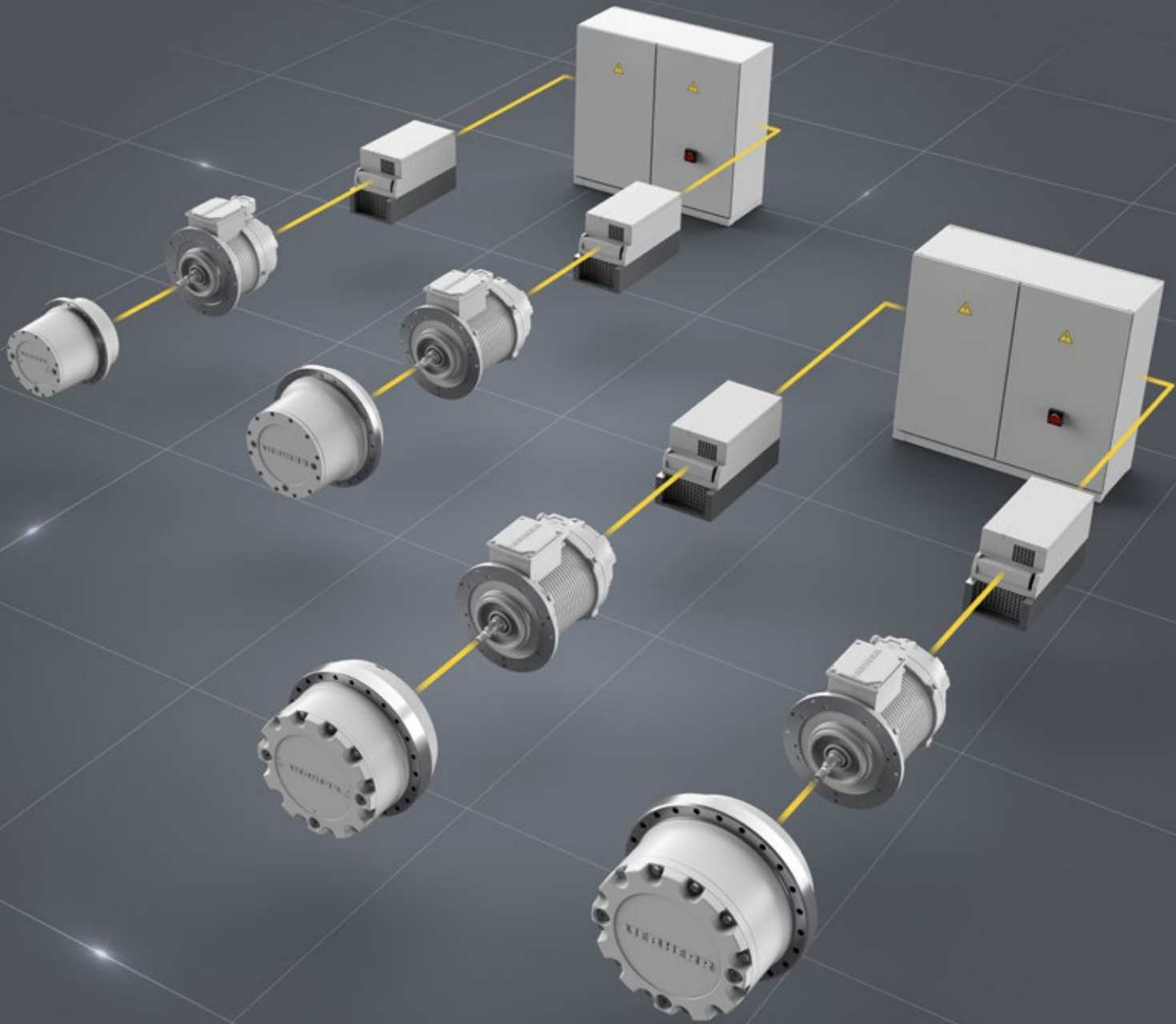


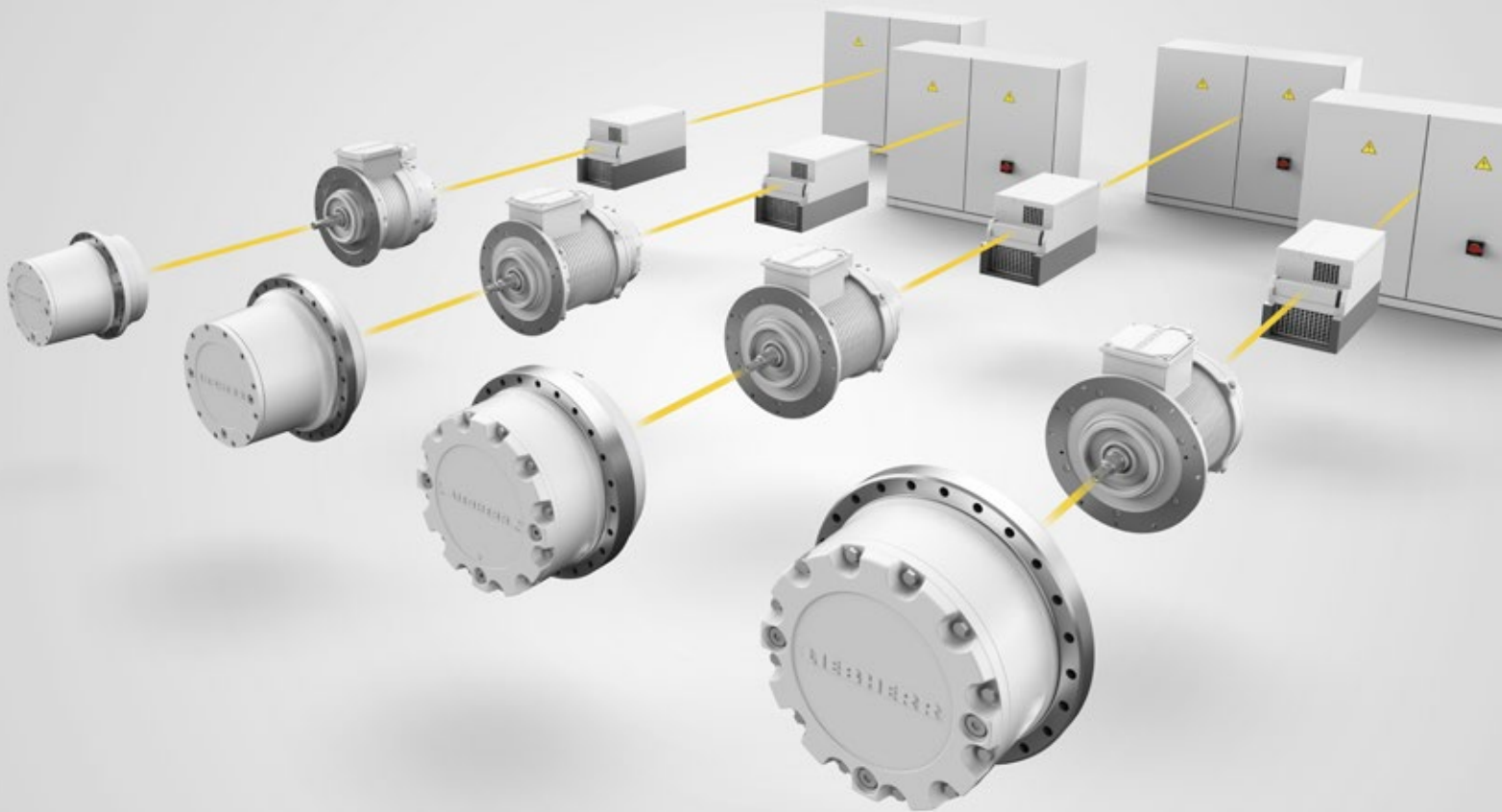
From a single source, flexible and individual
Electric Travel Drive Systems



LIEBHERR

Electric travel drive systems from Liebherr

The Liebherr product portfolio contains all the components required for an electric travel drive system and the company can now supply complete solutions to the market. The components are perfectly tailored to each other in terms of their function. This means that we can create complete system solutions which can be integrated in a wide range of applications.



Bespoke system solutions

More benefits through systems

With its electric travel drive series (eFAT), Liebherr supports the full electrification of semi-mobile track-based machinery. Four gearbox sizes from the eFAT 325 to the eFAT 500 are available with electric drives. In addition to its standard series, Liebherr also supplies bespoke solutions to suit special requirements. Liebherr drive controllers in the frequency converters together with the permanent magnet motors and travel drives manufactured in-house achieve excellent performance and handling.

Benefits

By converting from a hydraulic to an electric travel drive for a machine whose main drive units are all electrical or mechanical, the hydraulic tank can either be completely eliminated or at least significantly reduced in size.

Gearbox

All sun wheels and planet wheels are case-hardened and ground. The internal gear wheels are made of high strength quality steel which is also used for the forged planetary supports. Sophisticated design principles ensure a uniform load balance of the various stages and therefore high power density.

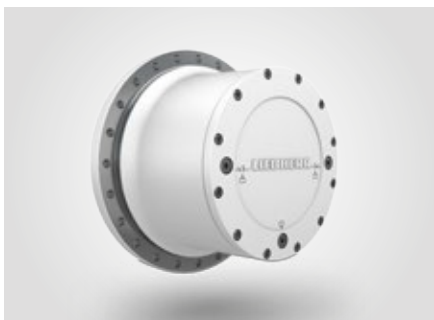
Permanent magnet motor

The machine can be operated with convection cooling as a result of its low heat generation. This reduces the installation work required compared to a conventional drive.

