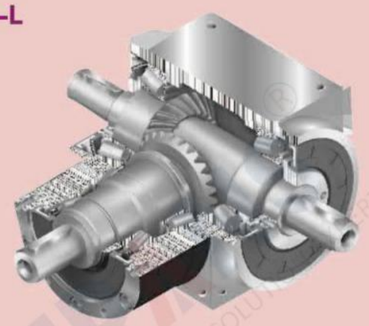
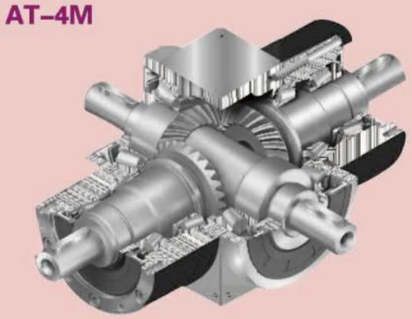
AT Double Output Shaft Series
Performance of Reducer

AT–L



AT–4M



1. Integrated stainless steel body ensures maximum rigidity and corrosion resistance. Multiple precision machined surface for easy assembly.

2. The adoption of the top spiral worm gear design software and the optimized design of contact tooth surface make the even load and allow high torque output.Gears are made of high strength carburizing alloy steel and the grinding precision is up to the standard of DIN 5 level .

3. Multiple stainless steel output and input shaft design can be applied to various of industrial applications needs.

4. The combination of high–precision grinded worm bevel gear set and the optimized the design of planetary gear set can make the reduction speed up to 500:1.

5. High torque and low backlash design of the compact structure is suitable for the application of precision servo.

6. Patented oil seal design, maintenance–free without replacing the lubrication oil, long operating life.

Weight

Model No.		Stage	Ratio	AT065	AT075	AT090	AT110	AT140	AT170	AT210	AT240	AT280
L Series	kg	1	1~5	2.6	4.2	6.8	11.6	19.8	34.8	66.2	98.1	155.7
L1 Series		1	1~5	2.6	4.1	6.7	11.5	19.5	34.2	65.1	96.6	153.4
H Series		1	1~5	2.5	3.9	6.4	11.0	18.1	31.6	60.0	89.4	143.4
C Series		1	1~5	2.8	4.2	6.9	11.4	19.6	33.7	63.3	97.9	149.1
R1 Series		1	1~5	2.6	4.1	6.7	11.5	19.5	34.2	65.1	96.6	153.4
LM Series		1	1	3.5	5.6	9.0	15.2	24.1	42.4	81.4	122.0	190.9
RM Series		1	1	3.5	5.6	9.0	15.2	24.1	42.4	81.4	122.0	190.9
4M Series		1	1	3.5	5.6	9.1	15.4	24.8	42.6	82.5	123.5	193.3

Double Output Shaft Series
Product Specification

Files of Reducer Performance

Specification		Stage	Ratio^A	AT065 L / AT065 L1 / AT065 H / AT065 C / AT065 R1 / AT065 LM / AT065 RM / AT065 4M	AT075 L / AT075 L1 / AT075 H / AT075 C / AT075 R1 / AT075 LM / AT075 RM / AT075 4M	AT090 L / AT090 L1 / AT090 H / AT090 C / AT090 R1 / AT090 LM / AT090 RM / AT090 4M	AT110 L / AT110 L1 / AT110 H / AT110 C / AT110 R1 / AT110 LM / AT110 RM / AT110 4M	AT140 L / AT140 L1 / AT140 H / AT140 C / AT140 R1 / AT140 LM / AT140 RM / AT140 4M	AT170 L / AT170 L1 / AT170 H / AT170 C / AT170 R1 / AT170 LM / AT170 RM / AT170 4M	AT210 L / AT210 L1 / AT210 H / AT210 C / AT210 R1 / AT210 LM / AT210 RM / AT210 4M	AT240 L / AT240 L1 / AT240 H / AT240 C / AT240 R1 / AT240 LM / AT240 RM / AT240 4M	AT280 L / AT280 L1 / AT280 H / AT280 C / AT280 R1 / AT280 LM / AT280 RM / AT280 4M
Rated Output Torque / T_{2N}	Nm	1	1	25	45	78	150	360	585	1,300	2,150	3,200
			1.5	25	45	78	150	360	585	1,300	2,150	3.200
			2	24	42	68	150	330	544	1,220	2,010	3,050
			3	18	33	54	120	270	450	1,020	1,650	2,850
			4	13	28	48	100	224	376	860	1,410	2,300
			5	12	25	40	85	196	320	740	1,210	2,000
Max.acceleration torqueb / T_{2B}	Nm	1	1~5	1.5 Times of Rated Output Torque								
Max.acceleration input speed / n_{1B}	rpm	1	1~5	7,500	6,500	5,500	4,500	3,500	3,000	2,200	2,000	1,700
Backlash	arcmin	1	1~5	≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6
Allowable Radial Force / F_{1rB}[2] Input Shaft d1	N	1	1~5	700	950	1,450	2,100	2,700	3,800	7,800	9,600	10,500
Allowable Radial Force / F_{2rB}[3] Output Shaft d2	N	1	1~5	900	1,100	1,700	2,700	4,800	6,600	11,500	16,000	18,000
Allowable Axial Force / F_{1aB}[2] Input Shaft d1	N	1	1~5	350	425	725	1,050	1,350	1,900	3,900	4,800	5,250
Allowable Axial Force / F_{2aB}[3] Output Shaft d2	N	1	1~5	450	550	850	1,350	2,400	3,300	5,750	8,500	9,000
Service Life	hr	1	1~5	20,000*								
Efficiency / η	%	1	1~5	≥98%								
Operating Temp	°C	1	1~5	-10 °C ~ 90 °C								
Lubrication				Fully Synthetic Grease								
Noise Level(n1=1500rpm, No load)	dB(A)	1	1~5	≤68	≤70	≤74	≤76	≤77	≤78	≤80	≤82	≤83

