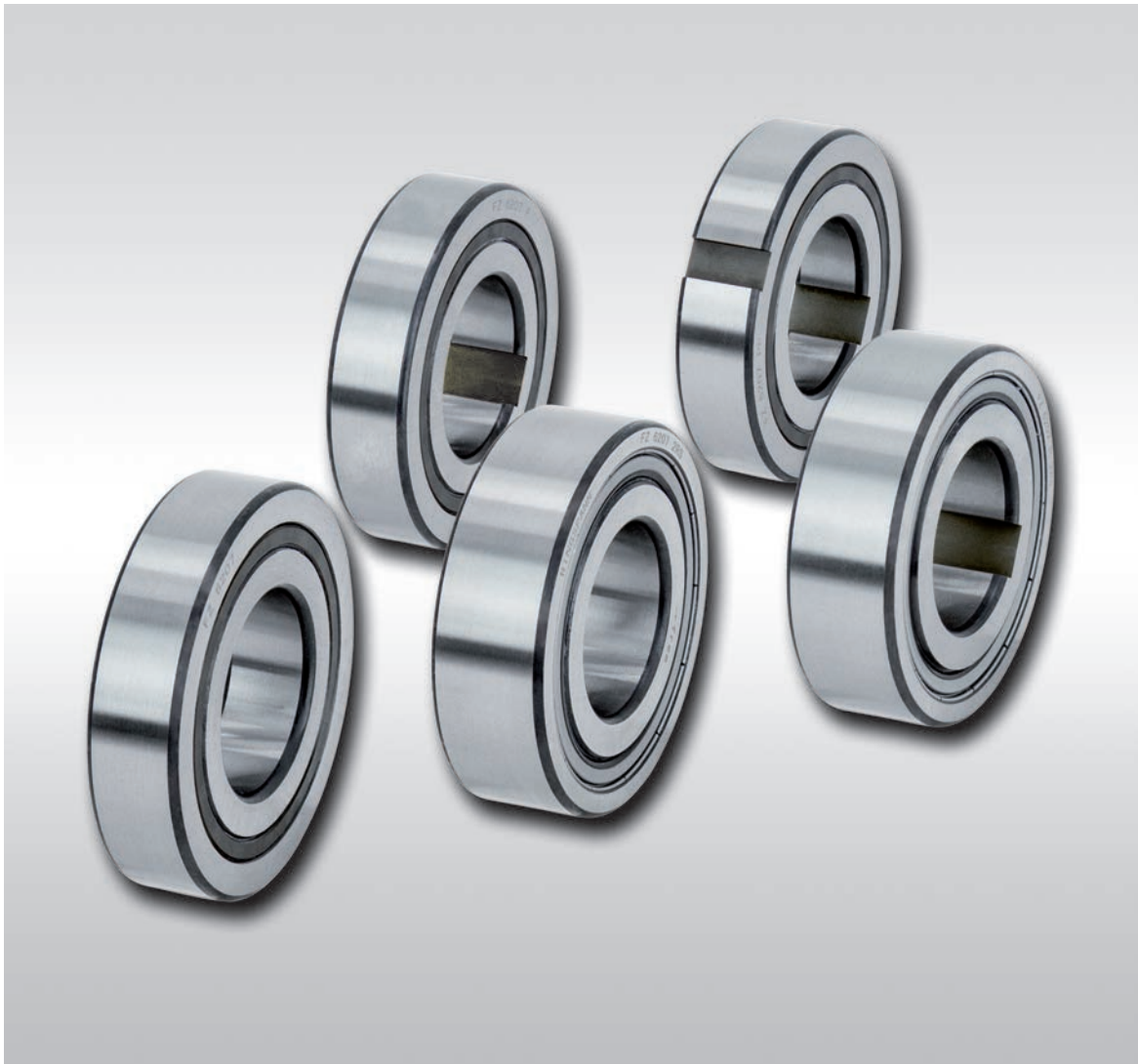


Internal Freewheels FZ

with ball bearing properties



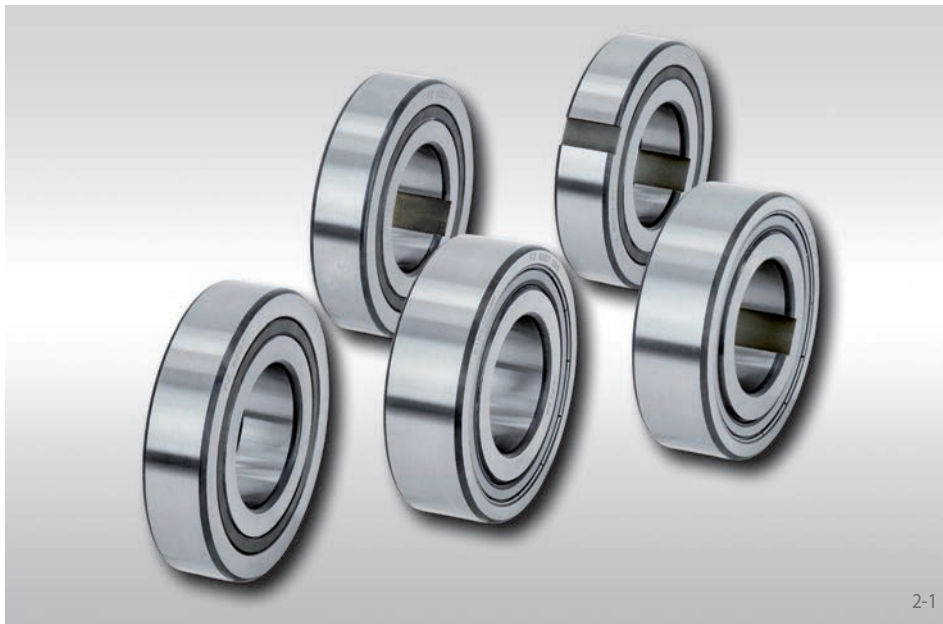
Issue 12/2017 • Technical details subject to change without notice.

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Internal Freewheels FZ ...

