CENTAX®-V

Torsionally soft intermediate couplings and bearing housings for universal joint shafts

Hochdrehelastische Vorschaltkupplungen und Flanschlager für Kardanwellen

CENTA

Power Transmission
Leading by innovation

Catalog CX-V-06-04

CENTAX®-V Technical data

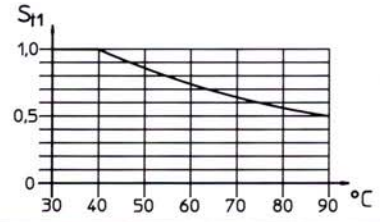
CENTAX Size	Shore Hardness Shore A	Nominal Torque T_{KN} [Nm]	Max. Torque T_{Kmax} [Nm]	Continuous Vibr.Torque T_{KW} [Nm] at 10 Hz	Allowable Energy Loss P_{KV} [W]	Dyn.Torsional Stiffness C_{Tdyn} [Nm/rad]	Relative Damping Ψ	Flange Size SAE J 620 or DIN 6288	Max. Speed n_{max} [r.p.m.]
12-V	45	230	700	58	100	920	1	6½	5000
	50	250	750	62		1250	1,2	8	4500
	70	300	900	75		3000	1,5		
14-V	45	330	1000	82	130	1300	1	8	4500
	50	360	1080	90		1800	1,2	10	4000
	70	450	1350	112		4500	1,5		
16-V	45	450	1350	112	150	1800	1	8	4500
	50	500	1500	125		2500	1,2	10	4000
	70	600	1800	150		5900	1,5		
20-V	45	570	1700	140	170	2600	1	10	4000
	50	630	1900	158		3500	1,2	11½	3600
	70	800	2400	200		8850	1,5		
25-V	45	770	2300	195	200	3600	1	10	4000
	50	850	2550	212		4700	1,2	11½	3600
	70	1000	3000	250		12000	1,5		
35-V	45	1100	3300	275	230	5000	1	11½	3600
	50	1200	3600	300		6600	1,2	14	2700
	70	1500	4500	375		16800	1,5		
45-V	45	1600	4800	400	260	7600	1	11½	3600
	50	1800	5400	450		10000	1,2	14	2700
	70	2200	6600	550		25000	1.5		
50-V	45	2250	6750	560	320	10600	1	14	2700 (2460)*
	50	2500	7500	625		13800	1,2		
	70	3000	9000	750		35000	1,5		
55-V	45	2900	8700	725	360	13300	1	14	2700 (2460)*
	50	3200	9600	800		17600	1,2		
	70	4000	12000	1000		45000	1.5		
65-V	50	5000	15000	1250	380	26000	1,2	14	2700 (2460)*
	70	6000	18000	1500		66000	1.5	16	2400 (2220)*
								18	2200 (2000)*
68-V	50	7000	21000	1750	420	51000	1,2	18	2200 (2000)*
	70	8700	26100	2175		130000	1.5		
70-V	50	10000	30000	2500	500	73000	1,2	21	1870 (1700)*
	70	12500	37500	3125		186000	1.5		
72-V	50	14000	42000	3500	600	100000	1,2	21	1870 (1700)*
	70	17500	52500	4375		260000	1.5	24	1720 (1560)*
75-V	50	20000	60000	5000	720	146000	1,2	710	1680 (1530)*
	70	25000	75000	6250		350000	1,5	750	1600 (1450)*
								850	1420 (1300)*
78-V	50	28000	84000	7000	850	205000	1,2	900	1330 (1220)*
	70	35000	105000	8750		492000	1,5	950	1270 (1150)*
80-V	50	40000	120000	10000	1000	293000	1,2	950	1270 (1150)*
	70	50000	150000	12500		700000	1,5	1060	1140 (1040)*

* Values between brackets for classification

Temperature Factor S_{t1}

for Nominal Torque T_{KN}

$T < T_{KN} \times S_{t1}$

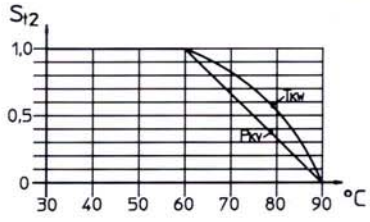


Frequency Factor S_f

f in Hz	≦ 10	> 10
S_f	1	$\sqrt{\frac{f}{10}}$

Temperature Factor S_{t2}

for Continuous Vibr.Torque T_{KW} and for Allowable Energy Loss P_{KV}

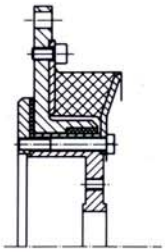


$P_V < P_{KV} \times S_{t2}$

$T_W < T_{KW} \times S_{t2} \times \frac{1}{S_f}$

Special Types

CENTAX-VFA-0
VFB-0
VFM-0
VFS-0



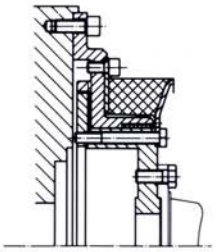
Series without failsafe.

CENTAX-V couplings are normally equipped with a failsafe device. On request all coupling series are available without the failsave feature.

T_{KN} = 230 .... 50000 Nm

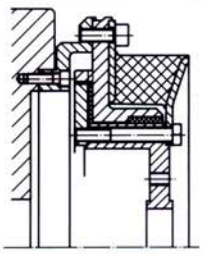
Technical data on page 6 & 7 Dimensions on pages 8-11

CENTAX-VFA-So
VFB-So
VFM-So
VFS-So



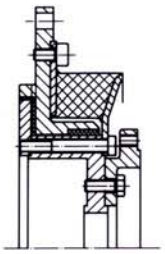
Example of the connecting flange to suit non SAE standard flywheel, e.g., DB OM 420/440, Ford etc.

CENTAX-VFA 14/11½
VFB
VFM
VFS



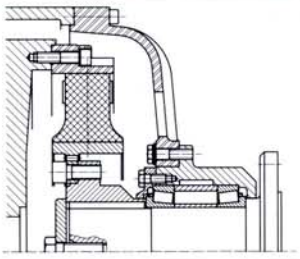
Example of connection to flywheel which has a very small SAE-connection in relation to power output, e.g. Detroit Diesel Series V71/72 with SAE 11½ connection.

CENTAX-VFA-So



Example of the connection to a large cardan flange by adding an adaptor to the driven side of the coupling.

CENTA-FH



CENTA-FH bearing housing with a highly flexible coupling for higher operating angles of the cardan shaft. Protects the crankshaft from unwanted reaction forces produced by the cardan shaft. Detailed description, technical data and dimensions on page 12 and 13 in this catalogue.

Catalog CX-V-4E-92

CENTAX® are registered Trademark of Centa Antriebe.

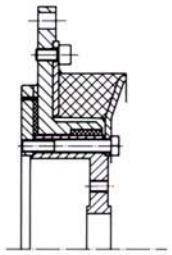
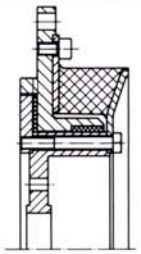
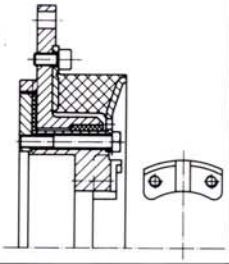
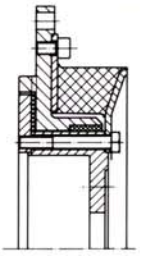
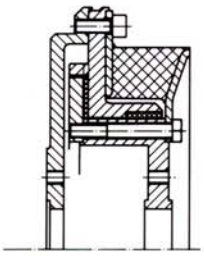
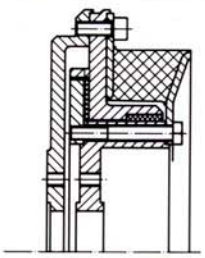
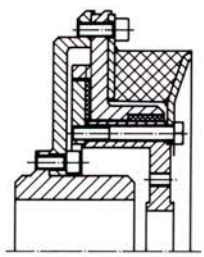
Order Code for CENTAX-V

CX-55-VFA-180-0-50-14

- CX-55-VFA-180-0-50-14
  - SAE flange
  - Shore hardness of rubber element
  - 0 = without fail safe device
    1 = with fail safe device
  - Order code of universal joint flange
  - Type { V = intermediate coupling; F = flange mounted; A = kind and arrangement of cardan shaft connection }
  - Size
  - CENTAX® = product name

All dimensions, data and information in this catalogue are given without guarantee.
Amendments may be made without notice.
This technical document is copyrighted.

