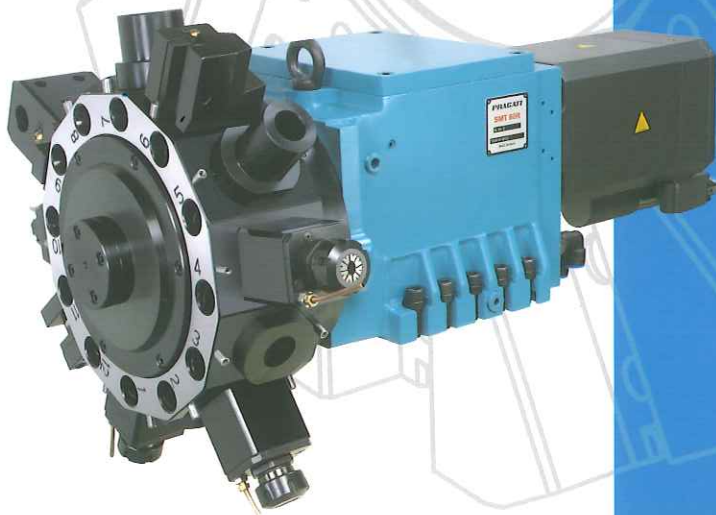


**PRAGATI**

Partnering Machine Tool Builders - Worldwide

# Tool Turrets



Pragati Plants



Bangalore - Unit 2



Bangalore - Unit 1



Pragati at Jiaxing City, Zhejiang Province, P.R.China



Kolhapur - Unit 3



Sister Company in Belgaum

General Information

**India:** Established in 1976 at Bangalore.

**China:** Established in 2012 at Jiaxing, Zhejiang Province.

**Countries of Export :** Germany, Poland, Italy, Austria, Switzerland, Brazil, U.S.A., Singapore, Taiwan, Russia, etc.

Service Support

**Own Service Centres:** India, China and Germany.

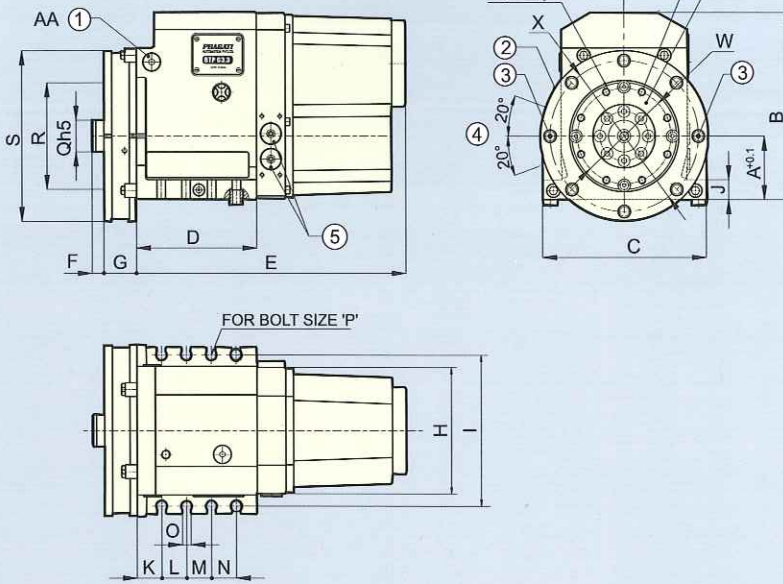
**Service agents:** U.K and Poland

	Page No.
	<p>BTP Electro-mechanical Turret 4</p>
	<p>HTP Hydraulic Turret 5</p>
	<p>STP Servo Turret 6</p>
	<p>DTT Driven Tool Turret 7</p>
	<p>SMT Single Motor Live Tool Turret - Axial 8</p>
	<p>SMT Single Motor Live Tool Turret - Radial 9</p>
	<p>VTP Vertical Tool Turret 10</p>
	<p>SQT Square Turret 11</p>



