

# Permanent magnetic system technology

contactless and leakage-free torque transmission





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## **STRONG AND SAFE POWER TRANSMISSION**

DST Dauermagnet-SystemTechnik GmbH is a leading international manufacturer of permanent magnetic couplings and systems. We offer a wide assortment of standard magnetic couplings. Conversion kits, agitator drives and a large selection of canisters supplement our product line.

Our core competence is the design of customised couplings in close cooperation with our clients. Due to our extensive experience in contact-free torque transmission, we are your competent partner for individual product solutions with magnetic couplings and agitator drives for various fields of application.

## **COUPLINGS FOR VARIOUS APPLICATIONS**

We provide environmentally friendly and cost-effective solutions. In cases where highly toxic or aggressive media is being used, DST products enable a leakage-free torque transmission and comply with highest safety requirements.

Due to special safety features, DST magnetic couplings are applied in many industrial areas such as the chemical, pharmaceutical and food industries, in biotechnology, industrial furnaces, water management, compressors, measurement and dosing technology as well as in hydraulics and petrochemistry.

## **SOLUTIONS IN COOPERATION WITH THE CUSTOMER**

Our clients benefit from our technical know-how and from a close cooperation throughout all stages of planning and production. We support your projects optimally through our comprehensive application and material knowledge. With more than 1,000 magnet configurations we can achieve best possible performance for our clients for most diverse applications. We have a suitable solution for almost every requirement.

## **GLOBAL NETWORK AND SERVICE**

Own distribution and service companies in the USA, China, India, Italy, the United Kingdom and France, as well as further sales partners in all relevant industrial countries ensure a worldwide network allowing DST to act closely to the customer with perfect on-site service, quality support and application expertise.

## **SYSTEM SOLUTIONS IN THE GROUP**

DST, located in the German city of Neuenrade, has been part of the Echterhage Group since 1998. Through the cooperation with our affiliated companies Beinlich and VSE, we develop integrated systems with pump and flow meter according to customer request. By offering complete systems at a single source, we are able to achieve optimal solutions for our clients.



# MAGNETIC COUPLINGS

Permanent magnetic couplings are essential for environmentally compatible drive solutions. The use of a magnetic coupling is recommended for applications where the fluid must not come into contact with the external environment, eliminating problems of leakage. In applications with critical, highly toxic or aggressive media, hermetically sealed drives are inevitable. DST permanent magnetic couplings offer a reliable alternative to conventional dynamic seals due to their contactless and leakage-free torque transmission in pumps and agitators.

## TORQUE

Standard: 1 - 1,200 Nm

Customer specific: 0.1 - > 15,000 Nm

## APPLICATIONS

- Process engineering
- Chemical industry
- Pharmaceutical industry
- Industrial furnaces
- Water management
- Compressors
- Dosing technology
- Hydraulics
- Petrochemistry
- Ship industry

## MATERIALS

Optimally matched to the various media, the wetted parts of the magnetic coupling are made of different materials:

Standard: 1.4571 und 2.4610 (Hastelloy C-4)

Steel: 1.4301, 1.4401, 1.4404, 1.4435,  
1.4539, 1.4980

Hastelloy: 2.4602 (C-22), 2.4819 (C-276)

Titanium: 3.7165 (Grade 5), 3.7035 (Grade 2),  
Beta-C/Grade19, Ti 6-2-4-6

Plastic: PTFE, PFA, TFM, PVDF

Many other special materials on request.