Standard Types

CENTAX-VFA		Popular series for connecting flywheels to metric dimensioned flanges of universal joint shafts. Coupling and cardan shaft can be mounted seperately (one after the other). T_{KN} = 230 .... 50000 Nm Technical data on page 6 & 7 Dimensions on page 8
CENTAX-VFB		Short series, for confined space, to connect flywheels to metric dimensioned flanges of universal joint shafts. Coupling must be mounted to the cardan shaft first and then both parts can be mounted together to the flywheel. T_{KN} = 230 .... 50000 Nm Technical data on page 6 & 7 Dimensions on page 9
CENTAX-VFM		Series to connect flywheels to Mechanics joints. Coupling and shaft can be mounted separately. T_{KN} = 330 .... 6000 Nm (higher torques on request) Technical data on page 6 & 7 Dimensions on page 10
CENTAX-VFS		Series similar to VFA, but for connecting to universal joint shaft flanges with inch dimensions. Coupling and cardan shaft can be mounted seperately. T_{KN} = 330 .... 17500 Nm Technical data pages 6 & 7 Dimensions page 11
CENTAX-VKA VKM VKS		Normal series to connect companion flanges to universal joint shafts. Coupling and cardan shaft can be mounted seperately. T_{KN} = 230 .... 50000 Nm Technical data on page 6 Dimensions on request
CENTAX-VKB		Short series to connect companion flanges to universal joint shafts where space is limited. Coupling must be mounted to cardan shaft first and then both parts can be mounted together to the adaptor. T_{KN} = 230 .... 50000 Nm Technical data on page 6 Dimensions on request
CENTAX-VWA VWM VWS		Series to connect shaft extensions to universal joint shafts. Couplings and cardan shaft can be mounted seperately. T_{KN} = 230 .... 50000 Nm Technical data on page 6 Dimensions on request

CENTAX-VFA

CENTAX-VFM

CENTAX-VFC

CENTAX-V with fail safe

CENTAX-V Advantages and Characteristics

* Conservatively dimensioned flexible elements and bearings.
* Internal ventilation of the couplings, hence good heat dissipation, element will not overheat in normal operation.
* The radial bearing is close to the universal joint, ensuring low angular moment.
* Wide range of design and types, each size available with several standard SAE flywheel adaptors and hubs to suit a variety of universal shaft flanges.
* Graduated torque range with each size having a variety of torsional stiffness elements.
* Elements have linear stiffness characteristic.
* Couplings can be provided on request with Classification Certificates and/or fail safe device.
* Maximum angular misalignment of 9 degrees on universal joint shaft.
* The couplings are maintenance free.
* In addition to standard designs, other designs for special flywheels or universal joint shafts can be supplied.
* Economical prices and ready availability.

The CENTAX-V has been on the market since 1988. Since then many thousands of couplings have been supplied.

Important areas of Application

Construction equipment: Between diesel engine and hydrodynamic transmission, change speed gear and splitter gear, e.g. for dumpers, graders, scrapers, excavators, cranes etc.

Ship's propulsion drives: Between diesel engine and marine gear, water jet, sterndrive, Z drive or V drive etc.

Locomotives: Between engine and transmission, transmission and axle, engine and cooling pump.

Pumping sets.

Sizes

The Centax Series 'V' couplings are available in 16 standard sizes covering the torque range from 230 Nm to 50000 Nm.

Please contact us if you do not find a design to suit your requirements in this catalogue, then we will be pleased to provide a suitable design using our CAD system.

Materials

The flexible element consists of high quality, temperature resistant, natural rubber. The plain bearings are made of well proven high performance material impregnated with oil and suitable for dry running. The flanges which are vulcanized to the elements are precision made from high strength steel.

All flywheel flanges and universal joint shaft connections are produced from spheroidal graphite castings. Thus the couplings are suitable for high rotational speeds. All cast flanges are dynamically balanced to grade Q 6,3.

Selection

The following well-known formula can be used for the preliminary coupling selection, based on transmitted torque.

$T = \frac{P}{n} \cdot 9550 < T_{KN}$

P = Power (KW)

n = RPM

T = Transmitted Torque (Nm)

T_{KN} = Nominal torque of coupling (Nm). See page 6.

The final selection of a coupling should always be based on a torsional analysis, which we will be pleased to provide.

Safe guard

We would like to draw your attention to the need to prevent accidents or injury. No safety guards are included in our supply.

Please be aware, that due to the precompression and centrifugal force the O/D of the rubber element (dimension d_3) may be increased substantially. Therefore sufficient clearance must be provided.

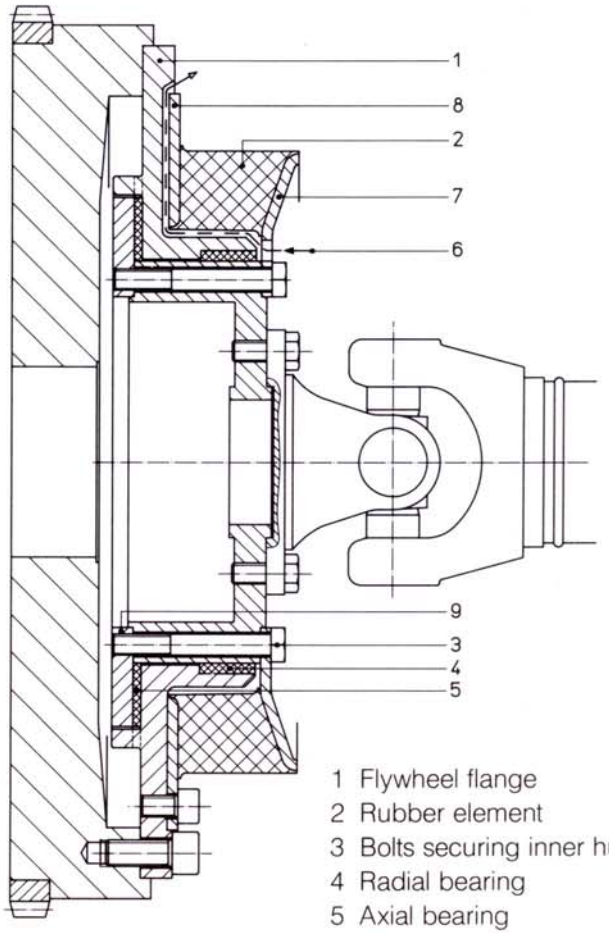
CENTAX® Series V

Universal joint shafts are frequently used to transmit the power from a diesel engine to the driven unit where the driven unit cannot be flange mounted to the engine.

Every diesel engine produces torsional vibration and every universal joint shaft has a certain torsional elasticity. When these two components are connected to a driven machine a system is created which in many cases will generate very high vibratory torques somewhere within the operating speed range of the equipment. In other words there will be a resonance speed. At this speed the equipment will be subject to very high alternating torques giving rise to noise and damage to working parts leading to premature failure of the system. In resonance the universal joint shaft acts like a spring, which is almost undamped and magnifies the torsional vibration produced by the engine. These oscillating torques can have a value of well over 10 times the output torque of the engine.

