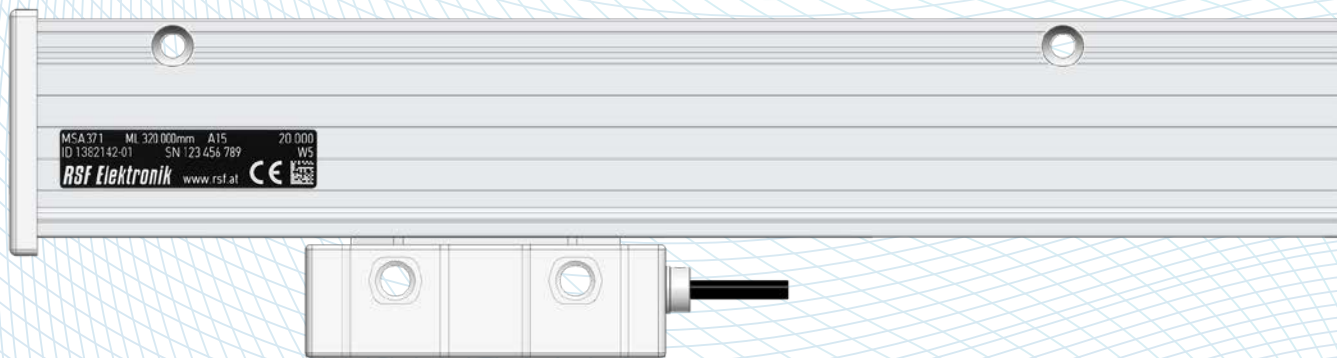




# RSF Elektronik

[www.rsf.at](http://www.rsf.at)

## MSA 371 SEALED LINEAR ENCODERS WITH LARGE CROSS SECTION



MSA 371 ML 320.000mm A15 20.000  
ID 1382142-01 SN 123 456 789 W5  
RSF Elektronik www.rsf.at CE

# MSA 371 - TECHNICAL DATA

## READING HEAD AE MSA 371

Model	MSA 371 1V <sub>pp</sub>	MSA 371 1V <sub>pp</sub>	MSA 371 ~11µA <sub>pp</sub>	MSA 371 TTLx1	MSA 371 TTLx1	MSA 371 TTLx5	MSA 371 TTLx5	MSA 371 TTLx10	MSA 371 TTLx10	MSA 371 TTLx25
Interface	1 V <sub>pp</sub>	1 V <sub>pp</sub>	11 µA <sub>pp</sub>							
Measuring step	Depending on external interpolation	Depending on external interpolation	Depending on external interpolation	10 µm	5 µm	2 µm	1 µm	0.5 µm	0.25 µm	0.1 µm
Signal period	20 µm	10 µm	20 µm	40 µm	20 µm	40 µm	20 µm	20 µm	10 µm	10 µm
Integrated interpolation	--	--	--	Times 1	Times 1	Times 5	Times 5	Times 10	Times 10	Times 25
Max. traversing speed	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s	1 m/s	0.96 m/s
Max. output frequency	100 kHz	100 kHz	100 kHz	--	--	--	--	--	--	--
Edge separation a <sub>min</sub>	--	--	--	6.6 µs	3.3 µs	0.8 µs	0.8 µs	0.3 µs	0.3 µs	0.2 µs
Electrical connection	Cable: 3 m with D-sub connector 15-pin (TTL, 1 V <sub>pp</sub> ) or M23 connector 9-pin (11 µA <sub>pp</sub> )									
Voltage supply	<ul style="list-style-type: none"> <li>1 V<sub>pp</sub>: +5 V ±10 %</li> <li>~11,5 µA<sub>pp</sub>: +5 V ±5 %</li> <li>TTL: +5 V ±5 %</li> </ul>									
Power consumption max.	<ul style="list-style-type: none"> <li>1 V<sub>pp</sub>: 825 mW (without load)</li> <li>~11,5 µA<sub>pp</sub>: 660 mW (without load)</li> <li>TTL: 825 mW (without load)</li> </ul>									
Current consumption max.	<ul style="list-style-type: none"> <li>1 V<sub>pp</sub>: 150 mA (without load)</li> <li>~11,5 µA<sub>pp</sub>: 120 mA (without load)</li> <li>TTL: 150 mA (without load)</li> </ul>									
Vibration 40 Hz – 2000 Hz	150 m/s <sup>2</sup>									
Shock 8 ms	3000 m/s <sup>2</sup>									
Operating temperature	0 °C to 50 °C									
Storage temperature	-20 °C to 70 °C									
Mass	<ul style="list-style-type: none"> <li>Reading head: 245 g (without cable)</li> <li>Cable: 30 g/m, D-sub connector: 28 g, M23 connector: 75 g</li> </ul>									

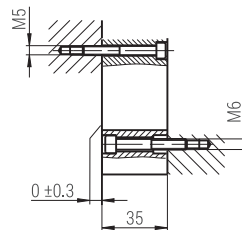
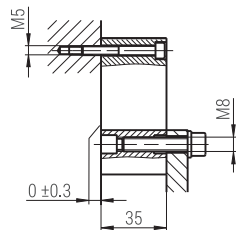
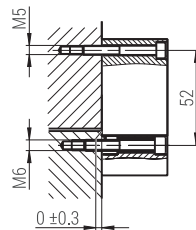
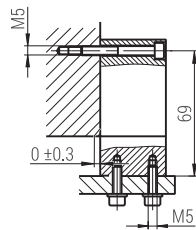
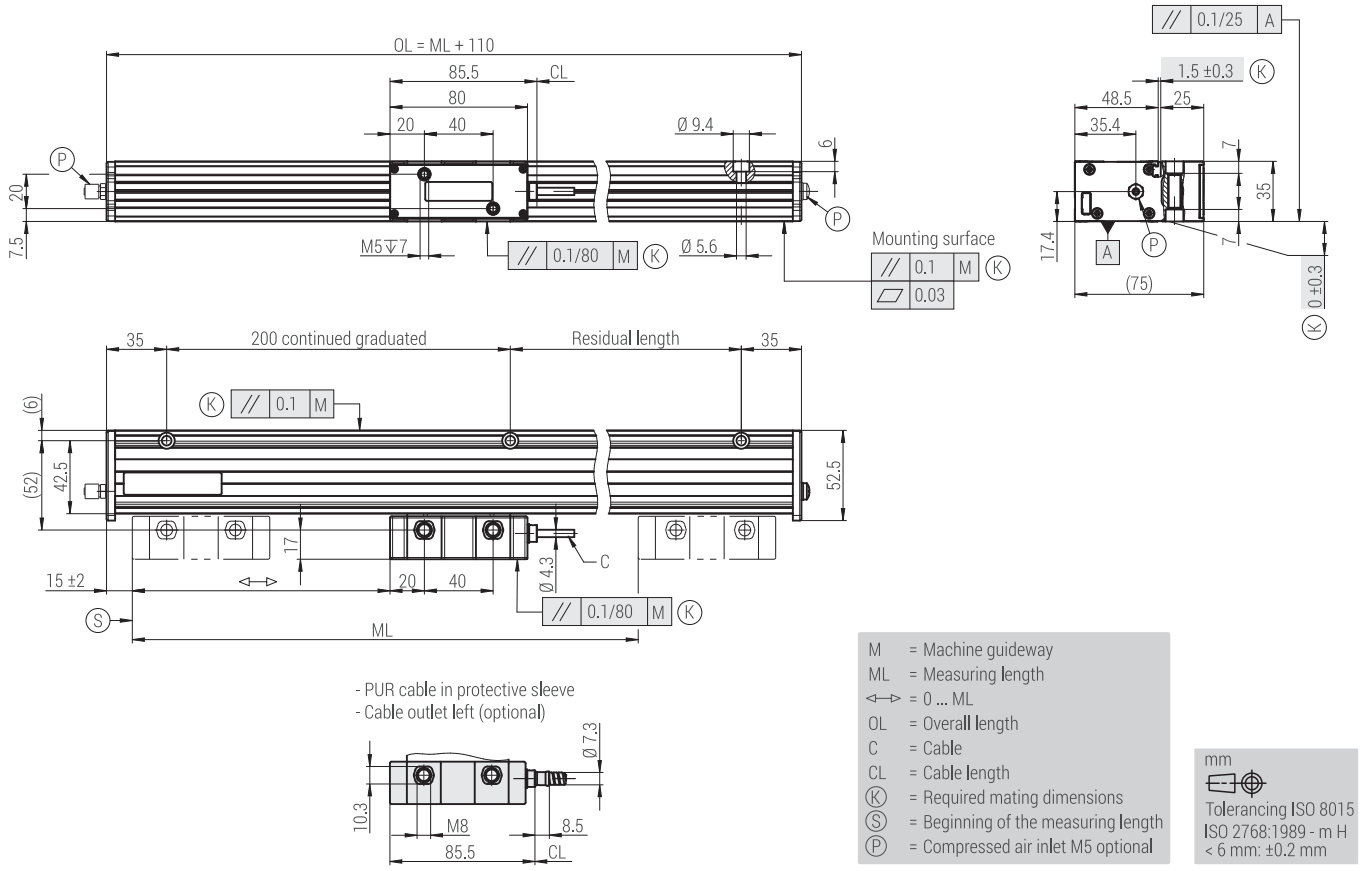
## SCALE UNIT

