

GENERAL CONSTRUCTION

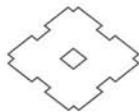


Fig. A-1 Speed Reducer – Horizontal Foot Mount, Single Reduction

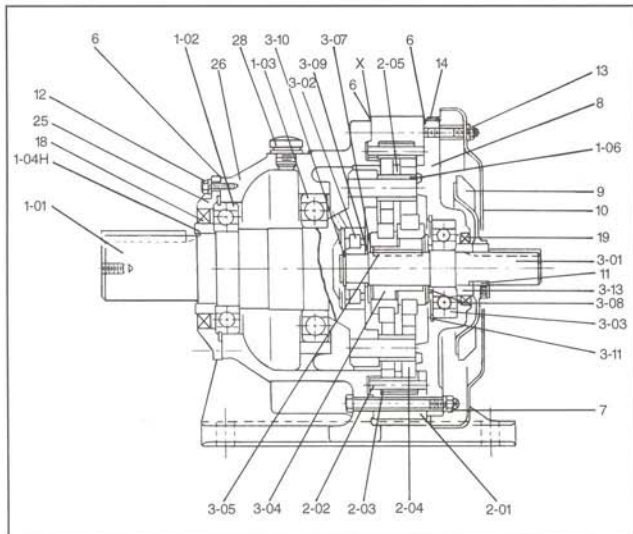
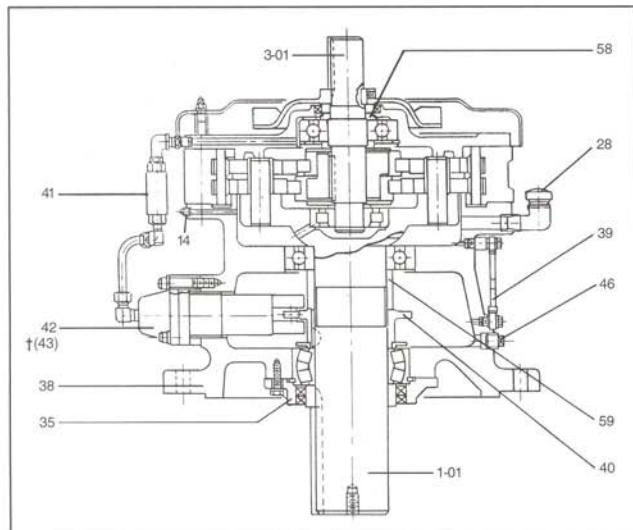


Fig. A-2 Speed Reducer – Vertical Base Mount, Single Reduction



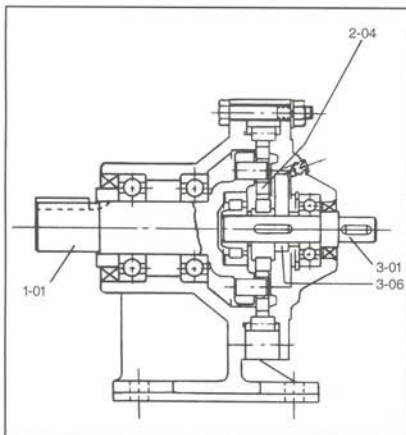
Note: For details of oil seals, bearings or gaskets, refer to A-11 ~ 13.
 †Refer to Table A-16 on Pg. A-9 for units which require a positive displacement pump.
 *Pt. No. 58 — frame sizes 6195-6275 only; Pt. No. 59 — frame sizes 6205-6275 only.
 **See Fig. A-3, Page A-4; † See Fig. A-4, Page A-4.

Table A-1. Speed Reducer Main Parts

Part No.	Part Name
1-01	Slow Speed Shaft w/pins
1-02	Bearing A
1-03	Bearing B
1-04H	Oil Seal Collar—Horizontal
1-06	Slow Speed Shaft Rollers
2-01	Ring Gear Housing
2-02	Ring Gear Pins
2-03	Ring Gear Rollers
2-04	Cyclo Disc
2-05	Spacer Ring
3-01	High Speed Shaft
3-02	Bearing C
3-03	Bearing D
3-04	Eccentric Bearing Assembly
3-05	Eccentric Key
**3-06	Balance Weight
3-07	Spacer
3-08	Spacer
3-09	Spacer
3-10	Retaining Ring
3-11	Retaining Ring
3-13	Collar
†5-01	Intermediate Shaft w/Pins
†5-02	Bearing F
†5-03	Bearing G
†5-04	Eccentric Bearing Assembly
6	Gasket Set
7	Casing Nuts & Bolts
8	High Speed End Shield
9	Cooling Fan & Set Screw
10	Fan Cover
11	Fan Key
12	Bolts For SS Oil Seal Housing
13	Bolts, Spacers For Fan Cover
14	Plug
†15	Grease Nipple
18	Slow Speed Output Oil Seal
19	High Speed Input Oil Seal
25	Horizontal Oil Seal Housing
26	Horizontal Case
28	Oil Fill Plug
29	Oil Gauge—Horizontal Unit
35	Vertical Oil Seal Housing
38	Vertical Case (Integral V Type)
39	Oil Gauge—Vertical Unit
40	Cam
41	Piping Set & Oil Signal
42	Plunger Pump
43	Positive Displacement Pump
46	Drain Plug
†55	Intermediate Cover
†57	Eye Bolt
*58	Oil Slinger
*59	Spacer

