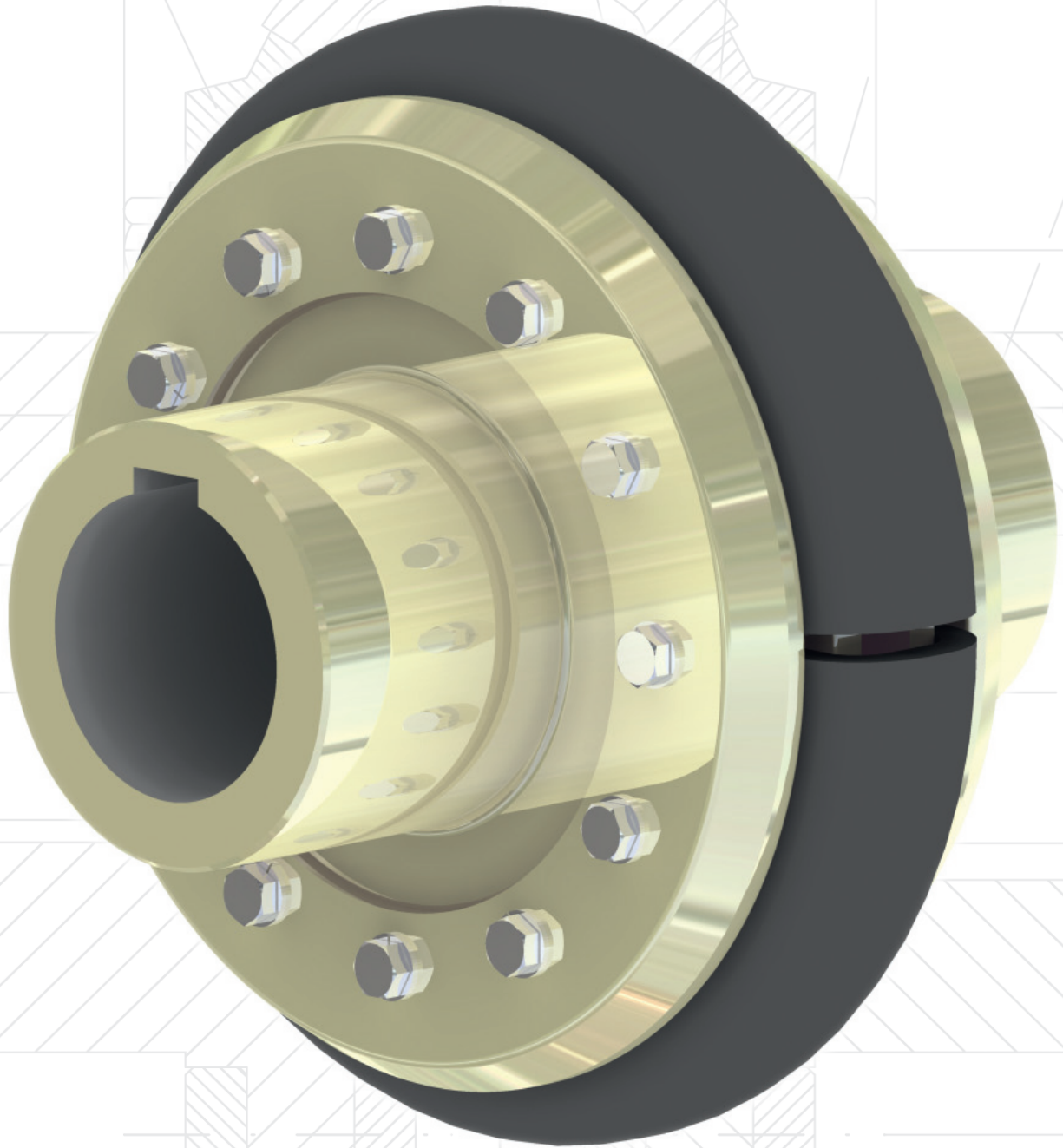


152.1



**KoRo·IBS**

MOVING AND BRAKE SYSTEM



**Tyre couplings**

Industrial Brakes · Thrusters · Pressure Oil Pumps · Couplings · Hydraulic Buffers · Cellular Buffers  
Rail Pliers · Sheaves · Hook Blocks · Crane Rail Wheels · Rail Clamps · Repairation · Service

