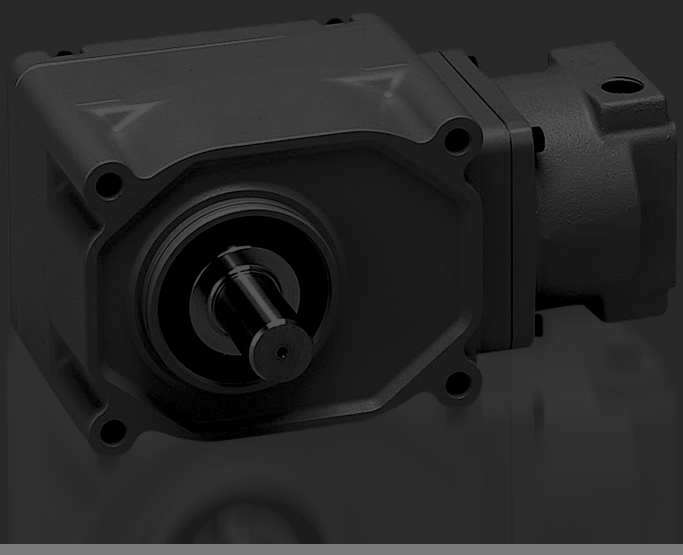
AF3 Type

Concentric Right Angle Hollow Bore/ Concentric Right Angle Shaft

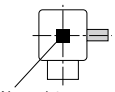
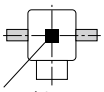
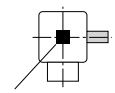
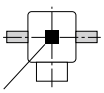


Model and Type Codes

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.

AF3 Type

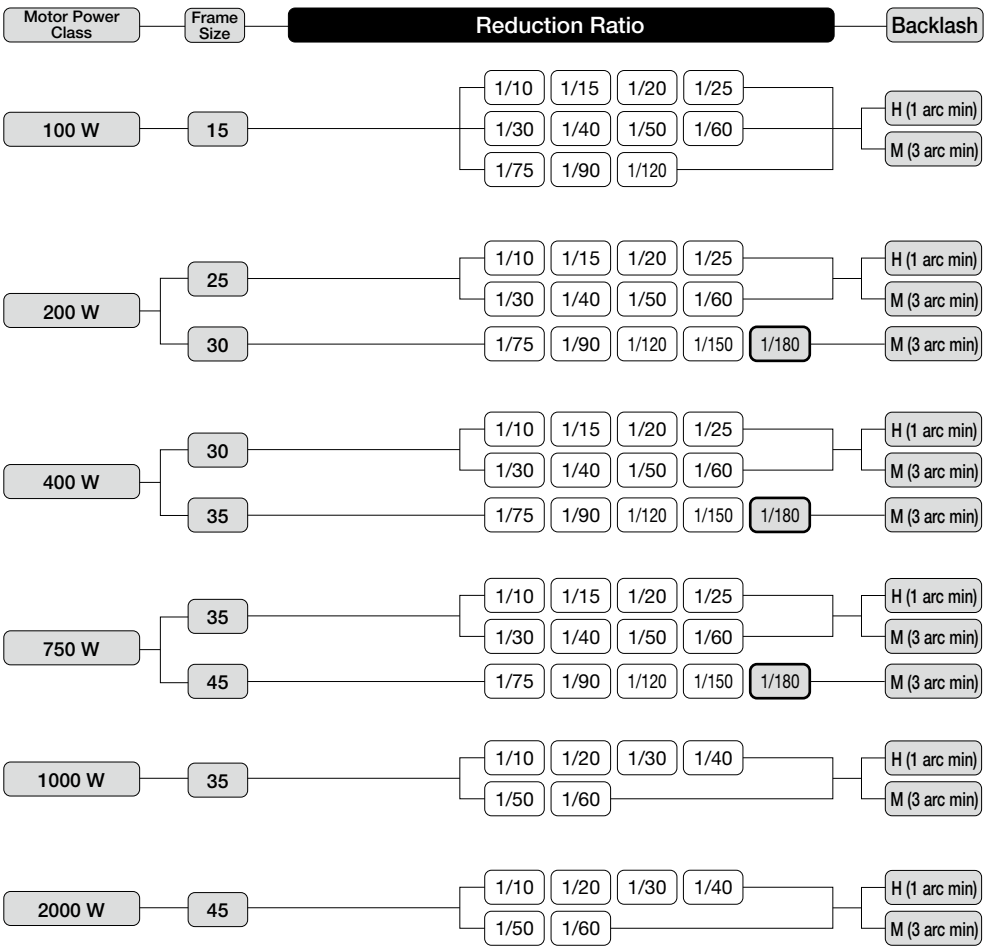
Mounting Type	Motor Type	Frame Size	Shaft Arrangement		Reduction Ratio	Backlash	Motor Power Class	Type	Option	Option Code
AF3S	Z	25		–	30	H	200	S1		
AF3S	Z	30		–	30	M	400	F3		
AF3F	Z	40	R	–	60	L	2000	K21	X	B3
①	②	③	④		⑤	⑥	⑦	⑧	⑨	⑩

①Mounting Type	AF3S : Concentric Right Angle Hollow Bore				
	AF3F : Concentric Right Angle Shaft				
②Motor Type	Z : High Precision Reducers for Servo Motor (Z Type Reducer)				
③Frame Size and Output Shaft Diameter	Output Shaft Diameter				
④Shaft Arrangement	Concentric Right Angle Hollow Bore	Blank			
	Concentric Right Angle Shaft	1 arc min and 3 arc min specifications	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 
			H	M	F
		Low Backlash	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 
			L	R	T
⑤Reduction Ratio	5:1/5 to 240:1/240				
⑥Backlash	H : Backlash 1 arc min				
	M : Backlash 3 arc min				
	L : Backlash 30 arc min (excluding some models)				
⑦Motor Power Class	100 : 100 W Class				
	200 : 200 W Class				
	400 : 400 W Class				
	750 : 750 W Class				
	1000 : 1000 W Class (only 1 arc min and 3 arc min specifications)				
	2000 : 2000 W Class				
⑧Flange Type for Servo Motor Mounting (Note 1)	F1, S1, K31, etc.				
⑨Option	Blank : Standard Specification				
	X : Special Specification Code				
⑩Option 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.

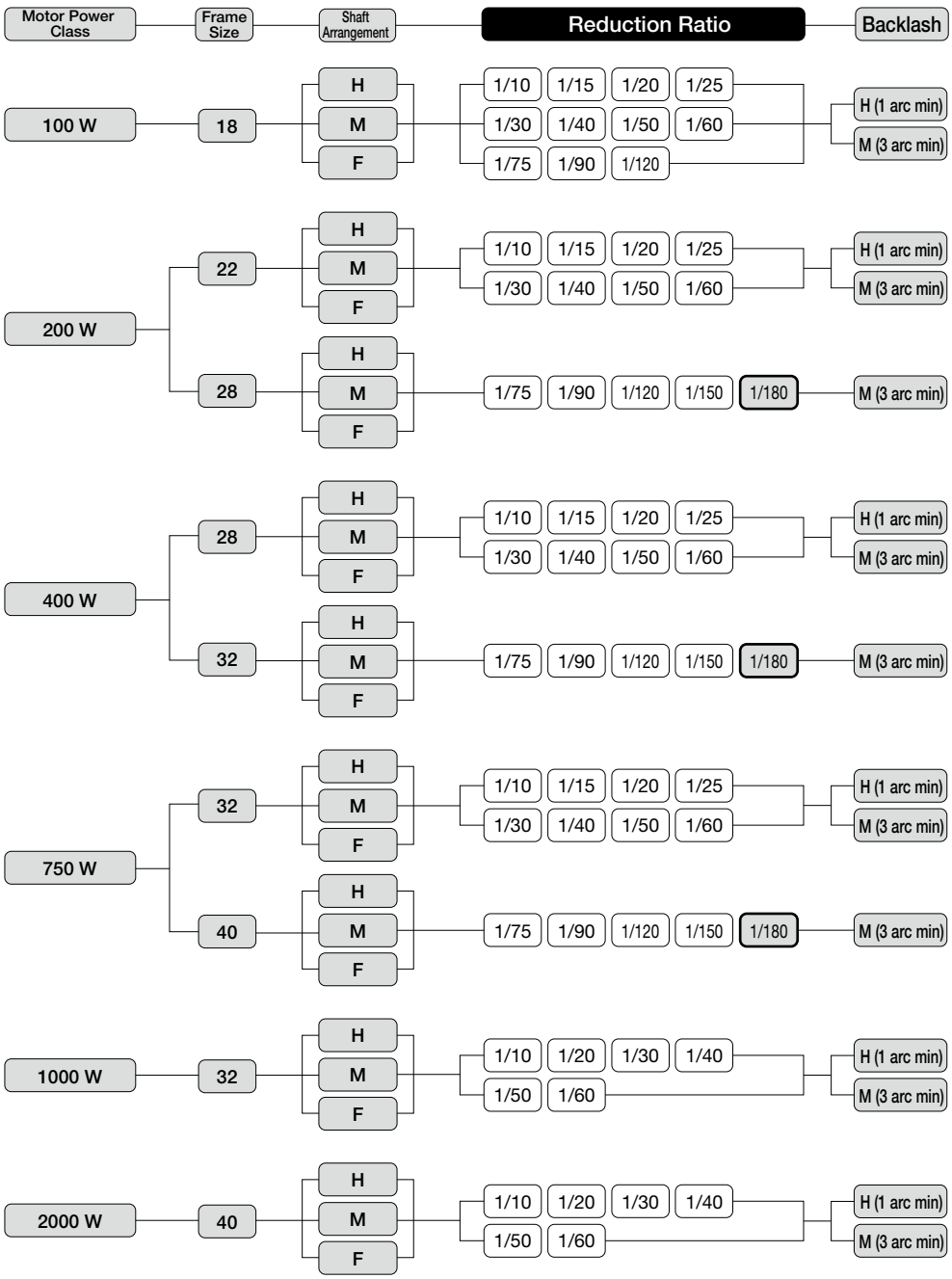
Standard Model Lineup

AF3 Type <AF3S> Backlash 1 arc min/3 arc min Specifications



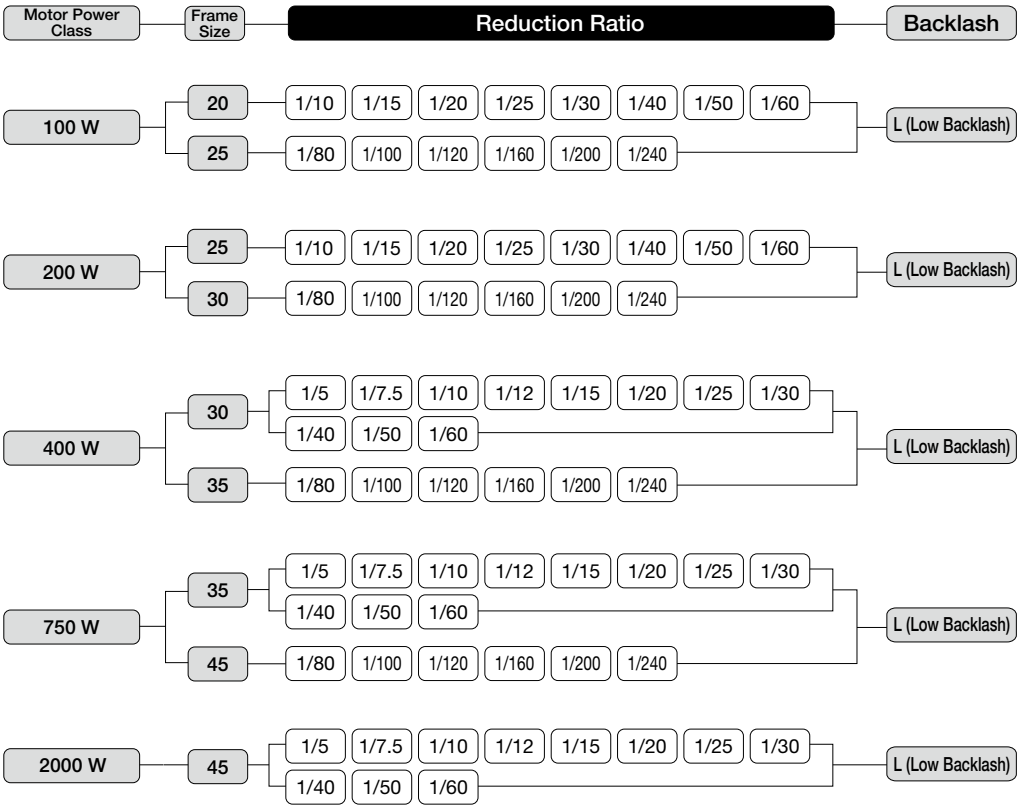
Note 1: ▭ indicates a limited torque type. Please make sure to check the allowable torque in the performance table.
Note 2: For the model lineup of low backlash types (precision: 30 arc min or more), refer to page 759.
Note 3: The details of output and other specifications are different between products with precision codes H and M (backlash: 1 arc min and 3 arc min) and products with precision code L (low backlash type). Please check them on drawings.

