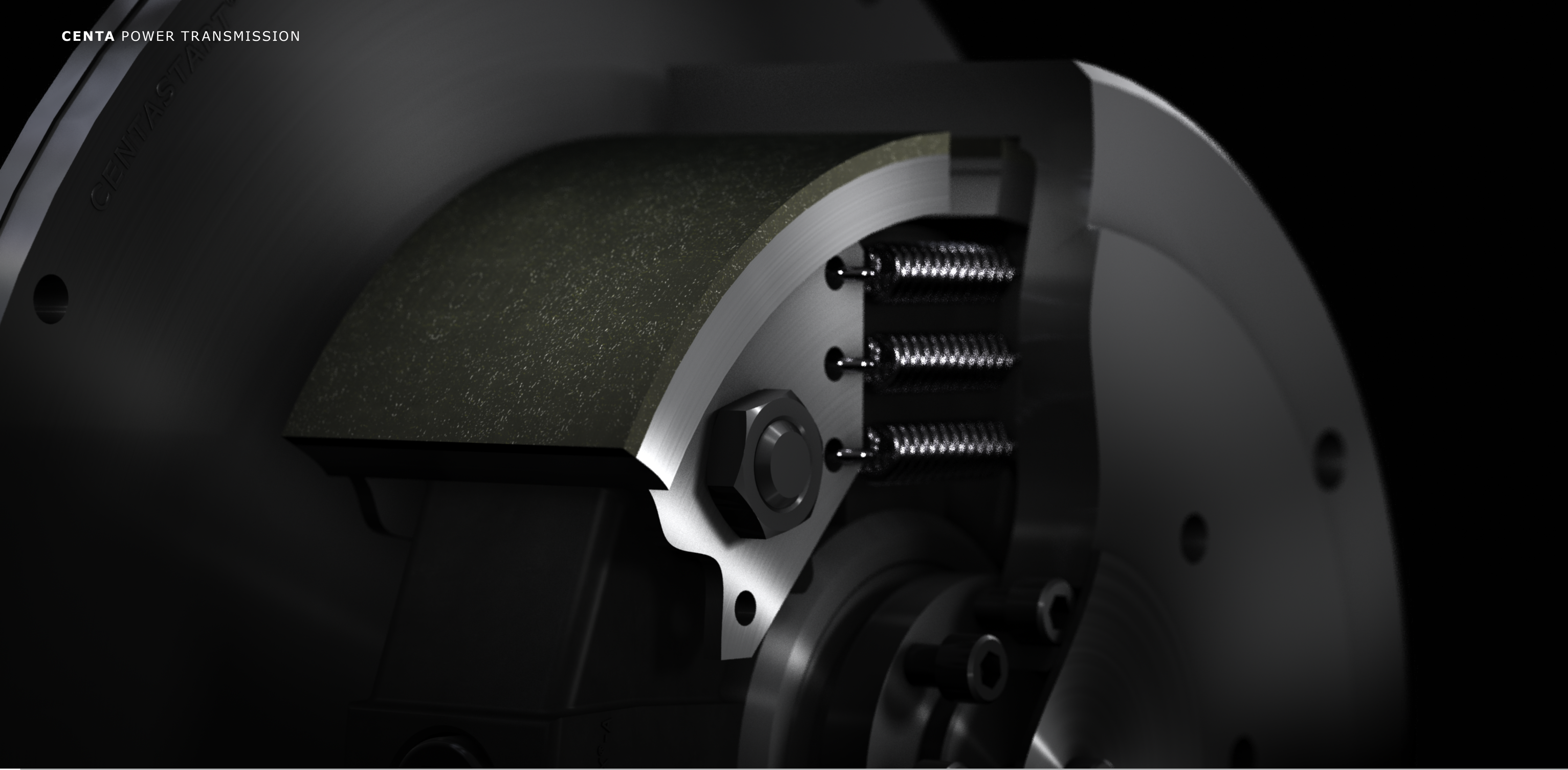

CENTASTART-V

CENTASTART-V--05-17

ENGLISH

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CENTASTART-V

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CENTASTART-V
AT A GLANCE

Speed-controlled centrifugal clutch with high flexibility. For zero-loss power transmission.

Combination of a highly flexible rubber element, subjected only to compressive stress, and several centrifugal weights with friction lining connected by tension springs. Thermally resistant design with precisely determinable engaging speed. Allows complete separation of frictional connection as well as soft engaging and slip-free power transmission when reaching engagement speed. Extremely compact dimensions, additionally protects against overload.

Available in numerous standard and special designs. With flywheel connections acc. to SAE. Also available for non-standard flywheels.

Features

High torsional flexiblity

High flexibility in all directions

Temperature resistant

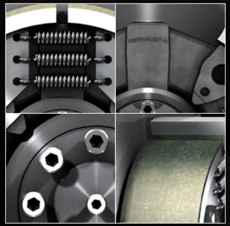
Areas of Application

torque range	0.08 to 2.5 kNm
elastic material	NR
temperature range	–45° to +80°C

CENTASTART-V
SYSTEM

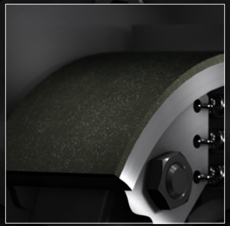
TORSIONAL FLEXIBILITY

The rubber elements are available in different degrees of Shore hardness. This enables the torsional flexibility of the couplings to be adapted with utmost variability to the specific application. Torsional vibrations and impacts are reliably dampened.



