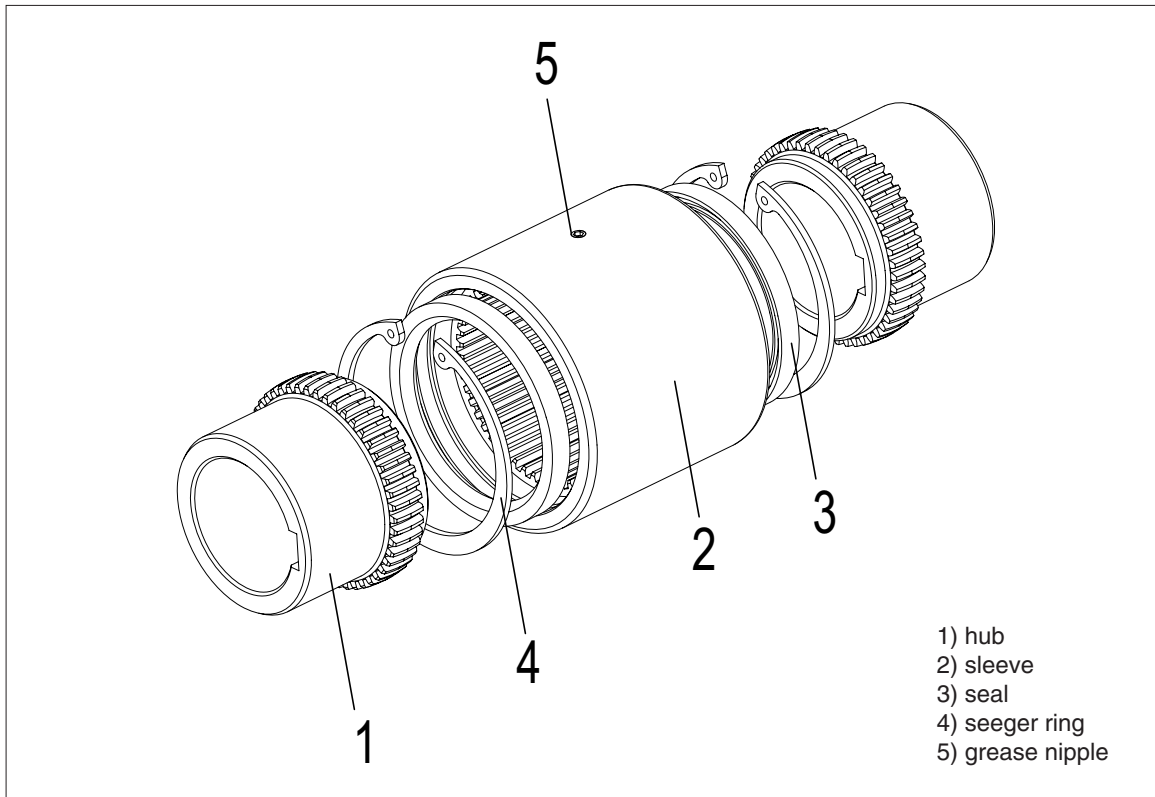


# SITEX® ST couplings

SITEX® ST couplings are fully manufactured in high quality steel. They are made of 1 or 2 geared hubs which are coupled with one sleeve through which the torque is transmitted.

The special OPTIGEAR profile, allows very high torque transmission and the compensation of axial, angular and radial misalignment (only in the version with 2 hubs). The maximum recommended working temperature is -10 °C a + 80 °C.

For application with special needs special materials should be used. Please ask our technical department.



## Features

With the special design of the **OPTIGEAR** crown the contact surface area under misalignment is larger than conventional crown. Therefore the surface stresses are reduced resulting in a longer coupling life. Moreover allows backlash reduced to a minimum reducing impact load in reverse application and allowing optimum torque transmission and low vibration. All this allows an improved machine design.

### OPTIGEAR profile

SITEX® ST couplings are machined with the unique OPTIGEAR profile, allows backlash reduced to a minimum reducing impact load in reverse applications and allowing optimum torque transmission and low vibration. The machine design is than optimized by using the most compact solution in coupling.

### Interchangeability

The range GSTCF conforms to AGMA specification in flange dimensions, type and positions of the screws. They are therefore interchangeable with any other AGMA coupling half.

