

X

STÜBBE

X-CLASS

BUILT FOR THE EXTREME

STÜBBE X-CLASS HEAVY DUTY PUMP

STANDARD CHEMICAL PUMP – TYPE NX

fully metallic chambered standard chemical process pump in plastic
DIN EN ISO 2858

CHEMICAL CLOSE-COUPLED PUMP – TYPE BX

fully metallic chambered chemical closed-coupled process pump in plastic
acc. to DIN EN ISO 2858

FEATURES

- Capacity up to 1000 m³/h (1500 rpm)
- Delivery head up to 120 m (3000 rpm)
- ATEX-compliant according to directive 2014/34/EU, group II, 2G, class T3 or T4





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Chemical close-coupled
pump BX

FEATURES

- STÜBBE X-CLASS pushes previously known application boundaries and redefines new standards.
- based on innovative strength and over 60 years of expertise in the use of thermoplastics, we have set a new milestone in the shape of a future-oriented, efficient and reliable pump system.
- fully metallic chambered plastic parts
- continuously for all pump sizes pressure level PN 16
- self-developed, innovative mechanical seal module kit (single- and double-acting), customized for STÜBBE X-CLASS pump
- efficient hydraulics due to up-to-date calculation programs
- extreme durability
- significantly improved life time
- pump in sandwich design (simple assembly)

USE

- for handling aggressive, crystallizing and toxic fluids as well as fluids filled with solids

CUSTOMIZED HYDRAULIC SYSTEMS

Can be selected according to application:

Half-open pump impellers (H):

- standard installation
- recommended for fluids filled with solids

Closed impellers (G):

- for clean media
- for best possible efficiency

Customized 3-channel non-clogging impellers (F):

- Vortex variant for specifically gentle pumping in extreme solids applications with large solids available

All designs are marked with the 3rd letter in the type designation.

PUMP VARIETY

- 18 different pump sizes up to 1,000 m³/h for even the most difficult pumping tasks

MAXIMUM SAFETY

- fully chambering of the thick-walled plastic components, protects the plastic components against UV light, among other things
- the chambering provides a certain protection in the event of sudden, strong leaks
- great plant safety
- improved protection against injuries of the operating personnel

LONG-LIVED AND STURDY

- metallic chambering absorbs a significant part of the pipework forces
- highly stressable fixed / loose bearing
- lifetime lubricated bearings (standard)
- reinforced bearing available with grease or oil lubrication (NX only)
- sturdy universal shaft for each available type of mechanical seal
- chambered O-rings

ATEX-COMPLIANT

According to directive 2014/34/EU (ATEX):

- Unit group II
- Category 2G
- Temperature class T3 or T4
- do not use pump with flammable or explosive fluids

MATERIAL VARIANTS

Depending on the mechanical, chemical, thermal or abrasive load, several materials are available for different applications:

- UHMW-PE (ultra high molecular low-pressure polyethylene)
- PP-H (homopolymeric polypropylene)
- PVDF (polyvinylidene fluoride)
- PFA / PTFE (perfluoralkoxy / polytetrafluorethylene)

All designs are marked with the 4th letter in the type designation.

OPTIONS

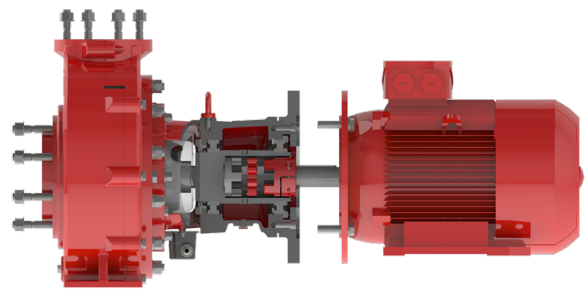
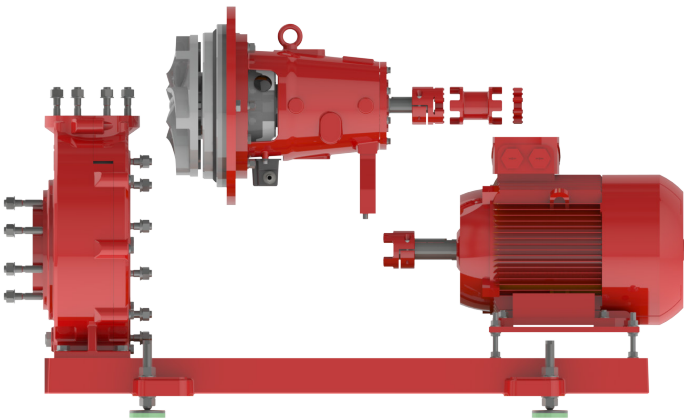
- Drain and flushing connections
- FDA approval for plastics and secondary seals
- conductive plastics available
- customized hydraulics on request
- stand quench and thermosiphon container
- self-priming container
- PTM pressure and temperature sensor (dry-running protection)

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Chemical close-coupled
pump BX

DESIGN



PROCESS DESIGN NX

- special design principle, which considerably reduces assembly during repair work, as neither the pipe connection nor the motor has to be dismantled for the removal of the bearing carrier (including impeller and mechanical seal).
- easy-to-install, clamped double-cardian coupling (facilitates assembly works)
- foundationless installation (standard) on base plate made of cast iron EN-GJS-250 with leveling elements (no fastening on base necessary)
- all screws made of stainless steel

CLOSE-COUPLED DESIGN BX

- The chemical standard pumps are also available in a close-coupled pump design under the type designation BX.
- This product series has its own shaft bearing as a special feature all the way through size 125-100-200, making assembly and disassembly comparable to a standard pump, as the pump is not „set up“ on a motor shaft.
- The pump has a hollow shaft, into which the flange motor is pushed.
- an elastic coupling is used for power transmission
- The design of the BX permits replacement of wear parts without disconnecting the pump housing/pipe connection.
- also available with ATEX motor as standard

