SHIMPO DRIVES

Circulute® Series II
Speed Reducers

Featuring the patented Circulute® tooth design for unsurpassed ruggedness and overload capacity

Ratios from 11:1 through 71:1 per stage
Double reduction ratios through 5,041:1
Triple reduction ratios through 357,911:1

through 50 HP

NEW expanded ratings

SHIMPO DRIVES
Features and Benefits

Design Features	Operational Benefits
☐ cycloidal design	- ratios of 11:1 through 71:1 in a single stage - compact design - high efficiency - low internal WK^2 for quick response - minimized internal stress levels maximizes life
☐ patented Circulute® tooth design	- service factors better than AGMA standards - high overload capacity - reduced wear - rolling motion minimizes wear, maximizes efficiency
☐ generously sized bearings	- high overhung and thrust load capacity - long service life
☐ rugged one-piece base	- durability, even under extreme shock loads
☐ balanced design	- smooth, quiet operation
☐ NEMA C-face input	- minimum overall length - uses standard motors for easy maintenance
☐ foot, flange, or ring mount	- easily mounts in any application
☐ simple lubrication system	- minimum maintenance - can be easily provided for any mounting position - maintains positive lubrication even with variable speed operation

The Circulute's patented tooth form makes the difference

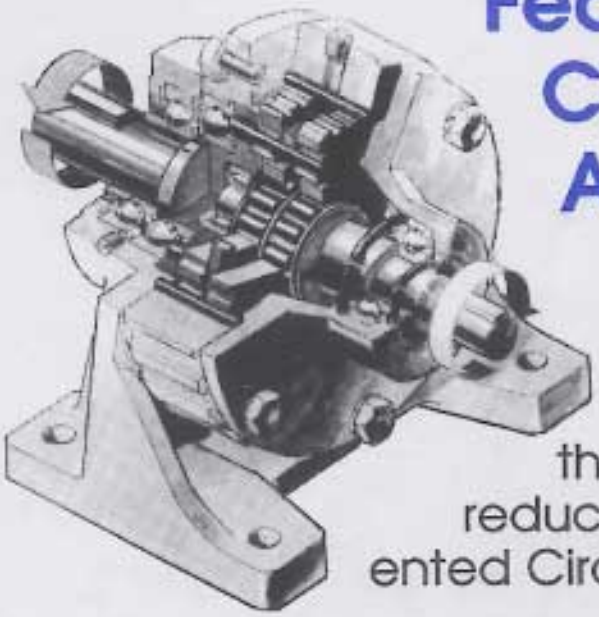
Forces on the teeth are always compressive so that teeth can't bend, even under extreme overloads. The shallow pressure angle reduces the load on the reducer's bearings.

Contact Area for Various Reducers

Helical and Wave Style Cycloidal | Worm | Circulute

The conformal geometry of the patented tooth profile maximizes contact area and minimizes contact stress.

Features that Set the Circulute *Series II* Apart



No other speed reducer combines the features of the Circulute *Series II*. It has all of the capabilities of a cycloidal reducer and more, due to its patented Circulute tooth design.

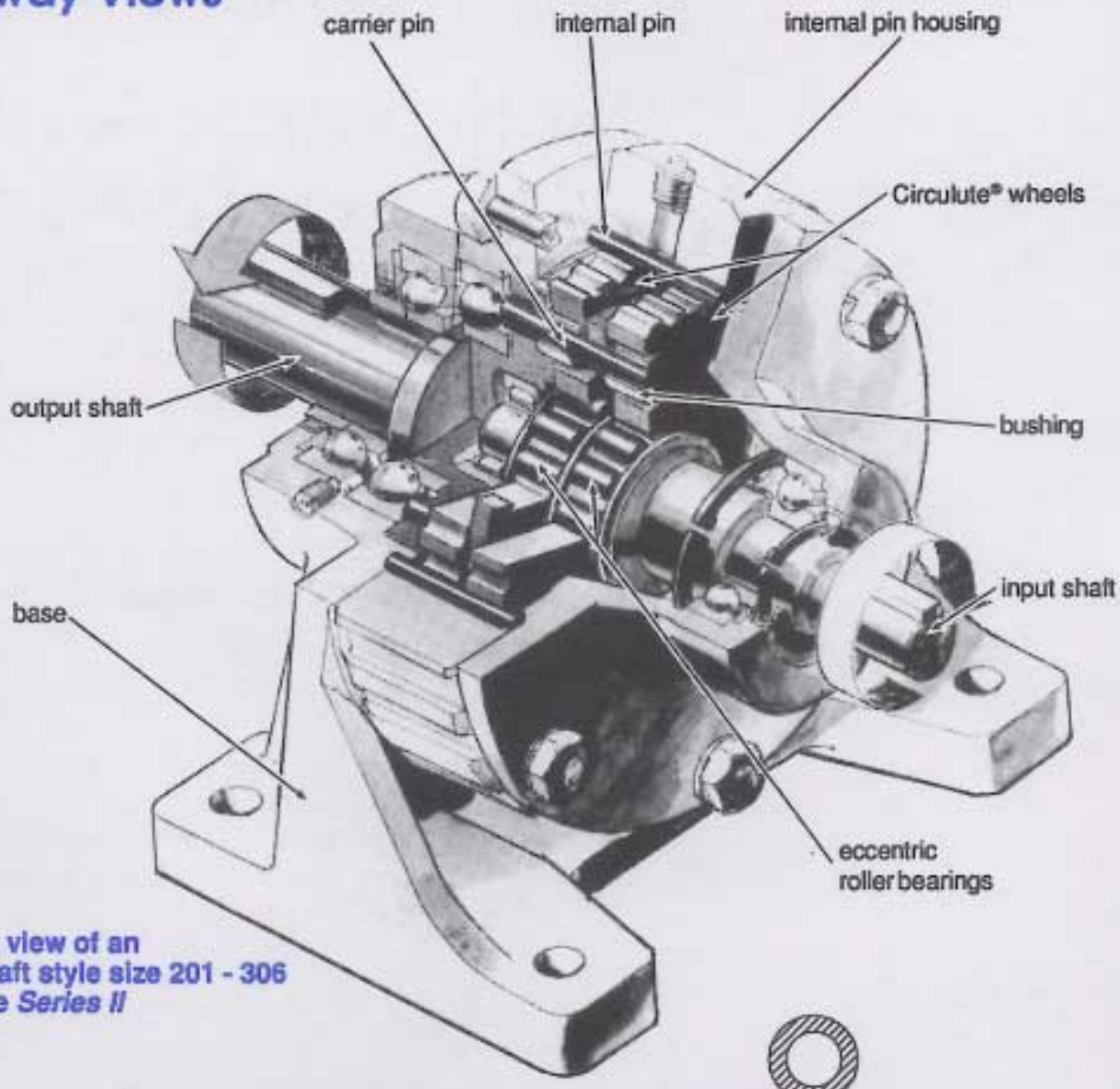
Its cycloidal design ..... produces large reduction ratios in a single stage. Ratios from 11:1 through 71:1 are possible with a single reduction stage. Multiple stage reducers with ratios as high 357,911:1 can be provided. This ensures a compact, efficient reducer package.

Forces on the wheel are compressive ..... to ensure ruggedness. Teeth can't flex, even under extreme overloads. As a result, service factors which are better than AGMA standards can be used. There is no need to provide additional service factor to reversing loads.

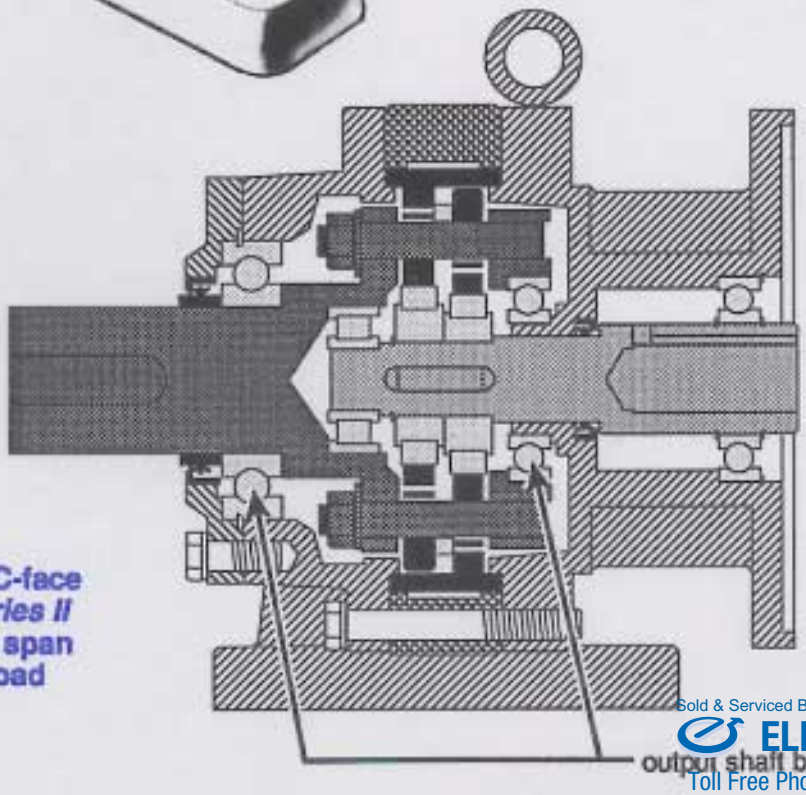
Its simple lubrication system .. means that the reducer can be easily mounted in any position. It can also be driven by a variable speed motor without the need for special modifications.

The patented Circulute tooth profile ..... ensures a shallow pressure angle on the Circulute wheel. This minimizes the loading on the internal bearings and so provides maximum service life.

