



LDMF 50Hz

Low NPSH Vertical Multistage Centrifugal Pump



Stock code:300145



Nanfang Pump Industry Co., Ltd.
CNP Headquarter
Address: Renhe Town, Hangzhou, China
Post code: 311107
Tel:+86-571-86397837,86397810
Fax:+86-571-86397809
E-mail:info@nanfang-pump.com
www.cnppump.com

E200601
subject to amendments



Pumping Water Pumping Honor



Company profile

Nanfang Pump Industry Co.,Ltd (CNP),as a subsidiary of Nanfang Zhongjin Environment Co.,Ltd, was founded in 1991,and listed on Shenzhen Stock Exchange on December 9,2010 with stock code 300145.

In 2019, CNP's annual output exceeded 900,000 units/set with nearly 3 billion sales revenue, continuing to maintain high growth.

As a national enterprise technology center, CNP has flagship ultra-high efficient product -new generation CDM (F) light vertical multistage centrifugal pump, $MEI \geq 0.7$. Same series high temperature pump products are developed in 2019 to satisfy high temperature applications. All light stainless steel pump product series grow stably. Advanced frequency conversion water supply equipment has been innovated to the 6th generation. Fire pump and diesel engine have obtained UL certification. TD in-line pump, NIS/NISO end suction pump, NSC split casing pump, WQ sewage pump, PQ stainless steel fountain submersible pump, BP silent tube pump, pool pump, non-blocking self-priming sewage pump, metering pump, oil pump and other pump products, can meet various application needs of different fields.

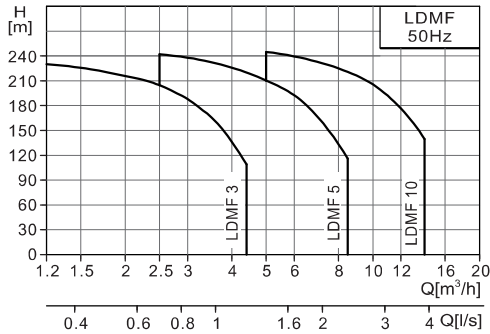
CNP has a complete sales network both in domestic and overseas market,exporting to over 60 countries and regions, maintaining long-term and strong relationship with our clients. CNP pumps have been widely applied in various fields like water treatment、 water supply and drainage、 HVAC、 industrial application、 seawater desalination、 energy and power etc.

CNP, a green water expert beside you.

Content

Performance range	1
Summary	1
Application	1
Motor	1
Performance scope	1
Working condition	1
Model definition	1
Curve conditions	2
Max.working pressure	2
Max. ambient temperature & altitude	2
Min. inlet pressure	2
LDMF3、 5、 10 Material list	3
LDMF3 Installation sketch	4
LDMF5 Installation sketch	5
LDMF10 Installation sketch	6
LDMF3 Performance curves	7
LDMF3 Performance table	8
LDMF5 Performance curves	9
LDMF5 Performance table	10
LDMF10 Performance curves	11
LDMF10 Performance table	12

Performance range



Summary

LDMF series pump is low NPSH vertical multistage centrifugal pump specially developed for high temperature medium and harsh inlet working condition. The inlet passage is optimized to effectively improve pump suction performance, reduce noise and prevent damage caused by cavitation. The product has excellent cavitation performance, compact structure, easy maintenance, high reliability, long service life and beautiful appearance.

Application

Boiler feed water;
High temperature circulating water occasions;
Metallurgy, coking, light textile, chemical industry;
Water heating and waste heat utilization system;
Hot water circulation in pipeline or closed loop;
Transport of heat exchange medium.

Motor

TEFC, 2-pole motor;
Protection class: IP55;
Insulation class: F;
Standard voltage: 50Hz 1×220V
3×220V / 380V
3×380V

Performance scope

Description	LDMF			
Model	3	5	10	
Rated flow [m³/h]	3	5	10	
Rated flow [l/s]	0.83	1.39	2.78	
Flow range [m³/h]	1.2~4.4	2.5~8.5	5~14	
Max. pressure [l/s]	0.33~1.22	0.69~2.36	1.39~3.89	
Max. pressure [bar]	23	24	24	
Power [kW]	0.37~3	0.55~5.5	1.1~11	
Temp. [°C]	-15 ~ +120			
Max. efficiency [%]	58	70	72	
Pipelines	DIN Flange	DN25	DN32	DN40
	Cutting ferrule joint	DN32	DN32	DN50
	Pipe thread	R1¼	R1¼	R2
	Oval flange	G1	G1¼	G1½

Working condition

This pump is applied for thin, clean, non-flammable, non-explosive, solid free, fiber free, physically and chemically water-like liquid.

Liquid temperature:

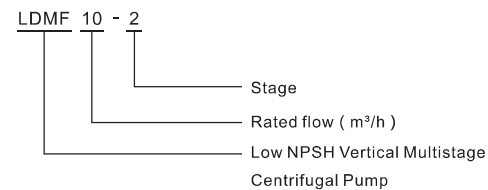
Normal temperature type : -15°C to 70°C

Hot water type : -15°C to 120°C

Ambient temp.: up to 40°C

Altitude: up to 1000m

Model definition



Curve conditions

The requirements applies to all the performance curves below:

- All curves are based on the measured value of the motor at a constant speed of 2900rpm.
- Curve tolerance in conformity to S9906:2012, grade 3B.
- Measurement is done with 20°C air-free water, kinematic viscosity of 1mm²/sec.
- Pump use should refer to the performance range of the bold curve to prevent overheating by too little flow or motor overload by excessive flow.

Max. working pressure

Connection	Max. working pressure (bar)
Flange/Cutting ferrule/ Pipe thread	25
Oval flange	16

Min. inlet pressure

In case that the pressure in pump is lower than the steam pressure used to convey liquid, the cavitations will occur. To avoid cavitations, a minimum pressure at the inlet side of the pump shall be guaranteed. The maximum suction stroke can be calculated with following formula:

$$H = Pb \times 10.2 - NPSH - H_f - H_v - H_s$$

Pb= Barometric pressure in bar.

(Barometric pressure can be set to 1 bar).

In a closed system, Pb means system pressure [bar].

NPSH= Net Positive Suction Head [m]

(It can be read from the point of possible max.

Flow rate shown on NPSH curve.)

Hf =Pipe friction loss at the inlet[m].

Hv= Vapour pressure [m].

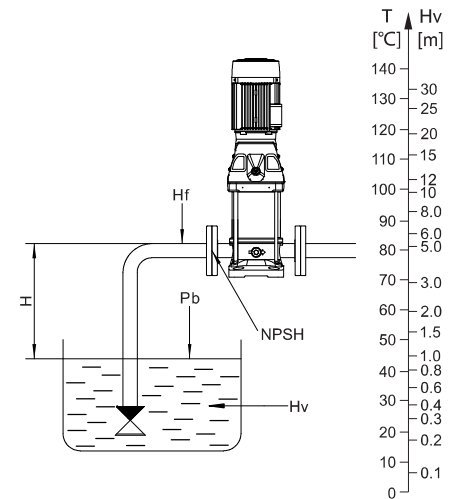
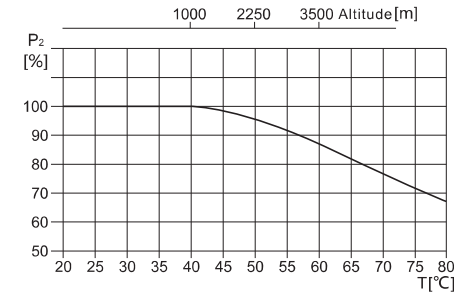
Hs= Safety margin= minimum 0.5 meters head.

If the "H" calculated is positive, the pump may run under the max. suction stroke H

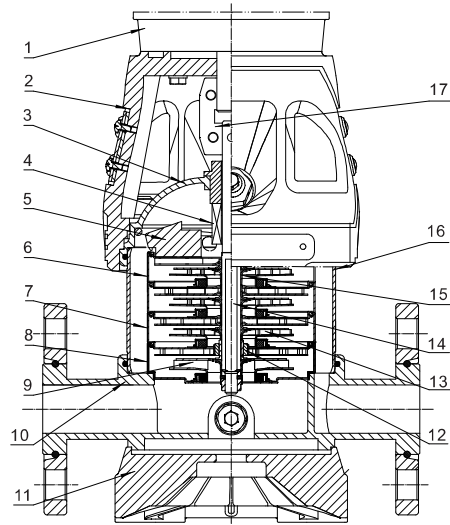
If the "H" calculated is negative, a head of minimum inlet pressure H is required.

Max. ambient temperature & altitude

When the pump operates at ambient temperature over 40°C or at altitude higher than 1000m, motor output power P₂ will be reduced to a certain extent due to poor cooling effect caused by low air density. Motor power needs to be increased when the pump is running under the above conditions.



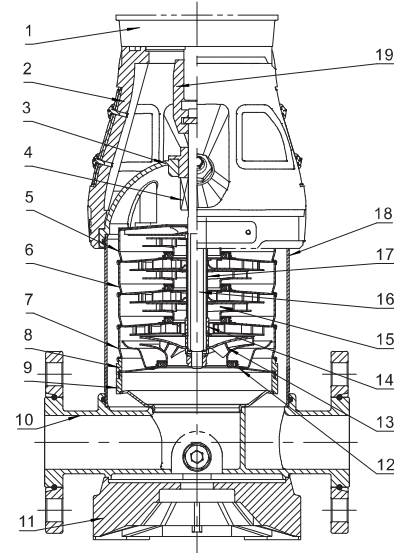
LDMF3,5 Sectional drawing



LDMF3,5 Material list

No.	Name	Material	AISI/ASTM
1	Motor		
2	Pump head	Cast iron	ASTM25B
3	Lining	Stainless steel	AISI304
4	Mechanical seals	Tungsten carbide/graphite	
5	Top diffuser	Stainless steel	AISI304
6	Diffuser	Stainless steel	AISI304
7	Support diffuser	Stainless steel	AISI304
8	Inducer	Stainless steel	AISI304
9	First impeller	Stainless steel	AISI304
10	Inlet outlet chamber	Stainless steel	AISI304
11	Base plate	Cast aluminum	
12	Bearing	Tungsten carbide	
13	Impeller	Stainless steel	AISI304
14	Shaft	Stainless steel	AISI304
15	Impeller sleeve	Stainless steel	AISI304
16	Cylinder	Stainless steel	AISI304
17	Coupling	Carbon steel/Powder metallurgy	

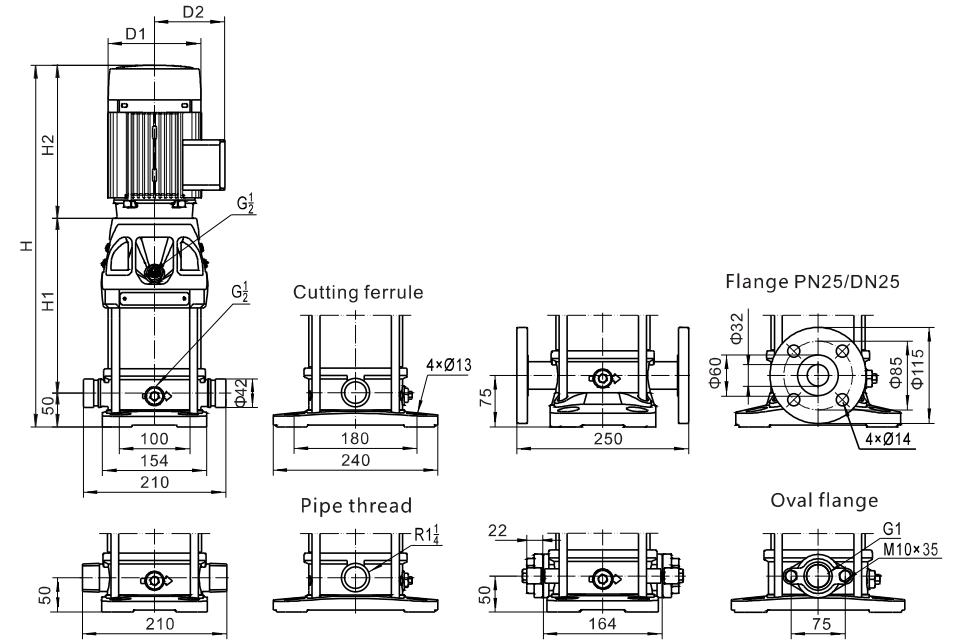
LDMF10 Sectional drawing



LDMF10 Material list

No.	Name	Material	AISI/ASTM
1	Motor		
2	Pump head	Cast iron	ASTM25B
3	Lining	Stainless steel	AISI304
4	Mechanical seals	Tungsten carbide/graphite	
5	Top diffuser	Stainless steel	AISI304
6	Diffuser	Stainless steel	AISI304
7	Support diffuser	Stainless steel	AISI304
8	Extended base	Stainless steel	AISI304
9	Connecting sleeve	Stainless steel	AISI304
10	Inlet outlet chamber	Stainless steel	AISI304
11	Base plate	Cast aluminum	
12	Inducer	Stainless steel	AISI304
13	First impeller	Stainless steel	AISI304
14	Bearing	Tungsten carbide	
15	Impeller	Stainless steel	AISI304
16	Shaft	Stainless steel	AISI304
17	Impeller sleeve	Stainless steel	AISI304
18	Cylinder	Stainless steel	AISI304
19	Coupling	Carbon steel/Powder metallurgy	

LDMF3 Installation sketch



Note1: LDMF3-21~3-31 have no oval flange.

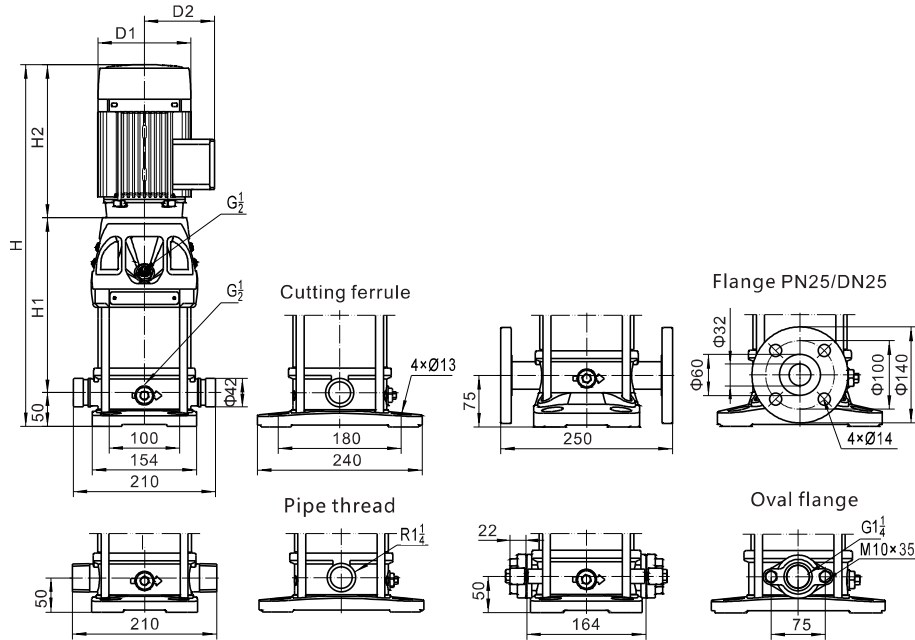
Dimensions and weight

Model	Dimensions(mm)					Weight(kg)
	H1	H2	H(Flange/other)	D1	D2	
3-2	187	220	482/457	140	103	20
3-3	207	220	502/477	140	103	20
3-4	227	220	522/497	140	103	22
3-5	247	220	542/517	140	103	22
3-6	277	250	602/577	148	108	26
3-7	297	250	622/597	148	108	26
3-8	317	250	642/617	148	108	27
3-9	337	250	662/637	148	108	28
3-10	357	250	682/657	148	108	29
3-11	377	250	702/677	148	108	29
3-12	407	293	775/750	172	120	35
3-13	427	293	795/770	172	120	35
3-14	447	293	815/790	172	120	36
3-15	467	293	835/810	172	120	36

Model	Dimensions(mm)					Weight(kg)
	H1	H2	H(Flange/other)	D1	D2	
3-16	487	293	855/830	172	120	39
3-18	527	293	895/870	172	120	39
3-19	547	293	915/890	172	120	40
3-20	567	293	935/910	172	120	40
3-21	587	293	955/930	172	120	41
3-22	607	293	975/950	172	120	41
3-23	627	293	995/970	172	120	42
3-24	657	345	1077/1052	197	132	53
3-25	677	345	1097/1072	197	132	53
3-27	717	345	1137/1112	197	132	54
3-28	737	345	1157/1132	197	132	54
3-29	757	345	1177/1152	197	132	54
3-31	797	345	1217/1192	197	132	55

Note2: Dimensions of single-phase motors and explosion-proof motors are changed. Please consult us for details.

LDMF5 Installation sketch



Note1: LDMF5-21~5-31 have no oval flange.

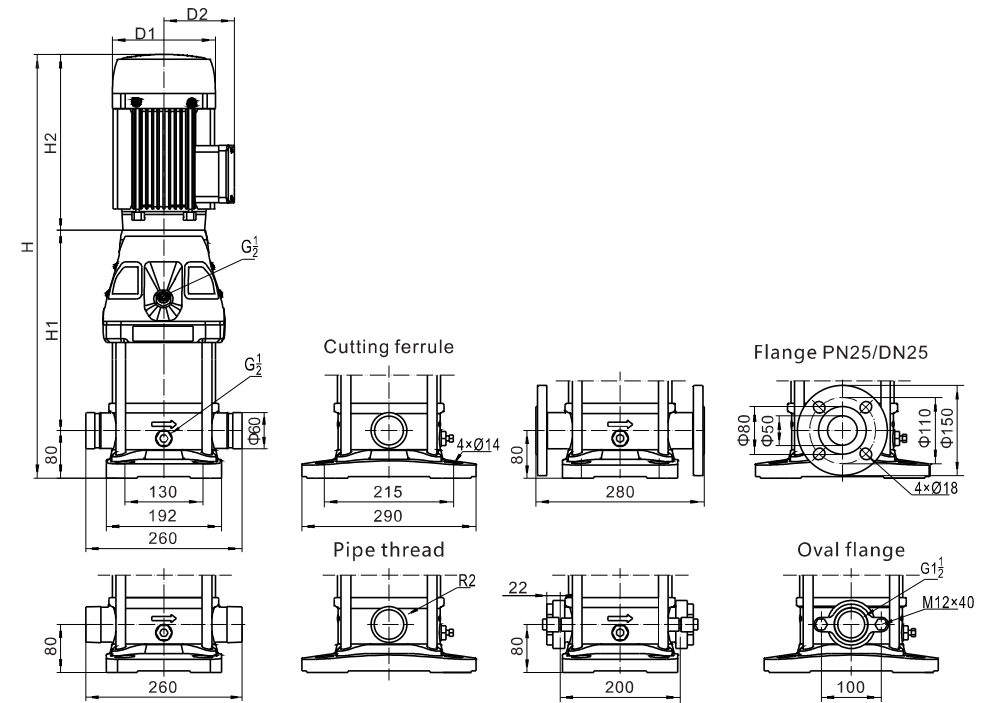
Dimensions and weight

Model	Dimensions(mm)					Weight(kg)
	H1	H2	H(Flange/other)	D1	D2	
5-2	201	220	496/471	140	103	20
5-3	238	250	563/538	148	108	24
5-4	265	250	590/565	148	108	25
5-5	292	250	617/592	148	108	26
5-6	319	250	644/619	148	108	27
5-7	346	250	671/646	148	108	27
5-8	383	293	751/726	172	120	33
5-9	410	293	778/753	172	120	33
5-10	437	293	805/780	172	120	34
5-11	464	293	832/807	172	120	37
5-12	491	293	859/834	172	120	37
5-13	518	293	886/861	172	120	37
5-14	545	293	913/888	172	120	38
5-15	572	293	940/915	172	120	38

Model	Dimensions(mm)					Weight(kg)
	H1	H2	H(Flange/other)	D1	D2	
5-16	609	345	1029/1004	197	132	49
5-17	636	345	1056/1031	197	132	50
5-18	663	345	1083/1058	197	132	50
5-20	717	345	1137/1112	197	132	51
5-21	744	345	1164/1139	197	132	52
5-22	771	348	1194/1169	215	151	59
5-23	798	348	1221/1196	215	151	60
5-24	825	348	1248/1223	215	151	60
5-25	852	348	1275/1250	215	151	61
5-27	906	348	1329/1304	215	151	62
5-28	933	348	1356/1331	215	151	62
5-29	1035	390	1500/1475	260	168	82
5-30	1062	390	1527/1502	260	168	83
5-33	1143	390	1608/1583	260	168	84

Note 2: Dimensions of single-phase motors and explosion-proof motors are changed. Please consult us for details.

LDMF10 Installation sketch



Note1: LDMF10-15~10-22 have no oval flange.

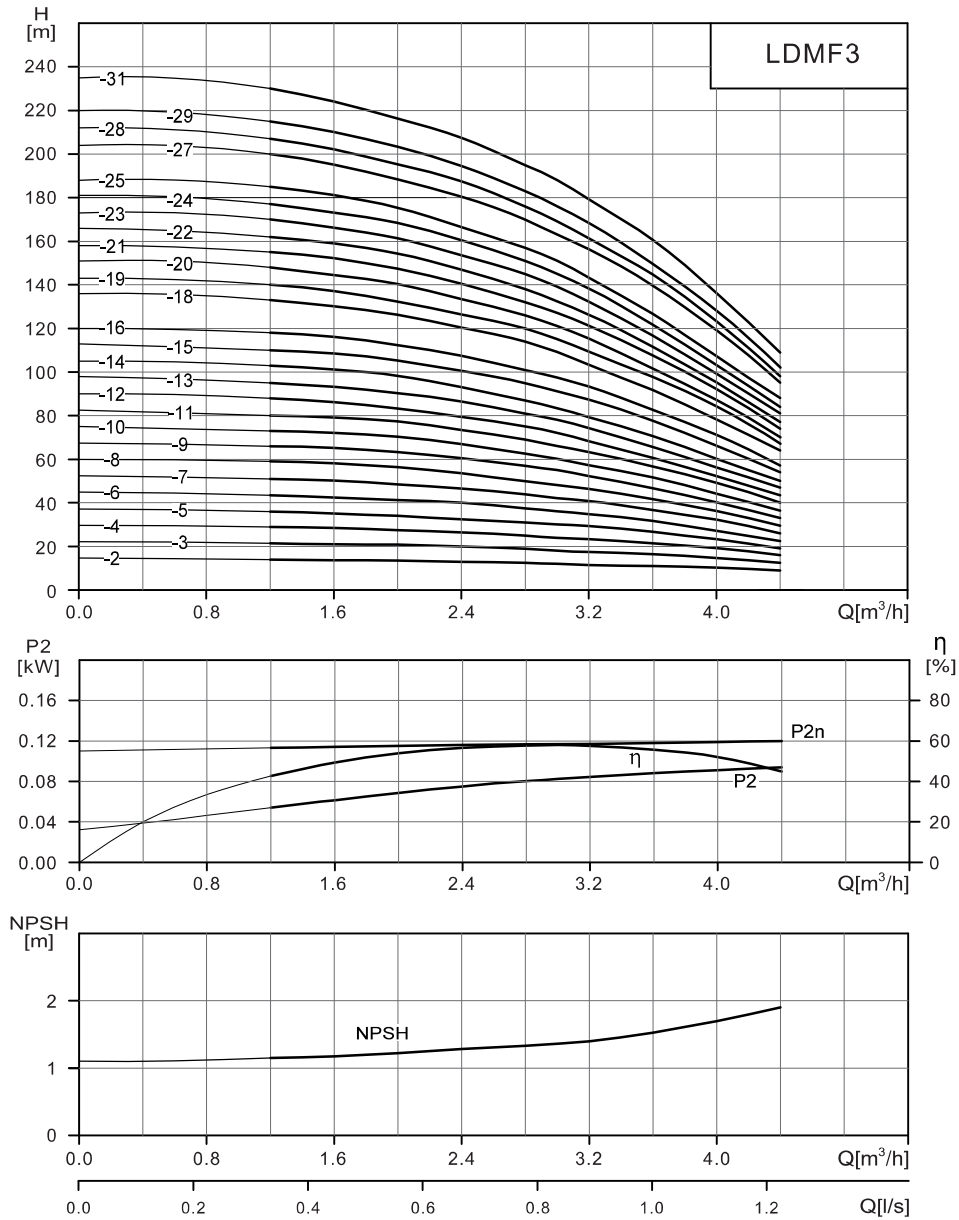
Dimensions and weight

Model	Dimensions(mm)					Weight(kg)
	H1	H2	H	D1	D2	
10-1	297	250	627	148	108	31
10-2	307	293	680	172	120	38
10-3	337	293	710	172	120	39
10-4	367	293	740	172	120	43
10-5	397	293	770	172	120	44
10-6	437	345	862	197	132	54
10-7	467	345	892	197	132	56
10-8	497	348	925	215	151	63
10-9	527	348	955	215	151	64
10-10	557	348	985	215	151	65
10-11	587	348	1015	215	151	67

Model	Dimensions(mm)					Weight(kg)
	H1	H2	H	D1	D2	
10-12	695	390	1165	260	168	84
10-13	725	390	1195	260	168	87
10-14	755	390	1225	260	168	88
10-15	785	390	1255	260	168	97
10-16	815	390	1285	260	168	98
10-17	845	390	1315	260	168	99
10-18	875	390	1345	260	168	100
10-19	905	390	1375	260	168	101
10-20	965	500	1545	330	205	167
10-21	995	500	1575	330	205	168
10-22	1025	500	1605	330	205	169

Note 2: Dimensions of single-phase motors and explosion-proof motors are changed. Please consult us for details.

LDMF3 Performance curves

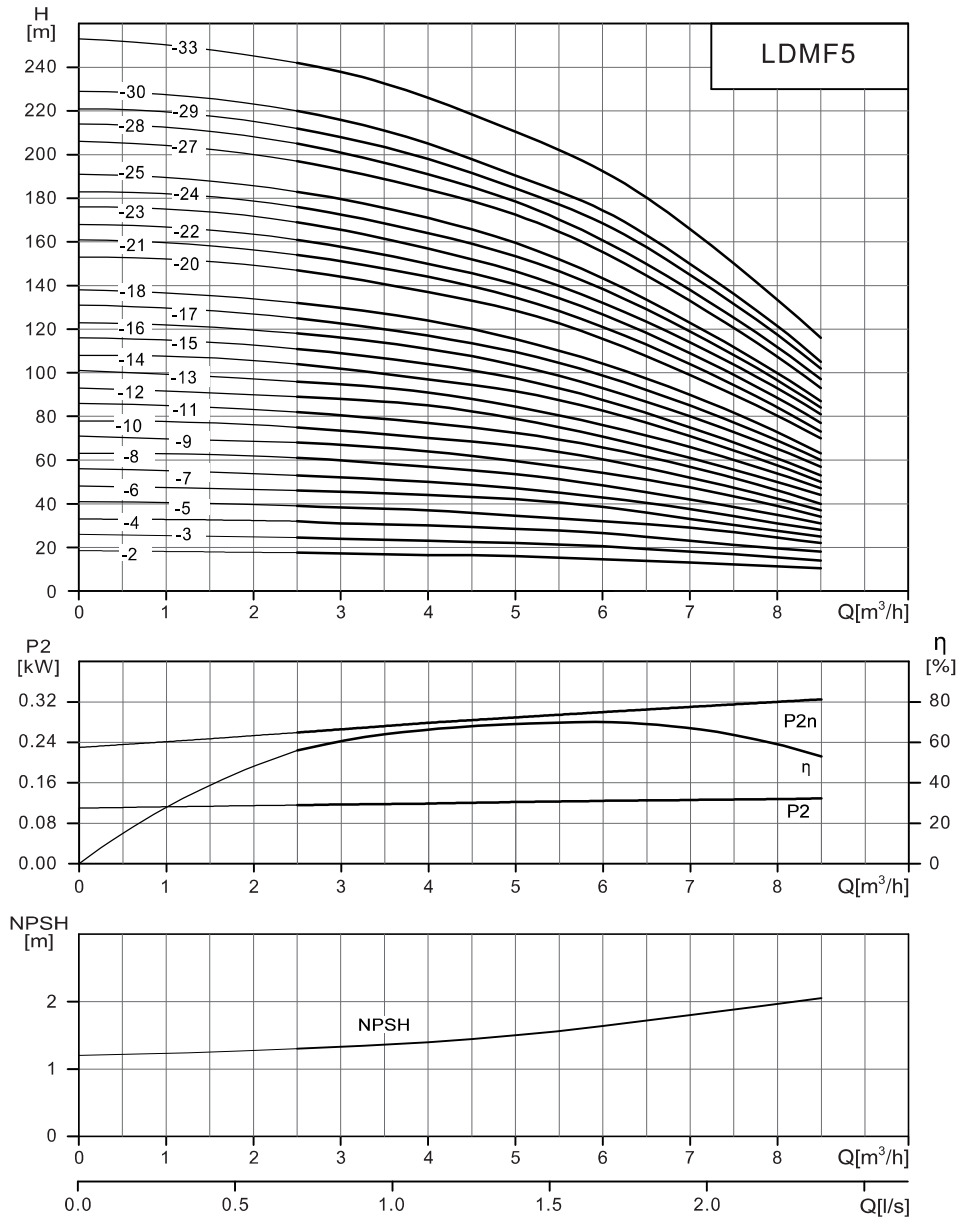


Note: P2n represents the power curve of the first impeller.

LDMF3 Performance table

Model	Motor (kW)	Q (m³/h)	0	1.2	1.6	2	2.4	2.8	3	3.2	3.6	4	4.4
3-2	0.37	H (m)	14.7	14	13.7	13.5	13	12.5	12	12	11	10	9
3-3	0.37		22.2	21.5	21	20.8	20	19	18	18	16.5	15	12.5
3-4	0.55		29.7	29	28.5	27.5	26.5	25	24	23	21.5	19	16
3-5	0.55		37.2	36	35	34	32.5	31	30	29	27	23	19
3-6	0.75		45	43.5	42.5	41	40	37.5	36	35	32	27	22.5
3-7	0.75		52.5	51	50	48.5	47	44	42	41	37	32	26
3-8	1.1		60	59	58	56	53.5	50	48	46	42	36	29.5
3-9	1.1		67.5	66	65	63	60	56	54	52	47	40	33
3-10	1.1		75	73	72	70	67	62.5	60	57	52	44	36.5
3-11	1.1		82.5	80	79	77	73.5	69	66	63	57	49	40
3-12	1.5		90	88	86	83	79.5	75	72	68	61	52	43.5
3-13	1.5		98	95	93	90	86.5	81	78	74	66	56	47
3-14	1.5		105	103	101	98	93.5	87	83.5	79	71	60	50
3-15	1.5		113	110	108	105	100.5	95	91	87	78	66	54
3-16	2.2		120	118	116	112	107.5	101	97.5	93	83	71	57
3-18	2.2		136	133	130	126	120.5	114	109	103	92	78	64
3-19	2.2		143	140	137	132	126.5	120	115	109	98	84	67
3-20	2.2		151	148	144.5	140	133.5	126	121	115	102	87	70
3-21	2.2		158	155	152	147	140.5	132	127	121	108	92	74
3-22	2.2		166	162	159	154	147	138	132.5	126	112	95	77
3-23	2.2		173	170	166	161	153.5	145	139	132	117	99	81
3-24	3		181	177	173	168	160.5	151	145	138	122	103	84
3-25	3		188	185	181	175	166.5	157	151	143	127	107	88
3-27	3		204	200	195	188	180.5	170	163	156	140	119	95
3-28	3		212	207	202	195	187.5	176	169	161	145	123	98
3-29	3		220	215	210	203	194.5	183	176	168	150	128	102
3-31	3		235	230	224	216	207.5	195	188	179	161	136	109

