

AH2_{Type}

Right Angle Shaft

Model and Type Codes
Standard Model Lineup

P.722

HIGH PRECISION REDUCERS FOR SERVO MOTORS

1. Low Backlash High Precision
Reducers for Servo Motors

1-1. Performance Tables

1-2. Drawings






Model and Type Codes

For representative examples of servo motors of respective manufacturers that can be installed and applicable types by flange type, refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686. For more details, please contact your nearest Sales Office or the CS Center.

AH2 Type

Mounting Type	Motor Type	Frame Size	Shaft Arrangement	Reduction Ratio	Backlash	Motor Power Class	Type	Option	Option Code
AH2L	Z	22	R	30	L	200	S1		
AH2L	Z	32	L	30	L	750	S4		
AH2L	Z	40	T	60	L	2000	K21	X	B3
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

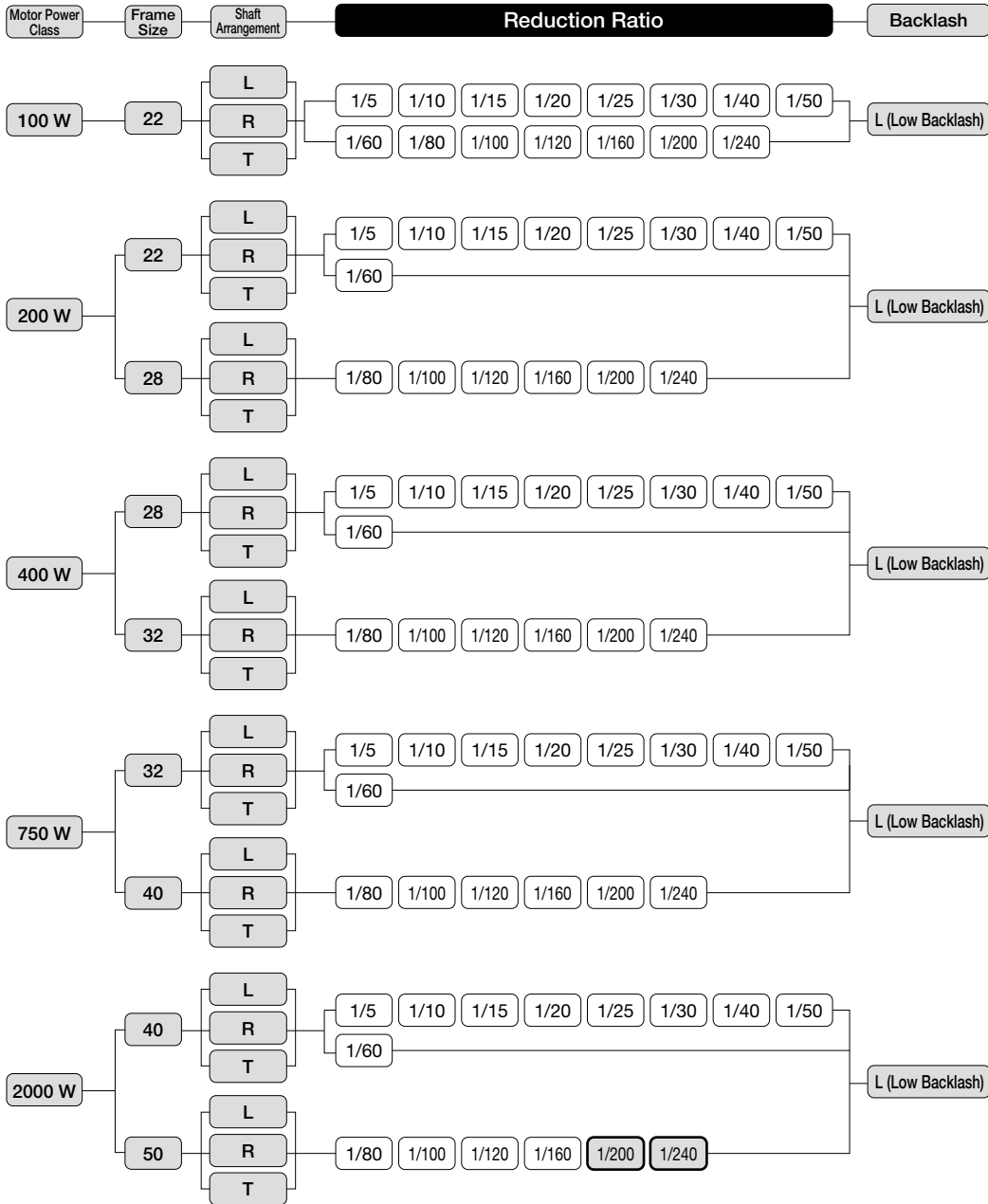
① Mounting Type	AH2L : Right Angle Shaft (Foot Mount)		
② Motor Type	Z : High Precision Reducers for Servo Motor (Z Type Reducer)		
③ Frame Size and Output Shaft Diameter	Output Shaft Diameter		
④ Shaft Arrangement	Output shaft on the left side when viewed from the input shaft side	Output shaft on the right side when viewed from the input shaft side	Output shaft on both sides when viewed from the input shaft side
	 Nameplate L	 Nameplate R	 Nameplate T
⑤ Reduction Ratio	5:1/5 240 :1/240		
⑥ Backlash	L : Low Backlash		
⑦ Motor Power Class	100 : 100 W Class		
	200 : 200 W Class		
	400 : 400 W Class		
	750 : 750 W Class		
	2000 : 2000 W Class		
⑧ Flange Type for Servo Motor Mounting (Note 1)	F1/S1/K31, etc.		
⑨ Option	Blank : Standard Specification		
	X : Special Specification Code		
⑩ Option code (Note 2)	Position Code of Wrench Hole for Input Shaft Joint Tightening For details, please refer to the list of option codes on page 840.		