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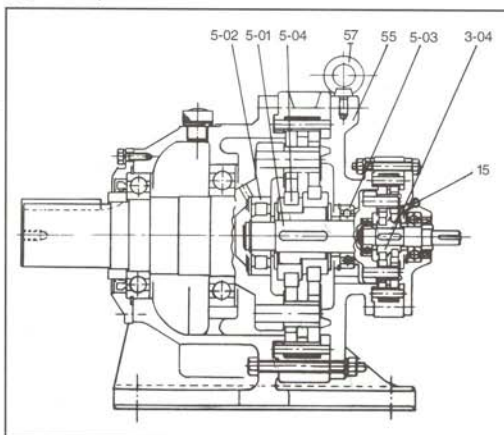
Fig. A-3 Speed Reducer/Single Disc Type (Frame Size 6060-6095)



Speed Reducer — Single Disc

SM-CYCLO® single reduction, Models No. 6060-6095, employ the use of a single planetary gear (Cycloid Disc) and a balance weight.

Fig. A-4 Speed Reducer/Double Reduction



Multiple Reduction Reducers

Multiple reduction SM-CYCLO® Reducers are a combination of standard reduction mechanism assemblies connected using an intermediate shaft (Part No. 5-01) and intermediate cover (Part No. 55) between them.

Table A-2. Frame Sizes and Ratio Combination of Double Reduction Models

Frame Size Combination

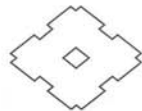
Frame Size	Second Stage	First Stage
6060DA	6060	6060
6065DA	6065	6065
6070DA	6070	6065
6075DA	6075	6065
6090DA	6090	6075
6095DA	6095	6075
6100DA	6100	6075
6105DA	6105	6075
6120DA	6120	6075
6120DB	6120	6095
6125DA	6125	6075
6125DB	6125	6095
6130DA	6130	6075
6130DB	6130	6095
6130DC	6130	6105
6135DA	6135	6075
6135DB	6135	6095
6135DC	6135	6105
6140DA	6140	6075
6140DB	6140	6095
6140DC	6140	6105
6145DA	6145	6075
6145DB	6145	6095
6145DC	6145	6105
6160DA	6160	6095
6160DB	6160	6105
6160DC	6160	6125
6165DA	6165	6095
6165DB	6165	6105

Frame Size	Second Stage	First Stage
6165DC	6165	6125
6170DA	6170	6095
6170DB	6170	6105
6170DC	6170	6125
6175DA	6175	6095
6175DB	6175	6105
6175DC	6175	6125
6180DA	6180	6105
6180DB	6180	6135
6185DA	6185	6105
6185DB	6185	6135
6190DA	6190	6125
6190DB	6190	6135
6195DA	6195	6125
6195DB	6195	6135
6205DA	6205	6125
6205DB	6205	6135
6215DA	6215	6135
6215DB	6215	6165
6225DA	6225	6135
6225DB	6225	6175
6235DA	6235	6165
6235DB	6235	6185
6245DA	6245	6165
6245DB	6245	6185
6255DA	6255	6175
6255DB	6255	6195
6265DA	6265	6195
6275DA	6275	6195

Reduction Ratio Combination

Total Ratio	Second Stage Ratio	First Stage Ratio
104	13	8
121	11	11
143	13	11
165	15	11
195	15	13
231	21	11
273	21	13
319	29	11
377	29	13
473	43	11
559	43	13
649	59	11
731	43	17
841	29	29
1003	59	17
1247	43	29
1479	87	17
1849	43	43
2065	59	35
2537	59	43
3045	87	35
3481	59	59
4437	87	51
5133 ^[1]	87	59
6177	87	71
7589	87	87

Note: [1] For frame sizes 6205DA, DB or DC ~ 6265DA, DB or DC, second stage ratio is 59 and first stage ratio is 87.