AF3 Type <AF3F> Backlash 1 arc min/3 arc min Specifications



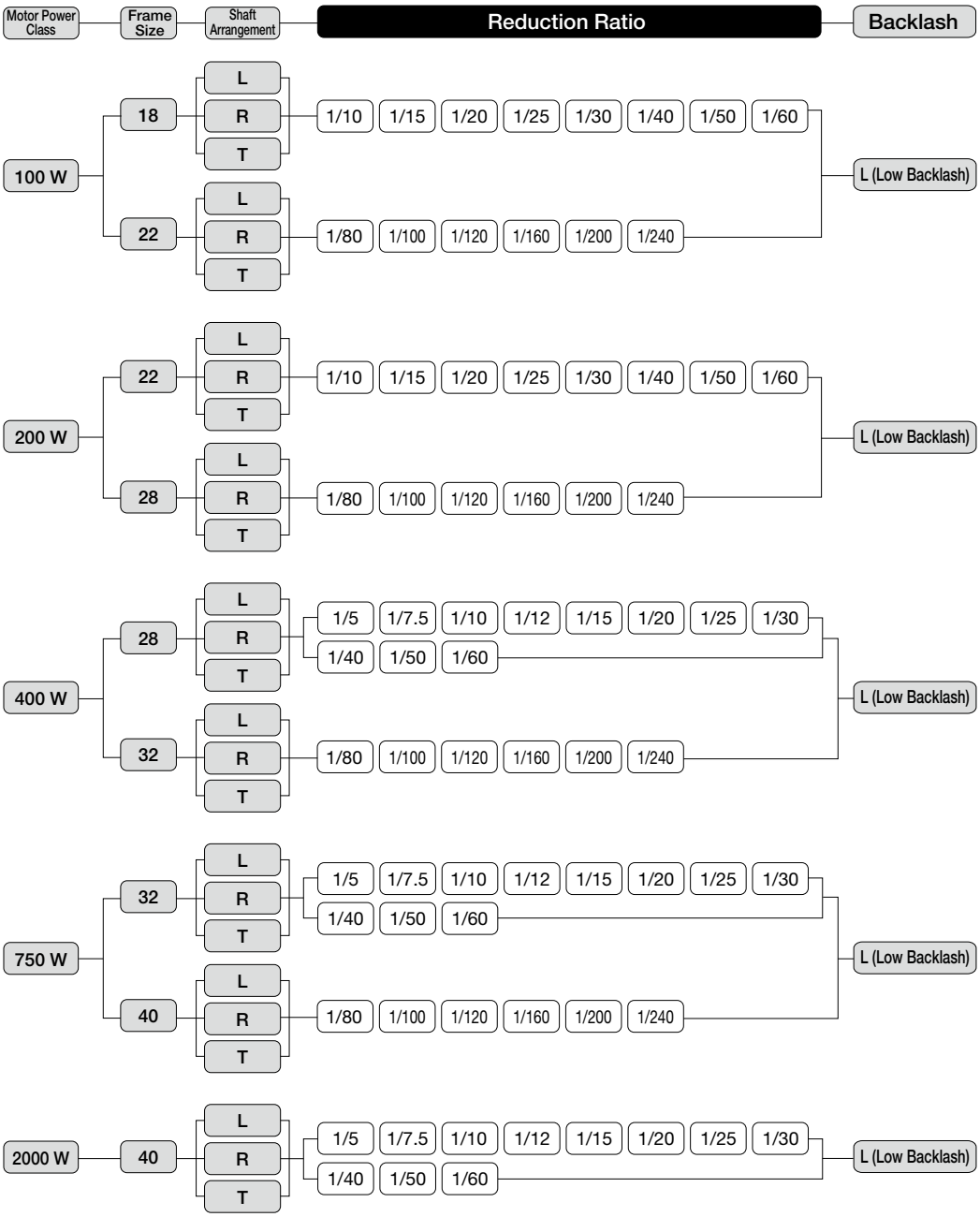
Note 1: ▭ indicates a limited torque type. Please make sure to check the allowable torque in the performance table.
Note 2: For the model lineup of low backlash types (precision: 30 arc min or more), refer to page 760.
Note 3: The details of output and other specifications are different between products with precision codes H and M (backlash: 1 arc min and 3 arc min) and products with precision code L (low backlash type). Please check them on drawings.

AF3 Type <AF3S> Low Backlash Specification



Note 1: For the precision of low backlash types, refer to the performance table.
Note 2: For the model lineup of reducers with 1 arc min and 3 arc min specifications, refer to page 757.
Note 3: The details of output and other specifications are different between products with precision codes H and M (backlash: 1 arc min and 3 arc min) and products with precision code L (low backlash type). Please check them on drawings.

AF3 Type <AF3F> Low Backlash Specification



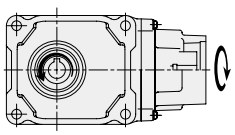
Note 1: For the precision of low backlash types, refer to the performance table.
Note 2: For the model lineup of reducers with 1 arc min and 3 arc min specifications, refer to page 758.
Note 3: The details of output and other specifications are different between products with precision codes H and M (backlash: 1 arc min and 3 arc min) and products with precision code L (low backlash type). Please check them on drawings.

MEMO

1. High Precision Reducers for Servo Motors Backlash 1 arc min/3 arc min Specifications

1-1. Performance Tables

AF3S Type <Backlash 1 arc min/3 arc min Specifications> Performance Table by Reduction Ratio



[Notes]

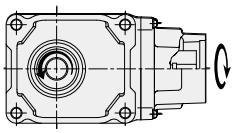
- The input speed is 3000 r/min.
- The "*" mark indicates a limited torque type. Please make sure to check the allowable average torque in the performance table.
- Allowable output shaft O.H.L. is the value at 20 mm from the flange surface.
- For the continuous rated input torque, please refer to page 839. In addition, for the servo motor-based motor rated output torque, please refer to page 822.
- The key dimensions and tolerances for output shafts conform to JIS B 1301-1996 (plain form).
- The key for the output shaft is not supplied with backlash 1 arc min and 3 arc min specifications and concentric right angle hollow bore types.
- 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.)
- H in the Precision column means backlash 1 arc min, and M means backlash 3 arc min.

■ 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	
AF3SZ	15	—	1/10	1/10	H/M	100	2.2	6.5	340	108	0.373	P.766
AF3SZ	25	—	1/10	1/10	H/M	200	3.8	11	1230	380	0.721	
AF3SZ	30	—	1/10	1/10	H/M	400	7.8	23	1520	475	0.799	P.767
AF3SZ	35	—	1/10	1/10	H/M	750	16	48	1960	613	1.547	P.768
AF3SZ	35	—	1/10	1/10	H/M	1000	22	44	1960	613	4.737	
AF3SZ	45	—	1/10	1/10	H/M	2000	44	88	3140	967	6.339	P.769
AF3SZ	15	—	1/15	1/15	H/M	100	3.5	10	440	147	0.371	P.766
AF3SZ	25	—	1/15	1/15	H/M	200	6.4	19	1370	429	0.706	
AF3SZ	30	—	1/15	1/15	H/M	400	13	40	1720	539	0.774	P.767
AF3SZ	35	—	1/15	1/15	H/M	750	26	79	2250	686	1.501	P.768
AF3SZ	15	—	1/20	1/20	H/M	100	5.0	15	540	186	0.370	P.766
AF3SZ	25	—	1/20	1/20	H/M	200	8.9	27	1520	466	0.700	
AF3SZ	30	—	1/20	1/20	H/M	400	18	53	2010	600	0.764	P.767
AF3SZ	35	—	1/20	1/20	H/M	750	36	109	2500	747	1.482	P.768
AF3SZ	35	—	1/20	1/20	H/M	1000	45	90	2500	747	4.641	
AF3SZ	45	—	1/20	1/20	H/M	2000	90	179	4070	1067	6.049	P.769
AF3SZ	15	—	1/25	1/25	H/M	100	6.4	19	640	226	0.369	P.766
AF3SZ	25	—	1/25	1/25	H/M	200	12	35	1670	502	0.697	
AF3SZ	30	—	1/25	1/25	H/M	400	23	68	2160	637	0.759	P.767
AF3SZ	35	—	1/25	1/25	H/M	750	46	137	2740	796	1.469	P.768
AF3SZ	15	—	1/30	1/30	H/M	100	7.6	23	740	245	0.369	P.766
AF3SZ	25	—	1/30	1/30	H/M	200	14	43	1810	527	0.695	
AF3SZ	30	—	1/30	1/30	H/M	400	27	82	2300	662	0.754	P.767
AF3SZ	35	—	1/30	1/30	H/M	750	55	166	2940	821	1.462	P.768
AF3SZ	35	—	1/30	1/30	H/M	1000	67	134	2940	821	4.616	
AF3SZ	45	—	1/30	1/30	H/M	2000	144	288	4360	1067	5.972	P.769
AF3SZ	15	—	1/40	1/40	H/M	100	10	25	780	275	0.368	P.766
AF3SZ	25	—	1/40	1/40	H/M	200	19	48	1960	576	0.693	
AF3SZ	30	—	1/40	1/40	H/M	400	36	91	2600	711	0.750	P.767
AF3SZ	35	—	1/40	1/40	H/M	750	76	191	3140	870	1.453	P.768
AF3SZ	35	—	1/40	1/40	H/M	1000	96	192	3140	870	4.606	
AF3SZ	45	—	1/40	1/40	H/M	2000	191	382	4360	1067	5.934	P.769

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	$\times 10^{-4}$kg·m^2	
AF3SZ	15	—	1/50	1/50	H/M	100	13	31	880	294	0.368	P.766
AF3SZ	25	—	1/50	1/50	H/M	200	24	48	2160	613	0.691	
AF3SZ	30	—	1/50	1/50	H/M	400	45	91	2840	747	0.747	P.767
AF3SZ	35	—	1/50	1/50	H/M	750	95	191	3280	870	1.448	P.768
AF3SZ	35	—	1/50	1/50	H/M	1000	120	239	3280	870	4.597	
AF3SZ	45	—	1/50	1/50	H/M	2000	239	473	4360	1067	5.913	P.769
AF3SZ	15	—	1/60	1/60	H/M	100	15	31	880	294	0.367	P.766
AF3SZ	25	—	1/60	1/60	H/M	200	29	57	2350	637	0.690	
AF3SZ	30	—	1/60	1/60	H/M	400	54	109	3040	767	0.746	P.767
AF3SZ	35	—	1/60	1/60	H/M	750	115	229	3430	870	1.444	P.768
AF3SZ	35	—	1/60	1/60	H/M	1000	143	286	3430	870	4.596	
AF3SZ	45	—	1/60	1/60	H/M	2000	287	574	4360	1067	5.899	P.769
AF3SZ	15	—	1/75	1/75	H/M	100	18	36	980	324	0.368	P.766
AF3SZ	30	—	1/75	1/75	M	200	31	62	3090	775	0.692	P.767
AF3SZ	35	—	1/75	1/75	M	400	63	127	3330	873	0.747	P.768
AF3SZ	45	—	1/75	1/75	M	750	135	271	4460	1177	1.452	P.769
AF3SZ	15	—	1/90	1/90	H/M	100	22	44	1030	324	0.368	P.766
AF3SZ	30	—	1/90	1/90	M	200	37	74	3090	775	0.692	P.767
AF3SZ	35	—	1/90	1/90	M	400	75	150	3380	873	0.747	P.768
AF3SZ	45	—	1/90	1/90	M	750	162	325	4460	1177	1.452	P.769
AF3SZ	15	—	1/120	1/120	H/M	100	29	58	1030	343	0.367	P.766
AF3SZ	30	—	1/120	1/120	M	200	50	99	3140	785	0.692	P.767
AF3SZ	35	—	1/120	1/120	M	400	100	200	3380	883	0.746	P.768
AF3SZ	45	—	1/120	1/120	M	750	217	433	4460	1177	1.449	P.769
AF3SZ	30	—	1/150	1/150	M	200	57	86	3140	785	0.692	P.767
AF3SZ	35	—	1/150	1/150	M	400	124	186	3380	883	0.746	P.768
AF3SZ	45	—	1/150	1/150	M	750	251	377	4460	1177	1.447	P.769
AF3SZ	30	—	1/180	1/180	M	200	* 57	86	3140	785	0.691	P.767
AF3SZ	35	—	1/180	1/180	M	400	* 124	186	3580	912	0.745	P.768
AF3SZ	45	—	1/180	1/180	M	750	* 251	377	4850	1275	1.445	P.769

AF3F Type <Backlash 1 arc min/3 arc min Specifications> 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 824.
- The key dimensions and tolerances for output shafts conform to JIS B 1301-1996 (plain form).
- The key for the output shaft is not supplied with backlash 1 arc min and 3 arc min specifications and concentric right angle hollow bore types.
- 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.)
- H in the Precision column means backlash 1 arc min, and M means backlash 3 arc min.

