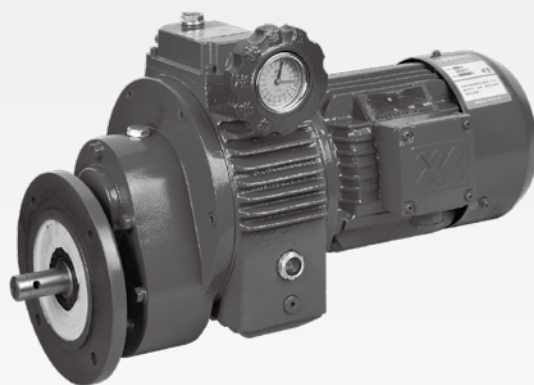
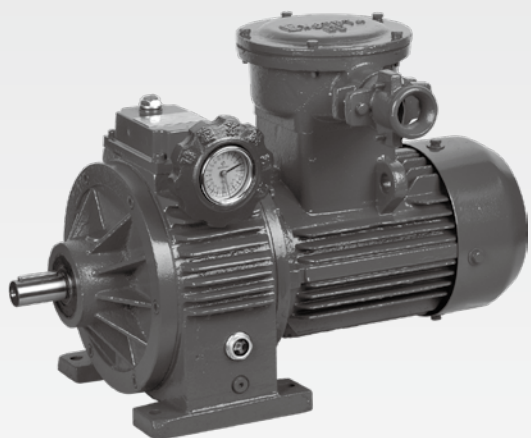
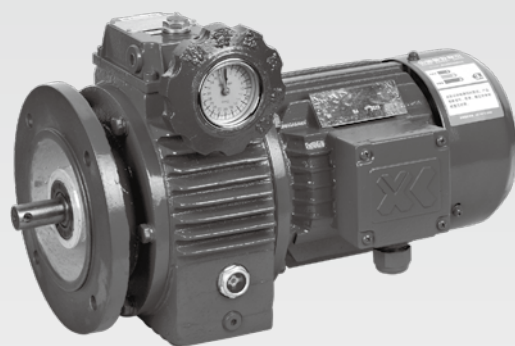
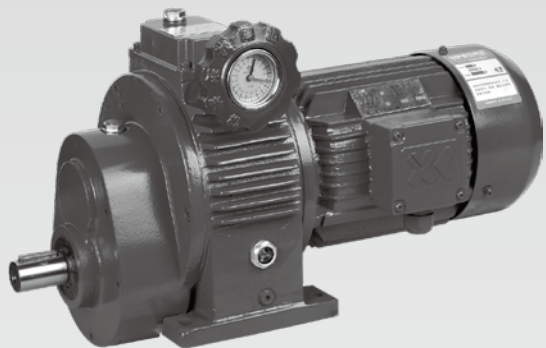


UD 系列行星锥盘减变速机

UD Series of Planetary Cone-disc Reducer & Variator



概述 | Introduction

UD 系列行星锥盘无级变速器由于结构合理、操作方便、传动稳定、噪音低等特点，所以广泛应用于食品、印刷、纺织、橡胶、塑料、陶瓷、制药、化工等行业的机械传动装置上。它的主要性能特点：

- 变速范围大：UD 变速器变速范围 $R_b=5$ ；
- 调速精度高：UD 变速器调速精度为 0.5~1 转；
- UD 系列变速器所有传动零部件都经过严格处理，精密加工和研磨，接触与润滑性能良好，所以运转平稳、噪音低、使用寿命长；
- 组合能力强：本机能与各种减速机组合，实现低速无级变速，因此它具有良好的适应性；
- 结构紧凑、体积小、重量轻；
- 适应工艺参数多变或连续变化的工况要求，并可在负载中按需要调节速度。

