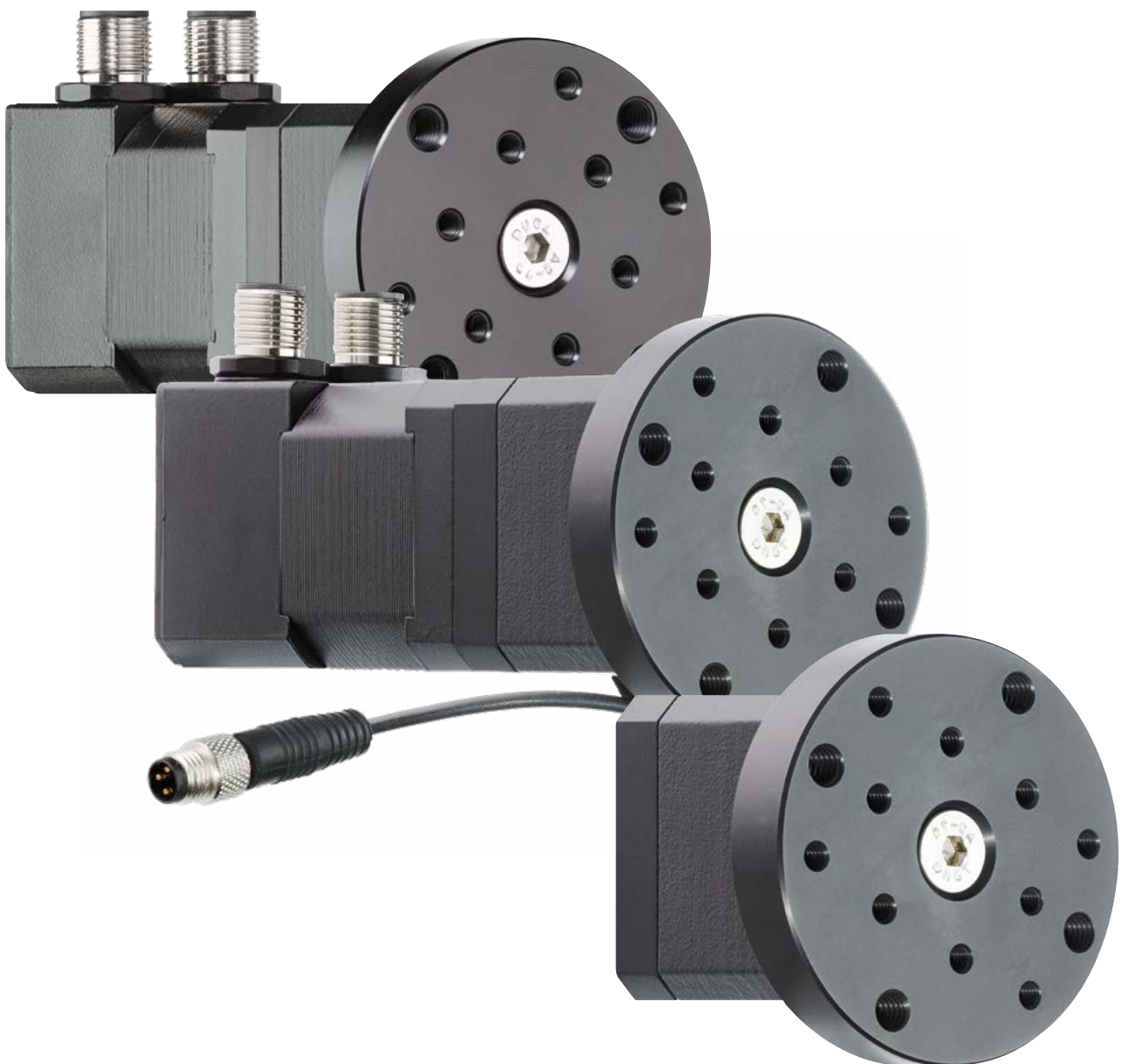


# igus® data sheet

## drygear® RL-S

Strain wave gear installation size 17



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## General properties

- Compact design
- 2-20rpm in continuous operation (with NEMA17 stepper motor)
- Max. 4Nm (with NEMA17 stepper motor)
- Transmission 28:1
- Lightweight
- Lubrication-free
- Cost-effective
- Low clearance
- Motor type: stepper motor

