

# HLMT - Rotary Actuators for JVL Stepper and Servo motors

## Hollow Rotary Actuators

Our new series of Hollow Rotary Actuators, HLMT, offer the easiest possible installation of rotary table applications. Depending on your application you can choose between servo and stepper motors with or without built-in absolute encoders.

Mechanically they are ready to install and mounting of rotating discs have never been easier. At the same time you gain the usual benefits of JVL's integrated motors making electrical installation child's play.

- Complete Rotary Actuator
- Integrated Step or Servo motor
- Easy point-n-click programming
- All Ethernet protocols

No need for space in your electrical cabinet as drive and control electronics are built-in.

All Rotary Actuators are lifetime lubricated and therefore maintenance-free.

If a reference signal is needed for Homing or 1 time per revolution it is possible to mount a forked sensor (fixed part) and a metal clamp (moving part) directly onto the actuator.





Hollow Rotary Actuators, HLMT		HLMT060-xxx-N17DB	HLMT060-xxx-N17DB	HLMT060-xxx-N17DB	HLMT060-xxx-N17DB	HLMT060-xxx-N17DB	HLMT060-xxx-N17DB
Motor Type, recommended		MIS176S35...	MIS176S35...	MIS176S35...	MIS176S35...	MIS176S35...	MIS176S35...
<b>Gear Ratio</b>		<b>5:1</b>	<b>10:1</b>	<b>18:1</b>	<b>25:1</b>	<b>50:1</b>	<b>100:1</b>
Output Bearings		Ball	Ball	Ball	Ball	Ball	Ball
Input Flange for Motor		NEMA17 - Ø8mm	NEMA17 - Ø8mm	NEMA17 - Ø8mm	NEMA17 - Ø8mm	NEMA17 - Ø8mm	NEMA17 - Ø8mm
Input Shaft Diameter	mm	5,0...8,0	5,0...8,0	5,0...8,0	5,0...8,0	5,0...8,0	5,0...8,0
Nominal Output Torque	Nm	5,0	4,0	3,0	5,0	4,0	4,0
Output Speed Max. - Ball bearings	RPM	300	300	300	300	300	300
- Crossed Roller bearings	RPM	200	200	200	200	200	200
Max. Input Torque	Nm	<b>1,0</b>	<b>0,40</b>	<b>0,17</b>	<b>0,20</b>	<b>0,08</b>	<b>0,04</b>
Input Speed Rated	RPM	3.000	3.000	3.000	3.000	3.000	3.000
Input Speed Max. - Ball bearings	RPM	6.000	6.000	6.000	6.000	6.000	6.000
- C. Roller bearings	RPM	4.500	4.500	4.500	4.500	4.500	4.500
Motor Nominal Max Torque	Nm	0,80	0,80	0,80	0,80	0,80	0,80
Motor Max Peak Torque	%	100%	50%	21%	25%	<b>10%</b>	<b>5%</b>
Gear Ratios - Standard 1-Stage		5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1
Gear Ratios - Optional 2-Stage		25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1
Gear Reducer Inertia	kgcm <sup>2</sup>	0,78	0,78	0,78	0,78	0,78	0,78
Repetitive Positioning Accuracy	arcsec	±10	±10	±10	±10	±10	±10
	degree	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°
Torsional Backlash	arcmin	≤ 1	≤ 1	≤ 1	≤ 3	≤ 3	≤ 3
	degree	±0,0167°	±0,0167°	±0,0167°	±0,050°	±0,050°	±0,050°
Lost Motion	arcmin	2,0	2,0	2,0	2,0	2,0	2,0
	degree	0,033°	0,033°	0,033°	0,033°	0,033°	0,033°
Axial Load Max. - Ball bearings	N	350	350	350	350	350	350
- Crossed Roller bearings	N	500	500	500	500	500	500
Permissible Moment Load - Ball b.	Nm	7	7	7	7	7	7
- Crossed Roller bearings	Nm	10	10	10	10	10	10
Runout of Output Table Surface	mm	0,010	0,010	0,010	0,010	0,010	0,010
Parallelism of Platform	mm	0,020	0,020	0,020	0,020	0,020	0,020
Protection Class		IP65	IP65	IP65	IP65	IP65	IP65
Weight w/o Motor	kg	0,54	0,54	0,54	1,10	1,10	1,10



