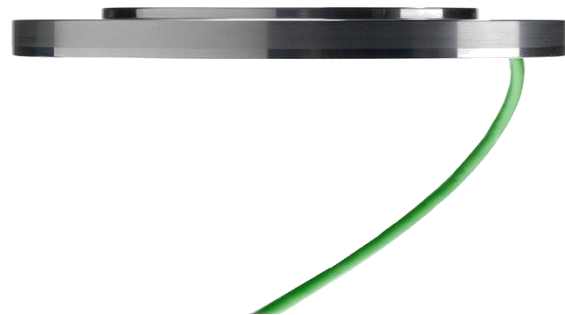




MIG Encoders  
BEGE MIG NOVA+



***BEGE Power Transmission***

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***Your drive, our (trans)mission***

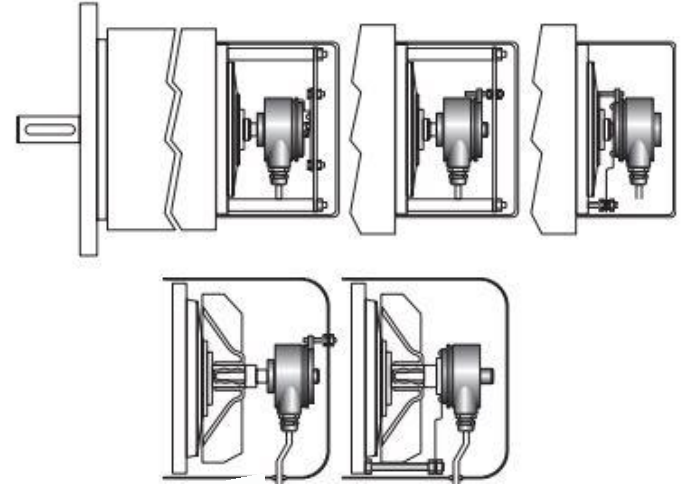
## BEGE MIG Encoders - Type MIG NOVA+

Mounting a conventional encoder

### Mounting possibilities

Conventional encoders need extension or modification of the motor shaft with mounting of the encoder to bonnet or motor bearing plate

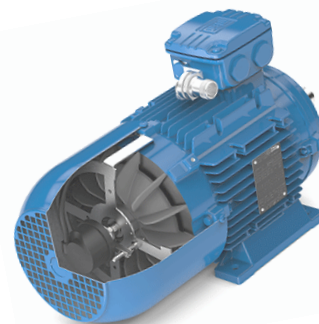
Disadvantage: No protection against mechanical damage



Hollow shaft encoder



Shaft encoder



## BEGE MIG Encoders - Type MIG NOVA+

Optical vs. magnetic encoders

### Optical encoders

An optical encoder is a type of rotary encoder that uses a sensor to identify position change as light passes through a patterned encoder wheel or disc

Disadvantage:

- Contamination, humidity, aging or turbidity can quickly lead to measurement errors
- Mechanical effects (e.g. vibration or shock) can cause the disc to move causing damage

Optical rotary encoders often reach their limits under difficult ambient conditions



## BEGE MIG Encoders - Type MIG NOVA+

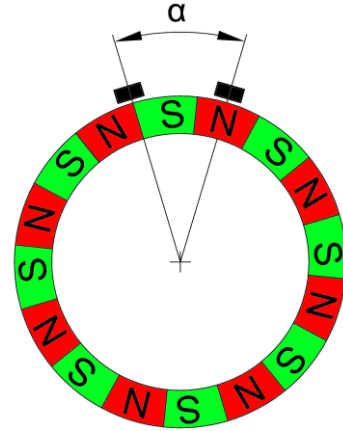
Optical vs. magnetic encoders

### Magnetic encoders

A magnetic encoder uses the same principle to determine a position as an optical shaft encoder, but it does it using magnetic fields rather than light

Advantage:

- No disturbance by mechanical effects (e.g. vibrations, shocks or dirty ambient conditions)
- High suitable for harsh environmental conditions