with ball bearing properties



2-1

Application as

- ▶ Backstop
- ▶ Overrunning Clutch
- ▶ Indexing Freewheel

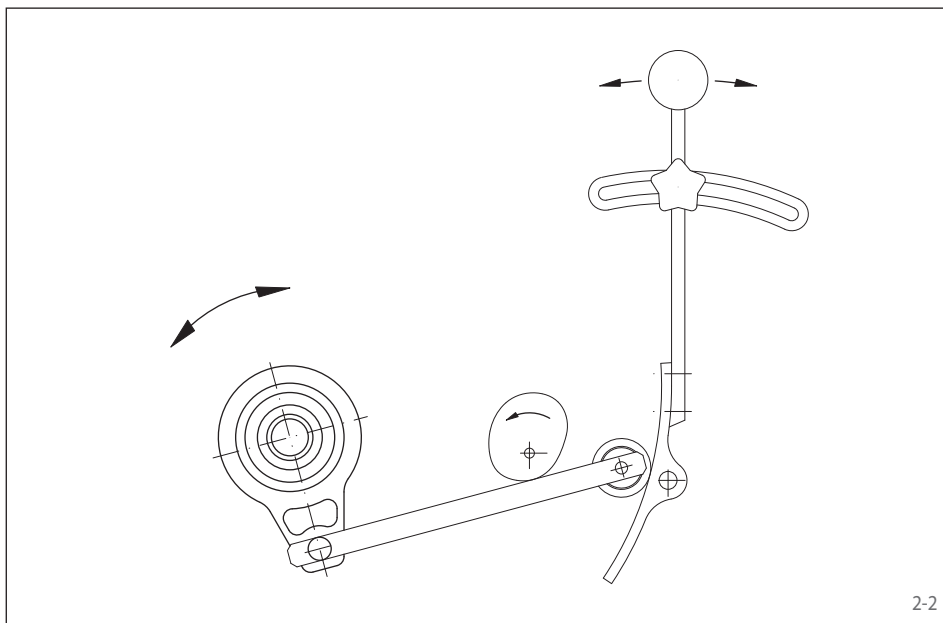
Features

Internal Freewheels FZ ... are sprag freewheels with bearing support and ball bearing properties. The freewheels are supplied grease-filled for normal operating conditions.

The freewheel is built into the customer housing. This makes compact, space-saving fitting solutions possible.

Nominal torques up to 420 Nm. The torque is transmitted on the inner ring and/or on the outer ring by press fit or keyway connection.

Bores up to 40 mm.



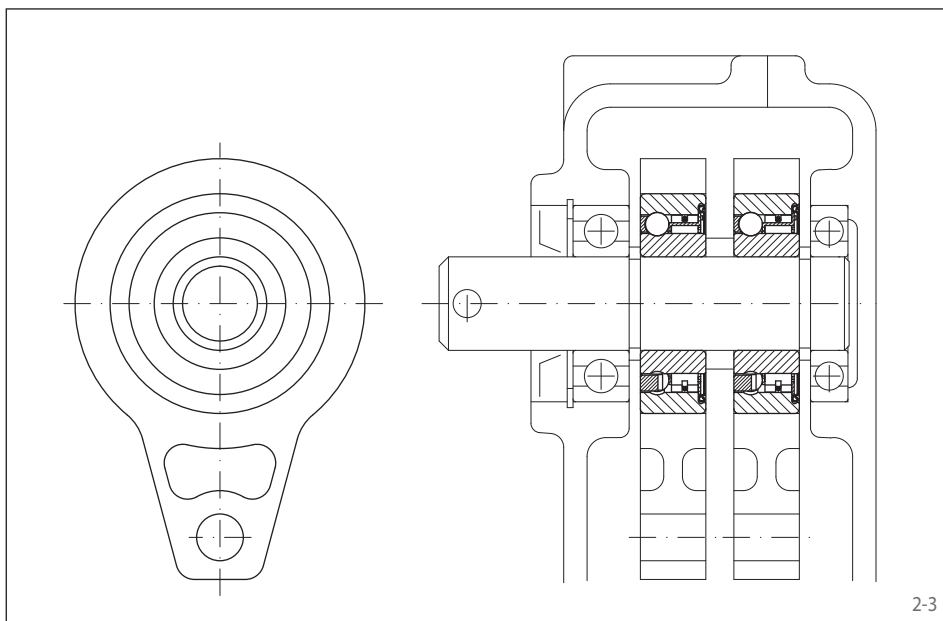
2-2

The following series are available:

Series	Torque transmission on				2RS-seals	Page
	Outer ring		Inner ring			
	by keyway	by press fit	by keyway	by press fit		
FZ		●		●		3
FZ ... 2RS		●		●	●	4
FZ ... P2RS		●	●		●	5
FZ ... P		●	●			6
FZ ... PP	●		●			7

The Internal Freewheels FZ of the sizes FZ 6201 to FZ 6207 have the same dimensions as the respective ball bearings of series 62.

The series FZ ... 2RS and FZ ... P2RS have 2RS seals.