### Main Features

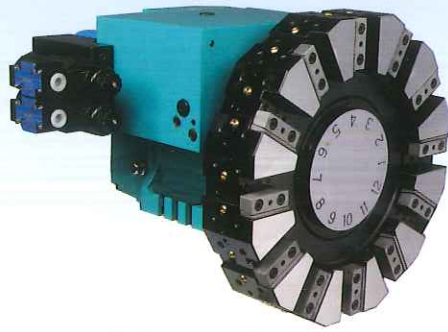
- Electromechanical bi-directional operation
- Three piece face gear coupling allows tool disc to be indexed without lifting.
- Parallel Index Cam mechanism ensures fast and smooth indexing
- Absolute position encoder for turret position



1. Coolant inlet from either side. BSP thread size AA.
2. Coolant flange can be clamped to indexing flange at a suitable angular position, 8 or 12 coolant outlet positions depending on No. of index positions.
3. Alternate positions of coolant outlet valve.
4. Adjustment range of coolant outlet valve.
5. Electrical connection from either side 1/2" BSP.

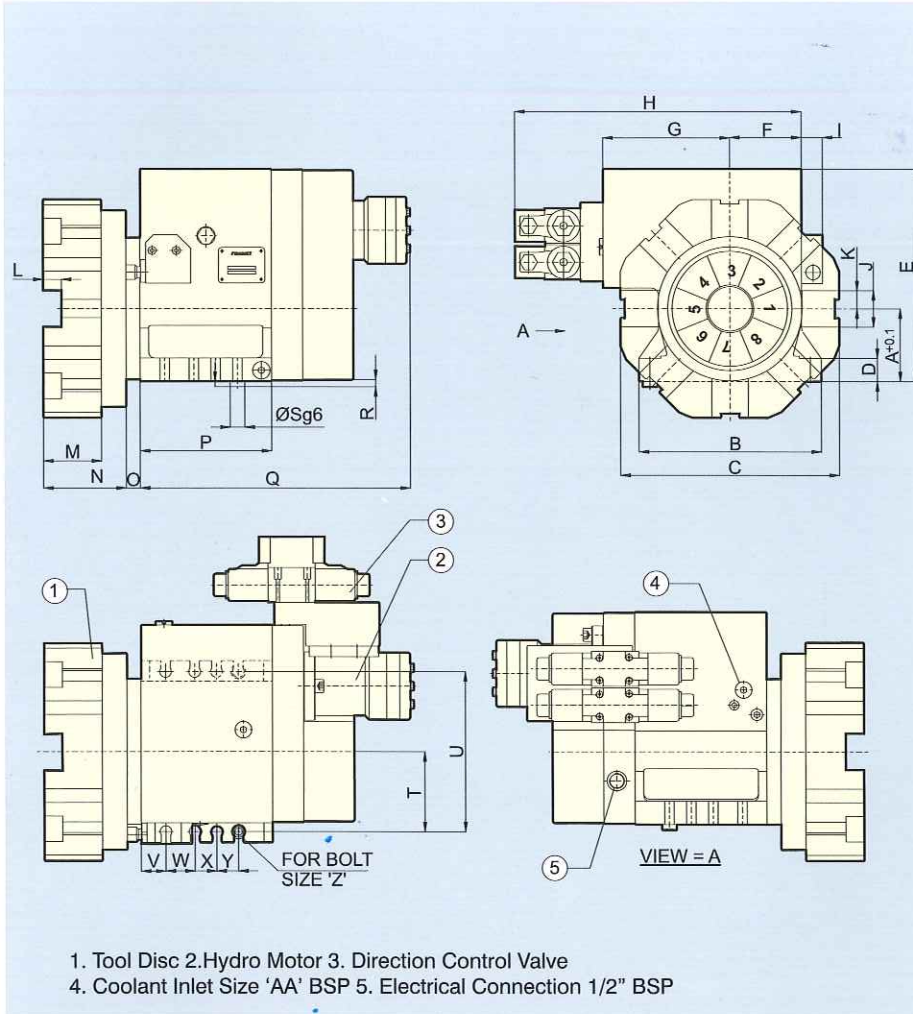
	BTP 160	BTP 125	BTP 100	BTP 80	BTP 63	BTP 50
A	160	125	100	80	63	50
B	430	340	280	236	202	170
C	390	310	250	210	185	128
D	245	197	177	155	135	107
E	510	414	388	348	318	255
F	15	15	15	15	15	12
G	56	50	47	43	40	35
H	308	242	192	159	143	110
I	352	280	220	190	165	110
J	50	40	32	25	20	12
K	40	30	34	32	24	15
L	48	44	40	32	30	60
M	56	43	30	32	30	-
N	48	43	30	32	30	-
O	21	17	16	14	10	12
P	M20	M16	M12	M12	M8	M8
Q	80	63	50	40	30	25
R	272	204	162	134	103	85
S	390	310	250	215	175	140
U	23	16	12	10	8	6
V	32	32	28	24	22	16
W	220	182	145	120	90	70
X	352	280	226	190	150	120
Y	M12	M12	M10	M10	M8	M6
Z	16	12	12	8	8	8
AA	3/8"	3/8"	3/8"	3/8"	1/4"	1/4"
BB	220	175	142	120	90	70
CC	0°	0°	0°	22.5°	22.5°	0°

Specifications			BTP-160	BTP-125	BTP-100	BTP-80	BTP-63	BTP-50
Inertia of transportable masses		kg.m <sup>2</sup>	15	5	3	1	0.5	0.25
Indexing time for 8 station turret	45°	sec	1.0	0.75	0.6	0.45	0.4	0.35
	90°	sec	1.85	1.4	1.1	0.8	0.7	0.60
	180°	sec	3.6	2.8	2.2	1.6	1.4	1.2
Total Indexing time for 12 station turret	30°	sec	1.0	0.75	0.6	0.45	0.40	0.35
	90°	sec	2.7	2.1	1.6	1.15	1.0	0.85
	180°	sec	5.2	4.1	3.2	2.30	2.00	1.70
Indexing frequency		1/min	8	10	10	10	12	12
Repeat positioning accuracy		deg	±2"	±2"	±2"	±2"	±2"	±2"
Indexing accuracy		deg	±6"	±6"	±6"	±6"	±6"	±6"
Clamping force		kgf	8,000	6,000	4,000	2,000	1,000	700
Total weight (without tool disc)		kg	245	140	91	58	38	22



### Main Features

- Turret operations using hydraulic oil.
- Turret clamp/unclamp through hydraulic power allows higher rigidity and stability during machining.
- Parallel index cam mechanism driven by hydraulic motor ensures fast and smooth indexing of heavy tool discs.
- Interchangeable with BTP series turrets.



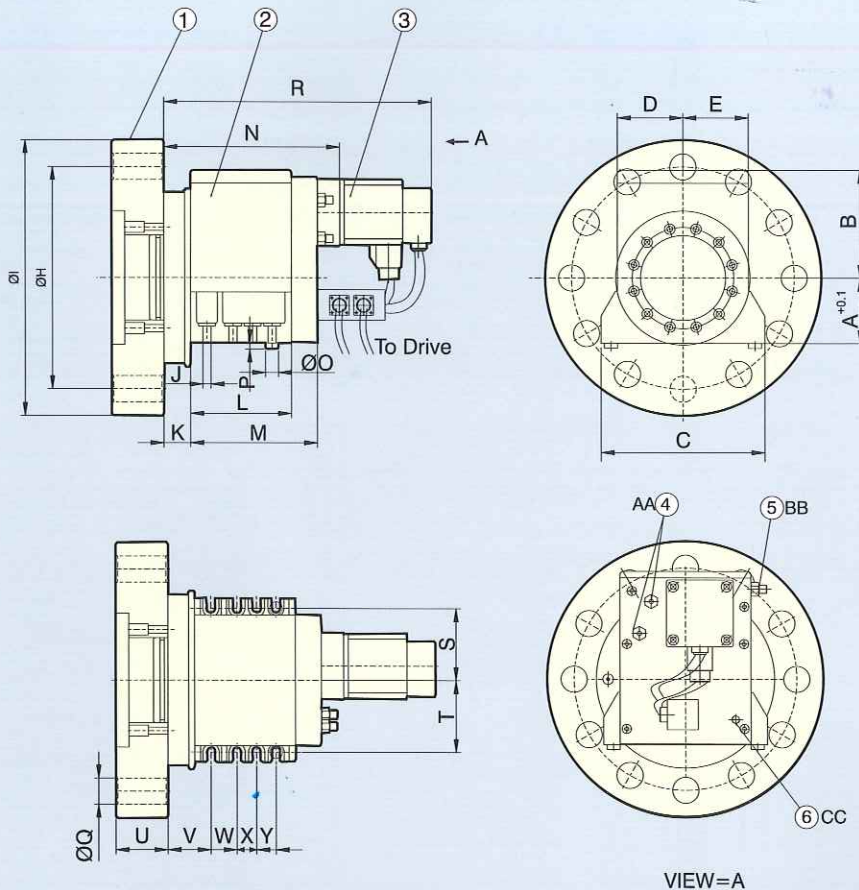
	HTP-63	HTP-80	HTP-100	HTP-125
A	63	80	100	125
B	185	220	250	250
C	228/290	280/316	300/410	420/440
D	20	25	32	32
E	198	233	292	317
F	75	88	98	98
G	125	145	174	174
H	322	356	400	400
I	29	29	29	29
J	40/32	50/40	50/50	50/50
K	20/16	25/20	25/25	25/25
L	20/16	25/20	25/25	25/25
M	50	80/60	80	80
N	90	114	114	114
O	5	19	19	19
P	147	165	181	181
Q	328	354	373	381
R	7.5	7.5	9	9
S	15	17	20	20
T	82.5	95	110	110
U	165	190	220	220
V	24	32	34	34
W	30	32	40	40
X	30	32	30	30
Y	30	32	30	30
Z	M8	M10	M12	M12
AA	1/4"	3/8"	3/8"	3/8"