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### ... assemblies

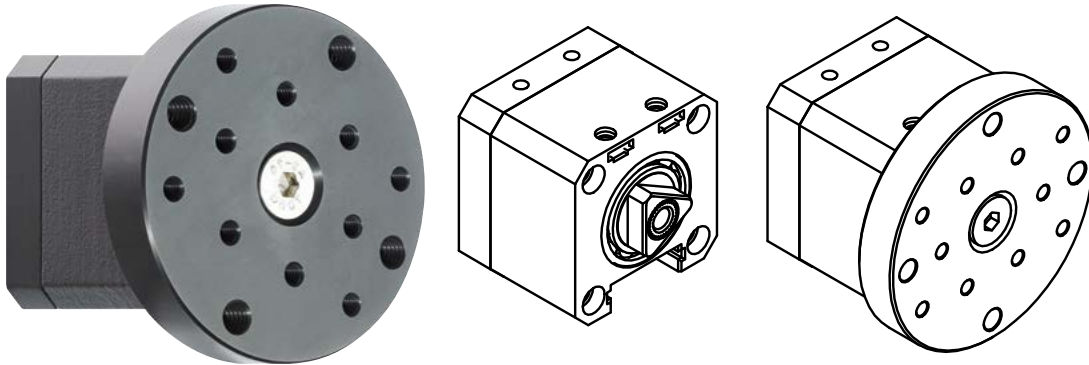
- |  |         |
|--|---------|
| 1. Strain wave gear installation size 17 <a href="#">RL-S-17-28-AA</a>   | Page 03 |
| 2. Strain wave gear installation size 17 drive shaft <a href="#">RL-S-17-28-AA-01</a>                                    | Page 04 |
| 3. Strain wave gear installation size 17 output shaft <a href="#">RL-S-17-28-AA-02</a>                                   | Page 05 |
| 4. Strain wave gear installation size 17, with N17 stepper motor <a href="#">RL-S-17-28-AA-N17</a>                       | Page 06 |
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| 6. Strain wave gear installation size 17, with adapter kit for N11 stepper motor<br><a href="#">RL-S-17-28-AA-N11-NM</a> | Page 08 |

Efficiency, torque fluctuation, breakaway torque and service life comparison  
with previous version Page 09

### ... options

Initiator kit for drygear® strain wave gear installation size 17	Page 10
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dryve D1 motor control system	Page 14

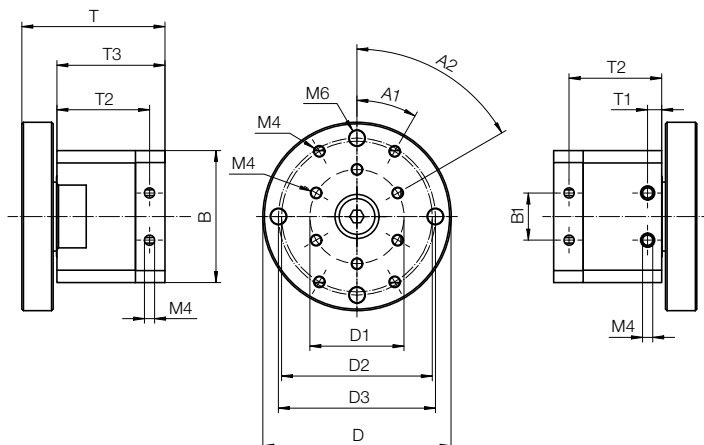
## Strain wave gear installation size 17 RL-S-17-28-AA



### ... technical data

Transmission	28 : 1
Max. rotational speed (without load)	25rpm
Efficiency	20-50%
Backlash (unloaded)	1.5°
Failure torque*	10Nm
Service life	1 million (at 1.5Nm and 20rpm)
Max. input torque	0.5Nm (at an input speed of 700rpm)
Max. output torque	3Nm (at an input speed of 700rpm)
Axial dynamic load	200N
Radial load (long-term)	300N
Radial load (short-term)	500N
Max. tilting moment	4Nm

