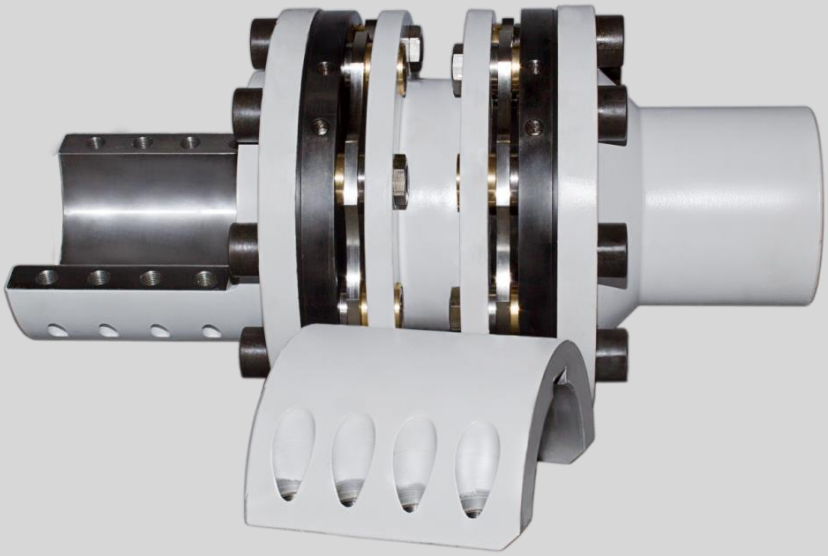
FLEXIBLE PLATE COUPLINGS

MK, MKO, MUP, MKC series

Catalogue



NTK

Scientific-production enterprise

NASOSTECHCOMPLECT

PrismetInc

Prismet Incorporation, California, USA

www.prismetusa.com, info@prismetusa.com

1049 EL MONTE AVENUE STE C # 535 MOUNTAIN VIEW,CA 94040

Prismet Inc. is an international partner of Nasostechcomplect LLC, a scientific and production company since 1997, designing and manufacturing Flexible Plate Couplings for steel, power, oil and gas, rotary compressors and pumps running up to 25000 RPM. The largest coupling so far supplied is up to 34000 Nm with a peak torque rating of 80000 Nm. Flexible Plate Couplings can be designed and custom built up to torque ratings of 500,000 Nm. The current activities Prismet Inc. is to supply high pressure centrifugal pumps up to 400 bar for boiler feed water for power plants, oil pumps for petrochemical, oil extraction and oil transfer pumps and for descaling operations in steel mills. Prismet Inc. also supplies steel processing lines and 6 Hi cold rolling mills and steel plant equipment.

Nasostechcomplect has an engineering department and own production facilities for metalworking. This guaranties high quality products and allows adapting them to the customer requirements in short time. Continuous R&D activity results in creation of new products and technologies.

Nasostechcomplect is ISO 9001 certified by the German Bureau VERITAS.

78iokWe recommend couplings of MKO-2 and MK-2 series for application in centrifugal and other bladed pumping units. These couplings have some stainless flexible elements which take care of high flexibility while high transmittable torques at rather high allowable shafts misalignments. Couplings conform to API610/ISO13709 standard. In addition, MK-2 series coupling conforms to API671/ISO10441.

Some special couplings can be supplied on the request:

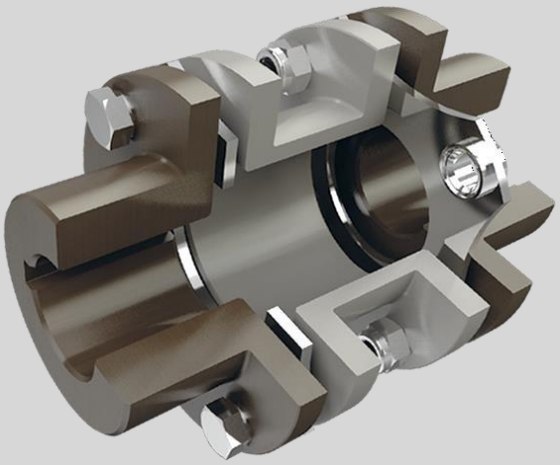
- electrical insulated couplings for inverter drives, hydraulic couplings and other specific cases
- couplings with disassembled hubs for easy disassembly on cylindrical shafts
- couplings for high transmitted torque
- couplings for high/low operative temperatures
- corrosion-resistant couplings
- couplings with increased shaft misalignment compensation capabilities
- couplings with the transmission shaft
- couplings with a single plates-pack
- couplings for different shaft-ends (collets, flanges, etc.)