Note 1: Please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.

Note 2: The option code will not be shown in the nomenclature on the nameplate. But it will be shown in the Option code row of the nameplate.

Standard Model Lineup

AH2 Type <Low Backlash Specification>



Note 1:  indicates a limited torque type. Please make sure to check the allowable torque in the performance table.

Note 2: For the precision of low backlash types, refer to the performance table.

Note 3: AH2 is not available in 1 arc min and 3 arc min specifications.

Motor Matching /
Motor Power Design List

APG/AG3 Type
Parallel Shaft

AH2 Type
Right Angle Shaft

AFC Type
Right Angle Hollow Bore/
Right Angle Shaft

AF3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

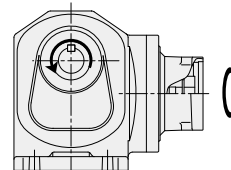
1. Low Backlash High Precision Reducers for Servo Motors

1-1. Performance Tables

AH2 Type <Low Backlash> Performance Table by Reduction Ratio

[Notes]

- The input speed is 3000 r/min.
- The “*” mark indicates a limited torque type. Please make sure to check the allowable average torque in the performance table.
- Allowable output shaft O.H.L. is the value at the middle of the output shaft.
- For the continuous rated input torque, please refer to page 839. In addition, for the servo motor-based motor rated output torque, please refer to page 816.
- The key dimensions and tolerances for output shafts conform to JIS B 1301-1996 (plain form).
- The internal moment of inertia (input shaft equivalent) is the value for the reducer alone, and does not include the motor's moment of inertia.
- The allowable average torque is the continuous allowable torque value.
- Adjust the gain so that the inertial load on the output shaft side does not vibrate during acceleration and deceleration.
- in the performance table indicates that the input shaft and the output shaft rotate in the opposite directions. (It does not limit the rotational directions of the input shaft and the output shaft.)