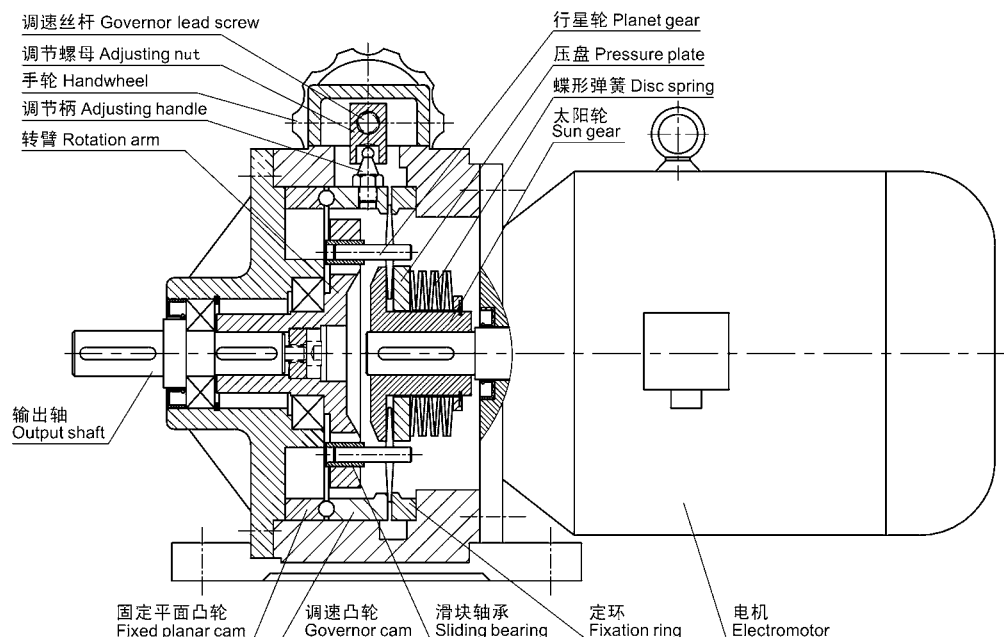
UD Series of planetary cone-disc variator is characterized by proper structure, easy operation, stable transmission and low noise. It is widely used in mechanical transmission equipments for the industries of food, printing, textile, rubber, plastics, ceramics, pharmacy and chemical. Main features of it are:

- Broad range of speed adjustment: it is $R_b=5$ for UD variators;
- High precision of speed adjustment: it is 0.5~1 turn for UD variators;
- All transmission parts of UD series variators are processed and ground precisely. With excellent performance of contact and lubrication, it is featured by stable operation, low noise and long life time;
- Multiple combination: it can be combined with various reducers with stepless change at low speed;
- Compact structure, small size, light in weight;
- It meets the requirements of variable technical parameters or continuous changes with possible with possible speed adjustment in load.

工作原理 | Principle of Operation

本机由行星机构、调速控制机构、加压装置及电机等组成。行星机构由太阳轮、压盘、固定平面凸轮、调速凸轮、定环、行星轮及转臂（行星架）组成。动力源由电机输入带动太阳轮，由于定环及调速凸轮不动，因此行星轮在自转的同时并做公转运动，通过滑块轴承带动转臂及输出轴运转。加压装置是由一组碟簧组成，它对压盘、行星轮、太阳轮施加轴向压力，使其转动时产生磨擦，通过专用牵引油产生的牵引力来传递动力。调速控制机构的工作过程是当转动手轮时，通过调速丝杆、调节螺母、调节柄带动调速凸轮改变其角向位置，并通过固定平面凸轮曲线面使调速凸轮产生轴向移动，从而改变调速凸轮和定环的间隙，行星轮就能作径向移动，从而改变了传动半径，最终实现了稳定的无级变速。

It consists of planet mechanism, speed regulation mechanism, pressurizing equipment and electromotor, etc. The planet mechanism comprises sun gear, pressure plate, fixed planar cam, governor cam, fixation ring, planet gear and rotation arm (planet carrier). Power supply is from electromotor input, which drives the sun gear. As the fixation ring and the governor cam are stable, the planet gear is rotating and revolving simultaneously, which drives the rotation arm and the output shaft by the sliding bearing. The pressurizing equipment is constituted by a group of disc springs, exerting axial pressure on the pressure plate, the planet gear and the sun gear with friction caused when they are rotating. Therefore, the power is transmitted by the traction force generated by special traction lubricant. The working process of the control mechanism caused by speed adjustment is to change its angle position by the governor cam which is driven by the governor lead screw, the adjusting nut and the adjusting handle and make the governor cam in axial movement through the curved surface of the fixed planar cam when turning the handwheel. Thus, the clearance between the governor cam and the fixation ring is changed and the planet gear will move radially, which alters the transmission radius with stable stepless speed change achieved.



UD 系列选型 | Options of UD Series

使用条件及选型结果 / Conditions and results

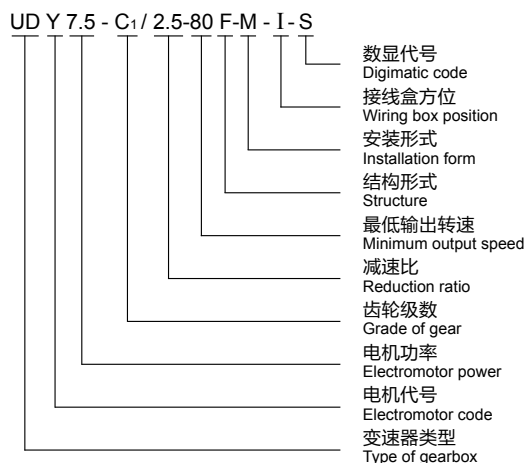
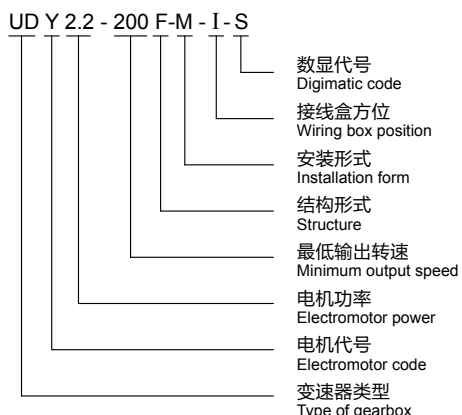
使用条件 / Condition ○

