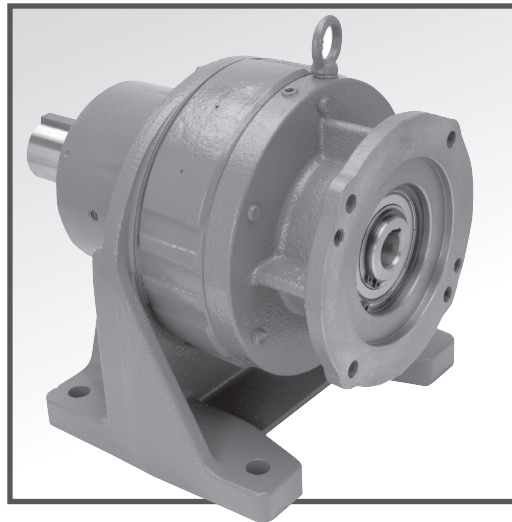
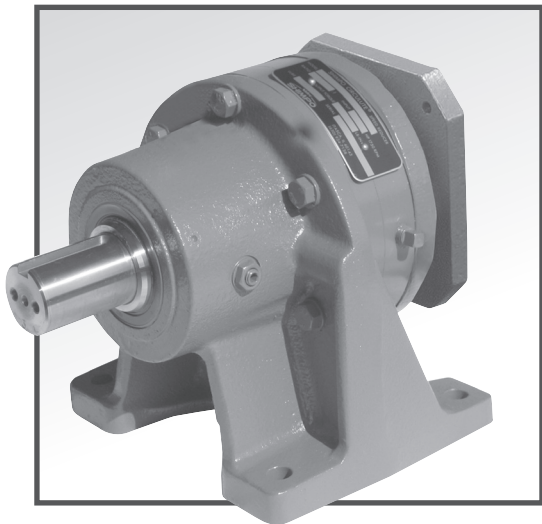


# ***CIRCULUTE 3000® REDUCER***

## **Service, Parts and Instruction Manual**



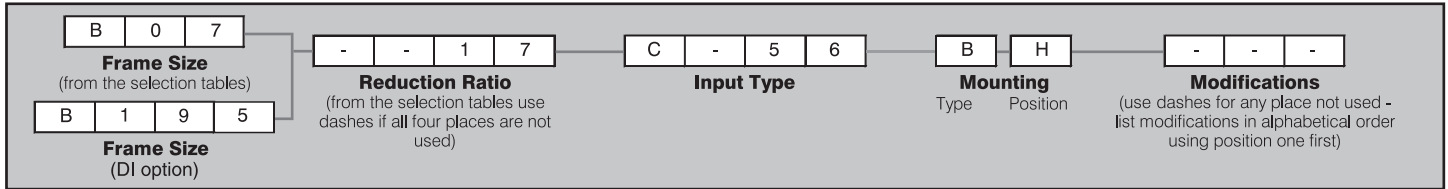
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## Warranty

With the exception of shaft seals, which are a normal wear item, Seller warrants Circulute 3000 Reducers (Products) manufactured by Seller to be free from defects in materials and workmanship under normal use and proper maintenance for two (2) years from date of shipment. If within such period any product shall be proved to Seller's reasonable satisfaction to be defective, such product shall be repaired or replaced at the Seller's option. Seller's obligation and Buyer's exclusive remedy will be limited to such repair or replacement and shall be conditioned upon Seller receiving written notice of any alleged defect no later than ten (10) days after its discovery within the warranty period. Shipping terms for any repaired or replaced product will be FOB shipping point. If necessary, we reserve the right to inspect the product claimed to be defective at Buyer's location or place of installation. Travel time and expenses for any Seller service personnel provided to Buyer's premises to effect such repair or replacement will be at Buyer's expense. Seller reserves the right to satisfy our warranty obligation in full by reimbursing the Buyer for all payments made to Seller and Buyer shall thereupon return the product to Seller. **THE FOREGOING WARRANTIES ARE THE ONLY WARRANTIES MADE BY SELLER WITH REGARD TO THE PRODUCTS, AND SELLER HEREBY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS, STATUTORY AND IMPLIED, APPLICABLE TO THE PRODUCTS, INCLUDING, BUT NOT LIMITED TO, ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, AND ALL EXPRESS, STATUTORY AND IMPLIED WARRANTIES APPLICABLE TO THE PARTS WHICH ARE NOT MANUFACTURED BY SELLER.** These warranties shall not be effective if the product has been subject to overload, misuse, negligence, or accident, or if the product has been repaired or altered outside of Seller's factory or authorized control in any respect which, in our judgment, adversely affects its condition or operation. Buyer shall establish, to our satisfaction, that the product has at all times, been properly assembled, installed, serviced, maintained, tested, operated and used in accordance with the current maintenance and operating instructions of Seller and has not been altered or modified in any manner without our prior written consent.

# Model Number Chart for Induction Motor Reducers



## INPUT TYPE

Input Shaft ..... SHFT

Pulley ..... PLY

### Standard Quill Style NEMA C-Face Input

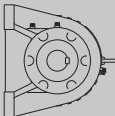
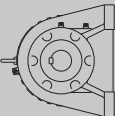
Motor Size	Ordering Code
56C .....	C-56
143/145TC .....	C140
182/184TC .....	C180
213/215TC .....	C210
254/256TC .....	C250
284/286TC .....	C280
324/326TC .....	C320

For coupling style C-Face adapters, please change "C" to "A" in the ordering code

### Shovel Base Input

Motor Size	Ordering Code
56 .....	S-56
143/145T .....	S140
182/184T .....	S180
213/215T .....	S210
254/256T .....	S250
284/286T .....	S280
324/326T .....	S320

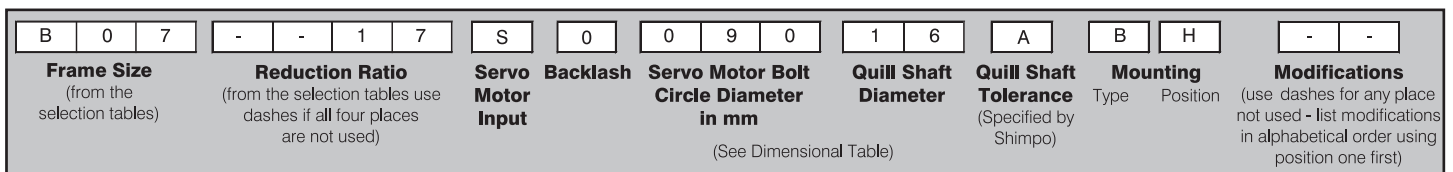
For top mount adapters, please change "S" to "T" in the ordering code

MOUNTING TYPE		MOUNTING POSITION		Position L	Position R
Mounting Type	Ordering Code	Mounting Position	Ordering Code	(Viewed from output shaft)	(Viewed from output shaft)
Base (foot) .....	B	Horizontal .....	H		
Flange .....	F	Vertical Output Shaft Down .....	D		
Ring .....	R	Vertical Output Shaft Up .....	U		
Hollow Shaft .....	H	Ceiling (base mount) .....	C		
		Wall Feet Left (base mount) .....	L		
		Wall Feet Right (base mount) .....	R		

## Modifications

Expansion chamber breather (oil filled units) .....	E
USDA approved food grade lubricant .....	F
Oil level gauge .....	G
High temperature lubricant and acrylic oil seals (104°F to 140°F ambient temperatures) .....	H
Oil lubrication in place of standard grease lubrication .....	J
Grease lubrication in place of standard oil lubrication .....	K
Low temperature lubricant (-4°F to 32°F ambient temperatures) .....	L
Synthetic lubricant .....	S
Taper pins (for extreme reversing load applications) .....	T
Washdown breather (oil filled units) .....	U
Washdown modifications (a stainless steel sleeve under the output shaft seal, a V-ring deflector on the output shaft, a sealed motor shaft bearing for vertical output shaft down units, and a washdown breather for oil filled units. This modification reduces the usable shaft length) .....	W
White epoxy paint .....	X
Washdown modifications with white epoxy paint .....	Y
Steel-It® paint .....	B
Washdown modifications with Steel-It® paint .....	C
Precision backlash .....	P

# Model Number Chart for Servo Motor Reducers



## Backlash

Standard Backlash: Approximately 60 arc-min ..... 0

Precision Backlash: Less than 6 arc-min ..... P

## Safety Precautions



WARNING

**WARNING:** The keyways on all shafts are extremely sharp. Care should be exercised when working with all shafts.



CAUTION

**CAUTION:** Do not mount an oil-lubricated reducer in other than its intended position. Doing this can cause damage to the reducer. Contact Shimpo Drives Customer Service for information on mounting in a position other than the one indicated on the nameplate.



CAUTION

**CAUTION:** The reducer should be worked on only by a person who is familiar with mechanical assembly and disassembly techniques, including the proper handling of bearings. The reducer can be damaged by improper disassembly and assembly techniques.

## Inspection

Unpack the reducer and check to see that it is identical to what is specified in the purchase order. Check the model number using the chart on page 3 of this manual. Inspect for shipping damage. Notify the shipping agent immediately if any damage is discovered.

## Identification

Circulate 3000® Reducers can be provided in single, double or triple reduction configurations.

**For single reduction,** the first character of the model number indicates the reducer's size.

**For double reduction,** the first character of the model number indicates the size of the input stage. The second character indicates the size of the output stage.

## Installation

1. Install the unit in a clean, dry location with plenty of ventilation. A site in which rain or water is splashed around the unit should be avoided unless the reducer has been specifically modified for these conditions.
2. Proper ambient temperature is 32°F - 104°F. (0°C - 40°C). If the unit must operate outside of this temperature range, contact Shimpo Drives Customer Service.
3. Grease lubricated reducers have no restriction on their mounting position. Oil lubricated reducers must be mounted in the position that is specified in the model number of the reducer. The nameplate of the reducer indicates the type of lubrication used. The lubrication section of this manual also describes the standard type of lubricant that is used in each reducer.



CAUTION

**CAUTION:** Do not mount an oil-lubricated reducer in other than its intended position. Doing this can cause damage to the reducer. Contact Shimpo Drives Customer Service for information on mounting in a position other than the one indicated on the nameplate.

4. The reducer should be bolted down to a rigid, vibration-free base, such as a concrete foundation, sturdy cast iron beam, or steel frame work.
5. Gears, pulleys, or sprockets that are mounted to the input or output shafts should slide on easily. Pounding these components into place on the shafts can damage bearings and other reducer components, and should be avoided (Figure 1).
6. Mount any gears, pulleys, or sprockets as close to the housing of the reducer as is practical. Overhung loads must be checked prior to operating the unit. Contact Shimpo Drives Customer Service for assistance (Figure 2).
7. Secure the gear, pulley or sprocket to the shaft. If a key and set screw are used, the top of the key should have .004" to .008" (0.1 mm to 0.2 mm) of clearance.
8. Make sure that the overhung load on the shaft does not exceed the overhung load capacity of the unit.
9. All connected devices should be checked carefully for angular and parallel alignment.
10. For oil lubricated units, check to ensure that the oil is filled to the bottom of the oil level plug.
11. For oil lubricated reducers, if a separate breather was supplied, install it. If the breather was provided with a plug or cover, remove it. Be sure that the breather is not obstructed.