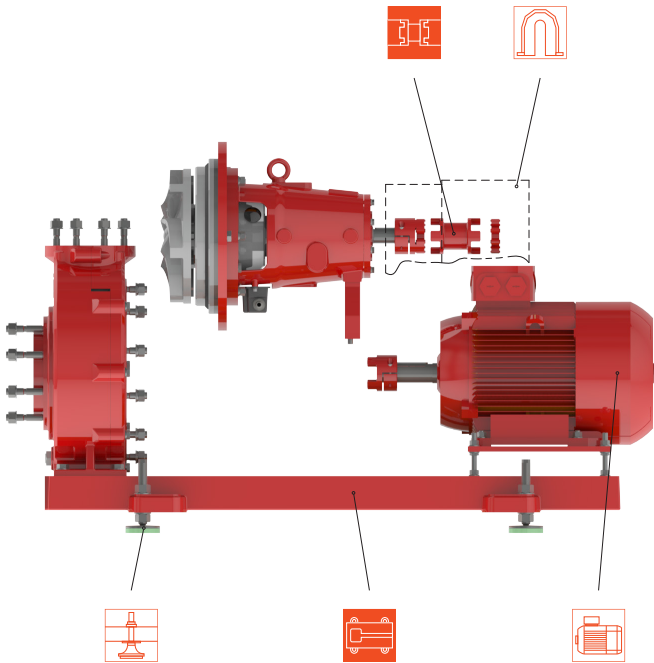
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- ✓ STANDARD
- OPTIONAL
- NOT AVAILABLE
- NOT APPLICABLE
- METALLIC MATERIAL
- OTHER MATERIAL

- ¹ not for every pump size available
² optionally with permanent or standstill flushing available
³ also ATEX
⁴ integrated with BX
⁵ depending on motor size
⁶ or equivalent

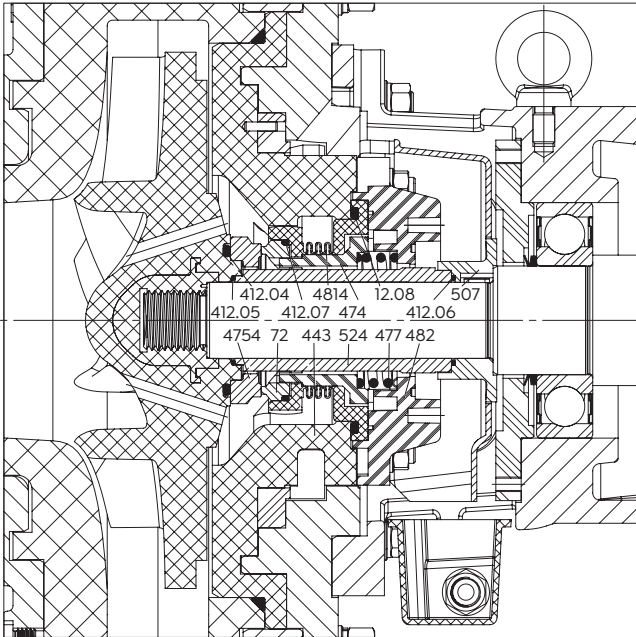


PUMP TYPE	NX				BX	
	I	II	III	IV/ IV+	I	II
Bearing bracket size (LTG)						
Base plate						
 EN-GJS-400-15	✓	✓	✓	✓	✓	✓
1.4301 ⁶	•	•	•	•	•	•
1.4571 ⁶	•	•	•	•	•	•
Coupling (manufacturer)						
 StS (WKE/H-DK) ^{3,4}	✓	✓	✓	✓	–	–
more on request	•	•	•	•	–	–
Coupling guard						
 PP-GF30 ⁵	✓	✓	○	○	–	–
1.0038/steel (painted)	•	•	✓	✓	–	–
CW508L/brass (ATEX)	•	•	•	•	–	–
1.4301 ⁶	•	•	•	•	–	–
1.4571 ⁶	•	•	•	•	–	–
Motor (manufacturer)						
 Lammers	✓	✓	✓	✓	✓	✓
Siemens	•	•	•	•	•	•
more on request	•	•	•	•	•	•
Fixation						
 leveling elements 1.4301 ⁶	✓	✓	✓	✓	✓	✓
leveling elements 1.4435 ⁶	•	•	•	•	•	•
chemical anchors 1.4301 ⁶	•	•	•	•	•	•
chemical anchors 1.4435 ⁶	•	•	•	•	•	•
anchor bolts DIN 529 galvanised	•	•	•	•	•	•
Accessories						
 stand quench container	✓	✓	✓	✓	✓	✓
thermosyphon container	✓	✓	✓	✓	✓	✓
self-priming container	•	•	•	•	•	•
drain valves	•	•	•	•	•	•
grounding	•	•	•	•	•	•
impeller key (disassembly/assembly)	•	•	•	–	•	•
PTM pressure and temperature sensor	•	•	•	•	•	•
assembly tool mechanical seal	•	•	•	•	•	•
further accessories on request	•	•	•	•	•	•

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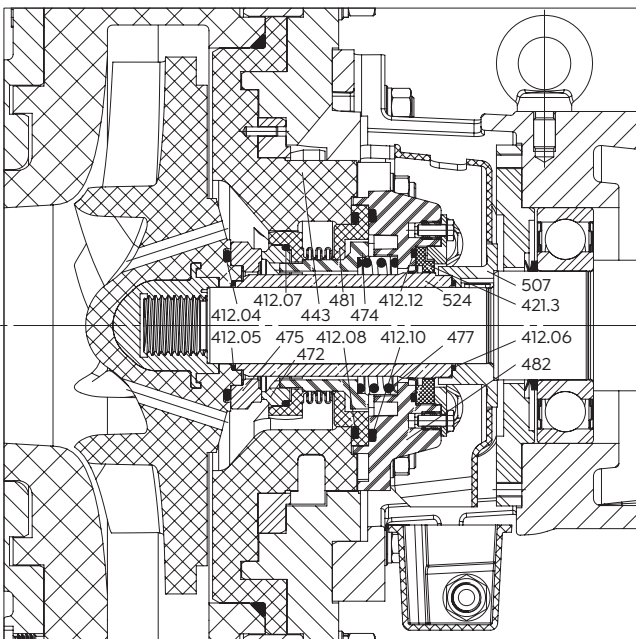
STÜBBE X-CLASS

Standard chemical pump NX
Chemical close-coupled
pump BX



A) SINGLE-ACTING MECHANICAL SEAL (BELLOWS-TYPE) WITH INTERNAL FLUSHING – API PLAN 01 TYPE ESTN

- spring-loaded (PTTFE) bellows
- general-purpose chemical resistance since the spring does not come into contact with the medium
- up to 115 °C and up to 3 bar(g) inlet pressure
- up to 8 bar(g) static pressure
- at counter ring (rotating seal ring) and sliding ring (stationary seal ring), torques are transmitted by extremely stable interlocking (and not by a clamp fit) (high break-away torque in the event of sticking and adhesive forces)
- suitable for pumping media containing solids
- if required with quench and/or permanent or standstill flushing configurable