Specifications			HTP-63	HTP-80	HTP-100	HTP-125
Inertia of transportable masses		kgm <sup>2</sup>	1	3	5	5
Indexing Time For 8 station turret (Including clamping)	45°	sec	0.40	0.45	0.55	0.65
	90°	sec	0.75	0.80	0.95	1.05
	180°	sec	1.25	1.40	1.65	1.85
Indexing Time For 12 station turret (Including clamping)	30°	sec	0.40	0.45	0.55	0.65
	90°	sec	1.00	1.10	1.30	1.45
	180°	sec	1.75	2.0	2.35	2.65
Repeat positioning accuracy		deg	±2"	±2"	±2"	±2"
Indexing accuracy		deg	±6"	±6"	±6"	±6"
Clamping force		kg	1,060	2,400	3,800	4,500
Hydraulic working pressure		kg/cm <sup>2</sup>	30	35	35	40
Flow rate		l/min	20	20	30	30
Total weight (Without Tool Disc)		kg	60	75	105	110
Hydraulic motor			EAT.JH-50	SMPS-50	SMPS-80	SMPS-100



### Main Features

- Fast and smooth indexing of heavy tool disc through servo motor drive.
- Hydraulic power for clamping ensures high rigidity.
- Turret can be interfaced with any CNC system.
- Interchangeable with BTP series turrets.



1) Tool Disc 2) Servo Turret 3) Servo Motor (Pragati Scope of supply) 4) Hydraulic connections  
5) Coolant inlet 6) Electrical connections