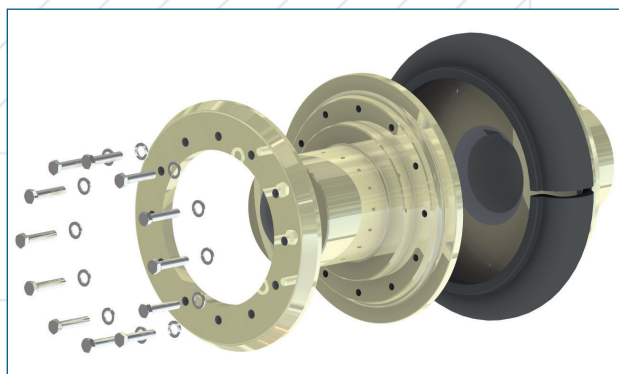
## General Information

The high elastic coupling is a highly flexible rubber fabric coupling, in particular suitable to link two shafts in diesel engine and electric drives.

The torque range of this series is 10 Nm to 15,000 Nm.

Due to the special form of the shaft tyre, the high elastic coupling is able to compensate extremely large offsets in every direction without generating wear. In the works the tyre is provided with a parting line as a standard thus allowing the radial mounting and dismantling.

The torque transmission of the high elastic coupling is absolutely free from backlash. It is suitable to absorb torque peaks and damps occurring vibrations.



## Technical Information

Material of the couplings, hubs and flanges: steel

Shaft tyre: natural rubber containing fabric inserts

When aligned radially or transversally a different spring stiffness can be realized.

Shaft tyres in non-flammable, electrically and oil-resistant execution are available on request.

High elastic couplings are suitable for temperatures from  $-20^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ .

When casing the coupling by a protective or covering cap, bear this fact in mind or assure sufficient aeration and heat dissipation.

Normally the flexible couplings present the predetermined breaking point of a propulsion line. Therefore overloads of the propulsion line result in a failure of the flexible coupling elements. This behaviour is intentional and protects the system against

unexpected damage. Subsequent failures resulting from the safety function of the coupling have to be taken into consideration by the system designer and have to be monitored or prevented resp. by taking suitable measures..

## Applications:

- ➔ building machines
- ➔ mill works
- ➔ cranes
- ➔ cement mills
- ➔ pump industry
- ➔ shipbuilding
- ➔ steel industry
- ➔ paper making machines

## Emergency operation device

The high elastic coupling can be supplied with an emergency operation device (i.e. safety device against spinning). With rupture of the flexible elements, a torsionally stiff connection with free play between the input and output sides is achieved by meshing claws. A time-limited emergency operation with limited torque is possible.

## Storing of rubber flexible elements

When suitably stored, rubber flexible elements maintain their characteristics for several years without change.

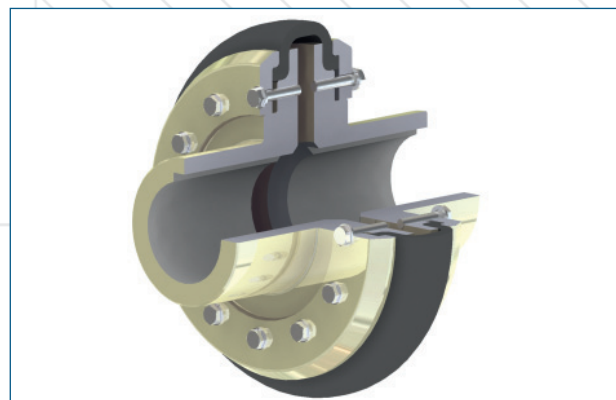
It is of great importance to protect the stored parts against oxygen, ozone, light, heat, moisture and solvents.

The temperature in the store should be between  $10^{\circ}\text{C}$  and  $25^{\circ}\text{C}$ .

All light sources emitting ultra violet rays are dangerous and should be avoided. The relative air humidity should not exceed 65%.

Solvents, fuels, lubricants, chemicals, acids, disinfectants. etc. must not be stored in the same room with the elements.

Further details are given on sheet DIN 7716.



