

PRODUCT INTRODUCTION

PRODUCT SERIES



NZRV reducer is a high-precision reducer with cycloid pin-wheel and planetary two-in-one structure. Due to the large number of simultaneous meshing pairs of this reducer, it features small size, light weight, wear resistance, high rigidity and overload resistance, making it an essential item for many high-end devices. Thanks to low clearance, low rotational vibration and low inertia, it delivers excellent acceleration performance, enables smooth operation and ensures accurate and precise positional accuracy.

We have achieved remarkable results in the fields of industrial robots, machine tools, high-end automation and intelligent equipment. Hence, NZRV reducers are the optimal choice for high-precision applications. NZRV reducers are available in a complete product series. Among them, the 45T heavy-duty ultra-high-precision RV reducer has reached the international advanced level. Please follow the requirements specified in the selection manual and user manual prior to operation.

>>> APPLICATION FIELD 70+

Robot	6-axis Robot, SCARA Robot, Delta Robot, Gantry Robot...
Working Machinery	CNC Machining Center, Tube Bending Machine...
FPD Industry	Inspection Device, Stacker...
FA (Factory Automation)	Positioner, Index Table, AGV...
Welding	Rotary Worktable, Dual-axis Positioner...
Aerospace	Satellite, Mars Rover...
Medical Devices	Surgical Robot, CT Scanner...

>>> NZRV 9-Series Precision Robot Reducers

NZRV-S Series	06/20/35/40/65/80/110/160/248/320/450/550/750/900/1100/1500/2000/3000/5000/9000
NZRV-K Series	7/10/27/50/100/200/320/400/500/650/900/1000/1200
NZRV-CA Series	260/320/400/500/Customizable
NZRV-SZ Series	7/10/15/25/42/60/80/100/125/160/380/500/700/950/1500
NZRV-BK/BZ Miniaturized Series	10/12/14/17/20/25/32/40
NZRV-ZKB Series	14/17/20/25/32/40/45/50
Automation Series	Integrated Automation Units & Fully-enclosed Models
Heavy-duty Models	2000/3000/8000/12000
Extra-heavy-duty Models	1T/10T/20T/30T/40T/45T/65T/80T/100T/Customizable

A Components



NZRV-S
Rated Torque 75 ~ 8,820Nm
Structure Solid

P.5-6



NZRV-SZ
Rated Torque 245 ~ 61,202Nm
Structure Solid

P.7-8



NZRV-K
Rated Torque 98 ~ 8,820 Nm
Structure Hollow

P.9-10



NZRV-CA
Rated Torque 2550 ~ 3,136Nm
Structure Hollow

P.11-12

B Gearheads



NZRV-S-F
Rated Torque 75 ~ 8,820Nm
Structure Solid

P.13-14



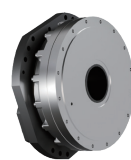
NZRV-SZ-F
Rated Torque 245 ~ 61,202Nm
Structure Solid

P.15-16



NZRV-K-F
Rated Torque 98 ~ 8,820Nm
Structure Hollow

P.17-18



NZRV-CA-F
Rated Torque 2550 ~ 3,136Nm
Structure Hollow

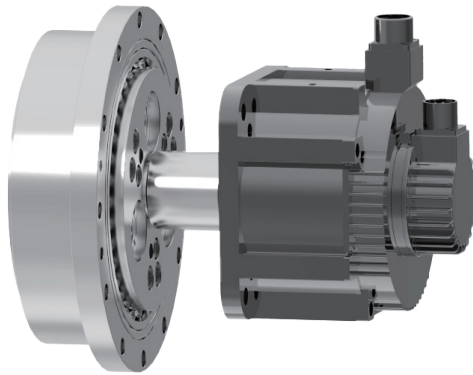
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NZRV-S

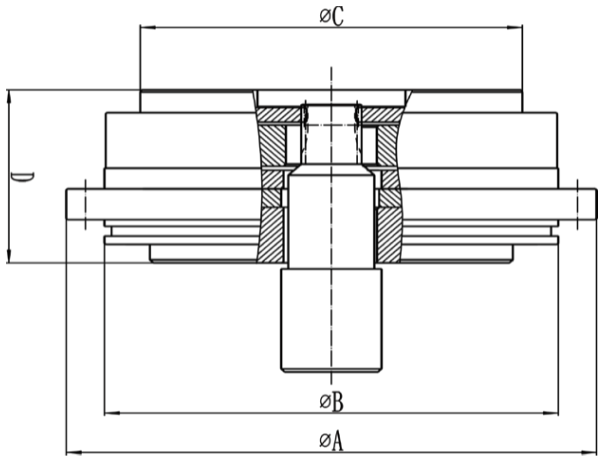
REDUCTION GEAR
BASE MODEL WITH SOLID CENTER

FEATURES

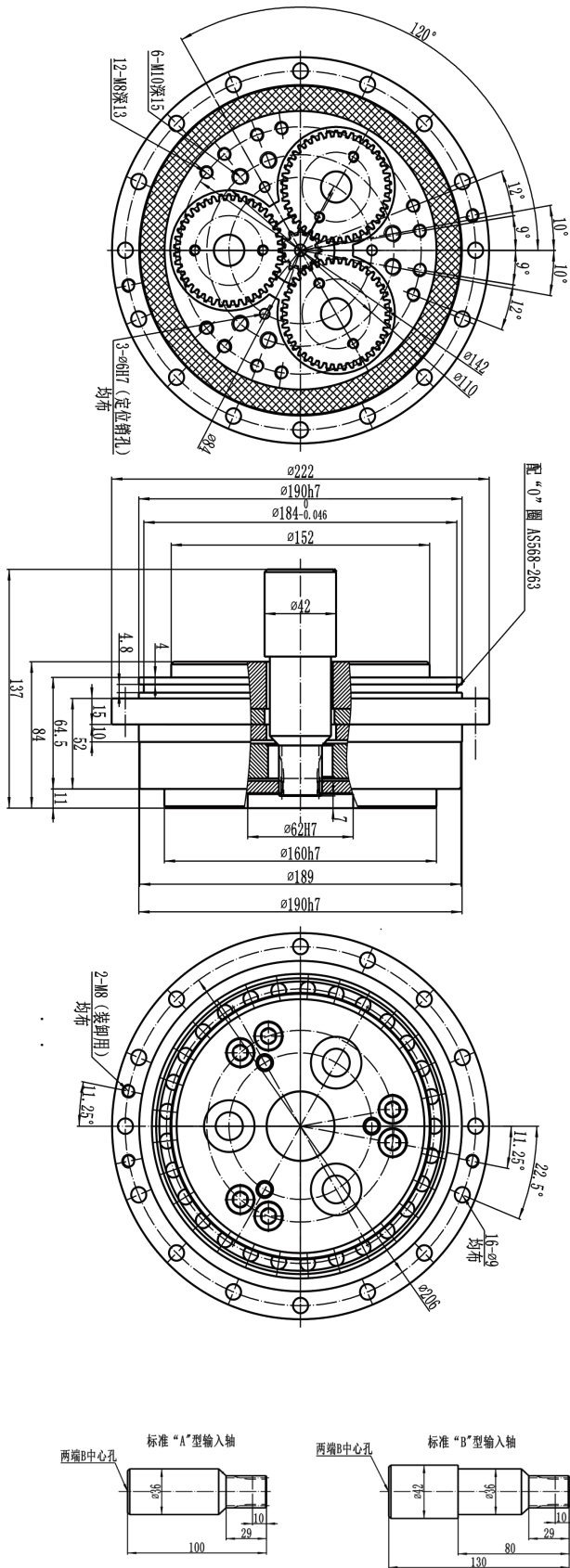
- Flat
- High rigidity
- High precision (Transmission error < 1 arc minute)
- High durability (able to withstand five times the rated torque)
- High acceleration performance (up to 2.5 times the rated torque)