## BEGE MIG Encoders - Type MIG NOVA+

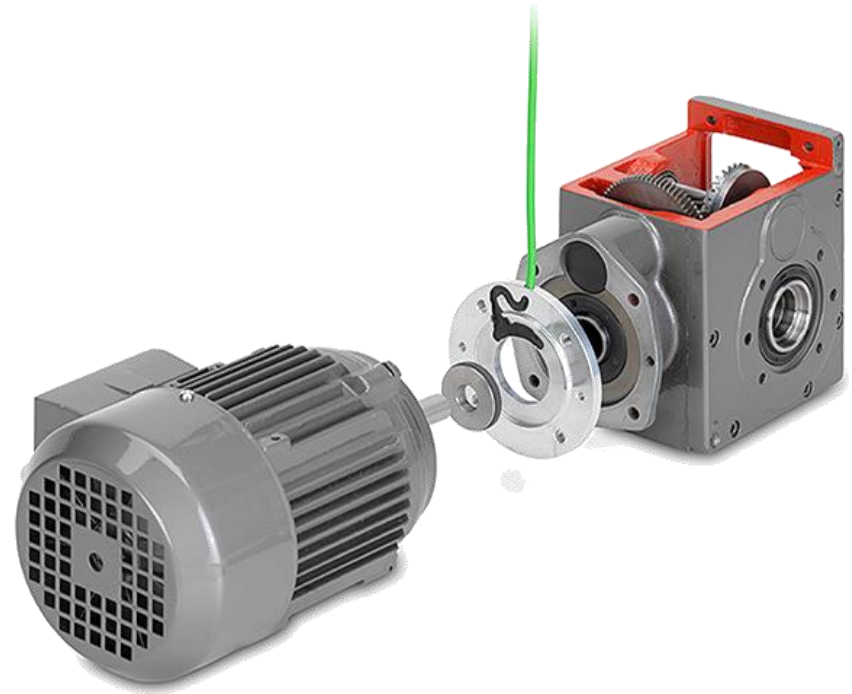
Revolutionary concept

### Exceptional quality

The space-saving, simple construction between every single IEC-motor and the gear unit ensures that the MIG pulse generator is protected against virtually any mechanical damage. In this construction, the MIG is fully moisture-proof and IP67 protected.

### Easy assembly

The MIG NOVA+ is an incremental magnetic pulse generator with extremely high signal quality and high-quality processing. The MIG pulse generator is compatible with virtually all types of controls and is the perfect solution for optimizing existing drives.



## BEGE MIG Encoders - Type MIG NOVA+ Improvements

### Exceptional quality

- Stainless steel hub with rubber coating
- Glued and pressed together
- Vulcanized patented magnet ring
- Epoxy resin sealed encoder electronics



## BEGE MIG Encoders - Type MIG NOVA+

### Rectangular signals (A / B)

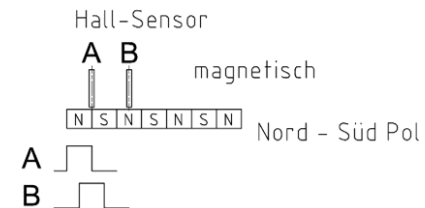
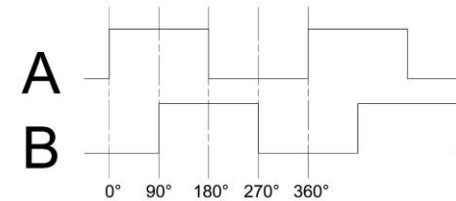
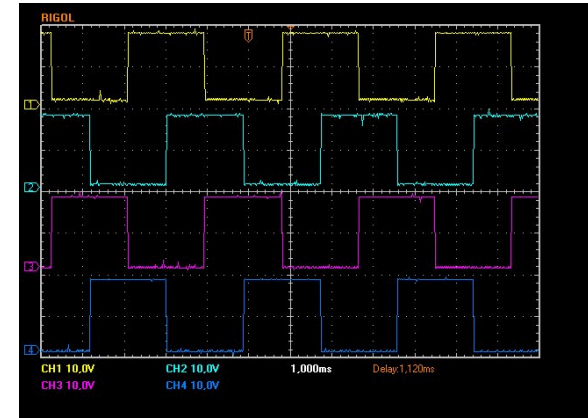
### Signal

In the case of a movement, the two sensors create two output signals (A and B) shifted by  $90^\circ$ .

- When the disk or magnet moves to the right, the signal of channel A is advanced by  $90^\circ$  with respect to channel B
- In the other direction, the signal of channel A is opposite to the channel B by  $90^\circ$

The four different states of A and B are repeated every time the disc or pole change of the magnet is detected. They can be marked with  $0^\circ$ ,  $90^\circ$ ,  $180^\circ$  and  $270^\circ$  and are also called the period of division.

