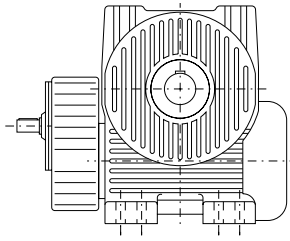


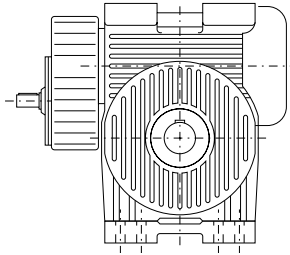
外形尺寸图

Dimension Sheets-Overview

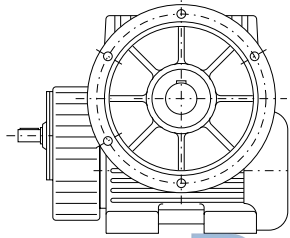
类型
Type



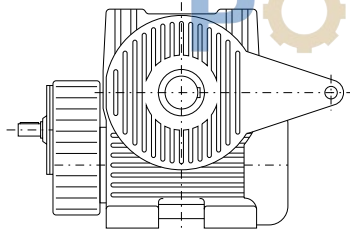
CSUW63 ... 630



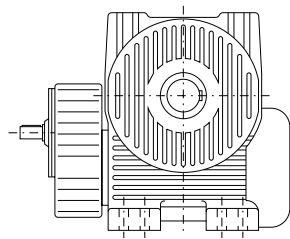
CSOW63 ... 630



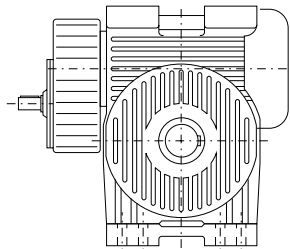
CSFW63 ... 630



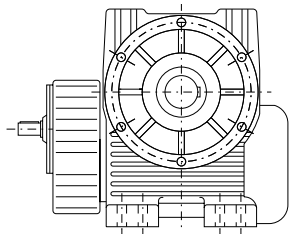
CSDA63 ... 630



CSUA63 ... 630



CSOA63 ... 630

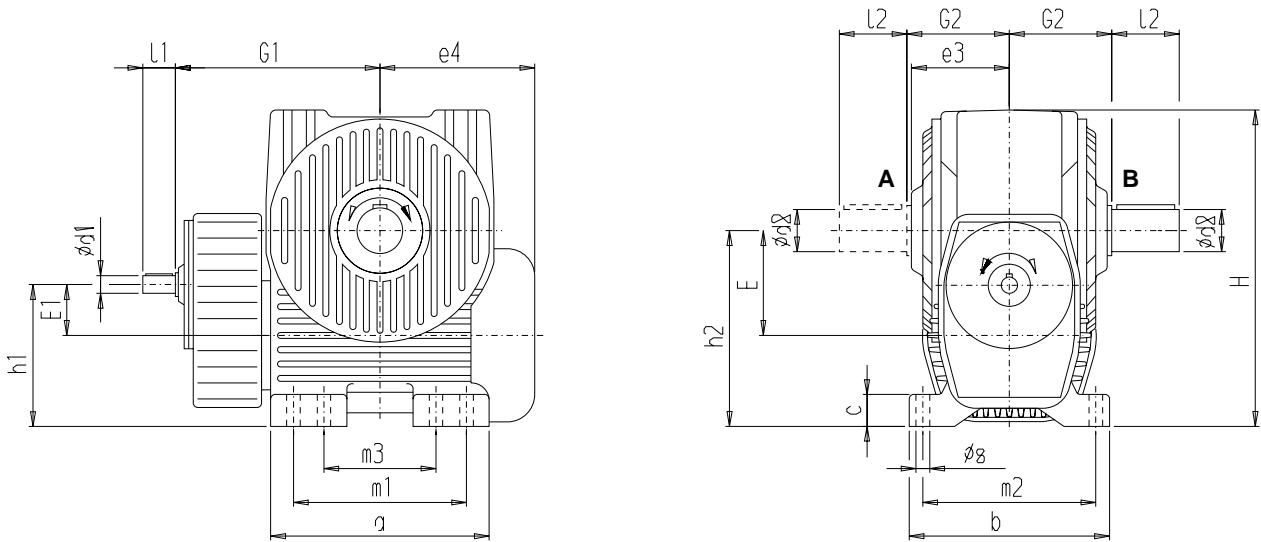


CSFA63 ... 630

斜齿轮蜗轮蜗杆齿轮箱, 类型 CSUW
输出轴在A侧或B侧或者在两侧

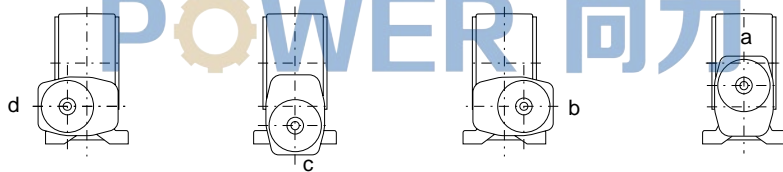
Helical Worm Gear Units Type CSUW
with Output shaft on side A, B or both sides

CSUW01



输入轴在部位a, b, c或d
输入轴优先设置在部位“a”;
规格 63 的输入轴只能在部位“a”。

Input shaft in position a, b, c or d
Input shaft in position "a" to be preferred; for size 63 position "a" is possible only

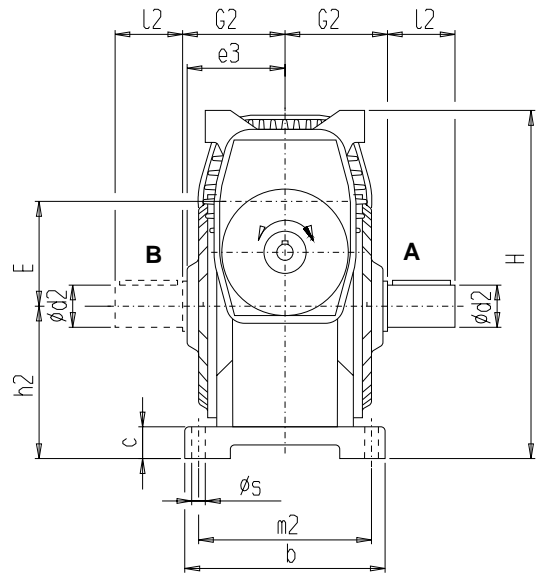
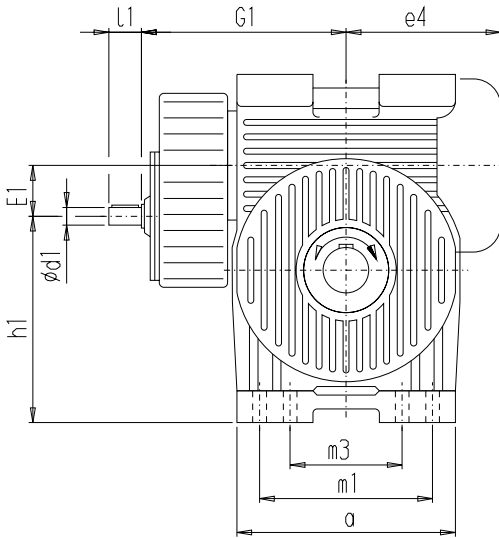


规格 Size	a	b	c	d1 l1		d1 l1		d2	e3	e4	E	E1	G1	G2	h1	h2	H	l2	m1	m2	m3	s
				i ₁ < 3.6	i ₁ > 3.6	i ₁ < 3.6	i ₁ > 3.6															
63	146	140	20	16 k6	30	14 k6	30	28 m6	69	119	63	50	168	72	113	126	208	50	115	120	-	12
80	175	168	24	16 k6	30	14 k6	30	38 m6	82	140	80	50	182	86	125	155	252	65	140	145	-	15
100	216	200	28	22 k6	35	18 k6	35	48 m6	98	168	100	63	220	102	153	190	309	80	170	170	-	15
120	254	235	32	22 k6	35	18 k6	35	55 m6	114	194	120	63	241	120	168	225	364	95	200	200	-	19
140	290	260	36	28 m6	40	22 k6	40	65 m6	126	220	140	80	286	132	195	255	416	105	230	225	-	19
160	324	295	40	28 m6	40	22 k6	40	70 m6	143	244	160	80	304	150	210	290	472	120	260	255	-	19
180	364	325	45	35 m6	50	28 m6	50	80 m6	159	272	180	100	350	165	240	320	522	140	290	280	-	24
200	396	350	50	35 m6	50	28 m6	50	90 m6	171	294	200	100	368	178	250	350	573	160	315	295	-	24
225	440	380	55	42 m6	60	38 m6	60	100 m6	188	323	225	125	419	195	290	390	638	180	350	325	-	28
250	480	415	60	42 m6	60	38 m6	60	110 n6	204	354	250	125	442	212	305	430	703	200	385	355	-	28
280	525	450	65	48 m6	70	42 m6	70	120 n6	222	387	280	160	506	230	360	480	786	220	430	385	-	35
315	590	490	70	48 m6	70	42 m6	70	140 n6	244	430	315	160	539	252	375	530	870	240	480	420	-	35
355	665	535	78	55 m6	80	48 m6	80	150 n6	266	478	355	200	620	275	440	595	977	260	540	460	-	42
400	748	585	85	55 m6	80	48 m6	80	170 n6	291	526	400	200	662	300	460	660	1086	290	605	510	-	42
450	855	562	92	70 m6	100	60 m6	100	190 n6	322	596	450	250	784	332	540	740	1270	320	750	495	560	35
500	955	616	100	70 m6	100	60 m6	100	210 n6	355	663	500	250	838	365	565	815	1410	350	840	540	630	42
560	1050	678	110	85 m6	120	75 m6	120	230 n6	389	733	560	315	957	400	665	910	1560	390	920	600	700	42
630	1175	750	120	85 m6	120	75 m6	120	255 n6	429	815	630	315	1022	440	700	1015	1745	450	1030	660	780	48

斜齿轮蜗轮蜗杆齿轮箱，类型 CSOW
输出轴在A侧或B侧或者在两侧

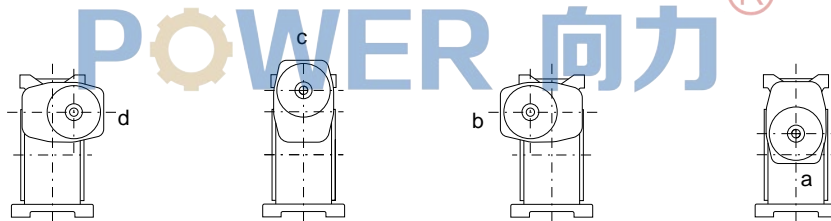
Helical Worm Gear Units Type CSOW
with Output shaft on side A, B or both sides

CSOW01



输入轴在部位a, b, c或d
输入轴优先设置在部位“a”；
规格 63 的输入轴只能在部位“a”。

Input shaft in position a, b, c or d
Input shaft in position "a" to be preferred; for size 63 position "a" is possible only.



