

F Type

Right Angle Hollow Bore/ Right Angle Shaft

Standard Specification
Model and Type Codes
Standard Model Lineup

P.322

INDUCTION GEARMOTORS

1. Gearmotors/Gearmotors with Brake

1-1. Motor Characteristics Table

1-2. Performance Table

1-3. Drawings

P.344

2. IP65 Gearmotors/ IP65 Gearmotors with Brake

2-1. Motor Characteristics Table

2-2. Performance Table

2-3. Drawings

P.354

3. Reducers (Double Shaft Type)

3-1. Performance Table

3-2. Drawings

P.360

4. S-Type Reducers (Type Which Can Be Equipped with Designated Motor)

4-1. Performance Table

4-2. Drawings



Standard Specification

F Type Gearmotors/Gearmotors with Brake <Right Angle Hollow Bore/FS, Right Angle Shaft/FF>

Series		MID				
Motor Unit	Number of Phases	3-Phase			1-Phase (Note 1)	
	Power	0.1 kW to 2.2 kW			0.1 kW to 0.4 kW	
	Power Supply	Type	Global Standards Correspondence	Power Supply/Frequency		
		Standard Voltage	UL/CE/CCC	200 V/50 Hz, 200 V/60 Hz, 220 V/60 Hz		
		High Voltage (400 V Class)	UL/CE/CCC	380 V/50 Hz, 400 V/50 Hz, 400 V/60 Hz, 440 V/60 Hz		
		Special Voltage	South Korea UL/CE/CCC	220 V/60 Hz, 380 V/60 Hz (Dual Voltage)		
			China/Europe UL/CE/CCC	220 V/50 Hz, 380 V/50 Hz (Dual Voltage) 230 V/50 Hz		
			North America/Europe UL/CE/CCC	208 V/60 Hz, 230 V/60 Hz, 460 V/60 Hz (Dual Voltage) 400 V/50 Hz		
	North America/Europe UL/CE/CCC	415 V/50 Hz, 440 V/50 Hz, 480 V/60 Hz				
	North America UL	575 V/60 Hz				
Insulation Class	Ins. F			Ins. B		
Startup Method	Direct Power Input			Capacitor Start (0.1 kW: Capacitor Run)		
Cooling Method	Totally Enclosed Fan Cooled (TEFC) (IC411) (All of 0.1 kW and 0.2 kW models without brake are totally enclosed non-ventilated (TENV) (IC410))			Totally Enclosed Fan Cooled (TEFC) (IC411)		
Number of Motor Poles	4					
Rating	Power	Motor Efficiency	UL/CE Standard	CCC Standard	Continuous	
	0.1 kW	IE1	Continuous	Continuous		
	0.2 kW, 0.4 kW (Note 2)	IE2	Continuous	Short Time (120 minutes)		
	0.75 kW or above	IE3, GB3	Continuous	Continuous		
Reducer	Reduction Type	Hypoid Gear and Helical Gear				
	Lubrication Type	Grease Lubrication (Maintenance-free)				
	Output Shaft	JIS Key (JIS B 1301-1996 plain form) * The key is included with the right angle shaft type.				
	Output Shaft Material	Carbon Steel				
Case Material	Aluminum Die-cast (Size 55 frame is cast iron)					
Ambient Conditions	Ambient Temperature	-10 °C to 40 °C (Note 3)				
	Ambient Humidity	85 % max (No Condensation)				
	Altitude	1,000 m max				
	Installation Environment	A well ventilated place free from corrosive gas, explosive gas, vapor and/or chemicals Not to be exposed to direct rain. Not to be exposed to direct sunlight. The brake should not to be exposed to water, dust, oil/grease, or oil mist. Models with water protection rating IPX0 shall not be exposed directly to water.				
Paint	Paint Color	Gray				
Protective Structure (Note 4)	IP44 or IP40			IP40 or IP44		
Mounting Direction	No limitations in mounting angle					
Motor Characteristics Table	P.322 (FS Type), P.324 (FF Type)			P.323		
Performance Table	P.325 (FS Type), P.330 (FF Type)			P.328		
Drawings	P.332 (FS Type), P.342 (FF Type)			P.333		

Note 1: Right angle shaft types are not available in Single-phase motors.

Note 2: For CCC Standard, Three-phase 0.2 kW and Three-phase 0.4 kW are certified under limited duty cycle. Please be cautious upon selecting this product.

Note 3: The ambient temperature for Single-phase motors with a power of 0.1 kW (capacitor run) is 0 °C to 40 °C.

Note 4: The protective structure differs depending on the model.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type IP65 Gearmotors/IP65 Gearmotors with Brake <Right Angle Hollow Bore/FS>

Series		MID			
Motor Unit	Number of Phases	3-Phase			
	Power	0.1 kW to 2.2 kW			
	Power Supply	Type	Global Standards Correspondence	Power Supply/Frequency	
		Standard Voltage	UL/CE/CCC	200 V/50 Hz, 200 V/60 Hz, 220 V/60 Hz	
		High Voltage (400 V Class)	UL/CE/CCC	380 V/50 Hz, 400 V/50 Hz, 400 V/60 Hz, 440 V/60 Hz	
		Special Voltage	South Korea UL/CE/CCC	220 V/60 Hz, 380 V/60 Hz (Dual Voltage)	
			China/Europe UL/CE/CCC	220 V/50 Hz, 380 V/50 Hz (Dual Voltage) 230 V/50 Hz	
			North America/Europe UL/CE/CCC	208 V/60 Hz, 230 V/60 Hz, 460 V/60 Hz (Dual Voltage) 400 V/50 Hz	
	North America/Europe UL/CE/CCC	415 V/50 Hz, 440 V/50 Hz, 480 V/60 Hz			
	North America UL	575 V/60 Hz			
	Insulation Class	Ins. F			
	Startup Method	Direct Power Input			
	Cooling Method	Totally Enclosed Fan Cooled (TEFC) (IC411) (All of 0.1 kW and 0.2 kW models without brake are totally enclosed non-ventilated (TENV) (IC410))			
Number of Motor Poles	4				
Rating	Power	Motor Efficiency	UL/CE Standard	CCC Standard	
	0.1 kW	IE1	Continuous	Continuous	
	0.2 kW, 0.4 kW (Note 1)	IE2	Continuous	Short Time (120 minutes)	
	0.75 kW or above	IE3, GB3	Continuous	Continuous	
Reducer	Reduction Type	Hypoid Gear and Helical Gear			
	Lubrication Type	Grease Lubrication (Maintenance-free)			
	Output Shaft	JIS Key (JIS B 1301-1996 plain form)			
	Output Shaft Material	Stainless Steel or Carbon Steel			
	Case Material	Aluminum Die-cast (Size 55 frame is cast iron)			
Ambient Conditions	Ambient Temperature	-10 °C to 40 °C			
	Ambient Humidity	100 % max (No Condensation)			
	Altitude	1,000 m max			
	Installation Environment	A place free from corrosive gas, explosive gas, and/or vapor Not to be exposed to strong rain and wind. Not to be exposed to direct sunlight. Not to be used underwater, environments with exposure to high pressure water splashes, and exposure to cleansing chemicals			
Paint	Paint Color	Gray			
Protective Structure		IP65			
Mounting Direction		No limitations in mounting angle			
Motor Characteristics Table		P.344			
Performance Table		P.345			
Drawings		P.348			

Note 1: For CCC Standard, Three-phase 0.2 kW and Three-phase 0.4 kW are certified under limited duty cycle. Please be cautious upon selecting this product.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type Reducers (Double Shaft Type) <Right Angle Hollow Bore/FS>

Series		MID
4 poles Motor Power Class		0.1 kW Class to 2.2 kW Class
Reducer	Reduction Type	Hypoid Gear and Helical Gear
	Lubrication Type	Grease Lubrication (Maintenance-free)
	Output Shaft	JIS Key (JIS B 1301-1996 plain form) * The key is not included with the motor.
	Input Shaft	JIS Key (JIS B 1301-1996 plain form) * The key is not included with the motor.
	Output Shaft Material	Carbon Steel
	Input Shaft Material	Carbon Steel
	Case Material	Aluminum Die-cast (Size 55 frame is cast iron)
Ambient Conditions	Ambient Temperature	-10 °C to 40 °C
	Ambient Humidity	85 % max (No Condensation)
	Altitude	1,000 m max
	Installation Environment	A place free from corrosive gas, explosive gas, and/or vapor. Well ventilated place with no dust.
	Installation Place	Indoors
Paint	Paint Color	Gray
Mounting Direction		No limitations in mounting angle
Performance Table		P.354
Drawings		P.356

F Type S-Type Reducers <Right Angle Hollow Bore/FS>

Series		MID
4 poles Motor Power Class		0.1 kW Class to 2.2 kW Class
Reducer	Reduction Type	Hypoid Gear and Helical Gear
	Lubrication Type	Grease Lubrication (Maintenance-free)
	Output Shaft	JIS Key (JIS B 1301-1996 plain form) * The key is not included with the motor.
	Output Shaft Material	Carbon Steel
	Case Material	Aluminum Die-cast (Size 55 frame is cast iron)
	Ambient Conditions	Ambient Temperature
	Ambient Humidity	85 % max (No Condensation)
	Altitude	1,000 m max
	Installation Environment	A place free from corrosive gas, explosive gas, and/or vapor. Well ventilated place with no dust.
	Installation Place	Indoors
Paint	Paint Color	Gray
Mounting Direction		No limitations in mounting angle
Performance Table		P.360
Drawings		P.362

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft



Technical Documentation

Model and Type Codes

Standard Specification
Model and Type Codes

F Type Gearmotors/Gearmotors with Brake MID Series <Right Angle Shaft/FF, Right Angle Hollow Bore/ FS> [3-Phase]

Gearhead Type				Motor Type							Brake Specifications	Option	
Mounting Type	Frame Size	Shaft Arrangement	Reduction Ratio	Motor Type	Motor Specifications	Motor Power	Number of Phases	Supply Voltage	Standards	Terminal Box	Brake	Option	Option Code
FF	22	R	10	M	M	01	T	N	N	T	N		
FS	45	N	60	M	D	08	T	W	N	T	B4	X	AA
FS	55	N	100	M	D	15	T	K	N	T	B2	X	T9HZ
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭

① Mounting Type	FS : Right Angle Hollow Bore FF : Right Angle Shaft							
② Frame Size and Output Shaft Diameter	Output Shaft Diameter							
③ Shaft Arrangement	Material	Shaft Arrangement						
	Carbon Steel	Right Angle Hollow Bore	Solid Shaft					
N		Viewing from the input Shaft(↑), the Output shaft would be on the left side		Viewing from the input Shaft(↑), the Output shaft would be on the right side				
		L	R	T				
④ Reduction Ratio	5: 1/5 to 15X: 1/1500 (7.5 = 7, 12.5 = 12)							
⑤ Motor Type	M : Standard Induction Motor (IP40 or IP44)							
⑥ Motor Specifications (Note 1)	M : IE1 Efficiency Ins. F (0.1 kW) : IE2 Efficiency Ins. F (0.2 kW to 0.4 kW)							
	D : IE3 Efficiency Ins. F (0.75 kW to 2.2 kW)							
⑦ Motor Power	01 : 0.1 kW							
	02 : 0.2 kW							
	04 : 0.4 kW							
	08 : 0.75 kW							
	15 : 1.5 kW							
	22 : 2.2 kW							
⑧ Number of Phases	T : 3-Phase							
⑨ Supply Voltage	⑨ Supply Voltage				⑫ Brake Specifications (Note 2)			
	N	200 V/50 Hz, 200 V/60 Hz, 220 V/60 Hz	N	B2	B4	J2	J4	
	W	380 V/50 Hz, 400 V/50 Hz, 400 V/60 Hz, 440 V/60 Hz	○	○	○	○	○	
	K	220 V/60 Hz, 380 V/60 Hz	○	○	○	○	○	
	C	220 V/50 Hz, 230 V/50 Hz, 380 V/50 Hz	○	○	○	○	○	
	A	208 V/60 Hz, 230 V/60 Hz, 460 V/60 Hz, 400 V/50 Hz	○	○	○	○	○	
	E	415 V/50 Hz, 440 V/50 Hz, 480 V/60 Hz	○	○	○	○	○	
	M	575 V/60 Hz	○	○	○	○	○	
⑩ Standards	N : CE/UL/CCC A : UL * Supply Voltage : M (575 V/60 Hz) only							
⑪ Terminal Box (Note 3)	T : T Type Terminal Box (Steel Plate)							
	N : Flying Leads							
⑫ Brake Specifications (Note 4)	N : No Brake							
	B2 : 200 V Brake							
	B4 : 400 V Brake							
	J2 : 200 V Brake Motor with Manual Brake Release Lever (Optional)							
	J4 : 400 V Brake Motor with Manual Brake Release Lever (Optional)							
⑬ Option	Blank : Standard Specification							
	X : Special Specification Code							
⑭ Option Code (Note 5)	Built-in Rectifier Connection Code Please refer to the list of option codes on page 504 for details.							
	Terminal Box Position Code Please refer to the list of option codes on page 525 for details.							
	For other option codes, please refer to the list of option codes on page 900.							

Note 1: For CCC Standard, 0.2 kW and 0.4 kW are certified under limited duty cycle. Please be cautious upon selecting the product.

Note 2: ○ indicates a brake specification that can be manufactured.

Note 3: With regard to the types of flying leads, only supply voltage codes N and W are covered.

Note 4: The rectifier is included with the product.

Note 5: 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.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type Gearmotors/Gearmotors with Brake MID Series <Right Angle Hollow Bore/ FS> [1-Phase]

Gearhead Type				Motor Type								Brake Specifications	Option	
Mounting Type	Frame Size	Shaft Arrangement	Reduction Ratio	Motor Type	Motor Specifications	Motor Power	Number of Phases	Supply Voltage	Standards	Terminal Box	Brake	Option	Option Code	
FS	25	N	50	M	M	01	S	N	J	A	N			
FS	32	N	450	M	M	02	C	W	J	A	B2			
FS	45	N	375	M	M	04	C	N	J	A	B2	X	T9HZ	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	

① Mounting Type (Note 1)	FS : Right Angle Hollow Bore
② Frame Size and Output Shaft Diameter	Output Shaft Diameter (Internal Diameter)
③ Shaft Arrangement	N : Right Angle Hollow Bore
④ Reduction Ratio	5: 1/5 to 15X: 1/1500 (7.5 = 7, 12.5 = 12)
⑤ Motor Type	M : Standard Induction Motor (IP44 or IP40)
⑥ Motor Specifications	M : IE1 Efficiency Ins. B
⑦ Motor Power	01 : 0.1 kW
	02 : 0.2 kW
	04 : 0.4 kW
⑧ Number of Phases	S : 1-Phase Capacitor Run
	C : 1-Phase Capacitor Start
⑨ Supply Voltage (Note 2)	N : 100 V/50 Hz, 100 V/60 Hz
	W : 200 V/50 Hz, 200 V/60 Hz
⑩ Standards	J : No Standards
⑪ Terminal Box	A : A Type Terminal Box (Aluminum)
⑫ Brake Specifications	N : No Brake
	B2 : 200 V Brake
⑬ Option	Blank : Standard Specification
	X : Special Specification Code
⑭ Option Code (Note 3)	Terminal Box Position Code Please refer to page 527 for details.

Note 1: Right angle shaft types are not available.

Note 2: For voltages/frequencies not listed above, please contact your nearest Sales Office or the CS Center.

Note 3: 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.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type IP65 Gearmotors/IP65 Gearmotors with Brake MID Series <Right Angle Hollow Bore/ FS> [3-Phase]

Gearhead Type				Motor Type							Brake Specifications	Option	
Mounting Type	Frame Size	Shaft Arrangement	Reduction Ratio	Motor Type	Motor Specifications	Motor Power	Number of Phases	Supply Voltage	Standards	Terminal Box	Brake	Option	Option Code
FS	25	S	10	W	M	01	T	N	N	E	N		
FS	45	N	60	W	D	08	T	W	N	E	V4	X	AA
FS	55	S	100	W	D	15	T	K	N	E	N		
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭

① Mounting Type (Note 1)	FS : Right Angle Hollow Bore				
② Frame Size and Output Shaft Diameter	Output Shaft Diameter (Internal Diameter)				
③ Shaft Arrangement and Material	Material	Shaft Arrangement			
	Carbon Steel	N			
	Stainless Steel	S			
④ Reduction Ratio	5: 1/5 to 15X: 1/1500 (7.5 = 7, 12.5 = 12)				
⑤ Motor Type	W : IP65 Induction Motor				
⑥ Motor Specifications (Note 2)	M : IE1 Efficiency Ins. F (0.1 kW)				
	D : IE2 Efficiency Ins. F (0.2 kW to 0.4 kW)				
	D : IE3 Efficiency Ins. F (0.75 kW to 2.2 kW)				
⑦ Motor Power	01 : 0.1 kW				
	02 : 0.2 kW				
	04 : 0.4 kW				
	08 : 0.75 kW				
	15 : 1.5 kW				
	22 : 2.2 kW				
⑧ Number of Phases (Note 3)	T : 3-Phase				
⑨ Supply Voltage	⑨ Supply Voltage		⑫ Brake Specifications (Note 4)		
	N : 200 V/50 Hz, 200 V/60 Hz, 220 V/60 Hz		N	V2	V4
	W : 380 V/50 Hz, 400 V/50 Hz, 400 V/60 Hz, 440 V/60 Hz		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	K : 220 V/60 Hz, 380 V/60 Hz		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	C : 220 V/50 Hz, 230 V/50 Hz, 380 V/50 Hz		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	A : 208 V/60 Hz, 230 V/60 Hz, 460 V/60 Hz, 400 V/50 Hz		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	E : 415 V/50 Hz, 440 V/50 Hz, 480 V/60 Hz		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	M : 575 V/60 Hz		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
⑩ Standards	N : CE/UL/CCC				
	A : UL				
	* Supply Voltage : M (575 V/60 Hz) only				
⑪ Terminal Box	E : E Type Terminal Box (Aluminum)				
⑫ Brake Specifications	N : No Brake				
	V2 : IP65 200 V Class Brake (Note 5)				
	V4 : IP65 400 V Class Brake (Note 5)				
⑬ Option	Blank : Standard Specification				
	X : Special Specification Code				
⑭ Option Code (Note 6)	Built-in Rectifier Connection Code Please refer to the list of option codes on page 504 for details.				
	Terminal Box Position Code Please refer to the list of option codes on page 525 for details.				
	For other option codes, please refer to the list of option codes on page 900.				

Note 1: Right angle shaft types are not available.

Note 2: For CCC Standard, 0.2 kW and 0.4 kW are certified under limited duty cycle. Please be cautious upon selecting the product.

Note 3: Single-phase types are not available.

Note 4: indicates a brake specification that can be manufactured.

Note 5: IP65 gearmotors with a brake are not available with motor powers of 1.5 kW and 2.2 kW.

Note 6: 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.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type Reducers (Double Shaft Type) MID Series <Right Angle Hollow Bore/FS>

Mounting Type	Motor Type	Frame Size	Reduction Ratio	Motor Power Class	Option	Terminal Box	Option	Option Code
FS		35	50	040				
FS		25	100	010			X	
①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Mounting Type (Note 1)	FS : Right Angle Hollow Bore Type
② Motor Type	Blank : Without Motor (Double Shaft Type)
③ Frame Size and Output Shaft Diameter	Output Shaft Diameter (Internal Diameter)
④ Reduction Ratio	5: 1/5 to 240: 1/240
⑤ Motor Power Class	010 : 0.1 kW Class
	020 : 0.2 kW Class
	040 : 0.4 kW Class
	075 : 0.75 kW Class
	150 : 1.5 kW Class
220 : 2.2 kW Class	
⑥ ⑦ Options	Blank : Standard Specification There is no applicable option.
⑧ Option	Blank : Standard Specification
	X : Special Specification Code
⑨ Option Code (Note 2)	Blank : Standard Specification

Note 1: Right angle shaft types are not available.