## Overview

<b>1.</b>	<b>General Information/Selection .....</b>	<b>2</b>
	<b>1.1 Selection of the type of coupling .....</b>	<b>2</b>
	<b>1.2 Drive factors .....</b>	<b>3</b>
<b>2.</b>	<b>Dimensions and characteristics .....</b>	<b>4</b>
	Type DVA 1 to 1500	
	Drawing / Parts list	
<b>3.</b>	<b>Dimensions and characteristics .....</b>	<b>5</b>
	Type 01-1 to 31-1	
	Drawing/ Parts list	
<b>4.</b>	<b>Dimensions and characteristics .....</b>	<b>6</b>
	Type 14M-200 to 30M-710	
	Drawing/ Parts list	
<b>5.</b>	<b>Assembly instruction.....</b>	<b>8</b>
	Type DVA 1 to 1500	
	Type 01-1 to 31-1	
	Type 14M-200 to 30M-710	

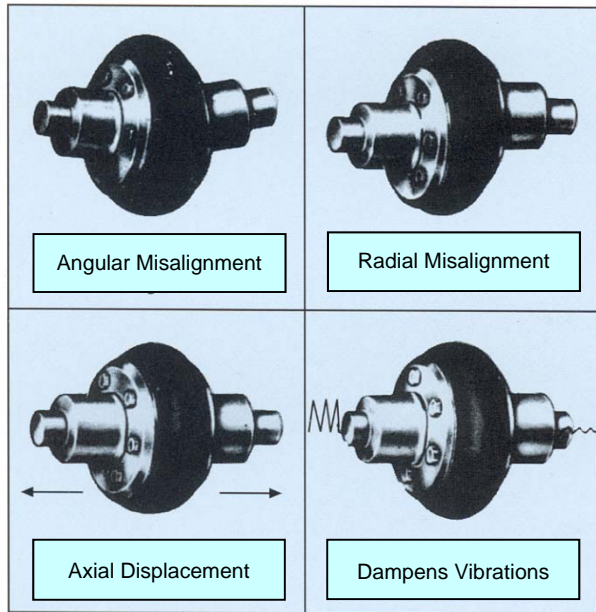
## 1. General information/selection

The flexible couplings compensate angular-, axial- and radial misalignment and cushion impacts substantially.

The principal item of the couplings is a rubber tyre with synthetic reinforcement.

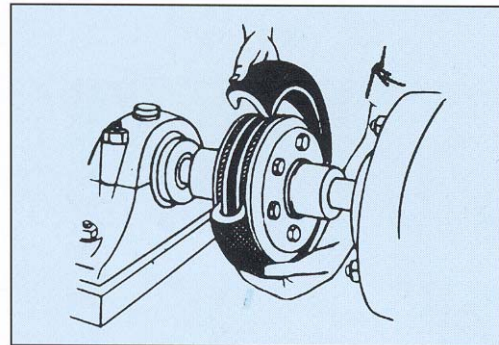
It works vibration- and noise-reducing.

There is no contact from metal to metal. The hubs are completely isolated.



Picture 1: Balance characteristics of the coupling

The exchange is simple and practical. Both, engine and machine, can remain in their position. Only the lateral flanges must be loosened in order to open the tyre.



Picture 2: Assembly of the coupling

### 1.1 Selections of the type of coupling

According to the following formula relationship the correct type of coupling is to be selected:

$$T = 9550 \cdot \frac{P}{n} \cdot K$$

T = Nominal torque (Nm)

P = Power of the motor (kW)

n = Speed of the motor (min-1)

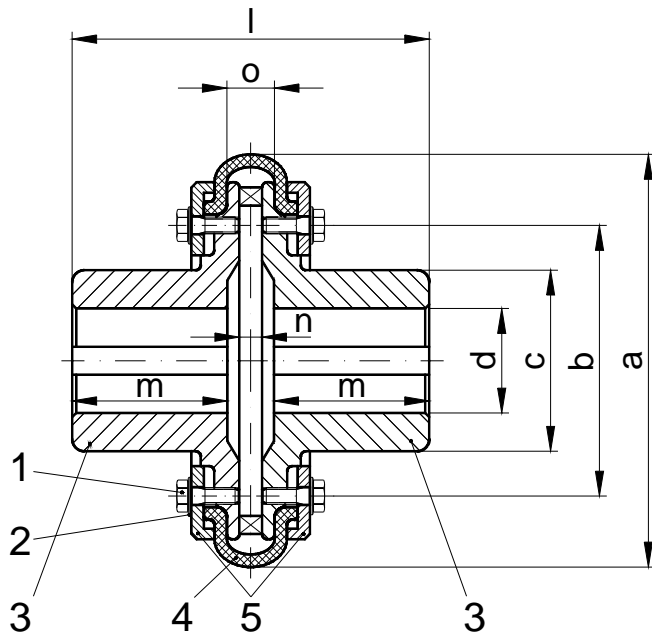
K = Drive factor

When ordering please indicate the power and the speed of the engine, as well as the shaft diameters and the type of machine.