### The most compact solution

Due to the exceptional torque transmission capability, SITEX® ST couplings are the most compact solution in weight and dimensions for a safe torque transmission.

### Special executions

Special executions are available for any application need. Accurate finite element analysis can be made for special high demanding applications.

### Corrosion protection

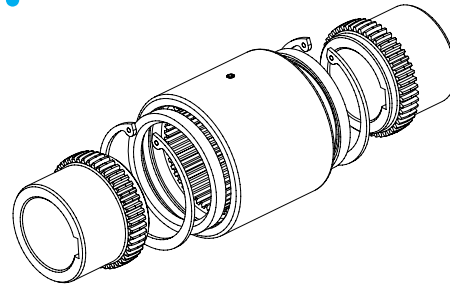
SITEX® ST couplings are protected against corrosion with a special surface treatment. Mounting and dismounting are therefore guaranteed even after many years of use in difficult environment conditions.



# SITEX® ST executions

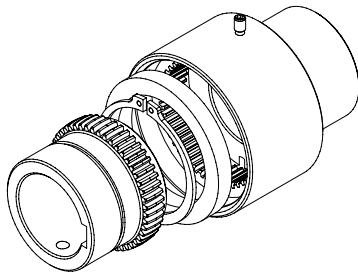
## GST type C ●●●●

Standard type with 2 hubs and one sleeve. Allows for axial, angular and radial misalignment. Long hub version available. Offers compact, powerful design and easy assembly



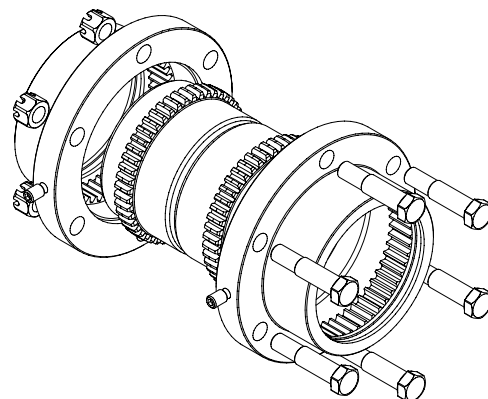
## ●●●● GST type CV

Standard type made of a single hub and one sleeve. It is also available the long hub execution. Offers an economical solution in application without radial misalignment.



## GST type CF ●●●●

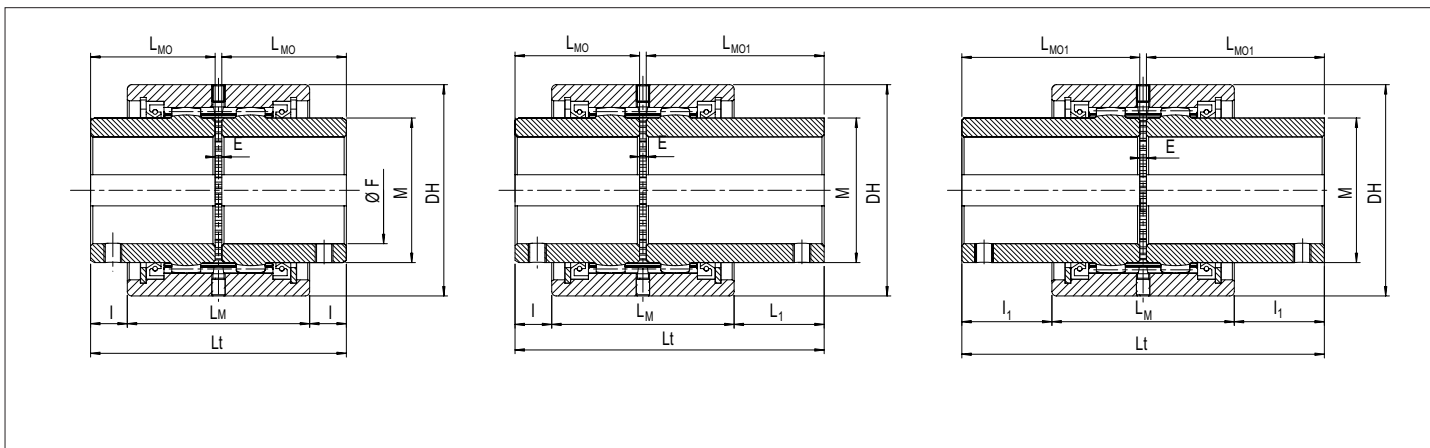
Flanged type made of 2 semi couplings. Flanges dimensions are according to AGMA standards. They will fit any other AGMA standard half.



