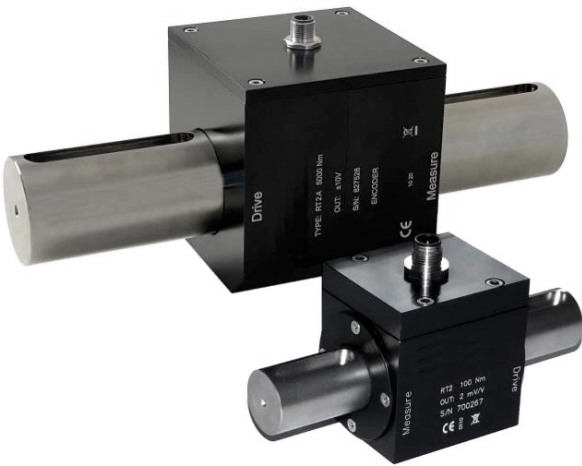


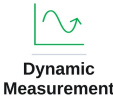
ROTATING TORQUE TRANSDUCER



Nominal torque from 0.5 N·m to 5000 N·m



- CONTACT TRANSMISSION
- OUTPUT 2 mV/V OR ±10 V
- NOMINAL SPEED 4000 rpm



NOMINAL TORQUE (FS)

Nominal torque (N·m)	Code 2 mV/V	Code ±10 V	Shaft ØA	Torsional stiffness (kNm/rad)	Inertia (kg mm²)	Rated output
0.5	MRT20NM5 (1)	MRT2A0NM5 (1)	16h6	0.78	28	1 mV/V
2.5	MRT22NM5 (1)	MRT2A2NM5 (1)	16h6	0.78	28	2 mV/V
5	MRT25NM	MRT2A5NM	16h6	0.78	28	2 mV/V
10	MRT210NM	MRT2A10NM	16h6	0.78	28	2 mV/V
25	MRT225NM	MRT2A25NM	16h6	4.4	28	2 mV/V
50	MRT250NM	MRT2A50NM	16h6	4.4	28	2 mV/V
100	MRT2100NM	MRT2A100NM	25h6	14	47	2 mV/V
250	MRT2250NM	MRT2A250NM	25h6	31	50	2 mV/V
500	MRT2500NM	MRT2A500NM	25h6	44	53	2 mV/V
1000	MRT21000NM	MRT2A1000NM	50h6	181	1 295	2 mV/V
3000	MRT23000NM	MRT2A3000NM	50h6	332	1 370	2 mV/V
5000	MRT25000NM	MRT2A5000NM	50h6	377	1 475	2 mV/V



TECHNICAL DATA

PRECISION

Linearity and hysteresis	$\leq \pm 0.2 \%$
Temperature effect on zero (1 °C)	$\leq \pm 0.02 \%$
Temperature effect on sensitivity (1 °C)	$\leq \pm 0.02 \%$
Rated output RT2	2 mV/V · 1 mV/V at 0.5 N·m
Rated output RT2A	$\pm 10 \text{ V}$
Sensitivity tolerance	$\leq \pm 0.2 \%$
Zero balance	$\leq \pm 0.5 \%$
Reference temperature	+23 °C
Working temperature range	-10...+70 °C
Storage temperature range	-20...+80 °C

MECHANICAL PROPERTIES

Sensor material	Stainless steel
Case material	Aluminium
Process coupling	Cylindrical shaft · square coupling optional
Protection class	IP40 · EN 60529
Weight	0.65...1 kg · approx. 6 kg (see note)

MECHANICAL LIMITS

Service torque	100 %FS	Torque that may be applied continuously without leaving the specification.
Max. permissible torque	150 %FS	Torque that may be applied without permanent change of the characteristics.
Breaking torque	> 300 %FS	Torque at which mechanical failure of the shaft may occur.
Highly dynamic torque	70 %FS	Amplitude permitted for alternating load over the service life.
Nominal speed	4 000 rpm	Highest permitted speed of rotation of the shaft.

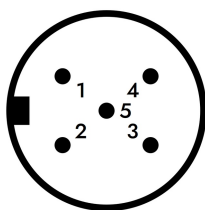
ELECTRICAL PROPERTIES

Output RT2	2 mV/V · 1 mV/V at 0.5 N·m
Supply voltage RT2	1...15 V · max. 18 V
Input resistance RT2	800 Ω ± 20
Output resistance RT2	700 Ω ± 5
Output RT2A	$\pm 10 \text{ V}$
Supply voltage RT2A	15...24 V · max. 28 V
Max. absorption RT2A	30 mA
Load resistance RT2A	min. 3 k Ω
Bandwidth RT2A	3.3 kHz
Insulation resistance	> 2 G Ω