■ 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	$\times 10^{-4}$kg·m^2	
AF3FZ	18	H/M/F	1/10	1/10	H/M	100	2.2	6.5	340	108	0.373	P.770
AF3FZ	22	H/M/F	1/10	1/10	H/M	200	3.8	11	1230	380	0.721	
AF3FZ	28	H/M/F	1/10	1/10	H/M	400	7.8	23	1520	475	0.799	P.771
AF3FZ	32	H/M/F	1/10	1/10	H/M	750	16	48	1960	613	1.547	P.772
AF3FZ	32	H/M/F	1/10	1/10	H/M	1000	22	44	1960	613	4.737	
AF3FZ	40	H/M/F	1/10	1/10	H/M	2000	44	88	3140	967	6.339	P.773
AF3FZ	18	H/M/F	1/15	1/15	H/M	100	3.5	10	440	147	0.371	P.770
AF3FZ	22	H/M/F	1/15	1/15	H/M	200	6.4	19	1370	429	0.706	
AF3FZ	28	H/M/F	1/15	1/15	H/M	400	13	40	1720	539	0.774	P.771
AF3FZ	32	H/M/F	1/15	1/15	H/M	750	26	79	2210	686	1.501	P.772
AF3FZ	18	H/M/F	1/20	1/20	H/M	100	5.0	15	540	186	0.370	P.770
AF3FZ	22	H/M/F	1/20	1/20	H/M	200	8.9	27	1470	466	0.700	
AF3FZ	28	H/M/F	1/20	1/20	H/M	400	18	53	1860	600	0.764	P.771
AF3FZ	32	H/M/F	1/20	1/20	H/M	750	36	109	2350	747	1.482	P.772
AF3FZ	32	H/M/F	1/20	1/20	H/M	1000	45	90	2350	747	4.641	
AF3FZ	40	H/M/F	1/20	1/20	H/M	2000	90	179	4070	1067	6.049	P.773
AF3FZ	18	H/M/F	1/25	1/25	H/M	100	6.4	19	640	226	0.369	P.770
AF3FZ	22	H/M/F	1/25	1/25	H/M	200	12	35	1620	502	0.697	
AF3FZ	28	H/M/F	1/25	1/25	H/M	400	23	68	2010	637	0.759	P.771
AF3FZ	32	H/M/F	1/25	1/25	H/M	750	46	137	2500	796	1.469	P.772
AF3FZ	18	H/M/F	1/30	1/30	H/M	100	7.6	23	740	245	0.369	P.770
AF3FZ	22	H/M/F	1/30	1/30	H/M	200	14	43	1720	527	0.695	
AF3FZ	28	H/M/F	1/30	1/30	H/M	400	27	82	2210	662	0.754	P.771
AF3FZ	32	H/M/F	1/30	1/30	H/M	750	55	166	2650	821	1.462	P.772
AF3FZ	32	H/M/F	1/30	1/30	H/M	1000	67	134	2650	821	4.616	
AF3FZ	40	H/M/F	1/30	1/30	H/M	2000	144	288	4360	1067	5.972	P.773
AF3FZ	18	H/M/F	1/40	1/40	H/M	100	10	25	780	275	0.368	P.770
AF3FZ	22	H/M/F	1/40	1/40	H/M	200	19	48	1860	576	0.693	
AF3FZ	28	H/M/F	1/40	1/40	H/M	400	36	91	2450	711	0.750	P.771
AF3FZ	32	H/M/F	1/40	1/40	H/M	750	76	191	2790	870	1.453	P.772
AF3FZ	32	H/M/F	1/40	1/40	H/M	1000	96	192	2790	870	4.606	
AF3FZ	40	H/M/F	1/40	1/40	H/M	2000	191	382	4360	1067	5.934	P.773

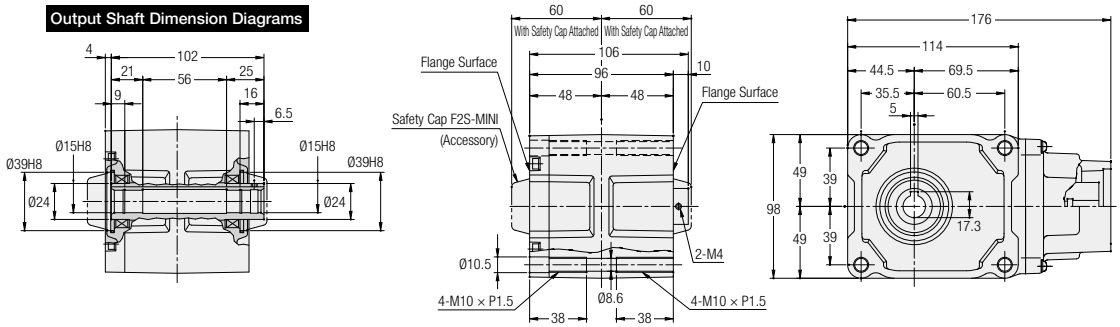
Mounting Type	Output Shaft Diameter	Shaft Arrangement	Nominal Reduction Ratio	Actual Reduction Ratio	Precision	Power Class	Allowable Average Torque (3000 r/min)	Allowable Peak Torque of Startup/ Stop	Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Internal Moment of Inertia (Input Shaft Equivalent)	Drawings
							N·m	N·m	N	N	$\times 10^{-4}$kg·m^2	
AF3FZ	18	H/M/F	1/50	1/50	H/M	100	13	31	880	294	0.368	P.770
AF3FZ	22	H/M/F	1/50	1/50	H/M	200	24	48	2060	613	0.691	
AF3FZ	28	H/M/F	1/50	1/50	H/M	400	45	91	2740	747	0.747	P.771
AF3FZ	32	H/M/F	1/50	1/50	H/M	750	95	191	2940	870	1.448	P.772
AF3FZ	32	H/M/F	1/50	1/50	H/M	1000	120	239	2940	870	4.597	
AF3FZ	40	H/M/F	1/50	1/50	H/M	2000	239	473	4360	1067	5.913	P.773
AF3FZ	18	H/M/F	1/60	1/60	H/M	100	15	31	880	294	0.367	P.770
AF3FZ	22	H/M/F	1/60	1/60	H/M	200	29	57	2250	637	0.690	
AF3FZ	28	H/M/F	1/60	1/60	H/M	400	54	109	2900	767	0.746	P.771
AF3FZ	32	H/M/F	1/60	1/60	H/M	750	115	229	3040	870	1.444	P.772
AF3FZ	32	H/M/F	1/60	1/60	H/M	1000	143	286	3040	870	4.596	
AF3FZ	40	H/M/F	1/60	1/60	H/M	2000	287	574	4360	1067	5.899	P.773
AF3FZ	18	H/M/F	1/75	1/75	H/M	100	18	36	980	324	0.368	P.770
AF3FZ	28	H/M/F	1/75	1/75	M	200	31	62	3090	775	0.692	P.771
AF3FZ	32	H/M/F	1/75	1/75	M	400	63	127	3330	873	0.747	P.772
AF3FZ	40	H/M/F	1/75	1/75	M	750	135	271	4460	1177	1.452	P.773
AF3FZ	18	H/M/F	1/90	1/90	H/M	100	22	44	1030	324	0.368	P.770
AF3FZ	28	H/M/F	1/90	1/90	M	200	37	74	3090	775	0.692	P.771
AF3FZ	32	H/M/F	1/90	1/90	M	400	75	150	3380	873	0.747	P.772
AF3FZ	40	H/M/F	1/90	1/90	M	750	162	325	4460	1177	1.452	P.773
AF3FZ	18	H/M/F	1/120	1/120	H/M	100	29	58	1030	343	0.367	P.770
AF3FZ	28	H/M/F	1/120	1/120	M	200	50	99	3140	785	0.692	P.771
AF3FZ	32	H/M/F	1/120	1/120	M	400	100	200	3380	883	0.746	P.772
AF3FZ	40	H/M/F	1/120	1/120	M	750	217	433	4460	1177	1.449	P.773
AF3FZ	28	H/M/F	1/150	1/150	M	200	57	86	3140	785	0.692	P.771
AF3FZ	32	H/M/F	1/150	1/150	M	400	124	186	3380	883	0.746	P.772
AF3FZ	40	H/M/F	1/150	1/150	M	750	251	377	4460	1177	1.447	P.773
AF3FZ	28	H/M/F	1/180	1/180	M	200	* 57	86	3140	785	0.691	P.771
AF3FZ	32	H/M/F	1/180	1/180	M	400	* 124	186	3580	912	0.745	P.772
AF3FZ	40	H/M/F	1/180	1/180	M	750	* 251	377	4850	1275	1.445	P.773

1-2. Drawings

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 15 — Backlash 1 arc min/3 arc min Specifications

<Figure 1>

Output Shaft Dimension Diagrams



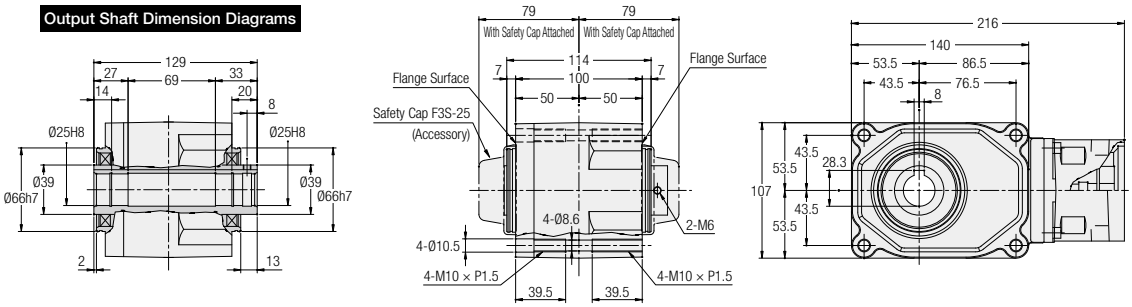
Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
100 W	AF3SZ15-✱✱✱□100△	10, 15, 20, 25, 30, 40, 50, 60, 75, 90, 120	1	F1/F3/S1/S3	3

Note: A reduction ratio will be indicated as ✱✱✱ in the nomenclature. In addition, 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 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 762 for the performance table.

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 25 — Backlash 1 arc min/3 arc min Specifications

<Figure 2>

Output Shaft Dimension Diagrams



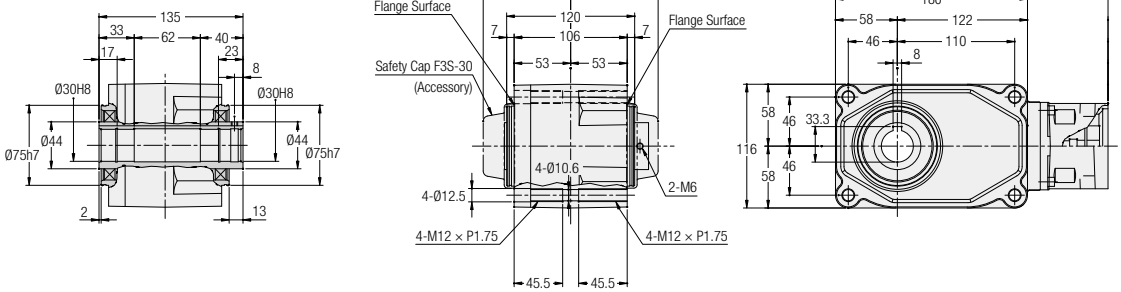
Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
200 W	AF3SZ25-✱✱✱□200△	10, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/F3/S1/S2/S3/S5	5.5

Note: A reduction ratio will be indicated as ✱✱✱ in the nomenclature. In addition, 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 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 762 for the performance table.

