PFAUDLER
Glass-Lined Technology

DIN AE Reactors

Maximum durability for the highest standards

GMM Pfaudler

PFAUDLER

Glass-Lined Technology

For over 130 years, Pfaudler is the leader in developing new technologies to meet the highly specific chemical processing needs of its clients. One reason why our glass-lined equipment is trusted by over 90% of the world's top chemical companies is the sheer reliability of our reaction technologies and comprehensiveness of our glass-lined accessories. These technologies are critical to the safe containment of corrosive contents, maintaining the vessel pressure and ensuring the final batch quality.

In short, our glass-lined technologies are absolutely integral to an effective process.

PRODUCTS & EQUIPMENT

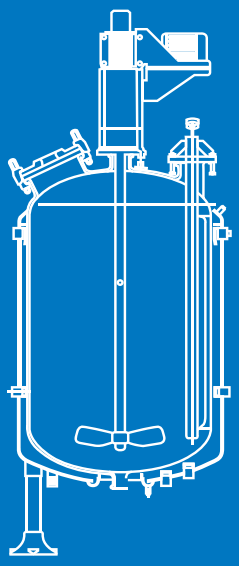
- Glass Lined Reactors
- Glass Lined Mixing Systems
- Baffling Technologies
- Storage Tanks & Receivers
- Glass Lined Columns
- Accessories
- Glass Lined Instrumentation
- Glass Lined Heat & Mass Transfer


50/5/50t

REACTION
ENGINEERING

ACID
CONCENTRATION
H_2SO_4 | HNO_3

ION SENSITIVE
pH Value 2.0



GLASTEEL

—

ANTI CORROSION
ANTI STICK
ANTI STATIC

Pfaudler DIN AE Reactors

Maximum durability of the highest standards

Characterized by a body flange: glass-lined reactor in two parts consisting of a base vessel and a cover;

- Defined in the DIN standard for sizes starting from 63 to 6,300 litres
- One-piece agitator
- In-line drive/ INTERSEAL sealing system.

TOP FEATURES

01. Reliable operation and long life

Our Pfaudler glass type WWG is extremely resistant to corrosive and mechanical stress. This means long reactor life and high reliability.

02. High agitating performance

The DIN reactors AE are equipped with an impeller-type agitator and a baffle. On request, an anchor-type agitator with a thermometer weil or one of the numerous Cryo-Lock types may be fitted.
The experts from our process engineering department will be pleased to assist you in the selection of the most suitable agitator system for your application.

03. Fillook - three functions on one reactor nozzle

The fused-in sight glass ensures clear insight while offering increased safety.
Easy filling/easy removal of product is guaranteed by the quick-action closing system. And last but not least, Pfaudler also supplies manhole covers with an integrated filling hole cover and a lamp.

04. Pfaudler measuring probes: Robust and ensitive

Many of our customers monitor the processes inside their reactors reliably with our robust, fully glasslined pH, rH and LF measuring probes. A probe for the instantaneous detection of glass damage may be fitted inside the reactor on request.

05. Quatro-Pipe - the baffle that can do more

Quatro-Pipe is a sophisticated Pfaudler development. It is installed on a single reactor nozzle, while performing four functions at the same time.

DIN AE Reactors

Technical Information

Systematics

The Pfaudler DIN reactors AE comprise the following subassemblies:

- Reactor
- Agitator
- Baffle
- Drive
- Gearbox
- Mechanical seal
- Sealing liquid assembly/
- Thermosiphon/Moistening
- Apparatus/ Gas supply unit
- Accessories

Reactor

Open vessel, shape AE according to DIN 28136-3. Cover according to DIN 28136-3. Jacket Agitator flange according to DIN 28137-2. Split flanges according to DIN 28150. Gaskets for glasslined nozzles according to DIN 28148, optionally with gasket inserts made of AF 2000 or graphite.