## ADVANTAGES

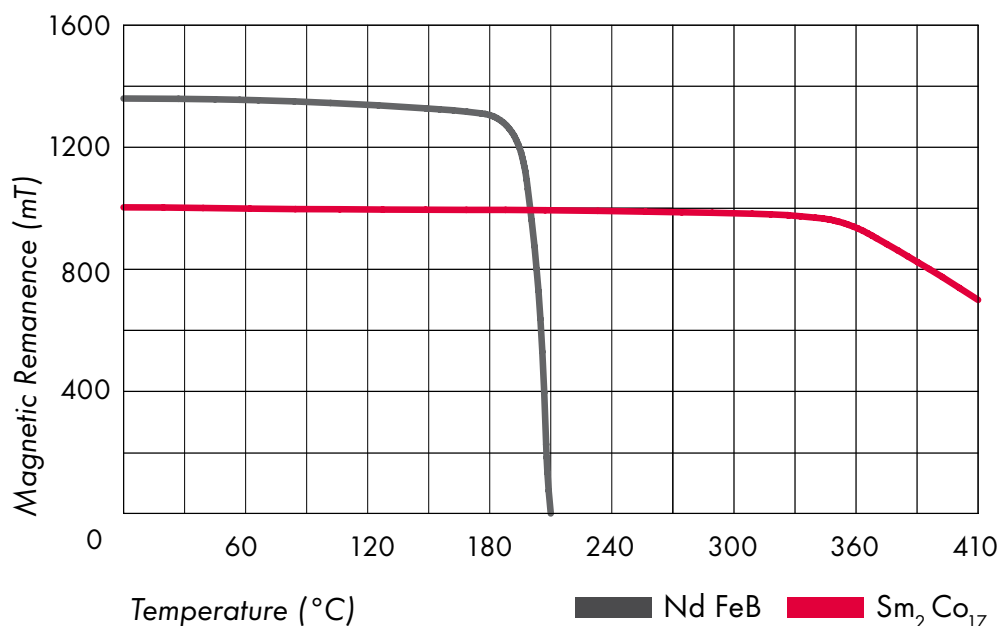
- ATEX compliance
- More than 1,000 magnet configurations
- Customer specific solutions
- Contactless torque transmission
- Hermetic separation of the driving and driven side
- Resistant to aggressive media
- Maintenance-free

## STANDARD CONSTRUCTION RANGES

Type	Torque	Drawing No.
DST 27/1	1 Nm	D055M0153
DST 27/2	2 Nm	D055M0152
DST 45/4	4 Nm	D055M0013
DST 45/6	6 Nm	D055M0062
DST 45/8	8 Nm	D055M0015
DST 60/7	7 Nm	D055M0075
DST 60/10	10 Nm	D055M0136
DST 60/14	14 Nm	D055M0076
DST 60/22	22 Nm	D055M0077
DST 75/10	10 Nm	D055M0022
DST 75/20	20 Nm	D055M0028
DST 75/30	30 Nm	D055M0036
DST 75/40	40 Nm	D055M0044
DST 75/60	60 Nm	D055M0061
DST 110/22	22 Nm	D055M0024
DST 110/50	50 Nm	D055M0031
DST 110/80	80 Nm	D055M0039
DST 110/100	100 Nm	D055M0083

Type	Torque	Drawing No.
DST 135/85	85 Nm	D055M0026
DST 135/100	100 Nm	D055M0063
DST 135/135	135 Nm	D055M0033
DST 135/180	180 Nm	D055M0041
DST 135/220	220 Nm	D055M0010
DST 165/140	140 Nm	D055M0027
DST 165/200	200 Nm	D055M0034
DST 165/275	275 Nm	D055M0042
DST 165/365	365 Nm	D055M0047
DST 200/550	550 Nm	D055M0112
DST 200/700	700 Nm	D055M0113
DST 200/850	850 Nm	D055M0114
DST 200/1000	1000 Nm	D055M0115
DST 200/1200	1200 Nm	D055M0203

All DST standard couplings are also available with encapsulated outer rotor and as version for bearing.



Temperature curve of Sm<sub>2</sub>Co<sub>17</sub> and Nd FeB magnets.

With Sm<sub>2</sub>Co<sub>17</sub> magnets working temperatures up to approx. 350°C are possible.

With Nd FeB magnets working temperatures up to approx. 150°C are possible.

(Higher temperatures for both magnets upon request.)

# CANISTERS



## STANDARD METALLIC CANISTER

**Material** Hastelloy (1.4571 / 2.4610)

**Pressure** Vacuum up to 25 bar depending on size

**Temperature** -110°C up to +450°C

**Size** 27 to 200

DST designs and manufactures canisters of highest quality. The large range is available in various materials and hereby covers a wide spectrum of applications. DST canisters can be applied even at high temperatures and pressures, along with an outstanding chemical resistance. Additionally, several canisters are based on materials that are not producing any eddy current losses. DST offers a suitable solution for just about every requirement.