选型结果 / Result ●

○ 负荷容量 (被驱动设备输入功率或输入转矩) Load capacity (Input power or input torque of the driven equipment)	M=100N.m	
○ 电源电压 / Voltage	380V	
○ 电源频率 / Frequency	50Hz	
○ 要求转速 / Speed required	80-400r/min	
○ 运行系数 K / Performance coefficient	均匀负荷, 14 小时 / 天 $K_A=1.25$ 查表 P2 启动次数: 5 次 / 小时 $K_S=1$ 查表 P4 可靠度: 一般 $K_R=1$ 查表 P4 $K=K_A * K_S * K_R=1.25$	Uniform load, 14 hours/day $K_A=1.25$ check the table P2 Number of startups: 5 times/hour $K_S=1$ check the table P4 Reliability: normal $K_R=1$ check the table P4
○ 安装形式 / Type of installation	平行轴、卧装与被驱动 设备直联 B3 查表 P14	Parallel shaft, horizontal installation B3 check the table P14
○ 承载能力计算 / Calculation of bearing capacity	$M_{2min} \geq M_{S2} * K=125N.m$	
● 确认机型 / Confirmation of machine	根据 N_2 及 M_{2min} 查表 P10 得: UDY 7.5-C ₁ / 2.5-80	Based on N_2 and M_{2min} & table P10: UDY 7.5-C ₁ / 2.5-80
● 确认环境条件 / Confirmation of environmental condition	室内、环境温度 28℃ OK	Inside, ambient temperature 28℃ OK
● 确认电机规格 / Confirmation of electromotor specification	380V、50Hz 无制动器、室内型 / Without brake, for inside OK	
● 结束选型 / End of selection	UDY 7.5-C ₁ / 2.5-80 380V、50Hz 无制动器、室内型 / Without brake, for inside	

UD

UD 系列型号规格表示方式 | Denotation of Specification & Dimension of UD Series



变速器类型 Type of gearbox	电机代号 Electromotor code	电机功率 Electromotor power	齿轮级数 Grade of gear	减速比 Reduction ratio	最低输出转速 Minimum output speed	结构形式 Structure	安装形式 Installation form	接线盒方位 Wiring box position	数显代号 Digimatic code
UD 行星锥盘 无级变速器 UD planetary cone-ring stepless variator	普通 Y ₂ Normal Y ₂	见选型 参数表 See selections Parameter list	见选型 参数表 See selections Parameter list	见选型 参数表 See selections Parameter list	见选型 参数表 See selections Parameter list	卧式 (W 省略) Horizontal (W omitted)	见表 P14 See the table P14	见表 P6 See the table P6	S
	防爆 B Explosion protection B								
	制动 E Brake E								
	变频 V Frequency conversion V								
	变频制动 VE Brake by frequency conversion VE								
	多速 D Multi-speed D								
分马力 F Fractional horsepower F	立式 (F) Vertical (F)	立、卧式 (FW) Vertical & Horizontal (FW)							

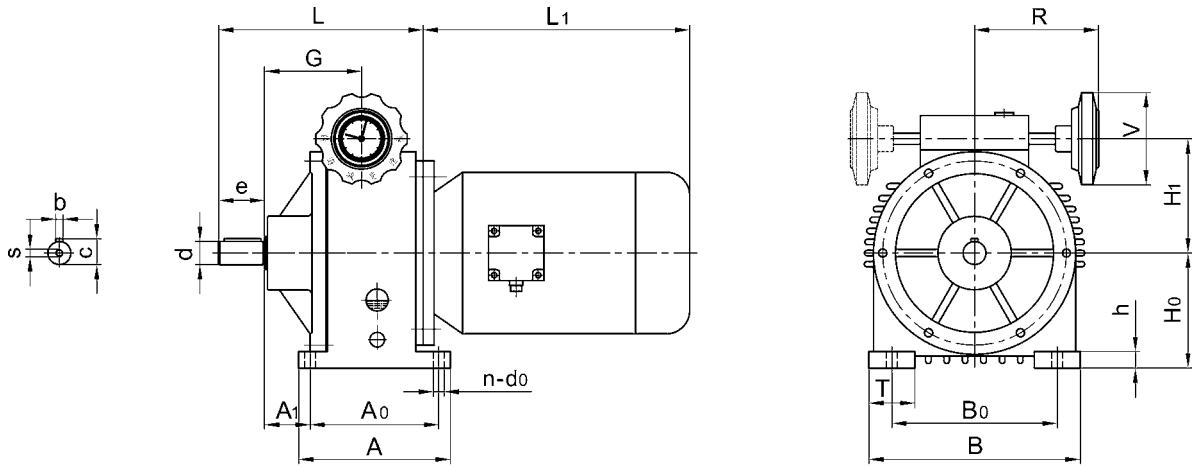
UD 系列选型参数表 | Parameter List Selections of UD Series