At an input speed of 3000 r/min

Mounting Type	Output Shaft Diameter	Shaft Arrangement	Nominal Reduction Ratio	Actual Reduction Ratio	Precision	Power Class	Allowable Average Torque (3000 r/min)	Allowable Peak Torque of Startup/ Stop	Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Internal Moment of Inertia (Input Shaft Equivalent)	Drawings
							N·m	N·m	N	N	×10 ⁻⁴ ·kg·m ²	
AH2LZ	22	L/R/T	1/5	1/5	L (60 arc min)	100	0.9	1.8	490	147	0.377	P.724
AH2LZ	22	L/R/T	1/5	1/5	L (60 arc min)	200	2.0	3.9	590	147	0.722	
AH2LZ	28	L/R/T	1/5	1/5	L (50 arc min)	400	3.9	7.8	930	235	0.789	P.725
AH2LZ	32	L/R/T	1/5	1/5	L (50 arc min)	750	7.8	16	1520	382	1.643	P.726
AH2LZ	40	L/R/T	1/5	1/5	L (30 arc min)	2000	24	47	2650	667	7.315	P.727
AH2LZ	22	L/R/T	1/10	1/10	L (40 arc min)	100	2.2	4.3	590	235	0.359	P.724
AH2LZ	22	L/R/T	1/10	1/10	L (40 arc min)	200	4.3	8.6	930	235	0.704	
AH2LZ	28	L/R/T	1/10	1/10	L (30 arc min)	400	8.4	17	1470	373	0.769	P.725
AH2LZ	32	L/R/T	1/10	1/10	L (30 arc min)	750	16	31	2010	500	1.513	P.726
AH2LZ	40	L/R/T	1/10	1/10	L (30 arc min)	2000	47	94	3530	883	6.838	P.727
AH2LZ	22	L/R/T	1/15	1/15	L (30 arc min)	100	3.4	6.9	930	235	0.353	P.724
AH2LZ	22	L/R/T	1/15	1/15	L (30 arc min)	200	7.1	14	1030	255	0.698	
AH2LZ	28	L/R/T	1/15	1/15	L (30 arc min)	400	14	27	1670	422	0.756	P.725
AH2LZ	32	L/R/T	1/15	1/15	L (30 arc min)	750	26	53	2210	549	1.481	P.726
AH2LZ	40	L/R/T	1/15	1/15	L (30 arc min)	2000	73	145	4410	1108	6.660	P.727
AH2LZ	22	L/R/T	1/20	1/20	L (30 arc min)	100	4.6	9.1	1030	294	0.359	P.724
AH2LZ	22	L/R/T	1/20	1/20	L (30 arc min)	200	9.4	19	1180	294	0.695	
AH2LZ	28	L/R/T	1/20	1/20	L (30 arc min)	400	19	37	1860	471	0.753	P.725
AH2LZ	32	L/R/T	1/20	1/20	L (30 arc min)	750	35	71	2450	618	1.467	P.726
AH2LZ	40	L/R/T	1/20	1/20	L (30 arc min)	2000	98	196	4710	1177	6.603	P.727
AH2LZ	22	L/R/T	1/25	1/25	L (30 arc min)	100	5.6	11	1180	324	0.349	P.724
AH2LZ	22	L/R/T	1/25	1/25	L (30 arc min)	200	12	24	1270	324	0.694	
AH2LZ	28	L/R/T	1/25	1/25	L (30 arc min)	400	25	49	2010	500	0.750	P.725
AH2LZ	32	L/R/T	1/25	1/25	L (30 arc min)	750	45	90	2740	686	1.462	P.726
AH2LZ	40	L/R/T	1/25	1/25	L (30 arc min)	2000	122	243	5100	1275	6.567	P.727
AH2LZ	22	L/R/T	1/30	1/30	L (30 arc min)	100	6.9	14	1270	343	0.349	P.724
AH2LZ	22	L/R/T	1/30	1/30	L (30 arc min)	200	15	29	1370	343	0.693	
AH2LZ	28	L/R/T	1/30	1/30	L (30 arc min)	400	29	59	2210	549	0.749	P.725
AH2LZ	32	L/R/T	1/30	1/30	L (30 arc min)	750	56	112	2940	735	1.454	P.726
AH2LZ	40	L/R/T	1/30	1/30	L (30 arc min)	2000	145	290	5300	1324	6.531	P.727
AH2LZ	22	L/R/T	1/40	1/40	L (30 arc min)	100	9.2	18	1370	392	0.347	P.724
AH2LZ	22	L/R/T	1/40	1/40	L (30 arc min)	200	20	39	1570	392	0.692	
AH2LZ	28	L/R/T	1/40	1/40	L (30 arc min)	400	39	78	2450	618	0.745	P.725
AH2LZ	32	L/R/T	1/40	1/40	L (30 arc min)	750	74	149	3430	863	1.447	P.726
AH2LZ	40	L/R/T	1/40	1/40	L (30 arc min)	2000	196	392	5590	1402	6.511	P.727
AH2LZ	22	L/R/T	1/50	1/50	L (30 arc min)	100	11	23	1570	431	0.347	P.724
AH2LZ	22	L/R/T	1/50	1/50	L (30 arc min)	200	25	49	1720	431	0.691	
AH2LZ	28	L/R/T	1/50	1/50	L (30 arc min)	400	49	98	2650	667	0.744	P.725
AH2LZ	32	L/R/T	1/50	1/50	L (30 arc min)	750	94	188	3820	961	1.443	P.726
AH2LZ	40	L/R/T	1/50	1/50	L (30 arc min)	2000	243	486	5880	1471	6.504	P.727