The temperature limits specified here apply to the complete magnetic coupling. Some of the mentioned specifications can only be realised with special materials.



## DOUBLE WALL CANISTER

**Material** Hastelloy (1.4571 / 2.4610)

**Pressure** Vacuum up to 25 bar depending on size (as special solution possible also up to 200 bar and with other materials)

**Pressure for the heating/cooling system** 8 bar (Higher pressure on request)

**Temperature** -110°C up to +450°C

**Size** 60 to 200



## TITANIUM CANISTER

**Material** 3.7165 (Titanium Gr. 5) (Special solutions possible with Ti 6-2-4-6, Titan Beta-C/Grade 19 and other Titanium materials)

**Pressure** Vacuum up to 320 bar depending on size (special solutions possible)

**Temperature** -196°C up to +350°C

**Size** 27 to 200 (Special solution to 450)



**PEEK CANISTER**

**Material** PEEK, 30% carbon fibre reinforced  
**Pressure** Vacuum up to 16 bar\*  
(\* 16 bar at 20°C, 10 bar at 120°C)  
**Temperature** -196°C up to +120°C  
**Size** 75 to 165



**CERAMIC CANISTER**

**Material** Zr2MgO  
**Pressure** Vacuum up to 17 bar  
**Temperature** -30°C up to +450°C  
**Size** 60 to 200



**CFK/PTFE CANISTER**

**Material** Carbon fibre with PTFE inliner  
**Pressure** at least 2 bar up to 63 bar  
(Special solutions possible up to 110 bar)  
**Temperature** -20°C up to +180°C  
**Size** customer-specific



**BOROHARDCAN®**

**Material** Borosilicate  
**Pressure** Vacuum up to 16 bar  
**Temperature** -196°C up to +450°C  
**Thermal shock resistance** 100°C  
According to AD-2000 data sheet N4, the operating temperature must be <= 300 °C.  
**Size** 27 to 110



**CUSTOMER-SPECIFIC CANISTER**

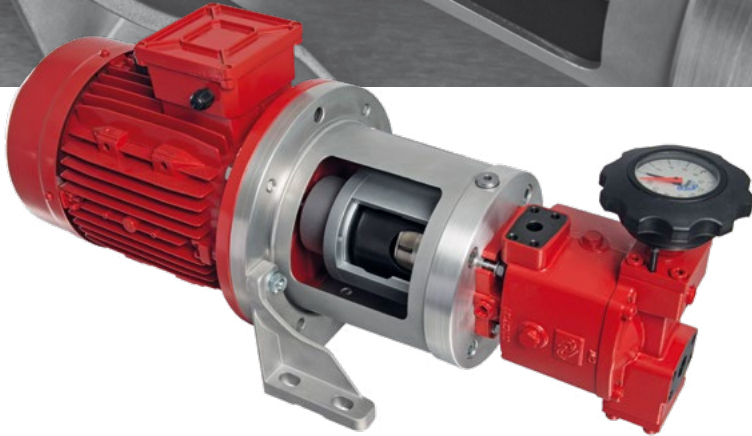
Combination of canister and bearing carrier for overhead agitator drives  
**Material** Different stainless steels, Hastelloy, titanium  
**Pressure** Vacuum up to 700 bar  
**Temperature** -269°C up to +500°C depending on material



**CUSTOMER-SPECIFIC CANISTER**

Bottom mounted agitator drives  
**Material** Different stainless steels, Hastelloy, Titanium  
**Pressure** up to 100 bar  
**Temperature** up to +120°C

# CONVERSION KITS



Conversion kits can be retro-fitted in many areas, for example in PU machines or for hydraulic applications. DST conversion kits allow a combination with all leading makes of pumps and drive motors. A conversion kit converts a pump, for example, on a PU machine with a mechanical seal and standard spider coupling, into a permanent hermetically sealed system. The conversion kit is equally suitable for new installations as well as retrofit applications, and allows simple conversion to the magnetic drive technology.

## **TORQUE**

1 - > 1,500 Nm

## **COMPONENTS**

DST conversion kits consist of all elements required to ensure a contactless and leakage-free operation. On request also with foot flange, damping elements and sensor monitoring (PT100, speed and leakage monitoring).