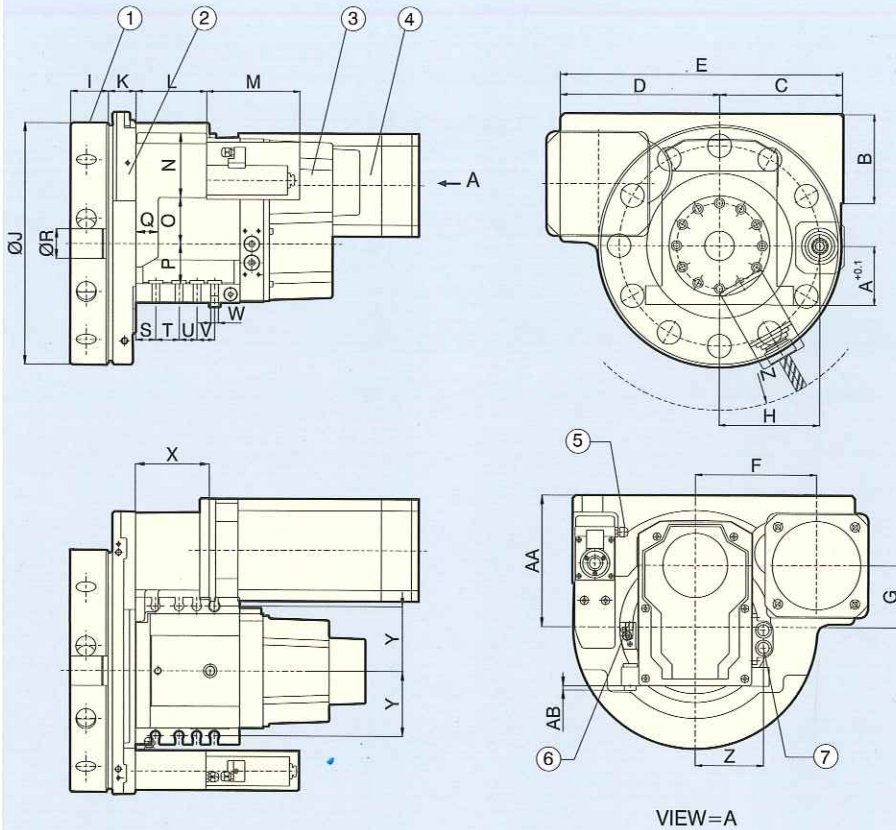
	STP-100	STP-80
A	100	80
B	165	143
C	250	212
D	100	85
E	100	85
ØF	130	120
H	340	270
I	422	340
J	For M12	For M10
K	41	40
L	165	138
M	195	178
N	271	252
ØO	20	17
P	9	9
ØQ	VDI 40	VDI 30
R	417	395
S	110	95
T	110	95
U	75	67
V	66	58
W	40	32
X	30	32
Y	30	32
AA	¼" BSP	¼" BSP
BB	3/8" BSP	3/8" BSP
CC	M12X1	M12X1

Specifications		STP-100	STP-80
Turret Center Height	mm	100	80
No of Stations		8/12	8/12
Mass Moment of Inertia	kgm <sup>2</sup>	3.2	1.8
Turret Indexing Time (for next station)	sec	0.15	0.12
Time for next partial step (Without acceleration and braking)	sec	0.09	0.07
Turret Unlocking time	sec	0.1	0.1
Turret Locking Time	sec	0.1	0.1
Indexing Frequency	min-1	16	20
Hydraulic Pressure	kg/cm <sup>2</sup>	50	50
Turret weight (Without Tool Disc, Motor)	kg	95	80
Max.Speed	rpm	5000	4500
Max.Power	kw	1	0.75



### Main Features

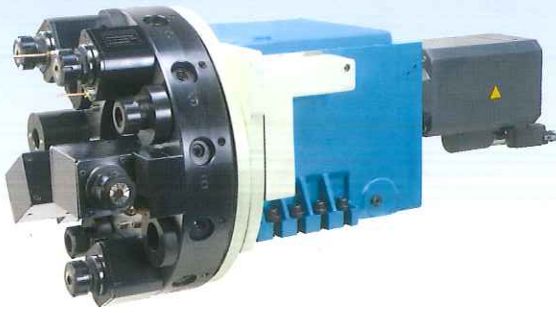
- Two motor operation; Electric motor for turret indexing and servo motor for tool drive.
- Turret indexing is through parallel cam index mechanism.
- Rotary tool unit of Modular construction fitted on BTP series turret for live tool function.
- Only tool in working position gets drive.



1) Tool Disc 2) DTT Unit 3) BTP Turret 4) Servo Motor (Not in Scope of supply)  
5) Electrical Entry for Drive actuation 6) Coolant Inlet 7) Electrical entry for Turret

