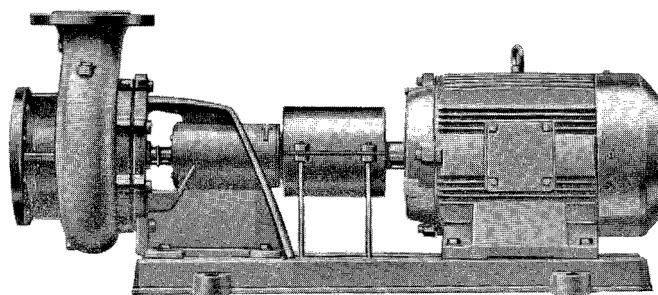


Volute Casing Centrifugal Pumps PN 10 Series NS



**Foreign Patents in 12 European and outer-European countries.
Federal German patent No. 2034489 for the two-stage additional sizes.**

Use

For the pumping of clear water, sea water, condensate, oils, brines, lyes, just to mention a few. The delivery media must not contain any abrasive particles nor chemically attack the pump materials.

Main Fields of Application

In water supply, water treatment, irrigation, air-conditioning, deducting, spray-painting, sprinkler plants, cooling, heating and circulation system or in swimming-pool engineering.

Moreover for applications of the most varied kind in any industrial branches.

This series is to be preferred in case of belt drive.

Design and Series Construction

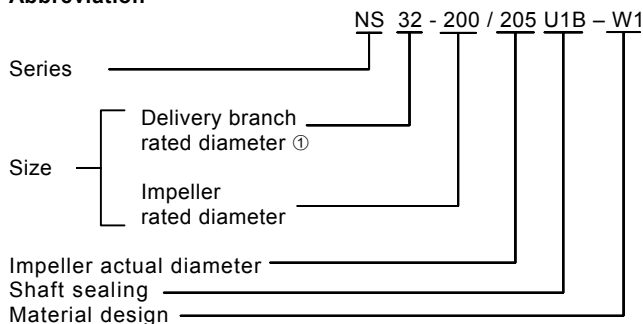
Horizontal single-stage, single-flow volute casing centrifugal pumps with axial inlet.

Nominal capacities and main dimensions as per DIN 24 255 (except for centre height and foot dimensions of the bearing pedestal). Series construction on the building-block principle. Shaft bearing in a bearing pedestal. Additional supporting feet at the volute casing only for pump sizes with bearing pedestal size 530.

The model size NS 150-160 corresponds to be bearing pedestal size 360, through the dimension "f" is 405.

The additional sizes NS 2/32-200, 2140-250 and 2150-250 are of the two-stage type, however, their outer dimensions correspond to the respective single-stage sizes. By means of the two-stage design, relatively small delivery flows at high delivery heads, good efficiencies and low NPSH values are reached.

Abbreviation



This abbreviation is entered on the rating plate. With the two-stage additional sizes, the impeller actual diameter relates to the second stage.

① with the two-stage additional sizes, the number of stages, by means of an oblique stroke, is placed in front of the delivery branch rated diameter, e.g. NS 2/32-200/...

Branch Positions/Flanges

Suction branch: Axial

Delivery branch: for standard designs radially upwards. Deviations in the position of the delivery branch are only possible with those model sizes associated with the bearing pedestal sizes 360 and 470 (see dimensioned pump drawing)

Flanges: up to DN 150 according to DIN 2533
DN 200 and above according to DIN 2532

Shaft sealing

All sizes, except two-stage additional sizes, by means of uncooled or cooled stuffing box, packing rings of Teflon-impregnated white asbestos yarn.

All sizes including the two-stage additional sizes by means of uncooled, unbalanced, maintenance-free mechanical seal of the following material design:

Rotary seal ring:	Hard carbon
Stationary seal ring:	Oxide ceramics
O-Rings:	EP rubber
Metal parts:	Stainless steel

High Temperature and Pressure Limits

Applicable to all material designs

Admissible temperature ② with:	
Stuffing box uncooled	125°C
Stuffing box cooled	160°C
Mechanical seal uncooled	140°C

Admissible internal pump pressure with:
Design with stuffing box

Sizes for bearing pedestal size 360 ③	≤ 16 bar
Sizes for bearing pedestal sizes 470 and 530	≤ 10 bar

Design with unbalanced mechanical seal:

All sizes, except two-stage additional sizes	≤ 10 bar
Two-stage additional sizes	≤ 16 bar

Admissible inlet pressure:

Inlet pressure plus maximum delivery head must not exceed the admissible internal pump pressure.

③ The permissible temperatures apply to water. The fluids to be pumped being different, the temperature limits may change.

④ Permissible internal pump pressure size 150-160 ≤ 10 bar.

Bearing and lubrication

Sizes for bearing pedestal sizes 360 and 470:
2 grooved ball bearings 2Z C3 DIN 625, grease lubricated.

Sizes for bearing pedestal size 530:
2 grooved ball bearings C3 DIN 625, grease lubricated.

Shaft Coupling and Coupling Guard

Shaft coupling acc. to DIN 740 without or with spacer. A coupling guard as a protection against accidental contact acc. to DIN 31 001 will be supplied as soon as the scope of supply includes pump, base plate and shaft coupling.

Dismantling of slide-in module

When using a shaft coupling with spacer the slide-in module can be dismantled towards the motor side in case of models with bearing pedestal size 530 whereas the volute casing and the motor may remain on the base (plate and the pipings at the volute casing.

In the case of models with the bearing pedestal sizes 360 and 470 the volute casing remains connected to the piping but it has to be specially supported.

The module comprises all components of the pumps with the exception of the volute casing.

Base plate

Of cast iron or steel. The material chosen depends on the size. For details see installation drawing.

Drive

Surface cooled, 3-phase short-circuit rotor motors, design B3, protection IP 44 add. to IEC standards, insulation class B, performance and main dimensions as per DIN 42673.

Connections

The following connections are always provided for:

- A1 filling up
- B1 drainage
- D1 leakage drain
- M2 pressure gauge

and according to the design of the shaft seal:

- S1 external sealing of stuffing box
- K1, K2 cooling of shaft seal
- E3 venting

Materials

Denomination	Part No. NS	Materials two-stage	W1	W2
Volute casing	102.1	-	GG-25	GG-25
volute casing	102.2	102.2	GG-25	GG-25
volute casing	102.17	-	GG-25	GG-25
Impeller	230.1	-	GG-20	G-CuAl10Ni
Impeller, 1st stage	-	230.2	GG-20	-
Impeller, 2nd stage	-	230.3	GG-20	-
Impeller, 1st stage	-	230.8	-	G-CuAl10Ni
Impeller, 2nd stage	-	230.9	-	G-CuAl10Ni
Impeller	230.10	-	GG-20	G-CuAl10Ni
Guide wheel	-	171.1	GG-25	G-CuZn16Si4
Stage casing	-	108.1	GG-25	GG-25
Casing cover	161.1	-	GG-25	GG-25
Casing cover	161.2	-	GG-25	GG-25
Casing cover	161.3	-	GG-25	GG-25
Casing cover	161.4	-	GG-25	GG-25
Casing cover	161.5	-	GG-25	GG-25
Casing cover	-	161.7	GG-25	GG-25
Casing cover	-	161.16	GG-25	GG-25
Casing cover	161.29	-	GG-25	GG-25
Casing cover	161.35	-	GG-25	GG-25
Shaft	211.1	211.1	1.4021/ 1.7139 ^①	1.4021/ 1.7139 ^①
Cooling chamber	165.1	-	GG-25	GG-25
Bearing pedestal	332.1	332.1	GG-25	GG-25
Bearing cover	360.1	360.1	GG-25	GG-25
Bearing cover	360.2	360.2	GG-25	GG-25
Bearing cover	360.4	-	GG-25	GG-25
Bearing cover	360.5	-	GG-25	GG-25
Gland	452.1	-	GG-25	GG-25
Seal ring	4581	-	1.4301	1.4301
Intermediate ring	509.1	-	GG-25	GG-25
Distance sleeve	525.1	-	GG-25	GG-25
Hexagonal nut	920.1	920.1	5	5
spring washer	933.1	933.1	spring steel	spring steel
Spring disc	934.1	-	spring steel	spring steel
key	940.1	940.1	1.4571	1.4571
key	940.2	940.2	1.4571	1.4571

① On pump side (coming into contact with fluid) 1.4021/on motor side 1.7139.

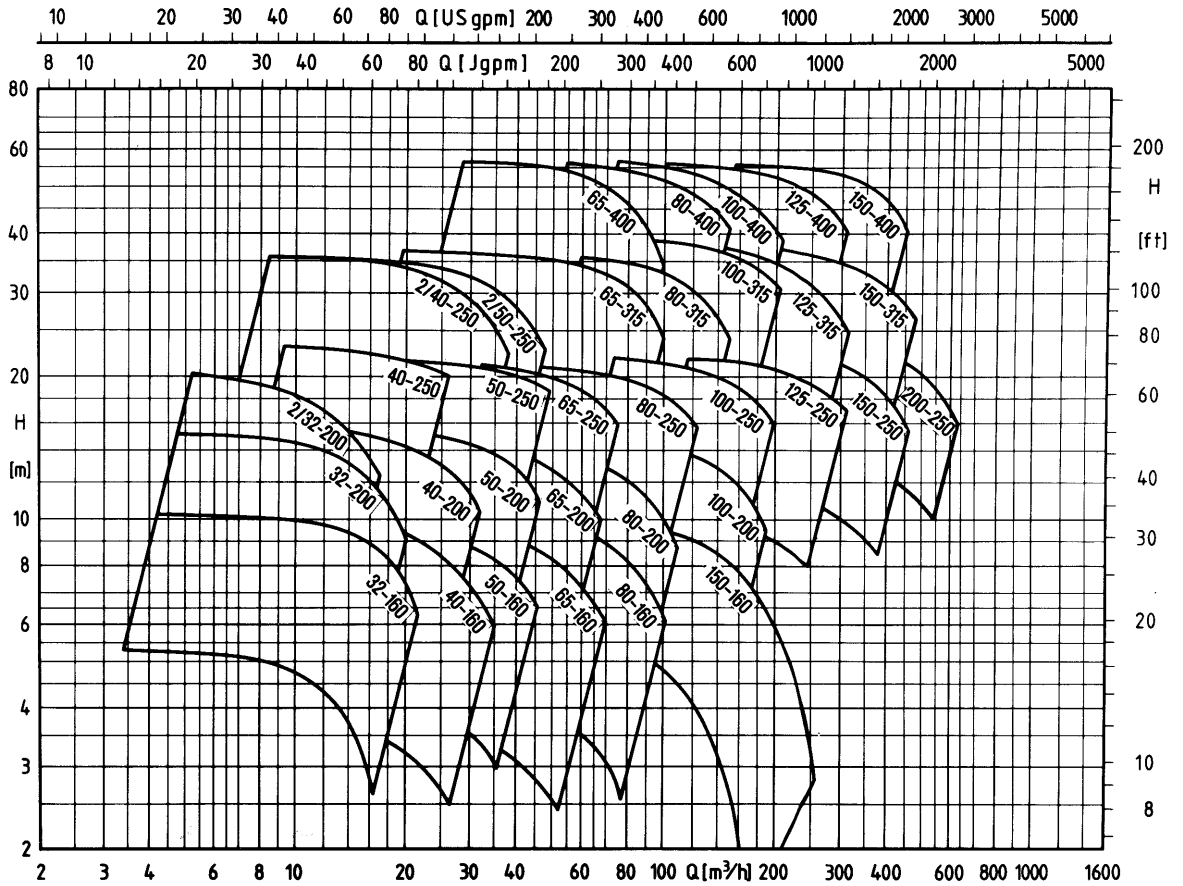
Special designs

NS pumps of special design, e.g. for attachment to combustion engines or with special shaft seals or of other materials, upon request.

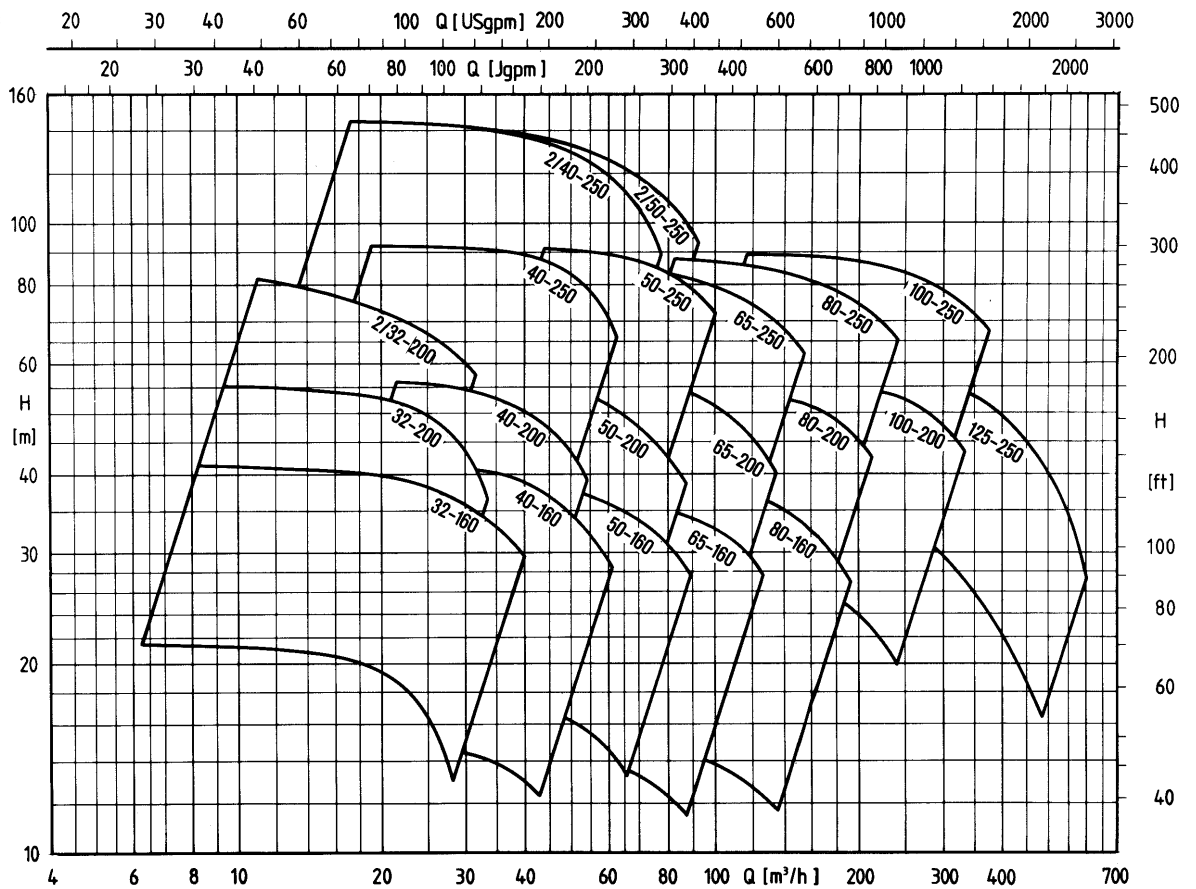
Bearing pedestal size	Pump model size NS	Denomination													
		Shaft	Bearing pedestal	Casing cover	Intermediate ring	Volute casing	Impeller	Impeller 1st stage	Impeller 2nd stage	Guide wheel	Stage casing				
360	32-160	1	1	1	-	1	1	-	-	-	-				
	32-200			2		2									
	2/32-200			2		-	1					1	1	1	
	40-160			1		3	3								
	40-200					4	4								
	40-250			1		5	5								
	2/40-250			3		5	-					2	2	2	2
	50-160			1		6	6								
	50-200					7	7								
	50-250			1		8	8								
	2/50-250			3		8	-					3	2	2	2
	65-160			1		-	9					9			
	65-200						10					10			
	80-160						11					11			
150-160	12	12													
470	65-250	2	2	5	-	13	13	-	-	-	-				
	65-315			2	14	14									
	65-400			3	15	15									
	80-200			-	16	16									
	80-250			-	17	17									
	80-315			2	18	18									
	100-200			-	19	19									
	100-250			-	20	20									
	100-315			2	21	21									
	25-250			-	22	22									
530	80-40D	3	3	6	4	23	23	-	-	-	-				
	100-400			-	24	24									
	125-315			-	25	25									
	125-400			4	26	26									
	150-250			7	27	27									
	150-315			-	28	28									
	150-400			6	28	28									
	200-250			4	29	29									
200-250	7	-	30	30											

In the vertical columns, identical parts with identical number are exchangeable.

Characteristic field
1450 1/min
(rpm)

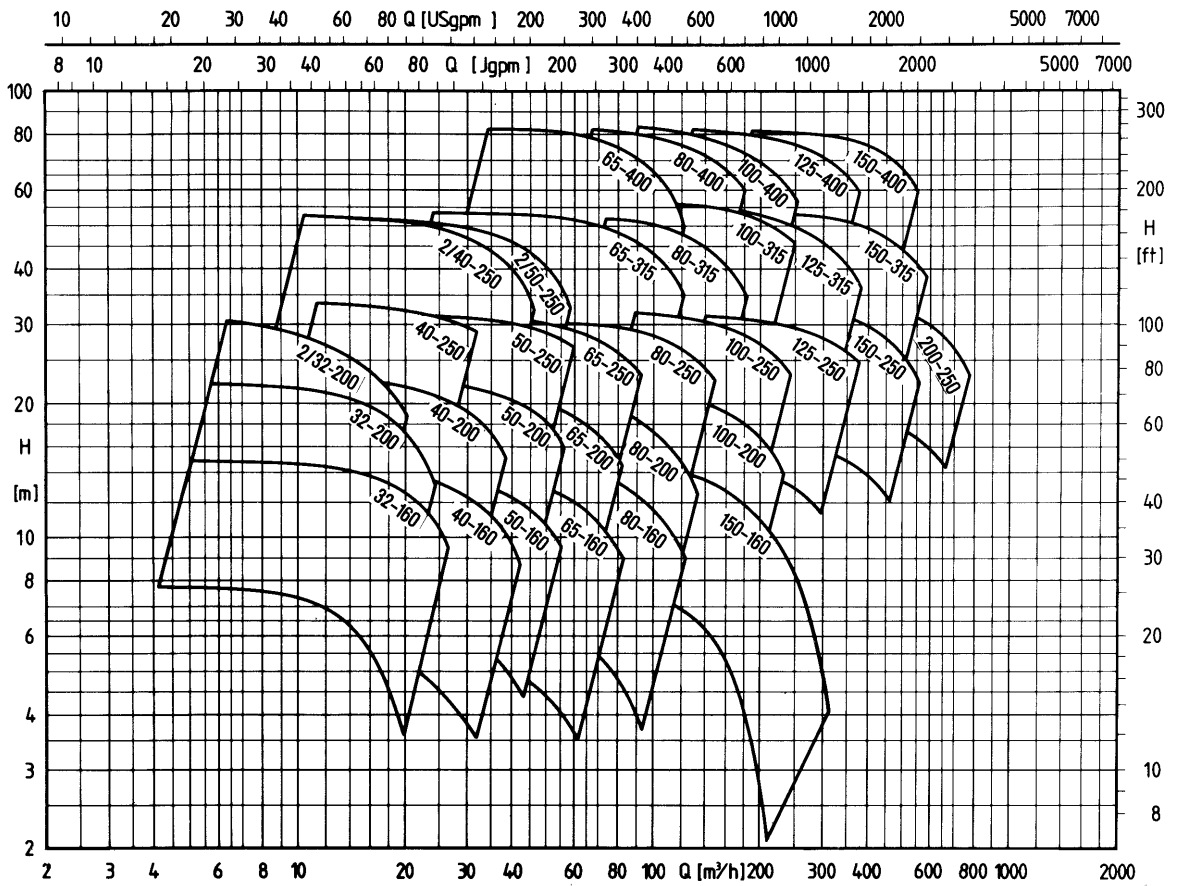


Characteristic field
2900 1/min
(rpm)

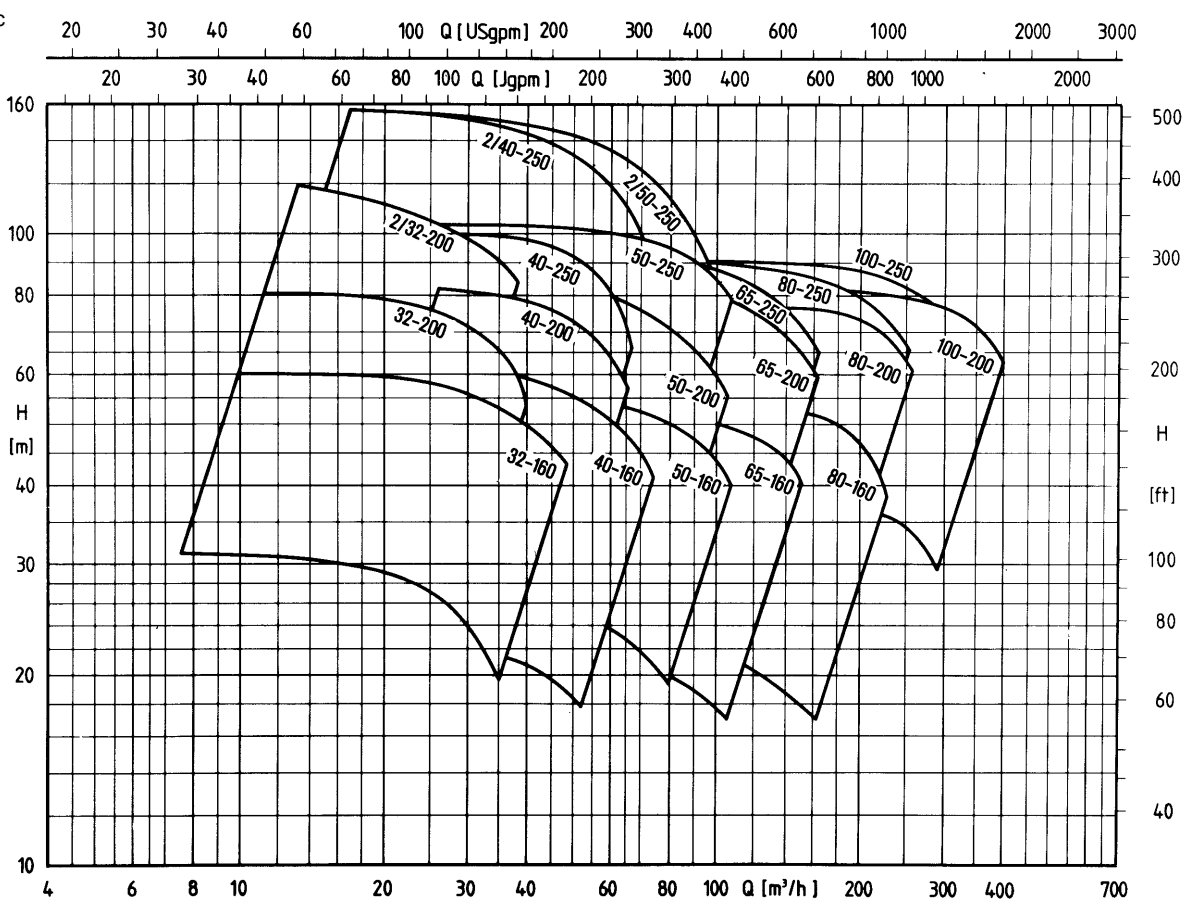


For exact performance data, please refer to the individual characteristic lines.

Characteristic field
1750 1/min
(rpm)

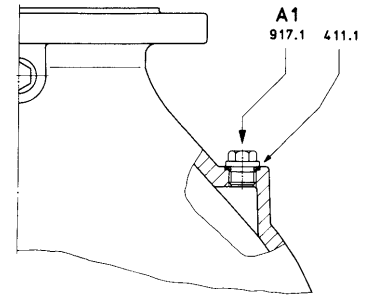
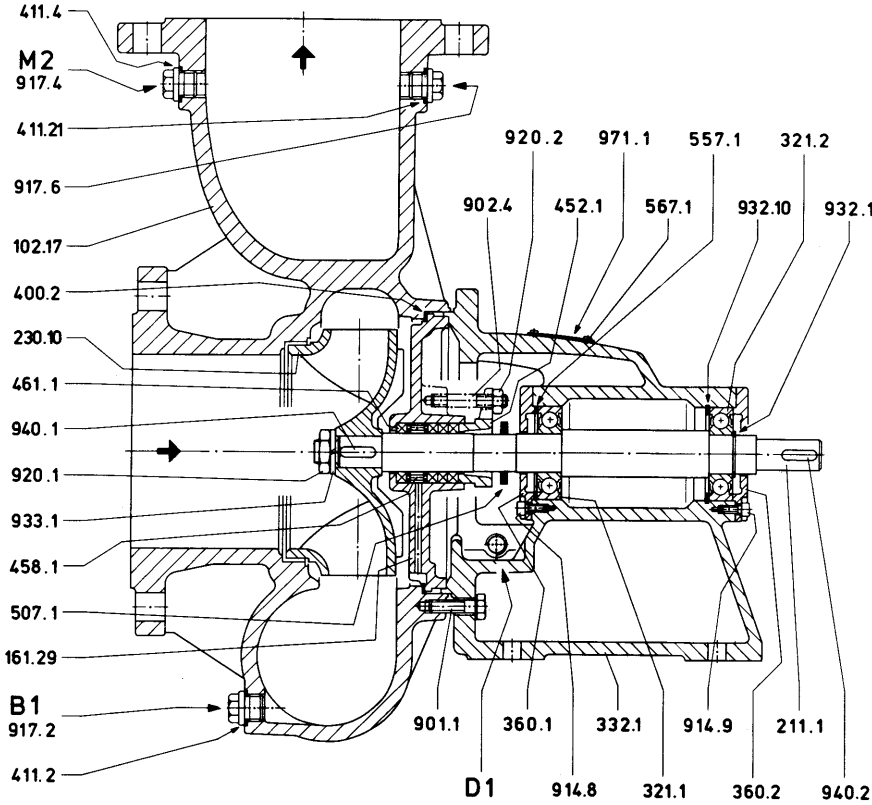


Characteristic field
3500 1/min
(rpm)

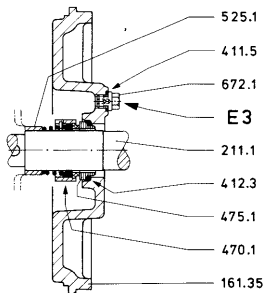


For exact performance data, please refer to the individual characteristic lines.