This problem can be solved by the introduction of a highly flexible intermediate coupling which will provide two advantages for the drive:

1. The torsional elasticity of the intermediate coupling and universal joint shaft combined is so high that the dangerous resonances are shifted below the operating speed range of the engine.
2. The flexible intermediate coupling has a high damping capability so that the vibratory torque is reduced to an acceptable level only a short distance away from the resonance speed. Most importantly, the vibratory torque levels while passing through resonance on engine start up will be within acceptable levels.



1 Flywheel flange
2 Rubber element
3 Bolts securing inner hub
4 Radial bearing
5 Axial bearing
6 Internal ventilation air path
7 Inner steel flange
8 Outer steel flange
9 Thrust plate

The Centax Series V intermediate couplings have all these desirable features.

The power flow normally goes from the engine flywheel through a flange to the highly flexible element and from there to the inner hub onto which the universal joint shaft is flange connected.

Driving and driven sides of the coupling are accurately located on a plain bearing so that good concentricity is provided. Additionally the rubber element is compressed in an axial direction. This preload is applied when the element is bolted to the inner hub and absorbed by an axial bearing.

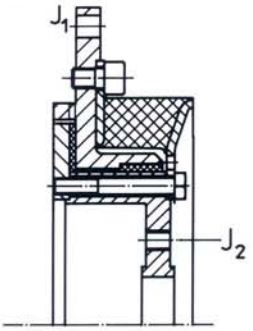
This axial pre-load has several advantages:

1. The adhesion of the rubber to the metal is enhanced.
2. The damping capacity of the rubber is increased.
3. When subjected to the high torsional vibration, with the drive side twisting relatively to the driven side, a relative movement simultaneously occurs on the axial plain bearing thus providing considerable friction damping.
4. The coupling can absorb both tensile and compressive axial forces coming from the universal joint shaft.

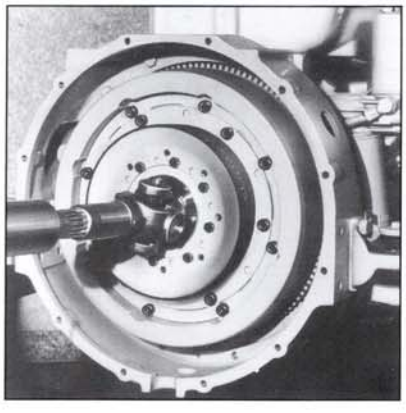
CENTAX® -V

Mass Moments of Inertia
and Weights

Types: VFA, VFB,
VFM, VFS

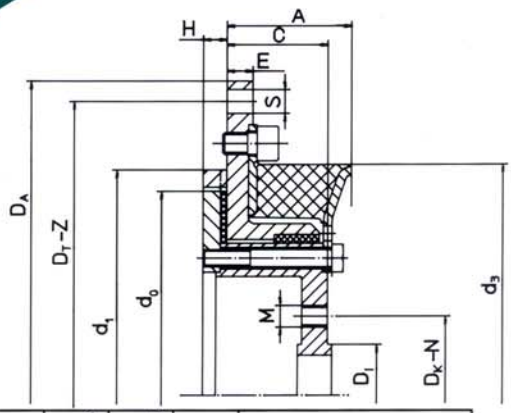


CENTAX Size	Norminal Torque T_{KN} [Nm]	U-joint flange ø [mm]	Mechanics flange-size	Spicer flange-size	Mass Moments of Inertia Primäry: Flange Size SAE J 620 DIN 6288	Mass Moments of Inertia Primäry: J_1 [kgm²]	Mass Moments of Inertia Secundäry: J_2 [kgm²]	Total weight: Flange Size SAE J 620 DIN 6288	Total weight: m [kg]
12-VF	230 ⋮ 300	(65) 75 90	—	—	6½	0,0255	0,0095	6½	6,1
					8	0,0431		8	7,3
14-VF	330 ⋮ 450	(75) 90 100	4C	1280 1310 1350	8	0,0632	0,0202	8	10,1
					10	0,1052		10	12,1
16-VF	450 ⋮ 600	(75) 90 100	4C	1280 1310 1350	8	0,0639	0,021	8	10,2
					10	0,1059		10	12,1
20-VF	570 ⋮ 800	(90) 100 120	5C	1350 1410	10	0,108	0,033	10	11,6
					11½	0,138		11½	13,5
25-VF	770 ⋮ 1000	(90) 100 120	5C	1350 1410	10	0,108	0,035	10	11,7
					11½	0,139		11½	13,6
35-VF	1100 ⋮ 1500	(100) 120 150	6C	1480 1510 1550	11½	0,160	0,085	11½	17,7
					14	0,400		14	23,2
45-VF	1600 ⋮ 2200	(120) 150 180	7C	1610	11½	0,187	0,153	11½	23,8
					14	0,457		14	29,3
50-VF	2250 ⋮ 3000	(150) 180 225	8C 8,5C 9C	1710 1760 1810	14	0,737	0,445	14	47,5
55-VF	2900 ⋮ 4000	(150) 180 225	8C 8,5C 9C	1710 1760 1810	14	0,747	0,455	14	47,8
65-VF	5000 ⋮ 6000	(180) 225 250	10C	1880 1910	14	0,723	0,539	14	44,5
					16	0,984		16	49,4
					18	1,362		18	55,9
68-VF	7000 ⋮ 8700	(225) 250 285	—	1950	18	1,452	0,877	18	67,1
70-VF	10000 ⋮ 12500	(250) 285 315	—	1950	21	3,098	1,705	21	98,4
72-VF	14000 ⋮ 17500	(285) 315 350	—	2050	21	3,433	2,698	21	120,0
					24	4,404		24	132,5
75-VF	20000 ⋮ 25000	(315) 350	—	—	710	9,350	3,851	710	187,0
					750	12,160		750	206,0
					850	16,390		850	230,0
78-VF	28000 ⋮ 35000	(350) 390	—	—	900	22,500	6,986	900	287,6
					950	31,000		950	304,0
80-VF	40000 ⋮ 50000	(390) 435	—	—	950	31,500	12,530	950	375,5
					1060	42,400		1060	415,0



