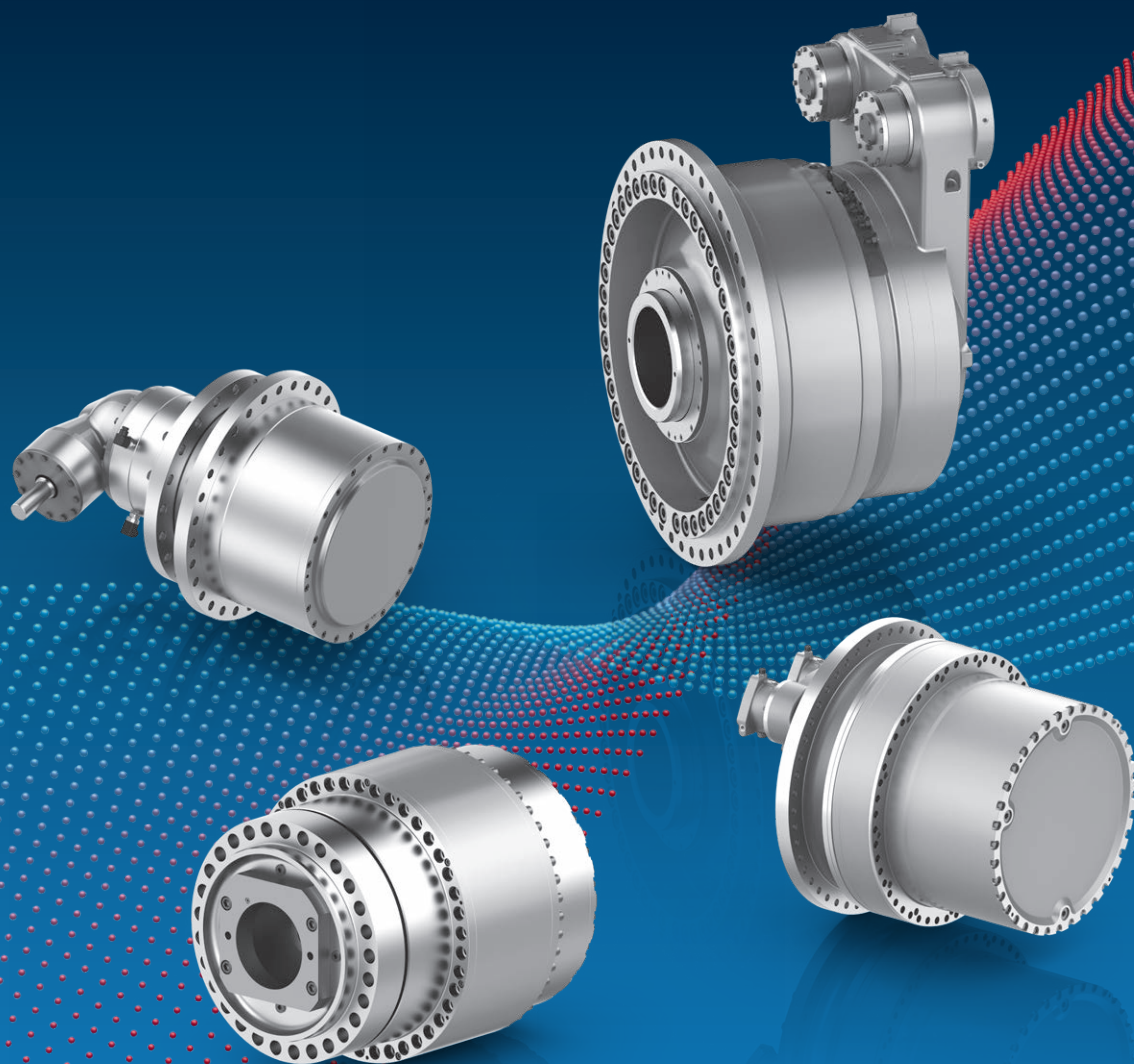


Drive Gearboxes GPT/GFA



High traction with ZF travel gearboxes

ZF gearboxes GPT and GFA are drive gears for mining applications and large construction machinery.

ZF travel drives are divided into two groups:

- GPT drive gearboxes carry the weight of the rollers in addition to the weight of the wheeled or track-driven vehicle.
- GFA drive gearboxes are the ideal drive components for large-scale appliances, in which it is advantageous to embed the bearing of the sprocket shaft separately in the drive cage. This way the machine weight is supported via the drive cage. The gearboxes will be used for torque transmission then.



GFA

- Sizes GFA 174 to 400
- Output torques from 250 to 2,500 kNm
- Bevel or spur gear connection



GPT

- Sizes GPT 160 to 1300
- Output torques from 160 to 1,300 kNm



GPT angular

- Sizes GPT 160 to 800
- Output torques from 160 to 800 kNm

Features

- Compact, space-saving planetary gearbox design
- Planet wheels carried in full-complement bearings
- Robust main bearing system
- Simple mounting
- Easy oil change
- Integrated static spring pressure multi-disk brake
- Low-noise operation
- Mountings for various motor suppliers and -types

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Description

ZF GPT and GFA gearboxes are designed with 3 or 4 stages and a variable input solution. They include an integrated multi-disk brake and optionally, a motor. The output torque is provided via ring gear or inner splined shaft.

As successor company of the former Lohmann + Stolterfoht GmbH, the ZF Industrieantriebe Witten GmbH incorporates decades of know-how into the design and production of travel drives.

Combined with state-of-the-art calculation methods, such as the Finite Element Method (FEM), gearboxes of the highest quality are produced, which are reliable even under the harshest and most challenging conditions.

The development and production expertise is supplemented by a unique long-term experience in the field of dynamic simulation and testing.

The gearbox types listed in this catalogue describe the standard range of ZF Industrieantriebe Witten GmbH. For any other gearbox types and/or sizes, please contact us.