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.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type S-Type Reducers MID Series <Right Angle Hollow Bore/FS>

Mounting Type	Motor Type	Frame Size	Reduction Ratio	Motor Power Class	Option	Terminal Box	Option
FS	S	35	50	040			
FS	S	30	100	020			X
①	②	③	④	⑤	⑥	⑦	⑧

① Mounting Type (Note 1)	FS : Right Angle Hollow Bore Type
② Motor Type	S : Can be Equipped with Designated Motor (S-Type)
③ Frame Size and Output Shaft Diameter	Output Shaft Diameter (Internal Diameter)
④ Reduction Ratio	5: 1/5 to 240: 1/240
⑤ Motor Power Class	010 : 0.1 kW Class
	020 : 0.2 kW Class
	040 : 0.4 kW Class
	075 : 0.75 kW Class
	150 : 1.5 kW Class
220 : 2.2 kW Class	
⑥ ⑦ Options	Blank : Standard Specification
⑧ Option	Blank : Standard Specification
	X : Special Specification Code

Note 1: Right angle shaft types are not available.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

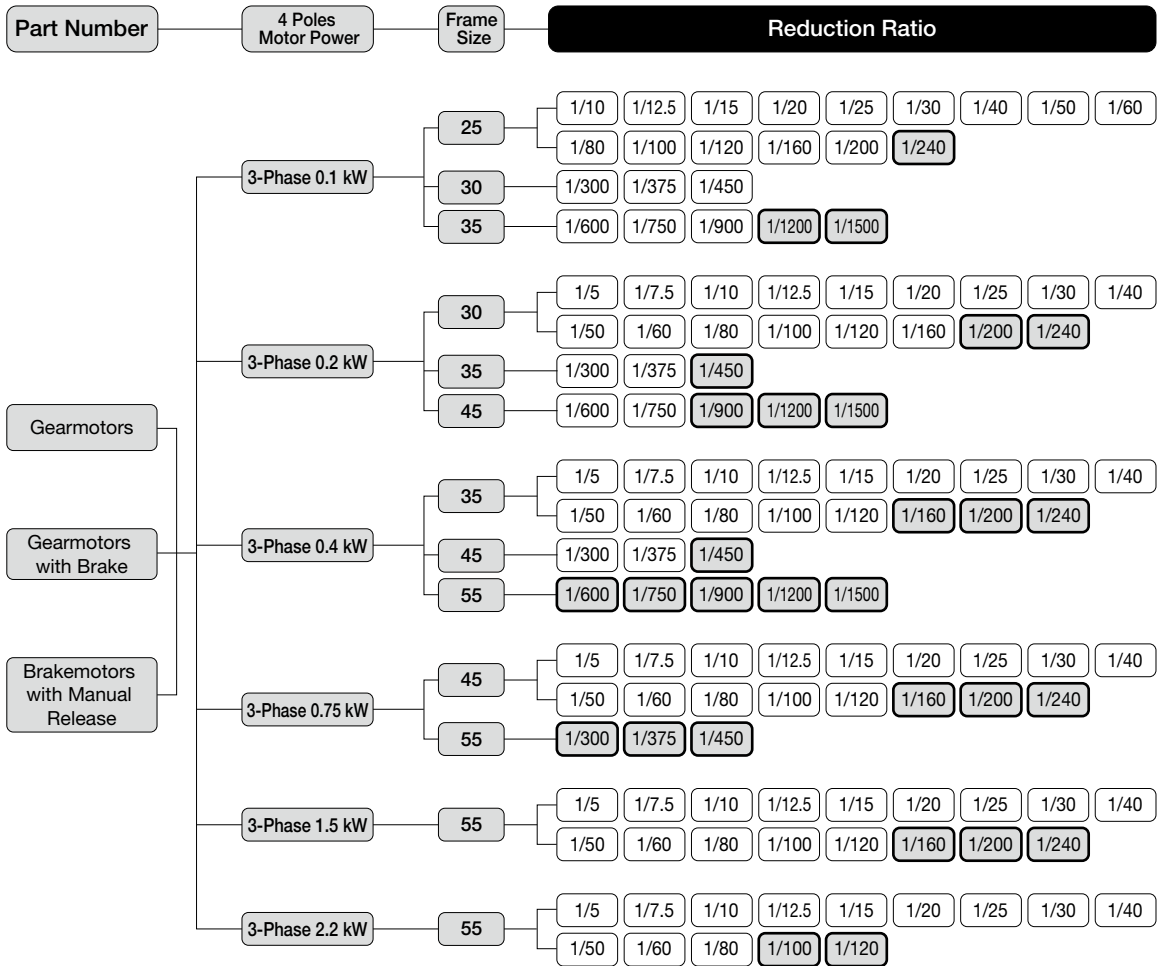
F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

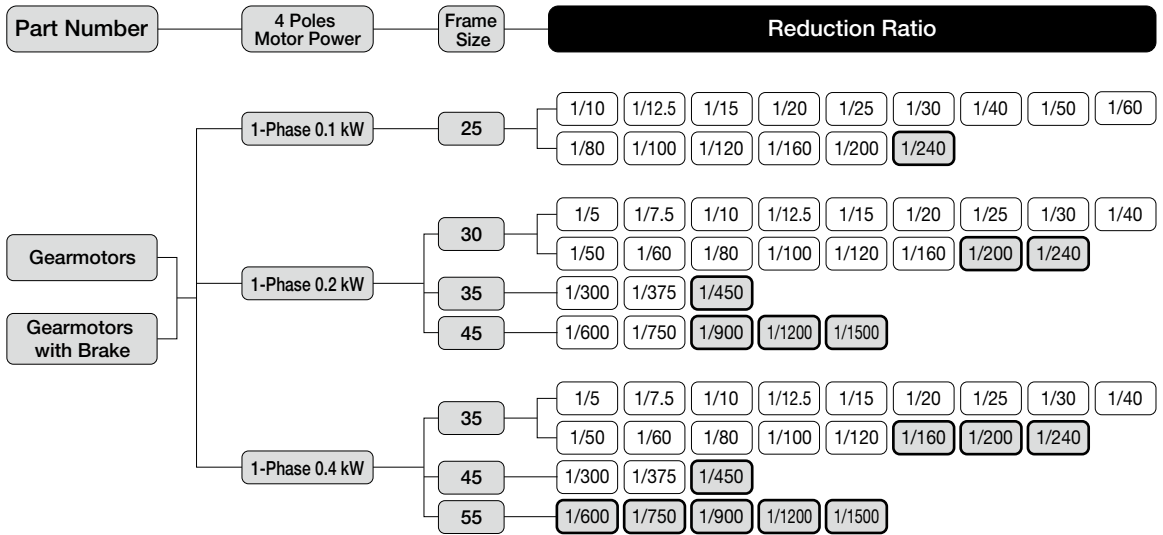
Standard Model Lineup

F Type Gearmotors/Gearmotors with Brake MID Series <Right Angle Hollow Bore/ FS>



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

F Type Gearmotors/Gearmotors with Brake MID Series <Right Angle Hollow Bore/ FS>



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

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft


F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right-Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type Gearmotors/Gearmotors with Brake MID Series <Right Angle Shaft/ FF>

Part Number	4 Poles Motor Power	Frame Size	Shaft Arrangement	Reduction Ratio																												
Gearmotors	3-Phase 0.1 kW	22	L	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	1/50	1/60	R	1/80	1/100	1/120	1/160	1/200	1/240	T												
			Gearmotors with Brake	3-Phase 0.2 kW	28	L	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	R	1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240	T							
Brakemotors with Manual Release	3-Phase 0.4 kW	32	L	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	R	1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240	T										
			3-Phase 0.75 kW	40	L	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	R	1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240	T								

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

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type IP65 Gearmotors/IP65 Gearmotors with Brake MID Series <Right Angle Hollow Bore/ FS>

Part Number	4 Poles Motor Power	Frame Size	Reduction Ratio									
IP65 Gearmotors	3-Phase 0.1 kW	25	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	1/50	1/60	
			1/80	1/100	1/120	1/160	1/200	1/240				
		30	1/300	1/375	1/450							
			35	1/600	1/750	1/900	1/1200	1/1500				
		3-Phase 0.2 kW		30	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30
			1/50		1/60	1/80	1/100	1/120	1/160	1/200	1/240	
	35		1/300	1/375	1/450							
			45	1/600	1/750	1/900	1/1200	1/1500				
	3-Phase 0.4 kW			35	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30
			1/50		1/60	1/80	1/100	1/120	1/160	1/200	1/240	
		45	1/300	1/375	1/450							
			55	1/600	1/750	1/900	1/1200	1/1500				
3-Phase 0.75 kW		45		1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40
			1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240		
	55	1/300	1/375	1/450								
		(Note 1) 3-Phase 1.5 kW	55	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40
	1/50			1/60	1/80	1/100	1/120	1/160	1/200	1/240		
	(Note 1) 3-Phase 2.2 kW		55	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40
1/50				1/60	1/80	1/100	1/120					

Note 1: IP65 gearmotors with a brake are not available with motor powers of 1.5 kW and 2.2 kW.

Note 2: indicates a limited torque type. Please make sure to check the allowable output shaft torque in the performance table.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type Reducers (Double Shaft Type) MID Series <Right Angle Hollow Bore/FS>

Part Number	Motor Power Class	Frame Size	Reduction Ratio									
			1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	1/50	1/60	
Reducers (Double Shaft Type)	0.1 kW	25	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	1/50	1/60	
			1/80	1/100	1/120	1/160	1/200	1/240				
	0.2 kW	30	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	
			1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240		
	0.4 kW	35	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	
			1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240		
0.75 kW	45	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40		
		1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240			
1.5 kW	55	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40		
		1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240			
2.2 kW	55	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40		
		1/50	1/60	1/80	1/100	1/120						

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

G/G3 Type Parallel Shaft

H/H2 Type Right Angle Shaft

F Type Right Angle Hollow Bore/ Right Angle Shaft

F2/F3 Type Concentric Right Angle Hollow Bore/ Concentric Right Angle Shaft

Technical Documentation

F Type S-Type Reducers MID Series <Right Angle Hollow Bore/FS>

Part Number	Motor Power Class	Frame Size	Reduction Ratio									
S-Type Reducers	0.1 kW	25	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	1/50	1/60	
			1/80	1/100	1/120	1/160	1/200	1/240				
	0.2 kW	30	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	
			1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240		
	0.4 kW	35	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40	
			1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240		
0.75 kW	45	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40		
		1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240			
1.5 kW	55	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40		
		1/50	1/60	1/80	1/100	1/120	1/160	1/200	1/240			
2.2 kW	55	1/5	1/7.5	1/10	1/12.5	1/15	1/20	1/25	1/30	1/40		
		1/50	1/60	1/80	1/100	1/120						

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

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

1. Gearmotors Gearmotors with Brake

1-1. Motor Characteristics Table

F Type 3-Phase Standard Voltage/High Voltage (400 V Class)/Special Voltage <Right Angle Hollow Bore/FS>

Series	Power	Power Supply/ Certification Codes	Voltage (V)	Frequency (Hz)	Rated Current (A)	Startup Current (A)	Rated Speed (r/min)
MID	0.1 kW	NN	200/200/220	50/60/60	0.61/0.54/0.54	2.39/2.27/2.52	1410/1690/1710
		WN	380/400/400/440	50/50/60/60	0.31/0.31/0.28/0.28	1.12/1.18/1.12/1.22	1400/1410/1690/1720
		KN	220/380	60/60	0.52/0.30	1.90/1.10	1680/1680
		CN	220/230/380	50/50/50	0.55/0.54/0.31	1.94/2.03/1.12	1400/1410/1400
		AN	208/230/460/400	60/60/60/50	0.54/0.57/0.29/0.31	2.35/2.62/1.26/1.21	1690/1730/1730/1410
		EN	415/440/480	50/50/60	0.30/0.29/0.26	1.06/1.12/1.17	1390/1420/1720
		MA	575	60	0.20	0.87	1700
	0.2 kW IE2	NN	200/200/220	50/60/60	1.1/1.0/1.0	4.70/4.35/4.85	1400/1680/1700
		WN	380/400/400/440	50/50/60/60	0.56/0.56/0.50/0.50	2.29/2.38/2.29/2.48	1390/1400/1680/1710
		KN	220/380	60/60	0.93/0.52	3.70/2.20	1680/1680
		CN	220/230/380	50/50/50	0.99/0.98/0.56	3.97/4.15/2.29	1400/1410/1390
		AN	208/230/460/400	60/60/60/50	1.0/1.0/0.50/0.56	4.78/5.16/2.56/2.44	1680/1720/1720/1400
		EN	415/440/480	50/50/60	0.50/0.50/0.45	1.75/1.86/2.00	1370/1400/1700
		MA	575	60	0.40	1.78	1710
	0.4 kW IE2	NN	200/200/220	50/60/60	2.1/1.8/1.8	9.50/8.60/9.60	1400/1680/1700
		WN	380/400/400/440	50/50/60/60	1.0/1.0/0.9/0.9	4.35/4.65/4.30/4.75	1390/1400/1680/1710
		KN	220/380	60/60	1.7/1.0	7.10/4.00	1670/1670
		CN	220/230/380	50/50/50	1.8/1.8/1.0	7.53/7.88/4.35	1390/1400/1390
		AN	208/230/460/400	60/60/60/50	1.8/1.8/0.9/1.0	8.90/9.76/4.73/4.78	1680/1720/1720/1400
		EN	415/440/480	50/50/60	0.96/0.95/0.82	3.96/4.20/4.20	1390/1410/1680
		MA	575	60	0.68	3.51	1700
	0.75 kW IE3	NN	200/200/220	50/60/60	3.2/3.0/2.9	19.1/16.6/18.6	1440/1720/1740
		WN	380/400/400/440	50/50/60/60	1.65/1.60/1.50/1.40	9.00/9.60/8.30/9.30	1430/1440/1730/1740
		KN	220/380	60/60	2.8/1.6	17.9/10.8	1750/1750
CN		220/230/380	50/50/50	2.8/2.7/1.65	15.6/16.3/9.00	1430/1440/1430	
AN		208/230/460/400	60/60/60/50	2.9/2.8/1.4/1.6	18.3/19.6/10.2/10.0	1740/1750/1750/1440	
EN		415/440/480	50/50/60	1.50/1.50/1.35	9.1/9.65/9.70	1440/1450/1750	
MA		575	60	1.10	6.60	1750	
1.5 kW IE3	NN	200/200/220	50/60/60	6.4/6.0/5.7	43.5/36.0/40.3	1450/1740/1750	
	WN	380/400/400/440	50/50/60/60	3.3/3.2/3.0/2.9	21.7/23.1/18.6/20.7	1440/1450/1740/1750	
	KN	220/380	60/60	5.6/3.2	43.2/24.3	1760/1760	
	CN	220/230/380	50/50/50	5.6/5.6/3.3	37.6/39.3/21.7	1450/1460/1440	
	AN	208/230/460/400	60/60/60/50	5.9/5.7/2.9/3.2	42.3/45.3/23.0/24.3	1750/1760/1760/1450	
	EN	415/440/480	50/50/60	3.0/3.0/2.7	19.8/21.0/18.5	1460/1470/1760	
	MA	575	60	2.2	15.3	1760	
2.2 kW IE3	NN	200/200/220	50/60/60	8.8/8.4/7.9	58.5/47.0/52.5	1450/1740/1750	
	WN	380/400/400/440	50/50/60/60	4.5/4.4/4.2/3.9	30.0/32.0/25.0/28.0	1440/1450/1740/1750	
	KN	220/380	60/60	7.8/4.5	56.4/32.3	1760/1760	
	CN	220/230/380	50/50/50	7.9/7.7/4.5	52.0/54.3/30.0	1460/1470/1440	
	AN	208/230/460/400	60/60/60/50	8.3/7.9/4.0/4.5	60.8/65.2/34.8/36.3	1750/1770/1770/1470	
	EN	415/440/480	50/50/60	4.3/4.3/3.8	33.1/35.5/29.8	1460/1470/1770	
	MA	575	60	3.3	24.4	1760	

The rated current in the motor characteristics table is the current data for the motor operating without a gearbox. With regard to gearmotors with a brake, it is necessary to consider the current value flowing through the brake as needed. For more details, please contact your nearest Sales Office or the CS Center.

1-1. Motor Characteristics Table

F Type 1-Phase Standard Voltage <Right Angle Hollow Bore/FS>

Series	Power	Startup Method	Voltage (V)	Frequency (Hz)	Rated Current (A)	Startup Current (A)	Rated Speed (r/min)	Startup Torque (%)	Breakdown Torque (%)
MID	0.1 kW	Capacitor Run	100/100	50/60	1.7/1.9	4.40/4.07	1400/1700	60/70	165/172
	0.2 kW	Capacitor Start	100/100	50/60	5.1/4.5	20.0/20.0	1420/1700	276/294	194/187
	0.4 kW	Capacitor Start	100/100	50/60	8.7/7.9	32.0/32.0	1440/1730	210/205	189/178

The rated current in the motor characteristics table is the current data for the motor operating without a gearbox.
With regard to gearmotors with a brake, it is necessary to consider the current value flowing through the brake as needed.
For more details, please contact your nearest Sales Office or the CS Center.

F Type 1-Phase High Voltage (200 V Class) <Right Angle Hollow Bore/FS>

Series	Power	Startup Method	Voltage (V)	Frequency (Hz)	Rated Current (A)	Startup Current (A)	Rated Speed (r/min)	Startup Torque (%)	Breakdown Torque (%)
MID	0.1 kW	Capacitor Run	200/200	50/60	0.82/0.96	2.10/2.00	1410/1700	65/81	163/178
	0.2 kW	Capacitor Start	200/200	50/60	2.5/2.2	10.0/10.0	1420/1700	254/250	203/205
	0.4 kW	Capacitor Start	200/200	50/60	4.3/3.9	19.0/18.0	1440/1730	181/190	240/217

The rated current in the motor characteristics table is the current data for the motor operating without a gearbox.
With regard to gearmotors with a brake, it is necessary to consider the current value flowing through the brake as needed.
For more details, please contact your nearest Sales Office or the CS Center.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type 3-Phase Standard Voltage/High Voltage (400 V Class)/Special Voltage <Right Angle Shaft/FF>

Series	Power	Power Supply/ Certification Codes	Voltage (V)	Frequency (Hz)	Rated Current (A)	Rated Speed (r/min)
MID	0.1 kW	NN	200/200/220	50/60/60	0.61/0.54/0.54	1410/1690/1710
		WN	380/400/400/440	50/50/60/60	0.31/0.31/0.28/0.28	1400/1410/1690/1720
		KN	220/380	60/60	0.52/0.30	1680/1680
		CN	220/230/380	50/50/50	0.55/0.54/0.31	1400/1410/1400
		AN	208/230/460/400	60/60/60/50	0.54/0.57/0.29/0.31	1690/1730/1730/1410
		EN	415/440/480	50/50/60	0.30/0.29/0.26	1390/1420/1720
		MA	575	60	0.20	1700
	0.2 kW IE2	NN	200/200/220	50/60/60	1.1/1.0/1.0	1400/1680/1700
		WN	380/400/400/440	50/50/60/60	0.56/0.56/0.50/0.50	1390/1400/1680/1710
		KN	220/380	60/60	0.93/0.52	1680/1680
		CN	220/230/380	50/50/50	0.99/0.98/0.56	1400/1410/1390
		AN	208/230/460/400	60/60/60/50	1.0/1.0/0.50/0.56	1680/1720/1720/1400
		EN	415/440/480	50/50/60	0.50/0.50/0.45	1370/1400/1700
		MA	575	60	0.40	1710
	0.4 kW IE2	NN	200/200/220	50/60/60	2.1/1.8/1.8	1400/1680/1700
		WN	380/400/400/440	50/50/60/60	1.0/1.0/0.9/0.9	1390/1400/1680/1710
		KN	220/380	60/60	1.7/1.0	1670/1670
		CN	220/230/380	50/50/50	1.8/1.8/1.0	1390/1400/1390
		AN	208/230/460/400	60/60/60/50	1.8/1.8/0.9/1.0	1680/1720/1720/1400
		EN	415/440/480	50/50/60	0.96/0.95/0.82	1390/1410/1680
		MA	575	60	0.68	1700
	0.75 kW IE3	NN	200/200/220	50/60/60	3.2/3.0/2.9	1440/1720/1740
		WN	380/400/400/440	50/50/60/60	1.65/1.60/1.50/1.40	1430/1440/1730/1740
		KN	220/380	60/60	2.8/1.6	1750/1750
CN		220/230/380	50/50/50	2.8/2.7/1.65	1430/1440/1430	
AN		208/230/460/400	60/60/60/50	2.9/2.8/1.4/1.6	1740/1750/1750/1440	
EN		415/440/480	50/50/60	1.50/1.50/1.35	1440/1450/1750	
MA		575	60	1.10	1750	

The rated current in the motor characteristics table is the current data for the motor operating without a gearbox. With regard to gearmotors with a brake, it is necessary to consider the current value flowing through the brake as needed. For more details, please contact your nearest Sales Office or the CS Center.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

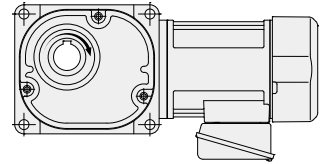
Technical Documentation

1-2. Performance Table

F Type Gearmotors/Gearmotors with Brake <Right Angle Hollow Bore/FS>

[Notes]

- The values in the parenthesis on the drawings are the values for gearmotors with a brake.
- The output shaft speed is the value relative to the synchronous speed of the motor and the reduction ratio.
- The key for the output shaft is not included.
- In the performance table, indicates that the shaft rotates clockwise when viewed from the flange surface side when the connection is made as shown on page 493 (CW). (Refer to the figure on the right)
- Allowable output shaft O.H.L. is the value at 20 mm from the end of the output shaft.
- The “*” mark indicates a limited torque type. Please make sure to check the allowable output shaft torque in the performance table.



