

ELCO-Coupling Flexible Compression Sleeve Coupling



Simulation of Torsional Vibration

Inputs and Results

Calculation for project: 650 000
dated 29-01-1993, Htd/Zim

Mechanical model :



electric motor

Polar moments of inertia

- J1 Electric motor
- J2 Half coupling
- J3 Half coupling
- J4 Fan

Coupling Data

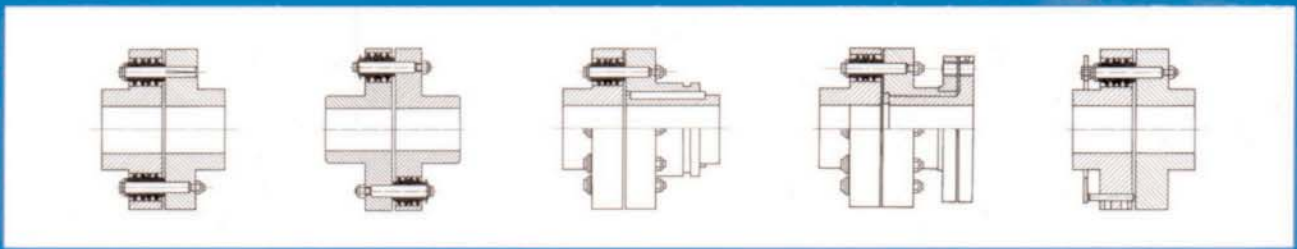
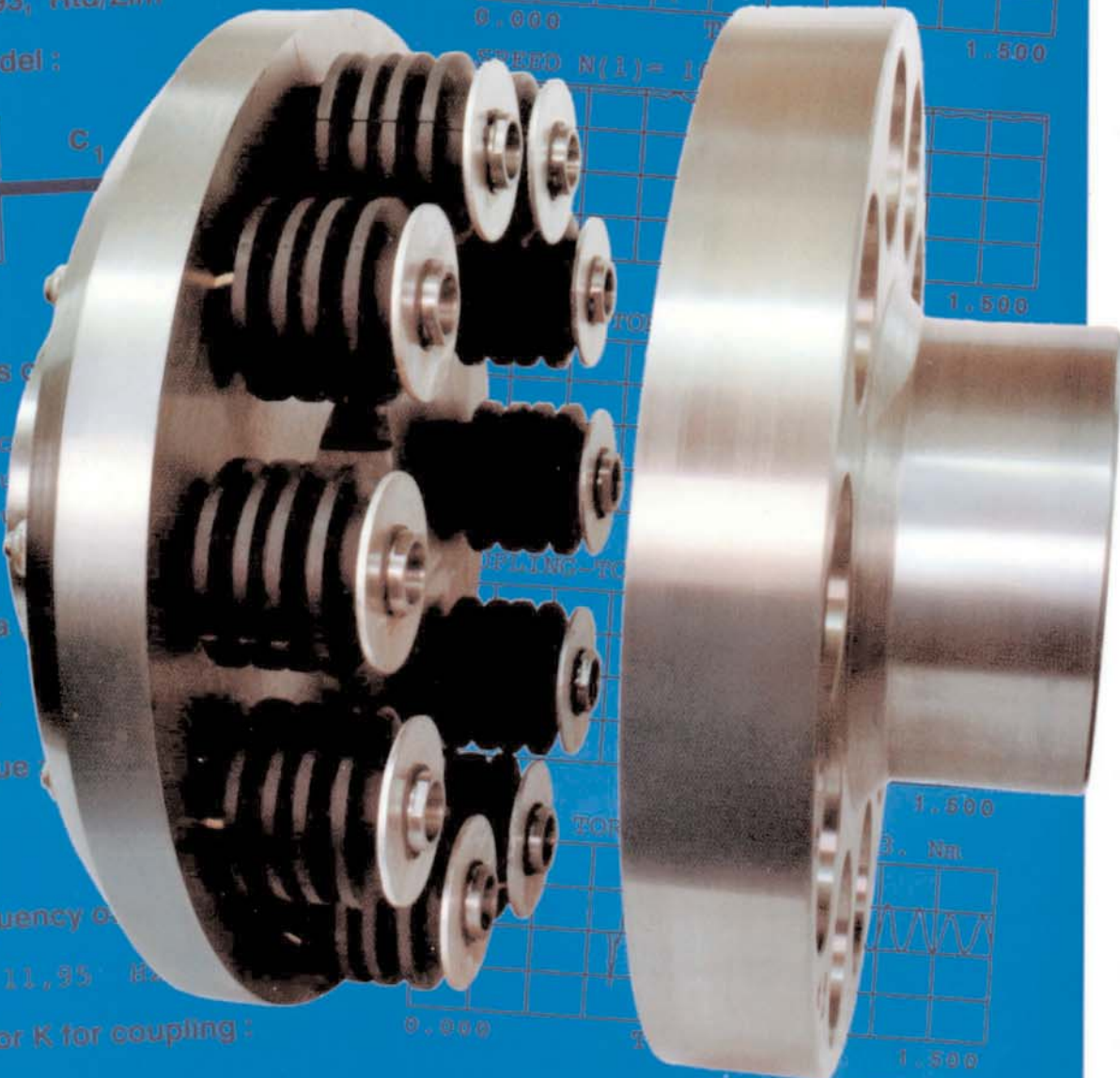
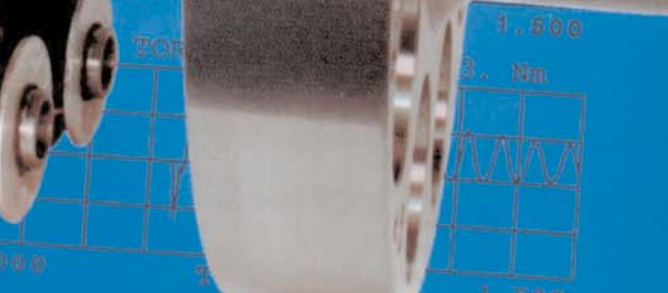
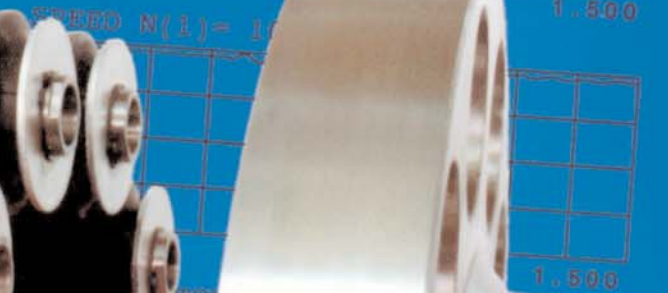
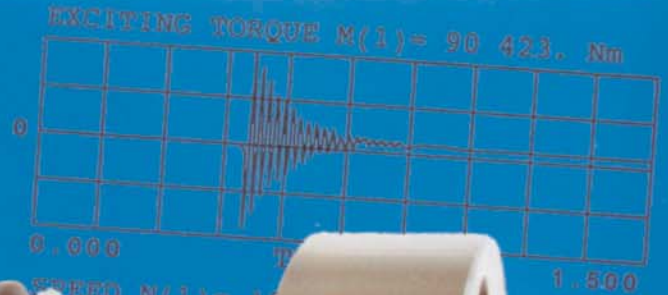
Load torque :

Exciting torque :

Natural frequency of

1. or 11,95 Hz

Design factor K for coupling :



Type

ELCO-Coupling

① Type

- N Standard with transmitting elements arranged on one side
- W With inversely opposed arrangement of transmitting elements
- A Can be disengaged when at rest
- B With shearpins
- S Standard with brake drum
- G With limited end float
- E With adjustable end float
- X Special designs

② Coupling Material

- G Cast iron
- K S.G. iron
- S Steel
- X Special materials

③ Intermediate Disc

- O Without intermediate disc
- Z With intermediate disc

④ Bolt Design

- M Solid
- H Hollow
- X Special designs

⑤ Type of Compression Sleeve

- U Modified rubber with fabric lining
- V Chloroprene-polymeride with fabric lining
- W Nitrile rubber

⑥ Coupling Size

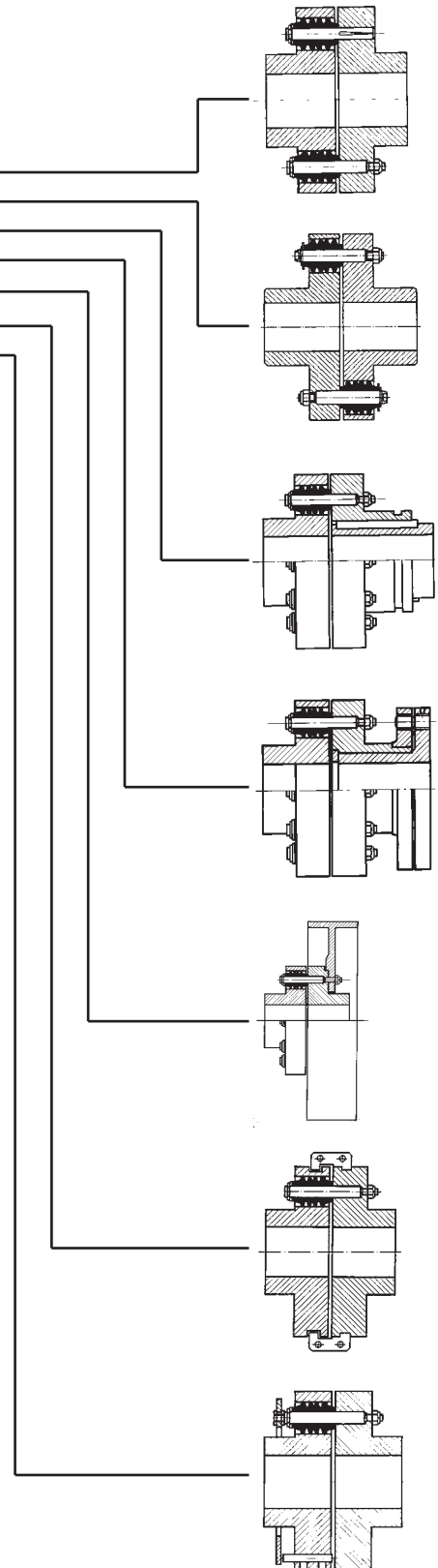
Coding example

for a complete **ELCO** Coupling

① ② ③ ④ ⑤ ⑥
N G O M U - 247

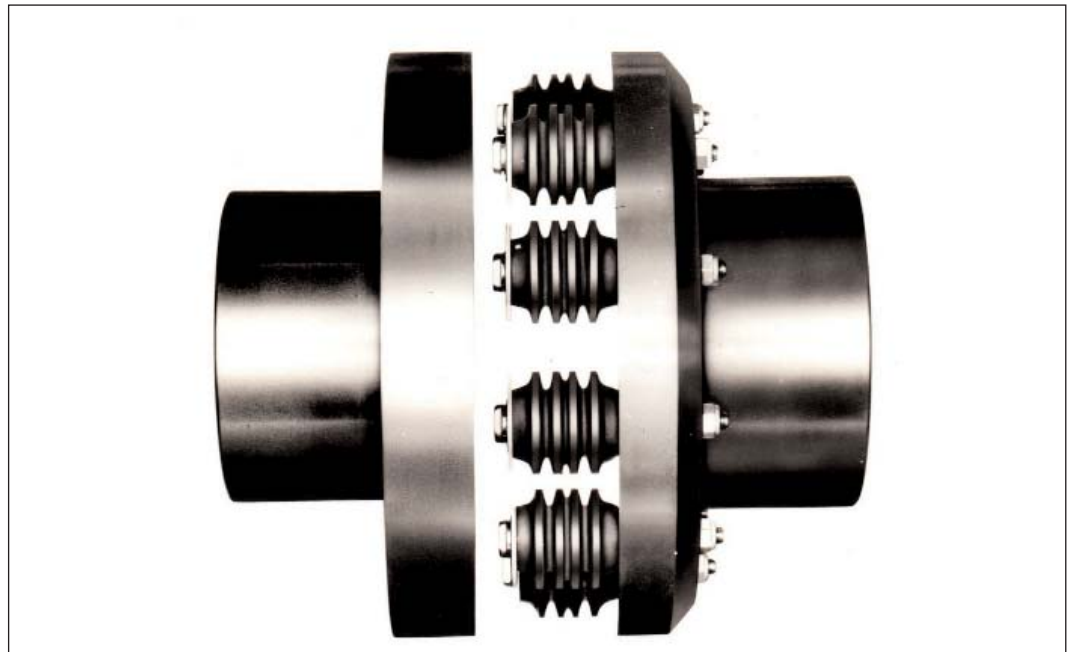
ELCO Coupling of standard design **N** made of cast iron, without intermediate disc, with solid bolts and "U" type compression sleeves. Coupling size **247**.

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The weights given in the tables are average values and they and the illustrations are not strictly binding.

Alterations may be made in the interests of technical progress. This technical document is protected by law (DIN 34).

Couplings used in transport and industrial service must be provided with circumferential reinforcement, covers or guards to comply with the accident prevention regulations.

ELCO Torsionally Flexible Coupling

effectively absorbs shocks and suppresses vibrations which arise during operation. Moreover it takes up radial and angular misalignments of the connected shafts and allows a certain amount of angular and linear misalignment.

The installation of a correctly rated **ELCO** Coupling guarantees reliable transmission of power and offers extensive protection for the connected machine shafts against damage by vibration.

The **ELCO** Coupling has proved itself in tens of thousands of drives through its adaptable design and its accurate workmanship.

The **ELCO** Coupling shows the following advantages:

- Torque and speed shock loads are diminished by the spring action and damping effect of the compression sleeves.
- Torsional vibrations are effectively limited by a shifting of the system's natural frequencies in areas which are not critical for the operating range.
- Torsional vibrations are effectively limited by the coupling's damping effect when passing through the critical speed.
- Safe and reliable torque transfer results from the coupling bolt design and from the axial pre-loading of the compression sleeves.
- Radial and angular misalignments are compensated by the universal flexibility of the compression sleeves and by the ease with which they are deformed.
- Longitudinal displacements of the shafts are taken up by the ability of the compression sleeves to move slightly in the mating holes.
- Axial dismantling of the compression sleeves and coupling bolts is trouble-free without any need for removing the coupling or for moving the connected units (for changing the sleeves or for test runs etc.)
- Machines can be aligned when the coupling bolts are not in position.

Technical Information

RENK **ELCO** couplings of smaller sizes are made of steel exclusively; bigger sizes of cast iron or steel/cast steel, depending on speed and loadings.

The maximum speeds for both cast iron and steel couplings for lads individual design type are indicated in the charts.

The bore for the coupling bolts and sleeves are accurately spaced and machined to a fine finish. The arrangement of all bolts in one coupling half offers the advantage of accomodating shaft ends of large-diameter.

Balancing: Static

ELCO Couplings from size 247 upwards with finish-machined bore, no extra charge.

Balancing: Dynamic

ELCO Coupling size 018 to 454 with finish-machined bore, extra price to be quoted.