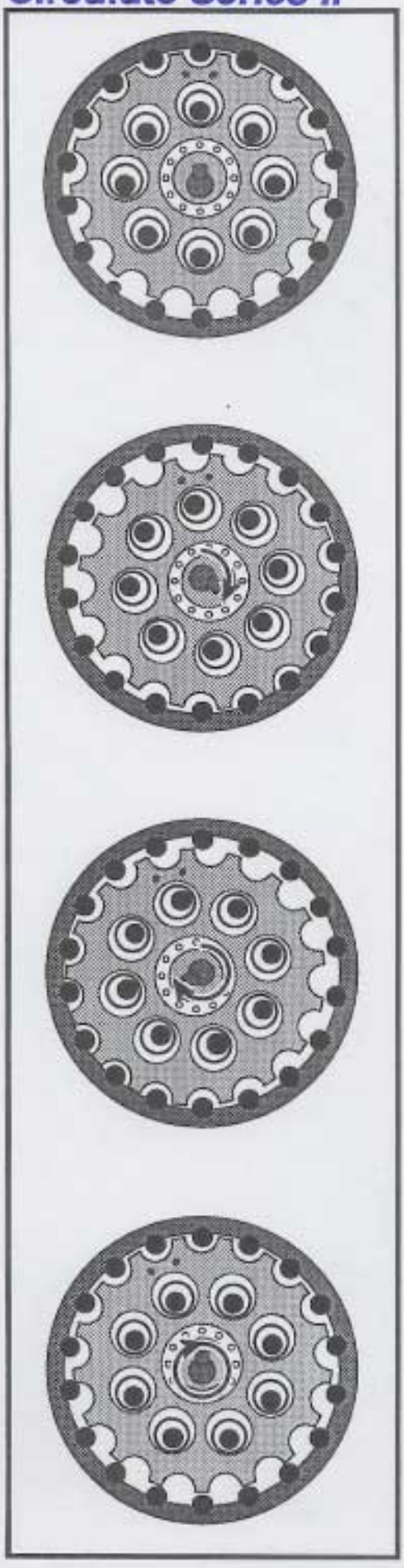
The conformal contact between the wheels and internal pins ..... maximizes contact area to reduce contact pressure.



cutaway view of an input shaft style size 201 - 306 Circulute *Series II*



cross sectional view of a NEMA C-face input size 401 - 607 Circulute *Series II* showing the long output bearing span which provides large overhung load capacity



SHIMPO DRIVES
Operating Principles

1. When the input shaft makes one rotation, the eccentric roller bearing also rotates once in the same direction.

2. The Circulate wheel is driven by the eccentric roller bearing. It revolves around the internal pins with its teeth engaging with consecutive pins.

3. When the eccentric roller bearing has completed one full rotation, a Circulate tooth initially in mesh with a pin will be positioned as many teeth behind its initial position as the difference between the number of internal pins and the number of Circulate teeth. As a result, the Circulate wheel rotates slowly in the opposite direction of the input shaft.

4. The rotational motion of the Circulate wheel is transmitted to the output shaft through the carrier pins.

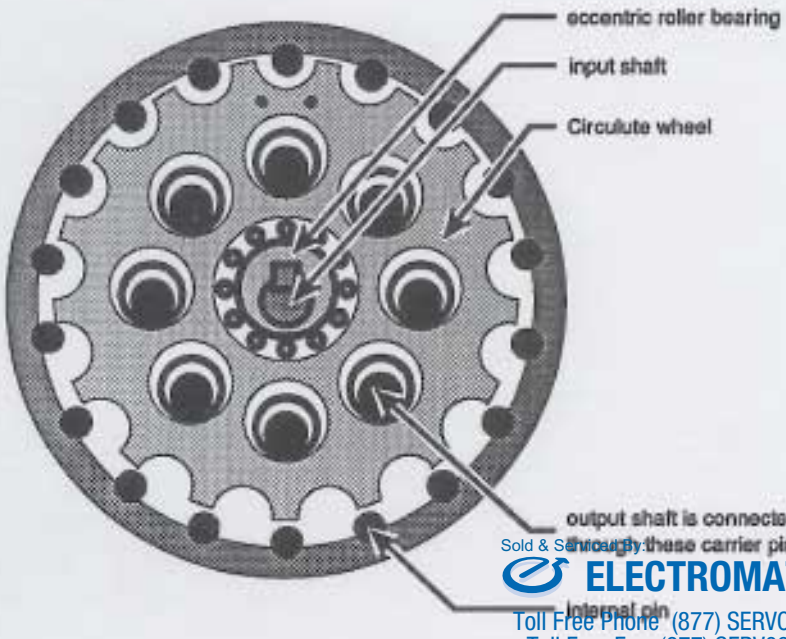
The reduction ratio of the Circulate *Series II* Speed Reducer can be calculated using the following formula:

$$R = \frac{N - M}{M}$$

where R = the reduction ratio of the Circulate *Series II*
N = the number of internal pins
and M = the number of Circulate teeth.

For this example, N = 18 and M = 17, so

$$R = \frac{18 - 17}{17} = \frac{1}{17}$$



Selection Procedure

Service Factor Table

Prime Mover	Duration of Service	Load Classification: Uniform AGMA	Uniform Circulute	Moderate Shock AGMA	Moderate Shock Circulute	Heavy Shock AGMA	Heavy Shock Circulute
Electric Motor	Occasional: 1/2 hour per day	0.50	0.50	0.80	0.80	1.25	1.20
	Intermittent: 3 hours per day	0.80	0.80	1.00	1.00	1.50	1.35
	Up to 10 hours per day	1.00	1.00	1.25	1.20	1.75	1.50
	24 hours per day	1.25	1.20	1.50	1.35	2.00	1.60
Multi-Cylinder Internal Combustion Engine	Occasional: 1/2 hour per day	0.8	0.80	1.00	1.00	1.50	1.35
	Intermittent: 3 hours per day	1.00	1.00	1.25	1.20	1.75	1.50
	Up to 10 hours per day	1.25	1.20	1.50	1.35	2.00	1.60
	24 hours per day	1.50	1.35	1.75	1.50	2.75	1.70
Single Cylinder Internal Combustion Engine	Occasional: 1/2 hour per day	1.00	1.00	1.25	1.20	1.75	1.50
	Intermittent: 3 hours per day	1.25	1.20	1.50	1.35	2.00	1.60
	Up to 10 hours per day	1.50	1.35	1.75	1.50	2.25	1.70
	24 hours per day	1.75	1.50	2.00	1.60	2.50	1.80

Circulute Series II

SHIMPO DRIVES

Load Classification Table

U - Uniform Load M - Moderate Shock Load H - Heavy Shock Load

AGITATORS	
Pure Liquids	U
Liquids and Solids	M
Liquids - Variable Density	M
Semi-liquids - Variable Density	M*
BLOWERS	
Centrifugal	U
Lobe	M
Vane	U
BREWING and DISTILLING	
Bottling Machinery	U
Brew Kettles - Continuous Duty	U
Cookers - Continuous Duty	U
Mash Tubs - Continuous Duty	U
Scale Hopper Frequent Starts	M
CAN FILLING MACHINES	U
CANE KNIVES	M
CAR DUMPERS	H
CAR PULLERS - Intermittant Duty	U
CLARIFIERS	U
CLASSIFIERS	M
CLAY WORKING MACHINERY	
Brick Press	H
Briquette Machine	H
Clay Working Machinery	M
Pug Mill	M
COMPRESSORS	
Centrifugal	U
Lobe	M
Reciprocating	
Multi-cylinder	M*
Single Cylinder	H*
CONVEYORS - UNIFORMLY LOADED OR FED	
Apron	M
Assembly	M
Belt	M
Bucket	M
Chain	U
Flight	U
Oven	U
CONVEYORS - HEAVY DUTY NOT UNIFORMLY FED	
Apron	M
Assembly	M
Belt	M
Bucket	M
Chain	M
Flight	M
Live Roll (Package)	M
Oven	M
Reciprocating	H
Screw	M
Shaker	H
CRANES and HOISTS	
Main Hoists	
Heavy Duty	H
Medium Duty	M
Reversing	M
Skip Hoists	M
Trolley Drive	M*
Bridge Drive	M*
CRUSHERS	
Ore	H
Stone	H
DREDGES	
Cable Reels	M
Conveyors	M
Cutter Head Drives	H
Jig Drives	H
Maneuvering Winches	M
Pumps	M
Screen Drive	H
Stackers	M
Utility Winches	M
ELEVATORS	
Bucket - Uniform Load	U
Bucket - Heavy Load	M
Bucket - Continuous	U
Centrifugal Discharge	U
Escalators	U
Freight	M
Gravity Discharge	U
Man Lifts	**
Passenger	**
Service - Hand Lift	H
FANS	
Centrifugal	M
Cooling Towers	
Induced Draft	M
Forced Draft	**
Induced Draft	M
Large (Mine, etc.)	M*
Large Industrial	M*
Light (Small Diameter)	U
FEEDERS	
Apron	M
Belt	M
Disc	U
Reciprocating	H
Screw	M
FOOD INDUSTRY	
Beet Slicer	M
Cereal Cooker	U
Dough Mixer	M
Meat Grinders	M
GENERATORS - (Not Welding)	U
HAMMER MILLS	H
LAUNDRY WASHERS	
Reversing	M
LAUNDRY TUMBLERS	M
LINE SHAFTS	
Heavy Shock Load	H
Moderate Shock Load	M
Uniform Load	U
LUMBER INDUSTRY	
Barkers - Hydraulic - Mechanical	M
Burner Conveyor	M
Chain Saw and Drag Saw	H
Chain Transfer	H
Craneway Transfer	H
De-Barking Drum	H
Edger Feed	M
Gang Feed	M
Green Chain	M
Live Rolls	H
Log Deck	H
Log Haul - Incline	H
Log Haul - Well Type	H
Log Turning Device	H
Main Log Conveyor	H
Off Bearing Rolls	M
Planer Feed Chains	M
Planer Floor Chains	M
Planer Tilting Hoist	M
Re-saw Merry-Go-Round Conveyor	M
Roll Cases	H
Slab Conveyor	H
Small Waste Conveyor - Belt	U
Small Waste Conveyor - Chain	M
Sorting Table	M
Tipple Hoist Conveyor	M
Tipple Hoist Drive	M
Transfer Conveyor	H
Transfer Rolls	H
Tray Drive	M
Trimmer Feed	M
Waste Conveyor	M
MACHINE TOOLS	
Bending Roll	M
Notching Press - Belt Driven	*
Plate Planer	H
Punch Press - Gear Driven	H
Tapping Machines	H
Other Machine Tools	
Main Drives	M
Auxiliary Drives	U
METAL MILLS	
Draw Bench - Carriage	H
Draw Bench - Main Drive	M
Forming Machines	H
Pinch Dryer & Scrubber Rolls, Reversing	*
Slitters	M*
Table Conveyors	
Non-Reversing	M
Reversing	H
Wire Drawing & Flattening Machine	M
Wire Winding Machine	M
MILLS, ROTARY TYPE	
Ball	H
Cement Kilns	**
Dryers & Coolers	M
Kilns	M
Pebble	H
Rod	H
Tumbling Barrels	H
MIXERS	
Concrete Mixers, Continuous	M
Concrete Mixers, Intermittent	U
Constant Density	U
Variable Density	M
OIL INDUSTRY	
Chillers	M
Oil Well Pumping	**
Paraffin Filter Press	M
Rotary Kilns	M
PAPER MILLS	
Agitators (Mixers)	M
Barker Auxiliaries, Hydraulic	M
Barker, Mechanical	M
Barking Drum	H
Beater & Pulper	M
Bleacher	U
Calenders	M
Calenders - Super	H
Converting Machines, except Cutters, Platers	M
Conveyors	U
Couch	M
Cutters, Platers	H
Cylinders	M
Dryers	M
Felt Stretcher	M
Felt Whipper	H
Jordans	H
Log Haul	H
Presses	U
Pulp Machines	M
Reel	M
Stock Chests	M
Suction Roll	U
Washers and Thickeners	M
Winders	U
PRINTING PRESSES	U
PULLERS	
Barge Haul	M
PUMPS	
Centrifugal	H
Proportioning	M*
Reciprocating	
Single Acting	
3 or more Cylinders	M
Double Acting	
2 or more Cylinders	M
Single Acting	
1 or 2 Cylinders	*
Double Acting	
Single Cylinder	*
Rotary - Gear Type	H
Rotary - Lobe, Vane	H
RUBBER INDUSTRY	
Mixer	H
Rubber Calender	M
Rubber Mill (2 or more)	M*
Sheeter	M*
Tire Building Machines	**
Tire & Tube Press Openers	**
Tubers and Strainers	M
SEWAGE DISPOSAL EQUIPMENT	
Bar Screens	H
Chemical Feeders	H
Collectors, Circuline or Straight Line	H
Dewatering Screens	M
Grit Collectors	H
Scum Breakers	M
Slow or Rapid Mixers	M
Sludge Collectors	U
Thickeners	M
Vacuum Filters	M
SCREENS	
Air Washing	U
Rotary - Stone or Gravel	M
Traveling Water Intake	U
SLAB PUSHERS	M
STEERING GEAR	M
STOKERS	U
TEXTILE INDUSTRY	
Batchers	M
Calenders	M
Card Machines	M*
Cloth Finishing Machines, (washers, pads, tenters, dryers, calenders, etc.)	M
Dry Cans	M
Dryers	M
Dyeing Machinery	M
Knitting Machines (looms, etc.)	*
Looms	M
Mangles	M
Nappers	M
Pads	M
Range Drives	*
Slashers	M
Soapers	M
Spinners	M
Tenter Frames	M
Washers	M
Winders (Other than Batchers)	M
Yarn Preparatory Machines (Cards, Spinners, Slashers, etc.)	M
WINDLASS	M*