Hollow Rotary Actuators, HLMT		HLMT085-xxx-N23CB	HLMT085-xxx-N23CB	HLMT085-xxx-N23CB	HLMT085-xxx-N23CB	HLMT085-xxx-N23CB	HLMT085-xxx-N23CB
Motor Type, recommended		MIS232S1...	MIS232S1...	MIS232S1...	MIS232S1...	MIS231S1...	MIS231S1...
<b>Gear Ratio</b>		<b>5:1</b>	<b>10:1</b>	<b>18:1</b>	<b>25:1</b>	<b>50:1</b>	<b>100:1</b>
Output Bearings		Ball	Ball	Ball	Ball	Ball	Ball
Input Flange for Motor		NEMA23	NEMA23	NEMA23	NEMA23	NEMA23	NEMA23
Input Shaft Diameter	mm	5,0...14,0	5,0...14,0	5,0...14,0	5,0...14,0	5,0...14,0	5,0...14,0
Nominal Output Torque	Nm	18	14	10	18	14	14
Output Speed Max. - Ball bearings	RPM	300	300	300	300	300	300
- Crossed Roller bearings	RPM	200	200	200	200	200	200
Max. Input Torque	Nm	<b>3,6</b>	<b>1,4</b>	<b>0,6</b>	<b>0,72</b>	<b>0,28</b>	<b>0,14</b>
Input Speed Rated	RPM	3.000	3.000	3.000	3.000	3.000	3.000
Input Speed Max. - Ball bearings	RPM	6.000	6.000	6.000	6.000	6.000	6.000
- C. Roller bearings	RPM	4.500	4.500	4.500	4.500	4.500	4.500
Motor Nominal Max Torque	Nm	1,97	1,97	1,97	1,97	0,97	0,97
Motor Max Peak Torque	%	100%	71%	28%	37%	29%	<b>14%</b>
Gear Ratios - Standard 1-Stage		5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1
Gear Ratios - Optional 2-Stage		25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1
Gear Reducer Inertia	kgcm <sup>2</sup>	12,7	12,7	12,7	12,7	12,7	12,7
Repetitive Positioning Accuracy	arcsec	±10	±10	±10	±10	±10	±10
	degree	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°
Torsional Backlash	arcmin	≤ 1	≤ 1	≤ 1	≤ 3	≤ 3	≤ 3
	degree	±0,0167°	±0,0167°	±0,0167°	±0,050°	±0,050°	±0,050°
Lost Motion	arcmin	2,0	2,0	2,0	2,0	2,0	2,0
	degree	0,033°	0,033°	0,033°	0,033°	0,033°	0,033°
Axial Load Max. - Ball bearings	N	600	600	600	600	600	600
- Crossed Roller bearings	N	900	900	900	900	900	900
Permissible Moment Load - Ball b.	Nm	12	12	12	12	12	12
- Crossed Roller bearings	Nm	18	18	18	18	18	18
Runout of Output Table Surface	mm	0,010	0,010	0,010	0,010	0,010	0,010
Parallelism of Platform	mm	0,020	0,020	0,020	0,020	0,020	0,020
Protection Class		IP65	IP65	IP65	IP65	IP65	IP65
Weight w/o Motor	kg	1,17	1,17	1,17	1,95	1,95	1,95