Control cabinet and frequency converter

Frequency converters and accessories (for example filters) are used in the control cabinet to increase the performance and reliability (for example relating to impact and vibration resistance) of a semi-mobile machine.

Gearbox



Permanent magnet motor



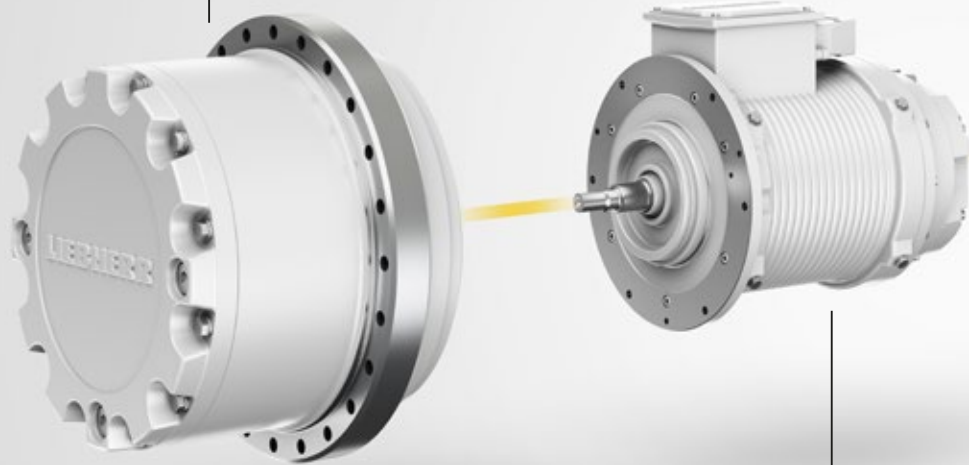
Control cabinet and frequency converter



Choose systems to succeed

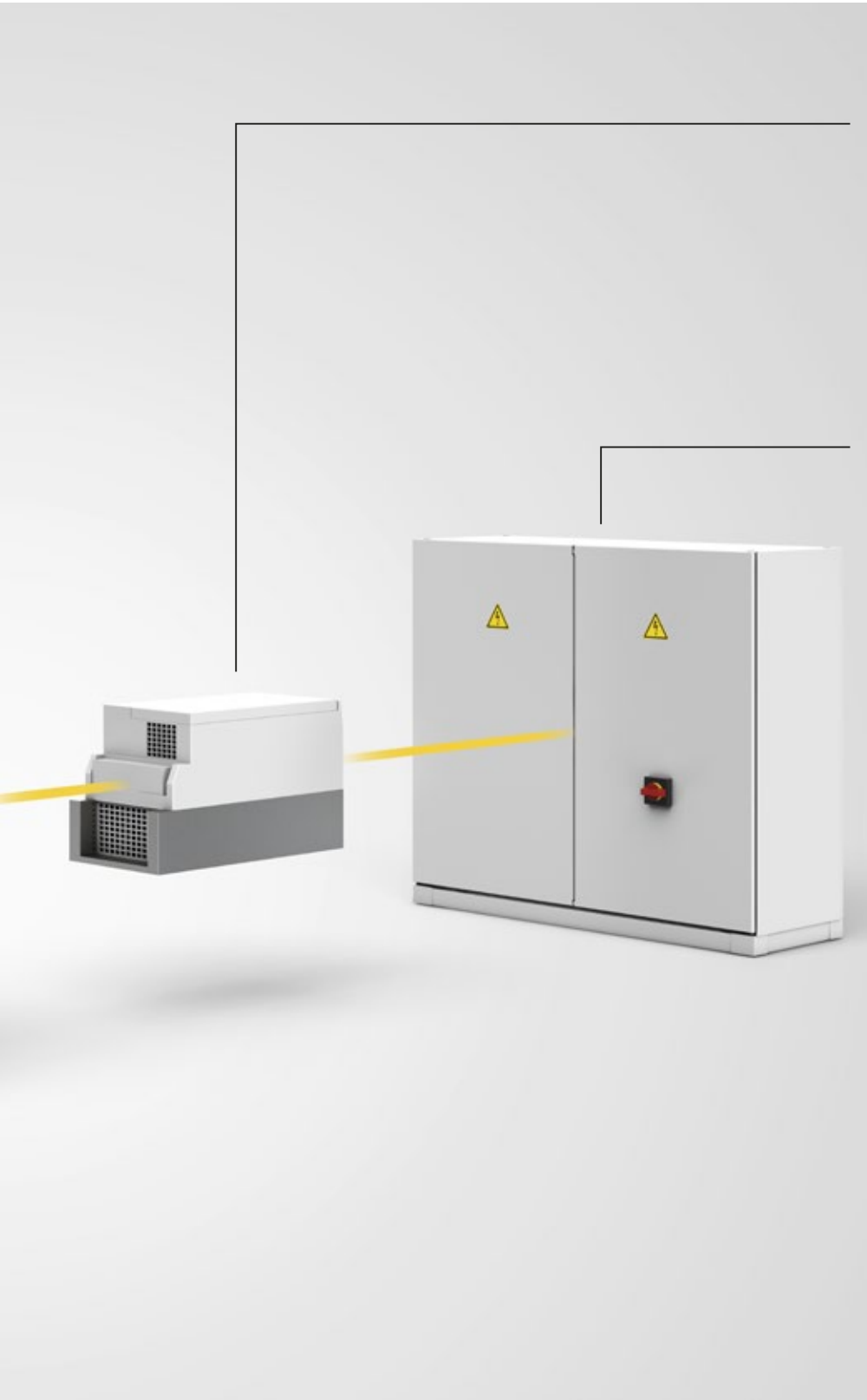
Gearbox

- Sizes from FAT 325 to FAT 500
- Tested sealing system for rugged conditions
- Driven by electric motor
- Bespoke design of gearbox size



Electric motor

- High torque values
- Compact design
- High protection class
- Convection cooling
- Holding brake