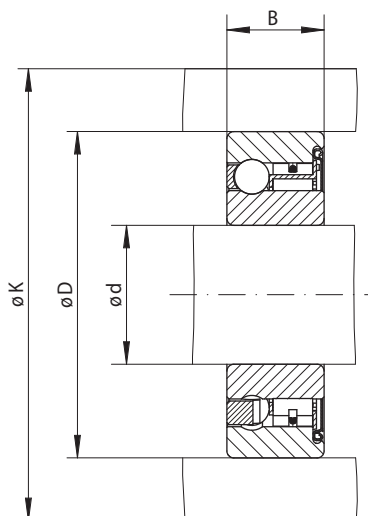


2-3

Application example

Two Internal Freewheels FZ 6206 as indexing freewheels in the drive of the metering roller of a seed spreader. The freewheels are built in an infinitely variable oil bath gearbox. Two cam disks that are set off by 180° are arranged on the gearbox shaft. By means of lever arms, these drive the outer rings of the two adjacent Internal Freewheels, which then gradually turn the metering shaft. The infinite speed settings of the gearbox's drive shaft are executed by means of the respective pivoting of the roller support plate, so that the lever arms can execute lifts of differing amounts.

for press fit on the outer ring
with sprags and bearing support



3-1

Indexing Freewheel Overrunning Clutch Backstop	Standard type For universal use	Dimensions

Freewheel Size	Nominal torque M_N Nm	Maximum speed min^{-1}	Load rating of bearing support		Bore d mm	B^* mm	D mm	K mm	Weight kg
			dynamic C N	static C_0 N					
ZZ 8	2,5	15 000	3 200	860	8	9	22	27	0,02
FZ 6201	9	10 000	5 140	2 370	12	10	32	39	0,04
FZ 6202	21	9 400	5 160	2 410	15	11	35	42	0,06
FZ 6203	32	8 200	5 650	2 860	17	12	40	51	0,08
FZ 6204	88	6 800	6 890	4 190	20	14	47	58	0,12
FZ 6205	100	5 600	7 230	4 660	25	15	52	63	0,15
FZ 6206	230	4 000	7 730	5 660	30	16	62	73	0,25
FZ 6207	330	3 600	8 170	6 630	35	17	72	85	0,30
FZ 6208	420	3 000	8 950	7 990	40	22	80	94	0,50

■ Freewheels with bore diameters highlighted blue in the table are available with short delivery times.

The maximum transmissible torque is 2 times the specified nominal torque. See page 14 catalogue „Freewheels“ for determination of selection torque.

* The width of freewheel size FZ 6208 is different to the corresponding ball bearing 6208.

Mounting

The torque is transmitted on the inner and outer ring by press fit. In order to transmit the torques specified in the table, the outer ring must be accommodated in a housing with an external diameter K . The housing is made of steel or grey cast iron in minimum quality GG-20. When using other housing materials or smaller external diameters, we urge you to contact us regarding the transmissible torque.

The tolerance of the housing bore D must be ISO N6 and the tolerance of the shaft must be ISO n6.

The permissible operating temperature of the freewheel is -40°C to 80°C .

Lubrication

The freewheels are supplied grease-filled for normal operating conditions.

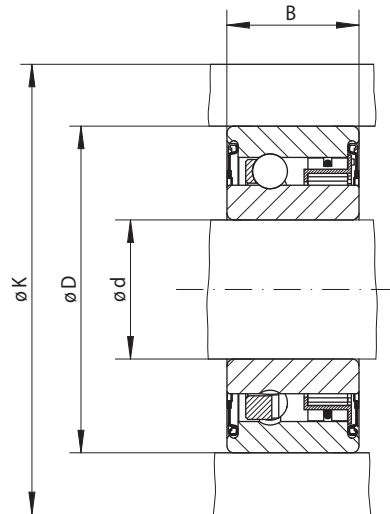
However, the freewheels can also be connected to the customer's oil lubrication system; this is particularly recommended in the case of higher speeds.

