Curved Tooth Couplings
Basic Series for Industrial and Marine Technics

RENK

Curved Tooth Couplings Basic Series for Industrial and Marine Technics

Curved tooth couplings

from RENK, drive elements with profile and tradition. More than 60 years of experience in development and production of these many-sided shaft connections mean competence. Competence in drive applications. This is testified by the most extensive supply of gear couplings all over the world. The comprehensive range of curved tooth couplings extends from the torque giant with a bore diameter of 1200 mm to the Turbo design for speeds up to 40000 rpm. Standard types are available in common sizes directly from stock. Computer-optimized designs and the latest production and testing equipment ensure that our products always reflect the state-of-the-art. The standard range has thus also been revised again.

Improvements for the user's benefit

- The nominal size of the coupling is no longer synonymous with the max. permissible hub bore.
- Larger permissible hub bores permit more favourable size selection.
- Increased values for permissible angular misalignment offer more safety for shaft misalignment.
- Differentiated size determination by application of operating factors.
- Simplified selection thanks to new, clear range structuring.

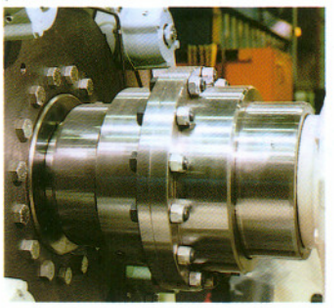
A range with method

Divided into three groups with different design features, the new range offers a comprehensive selection of curved tooth couplings of widely varying types. There are three groups because each application places its own special demands on a shaft connection. Some of these demands can be met with simple solutions, but sometimes only complex design measures are the answer. The foremost objective is always to provide the best technical solution which also offers optimum economy.

Highest quality

goes without saying. The same applies equally to all designs. Design differences do not have any influence on the quality of the coupling or its individual parts. All components are produced in accordance with the same strict quality regulations.

1



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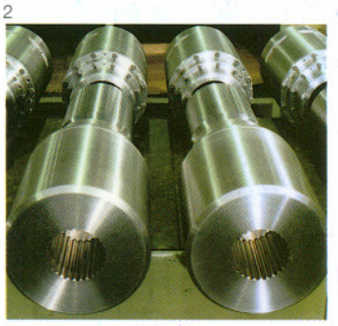

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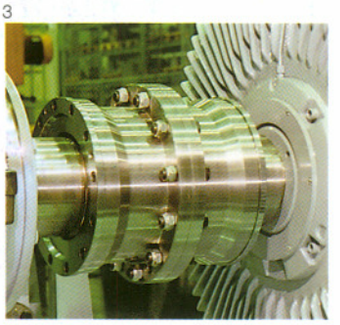

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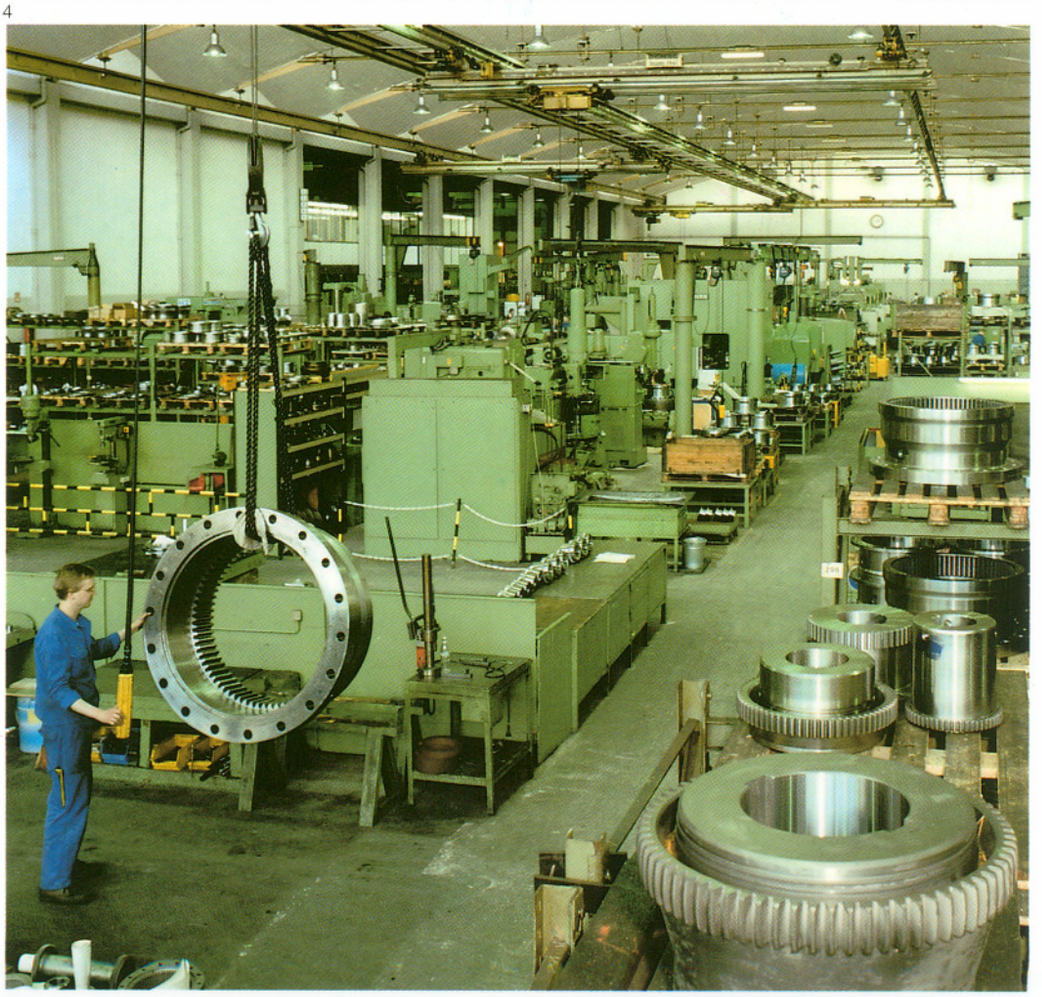

1 Curved tooth coupling of the LBk series in a wind energy converter

2 Curved tooth spindle couplings for rolling mill drives

3 Curved tooth coupling of the SB series in the drive of a cement mill.

4 Partial view of the production hall for curved tooth couplings

Since 1989 the Renk Quality System has been implemented and certified in compliance with the DIN-ISO 9001 Standard.

Oil or grease lubrication

This choice exists for all couplings of the SB series.

An advantage of oil lubrication is the simpler and faster lubricant change. In addition, the SB types offer a larger lubricant chamber with protected contents. Even if the seal is damaged, lubrication is maintained. However, the same applies equally to both oil and grease lubrication.

Available ex stock

This is true for all basic designs in the coupling sizes up to 200 or 225. Depending on type series, this therefore applies to hub bores with a diameter of 12 mm up to max. 260 mm. The same is also valid for designs with spacers or intermediate shafts, but without these additional parts. Even couplings subject to acceptance by the classification societies GL, LRS or DNV are not excepted from this.

Delivery ex-stock means rapid helb in the event of damage.

Special designs

are available in any required size, irrespective of quantity. A distinction must be made here between modified standard types and special designs. Modified designs essentially consist of elements of the basic series which have been slightly changed or equipped with additional components. Pure special designs, on the other hand, are normally complete new designs. The already produced examples on pages 38 to 41 show a selection of the extensive special range.

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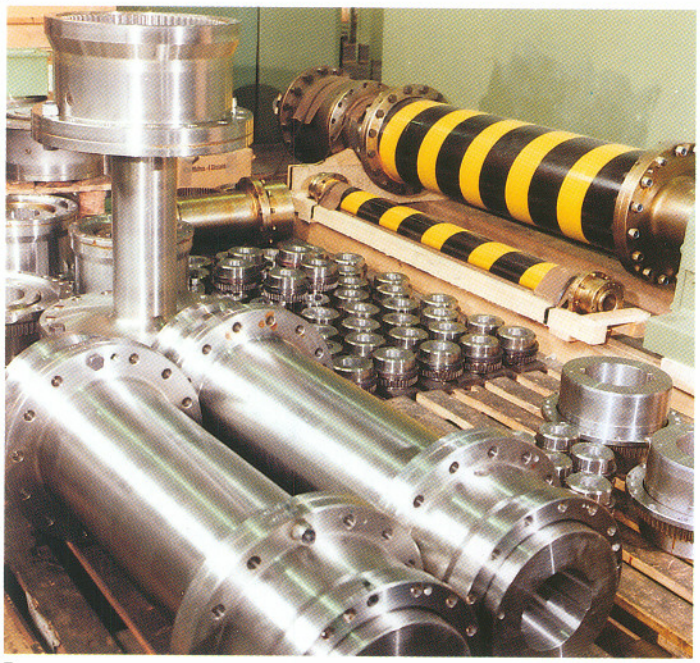

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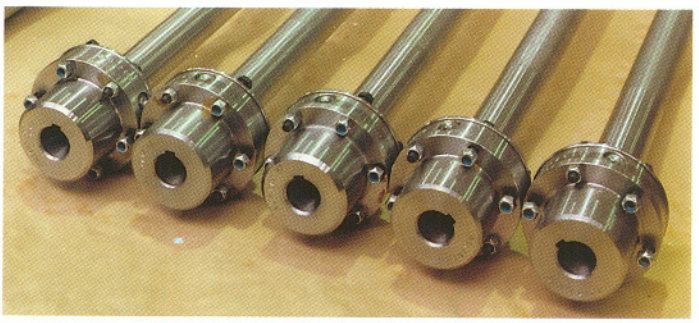

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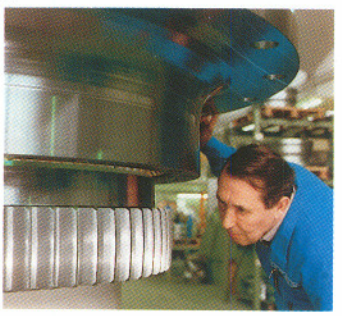


5 Curved tooth couplings of a wide variety of types in the intermediate dispatch store

6 Curved tooth couplings of the RAG series from the Rafinex program

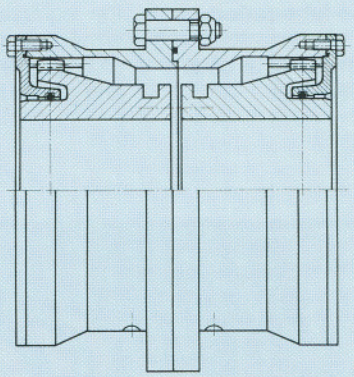
7 Final assembly of curved tooth couplings of the HBk series

8 Assembly of a curved tooth coupling of the size SBL 525 for a steel plant

Quality Characteristics

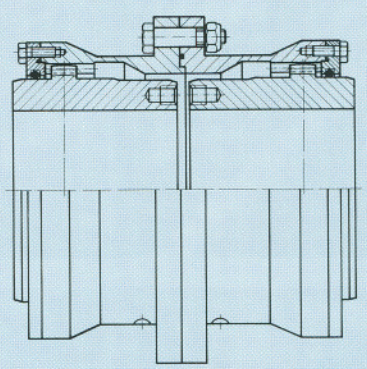
SB Series

- Technically complex design
- Split housing with bolted-on covers
- Elaborate cover design for high misalignment capacity
- Misalignment ± 1.5° per coupling half, in special design up to ± 3°
- Lubrication optionally by oil or grease
- Low load on sealing rings thanks to optimum arrangement in housing cover
- Large lubricant chamber with protected contents
- Preservation of lubrication even in the event of damaged seal
- Easy replacement of sealing rings
- Tooth tip centering, optionally cover centering possible
- Large tooth center spacing
- Combination possibility with HYGUARD® safety elements, brake disks, torque measuring shafts or other attachments.



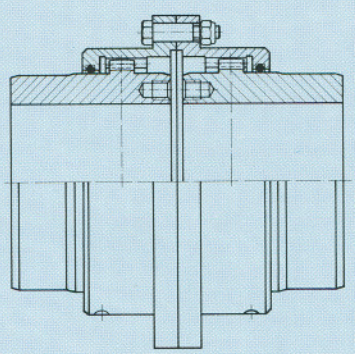
SBk Series

- Split housing with bolted-on covers
- Misalignment ± 0.75° per coupling half
- Grease lubrication, optionally with long-time grease filling
- Easy replacement of sealing rings thanks to unscrewable cover
- Tooth tip centering
- Large tooth center spacing
- Large hub bores
- Interchangeable hubs to cope with different shaft spacings
- Combination possibility with HYGUARD® safety elements, brake disks, torque measuring shafts or other attachments.



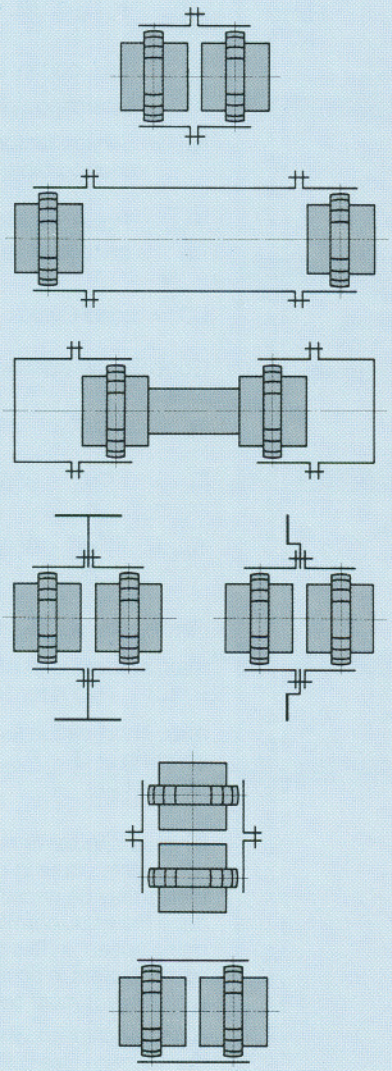
LBk - Series

- Split housing with fixed covers
- Misalignment ± 0.75° per coupling half
- Grease lubrication, optionally with long-time grease filling
- Tooth tip centering
- Large hub bores
- Low weight thanks to compact and light housing
- Variable overall length thanks to shortenable hubs
- Combination possibility with HYGUARD® safety elements, brake disks, torque measuring shafts or other attachments.



Summary
Contents

Coupling Forms



Technical Annex

Coupling Selection and Size Determination

Table 1, Service Factor

Machine	Service Factor K_1 [1]
Excavators	
Chain bucket excavators	2,0
Travelling gear (caterpillar)	1,8
Travelling gear (rails)	1,6
Suction pumps	1,6
Bucket wheels	1,8
Cutter heads	2,0
Slewing gear	1,4
Winches	1,6
Mining, stones	
Crushers	2,24
Rotary kilns	1,8
Mine ventilators	2,0
Vibrators	1,6
Chemical plant	
Agitators (thin liquid)	1,25
Agitators (viscous liquid)	1,6
Centrifuges (light)	1,4
Centrifuges (heavy)	1,8
Conveyor plants	
Conveyors	1,8
Slatted conveyors	1,6
Belt conveyors (bulk materials)	1,4
Slatted conveyors (piece goods)	1,6
Pocket belt conveyors	1,25
Bucket chain conveyors	1,4
Rotary conveyors	1,4
Elevators	1,4
Bucket type flour elevators	1,25
Lifts	1,8
Apron conveyors	1,4
Screw conveyors	1,4
Steel belt conveyors	1,4
Redler conveyors	1,4
Blowers, ventilators	
Rotary piston blowers	1,4
Blowers (axial and radial)	1,25
Cooling tower ventilators	1,4
Induced draught fans	1,4
Turbo-blowers	1,25
Generators, converters	
Frequency converters	2,24
Generators	1,4
Welding generators	2,24
Rubber and plastics machinery	
Extruders	1,6
Calenders	1,6
Kneader machines	1,8
Mixers	1,8
Rolling plant	1,8
Wood processing machines	
Debarking drums	1,8
Planers	1,4
Frame saws	1,4
Steel plants	
Blast furnace blowers	1,4
Converters	2,0
Inclined blast furnace elevators	1,8
Slag crushers	1,8
Cranes	
Luffing gear	1,25
Traversing gear	1,6
Hoists	1,4
Slewing gear	1,4
Winches	1,25
Metal working	
Press brakes	1,6
Sheet straighteners	1,8
Hammers	1,8
Shears	1,6
Forging presses	1,8
Stamping machines	1,8
Mills	
Hammer mills	2,0
Ball mills	2,0
Suspended roller mills	2,0
Impact mills	2,0
Rod mills	2,0
Roller mills	2,0
Food machinery	
Fillers	1,25
Kneading machines	1,4
Packaging machines	1,25
Sugar cane crushers	1,6
Sugar cane cutters	1,6
Sugar cane mills	1,8
Sugar beet cutters	1,6
Sugar beet washing plant	1,6
Paper machines	
Couch presses	1,8
M. G. cylinders	2,0
Reels	1,8
Beating engines	1,6
Pulp grinders	1,8
Calenders	1,6
Wet presses	1,8
Opening machines	1,8
Agitators	1,8
Suction presses	1,6
Suction couch rolls	1,8
Drying cylinders	2,0
Presses	
Folding presses	1,8
Briquetting presses	2,5
Eccentric presses	2,0
Forging presses	2,25
Brick moulding presses	2,5
Pumps	
Centrifugal pumps (thin liquid)	1,25
Centrifugal pumps (viscous liquid)	1,4
Reciprocating pumps (U ≦ 1:100)	1,8
Reciprocating pumps (U = 1:100-200)	1,6
Plunger pumps	2,0
Sludgers	1,4
ELMO-Vacuum pump	1,5
Textile machines	
Winders	1,6
Printing and drying machines	1,6
Tanning vats	1,6
Calenders	1,6
Opening machines	1,6
Weaving looms	1,6
Compressors	
Reciprocating compressors	2,0
Reciprocating compressors	1,6
Turbo compressors	1,6
Rolling mills	
Sheet metal shears	1,8
Sheet turning machines	1,6
Ingot slab mills	2,0
Block conveyors	1,8
Block pushers	2,0
Tape and wire reels	1,4
Descalers	1,6
Sheet mills	1,8
Plate mills	2,0
Cold rolling mills	2,0
Track-type tractors	1,6
Billet shears	1,8
Cooling beds	1,4
Transfer skids	1,4
Roller tables (light)	1,4
Roller tables (heavy)	1,8
Roller levellers	1,6
Trimming shears	1,4
End shears	1,8
Looplifters	1,4
Roller control gear	1,4

1) The service factor K_1 is applicable to electric motor or turbine drives. For drives by hydraulic motor or internal combustion engines, the factor K_1 has to multiplied by 1.1.

Size determination

Condition for continuous output

$$\frac{P_N}{n} \cdot K_1 \leq \frac{P_{KN}}{n} \text{ (kW · min)}$$

P_N = max. contin. output (kW)

n = Operating speed (rpm)

K_1 = Service factor accordance to table 1

$\frac{P_{KN}}{n}$ = Power factor in accordance with dim. table

LC = Load Cycles

Condition for continuous torque T_N

$T_N \cdot K_1 \leq T_{KN}$

$$T_N = \frac{P_{KN}}{n} \cdot 9550 \text{ (Nm)}$$

$$T_{KN} = \frac{P_{KN}}{n} \cdot 9550 \text{ (Nm)}$$

Permissible additional loads:

max. starting load of coupling = $1.5 \cdot P_{KN}/n$ for 10^5 LC

max. short-circuit load of coupling = $3 \cdot P_{KN}/n$ for 10^3 LC

If higher angular or radial misalignments occur in operation, then it may be necessary to reduce the max. permissible operating speed. In this case, the speed factors in accordance with Table 2 must be used.

A further criterion when defining the coupling size is the max. permissible bore diameter. For this reason, the bore must be checked after output-related determination of the coupling. If this bore does not permit mounting of the existing shaft, then a correspondingly larger coupling must be selected.

Important note

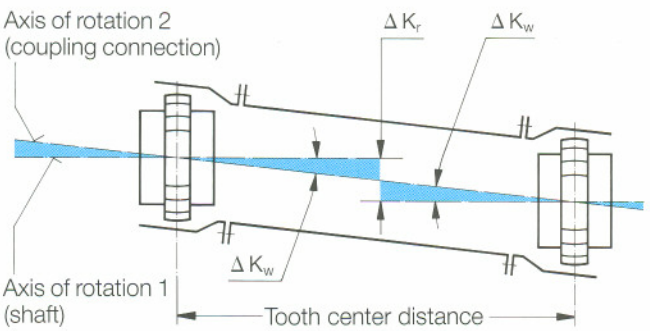
The values specified in the dimension tables for the max. permissible bore apply to keyed connections only if the groove height does not exceed the dimensions in accordance with DIN 6885. Please enquire if the groove is higher.

The power transmission capacity of the shaft-hub connection has to be verified by the purchaser.

Misalignment

Misalignments mostly occur in combined form in practice. The angular misalignment ΔK_w of the coupling connection results from the radial misalignment ΔK_r of the shafts.
Additional angular misalignment of axis of rotation 1 (shaft) changes the angle ΔK_w with respect to axis of rotation 2 (coupling connection). Misalignments in the blue area do not cause any increase in the value ΔK_w. ΔK_w increases outside this area. The overall misalignment must not exceed $\Delta K_{w\,perm.}$. The respective dimension tables contain details about the permissible angular misalignment for the different type series.

Schematic depiction of misalignment



ΔK_r = Radial misalignment

ΔK_w = Angular misalignment

1) Applies to angular misalignments which occur continuously in operation. The factor f can be interpolated for intermediate values.

Table 2, Speed factors

Coupling type		Speed factor f for angular misalignment ΔK_w [1]					
SB Size	**SBK & LBk** Size	Values over 0.75° apply to type SB only					
		0,25°	0,5°	0,75°	1°	1,25°	1,5°
—	**32**	1	1	1	–	–	–
30	**38**	1	1	0,90	0,68	0,54	0,45
40	**48**	1	1	0,75	0,57	0,45	0,38
50	**60**	1	1	0,70	0,52	0,42	0,35
60	**70**	1	0,93	0,63	0,47	0,37	0,31
70	**80**	1	0,89	0,59	0,44	0,35	0,30
80	**90**	1	0,85	0,57	0,42	0,34	0,28
90	**100**	1	0,80	0,54	0,40	0,32	0,27
100	**110**	1	0,82	0,54	0,41	0,33	0,27
110	**125**	1	0,80	0,53	0,40	0,32	0,27
125	**140**	1	0,78	0,52	0,39	0,31	0,26
140	**160**	1	0,75	0,50	0,37	0,30	0,25
160	**180**	1	0,72	0,48	0,36	0,29	0,24
180	**200**	1	0,68	0,45	0,34	0,27	0,23
200	**225**	1	0,64	0,43	0,32	0,26	0,21
220	**250**	1	0,66	0,44	0,33	0,27	0,22
240	**265**	1	0,66	0,44	0,33	0,27	0,22
260	**280**	1	0,65	0,43	0,33	0,27	0,22
280	**315**	1	0,62	0,43	0,31	0,25	0,21
300	**335**	1	0,63	0,42	0,31	0,25	0,21
320	**355**	1	0,63	0,41	0,31	0,25	0,21
340	**375**	1	0,60	0,40	0,30	0,24	0,20
360	**400**	1	1	0,67	0,51	0,40	0,34
380	**425**	1	1	0,67	0,50	0,40	0,34
400	**450**	1	1	0,67	0,50	0,40	0,33

Speed factors

The maximum permissible operating speed $n_{perm.}$ depends on the type and size of the coupling and on the misalignments occurring during operation. It is determined in accordance with the formula $n_{perm.} = n_{max.} \cdot f$

n_{max} in accordance with the specification in the dimension table.
Speed factor f in accordance with Table 2.

The continuously occurring angular misalignment ΔK_w is decisive for determination of the speed factor. The angular misalignment resulting from the radial misalignment ΔK_r can be calculated linearly from the values of the dimension tables.

The following relationship applies $\Delta K_w = \frac{\Delta K_{w\,perm.}}{\Delta K_{r\,max.}} \cdot \Delta K_{r\,actual}$.

$\Delta K_{w\,perm.}$ = permissible angular misalignment (degrees, decimal value)
$\Delta K_{r\,max.}$ = max. static radial misalignment (mm)
$\Delta K_{r\,actual}$ = radial misalignment in operation (mm)

Example: Coupling SB 100 with 1.2 mm radial misalignment

$$\Delta K_w = \frac{1.5}{5.25} \cdot 1.2 = 0.34°$$

Table 2 specifies the factor f = 0.82 for 0.5°. A factor f = 0.94 is calculated for 0.34° by interpolation.

Example:

Required: Coupling between electric motor and centrifugal pump

Known: P_N = 380 kW pump power
Electric motor size 400 L
n = 1490 rpm
Shaft diameter pump d = 60 mm
Shaft diameter motor d = 100 mm
Service factor K_1 = 1.25 (centrifugal pump for thin liquid)
A larger distance is required between motor and pump for removal of the stuffing boxes. For this reason, a coupling with spacer must be provided:
The dimension L shall be 280 mm.
The specification requires oil lubrication.

Size determination

$$\frac{P_N}{n} \cdot K_1 = \frac{380}{1490} \cdot 1.25 = 0.319$$

Selection in accordance with dimension table 243129 results in a coupling

SBL 60 with $\frac{P_{KN}}{n} = 0.50$

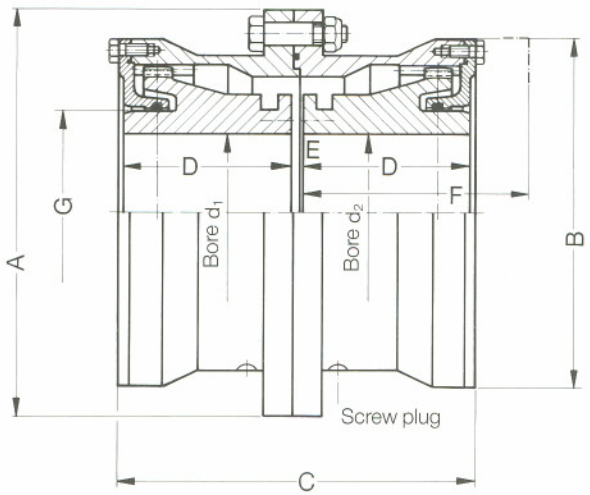
Check of bore diameter

Bore d_1; $d_{2\,max.}$ = 70 mm
However, the motor shaft requires a bore diameter of 100 mm.

For this reason, the coupling SBL 90 is selected with a bore d_1; $d_{2\,max.}$ = 100 mm and spacer length L = 280 mm.
The requirement L > 120 mm in accordance with the table on page 32 is thus also satisfied.
A speed factor need not be taken into account since no significant misalignments occur during operation.

Curved Tooth Couplings
Series SB

Dimension Table No. 243 125



The tables on page 33 contain information on torsional spring rates.

Dismounting dimension F is required for vertical installation and removal of machines.

The couplings of the SB series are also available in electrically insulated design for use in electrical installations.

1) Referred to a permissible angular misalignment of $\Delta K_{w\,perm.} = 1.5°$ per coupling half. Higher values are possible but require special measures.

2) Values of the complete coupling with bore d_1; $d_{2\,max}$.

Sizes 30 to 200 available ex stock.

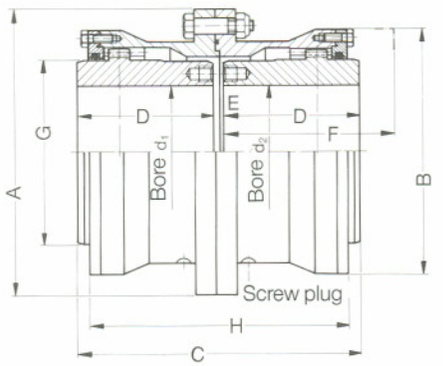
Larger sizes on request.
Subject to dimensional modifications.

