

Series NB

Centrifugal type process pumps

- Reliability
- Good Efficiencies
- Modular Construction
- Good Wear Resistance
- Simplified Maintenance



Series NB - quality pumps for arduous duties

Reliability

Rugged designs, careful manufacturing and strict quality control ensure long operating lifetimes.

B-10 bearing life exceeds 50.000 hours at capacity giving highest bearing loading within recommended operating range for each pump size.

Long seal lifetimes can be expected due to the low shaft deflections: max 0.05 mm.

Good Efficiencies

Skillfull designs and production accuracies have led to high efficiencies, exceeding 83% for the larger pumps. On continuous duties a few years service may easily recover the full capital cost of the pump by energy savings alone, even for the medium-sized units.

Efficiencies are guaranteed by performance testing every pump before delivery to ISO 9906 Grade 2.

Modular Construction

NB-pumps are incorporated into the ABS Modular System™. Pumps with the same bearing assembly size have many parts in common. This reduces spares stocking costs and simplifies the administration of spares purchasing.

Good Wear Resistance

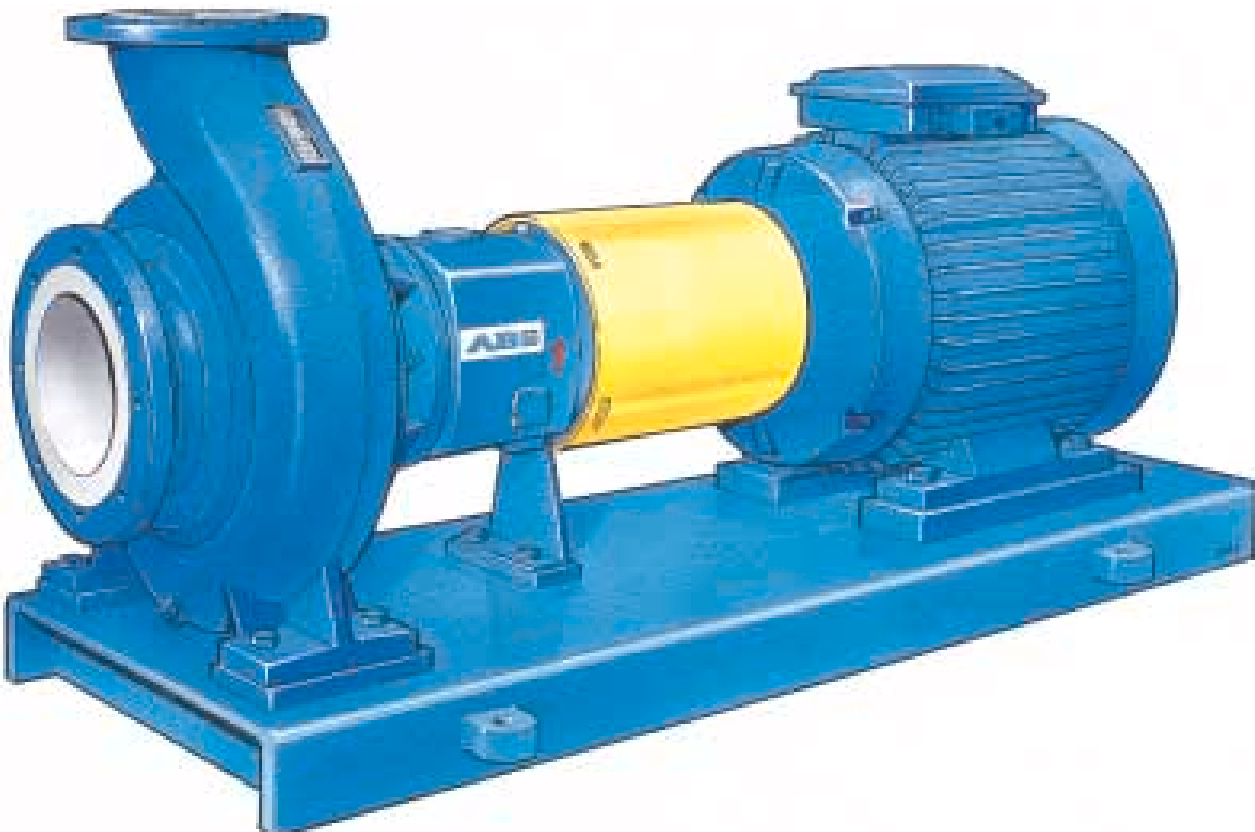
NB-pumps are available in many material combinations, ranging from cast iron to titanium for example.