Example for ordering

Freewheel size FZ 6202, standard type:

- FZ 6202

for press fit on the outer ring
with sprags, bearing support and sealing



4-1

Indexing Freewheel Overrunning Clutch Backstop	Standard type For universal use	Dimensions

Freewheel Size	Nominal torque M_N Nm	Maximum speed n min^{-1}	Load rating of bearing support		Bore d mm	B^{**} mm	D mm	K mm	Weight kg
			dynamic C N	static C_0 N					
ZZ 8 2RS*	2,5	15 000	3 200	860	8	9	22	27	0,02
FZ 6201 2RS	9	10 000	5 140	2 370	12	14	32	39	0,05
FZ 6202 2RS	21	8 400	5 160	2 410	15	16	35	42	0,07
FZ 6203 2RS	32	7 300	5 650	2 860	17	17	40	51	0,09
FZ 6204 2RS	88	6 000	6 890	4 190	20	19	47	58	0,15
FZ 6205 2RS	100	5 200	7 230	4 660	25	20	52	63	0,18
FZ 6206 2RS	230	4 000	7 730	5 660	30	21	62	73	0,27
FZ 6207 2RS	330	3 600	8 170	6 630	35	22	72	85	0,40
FZ 6208 2RS	420	3 000	8 950	7 990	40	27	80	94	0,60

■ Freewheels with bore diameters highlighted blue in the table are available with short delivery times.

The maximum transmissible torque is 2 times the specified nominal torque. See page 14 catalogue „Freewheels“ for determination of selection torque.

* Only one RS seal on the ball bearing side. Locking from this side the freewheeling direction of the innerring is clockwise free.

** The width of freewheel size from FZ 6201 2RS to FZ 6208 2RS is different to the corresponding ball bearings of series 62.

Mounting

The torque is transmitted on the inner and outer ring by press fit. In order to transmit the torques specified in the table, the outer ring must be accommodated in a housing with an external diameter K . The housing is made of steel or grey cast iron in minimum quality GG-20. When using other housing materials or smaller external diameters, we urge you to contact us regarding the transmissible torque.

The tolerance of the housing bore D must be ISO N6 and the tolerance of the shaft must be ISO n6.

The permissible operating temperature of the freewheel is -20°C to $+80^\circ\text{C}$. Please contact us if the temperature is different to the given values.

Lubrication

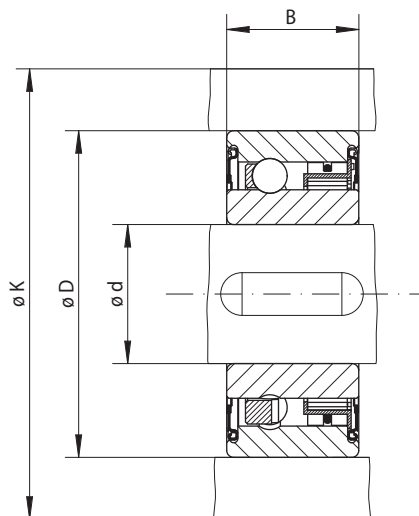
The freewheels are supplied grease-filled and with 2 RS seals.

Example for ordering

Freewheel size FZ 6203 2RS, standard type:

- FZ 6203 2RS

for press fit on the outer ring
with sprags, bearing support and sealing



5-1

Standard type For universal use			Dimensions							
Freewheel Size	Nominal torque M_N Nm	Maximum speed n min^{-1}	Load rating of bearing support		Bore d mm	B^* mm	D mm	K mm	Weight kg	
			dynamic C N	static C_0 N						
FZ 6201 P2RS	9	10 000	5 140	2 370	12	14	32	39	0,05	
FZ 6202 P2RS	21	8 400	5 160	2 410	15	16	35	42	0,07	
FZ 6203 P2RS	32	7 300	5 650	2 860	17	17	40	51	0,09	
FZ 6204 P2RS	88	6 000	6 890	4 190	20	19	47	58	0,15	
FZ 6205 P2RS	100	5 200	7 230	4 660	25	20	52	63	0,18	
FZ 6206 P2RS	230	4 000	7 730	5 660	30	21	62	73	0,30	
FZ 6207 P2RS	330	3 600	8 170	6 630	35	22	72	85	0,40	
FZ 6208 P2RS	420	3 000	8 950	7 990	40	27	80	94	0,60	

■ Freewheels with bore diameters highlighted blue in the table are available with short delivery times.
The maximum transmissible torque is 2 times the specified nominal torque. See page 14 catalogue „Freewheels“ for determination of selection torque.
Keyway according to DIN 6885, page 3 • Tolerance of keyway width JS10.
* The width of freewheel size from FZ 6201 P2RS to FZ 6208 P2RS is different to the corresponding ball bearings of series 62.

