

# Swing Drives

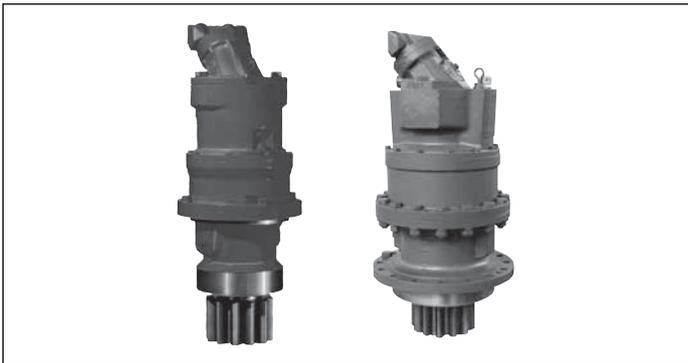
## MOBILEX GFB

### for mobile applications

**RE 77201**

Edition: 02.2016

Replaces: 05.2014



- ▶ Type GFB 9 to GFB 84
- ▶ Output torques between 4,000 and 68,300 Nm

#### Characteristics

- ▶ Compact, space-saving two or three-stage planetary design
- ▶ Easy mounting
- ▶ Convenient oil change
- ▶ Integrated multiplate parking device
- ▶ Low-noise operation
- ▶ High efficiency
- ▶ Long service life

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Additional Information at:  
[www.boschrexroth.com/gears](http://www.boschrexroth.com/gears)



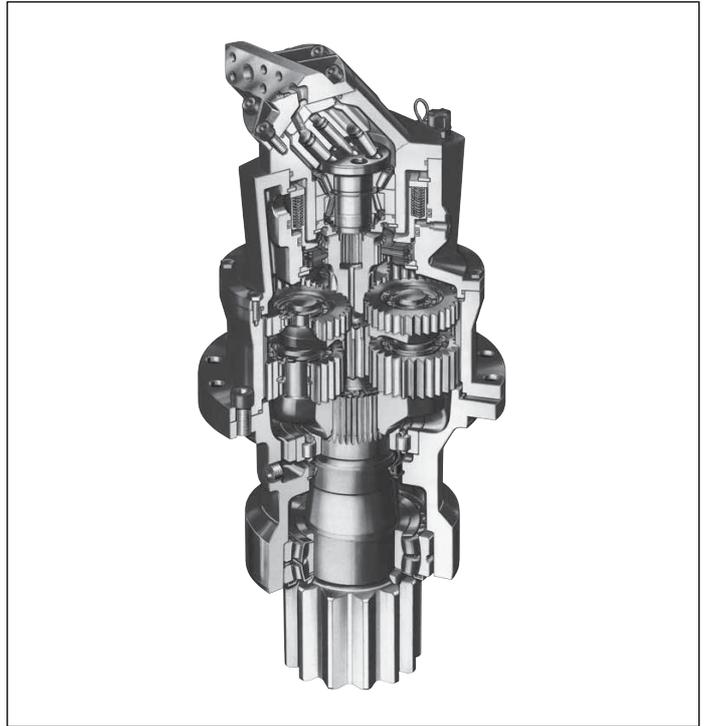
### Description

Rexroth MOBILEX GFB planetary gearboxes are hydrostatic swing gears.

They are suitable for use in excavators and cranes of all types, in ship unloading equipment, forestry equipment and in all applications where accurate positioning is called for.

The drive consists of a two- or three-stage gearbox with an integrated multi-disk parking brake, an output pinion as well as a hydraulic motor, preferably from Rexroth.

The information provided in this bulletin serves to help you select the planetary gearbox best suited for your application. In addition, our field personnel are available to you to provide advisory services even at the project stage.



Rexroth MOBILEX GFB two-stage hydrostatic compact drive with a multiplate parking device and a Rexroth plug-in motor

### Lubrication

The gear teeth and bearings are splash lubricated. Aside from periodic oil changes, the drive units are maintenance-free. Oil changes are easy to do. The oil brands recommended in the operating manual shall be exclusively used.

The change intervals for the relevant application conditions are also given in the operating manual. The pinion-side antifriction bearing of the output shaft is grease-lubricated for life.

### Hydraulic Motors

The gearbox is designed for direct flange attachment of a variable or fixed displacement motor (preferably a Rexroth hydraulic motor).

### Multiplate Parking Device

The standard supply scope includes a spring-loaded, hydraulically released multiplate parking device arranged on the input side.

The multiplate parking device is not a service brake.

### Gearbox Supply

Rexroth MOBILEX planetary gearboxes are delivered ready for installation, but without oil filling. The standard gearbox version comes with a priming coat of gray color (similar to RAL 7032) and is internally protected with a temporary corrosion preventive that preserves the gearbox for 12 months, if stored in a dry location.

External flanges, shaft extensions and mating faces are protected with e.g. PERIGOL VCI 230 or CUSTOS 10-38

### Mass, Oil Volumes, Dimensions

The specified mass are average figures.

As far as oil volumes are concerned, gearbox operators should rely on oil level readings rather than specified oil volumes. Figures and dimensions are not strictly binding.

We reserve the right to make changes in line with technical progress.