B) VERSION WITH INTERNAL FLUSHING AND QUENCHING – API PLAN 62 TYPE QSTN

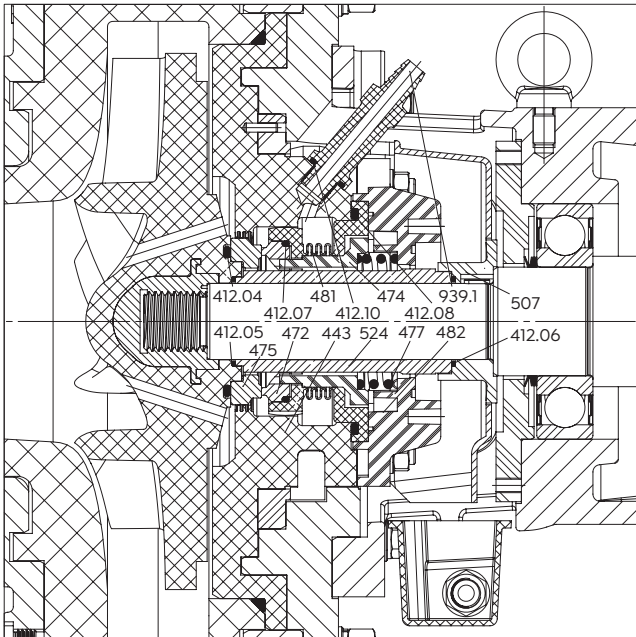
- Atmosphere-side seal of the bellows carrier (482) by radial seal (421.3)
- The resulting chamber is filled with quenching medium (such as deionized or very clean soft water):
 - at pressures between 0.8 and 8 bar the quenching medium is limited due to built-in flow limiter to approx. 30 ltr/h
 - this prevents formation of crystals within the mechanical seal
 - protection against hot running of the mechanical seal in the event of vacuum in the shaft seal chamber
 - also available in stand quenching version (with quenching container), here use without flow limiter
- ensure free discharge of the quenching medium the pressure in the quenching chamber is limited to a maximum of 0.5 bar(g)

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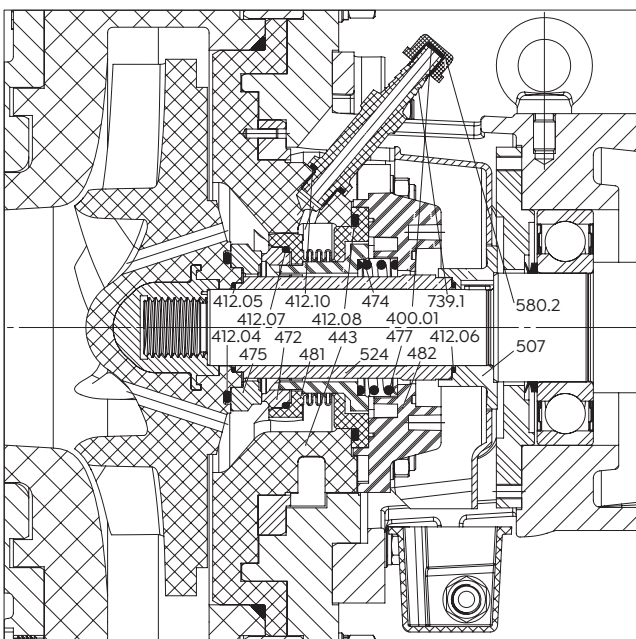
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MECHANICAL SEALS



C) VERSION WITH PERMANENT FLUSHING – API PLAN 32 TYPE ESTD

- suitable for pumping media containing solids
- flushes the mechanical seal with clean flushing medium (such as water)
- limitation of the flushing medium by a throttle section (labyrinth seal) within the pump
- flushing volume is dependent on the solids content and pump size 40–250 ltr/h
- it is useful to install a flow meter and a valve for controlling the flushing flow
- The flushing medium will mix with the pumped medium. For certain processes, such as evaporation processes or applications involving sulfuric acid, the use of flushing media is prohibited.



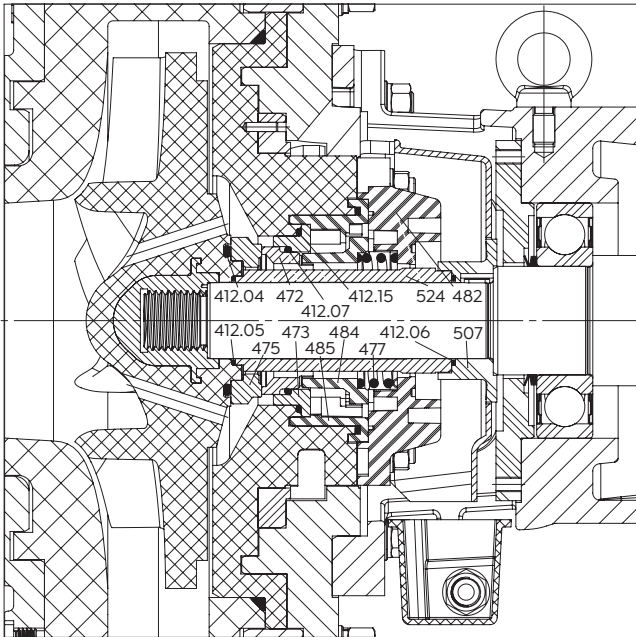
D) VERSION WITH STANDSTILL FLUSHING - API PLAN 32 TYPE ESTS

- design similar to the permanent flushing (C) variant, but without the throttle section
- for use with pumped media containing solids, where for process reasons the use of (permanent) flushing media is prohibited
- flushes the mechanical seal with clean flushing medium (such as water) immediately before the pump is switched off or immediately after it is switched off (approx. 50-100 ltr during the course of approx. 1-2 min flushing period)
- prevents sedimentation when the pump is stationary, and crystallization within the pump in the area of the mechanical seal

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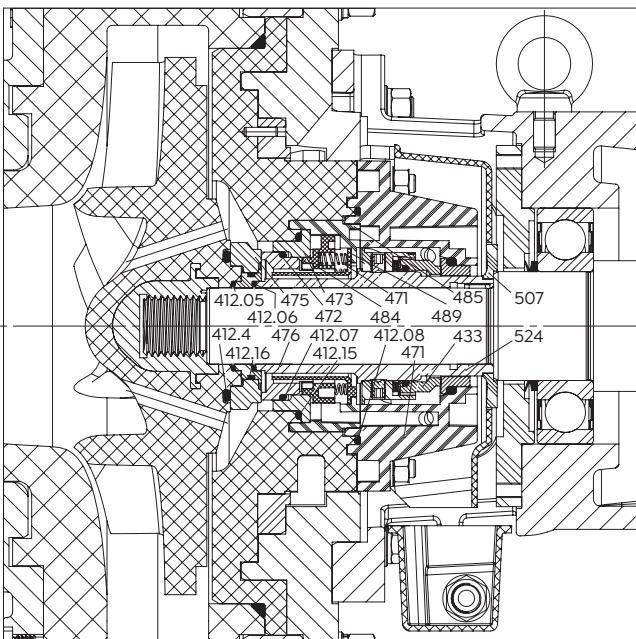
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SINGLE-ACTING HIGH PRESSURE MECHANICAL SEAL WITH INTERNAL FLUSHING – API PLAN 01 TYPE ES2N (UV2)

