

**Inductive linear transducers**

**Model series IW 120**

Measuring strokes: 12 mm, 24 mm, 40 mm, 60 mm, 100 mm, 150 mm, 200 mm

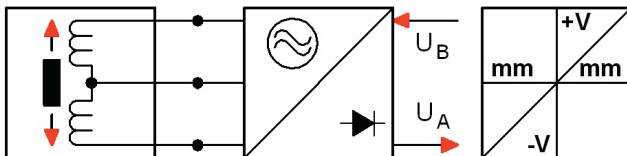
IW 10214 OE

11 / 2017

- **Contactless, robust system**
- **Infinite resolution**
- **No hysteresis**
- **Linearity 0.5 % or 0.25 %**
- **Protection type IP 66 (with cable IP 68)**
- **Supply and signal processing through external modules**
- **Housing material: Stainless steel (1.4305)  
Plunger Material: nickel-iron (stainless)**

**Design and function**

The linear transducers operate according to the differential throttle principle (inductive half-bridges). They consist of two coils which are impermeably cast into a Mu-metal cylinder, where they are protected from vibrations. On displacement through the hollow coil body, a Mu-metal plunger leads to a change in the induction direction in both coils.



The linear transducers are designed for an oscillator frequency of 10 kHz. The supply and signal processing are carried out by external modules.

**Standard measuring strokes:  
12, 24, 40, 60, 100, 150, 200 mm**

**Technical data**

- Linearity:  $\leq 0.5\%$  or  $\leq 0.25\%$
- Operating temp. range
  - Standard: -55 °C to +100 °C
  - Connector des. form: -40 °C to +85 °C
- Shock resistance: 250 g SRS 20 - 2000 Hz
- Vibration resistance: 20 g rms (50 g peak) 20 - 2000 Hz
- Protection type: IP 66
- Further data: See table on page 2 and 3



**Note:**

Unless otherwise specified, the values apply at an ambient temperature of +20 °C and on use of the transducer with oscillator/demodulator OD15 according to data sheet OD 10220. The housings and plungers are assigned to each other and bear the same serial number. They must not be interchanged.

**Standard design form:** Electrical connections via Kynar strands, 300 mm long.

## Variants and accessories

- Design S: Connector, 3-pin with gold-plated contacts
- Mating connector: Binder female coupling connector 681 (IP 40). Binder female coupling connector 723M (IP 66), metal housing with earth slip ring, to be ordered separately.
- Design form T: Gauge version with return spring (measuring stroke up to 100 mm available).
- Design form KV: With ball joint on the plunger.
- Design form KF: With special plunger guide and ball joint on the plunger.
- Design form KH: With ball joint on the housing.

**Model series IW 120 replaces model series IW 12.**

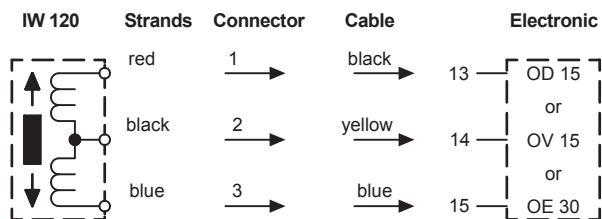
## Supply and signal processing for IW 120/ . . .

The following modules can be supplied to supply and process the measuring signal (DC in/DC out):

- OD 15: Oscillator/demodulator.
- OV 15: Oscillator/demodulator/amplifier for zero point and sensitivity adjustment (measuring signal up to  $\pm 10$  VDC).
- OE 30: Oscillator/demodulator current constrainer (measuring signal 0(4)...20 mA).
- OE 42: Oscillator/demodulator/amplifier with zero point (OV 42) and amplifier adjustment 2 channels. (data sheet OE 11012)
- E 17U: Power supply unit input voltage: 85 ... 264 VAC 45 ... 65 Hz  
Ausgang:  $\pm 15$  V oder 24 VDC  
(data sheet E 11322)

Exhaustive information with technical data is contained in data sheets OD 10220 and OA 10219.