Dynamic balancing will be done upon request either before or after keywaying (G = Qualities norm according to DIN ISO 1940, part 1). If customers do not request a special class of balancing bodies (G-group) with its specific speed:

G 16

is applied to all **ELCO** couplings operating within speed

range I. For speeds > 1500 R.P.M. the same value is applicable as for n = 1500 R.P.M.

G 6.3

is applied to all **ELCO** couplings operating within speed range II. For speeds > 1500 R.P.M. the same value is applicable as for n = 1500 R.P.M.

ELCO couplings with rough machined bores can be supplied only unbalanced.

The torque is transmitted by means of coupling bolts and compression sleeves of high grade elastomer (fig. 1 and 2). All types of **ELCO** couplings consist essentially of coupling flanges 1 and 2. The steel coupling bolts on which the compression sleeves are mounted, are fitted in flange 2 and engage with the holes in flange 1. Type W: the transmission elements are placed on both flanges of the coupling in alternate order.

ELCO coupling sizes 018 to 129 are fitted with nonremovable coupling bolts and can be drawn apart, therefore, only in an axial direction. On the other hand, couplings from size 149 are provided with detachable transmission bolts which makes radial dismantling possible.

The compression sleeves have particularly thick walls and are normally designed with a fab-

ric lining in the bore which, in contrast to the conventional flange coupling, means that the **ELCO** coupling has unusually high working capacity.

Arranging the holes on the smallest possible pitch circle diameter produces a large angle of twist. Several grooves of differing depth around the periphery of the sleeves cause a progressive torsion characteristic. Because of the ease with which the compression sleeves are deformed only small reactive forces arise at the bearings. As the magnitude of these forces is dependent on various influencing factors, please ask us for further details.

The compression sleeve is fixed to the coupling bolts by means of a washer and a circlip, and the bolts are held in the half coupling, flange 2, by a locking nut on the end of the bolt. Any movement between coupling bolts and compression sleeves is thus avoided.

The following compression sleeves can be supplied:

1. U-type Compression Sleeves

(modified natural rubber) with a fabric layer vulcanised into the bore, are used for all standard drives and have also proved themselves for drives,

working discontinuously and with fluctuating torque. They are especially suitable for machines subjected to vibrations e.g. diesel engines and other reciprocating engines.

2. V-type Compression Sleeves

(chloroprene polymer) with a fabric layer vulcanised into the bore, are intended particularly for couplings which run in oil or which are exposed to oil vapours.

3. W-type Compression Sleeves

(nitrile rubber) without the fabric layer, are used for drives where smaller angles of twist are required than can be achieved with the U-Type. W-Type Compression Sleeves have a limited resistance to oil.

All types of the **ELCO** coupling can be provided with each of these designs of compression sleeve (see table on page 6 for angles of twist).

The compression sleeves must be protected against ultra-violet rays and heat, as otherwise these will change the properties of the material.

Such influences affecting the natural ageing change the elasticity characteristics and the damping properties.

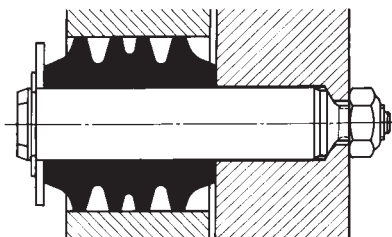


Fig. 1 Assembled compressions sleeve unloaded

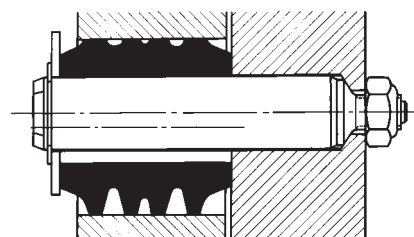


Fig. 2 Compression sleeve under max. load

Design of an ELCO Coupling

According to DIN 740 flexible and damping couplings are described as torsionally flexible shaft couplings.

Torsionally flexible couplings influence the torsional vibration behaviour of driving units. Through their use the loading amplitudes and the multitude of high loadings can be vastly decreased during running periods in the torque leading parts of driving aggregates. For stationary machines with uneven torques (i.e. piston machines) less stress and therefore a more quiet run will be achieved through displacement of the critical speed range.

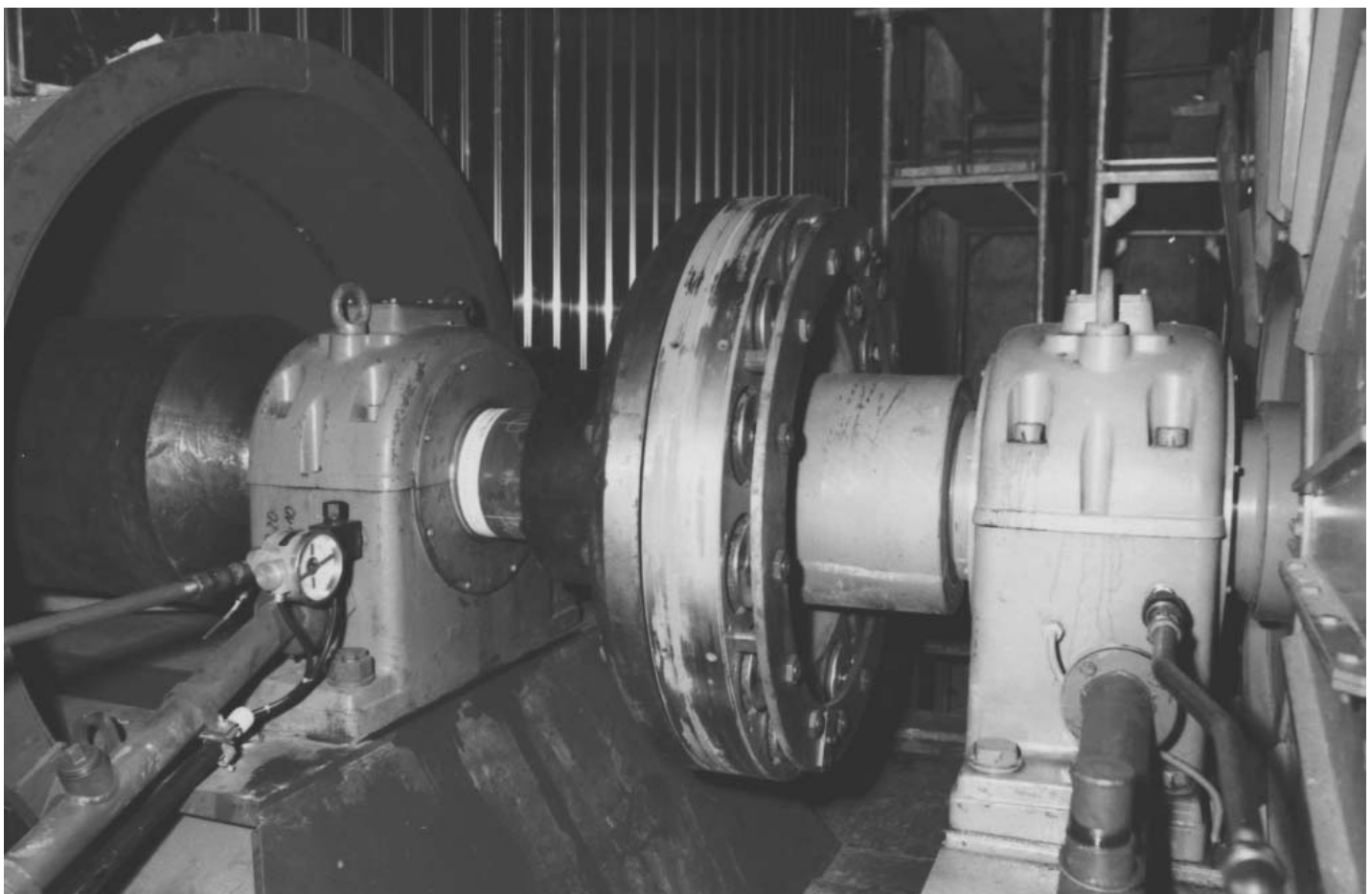
In conclusion the allround flexibility of torsionally flexible

couplings enables the balance of radial, axial and angular shaft displacement whereby an expensive common foundation for both driven and driving machine can be avoided.

The **ELCO** coupling series which has an extremely large nominal torque from 18 Nm to 540 000 Nm has proved itself well in many areas of driving techniques as an allround flexible coupling whose flexible elements can be easily changed.

Typical Applications

Coupling Size	Speed [R.P.M.]	Power [kW]	Application
335	985	1900	Cement mill
420	62	560	Conveyor belt
184	970	30	Belt drive
149	2000	15	Compressor
420	590	6300	Exhauster
271	1475	730	Centrifugal pump
454	585	7100	Generator
149	5000	17	D.C. Machine
247	1480	132	Converter
335	1800	2500	Ship's turbo-generator
231	3600	410	Ship's reversing gear



ELCO Coupling Type E with adjustable end float

Photo: Nordwestdeutsche Kraftwerk AG, Kraftwerk Wilhelmshaven

Rating

For determining the size of an ELCO coupling, a first criterion is the operating factor K.

To select the appropriate size, K can either be applied to the nominal torque of the coupling T_{KN} or to the nominal power of the coupling P_{KN} .

$$T_{KN} = T_{AN} \cdot K$$

or

$$P_{KN} = P_{AN} \cdot K$$

$$K = S_B \cdot S_T \cdot S_S \cdot S_A$$

T_{AN} = driving torque

P_{AN} = driving power

S_B = load factor

S_T = temperature factor

S_S = switch factor

S_A = factor of driving machine

For exact calculations, considering the shock load as for instance applicable in the case of start conditions "Technical Information No. 47" is available on request.

Coupling size	Max. speeds ¹⁾		Coupling torque T_{KN} [Nm]	$\frac{P_{AN} [kW]}{n} \cdot K$	Displacement angle φ [°] static, under T_{KN}	
	I [min ⁻¹]	II [min ⁻¹]			sleeve U and V Proportional damping $\psi = 0,26$	sleeve W damping $\psi = 0,86$
018	6000	—	$18 \cdot 10^0$	0,0019	3,4	3,4
036			$36 \cdot 10^0$	0,0038		
044	6000	—	$44 \cdot 10^0$	0,0046	3,0	3,1
066			$66 \cdot 10^0$	0,0069		
098	6000	—	$98 \cdot 10^0$	0,0103	3,4	3,0
113			$13 \cdot 10^1$	0,014		
123	6000	—	$23 \cdot 10^1$	0,0241	3,4	3,1
129			$29 \cdot 10^1$	0,030		
149	3600	5600	$49 \cdot 10^1$	0,051	3,8	4,0
161			$61 \cdot 10^1$	0,064		
184	3000	5000	$84 \cdot 10^1$	0,088	3,2	3,1
210			$10 \cdot 10^2$	0,105		
214	2650	4500	$14 \cdot 10^2$	0,147	3,5	3,0
215			$15 \cdot 10^2$	0,157		
222	2250	4000	$22 \cdot 10^2$	0,230	3,6	2,8
228			$28 \cdot 10^2$	0,293		
231	2000	3600	$31 \cdot 10^2$	0,33	3,2	2,6
237			$37 \cdot 10^2$	0,39		
247	1800	3300	$47 \cdot 10^2$	0,49	3,3	3,3
259 W			$59 \cdot 10^2$	0,62		
271	1650	3000	$71 \cdot 10^2$	0,74	2,9	2,7
285 W			$85 \cdot 10^2$	0,90		
311	1500	2800	$11 \cdot 10^3$	1,15	3,0	3,4
314 W			$14 \cdot 10^3$	1,47		
316	1250	2500	$16 \cdot 10^3$	1,68	2,5	3,0
319 W			$19 \cdot 10^3$	2,0		
324	1120	2250	$24 \cdot 10^3$	2,51	3,3	2,8
329 W			$29 \cdot 10^3$	3,04		
335	1000	2000	$35 \cdot 10^3$	3,66	2,8	2,4
341 W			$41 \cdot 10^3$	4,29		
353	850	1750	$53 \cdot 10^3$	5,55	2,8	2,9
378	750	1500	$78 \cdot 10^3$	8,2	2,3	2,1
412	630	1300	$12 \cdot 10^4$	12,6	2,8	2,4
416	630	1300	$16 \cdot 10^4$	16,8	2,7	2,3
420	560	1200	$20 \cdot 10^4$	20,9	2,3	1,9
426	500	1050	$26 \cdot 10^4$	27,2	3,0	2,3
432	500	1050	$32 \cdot 10^4$	33,5	2,8	2,1
443	450	890	$43 \cdot 10^4$	45,0	2,5	1,7
454	400	750	$54 \cdot 10^4$	56,5	2,2	1,3

¹⁾ For maximum speed II, from size 149 only steel couplings with hollow bolts must be used.

Design Factors

Driven machine	Load factor S_B Type of Compression Sleeve	
	U	V, W
Generators with constant power output (lighting), light lineshafts, small fans, rotary machine tools, small centrifugal pumps, flour milling machines, light textile machines, light lifts, elevators and other conveyors.	1 - 1,1	1,5 - 1,6
Auxiliary machines for ships, shears, cranes, grinding machines, heavy lifts, generators with slightly variable output, coilers, chain conveyors, sand blast units, textile machines, line shafting, medium fans/blowers, large rotary machine tools, winches, centrifugal pumps, rotary pumps and compressors, smoothly running stirrers, reversible machine tools, belt conveyors, wood working machinery, ring frames, washing machines, looms.	1,1 - 1,2	1,6 - 1,7
Passenger lifts, rotary kilns, tanning barrels, paper machines large fans, cooling drums, stirrers, roller frames, looms, brick presses, printing machines, crushing plants, sugar mill machinery, wood grinders, mine fans, ship's propellers, draw benches.	1,2 - 1,3	1,8 - 1,9
Dredger drives, briquette presses, rubber rolling mills, coal pulverizers, piston pumps with fly wheel, reciprocating presses with light fly wheel, pug mills for sand and paper, plunger pumps, tumblers, vibrators, combination mills, cement mills, forging machines, piston and stamping presses, small ferrous rolling mills, roller tables for rolling mills.	1,4 - 1,6	2,1 - 2,3
Couching machines, horizontal saw frames, wet presses, paper calenders, rolling devices for paper, drying cylinders, heavy centrifuges, crushing machines, Turras drives.	1,7 - 1,9	2,6 - 2,8

Cold and hot rolling mills with or without flywheel, road working machines, welding and frequency converters for plants subject to shock loads and other special machines on

request. For the use of **ELCO** couplings in equipment where heavy shock loads are to be expected, a vibration calculation should be made for stationary conditions. Within the

machine groups the lower values are for lighter drives and the higher values for heavier drives. In the case of internal combustion engines it is recommended to calculate the

vibrations.

