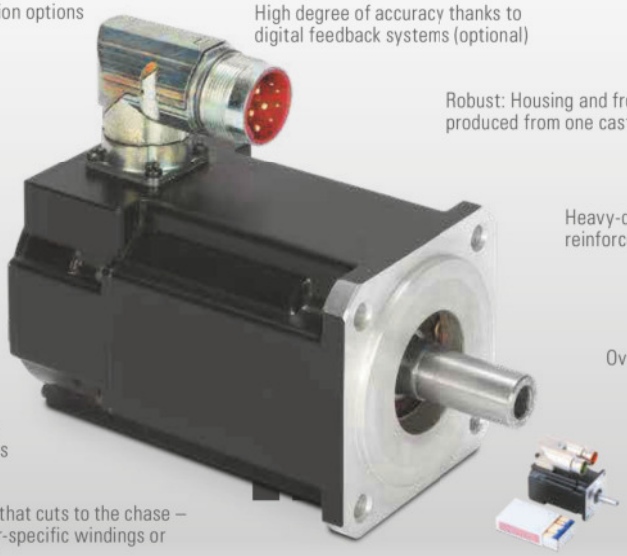
AKM® Brushless Servo Motor

The AKM® brushless servo motor stands alone in the marketplace in terms of flexibility and performance advantages. Kollmorgen's culture of continuous improvement has paid dividends again. The AKM servo motor's innovative design has been polished and optimized. With the new AKD amplifier, the distinguished AKM servo motor sets a new standard of refined servo performance, designed to deliver precise motion and more power for your money. Nowhere else will you find a more versatile and complete servo family to meet your needs and exceed your expectations.



- 8 frame sizes from 40 to 260 mm
- 28 housing and design length combinations
- 117 standard windings for 120/240/400/480 V
- Winding options for low DC voltage
- Numerous flange and shaft options
- Minimal cogging and high degree of efficiency
- Extensive customization options with special windings and shafts

Power Range

AKM frame sizes 1 to 8, standstill torques of 0.16 to 180 Nm, speed range 1000 to 8000 rpm, voltages 75 V DC, 120, 240, 400, 480 V AC.

Application Criteria

Universally deployable, brushless servo motors for all positioning and motion tasks with normal and high requirements and with accuracy and speed in a torque range between 0.16 Nm and 180 Nm.

Feedback Systems and Connectivity

Standard with SFD3 and HIPERFACE DSL single-cable options. In addition, AKM supports dual-cable feedback options such as Resolver, Encoder, EnDAT, BiSS; Hiperface, Safe Feedback and Drive Cliq.

Protection Class

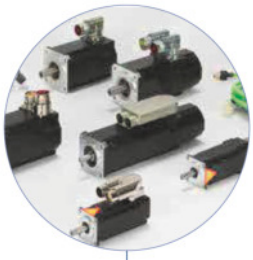
IP65 with optional Teflon® shaft seal, IP67 in the Washdown or Washdown Food version (page 51). Standard version IP40.

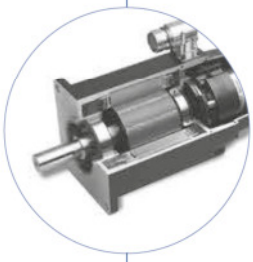
Smooth Running and Long Service Life

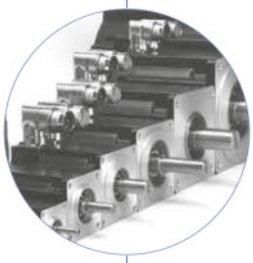
Very smooth running due to minimal cogging. The single-cast stator ensures high stability and improved heat dissipation from the motor. Front flange and motor housing are produced from a single cast. This ensures a high degree of sealing and strength and a long service life.

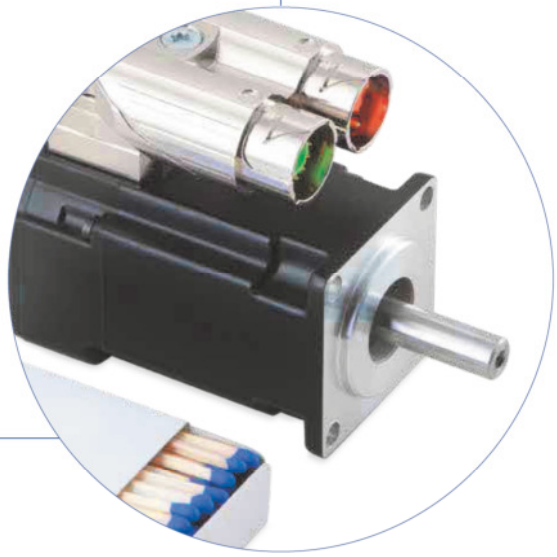
High Accuracy

AKM Motor		Single-turn absolute			Multi-turn absolute		
		Accuracy (arc-min)	Resolution (bits)	Motor key	Accuracy (arc-min)	Resolution (bits)	Motor key
Value line	AKM1	16	24	CA	–	–	–
	AKM2 - AKM3	9	24	CA	8	18	LB
	AKM4 - AKM8	9	24	CA	4.66	18	LB
Performance line	AKM1	7.2	9	GP	7.2	9	GR
	AKM2 - AKM4	1.0	20	DA	1.0	20	DB
	AKM5 - AKM8	0.333	20	DA	0.333	20	DB









The AKM1 – one of the smallest servo motors on the market offers outstanding power density despite its compact design

AKM® Washdown and Washdown Food

Servo Motors suitable regular Washdown

More durable in washdown conditions than standard AKM motors, lighter and more cost-effective than stainless-steel servo motors: In many applications with demanding environmental requirements, the AKM Washdown and Washdown Food versions are good alternatives to costly stainless steel motors or expensive protective enclosures.

Specially for applications with demanding environmental requirements in the

- Packaging industry
- Pharmaceutical industry
- Food industry
- Beverage industry
- Laboratory automation
- Medical device technology

Power Range

AKM frame sizes 2 to 6 with standstill torques of 1 to 25 Nm, supply voltages of 75 to 480 V, large selection of different construction lengths, winding variants, as well as feedback systems and connection technologies.

Application Criteria

Designed for environments with acids, bases, or aggressive substances such as frequent cleaning with cleaning agents with pH values of between 2 and 12.

Housing Coating

The coating material of the AKM Washdown Food motors is resistant to acids and bases and aggressive substances and meets the global migration requirement of the FDA. The rounded and smooth surfaces prevent hazardous contamination traps and germ formation.

Seals and Bearings

Both Washdown versions meet the IP67 protection rating. The proven AKM PTFE shaft seal is used. For the AKM Washdown Food version, the shaft seal meets FDA requirements and only food-safe lubricants are used.

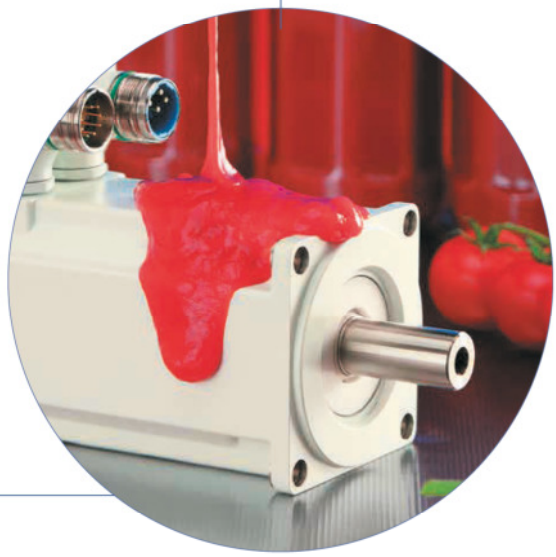
Connectors and Cables

Each in size 1 with special stainless steel design and smooth surface. Cables with special mating connectors are used from stainless steel or a material appropriate for maintaining food quality. The cables are clamped using a special clamping method.

International Standards

UL, CE, EAC, FDA*, RoHS

* Global migration requirement



Also proven in harsh environments: The AKM Washdown Food is resistant to most acids and bases, as well as aggressive substances.