Gearbox design

The design and high manufacturing quality result in gearboxes of exceptional resilience, reliability and low noise operation, e.g. by using case hardened gears and tempered, surface-hardened ring gears.

In addition, the ZF travel gearboxes are easy to install and easy for maintenance in order to keep the subsequent operating costs as low as possible.

The listed max. output torques are short-term peak values for travel drive applications. For gearboxes transmitting higher torques than those indicated in this product catalogue, please contact us. Our aim is to find the optimum drive configuration right from the start.


Operating conditions

The gearboxes are designed for use at ambient temperatures of between -25°C and $+40^{\circ}\text{C}$. Surfaces and sealings are laid-out for use in harsh environment.

We design gearboxes for your specific application and requirements.

Motor adaptations

The gearboxes are designed for direct flange attachment of variable or fixed displacement hydraulic motors. Electric drives are also possible.

 **Gearboxes can be supplied including mounted motors. Adaptations are possible for various motor suppliers and types.**

Gearbox supply

ZF planetary gearboxes are delivered ready for installation, without oil filling and are painted with standard RAL colours. Blank surfaces of external flanges, shaft extensions and mounting faces are protected against corrosion.

Integrated spring pressure multi-disk brake

As standard feature, the gearbox is equipped with a hydraulically released multiplate brake. Integrated on the input side for parking, the brake is designed for the respective motor torque.

Disconnecting device

If requested, drive systems may also be equipped with a mechanical disconnecting device so that your machine can be towed away without damaging the hydraulic system.

Sealing system

An axial mechanical seal is mounted between the stationary and rotating gearbox sections. This prevents moisture and dirt from entering the drive even under extreme operating conditions.

Oil change and lubrication

Except for regular oil changes the gearboxes do not require maintenance. Oil changes may conveniently be made from the outside. The oil change intervals for different operating conditions are also specified in the operating manual. The gear teeth and bearings are splash lubricated.

The pinion-side antifriction bearing of the output shaft is grease-lubricated for life.

GPT 160–580

Drive gearboxes GPT for output torques from 160 to 600 kNm

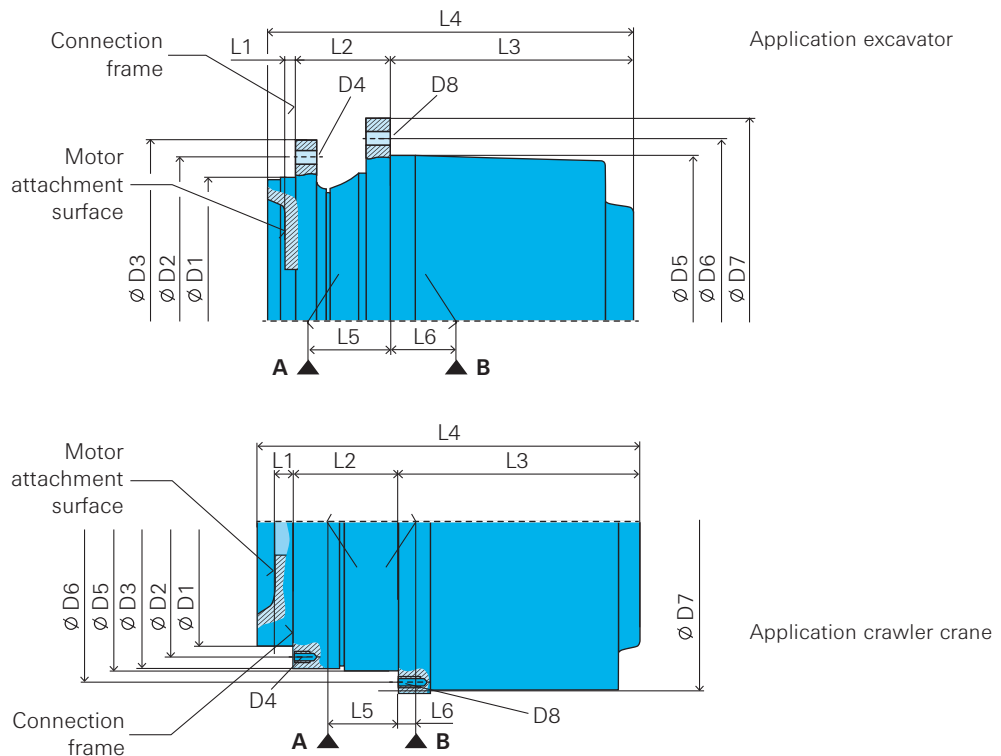
Technical data

Type	Output torque ¹⁾ $T_{2, \max}$ Nm	Gear ratio from/to i Excavator	Gear ratio from/to i Crawler crane	Holding torque $T_{Br, \max}$ Nm
GPT 160 T3	160,000	210.8	251.0	1,020
GPT 220 T3	220,000	67.7 • 97.7 • 145.4 • 188.9 • 246.0 • 293.0	–	1,100
GPT 260 T3	260,000	188.9	365.0	1,600
GPT 330 T3	330,000	168.9 • 209.9 • 252.0 • 302.4	302.4	2,500
GPT 330 T4	330,000	451.7	–	1,450
GPT 400 R3	460,000	95.61 • 347.1	–	1,450
GPT 450 T4	450,000	347.1	421.7 • 653.3	1,450
GPT 580 T4	600,000	610.0	763.5	1,450

T = track drive R = wheel drive

¹⁾ Output torque for crawler cranes up to 25% higher.

