections for reactors to DIN 28136 with a capacity of 63 ... 40,000 l
- For agitator flanges to DIN 28137-2
- Easy to access from all sides through open profile construction
- Quick replacement of mechanical seal
- Gearbox with reduced-noise toothing
- Lang life through reinforced bearings
- Minimum axial and radial play

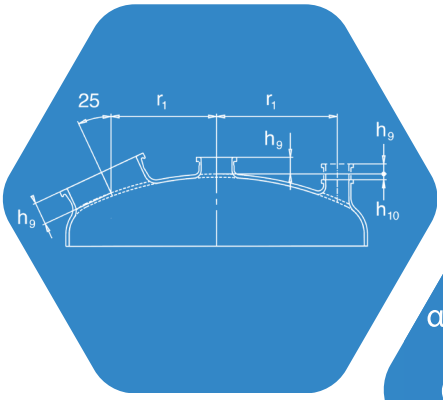
The agitators comply with the requirements of the Explosion Protection Directive 94/9/EC (ATEX).

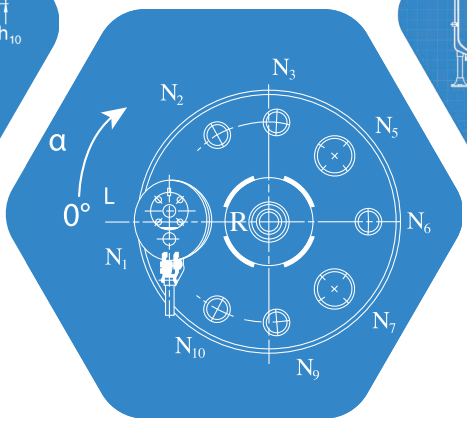
Mechanical seal

- Double-acting with two sets of primary rings
- Additional emergency gasket
- Chambered gasket between mechanical seal and intermediate flange
- Integrated cooling jacket - the cooling and sealing functions have been separated. Cooling is ensured even if the seal runs dry.
- Low-maintenance operation, long useful life
- Modular design: Basic types can be scaled as necessary
- The accessory set, consisting of a glasslined intermediate flange, gaskets and a thermomanometer for all mechanical seals.

Motors

Motors are rated according to real media physical properties and operating conditions.





BE 1600

Reactor specifications

Nominal Volume	1600 l
Overall capacity	2309 l
Overall jacket volume	353 l
Heat exchange surface	7,33 m²
Total weight	approx. 3000 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN200
Immersion depth (ET):	1550 mm
Width of baffle (a_2):	180 mm
Volume below Quatro Pipe/baffle:	290 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	1500	1700	–
Upper insulating collar	1500	1700	–
Central insulating ring	1500	1700	–
Lower insulating ring	–	–	500

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
1973	100	1800	1210	525

h_6	h_7	h_8	d_1	d_2
236	73	1180	1400	1500

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	65	198	2160	210	–	–	161	333	–	–
2	65	198	2160	210	650	–	161	333	978	–
3	65	198	2160	210	500	790	161	333	758	1183
1	65	60	2300	210	–	–	16*	134	–	–

* for turbine type CBR and anchor type agitators

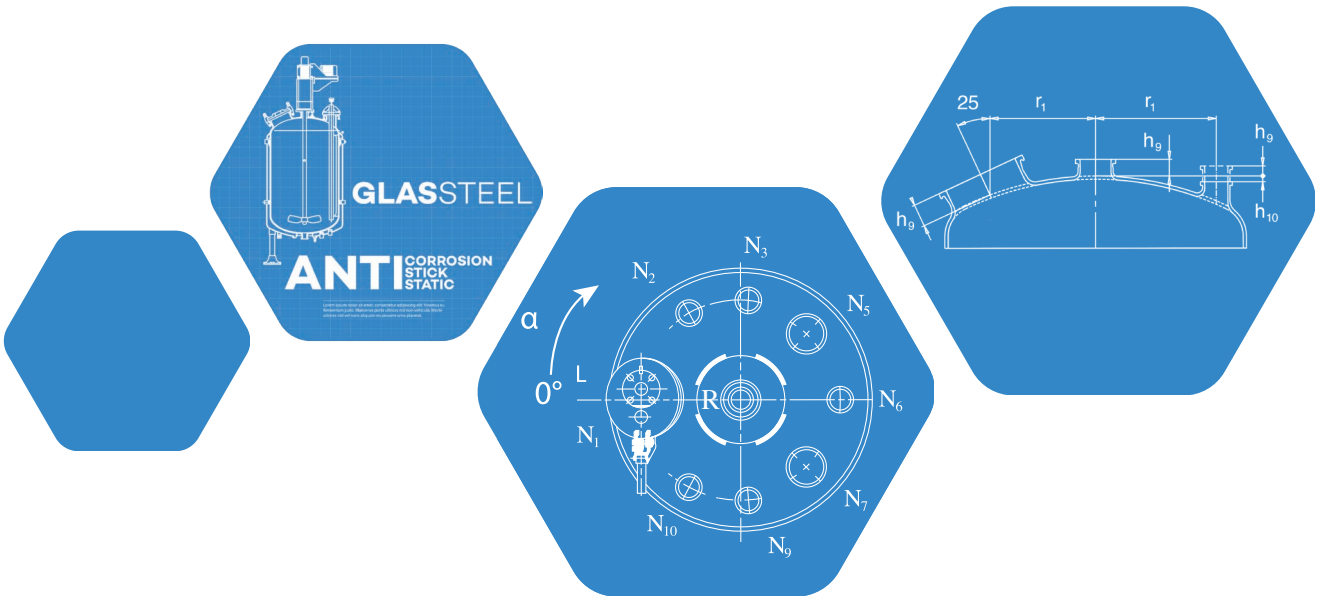
Nozzle arrangement [mm]

	DN	α°	r_1	h_9
N1	500	0	475	125
N2	100	60	575	25
N3	100	95	575	25
N5	200	135	550	50
N6	100	180	575	25
N7	200	225	550	50
N9	100	265	575	25
N10	100	300	575	25
L	100	0		
R	150	–	Center	80
K	100	–	Center	–

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	735	65
CBR	735	65
TBF	760	65
FBT	685	65
PBT	685	65
RCI	840	65
MSG	750	65
GST	600	65
MXT	600	65
Protection of honed area made of FEP		



BE 2500

Reactor specifications

Nominal Volume	2500 l
Overall capacity	3472 l
Overall jacket volume	453 l
Heat exchange surface	9,61 m²
Total weight	approx. 3870 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN200
Immersion depth (ET):	1750 mm
Width of baffle (a_2):	180 mm
Volume below Quatro Pipe/baffle:	457 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	1700	1900	–
Upper insulating collar	1700	1900	–
Central insulating ring	1700	1900	–
Lower insulating ring	–	–	500

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
2232	100	2060	1210	525

h_6	h_7	h_8	d_1	d_2
259	72	1405	1600	1700

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	65	202	2415	210	–	–	195	419	–	–
2	65	202	2415	210	760	–	195	419	1476	–
3	65	202	2415	210	580	950	195	419	1130	1841
1	65	60	2555	210	–	–	18*	156	–	–

* for turbine type CBR and anchor type agitators

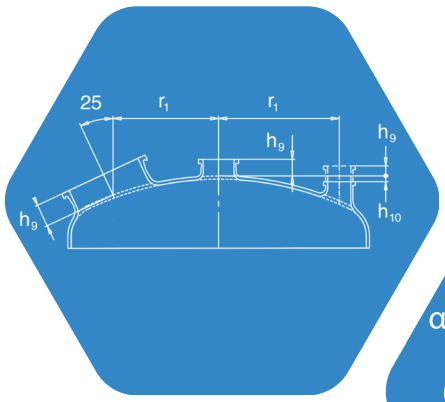
Nozzle arrangement [mm]

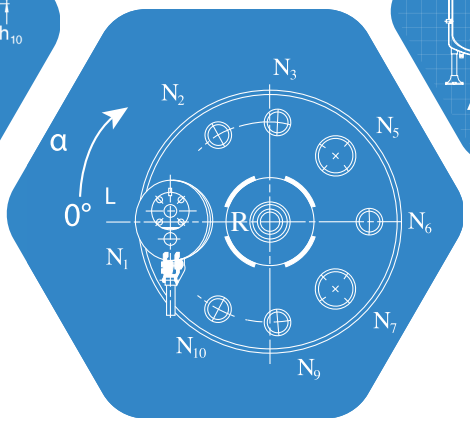
	DN	α°	r_1	h_9
N1	500	0	550	125
N2	100	65	675	10
N3	100	95	675	10
N5	200	135	625	50
N6	100	180	675	10
N7	200	225	625	50
N9	100	265	675	10
N10	100	295	675	10
L	100	0		
R	150	–	Center	80
K	100	–	Center	–

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	735	65
CBR	735	65
TBF	760	65
FBT	685	65
PBT	685	65
RCI	960	65
MSG	750	65
GST	600	65
MXT	600	65
Protection of honed area made of FEP		





BE 4000

Reactor specifications

Nominal Volume	4000 l
Overall capacity	5390 l
Overall jacket volume	605 l
Heat exchange surface	13.23 m²
Total weight	approx. 5910 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN250
Immersion depth (ET):	2100 mm
Width of baffle (a_2):	180 mm
Volume below Quatro Pipe/baffle:	730 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	1900	2100	–
Upper insulating collar	1900	2100	–
Central insulating ring	1900	2100	–
Lower insulating ring	–	–	500

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
2700	130	2500	1418	590

h_6	h_7	h_8	d_1	d_2
299	70	1760	1800	1900

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	114,3	200	2950	280	–	–	218	604	–	–
2	114,3	200	2950	280	1010	–	218	604	2380	–
3	114,3	200	2950	280	770	1260	218	604	1796	2988
1	114,3	60	3090	280	–	–	20*	271	–	–

* for turbine type CBR and anchor type agitators

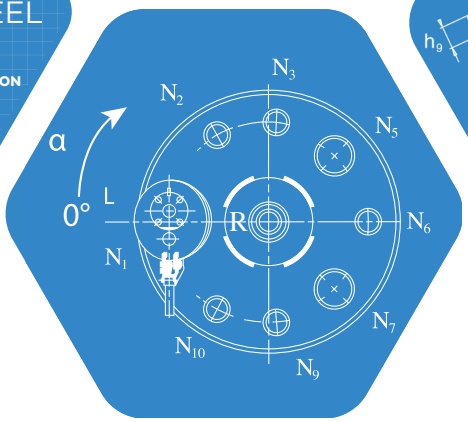
Nozzle arrangement [mm]

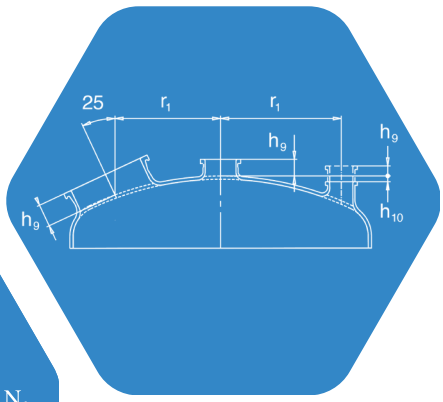
	DN	α°	r_1	h_9
N1	500	0	630	150
N2	150	65	725	0
N3	150	95	725	0
N5	250	135	675	25
N6	150	180	725	0
N7	250	225	675	25
N9	150	265	725	0
N10	150	295	725	0
L	100	0		
R	200	–	Center	110
K	100	–	Center	–

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	835	114,3
CBR	835	114,3
TBF	990	114,3
FBT	685	114,3
PBT	685	114,3
RCI	1100	114,3
MSG	900	114,3
GST	760	114,3
MXT	760	114,3
Protection of honed area made of FEP		





BE 6300

Reactor specifications

Nominal Volume	6300 l
Overall capacity	8190 l
Overall jacket volume	795 l
Heat exchange surface	18,02 m²
Total weight	approx. 8150 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN250
Immersion depth (ET):	2660 mm
Width of baffle (a_2):	180 mm
Volume below Quatro Pipe/baffle:	788 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	2100	2300	–
Upper insulating collar	2100	2300	–
Central insulating ring	2100	2300	–
Lower insulating ring	–	–	550

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
3268	130	3050	1418	590

h_6	h_7	h_8	d_1	d_2
304	88	2235	2000	2100

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	114,3	198	3500	280	–	–	238	698	–	–
2	114,3	198	3500	280	1250	–	238	698	3602	–
3	114,3	198	3500	280	930	1580	238	698	2644	4590
1	114,3	70	3630	280	–	–	30*	331	–	–