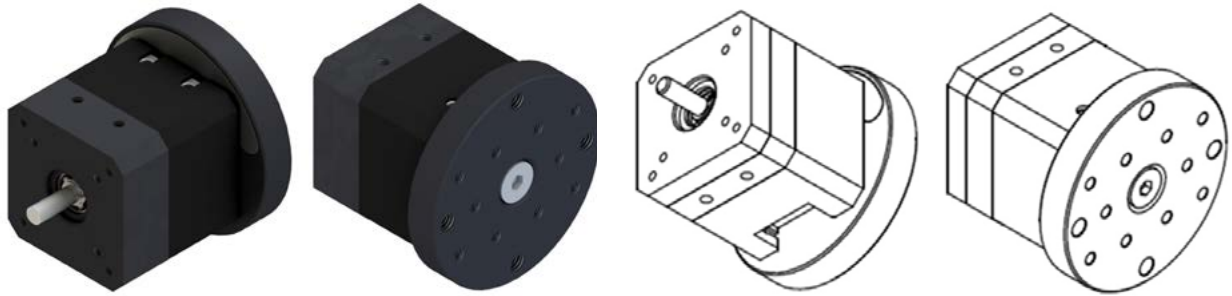
\* Slipping of the gearbox



### ... dimensions [mm]

B	B1	T	T1	T2	T3
42	15	45.6	4.5	29.5	34.4
D	D1	D2	D3	A1	A2
Ø60	Ø30	Ø48	Ø50	30°	6x 60°

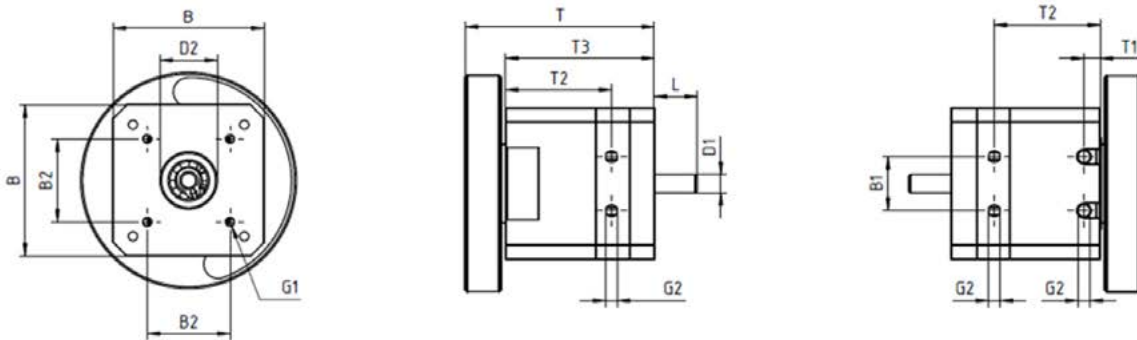
## Strain wave gear installation size 17 Drive shaft **RL-S-17-28-AA-01**



### ... technical data

Transmission	28 : 1
Self-locking	yes
Efficiency	20-50%
Backlash (unloaded)	1.5°
Failure torque*	10Nm
Service life	1 million (at 1.5Nm and 6rpm)

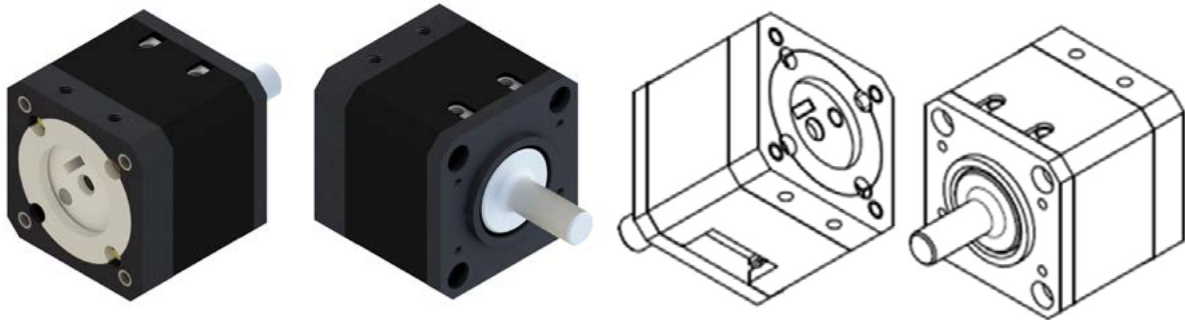
\* Slipping of the gearbox



### ... dimensions [mm]

B	B1	B2	T	T1	T2	T3
42	15	23	52.6	4.5	29.5	41.4
L	D1	D2	D2	G1	G2	
12	Ø5h7	Ø16h7x2	Ø48	M3x4	M4x4	

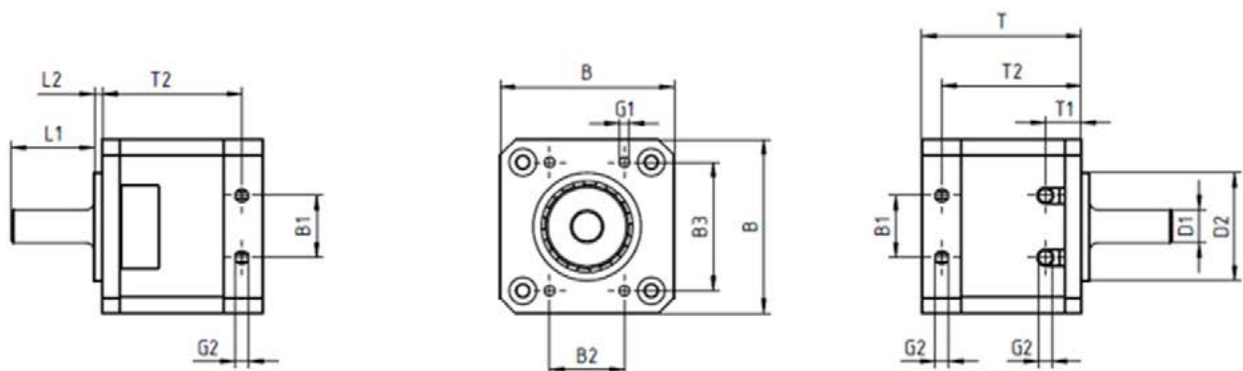
## Strain wave gear installation size 17 Drive shaft **RL-S-17-28-AA-02**



### ... technical data

Transmission	28 : 1
Self-locking	yes
Efficiency	20-50%
Backlash (unloaded)	1.5°
Failure torque*	10Nm
Service life	1 million (at 1.5Nm and 6rpm)

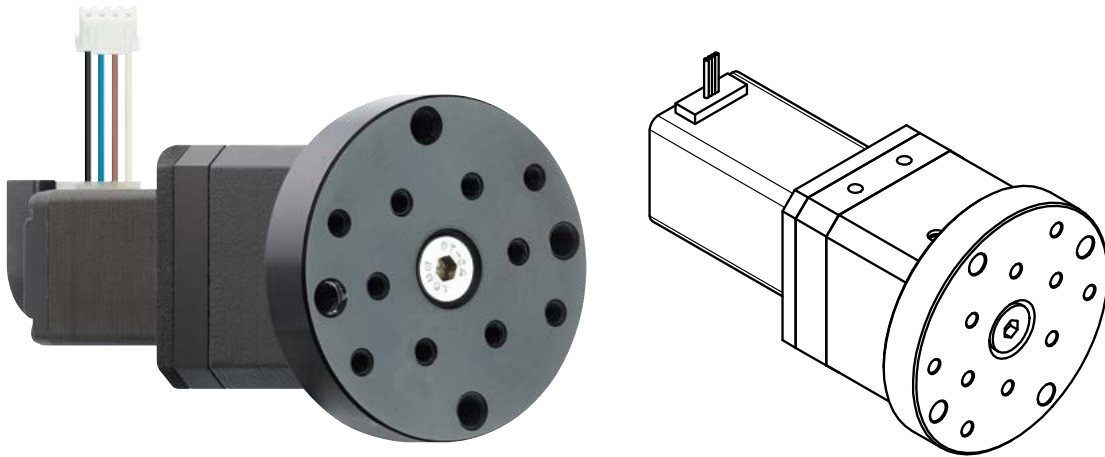
\* Slipping of the gearbox



### ... dimensions [mm]

B	B1	T	T1	T2
42	15	38.5	8.6	33.6
B2	B3	L1	L2	
18	31	20	2	

## Strain wave gear installation size 17, with N11 stepper motor **RL-S-17-28-AA-N11**

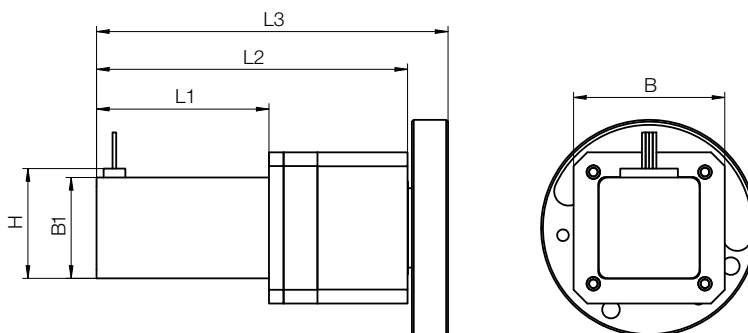


### ... technical data

Max. output torque	0.8Nm
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### Mounting brackets

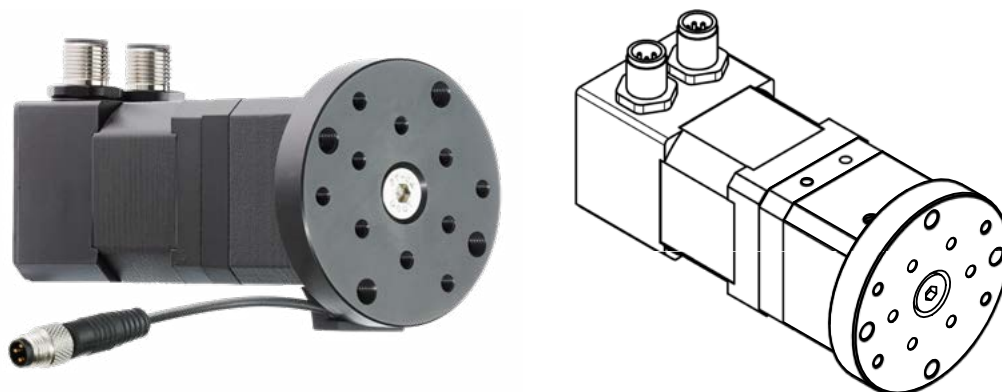
Part No.	Connection	Weight
RL-S-17-28-AA-N11-00	Stranded wire	352g
RL-S-17-28-AA-N11-01	Connectors	375g
RL-S-17-28-AA-N11-02	Stranded wire + encoder	361g



### ... dimensions [mm]

Part No.	B	B1	L1	L2	L3	H
RL-S-11-28-AA-N11-00	42	28	47.5	87.4	98.6	30.5
RL-S-11-28-AA-N11-01	42	28	67.5	107.4	118.6	41.0
RL-S-11-28-AA-N11-02	42	28	57.5	97.4	108.6	30.5

