

# Irreversible Locks IR

## bidirectional acting backstop for assembly with connecting parts with rollers



### Application as

- ▶ Bidirectional Acting Backstop

### Features

Irreversible Locks IR are bidirectional acting roller freewheels with bearing support. They are ready for installation.

Nominal torques up to 100 Nm.

Bores up to 35 mm.

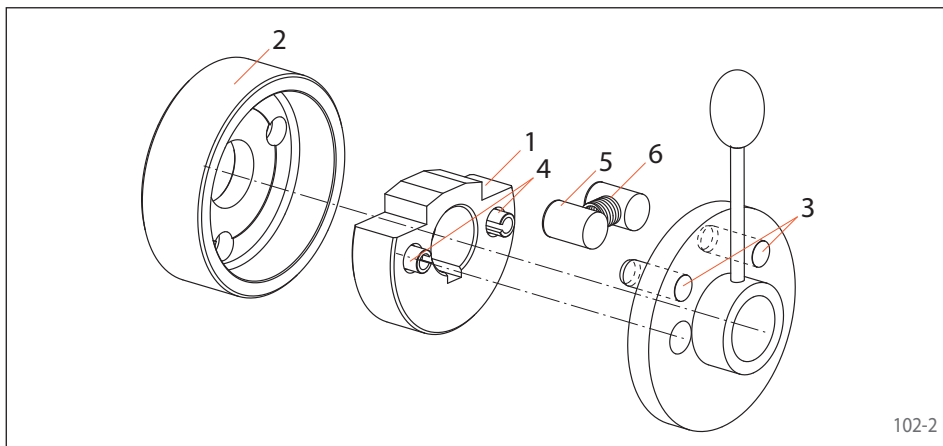
Whereas a normal Freewheel transmits torques from the driving or driven side in only one direction of rotation, with the Irreversible Lock IR it is possible for the driving part to drive the shaft in both directions of rotation. There is, however, a locking action against any reverse torque coming from the driven part, irrespective of the direction of rotation in which it is exerted.

### Operation

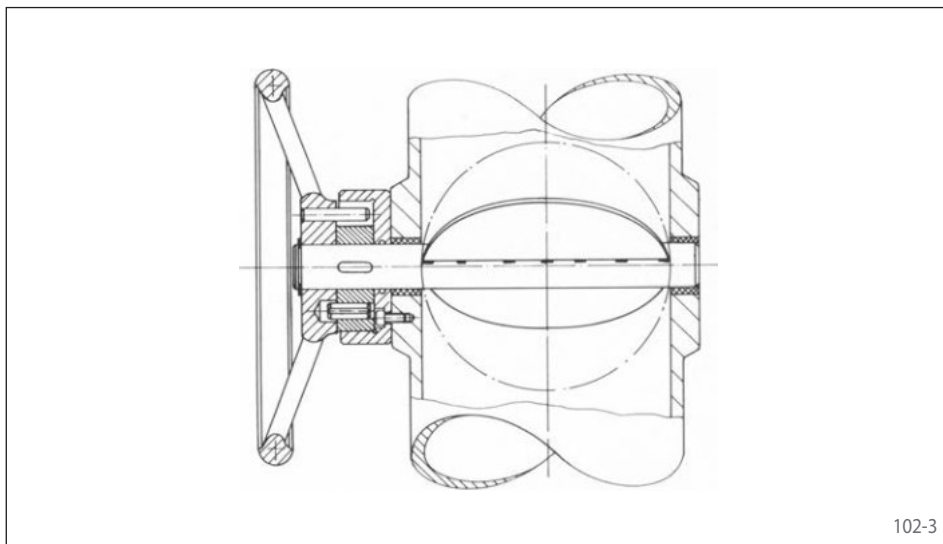
The centre body (1) is positively locked to the shaft (driven part) by a key. The housing (2) is bolted in place, e.g. on the frame of a machine in a fixed position. The driving customer-supplied part (lever, handwheel, etc.), which carries actuating pegs (3),

is mounted on the shaft and has two bores to hold the drive studs (4). Thus, if force is applied to the driving part, depending upon the direction in which it is applied one or other of the actuating pegs presses one of the two locking rollers (5) out

of engagement in opposition to the force exerted by the engaging spring (6). In this way, the driven part connected to the centre body can be rotated without difficulty. When this is done the roller which is still engaged operates as in a freewheel mechanism turning in the freewheeling direction. Due to the symmetrical layout of the irreversible lock, the process which has just been described can also take place in the same way in the opposite direction of rotation. If, however, forces coming from the machine attempt to rotate the centre body via the shaft, the centre body is locked to the fixed housing by the locking rollers. Each roller performs this function for one direction of rotation. Thus, the irreversible lock prevents unintended shifts and displacements from taking place. The irreversible locks are not suitable for use where the driven side tends to run ahead of the driving side during operation (e.g. for the operation of brakes during descending movements in lifts and hoists).