Dimensions



Dimensions, bearing load ratings and masses

Type	D1 mm	D2 mm	D3 mm	D4 mm	D5 mm	D6 mm	D7 mm	D8 mm	Version
GPT 160 T3	450	510	560	20xM30 or 30xM24x2	535	600	650	30xM24x2	EXC
GPT 220 T3	460	600	650	30xM30	610	680	735	24xM30	EXC
GPT 220 T3	460	520	570	24xM30	610	680	735	24xM30	EXC
GPT 220 T3	450	515	568	29xM36x3	570	620	670	42xM30x2	CC
GPT 260 T3	560	630	685	28xM30	610	750	810	28xM30	EXC
GPT 330 T3	580	680	735	30xM30	660	730	785	30xM30	EXC
GPT 330 T3	450	515	658	32xM30x2	570	620	670	44xM24x2	CC
GPT 330 T4	580	680	735	30xM30	660	730	785	30xM30	EXC
GPT 400 R3	450	515	568	29xM36x3	570	620	670	42xM30x2	CC
GPT 450 T4	580	680	735	36xM30x2	670	750	810	36xM30x2	EXC
GPT 450 T4	450	515	568	29xM36x1.5	570	620	670	42xM30x1.5	CC
GPT 580 T4	450	515	568	29xM36x1.5	570	620	770	42xM30x1.5	CC

Type	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	L6 mm	A + B C kN	A + B CO kN	Mass kg	Version
GPT 160 T3	30	168	340	538	138	26	688	1,520	680	EXC
GPT 220 T3	45	170	350	565	155	35	710	1,560	850	EXC
GPT 220 T3	–	255	305	–	190	17	710	1,560	880	CC
GPT 260 T3	98	175	415	688	114	74	710	1,560	1,000	EXC
GPT 330 T3	150	125	400	675	190	25	1,040	2,450	1,200	EXC
GPT 330 T3	87	188								
GPT 330 T3	45	253	442	740	178	37	1,040	2,450	1,200	CC
GPT 330 T4	–	188	400	675	190	25	1,040	2,450	1,300	EXC
GPT 400 R3	13	255	522	820	175	34	1,040	2,450	1,200	CC
GPT 450 T4	87	156	532	775	155	39	1,040	2,450	1,250	EXC
GPT 450 T4	13	255	512	810	175	19	1,040	2,450	1,240	CC
GPT 580 T4	13	255	533	831	178	28	1,040	2,450	1,440	CC

GPT 600–1300

Drive gearboxes GPT for output torques from 600 to 1,300 kNm with 3 planet stages and 1 spur wheel stage

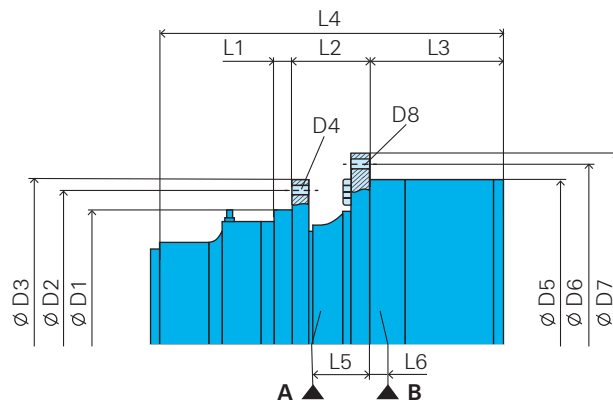
Technical data

Type	Motor connection	Output torque $T_{2,max}$ Nm	Gear ratio from/to i Excavator	Gear ratio from/to i Crawler crane	Holding torque ¹⁾ $T_{Br,max}$ Nm
GPT 600 N	1	600,000	243.5	–	1 x 3,115
GPT 600 N	2	600,000	326.5	–	2 x 1,200
GPT 600 N	2	720,000	–	520.2	2 x 1,830
GPT 800 N	2	792,000	284.8	–	external brake
GPT 800 N	2	984,000	–	386.7	2 x 1,830
GPT 1100 N	2	1,117,000	401.5	–	2 x 1,700
GPT 1300 N	2	1,300,000	458.5	–	2 x 1,700

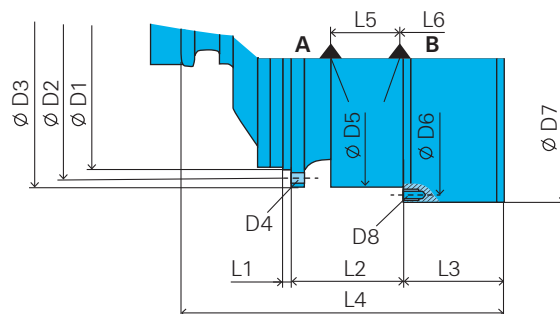
N = 3 planet stages and 1 spur gear input stage

¹⁾No. of brakes

Dimensions



Application excavator



Application crawler crane

Dimensions, bearing load ratings and masses

Type	D1 mm	D2 mm	D3 mm	D4 mm	D5 mm	D6 mm	D7 mm	D8 mm	Version
GPT 600 N	670	750	815	30xM39	885	975	1,055	24xM29	EXC
GPT 600 N	730	810	880	41xM30x2	885	965	1,020	48xM30x2	EXC
GPT 600 N	668	726	779	30xM36x1.5	780	850	900	45xM36x1.5	CC
GPT 800 N	830	980	1,050	48xM30x2	920	976	1,055	48xM30x2	EXC
GPT 800 N	668	726	779	30xM36x1.5	780	850	900	45xM36x1.5	CC
GPT 1100 N	1,110	1,230	1,310	48xM36	1,040	1,170	1,226	52xM30	EXC
GPT 1300 N	1,110	1,230	1,310	48xM36	1,040	1,170	1,226	52xM30	EXC

Type	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	L6 mm	A + B C kN	A + B Co kN	Mass kg	Version
GPT 600 N	60	242	459	1,167	186	62	1,320	3,150	2,500	EXC
GPT 600 N	57	245	464	1,161	186	62	1,320	3,150	2,600	EXC
GPT 600 N	33	405	368	1,211	248	6	1,320	3,150	2,800	CC
GPT 800 N	25	229	673	1,332	69	186	2,450	5,200	3,800	EXC
GPT 800 N	66	405	486	1,324	244	2	2,450	5,200	3,300	CC
GPT 1100 N	60	503	585	1,524	318	48	3,900	7,650	7,000	EXC
GPT 1300 N	60	503	593	1,565	319	49	3,900	7,650	7,500	EXC

GFA 174–400

Drive gearboxes GFA for output torques from 250 to 2,500 kNm

GFA drive gearboxes embed the bearing of the sprocket shaft separately in the drive cage. This way the machine weight is supported via the drive cage. The gearboxes will be used for torque transmission then.

There are 2 main versions:

- GFA-K: a spur gear and two planetary gear stages
- GFA-W: a bevel gear and two planetary gear stages.

Applications with one planet stage, versions GFA-G and GFA-V, are also possible. Please contact us for details.

Technical data Design GFA-K

Type	Output torque $T_{2 \max}$ Nm	Gear ratio from/ to i	Holding torque $T_{Br \max}$ Nm
GFA 174	250,000	210	1,250
GFA 245	523,000	299.1 • 457.36	2,500
GFA 250	792,000	342	2,600
GFA 280	860,000	212.5 • 225.5 • 286 • 348.8	–
GFA 305	1,900,000	367.3	2×3,200
GFA 325	1,648,000	384.7	3,200
GFA 350	1,822,000	369.6	3,200
	378,000	14.09	–
GFA 355	2,180,000	361.1	–
GFA 400	–	–	–

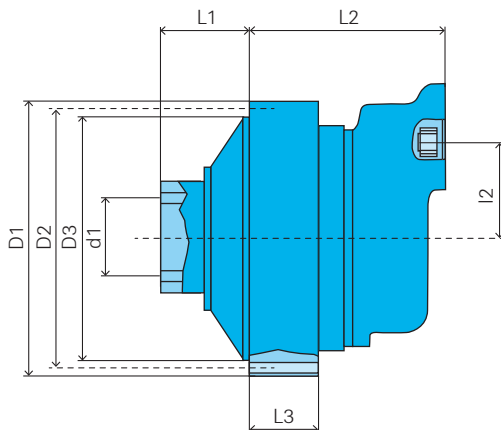
Design GFA-W

Output torque $T_{2 \max}$ Nm	Gear ratio from/to i	Holding torque $T_{Br \max}$ Nm
–	–	–
–	–	–
–	–	–
800,000	21.49	–
1,977,000	271.6	–
–	–	–
1,977,000	271.63 • 207.88	–
–	–	–
–	–	–
2,180,000	355.7	–

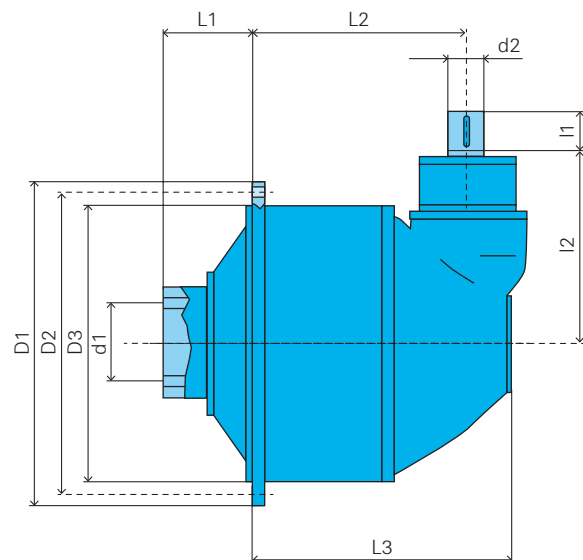
Other nominal sizes on request.

Dimensions

Version GFA-K and GFA-G



Version GFA-W and GFA-V



Examples: output via insert shaft/sprocket shaft

Dimensions, bearing load ratings and masses

Type	D1 mm	D2 mm	D3 mm	d1 mm	d2 mm	Version
GFA 174	700	650	580	Ø 330 flange	–	K
GFA 245	980	925	820	N260x5 DIN5480	–	K
GFA 250	930	870	690	N300x10 DIN5480	–	K
GFA 280	1,220	1,130	1,020	N320x8 DIN5480	–	K
GFA 305	1,220	1,140	1,070	N380x8 DIN5480	–	K
GFA 325	1,200	1,100	935	Ø 660 flange	–	K
GFA 350	1,620	1,530	1,400	N400x8 DIN5480	–	K
	1,540	1,440	1,330	N380x8x46x9H DIN5480	140	W
GFA 355	1,540	1,440	1,330	2.5/5 DP	–	K
GFA 400	1,540	1,440	1,330	N380x8 DIN5480	114	W

Type	L1 mm	L2 mm	L3 mm	I1 mm	I2 mm	Mass kg	Version
GFA 174	208	811	228	–	252	1,300	K
GFA 245	180	890	255	–	318	2,000	K
GFA 250	250	865	30	–	418	3,300	K
GFA 280	270	880	50	–	408	3,000	K
GFA 305	454	963	315	–	345	4,100	K
GFA 325	240	958	50	–	372	5,500	K
GFA 350	120	1,071	70	–	900	7,350	K
	310	1,050	1,300	149	823	7,180	W
GFA 355	515	1,010	60	–	640	7,760	K
GFA 400	310	1,296	1,521	149	745	9,890	W

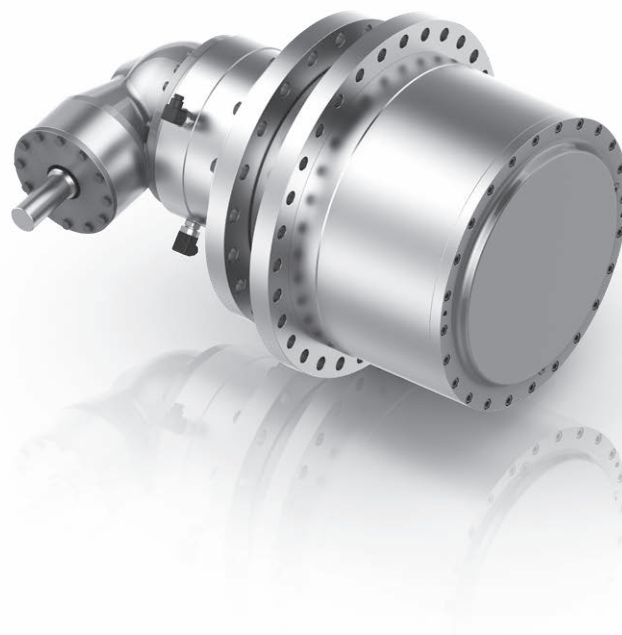
GPT-A 160–800

Drive gearboxes GPT-A with angular motor adaptations, output torques from 160 to 800 kNm

For applications with limited space we offer a solution with motor input via bevel gear stage. Gearbox and shaft share one oil chamber for cooling. Hydraulic- or electric motors can be mounted onto the gearbox.

Technical Data

Type	Output torque $T_{z, \max}$ Nm	Gear ratio from/to i	Weight kg	Flange	Length flange to pin mm
GPT 160 A4	180,000	686.1	940	30xM24x2	375
GPT 220 A4	220,000	672.7	960	30xM30x2	425
GPT 330 A4	360,000	826.0	1,500	30xM30x2	700
GPT 450 A5	520,000	875.5	1,600	30xM30x2	725
GPT 580 A5	600,000	763.0	1,800	48xM30x2	725
GPT 600 A5	700,000	772.0	2,500	48xM30x2	725
GPT 800 A5	800,000	304.0	3,800	48xM30x2	725



Customer specification wheel drive GPT

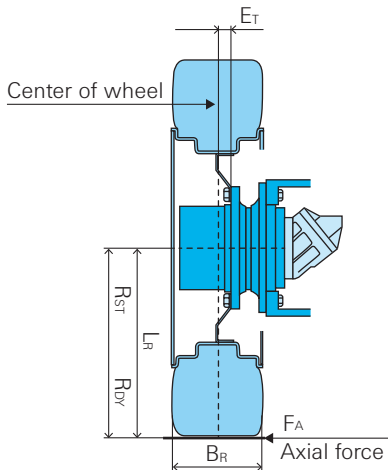
In order to work out a quotation for your **wheel application**, we kindly ask you to fill out this spec sheet.

Please send your inquiry to sales.ii@zf.com

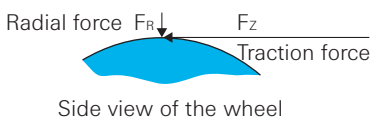
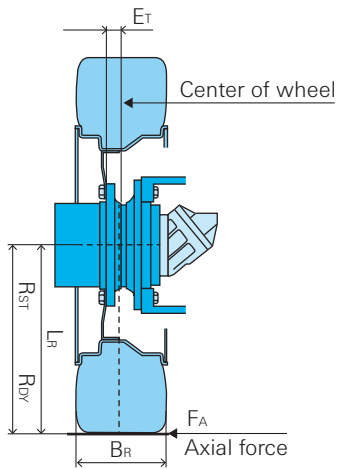
Company:
Name/Dept.:
Location/City:
Phone:
E-mail:
Date:

Operating data / design

E_T negative



E_T positive



Type of machine _____

Machine weight	empty _____ t loaded _____ t
Max. traction force of machine	F_Z _____ N
Gradeability	s _____ %
Total number of wheels	_____
Number of driven wheels	_____
Wheel radius - static	R_{ST} _____ mm
- dynamic	R_{DY} _____ mm
Max. travel speed	V_{max} _____ km/h
Working speed	V _____ km/h
Ambient temperature	from _____ to _____ °C
Wheel width	B_R _____ mm
Wheel rim diameter	D_F _____ Zoll
Wheel offset	E_T _____ mm
Center diameter/wheel rim	_____ mm
Bolt circle diameter/wheel rim	_____ mm
Wheel stud diameter	_____ mm
Number of studs	_____
Radial force each drive	F_R _____ N
Axial force each drive	F_A _____ N

Operating data / design

Required load spectrum and expected service life

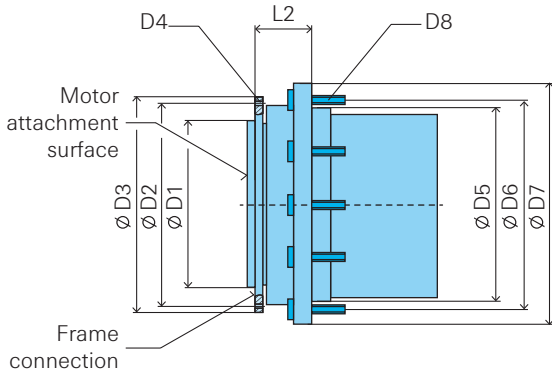
Condition	Output torque (Nm)	Radial load (N)	Output speed (rpm)	Time slice (%)
1				
2				
3				
4				

Estimated service life _____ \sum h

Technical gearbox data

Gearbox size GPT _____
 Max. output torque $T_{2 \max}$ _____ kNm
 Max. output speed $n_{2 \max}$ _____ rpm
 Gear ratio i _____
 Disconnect mechanism yes no
 Multi-disk parking brake yes no
 Min. parking torque _____ Nm
 Release pressure, max. P_{\max} _____ bar
 Release pressure, min. P_{\min} _____ bar
 Dynamic brake yes no
 Top coat specific yes no
 Colour RAL no. _____

Operating data / design



Dimensions of gearbox

Standard dimensions see valid "technical data sheet".
For special requirements please complete table.