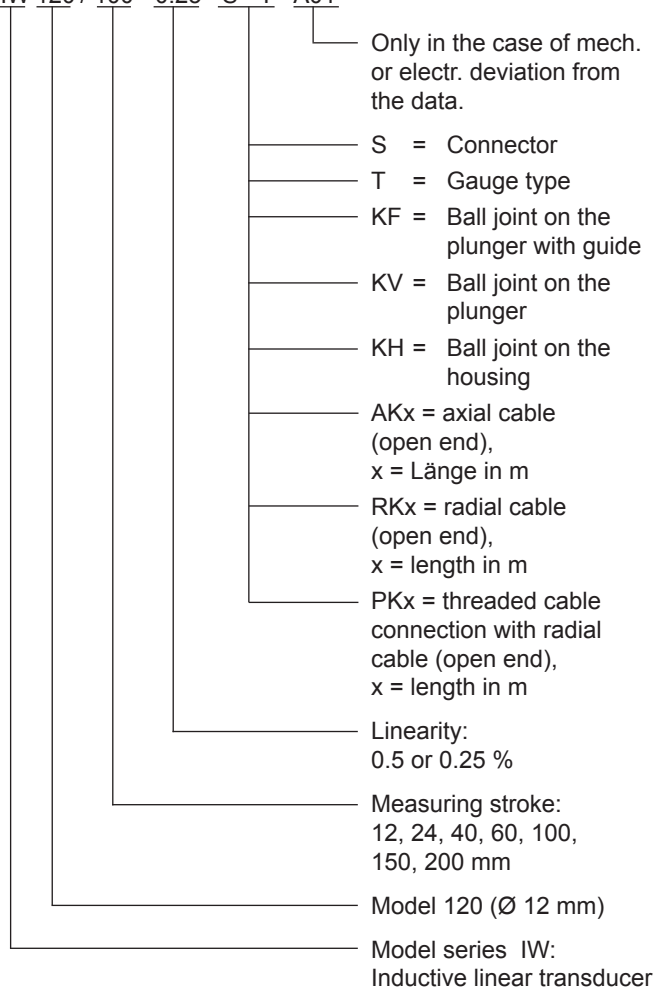
## Electrical connections



This connection method results in a positively ascending output signal when the plunger is moved in the direction of the electrical connections.

## Order number

**IW 120 / 100 - 0.25 - S - T - A01 \***



\* The sequential A number is specified on ordering after definition of the deviation. No A number is specified in the case of standard designs according to the data sheet.

## Lengths and weights

(for standard design types only, see Page 3)

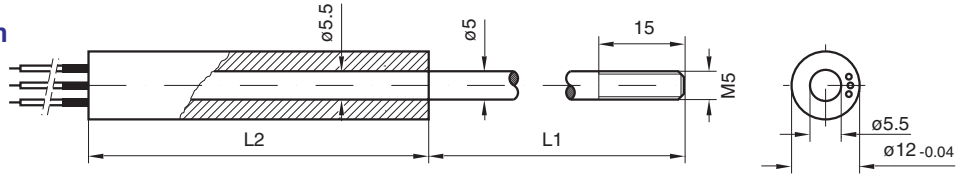
IW 120 / ...		12	24	40	60	100	150	200
Measuring stroke	[mm]	$\pm 6$	$\pm 12$	$\pm 20$	$\pm 30$	$\pm 50$	$\pm 75$	$\pm 100$
Length L1 *	[mm]	48	60	50	75	80	125	130
Length L2	[mm]	60	100	140	170	270	350	500
Weight without plunger	[g]	25	40	50	65	110	135	175
Weight of the plunger	[g]	15	20	25	25	35	45	56

\* Plunger in centre position (electr. zero)  $\pm 2$  mm.