G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right-Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
				r/min		N·m				
				50 Hz	60 Hz	50 Hz	60 Hz	N	N	
3-Phase 0.1 kW	25	1/10	1/10	150	180	5.2	4.3	1520	382	P.332
		1/12.5	2/25	120	144	6.5	5.4	1620	402	
		1/15	1/15	100	120	7.7	6.5	1720	431	
		1/20	1/20	75	90	11	8.6	1860	471	
		1/25	19/470	60	72	13	11	2010	500	
		1/30	1/30	50	60	16	13	2110	530	
		1/40	1/40	37.5	45	21	18	2300	579	
		1/50	1/50	30	36	25	22	2450	618	
		1/60	1/60	25	30	31	25	2550	637	
		1/80	1/80	18.8	22.5	39	32	2550	637	
		1/100	19/1880	15	18	49	41	2550	637	
		1/120	1/120	12.5	15	59	49	2550	637	
	1/160	1/160	9.4	11.3	78	66	2550	637		
	1/200	1/200	7.5	9	98	81	2550	637		
	* 1/240	1/240	6.3	7.5	101	98	2550	637		
	1/300	7/2040	5	6	131	110	3140	785	P.334	
	1/375	133/47940	4	4.8	165	137	3140	785		
	1/450	7/3060	3.3	4	198	165	3140	785		
	35	1/600	7/4240	2.5	3	248	207	3630	912	P.336
		1/750	133/99640	2	2.4	311	259	3630	912	
1/900		7/6360	1.7	2	372	311	3630	912		
* 1/1200		7/8480	1.3	1.5	372	372	3630	912		
* 1/1500		7/10600	1	1.2	372	372	3630	912		
3-Phase 0.2 kW	30	1/5	1/5	300	360	5.5	4.6	1520	382	P.334
		1/7.5	2/15	200	240	8.3	7	1760	441	
		1/10	1/10	150	180	11	9.2	1910	481	
		1/12.5	19/235	120	144	14	12	2060	520	
		1/15	1/15	100	120	17	14	2160	539	
		1/20	1/20	75	90	23	19	2400	598	
		1/25	1/25	60	72	27	24	2550	637	
		1/30	1/30	50	60	33	27	2650	667	
		1/40	1/40	37.5	45	44	37	2840	716	
		1/50	1/50	30	36	55	46	2990	745	
		1/60	1/60	25	30	67	55	3090	775	
		1/80	1/80	18.8	22.5	84	71	3090	775	
	1/100	19/1880	15	18	105	87	3140	785		
	1/120	1/120	12.5	15	126	105	3140	785		
	1/160	1/160	9.4	11.3	169	140	3140	785		
	* 1/200	1/200	7.5	9	184	175	3140	785		
	* 1/240	1/240	6.3	7.5	184	184	3140	785		
	1/300	7/2120	5	6	282	235	3630	912	P.336	
	1/375	133/49820	4	4.8	353	294	3630	912		
	* 1/450	7/3180	3.3	4	372	353	3630	912		
45	1/600	7/4240	2.5	3	534	446	5190	1275	P.338	
	1/750	133/99640	2	2.4	668	557	5190	1275		
	* 1/900	7/6360	1.7	2	713	668	5190	1275		
	* 1/1200	7/8480	1.3	1.5	713	713	5190	1275		
	* 1/1500	7/10600	1	1.2	713	713	5190	1275		

Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
				r/min		N-m				
				50 Hz	60 Hz	50 Hz	60 Hz	N	N	
3-Phase 0.4 kW	35	1/5	1/5	300	360	11	9.2	1960	490	P.336
		1/7.5	2/15	200	240	17	14	2250	569	
		1/10	1/10	150	180	23	19	2450	618	
		1/12.5	19/235	120	144	27	24	2600	647	
		1/15	1/15	100	120	33	27	2740	686	
		1/20	1/20	75	90	44	37	2990	745	
		1/25	1/25	60	72	55	46	3190	794	
		1/30	1/30	50	60	67	55	3280	824	
		1/40	1/40	37.5	45	88	74	3480	873	
		1/50	1/50	30	36	111	92	3480	873	
		1/60	1/60	25	30	133	111	3480	873	
		1/80	1/80	18.8	22.5	169	140	3480	873	
		1/100	19/1880	15	18	211	175	3530	883	
		1/120	1/120	12.5	15	253	211	3530	883	
	* 1/160	1/160	9.4	11.3	270	270	3630	912		
	* 1/200	1/200	7.5	9	270	270	3630	912		
	* 1/240	1/240	6.3	7.5	270	270	3630	912		
	45	1/300	7/2080	5	6	565	471	5190	1275	P.338
		1/375	133/48880	4	4.8	707	589	5190	1275	
		* 1/450	7/3120	3.3	4	713	707	5190	1275	
		* 1/600	49/28600	2.5	3	1030	891	9800	2452	
		* 1/750	11/8320	2	2.4	1030	1030	9800	2452	
		* 1/900	7/6136	1.7	2	1030	1030	9800	2452	
	55	* 1/1200	49/57200	1.3	1.5	1030	1030	9800	2452	P.340
* 1/1500		11/16640	1	1.2	1030	1030	9800	2452		
1/5		1/5	300	360	21	18	2940	735	P.338	
1/7.5		2/15	200	240	31	25	3330	834		
1/10	1/10	150	180	41	34	3630	912			
1/12.5	19/235	120	144	52	43	3920	980			
1/15	1/15	100	120	63	52	4070	1030			
1/20	1/20	75	90	83	70	4460	1079			
1/25	1/25	60	72	104	86	4700	1177			
1/30	1/30	50	60	124	104	4750	1177			
1/40	1/40	37.5	45	166	138	4750	1177			
1/50	1/50	30	36	208	173	4750	1177			
1/60	1/60	25	30	249	208	4750	1177			
1/80	1/80	18.8	22.5	316	263	4750	1177			
1/100	19/1880	15	18	395	328	4750	1177			
1/120	1/120	12.5	15	473	395	4750	1177			
* 1/160	1/160	9.4	11.3	554	526	5190	1275			
* 1/200	1/200	7.5	9	554	554	5190	1275			
* 1/240	1/240	6.3	7.5	554	554	5190	1275			
55	* 1/300	7/2120	5	6	1030	883	9800	2452	P.340	
	* 1/375	1/371	4	4.8	1030	1030	9800	2452		
	* 1/450	7/3180	3.3	4	1030	1030	9800	2452		

Note 1: Please be sure to read the notes on page 325.

1-2. Performance Table

Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
				r/min		N-m				
				50 Hz	60 Hz	50 Hz	60 Hz			
3-Phase 1.5 kW	55	1/5	1/5	300	360	41	34	4700	1177	P.340
		1/7.5	2/15	200	240	63	52	5340	1324	
		1/10	1/10	150	180	83	70	5780	1422	
		1/12.5	4/49	120	144	104	86	6130	1520	
		1/15	1/15	100	120	124	104	6320	1569	
		1/20	14/275	75	90	166	138	6320	1569	
		1/25	11/280	60	72	208	173	6320	1569	
		1/30	2/59	50	60	249	208	6320	1569	
		1/40	1/40	37.5	45	332	276	6320	1569	
		1/50	1/49	30	36	416	345	6320	1569	
		1/60	1/60	25	30	498	416	6320	1569	
		1/80	7/550	18.8	22.5	631	526	6420	1618	
		1/100	11/1120	15	18	789	658	6420	1618	
		1/120	1/118	12.5	15	947	789	7500	1863	
		* 1/160	7/1100	9.4	11.3	1030	1030	8330	2059	
* 1/200	11/2240	7.5	9	1030	1030	9020	2256			
* 1/240	1/236	6.3	7.5	1030	1030	9800	2452			
3-Phase 2.2 kW	55	1/5	1/5	300	360	61	51	4700	1177	P.340
		1/7.5	2/15	200	240	91	76	5340	1324	
		1/10	1/10	150	180	122	102	5780	1422	
		1/12.5	4/49	120	144	152	126	6130	1520	
		1/15	1/15	100	120	182	152	6320	1569	
		1/20	14/275	75	90	244	203	6320	1569	
		1/25	11/280	60	72	305	254	6320	1569	
		1/30	2/59	50	60	366	305	6320	1569	
		1/40	1/40	37.5	45	487	406	6320	1569	
		1/50	1/49	30	36	609	508	6320	1569	
		1/60	1/60	25	30	731	609	6320	1569	
		1/80	7/550	18.8	22.5	926	771	6420	1618	
		* 1/100	11/1120	15	18	1030	964	6420	1618	
		* 1/120	1/118	12.5	15	1030	1030	7500	1863	

Note 1: Please be sure to read the notes on page 325.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

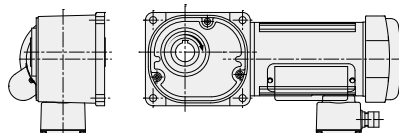
F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type Gearmotors/Gearmotors with Brake <Right Angle Hollow Bore/FS>

[Notes]

- The values in the parenthesis on the drawing are the values for gearmotors with a brake.
- The output shaft speed is the value relative to the synchronous speed of the motor and the reduction ratio.
- The key for the output shaft is not included.
- In the performance table, indicates that the shaft rotates clockwise when viewed from the flange surface side when the connection is made as shown on page 494 (CW). (Refer to the figure on the right)
- The startup torque of the single-phase 0.1 kW motor is 60 to 80 % because a capacitor run motor is adopted.
- Allowable output shaft O.H.L. is the value at 20 mm from the end of the output shaft.
- The “*” mark indicates a limited torque type. Please make sure to check the allowable output shaft torque in the performance table.



Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
				r/min		N·m				
				50 Hz	60 Hz	50 Hz	60 Hz	N	N	
1-Phase 0.1 kW	25	1/10	1/10	150	180	5.2	4.3	1520	382	P.333
		1/12.5	2/25	120	144	6.5	5.4	1620	402	
		1/15	1/15	100	120	7.7	6.5	1720	431	
		1/20	1/20	75	90	11	8.6	1860	471	
		1/25	19/470	60	72	13	11	2010	500	
		1/30	1/30	50	60	16	13	2110	530	
		1/40	1/40	37.5	45	21	18	2300	579	
		1/50	1/50	30	36	25	22	2450	618	
		1/60	1/60	25	30	31	25	2550	637	
		1/80	1/80	18.8	22.5	39	32	2550	637	
		1/100	19/1880	15	18	49	41	2550	637	
		1/120	1/120	12.5	15	59	49	2550	637	
1/160	1/160	9.4	11.3	78	66	2550	637			
1/200	1/200	7.5	9	98	81	2550	637			
* 1/240	1/240	6.3	7.5	101	98	2550	637			
1-Phase 0.2 kW	30	1/5	1/5	300	360	5.5	4.6	1520	382	P.335
		1/7.5	2/15	200	240	8.3	7	1760	441	
		1/10	1/10	150	180	11	9.2	1910	481	
		1/12.5	19/235	120	144	14	12	2060	520	
		1/15	1/15	100	120	17	14	2160	539	
		1/20	1/20	75	90	23	19	2400	598	
		1/25	1/25	60	72	27	24	2550	637	
		1/30	1/30	50	60	33	27	2650	667	
		1/40	1/40	37.5	45	44	37	2840	716	
		1/50	1/50	30	36	55	46	2990	745	
		1/60	1/60	25	30	67	55	3090	775	
		1/80	1/80	18.8	22.5	84	71	3090	775	
	1/100	19/1880	15	18	105	87	3140	785		
	1/120	1/120	12.5	15	126	105	3140	785		
	1/160	1/160	9.4	11.3	169	140	3140	785		
	* 1/200	1/200	7.5	9	184	175	3140	785		
	* 1/240	1/240	6.3	7.5	184	184	3140	785		
	35	45	1/300	7/2120	5	6	282	235	3630	912
1/375			133/49820	4	4.8	353	294	3630	912	
* 1/450			7/3180	3.3	4	372	353	3630	912	
1/600			7/4240	2.5	3	534	446	5190	1275	
1/750			133/99640	2	2.4	668	557	5190	1275	
* 1/900			7/6360	1.7	2	713	668	5190	1275	
* 1/1200	7/8480	1.3	1.5	713	713	5190	1275	P.339		
* 1/1500	7/10600	1	1.2	713	713	5190	1275			

1-2. Performance Table

Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings	
				r/min		N·m					
				50 Hz	60 Hz	50 Hz	60 Hz	N	N		
1-Phase 0.4 kW	35	1/5	1/5	300	360	11	9.2	1960	490	P.337	
		1/7.5	2/15	200	240	17	14	2250	569		
		1/10	1/10	150	180	23	19	2450	618		
		1/12.5	19/235	120	144	27	24	2600	647		
		1/15	1/15	100	120	33	27	2740	686		
		1/20	1/20	75	90	44	37	2990	745		
		1/25	1/25	60	72	55	46	3190	794		
		1/30	1/30	50	60	67	55	3280	824		
		1/40	1/40	37.5	45	88	74	3480	873		
		1/50	1/50	30	36	111	92	3480	873		
		1/60	1/60	25	30	133	111	3480	873		
		1/80	1/80	18.8	22.5	169	140	3480	873		
		1/100	19/1880	15	18	211	175	3530	883		
		1/120	1/120	12.5	15	253	211	3530	883		
	* 1/160	1/160	9.4	11.3	270	270	3630	912			
	* 1/200	1/200	7.5	9	270	270	3630	912			
	* 1/240	1/240	6.3	7.5	270	270	3630	912			
	45	1/300	7/2080	5	6	565	471	5190	1275	P.339	
		1/375	133/48880	4	4.8	707	589	5190	1275		
		* 1/450	7/3120	3.3	4	713	707	5190	1275		
	55	* 1/600	49/28600	2.5	3	1030	891	9800	2452	P.341	
		* 1/750	11/8320	2	2.4	1030	1030	9800	2452		
		* 1/900	7/6136	1.7	2	1030	1030	9800	2452		
		* 1/1200	49/57200	1.3	1.5	1030	1030	9800	2452		
			* 1/1500	11/16640	1	1.2	1030	1030	9800	2452	

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

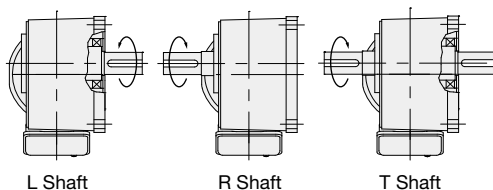
F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

F Type Gearmotors/Gearmotors with Brake <Right Angle Shaft/FF>

[Notes]

- The values in the parenthesis on the drawing are the values for gearmotors with a brake.
- The output shaft speed is the value relative to the synchronous speed of the motor and the reduction ratio.
- In the performance table, indicates that the L shaft rotates clockwise and the R and T shafts rotate counterclockwise when viewed from the output shaft direction when the connection is made as shown on page 493 (CW). (Refer to the figure on the right)
- Allowable output shaft O.H.L. is the value at 20 mm from the end of the output shaft.
- The “*” mark indicates a limited torque type. Please make sure to check the allowable output shaft torque in the performance table.



Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Drawings
				r/min		N·m			
				50 Hz	60 Hz	50 Hz	60 Hz	N	
0.1 kW	22	1/10	1/10	150	180	5.2	4.3	1520	P.342
		1/12.5	2/25	120	144	6.5	5.4	1620	
		1/15	1/15	100	120	7.7	6.5	1720	
		1/20	1/20	75	90	11	8.6	1910	
		1/25	19/470	60	72	13	11	2060	
		1/30	1/30	50	60	16	13	2160	
		1/40	1/40	37.5	45	21	18	2400	
		1/50	1/50	30	36	25	22	2550	
		1/60	1/60	25	30	31	25	2550	
		1/80	1/80	18.8	22.5	39	32	2550	
		1/100	19/1880	15	18	49	41	2550	
		1/120	1/120	12.5	15	59	49	2550	
		1/160	1/160	9.4	11.3	78	66	2550	
1/200	1/200	7.5	9	98	81	2550			
* 1/240	1/240	6.3	7.5	101	98	2550			
0.2 kW	28	1/5	1/5	300	360	5.5	4.6	1470	P.342
		1/7.5	2/15	200	240	8.3	7.0	1670	
		1/10	1/10	150	180	11	9.2	1810	
		1/12.5	19/235	120	144	14	12	1960	
		1/15	1/15	100	120	17	14	2060	
		1/20	1/20	75	90	23	19	2300	
		1/25	1/25	60	72	27	24	2450	
		1/30	1/30	50	60	33	27	2600	
		1/40	1/40	37.5	45	44	37	2790	
		1/50	1/50	30	36	55	46	2990	
		1/60	1/60	25	30	67	55	3090	
		1/80	1/80	18.8	22.5	84	71	3090	
		1/100	19/1880	15	18	105	87	3140	
		1/120	1/120	12.5	15	126	105	3140	
		1/160	1/160	9.4	11.3	169	140	3140	
* 1/200	1/200	7.5	9	184	175	3140			
* 1/240	1/240	6.3	7.5	184	184	3140			

1-2. Performance Table

Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L. N	Drawings
				r/min		N-m			
				50 Hz	60 Hz	50 Hz	60 Hz		
0.4 kW	32	1/5	1/5	300	360	11	9.2	1760	P.343
		1/7.5	2/15	200	240	17	14	2010	
		1/10	1/10	150	180	23	19	2210	
		1/12.5	19/235	120	144	27	24	2350	
		1/15	1/15	100	120	33	27	2500	
		1/20	1/20	75	90	44	37	2700	
		1/25	1/25	60	72	55	46	2890	
		1/30	1/30	50	60	67	55	3040	
		1/40	1/40	37.5	45	88	74	3280	
		1/50	1/50	30	36	111	92	3330	
		1/60	1/60	25	30	133	111	3330	
		1/80	1/80	18.8	22.5	169	140	3330	
		1/100	19/1880	15	18	211	175	3380	
		1/120	1/120	12.5	15	253	211	3380	
		* 1/160	1/160	9.4	11.3	270	270	3580	
* 1/200	1/200	7.5	9	270	270	3630			
* 1/240	1/240	6.3	7.5	270	270	3630			
0.75 kW	40	1/5	1/5	300	360	21	18	2500	P.343
		1/7.5	2/15	200	240	31	25	2840	
		1/10	1/10	150	180	41	34	3140	
		1/12.5	19/235	120	144	52	43	3380	
		1/15	1/15	100	120	63	52	3530	
		1/20	1/20	75	90	83	70	3870	
		1/25	1/25	60	72	104	86	4170	
		1/30	1/30	50	60	124	104	4310	
		1/40	1/40	37.5	45	166	138	4460	
		1/50	1/50	30	36	208	173	4460	
		1/60	1/60	25	30	249	208	4460	
		1/80	1/80	18.8	22.5	316	263	4460	
		1/100	19/1880	15	18	395	328	4460	
		1/120	1/120	12.5	15	473	395	4460	
		* 1/160	1/160	9.4	11.3	554	526	4850	
* 1/200	1/200	7.5	9	554	554	5190			
* 1/240	1/240	6.3	7.5	554	554	5190			

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

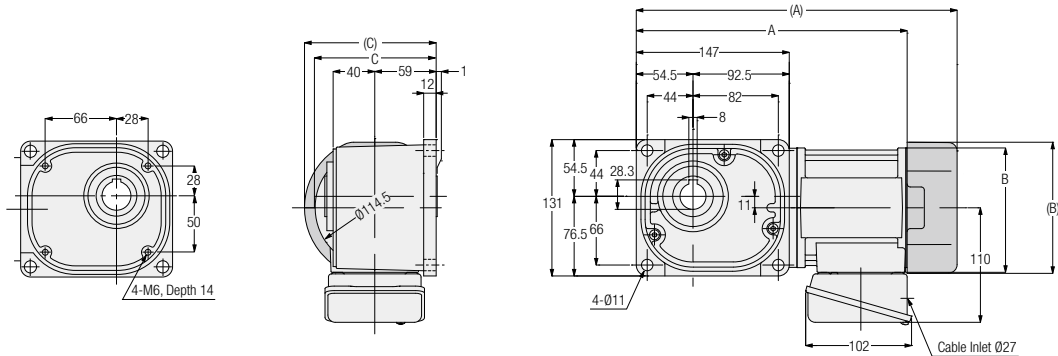
Technical Documentation

1-3. Drawings

FS Type Right Angle Hollow Bore Shaft Diameter 25 Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A	B	C
3-Phase	0.1 kW	FS25N***-MM01T◇◇TN	10, 12.5, 15, 20, 25, 30,	1	No	7.5	268.5	∅115	116.5
		FS25N***-MM01T◇◇TB◆	40, 50, 60, 80, 100, 120, 160, 200, 240		Yes	9	308.5	□126	126.5

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆.
 Note: When the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 325 for the performance table.