Smooth interior contours free from cavities, combined with generous corrosion allowances, make them particularly resistant to erosion and corrosion.

Simplified Maintenance

Maintenance has been facilitated by good design. Shaft seals and bearings, for example, can easily be replaced by exchanging the seal cartridge and bearing assembly modules.

The pumps are normally fitted with spacer-couplings, permitting back-pull out of the rotor assembly from the pump casing without moving the motor.



Series NB

Range of Applications

NB-pumps are available with closed (shrouded) or semi-open impellers. They are therefore suitable for clean and solids-bearing liquids, except where risk of clogging exists due to large solids or high concentrations of fibrous material.

Typical applications

Chemical process industries - corrosive chemicals, light slurries, etc.
Pulp Mills - Liquors, chemicals, etc.
Paper Mills - Thin stock, backwater, water, chemicals.

Standards

ISO 2858

A dimensional standard only, for horizontal centrifugal pumps with 16 bar pressure rating.

ISO 5199

This is a design specification for pumps in process industry applications. Several quality features are specified, e.g. maximum shaft deflection, vibration level, bearing life and corrosion resistance. The end user therefore has a warranty for the pump's reliability.



Pumps for severe operations and with a larger ISO-standard of measurement than 2858 can be supplied in various material.



Regarding smaller motors, it is an advantage if the motor is flanged directly against the bearing assembly.



Installation in the chemical industry, Akzo Nobel, Bohus in Sweden. The pump is mounted on a concrete foundation.

Design Features

Casing

Smooth internal contours and the elimination of cavities at the periphery of the casing cover have virtually eliminated the risks of localised wear occurring. Generous wall thicknesses give high resistance to corrosion and erosion.

The casing cover gasket is "confined", eliminating the possibility of it blowing out due to the internal pressure.

The suction is protected by a casing wear ring, or wear disc in pumps fitted with semi-open impellers.

Impeller

Impellers are either closed or semi-open type.

Pumps built on Bearing Assembly Size 1 have impellers which are threaded onto the pump shaft, and a shaft sleeve sealed off with an O-ring. For pumps on the larger bearing assemblies, the impellers are normally secured to the shaft by screw(s) and a key, but threaded impellers are also available as a standard alternative for Bearing Assembly Sizes 2 and 3.

Lantern

This is a separate component linking the bearing assembly to the casing. It is a rigid design with large openings to prevent the accumulation of dirt or liquid. The casing cover is attached to the lantern with screws to facilitate the dismantling and assembly of the rotor unit.

Bearing Assembly

The bearing assemblies are the base of the ABS Modular System™.

All bearing assemblies have angular contact ball bearings at the coupling end as thrust bearings, and deep groove ball or roller bearings as radial bearings. This combination gives the best lifetime expectancy.

The axial position of the rotor can be adjusted by displacing the thrust bearing housing in the bearing bracket. The clearance between a semi-open impeller and its wear disc can therefore be easily adjusted to maintain the rated efficiency.

Shaft and Shaft Sleeve

The standard shaft material used is stainless steel grade 2321 or 2324.

All shafts are fitted with a replaceable shaft sleeve.

Shaft Seal

The shaft seal can be of many types: single or double mechanical seal, gland packing or dynamic seal. Mechanical seals and gland packings are contained in a seal cartridge, which is part of the modular system. Like the bearing assemblies, there are therefore only five sizes of seal cartridges.

NB-pumps can be fitted with virtually any mechanical seal or packed gland arrangement. For single mechanical seals ABS PSI™, Pump Seal Integration, are used. We guarantee perfect conditions for the seal.

Materials

Based on many years of field operational experience and tests from our own corrosion laboratory, we have selected a range of standard material combinations to suit a wide variety of applications (see table below).

Materials

Code	Standard mat.comb.		01	08 ¹⁾	24	25	27	32	51
	03 ¹⁾	26							
Pump casing	Cast iron 0120	Stainless steel 2343	Cast iron 0120	Nodular iron 0717	Stainless steel 2324	Stainless steel 2390	Stainless steel 2564	Nickel alloy 6371	Titanium 4890
Impeller	Stainless steel 2343	Stainless ³⁾ steel 2343	Cast iron 0120	Stainless ³⁾ steel 2343	Stainless steel 2324	Stainless steel 2390	Stainless steel 2564	Nickel alloy 6371	Titanium 4890
Shaft sleeve	Stainless steel 2324	Stainless steel 2324	Stainless steel 2324	Stainless steel 2324	Stainless steel 2324	Stainless steel 2562	Stainless steel 2562	Nickel alloy 6371	Titanium 4890
Shaft ²⁾	Stainless steel 2321	Stainless steel 2321	Stainless steel 2321	Stainless steel 2321	Stainless steel 2321	Stainless steel 2321	Stainless steel 2321	Stainless steel 2321	Stainless steel 2321

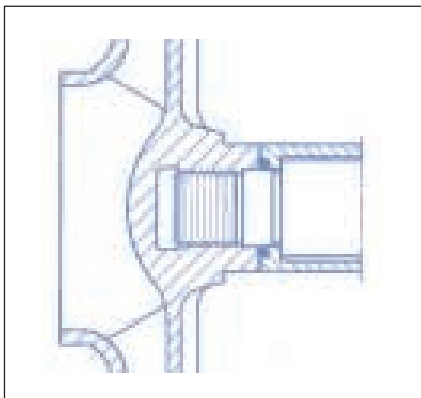
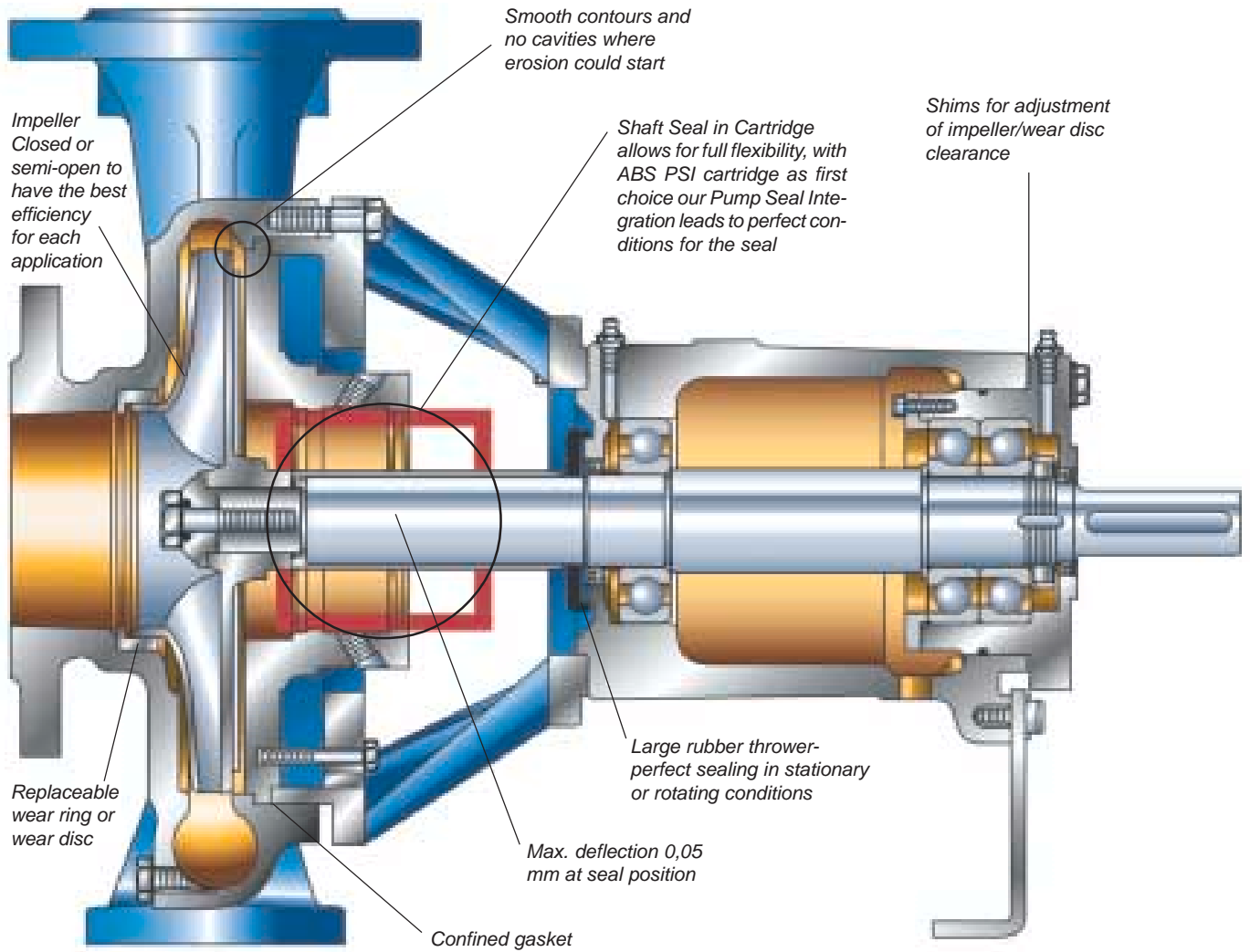
1) For semi-open impellers use material code 05 and 09

2) The shafts of Bearing Assembly Sizes 1-3 are protected from the pumped liquid. For Bearing Assembly Sizes 4 and 5: 2324.

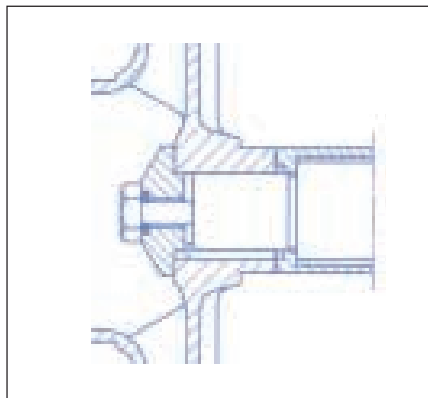
3) Semi-open impellers material 2324.

ABS material	Equivalent grades France	Germany	UK	USA	Chemical Composition
0120	Ft20D	GG20	Gr. 220	A48/30B	Cast iron
0717	FGS 400-12	GGG-40	Gr. 420/12	A536/60-40-18	Nodular iron
2321	Z15 CN 16-02	1.4057	431 S29	AISI 431	17Cr 2Ni 0.2C
2324	-	1.4460	-	AISI 329	24Cr 5Ni 1.5Mo 0.10C
2343	Z6 CND 18-12-M	1.4408	316 C16	A743/CF-8M	18.5 Cr 12Ni 3Mo 0.07C
2390	Z3 CNUD 26.5-M	-	-	A743/CD-4 M Cu	25Cr 5.8Ni 2.8Mo 2.5Cu 0.05C
2562	Z2 NCDU 25.20	1.4539	-	UNSN 08904	20Cr 25Ni 4.5Mo 1.6Cu 0.025C
2564	Z6 NCDU 25-20-04M	-	332 C11	A743/CN-7 M	20Cr 25Ni 4.5Mo 3.5Cu 0.06C
6371	-	2.4537	-	A494/CW-12 MW	16.5Cr 56Ni 17Mo 4.5W 6Fe
4890	-	-	-	B367 Gr.C-3	Titanium

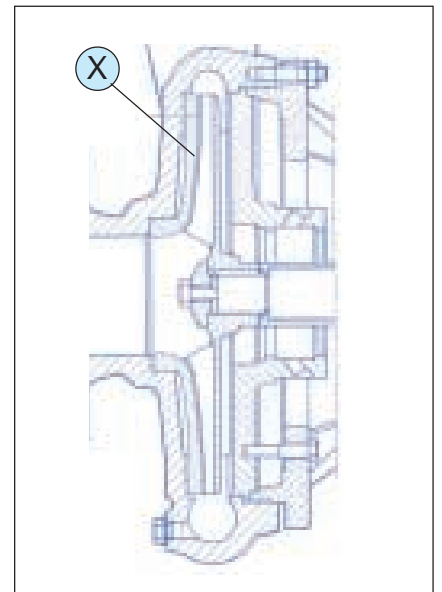
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Impeller Fixing - Bearing Assemblies E
For Bearing Assembly size 1 and for all pumps of Titanium, the impellers are threaded onto the shaft. This is also an optional alternative for bearing assembly sizes 2 and 3.



Impeller Fixing - Bearing Assemblies D and F
Impeller fixing by screw and key is standard on all bearing assembly sizes except the smallest one. The larger sizes 4 and 5 have two and three screws respectively.



Semi-open impellers
Semi-open impeller and replaceable wear disc (X) are available for some of the NB-pumps, see also page 7.

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Technical Data

Capacity	2-1000 m ³ /h
Head	30-160 m
Temperature	Max. 190°C (max. 280°C for hot oils)
Pressure ratings	PN10/PN16 (for higher pressure ratings, refer to separate brochure)
Specification	ISO 5199 "Technical Specification for centrifugal pumps, Class II"
Dimensions	ISO 2858
Flanges	ISO 7005 PN10 or PN16 (BS 4504) or ANSI
Lubrication	Grease. Optional alternative - oil.

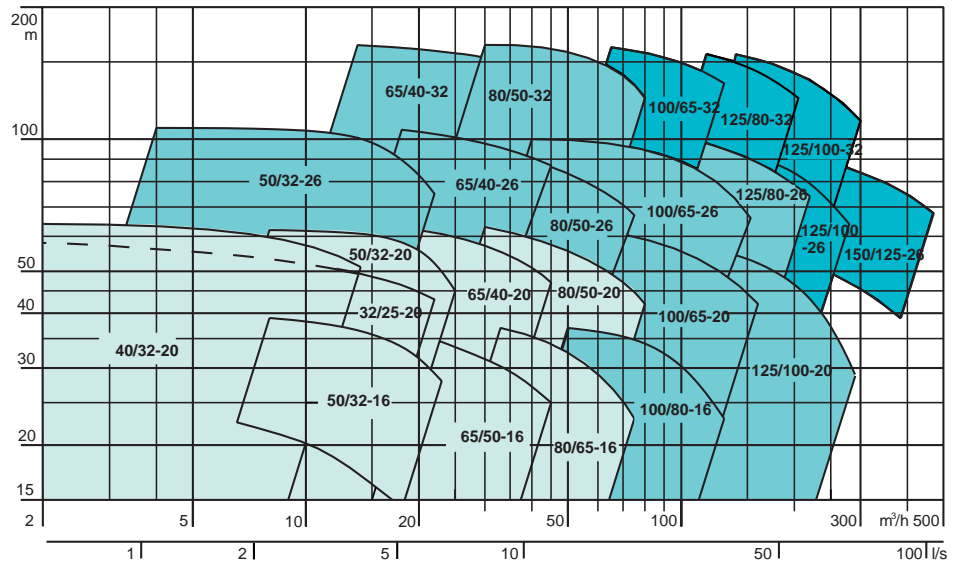
Type Designations

NB	80	50	-26
Pump serie	Inlet dia (mm)	Outlet dia (mm)	Impeller dia (cm)

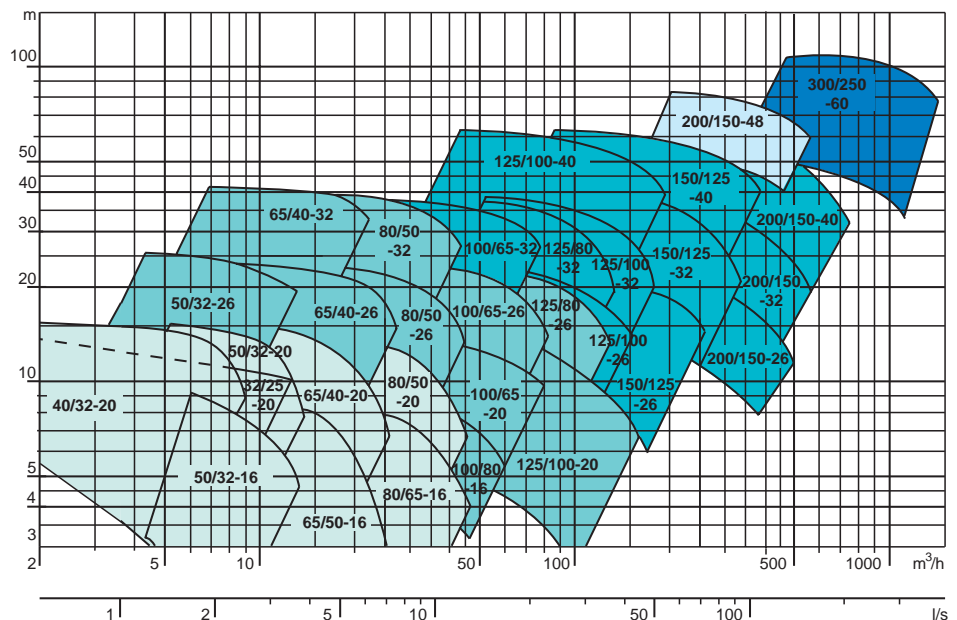
Bearing Assembly Sizes



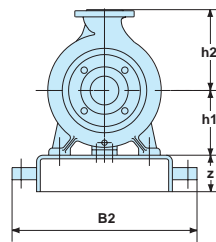
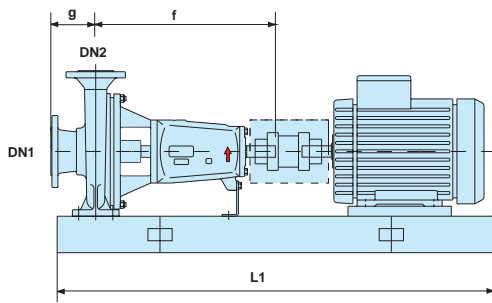
3000 rpm



1500 rpm



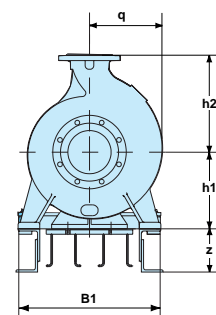
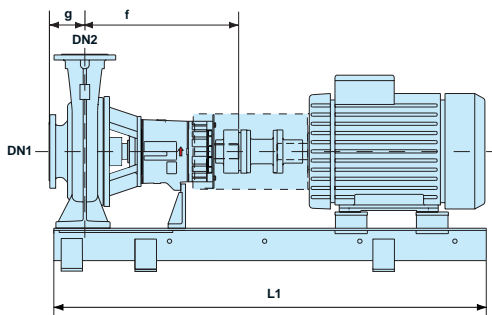
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← Pumps with Bearing Assembly Sizes 1-3

Pump Type	ISO-designation	Bearing Assy.	DN1	DN2	h1	h2	g	f	Baseplate of concrete or fabricated steel			Weight** kg
									B2* max.	L1* max.	z* max.	
NB 32/25-20	-	1	32	25	160	200	65	390	475	1120	150	56
NB 40/32-20	-		40	32	132	180	80	385	320	1250	120	53
NB 50/32-16 x	50-32-160		50	32	132	160	80	385	320	1250	120	50
NB 50/32-20 x	50-32-200		50	32	160	180	80	385	320	1250	150	53
NB 65/50-16 x	65-50-160		65	50	132	160	80	385	320	1250	120	52
NB 65/40-20 x	65-40-200		65	40	160	180	100	385	400	1325	150	57
NB 80/65-16	80-65-160		80	65	160	180	100	385	400	1325	150	53
NB 80/50-20 x	80-50-200		80	50	160	200	100	385	400	1325	150	60
NB 50/32-26 x	50-32-250	2	50	32	180	225	100		630	1370	160	84
NB 65/40-26 x	65-40-250		65	40	180	225	100		630	1370	160	85
NB 65/40-32	65-40-315		65	40	200	250	125		635	1560	235	105
NB 80/50-26 x	80-50-250		80	50	180	225	125	500	630	1370	160	85
NB 80/50-32	80-50-315		80	50	225	280	125		635	1560	235	105
NB 100/80-16	100-80-160		100	80	160	200	100		630	1370	180	75
NB 100/65-20 x	100-65-200	100	65	180	225	100		635	1560	255	85	
NB 100/65-26 x	100-65-250	100	65	200	250	125		635	1560	235	85	
NB 125/100-20	125-100-200	125	100	200	280	125		635	1560	235	95	
NB 125/80-26 x	125-80-250	125	80	225	280	125		635	1560	235	110	
NB 100/65-32 x	100-65-315	3	100	65	225	280	125		635	1730	235	125
NB 125/100-26 x	125-100-250		125	100	225	280	140		890	1730	225	140
NB 125/80-32 x	125-80-315		125	80	250	315	125		890	1730	225	165
NB 125/100-32 x	125-100-315		125	100	250	315	140		890	1730	200	170
NB 125/100-40 x	125-100-400		125	100	280	355	140		890	1970	330	190
NB 150/125-26 x	150-125-250		150	125	250	355	140		890	1730	200	155
NB 150/125-32 x	150-125-315	150	125	280	355	140	530	890	1970	330	200	
NB 150/125-40 x	150-125-400	150	125	315	400	140		890	1970	295	230	
NB 200/150-26 x	200-150-250	4	200	150	280	375	160		890	1970	330	190
NB 200/150-32 x	200-150-315		200	150	280	400	160		890	1970	330	215
NB 200/150-40 x	200-150-400		200	150	315	450	160		890	1970	295	260

x) Semi-open impeller available.
 *) Varies with motor size and baseplate material **) Pump only