规格 Size	a	b	c	d1		l1		d2	l2	e3	e4	E	E1	G1	G2	h1	h2	H	m1	m2	m3	s
				$i_1 < 3.6$	$i_1 > 3.6$																	
63	146	140	20	16 k6	30	14 k6	30	28 m6	50	69	119	63	50	168	72	113	100	226	115	120	-	12
80	175	168	24	16 k6	30	14 k6	30	38 m6	65	82	140	80	50	182	86	150	120	275	140	145	-	15
100	216	200	28	22 k6	35	18 k6	35	48 m6	80	98	168	100	63	220	102	182	145	335	170	170	-	15
120	254	235	32	22 k6	35	18 k6	35	55 m6	95	114	194	120	63	241	120	227	170	395	200	200	-	19
140	290	260	36	28 m6	40	22 k6	40	65 m6	105	126	220	140	80	286	132	255	195	450	230	225	-	19
160	324	295	40	28 m6	40	22 k6	40	70 m6	120	143	244	160	80	304	150	300	220	510	260	255	-	19
180	364	325	45	35 m6	50	28 m6	50	80 m6	140	159	272	180	100	350	165	325	245	565	290	280	-	24
200	396	350	50	35 m6	50	28 m6	50	90 m6	160	171	294	200	100	368	178	370	270	620	315	295	-	24
225	440	380	55	42 m6	60	38 m6	60	100 m6	180	188	323	225	125	419	195	400	300	690	350	325	-	28
250	480	415	60	42 m6	60	38 m6	60	110 n6	200	204	354	250	125	442	212	455	330	760	385	355	-	28
280	525	450	65	48 m6	70	42 m6	70	120 n6	220	222	387	280	160	506	230	487	367	847	430	385	-	35
315	590	490	70	48 m6	70	42 m6	70	140 n6	240	244	430	315	160	539	252	560	405	935	480	420	-	35
355	665	535	78	55 m6	80	48 m6	80	150 n6	260	266	478	355	200	620	275	610	455	1050	540	460	-	42
400	748	585	85	55 m6	80	48 m6	80	170 n6	290	291	526	400	200	662	300	705	505	1165	605	510	-	42
450	855	562	92	70 m6	100	60 m6	100	190 n6	320	322	596	450	250	784	332	730	530	1270	750	495	560	35
500	955	616	100	70 m6	100	60 m6	100	210 n6	350	355	663	500	250	838	365	845	595	1410	840	540	630	42
560	1050	678	110	85 m6	120	75 m6	120	230 n6	390	389	733	560	315	957	400	895	650	1560	920	600	700	42
630	1175	750	120	85 m6	120	75 m6	120	255 n6	430	429	815	630	315	1022	440	1045	730	1745	1030	660	780	48

① 采用螺栓和螺母安装

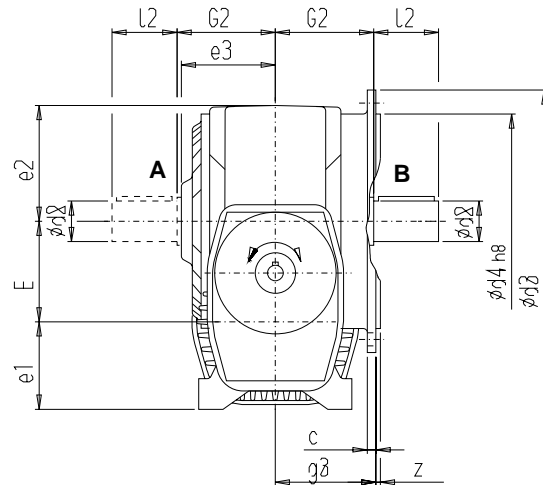
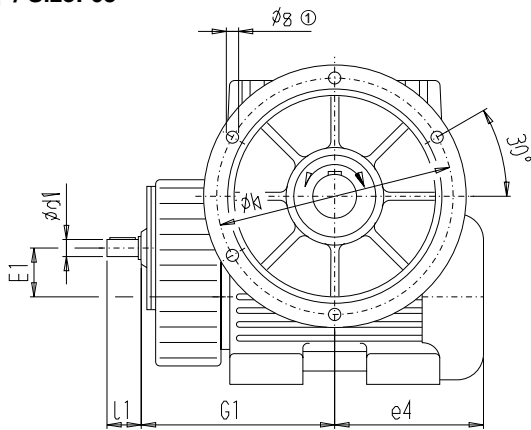
① Mounting with studs and nuts

斜齿轮蜗轮蜗杆齿轮箱, 类型 CSFW
法兰在A侧或B侧

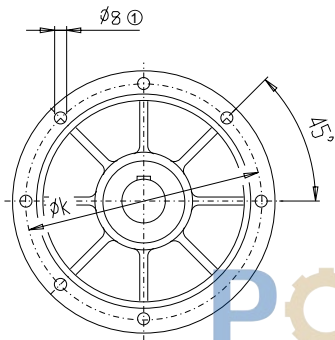
Helical Worm Gear Units Type CSFW
with flange on side A or B

CSFW01

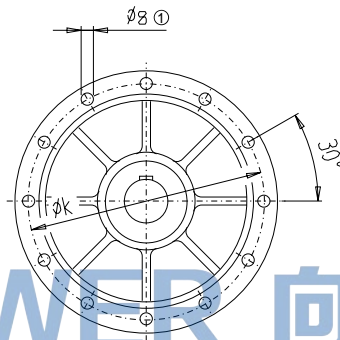
规格 / Size: 63



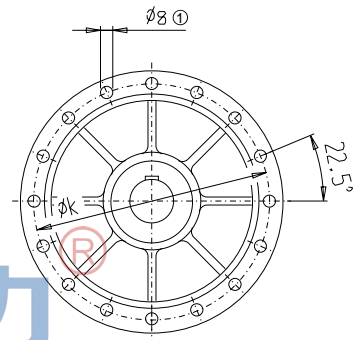
规格 / Size: 80 - 200



225 - 400



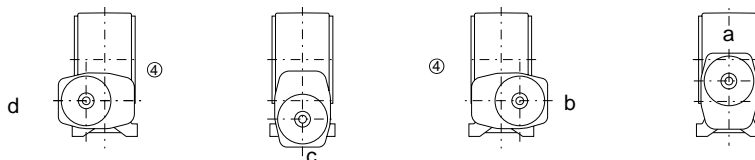
450 - 630



输入轴在部位a, b, c或d
输入轴优先设置在部位“a”;
规格 63 的输入轴只能在部位“a”。

Input shaft in position a, b, c or d
Input shaft in position "a" to be preferred; for size 63 position "a" is possible only.

④ 法兰只能在此侧



规格 Size	c	d1 $i_1 < 3.6$	l1 $i_1 > 3.6$	d1 $i_1 > 3.6$	l1 $i_1 > 3.6$	d2	l2	d3	d4	e1	e2	e3	e4	E	E1	g3	G1	G2	k	s	z
63	7	16 k6	30	14 k6	30	28 m6	50	188	150	63	82	69	119	63	50	76	168	72	170	5 x 9	3.5
80	8	16 k6	30	14 k6	30	38 m6	65	218	180	75	97	82	140	80	50	90	182	86	200	7 x 9	4
100	9	22 k6	35	18 k6	35	48 m6	80	266	220	90	119	98	168	100	63	107	220	102	245	7 x 11	4
120	10	22 k6	35	18 k6	35	55 m6	95	315	260	105	139	114	194	120	63	125	241	120	290	7 x 13.5	5
140	11	28 m6	40	22 k6	40	65 m6	105	360	305	115	161	126	220	140	80	138	286	132	335	7 x 13.5	5
160	12	28 m6	40	22 k6	40	70 m6	120	410	340	130	182	143	244	160	80	157	304	150	380	7 x 17.5	5
180	13	35 m6	50	28 m6	50	80 m6	140	450	380	140	202	159	272	180	100	172	350	165	420	7 x 17.5	5
200	14	35 m6	50	28 m6	50	90 m6	160	490	420	150	223	171	294	200	100	185	368	178	460	7 x 17.5	5
225	15	42 m6	60	38 m6	60	100 m6	180	540	465	165	248	188	323	225	125	202	419	195	505	12 x 17.5	5
250	16.5	42 m6	60	38 m6	60	110 n6	200	590	515	180	273	204	354	250	125	220	442	212	555	12 x 17.5	6
280	18	48 m6	70	42 m6	70	120 n6	220	665	575	200	306	222	387	280	160	238	506	230	625	12 x 22	6
315	19.5	48 m6	70	42 m6	70	140 n6	240	730	640	215	340	244	430	315	160	260	539	252	690	12 x 22	6
355	21	55 m6	80	48 m6	80	150 n6	260	825	725	240	382	266	478	355	200	286	620	275	780	12 x 26	6
400	22.5	55 m6	80	48 m6	80	170 n6	290	910	805	260	426	291	526	400	200	312	662	300	865	12 x 26	6
450	24	70 m6	100	60 m6	100	190 n6	320	1025	905	290	530	322	596	450	250	345	784	332	975	16 x 26	6
500	25.5	70 m6	100	60 m6	100	210 n6	350	1150	1015	315	595	355	663	500	250	380	838	365	1095	16 x 33	6
560	27	85 m6	120	75 m6	120	230 n6	390	1270	1125	350	650	389	733	560	315	415	957	400	1210	16 x 33	6
630	28.5	85 m6	120	75 m6	120	255 n6	430	1405	1260	385	730	429	815	630	315	456	1022	440	1345	16 x 33	6

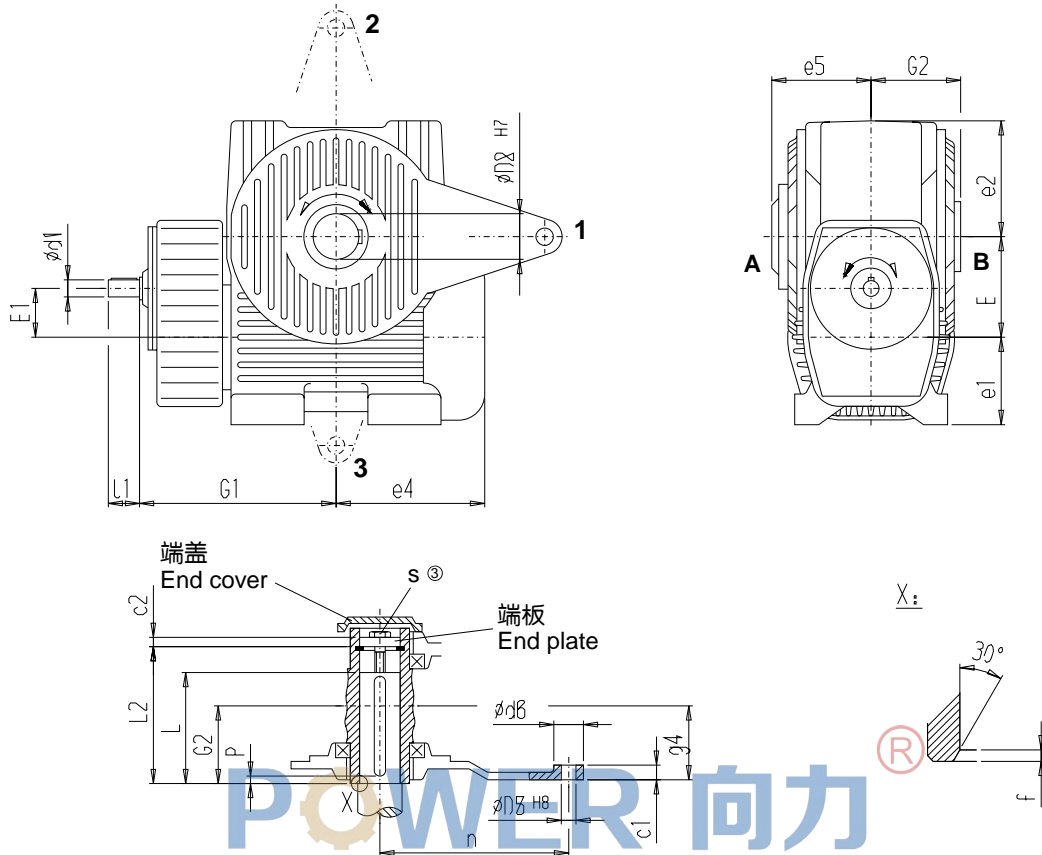
① 采用螺栓和螺母安装

① Mounting with studs and nuts

斜齿轮蜗轮蜗杆齿轮箱, 类型 CSDA
在A侧或B侧配置扭力臂支撑
带或不带端板

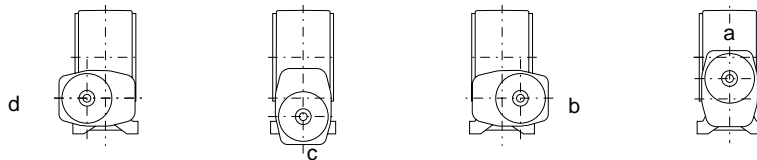
Helical Worm Gear Units Type CSDA
with torque arm on side A or B
with or without end plate

CSDA01



输入轴在部位a, b, c或d
输入轴优先设置在部位“a”;
规格 63 的输入轴只能在部位“a”。

Input shaft in position a, b, c or d
Input shaft in position "a" to be preferred; for size 63 position "a" is possible only.