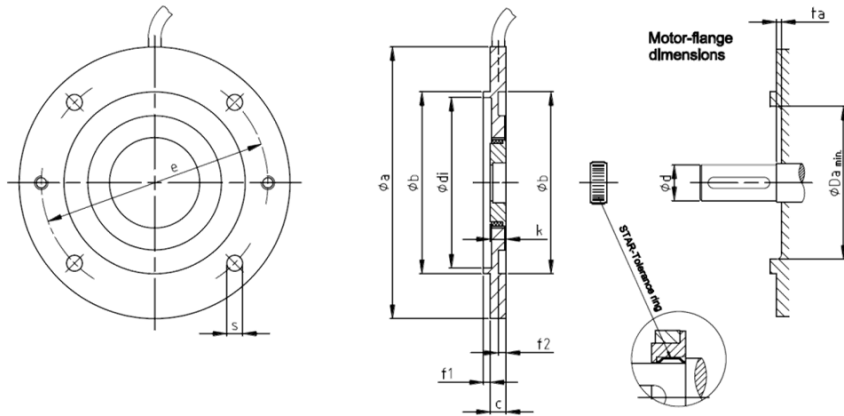
Special AB counters determine the direction from these two signals and count the pulses





# BEGE MIG Encoders - Type MIG NOVA+

## Dimensions

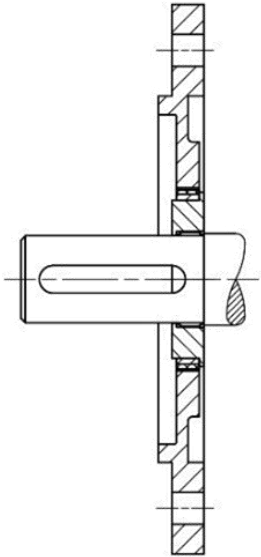


Maatvoering Maße Dimensions Dimensions									Standaard motorbouwgrootte (BG) volgens IEC Standard Motorbaugrößen (BG) Zuordnung nach IEC Standard motor sizes (BG) according to IEC Dim. de montage standard du moteur (BG), selon IEC				
MIG Nova+ Øa	Øb	c	Ødi	Øe	f1	f2	k	s	BG	Fl.	Ød x l	ta	ØDa
80	50	7	44	65	2,5	3	7	5,8	56	FT 65	Ø 9 x 20	2	43
90	60	7	54	75	2,5	3	7	5,8	63	FT 75	Ø 11 x 23	2	43
105	70	7	64	85	2,5	3	7	7	56	FT 85	Ø 9 x 20	2	60
									71	FT 85	Ø 14 x 30	2	60
120	80	7	74	100	3	3,5	7	7	56	FF 100	Ø 9 x 20	2	60
									63	FT 100	Ø 11 x 23	2	60
140	95	7	85	115	3,5	4	7	9	80	FT 100	Ø 19 x 40	2	60
									63	FF 115	Ø 11 x 23	2	60
									71	FT 115	Ø 14 x 30	2	60
160	110	7	100	130	3,5	4	7	9	90	FT 115	Ø 24 x 50	3	60
									71	FF 130	Ø 14 x 30	2	60
									80	FT 130	Ø 19 x 40	2	60
									90	FT 130	Ø 24 x 50	3	60
									100	FT 130	Ø 28 x 60	3	105
200	130	9	120	165	3,5	4	9	11	112	FT 130	Ø 28 x 60	3	105
									80	FF 165	Ø 19 x 40	2	60
									90	FF 165	Ø 24 x 50	3	60
									100	FT 165	Ø 28 x 60	3	60
									112	FT 165	Ø 28 x 60	3	105
250	180	12	170	215	4	5	12	13,5	132	FT 215	Ø 38 x 80	3	105
									100	FF 215	Ø 28 x 60	3	60
									112	FF 215	Ø 28 x 60	3	60
300	230	12	218	265	4	5	12	13,5	132	FT 215	Ø 38 x 80	3	105
									160	FF 300	Ø 42 x 110	3	105
350	250	12	238	300	5	6	12	17	160	FF 300	Ø 42 x 110	3	105
									180	FF 300	Ø 48 x 110	3	105

