PFAUDLER
GLASS-LINED
& ALLOY SYSTEMS

Pf Technologies

Pfaudler
Defining the standard

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

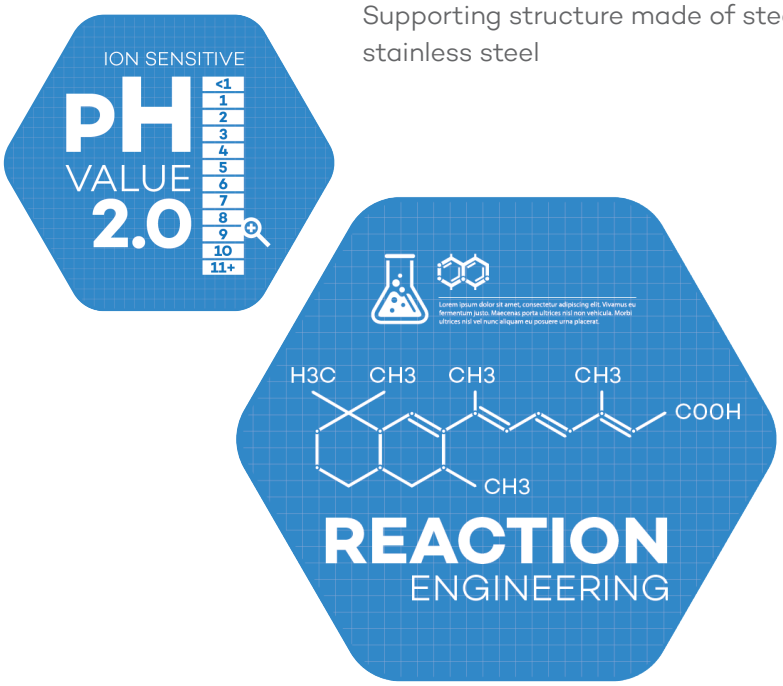
Made of steel/stainless steel as required by the customer, various insulating materials available

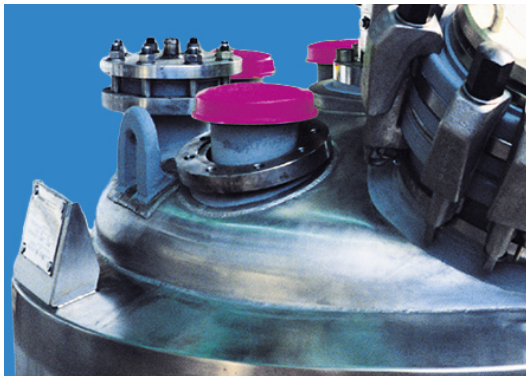
Agitator flange

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

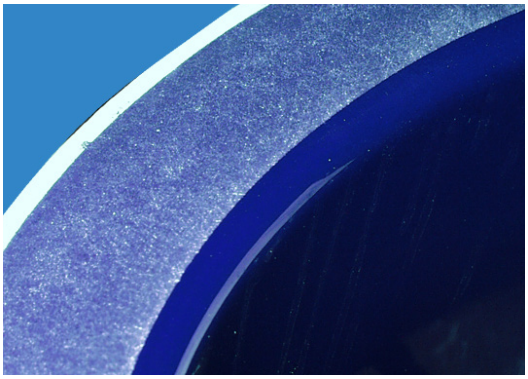
Manhole cover

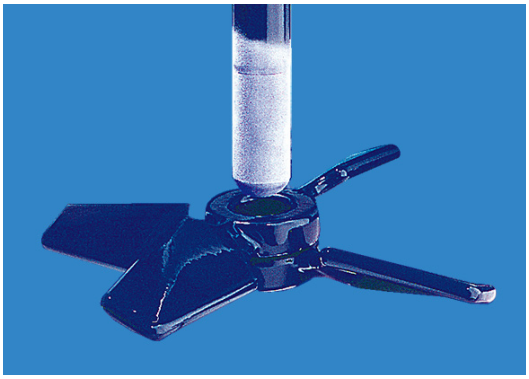
- With fused-in Glasslook® sight glass
- With Fillook filling hole cover; funnel tube available separately
- With encapsulated sight glass to DIN 28121, design EC