## 1.2 Drive factors

Drice factor K					
<b>Kind of the Working machine</b>	Combustion engine: 1 to 2 cylinders				
	Combustion engine: 2 to 3 cylinders				
	Combustion engine: 4 to 6 cylinders				
	Electric motor– steam turbine – water turbine				
<b>Type of load</b>	<b>Driven machines</b>				
Even load	Agitators • Conveyors • Compressors Dynamometers • Air filters • Generators • Shaft lines Centrifugal Pumps • Centrifugal Fans	1.0	1.5	2.2	2.6
Average load	Agitators • Cranes and Elevators • Bucket Conveyors • Textile machines • Machine tools • Wood working machines Mixers • Gyrotory Pumps • Printing presses • Hoists • Mining fans	1.5	2.0	2.5	2.8
Heavy load	Lifting material • Hammer mills • Crushers Gyrotory Compressors • Dredgers • Calenders Gyrotory furnaces • Brick mouldings • Cutting presse • Tumbling barrels	2.0	2.5	2.8	3.0
Strong rotative moments, shock loading torque or rotation reversal	Mills • Alternative conveyors • Vibrating screens • Alternative compressors • Rubber calenders • Rolling mill machines • Alternative pumps	2.5	3.0	3.2	3.5

## 2. Dimensions and Characteristics Type DVA 1 to 1500



Part list:

Pos.	Designation	Material
1	Screw	6.8
2	Washer	Steel 140HV
3*	Hub	C45R
4	Tyre	Natural rubber
5	Flange	S235JR

\*Design with or without safety device available!

Type	DVA 1	DVA 2	DVA 6	DVA 16	DVA 40	DVA 63	DVA 125	DVA 200	DVA 300	DVA 400	DVA 800	DVA 1500
Nominal torque (Nm)	25	50	100	200	400	800	1600	2500	4000	6000	10000	15000
a	86	104	136	178	210	263	310	370	402	450	550	700
b	43	54	68	88	116	140	180	235	260	260	280	360
c	31	40	55	70	92	107	140	150	160	180	210	260
d pilot bore	8	10	10	15	15	25	30	35	38	55	70	100
d max.	22	28	38	48	65	75	100	100	110	120	140	180
l	60	70	110	130	160	190	240	345	364	440	520	640
m	26	30	45	50	65	75	100	150	155	190	210	255
n	8	8	8	19	20	24	20	22	24	40	90	104
o	16	16	18	35	38	44	42	46	50	70	120	150
J (kgm <sup>2</sup> )	0.001	0.004	0.011	0.052	0.14	0.42	0.96	2.73	3.7	6.45	14.6	46
Mass (kg)	0.84	1.15	2.5	5.4	9.5	17.5	30	71	82	122	185	400
Torsional angle (°)	12	16	16	28	28	28	26	18	20	22	25	25
max. Speed (min <sup>-1</sup> )	5000	5000	5000	4000	4000	3000	3000	2500	2300	1800	1500	1000
Tightening torque of the Screws (Nm)	1.5	4	6	15	20	25	45	55	60	110	200	240
Tyre number*	201	203	206	210	214	218	222	225	426	828	1230	1832

\* The rubber tyres can be supplied in "R" or "X" design.

