

POWER OPERATED PNEUMATIC FRONT END CHUCK - PF



POWER OPERATED PNEUMATIC FRONT END CHUCK

GMT Power Operated Pneumatic Front end Chucks are designed to utilise in full, the spindle bore for bar/pipe work. This design avoids rear mounting of the actuating cylinder and necessary draw bar connections. The chuck can be mounted on the lathe spindle with an adaptor flange as needed. The actuating cylinder is built into the chuck. The stationary air distribution system with the ports to supply air to the respective sides of the piston is mounted separately on the chuck.

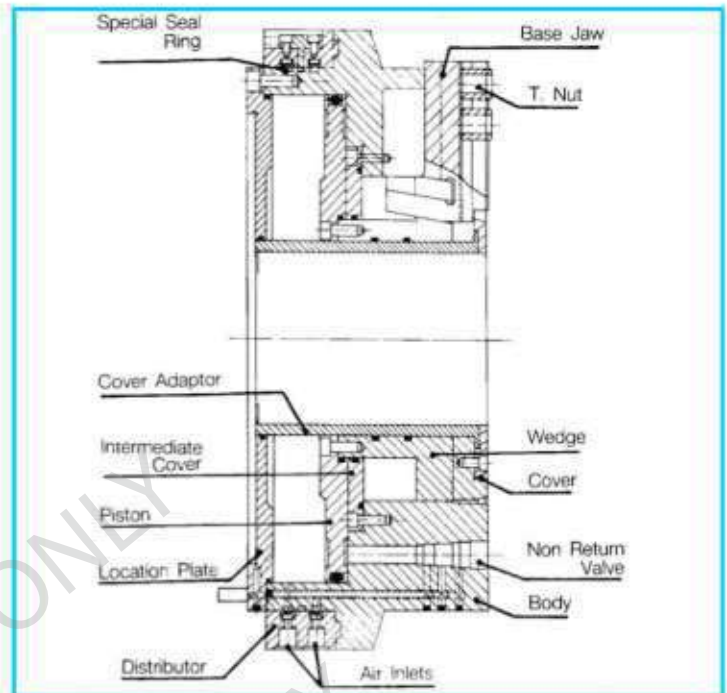
These chucks are available in various sizes ranging from size 160mm Ø to 1000 mm Ø. The chucks are offered with standard jaw stroke of 4.2mm to 12mm and extended jaw stroke of 19mm to 25.4mm. The extended jaw stroke chuck is specially designed for oil pipe industry, to hold pipes, casings and tool joints.

For holding long oil pipes, one chuck is mounted on the front end of the spindle, and one chuck at the near end of the spindle.

GMT Power Operated Pneumatic Front end Chucks have twin non-return valves, which prevent the clamping air from returning through the port unless air is let in on the other side of the piston. This ensures retention of clamping force even when the air supply is switched off. The maximum operating pressure of the chuck is at 10 bar pressure.

Principle of Operation

GMT Power Operated Pneumatic Front end Chuck has two special rubber seal rings on the