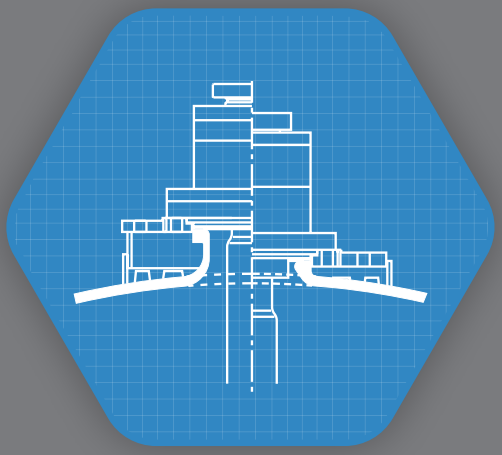




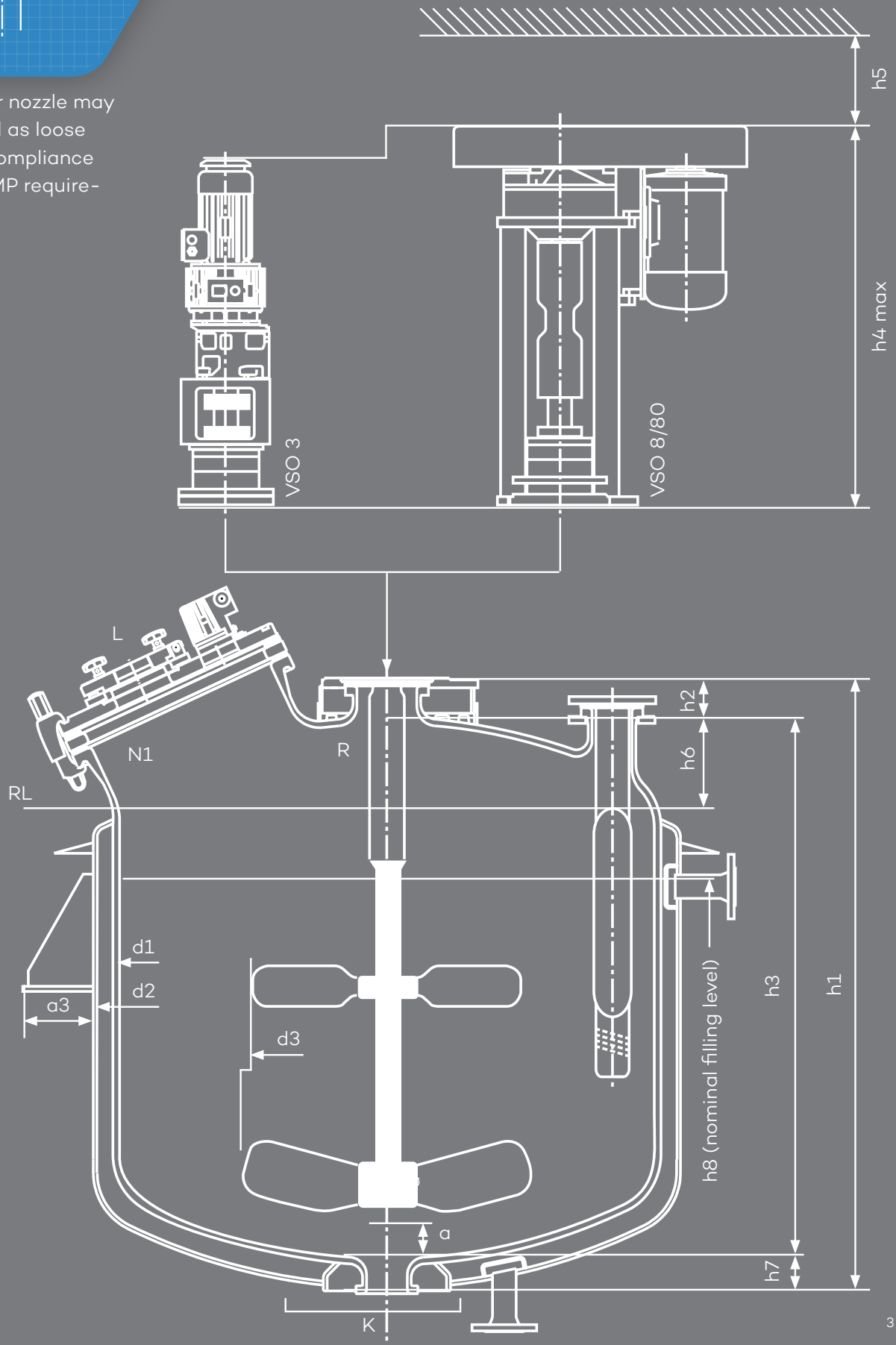
Small radii at the nozzle (option) for small clearance volumes and ease of cleaning.