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 30 — Backlash 1 arc min/3 arc min Specifications

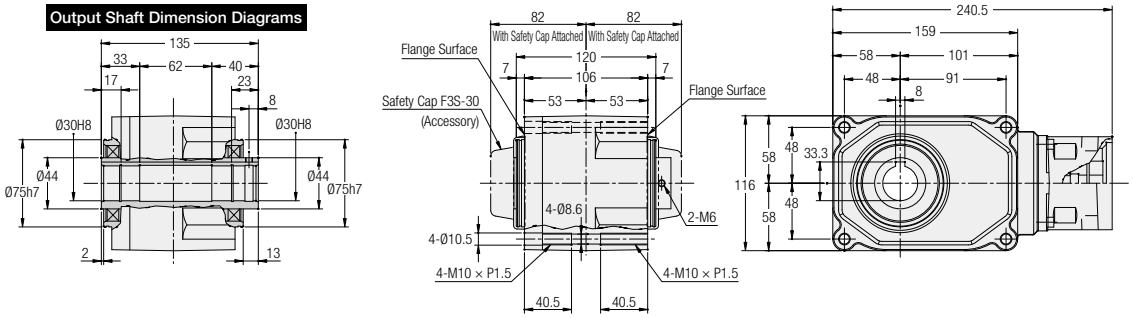
<Figure 1>

Output Shaft Dimension Diagrams



<Figure 2>

Output Shaft Dimension Diagrams



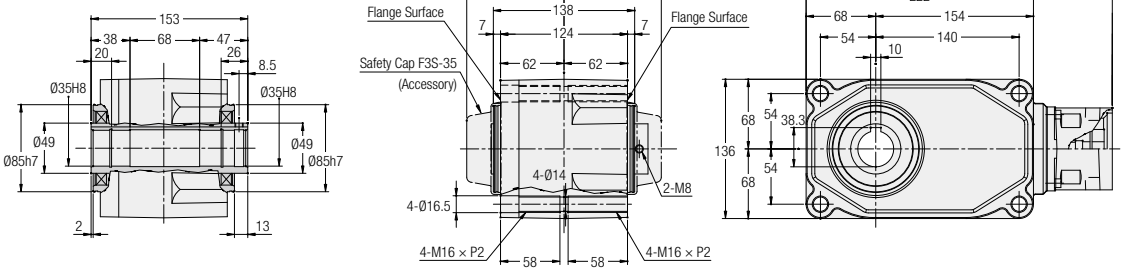
Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
200 W	AF3SZ30-✱✱✱□200△	75, 90, 120, 150, 180	1	F1/F2/F3/S1/S2/S3/S5	8
400 W	AF3SZ30-✱✱✱□400△	10, 15, 20, 25, 30, 40, 50, 60	2	F1/F3/S1/S3	7.5

Note: A reduction ratio will be indicated as ✱✱✱ in the nomenclature. In addition, 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 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 762 for the performance table.

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 35 — Backlash 1 arc min/3 arc min Specifications

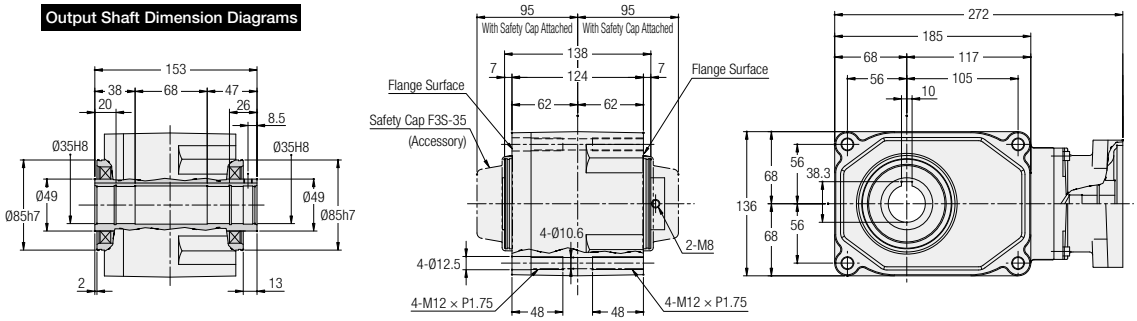
<Figure 1>

Output Shaft Dimension Diagrams



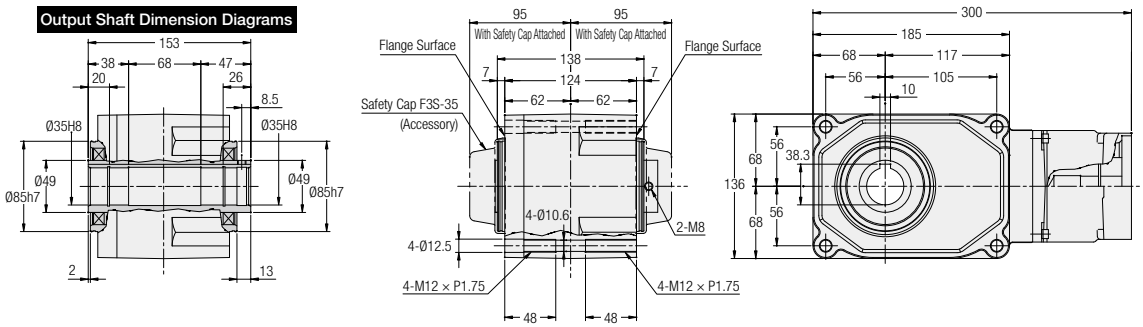
<Figure 2>

Output Shaft Dimension Diagrams



<Figure 3>

Output Shaft Dimension Diagrams



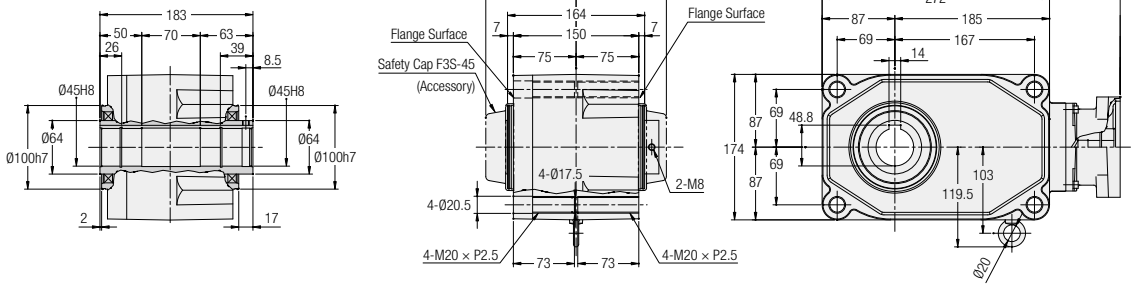
Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
400 W	AF3SZ35-✱✱✱□400△	75, 90, 120, 150, 180	1	F1/F3/S1/S3	13.5
750 W	AF3SZ35-✱✱✱□750△	10, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/S1/S2/S3/S4/S6	10
1000 W	AF3SZ35-✱✱✱□1000△	10, 20, 30, 40, 50, 60	3	K21/K22/K23/K31/K32/K33	10.5

Note: A reduction ratio will be indicated as ✱✱✱ in the nomenclature. In addition, 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 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 762 for the performance table.

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 45 — Backlash 1 arc min/3 arc min Specifications

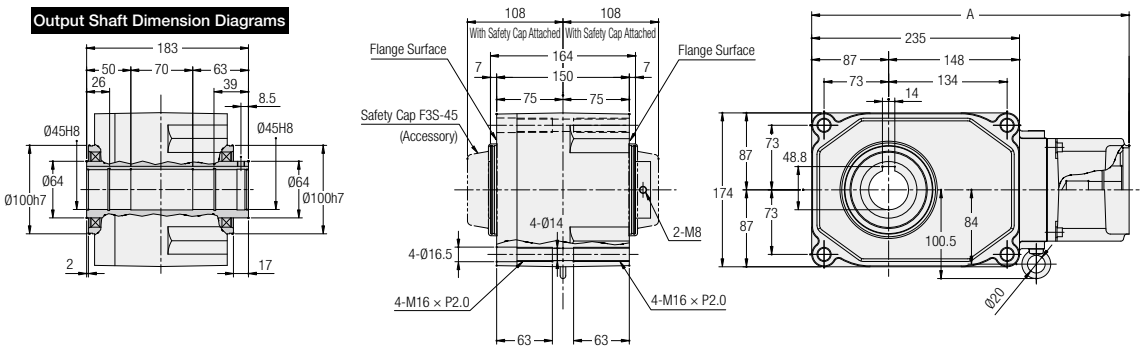
<Figure 1>

Output Shaft Dimension Diagrams



<Figure 2>

Output Shaft Dimension Diagrams

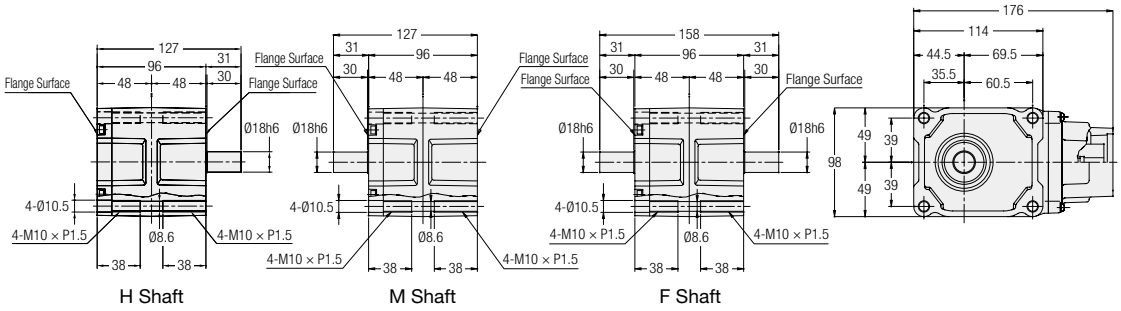


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	A	Approx. Weight (kg)
750 W	AF3SZ45-✱✱✱□750△	75, 90, 120, 150, 180	1	F1/F2/S1/S2/S3/S4/S6	—	18.5
2000 W	AF3SZ45-✱✱✱□2000△	10, 20, 30, 40, 50, 60	2	K21/K22/K23	359	18
				K31/K32/K33	359	
				F31/F33	369	

Note: A reduction ratio will be indicated as ✱✱✱ in the nomenclature. In addition, 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 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 762 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 18 — Backlash 1 arc min/3 arc min Specifications

<Figure 1>

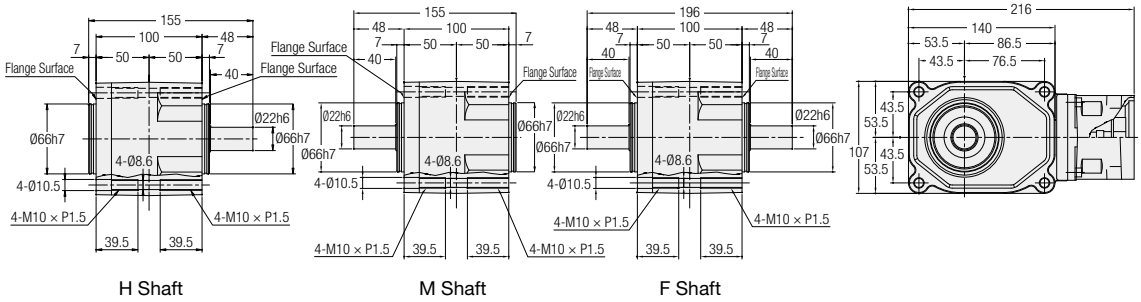


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
100 W	AF3FZ18#-✻✻✻□100△	10, 15, 20, 25, 30, 40, 50, 60, 75, 90, 120	1	F1/F3/S1/S3	3

Note: A shaft arrangement (H, M, F) 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 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 764 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 22 — Backlash 1 arc min/3 arc min Specifications

<Figure 2>

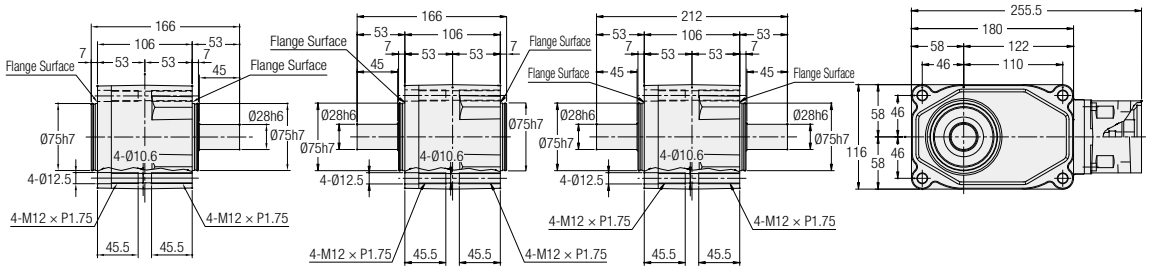


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
200 W	AF3FZ22#-✻✻✻□200△	10, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/F3/S1/S2/S3/S5	6

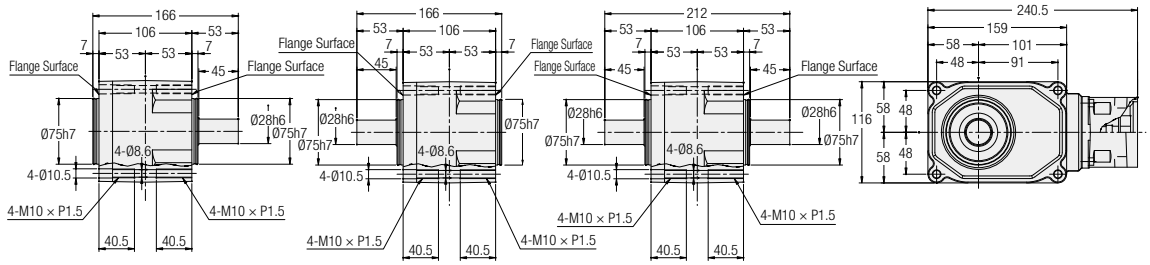
Note: A shaft arrangement (H, M, F) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ✻✻✻, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 764 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 28 — Backlash 1 arc min/3 arc min Specifications