BEARINGS, OIL SEALS, GASKETS

Fig. A-9

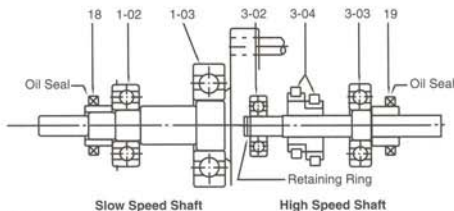


Table A-20. Slow Speed Shaft Bearing

Single Reduction	Frame Size	Double Reduction	Slow Speed Shaft	
			Bearing A Part #1-02	Bearing B Part #1-03
6060, 6065		6060DA, 6065DA	6204Z	6909
6070, 6075		6070DA, 6075DA	6204Z	6909
6080, 6085		—	6305Z	6009
6090, 6095		6090DA, 6095DA	6306Z	16011
6100, 6105, 610H		6100DA, 6105DA	6306Z	16011
6110, 6115		—	6307Z	6011
6120, 6125, 612H		6120DA, 6125DA, 6120DB, 6125DB	6308Z	6013
6130, 6135		6130DA, 6135DA, 6130DB, 6135DB, 6130DC, 6135DC	6211NR	6213
6140, 6145, 614H		6140DA, 6145DA, 6140DB, 6145DB, 6140DC, 6145DC	22211EXNR	6213
6160, 6165		6160DA, 6165DA, 6160DB, 6165DB, 6160DC, 6165DC	3TM-6213NR ^[1]	6215 ^[1]
6170, 6175		6170DA, 6175DA, 6170DB, 6175DB, 6170DC, 6175DC	6216NR ^[1]	6218 ^[1]
6180, 6185		6180DA, 6185DA, 6180DB, 6185DB	6218NR ^[1]	6220 ^[1]
6190, 6195		6190DA, 6195DA, 6190DB, 6195DB	6221NR ^[1]	6026 ^[1]
6205		6205DA, 6205DB	22220BNRC2	6222C2
6215		6215DA, 6215DB	23022BNRC2	6224C2
6225		6225DA, 6225DB	23024BNRC2	6226C2
6235		6235DA, 6235DB	23026BNRC2	NUP228C2
6245		6245DA, 6245DB	23028BNRC2	NUP230C2
6255		6255DA, 6255DB	23032BNRC2	NUP234C2
6265		6265DA	23034BNRC2	NUP236C2
6275		6275DA	23136BNXR	6340

Table A-21. High Speed Shaft Bearing

Single Reduction	Frame Size	Double Reduction	High Speed Shaft			Qty.
			Bearing C Part #3-02	Bearing D Part #3-03	Eccentric Part #3-04	
6060, 6065		6060DA, 6065DA, 6070DA, 6075DA	6301	6301Z	607YXX	1
6070, 6075		6090DA, 6095DA, 6100DA, 6105DA, 6120DA, 6125DA, 6130DA, 6135DA, 6140DA, 6145DA	6301	6301Z	607YXX	1
6080, 6085		—	6301SH	6302Z	6004RSH2ZCC3	1
6090, 6095		6120DB, 6125DB, 6130DB, 6135DB, 6140DB, 6145DB, 6160DA, 6165DA, 6170DA, 6175DA	6302RSH2	6302Z	Refer to Table A-22	1
6100, 6105, 610H		6130DC, 6135DC, 6140DC, 6145DC, 6160DB, 6165DB, 6170DB, 6175DB, 6180DA, 6185DA	6302RSH2	6302Z	Refer to Table A-22	1
6110, 6115		—	6302RSH2	6302Z	611YSS, 611GSS	2
6120, 6125, 612H		6160DC, 6165DC, 6170DC, 6175DC, 6190DA, 6195DA, 6205DA	6304	6305Z	Refer to Table A-22	1
6130, 6135		6180DB, 6185DB, 6190DB, 6195DB, 6205DB, 6215DA, 6225DA	6305	6306	Refer to Table A-22	1
6140, 6145, 614H		—	6305R	6306	Refer to Table A-22	1
6160, 6165, 616H		6215DB, 6235DA, 6245DA	6307R	6308	Refer to Table A-22	1
6170, 6175		6255DA, 6255DB	6406	6407	617YSX	2
6180, 6185		6235DB, 6245DB	6407	6409	618YSX	2
6190, 6195		6255DB, 6265DA, 6275DA	6408	6411	619YSX	2
6205		—	NJ310EV7	21311V1	620GXX	2
6215		—	NJ311EV16	21311V1	621GXX	2
6225		—	NJ312EV11	21312V1	622GXX	2
6235		—	NJ313EV11	21314V1	623GXX	2
6245		—	NJ314EV7	21315V1	624GXX	2
6255		—	NJ316EV1	21318V1	625GXX	2
6265		—	NJ317EV1	21318V1	626GXX	2
6275		—	NJ417	22222BL1	627GXX	2

Note: [1] For grease lubricated models, a sealed bearing should be used, which changes the following letters in the part number to those shown in bold: NR (Std.) – ZNR; NXR – ZNXR; None – add Z.