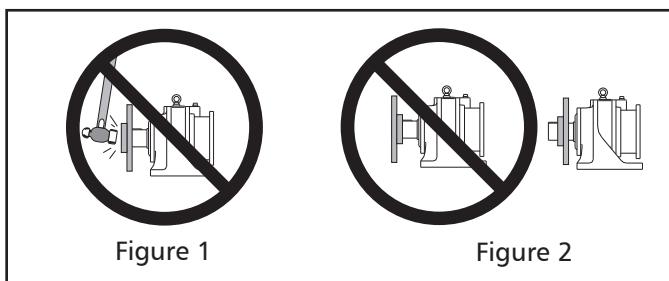


Figure 1

Figure 2

## Direction of Shaft Rotation

Circulate 3000® Reducers can be operated in either direction of input rotation. The input and output shafts of single and triple reduction units will rotate in opposite directions. The input and output shafts of double reduction units will rotate in the same direction.

## Maintenance



**WARNING**

**WARNING:** The keyways on all shafts are extremely sharp. Care should be exercised when working with all shafts.

In addition to changing the lubricant periodically, the following checks should be performed on a regular basis.

Depending on the application, it may be desirable to make such checks on a weekly or monthly basis.

1. Check the case temperature of the reducer. A temperature of up to 90°F (50°C) above ambient is acceptable.
2. Check to see if the unit is being overloaded. This can often be done by measuring the drive motor's current.
3. Be sure that the reducer is not making an abnormal or irregular noise.
4. Check the reducer for abnormal vibration.
5. Look for lubricant leaks around the reducer.
6. Check all power transmitting components for misalignment and excessive wear.
7. Check for loose bolts. This includes the reducer body bolts and mounting bolts.

### Repair Instructions

The following notes, in combination with the exploded view assembly drawings (pages 10-21), are provided to assist in the inspection and repair of the reducer.



**CAUTION**

**CAUTION:** The reducer should be worked on only by a person who is familiar with mechanical assembly and disassembly techniques, including the proper handling of bearings. The reducer can be damaged by improper disassembly and assembly techniques.

### Disassembly Instructions

1. Disassembly always starts from the output side of the reducer.
2. Jack screw holes are provided between many sections to assist in the disassembly.
3. The output shaft bearings on reducers with case sizes A through C are held in place using two cone point set screws; these must be backed out in order to remove the output shaft assembly.
4. Reducer case sizes D and larger have a snap ring around the outside of the output shaft bearing. This snap ring must be removed in order to separate the output housing from the pin body.

### Inspection Guidelines

1. Inspect all oil seals for damage. Also inspect the shaft surfaces on which they contact.

2. Inspect the oil or grease for signs of metal flakes.
3. Check all bearings to ensure that they rotate freely and do not have excessive free play.
4. Inspect the housing and all torque transmitting components for cracks and excessive wear.

### Assembly Guidelines

1. Assembly always starts at the input side of the reducer.
2. An aerobic gasket compound or gaskets should be used between all mating housing parts.
3. Removable thread locking compound should be used on all bolts and nuts.
4. When reassembling a reducer (case sizes B and larger), ensure that the two eccentric roller bearings are installed in opposite directions. For reducer case size A, be sure that the cam on the balance weight is pointing in the opposite direction of the large lobe on the eccentric roller bearing. Failure to do this will result in excessive vibration when the reducer is returned to operation.
5. On case sizes B and larger, the two wheels must be installed exactly 180° opposite to each other. Match marks are provided on the wheels for this purpose. Failure to do this will result in a reducer that will not turn.
6. It is generally easier to install the wheel first and then the eccentric bearing. In this way, the rollers do not interfere with the hole in the wheel that forms the bearing's outer race.
7. On case sizes A through C, it is important to ensure that the bushings remain seated in the wheel as the output shaft assembly is installed. It is often useful to use some grease to hold the bushings in position on the wheels.
8. When case sizes A through C are reassembled, the cone point set screws should be alternately tightened to pull the output shaft in place. Each should be loosened a quarter of a turn after the output shaft is completely seated in the output housing.

# Lubrication Specifications

Circulate 3000® Reducers are internally lubricated using either grease or oil. The following tables describe the type of lubricant that is normally used with these reducers.

Because different lubricants may be used for extreme environmental conditions, check the nameplate of the reducer to determine the type of lubricant that is being used. Lubrication quantities listed are approximate.

## Follow the instructions below when adding lubricant to the reducer.

Grease lubricated reducers should be disassembled, cleaned and filled with new grease every 5 years or 20,000 hours operation, whichever comes first. Under extreme environmental conditions, the grease may need to be replaced more frequently. The grease should be packed into the reducer in a similar manner to the way that an anti-friction bearing is re-greased. Approximately 50% air space should remain.

Oil lubricated units should receive an oil change after the first 500 hours of operation. After this initial oil change, the oil should be changed after every 5,000 hours of operation or annually, whichever comes first. Under extreme environmental conditions, the oil may need to be replaced more frequently. To drain the oil, remove the oil breather plug and the oil drain plug. To refill the reducer, install the drain plug and remove the level plug. Add oil through the oil fill opening until the oil overflows from the level plug opening. Replace the level plug and the breather.

### Single Reduction, Standard Backlash

Frame Size	All Mounting Positions	
	Input Speed	
	Less than 2000 rpm	2000 rpm & Over
A03 - A07 A190, A195	NLGI # 0 Grease	ISO VG 100 Oil
B01 - B07 B197 - B20H		
C01 - C07 C110 - C225		
D01 - D07 D135 - D255	ISO VG 220 Oil	N/A
E01 - E07 E165-E375		
F03 - F07		

### Single Reduction, Precision Backlash

Frame Size	All Mounting Positions	
	Input Speed	
	Less than 2000 rpm	2000 rpm & Over
B03, B07	ISO VG 100 Oil	ISO VG 100 Oil
C03, C07		
D03, D07	ISO VG 220 Oil	N/A
E03, E07		
F03, F07		

### Double Reduction, Standard Backlash, Input Less than 2000 rpm

Frame Size	Horizontal	Vertical Down Output Shaft	Vertical Up Output Shaft
AB3, AB7 AB105	NLGI # 0 Grease		NLGI # 0 Grease
AC3, AC7 AC115			
AD3, AD7 AD135, AD145	ISO VG 220 Oil	NLGI # 0 Grease	ISO VG 220 Oil
BD7 BD145			
BE3, BE7 BE165, BE375			
CE7 CE375			
CF3, CF7			
DF7		ISO VG 220 Oil	

### Double Reduction, Standard Backlash, Input 2000 rpm & Over

Frame Size	Horizontal	Vertical Down Output Shaft	Vertical Up Output Shaft
AB3, AB7	ISO VG 100 Oil	ISO VG 100 Oil	ISO VG 100 Oil
AC3, AC7			
AD3, AD7			
BD7			
BE3, BE7			
CE7			
CF3, CF7			
DF7	ISO VG 220 Oil	ISO VG 220 Oil	ISO VG 220 Oil

### Double Reduction, Precision Backlash

Frame Size	Horizontal	Vertical Down Output Shaft	Vertical Up Output Shaft
AB3, AB7	ISO VG 100 Oil	ISO VG 100 Oil	ISO VG 100 Oil
AC3, AC7			
AD3, AD7			
BD7			
BE3, BE7			
CE7			
CF3, CF7	ISO VG 220 Oil	ISO VG 220 Oil	ISO VG 220 Oil
DF7			

### Lubrication Specifications

Lubricant Type	Generic Specification	Brand Reference		
		Shell	Mobil	Exxon
Grease	NLGI # 0 Grease	Darina EP No. 0	-	-
Oil	ISO VG 100 Gear Oil (AGMA 3EP)	Omala Oil 100	Mobilgear 627	Spartan EP 100
Oil	ISO VG 220 Gear Oil (AGMA 5EP)	Omala Oil 220	Mobilgear 630	Spartan EP 220
Oil *	ISO VG 320 Gear Oil (AGMA 6EP)	Omala Oil 320	Mobilgear 632	Spartan EP 320

The lubricants listed are for normal industrial service, and other oils may be specified for severe operating conditions. Refer to the nameplate of the reducer for specific lubrication type.

*\*For high temperature applications, ISO VG 320 (AGMA 6 EP) is available upon request.*

## Approximate Lubricant Quantities

### Single Reduction

Frame Size	Mounting Position	
	Horizontal	Vertical
A	5 oz	
B	7 oz	
C	14 oz	
D	0.25 gal	0.40 gal
E	0.50 gal	0.65 gal
F	0.85 gal	1.15 gal

### Double Reduction

Frame Size	Mounting Position		
	Horizontal	Vertical Output Shaft Down	Vertical Output Shaft Up
AB	10 oz		
AC	15 oz		
AD	0.31 gal	29 oz	0.45 gal
BD	0.32 gal	31 oz	0.51 gal
BE	0.58 gal	42 oz	0.90 gal
CE	0.63 gal	49 oz	0.98 gal
CF	1.00 gal	72 oz	1.53 gal
DF	1.08 gal	2.06 gal	2.06 gal

Grease quantities are given in oz. Oil quantities are given in gal.

Grease quantities are given in oz. Oil quantities are given in gal.