## **APPLICATIONS**

- PU machines
- Compressors
- Chemical industry
- Hydraulics

## **ADVANTAGES (METALLIC CANISTERS)**

- Fullflow design
- High pressure design with titanium canister
- Bearing block design
- Customised solutions
- Good chemical resistance

## **ADVANTAGES (PEEK CANISTERS)**

- Compact design
- No eddy current losses
- Bearing block design
- Increased torque with almost every size
- Reduced load on the bearings of pump and motor
- No cooling required
- Existing pipe systems may remain unchanged
- Good chemical resistance



## COMBINATION OF CONVERSION KITS WITH METALLIC CANISTER

Pump Type	Motor	Torque	Coupling
SAM H1V6PV	BG100-112	30 Nm	DST 75/30
SAM 06cc	BG100-112	30 Nm	DST 75/30
SAM/REX 12cc	BG132	80 Nm	DST 110/80
SAM/REX 12cc	BG160	135 Nm	DST 135/135
SAM/REX 28cc	BG132	80 Nm	DST 110/80
SAM/REX 28cc	BG160	135 Nm	DST 135/135
SAM/REX 28cc	BG180	180 Nm	DST 135/180
SAM/REX 55cc	BG160	135 Nm	DST 135/135
SAM/REX 55cc	BG180	180 Nm	DST 135/180
SAM/REX 55cc	BG200	275 Nm	DST 165/275
SAM/REX 55cc	BG225	365 Nm	DST 165/365
SAM/REX 107cc	BG225	365 Nm	DST 165/365
SAM/REX 107cc	BG250	500 Nm	DST 165/500

Pump Type	Motor	Torque	Coupling
Rotary Power C01	BG91	20 Nm	DST 75/20
Rotary Power C01	BG100-112	30 Nm	DST 75/30
Rotary Power C04	BG100-112	40 Nm	DST 75/40
Rotary Power C04	BG132	80 Nm	DST 110/80
Rotary Power C07	BG132	80 Nm	DST 110/80
Rotary Power C20	BG132	80 Nm	DST 110/80
Rotary Power C20	BG160	135 Nm	DST 135/135
Rotary Power C20	BG180	180 Nm	DST 135/180
Rotary Power C38	BG180	180 Nm	DST 135/180
Rotary Power C38	BG200	275 Nm	DST 165/275
Rotary Power C38	BG225	365 Nm	DST 165/365

Other pump types, sizes and torques on request.

## COMBINATION OF CONVERSION KITS WITH PEEK CANISTER

Pump Type	Motor	Torque	Coupling
SAM H1V6PV	BG100-112	35 Nm	DST 75/35
SAM 06cc	BG100-112	35 Nm	DST 75/35
SAM/REX 12cc	BG132	80 Nm	DST 110/80
SAM/REX 12cc	BG160	135 Nm	DST 110/135
SAM/REX 28c	BG132	80 Nm	DST 110/80
SAM/REX 28c	BG160	135 Nm	DST 110/135
SAM/REX 28c	BG180	185 Nm	DST 110/185
SAM/REX 55cc	BG160	170 Nm	DST 135/170
SAM/REX 55cc	BG180	205 Nm	DST 135/205
SAM/REX 55cc	BG200	275 Nm	DST 135/275
SAM/REX 55cc	BG225	350 Nm	DST 165/350
SAM/REX 107cc	BG225	350 Nm	DST 165/350
SAM/REX 107cc	BG250	450 Nm	DST 165/450

Pump Type	Motor	Torque	Coupling
Rotary Power C01	BG91	20 Nm	DST 75/20
Rotary Power C01	BG100-112	35 Nm	DST 75/35
Rotary Power C04	BG100-112	50 Nm	DST 75/50
Rotary Power C04	BG132	80 Nm	DST 75/80
Rotary Power C07	BG132	80 Nm	DST 75/80
Rotary Power C20	BG132	80 Nm	DST 75/80
Rotary Power C20	BG160	135 Nm	DST 110/135
Rotary Power C20	BG180	185 Nm	DST 110/185
Rotary Power C38	BG180	185 Nm	DST 110/185
Rotary Power C38	BG200	275 Nm	DST 135/275
Rotary Power C38	BG225	350 Nm	DST 165/350

Other pump types, sizes and torques on request.

