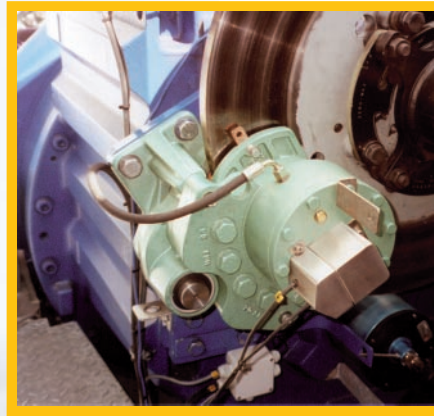
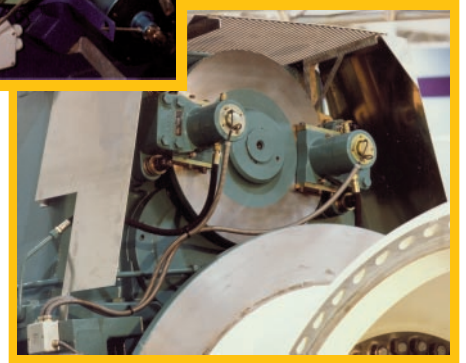


# SHD5 caliper for Windmills



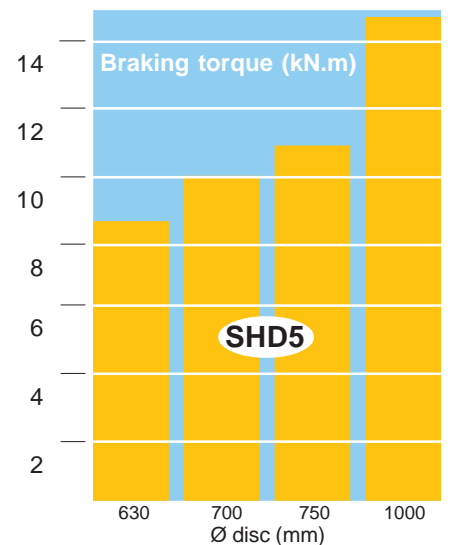
left:  
SHD5 caliper - gearbox of a  
900 kW windmill



2xSHD /high speed drive (600 kW wind turbine)

SIME-Stromag introduces the **WACS** - self **W**ear **A**djustment and **C**entering **S**ystem. The SHD5 caliper features both **automatic air gap centering** and **self wear compensation**, for easy maintenance and reduced costs.

The SHD5 caliper is a fail-safe single-spring hydraulic caliper, designed for high speed shaft drives of windturbines. The SHD5 delivers high energy braking and is designed to be installed directly onto the drive line gear box.



**Main characteristics:**

- Torque stability
- **Single-spring** design
- **Special braking spring** design
- **Few moving parts**
- **Large area** linings
- **Linings installation in shoes axis**
- **Positive** lining fastening
- **Wear** proving switch
- **Option: WACS(\*)** -Wear Adjustment Centering System
- **Option: DM** -Manual release

(\*) Patent pending

**Advantages:**

- Protection of windmill's mechanical components
- Installation onto the gear box is possible
- Low torque loss /mm. of lining wear
- Reliable assembly
- Lower operating temperature, longer lining life
- No caliper displacement to replace linings
- Easy replacement
- Preventive maintenance - safer operation
- Constant torque over lining life, reduced costs
- Easier installation and maintenance

## Disc brake

## Technical data and dimensions

### Caliper SHD5W

Fail safe braking  
Braking by spring application  
Hydraulic release  
Opening proving switch  
Lining wear proving switch  
Temperature detection of the linings  
Automatic lining wear compensation (WACS)

