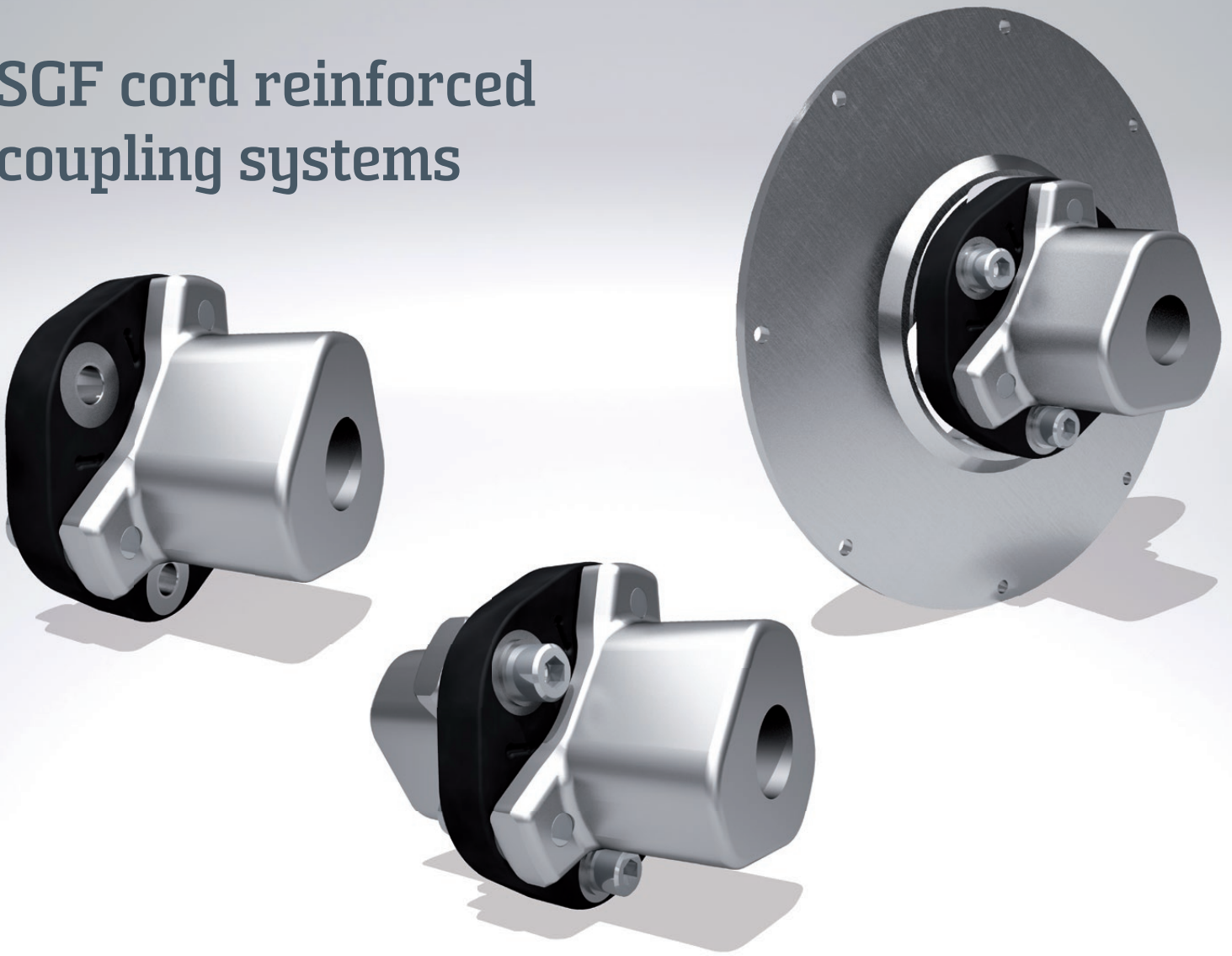




We make drive systems comfortable and reliable.

## SGF cord reinforced coupling systems



**SGFlex-3F SERIES with Tenpu® fiber technology**  
**FLEX COUPLING ASSEMBLY**

The new SGFlex-3F Series coupling system incorporates industry proven SGFlex couplings with solid steel flanges or flywheel combinations to provide an integrated solution to our customers.