Mounting

The torque is transmitted on the inner ring by keyway connection and on the outer ring by press fit. In order to transmit the torques specified in the table, the outer ring must be accommodated in a housing with an external diameter K . The housing is made of steel or grey cast iron in minimum quality GG-20. When using other housing materials or smaller external diameters, we urge you to contact us regarding the transmissible torque.

The tolerance of the housing bore D must be ISO N6 and the tolerance of the shaft must be ISO k6.

The permissible operating temperature of the freewheel is -20°C to $+80^\circ\text{C}$. Please contact us if the temperature is different to the given values.

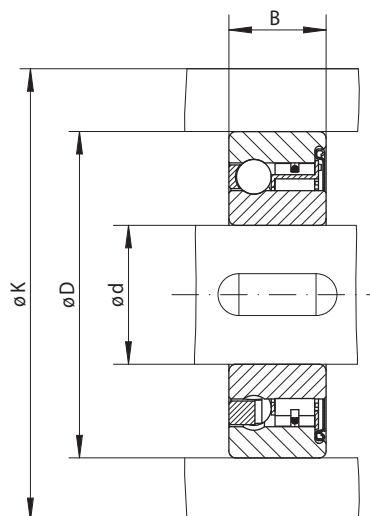
Lubrication

The freewheels are supplied grease-filled and with 2 RS seals.

Example for ordering

Freewheel size FZ 6205 P2RS, standard type:
• FZ 6205 P2RS

for press fit on the outer ring
with sprags and bearing support



6-1

Indexing Freewheel Overrunning Clutch Backstop	Standard type For universal use	Dimensions

Freewheel Size	Nominal torque M_N Nm	Maximum speed min^{-1}	Load rating of bearing support		Bore d mm	B^{**} mm	D mm	K mm	Weight kg
			dynamic C N	static C_0 N					
FZ 6201 P	9	10000	5140	2370	12*	10	32	39	0,04
FZ 6202 P	21	8400	5160	2410	15*	11	35	42	0,06
FZ 6203 P	32	7350	5650	2860	17*	12	40	51	0,07
FZ 6204 P	88	6000	6890	4190	20*	14	47	58	0,11
FZ 6205 P	100	5200	7230	4660	25*	15	52	63	0,14
FZ 6206 P	230	4200	7730	5660	30*	16	62	73	0,21
FZ 6207 P	330	3600	8170	6630	35*	17	72	85	0,30
FZ 6208 P	420	3000	8950	7990	40	22	80	94	0,50

■ Freewheels with bore diameters highlighted blue in the table are available with short delivery times.

The maximum transmissible torque is 2 times the specified nominal torque. See page 14 catalogue „Freewheels“ for determination of selection torque.

Keyway according to DIN 6885, page 1 • Tolerance of keyway width JS10.

* Keyway according to DIN 6885, page 3 • Tolerance of keyway width JS10.

** The width of freewheel size FZ 6208 P is different to the corresponding ball bearing 6208.

Mounting

The torque is transmitted on the inner ring by keyway connection and on the outer ring by press fit. In order to transmit the torques specified in the table, the outer ring must be accommodated in a housing with an external diameter K . The housing is made of steel or grey cast iron in minimum quality GG-20. When using other housing materials or smaller external diameters, we urge you to contact us regarding the transmissible torque.

The tolerance of the housing bore D must be ISO N6 and the tolerance of the shaft must be ISO k6.