* for turbine type CBR and anchor type agitators

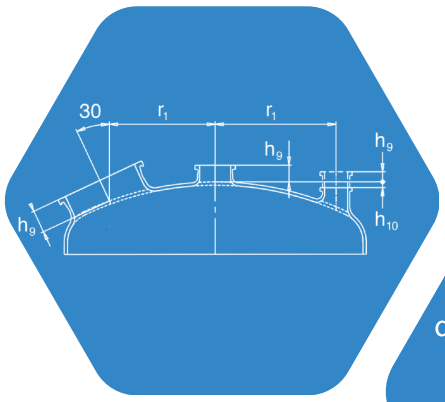
Nozzle arrangement [mm]

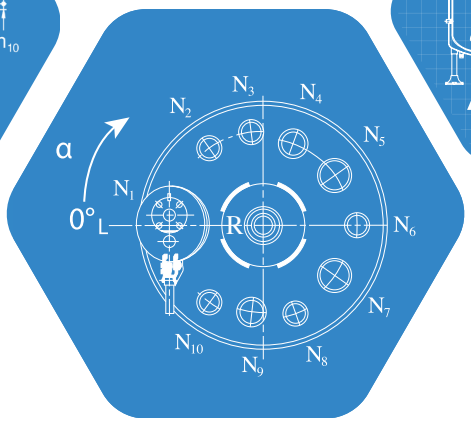
	DN	α°	r_1	h_9
N1	500	0	700	150
N2	150	60	800	0
N3	150	95	800	0
N5	250	135	750	25
N6	150	180	800	0
N7	250	225	750	25
N9	150	265	800	0
N10	150	300	800	0
L	100	0		
R	200	–	Center	110
K	150	–	Center	–

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	835	114,3
CBR	835	114,3
TBF	990	114,3
FBT	890	114,3
PBT	890	114,3
RCI	1100	114,3
MSG	1000	114,3
GST	760	114,3
MXT	760	114,3
Protection of honed area made of FEP		





BE 8000

diameter 2200

Reactor specifications

Nominal Volume	8000 l
Overall capacity	9367 l
Overall jacket volume	800 l
Heat exchange surface	18,01 m²
Total weight	8600 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN300
Immersion depth (ET):	2600 mm
Width of baffle (a_2):	260 mm
Volume below Quatro Pipe/baffle:	783 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	2300	2500	–
Upper insulating collar	2300	2500	–
Central insulating ring	2300	2500	–
Lower insulating ring	–	–	550

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
3218	130	3000	1418	590

h_6	h_7	h_8	d_1	d_2
464	88	2385	2200	2300

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	114,3	253	3395	280	–	–	337	851	–	–
2	114,3	253	3395	280	1280	–	337	851	4482	–
3	114,3	253	3395	280	950	1620	337	851	3282	5719
1	114,3	80	3565	280	–	–	35*	316	–	–

* for turbine type CBR and anchor type agitators

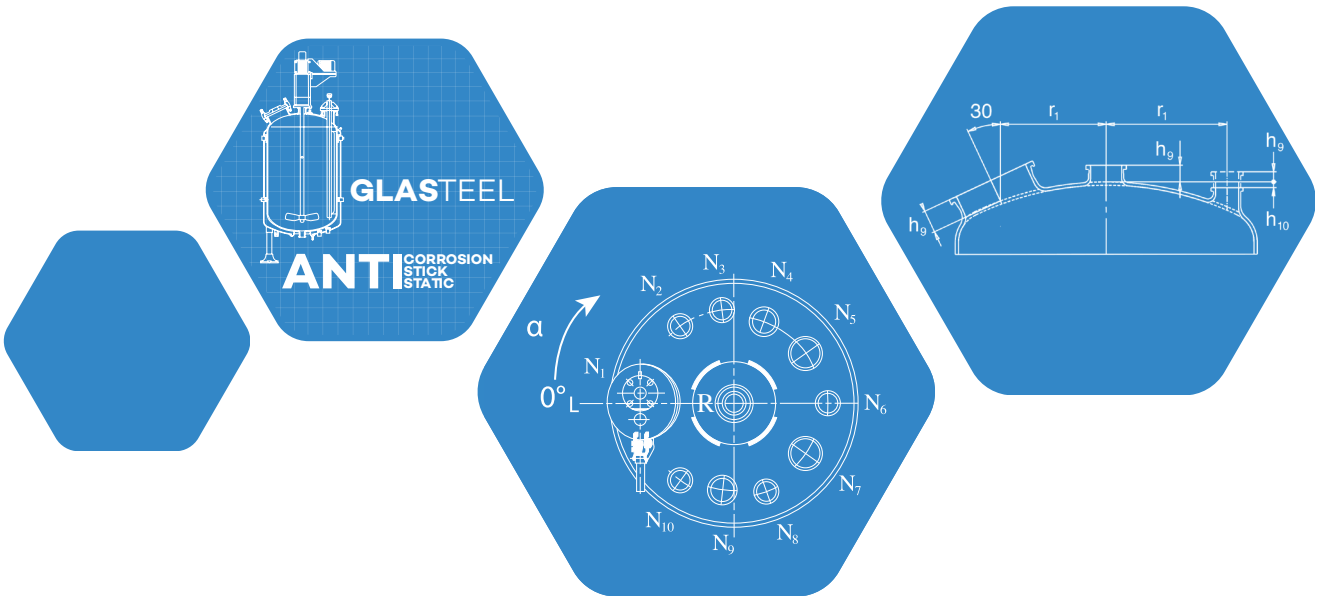
Nozzle arrangement [mm]

	DN	α°	r_1	h_9	h_{10}
N1	600	0	800	150	–
N2	150	50	840	–	40
N3	150	77,5	840	–	40
N4	150	110	840	–	40
N5	300	145	800	10	–
N6	150	180	840	–	40
N7	300	215	800	10	–
N8	150	250	840	–	40
N9	150	282,5	840	–	40
N10	150	310	840	–	40
L	100	0			
R	200	–	Center	110	
K	150	–	Center	–	

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	1040	114,3
CBR	1040	114,3
TBF	990	114,3
FBT	890	114,3
PBT	890	114,3
RCI	1100	114,3
MSG	1000	114,3
GST	960	114,3
MXT	960	114,3
Protection of honed area made of FEP		



BE 10.000

Reactor specifications

Nominal Volume	10000 l
Overall capacity	11768 l
Overall jacket volume	911 l
Heat exchange surface	20,75 m²
Total weight	11170 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN300
Immersion depth (ET):	2600 mm
Width of baffle (a_2):	260 mm
Volume below Quatro Pipe/baffle:	1460 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	2500	2700	–
Upper insulating collar	2500	2700	–
Central insulating ring	2500	2700	–
Lower insulating ring	–	–	550

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
3401	135	3180	1723	680

h_6	h_7	h_8	d_1	d_2
521	86	2510	2400	2500

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	114,3	251	3670	280	–	–	363	944	–	–
2	114,3	251	3670	280	1350	–	363	944	5557	–
3	114,3	251	3670	280	990	1700	363	944	3998	7073
1	114,3	80	3840	280	–	–	38*	347	–	–

* for turbine type CBR and anchor type agitators

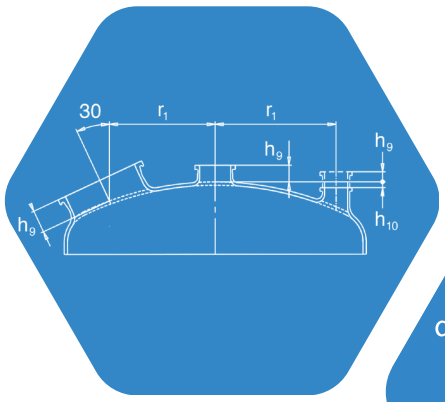
Nozzle arrangement [mm]

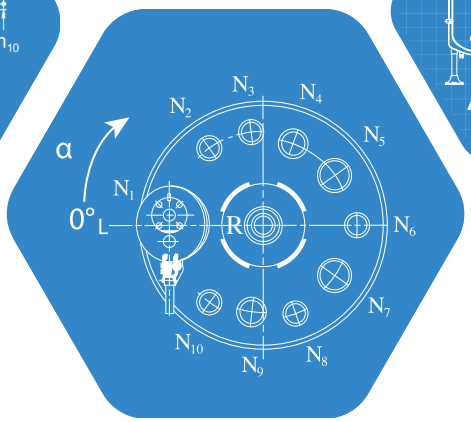
	DN	α°	r_1	h_9	h_{10}
N1	600	0	850	150	–
N2	200	55	925	–	40
N3	200	82,5	925	–	40
N4	300	110	900	–	15
N5	300	145	900	–	15
N6	200	180	925	–	40
N7	300	215	900	–	15
N8	200	250	925	–	40
N9	300	277,5	900	–	15
N10	200	305	925	–	40
L	100	0			
R	250	–	Center	111	
K	150	–	Center	–	

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	1040	114,3
CBR	1040	114,3
TBF	1220	114,3
FBT	1090	114,3
PBT	1090	114,3
RCI	1300	114,3
MSG	1200	114,3
GST	960	114,3
MXT	960	114,3
Protection of honed area made of FEP		





BE 12.500

Reactor specifications

Nominal Volume	12500 l
Overall capacity	14360 l
Overall jacket volume	1199 l
Heat exchange surface	25,27 m²
Total weight	12690 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN300
Immersion depth (ET):	3300 mm
Width of baffle (a_2):	260 mm
Volume below Quatro Pipe/baffle:	1043 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	2500	2700	–
Upper insulating collar	2500	2700	–
Central insulating ring	2500	2700	–
Lower insulating ring	–	–	550

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
4001	135	3780	1723	680

h_6	h_7	h_8	d_1	d_2
521	86	3090	2400	2500

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	114,3	251	4270	280	–	–	363	944	–	–
2	114,3	251	4270	280	1640	–	363	944	6813	–
3	114,3	251	4270	280	1180	2080	363	944	4821	8718
1	114,3	80	4440	280	–	–	38*	347	–	–

* for turbine type CBR and anchor type agitators

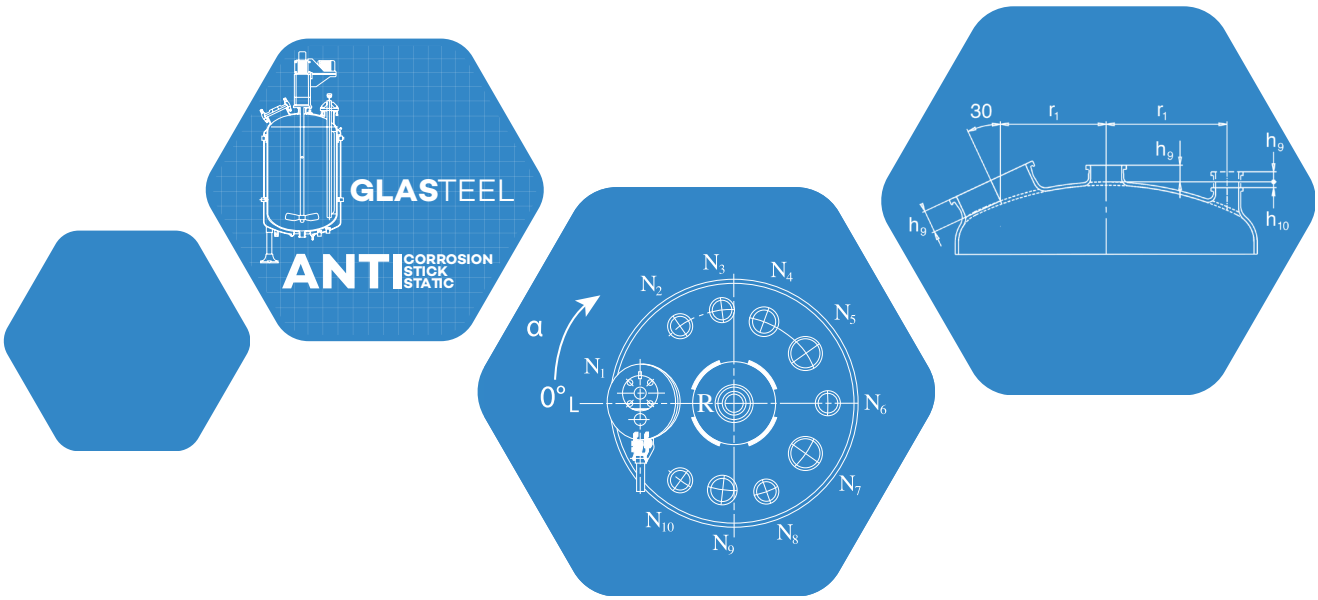
Nozzle arrangement [mm]