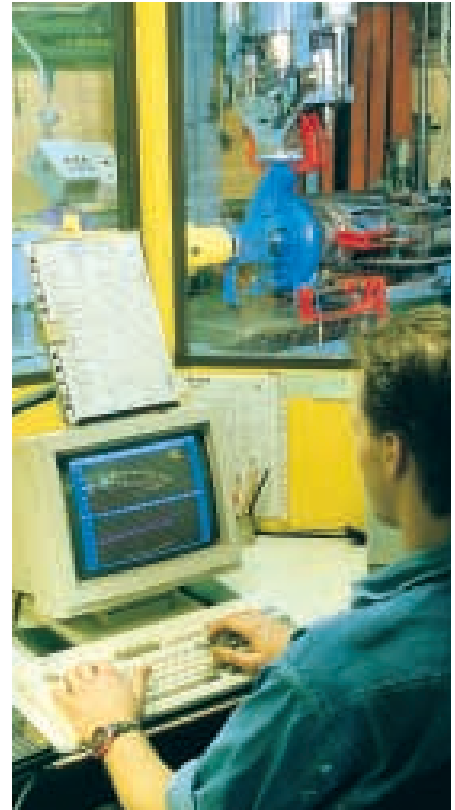


← Pumps with Bearing Assembly Sizes 4 and 5

Pump Type	Bearing Assy.	DN1	DN2	h1	h2	g	f	q	Baseframe for concreting in			Weight** kg
									B1*	L1*	z	
NB 200/150-48	4	200	150	355	450	165	737	353	660	2300	200	400
NB 300/250-60	5	300	250	450	675	200	905	476	760	3000	250	750

*) Varies with motor size **) Pump only

Quality at every stage



Our continuing commitment to advanced research and development and the newest machining technology combined with a sales force well-trained in products and applications give complete satisfaction. With this reliable background we can offer products where performance, availability and low running and servicing costs will give you the most economical solution on the market -

Cost-Effective Pumping.

ABS reserves the right to alter specifications due to technical developments.

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Austria
Tel. +43 2236 642 61
Fax +43 2236 642 66

Belgium
Tel. +32 2 725 79 00
Fax +32 2 725 71 19

Brazil
Tel. +55 41 227 81 00
Fax +55 41 348 18 79

Canada
Tel. +1 905 670 4677
Fax +1 905 670 3709

China
Tel. +86 21 5234 0472
Fax +86 21 5234 1179

Denmark
Tel. +45 48 17 11 10
Fax +45 48 17 19 11

Estonia
Tel. +372 656 3398
Fax +372 656 3385

Finland
Tel. +358 9 506 88 90
Fax +358 9 55 80 53

France
Tel. +33 1 49 35 24 50
Fax +33 1 48 54 42 82

Germany
Tel. +49 62 57 9317 0
Fax +49 62 57 9317 99
Tel. +49 2246 13 0
Fax +49 2246 13 200

Great Britain
Tel. +44 1293 744 800
Fax +44 1293 543 392

Greece
Tel. +30 10 95 325 01/02/03
Fax +30 10 95 325 04

Hungary
Tel. +36 1 231 60 70
Fax +36 1 231 60 80

Ireland
Tel. +353 1 460 88 88
Fax +353 1 460 88 89

Italy
Tel. +39 051 89 00 911
Fax +39 051 86 18 48

Netherlands
Tel. +31 30 242 56 78
Fax +31 30 241 03 46

Norway
Tel. +47 67 554 700
Fax +47 67 554 750

Poland
Tel. +48 22 633 82 87
Fax +48 22 633 86 44

Portugal
Tel. +351 21 495 01 57
Fax +351 21 495 53 64

Singapore
Tel. +65 4633 933
Fax +65 4622 122

South Africa
Tel. +27 11 397 1612
Fax +27 11 397 1795

Spain
Tel. +34 91 670 28 51
Fax +34 91 666 58 68

Sweden
Tel. +46 31 706 16 00
Fax +46 31 27 29 20

Switzerland
Tel. +41 71 694 6555
Fax +41 71 694 6556

Turkey
Tel. +90 216 455 2256
Fax +90 216 455 2265

USA
Tel. +1 203 238 2700
Fax +1 203 238 0738

All other countries
ABS Pumps International
Head Office, Sweden
Tel. +46 31 83 63 00
Fax +46 31 16 79 14

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