Coupling type SB Size	Norm. cont. duty $\frac{P_{KN}}{n}$ kW · min	Speed $n_{max.}$ rpm	Dimensions Bore $d_1;d_2$ pre mm	Bore min mm	Bore max mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	Max. static 1) radial misalignment $\Delta K_{r\,max}$ mm	Total grease quantity kg	Total oil quantity Liter	Mass moment of inertia 2) kgm^2	Weight 2) kg
30	0,082	7500	10	12	32	118	92	108	50	5	75	45	± 1,95	0,085	0,027	0,0064	4,4
40	0,146	6900	20	22	46	145	115	128	60	5	90	60	± 2,70	0,09	0,043	0,0170	7,5
50	0,288	6300	20	22	58	165	135	148	70	5	110	75	± 3,00	0,17	0,070	0,033	11,2
60	0,50	5900	26	28	70	200	160	172	80	6	120	90	± 3,45	0,25	0,11	0,082	18,4
70	0,82	5400	26	28	78	220	178	192	90	6	130	100	± 3,90	0,35	0,15	0,133	26
80	1,14	5000	30	32	92	240	196	212	100	6	150	120	± 4,35	0,40	0,20	0,200	32
90	1,64	4700	30	32	100	270	225	236	110	8	170	130	± 4,80	0,60	0,30	0,38	47
100	2,30	4300	53	55	110	280	240	256	120	8	180	140	± 5,25	0,75	0,35	0,49	54
110	2,88	4000	63	65	120	310	265	276	130	8	190	155	± 5,70	1,00	0,45	0,82	72
125	4,60	3700	73	75	138	340	295	320	150	10	215	175	± 6,45	1,3	0,65	1,35	100
140	6,48	3400	83	85	156	390	325	350	165	10	230	200	± 7,20	1,6	0,85	2,41	142
160	9,24	3100	118	120	180	435	370	404	190	12	270	230	± 8,40	2,6	1,4	4,3	199
180	12,92	2900	138	140	200	480	415	456	220	12	300	260	± 9,60	3,3	1,8	7,5	285
200	18,4	2700	158	160	225	545	465	512	245	14	340	290	±10,80	4,8	2,5	14,1	420
220	25,6	2400	158	160	250	580	510	556	270	16	360	355	±12,00	5	2,5	19,7	514
240	32,8	2200	178	180	275	645	560	598	290	18	380	390	±12,80	7	3,5	29,9	657
260	41,0	2100	198	200	295	680	595	640	310	20	400	415	±13,50	8	4	42,3	797
280	51,4	2000	218	220	325	745	660	702	340	22	440	460	±14,25	10	6	69	1065
300	64,8	1900	238	240	340	775	675	744	360	24	470	480	±15,00	11	8	84	1220
320	82,0	1800	258	260	375	825	725	786	380	26	500	525	±16,50	13	9	119	1470
340	98,6	1700	278	280	400	915	795	808	390	28	520	560	±16,50	20	11	184	1870
360	118,3	950	297	300	420	960	840	830	400	30	540	590	±16,50	26	12	244	2245
380	138,0	900	317	320	445	1010	890	870	420	30	560	625	±18,00	29	13	345	2610
400	165,1	875	337	340	460	1050	925	890	430	30	580	650	±18,00	32	15	368	2780

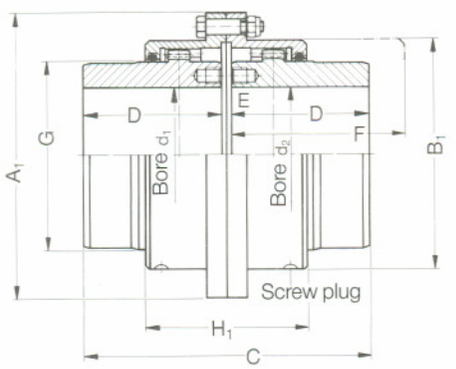
Curved Tooth Couplings
Series SBk and LBk

Dimension Table No. 243 126

Series SBk



Series LBk

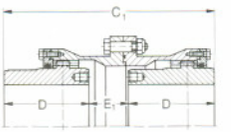


Sizes 32 to 225 available ex stock

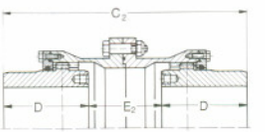
Larger sizes on request.
Subject to dimensional modifications.

Dismounting dimension F is required for vertical installation and removal of machines.

Arrangement II



Arrangement III



The design of the SBk series permits different arrangements of the hubs in the housing, thus permitting even larger shaft distances to be bridged. In the case of tapered bores, the increased E-dimension offers space for installation of shaft nuts.

Both the SBk and LBk couplings are available in electrically insulated design for use in electrical installations.

Size	Series LBk: Max. static [1] radial misalignment $\Delta K_{W\,max.}$ mm	Total grease quantity kg	Mass moment [2] of inertia kgm^2	Weight [2] kg
32	± 0,57	0,03	0,0034	2,9
38	± 0,69	0,04	0,0059	4,3
48	± 0,71	0,06	0,015	7,0
60	± 0,77	0,10	0,026	9,3
70	± 0,78	0,15	0,059	14,7
80	± 0,84	0,22	0,097	20,0
90	± 0,92	0,29	0,14	25,4
100	± 1,08	0,44	0,28	38,0
110	± 1,23	0,55	0,36	45,6
125	± 1,34	0,79	0,64	62
140	± 1,44	0,90	1,03	82
160	± 1,70	1,23	1,5	120
180	± 1,89	1,9	3,6	177
200	± 2,12	2,4	6,2	245
225	± 2,42	3,7	11,2	347

The tables on page 33 contain information on the torsional spring rates.

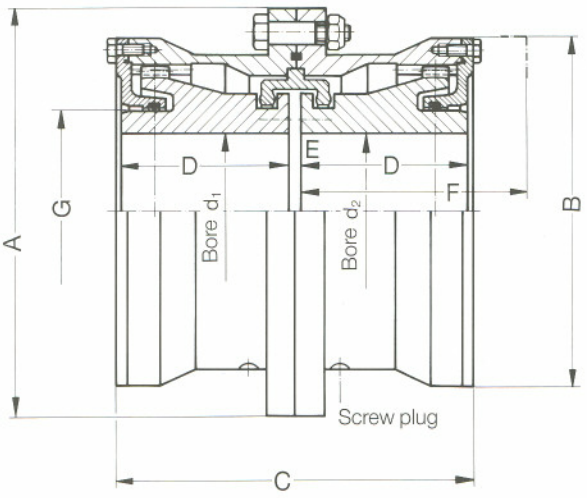
1) Referred to a permissible angular misalignment of $\Delta K_{W\,perm.} = 0.75°$ per coupling half. Higher values are possible but require special measures.

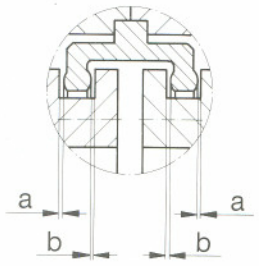
2) Values of the complete coupling for bores d_1; $d_{2\,max.}$.

Coupling types **SBk and LBk** Size	Norm. cont. duty $\frac{P_{kN}}{n}$ kW · min	Speed $n_{max.}$ rpm	Dimensions: Bore d1;d2; min. mm	Bore d1;d2; max. mm	A mm	A_1 mm	B mm	B_1 mm	C mm	C_1 mm	C_2 mm	D mm	E mm	E_1 mm	E_2 mm	F mm	G mm	H mm	H_1 mm	Series SBk: Max. static [1] radial misalignment $\Delta K_{W\,max.}$ mm	Total grease quantity kg	Mass moment of inertia J [2] kgm^2	Weight [2] kg
32	0,050	8500	12	35	–	105	–	74	104	–	–	50	4	–	–	80	48	–	90	–	–	–	–
38	0,082	7500	12	42	118	115	92	88	125	137	149	60	5	17	29	90	60	115	101	±1,01	0,085	0,007	4,6
48	0,146	6900	22	55	145	145	115	108	145	166	187	70	5	26	47	100	77	135	102	±1,26	0,09	0,018	8,1
60	0,288	6300	22	65	165	165	135	125	166	193	220	80	6	33	60	110	90	155	107	±1,50	0,17	0,036	11,9
70	0,50	5900	28	80	200	195	160	146	186	222	258	90	6	42	78	120	112,5	178	112	±1,73	0,25	0,087	20
80	0,82	5400	28	92	220	215	178	168	206	248	290	100	6	48	90	130	128	198	119	±1,95	0,35	0,146	27
90	1,14	5000	32	105	240	230	196	185	228	276	324	110	8	56	104	140	145	218	127	±2,25	0,40	0,22	33
100	1,64	4700	32	115	270	265	225	210	258	309	360	125	8	59	110	150	160,5	244	148	±2,40	0,60	0,42	50
110	2,30	4300	55	126	280	270	240	224	288	342	396	140	8	62	116	170	176	264	161	±2,70	0,75	0,55	59
125	2,88	4000	65	145	310	305	265	245	310	368	426	150	10	68	126	180	200,5	284	175	±2,85	1,0	0,91	78
140	4,60	3700	75	162	340	330	295	270	350	420	490	170	10	80	150	200	224,5	330	197	±3,30	1,3	1,58	111
160	6,48	3400	85	185	390	375	325	305	392	464	536	190	12	84	156	230	256,5	360	221	±3,60	1,6	2,78	154
180	9,24	3100	120	210	435	425	370	348	452	540	628	220	12	100	188	260	288,5	416	250	±4,20	2,6	4,96	218
200	12,92	2900	140	230	480	470	415	392	514	616	718	250	14	116	218	300	320,5	476	272	±4,80	3,3	8,4	305
225	18,4	2700	160	260	545	535	465	437	576	688	800	280	16	128	240	330	362	532	315	±5,40	4,8	15,6	445
250	25,6	2400	160	280	580	–	510	–	620	752	884	300	20	152	284	350	400	556	–	±6,00	5	21,8	550
265	32,8	2200	180	310	645	–	560	–	680	815	948	330	20	154	288	380	440	600	–	±6,30	7	34,0	735
280	41,0	2100	200	325	680	–	595	–	680	854	1028	330	20	194	368	380	460	640	–	±6,75	8	45,5	850
315	51,4	2000	220	360	745	–	660	–	740	926	1112	360	20	206	392	420	510	702	–	±6,75	10	71	1060
335	64,8	1900	240	380	775	–	675	–	780	981	1182	380	20	221	422	440	535	744	–	±7,50	11	88	1275
355	82,0	1800	260	410	825	–	725	–	825	1034	1243	400	25	234	443	460	580	786	–	±8,25	13	127	1530
375	98,6	1700	280	440	915	–	795	–	865	1061	1257	420	25	221	417	480	620	808	–	±8,25	20	192	1920
400	118,3	950	330	470	960	–	840	–	905	1094	1283	440	25	214	403	500	665	830	–	±8,25	26	242	2200
425	138,0	900	355	500	1010	–	890	–	945	1145	1345	460	25	225	425	520	710	870	–	±9,00	29	330	2640
450	165,1	875	370	520	1050	–	925	–	990	1180	1370	480	30	220	410	550	730	890	–	±9,00	32	389	3035

Curved Tooth Couplings
Series SBR

Dimension Table No. 243127





Sizes 30 to 200 available ex stock.

Larger sizes on request.
Subject to dimensional modifications.

The series SBR is equipped with a U-shaped retaining ring for axial backlash restriction. In this design, the permissible angular misalignment depends on the axial backlash values a and b.

The max. static radial misalignment can be calculated from the values of the comparable SB type with a factor 0.4.

Dismounting dimension F is required for vertical installation and removal of machines, and for alignment and assembly of retaining ring.

The tables on page 33 contain information on the torsional spring rates.

1) The permissible angular misalignment is $\Delta K_{w\,perm.} = 0.6°$ per coupling half with the values specified in the list. The axial backlash values a and b can be changed if this is required by the operating conditions.

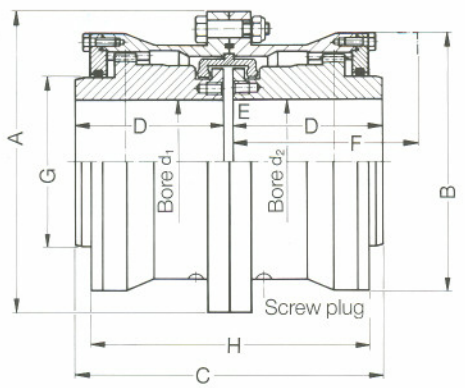
2) Values of the complete coupling for bore d_1; $d_{2\,max.}$

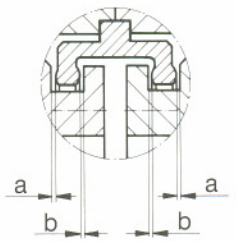
Coupling **SBR** Size	Norm. contin. duty $\frac{P_{KN}}{n}$	Speed $n_{max.}$	Dimensions Bore $d_1; d_2$ pre	Bore min	Bore max	A	B	C	D	E	F	G	Axial clearance [1] a and b	Total grease quantity	Total oil quantity	Mass moment [2] of inertia	Weight [2]
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	Liter	kgm^2	kg
30	0,082	7500	10	12	32	118	92	110	50	5	75	45	0,5	0,08	0,08	0,0064	4,7
40	0,146	6900	20	22	46	145	115	131	60	5	90	60	0,5	0,16	0,16	0,0170	7,8
50	0,288	6300	20	22	58	165	135	151	70	5	110	75	0,5	0,26	0,26	0,035	12,0
60	0,50	5900	26	28	70	200	160	175	80	6	120	90	0,5	0,43	0,43	0,085	19,4
70	0,82	5400	26	28	78	220	178	197	90	6	130	100	0,5	0,57	0,57	0,14	27,3
80	1,14	5000	30	32	92	240	196	217	100	6	150	120	0,5	0,74	0,74	0,21	33
90	1,64	4700	30	32	100	270	225	241	110	8	170	130	0,5	1,2	1,2	0,40	50
100	2,30	4300	53	55	110	280	240	261	120	8	180	140	1,0	1,4	1,4	0,52	57
110	2,88	4000	63	65	120	310	265	282	130	8	190	155	1,0	1,8	1,8	0,83	74
125	4,60	3700	73	75	138	340	295	325	150	10	215	175	1,0	2,4	2,4	1,41	105
140	6,48	3400	83	85	156	390	325	355	165	10	230	200	1,0	3,1	3,1	2,45	148
160	9,24	3100	118	120	180	435	370	410	190	12	270	230	1,0	4,5	4,5	4,51	209
180	12,92	2900	138	140	200	480	415	462	220	12	300	260	1,0	7,0	7,0	7,8	297
200	18,4	2700	158	160	225	545	465	519	245	14	340	290	1,0	10,7	10,7	14,6	428
220	25,6	2400	158	160	250	580	510	556	270	16	360	355	1,5	11,5	11,5	21,7	540
240	32,8	2200	178	180	275	645	560	598	290	18	380	390	1,5	12,5	12,5	32,5	682
260	41,0	2100	198	200	295	680	595	640	310	20	400	415	1,5	14	14	44,3	832
280	51,4	2000	218	220	325	745	660	702	340	22	440	460	1,5	17	17	73	1130
300	64,8	1900	238	240	340	775	675	744	360	24	470	480	1,5	20	20	88	1275
320	82,0	1800	258	260	375	825	725	786	380	26	500	525	1,5	24	24	124	1535
340	98,6	1700	278	280	400	915	795	808	390	28	520	560	1,5	28	28	185	1900

Curved Tooth Couplings
Series SBRk and LBRk

Dimension Table No. 243 128

Series SBRk



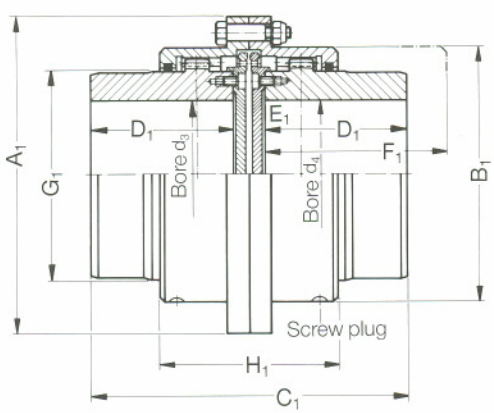


The series SBRk is equipped with a U-shaped retaining ring for axial backlash limitation. In this design, the permissible angular misalignment depends on the axial backlash values a and b.

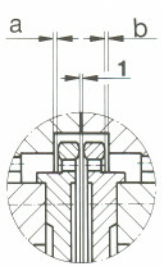
Dismounting dimension F is required for vertical installation and removal of machines and for assembly of retaining ring.

Size	Series LBRk: Axial clearance [1] a and b mm	Total grease quantity kg	Mass [2] moment of inertia kgm²	Weight [2] kg
32	0,5	0,03	0,0037	3,5
38	0,5	0,04	0,0064	5,0
48	0,5	0,06	0,017	8,2
60	0,5	0,10	0,028	10,5
70	0,5	0,15	0,088	17,5
80	0,5	0,22	0,10	23,0
90	0,5	0,29	0,16	30,0
100	0,5	0,44	0,32	45,0
110	1,0	0,55	0,42	55,0
125	1,0	0,79	0,72	73,0
140	1,0	0,90	1,2	96,0
160	1,0	1,23	3,16	139,0
180	1,0	1,90	5,68	200,0
200	1,0	2,40	6,77	285,0
225	1,0	3,70	12,2	400,0

Series LBRk



The max. static radial misalignment can be calculated from the values of the comparable SBk and LBk types with a factor of 0.8.



The series LBRk is equipped with two crowned retaining plates for axial backlash limitation. In this design, the permissible angular misalignment depends on the axial backlash values a and b.

Dismounting dimension F_1 is required for vertical installation and removal of machines.

The tables on page 33 contain information on the torsional spring rates.

1) The permissible angular misalignment is $\Delta K_{w\,perm.} = 0.6°$ per coupling half for the value specified in the list. The axial backlash values a and b can be changed if required by the operating conditions.

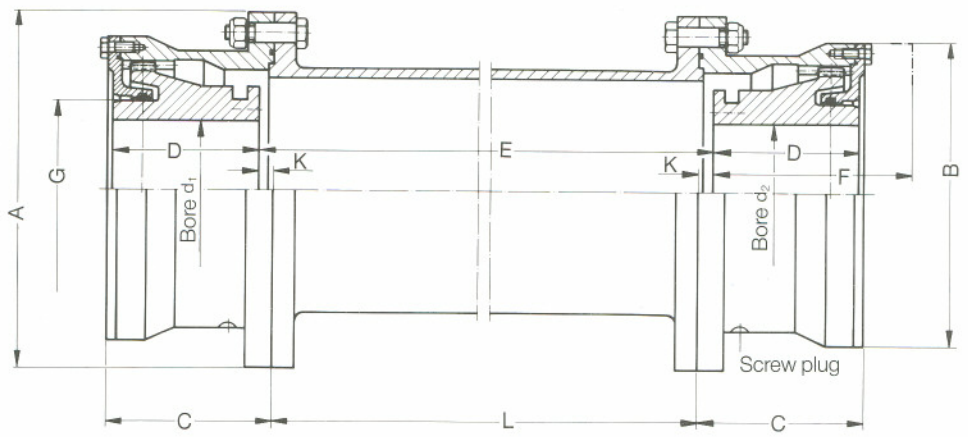
2) Values of the complete coupling for bore d_1; $d_{2\,max.}$

Larger sizes on request.
Subject to dimensional modifications.

Coupling types SBRk and LBRk Size	Norm. cont. duty P_{KN}/n kW · min	Speed $n_{max.}$ kg	Dimensions: Bore d_1-d_4 min. mm	Bore d_1;d_2 max. mm	Bore d_5;d_4 max. mm	A mm	A_1 mm	B mm	B_1 mm	C mm	C_1 mm	D mm	D_1 mm	E mm	E_1 mm	F mm	F_1 mm	G mm	G_1 mm	H mm	H_1 mm	Series SBRk: Axial clearance [1] a and b mm	Total grease quantity kg	Mass [2] moment of inertia kgm²	Weight [2] kg
32	0,050	8500	12	32	30	–	105	–	74	–	107	–	45	–	17	–	75	–	48	–	90	–	–	–	–
38	0,082	7500	12	40	40	118	115	92	88	125	129	60	55	5	19	90	85	52	60	117	101	0,5	0,07	0,0084	5,1
48	0,146	6900	22	50	50	145	145	115	108	145	148	70	65	5	19	100	95	71	77	138	102	0,5	0,14	0,022	9,0
60	0,288	6300	22	63	65	165	165	135	125	166	170	80	75	6	20	110	105	83	90	158	107	0,5	0,21	0,041	12,8
70	0,50	5900	28	75	80	200	195	160	146	186	193	90	85	6	23	120	115	103	112	181	112	0,5	0,28	0,10	22
80	0,82	5400	28	85	92	220	215	178	168	206	213	100	95	6	23	130	125	116	128	203	119	0,5	0,44	0,16	29
90	1,14	5000	32	95	105	240	230	196	185	228	233	110	105	8	23	140	135	133	145	223	127	0,5	0,60	0,25	37
100	1,64	4700	32	105	115	270	265	225	210	258	265	125	120	8	25	150	145	142	160	249	148	0,5	0,90	0,49	55
110	2,30	4300	55	115	126	280	270	240	224	288	296	140	135	8	26	170	165	156	176	269	161	1,0	1,0	0,65	65
125	2,88	4000	65	130	145	310	305	265	245	310	318	150	145	10	28	180	175	177	200	290	175	1,0	1,1	1,10	86
140	4,60	3700	75	150	162	340	330	295	270	350	358	170	165	10	28	200	195	200	224	335	197	1,0	1,4	1,83	119
160	6,48	3400	85	170	185	390	375	325	305	392	403	190	185	12	33	230	225	230	256	365	221	1,0	1,7	3,12	167
180	9,24	3100	120	190	210	435	425	370	348	452	466	220	215	12	36	260	255	261	288	422	250	1,0	2,8	5,75	243
200	12,92	2900	140	210	230	480	470	415	392	514	528	250	245	14	38	300	295	296	320	482	272	1,0	4,6	9,6	337
225	18,4	2700	160	240	260	545	535	465	437	576	591	280	275	16	41	330	325	338	362	539	315	1,0	7,1	17,8	475

Curved Tooth Couplings
Series SBL

Dimension Table No. 243 129



Dismounting dimension F is required for vertical installation and removal of machines.

The tables on page 34 contain information on the torsional spring rates and mass moments of inertia of the couplings with spacer and on weights.

Refer to page 32 for information on lubrication quantities for spacer.

The max. permissible static radial misalignment depends on the permissible angular misalignment and the length of the spacer. The permissible angular misalignment is $\Delta K_{w\,perm.} = 1.5°$ per coupling half for the SB series. Higher values are possible but require special measures.

1) Speed $n_{max.}$ depends on the length and weight of the spacer. It is necessary to check the critical speed in accordance with the formula on page 42.

2) Values of the complete coupling without spacer for bores d_1; $d_{2\,max.}$

Size 30 to 200 without spacer available ex stock.

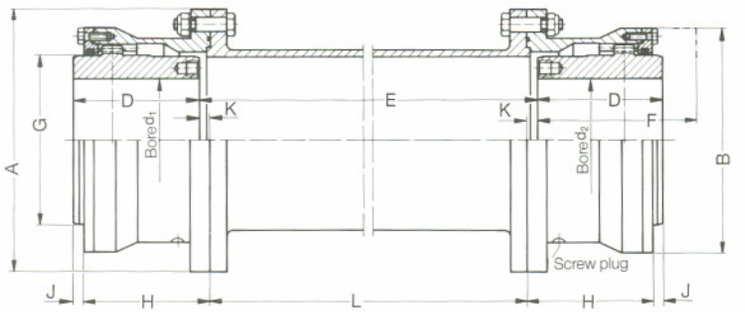
Larger sizes on request.
Subject to dimensional modifications.

Coupling SBL Size	Norm. cont. duty $\frac{P_{KN}}{n}$ kW · min	Speed [1] $n_{max.}$ rpm	Dimensions pre mm	Bore $d_1;d_2$ min mm	Bore $d_1;d_2$ max mm	A mm	B mm	C mm	D mm	F mm	G mm	K mm	L mm	Total grease quantity kg	Total oil quantity Liter	Mass [2] moment of inertia kgm^2	Weight [2] kg
30	0,082	7500	10	12	32	118	92	55	50	75	45	3,5	E- 7	0,10	0,04	0,0066	4,5
40	0,146	6900	20	22	46	145	115	68,5	60	90	60	7,0	E-14	0,11	0,06	0,018	8,0
50	0,288	6300	20	22	58	165	135	78,5	70	110	75	7,0	E-14	0,19	0,10	0,035	11,8
60	0,50	5900	26	28	70	200	160	91,5	80	120	90	8,5	E-17	0,27	0,14	0,085	19,2
70	0,82	5400	26	28	78	220	178	102	90	130	100	9	E-18	0,38	0,18	0,138	26,4
80	1,14	5000	30	32	92	240	196	112	100	150	120	9	E-18	0,43	0,23	0,21	32,5
90	1,64	4700	30	32	100	270	225	126	110	170	130	12	E-24	0,66	0,35	0,40	50
100	2,30	4300	53	55	110	280	240	136	120	180	140	12	E-24	0,81	0,41	0,51	57
110	2,88	4000	63	65	120	310	265	146	130	190	155	12	E-24	1,2	0,57	0,85	75
125	4,60	3700	73	75	138	340	295	170	150	215	175	15	E-30	1,5	0,74	1,65	104
140	6,48	3400	83	85	156	390	325	185	165	230	200	15	E-30	1,8	0,98	2,45	147
160	9,24	3100	118	120	180	435	370	213	190	270	230	17	E-34	2,8	1,6	4,51	208
180	12,92	2900	138	140	200	480	415	239	220	300	260	17	E-34	3,5	2,1	7,8	295
200	18,4	2700	158	160	225	545	465	269	245	340	290	20	E-40	5,1	2,8	14,1	422
220	25,6	2400	158	160	250	580	510	294	270	360	365	24	E-48	5,2	2,8	20,4	532
240	32,8	2200	178	180	275	645	560	316	290	380	390	26	E-52	7,3	3,5	31,9	687
260	41,0	2100	198	200	295	680	595	338	310	400	415	28	E-56	8,3	4,0	43,7	832
280	51,4	2000	218	220	325	745	660	370	340	440	460	30	E-60	10,5	6,0	71	1110
300	64,8	1900	238	240	340	775	675	390	360	470	480	30	E-60	11,5	8,0	85,8	1255
320	82,0	1800	258	260	375	825	725	410	380	500	525	30	E-60	13,5	9,0	121	1515
340	98,6	1700	278	280	400	915	795	430	390	520	560	40	E-80	21	11,0	188	1930
360	118,3	950	297	300	420	960	840	442	400	540	590	42	E-84	27	12	253	2280
380	138,0	900	317	320	445	1010	890	462	420	560	625	42	E-84	30	13	355	2660
400	165,1	875	337	340	460	1050	925	472	430	580	650	42	E-84	33	15	382	2830

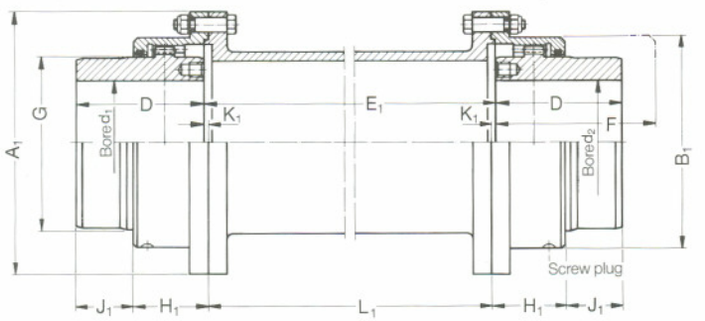
Curved Tooth Couplings
Series SBLk and LBLk

Dimension Table No. 243 130

Series SBLk



Series LBLk



Dismounting dimension F is required for vertical installation and removal of machines.