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### Application example

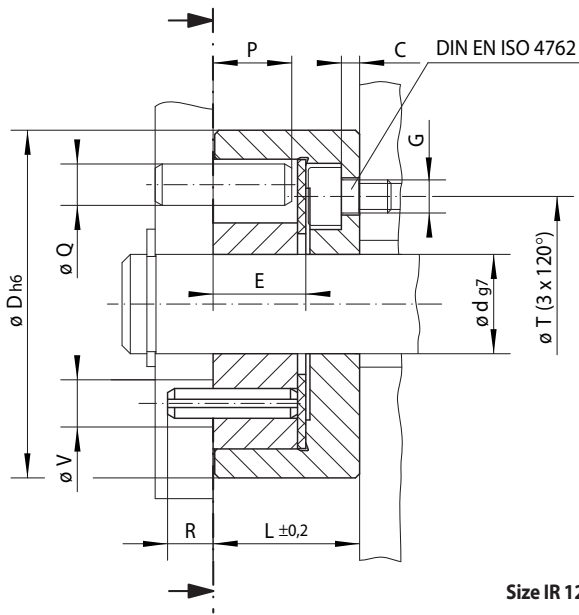
The valve, which in the example shown is a control or shut-off valve, is adjusted in the opening or closing direction by means of a handwheel.

The Irreversible Lock prevents any uncontrolled shifts in the position of the valve due to the pressure exerted by the medium flowing in the pipe.

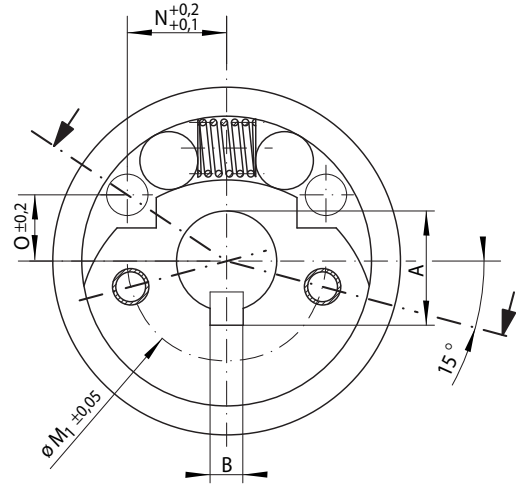
The use of Irreversible Locks is not restricted to manually operated valves and they can also be used with motorised adjusters. In this case there is the particular advantage that the torque motor need be designed to supply only the adjusting torque, which is generally low, since all standing and sudden reverse torques are absorbed by the Irreversible Lock.

# Irreversible Locks IR

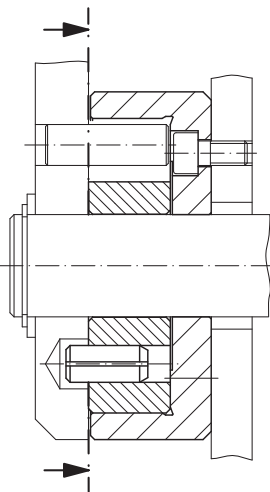
bidirectional acting backstop for assembly with connecting parts with rollers



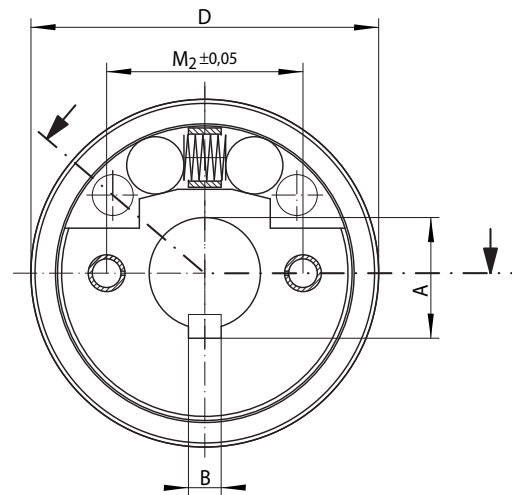
Size IR 12 and IR 16



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Size IR 25 and IR 35



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Backstop	Standard type	Dimensions																		
	For universal use																			

Freewheel Size	Type	Nominal torque $M_N$ Nm	Bore d mm	A* mm	B* mm	C mm	D mm	E mm	G** mm	L mm	M <sub>1</sub> mm	M <sub>2</sub> mm	N mm	O mm	P mm	Q mm	R mm	T** mm	V mm	Z** mm	Weight kg
IR 12	R	8	12	13,8	4	2,2	42	11,2	M4	17,7	24		12,0	8,0	9,5	5	5,5	26	5,7	3	0,15
IR 16	R	15	16	18,3	5	3,0	48	12,2	M5	20,4	28		13,5	9,5	10,5	5	9,5	28	9,8	3	0,22
IR 25	R	48	25	28,5	8	3,2	85	20,0	M6	30,0		48	22,5	19,1	19,5	10	5,5	55	12,2	3	1,10
IR 35	R	100	35	38,5	10	4,5	120	32,0	M8	45,0		70	27,0	32,2	31,5	12	8,5	80	14,2	3	3,30

The maximum transmissible torque is 2 times the specified nominal torque.

\* Keyway according to DIN 6885, page 1 • Tolerance of keyway width JS10.

\*\* Z = Number of tapped holes G on pitch circle T.

## Example for ordering

Irreversible Lock IR 16 R, standard type with bore 16 mm:

- IR 16 R, d = 16 mm

Any questions? Please contact us.

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