

PFAUDLER

Glass-Lined Technology

DIN AE Reactors

Maximum durability
for the highest
standards



GMM
Pfaudler

PFAUDLER

— Glass-Lined Technology

For over 140 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

**Innovative agitators shaft
sealing technology**

Glass Lined Instrumentation

**Glass Lined Heat & Mass
Transfer**

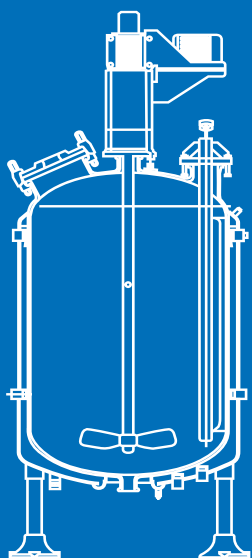
50/5/50t





**REACTION
ENGINEERING**

**ACID
CONCENTRATION
 H_2SO_4 | HNO_3**



GLASTEEL

—
ANTI CORROSION
ANTI STICK
ANTI STATIC
ANTI ABRASION



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 shaft sealing technology

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 well 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 sampling 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. INTERSEAL sealing technology

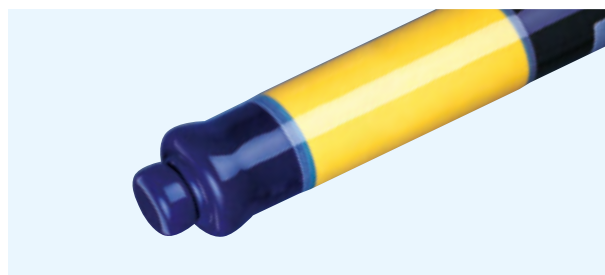
dry9000® is a shaft seal that not only accommodates the characteristic swaying movements of shafts, but also prevents any contamination of the finished product as it runs dry.

05. Pfaudler measuring probes: Robust and sensitive

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.

06. 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
- INTERSEAL unit or Mechanical seal
- Seal lubrication unit (not required for INTERSEAL unit)
- Accessories and instrumentation

Reactor

Open vessel, type 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

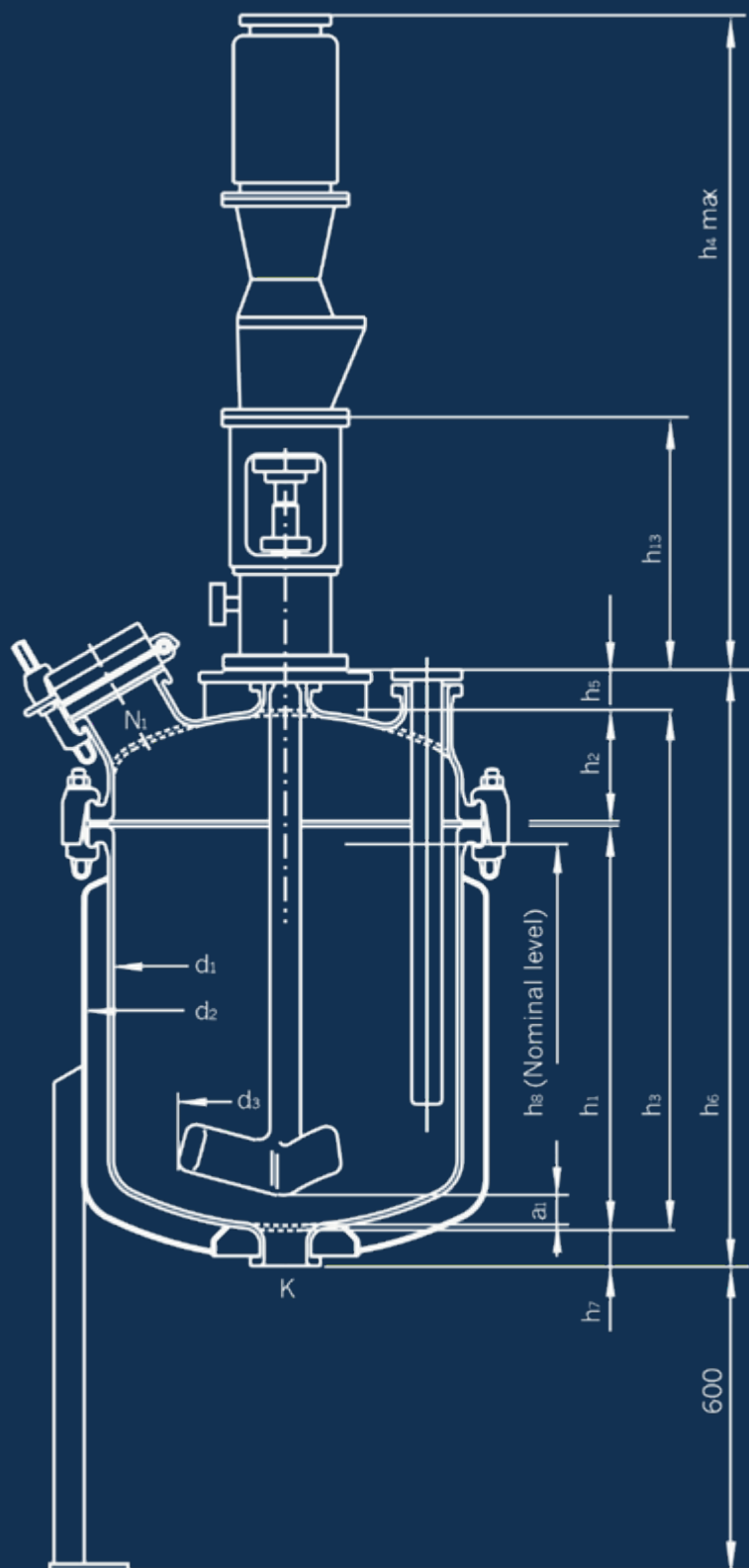
The AE reactors are equipped with the universal impeller-type agitator. Anchor-type agitators for highly viscous products are available on request. All AE reactors can be equipped with the Pfaudler Cryo-Lock®.