1. Ratio ($i=N_{in}/N_{out}$)
* Continuous operation will reduce service life by half
AT-LM/RM/4M only provides ratio 1:1

2. Act on the center of the input shaft @n_{1B}
3. Act on the center of the output shaft @n_{1B}
* Backlash value is measured at 2% of rated torque T_{2N}

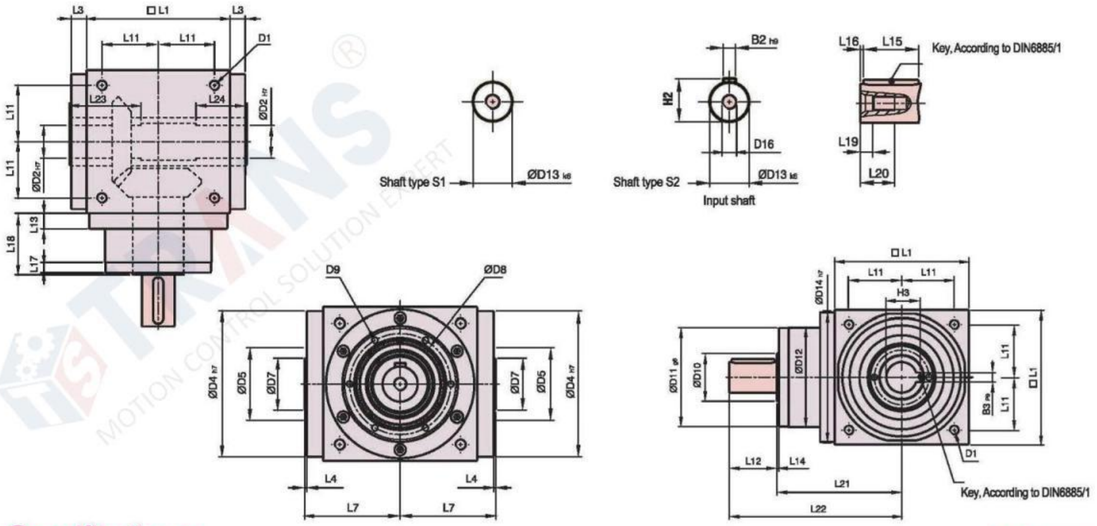
Rotary Inertia of Reducer

Specification		Stage	Ratio^	AT065 L / AT065 L1 / AT065 H / AT065 C / AT065 R1 / AT065 LM / AT065 RM / AT065 4M	AT075 L / AT075 L1 / AT075 H / AT075 C / AT075 R1 / AT075 LM / AT075 RM / AT075 4M	AT090 L / AT090 L1 / AT090 H / AT090 C / AT090 R1 / AT090 LM / AT090 RM / AT090 4M	AT110 L / AT110 L1 / AT110 H / AT110 C / AT110 R1 / AT110 LM / AT110 RM / AT110 4M	AT140 L / AT140 L1 / AT140 H / AT140 C / AT140 R1 / AT140 LM / AT140 RM / AT140 4M	AT170 L / AT170 L1 / AT170 H / AT170 C / AT170 R1 / AT170 LM / AT170 RM / AT170 4M	AT210 L / AT210 L1 / AT210 H / AT210 C / AT210 R1 / AT210 LM / AT210 RM / AT210 4M	AT240 L / AT240 L1 / AT240 H / AT240 C / AT240 R1 / AT240 LM / AT240 RM / AT240 4M	AT280 L / AT280 L1 / AT280 H / AT280 C / AT280 R1 / AT280 LM / AT280 RM / AT280 4M
Rotary Inertia	kg • cm²	1	1	0.51	1.30	3.16	7.70	23.57	58.99	195.40	369.34	799.12
			1.5	0.64	1.16	2.82	6.74	19.37	49.28	155.45	283.58	595.78
			2	0.44	1.11	2.70	6.31	17.75	45.35	140.24	249.74	511.76
			3	0.43	1.09	2.66	6.17	17.18	44.01	134.95	237.71	483.06
			4	0.43	1.09	2.65	6.13	17.06	43.70	133.58	234.72	476.26
			5	0.43	1.09	2.65	6.12	17.02	43.60	133.14	233.67	473.58

