















Series Variations









INDEX

Parallel Type Series Variations


		Series	Features	Action	Option				Bore size	Page
					Finger option	Body option	Auto switch			
Parallel Type	Linear guide	Standard	 MHZ2 Series General purpose compact grippers with integral linear guide that provides high rigidity and high accuracy.	Double acting	●	●	●	6 10, 16 20, 25 32, 40	398	
		Long stroke	 MHZL2 Series Finger stroke is about double that of MHZ to deal with various types of workpieces.	Double acting	●	●	●	10, 16 20, 25		426
		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	●	●	●	6 10, 16 20, 25 32, 40	440	
		Low profile	 MHF2 Series Height 1/3 (Compared with MHZ) Short, middle and long strokes are available.	Double acting	●	●	●	8, 12 16, 20		465
	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	497		
	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	517
		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	530	
	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	●	●	●		12, 16 20, 25
			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	569
		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	●	●	●	
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	594
Through-hole			MHS3 Series	 MHS3 Series Combination with dust cover and center pusher is possible.	Double acting	●	●	●	16, 20 25, 32 40, 50 63, 80	
			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	618
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	628		

INDEX

Angular Type Series Variations

Series		Features	Action	Option				Bore size	Page
				Finger option	Body option	Auto switch			
Angular Type	Standard	MHC2 Series 	Auto switches can be mounted.	Double acting			●	6	664
		MHCA2 Series 	Body with a shorter overall length.	Double acting		●		6	664
	Compact	MHCM2 Series 	Smallest and most lightweight series.	Single acting		●		7	673
	Standard	MHC2 Series 	A large holding moment is achieved through a double piston construction. (ø10 to ø25)	Double acting			●	10, 16 20, 25	675
	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	685
	Cam	180° Angular MHY2 Series 	Lightweight and compact size through the use of a cam mechanism.	Double acting	●		●	10, 16 20, 25	697
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	711	
Rotary gripper		MRHQ Series 	The gripper function and the rotating function have been integrated in a compact package.	Double acting			●	10, 16 20, 25	749
				Single acting			●		

Auto Hand Changing System

AHC system	MA Series 	Automatic exchange of robot hand tools. FMS (flexible manufacturing system) implemented for assembly lines.	MA210	Max. transportable mass	3 kg	773
			MA3□1		5 kg	