* In view of varying load conditions, it is suggested that these applications be carefully reviewed before a final selection is made.

** Check safety codes and refer to the Shimpo Drives Customer Service Center.

1750 rpm input speed

Size		Output Speed (rpm) / Reduction Ratio						
		159	103	60.3	50.0	37.2	29.7	24.6
		11 : 1	17 : 1	29 : 1	35 : 1	47 : 1	59 : 1	71 : 1
103	output lb-in	391	451	451	504	451	425	269
	input HP	1.07	0.80	0.47	0.43	0.29	0.22	0.11
105	output lb-in	469	469	541	605	541	510	323
	input HP	1.28	0.83	0.56	0.52	0.35	0.26	0.14
107	output lb-in	521	577	666	730	665	627	398
	input HP	1.42	1.02	0.69	0.63	0.42	0.32	0.17
201	output lb-in	601	894	894	894	894	1,010	664
	input HP	1.64	1.58	0.93	0.77	0.57	0.51	0.28
203	output lb-in	869	1,220	1,220	1,220	1,220	1,220	869
	input HP	2.37	2.15	1.26	1.05	0.78	0.62	0.37
205	output lb-in	1,040	1,460	1,460	1,460	1,460	1,360	1,040
	input HP	2.84	2.58	1.51	1.25	0.93	0.69	0.44
207	output lb-in	1,150	1,560	1,560	1,560	1,560	1,560	1,280
	input HP	3.14	2.75	1.61	1.34	1.00	0.79	0.54
301	output lb-in	1,840	1,950	1,990	1,990	1,950	1,990	1,810
	input HP	5.02	3.44	2.06	1.71	1.25	1.01	0.77
303	output lb-in	2,000	2,840	2,910	2,950	2,950	2,950	2,520
	input HP	5.46	5.01	3.01	2.53	1.88	1.50	1.07
305	output lb-in	2,400	3,040	3,040	3,230	3,230	3,230	3,020
	input HP	6.55	5.37	3.15	2.77	2.06	1.64	1.28
307	output lb-in	2,600	3,650	3,650	3,650	3,650	3,970	3,650
	input HP	7.10	6.45	3.78	3.13	2.33	2.02	1.54
401	output lb-in	2,750	4,850	4,850	4,850	4,850	4,850	4,850
	input HP	7.50	8.56	5.02	4.16	3.10	2.47	2.05
403	output lb-in	3,910	6,080	6,520	6,940	6,520	6,520	6,000
	input HP	10.7	10.7	6.75	5.95	4.16	3.32	2.54
405	output lb-in	4,690	7,300	7,820	8,330	7,850	7,820	7,200
	input HP	12.8	12.9	8.09	7.14	5.01	3.98	3.04
407	output lb-in	5,770	8,500	8,330	8,780	8,330	8,330	8,330
	input HP	15.7	15.0	8.62	7.53	5.32	4.24	3.52
501	output lb-in	7,370	11,400	12,500	12,500	12,500	12,500	9,950
	input HP	20.1	20.1	12.9	10.7	7.98	6.36	4.21
503	output lb-in	8,950	13,100	16,100	18,500	16,900	16,200	12,600
	input HP	24.4	23.1	16.7	15.9	10.8	8.24	5.33
505	output lb-in	10,700	15,700	19,400	22,200	20,300	18,600	15,100
	input HP	29.2	27.7	20.1	19.0	13.0	9.46	6.38
507	output lb-in	13,200	19,300	24,300	27,300	25,000	22,900	18,600
	input HP	36.0	34.1	25.2	23.4	16.0	11.7	7.86
603	output lb-in	14,800	21,100	32,000	34,700	33,800	33,800	25,500
	input HP	40.4	37.3	33.1	29.8	21.6	17.2	10.8
605	output lb-in	17,800	25,300	38,900	41,600	40,600	37,400	30,600
	input HP	48.6	44.7	40.3	35.7	25.9	19.0	12.9
607	output lb-in	21,900	31,100	48,600	51,200	50,000	46,000	37,700
	input HP	59.8	54.9	50.3	43.9	31.9	23.4	15.9

1165 rpm input speed

Size		Output Speed (rpm) Reduction Ratio						
		106	68.5	40.2	33.3	24.8	19.7	16.4
		11 : 1	17 : 1	29 : 1	35 : 1	47 : 1	59 : 1	71 : 1
103	output lb-in	442	510	510	569	510	480	304
	input HP	0.80	0.60	0.35	0.33	0.22	0.16	0.09
105	output lb-in	495	530	611	684	611	576	365
	input HP	0.90	0.62	0.42	0.39	0.26	0.20	0.10
107	output lb-in	521	652	730	730	730	708	450
	input HP	0.95	0.77	0.50	0.42	0.31	0.24	0.13
201	output lb-in	679	1,010	1,010	1,010	1,010	1,140	750
	input HP	1.23	1.19	0.70	0.58	0.43	0.39	0.21
203	output lb-in	982	1,380	1,380	1,380	1,380	1,380	982
	input HP	1.78	1.62	0.95	0.79	0.59	0.47	0.28
205	output lb-in	1,090	1,480	1,480	1,480	1,480	1,480	1,180
	input HP	1.98	1.74	1.02	0.85	0.63	0.50	0.33
207	output lb-in	1,150	1,560	1,560	1,560	1,560	1,560	1,450
	input HP	2.09	1.83	1.07	0.89	0.66	0.53	0.41
301	output lb-in	2,080	2,200	2,240	2,240	2,200	2,240	2,040
	input HP	3.78	2.59	1.54	1.28	0.94	0.76	0.57
303	output lb-in	2,260	3,210	3,290	3,290	3,290	3,970	2,850
	input HP	4.11	3.77	2.27	1.88	1.40	1.34	0.80
305	output lb-in	2,470	3,430	3,430	3,470	3,470	3,650	3,410
	input HP	4.49	4.03	2.36	1.98	1.48	1.24	0.96
307	output lb-in	2,600	3,650	3,650	3,650	3,650	3,970	3,650
	input HP	4.72	4.29	2.52	2.08	1.55	1.34	1.03
401	output lb-in	3,110	8,500	5,470	5,470	5,470	5,470	5,470
	input HP	5.65	9.99	3.77	3.12	2.33	1.85	1.54
403	output lb-in	4,420	6,870	7,370	7,840	7,370	7,370	6,780
	input HP	8.03	8.08	5.08	4.48	3.13	2.50	1.91
405	output lb-in	5,300	8,080	7,910	8,340	7,910	7,910	7,910
	input HP	9.63	9.50	5.45	4.76	3.36	2.68	2.23
407	output lb-in	6,250	8,500	8,330	8,780	8,330	8,330	8,330
	input HP	11.4	10.0	5.74	5.01	3.54	2.82	2.34
501	output lb-in	8,330	12,900	14,100	14,100	14,100	14,100	11,200
	input HP	15.1	15.2	9.72	8.05	6.00	4.78	3.15
503	output lb-in	10,100	14,800	18,200	20,900	19,100	18,300	14,200
	input HP	18.3	17.4	12.5	11.9	8.12	6.20	4.00
505	output lb-in	12,100	17,700	21,900	25,100	22,900	21,000	17,100
	input HP	22.0	20.8	15.1	14.3	9.74	7.11	4.81
507	output lb-in	14,900	21,700	27,500	30,800	28,200	25,900	21,000
	input HP	27.1	25.5	18.9	17.6	12.0	8.77	5.91
603	output lb-in	16,700	23,800	36,200	39,200	38,200	38,200	28,800
	input HP	30.3	28.0	24.9	22.4	16.2	12.9	8.11
605	output lb-in	20,100	28,600	44,000	47,000	45,900	42,300	34,600
	input HP	36.5	33.6	30.3	26.8	19.5	14.3	9.7
607	output lb-in	24,700	35,100	54,900	57,800	56,500	52,000	42,600
	input HP	44.9	41.3	37.8	33.0	24.0	17.6	12.0