AKM® Servo Motors

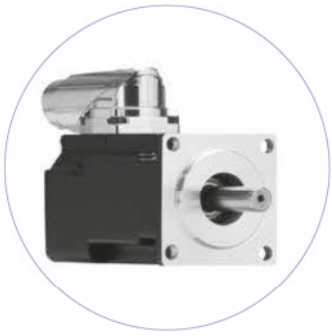
AKM, AKM Washdown, and AKM Washdown Food

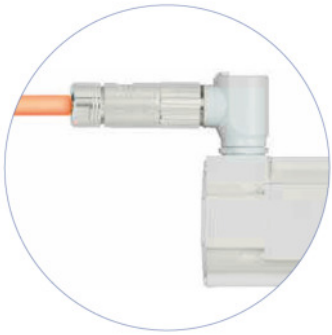
Performance Data

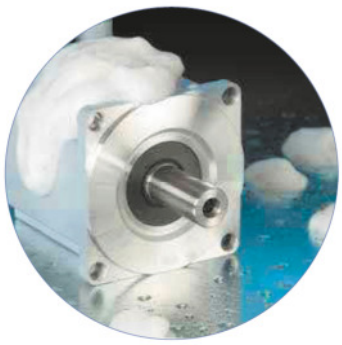
AKM Servo Motor	Flange size [mm]	Cont. Torque at Stall Tcs [Nm]	Continuous Current I_0 [A]	Peak Torque at stall Tps [Nm]	75 V DC			115 V			230 V			400 V			480 V			Inertia (Jm) [kg·cm²]	Weight [kg]
					Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm]	Rated Power Prtd [kW]	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm]	Rated Power Prtd [kW]	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm]	Rated Power Prtd [kW]	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm]	Rated Power Prtd [kW]	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm]	Rated Power Prtd [kW]		
11B	40	0.18	1.16	0.61	–	–	–	4000	0.18	0.08	8000	0.17	0.14	–	–	–	–	–	–	0.017	0.35
11C	40	0.18	1.45	0.61	–	–	–	6000	0.18	0.11	–	–	–	–	–	–	–	–	–	0.017	0.35
11E	40	0.18	2.91	0.61	6000	0.18	0.11	–	–	–	–	–	–	–	–	–	–	–	–	0.017	0.35
12C	40	0.31	1.51	1.08	–	–	–	4000	0.30	0.13	8000	0.28	0.23	–	–	–	–	–	–	0.031	0.49
12E	40	0.31	2.72	1.08	3000	0.31	0.10	8000	0.28	0.23	–	–	–	–	–	–	–	–	–	0.031	0.49
13C	40	0.41	1.48	1.46	–	–	–	3000	0.41	0.13	8000	0.36	0.30	–	–	–	–	–	–	0.045	0.63
13D	40	0.40	2.40	1.44	2000	0.40	0.08	7000	0.36	0.27	–	–	–	–	–	–	–	–	–	0.045	0.63
21C	60	0.48	1.58	1.47	–	–	–	2500	0.46	0.12	8000	0.39	0.32	–	–	–	–	–	–	0.11	0.82
21E	60	0.50	3.11	1.49	2000	0.48	0.10	7000	0.41	0.30	–	–	–	–	–	–	–	–	–	0.11	0.82
21G	60	0.50	4.87	1.51	4000	0.46	0.19	–	–	–	–	–	–	–	–	–	–	–	–	0.11	0.82
22C	60	0.84	1.39	2.73	–	–	–	1000	0.83	0.09	3500	0.78	0.29	8000	0.68	0.57	8000	0.68	0.57	0.16	1.10
22E	60	0.87	2.73	2.76	1000	0.85	0.09	3500	0.81	0.30	8000	0.70	0.59	–	–	–	–	–	–	0.16	1.10
22G	60	0.88	4.82	2.79	2500	0.83	0.22	7000	0.74	0.54	–	–	–	–	–	–	–	–	–	0.16	1.10
23C	60	1.13	1.41	3.77	–	–	–	1000	1.11	0.12	2500	1.08	0.28	5500	0.99	0.57	7000	0.95	0.70	0.22	1.38
23D	60	1.16	2.19	3.84	–	–	–	1500	1.12	0.18	5000	1.03	0.54	8000	0.92	0.77	8000	0.92	0.77	0.22	1.38
23F	60	1.18	4.31	3.88	1500	1.15	0.18	4500	1.07	0.50	8000	0.94	0.79	–	–	–	–	–	–	0.22	1.38
24C	60	1.38	1.42	4.67	–	–	–	–	–	–	2000	1.32	0.28	4500	1.25	0.59	5500	1.22	0.70	0.27	1.66
24D	60	1.41	2.21	4.76	–	–	–	1500	1.36	0.21	4000	1.29	0.54	8000	1.11	0.93	8000	1.11	0.93	0.27	1.66
24F	60	1.42	3.89	4.82	1000	1.39	0.15	3000	1.33	0.42	8000	1.12	0.94	–	–	–	–	–	–	0.27	1.66
31C	80	1.15	1.37	3.88	–	–	–	–	–	–	2500	1.12	0.29	5000	1.00	0.52	6000	0.91	0.57	0.33	1.55
31E	80	1.20	2.99	4.00	750	1.19	0.09	2500	1.17	0.31	6000	0.95	0.60	–	–	–	–	–	–	0.33	1.55
31H	80	1.23	5.85	4.06	2000	1.20	0.25	6000	0.97	0.61	–	–	–	–	–	–	–	–	–	0.33	1.55
32C	80	2.00	1.44	6.92	–	–	–	–	–	–	1500	1.95	0.31	3000	1.86	0.58	3500	1.83	0.67	0.59	2.23
32D	80	2.04	2.23	7.10	–	–	–	1000	2.00	0.21	2500	1.93	0.51	5500	1.65	0.95	6000	1.58	0.99	0.59	2.23
32E	80	2.04	2.82	7.11	–	–	–	–	–	–	3500	1.87	0.69	7000	1.41	1.03	7000	1.22	1.02	0.59	2.23
32H	80	2.10	5.50	7.26	1200	2.06	0.26	3000	1.96	0.62	7000	1.45	1.06	–	–	–	–	–	–	0.59	2.23
33C	80	2.71	1.47	9.76	–	–	–	–	–	–	1000	2.64	0.28	2000	2.54	0.53	2500	2.50	0.65	0.85	2.9
33E	80	2.79	2.58	9.96	–	–	–	–	–	–	2000	2.62	0.55	4500	2.34	1.10	5000	2.27	1.19	0.85	2.9
33H	80	2.88	5.62	10.22	800	2.82	0.24	2500	2.66	0.70	5500	2.27	1.31	–	–	–	–	–	–	0.85	2.9
41C	90	1.95	1.46	6.12	–	–	–	–	–	–	1200	1.88	0.24	3000	1.77	0.56	3500	1.74	0.64	0.81	2.44
41E	90	2.02	2.85	6.28	–	–	–	1200	1.94	0.24	3000	1.82	0.57	6000	1.58	0.99	6000	1.58	0.99	0.81	2.44
41H	90	2.06	5.6	6.36	1000	1.99	0.21	3000	1.86	0.58	6000	1.62	1.02	–	–	–	–	–	–	0.81	2.44
42C	90	3.35	1.40	11.3	–	–	–	–	–	–	–	–	–	1500	3.10	0.49	2000	3.02	0.63	1.5	3.39
42E	90	3.42	2.74	11.3	–	–	–	–	–	–	1800	3.12	0.59	3500	2.81	2.35	4000	2.72	1.14	1.5	3.39
42G	90	3.53	4.80	11.5	–	–	–	–	–	–	3500	2.90	1.06	6000	2.35	1.48	6000	2.35	1.48	1.5	3.39
42J	90	3.56	8.4	11.6	–	–	–	3000	3.03	0.95	6000	2.36	1.50	–	–	–	–	–	–	1.5	3.39
43E	90	4.70	2.76	15.9	–	–	–	–	–	–	1500	4.24	0.67	2500	3.92	1.03	3000	3.76	1.18	2.1	4.35
43G	90	4.80	4.87	16.1	–	–	–	–	–	–	2500	4.00	1.05	5000	3.01	1.58	6000	2.57	1.61	2.1	4.35
43K	90	4.90	9.60	16.4	–	–	–	2500	4.08	1.07	6000	2.62	1.65	–	–	–	–	–	–	2.1	4.35
44E	90	5.76	2.90	19.9	–	–	–	–	–	–	1200	5.22	0.66	2000	4.80	1.01	2500	4.56	1.19	2.7	5.3
44G	90	5.88	5.00	20.3	–	–	–	–	–	–	2000	4.90	1.03	4000	3.76	1.57	5000	3.19	1.67	2.7	5.3
44J	90	6.00	8.80	20.4	–	–	–	–	–	–	4000	3.84	1.61	6000	2.75	1.73	6000	2.75	1.73	2.7	5.3
51E	115	4.70	2.75	11.6	–	–	–	–	–	–	1200	4.41	0.55	2500	3.98	1.04	3000	3.80	1.19	3.4	4.2
51G	115	4.75	4.84	11.7	–	–	–	–	–	–	2500	4.02	1.05	5000	2.62	1.37	6000	1.94	1.22	3.4	4.2
51H	115	4.79	6.00	11.7	–	–	–	–	–	–	3000	3.87	1.22	6000	1.95	1.23	6000	1.95	1.23	3.4	4.2
51K	115	4.90	9.40	11.9	–	–	–	2500	4.15	1.09	5500	2.35	1.35	–	–	–	–	–	–	3.4	4.2