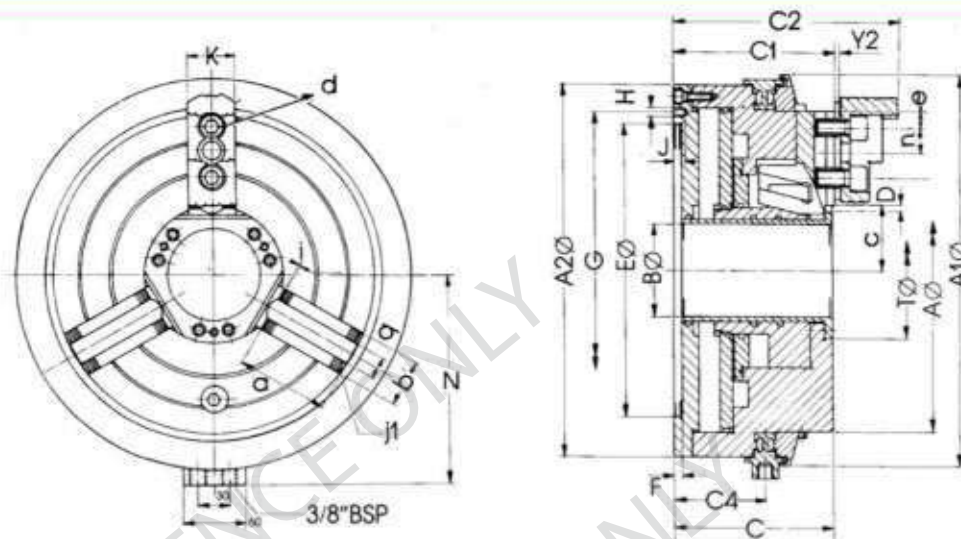


distributor assembly. The special seal ring is compressed when the chuck is pneumatically actuated to facilitate opening and closing of chuck jaws. Once the job is clamped due to venting of the air supply, the special seal rings lift to ensure rotation of the chuck. This design eliminates wear on the special seal rings.

Construction

The chuck body is made of forged medium carbon steel. The guideways are flame hardened and ground. The wedge and base jaws are made of nickel chrome steel; case hardened and ground on all working surfaces. Serrations are provided on top face of the base jaws are ground. The various radii on the hard jaws in conjunction with serrations are designed to grip a wide range of job diameters.



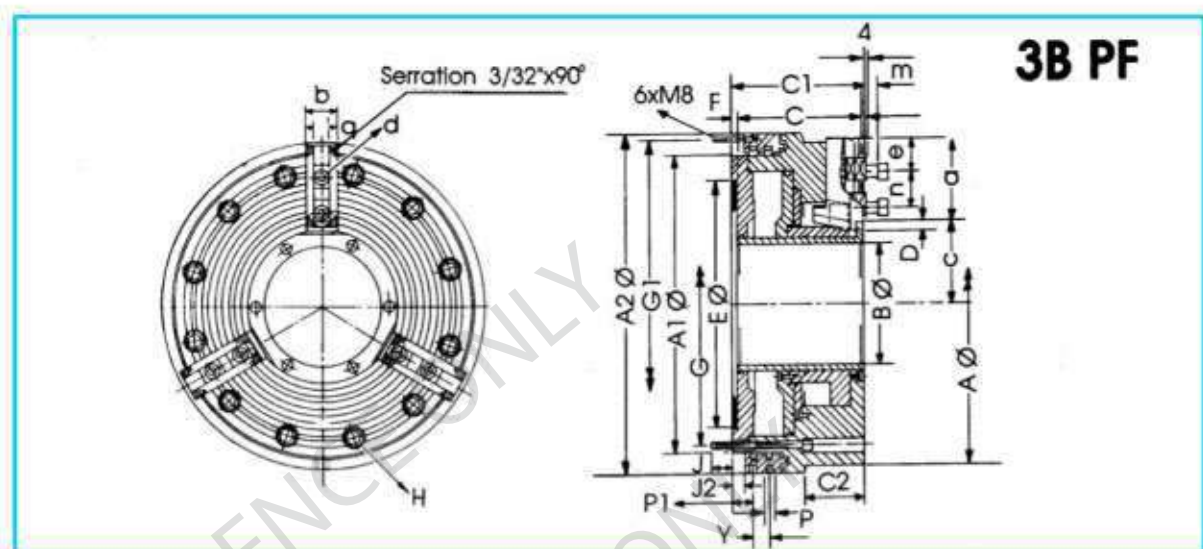


3A PF

Dimensional Specifications (All dimensions are in mm)