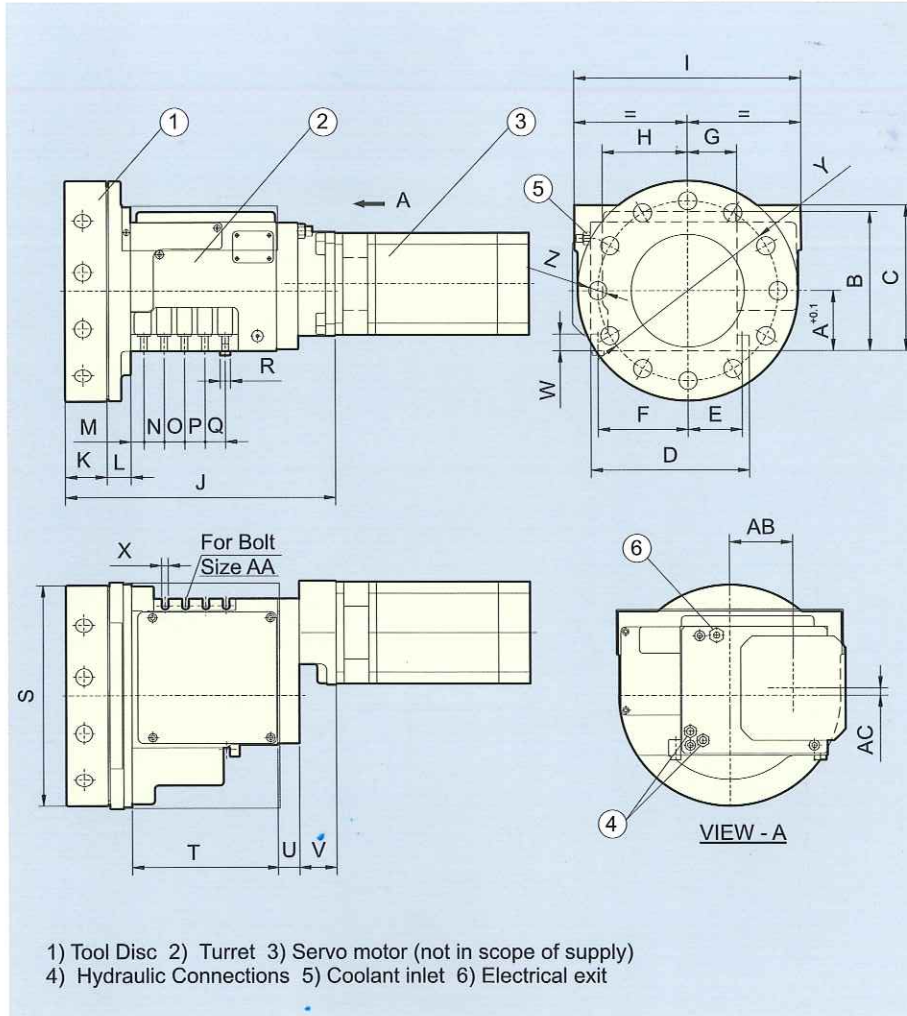
	DTT-63	DTT-80	DTT-100
A	63	80	100
B	75	101.5	150.5
C	155	177	208
D	259	267	270
E	416	444	478
F	180	201	205
G	86	100	105
H	120	135	170
I	52	56	64
J	298	338	410
K	40	43	47
L	120	120	120
M	115	117	116.5
N	95	106	109
O	66	66	79
P	43	55	68
Q	32	38	38
R	30	40	50
S	24	37	34
T	30	32	40
U	30	33	30
V	30	32	30
W	M8	M10	M12
X	127	127	126
Y	165	190	220
Z	389	452	558
AA	163	190	223
AB	7.5	7.5	7.5
AC	91	100	115

Specifications		DTT-63	DTT-80	DTT-100
No of Stations		8/12	8/12	8/12
VDI Tool shank	mm	Ø20	Ø30	Ø40
PCD of the Tooling	mm	200/240	240/270	340/370
Tool coupling profile		DIN5480	DIN5482/DIN5480	DIN5482/DIN5480
Max Power (Tool Drive)	kW	5	6	8
Max Tool speed	rpm	6,000	6,000	5,000
Max Torque	Nm	15	20	40
Transmissible Ratio		1:1	1:1	1:1
<b>Tool Drive Motor Options</b>				
Fanuc		α 1.5	α 2	α 3
Siemens		1FT6064	1FT6084	1FT6086



**Main Features**

- Single Servo motor for turret indexing and Live Tool Drive
- Hydraulic power for clamping ensures high rigidity during machining operations.
- Axial mounting of tools.
- Provision for supply of high pressure coolant from centre of turret.



