Series Variations

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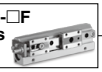
Parallel Type Series Variations

Series				Features	Action	Option: Finger option	Option: Body option	Option: Auto switch	Bore size	Page
Parallel Type	Linear guide	Standard	**JMHZ2 Series** 	Downsizing is possible without changes to the gripping point range. (ø20 → ø16) High rigidity and precision are achieved by integrating the guide and finger.	Double acting Single acting	●		●	8, 12 16, 20	447
		Standard	**MHZ2 Series** 	General purpose compact grippers with integral linear guide that provides high rigidity and high accuracy.	Double acting Single acting	●	●	●	6 10, 16 20, 25 32, 40	486
		Long stroke	**MHZL2 Series** 	Finger stroke is about double that of MHZ to deal with various types of workpieces.	Double acting Single acting	●	●	●	10, 16 20, 25	514
		With dust cover	**MHZJ2 Series** 	Air grippers with dust-proof and drip-proof construction. Interchangeable in mounting dimensions with the standard models. A selection of dust cover materials is available to suit your application.	Double acting Single acting	●	●	●	6 10, 16 20, 25 32, 40	528
		Low profile	**MHF2 Series** 	Height 1/3 (Compared with MHZ) Short, middle and long strokes are available. Actuator position sensor mountable	Double acting		●	●	8, 12 16, 20	553
		Low profile	**MHF2-□F Series** 	·Fixed finger on 1 side type ·The fixed finger can be set to a reference position. ·More compact and lightweight	Double acting			●	8, 12 16, 20	589
	Wide opening		**MHL2-Z Series** 	Weight reduced by changing the body shape and internal construction. Built-in dust protection mechanism. In micro-powder (10 to 100 µm) environments → Double Lube-retainer In dusty environments → Heavy duty scraper + Lube-retainer	Double acting			●	10, 16 20, 25 32, 40	617
	Wide opening		**MHL2 Series** 	A wide opening with large open/close stroke. Optimally used for holding large-size workpieces that have dimensional variances. The double pistons provide a large gripping force.	Double acting			●	10, 16 20, 25 32, 40	639
	Rotary actuated	2 Finger	**MHR2/ MDHR2 Series** 	A vertically compact configuration and a high level of precision have been achieved through the use of a rotary actuator as the source of its drive force. Supports class 10 clean room.	Double acting			●	Nominal size 10, 15 20, 30	643
		3 Finger	**MHR3/ MDHR3 Series** 	A vertically compact configuration and a high level of precision have been achieved through the use of a rotary actuator as the source of its drive force. Optimally used for holding round-shaped workpieces. Supports class 10 clean room.	Double acting			●	Nominal size 10, 15	656
	Slide guide	Square body, 2 Finger	**MHK2 Series** 	A dust-protected, dripproof, external force resistant, and weather-resistant type that can be used for a variety of applications. To suit the environment, a selection of dust cover materials and stainless steel 304 fingers is available.	Double acting Single acting	●		●	12, 16 20, 25	673
		Round body, 2 Finger	**MHS2 Series** 	Vertically compact due to its wedge-shape cam construction. Optimally used in operations that require the application of an external force, such as in press fitting operations.	Double acting			●	16, 20 25, 32 40, 50 63	695
		Round body, 3 Finger, Standard	**MHS3 Series** 	Vertically compact due to its wedge-shape cam construction. Optimally used in loading/unloading cylindrically shaped workpieces onto machine tools and in operations that require the application of an external force, such as in press fitting operations.	Double acting			●	16, 20 25, 32 40, 50 63, 80 100, 125	710
		Round body, 3 Finger, With dust cover	**MHSJ3 Series** 	Dust-protected, dripproof construction with a choice of dust cover material for the specific application.	Double acting			●	16, 20 25, 32 40, 50 63, 80	720
		Round body, 3 Finger, Through-hole	**MHSH3 Series** 	Combination with dust cover and center pusher is possible.	Double acting			●	16, 20 25, 32 40, 50 63, 80	728
		Round body, 3 Finger, Long stroke	**MHSL3 Series** 	Finger stroke is about twice as long as that of MHS and has an interchangeability in mounting with each other.	Double acting			●	16, 20 25, 32 40, 50 63, 80 100, 125	744
		Round body, 4 Finger	**MHS4 Series** 	Vertically compact due to its wedge-shape cam construction. Optimally holds rectangular workpieces for locating operations.	Double acting			●	16, 20 25, 32 40, 50 63	754

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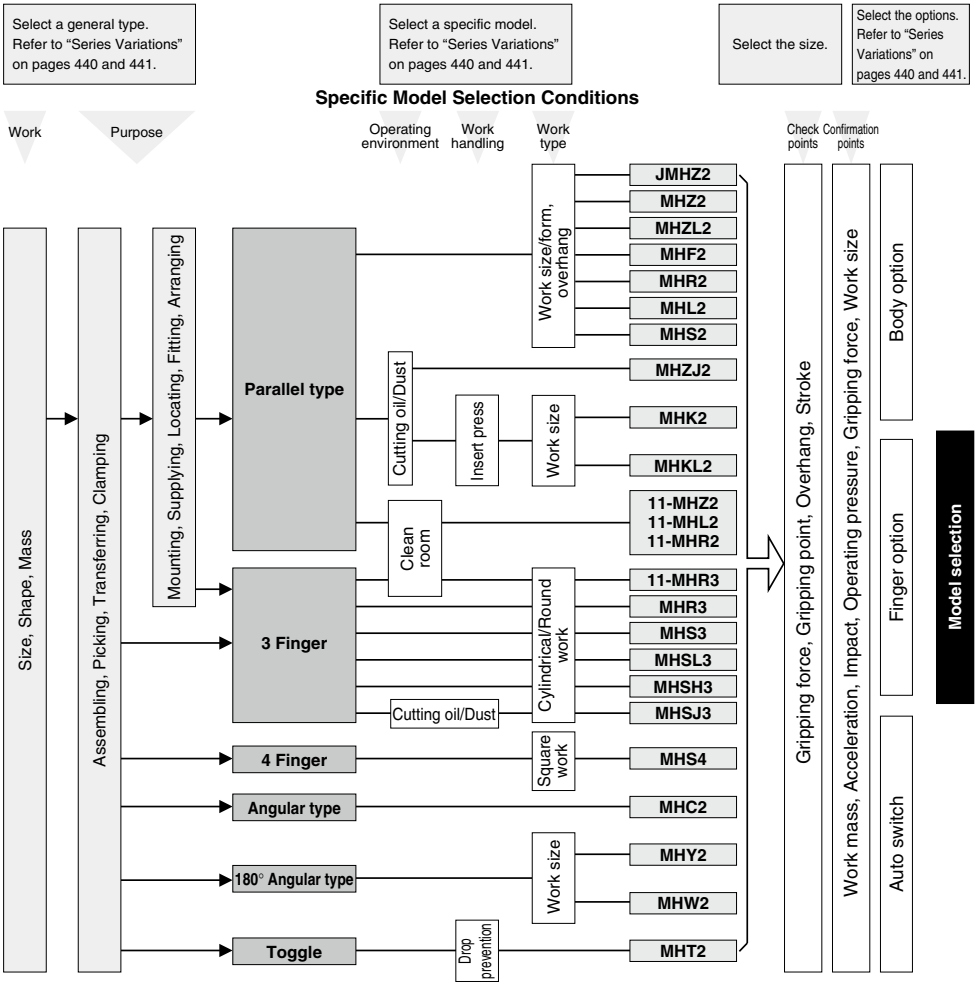
Angular Type Series Variations

Series			Features	Action	Option: Finger option	Option: Body option	Option: Auto switch	Bore size	Page
Angular Type	Standard	**MHC2 Series** 	Auto switches can be mounted.	Double acting Single acting	●		●	6	796
	Standard	**MHCA2 Series** 	Body with a shorter overall length.	Double acting Single acting		●	●	6	796
	Compact	**MHCM2 Series** 	Smallest and most lightweight series.	Single acting	●	●	●	7	805
	Standard	**MHC2 Series** 	A large holding moment is achieved through a double piston construction. (ø10 to ø25)	Double acting Single acting	●	●	●	10, 16 20, 25	807
	Toggle	**MHT2 Series** 	A large holding moment in the vicinity of the support point is achieved through a toggle construction. The workpiece can be held in place even when there is no supply of compressed air.	Double acting	●	●	●	32, 40 50, 63	817
	Cam: 180° Angular	**MHY2 Series** 	Lightweight and compact size through the use of a cam mechanism.	Double acting	●	●	●	10, 16 20, 25	829
	Rack/Pinion: 180° Angular	**MHW2 Series** 	The use of SMC's unique seal construction resulted in its reduced overall length and dust-protecting performance. Can be used for unloading workpieces from machine tools or for holding workpieces.	Double acting	●	●	●	20, 25 32, 40 50	843
	Grippers for collaborative robots		Unitization of the peripheral devices required for gripper driving						856
	Rotary gripper	**MRHQ Series** 	The gripper function and the rotating function have been integrated in a compact package.	Double acting Single acting	●	●	●	10, 16 20, 25	881
	AHC system Auto Hand Changing System	**MA Series** 	Automatic exchange of robot hand tools, FMS (flexible manufacturing system) implemented for assembly lines.	**MA210** **MA3□1**				**Max. transportable mass**: 3 kg 5 kg	905

Air Grippers
Model Selection



Performance Data for Air Gripper Model Selection

Series description			Series	Bore size (mm)	Gripping force (N)*1				Finger closing stroke (mm)	Finger opening stroke (mm)	Stroke (mm)	Weight (g)*4	Size H (mm)	Volume (cm³)	
					Double acting		Single acting N.O.	Single acting N.C.						Finger open side	Finger close side
					External	Internal	External	Internal							
Parallel Type	Linear guide	Standard	JMHZ2	8	7.8	10.5	4.5	7.8	$16^{0}_{-0.5}$	20^{+2}_{0}	4	31	33.1^{+6}	0.3^{+6}	0.2^{+6}
													36.9^{+6}	0.3^{+6}	0.2^{+6}
				12	17.5	23.3	11.2	19.3	$24^{0}_{-0.5}$	$30^{+2.1}_{0}$	6	65	37.4^{+6}	0.6^{+6}	0.4^{+6}
													42.9^{+6}	0.8^{+6}	0.6^{+6}
				16	32.7	43.5	22.9	36.0	$30^{0}_{-0.5}$	$40^{+2.3}_{0}$	10	128	48.2^{+6}	1.6^{+6}	1.1^{+6}
													55.7^{+6}	2.2^{+6}	1.5^{+6}
				20	54.2	72.2	38.3	57.4	$36^{0}_{-0.5}$	$50^{+1.8}_{-0.5}$	14	240	58.5^{+6}	3.3^{+6}	2.2^{+6}
													68.5^{+6}	4.5^{+6}	3.1^{+6}
			MHZA2	6	3.3	6.1	1.9	3.7	$8^{0}_{-0.4}$	12 ± 1	4	26	29.8	0.23	0.13
			MHZAJ2	6	3.3	6.1	1.9	3.7	$8^{0}_{-0.4}$	12 ± 1	4	27	33	0.23	0.13
			MHZ2	6	3.3	6.1	1.9	3.7	$8^{0}_{-0.4}$	12 ± 1	4	27	38.8	0.23	0.19
				10	11	17	7.1	13	$11.2^{0}_{-0.7}{}^{+5}$	$15.2^{+2.2}_{0}{}^{+5}$	4	55	43.8	0.4	0.3
									$5.7^{0}_{-0.4}{}^{+5}$	$9.7^{+2.2}_{0}{}^{+5}$					
				16	34	45	27	38	$14.9^{0}_{-0.7}{}^{+5}$	$20.9^{+2.2}_{-0.2}{}^{+5}$	6	115	50	1.3	1.0
									$6.6^{0}_{-0.4}{}^{+5}$	$12.6^{+2.2}_{0}{}^{+5}$					
				20	42	66	33	57	$16.3^{0}_{-0.7}{}^{+5}$	$26.3^{+2.2}_{-0.2}{}^{+5}$	10	235	62.3	3.0	2.0
									$7.2^{0}_{-0.4}{}^{+5}$	$17.2^{+2.2}_{0}{}^{+5}$					
				25	65	104	45	83	$19.3^{0}_{-0.8}{}^{+5}$	$33.3^{+2.5}_{-0.2}{}^{+5}$	14	430	74.6	6.1	4.1
									$8.8^{0}_{-0.4}{}^{+5}$	$22.8^{+2.5}_{0}{}^{+5}$					
				32	158	193	131	161	$26^{0}_{-0.5}$	$48^{+2.5}_{0}$	22	715	79^{+6}	12.2^{+6}	9.2^{+6}
				40	254	318	217	267	$30^{0}_{-0.5}$	$60^{+2.7}_{0}$	30	1275	88^{+6}	16.5^{+6}	12.1^{+6}
													98^{+6}	26.4^{+6}	19.1^{+6}
													111^{+6}	35.7^{+6}	25.6^{+6}
		Long stroke	MHZL2	10	11	17	7.1	13	$11.2^{0}_{-0.4}$	$19.2^{+2.2}_{0}$	8	60	43.8^{+6}	0.5^{+6}	0.3^{+6}
													53.8^{+6}	0.6^{+6}	0.4^{+6}
				16	34	45	27	38	$14.9^{0}_{-0.4}$	$26.9^{+2.2}_{0}$	12	135	52.7^{+6}	1.7^{+6}	1.2^{+6}
													57.7^{+6}	2.0^{+6}	1.3^{+6}
				20	42	66	33	57	$16.3^{0}_{-0.4}$	$34.3^{+2.4}_{0}$	18	270	67.5^{+6}	3.6^{+6}	2.2^{+6}
													73.5^{+6}	3.9^{+6}	2.3^{+6}
				25	65	104	50	85	$19.3^{0}_{-0.4}$	$41.3^{+2.6}_{0}$	22	470	77.9^{+6}	6.2^{+6}	3.8^{+6}
													87.9^{+6}	6.6^{+6}	4.0^{+6}
		With dust cover	MHZJ2	6	3.3	6.1	1.9	3.7	$8^{0}_{-0.4}$	12 ± 1	4	28	42	0.26	0.24
				10	9.8	17	6.3	12	$11.2^{0}_{-0.7}$	$15.2^{+2.2}_{0}$	4	60	45	0.4	0.3
				16	30	40	24	31	$14.9^{0}_{-0.7}$	$20.9^{+2.2}_{-0.2}$	6	130	52.3	1.3	1.0
				20	42	66	28	56	$16.3^{0}_{-0.7}$	$26.3^{+2.2}_{-0.2}$	10	250	64.8	3.0	2.0
				25	65	104	45	83	$19.3^{0}_{-0.8}$	$33.3^{+2.5}_{-0.2}$	14	460	77.7	6.1	4.1
		Compact	MHF2	8	19	19	–	–	$0^{+0.1}_{0}$	8 ± 1	8	65	14	0.7	0.6
										16 ± 1	16	85		1.1	1.0
										32 ± 1	32	120		2.0	1.9
				12	48	48	–	–	$0^{+0.1}_{0}$	12 ± 1	12	155	19	1.9	1.6
										24 ± 1	24	190		3.3	3.0
										48 ± 1	48	275		6.1	5.8
				16	90	90	–	–	$0^{+0.1}_{0}$	16 ± 1	16	350	24	4.9	4.1
										32 ± 1	32	445		8.2	7.4
										64 ± 1	64	650		14.9	14.0
				20	141	141	–	–	$0^{+0.1}_{0}$	20 ± 1	20	645	30	8.7	7.3
										40 ± 1	40	850		15.1	13.7
										80 ± 1	80	1225		28.0	26.6
	Wide opening		MHL2	10	14	14	–	–	56	76	20	280	31	1	1
									78	118	40	345		2	2
									96	156	60	425		3	3
				16	45	45	–	–	68	98	30	585	39	4.5	4.5
									110	170	60	795		9.0	9.0
									130	210	80	935		12.1	12.1
				20	74	74	–	–	82	122	40	1025	46	9.4	9.4
									142	222	80	1495		18.9	18.9
									162	262	100	1690		23.6	23.6
				25	131	131	–	–	100	150	50	1690	52	18.9	18.9
									182	282	100	2560		37.8	37.8
									200	320	120	2775		45.3	45.3
				32	228	228	–	–	150	220	70	2905	68	42.2	42.2
									198	318	120	3820		72.4	72.4
									242	402	160	4655		96.5	96.5
				40	396	396	–	–	188	288	100	5270	79	94.3	94.3
									246	406	160	6830		150.8	150.8
									286	486	200	7905		188.5	188.5