机座号 Housing No.		04		07		15		40		75		150			
输入功率 (kW) Input power	四级 4-pole	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	
	六级 6-pole	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	
型号 Model	类别 Type	输出转速 r/min Output speed	许用输出转矩 N.m Permissible output torque												
UDY-	1	200-1000	4.2-2	6.2-3	10.4-5	12.5-6	18.4-9	25-12	36-18	50-24	67-33	92-45	125-61	176-88	235-118
		130-650	4.6-2.3	6.4-3.2	10.4-5.2	15-7.5	21-10	28-14	38-19	56-28	77-38	103-51	141-70	190-95	280-140
	2	150-750	4.6-2.3	6.4-3.2	10.4-5.2	15-7.5	21-10	28-14	38-19	56-28	77-38	103-51	141-70	190-95	280-140
		100-500	4.6	6.4	10.4	15	21	28	38	56	77	103	141	190	280

UD-C₁ 系列选型参数表 | Parameter List Selections of UD-C₁ Series

机座号 Housing No.		04		07		15		40		75		150			
输入功率 (kW) Input power	四级 4-pole	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	
	六级 6-pole	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5			
型号 Model	类别 Type	输出转速 r/min Output speed													
UDY-C ₁	1.4	100-500	5.7-2.7	8.5-4.1	13.7-6.2	17.1-8.3	25.2-12.3	34.2-16.2	49.3-24.6	68-33	92-45.4	126-62	171-84	241-120	322-162
		63-325	6.3-3.1	8.8-4.3	14.2-7.1	20.4-10	28.6-13.7	38-19	52-26	76.7-38	105-52	141-70	193-96		
	2.5	80-400	10.2-4.9	15.2-7.3	24.5-11	30.5-14.9	45-22	61-29	88-44	122-59	164-81	225-110	306-150	431-215	576-289
		52-260	11.3-5.6	15.7-7.6	25.4-12.7	36.5-18	51-24.5	68-34	93-46.5	137-68	188-93	252-125	345-172		
	5	40-200	20.4-9.8	30.4-14.6	49-22	61-29.8	90-44	122-58	176-88	244-118	328-162	450-220	612-300	862-430	1152-578
		26-130	22.6-11.2	31.4-15.2	50.8-25.4	73-36	102-49	136-68	186-93	274-134	376-186	504-250	690-344		

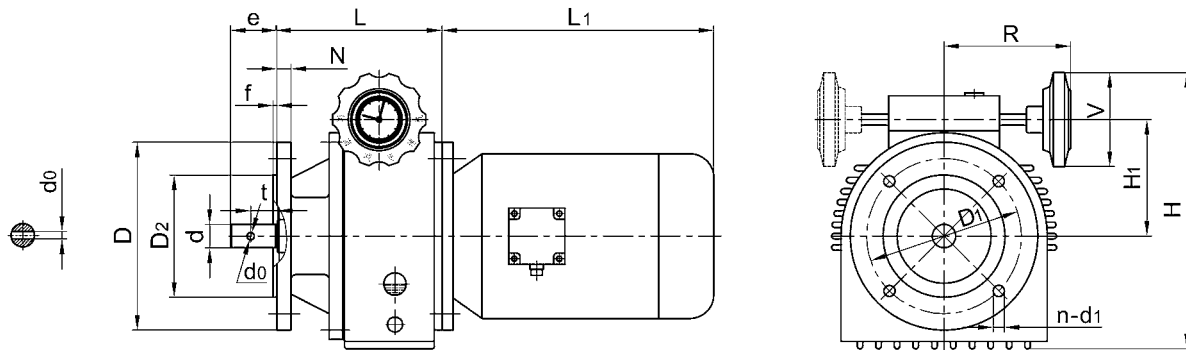
UD 系列基本型外形及安装尺寸 | Overall & Installation Dimension of UD Series