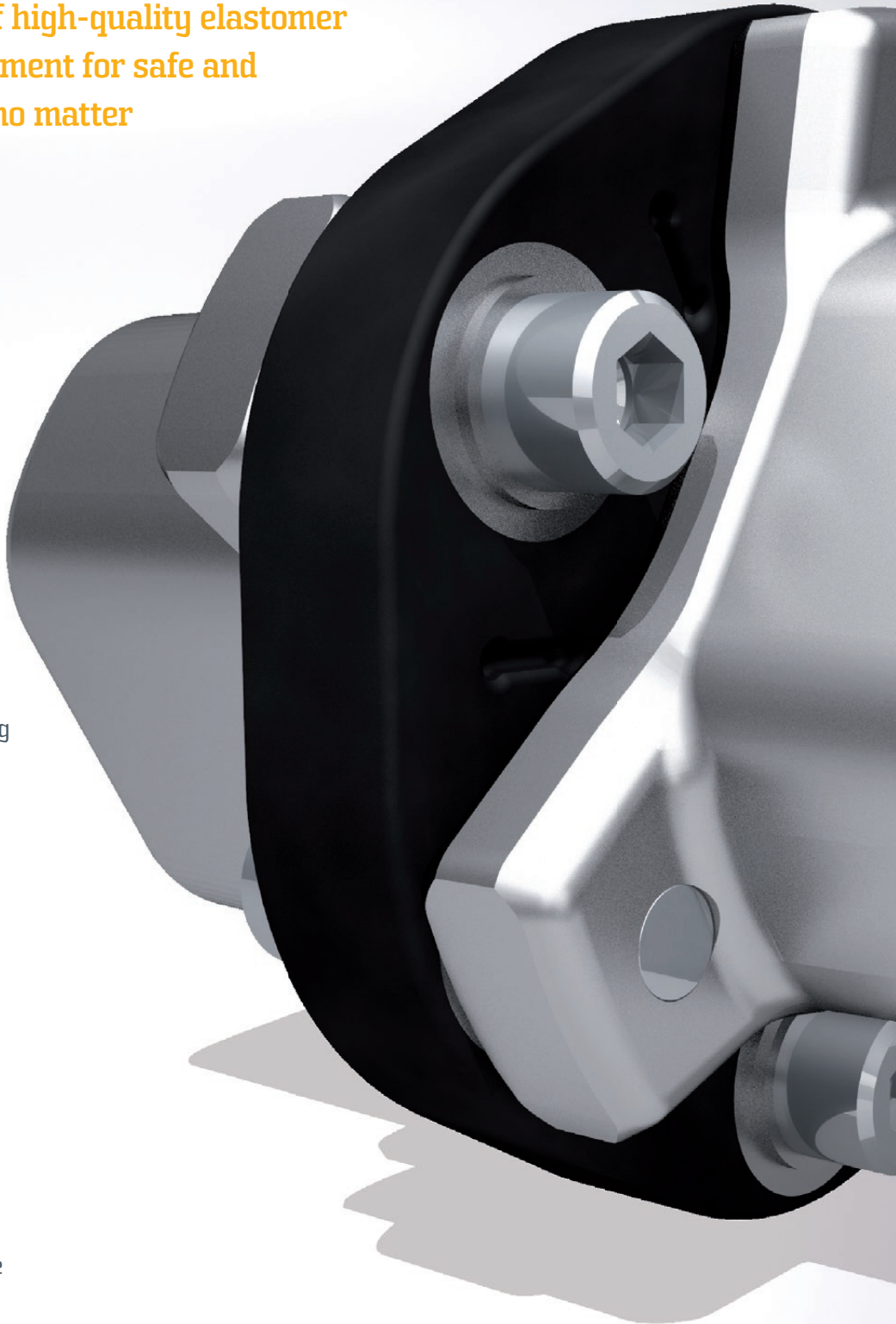
SGFlex couplings are highly durable, reinforced flexible couplings made of high-quality elastomer and strong cord reinforcement for safe and effective torque transfer no matter what the application.

SGFlex couplings compensate for axial, radial and angular misalignment and are able to operate in extreme application conditions. They provide effective dampening for torque peaks and shock loads.

Some common applications include Pump systems, Hydraulic drives and Conveyor drivelines.

The high power density ratio and outstanding durability and performance of the SGFlex coupling makes it the perfect coupling system for all kinds of special machinery such as wood cutting machines, shredder applications and rock crushers to name a few.

The forged steel flanges are made of high quality steel and its versatile design can support all common as well as custom sizes of shaft/hub connection requirements. The flange hubs can be machined to specific keyway/slot or multi spline connection requirement depending on individual requirements. Very large shaft diameters can be connected due to the unique 3-edged design of the flanges.



The flanges are protected against corrosion by electroplated coating which ensures outstanding storing characteristics and protects the steel parts against aggressive media and environmental impacts. Applications in corn harvesting machines, inside biogas fermenters and in the salty area of the marine industry prove the excellent resistance against unfriendly environment.

SGFlex flanges and couplings are built together by a simple screw connection, using high quality bolts (grade 10.9) and high quality washers (300 HV hardness). The screw connection is easy to install, as the bolts are bolted directly into the flange material. Due to this, the SGFlex coupling can be replaced without disassembling the metal parts, just by loosen the bolts and replacing the flexible disc element in radial direction.

In order to choose the right coupling size for your application, calculate the nominal torque  $T_N$  of your system.

$$T_N = \frac{9550 \times P \text{ [kW]}}{n \text{ [rpm]}}$$

$$T_{KN} \geq T_N$$

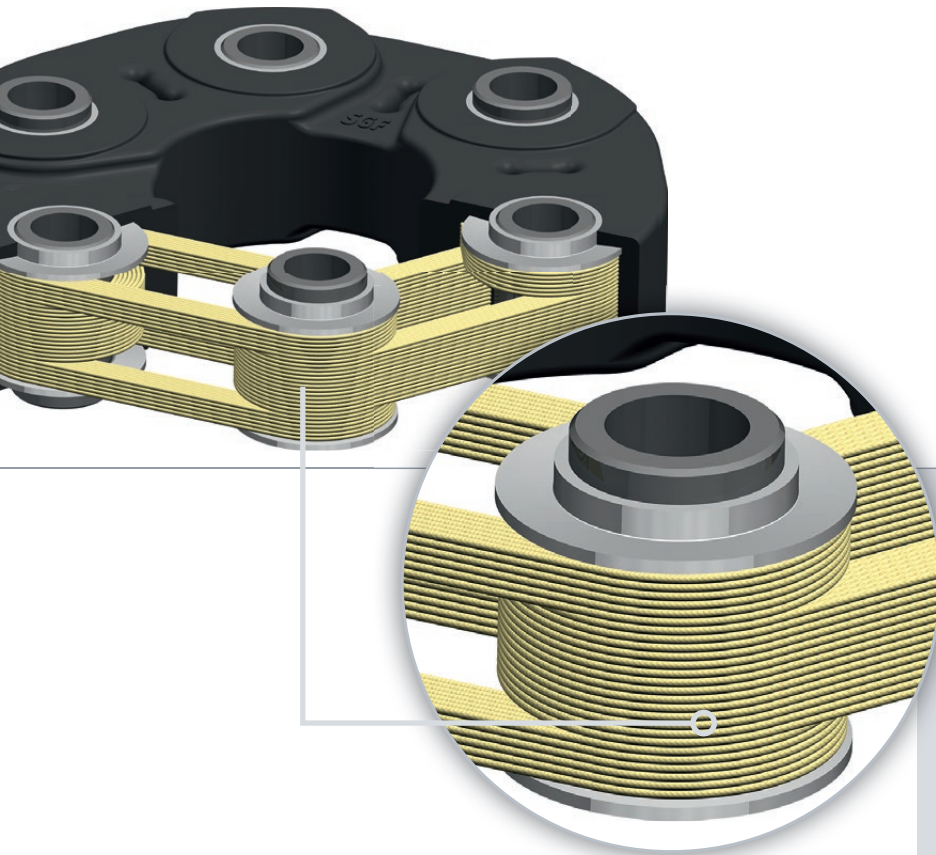
$T_N$	Nominal torque of the system in Nm
$T_{KN}$	Max permissible nominal torque of flexible coupling
P	Power in kW
n	Speed in rpm

