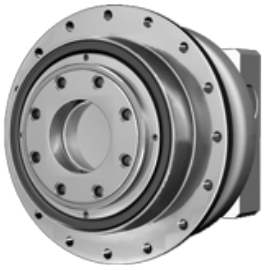
APEX DYNAMICS

Leverancier van spelingsarme reductoren

AP series



Overview

- Heavy Duty gearbox
- Black coated steel housing and output flange, aluminum motor adapter
- Steel output shaft, flange ISO 9409
- Helical gear technology
- Nominal Torques:
    - T_{2N} : 95 Nm – 13.875 Nm
- Ratios
    - 1-stage : 4 / 5.5
    - 2-stage : 16 / 20 / 22 / 27.5 / 28 / 38.5 / 40 / 55
    - 3-stage : 64 / 88 / 100 / 110 / 140 / 154 / 160 / 200 / 220 / 280 / 400
- Low Backlash
    - 1-stage : ≤ 1 arcmin
    - 2-stage : ≤ 2 arcmin
    - 3-stage : ≤ 2 arcmin
- High Efficiency
    - 1-stage : ≥ 97%
    - 2-stage : ≥ 94%
    - 3-stage : ≥ 92%
- Easy mount
- Low noise
- Compact structure
- Sizes available: AP090 / AP110 / AP140 / AP200 / AP255 / AP285 / AP355 / AP450

Specifications

Model No.		Stage	Ratio[1]	AP090	AP110	AP140	AP200	AP225	AP285	AP355	AP450
Nominal Output Torque T_{2N}	Nm	1	4	205	460	790	1,700	2,580	4,875	-	-
			5.5	200	370	645	1,430	2,175	4,060	-	-
		2	16	255	470	800	1,730	2,625	4,955	-	-
			20	255	470	805	1,735	2,630	4,965	-	-
			22	200	375	650	1,445	2,200	4,100	6,995	13,810
			27.5	200	375	655	1,445	2,200	4,105	7,000	13,825
			28	250	470	805	1,735	2,635	4,970	-	-
			38.5	200	375	655	1,450	2,200	4,110	7,010	13,845
			40	95	225	650	1,610	2,640	4,980	-	-
			55	130	315	655	1,450	2,205	4,110	7,020	13,855
		3	64	260	470	805	1,740	2,640	4,985	-	-
			88	200	380	655	1,450	2,205	4,115	7,025	13,865
			100	260	470	805	1,745	2,645	4,990	-	-
			110	200	380	655	1,450	2,205	4,115	7,025	13,870
			140	260	470	810	1,745	2,645	4,990	-	-
			154	200	380	655	1,450	2,205	4,120	7,030	13,875
			160	210	385	810	1,745	2,645	4,990	-	-
			200	260	475	810	1,745	2,645	4,990	-	-
			220	200	380	655	1,450	2,205	4,120	7,030	13,875
			280	260	475	810	1,745	2,645	4,990	-	-
			400	95	225	650	1,610	2,645	4,995	-	-
Emergency Stop Torque T_{2Not}	Nm	1,2,3	4~400	3 times T_{2N}							
Max. Acceleration Torque T_{2b}	Nm	1,2,3	4~400	1,5 Times T_{2n}							
No Load Running Torque[2]	NM	1	4~5.5	1.5	2.5	7.1	14	22	28	-	-
		2	16~55	0.6	1.1	3.7	8	12	18	17	26
		3	64~400	0.35	0.7	1.6	4	4.5	6.5	6	12
Backlash[3]	arcmin	1	4~5.5	≤1							
		2,3	16~400	≤2							
Torsional Rigidity	Nm/arcmin	1,2,3	4~400	42	95	205	650	1,200	1,800	2,850	5,700
Nominal Input Speed n_{1N}	rpm	1	4~5.5	3,600	3,600	3,000	2,700	2,400	2,100	-	-
		2	16~55	4,600	4,600	4,000	3,700	3,400	3,100	2,500	2,000
		3	64~400	5,000	5,000	4,600	4,000	3,700	3,400	3,100	2,500
Max. Input Speed	rpm	1	4~5.5	6,000	6,000	5,000	4,500	4,000	3,500	-	-
		2	16~55	7,000	7,000	6,000	5,500	5,000	4,500	4,000	3,500
		3	64~400	7,000	7,000	7,000	6,000	5,500	5,000	4,500	4,000
Max. Axial Load F_{2a}[4]	N	1,2,3	4~400	2,220	4,070	8,530	17,000	26,900	39,200	101,500	143,700
Max. Tilting Moment M_{2k}[4]	Nm	1,2,3	4~400	280	480	1,310	3,530	5,920	9,230	29,100	63,300
Service Life	hr	1,2,3	4~400	20,000							
Operating Temp.	°C	1,2,3	4~400	-10°C~ 90° C							
Degree of Gearbox Protection		1,2,3	4~400	IP65							
Lubrication		1,2,3	4~400	Synthetic lubrication grease							
Mounting Position		1,2,3	4~400	All directions							
Running Noise [2]	dB(A)	1	4~5.5	≤59	≤64	≤66	≤66	≤68	≤68	-	-
		2	16~55	≤60	≤62	≤64	≤66	≤67	≤67	≤68	≤70
		3	64~400	≤60	≤62	≤64	≤66	≤66	≤67	≤67	≤68

