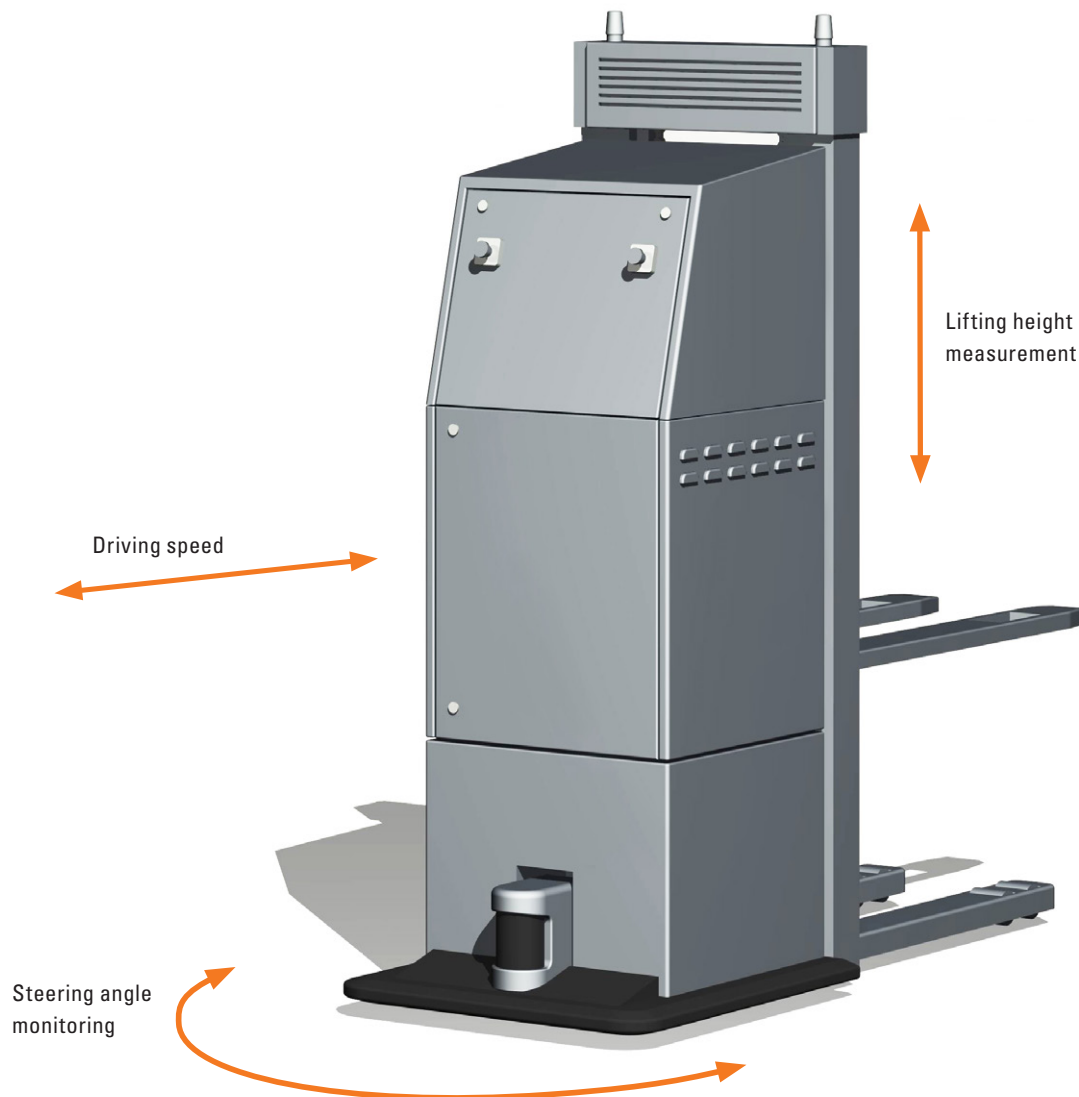




- Driving speed measurement and steering angle monitoring with encoders
- Lifting height measurement with draw-wire encoders

## Automatic guided vehicles

Compact encoders and draw-wire systems of Kübler are used to determine the speed, the steering angle of the vehicles and the exact position of the load-carrying devices. Their accurate rotary speed and position signals ensure the reliable operation of the intelligent systems - even when only very little space is available. BUS systems ensure the safe signal transmission and simplify notably the cabling work.