Sectional drawing
Size 150-160 with bearing pedestal size 360



Shaft sealing: Stuffing box with internal sealing
Abbreviation: **U1B**



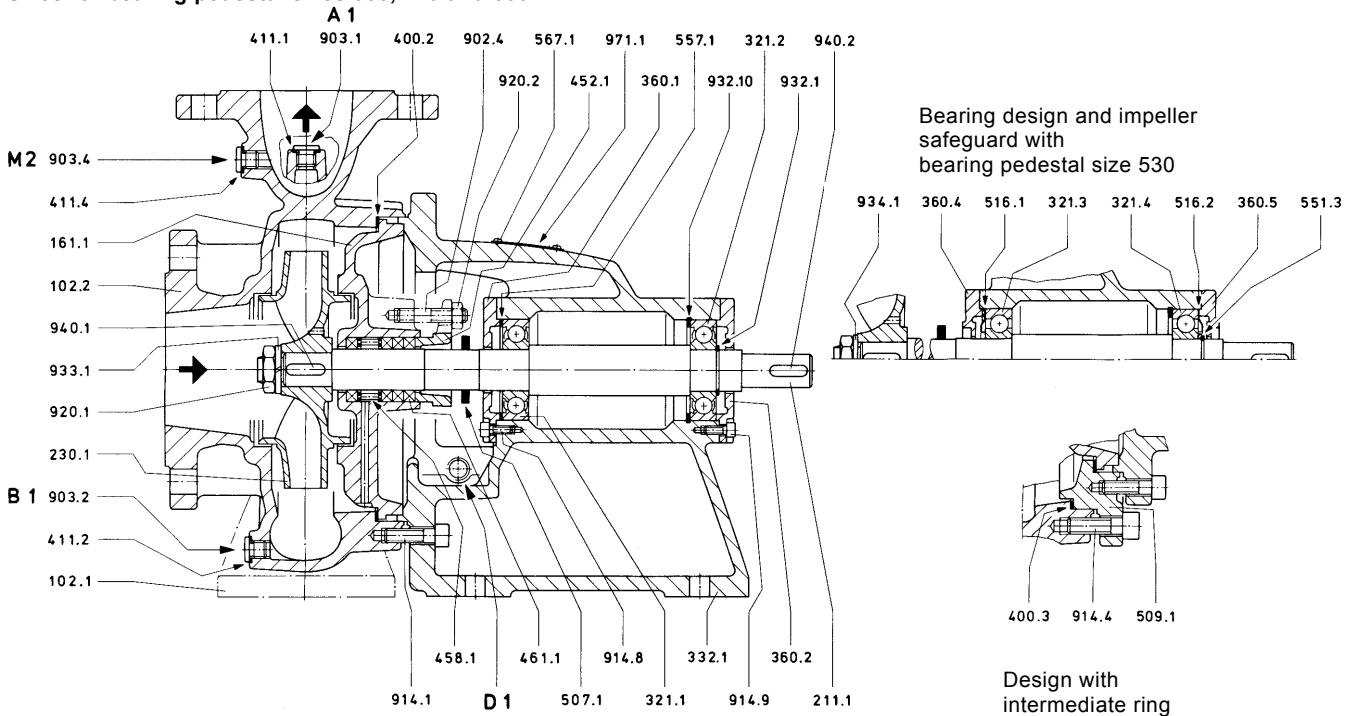
Mechanical seal
unbalanced
U3D

Denomination	DIN No.	Part No.
Volute casing		102.17
Casing cover		161.29
Casing cover		161.35
Shaft		211.1
Impeller		230.10
Grooved ball bearing	625	321.1
Grooved ball bearing	625	321.2
Bearing pedestal		332.1
Bearing cover		360.1
Bearing cover		360.2
Gasket		400.2
Joint washer	7603	411.1
Joint washer	7603	411.2
Joint washer	7603	411.4
Joint washer	7603	411.5
Joint washer	7603	411.21
O-ring		412.3
Gland		452.1
Seal ring		458.1
Packing ring		461.1
Mechanical seal, rotating part		470.1
Stationary seal ring		475.1
Splash ring		507.1
Distance sleeve		525.1
Ball bearing tension disk		557.1
Blind rivet		567.1
Venting screw	910	672.1
Hexagonal screw		901.1
Stud	939	902.4
Socket head cap screw	912	914.8
Socket head cap screw	912	914.9
Threaded plug	910	917.1
Threaded plug	910	917.2
Threaded plug	910	917.4
Threaded plug	910	917.6
Hexagonal nut	936	920.1
Hexagonal nut	555	920.2
Circlip	471	932.1
Circlip	472	932.10
Spring washer	127	933.1
Key	6885	940.1
Key	6885	940.2
Rating plate		971.1

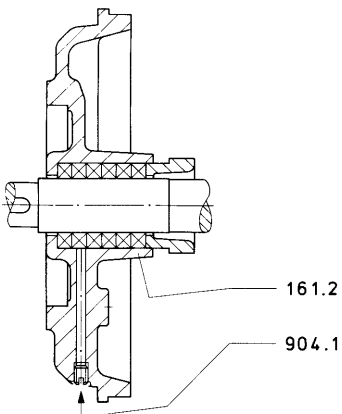
Connections

A1	Filling
Bt	Draining
D1	Leakage drain
E3	Venting
M2	Pressure gauge

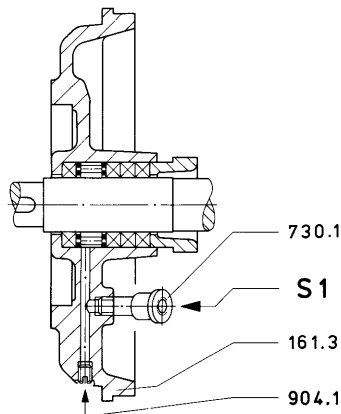
Sectional drawing
 Sizes for bearing pedestal sizes 360, 470 and 530



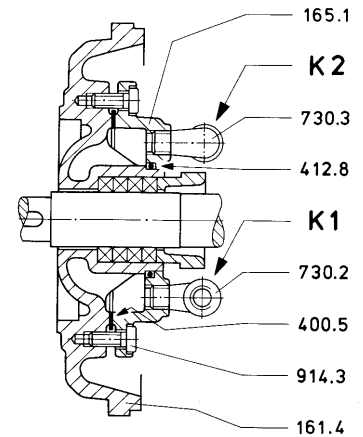
Shaft sealing: Stuffing box with internal sealing
 Abbreviation: **U1B**



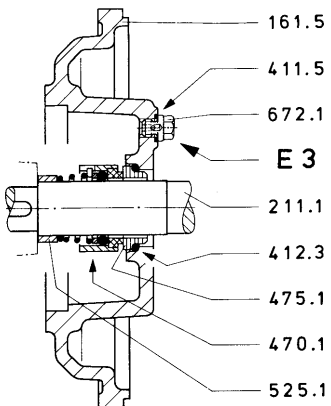
Stuffing box without sealing
U1A



Stuffing box without external sealing
U1C

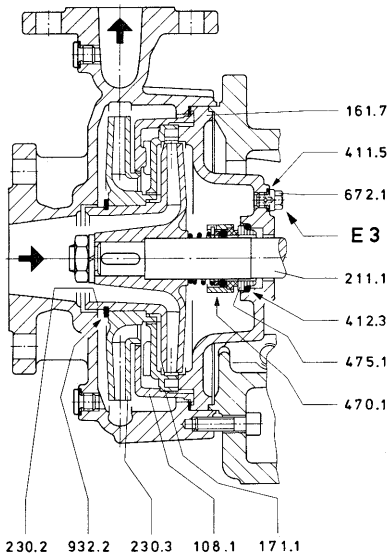


Stuffing box without cooled
G1A



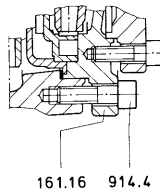
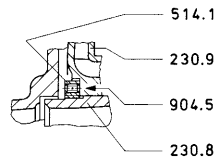
Mechanical seal unbalanced
U3D

Sizes for bearing pedestal size 360 two stage additional sizes



Mechanical seal
unbalanced
U3D

Impeller second stage.
Fastening with threaded ring,
material design W2



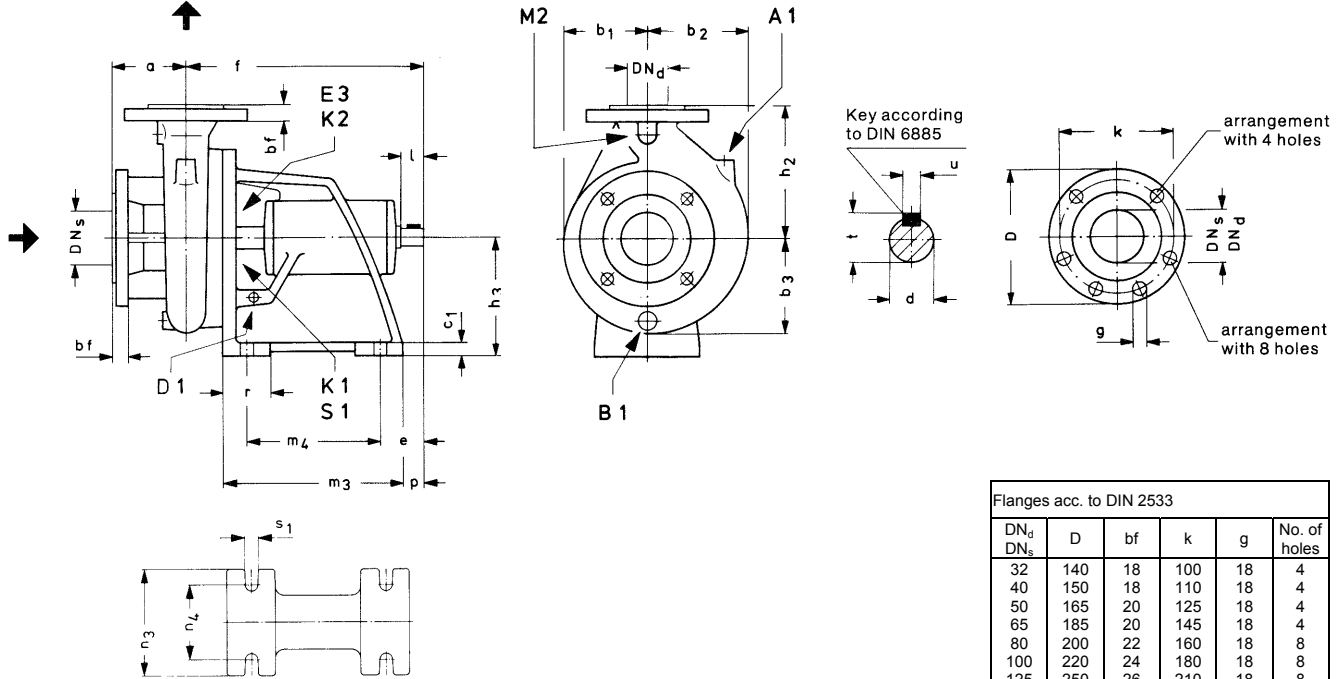
Casing cover design
with sizes
2/40-250 and 2/50-250