Temperature factor S_T			
compression sleeve	U	V	W
≤ 40°C	1	1	1
> 40 - 60°C	1,1	1,2	1,1
> 60 - 70°C	1,3	1,4	1,2
> 70 - 80°C	1,5	1,7	1,4

Shifting factor S_S	
s/h	
< 40	1
< 80	1,1
< 120	1,2
< 120 - 360	1,3

Factor S_A of driving machine			
	combustion engine Diesel / Otto engine		
	3 cyl.	2 cyl.	1 cyl.
1	1,15	1,3	1,6

Nominal Capacity P_{KN} of the ELCO-Coupling [kW]

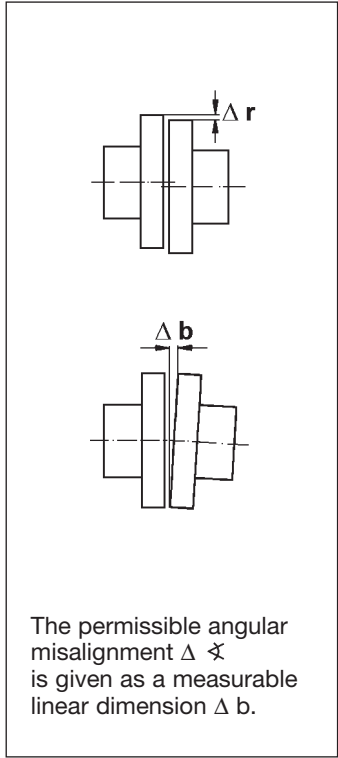
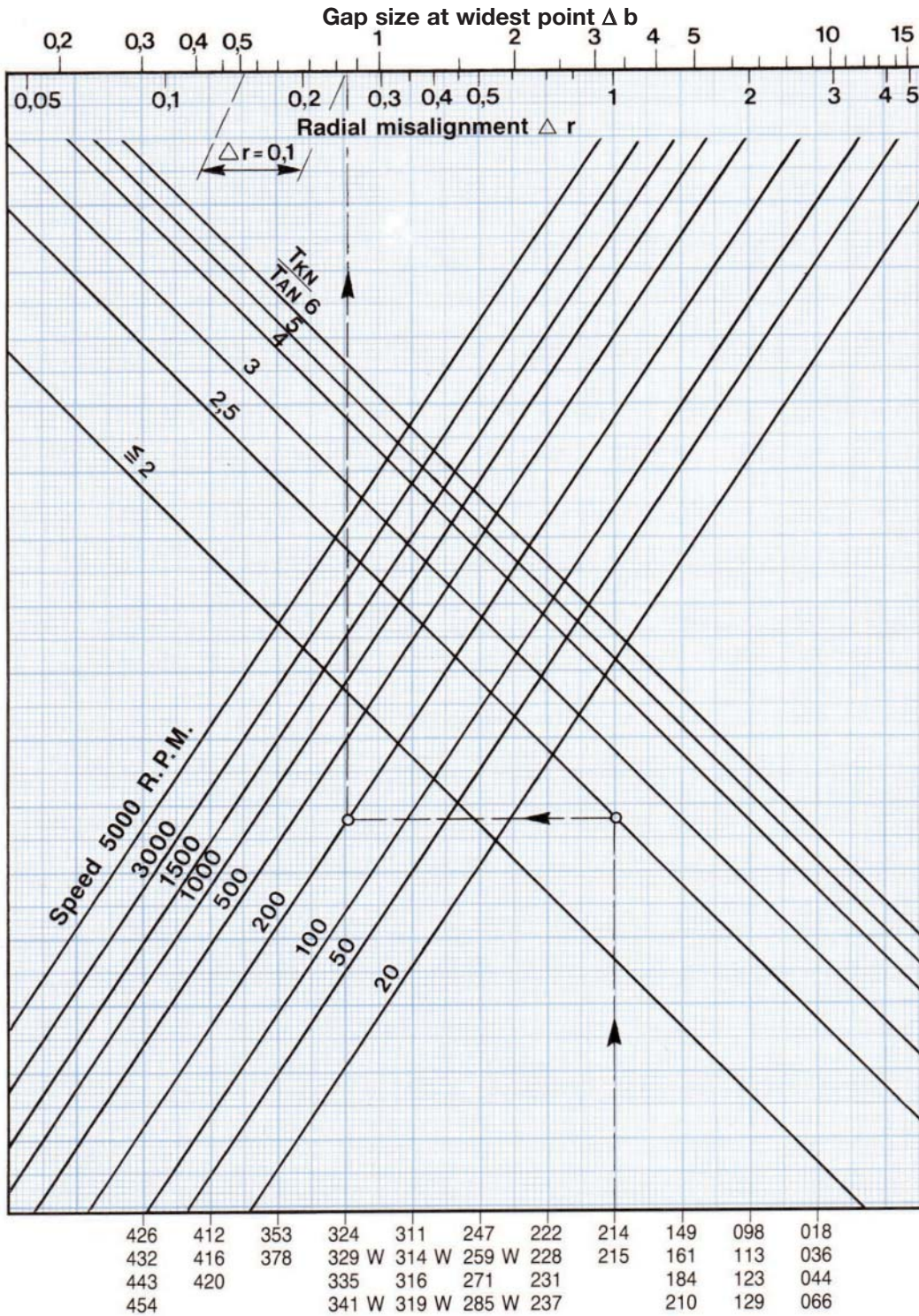
Coupling size	n [R.P.M.]																	
	10	16	25	40	63	100	125	160	200	250	315	400	500	630	710	800	900	1000
Nominal capacity P_{KN} [kW] ¹⁾ of the coupling																		
018	0,019	0,030	0,048	0,076	0,12	0,19	0,24	0,30	0,38	0,48	0,60	0,76	0,95	1,20	1,35	1,52	1,71	1,90
036	0,038	0,061	0,095	0,15	0,24	0,38	0,48	0,61	0,76	0,95	1,12	1,52	1,90	2,40	2,70	3,04	3,42	3,80
044	0,046	0,074	0,12	0,18	0,29	0,46	0,58	0,74	0,92	1,15	1,45	1,84	2,30	2,90	3,27	3,68	4,14	4,60
066	0,069	0,11	0,17	0,28	0,43	0,69	0,86	1,10	1,38	1,73	2,17	2,76	3,45	4,35	4,90	5,52	6,21	6,90
098	0,11	0,17	0,26	0,42	0,66	1,05	1,31	1,68	2,10	2,63	3,31	4,20	5,25	6,62	7,46	8,40	9,45	10,5
113	0,14	0,22	0,35	0,56	0,88	1,40	1,75	2,24	2,80	3,50	4,41	5,60	7,00	8,82	9,94	11,2	12,6	14,0
123	0,24	0,38	0,59	0,94	1,48	2,35	2,94	3,76	4,70	5,88	7,40	9,40	11,8	14,8	16,7	18,8	21,2	23,5
129	0,30	0,48	0,75	1,20	1,89	3,00	3,75	4,80	6,00	7,50	9,45	12,0	15,0	18,9	21,3	24,0	27,0	30,0
149	0,52	0,83	1,30	2,08	3,28	5,20	6,50	8,32	10,4	13,0	16,4	20,8	26,0	32,8	36,9	41,6	46,8	52,0
161	0,64	1,02	1,60	2,56	4,03	6,40	8,0	10,2	12,8	16,0	20,2	25,6	32,0	40,3	45,4	51,2	57,6	64,0
184	0,89	1,43	2,23	3,56	5,61	8,90	11,1	14,3	17,8	22,3	28,0	35,6	44,5	56,1	63,2	71,2	80,1	89,0
210	1,05	1,68	2,63	4,20	6,62	10,5	13,1	16,8	21,0	26,3	33,1	42,0	52,5	66,2	74,6	84,0	94,5	105
214	1,47	2,35	3,68	5,88	9,26	14,7	18,4	23,5	29,4	36,8	46,3	58,8	73,5	92,6	104	118	132	147
215	1,57	2,51	3,93	6,28	9,89	15,7	19,6	25,1	31,4	39,3	49,5	62,8	78,5	98,9	111	126	141	157
222	2,21	3,54	5,53	8,84	13,9	22,1	27,8	35,4	44,2	55,3	69,6	88,4	111	139	157	177	199	221
228	2,93	4,69	7,33	11,7	18,5	29,3	36,6	46,9	58,6	73,3	92,3	117	147	185	208	234	264	293
231	3,30	5,28	8,25	13,2	20,8	33,0	41,3	52,8	66,0	82,5	104	132	165	208	234	264	297	330
237	3,90	6,24	9,75	15,6	24,6	39,0	48,8	62,4	78,0	97,5	123	156	195	246	277	312	351	390
247	4,90	7,84	12,3	19,6	30,9	49,0	61,3	78,4	98,0	123	154	196	245	309	348	392	441	490
259 W	6,20	9,92	15,5	24,8	39,1	62,0	77,5	99,2	124	155	195	248	310	391	440	496	558	620
271	7,40	11,8	18,5	29,6	46,6	74,0	92,5	118	148	185	233	296	370	466	525	592	666	740
285 W	9,0	14,4	22,5	36,0	56,7	90,0	113	144	180	225	284	360	450	567	639	720	810	900
311	11,0	17,6	27,5	44,0	69,3	110	138	176	220	275	347	440	550	693	781	880	990	1100
314 W	14,7	23,5	36,8	58,8	92,6	147	184	235	294	368	463	588	735	926	1044	1176	1323	1470
316	16,3	26,1	40,8	65,2	103	163	204	261	326	408	513	652	815	1030	1157	1304	1467	1630
319 W	20,0	32,0	50,0	80,0	126	200	250	320	400	500	630	800	1000	1260	1420	1600	1800	2000
324	25,1	40,2	62,8	100	158	251	314	402	502	628	791	1000	1255	1580	1782	2000	2260	2510
329 W	30,4	48,6	75,9	122	191	304	380	486	607	759	957	1215	1518	1913	2156	2429	2732	3036
335	36,6	58,6	91,5	146	231	366	458	586	732	915	1153	1460	1830	2310	2600	2930	3295	3660
341 W	42,9	68,7	107	172	281	429	537	687	859	1073	1352	1717	2146	2704	3048	3434	3863	4293
353	55,5	88,8	139	222	350	555	694	888	1110	1390	1750	2220	2775	3500	3940	4440	4995	5550
378	82,7	132	207	331	521	827	1034	1320	1654	2070	2605	3310	4135	5210	5870	6615	7445	8270
412	120	192	300	480	756	1200	1500	1920	2400	3000	3780	4800	6000	7560	8520	9600	10800	12000
416	165	264	412	660	1040	1650	2060	2640	3300	4120	5200	6600	8250	10400	11710	13200	14850	16500
420	209	334	522	835	1317	2090	2610	3340	4180	5225	6580	8360	10450	13160	14850	16720	18800	20900
426	270	432	675	1080	1700	2700	3380	4320	5400	6750	8500	10800	13500	17000	19200	21600	24300	27000
432	337	540	840	1350	2120	3370	4220	5400	6740	8440	10600	13480	16880	21200	23900	26960	30300	33700
443	450	720	1125	1800	2830	4500	5630	7200	9000	11260	14200	18000	22520	28400	32000	36000	40500	—
454	562	900	1400	2250	3540	5620	7025	9000	11240	14050	17700	22480	28100	35400	39900	44960	50500	—

Coupling size	n [min ⁻¹]																	
	1120	1250	1400	1500	1600	1800	2000	2240	2500	2800	3000	3150	3550	4000	4500	5000	5600	6000
Nominal capacity P _{KN} [kW] ¹⁾ of the coupling																		
018	2,13	2,38	2,66	2,85	3,04	3,42	3,80	4,26	4,75	5,32	5,70	6,00	6,75	7,60	8,55	9,50	10,6	11,4
036	4,26	4,75	5,32	5,70	6,08	6,84	7,60	8,51	9,50	10,6	11,4	12,0	13,5	15,2	17,1	19,0	21,3	22,8
044	5,15	5,80	6,44	6,90	7,36	8,28	9,20	10,3	11,5	12,9	13,8	14,5	16,3	18,4	20,7	23,0	25,8	27,6
066	7,70	8,60	9,70	10,4	11,0	12,4	13,8	15,5	17,3	19,3	20,7	21,7	24,5	27,6	31,3	34,5	38,6	41,4
098	11,8	13,1	14,7	15,8	16,8	18,9	21,0	23,5	26,3	29,4	31,5	33,1	37,3	42,0	47,3	52,5	58,8	63,0
113	15,7	17,5	19,6	21,0	22,4	25,2	28,0	31,4	35,0	39,2	42,0	44,1	49,7	56,0	63,0	70,0	78,4	84,0
123	26,3	29,4	32,9	35,3	37,6	42,3	47,0	52,6	58,8	65,8	70,5	74,0	83,4	94,0	106	118	132	141
129	33,6	37,5	42,0	45,0	48,0	54,0	60,0	67,2	75,0	84,0	90,0	94,5	107	120	135	150	168	180
149	58,2	65,0	72,8	78,0	83,2	93,6	104	116	130	146	156	164	185	208	234	260	291	—
161	71,7	80,0	89,6	96,0	102	115	128	143	160	179	192	202	227	256	288	320	358	—
184	99,7	111	125	135	142	160	178	199	223	249	267	280	316	356	400	445	—	—
210	118	131	147	158	168	189	210	235	263	294	315	331	373	420	473	525	—	—
214	165	184	206	220	235	265	294	329	368	412	441	463	522	588	662	—	—	—
215	176	196	220	236	251	283	341	352	393	440	471	495	557	628	707	—	—	—
222	248	276	309	332	354	398	442	495	553	619	663	696	785	884	—	—	—	—
228	328	366	410	440	469	527	586	656	733	820	879	923	1040	1172	—	—	—	—
231	370	413	462	495	528	594	660	739	825	924	990	1040	1172	—	—	—	—	—
237	437	488	546	585	624	702	780	874	975	1092	1170	1230	1385	—	—	—	—	—
247	550	613	686	735	784	882	980	1098	1230	1372	1470	1540	—	—	—	—	—	—
259 W	694	775	868	930	992	1116	1240	1389	1550	1736	1860	1950	—	—	—	—	—	—
271	830	925	1036	1110	1184	1332	1480	1658	1850	2072	2220	—	—	—	—	—	—	—
285 W	1008	1130	1260	1350	1440	1620	1800	2016	2250	2520	2700	—	—	—	—	—	—	—
311	1232	1380	1540	1650	1760	1980	2200	2465	2750	3080	—	—	—	—	—	—	—	—
314 W	1646	1838	2058	2205	2350	2646	2940	3293	3675	4116	—	—	—	—	—	—	—	—
316	1826	2040	2280	2445	2610	2934	3260	3650	4080	—	—	—	—	—	—	—	—	—
319 W	2240	2500	2800	3000	3200	3600	4000	4480	5000	—	—	—	—	—	—	—	—	—
324	2810	3140	3515	3765	4020	4520	5020	5620	—	—	—	—	—	—	—	—	—	—
329 W	3401	3795	4251	4554	4858	5465	6073	6802	—	—	—	—	—	—	—	—	—	—
335	4100	4580	5125	5490	5860	6590	7320	—	—	—	—	—	—	—	—	—	—	—
341 W	4808	5366	6010	6439	6869	7727	8586	—	¹⁾ Coupling nominal capacity P _{KN} = driving power P _{AN} · K For values of K see page 6 and 7. Example: 75 kW electric motor driving a fan n = 1500 R.P.M. K (from table on page 6 and 7) 1,6 to 1,7 P _{KN} = P _{AN} · K = 75 · 1,6 to 1,7 = 120 - 135 kW, Coupling selected is the ELCO size 184.									
353	6220	6940	7770	8225	8880	9990	—	—										
378	9260	10340	11580	12410	—	—	—	—										
412	13450	15000	—	—	—	—	—	—										
416	18500	20600	—	—	—	—	—	—										
420	23400	26100	—	—	—	—	—	—										
426	—	—	—	—	—	—	—	—										
432	—	—	—	—	—	—	—	—										
443	—	—	—	—	—	—	—	—										
454	—	—	—	—	—	—	—	—										

from stock (cast iron)

from stock (steel or cast steel)

Permissible Misalignment



Example:

ELCO Coupling size 214 with $T_{KN} / T_{AN} = 2,5$ and speed $n = 200$ R.P.M.

