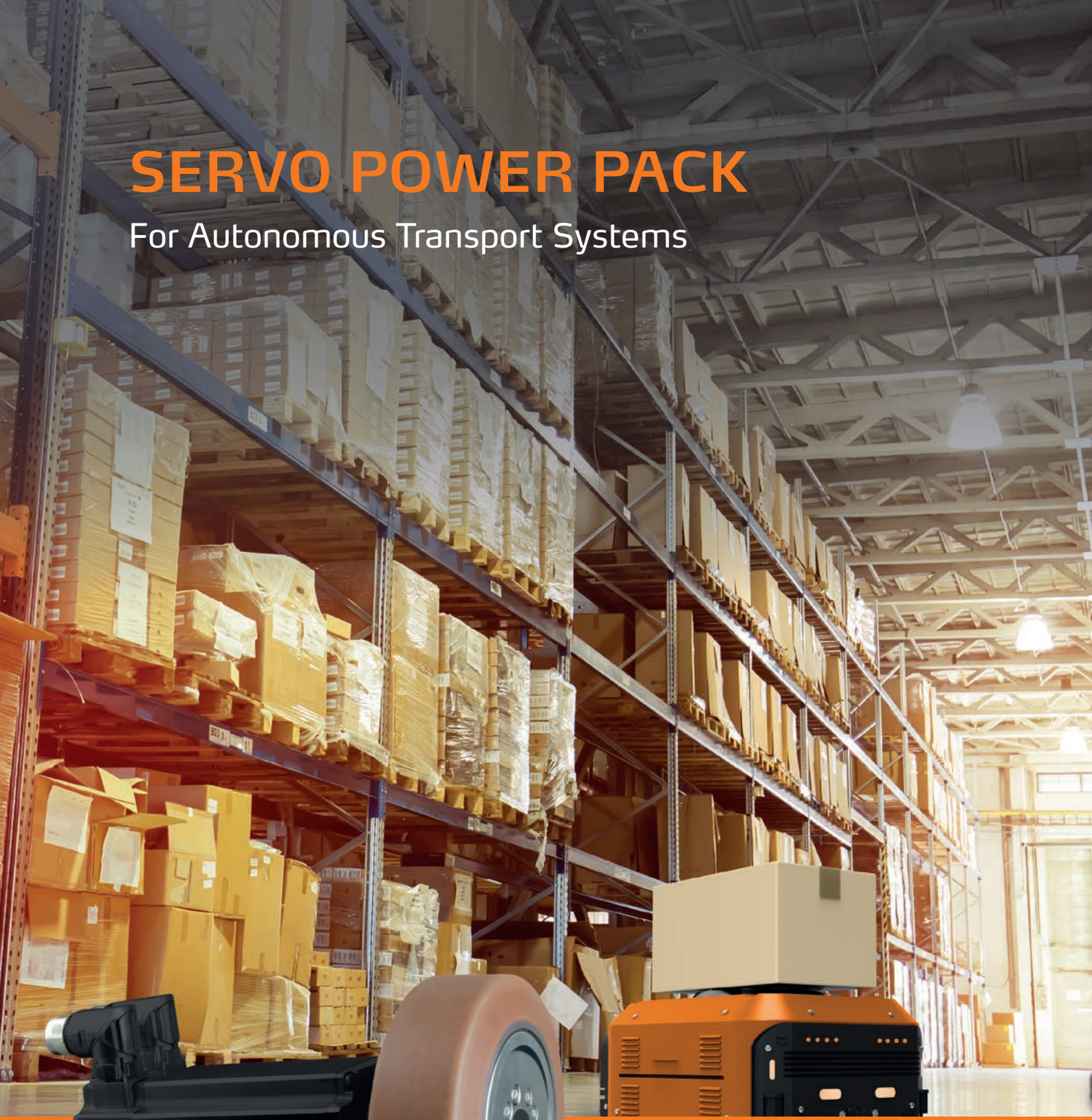


SERVO POWER PACK

For Autonomous Transport Systems



Servo Motors

Gear Units

Electronics



Tailor-made Servo Solutions for Automated Warehouse Logistics

In the age of Industry 4.0, autonomous navigating vehicles are playing an increasingly important role in warehouse logistics and are now indispensable. Heidrive GmbH also offers high-performance and compact servo motors for the logistics and automation industry. With their directly attached planetary, angular, or cycloidal gears, with or without integrated electronics, these become the perfect drive unit for automated guided vehicles.

