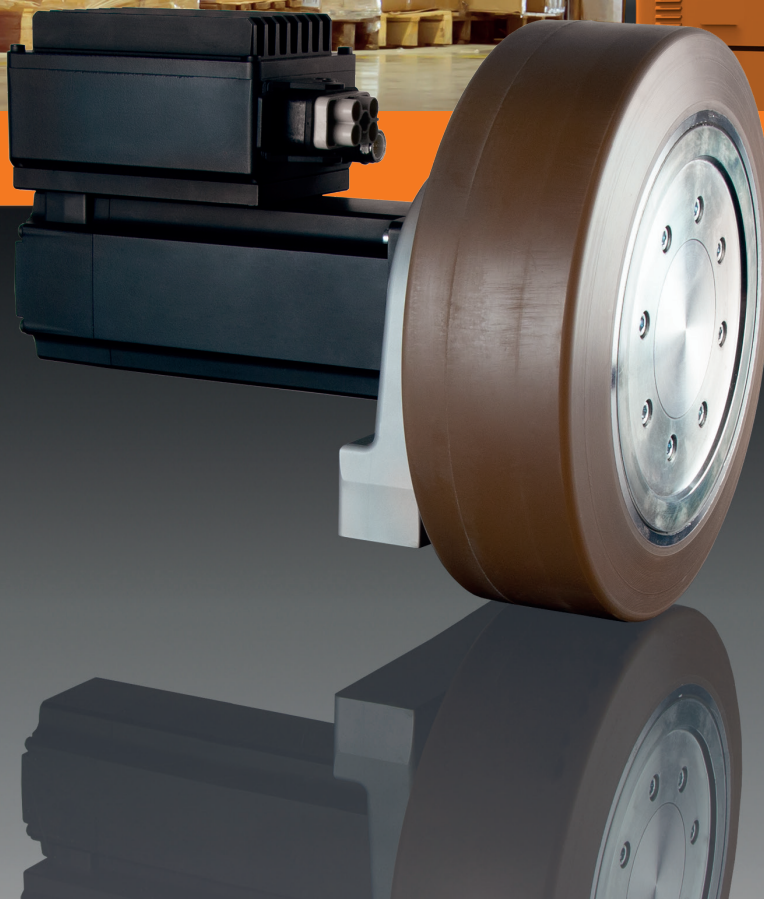


# SERVO POWER PACK

For autonomous transport systems



Servomotors

Gear units

Electronics



## Tailor-made servo solutions for automated warehouse logistics

In the age of Industry 4.0, autonomously 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 series are available in flange sizes of 40, 60, 80, 100, 130, 150 and 190 mm for either 320 / 560 VDC or for 24 / 48 VDC 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 2300 W at a low voltage of 48 VDC with flange dimensions of 80 x 80 mm. For correspondingly high load currents of up to 125A 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.

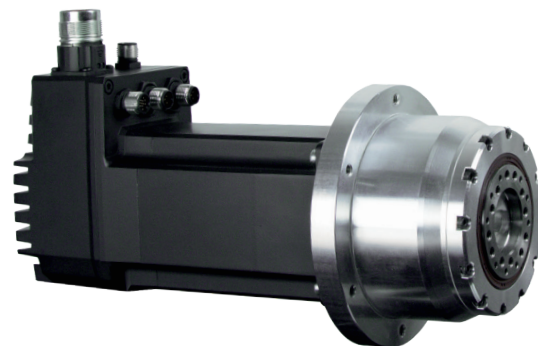
Integrated, top-mounted or vehicle-mounted controllers enable a wide range of special solutions for any installation space. The STO (Safe Torque Off) integrated in the controller, which immediately interrupts the power supply to the drive in an emergency, saves additional safety relays and thus also 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 complete drive design from a single source.