G/G3 Type Parallel Shaft

H/H2 Type Right Angle Shaft

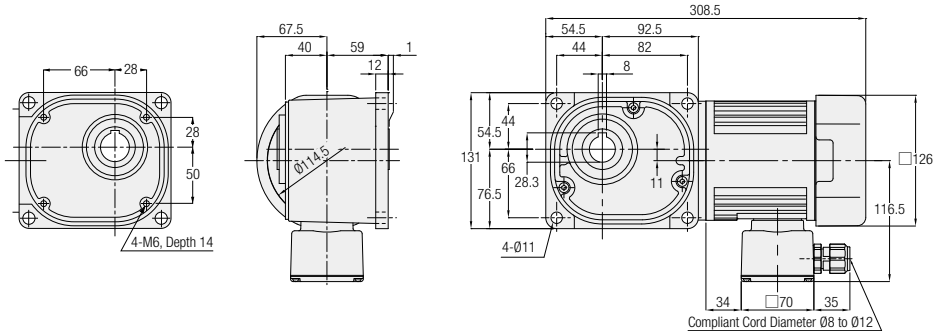
F Type Right Angle Hollow Bore/ Right Angle Shaft

F2/F3 Type Concentric Right Angle Hollow Bore/ Concentric Right Angle Shaft

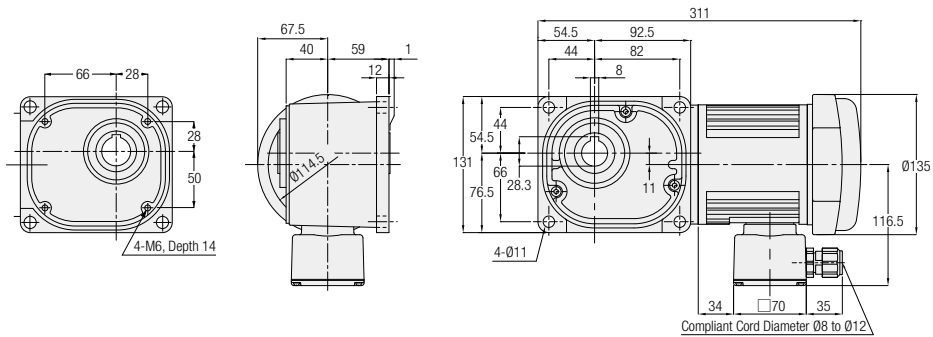
Technical Documentation

FS Type Right Angle Hollow Bore Shaft Diameter **25** Flange Mounting

<Figure 1>



<Figure 2>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
1-Phase	0.1 kW	FS25***-MM01S◇JAN	10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80,	1	No	8
		FS25***-MM01S◇JAB2	100, 120, 160, 200, 240	2	Yes	8

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage code will be indicated as ◇.

Note: When the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

Note: Please refer to page 870 for the details of the output shaft dimensions.

Note: Please refer to page 328 for the performance table.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

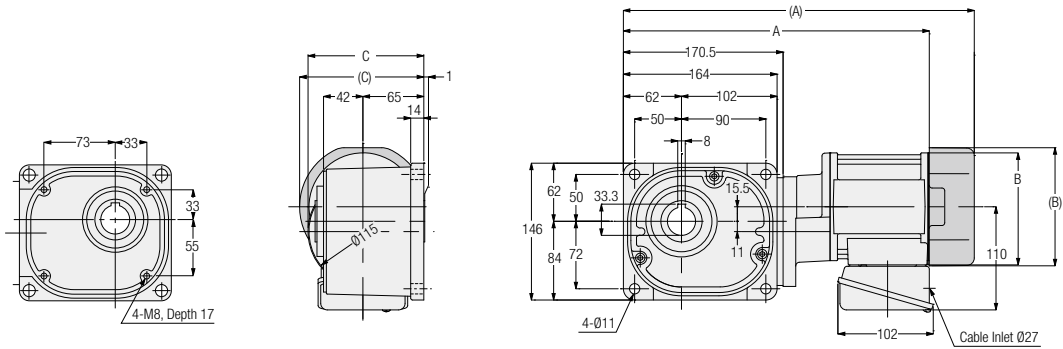
F2/F3 Type
Concentric Right-Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

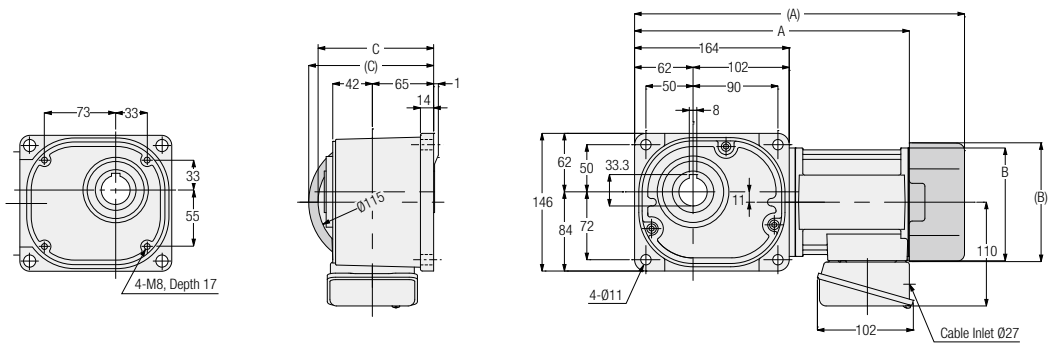
FS Type Right Angle Hollow Bore Shaft Diameter **30** Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>



<Figure 2>



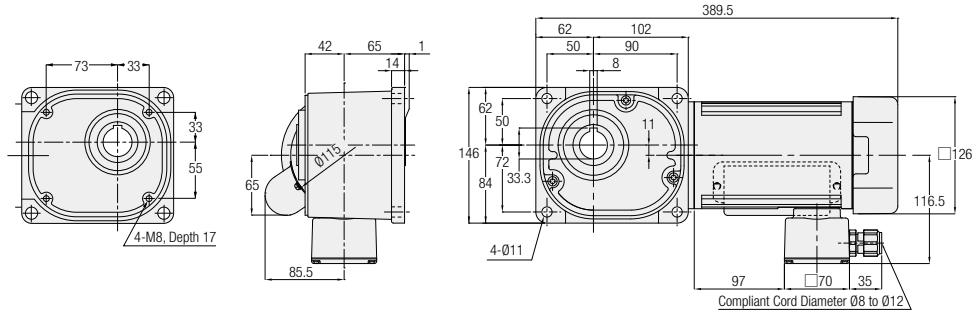
Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A	B	C
3-Phase	0.1 kW	FS30***-MM01T◇◇TN	300, 375, 450	1	No	11.5	334.5	Ø115	123
		FS30***-MM01T◇◇TB◆			Yes	13	374.5	□126	132.5
	0.2 kW	FS30***-MM02T◇◇TN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240		No	9.5	299.5	Ø115	123
		FS30***-MM02T◇◇TB◆			Yes	11	350	□126	132.5

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆.
 Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

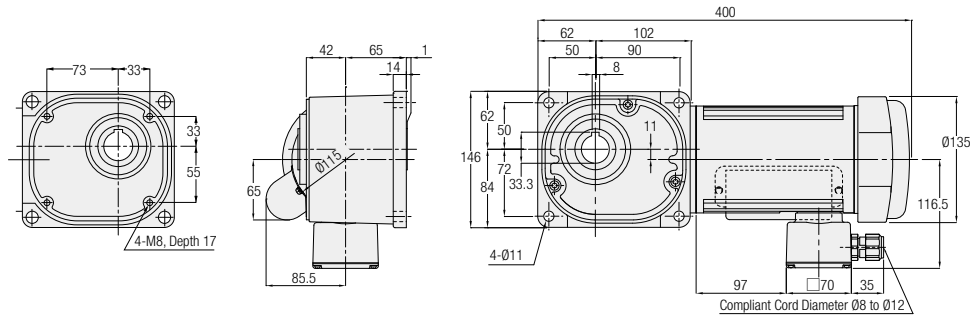
Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 325 for the performance table.

FS Type Right Angle Hollow Bore Shaft Diameter **30** Flange Mounting

<Figure 1>



<Figure 2>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
1-Phase	0.2 kW	FS30N***-MM02C◇JAN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	No	9.5
		FS30N***-MM02C◇JAB2		2	Yes	9.5

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage code will be indicated as ◇.

Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

Note: Please refer to page 870 for the details of the output shaft dimensions.

Note: Please refer to page 328 for the performance table.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

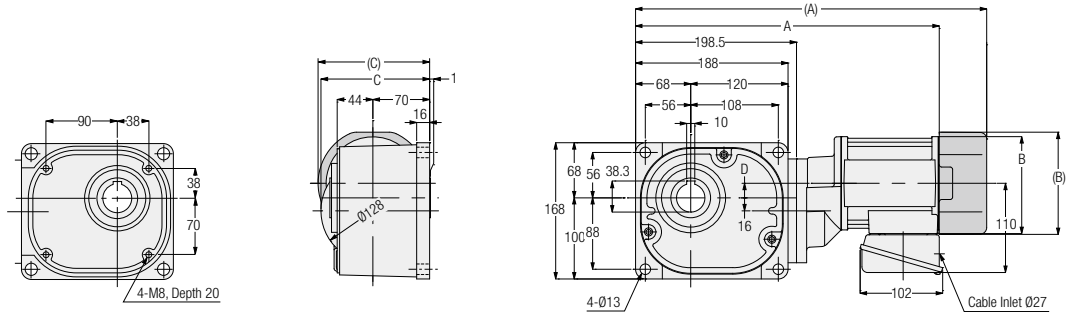
F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

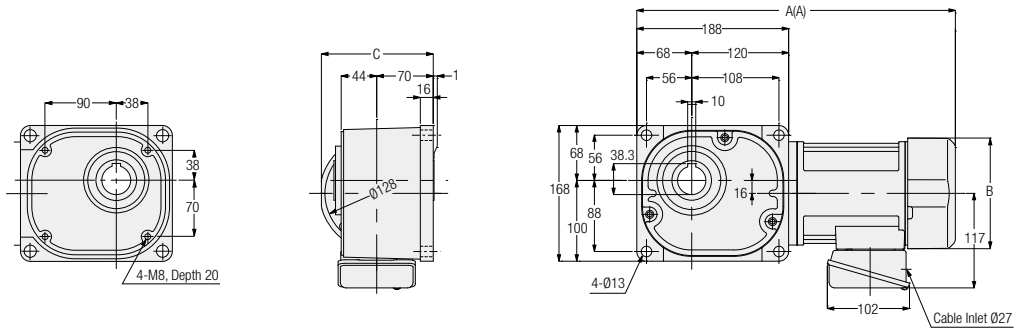
FS Type Right Angle Hollow Bore Shaft Diameter 35 Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>



<Figure 2>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A	B	C	D
3-Phase	0.1 kW	FS35N***-MM01T◇◇TN	600, 750, 900, 1200, 1500	1	No	13.5	362.5	Ø115	134	11.5
		Yes			15	402.5	□126	137.5	11.5	
	0.2 kW	FS35N***-MM02T◇◇TN	300, 375, 450	1	No	14.5	382.5	Ø115	134	18
		Yes			16	433	□126	137.5	18	
	0.4 kW	FS35N***-MM04T◇◇TN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	No	14	374.5	□137	138.5	-
		Yes			16	394.5	□137	138.5	-	

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆. Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

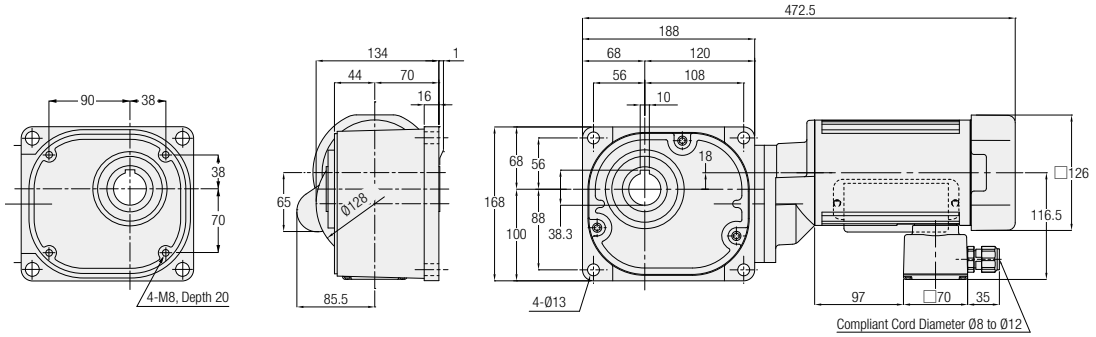
Note: Please refer to page 870 for the details of the output shaft dimensions.

Note: Please refer to page 325 for the performance table.

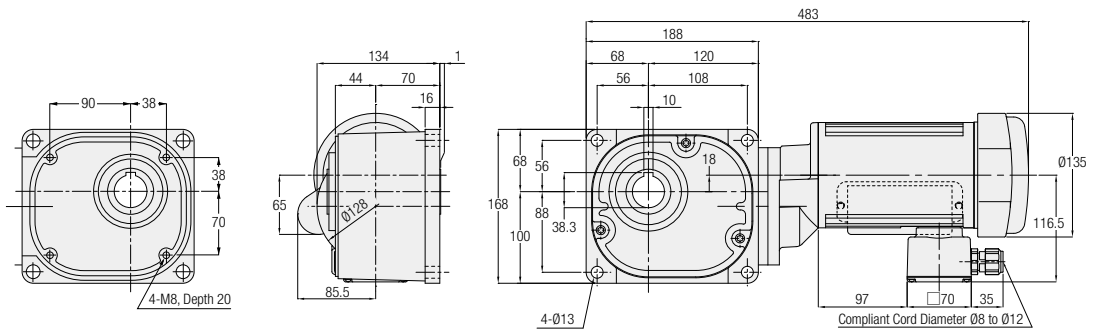
FS Type Right Angle Hollow Bore Shaft Diameter **35** Flange Mounting

The values in parenthesis are those for gearmotors with brake.

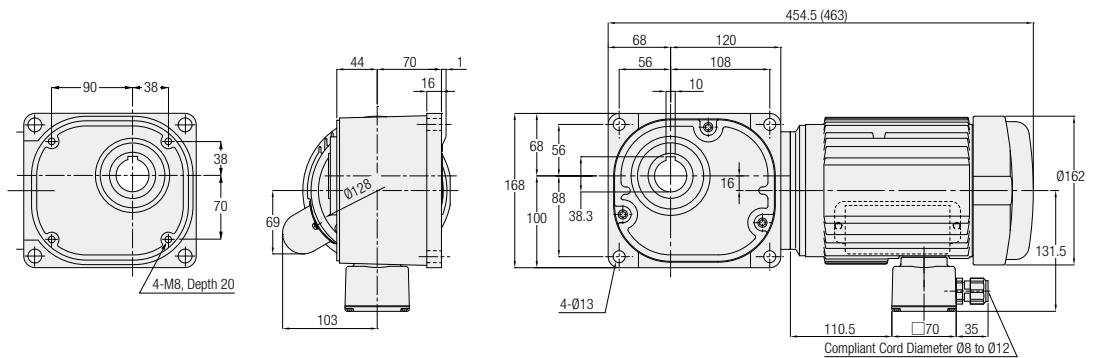
<Figure 1>



<Figure 2>



<Figure 3>



G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
1-Phase	0.2 kW	FS35N***-MM02C◇JAN	300, 375, 450	1	No	16.5
		FS35N***-MM02C◇JAB2		2	Yes	16.5
	0.4 kW	FS35N***-MM04C◇JAN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	3	No	20
		FS35N***-MM04C◇JAB2			Yes	20

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage code will be indicated as ◇.

Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

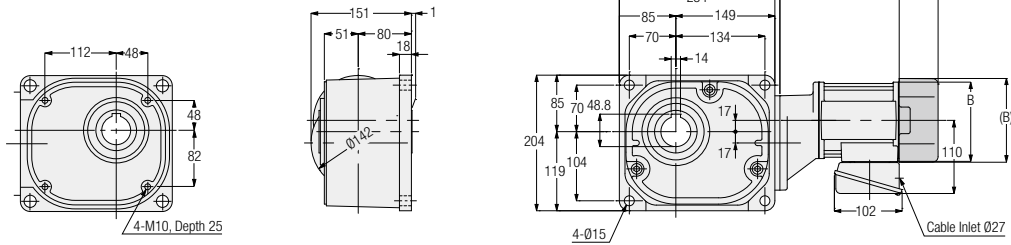
Note: Please refer to page 870 for the details of the output shaft dimensions.

Note: Please refer to page 328 for the performance table.

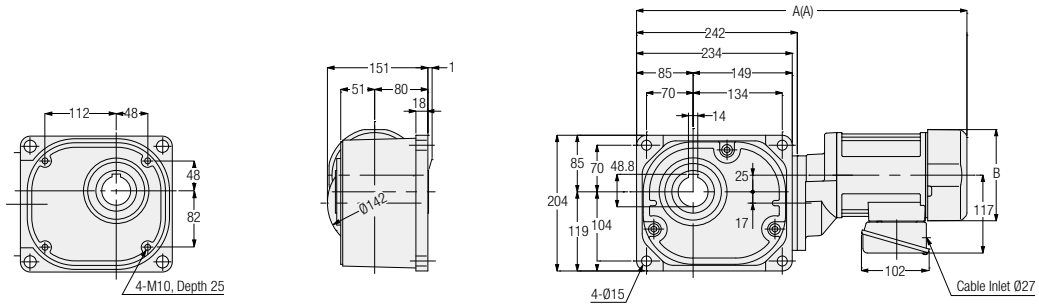
FS Type Right Angle Hollow Bore Shaft Diameter 45 Flange Mounting

The values in parenthesis are those for gearmotors with brake.