## Strain wave gear installation size 17, with N17 stepper motor **RL-S-17-28-AA-N17**

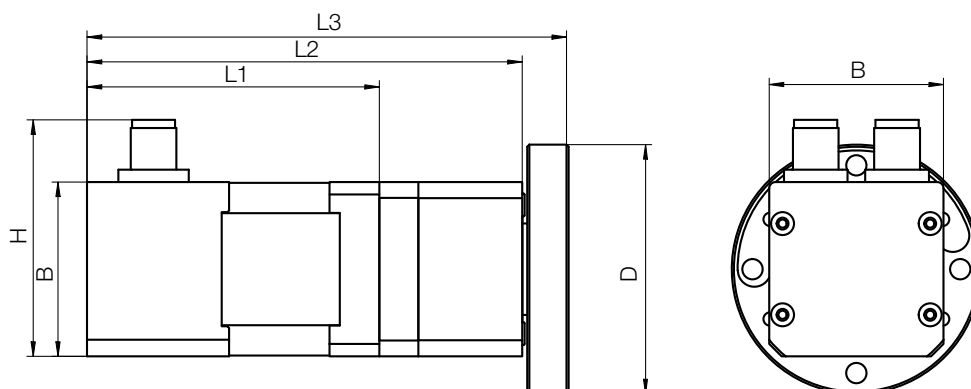


### ... technical data

Max. output torque	4Nm
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### Mounting brackets

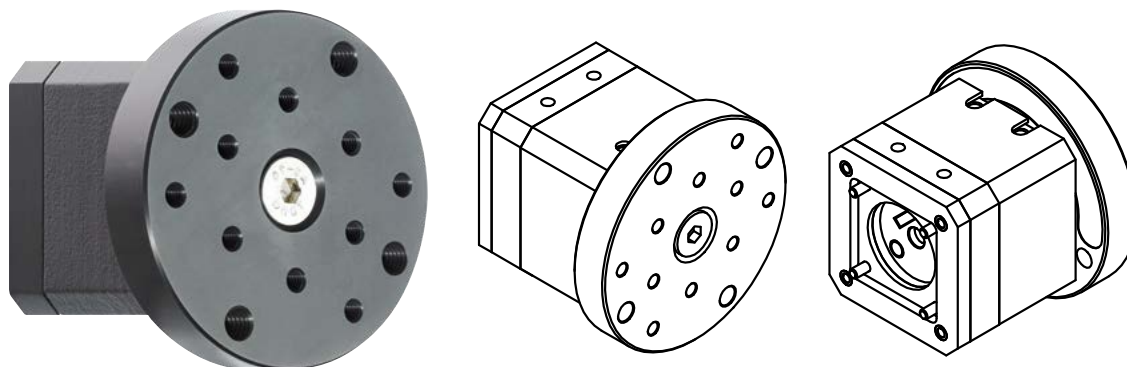
Part No.	Connection	Weight
RL-S-17-28-AA-N17-00	Stranded wire	553g
RL-S-17-28-AA-N17-01	Connectors	602g
RL-S-17-28-AA-N17-02	Connector + encoder	629g
RL-S-17-28-AA-N17-03	Connector + encoder + brake	759g



### ... dimensions [mm]

Part No.	B	D	L1	L2	L3	H
RL-S-17-28-AA-N17-00	42	Ø60	49.0	83.4	94.6	46
RL-S-17-28-AA-N17-01	42	Ø60	70.4	104.8	116.0	55
RL-S-17-28-AA-N17-02	42	Ø60	70.4	104.8	116.0	55
RL-S-17-28-AA-N17-03	42	Ø60	106.4	140.8	152.0	55

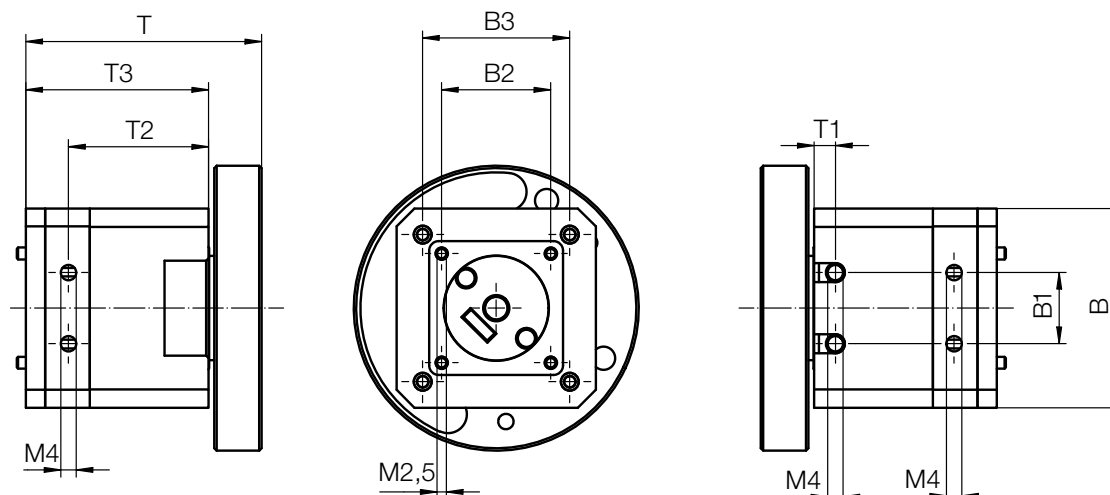
## Strain wave gear installation size 17, with adapter for N11 **RL-S-17-28-AA-N11-NM**