- universally chemically resistant
- high pressure resistant, robust spring-loaded single mechanical seal in „FGD“-design
- up to 160 °C and up to 8 bar(g) inlet pressure
- up to 16 bar(g) static pressure
- counter ring made of SSiC
- sliding ring made of SSiC
- suitable for solids-laden media and applications with high inlet pressure
- Torques are transmitted via extremely stable interlocking
- if required, can be configured with quenching and/or permanent or standstill flushing



DOUBLE-ACTING MECHANICAL – API PLAN 53A AND 54 TYPE DS3N (UV3)

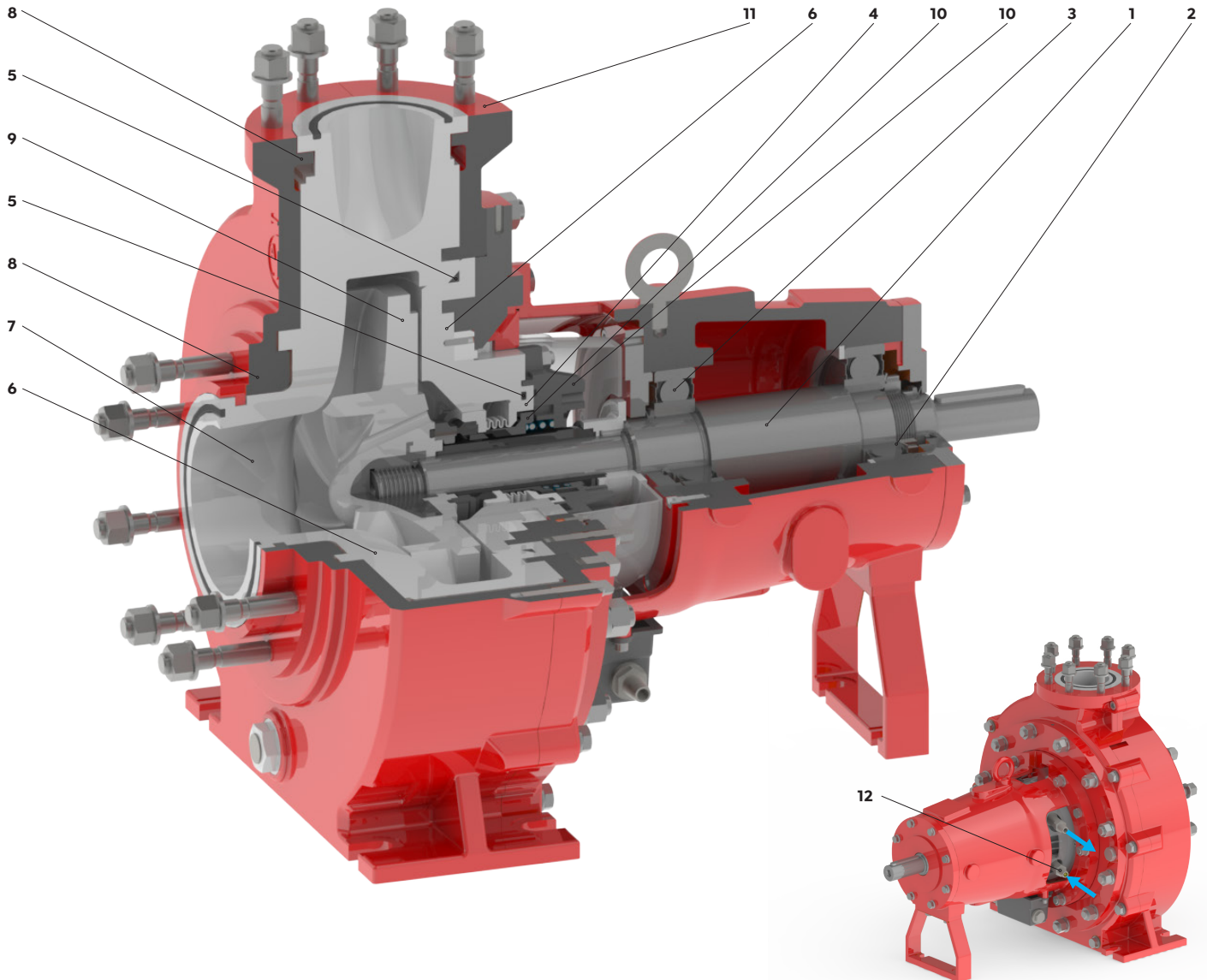
- universally chemically resistant
- high pressure resistant, robust spring-loaded double-acting mechanical seal in „FGD“-design
- up to 160 °C and up to 8 bar(g) inlet pressure
- up to 16 bar(g) static pressure
- identical counter ring on the product side as for the single-acting mechanical seal (modular design principle)
- the high-end solution for highly critical applications (such as all cases where no barrier or flushing medium may mix with the pumped medium)
- Barrier medium with overpressure is necessary (comply with the manufacturer's specifications). Version of the auxiliary plant system with thermosiphon container (circuit) or with free discharge. The discharge must be throttled to the required quantity and pressure.
- The barrier medium must not deposit any residues on the sliding faces. For example, the following are allowed:
 - light-bodied oil without high-pressure additives
 - water/ethylene glycol mixture without corrosion inhibitor additives
 - steam condensate, deionized water

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SECTIONAL VIEW



POSITION	DESCRIPTION
1	sturdy universal shaft for any mechanical seal
2	highly stressable fixed/loose bearing
3	lifetime lubricated bearings (standard)
4	universally chemically resistant mechanical seal (STÜBBE in-house development)
5	chambered O-rings
6	fully metallic chambered plastic components