870 rpm input speed

Size		Output Speed (rpm) / Reduction Ratio						
		79.1	51.2	30.0	24.9	18.5	14.7	12.3
		11 : 1	17 : 1	29 : 1	35 : 1	47 : 1	59 : 1	71 : 1
103	output lb-in	469	556	556	622	556	524	332
	input HP	0.64	0.49	0.29	0.27	0.18	0.13	0.07
105	output lb-in	495	578	667	694	667	629	398
	input HP	0.67	0.51	0.34	0.30	0.21	0.16	0.08
107	output lb-in	521	712	730	730	730	730	491
	input HP	0.71	0.62	0.38	0.31	0.23	0.18	0.10
201	output lb-in	741	1,100	1,100	1,100	1,100	1,240	819
	input HP	1.01	0.97	0.57	0.47	0.35	0.31	0.17
203	output lb-in	1,040	1,400	1,400	1,400	1,400	1,400	1,070
	input HP	1.41	1.23	0.72	0.60	0.44	0.35	0.22
205	output lb-in	1,090	1,480	1,480	1,480	1,480	1,480	1,280
	input HP	1.48	1.30	0.76	0.63	0.47	0.37	0.27
207	output lb-in	1,150	1,560	1,560	1,560	1,560	1,560	1,560
	input HP	1.56	1.37	0.80	0.67	0.50	0.39	0.33
301	output lb-in	2,210	2,400	2,450	2,450	2,400	2,450	2,230
	input HP	3.00	2.11	1.26	1.04	0.76	0.62	0.47
303	output lb-in	2,340	3,290	3,290	3,290	3,290	3,570	3,110
	input HP	3.17	2.89	1.69	1.40	1.04	0.90	0.65
305	output lb-in	2,470	3,470	3,470	3,470	3,470	3,770	3,470
	input HP	3.35	3.05	1.79	1.48	1.10	0.95	0.73
307	output lb-in	2,600	3,650	3,650	3,650	3,650	3,970	3,650
	input HP	3.53	3.20	1.88	1.56	1.16	1.00	0.77
401	output lb-in	3,400	5,980	5,980	5,980	5,980	5,980	5,980
	input HP	4.61	5.25	3.08	2.55	1.90	1.51	1.26
403	output lb-in	4,820	7,500	7,500	7,900	7,500	7,500	7,400
	input HP	6.54	6.58	3.86	3.37	2.38	1.90	1.56
405	output lb-in	5,780	8,080	7,910	8,340	7,910	7,910	7,910
	input HP	7.84	7.09	4.07	3.56	2.51	2.00	1.66
407	output lb-in	6,250	8,500	8,330	8,780	8,330	8,330	8,330
	input HP	8.48	7.46	4.29	3.74	2.64	2.11	1.75
501	output lb-in	9,090	14,000	15,400	15,400	15,400	15,400	12,300
	input HP	12.3	12.3	7.92	6.57	4.89	3.90	2.59
503	output lb-in	11,000	16,200	19,900	22,800	20,800	20,000	15,500
	input HP	14.9	14.2	10.2	9.72	6.60	5.06	3.26
505	output lb-in	13,200	19,400	23,900	27,400	25,000	22,900	18,600
	input HP	17.9	17.0	12.3	11.7	7.94	5.79	3.91
507	output lb-in	16,300	21,700	30,000	31,200	30,800	28,200	22,900
	input HP	22.1	19.0	15.4	13.3	9.78	7.13	4.81
603	output lb-in	18,300	26,000	39,500	42,800	41,700	41,700	31,400
	input HP	24.8	22.8	20.3	18.2	13.2	10.5	6.60
605	output lb-in	22,000	31,200	48,000	51,300	50,100	46,100	37,700
	input HP	29.8	27.4	24.7	21.9	15.9	11.7	7.92
607	output lb-in	27,000	38,400	59,900	63,100	61,700	56,700	46,500
	input HP	36.6	33.7	30.8	26.9	19.6	14.3	9.77

580 rpm input speed

Size		Output Speed (rpm) Reduction Ratio						
		52.7	34.1	20.0	16.6	12.3	9.8	8.2
		11 : 1	17 : 1	29 : 1	35 : 1	47 : 1	59 : 1	71 : 1
103	output lb-in	469	628	628	657	628	592	375
	input HP	0.42	0.37	0.22	0.19	0.13	0.10	0.05
105	output lb-in	495	653	694	694	694	694	450
	input HP	0.45	0.38	0.24	0.20	0.15	0.12	0.06
107	output lb-in	521	730	730	730	730	730	554
	input HP	0.47	0.43	0.25	0.21	0.15	0.12	0.08
201	output lb-in	837	1,250	1,250	1,250	1,250	1,330	925
	input HP	0.76	0.73	0.43	0.36	0.26	0.22	0.13
203	output lb-in	1,040	1,400	1,400	1,400	1,400	1,400	1,210
	input HP	0.94	0.82	0.48	0.40	0.30	0.24	0.17
205	output lb-in	1,090	1,480	1,480	1,480	1,480	1,480	1,450
	input HP	0.99	0.87	0.51	0.42	0.31	0.25	0.20
207	output lb-in	1,150	1,560	1,560	1,560	1,560	1,560	1,560
	input HP	1.04	0.91	0.54	0.44	0.33	0.26	0.22
301	output lb-in	2,210	2,710	2,760	2,760	2,710	2,760	2,510
	input HP	2.00	1.59	0.95	0.78	0.57	0.47	0.35
303	output lb-in	2,340	3,290	3,290	3,290	3,290	3,570	3,290
	input HP	2.12	1.93	1.13	0.94	0.70	0.60	0.46
305	output lb-in	2,470	3,470	3,470	3,470	3,470	3,770	3,470
	input HP	2.23	2.03	1.19	0.99	0.73	0.64	0.49
307	output lb-in	2,600	3,650	3,650	3,650	3,650	3,970	3,650
	input HP	2.35	2.14	1.25	1.04	0.77	0.67	0.51
401	output lb-in	3,840	6,750	6,750	6,750	6,750	6,750	6,750
	input HP	3.47	3.95	2.32	1.92	1.43	1.14	0.95
403	output lb-in	5,450	7,650	7,500	7,900	7,500	7,500	7,500
	input HP	4.93	4.48	2.57	2.25	1.59	1.26	1.05
405	output lb-in	5,940	8,080	7,910	8,340	7,910	7,910	7,910
	input HP	5.37	4.73	2.71	2.37	1.67	1.33	1.11
407	output lb-in	6,250	8,500	8,330	8,780	8,330	8,330	8,330
	input HP	5.65	4.97	2.86	2.50	1.76	1.40	1.17
501	output lb-in	10,300	15,800	17,400	17,400	17,400	17,400	13,900
	input HP	9.32	9.25	5.97	4.95	3.68	2.93	1.95
503	output lb-in	12,500	18,200	22,400	25,800	23,500	22,600	17,500
	input HP	11.3	10.7	7.68	7.33	4.97	3.81	2.45
505	output lb-in	14,900	20,600	27,000	29,600	28,300	25,900	21,000
	input HP	13.5	12.1	9.26	8.41	5.99	4.37	2.94
507	output lb-in	18,400	21,700	31,200	31,200	31,200	31,200	25,900
	input HP	16.6	12.7	10.7	8.87	6.60	5.26	3.63
603	output lb-in	20,600	29,400	44,600	48,300	47,100	47,100	35,500
	input HP	18.6	17.2	15.3	13.7	10.0	7.94	4.97
605	output lb-in	24,800	35,200	54,200	57,900	56,500	52,100	42,600
	input HP	22.4	20.6	18.6	16.5	12.0	8.79	5.97
607	output lb-in	30,500	43,300	65,100	65,100	65,100	64,100	52,500
	input HP	27.6	25.3	22.3	18.5	13.8	10.8	7.36

Double Reduction Selection Tables

1750 rpm input speed

14.5 rpm - 3.38 rpm
121:1 - 517:1

Size		Output Speed (rpm) / Reduction Ratio						
		14.5	9.36	6.06	5.49	4.55	3.55	3.38
		121:1	187:1	289:1	319:1	385:1	493:1	517:1
125	output lb-in	1,910	1,910	1,910	2,600	2,600	2,600	2,600
	input HP	0.51	0.33	0.21	0.26	0.22	0.17	0.16
135	output lb-in	3,820	6,690	6,690	6,080	6,080	6,080	6,080
	input HP	1.02	1.16	0.75	0.62	0.51	0.40	0.38
145	output lb-in	5,300	8,190	9,070	12,600	12,600	12,600	12,600
	input HP	1.42	1.42	1.02	1.28	1.06	0.83	0.79
245	output lb-in	8,590	13,900	13,900				
	input HP	2.30	2.41	1.56				
255	output lb-in	11,700	18,100	23,900	30,800	31,200	31,200	31,200
	input HP	3.14	3.14	2.68	3.14	2.63	2.05	1.96
355	output lb-in	23,900	23,900		34,300			
	input HP	6.40	4.14		3.49			
365	output lb-in	26,500	40,900	57,300	65,100	65,100	65,100	65,100
	input HP	7.10	7.10	6.44	6.62	5.49	4.29	4.09
465	output lb-in	52,100	52,100					
	input HP	14.0	9.04					
475	output lb-in		90,700	124,000	130,000	130,000	130,000	
	input HP		15.7	14.0	13.2	11.0	8.56	
575	output lb-in		124,000					
	input HP		21.6					

