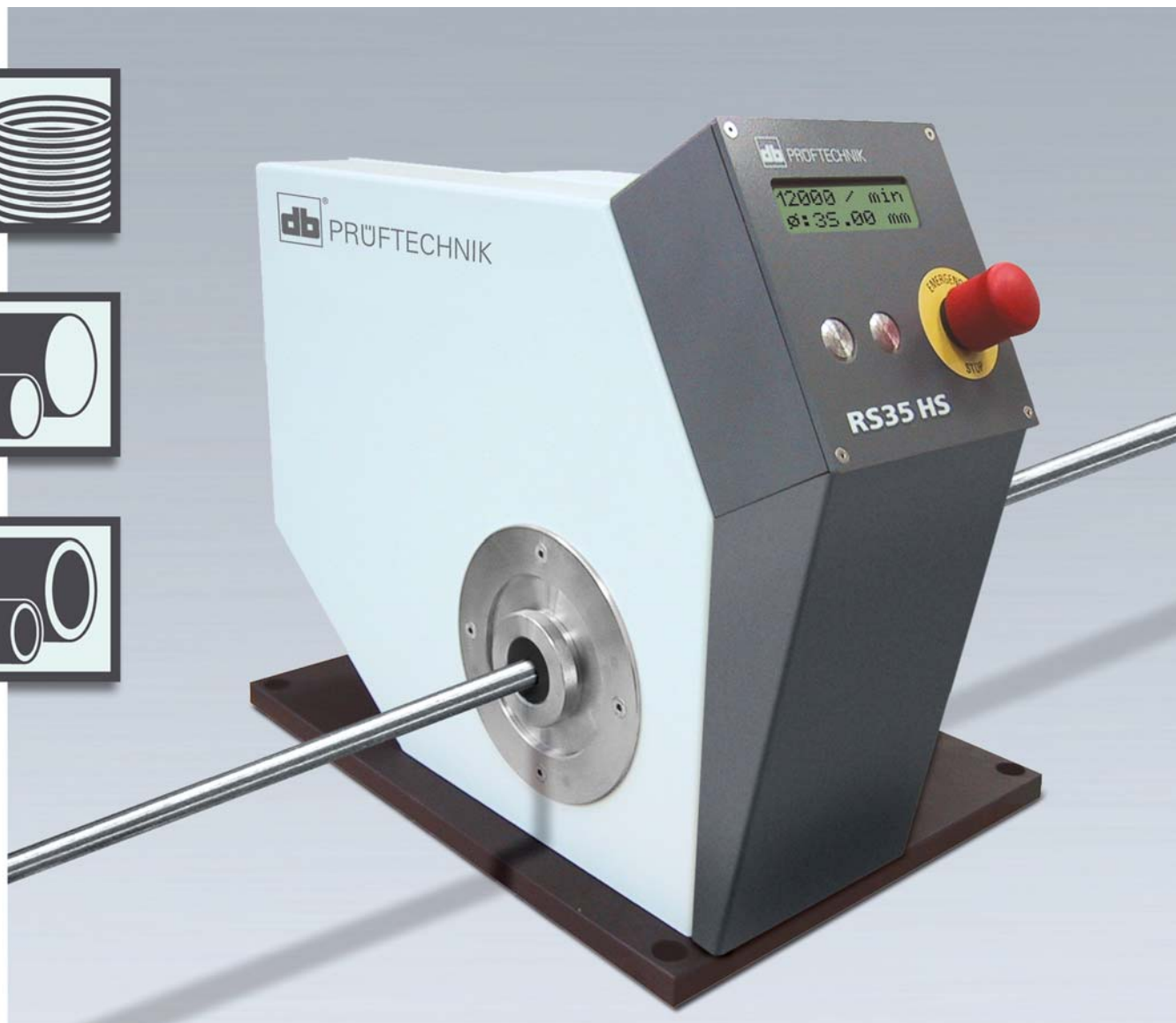


RS35 HS Rotating System

Defect detection at high production speeds for improved product quality



First rate products through reliable eddy current testing

- **Inspection before and after production**
 - Rod, wire, tube
 - Diameters 3 – 35 mm (0.125 – 1.375")
- **High speed testing**
 - 12,000, 9,000 or 6,000 rpm
- **High sensitivity**
 - Min. detectable notch depth: 30 µm (0.0015")
- **Compact and ergonomic**
 - User-friendly operation
 - Easily accessible for service
 - Optional remote control
- **Short changeovers**
 - External diameter adjustment
 - Tool-free changeover of guide sleeves
- **Increased operating safety**
 - All settings are performed externally and without tools