Motor Matching /
Motor Power Design List

APG/AG3 Type
Parallel Shaft

AH2 Type
Right Angle Shaft

AFC Type
Right Angle Hollow Bore/
Right Angle Shaft

AT3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

1-1. Performance Tables

Mounting Type	Output Shaft Diameter	Shaft Arrangement	Nominal Reduction Ratio	Actual Reduction Ratio	Precision	Power Class	Allowable Average Torque (3000 r/min)	Allowable Peak Torque of Startup/ Stop	Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Internal Moment of Inertia (Input Shaft Equivalent)	Drawings
							N·m	N·m	N	N	×10 ⁻⁴ kg·m ²	
AH2LZ	22	L/R/T	1/60	1/59	L (30 arc min)	100	14	27	1570	441	0.346	P.724
AH2LZ	22	L/R/T	1/60	1/59	L (30 arc min)	200	27	55	1810	451	0.691	P.724
AH2LZ	28	L/R/T	1/60	1/59	L (30 arc min)	400	55	110	2740	686	0.744	P.725
AH2LZ	32	L/R/T	1/60	1/59	L (30 arc min)	750	110	220	4120	1030	1.441	P.726
AH2LZ	40	L/R/T	1/60	1/60	L (30 arc min)	2000	292	584	6080	1520	6.500	P.727
AH2LZ	22	L/R/T	1/80	1/80	L (30 arc min)	100	19	37	1570	441	0.343	P.724
AH2LZ	28	L/R/T	1/80	1/80	L (30 arc min)	200	34	69	2450	618	0.691	P.725
AH2LZ	32	L/R/T	1/80	1/80	L (30 arc min)	400	71	141	3430	863	0.746	P.726
AH2LZ	40	L/R/T	1/80	1/80	L (30 arc min)	750	141	282	5780	1422	1.447	P.727
AH2LZ	50	L/R/T	1/80	1/80	L (30 arc min)	2000	380	760	8530	2108	5.839	P.728
AH2LZ	22	L/R/T	1/100	1/100	L (30 arc min)	100	24	47	1570	441	0.343	P.724
AH2LZ	28	L/R/T	1/100	1/100	L (30 arc min)	200	43	86	2650	667	0.691	P.725
AH2LZ	32	L/R/T	1/100	1/100	L (30 arc min)	400	88	176	3820	961	0.746	P.726
AH2LZ	40	L/R/T	1/100	1/100	L (30 arc min)	750	172	345	6080	1520	1.446	P.727
AH2LZ	50	L/R/T	1/100	1/100	L (30 arc min)	2000	476	953	8820	2206	5.835	P.728
AH2LZ	22	L/R/T	1/120	1/120	L (30 arc min)	100	30	61	1570	441	0.343	P.724
AH2LZ	28	L/R/T	1/120	1/120	L (30 arc min)	200	57	114	2740	686	0.691	P.725
AH2LZ	32	L/R/T	1/120	1/120	L (30 arc min)	400	110	220	4120	1030	0.745	P.726
AH2LZ	40	L/R/T	1/120	1/120	L (30 arc min)	750	212	423	6270	1569	1.445	P.727
AH2LZ	50	L/R/T	1/120	1/120	L (30 arc min)	2000	584	1168	9020	2256	5.833	P.728
AH2LZ	22	L/R/T	1/160	1/160	L (30 arc min)	100	40	80	1570	441	0.343	P.724
AH2LZ	28	L/R/T	1/160	1/160	L (30 arc min)	200	75	151	2840	716	0.691	P.725
AH2LZ	32	L/R/T	1/160	1/160	L (30 arc min)	400	149	298	4120	1030	0.745	P.726
AH2LZ	40	L/R/T	1/160	1/160	L (30 arc min)	750	282	564	6470	1618	1.444	P.727
AH2LZ	50	L/R/T	1/160	3/470	L (30 arc min)	2000	775	1550	9310	2305	5.831	P.728
AH2LZ	22	L/R/T	1/200	1/200	L (30 arc min)	100	50	100	1570	441	0.343	P.724
AH2LZ	28	L/R/T	1/200	1/200	L (30 arc min)	200	94	188	2840	716	0.691	P.725
AH2LZ	32	L/R/T	1/200	1/200	L (30 arc min)	400	188	376	4120	1030	0.744	P.726
AH2LZ	40	L/R/T	1/200	1/200	L (30 arc min)	750	353	706	6660	1667	1.443	P.727
AH2LZ	50	L/R/T	1/200	1/196	L (30 arc min)	2000	* 862	1725	9510	2354	5.829	P.728
AH2LZ	22	L/R/T	1/240	1/236	L (30 arc min)	100	60	120	1570	441	0.343	P.724
AH2LZ	28	L/R/T	1/240	1/236	L (30 arc min)	200	110	220	2840	716	0.691	P.725
AH2LZ	32	L/R/T	1/240	1/236	L (30 arc min)	400	221	441	4120	1030	0.744	P.726
AH2LZ	40	L/R/T	1/240	1/240	L (30 arc min)	750	423	847	6660	1667	1.443	P.727
AH2LZ	50	L/R/T	1/240	1/240	L (30 arc min)	2000	* 862	1725	9510	2354	5.828	P.728