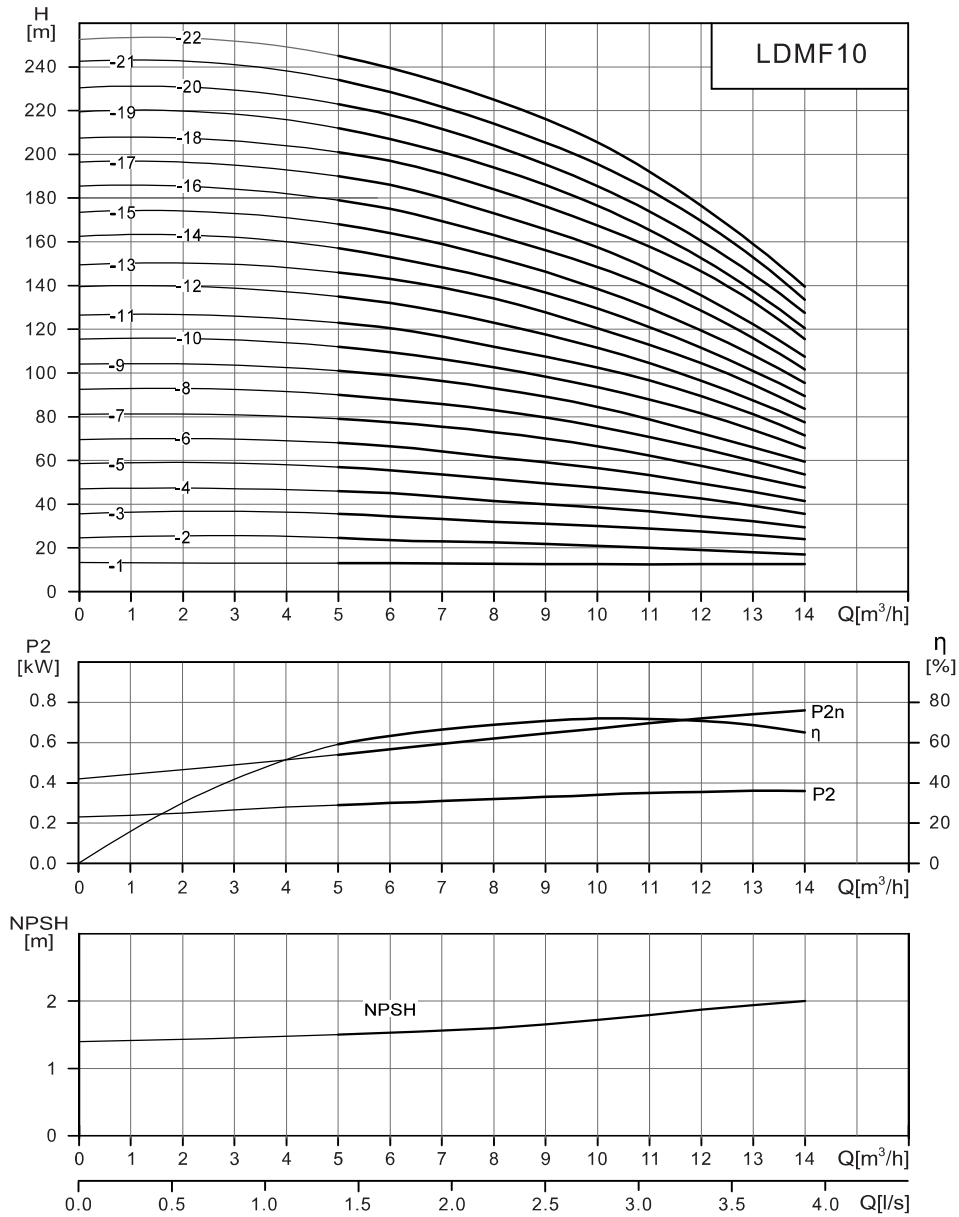
LDMF5 Performance curves



LDMF5 Performance table

Model	Motor (kW)	Q (m³/h)	0	2.5	3	4	5	6	7	8	8.5
5-2	0.55		18.5	17.5	17	16.5	16	14.5	13	11.5	10.5
5-3	0.75		26	25	24	23	22	20.5	18	15.5	14
5-4	0.75		33	32	31	30	28.5	26.5	23	19.5	18
5-5	1.1		41	39	38	37	34.5	32.5	29	24.5	22
5-6	1.1		48	46	45	44	41.5	38.5	33	27.5	25
5-7	1.1		56	53	52	50	47	44	37.5	31	28
5-8	1.5		63	61	60	57	53.5	49.5	42	34.5	31
5-9	1.5		71	68	67	64	59.5	55	47.5	38	34
5-10	1.5		78	75	74	70	66.5	60.5	52	41.5	37
5-11	2.2		86	82	81	77	72.5	66.5	57	45.5	40
5-12	2.2		93	89	88	85	79	71.5	61	49.5	44
5-13	2.2		101	96	95	91	84.5	76.5	66	53.5	47
5-14	2.2		108	104	102	97	91.5	82.5	71	57.5	50
5-15	2.2		116	111	110	104	97.5	87.5	75	60.5	53
5-16	3		123	118	116	111	103.5	93.5	80	64.5	57
5-17	3		131	125	122	117	109.5	99.5	85	68.5	60
5-18	3		138	132	130	124	115.5	104.5	90	72.5	63
5-20	3		153	147	144	137	128.5	115.5	99	79.5	70
5-21	3		161	154	151	144	134.5	121.5	104	83.5	73
5-22	4		168	161	158	150	140.5	127.5	109	88.5	77
5-23	4		176	169	165	157	146.5	133.5	114	92.5	81
5-24	4		183	176	172	164	153.5	138.5	119	96.5	84
5-25	4		191	183	179	171	159.5	144.5	123	99.5	87
5-27	4		206	197	193	184	172.5	155.5	133	107.5	93
5-28	4		214	205	201	191	178.5	161.5	138	111.5	97
5-29	5.5		221	212	208	198	184.5	168.5	145	117.5	102
5-30	5.5		229	220	216	205	190.5	174.5	150	121.5	105
5-33	5.5		253	242	238	226	210.5	192.5	166	133.5	116

LDMF10 Performance curves



Note: P2n represents the power curve of the first impeller.

LDMF10 Performance table

Model	Motor (kW)	Q (m³/h)	0	5	6	8	10	12	14
10-1	1.1	H (m)	13.5	13	13	12.7	12.5	12.5	12
10-2	1.5		24.5	24	23.3	23	21	19	17
10-3	1.5		36	34	34	32	30	27	24
10-4	2.2		47	45	44	42	38.5	34	29.5
10-5	2.2		58	55	54	52	47.5	42	35.5
10-6	3		69	66	65	62	56.5	49	41.5
10-7	3		81	77	76	73	66.5	57	47.5
10-8	4		92	88	87	83	75.5	65	53.5
10-9	4		104	99	97	93	84.5	72	59.5
10-10	4		115	110	108	102	93.5	81	65.5
10-11	4.5		126	121	118	112	102.5	89	71.5
10-12	5.5		139	132	130	123	111.5	96	77.5
10-13	5.5		149	143	141	134	120.5	104	83.5
10-14	5.5		162	154	151	143	129.5	111	89.5
10-15	7.5		173	165	162	153	138.5	119	95.5
10-16	7.5		185	176	173	163	148.5	128	101.5
10-17	7.5		196	187	183	173	157.5	135	107.5
10-18	7.5		207	198	194	184	167.5	146	115.5
10-19	7.5		219	209	204	194	176.5	152	120.5
10-20	11		230	220	216	204	185.5	160	127.5
10-21	11		242	231	226	214	195.5	167	133.5
10-22	11		252	243	238	225	205.5	176	139.5