# GST type C

Standard type with 2 hubs and one sleeve. Allows for axial, angular and radial misalignment. Long hub version available.

Offers compact, powerful design and easy assembly. Maximum bore in the table is valid for keyway seat DIN 6885/1.

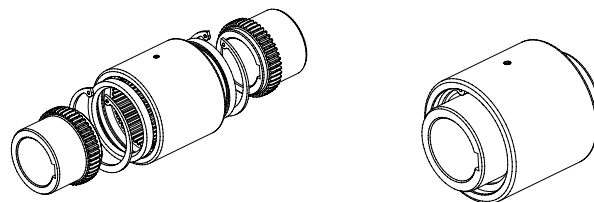


Type	Dimensions (mm)						Technical data									
	DH	E	F <sub>max</sub>	M	LM	Standars hub		Long hub		Torque (Nm)		n <sub>max</sub> rpm <sup>-1</sup>	α angular misalignment per hub* (degrees)	Radial misalignment max (mm)	Coupling**	
						l	L <sub>MO</sub>	l1	L <sub>MO1</sub>	T <sub>kn</sub>	T <sub>kmax</sub>				Moment of Inertia x10 <sup>-4</sup> kg .m <sup>2</sup>	Mass [kg]
<b>GSTC-28</b>	70	3	28	40	61	12	41	31	60	600	1200	7700	2 x 1°	0,13	9,8	1,4
<b>GSTC-38</b>	85	3	38	55	65	17,5	48,5	49	80	850	1700	5800	2 x 1°	0,13	22,7	2,2
<b>GSTC-48</b>	95	3	48	65	82	16,5	56	40,5	80	1300	2600	5100	2 x 1°	0,22	43	3,1
<b>GSTC-62</b>	120	4	62	85	90	25	68	57	100	2200	4400	4000	2 x 1°	0,22	124	5,7
<b>GSTC-82</b>	145	4	82	110	96	28,5	74,5	73,5	119,5	3800	7600	3200	2 x 1°	0,24	285	8,8
<b>GSTC-98</b>	175	5	98	130	113	28,5	82,5	86,0	140	7000	14000	2750	2 x 1°	0,39	693	14,6
<b>GSTC-110</b>	198	6	110	150	130	43	105	112,5	174,5	10000	20000	2300	2 x 1°	0,48	1327	23,3
<b>GSTC-133</b>	230	8	133	180	175	56,5	140	124	207,5	15000	30000	2000	2 x 1°	0,79	3260	39,7
<b>GSTC-155</b>	270	10	155	210	214	58	160	123	225	24000	48000	1650	2 x 1°	1,05	7606	66,5
<b>GSTC-170</b>	300	10	170	230	240	65	180	130	245	34000	68000	1550	2 x 1°	1,31	13235	94

\* = maximum static misalignment for a correct mounting

\*\* = considering maximum bore

Floating shaft designs and special executions are available on request



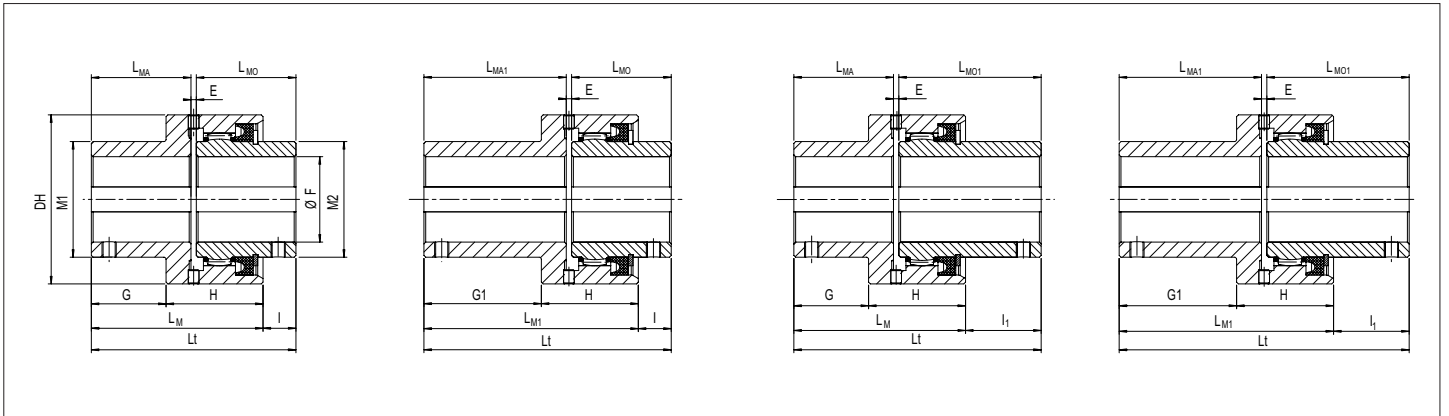
Item code examples:

<p>GST C 62 F40 L F50</p>	<p>_____ SITEX® ST coupling          _____ Type          _____ Coupling size          _____ Hub bore 1 end execution (mm)          _____ Long hub          _____ Hub bore 2 end execution (mm)</p>
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# GST type CV

Standard type made of a single hub and one sleeve. It is also available the long hub execution. Offers an economical solution

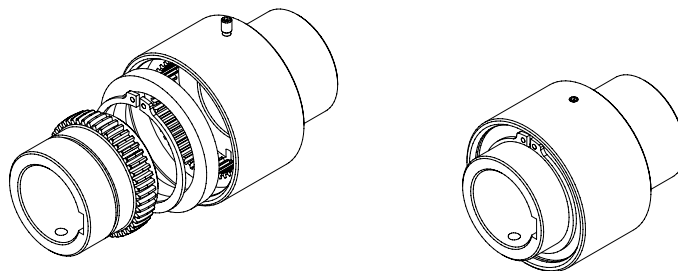
in applications without radial misalignment. Maximum bore in the table is valid for keyway seat DIN 6885/1.



Type	Dimensions (mm)														Technical data					
	D <sub>H</sub>	E	F <sub>max</sub>	H	M1	M2	Standard hub		Long hub		Standard sleeve		Long sleeve		Torque (Nm)		n <sub>max</sub> rpm <sup>-1</sup>	α angular misalignment* (degrees)	Coupling <sup>†</sup>	
							I	L <sub>MO</sub>	I1	L <sub>MO1</sub>	G	L <sub>MA</sub>	G1	L <sub>MA1</sub>	T <sub>kn</sub>	T <sub>kmax</sub>			Moment of Inertia x10 <sup>-4</sup> kg·m <sup>2</sup>	Mass [kg]
<b>GSTCV-28</b>	70	3	28	43	42	40	13	41	32	60	29	41	48	60	600	1200	7700	1°	7,1	1,1
<b>GSTCV-38</b>	85	3	38	49	55	55	16	48,5	47,5	80	35	48,5	66,5	80	850	1700	5800	1°	17,9	1,9
<b>GSTCV-48</b>	95	3	48	54,5	65	65	18,5	56	42,5	80	42	56	66	80	1300	2600	5100	1°	31,5	2,5
<b>GSTCV-62</b>	120	4	62	60	85	85	27	68	59	100	45	60	85	100	2200	4400	4000	1°	95	4,7
<b>GSTCV-82</b>	145	4	82	63	110	110	31	74,5	76	119,5	46	61,5	104	119,5	3800	7600	3200	1°	212	6,9
<b>GSTCV-98</b>	175	5	98	76	130	130	26	82,5	83,5	140	51	65,5	123,5	138	7000	14000	2750	1°	511	11,2
<b>GSTCV-110</b>	198	6	110	92	150	150	38	105	107,5	174,5	71	90	143	162	10000	20000	2300	1°	1080	19