Motor Matching /
Motor Power Design List

APG/AG3 Type
Parallel Shaft

AH2 Type
Right Angle Shaft

AFC Type
Right Angle Hollow Bore/
Right Angle Shaft

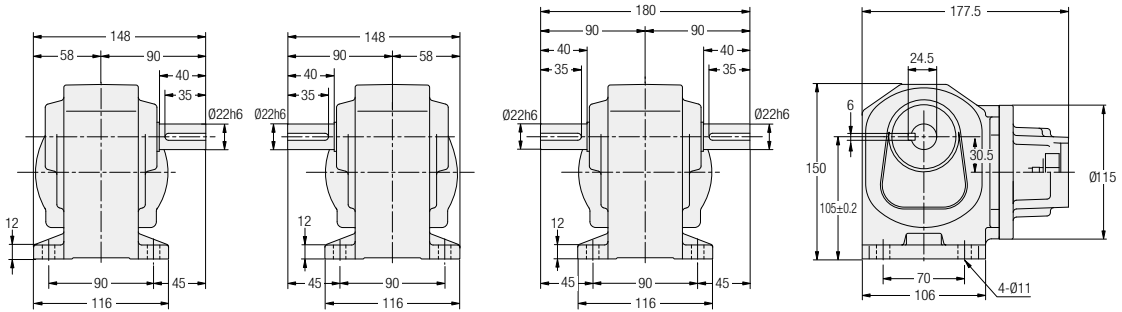
AF3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

