

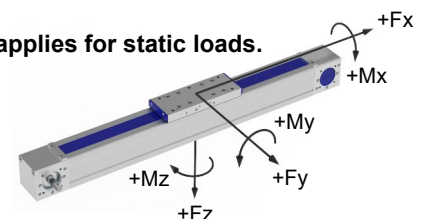
# Performance Overview of Mechanical Linear Drives and Compact Modules with Toothed Belt Drive



Description	Toothed belt	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]	-F <sub>z</sub> [N]	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	M <sub>idle</sub> [Nm]	d <sub>s</sub> [mm]	S <sub>max</sub> [mm]	L <sub>max</sub> [mm]
Beta 40-ZGS	16 AT5-E	500	80	150	75	6	6	8	0.30	0.08	2780	3000
Beta 40-ZSS	16 AT5-E	500	500	600	300	12	30	30	0.30	0.08	1850	2070
Beta 50-C-ZRS	20 AT5-E	700	300	600	400	30	50	50	0.40	0.08	7710	8000
Beta 50-C-ARS	20 AT5-E	700	300	600	400	30	50	50	1.50	0.08	7710	8000
Beta 60-ZSS	25 AT5-E	850	500	1400	800	50	160	100	1.10	0.08	7620	8000
Beta 70-C-ZRS	32 AT5-E	1100	300	1000	400	35	120	50	1.20	0.08	7640	8000
Beta 70-C-ZSS	32 AT5-E	1100	600	1800	1200	60	180	120	1.20	0.08	6840	7200
Beta 70-C-ARS	32 AT5-E	900	300	1000	400	35	120	50	1.00	0.08	7640	8000
Beta 70-C-ASS	32 AT5-E	900	600	1800	1200	60	180	120	1.00	0.08	7640	8000
Beta 80-ZRS	32 AT5-E	1350	500	1500	800	50	180	100	1.50	0.08	7600	8000
Beta 80-ZSS	32 AT5-E	1350	800	3000	2000	100	250	250	1.50	0.08	7600	8000
Beta 80-C-ZRS	32 AT10	2200	1000	2500	1500	100	300	180	1.80	0.08	7600	8000
Beta 80-C-ZSS	32 AT10	2200	1600	4000	3000	300	500	500	1.80	0.08	7600	8000
Beta 80-C-ARS	32 AT10-E	1300	1000	2500	1500	100	300	180	1.80	0.08	7590	8000
Beta 80-C-ASS	32 AT10-E	1300	1600	4000	3000	300	500	500	1.80	0.08	7590	8000
Beta 100-ZRS	40 AT10	2800	1000	2500	1200	200	250	200	2.50	0.08	7420	7900
Beta 100-ZSS	40 AT10	2800	1000	3000	2000	200	300	300	2.50	0.08	7420	7900
Beta 100-D-ZSS	40 AT10-E	1500	1800	4000	3000	350	750	750	5.00	0.08	7720	8100
Beta 100-D-ASS	40 AT10-E	2200	1800	4000	3000	350	950	950	2.50	0.08	7680	8100
Beta 110-ZRS	50 ATL10	4000	2000	5000	2500	300	600	450	3.50	0.08	7520	8100