The HeiMotion HMP and HMD Next Generation series are available in flange sizes of 40, 60, 80, 100, 130, 150 and 190 mm for either 320 / 560 V_{DC} or for 24 / 48 V_{DC} applications. A major customer benefit is that all motor types are available with a wide range of options, such as integrated or top-mounted electronics/control, an optional-brake and various encoder systems.

Due to their high efficiency, they achieve a remarkable output power of up to 2300W at a low voltage of 48 V_{DC} with flange dimensions of 80 x 80 mm. For correspondingly high load currents of up to 125 A at peak, the customer receives drives with the connection technology tailored to suit – as well in the radial direction and as an angle screw connection or axial.

The signal cable can be plugged in or is also available as a cable in the appropriate length.

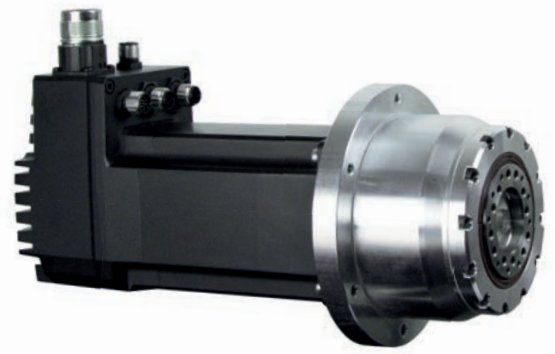
Integrated, top-mounted or vehicle-mounted controllers enable a wide range of special solutions for any installation space. The STO (Safe Torque Off) integrated in the controller, which immediately interrupts the power supply to the drive in an emergency, saves additional safety relays and thus also space and costs. In addition, SBC (Safe Brake Control) is also integrated in the HTP/Actilink controller solution. Controlled stopping (SS1) of the vehicle can thus be implemented using additional safety technology. A safe encoder signal can be provided for the higher-level safety controller, making an additional safety encoder superfluous.

Further advantages also result, above all, from a direct gearbox attachment without a clutch. Based on this design, the overall length can be reduced on the one hand and efficiency and service life increased on the other. Due to the high variance of gearboxes the designer has many possibilities to integrate our traction drive solution in their vehicle. Thanks to their reinforced bearings and geometry adaptation, the gearboxes are

ideal for wheel mounting and achieve high radial loads and peak torques.

With the HeiMotion modular system, a variance of over 100 million configuration options is formed. As a result, all options of the existing modular system can be used, providing the complete drive design from a single source.