<Figure 1>



<Figure 2>



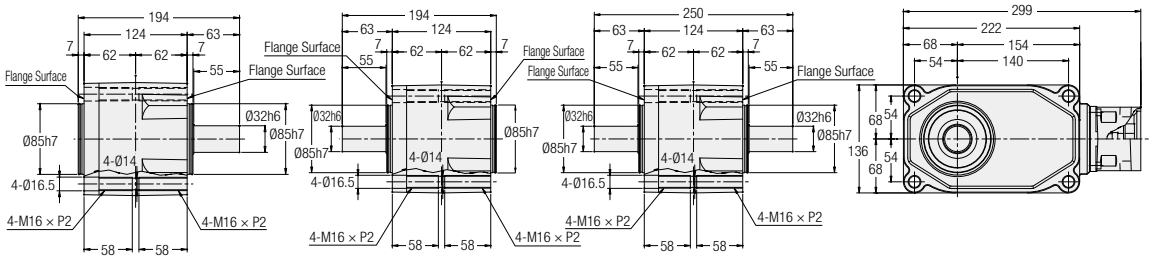
H Shaft M Shaft F Shaft

Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
200 W	AF3FZ28#-✱✱✱□200△	75, 90, 120, 150, 180	1	F1/F2/F3/S1/S2/S3/S5	8.5
400 W	AF3FZ28#-✱✱✱□400△	10, 15, 20, 25, 30, 40, 50, 60	2	F1/F3/S1/S3	8.5

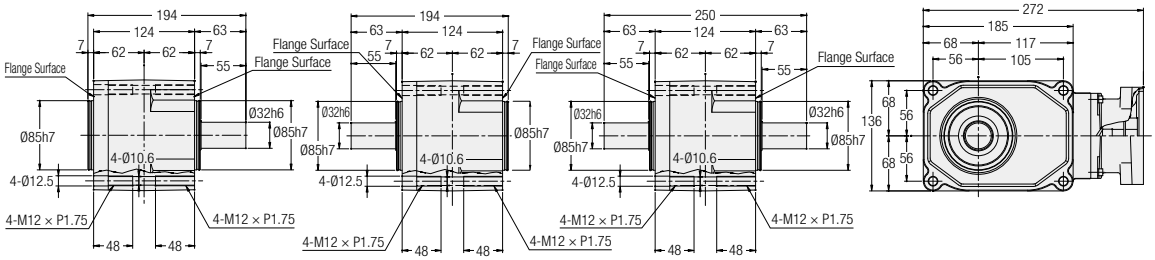
Note: A shaft arrangement (H, M, F) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ✱✱✱, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 764 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 32 — Backlash 1 arc min/3 arc min Specifications

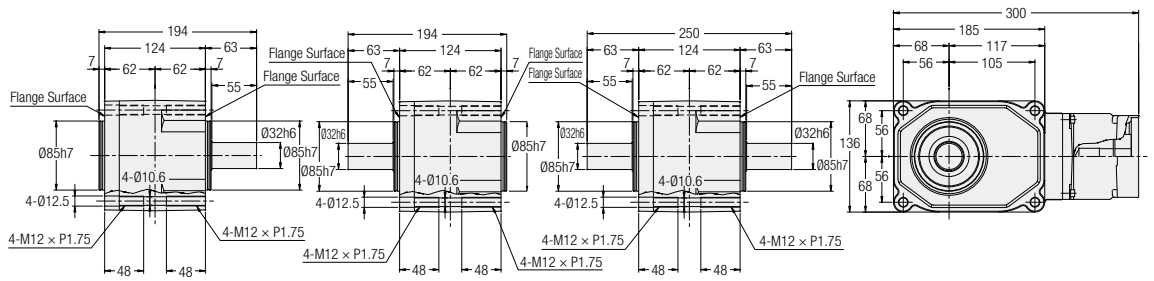
<Figure 1>



<Figure 2>



<Figure 3>



H Shaft M Shaft F Shaft

Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
400 W	AF3FZ32#-***□400△	75, 90, 120, 150, 180	1	F1/F3/S1/S3	14.5
750 W	AF3FZ32#-***□750△	10, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/S1/S2/S3/S4/S6	11.5
1000 W	AF3FZ32#-***□1000△	10, 20, 30, 40, 50, 60	3	K21/K22/K23/K31/K32/K33	12

Note: A shaft arrangement (H, M, F) 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 △.

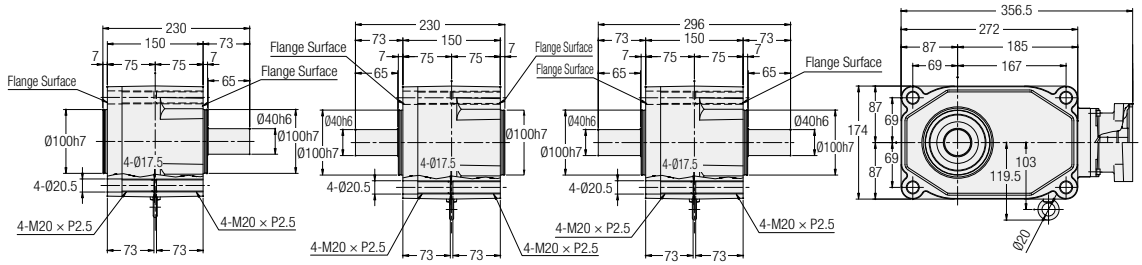
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.

Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.

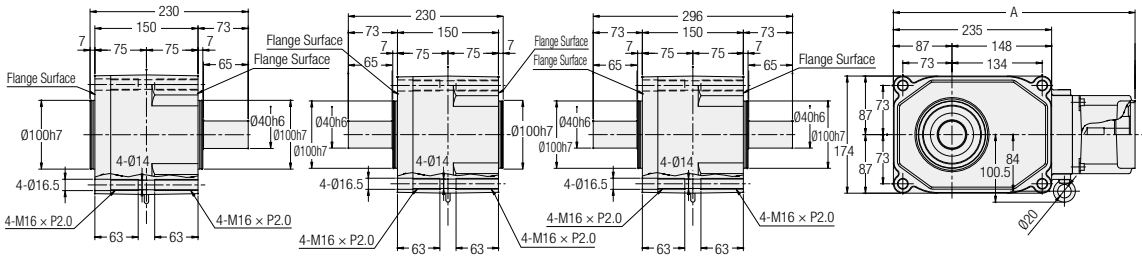
Note: Please refer to page 764 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 40 — Backlash 1 arc min/3 arc min Specifications

<Figure 1>



<Figure 2>



H Shaft M Shaft F Shaft

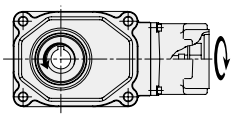
Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	A	Approx. Weight (kg)
750 W	AF3FZ40#-✱✱✱□750△	75, 90, 120, 150, 180	1	F1/F2/S1/S2/S3/S4/S6	—	20
2000 W	AF3FZ40#-✱✱✱□2000△	10, 20, 30, 40, 50, 60	2	K21/K22/K23	359	21
				K31/K32/K33	359	
				F31/F33	369	

Note: A shaft arrangement (H, M, F) 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 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 764 for the performance table.

2. Low Backlash High Precision Reducers for Servo Motors

2-1. Performance Tables

AF3S Type <Low Backlash> Performance Table by Reduction Ratio



[Notes]
- The input speed is 3000 r/min.
- Allowable output shaft O.H.L. is the value at 20 mm from the end 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 826.
- The key dimensions and tolerances for output shafts conform to JIS B 1301-1996 (plain form).
- The key for the output shaft is not supplied with concentric right angle hollow bore types.
- 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.)

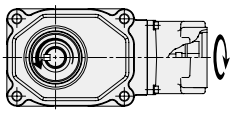
■ At an input speed of 3000 r/min

Mounting Type	Output Shaft Diameter	Shaft Arrangement	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	$\times 10^{-4}$kg·m^2	
AF3SZ	30	—	1/5	1/5	L (30 arc min)	400	3.8	7.6	980	375	1.063	P.780
AF3SZ	35	—	1/5	1/5	L (30 arc min)	750	7.4	15	1760	500	2.258	P.781
AF3SZ	45	—	1/5	1/5	L (30 arc min)	2000	24	47	2550	800	8.078	P.782
AF3SZ	30	—	1/7.5	2/15	L (30 arc min)	400	5.9	12	1180	438	0.968	P.780
AF3SZ	35	—	1/7.5	2/15	L (30 arc min)	750	11	22	1860	567	1.998	P.781
AF3SZ	45	—	1/7.5	2/15	L (30 arc min)	2000	35	71	2940	900	7.395	P.782
AF3SZ	20	—	1/10	1/10	L (40 arc min)	100	2.0	3.9	940	294	0.354	P.778
AF3SZ	25	—	1/10	1/10	L (40 arc min)	200	3.8	7.6	1230	380	0.723	P.779
AF3SZ	30	—	1/10	1/10	L (30 arc min)	400	7.8	16	1520	475	0.930	P.780
AF3SZ	35	—	1/10	1/10	L (30 arc min)	750	15	29	1960	613	1.905	P.781
AF3SZ	45	—	1/10	1/10	L (30 arc min)	2000	47	94	3140	967	7.099	P.782
AF3SZ	30	—	1/12	19/235	L (30 arc min)	400	11	22	1620	500	0.909	P.780
AF3SZ	35	—	1/12	19/235	L (30 arc min)	750	20	39	2110	666	1.851	P.781
AF3SZ	45	—	1/12	19/235	L (30 arc min)	2000	57	114	3340	1034	6.954	P.782
AF3SZ	20	—	1/15	1/15	L (30 arc min)	100	3.1	6.3	1060	333	0.349	P.778
AF3SZ	25	—	1/15	1/15	L (30 arc min)	200	6.4	13	1370	429	0.708	P.779
AF3SZ	30	—	1/15	1/15	L (30 arc min)	400	13	25	1720	539	0.893	P.780
AF3SZ	35	—	1/15	1/15	L (30 arc min)	750	25	49	2250	686	1.803	P.781
AF3SZ	45	—	1/15	1/15	L (30 arc min)	2000	69	137	3630	1067	6.810	P.782
AF3SZ	20	—	1/20	1/20	L (30 arc min)	100	4.7	9.4	1180	373	0.347	P.778
AF3SZ	25	—	1/20	1/20	L (30 arc min)	200	8.8	18	1520	466	0.702	P.779
AF3SZ	30	—	1/20	1/20	L (30 arc min)	400	17	33	2010	600	0.873	P.780
AF3SZ	35	—	1/20	1/20	L (30 arc min)	750	34	69	2500	747	1.765	P.781
AF3SZ	45	—	1/20	1/20	L (30 arc min)	2000	92	184	4070	1067	6.701	P.782
AF3SZ	20	—	1/25	1/25	L (30 arc min)	100	5.9	12	1250	392	0.346	P.778
AF3SZ	25	—	1/25	19/470	L (30 arc min)	200	12	24	1670	502	0.699	P.779
AF3SZ	30	—	1/25	1/25	L (30 arc min)	400	23	45	2160	637	0.865	P.780
AF3SZ	35	—	1/25	1/25	L (30 arc min)	750	44	88	2740	796	1.744	P.781
AF3SZ	45	—	1/25	1/25	L (30 arc min)	2000	120	239	4310	1067	6.627	P.782
AF3SZ	20	—	1/30	1/30	L (30 arc min)	100	7.1	14	1330	422	0.345	P.778
AF3SZ	25	—	1/30	1/30	L (30 arc min)	200	14	27	1810	527	0.697	P.779
AF3SZ	30	—	1/30	1/30	L (30 arc min)	400	27	55	2300	662	0.857	P.780
AF3SZ	35	—	1/30	1/30	L (30 arc min)	750	53	106	2940	821	1.726	P.781
AF3SZ	45	—	1/30	1/30	L (30 arc min)	2000	144	288	4360	1067	6.587	P.782
AF3SZ	20	—	1/40	1/40	L (30 arc min)	100	9.4	19	1450	451	0.344	P.778
AF3SZ	25	—	1/40	1/40	L (30 arc min)	200	19	37	1960	576	0.694	P.779
AF3SZ	30	—	1/40	1/40	L (30 arc min)	400	36	73	2600	711	0.750	P.780
AF3SZ	35	—	1/40	1/40	L (30 arc min)	750	74	149	3140	870	1.455	P.781
AF3SZ	45	—	1/40	1/40	L (30 arc min)	2000	191	382	4360	1067	5.871	P.782
AF3SZ	20	—	1/50	1/50	L (30 arc min)	100	12	24	1490	471	0.344	P.778
AF3SZ	25	—	1/50	1/50	L (30 arc min)	200	24	47	2160	613	0.693	P.779
AF3SZ	30	—	1/50	1/50	L (30 arc min)	400	45	90	2840	747	0.748	P.780
AF3SZ	35	—	1/50	1/50	L (30 arc min)	750	94	188	3280	870	1.450	P.781
AF3SZ	45	—	1/50	1/50	L (30 arc min)	2000	239	478	4360	1067	5.853	P.782