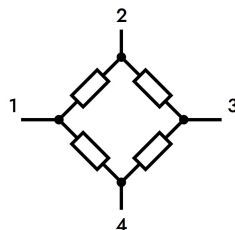
ELECTRICAL CONNECTION

Pin	Signal	Cable
1	RT2 + EXCITATION · RT2A + POWER	RED
2	RT2 + OUTPUT	ORANGE
3	RT2 – EXCITATION · RT2A GND	BLACK
4	RT2 – OUTPUT · RT2A + OUTPUT	BROWN
	Shield, connected to the body	
	M12x1 male, 5 poles · 3 m moulded PVC cable	

CONNECTOR AND WIRING



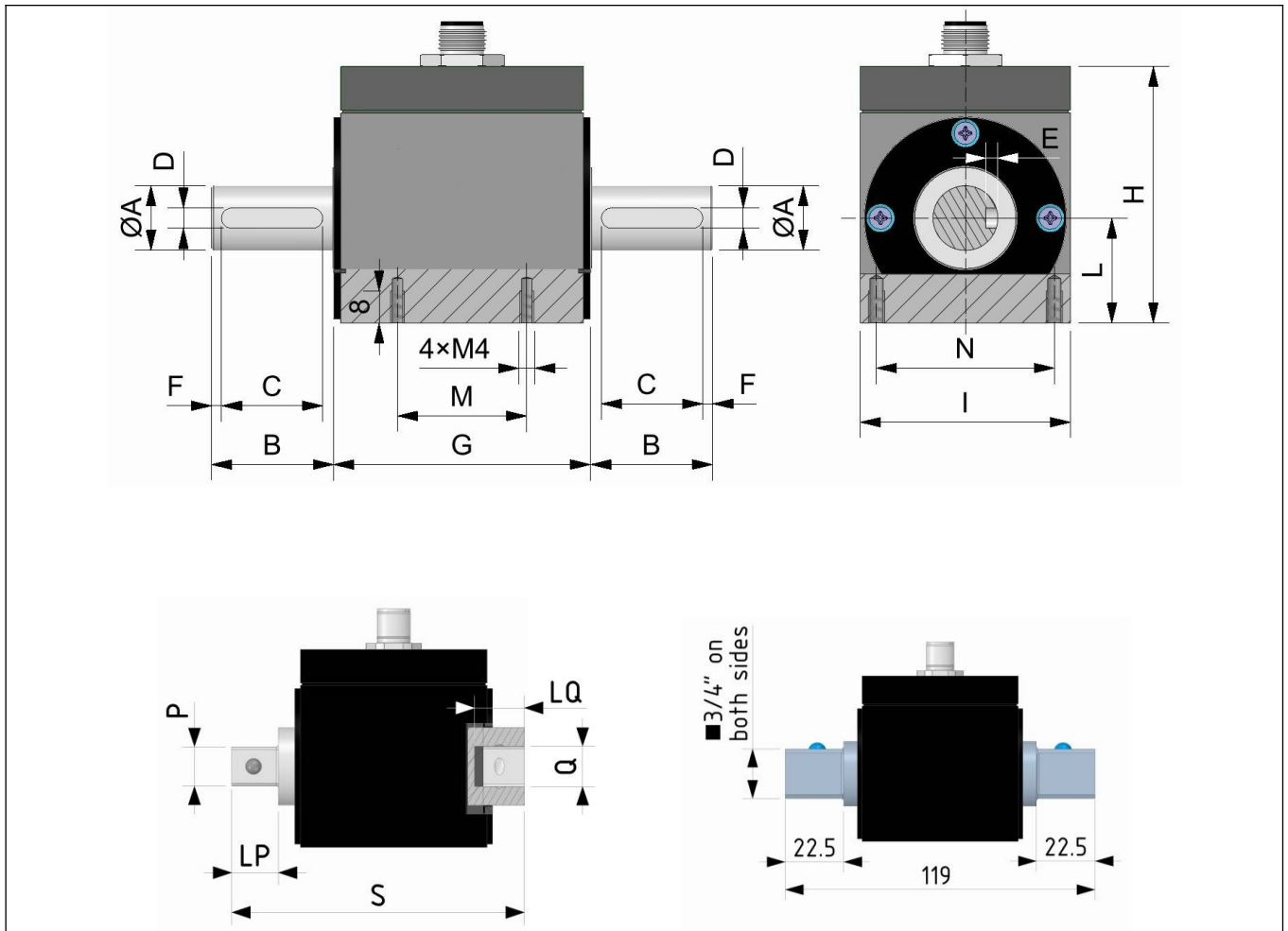
M12x1 male, 5 poles



RT2 · 2 mV/V bridge

RT2A · $\pm 10 \text{ V}$ output

DIMENSIONS (mm)