MKO series is a general purpose coupling for all industries application.

It was designed as simple as possible. It has ring like flexible elements.

At emergency situation, the coupling of this series protects from mechanical sparks and from the dangerous run out the removable spaces.

Couplings of MKO series comply with the requirements of API610/ISO13709.



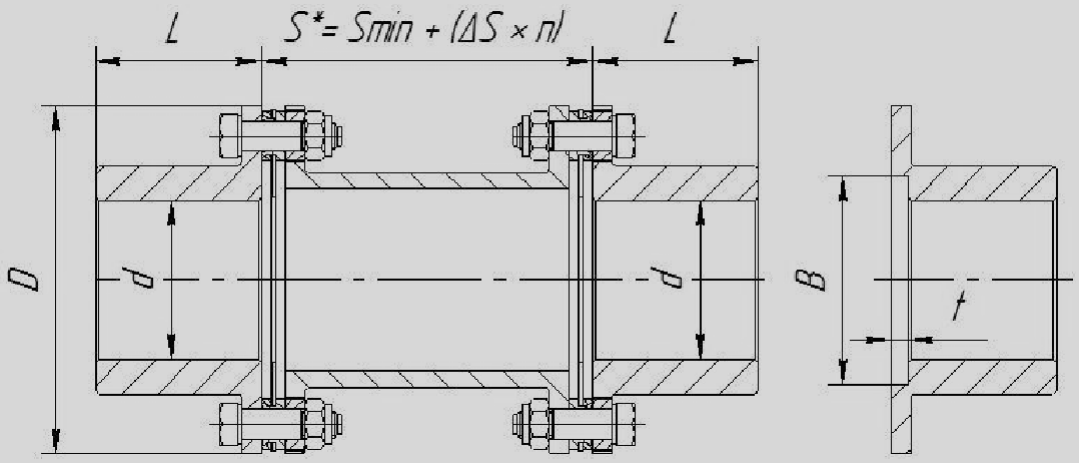
MKO-2 - sizes							
Standard size	Standard hub length L, mm	Outer coupling diameter D, mm	Minimum distance between shaft ends S_{min}, mm	Hubs bore d_{max}, mm	Transmission unit mass		Mass of the not- bored hub. Standard, kg.
					At S_{min} kg	+ΔS=10mm,kg	
MKO 2-4	40	87	60	38	0,8	0,06	0,8
MKO 2-8	50	105	60	48	1,1	0,07	1,5
MKO 2-17	60	116	60	55	1,4	0,13	2,4
MKO 2-34	70	136	90	65	2,9	0,16	3,9
MKO 2-67	80	146	90	75	3,4	0,18	5,5
MKO 2-134	90	166	90	85	4,6	0,19	8,0
MKO 2-270	100	185	110	90	8,0	0,26	9,7
MKO 2-540	120	225	110	120	10,6	0,33	16,7
MKO 2-850	140	260	140	130	17,0	0,49	23,5
MKO 2-1050	150	280	140	150	21,1	0,55	28,5
MKO 2-1340	160	320	160	160	30,3	0,59	41,0

As a standard, the length of the transmission unit **S** is manufactured starting from the S_{min} size and larger with a step ΔS=10мм. Other sizes depending on the distance between the shafts ends are available on request.

On customer request, hubs L with lengths other than standard can be produced. For this purpose, a questionnaire must be filled out.

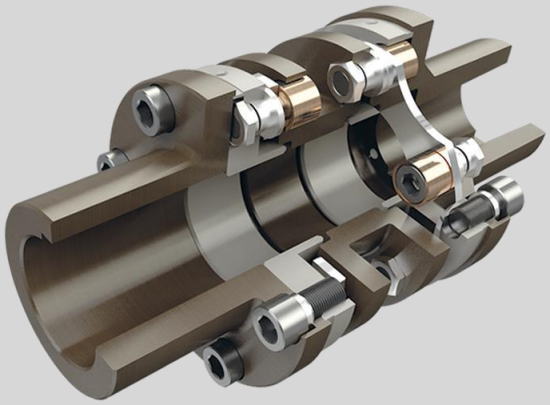
Dimensions **B** and **t** of the pocket for fastening of the hubs with a nut are provided upon request when filling out the questionnaire.

If not otherwise specified, a tolerance of cylindrical bore **d** in hub H7 DIN 6885; a tolerance of keyways Js9 DIN 6885.