Model No.	04-90	04-91	04-92	04-93	04-94
Size Ø	160	200	250	315	400
A Ø	170	200	250	315	400
A1 Ø	250	274	330	388	495
A2 Ø	230	260	310	365	475
B	38	50	60	92	120
C	139	145	151	155	200
C1	141	147	153	157	203
C2	191	197	211	219	278
C4	82	78.5	87.5	90.5	118
D Jaw Stroke	4.2	4.2	4.5	4.7	7.2
E Ø H6	160	185	235	290	300
F	8	8	8	8	8
G (PCD)	180	210	260	315	340
H	6XM10	6XM10	6XM10	6XM10	6XM16
J	14	14	14	14	17
K	35	40	45	50	60
T Ø	76	84	95	130	170
Z	133	150	175	203	255
a	48.5	60	80	96	118
b	35	40	45	45	60
C min.	33.5	36	44.2	59.5	78.8
c max.	37.7	40.2	48.7	64.2	86
d	M12	M12	M12	M16	M20
e min.	9	9	9.5	12	14.5
J1 x 90°	1/16"	1/16"	1/16"	1/16"	3/32"
n min.	19	19	25	25	34
n max.	35	40	50	75	95
q H7	17	17	17	21	25.5
y2	3.5	2	2	2	3
External clamping range Ø	25 - 160	25 - 200	25 - 250	43 - 315	63 - 400
Internal clamping range Ø	160	200	250	92 - 315	115 - 400
Max. gripping force in kgf at 6 bar	5500	6000	7000	8000	12000
Moment of inertia in kgm ²	1.4	1.4	2.9	5.8	17.5
RPM Max.	2200	1800	1550	1200	975
Cyl. Capacity In ltrs (approx.)	0.75	0.93	1.6	2.2	5.5
Wt. In kgs (approx.)	29	37.5	60	80	144

Each chuck is supplied with - one set of reversible hard jaws, one set of soft jaws (blanks), one allen wrench for jaw screws and one set of body clamping screws.

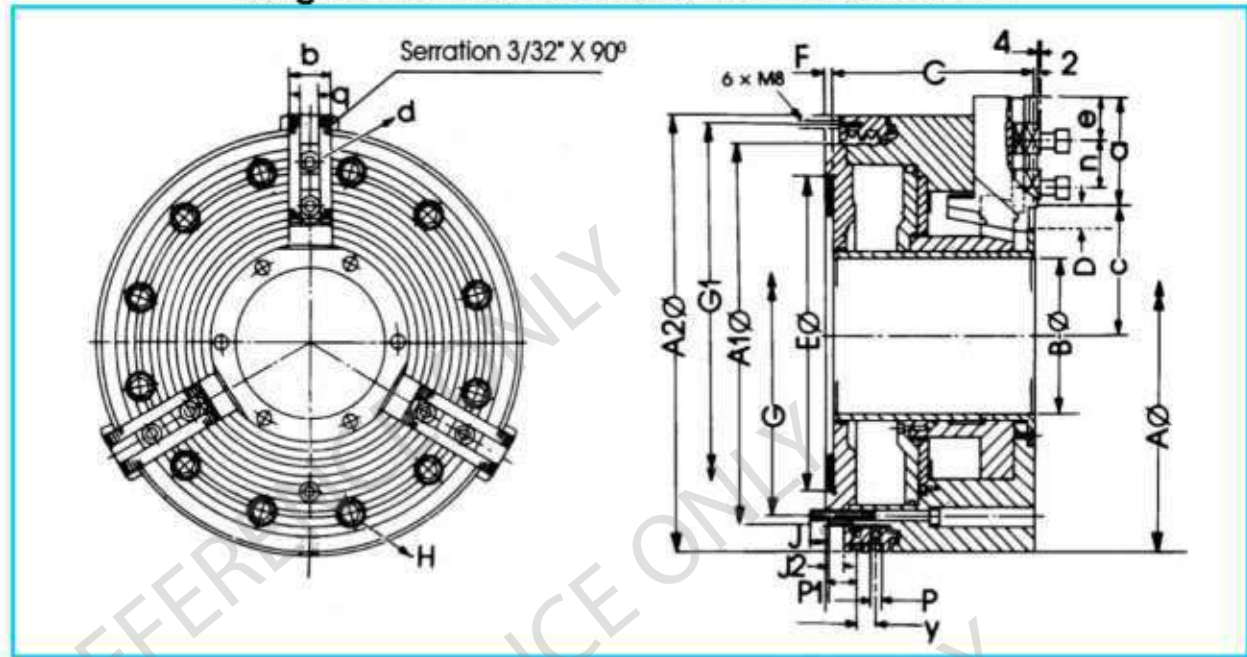


Dimensional Specifications (All dimensions are in mm)