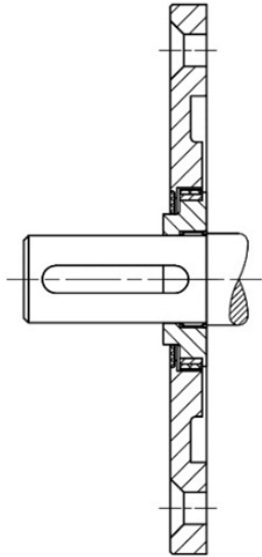


## BEGE MIG Encoders - Type MIG NOVA+

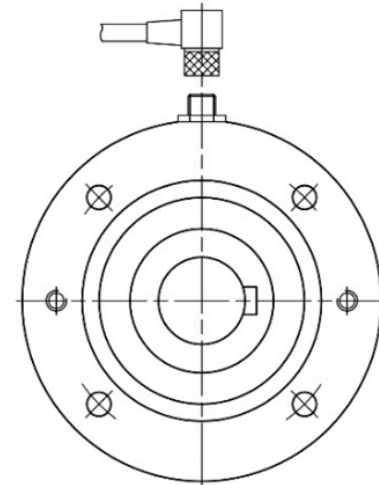
Versions



IEC flange design  
Type MIG ...  
e.g. flange motor  
Motor B5 and B14



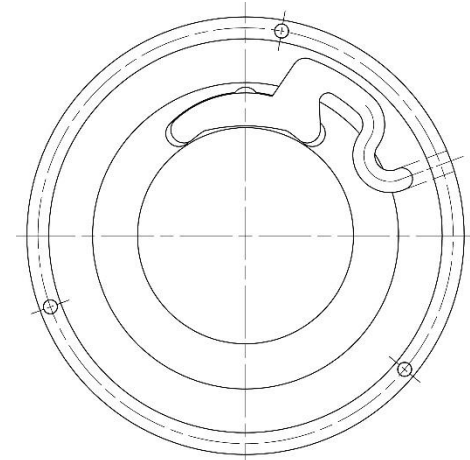
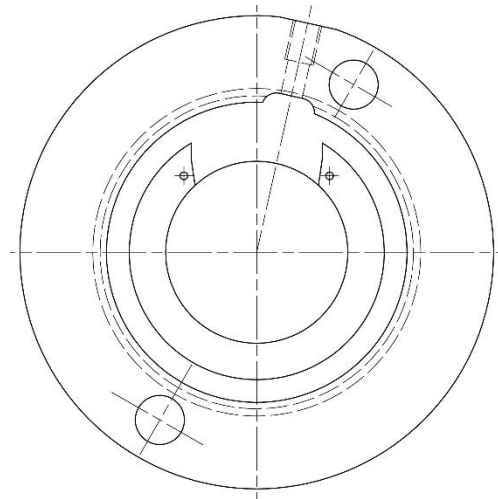
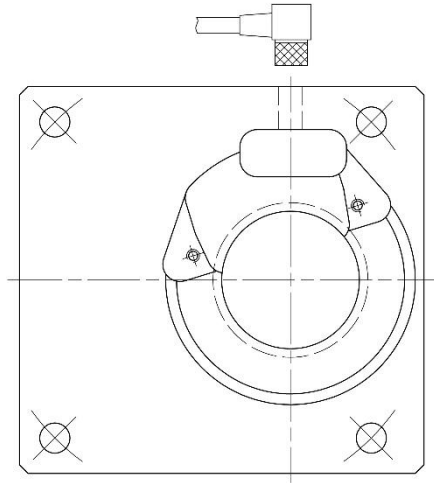
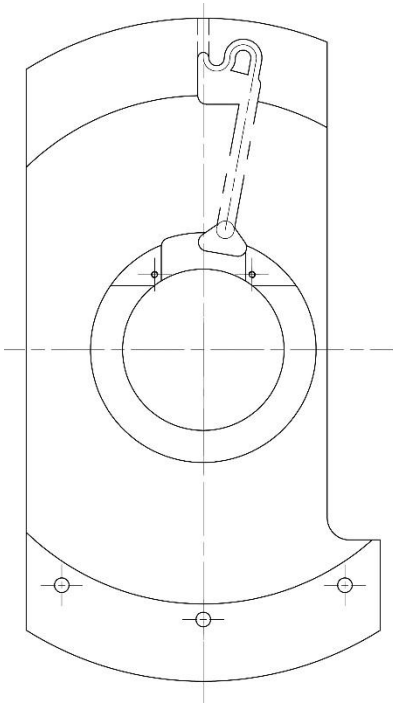
Cover design  
Type MIGD ...  
e.g. conventional motor  
Motor B3/B5 and B3/B14



Design with plug-in connection  
4 pin plug (not for TTL design)  
View of motor shaft (cable connection left)