### ... technical data

Transmission	28 : 1
Efficiency	20-50%
Backlash	1.5°
Failure torque*	10Nm
Service life	1 million (at 1.5Nm and 20rpm)

\* Slipping of the gearbox

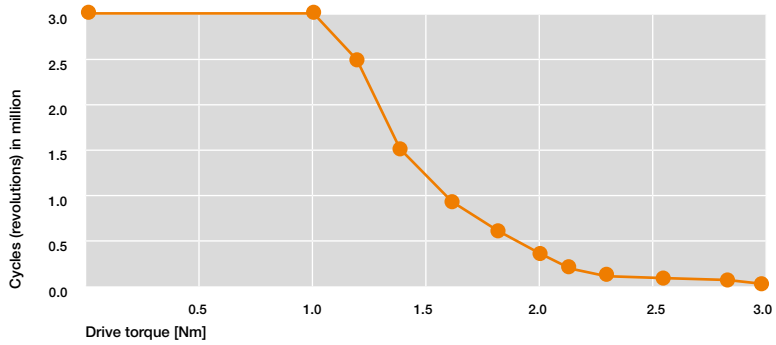


### ... dimensions [mm]

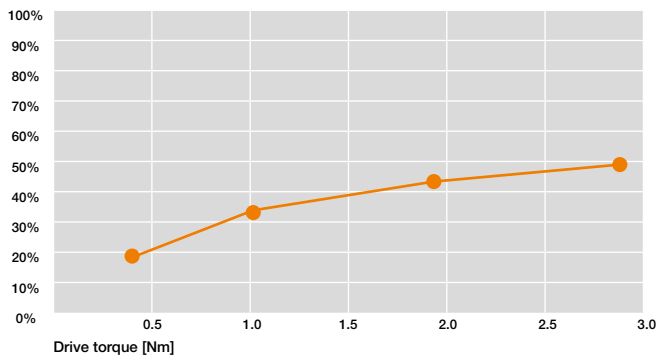
B	B1	B2	B3	T	T2	T3
42	15	23	31	49.7	29.5	38.5



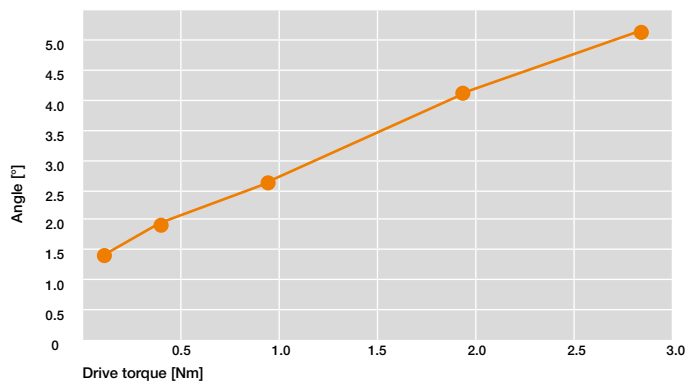
### Service life in continuous operation