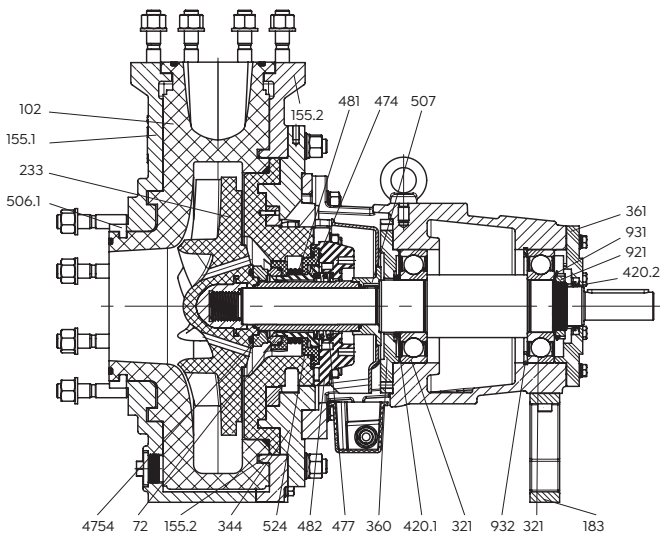
POSITION	DESCRIPTION
7	plastic components individually replaceable
8	pipe forces are absorbed by metal components
9	efficient hydraulic system
10	high production depth for complex thermoplastic components
11	DIN/ANSI connections
12	all mechanical seal connections always on the side and horizontal

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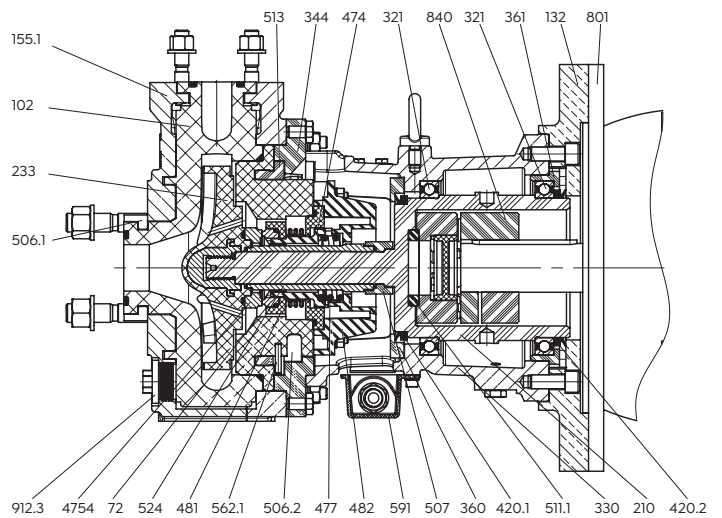
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STANDARD CHEMICAL PUMP NX



CHEMICAL CLOSE-COUPLED PUMP BX



POSITION	DESCRIPTION
102	volute casing
132	motor flange adapter
155.1	casing armor front side
155.2	casing armor back side
183	support foot
233	impeller
321	radial ball bearing
344	bearing carrier lantern
360	bearing cover non drive end
361	bearing cover drive end
420.1	axial rotary shaft seal
420.1	axial rotary shaft seal
472	sliding ring
474	thrust ring
475	counter ring
477	spring

POSITION	DESCRIPTION
481	bellows
482	bellows carrier
506.1	retaining ring
506.2	retaining ring
507	splash ring
511.1	centering ring
513	insert ring
524	shaft sleeve
591	collection tray
801	flange motor
840	coupling
912.3	screw plug
921	groove nut
931	locking washer
932	circlip

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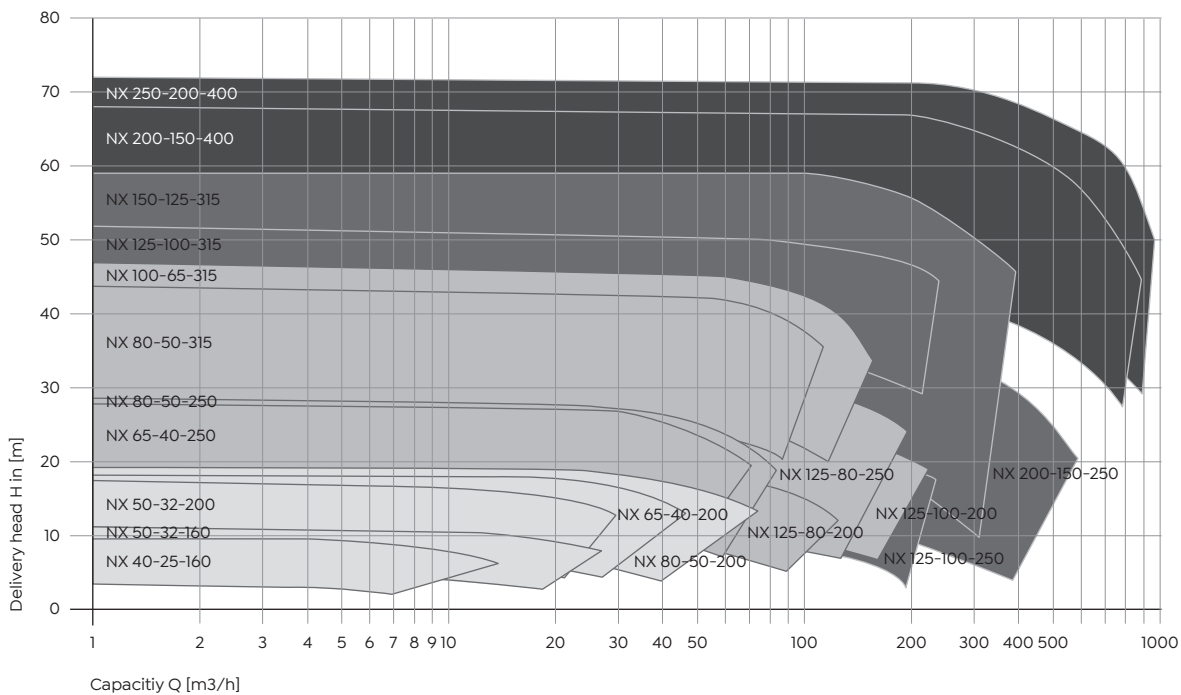
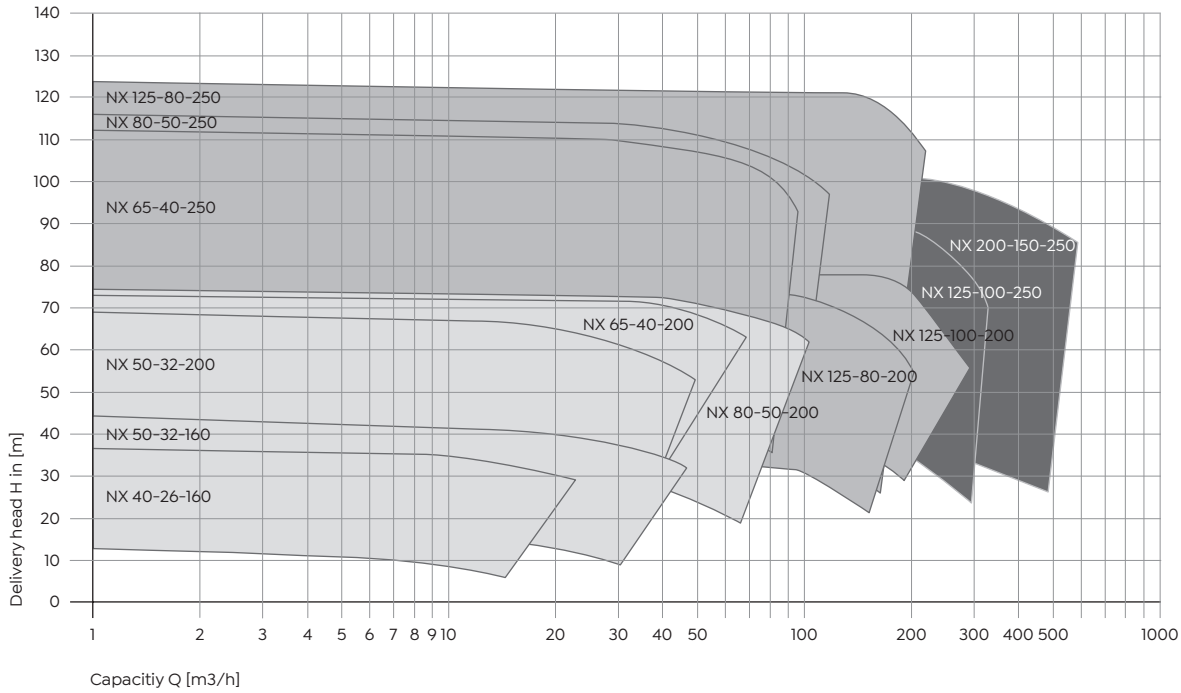
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- BEARING BRACKET SIZE (LTG) I
- BEARING BRACKET SIZE (LTG) II
- BEARING BRACKET SIZE (LTG) III
- BEARING BRACKET SIZE (LTG) IV