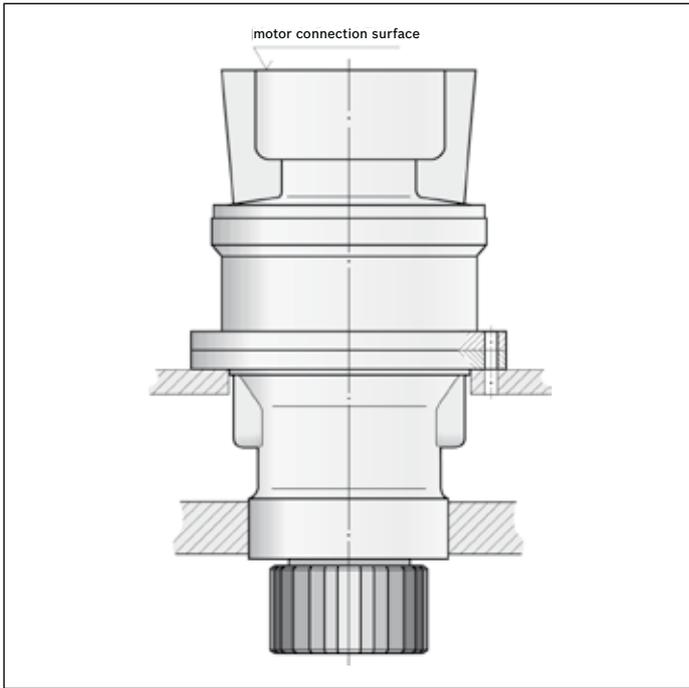
### Further Notes

As prescribed by stationary provisions, all rotating parts must be protected by guards against accidental contact. Local safety regulations must be complied with.

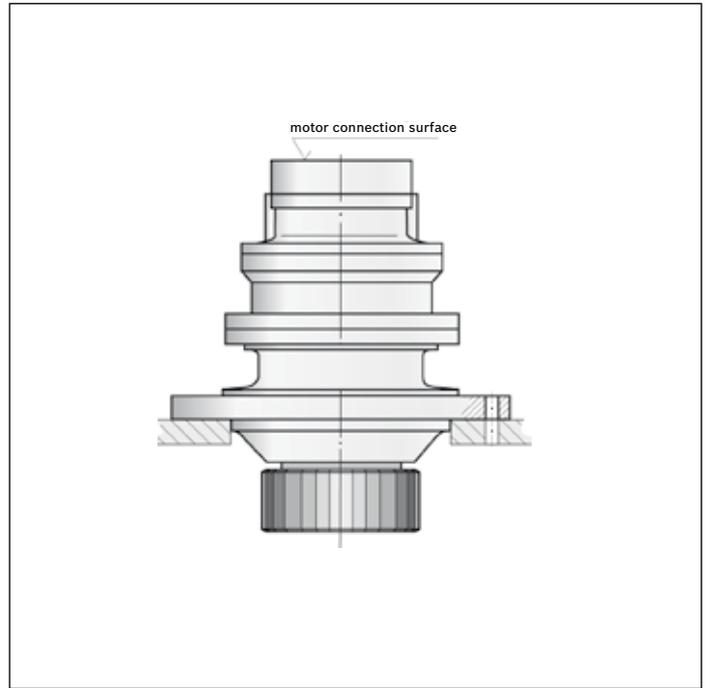
Commissioning and maintenance of the gearboxes must be performed in line with the instructions given in our operating manual.

Please also note our gearbox series MOBILEX GFB 2000 (RE 77206).

**Type of Construction**



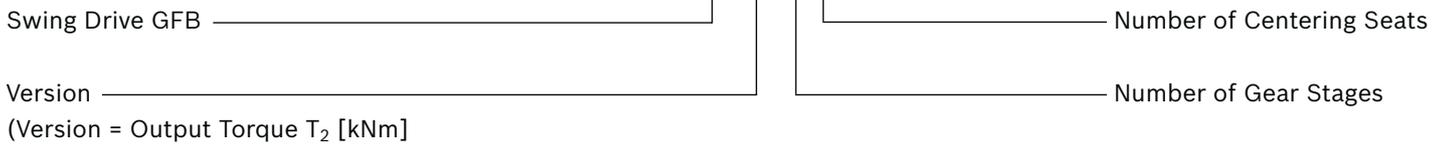
GFB T2/T3 1000  
 Version 1000 = 2 centering seats  
 T2 = 2-stage, T3 = 3-stage



GFB T2/T3 2000  
 Version 2000 = 1 centering seat  
 T2 = 2-stage, T3 = 3-stage

**Ordering Code**

**MOBILEX GFB 26 T2 1000**



**Swing Drives MOBILEX GFB - Overview**

Type/Version GFB	Output Torque		Gear Ratio from/to <i>i</i>
	Excavator $T_{2 \max}$ Nm	Crane $T_{2 \max}$ Nm	
GFB 9 T2	4,000	7,000	33.4
GFB 17 T2	7,700	12,700	32.5 - 45.7
GFB 24 T2	10,600	17,500	149.1
GFB 26 T3	10,000	16,500	43.9 - 51.5
GFB 36 T3	17,500	28,500	117.6 - 153.6
GFB 50 T2	22,000	38,000	32.3
GFB 50 T2	22,000	38,000	147.4
GFB 80 T3	38,200	68,300	186.4
GFB 84 T2	38,200	68,300	35.1

### Application Conditions

The gearboxes are designed for use at ambient temperatures of between -20°C and +40°C. Environmental influences such as salt water, salty air, sand, dust, compressure, heavy vibrations, extreme shocks and ambient temperatures, aggressive fluids and the like may affect the function so that the gearbox can be designed for safe operation.