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

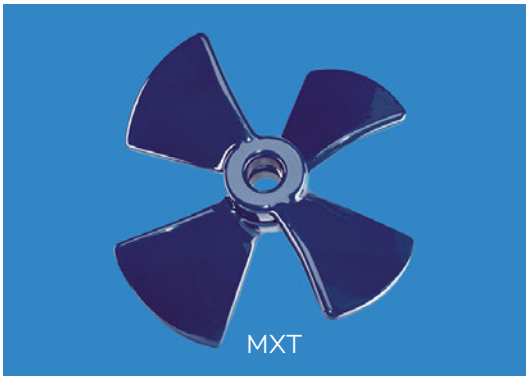
PBT — Pitched Blade Turbine
Average shearing effect, combined radial/ axial flow

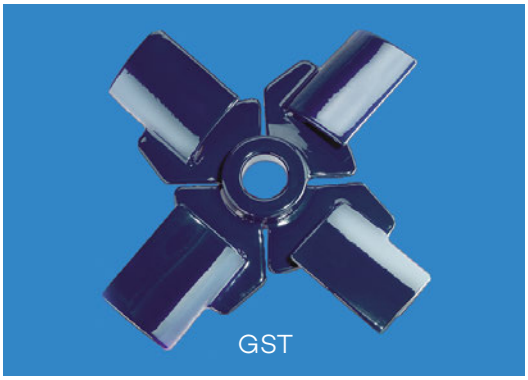
TBF — Turbofoil
The efficient turbofoil agitator with high axial flow at comparatively low flow disturbance, low torque, low power input

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

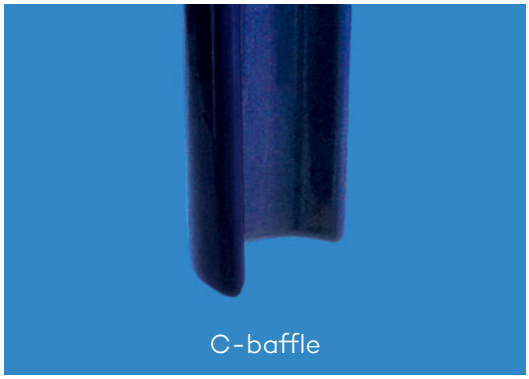
MXT — Maxflo Turbine
High-performance turbine for agitating substances with an elevated viscosity, or where the effect of the Turbofoil is not sufficient

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

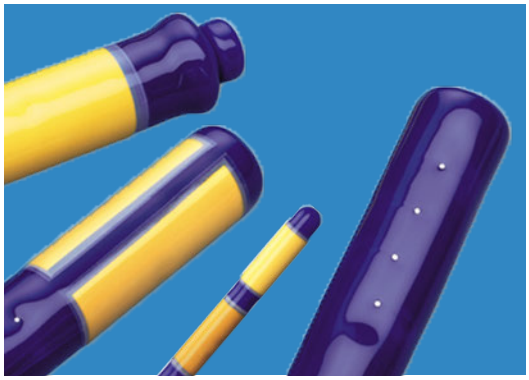
- Wet-running mechanical seal (fleXeal UF8, UF8 UC)
- Dry-running, with contact (fleXeal BF7)
- Gas film lubricated dry-running without contact (fleXeal GF7, GF7 UC)
- Mechanical seals specifically for applications in GMP-compliant production. FDA-approved materials on request. (UC)

Measuring technology

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

Sampling systems

Standart and Loop systems (Flexampler)