规格 Size	c1	c2	d1		l1		d6	D2	D5	e1	e2	e4	e5	E	E1	f	g4	G1	G2	L		L2	n	P	s
			$i_1 < 3.6$	$i_1 > 3.6$	min.	max.*																			
63	16	8	16k6	30	14k6	30	32	30	16	63	82	119	73	63	50	2	62	168	65	94	102	115	140	10	M10
80	16	10	16k6	30	14k6	30	40	40	20	75	97	140	89	80	50	2	74	182	80	114	124	139.5	180	12	M16
100	20	11	22k6	35	18k6	35	40	50	20	90	119	168	102	100	63	3	88	220	93	136	147	165	225	14	M16
120	20	12	22k6	35	18k6	35	50	60	25	105	139	194	115	120	63	3	101	241	106	155	167	187	270	16	M20
140	25	14	28m6	40	22k6	40	50	65	25	115	161	220	127	140	80	3	113	286	118	173	186	208.5	315	18	M20
160	25	15	28m6	40	22k6	40	65	75	32	130	182	244	142	160	80	4	126	304	132	194	212	235.5	360	20	M20
180	32	16	35m6	50	28m6	50	65	85	32	140	202	272	154	180	100	4	138	350	144	212	233	259	405	22	M20
200	32	17	35m6	50	28m6	50	80	95	40	150	223	294	165	200	100	4	148	368	155	228	250	278	450	25	M24
225	40	18	42m6	60	38m6	60	80	105	40	165	248	323	182	225	125	5	163	419	170	250	276	307	505	28	M24
250	40	20	42m6	60	38m6	60	80	115	40	180	273	354	197	250	125	5	178	442	185	272	301	335	560	30	M24
280	40	22	48m6	70	42m6	70	100	125	50	200	306	387	213	280	160	5	192	506	200	293	326	363	630	32	M24
315	50	24	48m6	70	42m6	70	100	140	50	215	340	430	233	315	160	5	212	539	220	322	357	397	710	36	M30
355	50	27	55m6	80	48m6	80	120	160	60	240	382	478	256	355	200	5	233	620	242	354	394	438	800	40	M30
400	60	30	55m6	80	48m6	80	120	180	60	260	426	526	279	400	200	5	256	662	265	387	433	481	900	45	M30
450	60	33	70m6	100	60m6	100	150	200	75	290	530	596	308	450	250	6	282	784	292	425	480	532	1010	48	M30
500	75	36	70m6	100	60m6	100	150	220	75	315	595	663	336	500	250	6	310	838	320	465	528	585	1120	50	M30
560	75	38	85m6	120	75m6	120	170	240	90	350	650	733	370	560	315	6	351	957	352	510	583	643	1260	56	M36
630	90	40	85m6	120	75m6	120	170	270	90	385	730	815	406	630	315	6	377	1022	388	560	650	713	1420	63	M36

* Lmax 仅适用于采用压板的情况。

* Lmax. is applicable only when using a forcing plate.

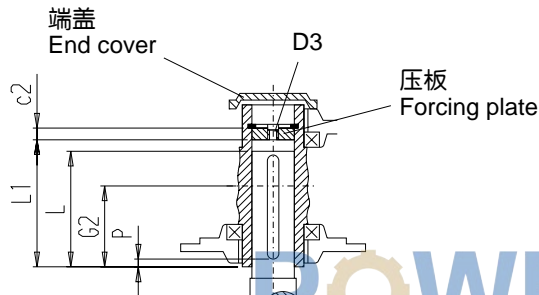
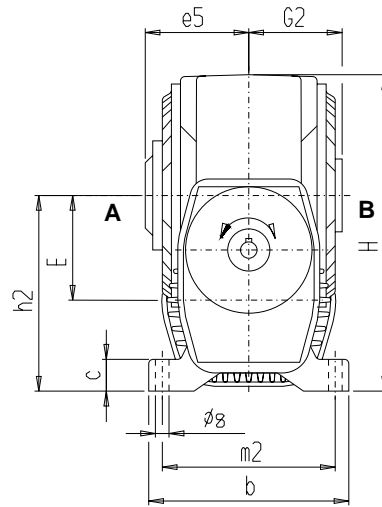
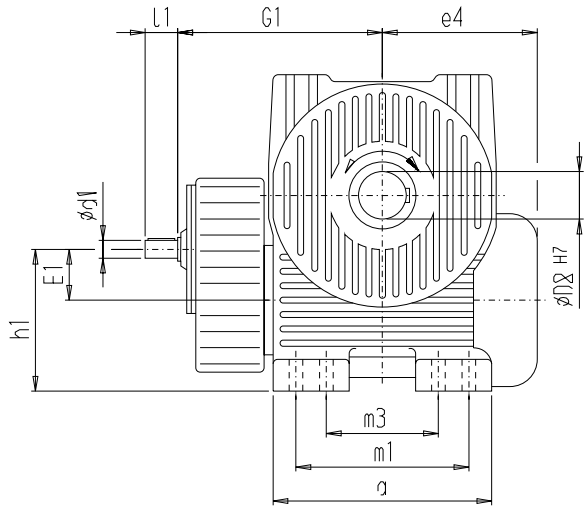
③ 螺栓不在供货范围之内。

③ Bolt doesnot belong to our scope of supply

斜齿轮蜗轮蜗杆齿轮箱, 类型 CSUA
输出在A侧或B侧
带或不带压板

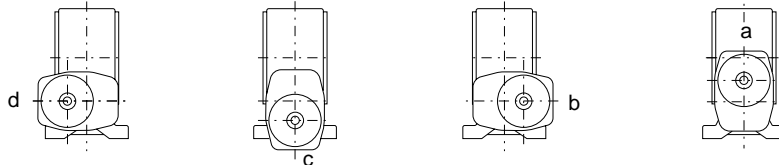
Helical Worm Gear Units Type CSUA
with output on side A or B
with or without forcing plate

CSUA01



输入轴在部位a,b,c或d
输入轴优先设置在部位“a”;
规格 63 的输入轴只能在部位“a”。

Input shaft in position a, b, c or d
Input shaft in position "a" to be preferred; for size 63 position "a" is possible only



规格 Size	a	b	c	c2	d1		l1		D2	D3	e4	e5	E	E1	G1	G2	h1	h2	H	m1	m2	m3	L		L1	P	s
					i ₁ < 3.6	i ₁ > 3.6	min.	max.*																			
63	146	140	20	8	16k6	30	14k6	30	30	M12	119	73	63	50	168	65	113	126	208	115	120	-	94	102	105.5	10	12
80	175	168	24	10	16k6	30	14k6	30	40	M20	140	89	80	50	182	80	125	155	252	140	145	-	114	124	128	12	15
100	216	200	28	11	22k6	35	18k6	35	50	M20	168	102	100	63	220	93	153	190	309	170	170	-	136	147	152	14	15
120	254	235	32	12	22k6	35	18k6	35	60	M24	194	115	120	63	241	106	168	225	364	200	200	-	155	167	173	16	19
140	290	260	36	14	28m6	40	22k6	40	65	M24	220	127	140	80	286	118	195	255	416	230	225	-	173	186	192.5	18	19
160	324	295	40	15	28m6	40	22k6	40	75	M24	244	142	160	80	304	132	210	290	472	260	255	-	194	212	218.5	20	19
180	364	325	45	16	35m6	50	28m6	50	85	M24	272	154	180	100	350	144	240	320	522	290	280	-	212	233	240	22	24
200	396	350	50	17	35m6	50	28m6	50	95	M30	294	165	200	100	368	155	250	350	573	315	295	-	228	250	258	25	24
225	440	380	55	18	42m6	60	38m6	60	105	M30	323	182	225	125	419	170	290	390	638	350	325	-	250	276	285	28	28
250	480	415	60	20	42m6	60	38m6	60	115	M30	354	197	250	125	442	185	305	430	703	385	355	-	272	301	311	30	28
280	525	450	65	22	48m6	70	42m6	70	125	M30	387	213	280	160	506	200	360	480	786	430	385	-	293	326	337	32	35
315	590	490	70	24	48m6	70	42m6	70	140	M36	430	233	315	160	539	220	375	530	870	480	420	-	322	357	369	36	35
355	665	535	78	27	55m6	80	48m6	80	160	M36	478	256	355	200	620	242	440	595	977	540	460	-	354	394	407	40	42
400	748	585	85	30	55m6	80	48m6	80	180	M36	526	279	400	200	662	265	460	660	1086	605	510	-	387	433	447	45	42
450	855	562	92	33	70m6	100	60m6	100	200	M36	596	308	450	250	784	292	540	740	1270	750	495	560	425	480	495	48	35
500	955	616	100	36	70m6	100	60m6	100	220	M36	663	336	500	250	838	320	565	815	1410	840	540	630	465	528	544	50	42
560	1050	678	110	38	85m6	120	75m6	120	240	M42	733	370	560	315	957	352	665	910	1560	920	600	700	510	583	600	56	42
630	1175	750	120	40	85m6	120	75m6	120	270	M42	815	406	630	315	1022	388	700	1015	1745	1030	660	780	560	650	668	63	48

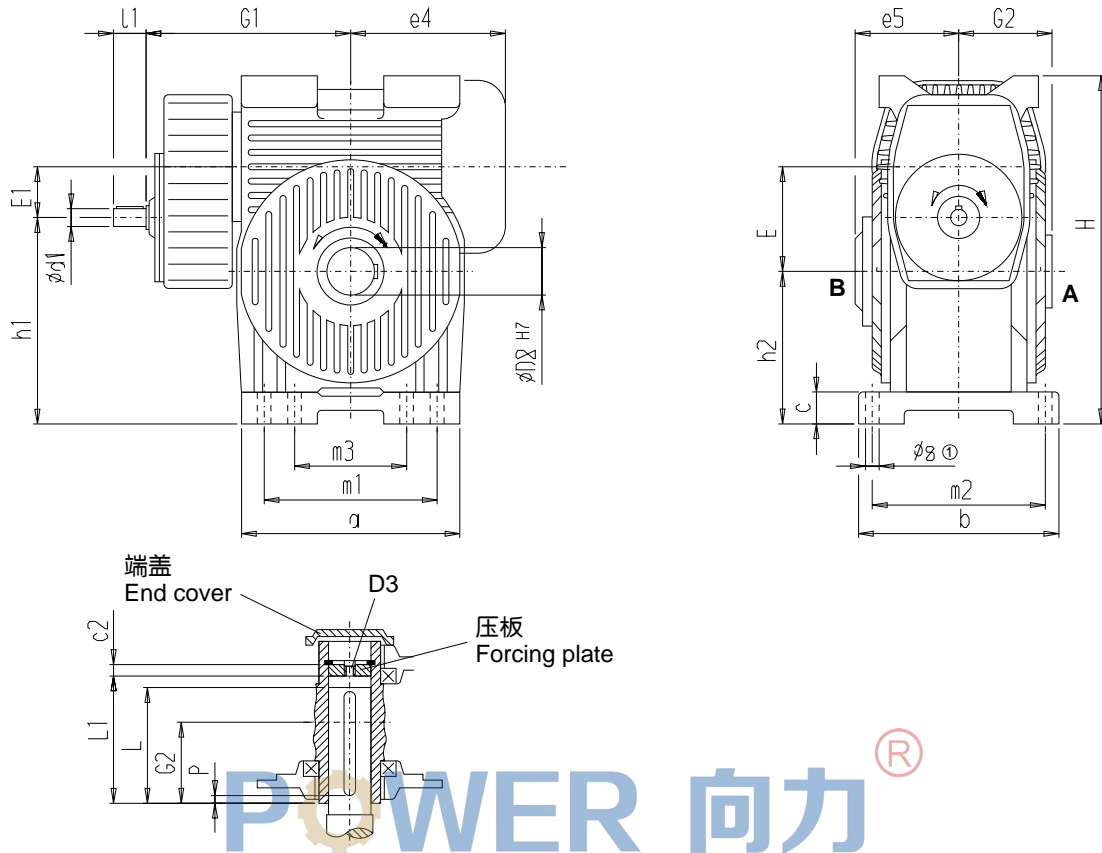
* Lmax 仅适用于采用压板的情况。

* Lmax. is applicable only when using a forcing plate.