Beta 110-ZSS	50 ATL10	4000	3000	8000	4000	400	800	600	3.50	0.08	7520	8100
Beta 110-ARS	50 AT10-E	2000	2000	5000	2500	300	600	450	3.50	0.08	7440	8100
Beta 110-ASS	50 AT10-E	2000	3000	8000	4000	400	800	600	3.50	0.08	7440	8100
Beta 120-ZRS	50 ATL10	4000	2500	6000	3000	350	700	500	3.20	0.08	7520	8100
Beta 120-ZSS	50 ATL10	4000	3000	8000	4000	400	1200	600	3.20	0.08	7520	8100
Beta 120-C-ZSS	60ATL10	4800	4000	12000	6000	600	1500	1000	4.50	0.08	7500	8100
Beta 140-ZRS	50 AT10-E	4000	2500	5000	3000	350	700	500	3.50	0.08	7540	8100
Beta 140-ZSS	50 AT10-E	4000	2500	6000	4000	500	1000	1000	3.50	0.08	7540	8100
Beta 140-ARS	50 AT10-E	2500	2500	5000	3000	350	700	500	3.50	0.08	7380	8100
Beta 140-ASS	50 AT10-E	2500	2500	6000	4000	500	1000	1000	3.50	0.08	7470	8100
Beta 140-C-ZSS	50 AT10-E	4000	3200	7500	5000	600	1200	1200	3.50	0.08	7470	8100
Beta 140-C-ASS	50 AT10-E	2500	3200	7500	5000	600	1200	1200	3.50	0.08	7470	8100
Beta 165-ZSS	75 ATS15	10000	5000	15000	8000	700	1400	1100	12.00	0.08	6920	7700
Beta 180-ZSS	75 AT10	6000	6000	12000	6000	1500	3000	1500	8.00	0.08	5500	6200
Beta 180-ASS	75 AT10	3500	6000	12000	6000	1500	3000	1500	8.00	0.08	5470	6200
Beta 180-C-ZSS	75 AT10	6000	8000	15000	8000	1800	3600	1800	8.00	0.08	5500	6200
Beta 180-C-ASS	75 AT10	3500	8000	15000	8000	1800	3600	1800	8.00	0.08	5470	6200
Delta 90-ZRS	32 AT5-E	800	500	1000	1000	60	80	80	1.50	0.08	3720	4000
Delta 110-C-ZSS	50 AT5-E	1100	1200	3000	1500	500	550	550	2.00	0.08	7820	8100
Delta 145-C-ZSS	60 AT5-E	2000	2500	5000	3000	800	1000	1000	3.00	0.08	7700	8100
Delta 200-ZSS	75 AT10	6000	5000	8000	5000	3500	4300	3200	6.80	0.08	1520	2000
Delta 240-ZSS	50 AT10-E	2500	6000	12000	8000	4500	6000	4500	5.50	0.08	2550	3000
Delta 240-C-ZSS	60 ATL10	3800	6000	12000	8000	4500	6000	4500	5.50	0.08	7540	8000