	SMT-100A	SMT-80A
A	125	100
B	272	232
C	285	243
D	325	264
E	110	90
F	185	150
G	100	82
H	175	142
I	424	378
J	524	558
K	75	70
L	47	40
M	24	22
N	40	34
O	40	34
P	40	34
Q	40	34
R	26	20
S	422	368
T	290	244
U	50	36
V	62	68
W	25	25
X	13	11
Y	340	300
Z	VDI 40	VDI 30
AA	M12	M10
AB	125	105
AC	25	12

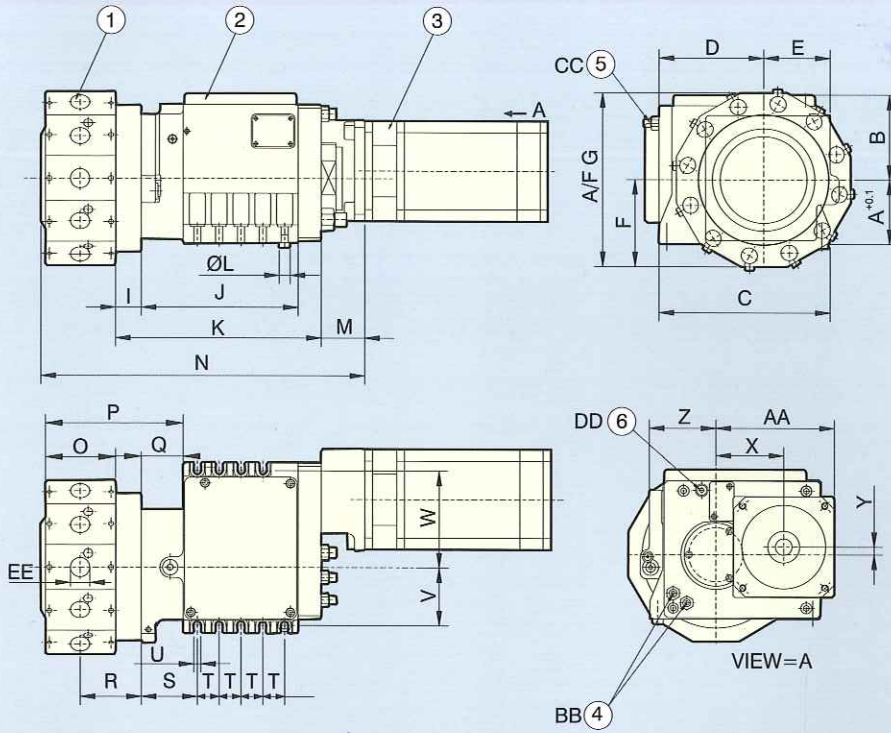
Specifications		SMT-100A	SMT-80A
Turret Center Height	mm	125	100
No of Stations		8/12	8/12
Inertia of transportable masses	kgm <sup>2</sup>	3.2	1.8
Turret Indexing Time (for next station)	sec	0.16	0.14
Time for next partial step (Without acceleration and braking)	sec	0.05	0.04
Turret Clamp time	sec	0.1	0.1
Turret De-clamp Time	sec	0.1	0.1
Indexing Frequency	min-1	16	20
Hydraulic Pressure	kg/cm <sup>2</sup>	50	50
Clamping force	kgf	4,050	2,300
Turret weight (Without Tool Disc, Motor)	kg	130	110
Servo Motor Options			
Fanuc		α3	α2
Siemens		1FT6086	1FT6084





### Main Features

- Single Servo motor for turret indexing and Live Tool Drive
- Hydraulic power for clamping ensures high rigidity during machining operations.
- Radial mounting of tools.
- Suitable for 'back machining' on sub spindle lathes without loss in performance.
- Provision for supply of high pressure coolant from centre of turret.