#### Working conditions:

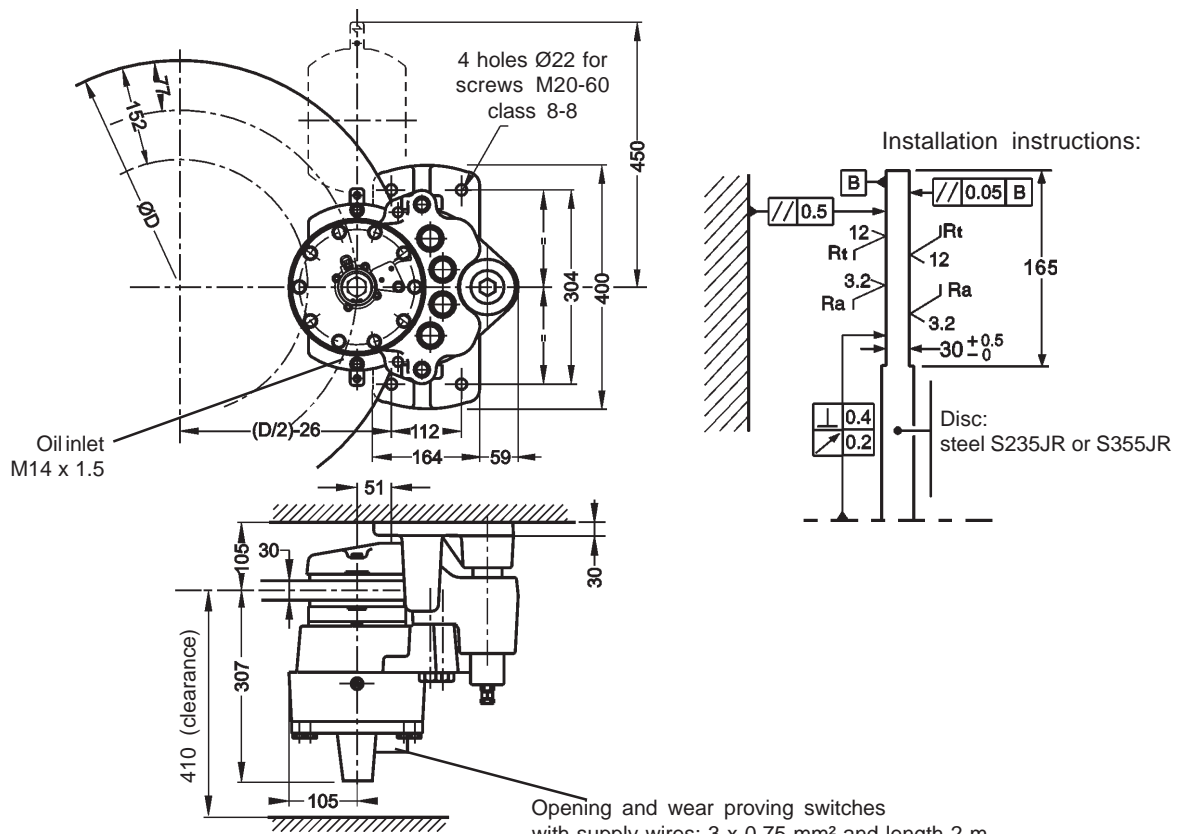
- Ambient temperature: -20°C to +60°C
- Relative humidity ≤ 70%
- Dust in atmosphere ≥ 65µ
- Other conditions, consult SIME.

#### Use:

- Emergency stopping brake in case of overspeed or loss of electrical supply

#### Options:

- Manual release tool (DM)
- Positive braking
- Detection of full lining wear
- Switch for PLC
- Marine protection
- Factory scaling of the braking force to [BF-10%]



Weight: 105 kg

Torque and effort values are subject to a variation of ±10%

Response time at nominal torque ≤ 0.3s

Maximum working pressure: 200 bars

Designation	Caliper		SHD5W-6	SHD5W-5	SHD5W-4	SHD5W-3	SHD5W-2	SHD5W-1
	Lining *		EF 3-1/ES 3-5					
Braking force BF for 1.25 mm of air gap disc/lining*	Dynamic N		33 000	27 000	23 000	18 000	15 000	13 500
Linear speed of the disc for TF	m/s		< 60	< 60	< 60	< 60	< 60	< 60
Dynamic braking torque BT (N.m) for a caliper mounted on a disc ØD (mm)	710mm		9180	7500	6400	5000	4170	3760
	1000mm		13960	11420	9730	7610	6350	5720
	1500mm		22210	18170	15480	12110	10100	9090
	N.m		BT = TF (D/2000 - 0.077)					
Opening pressure	Min.	bars	120	100	85	70	65	55
	Max.	bars	140	120	105	90	85	75
Total volume of oil displaced	cm³		15.9 per stroke (for nominal disc/lining stroke of 1.25 mm per side)					
Max. oil volume of the jack	cm³		76					

#### Electrical data:

- Proving switches: 240V, 5A, 50VA AC  
220V, 5A, 50W CC

\* Lining quality EF 3-1 or ES 3-5 depending on the application: consult us.

Due to continuous development and improvement, all dimensions and characteristics are subject to change without notice

## SIME-Stromag SAS

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