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)

Standard operating conditions

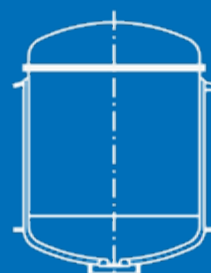
- The admissible operating temperature is -60/+200 °C
- The admissible operating pressure inside the reactor and inside the jacket is -1/+6 bar



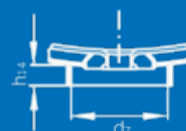
insulation ring,
top



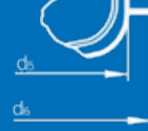
insulation collar
top



insulation ring,
bottom



insulation ring,
centre

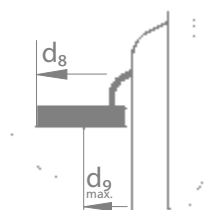


Reactor System AE

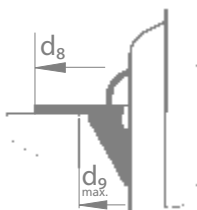
Technical Information

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. 1125 kg	approx. 1420 kg	approx. 2245 kg

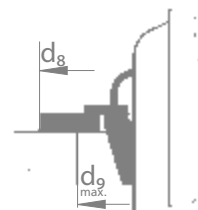
Supporting structures



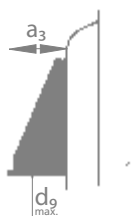
Rim-shaped support ring (2 sections)



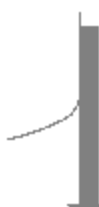
Support ring with web plates



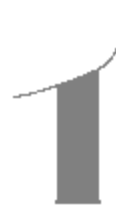
Support ring with web plates and loose ring (2 sections)