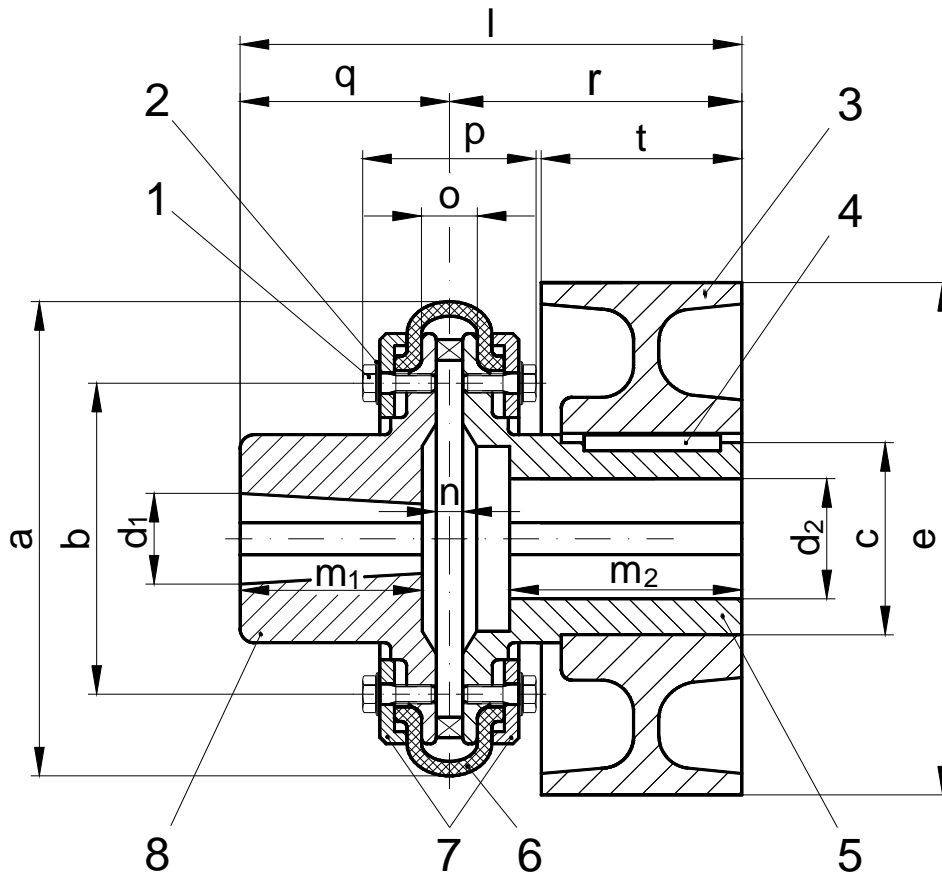
### 3. Dimensions and Characteristics Type 01-1 bis 31-1

see Drawing DVA 1 - 1500 (Page 4)

Type	01-1	03-1	06-1	10-1	14-1	18-1	22-1	25-1	26-1	28-1	30-1	32-1
Nominal torque (Nm)	25	50	100	200	400	800	1600	2500	4000	6000	10000	15000
a	86	104	136	178	210	263	310	370	402	450	550	700
b	42	50	65	85	110	140	180	235	260	260	280	360
c	30	34	48	64	80	95	115	150	160	160	180	270
d pilot bore	8	10	10	15	15	25	35	35	40	55	65	75
d max.	20	22	38	38	50	60	80	100	110	110	120	180
l	50	64	88	125	150	174	200	215	244	280	360	450
l for longer hub	70	88	138	191	252	260	330	345	364	440	520	640
m	20	28	35	47	59	67	75	85	95	110	130	160
m for longer hub	30	40	60	80	110	110	140	150	155	190	210	255
n	8	8	8	19	20	24	20	22	24	40	90	104
o	16	16	18	35	38	44	42	46	50	70	120	150
J (kgm <sup>2</sup> )	0.001	0.004	0.01	0.05	0.13	0.42	0.9	2.4	3.4	5.7	13.4	44
Mass (kg)	0.8	1.1	2.4	5.4	9.3	17.5	28	50	59	82	140	327
Torsional angle (°)	12	16	16	28	28	28	26	18	20	22	25	25
max. Speed (min <sup>-1</sup> )	5000	5000	5000	4000	4000	3000	3000	2500	2300	1800	1500	1000
Tightening torque of the Screws (Nm)	1.5	4	6	15	20	25	45	55	60	110	200	240
Type number*	201	203	206	210	214	218	222	225	426	828	1230	1832

\* The rubber tyres can be supplied in "R" or "X" design.

## 4. Dimensions and Characteristics Type 14M-200 to 30M-710



### Part list:

Pos.	Designation	Material / Norm
1	Screw	8.8
2	Washer	St. 52
3	Brake drum	St. 52
4	Keyway	DIN 6885/1
5*	Hub	St. 52
6	Tyre	Natural rubber
7	Flange	St. 52
8*	Hub	St. 52

\*Design with or without safety device available!

\*Design also with brake disk available!