斜齿轮蜗轮蜗杆齿轮箱，类型 CSOA
输出在A侧或B侧
带或不带压板

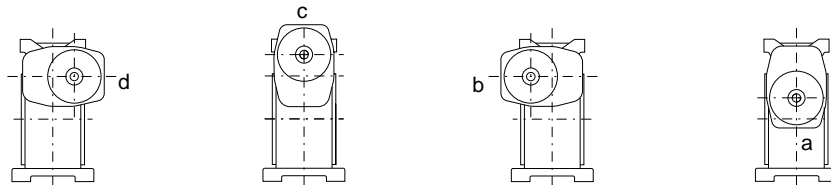
Helical Worm Gear Units Type CSOA
with output on side A or B
with or without forcing plate

CSOA01



输入轴在部位a, b, c或d
输入轴优先设置在部位“a”；
规格63的输入轴只能在部位“a”。

Input shaft in position a, b, c or d
Input shaft in position "a" to be preferred; for size 63 position "a" is possible only.



规格 Size	a	b	c	c2	d1		l1	D2	D3	e4	e5	E	E1	G1	G2	h1	h2	H	L		m1	m2	m3	L1	P	s
					i ₁ < 3.6	i ₁ > 3.6													min.	max.*						
63	146	140	20	8	16k6	30	14k6	30	M12	119	73	63	50	168	65	113	100	226	94	102	115	120	-	105.5	10	12
80	175	168	24	10	16k6	30	14k6	30	M20	140	89	80	50	182	80	150	120	275	114	124	140	145	-	128	12	15
100	216	200	28	11	22k6	35	18k6	35	M20	168	102	100	63	220	93	182	145	335	136	147	170	170	-	152	14	15
120	254	235	32	12	22k6	35	18k6	35	M24	194	115	120	63	241	106	227	170	395	155	167	200	200	-	173	16	19
140	290	260	36	14	28m6	40	22k6	40	M24	220	127	140	80	286	118	255	195	450	173	186	230	225	-	192.5	18	19
160	324	295	40	15	28m6	40	22k6	40	M24	244	142	160	80	304	132	300	220	510	194	212	260	255	-	218.5	20	19
180	364	325	45	16	35m6	50	28m6	50	M24	272	154	180	100	350	144	325	245	565	212	233	290	280	-	240	22	24
200	396	350	50	17	35m6	50	28m6	50	M30	294	165	200	100	368	155	370	270	620	228	250	315	295	-	258	25	24
225	440	380	55	18	42m6	60	38m6	60	M30	323	182	225	125	419	170	400	300	690	250	276	350	325	-	285	28	28
250	480	415	60	20	42m6	60	38m6	60	M30	354	197	250	125	442	185	455	330	760	272	301	385	355	-	311	30	28
280	525	450	65	22	48m6	70	42m6	70	M30	387	213	280	160	506	200	487	367	847	293	326	430	385	-	337	32	35
315	590	490	70	24	48m6	70	42m6	70	M36	430	233	315	160	539	220	560	405	935	322	357	480	420	-	369	36	35
355	665	535	78	27	55m6	80	48m6	80	M36	478	256	355	200	620	242	610	455	1050	354	394	540	460	-	407	40	42
400	748	585	85	30	55m6	80	48m6	80	M36	526	279	400	200	662	265	705	505	1165	387	433	605	510	-	447	45	42
450	855	562	92	33	70m6	100	60m6	100	M36	596	308	450	250	784	292	730	530	1270	425	480	750	495	560	495	48	35
500	955	616	100	36	70m6	100	60m6	100	M36	663	336	500	250	838	320	845	595	1410	465	528	840	540	630	544	50	42
560	1050	678	110	38	85m6	120	75m6	120	M42	733	370	560	315	957	352	895	650	1560	510	583	920	600	700	600	56	42
630	1175	750	120	40	85m6	120	75m6	120	M42	815	406	630	315	1022	388	1045	730	1745	560	650	1030	660	780	668	63	48

* Lmax 仅适用于采用压板的情况

* Lmax. is applicable only when using a forcing plate.

① 采用螺栓和螺母安装

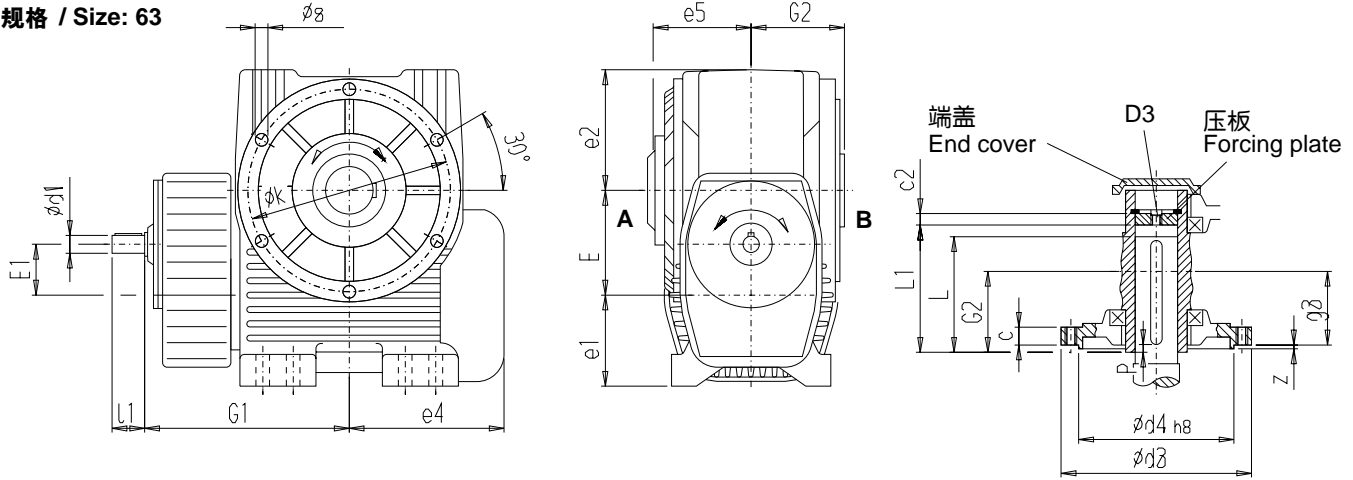
① Mounting with studs and nuts

斜齿轮蜗轮蜗杆齿轮箱, 类型 CSFA
在A侧或B侧配置法兰盖
带或不带压板

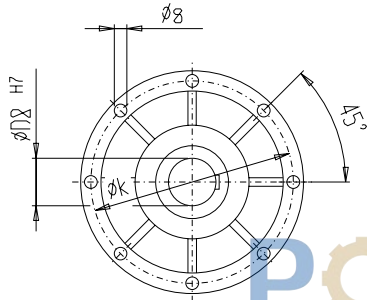
Helical Worm Gear Units Type CSFA
with flange cover on side A or B
with or without forcing plate

CSFA01

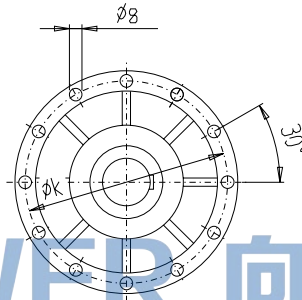
规格 / Size: 63



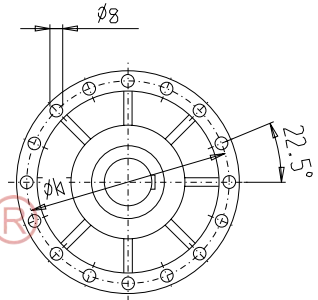
规格 / Size: 80 - 200



225 - 400

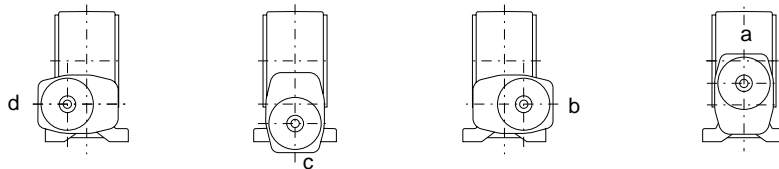


450 - 630



输入轴在部位a, b, c或d
输入轴优先设置在部位“a”;
规格 63 的输入轴只能在部位“a”。

Input shaft in position a, b, c or d
Input shaft in position "a" to be preferred; for size 63 position "a" is possible only



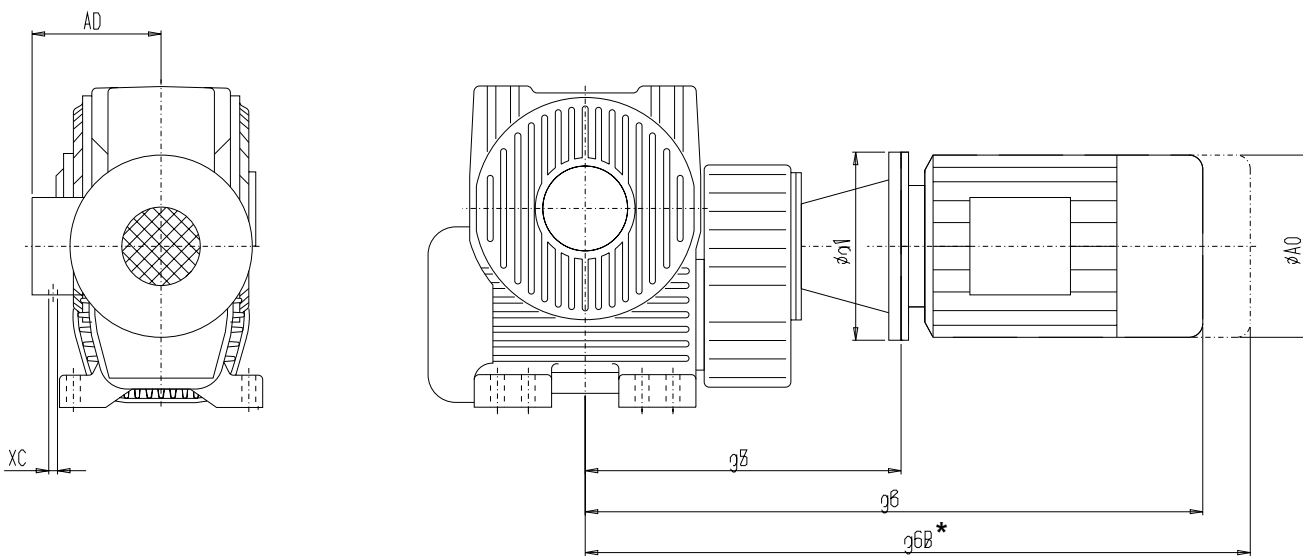
规格 Size	c	c2	d1		l1		d3	d4	D2	D3	g3	G1	G2	e1	e2	e4	e5	E	E1	k	L		L1	P min.	s	z
			i ₁ < 3.6	i ₁ > 3.6	min.	max.*																				
63	15	8	16k6	30	14k6	30	145	95	30	M12	63	168	65	63	82	119	73	63	50	130	94	102	105.5	10	6 x M8	3
80	16.5	10	16k6	30	14k6	30	175	125	40	M20	75	182	80	75	97	140	89	80	50	160	114	124	128	12	8 x M8	3.5
100	20	11	22k6	35	18k6	35	217	155	50	M20	90	220	93	90	119	168	102	100	63	195	136	147	152	14	8 x M10	3.5
120	23	12	22k6	35	18k6	35	258	190	60	M24	104	241	106	105	139	194	115	120	63	235	155	167	173	16	8 x M12	4
140	24.5	14	28m6	40	22k6	40	302	225	65	M24	116	286	118	115	161	220	127	140	80	275	173	186	192.5	18	8 x M12	4
160	27.5	15	28m6	40	22k6	40	338	260	75	M24	129	304	132	130	182	244	142	160	80	310	194	212	218.5	20	8 x M16	5
180	31.5	16	35m6	50	28m6	50	379	295	85	M24	142	350	144	140	202	272	154	180	100	350	212	233	240	22	8 x M16	5
200	34	17	35m6	50	28m6	50	416	330	95	M30	152	368	155	150	223	294	165	200	100	385	228	250	258	25	8 x M16	5
225	37.5	18	42m6	60	38m6	60	462	375	105	M30	167	419	170	165	248	323	182	225	125	430	250	276	285	28	12 x M16	5
250	40.5	20	42m6	60	38m6	60	510	420	115	M30	181	442	185	180	273	354	197	250	125	480	272	301	311	30	12 x M16	5
280	42.5	22	48m6	70	42m6	70	574	465	125	M30	196	506	200	200	306	387	213	280	160	535	293	326	337	32	12 x M20	6
315	47	24	48m6	70	42m6	70	638	530	140	M36	216	539	220	215	340	430	233	315	160	600	322	357	369	36	12 x M20	6
355	50.5	27	55m6	80	48m6	80	720	600	160	M36	238	620	242	240	382	478	256	355	200	680	354	394	407	40	12 x M24	6
400	52	30	55m6	80	48m6	80	804	680	180	M36	260	662	265	260	426	526	279	400	200	760	387	433	447	45	12 x M24	6
450	56	33	70m6	100	60m6	100	906	770	200	M36	287	784	292	290	530	596	308	450	250	860	425	480	495	48	16 x M24	6
500	59	36	70m6	100	60m6	100	1014	860	220	M36	314	838	320	315	595	663	336	500	250	960	465	528	544	50	16 x M30	6
560	65	38	85m6	120	75m6	120	1126	965	240	M42	346	957	352	350	650	733	370	560	315	1070	510	583	600	56	16 x M30	6
630	68	40	85m6	120	75m6	120	1258	1090	270	M42	382	1022	388	385	730	815	406	630	315	1200	560	650	668	63	16 x M30	6

* Lmax 仅适用于采用压板的情况

* Lmax. is applicable only when using a forcing plate.