1. permissible radial misalignment $\Delta r = 0,25$ mm or
2. permissible angular misalignment $\Delta \alpha$ corresponding to $\Delta b = 0,85$ mm or
3. permissible radial and angular misalignment: e.g. if there is already a Δb of 0,5 then Δr can be 0,25 minus 0,15 = 0,1 mm.

Readjustment Forces from Radial Displacement

In case of radial displacements of the shafts besides the peripheral forces F_u , from the torque, displacement forces F_v occur. Such dis-

placement forces only act in the direction of the displacement and turn by 360° with each rotation of the coupling (fig. 1).

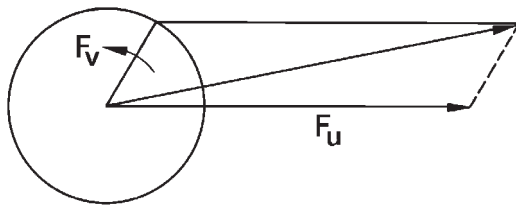


Fig. 1

Thereby alternating loads with the frequency for the number of rotations of the coupling arise that are superimposed to the basic load F_u . Such alternating loads determine the magnitude of the admissible radial displacement depending on the ratio T_{KN}/T_{AN} to the number of rotations of the coupling. The radial force F_r acting outwards must be absorbed by the shafts and

bearings - as represented in fig. 2. In this connection the direction and the position of the radial force of flange 1 and 2 has to be taken into consideration.

According to empirical determination the radial force F_r can be calculated using the static coupling torsional stiffness value C_{Tstat} .

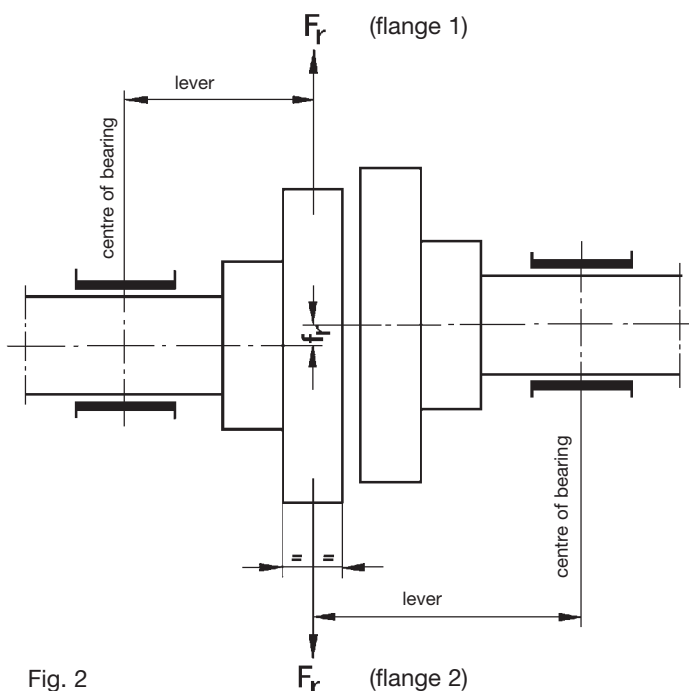


Fig. 2

Valid for compression sleeves Types U and V

Size	D_L	C_{Tustat}	C_{Tostat}	Size	D_L	C_{Tustat}	C_{Tostat}
018	58	$1,7 \cdot 10^2$	$6,3 \cdot 10^2$	271	295	$7,4 \cdot 10^4$	$2,9 \cdot 10^5$
036		$3,2 \cdot 10^2$	$1,2 \cdot 10^3$	285 W		$9,4 \cdot 10^4$	$3,7 \cdot 10^5$
044	68	$5,0 \cdot 10^2$	$2,0 \cdot 10^3$	311	335	$1,1 \cdot 10^5$	$4,7 \cdot 10^5$
066		$6,8 \cdot 10^2$	$2,7 \cdot 10^3$	314 W		$1,3 \cdot 10^5$	$5,5 \cdot 10^5$
098	78	$1,1 \cdot 10^3$	$3,9 \cdot 10^3$	316	390	$2,0 \cdot 10^5$	$6,5 \cdot 10^5$
113		$1,5 \cdot 10^3$	$5,1 \cdot 10^3$	319 W		$2,1 \cdot 10^5$	$7,0 \cdot 10^5$
123	95	$2,1 \cdot 10^3$	$6,9 \cdot 10^3$	324	425	$2,2 \cdot 10^5$	$7,8 \cdot 10^5$
129		$3,0 \cdot 10^3$	$1,0 \cdot 10^4$	329 W		$2,7 \cdot 10^5$	$9,4 \cdot 10^5$
149	116	$4,2 \cdot 10^3$	$1,7 \cdot 10^4$	335	505	$4,3 \cdot 10^5$	$1,4 \cdot 10^6$
161		$6,5 \cdot 10^3$	$2,6 \cdot 10^4$	341 W		$5,0 \cdot 10^5$	$1,6 \cdot 10^6$
184	145	$8,3 \cdot 10^3$	$3,4 \cdot 10^4$	353	585	$6,3 \cdot 10^5$	$2,2 \cdot 10^6$
210		$1,0 \cdot 10^4$	$4,2 \cdot 10^4$	378	715	$1,2 \cdot 10^6$	$3,5 \cdot 10^6$
214	170	$1,3 \cdot 10^4$	$5,1 \cdot 10^4$	412	750	$1,4 \cdot 10^6$	$4,5 \cdot 10^6$
215		$1,5 \cdot 10^4$	$6,0 \cdot 10^4$	416	830	$2,1 \cdot 10^6$	$7,0 \cdot 10^6$
222	205	$1,9 \cdot 10^4$	$7,4 \cdot 10^4$	420	950	$3,1 \cdot 10^6$	$1,0 \cdot 10^7$
228		$2,5 \cdot 10^4$	$9,9 \cdot 10^4$	426	950	$2,9 \cdot 10^6$	$9,7 \cdot 10^6$
231	235	$3,1 \cdot 10^4$	$1,2 \cdot 10^5$	432	1025	$4,0 \cdot 10^6$	$1,3 \cdot 10^7$
237		$3,8 \cdot 10^4$	$1,5 \cdot 10^5$	443	1170	$5,9 \cdot 10^6$	$1,9 \cdot 10^7$
247	255	$4,3 \cdot 10^4$	$1,8 \cdot 10^5$	454	1320	$8,5 \cdot 10^6$	$2,8 \cdot 10^7$
259 W		$5,5 \cdot 10^4$	$2,3 \cdot 10^5$				

Values and units

C_{Tstat}	[Nm/rad]	effective static coupling torsional stiffness
C_{Tostat}	[Nm/rad]	static torsional stiffness under T_{KN}
C_{Tustat}	[Nm/rad]	static torsional stiffness at zero displacement
D_L	[mm]	pitch circle
f_r	[mm]	radial displacement
F_r	[N]	radial force
T_{AN}	[Nm]	drive torque
T_{KN}	[Nm]	nominal coupling torque
T_K	[Nm]	effective coupling torque

$$F_r = \frac{C_{Tstat} \cdot 10^3}{[0,5 D_L]^2} \cdot f_r \quad [\text{N}]$$

$$C_{Tstat} = C_{Tustat} \left[\frac{C_{Tostat}}{C_{Tustat}} \right] \frac{T_{AN}}{T_{KN}} \quad [\text{Nm/rad}]$$

The values for D_L , C_{Tustat} and C_{Tostat} can be taken from the table.

Example:

Input: ELCO Coupling size 324 with compression sleeves quality U, $T_{KN} = 24000$ Nm, drive torque $T_{AN} = 7000$ Nm, radial displacement = 0,8 mm.

Output: Magnitude of radial force F_r

The static torsional stiffness is:

$$C_{Tstat} = 2,2 \cdot 10^5 \left[\frac{7,8 \cdot 10^5}{2,2 \cdot 10^5} \right]^{3,43} = 3,17 \cdot 10^5 \quad [\text{Nm/rad}]$$

Result:

$$F_r = \frac{3,17 \cdot 10^5 \cdot 10^3}{212,5^2} \cdot 0,8 = 5610 \quad [\text{N}]$$

ELCO Coupling Type N/W

Sizes 018 - 319 W

The **ELCO** couplings types N and W are used for the flexible connection of shafts.

Description:

The **ELCO** coupling type N consists essentially of the two coupling halves, flanges 1 and 2 and the transmission bolts

(4) on which the rubber compression sleeves (5) are mounted. The finely ground transmission bolts (4) are made of steel and are inserted with a specially close fit in the bores (3) of the half coupling, flange 2. They engage, with their axially pre-loaded com-

pression sleeves, in the bores provided in the coupling half, flange 1.

The **ELCO** coupling type W complements the well-known type N.

ELCO coupling type W con-

sists of two identical coupling parts, each with transmitting bolts arranged in alternate order and the compression sleeves.

Instructions for designers	speed	material	intermediate disc ⁵⁾	coupling bolts	available sizes and their designation
The coupling flanges can be axially separated. From size 149 the shaft can be radially dismantled, after removing the coupling bolts without axial displacement.	I	cast iron	without with	solid	NGOM. - 247 to 454 NGZM. - 247 to 353
		steel or cast iron	without with		NSOM. - 018 to 454 NSZM. - 149 to 353
The coupling can be provided with intermediate disc for the fitting and removal of endless belts.	II	steel or cast iron	without with	solid hollow	NSOM. - 018 to 129 NSOH. - 149 to 454

Coupling size	Coupling torque T_{KN} [Nm]	Max. speeds ¹⁾		Cast iron and Steel / Cast steel												
		I [min ⁻¹]	II [min ⁻¹]	Flanges 1 and 2												
				a_1 [mm]	l_1 l_2 [mm]	b_{max} ²⁾ [mm]	z [mm]	h_1 h_2 [mm]	o [mm]	p [mm]	D_1 ⁶⁾ [mm]	d ⁶⁾ [mm]	t ⁶⁾ [mm]	x ³⁾ [mm]	x^* ³⁾ [mm]	y ⁴⁾ [mm]
018 036	18 · 10 ⁰ 36 · 10 ⁰	6000	—	87	30	6	—	21	30	—	40	M 6	12	28	—	28
044 066	44 · 10 ⁰ 66 · 10 ⁰	6000	—	97	35	6	—	21	30	—	50	M 8	15	25	—	25
098 113	98 · 10 ⁰ 13 · 10 ¹	6000	—	112	40	6	—	26	36	—	60	M 8	15	30	—	30
123 129	23 · 10 ¹ 29 · 10 ¹	6000	—	130	50	6	—	26	36	—	70	M 8	15	20	—	20
149 161	49 · 10 ¹ 61 · 10 ¹	3600	5600	160	60	4	16	30	46	42	80	M 10	20	25	40	25
184 210	84 · 10 ¹ 10 · 10 ²	3000	5000	190	75	4	16	30	46	42	100	M 10	20	10	25	10
214 215	14 · 10 ² 15 · 10 ²	2650	4500	255	90	5	20	37	54	49	115	M 12	25	10	25	15
222 228	22 · 10 ² 28 · 10 ²	2250	4000	270	100	6	20	45	63	61	125	M 12	25	20	35	20
231 237	31 · 10 ² 37 · 10 ²	2000	3600	300	120	6	20	45	63	61	145	M 12	25	5	15	0
247 259 W	47 · 10 ² 59 · 10 ²	1800	3300	340	140	6	25	55	74	73	170	M 16	30	5	20	0
271 285 W	71 · 10 ² 85 · 10 ²	1650	3000	380	160	6	25	55	74	73	185	M 20	35	0	0	0
311 314 W	11 · 10 ³ 14 · 10 ³	1500	2800	440	180	7	25	68	90	92	205	M 20	35	0	10	0
316 319 W	16 · 10 ³ 19 · 10 ³	1250	2500	500	200	7	25	68	90	92	225	M 20	35	0	0	0

from stock

1) For maximum speed II, from size 149 only steel couplings with hollow bolts must be used.

2) Standard fitting dimension
 $b_{norm} = 1/2 b_{max}$

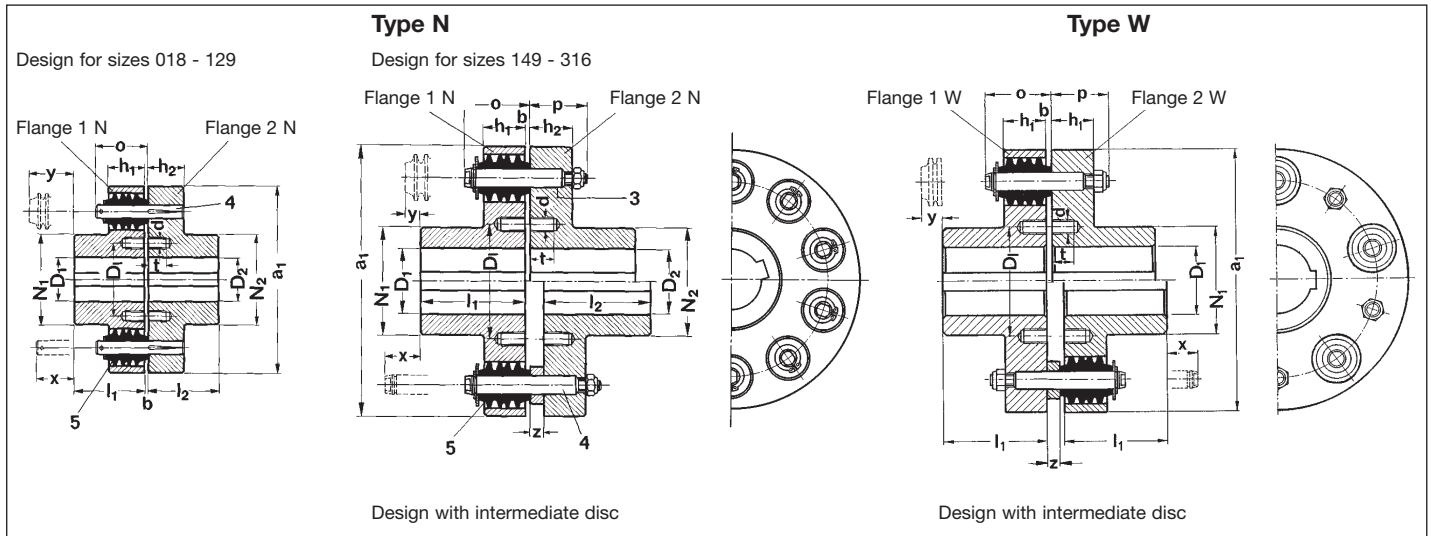
3) Space required for driving out the transmission bolts

x = for couplings without intermediate disc
 x^* = for couplings with intermediate disc
4) y = space required for removing the com-

pression sleeves

5) The material of the intermediate disc steel.