RV-S: Flat



OUTLINE DRAWING



TECHNICAL SPECIFICATIONS

Parameters		06S	20S	35S	40S	65S	80S	110S	160S
Technical Specifications	Standard Ratio	71	57	57	57	57	81	81	81
		81	73	73	81	81	101	111	101
		101	81	81	101	101	121	121	121
		121	105	105	121	121	141	145	145
			121	121	153	153	171	171	171
	Rated Torque (N·m)	58	167	315	412	621	784	1078	1568
	Rated Output Speed (r/min)	30	15	15	15	15	15	15	15
	Allowable Torque (N·m)	196	882	1189	1666	1863	2156	2940	3920
	Torsional Rigidity (N·m/arc·min)	117	372	671	931	9311	1176	1470	2940
	Max. Momentary Allowable Moment (N·m)	392	1764	2370	3332	3726	4312	5880	7840
Overall Dimensions	Max. Momentary Allowable Torque (N·m)	294	833	1720	2058	2470	3920	5390	7840
	Spring constant (reference value) (N·m/arc·min)	20	49	75	108	148	196	294	392
	Allowable Acceleration/Deceleration Torque (N·m)	117	412	762	1029	1550	1960	2695	3920
	Lost Motion (arc·min)	• 4 •	• 4 •	• 4 •	• 4 •	• 4 •	• 4 •	• 4 •	• 4 •
	Weight (kg)	2.6	4.7	5.3	9.5	10.3	13.2	17.4	26.4
Model		06S	20S	35S	40S	65S	80S	110S	160S
Overall Dimensions	A	122	145	145	190	190	222	244	280
	B	103	124	124	160	160	190	208	204
	C	77	95	95	123	123	152	164	185
	D	53	65	65	76	76	84	93	104

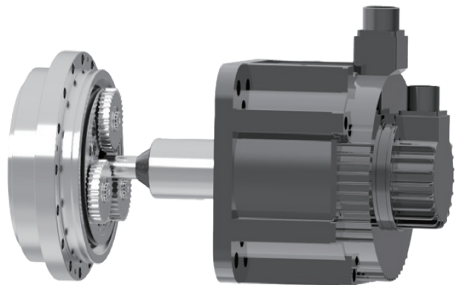
248S	320S	450S	550S	700S	900S
73	81		91		103
81	101		121	103	124.75
101	121	81	151	151	145
121	129	129	181	194.4	161
154.33	141	171	211	255	190
181	171	191	241	313	242.2
	185		277		277
			361		320.5
2430	3136	4410	5395	7060	11000
15	15	15	15	15	15
5125	7056	8820	10584	15631	23820
4077	4900	7448	9310	13592	19855
10251	14112	17640	21168	31262	47646
12150	15680	22050	26460	44100	58800
679.4	980	1176	1420	2548	3332
6075	7840	11205	13230	22050	29440
• 4 •	• 4 •	• 4 •	• 4.5 •	• 4.5 •	• 4.5 •
38.2	45	68	164	318	675
248S	320S	450S	550S	700S	900S
300	325	370	460	580	760
260	284	328	415	515	680
195	214	248	295	360	468
111	125	140	197	220	289

NZRV-SZ

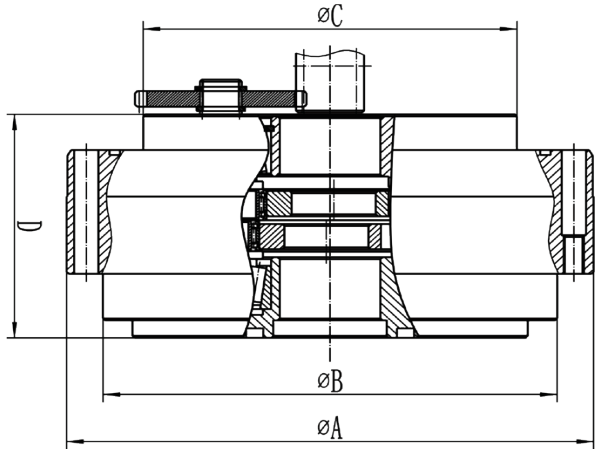
REDUCTION GEAR
BASE MODEL WITH SOLID CENTER

FEATURES

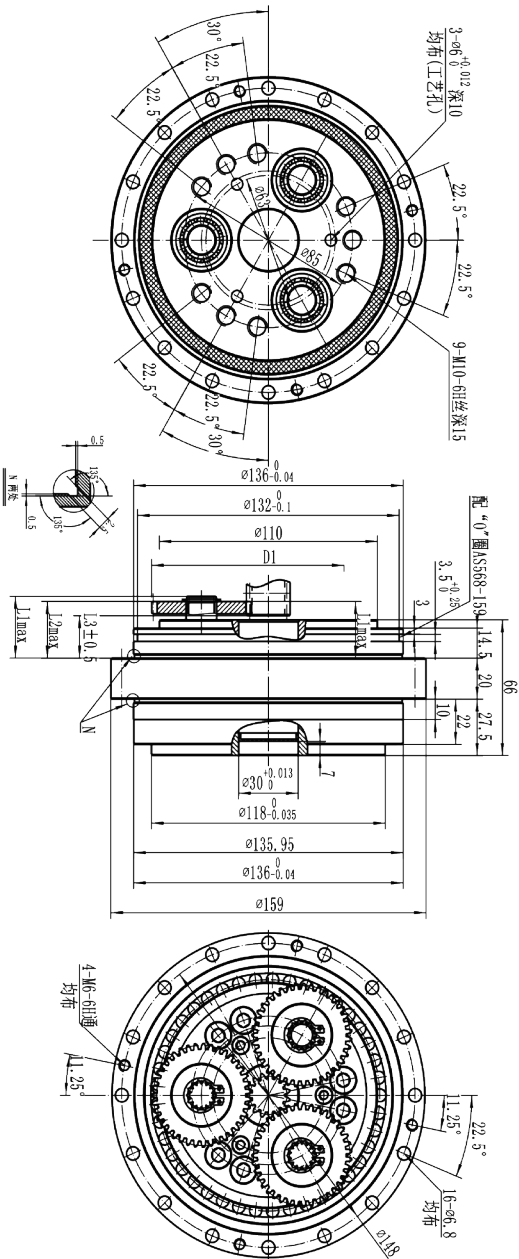
- Compact
- High rigidity
- High precision (Transmission error < 1 arc minute)
- High durability (able to withstand five times the rated torque)
- High acceleration performance (up to 2.5 times the rated torque)