Hollow Rotary Actuators, HLMT		HLMT110-xxx-N34EB	HLMT110-xxx-N34EB	HLMT110-xxx-N34EB	HLMT110-xxx-N34EB	HLMT110-xxx-N34EB	HLMT110-xxx-N34EB
Motor Type, recommended		MIS341C12...	MIS341C12...	MIS340C12...	MIS340C12...	MIS340C12...	MIS340C12...
<b>Gear Ratio</b>		<b>5:1</b>	<b>10:1</b>	<b>18:1</b>	<b>25:1</b>	<b>50:1</b>	<b>100:1</b>
Output Bearings		Ball	Ball	Ball	Ball	Ball	Ball
Input Flange for Motor		NEMA34	NEMA34	NEMA34	NEMA34	NEMA34	NEMA34
Input Shaft Diameter	mm	6,35...14,0	6,35...14,0	6,35...14,0	6,35...14,0	6,35...14,0	6,35...14,0
Nominal Output Torque	Nm	33	26	19	33	26	26
Output Speed Max. - Ball bearings	RPM	300	300	300	300	300	300
- Crossed Roller bearings	RPM	200	200	200	200	200	200
Max. Input Torque	Nm	<b>6,6</b>	<b>2,6</b>	<b>1,1</b>	<b>1,32</b>	<b>0,52</b>	<b>0,26</b>
Input Speed Rated	RPM	3.000	3.000	3.000	3.000	3.000	3.000
Input Speed Max. - Ball bearings	RPM	6.000	6.000	6.000	6.000	6.000	6.000
- C. Roller bearings	RPM	4.500	4.500	4.500	4.500	4.500	4.500
Motor Nominal Max Torque	Nm	6,1	6,1	3,0	3,0	3,0	3,0
Motor Max Peak Torque	%	100%	43%	35%	44%	<b>17%</b>	<b>9%</b>
Gear Ratios - Standard 1-Stage		5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1
Gear Ratios - Optional 2-Stage		25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1
Gear Reducer Inertia	kgcm <sup>2</sup>	15,6	15,6	15,6	15,6	15,6	15,6
Repetitive Positioning Accuracy	arcsec	±10	±10	±10	±10	±10	±10
	degree	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°
Torsional Backlash	arcmin	≤ 1	≤ 1	≤ 1	≤ 3	≤ 3	≤ 3
	degree	±0,0167°	±0,0167°	±0,0167°	±0,050°	±0,050°	±0,050°
Lost Motion	arcmin	2,0	2,0	2,0	2,0	2,0	2,0
	degree	0,033°	0,033°	0,033°	0,033°	0,033°	0,033°
Axial Load Max. - Ball bearings	N	800	800	800	800	800	800
- Crossed Roller bearings	N	1.200	1.200	1.200	1.200	1.200	1.200
Permissible Moment Load - Ball b.	Nm	16	16	16	16	16	16
- Crossed Roller bearings	Nm	24	24	24	24	24	24
Runout of Output Table Surface	mm	0,015	0,015	0,015	0,015	0,015	0,015
Parallelism of Platform	mm	0,025	0,025	0,025	0,025	0,025	0,025
Protection Class		IP65	IP65	IP65	IP65	IP65	IP65
Weight w/o Motor	kg	2,5	2,5	2,5	3,8	3,8	3,8



Hollow Rotary Actuators, HLMT		HLMT135-xxx-N34EB	HLMT135-xxx-N34EB	HLMT135-xxx-N34EB	HLMT135-xxx-N34EB	HLMT135-xxx-N34EB	HLMT135-xxx-N34EB
Motor Type, recommended		MIS341C12...	MIS341C12...	MIS340C12...	MIS340C12...	MIS340C12...	MIS340C12...
<b>Gear Ratio</b>		<b>5:1</b>	<b>10:1</b>	<b>18:1</b>	<b>25:1</b>	<b>50:1</b>	<b>100:1</b>
Output Bearings		Ball	Ball	Ball	Ball	Ball	Ball
Input Flange for Motor		NEMA34	NEMA34	NEMA34	NEMA34	NEMA34	NEMA34
Input Shaft Diameter	mm	9,53...19,0	9,53...19,0	9,53...19,0	9,53...19,0	9,53...19,0	9,53...19,0
Nominal Output Torque	Nm	43	34	25	43	34	34
Output Speed Max. - Ball bearings	RPM	300	300	300	300	300	300
- Crossed Roller bearings	RPM	200	200	200	200	200	200
Max. Input Torque	Nm	<b>8,6</b>	<b>3,40</b>	<b>1,39</b>	<b>1,72</b>	<b>0,68</b>	<b>0,34</b>
Input Speed Rated	RPM	3.000	3.000	3.000	3.000	3.000	3.000
Input Speed Max. - Ball bearings	RPM	6.000	6.000	6.000	6.000	6.000	6.000
- C. Roller bearings	RPM	4.500	4.500	4.500	4.500	4.500	4.500
Motor Nominal Max Torque	Nm	6,1	6,1	3,0	3,0	3,0	3,0
Motor Max Peak Torque	%	100%	56%	46%	57%	<b>23%</b>	<b>11%</b>
Gear Ratios - Standard 1-Stage		5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1
Gear Ratios - Optional 2-Stage		25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1
Gear Reducer Inertia	kgcm <sup>2</sup>	29,2	29,2	29,2	29,2	29,2	29,2
Repetitive Positioning Accuracy	arcsec	±10	±10	±10	±10	±10	±10
	degree	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°
Torsional Backlash	arcmin	≤ 1	≤ 1	≤ 1	≤ 3	≤ 3	≤ 3
	degree	±0,0167°	±0,0167°	±0,0167°	±0,050°	±0,050°	±0,050°
Lost Motion	arcmin	2,0	2,0	2,0	2,0	2,0	2,0
	degree	0,033°	0,033°	0,033°	0,033°	0,033°	0,033°
Axial Load Max. - Ball bearings	N	1.450	1.450	1.450	1.450	1.450	1.450
- Crossed Roller bearings	N	2.200	2.200	2.200	2.200	2.200	2.200
Permissible Moment Load - Ball b.	Nm	30	30	30	30	30	30
- Crossed Roller bearings	Nm	45	45	45	45	45	45
Runout of Output Table Surface	mm	0,015	0,015	0,015	0,015	0,015	0,015
Parallelism of Platform	mm	0,025	0,025	0,025	0,025	0,025	0,025
Protection Class		IP65	IP65	IP65	IP65	IP65	IP65
Weight w/o Motor	kg	3,8	3,8	3,8	4,9	4,9	4,9