Mounting Type	Output Shaft Diameter	Shaft Arrangement	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	$\times 10^{-4}$kg·m^2	
AF3SZ	20	—	1/60	1/59	L (30 arc min)	100	14	27	1490	471	0.344	P.778
AF3SZ	25	—	1/60	1/60	L (30 arc min)	200	27	55	2350	637	0.692	P.779
AF3SZ	30	—	1/60	1/60	L (30 arc min)	400	55	110	3040	767	0.746	P.780
AF3SZ	35	—	1/60	1/60	L (30 arc min)	750	113	225	3430	870	1.445	P.781
AF3SZ	45	—	1/60	1/60	L (30 arc min)	2000	287	574	4360	1067	5.843	P.782
AF3SZ	25	—	1/80	1/80	L (30 arc min)	100	17	33	2550	637	0.344	P.779
AF3SZ	30	—	1/80	1/80	L (30 arc min)	200	34	69	3090	775	0.692	P.780
AF3SZ	35	—	1/80	1/80	L (30 arc min)	400	71	141	3330	873	0.747	P.781
AF3SZ	45	—	1/80	1/80	L (30 arc min)	750	141	282	4460	1177	1.452	P.782
AF3SZ	25	—	1/100	19/1880	L (30 arc min)	100	22	43	2550	637	0.343	P.779
AF3SZ	30	—	1/100	19/1880	L (30 arc min)	200	44	88	3140	785	0.692	P.780
AF3SZ	35	—	1/100	19/1880	L (30 arc min)	400	86	172	3380	883	0.746	P.781
AF3SZ	45	—	1/100	19/1880	L (30 arc min)	750	172	345	4460	1177	1.449	P.782
AF3SZ	25	—	1/120	1/120	L (30 arc min)	100	28	57	2550	637	0.343	P.779
AF3SZ	30	—	1/120	1/120	L (30 arc min)	200	55	110	3140	785	0.692	P.780
AF3SZ	35	—	1/120	1/120	L (30 arc min)	400	102	204	3380	883	0.746	P.781
AF3SZ	45	—	1/120	1/120	L (30 arc min)	750	212	423	4460	1177	1.447	P.782
AF3SZ	25	—	1/160	1/160	L (30 arc min)	100	37	74	2550	637	0.343	P.779
AF3SZ	30	—	1/160	1/160	L (30 arc min)	200	74	149	3140	785	0.691	P.780
AF3SZ	35	—	1/160	1/160	L (30 arc min)	400	141	282	3580	912	0.745	P.781
AF3SZ	45	—	1/160	1/160	L (30 arc min)	750	282	564	4850	1275	1.445	P.782
AF3SZ	25	—	1/200	1/200	L (30 arc min)	100	47	94	2550	637	0.343	P.779
AF3SZ	30	—	1/200	1/200	L (30 arc min)	200	94	188	3140	785	0.691	P.780
AF3SZ	35	—	1/200	1/200	L (30 arc min)	400	181	363	3630	912	0.745	P.781
AF3SZ	45	—	1/200	1/200	L (30 arc min)	750	353	706	5190	1275	1.444	P.782
AF3SZ	25	—	1/240	1/240	L (30 arc min)	100	57	114	2550	637	0.343	P.779
AF3SZ	30	—	1/240	1/240	L (30 arc min)	200	110	220	3140	785	0.691	P.780
AF3SZ	35	—	1/240	1/240	L (30 arc min)	400	221	441	3630	912	0.745	P.781
AF3SZ	45	—	1/240	1/240	L (30 arc min)	750	423	847	5190	1275	1.444	P.782

AF3F Type <Low Backlash> Performance Table by Reduction Ratio

[Notes]



- The input speed is 3000 r/min.
- 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 828.
- 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

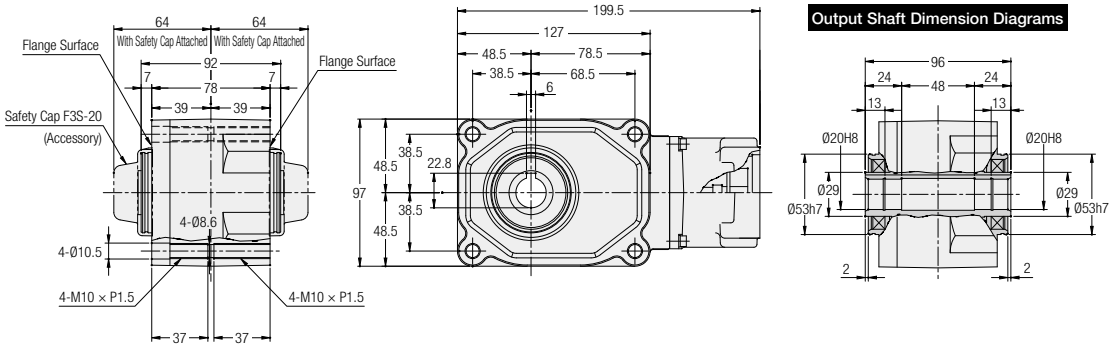
Mounting Type	Output Shaft Diameter	Shaft Arrangement	Reduction Ratio	Actual Reduction Ratio	Precision	Power Class	Allowable Average Torque (3000 r/min)	Allowable Peak Torque of Startup/ Stop	Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Internal Moment of Inertia (Input Shaft Equivalent)	Drawings
							N·m	N·m	N	N	$\times 10^{-4}$kg·m^2	
AF3FZ	28	L/R/T	1/5	1/5	L (30 arc min)	400	3.8	7.6	980	375	1.063	P.785
AF3FZ	32	L/R/T	1/5	1/5	L (30 arc min)	750	7.4	15	1670	500	2.258	P.786
AF3FZ	40	L/R/T	1/5	1/5	L (30 arc min)	2000	24	47	2550	800	8.078	P.787
AF3FZ	28	L/R/T	1/7.5	2/15	L (30 arc min)	400	5.9	12	1180	438	0.968	P.785
AF3FZ	32	L/R/T	1/7.5	2/15	L (30 arc min)	750	11	22	1810	567	1.998	P.786
AF3FZ	40	L/R/T	1/7.5	2/15	L (30 arc min)	2000	35	71	2940	900	7.395	P.787
AF3FZ	18	L/R/T	1/10	1/10	L (40 arc min)	100	2.0	3.9	860	294	0.354	P.783
AF3FZ	22	L/R/T	1/10	1/10	L (40 arc min)	200	3.8	8	1230	380	0.723	P.784
AF3FZ	28	L/R/T	1/10	1/10	L (30 arc min)	400	7.8	16	1520	475	0.930	P.785
AF3FZ	32	L/R/T	1/10	1/10	L (30 arc min)	750	15	29	1960	613	1.905	P.786
AF3FZ	40	L/R/T	1/10	1/10	L (30 arc min)	2000	47	94	3140	967	7.099	P.787
AF3FZ	28	L/R/T	1/12	19/235	L (30 arc min)	400	11	22	1620	500	0.909	P.785
AF3FZ	32	L/R/T	1/12	19/235	L (30 arc min)	750	20	39	2060	666	1.851	P.786
AF3FZ	40	L/R/T	1/12	19/235	L (30 arc min)	2000	57	114	3340	1034	6.954	P.787
AF3FZ	18	L/R/T	1/15	1/15	L (30 arc min)	100	3.1	6.3	980	333	0.349	P.783
AF3FZ	22	L/R/T	1/15	1/15	L (30 arc min)	200	6.4	13	1370	429	0.708	P.784
AF3FZ	28	L/R/T	1/15	1/15	L (30 arc min)	400	13	25	1720	539	0.893	P.785
AF3FZ	32	L/R/T	1/15	1/15	L (30 arc min)	750	25	49	2210	686	1.803	P.786
AF3FZ	40	L/R/T	1/15	1/15	L (30 arc min)	2000	69	137	3630	1067	6.810	P.787
AF3FZ	18	L/R/T	1/20	1/20	L (30 arc min)	100	4.7	9.4	1100	373	0.347	P.783
AF3FZ	22	L/R/T	1/20	1/20	L (30 arc min)	200	8.8	18	1470	466	0.702	P.784
AF3FZ	28	L/R/T	1/20	1/20	L (30 arc min)	400	17	33	1860	600	0.873	P.785
AF3FZ	32	L/R/T	1/20	1/20	L (30 arc min)	750	34	69	2350	747	1.765	P.786
AF3FZ	40	L/R/T	1/20	1/20	L (30 arc min)	2000	92	184	4070	1067	6.701	P.787
AF3FZ	18	L/R/T	1/25	1/25	L (30 arc min)	100	5.9	12	1180	392	0.346	P.783
AF3FZ	22	L/R/T	1/25	19/470	L (30 arc min)	200	12	24	1620	502	0.699	P.784
AF3FZ	28	L/R/T	1/25	1/25	L (30 arc min)	400	23	45	2010	637	0.865	P.785
AF3FZ	32	L/R/T	1/25	1/25	L (30 arc min)	750	44	88	2500	796	1.744	P.786
AF3FZ	40	L/R/T	1/25	1/25	L (30 arc min)	2000	120	239	4310	1067	6.627	P.787
AF3FZ	18	L/R/T	1/30	1/30	L (30 arc min)	100	7.1	14	1250	422	0.345	P.783
AF3FZ	22	L/R/T	1/30	1/30	L (30 arc min)	200	14	27	1720	527	0.697	P.784
AF3FZ	28	L/R/T	1/30	1/30	L (30 arc min)	400	27	55	2210	662	0.857	P.785
AF3FZ	32	L/R/T	1/30	1/30	L (30 arc min)	750	53	106	2650	821	1.726	P.786
AF3FZ	40	L/R/T	1/30	1/30	L (30 arc min)	2000	144	288	4360	1067	6.587	P.787
AF3FZ	18	L/R/T	1/40	1/40	L (30 arc min)	100	9.4	19	1370	451	0.344	P.783
AF3FZ	22	L/R/T	1/40	1/40	L (30 arc min)	200	19	37	1860	576	0.694	P.784
AF3FZ	28	L/R/T	1/40	1/40	L (30 arc min)	400	36	73	2450	711	0.750	P.785
AF3FZ	32	L/R/T	1/40	1/40	L (30 arc min)	750	74	149	2790	870	1.455	P.786
AF3FZ	40	L/R/T	1/40	1/40	L (30 arc min)	2000	191	382	4360	1067	5.871	P.787
AF3FZ	18	L/R/T	1/50	1/50	L (30 arc min)	100	12	24	1490	471	0.344	P.783
AF3FZ	22	L/R/T	1/50	1/50	L (30 arc min)	200	24	47	2060	613	0.693	P.784
AF3FZ	28	L/R/T	1/50	1/50	L (30 arc min)	400	45	90	2740	747	0.748	P.785
AF3FZ	32	L/R/T	1/50	1/50	L (30 arc min)	750	94	188	2940	870	1.450	P.786
AF3FZ	40	L/R/T	1/50	1/50	L (30 arc min)	2000	239	478	4360	1067	5.853	P.787

Mounting Type	Output Shaft Diameter	Shaft Arrangement	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	$\times 10^{-4}$kg·m^2	
AF3FZ	18	L/R/T	1/60	1/59	L (30 arc min)	100	14	27	1490	471	0.344	P.783
AF3FZ	22	L/R/T	1/60	1/60	L (30 arc min)	200	27	55	2250	637	0.692	P.784
AF3FZ	28	L/R/T	1/60	1/60	L (30 arc min)	400	55	110	2890	767	0.746	P.785
AF3FZ	32	L/R/T	1/60	1/60	L (30 arc min)	750	113	225	3040	870	1.445	P.786
AF3FZ	40	L/R/T	1/60	1/60	L (30 arc min)	2000	287	574	4360	1067	5.843	P.787
AF3FZ	22	L/R/T	1/80	1/80	L (30 arc min)	100	17	33	2550	637	0.344	P.784
AF3FZ	28	L/R/T	1/80	1/80	L (30 arc min)	200	34	69	3090	775	0.692	P.785
AF3FZ	32	L/R/T	1/80	1/80	L (30 arc min)	400	71	141	3330	873	0.747	P.786
AF3FZ	40	L/R/T	1/80	1/80	L (30 arc min)	750	141	282	4460	1177	1.452	P.787
AF3FZ	22	L/R/T	1/100	19/1880	L (30 arc min)	100	22	43	2550	637	0.343	P.784
AF3FZ	28	L/R/T	1/100	19/1880	L (30 arc min)	200	44	88	3140	785	0.692	P.785
AF3FZ	32	L/R/T	1/100	19/1880	L (30 arc min)	400	86	172	3380	883	0.746	P.786
AF3FZ	40	L/R/T	1/100	19/1880	L (30 arc min)	750	172	345	4460	1177	1.449	P.787
AF3FZ	22	L/R/T	1/120	1/120	L (30 arc min)	100	28	57	2550	637	0.343	P.784
AF3FZ	28	L/R/T	1/120	1/120	L (30 arc min)	200	55	110	3140	785	0.692	P.785
AF3FZ	32	L/R/T	1/120	1/120	L (30 arc min)	400	102	204	3380	883	0.746	P.786
AF3FZ	40	L/R/T	1/120	1/120	L (30 arc min)	750	212	423	4460	1177	1.447	P.787
AF3FZ	22	L/R/T	1/160	1/160	L (30 arc min)	100	37	74	2550	637	0.343	P.784
AF3FZ	28	L/R/T	1/160	1/160	L (30 arc min)	200	74	149	3140	785	0.691	P.785
AF3FZ	32	L/R/T	1/160	1/160	L (30 arc min)	400	141	282	3580	912	0.745	P.786
AF3FZ	40	L/R/T	1/160	1/160	L (30 arc min)	750	282	564	4850	1275	1.445	P.787
AF3FZ	22	L/R/T	1/200	1/200	L (30 arc min)	100	47	94	2550	637	0.343	P.784
AF3FZ	28	L/R/T	1/200	1/200	L (30 arc min)	200	94	188	3140	785	0.691	P.785
AF3FZ	32	L/R/T	1/200	1/200	L (30 arc min)	400	181	363	3630	912	0.745	P.786
AF3FZ	40	L/R/T	1/200	1/200	L (30 arc min)	750	353	706	5190	1275	1.444	P.787
AF3FZ	22	L/R/T	1/240	1/240	L (30 arc min)	100	57	114	2550	637	0.343	P.784
AF3FZ	28	L/R/T	1/240	1/240	L (30 arc min)	200	110	220	3140	785	0.691	P.785
AF3FZ	32	L/R/T	1/240	1/240	L (30 arc min)	400	221	441	3630	912	0.745	P.786
AF3FZ	40	L/R/T	1/240	1/240	L (30 arc min)	750	423	847	5190	1275	1.444	P.787