RV-SZ: Compact Design, Facilitates Sealing



OUTLINE DRAWING



TECHNICAL SPECIFICATIONS

Parameters		07SZ	10SZ	15SZ	25SZ	42SZ	60SZ	80SZ	100SZ	125SZ	160SZ
Technical Specifications	Standard Ratio	31	25	41	41	41	41	41	41	41	41
		49	33	107.67	77.67	81	81	81	81	81	81
		68.5	53.8	126	107.67	105	96.56	96.56	100.05	100.05	105.44
		88	77.8	137	127.67	129.89	121	121	121	132.11	
		101	105	151	138.78	141	131	131	138.78	145.61	147.67
	Rated Torque (N·m)			164.07	192.11	161	161	161	161	161	177.67
		70	90	137	245	412	600	784	1000	1225	1600
		50	30	30	15	15	15	15	15	15	15
		170	270	450	784	1666	2000	2150	2700	3430	4000
		116	170	290	530	840	1140	1190	1400	1600	2050
Overall Dimensions	Model	07SZ	10SZ	15SZ	25SZ	42SZ	60SZ	80SZ	100SZ	125SZ	160SZ
	A	93	105	125.3	133	159	183	189	208	221	238
	B	79	89	108	113	136	160	160	179	186	202
	C	60	72	89	90	110	129	129	145	152	166
	D	49.5	50	57.7	62	66	69.5	74	80	80	104

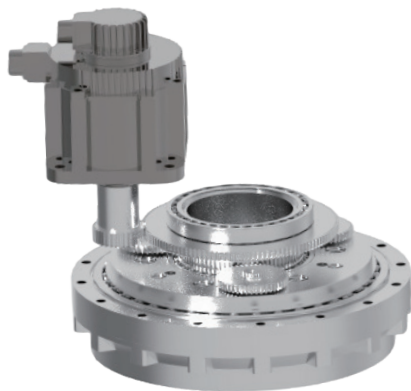
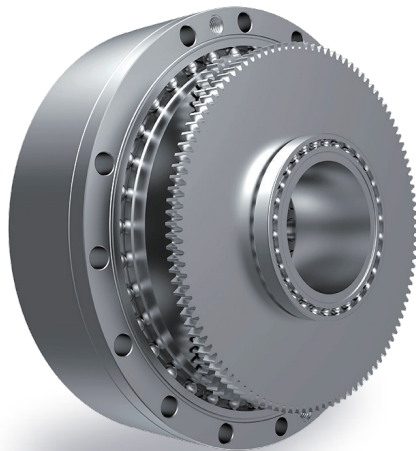
380SZ	500SZ	700SZ	950SZ	1200SZ	2000SZ	3000SZ	8000SZ
76	81	105	109	123.4	137	127	91
94.75	101	124.5	121	145	161	154	111
117.67	121	157	181	172	191	181	136
139.09	141	183	211	197.14	281	235	151
151	161	214.78	265	240.04	309	316	181
181	191		301	282.45	401	397	221
				361	461	451	361
				415			511
3803	4900	6860	9500	12000	20000	30000	80000
15	15	15	15	15	10	10	10
8820	11000	15000	16000	24000	39000	57000	130000
4800	6850	9000	12160	15360	25600	39000	42000
17640	22000	30000	32000	47000	78000	114000	320000
18320	24500	35000	47500	60000	100000	150000	400000
948	1620	2600	3600	4500	7500	12000	16000
9508	12250	17150	23750	30000	50000	75000	200000
· 4 · ·	· 4 · ·	· 4 · ·	· 4 · ·	· 4.5 · ·	· 4.5 · ·	· 4.5 · ·	· 4.5 · ·
51	63	106	198.2	308.3	688.5	927.3	1105.7
380SZ	500SZ	700SZ	950SZ	1200SZ	2000SZ	3000SZ	8000SZ
295	325	395	478	550	730	816	900
252	284	353	422	485	640	720	780
196	226	282	345	390	505	575	600
131	137.5	170	206	239	299	321	336

NZRV-K

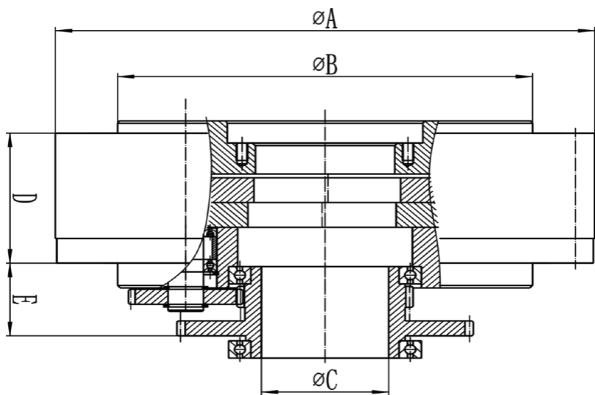
REDUCTION GEAR
HOLLOWBASIC MODEL

FEATURES

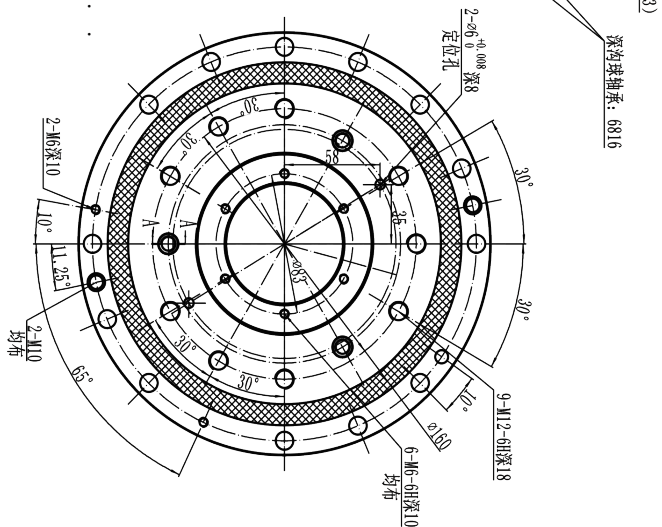
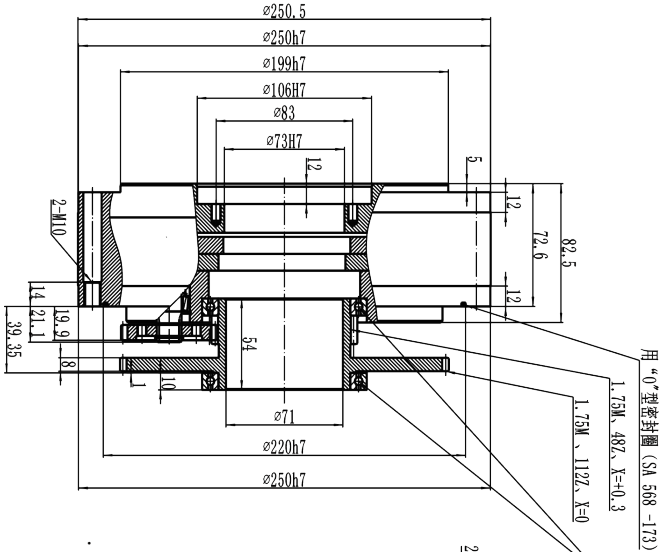
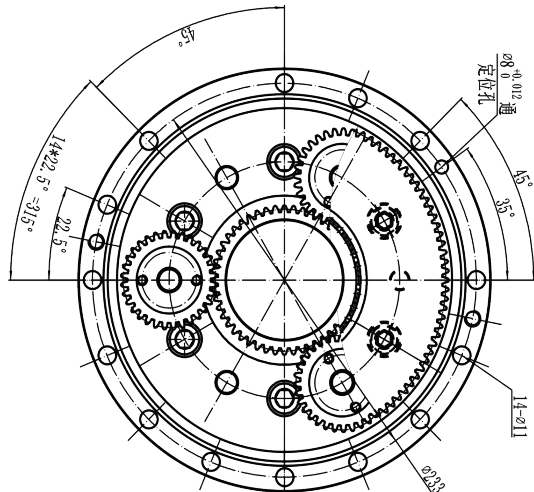
- Hollow
- High precision (Transmission error<1arcminute)
- High durability (able to with stand ve tmes the rated torque)
- High acceleraton performance (up to 2.5 tmes the rated torque)