## BEGE MIG Encoders - Type MIG NOVA+

Special versions



## BEGE MIG Encoders - Type MIG NOVA+

### Terminals

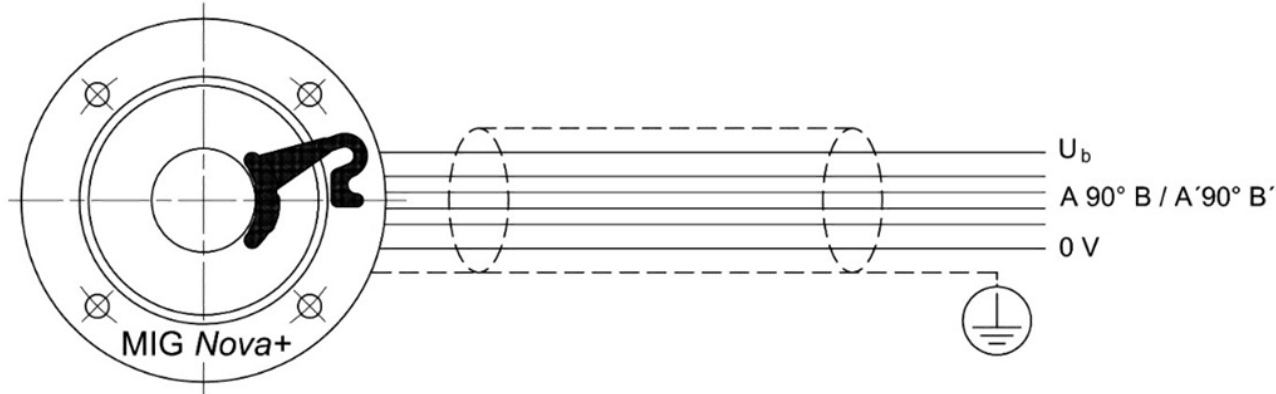
Aansluiting / Anschluss Terminal / Raccordement	U <sub>b</sub>	0 V	A	B	A'	B'
Kabel	bruin	wit	geel	groen	roze	grijs
Kabel	braun	weiss	gelb	grün	rosa	grau
Cable	brown	white	yellow	green	pink	gray
Câble	brun	blanc	jaune	vert	rose	gris

Opgelet: onnodige aansluitdraden isoleren en beschermen tegen kortsluiting!

Achtung: Nicht benötigte Anschluss-Litzen bitte isolieren und gegen Kurzschluss schützen!

Attention: please isolate not required connection lacings and protect them from short-circuits!

Attention : il faut isoler les fils conducteurs non utilisés et les protéger contre le court-circuitage.



## BEGE MIG Encoders - Type MIG NOVA+

Mechanical values

### Mechanical values

Max. speed	: 6,000 min <sup>-1</sup> (1,024 impulses), 3,000 min <sup>-1</sup> (2,048 impulses)
Temperature range	: -30°C to +80°C
Flange / hub material	: Aluminium, stainless steel (additional price) / magnet vulcanized
Connection cable	: PUR-sheath 6 x 0.14 screend (A+B, A+B inv.)   Standard 2 m
Cable length	: Depending on the impulses and rpm max. 100 m at 5V DC max. 20 m at 24V DC max. 50 m at 24V DC and impulse frequency max. 50 kHz
Protection class	: Standard IP 40, depending on the sealant used between motor and machine flange IP 67

## BEGE MIG Encoders - Type MIG NOVA+

### Electrical values

### Electrical values

Connecting voltage $U_B$	: 5 to 24 DC
Max. impulse frequency	: $\leq 100$ kHz
Output signals	: Square wave-impulses, A 90° B and A 90° B inverted
Impulses / rotation	: 1 ... 512 - 1,024 - 2,048
Signal level	: $U_{\text{high}} \geq U_B - 0.7V$ at $I_{\text{last}} \leq 10$ mA $U_{\text{low}} \leq 0.7V$ at $I_{\text{last}} \leq 10$ mA
Output capacity	: $\leq 30$ mA at $U_B = 10V$ DC or $\leq 20$ mA at $U_B = 24V$ DC
Output switching	: Line-Driver (Push-Pull)
External evaluation	: NPN, PNP, RS 422
Reverse polarity protected	: Yes
Short circuit protection at the output	: Yes
Motor shaft tolerance	: 0.2 mm axial - 0.05 mm radial

EMV - test according to EN 55011 (Emission) and EN 61326-1 (Immunity)