Further take following points into account:

- » Due to the constructive composition of SGF flexible couplings, normally it is not necessary to correct  $T_N$  for machine types or thermal influences.
- » In addition to considering static loads when selecting a flexible coupling, we always recommend a calculation of the vibratory behaviour of the drive train to avoid undesired resonance phenomena.
- » Under unfavourable conditions, running the drive train in resonance mode can lead to destruction of individual components within minutes and should be avoided on principle.
- » The data needed for the calculation is given in the technical datasheet according to the SGFlex coupling and explained in the technical data explanation SGF-TL-001 (available upon request).
- » At high load frequencies, take heed that the maximum permissible power loss of the individual flexible coupling is not exceeded.
- » If an SGF coupling is used as a replacement solution in an existing system, bearings loads may increase due to altered rigidities.



## THE SGF TENSION-FORCE-PRINCIPLE



**Torque is transmitted almost exclusively via the vulcanised-in cord inlays (Tenpu® fiber technology) by the unique SGF tension-force-principle.**

The cord inlays serve to damp torque peaks and to absorb start-up impacts. The rubber takes on a supporting and protective function for the cord packets and serves to isolate noises due to the interruption of the structure-borne noise path.

### Properties

- » Compensation of radial, axial and angular misalignment
- » Damping of torque peaks in the drivetrain
- » Electrically insulating

### Benefits

- » High power density due to unique power transmission via Tenpu® technology
- » Resistant to shock loads

### Common Applications

- » For connecting combustion engines and generators, including any related drive equipment in power plants and power stations or connecting combustion engines and generators in combined heating and power plants and power stations
- » As a flexible coupling in drivetrains such as vibrating screens and test benches
- » Movement compensation and vibration absorption between engines and hydraulic pumps in forklifts, cement trucks or other similar equipment
- » As a flexible connecting element in mixers, pumps and agricultural machinery
- » For connecting the transmission and drive shaft in road, rail, mining, military or marine (ship) applications



**Robust.  
Lightweight.  
Flexible.**



SGF flexible couplings are torsional flexible, non-shiftable couplings. They are used to compensate radial, axial or angular displacements of rotating components (e.g. shafts), to dampen vibrations in the drive train and to minimise torque peaks.

The flex coupling assembly SGFlex-3F Series is an assembly consisting of a SGFlex flexible coupling, a drive flange and a driven/output flange.

The SGFlex-3F Series offers 3 types of couplings each 6 standardized sizes with a torque range from 200Nm – 3.200Nm.

e.g. **SGFlex-3FD-096**



# APPLICATIONS WITH SGFlex-3F SERIES



- 1 Railway Vehicles:**  
fully or partly suspended drive-trains, hydraulic systems, auxiliary power generation

**2 Machinery and Equipment Technology:**  
conveyor belts, pumps, compressors, augers, mixers, fans, blowers, test-benches

**3 Agriculture Technology:**  
harvesters, corn and grain headers, PTOs, disc mowers, cable winches

**4 Wind Power Systems:**  
drive trains, hydraulic systems
- 5 Marine Technology:**  
propulsion, auxiliary power generation

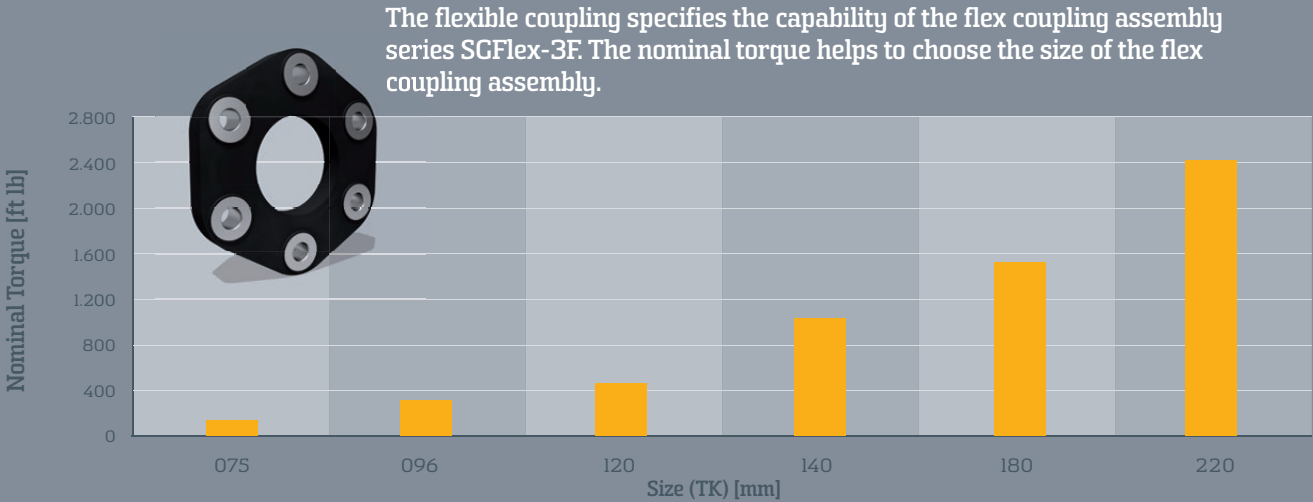
**6 Construction Machinery:**  
excavators, dumpers, concrete pumps, forklifts