\* = maximum static misalignment for a correct mounting

\*\* = considering maximum bore



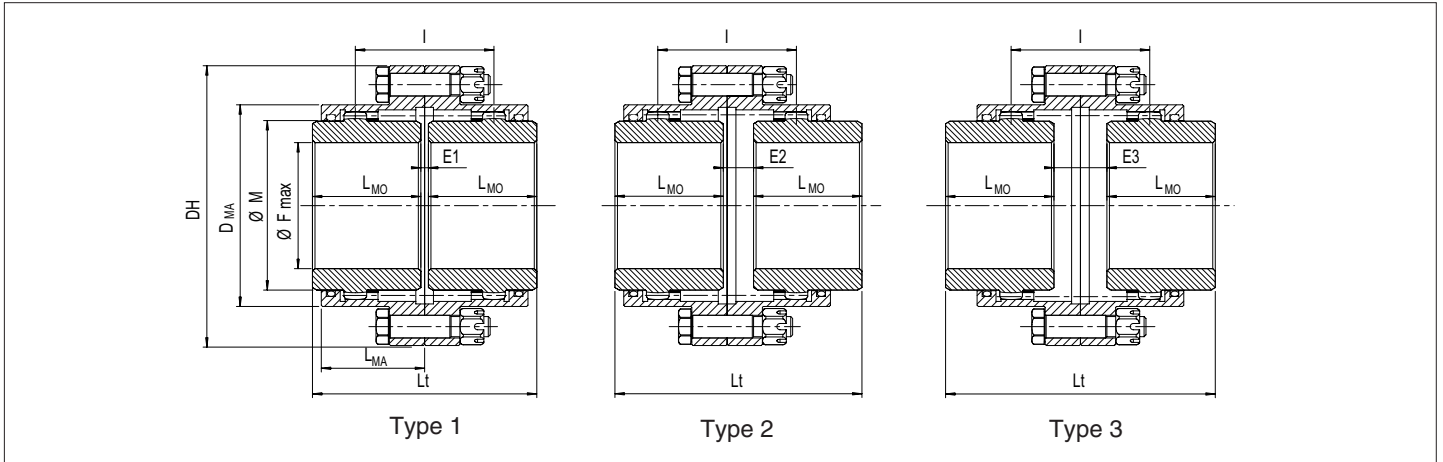
## Item code examples:

GST	CV	82	F40	L	F50CL	SITEX® ST coupling
						Type
						Coupling size
						Hub bore 1 end execution (mm)
						Long hub
						Long sleeve bore (mm)

# GST type CF

STCF range conforms to AGMA specifications with regard to flange dimensions, type and positions of the screws.

They are therefore interchangeable with any other AGMA coupling half.

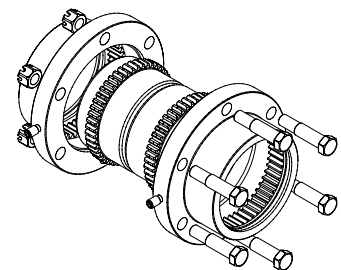


Type	Dimensions (mm)							Technical data														
	F <sub>max</sub>	D <sub>H</sub>	D <sub>MA</sub>	M	L <sub>MO</sub>	L <sub>MA</sub>	Type 1			Type 2			Type 3			Torque (Nm)		r <sub>max</sub> rpm <sup>-1</sup>	α angular misalignment per hub* (degrees)	Radial misalignment max (mm)	Type 1**	
							l	Lt	E <sub>1</sub>	l	Lt	E <sub>2</sub>	l	Lt	E <sub>3</sub>	T <sub>kn</sub>	T <sub>kmax</sub>				Moment of Inertia x10 <sup>-4</sup> kg·m <sup>2</sup>	Mass [kg]
<b>GSTCF-48</b>	48	117	83	65	43	42	55	89	3	55	98	12	55	107	21	1300	2600	5100	2 x 1°	0,48	53	3,1
<b>GSTCF-62</b>	62	152	107	85	50	48	59	103	3	59	109	9	59	115	15	2200	4400	4000	2 x 1°	0,51	193	6,6
<b>GSTCF-82</b>	82	178	129,5	110	62	59	79	127	3	79	141	17	79	155	31	3800	7600	3200	2 x 1°	0,69	423	10,6
<b>GSTCF-98</b>	98	213	156	130	76	69	93	157	5	93	169	17	93	181	29	7000	14000	2750	2 x 1°	0,81	1009	17,5
<b>GSTCF-110</b>	110	240	181	150	90	82	109	185	5	109	199	19	109	213	33	10000	20000	2300	2 x 1°	0,95	1822	25,3
<b>GSTCF-133</b>	133	280	211	180	105	98	128	216	6	128	233	23	128	250	40	15000	30000	2000	2 x 1°	1,12	4257	42,5
<b>GSTCF-155</b>	155	318	249,5	210	120	107	144	246	6	144	264	24	144	282	42	24000	48000	1650	2 x 1°	1,26	7920	61,4
<b>GSTCF-170</b>	170	347	274	230	135	120	164	278	8	164	299	29	164	320	50	34000	68000	1550	2 x 1°	1,43	11132	75,6