斜齿轮蜗轮蜗杆齿轮箱
IEC电机的安装

Helical Worm Gear Units
Mounting of IEC Motors



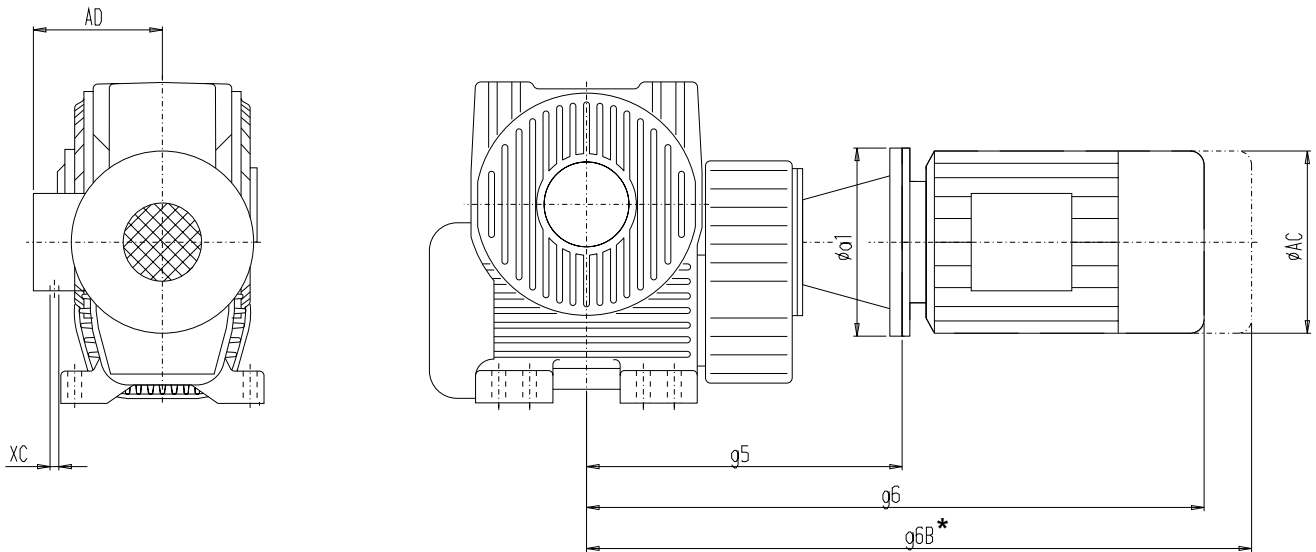
齿轮箱规格 Gear unit size	IEC标准电机, B5,V1或V3 安装 IEC standard motor type B5, V1 or V3								BIPEX联轴器, 类型 BWN BIPEX coupling type BWN					
	规格 Size	a1	g6	g6B	g5	AC	AD	XC	电机侧 Motor side		齿轮箱侧 Gear unit side			
									规格 Size	部件 Part	φ	部件 Part	φ i ₁ < 3.6	φ i ₁ > 3.6
63	MI71	160	462.5	506.5	240	138	118.5	2xM20x1.5	B 43	2	14	2	16	14
	MI80	200	495.5	547.5	252	158	126.5	2xM20x1.5	B 43	2	19	2	16	14
	MI90S	200	524	590	252	176	150	2xM25x1.5	B 43	2	24	2	16	14
	MI90L	200	524	590	252	176	150	2xM25x1.5	B 43	2	24	2	16	14
80	MI71	160	476.5	520.5	254	138	118.5	2xM20x1.5	B 43	2	14	2	16	14
	MI80	200	509.5	561.5	266	158	126.5	2xM20x1.5	B 43	2	19	2	16	14
	MI90S	200	538	604	266	176	150	2xM25x1.5	B 43	2	24	2	16	14
	MI90L	200	538	604	266	176	150	2xM25x1.5	B 43	2	24	2	16	14
100	MI71	160	519.5	563.5	297	138	118.5	2xM20x1.5	B 43	2	14	2	22	18
	MI80	200	552.5	604.5	309	158	126.5	2xM20x1.5	B 53	2	19	2	22	18
	MI90S	200	581	647	309	176	150	2xM25x1.5	B 53	2	24	2	22	18
	MI90L	200	581	647	309	176	150	2xM25x1.5	B 53	2	24	2	22	18
	MI100L	250	636	708	331	194	160	2xM25x1.5	B 62	2	28	2	22	18
	MI112M	250	679.5	760.5	331	218	167.5	2xM25x1.5	B 62	2	28	2	22	18
120	MI71	160	540.5	584.5	318	138	118.5	2xM20x1.5	B 43	2	14	2	22	18
	MI80	200	573.5	625.5	330	158	126.5	2xM20x1.5	B 53	2	19	2	22	18
	MI90S	200	602	668	330	176	150	2xM25x1.5	B 53	2	24	2	22	18
	MI90L	200	602	668	330	176	150	2xM25x1.5	B 53	2	24	2	22	18
	MI100L	250	657	729	352	194	160	2xM25x1.5	B 62	2	28	2	22	18
	MI112M	250	700.5	781.5	352	218	167.5	2xM25x1.5	B 62	2	28	2	22	18
140	MI80	200	625.5	677.5	382	158	126.5	2xM20x1.5	B 62	2	19	2	28	22
	MI90S	200	654	720	382	176	150	2xM25x1.5	B 62	2	24	2	28	22
	MI90L	200	654	720	382	176	150	2xM25x1.5	B 62	2	24	2	28	22
	MI100L	250	707	779	402	194	160	2xM25x1.5	B 62	2	28	2	28	22
	MI112M	250	750.5	831.5	402	218	167.5	2xM25x1.5	B 62	2	28	2	28	22
	MI132S	300	839.5	939.5	424	258	181	2xM32x1.5	AB 72	2	38	1	28	22
	MI132M	300	839.5	939.5	424	258	181	2xM32x1.5	AB 72	2	38	1	28	22

* 这些尺寸可能因电机产品的品牌而有所差异。它们适用于未配置辅助设备的电机。

* The dimensions may vary depending on the motor manufacture. They are valid for motors without auxiliary equipment.

斜齿轮蜗轮蜗杆齿轮箱
IEC电机的安装

Helical Worm Gear Units
Mounting of IEC Motors



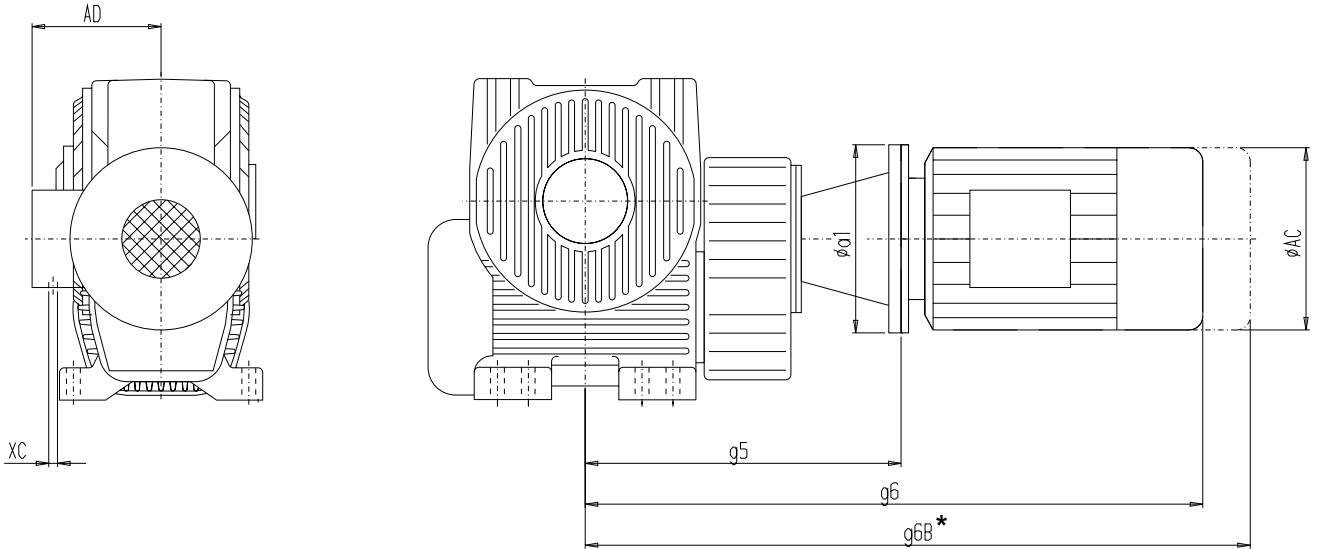
齿轮箱规格 Gear unit size	IEC 标准电机, B5,V1或V3 安装 IEC standard motor type B5, V1 or V3								BIPEX 联轴器, 类型 BWN BIPEX coupling type BWN					
	规格 Size	a1	g6	g6B	g5	AC	AD	XC	钻孔 / Bores					
									规格 Size	电机侧 Motor side 部件 Part	ϕ	齿轮箱侧 Gear unit side		
部件 Part	ϕ	部件 Part	ϕ	ϕ	ϕ									
160	MI80	200	643.5	695.5	400	158	126.5	2xM20x1.5	B 62	2	19	2	28	22
	MI90S	200	672	738	400	176	150	2xM25x1.5	B 62	2	24	2	28	22
	MI90L	200	672	738	400	176	150	2xM25x1.5	B 62	2	24	2	28	22
	MI100L	250	725	797	420	194	160	2xM25x1.5	B 62	2	28	2	28	22
	MI112M	250	768.5	849.5	420	218	167.5	2xM25x1.5	B 62	2	28	2	28	22
	MI132S	300	857.5	957.5	442	258	181	2xM32x1.5	AB 72	2	38	1	28	22
	MI132M	300	857.5	957.5	442	258	181	2xM32x1.5	AB 72	2	38	1	28	22
180	MI90S	200	736	802	464	176	150	2xM25x1.5	B 62	2	24	2	35	28
	MI90L	200	736	802	464	176	150	2xM25x1.5	B 62	2	24	2	35	28
	MI100L	250	781	853	476	194	160	2xM25x1.5	B 62	2	28	2	35	28
	MI112M	250	824.5	905.5	476	218	167.5	2xM25x1.5	B 62	2	28	2	35	28
	MI132S	300	913.5	1013.5	498	258	181	2xM32x1.5	B 72	2	38	2	35	28
	MI132M	300	913.5	1013.5	498	258	181	2xM32x1.5	B 72	2	38	2	35	28
	MI160M	350	1033	1150	534	310	199	2xM32x1.5	A 97	1	42	2	35	28
MI160L	350	1033	1150	534	310	199	2xM32x1.5	A 97	1	42	2	35	28	
200	MI90S	200	754	820	482	176	150	2xM25x1.5	B 62	2	24	2	35	28
	MI90L	200	754	820	482	176	150	2xM25x1.5	B 62	2	24	2	35	28
	MI100L	250	799	871	494	194	160	2xM25x1.5	B 62	2	28	2	35	28
	MI112M	250	842.5	923.5	494	218	167.5	2xM25x1.5	B 62	2	28	2	35	28
	MI132S	300	931.5	1031.5	516	258	181	2xM32x1.5	B 72	2	38	2	35	28
	MI132M	300	931.5	1031.5	516	258	181	2xM32x1.5	B 72	2	38	2	35	28
	MI160M	350	1051	1168	552	310	199	2xM32x1.5	A 97	1	42	2	35	28
MI160L	350	1051	1168	552	310	199	2xM32x1.5	A 97	1	42	2	35	28	

* 这些尺寸可能因电机品牌的不同而有所差异。它们适用于未配置辅助设备的电机

* The dimensions may vary depending on the motor manufacture. They are valid for motors without auxiliary equipment.