**Dimensions in mm**

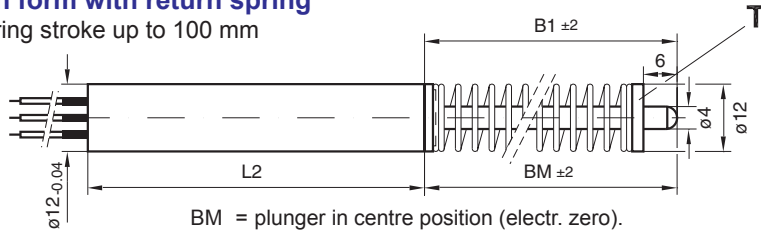
**Standard-design form**

with kynar-strands,  
300 mm long



**Design form with return spring**

Measuring stroke up to 100 mm

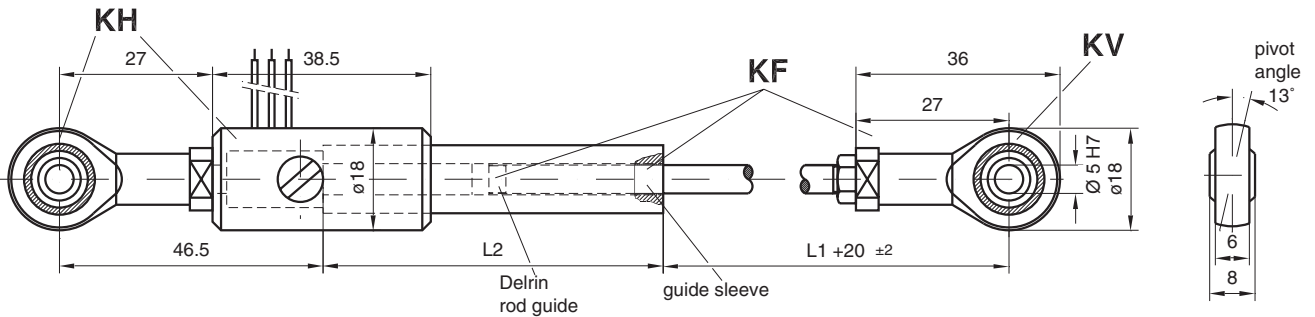


BM = plunger in centre position (electr. zero).  
B1 = plunger fully extended.  
FM = spring pre-tension with BM.  
Fc = constant spring rate.

**Design form T dimensions**

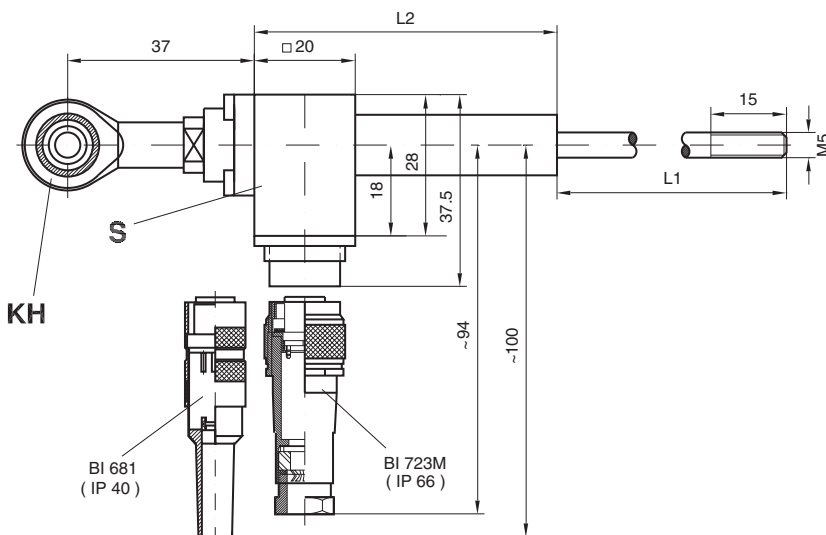
IW 120 /...T	12	24	40	60	100
B1 [mm]	45	63	98	110	198
BM [mm]	35	45	70	75	140
Init. stroke [mm]	4	6	8	5	8
Sec. stroke [mm]	4	8	7	2	11
FM [N]	~5	~4	~4	~4	~4
Fc [N/mm]	0.14	0.14	0.07	0.07	0.035