Variable drive speed

The rotating system can be run at speeds of 6,000, 9,000 or 12,000 rpm, as appropriate for the production speed. The higher the rotational speed, the shorter the minimum detectable defect.



When is a rotating system required?

The rotating system is essential in production lines where longitudinal defects (cracks, seams, laps, etc.) in the material surface are of major concern. Eddy current probes rotating around the material detect even the smallest defects depending on the surface quality. Due to its high resolution and transverse movement across the crack (rather than along it), the rotating system finds defects sometimes missed by conventional encircling coils.



Convenient guide sleeve changeover

In advance of a change in the test material size, the guide sleeve holders can be equipped with new guide sleeves of the correct diameter. Tools are not required to screw the guide sleeve holder in place.



Ergonomic operation

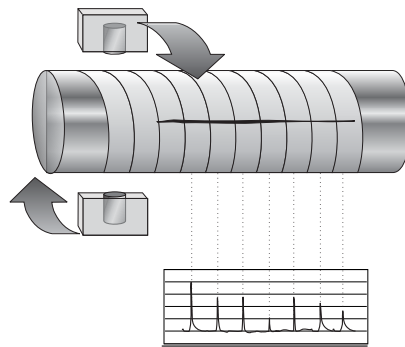
The useful display shows the probe gap and operating status of the equipment. The user can adjust the probe gap without opening the equipment by using the two pushbuttons below the display.

Quick size change without tools

No matter whether you are adjusting the diameter or testing, the system stays closed. All procedures can be performed from the outside and without tools, increasing operating safety and reducing change-over times.



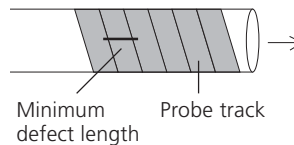
How the rotating system works



The rotating system scans the test piece in a helical pattern. Every time a probe crosses a crack, it generates a defect signal. As a result, the rotating system generates a great number of consecutive signals that identify the flaw as a crack of some length. The defect signals appear on the screen in real-time.

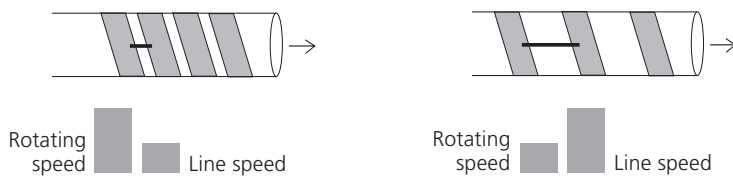
Minimum defect length

The shortest defects can be detected if there is no gap between the probe tracks



The length of the shortest detectable defect depends on how the test piece is scanned. Testing is ideal if the probes cover every part of the test piece as they pass over it without leaving any untested zones. This depends on the rotational speed of the rotating system and the production speed. The shortest defects are detectable at a high rotational speed and low production speed.

Effect of rotational speed and line speed on detectable defect length

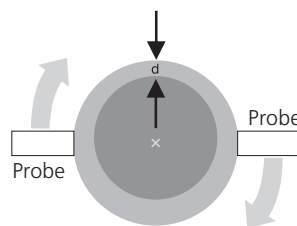


Rapid probe adjustment

In just a few steps, the probe gap can be quickly set to the required diameter without having to open the system or requiring tools.