Refer to page 32 for information on lubrication quantities for spacers.

The max. permissible static radial misalignment depends on the permissible angular misalignment and on the length of the spacer. The permissible angular misalignment is $\Delta K_{w\,perm.} = 0.75°$ per coupling half for the SBLk and LBLk series. Higher values are possible but require special measures.

Size	Series LBLk Total grease quantity [2] kg	Mass-moment of inertia [2] kgm²	Weight [2] kg
32	0,03	0,0034	2,9
38	0,04	0,0059	4,3
48	0,06	0,015	7,0
60	0,10	0,026	9,3
70	0,15	0,059	14,7
80	0,22	0,097	20,0
90	0,29	0,14	25,4
100	0,44	0,28	38,0
110	0,55	0,36	45,6
125	0,79	0,64	62
140	0,90	1,03	82
160	1,23	1,5	93
180	1,90	3,6	177
200	2,40	6,2	245
225	3,70	11,2	347

Sizes 32 to 225 without spacer available ex stock.

Larger sizes on request.
Subject to dimensional modifications.

The tables on page 34 contain information on the torsional spring rates and mass moments of inertia of the couplings with spacer and on weights.

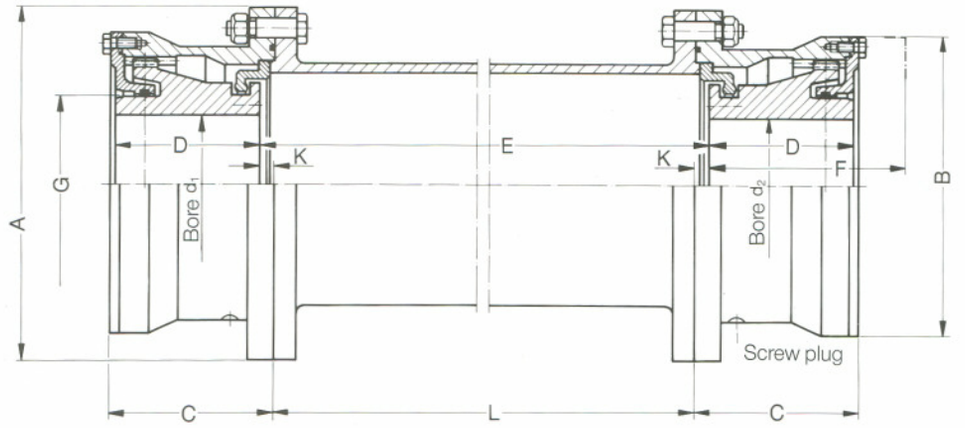
1) Speed $n_{max.}$ depends on the length and weight of the spacer. – It is necessary to check the critical speed in accordance with the formula on page 42.

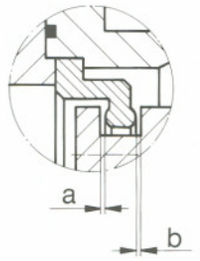
2) Values of the complete coupling without spacer for bore d_1; $d_{2\,max.}$.

Coupling types SBLk a. LBLk Size	Norm. cont. duty $\frac{P_{KN}}{n}$ kW · min	Speed [1] $n_{max.}$ rpm	Bore $d_1;d_2$ min. mm	Bore $d_1;d_2$ max. mm	A mm	A_1 mm	B mm	B_1 mm	D mm	F mm	G mm	H mm	H_1 mm	J mm	J_1 mm	K mm	K_1 mm	L mm	L_1 mm	Series SBLk Total grease quantity [2] kg	Mass-moment of inertia [2] kgm²	Weight [2] kg
32	0,050	8500	12	35	–	105	–	74	50	80	48	–	45	–	9,5	–	4,5	–	E_1- 9	–	–	–
38	0,082	7500	12	42	118	115	92	88	60	90	60	58,5	50,5	5,0	14,5	3,5	5,0	E- 7	E_1-10	0,085	0,0068	4,7
48	0,146	6900	22	55	145	145	115	108	70	100	77	72,0	51,0	5,0	24,0	7,0	5,0	E- 14	E_1-10	0,09	0,018	8,6
60	0,288	6300	22	65	165	165	135	125	80	110	90	82,0	53,5	5,5	32,0	7,5	5,5	E- 15	E_1-11	0,17	0,037	12,6
70	0,50	5900	28	80	200	195	160	146	90	120	112,5	94,5	56,0	4	40,0	8,5	6	E- 17	E_1-12	0,25	0,089	21
80	0,82	5400	28	92	220	215	178	168	100	130	128,5	105	59,5	4	46,5	9	6	E- 18	E_1-12	0,35	0,15	28
90	1,14	5000	32	105	240	230	196	185	110	140	145	115	63,5	5	53,5	10	7	E- 20	E_1-14	0,40	0,23	35
100	1,64	4700	32	115	270	265	225	210	125	150	160,5	130	74	7	58	12	7	E- 24	E_1-14	0,60	0,44	52
110	2,30	4300	55	126	280	270	240	224	140	170	176,0	140	80,5	12	66,5	12	7	E- 24	E_1-14	0,75	0,57	62
125	2,88	4000	65	145	310	305	265	245	150	180	200,5	150	87,5	13	70,5	13	8	E- 26	E_1-16	1,0	0,94	82
140	4,60	3700	75	162	340	330	295	270	170	200	224,5	175	98,5	10	80,5	15	9	E- 30	E_1-18	1,3	1,86	115
160	6,48	3400	85	185	390	375	325	305	190	230	256,5	190	110,5	16	89,5	16	10	E- 32	E_1-20	1,6	2,84	160
180	9,24	3100	120	210	435	425	370	348	220	260	288,5	219	125,0	18	107	17	12	E- 34	E_1-24	2,6	5,18	228
200	12,92	2900	140	230	480	470	415	392	250	300	320,5	249	136,0	19	126	18	12	E- 36	E_1-24	3,3	8,77	316
225	18,4	2700	160	260	545	535	465	437	280	330	362	279	157,5	22	136,5	21	14	E- 42	E_1-28	4,8	15,6	449
250	25,6	2400	160	280	580	–	510	–	300	350	400	282	–	164	–	146	–	E-292	–	5	22,3	564
265	32,8	2200	180	310	645	–	560	–	330	380	440	304	–	174	–	148	–	E-296	–	7	34,2	757
280	41,0	2100	200	325	680	–	595	–	330	380	460	324	–	194	–	188	–	E-376	–	8	46,5	873
315	51,4	2000	220	360	745	–	660	–	360	420	510	356	–	205	–	201	–	E-402	–	10	73	1090
335	64,8	1900	240	380	775	–	675	–	380	440	535	377	–	219	–	216	–	E-432	–	11	114	1315
355	82,0	1800	260	410	825	–	725	–	400	460	580	398	–	228,5	–	226,5	–	E-453	–	13	129	1571
375	98,6	1700	280	440	915	–	795	–	420	480	620	410	–	224,5	–	214,5	–	E-429	–	20	195	1970
400	118,3	950	330	470	960	–	840	–	440	500	665	421	–	226,5	–	207,5	–	E-415	–	26	247	2259
425	138,0	900	355	500	1010	–	890	–	460	520	710	441	–	237,5	–	218,5	–	E-437	–	29	337	2600
450	165,1	875	370	520	1050	–	925	–	480	550	730	451	–	240,0	–	211,0	–	E-422	–	32	396	3087

Curved Tooth Couplings
Series SRL

Dimension Table No. 243 131





Sizes 30 to 200 without spacer available ex stock.

Larger sizes on request
Subject to dimensional modifications.

The tables on page 34 contain information on the torsional spring rates and mass moments of inertia of the couplings with spacer and on weights.

Refer to page 32 for information on lubrication quantities for spacers.

Dismounting dimension F is required for vertical installation and removal of machines and for assembly of retaining rings.

The series SRL is equipped with two Z-shaped retaining rings for axial backlash limitation. In this design, the permissible angular misalignment depends on the axial backlash values a and b.

1) Speed $n_{max.}$ depends on the length and weight of the spacer. – It is necessary to check the critical speed in accordance with the formula on page 42.

2) The permissible angular misalignment is $\Delta K_{w\,perm.} = 0.6°$ per coupling half with the values specified in the list. The axial backlash values a and b can be changed if required by the operating conditions.

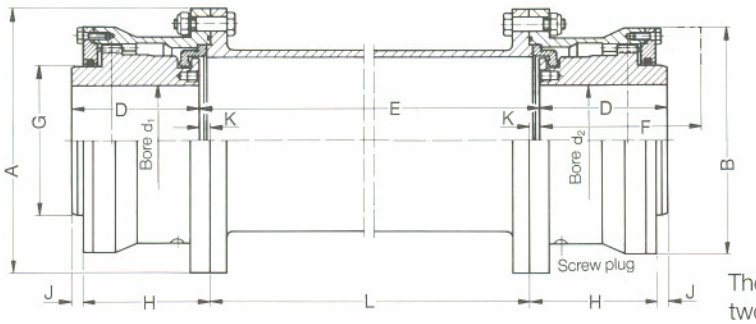
3) Values of the complete coupling without spacer for bore d_1; $d_{2\,max.}$

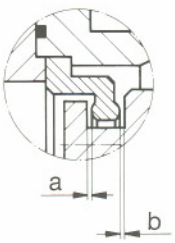
Coupling **SRL** Size	Norm. cont. duty $\frac{P_{KN}}{n}$	Speed [1] $n_{max.}$	Dimensions											Axial clearance [2] a and b	Total grease [3] quantity	Total oil [3] quantity	Mass [3] moment of inertia	Weight [3]
			Bore d_1; d_2 pre	Bore d_1; d_2 min	Bore d_1; d_2 max	A	B	C	D	F	G	K	L					
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	Liter	kgm^2	kg
30	0,082	7500	10	12	32	118	92	55	50	75	45	3,5	E- 7	0,5	0,09	0,09	0,0067	4,7
40	0,146	6900	20	22	46	145	115	68,5	60	90	60	7	E-14	0,5	0,17	0,17	0,019	8,3
50	0,288	6300	20	22	58	165	135	78,5	70	110	75	7	E-14	0,5	0,27	0,27	0,036	12,4
60	0,50	5900	26	28	70	200	160	91,5	80	120	90	9	E-18	0,5	0,45	0,45	0,087	20,0
70	0,82	5400	26	28	78	220	178	102	90	130	100	9	E-18	0,5	0,59	0,59	0,14	27,7
80	1,14	5000	30	32	92	240	196	112	100	150	120	9	E-18	0,5	0,77	0,77	0,22	34
90	1,64	4700	30	32	100	270	225	126	110	170	130	12	E-24	0,5	1,3	1,3	0,42	53
100	2,30	4300	53	55	110	280	240	136	120	180	140	12	E-24	1,0	1,5	1,5	0,54	60
110	2,88	4000	63	65	120	310	265	146	130	190	155	12	E-24	1,0	1,9	1,9	0,88	79
125	4,60	3700	73	75	138	340	295	170	150	215	175	15	E-30	1,0	2,5	2,5	1,70	108
140	6,48	3400	83	85	156	390	325	185	165	230	200	15	E-30	1,0	3,2	3,2	2,55	153
160	9,24	3100	118	120	180	435	370	213	190	270	230	17	E-34	1,0	4,7	4,7	4,71	217
180	12,92	2900	138	140	200	480	415	239	220	300	260	17	E-34	1,0	7,2	7,2	8,1	306
200	18,4	2700	158	160	225	545	465	269	245	340	290	20	E-40	1,0	11,0	11,0	14,5	443
220	25,6	2400	158	160	250	580	510	294	270	360	355	24	E-48	1,5	11,8	11,8	21,4	559
240	32,8	2200	178	180	275	645	560	316	290	380	390	26	E-52	1,5	12,8	12,8	33,5	722
260	41,0	2100	198	200	295	680	595	338	310	400	415	28	E-56	1,5	14,4	14,4	45,7	872
280	51,4	2000	218	220	325	745	660	370	340	440	460	30	E-60	1,5	17,5	17,5	75	1170
300	64,8	1900	238	240	340	775	675	390	360	470	480	30	E-60	1,5	21,5	21,5	91,4	1335
320	82,0	1800	258	260	375	825	725	410	380	500	525	30	E-60	1,5	22	22	128	1610
340	98,6	1700	278	280	400	915	795	430	390	520	560	40	E-80	1,5	29	29	198	2040

Curved Tooth Couplings
Series SRLk and LRLk

Dimension Table No. 243 132

Series SRLk

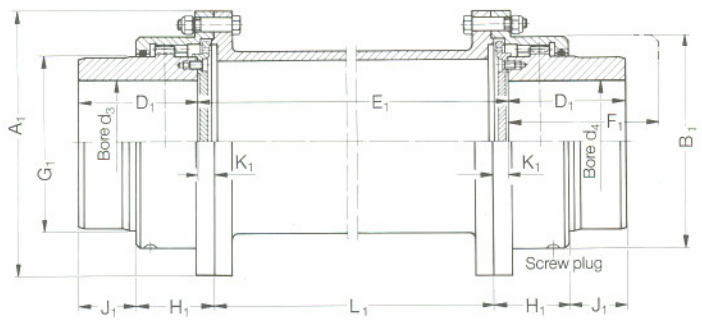


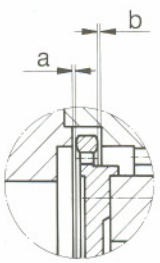


The series SRLk is equipped with two Z-shaped retaining rings for axial backlash limitation. In this design, the permissible angular misalignment depends on the axial backlash values a and b.

Dismounting dimension F is required for vertical installation and removal of machines and for assembly of retaining rings.

Series LRLk





The series LRLk is equipped with two crowned retaining plates for axial backlash limitation. In this design, the permissible angular misalignment depends on the axial backlash values a and b.

Spacer length

$L = E - 2 \cdot K$

$L_1 = E_1 - 2 \cdot K_1$

The tables on page 34 contain information on the spring rates and mass moments of inertia of the couplings with spacer and on weights.

Refer to page 32 for information on lubrication quantities for spacer.

Size	Series LRLk: Axial clearance [2] a and b mm	Total grease [3] quantity kg	Mass [3] moment of inertia kgm^2	Weight [3] kg
32	0,5	0,03	0,0036	3,3
38	0,5	0,04	0,0063	4,8
48	0,5	0,06	0,016	7,9
60	0,5	0,10	0,028	10,5
70	0,5	0,15	0,064	16,8
80	0,5	0,22	0,10	22,5
90	0,5	0,29	0,15	28
100	0,5	0,44	0,31	43
110	1,0	0,55	0,40	51
125	1,0	0,79	0,68	69
140	1,0	0,90	1,13	92
160	1,0	1,23	2,05	135
180	1,0	1,90	3,86	196
200	1,0	2,40	6,7	286
225	1,0	3,70	12,2	403

1) Speed $n_{max.}$ depends on the length and weight of the spacer. It is necessary to check the critical speed in accordance with the formula on page 42.

2) The permissible angular misalignment is $\Delta K_{w\,perm.} = 0.6°$ per coupling half with the values specified in the list. The axial backlash values a and b can be changed if required by the operating conditions.

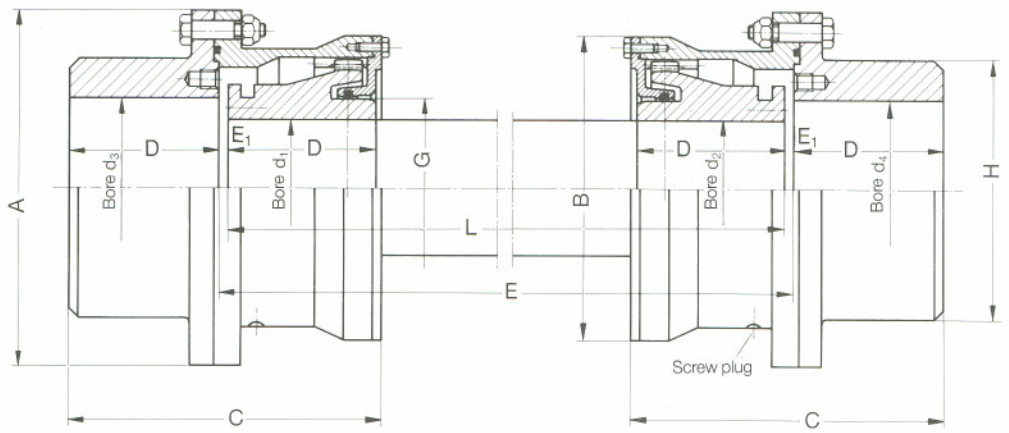
3) Values of the complete coupling without spacer for bore d_1; $d_{2\,max.}$

Larger sizes on request.
Subject to dimensional modifications.

Coupling types SRLk and LRLk Size	Norm. Speed [1] cont. duty P_{KN}/n kW · min	$n_{max.}$ kg	Dimensions: Bore d_1-d_4 min. mm	Bore d_1;d_2 max. mm	Bore d_3;d_4 max. mm	A mm	A_1 mm	B mm	B_1 mm	D mm	D_1 mm	F mm	F_1 mm	G mm	G_1 mm	H mm	H_1 mm	J mm	J_1 mm	K mm	K_1 mm	Series SRLk: Axial clearance [2] a and b mm	Total grease [3] quantity kg	Mass [3] moment of inertia kgm^2	Weight [3] kg
32	0,050	8500	12	32	30	–	105	–	74	–	45	–	75	–	48	–	45,0	–	9,0	–	9	–	–	–	–
38	0,082	7500	12	40	40	118	115	92	88	60	55	90	85	52	60	58,5	50,5	5	14,5	3,5	10	0,5	0,08	0,007	5,3
48	0,146	6900	22	50	50	145	145	115	108	70	65	100	95	71	77	72,0	51,0	5	24,0	7,0	10	0,5	0,15	0,022	10
60	0,288	6300	22	63	65	165	165	135	125	80	75	110	105	83	90	82,0	53,5	5	31,5	7,0	10	0,5	0,22	0,045	15
70	0,50	5900	28	75	80	200	195	160	146	90	85	120	115	103	112	94,5	56,0	4	40,5	8,5	11,5	0,5	0,30	0,103	24
80	0,82	5400	28	85	92	220	215	178	168	100	95	130	125	116	128	105	59,5	4	47,0	9	11,5	0,5	0,46	0,16	31
90	1,14	5000	32	95	105	240	230	196	185	110	105	140	135	133	145	115	63,5	4	53,0	9	11,5	0,5	0,63	0,25	42
100	1,64	4700	32	105	115	270	265	225	210	125	120	150	150	142	160	130	74,0	7	58,5	12	12,5	0,5	1,0	0,50	60
110	2,30	4300	55	115	126	280	270	240	224	140	135	170	170	156	176	140	80,5	12	67,5	12	13	1,0	1,1	0,64	72
125	2,88	4000	65	130	145	310	305	265	245	150	145	180	180	177	200	150	87,5	12	71,5	12	14	1,0	1,2	1,00	96
140	4,60	3700	75	150	162	340	330	295	270	170	165	200	200	200	224	175	98,5	10	81,5	15	15	1,0	1,5	1,93	136
160	6,48	3400	85	170	185	390	375	325	305	190	185	230	230	230	256	190	110,5	15	91,0	15	16,5	1,0	1,8	3,14	182
180	9,24	3100	120	190	210	435	425	370	348	220	215	260	260	261	288	219	125,0	18	108,0	17	18	1,0	3,0	5,75	268
200	12,92	2900	140	210	230	480	470	415	392	250	245	300	300	296	320	249	136,0	18	128,0	17	19	1,0	4,8	9,85	365
225	18,4	2700	160	240	260	545	535	465	437	280	275	330	330	338	362	279	157,5	21	138,0	20	20,5	1,0	7,4	18,40	553

Curved Tooth Couplings
Series SBG

Dimension Table No. 243 133



Sizes 30 to 200 without intermediate shaft available ex stock.

Larger sizes on request.
Subject to dimensional modifications.

The max. permissible static radial misalignment depends on the permissible angular misalignment and on the length of the intermediate shaft. The permissible angular misalignment is $\Delta K_{w\ perm.} = 1.5°$ per coupling half for the couplings of the SBG series.
Higher values are possible, but require special measures.

1) Speed $n_{max.}$ depends on the length and weight of the intermediate shaft. It is necessary to check the critical speed in accordance with the formula on page 42.

2) Values of the complete coupling without intermediate shaft for bores d_1; $d_{2\ max.}$ and d_3; $d_{4\ max.}$

3) Dimension 'H' is variable and corresponds approximately to 1.4 to 1.5 times the finish-bore d_3 or d_4 resp.

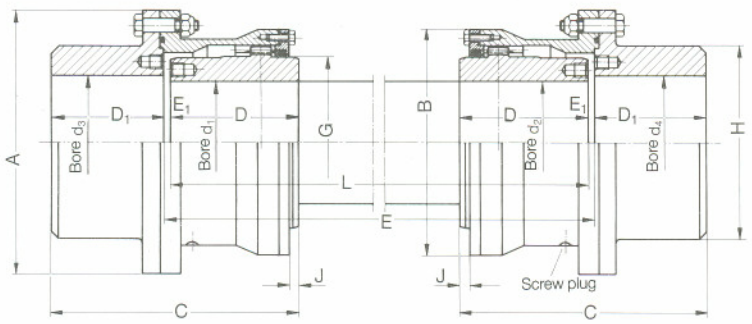
For torsional spring rates of couplings with intermediate shaft see tables on page 35.

Coupling type SBG Size	Norm. cont. duty P_{KN}/n	Speed [1] $n_{max.}$	Dimensions Bore $d_1;d_2$ pre	Bore $d_1;d_2$ min	Bore $d_1;d_2$ max	Bore $d_3;d_4$ pre	Bore $d_3;d_4$ min	Bore $d_3;d_4$ max	A	B	C	D	E_1	G	H [3]	Total grease quantity	Total oil quantity	Mass [2] moment of inertia	Weight [2]
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	Liter	kgm^2	kg
30	0,082	7500	10	12	32	10	12	55	118	92	105	50	3,5	45	80	0,09	0,04	0,012	7,7
40	0,146	6900	20	22	46	20	22	65	145	115	126,5	60	5	60	95	0,10	0,06	0,029	12,6
50	0,288	6300	20	22	58	20	22	75	165	135	146,5	70	5	75	112	0,18	0,09	0,061	19
60	0,50	5900	26	28	70	26	28	90	200	160	169	80	6	90	130	0,26	0,13	0,14	31
70	0,82	5400	26	28	78	26	28	100	220	178	189	90	6	100	150	0,36	0,16	0,23	45
80	1,14	5000	30	32	92	30	32	115	240	196	209	100	6	120	170	0,41	0,21	0,36	56
90	1,64	4700	30	32	100	30	32	130	270	225	232	110	8	130	190	0,62	0,32	0,67	83
100	2,30	4300	53	55	110	53	55	140	280	240	252	120	8	140	205	0,77	0,37	0,88	97
110	2,88	4000	63	65	120	63	65	155	310	265	272	130	8	155	225	1,1	0,53	1,45	129
125	4,60	3700	73	75	138	73	75	170	340	295	315	150	10	175	250	1,4	0,68	2,40	180
140	6,48	3400	83	85	156	83	85	195	390	325	345	165	10	200	285	1,7	0,9	4,34	252
160	9,24	3100	118	120	180	108	110	225	435	370	398	190	12	230	325	2,7	1,5	8,1	365
180	12,92	2900	138	140	200	132	134	250	480	415	454	220	12	260	360	3,4	1,9	13,8	508
200	18,4	2700	158	160	225	148	150	280	545	465	508	245	14	290	410	4,9	2,6	25,3	742
220	25,6	2400	158	160	250	158	160	320	580	510	556	270	16	355	450	5,2	2,8	36,9	934
240	32,8	2200	178	180	275	178	180	340	645	560	598	290	18	390	480	7,3	3,5	54,5	1175
260	41,0	2100	198	200	295	198	200	370	680	595	640	310	20	415	520	8,3	4	77	1450
280	51,4	2000	218	220	325	218	220	390	745	660	700	340	20	460	550	10,5	6	120	1885
300	64,8	1900	238	240	340	238	240	410	775	675	740	360	20	480	580	11,5	8	150	2170
320	82,0	1800	258	260	375	258	260	440	825	725	780	380	20	525	620	13,5	9	208	2620
340	98,6	1700	278	280	400	278	280	460	915	795	808	390	28	560	650	21	11	316	3310
360	118,3	950	297	300	420	297	300	485	960	840	830	400	30	590	680	27	12	410	3880
380	138,0	900	317	320	445	317	320	510	1010	890	870	420	30	625	720	30	13	558	4495
400	165,1	875	337	340	460	337	340	535	1050	925	890	430	30	650	750	33	15	662	4880

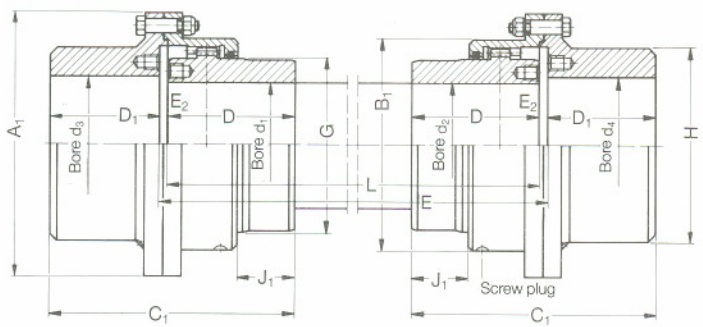
Curved Tooth Couplings
Series SBGk and LBGk

Dimension Table No. 243 134

Series SBGk



Series LBGk



Sizes 32 to 225 without intermediate shaft available ex stock.

Larger sizes on request.
Subject to dimensional modifications.

The tables on page 35 contain information on the torsional spring rates of the couplings with intermediate shaft.

The max. permissible static radial misalignment depends on the permissible angular misalignment and on the length of the intermediate shaft. The permissible angular misalignment is $\Delta K_{w\,perm.} = 0.75°$ per coupling half for the couplings of the SBGk and LBGk series. Higher values are possible, but require special measures.