Connections

A1	Filling
B1	Draining
D1	Leakage drain
E3	Venting
K1	Cooling inlet
K2	Cooling outlet
M2	Pressure gauge
S1	External sealing

Denomination	DIN-No.	Part No.
Volute casing, with feet (with bearing pedestal size 530)		102.1
Volute casing without feet (with bearing pedestal sizes 360 and 470)		102.2
Stage casing		108.1
Casing cover		161.1
Casing cover		161.2
Casing cover		161.3
Casing cover		161.4
Casing cover		161.5
Casing cover		161.7
Casing cover		161.16
Cooling chamber cover		165.1
Diffuser		171.1
Shaft		211.1
Impeller		230.1
Impeller 1st stage		230.2
Impeller 2nd stage		230.3
Impeller 1st stage		230.8
Impeller 2nd stage		230.9
Grooved ball bearing	625	321.1
Grooved ball bearing	625	321.2
Grooved ball bearing	625	321.3
Grooved ball bearing	625	321.4
Bearing pedestal		332.1
Bearing cover		360.1
Bearing cover		360.2
Bearing cover		360.4
Bearing cover		360.5
Gasket		400.2
Gasket		400.3
Gasket		400.5
Joint washer	7603	411.1
Joint washer	7603	411.2
Joint washer	7603	411.4
Joint washer	7603	411.5
O-Ring		412.3
O-Ring		412.8
Gland		452.1
Seal ring		458.1
Packing ring		461.1
Mechanical seal, rotating part		470.1
Stationary seal ring		475.1
Splash ring		507.1
Intermediate ring		509.1
Threaded ring		514.1
Nilos ring		516.1
Nilos ring		516.2
Distance sleeve		525.1
Supporting disk	988	551.3
Ball bearing tension disk		557.1
Blind rivet		567.1
Venting screw	910	672.1
Long bow	2950	730.1
Angle	2950	730.2
Angle	2950	730.3
Stud	939	902.4
Threaded plug	908	903.1
Threaded plug	908	903.2
Threaded plug	908	903.4
Threaded pin	551	904.1
Threaded pin	916	904.5
Socket head cap screw	912	914.1
Socket head cap screw	912	914.3
Socket head cap screw	912	914.4
Socket head cap screw	912	914.8
Socket head cap screw	912	914.9
Hexagonal nut	936	920.1
Hexagonal nut	555	920.2
Circlip	471	932.1
Circlip (Seeger-L)		932.2
Circlip	472	932.10
Spring washer	127	933.1
Spring disk	137	934.1
key	6885	940.1
key	6885	940.2
Rating plate		971.1

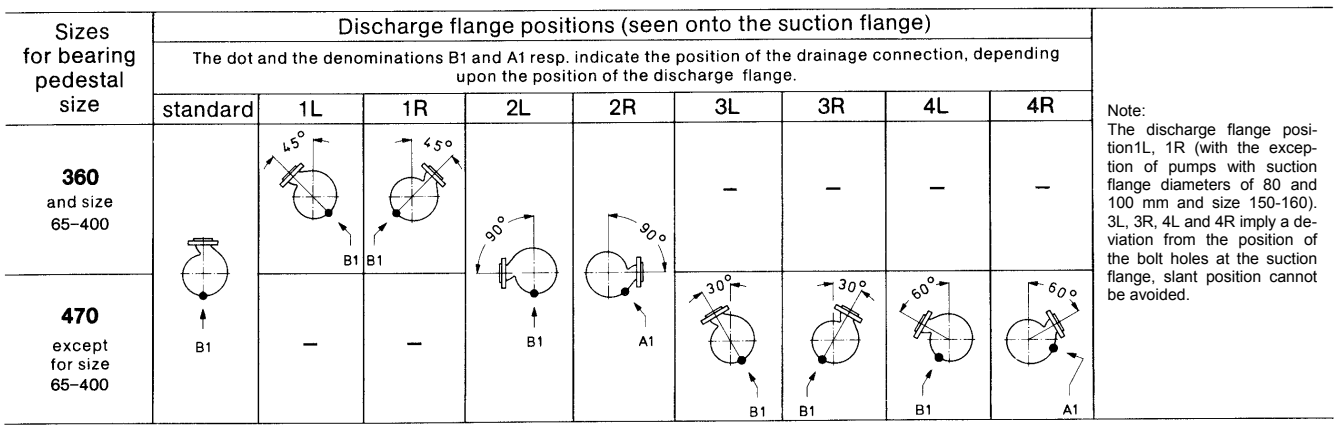
Pump dimensions
 Sizes for bearing pedestal size 360 and 470



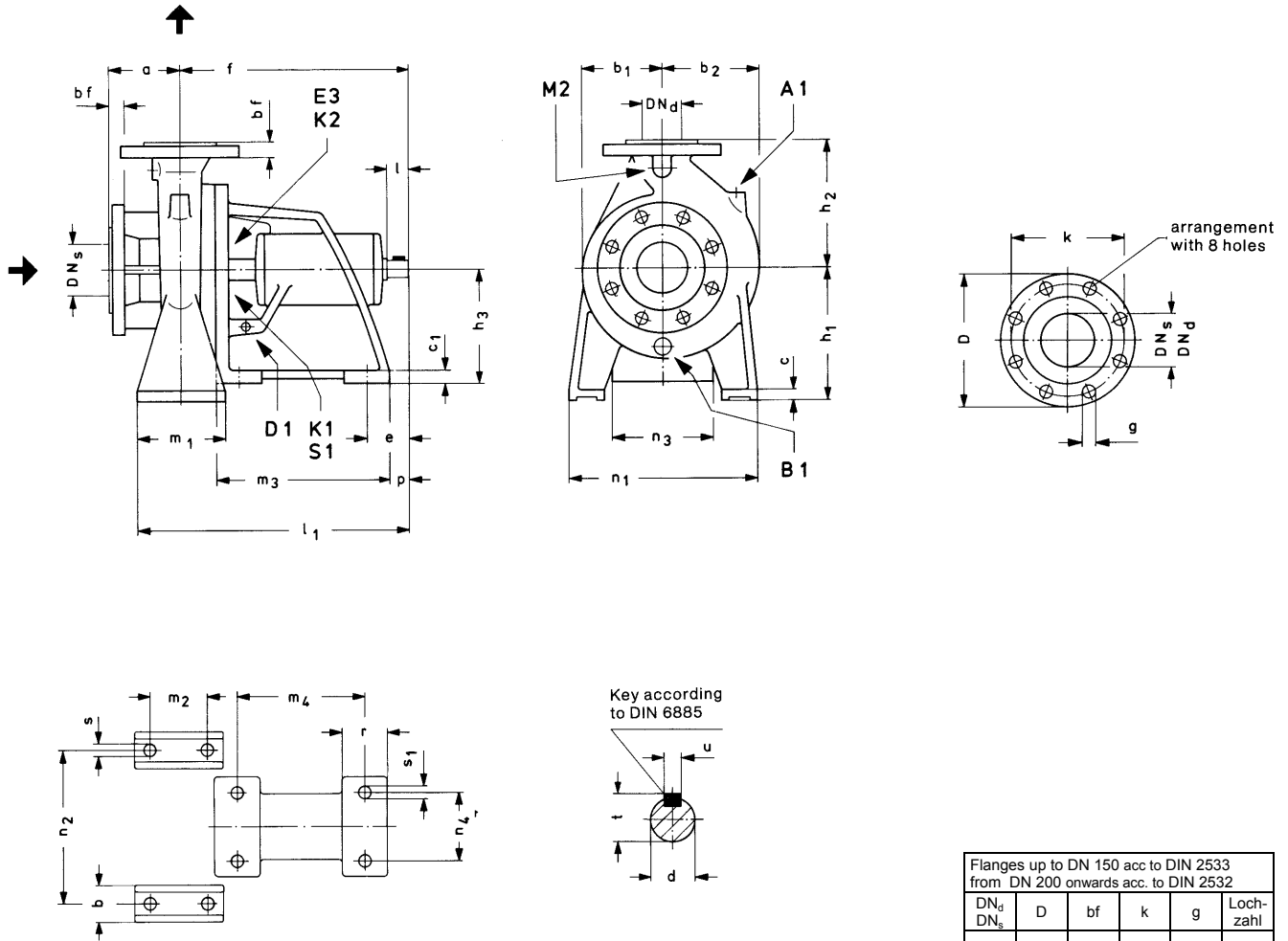
DN _d DN _s	D	bf	k	g	No. of holes
32	140	18	100	18	4
40	150	18	110	18	4
50	165	20	125	18	4
65	185	20	145	18	4
80	200	22	160	18	8
100	220	24	180	18	8
125	250	26	210	18	8
150	285	26	240	22	8