6) Withdrawal holes up to size 237 on request - from size 247 holes are provided as standard.



Bore of hub chamfered: Size 018 - 129 = 1 x 45°, Size 149 - 259 W = 1,5 x 45°, Size 271 - 319 W = 2 x 45°

Coupling size	Cast iron						Steel / Cast iron					
	Flange 1 N / Flange 1 W / Flange 2 W			Flange 2 N			Flange 1 N / Flange 1 W / Flange 2 W			Flange 2 N		
	hub N ₁ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₁ [mm]	hub N ₂ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₂ [mm]	hub N ₁ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₁ [mm]	hub N ₂ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₂ [mm]
018 036							35	9	10 - 20	40	9	10 - 25
044 066							45	11	12 - 28	50	11	12 - 30
098 113							52	15	16 - 32	63	15	16 - 40
123 129							68	18	19 - 45	80	18	19 - 52
149 161							82	18	19 - 55	82	18	19 - 55
184 210							110	23	24 - 75	110	23	24 - 75
214 215							125	29	30 - 85	135	29	30 - 90
222 228							150	34	35 - 100	150	34	35 - 100
231 237							180	39	40 - 120	180	39	40 - 120
247 259 W	130 180	44 73	45 - 75 > 75 - 110	145 200	49 83	50 - 85 > 85 - 120	180	44	45 - 120	200	44	45 - 135
271 285 W	150 180 205	53 88 108	55 - 90 > 90 - 110 > 110 - 125	150 180 220	53 88 108	55 - 90 > 90 - 110 > 110 - 135	220	53	55 - 145	220	53	55 - 145
311 314 W	165 205 230	63 98 123	65 - 100 > 100 - 125 > 125 - 140	165 205 250	63 98 123	65 - 100 > 100 - 125 > 125 - 150	250	63	65 - 165	250	63	65 - 165
316 319 W	180 230 260	73 108 138	75 - 110 > 110 - 140 > 140 - 155	180 230 280	73 108 138	75 - 110 > 110 - 140 > 140 - 170	170 215 260	73 108 138	75 - 110 > 110 - 140 > 140 - 170	170 215 280	73 108 138	75 - 110 > 110 - 140 > 140 - 185

from stock

1) The couplings are normally bored to DIN 7161 using ISO tolerances "K 7" or "H 7". Recommended fit is: h 6 / K 7 or m 6 / H 7 or k 6 / H 7.

Sizes 018 - 210 will always be supplied with set crew when ready bored and keywayed.
2) Rough bores have no fit tolerance. Parallel keys and taper keys are supplied

on request, at extra charge. With high shock-loads or reduced hubs resp. the load on the key must be checked.

For ordering instructions refer to page 15.

ELCO Coupling Type N/W

Sizes 324 - 454 W

The **ELCO** couplings types N and W are used for the flexible connection of shafts.

Description:

The **ELCO** coupling type N consists essentially of the two coupling halves, flanges 1 and 2, and the transmission bolts

(4) on which the rubber compression sleeves (5) are mounted. The finely ground transmission bolts (4) are made of steel and are inserted with a specially close fit in the bores (3) of the half coupling, flange 2. They engage, with their axially pre-loaded com-

pression sleeves, in the bores provided in the coupling half, flange 1.

The **ELCO** coupling type W complements the well-known type N.

ELCO coupling type W consists of two identical coupling parts, each with transmitting bolts arranged in alternate order and the compression sleeves.

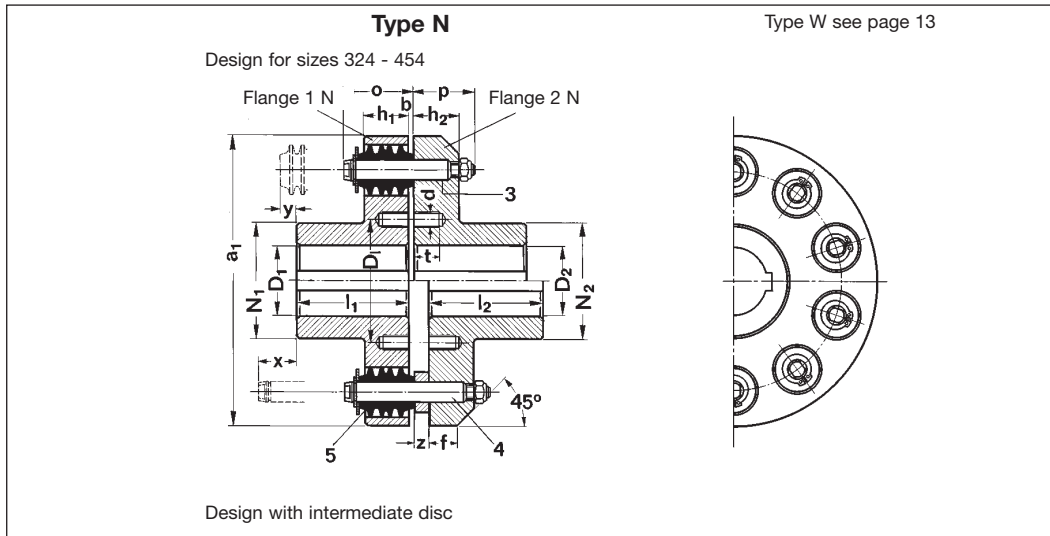
Instructions for designers	speed	material	intermediate disc ⁵⁾	coupling bolts	available sizes and their designation
The coupling flanges can be axially separated. From size 149 the shaft can be radially dismantled, after removing the coupling bolts without axial displacement.	I	cast iron	without with	solid	NGOM. - 247 to 454 NGZM. - 247 to 353
		steel or cast steel	without with		NSOM. - 018 to 454 NSZM. - 149 to 353
The coupling can be provided with intermediate disc for the fitting and removal of endless belts.	II	steel or cast steel	without with	solid hollow	NSOM. - 018 to 129 NSOH. - 149 to 454

Coupling size	Coupling torque T_{KN} [Nm]	Max. speeds ¹⁾		Cast iron and Steel / Cast steel														
		I [min ⁻¹]	II [min ⁻¹]	flanges 1 and 2														
				a_1 [mm]	l_1 l_2 [mm]	$b_{max}^{2)}$ [mm]	z [mm]	h_1 [mm]	h_2 [mm]	f [mm]	o [mm]	p [mm]	D_1 [mm]	d [mm]	t [mm]	$x, x^{*3)}$ [mm]	$y^{4)}$ [mm]	
324 329 W	$24 \cdot 10^3$ $29 \cdot 10^3$	1120	2250	560	220	8	30	83	76 —	46	106	107	165 200 240	M 20	35	0	0	
335 341 W	$35 \cdot 10^3$ $41 \cdot 10^3$	1000	2000	640	250	8	30	83	76 —	46	106	107	180 220 260	M 20	35	0	0	
353	$53 \cdot 10^3$	850	1750	750	280	9	30	102	93	58	127	128	200 250 300	M 24	42	0	0	
378	$78 \cdot 10^3$	750	1500	880	320	9	—	102	93	58	127	128	210 250 290 330	M 24	42	0	0	
412	$12 \cdot 10^4$	630	1300	960	350	10	—	128	115	60	158	159	240 280 320 380	M 24	52	0	0	
416	$16 \cdot 10^4$	630	1300	1040	375	10	—	128	115	60	158	159	240 280 320 380	M 24	52	0	0	
420	$20 \cdot 10^4$	560	1200	1160	400	10	—	128	115	60	158	159	260 310 360 420	M 24	52	0	0	
426	$26 \cdot 10^4$	500	1050	1210	425	12	—	160	148	75	195	200	310 360 410 440 480	M 24	62	0	0	
432	$32 \cdot 10^4$	500	1050	1285	450	12	—	160	148	75	195	200	320 400 470 510 570	M 24	62	0	0	
443	$43 \cdot 10^4$	450	890	1430	500	12	—	160	148	75	195	200	330 410 490 530 590	M 24	70	0	0	
454	$54 \cdot 10^4$	400	750	1580	560	12	—	160	148	75	195	200	370 440 510 580 650	M 24	70	0	0	

from stock (iron only)

Couplings for torque higher than $T_{KN} = 54 \cdot 10^4$ Nm are available on request.

For foot notes see pages 12 and 13.



With enquiries or when ordering please state:

1. Type of coupling.
2. Bore D in mm and tolerances for both flanges.
3. Connection of shaft / hub
4. Kind of driving and driven machine
5. Maximum power to be transmitted, starting torque and magnitude of shock loads.
6. Moments of inertia of driving and driven machine.
7. Speed in R.P.M.
8. Type of compression sleeves (U, V, W).
9. Ambient temperature
10. frequency of engagements/ disengagements

Bore of hub chamfered: Size 324 - 353 = 2 x 45°, Size 378 - 454 = 3 x 45°

Coupling size	Cast iron						Steel / Cast steel					
	Flange 1 N / Flange 1 W / Flange 2 W			Flange 2 N			Flange 1 N / Flange 1 W / Flange 2 W			Flange 2 N		
	hub N ₁ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₁ [mm]	hub N ₂ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₂ [mm]	hub N ₁ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₁ [mm]	hub N ₂ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₂ [mm]
324 329 W	205 265 295		85 - 125 > 125 - 160 > 160 - 180	205 265 315		85 - 125 > 125 - 160 > 160 - 190	915 245 275		85 - 125 > 125 - 160 > 160 - 180	195 245 305		85 - 125 > 125 - 160 > 160 - 200
335 341 W	230 295 330		95 - 140 > 140 - 180 > 180 - 200	230 295 355		95 - 140 > 140 - 180 > 180 - 215	215 275 305		95 - 140 > 140 - 180 > 180 - 200	215 275 335		95 - 140 > 140 - 180 > 180 - 220
353	245 330 360		110 - 150 > 150 - 200 > 200 - 220	245 330 400		110 - 150 > 150 - 200 > 200 - 245	230 305 335		110 - 150 > 150 - 200 > 200 - 220	230 305 380		110 - 150 > 150 - 200 > 200 - 250
378	265 330 390 410		125 - 160 > 160 - 200 > 200 - 235 > 235 - 250	265 330 390 450		125 - 160 > 160 - 200 > 200 - 235 > 235 - 270	245 305 365 380		125 - 160 > 160 - 200 > 200 - 240 > 240 - 250	245 305 365 425		125 - 160 > 160 - 200 > 200 - 240 > 240 - 280
412	295 360 425 460		140 - 180 > 180 - 220 > 220 - 260 > 260 - 280	295 360 425 500		140 - 180 > 180 - 220 > 220 - 260 > 260 - 300	275 335 395 425		140 - 180 > 180 - 220 > 220 - 260 > 260 - 280	275 335 395 485		140 - 180 > 180 - 220 > 220 - 260 > 260 - 320
416	295 360 425 500	on request	140 - 180 > 180 - 220 > 220 - 260 > 260 - 300	295 360 425 500	on request	140 - 180 > 180 - 220 > 220 - 260 > 260 - 300	275 335 395 450	on request	140 - 180 > 180 - 220 > 220 - 260 > 260 - 300	275 335 395 485	on request	140 - 180 > 180 - 220 > 220 - 260 > 260 - 320
420	330 410 490 520	on request	160 - 200 > 200 - 250 > 250 - 300 > 300 - 315	330 410 490 560	on request	160 - 200 > 200 - 250 > 250 - 300 > 300 - 340	305 380 450 485	on request	160 - 200 > 200 - 250 > 250 - 300 > 300 - 320	305 380 450 545	on request	160 - 200 > 200 - 250 > 250 - 300 > 300 - 360
426	380 460 540 590 630		180 - 230 > 230 - 280 > 280 - 330 > 300 - 360 > 360 - 380	380 460 540 590 630		180 - 230 > 230 - 280 > 280 - 330 > 330 - 360 > 360 - 380	350 425 500 545 605		180 - 230 > 230 - 280 > 280 - 330 > 330 - 360 > 360 - 400	350 425 500 545 605		180 - 230 > 230 - 280 > 280 - 330 > 330 - 360 > 360 - 400
432	400 500 580 630 700		190 - 240 > 240 - 300 > 300 - 350 > 350 - 380 > 380 - 425	400 500 580 630 700		190 - 240 > 240 - 300 > 300 - 350 > 350 - 380 > 380 - 425	360 450 530 570 640		190 - 240 > 240 - 300 > 300 - 350 > 350 - 380 > 380 - 425	360 450 530 570 640		190 - 240 > 240 - 300 > 300 - 350 > 350 - 380 > 380 - 425
443	410 510 610 650 720		200 - 250 > 250 - 310 > 310 - 370 > 370 - 400 > 400 - 440	410 510 610 650 720		200 - 250 > 250 - 310 > 310 - 370 > 370 - 400 > 400 - 440	380 470 560 605 680		200 - 250 > 250 - 310 > 310 - 370 > 370 - 400 > 400 - 450	380 470 560 605 680		200 - 250 > 250 - 310 > 310 - 370 > 370 - 400 > 400 - 450
454	470 550 640 750 825		220 - 270 > 270 - 330 > 330 - 390 > 390 - 450 > 450 - 500	470 550 640 750 825		220 - 270 > 270 - 330 > 330 - 390 > 390 - 450 > 450 - 500	410 500 590 680 760		220 - 270 > 270 - 330 > 330 - 390 > 390 - 450 > 450 - 500	410 500 590 680 760		220 - 270 > 270 - 330 > 330 - 390 > 390 - 450 > 450 - 500

²⁾ if not otherwise expressly specified, we supply rough-bored coupling halves from stock (cast iron only) 5 mm smaller in diameter than the desired finished bore size.

ELCO Coupling Type A (disengageable version of the standard ELCO Coupling)

The **ELCO** coupling type A is a disengageable version of the standard **ELCO** coupling. It is used when temporary disconnection of the two flexibly connected shafts is required and thus combines the properties of a coupling having torsional flexibility with those of a coupling which can be dis-

gaged at rest.

Description:

The **ELCO** coupling type A consists of the two coupling flanges 1 and 2/12. The half coupling 1 is identical with flange 1 of the standard coupling design. Part 2/12 comprises the sleeve 12 and

flange 2 which can slide along it. The sleeve is fastened to the shaft with a parallel key and a pressure screw.

Up to and including coupling size 231 disengaging is possible by means of several holes (14) distributed around the circumference. Larger couplings are disengaged and engaged

by a special handoperated fork shifter; couplings size 353 have racktype shifters. Both in the engaged and disengaged position flange 2 is fixed by means of the pressure screw 16.

The compression sleeves which engage in holes in the half coupling 1, fit over the transmission bolts 4 and are held in position by washers and circlips.