CENTAX®-V

Intermediate coupling Type VFA
for U-joints with metric flanges



CENTAX Size	Nominal Torque T_{KN} [Nm]	U-joint Flange ø[mm]	Flange Size SAE J 620 or DIN 6288	A	C	E	H	d_1 [1]	d_0 [2]	d_3	Ordercode
12-VFA	230 ⋮ 300	(65) 75 90	6 ½	57	50,5	21,5	-	176	156	180	CX-12-VFA-▪▪▪-0-▪▪-6
			8	57	50,5	9,5	-	176	156	180	CX-12-VFA-▪▪▪-0-▪▪-8
14-VFA	330 ⋮ 450	(75) 90 100	8	67	57	25	-	205	186	214	CX-14-VFA-▪▪▪-0-▪▪-8
			10	67	57	12	-	205	186	214	CX-14-VFA-▪▪▪-0-▪▪-10
16-VFA	450 ⋮ 600	(75) 90 100	8	67	57	25	-	205	186	214	CX-16-VFA-▪▪▪-0-▪▪-8
			10	67	57	12	-	205	186	214	CX-16-VFA-▪▪▪-0-▪▪-10
20-VFA	570 ⋮ 800	(90) 100 120	10	59	47	12	11	220	200	235	CX-20-VFA-▪▪▪+0-▪▪-10
			11 ½	59	47	12	11	220	200	235	CX-20-VFA-▪▪▪-0-▪▪-11
25-VFA	770 ⋮ 1000	(90) 100 120	10	59	47	12	11	220	200	235	CX-25-VFA-▪▪▪-0-▪▪-10
			11 ½	59	47	12	11	220	200	235	CX-25-VFA-▪▪▪-0-▪▪-11
35-VFA	1100 ⋮ 1500	(100) 120 150	11 ½	68	55	12,5	13	279	255	275	CX-35-VFA-▪▪▪-0-▪▪-11
			14	68	55	12,5	13	279	255	275	CX-35-VFA-▪▪▪-0-▪▪-14
45-VFA	1600 ⋮ 2200	(120) 150 180	11 ½	77	62	14,5	13	309	285	312	CX-45-VFA-▪▪▪-0-▪▪-11
			14	77	62	14,5	13	309	285	312	CX-45-VFA-▪▪▪-0-▪▪-14
50-VFA	2250 ⋮ 3000	(150) 180 225	14 (11 ½) [3]	93	76	21,5	13	374	350	380	CX-50-VFA-▪▪▪-0-▪▪-14
55-VFA	2900 ⋮ 4000	(150) 180 225	14 (11 ½) [3]	93	76	21,5	13	374	350	380	CX-55-VFA-▪▪▪-0-▪▪-14
65-VFA	5000 ⋮ 6000	(180) 225 250	14 (11 ½) [3]	99	79	20	13	404	380	418	CX-65-VFA-▪▪▪-0-▪▪-14
			16	99	79	17	13	404	380	418	CX-65-VFA-▪▪▪-0-▪▪-16
			18	99	79	17	13	404	380	418	CX-65-VFA-▪▪▪-0-▪▪-18
68-VFA	7000 ⋮ 8700	(225) 250 285	18	89	70	18	15	468	440	477	CX-68-VFA-▪▪▪-0-▪▪-18
70-VFA	10000 ⋮ 12500	(250) 285 315	21	98	76	18	18	536	500	540	CX-70-VFA-▪▪▪-0-▪▪-21
72-VFA	14000 ⋮ 17500	(285) 315 350	21	108	84	20	18	566	530	598	CX-72-VFA-▪▪▪-0-▪▪-21
			24	108	84	24,5	18	566	530	598	CX-72-VFA-▪▪▪-0-▪▪-24
75-VFA	20000 ⋮ 25000	(315) 350	710	151,5	119,5	25	-	602	560	650	CX-75-VFA-▪▪▪-0-▪▪-710
			750	151,5	119,5	25	-	602	560	650	CX-75-VFA-▪▪▪-0-▪▪-750
			850	151,5	119,5	25	-	602	560	650	CX-75-VFA-▪▪▪-0-▪▪-850
78-VFA	28000 ⋮ 35000	(350) 390	900	167	133	30	-	690	640	730	CX-78-VFA-▪▪▪-0-▪▪-900
			950	167	133	30	-	690	640	730	CX-78-VFA-▪▪▪-0-▪▪-950
80-VFA	40000 ⋮ 50000	(390) 435	950	190,5	153,5	30	-	780	720	820	CX-80-VFA-▪▪▪-0-▪▪-950
			1060	190,5	153,5	30	-	780	720	820	CX-80-VFA-▪▪▪-0-▪▪-1060

[1] d_1 is standard with and without failsafe

[2] d_0 is possible, then without failsafe and only on special request

[3] with adaptor, dimensions on request

Dimensions for metric U-joints in mm

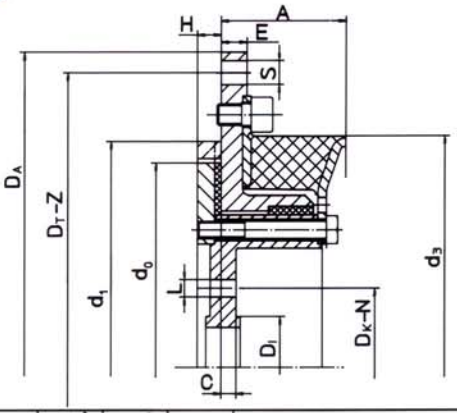
U-joint flange outside ø [mm]	CENTA Order-code	DI f7	DK±0,1	N	M	L
65	065	35	52	4	M 6	6,1
75	075	42	62	6	M 6	6,1
90	090	47	74,5	4	M 8	8,1
100	100	57	84	6	M 8	8,1
120	120	75	101,5	8	M 10	10,1
	121	75	101,5	8	M 8	8,1
150	150	90	130	8	M 12	12,1
	151	90	130	8	M 10	10,1
180	180	110	155,5	8	M 14	14,1
	181	110	155,5	10	M 16	16,1

U-joint flange outside ø [mm]	CENTA Order-code	DI f7	DK±0,1	N	M	L
225	225	140	196	8	M 16	16,1
	226	140	196	12	M 16	16,1
250	250	140	218	8	M 18	18,1
285	285	175	245	8	M 20	20,1
315	315	175	280	8	M 22	22,1
350	350	220	310	10	M 22	22,1
390	390	250	345	10	M 24	24,1
435	435	280	385	10	M 27	27,1

CENTA Ordercode for U-joint flange
0=without / 1=with fail-safe-device
Shore hardness
SAE Flange dimensions or nominal size (pcd) to DIN 6288

CENTAX® -V

Intermediate coupling Type VFB
for U-joints with metric flanges



CENTAX Size	Nominal Torque T_{KN} [Nm]	U-joint Flange ø[mm]	Flange Size SAE J 620 or DIN 6288	A	C	E	H	d_1 [1]	d_0 [2]	d_3	Ordercode
12-VFB	230	(65)	6½	57	18,5	21,5	-	176	156	180	CX-12-VFB-▪▪▪-0-▪▪-6
	⋮ 300	75 90	8	57	18,5	9,5	-	176	156	180	CX-12-VFB-▪▪▪-0-▪▪-8
14-VFB	330	(75)	8	67	18,5	25	-	205	186	214	CX-14-VFB-▪▪▪-0-▪▪-8
	⋮ 450	90 100	10	67	18,5	12	-	205	186	214	CX-14-VFB-▪▪▪-0-▪▪-10
16-VFB	450	(75)	8	67	18,5	25	-	205	186	214	CX-16-VFB-▪▪▪-0-▪▪-8
	⋮ 600	90 100	10	67	18,5	12	-	205	186	214	CX-16-VFB-▪▪▪-0-▪▪-10
20-VFB	570	(90)	10	59	7	12	11	220	200	235	CX-20-VFB-▪▪▪+0-▪▪-10
	⋮ 800	100 120	11½	59	7	12	11	220	200	235	CX-20-VFB-▪▪▪-0-▪▪-11
25-VFB	770	(90)	10	59	7	12	11	220	200	235	CX-25-VFB-▪▪▪-0-▪▪-10
	⋮ 1000	100 120	11½	59	7	12	11	220	200	235	CX-25-VFB-▪▪▪-0-▪▪-11
35-VFB	1100	(100)	11½	68	7	12,5	13	279	255	275	CX-35-VFB-▪▪▪-0-▪▪-11
	⋮ 1500	120 150	14	68	7	12,5	13	279	255	275	CX-35-VFB-▪▪▪-0-▪▪-14
45-VFB	1600	(120)	11½	77	13	14,5	13	309	285	312	CX-45-VFB-▪▪▪-0-▪▪-11
	⋮ 2200	150 180	14	77	13	14,5	13	309	285	312	CX-45-VFB-▪▪▪-0-▪▪-14
50-VFB	2250 ⋮ 3000	(150) 180 225	14 (11½) [3]	93	13	21,5	13	374	350	380	CX-50-VFB-▪▪▪-0-▪▪-14
55-VFB	2900 ⋮ 4000	(150) 180 225	14 (11½) [3]	93	13	21,5	13	374	350	380	CX-55-VFB-▪▪▪-0-▪▪-14
65-VFB	5000	(180)	14 (11½) [3]	99	15	20	13	404	380	418	CX-65-VFB-▪▪▪-0-▪▪-14
	⋮	225	16	99	15	17	13	404	380	418	CX-65-VFB-▪▪▪-0-▪▪-16
	6000	250	18	99	15	17	13	404	380	418	CX-65-VFB-▪▪▪-0-▪▪-18
68-VFB	7000 ⋮ 8700	(225) 250 285	18	89	15	18	15	468	440	477	CX-68-VFB-▪▪▪-0-▪▪-18
70-VFB	10000 ⋮ 12500	(250) 285 315	21	98	19	18	18	536	500	540	CX-70-VFB-▪▪▪-0-▪▪-21
72-VFB	14000	(285)	21	108	20	20	18	566	530	598	CX-72-VFB-▪▪▪-0-▪▪-21
	⋮ 17500	315 350	24	108	20	24,5	18	566	530	598	CX-72-VFB-▪▪▪-0-▪▪-24
75-VFB	20000	(315)	710	151,5	43	25	-	602	560	650	CX-75-VFB-▪▪▪-0-▪▪-710
	⋮	350	750	151,5	43	25	-	602	560	650	CX-75-VFB-▪▪▪-0-▪▪-750
	25000		850	151,5	43	25	-	602	560	650	CX-75-VFB-▪▪▪-0-▪▪-850
78-VFB	28000	(350)	900	167	50	30	-	690	640	730	CX-78-VFB-▪▪▪-0-▪▪-900
	⋮ 35000	390	950	167	50	30	-	690	640	730	CX-78-VFB-▪▪▪-0-▪▪-950
80-VFB	40000	(390)	950	190,5	59	30	-	780	720	820	CX-80-VFB-▪▪▪-0-▪▪-950
	⋮ 50000	435	1060	190,5	59	30	-	780	720	820	CX-80-VFB-▪▪▪-0-▪▪-1060