Lift-off compensation

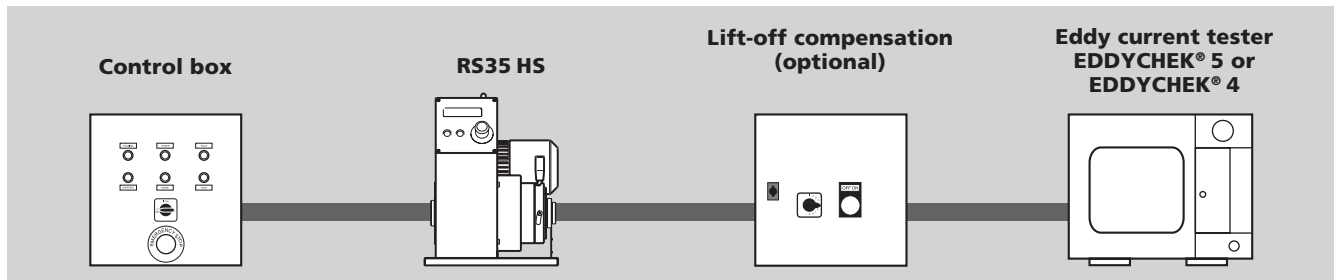
The option for high precision testing



The optional lift-off compensation corrects distorted signals that arise from a varying gap between the probe and test piece. The smaller the gap, the larger the defect signal. If the test pieces are off-center, defects of the same size produce different signal amplitudes, resulting in inaccuracies in the defect evaluation. The lift-off compensation system corrects this effect and ensures reliable test results.

- Gap control range
- Test piece, not round
- x Center of probe path
- d Gap (distance between probe and test piece)

System configuration



Throughput of material passing through rotating system (m/s)*

Number of probes (Track width = 4 mm)	RPM	Complete surface testing	Partial surface testing												
		4 mm	Minimum defect length												
			6 mm	8 mm	10 mm	12 mm	14 mm	16 mm	18 mm	20 mm	25 mm	30 mm	35 mm	40 mm	
		Throughput (m/s)													
2	6000	0.8	1.2	1.6	2	2.4	2.8	3.2	3.6	4	5	6	7	8	
	9000	1.2	1.8	2.4	3	3.6	4.2	4.8	5.4	6	7.5	9	10.5	12	
	12000	1.6	2.4	3.2	4	4.8	5.6	6.4	7.2	8	10	12	14	16	

*Throughput for two probes (1 per arm) = Number of probes x minimum defect length (mm) x rpm / 60,000

Technical data

- Offline, inline, continuous
- Any application in which longitudinal surface flaws are prevalent
- Tubing, pipe, bar, wire, valve spring wire, heading wire
- All metals
- Size range: \varnothing 3 – 35 mm (0.125" – 1.375")
- Temperature of inspected material: 0 – 70 °C (32–160 °F)

Production line

- Continuous production with cut-off
- Continuous production without cut-off (e.g. drawing line)
- Testing of cut lengths (inline and offline)

Defect resolution

- Min. defect length: depends on production speed and probe
- Min. def. depth: 30 μ m (0.0015") dep. on surface conditions

Probes

- 2 differential probes with lift-off compensation
- Probe type selected according to throughput and surface condition

Guidance system Internal, with bushings. External guidance system recommended.

Spindle bearings Hybrid bearings with a long service life

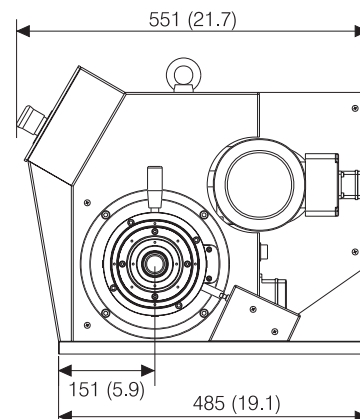
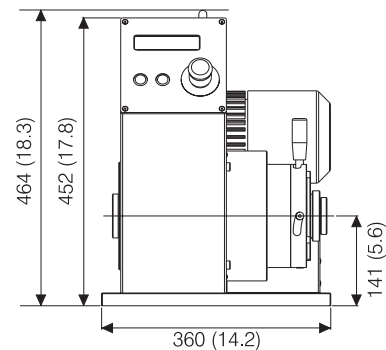
Revolutions per minute 6,000, 9,000 or 12,000 rpm

Motor and power supply

- Three-phase asynchronous drive
- 3-phase, 400 V, 50 Hz; max. power rating: 500 VA
- Altern.: 3-phase, 440 V, 60 Hz; max. power rating: 500 VA

Eddy current instrument

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