D1 _____ mm

D2 _____ mm

D3 _____ mm

D4 No./Thread _____ pcs. _____

D5 _____ mm

D6 _____ mm

D7 _____ mm

D8 No./Thread _____ pcs. _____

L2 _____ mm

Technical motor data

Motor type hydraulic electric

Motor - supplier _____

- type code _____

Details for hydraulic motor:

Displacement $V_{g \text{ min}}$ _____ cm³

Displacement $V_{g \text{ max}}$ _____ cm³

Working pressure Δp _____ bar

Input flow, max. $q_{v \text{ max}}$ _____ l/min

Details for electric motor:

Nominal power _____ kW

rpm _____ /min

General information

Estimated number of gearboxes per year _____

Delivery date: Prototype/Serial start _____

Are there any legal requirements and/or other standards to be considered?

yes no if yes, please specify _____

Further requirements (e.g. application details, customer drawings, type plate, limiting dimensions, noise and vibration requirements ...):

Customer specification track drive GPT

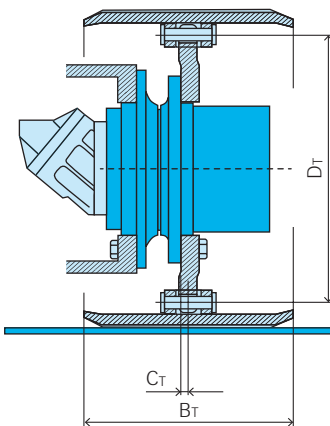
In order to work out a quotation for your **track application**, we kindly ask you to fill out this spec sheet.

Please send your inquiry to **sales.ii@zf.com**

Please enclose existing drawings and diagrams.

Company:
Name/Dept.:
Location/City:
Phone:
E-mail:
Date:

Operating data / design



Type of machine

Machine weight	empty _____ t	loaded _____ t
Max. traction force of machine	F_z _____ N	
Gradeability	s _____ %	
Track type	rubber track <input type="checkbox"/>	steel track <input type="checkbox"/>
Sprocket pitch diameter	D_T _____ mm	
Track width	B_T _____ mm	
Radial load lever arm	C_T _____ mm	
Max. travel speed	V_{max} _____ km/h	
Working speed	V _____ km/h	
Ambient temperature	from _____ to _____ °C	

Required load spectrum and expected service life

Status	Output torque (Nm)	Output speed (1/min)	Time slice (%)
1			
2			
3			
4			

Estimated service life _____ $\sum h$

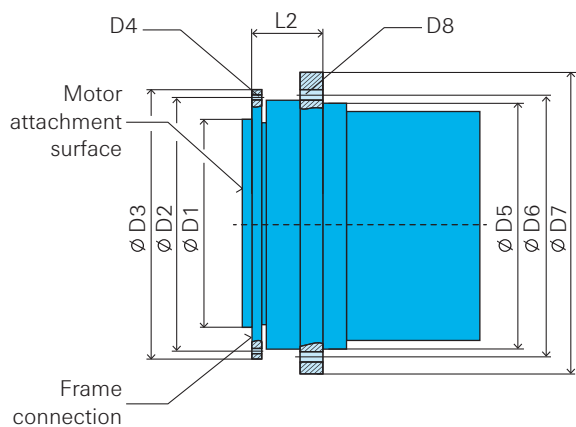
Operating data / design

Techn. gearbox data

Gearbox size	GPT _____
Max. output torque	$T_{2 \max}$ _____ kNm
Max. output speed	$n_{2 \max}$ _____ rpm
Gear ratio	i _____
Disconnect mechanism	yes <input type="checkbox"/> no <input type="checkbox"/>
Multi-disk parking brake	yes <input type="checkbox"/> no <input type="checkbox"/>
Min. parking torque	_____ Nm
Release pressure, max.	P_{\max} _____ bar
Release pressure, min.	P_{\min} _____ bar
Dynamic brake	yes <input type="checkbox"/> no <input type="checkbox"/>
Top coat specific	yes <input type="checkbox"/> no <input type="checkbox"/>
Colour	RAL no. _____

Dimensions of gearbox

Standard dimensions see valid "technical data sheet".
For special requirements please complete table.



D1	_____ mm
D2	_____ mm
D3	_____ mm
D4	No./Thread _____ pcs. _____
D5	_____ mm
D6	_____ mm
D7	_____ mm
D8	No./Thread _____ pcs. _____
L2	_____ mm

Operating data / design

Technical motor data

Motor type hydraulic electric

Motor - supplier _____

 - type code _____

Details for hydraulic motor:

Displacement $V_{g \min}$ _____ cm^3

Displacement $V_{g \max}$ _____ cm^3

Working pressure Δp _____ bar

Input flow, max. $q_{v \max}$ _____ l/min

Details for electric motor:

Nominal power _____ kW

rpm _____ /min

General information

Estimated number of gearboxes per year _____

Delivery date: Prototype/Serial start _____

Are there any legal requirements and/or other standards to be considered?

yes no if yes, please specify _____

Further requirements (e.g. application details, customer drawings, type plate, limiting dimensions, noise and vibration requirements ...):

Customer specification track drive GFA

In order to work out a quotation for your **track drive application**, we kindly ask you to fill out this spec sheet.

Please send your inquiry to **sales.ii@zf.com**

Please enclose existing drawings and diagrams.

Company:
Name/Dept.:
Location/City:
Phone:
E-mail:
Date:

Operating data / design

Type of machine _____

Machine weight empty _____ t loaded _____ t

Gradeability s _____ %

Track type rubber track steel track

Sprocket pitch diameter D_T _____ mm

Track width B_T _____ mm

Max. travel speed V_{max} _____ km/h

Working speed V _____ km/h

Ambient temperature from/to _____ °C

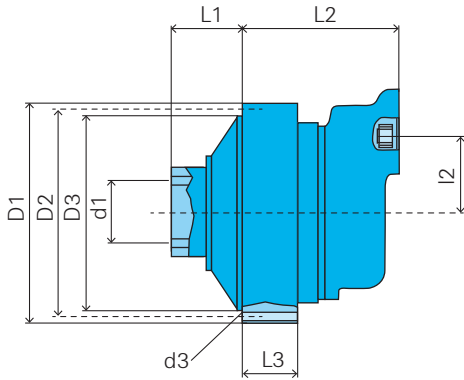
Required load spectrum and expected service life