MKO-2 – technical data								
Standard size	Specific power kW/ 1000rpm	Torque, Nm		Maximum rpm	Maximum rpm without balancing	Max. axial misalignment		Max. radial misalignment ±mm
		Nominal, Nm	Peak overload, Nm			± mm	Equivalent force no more than, N	
MKO 2-4	4	40	80	22000	8000	2	80	0,4
MKO 2-8	8	80	160	18000	7200	2,4	150	0,5
MKO 2-17	17	160	320	17000	6500	2,8	230	0,5
MKO 2-34	34	315	630	14000	5800	3,2	320	0,6
MKO 2-67	67	630	1260	13000	5200	2,3	480	0,6
MKO 2-134	134	1250	2500	11000	4800	2,5	860	0,7
MKO 2-270	270	2500	5000	10000	4300	2,7	1800	0,9
MKO 2-540	540	5000	10000	8500	3900	2,5	2400	0,9
MKO 2-850	850	8120	16240	7000	3600	2,8	3900	1,1
MKO 2-1050	1050	10030	20060	6800	3400	3,0	5100	1,1
MKO 2-1340	1340	12800	25600	6000	3000	3,6	6300	1,3

MK series are the couplings for application in the energy, oil and petrochemical industry in hazardous and explosion-fire-risk areas. They require low staff qualification for installation and servicing.



In accordance with the requirements of API Standard 671 / ISO 10441 (MCECM type) coupling MK have a "cartridge" design that provides torque transmission after accidental failure of the flexible element protecting from sparking and run out of spacers.

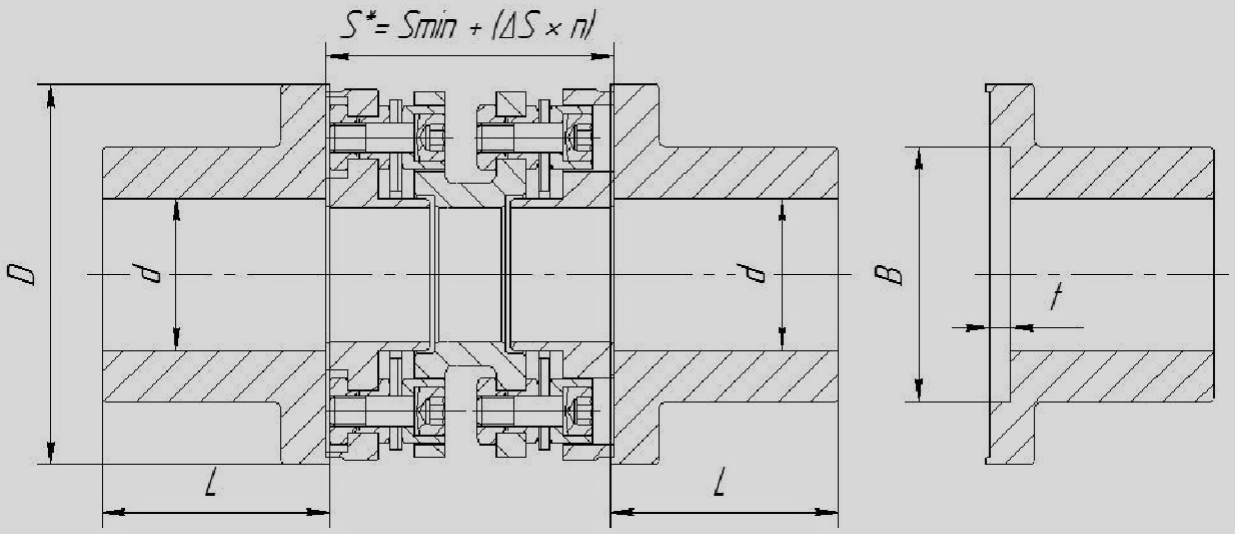
MK-2 - sizes							
Standard size	Standard hub length L, mm	Outer coupling diameter D, mm	Minimum distance between shaft ends S_{min}, mm	Hubs bore d_{max}, mm	Transmission unit mass		Mass of the not-bored hub. Standard, kg.
					At S_{min} kg	+ΔS=10mm, kg	
MK2-17	65	100	80	50	4,3	0,06	1,8
MK2-34	90	125	100	70	8,0	0,10	3,4
MK2-67	110	152	120	85	15,1	0,13	6,2
MK2-105	110	152	120	85	15,3	0,13	6,2
MK2-270	110	180	140	90	20,3	0,18	8,1
MK2-420	150	220	160	120	40,5	0,32	17,0
MK2-670	170	255	180	140	49,6	0,65	22,0
MK2-1050	180	290	200	160	81,0	0,74	38,0
MK2-1340	180	305	180	170	96,7	0,92	45,0
MK2-1670	200	355	200	200	137,0	1,10	65,0

As a standard, the length of the transmission unit **S** is manufactured starting from the S_{min} size and larger with a step ΔS=10мм. Other sizes depending on the distance between the shafts ends are available on request.