\* = maximum static misalignment for a correct mounting

\*\* = considering maximum bore

**Floating shaft designs and special executions are available on request**



**Item code examples:**

GST	CF	62	F40	L	F50	—	SITEX® ST coupling Type Coupling size Hub bore 1 end execution (mm) Long hub Hub bore 2 end execution (mm)
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# Coupling selection

- 1) Select the coupling according to the largest shaft diameter
- 2) Calculate the nominal torque  $T_N$  to be transmitted:

$$T_N = \frac{9550 \cdot P}{n} \quad (\text{Nm})$$

With  $P$  = nominal power installed (kW),  $n$  = rpm in the drive (1/min)

- 3) Select the correct service factors  $k_1$  and  $k_2$
- 4) Verify that the nominal torque of the coupling is greater than the corrected machine nominal torque:

$$T_{kn} \geq T_N \cdot k_1 \cdot k_2$$

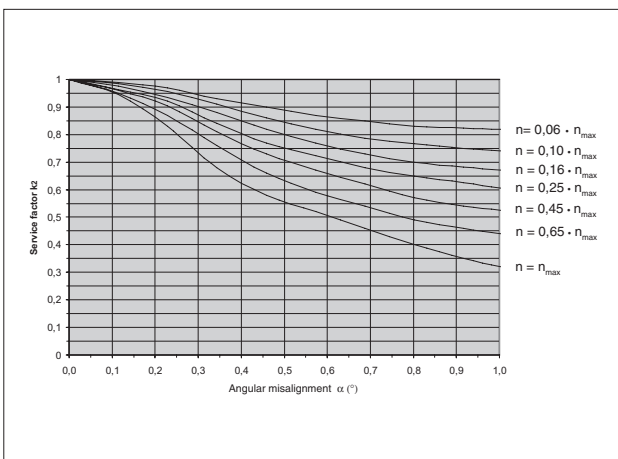
With  $k_1$  application service factor and  $k_2$  angular misalignment (per hub) service factor

- 5) Verify that the machine peak or starting torque  $T_s$  is lower than the coupling maximum torque  $T_{kmax}$
- 6) Verify that the maximum misalignments are respected.
- 7) Verify that the hub shaft connection could bear the transmission peak torque. If necessary change the hub shaft connection type.
- 8) Verify that the maximum RPM of the coupling is respected.

## Application service factor $k_1$

LOAD TYPE	TYPE OF SERVICE	APPLICATION DRIVEN MACHINE	DRIVER MACHINE		
			Electric motors or turbines	Hydraulic motors, gears drivers	Reciprocating engine Electric motors frequent starts
UNIFORM	Continuous duty without overloads, occasional starts up	Electrical generators Centrifugal pumps and compressors Light fans, escalators, belt and chain conveyors	1	1,25	1,5
LIGHT peak torque	Continuous duty with light overloads and shocks for a short time and not frequent	Multistage centrifugal blowers, Steel wire machine Reciprocating pumps, Large fans Agitators (liquids) Machine tools main drive Conveyor and elevators not uniform loaded	1,4	1,75	2
MEDIUM peak torque	Intermittent duty with frequent light shocks, medium overloads (short time)	Reciprocating compressors and pumps Cranes, Agitators (solids) Hoisting equipment, Calenders for rubber or plastic Winding machine (paper industry)	1,75	2	2,5
HEAVY peak torque	Duty with very high and frequent shocks, frequent load reversal	Laundry machines, Mixers for rubber and plastic Road and rail machines/equipment, Cranes ( heavy duty) Pulp grinders and refiners, paper presses Marine drives, mine fans, Wire drawing, Metal mills drives Heavy duty drives in steel mills, Hammer mills, rubber and plastic mills Stone crushers	2	2,5	3

## Service factor $k_2$ for angular misalignment



# Installation and maintenance

Good alignment of the shafts helps in reducing reaction forces on shafts and bearing and is important for the coupling life.