Efficiency	%	1	4~5.5	≥97%
		2	16~55	≥94%
		3	64~400	≥92%

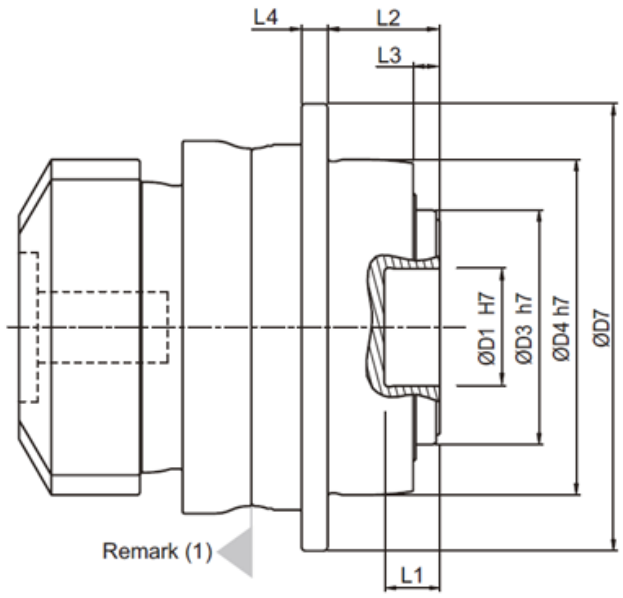
(1) Ratio (i = N in / N out)
(2) These values are measured by gearbox with ratio 5.5 (1-stage), ratio 55 (2-stage) or 220 (3-stage) at 3,000 rpm no loading.
(3) Backlash is measured at 2% of Nominal Output Torque T_{2N}
(4) Applied to the output shaft center at 100 rpm.
(5) Continuous operation is not recommended.

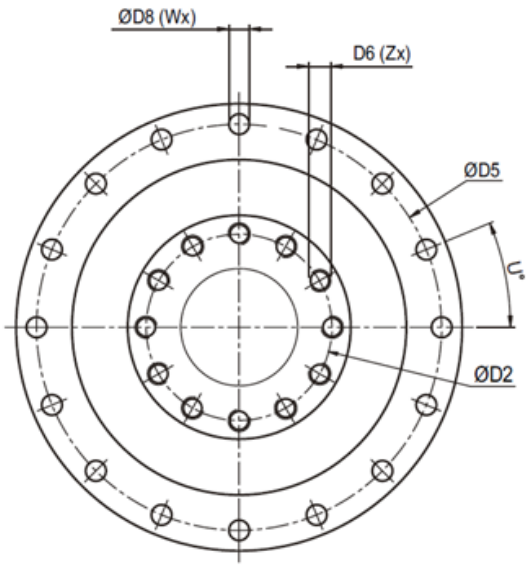
Inertia

Model No.		AP090			AP110			AP140			AP200			AP255			AP285			AP355		AP450	
Ø[A]	Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	2	3	2	3
11		-	-	0.16																			
14		0.42	0.21	0.19	-	-	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19		0.66	0.60	-	1.84	0.66	0.60	-	-	0.66	-	-	-	--	-	-	-	-	-	-	-	-	-
24		3.94	-	-	4.11	3.94	-	4.61	4.11	3.94	-	-	4.11	-	-	-	-	-	-	-	-	-	-
28		-	-	-	5.48	-	-	6.14	5.48	-	-	-	5.48	-	-	6.14	-	-	-	-	-	-	-
32		-	-	-	7.36	-	-	8.17	7.36	-	-	8.17	7.36	-	-	8.17	-	-	-	-	-	-	-
35	kg.cm^2	-	-	-	14.04	-	-	15.54	14.04	-	17.75	15.54	14.04	-	17.75	15.54	-	-	17.75	-	-	-	-
38		-	-	-	16.71	-	-	18.19	16.71	-	20.17	18.19	16.71	-	20.17	18.19	-	23.66	20.17	-	20.17	-	23.66
42		-	-	-	-	-	-	23.20	-	-	25.4	23.2	-	28.88	25.40	-	-	28.88	25.4	28.79	25.40	-	28.95
48		-	-	-	-	-	-	52.42	-	-	55.18	52.42	-	58.64	55.18	-	69.78	58.64	55.18	92.76	55.18	106.06	58.64
55		-	-	-	-	-	-	-	-	-	-	-	-	92.48	-	-	104.22	92.48	-	105.41	-	118.67	-
60		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	127.69	-	-	-	-	127.37	-

(A) Ø = Input shaft diameter.

Sizes





	Ap090	AP110	AP140	AP200	AP255	AP285	AP355	AP450
D1 H7	31.5	40	50	80	100	100	120	155
D2	50	63	80	125	140	160	200	250
D3 h7	63	80	100	160	180	200	250	315
D4 h7	90	110	140	200	255	285	355	450
D5	109	135	168	233	280	310	385	490
D6 x Pitch x Deep	M6x1Px11	M8x1.25Px12	M8x1.25Px15	M10x1.5x20	M16x2Px25	M24x3Px37	M24x3Px32	M30x3.5Px40
D7	120	147	180	249.5	302	332	415	530
D8	5.5	5.5	6.6	9	13.5	13.5	17.5	22
L1	15	15	15	16	16	16	35	24
L2	30	29	38	50	66	75	80	85
L3	7	7	7.5	8.5	13.5	16.5	20	20
L4	7	8	10	12	18	20	45	60
X in degree	30	30	22.5	22.5	24	26	22.5	30
Y in degree	30	30	22.5	22.5	24	26	22.5	30
Z	12	12	16	16	12	12	16	12
U in degree	22.5	22.5	15	15	11.25	11.25	15	15
W	16	16	24	24	32	32	24	24

(1) Dimensions are related to motor interface. Please contact APEX for details.