Model	MSA 371
Mounting version	Mounting via holes in the scale housing
Standard measuring lengths (ML): [mm]	70, 120, 170, 220, 270, 320, 370, 420, 470, 520, 620, 720, 820, 920, 1040, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 2040, 2240
Graduation carrier	Glass scale (α <sub>therm</sub> ≈ 8.5 x 10 <sup>-6</sup> K <sup>-1</sup> ), grating period: 40, µm, 20 µm, 10 µm
Accuracy grades (at 20 °C)	Dependent on interface and grating period <ul style="list-style-type: none"> <li>±5 µm/m</li> <li>±10 µm/m</li> </ul>
Location of the reference mark (RI):	<ul style="list-style-type: none"> <li>Distance-coded reference marks (K): After travelling max. 20 mm the absolute position is available</li> <li>One reference mark in the middle of measuring length               <ul style="list-style-type: none"> <li>Up to measuring length 920 mm, 35 mm from both ends of measuring length</li> <li>From measuring length 1040 mm, 45 mm from both ends of measuring length</li> </ul> </li> <li>Optional:               <ul style="list-style-type: none"> <li>One reference mark at any location</li> <li>Additional reference marks can be selected by distances of n x 50 mm</li> </ul> </li> </ul>
Required moving force	<ul style="list-style-type: none"> <li>With standard sealing lips: &lt; 3.0 N</li> <li>With low drag sealing lips: &lt; 0.2 N</li> </ul>
Protection EN 60529	IP 53 (with standard sealing lips)
Mass	Scale spar (approx.): 3 kg/m (ML)

## CONFORMITIES AND CERTIFICATIONS

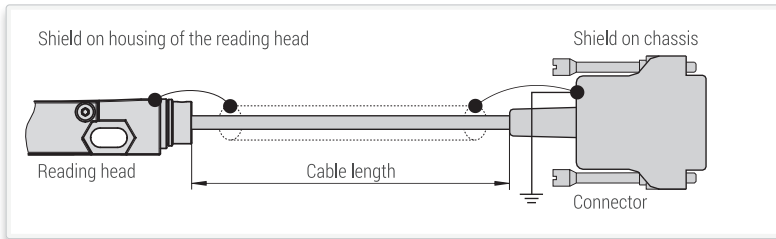
CE	<ul style="list-style-type: none"> <li>RoHS: 2011/65/EU, 2015/863/EU</li> <li>EMV: 2014/30/EU</li> </ul>
UKCA	<ul style="list-style-type: none"> <li>SI 2012/3032 RoHS Regulations</li> <li>SI 2016/1091 EMC Regulations</li> </ul>
Product-Certifications	UL, CSA, EN, IEC 61010-1

# MSA 371 DIMENSIONS, MOUNTING POSSIBILITIES



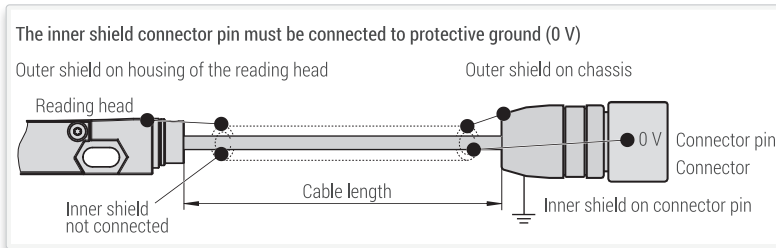
## SHIELDING

SIGNALS: TTL, 1 V<sub>pp</sub>



Cable	Material	Cycles	Bending radius
Ø 4.3 mm	Shielded PUR cable	Drag chain: > 5.000.000 Torsion: > 300.000	
Ø 7.3 mm	Shielded PUR cable with metal armor		

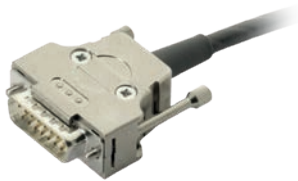
SIGNALS: 11 µA<sub>pp</sub>



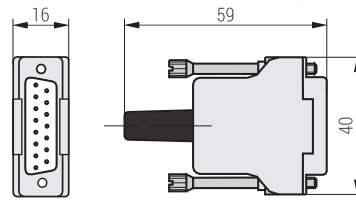
Cable	Material	Cycles	Bending radius
Ø 4.4 mm	Double-shielded high flexible cable		

## MALE CONNECTORS, PIN ASSIGNMENTS

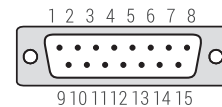
D-sub connector, 15-pin



Dimensions (male, 15-pin, mass: 28 g)



Pin assignment (View on pins)



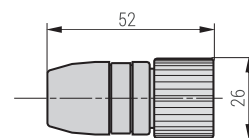
Pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sinusoidal voltage signals 1 V <sub>pp</sub>	Occupied	0 V Sensor	Occupied	RI-	A2-	A1-	V+ Sensor	V+	0 V	nc	nc	RI+	A2+	A1+	nc
TTL-signals	Occupied	0 V Sensor	US	RI	T2	T1	V+ Sensor	V+	0 V	nc	nc	RI	T2	T1	nc

- Sensor: the sensor pins are bridged in the chassis with the particular power supply.
- Shield is connected with the chassis.
- Pins or wires marked "occupied" or "nc" must not be used by the customer.

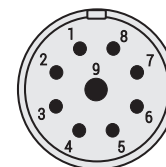
M23 connector, 9-pin



Dimensions (male, 9-pin, mass: 75 g)



Pin assignment (View on pins)



Pin	1	2	3	4	5	6	7	8	9	
Sinusoidal micro-current signals 11 µA <sub>pp</sub>	0°+	0°-	V+	0 V	90°+	90°-	RI+	RI-	Inner shield	Outer shield on chassis

Date 07/2024 ■ Doc.No. D1400660-00-A-01 ■ Technical adjustments in reserve!