	DN	α°	r_1	h_9	h_{10}
N1	600	0	850	150	–
N2	200	55	925	–	40
N3	200	82,5	925	–	40
N4	300	110	900	–	15
N5	300	145	900	–	15
N6	200	180	925	–	40
N7	300	215	900	–	15
N8	200	250	925	–	40
N9	300	277,5	900	–	15
N10	200	305	925	–	40
L	100	0			
R	250	–	Center	110	
K	150	–	Center	–	

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	1040	114,3
CBR	1040	114,3
TBF	1220	114,3
FBT	1090	114,3
PBT	1090	114,3
RCI	1300	114,3
MSG	1200	114,3
GST	960	114,3
MXT	960	114,3
Protection of honed area made of FEP		



BE 16.000

diameter 2600

Reactor specifications

Nominal Volume	16000 l
Overall capacity	18200 l
Overall jacket volume	1451 l
Heat exchange surface	29,56 m²
Total weight	15010 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN300
Immersion depth (ET):	3600 mm
Width of baffle (a_2):	260 mm
Volume below Quatro Pipe/baffle:	1174 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	2700	2900	–
Upper insulating collar	2700	2900	–
Central insulating ring	2700	2900	–
Lower insulating ring	–	–	550

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
4300	135	4080	1723	680

h_6	h_7	h_8	d_1	d_2
573	86	3370	2600	2700

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	114,3	250	4570	280	–	–	392	1036	–	–
2	114,3	250	4570	280	1770	–	392	1036	8591	–
3	114,3	250	4570	280	1280	2280	392	1036	6093	11192
1	114,3	80	4740	280	–	–	41*	377	–	–

* for turbine type CBR and anchor type agitators

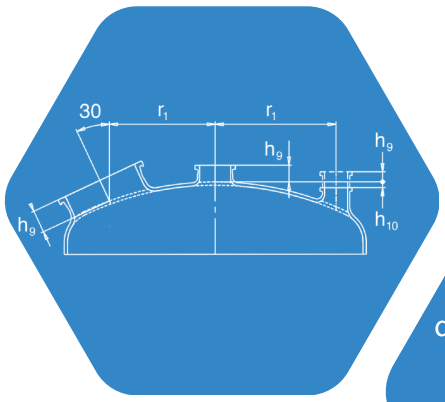
Nozzle arrangement [mm]

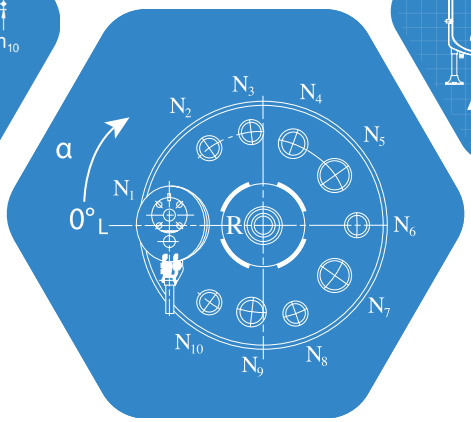
	DN	α°	r_1	h_9	h_{10}
N1	600	0	900	150	–
N2	200	55	1025	–	65
N3	200	82,5	1025	–	65
N4	300	110	950	–	20
N5	300	145	950	–	20
N6	200	180	1025	–	65
N7	300	215	950	–	20
N8	200	250	1025	–	65
N9	300	277,5	950	–	20
N10	200	305	1025	–	65
L	100	0			
R	250	–	Center	110	
K	150	–	Center	–	

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	1120	114,3
CBR	1120	114,3
TBF	1220	114,3
FBT	1090	114,3
PBT	1090	114,3
RCI	1350	114,3
MSG	1200	114,3
GST	960	114,3
MXT	960	114,3
Protection of honed area made of FEP		





BE 16.000

diameter 2800

Reactor specifications

Nominal Volume	16000 l
Overall capacity	18699 l
Overall jacket volume	1362 l
Heat exchange surface	28,24 m²
Total weight	16925 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN300
Immersion depth (ET):	3100 mm
Width of baffle (a_2):	280 mm
Volume below Quatro Pipe/baffle:	1999 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	2900	3100	–
Upper insulating collar	2900	3100	–
Central insulating ring	2900	3100	–
Lower insulating ring	–	–	550

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
3924	135	3705	1848	680

h_6	h_7	h_8	d_1	d_2
634	84	2945	2800	2900

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	139,7	252	4190	330	–	–	430	1295	–	–
2	139,7	252	4190	330	1600	–	430	1295	8752	–
3	139,7	252	4190	330	1180	2030	430	1295	6268	11295
1	139,7	80	4360	330	–	–	45*	510	–	–

* for turbine type CBR and anchor type agitators

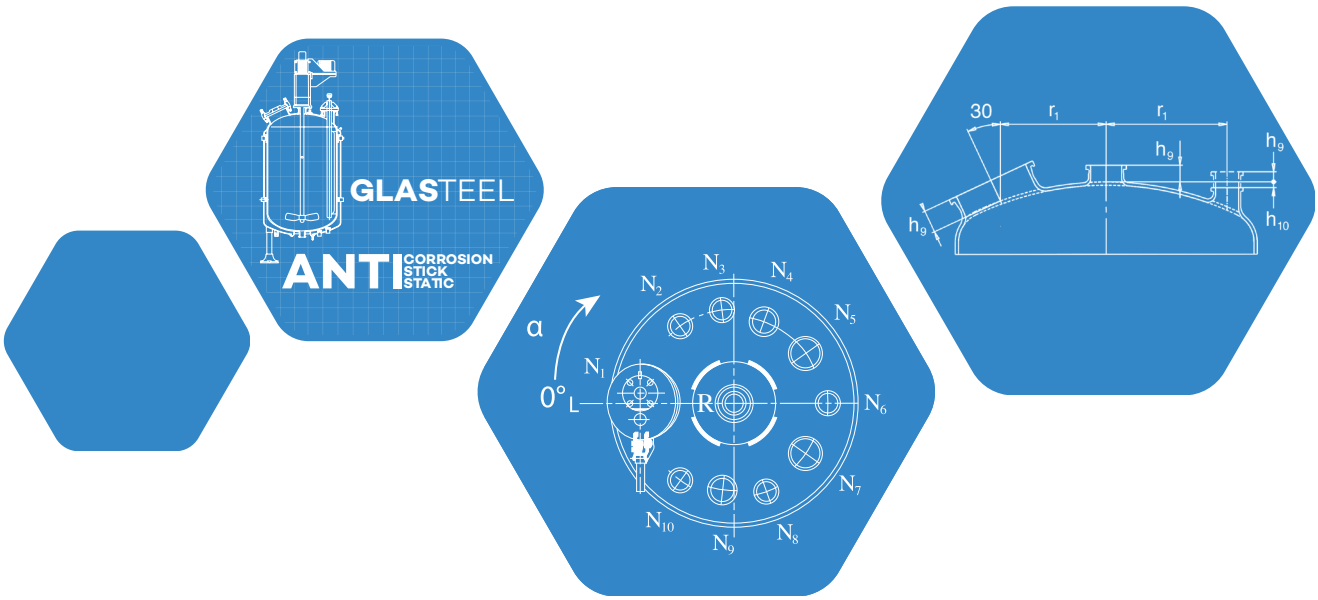
Nozzle arrangement [mm]

	DN	α°	r_1	h_9	h_{10}
N1	600	0	1000	150	–
N2	200	55	1100	–	75
N3	200	77,5	1100	–	75
N4	300	110	1000	–	5
N5	400	145	1000	–	5
N6	200	180	1100	–	75
N7	400	215	1000	–	5
N8	200	250	1100	–	75
N9	300	282,5	1000	–	5
N10	200	310	1100	–	75
L	100	0			
R	250	–	Center	111	
K	150	–	Center	–	

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	1220	139,7
CBR	1220	139,7
TBF	1420	139,7
FBT	1220	139,7
PBT	1220	139,7
RCI	1500	139,7
MSG	1200	139,7
GST	1120	139,7
MXT	1120	139,7
Protection of honed area made of FEP		



BE 20.000

Reactor specifications

Nominal Volume	20000 l
Overall capacity	22706 l
Overall jacket volume	1574 l
Heat exchange surface	34,22 m²
Total weight	19230 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN300
Immersion depth (ET):	3700 mm
Width of baffle (a_2):	280 mm
Volume below Quatro Pipe/baffle:	2452 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	2900	3100	–
Upper insulating collar	2900	3100	–
Central insulating ring	2900	3100	–
Lower insulating ring	–	–	550

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
4604	135	4385	1848	680

h_6	h_7	h_8	d_1	d_2
634	84	3625	2800	2900

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	139,7	252	4870	330	–	–	430	1295	–	–
2	139,7	252	4870	330	1940	–	430	1295	10749	–
3	139,7	252	4870	330	1400	2470	430	1295	7560	13879
1	139,7	80	5040	330	–	–	45*	510	–	–

* for turbine type CBR and anchor type agitators

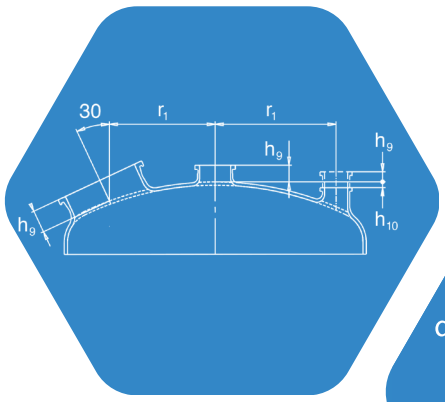
Nozzle arrangement [mm]

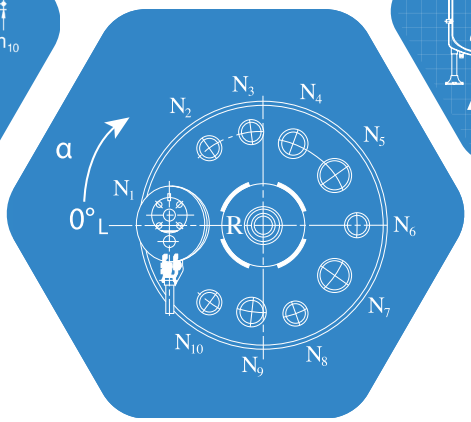
	DN	α°	r_1	h_9	h_{10}
N1	600	0	1000	150	–
N2	200	55	1100	–	75
N3	200	77,5	1100	–	75
N4	300	110	1000	–	5
N5	400	145	1000	–	5
N6	200	180	1100	–	75
N7	400	215	1000	–	5
N8	200	250	1100	–	75
N9	300	282,5	1000	–	5
N10	200	310	1100	–	75
L	100	0			
R	250	–	Center	111	
K	150	–	Center	–	

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	1220	139,7
CBR	1220	139,7
TBF	1420	139,7
FBT	1220	139,7
PBT	1220	139,7
RCI	1500	139,7
MSG	1200	139,7
GST	1120	139,7
MXT	1120	139,7
Protection of honed area made of FEP		





BE 25.000

diameter 2800

Reactor specifications

Nominal Volume	25000 l
Overall capacity	27714 l
Overall jacket volume	1839 l
Heat exchange surface	41,69 m²
Total weight	approx. 21930 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN300
Immersion depth (ET):	4550 mm
Width of baffle (a_2):	280 mm
Volume below Quatro Pipe/baffle:	2715 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	2900	3100	–
Upper insulating collar	2900	3100	–
Central insulating ring	2900	3100	–
Lower insulating ring	–	–	550

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
5452	135	5235	1848	680

h_6	h_7	h_8	d_1	d_2
634	84	4470	2800	2900

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	139,7	252	5720	330	–	–	430	1295	–	–
2	139,7	252	5720	330	2360	–	430	1295	13245	–
3	139,7	252	5720	330	1645	2960	430	1295	9018	16795
1	139,7	80	5890	330	–	–	45*	510	–	–

