

Torque Actuator – Type AT

Full hydrostatic bearing $\pm 50^\circ$



Product Description

Torsion actuators AT has to be used for quasistatic and dynamic applications. They have double vane rotor and symmetrical active area – version AT.

Torsion actuators AT have hydrostatic axial and radial bearings coated by polyamide. Design of bearings guarantee long service life, high capacity and low friction. Until load is smaller than nominal, rotor do not touch in contact with stator. Polyamide coating is used as emergency in case of bearing overload. Bearing has also second function – it acts as sealing also. Some quantity of oil is passing out of bearings and it is collected in L line (bigger sizes also in R line) On both ends of rod is low pressure rotary sealing.

Nominal angular travel can be fully used for loading. Total travel is bigger of two damping lengths. Damping length is used to protect actuator itself against damage. If additional load inertia has to be dissipated in damping length, consult producer first

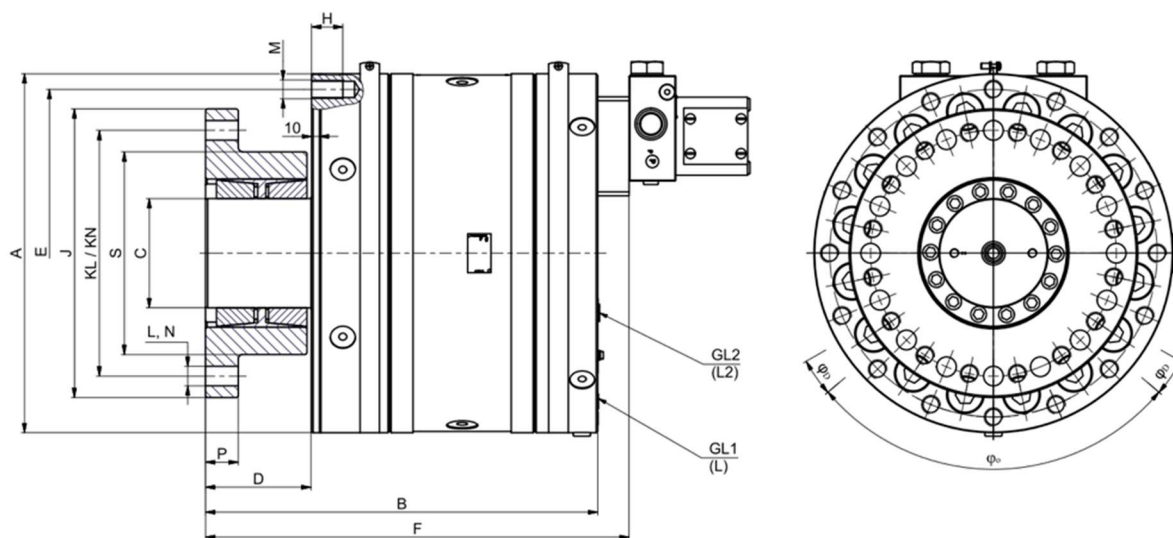
For operation of AT actuators servovalves Moog G 761 and 79 can be used. They are connected to actuators by Servoconnecting plates SCAT. SCAT plates allow to connect also feeding forces and hydropneumatic accumulators

Actuators can be delivered with various angular transducers. Basic type is Turck Ri360P0, which uses SSI interface. Also incremental transducer Kubler 5825 can be used. Final resolution is $0,0025^\circ$. Third possibility is analog interface transducer Positek RIPS P 500, Actual angular transducer will be defined in acceptance drawing.

Actuator bearings are very rigid so they do not allow misalignment. To allow acceptable accuracy of torque train, bellow coupling has to be used.

Options

- Non-standard stroke and torque
- Strengthened rotor- bigger axial and radial force
- Single vane rotor for stroke ± 135 degree (Type ATT) (standardly ± 50 deg)
- Rotation version for close loop application, complete drive is rotation and need to use hydraulic rotation feeder – using for special application



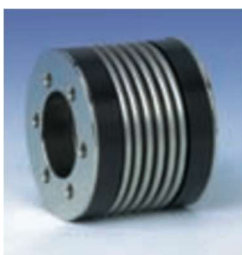
Dimension table of standard AT actuators:

Type	$\varnothing A$ g7 [mm]	B [mm]	$\varnothing C$ h7 [mm]	D [mm]	$\varnothing E$ [mm]	F [mm]	GL1 [in]	GL2 [in]	M [mm]	H [mm]	$\varnothing J$ [mm]	$\varnothing KL / \varnothing KN$ [mm]
AT0,2	157	190	35	65	130	215	G3/8	-	12xM10	15	118	100/90
AT0,5	157	230,5	35	65	130	255,5	G3/8	-	12xM10	15	118	100/90
AT1	168	232	38	65	134	257	G3/8	-	12xM10	15	150	100/125
AT2	204	261	48	65	180	289	G3/8	-	12xM10	18	185	125/150
AT4	268	326	70	85	212	346	G3/8	G3/8	12xM12	20	230	160/195
AT8	320	362	90	92	270	387	G3/8	G1/2	12xM16	28	280	200/244
AT16	384	442	110	115	335	482	G3/8	G1/2	16xM20	32	300	250/260
AT32	460	504	140	135	420	543	G3/8	G1/2	16xM24	40	370	315
AT64	510	621	170	170	450	661	G3/8	G1/2	16xM24	40	460	400

Type	L [mm]	N [mm]	P [mm]	R* [mm]	S [mm]	m [kg]	I1 (rotor) [10-3kgm2]	I2 (flange) [10-3 kgm2]	φO [deg]	φD [deg]
AT0,2	12xM10	12xØ11	18	305	80	21	1,6	4,1	100	10
AT0,5	12xM10	12xØ11	18	345	80	26	3,6	6,1	100	10
AT1	12xM10	6xØ13	35	347	95	31	4,4	18,1	100	10
AT2	12xM12	6xØ17	24	376	105	49	11,8	33,3	100	10
AT4	12xM16	8xØ17	30	440	135	101	57,4	121	100	10
AT8	12xM20	8xØ21	42	477	170	165	109,9	300	100	10
AT16	12xM20	12xØ21	42	557	210	285	322,1	654	100	10
AT32	16xM24	16xØ25	42	619	260	452	686,2	1227	100	10
AT64	16xM30	16xØ31	42	638	320	689	1795,9	3446	100	10

(Centering diameter A is 10 mm long)

Flexible bellow couplings BC:



Flexible bellow coupling BC are used to compensate misalignment of torque train and its deformation during loading.

To connect it into torque train can result into using of intermediate connecting elements

Actuator size	-	AT 0,2	AT 0,5	AT 1	AT 2	AT 4	AT 8	AT 16	AT 32	AT 64
Coupling type	-	BC 0,2	BC 0,5	BC 1	BC 2	BC 4	BC 8	BC 16	BC 32	BC 64
Max. Radial misalignment	mm	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
Max. Axial misalignment	mm	1	1	1	1,5	1,5	1,5	1,5	2	2,5
Max. Angle error	°	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5
Diameter	mm	133	133	157	200	253	303	490	574	574
length	mm	97	97	100	145	138	150	200	230	230

Angle transducer

- Cylinder on the outer side is equipped by angle sensor which is directly connected to the shaft.

- Type of angle sensor – can be select
 - o Incremental sensor TR-electronic with output SSI
 - o Incremental sensor TR-electronic with +-10Volts
 - o Other type on request

Servo connection plate

- Servo connection plate provide connection of the pressure oil to cylinder. Prepared for connection of the hoses.
- Equipped by adequate accumulators on the P and R side.
- Prepared for connection for the Servo valves.
- Types
 - o SCT 65 with accus 0,75+0,75L , prepared for 1x servo G761
 - o SCT 130 with accus 1,4+1,4L, prepared for 2x servo G761
 - o SCT 250 with accus 2,5+2L, prepared for 4x servo G761
 - o SCT 630 with accus 4+3,5, prepared for servo D792 up to 630L/min
 - o SCT 1000 with piston accus 5+5L prepared for servo D792 up to 1000L/min

Leakage pump

- Hydrostatic actuators work with bearing which are feed by pressure oil. Resting oil can be take out / sucked by the leakage pump. Oil is taken to leakage line partly throw the leakage pump, partly by direct connection to it- depend on size of the actuator.

Torque sensors

- Inova as a standard equipment provide these types of torque sensors
 - o Germany producer GTM , type M or MF with fixed cable
 - o Germany producer HBM , type T40 with Telemetry
 - o Germany producer Manner type MW with Telemetry
 - o Merobel- bearing type of torque sensor

Ordering questionnaire

Nominal torque:

Nominal stroke $\pm 50^\circ$ (Type AT) or $\pm 135^\circ$ (Type ATT) – other on request

Angle transducer type:

Servo connection plate size:

Servo valves Type and amounts:

Leakage pumps Yes/No

Torque transducer Yes/No, Type:

Hoses Yes/ No length:

Additional request: