

NW型疏水泵

NW SERIES DRAINAGE PUMP

概述

NW型疏水泵是我公司在吸收同类产品先进技术的基础上创新研制的产品。本系列本系列产品的水力设计、结构设计和制造工艺采用了2项国家专利,具有良好的吸入性能,性能范围广、运行平稳、噪音低、寿命长、安装维修方便等优点。

应用领域

主要用于火力发电厂输送低压加热器疏水或物理化学性质类似于水的其它液体,亦可用于锅炉给水或输送热水或类似热水的不含固体颗粒的液体。

性能范围 (设计点)

流量: 22 ~ 550 m³/h
扬程: 57 ~ 330mm
转速: 1480 ~ 2950 r/min

工作条件

介质温度: 悬臂结构 $\leq 150^{\circ}\text{C}$ 、中心支撑结构 $\leq 200^{\circ}\text{C}$ 。
进口压力: $\leq 1.6 \text{ Mpa}$
旋转方向: 从驱动端看, 中心支撑泵为顺时针方向旋转, 其余均为逆时针方向旋转。

型号意义

150NW130A
150—泵入口直径为150mm
NW—卧式疏水泵
130—设计点扬程130mm
A—不同叶轮
NW300-6
NW—卧式疏水泵
300—设计点流量300m³/h
6—泵级数6级

General

NW series drainage pump is innovated products developed by SWAN on the basis of advanced technology of similar products. Hydraulic design, construction design and manufacturing process of the series of product adopted more than 2 national patents, which have advantages of good suction performance, wide performance range, stable operation, low noise, long operation life and maintenance convenience.

Application

The series products are mainly applicable to thermo power plant for delivering drainage water of low pressure heater or other liquids with physical and chemical property similar to clean water, and delivering boiler feed water or hot water, or liquids similar to hot water without containing solid.

Performance Range (Design Point)

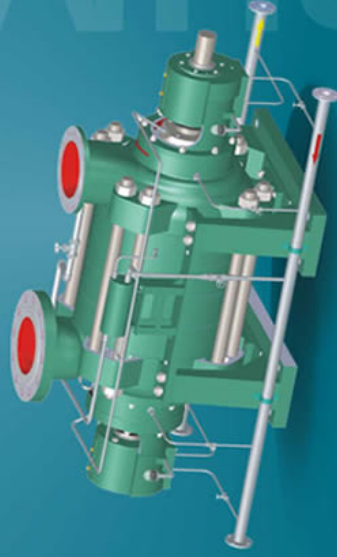
Capacity: 22 ~ 550 m³/h
Head: 57 ~ 330mm
Speed: 1480 ~ 2950 r/min

Working Condition

Media temp: Cantilever construction: $\leq 150^{\circ}\text{C}$; Center supporting construction: $\leq 200^{\circ}\text{C}$
Suction pressure: $\leq 1.6 \text{ Mpa}$
Rotation Direction: Besides of center supporting construction pump is clockwise, others are counter clockwise.

Nomenclature

150NW130A
150-Suction diameter is 150mm
NW-Horizontal drainage pump
130-Head @ design point is 130m
A-Different impeller
NW300-6
NW-Horizontal drainage pump
300-Capacity @ design point is 300m³/h
6-No. of stage is 6



NW型疏水泵

NW SERIES DRAINAGE PUMP

湖南立佳机械制造有限公司
HUNAN PERFECT INDUSTRY CO., LTD.

零件材料

Construction Material

主要零件名称 Main Parts Name	材料 Material
泵体/进水段/中段/出水段 Casing/suction casing/stage casing/discharge casing	HT250/QT500-7/ZG230-450
诱导轮/首级叶轮 Inducer/first stage impeller	ZG1Cr13Ni/ ZG1Cr18Ni9Ti
叶轮/叶轮密封环 Impeller/diffuser/seal ring	HT250/QT500-7/ ZG230-450/ ZG1Cr13Ni
轴 Shaft	45/40Cr/35CrMo
轴套 Shaft sleeve	0Cr18Ni9
平衡盘 Balance disc	QT500-7/ ZG1Cr13Ni

注：材料可根据用户要求选配。

Remarks: Other materials can be selected according to user requirements.

结构分类

Construction Category

NW型泵包括卧式、单级或多级、悬臂式或中心支撑式及带或不带诱导轮等多种结构形式。其中80NW60、100NW57及100NW160A型泵为卧式单级悬臂结构；80NW60×2、100NW57×2型泵为卧式两级悬臂结构；100NW160、150NW66、150NW180、150NW180A、150NW130及150NW130A是卧式单级带诱导轮悬臂结构；NW120-(3~8)、NW160-(3~8)、NW200-(3~8)、NW250-(3~8)、NW300-(3~8)、NW360-(3~8)、NW450-(2~5)及NW550-(2~5)是卧式多级带诱导轮中心支撑结构。

NW series pump including various construction type that horizontal, single stage or multistage, cantilever or center support, or without inducer etc.
Model 80NW60, 100NW57 and 100NW160A are horizontal single stage cantilever construction.
Model 80NW60×2 and 100NW57×2 are horizontal double stage cantilever construction.
Model 100NW160, 150NW66, 150NW180, 150NW180A, 150NW130 and 150NW130A are horizontal single stage cantilever construction with inducer.
Model NW120-(3~8), NW160-(3~8), NW200-(3~8), NW250-(3~8), NW300-(3~8), NW360-(3~8), NW450-(2~5) and NW550-(2~5) are horizontal multistage center support construction with inducer.

结构特点

平衡盘 Balance disc

- ◆ 动态平衡轴向力，平衡效果显著、可靠。
- ◆ 设计有螺旋密封结构，泄漏小，密封效率高。
- ◆ 轴向力是动态平衡设计，具有优良可靠平衡结果(Patent Number ZL20112038193.3)
- ◆ Spiral seal construction is designed that leakage is small and volumetric efficiency is high.

轴承 Bearing

- ◆ 滚动轴承支撑，稀油润滑，水冷结构。
- ◆ 非驱动侧设计转子串动限位轴承，提高机械密封使用寿命。
- ◆ 轴承外圆测量和测振元件接口，可根据需求配置。
- ◆ Rolling bearing support with thin oil lubricated and water seal construction.
- ◆ Axial limits design for rotor in non driven end that improves operation life of mechanical seal.
- ◆ Temperature and vibration monitoring nozzle is preserved for bearing box, which can be provided according to requirements.

支撑方式 Supporting Method

- ◆ 中心支撑，适应输送高温介质。
- ◆ 转子不弯曲，运行平稳。
- ◆ Center support is suitable for delivering media with high temperature.
- ◆ Even thermal expansion, rotor without bend, and operation is stable.

转子部件 Rotor part

- ◆ 加粗设计，刚性好，临界转速高。
- ◆ 经严格动平衡，运行更平稳。
- ◆ Design thickened that have good rigidity and high critical speed.
- ◆ Strictly balance tested that operation is more stable.

密封 Seal

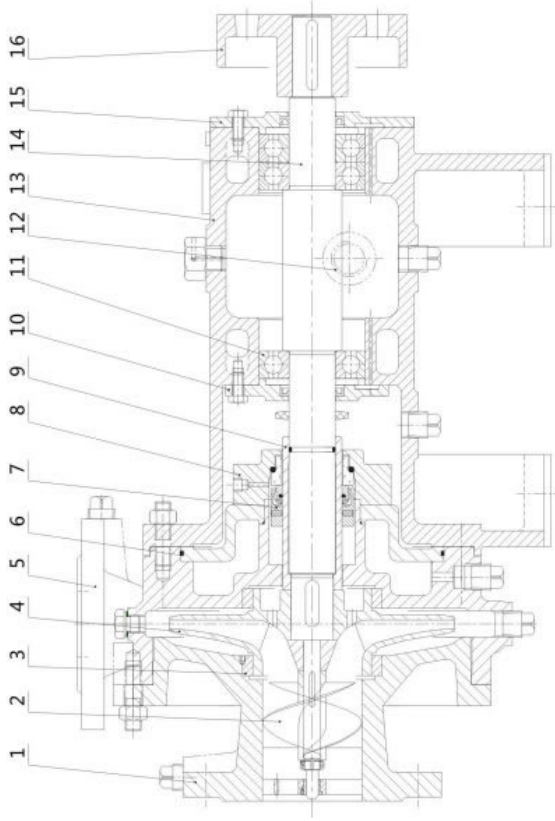
- ◆ 高品质机械密封，启动、运行和停机时均不泄漏。
- ◆ 自循环冷却设计，寿命长，拆装方便，维护简单。
- ◆ 良好质量机械密封，启动、运行和停机时均不泄漏。
- ◆ Self circulating cooling design, have long operation life, convenience in assembly and disassembly, and simple maintenance.

Construction Feature

- ◆ 高抗汽蚀性能设计，满足低汽蚀余量要求。
- ◆ 采用优秀水力模型，效率高且范围宽。
- ◆ 采用金属模具，数控加工，毛胚精度高。
- ◆ High cavitations resist design that satisfies with low cavitation requirements.
- ◆ Excellent hydro model is adopted that have high efficiency and wide high efficient range.
- ◆ Metal mould, accurate roughcast and digital machining are adopted.