Performance Data

AKM Servo Motor	Frame size [mm]	Cont. Torque at Stall Tcs [Nm]	Continuous Current I_0 [A]	Peak Torque at stall Tps [Nm]	230 V			400 V			480 V			Inertia (Jm) [kg·cm²]	Weight [kg]
					Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm]	Rated Power Prtd [kW]	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm]	Rated Power Prtd [kW]	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm]	Rated Power Prtd [kW]		
52E	115	8.34	2.99	21.3	–	–	–	1500	7.61	1.20	2000	7.28	1.52	6.2	5.8
52G	115	8.43	4.72	21.5	1200	7.69	1.21	2500	7.06	1.85	3000	6.66	2.09	6.2	5.8
52H	115	8.48	5.90	21.6	1800	7.53	1.42	3500	6.26	2.30	4000	5.77	2.42	6.2	5.8
52K	115	8.60	9.30	21.9	3000	6.80	2.14	5500	3.90	2.25	6000	3.25	2.04	6.2	5.8
52M	115	8.60	13.1	21.9	4500	5.20	2.45	–	–	–	–	–	–	6.2	5.8
53G	115	11.4	4.77	29.7	1000	10.7	1.12	2000	9.85	2.06	2400	9.50	2.39	9.1	7.4
53H	115	11.5	6.60	30.0	–	–	–	3000	8.63	2.77	3500	8.23	3.02	9.1	7.4
53K	115	11.6	9.40	30.3	2000	10.1	2.12	4000	7.65	3.20	4500	6.85	3.23	9.1	7.4
53M	115	11.4	13.4	29.7	3000	8.72	2.74	–	–	–	–	–	–	9.1	7.4
53P	115	11.4	19.1	29.8	5000	5.88	3.08	–	–	–	–	–	–	9.1	7.4
54G	115	14.3	5.00	38.0	–	–	–	1500	12.9	2.03	2000	12.3	2.57	12	9
54H	115	14.2	5.50	37.5	–	–	–	1500	12.6	2.38	2000	12.2	2.56	12	9
54K	115	14.4	9.7	38.4	1800	12.7	2.39	3500	10.0	3.68	4000	9.25	3.87	12	9
54L	115	14.1	12.5	37.5	2500	11.5	3.00	4500	8.13	3.83	–	–	–	12	9
54N	115	14.1	17.8	37.6	3500	9.85	3.61	–	–	–	–	–	–	12	9
62G	142	11.9	4.9	29.7	–	–	–	1800	10.4	1.96	2000	10.2	2.14	17	8.9
62K	142	12.2	9.6	30.2	2000	10.4	2.18	3500	9.00	3.30	4500	8.00	3.77	17	8.9
62M	142	12.2	13.4	30.2	3000	9.50	2.98	6000	5.70	3.58	6000	5.70	3.58	17	8.9
62P	142	12.3	18.8	30.3	4500	8.10	3.82	–	–	–	–	–	–	17	8.9
63G	142	16.5	4.5	42.1	–	–	–	1200	14.9	1.87	1500	14.6	2.29	24	11.1
63K	142	16.8	9.9	42.6	1500	14.9	2.34	3000	12.9	4.05	3500	12.0	4.40	24	11.1
63M	142	17.0	13.8	43.0	2000	14.3	2.99	4000	11.3	4.73	4500	10.5	4.95	24	11.1
63N	142	17.0	17.4	43.0	3000	13.0	4.08	5000	9.60	5.03	6000	7.00	4.40	24	11.1
64K	142	20.8	9.2	53.5	1200	18.8	2.36	2000	17.2	3.60	2500	16.3	4.27	32	13.3
64L	142	21.0	12.8	54.1	1500	18.4	2.89	3000	15.6	4.90	3500	14.4	5.28	32	13.3
64P	142	20.4	18.6	52.9	2500	16.0	4.19	4500	11.9	5.62	5500	9.00	5.18	32	13.3
64Q	142	20.0	20.7	53.2	3000	15.3	4.81	5000	10.7	6.45	6000	7.40	4.65	32	13.3
65K	142	24.8	9.8	64.5	1000	22.8	2.39	2000	20.2	4.23	2200	19.7	4.54	40	15.4
65M	142	25.0	13.6	65.2	1500	21.9	3.44	2500	19.2	5.03	3000	18.1	5.69	40	15.4
65N	142	24.3	17.8	63.7	2000	19.8	4.15	3500	16.0	5.86	4000	14.7	6.16	40	15.4
65P	142	24.5	19.8	64.1	2400	19.1	4.8	4000	14.9	6.24	5000	11.6	6.08	40	15.4
72K	180	29.7	9.3	79.4	–	–	–	1500	25.1	3.94	1800	24.0	4.52	65	19.7
72M	180	30.0	13.0	79.8	–	–	–	2000	23.6	4.94	2500	22.1	5.79	65	19.7
72P	180	29.4	18.7	78.5	1800	23.8	4.49	3000	20.1	6.31	3500	18.2	6.67	65	19.7
72Q	180	29.5	23.5	78.4	2000	23.2	4.89	4000	16.3	6.83	4500	14.1	6.65	65	19.7
73M	180	42.0	13.6	112	–	–	–	1500	33.8	5.31	1800	32.1	6.05	92	26.7
73P	180	41.6	19.5	111	1300	34.7	4.72	2400	28.5	7.16	2800	26.3	7.71	92	26.7
73Q	180	41.5	24.5	111	1500	33.4	5.25	3000	25.2	7.92	3500	22	8.07	92	26.7
74L	180	53.0	12.9	143	–	–	–	1200	43.5	5.47	1400	41.5	6.08	120	33.6
74P	180	52.5	18.5	142	–	–	–	1800	39.6	7.46	2000	35.9	7.52	120	33.6
74Q	180	52.2	26.1	141	1300	41.9	5.71	2500	31.5	8.25	3000	27.3	8.58	120	33.6
82T	260	75	48	210	–	–	–	2500	47.5	12.4	3000	38.0	11.9	172	49
83T	260	130	62	456	–	–	–	2200	70.0	16.1	2500	60.0	15.7	334	73
83V	260	130	91	304				3000	65	20.4	–	–	–	334	73
84T	260	180	67	668	–	–	–	1800	105	19.8	2000	93.0	19.5	495	97





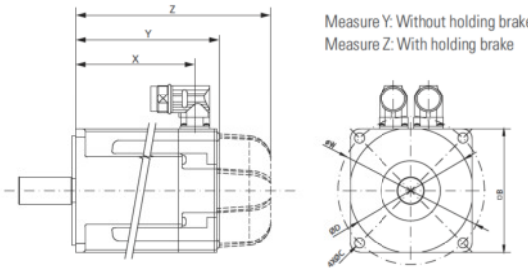


AKM® Brushless Servo Motor

AKM, AKM Washdown, and AKM Washdown Food

Model with Power and Signal Connector

Dimensional drawing for AKM11 - AKM84



All measurement specifications in mm Measure Y: Measurement without holding brake, Measure Z: Measurement with holding brake