Hollow Rotary Actuators, HLMT		HLMT200-xxx-N34EC	HLMT200-xxx-N34EC	HLMT200-xxx-N34EC	HLMT200-xxx-N34EC	HLMT200-xxx-N34EC	HLMT200-xxx-N34EC
Motor Type, recommended		MIS341C12...	MIS341C12...	MIS341C12...	MIS341C12...	MIS341C12...	MIS341C12...
<b>Gear Ratio</b>		<b>5:1</b>	<b>10:1</b>	<b>18:1</b>	<b>25:1</b>	<b>50:1</b>	<b>100:1</b>
Output Bearings		Crossed Roller	Crossed Roller	Crossed Roller	Crossed Roller	Crossed Roller	Crossed Roller
Input Flange for Motor		NEMA34	NEMA34	NEMA34	NEMA34	NEMA34	NEMA34
Input Shaft Diameter	mm	9,53...24,0	9,53...24,0	9,53...24,0	9,53...19,0	9,53...19,0	9,53...19,0
Nominal Output Torque	Nm	142	112	85	142	112	112
Output Speed Max. - Ball bearings	RPM	300	300	300	300	300	300
- Crossed Roller bearings	RPM	200	200	200	200	200	200
Max. Input Torque	Nm	<b>28,4</b>	<b>11,2</b>	<b>4,7</b>	<b>5,68</b>	<b>2,24</b>	<b>1,12</b>
Input Speed Rated	RPM	3.000	3.000	3.000	3.000	3.000	3.000
Input Speed Max. - Ball bearings	RPM	6.000	6.000	6.000	6.000	6.000	6.000
- C. Roller bearings	RPM	4.500	4.500	4.500	4.500	4.500	4.500
Motor Nominal Max Torque	Nm	6,1	6,1	6,1	6,1	6,1	6,1
Motor Max Peak Torque	%	100%	100%	77%	93%	37%	<b>18%</b>
Gear Ratios - Standard 1-Stage		5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1
Gear Ratios - Optional 2-Stage		25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1
Gear Reducer Inertia	kgcm <sup>2</sup>	291	291	291	291	291	291
Repetitive Positioning Accuracy	arcsec	±10	±10	±10	±10	±10	±10
	degree	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°
Torsional Backlash	arcmin	≤ 1	≤ 1	≤ 1	≤ 3	≤ 3	≤ 3
	degree	±0,0167°	±0,0167°	±0,0167°	±0,050°	±0,050°	±0,050°
Lost Motion	arcmin	2,0	2,0	2,0	2,0	2,0	2,0
	degree	0,033°	0,033°	0,033°	0,033°	0,033°	0,033°
Axial Load Max. - Ball bearings	N	2.500	2.500	2.500	2.500	2.500	2.500
- Crossed Roller bearings	N	4.000	4.000	4.000	4.000	4.000	4.000
Permissible Moment Load - Ball b.	Nm	50	50	50	50	50	50
- Crossed Roller bearings	Nm	80	80	80	80	80	80
Runout of Output Table Surface	mm	0,020	0,020	0,020	0,020	0,020	0,020
Parallelism of Platform	mm	0,030	0,030	0,030	0,030	0,030	0,030
Protection Class		IP65	IP65	IP65	IP65	IP65	IP65
Weight w/o Motor	kg	8,7	8,7	8,7	10,3	10,3	10,3