结构图

Structure Drawing

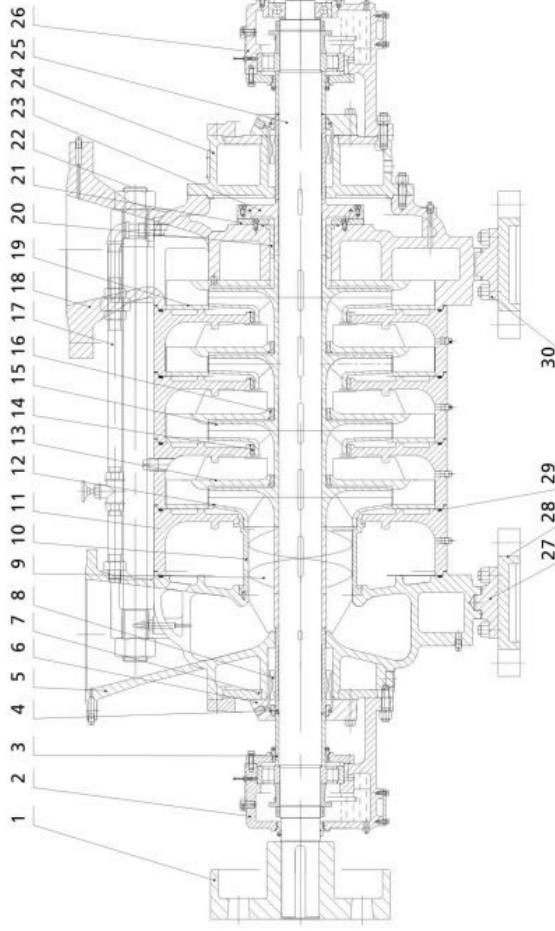


NW型疏水泵单级卧式结构图

1	泵盖	2	诱导轮	3	密封环	4	叶轮	5	泵体	6	冷却室盖
7	机械密封	8	机封压盖	9	轴套	10	轴承端盖	11	轴承	12	油标
13	托架	14	轴	15	轴承端盖	16	泵联轴器				

1	Pump cover	2	Inducer	3	Sealring	4	Impeller	5	Casing	6	Cooling chamber
7	Mechanical seal	8	Mechanical seal cover	9	Shaft sleeve	10	Bearing Cover	11	Bearing	12	Oil mark
13	Braced	14	Shaft	15	Bearing Cover	16	Pump coupling				

NW型疏水泵双级卧式结构图



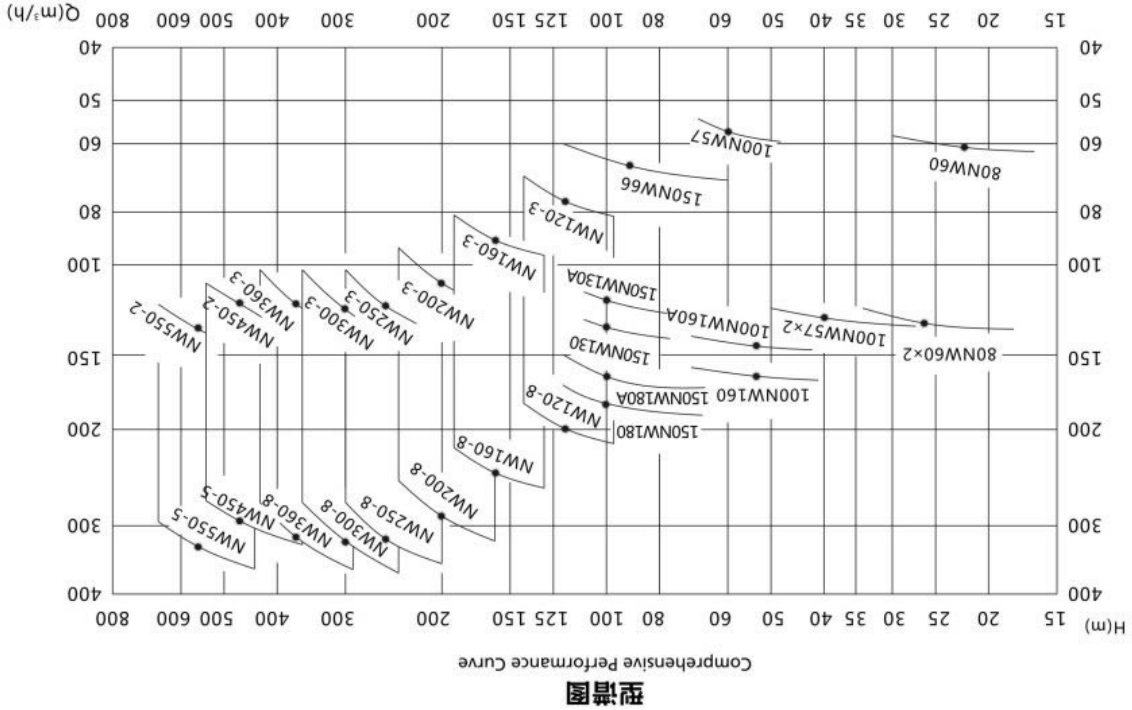
1	联轴器	2	轴承部件甲	3	轴套挡套	4	轴套	5	进水段	6	机封压盖
7	冷却室盖	8	机械密封	9	诱导轮	10	诱导轮室	11	中段	12	首级叶轮
13	导叶	14	密封环	15	叶轮	16	导叶套	17	平衡水管部件	18	出水段
19	末级导叶	20	平衡套	21	平衡环	22	穿杠	23	平衡盘	24	尾盖
25	轴	26	轴承部件乙	27	限位块	28	支架	29	密封圈	30	导向键

