

Cavidur[®] coatings on **racing engine parts**



*The **highest quality DLC Cavidur[®] coatings** combined with the **most experienced one-stop service team** for race engine markets*

DIAMOND-LIKE CARBON COATINGS

Bekaert (Sorevi) is **the number one supplier** to the Formula 1, Rally, DTM, Formula 3 and NASCAR business with its **high quality DLC and one-stop service**. These coatings are marketed worldwide under the trade name **Cavidur®**. The unique composition and structure of Cavidur® results in the **most reliable surface engineered solutions for highly loaded engine components**. Bekaert (Sorevi) has been supplying successfully **Cavidur® coatings** on race engine components **for more than 10 years** and is continuously searching and developing new advanced coatings and surface engineering solutions to the demanding performance requirements of its customers.

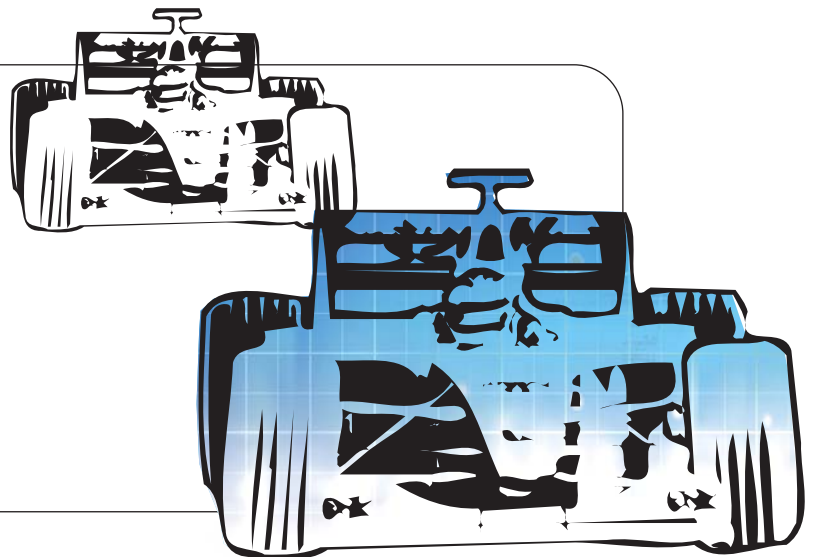


UNIQUE BENEFITS

- **One-stop service:** surface preparation (in house superfinishing and tribofinishing, ...), coating expertise and traceability
- Worldwide **customer-oriented dedicated coating teams** supported by state-of-art R&D and engineering
- More than 10 years **proven experience** and **application know-how** in Formula 1, NASCAR, ...
- Possibility to **recoat used parts** after refinishing

RACE ENGINE COMPONENTS THAT PERFORM BETTER WITH BEKAERT (SOREVI) DLC

- Camshafts
- Lifters/tappets
- Finger followers
- Pistons
- Wrist/gudgeon pins
- Valves
- ...



WEAR RESISTANCE



LOW COEFFICIENT OF FRICTION

IN BRIEF BEKAERT (SOREVI) DLC

- **Increases lifetime** of highly loaded parts at optimum performance level
- **Significantly decreases friction** experienced with uncoated components
- **Excellent adhesion** under extreme conditions

win



*Coating your engine parts with **Cavidur®** will help you win !*



Cavidur® enables to **increase component life time at high level of stable performance (*)**.

(*) Bekaert (Sorevi) also offers recoated used camshafts after refinishing as a cost-effective alternative.



Cavidur® protects finger followers and lifters against **wear**. High fatigue resistance of Cavidur® allows **the design of very light parts**.



■ **SURFACE CHARACTERIZATION LAB**

All parameters that impact quality or performance are controlled and are analytically documented through our in-house surface characterization lab.



Cavidur® provides a very **hard and low friction surface**, which reduces wear of the pin in normal operation. Pins can also survive in reduced or limited periods of lost lubrication.



Coating options include the tip, head, stem or the entire valve to suit your application



Cavidur® reduces cold welding, wear and pitting degradation (*).

(*) Very dense and smooth CrN coatings are also available on exhaust seat valves

Due to dry lubrication phenomenon Cavidur® **reduces significantly losses by friction**.

COATING TYPES

GENERAL CHARACTERISTICS

- Coating thickness varies from 2 to 8 µm
- Coefficient of friction: < 0,1 against steel - dry conditions
- Hardness greater than 20 GPa (measured by nano-indentation)

Coating type ↓	Adhesion Lc2 value (N)	Wear (10 ⁻³ mm ³ /Nm)		Deposition temperature (°C)
		Wear factor on disk	Wear factor on ball	
Cavidur® N	38	50	100	250 – 400
Cavidur® B	22	50	30	180 – 250
Cavidur® B +	30	50	30	200 – 250
For comparison:				
TiN	40	500	15000	250 – 500
CrN	40	700	10000	250 – 500
Steel	–	15000	15000	–

In the Cavidur® N series Bekaert (Sorevi) also offers:

- **Cavidur® NF** version to facilitate running-in period
- **Cavidur® S** for high wear resistance under high loaded conditions

Test →

Scratch test:
constant load on
HSS substrates

Steel-ball-on-disc test:
10N, 25°C, 50% RH and 100.000 cycles



Sorevi S.A. (Limoges, France) is Bekaert's home base for a state-of-the-art manufacturing facility and research & development dedicated to the race engine industry. The facility is **ISO 9001/2000 certified**. Our site in **North Carolina, USA** is the manufacturing center dedicated to the USA race engine industry. Furthermore Bekaert offers its diamond-like carbon coatings to the race industry via its other sales & manufacturing offices in Germany, Belgium, Asia and USA.

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