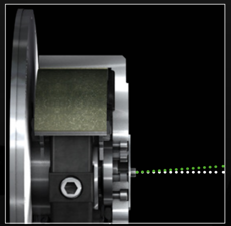
MODULARITY

The design is adaptable to many various applications due to its versatility.
The coupling is solid, accident-proof and maintenance-free.



LIFETIME

The friction lining is sufficiently dimensioned and made of highly abrasion resistant material. It guarantees constant friction values and lowest wear rates. Result is a long lifetime in harsh operation without effecting the characteristics.



COMPENSATION OF MISALIGNMENT

Designs VFS and VFF of this coupling series compensate for any kind of misalignment due to the featuers of the applied CENTAFLEX-A element. They are the ideal solution for applications with misalignments.

QUALITY

When the going get’s tough, quality is priceless. With an exemplary Quality Management, CENTA ensures products that withstand the roughest assignments. CENTA’s coupling systems are more than the sum of their parts. CENTA entertains the vision of intelligent products that meet the highest requirements in terms of design and quality.

CENTASTART-V

FUNCTION TYPES

CENTASTART-V
FOUR FUNCTIONS

The CENTASTART-V clutch combines several functions of different types of couplings and thus often substitutes the expensive application of various power transmission elements such as friction plate clutches, housings, intermediate shafts, bearings and flexible couplings.

1) Starting clutch: provides acceleration and idling speed without load; total separation of the power flow below starting speed, but steep rise of torque over starting speed and thus small interim area, slip free transmision at running speed.

2) Automatic clutch operated by rotational speed: by changing speed of rotation, the driving and driven side of the machine can be connected or disconnected. By means of this automatic speed operated function, malfunctions can be avoided.

3) Highly flexible coupling: shock and vibration absorbing, displacable. The integrated highly flexible CENTAFLEX-A-coupling is a wearfree element for transmission, absorbing torsional vibration and according to design it can also be the compensating element for displacement and misalignment of any kind.

4) Free running coupling: in some drives with requirement to drive installations with 2 motors (stand-by sets) the CENTASTART-V-clutch can be used to connect the combustion engine with the driven machine. Normally the machine is driven by an electrical motor, but in case of electrical failure the combustion engine takes over the job and will be connected automatically by the clutch to the driven machine. These features protect your valuable machinery against expensive breakdown.

CENTASTART-V
PERFORMANCE

TORQUE TRANSMISSION

The transmittable torque of CENTASTART-V is basically designated by two different factors:

a) The centrifugal force. The torque capacity is a result of this force increasing as a square of the speed, minus an amount due to the power of the springs.

b) The torque capacity of the rubber element. The torque to be transmitted by the rubber element is not dependent of the speed. The permissible torque according the table should always be greater than the engine torque. The coupling speedshould be at least a minimum of 20% under the normal working speed of the motor to avoid slip and heat generation.
The transmittable torque of the different sizes, dependent of operational speed and idling speed is shown in figure 2. Thus a certain preselection is possible. For varying idling speeds the characteristics can be provided.

It is possible to select the coupling size based on torque. It is necessary to make a calculation of torsional vibration which we will be glad to carry out.
We require the following information:

- Engine type, number of cylinders and arrangement (in-line or V)
- Idling speed and working speed
- inertia of driven machine
- Type of driven machine: (hydraulic pump, generator etc.)

IDLING SPEED

The most common idling speeds are chosen ensuring sufficient distance between idling and running speed of the combustion engine on which the various couplings could be mounted. Other idling speeds are possible, we will gladly advise.

MAXIMUM SPEEDS

The allowable maximum speeds are defined by the material of the output housing, that is why the running speed should be checked according the tables and the adequate material should be selected for the output housing.

CENTASTART-V
TYPES

Type VFS
Size 900 – 6000

input flange, output shaft

• driving side

The input side of the clutch is in the form of an adapter plate that can be directly bolted to the flywheel of an engine. This adapter plate can be produced to fit many types of engines (SAE standard J620 and others).

• output side

The output side of the clutch can be bored and keywayed or splined to suit the driven machine (pumps, fans, electric motors, speed reducers etc.). This type of clutch includes all the advantages of a highly flexible coupling and can compensate for vibration damping and misalignment of any kind.

Type VFF
Size 900 – 2500

input flange, output cardan shaft

• driving side as described for type VFS
• output side

The output side is carried on substantial sealed bearings mounted on an internal stub shaft. Shafts with universal joints etc. can be mounted direct to the output side of the clutch. The connecting dimensions of the bell housing allow for adaption to the cardanflange in wide limits. The flexible CENTAFLEX-A-element in the clutch dampens vibration and noise thus ensuring extended life for joints and floating shafts. The deflection angle of the shaft should not exceed 10°.

Type VFG
Size 900 – 2500

input flange, output highly flexible CENTAFLEX-universal joint shaft

• input side as described for type VFS
• output side

The output side is again mounted on substantial sealed bearings and is combined with a floating shaft incorporating two CENTAFLEX flexible elements. This type produces a silent, maintenance free, highly flexible floating shaft and can accept up to 2° angular misalignment. The length of the floating shaft can be varied to suit requirements. This coupling provides excellent torsional damping characteristics.

Type VSS
Size 900 – 6000

input and output side arranged on shafts

This type is similar to types VFS, VFF and VFG. The difference is the input hub of the coupling not being driven via a flange, but direct mounting on a shaft. Type VSS is without bearing of the ouput bell, wheras the other types are with bearing. Special designs are possible. As the design is very versatile, we will be glad to provide you with application samples and special designs for your specific application.