CENTA Ordercode for U-joint flange
0=without / 1=with fail-safe-device
Shore hardness
SAE Flange dimensions or nominal size (pcd) to DIN 6288

[1] d_1 is standard with and without failsafe
[2] d_0 is possible then without failsafe and only on special request
[3] with adaptor, dimensions on request

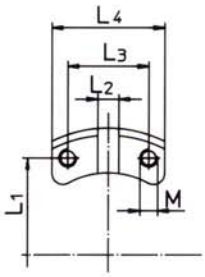
Dimensions to SAE J 620				
SAE J 620	D_A js7	D_T	Z	S
6½	215,9	200,0	6x60°	9
7½	241,3	222,3	8x45°	9
8	263,5	244,5	6x60°	11
10	314,3	295,3	8x45°	11
11½	352,4	333,4	8x45°	11
14	466,7	438,2	8x45°	13
16	517,5	489,0	8x45°	13
18	571,5	542,9	6x60°	17
21	673,1	641,4	12x30°	17
24	733,4	692,2	12x30°	19

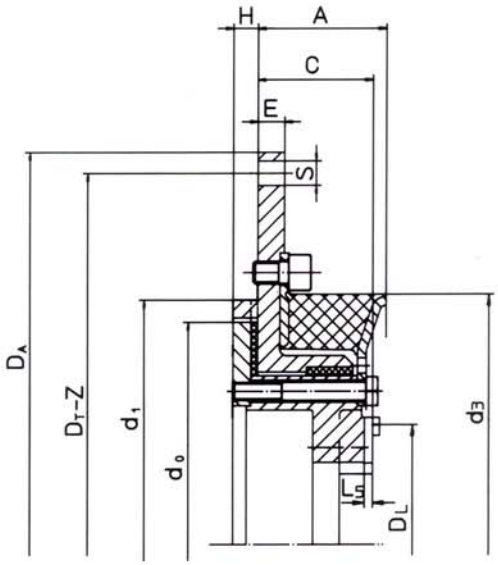
Dimensions to DIN 6288				
FW Size	D_A js7	D_T	Z	S
710	750	710	24x15°	17
750	790	750	32x11,5°	17
850	890	850	32x11,5°	17
900	945	900	24x15°	21
950	995	950	32x11,5°	21
1060	1105	1060	32x11,5°	21

Other flange dimensions on request

CENTAX®-V

Intermediate coupling Type VFM
for MECHANICS U-joints





CENTAX Size	Nominal Torque T_{KN} [Nm]	MECHANICS U-joint Size	Flange Size SAE J 620	A	C	E	H	d_1 [1]	d_0 [2]	d_3	Ordercode
14-VFM	330 ⋮ 450	4C	8	67	60	25	-	205	186	214	CX-14-VFM-▪▪▪-0-▪▪-8
			10	67	60	12	-	205	186	214	CX-14-VFM-▪▪▪-0-▪▪-10
16-VFM	450 ⋮ 600	4C	8	67	60	25	-	205	186	214	CX-16-VFM-▪▪▪-0-▪▪-8
			10	67	60	12	-	205	186	214	CX-16-VFM-▪▪▪-0-▪▪-10
20-VFM	570 ⋮ 800	5C	10	59	53	12	11	220	200	235	CX-20-VFM-▪▪▪-0-▪▪-10
			11½	59	53	12	11	220	200	235	CX-20-VFM-▪▪▪-0-▪▪-11
25-VFM	770 ⋮ 1000	5C	10	59	53	12	11	220	200	235	CX-25-VFM-▪▪▪-0-▪▪-10
			11½	59	53	12	11	220	200	235	CX-25-VFM-▪▪▪-0-▪▪-11
35-VFM	1100 ⋮ 1500	6C	11½	68	61	12,5	13	279	255	275	CX-35-VFM-▪▪▪-0-▪▪-11
			14	68	61	12,5	13	279	255	275	CX-35-VFM-▪▪▪-0-▪▪-14
45-VFM	1600 ⋮ 2200	7C	11½	77	69	14,5	13	309	285	312	CX-45-VFM-▪▪▪-0-▪▪-11
			14	77	69	14,5	13	309	285	312	CX-45-VFM-▪▪▪-0-▪▪-14
50-VFM	2250 ⋮ 3000	8C 8,5C 9C	14 (11½) [3]	93	83	21,5	13	374	350	380	CX-50-VFM-▪▪▪-0-▪▪-14
55-VFM	2900 ⋮ 4000	8C 8,5C 9C	14 (11½) [3]	93	83	21,5	13	374	350	380	CX-55-VFM-▪▪▪-0-▪▪-14
65-VFM	5000 ⋮ 6000	10C	14 (11½) [3]	99	90	20	13	404	380	418	CX-65-VFM-▪▪▪-0-▪▪-14
			16	99	90	17	13	404	380	418	CX-65-VFM-▪▪▪-0-▪▪-16
			18	99	90	17	13	404	380	418	CX-65-VFM-▪▪▪-0-▪▪-18

[1] d_1 is standard with and without failsafe
[2] d_0 is possible then without failsafe and only on special request
[3] with Adaptor, dimensions on request

CENTA order code for MACHANICS U-joint Size
0=without / 1=with fail-safe-device
Shore hardness
SAE Flange dimensions

Dimensions of SAE J 620

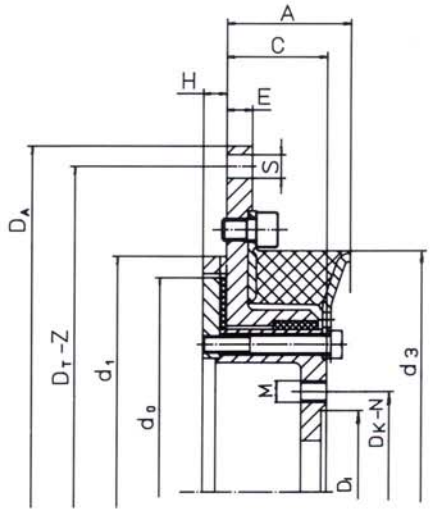
SAE J 620	D_A js7	D_T	Z	S
6½	215,9	200,0	6x60°	9
7½	241,3	222,3	8x45°	9
8	263,5	244,5	6x60°	11
10	314,3	295,5	8x45°	11
11½	352,4	333,4	8x45°	11
14	466,7	438,2	8x45°	13
16	517,5	489,0	8x45°	13
18	571,5	542,9	6x60°	17
21	673,1	641,4	12x30°	17
24	733,4	692,2	12x30°	19