RV-K: Wide-Ranging Series



OUTLINE DRAWING



TECHNICAL SPECIFICATIONS

Parameters		10K	27K	50K	100K	200K	320K	400K
Technical Specifications	Single-stage Standard Ratio	27	36.57	32.54	36.75	34.86	35.61	35.61
	Integrated-unit Standard Ratio	108	81.2	80.1	100.23	100.36	115.	Customizable Ratio
			90.304	104.47	130.67		2157.	
			102.42	130.16	170.39		3	
			131.18	106.92	214.37		2587.2	
	Rated Torque (N·m)	98	265	490	980	1961	3136	3920
	Rated Output Speed (r/min)	15	15	15	15	15	15	15
	Allowable Torque (N·m)	686	980	1764	2450	8820	20580	26600
	Torsional Rigidity (N·m/arc·min)	421	1068	1960	2813	9800	12740	17640
	Max. Momentary Allowable Moment (N·m)	1372	1960	3528	4900	17640	39200	53000
Overall Dimensions	Max. Momentary Allowable Torque (N·m)	490	1323	2450	4900	9800	15680	19600
	Spring constant (reference value) (N·m/arc·min)	47	147	255	510	980	1960	2610
	Allowable acceleration/deceleration torque (N·m)	245	662	1225	2450	4900	7840	9800
	Lost Motion (arc·min)	• 4'	• 4'	• 4'	• 4'	• 4'	• 4'	• 4'
	Weight (kg)	4.6	8.5	14.6	19.5	55.6	79.5	110
	Model	10K	27K	50K	100K	200K	320K	400K
	A	147	182	222.5	250.5	347	440	485
	B	110	140	176	199	260	340	350
	C	31	43	57	71	90	138	138
	D	45.5	62	74	77.5	113.5	120.5	131.5
	E	25.35	29.35	32.35	38.35	55.2	70.75	68.5

500K	650K	800K	900K
37.34	38.24	38.41	42.83
Customizable Ratio	Customizable Ratio	Customizable Ratio	Customizable Ratio
4900	6370	7840	8820
15	15	15	15
34300	45790	61005	81000
24500	30527	40670	48000
78400	91581	12010	15000
24500	31850	39200	41000
3430	5263	6978	8500
12250	15925	19600	22050
• 4'	• 4'	• 4'	• 4'
154	368	563	239
500K	650K	800K	900K
520	625	730	543
390	480	540	390
138	158	165	130
155	201.5	235.5	177
79.7	97.5	112	126.5

NZRV-CA

REDUCTION GEAR
HOLLOWBASIC MODEL

FEATURES

- Hollow
- High precision (Transmission error<1arcminute)
- High durability (able to with stand ve tmes the rated torque)
- High acceleraton performance (up to 2.5 tmes the rated torque)



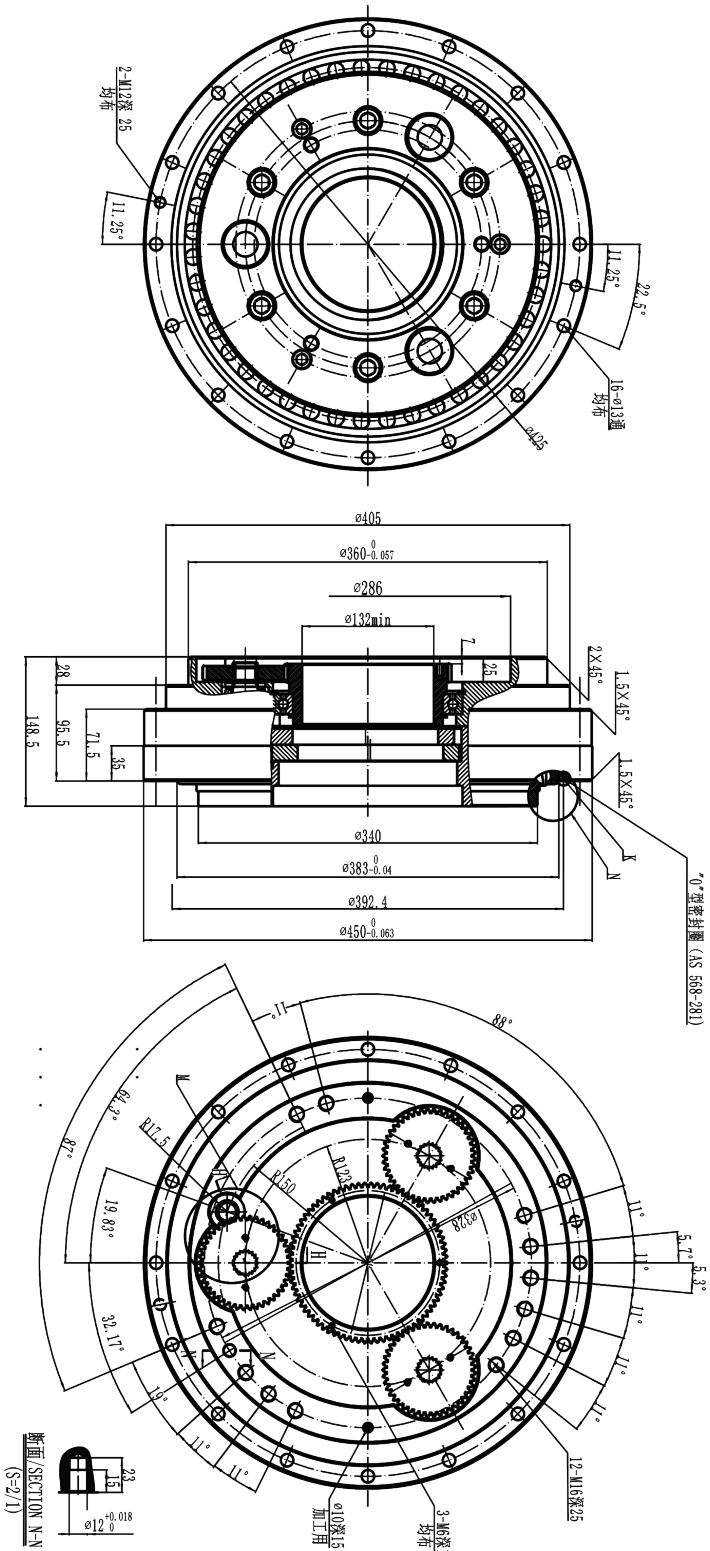
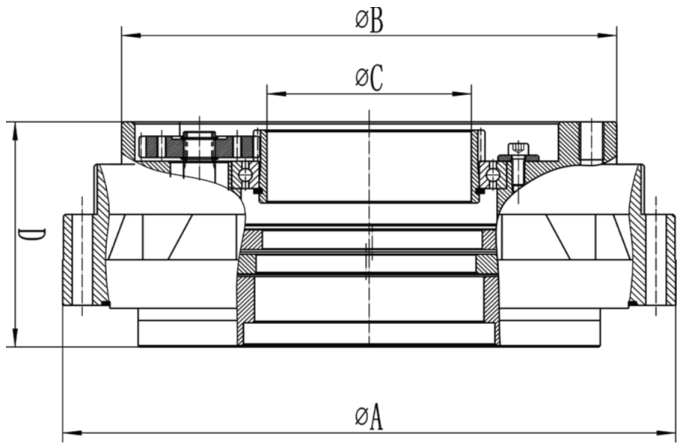
TECHNICAL SPECIFICATIONS