HeiMotion with Cycloidal Gearbox



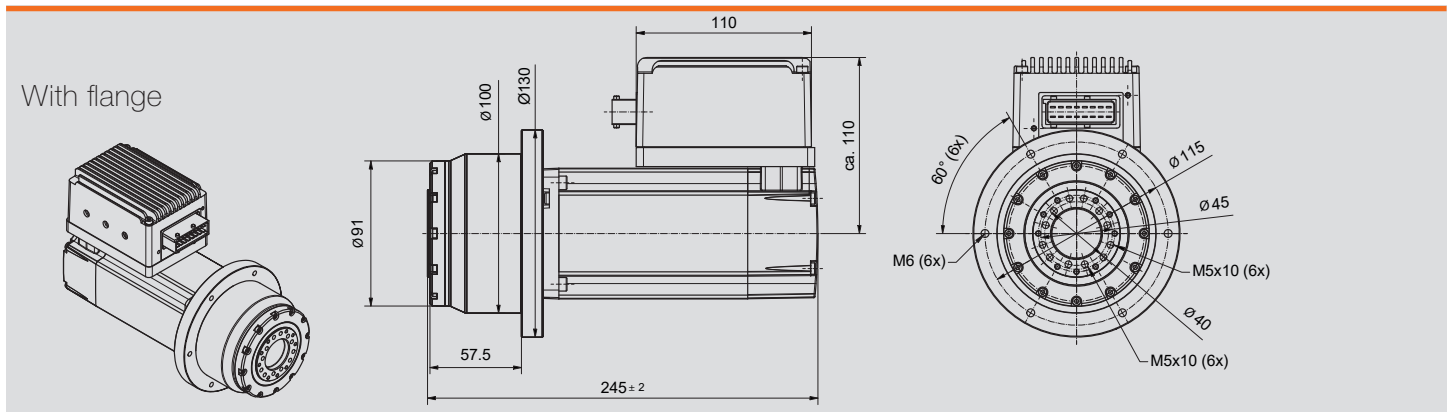
Advantages and features:

- Compact design
- Optional with integrated or top-mounted controller
- Fully integrated in the HeiMotion modular system
- Optimized radial and axial forces
- High gear ratios

Cycloidal gearbox:

	6	8	11	13	15	17	21	25	29	35	43	51	59	71	87
Rated torque* Nm	7.99	14.1	20	23.6	27.2	30.8	31.8	31	36	43.4	39	38.6	37.5	30.1	26.3
Maximum torque Nm	58	85.4	100.8	115.2	115	127.4	151.2	172.4	180	179.8	169.8	173	160.8	130	114.6
Radial force** N	864	865	1250	1250	1360	1540	1910	2270	2290	2290	2290	2290	2290	2280	2280

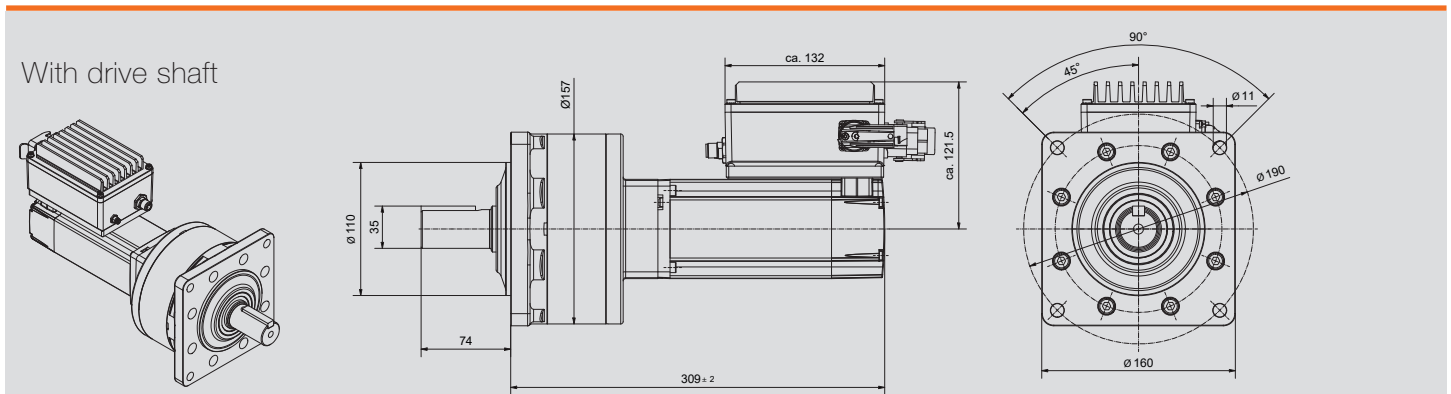
Dimensions (with servo motor HMD08)



Cycloidal gearbox:

	8	11	13	15	17	21	25	29	35	43	51	59	71	87	103	119
Nennmoment* Nm	31,2	43	83,6	100	114	140	129	132	160	143	170	134	133	145	143	148
Maximalmoment Nm	520	616	640	660	684	732	792	800	800	800	706	726	680	748	624	624
Radialkraft** N	2550	2550	2980	3440	3890	3970	3960	3960	3980	3970	3980	3960	3960	3970	3970	3970

Dimensions (with servo motor HMD08)



* Permissible output torque at 3000 rpm input speed
 ** Permissible radial force on center of shaft end at 3000 rpm input speed.
 Forces and torques must be checked depending on the application!

HeiMotion with Reinforced Planetary Gear with Direct Mounting



Advantages and features:

- Special bearing technology
- High efficiency
- Direct motor mounting possible
- Direct assembly to the vehicle possible without adapter
- Short design
- Optionally with integrated or top-mounted controller
- Fully integrated in the HeiMotion modular system

Specification reinforced planetary gear

	Vo6	Vog	V10
Ratio i	9; 12; 15; 16; 20; 25; 32; 40; 64		
Efficiency at full load	> 91 %		
Operating temperature min. ⁽²⁾	-25 °C		
Operating temperature max. ⁽²⁾	90 °C		
Protection class	IP65 (at output)		
Installation position	random		
Standard backlash (Arcmin)	< 12	< 9	< 9
Torsional stiffness (Nm/Arcmin)	7.3 - 11.6	19.5 - 39.5	52 - 97
Radial force (N) ⁽³⁾⁽¹⁾	2300	4100	5150
Axial force (N) ⁽⁴⁾⁽¹⁾	2850	5450	6450

Specification reinforced planetary gear

Output torque	Vo6	Vog	V10	i
Rated output torque Nm ⁽¹⁾	44	117	210	9
	44	120	260	12
	44	110	230	15
	44	120	260	16
	44	120	260	20
	40	110	230	25
	44	120	260	32
	40	110	230	40
	18	50	120	64
Max. rated output torque Nm ⁽¹⁾	70	187	336	9
	70	192	416	12
	70	176	368	15
	70	192	416	16
	70	192	416	20
	64	176	368	25
	70	192	416	32
	64	176	368	40
	29	80	192	64

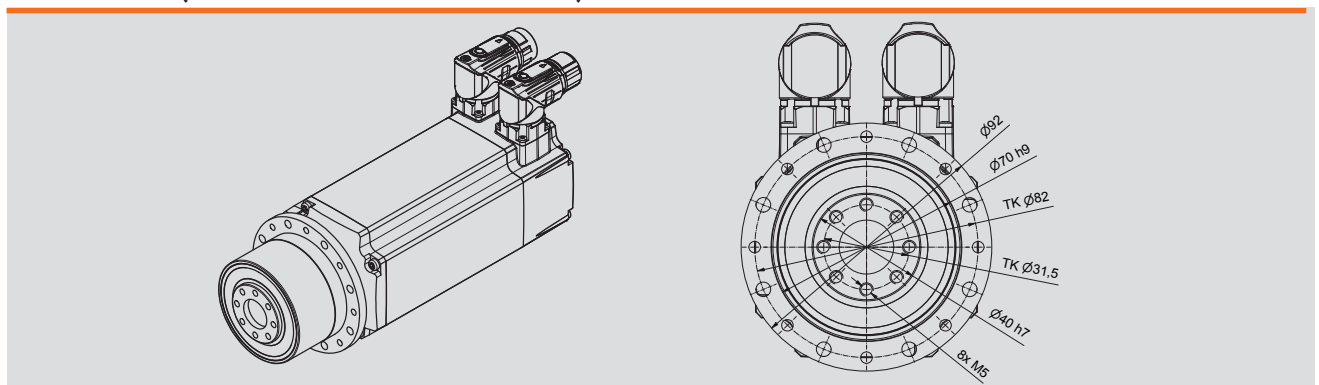
(1) Max. load capacity V-gear unit with wheel at dynamic load with rated torque (T2N). Application-specific design with NCP required. At Fa=0

(2) Tmin = -40°C. Optimum operating temperature max. 50°C

(3) Related to shaft end and Fa=0

(4) Related to gear axis and Fr=0

Dimension (with servo motor HMD08)



Controller Technology

HCL

Low Voltage Servo Drive



In addition to the integrated controllers, the HCL servo controller series perfectly combines with our 24 V and 48 V motors of the HMD Next Generation series.