机座号 Housing No.	安装尺寸 Installation dimension						输出轴尺寸 Output shaft dimension					外形尺寸 Overall dimension									
	H ₀	A ₁	A ₀	B ₀	n	d ₀	d	e	b	c	s	A	B	G	T	h	R	V	H ₁	L	L ₁
04	90	30	105	120	4	10	14h6	30	5	16	M6	135	160	84	30	13	115	100	92	149	参考电机 见表 P5 See the table for electromotor P5
07	106	35	125	160	4	12	20h6	40	6	22.5	M6	150	190	88	40	15	115	100	112	182	
15	125	53	140	180	4	12	25h6	50	8	28	M8	165	230	108	50	18	128	100	124	226	
40	150	25	230	245	4	14	30h6	60	8	33	M8	270	300	134	55	25	147	100	153	268	
75	200	34	250	315	4	18	35h6	70	10	38	M10	290	365	134	70	30	186	160	193	321	
150	224	50	350	360 (350)	4	20	50h6	110	14	53.5	M12	420	460	198	85	45	242	200	255	455	

UD-F 系列外形及安装尺寸 (泵专用)

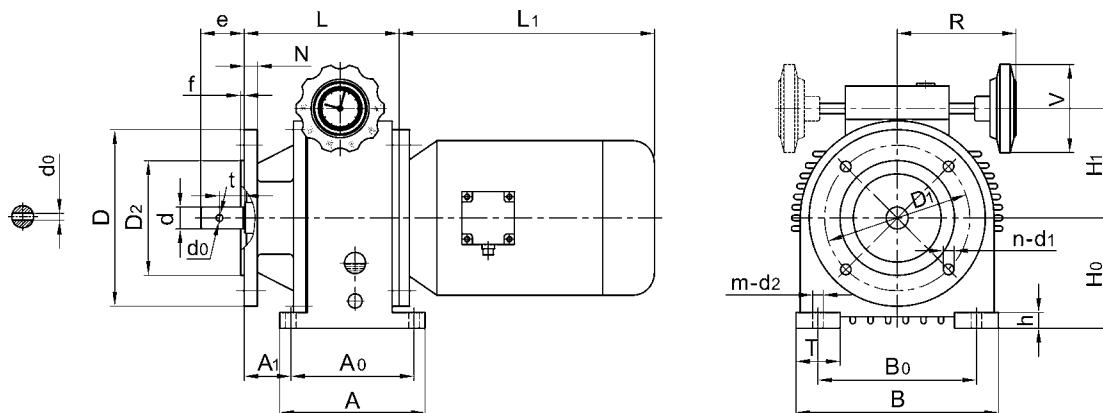
Overall & Installation Dimension of UD-F Series (Pump Exclusive)



机座号 Housing No.	安装尺寸 Installation dimension					输出轴尺寸 Output shaft dimension					外形尺寸 Overall dimension						
	D ₁	D ₂	f	n	d ₁	d	e	d ₀	t	D	H	H ₁	L	N	R	V	L ₁
04	130	110h7	3.5	4	10	14h6	30	6	15	160	228	92	119	8	115	100	参考电机 见表 P5 See the table for electromotor P5
07	165	130h7	3.5	4	12	20h6	40	6	30	200	266	112	142	14	115	100	
15	165	130h7	3.5	4	12	25h6	50	8	28	200	296	124	176	15	128	100	
	215	180h7	4		15					250							
40	215	180h7	4	4	15	30h6	60	10	28	250	347	153	208	16	147	100	
	265	230h7								300							
75	265	230h7	4	4	15	35h6	70	14	32	300	460	193	251	18	186	160	
	300	250h7	5		19					350							
150	350	300h7	5	4	19	50h6	110	20	60	400	551	255	345	22	242	200	

UD-FW 系列外形及安装尺寸 (泵专用)

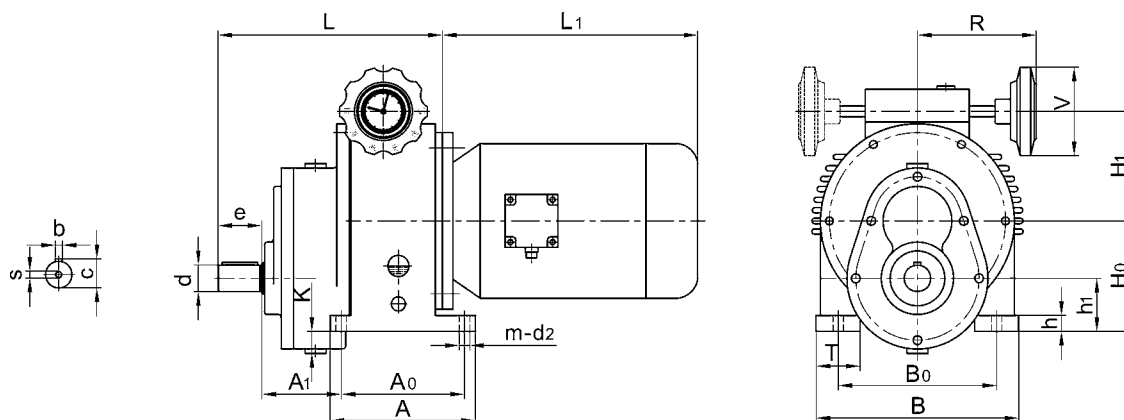
Overall & Installation Dimension of UD-FW Series (Pump Exclusive)