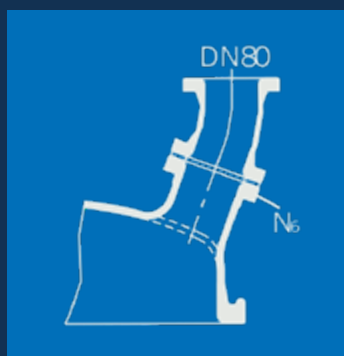
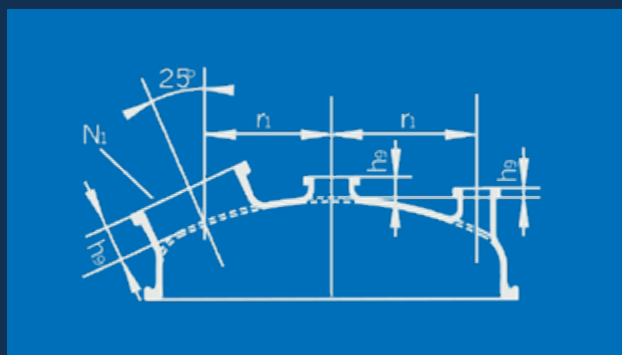
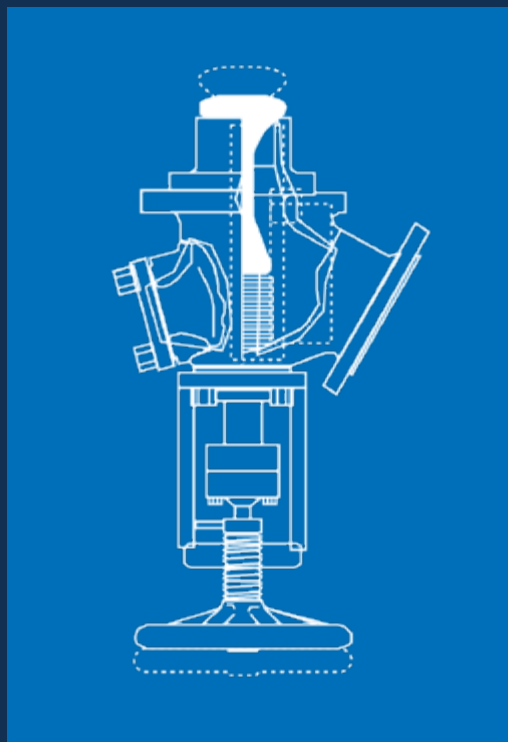
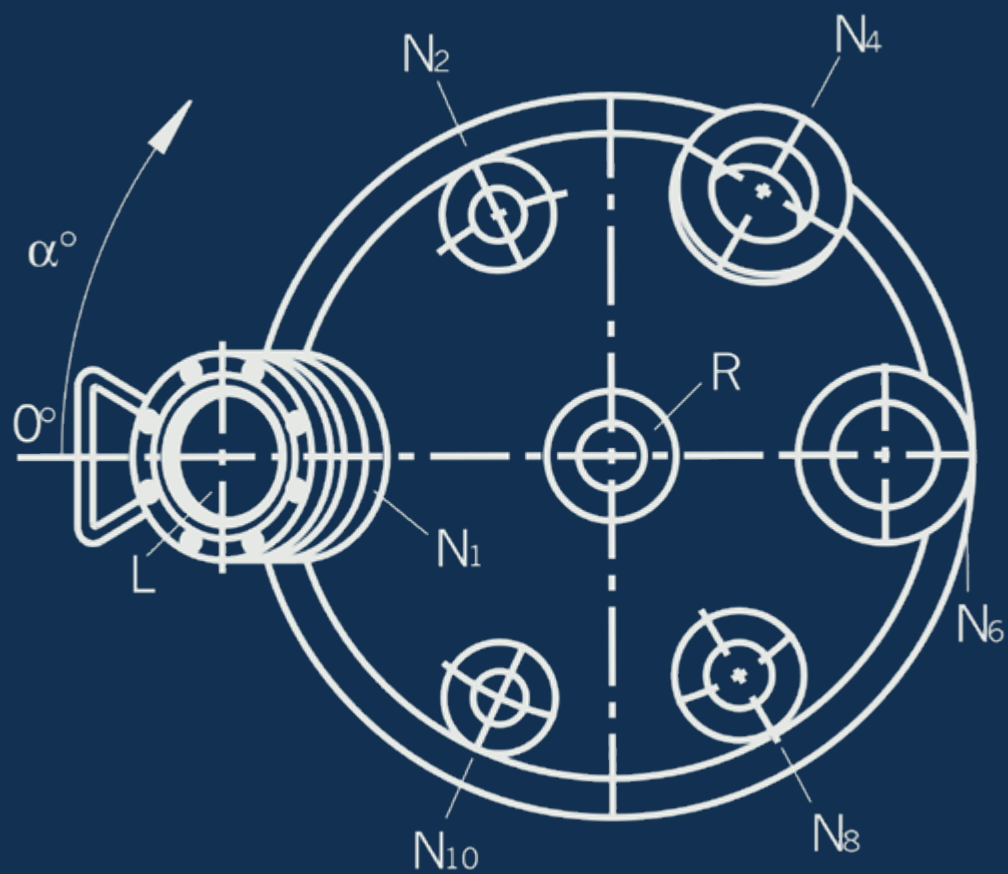
Side Brackets