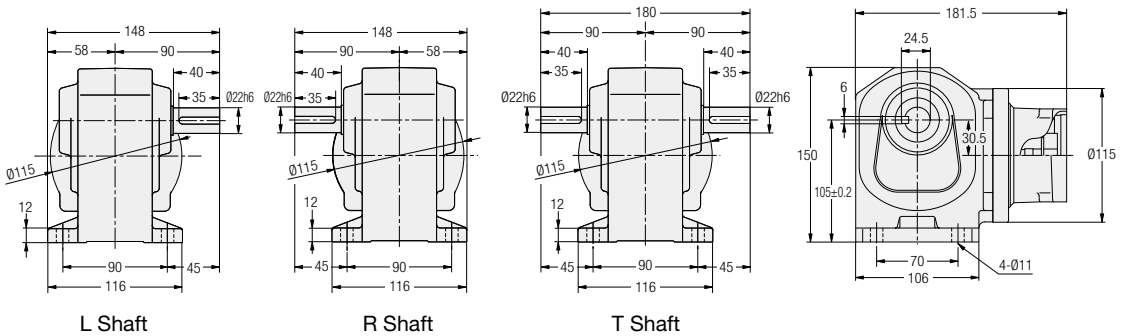
1-2. Drawings

AH2 Type Right Angle Shaft Shaft Diameter **22** **Foot Mounting** Low Backlash

<Figure 1>



<Figure 2>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
100 W	AH2LZ22#-***□100△	5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	F1/F3/S1/S3	4.5
200 W	AH2LZ22#-***□200△	5, 10, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/F3/S1/S2/S3	4.5

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ***, backlash will be indicated as □, and a flange type will be indicated as △.

Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.

Note: Please refer to pages 799 to 802 for the detailed dimensions of the input shaft area.

Note: Please refer to page 722 for the performance table.

Motor Matching /
Motor Power Design List

APG/AG3 Type
Parallel Shaft

AH2 Type
Right Angle Shaft

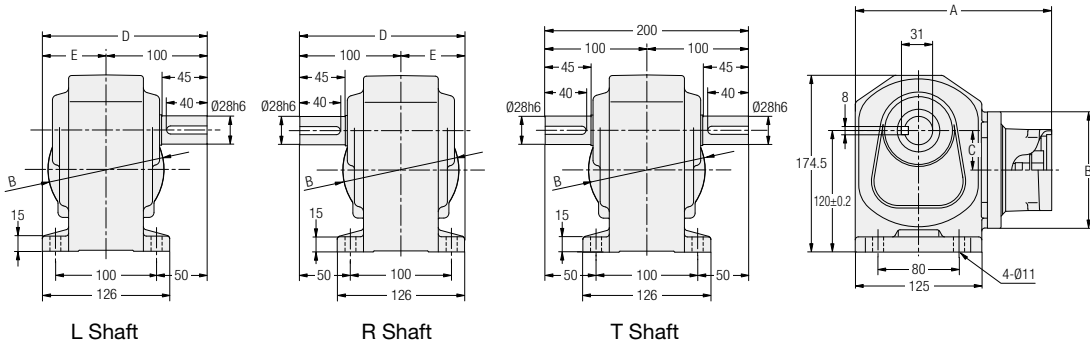
AFC Type
Right Angle Hollow Bore/
Right Angle Shaft

AFC3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

AH2 Type Right Angle Shaft Shaft Diameter **28** Foot Mounting Low Backlash

<Figure 1>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)	A	B	C	D	E
200 W	AH2LZ28#-***□200△	80, 100, 120, 160, 200, 240	1	F1/F2/F3/S1/S2/S3	6.5	194	Ø115	39	163	63
400 W	AH2LZ28#-***□400△	5, 10, 15, 20, 25, 30, 40, 50, 60	1	F1/F3/S1/S3	6.5	207	Ø128	36	164	64

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ***, backlash will be indicated as □, and a flange type will be indicated as △.

Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.

Note: Please refer to pages 799 to 802 for the detailed dimensions of the input shaft area.

Note: Please refer to page 722 for the performance table.