Hollow Rotary Actuators, HLMT		HLMT110-xxx-040HB	HLMT110-xxx-040HB	HLMT110-xxx-040HB	HLMT110-xxx-040HB	HLMT110-xxx-040HB	HLMT110-xxx-040HB
Motor Type, recommended		MAC400, MAC402	MAC400, MAC402	MAC400, MAC402	MAC400, MAC402	MAC400, MAC402	MAC400, MAC402
Gear Ratio		5:1	10:1	18:1	25:1	50:1	100:1
Output Bearings		Ball	Ball	Ball	Ball	Ball	Ball
Input Flange for Motor		400 W Servo	400 W Servo	400 W Servo	400 W Servo	400 W Servo	400 W Servo
Input Shaft Diameter	mm	6,35...14,0	6,35...14,0	6,35...14,0	6,35...14,0	6,35...14,0	6,35...14,0
Nominal Output Torque	Nm	33	26	19	33	26	26
Output Speed Max. - Ball bearings	RPM	300	300	300	300	300	300
- Crossed Roller bearings	RPM	200	200	200	200	200	200
Max. Input Torque	Nm	6,6	2,6	1,1	1,32	0,52	0,26
Input Speed Rated	RPM	3.000	3.000	3.000	3.000	3.000	3.000
Input Speed Max. - Ball bearings	RPM	6.000	6.000	6.000	6.000	6.000	6.000
- C. Roller bearings	RPM	4.500	4.500	4.500	4.500	4.500	4.500
Motor Nominal Max Torque	Nm	3,8	3,8	3,8	3,8	3,8	3,8
Motor Max Peak Torque	%	300%	205%	83%	104%	41%	21%
Gear Ratios - Standard 1-Stage		5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1
Gear Ratios - Optional 2-Stage		25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1
Gear Reducer Inertia	kgcm <sup>2</sup>	15,6	15,6	15,6	15,6	15,6	15,6
Repetitive Positioning Accuracy	arcsec	±10	±10	±10	±10	±10	±10
	degree	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°
Torsional Backlash	arcmin	≤ 1	≤ 1	≤ 1	≤ 3	≤ 3	≤ 3
	degree	±0,0167°	±0,0167°	±0,0167°	±0,050°	±0,050°	±0,050°
Lost Motion	arcmin	2,0	2,0	2,0	2,0	2,0	2,0
	degree	0,033°	0,033°	0,033°	0,033°	0,033°	0,033°
Axial Load Max. - Ball bearings	N	800	800	800	800	800	800
- Crossed Roller bearings	N	1.200	1.200	1.200	1.200	1.200	1.200
Permissible Moment Load - Ball b.	Nm	16	16	16	16	16	16
- Crossed Roller bearings	Nm	24	24	24	24	24	24
Runout of Output Table Surface	mm	0,015	0,015	0,015	0,015	0,015	0,015
Parallelism of Platform	mm	0,025	0,025	0,025	0,025	0,025	0,025
Protection Class		IP65	IP65	IP65	IP65	IP65	IP65
Weight w/o Motor	kg	2,5	2,5	2,5	3,8	3,8	3,8