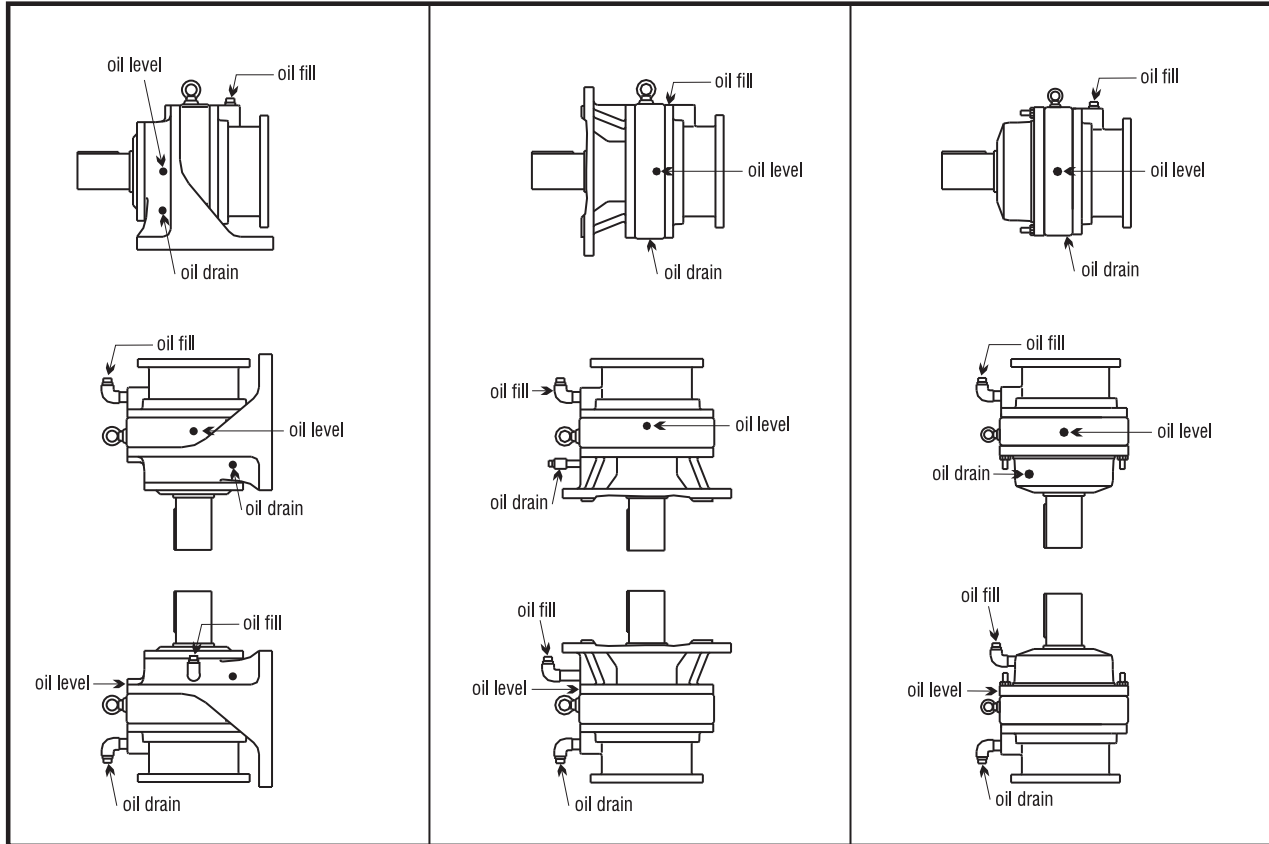
# Oil Fill, Level and Drain Locations

Single Reduction

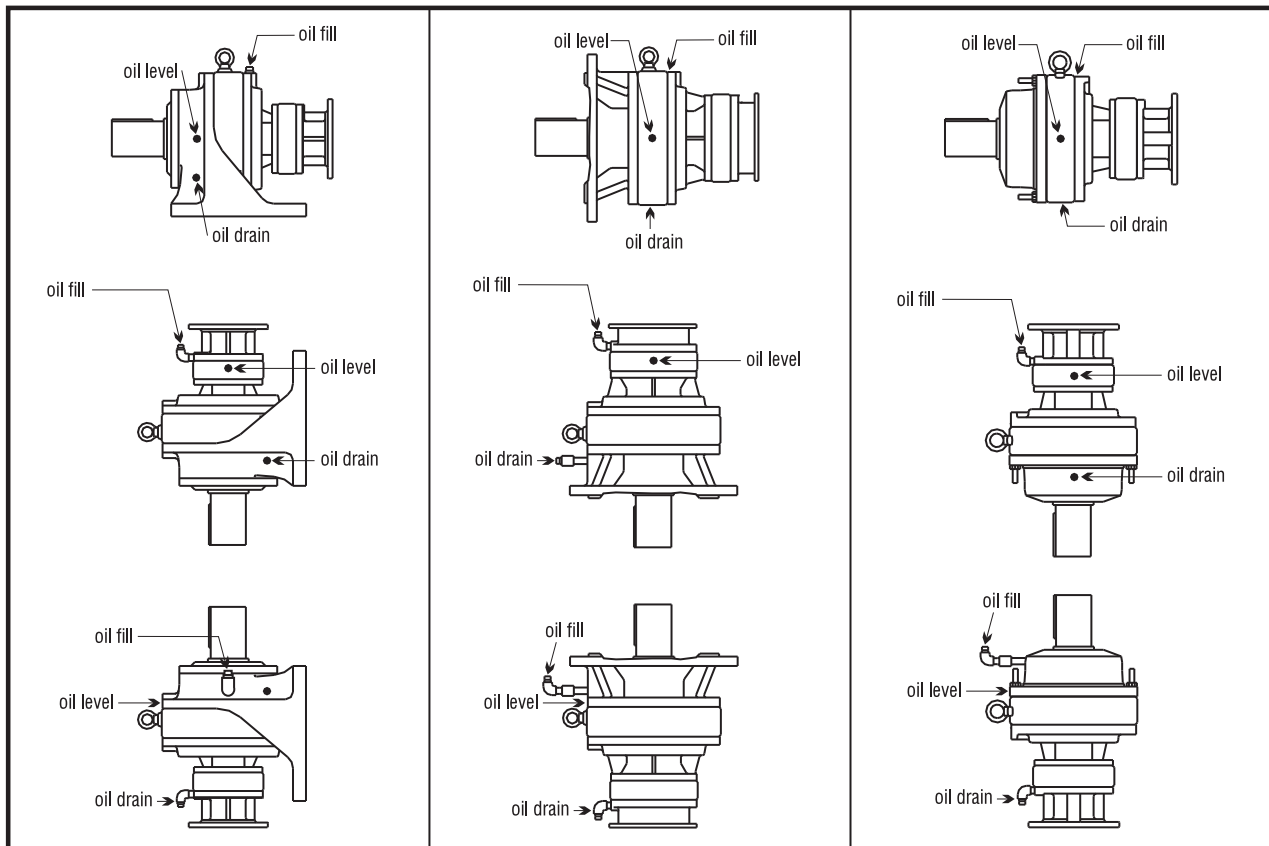
**Base Mount**

**Flange Mount**

**Ring Mount**



Double Reduction





# Exploded View Drawings & Parts Lists

## Single Reduction Case Sizes

Frame Size	Case Size
A03 - A07 A190, A195	A
B01 - B07 B197 - B20H	B
C01 - C07 C110 - C225	C
D01 - D07 D135 - D255	D
E01 - E07 E165-E375	E
F03 - F07	F

The following pages (10-21) provide exploded view drawings and parts lists for Circulute 3000® Reducers.

These are grouped by case size. Single reduction reducers use one case size. Double reduction reducers are built from two case sizes.

A coupler and a counter shaft, along with other support parts, are used to connect the two case sizes together.

The connection parts are shown with the smaller, input case size reducer. The charts relate the model number of the complete reducer to the case sizes used.

Generic parts, such as oil seals, snap rings, keys and many bearings, are described in enough detail to allow you to purchase them locally.

## Double Reduction Case Sizes

Frame Size	Input Case Size	Output Case Size
AB3, AB7 AB105	A	B
AC3, AC7 AC115	A	C
AD3, AD7 AD135, AD145	A	D
BD7 BD145	B	D
BE3, BE7 BE165, BE375	B	E
CE7 CE375	C	E
CF3, CF7	C	F
DF7	D	F

Examples of the numbering system for snap rings and oil seals are given in the table below. Other parts are self-explanatory.

When ordering parts, please provide the following information:

- Complete model number of the reducer
- Serial number of the reducer, if available
- Item number of the part
- Description of the part

With the above information, we will be able to ensure that you are ordering the correct parts for your reducer. If you find that it is necessary to return a part, contact Shimpo Drives Customer Service for complete shipping instructions and a return materials authorization number.

NOTE: We will not accept returned parts or units without a return materials authorization number.

## Generic Part Number Examples

<b>S-50</b>	External snap ring, 50mm in diameter
<b>R-47</b>	Internal snap ring, 47mm in diameter
<b>D456008</b>	Double lip oil seal, for a 45mm shaft and 60 mm outside diameter, 8 mm thick
<b>S254008</b>	Single lip oil seal, for a 25 mm shaft and 40 mm outside diameter, 8 mm thick