With a maximum current of up to 225 A peak, the controllers, in combination with our HMD Next Generation servomotors, offer an ideal solution for demanding tasks.

This solution delivers an extremely cost-efficient package that includes a certified STO interface and UL Recognition.

Thanks to their freely programmable Motion Process Unit (MPU), the controllers are ideal for simple control tasks. An additional PLC is often not required. EtherCAT® or CANopen® are two of the most common and proven fieldbuses available for use with an external PLC.

Technical data HCL

	HCL 60 C	HCL 120 C / E		HCL 225 CS	HCL 225 C / E	
Electronic supply voltage U_e	18-30 V	18-30 V		9-30 V	9-30 V	
Power supply voltage U_p	9-60 V	9-60 V		9-60 V	9-60 V	
Max. output current	42.5 A _{rms}	85 A _{rms}		159 A _{rms}	159 A _{rms}	
Continuous output current (UL/CE) ≤ 24 V	14.5 A _{rms}	-		54.5 A _{rms}	54.5 A _{rms}	
Continuous output current (UL/CE) ≤ 60 V	9.5 A _{rms}	18.5 A _{rms}		46 A _{rms}	46 A _{rms}	
STO	Yes	Yes		Yes	Yes	
Encoder supply	5 V / 0.2 A	5 V / 0.2 A		5 V / 0.2 A	5 V / 0.2 A	
Motor feedback types	HES1-002 / 12 bit singleturn HES3 / 2048 ppr / 8192 cpr HS16 / 16 bit singleturn HM16 / 16 bit singleturn / 12 bit multiturn				HES3 / 2048 ppr / 8192 cpr	
Fieldbus	CAN	CAN	EtherCAT	CAN	CAN	EtherCAT
Galvanically isolated	No	No	Yes	Yes	Yes	
Size	78 x 74 x 29 mm	87 x 74 x 29 mm	87 x 74 x 49 mm	111 x 100 x 56 mm	111 x 100 x 39 mm	78 x 74 x 29 mm
Weight	95 g	155 g	226 g	451 g	451 g	630 g
Number of inputs/outputs	6 digital IN / 3 digital OUT / 1 analog IN			6 digital IN / 3 digital OUT / 2 analog IN		
Product numbers	12-001-014-22	12-001-014-20	12-001-014-21	12-001-014-19	12-001-014-17	12-001-014-18

Standard Option

Planetary gearbox direct mounting



Our standard motors with gearbox

Motors with **E**-gearbox (Economy series)

Economical gear units for standard applications
Highest variance
E07, E09 with square mounting flange
E04, E06, E08 with round mounting flange



Motors with **P**-gearbox (Powerful economy)

Economical gear units
Higher radial and axial forces



Motors with **H**-gearbox (Heavy duty)

Highest radial and axial forces



Motors with **F**-gearbox (Flange output)

Economical flange gearbox
Output flange according to DIN ISO 9409
High tilting rigidity



Motors with **V**-gearbox (Vehicle optimized)

Economical gearbox with flange output
Compact design
Optimized for use in mobile robots (AMR's, AVG's, etc.)
High tilting rigidity



Further variations: Angular gearbox from the modular system that can be combined with a motor and standard planetary gearbox.

For more information see HMD planetary gearbox catalog or flyer angular gearboxes.

Specifications subject to change! Last changes 10/2024

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