2-2. Drawings

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 20 — Low Backlash

<Figure 1>

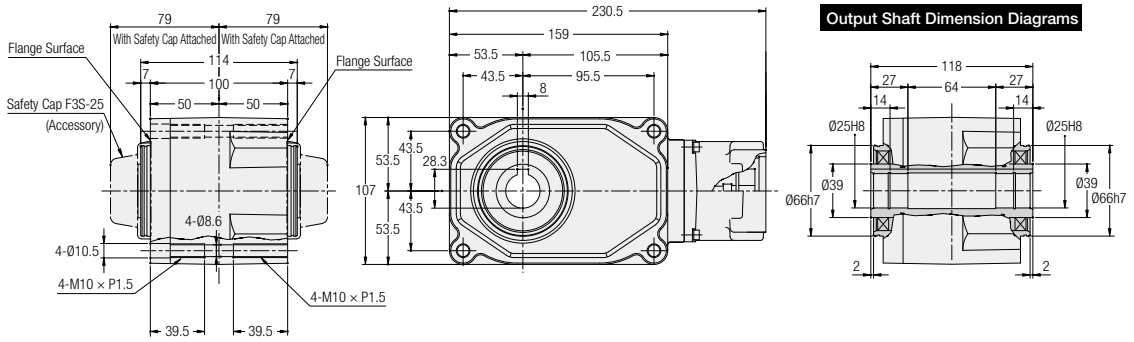


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
100 W	AF3SZ20-✻✻✻□100△	10, 15, 20, 25, 30, 40, 50, 60	1	F1/F3/S1/S3	3.5

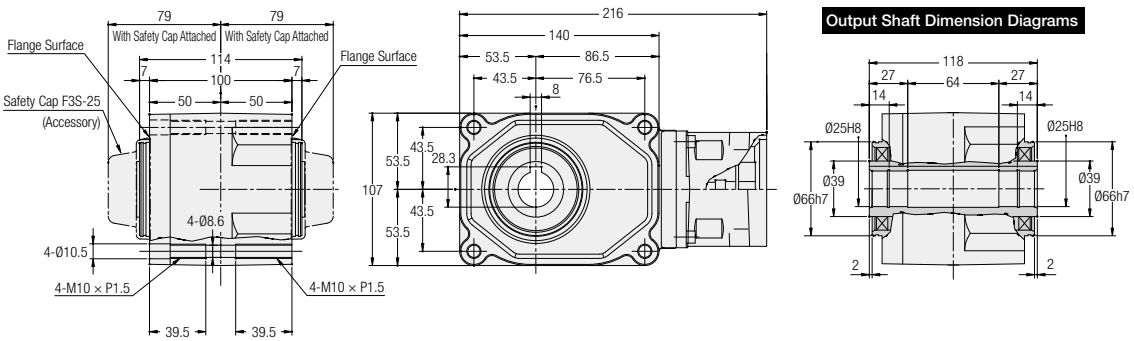
Note: A reduction ratio will be indicated as ✻✻✻ in the nomenclature. In addition, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 774 for the performance table.

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 25 — Low Backlash

<Figure 1>



<Figure 2>

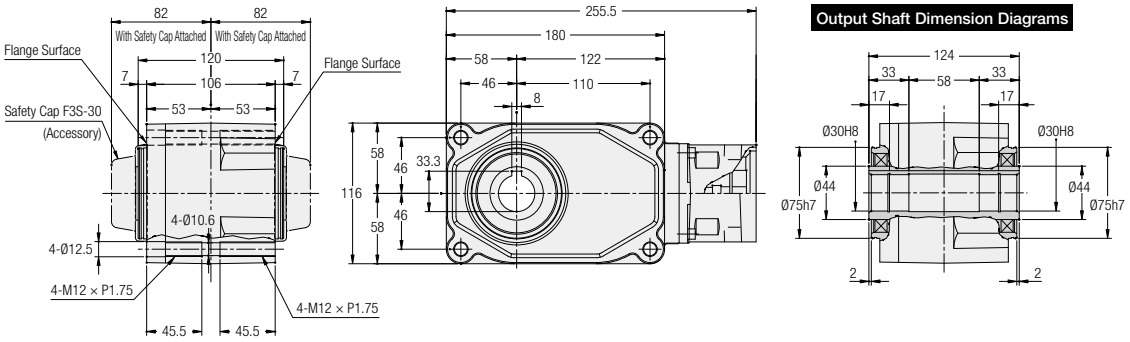


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
100 W	AF3SZ25-✱✱✱□100△	80, 100, 120, 160, 200, 240	1	F1/F3/S1/S3	5
200 W	AF3SZ25-✱✱✱□200△	10, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/F3/S1/S2/S3	5.5

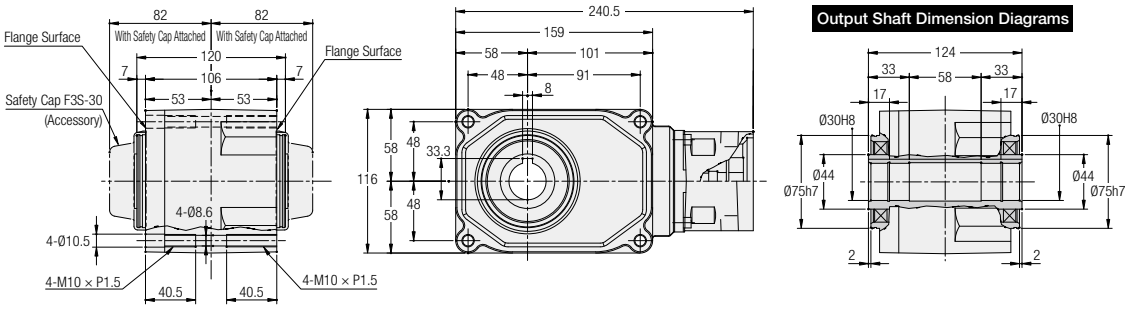
Note: A reduction ratio will be indicated as ✱✱✱ in the nomenclature. In addition, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 774 for the performance table.

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 30 — Low Backlash

<Figure 1>



<Figure 2>

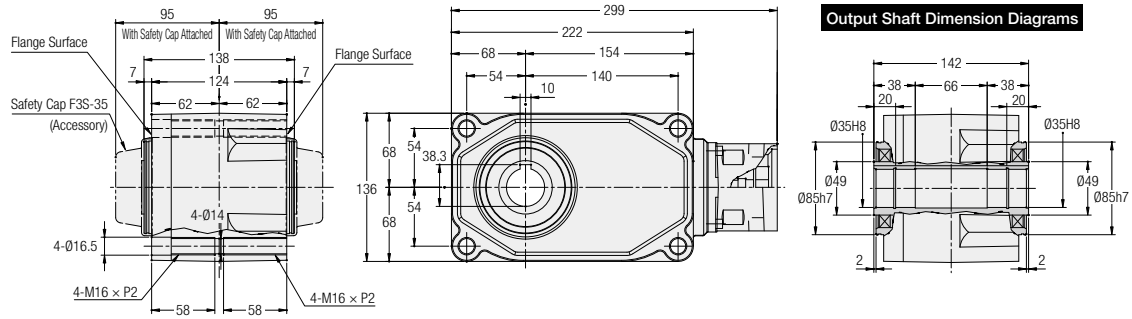


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
200 W	AF3SZ30-✱✱✱□200△	80, 100, 120, 160, 200, 240	1	F1/F2/F3/S1/S2/S3	8
400 W	AF3SZ30-✱✱✱□400△	5, 7.5, 10, 12, 15, 20, 25, 30, 40, 50, 60	2	F1/F3/S1/S3	7.5

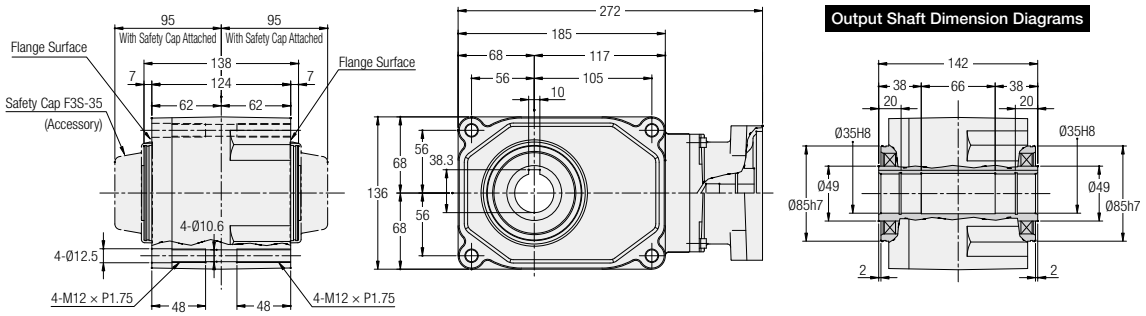
Note: A reduction ratio will be indicated as ✱✱✱ in the nomenclature. In addition, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 774 for the performance table.

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 35 — Low Backlash

<Figure 1>



<Figure 2>

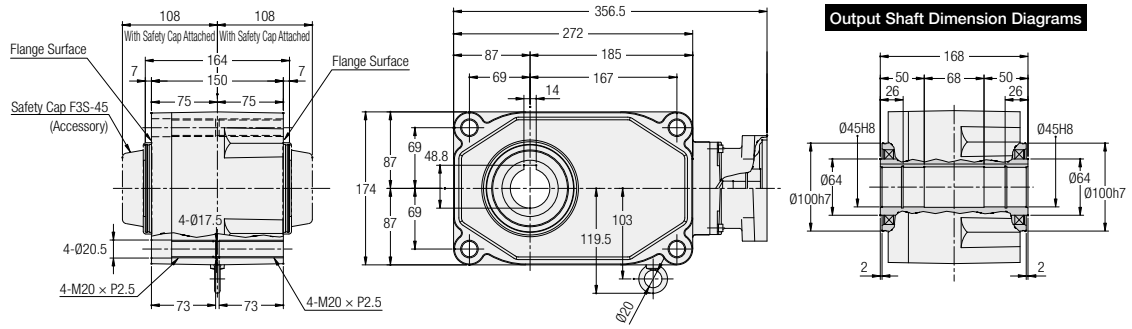


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
400 W	AF3SZ35-✱✱✱□400△	80, 100, 120, 160, 200, 240	1	F1/F3/S1/S3	13.5
750 W	AF3SZ35-✱✱✱□750△	5, 7.5, 10, 12, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/S1/S2/S3/S4	10

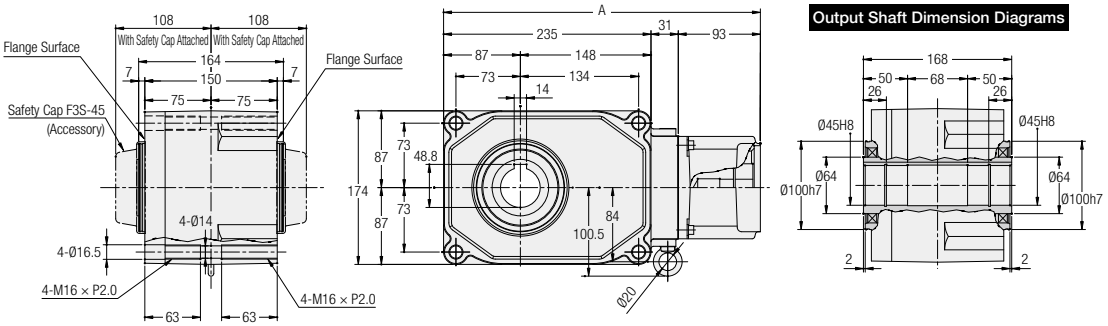
Note: A reduction ratio will be indicated as ✱✱✱ in the nomenclature. In addition, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 774 for the performance table.

