RPS Nowa –

Standardised Pumps

DIN 24255

"Engineered Pumping Solutions Focused on Markets where Application Knowledge, Service and Expertise Add Value"

Dr. Pumps has been a leading manufacturer of centrifugal pumps and associated systems, a global principal in design, supply and servicing of pumps, pump packages and equipment for a wide range of applications and industry sectors.

RPS Nowa End Suction Pumps conform to EN 733/DIN 24255 dimensional standards for use in industrial, building services and many OEM applications.

This range is designed with a back-pull out facility allowing removal of the hydraulic rotating element without disturbance of the pipework or motor.

Other mainline features include impellers cut to duty thus saving energy consumption without extending the standard delivery.

Technical Data

Capacity: 2 - 1100 m3/h

Head: 2 – 152 m

Speed: up to 3600 rpm

Temperature: up to 170 °C

Casing Pressure: 10 bar std – 16 bar optional

Shaft Seal: stuffing box or mechanical seal

Application & Design

Volute casing pumps of the **RPS Nowa** range are used in all applications involving the trouble-free handling of clean or turbid, non-aggressive liquids which do not contain any solid constituents. Hence they are suitable for drinking water supply of local communities, general water supply duty in agriculture, trade and industry irrigation and draining as well as transfer of hydrocarbons in for example tank farms. Circulating high temperature water up to 170 °C, cooling water and oil in heating and cooling circuits Thanks to exceptionally favorable NPSH, pumps of the **RPS Nowa** range are also used with advantage for handling condensate.

Horizontal, single-stage volute casing pumps with dimensions and nominal ratings to DIN 24 255 based on the process principle from DN (in mm) 32 to 250. The process principle allows dismantling of the complete bearing unit towards the drive end without the pump casing having to be disconnected from the piping. If a spacer type coupling is used it is also unnecessary to disconnect the motor.

Through use of the building block principle, the range requires only three bearing housings. Within a given shaft unit, shaft, shaft seal, impeller nut and bearings are interchangeable.

Casing pressure:

- Up to 10 bar (16 bar optional) respectively from -10 °C to 120 °C
- Up to 9 bar respectively from 120 °C to 170 °C

Branch positions:

- Suction branch axial, discharge branch radially upwards.

Flanges:

- The flanges conform to DIN 2532 PN 10 (Optional PN 16) Flanges drilled to ANSI optional.

Bearings:

- Bearing brackets 25 and 35: two deep groove ball bearings in accordance with DIN 625.
- Bearing bracket 45: one twin row angular contact ball bearing in accordance with DIN 628 at the pump end, and one deep groove ball bearing in accordance with DIN 625 at the drive end. Oil lubrication and grease lubrication of the bearings is possible.

Direction of rotation:

- Clockwise as viewed from the drive towards the pump.

Shaft sealing:

Sealing of the shaft can be effected either by a stuffing box or mechanical seal, as required. A wide variety of mechanical seals beside below described mechanical seal options are available.

- Stuffing Box **041**: Self-sealed, uncooled stuffing box. Temperature range: -10°C to 110°C
- Stuffing Box **051**: Uncooled stuffing box with sealing fluid from an outside source and flushing. Temperature range: -10 °C to 110 °C
- Stuffing Box **501**: Soft packed stuffing box with super imposed cooling compartment for the intensive cooling of the seal unit. Temperature range: up to 170 °C
- Mechanical Seal **BKW**: Unbalanced single mechanical seal of elastomeric bellows design, NBR, with self-contained circulation. Temperature range: from -10 °C to 60 °C
- Mechanical Seal **BKS**: Unbalanced single mechanical seal with elastomeric bellows, FKM, with self-contained circulation. Temperature range: from-10°C to 60°C
- Mechanical Seal **BK3**: Unbalanced single mechanical seal of elastomeric bellows design, EPDM, with self-contained circulation. Temperature range: from -10 °C to 110 °C

Materials

Bare Shaft • Direct Coupled with Electric Motor or Engine	
Design	Performance and dimensions referring to the European standard BS EN733/DIN24255
Structure	Horizontal, Axial End-Suction, Single-Stage, Single-Suction, Volute Casing, Back pull-out
DN (mm)	32 - 250
Flange	DIN2501 standard, ANSI B16.5 Class 150lb optional
Casing	Cast Iron standard, Ductile Iron, Stainless Steel 304, Stainless Steel 316
Impeller	Bronze, Cast Iron, Stainless Steel 304, Stainless Steel 316
Shaft	ASTM420standard, ASTM304, ASTM316, ASTM1045 optional
Shaft Seal	Mechanical Seal Standard, Gland Packing optional

Drive /Speed:

By means of commercially available electric motors, Type B 3. The following maximum speeds should be observed:

Pump size	Maximum speed rpm	Pump size	Maximum speed rpm	Pump size	Maximum speed rpm
32125 32160 32200		32250[1]		40315	
40125 40160 40200		40250[1]		50315	
50125 50160 50200		50250[1]		65315	
65125 65160	3600	65200[1] 65250[1]	3000	80315 80400	1800
		80160[1] 80200[1] 80250[1]		100315 100400	
		100160[1] 100200[1] 100250[1]		125250 125315 125400	
		125200[1]		150200 150250 150315 150400	
				200250	

[1]) Higher speeds on reinforced bearings possible – please consult us.

Max. shaft loading $\frac{P_N \text{ in kW}}{n \text{ in rpm}}$ for temperatures of liquid handled ≦ 20 °C

Bearing housings	Shaft material	
	1.0503[2])	1.4021[2])
25	0,011	0,012
35	0,026	0,032
45	0,052	0,072

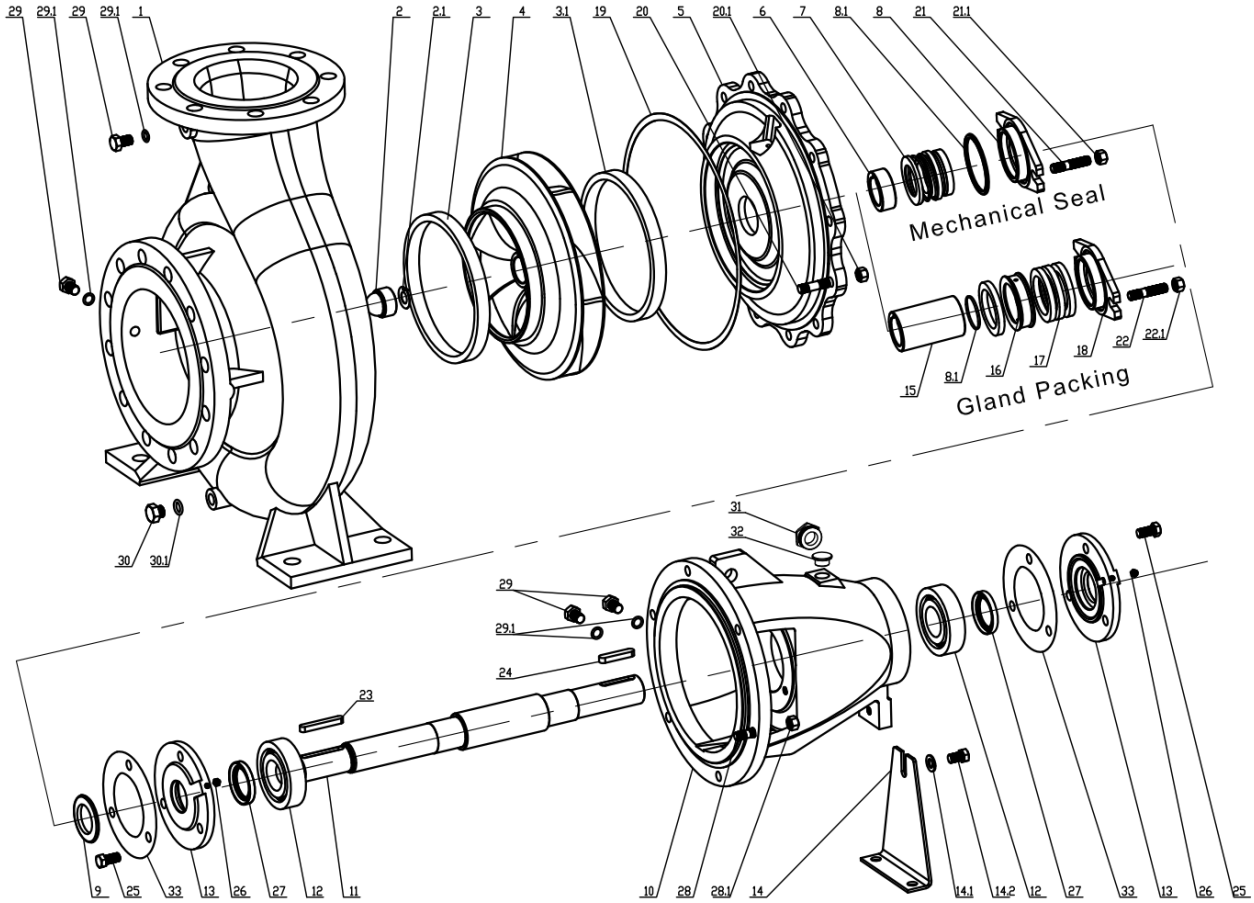
[2]) In case impellers are of G-CuSn material the values for 1.0503 shafts apply.

General notes:

The following additional designs are available:

Additional sizes to DIN 24255 and 24256 for capacities up to 2200 m3/h. We shall be pleased to supply technical information on this range on request.

Sectional Drawing



Parts List

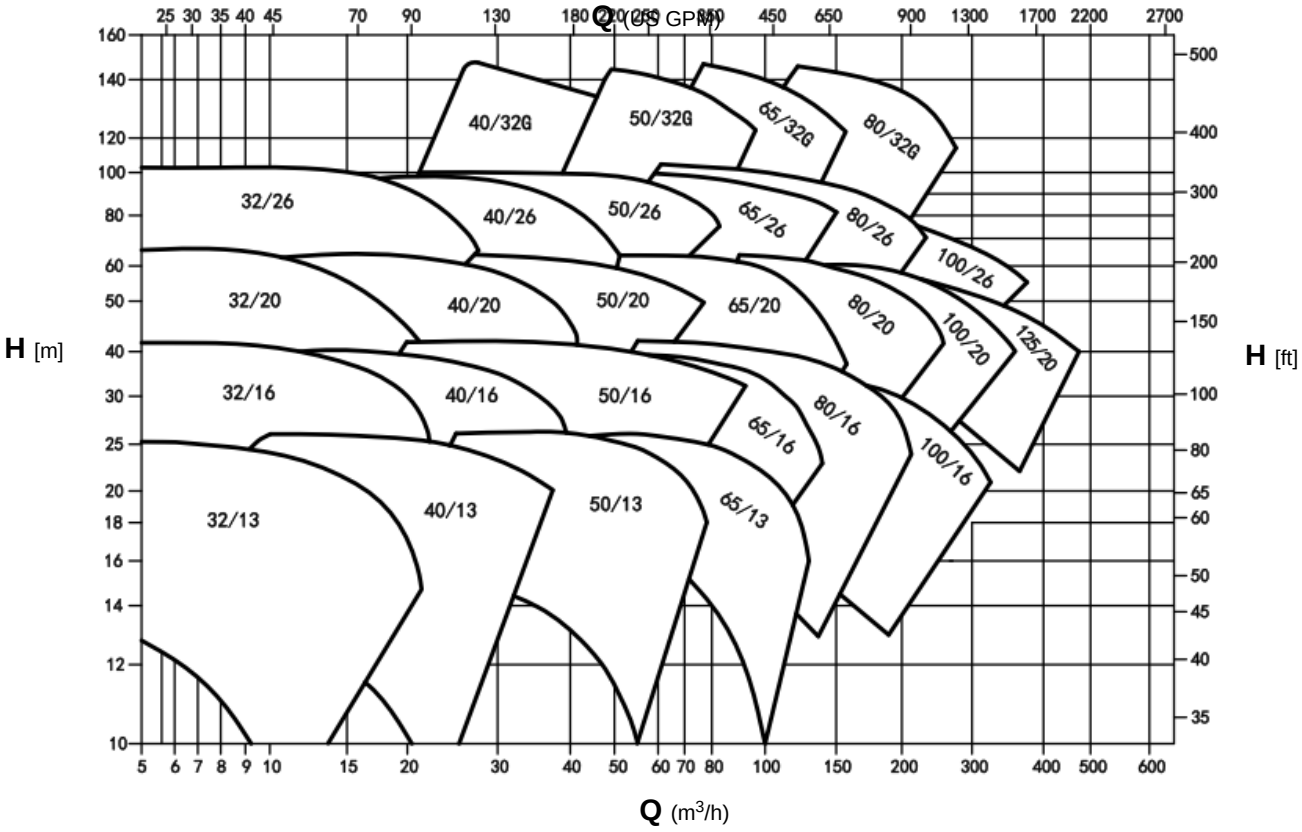
Code	Part Name	Qty
1	Casing	1
2	Impeller Nut	1
2.1	Spring Lock Washer	1
3	Front-Wear Ring	1
3.1	Back-Wear Ring	1
4	Impeller	1
5	Casing Cover	1
6	Shaft Spacer	1
7	Mechanical Seal	1
8	Seal Cover	1
8.1	O-ring	1
9	Rubber Slinger	1
10	Bearing Housing	1
11	Shaft	1
12	Bearing	2
13	Bearing Cover	2
14	Support Foot	1
14.1	Flat Washer	1
14.2	Elastic Washer	1
14.3	Screw Bolt	1
15	Packing Sleeve	1
16	Packing Seal Cage / Throat Bushing	1
17	Gland Packing	1 set

Code	Part Name	Qty
18	Gland Cover	1
19	Casing Gasket	1
20	Stud Bolt	1 set
20.1	Screw Nut	1 set
21	Stud Bolt	1 set
21.1	Flat Washer	1 set
21.2	Screw Nut	1 set
22	Stud Bolt	1 set
22.1	Flat Washer	1 set
22.2	Screw Nut	1 set
23	Key	1
24	Key	1
25	Screw Bolt	2 set
26	Oil Cup M6	2
27	Felt Ring Oil Seal	2
28	Stud Bolt	1 set
28.1	Screw Nut	1 set
29	Plug	1
29.1	Plug Gasket	1
30	Plug	1
30.1	Plug Gasket	1
31	Oil Scale	1
32	Oil Cover	1
33	Throat Bushing Gasket	2

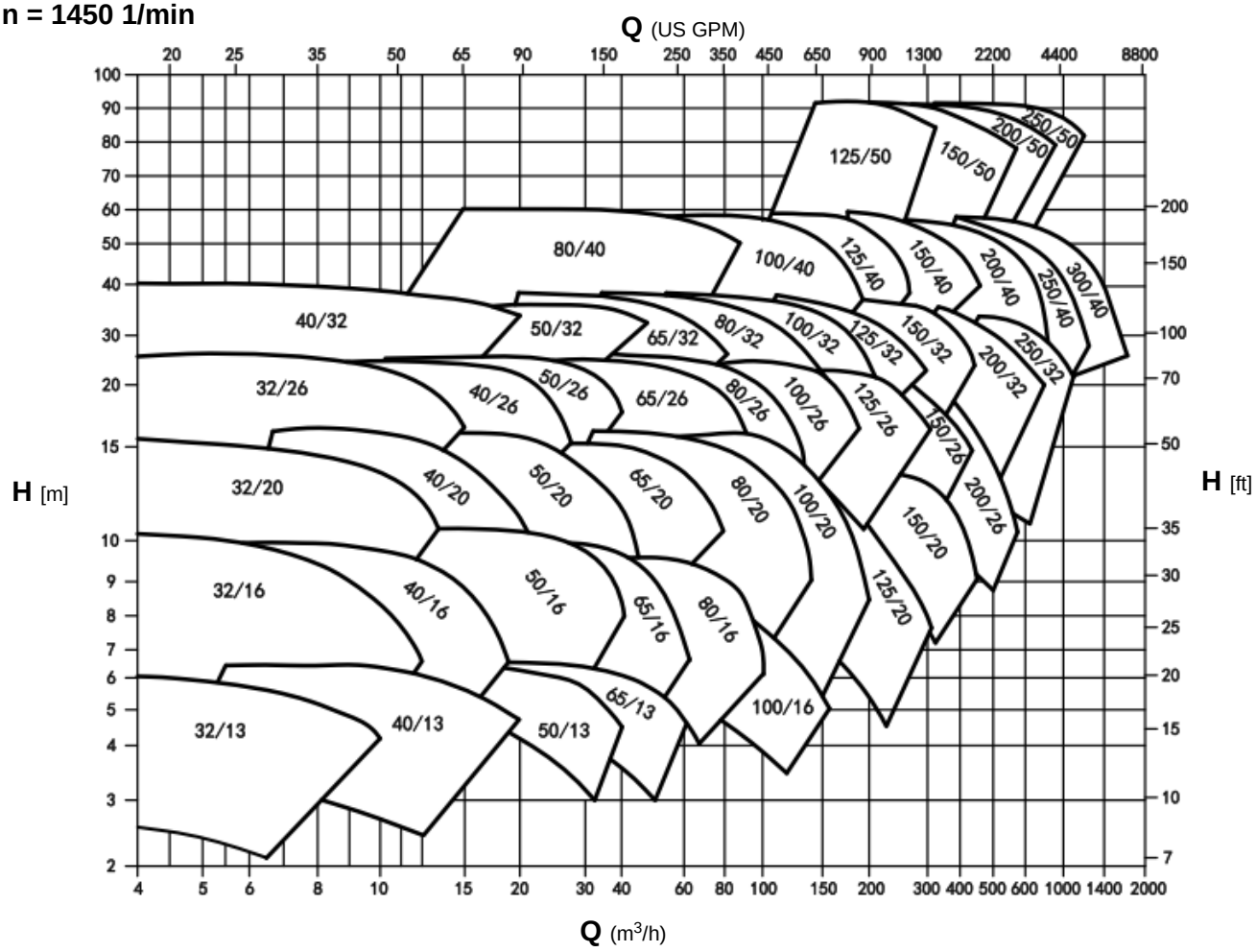
Family Curves 50Hz

Individual curves separately available. Performance curves according ISO 9906 Grade 2 for clean cold water.