1	pump coupling	2	Bearing part A	3	Bearing spacer sleeve	4	Shaft sleeve	5	Suction casing	6	Mechanical seal cover
7	Cooling chamber cover	8	Mechanical seal	9	Inducer	10	Inducer chamber	11	Stage casing	12	First stage impeller
13	Diffuser	14	Sealring	15	Impeller	16	Diffuser sleeve	17	Balance water pipe part	18	Discharge casing
19	Last stage diffuser	20	Balance sleeve	21	Balance ring	22	Rod	23	Balance disc	24	End cover
25	Shaft	26	Bearing Part B	27	Limits block	28	Bracket	29	Gasket	30	Guide key

性能参数表

Performance Parameter List

型号 Type	流量 Capacity Q		扬程 Head H	转速 Speed n	轴功率 Shaft Power Pa	配套电机 Motor		效率 Eff. η	必需汽蚀余量 (NPSHr)	泵重 Pump Weight		
	m ³ /h	l/s				功率 Power	电压 Volt					
80NW60 (3N6)	16	4.4	62	2950	6.1	380	Y160M1-2	44	1.5	80		
	22	6.1	61		11						49	1.7
	30	8.3	58		8.8						54	1.9
80NW60×2 (3N6×2)	18	5.0	131	2950	15.7	380	Y180M-2	41	1.8	100		
	26	7.2	128		22						51	2.1
	34	9.4	120		19.5						57	2.4
100NW57 (4N6)	48	13.3	60	2950	14.3	380	Y180M-2	55	1.4	95		
	60	16.7	57		22						61	1.6
	68	18.9	54		16.1						62	1.8
100NW57×2 (4N6×2)	25	6.9	130	2950	21.6	380	Y200L2-2	41	2.0	170		
	40	11.1	125		37						55	2.2
	50	13.9	120		27.3						60	2.4
100NW160 (100N160)	42	11.7	163	2950	46.6	380	Y280S-2	40	1.8	170		
	52	14.4	160		75						46	2.0
	70	19.4	154		56.5						52	2.5
100NW160A (100N130)	42	11.7	143	2950	38.1	380	Y250M-2	43	1.3	170		
	52	14.4	141		55						49	1.5
	70	19.4	135		46.8						55	2.0
150NW66 (6N6)	60	16.7	70	2950	22.9	380	Y200L2-2	50	1.4	120		
	90	25.0	66		37						64	1.5
	120	33.3	60		27.6						71	1.8
150NW130 (150N130)	80	22.2	136	2950	55.9	380	Y280S-2	53	2.0	190		
	100	27.8	130		75						58	2.3
	110	30.6	126		64.0						59	2.4
150NW130A (150N110)	80	22.2	122	2950	48.4	380	Y280S-2	55	1.2	190		
	100	27.8	116		75						60	1.4
	110	30.6	112		55.0						61	1.5
150NW180 (150N180)	60	16.7	189	2950	73.6	380	Y315S-2	42	1.8	250		
	100	27.8	180		110						57	2.6
	120	33.3	172		95.3						59	3.1