## BEGE MIG Encoders - Type MIG NOVA+

### Advantages

#### All the benefits of the MIG NOVA+ in a row

- Compact design; 7 - 15 mm thick
- Standard flanges sizes from 80 to 450 mm
- Compatible with any IEC standard motor, size 56 to 225
- Space-saving and protective assembly between motor and gearbox; protection class IP67
- Also applicable to existing drives
- Epoxy resin sealed encoder electronics
- Unbreakable vulcanized magnet ring
- 1 - 2048 impulses (A 90° B) per revolution
- Contactless signal measurement
- Output signal A 90° B and inverted
- Up to 6000 rpm
- Line driver output, 10 - 24 VDC and TTL 5 VDC
- Flange material in aluminum and available in stainless steel
- Special construction and material on request
- Standard with 2 m, screened cable. Different lengths and plug connection on request

## BEGE MIG Encoders - Type MIG NOVA+ Applications

Solar power motion control





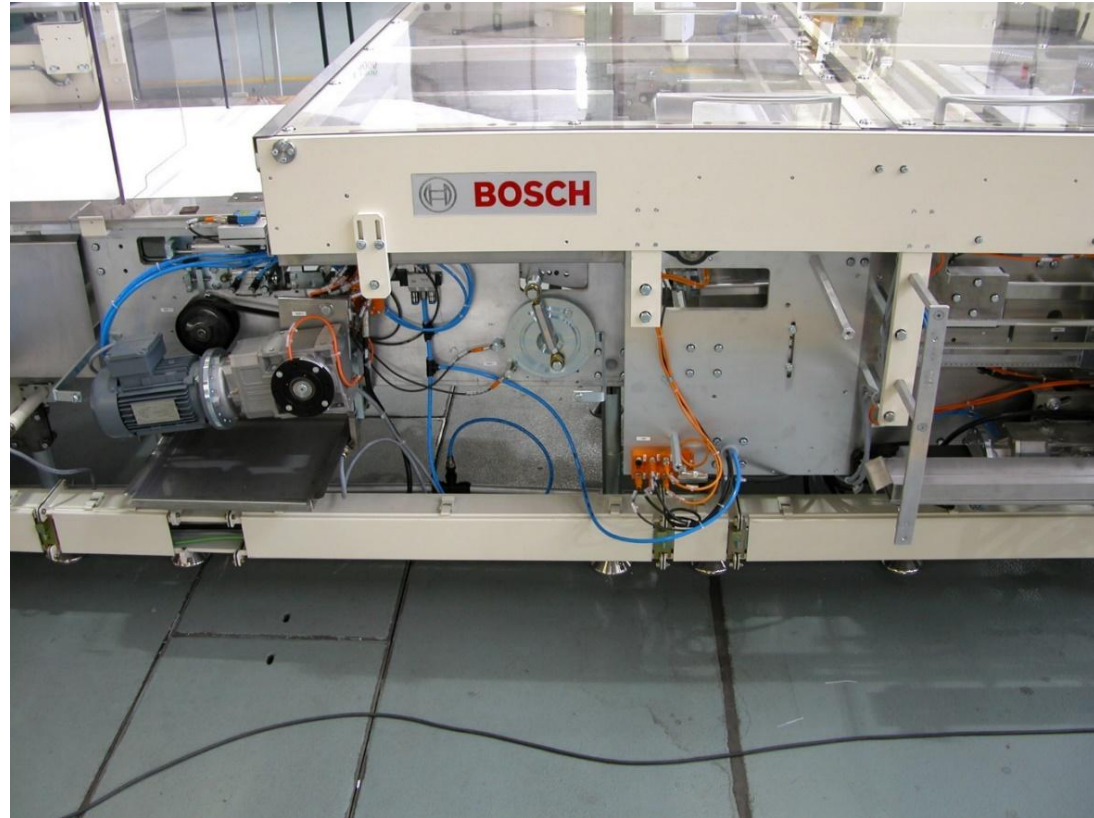
## BEGE MIG Encoders - Type MIG NOVA+ Applications