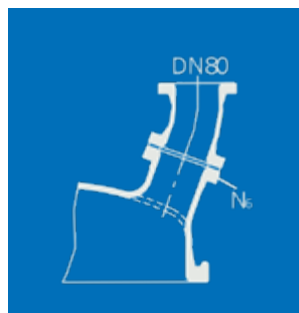
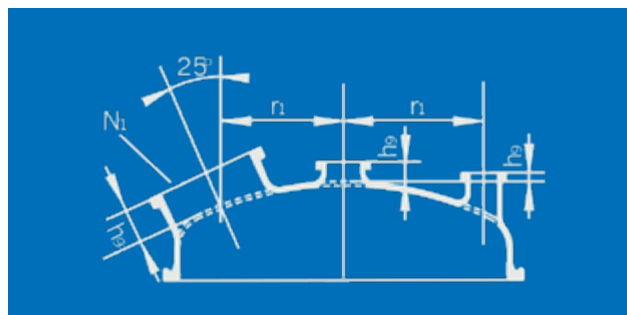
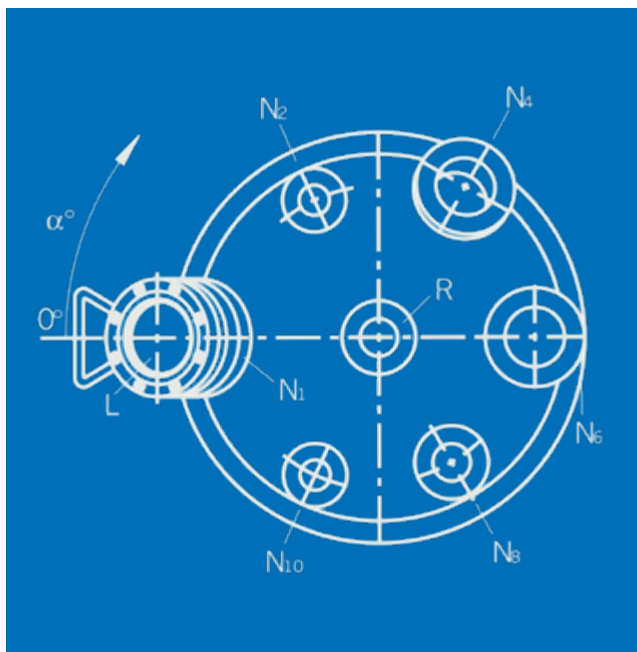


Profiled legs up to AE630



Tubular Legs AE1000





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 m ²
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 _y
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

d₃ = 300, α₁ = 60

Remaining volume below agitator: 6 l

Baffle

Paddle type baffle, flange design for nozzle

Immersion depth (ID):

Volume below baffle:

DN50

475 mm

25 l

* acc. to DIN 28163-3: 50 mm

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

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 m ²
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

d₃ = 300, a₁ = 60

Remaining volume below agitator: 6 l

Baffle

Paddle type baffle, flange design for nozzle

Immersion depth (ID):

Volume below baffle:

DN50

675 mm

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 m ²
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

d₃ = 300, a₁ = 60

Remaining volume below agitator: 7 l

Baffle

Paddle type baffle, flange design for nozzle

Immersion depth (ID):

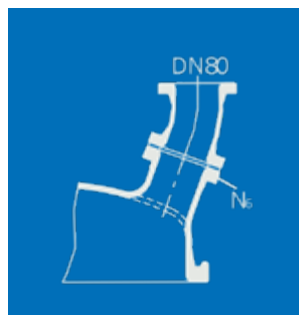
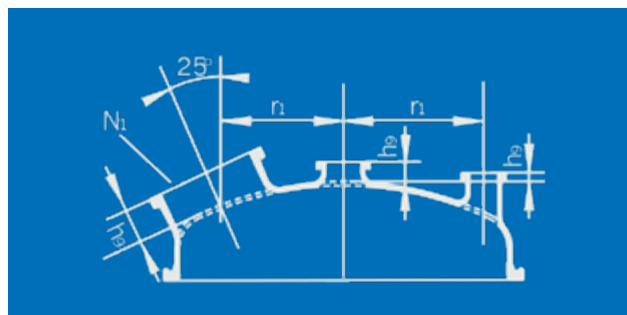
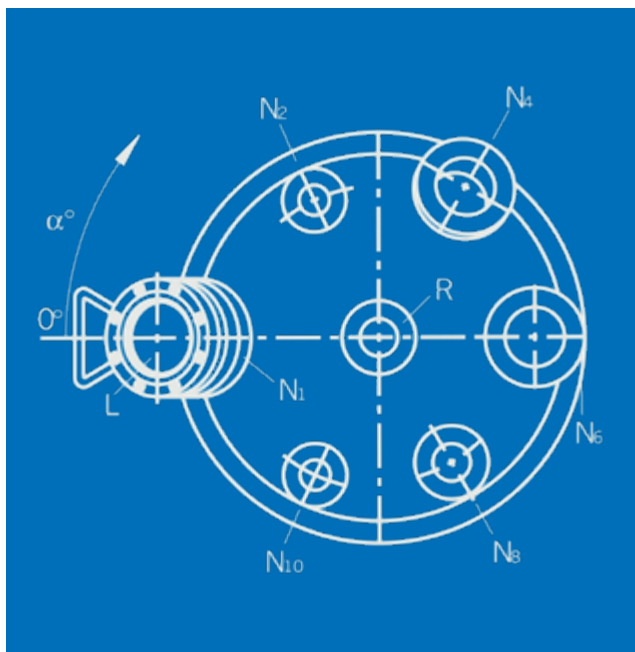
Volume below baffle:

DN80

750 mm

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 m ²
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 _r
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

d₃ = 420, α_1 = 60

Remaining volume below agitator: 8 l

Baffle

Paddle type baffle, flange design for nozzle

Immersion depth (ID):

Volume below baffle:

DN800

830 mm

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 m ²
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

d₃ = 480, a₁ = 80

Remaining volume below agitator: 16 l

Baffle

Paddle type baffle, flange design for nozzle

Immersion depth (ID):

Volume below baffle:

DN80

1020 mm

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 m ²
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

d₃ = 600, a₁ = 90

Remaining volume below agitator: 25 l

Baffle/Quatro-Pipe

Paddle type baffle, flange design for nozzle

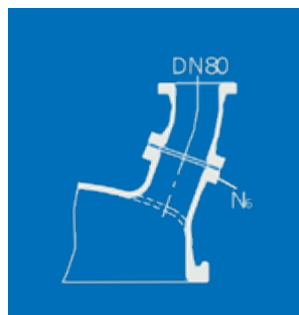
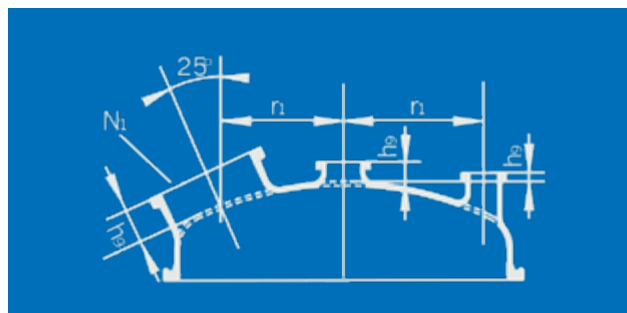
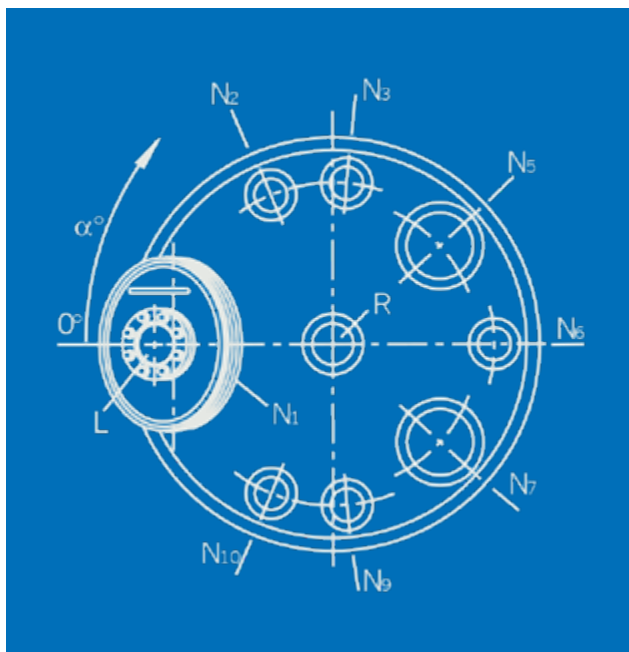
Immersion depth (ID):

Volume below baffle:

DN150

1035 mm

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 m ²
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

d₃ = 720, a₁ = 85

Remaining volume below agitator: 8 l

Baffle/Quatro-Pipe

For nozzle

Immersion depth (ID):

Paddling (a₂)

Volume below baffle:

DN200

1250 mm

180 mm

239 l

PFAUDLER

Glass-Lined Technology

Glass-Lined Reactor + dry9000®

The Best Combination for Reliability and Performance!



dry9000® seal

- contamination free design
- flexible movement
- conformity with industry standards
- longer lifetime
- clear reduction of total cost of ownership



GMM
Pfaudler

Worldwide Presence



GMM Pfaudler is driven by 2000+ individuals across 4 continents and 20 global manufacturing facilities around the world.

Targeted investments in strategic markets, innovation and competitiveness allow the GMM Pfaudler Group to be a landmark in the industry.

You can either click on the link or scan the QR-Code for more information about our global contacts.

[Global
Contacts](#)



80+
Countries

2000+
Employees

04
Continents