Model	X	Resolvers		Comcoder		Biss/Endat		Hiperface		DriveCliq		Flange	Bolt circle	Bore diameter	Centering collar
		Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	□B	∅W	∅C	∅D
AKM11	56.1	69.6	106.6	79.0	–	–	–	79	116	–	–	40	46	4.3	30
AKM12	75.1	88.6	125.6	98.0	–	–	–	98	135	–	–	40	46	4.3	30
AKM13	94.1	107.6	144.6	117.0	–	–	–	117	154	–	–	40	46	4.3	30
AKM21	76.1	95.4	129.5	95.4	129.5	95.4	129.5	113.4	147.1	–	–	58	63	4.8	40
AKM22	95.1	114.4	148.5	114.4	148.5	114.4	148.5	132.4	166.1	–	–	58	63/65 (1)	4.8	40
AKM23	114.1	133.4	167.5	133.4	167.5	133.4	167.5	151.4	185.1	–	–	58	63/65 (1)	4.8	40
AKM24	135.1	152.4	186.5	152.4	186.5	152.4	186.5	170.4	204.1	–	–	58	63/65 (1)	4.8	40
AKM31	87.9	109.8	141.3	109.8	141.3	109.8	141.3	125.3	159.3	–	–	70	75/85 (2)	5.8	60
AKM32	118.9	140.8	172.3	140.8	172.3	140.8	172.3	156.3	190.3	–	–	70	75/85 (2)	5.8	60
AKM33	149.9	171.8	203.3	171.8	203.3	171.8	203.3	187.3	221.3	–	–	70	75/85 (2)	5.8	60
AKM41	96.4	118.8	152.3	118.8	152.3	118.8	152.3	136.8	170.3	152.3	170.3	84	90/100 (3)	7	60/80 (3)
AKM42	125.5	147.8	181.3	147.8	181.3	147.8	181.3	165.8	199.3	181.3	199.3	84	90/100 (3)	7	60/80 (3)
AKM43	154.4	176.8	210.3	176.8	210.3	176.8	210.3	194.8	228.3	210.3	228.3	84	90/100 (3)	7	60/80 (3)
AKM44	183.4	205.8	239.3	205.8	239.3	205.8	239.3	223.8	257.3	239.3	257.3	84	90/100 (3)	7	60/80 (3)
AKM51	105.3	127.5	172.5	127.5	172.5	145.0	189.0	145.0	189.0	146.0	189.0	108	115/130 (4)	7	95/110 (4)
AKM52	136.3	158.5	203.5	158.5	203.5	177.0	220.0	177.0	220.0	177.0	220.0	108	115/130 (4)	7	95/110 (4)
AKM53	167.3	189.5	234.5	189.5	234.5	208.0	251.0	208.0	251.0	208.0	251.0	108	115/130 (4)	7	95/110 (4)
AKM54	198.3	220.5	265.5	220.5	265.5	239.0	282.0	239.0	282.0	239.0	282.0	108	115/130 (4)	7	95/110 (4)
AKM62	130.5	153.7	200.7	153.7	200.7	172.2	219.7	172.2	219.7	172.2	219.7	138	165	11	130
AKM63	155.5	178.7	225.7	178.7	225.7	197.2	244.7	197.2	244.7	197.2	244.7	138	165	11	130
AKM64	180.5	203.7	250.7	203.7	250.7	222.2	269.7	222.2	269.7	222.2	269.7	138	165	11	130
AKM65	205.5	228.7	275.7	228.7	275.7	247.2	294.7	247.2	294.7	247.2	294.7	138	165	11	130
AKM72	164.5	192.5	234.5	192.5	234.5	192.5	234.5	192.5	234.5	201.7	253.3	188	215	13,5	180
AKM73	198.5	226.5	268.5	226.5	268.5	235.7	287.3	235.7	287.3	235.7	287.3	188	215	13,5	180
AKM74	232.5	260.5	302.5	260.5	302.5	269.7	321.3	269.7	321.3	269.7	321.3	188	215	13,5	180
AKM82	170	267	333	267	333	267	333	267	333	–	–	260	300	18.5	250
AKM83	250.5	347.5	413.5	347.5	413.5	347.5	413.5	347.5	413.5	–	–	260	300	18.5	250
AKM84	331	428	494	428	494	428	494	428	494	–	–	260	300	18.5	250

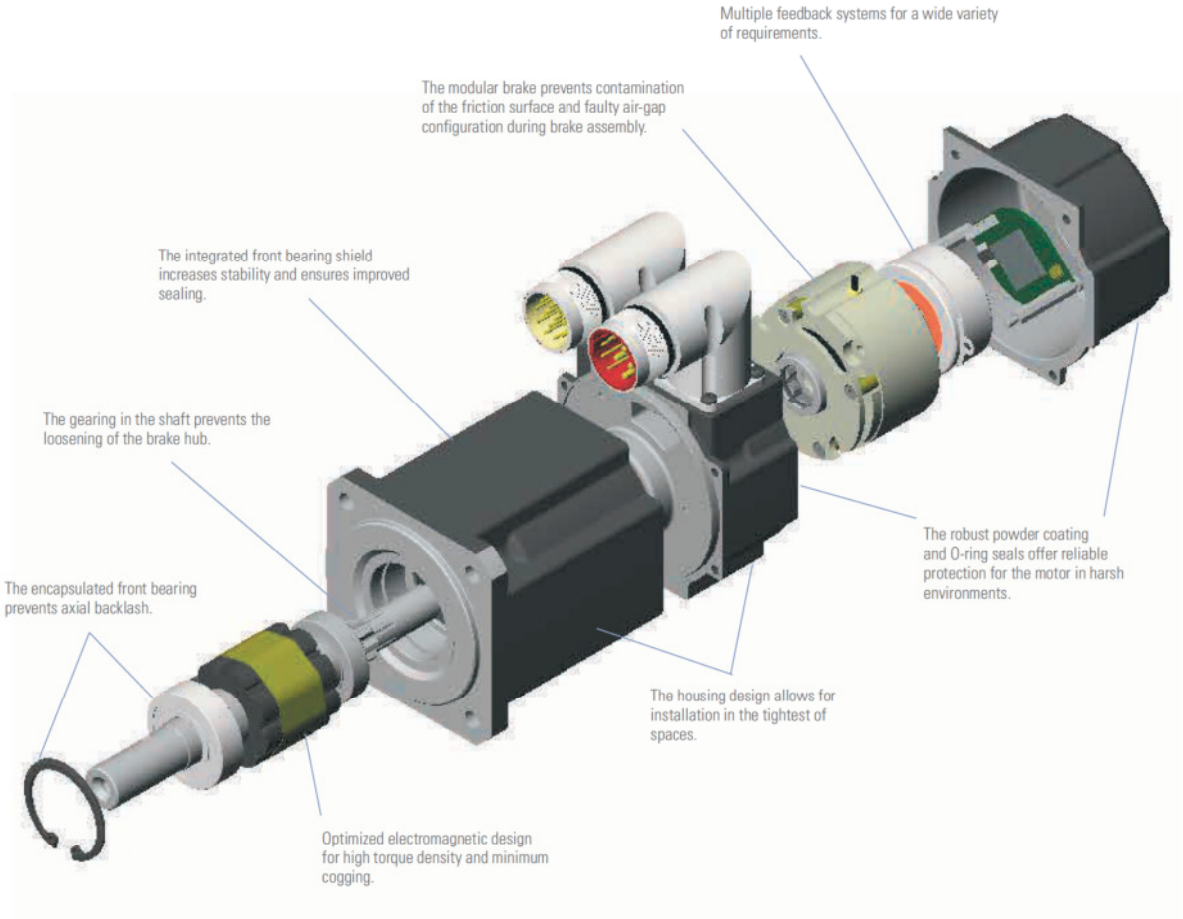
(1) ∅W = 63 mm AKM2xx-Ax
∅W = 65 mm AKM2xx-Dx

(2) ∅W = 75 mm AKM3xx-Ax
∅W = 85 mm AKM3xx-Cx

(3) ∅W = 100 mm, ∅V = 80 mm AKM4xx-Ax
∅W = 90 mm, ∅V = 60 mm AKM4xx-Cx

(4) ∅W = 130 mm ∅V = 110 mm AKM5xx-Ax
∅W = 115 mm ∅V = 95 mm AKM5xx-Ax

The Design Features of AKM in the 3D Model



AKMH™ Hygienic Stainless Steel Servo Motors

For more than 70 years, Kollmorgen has been developing special motors for use in difficult environments. For example, the remotely controlled submarine vehicle called the Jason Jr. discovered the wreck of the Titanic with the help of Kollmorgen motors developed especially for this purpose.

Reduced recall risk. In the food production industry extremely strict hygiene regulations apply so that public health is not compromised. The stainless-steel AKMH servo motors meet the most demanding requirements in relation to hygiene standards and reduce the risk of product contamination and costly recalls.

Faster cleaning and reduced maintenance times. The stainless steel AKMH servo motors are designed to protection class IP69K and satisfy the requirements of the EHEDG and 3A hygiene regulations. Only materials are used that are FDA-approved and suitable for use with food. These characteristics of the AKMH series enable quick, hygienic cleaning, reduce maintenance times, and therefore increase the overall equipment effectiveness of your production line.