Support structures

The reactors are available with the following support structures

- Rim-shaped support ring* according to DIN 28145-4
- Support ring with web plates without loose ring* according to DIN 28145-4, design A
- Support ring with web plates and loose ring* according to DIN 28145-4, design D
- Side brackets
- Profiled legs** according to DIN 28145-8

* size AE 250 or bigger
** tubular legs for AE 1000

Jacket connections

according to DIN 28151, optionally:

- Nozzle position A1/A2, without agitating nozzles
- Nozzle position B1/B2, with agitating nozzles

Handhole units

The handhole units consist of a cover according to DIN 28153-2 and a protecting ring according to DIN 28153-2. For DN100 and DN150, the cover is designed as form KFA, for DN200 and DN250 it is designed as form KFZ. Type AE 1000 is supplied with a manhole cover DN 350x450 according to DIN 28153-1, form KZA, for using a spring balanced opening device, with sight glass DN100 according to DIN 28121, design EC and a manhole protecting ring DN350x450 according to DIN 28153-1.

Agitators

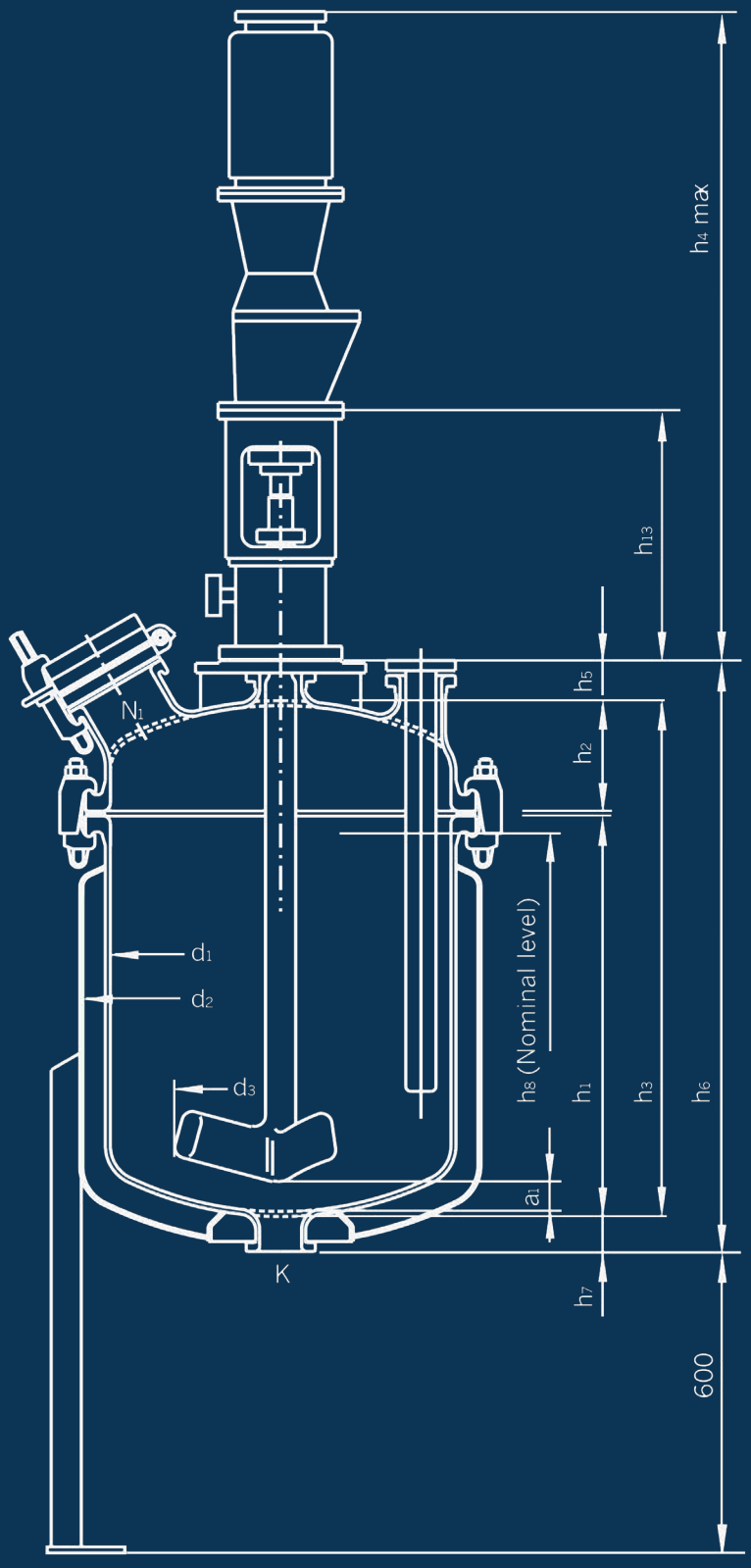
The AE reactors are equipped with the universal impeller-type agitator. Anchor-type agitators for highly viscous products are available on request. All AE reactors can be equipped with the Pfaudler Cryo-Lock®.