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Performance Parameter List

型号 Type	流量 Capacity Q		扬程 Head H	转速 Speed n	轴功率 Shaft Power Pa	配套电机 Motor		效率 Eff. η	必需汽蚀余量 (NPSH)r		泵重 Pump Weight
	m ³ /h	l/s				功率 Power kW	电压 Volt V		型号 Type	m	
NW160-6	130	36.1	192	1480	94.5	380	Y315M-4	72	1.4	970	
	160	44.4	180		75			1.6			
	190	52.8	162		73			2.1			
NW160-7	130	36.1	224	1480	110.2	380	Y315L1-4	72	1.4	1060	
	160	44.4	210		75			1.6			
	190	52.8	189		73			2.1			
NW160-8	130	36.1	256	1480	126.0	380	Y315L2-4	72	1.4	1150	
	160	44.4	240		75			1.6			
	190	52.8	216		73			2.1			
NW200-3	160	44.4	120	1480	71.7	380	Y315S-4	73	1.5	820	
	200	55.6	108		77			1.8			
	240	66.7	93		75			2.4			
NW200-4	160	44.4	160	1480	95.6	380	Y315M-4	73	1.5	930	
	200	55.6	144		77			1.8			
	240	66.7	124		75			2.4			
NW200-5	160	44.4	200	1480	119.5	380	Y315L1-4	73	1.5	1040	
	200	55.6	180		77			1.8			
	240	66.7	155		75			2.4			
NW200-6	160	44.4	240	1480	143.3	6000	YK355-4	73	1.5	1150	
	200	55.6	216		77			1.8			
	240	66.7	186		75			2.4			
NW200-7	160	44.4	280	1480	167.2	6000	YK355-4	73	1.5	1260	
	200	55.6	252		77			1.8			
	240	66.7	217		75			2.4			
NW200-8	160	44.4	320	1480	191.1	6000	YK355-4	73	1.5	1370	
	200	55.6	288		77			1.8			
	240	66.7	248		75			2.4			
NW250-3	200	55.6	132	1480	97.2	380	Y315M-4	74	1.8	1060	
	250	69.4	120		78			2.0			
	300	83.3	102		76			2.5			

性能参数表

Performance Parameter List

型号 Type	流量 Capacity Q		扬程 Head H	转速 Speed n	轴功率 Shaft Power Pa	配套电机 Motor		效率 Eff. η	必需汽蚀余量 (NPSH)r		泵重 Pump Weight
	m ³ /h	l/s				功率 Power kW	电压 Volt V		型号 Type	m	
150NW180A	60	16.7	167	2950	62.1	380	Y280M-2	44	2.3	250	
	100	27.8	160		58			2.4			
	120	33.3	146		59			2.7			
NW120-3	100	27.8	84	1480	33.2	380	Y225M-4	69	1.2	650	
	120	33.3	78		73			1.4			
	140	38.9	66		70			1.8			
NW120-4	100	27.8	112	1480	44.2	380	Y250M-4	69	1.2	730	
	120	33.3	104		73			1.4			
	140	38.9	88		70			1.8			
NW120-5	100	27.8	140	1480	55.3	380	Y280S-4	69	1.2	810	
	120	33.3	130		73			1.4			
	140	38.9	110		70			1.8			
NW120-6	100	27.8	168	1480	66.3	380	Y280M-4	69	1.2	890	
	120	33.3	156		73			1.4			
	140	38.9	132		70			1.8			
NW120-7	100	27.8	196	1480	77.4	380	Y315S-4	69	1.2	970	
	120	33.3	182		73			1.4			
	140	38.9	154		70			1.8			
NW120-8	100	27.8	224	1480	88.5	380	Y315S-4	69	1.2	1050	
	120	33.3	208		73			1.4			
	140	38.9	176		70			1.8			
NW160-3	130	36.1	96	1480	47.2	380	Y280S-4	72	1.4	700	
	160	44.4	90		75			1.6			
	190	52.8	81		73			2.1			
NW160-4	130	36.1	128	1480	63.0	380	Y280M-4	72	1.4	790	
	160	44.4	120		75			1.6			
	190	52.8	108		73			2.1			
NW160-5	130	36.1	160	1480	78.7	380	Y315S-4	72	1.4	880	
	160	44.4	150		75			1.6			
	190	52.8	135		73			2.1			