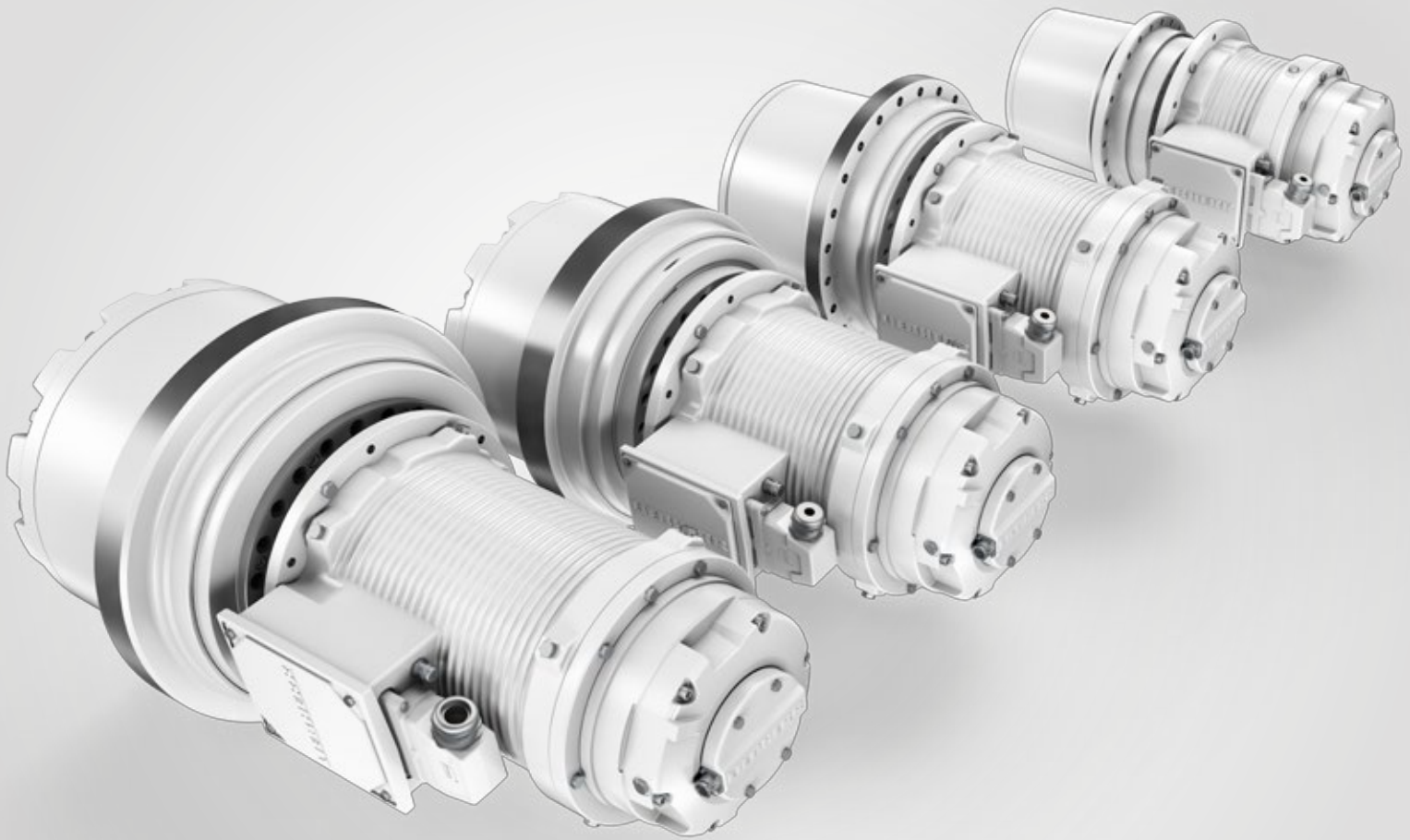
Frequency converter

- Smart drive control with high control quality
- Integrated brake actuation
- Simple integration and commissioning
- Compact

Control cabinet

- Designed to suit the application
- Compact design
- Ready for connection

Select the size of the electric travel drive



Individual and flexible

eFAT selection

The selection of the eFAT is made on the basis of the maximum required traction and the maximum travel speed. The maximum traction may be used for a short time. This only occurs in situations such as turning on the spot or travelling around tight curves.

The unit can drive at maximum speed permanently on the level and on slight gradients.

Electric drive technology

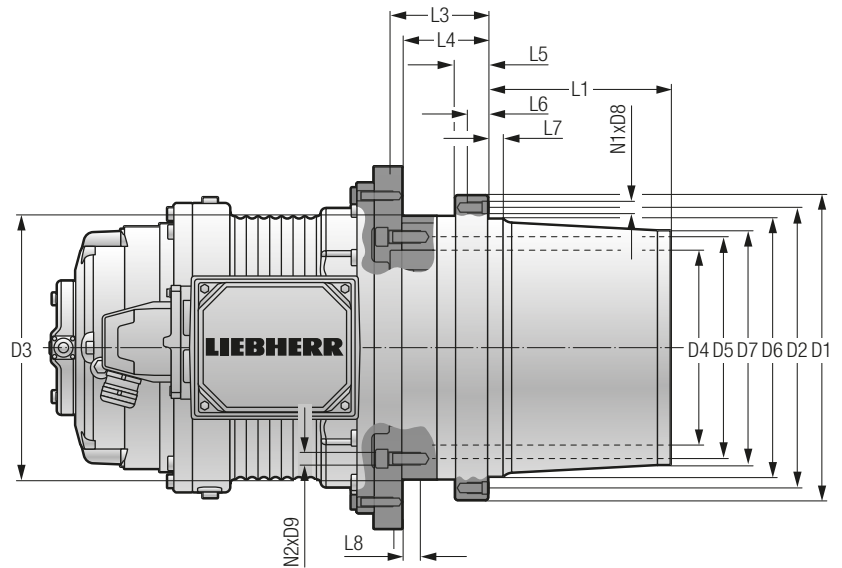
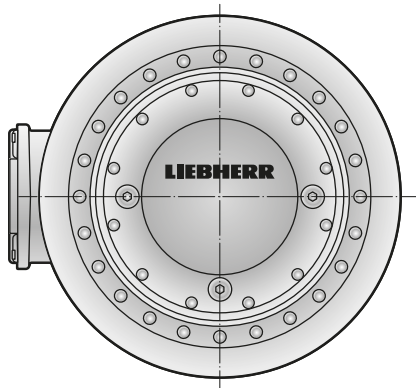
The motors are designed to supply maximum power and maximum torque for one hour of non-stop operation. The frequency converters are designed and sized to suit the requirements.

System overview

Traction Unit FZ [kN]	Max. travel speed V_{Max} [km/h]	Sprocket wheel diameter $d_{Sprocket}$ [mm]	Max. torque T_{Max} [kNm]	Design size	Motor type	Max. power consumption (1 hour) P_F [kW]	Frequency converter* Version	eFAT Type