Motor Matching /
Motor Power Design List

APG/AG3 Type
Parallel Shaft

AH2 Type
Right Angle Shaft

AFC Type
Right Angle Hollow Bore/
Right Angle Shaft

AF3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

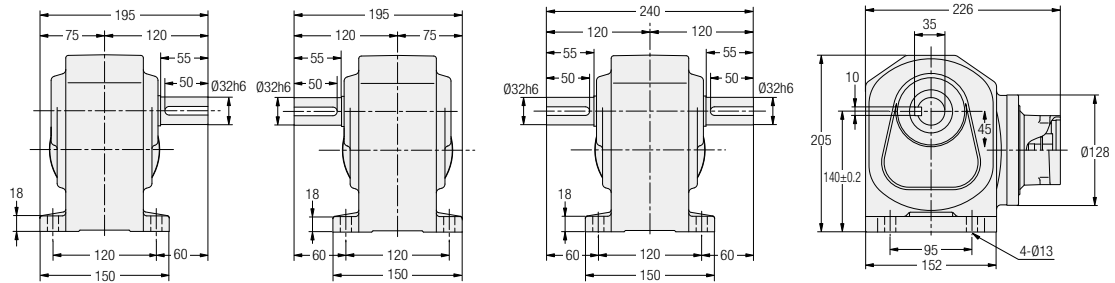
AH2 Type Right Angle Shaft

Shaft Diameter **32**

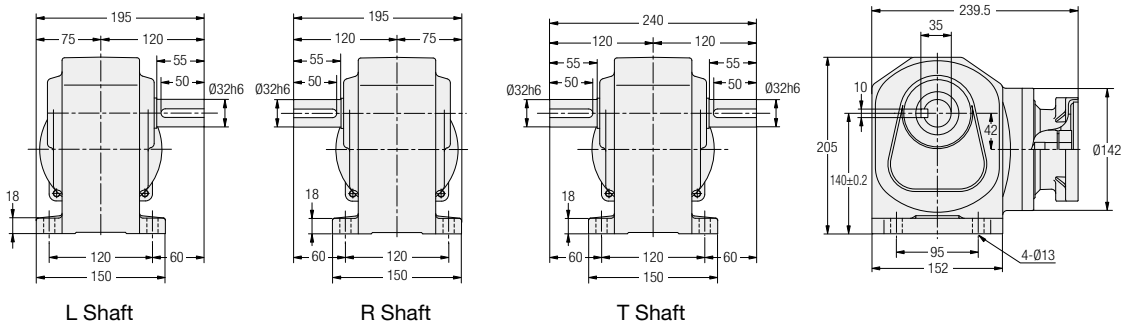
Foot Mounting

Low Backlash

<Figure 1>



<Figure 2>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
400 W	AH2LZ32#-***□400△	80, 100, 120, 160, 200, 240	1	F1/F3/S1/S3	9.5
750 W	AH2LZ32#-***□750△	5, 10, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/S1/S2/S3/S4	9

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ***, backlash will be indicated as □, and a flange type will be indicated as △.

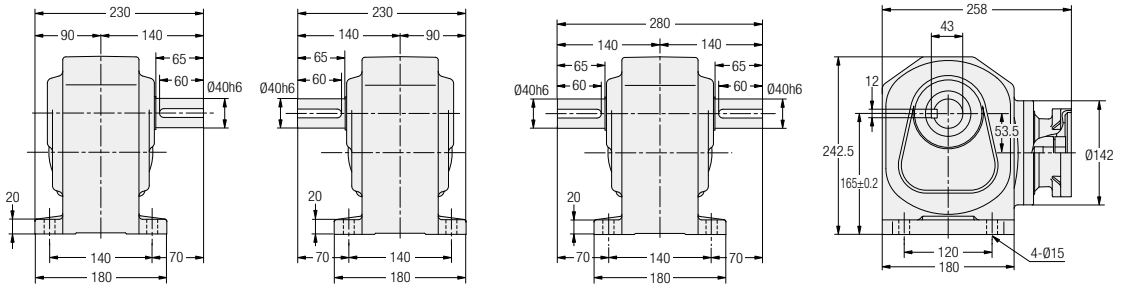
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.

Note: Please refer to pages 799 to 802 for the detailed dimensions of the input shaft area.