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型号 Type	流量 Capacity Q		扬程 Head H	转速 Speed n	轴功率 Shaft Power Pa	配套电机 Motor		效率 Eff. η	必需汽蚀余量 (NPSH)r	泵重 Pump Weight
	m ³ /h	l/s				功率 Power	电压 Volt			
NW250-4	200	55.6	176	1480	129.6	380	Y315L2-4	74	1.8	1180
	250	69.4	160		185					
	300	83.3	136		146.3					
NW250-5	200	55.6	220	1480	162.0	6000	YKK355-4	74	1.8	1300
	250	69.4	200		220					
	300	83.3	170		182.9					
NW250-6	200	55.6	264	1480	194.4	6000	YKK355-4	74	1.8	1420
	250	69.4	240		250					
	300	83.3	204		219.4					
NW250-7	200	55.6	308	1480	226.8	6000	YKK400-4	74	1.8	1540
	250	69.4	280		315					
	300	83.3	238		256.0					
NW250-8	200	55.6	352	1480	259.2	6000	YKK400-4	74	1.8	1660
	250	69.4	320		355					
	300	83.3	272		292.6					
NW300-3	240	66.7	132	1480	115.1	380	Y315L1-4	75	1.9	1080
	300	83.3	120		160					
	360	100.0	102		131.7					
NW300-4	240	66.7	176	1480	153.5	380	Y315L2-4	75	1.9	1210
	300	83.3	160		200					
	360	100.0	136		175.5					
NW300-5	240	66.7	220	1480	191.8	6000	YKK355-4	75	1.9	1340
	300	83.3	200		250					
	360	100.0	170		219.4					
NW300-6	240	66.7	264	1480	230.2	6000	YKK400-4	75	1.9	1470
	300	83.3	240		315					
	360	100.0	204		263.3					
NW300-7	240	66.7	308	1480	268.6	6000	YKK400-4	75	1.9	1600
	300	83.3	280		355					
	360	100.0	238		307.2					

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型号 Type	流量 Capacity Q		扬程 Head H	转速 Speed n	轴功率 Shaft Power Pa	配套电机 Motor		效率 Eff. η	必需汽蚀余量 (NPSH)r	泵重 Pump Weight
	m ³ /h	l/s				功率 Power	电压 Volt			
NW300-8	240	66.7	352	1480	306.9	6000	YKK400-4	75	1.9	1730
	300	83.3	320		400					
	360	100.0	272		351.1					
NW360-3	290	80.6	132	1480	137.3	380	Y315L2-4	76	2.1	1150
	360	100.0	120		200					
	430	119.4	108		164.3					
NW360-4	290	80.6	176	1480	183.0	6000	YKK400-4	76	2.1	1290
	360	100.0	160		280					
	430	119.4	144		219.1					
NW360-5	290	80.6	220	1480	228.8	6000	YKK400-4	76	2.1	1430
	360	100.0	200		355					
	430	119.4	180		273.9					
NW360-6	290	80.6	264	1480	274.5	6000	YKK400-4	76	2.1	1570
	360	100.0	240		400					
	430	119.4	216		328.7					
NW360-7	290	80.6	308	1480	320.3	6000	YKK400-4	76	2.1	1710
	360	100.0	280		450					
	430	119.4	252		383.5					
NW360-8	290	80.6	352	1480	366.0	6000	YKK450-4	76	2.1	1850
	360	100.0	320		500					
	430	119.4	288		438.3					
NW450-2	360	100.0	130	1480	165.6	6000	YKK355-4	77	2.3	2100
	450	125.0	120		250					
	540	150.0	108		203.7					
NW450-3	360	100.0	195	1480	248.4	6000	YKK400-4	77	2.3	2350
	450	125.0	180		355					
	540	150.0	162		305.6					
NW450-4	360	100.0	260	1480	331.2	6000	YKK400-4	77	2.3	2600
	450	125.0	240		450					
	540	150.0	216		407.5					

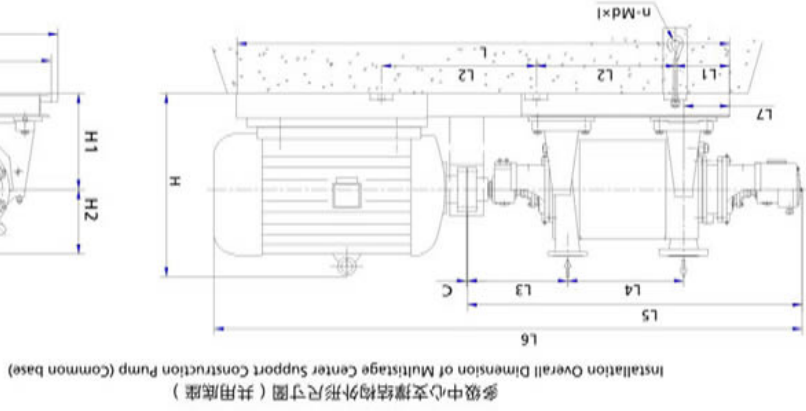
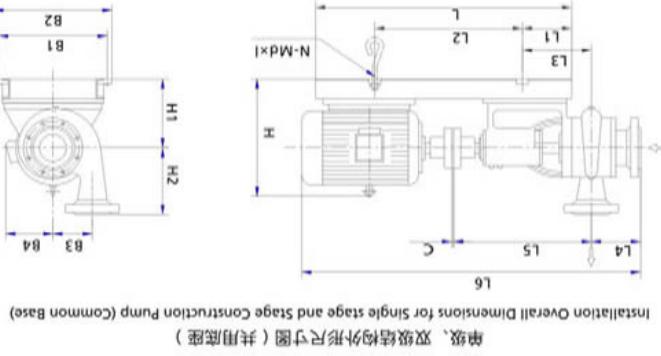
性能参数表