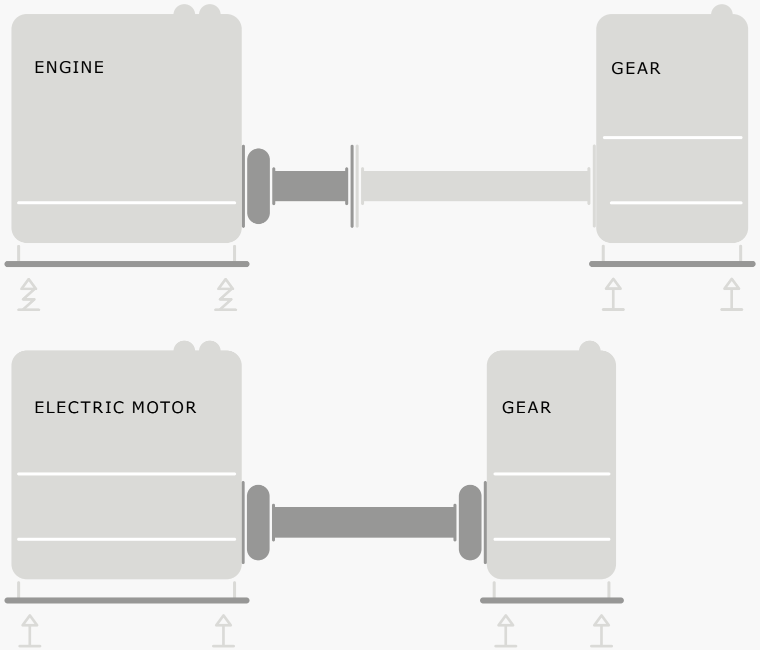
CENTASTART-V

APPLICATIONS

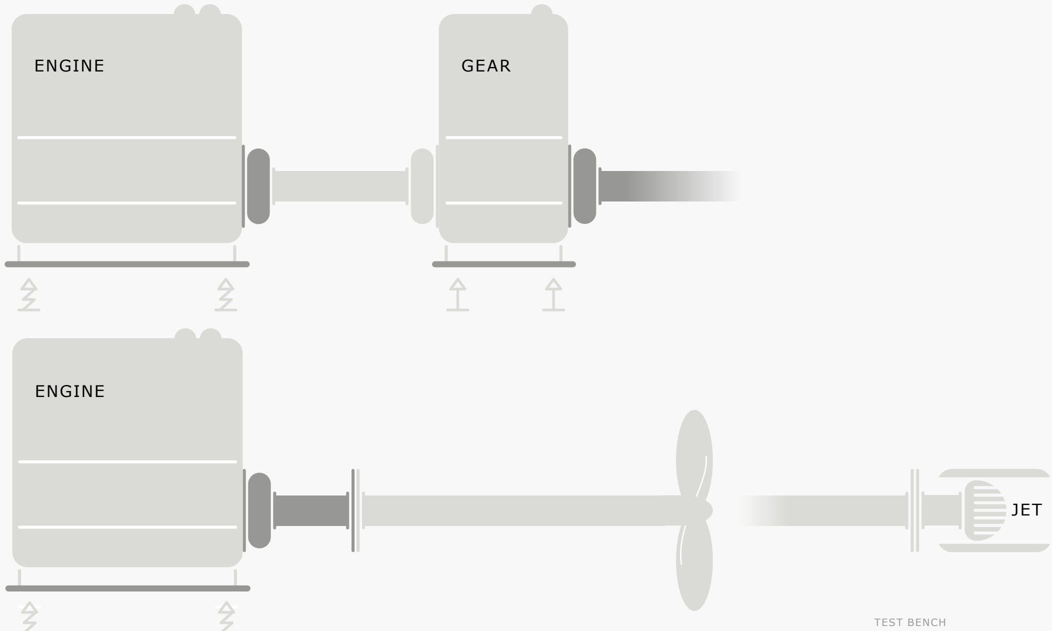
Which product for your purpose?
We will gladly assist → www.centa.info/contact

CENTASTART-V
APPLICATIONS

INDUSTRY APPLICATIONS



MARINE APPLICATIONS



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CENTASTART-V

TECHNICAL DATA

Questions on product selection?
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CENTASTART-V