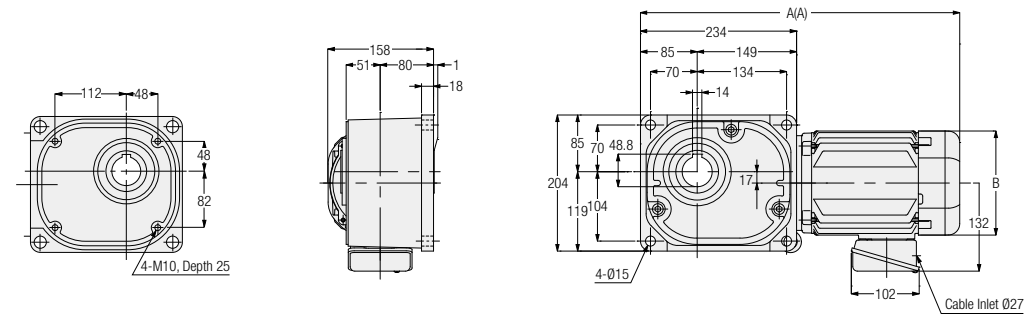
<Figure 1>



<Figure 2>



<Figure 3>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A	B
3-Phase	0.2 kW	FS45N***-MM02T◇◇TN	600, 750, 900, 1200, 1500	1	No	20	429.5	Ø115
		FS45N***-MM02T◇◇TB◆			Yes	21.5	480	□126
	0.4 kW	FS45N***-MM04T◇◇TN	300, 375, 450	2	No	22.5	477	□137
		FS45N***-MM04T◇◇TB◆			Yes	24	497	□137
	0.75 kW	FS45N***-MD08T◇◇TN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	3	No	27.5	459	□156
		FS45N***-MD08T◇◇TB◆			Yes	30.5	479	□156

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆. Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

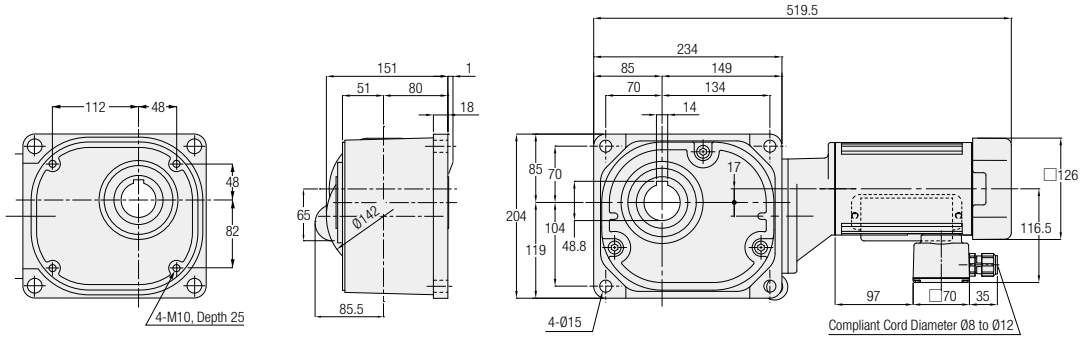
Note: Please refer to page 870 for the details of the output shaft dimensions.

Note: Please refer to page 325 for the performance table.

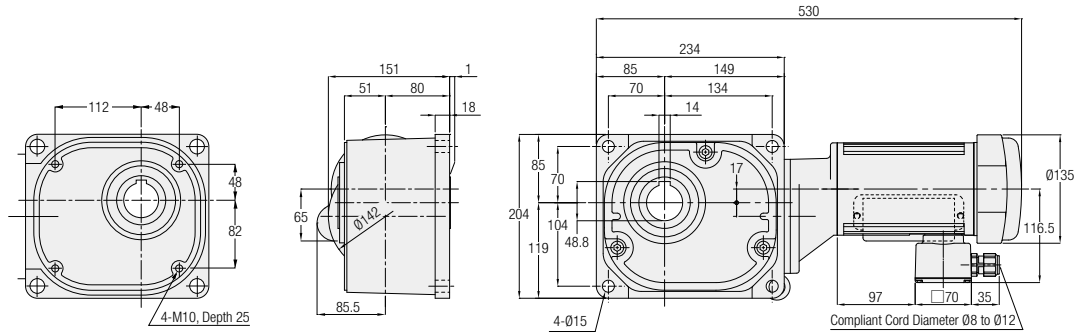
FS Type Right Angle Hollow Bore Shaft Diameter 45 Flange Mounting

The values in parenthesis are those for gearmotors with brake.

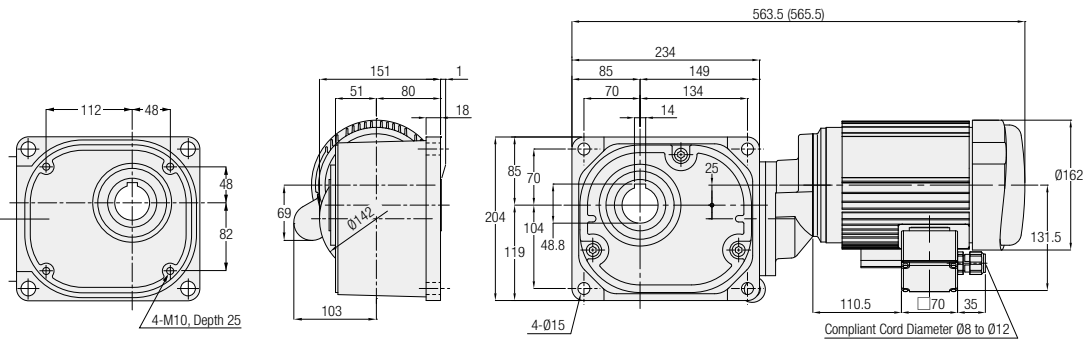
<Figure 1>



<Figure 2>



<Figure 3>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
1-Phase	0.2 kW	FS45N***-MM02C◇JAN	600, 750, 900, 1200, 1500	1	No	22
		FS45N***-MM02C◇JAB2		2	Yes	22
	0.4 kW	FS45N***-MM04C◇JAN	300, 375, 450	3	No	28
		FS45N***-MM04C◇JAB2			Yes	28

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage code will be indicated as ◇.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 328 for the performance table.

G/G3 Type Parallel Shaft

H/H2 Type Right Angle Shaft

F Type Right Angle Hollow Bore/Right Angle Shaft

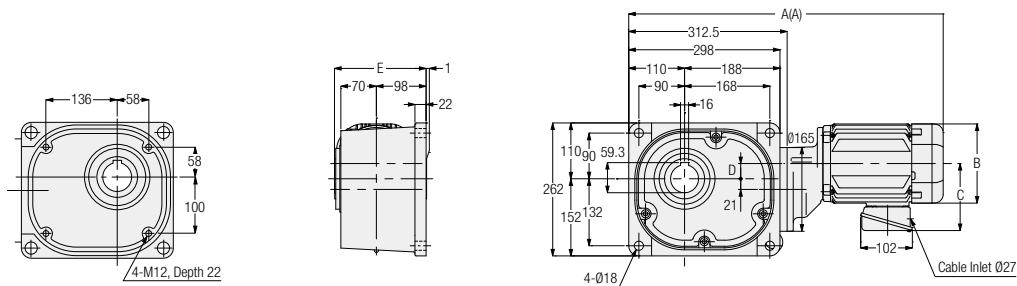
F2/F3 Type Concentric Right-Angle Hollow Bore/Concentric Right Angle Shaft

Technical Documentation

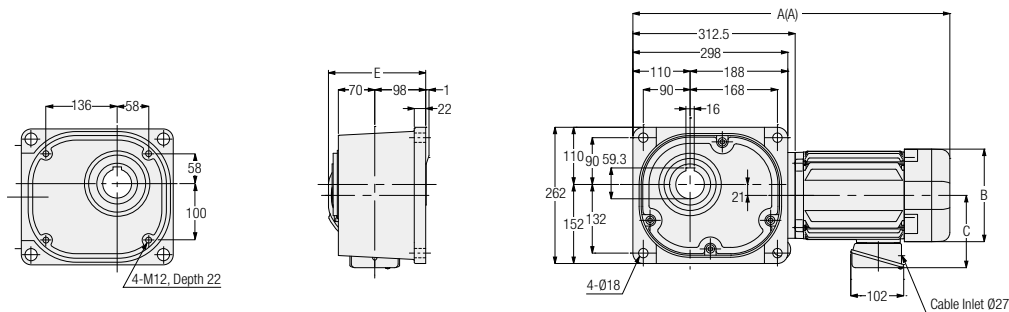
FS Type Right Angle Hollow Bore Shaft Diameter 55 Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>



<Figure 2>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A	B	C	D	E
3-Phase	0.4 kW	FS55N***-MM04T◇◇TN	600, 750, 900, 1200, 1500	1	No	60.5	547.5	□137	117	21	180.5
		Yes			62	567.5	□137	117	21	180.5	
	0.75 kW	FS55N***-MD08T◇◇TN	300, 375, 450	1	No	68.5	600	□156	132	30	180.5
		Yes			71	620	□156	132	30	180.5	
	1.5 kW	FS55N***-MD15T◇◇TN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	No	74.5	581	□178	139	-	187
		Yes			77.5	610	□178	139	-	187	
	2.2 kW	FS55N***-MD22T◇◇TN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120	2	No	85	614.5	□192	149	-	194
		Yes			88	643.5	□192	149	-	194	

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆. Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

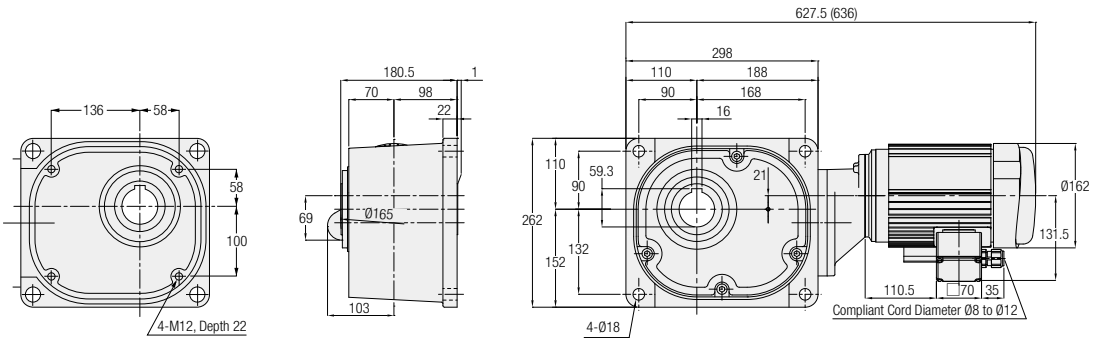
Note: Please refer to page 870 for the details of the output shaft dimensions.

Note: Please refer to page 326 for the performance table.

FS Type Right Angle Hollow Bore Shaft Diameter **55** Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
1-Phase	0.4 kW	FS55N***-MM04C◇JAN	600, 750, 900, 1200, 1500	1	No	66
		FS55N***-MM04C◇JAB2			Yes	66

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage code will be indicated as ◇.

Note: Please refer to page 870 for the details of the output shaft dimensions.

Note: Please refer to page 329 for the performance table.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

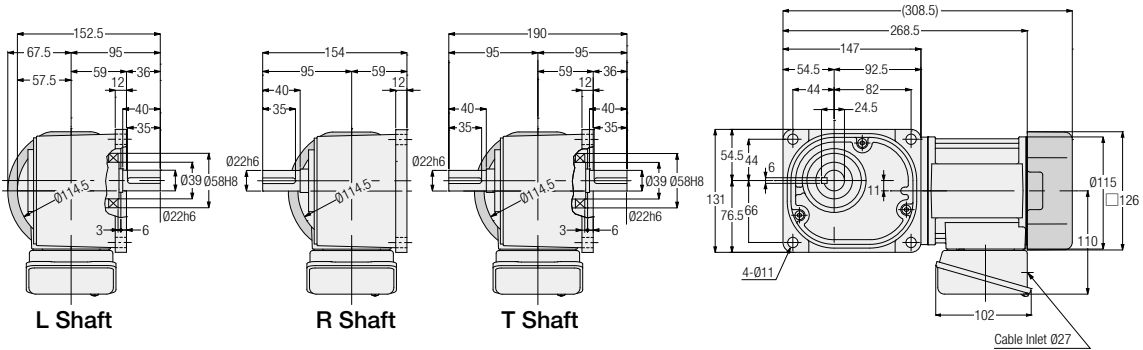
F2/F3 Type
Concentric Right-Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

FF Type Right Angle Shaft Shaft Diameter **22** Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>

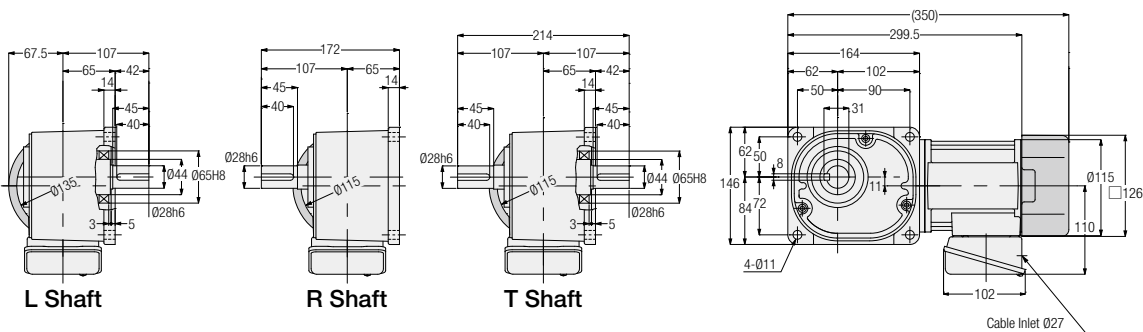


Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
3-Phase	0.1 kW	FF22***-MM01T◇◇TN	10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	No	8.5
		FF22***-MM01T◇◇TB◆			Yes	10

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio is indicated as ***. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆.
 Note: When the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.
 Note: Please refer to page 330 for the performance table.

FF Type Right Angle Shaft Shaft Diameter **28** Flange Mounting

<Figure 2>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
3-Phase	0.2 kW	FF28***-MM02T◇◇TN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	No	10.5
		FF28***-MM02T◇◇TB◆			Yes	12

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio is indicated as ***. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆.
 Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.
 Note: Please refer to page 330 for the performance table.

G/G3 Type Parallel Shaft

H/H2 Type Right Angle Shaft

F Type Right Angle Hollow Bore/ Right Angle Shaft

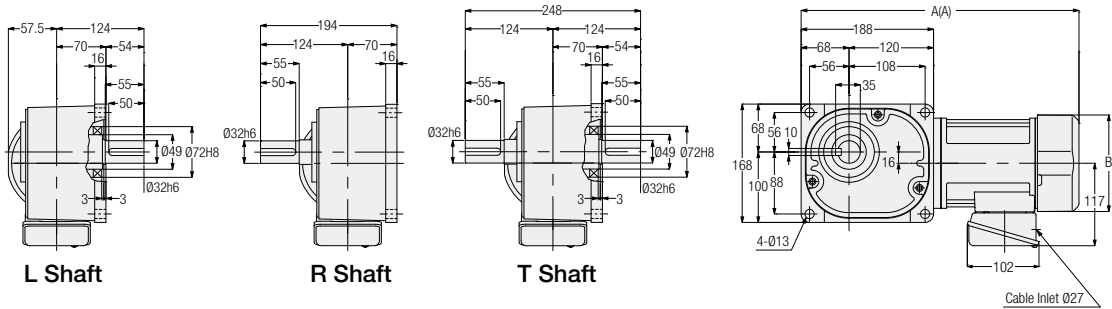
F2/F3 Type Concentric Right Angle Hollow Bore/ Concentric Right Angle Shaft

Technical Documentation

FF Type Right Angle Shaft Shaft Diameter **32** Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>

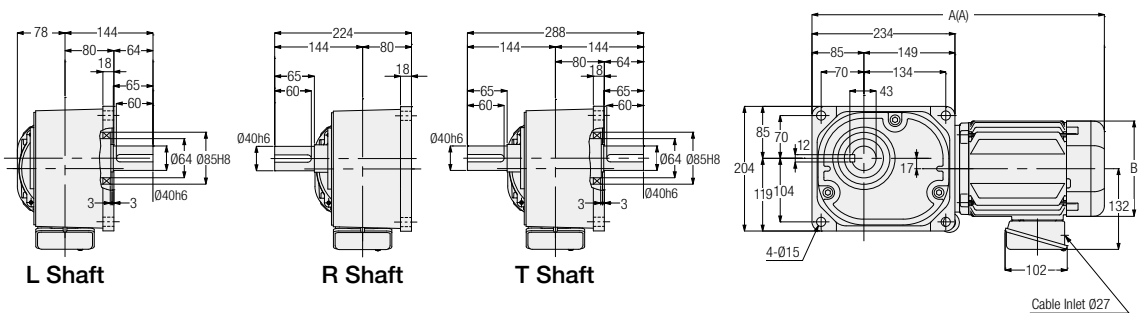


Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A	B
3-Phase	0.4 kW	FF32****-MM04T◇◇TN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	No	16	374.5	<input type="checkbox"/> 137
		FF32****-MM04T◇◇TB◆	120, 160, 200, 240		Yes	18	394.5	<input type="checkbox"/> 137

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio is indicated as ***. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆.
 Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.
 Note: Please refer to page 331 for the performance table.

FF Type Right Angle Shaft Shaft Diameter **40** Flange Mounting

<Figure 2>



Number of Phases	Power	Part Number	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A	B
3-Phase	0.75 kW	FF40****-MD08T◇◇TN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	No	31.5	459	<input type="checkbox"/> 156
		FF40****-MD08T◇◇TB◆	120, 160, 200, 240		Yes	34.5	479	<input type="checkbox"/> 156

Note: A shaft arrangement (L, R, T) will be indicated as # in the nomenclature. In addition, a reduction ratio is indicated as ***. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆.
 Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.
 Note: Please refer to page 331 for the performance table.