# Parts List - Frame Sizes A03 - A07 (Double Reduction Case Size A)

# Parts List - Frame Sizes A190 & A195 (Double Reduction Case Size A)

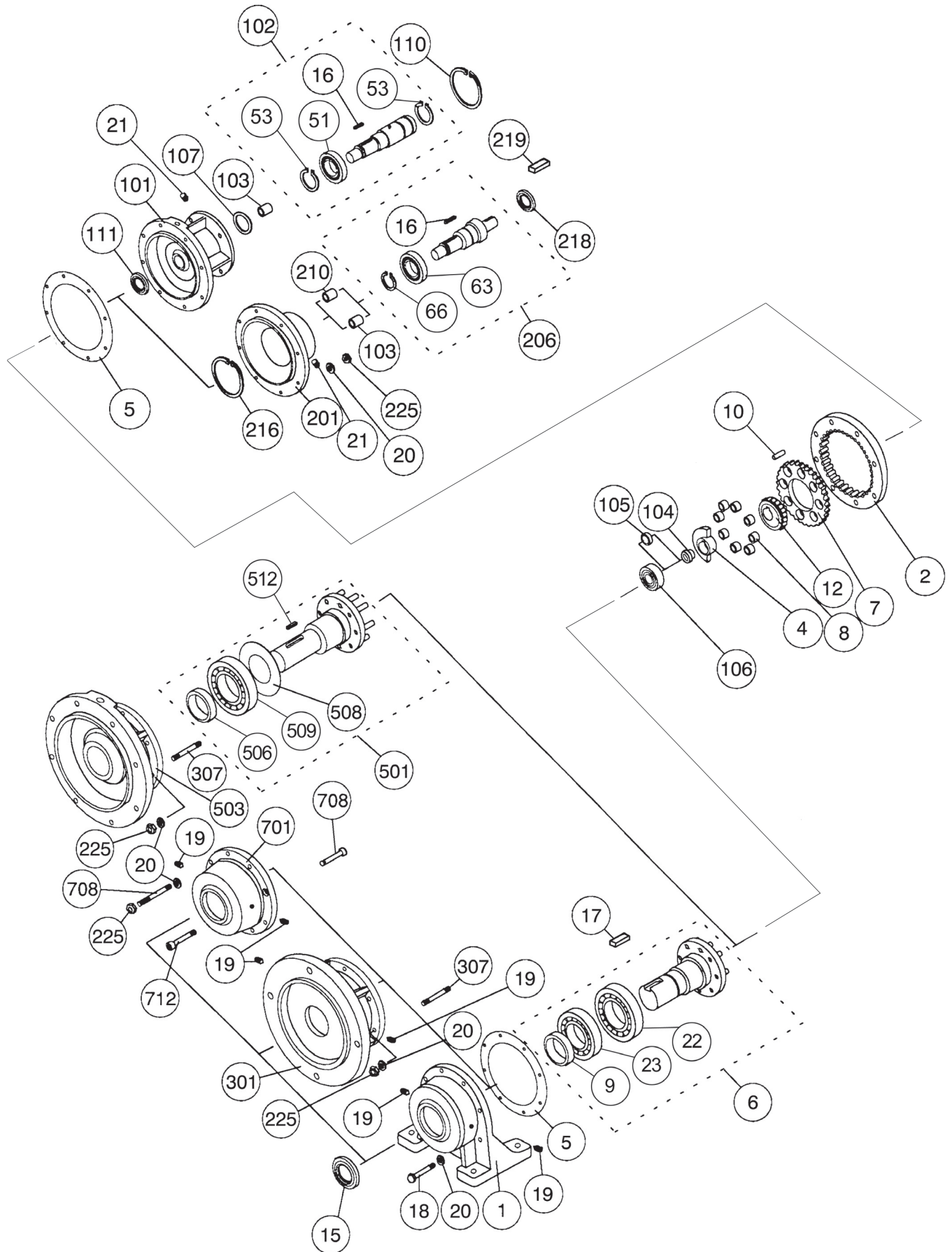
Item	Qty	Part Number	Description	Comments
1	1	BERA1100012	Base A1	
1	1	BXEB1100810	Base DI-AB1	A190 & A195 DI Series
2	1	BERJ1100020	Pin Housing NA1	11,17,35,71:1
2	1	BERJ3100020	Pin Housing NA2	29,59:1
2	1	BERJ5100020	Pin Housing NA3	47:1
4	1	BERA1100061	Balance Weight NA1	11:1
4	1	BERA2100062	Balance Weight NA2	11,17,29,35:1
4	1	BERA4100060	Balance Weight NA3	47,59,71:1
5	2	BRXA6060180	Gasket at Pin Housing, A, B, NB	
6	1	KNZY1104000	Output Shaft A1 w/Brg	11:1
6	1	KNZY2104000	Output Shaft A2 w/Brg	17:1
6	1	KNZY3104000	Output Shaft A3 w/Brg	29,35,47,59,71:1
6	1	KNZY1100840	Output Shaft A1 w/Brg	11:1 DI Series
6	1	KNZY2100840	Output Shaft A2 w/Brg	17:1 DI Series
6	1	KNZY4100840	Output Shaft A3 w/Brg	29,35,47,59,71:1 DI Series
7	1	BERA1100222	Wheel A1	11:1
7	1	BERA2100222	Wheel A2	17:1
7	1	BERA4100221	Wheel A3	29:1
7	1	BERA3100223	Wheel A4	35:1
7	1	BERA5100223	Wheel A5	47:1
7	1	BERA6100221	Wheel A6	59:1
7	1	BERA7100221	Wheel A7	71:1
8	8	BERA1100361	Bushing A1	
9	1	BERB1200470	Bushing NB1	For DI Series
10	**	BERA1100381	Internal Pin A1	
12	1	BERA1100600	Eccentric Bearing A1	11:1
12	1	BERA2100600	Eccentric Bearing A2	17:1
12	1	BERA4100600	Eccentric Bearing A3	29:1
12	1	BERA3100600	Eccentric Bearing A4	35:1
12	1	BERA5100600	Eccentric Bearing A5	47:1
12	1	BERA6100600	Eccentric Bearing A6	59:1
12	1	BERA7100600	Eccentric Bearing A7	71:1
15	1	ROSPA304508	Oil Seal D304508	
15	1	ROSPA456209	Oil Seal D456209	DI Series
16	1	RLKAA004024	Key KM1 4x4x24	11:1
16	1	RLKAA005030	Key KM2 5x5x30	except 11:1
17	1	56000303	Key 3/8x3/8x0.98 (25mm)	Output Shaft
17	1	56000307	Key 1/4x1/4x1.18 (30mm)	Output Shaft DI Series
18	6	RSRAC008055	Hex. Head Screw M8x55, 11T	
19	2	RSTBG008012	Set Screw M8x12, Sharp	
20	6	RWLBA000008	Spring Washer Disk, PS, M8	
21	1	RSPBB000108	Hex. Headless Plug PT1/8	
22	1	RBBCA006008	Ball Bearing 6008ZZ	
22	1	RBBCA006209	Ball Bearing 6209ZZ	For DI Series
23	1	RBBCA006206	Ball Bearing 6206ZZ	
23	1	RBBCA006307	Ball Bearing 6307ZZ	For DI Series
51	1	RBBCA006007	Ball Bearing 6007ZZ	
53	2	RLSSA000035	Snap Ring S-35 External	
63	1	RBBCA006204	Ball Bearing 6204ZZ	
66	1	RLSAA000020	Snap Ring S-20 External	
101	1	BXKG0107021	Motor Flange A2 56C/140TC	
101	1	C/F	Motor Flange Servo Input	
102	1	KNZY1107030	Motor Shaft A5 w/Brg	11:1 56C
102	1	KNZY2107030	Motor Shaft A6 w/Brg	56C except 11:1
102	1	KNZY1115030	Motor Shaft B1 w/Brg	11:1 140TC
102	1	KNZY2115030	Motor Shaft B2 w/Brg	140TC except 11:1
102	1	C/F	Motor Shaft Servo Input w/Brg	
103	1	BERA0101040	Counter Shaft Bushing NB1	11:1
103	1	BERA0201040	Counter Shaft Bushing NB2	C-Face Input except 11:1
104	1	BERA1100430	Distance Collar NB1	11:1
104	1	BERA0201030	Distance Collar NB2	except 11:1
105	1	RBNGA121512	Inner Race 121512	11:1
106	1	RBRCA153212	Roller Bearing NF153212	
110	1	RLSRA000062	Snap Ring R-62 Internal	
111	1	ROSAA304007	Oil Seal S304007	
201	1	BXEA1100110	Input Bracket A1	
206	1	KNZY1100310	Input Shaft A1 w/Brg	11:1
206	1	KNZY2100310	Input Shaft A2 w/Brg	except 11:1
210	1	BNZY1100460	Input Shaft Bushing	Shaft Input except 11:1
216	1	RLSRA000047	Snap Ring R-47 Internal	
218	1	ROSPA253507	Oil Seal D253507	
219	1	56000303	Key 3/8x3/8x0.98 (25mm)	Input Shaft
255	6	RSNAA000008	Hex. Nut, M8, Type 1	
301	1	BERA1131160	Output Flange A1	
307	6	BERA1131181	Stud Bolt M8x57	

Item	Qty	Part Number	Description	Comments
501	1	KERB0001210	Counter Shaft Assy. NAB1	AB, 11x11:1
501	1	KERB0001220	Counter Shaft Assy. NAB2	AB, 11x13-87:1
501	1	KERB0001230	Counter Shaft Assy. NAB3	AB, 17x17-87:1
501	1	KERB0001240	Counter Shaft Assy. NAB4	AB, 29,35,47,59,71x29-87:1
501	1	KERB0001310	Counter Shaft Assy. NAC1	AC, 11x11:1
501	1	KERB0001320	Counter Shaft Assy. NAC2	AC, 11x13-87:1
501	1	KERB0001330	Counter Shaft Assy. NAC3	AC, 17x17-87:1
501	1	KERB0001340	Counter Shaft Assy. NAC4	AC, 29,35,47,59,71x29-87:1
501	1	KERB0001410	Counter Shaft Assy. NAD1	AD, 11x11
501	1	KERB0001420	Counter Shaft Assy. NAD2	AD, 11x13-87:1
501	1	KERB0001430	Counter Shaft Assy. NAD3	AD, 17x17-87:1
501	1	KERB0001440	Counter Shaft Assy. NAD4	AD, 29,35,47,59,71x29-87:1
501	1	KERB0001450	Counter Shaft Assy. NAD5	AD, 11x11 VD
501	1	KERB0001460	Counter Shaft Assy. NAD6	AD, 11x13-87:1 VD
501	1	KERB0001470	Counter Shaft Assy. NAD7	AD, 17x17-87:1 VD
501	1	KERB0001480	Counter Shaft Assy. NAD8	AD, 29,35,47,59,71x29-87:1 VD
503	1	BXEB0911010	Coupler NAB1	AB
503	1	BXEB0913010	Coupler NAC1	AC
503	1	BXEB0914010	Coupler NAD1	AD
506	1	BERA0101040	Counter Shaft Bushing NB1	AB, Second Stage 11:1
506	1	BERA0201040	Counter Shaft Bushing NB2	AB, Second Stage except 11:1
506	1	BERB0102040	Counter Shaft Bushing NC1	AC, Second Stage 11:1
506	1	BERB0202040	Counter Shaft Bushing NC2	AC, Second Stage except 11:1
506	1	BERB0103040	Counter Shaft Bushing ND1	AD, Second Stage 11:1
506	1	BERB0203040	Counter Shaft Bushing ND2	AD, Second Stage except 11:1
508	1	BERB0101060	Shim	Vertical Down
509	1	RBBEA006010	Ball Bearing 6010DD	AB, AC
509	1	RBBAA006010	Ball Bearing 6010	AD except Vertical Down
509	1	RBBEA006010	Ball Bearing 6010DD	AD Vertical Down
512	1	RLKAA004024	Key 4x4x24 KM1	AB, Second Stage 11:1
512	1	RLKAA005030	Key 5x5x30 KM2	AB, Second Stage except 11:1
512	1	RLKAA005042	Key 5x5x42	AC, Second Stage 11:1
512	1	RLKAA007040	Key 7x7x40	AC, Second Stage except 11:1
512	1	RLKAA007040	Key 7x7x40	AD, Second Stage 11:1
512	1	RLKAA010038	Key 10x8x38 KM7	AD, Second Stage except 11:1
701	1	BERA1100041	Ring Output Housing NA1	
708	4	BERA1100080	Stud Bolt M8x71	C-Face Input
708	4	RSRAC008065	Hex. Head Cap Screw, M8x65, 11T	Shaft input
712	2	RSSAA008045	Cap Screw, M8x45	

C/F - Contact SHIMPO Drives Customer Service.

- \* indicates that these parts must be purchased in sets of this size.
- \*\* indicates that the number of items per reducer varies.