Hollow Rotary Actuators, HLMT	HLMT135-xxx-040HB	HLMT135-xxx-040HB	HLMT135-xxx-040HB	HLMT135-xxx-040HB	HLMT135-xxx-040HB	HLMT135-xxx-040HB
Motor Type, recommended	MAC400, MAC402	MAC400, MAC402	MAC400, MAC402	MAC400, MAC402	MAC400, MAC402	MAC400, MAC402
<b>Gear Ratio</b>	<b>5:1</b>	<b>10:1</b>	<b>18:1</b>	<b>25:1</b>	<b>50:1</b>	<b>100:1</b>
Output Bearings	Ball	Ball	Ball	Ball	Ball	Ball
Input Flange for Motor	400 W Servo	400 W Servo	400 W Servo	400 W Servo	400 W Servo	400 W Servo
Input Shaft Diameter	mm	9,53...19,0	9,53...19,0	9,53...19,0	9,53...19,0	9,53...19,0
Nominal Output Torque	Nm	43	34	25	43	34
Output Speed Max. - Ball bearings	RPM	300	300	300	300	300
- Crossed Roller bearings	RPM	200	200	200	200	200
Max. Input Torque	Nm	8,6	3,4	1,4	1,72	0,68
Input Speed Rated	RPM	3.000	3.000	3.000	3.000	3.000
Input Speed Max. - Ball bearings	RPM	6.000	6.000	6.000	6.000	6.000
- C. Roller bearings	RPM	4.500	4.500	4.500	4.500	4.500
Motor Nominal Max Torque	Nm	3,8	3,8	3,8	3,8	3,8
Motor Max Peak Torque	%	300%	268%	110%	136%	54%
Gear Ratios - Standard 1-Stage		5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1
Gear Ratios - Optional 2-Stage		25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1
Gear Reducer Inertia	kgcm <sup>2</sup>	29,2	29,2	29,2	29,2	29,2
Repetitive Positioning Accuracy	arcsec	±10	±10	±10	±10	±10
	degree	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°
Torsional Backlash	arcmin	≤ 1	≤ 1	≤ 1	≤ 3	≤ 3
	degree	±0,0167°	±0,0167°	±0,0167°	±0,050°	±0,050°
Lost Motion	arcmin	2,0	2,0	2,0	2,0	2,0
	degree	0,033°	0,033°	0,033°	0,033°	0,033°
Axial Load Max. - Ball bearings	N	1.450	1.450	1.450	1.450	1.450
- Crossed Roller bearings	N	2.200	2.200	2.200	2.200	2.200
Permissible Moment Load - Ball b.	Nm	30	30	30	30	30
- Crossed Roller bearings	Nm	45	45	45	45	45
Runout of Output Table Surface	mm	0,015	0,015	0,015	0,015	0,015
Parallelism of Platform	mm	0,025	0,025	0,025	0,025	0,025
Protection Class		IP65	IP65	IP65	IP65	IP65
Weight w/o Motor	kg	3,8	3,8	3,8	4,9	4,9





Hollow Rotary Actuators, HLMT		HLMT200-xxx-080JB	HLMT200-xxx-080JB	HLMT200-xxx-080JB	HLMT200-xxx-080JB	HLMT200-xxx-080JB	HLMT200-xxx-080JB
Motor Type, recommended		MAC800	MAC800	MAC800	MAC800	MAC800	MAC800
Gear Ratio		5:1	10:1	18:1	25:1	50:1	100:1
Output Bearings		Ball	Ball	Ball	Ball	Ball	Ball
Input Flange for Motor		750 W Servo	750 W Servo	750 W Servo	750 W Servo	750 W Servo	750 W Servo
Input Shaft Diameter	mm	9,53...24,0	9,53...24,0	9,53...24,0	9,53...19,0	9,53...19,0	9,53...19,0
Nominal Output Torque	Nm	142	112	85	142	112	112
Output Speed Max. - Ball bearings	RPM	300	300	300	300	300	300
- Crossed Roller bearings	RPM	200	200	200	200	200	200
Max. Input Torque	Nm	28,40	11,20	4,72	5,68	2,24	1,12
Input Speed Rated	RPM	3.000	3.000	3.000	3.000	3.000	3.000
Input Speed Max. - Ball bearings	RPM	6.000	6.000	6.000	6.000	6.000	6.000
- C. Roller bearings	RPM	4.500	4.500	4.500	4.500	4.500	4.500
Motor Nominal Max Torque	Nm	6,8	6,8	6,8	6,8	6,8	6,8
Motor Max Peak Torque	%	300%	300%	208%	251%	99%	49%
Gear Ratios - Standard 1-Stage		5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1
Gear Ratios - Optional 2-Stage		25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1
Gear Reducer Inertia	kgcm <sup>2</sup>	291	291	291	291	291	291
Repetitive Positioning Accuracy	arcsec	±10	±10	±10	±10	±10	±10
	degree	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°
Torsional Backlash	arcmin	≤ 1	≤ 1	≤ 1	≤ 3	≤ 3	≤ 3
	degree	±0,0167°	±0,0167°	±0,0167°	±0,050°	±0,050°	±0,050°
Lost Motion	arcmin	2,0	2,0	2,0	2,0	2,0	2,0
	degree	0,033°	0,033°	0,033°	0,033°	0,033°	0,033°
Axial Load Max. - Ball bearings	N	2.500	2.500	2.500	2.500	2.500	2.500
- Crossed Roller bearings	N	4.000	4.000	4.000	4.000	4.000	4.000
Permissible Moment Load - Ball b.	Nm	50	50	50	50	50	50
- Crossed Roller bearings	Nm	80	80	80	80	80	80
Runout of Output Table Surface	mm	0,020	0,020	0,020	0,020	0,020	0,020
Parallelism of Platform	mm	0,030	0,030	0,030	0,030	0,030	0,030
Protection Class		IP65	IP65	IP65	IP65	IP65	IP65
Weight w/o Motor	kg	10,1	10,1	10,1	11,8	11,8	11,8