The sizes 40-25-160, 100-65-315 and 250-200-400 are loosely based on the standard ISO 2858/DIN EN 22858 (trans standard pumps)

CHARACTERISTIC CURVES

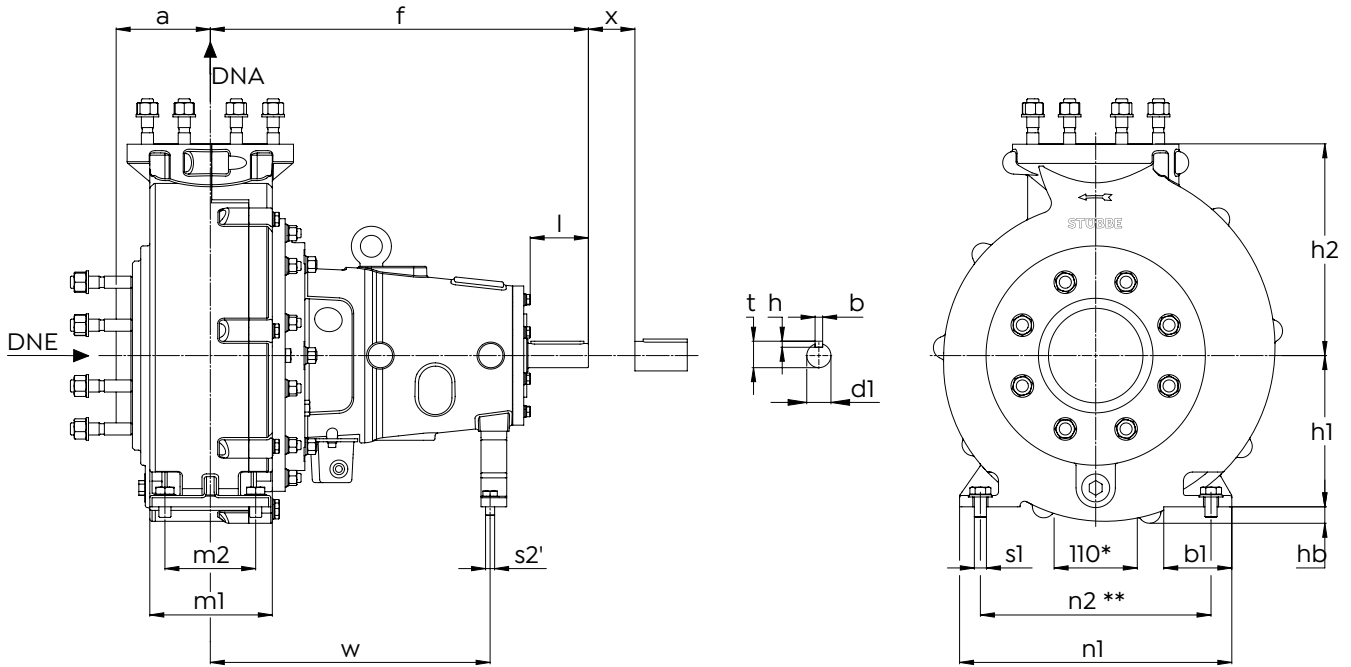


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DIMENSIONS STANDARD CHEMICAL PUMP NX



* Dimension 140 for NX 200-150-400 / NX 250-200-400 ** Dimension 305 for NX 125-100-200