### Gearbox Design

The gearbox design is based on many years of practical application experience. The maximum output torques  $T_{2 \max}$  indicated under technical data for crane applications relate to FEM Section I, 3rd Edition and Section IX (FEM - Fédération Européene de la Manutention), as well as DIN 15020, collective load class L2, service and time category T5 corresponding to driver group M5. The reference output speed is 25 revolutions per minute maximum. If the swing drive is to be classified in another driver group, the required output torque must be converted using the K factor (see table). This conversion gives you the maximum admissible output torque for the new driver group selected. Whether or not the chosen overall classification can be met will be determined by the Rexroth gear technology experts

### Higher Torques

For gearboxes transmitting higher torques than those indicated in this product catalog, please contact us.

### Gearbox Selection

- ▶  $T_2$  = Output torque
- ▶  $T_{2K}$  = Corrected output torque  
K factor according to device time category and collective group given in the table.  
$$T_{2K} = T_2 \cdot K$$
- ▶  $T_{2K}$  of the gearbox to be selected must be  $\leq T_{2 \max}$  (according to this product catalog).

### Multiplate Parking Device

$$T_{Br \text{ sta. min}} = 1,3 \cdot T_2 \text{ (input torque)}$$

The holding torque multiplies with the selected transmission ratio.

See also Gearbox Design.

The customer specification for swing drives is reproduced on pages 10 to 12.

### Driver Groups and Service Time Categories FEM, Section I, 3rd Edition 1987 (FEM: Fédération Européene de la Manutention)

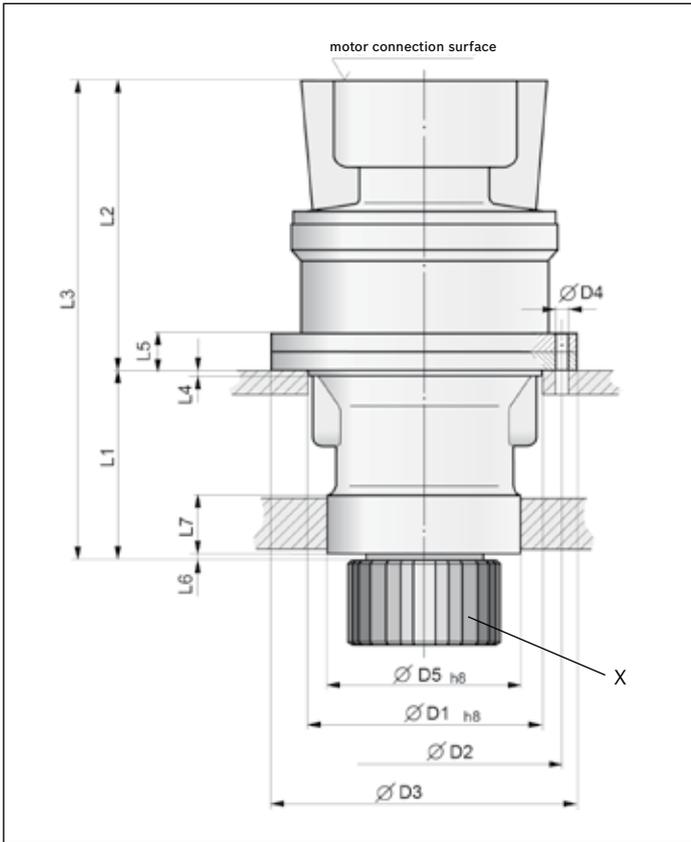
Service time category			T2	T3	T4	T5	T6	T7	T8	
Assumed average service time per day in hours			0.25 - 0.5	0.5 - 1	1 - 2	2 - 4	4 - 8	8 - 16	> 16	
Theoretic service life in hours			400 - 800	800 - 1800	1600 - 3200	3200 - 6300	6300 - 12500	12500 - 25000	25000 - 50000	
Collective load class			Driver group with K factor							
Collective groups	L1	low	Maximum loads occur only in exceptional cases; low loads are present at all times	M 1 0.90	M 2 0.90	M 3 0.90	M 4 0.90	M 5 0.95	M 6 1.05	M 7 1.2
	L2	medium	Low, medium and high loads are present for roughly equal periods of time	M 2 0.90	M 3 0.95	M 4 0.95	M 5 1	M 6 1.15	M 7 1.30	M 8 1.50
	L3	high	Loads are always near the maximum	M 3 1.05	M 4 1.05	M 5 1.10	M 6 1.25	M 7 1.40	M 8 1.60	M 8 1.80
	L4	very high	Always maximum loads	M 4 1.25	M 5 1.30	M 6 1.45	M 7 1.65	M 8 1.85	M 8 2.10	M 8 2.40

