

LUBRICATION

Standard Type Mounted Reducer (Slow Speed Shaft Horizontal)^[1,2]

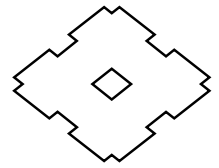
Table E-1. Horizontal Mounted Single Reduction Reducers

Reduction Ratio / Frame Size	6	8	11	23	15	17	21	25	29	35	43	51	59	71	87	119												
6060 6065	Maintenance-Free Grease Lubrication (MF)																											
6070 6075																	59											
6080 6085												87																
6090 6095																												
6100 6105 610H																												
6110 6115																												
6120 6125 612H																												
6130 6135	Oil Bath Lubrication (PB)																											
6140 6145 614H																												
6160 6165 616H																												
6170 6175																												
6180 6185																												
6190 6195																												
6205																												
6215																												
6225																												
6235																												
6245																												
6255																												
6265																												
6275																												

Table E-2. Horizontal Mounted, Double Reduction Reducers

Reduction Ratio / Frame Size	104	121	143	165	195	231	273	319	377	473	559	649	731	841	1003	1015	1247	1479	1849	2065	2537	3045	3481	4437	5133	6177	7569																									
6060DA 6065DA	Maintenance-Free Grease Lubrication (MF)																																																			
6070DA 6075DA																											2537																									
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6160DC 6165DC	Oil Bath Lubrication (PB)																																																			
6170DC 6175DC																																																				
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6190DA 6195DA																																																				
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6215DA 6215DB																																																				
6225DA 6225DB																																																				
6235DA 6235DB																																																				
6245DA 6245DB																																																				
6255DA 6255DB																																																				
6265DA																																																				
6275DA	377																																																			

Notes: [1] Tables E-1 and E-2 show the standard lubrication method when the Cyclo drive is driven at the standard input speed.
 [2] Ratios shown in white in Tables E-1 and E-2 are unavailable for the given unit sizes.



Standard Vertical Mounted Reducer (Slow Speed Shaft Horizontal)^[1,2,3]

Table E-3. Vertical Mounted Single Reduction Reducer

Reduction Ratio / Frame Size	6	8	11	13	15	17	21	25	29	35	43	51	59	71	87	119
6060 6065																
6070 6075																
6080 6085																
6090 6095																
6100 6105																
6110 6115																
6120 6125																
6130 6135	Oil Bath Lubrication (PB)															
6140 6145	Oil Bath Lubrication (PB)															
6160 6165	Forced Oil Lubrication (P)															
6170 6175	Forced Oil Lubrication (P)															
6180 6185	Forced Oil Lubrication (P)															
6190 6195	Forced Oil Lubrication (P)															
6205																
6215																
6225																
6235																
6245																
6255																
6265																
6275									TP		TP		TP		TP	

TP: Positive Displacement Pump Lubrication (see Table E-5.)

Table E-4. Vertical Mounted Double Reduction Reducer

Reduction Ratio / Frame Size	104	121	143	165	195	231	273	319	377	473	559	649	731	841	1003	1015	1247	1479	1849	2065	2537	3045	3481	4437	5133	6177	7569
6060DA 6065DA																											
6070DA 6075DA																											
6090DA 6095DA																											
6100DA 6105DA																											
6120DA 6120DB 6125DA 6125DB																											
6130DA 6135DA	Grease Lubrication (MF)																										
6130DB 6135DB	Grease Lubrication (MF)																										
6130DC 6135DC	Grease Lubrication (MF)																										
6140DA 6140DB 6140DC	Grease Lubrication (MF)																										
6145DA 6145DB 6145DC	Grease Lubrication (MF)																										
6160DA 6165DA	Grease Lubrication (MF)																										
6160DB 6165DB	Grease Lubrication (MF)																										
6170DA 6175DA	Grease Lubrication (MF)																										
6170DB 6175DB	Grease Lubrication (MF)																										
6180DA 6185DA	Grease Lubrication (MF)																										
6160DC 6165DC																											
6170DC 6175DC																											
6180DB 6185DB																											
6190DA 6195DA																											
6190DB 6195DB																											
6205DA 6205DB																											
6215DA 6215DB	121																										
6225DA 6225DB	(P)																										
6235DA 6235DB	(P)																										
6245DA 6245DB	(P)																										
6255DA 6255DB	(P)																										
6265DA	TP : Positive Displacement Pump Lubrication (see Table E-5)																										
6275DA	TP : Positive Displacement Pump Lubrication (see Table E-5)																										

Notes: [1] Please consult the factory for applications where the slow speed shaft is up.

[2] Tables E-3 and E-4 show the standard lubrication method when the Cyclo drive is driven at the standard input speed.

[3] Ratios shown in white in Tables E-3 and E-4 are unavailable for the given unit sizes.