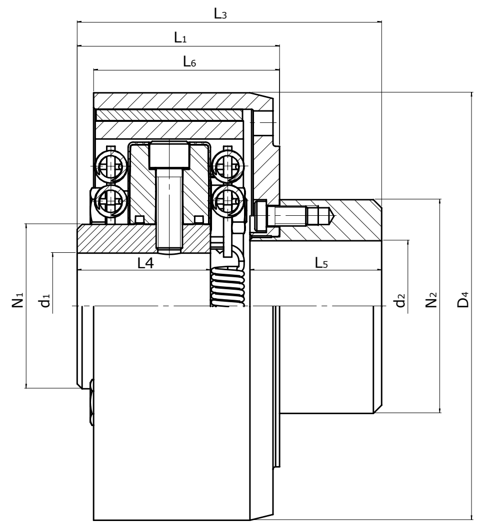
TECHNICAL DATA | ↓ **SIZES 80 – 6000**

1	2	3	4	5	6	7	8	9*		10**	12**	14**
Size	Rubber quality [Shore A]	Nominal torque T_{KN} [kNm]	Maximum torque T_{Kmax} [kNm]	Continuous vibratory torque T_{KW} [kNm]	Permissible power loss P_{KV} [W]	Dynamic torsional stiffness C_{Tdyn} [kNm/rad]	Relative damping Ψ	Switching speed n_E [min^{-1}]	Speed n_{max} [min^{-1}]	Permissible axial displacement ΔK_a [mm]	Permissible radial displacement ΔK_r [mm]	Permissible angular displacement ΔK_W [°]
80	50	0,1	0,28	0,04	25	0,9	0,9	1100	5800	1	0,5	1
	60					1,5	1,5					
180	50	0,2	0,56	0,08	40	2	2	850 – 1100	5000	1	0,5	1
	60					3,4	3,4					
400	50	0,5	1,40	0,20	80	4,8	4,8	950	3800	1,5	0,5	1
	60					7,8	7,8	1000				
600	50	0,7	2,10	0,30	90	12	12	820	3800	1,5	0,5	1
	60					19	19	850				
900	50	1,1	3,15	0,45	120	10,5	10,5	870 – 1000	3000	1,5	0,5	1
	60					16	16	830 – 960				
1400	50	1,7	4,90	0,70	150	26,5	26,5	850 – 920	3000	1,5	1	1
	60					40	40	900 – 1000				
2500	50	3,0	8,75	1,25	200	43	43	750 – 850	2650	2	1	1
	60					77	77	800 – 850				
4000	50	5,0	12,50	2,00	240	75	75	720 – 900	2500	2	1	1
	60					120	120					
6000	50	8,0	20,00	3,20	330	105	105	750 – 850	2300	2	1	1
	60					160	160					

* Values for idling speed and transmittable torque on request
** Only for types VSS/VFS without bearing

CENTASTART-V

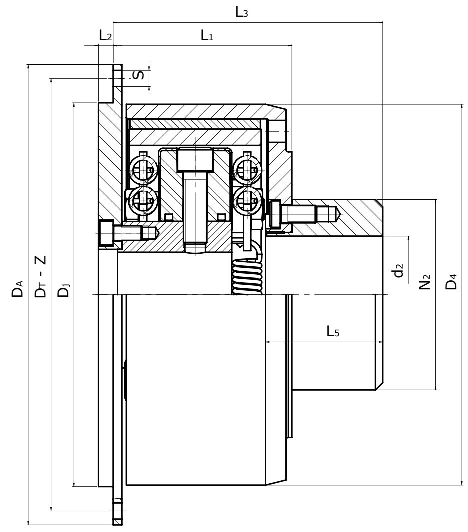
TYPE VSS



DIMENSIONS | ↓ **SIZES 80 – 6000**

Size	Nominal torque T_{KN} [kNm]	Dimensions										Flange dimensions					
		d_1	d_2	D_4	L_1	L_3	L_4	L_5	L_6	N_1	N_2	SAE	D_A	D_T	D_j	S	Z
80	0,1	38	40	178	81	98	52	40	69	60	65	6,5	215,9	200,0	180	9	6x60°
												7,5	241,3	222,3	200	9	8x45°
												8	263,5	244,5	220	11	6x60°
180	0,2	48	50	208	96	120	63	50	88	70	80	7,5	241,3	222,3	200	9	8x45°
												8	263,5	244,5	220	11	6x60°
												10	314,4	295,3	270	11	8x45°
400	0,5	65	80	270	122	184	81	80	113	100	120	10	314,4	295,3	270	11	8x45°
												11,5	352,4	333,4	310	11	8x45°
600	0,7	65	80	270	122	184	81	80	113	100	120	10	314,4	295,3	270	11	8x45°
												11,5	352,4	333,4	310	11	8x45°
900	1,1	85	100	335	147	224	98	100	130	125	160	11,5	352,4	333,4	310	11	8x45°
												14	466,7	438,2	405	13	8x45°
1400	1,7	85	100	335	147	224	98	100	130	125	160	11,5	352,4	333,4	310	11	8x45°
												14	466,7	438,2	405	13	8x45°
2500	3,0	115	120	436	172	224	117	102	159	160	200	14	466,7	438,2	405	13	8x45°
												16	517,5	489,0	450	13	8x45°
4000	5,0	120	*	462	212	*	137	*	182	170	*	14	466,7	438,2	405	13	8x45°
												16	517,5	489,0	450	13	8x45°
												18	571,5	542,9	450	17	6x60°
6000	8,0	140	*	560	253,5	*	159	*	214	200	*	18	571,5	542,9	450	17	6x60°
												21	673,1	641,4	560	17	12x30°