**Exploded View - Frame Sizes A03 - A07 (Double Reduction Case Size A)**  
**Parts List - Frame Sizes A190 & A195 (Double Reduction Case Size A)**



# Parts List - Frame Sizes B01 - B07 (Double Reduction Case Size B)

# Parts List - Frame Sizes B197 - B20H (Double Reduction Case Size B)

Item	Qty	Part Number	Description	Comments
1	1	BERG1200010	Base NB1	
1	1	BXEA1100810	Base DI-AB1	B197, B100 & B105 DI Series
1	1	BXEA1200820	Base DI-B2	B20H DI Series
2	1	BERJ1200020	Pin Housing NB1	11,17,35,71:1
2	1	BERJ3200020	Pin Housing NB2	29,59:1
2	1	BERJ5200020	Pin Housing NB3	47:1
2	1	AERA1221022	Pin Housing B41 Precision Backlash	11,17,35,71:1
2	1	AERB4221021	Pin Housing B42 Precision Backlash	29,59:1
2	1	AERB5221022	Pin Housing B43 Precision Backlash	47:1
4	2	BRXA6060180	Gasket at Pin Housing, A, B, NB	
5	1	KNZY1221000	Output Shaft NB1 w/Brg	11:1
5	1	KNZY2221000	Output Shaft NB2 w/Brg	17:1
5	1	KNZY4221000	Output Shaft NB3 w/Brg	29,35,47,59,71:1
5	1	KNZY1200840	Output Shaft B1 w/Brg	11:1 DI Series
5	1	KNZY2200840	Output Shaft B2 w/Brg	17:1 DI Series
5	1	KNZY4200840	Output Shaft B3 w/Brg	29,35,47,59,71:1 DI Series
6	2*	BERB1200220	Wheel NB1	11:1
6	2*	BERB2200220	Wheel NB2	17:1
6	2*	BERA4100221	Wheel A3	29:1
6	2*	BERA3100223	Wheel A4	35:1
6	2*	BERA5100223	Wheel A5	47:1
6	2*	BERA6100221	Wheel A6	59:1
6	2*	BERA7100221	Wheel A7	71:1
6	2*	BERA1100222	Wheel A1	11:1, Precision Backlash
6	2*	BERA2100222	Wheel A2	17:1, Precision Backlash
7	1	BERB1200230	Wheel Spacer NB1	11:1
7	1	BERB2200230	Wheel Spacer NB2	17:1
7	1	BERA3200231	Wheel Spacer B3	29,35,47,59,71:1
7	1	BERA1200231	Wheel Spacer B1	11:1, Precision Backlash
7	1	BERA2200231	Wheel Spacer B2	17:1, Precision Backlash
8	16*	BERB1200360	Bushing NB1	11,17:1
8	16*	BERA1100361	Bushing A1	29,35,47,59,71:1, all PB Ratios
9	1	BERB1200470	Output Bushing NB1	
10	**	BERA1200381	Internal Pin B1	
10	**	BERA1221290	Internal Pin B41	Precision Backlash
10	**	BERA1100381	Internal Pin B42	Precision Backlash
12	2*	BERA1100600	Eccentric Bearing A1	11:1
12	2*	BERA2100600	Eccentric Bearing A2	17:1
12	2*	BERA4100600	Eccentric Bearing A3	29:1
12	2*	BERA3100600	Eccentric Bearing A4	35:1
12	2*	BERA5100600	Eccentric Bearing A5	47:1
12	2*	BERA6100600	Eccentric Bearing A6	59:1
12	2*	BERA7100600	Eccentric Bearing A7	71:1
15	1	ROSPA456209	Oil Seal D456209	
16	1	RLKAA004024	Key KM1 4x4x24	6,11:1
16	1	RLKAA005030	Key KM2 5x5x30	except 11:1
17	1	56000311	Key 5/16x5/16x1.77 (45mm)	Output Shaft
17	1	56000307	Key 1/4x1/4x1.18 (30mm)	Output Shaft DI Series
18	6	RSRAC008070	Hex. Head Screw M8x70, 11T	C-Face Input
18	6	RSRAC008075	Hex. Head Screw M8x75, 11T	Shaft Input
19	2	RSTBG008014	Set Screw M8x14, Sharp	
20	6	RWLBA000008	Spring Washer Disk, PS, M8	
21	1	RSPBB000108	Hex. Headless Plug PT1/8	
22	1	RBBCA006209	Ball Bearing 6209ZZ	
23	1	RBBCA006307	Ball Bearing 6307ZZ	
51	1	RBBCA006007	Ball Bearing 6007ZZ	
53	2	RLSSA000035	Snap Ring S-35 External	
63	1	RBBCA006204	Ball Bearing 6204ZZ	
66	1	RLSAA000020	Snap Ring S-20 External	
101	1	BXKG0107020	Motor Flange A2 56C/140TC	
101	1	C/F	Motor Flange Servo Input	
102	1	KNZY1107030	Motor Shaft A5 w/Brg	11:1 56C
102	1	KNZY2107030	Motor Shaft A6 w/Brg	56C except 11:1
102	1	KNZY1115030	Motor Shaft B1 w/Brg	11:1 140TC
102	1	KNZY2115030	Motor Shaft B2 w/Brg	140TC except 11:1
102	1	C/F	Motor Shaft Servo Input w/Brg	
103	1	BERA0101040	Counter Shaft Bushing NB1	11:1
103	1	BERA0201040	Counter Shaft Bushing NB2	C-Face Input except 11:1
104	1	BERA1100430	Distance Collar NB1	11:1
104	1	BERA0201030	Distance Collar NB2	except 11:1
105	1	RBNGA121512	Inner Race 121512	11:1
106	1	RBRCA153212	Roller Bearing NF153212	
110	1	RLSRA000062	Snap Ring R-62 Internal	
111	1	ROSAA304007	Oil Seal S304007	56C/140TC
201	1	BXEA1100110	Input Bracket A1	
206	1	KNZY1100310	Input Shaft A1 w/Brg	11:1
206	1	KNZY2100310	Input Shaft A2 w/Brg	except 11:1
210	1	BNZY1100460	Input Shaft Bushing	Shaft Input except 11:1
216	1	RLSRA000047	Snap Ring R-47 Internal	
218	1	ROSPA253507	Oil Seal D253507	
219	1	56000303	Key 3/8x3/8x0.98 (25mm)	Input Shaft
225	6	RSNAA000008	Hex. Nut, M8, Type 1	
301	1	BERG1231160	Output Flange NB1	
307	6	BERA1231181	Stud Bolt M8x78	

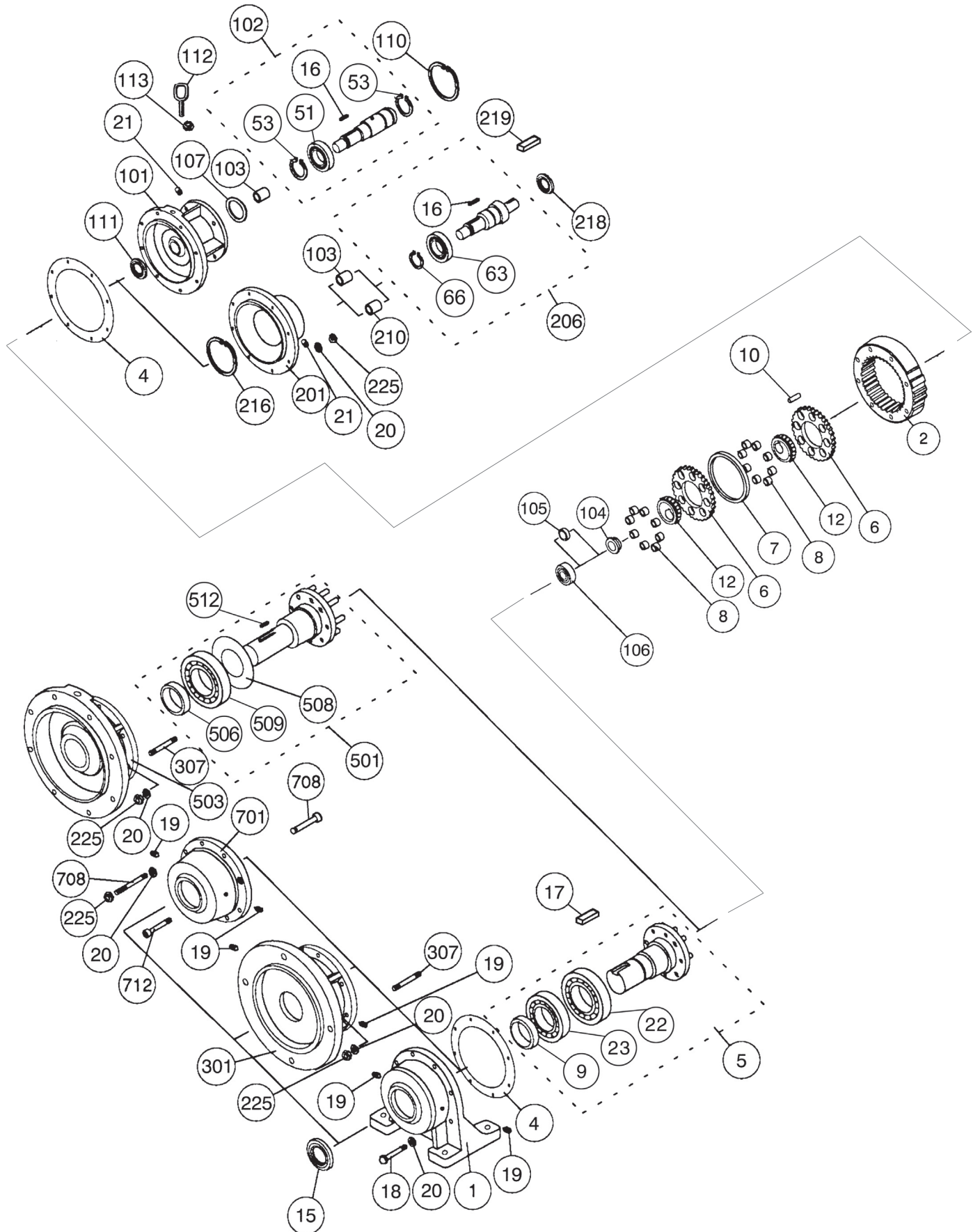
Item	Qty	Part Number	Description	Comments
501	1	KERB0002410	Counter Shaft Assy. NBD1	BD, 11x11:1
501	1	KERB0002420	Counter Shaft Assy. NBD2	BD, 11x17-71:1
501	1	KERB0002430	Counter Shaft Assy. NBD3	BD, 17x17-71:1
501	1	KERB0002440	Counter Shaft Assy. NBD4	BD, 29-71x29-71:1
501	1	KERB0002450	Counter Shaft Assy. NBD5	BD, 11x11:1 VD
501	1	KERB0002460	Counter Shaft Assy. NBD6	BD, 11x17-71:1 VD
501	1	KERB0002470	Counter Shaft Assy. NBD7	BD, 17x17-71:1 VD
501	1	KERB0002480	Counter Shaft Assy. NBD8	BD, 29-71x29-71:1 VD
501	1	KERB0002510	Counter Shaft Assy. NBE1	BE, 11x11:1
501	1	KERB0002520	Counter Shaft Assy. NBE2	BE, 11x17-71:1
501	1	KERB0002530	Counter Shaft Assy. NBE3	BE, 17x17-71:1
501	1	KERB0002540	Counter Shaft Assy. NBE4	BE, 29-71x29-71:1
501	1	KERB0002550	Counter Shaft Assy. NBE5	BE, 11x11:1 VD
501	1	KERB0002560	Counter Shaft Assy. NBE6	BE, 11x17-71:1 VD
501	1	KERB0002570	Counter Shaft Assy. NBE7	BE, 17x17-71:1 VD
501	1	KERB0002580	Counter Shaft Assy. NBE8	BE, 29-71x29-71:1 VD
503	1	BEXB0914010	Coupler NAD1	BD
503	1	BXEB0915010	Coupler NBE1	BE
506	1	BERB0103040	Counter Shaft Bushing ND1	Second Stage 11:1
506	1	BERB0203040	Counter Shaft Bushing ND2	Second Stage except 11:1
506	1	BERB0107040	Counter Shaft Bushing NE1	Second Stage 11:1
506	1	BERB0207040	Counter Shaft Bushing NE2	Second Stage except 11:1
508	1	BERB0107160	Shim	Vertical Down
509	1	RBBA006010	Ball Bearing 6010	BD
509	1	RBBEA006010	Ball Bearing 6010DD	BD Vertical Down
509	1	RBBA006210	Ball Bearing 6210	BE
509	1	RBBEA006210	Ball Bearing 6210DD	BE Vertical Down
512	1	RLKAA007040	Key 7x7x40	BD, Second Stage 11:1
512	1	RLKAA010038	Key 10x8x38 KM7	BD, Second Stage except 11:1
512	1	RLKAA010038	Key 10x8x38 KM7	BE, Second Stage 11:1
512	1	RLKAA012058	Key 12x8x58 KM10	BE, Second Stage except 11:1
701	1	BERB1200040	Ring Output Housing NB1	
708	4	BERA1200080	Stud Bolt M8x90	C-Face Input
708	4	RSRAC008085	Hex. Head Cap Screw, M8x85, 11T	Shaft input
712	2	RSRBA008055	Hex. Head Cap Screw, M8x55	

C/F - Contact SHIMPO Drives Customer Service.