**Classifications Examples** (see FEM Section I, 3. Edition, Table T.2.1.3.5.)

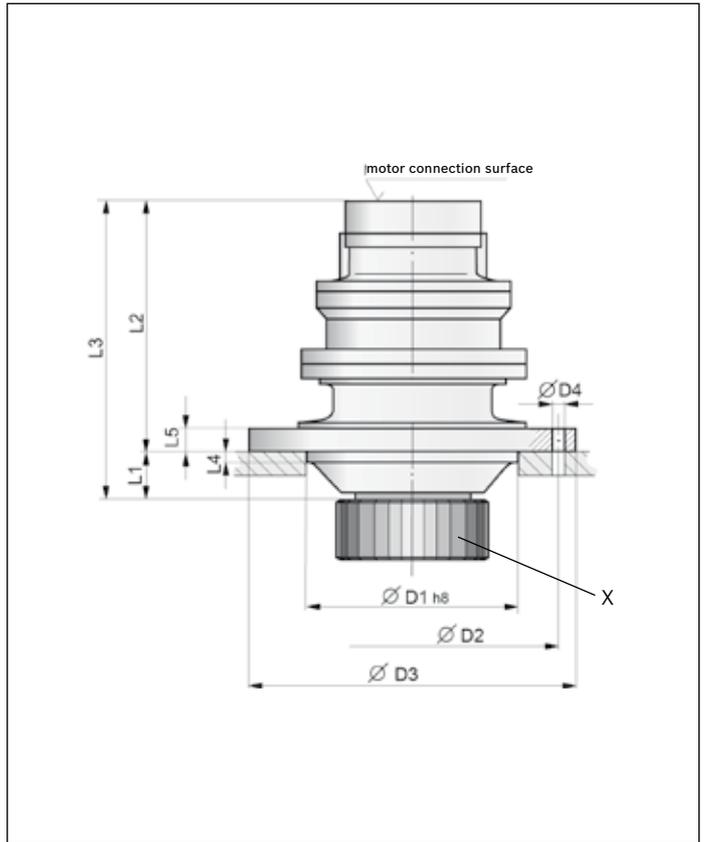
Type of Crane (Designation)	Details on type of use <sup>1)</sup>	Type of Driver				
		Hoisting	Swinging	Level Luffing	Trolley Travelling	Crane Travelling
Erection cranes		M 2 - M 3	M 2 - M 3	M 1 - M 2	M 1 - M 2	M 2 - M 3
Loading bridges	hook	M 5 - M 6	M 4	-	M 4 - M 5	M 5 - M 6
Loading bridges	grab or magnet	M 7 - M 8	M 6	-	M 6 - M 7	M 7 - M 8
Workshop cranes		M 6	M 4	-	M 4	M 5
Overhead travelling cranes, ram cranes, scrap yard cranes	grab or magnet	M 8	M 6	-	M 6 - M 7	M 7 - M 8
Unloading bridges, container gantry cranes	hook or spreader	M 6 - M 7	M 5 - M 6	M 3 - M 4	M 6 - M 7	M 4 - M 5
Other gantry cranes (with trolley and/or live ring)	hook	M 4 - M 5	M 4 - M 5	-	M 4 - M 5	M 4 - M 5
Unloading bridges, container gantry cranes (with trolley and/or live ring)	grab or magnet	M 8	M 5 - M 6	M 3 - M 4	M 7 - M 8	M 4 - M 5
Berth cranes, shipyard cranes, dismantling cranes	hook	M 5 - M 6	M 4 - M 5	M 4 - M 5	M 4 - M 5	M 5 - M 6
Dockside cranes (sleuable, gantry type, ...) floating cranes, floating shearlegs	hook	M 6 - M 7	M 5 - M 6	M 5 - M 6	-	M 3 - M 4
Dockside cranes (sleuable, gantry type, ...) floating cranes, floating shearlegs	grab or magnet	M 7 - M 8	M 6 - M 7	M 6 - M 7	-	M 4 - M 5
Floating cranes and floating shearlegs for very high loads (normally above 100 tons)		M 3 - M 4	M 3 - M 4	M 3 - M 4	-	-
Shipboard cranes	hook	M 4	M 3 - M 4	M 3 - M 4	M 2	M 3
Shipboard cranes	grab or magnet	M 5 - M 6	M 3 - M 4	M 3 - M 4	M 4 - M 5	M 3 - M 4
Tower cranes for construction sites		M 4	M 5	M 4	M 3	M 3
Derrick tower gantries		M 2 - M 3	M 1 - M 2	M 1 - M 2	-	-
Railroad cranes, approved for service on trains		M 3 - M 4	M 2 - M 3	M 2 - M 3	-	-
Vehicle-mounted cranes	hook	M 3 - M 4	M 2 - M 3	M 2 - M 3	-	-

1) In this rubric only a few typical types of use are indicated

**Dimensions**



GFB T2/T3 1000 • X = The gearing of the output pinion (modul, number of teeth, tooth width, etc.) is governed by the customer's ring gear.



GFB T2/T3 2000 • X = The gearing of the output pinion (modul, number of teeth, tooth width, etc.) is governed by the customer's ring gear.