G/G3 Type Parallel Shaft

H/H2 Type Right Angle Shaft

F Type Right Angle Hollow Bore/Right Angle Shaft

F2/F3 Type Concentric Right Angle Hollow Bore/Concentric Right Angle Shaft

Technical Documentation

2. IP65 Gearmotors IP65 Gearmotors with Brake

2-1. Motor Characteristics Table

F Type 3-Phase Standard Voltage <Right Angle Hollow Bore/FS>

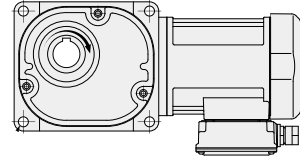
Series	Power	Power Supply/ Certification Codes	Voltage (V)	Frequency (Hz)	Rated Current (A)	Startup Current (A)	Rated Speed (r/min)
MID	0.1 kW	NN	200/200/220	50/60/60	0.61/0.54/0.54	2.39/2.27/2.52	1410/1690/1710
		WN	380/400/400/440	50/50/60/60	0.31/0.31/0.28/0.28	1.12/1.18/1.12/1.22	1400/1410/1690/1720
		KN	220/380	60/60	0.52/0.30	1.90/1.10	1680/1680
		CN	220/230/380	50/50/50	0.55/0.54/0.31	1.94/2.03/1.12	1400/1410/1400
		AN	208/230/460/400	60/60/60/50	0.54/0.57/0.29/0.31	2.35/2.62/1.26/1.21	1690/1730/1730/1410
		EN	415/440/480	50/50/60	0.30/0.29/0.26	1.06/1.12/1.17	1390/1420/1720
		MA	575	60	0.20	0.87	1700
	0.2 kW IE2	NN	200/200/220	50/60/60	1.1/1.0/1.0	4.70/4.35/4.85	1400/1680/1700
		WN	380/400/400/440	50/50/60/60	0.56/0.56/0.50/0.50	2.29/2.38/2.29/2.48	1390/1400/1680/1710
		KN	220/380	60/60	0.93/0.52	3.70/2.20	1680/1680
		CN	220/230/380	50/50/50	0.99/0.98/0.56	3.97/4.15/2.29	1400/1410/1390
		AN	208/230/460/400	60/60/60/50	1.0/1.0/0.50/0.56	4.78/5.16/2.56/2.44	1680/1720/1720/1400
		EN	415/440/480	50/50/60	0.50/0.50/0.45	1.75/1.86/2.00	1370/1400/1700
		MA	575	60	0.40	1.78	1710
	0.4 kW IE2	NN	200/200/220	50/60/60	2.1/1.8/1.8	9.50/8.60/9.60	1400/1680/1700
		WN	380/400/400/440	50/50/60/60	1.0/1.0/0.9/0.9	4.35/4.65/4.30/4.75	1390/1400/1680/1710
		KN	220/380	60/60	1.7/1.0	7.10/4.00	1670/1670
		CN	220/230/380	50/50/50	1.8/1.8/1.0	7.53/7.88/4.35	1390/1400/1390
		AN	208/230/460/400	60/60/60/50	1.8/1.8/0.9/1.0	8.90/9.76/4.73/4.78	1680/1720/1720/1400
		EN	415/440/480	50/50/60	0.96/0.95/0.82	3.96/4.20/4.20	1390/1410/1680
		MA	575	60	0.68	3.51	1700
	0.75 kW IE3	NN	200/200/220	50/60/60	3.2/3.0/2.9	19.1/16.6/18.6	1440/1720/1740
		WN	380/400/400/440	50/50/60/60	1.65/1.60/1.50/1.40	9.00/9.60/8.30/9.30	1430/1440/1730/1740
		KN	220/380	60/60	2.8/1.6	17.9/10.8	1750/1750
CN		220/230/380	50/50/50	2.8/2.7/1.65	15.6/16.3/9.00	1430/1440/1430	
AN		208/230/460/400	60/60/60/50	2.9/2.8/1.4/1.6	18.3/19.6/10.2/10.0	1740/1750/1750/1440	
EN		415/440/480	50/50/60	1.50/1.50/1.35	9.1/9.65/9.70	1440/1450/1750	
MA		575	60	1.10	6.60	1750	
1.5 kW IE3	NN	200/200/220	50/60/60	6.4/6.0/5.7	43.5/36.0/40.3	1450/1740/1750	
	WN	380/400/400/440	50/50/60/60	3.3/3.2/3.0/2.9	21.7/23.1/18.6/20.7	1440/1450/1740/1750	
	KN	220/380	60/60	5.6/3.2	43.2/24.3	1760/1760	
	CN	220/230/380	50/50/50	5.6/5.6/3.3	37.6/39.3/21.7	1450/1460/1440	
	AN	208/230/460/400	60/60/60/50	5.9/5.7/2.9/3.2	42.3/45.3/23.0/24.3	1750/1760/1760/1450	
	EN	415/440/480	50/50/60	3.0/3.0/2.7	19.8/21.0/18.5	1460/1470/1760	
	MA	575	60	2.2	15.3	1760	
2.2 kW IE3	NN	200/200/220	50/60/60	8.8/8.4/7.9	58.5/47.0/52.5	1450/1740/1750	
	WN	380/400/400/440	50/50/60/60	4.5/4.4/4.2/3.9	30.0/32.0/25.0/28.0	1440/1450/1740/1750	
	KN	220/380	60/60	7.8/4.5	56.4/32.3	1760/1760	
	CN	220/230/380	50/50/50	7.9/7.7/4.5	52.0/54.3/30.0	1460/1470/1440	
	AN	208/230/460/400	60/60/60/50	8.3/7.9/4.0/4.5	60.8/65.2/34.8/36.3	1750/1770/1770/1470	
	EN	415/440/480	50/50/60	4.3/4.3/3.8	33.1/35.5/29.8	1460/1470/1770	
	MA	575	60	3.3	24.4	1760	

The rated current in the motor characteristics table is the current data for the motor operating without a gearbox. With regard to gearmotors with a brake, it is necessary to consider the current value flowing through the brake as needed. For more details, please contact your nearest Sales Office or the CS Center.

2-2. Performance Table

[Notes]

- The output shaft speed is the value relative to the synchronous speed of the motor and the reduction ratio.
- The key for the output shaft is not included.
- In the performance table, indicates that the shaft rotates clockwise when viewed from the flange surface side when the connection is made as shown on page 493 (CW). (Refer to the figure on the right)
- Allowable output shaft O.H.L. is the value at 20 mm from the end of the output shaft.
- The “**” mark indicates a limited torque type. Please make sure to check the allowable output shaft torque in the performance table.



Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings	
				r/min		N·m					
				50 Hz	60 Hz	50 Hz	60 Hz				
3-Phase 0.1 kW	25	1/10	1/10	150	180	5.2	4.3	1520	382	P.348	
		1/12.5	2/25	120	144	6.5	5.4	1620	402		
		1/15	1/15	100	120	7.7	6.5	1720	431		
		1/20	1/20	75	90	11	8.6	1860	471		
		1/25	19/470	60	72	13	11	2010	500		
		1/30	1/30	50	60	16	13	2110	530		
		1/40	1/40	37.5	45	21	18	2300	579		
		1/50	1/50	30	36	25	22	2450	618		
		1/60	1/60	25	30	31	25	2550	637		
		1/80	1/80	18.8	22.5	39	32	2550	637		
		1/100	19/1880	15	18	49	41	2550	637		
		1/120	1/120	12.5	15	59	49	2550	637		
	1/160	1/160	9.4	11.3	78	66	2550	637			
	1/200	1/200	7.5	9	98	81	2550	637			
	* 1/240	1/240	6.3	7.5	101	98	2550	637			
	1/300	7/2040	5	6	131	110	3140	785	P.349		
	1/375	133/47940	4	4.8	165	137	3140	785			
	1/450	7/3060	3.3	4	198	165	3140	785			
	35	35	1/600	7/4240	2.5	3	248	207	3630	912	P.350
			1/750	133/99640	2	2.4	311	259	3630	912	
1/900			7/6360	1.7	2	372	311	3630	912		
* 1/1200			7/8480	1.3	1.5	372	372	3630	912		
* 1/1500			7/10600	1	1.2	372	372	3630	912		
3-Phase 0.2 kW	30	1/5	1/5	300	360	5.5	4.6	1520	382	P.349	
		1/7.5	2/15	200	240	8.3	7	1760	441		
		1/10	1/10	150	180	11	9.2	1910	481		
		1/12.5	19/235	120	144	14	12	2060	520		
		1/15	1/15	100	120	17	14	2160	539		
		1/20	1/20	75	90	23	19	2400	598		
		1/25	1/25	60	72	27	24	2550	637		
		1/30	1/30	50	60	33	27	2650	667		
		1/40	1/40	37.5	45	44	37	2840	716		
		1/50	1/50	30	36	55	46	2990	745		
		1/60	1/60	25	30	67	55	3090	775		
		1/80	1/80	18.8	22.5	84	71	3090	775		
		1/100	19/1880	15	18	105	87	3140	785		
		1/120	1/120	12.5	15	126	105	3140	785		
		1/160	1/160	9.4	11.3	169	140	3140	785		
		* 1/200	1/200	7.5	9	184	175	3140	785		
		* 1/240	1/240	6.3	7.5	184	184	3140	785		
		1/300	7/2120	5	6	282	235	3630	912		P.350
	1/375	133/49820	4	4.8	353	294	3630	912			
	* 1/450	7/3180	3.3	4	372	353	3630	912			
	45	45	1/600	7/4240	2.5	3	534	446	5190	1275	P.351
			1/750	133/99640	2	2.4	668	557	5190	1275	
			* 1/900	7/6360	1.7	2	713	668	5190	1275	
			* 1/1200	7/8480	1.3	1.5	713	713	5190	1275	
			* 1/1500	7/10600	1	1.2	713	713	5190	1275	

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings	
				r/min		N-m					
				50 Hz	60 Hz	50 Hz	60 Hz				N
3-Phase 0.4 kW	35	1/5	1/5	300	360	11	9.2	1960	490	P.350	
		1/7.5	2/15	200	240	17	14	2250	569		
		1/10	1/10	150	180	23	19	2450	618		
		1/12.5	19/235	120	144	27	24	2600	647		
		1/15	1/15	100	120	33	27	2740	686		
		1/20	1/20	75	90	44	37	2990	745		
		1/25	1/25	60	72	55	46	3190	794		
		1/30	1/30	50	60	67	55	3280	824		
		1/40	1/40	37.5	45	88	74	3480	873		
		1/50	1/50	30	36	111	92	3480	873		
		1/60	1/60	25	30	133	111	3480	873		
		1/80	1/80	18.8	22.5	169	140	3480	873		
		1/100	19/1880	15	18	211	175	3530	883		
		1/120	1/120	12.5	15	253	211	3530	883		
	* 1/160	1/160	9.4	11.3	270	270	3630	912			
	* 1/200	1/200	7.5	9	270	270	3630	912			
	* /240	1/240	6.3	7.5	270	270	3630	912			
	45	1/300	7/2080	5	6	565	471	5190	1275	P.351	
		1/375	133/48880	4	4.8	707	589	5190	1275		
		* 1/450	7/3120	3.3	4	713	707	5190	1275		
		55	* 1/600	49/28600	2.5	3	1030	891	9800	2452	P.352
			* 1/750	11/8320	2	2.4	1030	1030	9800	2452	
			* 1/900	7/6136	1.7	2	1030	1030	9800	2452	
	* 1/1200		49/57200	1.3	1.5	1030	1030	9800	2452		
	* 1/1500		11/16640	1	1.2	1030	1030	9800	2452		
	3-Phase 0.75 kW	45	1/5	1/5	300	360	21	18	2940	735	P.351
			1/7.5	2/15	200	240	31	25	3330	834	
			1/10	1/10	150	180	41	34	3630	912	
1/12.5			19/235	120	144	52	43	3920	980		
1/15			1/15	100	120	63	52	4070	1030		
1/20			1/20	75	90	83	70	4460	1079		
1/25			1/25	60	72	104	86	4700	1177		
1/30			1/30	50	60	124	104	4750	1177		
1/40			1/40	37.5	45	166	138	4750	1177		
1/50			1/50	30	36	208	173	4750	1177		
1/60			1/60	25	30	249	208	4750	1177		
1/80			1/80	18.8	22.5	316	263	4750	1177		
1/100			19/1880	15	18	395	328	4750	1177		
1/120			1/120	12.5	15	473	395	4750	1177		
* 1/160		1/160	9.4	11.3	554	526	5190	1275			
* 1/200		1/200	7.5	9	554	554	5190	1275			
* 1/240		1/240	6.3	7.5	554	554	5190	1275			
55		* 1/300	7/2120	5	6	1030	883	9800	2452	P.352	
		* 1/375	1/371	4	4.8	1030	1030	9800	2452		
		* 1/450	7/3180	3.3	4	1030	1030	9800	2452		

Note 1: Please be sure to read the notes on page 345.

2-2. Performance Table

Motor Power	Frame Size	Reduction Ratio	Actual Reduction Ratio	Output Shaft Speed		Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
				r/min		N-m				
				50 Hz	60 Hz	50 Hz	60 Hz			
3-Phase 1.5 kW	55	1/5	1/5	300	360	41	34	4700	1177	P.352
		1/7.5	2/15	200	240	63	52	5340	1324	
		1/10	1/10	150	180	83	70	5780	1422	
		1/12.5	4/49	120	144	104	86	6130	1520	
		1/15	1/15	100	120	124	104	6320	1569	
		1/20	14/275	75	90	166	138	6320	1569	
		1/25	11/280	60	72	208	173	6320	1569	
		1/30	2/59	50	60	249	208	6320	1569	
		1/40	1/40	37.5	45	332	276	6320	1569	
		1/50	1/49	30	36	416	345	6320	1569	
		1/60	1/60	25	30	498	416	6320	1569	
		1/80	7/550	18.8	22.5	631	526	6420	1618	
		1/100	11/1120	15	18	789	658	6420	1618	
		1/120	1/118	12.5	15	947	789	7500	1863	
3-Phase 2.2 kW	55	1/5	1/5	300	360	61	51	4700	1177	P.352
		1/7.5	2/15	200	240	91	76	5340	1324	
		1/10	1/10	150	180	122	102	5780	1422	
		1/12.5	4/49	120	144	152	126	6130	1520	
		1/15	1/15	100	120	182	152	6320	1569	
		1/20	14/275	75	90	244	203	6320	1569	
		1/25	11/280	60	72	305	254	6320	1569	
		1/30	2/59	50	60	366	305	6320	1569	
		1/40	1/40	37.5	45	487	406	6320	1569	
		1/50	1/49	30	36	609	508	6320	1569	
		1/60	1/60	25	30	731	609	6320	1569	
		1/80	7/550	18.8	22.5	926	771	6420	1618	
		* 1/100	11/1120	15	18	1030	964	6420	1618	
		* 1/120	1/118	12.5	15	1030	1030	7500	1863	

Note 1: Please be sure to read the notes on page 345.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

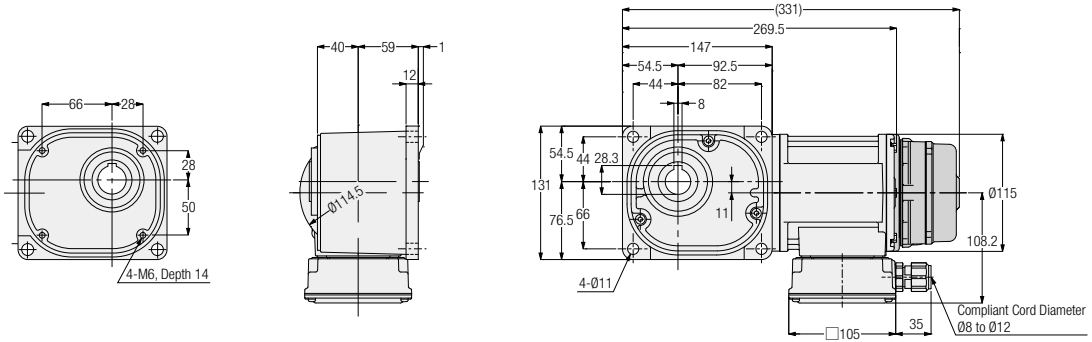
Technical Documentation

2-3. Drawings

FS Type Right Angle Hollow Bore Shaft Diameter **25** Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>



Number of Phases	Power	Output Shaft: Stainless Steel	Output Shaft: Carbon Steel	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
3-Phase	0.1 kW	FS25S***-WM01T◇◇EN	FS25N***-WM01T◇◇EN	10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	No	7.5
		FS25S***-WM01T◇◇EV◆	FS25N***-WM01T◇◇EV◆			Yes	9

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆.
 Note: When the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 345 for the performance table.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

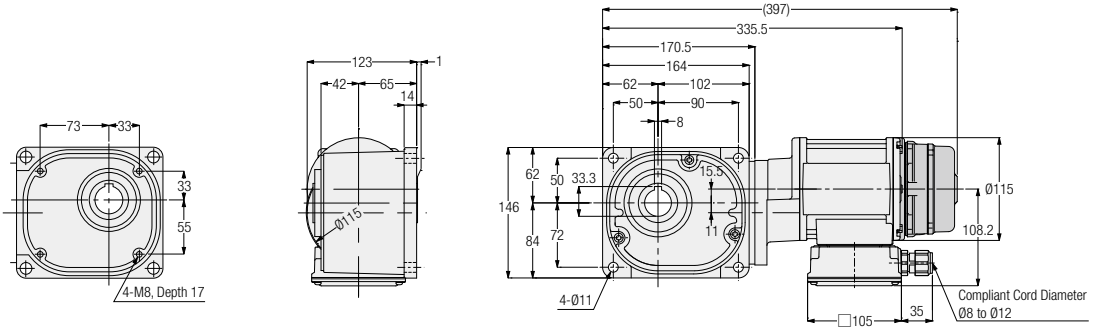
F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

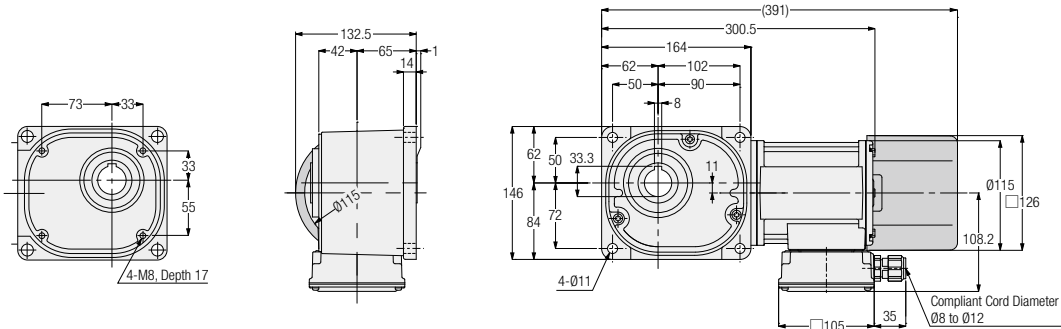
FS Type Right Angle Hollow Bore Shaft Diameter **30** Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>



<Figure 2>



Number of Phases	Power	Output Shaft: Stainless Steel	Output Shaft: Carbon Steel	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
3-Phase	0.1 kW	FS30S***-WM01T◇◇EN	FS30N***-WM01T◇◇EN	300, 375, 450	1	No	11.5
		FS30S***-WM01T◇◇EV◆	FS30N***-WM01T◇◇EV◆			Yes	13
	0.2 kW	FS30S***-WM02T◇◇EN	FS30N***-WM02T◇◇EN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	No	9.5
		FS30S***-WM02T◇◇EV◆	FS30N***-WM02T◇◇EV◆			Yes	11

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆. Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

Note: Please refer to page 870 for the details of the output shaft dimensions.

Note: Please refer to page 345 for the performance table.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

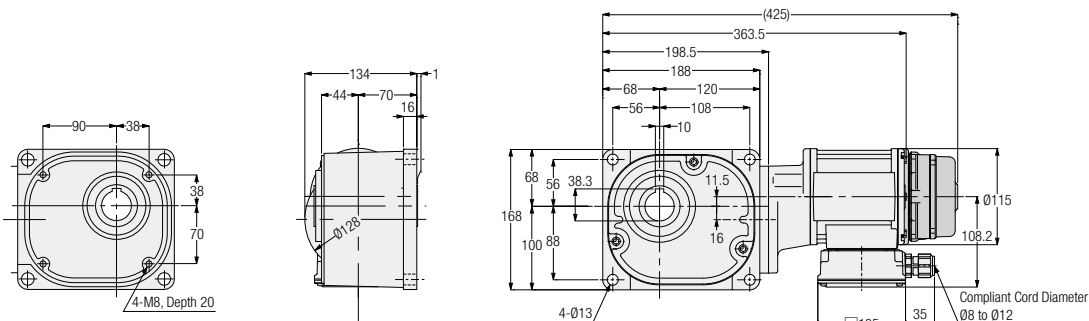
F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

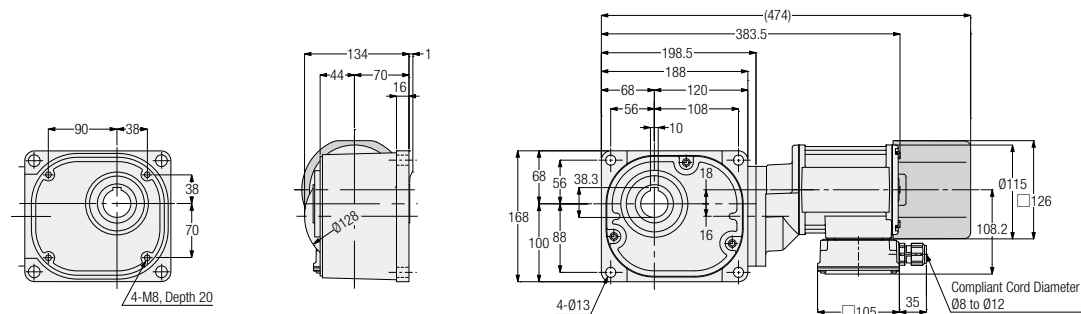
FS Type Right Angle Hollow Bore Shaft Diameter 35 Flange Mounting

The values in parenthesis are those for gearmotors with brake.