Instructions for designers	speed	material		intermediate disc ⁵⁾	coupling bolts	available sizes and their description
		coupling	sleeve			
The coupling can be provided with intermediate disc for the fitting and removal of endless belts	I	cast iron	cast iron	without	solid	AGOM. - 247 to 353 AGZM. - 247 to 353
		steel or cast steel		with		ASOM. - 098 to 353 ASZM. - 149 to 353
	II		without	hollow	ASOH. - 149 to 353	

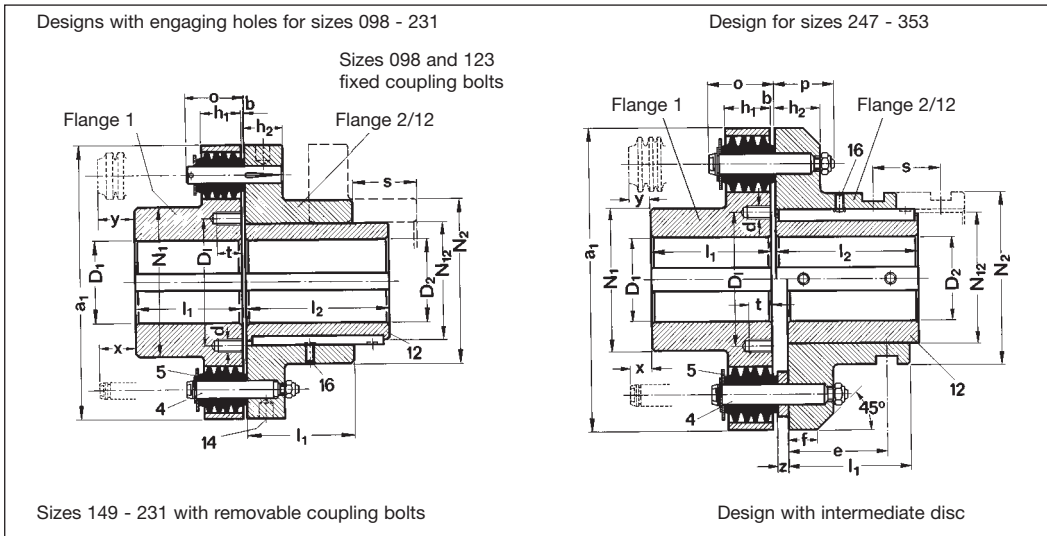
Coupling size	Coupling torque T_{KN} [Nm]	Max. speeds ¹⁾		Cast iron and Steel or Cast Steel																	
		I [min ⁻¹]	II [min ⁻¹]	Flange 1 and 2/12																s	e
				a_1 [mm]	l_1 [mm]	l_2 [mm]	$b_{max}^{2)}$ [mm]	z [mm]	h_1 [mm]	h_2 [mm]	f [mm]	o [mm]	p [mm]	$D_1^{6)}$ [mm]	$d^{6)}$ [mm]	$t^{6)}$ [mm]	$x^{3)}$ [mm]	$x^{*3)}$ [mm]	$y^{4)}$ [mm]		
098	100	6000	—	112	40	60	6	—	26	26	—	36	—	60	M 8	15	30	—	30	40	—
123	225	6000	—	130	50	75	6	—	26	26	—	36	—	70	M 8	15	20	—	20	40	—
149	500	3600	5600	160	60	100	4	16	30	30	—	46	42	80	M 10	20	25	40	25	50	—
184	850	3000	5000	190	75	110	4	16	30	30	—	46	42	100	M 10	20	10	25	10	50	—
214	1400	2650	4500	225	90	130	5	20	37	37	—	54	49	115	M 12	25	10	25	15	60	—
222	2100	2250	4000	270	100	150	6	20	45	45	—	63	61	125	M 12	25	20	35	20	70	—
231	3150	2000	3600	300	120	160	6	20	45	45	—	63	61	145	M 12	25	5	15	0	70	—
247	4700	1800	3300	340	140	175	6	25	55	55	—	74	73	170	M 16	30	5	20	0	80	120
271	7000	1650	3000	380	160	190	6	25	55	55	—	74	73	185	M 20	35	0	0	0	80	130
311	10500	1500	2800	440	180	210	7	25	68	68	—	90	92	205	M 20	35	0	10	0	100	145
316	15500	1250	2500	500	200	225	7	25	68	68	—	90	92	225	M 20	35	0	0	0	100	160
324	24000	1120	2250	560	220	250	8	30	83	76	46	106	107	165 200 240	M 20	35	0	0	0	115	170
335	35000	1000	2000	640	250	275	8	30	83	76	46	106	107	180 220 260	M 20	35	0	0	0	115	200
353	53000	850	1700	750	280	300	9	30	102	93	58	127	128	200 250 300	M 24	42	0	0	0	140	230

1) For maximum speed II, from size 149 only steel couplings with hollow bolts must be used. For coupling sizes 149-271 with intermediate disc, only the maximum speed I of the next larger coupling is used.

2) Standard fitting dimension
 $b_{norm} = 1/2 b_{max}$
3) Space required for driving out the transmission bolts
 $x =$ for couplings without intermediate disc

x^* = for couplings with intermediate disc
4) $y =$ space required for removing the compression sleeves.
5) The material of the intermediate disc is steel.

6) Withdrawal holes up to size 231 on request - from size 247 holes are provided as standard.



With enquiries or when ordering please state:

1. Type of coupling.
2. Bore D in mm and tolerances for both flanges.
3. Connection of shaft / hub
4. Kind of driving and driven machine
5. Maximum power to be transmitted, starting torque and magnitude of shock loads.
6. Moments of inertia of driving and driven machine.
7. Speed in R.P.M.
8. Type of compression sleeves (U, V, W).
9. Ambient temperature
10. frequency of engagements/ disengagements

Bore of hub chamfered: Size 098 - 123 = 1 x 45°, Size 149 - 247 = 1,5 x 45°, Size 271 - 353 = 2 x 45°

Coupling size	Cast iron						Steel ³⁾					
	Flange 1			Flange 2/12			Flange 1			Flange 2/12		
	hub N ₁ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₁ [mm]	hub N ₂ [mm]	sleeve N ₁₂ [mm]	finished bore size ¹⁾ D ₂ [mm]	hub N ₁ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₁ [mm]	hub N ₂ [mm]	sleeve N ₁₂ [mm]	finished bore size ¹⁾ D ₂ [mm]
098							52	15	16 - 32	63	48	16 - 30
123							68	18	19 - 45	80	60	19 - 40
149							82	18	19 - 55	90	70	19 - 45
184							110	23	24 - 75	120	90	24 - 60
214							125	29	30 - 85	140	105	30 - 70
222							150	34	35 - 100	160	120	35 - 80
231							180	39	40 - 120	180	135	40 - 90
247	130 180	44 73	45 - 75 > 75 - 100	200	125 150	45 - 80 > 80 - 100	180	44	45 - 120	200	125 150	45 - 80 > 80 - 110
271	150 180 205	53 88 108	55 - 90 > 90 - 110 > 110 - 125	180 220	135 170	55 - 80 > 80 - 110	220	53	55 - 145	220	135 170	55 - 80 > 80 - 110
311	165 205 230	63 98 123	65 - 100 > 100 - 125 > 125 - 140	205 250	155 190	65 - 100 > 100 - 130	250	63	65 - 165	250	155 190	65 - 100 100 - 130
316	180 230 260	73 108 138	75 - 110 > 110 - 140 > 140 - 155	230 300	170 235	75 - 110 > 110 - 160	170 215 260	73 108 138	75 - 110 > 110 - 140 > 140 - 170	280	170 220	75 - 110 > 110 - 150
324	205 265 295	on request ⁴⁾	85 - 125 125 - 160 > 160 - 180	265 350	200 270	85 - 130 > 130 - 180 > 130 - 180	195 245 275	on request ⁴⁾	85 - 125 > 125 - 160 > 160 - 180	245 340	190 270	85 - 120 > 120 - 170
335	230 295 330		95 - 140 > 140 - 180 > 180 - 200	295 400	220 300	95 - 145 > 145 - 200	215 275 305		95 - 140 > 140 - 180 > 180 - 200	275 380	210 300	95 - 130 > 130 - 190
353	245 330 360		110 - 150 > 150 - 200 > 200 - 220	330 450	250 315	110 - 160 > 160 - 220	230 305 335		110 - 150 > 150 - 200 > 200 - 220	330 400	250 315	110 - 160 > 160 - 220

1) The couplings are normally bored to DIN 7161 using ISO tolerances „K 7“ or „H 7“. Recommended fit is h 6 / K 7 or m 6 / H 7 resp. k 6 / H 7.

2) Rough bores have no fit tolerance.

3) Larger couplings are made of cast steel.

4) If not otherwise expressly specified, we supply rough-bored coupling halves to 5 mm smaller in diameter than the desired finished bore size.

Parallel keys and taper keys are supplied on request, at extra charge. With high shock-loads or reduced hubs resp., the load on the key must be checked.

ELCO Coupling Type B (shear pin coupling)

The **ELCO** coupling type B is a modified design of the standard **ELCO** coupling in so far as it is a safety coupling able to protect the flexibly connected machine against unduly high loads. In the event of overloading taking place the two shafts are separated from each other by shearing of the pins.

This coupling thus combines the properties of a torsionally flexible coupling with those of a coupling protected against overload.

Description:

The **ELCO** coupling type B consists of the coupling halves 1 and 2/12. The flange 1 is the same as flange 1 of the standard **ELCO** coupling flange 2/12 is made up of a flange hub 12, fixed to the shaft by means of a parallel key and flange 2 which is mounted on the flange hub and are able to turn freely. The two parts are connected by the cast iron shear pins 14. The torque is transmitted through shear pins 14, transmission bolts 4 and compression sleeves 5 which engage with holes in the coupling flange 1. Shear pins and compression sleeves are thus inserted in series. Flange 2 which can turn freely is held axially by a disc 16. The running surfaces are lubricated by a grease nipple 17. For certain fields of application where there is a higher circumferential speed flange 2, which can turn freely, is supported on part 12 by a PTFE lining to give it a more favourable run-down action. The maximum amount of torque that can be transmitted is determined by

different depths of groove in the shear pins. The breaking torque T_{KB} has a speed of $\pm 25\%$ because of the differences in the strength of the shear pin material. Consequently the breaking torque T_{KB} must have an adequate safety margin above the driving torque ($T_{KB} \approx 2 T_{AN}$).

Whenever the shear pins break as a result of overload the driving machine should be stopped immediately as the coupling is not suitable for running for long periods without load.

Coupling size	Coupling torque ¹⁾ T_{KN} [Nm]	Min. permissible breaking torque ²⁾ T_{KB} [Nm]	Max. speeds ³⁾ [min ⁻¹]	Cast iron and Steel or Cast steel																	
				Flanges 1 and 2/12																	
				a_1	l_1	$l_2^{9)}$	$b_{max}^{4)}$	z	h_1	h_2	f	o	p	$D_1^{8)}$	$d^{8)}$	$t^{8)}$	$x^{5)}$	$x^{*5)}$	$y^{6)}$	m	e
149	$49 \cdot 10^1$	160	800	160	60	80	4	16	30	30	—	46	42	80	M 10	20	25	40	25	38	140
184	$84 \cdot 10^1$	280	710	190	75	95	4	16	30	30	—	46	42	100	M 10	20	10	25	10	42	175
214	$14 \cdot 10^2$	340	630	225	90	110	5	20	37	37	—	54	49	115	M 12	25	10	25	15	42	210
222	$22 \cdot 10^2$	650	560	270	100	130	6	20	45	45	—	63	61	125	M 12	25	20	35	20	55	245
231	$31 \cdot 10^2$	740	500	300	120	145	6	20	45	45	—	63	61	145	M 12	25	5	15	0	55	270
247	$47 \cdot 10^2$	1150	450	340	140	160	6	25	55	55	—	74	73	170	M 16	30	5	20	0	68	310
271	$71 \cdot 10^2$	1250	400	380	160	180	6	25	55	55	—	74	73	185	M 20	35	0	0	0	68	340
311	$11 \cdot 10^3$	2500	355	440	180	200	7	25	68	68	—	90	92	205	M 20	35	0	10	0	85	390
316	$16 \cdot 10^3$	2800	280	500	200	220	7	25	68	68	—	90	92	225	M 20	35	0	0	0	85	450
324	$24 \cdot 10^3$	6000	250	560	220	240	8	30	83	76	46	106	107	165 200 240	M 20	35	0	0	0	110	510
335	$35 \cdot 10^3$	7000	225	640	250	260	8	30	83	76	46	106	107	180 220 260	M 20	35	0	0	0	110	570
353	$53 \cdot 10^3$	10000	200	750	280	290	9	30	102	93	58	127	128	200 250 300	M 24	42	0	0	0	130	660

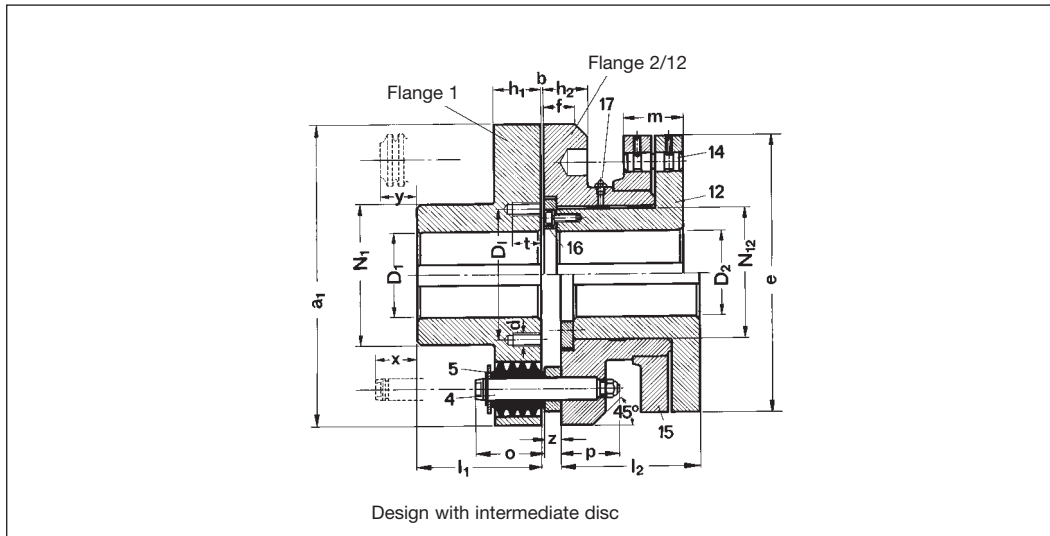
- Also the maximum permissible breaking torque T_{KB} .
- For technical reasons associated with manufacture the minimum breaking torque must not fall below these values.

- Higher speeds on request.
- Standard fitting dimension
 $b_{norm} = 1/2 b_{max}$
- Space required for driving out the transmission bolts

- x = for couplings without intermediate disc
 x^* = for couplings with intermediate disc.
- y = space required for removing the compression sleeves.
- The material of the intermediate disc is

- steel.
- Withdrawal holes up to size 231 on request - from size 247 holes are provided as standard.
- Also the length of the seating.