Size	Series LBGk: Total grease quantity kg	Series LBGk: Mass [2] moment of inertia kgm^2	Series LBGk: Weight [2] kg
32	0,03	0,0062	5,2
38	0,04	0,010	7,4
48	0,06	0,027	12,4
60	0,10	0,048	17,5
70	0,15	0,11	27
80	0,22	0,19	38
90	0,29	0,28	49
100	0,44	0,54	71
110	0,55	0,70	85
125	0,79	1,22	115
140	0,90	2,0	156
160	1,23	3,3	197
180	1,90	7,0	330
200	2,40	11,9	457
225	3,70	22,2	665

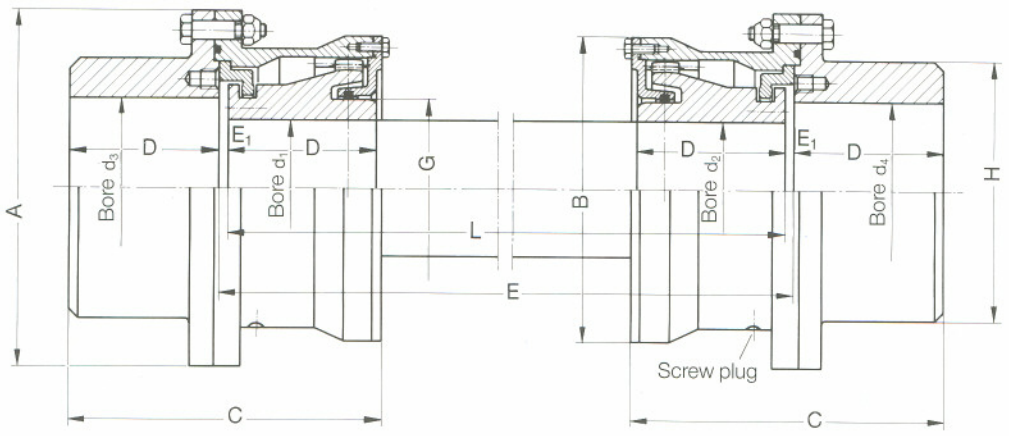
1) Speed $n_{max.}$ depends on the length and weight of the intermediate shaft. It is necessary to check the critical speed in accordance with the formula on page 42.

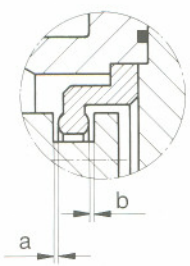
2) Values of the complete coupling without intermediate shaft for bores d_1; $d_{2\,max}$ and d_3; $d_{4\,max}$.

Coupling types SBGk a. LBGk Size	Norm. cont. duty P_{kN}/n kW · min	Speed $n_{max.}$ rpm	Dimensions: Bore d_1-d_4 min. mm	Bore d_1;d_2 max. mm	Bore d_3;d_4 max. mm	A mm	A_1 mm	B mm	B_1 mm	C mm	C_1 mm	D mm	D_1 mm	E_1 mm	E_2 mm	G mm	H [2] mm	J mm	J_1 mm	Series SBGk: Total grease quantity kg	Mass [2] moment of inertia kgm^2	Weight [2] kg
32	0,050	8500	12	35	42	–	105	–	74	–	94,5	50	40	–	4,5	48	65	–	9,5	–	–	–
38	0,082	7500	12	42	55	118	115	92	88	113,5	115	60	50	3,5	5,0	60	80	5	14,5	0,085	0,0127	8,3
48	0,146	6900	22	55	65	145	145	115	108	135	135	70	60	5	5,0	77	95	5	24,0	0,09	0,030	13,5
60	0,288	6300	22	65	75	165	165	135	125	155	155,5	80	70	5	5,5	90	112	5	32,0	0,17	0,059	20
70	0,50	5900	28	80	90	200	195	160	146	176	176	90	80	6	6	112,5	130	4	40,0	0,25	0,14	33
80	0,82	5400	28	92	100	220	215	178	168	196	196	100	90	6	6	128	150	4	46,5	0,35	0,24	46
90	1,14	5000	32	105	115	240	230	196	185	216	217	110	100	6	7	145	170	4	53,5	0,40	0,38	58
100	1,64	4700	32	115	130	270	265	225	210	243	242	125	110	8	7	160,5	190	7	58,0	0,60	0,68	86
110	2,30	4300	55	126	140	280	270	240	224	268	267	140	120	8	7	176	205	12	66,5	0,75	0,95	102
125	2,88	4000	65	145	155	310	305	265	245	288	288	150	130	8	8	200,5	225	12	70,5	1,0	1,54	135
140	4,60	3700	75	162	170	340	330	295	270	330	329	170	150	10	9	224,5	250	10	80,5	1,3	2,86	189
160	6,48	3400	85	185	195	390	375	325	305	365	365	190	165	10	10	256,5	285	15	89,5	1,6	4,60	255
180	9,24	3100	120	210	225	435	425	370	348	422	422	220	190	12	12	288,5	325	18	107,0	2,6	8,54	380
200	12,92	2900	140	230	250	480	470	415	392	482	482	250	220	12	12	320,5	360	18	126,0	3,3	15,1	526
225	18,4	2700	160	260	280	545	535	465	437	539	539	280	245	14	14	362	410	21	136,5	4,8	26,7	763
250	25,6	2400	160	280	320	580	–	510	–	738	–	300	300	138	–	400	450	164	–	5	40	995
265	32,8	2200	180	310	340	645	–	560	–	800	–	330	330	140	–	440	520	174	–	7	57	1244
280	41,0	2100	200	325	370	680	–	595	–	840	–	330	330	180	–	460	520	194	–	8	77	1408
315	51,4	2000	220	360	390	745	–	660	–	911	–	360	360	191	–	510	550	205	–	10	122	1846
335	64,8	1900	240	380	410	775	–	675	–	966	–	380	380	206	–	535	580	219	–	11	155	2214
355	82,0	1800	260	410	440	825	–	725	–	1016,5	–	400	400	216,5	–	580	620	228,5	–	13	209	2612
375	98,6	1700	280	440	460	915	–	795	–	1042,5	–	420	420	202,5	–	620	650	224,5	–	20	320	3565
400	118,3	950	330	470	485	960	–	840	–	–	–	440	440	–	–	665	680	–	–	26	411	3904
425	138,0	900	355	500	510	1010	–	890	–	–	–	460	460	–	–	710	720	–	–	29	545	4554
450	165,1	875	370	520	535	1050	–	925	–	–	–	480	480	–	–	730	750	–	–	32	659	5240

Curved Tooth Couplings
Series SRG

Dimension Table No. 243 135





Sizes 30 to 200 without intermediate shaft available ex stock.

Larger sizes on request.
Subject to dimensional modifications.

The tables on page 35 contain information on the torsional spring rates of the couplings with intermediate shaft.

The series SRG is equipped with two Z-shaped retaining rings for axial backlash limitation. In this design, the permissible angular misalignment depends on the axial backlash values a and b.

1) Speed $n_{max.}$ depends on the length and weight of the intermediate shaft. It is necessary to check the critical speed in accordance with the formula on page 42.

2) The permissible angular misalignment is $\Delta K_{w\,perm.} = 0.6°$ per coupling half with the values specified in the list. The axial backlash values a and b can be changed if required by the operating conditions.

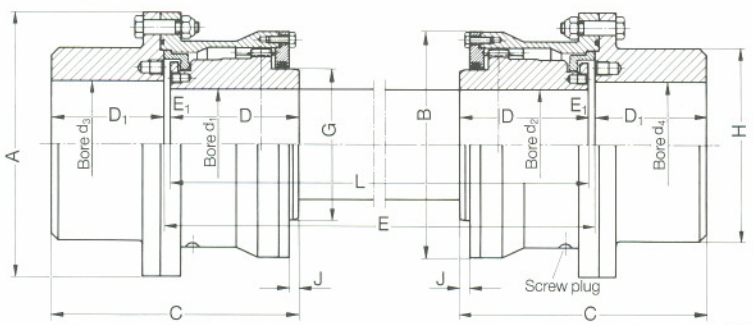
3) Values of the complete coupling without intermediate shaft for bores d_1; $d_{2\,max}$ and d_3; $d_{4\,max}$.

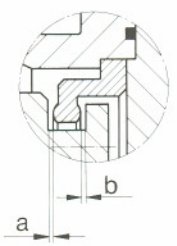
Coupling type SRG Size	Norm. cont. duty $\frac{P_{KN}}{n}$	Speed [1] $n_{max.}$	Dimensions Bore pre	$d_1;d_2$ min	$d_1;d_2$ max	$d_3;d_4$ pre	$d_3;d_4$ min	$d_3;d_4$ max	A	B	C	D	E_1	G	H [3]	Axial clearance [1] a and b	Total grease quantity	Total oil quantity	Mass [2] moment of inertia	Weight [3]
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	Liter	kgm²	kg
30	0,082	7500	10	12	32	10	12	55	118	92	105	50	3,5	45	80	0,5	0,09	0,09	0,0123	8,0
40	0,146	6900	20	22	46	20	22	65	145	115	126,5	60	5	60	95	0,5	0,17	0,17	0,030	13,0
50	0,288	6300	20	22	58	20	22	75	165	135	146,5	70	5	75	112	0,5	0,27	0,27	0,062	19,8
60	0,50	5900	26	28	70	26	28	90	200	160	169	80	6	90	130	0,5	0,45	0,45	0,143	32
70	0,82	5400	26	28	78	26	28	100	220	178	189	90	6	100	150	0,5	0,59	0,59	0,235	46
80	1,14	5000	30	32	92	30	32	115	240	196	209	100	6	120	170	0,5	0,77	0,77	0,38	58
90	1,64	4700	33	32	100	30	32	130	270	225	232	110	8	130	190	0,5	1,3	1,3	0,69	86
100	2,30	4300	53	55	110	53	55	140	280	240	252	120	8	140	205	1,0	1,5	1,5	0,90	99
110	2,88	4000	63	65	120	63	65	155	310	265	272	130	8	155	225	1,0	1,9	1,9	1,49	133
125	4,60	3700	73	75	138	73	75	170	340	295	315	150	10	175	250	1,0	2,5	2,5	2,70	187
140	6,48	3400	83	85	156	83	85	195	390	325	345	165	10	200	285	1,0	3,2	3,2	4,42	259
160	9,24	3100	118	120	180	108	110	225	435	370	398	190	12	230	325	1,0	4,7	4,7	8,2	374
180	12,92	2900	138	140	200	132	134	250	480	415	454	220	12	260	360	1,0	7,2	7,2	14,1	521
200	18,4	2700	158	160	225	148	150	280	545	465	508	245	14	290	410	1,0	11,0	11,0	25,6	765
220	25,6	2400	158	160	250	158	160	320	580	510	556	270	16	355	450	1,5	11,8	11,8	37,9	964
240	32,8	2200	178	180	275	178	180	340	645	560	598	290	18	390	480	1,5	12,8	12,8	57,3	1210
260	41,0	2100	198	200	295	198	200	370	680	595	640	310	20	415	520	1,5	14,4	14,4	79,3	1485
280	51,4	2000	218	220	325	218	220	390	745	660	700	340	20	460	550	1,5	17,5	17,5	124	1950
300	64,8	1900	238	240	340	238	240	410	775	675	740	360	20	480	580	1,5	21,5	21,5	155	2255
320	82,0	1800	258	260	375	258	260	440	825	725	780	380	20	525	620	1,5	22	22	216	2710
340	98,6	1700	278	280	400	278	280	460	915	795	808	390	28	560	650	1,5	29	29	326	3420

Curved Tooth Couplings
Series SRGk and LRGk

Dimension Table No. 243 136

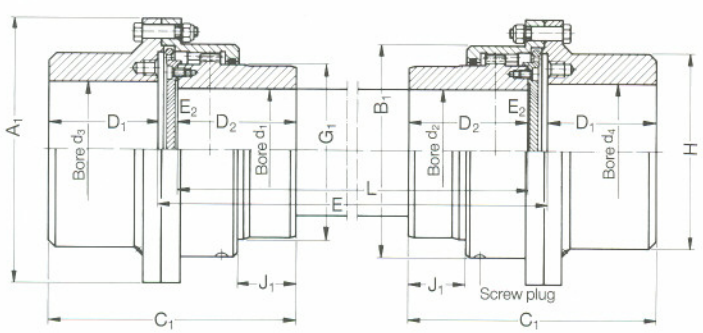
Series SRGk

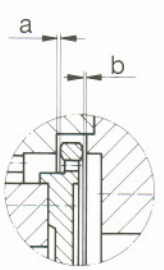




The series SRGk is equipped with two Z-shaped retaining rings for axial backlash limitation. In this design, the permissible angular misalignment depends on the axial backlash values a and b.

Series LRGk





The series LRGk is equipped with two crowned retaining plates for axial backlash limitation. In this design, the permissible angular misalignment depends on the axial backlash values a and b.

Size	Series LRGk: Axial clearance [2] a and b mm	Total grease quantity kg	Mass [3] moment of inertia kgm^2	Weight [3] kg
32	0,5	0,03	0,0064	5,8
38	0,5	0,04	0,010	7,5
48	0,5	0,06	0,029	13,1
60	0,5	0,10	0,052	18,5
70	0,5	0,15	0,11	29,1
80	0,5	0,22	0,19	39,3
90	0,5	0,29	0,29	50
100	0,5	0,44	0,56	75
110	1,0	0,55	0,74	90
125	1,0	0,79	1,26	120
140	1,0	0,90	2,08	166
160	1,0	1,23	3,7	237
180	1,0	1,90	7,2	347
200	1,0	2,40	12,1	482
225	1,0	3,70	22,3	702

1) Speed $n_{max.}$ depends on the length and weight of the intermediate shaft. It is necessary to check the critical speed in accordance with the formula on page 42.

2) The permissible angular misalignment is $\Delta K_{w\,perm.} = 0.6°$ per coupling half with the values specified in the list. The axial backlash values a and b can be changed if required by the operating conditions.

3) Values of the complete coupling without intermediate shaft for bores d_1; $d_{2\,max}$ and d_3; $d_{4\,max}$.

The tables on page 35 contain information on the torsional spring rates of the couplings with intermediate shaft.

Larger sizes on request.
Subject to dimensional modifications.

Coupling types SRGk and LRGk Size	Norm. Speed [1] cont. duty $\frac{P_{KN}}{n}$ kW · min	$n_{max.}$ kg	Dimensions: Bore d_1-d_4 min. mm	Bore d_1;d_2 max. mm	Bore d_3;d_4 max. mm	A mm	A_1 mm	B mm	B_1 mm	C mm	C_1 mm	D mm	D_1 mm	D_2 mm	E_1 mm	E_2 mm	G mm	G_1 mm	H mm	J mm	J_1 mm	Series SRGk: Axial clearance [2] a and b mm	Total grease quantity kg	Mass [3] moment of inertia kgm^2	Weight [3] kg
32	0,050	8500	12	32	42	–	105	–	74	–	94,0	–	40	45	–	9,0	–	48	65	–	9,0	–	–	–	–
38	0,082	7500	12	40	55	118	115	92	88	113,5	115,0	60	50	55	3,5	10,0	52	60	80	5	14,5	0,5	0,08	0,0128	8,5
48	0,146	6900	22	50	65	145	145	115	108	135	135,0	70	60	65	5	10,0	71	77	95	5	24,0	0,5	0,15	0,031	14,1
60	0,288	6300	22	63	75	165	165	135	125	155	155,0	80	70	75	5	10,0	83	90	112	5	31,5	0,5	0,22	0,062	20,5
70	0,50	5900	28	75	90	200	195	160	146	176	176,5	90	80	85	6	11,5	103	112	130	4	40,5	0,5	0,30	0,15	33,5
80	0,82	5400	28	85	100	220	215	178	168	196	196,5	100	90	95	6	11,5	116	128	150	4	47,0	0,5	0,46	0,25	48
90	1,14	5000	32	95	115	240	230	196	185	216	216,5	110	100	105	6	11,5	133	145	170	4	53,0	0,5	0,63	0,40	60
100	1,64	4700	32	105	130	270	265	225	210	243	242,5	125	110	120	8	12,5	142	160	190	7	58,5	0,5	1,0	0,72	90
110	2,30	4300	55	115	140	280	270	240	224	268	268,5	140	120	135	8	13,0	156	176	205	12	67,5	1,0	1,1	1,0	106
125	2,88	4000	65	130	155	310	305	265	245	288	289,0	150	130	145	8	14,0	177	200	225	12	71,5	1,0	1,2	1,6	142
140	4,60	3700	75	150	170	340	330	295	270	330	330,0	170	150	165	10	15,0	200	224	250	10	81,5	1,0	1,5	2,95	195
160	6,48	3400	85	170	195	390	375	325	305	365	366,5	190	165	185	10	16,5	230	256	285	15	91,0	1,0	1,8	4,7	264
180	9,24	3100	120	190	225	435	425	370	348	422	423,0	220	190	215	12	18,0	261	288	325	18	108,0	1,0	3,0	9,0	400
200	12,92	2900	140	210	250	480	470	415	392	482	484,0	250	220	245	12	19,0	296	320	360	18	128,0	1,0	4,8	15,6	552
225	18,4	2700	160	240	280	545	535	465	437	539	540,5	280	245	275	14	20,5	338	362	410	21	138,0	1,0	7,4	28,2	790

Curved Tooth Couplings
Series SBD

Dimension Table No. 243 137

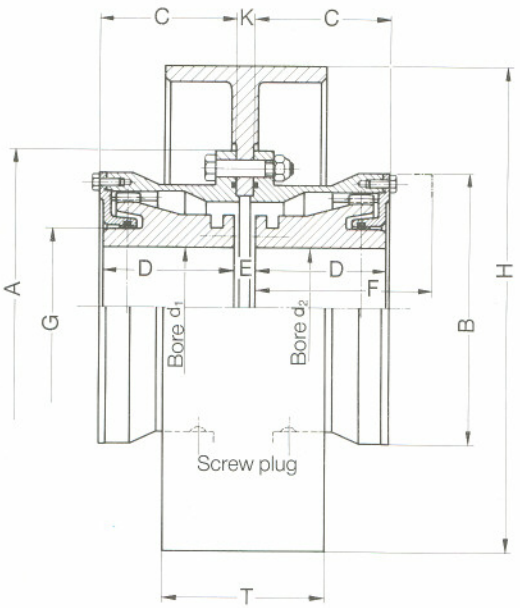
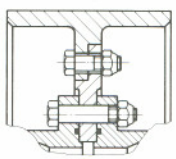


Fig. 2



Dismounting dimension F is required for vertical installation and removal of machines.

Split brake disks permit vertical installation and removal of machines.

1) Speed $n_{max.}$ depends on the permissible circumferential speed of the brake disk. Observe the specifications of the brake manufacturer. Calculate the circumferential speed in accordance with the formula on page 42.

2) Referred to a permissible angular misalignment of $\Delta K_{w\,perm.} = 1.5°$ per coupling half. These values apply only to the coupling and not to the braking device.

3) Values of the complete coupling without brake disk for bore d_1; $d_{2\,max.}$

The tables on page 33 contain information on the torsional spring rates.

Recommended assignment of brake disks			
Coupl. size	Brake disk Ø H		
	mm	mm	mm
30	200	250	
40	200	250	315
50	200	250	315
60	250	315	400
70	250	315	400
80	315	400	
90	315	400	500
100	315	400	500
110	400	500	630
125	400	500	630
140	500	630	710
160	500	630	710
180	630	710	
200	630	710	

Brake disk dimension			Mass moment of inertia	Weight
Ø H	T	K		
mm	mm	mm	kgm^2	kg
200	75	8	0,033	4,22
250	95	9	0,09	7,25
315	118	11	0,28	13,5
400	150	14	0,90	28
500	190	18	2,35	45
630	236	22	7,50	94
710	265	22	12,5	123

Larger sizes on request.
Subject to dimensional modifications.

Coupling type **SBD** Size	Norm. cont. duty $\frac{P_{KN}}{n}$	Speed [1] $n_{max.}$	Dimensions Bore $d_1; d_2$ pre	min.	max.	A	B	C	D	E	F	G	max. static [2] radial misalignment $\Delta K_{r\,max.}$	Total grease quantity	Total oil quantity	Mass [3] moment of inertia	Weight [3]
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	Liter	kgm^2	kg
30	0,082	7500	10	12	32	118	92	53	50	K+3	75	45	± 1,95	0,085	0,027	0,0066	4,4
40	0,146	6900	20	22	46	145	115	62,5	60	K+2	90	60	± 2,70	0,09	0,043	0,0160	7,4
50	0,288	6300	20	22	58	165	135	72,5	70	K+2	110	75	± 3,00	0,17	0,070	0,029	11,1
60	0,50	5900	26	28	70	200	160	84,5	80	K+3	120	90	± 3,45	0,25	0,11	0,075	18,3
70	0,82	5400	26	28	78	220	178	93,5	90	K+1	130	100	± 3,90	0,35	0,15	0,13	25,4
80	1,14	5000	30	32	92	240	196	103,5	100	K+1	150	120	± 4,35	0,40	0,20	0,19	31,4
90	1,64	4700	30	32	100	270	225	115,5	110	K+3	170	130	± 4,80	0,60	0,30	0,37	46
100	2,30	4300	53	55	110	280	240	125,5	120	K+3	180	140	± 5,25	0,75	0,35	0,47	54
110	2,88	4000	63	65	120	310	265	135,0	130	K+2	190	155	± 5,70	1,0	0,45	0,81	72
125	4,60	3700	73	75	138	340	295	157,5	150	K+5	215	175	± 6,45	1,3	0,65	1,31	100
140	6,48	3400	83	85	156	390	325	172,5	165	K+5	230	200	± 7,20	1,6	0,85	2,35	140
160	9,24	3100	118	120	180	435	370	199,0	190	K+6	270	230	± 8,40	2,6	1,4	4,2	198
180	12,92	2900	138	140	200	480	415	225,0	220	K+6	300	260	± 9,60	3,3	1,8	7,4	283
200	18,4	2700	158	160	225	545	465	252,5	245	K+7	340	290	± 10,80	4,8	2,5	14	417

Curved Tooth Couplings
Series SBT

Dimension Table No. 243 138

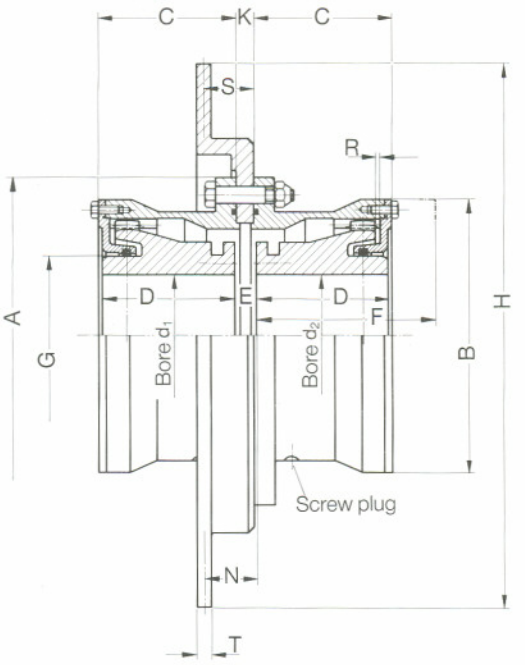
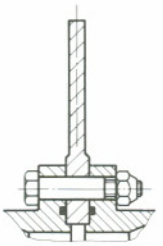


Fig. 2



The couplings are optionally available with straight brake disk.

1) Speed $n_{max.}$ depends on the permissible circumferential speed of the brake disk. Observe the specifications of the brake manufacturer. Calculate the circumferential speed in accordance with the formula on page 42.

   Dismounting dimension F is required for vertical installation and removal of the machines.

2) Referred to a permissible angular misalignment of $\Delta K_{w\,perm.} = 1.5°$ per coupling half. These values apply only to the coupling and not to the braking device.

3) Values of the complete coupling without brake disk for bore d_1; $d_{2\,max.}$

4. The weights and the mass moments of inertia of the brake discs refer to the combination with the largest coupling size.

Recommended assignment of brake disks				
Coupling size	Brake disk Ø H			
	mm	mm	mm	mm
30	300			
40	300			
50	350			
60	400	460	515	
70	400	460	515	
80	460	515	610	
90	460	515	610	710
100	515	610	710	
110	515	610	710	810
125	610	710	810	
140	610	710	810	915
160	710	810	915	
180	710	810	915	
200	810	915		

Brake disk dimensions				Mass [4] moment of inertia	Weight [4]
Ø H	T	K	S		
mm	mm	mm	mm	kgm^2	kg
300	12,7	8	34,65	0,099	6,7
356	12,7	10	47,65	0,19	10
406	12,7	13	47,65	0,30	12
457	12,7	16	47,65	0,48	16
514	12,7	16	47,65	0,57	20
610	12,7	16	47,65	1,5	26
711	12,7	18	47,65	2,9	39
812	12,7	23	47,65	5,8	61
915	12,7	23	47,65	10,0	92

The tables on page 33 contain information on the torsional spring rates.

Larger sizes on request.
Subject to dimensional modifications.

Coupling typ **SBT** Size	Norm.[1] cont. duty $\frac{P_{KN}}{n}$	Speed $n_{max.}$	Dimensions Bore $d_1; d_2$ pre	min.	max.	A	B	C	D	E	F	G	N	R	max. static [2] radial misalignment $\Delta K_{max.}$	Total grease quantity	Total oil quantity	Mass [3] moment of inertia	Weight [3]
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	Liter	kgm^2	kg
30	0,082	7500	10	12	32	118	92	53	50	K+ 3	75	45	36,15	2	± 1,95	0,085	0,027	0,0066	4,4
40	0,146	6900	20	22	46	145	115	62,5	60	K+ 3	90	60	36,15	2	± 2,70	0,09	0,043	0,0160	7,4
50	0,288	6300	20	22	58	165	135	72,5	70	K+ 4	110	75	49,65	2	± 3,00	0,17	0,070	0,029	11,1
60	0,50	5900	26	28	70	200	160	84,5	80	K+ 5	120	90	50,15	2	± 3,45	0,25	0,11	0,075	18,3
70	0,82	5400	26	28	78	220	178	93,5	90	K+ 5	130	100	50,15	2	± 3,90	0,35	0,15	0,13	25,4
80	1,14	5000	30	32	92	240	196	103,5	100	K+ 5	150	120	50,15	2	± 4,35	0,40	0,20	0,19	31,4
90	1,64	4700	30	32	100	270	225	115,5	110	K+ 5	170	130	50,15	3	± 4,80	0,60	0,30	0,37	46
100	2,30	4300	53	55	110	280	240	125,5	120	K+ 7	180	140	51,15	3	± 5,25	0,75	0,35	0,47	54
110	2,88	4000	63	65	120	310	265	135,0	130	K+ 6	190	155	50,65	3	± 5,70	1,0	0,45	0,81	72
125	4,60	3700	73	75	138	340	295	157,5	150	K+11	215	175	53,15	3	± 6,45	1,3	0,65	1,31	100
140	6,48	3400	83	85	156	390	325	172,5	165	K+11	230	200	53,15	3	± 7,20	1,6	0,85	2,35	140
160	9,24	3100	118	120	180	435	370	199,0	190	K+14	270	230	54,65	3	± 8,40	2,6	1,4	4,2	198
180	12,92	2900	138	140	200	480	415	225,0	220	K+16	300	260	55,65	3	± 9,60	3,3	1,8	7,4	283
200	18,4	2700	158	160	225	545	465	252,5	245	K+19	340	290	57,15	3	± 10,80	4,8	2,5	14	417

Curved Tooth Couplings
Series SBkD

Dimension Table No. 243 139

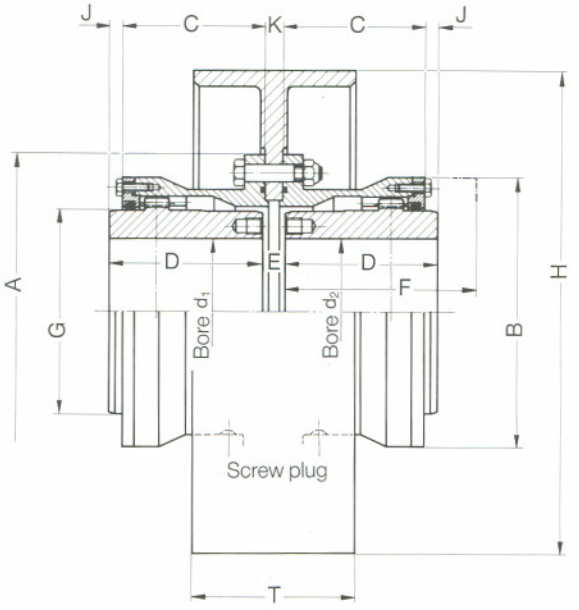
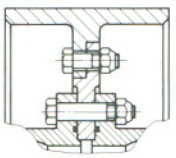
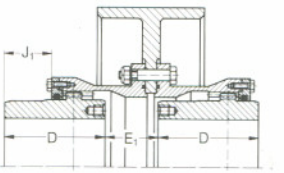


Fig. 2

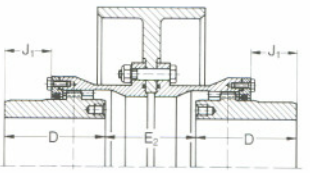


Split brake disks permit vertical installation and removal of machines.