**Technical Data**

Type/Version GFB	Output Torque		Gear Ratio <i>i</i>	Holding Torque $T_{Br \max}$ Nm	Hydraulic Motor
	Excavator $T_{2 \max}$ Nm	Crane			
GFB 9 T2 2000/2	4,000	7,000	33.4	245	A6VM 55 / A2FM 56
GFB 17 T2 1000	7,700	12,700	32.5 • 45.7	390	A2FE 45 • 56
GFB 17 T2 2000	7,700	12,700	45.7	390	A2FE 45 • 56
GFB 24 T2 1000/1	10,600	17,500	149.1	249	A2FM 32
GFB 26 T2 1000	10,000	16,500	43.9 • 51.5	613	A2FE 80
GFB 26 T2 2000	10,000	16,500	43.9 • 51.5	613	A2FE 80
GFB 36 T3 1000/1	17,500	28,500	117.6 • 153.6	332	A2FM 45
GFB 36 T3 1000/2	17,500	28,500	117.6 • 153.6	332	A2FE 45 • 63

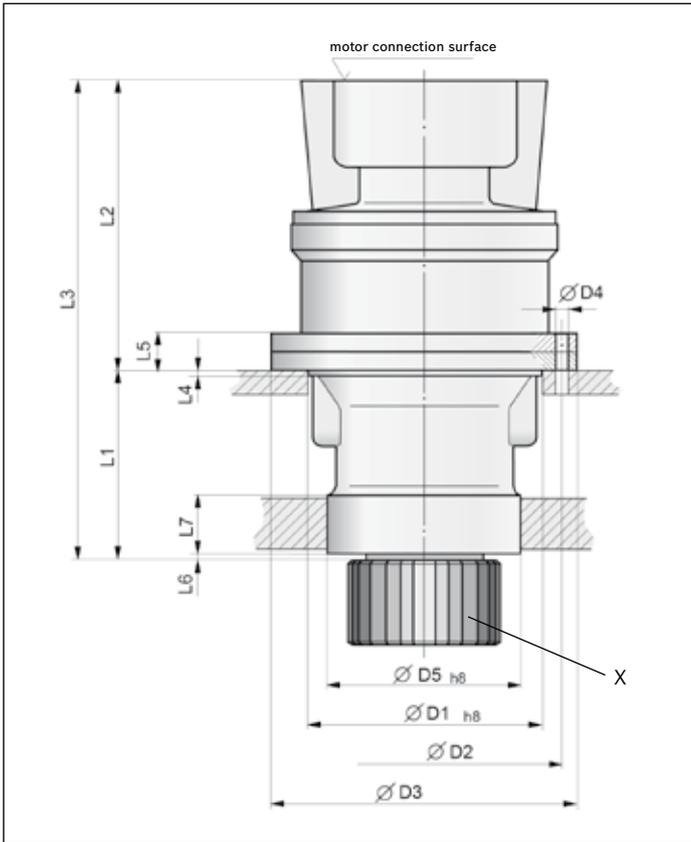
GFB 9 T2 2000/2 = Identification number for different overall lengths, diameters resp. motor attachment variants

**Dimensions, Bearing Load Capacities and Mass**

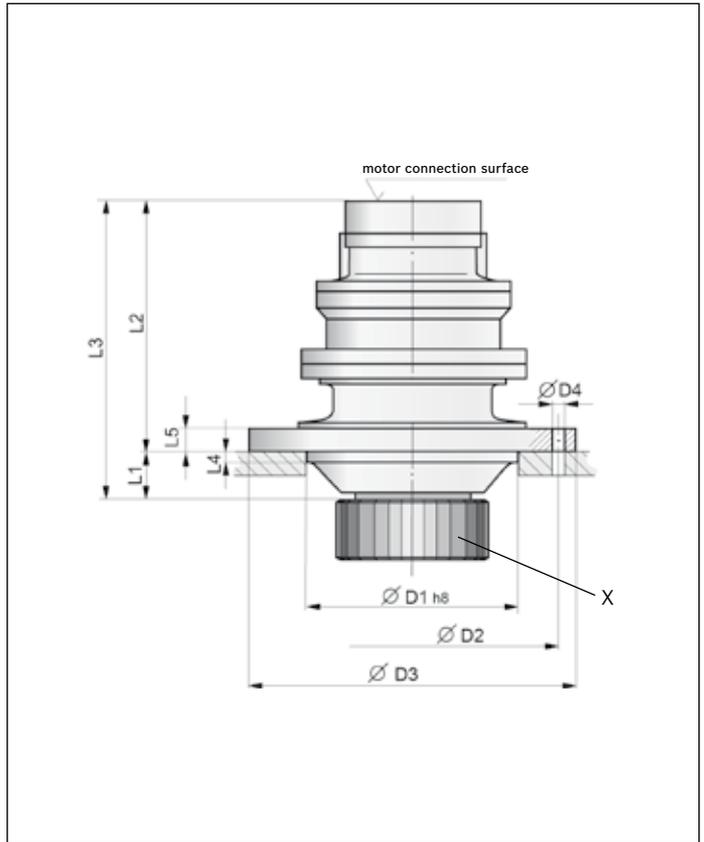
Type/Version GFB	D1	D2	D3	D4	D5	Mass
			mm			kg
<b>GFB 9 T2 2000/2</b>	175	260	288	12x 17.5	-	85
<b>GFB 17 T2 1000</b>	256	290	320	16x 17.5	225	130
<b>GFB 17 T2 2000</b>	250	305	340	16x 17.5	-	130
<b>GFB 24 T2 1000/1</b>	265	315	355	20x 17.5	230	165
<b>GFB 26 T2 1000</b>	280	350	380	20x 17.5	250	225
<b>GFB 26 T2 2000</b>	275	335	365	20x 17.5	-	240
<b>GFB 36 T3 1000/1</b>	280	350	380	20x 17.5	250	210
<b>GFB 36 T3 1000/2</b>	280	350	380	18x 17.5	280	175