斜齿轮蜗轮蜗杆齿轮箱
IEC电机的安装

Helical Worm Gear Units
Mounting of IEC Motors



齿轮箱规格 Gear unit size	IEC标准电机, B5, V1或V3 安装 IEC standard motor type B5, V1 or V3								BIPEX 联轴器, 类型 BWN BIPEX coupling type BWN					
	规格 Size	a1	g6	g6B	g5	AC	AD	XC	钻孔 / Bores					
									电机侧 Motor side		齿轮箱侧 Gear unit side			
部件 Part	φ	部件 Part	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	φ	
225	MI100L	250	862	934	557	194	160	2xM25x1.5	AB 72	1	28	2	42	38
	MI112M	250	905.5	986.5	557	218	167.5	2xM25x1.5	AB 72	1	28	2	42	38
	MI132S	300	992.5	1092.5	577	258	181	2xM32x1.5	B 72	2	38	2	42	38
	MI132M	300	992.5	1092.5	577	258	181	2xM32x1.5	B 72	2	38	2	42	38
	MI160M	350	1112	1229	613	310	199	2xM32x1.5	A 97	1	42	1	42	38
	MI160L	350	1112	1229	613	310	199	2xM32x1.5	A 97	1	42	1	42	38
	MI180M	350	AA	AA	613	348	246	2xM40x1.5	AB 97	2	48	1	42	38
	MI180L	350	AA	AA	613	348	246	2xM40x1.5	AB 97	2	48	1	42	38
250	MI100L	250	885	957	580	194	160	2xM25x1.5	AB 72	1	28	2	42	38
	MI112M	250	928.5	1009.5	580	218	167.5	2xM25x1.5	AB 72	1	28	2	42	38
	MI132S	300	1015.5	1115.5	600	258	181	2xM32x1.5	B 72	2	38	2	42	38
	MI132M	300	1015.5	1115.5	600	258	181	2xM32x1.5	B 72	2	38	2	42	38
	MI160M	350	1135	1252	636	310	199	2xM32x1.5	A 97	1	42	1	42	38
	MI160L	350	1135	1252	636	310	199	2xM32x1.5	A 97	1	42	1	42	38
	MI180M	350	AA	AA	636	348	246	2xM40x1.5	AB 97	2	48	1	42	38
	MI180L	350	AA	AA	636	348	246	2xM40x1.5	AB 97	2	48	1	42	38
280	MI100L	250	959	1031	654	194	160	2xM25x1.5	AB 84	1	28	2	48	42
	MI112M	250	1002.5	1083.5	654	218	167.5	2xM25x1.5	AB 84	1	28	2	48	42
	MI132S	300	1089.5	1189.5	674	258	181	2xM32x1.5	AB 84	1	38	2	48	42
	MI132M	300	1089.5	1189.5	674	258	181	2xM32x1.5	AB 84	1	38	2	48	42
	MI160M	350	1209	1326	710	310	199	2xM32x1.5	AB 97	1	42	2	48	42
	MI160L	350	1209	1326	710	310	199	2xM32x1.5	AB 97	1	42	2	48	42
	MI180M	350	AA	AA	710	348	246	2xM40x1.5	B 97	2	48	2	48	42
	MI180L	350	AA	AA	710	348	246	2xM40x1.5	B 97	2	48	2	48	42
	MI200L	400	AA	AA	713	385	260	2xM50x1.5	AB 112	2	55	1	48	42

* 这些尺寸可能因电机品牌的不同而有所差异。
它们适用于未配置辅助设备的电机

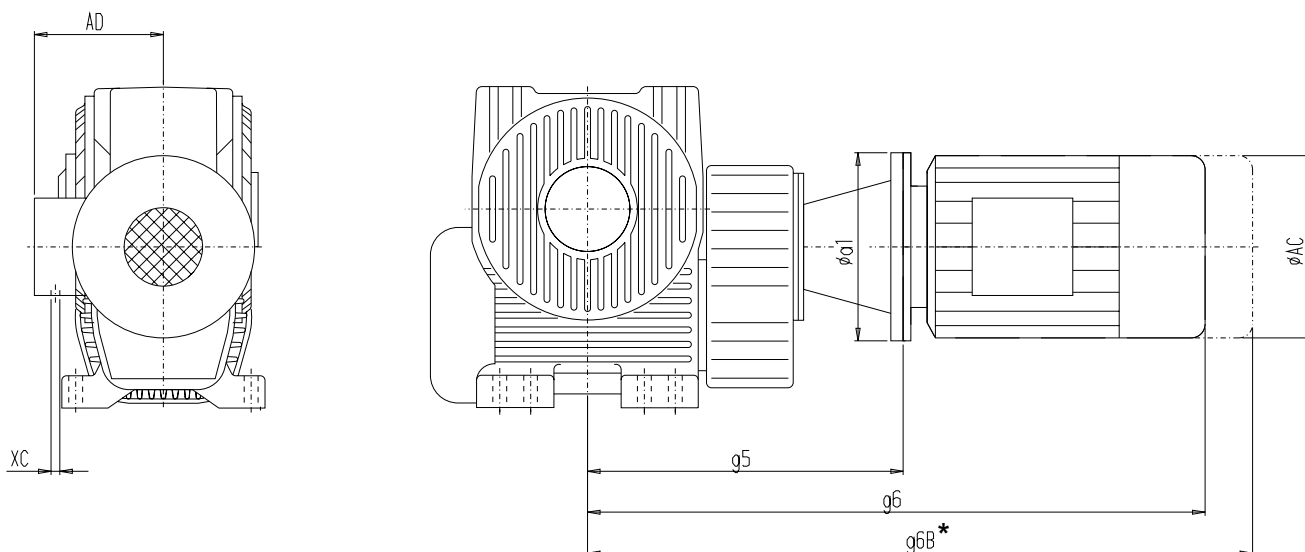
* The dimensions may vary depending on the motor manufacture. They are valid for motors without auxiliary equipment.

AA 敬请垂询

AA on request

斜齿轮蜗轮蜗杆齿轮箱
IEC电机的安装

Helical Worm Gear Units
Mounting of IEC Motors



齿轮箱规格 Gear unit size	IEC 标准电机, B5, V1 或 V3 安装 IEC standard motor type B5, V1 or V3								BIPEX 联轴器, 类型 BWN BIPEX coupling type BWN					
	规格 Size	a1	g6	g6B	g5	AC	AD	XC	孔 / Bores					
									电机侧 Motor side		齿轮箱侧 Gear unit side			
规格 Size	部件 Part	φ	部件 Part	φ	φ	φ	φ	φ	φ	φ	φ	φ		
315	MI100L	250	992	1064	687	194	160	2xM25x1.5	AB 84	1	28	2	48	42
	MI112M	250	1035.5	1116.5	687	218	167.5	2xM25x1.5	AB 84	1	28	2	48	42
	MI132S	300	1122.5	1222.5	707	258	181	2xM32x1.5	AB 84	1	38	2	48	42
	MI132M	300	1122.5	1222.5	707	258	181	2xM32x1.5	AB 84	1	38	2	48	42
	MI160M	350	1242	1359	743	310	199	2xM32x1.5	AB 97	1	42	2	48	42
	MI160L	350	1242	1359	743	310	199	2xM32x1.5	AB 97	1	42	2	48	42
	MI180M	350	AA	AA	743	348	246	2xM40x1.5	B 97	2	48	2	48	42
	MI180L	350	AA	AA	743	348	246	2xM40x1.5	B 97	2	48	2	48	42
	MI200L	400	AA	AA	746	385	260	2xM50x1.5	AB 112	2	55	1	48	42
355	MI132S	300	1216.5	1316.5	801	258	181	2xM32x1.5	AB 112	1	38	2	55	48
	MI132M	300	1216.5	1316.5	801	258	181	2xM32x1.5	AB 112	1	38	2	55	48
	MI160M	350	1333	1450	834	310	199	2xM32x1.5	AB 112	1	42	2	55	48
	MI160L	350	1333	1450	834	310	199	2xM32x1.5	AB 112	1	42	2	55	48
	MI180M	350	AA	AA	834	348	246	2xM40x1.5	AB 112	1	48	2	55	48
	MI180L	350	AA	AA	834	348	246	2xM40x1.5	AB 112	1	48	2	55	48
	MI200L	400	AA	AA	837	385	260	2xM50x1.5	B 112	2	55	2	55	48
	AM225S	450	1614.5	1853.5	867	463	360	2xM50x1.5	AB 127	2	60	1	55	48
	AM225M	450	1614.5	1853.5	867	463	360	2xM50x1.5	AB 127	2	60	1	55	48
400	MI132S	300	1258.5	1358.5	843	258	181	2xM32x1.5	AB 112	1	38	2	55	48
	MI132M	300	1258.5	1358.5	843	258	181	2xM32x1.5	AB 112	1	38	2	55	48
	MI160M	350	1375	1492	876	310	199	2xM32x1.5	AB 112	1	42	2	55	48
	MI160L	350	1375	1492	876	310	199	2xM32x1.5	AB 112	1	42	2	55	48
	MI180M	350	AA	AA	876	348	246	2xM40x1.5	AB 112	1	48	2	55	48
	MI180L	350	AA	AA	876	348	246	2xM40x1.5	AB 112	1	48	2	55	48
	MI200L	400	AA	AA	879	385	260	2xM50x1.5	B 112	2	55	2	55	48
	AM225S	450	1656.5	1895.5	909	463	360	2xM50x1.5	AB 127	2	60	1	55	48
	AM225M	450	1656.5	1895.5	909	463	360	2xM50x1.5	AB 127	2	60	1	55	48

* 这些尺寸可能因电机产品的不同而有所差异。
它们适用于未配置辅助设备的电机

AA 敬请垂询

联轴器孔按 ISO H7 加工。
平键槽按照 DIN6885 第 1 部分, 配置定位螺丝。

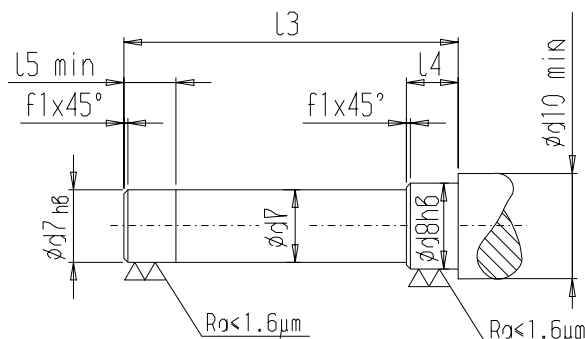
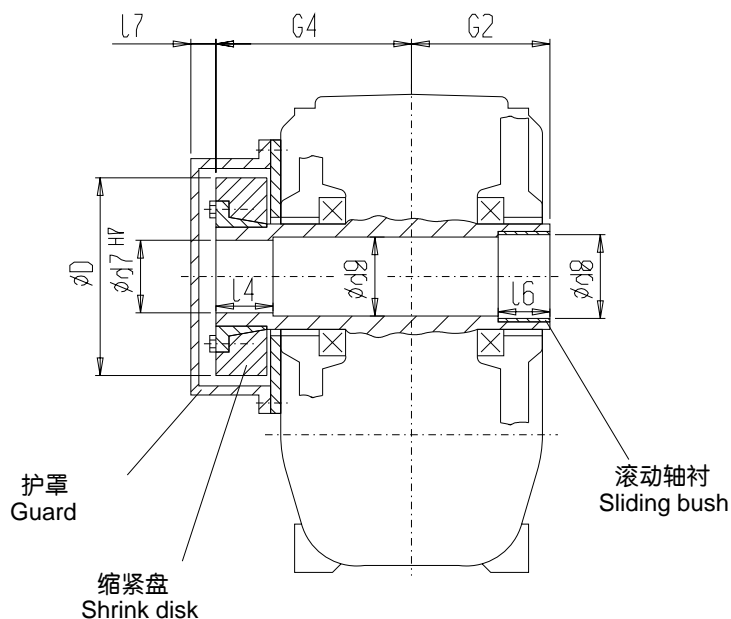
* The dimensions may vary depending on the motor manufacture. They are valid for motors without auxiliary equipment.