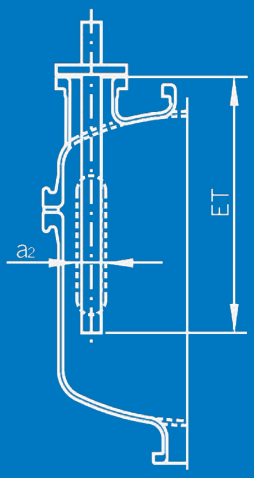
Baffles

- Paddle-type baffles in flange design for impeller-type agitators (no paddling provided up to size AE 630)
- For size AE 630 or greater: Quatro-Pipe - the multi-functional baffle for impeller-type agitators with four functions that occupies a single reactor nozzle
- Flow disturbance function - acts like a flange-type baffle with constant effects
- Immersion tube function
- Temperature monitoring
- Monitoring for glass damages - signals glass damages in the reactor (optional)

Operating conditions

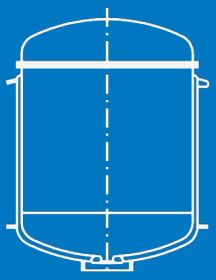
- The admissible operating temperature is -25/+200 °C
- The admissible operating pressure inside the reactor and inside the jacket is -1/+6 bar



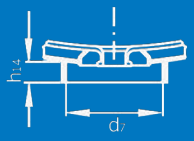


insulation ring, top

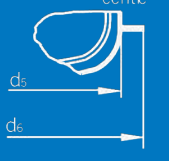
insulation collar top



insulation ring, bottom



insulation ring, centre

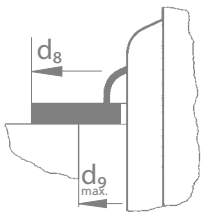


Reactor System AE

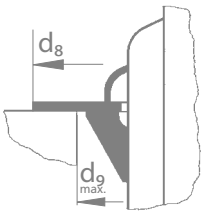
Technical Information

Main Data	AE 63	AE 100	AE 160	AE 250	AE 400	AE 630	AE 1000
Nominal Volume	63 l	100 l	160 l	250 l	400 l	630 l	1000 l
Overall Capacity	95 l	138 l	216 l	332 l	539 l	861 l	1474 l
Overall Jacket Capacity	29 l	43 l	65 l	85 l	119 l	148 l	213 l
Heat Exchange Surface	0.54 m^2	0.86 m^2	1.24 m^2	0.67 m^2	2.44 m^2	3.11 m^2	4.59 m^2
Total Weight	approx. 430 kg	approx. 475 kg	approx. 575 kg	approx. 825 kg	approx. 1125kg	approx. 1420 kg	approx. 2245 kg

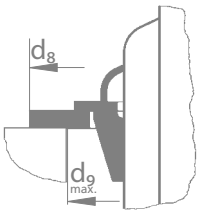
Supporting structures



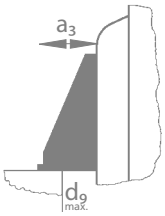
Rim-shaped support ring (2 sections)