机座号 Housing No.	安装尺寸 Installation dimension										输出轴尺寸 Output shaft dimension					外形尺寸 Overall dimension										
	H ₀	D ₁	D ₂	f	n	d ₁	A ₁	A ₀	B ₀	m	d ₂	d	e	d ₀	t	D	A	B	T	h	N	R	V	H ₁	L	L ₁
04	90	130	110h7	3.5	4	10	30	105	120	4	10	14h6	30	6	15	160	135	160	30	13	8	115	100	92	119	See the table for electromotor P5
07	106	165	130h7	3.5	4	12	35	125	160	4	12	20h6	40	6	30	200	150	190	40	15	14	115	100	112	142	
15	125	165	130h7	3.5	4	12	53	140	180	4	12	25h6	50	8	28	200	165	230	50	18	15	128	100	124	176	
		215	180h7	4		15										250										
40	150	215	180h7	4	4	15	25	230	245	4	14	30h6	60	10	28	250	270	300	55	25	16	147	100	153	208	
		265	230h7													300										
75	200	265	230h7	4	4	15	34	250	315	4	18	35h6	70	14	32	300	290	365	70	30	18	186	160	193	251	
		300	250h7	350																						
150	224	350	300h7	5	4	19	50	350	360 (350)	4	20	50h6	110	20	60	400	420	460	85	45	22	242	200	255	345	

UD-C1 系列外形及安装尺寸 (泵专用)

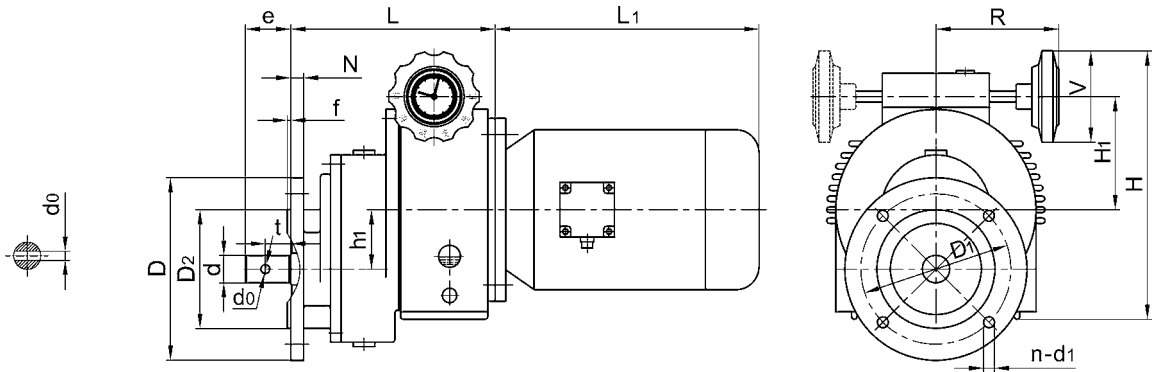
Overall & Installation Dimension of UD-C1 Series (Pump Exclusive)



机座号 Housing No.	安装尺寸 Installation dimension							输出轴尺寸 Output shaft dimension					外形尺寸 Overall dimension									
	H ₀	h ₁	A ₁	A ₀	B ₀	m	d ₂	d	e	b	c	s	A	B	T	h	R	V	H ₁	K	L	L ₁
04	90	45	66	105	120	4	10	20h6	30	6	22.5	M6	135	160	30	13	115	100	92	20	185	See the table for electromotor P5
07	106	46	69	125	160	4	12	28h6	45	8	31	M8	150	190	40	15	115	100	112	34	222	
15	125	60	82	140	180	4	12	30h6	50	8	33	M8	165	230	50	18	128	100	124	30	255	
40	150	70	64	230	245	4	14	40h6	60	12	43	M10	270	300	55	25	147	100	153	30	307	
75	200	80	156	250	315	4	18	50h6	80	14	53.5	M10	290	365	70	30	186	160	193	50	455	
150	224	74	130	350	360 (350)	4	20	63h6	105	18	67	M16	420	460	85	45	242	200	255	100	530	

UD-C₁-F 系列外形及安装尺寸 (泵专用)