On customer request, hubs L with lengths other than standard can be produced. For this purpose, a questionnaire must be filled out.

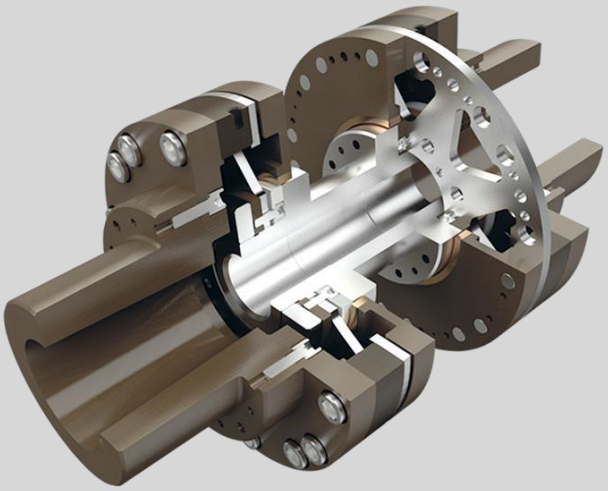
Dimensions **B** and **t** of the pocket for fastening of the hubs with a nut are pro vided upon request when filling out the questionnaire.

If not otherwise specified, a tolerance of cylindrical bore **d** in hub H7 DIN 6885; a tolerance of keyways Js9 DIN 6885.



MK-2 - technical data								
Standard size	Specific power kW/ 1000rpm	Torque, Nm		Maximum rpm	Maximum rpm without balancing	Max. axial misalignment		Max. radial misalignment ±mm
		Nominal, Nm	Peak overload, Nm			± mm	Equivalent force no more than, N	
MK2-17	17	160	395	20000	10000	1,8	400	0,35
MK2-34	34	315	787	16000	8500	2,4	500	0,45
MK2-67	67	630	1575	13500	7000	3,0	700	0,60
MK2-105	105	1000	2500	13500	7000	1,8	1100	0,35
MK2-270	270	2500	6250	11000	6000	2,6	1300	0,40
MK2-420	420	4000	10000	9000	4800	3,0	2600	0,75
MK2-670	670	6300	15750	7500	4200	3,4	3000	0,80
MK2-1050	1050	10000	25000	6800	3600	3,4	5000	0,60
MK2-1340	1340	12500	31250	6500	3400	3,4	4700	0,60
MK2-1670	1670	16000	40000	5500	3000	3,4	6500	0,60

MUP series is (flexible coupling with elastic plate elements) – the coupling is designed for use in responsible machines and units of oil, gas and energy industry, including nuclear plants.



Features of the coupling design allow its application as a safety element to prevent the large-scale effect of emergency situations.

The MUP coupling has stable decency of axial force from the axial misalignment of the shafts which is almost independent of the transmitted torque. This guaranties resilient axial alignment of the shafts. For example, this is important in the absence of the thrust bearings in large motors, and also ensures the reliability of detuning from resonance of axial spacers.

The coupling can be used in hazardous and explosion-fire risk areas for petroleum, petrochemical and natural gas industries. The MUP couplings are manufactured in accordance with the requirements of API 671 / ISO 10441 (type MCECM). For nuclear plants the MUP couplings are manufactured in accordance with in accordance with the General Regulation of safety of nuclear power plants OPB-88/97, NP-001-97 (PNAEG-01-011-97).