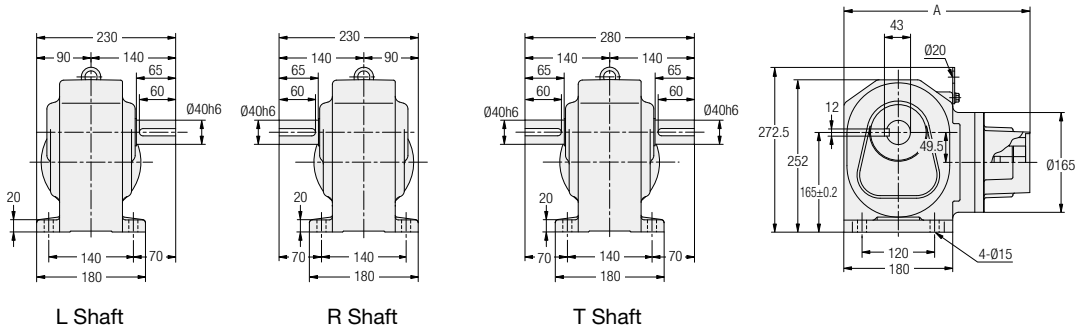
Note: Please refer to page 722 for the performance table.

AH2 Type Right Angle Shaft Shaft Diameter **40** Foot Mounting Low Backlash

<Figure 1>



<Figure 2>



L Shaft

R Shaft

T Shaft

Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	A	Approx. Weight (kg)
750 W	AH2LZ40#-***□750△	80, 100, 120, 160, 200, 240	1	F1/F2/S1/S2/S3/S4	—	17.5
2000 W	AH2LZ40#-***□2000△	5, 10, 15, 20, 25, 30, 40, 50, 60	2	K21/K22/K23	307.5	19.5
				K31/K32/K33	307.5	
				F31/F33	317.5	

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ***, backlash will be indicated as □, and a flange type will be indicated as △.

Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.

Note: Please refer to pages 799 to 802 for the detailed dimensions of the input shaft area.

Note: Please refer to page 722 for the performance table.

Motor Matching /
Motor Power Design List

APG/AG3 Type
Parallel Shaft

AH2 Type
Right Angle Shaft

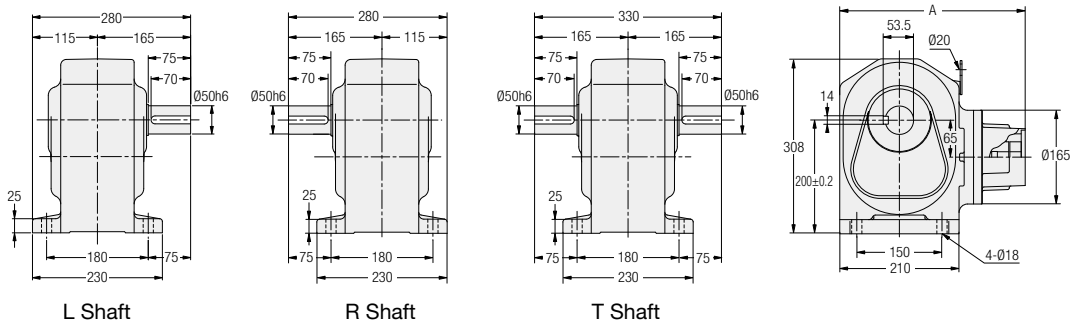
AFC Type
Right Angle Hollow Bore/
Right Angle Shaft

AF3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

AH2 Type Right Angle Shaft Shaft Diameter **50** **Foot Mounting** Low Backlash

<Figure 1>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	A	Approx. Weight (kg)
2000 W	AH2LZ50#-***□2000△	80, 100, 120, 160, 200, 240	1	K21/K22/K23	326.5	49.5
				K31/K32/K33	326.5	
				F31/F33	336.5	

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ***, backlash will be indicated as □, and a flange type will be indicated as △.
 Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
 Note: Please refer to pages 799 to 802 for the detailed dimensions of the input shaft area.
 Note: Please refer to page 723 for the performance table.