**Design form with ball joints**



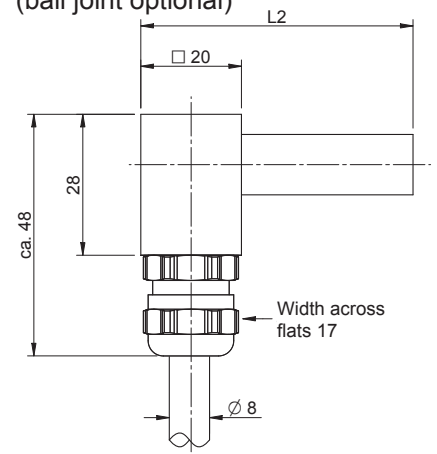
**Design form with connector**

(ball joint optional)



**Design form with cable**

(ball joint optional)

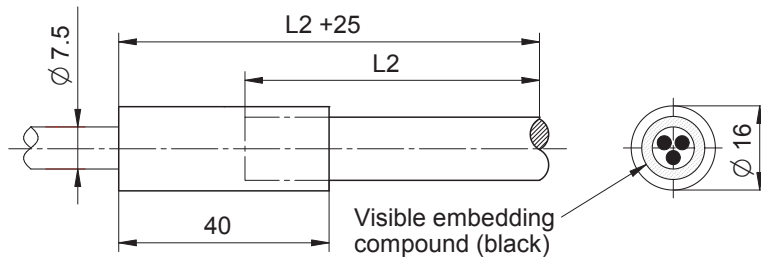


The length L2 ist unchanged.

**Dimensions in mm**

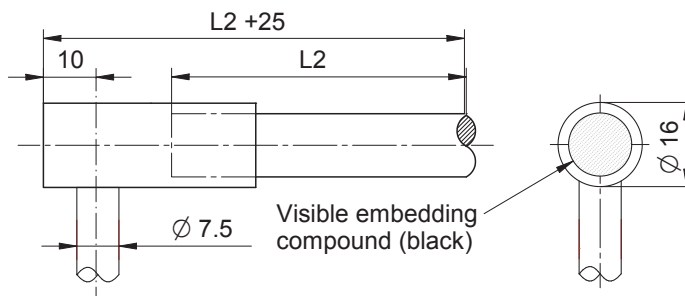
**Design form with axial cable**

(not usable with KH)

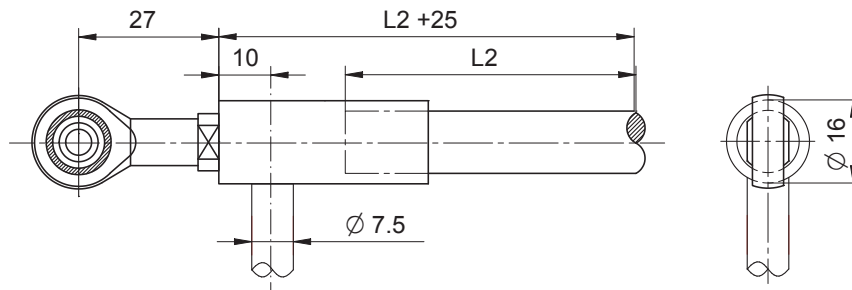


**Design form with radial cable**

(not usable with KH)



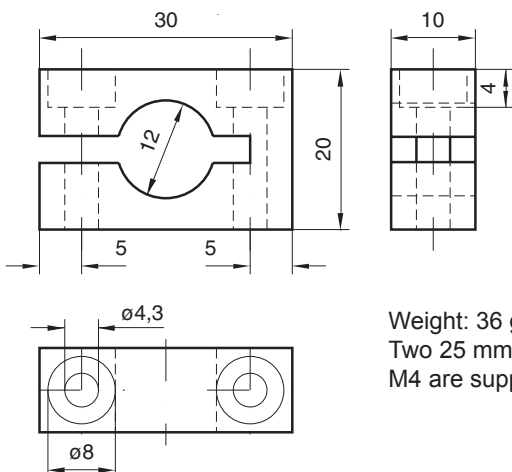
**Design form with radial cable and ball joint (KH)**



**Assembly block MB 12**

(nickel-plated brass)

(to be ordered separately)



Weight: 36 g  
Two 25 mm-long allen head bolts  
M4 are supplied