Parameters		260CA	320CA
Technical Specifications	Reduction Ratio	138.75	210
	Backlash (arc.min)	1	1
	lost Motion (arc·min)	1	1
	Angular Transmission Error (arc.min)	50	5
	Rated Torque (N·m)	2550	3136
	Moment Of Inertia (Input Gear) (Kg·m²)	5.34*10 ⁻⁴	4.59*10 ⁻⁴
	Weight (kg)	70.3	98
	Housing Bolt Quantity	16	16
	Housing Bolt Diameter	M12	M12
	Housing Tightening Torque (N·m)	129±6.37	129±6.37
Model		260CA	320CA
Overall Dimensions	A	390	450
	B	315	360
	C	130	132
	D	148.5	148.5

OUTLINE DRAWING



RV-CA: Low-Profile

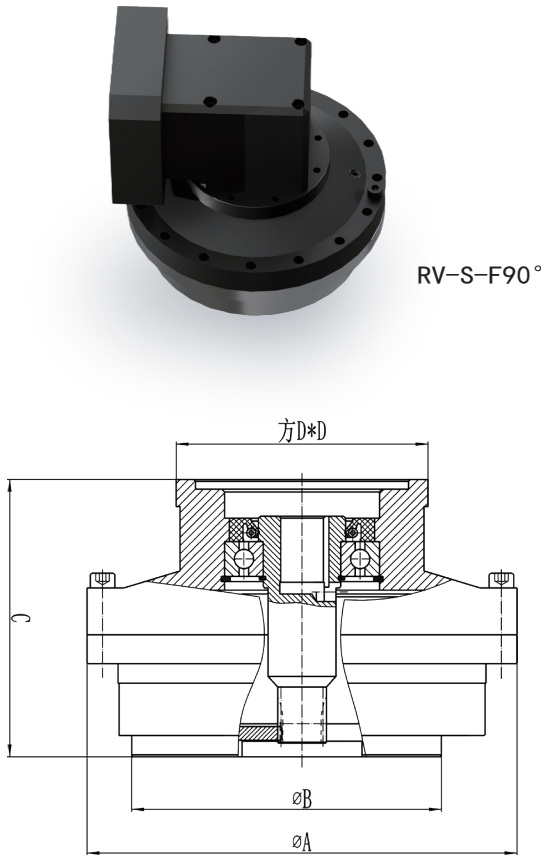
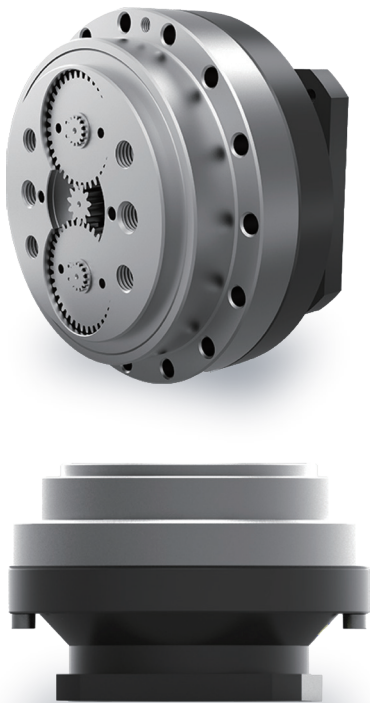


NZRV-S-F

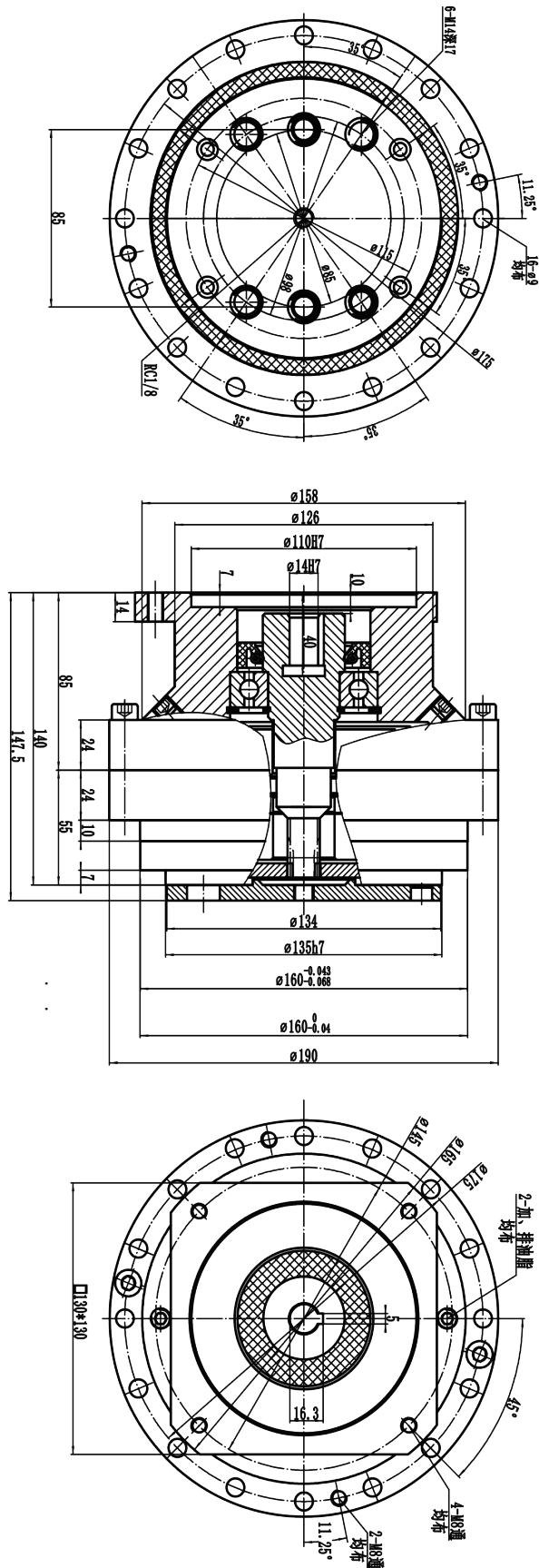
REDUCTION GEAR
+ INTEGRATION COMPONENTS / LUBRICANTS
S-F SERIES ALL-IN-ONE MACHINE