BEARINGS, OIL SEALS, GASKETS

Fig. A-10

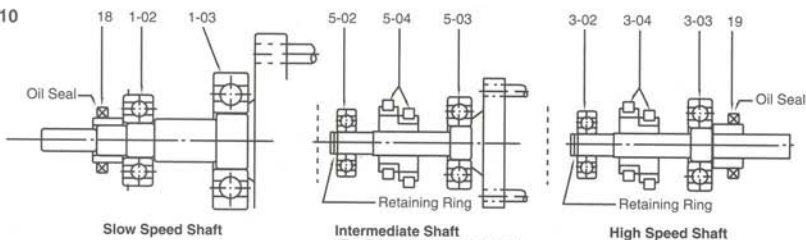


Table A-22. Eccentric Bearing

		Frame Size					
High Speed Shaft, Motor Shaft Part #3-04	6090, 6095	6100, 6105	6120, 6125	6130, 6135	6140, 6145	6160, 6165	
Intermediate Shaft Part #5-04	6090DA 6095DA	6100DA 6105DA	6120DA, 6125DA 6120DB, 6125DB	6130DA, 6135DA 6130DB, 6135DB 6130DC, 6135DC	6140DA, 6145DA 6140DB, 6145DB 6140DC, 6145DC	6160DA, 6165DA 6160DB, 6165DB 6160DC, 6165DC	
Reduction Ratio							
6	60906YRX	6100608YRX	6120608YRX	61406-11YSX	61406-11YSX	6160608YRX2	
8	60908-15YSX	6100608YRX	6120608YRX	61406-11YSX	61406-11YSX	6160608YRX2	
11	60908-15YSX	61011-15YRX	6121115YSX	61406-11YSX	61406-11YSX	61611-15YSX	
13	60908-15YSX	61011-15YRX	6121317YSX	61413-17YSX	61413-17YSX	61611-15YSX	
15	60908-15YSX	61011-15YRX	6121115YSX	61413-17YSX	61413-17YSX	61611-15YSX	
17	60917YSX	61017YSX	6121317YSX	61413-17YSX	61413-17YSX	61617-25YSX	
21	60921YSX	61021YRX	61221YRX	6142125YSX	6142125YSX	61617-25YSX	
25	6092529YSX	6102529YRX	6122529YSX	6142125YSX	6142125YSX	61617-25YSX	
29	6092529YSX	6102529YRX	6122529YSX	6142935YSX	6142935YSX	6162935YSX	
35	60935YSX	61035YRX	61235YRX	6142935YSX	6142935YSX	6162935YSX	
43	60943YSX	61043YSX	61243YSX	61443-59YSX	61443-59YSX	6164351YSX	
51	60951YRX	61051YRX	6125159YSX	61443-59YSX	61443-59YSX	6164351YSX	
59	60959YSX	61059YRX	6125159YSX	61443-59YSX	61443-59YSX	61659YSX	
71	60971YRX	61071YRX	6127187YSX	6147187YSX	6147187YSX	61671YRX2	
87	60987YSX	61087YRX	6127187YSX	6147187YSX	6147187YSX	61687YSX	
119	609119YSX	610119YSX	-	-	-	-	