Arrangement II



Arrangement III



The design of the SBkD series permits different arrangements of the hubs in the housing, thus allowing even large shaft distances to be bridged. In the case of tapered bores, the enlarged E-dimension provides space for installation of shaft nuts.

Dismounting dimension F is required for vertical installation and removal of machines.

Recommended assignment of brake disk			
Coupling size	Brake disk Ø H		
	mm	mm	mm
38	200	250	
48	200	250	315
60	200	250	315
70	250	315	400
80	315	400	
90	315	400	
100	400	500	
110	400	500	
125	400	500	630
140	400	500	630
160	500	630	710
180	500	630	710
200	630	710	
225	710		

Brake disk dimension			Mass moment of inertia	Weight
Ø H	T	K		
mm	mm	mm	kgm^2	kg
200	75	8	0,033	4,22
250	95	9	0,09	7,25
315	118	11	0,28	13,5
400	150	14	0,90	28
500	190	18	2,35	45
630	236	22	7,50	94
710	265	22	12,5	123

1) Speed $n_{max.}$ depends on the permissible circumferential speed of the brake disk. Observe the specifications of the brake manufacturer. Calculate the circumferential speed in accordance with the formula on page 42.

2) Referred to a permissible angular misalignment of $\Delta K_{w\,perm.} = 0.75°$ per coupling half. These values apply only to the coupling and not to the braking device.

3) Values of the complete coupling without brake disk for bore d_1; $d_{2\,max.}$

The tables on page 33 contain information on the torsional spring rates.

Larger sizes on request.
Subject to dimensional modifications.

Coupling type **SBkD** Size	Norm. cont. duty $\frac{P_{KN}}{n}$	Speed [1] $n_{max.}$	Bore $d_1; d_2$ min.	Bore $d_1; d_2$ max.	A	B	C	D	E	E_1	E_2	F	G	J	J_1	max. static [2] radial misalignment $\Delta K_{r\,max.}$	Total grease quantity	Mass [3] moment of inertia	Weight [3]
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kgm^2	kg
38	0,082	7500	12	42	118	92	56,5	60	K+3	K+ 15	K+ 27	90	60,0	5,0	17,0	±1,01	0,11	0,007	4,2
48	0,146	6900	22	55	145	115	66,0	70	K+2	K+ 23	K+ 44	100	77,0	5,0	26,0	± 1,26	0,12	0,017	7,8
60	0,288	6300	22	65	165	135	76,0	80	K+3	K+ 30	K+ 57	110	90,0	5,5	32,5	± 1,50	0,20	0,035	11,7
70	0,50	5900	28	80	200	160	87,5	90	K+3	K+ 39	K+ 75	120	112,5	4	40	± 1,73	0,28	0,085	19,8
80	0,82	5400	28	92	220	178	96,5	100	K+1	K+ 43	K+ 85	130	128,0	4	46	± 1,95	0,45	0,13	26,5
90	1,14	5000	32	105	240	196	106,5	110	K+3	K+ 51	K+ 99	140	145,0	5	53	± 2,25	0,65	0,21	32,5
100	1,64	4700	32	115	270	225	119,5	125	K+3	K+ 54	K+105	150	160,5	7	58	± 2,40	0,80	0,40	46
110	2,30	4300	55	126	280	240	129,5	140	K+3	K+ 57	K+111	170	176,0	12	66	± 2,70	0,95	0,53	57
125	2,88	4000	65	145	310	265	139,0	150	K+4	K+ 62	K+120	180	200,5	13	71	± 2,85	1,3	0,84	59
140	4,60	3700	75	162	340	295	162,5	170	K+5	K+ 75	K+145	200	224,5	10	80	± 3,30	1,6	1,5	111
160	6,48	3400	85	185	390	325	177,5	190	K+7	K+ 79	K+151	230	256,5	16	88	± 3,60	2,0	2,6	153
180	9,24	3100	120	210	435	370	205,0	220	K+6	K+ 94	K+182	260	288,5	18	106	± 4,20	3,4	4,7	217
200	12,92	2900	140	230	480	415	235,0	250	K+8	K+110	K+212	300	320,5	19	121	± 4,80	4,4	8,1	303
225	18,4	2700	160	260	545	465	262,5	280	K+9	K+121	K+233	330	362,0	22	134	± 5,40	6,6	15,2	442

Curved Tooth Couplings
Series SBkT

Dimension Table No. 243 140

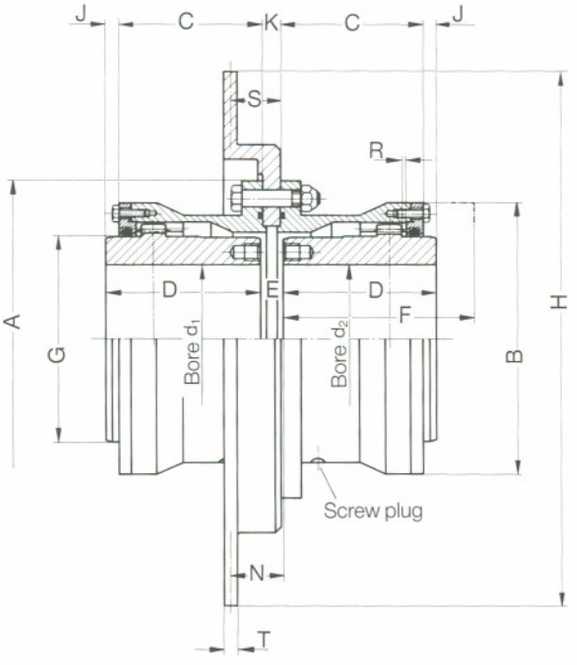
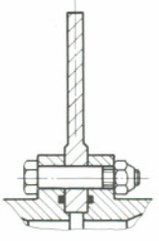


Fig. 2

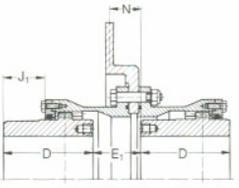


The couplings are optionally available with straight brake disk.

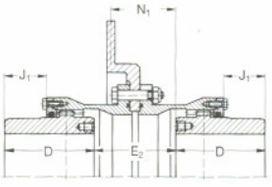
The design of the SBkT series permits different arrangements of the hubs in the housing, thus allowing even large shaft distances to be bridged. In the case of tapered bores, the enlarged E-dimension provides space for installation of shaft nuts.

1) Speed $n_{max.}$ depends on the permissible circumferential speed of the brake disk. Observe the specifications of the brake manufacturer. Calculate the circumferential speed in accordance with the formula on page 42.

Arrangement II



Arrangement III



Dismounting dimension F is required for vertical installation and removal of machines.

2) Referred to a permissible angular misalignment of $\Delta K_{w\,perm.} = 0.75°$ per coupling half. These values apply only to the coupling and not to the braking device.

3) Values of the complete coupling without brake disk for bore d_1; $d_{2\,max.}$

4) The weights and the mass moments of inertia of the brake discs refer to the combination with the largest coupling size.

Recommended assignment of brake disks				
Coupling size	Brake disk Ø H			
	mm	mm	mm	mm
38	300			
48	300			
60	350			
70	400	460	515	
80	400	460	515	
90	460	515	610	
100	460	515	610	710
110	515	610	710	
125	515	610	710	810
140	610	710	810	
160	610	710	810	915
180	710	810	915	
200	710	810	915	
225	810	915		

Brake disk dimensions				Mass [4] moment of inertia	Weight [4]
Ø H	T	K	S		
mm	mm	mm	mm	kgm^2	kg
300	12,7	8	34,65	0,099	6,7
356	12,7	10	47,65	0,19	10
406	12,7	13	47,65	0,30	12
457	12,7	16	47,65	0,48	16
514	12,7	16	47,65	0,57	20
610	12,7	16	47,65	1,5	26
711	12,7	18	47,65	2,9	39
812	12,7	23	47,65	5,8	61
915	12,7	23	47,65	10,0	92

The tables on page 33 contain information on the torsional spring rates.

Larger sizes on request.
Subject to dimensional modifications.

Coupling type **SBkT** Size	Norm. cont. duty $\frac{P_{KN}}{n}$	Speed [1] $n_{max.}$	Dimensions: Bore d_1; d_2 min.	Bore d_1; d_2 max.	A	B	C	D	E	E_1	E_2	F	G	J	J_1	N	N_1	R	max. static [2] radial misalignment $\Delta K_{r\,max.}$	Total grease quantity	Mass [3] moment of inertia	Weight [3]
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kgm^2	kg
38	0,082	7500	12	42	118	92	56,5	60	K+ 3	K+ 15	K+ 27	90	60,0	5,0	17,0	36,15	48,15	2	± 1,01	0,11	0,007	4,2
48	0,146	6900	22	55	145	115	66,0	70	K+ 3	K+ 24	K+ 45	100	77,0	5,5	26,5	36,15	57,15	2	± 1,26	0,12	0,017	7,8
60	0,288	6300	22	65	165	135	76,0	80	K+ 5	K+ 32	K+ 59	110	90,0	6,5	33,5	50,15	77,15	2	± 1,50	0,20	0,035	11,7
70	0,50	5900	28	80	200	160	87,5	90	K+ 5	K+ 41	K+ 77	120	112,5	5,0	41	50,15	86,15	2	± 1,73	0,28	0,085	19,8
80	0,82	5400	28	92	220	178	96,5	100	K+ 5	K+ 47	K+ 89	130	128,0	6,0	48	50,15	92,15	2	± 1,95	0,45	0,13	26,5
90	1,14	5000	32	105	240	196	106,5	110	K+ 7	K+ 55	K+103	140	145,0	7,0	55	51,15	99,15	2	± 2,25	0,65	0,21	32,5
100	1,64	4700	32	115	270	225	119,5	125	K+ 5	K+ 56	K+107	150	160,5	8,0	59	50,15	101,15	3	± 2,40	0,80	0,40	46
110	2,30	4300	55	126	280	240	129,5	140	K+ 7	K+ 61	K+115	170	176,0	14	68	51,15	105,15	3	± 2,70	0,95	0,53	57
125	2,88	4000	65	145	310	265	139,0	150	K+ 8	K+ 66	K+124	180	200,5	15	73	51,65	109,65	3	± 2,85	1,3	0,84	59
140	4,60	3700	75	162	340	295	162,5	170	K+11	K+ 81	K+151	200	224,5	13	83	53,15	123,15	3	± 3,30	1,6	1,5	111
160	6,48	3400	85	185	390	325	177,5	190	K+15	K+ 87	K+159	230	256,5	20	92	55,15	127,15	3	± 3,60	2,0	2,6	153
180	9,24	3100	120	210	435	370	205,0	220	K+14	K+102	K+190	260	288,5	22	110	54,65	142,65	3	± 4,20	3,4	4,7	217
200	12,92	2900	140	230	480	415	235,0	250	K+18	K+120	K+222	300	320,5	24	126	56,65	158,65	3	± 4,80	4,4	8,1	303
225	18,4	2700	160	260	545	465	262,5	280	K+21	K+133	K+245	330	362,0	28	140	58,15	170,15	3	± 5,40	6,6	15,2	442

Curved Tooth Couplings
Series LBkD

Dimension Table No. 243 141

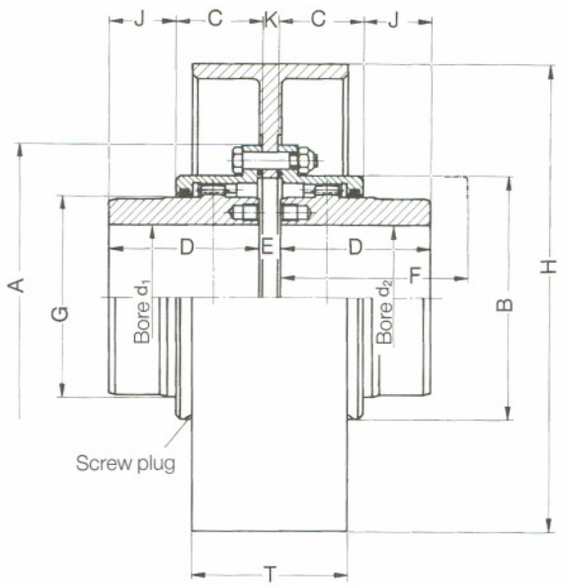
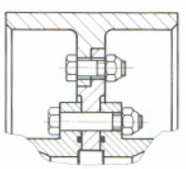


Fig. 2



Split brake disks permit vertical installation and removal of machines.

1) Speed $n_{max.}$ depends on the permissible circumferential speed of the brake disk. Observe the specifications of the brake manufacturer. Calculate the circumferential speed in accordance with the formula on page 42.

Dismounting dimension F is required for vertical installation and removal of machines.

2) Referred to a permissible angular misalignment of $\Delta K_{w\,perm.} = 0.75°$ per coupling half. These values apply only to the coupling and not to the braking device.

3) Values of the complete coupling without brake disk for bore d_1; $d_{2\,max.}$

The tables on page 33 contain information on the torsional spring rates.

Recommended assignment of brake disk			
Coupling size	Brake disk Ø H		
	mm	mm	mm
32	200		
38	200	250	
48	200	250	315
60	200	250	315
70	250	315	400
80	315	400	
90	315	400	
100	400	500	
110	400	500	
125	400	500	630
140	400	500	630
160	500	630	710
180	500	630	710
200	630	710	
225	710		

Brake disk dimension				
Ø H	T	K	Mass moment of inertia	Weight
mm	mm	mm	kgm^2	kg
200	75	8	0,033	4,22
250	95	9	0,09	7,25
315	118	11	0,28	13,5
400	150	14	0,90	28
500	190	18	2,35	45
630	236	22	7,50	94
710	265	22	12,5	123

Larger sizes on request.
Subject to dimensional modifications.

Coupling type **LBkD** Size	Norm. Speed [1] cont. duty $\frac{P_{KN}}{n}$	$n_{max.}$	Dimensions Bore $d_1;d_2$ min.	max.	A	B	C	D	E	F	G	J	max. static radial misalignment [2] $\Delta K_{r\,max.}$	Total grease quantity	Mass moment of inertia [3]	Weight [3]
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kgm^2	kg
32	0,050	8500	12	35	105	74	44,5	50	K+ 2	80	48	7,0	±0,57	0,03	0,0034	2,9
38	0,082	7500	12	42	115	87	50,0	60	K+ 3	90	60	12,0	±0,69	0,04	0,0059	4,3
48	0,146	6900	22	55	145	108	50,0	70	K+ 3	100	77	21,5	±0,71	0,06	0,015	7,0
60	0,288	6300	22	65	165	125	52,5	80	K+ 4	110	90	29,5	±0,77	0,10	0,026	9,3
70	0,50	5900	28	80	195	146	54,5	90	K+ 3	120	112	37,0	±0,78	0,15	0,059	14,7
80	0,82	5400	28	92	215	168	58,0	100	K+ 3	130	128	43,5	±0,84	0,22	0,097	20,0
90	1,14	5000	32	105	230	185	62,0	110	K+ 5	140	145	50,5	±0,92	0,29	0,14	25,4
100	1,64	4700	32	115	265	210	72,0	125	K+ 4	150	160	55,0	±1,08	0,44	0,28	38,0
110	2,30	4300	55	126	270	224	78,5	140	K+ 4	170	176	63,5	±1,23	0,55	0,36	45,6
125	2,88	4000	65	145	305	245	85,5	150	K+ 6	180	200	67,5	±1,34	0,79	0,64	62
140	4,60	3700	75	162	330	270	96,5	170	K+ 6	200	224	76,5	±1,44	0,90	1,03	82
160	6,48	3400	85	185	375	305	108,0	190	K+ 7	230	256	85,5	±1,70	1,23	1,5	93
180	9,24	3100	120	210	425	348	122,0	220	K+ 6	260	288	101	±1,89	1,9	3,6	177
200	12,92	2900	140	230	470	392	133,0	250	K+ 8	300	320	121	±2,12	2,4	6,2	245
225	18,4	2700	160	260	535	437	154,5	280	K+10	330	362	130,5	±2,42	3,7	11,2	347

Curved Tooth Couplings
Series LBkT

Dimension Table No. 243 142

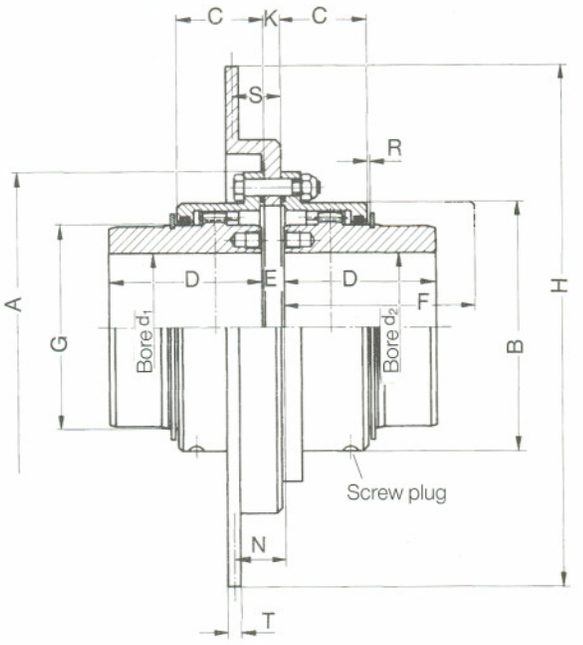
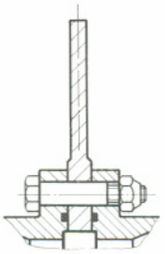


Fig. 2



The couplings are optionally available with straight brake disk.

Dismounting dimension F is required for vertical installation and removal of machines.

1) Speed $n_{max.}$ depends on the permissible circumferential speed of the brake disk. Observe the specifications of the brake manufacturer. Calculate the circumferential speed in accordance with the formula on page 42.

2) Referred to a permissible angular misalignment of ΔK_w perm. = 0.75° per coupling half. These values apply only to the coupling and not to the braking device.

3) Values of the complete coupling without brake disk for bore d_1; $d_{2\,max.}$

4) The weights and the mass moments of inertia of the brake discs refer to the combination with the largest coupling size.

Recommended assignment of brake disk				
Coupling Size	Brake disk Ø H			
	mm	mm	mm	mm
32	300			
38	300			
48	300			
60	350			
70	400	460	515	
80	400	460	515	
90	460	515	610	
100	460	515	610	710
110	515	610	710	
125	515	610	710	810
140	610	710	810	
160	610	710	810	915
180	710	810	915	
200	710	810	915	
225	810	915		

Brake disk dimensions				Mass [4] moment of inertia	Weight [4]
Ø H	T	K	S		
mm	mm	mm	mm	kgm^2	kg
300	12,7	8	34,65	0,099	6,7
356	12,7	10	47,65	0,19	10
406	12,7	13	47,65	0,30	12
457	12,7	16	47,65	0,48	16
514	12,7	16	47,65	0,57	20
610	12,7	16	47,65	1,5	26
711	12,7	18	47,65	2,9	39
812	12,7	23	47,65	5,8	61
915	12,7	23	47,65	10,0	92

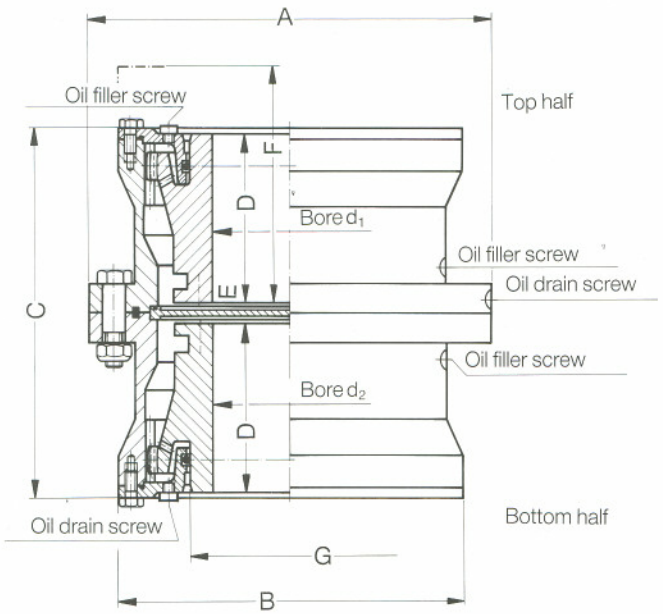
The tables on page 33 contain information on the torsional spring rates.

Larger sizes on request.
Subject to dimensional modifications.

Coupling type LBkT Size	Norm. Speed [1] cont. duty $\frac{P_{KN}}{n}$	$n_{max.}$	Dimensions Bore $d_1;d_2$ min.	Bore $d_1;d_2$ max.	A	B	C	D	E	F	G	N	R	max. static [2] radial misalignment $\Delta K_{r\,max.}$	Total grease quantity	Mass [3] moment of inertia	Weight [3]
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kgm^2	kg
32	0,050	8500	12	35	105	74	44,5	50	K+ 2	80	48	35,65	1,5	±0,57	0,03	0,0034	2,9
38	0,082	7500	12	42	115	87	50,0	60	K+ 3	90	60	36,15	1,5	±0,69	0,04	0,0059	4,3
48	0,146	6900	22	55	145	108	50,0	70	K+ 3	100	77	36,15	2	±0,71	0,06	0,015	7,0
60	0,288	6300	22	65	165	125	52,5	80	K+ 4	110	90	49,65	2	±0,77	0,10	0,026	9,3
70	0,50	5900	28	80	195	146	54,5	90	K+ 3	120	112	49,15	2	±0,78	0,15	0,059	14,7
80	0,82	5400	28	92	215	168	58,0	100	K+ 3	130	128	49,15	2	±0,84	0,22	0,097	20,0
90	1,14	5000	32	105	230	185	62,0	110	K+ 5	140	145	50,15	2	±0,92	0,29	0,14	25,4
100	1,64	4700	32	115	265	210	72,0	125	K+ 4	150	160	49,65	3	±1,08	0,44	0,28	38,0
110	2,30	4300	55	126	270	224	78,5	140	K+ 4	170	176	49,65	3	±1,23	0,55	0,36	45,6
125	2,88	4000	65	145	305	245	85,5	150	K+ 6	180	200	50,65	3	±1,34	0,79	0,64	62
140	4,60	3700	75	162	330	270	96,5	170	K+ 6	200	224	50,65	3	±1,44	0,90	1,03	82
160	6,48	3400	85	185	375	305	108,0	190	K+ 7	230	256	51,15	3	±1,70	1,23	1,5	93
180	9,24	3100	120	210	425	348	122,0	220	K+ 6	260	288	50,65	3	±1,89	1,9	3,6	177
200	12,92	2900	140	230	470	392	133,0	250	K+ 8	300	320	51,65	3	±2,12	2,4	6,2	245
225	18,4	2700	160	260	535	437	154,5	280	K+10	330	362	52,65	3	±2,42	3,7	11,2	347

Curved Tooth Couplings
Series VSB

Dimension Table No. 243 143



Coupl. size	Required oil quantity for oil lubrication: min. speed top half Liter	min. speed bottom half Liter	max. speed top half Liter	max. speed bottom half Liter
30	0,070	0,016	0,04	0,016
40	0,095	0,025	0,05	0,025
50	0,17	0,07	0,06	0,07
60	0,29	0,11	0,13	0,11
70	0,36	0,15	0,16	0,15
80	0,50	0,21	0,22	0,21
90	0,78	0,31	0,35	0,31
100	0,98	0,43	0,40	0,43
110	1,3	0,57	0,54	0,57
125	1,6	0,70	0,68	0,70
140	2,1	0,93	0,9	0,93
160	3,1	1,3	1,3	1,3
180	4,5	1,5	2,0	1,5
200	6,8	2,3	2,8	2,3

Dismounting dimension F is required for vertical installation and removal of machines.

Couplings of the VSB series are intended for vertical installation. They are equipped with two separate lubricant chambers and suitable for optional operation with oil or grease lubrication.

In the case of oil lubrication, it is necessary to pay attention to the different oil quantities for the lower and upper speed ranges.

The couplings are also available with spacer or intermediate shaft to bridge large distances between shafts.

1) Referred to a permissible angular misalignment of $\Delta K_{w\ perm.} = 1.5°$ per coupling half. Higher values are possible but require special measures.

2) Values of the complete coupling for bore d_1; $d_{2\ max.}$.

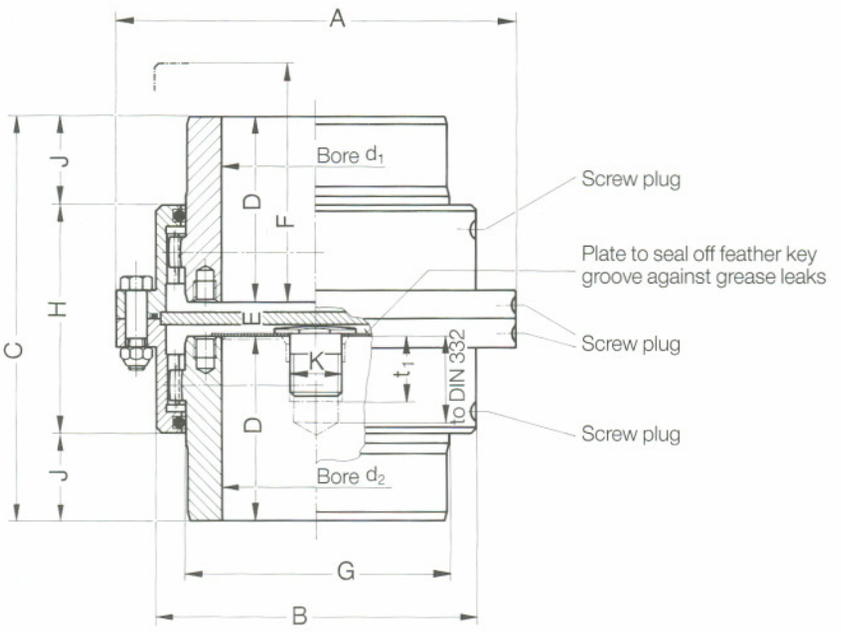
The tables on page 33 contain information on the torsional spring rates.

Larger sizes on request.
Subject to dimensional modifications.