LTG	Pump type	FLANGE PN 16 ACC. TO DIN 2501		PUMP DIMENSIONS					BASE DIMENSIONS							SHAFT END ACC. TO DIN 748						
		DNE	DNA	a	f	h1	h2	hb	b1	m1	m2	n1	n2	s1	s2'	w	x	d1	l	t	h	b
I	NX 40-25-160*	40	25	80	385	132	160	-	50	100	70	240	190	M12	M12	285	100	24	50	27,0	7	8
I	NX 50-32-160	50	32	80	385	132	160	13	50	100	70	240	190	M12	M12	285	100	24	50	27,0	7	8
I	NX 50-32-200	50	32	80	385	160	180	-	50	100	70	240	190	M12	M12	285	100	24	50	27,0	7	8
I	NX 65-40-200	65	40	100	385	160	180	-	50	100	70	265	212	M12	M12	285	100	24	50	27,0	7	8
II	NX 65-40-250	65	40	100	500	180	225	-	65	125	95	320	250	M12	M12	370	100	32	80	35,0	8	10
I	NX 80-50-200	80	50	100	385	160	200	-	50	100	70	265	212	M12	M12	285	100	24	50	27,0	7	8
II	NX 80-50-250	80	50	125	500	180	225	-	65	125	95	320	250	M12	M12	370	100	32	80	35,0	8	10
II	NX 80-50-315	80	50	125	500	225	280	-	65	125	95	345	280	M12	M12	370	100	32	80	35,0	8	10
II	NX 100-65-315*	100	65	125	500	225	280	25	80	160	120	400	315	M16	M12	370	140	32	80	35,0	8	10
II	NX 125-80-200	125	80	125	500	180	250	-	65	125	95	345	280	M12	M12	370	140	32	80	35,0	8	10
II	NX 125-80-250	125	80	125	500	225	250	-	80	160	120	400	315	M16	M12	370	140	32	80	35,0	8	10
II	NX 125-100-200	125	100	125	500	200	280	25	80	160	120	360	305	M16	M12	370	140	32	80	35,0	8	10
III	NX 125-100-250	125	100	140	530	225	280	-	80	160	120	400	315	M16	M12	370	140	42	110	45,0	8	12
III	NX 125-100-315	125	100	140	530	250	315	-	80	160	120	400	315	M16	M12	370	140	42	110	45,0	8	12
III	NX 150-125-315	150	125	140	530	280	355	25	100	200	150	500	400	M20	M12	370	140	42	110	45,0	8	12
III	NX 200-150-250	200	150	160	530	280	375	-	100	200	150	500	400	M20	M12	370	180	42	110	45,0	8	12
IV	NX 200-150-400	200	150	160	670	315	450	-	100	200	150	550	450	M20	M12	500	180	48	110	51,5	9	14
IV+	NX 250-200-400*	250	200	180	720	355	500	-	100	250	150	550	450	M20	M16	500	180	60	110	64,0	11	18

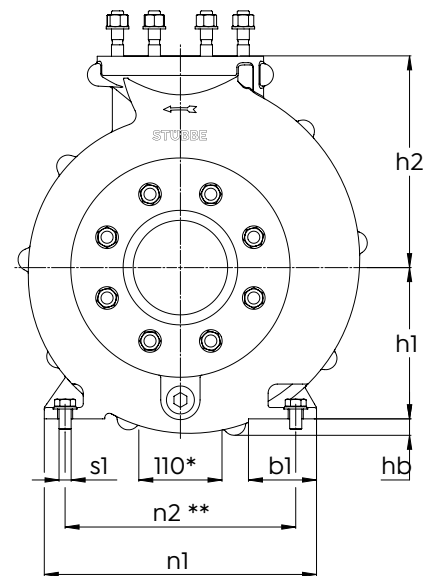
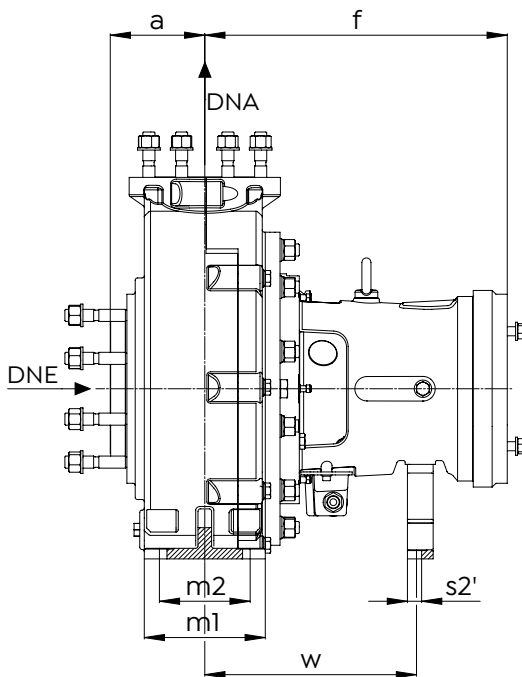
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DIMENSIONS

CHEMICAL CLOSE-COUPLE PUMP BX



* Dimension 305 for BX 125-200

LTG	Pump type	FLANGE PN 16 ACC. TO DIN 2501		PUMP DIMENSIONS					BASE DIMENSIONS							
		DNE	DNA	a	f	h1	h2	hb	b1	m1	m2	n1	n2	s1	s2'	w
I	BX 40-25-160	40	25	80	320	132	160	-	50	100	70	240	190	M12	M12	285
I	BX 50-32-160	50	32	80	320	132	160	13	50	100	70	240	190	M12	M12	285
I	BX 50-32-200	50	32	80	320	160	180	-	50	100	70	240	190	M12	M12	285
I	BX 65-40-200	65	40	100	320	160	180	-	50	100	70	265	212	M12	M12	285
II	BX 65-40-250	65	40	100	400	180	225	-	65	125	95	320	250	M12	M12	370
I	BX 80-50-200	80	50	100	320	160	200	-	50	100	70	265	212	M12	M12	285
II	BX 80-50-250	80	50	125	400	180	225	-	65	125	95	320	250	M12	M12	370
II	BX 80-50-315	80	50	125	400	225	280	-	65	125	95	345	280	M12	M12	370
II	BX 100-65-315	100	65	125	400	225	280	25	80	160	120	400	315	M16	M12	370
II	BX 125-80-200	125	80	125	400	180	250	-	65	125	95	345	280	M12	M12	370
II	BX 125-80-250	125	80	125	400	225	250	-	80	160	120	400	315	M16	M12	370
II	BX 125-100-200	125	100	125	400	200	280	25	80	160	120	360	305	M16	M12	370

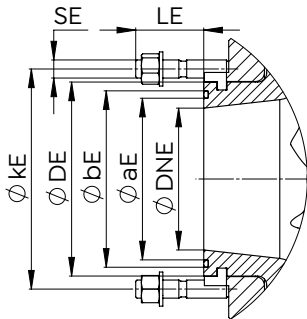
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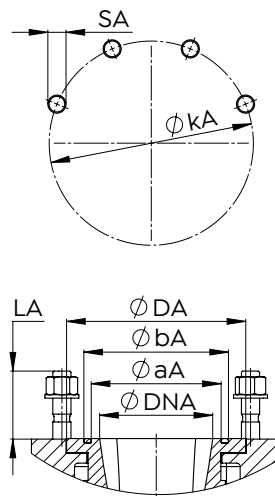
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DIMENSIONS NOZZLES DIN