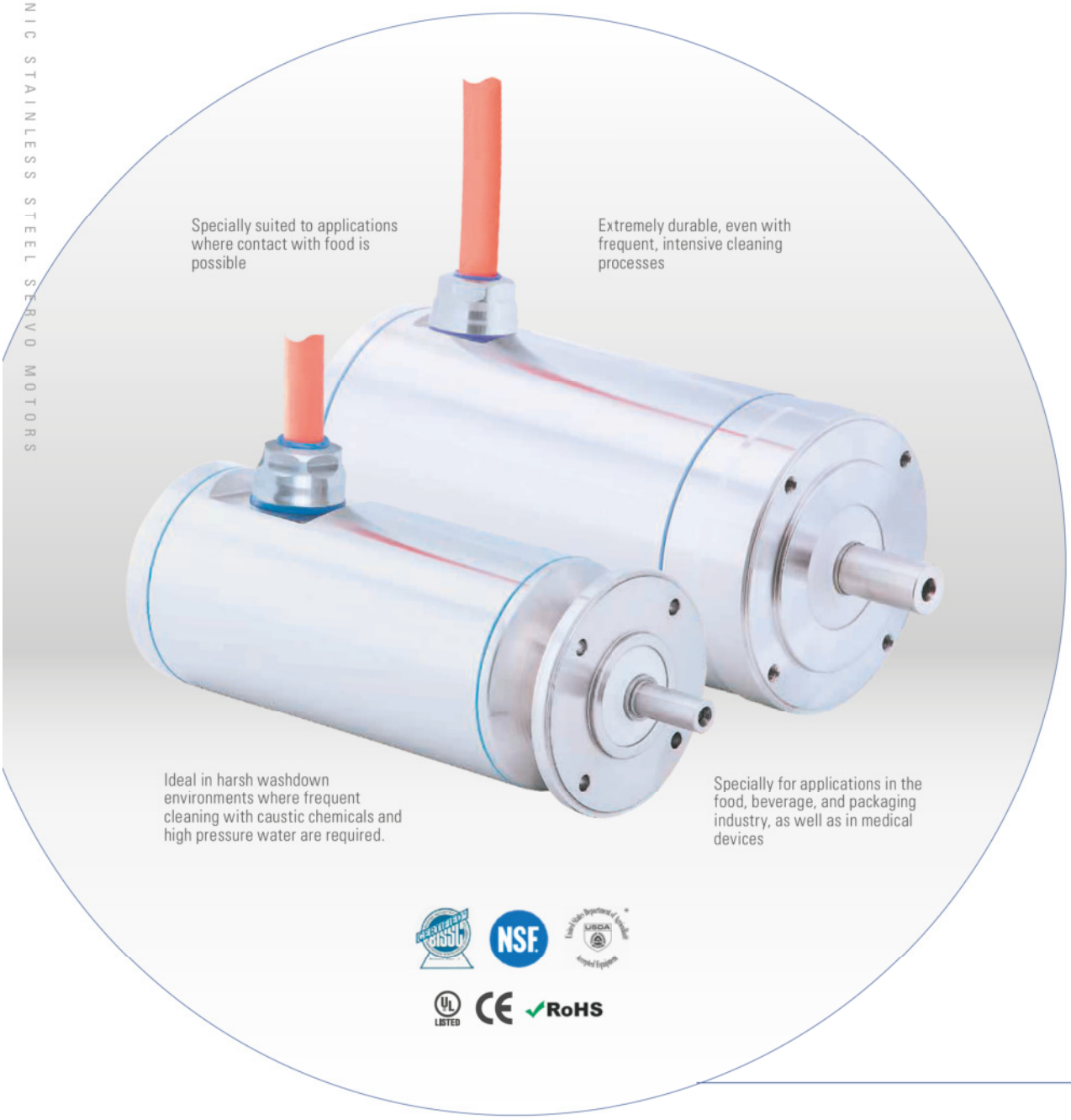
The bottom line. The stainless steel AKMH series of motors has been designed for hygienic machine applications. The large product range with 19 standard motor frame sizes, multiple standard windings, and numerous connection, brake, and cable options makes it easier to choose a motor that satisfies the requirements of the highest standards in the food, beverage, and pharmaceutical industries.

The Advantages of AKMH Hygienic Stainless Steel Servo Motors

Increase in Overall Equipment Effectiveness (OEE)	
Faster and environmentally friendly cleaning	• Open, hygienic machine design without protective housings • Considerably lower consumption of cleaning agents; less dirty water
No machine downtimes as a result of cleaning or corrosion	• Protection class IP69K for motor housing, cable gland, and shaft seal • Designed for regular high-pressure and high-temperature cleaning • Cable and sealing components are resistant to common cleaning agents • No corrosion inside the motor: Pressure compensation through the cable prevents moisture in the motor
Lower operating costs	• Higher machine availability due to quicker cleaning • Faster cleaning reduces the consumption of cleaning agents and energy • High energy efficiency due to motor / servo drive combination with a high degree of efficiency
Higher throughput	• Quick and precise drives in combination with the AKD servo drives • Process monitoring and optimization with Kollmorgen's software tools
Lower risk of recalls	
Hygiene-optimized housing design	• Housing is 1.4404 stainless steel 316L with smooth surface prevents the build-up of pathogens • Fluids drained with vertical installation thanks to convex cover • No place for pathagens to hide - no nooks and crannies in housing design • Thanks to a laser annealed nameplate, the surface finish is undisturbed
Use of approved hygienic components	• Bearing lubrication and shaft seals FDA-approved • Observance of the EHEDG and 3A Sanitary Certificate hygienic regulations
Hygienic cable technology	• Silicon tubing option provides an FDA-approved cable option suitable for use with food • Low cabling costs due to single-cable technology - no need for expensive stainless steel conduit • Non absorbant cabling prevent pathogens from hiding in the cable jacket material
Reduced development times and design freedom	
Ideal motor design	• Large selection of standard motors allowing customers to optimize their motor selection • 19 frame sizes, flange and shaft measurements as per IEC and NEMA • Continuous torques up to 22 Nm, peak torques up to 92 Nm • Speeds up to 8000 rpm^{-1} • SFD3 and Hiperface DSL digital feedback systems • Brake and cable options
Simple start-up and parameterization	• Plug-and-play connection with pre-assembled connectable cables. no screw connections • Simple machine architecture due to single-cable and decentralized connection technology • Digital nameplate for quick start-up • Software tools for parameterization and drive monitoring
Low energy consumption	• High efficiency due to permanent magnet technology • 20% less derating due to special motor design
Kollmorgen support	• Kollmorgen's global support team has wealth of industry knowledge to help optimize your machine
Co-engineering	• Kollmorgen welcomes customization to help optimize your motor/drive solution

AKMH Hygienic Stainless Steel Servo Motors

The new stainless steel AKMH motors have been designed for hygienic machine applications in wet areas with food contact in accordance with the EHEDG regulations and they comply with 3A, USDA and NFS hygiene standards. Shorter cleaning times and high reliability ensure noticeably greater overall equipment effectiveness.



Higher Productivity Due to Quicker Cleaning

- Ideal for machines with an open design
- No costly protective equipment; no hidden spaces to trap pathogens
- Quick, easy, yet safe cleaning

Reduced Recall Risk

- Lubricants and seals meet FDA standards.
- Round, stainless steel housing with a roughness of < 0.8 µm and the design of all edges with radii of R1.5 prevent dirt deposits

Higher Machine Uptime

- IP69K: Motor is protected for water pressures up to 100 Bar
- Cable is directly mounted to motor; no connectors to fail or trap pathogens
- Single-cable technology with digital feedback (SFD3 or HIPERFACE® DSL digital resolvers); less cabling to clean

Outstanding Efficiency Thanks to Novel Motor Design

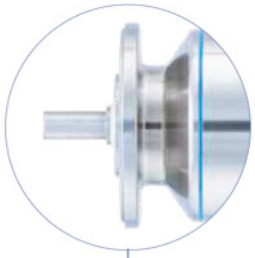
- Torque derating under 20%
- High speeds of up to 8000 RPM offer more flexibility for gearbox attachment and higher productivity due to higher output speeds with the same torque
- AKMH2 is the most compact hygienic servo motor on the market

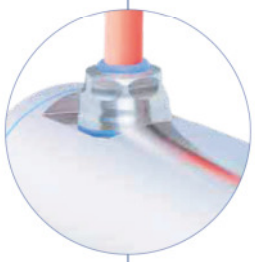
Optimized Motion Thanks to 19 Frame Sizes

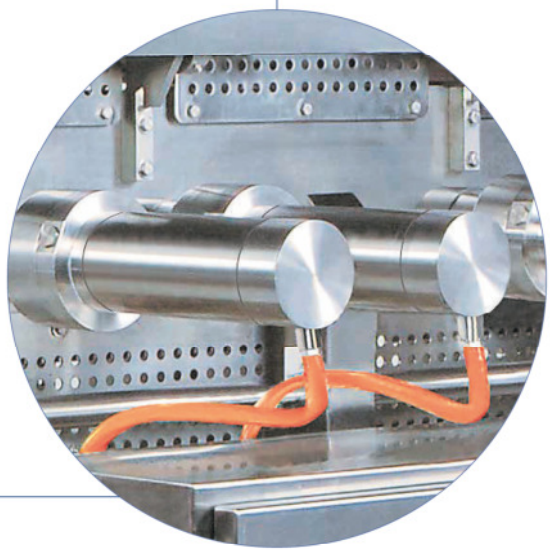
- 5 sizes each with 4 rotor lengths and winding options for perfect adaptation to servo drives
- Two housing shapes for front and flange mounting