Type/Version GFB	L1	L2	L3	L4	L5	L6	L7
<b>GFB 9 T2 2000/2</b>	40	325.5	365.5	26	22	-	-
<b>GFB 17 T2 1000</b>	200	300	500	6	38	6	55
<b>GFB 17 T2 2000</b>	57	443	500	46	23	-	-
<b>GFB 24 T2 1000/1</b>	245	387	632	15	34	8	75
<b>GFB 26 T2 1000</b>	250	321	571	12	33	10	85
<b>GFB 26 T2 2000</b>	55	511	566	20	223	-	-
<b>GFB 36 T3 1000/1</b>	245	423	668	12	33	5	85
<b>GFB 36 T3 1000/2</b>	245	332	577	12	33	5	85

**Abmessungen**



GFB T2/T3 1000 • X = The gearing of the output pinion (modul, number of teeth, tooth width, etc.) is governed by the customer's ring gear.



GFB T2/T3 2000 • X = The gearing of the output pinion (modul, number of teeth, tooth width etc.) is governed by the customer's ring gear.

**Technical Data**

Type/Version GFB	Output Torque		Gear Ratio <i>i</i>	Holding Torque $T_{Br \max}$ Nm	Hydraulic Motor
	Excavator $T_{2 \max}$ Nm	Crane			
GFB 50 T2 9000	22,000	38,000	32.3	473	A2FE 63
GFB 50 T2 9000/1	22,000	38,000	32.3	473	A2FM 80
GFB 50 T2 9000/2	22,000	38,000	32.3	473	A2FM 80
GFB 50 T3 1000/3	22,000	38,000	147.4	473	A2FM 63
GFB 50 T3 1000/4	22,000	38,000	147.4	473	A2FM 63
GFB 80 T3 1000/3	38,200	68,300	186.4	975	A2FM 80 • 90
GFB 84 T2 2000/1	38,200	68,300	35.1	1,661	A2FM 180 • 200
GFB 84 T2 2000/2	38,200	68,300	35.1	1,661	AA2FM 180

GFB 50 T3 1000/3 = identification number for different overall lengths, diameters resp. motor attachment variants

**Dimensions, Bearing Load Capacities and Mass**

Type/Version GFB	D1	D2	D3	D4	D5	Mass
			mm			kg
GFB 50 T2 9000	300	375	410	20x 17.5	280	240
GFB 50 T2 9000/1	300	375	410	20x 17.5	280	240
GFB 50 T2 9000/2	300	375	410	20x 17.5	280	240
GFB 50 T3 1000/3	330	375	411	24x 17.5	300	310
GFB 50 T3 1000/4	330	375	411	24x 17.5	300	315
GFB 80 T3 1000/3	440	480	530	24x 26	370	540
GFB 84 T2 2000/1	400	470	510	24x 26	-	515
GFB 84 T2 2000/2	400	460	510	24x 26	-	515

Type/Version GFB	L1	L2	L3	L4	L5	L6	L7
GFB 50 T2 9000	245	287.5	532.5	12	33	5	-
GFB 50 T2 9000/1	245	292.5	537.5	12	33	5	-
GFB 50 T2 9000/2	245	299.5	544.5	12	33	5	-
GFB 50 T3 1000/3	290	429.5	719.5	15	38	40	75
GFB 50 T3 1000/4	290	396.5	686.5	15	38	40	75
GFB 80 T3 1000/3	314	554.5	868.5	14	40	41	121
GFB 84 T2 2000/1	64	721	785	10	465	-	-
GFB 84 T2 2000/2	64	710	774	10	465	-	-

**You wish to receive an offer for the swing drives MOBILEX GFB?**

To process your request we need the following data:  
E-mail: info.gears@boschrexroth.de

Please enclose existing drawings, diagrams, comments and the like.