**7 Mining Technology:**  
vibrating screens, hydraulic systems, conveyor belts

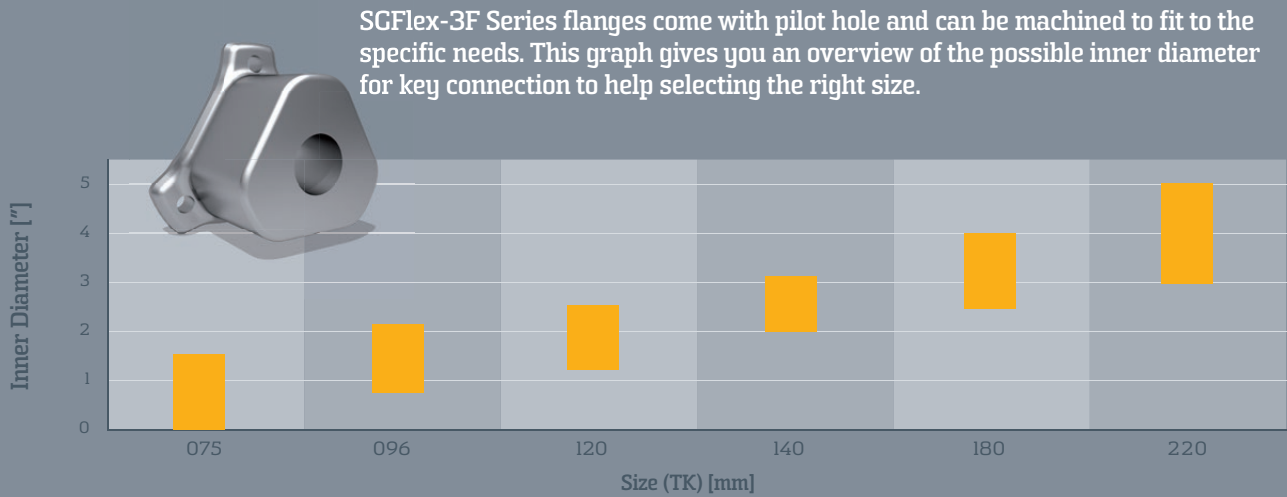
**8 Heat Transfer Systems:**  
fans, blowers

**9 Power Plant Technology:**  
Gen-Sets, emergency power generators, CHPs (combined heat and power units)

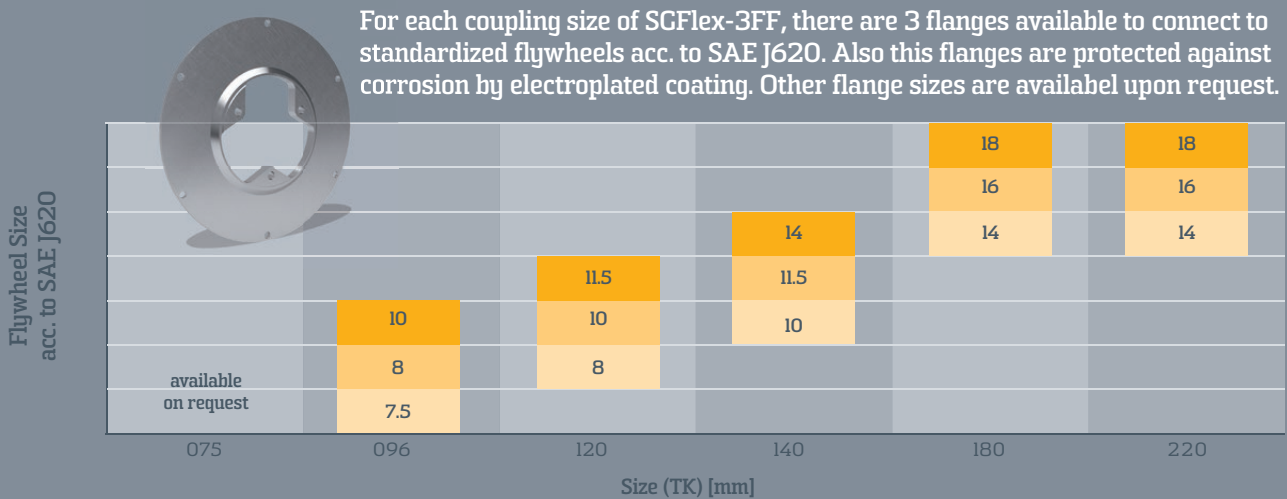
## NOMINAL TORQUE OF FLEXIBLE COUPLINGS



## POSSIBLE INNER DIAMETER OF FLANGES



## FLYWHEEL SIZE FOR SGFlex-3FF





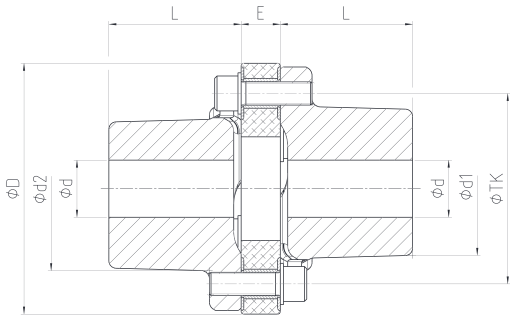
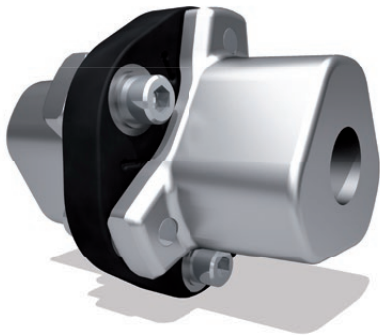


TECHNICAL DATA SGFlex-3F SERIES

TECHNICAL DATA SGFlex-3F SERIES

SGFlex-3FD

Designed to connect two shafts

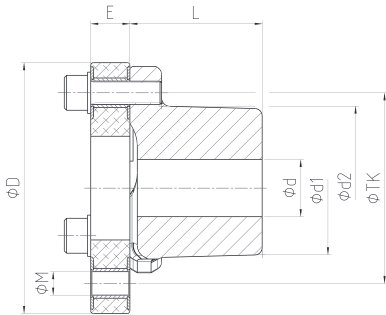
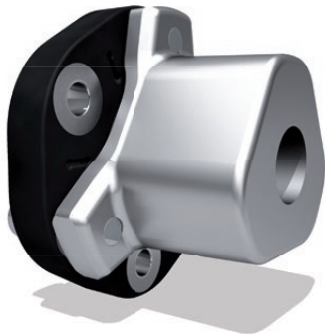