Coupling type **VSB** Size	Norm. cont. duty $\frac{P_{KN}}{n}$ kW · min	Speed min to rpm	Speed max to mm	Dimensions: Bore pre mm	Bore d_1 min. mm	Bore d_2 max. mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	max. static [1] radial misalignment $\Delta K_{r\ max.}$ mm	Grease quantities for min. and max. speeds: top half kg	bottom half kg	Mass-[2] moment of inertia kgm²	Weight [2] kg
30	0,082	1300	7500	10	12	32	118	92	110	50	7	75	45	± 1,95	0,070	0,016	0,0067	4,6
40	0,146	1300	6900	20	22	46	145	115	131	60	8	90	60	± 2,70	0,095	0,025	0,018	7,9
50	0,288	1300	6300	20	22	58	165	135	151	70	8	110	75	± 3,00	0,17	0,07	0,035	11,8
60	0,50	900	5900	26	28	70	200	160	175	80	9	120	90	± 3,45	0,29	0,11	0,084	19,1
70	0,82	900	5400	26	28	78	220	178	197	90	11	130	100	± 3,90	0,36	0,15	0,14	27
80	1,14	900	5000	30	32	92	240	196	217	100	11	150	120	± 4,35	0,50	0,21	0,21	34
90	1,64	650	4700	30	32	100	270	225	241	110	13	170	130	± 4,80	0,78	0,31	0,40	49
100	2,30	650	4300	53	55	110	280	240	261	120	13	180	140	± 5,25	0,98	0,43	0,57	56
110	2,88	650	4000	63	65	120	310	265	282	130	14	190	155	± 5,70	1,3	0,57	0,85	75
125	4,60	650	3700	73	75	138	340	295	325	150	15	215	175	± 6,45	1,6	0,70	1,40	104
140	6,48	500	3400	83	85	156	390	325	355	165	15	230	200	± 7,20	2,1	0,93	2,50	147
160	9,24	500	3100	118	120	180	435	370	410	190	18	270	230	± 8,40	3,1	1,3	4,41	204
180	12,92	500	2900	138	140	200	480	415	462	220	18	300	260	± 9,60	4,5	1,5	7,62	292
200	18,4	500	2700	158	160	225	545	465	519	245	21	340	290	± 10,80	6,8	2,3	14,3	430

Curved Tooth Couplings
Series VLBk

Dimension Table No. 243 144



Centering bores with thread in accordance with DIN 332				
Diameter range of shaft ends mm			K mm	t_1 mm
over 24	to	30	M10	22
over 30	to	38	M12	28
over 38	to	50	M16	36
over 50	to	85	M20	42
over 85	to	130	M24	50
over 130	to	160	M30	60
over 160	to	200	M36	80
over 200	to	250	M48	100
over 250	to	300	M56	125

Dismounting dimension F is required for vertical installation and removal of machines.

Couplings of the VLBk series are intended for vertical installation. They are equipped with two separate lubricant chambers and intended for operation with grease lubrication.

The couplings are also available with spacer or intermediate shaft to bridge large distances between shafts.

Larger sizes on request.
Subject to dimensional modifications.

Coupling type VLBk Size	Norm. cont. duty $\frac{P_{KN}}{n}$ kW · min	Speed $n_{max.}$ rpm	Dimensions Bore $d_1;d_2$ min. mm	Bore $d_1;d_2$ max. mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	J mm	max. static [1] radial misalignment $\Delta K_{r\,max.}$ mm	Total grease quantity kg	Mass [2] moment of inertia kgm²	Weight [2] kg
32	0,050	8500	12	35	105	74	106	45	16	75	48	90	8,0	±0,57	0,028	0,0035	3,0
38	0,082	7500	12	42	115	87	127	55	17	85	60	101	13,0	±0,69	0,052	0,0064	4,5
48	0,146	6900	22	55	145	108	147	65	17	95	77	102	22,5	±0,71	0,069	0,016	7,6
60	0,288	6300	22	65	165	125	168	75	18	105	90	107	30,5	±0,77	0,11	0,025	10,0
70	0,50	5900	28	80	195	146	191	85	21	115	112	112	39,5	±0,78	0,14	0,062	16,0
80	0,82	5400	28	92	215	168	212	95	22	125	128	119	46,5	±0,84	0,21	0,103	21,5
90	1,14	5000	32	105	230	185	234	105	24	135	145	127	53,5	±0,92	0,27	0,150	26,5
100	1,64	4700	32	115	265	210	266	120	26	155	160	148	59,0	±1,08	0,40	0,303	41,0
110	2,30	4300	55	126	270	224	297	135	27	170	176	161	68,0	±1,23	0,52	0,390	48,5
125	2,88	4000	65	145	305	245	317	145	27	180	200	175	71,0	±1,34	0,58	0,675	65,0
140	4,60	3700	75	162	330	270	359	165	29	200	224	197	81,0	±1,44	0,69	1,10	87,5
160	6,48	3400	85	185	375	305	400	185	30	225	256	221	89,5	±1,70	0,94	1,97	126
180	9,24	3100	120	210	425	348	462	215	32	255	288	250	106	±1,89	1,5	3,74	185
200	12,92	2900	140	230	470	392	524	245	34	290	320	272	126	±2,12	2,3	6,39	255
225	18,4	2700	160	260	535	437	587	275	37	330	362	315	136	±2,42	3,1	11,62	363

1) Referred to a permissible angular misalignment of $\Delta K_{w\,perm.} = 0.75°$ per coupling half. Higher values are possible but require special measures.

2) Values of the complete coupling for bore d_1; $d_{2\,max.}$

The tables on page 33 contain information on the torsional spring rates.

Curved Tooth Couplings
Series HBk

Dimension Table No. 243 145

Fig. 1: Size 140 – 450

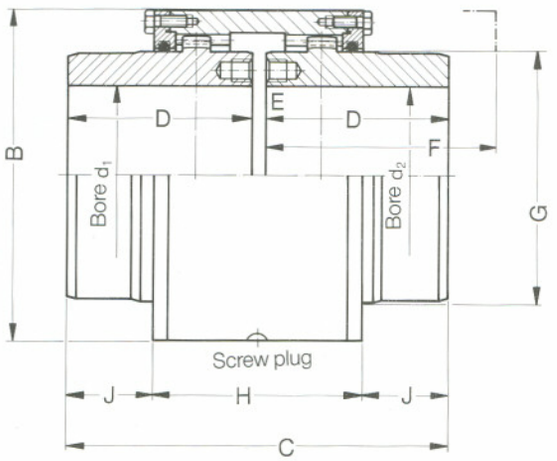
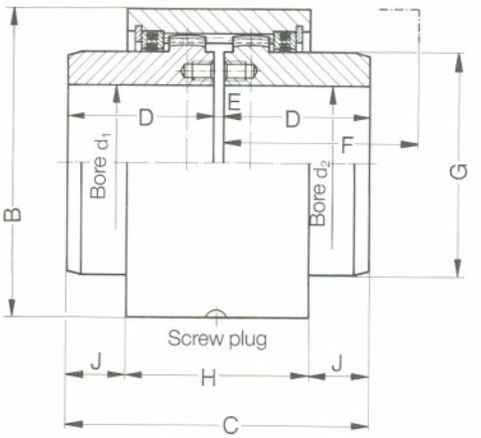


Fig. 2: Size 30 – 125 (TRAVEX®)



Dismounting dimension F is required for vertical installation and removal of machines.

The tables on page 33 contain information on torsional spring rates.

1) Referred to a permissible angular misalignment of $\Delta K_{w\,perm.} = 0.75°$ per coupling half. Higher values are possible but require special measures.

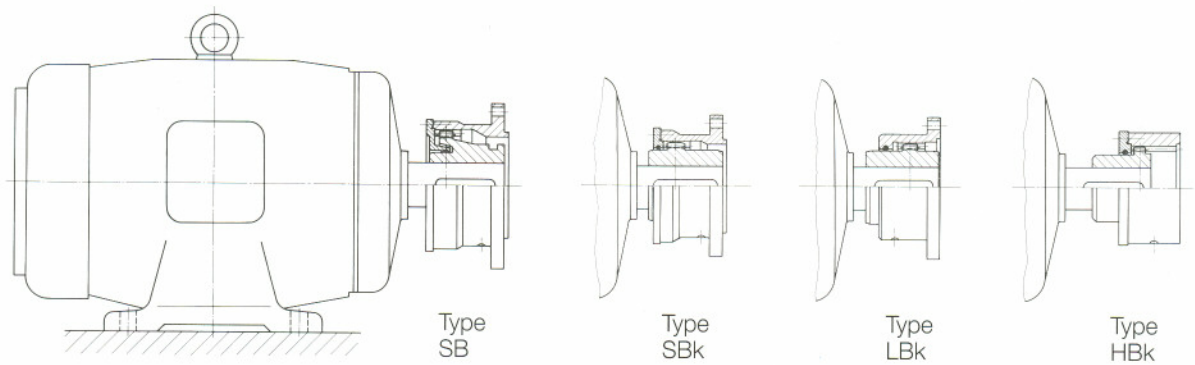
2) Values of the complete coupling for bore d_1; $d_{2\,max.}$

Size 30 to 160 available ex stock.

Larger sizes on request.
Subject to dimensional modifications.

Coupling type HBk Size	Norm. cont. duty $\frac{P_{KN}}{n}$	Speed $n_{max.}$	Dimensions Bore d_1; d_2 min.	Bore d_1; d_2 max.	B	C	D	E	F	G	H	J	max. static 1) radial misalignment $\Delta K_{r\,max.}$	Total grease quantity	Mass 2) moment of inertia	Weight 2)
	kW · min	rpm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kgm^2	kg
30	0,047	9000	12	32	74	85	40	5	85	45	73	6	± 0,67	0,02	0,0015	1,8
40	0,115	7500	18	42	95	105	50	5	95	60	81	12	± 0,70	0,04	0,0043	3,3
50	0,183	6900	20	55	115	125	60	5	110	78	89	18	± 0,78	0,06	0,0108	5,7
60	0,387	6300	24	65	138	145	70	5	120	95	102	21,5	± 0,85	0,07	0,0288	10,3
75	0,691	5600	28	78	158	166	80	6	130	110	109	28,5	± 0,99	0,10	0,0528	14,3
90	1,16	5000	32	95	188	207	100	7	150	135	117	45	± 1,08	0,17	0,114	22,6
105	1,82	4500	35	110	220	228	110	8	165	155	131	48,5	± 1,20	0,28	0,237	35,5
125	2,73	4000	38	128	250	248	120	8	175	180	149	49,5	± 1,36	0,35	0,45	50
140	4,60	3700	75	162	295	350	170	10	200	224,5	190	80	±1,44	0,82	1,15	89
160	6,48	3400	85	185	325	392	190	12	230	256,5	214	89	± 1,70	1,2	1,9	120
180	9,24	3100	120	210	370	452	220	12	260	288,5	240	106	± 1,89	1,7	3,0	174
200	12,92	2900	140	230	415	514	250	14	300	320,5	272	121	± 2,12	2,2	6,2	251
225	18,4	2700	160	260	465	576	280	16	330	362	308	134	± 2,42	3,5	11,6	350
250	25,6	2400	160	280	510	620	300	20	350	400	292	164	± 2,46	3,8	14,8	435
265	32,8	2200	180	310	560	680	330	20	380	440	332	174	± 2,83	4,5	24,5	600
280	41,0	2100	200	325	595	680	330	20	380	460	292	194	± 2,23	5	28,4	636
315	51,4	2000	220	360	660	740	360	20	420	510	330	205	± 2,54	5,5	47,5	840
335	64,8	1900	240	380	675	780	380	20	440	535	342	219	± 2,61	6	56,2	960
355	82,0	1800	260	410	725	825	400	25	460	580	368	228,5	± 2,83	7	78,5	1150
375	98,6	1700	280	440	795	865	420	25	480	620	416	224,5	± 3,26	11	118,6	1465
400	118,3	950	330	470	840	905	440	25	500	665	464	220,5	± 3,77	16	158	1720
425	138,0	900	355	500	890	945	460	25	520	710	493	226	± 4,03	19	221	2120
450	165,1	875	370	520	925	990	480	30	550	730	506	242	± 4,14	20	261	2290

Curved Tooth Couplings
Assignment to Standard Motors



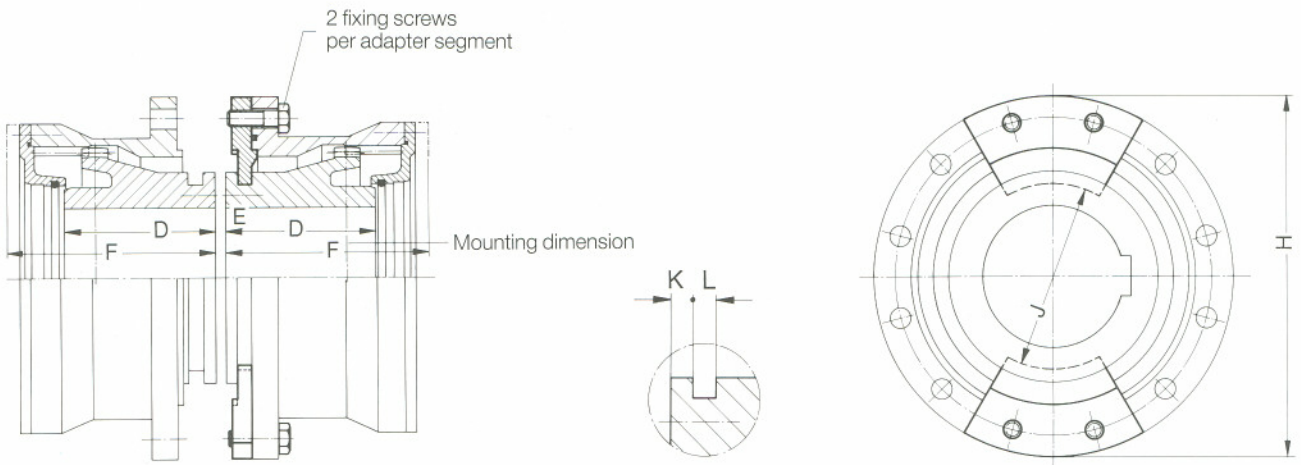
Type SB | Type SBk | Type LBk | Type HBk

Subject to dimensional modifications.

3-phase standard motor in accordance with IEC					Cyl. shaft end Ø x length	Assignment of coupling sizes			
	Output kW at rpm					Series			
Series	3000	1500	1000	750	mm	SB	SBk	LBk	HBk
90 S	1,5	1,1	0,75	0,37	24 x 50	30	–	32	30
90 L	2,2	1,5	1,1	0,55	24 x 50	30	–	32	30
100 L	3	2,2	1,5	0,75	28 x 60	30	–	32	30
„	–	3	–	1,1	28 x 60	30	–	32	30
112 M	4	4	2,2	1,5	28 x 60	30	–	32	30
132 S	5,5	5,5	3	2,2	38 x 80	40	38	38	40
„	7,5	–	–	–	38 x 80	40	38	38	40
132 M	–	7,5	4	3	38 x 80	40	38	38	40
„	–	–	5,5	–	38 x 80	40	38	38	40
160 M	11	11	7,5	4	42 x 110	40	38	38	40
„	15	–	–	5,5	42 x 110	40	38	38	40
160 L	18,5	15	11	7,5	42 x 110	40	38	38	40
180 M	22	18,5	–	–	48 x 110	50	48	48	50
180 L	–	22	15	11	48 x 110	50	48	48	50
200 L	30	–	18,5	–	55 x 110	50	48	48	50
„	37	30	22	15	55 x 110	50	48	48	50
225 S	–	37	–	18,5	60 x 140	60	60	60	60
225 M	45	–	–	–	55 x 110	50	48	48	50
„	–	45	30	22	60 x 140	60	60	60	60
250 M	55	–	–	–	60 x 140	60	60	60	60
„	–	55	37	30	65 x 140	60	60	60	60
280 S	75	–	–	–	65 x 140	60	60	60	60
„	–	75	45	37	75 x 140	70	70	70	75
280 M	90	–	–	–	65 x 140	60	60	60	60
„	–	90	55	45	75 x 140	70	70	70	75
315 S	110	–	–	–	65 x 140	60	60	60	60
„	–	110	75	55	80 x 170	80	70	70	90
315 M	132	–	–	–	65 x 140	60	60	60	60
„	–	132	90	75	80 x 170	80	70	70	90
315 L	160	–	–	–	65 x 140	60	60	60	60
„	200	–	–	–	65 x 140	60	60	60	60
315 L	–	160	110	90	80 x 170	80	70	70	90
„	–	200	132	110	80 x 170	80	70	70	90
355 L	250	–	–	–	75 x 140	70	70	70	75
„	315	–	–	–	75 x 140	70	70	70	75
355 L	–	250	160	132	95 x 170	90	90	90	90
„	–	315	200	160	95 x 170	90	90	90	90
„	–	–	250	200	95 x 170	90	90	90	90
400 L	355	–	–	–	80 x 170	80	70	70	90
„	400	–	–	–	80 x 170	80	70	70	90
„	–	355	–	–	100 x 210	90	90	90	105
„	–	400	315	250	100 x 210	90	90	90	105
450	500	–	–	–	80 x 170	80	70	70	90
„	630	–	–	–	80 x 170	80	70	70	90
„	–	500	400	315	110 x 210	100	100	100	105
„	–	630	500	400	110 x 210	100	100	100	105

Adapter Segments for Curved Tooth Couplings Series SB

Dimension Table No. 243 146



Adapter segments for radial and axial guidance of one coupling housing when coupling halves are separated. It is thus possible to accelerate drive machines to the required speed without coupled work machine.

This is necessary, for example, when testing electric motors. Adapter segments are intended only for brief use and are not suitable for continuous operation.

The space corresponding to dimension F is required for installation and removal of the adapter segments.

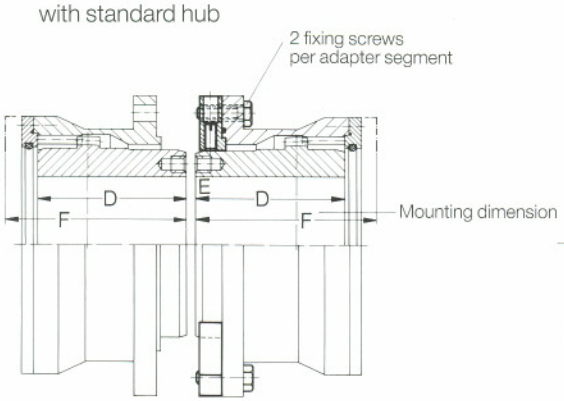
Larger sizes on request.
Subject to dimensional modifications.

Coupling type **SB** Size	Dimensions							Size of fixing screws	Dimensions of the pull-off threads in the hubs		
	D	E	F	H	J	K	L		Thread diameter	Hole distance mm	Number of holes
	mm	mm	mm	mm	mm	mm	mm				
30	50	5	75	115	48	4,5	5	M 6 x 20	–	–	–
40	60	5	90	145	62	4,5	5	M 8 x 20	–	–	–
50	70	5	110	165	75	4,5	6	M 8 x 25	–	–	–
60	80	6	120	195	85	7,0	6	M 10 x 25	–	–	–
70	90	6	130	215	105	8,0	8	M 10 x 30	M 8	94	2
80	100	6	150	230	118	8,5	8	M 10 x 30	M 8	107	2
90	110	8	170	265	128	8,5	10	M 12 x 35	M10	115	2
100	120	8	180	270	145	10,5	10	M 12 x 35	M12	130	2
110	130	8	190	305	156	11,0	12	M 16 x 40	M12	140	2
125	150	10	215	330	180	11,0	12	M 16 x 45	M12	162	2
140	165	10	230	375	210	12,0	13	M 18 x 45	M16	190	2
160	190	12	270	425	240	14,0	14	M 22 x 55	M20	215	2
180	220	12	300	470	270	14,5	14	M 22 x 55	M24	240	2
200	245	14	340	535	310	15,0	15	M 27 x 60	M24	270	2
220	270	16	360	580	325	21,5	18	M 27 x 60	M24	290	2
240	290	18	380	645	350	22,0	19	M 33 x 60	M24	320	2
260	310	20	400	680	375	23,0	20	M 33 x 60	M30	340	2
280	340	22	440	745	420	24,0	21	M 36 x 70	M30	380	2
300	360	24	470	775	435	26,5	24	M 36 x 75	M36	395	2
320	380	26	500	825	470	28,0	25	M 36 x 75	M36	430	2

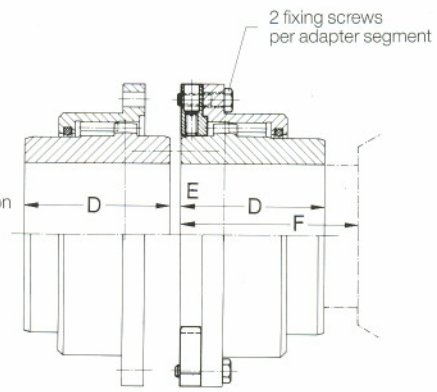
Adapter Segments for Curved Tooth Couplings Series SBk and LBk

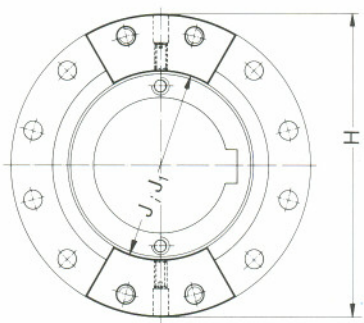
Dimension Table No. 243 147

SBk couplings
with standard hub

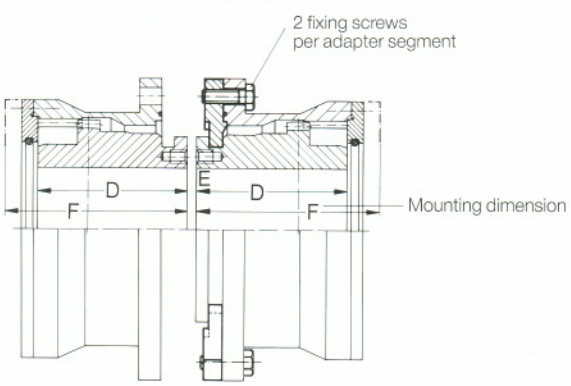


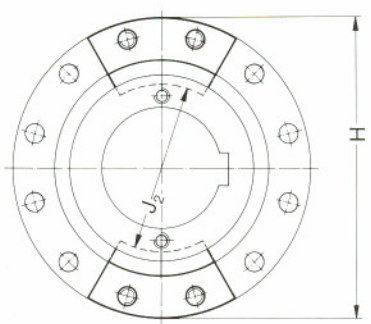
LBk couplings

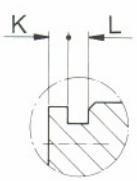




SBRk coupling with hub
design for retaining ring.







1) Dimension J applies to SBRk couplings with standard hub.

2) Dimension J_1 applies to LBk couplings.

3) Dimension J_2 applies to SBk couplings with hub design for retaining ring.

Larger sizes on request.
Subject to dimensional modifications.

Couplings-types **SBk a. LBk** Size	Dimensions									Size of fixing screws	Dimensions of the pull-off threads in the hubs		
	D	E	F	H	J 1)	J_1 2)	J_2 3)	K	L		Thread diameter	Hole distance mm	Number of holes
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
32	50	4	80	105	–	48	–	–	–	M 6 x 20	–	–	–
38	60	5	90	115	60	60	54	4,5	5	M 6 x 20	–	–	–
48	70	5	100	145	76,2	77	69	4,5	5	M 8 x 20	M 6	66	2
60	80	6	110	165	89,2	90	81	4,5	6	M 8 x 25	M 8	78	2
70	90	6	120	195	111,5	112,5	98	7	6	M 10 x 25	M 8	95	2
80	100	6	130	215	127	128	113	8	8	M 10 x 30	M 12	110	2
90	110	8	140	230	144	145	128	8,5	8	M 10 x 30	M 12	125	2
100	125	8	150	265	158,5	160,5	138	8,5	10	M 12 x 35	M 12	140	2
110	140	8	170	270	174,6	176	152	10,5	10	M 12 x 35	M 16	150	2
125	150	10	180	305	199,6	200,5	171	11	12	M 16 x 40	M 16	170	2
140	170	10	200	330	222,9	224,5	195	11	12	M 16 x 45	M 20	190	2
160	190	12	230	375	254,9	256,5	225	12	13	M 18 x 45	M 20	220	2
180	220	12	260	425	286,9	288,5	255	14	14	M 22 x 55	M 24	245	2
200	250	14	300	470	318,8	320,5	290	14,5	14	M 22 x 55	M 24	270	2
225	280	16	330	530	359,8	362	332	15	15	M 27 x 60	M 24	305	2

Lubricant Quantities for Spacers

Depending on design and size, an additional lubricant quantity must be taken into account for curved tooth couplings with spacer. The length is the primary determining factor here. The tables thus contain the data for the spacer for the minimum length $L = L_{min.}$ and the part-quantities per 10 mm tube length for designs with $L > L_{min}$.

The values obtained from the tables must be added to the coupling values. These are listed for every type and size in the dimension lists of the various series.

On longer spacers, the ends are closed off by plates. In these cases, no additional lubricant filling must be taken into account for the spacers. The length $L > 400$ mm applies as a guide value for this measure.

In the case of couplings of the SBLk and LRLk series, the design does not require any additional grease quantity for the spacer. However, this applies only to the sizes to 225 listed in the catalog. Please enquire as regards larger couplings.

The two above-mentioned series are not listed in the tables for the given reasons.

1) Couplings of the SBL series are suitable for optional operation with oil or grease lubrication. In the case of grease lubrication, no additional grease quantity is required for the spacer.

2) Couplings of the SRLk and LBLk series are designed for grease lubrication only. Coupling sizes for which there are no values in the tables do not require an additional grease quantity for the spacer.

Coupling type **SBL** Size	Minimum spacer length L_{min}	Oil quantity for oil lubrication		Grease quantity for grease [1] lubrication	
		Spacer with $L = L_{min}$	Per 10 mm tube length for $L > L_{min}$	Spacer with $L = L_{min}$	Per 10 mm tube length for $L > L_{min}$
	mm	Liter	Liter	kg	kg
30	75	0,012	0,0016	–	–
40	80	0,012	0,0015	–	–
50	80	0,022	0,0027	–	–
60	100	0,033	0,0033	–	–
70	100	0,038	0,0038	–	–
80	100	0,065	0,0065	–	–
90	120	0,09	0,0075	–	–
100	120	0,12	0,0097	–	–
110	155	0,28	0,018	–	–
125	155	0,35	0,022	–	–
140	175	0,39	0,026	–	–
160	205	0,45	0,022	–	–
180	205	1,0	0,049	–	–
200	240	0,6	0,025	–	–

Coupling type **SRL** Size	Minimum spacer length L_{min}	Oil quantity for oil lubrication		Grease quantity for grease lubrication	
		Spacer with $L = L_{min}$	Per 10 mm tube length for $L > L_{min}$	Spacer with $L = L_{min}$	Per 10 mm tube length for $L > L_{min}$
	mm	Liter	Liter	kg	kg
30	75	0,041	0,0054	0,044	0,0058
40	80	0,042	0,0052	0,045	0,0056
50	80	0,10	0,013	0,11	0,014
60	100	0,23	0,023	0,25	0,025
70	100	0,14	0,014	0,15	0,015
80	100	0,42	0,042	0,45	0,045
90	120	0,62	0,052	0,67	0,056
100	120	0,65	0,054	0,70	0,058
110	155	1,53	0,099	1,7	0,11
125	155	1,86	0,12	2,0	0,13
140	175	2,3	0,13	2,5	0,14
160	205	2,3	0,11	2,5	0,12
180	205	5,3	0,26	5,7	0,28
200	240	2,4	0,1	2,6	0,11

Coupling type **LBLk** Size	Minimum spacer length L_{min}	Grease quantity [2]	
		Spacer with $L = L_{min}$	Per 10 mm tube length for $L > L_{min}$
	mm	kg	kg
32	70	0,07	0,010
38	70	0,11	0,015
48	75	0,15	0,020
60	75	0,20	0,026
70	90	0,28	0,031
80	90	0,42	0,047
90	90	0,45	0,050
100	105	0,74	0,070
110	105	0,79	0,075
125	130	1,2	0,090
140	130	1,3	0,1
160	145	–	–
180	170	–	–
200	170	–	–
225	200	–	–

Coupling type **SRLk** Size	Minimum spacer length L_{min}	Grease quantity [2]	
		Spacer with $L = L_{min}$	Per 10 mm tube length for $L > L_{min}$
	mm	kg	kg
38	75	0,013	0,0017
48	80	–	–
60	80	0,084	0,010
70	100	0,130	0,012
80	100	0,064	0,006
90	100	0,23	0,022
100	120	0,40	0,031
110	120	0,47	0,037
125	155	0,96	0,059
140	155	1,17	0,071
160	175	1,44	0,078
180	205	1,03	0,048
200	205	3,6	0,17
225	240	–	–

Torsional Spring Rates for Curved Tooth Couplings

The values for torsional rigidity C_T for the different series given in the tables always apply to the complete coupling in its basic design. The hub bores with the maximum possible diameter (d_1; $d_{2\,max}$) were used as a basis for calculation.