1750 rpm input speed

2.94 rpm - 1.72 rpm
595:1 - 1,015:1

Size		Output Speed (rpm) / Reduction Ratio						
		2.94	2.70	2.24	2.19	2.08	1.74	1.72
		595:1	649:1	781:1	799:1	841:1	1003:1	1015:1
125	output lb-in	2,600	2,600	2,600	2,600	2,600	2,600	2,600
	input HP	0.14	0.13	0.11	0.11	0.10	0.08	0.08
135	output lb-in	6,080	6,080	6,080	6,080	6,080	6,080	6,080
	input HP	0.33	0.30	0.25	0.25	0.23	0.20	0.19
145	output lb-in	12,600	12,600	12,600	12,600	12,600	12,600	12,600
	input HP	0.69	0.63	0.52	0.51	0.49	0.41	0.40
245	output lb-in							
	input HP							
255	output lb-in	31,200	31,200	31,200	31,200	31,200	31,200	31,200
	input HP	1.70	1.56	1.30	1.27	1.20	1.01	1.00
355	output lb-in							
	input HP							
365	output lb-in	65,100	65,100	65,100	65,100	65,100	65,100	65,100
	input HP	3.55	3.26	2.71	2.64	2.51	2.11	2.08
465	output lb-in							
	input HP							
475	output lb-in	130,000	130,000	130,000		130,000	130,000	130,000
	input HP	7.09	6.50	5.40		5.02	4.21	[illegible]
575	output lb-in							
	input HP							

1750 rpm input speed

1.45 rpm - 0.847 rpm
1,207:1 - 2,065:1

Size		Output Speed (rpm) / Reduction Ratio						
		1.45	1.43	1.28	1.06	1.02	0.850	0.847
		1207:1	1225:1	1363:1	1645:1	1711:1	2059:1	2065:1
125	output lb-in	2,600	2,600	2,600	2,600	2,600	2,600	2,600
	input HP	0.07	0.07	0.06	0.05	0.05	0.04	0.04
135	output lb-in	6,080	6,080	6,080	6,080	6,080	6,080	6,080
	input HP	0.16	0.16	0.14	0.12	0.12	0.10	0.10
145	output lb-in	12,600	12,600	12,600	12,600	12,600	12,600	12,600
	input HP	0.34	0.33	0.30	0.25	0.24	0.20	0.20
245	output lb-in							
	input HP							
255	output lb-in	31,200	31,200	31,200	31,200	31,200	31,200	31,200
	input HP	0.84	0.83	0.74	0.62	0.59	0.49	0.49
355	output lb-in							
	input HP							
365	output lb-in	65,100	65,100	65,100	65,100	65,100	65,100	65,100
	input HP	1.75	1.72	1.55	1.28	1.23	1.03	1.02
465	output lb-in							
	input HP							
475	output lb-in	130,000	130,000			130,000	130,000	130,000
	input HP	3.50	3.44			2.47	2.05	2.04
575	output lb-in							
	input HP							

1750 rpm input speed

0.792 rpm - 0.347 rpm
2,209:1 - 5,041:1

Size		Output Speed (rpm) / Reduction Ratio						
		0.792	0.704	0.631	0.524	0.503	0.418	0.347
		2209:1	2485:1	2773:1	3337:1	3481:1	4189:1	5041:1
125	output lb-in	2,600	2,600	2,600	2,600	2,600	2,600	2,600
	input HP	0.04	0.03	0.03	0.02	0.02	0.02	0.02
135	output lb-in	6,080	6,080	6,080	6,080	6,080	6,080	6,080
	input HP	0.09	0.08	0.07	0.06	0.06	0.05	0.04
145	output lb-in	12,600	12,600	12,600	12,600	12,600	12,600	12,600
	input HP	0.19	0.16	0.15	0.12	0.12	0.10	0.08
245	output lb-in							
	input HP							
255	output lb-in	31,200	31,200	31,200	31,200	31,200	31,200	31,200
	input HP	0.46	0.41	0.37	0.29	0.29	0.24	0.20
355	output lb-in							
	input HP							
365	output lb-in	65,100	65,100	65,100	65,100	65,100	65,100	65,100
	input HP	0.96	0.85	0.76	0.61	0.61	0.50	0.42
465	output lb-in							
	input HP							
475	output lb-in		130,000	130,000	130,000	130,000	130,000	130,000
	input HP		1.70	1.52	1.21	1.21	[illegible]	[illegible]
575	output lb-in							
	input HP							

Miscellaneous Information and Ratings

Ambient Temperature

The ambient operating temperature range of the Circulate *Series II* is from 32°F to 104°F (0°C to 40°C). Contact the Shimpo Drives Customer Service Center if the operating conditions will not fall within this range.

Backlash

The total output shaft backlash of the Circulate *Series II* is approximately one degree. Contact the Shimpo Drives Customer Service Center if a smaller output shaft backlash is required.

Direction of Rotation

The input shaft can be rotated in either direction. For single reduction reducers, the output shaft rotates in the opposite direction of the input shaft. For double reduction, the output shaft rotates in the same direction as the input shaft.

Exact Ratio

All Circulate *Series II* reduction ratios listed in this catalog are exact.

Internal Inertia (WK^2) Reflected to the Input Shaft

units: lb ft²

		Reduction Ratio						
Size	Input Type	11 : 1	17 : 1	29 : 1	35 : 1	47 : 1	59 : 1	79 : 1
103 - 107	all	0.0013	0.0016	0.0015	0.0015	0.0015	0.0015	0.0015
201 - 207	all	0.0017	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022
301 - 307	all	0.0074	0.0081	0.0099	0.0098	0.0097	0.0097	0.0097
401 - 407	all	0.0184	0.0261	0.0285	0.0279	0.0279	0.0273	0.0273
501-507	C-face, coupling adapter	0.0748	0.125	0.117	0.116	0.115	0.115	0.114
	shovel base, input shaft, top mount	0.314	0.368	0.356	0.356	0.356	0.356	0.356
603 - 607	C-face, coupling adapter	0.208	0.178	0.309	0.303	0.303	0.297	0.297
	shovel base, input shaft, top mount	0.771	0.712	0.831	0.831	0.831	0.831	0.831

Thermal Ratings

Because of the high efficiency of the Circulate *Series II* Speed Reducer, its thermal ratings exceed its mechanical ratings in all cases. Therefore, it can be run continuously at any of the ratings in this catalog.

Triple Reduction Ratings

1750 rpm input speed

		Output Speed Range (rpm)			
		Reduction Ratio Range			
		0.32 to 0.31	0.27 to 0.19	0.17 to 0.097	0.093 to 0.005
Size		5423:1 to 5687:1	6545:1 to 9251:1	10,115:1 to 18,095:1	18,821:1 to 357,911:1
T24	output lb-in	12,600	12,600	12,600	12,600
	input HP	0.25	0.25	0.25	0.25
T25	output lb-in	31,200	31,200	31,200	31,200
	input HP	0.25	0.25	0.25	0.25
T36	output lb-in	65,100	65,100	65,100	65,100
	input HP	0.50	0.25	0.25	0.25
T47	output lb-in	130,000	130,000	130,000	130,000
	input HP	1.00	0.75	0.50	0.25

Because of the large torque multiplication provided by these reducers, it is recommended that a torque limiting device be used to protect the reducer and the driven equipment. Contact the Shimpo Drives Customer Service Center for dimensions and additional details about triple reduction Circulate *Series II* Speed Reducers.

Overhung and Thrust Load Rating Tables

Output Shaft

Unit Size	k (in.)		Output Shaft Speed (rpm)							
			40 & below	50	60	80	100	125	150	200
103-107	2.5	OHL (lb)	480	480	480	480	480	470	440	400
		Thrust (lb)	240	240	240	240	240	230	220	200
201-207	2.9	OHL (lb)	790	790	790	790	790	780	730	660
125		Thrust (lb)	400	400	400	400	400	390	370	330
301-307	3.7	OHL (lb)	1,700	1,600	1,500	1,400	1,300	1,200	1,100	1,000
135		Thrust (lb)	840	820	770	700	650	600	570	520
401-407	7.7	OHL (lb)	3,100	2,900	2,800	2,500	2,300	2,200	2,000	1,900
145, 245		Thrust (lb)	1,500	1,500	1,400	1,300	1,200	1,100	1,000	930
501-507	9.7	OHL (lb)	4,600	4,600	4,600	4,600	4,500	4,200	3,900	3,500
255, 355		Thrust (lb)	2,300	2,300	2,300	2,300	2,200	2,100	2,000	1,800
603-607	11.6	OHL (lb)	7,500	7,500	7,100	6,500	6,000	5,600	5,300	4,800
365, 465		Thrust (lb)	3,700	3,700	3,600	3,200	3,000	2,800	2,600	2,400

Input Shaft

Unit Size	k (in.)		Input Shaft Speed (rpm)			
			580	870	1165	1750
103-107	4.7	OHL (lb)	260	260	230	200
125, 135, 145		Thrust (lb)	130	130	120	100
201-207	4.7	OHL (lb)	260	260	230	200
245, 255		Thrust (lb)	130	130	120	100
301-307	5.6	OHL (lb)	400	390	350	310
355, 365		Thrust (lb)	200	190	180	150
401-407	6.4	OHL (lb)	600	600	540	480
465, 475		Thrust (lb)	300	300	270	240
501-507	9.3	OHL (lb)	1,300	1,100	1,000	880
575		Thrust (lb)	640	560	510	440
603-607	11.0	OHL (lb)	1,700	1,500	1,300	1,200
		Thrust (lb)	830	730	660	580

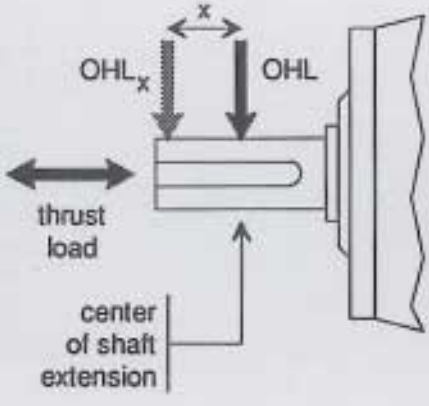
The Overhung Load Rating

The overhung load rating of the Circulute *Series II* is based on having the load applied to the center of the shaft extension. If the load is applied at a different location, the following formula can be used to calculate the overhung load rating of the reducer:

$$OHL_x = \left(\frac{k}{k+x}\right) OHL$$

where:

- OHL = the overhung load rating from the tables
- OHL_x = the calculated rating
- x = the distance in inches from the center of the shaft extension to the load
- k = the load location factor from the tables



Calculating Overhung Load

Overhung load can be calculated from torque using the following formula:

$$OHL = \frac{2cT}{d}$$

where:

- OHL = the overhung load in pounds
- c = the overhung load factor from the table below
- T = the torque in lb-in
- d = the pitch diameter in inches

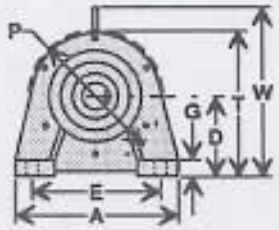
Representative Overhung Load Factors	
chain	c = 1.00
V-belt	c = 1.50
flat belt	c = 2.50
spur gear	c = 1.25

OUTPUT SHAFT U

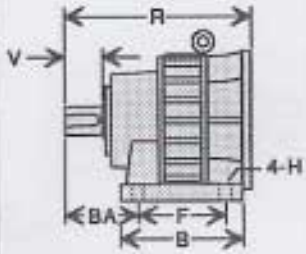
NEMA C-FACE INPUT

INPUT SHAFT UA

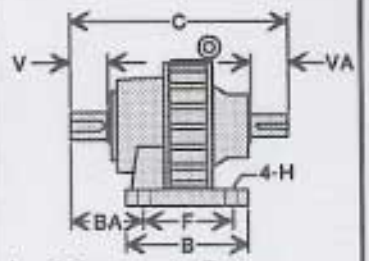
BASE MOUNT



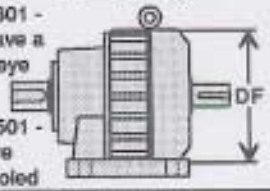
sizes 301 - 607 have a lifting eye



sizes 301 - 607 have a lifting eye



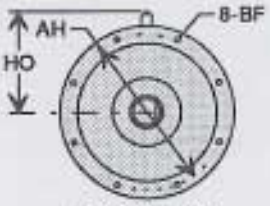
sizes 301 - 607 have a lifting eye



sizes 501 - 607 are fan cooled

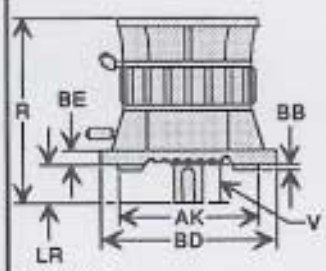
FLANGE MOUNT

sizes 103 - 307

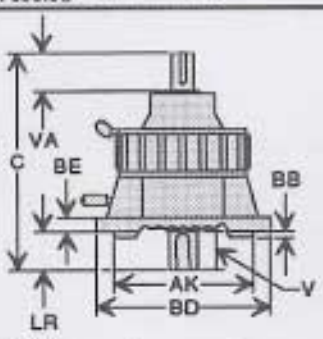


sizes 401 - 607

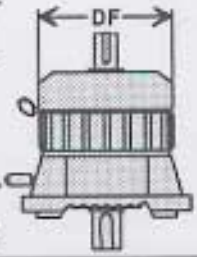
sizes 401 - 607 have oil fittings



sizes 401 - 607 have oil fittings

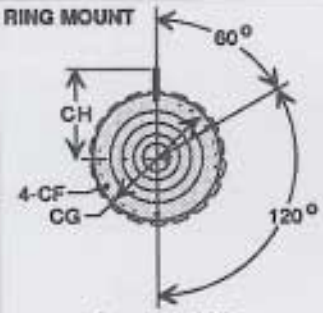


sizes 401 - 607 have oil fittings

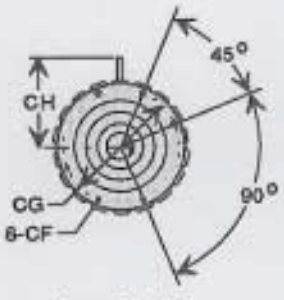


sizes 501 - 607 are fan cooled

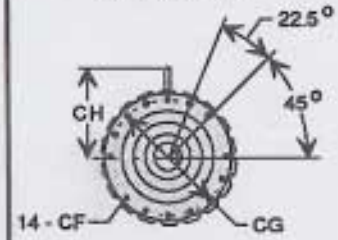
RING MOUNT



sizes 103 - 307

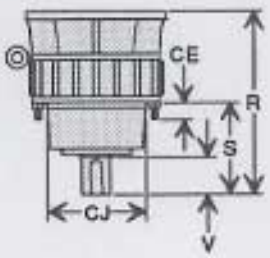


sizes 401 - 407

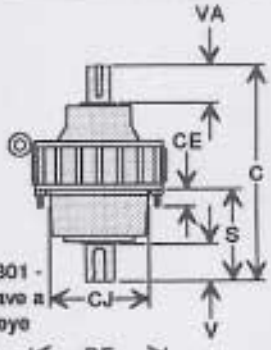


sizes 501- 607

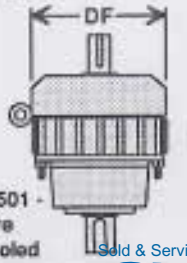
sizes 301 - 607 have a lifting eye



sizes 301 - 607 have a lifting eye



sizes 301 - 607 have a lifting eye



sizes 501 - 607 are fan cooled

Dimensions are subject to change without notice. Contact the Shimpo Drives Customer Service Center for certified drawings for installation purposes.

Single Reduction Dimension Tables

Unit Size	A	AH	AK	B	BA	BB	BD	BE	BF	C	CE	CF	CG
103 - 107	6.89	5.12	4.331	4.72	2.57	0.16	6.30	0.55	0.47	8.36	0.94	M 8	5.04
201 - 207	6.89	6.50	5.118	5.91	3.38	0.16	7.87	0.55	0.47	10.47	0.94	M 8	5.04
301 - 307	8.66	8.46	7.087	7.48	4.07	0.16	9.84	0.71	0.59	12.72	1.38	M 10	6.38
401 - 407	10.83	10.43	9.055	9.06	5.33	0.20	11.81	0.87	0.59	14.17	1.18	M 10	8.27
501 - 507	14.17	13.78	11.811	11.81	5.94	0.31	15.75	0.98	0.75	19.49	1.57	M 12	10.43
603 - 607	16.73	15.75	13.780	14.37	7.67	0.31	17.72	0.98	0.75	22.95	1.38	M 12	12.80

Unit Size	CH	CJ	D	DF	E	F	G	H	HO	LR	P	S	T
103 - 107	---	4.252	3.54	---	5.71	3.54	0.63	0.47	---	1.18	5.79	3.67	6.44
201 - 207	---	4.252	4.53	---	5.71	4.72	0.63	0.47	---	1.58	5.91	4.99	7.48
301 - 307	4.96	5.354	5.51	---	7.09	5.91	0.87	0.59	---	2.17	7.48	6.20	9.25
401 - 407	6.18	7.165	6.50	---	8.86	7.09	1.02	0.75	7.28	2.76	9.25	6.67	11.12
501 - 507	7.91	9.055	7.28	12.32	11.81	9.84	1.18	0.87	9.06	3.54	11.81	8.03	13.19
603 - 607	9.09	11.417	8.27	14.49	13.78	11.61	1.38	0.98	10.24	4.33	14.17	9.83	15.35

Unit Size	U	UA	V	VA	W	Output Keyway	Input Keyway	Input Shaft Net Wt.	Lube Quantity Horiz.	Lube Quantity Vert.
103 - 107	0.875	0.750	1.19	1.19	---	0.188 x 0.094	0.188 x 0.094	20 lb	5 oz	5 oz
201 - 207	1.375	0.750	2.00	1.19	---	0.313 x 0.156	0.188 x 0.094	29 lb	7 oz	7 oz
301 - 307	1.750	1.000	2.50	1.56	10.51	0.375 x 0.188	0.250 x 0.125	64 lb	14 oz	14 oz
401 - 407	2.500	1.125	3.75	1.75	12.68	0.625 x 0.313	0.250 x 0.125	117 lb	0.25 gal	0.40 gal
501 - 507	2.875	1.625	4.37	2.56	15.20	0.750 x 0.375	0.375 x 0.188	227 lb	0.50 gal	0.65 gal
603 - 607	3.625	1.875	5.50	3.00	17.36	0.875 x 0.438	0.500 x 0.250	403 lb	0.85 gal	1.15 gal

Unit Size	Input C-face	C-face Reducer R	C-face Reducer C-face Net Wt.
103 - 107	56C	7.88	22 lb
	143TC - 145TC	7.88	22 lb
201 - 207	56C	9.99	31 lb
	143TC - 145TC	9.99	31 lb
301 - 307	56C	11.71	73 lb
	143TC - 145TC	11.71	73 lb
	182TC 184TC	12.30	76 lb
401 - 407	56C	13.56	135 lb
	143TC - 145TC	13.56	135 lb
	182TC 184TC	14.15	138 lb
	213TC - 215TC	14.74	140 lb
501 - 507	182TC 184TC	17.87	255 lb
	213TC - 215TC	17.87	255 lb
	254TC - 256TC	17.87	255 lb
603 - 607	213TC - 215TC	20.42	414 lb
	254TC - 256TC	20.42	414 lb
	284TC - 286TC	21.84	447 lb

See page 20 for a chart showing C-face availability for each size and ratio of Circulate *Series II* Speed Reducer.

See pages 20 and 21 for dimensions of coupling adapter, shovel base, and top mount motor mounts.

All lengths are in inches. Grease lubrication quantities are in ounces. Oil lubrication quantities are in gallons. Dimensions are subject to change without notice. Contact the Shimpo Drives Customer Service Department for drawings for installation purposes.