* on request



CENTASTART-V

TYPE VFS

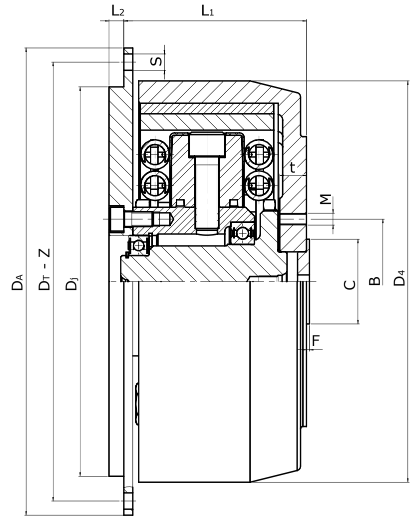
DIMENSIONS ↓ **SIZES 80 – 6000**

Size	Nominal torque T_{KN} [kNm]	Dimensions							Flange dimensions					
		d_2	D_4	L_1	L_2	L_3	L_5	N_2	SAE	D_A	D_T	D_j	S	Z
80	0,1	40	178	81	5	98	40	65	6,5	215,9	200,0	180	9	6x60°
									7,5	241,3	222,3	200	9	8x45°
									8	263,5	244,5	220	11	6x60°
180	0,2	50	208	96	8	120	50	80	7,5	241,3	222,3	200	9	8x45°
									8	263,5	244,5	220	11	6x60°
									10	314,4	295,3	270	11	8x45°
400	0,5	80	270	122	10	184	80	120	10	314,4	295,3	270	11	8x45°
									11,5	352,4	333,4	310	11	8x45°
600	0,7	80	270	122	10	184	80	120	10	314,4	295,3	270	11	8x45°
									11,5	352,4	333,4	310	11	8x45°
900	1,1	100	335	147	12	224	100	160	11,5	352,4	333,4	310	11	8x45°
									14	466,7	438,2	405	13	8x45°
1400	1,7	100	335	147	12	224	100	160	11,5	352,4	333,4	310	11	8x45°
									14	466,7	438,2	405	13	8x45°
2500	3,0	120	436	172	16	224	102	200	14	466,7	438,2	405	13	8x45°
									16	517,5	489,0	450	13	8x45°
4000	5,0	*	462	212	12	*	*	*	14	466,7	438,2	405	13	8x45°
									16	517,5	489,0	450	13	8x45°
									18	571,5	542,9	450	17	6x60°
6000	8,0	*	560	253,5	5	*	*	*	18	571,5	542,9	450	17	6x60°
									21	673,1	641,4	560	17	12x30°

* on request

CENTASTART-V

TYPE VFF



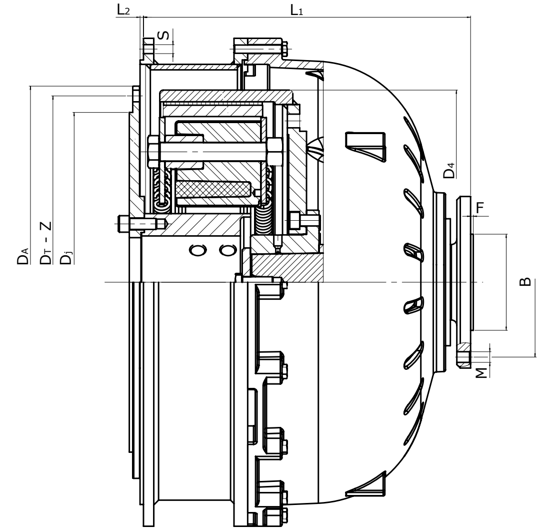
DIMENSIONS | ↓ **SIZES 80 – 6000**

Size	Nominal torque T_{KN} [kNm]	Dimensions			Flange dimensions						Cardan dimensions					
		D_4	L_1	L_2	SAE	D_A	D_T	D_j	S	Z	Flange size	B	C [f7]	F	M	number of threads
80	0,1	178	81	5	6,5 7,5 8	215,9 241,3 263,5	200,0 222,3 244,5	180 200 220	9 9 11	6x60° 8x45° 6x60°	58 65 75	47	30	1,2	M5	4x90°
180	0,2	208	96	8	7,5 8 10	241,3 263,5 314,4	222,3 244,5 295,3	200 220 270	9 11 11	8x45° 6x60° 8x45°	75 90 100	52	35	1,5	M6	4x90°
400	0,5	270	122	10	10 11,5	314,4 352,4	295,3 333,4	270 310	11 11	8x45° 8x45°	90 100 120	62	42	1,5	M6	6x60°
600	0,7	270	122	10	10 11,5	314,4 352,4	295,3 333,4	270 310	11 11	8x45° 8x45°	90 100 120	74,5	47	2	M8	4x90°
900	1,1	335	147	12	11,5 14	352,4 466,7	333,4 438,2	310 405	11 13	8x45° 8x45°	120 150 180	84	57	2	M8	6x60°
1400	1,7	335	147	12	11,5 14	352,4 466,7	333,4 438,2	310 405	11 13	8x45° 8x45°	120 150 180	101,5	75	2	M10	8x45°
2500	3,0	436	172	16	14 16	466,7 517,5	438,2 489,0	405 450	13 13	8x45° 8x45°	180 225	130	90	2,5	M12	8x45°
4000	5,0	462	212	12	14 16 18	466,7 517,5 571,5	438,2 489,0 542,9	405 450 450	13 13 17	8x45° 8x45° 6x60°	225 250 285	155,5	110	2,5	M14	8x45°
6000	8,0	560	253,5	5	18 21	571,5 673,1	542,9 641,4	450 560	17 17	6x60° 12x30°	285 315	196	140	3	M16	8x45°