Dimensions in mm.
 Alteration of dimensions reserved.
 Sense of rotation: clockwise seen from drive side

Model size	Suction flange DN _s	Delivery flange DN _d	Pump dimensions																Foot measures						Shaft end acc. to DIN 748				Connections							
			a	f	b ₁	b ₂	b ₃	h ₂	h ₃	c ₁	e	m ₃	m ₄	n ₃	n ₄	p	r	s ₁	d	l	t	u	Filling A ₁	Drainage B ₁	Leakage drain D ₁	Venting E ₃	Cooling Inlet Outlet		Pressure gauge M ₂	External sealing S ₁						
32-160	50	32	80	360	123	123	123	160	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
32-200	50	32	80	360	124	130	133	180	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
2/32-200	50	32	80	360	124	130	133	180	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	-	-	-	-	-	-				
40-160	65	40	80	360	123	123	137	160	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
40-200	65	40	100	360	125	135	137	180	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
40-250	65	40	100	360	150	156	152	225	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
2/40-250	65	40	100	360	150	156	152	225	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	-	-	-	-	-	-				
50-160	65	50	100	360	123	130	123	180	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
50-200	65	50	100	360	133	145	140	200	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
50-250	65	50	100	360	156	169	163	225	160	4	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
2/50-250	65	50	100	360	156	169	163	225	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	-	-	-	-	-	-				
65-160	80	65	100	360	133	162	147	200	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
65-200	80	65	100	360	148	170	160	225	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
65-250	80	65	100	470	164	184	174	250	200	20	110	300	210	200	160	65	70	M16	32	80	35	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
65-315	80	65	125	470	202	219	213	280	200	20	110	300	210	200	160	65	70	M16	32	80	35	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
65-400	80	65	125	470	239	255	248	355	200	20	110	300	210	200	160	65	70	M16	32	80	35	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
80-160	100	80	125	360	136	170	154	225	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4				
80-200	100	80	125	470	163	188	172	250	200	20	110	300	210	200	160	65	70	M16	32	80	35	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
60-250	100	80	125	470	182	208	195	280	200	20	110	300	210	200	160	65	70	M16	32	80	35	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
80-315	100	80	125	470	210	231	224	315	200	20	110	300	210	200	160	65	70	M 6	32	80	35	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
100-200	125	100	125	170	165	203	184	280	200	20	110	300	210	200	160	65	70	M16	32	80	35	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
100-250	125	100	140	470	189	224	208	280	200	20	110	300	210	200	160	65	70	M16	32	80	36	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
100-315	125	100	140	470	220	250	235	315	200	20	110	300	210	200	160	65	70	M16	32	80	35	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
125-250	150	125	140	470	212	255	234	355	200	20	110	300	210	200	160	65	70	M16	32	80	35	10	G 3/8	G 3/8	G 3/8	G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 3/8	G 1/4				
150-160	150	150	130	405	200	248	226	335	160	14	80	230	160	160	125	45	60	M12	24	50	27	8	G 1/2	G 1/2	G 3/8	G 1/4	-	-	-	-	G 1/2	-				



Pump dimensions
Model sizes for bearing pedestal size 530



Sense of rotation: clockwise seen from drive side

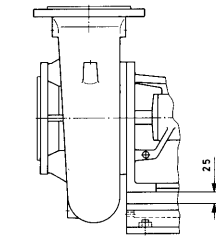
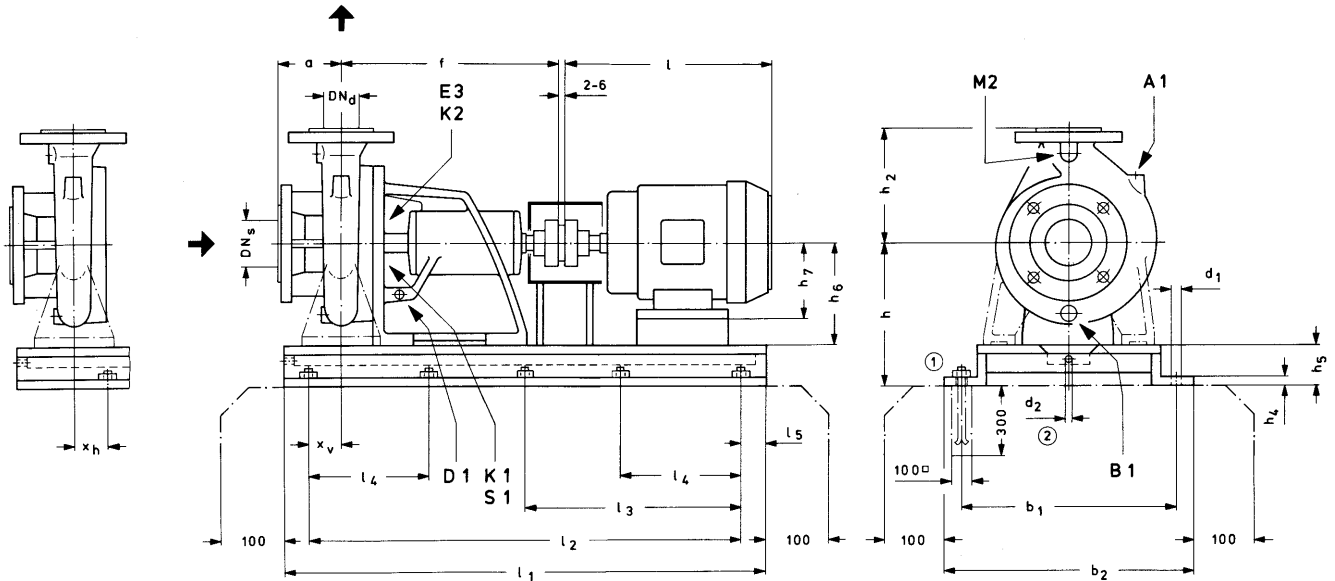
Dimensions in mm.
Alteration of dimensions reserved.

Flanges up to DN 150 acc to DIN 2533 from DN 200 onwards acc. to DIN 2532					
DN _d DN _s	D	bf	k	g	Loch- zahl
80	200	22	160	18	5
100	220	24	180	18	8
125	250	26	210	18	8
150	285	26	240	22	8
200	340	26	295	22	8

Model size	Suction flange DN _s	Delivery flange DN _d	Pump dimensions								Foot measures															
			a	f	b ₁	b ₂	h ₁	h ₂	h ₃	b	c	c ₁	e	l ₁	m ₁	m ₂	m ₃	m ₄	n ₁	n ₂	n ₃	n ₄	p	r	for screws s s ₁	
80-400	100	80	125	530	246	265	280	355	250	80	25	22	110	610	160	120	325	250	435	355	250	200	85	90	M16	M16
100-400	125	100	140	530	256	272	280	355	250	100	27	22	110	630	200	150	325	250	500	400	250	200	85	90	M20	M16
125-315	150	125	140	530	226	252	280	355	250	100	27	22	110	630	200	150	325	250	500	400	250	200	85	90	M20	M16
125-400	150	125	140	530	264	283	315	400	250	100	27	22	110	630	200	150	325	250	500	400	250	200	85	90	M20	M16
150-250	200	150	160	530	231	283	280	375	250	100	27	22	110	630	200	150	325	250	500	400	250	200	85	90	M20	M16
150-315	200	150	160	530	239	271	280	400	250	100	27	22	110	630	200	150	325	250	550	450	250	200	85	90	M20	M16
150-400	200	150	160	530	277	305	315	450	250	100	27	22	110	630	200	150	325	250	550	450	250	200	85	90	M20	M16
200-250	200	200	180	530	262	330	355	425	250	100	27	22	110	630	200	150	325	250	550	450	250	200	85	90	M20	M16

Model size	Shaft end				Connections								
	acc. to DIN 748				Filling	Drainage	Leakage drain	Venting	Cooling		Pressure gauge	External sealing	
	d	l	t	u	A1	B1	D1	E3	Inlet K1	Outlet K2	M2	S1	
80-400	42	110	45	12	G3/8	G3/8	G3/8	G1/2	G1/4	G1/4	G3/8	G3/8	
100-400	42	110	45	12	G3/8	G3/8	G3/8	G1/2	G1/4	G1/4	G3/8	G3/8	
125-315	42	110	45	12	G3/8	G3/8	G3/8	G1/2	G1/4	G1/4	G3/8	G3/8	
125-400	42	110	45	12	G3/8	G3/8	G3/8	G1/2	G1/4	G1/4	G3/8	G3/8	
150-250	42	110	45	12	G3/8	G3/8	G3/8	G1/2	G1/4	G1/4	G3/8	G3/8	
150-315	42	110	45	12	G3/8	G3/8	G3/8	G1/2	G1/4	G1/4	G3/8	G3/8	
150-400	42	110	45	12	G3/8	G3/8	G3/8	G1/2	G1/4	G1/4	G3/8	G3/8	
200-250	42	110	45	12	G3/8	G3/8	G3/8	G1/2	G1/4	G1/4	G3/8	G3/8	

NS with shaft sealing according to DIN 740 without spacer piece



only for size 150-160

Connections	
A1	Filling
B1	Drainage
D1	Leakage drain
E3	Venting
K1	Cooling inlet
K2	Cooling outlet
M2	Pressure gauge
S1	External sealing

For sizes of connections see pump dimensions

- ① Foundation screw M 12 x 160 DIN 529 for base plates up to size 4 as well as for 7.1 and 8.1
Foundation screw M 16 x 160 DIN 529 for base plate sizes 5 and 6
Foundation screw M 16 x 250 DIN 529 for base plate sizes equal to or larger than 9.1
- ② Leakage drain connection at base plate upon request only

Dimensions in mm.
Alteration of dimensions reserved.