Model No.	04-95	04-96	04-97	04-98
Size Ø	500	630	800	1000
A Ø	500	630	800	1000
A1 Ø	500	610	775	775
A2 Ø	570	685	850	850
B Ø	160	265	365	534
C	215	253	295	319
C1	225	263	305	329
C2	98	110	154	-
D Jaw Stroke	8.5	10	12	12
E Ø H6	415	510	700	700
F	8	8	8	10
G (PCD)	474	580	745	640
G1 (PCD)	550	666	830	830
H	12xM12	12xM16	12xM16	12xM24
J	27	40	30	25
J2	20	19.5	25	60
P (BSP)	3/8"	3/8"	3/8"	3/8"
P1	37	39	45	79.5
y	26	33	33	33
a	137	140	170	185
b	57	75	75	75
c min.	111.5	173	228	312
c max.	120	183	240	324
d	M18	M24	M24	M24
e min.	10	12	12	12
m	28	32	32	32
n min.	38	47	47	47
n max.	100	107	130	148
q H7	25.5	30	30	30
External clamping range Ø	105 - 500	185 - 630	325 - 800	465 - 1000
Internal clamping range Ø	240 - 500	365 - 630	500 - 800	645 - 1000
Max. gripping force in kgf at 6 bar	25000	29000	36500	20500
Moment of inertia in kgm ²	8.86	25.93	73.75	156
RPM max.	1300	1000	750	450
Cylinder capacity in ltrs (approx.)	4.9	6	10	5.2
Wt. In kgs (approx.)	240	430	705	980

Each chuck is supplied with - one set of reversible hard jaws, one set of soft jaws (blanks), one allen wrench for jaw screws and one set of body clamping screws.

Large Bore with Extended Jaw Stroke 3B PF



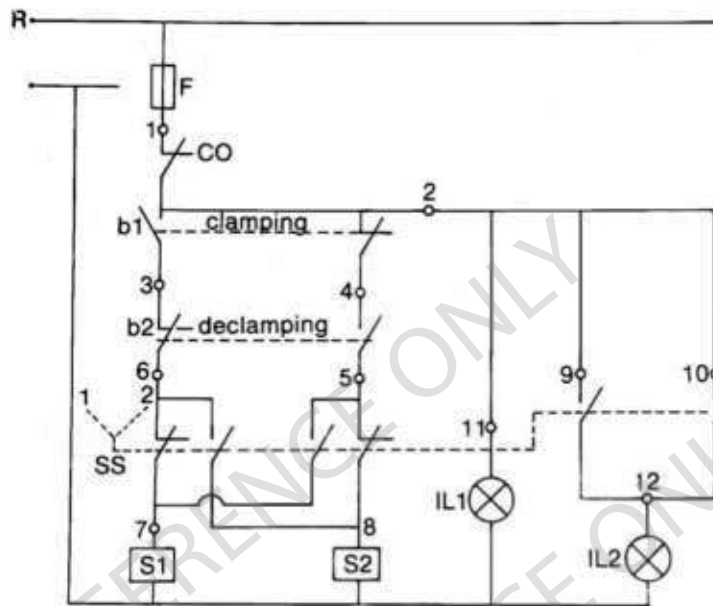
Dimensional Specifications (All dimensions are in mm)