CENTASTART-V

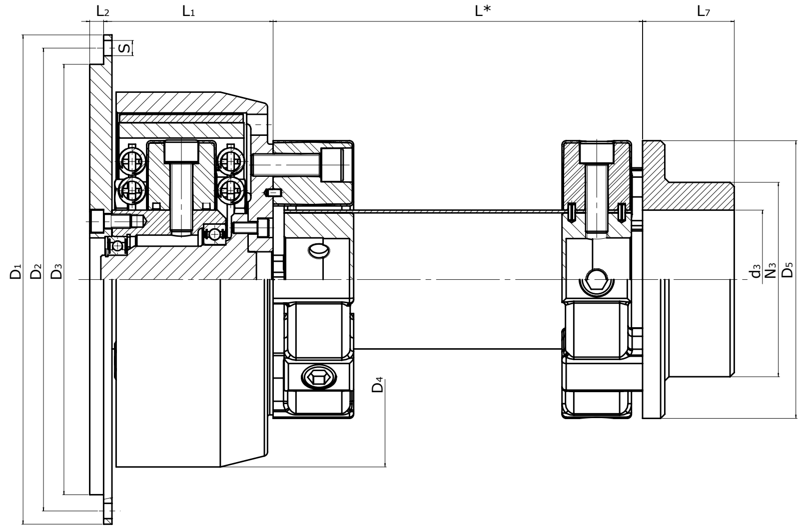
TYPE VFF

WITH FLANGE HOUSING



DIMENSIONS | ↓ **SIZES 80 – 6000**

Size	Nominal torque T_{KN} [kNm]	Dimensions							Flange dimensions						Cardan dimensions			
		d_3	D_4	D_5	L_1	L_2	L_7	N_3	SAE	D_A	D_T	D_j	S	Z	Flansch-größe	B	F	M
80	0,1	55	178	81	5	5	42	80	6,5 7,5 8	215,9 241,3 263,5	200,0 222,3 244,5	180 200 220	9 9 11	6x60° 8x45° 6x60°	58 65 75	47	1,2	M5
180	0,2	70	208	96	8	8	50	100	7,5 8 10	241,3 263,5 314,4	222,3 244,5 295,3	200 220 270	9 11 11	8x45° 6x60° 8x45°	75 90 100	52	1,5	M6
400	0,5	100	270	122	10	10	66	140	10 11,5	314,4 352,4	295,3 333,4	270 310	11 11	8x45° 8x45°	90 100 120	62	1,5	M6
600	0,7	100	270	122	10	10	66	140	10 11,5	314,4 352,4	295,3 333,4	270 310	11 11	8x45° 8x45°	90 100 120	74,5	2	M8
900	1,1	110	335	147	12	12	80	160	11,5 14	352,4 466,7	333,4 438,2	310 405	11 13	8x45° 8x45°	120 150 180	84	2	M8
1400	1,7	110	335	147	12	12	80	160	11,5 14	352,4 466,7	333,4 438,2	310 405	11 13	8x45° 8x45°	120 150 180	101,5	2	M10
2500	3,0	130	436	172	16	16	100	195	14 16	466,7 517,5	438,2 489,0	405 450	13 13	8x45° 8x45°	180 225	130	2,5	M12
4000	5,0	140	462	212	12	12	125	200	14 16 18	466,7 517,5 571,5	438,2 489,0 542,9	405 450 450	13 13 17	8x45° 8x45° 6x60°	225 250 285	155,5	2,5	M14
6000	8,0	180	560	253,5	5	5	170	280	18 21	571,5 673,1	542,9 641,4	450 560	17 17	6x60° 12x30°	285 315	196	3	M16



CENTASTART-V

SERIES VFGN

DIMENSIONS | ↓ **SIZES 80 – 2500**

Size	Nominal torque T_{KN} [kNm]	Dimensions							Flange dimensions					
		d_3	D_4	D_5	L_1	L_2	L_7	N_3	SAE	D_A	D_T	D_j	S	Z
80	0,1	55	178	81	5	5	42	80	6,5	215,9	200,0	180	9	6x60°
									7,5	241,3	222,3	200	9	8x45°
									8	263,5	244,5	220	11	6x60°
180	0,2	70	208	96	8	8	50	100	7,5	241,3	222,3	200	9	8x45°
									8	263,5	244,5	220	11	6x60°
									10	314,4	295,3	270	11	8x45°
400	0,5	100	270	122	10	10	66	140	10	314,4	295,3	270	11	8x45°
									11,5	352,4	333,4	310	11	8x45°
600	0,7	100	270	122	10	10	66	140	10	314,4	295,3	270	11	8x45°
									11,5	352,4	333,4	310	11	8x45°
900	1,1	110	335	147	12	12	80	160	11,5	352,4	333,4	310	11	8x45°
									14	466,7	438,2	405	13	8x45°
1400	1,7	110	335	147	12	12	80	160	11,5	352,4	333,4	310	11	8x45°
									14	466,7	438,2	405	13	8x45°
2500	3,0	130	436	172	16	16	100	195	14	466,7	438,2	405	13	8x45°
									16	517,5	489,0	450	13	8x45°

Please state dimension „L"

EXPLANATION OF THE TECHNICAL DATA

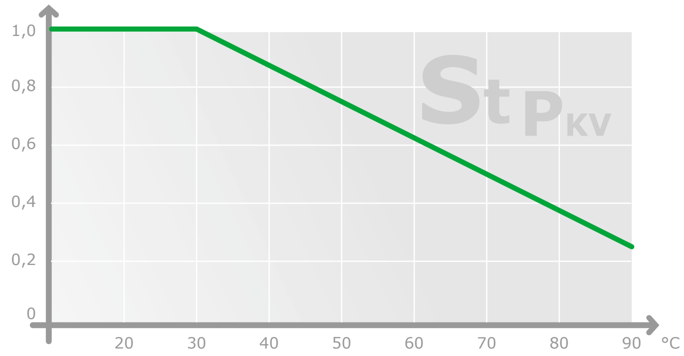
This appendix shows all explanations of the technical data for all CENTA products.

the green marked explanations are relevant for this catalog:

Are these technical explanations up to date?
click here for an update check!

CENTASTART-V

EXPLANATION OF THE TECHNICAL DATA



1

Size

This spontaneously selected figure designates the size of the coupling.

2

Rubber quality
Shore A

This figure indicates the nominal shore hardness of the elastic element.

The nominal value and the effective value may deviate within given tolerance ranges.

3

Nominal torque
T_{KN} [kNm]

Average torque which can be transmitted continuously over the entire speed range.