The permissible operating temperature of the freewheel is -40°C to $+80^\circ\text{C}$. Please contact us if the temperature is different to the given values.

Lubrication

The freewheels are supplied grease-filled.

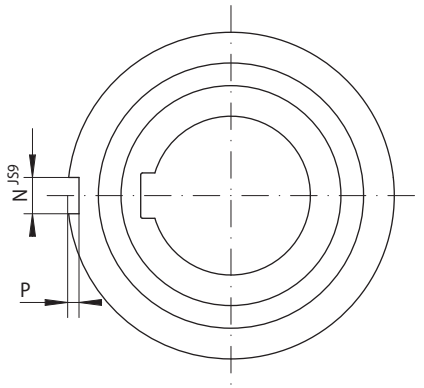
Example for ordering

Freewheel size FZ 6203 P, standard type:

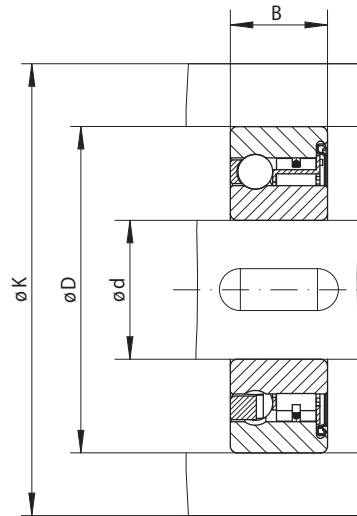
- FZ 6203 P

Internal Freewheels FZ ... PP

for keyway connection on the outer ring
with sprags and bearing support



7-1



7-2

Indexing Freewheel Overrunning Clutch Backstop	Standard type For universal use	Dimensions

Freewheel Size	Nominal torque M_N Nm	Maximum speed min^{-1}	Load rating of bearing support		Bore d mm	B^{**} mm	D mm	K mm	N mm	P mm	Weight kg
			dynamic C N	static C_0 N							
FZ 6202 PP	21	8400	5160	2410	15*	11	35	42	2	0,6	0,06
FZ 6203 PP	32	7350	5650	2860	17*	12	40	51	2	1,0	0,07
FZ 6204 PP	88	6000	6890	4190	20*	14	47	58	3	1,5	0,11
FZ 6205 PP	100	5200	7230	4660	25*	15	52	63	6	2,0	0,14
FZ 6206 PP	230	4200	7730	5660	30*	16	62	73	6	2,0	0,21
FZ 6207 PP	330	3600	8170	6630	35*	17	72	85	8	2,5	0,30
FZ 6208 PP	420	3000	8950	7990	40	22	80	94	10	3,0	0,50

■ Freewheels with bore diameters highlighted blue in the table are available with short delivery times.

The maximum transmissible torque is 2 times the specified nominal torque. See page 14 catalogue „Freewheels“ for determination of selection torque.

Keyway according to DIN 6885, page 1 • Tolerance of keyway width JS10.

* Keyway according to DIN 6885, page 3 • Tolerance of keyway width JS10.

** The width of freewheel size FZ 6208 PP is different to the corresponding ball bearing 6208.

Mounting

The torque is transmitted on the inner and on the outer ring by keyway connection. In order to transmit the torques specified in the table, the outer ring must be accommodated in a housing with an external diameter K . The housing is made of steel or grey cast iron in minimum quality GG-20. When using other housing materials or smaller external diameters, we urge you to contact us regarding the transmissible torque.

The tolerance of the housing bore D must be ISO H6 and the tolerance of the shaft must be ISO h6.

The permissible operating temperature of the freewheel is -40°C to $+80^\circ\text{C}$. Please contact us if the temperature is different to the given values.

Lubrication

The freewheels are supplied grease-filled.

Example for ordering

Freewheel size FZ 6205 PP, standard type:

- FZ 6205 PP

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