Air Grippers Model Selection

Performance Data for Air Gripper Model Selection

Series description					Series	Bore size (mm)	Gripping force (N) *1				Finger closing stroke (mm)	Finger opening stroke (mm)	Stroke (mm)	Weight (g) *4	Size H (mm)	Volume (cm^3)	
							Double acting		Single acting N.O.	Single acting N.C.						Finger open side	Finger close side
							External	Internal	External	Internal							
Parallel Type	Slide guide	Rotary actuator	2 Finger		MHR2	10	12	12	–	–	10	16	6	100	30	0.9	0.9
						15	24	25	–	–	14	22	8	180	39.5	1.8	1.8
						20	33	34	–	–	16	28	12	390	53.5	4.6	4.6
						30	58	59	–	–	19	37	18	760	68	11.5	11.5
					MDHR2	10	12	12	–	–	10	16	6	95	30	0.9	0.9
						15	24	25	–	–	14	22	8	175	39.5	1.8	1.8
						20	33	34	–	–	16	28	12	380	53.5	4.6	4.6
						30	58	59	–	–	19	37	18	740	68	11.5	11.5
			3 Finger		MHR3	10	7	6.5	–	–	8 *2	11 *2	6 *3	120	31.5	0.9	0.9
						15	13	12	–	–	9.5 *2	13.5 *2	8 *3	225	41.5	1.8	1.8
					MDHR3	10	7	6.5	–	–	8 *2	11 *2	6 *3	125	31.5	0.9	0.9
						15	13	12	–	–	9.5 *2	13.5 *2	8 *3	230	41.5	1.8	1.8
		Round body	Square body	2 Finger	MHK2	12	15	16	9	12	$9^{0}_{-0.2}$	$13^{+1.2}_{0}$	4	75	48	0.5	0.5
						16	31	36	23	25	$14.6^{0}_{-0.2}$	$20.6^{+1.2}_{0}$	6	113	52.3	2.4	2.1
						20	46	56	34	44	$16^{0}_{-0.2}$	$26^{+1.2}_{0}$	10	235	63.8	4.1	3.5
						25	80	86	58	73	$19^{0}_{-0.2}$	$33^{+1.2}_{0}$	14	440	76.7	10.5	8.9
					MHKL2	12	14	16	9	11	$9^{0}_{-0.2}$	$20^{+1.2}_{0}$	11	104	57	0.8	0.7
						16	27	30	17	22	$14.6^{0}_{-0.2}$	$28.6^{+1.2}_{0}$	14	164	63	3.4	2.9
						20	45	53	32	40	$16^{0}_{-0.2}$	$34^{+1.2}_{0}$	18	312	73.5	5.3	4.4
						25	79	90	53	63	$19^{0}_{-0.2}$	$41^{+1.2}_{0}$	22	562	88.5	12.9	10.8
					MHS2	16	21	23	–	–	10	14	4	58	32	0.9	0.7
						20	37	42	–	–	12	16	4	96	35	1.4	1.1
						25	63	71	–	–	14	20	6	134	37	2.8	2.4
						32	111	123	–	–	16	24	8	265	41	5.5	5.0
						40	177	195	–	–	20	28	8	345	44	9.0	8.0
						50	280	306	–	–	22	34	12	515	52	18.3	16.6
						63	502	537	–	–	30	46	16	952	62	37.1	33.0
				3 Finger	Standard	16	14	16	–	–	5 *2	7 *2	4 *3	60	32	0.8	0.7
						20	25	28	–	–	6 *2	8 *2	4 *3	100	35	1.4	1.1
						25	42	47	–	–	7 *2	10 *2	6 *3	140	37	2.8	2.4
						32	74	82	–	–	8 *2	12 *2	8 *3	237	41	5.5	5.0
