

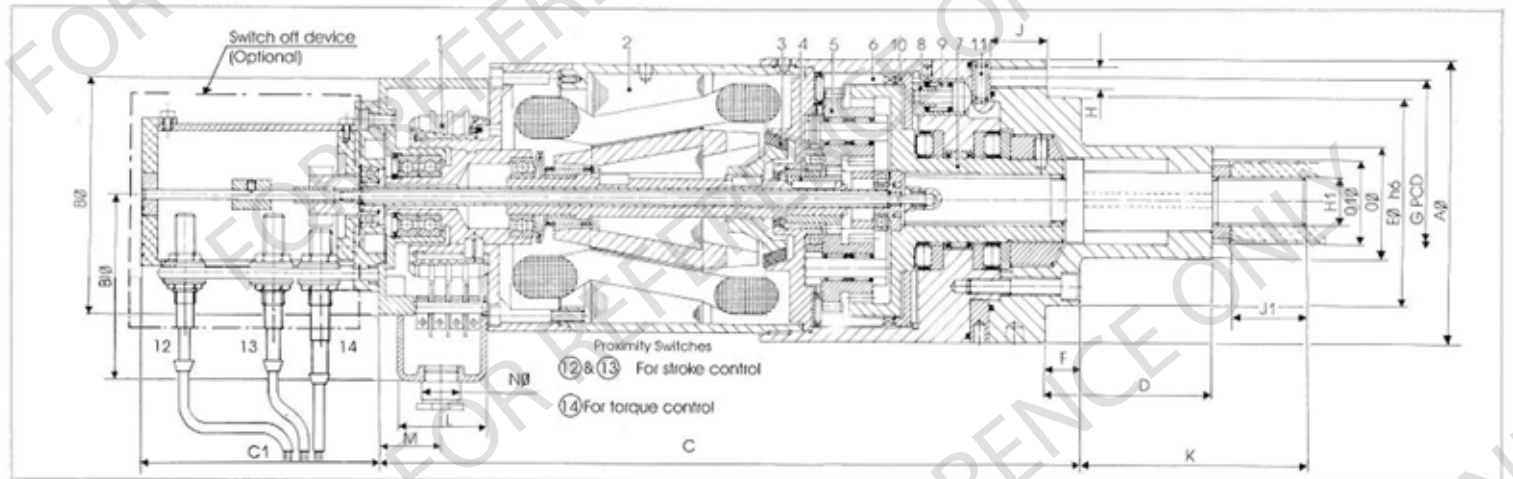
ELECTRO-MECHANICAL ACTUATORS FOR POWER CHUCKING



120 U



170 U



The GMT Electro mechanical actuators, model 'U' is primarily meant for use on rotating work spindles for actuation of power chucks, expanding mandrels, collets, etc., and eliminates the need of pneumatic or hydraulic rotating cylinders.

OPERATION:

When power is switched on, it flows to the stator through the slipring (1) The sliding rotor of the brake motor (2) is energized. A magnetic field produced, pulls the rotor axially and releases the brake (3). On release of the brake, the rotor shaft rotates at the rated speed. The torque passes from the pinion (4) fixed to the rotor shaft via double planet gears (5) fitted in a cage. This cage is supported at both the ends by means of ball bearings. The drive going through the pinion can go either through the internal notched gear (6) or through the internal output gear (7)

Rotation of the notched gear is blocked by a shell (8) and spring (9) compressed by the facecam on the graduated collar through radius pressure piece. The spring forces a double angled shell into the tapered slot on the slotted ring (10)

This slotted ring is coupled to the notched gear by the dogs. As this slipping clutch is blocked, the drive goes through the output gear.

CONTROLS:

GMT offers two types of controls for operating these models of EMAs:

1. SIMPLE CONTROL:

When the foot switch is pressed, the motor starts rotating in clockwise direction for clamping and in anti-clockwise direction for declamping. When the preset torque is reached, the EMA emits an audible "click-click" sound. This indicates to the operator that clamping is complete.

2. SWITCH OFF DEVICE:

The switch off device with control panel ensures:

- Auto Shut off when set clamping force is reached
- Reliable repetitive clamping force
- That the machine starts only after job is fully clamped
- Actuator/ Machine interlock
- Operator Safety
- Make low cost automation feasible
- Interfacing of EMA Switch Off Device with the machine Control Panel is feasible

This output gear provides a large ratio of reduction and thereby consequently, a large increase in the torque. The internal output gear (7), with the trapezoidal nut makes the ground screw move axially. This output screw is connected to the spring packet, which is connected to the drawbar. This drawbar, in turn is connected to the wedge of a power chuck.

The spring packet is a stack of dished washers, compressed between the wedge and the actuator. The function of this spring packet is similar to that of the pressure oil being continuously forced on the piston of a hydraulic cylinder. It is a force accumulator.