AA on request

Couplings finish bored to ISO H7 limits.
Keyway acc. to DIN 6885 / 1 with set screw.

斜齿轮蜗轮蜗杆齿轮箱
配置缩紧盘

Helical Worm Gear Units
with shrink disks



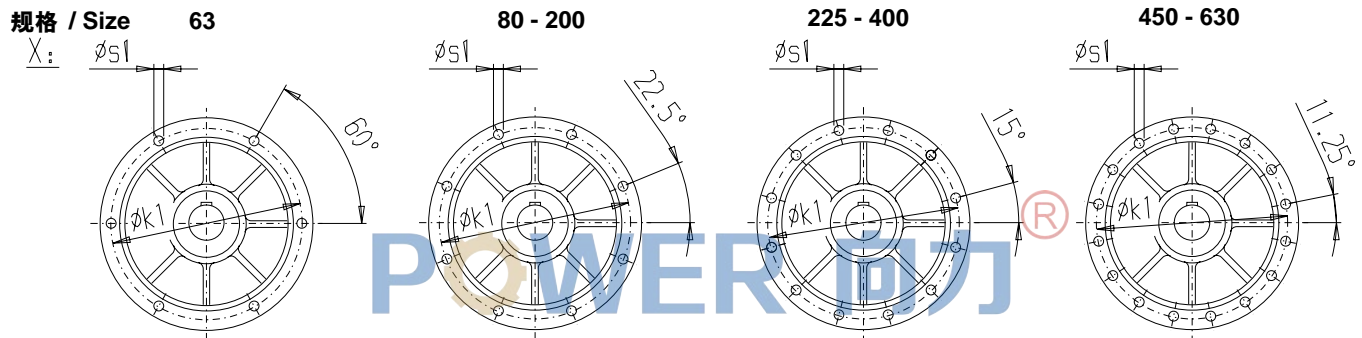
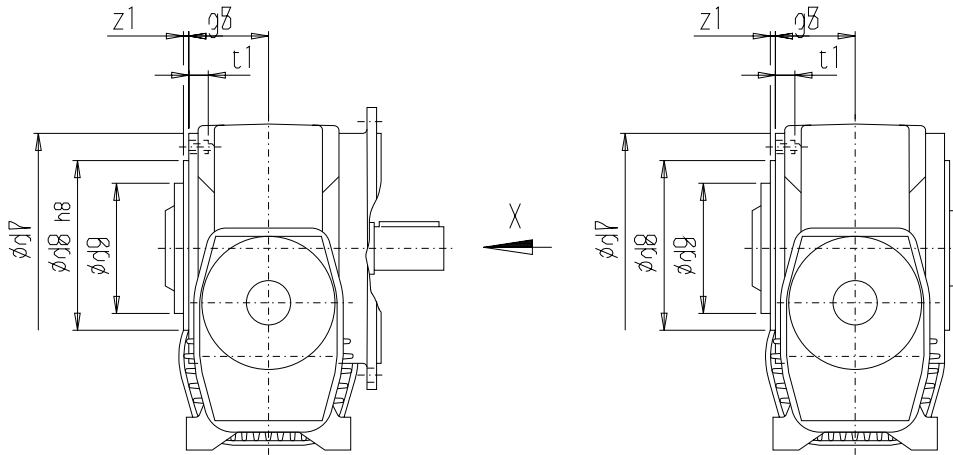
轴连接尺寸
Fitting dimensions for shaft



规格 Size	缩紧盘 / Shrink disk		d7	d8	d9	d10	f1	G2	G4	I3	I4	I5	I6	I7	
	型号 / Type	T _{2max} [Nm]													D
63	HSD 36 - 32	630	72	28	30	30	37	1	65	95	160	21	24	25	13
80	HSD 50 - 32	1400	90	39	40	40	48	0.5	80	112	192	25	28	30	13
100	HSD 68 - 32	2200	115	50	55	51	64	1	93	129	222	27	30	30	14
120	HSD 80 - 32	4600	141	60	65	61	75	1	106	144	250	29	32	32	16
140	HSD 90 - 32	6400	155	65	70	66	80	2	118	166	284	35	38	40	16
160	HSD 100 - 32	9700	170	75	80	77	90	2	132	184	316	40	43	45	16
180	HSD 110 - 32	14000	185	85	90	87	100	2	144	202	346	45	48	50	18
200	HSD 125 - 32	21200	215	95	100	97	110	2	155	216	371	48	51	50	19
225	HSD 140 - 32	29800	230	105	110	107	120	2	170	238	408	53	56	60	20
250	HSD 155 - 32	40000	263	115	120	117	130	2	185	257	442	57	60	60	20
280	HSD 165 - 32	51000	290	125	130	127	140	2	200	280	480	63	66	65	22
315	HSD 185 - 32	79000	320	140	150	142	160	2	220	317	537	78	82	80	23
355	HSD 200 - 32	95000	340	155	160	157	170	2	242	340	582	78	82	80	23
400	HSD 240 - 32	148000	405	175	180	177	190	2	265	385	650	98	102	100	27
450	HSD 260 - 32	215000	430	200	205	202	215	2	292	425	717	112	116	120	30
500	HSD 280 - 32	279000	460	220	225	222	235	2	320	467	787	125	130	135	31
560	HSD 320 - 32	346000	520	240	245	242	255	2	352	507	859	134	140	145	33
630	HSD 340 - 32	489000	570	270	275	272	285	2	388	558	946	148	155	160	34

斜齿轮蜗轮蜗杆齿轮箱
配置附加的法兰面

Helical Worm Gear Units
with additional flange surface



规格 Size	g5	d7	d8	d9	k1	s1	t1	z1
63	51	145	110	86	130	M8	12	3
80	62	175	140	110	160	M8	14	3.5
100	75	217	175	140	197	M10	17	3.5
120	86	258	210	175	235	M12	19	4
140	97	302	250	210	275	M12	19	4
160	108	338	280	240	311	M16	24	4
180	117	379	320	275	350	M16	24	5
200	125	416	355	310	387	M16	24	5
225	138	462	400	355	432	M16	24	5
250	150	510	450	400	480	M16	24	5
280	164	574	495	445	538	M20	29	6
315	180	638	560	510	602	M20	29	6
355	200	720	635	580	680	M24	39	6
400	222	804	715	660	762	M24	39	6
450	246	906	810	750	860	M24	39	6
500	271	1014	900	840	960	M30	46	6
560	298	1126	1010	940	1070	M30	46	6
630	332	1258	1140	1070	1200	M30	46	6

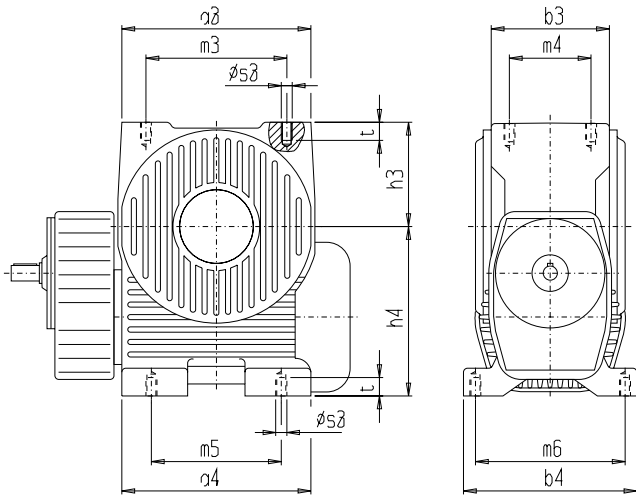
通过安装附加的法兰可以达到标准的法兰尺寸（齿轮箱对称）。

By fitting additional ring flanges, normal flange dimensions can be obtained (symmetrical gear housing).

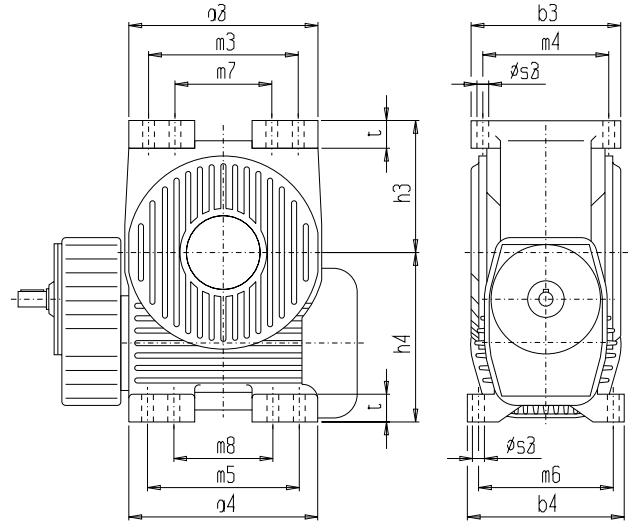
斜齿轮蜗轮蜗杆齿轮箱
配置附加的安装面

Helical Worm Gear Units
with additional mounting surface

规格 / Size 63 - 400



规格 / Size 450 - 630



规格 Size	安装面 / Mounting surface a3 x b3								安装面 / Mounting surface a4x b4							
	a3	b3	h3	m3	m4	m7	s3	t	a4	b4	h4	m5	m6	m8	s3	t
63	146	91	78	110	71	-	M10	19	146	110	126	114	89	-	M10	19
80	175	110	93	133	86	-	M12	21	175	130	155	140	109.5	-	M12	21
100	216	131	115	163	105	-	M12	23	216	160	190	170	133	-	M12	23
120	254	155	135	190	125	-	M16	25	254	183	225	194	151.5	-	M16	25
140	290	172	156	220	140	-	M16	26	290	204	255	220	172	-	M16	26
160	324	189	177	245	155	-	M16	27	324	223	290	240	187.5	-	M16	27
180	354	210	197	275	170	-	M20	30	364	245	320	268	209.5	-	M20	30
200	396	222	217	300	182	-	M20	31	396	260	350	280	219	-	M20	31
225	440	246	242	335	200	-	M24	38	440	280	390	300	234.5	-	M24	38
250	480	266	267	370	220	-	M24	40	480	305	430	340	265.5	-	M24	40
280	525	296	298	400	240	-	M30	45	525	345	480	430	290	-	M30	45
315	590	325	331	450	265	-	M30	45	590	370	530	480	310	-	M30	45
355	665	363	373	510	295	-	M36	55	665	415	595	540	350	-	M36	55
400	748	403	416	570	335	-	M36	55	748	445	660	605	375	-	M36	55
450	855	562	530	750	495	560	35	92	855	562	740	750	495	560	35	92
500	955	616	595	840	540	630	42	100	955	616	815	840	540	630	42	100
560	1050	678	650	920	600	700	42	110	1050	678	910	920	600	700	42	110
630	1175	750	730	1030	660	780	48	120	1175	750	1015	1030	660	780	48	120