186	1.5	581	31	325	PGK18/10	7.9	A	eFAT325-031-137
186	2.1	581	31	325	PGK18/10	11.0	C	eFAT325-031-192
205	1.5	581	34	325	PGK18/10	8.7	A	eFAT325-034-137
205	2.1	581	34	325	PGK18/10	12.1	D	eFAT325-034-192
233	1.5	581	38	325	PGK18/10	11.0	B	eFAT325-038-137
233	2.1	581	38	325	PGK18/22	15.5	C	eFAT325-038-192
267	1.5	581	44	325	PGK18/10	12.6	C	eFAT325-044-137
267	2.1	581	44	325	PGK18/22	17.7	D	eFAT325-044-192
283	1.5	581	46	325	PGK18/10	14.2	D	eFAT325-046-137
283	2.1	581	46	325	PGK18/22	19.9	D	eFAT325-046-192
314	1.6	689	61	400	PGK18/22	16.3	C	eFAT400-061-119
314	2.2	689	61	400	PGK18/22	22.6	E	eFAT400-061-166
368	1.6	689	72	400	PGK18/22	20.4	D	eFAT400-072-119
368	2.2	689	72	400	PGK18/22	28.3	F	eFAT400-072-166
433	1.6	689	84	400	PGK18/22	25.7	E	eFAT400-084-119
433	2.2	689	84	400	PGK18/22	35.6	G	eFAT400-084-166
487	1.6	800	110	450	PGK18/22	32.6	F	eFAT450-110-103
487	2.0	800	110	450	PGK18/22	40.7	G	eFAT450-110-133
559	1.7	883	140	500	PGK18/22	40.8	G	eFAT500-140-102
559	2.0	883	140	500	PGK18/32	50.8	G	eFAT500-140-120