Performance Parameter List

型号 Type	流量 Capacity Q		扬程 Head H	转速 Speed n	轴功率 Shaft Power Pa	配置电机 Motor		效率 Eff η	必需汽蚀余量 (NPSH)r	泵重 Pump Weight
	m ³ /h	lit/s				功率 Power kW	电压 Volt V			
NW450-5	360	100.0	325	1480	414.1	6000	YKK450-4	77	2.3	2850
	450	125.0	300		81			2.6		
	540	150.0	270		78			3.0		
NW550-2	440	122.2	144	1480	221.4	6000	YKK400-4	78	2.4	2300
	550	152.8	132		82			2.9		
	660	183.3	118		78			3.4		
NW550-3	440	122.2	216	1480	332.0	6000	YKK400-4	78	2.4	2570
	550	152.8	198		82			2.9		
	660	183.3	177		78			3.4		
NW550-4	440	122.2	288	1480	442.7	6000	YKK450-4	78	2.4	2840
	550	152.8	264		82			2.9		
	660	183.3	236		78			3.4		
NW550-5	440	122.2	360	1480	553.4	6000	YKK500-4	78	2.4	3110
	550	152.8	330		82			2.9		
	660	183.3	295		78			3.4		

外形尺寸图

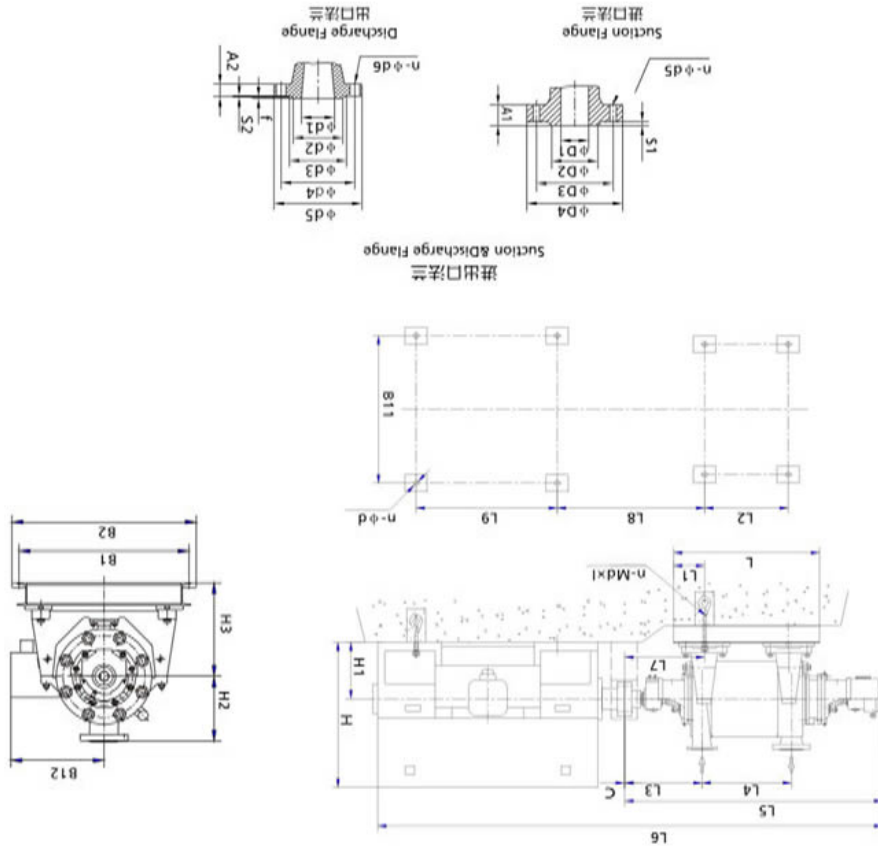
Installation Overall Dimension Drawing



级数 Stage number	NW120 (共用底座) (With common base)															
	L1	L2	L3	L4	L5	L6	L7	L	C	B1	B2	B12	H	H1	H2	n-Md×l
3	300	600	535	425	1262	2113	160	1800	4	700	780	345	855	550	350	6-M24×500
4	300	750	535	540	1377	2313	160	2060	4	700	780	385	875	550	350	6-M24×500
5	300	750	535	655	1492	2498	160	2240	4	700	780	410	910	550	350	6-M24×500
6	300	850	535	770	1607	2693	160	2400	4	700	780	410	910	550	350	6-M24×500
7	300	850	535	885	1722	2998	160	2650	4	700	780	576	1100	550	350	6-M24×500
8	300	850	535	1000	1837	3113	160	2650	4	700	780	576	1100	550	350	6-M24×500
																Y315S-4/110KW
																Y315S-4/110KW
																Y280M-4/90KW
																Y280S-4/75KW
																Y250M-4/55KW
																Y25M-4/45KW