# AGITATOR DRIVES



DST agitator drives made from stainless steel 1.4435/1.4404 in standard version are available as overhead drive or bottom mounted drive. An agitator drive equipped with DST permanent magnetic coupling hermetically seals the agitator, thus preventing any escape of hazardous gases or the ingress of contamination during agitation.

## OVERHEAD DRIVES

### TORQUE

0.1 - > 15,000 Nm

### APPLICATIONS

- Autoclaves
- PU industry
- Chemical industry
- Laboratory technology

### ADVANTAGES

- Complete unit with motor
- Compact design for the laboratory technology
- High pressures and temperatures possible
- Everything from a single source
- Customer-specific solutions

## BOTTOM MOUNTED DRIVES

### TORQUE

0.3 - > 1,000 Nm\*

### APPLICATIONS

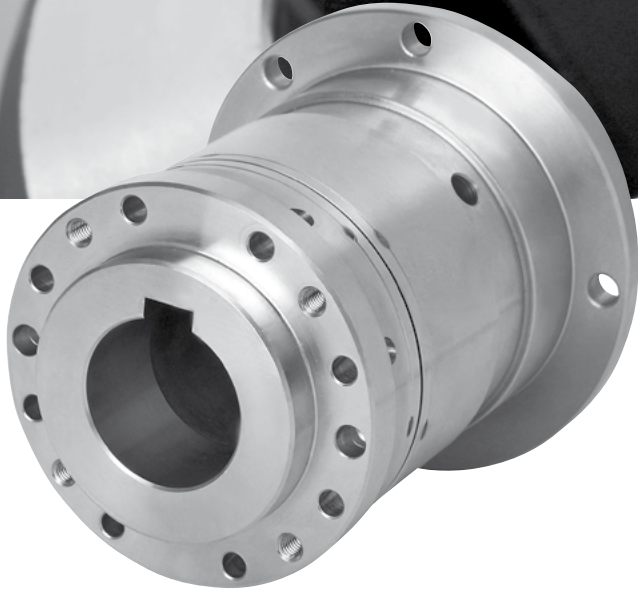
- Food industry
- Pharmaceutical industry
- Process industry

### ADVANTAGES

- Very good surface finish
- Optionally equipped with speed monitoring
- Canister flange as screw or welding flange
- Various materials are available
- Customer-specific solutions

\* <150 Nm incl. SSIC bearing,  
further bearings made of steel or plastic on request

# SSiC PLAIN BEARINGS



Predominantly for use in centrifugal pumps, DST produces complete SSiC ceramic plain bearings. The bearings are available as axial and radial types and can be combined with the DST standard permanent magnetic couplings. SSiC ceramic plain bearings are produced using newest material combinations and modern manufacturing technology.

## SIZES

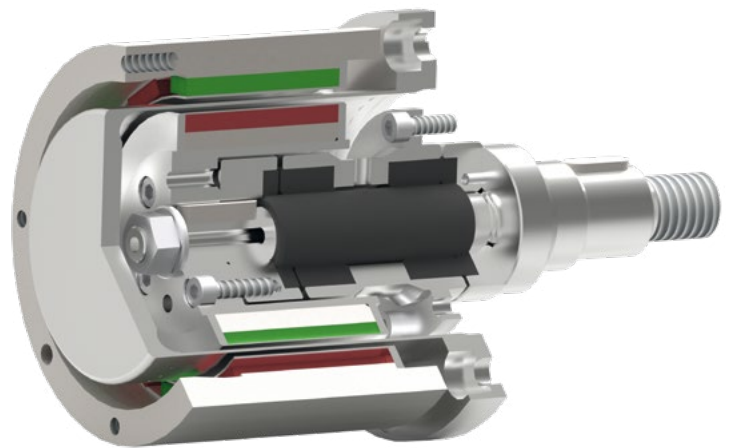
- DST Standard 60 to 200
- Customer-specific design on request

## MATERIALS

- Bearing: SSiC, SSiC with carbon parts
- Housing: 1.4571, 1.4462, 1.4404, 3.7035

## ADVANTAGES

- Very good corrosion resistance
- High wear resistance
- Very good thermal shock resistance
- Conditioned dry running capacities (on request)



DST standard magnetic coupling including SSiC ceramic plain bearing



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