MUP-2 - sizes

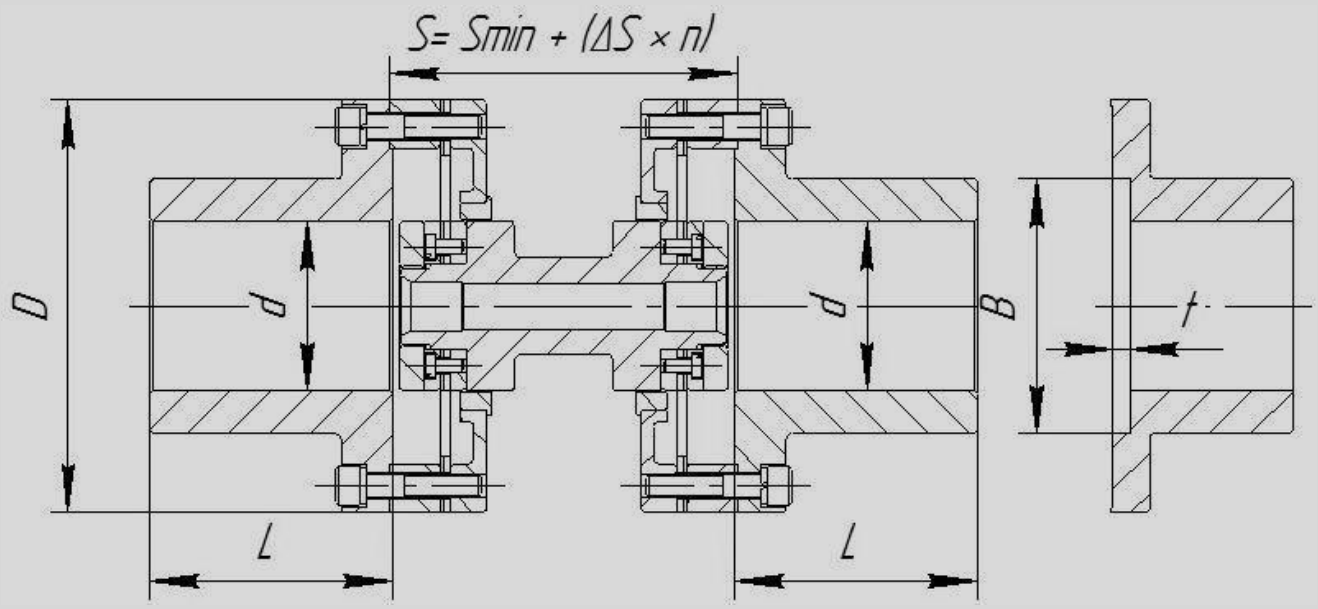
Standard size	Standard hub length L, mm	Outer coupling diameter D, mm	Minimum distance between shaft ends S_{min}, mm	Hubs bore d_{max}, mm	Transmission unit mass		Mass of the not- bored hub. Standard, kg.
					At S_{min} kg	+ΔS=10mm,kg	
МУП 2-17	80	125	110	60	4,1	0,08	3,9
МУП 2-34	100	150	125	70	5,6	0,08	8,2
МУП 2-67	120	170	130	80	9,7	0,08	10,7
МУП 2-105	140	190	130	95	13,3	0,13	15,7
МУП 2-210	150	220	150	110	16,5	0,13	17,3
МУП 2-420	160	265	165	135	31,8	0,31	28,0
МУП 2-670	180	290	175	150	40,0	0,31	33,0
МУП 2-850	200	295	190	150	46,0	0,26	39,0
МУП 2-1340	200	320	200	160	57,0	0,49	52,0
МУП 2-2100	200	365	240	180	82,0	0,54	56,0
МУП 2-2700	220	385	250	200	92,0	0,57	65,0

As a standard, the length of the transmission unit **S** is manufactured starting from the S_{min} size and larger with a step ΔS=10мм. Other sizes depending on the distance between the shafts ends are available on request.

On customer request, hubs L with lengths other than standard can be produced. For this purpose, a questionnaire must be filled out.

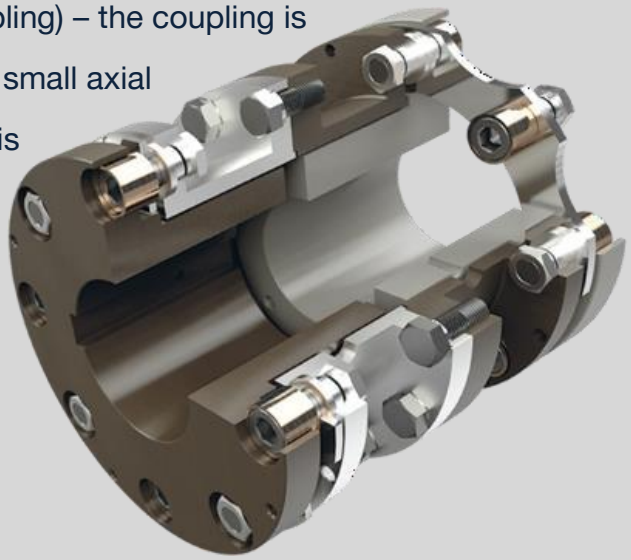
Dimensions **B** and **t** of the pocket for fastening of the hubs with a nut are provided upon request when filling out the questionnaire.

If not otherwise specified, a tolerance of cylindrical bore **d** in hub H7 DIN 6885; a tolerance of keyways Js9 DIN 6885.