* for turbine type CBR and anchor type agitators

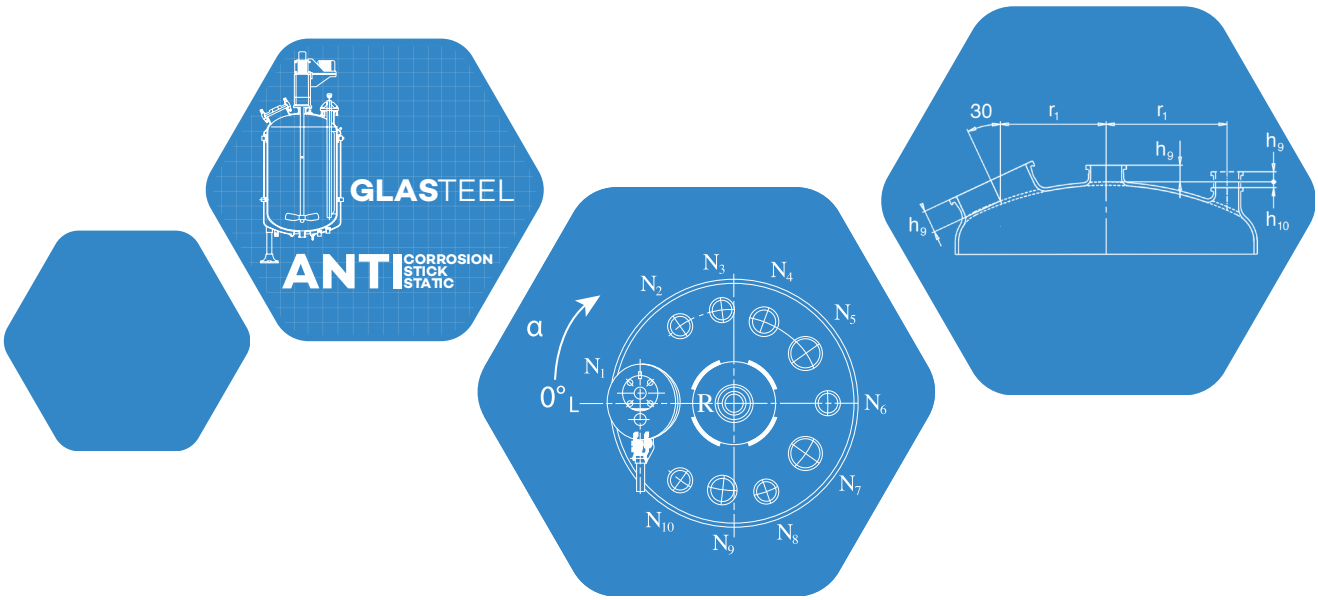
Nozzle arrangement [mm]

	DN	α°	r_1	h_9	h_{10}
N1	600	0	1000	150	–
N2	200	55	1100	–	75
N3	200	77,5	1100	–	75
N4	300	110	1000	–	5
N5	400	145	1000	–	5
N6	200	180	1100	–	75
N7	400	215	1000	–	5
N8	200	250	1100	–	75
N9	300	282,5	1000	–	5
N10	200	310	1100	–	75
L	100	0			
R	250	–	Center	111	
K	150	–	Center	–	

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	1220	139,7
CBR	1220	139,7
TBF	1420	139,7
FBT	1220	139,7
PBT	1220	139,7
RCI	1500	139,7
MSG	1200	139,7
GST	1120	139,7
MXT	1120	139,7
Protection of honed area made of FEP		



BE 25.000

diameter 3000

Reactor specifications

Nominal Volume	25000 l
Overall capacity	28400 l
Overall jacket volume	1778 l
Heat exchange surface	39,8 m²
Total weight	approx. 21980 kg

Baffles/Quatro Pipe

Quatro-Pipe for nozzle	DN300
Immersion depth (ET):	4000 mm
Width of baffle (a_2):	280 mm
Volume below Quatro Pipe/baffle:	3383 l

Insulation [mm]

Design	d_5	d_6	d_7
Upper insulating ring	3100	3300	–
Upper insulating collar	3100	3300	–
Central insulating ring	3100	3300	–
Lower insulating ring	–	–	550

Main dimensions [mm]

h_1	h_2	h_3	h_4	h_5
4973	135	4755	1848	680

h_6	h_7	h_8	d_1	d_2
702	83	3935	3000	3100

Agitator shafts [mm]

Number of honed areas	d_4 [mm]	a_1 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	l_4 [mm]	V_u [l]	V_1 [l]	V_2 [l]	V_3 [l]
1	139,7	252	5240	330	–	–	455	1421	–	–
2	139,7	252	5240	330	2100	–	455	1421	13333	–
3	139,7	252	5240	330	1510	2690	455	1421	9321	17345
1	139,7	80	5410	330	–	–	48*	548	–	–

* for turbine type CBR and anchor type agitators

Nozzle arrangement [mm]

	DN	α°	r_1	h_9	h_{10}
N1	600	0	1100	150	–
N2	200	55	1175	–	90
N3	200	77,5	1175	–	90
N4	300	110	1075	–	30
N5	400	145	1075	–	30
N6	200	180	1175	–	90
N7	400	215	1075	–	30
N8	200	250	1175	–	90
N9	300	282,5	1075	–	30
N10	200	310	1175	–	90
L	100	0			
R	250	–	Center	111	
K	150	–	Center	–	

* K is the bottom outlet nozzle

Turbines [mm]

Type	d_3	d_4
CBT	1220	139,7
CBR	1220	139,7
TBF	1420	139,7
FBT	1220	139,7
PBT	1220	139,7
RCI	1500	139,7
MSG	1200	139,7
GST	1120	139,7
MXT	1120	139,7
Protection of honed area made of FEP		

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PFAUDLER
GLASS-LINED
& ALLOY SYSTEMS

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Pharmaceutical Applications

Perfect in high-pressure environments

Due to their construction, equipment and accessories, BE reactors are the right choice for many pharmaceutical and high-pressure applications. Numerous additional products are available from Pfaudler to satisfy all needs of pharmacology.

Glasslining

Pfauder PharmaGlass, white or blue

Supporting structure

- Legs
- Supporting ring
- Brackets

Supporting structure made of steel or stainless steel

Heating/Cooling jacket

- Double-jacket design
- Half-coil pipe 89 mm in diameter with a 10% larger heat exchange surface than specified in DIN 28128
- Half-coil pipe 50 mm in diameter

Insulation

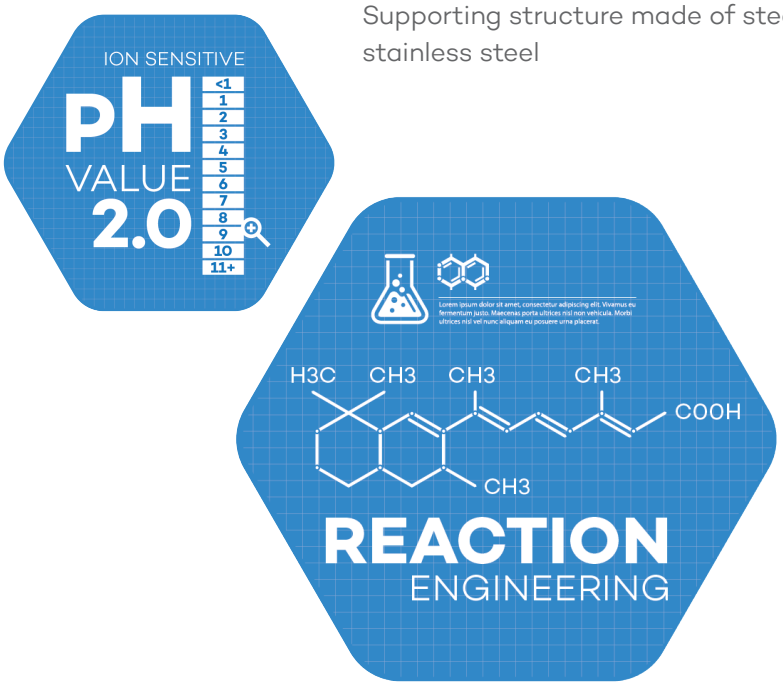
Made of steel/stainless steel as required by the customer, various insulating materials available

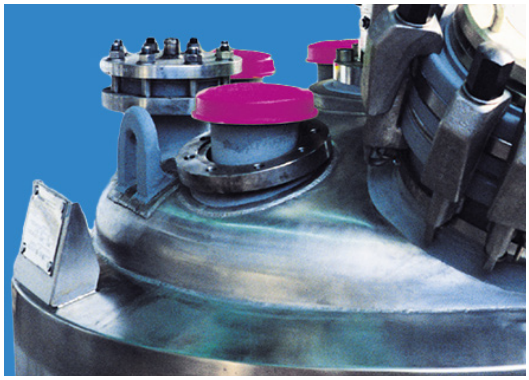
Agitator flange

- Standard design pursuant to DIN 28137-2
- As loose flange in ultra-clean design specifically for pharmaceutical applications

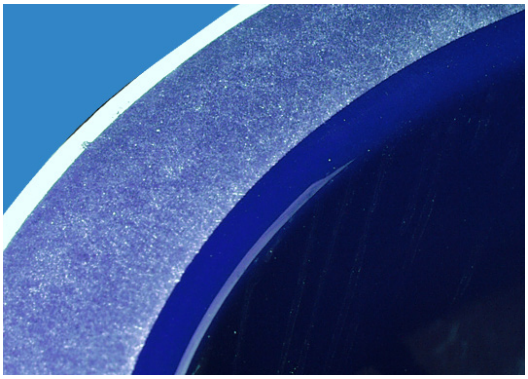
Manhole cover

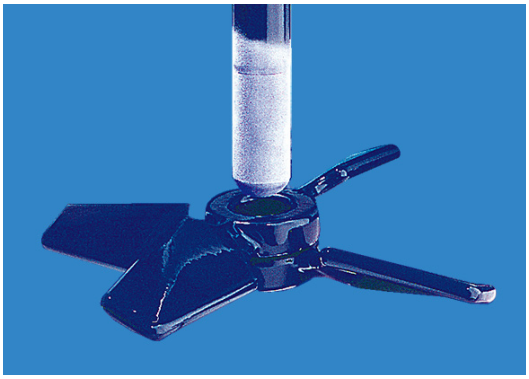
- With fused-in Glasslook® sight glass
- With Fillook filling hole cover; funnel tube available separately
- With encapsulated sight glass to DIN 28121, design EC

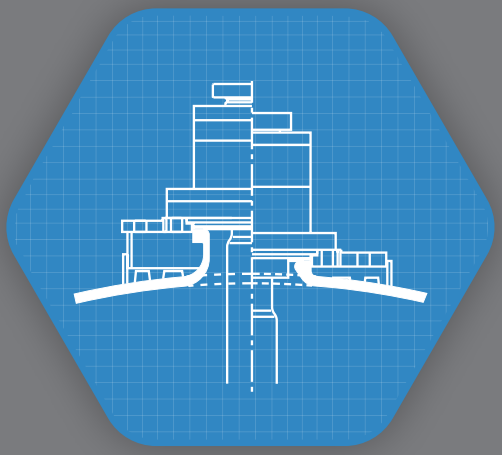




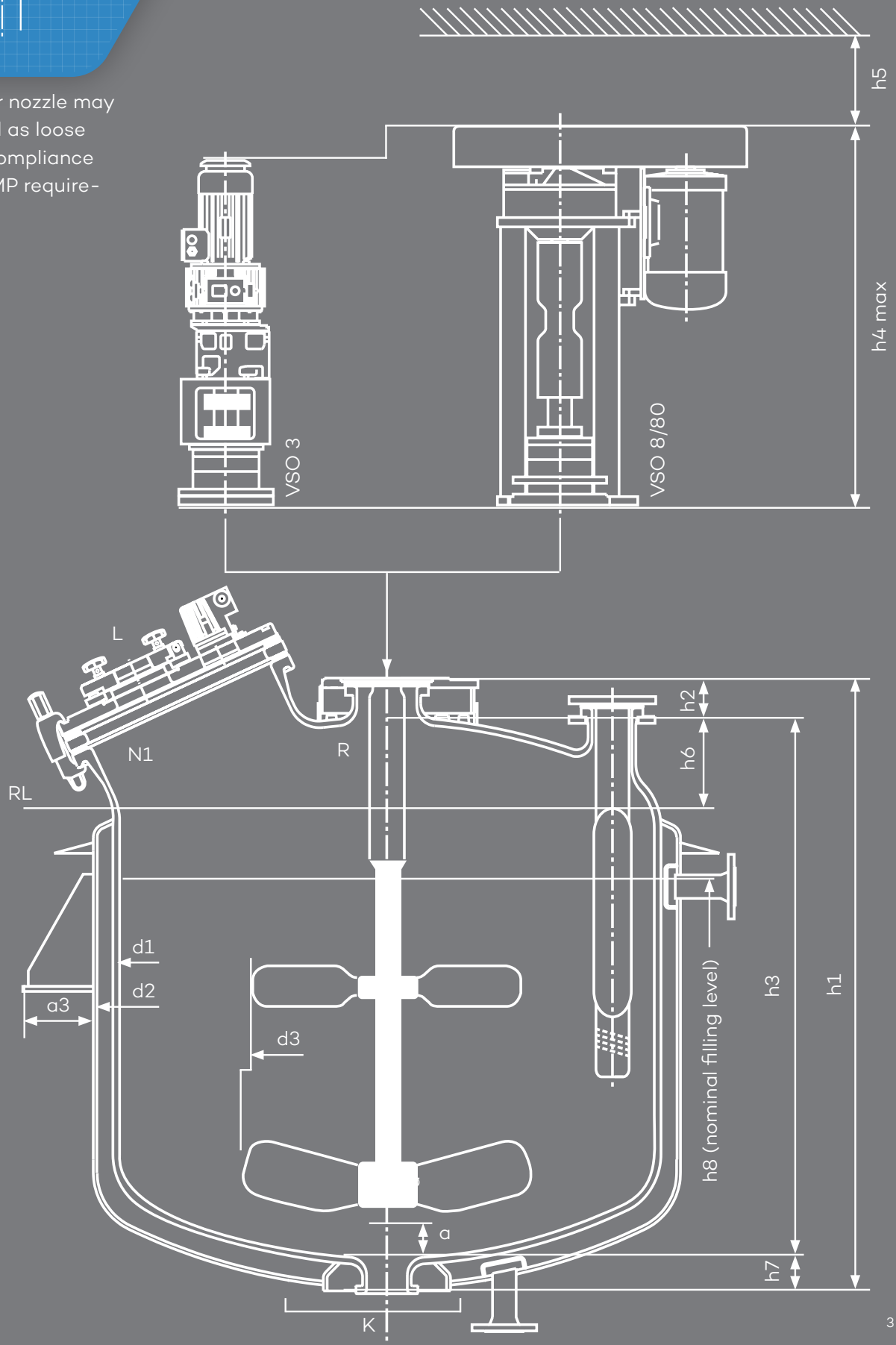
Small radii at the nozzle (option) for small clearance volumes and ease of cleaning.