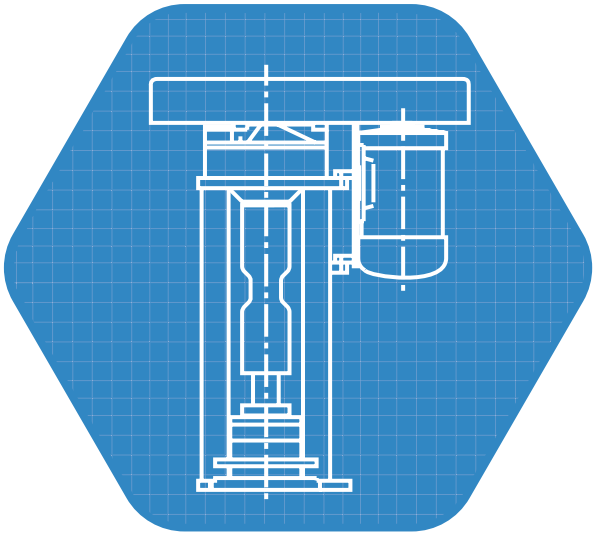
Valves

- 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

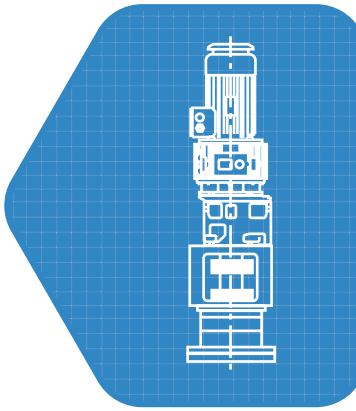
Internals

- 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



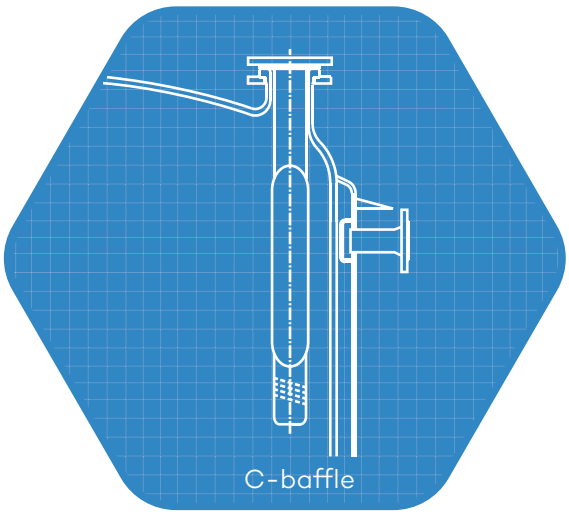
Pfaudler Fillook®
Clear insight into the process through Glasslook® sight glass, easy product sampling, safe filling using funnel tube made of stainless steel.



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.

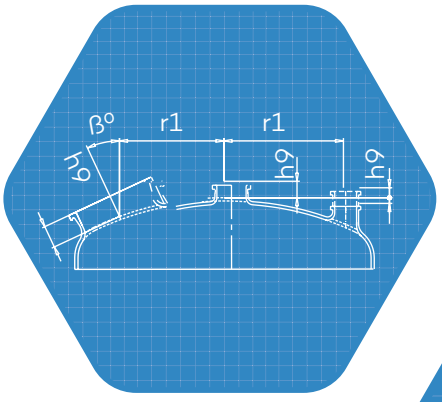


Reactor system BE

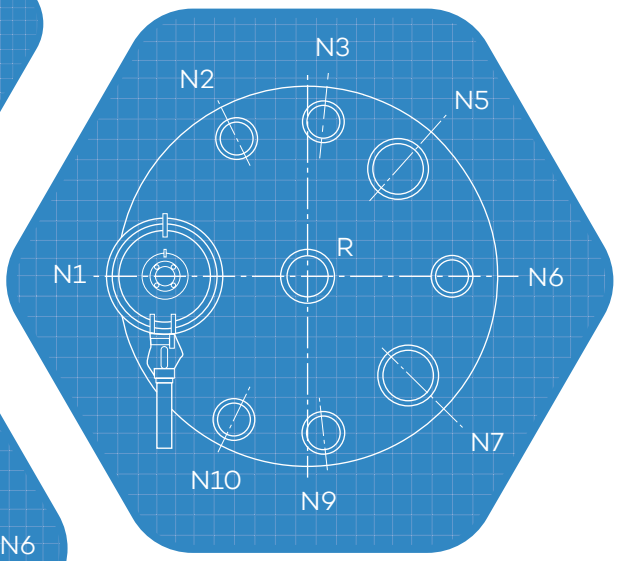
Technical data

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

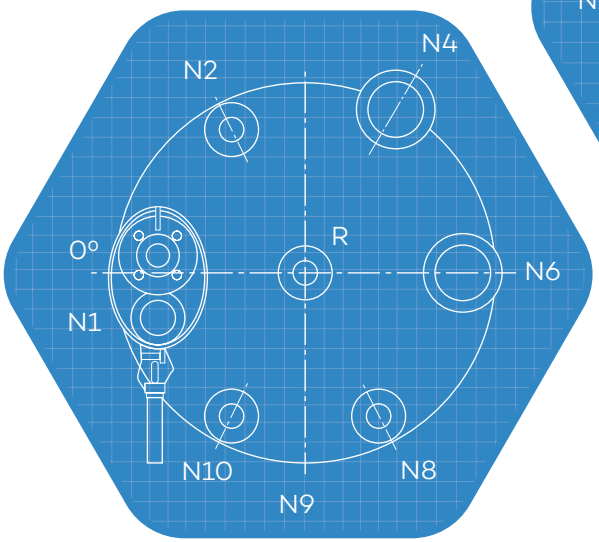
The operating conditions stated in the proposal or in the confirmation of order are binding.



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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