Technical

Reducer

Motor

Common

LUBRICATION

Trochoid Pump

Table E. Trochoid Pump Type

Cyclo Drive			Trochoid Pump ^[1,2]					
Type	Frame Size	Reduction Ratio	Pump Type	Pump Motor	50 Hz Zone		60 Hz Zone	
					Flow l/min	Max. Pressure kg/cm ²	Flow l/min	Max. Pressure kg/cm ²
Vertical Shaft	6275	29,43,59,87	TOP216HA-VB3	0.75 kW 4P	24.0	8	28.8	5.0
	6275DA	All reduction ratios	TOP204HA-VB3	0.4 kW 4P	6.0	16	7.2	11.5

LUBRICANTS

Grease Lubricated Models

Those units defined in Tables E-1 ~ E-4 as being grease lubricated are filled with grease prior to shipment to the customer and are ready for use.

Table E-6. Standard Greases^[3]

Ambient Temperature ^[4]		Cyclo Drive Shell Oil	Sumitomo Manufactured Motor ^[5]		
°F	°C		Sealed Bearings Kyodo Yushi	Open Bearings	
				B Type Insulation Shell Oil	F Type Insulation Shell Oil
14 to 122	-10 to 50	Shell Alvania® Grease 2 (NLGI Grade #2)	Multitemp SRL	Shell Alvania® Grease 2 (NLGI Grade #2)	Shell Darina® Grease 2 (NLGI Grade #2)

Oil Lubricated Models

Oil lubricated models are not filled with oil prior to shipping. Before operating, please be sure to fill the unit with oil up to the red line on the oil gauge.

Table E-7. Standard Oils

Ambient Temperature ^[6,7]		Gulf Oil	Exxon Oil	Mobil Oil	Shell Oil	BP Oil
°F	°C					
14 to 41	-10 to 5	EP Lubricant HD 68	Spartan® EP 68	Mobilgear® 626 (ISO VG 68)	Omala® Oil 68	Energol® GR-XP 68
32 to 95	0 to 35	EP Lubricant HD 100 HD 150	Spartan® EP 100 EP 150	Mobilgear® 627, 629 (ISO VG 100, 150)	Omala® Oil 100, 150	Energol® GR-XP 100 GR-XP 150
86 to 122	30 to 50	EP Lubricant HD 220 HD 320 HD 460	Spartan® EP 220 EP 320 EP 460	Mobilgear® 630, 632 633, 634 (ISO VG 220-460)	Omala® Oil 220, 320, 460	Energol® GR-XP 220 GR-XP 320 GR-XP 460

Notes: [1] Consult the factory when using an inverter.

[2] A relief valve (Pressure set at 3 kgf/cm²) is a standard attachment in the trochoid pump.

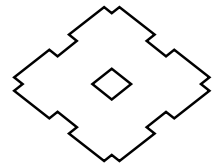
[3] Avoid the use of grease other than shown in Table E-6.

[4] Consult the factory in advance when the drives are to be used under widely fluctuating temperatures or ambient temperatures other than those listed in Table E-6, or any other special conditions.

[5] When using another manufacturer's motor, please follow the Instruction Manual or the nameplate attached to the motor by that manufacturer.

[6] For use in winter or relatively low ambient temperatures, use the lower viscosity oil specified for each ambient temperature range.

[7] For consistent use in ambient temperatures other than 32°F-104°F (0°C-40°C), please consult the factory.



Oil Quantities^[1]

Table E-8. Oil Fill Quantities

Single Reduction					Double Reduction				
Frame Size	Mounting Configuration				Frame Size	Mounting Configuration			
	Horizontal		Vertical			Horizontal		Vertical	
	U.S. gal.	liter	U.S. gal.	liter		U.S. gal.	liter	U.S. gal.	liter
6130, 6135	0.18	0.7	0.29	1.1	6160DC, 6165DC	0.40	1.5	0.26	1.0
6140, 6145, 614H	0.18	0.7	0.29	1.1	6170DC, 6175DC	0.63	2.4	0.50	1.9
6160, 6165, 616H	0.37	1.4	0.26	1.0	6180DB, 6185DB	0.92	3.5	0.53	2.0
6170, 6175	0.50	1.9	0.50	1.9	6190DA, 6195DA	1.5	5.8	0.71	2.7
6180, 6185	0.66	2.5	0.53	2.0	6190DB, 6195DB	1.6	6.0	0.71	2.7
6190, 6195	1.1	4.0	0.71	2.7	6205DA, 6205DB	1.6	6.0	2.9	11
6205	1.5	5.5	1.5	5.7	6215DA, 6215DB	2.6	10	3.7	14
6215	2.2	8.5	2.0	7.5	6225DA, 6225DB	2.9	11	4.8	18
6225	2.6	10	2.6	10	6235DA, 6235DB	4.5	17	6.1	23
6235	4.0	15	3.2	12	6245DA, 6245DB	4.8	18	7.7	29
6245	4.2	16	4.0	15	6255DA, 6255DB	6.1	23	11.1	42
6255	5.5	21	11.1	42	6265DA	8.5	32	13.5	51
6265	7.7	29	13.5	51	6275DA	15.9	60	(15.9)	(60)
6275	14.8	56	(15.9)	(60)					

() with trochoid pump

Note: [1] Please consult the factory for oil quantities when the reducer/gearmotor is mounted in any other position or angle.