The agitator nozzle may be designed as loose flanges in compliance with CIP/GMP requirements.



Cryo-Lock®

And other agitating technologies

Efficient solutions for any agitating task
Cryo-Lock® agitating technique
Cryo-Lock® — the flexible agitating technique made by Pfauder. A shaft to which different turbines can be coupled quickly and easily even at different positions, depending on the process requirements. A large number of turbine shapes is available for combination:

CBT — Curved Blade Turbine
The universal agitator with a high shearing effect and radial flow

CBR — Turbine for residual amounts
In connection with an extended shaft, for agitating extremly small residual amounts. The agitating properties are comparable to those of a normal CBT turbine

FBT — Flat Blade Turbine
High shearing effect, purely radial flow

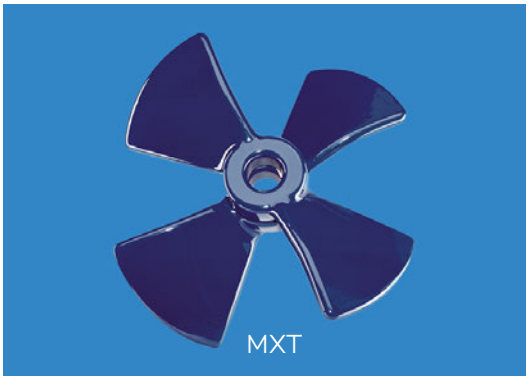
PBT — Pitched Blade Turbine
Average shearing effect, combined radial/ axial flow

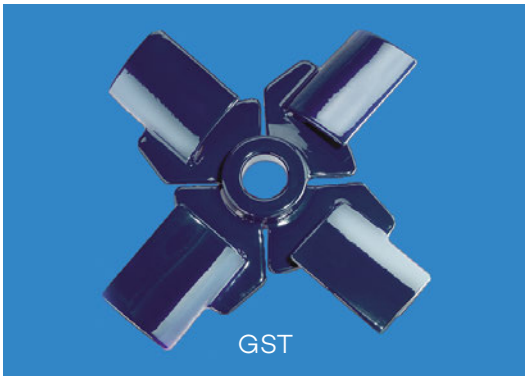
TBF — Turbofoil
The efficient turbofoil agitator with high axial flow at comparatively low flow disturbance, low torque, low power input

ANC — Anchor
Anchor-type agitator with high tangential flow for highly viscous products

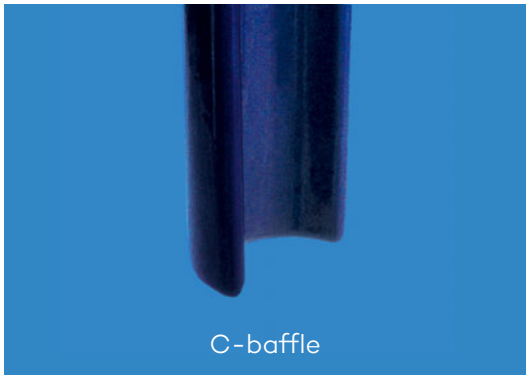
MXT — Maxflo Turbine
High-performance turbine for agitating substances with an elevated viscosity, or where the effect of the Turbofoil is not sufficient

GST — Gas Dispersion Turbine
Considerable increase in gas quantities for dispersion and transition regime rates compared to a disk-type agitator


MXT


GST


TBF


C-baffle


TBF
ANC
FBT
PBT
CBT
CBR

Other Parts

For variable functionality

Mechanical seals

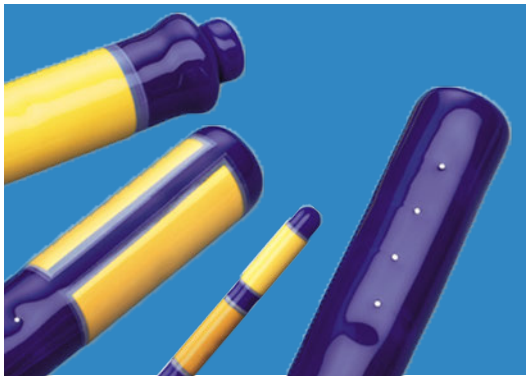
- Wet-running mechanical seal (fleXeal UF8, UF8 UC)
- Dry-running, with contact (fleXeal BF7)
- Gas film lubricated dry-running without contact (fleXeal GF7, GF7 UC)
- Mechanical seals specifically for applications in GMP-compliant production. FDA-approved materials on request. (UC)

Measuring technology

- different constructions of probes, including pH, rH, conductivity
- probes

Sampling systems

Standart and Loop systems (Flexampler)



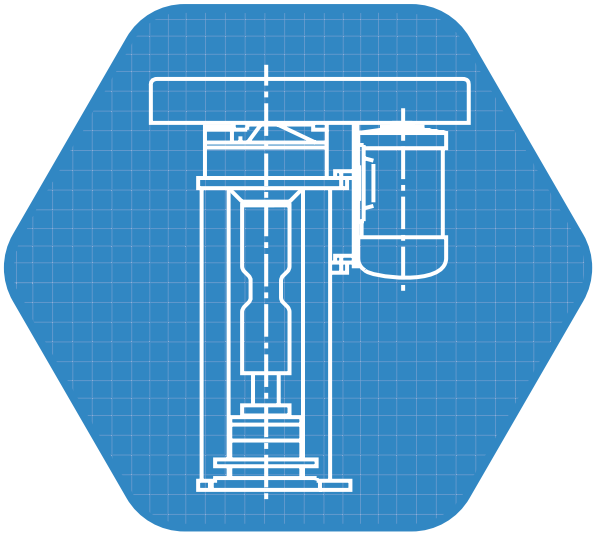
Valves

- Outlet valves in modular design with bellows, gland with optional manual or pneumatic operating mechanism. Also available with temperature measurement in valve cone and proximity-type switches. With bellows in compliance with requirements of TA Luft (German Clean Air Act) and TRR.
- Outlet valves with gland
- Outlet valves with small clearance volumes

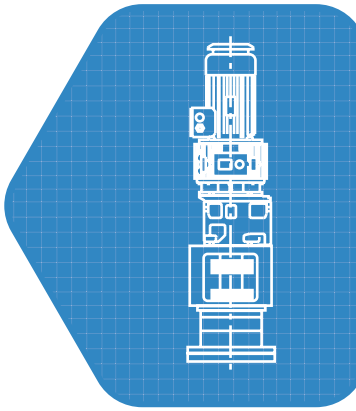
Internals

- Flange-type baffle, also with glasslined temperature sensor
- C-baffle (concave baffle) with improved effect
- Quatro-Pipe® baffle, also available with temperature measurement and sampling system
- Immersion tubes
- Immersion coolers

REACTION ENGINEERING



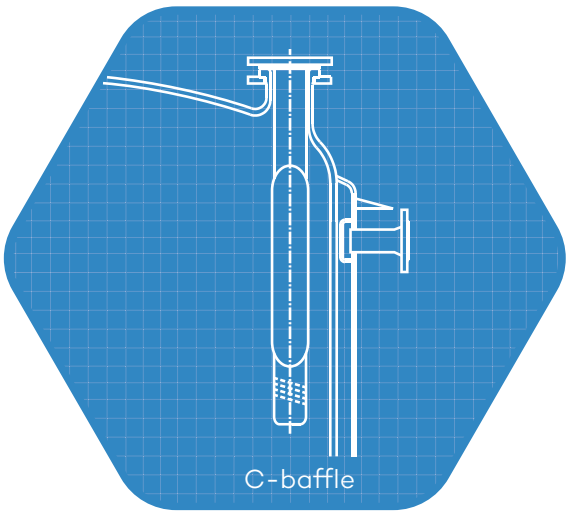
Pfaudler Fillook®
Clear insight into the process through Glasslook® sight glass, easy product sampling, safe filling using funnel tube made of stainless steel.



Drive

- Direct drive for BE 630, BE 800 and BE 1000, 1200 mm in diameter (VSO 3)
- Belt drive for BE 1000, 1400mm in diameter (VSO 8/80)
- Other drives according to customer specification

Pfaudler Glasslook®
The fracture-proof combination:
Sight glass in a glasslined steel mount or directly fused into the manhole cover — resistance to thermal shock, leakage-free, fracture-proof, always clear sight.

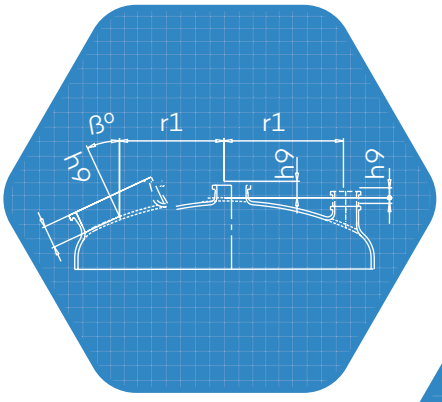


Reactor system BE

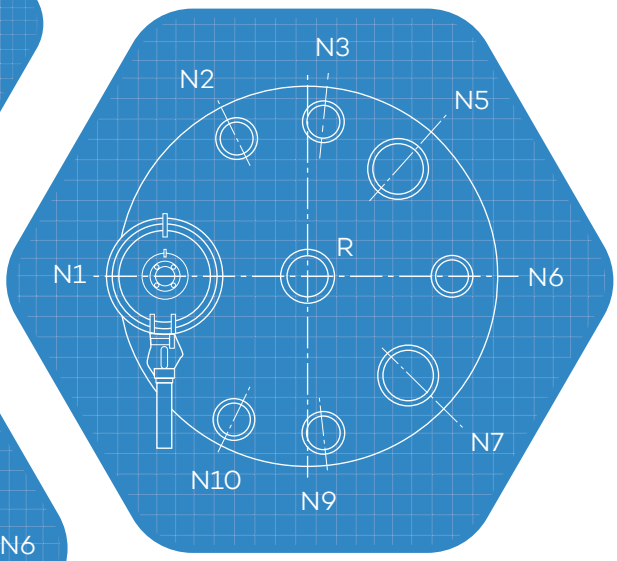
Technical data

TYPE	BE 630	BE 800	BE 1000	BE 1000
			diam. 1400	diam. 1200
Nominal volume	630 l	800 l	1000 l	1000 l
Total volume	861 l	1069 l	1730 l	1474 l
Jacket volume (double jacket)	210 l	250 l	280 l	230 l
Heat exchange surface	4,3 m^2	5,2 m^2	5,5 m^2	4,97 m^2
Operating temperature	-25/+200 °C	-25/+200 °C	-25/+200 °C	-25/+200 °C
adm. operating pressure, reactor	-1/+6 bar	-1/+6 bar	-1/+6 bar	-1/+6 bar
adm. operating pressure, jacket	-1/+6 bar	-1/+6 bar	-1/+6 bar	-1/+6 bar
Total weight approx.	1600 kg	1800 kg	2800 kg	2300 kg
d_1	1000 mm	1000 mm	1400 mm	1200 mm
d_2	1100 mm	1100 mm	1500 mm	1300 mm
d_3	480 mm	480 mm	735 mm	480 mm
a_3	180 mm	180 mm	180 mm	180 mm
a	60 mm	60 mm	60 mm	60 mm
Residual quantity	6 l	6 l	15 l	6 l
h_1	1480 mm	1758 mm	1573 mm	1726 mm
h_2	90 mm	90 mm	100 mm	90 mm
h_3	1310 mm	1590 mm	1400 mm	1560 mm
h_4 max	1202 mm	1202 mm	1210 mm	1202 mm
h_5	—	—	525 mm	—
h_6	169 mm	170 mm	236 mm	210 mm
h_7	90 mm	90 mm	90 mm	90 mm
h_8	912 mm	1140 mm	776 mm	1012 mm