Status	Output torque (Nm)	Output speed (1/min)	Time slice (%)
1			
2			
3			
4			

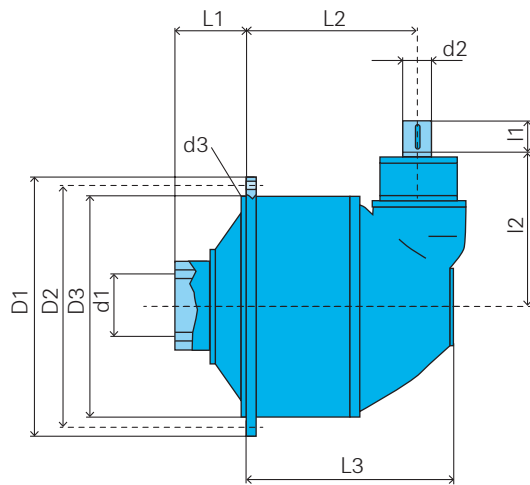
Estimated service life _____ Σ h

Operating data / design

Offset
GFA-K



Angular
GFA-W



Technical data gearbox

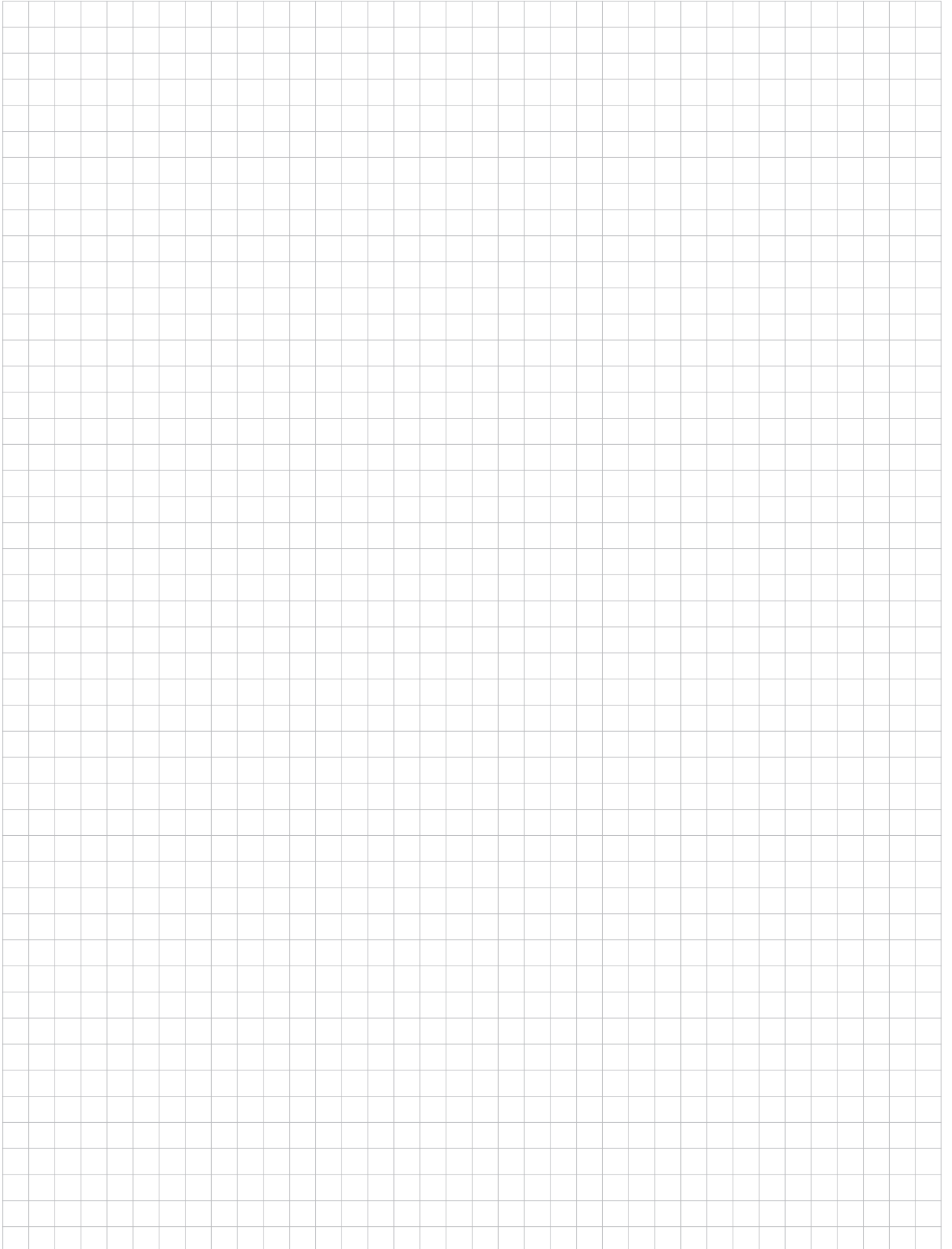
Gearbox size	GFA _____
Max. output torque	$T_{2\max}$ _____ kNm
Max. output speed	n_2 _____ rpm
Gear ratio	i _____
Mounting of gearbox	flange <input type="checkbox"/> torque-arm <input type="checkbox"/>
Input shaft	offset <input type="checkbox"/> angle <input type="checkbox"/>
Shaft connection	spline <input type="checkbox"/> shrink disk <input type="checkbox"/>
Disconnect mechanism	yes <input type="checkbox"/> no <input type="checkbox"/>
Multi-disk parking brake	yes <input type="checkbox"/> no <input type="checkbox"/>
Min. parking torque	_____ Nm
Release pressure, max.	P_{\max} _____ bar
Release pressure, min.	P_{\min} _____ bar
Top coat specific	yes <input type="checkbox"/> no <input type="checkbox"/>
Colour	RAL no. _____

Dimensions of gearbox

Standard dimensions see valid "technical data sheet".
For special requirements please complete table.