安装位置

输出轴在A侧或B侧或者在两侧

安装位置 SU, SO, SR, SL, VO 或 VU

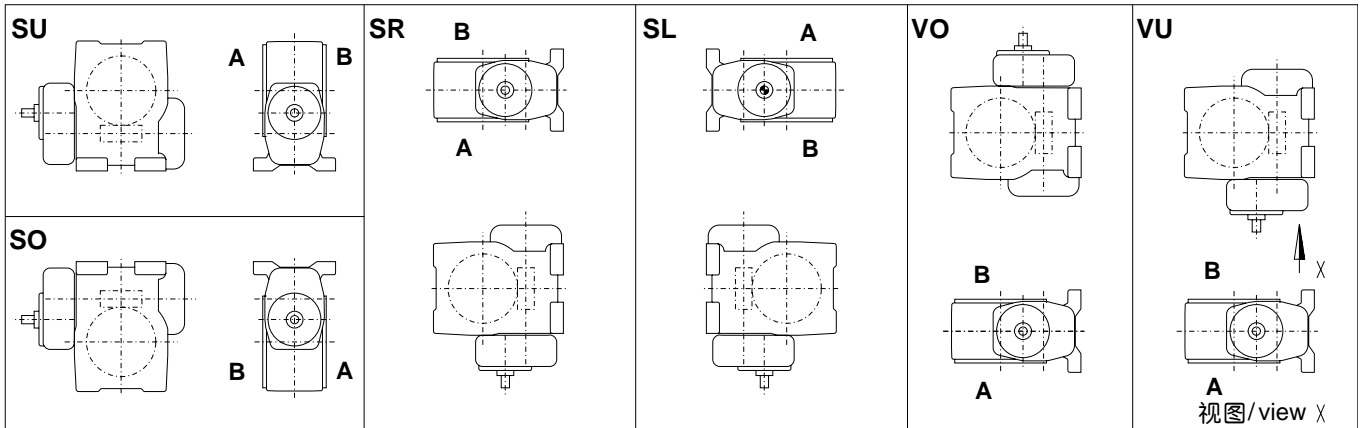
Mounting positions

Output shaft on side A, B or both sides

Mounting positions SU, SO, SR, SL, VO or VU

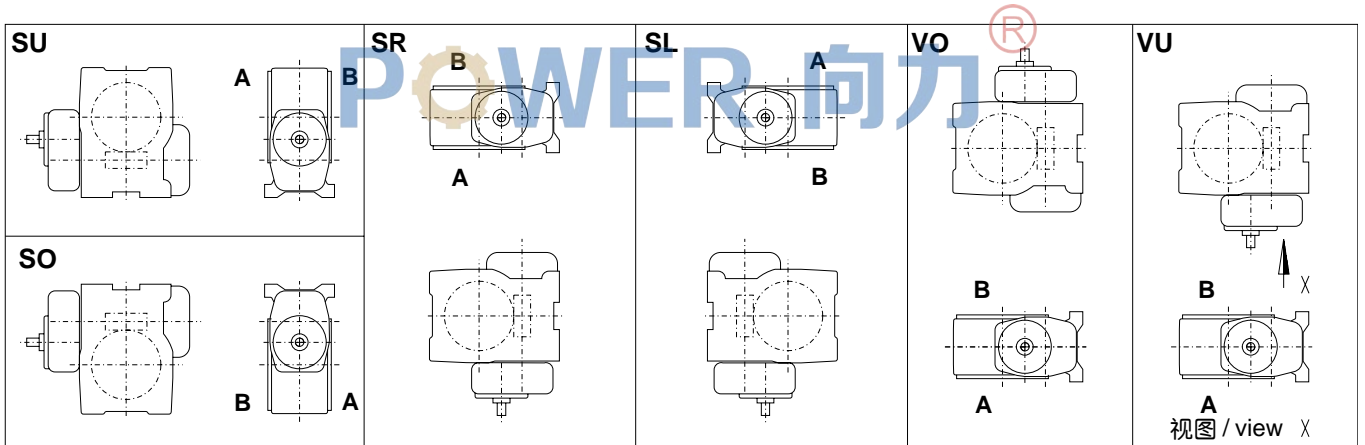
同轴式蜗轮蜗杆齿轮箱 CSUW 和 CSUA

Helical Worm Gear Units CSUW and CSUA



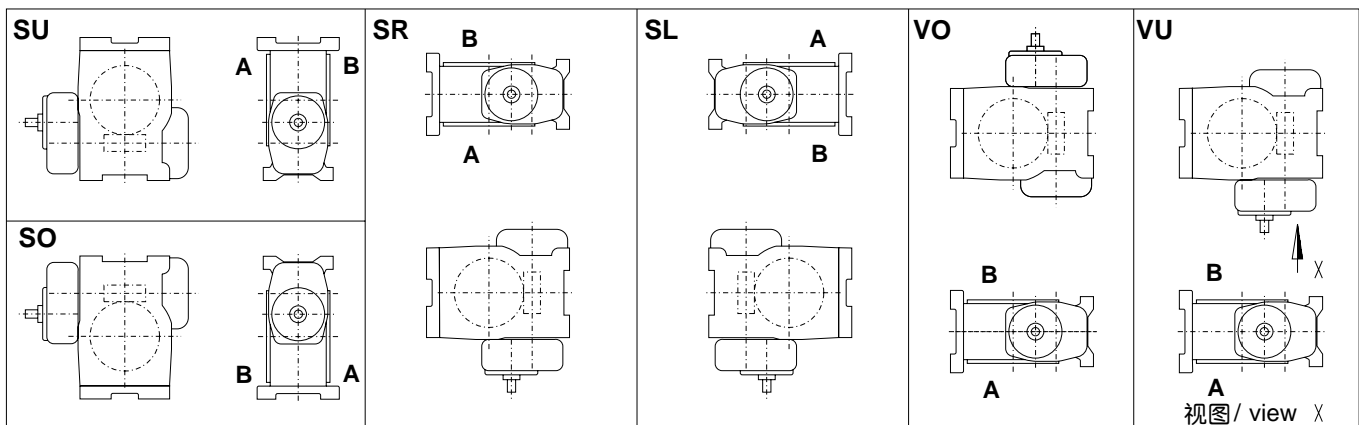
斜齿轮蜗轮蜗杆齿轮箱 CSFW, CSDA 和 CSFA

Helical Worm Gear Units CSFW, CSDA and CSFA



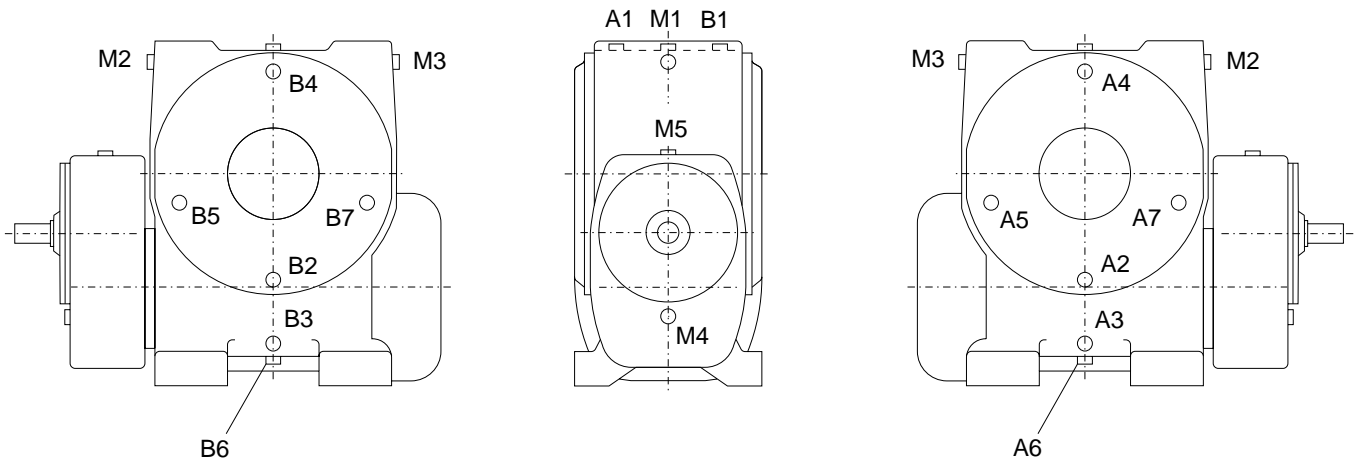
斜齿轮蜗轮蜗杆齿轮箱 CSOW 和 CSOA

Helical Worm Gear Units CSOW and CSOA



斜齿轮蜗轮蜗杆齿轮箱
透气孔，油位孔，排油孔

Helical Worm Gear Units
Vent, oil level and oil drain



M5 = 第一级齿轮相应部位上附加油位孔

M5 = Additional oil level at corresponding position of primary gear stage

类型 Type	在哪侧输出 Output on side	安装位置 / Mounting positions																	
		SU			SO			SR			SL			VO			VU		
		○	⊗	●	○	⊗	●	○	⊗	●	○	⊗	●	○	⊗	●	○	⊗	●
CSUW CSUA	A	A1	B2 ¹⁾	B3	B3	M4	A1	B4	M1	A1	A1	M1	B4	M4	M5	M3	M3	B7	M4
	B / 两侧 on both sides	B1	A2 ¹⁾	A3	A3	M4	B1	B1	M1	A4	A4	M1	B1	M4	M5	M3	M3	A5	M4
CSOW CSOA	A	B4	B2 ¹⁾	B6	B6	M4	B4	B4	M2/3	A4	A4	M2/3	B4	M4	M5	M3	M3	B7	M4
	B / 两侧 on both sides	A4	A2 ¹⁾	A6	A6	M4	A4	B4	M2/3	A4	A4	M2/3	B4	M4	M5	M3	M3	A5	M4
CSFW ²⁾ CSFA CSDA	A	A1	B2 ¹⁾	B6	B6	M4	A1	B4	M1	A1	A1	M1	B4	M4	M5	M3	M3	B7	M4
	B / 两侧 on both sides	B1	A2 ¹⁾	A6	A6	M4	B1	B1	M1	A4	A4	M1	B1	M4	M5	M3	M3	A5	M4

- 透气孔位置
- ⊗ 油位孔位置
- 排油孔位置

- Location of vent
- ⊗ Location of oil level
- Location of oil drain

1) 对规格63和80: B5取代B2以及A5取代A2

1) For sizes 63 and 80: B5 instead of B2, and A5 instead of A2

2) 对类型CSFW上法兰作为输出端。

2) For type CSFW, the flange is designed as output.

斜齿轮蜗轮蜗杆齿轮箱
平均注油量和重量

Helical Worm Gear Units
Average Oil quantities and Weights

规格 Size	注油量 / oil quantities [1]								未加油时的重量/ weights without oil [kg]	
	类型 / Type CSUW, CSOW, CSFW 安装位置 / Mouting position				类型 / Type CSUA, CSOA, CSFA, CSDA 安装位置 / Mouting positions				类型 / Type	
	SU	SO	SR/SL	VO/VU	SU	SO	SR/SL	VO/VU	CS.W	CS.A
63	1	1.2	1	1.8	1	1.1	0.9	1.7	21	21
80	1.6	2.4	1.6	2.9	1.6	2.2	1.4	2.7	31	31
100	2	4.4	3	5.6	2	4.1	2.7	5.2	54	52
120	2.7	7	4.7	8.5	2.7	6.5	4.2	8	77	74
140	4.5	11.5	7.5	13.5	4.5	10.5	7	12.5	112	107
160	6	15.5	10	18	5.5	14.5	9.5	17	147	142
180	8	22	14.5	27	8	21	13.5	25	205	195
200	10	28	18	34	10	27	17	32	255	245
225	15	40	26	48	15	37	25	45	340	320
250	18	53	32	61	18	49	31	56	430	410
280	23	70	45	80	23	66	43	76	600	570
315	28	90	60	102	28	84	57	96	780	740
355	43	130	90	145	43	122	87	137	1160	1110
400	55	175	115	195	55	165	110	185	1530	1470
450	85	270	173	293	85	258	160	280	2200	2130
500	107	360	226	390	107	345	210	375	2920	2840
560	158	510	330	560	158	490	310	540	4100	4000
630	200	680	430	750	200	655	405	725	5400	5280