\* indicates that these parts must be purchased in sets of this size.

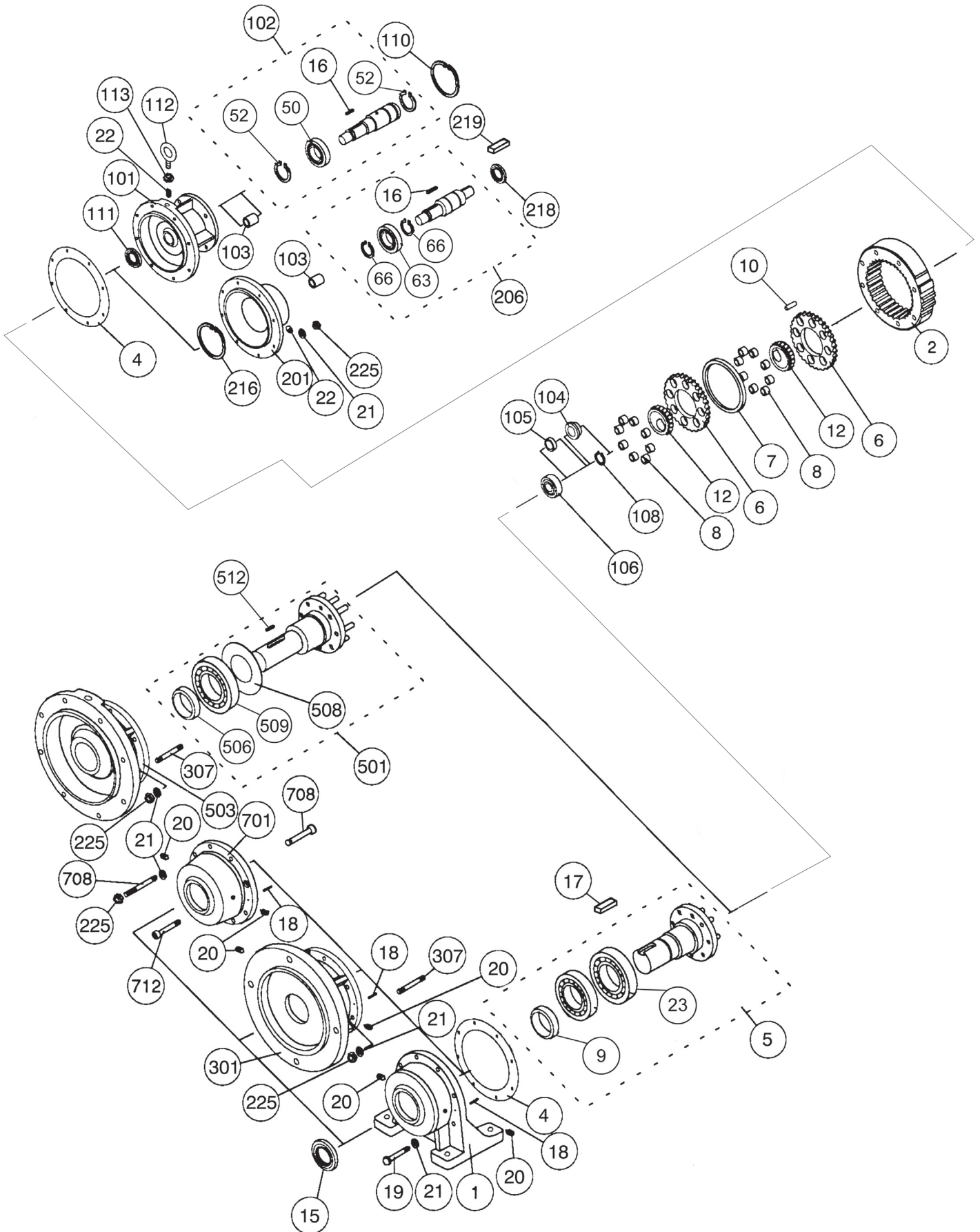
\*\* indicates that the number of items per reducer varies.

**Exploded View - Frame Sizes B01 - B07 (Double Reduction Case Size B)**  
**Parts List - Frame Sizes B197 - B20H (Double Reduction Case Size B)**





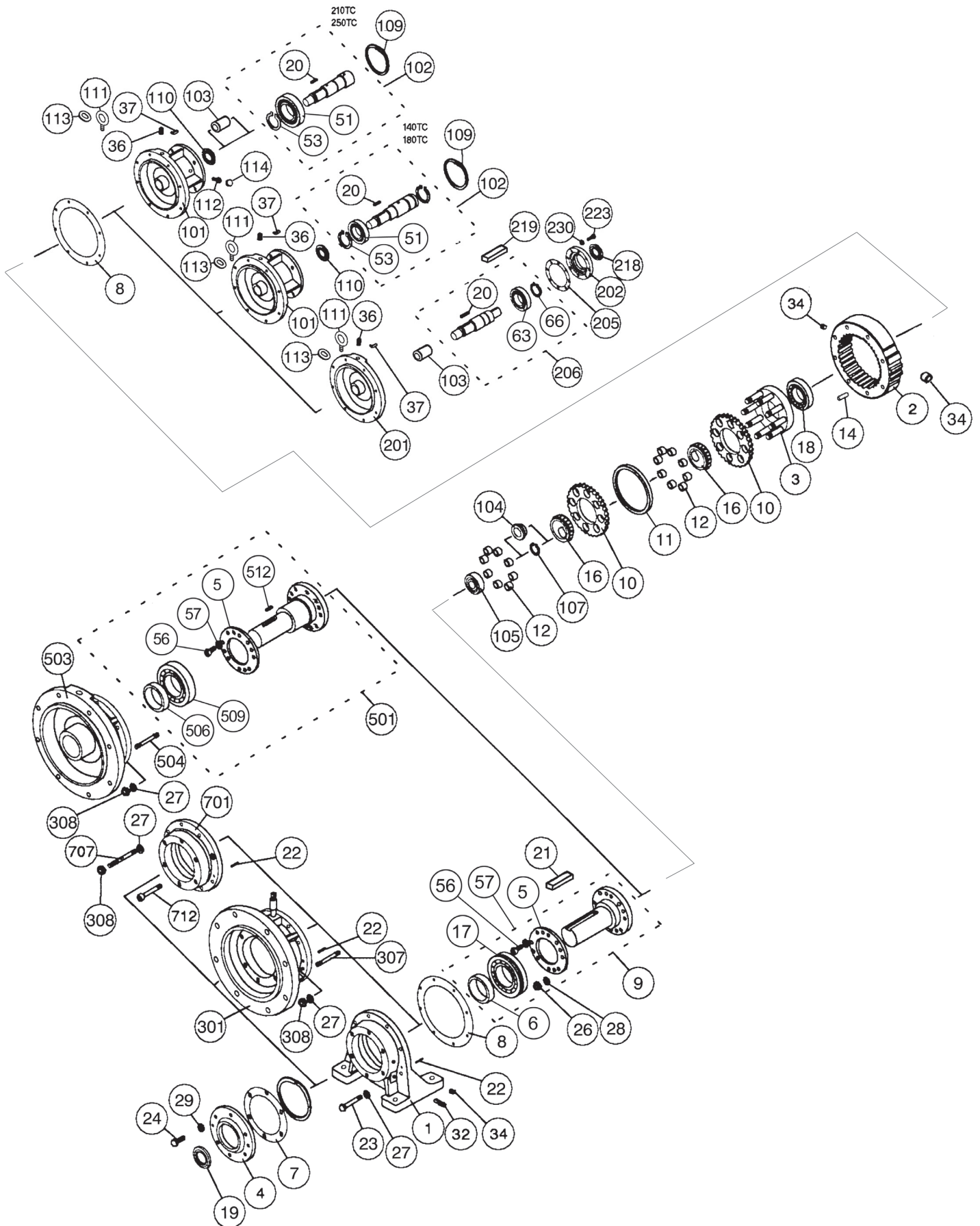
**Exploded View - Frame Sizes C01 - C07 (Double Reduction Case Size C)**  
**Parts List - Frame Sizes C110 - C225 (Double Reduction Case Size C)**