4

Maximum torque
[kNm]

T_{Kmax}	This is the torque that may occur occasionally and for a short period up to 1.000 times and may not lead to a substantial temperature rise in the rubber element.

In addition the following maximum torques may occur:

ΔT_{Kmax} = 1,8xT_{KN}	Peak torque range (peak to peak) between maximum and minimum torque, e.g. switching operation.
T_{Kmax1} = 1,5xT_{KN}	Temporary peak torque (e.g. passing through resonances). ΔT_{Kmax} or T_{Kmax1} may occur 50.000 times alternating or 100.000 times swelling.
T_{Kmax2} = 4,5xT_{KN}	Transient torque rating for very rare, extraordinary conditions (e.g. short circuits).

5

Continuous vibratory torque
T_{KW} [kNm]

Amplitude of the continuously permissible periodic torque fluctuation with a basic load up to the value T_{KN}.

The frequency of the amplitude has no influence on the permissible continuous vibratory torque. Its main influence on the coupling temperature is taken into consideration in the calculation of the power loss.

Operating torque
T_{Bmax} [kNm]

The maximum operating torque results of T_{KN} and T_{KW}.

6

Permissible Power Loss
P_{KV} [kW] or [W]

Damping of vibrations and displacement results in power loss within the rubber element.

The permissible power loss is the maximum heat (converted damping work into heat), which the rubber element can dissipate continuously to the environment (i.e. without time limit) without the maximum permissible temperature being exceeded.

The given permissible power loss refers to an ambient temperature of 30° C.

If the coupling is to be operated at a higher ambient temperature, the temperature factor St_{PKV} has to be taken into consideration in the calculation.

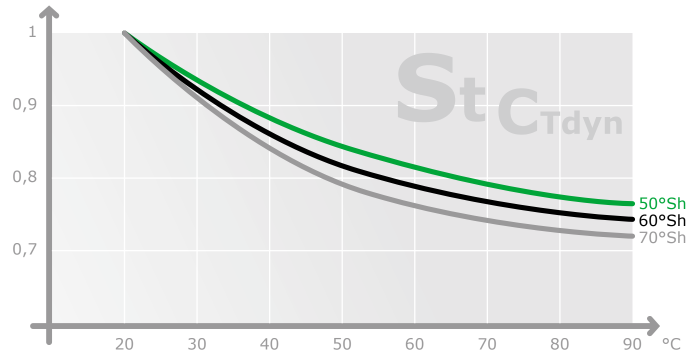
The coupling can momentarily withstand an increase of the permissible power loss for a short period under certain operation modes (e.g. misfiring).

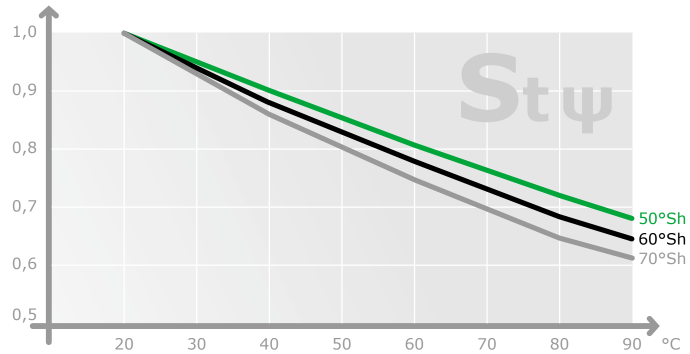
P_{KVZ} [kW]

Defines an individual and proven guide for power loss under misfiring. This value acknowledges general information of the engine suppliers, in particular the real appearance of misfiring and implemented control and protection devices. Values on request.

CENTASTART-V

EXPLANATION OF THE TECHNICAL DATA





7

Dynamic torsional stiffness

C_{Tdyn} [kNm/rad]

The dynamic torsional stiffness is the relation of the torque to the torsional angle under dynamic loading.

The torsional stiffness may be linear or progressive depending on the coupling design and material.

The value given for couplings with linear torsional stiffness considers following terms:

- Pre-load: 50% of T_{KN}
- Amplitude of vibratory torque: 25% of T_{KN}
- Ambient temperature: 20°C
- Frequency: 10 Hz

For couplings with progressive torsional stiffness only the pre-load value changes as stated.

The tolerance of the torsional stiffness is ±15% if not stated otherwise.

The following influences need to be considered if the torsional stiffness is required for other operating modes:

- Temperature
  Higher temperature reduces the dynamic torsional stiffness.
  Temperature factor $S_{t\,C_{Tdyn}}$ has to be taken into consideration in the calculation.
- Frequency of vibration
  Higher frequencies increase the torsional stiffness.
  By experience the dynamic torsional stiffness is 30% higher than the static stiffness. CENTA keeps record of exact parameters.
- Amplitude of vibratory torque
  Higher amplitudes reduce the torsional stiffness, therefore small amplitudes result in higher dynamic stiffness. CENTA keeps record of exact parameters.

8

Relative damping

ψ

The relative damping is the relationship of the damping work to the elastic deformation during a cycle of vibration.

The larger this value [ψ], the lower is the increase of the continuous vibratory torque within or close to resonance.

The tolerance of the relative damping is ±20%, if not otherwise stated.

The relative damping is reduced at higher temperatures.

Temperature factor $S_{t\psi}$ has to be taken into consideration in the calculation.

The vibration amplitude and frequency only have marginal effect on the relative damping.