Dimensions for MECHANICS U-joints

MECHANICS U-joint Size	CENTA Order-code	D_L +0,05	L_1	L_2 +0,05	L_3	L_4	L_5	M
4C	04C	107,92	87,3	9,50	36,5	50,8	3,8	5/16-24 UNF 2 B
5C	05C	115,06	88,9	14,26	42,9	60,5	5,1	3/8-24 UNF 2 B
6C	06C	140,46	114,3	14,26	42,9	60,5	5,1	3/8-24 UNF 2 B
7C	07C	148,39	117,5	15,85	49,2	68,3	5,9	1/2-20 UNF 2 B
8C	08C	206,32	174,7	15,85	49,2	68,3	5,9	1/2-20 UNF 2 B
8,5C	8 5C	165,08	123,9	15,85	71,4	94,0	5,9	1/2-20 UNF 2 B
9C	09C	209,52	168,3	15,85	71,4	96,0	5,9	1/2-20 UNF 2 B
10C	10C	212,70	165,1	25,35	92,1	123,0	9,5	5/8-18 UNF 2 B

CENTAX® -V

Intermediate coupling Type VFS
for Spicer U-joints



CENTAX Size	Nominal Torque T_{KN} [Nm]	Spicer Serie	Flange Size SAE J 620	A	C	E	H	d_1 [1]	d_0 [2]	d_3	Ordercode
14-VFS	330 ⋮ 450	1280 1310 1350	8	67	57	25	-	205	186	214	CX-14-VFS-▪▪▪-0-▪▪-8
			10	67	57	12	-	205	186	214	CX-14-VFS-▪▪▪-0-▪▪-10
16-VFS	450 ⋮ 600	1280 1310 1350	8	67	57	25	-	205	186	214	CX-16-VFS-▪▪▪-0-▪▪-8
			10	67	57	12	-	205	186	214	CX-16-VFS-▪▪▪-0-▪▪-10
20-VFS	570 ⋮ 800	1350	10	59	47	12	11	220	200	235	CX-20-VFS-▪▪▪+0-▪▪-10
		1410	11½	59	47	12	11	220	200	235	CX-20-VFS-▪▪▪-0-▪▪-11
25-VFS	770 ⋮ 1000	1350	10	59	47	12	11	220	200	235	CX-25-VFS-▪▪▪-0-▪▪-10
		1410	11½	59	47	12	11	220	200	235	CX-25-VFS-▪▪▪-0-▪▪-11
35-VFS	1100 ⋮ 1500	1480 1510 1550	11½	68	55	12,5	13	279	255	275	CX-35-VFS-▪▪▪-0-▪▪-11
			14	68	55	12,5	13	279	255	275	CX-35-VFS-▪▪▪-0-▪▪-14
45-VFS	1600 ⋮ 2200	1610	11½	77	62	14,5	13	309	285	312	CX-45-VFS-▪▪▪-0-▪▪-11
			14	77	62	14,5	13	309	285	312	CX-45-VFS-▪▪▪-0-▪▪-14
50-VFS	2250 ⋮ 3000	1710 1760 1810	14 (11½) [3]	93	76	21,5	13	374	350	380	CX-50-VFS-▪▪▪-0-▪▪-14
55-VFS	2900 ⋮ 4000	1710 1760 1810	14 (11½) [3]	93	76	21,5	13	374	350	380	CX-55-VFS-▪▪▪-0-▪▪-14
65-VFS	5000 ⋮ 6000	1880 1910	14 (11½) [3]	99	79	20	13	404	380	418	CX-65-VFS-▪▪▪-0-▪▪-14
			16	99	79	17	13	404	380	418	CX-65-VFS-▪▪▪-0-▪▪-16
			18	99	79	17	13	404	380	418	CX-65-VFS-▪▪▪-0-▪▪-18
68-VFS	7000 ⋮ 8700	1950	18	89	70	18	15	468	440	477	CX-68-VFS-▪▪▪-0-▪▪-18
70-VFS	10000 ⋮ 12500	1950	21	98	76	18	18	536	500	540	CX-70-VFS-▪▪▪-0-▪▪-21
72-VFS	14000 ⋮ 17500	2050	21	108	84	24	20	566	530	598	CX-72-VFS-▪▪▪-0-▪▪-21
			24	108	84	24	24,5	566	530	598	CX-72-VFS-▪▪▪-0-▪▪-24

CENTA Ordercode for U-joint flange
0=without / 1=with fail-safe-device
Shore hardness
SAE Flange dimensions

Dimensions for Spicer U-joints

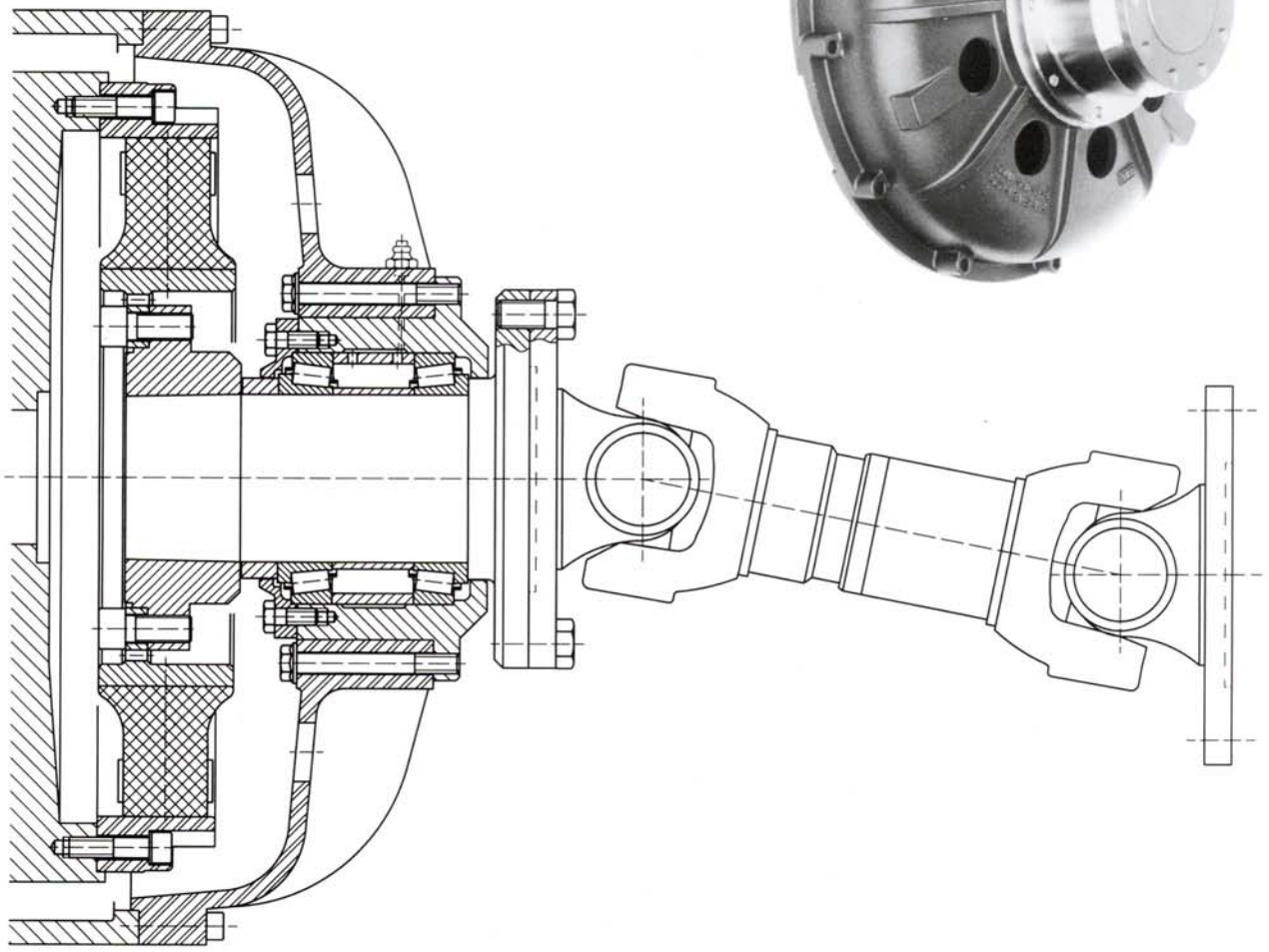
Spicer Serie	CENTA Order-code	D_i H7	Dk ±0,1	N	M UNF
1280 1310	100	60,33	79,38	4	3/8"-24
1350 1410	101	69,85	95,25	4	7/16"-20
1480 1510 1550	102	95,25	120,65	4	1/2"-20
1610	112	168,28	155,58	8	3/8"-24
1710	103	196,85	184,15	8	3/8"-24
	104	203,20			
	105	163,51			