In case the hubs are machined by the user in order to adapt them to the machine, it is user responsibility:

- to control that all the parameters regarding balancing, bore concentricity and any other parameter which may affect coupling life and a safe transmission, are respected.
- to verify that the hub length and the corresponding keyway seat are compatible with the necessary torque transmission considering also the peak loads. Maximum bore diameters allowed in hubs is described in dimensional tables.
- to verify that the hub material is adequate for the clamping system.

During compensation of misalignments, axial forces are generated. These forces must be considered when dimensioning machine bearing. For a calculation, please consult our technical office.

It is also recommended that hubs are axially secured in order to avoid efforts on the seals which may cause lubricant leakage and therefore shorter coupling life.

It is therefore recommended to fix the set screw with Loctite, use an end plate or interference.

## Warning

Gear couplings are rotating parts and therefore potentially dangerous. It is therefore recommended to protect the rotating parts and comply with existing safety regulations in order to avoid any damage to people or equipment.

## Mounting

SITEX® ST couplings must be stocked before mounting in a non corrosive environment.

In case of environment with high humidity it is user responsibility to protect properly the couplings. Or ask for a special surface treatment.

Prior to start the mounting operation it is recommended to:

- verify that there is no missing or damaged component
- verify to have the necessary mounting instructions and tools necessary for mounting and shaft alignment.
- make sure that the machine is shut down and there is no risk of accidental start up
- be careful in handling the coupling components. Particular care should be paid to the geared crown.

1) Check that all components to be assembled are clean.

2) Position one Seeger ring and one seal on every shaft .

3) Position the hubs on the respective shafts. If necessary, in order to facilitate the mounting operation it is possible to heat the hubs (max 120°C). In such a case avoid contact between hub and seal until room temperature is reached.

For a safe mounting hub must be positioned flush with the shaft. Mount the set screws and tighten properly. In order to avoid accidental screws loosening due to vibration, use some Loctite glue.

4) Mount the sleeve on the longer shaft.

5) Position the units to be connected respecting the dimension "E" between the shafts.

6) Align the 2 shaft being careful that the catalogue values are respected. It is possible to use the SIT LINE-LASER to facilitate the operation.

7) Couplings are delivered without lubricant. Lightly grease the geared parts of hubs and sleeve. Lightly lubricate the seal and position them on the respective hubs.

8) Position the sleeve on the hubs. Insert the seals and the Seeger rings on the proper groove.

9) Remove the grease nipple and fill properly the chamber with grease. For the CF type, repeat the operation on the second half coupling. Position the grease nipple and tighten properly.

Inspection and maintenance

It is recommended to make a regular inspection which may detect abnormal noise, vibration or leakage

Every 5000 hours or once a year: remove grease nipples, position the coupling with one nipple at 45° with respect to the rotation axis, force grease from the bottom hole until clean grease flows out. Reinsert the nipples and tighten properly

Every 10000 hours or every 2 years: remove Seeger rings and seals, clean and inspect seals and geared parts, verify alignments and mount the coupling. Low viscosity oil may be used to clean the coupling from used grease.

## Recommended lubricants

Coupling lubrication is important for a long coupling duration.

### 1. Standard speed and load

Agip GR MV/EP 1  
Amoco coupling grease  
API: API grease PGX-0  
Caltex Coupling Grease  
Castrol Impervia MDX  
Chevron Polyurea grease EP0  
Esso Fibrax 370  
Fina Marson EPL 1  
Kübler Klüberplex GE 11-680  
IP: ATHESIA-EPO  
Mobil Mobilux EP0, Mobilgrease XTC  
Q8 Rembrandt EP0  
Shell Alvania grease EP R-0 or EP 1 Albida GC  
Texaco Coupling Grease  
Total Specis EPG  
Tribol 3020/1000-1  
Unirex RS 460, Pen-0- Led EP

### 2. High speed (> 50 m/s), high loads

Caltex Coupling Grease  
Kübler Klüberplex GE 11-680  
Mobil Mobilgrease XTC  
Shell Albida GC1