Size	Motor			Pump										Base plate										Shaft coupling design and size Poly-standard																																									
	kW	Factor =h ₇	I ca.	Suction flange acc. to DIN 2533				Delivery flange acc. to DIN 2533				a	f	h ₂	Size		b ₁	b ₂	d ₁	d ₂	h ₄	h ₅	l ₁		l ₂	l ₃	l ₄	l ₅	x _v	x _h	h	h ₆																																	
				DN _s	D	k	g	Number of holes	DN _d	D	k				g	Number of holes																	Cast iron	Steel																															
32-160	0,37	71	265	50	165	125	18	4	32	140	100	18	4	80	360	160	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24																															
	0,55/0,75	80	290																																50	165	125	18	4	32	140	100	18	4	80	360	180	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24
	1,1	90 S	310																																																														
1,5	90 L	335	50	165	125	18	4	32	140	100	18	4	80	360	180	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24																																
40-160	0,37	71																																265	65	185	145	18	4	40	150	110	18	4	80	360	160	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24
	0,55/0,75	80	290	65	185	145	18	4	40	150	110	18	4	80	360	160	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24																															
	1,1	90 S	310																																																														
1,5	90 L	335	65	185	145	18	4	40	150	110	18	4	80	360	160	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24																																
40-200	11	90 S																																310	65	185	145	18	4	40	150	110	18	4	100	360	180	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24
	15	90 L	335	65	185	145	18	4	40	150	110	18	4	100	360	180	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24																															
	22	100 L	385																																																														
40-250	1,5	90 L	335	65	185	145	18	4	40	150	110	18	4	100	360	225	4	-	300	340	15	G3/8	30	45	575	355	-	-	122	-	185	205	160	A24																															
	2,2/3,0	100 L	385																																65	185	145	18	4	40	150	110	18	4	100	360	225	4	-	300	340	15	G3/8	30	45	575	355	-	-	122	-	185	205	160	A28
	4,0	112 M	415																																																														
5,5	132 S	475	65	185	145	18	4	40	150	110	18	4	100	360	225	4	-	300	340	15	G3/8	30	45	575	355	-	-	122	-	185	205	160	A28																																
50-160	0,55/0,75	80																																290	65	185	145	18	4	50	165	125	18	4	100	360	180	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24
	1,1	90 S	310	65	185	145	18	4	50	165	125	18	4	100	360	180	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24																															
	1,5	90 L	335																																																														
50-200	1,1	90 S	310	65	185	145	18	4	50	165	125	18	4	100	360	200	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24																															
	1,5	90 L	335																																65	185	145	18	4	50	165	125	18	4	100	360	200	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24
	2,2/3,0	100 L	385																																																														
50-250	1,5	90 L	335	65	185	145	18	4	50	165	125	18	4	100	360	225	4	-	300	340	15	G3/8	30	45	575	355	-	-	122	-	185	205	160	A24																															
	2,2/3,0	100 L	385																																65	185	145	18	4	50	165	125	18	4	100	360	225	4	-	300	340	15	G3/8	30	45	575	355	-	-	122	-	185	205	160	A28
	4,0	112 M	415																																																														
5,5	132 S	475	65	185	145	18	4	50	165	125	18	4	100	360	225	4	-	300	340	15	G3/8	30	45	575	355	-	-	122	-	185	205	160	A28																																
65-160	0,75	80																																290	80	200	160	18	8	65	185	145	18	4	100	360	200	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24
	1,1	90 S	310	80	200	160	18	8	65	185	145	18	4	100	360	200	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	205	160	A24																															
	1,5	90 L	335																																																														

Dimensions in mm
without obligation

Model size	Motor			Pump										Base plate														Shaft coupling							
	kW	Size		Suction flange up to DN 150 acc. to DIN 2533, from DN 200 onwards acc. to DIN 2532					Delivery flange to DN 150 acc. to DIN 2533, from DN 200 onwards acc. to DIN 2532					Size																					
		No. =h7	I app.	DN _s	D	k	g	Number of holes	DN _d	D	k	g	Number of holes	a	f	h ₂	cast iron	Steel	b ₁	b ₂	d ₁	d ₂	h ₄	h ₅	l ₁	l ₂	l ₃		l ₄	l ₅	x _v	x _n	h	h ₅	Poly-standard
65-200	1,5	90 L	335	80	200	160	18	8	65	185	145	18	4	100	360	225	4	-	300	340	15	G3/8	30	45	645	400	-	-	122	-	185	205	160	A24 A20 A28	
	2,2/30 4,0	100 L 112 M	385 415																																Design and size
65-250	4,0	112 M	415	80	200	160	18	8	65	185	145	18	4	100	470	250	5	-	335	379	19	G3/8	30	50	725	500	-	-	112	-	195	205	200	A38	
	5,5 7,5	132 S 132 M	475 515																																Design and size
65-315	5,5	132 S	475	80	200	160	18	8	65	185	145	18	4	125	470	200	6	-	375	419	19	G3/8	30	50	815	560	-	-	127	-	205	250	200	A30 A38 A42 A42	
	7,5 11,0 15,0	132 M 160 M 160 L	515 625 670																																Design and size
65-400	11,0	160 M	625	80	200	160	18	8	65	185	145	18	4	125	470	355	-	8.1	400	430	19	G1/2	7	72	900	630	-	-	135	-	205	272	200	A42 A42 A40 A48	
	15,0 18,5 22,0	160 L 180 M 180 L	670 700 740																																Design and size
80-160	1,1	90 S	310	100	220	180	18	8	80	200	160	18	8	125	360	225	3	-	300	340	15	G3/8	30	45	575	355	-	-	110	-	170	185	160	A24 A24 A28	
	1,5 2,2/30	90 L 100 L	335 385																																Design and size
80-200	3,0	100 L	385	100	220	180	18	8	80	200	160	18	8	125	470	250	5	-	335	379	19	G3/8	30	50	725	500	-	-	112	-	175	195	200	A38	
	4,0 5,5	112 M 132 S	415 475																																Design and size
80-250	5,5	132 S	475	100	220	180	18	8	80	200	160	18	8	128	470	280	6	-	375	419	19	G3/8	30	50	815	560	-	-	127	-	205	250	200	A38 A38 A42	
	7,5 11,0	132 M 168 M	515 625																																Design and size
80-315	7,5	132 M	515	100	220	180	18	8	80	200	160	18	8	125	470	315	6	-	375	419	19	G3/8	30	50	815	560	-	-	127	-	205	250	200	A38 A42 A42	
	11,0 15,0	160 M 160 L	625 670																																Design and size
80-400	11,0	160 M	625	100	220	180	18	8	80	200	160	18	8	125	530	355	-	11.4	595	635	19	G1/2	7	90	1250	1190	595	-	-	110	-	370	280	A42 A42 A48 A48 A55	
	15,0 18,5 22,0 30,0	160 L 180 M 180 M 200 L	670 700 740 790																																Design and size
100-200	2,2/30	100 L	385	125	250	210	18	8	100	220	180	18	8	125	470	280	5	-	335	379	19	G3/8	30	50	725	500	-	-	112	-	175	195	200	A38	
	4,0 5,5 7,5	112 M 132 S 132 M	415 475 515																																Design and size
100-250	7,5	132 M	515	125	250	210	18	8	100	220	180	18	8	140	470	280	6	-	375	419	19	G3/8	30	50	815	560	-	-	127	-	205	250	200	A38 A42 A42	
	11,0 15,0	160 M 160 L	625 670																																Design and size
100-315	15,0	160 L	670	125	250	210	18	8	100	220	180	18	8	140	470	315	-	8.1	400	430	19	G1/2	7	72	900	630	-	-	135	-	220	322	250	A42 A48 A48 A55	
	18,5 22,0 30,0	180 M 180 M 200 L	700 740 790																																Design and size
100-400	15,0	160 L	670	125	250	210	18	8	100	220	180	18	8	140	530	355	-	11.4	595	635	19	G1/2	7	90	1250	1190	595	-	-	110	-	370	280	A42 A48 A48 A55 A60	
	18,5 22,0 30,0 37,0	180 M 180 M 200 L 225 S	700 740 790 830																																Design and size
125-250	7,5	132 M	515	150	285	240	22	8	125	250	210	18	8	140	470	355	6	-	375	419	19	G3/8	30	50	815	560	-	-	27	35	205	250	200	A30 A42 A42 A48	
	11,0 15,0 18,5	160 M 160 L 100 M	626 670 700																																Design and size
125-315	22,0	180 L	740	150	205	240	22	8	125	250	210	10	8	140	530	355	-	12.1	575	615	19	G3/4	8	115	1408	1340	-	440	30	160	-	395	200	A48 A55 A60	
	30,0 37,0	200 L 225 S	790 830																																Design and size
125-400	30,0	200 L	790	150	285	240	22	8	125	250	210	18	8	140	530	400	-	12.1	575	615	19	G3/4	8	115	1400	1340	-	440	30	220	160	-	430	315	A55 A60 A60 A65
	37,0 45,0 55,0	225 S 225 M 250 M	830 875 960																																
150-160	2,2/30	100 L	385	150	285	240	22	8	150	285	240	22	8	130	405	335	5	-	335	379	19	G3/8	30	50	725	500	-	-	112	-	220	235	185	A28 A28 A38	
	4,0 5,5	112 M 132 S	415 475																																Design and size
150-250	7,5	132 M	515	200	340	295	22	8	150	285	240	22	8	160	530	375	-	11.4	595	635	19	G1/2	7	90	1250	1190	595	-	-	370	280	A42 A42 A42 A48 A48 A55			
	11,0 15,0 18,5 22,0 30,0	160 M 160 L 180 M 180 L 200 L	625 670 700 740 790																														Design and size		
150-315	22,0	80 L	740	200	340	295	22	8	150	285	240	22	8	160	530	408	-	11.4	575	615	19	G1/2	7	90	1250	1190	595	-	-	110	-	370	200	A48 A55 A60 A60 A65	
	30,0 37,0 45,0 55,0	200 L 225 S 225 M 250 M	790 830 875 960																																Design and size
150-400	45,0	225 M	875	200	340	295	22	8	150	285	240	22	8	160	530	450	-	12.3	645	685	19	G3/4	8	115	1400	1340	-	440	30	85	140	-	430	315	A60 A65 A75 A75
	55,0 75,0 90,0	250 M 200 S 280 M	960 1020 1064																																
200-250	11,0	160 M	625	200	340	295	22	8	200	340	295	22	8	180	530	425	-	14.4	595	635	19	G1/2	7	90	1250	1190	565	-	-	445	355	A42 A42 A48 A48 A55 A60 A60 A65			
	15,0 18,5 22,0 30,0 37,0 45,0 55,0	160 L 180 M 180 M 200 L 225 S 225 M 250 M	670 700 740 790 830 875 968																														Design and size		