Spicer Serie	CENTA Order-code	D_i H7	Dk ±0,1	N	M UNF
1760	106	196,85	184,15	12	7/16"-20
1810	107	196,85	184,15	12	7/16"-20
	108	163,51			
1880 1910	109	177,80	209,55	8	5/8"-18
1950	110	209,55	249,24	12	3/4"-16
2050	111	263,53	304,80	10	7/8"-9

[1] d_1 is standard with and without failsafe
[2] d_0 is possible then without failsafe and only on special request
[3] with adaptor, dimensions on request

CENTA-FH

Flanged Bearing Housing



Every cardan shaft creates axial and radial reaction forces. The amount depends among other reasons on the transmitted torque and the operating angle.

Under considerable operating angle these forces can become dangerous for the crankshaft of the diesel engines.

Intermediate type couplings like the CENTAX-V are perfectly suited to tune the system in regard of torsional vibrations, but reaction forces coming from the cardan shaft are transmitted through the coupling to the crankshaft.

Therefore on applications where cardan shaft angles are greater than 3 to 4 degrees most diesel engine manufacturers recommend the use of a flange mounted bearing housing.

This flanged bearing housing transmits the unwanted reaction forces to the flywheel housing and keeps them away from the crankshaft.

The bearing housing is fitted on the flywheel side with either a highly flexible CENTAMAX or a highly flexible CENTAX coupling to dampen the torsional vibrations.

The CENTA-FH bearing housing has the following advantages:

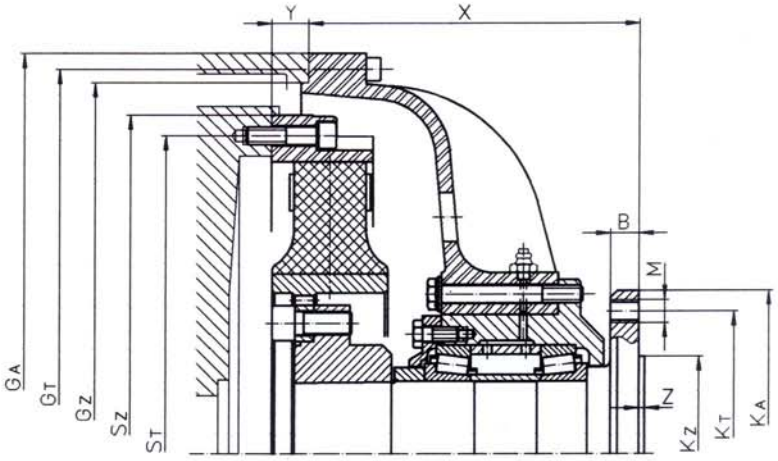
* Protects the crankshaft from the reaction forces coming from the cardan shaft.
* Ideal torsional vibration tuning due to combination with different types of highly flexible couplings.
* High capacity bearings with long term lubrication to achieve extended lifetime, little maintenance.
* Compact design, light weight due to bearing housing being manufactured from hardened aluminium.
* Extensive internal ventilation to reduce the ambient temperature around the elastic coupling.

CENTA-FH

Bearing Housing

Technical data

Dimensions



Housing SAE	Flywheel SAE	Coupling size	Shore A	T_{KN} Nm	$T_{K\,max.}$ Nm	Dynamic tors. stiffness C Tdyn Nm/rad	Weigth approx. kg	Cardan flange Centa-Code	Length X mm
3	8+10+11½	DS 25	70	700	1750	acc. data sheet	14	90 100 120 150	90
	11½	DS 30	70	1000	2500	acc. data sheet	17		
		DS 40	70	1350	3300	acc. data sheet	21		
	10	CX 25	45 50 70	770 850 1000	2300 2550 3000	3400 4300 9900	17		
	10	CX 35	45 50 70	1100 1200 1350	3300 3300 3300	4800 5800 13700	18		
1	14	CM 1600	50 60 70	1450 1800 2000	2900 3600 4000	6000 9000 15000	67	150 180 181 225 250	225
		CM 2400	50 60 70	2000 2500 2800	4000 5000 6000	10000 15000 25000	72		
		CM 2600	50 60 70	2500 2700 3000	5000 6000 7000	7500 11500 19000	74		
		CM 3500	50 60 70	3200 3500 3800	6500 8000 8500	16000 24000 38000	75		
		CM 5000	50 60 70	4000 4500 5000	8000 9000 10000	19000 28000 44000	78		
0	14	CM 3500	50 60 70	3200 3500 3800	6500 8000 8500	16000 24000 38000	109	180 181 225 250	310
		CM 5000	50 60 70	4000 4500 5000	8000 9000 10000	19000 28000 44000	112		
	18	CM 6000	50 60 70	5400 6000 7000	11000 12000 15000	28000 43000 77000	136	180 181 225 250 285 315	325
		CX 68	50 60 70	7000 8000 8700	21000 24000 26100	47000 53000 105000	149		
		CM 8000	50 60 70	8000 9000 10000	16000 22000 25000	60000 80000 130000	149		
		CX 70	50 70	10000 12500	30000 37500	68000 155000	170		
00	21	CM 8000	50 60 70	8000 9000 10000	16000 22000 25000	60000 80000 130000	209	225 250 285 315 350	430
		CX 70	50 70	10000 12500	30000 37500	68000 155000	225		
		CM 12000	50 60 70	12500 14000 15000	25000 28000 30000	78000 115000 188000	245		
		CX 72	50 60 70	14000 16000 17500	42000 48000 52000	94000 106000 212000	230		
	24	CM 12000	50 60 70	12500 14000 15000	25000 28000 30000	78000 115000 188000	252		
		CX 72	50 60 70	14000 16000 17500	42000 48000 52000	94000 106000 212000	260		
		CX 75	50 70	20000 25000	60000 75000	135000 305000	272		

Order Code

FH-01-CM5000-60-14-180

- FH: Flange housing
- 01: SAE housing
- CM5000: Coupling type and size
- 60: Coupling Shore
- 14: SAE flywheel
- 180: Cardan flange Centa Code

SAE-housing dimensions

SAE J617	G_A mm	G_Z mm	G_T mm	division	bore diam.
3	451	409,6	428,6	12x30°	Ø11
2	489	447,7	466,7	12x30°	Ø11
1	552	511,2	530,2	12x30°	Ø11,5
½	648	584,2	619,1	12x30°	Ø13
0	711	647,7	679,5	16x22,5°	Ø13
00	883	787,4	850,9	16x22,5°	Ø13