MUP-2 – technical data								
Standard size	Specific power kW/ 1000rpm	Torque, Nm		Maximum rpm	Maximum rpm without balancing	Max. axial misalignment		Max. radial misalignment ±mm
		Nominal, Nm	Peak overload, Nm			± mm	Equivalent force no more than, N	
МУП 2-17	17	160	395	18000	10000	1,5	650	0,25
МУП 2-34	34	315	787	15000	8500	1,7	720	0,30
МУП 2-67	67	630	1575	13000	7500	2,0	800	0,35
МУП 2-105	105	1000	2500	12000	6500	2,2	1500	0,40
МУП 2-210	210	1950	4875	10000	5500	2,4	3050	0,45
МУП 2-420	420	4000	10000	8500	4600	2,6	4600	0,50
МУП 2-670	670	6300	15750	7500	4200	3,4	5700	0,60
МУП 2-850	850	8050	20125	7500	4200	3,4	7800	0,60
МУП 2-1340	1340	12500	31250	7000	3800	3,8	9600	0,60
МУП 2-2100	2100	19500	48750	6000	3400	4,0	10100	0,60
МУП 2-2700	2700	25650	64125	5800	3200	4,0	12500	0,60

MKC series is (special design flexible coupling) – the coupling is designed for use in all industries for units with a small axial distance between the ends of the shafts, which is not enough for application of standard flexible coupling of types MC, MCO or MUP. These couplings can be used instead of flexible couplings with rubber-bush studs or other elastomeric couplings.

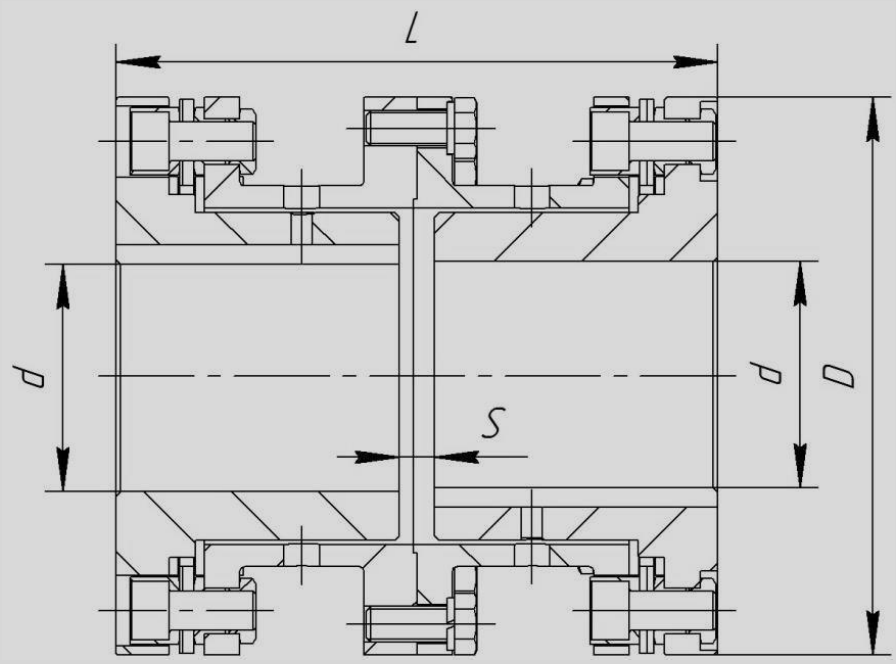


Design features of the MKC coupling is that the spacer hub covers one or both coupling halves, providing mutual axial spacing of packages of flexible elements to make effective compensation of radial shaft misalignments.

The coupling is designed based on MK type flexible couplings and inherits all of its properties but it has no "cartridge" ability.

MKC-2 - sizes						
Standard size	Outer coupling diameter D, mm	Minimum distance between shaft ends S_{min}, mm	Hubs bore d_{max}, mm	Coupling length L, mm	Transmission unit mass, kg	Mass coupling, kg.
MKC 2-34	127	5	45	The data given in the table are determined by the coupling design on an individual basis after the questionnaire is filled in.		
MKC 2-67	155		55			
MKC 2-84	170		65			
MKC 2-105	190		80			
MKC 2-270	220		95			
MKC 2-420	255		100			
MKC 2-670	285		120			
MKC 2-1050	315		130			
MKC 2-1340	340		160			
MKC 2-1670	350		160			
MKC 2-2700	365		180			

If not otherwise specified, a tolerance of cylindrical bore **d** in hub H7 DIN 6885; a tolerance of keyways Js9 DIN 6885.