CLAMPING:

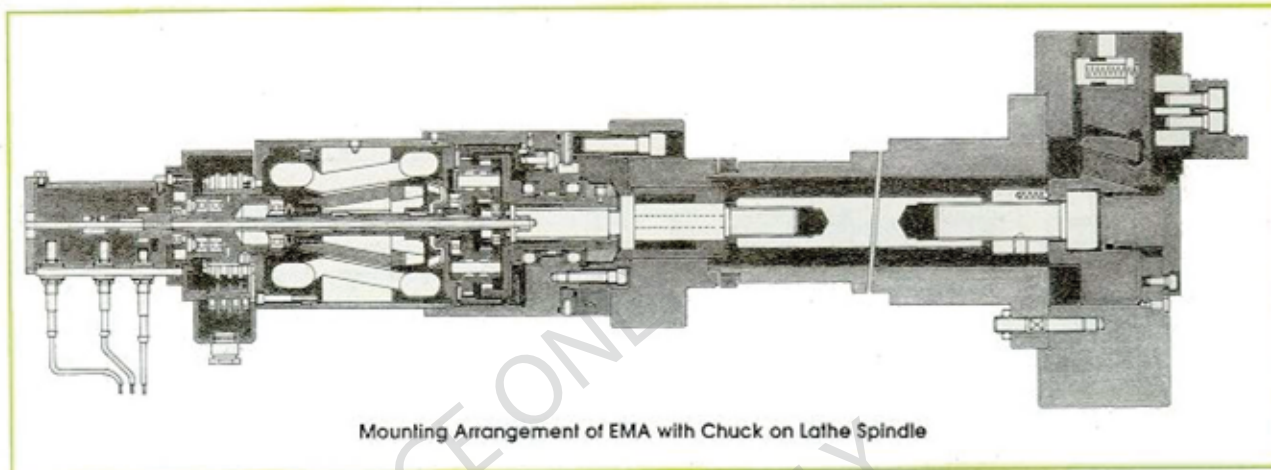
Once the job is clamped, the screw cannot move axially. The drive has to go through the notched gear and slipping clutch assembly. The notched gear starts rotating and pushes the double angled shell and spring, out of slot. As the notched gear and the slotted ring assembly rotate, the shells slip in and out of the slots, emitting a characteristic 'click-click' sound. This indicates that clamping is complete.

For setting the required torque in the EMA, the grub screw (11), in the cam ring is loosened. A 6mm rod is inserted in the hole provided in the cam ring. The cam ring is rotated until the torque indicating mark coincides with the reference line in the housing. The grub screw is tightened. The system is ready for use to the required torque.

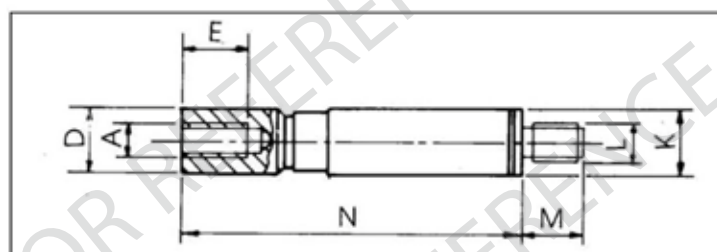
DIMENSIONAL SPECIFICATIONS

MODEL	07-25	07-01	07-02	07-03	07-04
SIZE Ø	120	130	140	150	170
A Ø	125	125	125	150	150
B Ø	125	125	125	125	125
B1Ø	97.5	97.5	97.5	97.5	97.5
C	330	330	330	360	360
C1	145	145	145	145	145
D	60	79	79	90	90
E Ø h6	90	90	90	110	110
F	12	19	19	19	19
G (PCD)	110	110	110	130	130
H	6 x M8	6 x M8	6 x M8	6 x M12	6 x M12
H1	M16 x 1.5	M22 x 1.5	M22 x 1.5	M26 x 1.5	M26 x 1.5
J	18	18	18	30	30
J1	30	38	38	40	40
K	Min	98	125	125	140
	Max	130	165	165	185
L	48	48	48	48	48
M	36	36	36	36	36
N Ø	22	22	22	22	22
O Ø	29.8	47.8	47.8	59	59
O1 Ø	*	40	40	45	45

* Hexagonal Nut 24 A/F



SPRING PACKET DETAILS



Type	A	D ^Ø	E	K ^Ø	L	M	N
FP 20	M16 x 1.5	30	48	30	M 16x 1.5	30	274
FP 30	M22 x 1.5	40	50	40	M24	35	273
FP 40	M22 x 1.5	35	53	52	M24	45	237
FP 70	M26 x 1.5	40	50	65	M30	60	315

PERFORMANCE DETAILS

MODEL		07-25	07-01	07-02	07-03	07-04
Size Ø		120	130	140	150	170
Operating Force	min KN	5	6	6	10	10
	max KN	20	30	40	50	70
Operating Speed.	mm/sec.	8.3	8.3	8.3	8.3	8.3
Weight	Kg	18	18	18	28	28
Mass moment of inertia	Kgm ²	0.023	0.03	0.03	0.08	0.08
Max. Permissible imbalance	Gm	10	15	15	20	20
Volt	V	415	415	415	415	415
Current	A	1.25	1.75	1.75	2.57	2.57
Motor Power	Kw	0.45	0.45	0.45	0.8	0.8
Frequency	Hz	50	50	50	50	50
Duty Cycle	ED	40%	40%	40%	40%	40%
Switching	Cy/hr	250	250	250	250	250

EMA SELECTION CHART

EMA	120	120	130	140	150	170	170	170	170	170
Chuck Ø	125	160	200	250	315	400	500	630	800	1000



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