### Crane vessel torque control



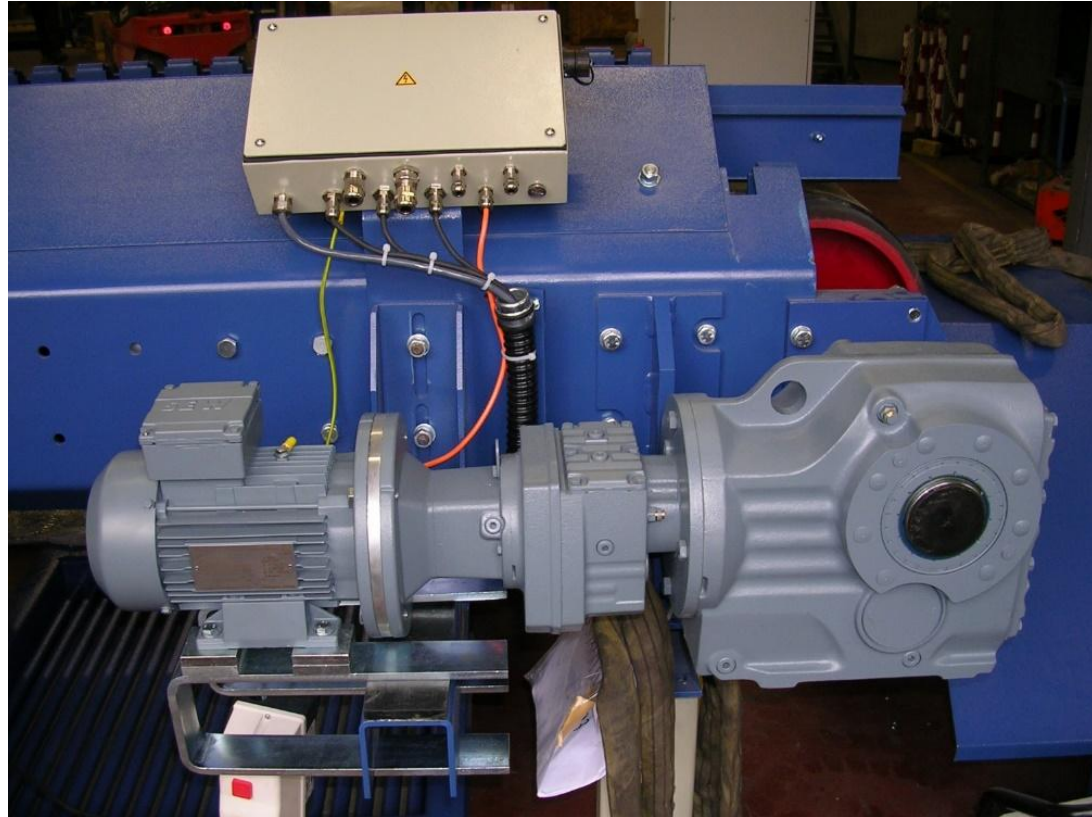
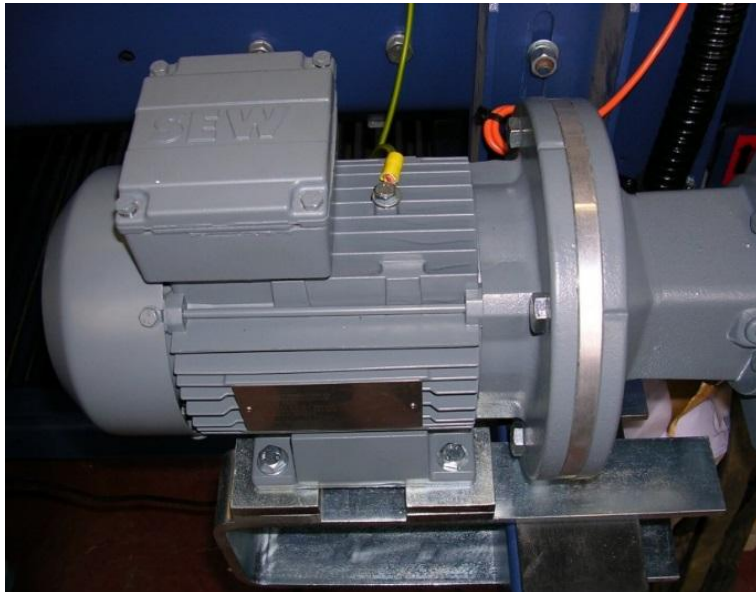
## BEGE MIG Encoders - Type MIG NOVA+ Applications