DIMENSIONS PER FRAME SIZE (mm)

Nominal torque	ØA	B	C	D	E	F · G · H · I · L · M · N
0.5 ... 50 N·m	16h6	30	25	5	3	2.5 · 64 · 63.5 · 52 · 26 · 32 · 44
100 ... 500 N·m	25h6	40	35	8	4	2.5 · 64 · 63.5 · 52 · 26 · 32 · 44
1000 ... 5000 N·m	50h6	90	80	14	5.5	5 · 100 · 106 · 100 · 43 · 80 · 60

Keyslot UNI 6604: form A 5x5 for ØA 16h6 · form A 8x7 for ØA 25h6 · form A 14x9 for ØA 50h6.

Letters as marked in the drawing above.



COMPLIANCE AND CERTIFICATION

Protection rating	IP40 according to EN 60529
Compliance	CE, RoHS, REACH
Applied standards	EN 61326-1 (2013) · EN 61010-1 (2013)
Directives and regulations	2004/108/EC · 2006/95/EC · 2011/65/EU (RoHS) · 2012/19/EU (WEEE) · 1907/2006 (REACH)
Quality system	Certified according to EN ISO 9001
Declaration of conformity	Issued by the manufacturer on 11/04/2014, covering all options listed in the sales catalogue
On request	Calibration report, clockwise and anticlockwise
On request	ACCREDIA calibration certificate (ISO/IEC 17025), clockwise and anticlockwise — see note (1) on page 1
On request	Internal incremental encoder · square coupling to UNI ISO 1174-1

COMPLEMENTARY ACCESSORIES

MAAA: Shaft couplings FLEXSTEEL and METALFLEX

- Two shaft couplings and one adjustable support are needed for a correct installation. Assemble the couplings with the transducer off the machine and connected to a display, so that no unwanted torque, bending or tension is generated. Codes according to data sheet GT.563 of the manufacturer.



Bore Ø
16 · 25 · 50 mm

Torque range
0.5 ... 5000 N·m

OPTIONS AND ACCESSORIES

Item	Availability	Data
Internal incremental encoder	Ordered with the transducer	Line driver RS422 · 5 Vdc, max. 10 mA · 3 520 or 8 000 pulses per revolution · M12x1 male, 12 poles
Square coupling to UNI ISO 1174-1	Ordered with the transducer	1/4" up to 10 N·m · 3/8" for 25 ... 50 N·m · 1/2" for 100 ... 250 N·m · available up to 500 N·m
Calibration report	On request	Clockwise and anticlockwise
ACCREDIA calibration certificate	On request	ISO/IEC 17025, clockwise and anticlockwise — not from LAT laboratory no. 93 for 0.5 and 2.5 N·m, see note (1) on page 1
Shaft couplings FLEXSTEEL / METALFLEX	MAAA · two per installation	Codes in the table below
Adjustable support	One per installation	Aligns transducer and couplings during assembly · no order code given in the source



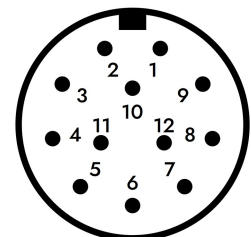
COUPLING CODES

Nominal torque	FLEXSTEEL	METALFLEX
0.5 ... 2.5 N·m	—	GMETAL16A16
5 ... 10 N·m	GFLEX40BF16	GMETAL24A16
25 N·m	GFLEX53BF16	GMETAL32A16
50 N·m	GFLEX53BF16	GMETAL40A16
100 N·m	GFLEX72BF25	GMETAL50A25
250 N·m	GFLEX89BF25	GMETAL70A25
500 N·m	GFLEX118BF25	GMETAL70A25
1000 N·m	GFLEX142BF50	—
3000 N·m	GFLEX200BF50	—
5000 N·m	GFLEX238BF50	—

ENCODER CONNECTION · OPTION

Pin	Signal	Cable
5	Encoder B–	YELLOW
6	Encoder B+	GREEN
7	Encoder A–	BLUE
8	Encoder A+	GREY
9	Encoder +5 Vdc	WHITE-YELLOW
10	Encoder GND	WHITE-BLACK
11	Shield	—
1 ... 4	Torque signal, as in the electrical connection on page 2	as on page 2

With the encoder option the transducer carries an M12x1 male connector with 12 poles and a 2 m moulded PVC cable instead of the 5-pole connector. Output line driver RS422, 5 V; supply 5 Vdc, max. 10 mA. Resolution 3 520 pulses per revolution for 0.5 ... 500 N·m at up to 3 400 rpm, 8 000 pulses per revolution for 1000 ... 5000 N·m at up to 3 000 rpm.



M12x1 male, 12 poles