FEATURES

- Transmission error < 1 arc minute
- Match a variety of servo motors
- Keyway/hold two locking methods



OUTLINE DRAWING



TECHNICAL SPECIFICATIONS

Parameters		06S	20S	35S	40S	65S	80S	10S	160S
Technical Specifications	Standard Ratio	71 81 101 121	57 73 81 105 121 141 161	57 73 81 105 121 141 161	57 81 101 121 153	57 81 101 121 153	81 101 121 153	81 111 121 161 171	81 101 121 145 171
	Rated Torque (N·m)	58	167	315	412	621	784	1078	1568
	Rated Output Speed (r/min)	30	15	15	15	15	15	15	15
	Allowable Torque (N·m)	196	882	1189	1666	1863	2156	2940	3920
	Torsional Rigidity (N·m/arc·min)	117	372	671	931	9311	1176	1470	2940
	Max. Momentary Allowable Moment (N·m)	392	1764	2370	3332	3726	4312	5880	7840
	Max. Momentary Allowable Torque (N·m)	294	833	1720	2058	2470	3920	5390	7840
	Spring constant (reference value) (N·m/arc·min)	20	49	75	108	148	196	294	392
	Allowable acceleration/deceleration torque (N·m)	117	412	762	1029	1550	1960	2695	3920
	Lost Motion (arc·min)	· 4 ·	· 4 ·	· 4 ·	· 4 ·	· 4 ·	· 4 ·	· 4 ·	· 4 ·
Weight (kg)		2.6	4.7	5.3	9.5	10.3	13.2	17.4	26.4
Model		06S	20S	35S	40S	65S	80S	10S	160S
Overall Dimensions	A	122	145	145	190	190	222	244	280
	B	86	105	105	135	135	160	182	204
	C ₁	100	112	112	131	131	142	161	172.5
	C ₂	-	120	120	140	140	151	161	200.5/22.5
	C ₃	-	129	129	140	140	151	189/124	-
	C ₄	-	129	129	-	-	179	-	-
	D ₁	F67*67	F67*67	F67*67	F83*83	F83*83	F83*83	F110*110	F130*130
	D ₂	F82*82	F83*83	F83*83	F110*110	F110*110	F110*110	F130*130	F180*180
	D ₃	-	F110*110	F110*110	F130*130	F130*130	F130*130	F180*180	-
	D ₄	-	F130*130	F130*130	-	-	F180*180	-	-

320S	450S	550S
81 101 121 129 141 171 185	81 129 171 191	91 121 151 181 211 241 277 361
3136	4410	5395
15	15	15
7056	8820	10584
4900	7448	9310
14112	17640	21168
15680	22050	26460
980	1176	1420
7840	11205	13230
· 4 ·	· 4 ·	· 4.5 ·
45	68	164
320S	450S	550S
325	370	460
245	275	330
193.5	237/262	288
2215/246.5	266	292
248.5	-	-
-	-	-
F130*130	F180*180	F180*180
F180*180	F220*220	F220*220
F220*220	-	-
-	-	-

NZRV-SZ-F

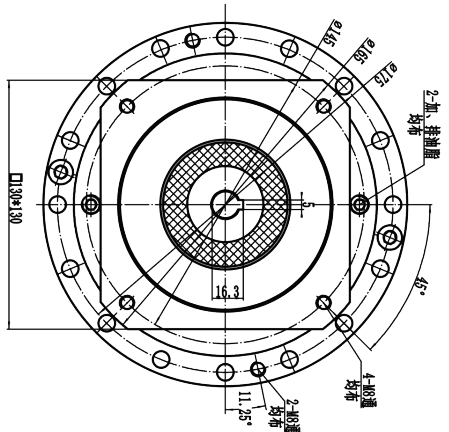
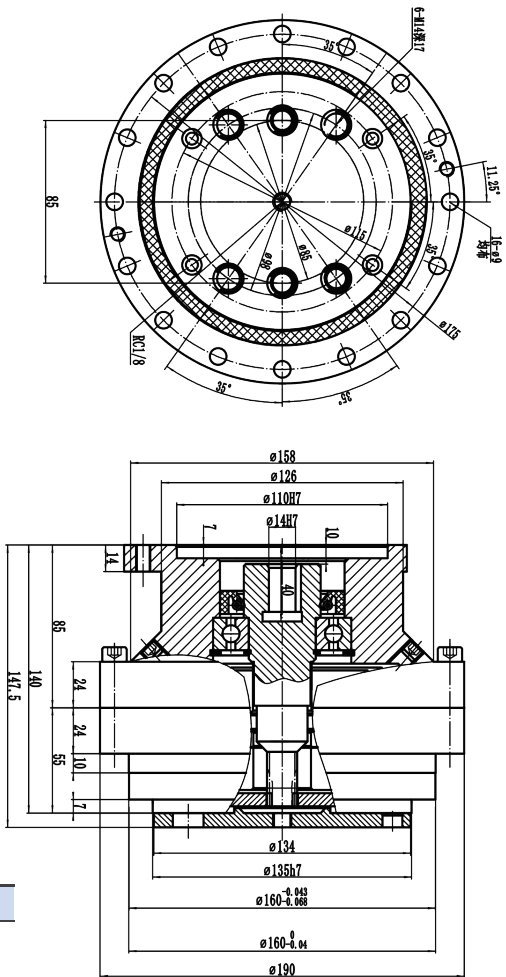
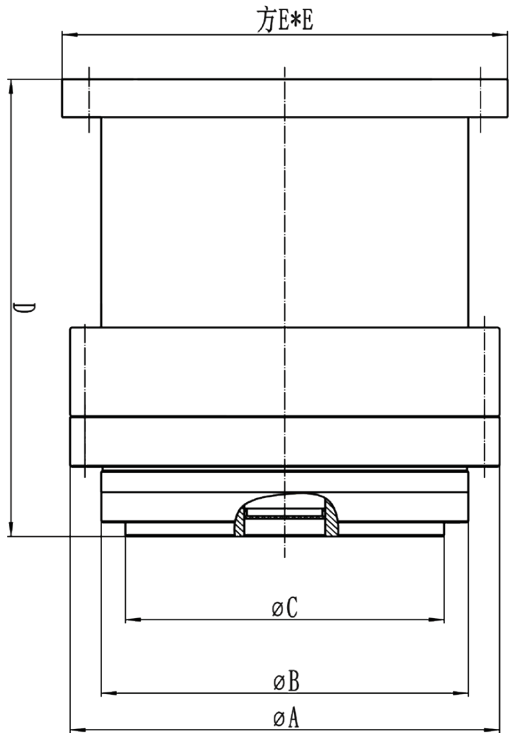
REDUCTION GEAR
+ INTEGRATION COMPONENTS / LUBRICANTS
SZ-F SERIES ALL-IN-ONE MACHINE