					MHS3	40	118	130	–	–	10 *2	14 *2	8 *3	351	44	9.0	8.0
						50	187	204	–	–	11 *2	17 *2	12 *3	541	52	18.3	16.6
						63	335	359	–	–	15 *2	23 *2	16 *3	992	62	37.1	33.0
						80	500	525	–	–	21.5 *2	31.5 *2	20 *3	1850	77	70.7	65.7
						100	750	780	–	–	28 *2	40 *2	24 *3	3340	90	133.7	121.3
						125	1270	1320	–	–	30 *2	46 *2	32 *3	6460	114	278.0	247.3
					With dust cover	16	9	16	–	–	7.5 *2	9.5 *2	4 *3	95	43	0.8	0.4
						20	21	28	–	–	8 *2	10 *2	4 *3	150	46	1.3	0.9
						25	36	47	–	–	9.5 *2	12.5 *2	6 *3	230	52	2.5	1.9
						32	62	82	–	–	11.5 *2	15.5 *2	8 *3	440	60	5.3	3.8
					MHSJ3	40	97	130	–	–	15 *2	19 *2	8 *3	620	63	8.1	5.9
						50	155	204	–	–	18 *2	24 *2	12 *3	1050	77	17.9	12.7
						63	280	359	–	–	23 *2	31 *2	16 *3	1800	87	32.4	27.7
						80	400	525	–	–	31 *2	41 *2	20 *3	3200	103	68.2	52.1
					Through-hole	16	9	15	–	–	7.5 *2	9.5 *2	4 *3	90	39	0.8	0.4
						20	21	26	–	–	8 *2	10 *2	4 *3	140	42	1.2	0.9
						25	36	45	–	–	9.5 *2	12.5 *2	6 *3	220	47	2.4	1.9
						32	62	77	–	–	11.5 *2	15.5 *2	8 *3	410	54	5.0	3.8
					MHSH3	40	97	118	–	–	15 *2	19 *2	8 *3	570	57	7.3	5.9
						50	155	187	–	–	18 *2	24 *2	12 *3	970	70	16.4	12.7
						63	280	329	–	–	23 *2	31 *2	16 *3	1650	79	32.4	27.7
						80	400	490	–	–	31 *2	41 *2	20 *3	2920	93	68.2	52.1
					Long stroke	16	14	16	–	–	8.5 *2	13.5 *2	10 *3	80	40.5	1.4	1.2
						20	25	28	–	–	9 *2	14 *2	10 *3	135	43	2.3	1.9
						25	42	47	–	–	10 *2	16 *2	12 *3	180	46	4.1	3.7
						32	74	82	–	–	14 *2	22 *2	16 *3	370	55	9.2	8.0
					MHSL3	40	118	130	–	–	16.5 *2	26.5 *2	20 *3	550	61	16.7	15.2
						50	187	204	–	–	22 *2	36 *2	28 *3	930	74.5	36.1	31.6
						63	335	359	–	–	26 *2	42 *2	32 *3	1550	85	64.5	58.8
						80	500	525	–	–	28.5 *2	48.5 *2	40 *3	2850	111	129.5	118.9
						100	750	780	–	–	41 *2	65 *2	48 *3	5500	129	249.2	225.5
						125	1270	1320	–	–	48 *2	80 *2	64 *3	11300	167	506.2	465.9
			4 Finger		MHS4	16	10	12	–	–	13	17	4	66	32	0.8	0.7
						20	19	21	–	–	15	19	4	110	35	1.4	1.1
						25	31	35	–	–	20	26	6	154	37	2.8	2.4
						32	55	61	–	–	20	28	8	300	41	5.5	5.0
						40	88	97	–	–	24	32	8	390	44	9.0	8.0
						50	140	153	–	–	26	38	12	590	52	18.3	16.6
						63	251	268	–	–	35	51	16	1095	62	37.1	32.9