Model No.	04-95-01	04-96-01	04-97-01	04-98-01
Chuck Size	500	630	850	1000
A Ø	570	720	850	1000
A1 Ø	500	610	775	775
A2 Ø	570	685	850	850
B Ø	205	265	375	560
C	272	320	344	329
D	25.4	25.4	25.4	25.4
E Ø H6	415	510	700	700
F	8	8	8	10
G (PCD)	474	580	740	640
G1 (PCD)	550	666	830	830
H	M12	M16	M16	M24
J	28	30	30	30
J2	20	20	25	11.75
P (BSP)	3/8"	3/8"	3/8"	3/8"
P1	37	39	45	31
y	26	33	33	33
a	140	143	180	175
b	57	57	75	75
c min.	146.6	201.6	240.6	322.6
c max.	172	227	266	348
d	M12	M16	M16	M24
e	10	10	12	12
q H7	25.5	25.5	30	30
n min.	38	38	47	47
n max.	110	117	140	140
Max. gripping force in kgf at 6 bar	19000	28000	19000	17000
Moment of inertia in kgm ²	16.4	54	105	160
RPM max.	1100	900	750	450
Cylinder capacity in ltrs (approx.)	15.4	30.1	30	16.5
Wt. In kgs (approx.)	340	610	1010	960

Shaded sizes are special

Each chuck is supplied with - one set of soft jaws (blanks), one allen wrench for jaw screws and one set of body clamping screws.

ELECTRICAL CIRCUIT



- F : Fuse
- R : Supply wire
- CO : Spindle conductor
- b1, b2 : Foot switches
- S1, S2 : Solenoids
- IL1, IL2 : Indicating lamps (Optional)
- SS : Selector switch (Optional)

Electro Pneumatic Control Unit:

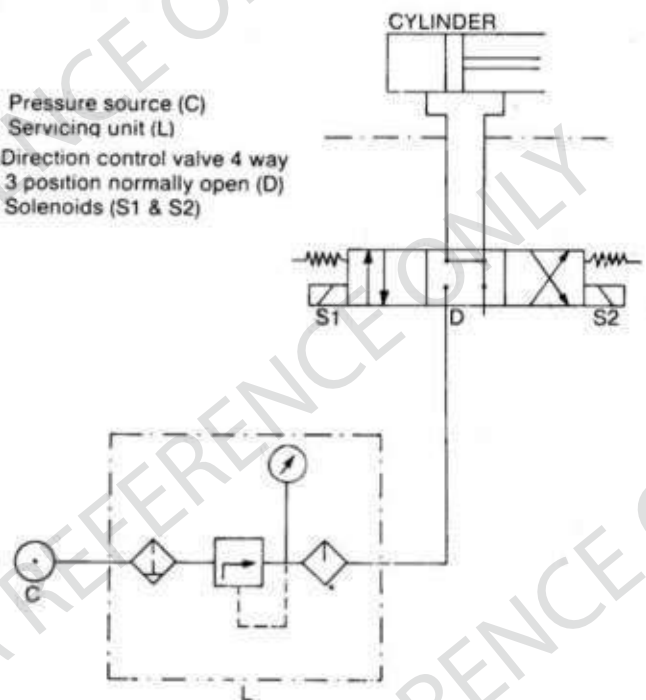
Each GMT Power Operated Pneumatic Front end Chuck is supplied with an Electro Pneumatic Control Unit.

This control unit consists of Lubro Control Unit, Electrical Contactors, and Fuses and in addition, solenoids for interlocking with the main spindle.

Push button or foot operated switch is supplied with the Electro pneumatic Control Unit for actuating the chuck

PNEUMATIC CIRCUIT

1. Pressure source (C)
2. Servicing unit (L)
3. Direction control valve 4 way 3 position normally open (D)
4. Solenoids (S1 & S2)



Guindy Machine Tools Limited

214, Velachery-Tambaram Main Road, Pallikaranai, Chennai-600 100, INDIA

Tel.: +91-44-22460627 / 28 / 29 Sales Dept.: +91-44-22460811 / 12

Fax.: +91-44-22460112 / +91-44-22460317

E-Mail : gmt@gmt.co.in Web : www.gmt.co.in