n = 2900 1/min



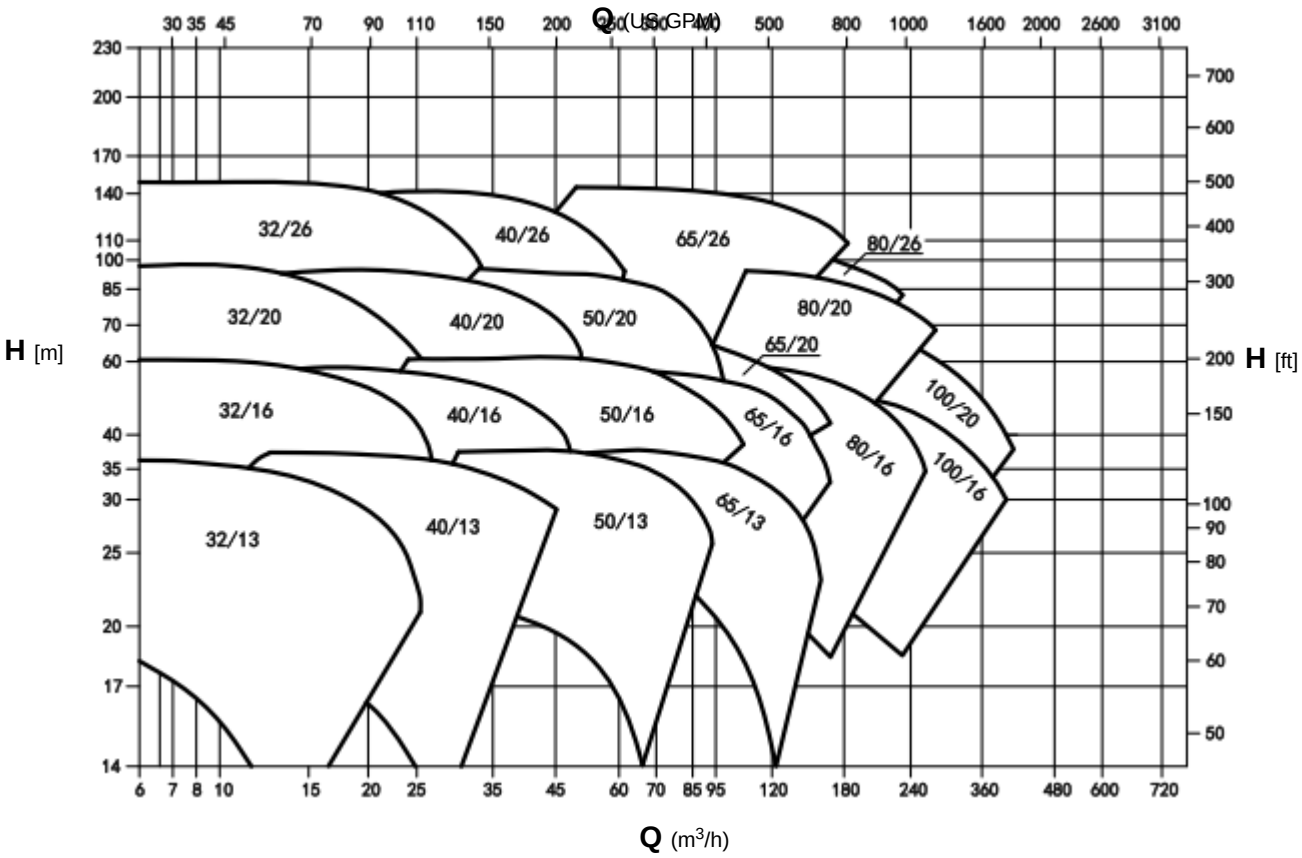
n = 1450 1/min



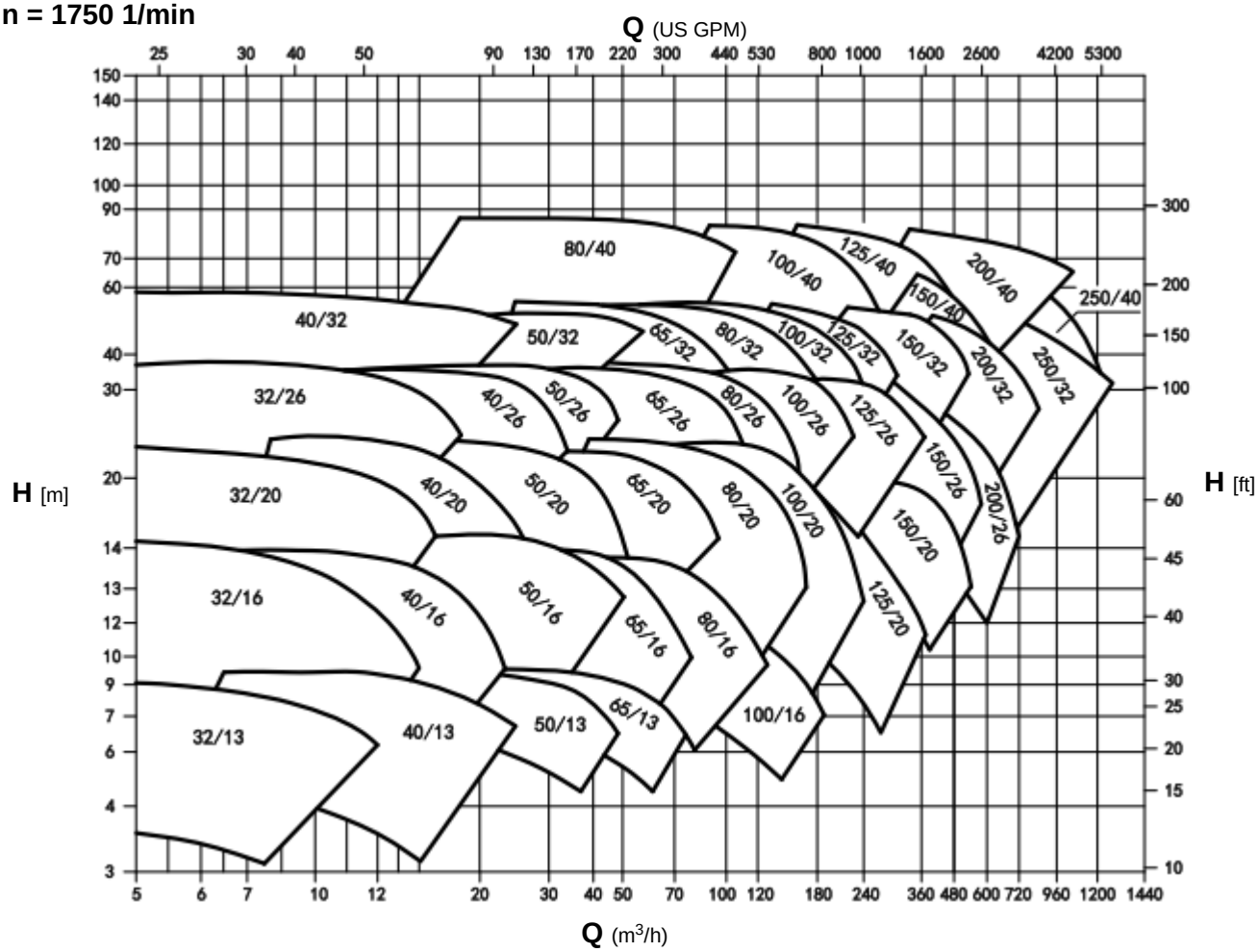
Family Curves 60Hz