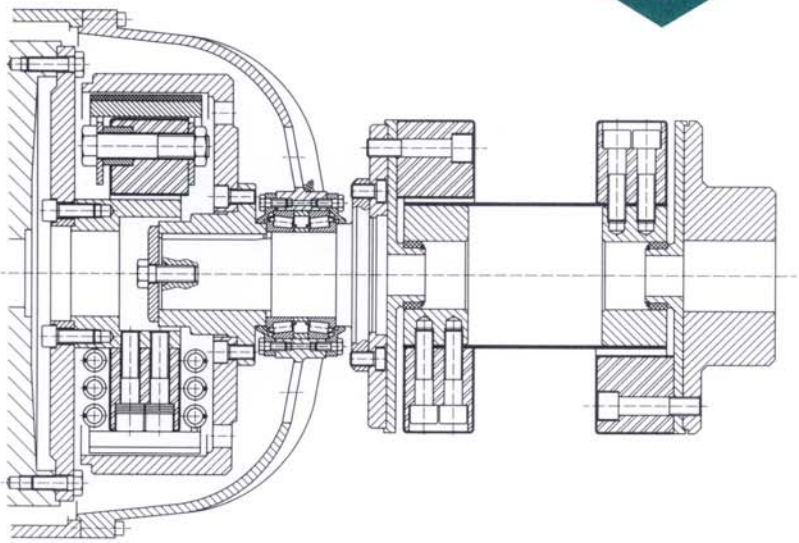
SAE-flywheel dimensions

SAE J620	S_Z mm	S_T mm	division	bore diam. in coupling	Y mm
8	263,5	244,5	6x60°	Ø11	62
10	314,3	295,3	8x45°	Ø11	53,8
11½	352,4	333,4	8x45°	Ø11	39,6
14	466,7	438,2	8x45°	Ø13	25,4
16	517,5	489,0	8x45°	Ø13	15,7
18	571,5	542,9	6x60°	Ø17	15,7
21	673,1	641,4	12x30°	Ø17	0
24	733,4	692,2	12x30°	Ø19	0

Cardan-flange dimensions

K_A mm	CENTA CODE	$K_{Z\,h7}$ mm	$K_{T\pm0,1}$ mm	divison	size	B mm	Z mm
90	90	47	74,5	4x90°	M8	10	2
100	100	57	84	6x60°	M8	10	2
120	120	75	101,5	8x45°	M10	10	2
150	150	90	130	8x45°	M12	12	2,5
180	180	110	155,5	8x45°	M14	16	2,5
	181	110	155,5	10x36°	M16	16	2,5
225	225	140	196	8x45°	M16	16	4
250	250	140	218	8x45°	M18	16	4
285	285	175	245	8x45°	M20	18	5
315	315	175	280	8x45°	M22	18	5
350	350	220	310	10x36°	M22	23	6

Typical Examples of Application of CENTAX-V Couplings



CENTA-FH bearing housing with elastic CENTASTART centrifugal clutch and CENTAFLEX floating shaft couplings. Ideally suited for ships using diesel engine and waterjet drives. The centrifugal clutch is disengaged at idling speed but engages automatically when engine speed is increased. Numerous such drives are working satisfactorly in ship propulsion drives.

CENTAX-V in SWATH catamaran.

CENTAX-V in Pilot-boat.

Many hundreds of British Rail trains are equipped with CENTAX-V couplings.

CENTA Australia

CENTA Headquarters Germany

CENTA Netherland

CENTA Denmark

CENTA Norway

CENTA Italy

CENTA Great Britain

CENTA Singapore

CENTA USA

CENTA___the international service

Subsidiaries

Australia
CENTA Transmissions Pty. Ltd.
P.O. Box 6245
South Windsor, NSW 2756

Austria
Hainzl Industriesysteme GmbH
Industriezeile 56
A-4040 Linz

Belgium
Caldic Techniek Belgium N.V.
Tollaan 73
B-1932 Sint-Stevens-Woluwe

Brazil
CENTA Transmissoes Ltda.
Rua Josè Américo
Cançado Bahia 199
Cidade Industrial
32.210-130 Contagem MG

Canada
CENTA CORP.
815 Blackhawk Drive
Westmont, IL 60559, USA

Chile
Comercial TGC Ltda.
Calle Dr. M. Barros Borgoño 255-263
Casilla 16.800 (P.O. Box)
Santiago-Providencia

China
CENTA Representative Office
Room.22 F T2, Gateway Plaza,
No. 2601 Xietu Road
Shanghai, PC200030

Denmark
CENTA Transmissioner A/S
A.C. Illums Vej 5
DK-8600 Silkeborg

Egypt
Hydraulic Misr
P.O. Box 418
Tenth of Ramadan City

Finland
Movetec Oy
Hannuksentie 1
FIN-02270 EPOO

France
Prud'Homme
Transmissions
66 Rue des St. Denis
B.P. 73
F-93302 Aubervilliers Cedex

Germany
CENTA Antriebe
Kirschey GmbH
Bergische Str. 7
D-42781 Haan

Great Britain
CENTA Transmissions Ltd.
Thackley Court,
Thackley Old Road,
Shipley, Bradford,
West Yorkshire, BD18 1BW

Greece

Industry:	*Marine:*
Kitko S.A.	Technava S.A.
1, Rodon St.	6,Loudovikou Sq.
17121 N.Smymi	18531 Piraeus
Athens	

Hong Kong/China
Foilborn Enterprise Ltd.
Unit A8-9, 13/F
Veristrong Industrial Centre
34-36 Au Pui Wan Street
Fotan, Shatin
N.T. Hong Kong

India
NENCO
National Engineering Company
J-225, M.I.D.C., Bhosari,
Pune - 411 026

Israel
Redco Equipment & Industry
3, Rival Street
Tel Aviv 67778
IL - Tel Aviv

Italy
CENTA Transmissioni Srl
Viale A. De Gasperi, 17/19
I-20020 Lainate (Mi)

Japan
Miki Pulley Co.Ltd.
1-39-7, Komatsubara
Zama-City, Kanagawa
JAPAN 228-857

Korea
Marine Equipment Korea Co. Ltd.
#509, Dongnam Officetel
104-10 Kuro Dong
Kuro Ku, Seoul

Mexico
CENTA CORP.
815 Blackhawk Drive
Westmont, IL 60559, USA

Netherlands
CENTA Nederland b.V.
Nijverheidsweg 4
NL-3251 LP Stellendam

New Zealand
Brevini Ltd.
UNIT P, 150 Harris Rd.
East Tamaki
PO Box 58-418 - Greenmount
NZ-Auckland

Norway
CENTA transmisjoner A.S.
P.O.B. 1551
N-3206 Sandefjord

Poland

Industry:	*Marine:*
IOW Trade	FBSM
Sp.z.o.o.	Engineering & Co.
ul. Zwolenska 17	UL.Podmokla 3
04-761 Warszawa	71-776 Szczecin

Portugal
PINHOL Import Dep.
Avenida 24 de Julho, 174
P - LISBOA 1350

Singapore
CENTA TRANSMISSIONS
FAR EAST PTE LTD
51 Bukit Batok Crescent
#05-24 Unity Centre
Singapore 658077

South Africa
Entramarc (PTY) Ltd.
P.O. Box 69189
2021 Bryanston
ZA - Transvaal

Spain
Herrekor S.A.
Zamoka Lantegialdea
Oialume Bidea 25, Barrio Ergobia
ES-20116 Astigarraga-Gipuzkoa

Sweden
CENTA Transmission Sweden AB
Metalgatan 21A
S-26272 Ängelholm

Switzerland
Hydratec, Hydraulic+Antriebs-Technik AG
Chamerstrasse 172
CH-6300 Zug

Taiwan
ACE Pillar Trading Co., Ltd.
No. 2 Lane 61, Sec. 1.
Kuanfu Road, San-Chung City, R.O.C.
Taipei

Turkey
Industry:
Erler Makina ve Gida Sanayi Ltd.Sti.
Ivedik
Organize Sanayi
Has Emek Sitesi 676. Sokak No. 3
Ostim/Ankara

USA
CENTA CORP.
815 Blackhawk Drive
Westmont, IL 60559

CENTA Antriebe is also represented in:
Bulgaria, CSFR, Hungaria, Jugoslavia, Romania and further countries.

CENTA ANTRIEBE
Kirschey GmbH

D-42755 Haan P.O.B 11 25
Bergische Strasse 7
tel.: +49-(0)21 29-912-0
Fax: +49-(0)21 29-2790
e-mail: centa@centa.de
http://www.centa.de