Size (TK)	Torque		D	E	L	d		d1	d2	Weight	Used flexible coupling	Bolt	Tightening Torque	Order number	
	T <sub>KN</sub> *	T <sub>KMax1</sub>				Pilot	Max**							Description	Part number
[mm]	[Nm] [ft lb]	[Nm] [ft lb]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[kg]			[Nm] [ft lb]		
075	210 155	420 310	101 3.976	24 0.945	60 2.362	-	42 1 ½	50 1.969	66 2.598	3.1	SGFlex-075.02	M10x40	60 44	SGFlex-3FD-075	GK-10510
096	420 309	840 619	132 5.197	30 1.181	71 2.795	19 0.748	60 2 5/16	70 2.756	97 3.819	6.9	SGFlex-096.02	M12x50	130 96	SGFlex-3FD-096	GK-10317
120	740 545	1480 1090	162 6.378	30 1.181	90 3.543	29 1.142	65 2 ½	82 3.228	109 4.291	11.7	SGFlex-120.05	M16x55	165 122	SGFlex-3FD-120	GK-10319
140	1400 1032	2800 2064	195 7.677	33 1.299	105 4.134	44 1.732	80 3 ½	97 3.819	129 5.079	18.0	SGFlex-140.04	M16x55	165 122	SGFlex-3FD-140	GK-10322
180	2040 1504	4080 3008	237 9.331	37 1.457	125 4.921	54 2.126	102 4	126 4.961	158 6.220	33.7	SGFlex-180.02	M22x70	290 214	SGFlex-3FD-180	GK-10324
220***	3240 / 1730 2389 / 1275	6480 / 3460 4778 / 2550	281 11.063	37 1.457	155 6.102	64 2.520	127 5	150 5.906	193 7.598	57.9	SGFlex-220.02	M24x70	335 247	SGFlex-3FD-220	GK-10326

\* nominal torque, for further information on technical data see SGF-TL-001, \*\* maximal diameter for key way connection, \*\*\* pay attention to rotational direction acc. to SGF-TL-002  
Only the metric dimensions shall be binding

SGFlex-3FS

Designed to connect a shaft with an existing structure

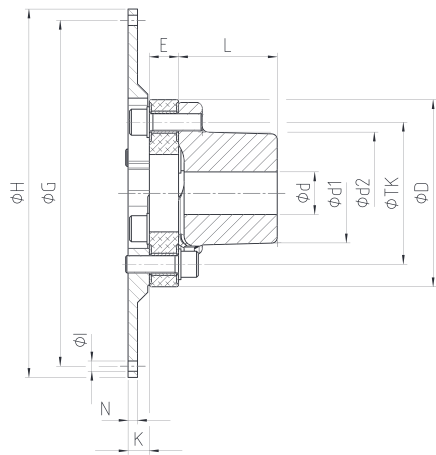


Size (TK)	Torque		D	E	L	d		d1	d2	M	Weight	Used flexible coupling	Bolt	Tightening Torque	Order number	
	T <sub>KN</sub> *	T <sub>KMax1</sub>				Pilot	Max**								Description	Part number
[mm]	[Nm] [ft lb]	[Nm] [ft lb]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[kg]			[Nm] [ft lb]		
075	210 155	420 310	101 3.976	24 0.945	60 2.362	-	42 1 ½	50 1.969	66 2.598	10.15	1.9	SGFlex-075.02	M10x40	60 44	SGFlex-3FS-075	GK-10511
096	420 309	840 619	132 5.197	30 1.181	71 2.795	19 0.748	60 2 5/16	70 2.756	97 3.819	12.15 0.478	3.9	SGFlex-096.02	M12x50	130 96	SGFlex-3FS-096	GK-10318
120	740 545	1480 1090	162 6.378	30 1.181	90 3.543	29 1.142	65 2 ½	82 3.228	109 4.291	16.15 0.636	6.7	SGFlex-120.05	M16x55	165 122	SGFlex-3FS-120	GK-10320
140	1400 1032	2800 2064	195 7.677	33 1.299	105 4.134	44 1.732	80 3 ½	97 3.819	129 5.079	16.15 0.636	10.2	SGFlex-140.04	M16x55	165 122	SGFlex-3FS-140	GK-10323
180	2040 1504	4080 3008	237 9.331	37 1.457	125 4.921	54 2.126	102 4	126 4.961	158 6.220	22.15 0.872	19.0	SGFlex-180.02	M22x70	290 214	SGFlex-3FS-180	GK-10325
220***	3240 / 1730 2389 / 1275	6480 / 3460 4778 / 2550	281 11.063	37 1.457	155 6.102	64 2.520	127 5	150 5.906	193 7.598	24.15 0.951	31.6	SGFlex-220.02	M24x70	335 247	SGFlex-3FS-220	GK-10327

\* nominal torque, for further information on technical data see SGF-TL-001, \*\* maximal diameter for key way connection, \*\*\* pay attention to rotational direction acc. to SGF-TL-002  
Only the metric dimensions shall be binding

SGFlex-3FF

Designed to connect a flywheel with a shaft



Size (TK)	Torque		D	E	L	K	d		d1	d2	Weight	Used flexible coupling	Bolt	Tightening Torque	Flywheel	Order number	
	T <sub>KN</sub> *	T <sub>KMax1</sub>					Pilot	Max**								Description	Part number
[mm]	[Nm] [ft lb]	[Nm] [ft lb]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[mm] [ ]	[kg]			[Nm] [ft lb]	Size		
075	210 155	420 310	available on request													SGFlex-3FF-075	
096	420 390	840 619	132 5.197	30 1.181	71 2.795	15 0.591	19 0.748	60 2 5/16	70 2.756	97 3.819	6.4	SGFlex-096.02	M12x50	130 96	SAE 7.5	SGFlex-3FF-096	GK-10328
											6.9				SAE 8		GK-10330
											8.4				SAE 10		GK-10329
120	740 545	1480 1090	162 6.378	30 1.181	90 3.543	20 0.787	29 1.142	65 2 ½	82 3.228	109 4.291	10.0	SGFlex-120.05	M16x55	165 122	SAE 8	SGFlex-3FF-120	GK-10331
											11.5				SAE 10		GK-10332
											14.9				SAE 11.5		GK-10333
140	1400 1032	2800 2064	195 7.677	33 1.299	105 4.134	20 0.787	44 1.732	80 3 ½	97 3.819	129 5.079	14.9	SGFlex-140.04	M16x55	165 122	SAE 10	SGFlex-3FF-140	GK-10334
											17.8				SAE 11.5		GK-10335
											24.8				SAE 14		GK-10336
180	2040 1504	4080 3008	237 9.331	37 1.457	125 4.921	27 1.063	54 2.126	102 4	126 4.961	158 6.220	33.5	SGFlex-180.02	M22x70	290 214	SAE 14	SGFlex-3FF-180	GK-10337
											37.2				SAE 16		GK-10338
											41.5				SAE 18		GK-10339
220***	3240 / 1730 2389 / 1275	6480 / 3460 4778 / 2550	281 11.063	37 1.457	155 6.102	29 1.142	64 2.520	127 5	150 5.906	193 7.598	45.6	SGFlex-220.02	M24x70	335 247	SAE 14	SGFlex-3FF-220	GK-10340
											49.2				SAE 16		GK-10341
											53.5				SAE 18		GK-10342