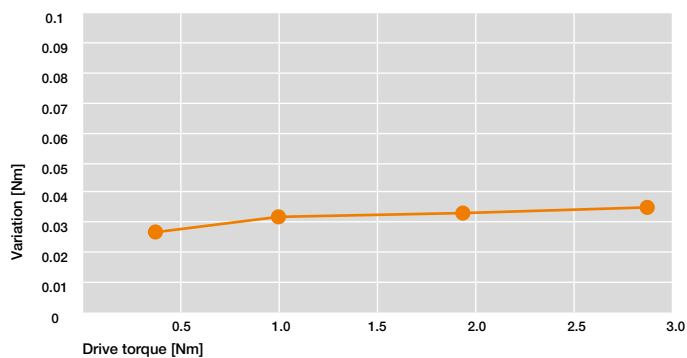
### Efficiency



### Backlash

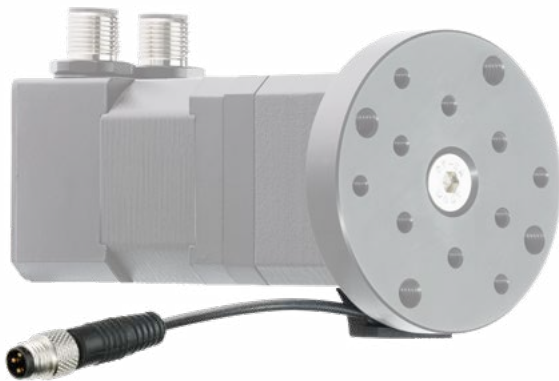


### Torque curve



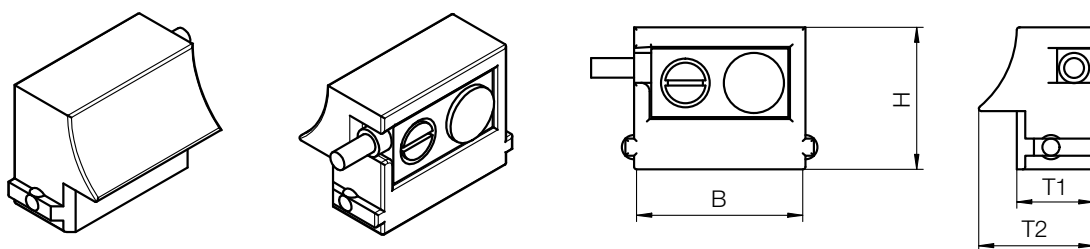
## INI kit

For drygear® strain wave gear installation size 17  
RL-S-17-IK-01



### ... technical data

Connection	M8x1
Switching output	PNP
Switching function	NO (normally open)
Operating voltage	10...30VDC
Rated operational current	100 mA

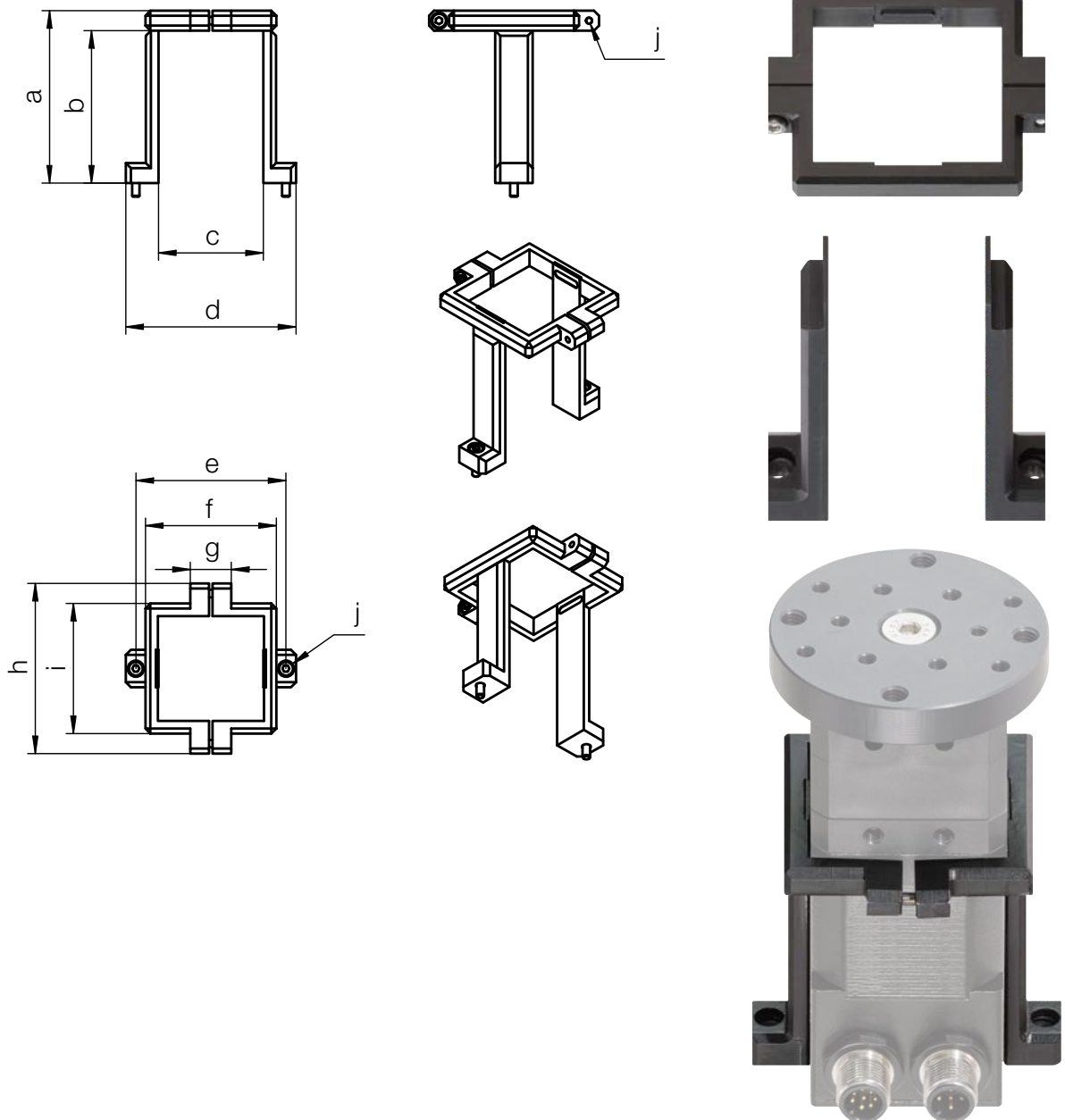


### ... dimensions [mm]

B	H	T1	T2
19.4	16.6	9	13.4

## Fastenings

For drygear® strain wave gear installation size 17



### Motor holder for RL-S-17

Part No.	a	b	c	d	e	f	g	h	i	j
RL-S-17-28-AA-MH	69	61	42	68	60	52.4	16.4	68	52	M3

## Cables

### Motor, INI and encoder cables

#### ... at a glance

- Suitable for energy chains
- Shielded and oil-resistant
- Straight connector



#### ... motor cables

Cable Ø: 5.5mm/bend radius moved <10m travel: min. 5xd flange size 28 (NEMA11), 42 (NEMA17), 56 (NEMA23), 60 (NEMA23XL)