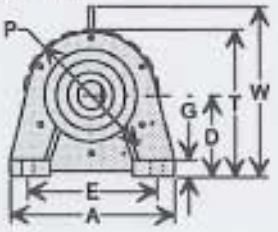
Double Reduction Dimensions

OUTPUT SHAFT U

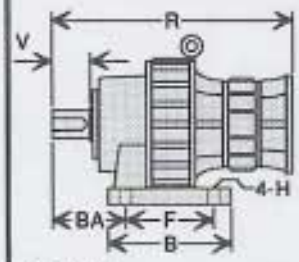
NEMA C-FACE INPUT

INPUT SHAFT UA

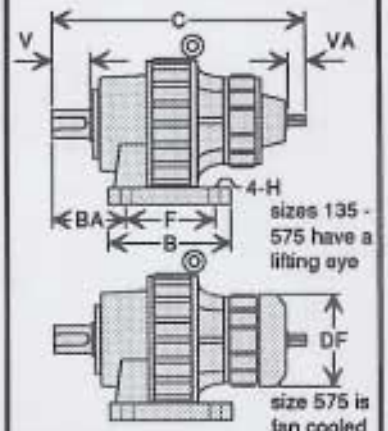
BASE MOUNT



sizes 135 - 575 have a lifting eye



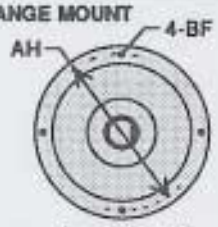
sizes 135 - 575 have a lifting eye



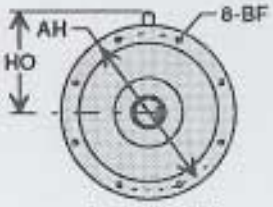
sizes 135 - 575 have a lifting eye

size 575 is fan cooled

FLANGE MOUNT

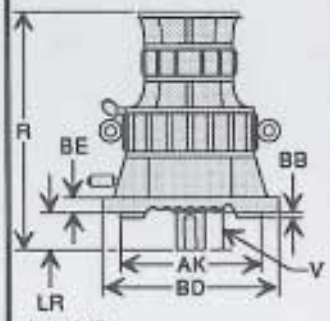


sizes 125 - 135



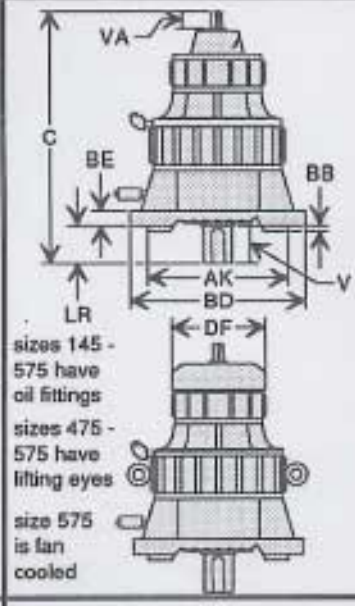
sizes 145 - 575

sizes 145 - 575 have oil fittings



sizes 145 - 575 have oil fittings

sizes 475 - 575 have lifting eyes

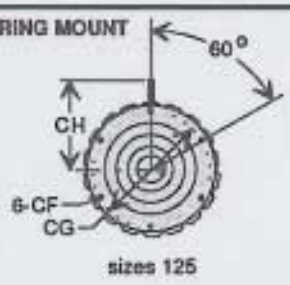


sizes 145 - 575 have oil fittings

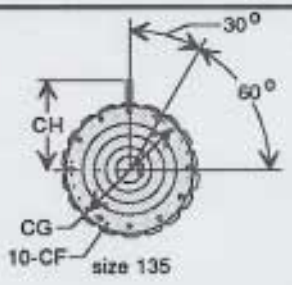
sizes 475 - 575 have lifting eyes

size 575 is fan cooled

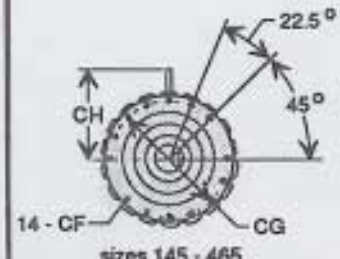
RING MOUNT



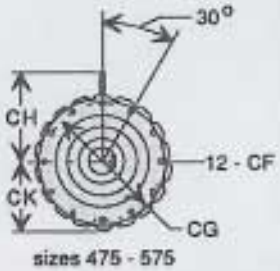
sizes 125



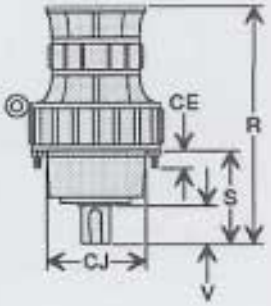
size 135

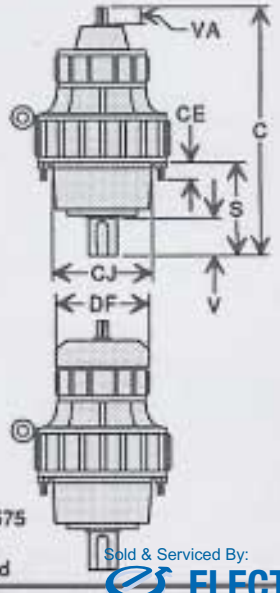


sizes 145 - 465



sizes 475 - 575





size 575 is fan cooled

Dimensions are subject to change without notice. Contact the Shimpo Drives Customer Service Center for certified drawings for installation purposes.

Double Reduction Dimension Tables

Unit Size	A	AH	AK	B	BA	BB	BD	BE	BF	C	CE	CF	CG	CH
125	6.89	6.50	5.118	5.91	3.38	0.16	7.87	0.55	0.47	13.15	0.94	M 8	5.04	4.24
135	8.66	8.46	7.087	7.48	4.07	0.16	9.84	0.71	0.59	15.06	1.38	M 10	6.38	4.96
145	10.83	10.43	9.055	9.06	5.33	0.20	11.81	0.87	0.59	16.73	1.18	M 10	8.27	6.18
245	10.83	10.43	9.055	9.06	5.33	0.20	11.81	0.87	0.59	17.40	1.18	M 10	8.27	6.18
255	14.17	13.78	11.811	11.81	5.94	0.31	15.75	0.98	0.75	20.06	1.57	M 12	10.43	7.91
355	14.17	13.78	11.811	11.81	5.94	0.31	15.75	0.98	0.75	21.30	1.57	M 12	10.43	7.91
365	16.73	15.75	13.780	14.37	7.67	0.31	17.72	0.98	0.75	23.50	1.38	M 12	12.80	9.09
465	16.73	15.75	13.780	14.37	7.67	0.31	17.72	0.98	0.75	25.39	1.38	M 12	12.80	9.09
475	21.65	19.69	17.717	19.69	10.30	0.31	21.65	1.38	0.94	30.39	1.77	M 16	16.93	13.43
575	21.65	19.69	17.717	19.69	10.30	0.31	21.65	1.38	0.94	34.92	1.77	M 16	16.93	13.43

Unit Size	CJ	CK	D	DF	E	F	G	H	HO	LR	P	S	T
125	4.252	---	4.53	---	5.71	4.72	0.63	0.47	---	1.68	5.91	4.99	7.48
135	5.354	---	5.51	---	7.09	5.91	0.87	0.59	---	2.17	7.48	6.20	9.25
145	7.165	---	6.50	---	8.86	7.09	1.02	0.75	7.28	2.76	9.25	6.67	11.12
245	7.165	---	6.50	---	8.86	7.09	1.02	0.75	7.28	2.76	9.25	6.67	11.12
255	9.055	---	7.28	---	11.81	9.84	1.18	0.87	9.06	3.54	11.81	8.03	13.19
355	9.055	---	7.28	---	11.81	9.84	1.18	0.87	9.06	3.54	11.81	8.03	13.19
365	11.417	---	8.27	---	13.78	11.61	1.38	0.98	10.24	4.33	14.17	9.83	15.35
465	11.417	---	8.27	---	13.78	11.61	1.38	0.98	10.24	4.33	14.17	9.83	15.35
475	14.961	10.24	10.63	---	17.72	15.75	1.57	1.10	14.37	5.51	18.90	12.58	20.08
575	14.961	10.24	10.63	12.32	17.72	15.75	1.57	1.10	14.37	5.51	18.90	12.58	20.08

Unit Size	U	UA	V	VA	W	Output Keyway	Input Keyway	Input Shaft Net Wt.	Lube Quantity Horiz.	Vert. Down	Vert. Up
125	1.375	0.750	2.00	1.19	---	0.313 x 0.156	0.188 x 0.094	46 lb	10 oz	10 oz	10 oz
135	1.750	0.750	2.50	1.19	10.51	0.375 x 0.188	0.188 x 0.094	84 lb	15 oz	15 oz	15 oz
145	2.500	0.750	3.75	1.19	12.68	0.625 x 0.313	0.250 x 0.125	145 lb	0.32 gal	5 oz and 0.40 gal	0.32 gal
245	2.500	0.750	3.75	1.19	12.68	0.625 x 0.313	0.250 x 0.125	150 lb	0.32 gal	6 oz and 0.40 gal	0.58 gal
255	2.875	0.750	4.37	1.19	15.71	0.750 x 0.375	0.375 x 0.188	271 lb	0.58 gal	6 oz and 0.63 gal	0.84 gal
355	2.875	1.000	4.37	1.56	15.71	0.750 x 0.375	0.250 x 0.125	293 lb	0.63 gal	12 oz and 0.63 gal	0.98 gal
365	3.625	1.000	5.50	1.56	17.87	0.875 x 0.438	0.250 x 0.125	480 lb	1.00 gal	12 oz and 1.14 gal	1.53 gal
465	3.625	1.125	5.50	1.75	17.87	0.875 x 0.438	0.250 x 0.125	520 lb	1.08 gal	2.06 gal	2.06 gal
475	5.000	1.125	7.540	7.54	1.75	1.250 x 0.625	0.250 x 0.125	784 lb	2.11 gal	3.83 gal	3.83 gal
575	5.000	1.625	7.540	7.54	2.56	1.250 x 0.625	0.375 x 0.188	850 lb	2.32 gal	4.07 gal	4.07 gal

Unit Size	Input C-face	C-face Reducer R	C-face Reducer C-face Net Wt.
125	56C	12.67	53 lb
135	56C	14.59	91 lb
145	56C	16.23	150 lb
245	56C	16.90	161 lb
	143TC - 145TC	16.90	161 lb
255	56C	19.57	274 lb
	143TC - 145TC	19.57	274 lb
355	182TC - 184TC	20.91	304 lb
365	56C	22.55	460 lb
	143TC - 145TC	22.55	460 lb
	182TC - 184TC	23.14	502 lb
465	213TC - 215TC	25.97	528 lb
475	143TC - 145TC	29.82	786 lb
	182TC - 184TC	30.41	793 lb
	213TC - 215TC	31.00	795 lb
575	254TC - 256TC	33.29	861 lb

See page 20 for a chart showing C-face availability for each size and ratio of Circulute *Series II* Speed Reducer.