\* nominal torque, for further information on technical data see SGF-TL-001, \*\* maximum diameter for key connection, \*\*\*pay attention to rotational direction acc. to SGF-TL-002  
Only the metric dimensions shall be binding

Bolts for flywheel connection are not included!

Flywheel connection acc. to SAE J620

Size of Flywheel	H		G		I		N		Number of holes
	[mm]	[ ]	[mm]	[ ]	[mm]	[ ]	[mm]	[ ]	
SAE 7.5	241.3 f8	9 ½ f8	222.25	8 ¾	9	0.354	8	0.315	8
SAE 8	263.52 f8	10 ¾ f8	244.48	9 ¾	11	0.433	8	0.315	6
SAE 10	314.32 f8	12 ¾ f8	295.28	11 ¾	11	0.433	8	0.315	8
SAE 11.5	352.42 f8	13 ¾ f8	333.38	13 ¾	11	0.433	12	0.472	8
SAE 14	466.72 f8	18 ¾ f8	438.15	17 ¼	13	0.512	12	0.472	8
SAE 16	517.52 f8	20 ¾ f8	488.95	19 ¼	13	0.512	12	0.472	8
SAE 18	571.5 f8	22 ½ f8	542.92	21 ¾	18	0.709	12	0.472	6

TECHNICAL DATA FLEXIBLE COUPLINGS

Performance

Size (TK)	flexible coupling	part number	T <sub>KN</sub>		T <sub>KW</sub>		T <sub>KMax1</sub>		T <sub>KMax2</sub>		Max. Speed n <sub>max</sub>
			[Nm]	[ft lb]	[Nm]	[ft lb]	[Nm]	[ft lb]	[Nm]	[ft lb]	
075	SGFlex-075.02	GA000-024	210	155	105	77	420	310	1050	774	7200
096	SGFlex-096.02	GA000-029	420	309	210	154	840	619	2100	1548	6700
120	SGFlex-120.05	GA000-015	740	545	370	272	1480	1091	3700	2728	5800
140	SGFlex-140.04	GA000-019-Z1	1400	1032	560	413	2800	2065	7000	5162	5100
180	SGFlex-180.02	GA000-027	2040	1504	1020	752	4080	3009	10200	7523	4200
220	SGFlex-220.02*	GA000-003	3240 / 1730	2389 / 1275	1620	1194	6480 / 3460	4779 / 2551	16200 / 8600	11948 / 6343	3500

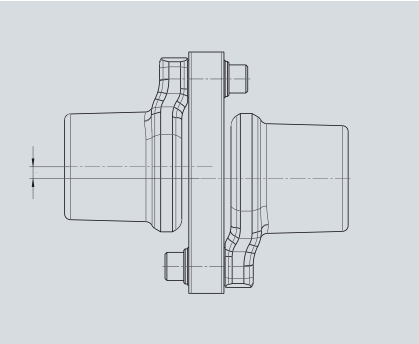
For explanation of technical data see SGF-TL-001  
Only the metric dimensions shall be binding

\*pay attention to rotational direction acc. to SGF-TL-002

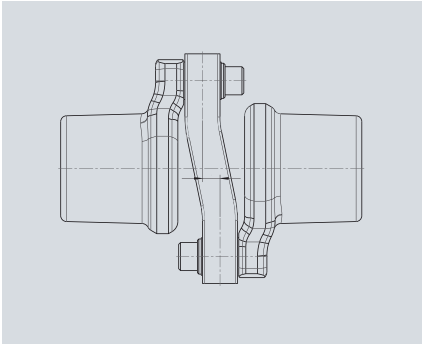
For further information a technical data sheet for each flexible coupling is available upon request.

Displacements

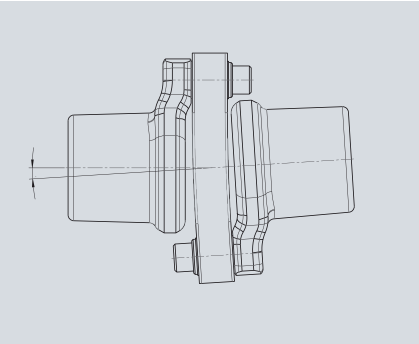
Displacements between the drive and output shaft can be compensated by elastic couplings, as described in the following. The specified maximum values apply, however, only to the specific aspect as rated for endurance strength. If different axial displacements occur simultaneously up to the maximum value, reduced durability is to be expected.



Max. radial displacement ΔK<sub>r</sub>



Max. axial displacement ΔK<sub>a</sub>



Max. angular displacement ΔK<sub>w</sub>

Size (TK)	flexible coupling	ΔK <sub>r</sub>		ΔK <sub>a</sub>		ΔK <sub>w</sub>
		[mm]	[°]	[mm]	[°]	
075	SGFlex-075.02	0.3	0.012	0.6	0.024	1
096	SGFlex-096.02	0.7	0.028	0.8	0.032	1
120	SGFlex-120.05	0.7	0.028	1.0	0.039	1
140	SGFlex-140.04	0.6	0.024	1.2	0.047	1
180	SGFlex-180.02	1.0	0.039	1.5	0.059	1
220	SGFlex-220.02*	1.4	0.055	1.9	0.075	1