In the case of couplings with spacer or intermediate shaft, these parts must be taken into account additionally. The following pages 34 and 35 contain information about the torsional rigidities of spacers and shafts. The overall values are calculated in accordance with the given formulae.

Coupling size	Torsional spring rates C_T for SB series Coupling type **SB** Nm/rad	 **SBR** Nm/rad	 **SBD/SBT** Nm/rad	 **VSB** Nm/rad
30	$0{,}44 \cdot 10^6$	$0{,}44 \cdot 10^6$	$0{,}44 \cdot 10^6$	$0{,}44 \cdot 10^6$
40	$1{,}44 \cdot 10^6$	$1{,}14 \cdot 10^6$	$1{,}15 \cdot 10^6$	$1{,}14 \cdot 10^6$
50	$2{,}15 \cdot 10^6$	$2{,}15 \cdot 10^6$	$2{,}15 \cdot 10^6$	$2{,}15 \cdot 10^6$
60	$3{,}97 \cdot 10^6$	$3{,}97 \cdot 10^6$	$4{,}00 \cdot 10^6$	$3{,}97 \cdot 10^6$
70	$5{,}45 \cdot 10^6$	$5{,}45 \cdot 10^6$	$5{,}49 \cdot 10^6$	$5{,}45 \cdot 10^6$
80	$9{,}00 \cdot 10^6$	$9{,}00 \cdot 10^6$	$9{,}10 \cdot 10^6$	$9{,}00 \cdot 10^6$
90	$12{,}42 \cdot 10^6$	$12{,}42 \cdot 10^6$	$12{,}49 \cdot 10^6$	$12{,}42 \cdot 10^6$
100	$14{,}26 \cdot 10^6$	$14{,}26 \cdot 10^6$	$14{,}30 \cdot 10^6$	$14{,}26 \cdot 10^6$
110	$18{,}77 \cdot 10^6$	$18{,}77 \cdot 10^6$	$18{,}90 \cdot 10^6$	$18{,}77 \cdot 10^6$
125	$26{,}10 \cdot 10^6$	$26{,}10 \cdot 10^6$	$26{,}21 \cdot 10^6$	$26{,}10 \cdot 10^6$
140	$40{,}36 \cdot 10^6$	$40{,}36 \cdot 10^6$	$38{,}8 \cdot 10^6$	$40{,}36 \cdot 10^6$
160	$64{,}39 \cdot 10^6$	$64{,}39 \cdot 10^6$	$64{,}7 \cdot 10^6$	$64{,}39 \cdot 10^6$
180	$79{,}11 \cdot 10^6$	$79{,}11 \cdot 10^6$	$79{,}4 \cdot 10^6$	$79{,}11 \cdot 10^6$
200	$108{,}12 \cdot 10^6$	$108{,}12 \cdot 10^6$	$108{,}7 \cdot 10^6$	$108{,}12 \cdot 10^6$
220	$169{,}8 \cdot 10^6$	$172{,}46 \cdot 10^6$		
240	$214{,}7 \cdot 10^6$	$219{,}02 \cdot 10^6$		
260	$265{,}7 \cdot 10^6$	$280{,}94 \cdot 10^6$		
280	$349{,}7 \cdot 10^6$	$354{,}35 \cdot 10^6$	Values on request	
300	$399{,}9 \cdot 10^6$	$416{,}72 \cdot 10^6$		
320	$527{,}3 \cdot 10^6$	$553{,}10 \cdot 10^6$		
340	$729{,}6 \cdot 10^6$	$719{,}82 \cdot 10^6$		

Coupling size	Torsional spring rates C_T for the HBk series Nm/rad
30	$0{,}70 \cdot 10^6$
40	$1{,}71 \cdot 10^6$
50	$3{,}94 \cdot 10^6$
60	$7{,}41 \cdot 10^6$
75	$10{,}81 \cdot 10^6$
90	$19{,}61 \cdot 10^6$
105	$31{,}58 \cdot 10^6$
125	$49{,}88 \cdot 10^6$
140	$72{,}2 \cdot 10^6$
160	$105{,}6 \cdot 10^6$
180	$143{,}5 \cdot 10^6$
200	$196{,}0 \cdot 10^6$
225	$274{,}0 \cdot 10^6$
250	$304{,}7 \cdot 10^6$
265	$406{,}8 \cdot 10^6$
280	$533{,}4 \cdot 10^6$
315	$815{,}0 \cdot 10^6$
335	$860{,}0 \cdot 10^6$
355	$1197{,}4 \cdot 10^6$
375	$1423{,}3 \cdot 10^6$

Coupling size	Torsional spring rates C_T for SBk / LBk series Coupling type **SBk** Nm/rad	 **SBRk** Nm/rad	 **SBkD/SBkT** Nm/rad	 **LBk** Nm/rad	 **LBRk** Nm/rad	 **LBkD/LBkT** Nm/rad	 **VLBk** Nm/rad
32	–	–	–	$0{,}66 \cdot 10^6$	$0{,}73 \cdot 10^6$	$0{,}66 \cdot 10^6$	$0{,}73 \cdot 10^6$
38	$1{,}1 \cdot 10^6$	$0{,}68 \cdot 10^6$	$1{,}1 \cdot 10^6$	$1{,}25 \cdot 10^6$	$1{,}36 \cdot 10^6$	$1{,}24 \cdot 10^6$	$1{,}36 \cdot 10^6$
48	$2{,}4 \cdot 10^6$	$1{,}94 \cdot 10^6$	$2{,}3 \cdot 10^6$	$2{,}89 \cdot 10^6$	$3{,}10 \cdot 10^6$	$2{,}87 \cdot 10^6$	$3{,}10 \cdot 10^6$
60	$3{,}5 \cdot 10^6$	$3{,}0 \cdot 10^6$	$3{,}5 \cdot 10^6$	$4{,}33 \cdot 10^6$	$4{,}44 \cdot 10^6$	$4{,}3 \cdot 10^6$	$4{,}44 \cdot 10^6$
70	$7{,}0 \cdot 10^6$	$6{,}2 \cdot 10^6$	$7{,}1 \cdot 10^6$	$9{,}27 \cdot 10^6$	$9{,}18 \cdot 10^6$	$9{,}2 \cdot 10^6$	$9{,}18 \cdot 10^6$
80	$10{,}2 \cdot 10^6$	$8{,}9 \cdot 10^6$	$10{,}3 \cdot 10^6$	$13{,}9 \cdot 10^6$	$13{,}5 \cdot 10^6$	$13{,}7 \cdot 10^6$	$13{,}5 \cdot 10^6$
90	$13{,}4 \cdot 10^6$	$12{,}1 \cdot 10^6$	$13{,}6 \cdot 10^6$	$20{,}1 \cdot 10^6$	$19{,}2 \cdot 10^6$	$19{,}9 \cdot 10^6$	$19{,}2 \cdot 10^6$
100	$19{,}5 \cdot 10^6$	$16{,}5 \cdot 10^6$	$19{,}7 \cdot 10^6$	$27{,}3 \cdot 10^6$	$26{,}2 \cdot 10^6$	$27{,}0 \cdot 10^6$	$26{,}2 \cdot 10^6$
110	$22{,}3 \cdot 10^6$	$18{,}8 \cdot 10^6$	$22{,}5 \cdot 10^6$	$31{,}8 \cdot 10^6$	$30{,}4 \cdot 10^6$	$31{,}4 \cdot 10^6$	$30{,}4 \cdot 10^6$
125	$30{,}4 \cdot 10^6$	$25{,}7 \cdot 10^6$	$30{,}7 \cdot 10^6$	$48{,}6 \cdot 10^6$	$45{,}8 \cdot 10^6$	$48{,}0 \cdot 10^6$	$45{,}8 \cdot 10^6$
140	$41{,}1 \cdot 10^6$	$35{,}1 \cdot 10^6$	$41{,}4 \cdot 10^6$	$62{,}9 \cdot 10^6$	$60{,}4 \cdot 10^6$	$60{,}9 \cdot 10^6$	$60{,}4 \cdot 10^6$
160	$61{,}8 \cdot 10^6$	$53{,}2 \cdot 10^6$	$62{,}2 \cdot 10^6$	$91{,}2 \cdot 10^6$	$87{,}3 \cdot 10^6$	$89{,}9 \cdot 10^6$	$87{,}3 \cdot 10^6$
180	$81{,}1 \cdot 10^6$	$71{,}6 \cdot 10^6$	$81{,}6 \cdot 10^6$	$133{,}5 \cdot 10^6$	$125{,}6 \cdot 10^6$	$132{,}0 \cdot 10^6$	$125{,}6 \cdot 10^6$
200	$109{,}1 \cdot 10^6$	$100{,}0 \cdot 10^6$	$109{,}7 \cdot 10^6$	$180{,}0 \cdot 10^6$	$171{,}0 \cdot 10^6$	$177{,}6 \cdot 10^6$	$171{,}0 \cdot 10^6$
225	$145{,}1 \cdot 10^6$	$135{,}0 \cdot 10^6$	$146{,}2 \cdot 10^6$	$241{,}6 \cdot 10^6$	$231{,}1 \cdot 10^6$	$239{,}0 \cdot 10^6$	$231{,}1 \cdot 10^6$
250	$204{,}3 \cdot 10^6$						
265	$257{,}4 \cdot 10^6$						
280	$323{,}8 \cdot 10^6$						
315	$419{,}3 \cdot 10^6$			Values on request			
335	$491{,}6 \cdot 10^6$						
355	$656{,}4 \cdot 10^6$						
375	$875{,}4 \cdot 10^6$						

Torsional Spring Rates, Weights and Mass Moments of Inertia for Couplings with Spacer

Coupling types **SBL a. SRL** Size	Minimum spacer length L_{min}	Torsional spring rates		Mass moment of inertia		Weights	
		C_{T1}	C_{TR}	Spacer with $L = L_{min}$	per 10 mm tube length with $L > L_{min}$	Spacer with $L = L_{min}$	per 10 mm tube length with $L > L_{min}$
	mm	Nm/rad	Nm · mm/rad	kgm^2	kgm^2	kg	kg
30	75	$0{,}38 \cdot 10^6$	$186 \cdot 10^6$	0,00401	0,00011	2,17	0,11
40	80	$0{,}92 \cdot 10^6$	$274 \cdot 10^6$	0,00876	0,00020	3,2	0,14
50	80	$1{,}72 \cdot 10^6$	$537 \cdot 10^6$	0,0146	0,00041	4,4	0,18
60	100	$2{,}94 \cdot 10^6$	$897 \cdot 10^6$	0,0368	0,00072	6,7	0,22
70	100	$4{,}07 \cdot 10^6$	$1335 \cdot 10^6$	0,055	0,00113	8,2	0,29
80	100	$6{,}49 \cdot 10^6$	$1895 \cdot 10^6$	0,075	0,0017	8,7	0,30
90	120	$8{,}49 \cdot 10^6$	$2637 \cdot 10^6$	0,138	0,0023	13,0	0,34
100	120	$10{,}68 \cdot 10^6$	$3556 \cdot 10^6$	0,159	0,0032	13,5	0,40
110	155	$12{,}49 \cdot 10^6$	$4690 \cdot 10^6$	0,292	0,0043	19,2	0,41
125	155	$17{,}66 \cdot 10^6$	$6909 \cdot 10^6$	0,423	0,0064	22,8	0,48
140	175	$24{,}76 \cdot 10^6$	$8928 \cdot 10^6$	0,783	0,0088	32,0	0,53
160	205	$36{,}70 \cdot 10^6$	$14028 \cdot 10^6$	1,46	0,014	49,0	0,7
180	205	$50{,}58 \cdot 10^6$	$23220 \cdot 10^6$	2,04	0,023	52,0	0,8
200	240	$68{,}69 \cdot 10^6$	$36882 \cdot 10^6$	4,41	0,036	96,0	1,2

Coupling types **SBLk a. SRLk** Size	Minimum spacer length L_{min}	Torsional spring rates			Mass moment of inertia		Weight	
		C_{T1} Type SBLk	C_{T1} Type SRLk	C_{TR}	Spacer with $L = L_{min}$	per 10 mm tube length with $L > L_{min}$	Spacer with $L = L_{min}$	per 10 mm tube length with $L > L_{min}$
	mm	Nm/rad	Nm/rad	Nm · mm/rad	kgm^2	kgm^2	kg	kg
38	75	$0{,}83 \cdot 10^6$	$0{,}57 \cdot 10^6$	$186 \cdot 10^6$	0,00401	0,00011	2,17	0,11
48	80	$1{,}51 \cdot 10^6$	$1{,}35 \cdot 10^6$	$274 \cdot 10^6$	0,00876	0,00020	3,2	0,14
60	80	$2{,}53 \cdot 10^6$	$2{,}22 \cdot 10^6$	$537 \cdot 10^6$	0,0146	0,00041	4,4	0,18
70	100	$4{,}42 \cdot 10^6$	$3{,}96 \cdot 10^6$	$897 \cdot 10^6$	0,0368	0,00072	6,7	0,22
80	100	$6{,}48 \cdot 10^6$	$5{,}74 \cdot 10^6$	$1335 \cdot 10^6$	0,055	0,00113	8,2	0,29
90	100	$8{,}76 \cdot 10^6$	$7{,}95 \cdot 10^6$	$1895 \cdot 10^6$	0,075	0,0017	8,7	0,30
100	120	$11{,}66 \cdot 10^6$	$10{,}23 \cdot 10^6$	$2637 \cdot 10^6$	0,138	0,0023	13,0	0,34
110	120	$14{,}41 \cdot 10^6$	$12{,}58 \cdot 10^6$	$3556 \cdot 10^6$	0,159	0,0032	13,5	0,40
125	155	$17{,}25 \cdot 10^6$	$15{,}29 \cdot 10^6$	$4690 \cdot 10^6$	0,292	0,0043	19,2	0,41
140	155	$24{,}27 \cdot 10^6$	$21{,}45 \cdot 10^6$	$6909 \cdot 10^6$	0,423	0,0064	22,8	0,48
160	175	$32{,}35 \cdot 10^6$	$29{,}22 \cdot 10^6$	$8928 \cdot 10^6$	0,783	0,0088	32,0	0,53
180	205	$42{,}79 \cdot 10^6$	$39{,}14 \cdot 10^6$	$14088 \cdot 10^6$	1,46	0,014	49,0	0,7
200	205	$62{,}94 \cdot 10^6$	$58{,}83 \cdot 10^6$	$23220 \cdot 10^6$	2,04	0,023	52,0	0,8
225	240	$84{,}69 \cdot 10^6$	$79{,}13 \cdot 10^6$	$36882 \cdot 10^6$	4,41	0,036	96,0	1,2

Coupling types **LBLk a. LRLk** Size	Minimum spacer length L_{min}	Torsional spring rates		Mass moment of inertia		Weight	
		C_{T1}	C_{TR}	Spacer with $L = L_{min}$	per 10 mm tube length with $L > L_{min}$	Spacer with $L = L_{min}$	per 10 mm tube length with $L > L_{min}$
	mm	Nm/rad	Nm · mm/rad	kgm^2	kgm^2	kg	kg
32	70	$0{,}46 \cdot 10^6$	$90{,}5 \cdot 10^6$	0,0025	0,00010	1,81	0,11
38	70	$0{,}73 \cdot 10^6$	$113{,}2 \cdot 10^6$	0,0036	0,00011	2,16	0,11
48	75	$1{,}45 \cdot 10^6$	$202{,}4 \cdot 10^6$	0,0087	0,00020	2,36	0,14
60	75	$2{,}48 \cdot 10^6$	$410{,}2 \cdot 10^6$	0,015	0,00040	4,2	0,18
70	90	$4{,}47 \cdot 10^6$	$724{,}0 \cdot 10^6$	0,034	0,00070	6,7	0,22
80	90	$6{,}83 \cdot 10^6$	$1140{,}5 \cdot 10^6$	0,050	0,0011	7,4	0,29
90	90	$9{,}95 \cdot 10^6$	$1724 \cdot 10^6$	0,065	0,0017	8,9	0,30
100	105	$12{,}77 \cdot 10^6$	$2325 \cdot 10^6$	0,128	0,0023	13,3	0,34
110	105	$15{,}95 \cdot 10^6$	$3257 \cdot 10^6$	0,14	0,0032	14,1	0,40
125	130	$20{,}93 \cdot 10^6$	$4308 \cdot 10^6$	0,28	0,0043	20,6	0,40
140	130	$28{,}85 \cdot 10^6$	$6463 \cdot 10^6$	0,38	0,0064	23,7	0,48
160	145	$39{,}28 \cdot 10^6$	$8928 \cdot 10^6$	0,69	0,0088	33,2	0,53
180	170	$55{,}51 \cdot 10^6$	$14075 \cdot 10^6$	1,34	0,014	50	0,70
200	170	$80{,}85 \cdot 10^6$	$23218 \cdot 10^6$	1,96	0,023	59	0,79
225	200	$111{,}9 \cdot 10^6$	$36882 \cdot 10^6$	4,1	0,036	98	1,2

Information required for calculation of the torsional spring rates of curved tooth couplings with spacer.

C_{T1} = Torsional spring rate of the complete coupling, including spacer, for lengths $L = L_{min.}$ and bore d_1; $d_{2\,max}$.

C_{TR} = Relative torsional spring rate (Value as per table).

C_{T3} = Torsional spring rate of the complete coupling, including spacer, for length $L > L_{min.}$ and bore d_1; $d_{2\,max}$.

The following formula is used for calculating the overall torsional spring rate:

$$C_{T3} = \frac{1}{\frac{1}{C_{T1}} + \frac{L - L_{min}}{C_{TR}}} \text{ (Nm/rad)}$$

In addition to the values for torsional spring rate, the tables also contain values for the mass moments of inertia and weights of the spacers.
One value in each case refers to the whole spacer for the length $L = L_{min.}$ and other to the part-lengths of 10 mm each for $L > L_{min.}$

The overall values for spacers with $L > L_{min}$ can be calculated as follows:

$W_{L\,min}$ = Values for spacer with $L = L_{min}$

W_{10} = Values for 10 mm tube length of spacer

$$W_{tot} = W_{L\,min} + \frac{W_{10} \cdot (L - L_{min})}{10}$$

The values for mass moment of inertia or weight can be taken optionally for W.

Radial Misalignment, Torsional Spring Rates for Couplings with Intermediate Shaft

In contrast to couplings with spacer, no minimum lengths are prescribed for intermediate shafts. The tables therefore only contain information about the coupling, but do take into account the parts of the intermediate shaft located inside the hub seats.

Coupling types **SBG / SRG** Size	Torsional spring rates C_{T1} Nm/rad	C_{T2} Nm/rad
30	0,48 · 10^6	
40	1,19 · 10^6	
50	2,19 · 10^6	
60	3,92 · 10^6	
70	5,56 · 10^6	
80	8,52 · 10^6	
90	12,1 · 10^6	
100	14,2 · 10^6	
110	18,5 · 10^6	
125	25,5 · 10^6	
140	38,7 · 10^6	
160	57,3 · 10^6	
180	73,9 · 10^6	
200	101,2 · 10^6	
220	150,0 · 10^6	
240	184,3 · 10^6	
260	235,6 · 10^6	
280	299,4 · 10^6	
300	357,3 · 10^6	
320	458,5 · 10^6	
340	620,4 · 10^6	

Calculation with formula on page 42

Coupling types **SBGk / SRGk** Size	Torsional spring rates C_{T1} Nm/rad	C_{T2} Nm/rad
38	1,02 · 10^6	
48	2,08 · 10^6	
60	3,40 · 10^6	
70	6,30 · 10^6	
80	9,15 · 10^6	
90	12,0 · 10^6	
100	17,5 · 10^6	
110	20,0 · 10^6	
125	27,1 · 10^6	
140	36,7 · 10^6	
160	54,9 · 10^6	
180	72,8 · 10^6	
200	96,8 · 10^6	
225	131,9 · 10^6	
250	180,7 · 10^6	
265	218,2 · 10^6	
280	275,1 · 10^6	
315	347,9 · 10^6	
335	415,6 · 10^6	
355	528,1 · 10^6	
375	705,6 · 10^6	

Calculation with formula on page 42

Information required for the calculation of the torsional spring rates of curved-tooth couplings with intermediate shaft.

C_{T1} = Torsional spring rate of the coupling for bore d_3; $d_{4\,max}$. This contains the values of the intermediate shaft with a diameter corresponding to d_1; $d_{2\,max}$, but only in the area of the hub lengths D. The data must be calculated additionally for the free part of the shaft.

C_{T2} = Torsional spring rate of the intermediate shaft.

C_{T3} = Torsional spring rate of the complete coupling.

The following formula is used for calculation of the overall torsional spring rate.

$$C_{T3} = \frac{1}{\frac{1}{C_{T1}} + \frac{1}{C_{T2}}} \text{ (Nm/rad)}$$

Diameter d_1; d_2 normally = nominal size of the coupling. In the area of the hub length D, shaft diameters deviating from d_1; $d_{2\,max}$. have only an insignificant influence on the overall torsional spring rate of the coupling.

Coupling types **LBGk / LRGk** Size	Torsional spring rates C_{T1} Nm/rad	C_{T2} Nm/rad
32	0,69 · 10^6	
38	1,25 · 10^6	
48	2,64 · 10^6	
60	4,16 · 10^6	
70	7,98 · 10^6	
80	12,1 · 10^6	
90	16,9 · 10^6	
100	23,5 · 10^6	
110	27,3 · 10^6	
125	40,5 · 10^6	
140	52,6 · 10^6	
160	76,6 · 10^6	
180	112,1 · 10^6	
200	147,9 · 10^6	
225	206,6 · 10^6	

Calculation with formula on page 42

The maximum permissible static radial misalignment depends on the permissible angular misalignment and on the distance between the tooth centers of both coupling halves. This distance is variable for couplings with spacer or intermediate shaft. The dimension tables thus do not contain any values for the permissible misalignment.

The following formula can be used for the calculation of these data:

1) The same formulae apply to couplings with built-in retaining ring as to the comparable design without retaining ring. However, the factor 0.010 must always be placed before the bracket.

Coupling with spacer, without retaining ring [1)]

C = Length of coupling half in accordance with type dimension list.

L; L_1 = Distance between flange surfaces of the spacer

H; H_1 = Length of the coupling housing in accordance with type dimension list.

Series SBL

$$\Delta_{Kr} = 0{,}026 \cdot (1{,}6 \cdot C + L)$$

Series SBLk

$$\Delta_{Kr} = 0{,}013 \cdot (1{,}6 \cdot H + L)$$

Series LBLk

$$\Delta_{Kr} = 0{,}013 \cdot (H_1 + L_1)$$

Couplings with intermediate shaft, without retaining ring [1)]

L = Overall length of the intermediate shaft, including hub seats.

D = Length of coupling hub in accordance with type dimension list.

Series SBG

$$\Delta_{Kr} = 0{,}026 \cdot (L - 1{,}6 \cdot D)$$

Series SBGk*

$$\Delta_{Kr} = 0{,}013 \cdot (L - 1{,}4 \cdot D)$$

Series LBGk

$$\Delta_{Kr} = 0{,}013 \cdot (L - 0{,}66 \cdot D)$$

* Applies only to couplings up to size 225.

Groove Seal
Tooth Backlash Control Device

Sealing of feather key grooves

In the case of shaft-hub connections by means of feather keys, the inner hub sides of the curved tooth couplings must be sealed against oil or grease leaks. This applies particularly to couplings in retaining ring design which have a higher lubricant level than the basic type. Suitable media for sealing are lead, synthetic resin or other oil-resistant and grease-resistant sealing compounds.

The seal may be produced as shown below. A design in accordance with Fig. 1 or 2 is advantageous for non-continuous feather keys. A run-out for the feather key groove is created by the recess in the hub. The sealing surface between the hub and shaft is thus preserved.

This sealing surface is not present for continuous feather keys. Here, we recommend a solution with sealing cover in accordance with Fig. 3 or 4. Please specify the required design when making an enquiry or ordering.

Fig. 1

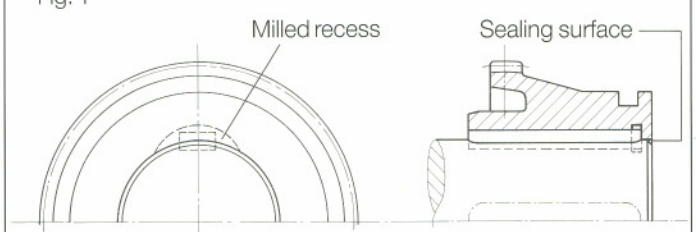


Fig. 2

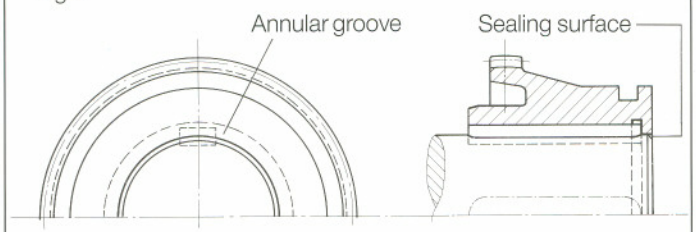


Fig. 3

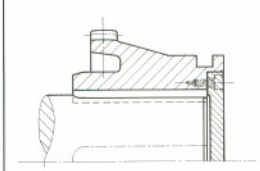
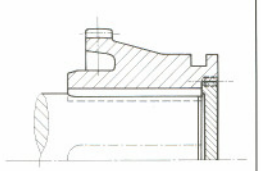


Fig. 4



Tooth backlash control

The tooth backlash control device for curved tooth couplings permits simple and rapid checking of the coupling toothing at the place of operation. It is not necessary to dismantle the coupling for this.

The clearance between the internal and external tooth gearing is measured directly at the tooth contact. Any changes can be established by a direct comparison of the measured values with the given data. It is thus possible to assess the current condition of the coupling at any time and without difficulties. Regular checks performed in this way ensure that the coupling is always ready for operation.

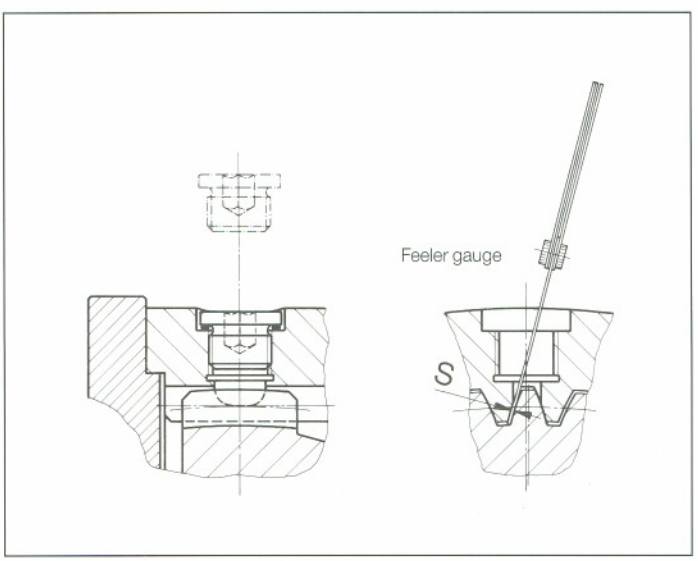
The Control device consists of an inspection opening in the coupling sleeve which is closed off by a screw with seal during operation. It is located over the tooth center of the curved-tooth gearing. An optional arrangement of several of these openings distributed around the coupling circumference is also possible.