One Source for Your Complete Automation Solution

- The Kollmorgen Automation Suite provides all the tools for motion and PLC programming and for drive management in operation
- AKD-PDMM multi-axis controller: The 3-in-1 solution combines servo drive, motion controller, and PLC in one device





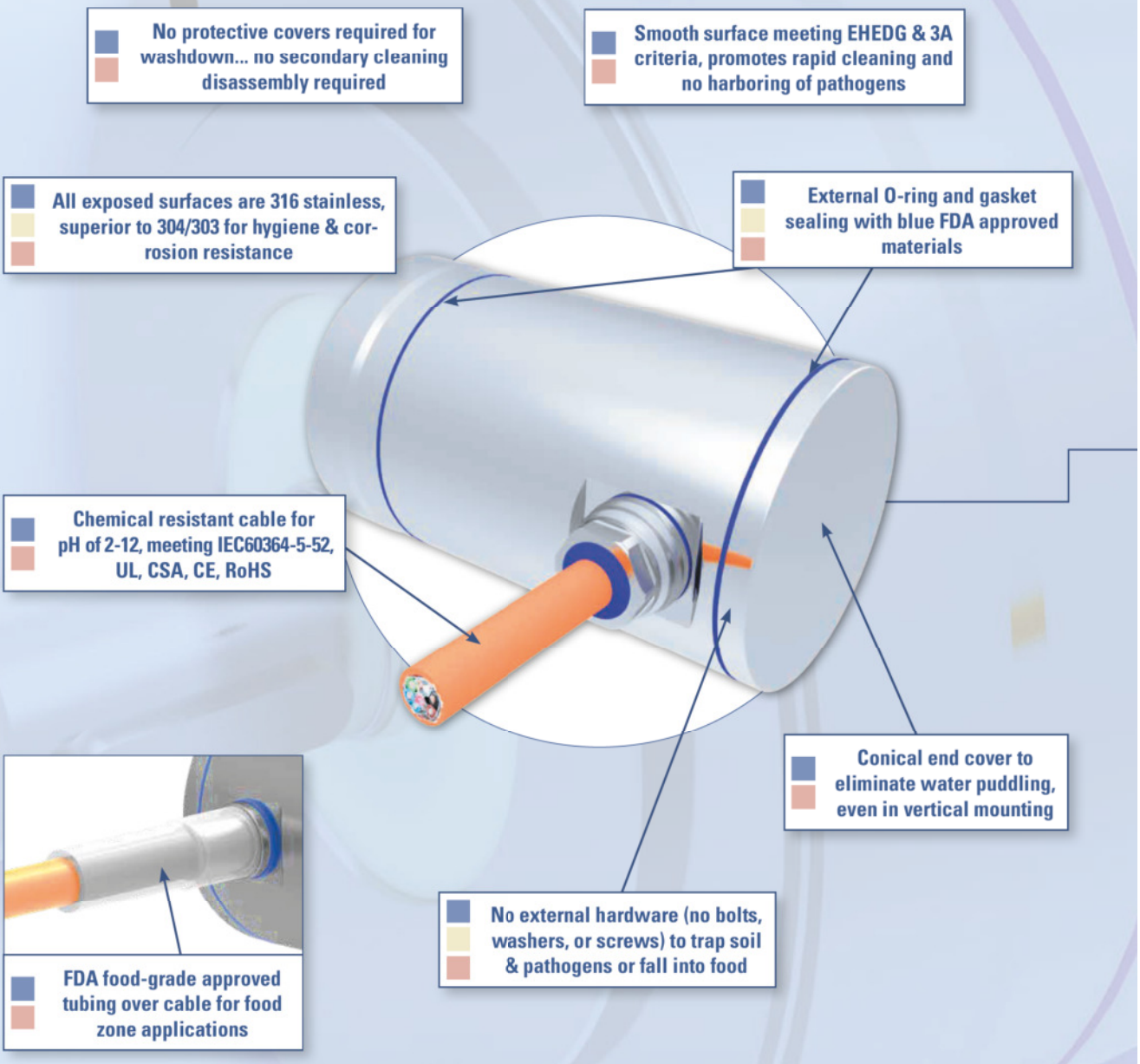


Thanks to the open machine design without protective housings, machines can also be cleaned quickly and safely using high-pressure and high-temperature processes.

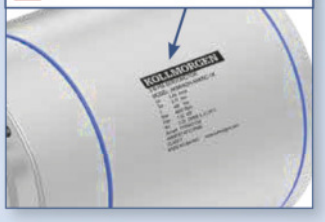
AKMH™ Design Features

The key benefits of AKMH clean design features:

- Reduces risk of food recall
- Increases reliability in wash-down application
- Reduces cleaning time: higher OEE



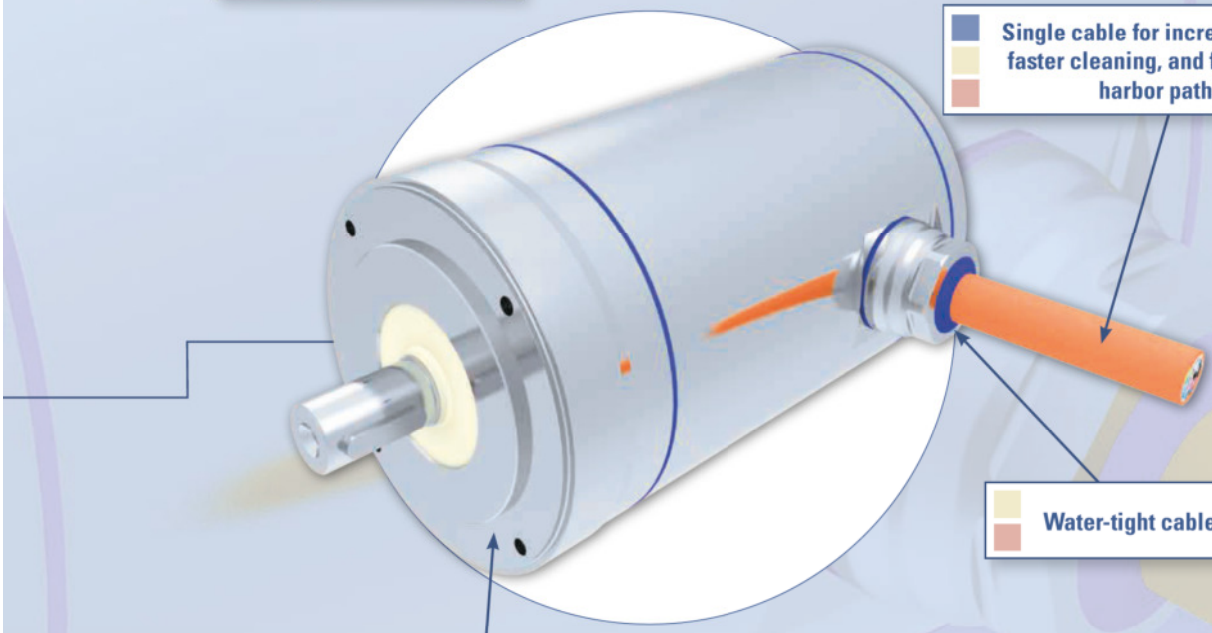
Hygienic marking method eliminates harboring of pathogens



Unique design technique to eliminate condensation

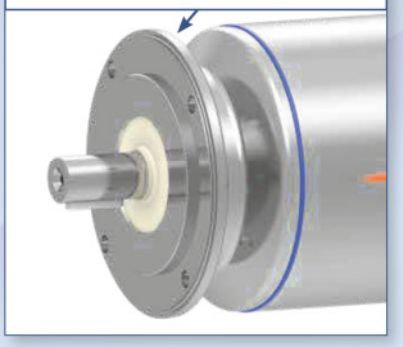
Dual cable option for use with 3rd party drives

Single cable for increased reliability, faster cleaning, and fewer places to harbor pathogens