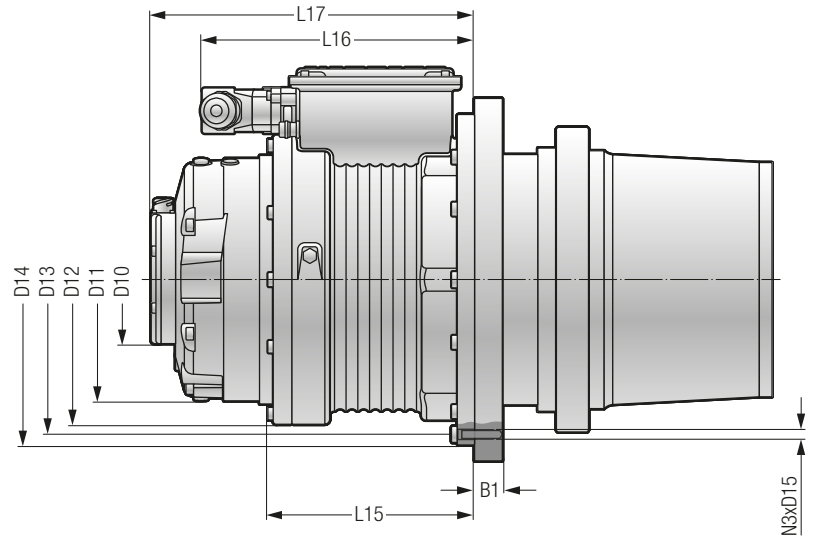
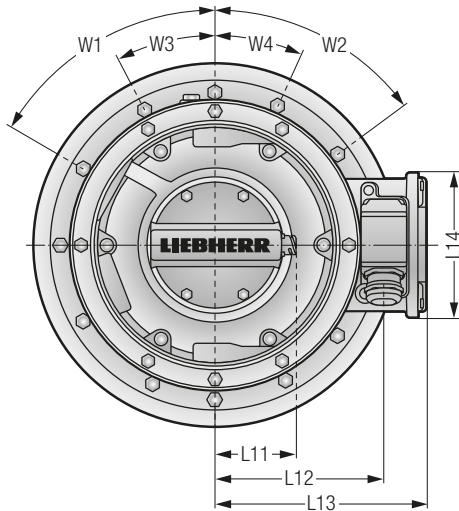
* See page 11 for details of frequency converter

eFAT technical design



Dimensions

eFAT type	Motor type	Gearbox size	Structural steel width	Motor dimensions												Connection	
				B1	D10	D11	D12	L11	L12	L13	L14	L15	L16	L17	D13		D14
				[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	1x [mm]
eFAT325-044-192 eFAT325-031-192 eFAT325-034-137 eFAT325-034-192 eFAT325-038-137 eFAT325-044-137 eFAT325-046-137	PGK18/10-J	FAT 325	By agreement	170	310	370	105	215	272	185	265	350	415	396	423	6x Ø M12	
eFAT325-038-192 eFAT325-044-192 eFAT325-046-192	PGK18/22-J	FAT 325		170	310	370	105	230	285	185	400	350	550	396	423	10x Ø M12	
eFAT400-061-119 eFAT400-072-119 eFAT400-084-119	PGK18/22-J	FAT 400		170	310	370	105	230	285	185	400	350	550	396	423	10x Ø M12	
eFAT400-061-166 eFAT400-072-166 eFAT400-084-166		FAT 400															
eFAT450-110-103 eFAT450-110-133	PGK18/22-J	FAT 450		170	310	370	105	230	285	185	400	350	550	396	423	10x Ø M12	
eFAT500-140-102	PGK18/22-J	FAT 500		170	310	370	105	230	285	185	400	350	550	396	423	10x Ø M12	
eFAT500-140-120	PGK18/32-J	FAT 500		170	310	370	105	235	290	220	505	390	700	396	423	10x Ø M12	