Support ring with web plates



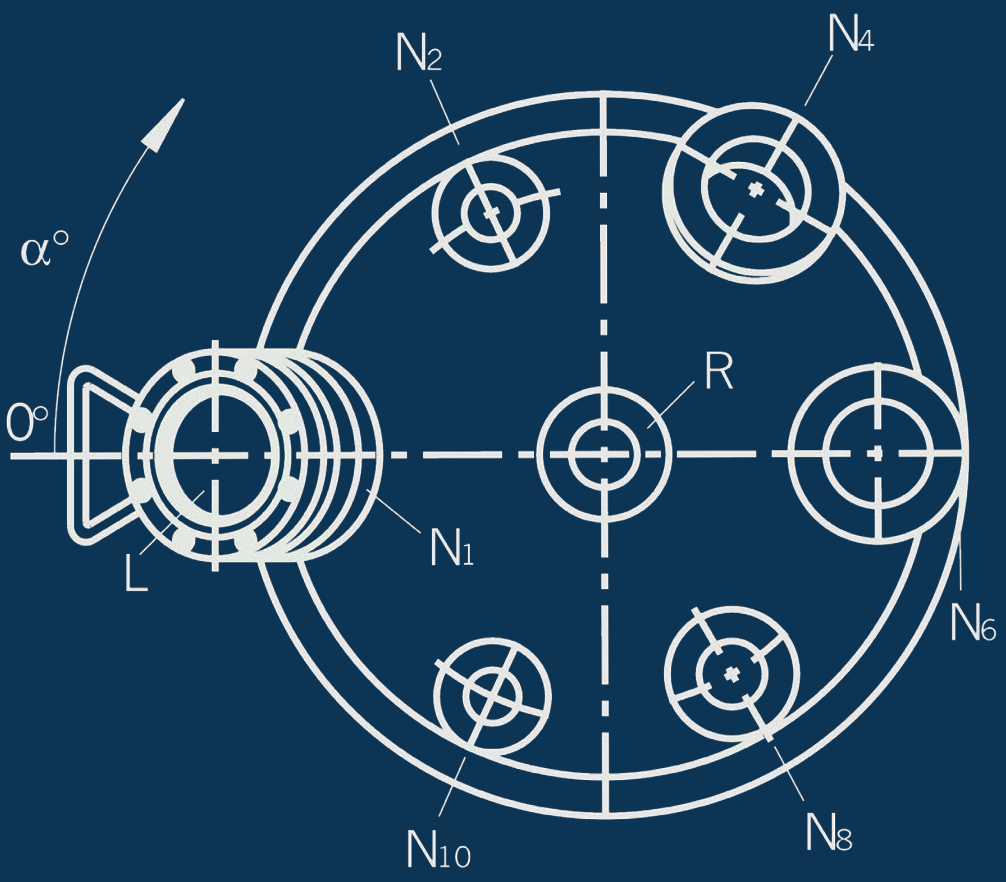
Support ring with web plates and loose ring (2 sections)