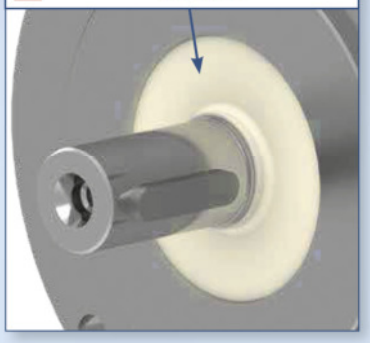


Water-tight cable exit

Face Mount for most hygienic design, Flange Mount option for easy mounting



Hygienic, IP69K shaft seal, special shaft treatment for long life



AKMH Hygienic Stainless Steel Servo Motors

Performance Data

AKMH Servo Motor	Cont. Torque at Stall Tcs [Nm] ①②③	Continuous Current I_0 [A] ①②③	Peak Torque at stall Tps [Nm] ①②③	160 V DC			320 V DC V			560 V DC			640 V DC			Inertia (Jm) [kg·cm²]	Weight [kg]
				Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm] ①②③	Rated Power Prtd [kW] ①②③	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm] ①②③	Rated power P_n [kW] ①②③	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm] ①②③	Rated Power Prtd [kW] ①②③	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm] ①②③	Rated Power Prtd [kW] ①②③		
21C	0.31	1.37	1.76	2500	0.33	0.09	8000	0.22	0.18	8000	0.21	0.18	8000	0.21	0.18	0.11	3.6
21E	0.36	2.67	1.81	7000	0.26	0.19	–	–	–	–	–	–	–	–	–	0.11	3.6
21G	0.37	4.10	1.60	–	–	–	–	–	–	–	–	–	–	–	–	0.11	3.6
22C	0.61	1.19	3.16	1000	0.63	0.07	3500	0.60	0.22	8000	0.41	0.34	8000	0.40	0.34	0.16	4.1
22E	0.65	2.32	3.23	3500	0.61	0.22	8000	0.60	0.22	–	–	–	–	–	–	0.16	4.1
22G	0.64	3.98	3.27	7000	0.47	0.34	–	–	–	–	–	–	–	–	–	0.16	4.1
23D	0.83	1.88	4.37	1500	0.87	0.14	5000	0.73	0.38	8000	0.49	0.41	8000	0.46	0.39	0.22	4.6
23E	0.90	2.39	4.43	2500	0.86	0.23	6500	0.66	0.45	–	–	–	–	–	–	0.22	4.6
23F	0.88	3.63	4.46	4500	0.78	0.37	8000	0.48	0.40	–	–	–	–	–	–	0.22	4.6
24D	1.10	1.96	5.35	1500	1.10	0.17	4000	0.97	0.41	8000	0.52	0.44	8000	0.47	0.39	0.27	5.1
24E	1.15	2.52	5.36	2000	1.10	0.23	5500	0.88	0.51	–	–	–	–	–	–	0.27	5.1
24F	1.12	3.42	5.39	3000	1.04	0.33	8000	0.53	0.44	–	–	–	–	–	–	0.27	5.1
31C	0.91	1.24	3.76	–	–	–	2500	0.86	0.23	5000	0.72	0.38	6000	0.5	0.41	0.33	4.1
31E	0.96	2.64	3.88	2500	0.91	0.24	6000	0.68	0.43	–	–	–	–	–	–	0.33	4.1
31H	0.99	5.04	3.95	6000	0.71	0.45	–	–	–	–	–	–	–	–	–	0.33	4.1
32C	1.68	1.30	6.92	–	–	–	1500	1.62	0.25	3000	1.47	0.46	3500	1.41	0.52	0.59	5.0
32E	1.69	2.49	7.06	–	–	–	3500	1.53	0.53	7000	0.71	0.52	8000	0.22	0.18	0.59	5.0
32H	1.77	4.81	7.21	3000	1.61	0.51	7000	0.71	0.52	–	–	–	–	–	–	0.59	5.0
33C	2.46	1.37	9.94	–	–	–	1000	2.42	0.25	2000	2.29	0.48	2500	2.22	0.58	0.85	5.9
33E	2.51	2.34	10.19	–	–	–	2000	2.38	0.50	4500	1.85	0.87	5000	1.68	0.88	0.85	5.9
33H	2.60	5.00	10.43	2500	2.41	0.63	5500	1.56	0.90	–	–	–	–	–	–	0.85	5.9
41C	1.77	1.46	5.75	–	–	–	1500	1.73	0.27	3000	1.61	0.51	3500	1.56	0.57	0.81	6.1
41E	1.75	2.73	5.84	1500	1.77	0.28	3000	1.64	0.52	6000	1.26	0.79	6000	1.22	0.77	0.81	6.1
41H	1.83	5.34	5.92	3000	1.71	0.54	6000	1.29	0.81	–	–	–	–	–	–	0.81	6.1
42C	3.15	1.41	10.62	–	–	–	–	–	–	1500	3.02	0.47	2000	2.94	0.62	1.45	7.4
42E	3.12	2.64	10.79	–	–	–	2000	2.97	0.62	3500	2.60	0.95	4000	2.43	1.02	1.45	7.4
42H	3.15	5.64	11.04	2000	3.15	0.66	4500	2.40	1.13	6000	0.82	0.52	6000	0.46	0.29	1.45	7.4
42J	3.37	8.11	11.08	3000	3.02	0.95	6000	1.27	0.80	–	–	–	–	–	–	1.45	7.4
43E	4.38	2.61	15.50	–	–	–	1500	4.25	0.67	2500	3.89	1.02	3000	3.65	1.15	2.09	8.8
43H	4.55	5.22	15.65	–	–	–	3000	3.94	1.24	6000	0,12	0.08	6000	0.82	0.47	2.09	8.8
43L	4.02	9.92	15.58	3000	3.48	1.09	5500	0.45	0.26	–	–	–	–	–	–	2.09	8.8
44E	5.41	2.70	19.77	–	–	–	1000	5.29	0.55	2000	4.83	1.01	2500	4.56	1.19	2.73	10.2
44H	5.40	5.23	19.73	–	–	–	2500	4.72	1.24	5000	1.96	1.03	5000	1.27	0.66	2.73	10.2
44K	5.42	9.41	19.75	2000	4.96	1.04	5000	1.83	0.96	–	–	–	–	–	–	2.73	10.2
51E	3.92	2.61	10.09	–	–	–	1500	3.83	0.60	2500	3.58	0.94	3000	3.44	1.08	3.42	8.9
51H	3.80	5.45	10.17	–	–	–	3000	3.44	1.08	5500	2.20	1.27	5500	2.05	1.18	3.42	8.9
51L	3.89	10.58	10.33	3000	3.54	1.11	5500	2.16	1.24	–	–	–	–	–	–	3.42	8.9

① Motor winding excess temperature, ΔT = 100 K with ambient temperature = 40°C

②All specifications refer to sinusoidal supply

③ Rated data with reference flange (aluminum, dims (mm): AKMH2, AKMH3, AKMH4: 254 x 254 x 6.35 AKMH5: 305 x 305 x 12.7 AKMH6: 457 x 457 x 12.7)

Performance Data

AKMH Servo Motor	Cont. Torque at Stall Tcs [Nm] ①②③	Continuous Current I_0 [A] ①②③	Peak Torque at stall Tps [Nm] ①②③	160 V DC			320 V DC V			560 V DC			640 V DC			Inertia (Jm) [kg·cm²]	Weight [kg]
				Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm] ①②③	Rated Power Prtd [kW] ①②③	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm] ①②③	Rated power P_n [kW] ①②③	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm] ①②③	Rated Power Prtd [kW] ①②③	Rated Speed Nrtd [RPM]	Rated Torque Trtd [Nm] ①②③	Rated Power Prtd [kW] ①②③		
52E	6.69	2.68	18.79	–	–	–	–	–	–	1500	6.41	1.01	2000	6.22	1.30	6.22	11.1
52H	6.72	5.17	19.01	–	–	–	1500	6.54	1.03	3500	5.22	1.91	4000	4.54	1.90	6.22	11.1
52L	6.66	9.87	19.30	–	–	–	3500	5.30	1.94	4500	2.46	1.16	4500	1.27	0.60	6.22	11.1
52M	6.70	11.15	19.20	–	–	–	4500	3.76	1.77	–	–	–	–	–	–	6.22	11.1
53H	9.45	5.92	26.74	–	–	–	–	–	–	3000	6.82	2.14	3500	5.88	2.16	9.12	13.4
53L	8.99	10.09	26.95	–	–	–	3000	6.83	2.15	3500	3.62	1.33	3500	2.29	0.84	9.12	13.4
53P	8.30	15.66	26.56	–	–	–	3500	3.66	1.34	–	–	–	–	–	–	9.12	13.4
54H	13.21	5.30	35.62	–	–	–	1000	12.88	1.35	2000	11.45	2.40	2000	11.26	2.36	11.90	15.7
54L	12.10	11.29	35.65	–	–	–	2500	9.74	2.55	3000	6.76	2.12	–	–	–	11.90	15.7
54P	11.83	16.58	36.08	–	–	–	3000	7.19	2.26	–	–	–	–	–	–	11.90	15.7
62H	10.6	5.32	32.24	–	–	–	1000	10.14	1.06	2000	9.15	1.92	2000	9.07	1.90	16.90	19.6
62L	10.10	11.05	33.03	–	–	–	2500	8.33	2.18	4000	3.77	1.58	4000	2.94	1.23	16.90	19.6
62M	10.30	12.53	33.13	–	–	–	3000	7.82	2.46	4000	3.22	1.35	4000	2.07	0.87	16.90	19.6
63H	14.60	5.42	44.73	–	–	–	–	–	–	1500	13.30	2.09	2000	12.61	2.64	24.20	23.1
63L	14.10	10.23	45.29	–	–	–	2000	12.47	2.61	3000	9.81	3.08	3500	7.64	2.80	24.20	23.1
63M	14.20	12.59	46.02	–	–	–	2000	12.47	2.61	4000	4.76	1.99	4000	3.04	1.27	24.20	23.1
64K	18.00	8.74	55.79	–	–	–	1000	17.34	1.82	2000	15.40	3.23	2500	14.19	3.71	31.60	26.7
64L	17.90	11.87	56.46	–	–	–	1500	16.57	2.60	3000	12.19	3.83	3500	9.29	3.40	31.60	26.7
65K	21.4	9.33	65.87	–	–	–	1000	20.65	2.16	2000	18.40	3.85	2500	17.00	4.45	40.00	30.2
65L	21.50	11.44	66.72	–	–	–	1500	20.01	3.14	2500	16.97	4.44	3000	14.68	4.61	40.00	30.2
65M	21.10	12.57	66.63	–	–	–	1500	19.64	3.09	3000	14.63	4.60	3000	13.78	4.33	40.00	30.2