To perform the measurement, it is necessary to remove the screw plug. The tooth flanks must then be moved so that they contact on one side by turning the outer sleeve. The tooth clearance between the free tooth flanks to the curved tooth center can now be measured. It is expedient to use a thickness gauge for this procedure. If the tooth flanks do not contact on one side, the overall clearance is obtained by adding the flank clearance on both sides.

The following series in this catalog can be equipped with the tooth backlash control device.

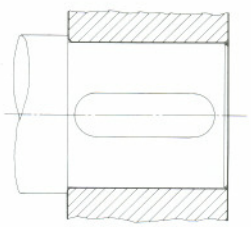
SB, SBk
SBR, SBRk
SBL, SBLk
SRL, SRLk
SBG, SBGk
SRG, SRGk
SBD, SBkD
SBT, SBkT
VSB

Provision of this facility is possible for the comparable types of the LBk series and HBk couplings, but is considerably more expensive.



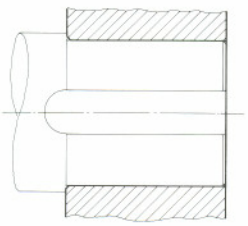
Shaft-Hub Connections

Fig. 1



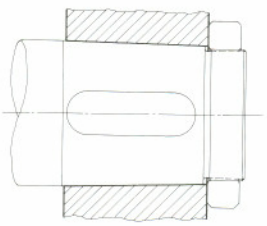
cyl. fit with 2 keys and press fit

Fig. 2



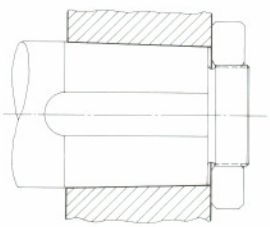
cyl. fit with 2 keys and press fit

Fig. 3



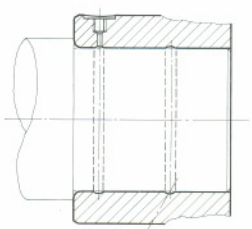
conical fit with 2 keys and press fit

Fig. 4



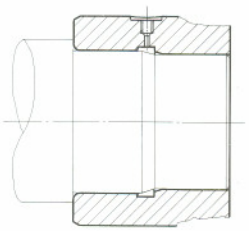
conical fit with 2 keys and press fit

Fig. 5



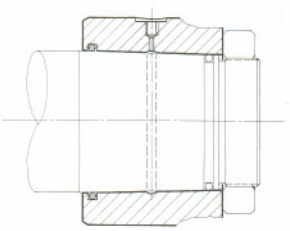
cyl. hydraulic fit

Fig. 6



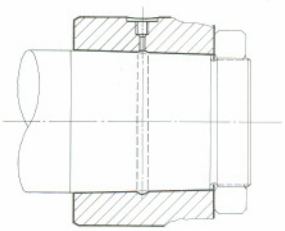
cyl. hydraulic fit with stepped-down seat

Fig. 7



tapered hydraulic fit with sealing rings

Fig. 8



tapered hydraulic fit

○ favourable ◑ neutral ● less favourable

Figure	1	2	3	4	5	6	7	8
Constructional utilisation of the given space	◑	○	◑	○	○	◑	◑	○
Production	◑	◑	◑	◑	○	●	◑	○
Insensitiveness to damage	○	○	○	○	◑	◑	○	◑
Running quality	◑	◑	◑	◑	○	○	○	○
axial positioning	○	○	◑	◑	○	○	◑	◑
power transfer	◑	◑	◑	◑	○	○	◑	○
mounting warm	○	○	○	○	○	○	●	○
mounting cold	●	●	◑	◑	●	○	○	○
disassembly	●	●	◑	◑	◑	○	◑	○

Curved Tooth Couplings
Special Design

Fig. 1

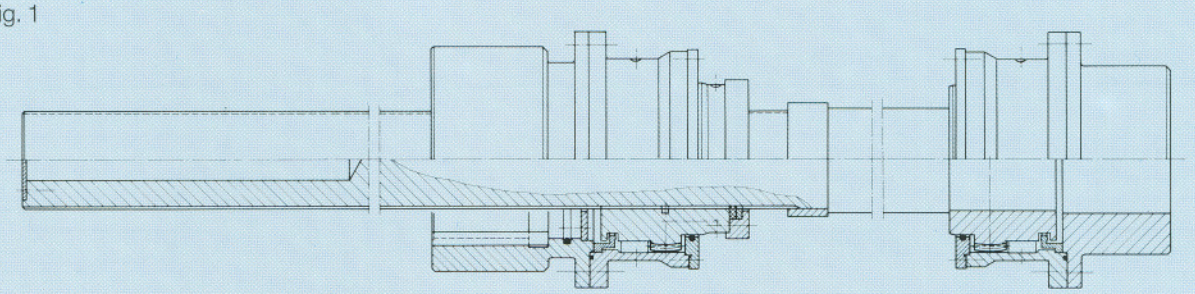


Fig. 2

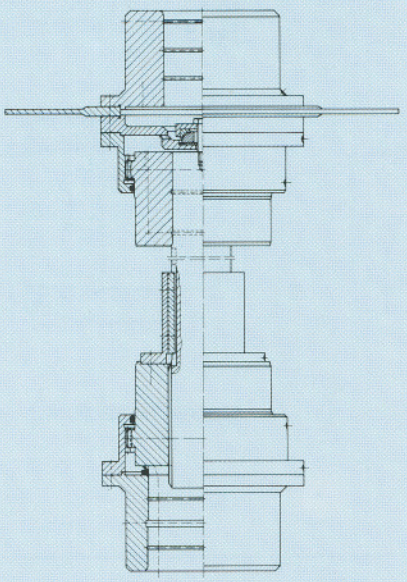


Fig. 3

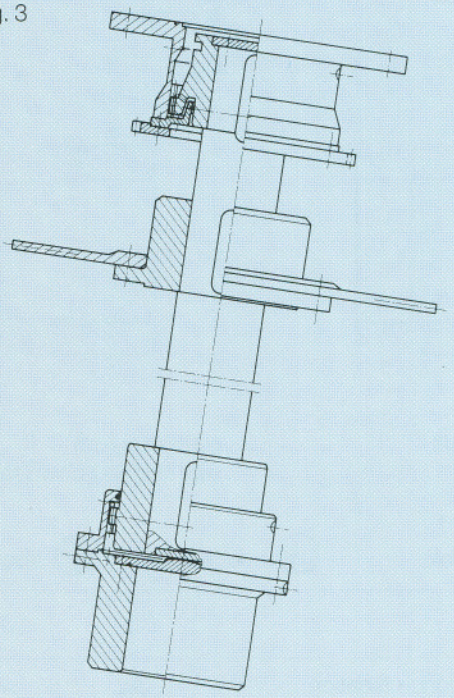
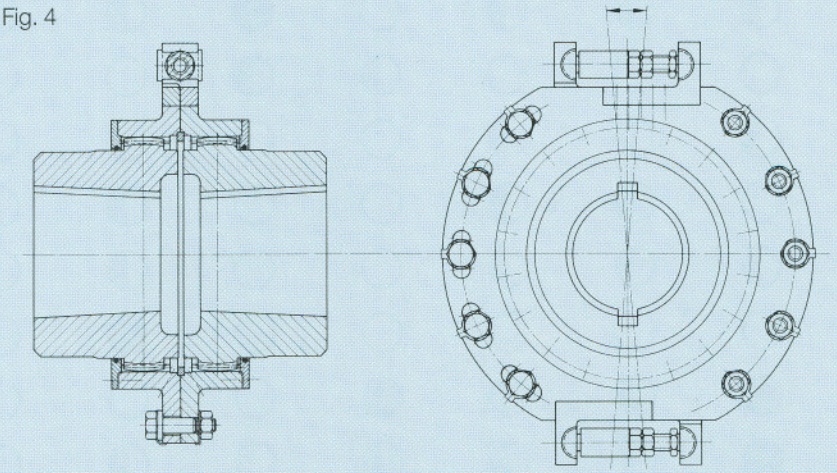


Fig. 4



1 Curved tooth coupling for driving a double winder.

2 Curved tooth coupling in vertical design and with built-on brake disk for operation in rudder propeller systems.

3 Curved tooth coupling in vertical design installed between water turbine and generator. The axis of rotation is tilted from the vertical by approx. 9°.

4 Curved tooth coupling with adjustment facility for driving a shear.

Fig. 5

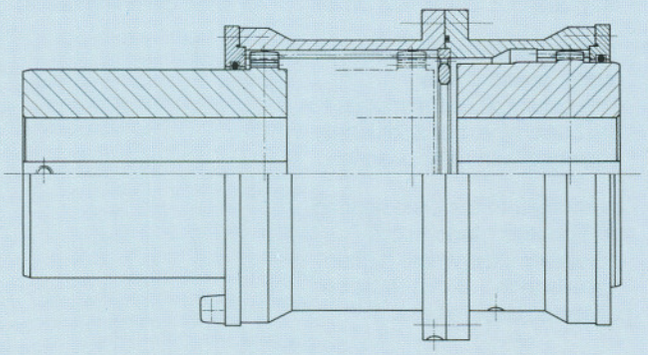
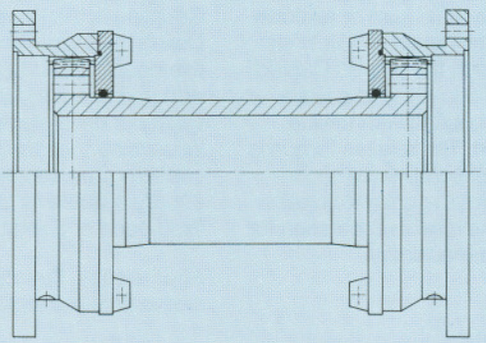


Fig. 6



5 Curved tooth coupling as refiner drive, with extended sleeve to allow axial displacement.

6 Curved tooth coupling with hub sleeve and flanged-on housings, used in ship drives.

7 Curved tooth coupling set up to hold a torque measuring shaft.

8 Curved tooth coupling in vertical design, electrically insulated, for driving a pump.

9 Curved tooth coupling with diaphragm seal for railway drives.

Fig. 7

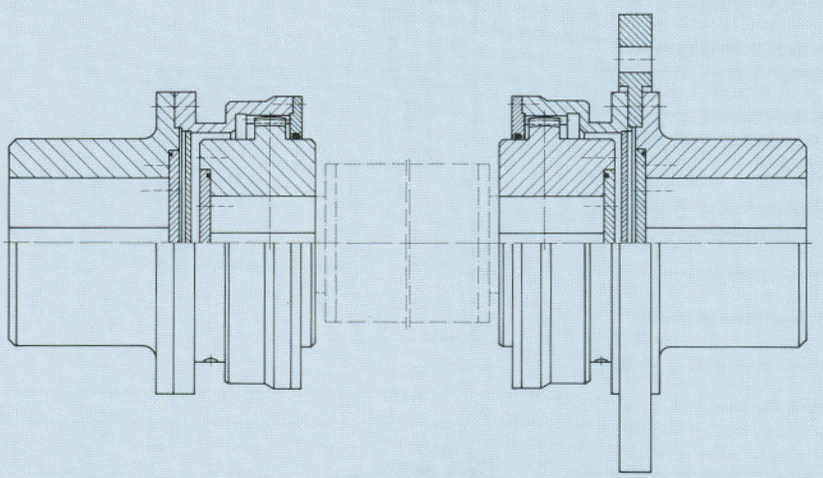


Fig. 8

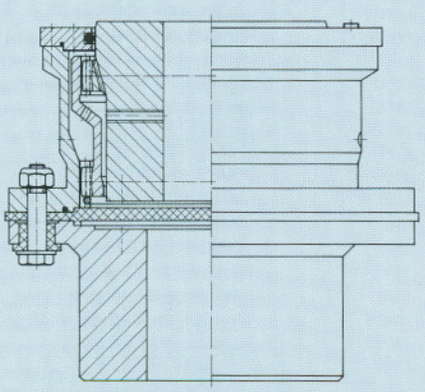
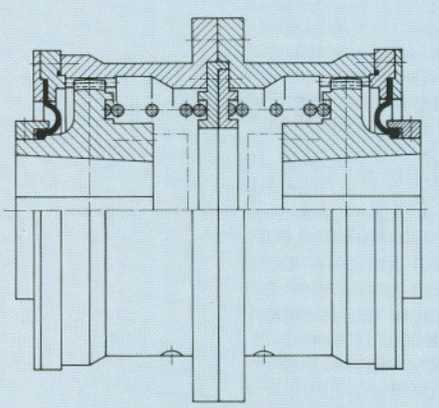


Fig. 9



HYGUARD® Safety couplings with Torque Limitation TORLOCK® Clamping Elements

Renk HYGUARD® Safety Couplings

ensure a maximum of reliability. The combination of safety elements with the proven Curved Tooth Coupling works like a safety coupling with torque limitation. The release torque is adjustable and remains constant over the entire operation time. The reliable protection for valuable machinery.

Advantages of the Renk HYGUARD® Safety Couplings:

- Transmission of the high torques within little space
- Torsionally rigid-flexible connection of shafts
- Overload protection with adjustable torque limitation
- Constant release torque over the entire duration of operation
- No interruption of operation due to material fatigue
- Low down-time costs
- Quick re-commisioning
- No cost-intensive stocking of spare parts

Operation

Basically, the safety element integrated into the coupling, consist of two bushes being inserted into each other, both ends of which are closed in pressure-tight manner.
The little gap between both parts is filled with hydraulic oil through the valve bore, and then pressurized. This leads to expansion of the diameter. Built-in between shaft and hub this system acts as a clamping bush. Torque is transmitted by frictional engagement between the contact faces. The amount of transmittable torque is determined by oil pressure in the ring gap. This pressure is adjustable, and thus, the torque too.

Basic Types

The basic element of the Safety Coupling is the B type.
Owing to its low dimensions, this coupling can be combined with an extremely large variety of drive elements without influencing their torque capacity. The coupling sleeve is equally suitable for clamping fixed parts and rotating bodies.

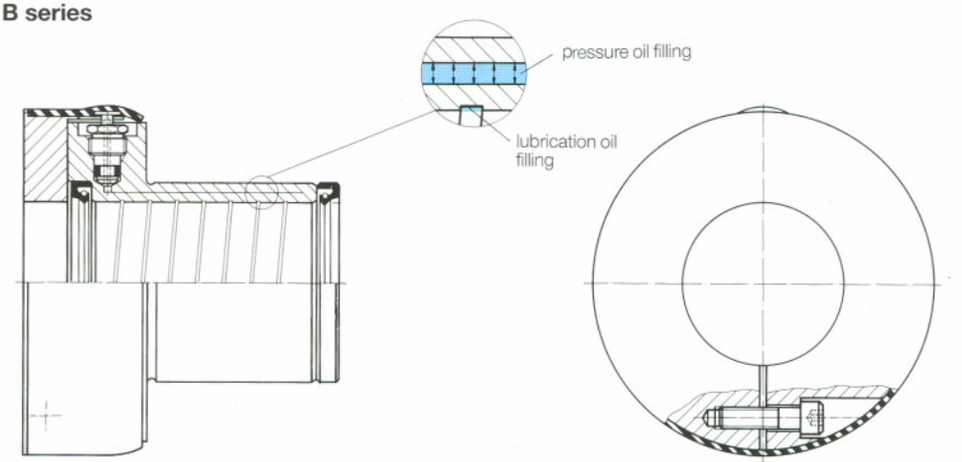
After release, the coupling sleeve acts like a plain bearing. The circumferential speed at the sliding surface may be up to 1.5 m/s. The B series is preferably used for low-speed drives.

The BW series is designed for higher-speed drives.
This essentially corresponds to the basic type, but additionally equipped with roller bearings.

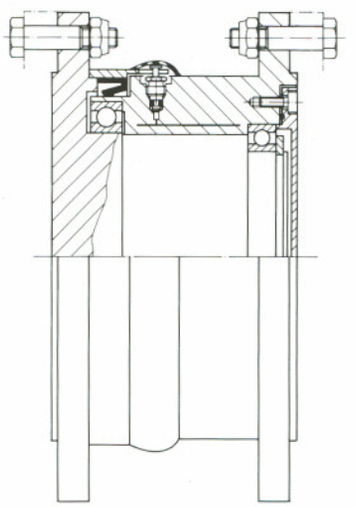
In contrast to the plain bearing version, this model is predomiantly used where higher speeds than 1.5 m/s must be expected after release.

The space requirement is hardly larger than for the B version. No roller bearing is necessary for pure clamping tasks.

B series



BWL series



BWL series

Safety Couplings of the BWL series consist of a shaft part and a bush and thus already constitute a complete coupling unit. They are equipped on both sides with connection flanges and therefore can also be used, for instance as intermediate elements for Curved Tooth Couplings or other connection elements. This links the advantages of the Curved Tooth Couplings with those of the safety unit to obtain a flexible Safety Coupling with torque limitation. One advantage is that the coupling itself does not have to be altered. Conversions of couplings already in service are thus also possible.

Curved Tooth Couplings in combination with HYGUARD® Safety Elements

Protection owing to rapidness

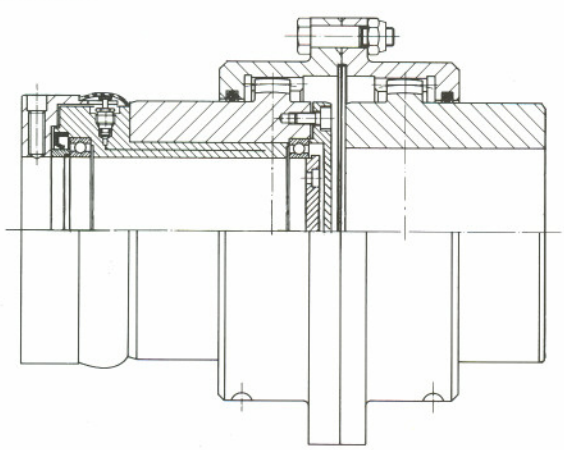
is given by the safety disconnection, the essential components of which are the shear ring and the safety valve. There is a firm connection between shear ring and shaft, whereas the safety valve is accommodated in the movable part. If the operation torque exceeds the preset value, the safety element will slip on the profiled surfaces and the shear ring cuts off the top of the valve.

The system is depressurized within milliseconds and the connection is released.

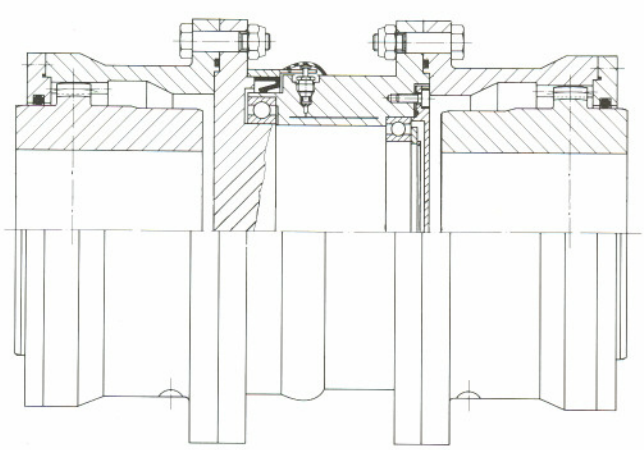
Re-commissioning

The Renk Safety Coupling is easy to activate again.
A high-pressure pump with pressure gauge for pressure setting and hydraulic oil will be sufficient to put into operation. The pump is connected to the injector, and with open valve the hydraulic oil is being pressed into the ring gap. If the predetermined pressure required for the torque transmission has been reached, the safety valve will be closed. The pressure chamber is now sealed hermetically, and the working pressure remains constant. The coupling is ready for use. Down-times are thus reduced to a minimum. If the system has been disconnected due to overload, the safety valve is the only item to replace. Thereafter, the system is put into operation again as described above. The time-consuming replacement of shear pins or similar parts and their storage are thus omitted. Stockkeeping of spare parts is limited to some valves, only.

BW-LBk combination



BWL-SBLk combination



Application Ranges

Due to the versatility of the Renk Safety Couplings and Clamping Elements, they are most suitable for many application areas, even under severest conditions. In rolling mills, e.g. where conventional couplings with shear pins or similar protection elements have previously been used, this safety system has been able to contribute to substancial cost savings.
All machines which may be subjected to overload or lock-ups count to preferred ranges of application, e.g. in longitudinal shafts of paper mills, drafting equipment in the fibre industries, circular clamps of all kinds or solid pumps.
The Safety Coupling becomes controllable in combination with differencial speed monitoring. This equipment releases an alarm, or disengages automatically, if the coupling has been released due to overload, leading to differing speeds between shaft and hub.

Clamping Elements TORLOC®

Whereever quick and safe tensioning of machinery parts is of vital importance, the Renk Safety Coupling as Clamping Element is offering itself. In test stands it is used as quick-grip coupling, and in machine tools and production machinery it is used as clamping element with fine adjustment possibility.
The great advantages of this coupling when being used as quick-grip coupling are the easy handling as well as the fact that the coupling is put back into service again within shortest time. Both, manual release by opening the valve as well as controlled remote release is possible. For this purpose, special safety valves with extended shear tubes are available.
In case of non-rotating clamped connections, remote release can be effected by means of high-pressure pipes and special valves.

Calculation Formulae

1. Critical Speed

Rough calculation of the critical whirling speed of intermediate shafts, spacers and hub sleeves.

$$n_k = 300 \cdot \sqrt{\frac{78{,}3 \cdot E \cdot I_{axial}}{G_1 \cdot l_0^4}}$$

n_k = critical whirling speed rpm
n = operating speed rpm
E = elastic modulus = $20{,}6 \cdot 10^4$ N/mm²
G_1 = weight for each 1 mm length in kg/mm (see item 5)
l_0 = tooth center distance mm
I_{axial} (see item 4)

permissible for subcritical operation

$$n \leq 0.75 \cdot n_k$$

for overcritical operation

$$n \geq 1{,}35 \cdot n_k$$

2. Torsional Spring Rate C_{T2}

$$C_{T2} = \frac{I_{pol} \cdot G}{l \cdot 1000}$$

C_{T2} = tors. spring rate of the intermed. shaft Nm/rad.
G = shear modulus = $7.95 \cdot 10^4$ N/mm²
l = length of the intermediate shaft in mm
l = L − 2 · D
I_{pol} (see item 4)

3. Mass Moments of Inertia J

For the shaft to be applied:

$$J = \frac{G_2 \cdot d^2}{8 \cdot 10^6}$$

For the spacer (tube) to be applied:

$$J = \frac{G_2 \cdot (d_a^2 + d_i^2)}{8 \cdot 10^6}$$

J = mass moment of inertia kgm²
G_2 = weight kg (see item 5)
d = shaft diameter mm
d_a = outside diameter of spacer mm
d_i = inside diameter of spacer mm

4. Geometrical Moments of Inertia I

For the shaft to be applied:

$$I_{axial} = \frac{d^4}{20.37}$$

For the spacer (tube) to be applied:

$$I_{axial} = \frac{d_a^4 - d_i^4}{20.37}$$

I_{axial} = axial geometrical moment of inertia mm⁴
d = shaft diameter mm
d_a = outside diameter of spacer mm
d_i = inside diameter of spacer mm
I_{pol} = polar geometrical moment of inertia mm⁴

$$I_{pol} = 2 \cdot I_{axial}$$

5. Weight G_2

For the shaft to be applied:

$$G_2 = \frac{d^2 \cdot 6{,}165 \cdot l}{10^6}$$

For the spacer (tube) to be applied:

$$G_2 = \frac{(d_a^2 - d_i^2) \cdot 6{,}165 \cdot l}{10^6}$$

G_2 = weight kg
d = shaft diameter mm
d_a = outside diameter of spacer mm
d_i = inside diameter of spacer mm
l = length mm
G_1 = weight for each 1 mm length kg/mm

$$G_1 = \frac{G_2}{l}$$

6. Circumferential Speed

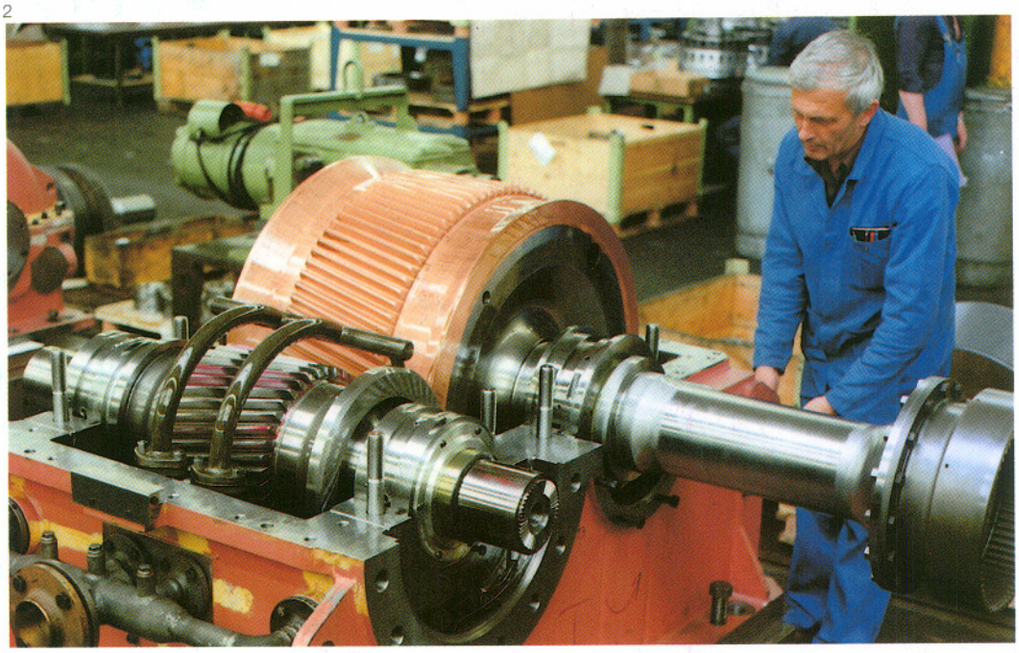
$$V = \frac{d \cdot n}{19100}$$

V = circumferential speed m/s
d = diameter of brake disk mm
n = operating speed rpm

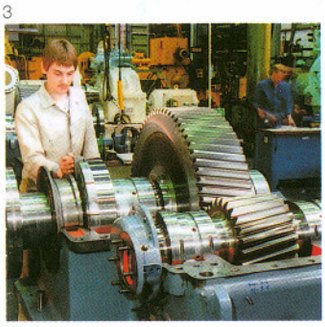
A Few Examples from the Rest of our Product Range

1

2



3



4

5

6

1 Vertical curved tooth couplings with brake disk for use in rudder propeller systems.

2 Turbo gear for a transferable output of 24 000 kW at n = 4460/14055 rpm

3 Single-engine marine gear for a cargo vessel. Drive via diesel engine with 3530 kW at n = 600/203 rpm.

4 Injection-lubricated curved tooth coupling with torsion shaft from the Turbo range.

5 Vertical planetary gear in compact design for driving a roller mill in the cement industry.

6 Curved tooth couplings in special design with longitudinal compensation and roller-supported spacer.

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