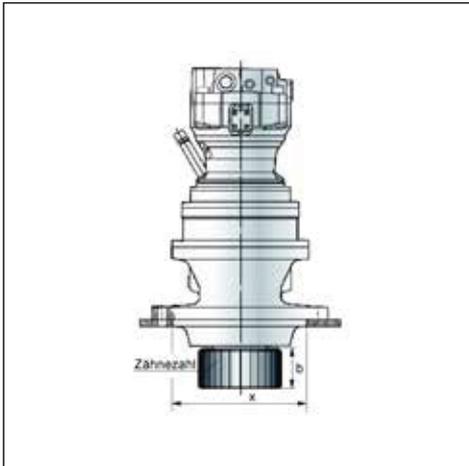
Company: \_\_\_\_\_  
Name/Dept.: \_\_\_\_\_  
Place: \_\_\_\_\_  
Phone: \_\_\_\_\_  
E-mail: \_\_\_\_\_  
Date: \_\_\_\_\_

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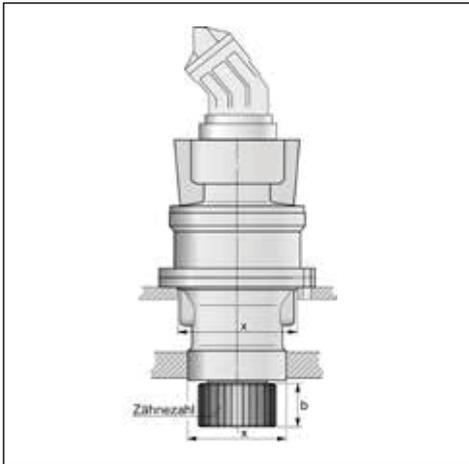
**Operating data / Design**

It is mandatory to fill out all fields!  
For exceptions see footnotes.

One centering seat (x) with motor



Two centering seats (x) with



**Type of machine**

Rating acc. to FEM Section I  
or

Alternativ load spectrum

Ambient temperature from/to \_\_\_\_\_ °C

Operating machine weight <sup>1)</sup> \_\_\_\_\_ t

Hydraulic lifting power, max. <sup>1)</sup> \_\_\_\_\_ t

Superstructure speed \_\_\_\_\_ rpm

Superstructure torque \_\_\_\_\_ kNm

Duty cycles per minute <sup>1)</sup> \_\_\_\_\_

T \_\_\_\_\_ L \_\_\_\_\_ M \_\_\_\_\_

**Gearbox**

Output torque, max. \_\_\_\_\_ kNm

Output speed, max. \_\_\_\_\_ rpm

Ratio <sup>1)</sup> \_\_\_\_\_

GFB \_\_\_\_\_

T<sub>2 max</sub> \_\_\_\_\_ kNm

n<sub>2 max</sub> \_\_\_\_\_ rpm

i \_\_\_\_\_

**Output pinion**

No. of teeth \_\_\_\_\_ z

Module \_\_\_\_\_ m

Tooth width \_\_\_\_\_ b

Pressure angle \_\_\_\_\_ α

Profile shift coefficient \_\_\_\_\_ x

Pinion mounting position

Gearbox with eccentricity <sup>1)</sup>

z \_\_\_\_\_

m \_\_\_\_\_ mm

b \_\_\_\_\_ mm

α \_\_\_\_\_ Grad

x \_\_\_\_\_

Bottom  Top  Horizontal

no  yes: \_\_\_\_\_ mm

**Slewing ring**

Slewing ring manufacturer <sup>1)</sup> \_\_\_\_\_

Type <sup>1)</sup> \_\_\_\_\_

Design of slewing ring

No. of teeth slewing ring \_\_\_\_\_ z

Tooth width of slewing ring \_\_\_\_\_ b

Center distance pinion-gear ring <sup>1)</sup> \_\_\_\_\_ mm

Internal gearing  External gearing

z \_\_\_\_\_

b \_\_\_\_\_ mm

\_\_\_\_\_ mm

**Brake**

Multiple-disk parking brake

Min. parking torque of

multiple-disk parking brake \_\_\_\_\_ Nm

With mechanical unlocking device

Release pressure, max

Release pressure, min <sup>1)</sup>

Top coat specific

Color

no  yes  wet  dry

\_\_\_\_\_ Nm

yes  no

P<sub>max</sub> \_\_\_\_\_ bar

P<sub>min</sub> \_\_\_\_\_ bar

no  yes

RAL \_\_\_\_\_

<sup>1)</sup> Optional entry

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To process your request we need the following data:  
E-mail: info.gears@boschrexroth.de

Please enclose existing drawings, diagrams, comments and the like.

Company: \_\_\_\_\_  
 Name/Dept.: \_\_\_\_\_  
 Place: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 E-mail: \_\_\_\_\_  
 Date: \_\_\_\_\_

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**Dimensions of gearbox**

- Standard dimensions see available Technical data sheet\* from Rexroth
- With differing requirements/dimensions please attach a sketch

**Technical basic data hydraulic motor**

Hydraulic circuit  open  closed  
 Motor type code \_\_\_\_\_  
 Displacement  $V_{g \text{ min}}$  \_\_\_\_\_  $\text{cm}^3$   
 Displacement  $V_{g \text{ max}}$  \_\_\_\_\_  $\text{cm}^3$   
 Flushing valve  yes  no  
 Speed sensor, If yes, type  yes, Type \_\_\_\_\_  no  
 Counter balance valve  yes  no  
 Pressure relief valve  yes  no  
 Setting \_\_\_\_\_ bar  
 Working pressure  $\Delta p$  \_\_\_\_\_ bar  
 Input flow, max.  $q_{v \text{ max}}$  \_\_\_\_\_ l/min