Only the metric dimensions shall be binding

\*pay attention to rotational direction acc. to SGF-TL-002

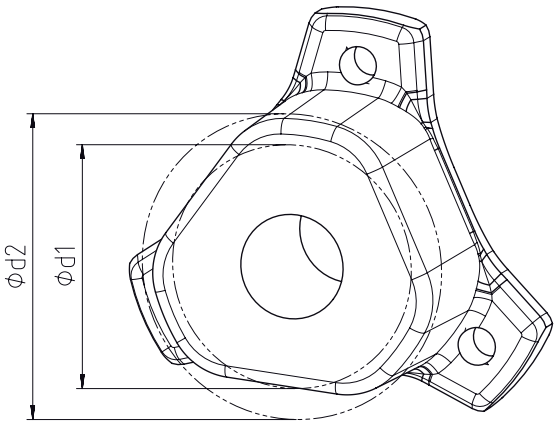
SGF FORGED STEEL FLANGES

Ød1

» maximum diameter (e.g. for calculation of the 3-edge part of the flange inner clamping sets of the max diameter for shrink discs)

Ød2

» maximum rotational diameter of the 3-edge part of the flange



Examples of machined flanges



Key connection for bigger shafts thru unique 3-edge design



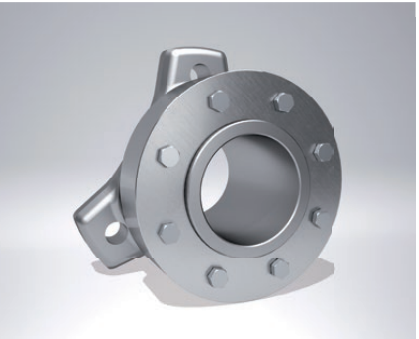
Key connection with threads for fixing bolts



Frictional connection thru a clamping set



Frictional connection thru a taper bore



Frictional connection thru shrink disc



Spline connection with fastening function

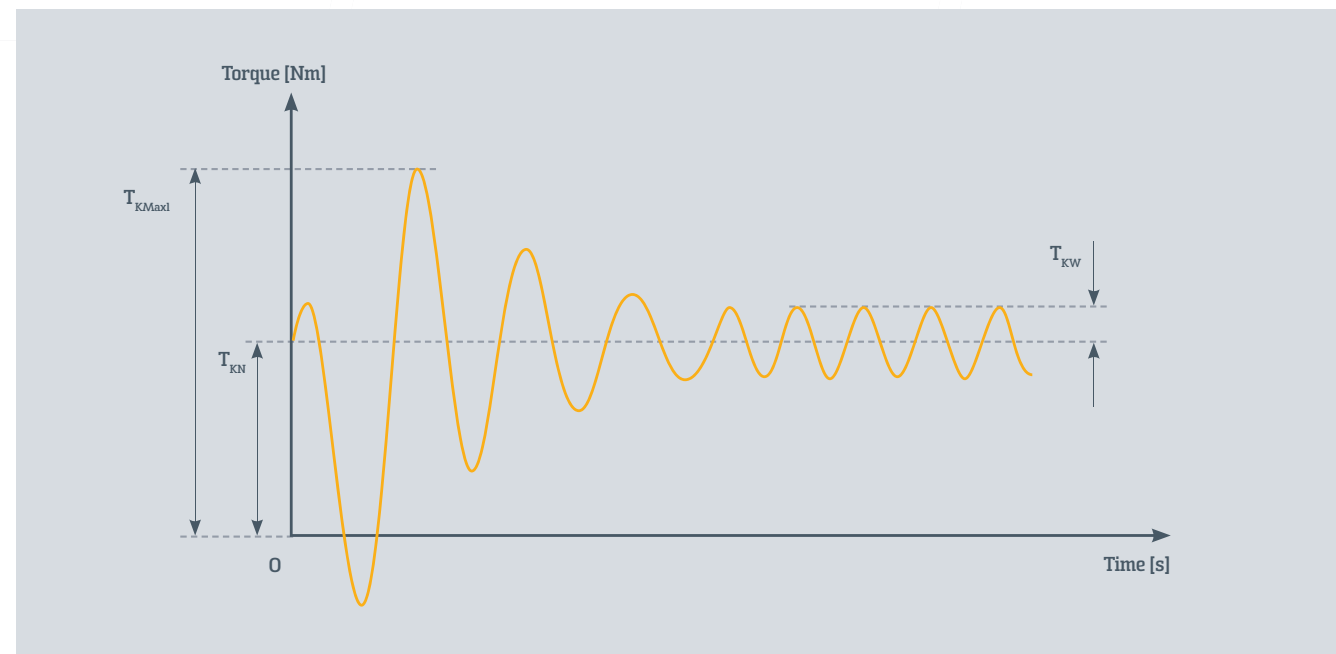
Additional Information

3D models of SGFlex-3F Series are available online:  
<http://sgf.partcommunity.com>

Further applicable documents:

- » SGF-TL-001 Explanation of technical data
- » SGF-TL-002 Operating and assembly instructions flexible couplings and flex coupling assemblies
- » Technical data sheets of flexible couplings

## Description Technical Data



Nominal torque  $T_{KN}$

$T_{KN}$  is the nominal torque of the flexible coupling. This torque can be permanently transferred in full by the flexible coupling.

Maximum torque  $T_{KMaxl}$

Torques at values of  $T_{KMaxl}$  occur regularly in the normal operation of a machine or plant and can be transferred by the flexible coupling without damage as long as the load develops for a short time only and with a frequency not greater than 50,000 load cycles.

Torque peaks at the value of  $T_{KMax}$  typically occur when starting or stopping, shifting, accelerating or braking.

Maximum torque  $T_{KMax2}$

Torques at a value of  $T_{KMax2}$  do not occur in normal operation of a machine or plant, but can still be transferred by the flexible coupling without destroying it. Massive damage to the flexible coupling as well as damage to the screw connections may result, so that only emergency operation of the flexible coupling may be possible following the application of the  $T_{KMax2}$  load.

Torques at a value of  $T_{KMax2}$  seldom occur, e.g. in cases of damage to the machine, emergency shut-down or abuse. Following the occurrence of torques at a value of  $T_{KMax2}$  we generally recommend replacing the flexible coupling as well as screw connection parts.