Crawler track assemblies				Gearbox dimensions																
				Connection dimensions for the sprocket wheel									Connection dimensions for the crawler track assemblies							
W1	W2	W3	W4	D3	D7	L1	D2	D1	D6	N1xD8	L5	L6	L7	D4	D5	N2xD9	L3	L4	L8	
[°]	[°]	[°]	[°]	[mm]	[mm]	[mm]	[mm]	Possible centring diameter	[mm]	[mm]	1x [mm]	[mm]	[mm]	[mm]	[mm]	[mm]	1x [mm]	[mm]	[mm]	[mm]
53,50	60	-	-	337	300	234	360	390	330	24 x M16	25	25	20	250	285	24 x M16	125	110	24	
53,50	60	24.5	24.5																	
53,50	60	24.5	24.5	455	375	255	480	520	440	24 x M20	35	35	18	305	350	24 x M20	125	113	30	
				435	375	265	460	500	420	24 x M20	35	35	25	280	330	24 x M20	115	103	30	
53,50	60	24.5	24.5	500	454	182	500	540	460	24 x M20	63	35	23	400	355	24 x M24	192	172	48	
53,50	60	24.5	24.5	530	520	271	580	625	535	24 x M24	63	40	10	425	385	24 x M24	171	166	81	
53,50	60	24.5	24.5																	

Switchgears and frequency converter



Durable and robust

Switchgears

Starting with project management, design and programming the programmable logic controllers and visualisation systems to production, commissioning and service, Liebherr creates complete, smart system solutions.

Its wide-ranging practical expertise enables Liebherr to create precision control cabinet and controller solutions which prove their worth time and again by offering maximum reliability in applications with extremely adverse ambient conditions.

Liebherr is extremely familiar with national requirements on switchgears and ensures compliance with the regulations in terms of electrical and functional safety as well as EMC.

The company can supply switchgears for the European market with a CE certificate and for the North American market with UL approval.

Frequency converters

Efficiency and reliability are just two of the typical features of Liebherr frequency converters. Other highlights include the compact design and consistent diagnostic facility for the complete system. The appropriate frequency converter for the motor and the travel drive can be found using the table on page 7. The following details show the installation dimensions of the different versions. Every individual component is easily accessible and can be replaced if necessary. This minimises down times.

Installation dimensions

Frequency converters	Width [B] mm	Height [H] mm	Depth [T] mm
A, B	170	340	255
C, D	297	340	255
E, F, G	340	520	355

Mobile – Outdoor

Switchgear, for example for use in straddle carriers.



Semi-mobile – Outdoor

Switchgear, for example for use in tower cranes.



Special version – Outdoor

Switchgear, for example for use in hybrid vehicles.



Enquiry Data

Electric Travel Drive Systems

General

Date of enquiry:	Phone:
Company name:	Email:
Contact:	Application:
Street:	Unit/Type:
Postcode: Town:	Quantity required:
Country:	Desired delivery date:

General design data / operating data

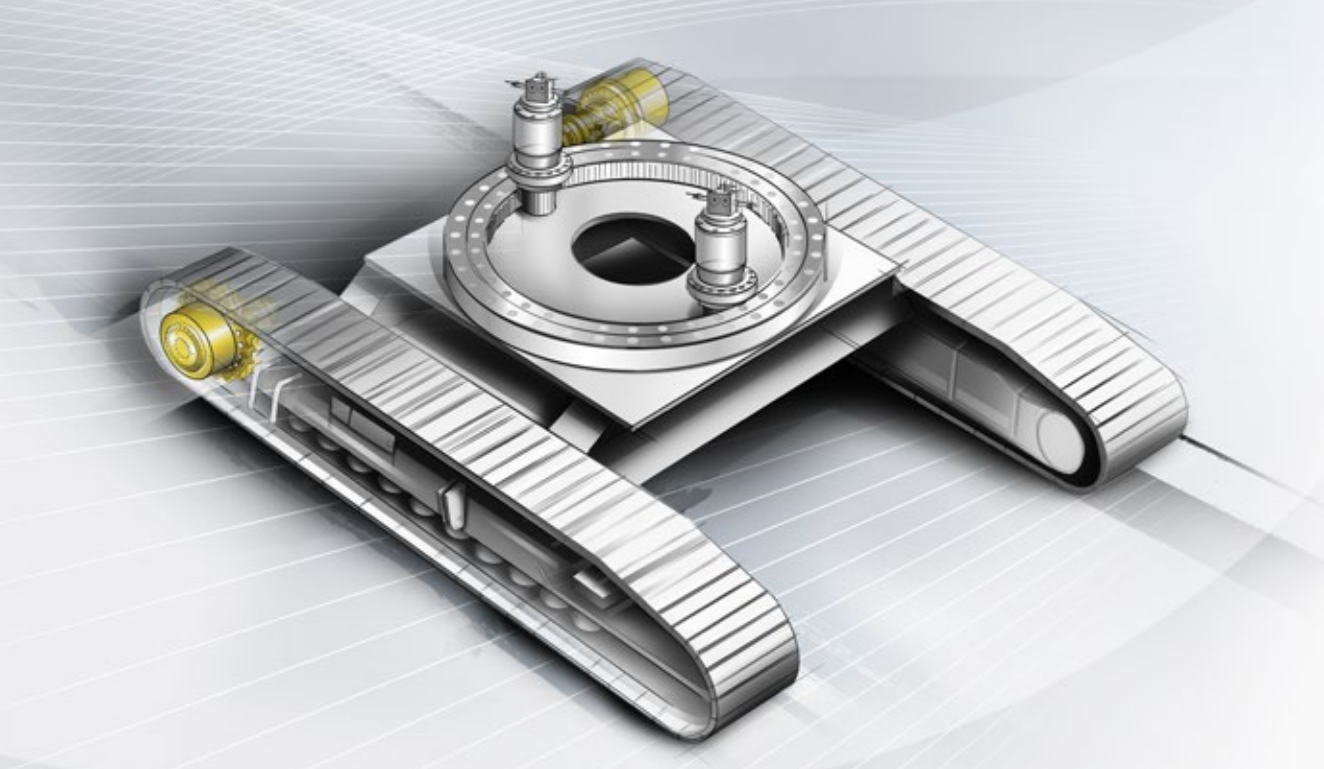
Output torque T_{max} [kNm]	Max. track traction F_{max} [kN]
Max. travel speed v [km/h]	Diameter of sprocket wheel d_T [mm]

Comments / Additional requirements

Please return the completed form to:
components@liebherr.com

Examples of use

Under carriage



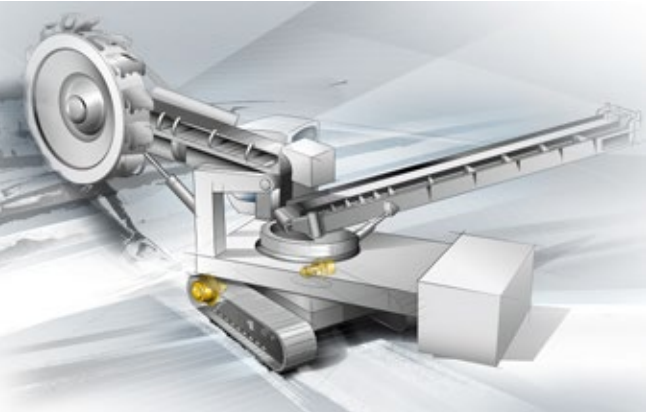
Electric travel drive systems from Liebherr are configured and modified using our standard components to suit the customer application. Our electric travel drive systems are reliable solutions for both an application weight of 20 up to

and including 100 tonnes. Applications include crushers, screening systems, compact bucket excavators and under carriages.

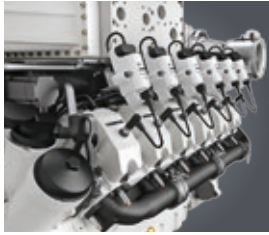
Crusher



Compact bucket excavator



Liebherr Components



Gas engines



Diesel engines



Fuel injection systems



Axial piston hydraulics



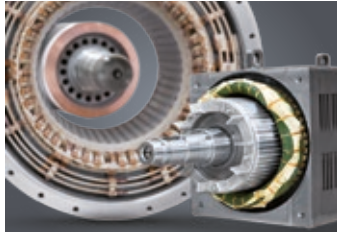
Hydraulic cylinders



Large diameter bearings



Gearboxes and winches



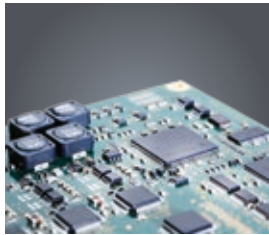
Electric machines



Remanufacturing



Human machine interfaces



Control electronics



Power electronics



Control cabinets



Software

From A to Z – the components division of the Liebherr Group offers a broad range of solutions in the area of mechanical, hydraulic, electric and electronic drive system and control technology. The efficient components and systems are produced at a total of ten production sites around the world to the highest standards of quality. Central contact persons for all product lines are available

to our customers at Liebherr-Components AG and the regional sales and distribution branches.

Liebherr is your partner for joint success: from the product idea to development, manufacture and commissioning right through to customer service solutions like remanufacturing.

components.liebherr.com