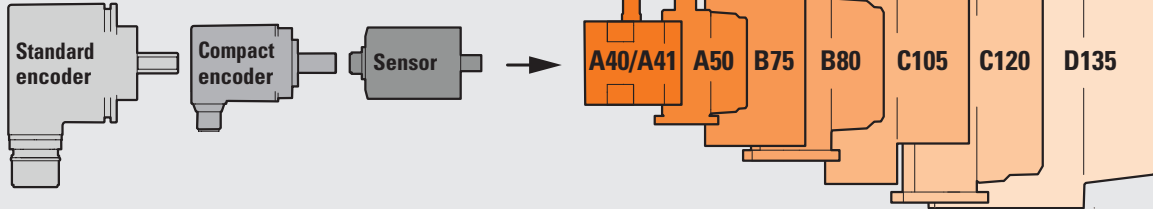
# DRAW WIRE ENCODERS COMPACT & PERFORMANCE

Encoder / Sensor

Analog  
Incremental  
CANopen  
SAE J1939  
SSI  
PROFIBUS DP  
EtherCAT  
PROFINET IO  
EtherNet/IP  
Modbus

Analog  
Incremental  
CANopen  
SAE J1939  
SSI

Analog



Draw wire mechanics

## Lifting height measurement



Linear measurement up to 3 or 6 m, absolute value acquisition via fieldbus, high accuracy

### Draw-wire encoder A41

- Measuring length 2 m
- CANopen interface
- Robust housing
- High dynamic up to 1 m/s



### Draw-wire encoder B75

- Measuring length 3 m
- Fieldbus interface
- With optical multiturn encoder
- Robust housing
- Linearity up to  $\pm 0.35\%$  of the measuring range



### Draw-wire encoder B80

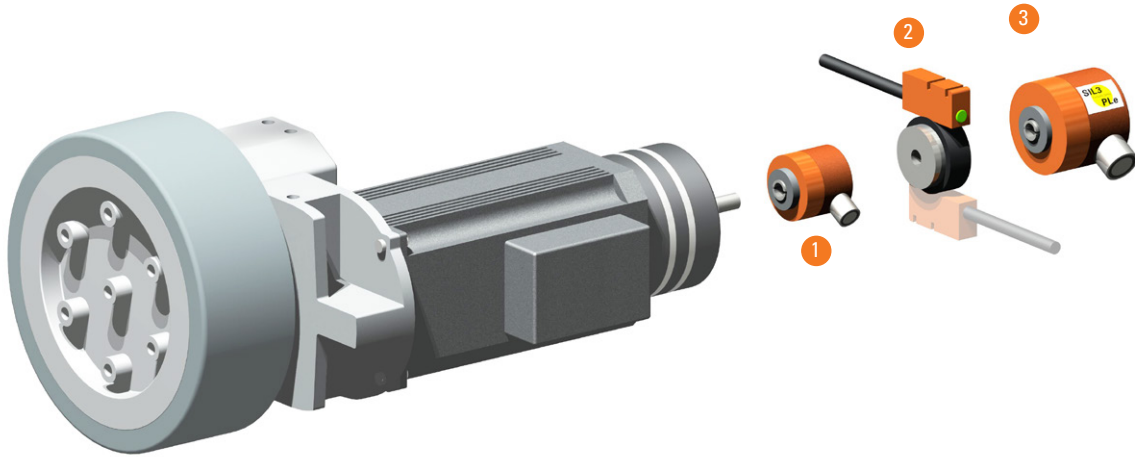
- Measuring length 3 m
- Fieldbus interface
- Interchangeable installation
- With optical multiturn encoder
- Robust housing
- Linearity up to  $\pm 0.02\%$  of the measuring range



### Draw-wire encoder C120

- Measuring length 6 m
- Fieldbus interface
- Interchangeable installation
- With optical multiturn encoder
- Robust housing
- Linearity up to  $\pm 0.02\%$  of the measuring range





## Driving speed



Dynamic rotary speed measurement with reduced space requirements in hollow shaft version

### Sendix S3674 Motor Feedback encoder ①

- Singleturn encoder  $\varnothing$  36 mm
- SIL2/PLd
- Operating temperature  $-30^{\circ}\text{C} \dots +120^{\circ}\text{C}$
- Accurate optical scanning
- Tapered shaft  $\varnothing$  8 mm



### Sendix Base KIH40 encoder ①

- Incremental encoder  $\varnothing$  40 mm
- Optical scanning
- Safety Lock™
- Resolution max. 2500 ppr