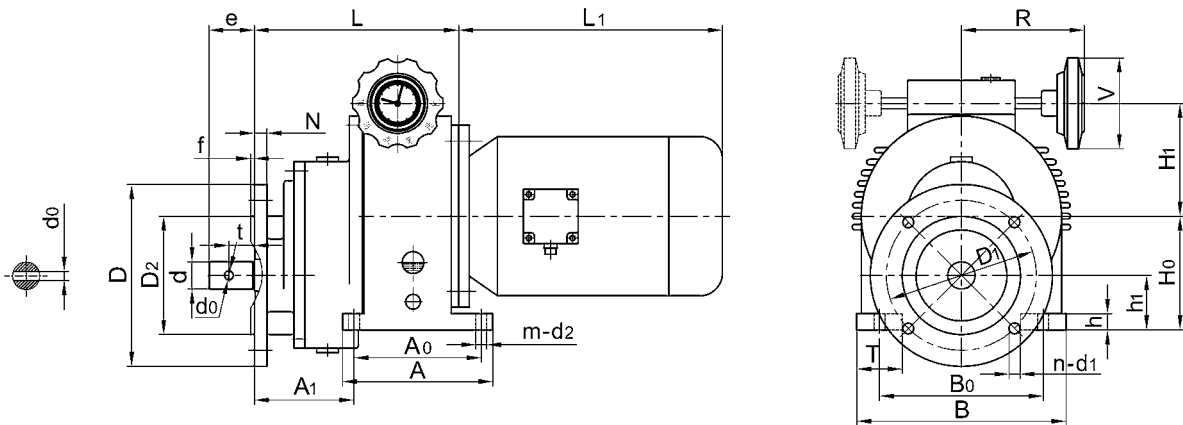
Overall & Installation Dimension of UD-C₁-F Series (Pump Exclusive)



机座号 Housing No.	安装尺寸 Installation dimension					输出轴尺寸 Output shaft dimension					外形尺寸 Overall dimension							
	D ₁	D ₂	f	h ₁	n	d ₁	d	e	d ₀	t	D	H	H ₁	L	N	R	V	L ₁
04	130	110h7	3.5	45	4	10	20h6	30	6	15	160	228	92	171	12	115	100	See the table for electromotor P5 电机匹配表格 P5
07	165	130h7	3.5	60	4	12	28h6	45	10	28	200	266	112	201	14	115	100	
15	165	130h7	4	65	4	12	30h6	50	10	28	200	296	124	225	14	128	100	
40	215	180h7	4	80	4	15	40h6	60	14	32	250	347	153	277	16	147	100	
75	265	230h7	5	120	4	15	50h6	80	16	40	300	460	193	371	20	186	160	
150	590	520h7	8	150	4	22	63h6	105	20	50	650	551	255	435	30	242	200	

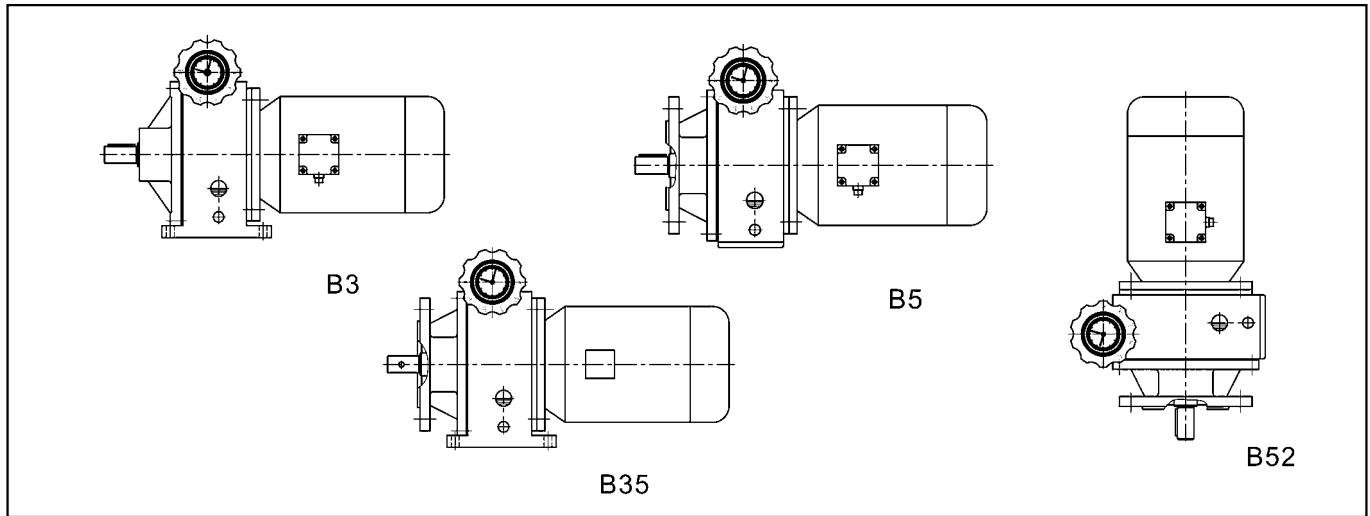
UD-C₁-FW 系列外形及安装尺寸 (泵专用)

Overall & Installation Dimension of UD-C₁-FW Series (Pump Exclusive)