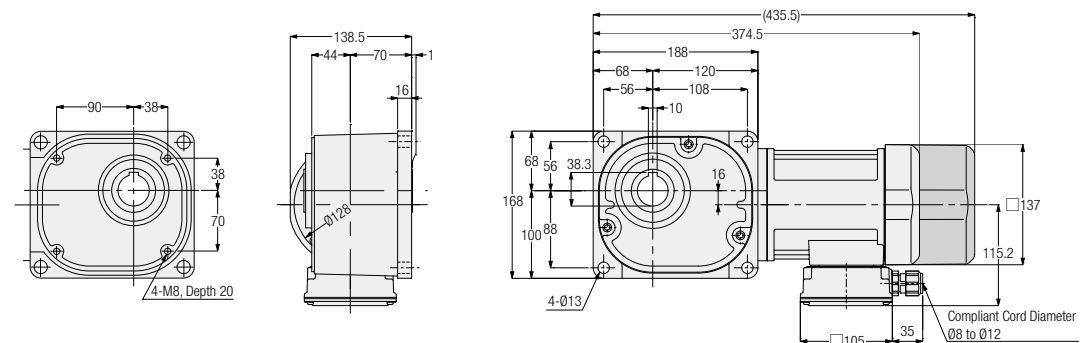
<Figure 1>



<Figure 2>



<Figure 3>



Number of Phases	Power	Output Shaft: Stainless Steel	Output Shaft: Carbon Steel	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
3-Phase	0.1 kW	FS35S***-WM01T◇◇EN	FS35N***-WM01T◇◇EN	600, 750, 900, 1200, 1500	1	No	13.5
		FS35S***-WM01T◇◇EV◆	FS35N***-WM01T◇◇EV◆			Yes	15
	0.2 kW	FS35S***-WM02T◇◇EN	FS35N***-WM02T◇◇EN	300, 375, 450	2	No	14.5
		FS35S***-WM02T◇◇EV◆	FS35N***-WM02T◇◇EV◆			Yes	16
	0.4 kW	FS35S***-WM04T◇◇EN	FS35N***-WM04T◇◇EN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	3	No	14
		FS35S***-WM04T◇◇EV◆	FS35N***-WM04T◇◇EV◆			Yes	16

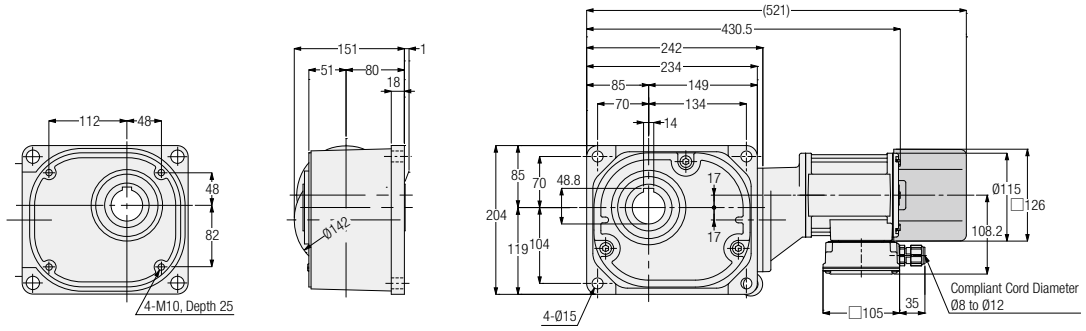
Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆. Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 345 for the performance table.

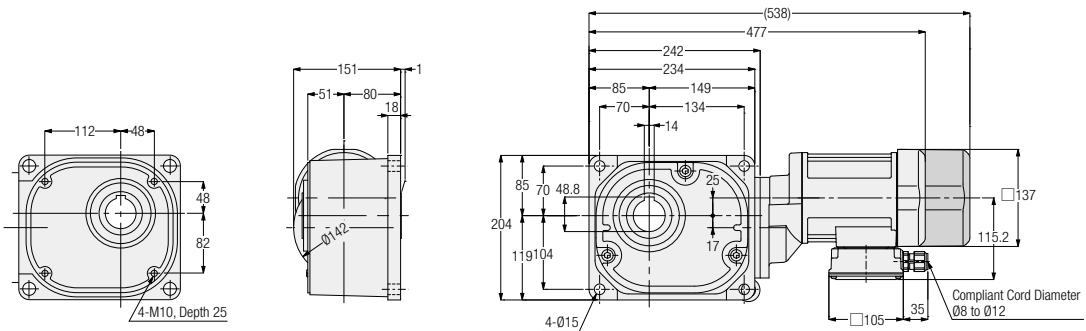
FS Type Right Angle Hollow Bore Shaft Diameter 45 Flange Mounting

The values in parenthesis are those for gearmotors with brake.

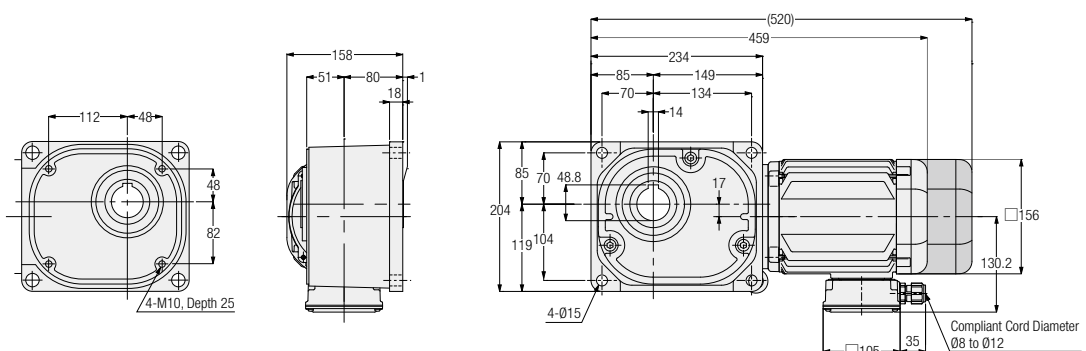
<Figure 1>



<Figure 2>



<Figure 3>



Number of Phases	Power	Output Shaft: Stainless Steel	Output Shaft: Carbon Steel	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)
3-Phase	0.2 kW	FS45S***-WM02T◇◇EN	FS45N***-WM02T◇◇EN	600, 750, 900, 1200, 1500	1	No	20
		FS45S***-WM02T◇◇EV◆	FS45N***-WM02T◇◇EV◆			Yes	21.5
	0.4 kW	FS45S***-WM04T◇◇EN	FS45N***-WM04T◇◇EN	300, 375, 450	2	No	22.5
		FS45S***-WM04T◇◇EV◆	FS45N***-WM04T◇◇EV◆			Yes	24
	0.75 kW	FS45S***-WD08T◇◇EN	FS45N***-WD08T◇◇EN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	3	No	27.5
		FS45S***-WD08T◇◇EV◆	FS45N***-WD08T◇◇EV◆			Yes	30.5

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆. Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 345 for the performance table.

G/G3 Type Parallel Shaft

H/H2 Type Right Angle Shaft

F Type Right Angle Hollow Bore/Right Angle Shaft

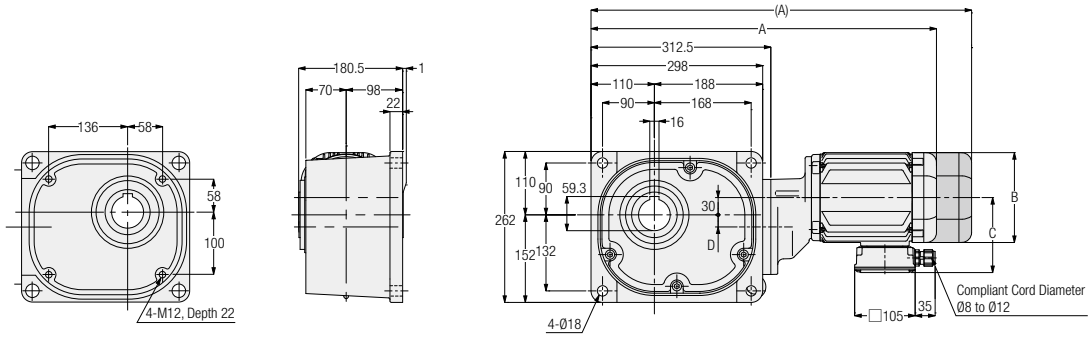
F2/F3 Type Concentric Right Angle Hollow Bore/Concentric Right Angle Shaft

Technical Documentation

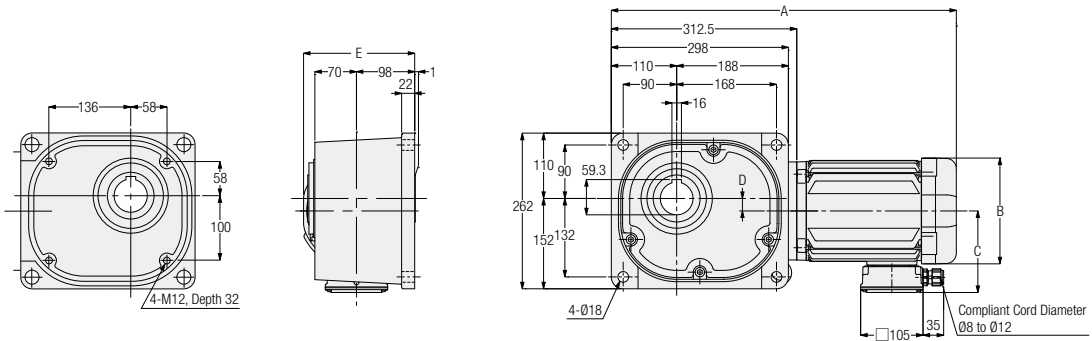
FS Type Right Angle Hollow Bore Shaft Diameter **55** Flange Mounting

The values in parenthesis are those for gearmotors with brake.

<Figure 1>



<Figure 2>



Number of Phases	Power	Output Shaft: Stainless Steel	Output Shaft: Carbon Steel	Reduction Ratio	Figure Number	Brake	Approx. Weight (kg)	A	B	C	D	E
3-Phase	0.4 kW	FS55S***-WM04T◇◇EN	FS55N***-WM04T◇◇EN	600, 750, 900, 1200, 1500	1	No	60.5	547.5	□137	115.2	21	-
		FS55S***-WM04T◇◇EV◆	FS55N***-WM04T◇◇EV◆			Yes	62	608.5	□137	115.2	21	-
	0.75 kW	FS55S***-WD08T◇◇EN	FS55N***-WD08T◇◇EN	300, 375, 450	1	No	68.5	600	□156	130.2	30	-
		FS55S***-WD08T◇◇EV◆	FS55N***-WD08T◇◇EV◆			Yes	71	661	□156	130.2	30	-
	1.5 kW	FS55S***-WD15T◇◇EN	FS55N***-WD15T◇◇EN	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	No	74.5	581	□178	137.2	21	187
	2.2 kW	FS55S***-WD22T◇◇EN	FS55N***-WD22T◇◇EN			No	85	614.5	□192	147.2	21	194

Note: The reduction ratio will be indicated as *** in the nomenclature. Supply voltage/certification codes are indicated as ◇◇ and brake specification is indicated as ◆. Note: When the reduction ratio is 7.5, "7" will be indicated as *** in the nomenclature, and when the reduction ratio is 12.5, "12" will be indicated as *** in the nomenclature.

Note: There are no gearmotors with motor power of 1.5 kW and 2.2 kW that have a brake.

Note: Please refer to page 870 for the details of the output shaft dimensions.

Note: Please refer to page 346 for the performance table.

G/G3 Type Parallel Shaft

H/H2 Type Right Angle Shaft

F Type Right Angle Hollow Bore/ Right Angle Shaft

F2/F3 Type Concentric Right Angle Hollow Bore/ Concentric Right Angle Shaft

Technical Documentation

MEMO

Technical Documentation	F2/F3 Type Concentric Right-Angle Hollow Bore/ Concentric Right Angle Shaft	F Type Right Angle Hollow Bore/ Right Angle Shaft	H/H2 Type Right Angle Shaft	G/G3 Type Parallel Shaft
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3. Reducers (Double Shaft Type)

3-1. Performance Table

[Notes]

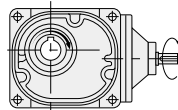
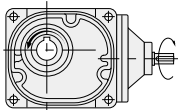
- The motor power value is based on usage of 4 poles motor.
- When using an output shaft for a motor other than a 4 poles motor, the allowable output shaft torque value is calculated by multiplying the torque by the torque correction coefficient as shown on page 566.
- Allowable output shaft O.H.L. is the value at 20 mm from the end of the output shaft.
- Please refer to below figure for the rotational direction of the output shaft.
- The “*” mark indicates a limited torque type. Please make sure to check the allowable output shaft torque in the performance table.
- The key for the output shaft is not included.

■ Rotational Direction Relationship (When Viewed from the Flange Surface Side)

The rotational direction shown Below with arrow illustrates the rotation relationship between the output shaft / input and is no way illustrating limitations in rotational direction.

Type	Power	Reduction Ratio
Right Angle Hollow Bore/FS Type	0.1 kW to 0.75 kW	1/5 to 1/60
	1.5 kW to 2.2 kW	1/5 to 1/30

Type	Power	Reduction Ratio
Right Angle Hollow Bore/FS Type	0.1 kW to 0.75 kW	1/80 to 1/240
	1.5 kW to 2.2 kW	1/40 to 1/240



4 Poles Motor Power Class	Frame Size	Reduction Ratio	Actual Reduction Ratio	Allowable Output Shaft Torque Input (1500 r/min)	Allowable O.H.L.		Allowable Output Shaft Thrust Load	Drawings
					N			
					Input Shaft	Output Shaft		
0.1 kW	25	1/10	1/10	5.2	196	1520	382	P.356
		1/12.5	2/25	6.5		1620	402	
		1/15	1/15	7.7		1720	431	
		1/20	1/20	11		1860	471	
		1/25	19/470	13		2010	500	
		1/30	1/30	16		2110	530	
		1/40	1/40	21		2300	579	
		1/50	1/50	25		2450	618	
		1/60	1/60	31		2550	637	
		1/80	1/80	39		2550	637	
		1/100	19/1880	49		2550	637	
		1/120	1/120	59		2550	637	
		1/160	1/160	78		2550	637	
		1/200	1/200	98		2550	637	
* 1/240	1/240	101	2550	637				
0.2 kW	30	1/5	1/5	5.5	245	1520	382	P.356
		1/7.5	2/15	8.3		1760	441	
		1/10	1/10	11		1910	481	
		1/12.5	19/235	14		2060	520	
		1/15	1/15	17		2160	539	
		1/20	1/20	23		2400	598	
		1/25	1/25	27		2550	637	
		1/30	1/30	33		2650	667	
		1/40	1/40	44		2840	716	
		1/50	1/50	55		2990	745	
		1/60	1/60	67		3090	775	
		1/80	1/80	84		3090	775	
		1/100	19/1880	105		3140	785	
		1/120	1/120	126		3140	785	
		1/160	1/160	169		3140	785	
		* 1/200	1/200	184		3140	785	
		* 1/240	1/240	184		3140	785	

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

3-1. Performance Table

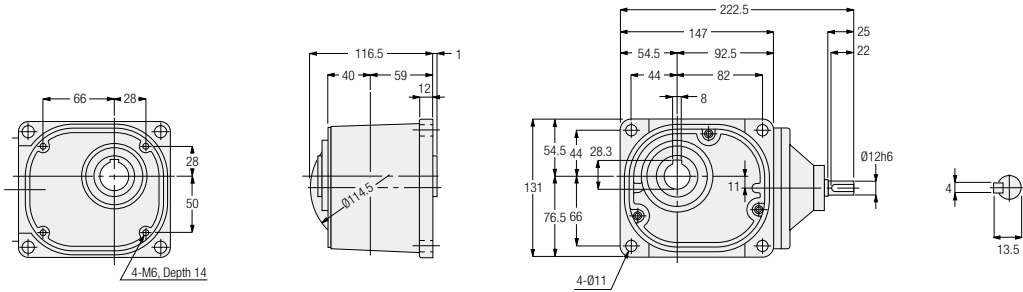
4 Poles Motor Power Class	Frame Size	Reduction Ratio	Actual Reduction Ratio	Allowable Output Shaft Torque Input (1500 r/min)	Allowable O.H.L.		Allowable Output Shaft Thrust Load	Drawings
					N			
				N-m	Input Shaft	Output Shaft	N	
0.4 kW	35	1/5	1/5	11	294	1960	490	P.357
		1/7.5	2/15	17		2250	569	
		1/10	1/10	23		2450	618	
		1/12.5	19/235	27		2600	647	
		1/15	1/15	33		2740	686	
		1/20	1/20	44		2990	745	
		1/25	1/25	55		3190	794	
		1/30	1/30	67		3280	824	
		1/40	1/40	88		3480	873	
		1/50	1/50	111		3480	873	
		1/60	1/60	133		3480	873	
		1/80	1/80	169		3480	873	
		1/100	19/1880	211		3530	883	
		1/120	1/120	253		3530	883	
		* 1/160	1/160	270		3630	912	
		* 1/200	1/200	270		3630	912	
* 1/240	1/240	270	3630	912				
0.75 kW	45	1/5	1/5	21	392	2940	735	P.357
		1/7.5	2/15	31		3330	834	
		1/10	1/10	41		3630	912	
		1/12.5	19/235	52		3920	980	
		1/15	1/15	63		4070	1030	
		1/20	1/20	83		4460	1079	
		1/25	1/25	104		4700	1177	
		1/30	1/30	124		4750	1177	
		1/40	1/40	166		4750	1177	
		1/50	1/50	208		4750	1177	
		1/60	1/60	249		4750	1177	
		1/80	1/80	316		4750	1177	
		1/100	19/1880	395		4750	1177	
		1/120	1/120	473		4750	1177	
		* 1/160	1/160	554		5190	1275	
		* 1/200	1/200	554		5190	1275	
* 1/240	1/240	554	5190	1275				
1.5 kW	55	1/5	1/5	41	392	4700	1177	P.358
		1/7.5	2/15	63		5340	1324	
		1/10	1/10	83		5780	1422	
		1/12.5	4/49	104		6130	1520	
		1/15	1/15	124		6320	1569	
		1/20	14/275	166		6320	1569	
		1/25	11/280	208		6320	1569	
		1/30	2/59	249		6320	1569	
		1/40	1/40	332		6320	1569	
		1/50	1/49	416		6320	1569	
		1/60	1/60	498		6320	1569	
		1/80	7/550	631		6420	1618	
		1/100	11/1120	789		6420	1618	
		1/120	1/118	947		7500	1863	
		* 1/160	7/1100	1030		8330	2059	
		* 1/200	11/2240	1030		9020	2256	
* 1/240	1/236	1030	9800	2452				
2.2 kW	55	1/5	1/5	61	392	4700	1177	P.358
		1/7.5	2/15	91		5340	1324	
		1/10	1/10	122		5780	1422	
		1/12.5	4/49	152		6130	1520	
		1/15	1/15	182		6320	1569	
		1/20	14/275	244		6320	1569	
		1/25	11/280	305		6320	1569	
		1/30	2/59	366		6320	1569	
		1/40	1/40	487		6320	1569	
		1/50	1/49	609		6320	1569	
		1/60	1/60	731		6320	1569	
		1/80	7/550	926		6420	1618	
		* 1/100	11/1120	1030		6420	1618	
		* 1/120	1/118	1030		7500	1863	

G/G3 Type Parallel Shaft
H/H2 Type Right Angle Shaft
F Type Right Angle Hollow Bore/ Right Angle Shaft
F2/F3 Type Concentric Right Angle Hollow Bore/ Concentric Right Angle Shaft
Technical Documentation

3-2. Drawings

FS Type Right Angle Hollow Bore Shaft Diameter 25 Flange Mounting

<Figure 1>

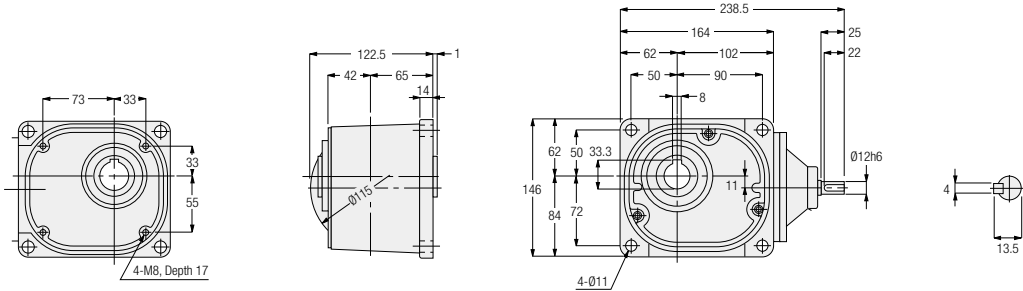


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)
0.1 kW	FS-25-***-010	10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	5

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 354 for the performance table.