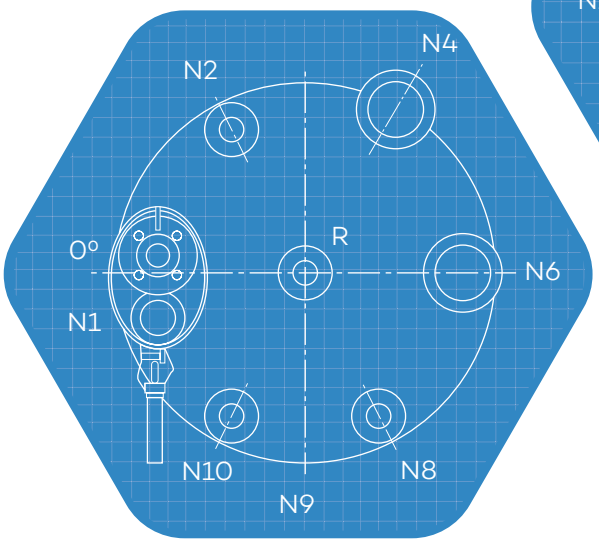
The operating conditions stated in the proposal or in the confirmation of order are binding.



ß = 25° for BE 1000



Nozzle pattern BE 1000



Nozzle pattern BE 630/800

BE 1000 diam. 1400				
	DN	**α°**	**r_1**	**h_9**
N1	500	0	475	125
N2	100	60	575	25
N3	100	95	575	25
N5	200	135	550	50
N6	100	180	575	25
N7	200	225	550	50
N9	100	265	575	25
N10	100	300	575	25
L	100	0		
R	150	—	0	80
K	100	—	0	—

BE 1000 diam. 1200				
	DN	**α°**	**r_1**	**h_9**
N1	350 x 450	0	440	125
N2	100	67.5	500	30
N3	100	95	500	30
N5	200	137.5	450	60
N6	100	180	500	30
N7	200	222.5	450	60
N9	100	265	500	30
N10	100	292.5	500	30
L	100	0		
R	125	—	0	70
K	100	—	0	—

BE 630/BE 800					
	DN	**α°**	**ß**	**r_1**	**h_9**
N1	320 x420	0	27	365	143
N2	100	65		380	50
N4	100	120	14	380	90
N6	150	180		380	50
N8	100	240		380	50
N10	100	295		380	50
L	100	0			
R	125	—		0	70
K	100	—		0	—

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PFAUDLER
GLASS-LINED
& ALLOY SYSTEMS

US VERSION

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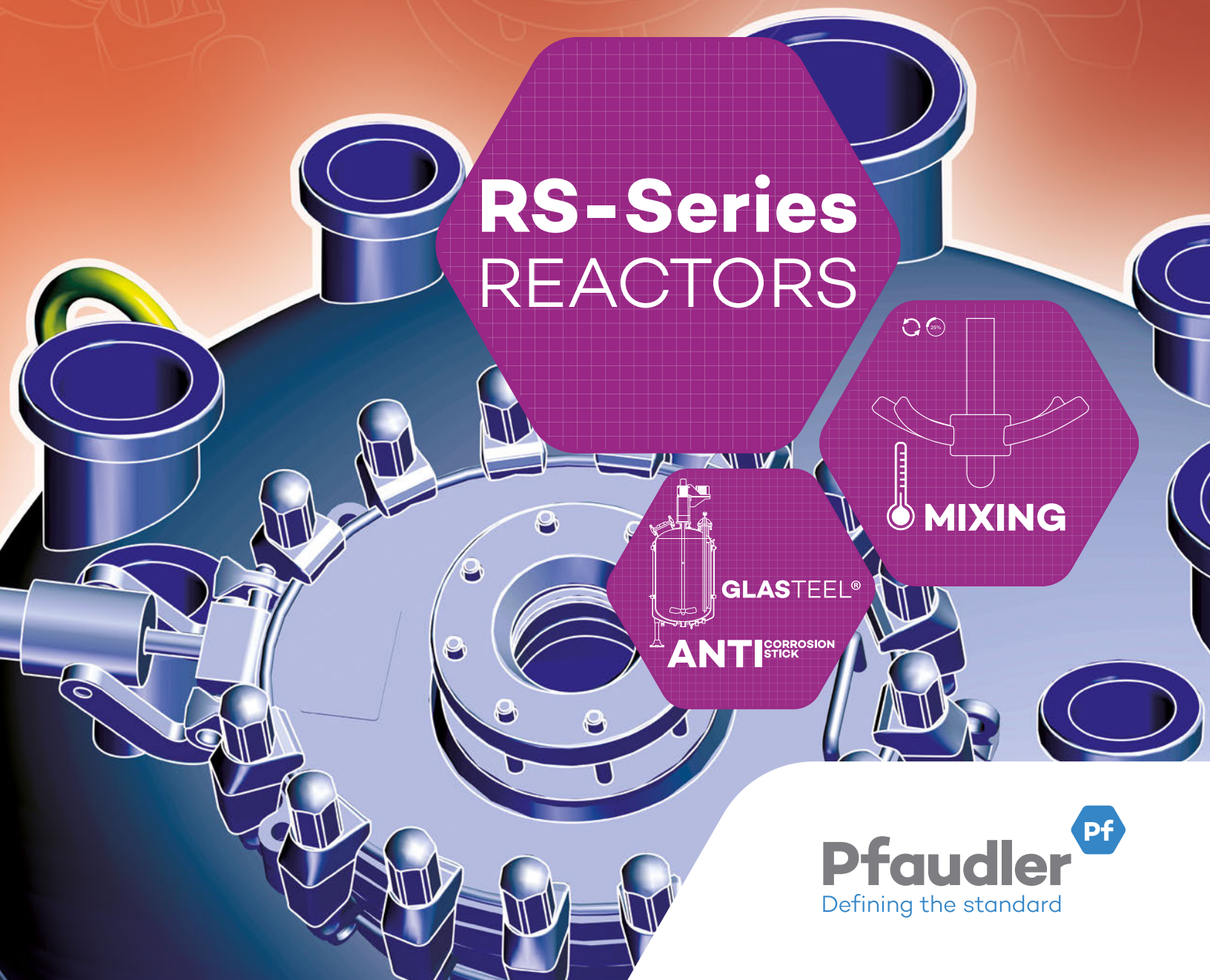
RS-Series REACTORS



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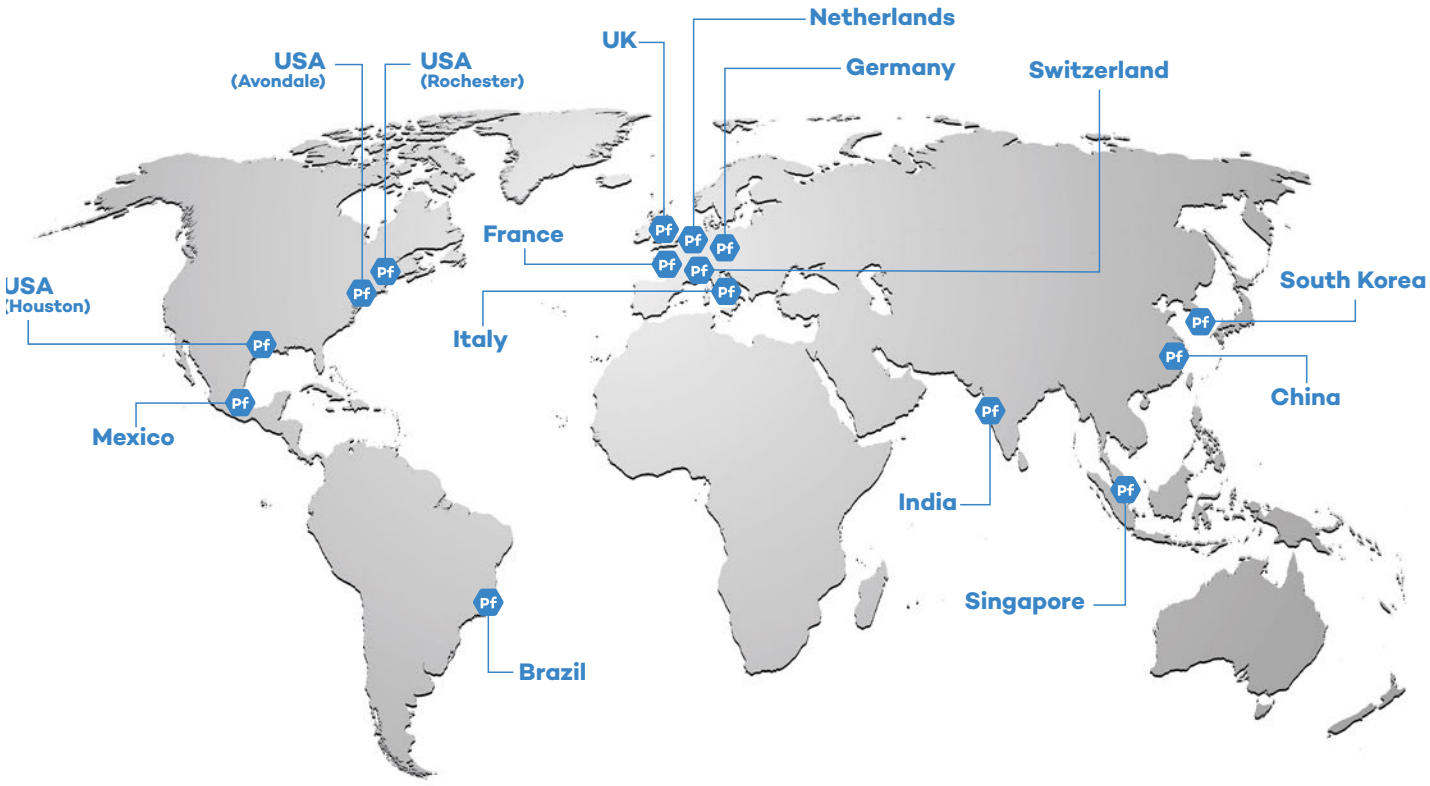
Pfaudler International

One single source responsibility with access to all Pfaudler Technologies, Systems, Services worldwide



Pfaudler is a global Group offering a wide range of corrosion-resistant technologies, systems and related services for the chemical, pharmaceutical and food industries.

Edlon, Interseal, Montz, Mavag, Normag and Pfaudler are our Branded Product Lines. These product lines are specialized and perfectly integrated to meet the most complex Client needs. We are in the position to offer a complete turn-key package for each of the critical aspects of chemical and pharmaceutical processing.

Technologies and process systems of our Group are installed in more than 100 countries and across six continents.

Unique expertise and skills, manufacturing capability, targeted investments in strategic markets, innovation and competitiveness allow the Pfaudler group to be a landmark in the industry.
Around the world our Customers rely on the quality and performance of our supply to obtain efficient, reliable, profitable and safe chemical process systems.

Our network organization is designed to:

- strengthen our local presence alongside Customers and markets;
- accelerate decision-making processes through a less-centralized management;
- improve Pfaudler's ability to attract new talent at the local level.