For mechanical linear drives with roller guides, the static load rating (C<sub>stat</sub> page TL11) applies for static loads.

- M<sub>idle</sub> = Idle torque ±30 %
- d<sub>s</sub> = Repeat accuracy ±
- S<sub>max</sub> = Maximum standard stroke length (longer on request)
- L<sub>max</sub> = Maximum standard length (longer on request)



# Performance Overview of Portal Linear Drives with Toothed Belt Drive or Rack-and-Pinion Drive

**HSB-gamma®**  
**HSB-sigma®**

Description	Toothed belt/ Rack and pinion	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]	-F <sub>z</sub> [N]	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	M <sub>leer</sub> [Nm]	d <sub>s</sub> [mm]	S <sub>max</sub> [mm]	L <sub>max</sub> [mm]
Gamma 90-ZSS	32 AT10	2300	2500	3000	3000	500	1200	1000	3.2	0.08	7650	8100
Gamma 90-ZSSD	2 x 16 AT10	1150	2500	3000	3000	500	800	700	2.9	0.08	7560	8100
Gamma 90-ASH	32 AT10-E	2300	2500	3000	3000	500	2300	1900	3.2	0.08	7560	8000
Gamma 90-AZ..	M2	1300 - 1800	3000	3000	3000	600	1800	1800	2.5	0.05	7600	8000
Gamma 120-ZSS	40 AT10-E	2800	6000	8000	8000	1200	3000	2500	3.00	0.08	7685	8200
Gamma 120-ZSSD	2 x 25 ATL10	1800	6000	8000	8000	1200	1300	1100	3.00	0.08	7638	8200
Gamma 120-ASH	40 AT10-E	3200	6000	8000	8000	1200	5000	4200	3.6	0.08	7450	8000
Gamma 120-AZ..	M 2	1500 - 2200	8000	8000	8000	1500	4000	4000	4.8	0.05	7470	8000
Gamma 160-ZSS	50 ATL10	4000	10000	16000	16000	1800	5000	4000	4.00	0.08	7580	8200
Gamma 160-ZSSD	2 x 32 AT10	2200	10000	16000	16000	1800	5000	4000	4.00	0.08	7250	8200
Gamma 160-ASH	50 AT10-E	4000	10000	16000	16000	1800	8000	7000	4.00	0.08	7350	8000
Gamma 160-AZ..	M 2	1500 - 4000	12000	12000	12000	2500	7000	7000	5.8	0.05	7370	8000
Gamma 220-ZSS	75 ATL10	6000	12000	20000	20000	2500	8000	6500	7.00	0.08	7580	8260
Gamma 220-ZSSD	2 x 40 AT10	2800	12000	20000	20000	2500	8000	6500	5.25	0.08	7220	8220
Gamma 220-ASS	75 AT10-E	6000	12000	20000	20000	2500	12000	10000	7.00	0.08	7400	8020
Gamma 220-AZ..	M 2	3000 - 6000	20000	20000	20000	4000	8000	8000	7.2	0.05	7340	8020
Gamma 220-AZ..	M 3	3000 - 7500	20000	20000	20000	4000	8000	8000	7.2	0.05	7340	8020
Gamma 280-ZSS	75 ATS15	10000	20000	30000	30000	4000	15000	12000	11.00	0.08	7450	8370
Gamma 280-ZSSD	2 x 50 ATL10	4000	20000	30000	30000	4000	15000	12000	11.00	0.08	7010	8270
Gamma 280-AZ..	M 3	3000 - 7500	25000	25000	25000	8000	16000	16000	8.6	0.05	7250	8030
Sigma 70-ZRS	25 AT5-E	1050	1350	1850	1200	50	70	80	0.85	0.08	7805	8100
Sigma 70-ARH	25 AT5-E	1050	1350	1850	1200	50	120	110	0.85	0.08	7700	8000
Sigma 70-ARS	25 AT5-E	1050	1350	1850	1200	50	70	80	0.85	0.08	7775	8000
Sigma 90-ZRS	32 AT5-E	1300	2000	2500	1500	120	160	150	3.2	0.08	7760	8100
Sigma 90-ZRSD	2 x 16 AT5-E	650	2000	2500	1500	120	160	150	3.2	0.08	7595	8100
Sigma 90-ARH	32 AT5-E	1300	2000	2500	1500	120	230	200	2.3	0.08	7745	8000
Sigma 90-ARS	32 AT5-E	1300	2000	2500	1500	120	160	150	2.3	0.08	7740	8000
Sigma 120-ZRS	40 AT10-E	2800	2300	3000	1800	170	270	270	3.00	0.08	7660	8100
Sigma 120-ZRSD	2 x 25 ATL10	1800	2300	3000	1800	170	270	270	3.00	0.08	7420	8100
Sigma 120-ARH	40 AT10-E	3200	2300	3000	1800	170	400	400	3.8	0.08	7510	8000
Sigma 120-ARS	40 AT10-E	3200	2300	3000	1800	170	270	270	3.8	0.08	7600	8000
Sigma 160-ZRS	50 ATL10	4000	4500	6000	4000	500	700	700	4.00	0.08	5570	6100
Sigma 160-ZRSD	2 x 32 AT10	2300	4500	6000	4000	500	700	700	3.5	0.08	5300	6100
Sigma 160-ARH	50 AT10-E	4000	4500	6000	4000	500	1000	1000	4.2	0.08	5430	6000
Sigma 160-ARS	50 AT10-E	4000	4500	6000	4000	500	700	700	4.2	0.08	5580	6000

M<sub>idle</sub> = Idle torque ±30 %  
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