Fig. A-11

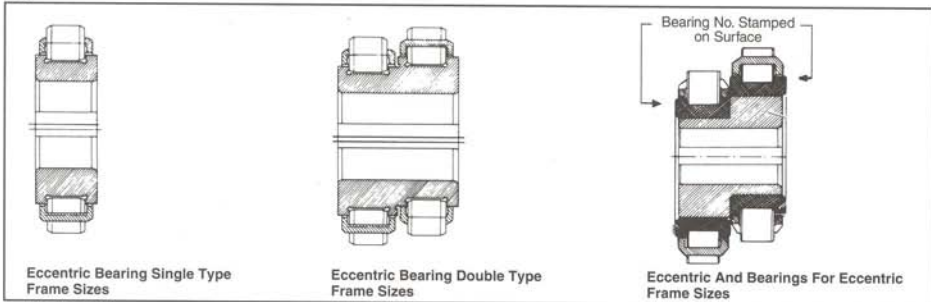



Table A-23. Intermediate Shaft Bearing

Frame Size	Intermediate Shaft				Frame Size	Intermediate Shaft			
	Bearing F Part #5-02	Bearing G Part #5-03	Eccentric Bearing Part #5-04	Qty.		Bearing F Part #5-02	Bearing G Part #5-03	Eccentric Bearing Part #5-04	Qty.
6060DA, 6065DA	6301	6909	607YXX	1	6180DA, 6185DA	6407	6208	618YSX	2
6070DA, 6075DA	6301	6909	607YXX	1	6180DB, 6185DB	6407	6213	618YSX	2
6090DA, 6095DA	6302RSH2	6007	Refer to Table A-22	1	6190DA, 6195DA	6408	6210	619YSX	2
6100DA, 6105DA	6302RSH2	6007			6190DB, 6195DB	6408	6213	619YSX	2
6120DA, 6125DA	6304	6007			6205DA	NJ310EV7	6210	620GXX	2
6120DB, 6125DB	6304	6205			6205DB	NJ310EV7	6310	620GXX	2
6130DA, 6135DA	6305	6007			6215DA, 6215DB	NJ311EV16	6311	621GXX	2
6130DB, 6135DB	6305	6206			6225DA, 6225DB	NJ312EV11	6313	622GXX	2
6130DC, 6135DC	6305	6206			6235DA, 6235DB	NJ313EV11	6314	623GXX	2
6140DA, 6145DA	6305	6007			6245DA	NJ314EV7	6315	624GXX	2
6140DB, 6145DB	6305	6206			6245DB	NJ314EV7	6316	624GXX	2
6140DC, 6145DC	6305	6206			6255DA, 6255DB	NJ316EV1	6318	625GXX	2
6160DA, 6165DA	6307R	6207			6265DA	NJ317EV1	6320	626GXX	2
6160DB, 6165DB					6275DA	NJ417	22220RH	627GXX	2
6160DC, 6165DC	6307R	6208							
6170DA, 6175DA	6406	6207			617YSX				
6170DB, 6175DB					617YSX				
6170DC, 6175DC	6406	6208	617YSX						

Table A-24. Oil Seals

Frame Size	Type ⁽¹⁾	Slow Speed Shaft Part #18				High Speed Shaft Part #19			
		Dimension (mm)		Quantity		Dimension (mm)		Quantity	
		(I.D. x O.D. x W)		Horizontal Shaft	Vertical Shaft	(I.D. x O.D. x W)			
6060, 6065	D	30 x 47 x 8	1	1	S	17 x 30 x 6	1		
6070, 6075	D	30 x 47 x 8	1	1	S	17 x 30 x 6	1		
6080, 6085	D	45 x 62 x 9	1	1	S	17 x 30 x 6	1		
6090, 6095	D	50 x 72 x 12	1	1	S	20 x 35 x 7	1		
6100, 6105	D	50 x 72 x 12	1	1	S	20 x 35 x 7	1		
6110, 6115	D	55 x 80 x 12	1	1	S	20 x 35 x 7	1		
6120, 6125	D	65 x 90 x 13	1	1	D	32 x 52 x 8	1		
6130, 6135	D	68 x 88 x 12	1	2	D	38 x 58 x 11	1		
6140, 6145	D	65 x 88 x 12	1	2	D	38 x 58 x 11	1		
6160, 6165	D	85 x 110 x 13	1	2	D	55 x 78 x 12	1		
6170, 6175	D	95 x 130 x 15	1	2	D	60 x 82 x 12	1		
6180, 6185	D	110 x 145 x 15	1	2	D	65 x 88 x 12	1		
6190, 6195	D	120 x 155 x 16	1	2	S	70 x 88 x 10	1		
6205	D	120 x 155 x 16	1	2	S	70 x 88 x 10	1		
6215	D	130 x 160 x 14	1	2	S	75 x 100 x 13	1		
6225	D	145 x 175 x 14	1	2	S	75 x 100 x 13	1		
6235	D	160 x 190 x 16	1	2	S	85 x 110 x 13	1		
6245	D	170 x 200 x 16	1	2	S	95 x 120 x 13	1		
6255	D	190 x 225 x 16	1	2	S	110 x 140 x 14	1		
6265	D	200 x 240 x 20	1	2	S	110 x 140 x 14	1		
6275	D	230 x 270 x 20	1	2	S	120 x 150 x 14	1		

Note: [1] D indicates lip (dust proof and seal lip) type.