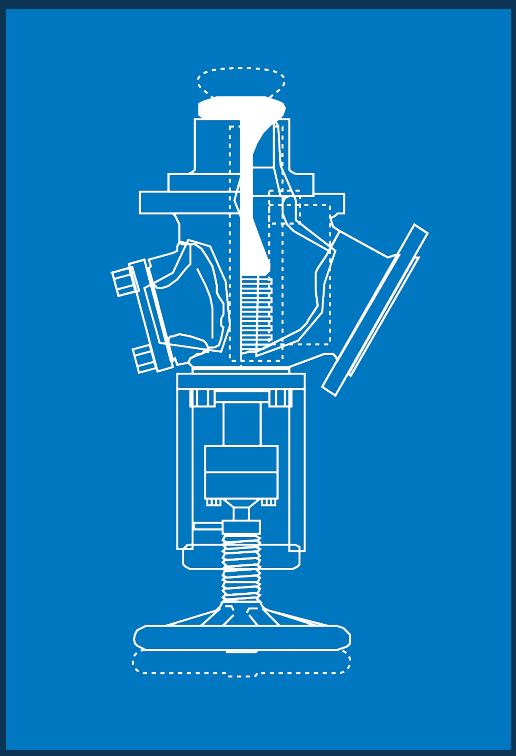


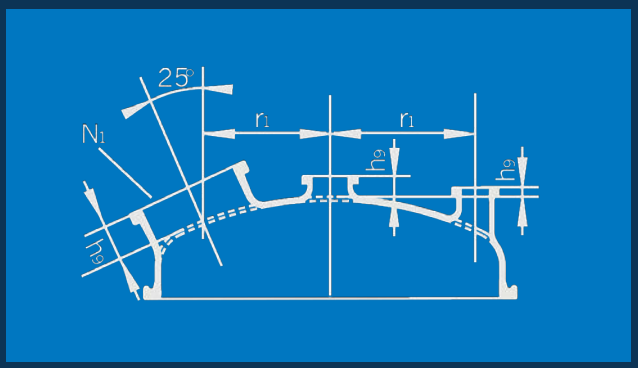
Side Brackets

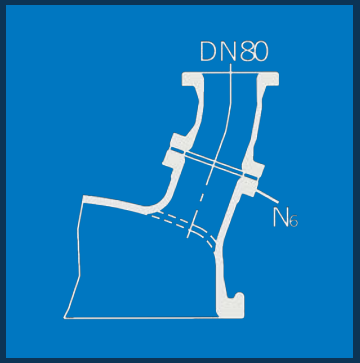
Profiled legs up to AE630

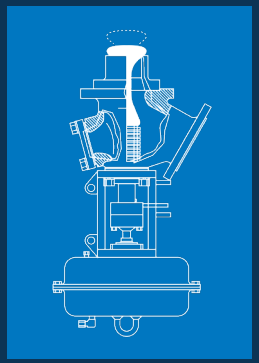
Tubular Legs AE1000

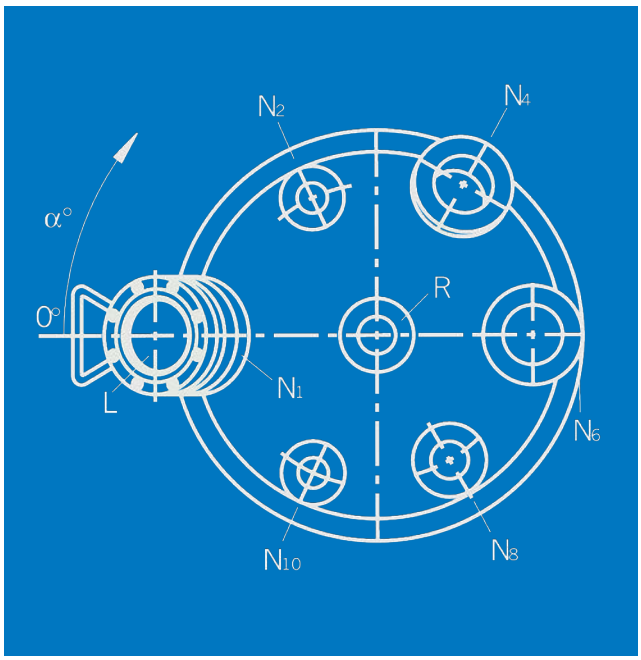

N2
N4
α°
0°
R
L
N1
N6
N10
N8

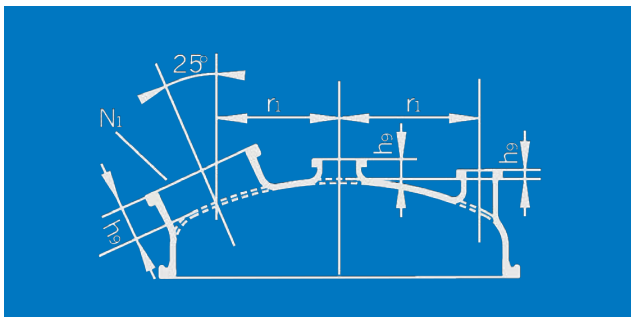


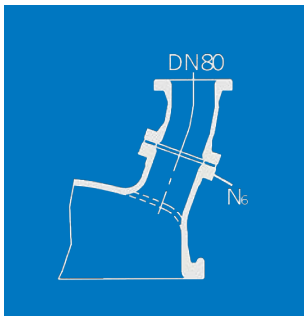

25°
Ni
r1
r1
h2
h2
h1


DN80
N6









Reactor Type AE 63

Technical Information

Reactor specifications

Nominal Volume	63 l
Overall Capacity	95 l
Overall Jacket Capacity	29 l
Heat Exchange Surface	0.54 m²
Total Weight	approx. 430 kg

Main dimensions [mm]

h_1	h_2	h_3	h_5	h_6
400	180	590	70	731

h_7	h_8	h_{13}	d_1	d_2
71	368	450	508	600

Nozzles [mm]