FEATURES

- Compact
- Transmission error < 1 arc minute
- Match a variety of servo motors



OUTLINE DRAWING



TECHNICAL SPECIFICATIONS

Parameters		07SZ	10SZ	15SZ	25SZ	42SZ	60SZ	80SZ
Technical Specifications	Standard Ratio	31	25	41	41	41	41	41
		49	33	81	77.67	81	81	81
		68.5	53.8	107.67	107.67	105	96.56	96.56
		88	77.8	126	127.67	121	121	121
		101	105	137	138.78	129.89	131	131
	Rated Torque (N·m)			151	192.11	141 161	161	161
				164.07				
	Rated Output Speed (r/min)	70	90	137	245	412	600	784
	Allowable Torque (N·m)	50	30	30	15	15	15	15
	Torsional Rigidity (N·m/arc·min)	170	270	450	784	1666	2000	2150
	Max. Momentary Allowable Moment (N·m)	116	170	290	530	840	1140	1190
	Max. Momentary Allowable Torque (N·m)	290	425	686	1568	3320	4000	4300
Overall Dimensions	Spring constant (reference value) (N·m/arc·min)	280	350	540	1225	2058	3000	3920
	Allowable acceleration/deceleration torque (N·m)	16	24	38	61	113	200	212
	Lost Motion (arc·min)	115	210	274	612	1029	1500	1960
	Weight (kg)	· 4 ·	· 4 ·	· 4 ·	· 4 ·	· 4 ·	· 4 ·	· 4 ·
		1.8	2.1	3.3	3.8	6.5	9	10.5
Model		07SZ	10SZ	15SZ	25SZ	42SZ	60SZ	80SZ
Overall Dimensions	A	93	105	125.3	133	159	183	189
	B	79	89	108	113	136	160	160
	C	63	70	94	94	118	140	140
	D	Customizable	Customizable	Customizable	Customizable	Customizable	Customizable	Customizable
	E	Customizable	Customizable	Customizable	Customizable	Customizable	Customizable	Customizable

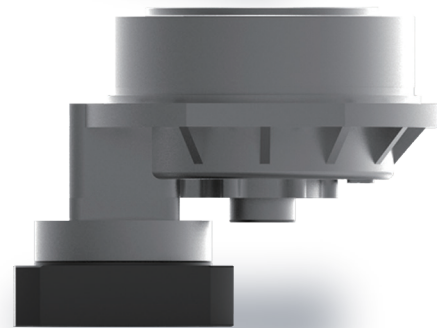
100SZ	125SZ	160SZ	380SZ	500SZ	700SZ
41	41	41	76	81	105
81	81	81	94.75	101	124.5
100.05	100.05	105.44	117.67	121	157
121	121	132.11	139.09	141	183
138.78	145.61	147.67	151	161	214.78
161	161	177.67	181	191	
1000	1225	1600	3803	4900	6860
15	15	15	15	15	15
2700	3430	4000	8820	11000	15000
1400	1600	2050	4800	6850	9000
5400	6860	8000	17640	22000	30000
5000	6125	8000	18320	24500	35000
312	334	490	948	1620	2600
2500	3062	4000	9508	12250	17150
· 4 ·	· 4 ·	· 4 ·	· 4 ·	· 4 ·	· 4 ·
13.5	14.2	22.5	51	63	106
100SZ	125SZ	160SZ	380SZ	500SZ	700SZ
208	221	238	295	325	395
179	186	202	252	284	353
160	160	179	222	253	315
Customizable	Customizable	Customizable	Customizable	Customizable	Customizable
Customizable	Customizable	Customizable	Customizable	Customizable	Customizable