FS Type Right Angle Hollow Bore Shaft Diameter 30 Flange Mounting

<Figure 2>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)
0.2 kW	FS-30-***-020	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	7

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 354 for the performance table.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

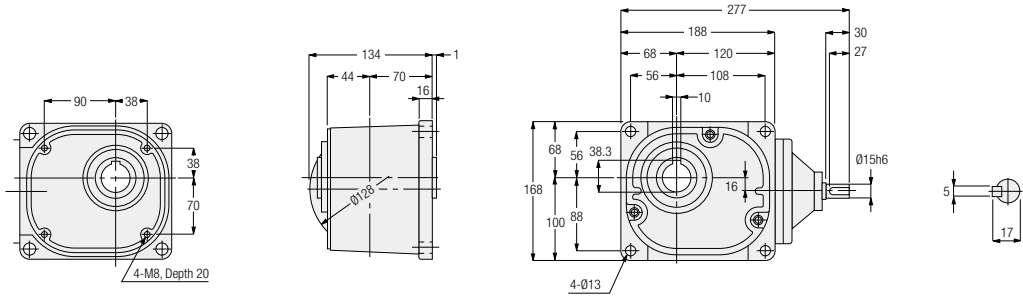
F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

FS Type Right Angle Hollow Bore Shaft Diameter **35** Flange Mounting

<Figure 1>

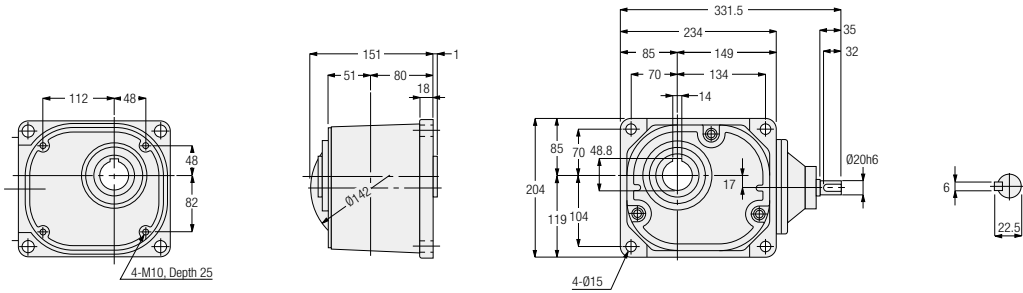


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)
0.4 kW	FS-35-***-040	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	9

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 355 for the performance table.

FS Type Right Angle Hollow Bore Shaft Diameter **45** Flange Mounting

<Figure 2>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)
0.75 kW	FS-45-***-075	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	15

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 355 for the performance table.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

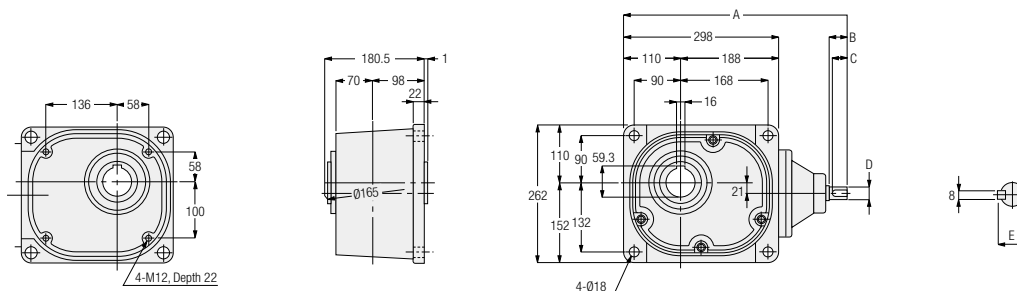
F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

FS Type Right Angle Hollow Bore Shaft Diameter **55** Flange Mounting

<Figure 1>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)	A	B	C	D	E
1.5 kW	FS-55-***-150	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	54	429	40	35	∅25h6	28
2.2 kW	FS-55-***-220	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120	1	55	441	45	40	∅30h6	33

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 355 for the performance table.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

MEMO

Technical Documentation

F2/F3 Type
Concentric Right-Angle Hollow Bore/
Concentric Right Angle Shaft

F Type
Right-Angle Hollow Bore/
Right Angle Shaft

H/H2 Type
Right Angle Shaft

G/G3 Type
Parallel Shaft

4. S-Type Reducers (Type Which Can Be Equipped With Designated Motor)

4-1. Performance Table

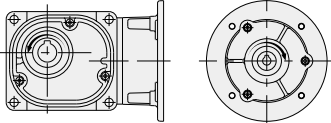
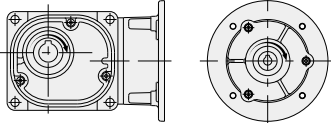
[Notes]

- The value of the allowable output shaft torque is the value when a 4 poles motor is used.
- When using an output shaft for a motor other than a 4 poles motor, the allowable output shaft torque value is calculated by multiplying the torque by the torque correction coefficient as shown on page 566 .
- The key for the output shaft is not included.
- Allowable output shaft O.H.L. is the value at 20 mm from the end of the output shaft.
- Please refer to below figure for the rotational direction of the output shaft.
- The “*” mark indicates a limited torque type. Please make sure to check the allowable output shaft torque in the performance table.

■ Rotational Direction Relationship (When Viewed from the Flange Surface Side)

The rotational direction shown Below with arrow illustrates the rotation relationship between the output shaft / input and is no way illustrating limitations in rotational direction.

Type	Power	Reduction Ratio	Type	Power	Reduction Ratio
Right Angle Hollow Bore/FS Type	0.1 kW to 0.75 kW	1/5 to 1/60	Right Angle Hollow Bore/FS Type	0.1 kW to 0.75 kW	1/80 to 1/240
	1.5 kW to 2.2 kW	1/5 to 1/30		1.5 kW to 2.2 kW	1/40 to 1/240

4 Poles Motor Power Class	Frame Size	Reduction Ratio	Actual Reduction Ratio	Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
				N·m				
				50 Hz	60 Hz	N	N	
0.1 kW	25	1/10	1/10	5.2	4.3	1520	382	P.362
		1/12.5	2/25	6.5	5.4	1620	402	
		1/15	1/15	7.7	6.5	1720	431	
		1/20	1/20	11	8.6	1860	471	
		1/25	19/470	13	11	2010	500	
		1/30	1/30	16	13	2110	530	
		1/40	1/40	21	18	2300	579	
		1/50	1/50	25	22	2450	618	
		1/60	1/60	31	25	2550	637	
		1/80	1/80	39	32	2550	637	
		1/100	19/1880	49	41	2550	637	
		1/120	1/120	59	49	2550	637	
		1/160	1/160	78	66	2550	637	
		1/200	1/200	98	81	2550	637	
* 1/240	1/240	101	98	2550	637			
0.2 kW	30	1/5	1/5	5.5	4.6	1520	382	P.362
		1/7.5	2/15	8.3	7	1760	441	
		1/10	1/10	11	9.2	1910	481	
		1/12.5	19/235	14	12	2060	520	
		1/15	1/15	17	14	2160	539	
		1/20	1/20	23	19	2400	598	
		1/25	1/25	27	24	2550	637	
		1/30	1/30	33	27	2650	667	
		1/40	1/40	44	37	2840	716	
		1/50	1/50	55	46	2990	745	
		1/60	1/60	67	55	3090	775	
		1/80	1/80	84	71	3090	775	
		1/100	19/1880	105	87	3140	785	
		1/120	1/120	126	105	3140	785	
		1/160	1/160	169	140	3140	785	
		* 1/200	1/200	184	175	3140	785	
		* 1/240	1/240	184	184	3140	785	

4-1. Performance Table

4 Poles Motor Power Class	Frame Size	Reduction Ratio	Actual Reduction Ratio	Allowable Output Shaft Torque		Allowable Output Shaft O.H.L.	Allowable Output Shaft Thrust Load	Drawings
				N-m				
				50 Hz	60 Hz	N	N	
0.4 kW	35	1/5	1/5	11	9.2	1960	490	P.363
		1/7.5	2/15	17	14	2250	569	
		1/10	1/10	23	19	2450	618	
		1/12.5	19/235	27	24	2600	647	
		1/15	1/15	33	27	2740	686	
		1/20	1/20	44	37	2990	745	
		1/25	1/25	55	46	3190	794	
		1/30	1/30	67	55	3280	824	
		1/40	1/40	88	74	3480	873	
		1/50	1/50	111	92	3480	873	
		1/60	1/60	133	111	3480	873	
		1/80	1/80	169	140	3480	873	
		1/100	19/1880	211	175	3530	883	
		1/120	1/120	253	211	3530	883	
		* 1/160	1/160	270	270	3630	912	
		* 1/200	1/200	270	270	3630	912	
* 1/240	1/240	270	270	3630	912			
0.75 kW	45	1/5	1/5	21	18	2940	735	P.363
		1/7.5	2/15	31	25	3330	834	
		1/10	1/10	41	34	3630	912	
		1/12.5	19/235	52	43	3920	980	
		1/15	1/15	63	52	4070	1030	
		1/20	1/20	83	70	4460	1079	
		1/25	1/25	104	86	4700	1177	
		1/30	1/30	124	104	4750	1177	
		1/40	1/40	166	138	4750	1177	
		1/50	1/50	208	173	4750	1177	
		1/60	1/60	249	208	4750	1177	
		1/80	1/80	316	263	4750	1177	
		1/100	19/1880	395	328	4750	1177	
		1/120	1/120	473	395	4750	1177	
		* 1/160	1/160	554	526	5190	1275	
		* 1/200	1/200	554	554	5190	1275	
* 1/240	1/240	554	554	5190	1275			
1.5 kW	55	1/5	1/5	41	34	4700	1177	P.364
		1/7.5	2/15	63	52	5340	1324	
		1/10	1/10	83	70	5780	1422	
		1/12.5	4/49	104	86	6130	1520	
		1/15	1/15	124	104	6320	1569	
		1/20	14/275	166	138	6320	1569	
		1/25	11/280	208	173	6320	1569	
		1/30	2/59	249	208	6320	1569	
		1/40	1/40	332	276	6320	1569	
		1/50	1/49	416	345	6320	1569	
		1/60	1/60	498	416	6320	1569	
		1/80	7/550	631	526	6420	1618	
		1/100	11/1120	789	658	6420	1618	
		1/120	1/118	947	789	7500	1863	
		* 1/160	7/1100	1030	1030	8330	2059	
		* 1/200	11/2240	1030	1030	9020	2256	
* 1/240	1/236	1030	1030	9800	2452			
2.2 kW	55	1/5	1/5	61	51	4700	1177	P.364
		1/7.5	2/15	91	76	5340	1324	
		1/10	1/10	122	102	5780	1422	
		1/12.5	4/49	152	126	6130	1520	
		1/15	1/15	182	152	6320	1569	
		1/20	14/275	244	203	6320	1569	
		1/25	11/280	305	254	6320	1569	
		1/30	2/59	366	305	6320	1569	
		1/40	1/40	487	406	6320	1569	
		1/50	1/49	609	508	6320	1569	
		1/60	1/60	731	609	6320	1569	
		1/80	7/550	926	771	6420	1618	
		* 1/100	11/1120	1030	964	6420	1618	
		* 1/120	1/118	1030	1030	7500	1863	

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

F Type
Right Angle Hollow Bore/
Right Angle Shaft

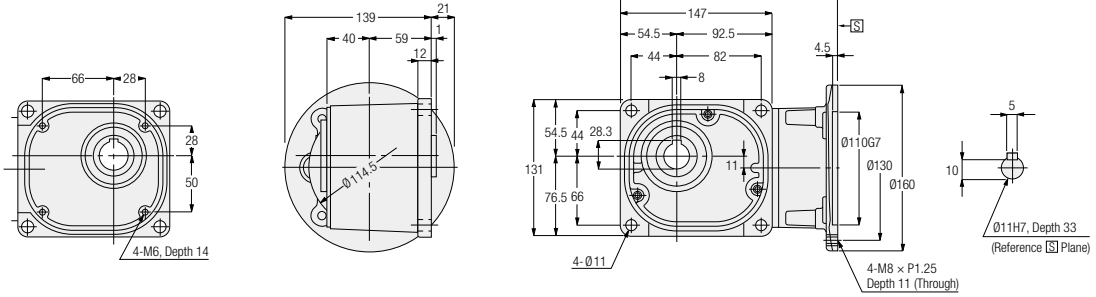
F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

4-2. Drawings

FS Type Right Angle Hollow Bore Shaft Diameter **25** Flange Mounting

<Figure 1>

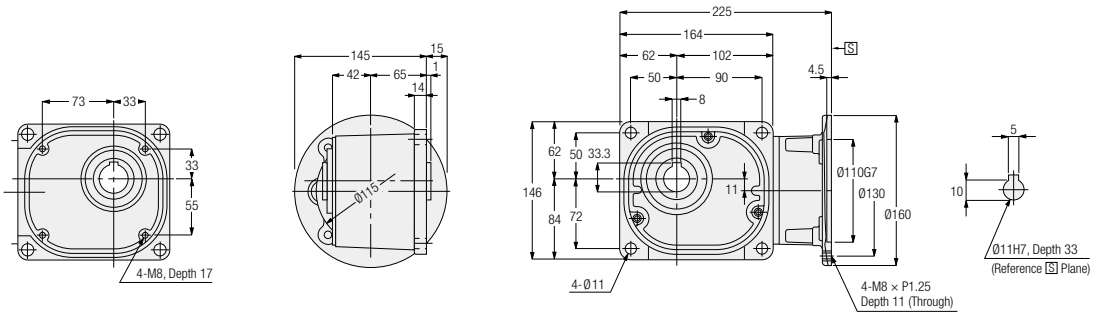


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)
0.1 kW	FSS-25-***-010	10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	5.5

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 360 for the performance table.
 Note: Please refer to page 570 for the details of the motor mounting area.

FS Type Right Angle Hollow Bore Shaft Diameter **30** Flange Mounting

<Figure 2>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)
0.2 kW	FSS-30-***-020	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	7.5

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 360 for the performance table.
 Note: Please refer to page 570 for the details of the motor mounting area.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

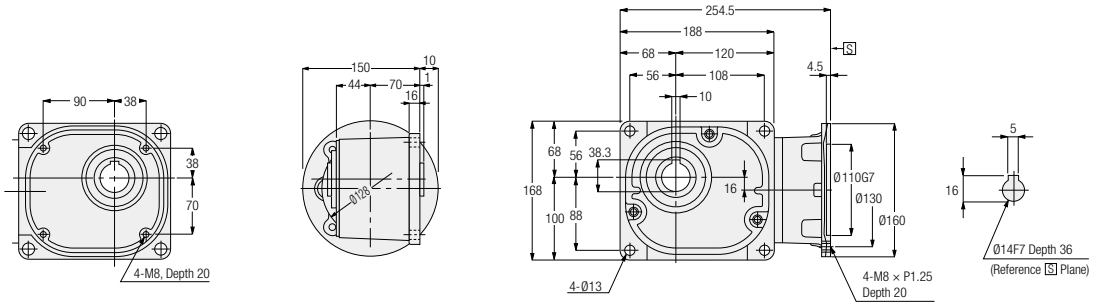
F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

Technical Documentation

FS Type Right Angle Hollow Bore Shaft Diameter **35** Flange Mounting

<Figure 1>

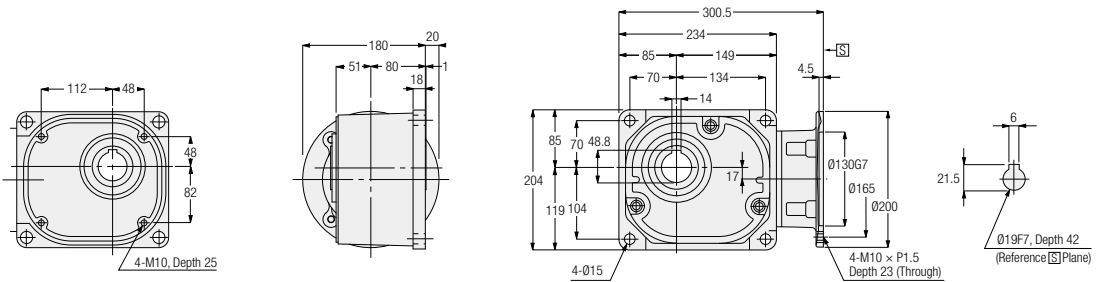


Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)
0.4 kW	FSS-35-***-040	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	10

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 361 for the performance table.
 Note: Please refer to page 570 for the details of the motor mounting area.

FS Type Right Angle Hollow Bore Shaft Diameter **45** Flange Mounting

<Figure 2>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)
0.75 kW	FSS-45-***-075	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	2	16

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 361 for the performance table.
 Note: Please refer to page 570 for the details of the motor mounting area.

G/G3 Type
Parallel Shaft

H/H2 Type
Right Angle Shaft

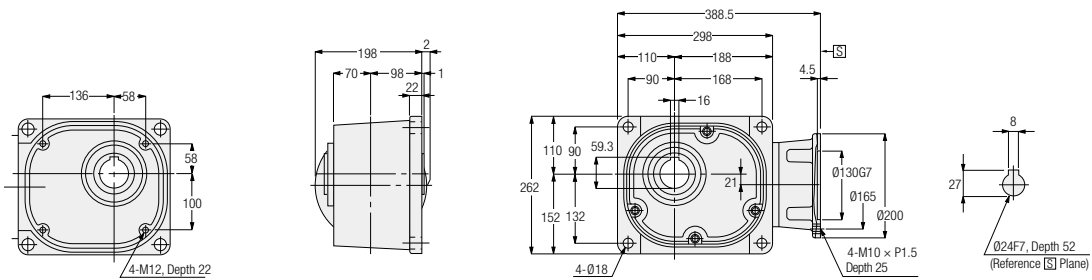
F Type
Right Angle Hollow Bore/
Right Angle Shaft

F2/F3 Type
Concentric Right Angle Hollow Bore/
Concentric Right Angle Shaft

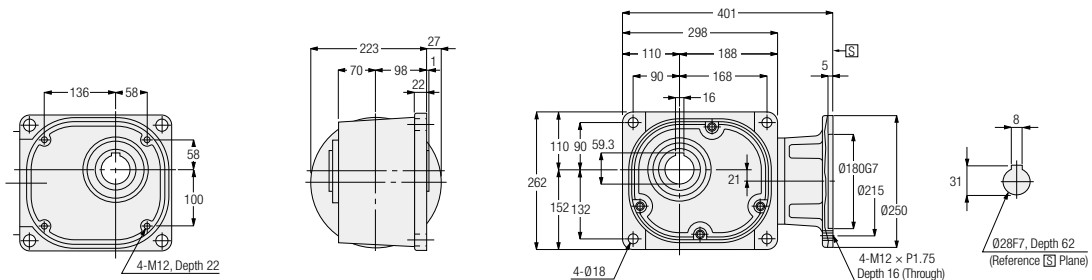
Technical Documentation

FS Type Right Angle Hollow Bore Shaft Diameter **55** Flange Mounting

<Figure 1>



<Figure 2>



Motor Power Class	Part Number	Reduction Ratio	Figure Number	Approx. Weight (kg)
1.5 kW	FSS-55-***-150	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120, 160, 200, 240	1	55.5
2.2 kW	FSS-55-***-220	5, 7.5, 10, 12.5, 15, 20, 25, 30, 40, 50, 60, 80, 100, 120	2	56.5

Note: The reduction ratio will be indicated as *** in the nomenclature.
 Note: Please refer to page 870 for the details of the output shaft dimensions.
 Note: Please refer to page 361 for the performance table.
 Note: Please refer to page 570 for the details of the motor mounting area.