Instructions for designers	material		intermediate disc ⁵⁾	coupling bolts	available sizes and their designation
	coupling	flange hub			
After removal of the coupling bolts the shaft can be radially dismantled, without axial displacement. The coupling can be provided with intermediate disc for the fitting and removal of endless belts.	cast iron	cast iron	without	solid	BGOM. - 247 to 454 BGZM. - 247 to 353
	steel or cast steel		with		BSOM. - 018 to 454 BSZM. - 149 to 353



With enquiries or when ordering please state:

1. Type of coupling.
2. Bore D in mm and tolerances for both flanges.
3. Connection of shaft / hub
4. Kind of driving and driven machine
5. Maximum power to be transmitted, starting torque and magnitude of shock loads.
6. Magnitude of the breaking torque T_{KB} .
7. Moments of inertia of driving and driven machine.
8. Speed in R.P.M.
9. Type of compression sleeves (U, V, W).
10. Ambient temperature
11. frequency of engagements/ disengagements

Bore of hub chamfered: Size 149 - 247 = 1,5 x 45°, Size 271 - 353 = 2 x 45°

Coupling size	Cast iron					Steel ³⁾				
	Flange 1			Flange 2/12		Flange 1			Flange 2/12	
	hub N ₁ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₁ [mm]	hub part N ₁₂ [mm]	finished bore size ¹⁾ D ₂ [mm]	hub N ₁ [mm]	rough bore ²⁾ size [mm]	finished bore size ¹⁾ D ₁ [mm]	hub part N ₁₂ [mm]	finished bore size ¹⁾ D ₂ [mm]
149						82	18	19 - 55	70	19 - 40
184						110	23	24 - 75	95	24 - 60
214						125	29	30 - 85	110	30 - 70
222						150	34	35 - 100	125	35 - 80
231						180	39	40 - 120	140	40 - 90
247	130 180	44 73	45 - 75 > 75 - 110	160	45 - 100	180	44	45 - 120	160	45 - 100
271	150 180 205	53 88 108	55 - 90 > 90 - 110 > 110 - 125	140 175	55 - 85 > 85 - 110	220	53	55 - 145	140 175	55 - 85 > 85 - 110
311	165 205 230	63 98 123	65 - 100 > 100 - 125 > 125 - 140	160 200	65 - 100 > 100 - 130	250	63	65 - 165	160 200	65 - 100 > 100 - 130
316	180 230 260	73 108 138	75 - 110 > 110 - 140 > 140 - 155	175 235	75 - 110 > 110 - 150	170 215 260	73 108 138	75 - 110 > 110 - 140 > 140 - 170	175 235	75 - 110 > 110 - 150
324	205 265 295	on request ⁴⁾	85 - 125 > 125 - 160 > 160 - 180	235 280	85 - 140 > 140 - 170	195 245 275	on request ⁴⁾	85 - 125 > 125 - 160 > 160 - 180	235 280	85 - 140 > 140 - 170
335	230 295 330		95 - 140 > 140 - 180 > 180 - 200	260 320	95 - 150 > 150 - 200	215 275 305		95 - 140 > 140 - 180 > 180 - 200	260 320	95 - 150 > 150 - 200
353	245 330 360		110 - 150 > 150 - 200 > 200 - 220	290 360	110 - 170 > 170 - 220	230 305 335		110 - 150 > 150 - 200 > 200 - 220	290 360	110 - 170 > 170 - 220

1) The couplings are normally bored to DIN 7161 using ISO tolerances „K 7“ or „H 7“. Recommended fit is h 6 / K 7 or m 6 / H 7.

2) Rough bores have no fit tolerances.
3) Bigger couplings may be made from cast steel. In case of steel couplings without PTFE coating, flange 12 will be made from cast iron.

4) If not otherwise expressly specified, we supply rough-bored coupling halves to 5 mm smaller in diameter than the desired finished bore size.

Parallel keys and taper keys are supplied on request, at extra charge. With high shock-loads or reduced hubs resp., the load on the key must be checked.

ELCO Coupling Type S

(with screwed-on brake drum to DIN 15431)

the **ELCO** couplings type S are standard **ELCO** couplings combined with standard brake drums to DIN 15431.

Description:
The **ELCO** coupling type S consists of coupling halves 1 and 2. The half-coupling 1 is identical with flange 1 of the standard design. Flange 2 is

provided with a centering recess for mounting the brake drum. For coupling sizes 149 (5) and above both the pressure screws 13 and the fitted dowels are used for fixing the

brake drum in position. The coupling bolts carry the compression sleeves 5 which engage with the holes provided in the coupling flange 1.

Instructions for designers	speed	material	intermediate disc ⁵⁾	coupling bolts	available sizes and their designation
The coupling flanges can be axially separated. From size 149 the shaft can be radially dismantled, after removing the coupling bolts, without axial displacement.	I	cast iron	without	solid	SGOM. - 247 to 324 with brake drum GG or GS
			with		SGZM. - 247 to 324 with brake drum GG or GS
		steel	without		SSOM. - 123 to 324 with brake drum GG or GS
			with		SSZM. - 149 to 324 with brake drum GG or GS
The coupling can be provided with intermediate disc for the fitting and removal of endless belts.	II	steel	without	hollow	SSOH. - 149 to 454 with brake drum GG or GS

Coupling size	Coupling torque T_{KN} [Nm]	Max. speeds ¹⁾		Cast iron and Steel											
		I [min ⁻¹]	II [min ⁻¹]	Flange 1 and 2											
				a_1 [mm]	l_1 l_2 [mm]	b_{max} ²⁾ [mm]	z [mm]	h_1 [mm]	o [mm]	D_1 ⁶⁾ [mm]	d ⁶⁾ [mm]	t ⁶⁾ [mm]	x ³⁾ [mm]	x^* ³⁾ [mm]	y ⁴⁾ [mm]
123	$23 \cdot 10^1$	6000	—	130	50	6	—	26	36	70	M 8	15	20	20	20
149	$49 \cdot 10^1$	3600	5600	160	60	4	16	30	46	80	M 10	20	25	40	25
184	$84 \cdot 10^1$	3000	5000	190	75	4	16	30	46	100	M 10	20	10	25	10
214	$14 \cdot 10^2$	2650	4500	225	90	5	20	37	54	115	M 12	25	10	25	15
222	$22 \cdot 10^2$	2250	4000	270	100	6	20	45	63	125	M 12	25	20	35	20
231	$31 \cdot 10^2$	2000	3150	300	120	6	20	45	63	145	M 12	25	5	15	0
247	$47 \cdot 10^2$	1800	2500	340	140	6	25	55	74	170	M 16	30	5	20	0
271	$71 \cdot 10^2$	1650	2000	380	160	6	25	55	74	185	M 20	35	0	0	0
311	$11 \cdot 10^3$	1500	1600	440	180	7	25	68	90	205	M 20	35	0	10	0
316	$16 \cdot 10^3$	1250	1400	500	200	7	25	68	90	225	M 20	35	0	0	0
324	$24 \cdot 10^3$	1120	2250	560	220	8	30	83	106	165 200 240	M 20	35	0	0	0

sizes 123 to 231 not available in cast iron

1) For maximum speeds II, from size 149 only steel couplings with hollow bolts must be used.

Brake drums see page 21.

If the permissible speed for the brake drum is smaller than that for the coupling, the brake drum speed is the one to be considered.

2) When assembling, standard dimension $b = 1/2 b_{max}$

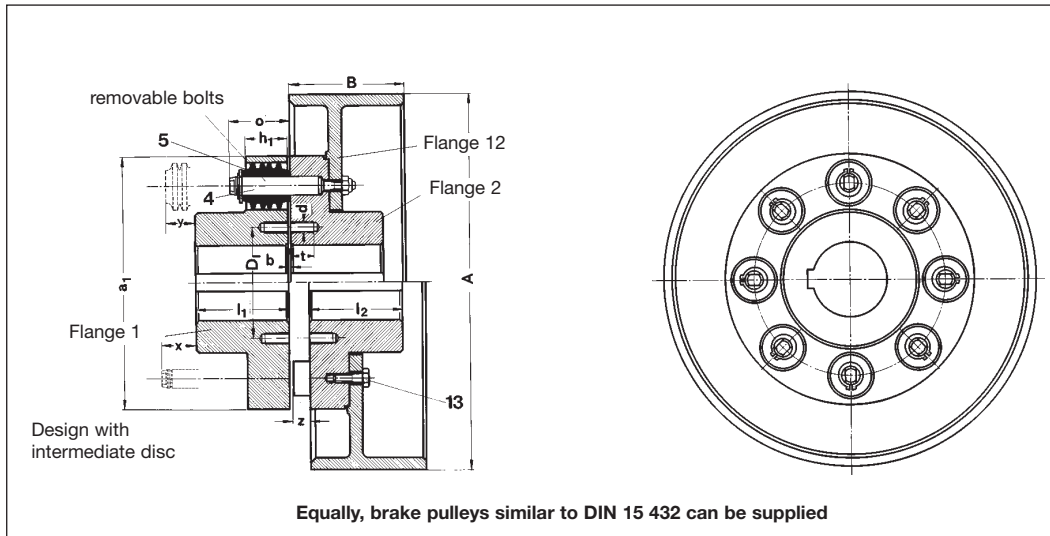
3) space required for driving out the transmission bolts
 x = for couplings without intermediate disc
 x^* = for couplings with intermediate disc.

4) y = space required for removing the compression sleeves.

5) The material of the intermediate disc is steel.

6) Withdrawal holes up to size 231 on request - from size 247 holes are provided as standard.

For diameters of bores and hubs see type N sizes 123 to 324.



With enquiries or when ordering please state:

1. Type of coupling.
2. Bore D in mm and tolerances for both flanges.
3. Connection of shaft / hub
4. Kind of driving and driven machine
5. Maximum power to be transmitted, starting torque and magnitude of shock loads.
6. Moments of inertia of driving and driven machine.
7. Speed in R.P.M.
8. Type of compression sleeves (U, V, W).
9. Brake drum dimensions.
10. Ambient temperature
11. frequency of engagements/ disengagements

Bore of hub chamfered: Size 123 = 1 x 45°, Size 149 - 247 = 1,5 x 45°, Size 271 - 324 = 2 x 45°

Coupling size	Brake drum to DIN 15431 (part 12)											
	combination I				combination II				combination III			
	A [mm]	B [mm]	permissible speed C.I. [min ⁻¹]	C.S. [min ⁻¹]	A [mm]	B [mm]	permissible speed C.I. [min ⁻¹]	C.S. [min ⁻¹]	A [mm]	B [mm]	permissible speed C.I. [min ⁻¹]	C.S. [min ⁻¹]
123	—	—	—	—	—	—	—	—	200	75	3150	6000
149	—	—	—	—	200	75	3150	5600	250	95	2500	5000
184	—	—	—	—	250	95	2500	5000	315	118	2000	4000
214	250	95	2500	4500	315	118	2000	4000	400	150	1600	3150
222	315	118	2000	4000	400	150	1600	3150	500	190	1250	2500
231	400	150	1600	3150	500	190	1250	2500	630	236	1000	2000
247	500	190	1250	2500	630	236	1000	2000	710	265	800	1600
271	630	236	1000	2000	710	265	800	1600	800	300	710	1400
311	710	265	800	1600	800	300	710	1400	—	—	—	—
316	800	300	710	1400	—	—	—	—	—	—	—	—
324	800	300	710	1400	—	—	—	—	—	—	—	—

Important instructions for design and planning:

The coupling part with the brake drum should always be

mounted on that shaft end which is transmitting the high-

er braking torque. Parallel and tapered keys are supplied on request at an extra charge.

Apart from the brake drums listed above, drums of different dimensions are available.

Instead of cast iron or steel, S.G. iron or cast steel can be provided. In addition, the braking surface of drums and pulleys can be chromium-plated. Furthermore, the ELCO half coupled can be supplied integral with the brake drum (not screwed-on) in either cast iron, S.G. iron, cast steel or steel.

Further details on request.

ELCO Coupling Type G/E (with definite end float)

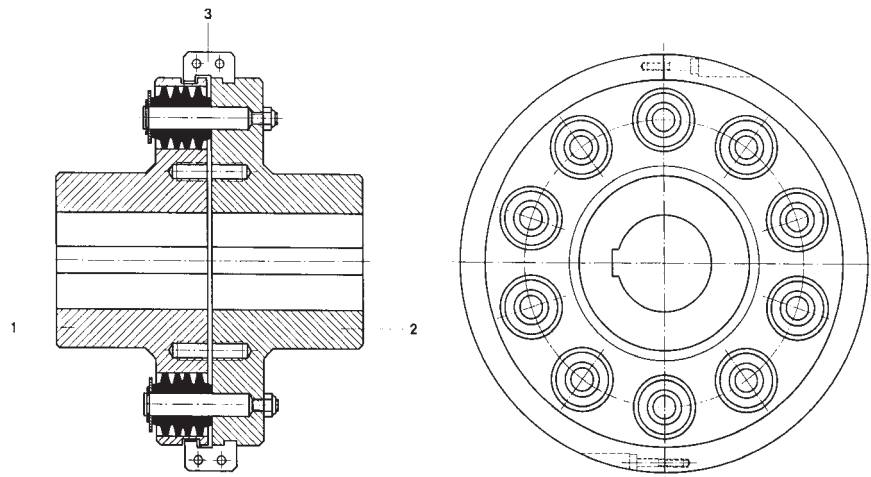
The **ELCO** couplings type G are provided with devices which, for size 149 - 319 W, allow the longitudinal spacing between the coupled shaft ends to be fixed within certain pre-determined limits. With the **ELCO** couplings type E size 214 (with the exception of sizes 215, 228 and 237) and above even the amount of clearance and the distance between the coupling halves can be varied.

With this type angular misalignment is not admissible.

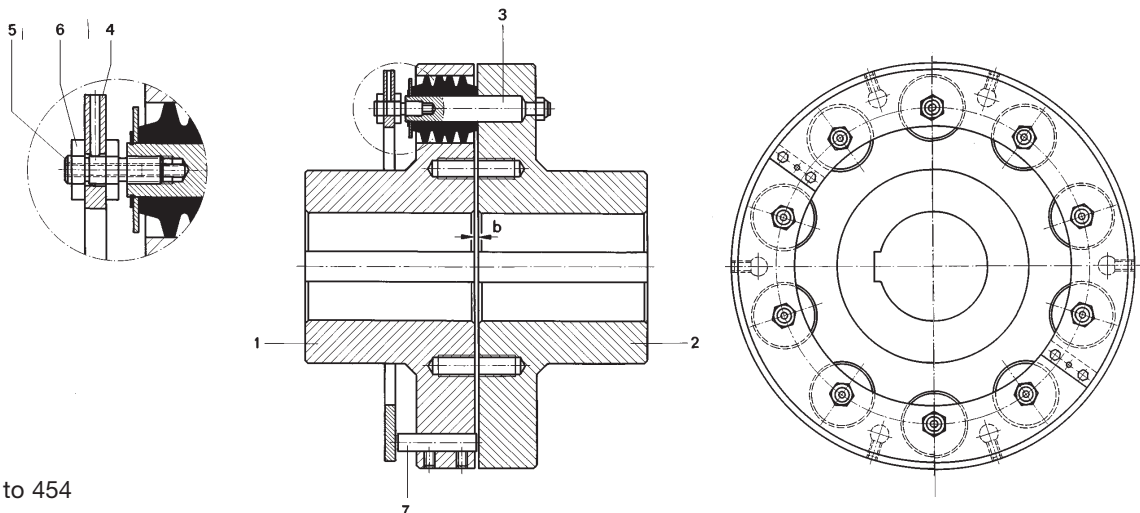
Size 149 to 316:
The coupling halves 1 and 2 are each provided with an annular groove in which a two-part ring 3, made of a highstrength corrosion-resistant aluminium alloy, engages.