### RLI20 bearingless encoder ②

- Magnetic scanning
- Resolution max. 3600 ppr
- High protection level up to IP69k



### Sendix 5834FS encoder ③

- Incremental encoder  $\varnothing$  58 mm
- Accurate optical scanning
- SIL2/PLd, SIL3/PLe
- Resolution max. 2048 ppr







## Steering angle monitoring



Absolute angle measurement with fieldbus control, robust encoder with reduced space requirements

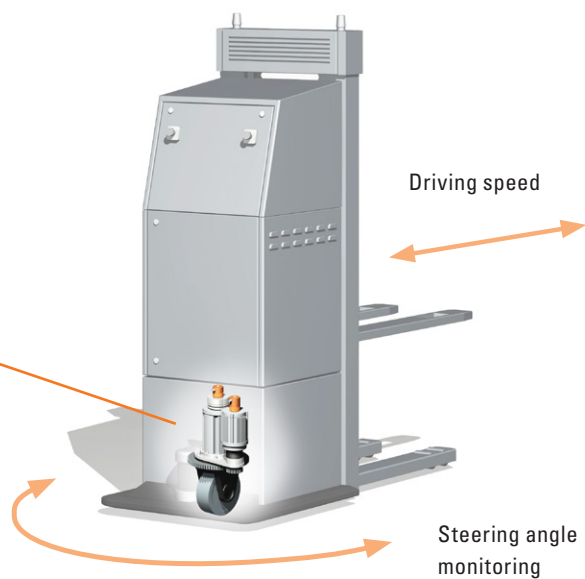
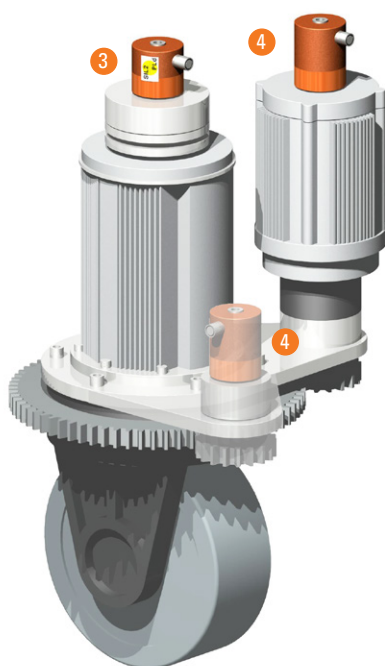
### Sendix M36 encoders <sup>4</sup>

- ø 36 mm size
- CANopen interface
- Magnetic scanning
- Safety-Lockplus™
- High protection level IP69k
- Status display




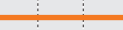

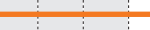



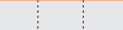











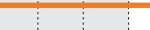






### Sendix F5888 encoder <sup>4</sup>

- ø 58 mm size
- CANopen interface
- Optical scanning



# Portfolio overview draw-wire encoders

	Characteristics			Draw-wire encoders				Measuring length												
	Linearity max.	Speed [m/s]	Wire diameter [mm]	Measuring length [m]				Short range				Mid range					Long range			
								0	1	2	3	4	5	6	8	10	12	15	max. 42.5	
Performance-Line	±0.02 %	10	0.5		A50	INC ABS	U I R													
					B80	INC ABS	U I R													
					C120	INC ABS	U I R													
					D135	INC ABS	U I R													
Robust-Line	±0.1 %	3	1.0		C60	ABS	U I R	RED												
			1.5		D120	ABS	U I R	RED												
Compact-Line	±0.3 %	3	0.9		A30		U I R													
					A40	INC	U I R													
					A41	ABS	U I R													
					B75	INC ABS	U I R													
					C105	INC ABS	U I													
Base-Line	±0.5 %	1	0.9		C100	INC ABS	U	N RS RED												
					D125	ABS	U	N RED												

INC Incremental

ABS Absolute, digital

U Voltage

I Current

R Potentiometer

N Inclinator

RS Relais / switch output

RED Redundant sensors

# Kübler worldwide

The Kübler Group is a worldwide leading and strongly growing family-run company with four production sites, eleven subsidiaries and strong agents in more than 50 countries.

Kübler always focuses on understanding the application of the customer. This results in suitable products and solutions. So trust in a technically well-founded advice and benefit from a lasting application support. Over 480 persons are working all over the world for Kübler and pursue one goal: inspire their customers!



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Ireland

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