### Permissible continuously oscillating torque $T_{KW}$

The permissible continuously oscillating torque  $T_{KW}$  is the maximum permissible torque superimposed on the nominal torque. The specification of  $T_{KW}$  is given as vibratory amplitude (peak value).

Maximum permissible speed  $n_{\max}$

The maximum permissible speed  $n_{\max}$  can be completely utilized continuously. The specified rpm value applies irrespective of the operating temperature as long as the indicated limit values for the operating temperature are complied with. Refer to the operating and assembly instructions SCF-TL-002 (flexible couplings and flex coupling assemblies) for the operating temperature limits.

### Notes:

This image shows a full page of blank graph paper. The grid consists of small, uniform squares formed by thin, light gray lines. There are no margins, text, or other markings on the page.

### Technical changes & technical data

We reserve the right to make technical changes in the course of further development.

The technical data in the tables as well as on the drawings and datasheets only serve to describe the product and are not to be understood as a guaranteed characteristic in legal terms. All illustrations are only provided as examples.

## Disclaimer

SGF makes every effort to always keep its offering up to date, substantially correct and complete. Nevertheless, the occurrence of errors cannot be completely ruled out.

SGF accepts no liability for the currency, substantial correctness or completeness of the information contained in this document, except when the errors have occurred due to intent or gross negligence. This concerns possible damages of a pecuniary or non-pecuniary nature suffered by third parties caused by the use of the products we offer.

Installation and commissioning of flexible couplings may be performed solely by qualified personnel. We expressly point out that this document can only provide support and that the customer has responsibility for the configuration and operational safety of the total system.

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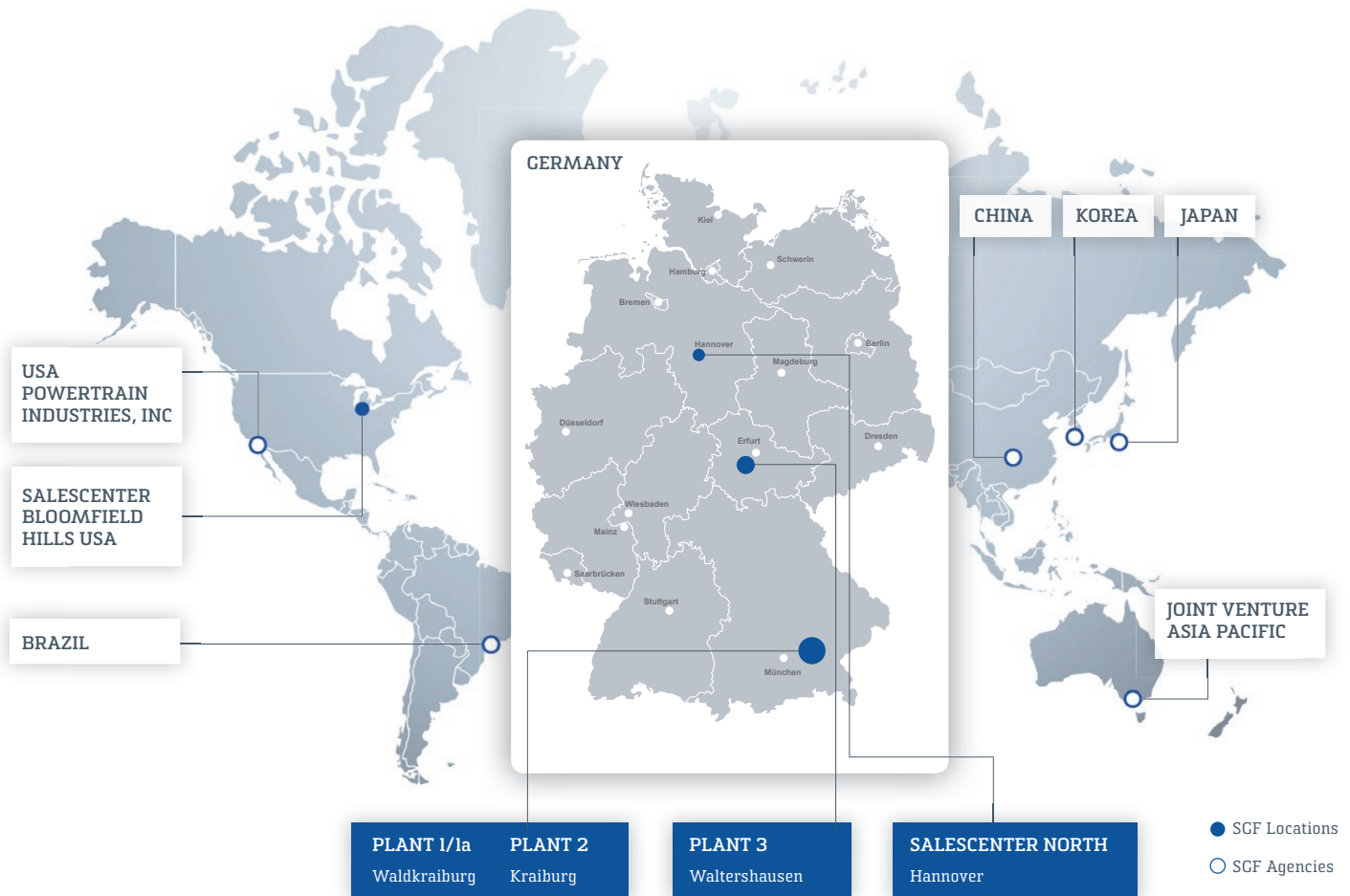
## Contact

For additional information about the product range and special designs, please contact: [vertrieb@sgf.de](mailto:vertrieb@sgf.de)

For additional information on services (vibratory behaviour of a total system, calculations for screw connections, etc.) please contact [service@sgf.de](mailto:service@sgf.de)



# SGF LOCATIONS AND AGENCIES WORLDWIDE



SGF is a leading manufacturer for tension based torque transmission and has 70 years of experience in cord and bonding technology.

We offer a wide range of flexible, temperature-resistant products for torque transmission and vibration absorption.

Our main area of application is in general machine and systems engineering and in the automotive industry. We offer flexible couplings, dampers for drive shafts, exhaust hangers and absorbers as well as a variety of rubber-metal parts for the support of different aggregates.



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