# HeiMotion with Cycloidal gearbox



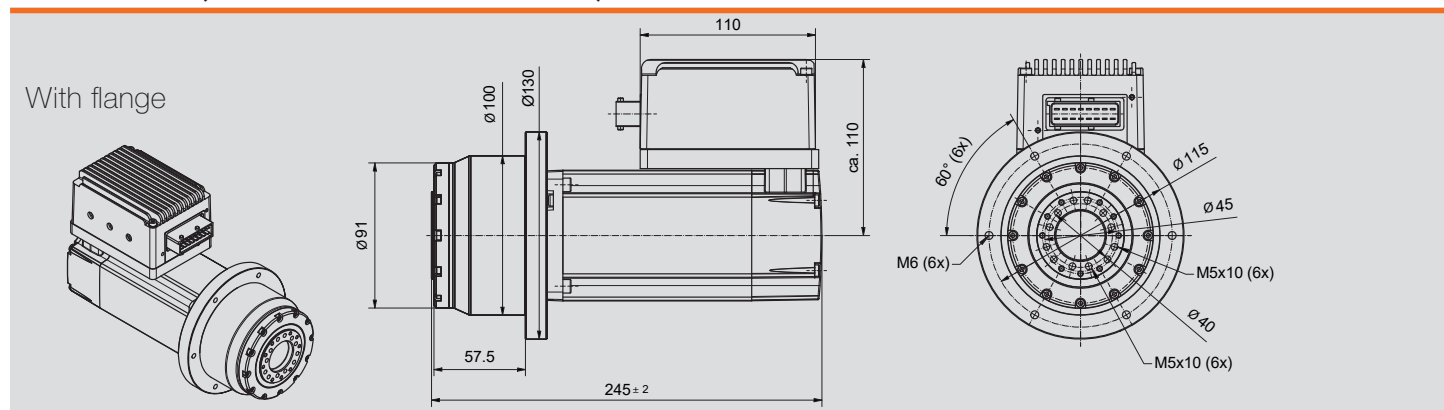
## Advantages and Features:

- 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

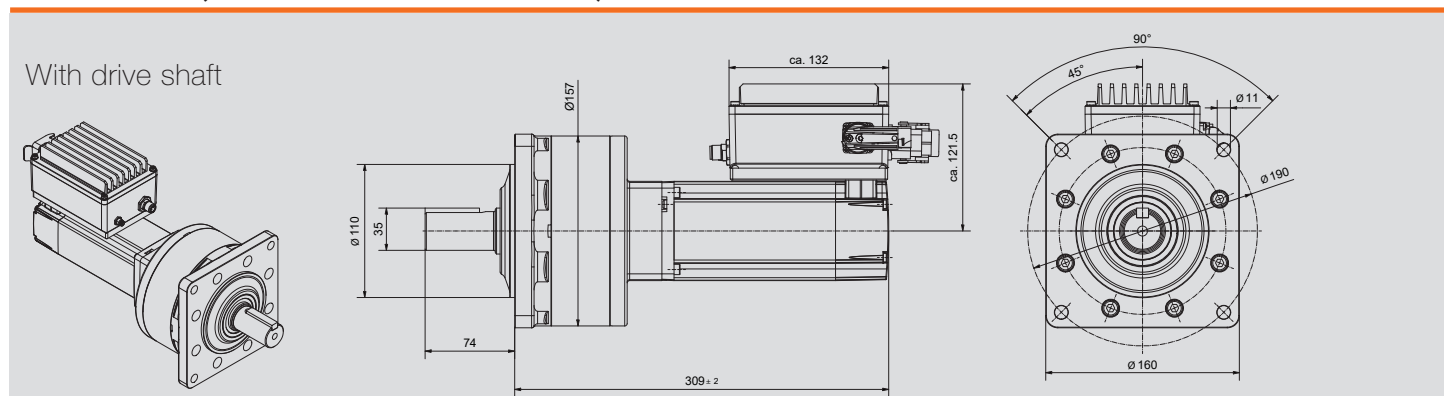
## Dimensions (with servo motor HMD08)



## Cycloidal gearbox:

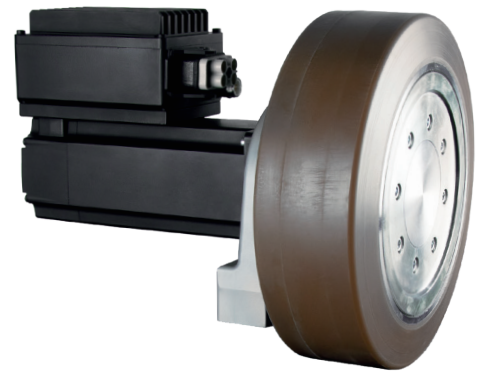
	8	11	13	15	17	21	25	29	35	43	51	59	71	87	103	119
Rated torque* Nm	31.2	43	83.6	100	114	140	129	132	160	143	170	134	133	145	143	148
Maximum torque Nm	520	616	640	660	684	732	792	800	800	800	706	726	680	748	624	624
Radial force** N	2550	2550	2980	3440	3890	3970	3960	3960	3980	3970	3980	3960	3960	3970	3970	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 In-wheel-gearbox