9

Speed

[min^{-1}]

n_{max}	The maximum speed of the coupling element, which may occur occasionally and for a short period (e.g. overspeed). The characteristics of mounted parts may require a reduction of the maximum speed (e.g. outer diameter or material of brake discs).
n_d	The maximum permissible speed of highly flexible coupling elements is normally 90% thereof.

10

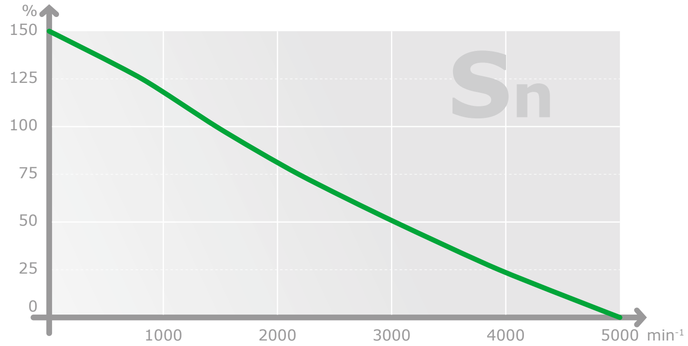
Permissible axial displacement

[mm]

ΔK_a	The continuous permissible axial displacement of the coupling. This is the sum of displacement by assembly as well as static and dynamic displacements during operation.
$\Delta K_{a\,max}$	The maximum axial displacement of the coupling, which may occur occasionally for a short period (e.g. extreme load). The concurrent occurrence of different kinds of displacements is handled in technical documents (displacement diagrams, data sheets, assembly instructions).

CENTASTART-V

EXPLANATION OF THE TECHNICAL DATA



11	
Axial stiffness [kN/mm]	
C_a	The axial stiffness determines the axial reaction force on the input and output sides upon axial displacement.
$C_{a\ dyn}$	By experience the dynamic stiffness is higher than the static one. The factor depends on the coupling series.

12	
Permissible radial displacement [mm]	
ΔK_r	The continuous permissible radial displacement of the coupling. This is the sum of displacement by assembly as well as static and dynamic displacements during operation. The continuous permissible radial displacement depends on the operation speed and may require adjustment (see diagrams S_n of the coupling series).
$\Delta K_{r\ max}$	The maximum radial displacement of the coupling, which may occur occasionally and for a short period without consideration of the operation speed (e.g. extreme overload). The concurrent occurrence of different kinds of displacements is handled in technical documents (displacement diagrams, data sheets, assembly instructions).

13	
Radial stiffness [kN/mm]	
C_r	The radial stiffness determines the radial reaction force on the input and output sides upon radial displacement.
C_{rdyn}	By experience the dynamic stiffness is higher than the static one. The factor depends on the coupling series.

14	
Permissible angular displacement [∢°]	
ΔK_w	The continuous permissible angular displacement of the coupling. This is the sum of displacement by assembly as well as static and dynamic displacements during operation. The continuous permissible angular displacement depends on the operation speed and may require adjustment (see diagrams S_n of the coupling series).
$\Delta K_{w\ max}$	The maximum angular displacement of the coupling, which may occur occasionally and for a short period without consideration of the operation speed (e.g. extreme overload). The concurrent occurrence of different kinds of displacements is handled in technical documents (displacement diagrams, data sheets, assembly instructions).

15	
Angular stiffness [kNm/°]	
C_w	The angular stiffness determines the restoring bending moment on the input and output sides upon angular displacement.
C_{wdyn}	By experience the dynamic stiffness is higher than the static one. The factor depends on the coupling series.

CENTASTART-V

Rev. CS-V-EN-05-17

1. This catalog supersedes previous editions.

   This catalog shows the extent of our CENTAX®-SEC coupling range at the time of printing. This program is still being extended with further sizes and series. Any changes due to technological progress are reserved.

   We reserve the right to amend any dimensions or detail specified or illustrated in this publication without notice and without incurring any obligation to provide such modification to such couplings previously delivered. Please ask for an application drawing and current data before making a detailed coupling selection.

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

3. TRADEMARKS

   CENTA, the CENTA logo, Centacone, CENTADISC, CENTAFIT, Centaflex, CENTALINK, Centalock, Centaloc, Centamax, Centastart, CENTAX and HYFLEX are registered trademarks of CENTA Antriebe Kirschey GmbH in Germany and other countries.

   Other product and company names mentioned herein may be trademarks of their respective companies.

4. Torsional responsibility

   The responsibility for ensuring the torsional vibration compatibility of the complete drive train, rests with the final assembler. As a component supplier CENTA is not responsible for such calculations, and cannot accept any liability for gear noise/ -damage or coupling damage caused by torsional vibrations.

   CENTA recommends that a torsional vibration analysis (TVA) is carried out on the complete drive train prior to start up of the machinery. In general torsional vibration analysis can be undertaken by engine manufacturers, consultants or classicfication societies. CENTA can assist with such calculations using broad experience in coupling applications and torsional vibration analysis.

5.

6. The dimensions on the flywheel side of the couplings are based on the specifications given by the purchaser. The responsibility for ensuring dimensional compatibility rests with the assembler of the drive train. CENTA cannot accept liability for interference between the coupling and the flywheel or gearbox or for damage caused by such interference.

7. All technical data in this catalog are according to the metric SI system. All dimensions are in mm. All hub dimensions (N, N_1 and N_2) may vary, depending on the required finished bore. All dimensions for masses (m), inertias (J) and centres of gravity (S) refer to the maximum bore diameter.

CENTA is the leading producer of flexible couplings for rail, industrial, marine and power generating applications. Worldwide.

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