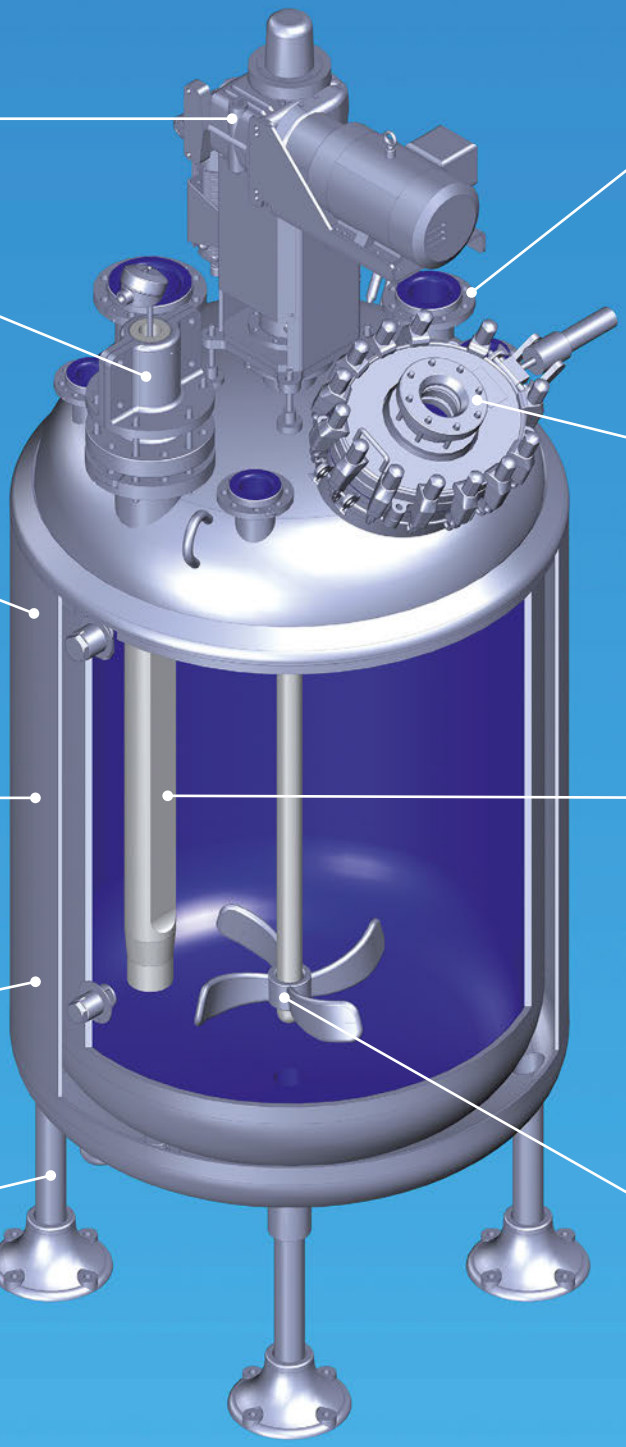
RS-Reactor Series

Why Use a Glasteel Reactor

The specially formulated glass lining, fused to a steel substrate, is highly corrosion resistant and chemically inert to nearly all substances. It is the ideal environment for processing ultra-pure products.

Its smooth surface resists adherence by viscous or sticky materials and cleans easily.

Glasteel is strong. Fusing glass to steel produces a composite material with the advantages of glass and the strength of steel. It has a high resistance to impact and thermally induced stresses.



Proven SRW mixer drive.

Flange mounted baffle provides easy assembly; no stuffing box required.

Fine grain carbon steel for improved low temperature characteristics.

Interchangeable with RA Series reactors.

High internal and jacket pressure rating.

Supports designed for wind and seismic conditions.

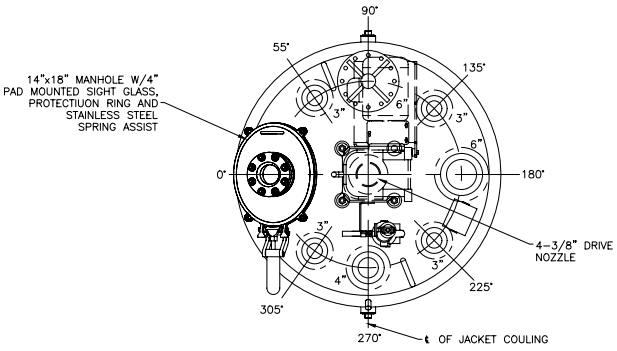
More top head nozzles, custom layouts are available.

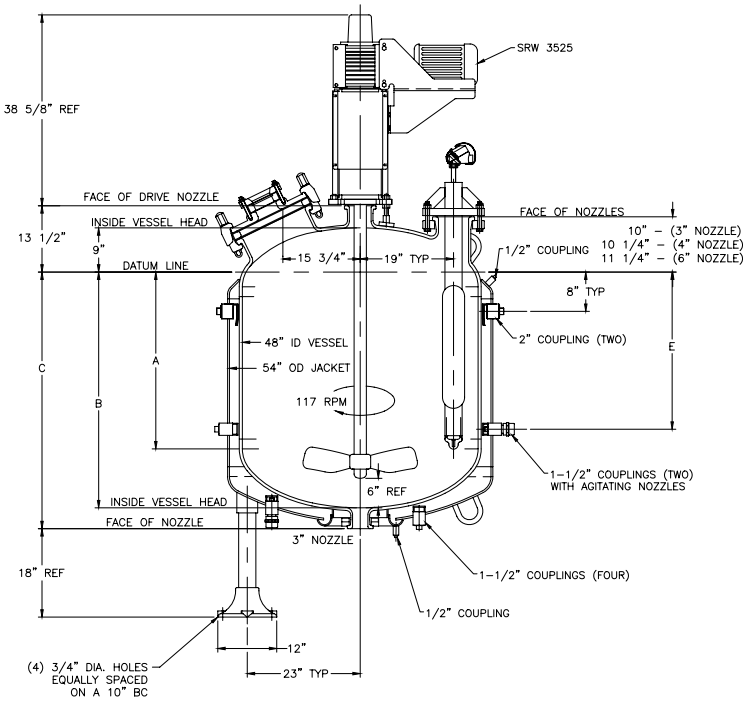
Larger manway, including a fused sight glass, protection ring, and stainless steel assist.

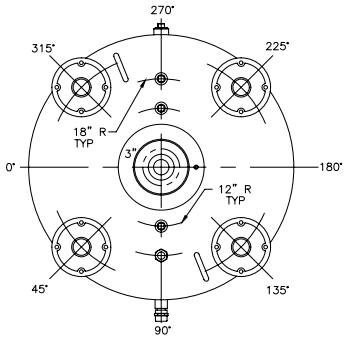
Quick response, completely glass-lined TMI Type Temperature Sensor.

Patented interference-fit, glass-to-glass joint locks the Cryo-Lock impeller to the shaft.

RS48-Series



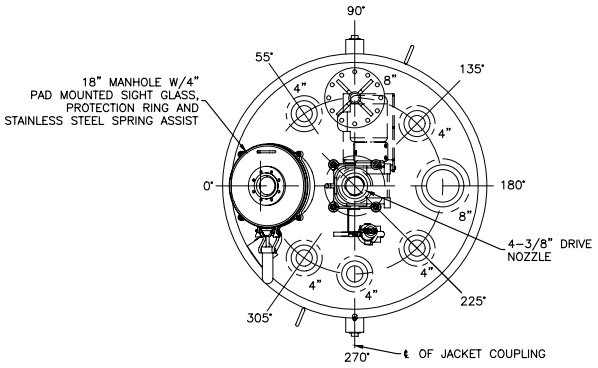


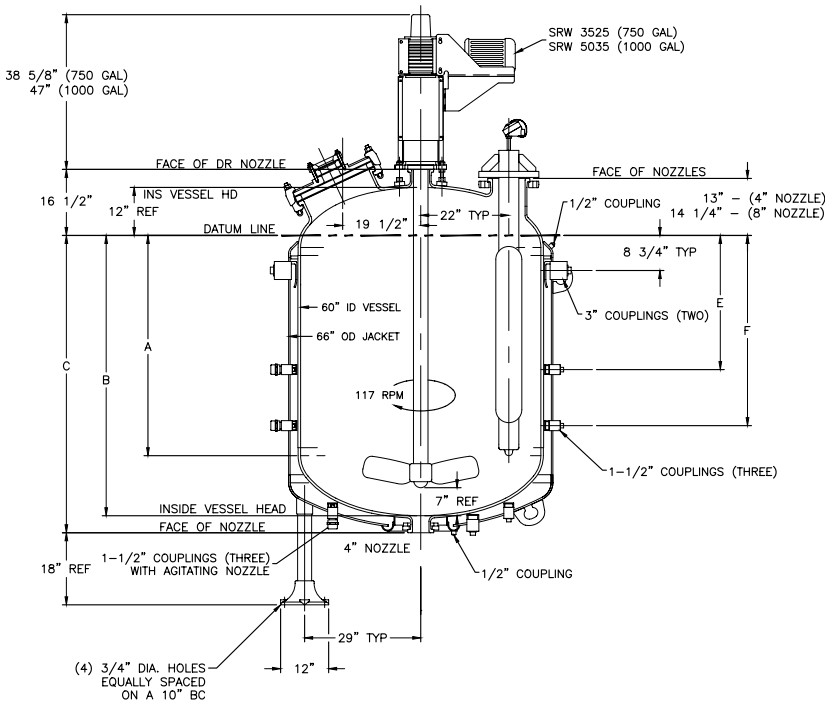


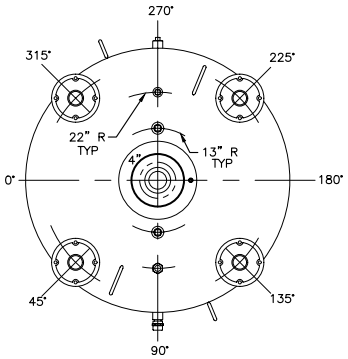
	300 gal.	500 gal.
Design pressure (psig)		
Internal @ 450˚F	125/FV	125/FV
Jacket @ 450˚F	100/FV	100/FV
Dimensions (inches)		
A	33	58
B	48	73
C	52-1/4	77-1/4
D	122-5/8	147-5/8
E	32	51
Capacity (gallons)		
Working	300	500
Top Head	62.7	62.7
Bottom Head	62.7	62.7
Per Inch of Straight Side	7.8	7.8
To Bottom of Impeller Blade	25	25
To Top of Impeller Blade	62.5	62.5
To Bottom of Baffle	47	47
Jacket	75	110
Heating area (square feet)		
Jacket (total)	53	80
Bottom Head	17.4	17.4
Per Inch of Straight Side	1.1	1.1
Weight (pounds)		
Without Accessories	3,580	4,750
Total – Including Drive, Agitator, Baffle	4,830	6,200
Add for Shipment	150	150

RS60-Series

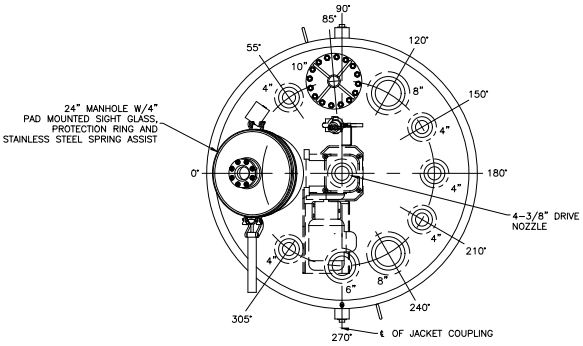
	750 gal.	1000 gal.
Design pressure (psig)		
Internal @ 450˚F	125/FV	125/FV
Jacket @ 450˚F	100/FV	100/FV
Dimensions (inches)		
A	52	72
B	70	90
C	74-1/4	94-1/4
D	147-3/8	175-5/8
E	33-1/2	47-1/2
F	47-1/2	67-1/2
Capacity (gallons)		
Working	750	1000
Top Head	122.4	122.4
Bottom Head	122.4	122.4
Per Inch of Straight Side	12.2	12.2
To Bottom of Impeller Blade	42	42
To Top of Impeller Blade	122	122
To Bottom of Baffle	75	75
Jacket	141	171
Heating area (square feet)		
Jacket (total)	96	122
Bottom Head	27.1	27.1
Per Inch of Straight Side	1.3	1.3
Weight (pounds)		
Without Accessories	6,050	7,250
Total – Including Drive, Agitator, Baffle	7,900	9,450
Add for Shipment	200	200