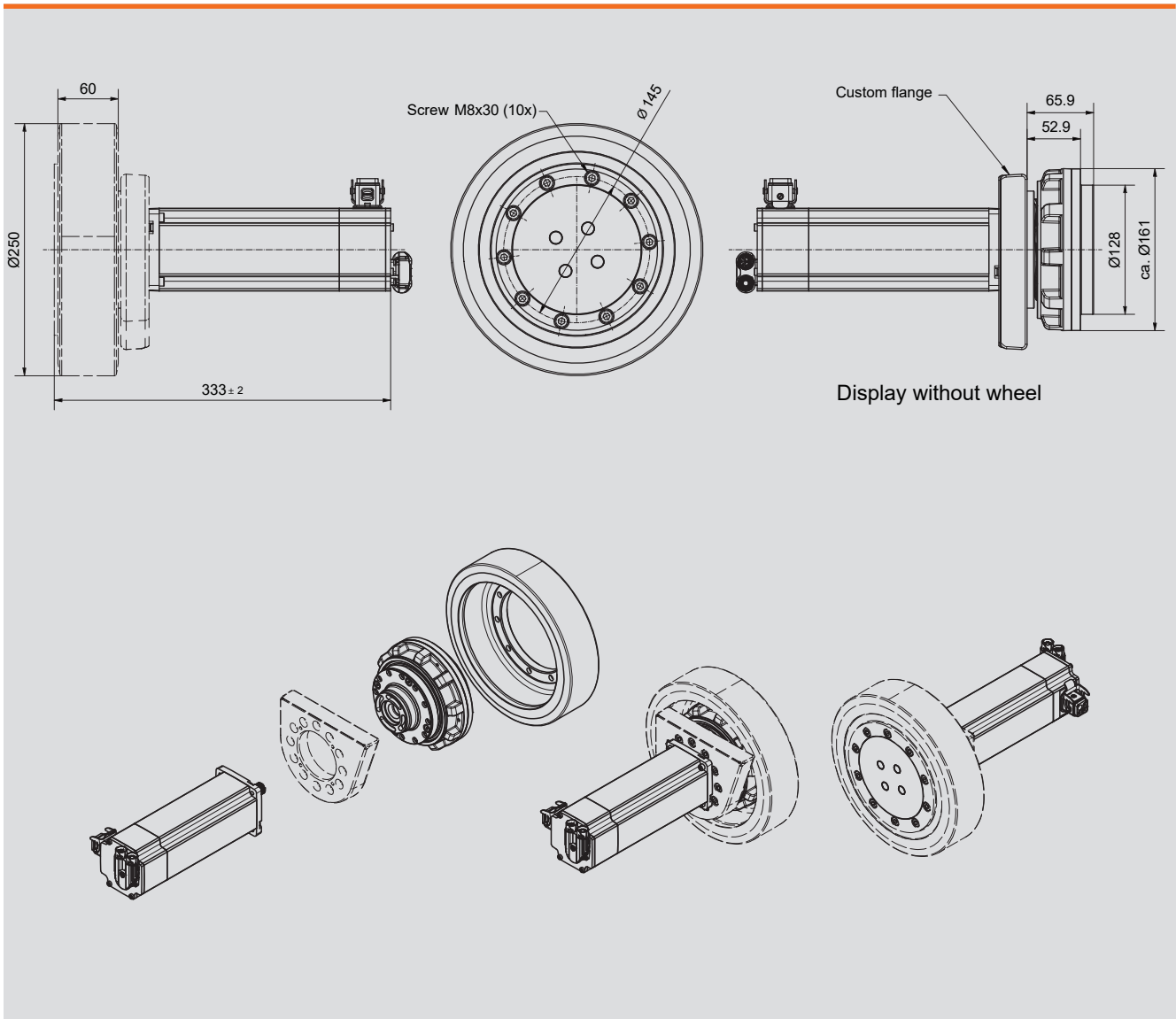
## Advantages and Features:

- Very compact design
- High variance of customer interface
- Wheel and adapter flange can be adapted to customer specifications
- Optionally with integrated or top-mounted controller
- Fully integrated in the HeiMotion modular system
- Separated assembly of motor and gearbox