泵型号 Pump Model	单级、双级结构外形尺寸表 Installation Overall Dimension of Single Stage & Double Stage Construction Pump															
	L1	L2	L3	L4	L5	L6	L	C	B1	B2	B3	B4	H	H1	H2	n-Md×l
80NW60(3N6)	215	500	244	134	458	1202	925	3	400	460	140	265	501	276	180	4-M16×350
80NW60×2(3N6×2)	180	650	215	173	490	1338	1010	3	350	390	140	285	566	316	210	4-M16×400
100NW57(4N6)	180	650	252.5	135.5	520	1330	1010	3	350	390	140	285	566	316	260	4-M16×350
100NW57×2(4N6×2)	225	750	268	195	603	1578	1200	3	330	440	138	265	593	318	300	4-M16×350
100NW160(100N160)	280	800	312	244	619	1869	1365	4	620	700	200	410	780	420	300	4-M20×400
100NW160×100N130	263	800	312	141	616	1693	1325	4	580	660	200	385	721	396	300	4-M20×400
150NW66(6N6)	225	750	280	210	614	1605	1200	4	400	440	155	315	593	318	260	4-M16×350
150NW66×2(6N6×2)	325	800	364	270	611	1887	1450	4	640	720	180	410	786	426	300	4-M20×400
150NW130(150N130)	325	800	364	270	611	1887	1400	4	620	700	180	410	786	426	300	4-M20×400
150NW130×150N110	250	900	289	270	611	1887	1400	4	620	700	180	410	786	426	300	4-M20×400
150NW180(150N180)	270	1000	355	325	753	2324	1540	4	700	780	230	576	1005	455	345	4-M20×400
150NW180×150N180	270	1000	355	325	753	2324	1540	4	700	780	230	576	1005	455	345	4-M20×400
150NW180A	270	950	355	325	753	2134	1500	4	700	780	230	410	815	455	345	4-M20×400

外形尺寸表
Installation Overall Dimension Sheet



多级中心支撑结构外形尺寸图 (本身底座)
Installation Overall Dimension of Multistage Center Support Construction Pump (Sole base)

法兰尺寸表 Flange Dimensions

泵型号 Pump Model	进口法兰 Suction Flange				出口法兰 Discharge Flange			
	φD1	φD2	φD4	n-φD5	φD1	φD2	φD3	φD4
80NW66(3N6)	φ80	φ135	φ160	φ195	φ50	/	φ100	φ125
80NW60×2(3N6×2)	φ80	φ135	φ160	φ195	φ50	/	φ100	φ125
100NW57(4N6)	φ100	φ155	φ180	φ215	φ80	/	φ135	φ160
100NW57×2(4N6×2)	φ100	φ155	φ180	φ215	φ80	/	φ135	φ160
100NW160(100N160)	φ100	φ180	φ215	φ270	φ100	/	φ155	φ180
100NW160A(100N160A)	φ100	φ180	φ215	φ270	φ100	/	φ155	φ180
150NW130(150N130)	φ150	φ211	φ240	φ280	φ100	/	φ155	φ180
150NW130A(150N130A)	φ150	φ211	φ240	φ280	φ100	/	φ155	φ180
150NW180(150N180)	φ150	φ211	φ240	φ280	φ100	/	φ155	φ190
150NW180A(150N180A)	φ150	φ211	φ240	φ280	φ100	/	φ155	φ180
NW120	φ150	φ211	φ250	φ300	φ150	φ203	φ211	φ280
NW160	φ150	φ211	φ250	φ300	φ150	φ203	φ211	φ280
NW200	φ150	φ211	φ250	φ300	φ150	φ203	φ211	φ280
NW250	φ200	φ284	φ320	φ375	φ200	φ259	φ284	φ345
NW300	φ200	φ284	φ320	φ375	φ200	φ259	φ284	φ345
NW360	φ200	φ284	φ320	φ375	φ200	φ259	φ284	φ345
NW450	φ250	φ345	φ385	φ450	φ250	φ312	φ345	φ400
NW550	φ250	φ345	φ385	φ450	φ250	φ312	φ345	φ400



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