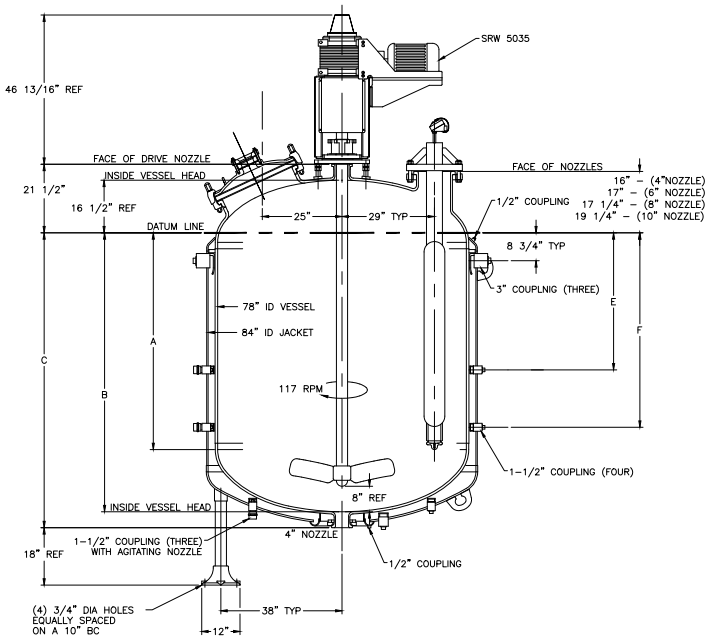


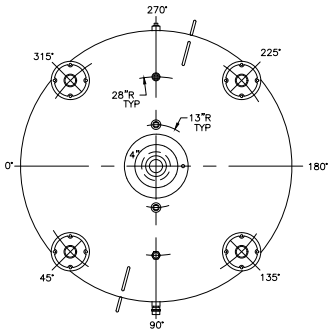




RS78-Series



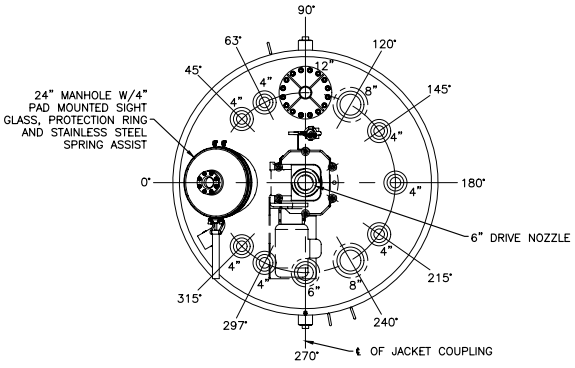


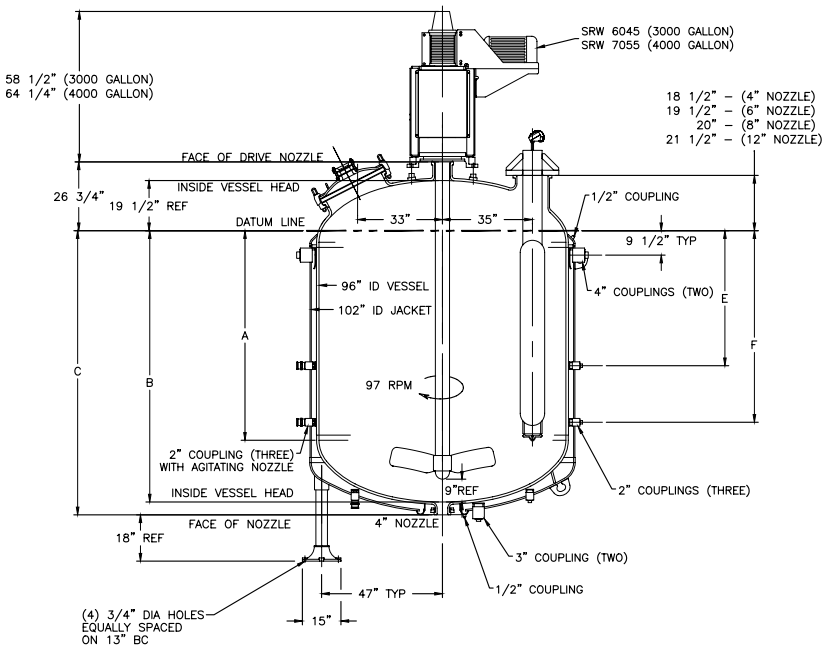


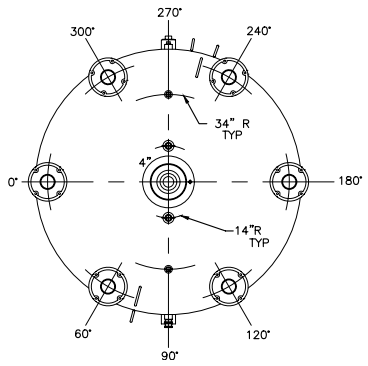
	1500 gal.	2000 gal.
Design pressure (psig)		
Internal @ 450˚F	125/FV	125/FV
Jacket @ 450˚F	100/FV	100/FV
Dimensions (inches)		
A	65	84
B	87-1/2	106-1/2
C	92-1/2	111-1/2
D	179	198
E	43	60
F	61	81
Capacity (gallons)		
Working	1500	2000
Top Head	268.9	268.9
Bottom Head	268.9	268.9
Per Inch of Straight Side	20.7	20.7
To Bottom of Impeller Blade	72	72
To Top of Impeller Blade	205	205
To Bottom of Baffle	139	139
Jacket	255	301
Heating area (square feet)		
Jacket (total)	158	191
Bottom Head	45.8	45.8
Per Inch of Straight Side	1.7	1.7
Weight (pounds)		
Without Accessories	11,630	13,380
Total – Including Drive, Agitator, Baffle	14,000	15,900
Add for Shipment	450	450

RS96-Series

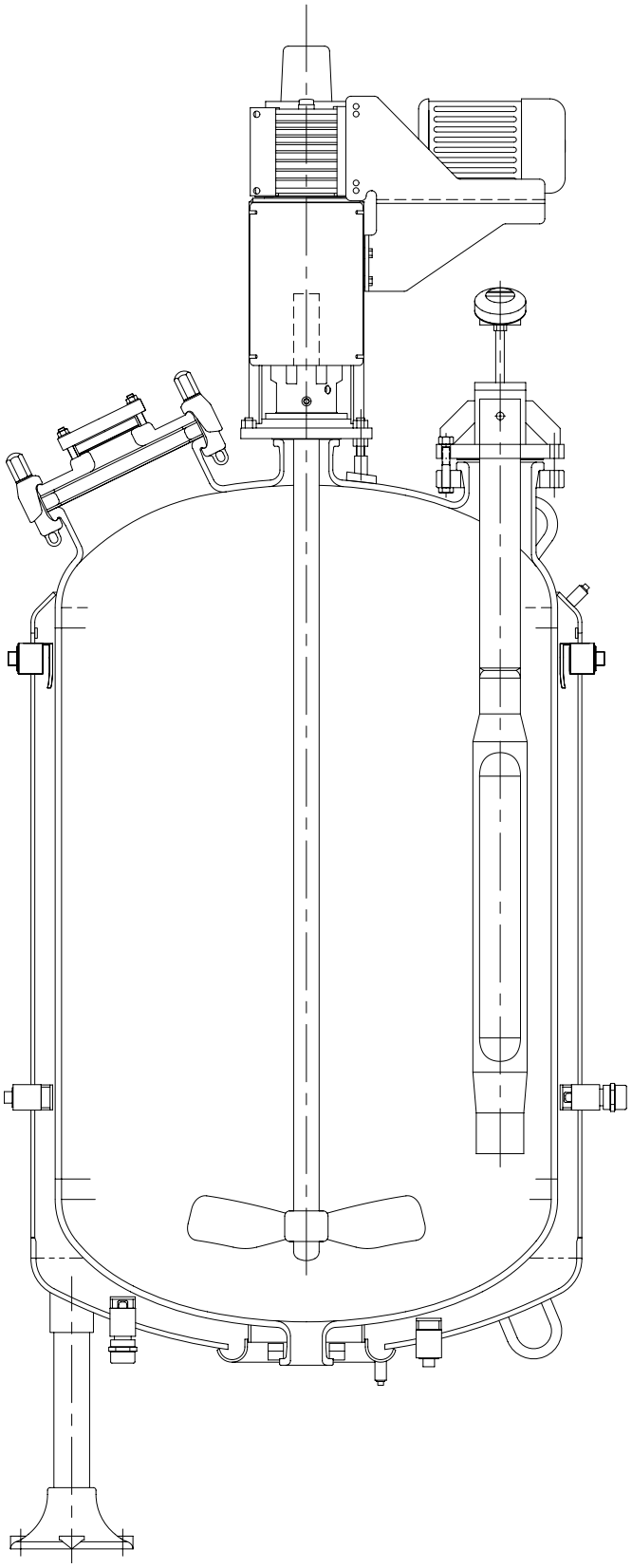
	3000 gal.	4000 gal.
Design pressure (psig)		
Internal @ 450˚F	125/FV	125/FV
Jacket @ 450˚F	100/FV	100/FV
Dimensions (inches)		
A	77	109
B	105-1/2	137-1/2
C	110-1/2	142-1/2
D	213-3/4	251-1/2
E	52-1/2	72-1/2
F	74-1/2	102-1/2
Capacity (gallons)		
Working	3000	4000
Top Head	501.4	501.4
Bottom Head	501.4	501.4
Per Inch of Straight Side	31.3	31.3
To Bottom of Impeller Blade	133.5	133.5
To Top of Impeller Blade	408	408
To Bottom of Baffle	232-1/2	232-1/2
Jacket	366	453
Heating area (square feet)		
Jacket (total)	236	300
Bottom Head	69.4	69.4
Per Inch of Straight Side	2.1	2.1
Weight (pounds)		
Without Accessories	20,950	26,300
Total – Including Drive, Agitator, Baffle	24,300	30,400
Add for Shipment	900	900







Design Features



The RS-Series reactor can be interchanged with standard RA-Series vessel with minimal piping or support modifications.

Standard and Custom Designs

Choose from a full line of Pfaudler RS Series Glasteel reactors, with models ranging from 300 to 15,000 gallons. These configurations can be customized to meet specific design requirements.

The large drive access cover has been eliminated, removing the need to shim large gaskets or tighten numerous clamps.

Mixing

Robust mixers are provided on all RS Series reactors. Various drive styles are available, from drives with an easy seal change-out feature to established drives for low headroom requirements.

Cryo-Lock® impellers are available with various baffle options to maximize mixing in the reactor.

Higher Pressure Ratings

Many chemical processes today require higher pressures. RS Series reactors are rated for 125 psig internal pressure. Jackets are rated for 100 psig.

Run at lower temperatures

Shells and heads of the RS Series utilize fine grain carbon steel, which has significantly improved low temperature characteristics.

Temperature Measurement

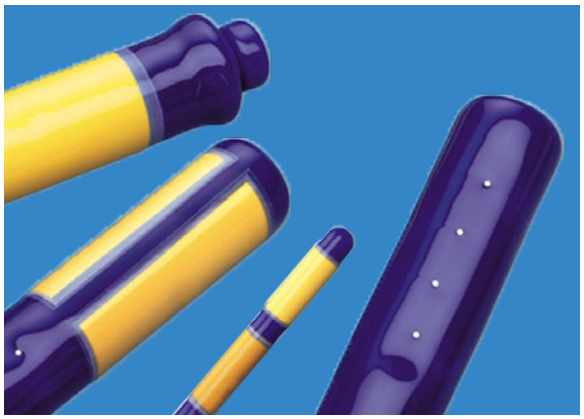
Pfaudler's integral TMI type temperature sensing system is specifically designed for Glasteel equipment. This innovation allows for quick response time in an all glass-lined construction, eliminating a gasketed joint and exposed metal in the baffle or valve.

Handhole / Sight Glass

Our reactors are provided with fused steel sight glasses that can either be nozzle mounted or pad mounted on the manway cover. The sight glass / handhole can also be replaced with our EZ-port for easy access to the vessel.

Features

For variable functionality



Instrumentation

- PH probes
- Temperature sensors
- GlasSentinel
- Quatro-pipe baffle available with temperature measurement and sampling capabilities

Valves

- Outlet valves with manual hand wheel or air-actuator
- Optional low profile air actuator available for limited space requirements
- Optional EZ-valve adapter available for quick installation and removal
- Valve bodies are available with side flush port providing access for sampling, cleaning, and purging without dismantling the entire valve.

Options

- A variety of baffles available
- Dip tubes with fluoropolymer-lined and glass-lined options
- EZ-port handhole
- Insulation and stainless steel sheathing
- Pfiber lights or Hi-lights
- Glass-lined pipe and fittings
- A variety of exterior coatings

Service

Pfaudler offers complete installation and start-up services to assure trouble free start-up and efficient equipment performance. Pfaudler provides 24/7 assistance to ensure long-term reliable operation of your Pfaudler equipment. Technicians are direct employees with OSHA training and certifications.

- Installation - preinstallation service
- Start-up assistance
- Training of personnel
- Field erection service
- Inspection
- Field repairs
- ASME welding

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Defining the standard