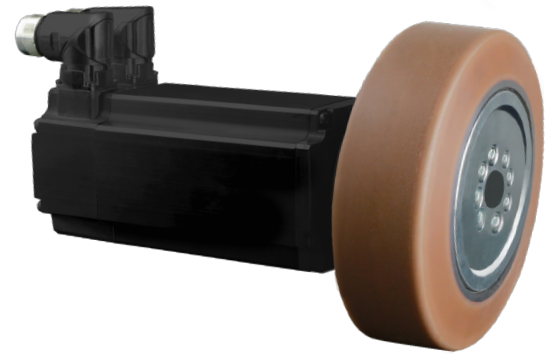
## Specifications In-wheel-gearbox

Radial-/ axial force (in the middle of wheel surface)	5300/500 N
Gear backlash	< 36 arcmin
Wheel diameter	250 mm
Vehicle speed	up to 1.7 m/s
Rated torque	67 Nm
Maximum torque	170 Nm
Rated speed (output)	115 rpm
Gear transmission ratio	27

## Dimension (with servo motor HMD08)



# 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

	NGVo64	NGVo90	NGV110
Ratio i	9; 12; 15; 16; 20; 25; 32; 40; 64		
Efficiency at full load	> 91 %		
Operating temperature min. <sup>(2)</sup>	-25 C°		
Operating temperature max. <sup>(2)</sup>	90 C°		
Protection class	IP65 (at output)		
Installation position	random		
Standard backlash (aromin)	< 12	< 9	< 9
Torsional stiffness (Nm/Arcmin)	7.3 - 11.6	19.5 - 39.5	52 - 97
Radial force (N) <sup>(3)</sup>	2300	4100	5150
Axial force (N) <sup>(4)</sup>	2850	5450	6450

## Specification reinforced planetary gear

Output torque	NGVo64	NGVo90	NGV110	i <sup>(1)</sup>
Rated output torque Nm <sup>(1)</sup>	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 <sup>(1)</sup>	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

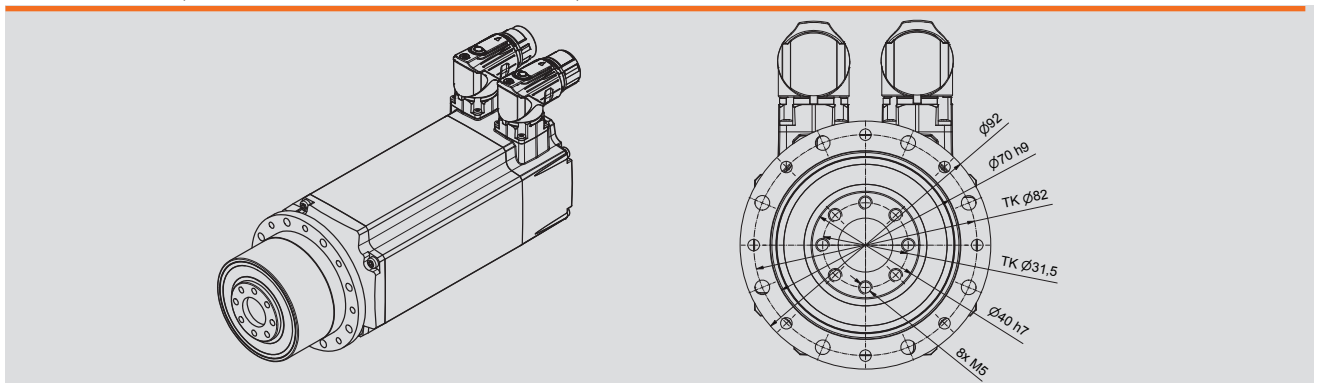
(1) Max. Load capacity NGV gear unit with NGV wheel at dynamic load with rated torque (T2N). Application-specific Design with NCP required. At Fa=0

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

(3) Related to shaft end and Fa=0

(4) Related to the gear axis and Fr=0

## Dimension (with servo motor HMD08)



# Controller technology

All motor variants are offered as complete systems, in which the appropriate controllers are also included.

These can be integrated, top-mount or mounted as a mobile version in a separate box in the vehicle<sup>1)</sup>.



1) Mobile version on request

## General characteristics:

- Nominal voltage 24 to 48 V
- CANopen, EtherCAT, Profinet
- Digital and analog IO's
- Compatibility with common safety controllers by executing a safely attached encoder signal
- Variants with Safe Torque Off (STO) PI d, category 3 available

Technical data subject to change! Last changes: 04/2022