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□

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)	Size H (mm)	Volume (cm ³)							
			Double acting		Single acting N.O.							Finger open side	Finger close side						
			External	Internal	External	Internal													
Parallel Type	Standard	MHZA2	6	3.3	6.1	1.9	3.7	$8_{-0.4}^0$	12 ± 1	4	26	29.8	0.23	0.13					
			MHZAJ2	6	3.3	6.1	1.9	3.7	$8_{-0.4}^0$	12 ± 1	4	27	33	0.23	0.13				
		MHZ2	6	3.3	6.1	1.9	3.7	$8_{-0.4}^0$	12 ± 1	4	27	38.8	0.23	0.19					
			10	11	17	7.1	13	$11.2_{-0.7}^0$ ⁺⁵	$15.2_{-0.7}^{+2.2}$ ⁺⁵	4	55	43.8	0.4	0.3					
			16	34	45	27	38	$14.9_{-0.7}^0$ ⁺⁵	$20.9_{-0.7}^{+2.2}$ ⁺⁵	6	115	50	1.3	1.0					
			20	42	66	33	57	$16.3_{-0.7}^0$ ⁺⁵	$26.3_{-0.7}^{+2.2}$ ⁺⁵	10	235	62.3	3.0	2.0					
			25	65	104	45	83	$19.3_{-0.8}^0$ ⁺⁵	$33.3_{-0.8}^{+2.2}$ ⁺⁵	14	430	74.6	6.1	4.1					
			32	158	193	131	161	$26_{-0.5}^0$	$48_{-0.5}^{+0.5}$	22	715	$79_{-0.5}^0$	$12.2_{-0.5}^0$	$9.2_{-0.5}^0$					
			40	254	318	217	267	$30_{-0.5}^0$	$60_{-0.5}^{+0.7}$	30	1275	$88_{-0.5}^0$	$16.5_{-0.5}^0$	$12.1_{-0.5}^0$					
			Long stroke	MHZL2	10	11	17	7.1	13	$11.2_{-0.4}^0$	$19.2_{-0.4}^{+0.2}$	8	60	$43.8_{-0.4}^0$	$0.5_{-0.4}^0$	$0.3_{-0.4}^0$			
					16	34	45	27	38	$14.9_{-0.4}^0$	$26.9_{-0.4}^{+0.2}$	12	135	$53.8_{-0.4}^0$	$0.6_{-0.4}^0$	$0.4_{-0.4}^0$			
				20	42	66	33	57	$16.3_{-0.4}^0$	$34.3_{-0.4}^{+0.4}$	18	270	$52.7_{-0.4}^0$	$1.7_{-0.4}^0$	$1.2_{-0.4}^0$				
	25	65		104	50	85	$19.3_{-0.4}^0$	$41.3_{-0.4}^{+0.6}$	22	470	$57.7_{-0.4}^0$	$2.0_{-0.4}^0$	$1.3_{-0.4}^0$						
	With dust cover	MHZJ2		6	3.3	6.1	1.9	3.7	$8_{-0.4}^0$	12 ± 1	4	28	42	0.26	0.24				
				10	9.8	17	6.3	12	$11.2_{-0.7}^0$	$15.2_{-0.7}^{+0.2}$	4	60	45	0.4	0.3				
			16	30	40	24	31	$14.9_{-0.7}^0$	$20.9_{-0.7}^{+0.2}$	6	130	52.3	1.3	1.0					
			20	42	66	28	56	$16.3_{-0.7}^0$	$26.3_{-0.7}^{+0.2}$	10	250	64.8	3.0	2.0					
	Compact	MHF2	8	19	19	-	-	$0_{-0.1}^{+0.1}$	8 ± 1	14	60	0.7	0.6						
									16 ± 1	16	85	1.1	1.0						
			12	48	48	-	-	$0_{-0.1}^{+0.1}$	32 ± 1	32	120	2.0	1.9						
									12 ± 1	12	155	1.9	1.6						
									24 ± 1	24	190	3.3	3.0						
									48 ± 1	48	275	6.1	5.8						
			16	90	90	-	-	$0_{-0.1}^{+0.1}$	16 ± 1	16	350	4.9	4.1						
									32 ± 1	32	445	8.2	7.4						
									64 ± 1	64	650	14.9	14.0						
									20 ± 1	20	645	8.7	7.3						
	20	141	141	-	-	$0_{-0.1}^{+0.1}$	40 ± 1	40	850	15.1	13.7								
							80 ± 1	80	1225	28.0	26.6								
							56	76	20	280	1	1							
							78	118	40	345	2	2							
							96	156	60	425	3	3							
							68	98	30	585	4.5	4.5							
	16	45	45	-	-	-	110	170	60	795	9.0	9.0							
							130	210	80	935	12.1	12.1							
							82	122	40	1025	9.4	9.4							
142							222	80	1495	18.9	18.9								
20	74	74	-	-	-	162	262	100	1690	23.6	23.6								
						100	150	50	1690	18.9	18.9								
						182	282	100	2560	37.8	37.8								
						200	320	120	2775	45.3	45.3								
25	131	131	-	-	-	150	220	70	2905	42.2	42.2								
						198	318	120	3820	72.4	72.4								
						242	402	160	4655	96.5	96.5								
						188	288	100	5270	94.3	94.3								
32	228	228	-	-	-	246	406	160	6830	150.8	150.8								
						286	486	200	7905	188.5	188.5								
						40	396	396	-	-	-	246	406	160	6830	150.8	150.8		
												286	486	200	7905	188.5	188.5		
Wide opening	MHL2	10	14	14	-							-	-	56	76	20	280	1	1
														78	118	40	345	2	2
						96	156	60	425	3	3								
		16	45	45	-	-	-	-	68	98	30	585	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	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	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	42.2	42.2						
								198	318	120	3820	72.4	72.4						
								242	402	160	4655	96.5	96.5						
								188	288	100	5270	94.3	94.3						
40	396	396	-	-	-	-	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)	Size (mm) H W D	Volume (cm ³)		
				Double acting		Single acting N.O.							Finger open side	Finger close side	
				External	Internal	External	Internal								
Parallel Type	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		
		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	
			20	7	6.5	-	-	8 ^{±2}	11 ^{±2}	6 ^{±3}	125	31.5	0.9	0.9	
	MDHR3	15	13	12	-	-	9.5 ^{±2}	13.5 ^{±2}	8 ^{±3}	230	41.5	1.8	1.8		
		12	15	16	9	12	9.5 ^{±2}	13 ^{±2}	4	75	48	0.5	0.5		
		16	31	36	23	25	14.6 ^{±2}	20.6 ^{±2}	6	113	52.3	2.4	2.1		
	2 Finger	Square body	MHK2	20	46	56	34	44	16.5 ^{±2}	26 ^{±2}	10	235	63.8	4.1	3.5
				25	80	86	58	73	19.5 ^{±2}	33 ^{±2}	14	440	76.7	10.5	8.9
				12	14	16	9	11	9.5 ^{±2}	20 ^{±2}	11	104	57	0.8	0.7
				16	27	30	17	22	14.6 ^{±2}	28.6 ^{±2}	14	164	63	3.4	2.9
MHKL2		20	45	53	32	40	16.5 ^{±2}	34 ^{±2}	18	312	73.5	5.3	4.4		
		25	79	90	53	63	19.5 ^{±2}	41 ^{±2}	22	562	88.5	12.9	10.8		
		16	21	23	-	-	10	14	4	58	32	0.9	0.7		
		20	37	42	-	-	12	16	4	96	35	1.4	1.1		
MHS2		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		
Standard	MHS3	63	502	537	-	-	30	46	16	952	62	37.1	33.0		
		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		
		40	118	130	-	-	10 ^{±2}	14 ^{±2}	8 ^{±3}	351	44	9.0	8.0		
	With dust cover	MHSJ3	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	
			16	9	16	-	-	7.5 ^{±2}	9.5 ^{±2}	4 ^{±3}	95	43	0.8	0.4	
Through-hole	MHS3H3	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		
		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		
	Long stroke	MHSL3	80	400	525	-	-	31 ^{±2}	41 ^{±2}	20 ^{±3}	3200	103	68.2	52.1	
			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	
			40	97	118	-	-	15 ^{±2}	19 ^{±2}	8 ^{±3}	570	57	7.3	5.9	
4 Finger	MHS4	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		
		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		
	MHS4	32	74	82	-	-	14 ^{±2}	22 ^{±2}	16 ^{±3}	370	55	9.2	8.0		
		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				
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				

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□

Air Grippers Model Selection

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)	Size (mm)		Volume (cm ³)	
				Double acting	Single acting N.O.					H	H	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	
			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			
	Standard	MHC2	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	
	Toggle	MHT2	50	63	—	-2°	23°	25°	1930	113	41.7	35.0	
			63	106	—	-2°	23°	25°	2800	119.2	65.5	58.9	
			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			
	20	0.30	—	-5°	185°	300			60	3.1	4.0		
	25	0.73	—	-6°	186°	510			69	6.6	7.6		
	Gear	180° Angular	MHW2	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 are for the size of 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 type.