① Motor winding excess temperature, ΔT = 100 K with ambient temperature = 40°C

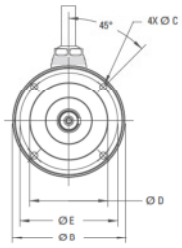
② All specifications refer to sinusoidal supply

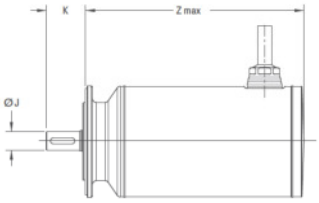
③ Rated data with reference flange (aluminum, dims (mm): AKMH2, AKMH3, AKMH4: 254 x 254 x 6.35 AKMH5: 305 x 305 x 12.7 AKMH6: 457 x 457 x 12.7)

Flange / Shaft Combinations

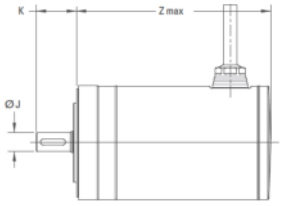
Mounting	Flange	Flange	Flange	Flange	Front	Front	Front	Front	Front	Front	Flange	Flange	Front	Front	Flange
Standard	IEC	IEC	NEMA	NEMA	IEC	IEC	NEMA	NEMA	NEMA	NEMA	IEC	IEC	IEC	IEC	NEMA
Shaft	Closed Keyway	Smooth	Open Keyway	Smooth	Closed Keyway	Smooth	Open Keyway	Smooth	Open Keyway	Smooth	Closed Keyway	Smooth	Closed Keyway	Smooth	Open Keyway
AKMH 2x	●	●	–	●	●	●	–	●	–	–	–	–	–	–	–
AKMH 3x	●	●	–	●	●	–	–	–	–	–	–	–	–	–	–
AKMH 4x	●	●	●	●	●	●	●	●	●	●	–	–	–	–	●
AKMH 5x	●	●	●	●	●	●	●	●	●	●	●	●	●	●	–
AKMH 6x	●	●	–	–	●	●	●	●	●	●	–	–	–	–	–

AKMH Hygienic Stainless Steel Servo Motors

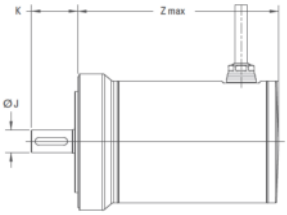




AKMH flange mounting



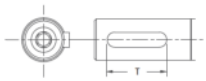
AKMH front mounting



Only AKMH5x front mounting

Open keyway (BK, CN, DK versions)

Closed keyway (AC, BN, GC, HC versions)



Dimensions (mm)

Model	Z max. SFD3 digital resolver		Z max. Hiperface DSL		Flange
	without brake	with brake	without brake	with brake	ØB
AKMH21	167.2	201.2	180.2	214.2	79
AKMH22	186.2	220.2	199.2	233.2	79
AKMH23	205.2	239.2	218.2	252.2	79
AKMH24	224.2	258.2	237.2	271.2	79
AKMH31	166.5	198.0	182.5	214.0	89
AKMH32	197.5	229.0	213.5	245.0	89
AKMH33	228.5	260.0	244.5	276.0	89
AKMH41	166.7	201.0	182.7	217.0	113
AKMH42	195.7	230.0	211.7	246.0	113
AKMH43	224.7	259.0	240.7	275.0	113
AKMH44	253.7	288.0	269.7	304.0	113
AKMH51	187.4	229.4	198.4	240.4	148
AKMH52	218.4	260.4	229.4	271.4	148
AKMH53	249.4	291.4	260.4	302.4	148
AKMH54	280.4	322.4	291.4	333.4	148
AKMH61	209.9	256.5	220.9	267.5	186
AKMH62	234.9	281.5	245.9	292.5	186
AKMH63	259.9	306.5	270.9	317.5	186
AKMH64	284.9	331.5	295.9	342.5	186

Dimensions (mm)

AKMH XX-		AC	AN	BK	BN	CC	CN	DK	DN	EK	EN	GC	GN	HC	HN	LK
Mounting		Flange		Flange		Front	Front	Front	Front	Front	Front	Flange	Flange	Front	Front	Flange
Standard		IEC		NEMA		IEC	IEC	NEMA	NEMA	NEMA	NEMA	IEC	IEC	IEC	IEC	NEMA
Shaft		Closed Keyway	Smooth	Open Keyway	Smooth	Closed Keyway	Smooth	Open Keyway	Smooth	Open Keyway	Smooth	Closed Keyway	Smooth	Closed Keyway	Smooth	Open Keyway
AKMH 2x	Ø C	4.80		–	5.10	M4 x 0.7 x 8.0		–	UNF10-32	–		–		–		–
	Ø D	40		–	38.10	40		–	38.1	–		–		–		–
	Ø E	63		–	66.68	63		–	66.68	–		–		–		–
	Ø J	11		–	9.524	11		–	9.524	–		–		–		–
	K	30		–	31.8	30.0		–	31.8	–		–		–		–
	N/T	T = 16	NA	–	NA	T = 16	NA	–	NA	–		–		–		–
AKMH 3x	Ø C	5.80		–		M5 x 0.8 x 10.0		–		–		–		–		–
	Ø D	60		–		60		–		–		–		–		–
	Ø E	75		–		75		–		–		–		–		–
	Ø J	14		–		14		–		–		–		–		–
	K	30		–		30.0		–		–		–		–		–
	N/T	T = 16	NA	–		T = 16	NA	–		–		–		–		–
AKMH 4x	Ø C	7.0		6.91		M6 x 1 x 12		UNC 1/4 - 20 x 12.3		M6 x 1 x 12		–		–		UNC 3/8 - 16 x 19.1
	Ø D	80		73.025		80		73.025	73	80		–		–		114.30
	Ø E	100		98.43		100		98.43		100		–		–		149.23
	Ø J	19		15.875		19		15.875		16		–		–		15.862
	K	40.0		52.40		40.0		52.40		52.40		–		–		50.8
	N/T	T = 25	NA	N = 34.93	NA	T = 25	NA	N = 34.93	NA	N = 30.00	NA	–		–		T = 25
AKMH 5x	Ø C	9		8.33		M8 x 1.25 x 16.0		UNC 3/8 - 16 x 19.05		M8 x 1.25 x 16.0		9		M8 x 1.25 x 16.0		–
	Ø D	110		55.560		110		55.563		110		95		95		–
	Ø E	130		125.73		130		125.73		130		115		115		–
	Ø J	24		19.05		24		19.05		24		24		24		–
	K	50.0		57.15		50.0		57.15		50.0		50.0		50.0		–
	D	T = 36	NA	N = 38.1	NA	T = 36	NA	N = 38.1	NA	N = 36.00	NA	T = 36	NA	T = 36	N = 38.1	–
AKMH 6x	Ø C	11.00		–		M10 x 1.5 x 20.0		UNC 3/8 - 16 x 19.05		M10 x 1.5 x 20.0		–		–		–
	Ø D	130		–		130		114.3		130		–		–		–
	Ø E	165.0		–		165.0		149.23		165.0		–		–		–
	Ø J	32		–		32		28.580		28		–		–		–
	K	58		–		58		69.9		60.0		–		–		–
	D	40	NA	–		T = 40	NA	N = 38.10	NA	N = 45.00	NA	–		–		–