Dimensions in mm.
Alteration of dimensions reserved.

Size	Motor			Pump											Bass plate																Shaft coupling						
	kW	Size	I ca.	Suction flange acc. to DIN 2533				Delivery flange acc. to DIN 2533				a	f	h ₂	Size																	Design and size					
				Factor =h ₇	DN _s	D	k	g	Number of holes	DN _d	D				k	g	Number of holes	Cast iron	steel	b ₁	b ₂	d ₁	d ₂	h ₄	h ₅	l ₁	l ₂	l ₃	l ₄	l ₅			x _v	x _s	h	h ₆	Poly-standard
50-200	4,0	132 M	415	65	185	145	18	4	50	165	125	18	4	100	360	200	4	-	300	340	15	G3/8	30	45	645	400	-	-	122	185	205	210	160	A 28			
	5,5/7,5	132 S	475														5	-	335	379	19	G3/8	30	50	725	500	-	-	112	175	210	A 38					
	11,0/15,0	160 M	625														6	-	400	430	19	G3/8	30	50	815	560	-	-	127	205	210	A 42					
50-250	18,5	160 L	670	65	185	145	18	4	50	165	125	18	4	100	360	225	6	-	375	419	15	G3/8	30	50	815	560	-	-	127	205	210	160	A 42				
	22,0	180 M	700														-	-	400	430	19	G1/2	7	87	1000	710	-	-	145	215	267		180	A 48			
	30,0/37,0	200 L	790														-	-	470	510	19	G1/2	7	87	1120	900	450	-	-	110	180		287	200	A 55		
45,0	225 M	875	-	-	470	510	19	G1/2	7	87	1120	900	450	-	-	110	180	312	225	A 55																	
65-160	4,0	112 M	415	80	200	160	18	8	65	185	145	18	4	100	360	225	4	-	300	340	15	G3/8	30	45	645	400	-	-	122	185	205	210	160	A 28			
	5,5/7,5	132 S	475														5	-	335	379	19	G3/8	30	50	725	500	-	-	112	175	210	A 38					
	11,0/15,0	160 M	625														6	-	400	430	19	G3/8	30	50	815	560	-	-	127	205	210	A 42					
65-200	11,0/15,0	160 M	625	80	200	160	18	8	65	185	145	18	4	100	360	225	6	-	375	419	15	G3/8	30	50	815	560	-	-	127	205	210	160	A 42				
	18,5	160 L	670														-	-	400	430	19	G1/2	7	87	1000	710	-	-	135	205	232		160	A 42			
	22,0	180 M	700														-	-	445	485	19	G1/2	7	87	1120	900	450	-	-	145	215		267	180	A 48		
65-250	22,0	180 M	700	80	200	160	18	8	65	185	145	18	4	100	470	250	-	-	445	485	15	G1/2	7	87	1000	710	-	-	145	215	287	200	A 48				
	30,0/37,0	200 L	790														5	-	335	379	19	G3/8	30	50	725	500	-	-	112	175	210	160		A 38			
	45,0	225 M	875														6	-	400	430	19	G3/8	30	50	815	560	-	-	127	205	210	160		A 42			
80-160	5,5/7,5	132 S	475	100	220	180	18	8	80	200	160	18	8	125	360	225	-	-	335	379	15	G3/8	30	50	725	500	-	-	112	175	210	160	A 38				
	11,0/15,0	160 M	625														6	-	400	430	19	G3/8	30	50	815	560	-	-	127	205	210		160	A 42			
	18,5	160 L	670														-	-	445	485	19	G1/2	7	87	1000	710	-	-	145	215	267		180	A 48			
80-200	15,0	160 M	625	100	220	180	18	8	80	200	160	18	8	125	470	250	-	-	400	430	15	G1/2	7	87	900	630	-	-	135	205	272	200	A 45				
	18,5	160 L	670														5	-	335	379	19	G3/8	30	50	725	500	-	-	112	175	210		160	A 38			
	22,0	180 M	700														6	-	400	430	19	G3/8	30	50	815	560	-	-	127	205	210		160	A 42			
80-250	30,0/37,0	200 L	790	-	-	445	485	19	G1/2	7	87	1000	710	-	-	145	215	267	180	A 48																	
	45,0	225 M	875	8.1	-	400	430	19	G1/2	7	87	1120	900	450	-	-	110	180	287	200	A 55																
	55,0	250 M	960	10.1	-	470	510	19	G1/2	7	87	1250	1190	595	-	-	110	180	287	200	A 55																
100-200	18,5	160 L	670	125	250	210	18	8	100	220	180	18	8	125	470	280	-	-	400	430	15	G1/2	7	87	900	630	-	-	135	205	272	200	A 42				
	22,0	180 M	700														8.1	-	400	430	19	G1/2	7	87	1000	710	-	-	145	215	267		180	A 48			
	30,0/37,0	200 L	790														10.1	-	470	510	19	G1/2	7	87	1120	900	450	-	-	110	180		287	200	A 55		
100-250	45,0	225 M	875	-	-	445	485	19	G1/2	7	87	1250	1190	595	-	-	110	180	287	200	A 55																
	55,0	250 M	960	11.1	-	520	560	19	G3/4	8	115	1400	1340	-	-	440	30	30	-	315	225	A 55															
	75,0	280 M	1020	12.3	-	645	685	19	G3/4	8	115	1400	1340	-	-	440	30	30	-	315	225	A 55															
125-250	90,0	280 M	1064	-	-	445	485	19	G1/2	7	87	1000	710	-	-	145	215	267	180	A 48																	
	110,0	315 S	1130	11.1	-	520	560	19	G1/2	7	87	1120	900	450	-	-	110	180	287	200	A 55																
	37,0	200 L	790	12.3	-	645	685	19	G3/4	8	115	1400	1340	-	-	440	30	30	-	315	225	A 55															
125-250	45,0	225 M	875	10.1	-	470	510	19	G1/2	7	87	1120	900	450	-	-	110	180	287	200	A 55																
	55,0	250 M	960	11.1	-	520	560	19	G1/2	7	87	1250	1190	595	-	-	110	180	287	200	A 55																
	75,0	280 S	1020	12.1	-	575	615	19	G3/4	8	115	1400	1340	-	-	440	30	30	-	315	225	A 55															
				12.3	-	645	685	19	G3/4	8	115	1400	1340	-	-	440	30	30	-	315	225	A 55															

Subject to technical alterations.



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