MKC-2 – technical data								
Standard size	Specific power kW/ 1000rpm	Torque, Nm		Maximum rpm	Maximum rpm without balancing	Max. axial misalignment		Max. radial misalignment ±mm
		Nominal, Nm	Peak overload, Nm			± mm	Equivalent force no more than, N	
MKC 2-34	34	315	787	16000	8000	1,8	800	0,6
MKC 2-67	67	630	1575	13500	6800	2,2	800	0,6
MKC 2-84	84	798	1995	12000	6200	2,6	800	0,7
MKC 2-105	105	1000	2500	11000	5500	3,0	800	0,7
MKC 2-270	270	2565	6413	9000	4700	3,6	1300	0,9
MKC 2-420	420	4000	10000	8000	4000	4,0	2200	0,9
MKC 2-670	670	6300	15750	7000	3600	3,2	3200	1,0
MKC 2-1050	1050	9975	24938	6500	3300	3,5	4800	1,1
MKC 2-1340	1340	12500	31250	6000	3200	4,0	5200	1,3
MKC 2-1670	1670	15865	39663	6000	3200	3,4	6700	1,3
MKC 2-2700	2700	25650	64125	5500	3000	3,4	6400	1,3

Selection procedure

1. Choose the appropriate service factor **SF**.
2. Calculate the specific power of the coupling **W** using the formula:

$$W = \frac{1000x\ N\ x\ SF}{n}$$, where: **N** - Drive rating (kW)

n - Rate speed (rpm)

3. Choose the coupling with the same or higher specific power from the table of series sizes.
4. Check the conformity of the connecting dimensions. If the inner bore does not match, select a larger coupling.
5. Check the **rpm** matching of the coupling.
6. Specify the distance between the ends of the shafts.
   In order to avoid mistakes in the selection of couplings, we recommend consulting with engineers of "Nasostechcomplect" and/or fill out a questionnaire.

Service Factor SF.

Torque rregular ity	Equipment	SF
Shock-free loading	Dynamics vane (centrifugal and axial) pumps, compressors, fans. Generator, uniformly loaded conveyors, mixers and agitators for liquids.	1
Low to medium impact load	Unevenly loaded conveyors, concrete mixers, gear and cam pumps, screw compressors, crushers, transmission shafts, hoists.	1,5
Strong impact load	High viscosity agitators, grinders, piston pumps, discrete control fans, heavy duty winches, bucket elevators, rock crushers, mills, vibrators, punch presses.	2,0

There are recommended coefficients for drives of (electric motor, steam or gas turbine) in the Table. In the case of a gear drive, an additional factor of 1.25 has to be applied. In case of doubt when selecting SF, we recommend to contact the specialists of "Nasostechcomplect".

Couplings balancing

“Nasostechcomplect” produces all its couplings with high structural precision of balancing according to class G6.3 ISO1940-1: 2003.

If dynamic balancing needed "Nasostechcomplect" provides balancing of a transmissive unit. It is recommended balancing hubs assembled with rotor. The hubs can also be dynamically balanced as part of the transmission unit or individually on request.

Special design couplings

Along with serial products, special design couplings are available for special conditions:

- couplings for all climatic regions, including areas with a tropical, sea, cold climate;
- stainless couplings which are totally produces from stainless steel.
- coupling with intermediate shaft - for large distances between the ends of the shafts;
- "single row couplings" - couplings with a single package of elastic elements which rigidly fixes joining shafts in a radial plane and compensating their mutual angular and axial misalignments.
- high torque couplings for transmitting torques up to 330 000 Nm;
-electrically isolated couplings to prevent galvanic corrosion in assemblies and parts of joining units. Couplings are made from electrical insulating materials with guaranteed mechanical and electrical performances. In the couplings designed by LLC SRC “NASOSTEHKOMPLECT” Isolator is a part of the removable unit of the coupling. This avoid disassembly / assembly of the unit with insulating wearing parts during maintenance of the coupling and maintained the possibility of hot assembly / disassembly of the coupling halves onto the shafts.