AT–H Series
Hole Input Type
Size（1–stage, ratio i=1~5）

Dimensions：

Unit:mm

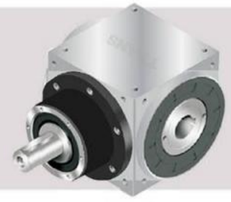


Specifications：

Unit:mm

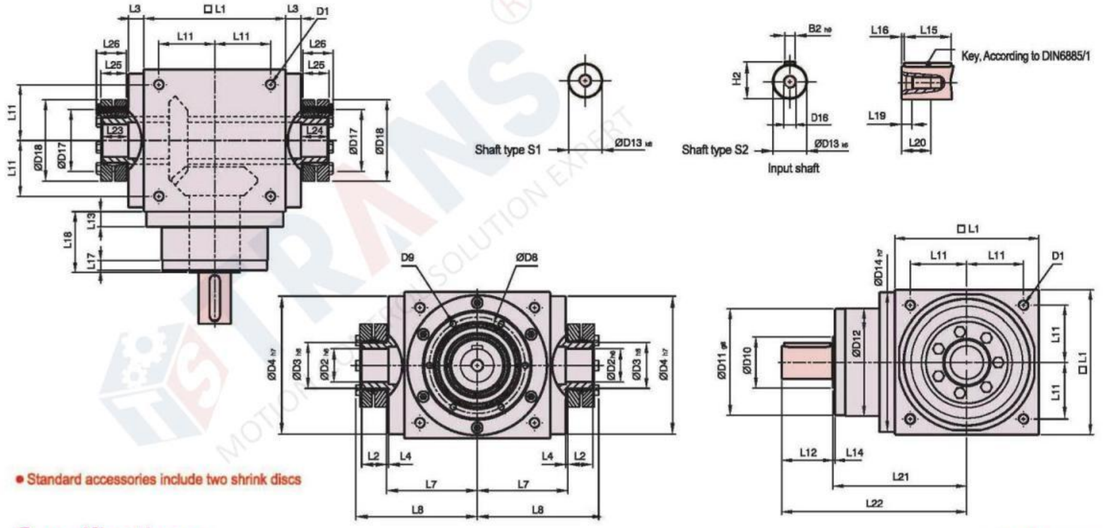
Sizes	AT065 H	AT075 H	AT090 H	AT110 H	AT140 H	AT170 H	AT210 H	AT240 H	AT280 H
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H7	13	14	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4xM4xL7	4xM5xL8	4xM5xL8	6xM6xL10	6xM6xL10	6xM8xL12.5	6xM8xL12.5	6xM8xL12.5	6xM10xL15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
L23	40	47	52	53	70	80	95	115	115
L24	30	32	35	35	50	55	65	80	80
B2 h9	5	5	6	6	10	12	14	16	18
B3 P9	5	5	6	6	10	12	14	16	18
H2	15	18	20.5	24.5	35	43	53.5	59	64
H3	15.3	16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4

AT–C Series
Hole Output Hoop Type
Size（1–stage, ratio i=1~5）



Dimensions：

Unit:mm



• Standard accessories include two shrink discs

Specifications：

Unit:mm

Sizes	AT065 C	AT075 C	AT090 C	AT110 C	AT140 C	AT170 C	AT210 C	AT240 C	AT280 C
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H6	13	14	18	22	32	40	50	55	60
D3 h8	16	16	22	25	44	50	62	68	75
D4 h7	63	73	88	108	135	165	205	235	275
D8	53	62	76	95	92	114	142	160	176
D9	4xM4xL7	4xM5xL8	4xM5xL8	6xM6xL10	6xM6xL10	6xM8xL12.5	6xM8xL12.5	6xM8xL12.5	6xM10xL15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
D17	26	26	36	38	61	70	86	86	100
D18	41	41	50	50	80	90	110	115	138
L1	65	75	90	110	140	170	210	240	280
L2	14	14	18	18	24	26	29	29	30.5
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L8	66	72.5	85	95	116.5	133.5	161.5	181.5	205
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
L23	15	15	20	20	26	28	31	31	32.5
L24	15	15	20	20	26	28	31	31	32.5
L25	15	15	19.5	19.5	25.5	27.5	30.5	30.5	32.5
L26	18.5	18.5	23	23	29.5	31.5	34.5	34.5	38
B2 h9	5	5	6	6	10	12	14	16	18
H2	15	18	20.5	24.5	35	43	53.5	59	64