Hollow Rotary Actuators, HLMT		HLMT200-xxx-150KC	HLMT200-xxx-150KC	HLMT200-xxx-150KC	HLMT200-xxx-080JC	HLMT200-xxx-080JC	HLMT200-xxx-080JC
Motor Type, recommended		MAC1500	MAC1500	MAC1500	MAC800	MAC800	MAC800
Gear Ratio		5:1	10:1	18:1	25:1	50:1	100:1
Output Bearings		Crossed Roller	Crossed Roller	Crossed Roller	Crossed Roller	Crossed Roller	Crossed Roller
Input Flange for Motor		1500 W Servo	1500 W Servo	1500 W Servo	750 W Servo	750 W Servo	750 W Servo
Input Shaft Diameter	mm	9,53...24,0	9,53...24,0	9,53...24,0	9,53...19,0	9,53...19,0	9,53...19,0
Nominal Output Torque	Nm	142	112	85	142	112	112
Output Speed Max. - Ball bearings	RPM	300	300	300	300	300	300
- Crossed Roller bearings	RPM	200	200	200	200	200	200
Max. Input Torque	Nm	28,40	11,20	4,72	5,68	2,24	1,1
Input Speed Rated	RPM	3.000	3.000	3.000	3.000	3.000	3.000
Input Speed Max. - Ball bearings	RPM	6.000	6.000	6.000	6.000	6.000	6.000
- C. Roller bearings	RPM	4.500	4.500	4.500	4.500	4.500	4.500
Motor Nominal Max Torque	Nm	15,0	15,0	15,0	6,8	6,8	6,8
Motor Max Peak Torque	%	300%	224%	94%	251%	99%	49%
Gear Ratios - Standard 1-Stage		5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1	5:1 / 10:1 / 18:1
Gear Ratios - Optional 2-Stage		25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1	25:1 / 50:1 / 100:1
Gear Reducer Inertia	kgcm <sup>2</sup>	276	276	276	276	276	276
Repetitive Positioning Accuracy	arcsec	±10	±10	±10	±10	±10	±10
	degree	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°	±0,0028°
Torsional Backlash	arcmin	≤ 1	≤ 1	≤ 1	≤ 3	≤ 3	≤ 3
	degree	±0,0167°	±0,0167°	±0,0167°	±0,050°	±0,050°	±0,050°
Lost Motion	arcmin	2,0	2,0	2,0	2,0	2,0	2,0
	degree	0,033°	0,033°	0,033°	0,033°	0,033°	0,033°
Axial Load Max. - Ball bearings	N	2.500	2.500	2.500	2.500	2.500	2.500
- Crossed Roller bearings	N	4.000	4.000	4.000	4.000	4.000	4.000
Permissible Moment Load - Ball b.	Nm	50	50	50	50	50	50
- Crossed Roller bearings	Nm	80	80	80	80	80	80
Runout of Output Table Surface	mm	0,020	0,020	0,020	0,020	0,020	0,020
Parallelism of Platform	mm	0,030	0,030	0,030	0,030	0,030	0,030
Protection Class		IP65	IP65	IP65	IP65	IP65	IP65
Weight w/o Motor	kg	8,7	8,7	8,7	10,3	10,3	10,3



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