Performance Data for Air Gripper Model Selection

Series description			Series	Bore size (mm)	Holding moment (N·m) *1		Finger closing angle	Finger opening angle	Finger opening/ closing angle	Weight (g) *4	Size H (mm)	Volume (cm^3)	
					Double acting	Single acting N.O.						Finger open side	Finger close side
Angular Type	Standard		**MHC2**	6	0.038	0.024	–10°	30°	40°	22	36	0.12	0.07
			MHCA2	6	0.038	0.024	–10°	30°	40°	19	29	0.11	0.06
	Compact		**MHCM2-7S**	7	–	0.017	–7°	20°	27°	9.5	16.5	–	0.06
	Standard		**MHC2**	10	0.10	0.07	–10°	30°	40°	39	38.6	0.4	0.4
				16	0.39	0.31				91	44.6	1.3	1.4
				20	0.70	0.54				180	55.2	3.1	2.1
				25	1.36	1.08				311	60.4	5.2	2.8
	Toggle		**MHT2**	32	12.4	–	–3°	28°	31°	800	89.6	12.4	9.2
				40	36	–	–3°	27°	30°	1090	96.5	20.8	17.5
				50	63	–	–2°	23°	25°	1930	113	41.7	35.0
				63	106	–	–2°	23°	25°	2800	119.2	65.5	58.9
	Cam	180° Angular	**MHY2**	10	0.16	–	–3°	180°	183°	70	58	1.2	0.6
				16	0.54	–	–3°			150	69	3.3	2.1
				20	1.10	–	–3°			320	86	6.9	4.1
				25	2.28	–	–3°			560	107	13.8	8.5
	Gear	180° Angular	**MHW2**	20	0.30	–	–5°		185°	300	60	3.1	4.0
				25	0.73	–	–6°		186°	510	69	6.6	7.6
				32	1.61	–	–5°		185°	910	83.5	14.8	15.7
				40	3.70	–	–5°		185°	2140	104.5	32.3	36.7
				50	8.27	–	–4°		184°	5100	136	71.6	82.3

Note 1) Values for gripping force and gripping moment are measured at 0.5 MPa.
Note 2) Opening/Closing strokes of M(D)HR3 and MHS∗3 are the values for one finger.
Note 3) Strokes of M(D)HR3 and MHS∗3 are described with diameter.
Note 4) Weight of double acting type.
Note 5) Values in the upper row are for standard finger position and in the lower rows for narrow finger position.
Note 6) Values in the upper row of the size of the JMHZ2, the MHZ2 with a bore size of 32 or 40, and the MHZL are for double acting type and those in the lower row are for single acting N.O. type.