Inlet



Outlet



Flange adaptation according to DIN EN 1092-1

Pump type			Inlet nozzle dimension							Outlet nozzle dimension						
DNE	DNA	Ø	ØaE	ØbE	ØDE	LE	ØkE	ØSE	Number	ØaA	ØbA	ØDA	LA	ØkA	ØSA	Number
40	25	160	50,5	63,5	79,5	49,5	110	M16	100	34,5	47,5	68	44,5	85	M12	4
50	32	160	63,0	76,0	95,0	49,5	125	M16	100	44,2	57,2	76	49,5	100	M16	4
50	32	200	63,0	76,0	95,0	49,5	125	M16	100	44,2	57,2	76	49,5	100	M16	4
65	40	200	78,5	91,5	107,0	59,5	145	M16	100	50,5	63,5	88	59,5	110	M16	4
65	40	250	78,5	91,5	107,0	59,5	145	M16	125	50,5	63,5	88	59,5	110	M16	4
80	50	200	94,5	107,5	123,0	59,5	160	M16	100	63,0	76,0	97	59,5	125	M16	4
80	50	250	94,5	107,5	123,0	59,5	160	M16	125	63,0	76,0	97	59,5	125	M16	4
80	50	315	94,5	107,5	123,0	59,5	160	M16	125	63,0	76,0	97	59,5	125	M16	4
100	65	315	114,5	127,5	142,0	60,0	180	M16	160	79,0	92,0	117	59,5	145	M16	4
125	80	200	142,5	155,5	171,0	58,0	210	M16	125	94,5	107,5	131	59,5	160	M16	8
125	80	250	142,5	155,5	171,0	60,0	210	M16	160	94,5	107,5	131	59,5	160	M16	8
125	100	200	142,5	155,5	171,0	60,0	210	M16	160	114,5	127,5	158	59,5	180	M16	8
125	100	250	142,5	155,5	171,0	60,0	210	M16	160	114,5	127,5	158	59,5	180	M16	8
125	100	315	142,5	155,5	171,0	60,0	210	M16	160	114,5	127,5	157	59,5	180	M16	8
150	125	315	140	186,5	200,0	66,5	240	M20	200	142,5	155,5	185	59,5	210	M16	8
200	150	250	219,0	232,0	256,0	66,5	295	M20	200	174,5	187,5	209	69,5	240	M20	8
200	150	400	219,0	232,0	256,0	66,5	295	M20	200	174,5	187,5	209	69,5	240	M20	8
250	200	400	276,0	289,0	305,0	79,5	355	M24	250	219,0	232,0	260	70,0	295	M20	12

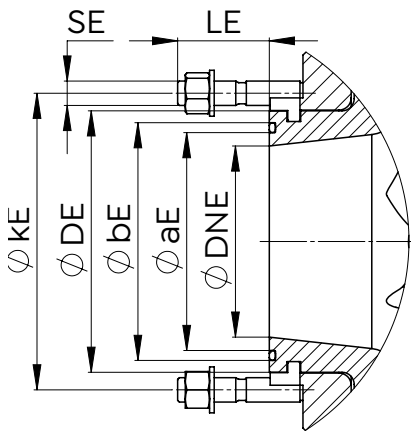
X

STÜBBE X-CLASS

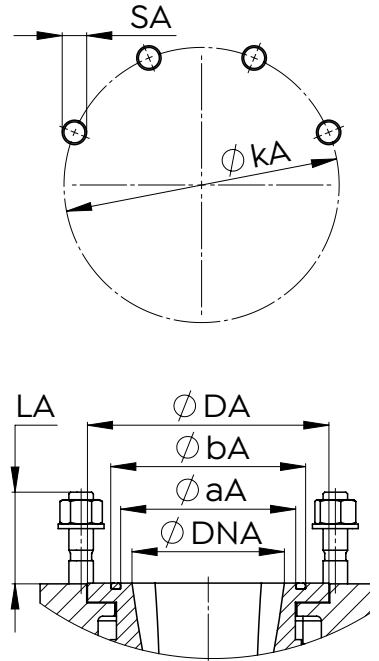
Standard chemical pump NX
Chemical close-coupled
pump BX

DIMENSIONS NOZZLES ANSI

Inlet



Outlet



Flange adaptation according to ANSI B16.5

Pump type	Inlet nozzle dimension									Outlet nozzle dimension						
	DNE	DNA	ØaE	ØbE	ØDE	LE	ØKE	ØSE	Number	ØaA	ØbA	ØDA	LA	ØkA	ØSA	Number
40-25-160	11W2"	1"	50,5	63,5	79,5	49,5	98,5	M12	4	34,5	47,5	68	44,5	79,2	M12	4
50-32-160	2"	1 ¼"	63,0	76,0	95,0	49,5	120,6	M16	4	44,2	57,2	76	49,5	88,9	M12	4
50-32-200	2"	1 ¼"	63,0	76,0	95,0	49,5	120,6	M16	4	44,2	57,2	76	49,5	88,9	M12	4
65-40-200	2 ½"	1 ½"	78,5	91,5	107,0	59,5	139,7	M16	4	50,5	63,5	88	59,5	98,5	M12	4
65-40-250	2 ½"	1 ½"	78,5	91,5	107,0	59,5	139,7	M16	4	50,5	63,5	88	59,5	98,5	M12	4
80-50-200	3"	2"	94,5	107,5	123,0	59,5	152,4	M16	8	63,0	76,0	97	59,5	120,6	M16	4
80-50-250	3"	2"	94,5	107,5	123,0	59,5	152,4	M16	8	63,0	76,0	97	59,5	120,6	M16	4
80-50-315	3"	2"	94,5	107,5	123,0	59,5	152,4	M16	8	63,0	76,0	97	59,5	120,6	M16	4
100-65-315	4"	2 ½"	114,5	127,5	142,0	60,0	190,5	M16	8	79,0	92,0	117	59,5	139,7	M16	4
125-80-200	5"	3"	142,5	155,5	171,0	60,0	215,9	M20	8	94,5	107,5	131	59,5	152,4	M16	8
125-80-250	5"	3"	142,5	155,5	171,0	60,0	215,9	M20	8	94,5	107,5	131	59,5	152,4	M16	8
125-100-200	5"	4"	142,5	155,5	171,0	60,0	215,9	M20	8	114,5	127,5	158	59,5	190,5	M16	8
125-100-250	5"	4"	142,5	155,5	171,0	60,0	215,9	M20	8	114,5	127,5	158	59,5	190,5	M16	8
125-100-315	5"	4"	142,5	155,5	171,0	60,0	215,9	M20	8	114,5	127,5	157	59,5	190,5	M16	8
150-125-315	6"	5"	140	186,5	200,0	66,5	241,3	M20	8	142,5	155,5	185	59,5	215,9	M20	8
200-150-250	8"	6"	219,0	232,0	256,0	66,5	298,4	M20	12	174,5	187,5	209	69,5	241,3	M20	8
200-150-400	8"	6"	219,0	232,0	256,0	66,5	298,4	M20	12	174,5	187,5	209	69,5	241,3	M20	8
250-200-400	10"	8"	276,0	289,0	305,0	79,5	361,9	M24	12	219,0	232,0	260	70,0	298,4	M20	12