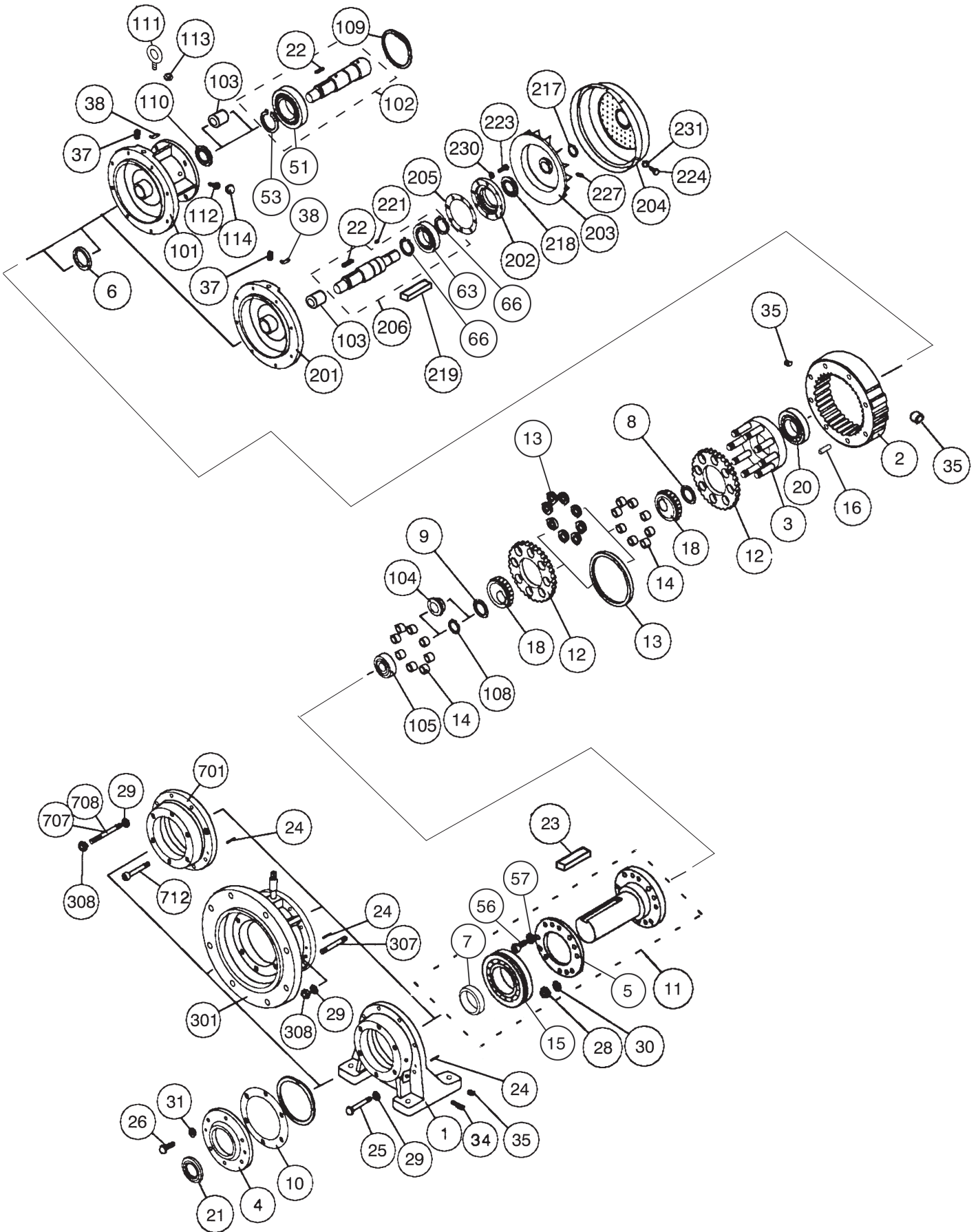


# Exploded View - Frame Sizes D01 - D07 (Double Reduction Case Size D) Parts List - Frame Sizes D135 - D255 (Double Reduction Case Size D)





**Exploded View - Frame Sizes E01 - E07 (Double Reduction Case Size E)**  
**Parts List - Frame Sizes E165 - E375 (Double Reduction Case Size E)**



# Parts List - Frame Sizes F03 - F07 (Double Reduction Case Size F)

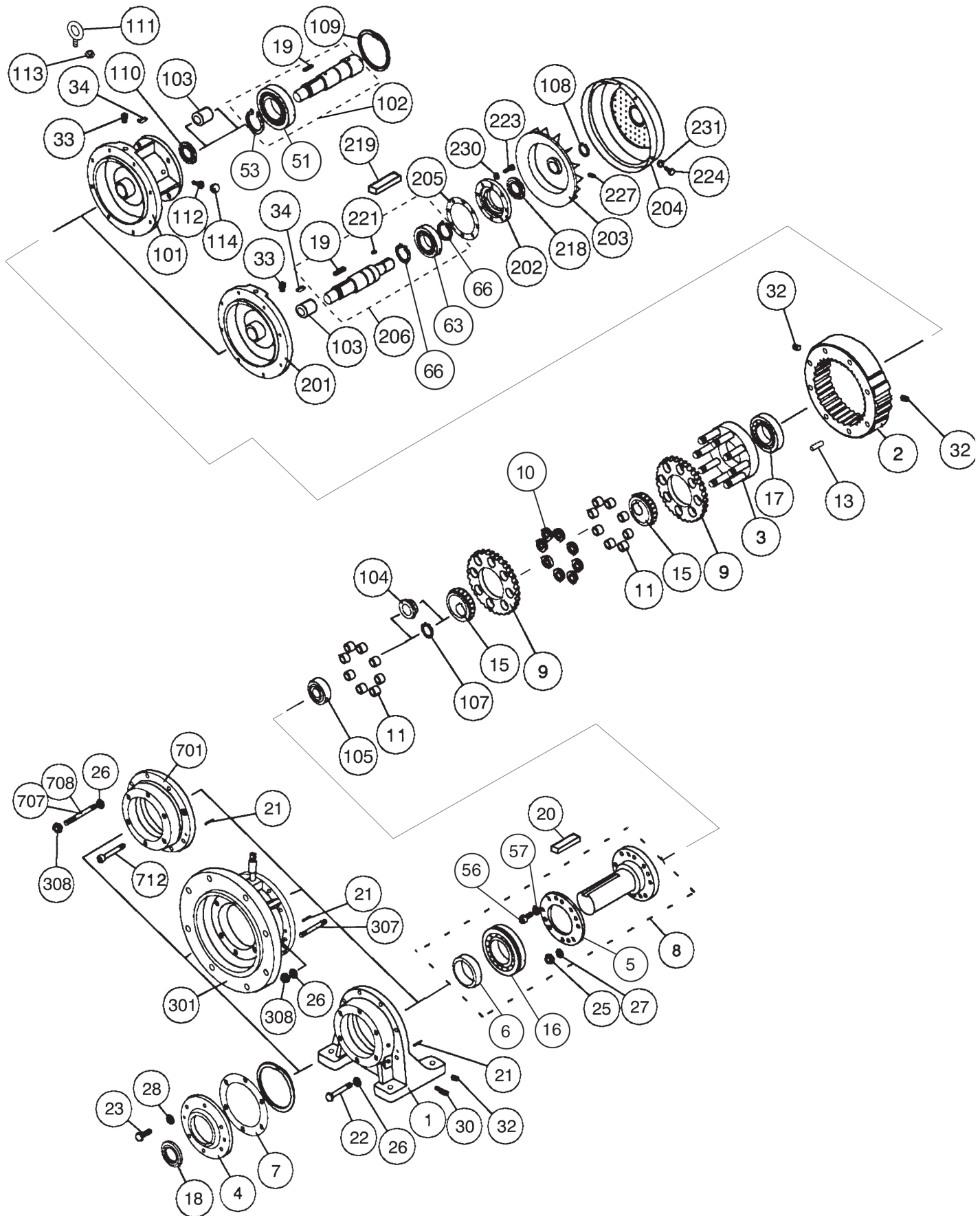
Item	Qty	Part Number	Description	Comments
1	1	BERG1600010	Base NF1	
2	1	BNZY1600920	Pin Housing NF1	11,17,35,71:1
2	1	BNZY3600920	Pin Housing NF2	29,59:1
2	1	BNZY5600920	Pin Housing NF3	47:1
2	1	BERB1600100	Ring Mount Pin Housing NF1	11,17,35,71:1
2	1	BERB4600100	Ring Mount Pin Housing NF2	29,59:1
2	1	BERB5600040	Ring Mount Pin Housing NF3	47:1
2	1	AERA1621022	Pin Housing F41 Precision Backlash	11,17,35,71:1
2	1	AERA4621021	Pin Housing F42 Precision Backlash	29,59:1
2	1	AERA5621022	Pin Housing F43 Precision Backlash	47:1
3	1	AERB1600030	Holder with Pins NF1	11,17:1
3	1	AERB4600030	Holder with Pins NF2	29,35,47,59,71:1
4	1	BERB1600050	Bearing Cover A NF1	
5	1	BERB1600480	Locating Spacer NF1	11,17:1
5	1	BERB4600480	Locating Spacer NF2	29,35,47,59,71:1
6	1	BERB1600470	Output Bushing NF1	
7	1	BERB1600540	Gasket at Bearing Cover A NF1	
8	1	KNZY1600212	Output Shaft Assy NF1	11,17:1
8	1	KNZY4600211	Output Shaft Assy NF2	29,35,47,59,71:1
9	2*	BERA1600221	Wheel NF1	11:1
9	2*	BERA2600221	Wheel NF2	17:1
9	2*	BERA4600221	Wheel NF3	29:1
9	2*	BERA3600221	Wheel NF4	35:1
9	2*	BERA5600221	Wheel NF5	47:1
9	2*	BERA6600221	Wheel NF6	59:1
9	2*	BERA7600221	Wheel NF7	71:1
10	8	BERA3500230	Wheel Spacer E3	11,17:1
10	8	BERA3600230	Wheel Spacer F1	29,35,47,59,71:1
11	16	BERB3500360	Bushing E2	11,17:1
11	16	BERA3600360	Bushing F1	29,35,47,59,71:1
13	**	BERA1600380	Internal Pin F1	
13	**	BERA1621380	Internal Pin F41	Precision Backlash
15	2	BERA1600400	Eccentric Bearing F1	11:1
15	2	BERA2600400	Eccentric Bearing F2	17:1
15	2	BERA4600400	Eccentric Bearing F3	29:1
15	2	BERA3600400	Eccentric Bearing F4	35:1
15	2	BERA5600400	Eccentric Bearing F5	47:1
15	2	BERA6600400	Eccentric Bearing F6	59:1
15	2	BERA7600400	Eccentric Bearing F7	71:1
16	1	RBBGA006319	Ball Bearing 6319NR	
16	1	RBBKA006319	Ball Bearing 6319NRDD	Vertical Up
17	1	RBBCA006216	Ball Bearing 6216ZZ	
18	1	ROSPA104014	Oil Seal D104014	
19	1	RLKAA012058	Key 12x8x38 KM10	11,17:1
19	1	RLKAA015058	Key 15x10x58 KM12	except 11,17:1
20	1	56000323	Key 7/8x7/8x.53	
21	2	RLPAA013045	Spring Pin 13x45	
22	8	RSRAC012130	Hex. Head Screw M12x130, 11T	
23	6	RSRAA012045	Hex. Head Bolt M12x45	
25	8	RSNBA000016	Nut, Hex. M16 Type 3	11,17:1
25	8	RSNBA000018	Nut, Hex. M18 Type 3	29,35,59,71:1
26	**	RWLBA000012	Spring Washer Disk, PS, M12	
27	8	RWLBA000016	Spring Washer Disk, PS, M16	11,17:1
27	8	RWLBA000018	Spring Washer Disk, PS, M18	29,35,59,71:1
28	6	RWSAA000012	Lock Washer M12	
30	2	RSPAA000308	Square Head Plug PT3/8 PG3	
31	2	RSPAA000308	Square Head Plug PT3/8 PG3	
32	2	RSPBB000308	Hex. Headless Plug PT3/8	
33	1	SSQBA000304	Breather Plug PT3/4 BC5	
34	1	ROTA0000004	Plug Red 4mmOD Rubber	
51	1	RBBCA006312	Ball Bearing 6312ZZ	210TC/250TC
51	1	RBBCA006215	Ball Bearing 6215ZZ	280TC
51	1	RBBCA006218	Ball Bearing 6218ZZ	320TC
53	1	RLSSA000060	Snap Ring S-60 External	210TC/250TC
53	1	RLSSA000075	Snap Ring S-75 External	280TC
53	1	RLSSA000090	Snap Ring S-90 External	320TC
56	4	RSSAA012025	Socket Screw M12x25	
57	4	RWADB000012	Lock Washer M12	
63	1	RBBCA006312	Ball Bearing 6312ZZ	
66	2	RLSAA000060	Snap Ring S-60 External	
101	1	BXKG0775020	Motor Flange F1 210TC/250TC	
101	1	BXKG0796020	Motor Flange F2 280TC	
101	1	BXKG0798020	Motor Flange F3 320TC	
101	1	C/F	Motor Flange Servo Input	
102	1	KNZY5675030	Motor Shaft F4 w/Brg	210TC except 11,17:1
102	1	KNZY1695030	Motor Shaft F1 w/Brg	11,17:1 250TC
102	1	KNZY3691030	Motor Shaft F3 w/Brg	250TC except 11,17:1
102	1	KNZY1696030	Motor Shaft F2 w/Brg	11,17:1 280TC
102	1	KNZY4696030	Motor Shaft F5 w/Brg	280TC except 11,17:1
102	1	KNZY1698030	Motor Shaft F6 w/Brg	11,17:1 320TC
102	1	KNZY4698030	Motor Shaft F7 w/Brg	320TC except 11,17:1
102	1	C/F	Motor Shaft Servo Input w/Brg	
103	1	BERB0111040	Counter Shaft Bushing NF1	11,17:1 Shaft In, 280TC/320TC
103	1	BERB4511040	Counter Shaft Bushing NF2	Shaft In, 280TC/320TC except 11,17:1
104	1	BERB0207030	Distance Collar NF1	11,17:1 Shaft In, 280TC/320TC
104	1	BERB4511030	Distance Collar NF2	Shaft In, 280TC/320TC except 11,17:1
105	1	RBRCA002306	Roller Bearing NF2306	11,17:1
105	1	RBRCA002308	Roller Bearing NF2308	29,35,59,71:1