	DN	α°	β°	r_1	h_9
N1	100	0	30	210	100
N2	40	65		210	60*
N4	80	120	20	210	90
N6	80	180	20	210	90
N8	50	240		200**	60*
N10	40	295		210	60*
K	80	-		0	-
L	80	0			
R	50	-		0	50

Agitator

Impeller-type agitator
d_3 = 300, a_1 = 60
Remaining volume below agitator: 6 l

Baffle

Paddle type baffle, flange design for nozzle DN50
Immersion depth (ID): 475 mm
Volume below baffle: 25 l

* acc. to DIN 28163-3: 50mm
** acc. to DIN 28163-3: 210mm

Reactor Type AE 100

Technical Information

Reactor specifications

Nominal Volume	100 l
Overall Capacity	138 l
Overall Jacket Capacity	43 l
Heat Exchange Surface	0.86 m²
Total Weight	approx. 475 kg

Main dimensions [mm]

h_1	h_2	h_3	h_5	h_6
600	180	790	70	931

h_7	h_8	h_{13}	d_1	d_2
71	565	450	508	600

Nozzles [mm]

	DN	α°	β°	r_1	h_9
N1	100	0	30	210	100
N2	40	65		210	60*
N4	80	120	20	210	90
N6	80	180	20	210	90
N8	50	240		200**	60*
N10	40	295		210	60*
K	80	-		0	-
L	80	0			
R	50	-		0	50

Agitator

Impeller-type agitator
d_3 = 300, a_1 = 60
Remaining volume below agitator: 6 l

Baffle

Paddle type baffle, flange design for nozzle	DN50
Immersion depth (ID):	675 mm
Volume below baffle:	25 l

* acc. to DIN 28163-3: 50mm
** acc. to DIN 28163-3: 210mm

Reactor Type AE 160

Technical Information

Reactor specifications

Nominal Volume	160 l
Overall Capacity	216 l
Overall Jacket Capacity	65 l
Heat Exchange Surface	1.24 m²
Total Weight	approx. 575 kg

Main dimensions [mm]

h_1	h_2	h_3	h_5	h_6
700	200	910	70	1050

h_7	h_8	h_{13}	d_1	d_2
70	650	450	600	700

Nozzles [mm]

	DN	α°	β°	r_1	h_9
N1	100	0	30	240	100
N2	40	65		240	50
N4	80	120	12	240	90
N6	80	180		245*	50
N8	80	240		240	50
N10	50	295		240	50
K	80	-		0	-
L	80	0			
R	50	-		0	50

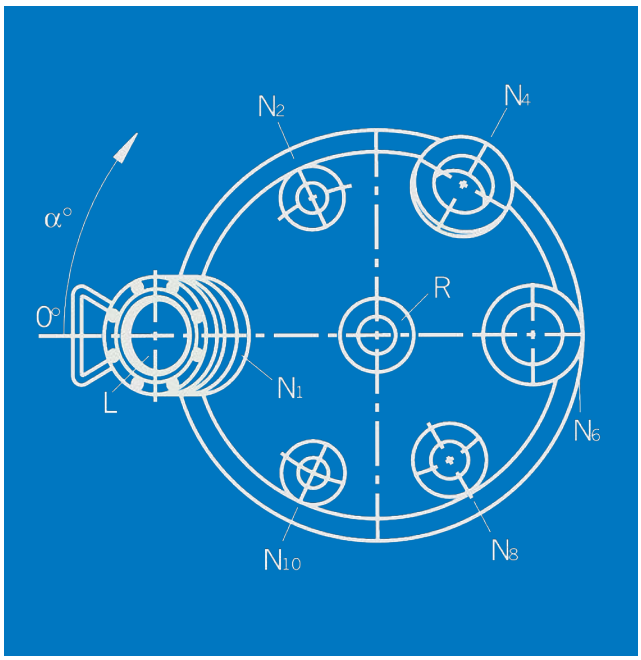
Agitator

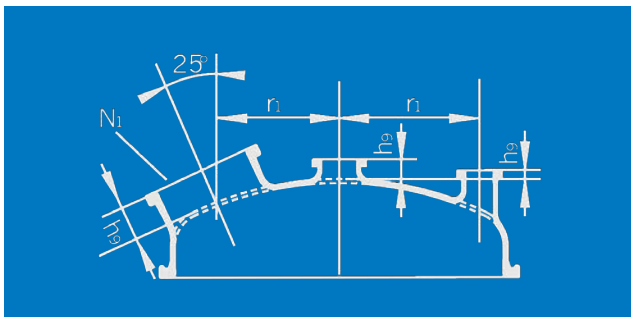
Impeller-type agitator
d_3 = 300, a_1 = 60
Remaining volume below agitator: 7 l