Individual curves separately available. Performance curves according ISO 9906 Grade 2 for clean cold water.

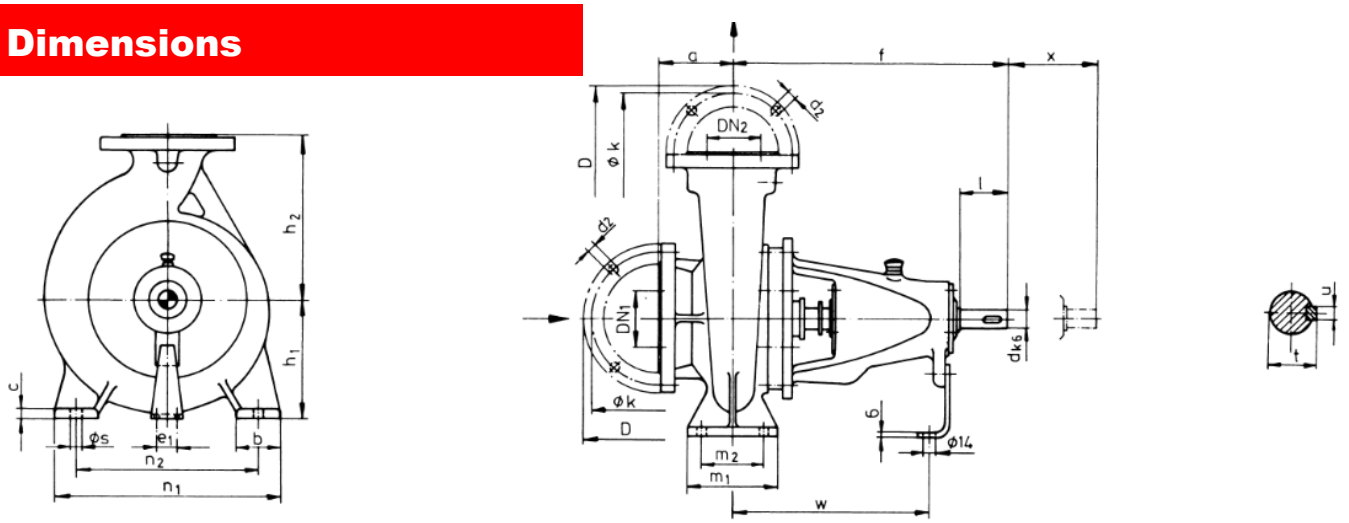
n = 3500 1/min



n = 1750 1/min



Dimensions



Dimensions in mm, permissible dimensional deviations and tolerances to VDMA 24275