AF3S Type Concentric Right Angle Hollow Bore — Shaft Diameter 45 — Low Backlash

<Figure 1>



<Figure 2>

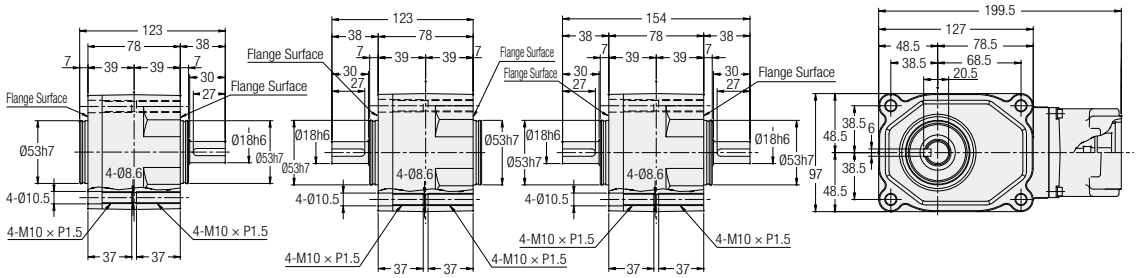


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	A	Approx. Weight (kg)
750 W	AF3SZ45-✱✱✱□750△	80, 100, 120, 160, 200, 240	1	F1/F2/S1/S2/S3/S4	—	18.5
2000 W	AF3SZ45-✱✱✱□2000△	5, 7.5, 10, 12, 15, 20, 25, 30, 40, 50, 60	2	K21/K22/K23	359	18
				K31/K32/K33	359	
				F31/F33	369	

Note: A reduction ratio will be indicated as ✱✱✱ in the nomenclature. In addition, 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 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 774 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 18 — Low Backlash

<Figure 1>

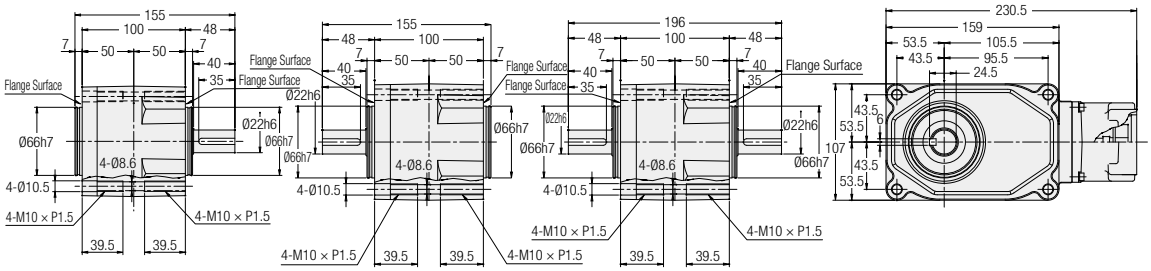


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
100 W	AF3FZ18#-✻✻✻□100△	10, 15, 20, 25, 30, 40, 50, 60	1	F1/F3/S1/S3	3.5

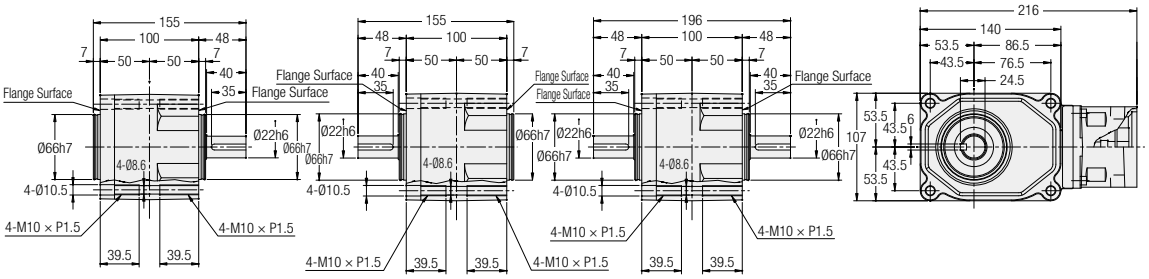
Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ✻✻✻, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 776 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 22 — Low Backlash

<Figure 1>



<Figure 2>



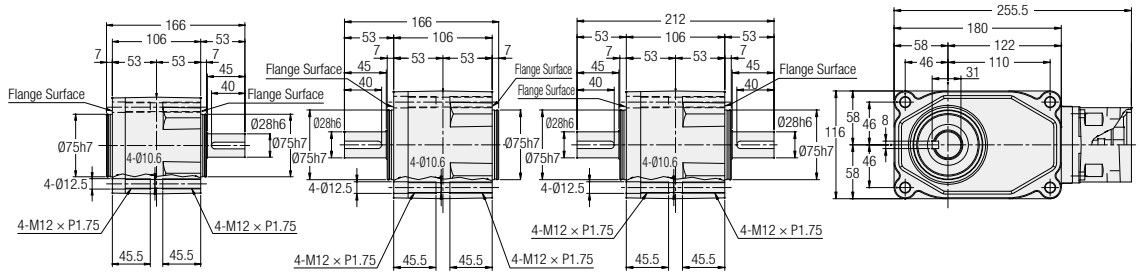
L Shaft R Shaft T Shaft

Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
100 W	AF3FZ22#-***□100△	80, 100, 120, 160, 200, 240	1	F1/F3/S1/S3	6
200 W	AF3FZ22#-***□200△	10, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/F3/S1/S2/S3	6

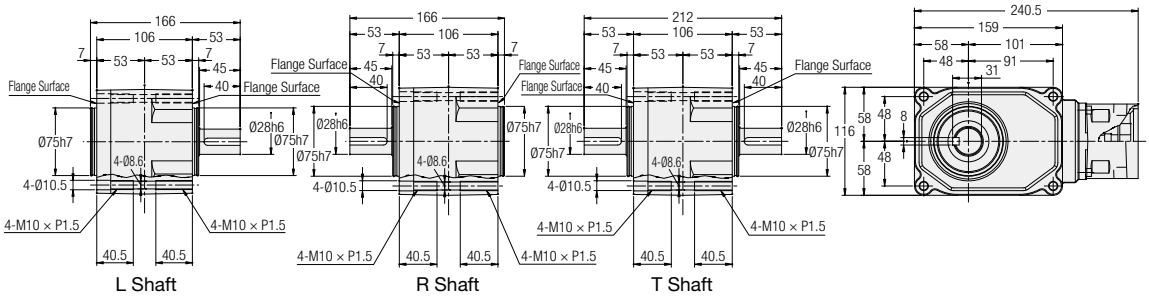
Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ***, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 776 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 28 — Low Backlash

<Figure 1>



<Figure 2>

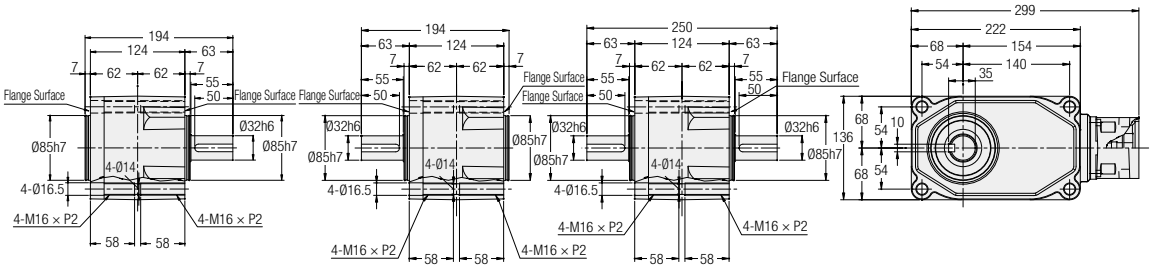


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
200 W	AF3FZ28#-✱✱✱□200△	80, 100, 120, 160, 200, 240	1	F1/F2/F3/S1/S2/S3	8.5
400 W	AF3FZ28#-✱✱✱□400△	5, 7.5, 10, 12, 15, 20, 25, 30, 40, 50, 60	2	F1/F3/S1/S3	8.5

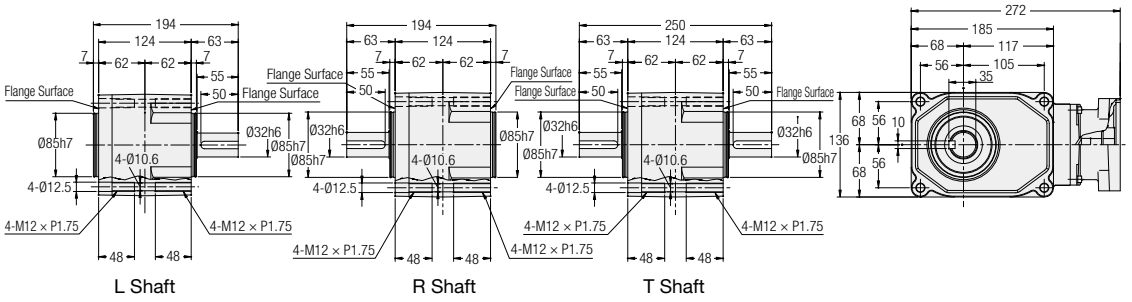
Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ✱✱✱, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 776 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 32 — Low Backlash

<Figure 1>



<Figure 2>



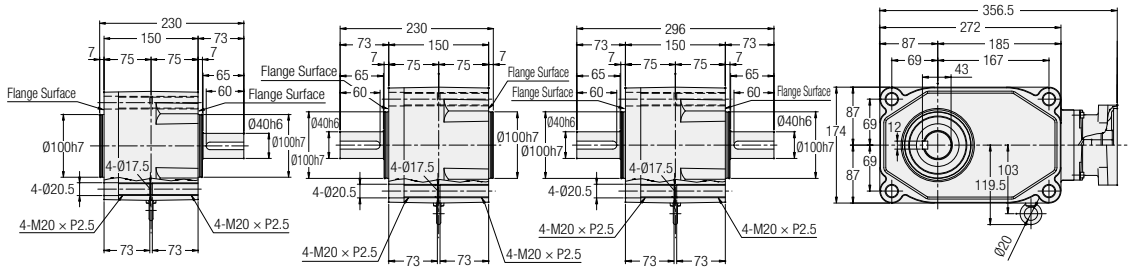
L Shaft R Shaft T Shaft

Motor Power Class	Part Number	Reduction Ratio	Figure Number	Flange Type	Approx. Weight (kg)
400 W	AF3FZ32#-***□400△	80, 100, 120, 160, 200, 240	1	F1/F3/S1/S3	14.5
750 W	AF3FZ32#-***□750△	5, 7.5, 10, 12, 15, 20, 25, 30, 40, 50, 60	2	F1/F2/S1/S2/S3/S4	11.5

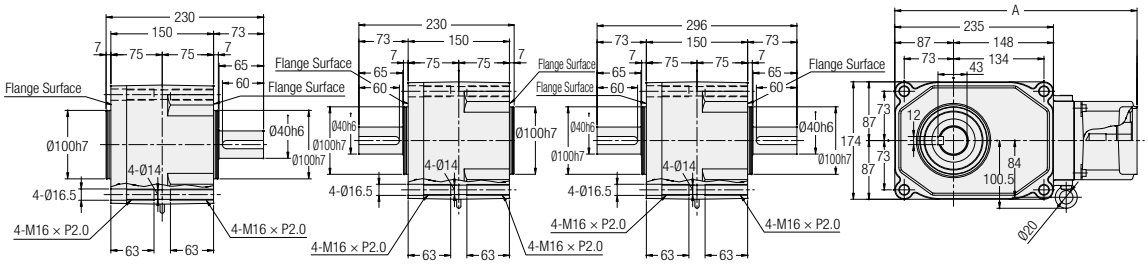
Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio will be indicated as ***, backlash will be indicated as □, and a flange type will be indicated as △.
Note: For flange type codes, please refer to the Motor Matching / Motor Power Design Lists on pages 682 to 686.
Note: Please refer to pages 806 to 810 for the detailed dimensions of the input shaft area.
Note: Please refer to page 776 for the performance table.

AF3F Type Concentric Right Angle Shaft — Shaft Diameter 40 — 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	AF3FZ40#-✱✱✱□750△	80, 100, 120, 160, 200, 240	1	F1/F2/S1/S2/S3/S4	—	20
2000 W	AF3FZ40#-✱✱✱□2000△	5, 7.5, 10, 12, 15, 20, 25, 30, 40, 50, 60	2	K21/K22/K23	359	21
				K31/K32/K33	359	
				F31/F33	369	

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 806 to 810 for the detailed dimensions of the input shaft area.

Note: Please refer to page 776 for the performance table.

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