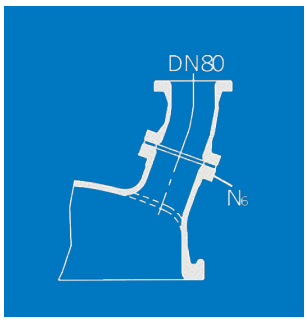
Baffle

Paddle type baffle, flange design for nozzle	DN80
Immersion depth (ID):	750 mm
Volume below baffle:	41 l

* acc. to DIN 28163-3: 240mm







Reactor Type AE 250

Technical Information

Reactor specifications

Nominal Volume	250 l
Overall Capacity	332 l
Overall Jacket Capacity	85 l
Heat Exchange Surface	1.67 m²
Total Weight	approx. 825 kg

Main dimensions [mm]

h_1	h_2	h_3	h_5	h_6
800	220	1030	80	1180

h_7	h_8	h_{13}	d_1	d_2
70	755	500	700	800

Nozzles [mm]

	DN	α°	β°	r_1	h_9
N1	150	0	30	280	100
N2	50	65		280	50
N4	80	120	12	280	90
N6	80	180		280	50
N8	80	240		280	50
N10	50	295		280	50
K	80	-		0	-
L	100	0			
R	80	-		0	50

Agitator

Impeller-type agitator
d_3 = 420, a_1 = 60
Remaining volume below agitator: 8 l

Baffle

Paddle type baffle, flange design for nozzle	DN800
Immersion depth (ID):	830 mm
Volume below baffle:	70 l

Reactor Type AE 400

Technical Information

Reactor specifications

Nominal Volume	400 l
Overall Capacity	539 l
Overall Jacket Capacity	119 l
Heat Exchange Surface	2.44 m²
Total Weight	approx. 1125 kg

Main dimensions [mm]

h_1	h_2	h_3	h_5	h_6
1000	250	1260	80	1418

h_7	h_8	h_{13}	d_1	d_2
78	900	500	800	900

Nozzles [mm]

	DN	α°	β°	r_1	h_9
N1	200	0	30	300	100
N2	80	65		310	50
N4	80	120	12	310	90
N6	100	180		310	50
N8	80	240		310	50
N10	80	295		310	50
K	100	-		0	-
L	100	0			
R	80	-		0	60

Agitator

Impeller-type agitator
d_3 = 480, a_1 = 80
Remaining volume below agitator: 16 l

Baffle

Paddle type baffle, flange design for nozzle	DN80
Immersion depth (ID):	1020 mm
Volume below baffle:	109 l

Reactor Type AE 630

Technical Information

Reactor specifications

Nominal Volume	630 l
Overall Capacity	861 l
Overall Jacket Capacity	148 l
Heat Exchange Surface	3.11 m²
Total Weight	approx. 1420 kg

Main dimensions [mm]

h_1	h_2	h_3	h_5	h_6
1000	300	1310	90	1480

h_7	h_8	h_{13}	d_1	d_2
80	930	507	1000	1100

Nozzles [mm]