Pump size	Bearing housing	DN_2	DN_1	a	f	h_1	h_2	b	c	e_1	m_1	m_2	n_1	n_2	s	w	d	l	t	u	x
32125						112	140			100			190	140							
32160		32	50	80		132	160	50			100	70	240	190							
32200						160	180			110											
32250[1)]	25			100	360	180	225	65			125	95	320	250		267	24	50	27	8	
40125				80		112	140			100			210	160							
40160		40	65			132	160	50			100	70	240	190							
40200				100		160	180			110			265	212							
40250						180	225	65			125	95	320	250							
40315[1)]	35			125	470	200	250		14				345	280	14	342	32	80	35	10	
50125						132	160			100			240	190							
50160	25	50		100	360	160	180	50			100	70	265	212		267	24	50	27	8	
50200							200														
50250						180	225						320	250							
50315[1)]	35			125	470	225	280						345	280		342	32	80	35	10	
65125						160	180						280	212							
65160	25	65	80	100	360		200	65			125	95				267	24	50	27	8	
65200						180	225						320	250							
65250	35				470	200	250	80	16		160	120	360	280	18	342	32	80	35	10	
65315						225	280						400	315							
80160[3)]	25				360	180	225	65	14		125	95	320	250	14	267	24	50	27	8	
80200[3)]							250						345	280							
80250[3)]	35	80	100	125	470	200	280	80	16		160	120	400	315	18	342	32	80	35	10	
80315[3)]						250	315														
80400[1)2)4)]	45				530	280	355		18				435	355		370	42	110	45	12	
100160[1)4)]					500	200							360	280							
100200[3)]	35	100	125		470		280									342	32	80	35	10	
100250[3)]						225			16				400	315							
100315[3)]						250	315														
100400[2)4)]	45				530	280	355	100	18		200	150	500	400	22	370	42	110	45	12	
125200[1)4)]	35			140	470	250	315	80			160	120	400	315	18	342	32	80	35	10	180
125250[3)]		125	150				355		16												
125315[2)4)]	45				530	280		100	18		200	150	500	400	22	370	42	110	45	12	140
125400[2)4)]						315	400														
150200[1)4)]	35				470								550	450		342	32	80	35	10	180
150250[1)2)4)]		150	200	160		280	375						500	400		370					
150315[2)4)]	45				530		400						550	450			42	110	45	12	140
150400[2)4)]						315	450														
200250[1)2)4)]		200			580	280	400		22				500	400		420					200

[1)] Additional sizes (not contained in DIN 24 255)
[2)] These sizes do not conform to the illustration in all details
[3)4)] For dimension "D" see flange connection dimensions

Flange mating dimensions to DIN 2501 PN 10									
DN_2 / DN_1	32	40	50	65	80	100	125	150	200
D	140	150	165	191	200	235[3)] 229[4)]	270[3)] 254[4)]	300[3)] 285[4)]	343[4)]
k	100	110	125	145	160	180	210	240	295
d_2 x number	18 x 4	18 x 4	18 x 4	18 x 4	18 x 8	18 x 8	18 x 8	22 x 8	22 x 8

The outside diameters and thickness of the flanges in some cases differ from DIN 2532 PN 10 (permissible in accordance with VDMA 24297).

Identification Sheet

Characteristic	Code	Explanation
Type	RPS Nowa	Horizontal single stage end suction volute casing centrifugal pump with dimensions according to EN733 / DIN 24255, based on the process principle (back pull out design).
Series	32 to 250	Nominal discharge diameter in millimeters (according to EN733 / DIN 24255 plus additional sizes).
Size	130 to 500	Maximum impeller diameter in millimeters (according to EN733 / DIN 24255 plus additional sizes).
Bearing Configuration	B C	Two ball bearings grease lubricated. Two ball bearings oil lubricated.
Direction of Rotation	N	Clockwise seen from the drive end of the pump.
Shaft Sealing	041 051 541 BKS/BKW/ BK3	Self flushing uncooled packing rings. External flushing uncooled packing rings. Self flushing packing rings with cooling chamber. Burgmann MG1-G60 – AQ1EGG. Burgmann MG1-G60 – Q1Q1EGG. Burgmann MG1-G60 – Q1Q1VGG. Burgmann MG1-G60 – AQ1VGG. Double Burgmann MG1-G60 – Q1Q1VGG, back to back, with external flushing.
Material	0B 0C 0K 0E 4B	Cast iron GG-25. Cast iron GG-25 with Bronze G-CuSn12Ni impeller. Cast iron GG-25 with Stainless Steel. X5CrNi189 impeller. Cast iron GG-25 with Stainless Steel. G-X6CrNi1810 impeller. Stainless Steel G-X6CrNiMo1810.
Casing Gasket	2 4	Cranflex flat gasket Teflon flat gasket

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