Item	Qty	Part Number	Description	Comments
107	1	RLSAA000048	Snap Ring S-48 External	210TC/250TC except 11,17:1
108	1	RLSAA000048	Snap Ring S-48 External	
109	1	RLSRA000130	Snap Ring R-130 Internal	210TC-280TC
109	1	RLSRA000160	Snap Ring R-160 Internal	320TC
110	1	ROSAA608212	Oil Seal S608212	210TC-280TC
110	1	ROSAC608212	Oil Seal S608212 Acrylic	320TC
111	1	RSIAA000012	Eye Bolt M12	
112	1	RSSAA006014	Socket Screw M6x14	210TC
112	1	RSSAA008014	Socket Screw M8x14	250TC/280TC
112	1	RSSAA010025	Socket Screw M10x25	320TC
114	1	SOBAA000015	Rubber Plug 15mm Dia. LP2	
201	1	BXEB0700110	Input Bracket F1	
202	1	BERA1600120	Bearing Cover B F1	
203	1	BERA1600130	Fan F1	
204	1	BERA1600140	Fan Cover F1	
205	1	BERB1600550	Gasket at Bearing Cover B F1	
206	1	KNZY1600310	Input Shaft F1 w/Brg	11,17:1
206	1	KNZY3600310	Input Shaft F2 w/Brg	except 11,17:1
218	1	ROSPA608212	Oil Seal D608212	
219	1	56000319	Key 1/2x1/2x2.95	
221	1	PLKAA014022	Key 14x9x22	
223	4	RSRAA008035	Hex. Head Bolt M8x35	
224	4	RSRAA006010	Hex. Head Bolt M6x10	
227	1	RSTAA008010	Set Screw M8x10 Point	
230	4	RWSAA000008	Spring Washer M8	
231	4	RWSAA000006	Spring Washer M6	
301	1	BERG1631160	Vertical Flange NF1	
307	8	BERA1531181	Stud Bolt M12x138	
308	**	RSNAA000012	Nut M12 Type1	
701	1	BERB1600040	Ring Housing NF1	
707	8	BERB1500080	Stud Bolt M12x82	
708	6	BERA1500080	Stud Bolt M12x160	
712	2	RSSAA012110	Socket Bolt M12x110	

C/F - Contact SHIMPO Drives Customer Service.

- \* indicates that these parts must be purchased in sets of this size.
- \*\* indicates that the number of items per reducer varies.

# Exploded View - Frame Sizes F03 - F07 (Double Reduction Case Size F)



# Troubleshooting

CONDITION	PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>Load does not rotate</b>	Drive motor not operating	Overload tripped	Reset the overload. If condition continues, check the motor and reducer sizing.
		Defective drive motor	Remove the motor from the reducer and apply power. Replace if it does not operate properly.
	Input jammed	Improper input drive train alignment or assembly	Check all portions of the input drive assembly for proper alignment and smooth operation.
	Reducer input shaft not driven	Broken or missing key	Inspect the keys on all input drive shafts.
		Defective input drive train	Inspect all input drive components for proper assembly and operation. Check the tension and condition of any input drive belts.
	Output mechanical problems	Broken or missing key	Inspect the keys on all output drive shafts.
		Defective output drive train	Check all portions of the output drive assembly for proper alignment and smooth operation.
		Worn load components	Disconnect the reducer from the driven load. Operate it using the drive motor. Check for smooth, quiet operation. Disassemble and repair the reducer if required.
	Overload	Load too large for the motor/reducer combination	Compare the see of the drive train with the see of the load. If necessary, replace with a larger motor/reducer combination. For an existing application, consider any changes that might have increased the load.
		Worn load components	Inspect all load components for damage or wear. Replace or repair as needed.
Damaged reducer	Damaged reducer components	Disconnect the reducer from the driven load. Operate it using the drive motor. Check for smooth, quiet operation. Disassemble and repair the reducer, if required.	
<b>Load does not reach full speed</b>	Drive motor turning too slowly	Motor overloaded	Check motor current to see if it is overloaded. Repair the cause of the overload or replace with a larger motor/drive combination.
		Motor connected to wrong power source	Compare the voltage and frequency of the power source to the motor's nameplate.
		Adjustable speed drive is too slow	If the motor is driven by an adjustable speed drive, ensure that it is operating properly.
		Incorrect motor	Check the motor's nameplate for proper speed rating.
	Incorrect reducer selected	Reducer ratio too high	Replace the reducer with one having a smaller ratio. It may be necessary to change the sizes of the motor, the reducer, or both.
<b>Unusual noise</b>	Damaged components	Damaged motor	Disconnect the motor and drive it separately. Replace if necessary.
		Damaged or misaligned drive train components	Check all drive train components for proper alignment and operation. Replace as necessary.
		Damaged reducer	Disconnect the reducer from the load and operate it. If necessary, disassemble and repair. Look for external causes of the damage.
	Vibration	Loose mounting	Check all mounting bolts and all reducer body bolts for tightness.
Improper lubrication	Improper reducer lubrication type or quantity	Lubricate the reducer according to factory specifications.	
<b>Excessive temperature</b>	Excessive load	Overload	Check the motor current to determine if the drive is overloaded. Reduce the load or crease the motor/reducer size.
		Input/output misalignment or excessive overhung/thrust load	Check all input and output connections for proper alignment.
	Improper cooling	Restricted air flow	Inspect motor and reducer fans for proper air flow. Clean as required. Be sure that the reducer is in an area where air can flow freely around it.
	Improper ambient temperature	Ambient temperature is not in the range from 32°F to 104 °F	Contact Shimpo Drives.
	Improper lubrication	Improper reducer lubrication type or quantity	Lubricate the reducer according to factory specifications.
	Mechanical damage	Reducer damaged	Disassemble and repair the reducer as required.
<b>Lubricant leaks</b>	Excessive internal pressure	Plugged oil breather	Be sure that the oil breather is installed and functioning properly.
	Damaged or loose components	Damaged oil seals	Inspect all oil seals. Replace if necessary.
		Loose reducer body joints	Inspect all body joints for leaks. Tighten all body bolts. If necessary, disassemble the reducer and replace the gaskets.
		Cracked reducer body	Inspect the reducer for cracked body parts. Disassemble and replace as needed.
<b>Vibration</b>	Excessive input speed	Reducer input shaft is being driven at more than 1750 rpm	Reduce the input speed. Contact Shimpo Drives if an input speed greater than 1750 rpm is required.
	Improper assembly	The eccentrics are aligned in the same direction	Disassemble the reducer and ensure that the eccentrics are mounted opposite to each other.
	Improper mounting	Loose mounting bolts or structure or improper alignment of connected equipment	Ensure that the reducer is firmly mounted to a rigid base. Check the alignment of devices connected to the reducer's input and output.
	Damage	Internal damage to the reducer	Disassemble and inspect all reducer parts, particularly bearings.

# SHIMPO Worldwide Facilities



1

Shimpo's North American headquarters in suburban **Chicago** where we inventory, provide sales, engineering, and product support.

2

Shimpo's Regional offices are located in **California** and **North Carolina**, providing sales, engineering, and product support.



3

Shimpo's state-of-the-art factory and sales office in **China** combine to fill out a major presence throughout Asia.



4

Shimpo's corporate offices are in **Japan** where the company performs product research, development, and international sales support. ISO 9001 certified.

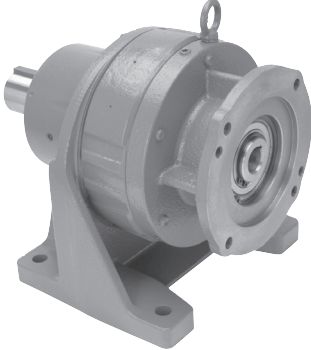
5

Shimpo's European presence is represented by a sales office in **Germany**.

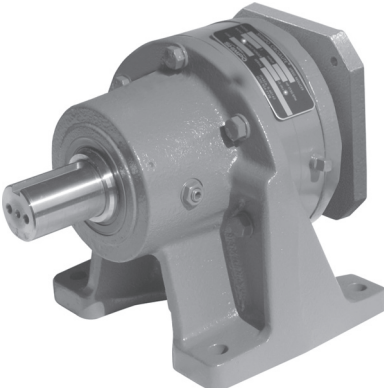
# The Complete Line of Shimpo Drives Products



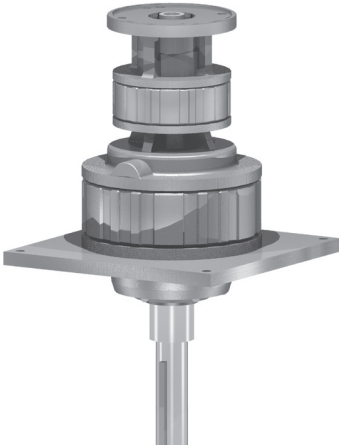
Adjustable Speed Drive



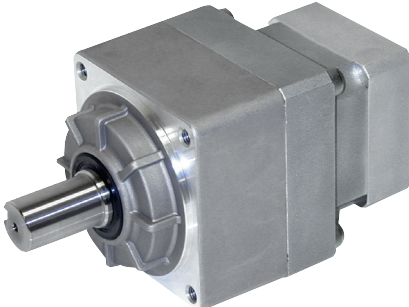
Speed Reducer



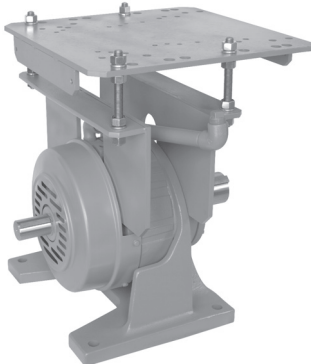
Servo Cycloidal Speed Reducer



Overhead Conveyor Speed Reducer



Servo Planetary Gearhead



Top Mount Adaptor Reducer

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