NZRV-K-F

REDUCTION GEAR
+ INTEGRATION COMPONENTS / LUBRICANTS
K-F SERIES ALL-IN-ONE MACHINE

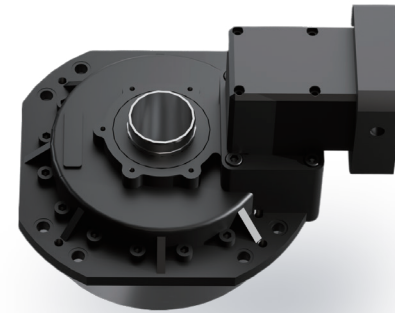
FEATURES

- Hollow
- Transmission error < 1 arc minute
- Match a variety of servo motors

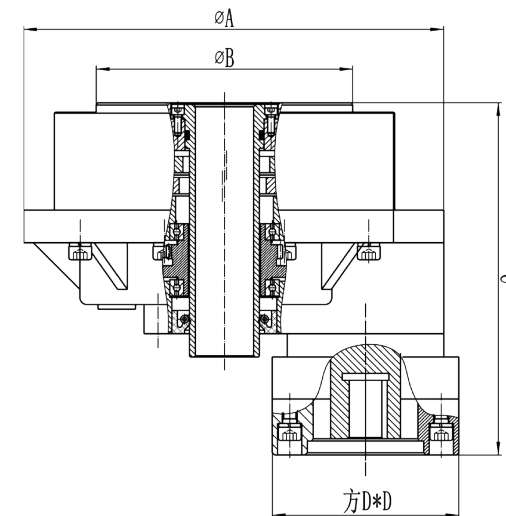


TECHNICAL SPECIFICATIONS

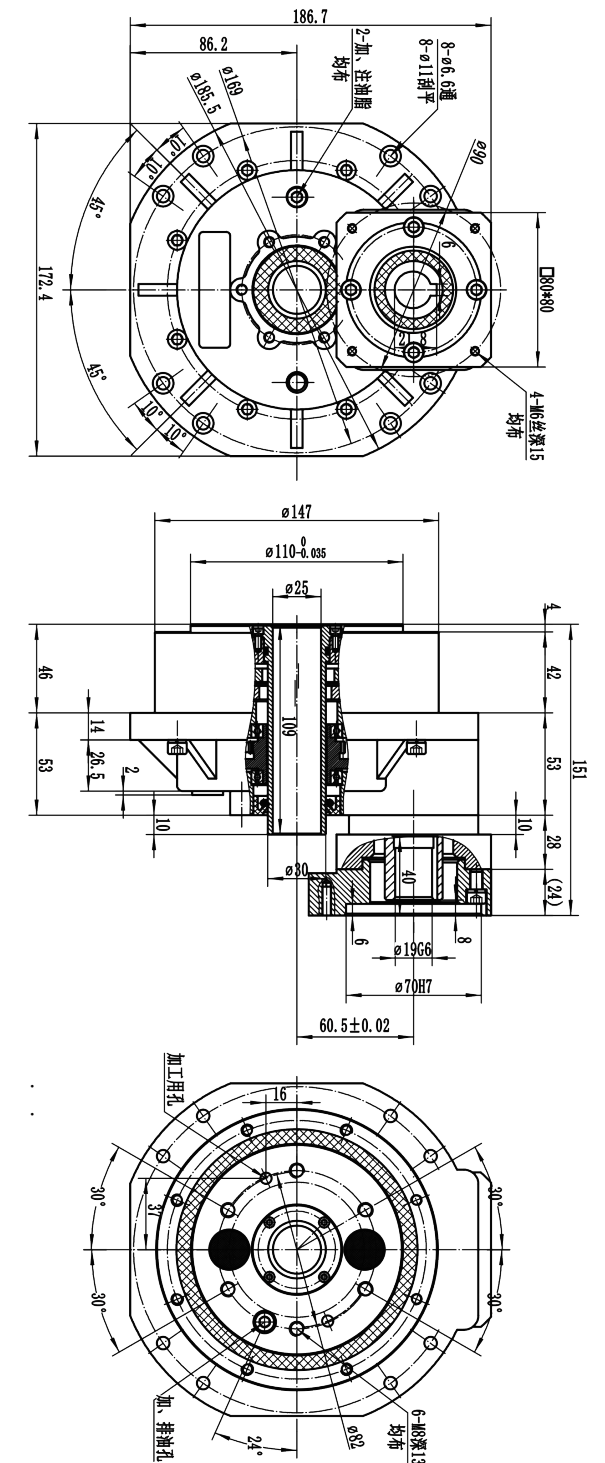
Parameters		10K		27K		50K		100K	
Technical Specifications	Single-stage Standard ratio	27		36.57		32.54		36.75	
	Integrated-unit Standard ratio	108		81.2		80.1		100.23	
				90.304		104.		130.67	
				102.42		47130		170.39	
				131.18		10662		214.37	
	Rated Torque (N·m)	98		265		490		980	
	Rated Output Speed (r/min)	15		15		15		15	
	Allowable Torque (N·m)	686		980		1764		2450	
	Torsional Rigidity (N·m/arc·min)	421		1068		1960		2813	
	Max. Momentary Allowable Moment (N·m)	1372		1960		3528		4900	
	Max. Momentary Allowable Torque (N·m)	490		1323		2450		4900	
	Spring constant (reference value) (N·m/arc·min)	47		147		255		510	
	Allowable acceleration/ deceleration torque (N·m)	245		662		1225		2450	
Lost Motion (arc·min)	. 4. °		. 4. °		. 4. °		. 4. °		
Weight (kg)	4.6		8.5		14.6		19.5		
Model		10K		27K		50K		100K	
Overall Dimensions	A	185.5		228.5		280		315	
	B	110		140		176		199	
	C	151	176	165.5	191	200	242.5	205	247.5
	D	F60*60	F130*130	F60*60	F130*130	F80*80	F180*180	F80*80	F180*180



RV-K-90°F



OUTLINE DRAWING

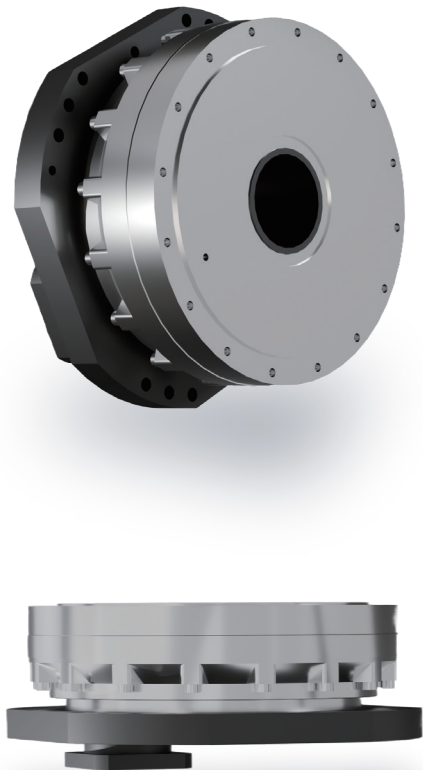


NZRV-CA-F

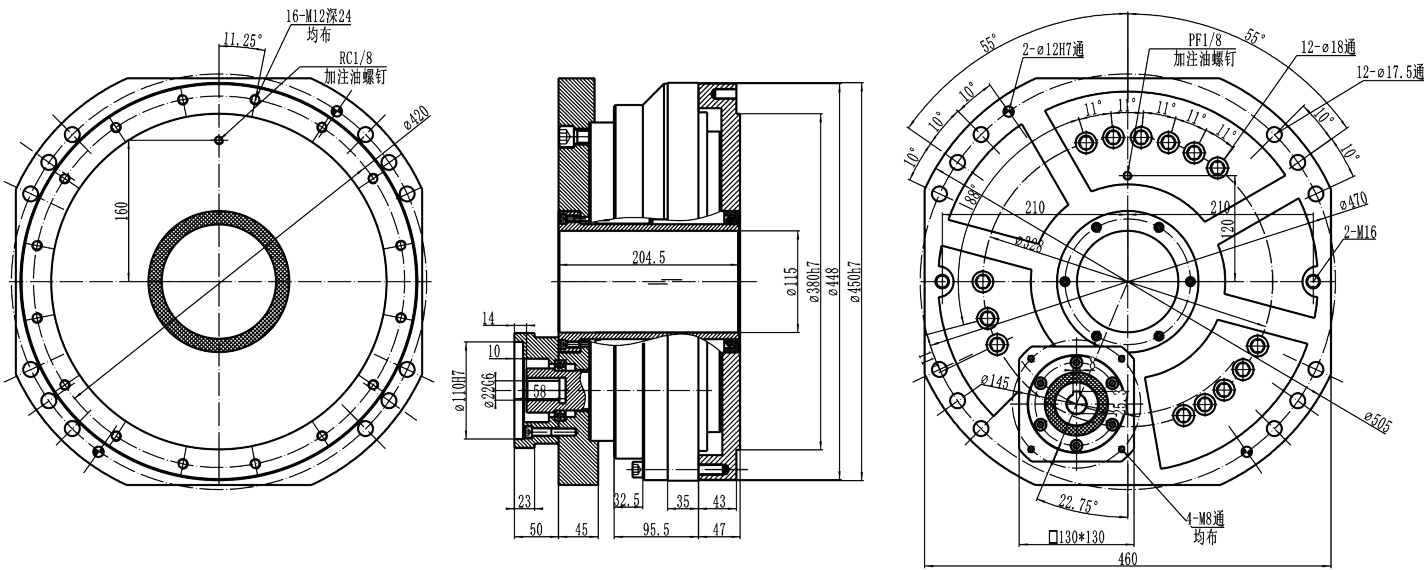
REDUCTION GEAR
+ INTEGRATION COMPONENTS / LUBRICANTS
CA-F SERIES ALL-IN-ONE MACHINE

FEATURES

- Hollow
- Transmission error < 1 arc minute
- Match a variety of servo motors



OUTLINE DRAWING



TECHNICAL SPECIFICATIONS

Parameters		320CA-F	
Technical Specifications	Reduction Ratio	210	
	Backlash (arc.min)	1	
	lost Motion (arc·min)	1	
	Angular Transmission Error (arc.min)	5	
	Rated Torque (N·m)	3136	
	Moment Of Inertia (Input Gear) (Kg·m²)	4.59*10 ⁻⁴	
	Weight (kg)	98	
	Housing Bolt Quantity	16	
	Housing Bolt Diameter	M12	
	Housing Tightening Torque (N·m)	129±6.37	
	Output Shaft Bolt Quantity	12	
	Output Shaft Bolt Diameter	M16	
	Output Shaft Tightening Torque (N·m)	319±15.9	
Model		320CA-F	
Overall Dimensions	A	450	
	B	380	
	C	115	
	D	255.5	
	E	460	
	F	505	
	G	80	130