Size 214 to 454:
The ring 4, fastened to the coupling bolts 3 and nuts 6 so as to obtain a space between coupling flange 2 and ring 4 which corresponds to the required admissible axial movement. By shifting the stop-pin 7 in the coupling flange 1 the clearance "b" can, within limits, be adjusted. This facili-

tates alignment of the electric motor in such a way that the armature runs in the magnetic field without producing additional thrust forces. The main dimensions are the same as those for type N. Further details on request.

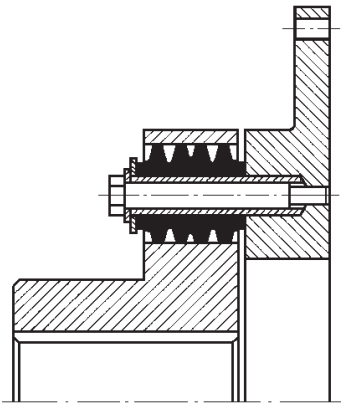


Type G
Sizes 149 to 319 W



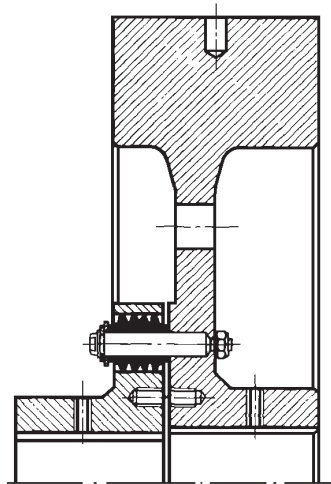
Type E
Sizes 214 to 454

Special Design



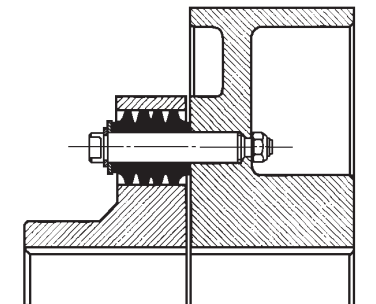
ELCO Couplings Type F-SAE

are specially designed for connection to flywheel flanges according to SAE J 620e.



ELCO Couplings combined with flywheel

are supplied in cast iron or cast steel and with the required moment of inertia. Because of the stresses in the material the flywheel is always manufactured integral with flange 2 (the bolt fixing half).



ELCO Couplings with integral brake pulley

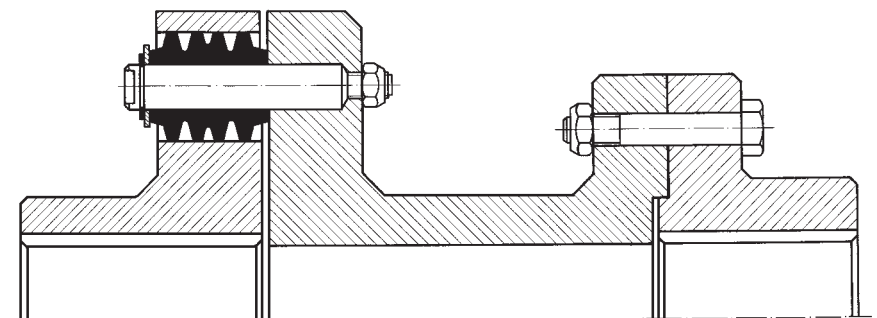
are supplied in cast iron, nodular cast iron or steel in the sizes and dimensions given on pages 24 and 25, and also in special sizes on request.

ELCO Couplings with extension piece

are chosen where for constructional reason a certain distance must be bridged in axial direction (e.g. required for removal of shaft glands of centrifugal pumps).

The couplings are manufactured in either cast iron or steel to meet requirements.

The dimensions will to a large extent be adapted to the machine to be connected.



Weights [kg]

with reference to:

nominal diameter of bore and hub diameter, corresponding to the bore

flange 2 including transmitting elements Type W: flange 1 and flange 2 each with proportionate number of transmitting elements

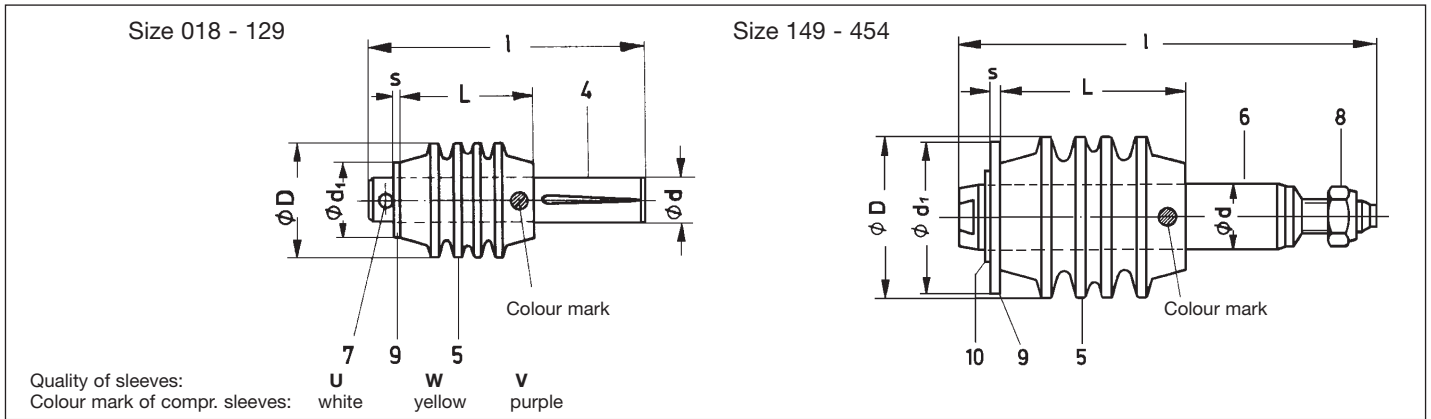
Coupling size	Nom. dia. [mm]	For all types		Type N / W				Type A				Type B				intermediate disc ST
		Flange 1		Flange 2		Flange 1 + Flange 2		Flange 2/12		Flange 1 + Flange 2/12		Flange 2/12		Flange 1 + Flange 2/12		
		C.I.	ST	C.I.	ST	C.I.	ST	C.I.	ST	C.I.	ST	C.I.	ST	C.I.	ST	
018	10	—	0,93	—	1,1	—	2,03	—	—	—	—	—	—	—	—	—
036		—	0,85	—	1,15	—	2,0	—	—	—	—	—	—	—	—	—
044	20	—	1,1	—	1,5	—	2,6	—	—	—	—	—	—	—	—	—
066		—	1,0	—	1,55	—	2,55	—	—	—	—	—	—	—	—	—
098	30	—	1,4	—	2,8	—	4,2	—	3,0	—	4,4	—	—	—	—	—
113		—	1,2	—	2,9	—	4,1	—	—	—	—	—	—	—	—	—
123	40	—	2,1	—	3,6	—	5,7	—	4,2	—	6,3	—	—	—	—	—
129		—	1,9	—	3,7	—	5,6	—	—	—	—	—	—	—	—	—
149	50	—	3,6	—	5,9	—	9,5	—	7,1	—	10,7	—	10,2	—	13,8	0,4
161		—	3,2	—	6,0	—	9,2	—	—	—	—	—	—	—	—	0,5
184	60	—	6,5	—	9,5	—	16	—	11,5	—	18	—	15	—	21,5	0,5
210		—	6,1	—	9,6	—	15,7	—	—	—	—	—	—	—	—	0,6
214	70	—	10	—	15,5	—	25,5	—	20	—	30	—	25,8	—	35,8	0,7
215		—	9,9	—	15,5	—	25,4	—	—	—	—	—	—	—	—	0,8
222	80	—	18,5	—	26,0	—	44,5	—	36	—	55	—	44	—	63	1,0
228		—	17	—	26,5	—	43,5	—	—	—	—	—	—	—	—	1,3
231	90	—	27	—	37	—	64	—	42	—	69	—	55	—	82	1,3
237		—	26	—	37	—	63	—	—	—	—	—	—	—	—	1,6
247	100	34	37	53	54	87	91	61	67	95	104	81	83	115	120	2,1
259 W	110	41	44	41	44	82	88	—	—	—	—	—	—	—	—	2,6
271		42	55	59	73	101	128	76	82	118	137	103	108	145	163	2,6
285 W	120	59	63	59	63	118	126	—	—	—	—	—	—	—	—	3,1
311		68	87	100	116	168	203	128	134	196	221	162	170	230	257	3,5
314 W	140	93	100	93	100	186	200	—	—	—	—	—	—	—	—	4,4
316		90	92	128	130	218	222	173	185	263	277	223	236	313	328	4,4
319 W	160	100	108	100	108	200	216	—	—	—	—	—	—	—	—	5,3
324		120	125	165	180	285	305	235	250	355	375	335	350	455	475	7,4
329 W	180	152	156	152	156	304	312	—	—	—	—	—	—	—	—	8,9
335		175	180	230	250	405	430	340	400	515	580	450	470	625	650	8,9
341 W	200	208	213	208	213	416	426	—	—	—	—	—	—	—	—	10,4
353		285	290	385	390	670	680	525	585	810	875	650	660	935	950	10,4
378	220	425	433	570	580	995	1013	—	—	—	—	—	—	—	—	—
412	240	560	575	815	835	1375	1410	—	—	—	—	—	—	—	—	—
416	260	655	650	950	955	1605	1605	—	—	—	—	—	—	—	—	—
420	280	880	885	1215	1230	2095	2145	—	—	—	—	—	—	—	—	—
426	300	1125	1145	1640	1695	2765	2840	—	—	—	—	—	—	—	—	—
432	320	1300	1295	1915	1965	3215	3260	—	—	—	—	—	—	—	—	—
443	350	1765	1795	1635	1855	3400	3650	—	—	—	—	—	—	—	—	—
454	400	2410	2340	3190	3150	5600	5490	—	—	—	—	—	—	—	—	—

For designs with an intermediate disc, the coupling weights are to be increased by the weight of the intermediate disc which is listed separately.

In case of separate calculation, the weight of the intermediate disc is to be added to that of flange 2 or flange 2/12.

				Type S	
Brake drum part 12		C.I. S.G. iron	ST C.S.		
Dia. [mm]	Width [mm]	[kg]	[kg]		
200	75	4,4	5,0	The weights of the coupling are the same as those of type N. By adding the weights of the brake drum and of flange 2 of the ELCO coupling type N, the weight of flange 2/12 is obtained.	
250	95	7,6	8,25		
315	118	13,5	14,6		
400	150	26,5	28,6		
500	190	47	51		
630	236	86	93		
710	265	114	124		
800	300	156	169		

Spare Parts



Size	No.	5 Sleeve		4,6 Transmitting pin				9 Washer		10 Circlip Seeger DIN 471	7 Grooved pin	8 Nut
		D	L ³⁾	d	l	l ¹⁾	l ²⁾	d ₁	s			
018	2	19,8	25	8	51	—	—	13	1,5	—	Ø 2,5 x 12	—
036	4											
044	5											
066	6											
098	6	24,8	30	10	62	—	—	16	1,5	—	Ø 3 x 16	—
113	8											
123	8											
129	10											
149	8	31,5	38,5	12,8	88	102	104	24	2	13 x 1	—	M 8
161	10											
814	10											
210	12											
214	10	39,4	46,5	15,8	103,5	117,5	123,5	28	2,5	16 x 1	—	M 8
215	11											
222	8	49,3	54,6	19,8	123,5	139	143,5	38	3	20 x 1,2	—	M 10
228	10											
231	10											
237	12											
247	8	62,3	64,6	24,8	147	165	172	48	3	25 x 1,2	—	M 12
259 W	10											
271	10											
285 W	12											
311	8	79,2	78,7	32,8	181,5	200,5	206,5	62	4	33 x 1,5	—	M 16
314 W	10											
316	10											
319 W	12											
324	10	99	94,8	40	213	235	243	76	4	40 x 1,75	—	M 20
329 W	12											
335	12											
341 W	14											
353	10	123,8	115	50	255	—	285	92	4	50 x 2	—	M 20
378	14											
412	12	158,5	143,5	63	316,5	—	—	140	6	62 x 2	—	M 30
416	14											
420	16											
426	12	198,2	179	80	395	—	—	175	6	80 x 2,5	—	M 36
432	14											
443	16											
454	18											

¹⁾ execution S

²⁾ For execution with intermediate disc

³⁾ normal length (without preload)

Product Range

Plain Bearings

Type E	for electrical machinery, fans, compressors, turbines	Catalogue no. RH-1009
Type I	for tube mill (e.g. cement manufacture) transmission units	Catalogue no. RH-1120
Type M	for general mechanical engineering applications	Catalogue no. RH-1065
Type SN	aftermost bearings and intermediate bearings for shipbuilding applications	Catalogue no. RH-1004
Type SC	Radial bearing e.g. mounted to Diesel generators and rolling mill drives	Catalogue no. RH-1149
Type HG	for hydro generators and electric motors	Catalogue no. RH-1188
Type WG		Catalogue no. RH-1155
Type DN	marine thrust blocks	Catalogue no. RH-1073
Type VT and VG	as complete thrust and guide bearings and guide bearings only	Catalogue no. RH-1153
Type EV	vertical bearing inserts for electrical machinery, fans and pumps	Catalogue no. RH-1021
Type G	Plain bearing shells	Catalogue no. RH-1102
Type SH	Trunnion bearings tube mills	Catalogue no. RH-1147
RD Thrust Bearing		Catalogue no. RH-1025
RS Thrust Pads		Catalogue no. RH-1094
Special bearings	RENK can design and manufacture special bearings for a wide range of industrial applications (e.g. type WG bearings with fabricated housing for rolling mill drives)	
Customer's bearings	RENK manufacture bearings, shells etc. to customer's design and drawings	

Couplings and Clutches

ELCO	flexible compression sleeve coupling	Catalogue no. RH-1008
ELBI	flexible coupling for general mechanical engineering applications	Catalogue no. RH- 076
AERO	pneumatically shifted friction clutch	Catalogue no. RH-1118
	Centrifugal clutch	Catalogue no. RH-1014
	Overrunning clutch	Catalogue no. RH-1013
	Diaphragm clutch	Catalogue no. RH-1063
	Special couplings and clutches	

Computer calculations available for plain bearings and couplings

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Austria	Hungary	PR China
Belgium	India	Slovak Republic
Brazil	Italy	Slovenia Republic
Canada	Japan	South Africa
Czech Republic	Liechtenstein	South Korea
Croatia	Luxembourg	Spain
Finland	Mexico	Switzerland
France	Netherlands	USA

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