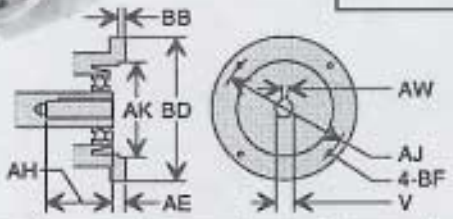
See pages 20 and 21 for dimensions of coupling adapter, shovel base, and top mount motor mounts.

All lengths are in inches. Grease lubrication quantities are in ounces. Oil lubrication quantities are in gallons. When two lubrication quantities are given, the input stage is grease lubricated and the output stage is oil lubricated. Dimensions are subject to change without notice. Contact the Shimpo Drives Customer Service Center for certified drawings for installation purposes.

Input Configurations

NEMA C-face

- for use with NEMA C-face motors
- easy motor mounting
- shortest overall length of any in-line configuration



Input C-face Availability

Unit Size	Single Reduction Ratio	C-face Size 56C	143TC 145TC	182TC 184TC	213TC 215TC	254TC 256TC	284TC 286TC
103 - 255	all						
301 - 365	11:1 (1) 17:1 - 71:1 (2)						
401 - 475	11:1 (1) 17:1 - 71:1 (2)						
501 - 575	11:1 (1) 17:1 - 71:1 (2)						
603 - 607	11:1 - 17:1 (3) 29:1 - 71:1 (4)						

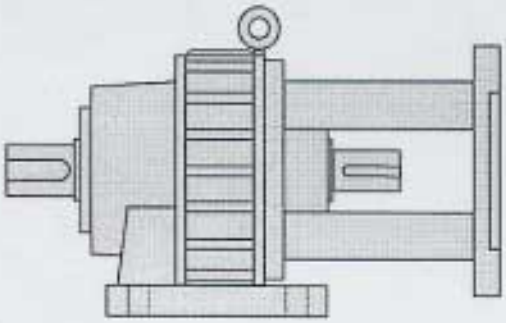
double reduction ratio availability
(1) 121:1, 187:1, 319:1, 385:1, 517:1, 649:1, 781:1
(2) 289:1, 493:1, 595:1, 799:1 - 5041:1
(3) 121:1 - 799:1, 1003:1, 1207:1
(4) 841:1, 1015:1, 1225:1 - 5041:1
triple reduction C-face availability
56C, 143TC and 145TC for all ratios

C-face size	AE	AH	AJ	AK	AW	BB	BD	BF	V
56C	0.31	1.92	5.875	4.50	0.188	0.22	6.61	0.44	0.625
143TC & 145TC	0.31	2.13	5.875	4.50	0.188	0.22	6.61	0.44	0.875
182TC & 184TC	0.39	2.59	7.250	8.50	0.250	0.19	9.00	0.56	1.125
213TC & 215TC	0.39	3.16	7.250	8.50	0.313	0.19	9.00	0.56	1.375
254TC & 256TC	0.39	3.63	7.250	8.50	0.375	0.19	9.00	0.56	1.625
284TC & 286TC	0.19	4.33	9.000	10.50	0.500	0.19	11.15	0.56	1.875

All lengths are in inches. Dimensions are subject to change without notice. Contact the Shimpo Drives Customer Service Center for certified drawings for installation purposes.

Coupling Adapter

- for use with flange-mount motors
- allows the use of a flexible coupling
- provides the easy motor removal
- provides additional motor mounting flexibility
- can be custom engineered for special motors

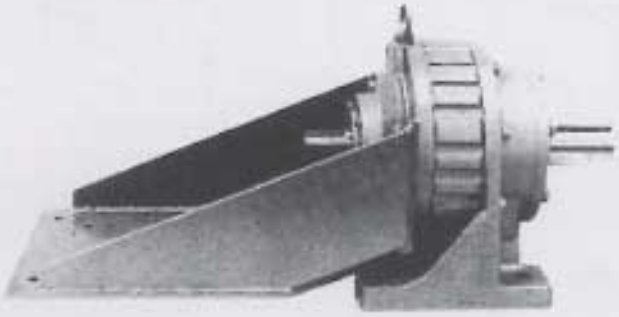


The coupling is provided by the customer.

Coupling adapter input is available for single, double, and triple reduction Circulute *Series II* Speed Reducers with all output styles and positions. It can be provided for mounting standard NEMA C-face motors. Special coupling adapters for other motors can be custom manufactured. Contact the Shimpo Drives Customer Service Center for dimensions and availability.

Shovel Base

- for use with foot mount motors
- allows the use of a flexible coupling
- provides the easy motor removal
- provides additional motor mounting flexibility
- can be custom engineered for special motors

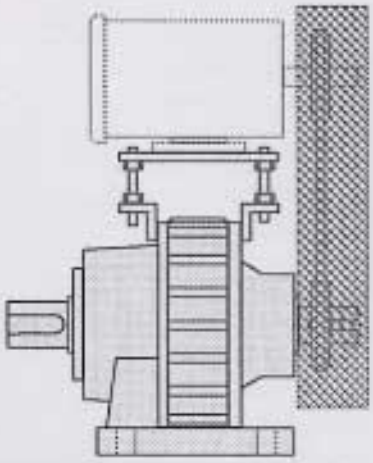


The coupling, required shims, and motor mounting are provided by the customer.

Shovel base input is available for single, double, and triple reduction Circulute *Series II* Speed Reducers with all output styles. It is normally used only for horizontal mounting positions. It can be provided for mounting standard NEMA-dimensioned foot mount motors. Special shovel bases for other motors can be custom manufactured. Contact the Shimpo Drives Customer Service Center for dimensions and availability.

Top Mount

- for use with foot mount motors
- provides the shortest overall length
- belt reduction allows for a wide range of output speeds
- provides easy motor removal
- provides additional motor mounting flexibility
- can be custom engineered for special motors



The sheaves, belt, belt guard, and motor are provided by the customer.

Top mount input is available for single, double, and triple reduction Circulute *Series II* Speed Reducers with base mount. It is normally used only for horizontal mounting positions. It can be provided for mounting standard NEMA-dimensioned foot mount motors. Special top mounts for other motors can be custom manufactured. Contact the Shimpo Drives Customer Service Center for dimensions and availability.

unit size (from the selection tables)	reduction ratio (from the selection tables)	: 1	input type	mounting type	mounting pos.	special

INPUT TYPE

input shaft ..... SHFT

C-face for motor size:		shovel base for motor size:	
56C	C-56	56	S-56
143TC & 145TC	C140	143T & 145T	S140
182TC & 184TC	C180	182T & 184T	S180
213TC & 215TC	C210	213T & 215T	S210
254TC & 256TC	C250	254T & 256T	S250
284TC & 286TC	C280	284T & 286T	S280
324TC & 326TC	C320	324T & 326T	S320
coupling adapter for motor size:		top mount for motor size:	
56C	A-56	56	T-56
143TC & 145TC	A140	143T & 145T	T140
182TC & 184TC	A180	182T & 184T	T180
213TC & 215TC	A210	213T & 215T	T210
254TC & 256TC	A250	254T & 256T	T250
284TC & 286TC	A280	284T & 286T	T280
324TC & 326TC	A320	324T & 326T	T320

C-face motor provided by Shimpo

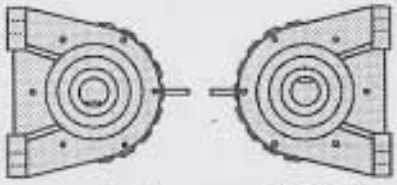
1/4 HP motor	M.25
1/2 HP motor	M.50
3/4 HP motor	M.75
1 HP motor	M1.0
1 1/2 HP motor	M1.5
2 HP motor	M2.0
3 HP motor	M3.0
5 HP motor	M5.0
7 1/2 HP motor	M7.5
10 HP motor	M10.
15 HP motor	M15.
20 HP motor	M20.
25 HP motor	M25.
30 HP motor	M30.
40 HP motor	M40.
50 HP motor	M50.

MOUNTING TYPE

base (foot)	B
flange	F
ring	R

MOUNTING POSITION

horizontal	H
vertical, output shaft down	D
vertical, output shaft up	U
ceiling (base mount)	C
wall, feet left (base mount)	L
wall, feet right (base mount)	R



position L (viewed from the output shaft)

position R (viewed from the output shaft)

SPECIAL MODIFICATIONS

single phase motor supplied	1
3450 rpm motor supplied	2
1165 rpm motor supplied	6
870 rpm motor supplied	8
brake motor supplied	B
explosion-proof motor supplied	E
oil level gauge supplied	G
high temperature oil	H
high temperature grease	I
oil lubrication in place of standard grease lubrication	J
grease lubrication in place of standard oil lubrication	K
low temperature oil	L
low temperature grease	M
splined input shaft	S
splined output shaft	T
washdown modifications (a stainless steel sleeve under the output shaft seal, a V-ring deflector on the output shaft seal, and a washdown breather for oil-filled units)	W
white epoxy paint	X
washdown modifications with white epoxy pa...	...

SHIMPO DRIVES
Circulute Configurations

Input Configurations

input shaft

input C-face

Output Configurations

base (foot) mount

flange mount

ring mount

Double Reduction, Input Shaft, Base Mount

All input and output configurations are available for double reduction Circulute *Series II* speed reducers.

The Complete Line of SHIMPO Drives Products

Adjustable Speed Drive

Speed Reducer

Torque Limiter Reducer

Floor Conveyor Reducer