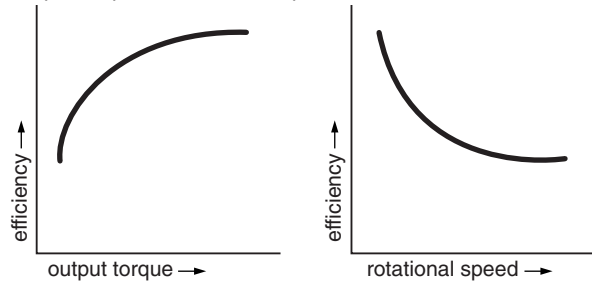


MINAS A4, A4F, A4P Series (MSMD) Motors with Gear Reducer

● Motor types with gear reducer

Reduction ratio	Motor output (W)				Type of reducer
	100	200	400	750	
1/5	●	●	●	●	For high precision
1/9	●	●	●	●	
1/15	●	●	●	●	
1/25	●	●	●	●	

Efficiency of the gear reducer show the following inclination in relation to output torque and rotational speed.



● Specifications of motor with gear reducer

Motor type		MSMD
Gear reducer	Backlash	3 minutes or smaller (initial value) at output shaft of the reducer
	Composition of gear	Planetary gear
	Gear efficiency	65% to 85%
	Rotational direction at output shaft (of reducer)	Same direction as the motor output shaft
	Composition of gear	Planetary gear
	Mounting method	Flange mounting
	Permissible moment of inertia of the load (conversion to the motor shaft)	10 times or smaller than rotor moment of inertia of the motor
Protective structure		IP44 (at gear reducer)
Environment	Ambient temperature	0 to 40°C
	Ambient humidity	85%RH (free from condensation) or less
	Vibration resistance	49m/s ² or less (at motor frame)
	Impact resistance	98m/s ² or less

● Table of motor specifications

Model	Motor		MSMD with gear reducer										
	Motor	Reduction ratio	Output (W)	Rated speed (r/min)	Max. speed (r/min)	Rated torque (N·m)	Peak max. torque (N·m)	Moment of inertia (motor + reducer/converted to motor shaft)		Mass		Permissible radial load (N)	Permissible thrust load (N)
								w/o brake	w/ brake	w/o brake	w/ brake		
	(W)							J (x 10 ⁻⁴ kg·m ²)	(kg)				
MSMD01□□□1N	100	1 / 5	75	600	1000	1.18	3.72	0.0910	0.0940	1.02	1.23	490	245
MSMD01□□□2N		1 / 9	80	333	555	2.25	6.86	0.0853	0.0883	1.02	1.23	588	294
MSMD01□□□3N		1 / 15	80	200	333	3.72	11.4	0.0860	0.0890	1.17	1.38	784	392
MSMD01□□□4N		1 / 25	80	120	200	6.27	19.0	0.0885	0.0915	2.17	2.38	1670	833
MSMD02□□□1N	200	1 / 5	170	600	1000	2.65	8.04	0.258	0.278	1.54	2.02	490	245
MSMD02□□□2N		1 / 9	132	333	555	3.72	11.3	0.408	0.428	2.52	3.00	1180	588
MSMD02□□□3N		1 / 15	132	200	333	6.27	18.8	0.440	0.460	2.52	3.00	1470	735
MSMD02□□□4N		1 / 25	140	120	200	11.1	33.3	0.428	0.448	2.52	3.00	1670	833
MSMD04□□□1N	400	1 / 5	340	600	1000	5.39	16.2	0.623	0.643	2.9	3.4	980	490
MSMD04□□□2N		1 / 9	332	333	555	9.51	28.5	0.528	0.548	2.9	3.4	1180	588
MSMD04□□□3N		1 / 15	332	200	333	15.8	47.5	0.560	0.580	3.3	3.8	1470	735
MSMD04□□□4N		1 / 25	332	120	200	26.4	79.2	0.560	0.580	4.4	4.9	2060	1030
MSMD082□□1N	750	1 / 5	672	600	900	10.7	32.1	1.583	1.683	4.4	5.2	980	490
MSMD082□□2N		1 / 9	635	333	500	18.2	54.7	1.520	1.620	5.7	6.5	1470	735
MSMD082□□3N		1 / 15	635	200	300	30.4	91.2	1.570	1.670	6.1	6.9	1760	882
MSMD082□□4N		1 / 25	635	120	180	50.7	152	1.520	1.620	6.1	6.9	2650	1320

For dimensions, refer to page, A4-136.