Comparative features of flexible plate couplings of different types

Coupling type	MKO	MK	MKC	MUP
	Compensating light coupling	Compensating coupling	Compensating special coupling	Flexible plate coupling
Characteristic application area	General technical application without special requirements	For equipment of petrochemical and oil and gas branches of Industry for explosion flammable areas	For units with small distance between ends of connecting shafts	For important machines and units of oil and gas branch of Industry and nuclear power engineering
Compensation of radial and angular displacement of shafts	Effective			
Type of flexible element	“Annular”			“Disk”
Description for accident destruction of flexible elements	Short-term torque transfer			Shaft disconnection
Protection of sparking	-	+		
Protection of spacer “overhang”	+			
“Cartridge” design		+	-	+
Possibility of version according to API 671/ISO10441	-	+	-	+
Possibility of version according to ОПБ-88/97, НП-001-97 (ПНАЭГ-01-011-97)	-	+	-	+
Electrical insulating version	-	+	-	+
Relative (specific) price	1	≈1.4	≈2	≈2

Quality system according to International standard ISO 9001, certified by German Bureau Veritas, is valid at the enterprise. Couplings according to API671/ISO10441 are produced for oil, petrochemical and gas industries. Couplings of our production are permitted to apply for explosive and explosion-flammable areas. For nuclear power engineering – couplings according to General regulation of nuclear stations safety provision ОПБ- 88/97, НП-001-97 (ПНАЭГ-01-011-97).

BUREAU VERITAS
Certification

SPE «NASOSTEKHKOMPLEKT» Ltd.

1, 2 Zavodskaya Str., Sumy, 40022, Ukraine

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 9001:2015

Scope of certification

Design, production, testing, repair, maintenance, starting-up and adjustment of pump and compressor equipment and component units. Design, production, testing, repair and maintenance of devices and equipment for measurement and analysis of vibration and other mechanical processes. Service provisioning for analysis of vibration behavior and vibration stability of equipment.

Original cycle start date: **14 May 2014**
Expiry date of previous cycle: **13 May 2020**
Certification / Recertification Audit date: **23 April 2020**
Certification / Recertification cycle start date: **14 May 2020**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **13 May 2023**

Certificate No. UA229661 Version: **0** Revision date: **06 May 2020**

Olena Svyrydenko
Signed on behalf of BVCH SAS UK Branch

Certification body address: 5th Floor, 66 Prescot Street, London E1 8HG, United Kingdom
Local office: 5th floor, 28, Simon Petlyura St., Kyiv, 01032, UKRAINE

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.
To check this certificate validity please call: +380 44 354 16 00

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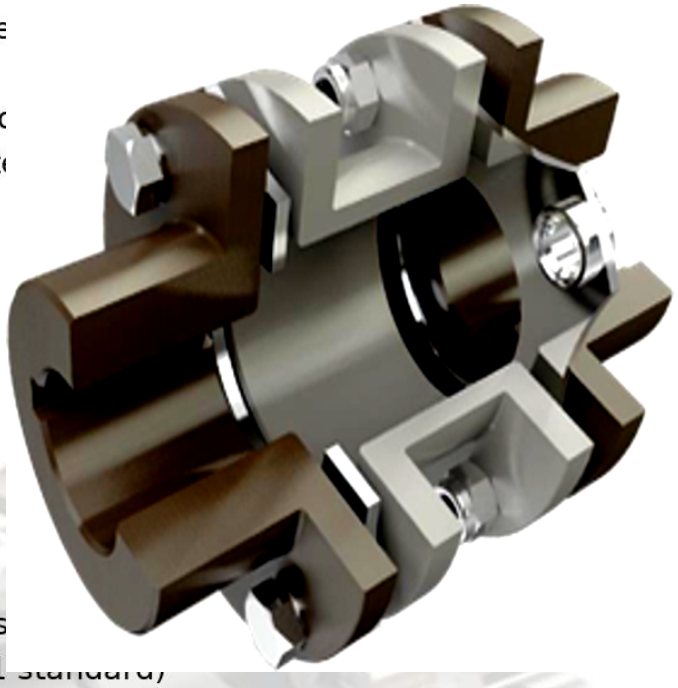
Mentioned above information allowed us to become constant partner of enterprises of nuclear and thermal power engineering, chemical, petrochemical, machine building and other branches of industry.

Flexible Plate Couplings Overview

High-Performance Solutions for Industrial Applications

Key Features and Advantages:

- High torque transmission with stainless stee
- API 610 / API 671 / ISO 10441 compliance
- Robust design for hazardous and high-speed
- Accommodates large misalignments for exte
- ISO 9001 certified by Bureau Veritas
- Available in custom sizes and designs
- Maximum RPM: up to 25,000
- Maximum Torque: up to 500,000 Nm



Applications:

- Power generation: Boiler feed water pumps
- Steel descaling and processing lines
- Oil extraction and petrochemical processes
- High-speed rotary compressors and blowers
- Explosion-hazardous environments (API 671 standard)

Contact Us:

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