Estimated no. of transmission units per year <sup>1)</sup> \_\_\_\_\_  
 Price range <sup>1)</sup> \_\_\_\_\_  
 Requested ship date RSD <sup>1)</sup> \_\_\_\_\_  
 Special application conditions \_\_\_\_\_  
 Further customer-specific requirements \_\_\_\_\_  
 Are there any legal requirements and/or standards to be considered?  
 no  yes If yes, please specify \_\_\_\_\_

<sup>1)</sup> Optional entry

12 **MOBILEX GFB** | Swing Drives  
Customer Specification

**You wish to receive an offer for  
the swing drives MOBILEX GFB?**

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we need the following data:  
E-mail: info.gears@boschrexroth.de

Please enclose existing drawings, diagrams,  
comments and the like.

Company: \_\_\_\_\_  
Name/Dept.: \_\_\_\_\_  
Place: \_\_\_\_\_  
Phone: \_\_\_\_\_  
E-mail: \_\_\_\_\_  
Date: \_\_\_\_\_

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**Others (e.g. load spectra, application-relevant data, customer drawings, nameplate):**

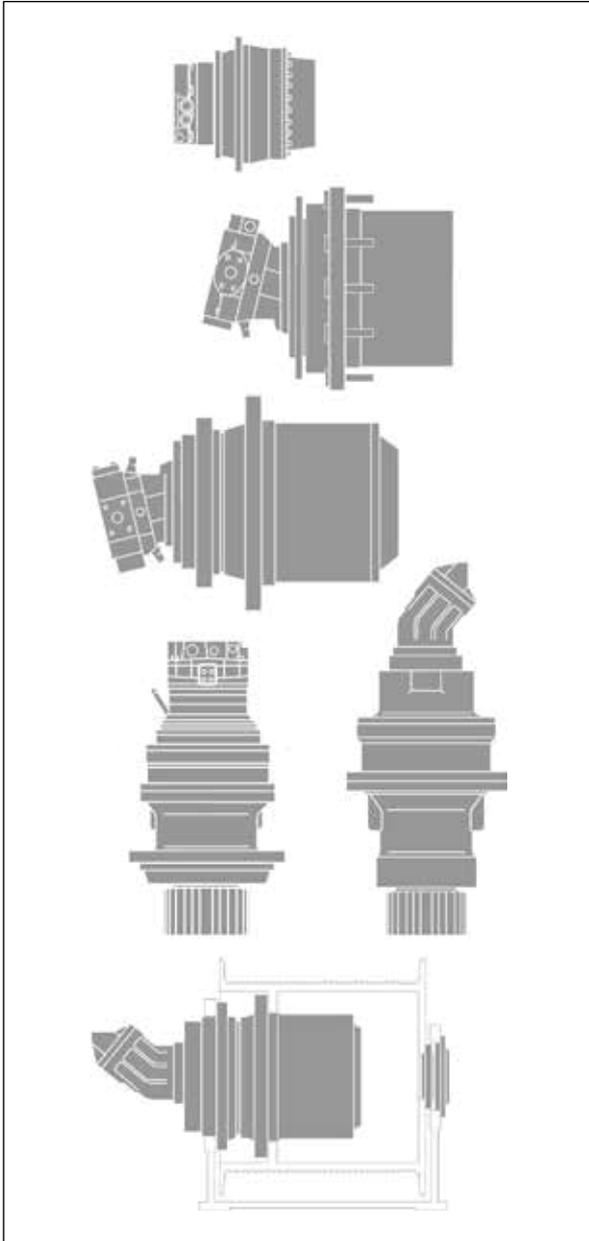


14 **MOBILEX GFB** | Swing Drives  
Notes

Notes

Notes

**Planetary gearboxes for mobile units**



**Hydrostatic travel drives**

- HYDROTRAC GFT  
For fixed- or variable-displacement motors  
Output torques between 9,5 and 580 kNm  
Data sheet RE 77110
- HYDROTRAC GFT 2000  
Series 30  
Output torques between 13,5 and 42,5 kNm  
Data sheet RE 77116
- HYDROTRAC GFT 8000  
Series 30  
Output torques between 20 and 30 kNm  
Data sheet RE 77128
- HYDROTRAC GFT 8000  
Series 40  
Output torques between 10 and 130 kNm  
Data sheet RE 77117
- HYDROTRAC GFT 45 T2/T3  
Output torques max. 45 kNm  
Data sheet RE 77115

**Hydrostatic swing drives**

- MOBILEX GFB  
For fixed- or variable-displacement motors  
Output torques between 4 and 68,3 kNm  
Data sheet RE 77201
- MOBILEX GFB 2000  
Series 20  
Output torques between 4 and 14,5 kNm  
Data sheet RE 77206

**Hydrostatic winch gears**

- MOBILEX GFT-W  
For fixed- or variable-displacement motors  
Output torques between 14 and 325 kNm  
Data sheet RE 77502

**Bosch Rexroth AG**

Transmission Unit  
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44263 Dortmund, Germany  
Phone +49 231 22819-5  
info.gears@boschrexroth.de  
www.boschrexroth.com/gears

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