Precise speed control



## BEGE MIG Encoders - Type MIG NOVA+ Applications

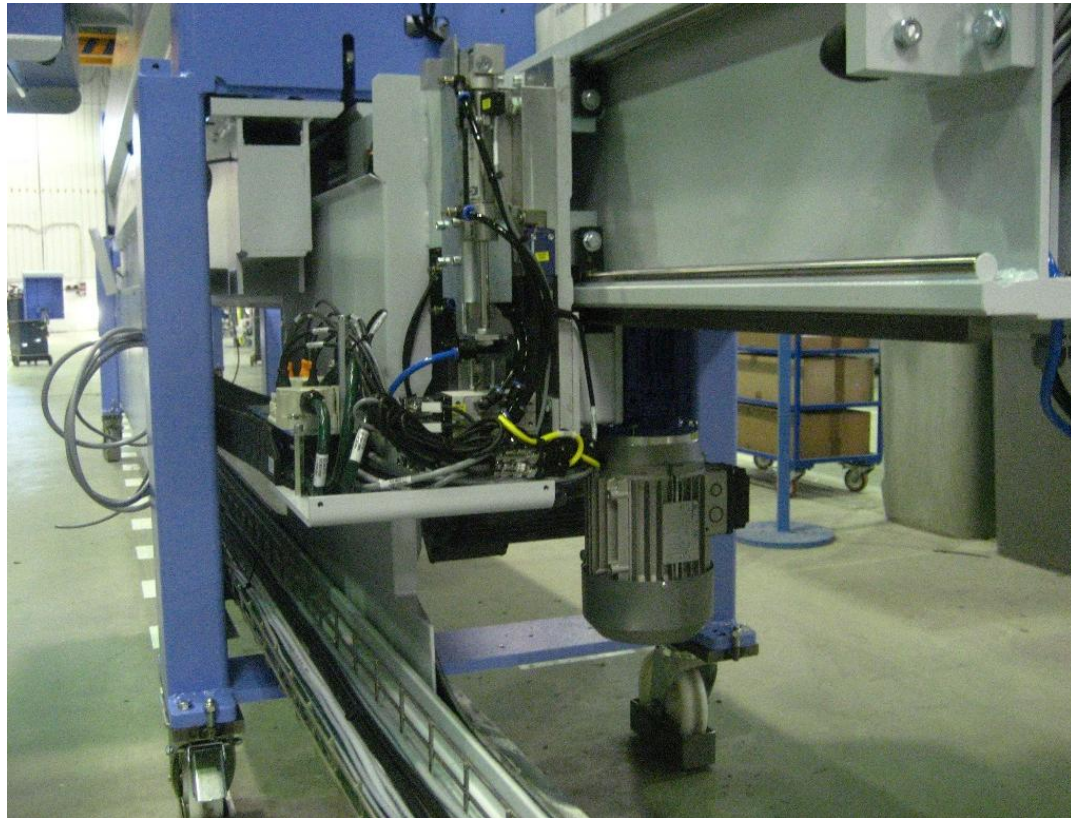
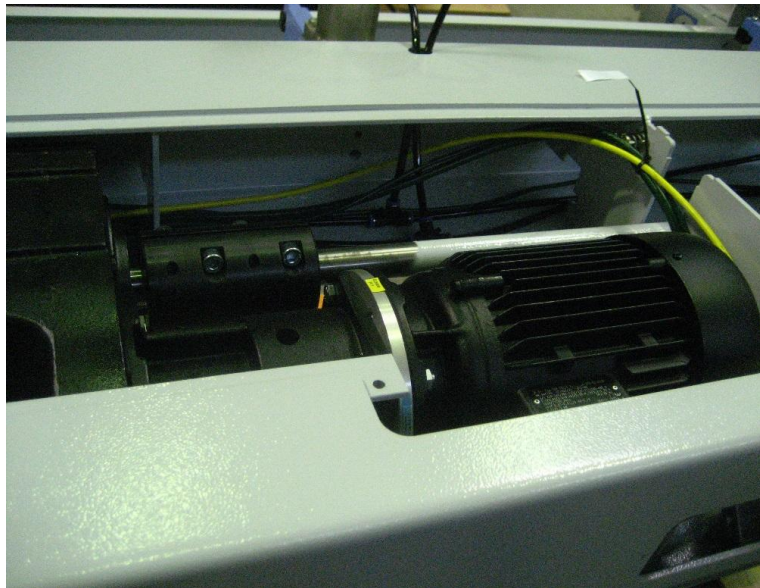
Suitable for gear motors by SEW, a.o.





## BEGE MIG Encoders - Type MIG NOVA+ Applications

General mechanical engineering



## BEGE MIG Encoders - Type MIG NOVA+

### Specifications

#### Specifications

Number of impulses	6,000 min <sup>-1</sup> (1,024 impulses), 3,000 min <sup>-1</sup> (2,048 impulses)
Output signal	A 90° B and inverted
Output switching	Line driver (Push-Pull)
Flange thickness [mm]	7, 9, 12 and 15 mm
Flange diameter [mm]	80 to 450 mm
IEC size	56 to 225
Material	Aluminium or stainless steel
Protection class	IP67, when mounted between motor and gear unit





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