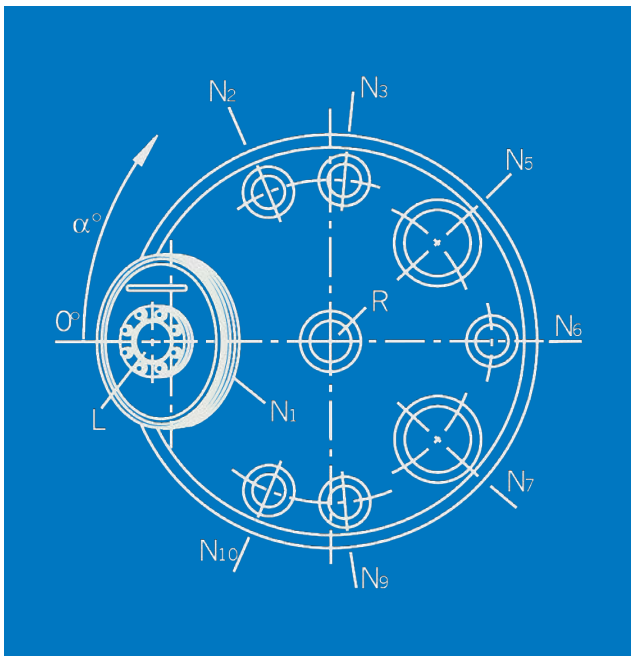
	DN	α°	β°	r_1	h_9
N1	250	0	30	370	100
N2	100	65		380	50
N4	100	120	14	380	90
N6	150	180		380	50
N8	100	240		380	50
N10	100	295		380	50
K	100	-		0	-
L	100	0			
R	125	-		0	70

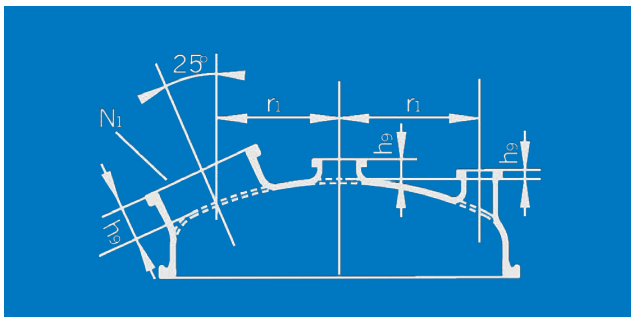
Agitator

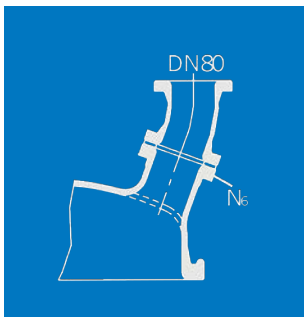
Impeller-type agitator
d_3 = 600, a_1 = 90
Remaining volume below agitator: 25 l

Baffle/Quatro-Pipe

Paddle type baffle, flange design for nozzle	DN150
Immersion depth (ID):	1035 mm
Volume below baffle:	194 l







Reactor Type AE 1000

Technical Information

Reactor specifications

Nominal Volume	1000 l
Overall Capacity	1474 l
Overall Jacket Capacity	213 l
Heat Exchange Surface	4.59 m²
Total Weight	approx. 2245 kg

Main dimensions [mm]

h_1	h_2	h_3	h_5	h_6
1200	350	1560	90	1726

h_7	h_8	h_{13}	d_1	d_2
76	1050	507	1200	1300

Nozzles [mm]

	DN	α°	r_1	h_9
N1	350x450	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
K	100	-	0	-
L	100	0		
R	125	-	0	70

Agitator

Impeller-type agitator
d_3 = 720, a_1 = 85
Remaining volume below agitator: 8 l

Baffle/Quatro-Pipe

For nozzle	DN200
Immersion depth (ID):	1250 mm
Paddling (a_2)	180 mm
Volume below baffle:	239 l

Worldwide Presence

GMM Pfaudler

GMM Pfaudler is a global leader in corrosion-resistant technologies, systems, and services for the chemical, pharmaceutical, food and energy industry.

Our Branded Product Lines that include PFAUDLER, NORMAG, MAVAG, MIXION, INTERSEAL, EQUILLOY, EDLON and HYDROAIR showcase our strength as a group, our capabilities, and our pursuit for constant innovation. With an end-to-end solutions-oriented approach, a global footprint, and a perfectly integrated offering system we are able to meet complex industry demands worldwide.

GMM Pfaudler is driven by 1800+ individuals across 4 continents and 15 global manufacturing facilities around the world. The Group's targeted investments in strategic markets, innovation and competitiveness paves the way forward for GMM Pfaudler's continued legacy.

80+
Countries

1800+
Employees

04
Continents

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