Part No.	Ø	Jacket	Type	Cable length	Connectors
DLE904121461-3 (MAT90490015-3)	5.5mm	TPE	CF9.INI	3m	straight
DLE904121461-5 (MAT90490015-5)	5.5mm	TPE	CF9.INI	5m	straight
DLE904121461-10 (MAT90490015-10)	5.5mm	TPE	CF9.INI	10m	straight



#### ... encoder cables

Cable Ø: 7.5mm/bend radius moved <10m travel: min. 6.8xd

Part No.	Ø	Jacket	Type	Cable length	Connectors
DLE904121459-3 (MAT90450903-3)	7.5mm	TPE	CF11	3m	straight
DLE904121459-5 (MAT90450903-5)	7.5mm	TPE	CF11	5m	straight
DLE904121459-10 (MAT90450903-10)	7.5mm	TPE	CF11	10m	straight

More information:

[www.igus.eu/drylinE-FAQ](http://www.igus.eu/drylinE-FAQ)

## Cables

### Motor, INI and encoder cables

#### ... at a glance

- Suitable for energy chains
- Shielded and oil-resistant
- Straight and angled connectors

#### ... motor cables



Flange size: 28mm (NEMA11), 42mm (NEMA17), 56mm (NEMA23), 60mm (NEMA23XL)

Bend radius moved<10m travel: min. 5xd

Part No.	Ø	Jacket	Type	Length	Connectors
DLE904121451-3 (MAT9043737)	5.5mm	TPE		3m	straight
DLE904121451-5 (MAT9043738)	5.5mm	TPE		5m	straight
DLE904121451-10 (MAT9043740)	5.5mm	TPE		10m	straight
DLE904121452-3 (MAT9043742)	5.5mm	TPE		3m	angled
DLE904121452-5 (MAT9043743)	5.5mm	TPE		5m	angled
DLE904121452-10 (MAT9043745)	5.5mm	TPE		10m	angled

#### ... INI cables (brake)



Flange size: 42mm (NEMA17), 56mm (NEMA23), 60mm (NEMA23XL)

Bend radius moved<10m travel: min. 5xd

Part No.	Ø	Jacket	Type	Length	Connectors
DLE904121453-3 (MAT9043716)	4.5mm	TPE	CF9.INI	3m	straight
DLE904121453-5 (MAT9043717)	4.5mm	TPE	CF9.INI	5m	straight
DLE904121453-10 (MAT9043719)	4.5mm	TPE	CF9.INI	10m	straight
DLE904121454-3 (MAT9043724)	4.5mm	TPE	CF9.INI	3m	angled
DLE904121454-5 (MAT9043725)	4.5mm	TPE	CF9.INI	5m	angled
DLE904121454-10 (MAT9043727)	4.5mm	TPE	CF9.INI	10m	angled

#### ... encoder cables



Bend radius moved<10m travel: min. 10xd

Part No.	Ø	Jacket	Type	Length	Connectors
DLE904121455-3 (MAT90432594-3)	7mm	PVC	CF240	3m	straight
DLE904121455-5 (MAT90432594-5)	7mm	PVC	CF240	5m	straight
DLE904121455-10 (MAT90432594-10)	7mm	PVC	CF240	10m	straight
DLE904121456-3 (MAT90436430-3)	7mm	PVC	CF240	3m	angled
DLE904121456-5 (MAT90436430-5)	7mm	PVC	CF240	5m	angled
DLE904121456-10 (MAT90436430-10)	7mm	PVC	CF240	10m	angled

More information:

[www.igus.eu/drylinE-FAQ](http://www.igus.eu/drylinE-FAQ)

## Motor control system D1 dryve



### ... at a glance

- A wide range of automation tasks by simple parameterisation, no programming necessary
- For single axes, line, flat, linear and room linear robots and delta robots
- No software installation or app required
- Use with PC, tablet or smart phone
- Stepper (ST), DC and EC/BLDC motors with up to 21A peak currents and 48V
- Digital inputs/outputs, analogue inputs, CANopen, ModbusTCP (Gateway) for connection to master control systems such as Siemens or Beckhoff

### ... technical data

Voltage supply	12-24V DC logic, 12-48V DC load
Motor type	Stepper, DC, EC/BLDC motor
Power supply	7A nominal current, 21A peak

More information:  
[www.igus.eu/D1](http://www.igus.eu/D1)

igus®.eu

igus® GmbH Spicher Straße 1a 51147 Cologne  
Phone +49 2203 9649-145 Fax +49-2203 9649-334  
info@igus.eu www.igus.eu

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