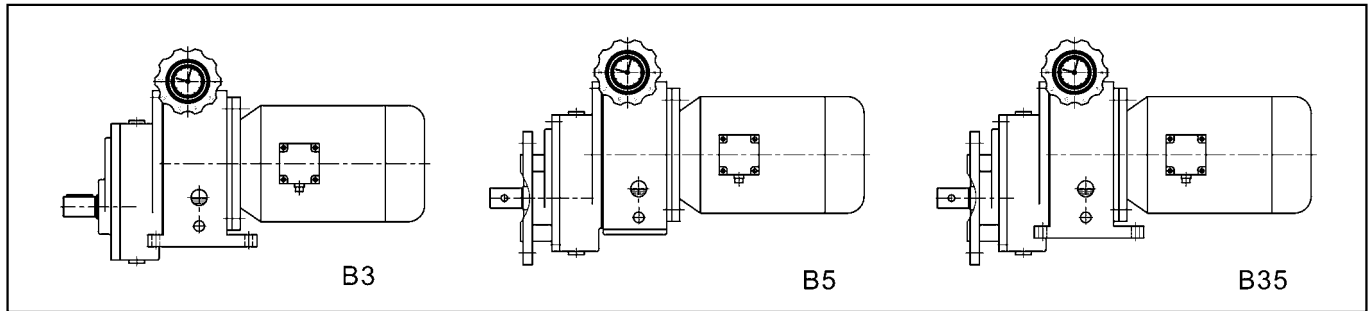
机座号 Housing No.	安装尺寸 Installation dimension										输出轴尺寸 Output shaft dimension					外形尺寸 Overall dimension											
	H ₀	h ₁	D ₁	D ₂	f	n	d ₁	A ₁	A ₀	B ₀	m	d ₂	d	e	d ₀	t	D	A	B	T	h	N	R	V	H ₁	L	L ₁
04	90	45	130	110h7	3.5	4	10	82	105	120	4	10	20h6	30	6	15	160	135	160	30	13	12	115	100	92	171	See the table for electromotor P5 电机匹配表格 P5
07	106	46	165	130h7	3.5	4	12	94	125	160	4	12	28h6	45	10	28	200	150	190	40	15	14	115	100	112	201	
15	125	60	165	130h7	4	4	12	102	140	180	4	12	30h6	50	10	28	200	165	230	50	18	14	128	100	124	225	
40	150	70	215	180h7	4	4	15	94	230	245	4	14	40h6	60	14	32	250	270	300	55	25	16	147	100	153	277	
75	200	80	265	230h7	5	4	15	154	250	315	4	18	50h6	80	16	40	300	290	365	70	30	20	186	160	193	371	
150	224	74	590	520h7	8	4	22	140	350	360 (350)	4	20	63h6	105	20	50	650	420	460	85	45	30	242	200	255	435	

■ **UD 系列安装形式** | Installation Type of UD Series



UD

■ **UD-C₁ 系列安装形式** | Installation Type of UD-C₂ Series



■ **UD 系列变速器润滑油量表**

The Comparison Table of UD Series Variable Speed Transmission

安装形式 Installation form	B3	B5	B52	B35
机座号 Housing No.	润滑油量 (升) Lubricating Oil Capacity (L)			
UD04	0.4	0.4	0.45	0.4
UD07	0.4	0.4	0.5	0.4
UD15	0.5	0.5	0.6	0.5
UD40	1.0	1.0	1.2	1.0
UD75	2.5	2.5	3.0	2.5
UD150	5.0	5.0	6.0	5.0

■ **UD 系列带齿轮润滑油量表**

The Comparison Table of UD Series With Gear Wheel

安装形式 Installation form	B3	B5	B35
机座号 Housing No.	润滑油量 (升) Lubricating Oil Capacity (L)		
UD04C1	0.15	0.15	0.15
UD07C1	0.3	0.3	0.3
UD15C1	0.4	0.4	0.4
UD40C1	0.6	0.6	0.6
UD75C1	1.0	1.0	1.0
UD150C1	2.0	2.0	2.0

■ **UD 系列重量表 (不含电机)** | Weight Table of UD Series (Without Motor)

机座号 Housing No.	UD04	UD07	UD15	UD40	UD75	UD150
重量 Weight (kg)	11	18	28	55	97	180
机座号 Housing No.	UD04-F	UD07-F	UD15-F	UD40-F	UD75-F	UD150-F
重量 Weight (kg)	11	19	30	52	99	190
机座号 Housing No.	UD04-C1	UD07-C1	UD15-C1	UD40-C1	UD75-C1	UD150-C1
重量 Weight (kg)	13	23	34	64	132	250
机座号 Housing No.	UD04-C1-F	UD07-C1-F	UD15-C1-F	UD40-C1-F	UD75-C1-F	UD150-C1-F
重量 Weight (kg)	13	25	35	61	132	300