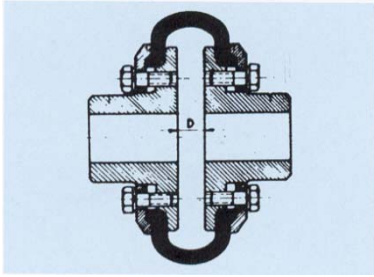


## Dimensions and Characteristics Type 14M-200 to 30M-710

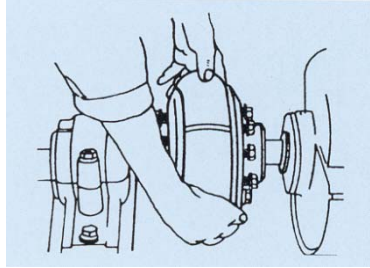
Type	14M-200	18M-200	18M-250	22M-315	25M-315	25M-400	26M-400	26M-500	28M-630	30M-630	30M-710
Nominal torque (Nm)	220	450	450	900	1600	1600	3000	3000	5000	8500	8500
max. Speed (min <sup>-1</sup> )	3000	2500	2500	2500	2000	2000	2000	2000	1600	1250	1250
J (kgm <sup>2</sup> )	0.075	0.142	0.24	0.58	0.93	1.55	1.85	3.1	8.5	9	15.25
Mass (kg)	19	28	36	63	83	108	118	150	225	260	340
Tightening torque of the screws (Nm)	20	25	25	35	55	55	60	60	110	200	200
a	210	263	263	310	370	370	402	402	450	550	550
b	110	140	140	180	235	235	260	260	260	280	280
c	85	85	100	125	140	140	140	140	150	170	170
d1 max.	55	65	65	85	100	100	110	110	110	130	130
d1-d2 (pilot bore)	20	20	25	30	35	35	35	35	55	70	70
d2 max.	50	50	60	80	90	90	90	90	100	120	120
e	200	200	250	315	315	400	400	500	630	630	710
l	213	235	255	298	338	370	398	443	521	556	595
m1	90	102	84.5	84.5	84.5	107.5	123	133	143	153.5	163.5
m2	90	80	100	120	120	120	130	160	210	210	235
n	20	24	24	20	22	22	24	24	40	90	90
o	38	44	44	42	46	46	50	50	70	120	120
p	105	121	121	138	148	148	152	152	188	280	280
q	85	98	98	100	132.5	132.5	163	178	185	180	190
r	128	137	157	198	205.5	237.5	235	265	336	376	405
t	75	75	95	118	118	150	150	190	236	236	265
Tyre number*	214	218	222	225	225	225	426	426	828	1230	1230

\* The rubber tyres can be supplied in "R" or "X" design.

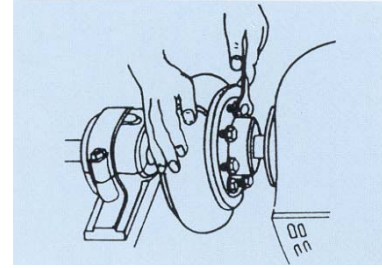
## 5. Assembly instruction



Align the shafts in such a way that between the two hubs of the coupling the distance „n” results, which is indicated in the table.



With large coupling you tighten first the rubber bands by means of the flange volume and afterwards the thrust rings.



The flanges should be fastened in such a way that in each case two diametrically opposite screws are tightened at the same time and the strength of the rubber band under pressure receives 2/3 of the original strength.

Type	DVA 1	DVA 2	DVA 6	DVA 16	DVA 40	DVA 63	DVA 125	DVA 200	DVA 300	DVA 400	DVA 800	DVA 1500
Tightening torque of the screws (Nm)	1.5	4	6	15	20	25	45	55	60	110	200	240
Distance „n” (mm)	8	10	20	30	30	40	40	45	54	60	100	130

Type	01-1	03-1	06-1	10-1	14-1	18-1	22-1	25-1	26-1	28-1	30-1	32-1
Tightening torque of the screws (Nm)	1.5	4	6	15	20	25	45	55	60	110	200	240
Distance „n” (mm)	8	8	8	19	20	24	20	22	24	40	90	104

Type	14M-200	18M-200	18M-250	22M-315	25M-315	25M-400	26M-400	26M-500	28M-630	30M-630	30M-710
Tightening torque of the screws (Nm)	20	25	25	35	55	55	60	60	110	200	200
Distance „n” (mm)	20	24	24	20	22	22	24	24	40	90	90