D1	_____ mm
D2	_____ mm
D3	_____ mm
d1	_____ mm
d2	_____ mm
d3	No./Thread _____ pcs. _____
L1	_____ mm
L2	_____ mm
L3	_____ mm
l1	_____ mm
l2	_____ mm
L2	_____ mm

Notes



Additional product portfolio

Swing gearboxes

- Planetary gearboxes
GFB
Technical documentation
ZF 77201



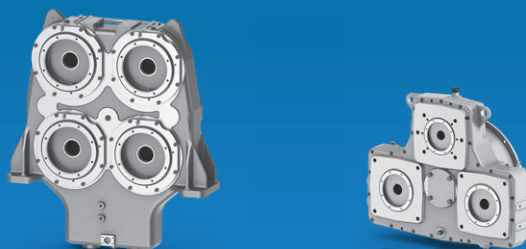
Winch gearboxes

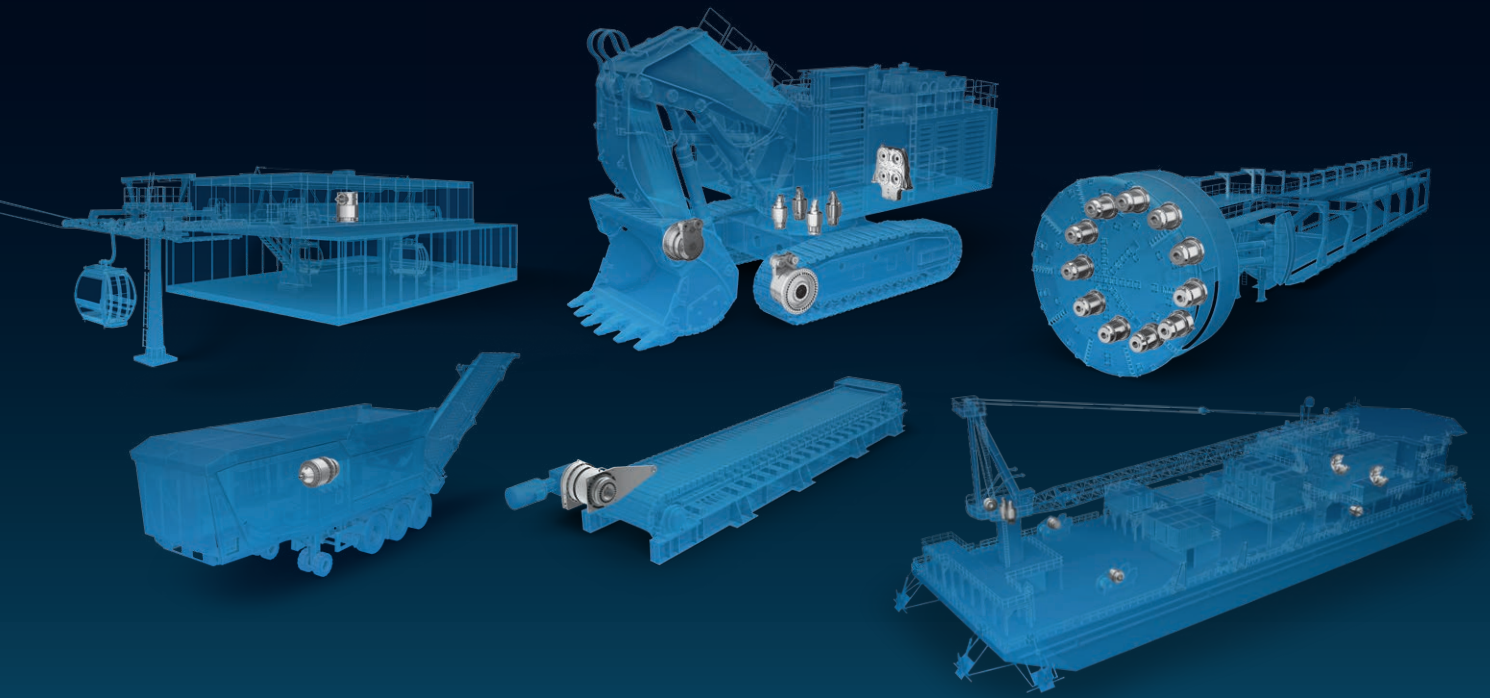
- Planetary gearboxes
GPT-W
Technical documentation
ZF 77502



Pump distribution gearboxes

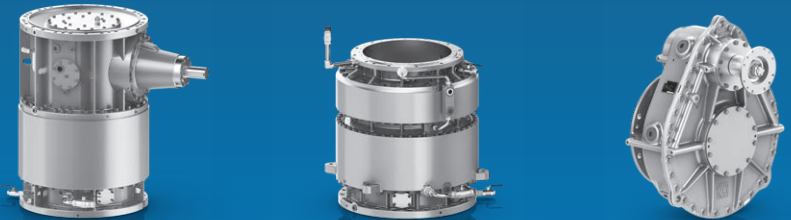
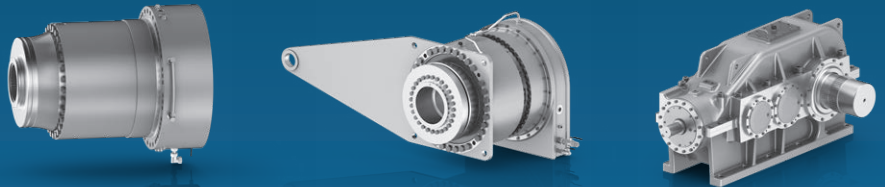
- GFC
Technical documentation
ZF 77301





Industrial gearboxes

- Redulus GMH/GME
Technical documentation
ZF 76120
- Technical documentation
Power packs
ZF planetary gearboxes
for industrial applications
ZF 76121



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