1) Tool Disc 2) Servo Turret 3) Servo Motor (Not in Scope of supply)  
4) Hydraulic connections 5) Coolant inlet 6) Electrical Exit

	SMT-100R	SMT-80R
A	125	100
B	160	106
C	325	244
D	200	162
E	121	82
F	160	135
A/F G	320	270
I	47	40
J	290	244
K	387	320
ØL	20	20
M	68	53
N	595	490
O	114	90
P	240	195
Q	79	65
R	121	95
S	103	87
T	40	34
U	for M12	for M10
V	110	70
W	185	150
X	125	105
Y	25	15
Z	121	103
AA	212	192
BB	¼" BSP	¼" BSP
CC	3/8" BSP	3/8" BSP
DD	M12X1	M12X1
EE	VDI 40	VDI 30

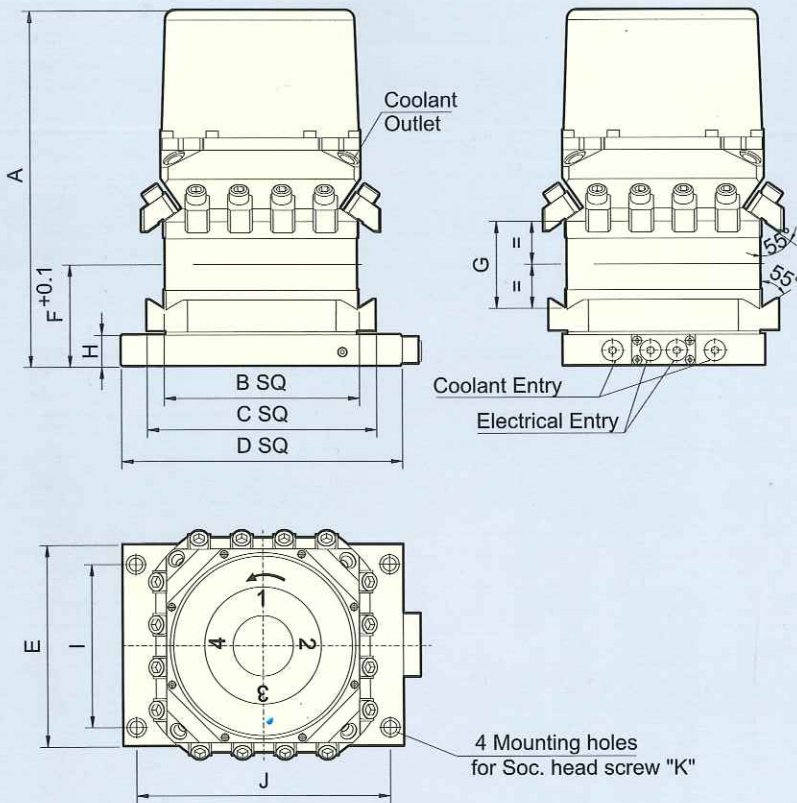
### Specifications

Specifications		SMT-100R	SMT-80R
Turret Center Height	mm	125	100
No of Stations		8/12	8/12
Inertia of transportable masses	kgm <sup>2</sup>	3.2	1.8
Turret Indexing Time (for next station)	sec	0.16	0.14
Time for next partial step (Without acceleration and braking)	sec	0.05	0.04
Turret Clamp time	sec	0.1	0.1
Turret De-clamp Time	sec	0.1	0.1
Indexing Frequency	min-1	16	20
Hydraulic Pressure	kg/cm <sup>2</sup>	50	50
Clamping force	kgf	4,050	2,300
Turret weight (Without Tool Disc, Motor)	kg	130	110
<b>Servo Motor Options</b>			
Fanuc		α 3	α 2
Siemens		1FT6086	1FT6084



**Main Features**

- 3 Piece face gear allows turret to be indexed without lifting.
- Totally enclosed robust mechanism with grease lubrication.
- Absolute encoder for position feed back.
- Provision for internal coolant supply.
- Optional 6 position turrets available.



	VTP 160	VTP 200	VTP 250
A	311	320	410
B	160	200	250
C	188	232	291
D	230	288	363
E	160	195	265
F	80	100	125
G	72	90	115
H	24	25	33
I	125	165	210
J	205	262	328
K	M16X40	M16X40	M16X55
Coolant Entry	3/8" BSP	3/8" BSP	3/8" BSP
Coolant Outlet	3/8" BSP	3/8" BSP	3/8" BSP
Electrical Entry	3/8" BSP	3/8" BSP	3/8" BSP

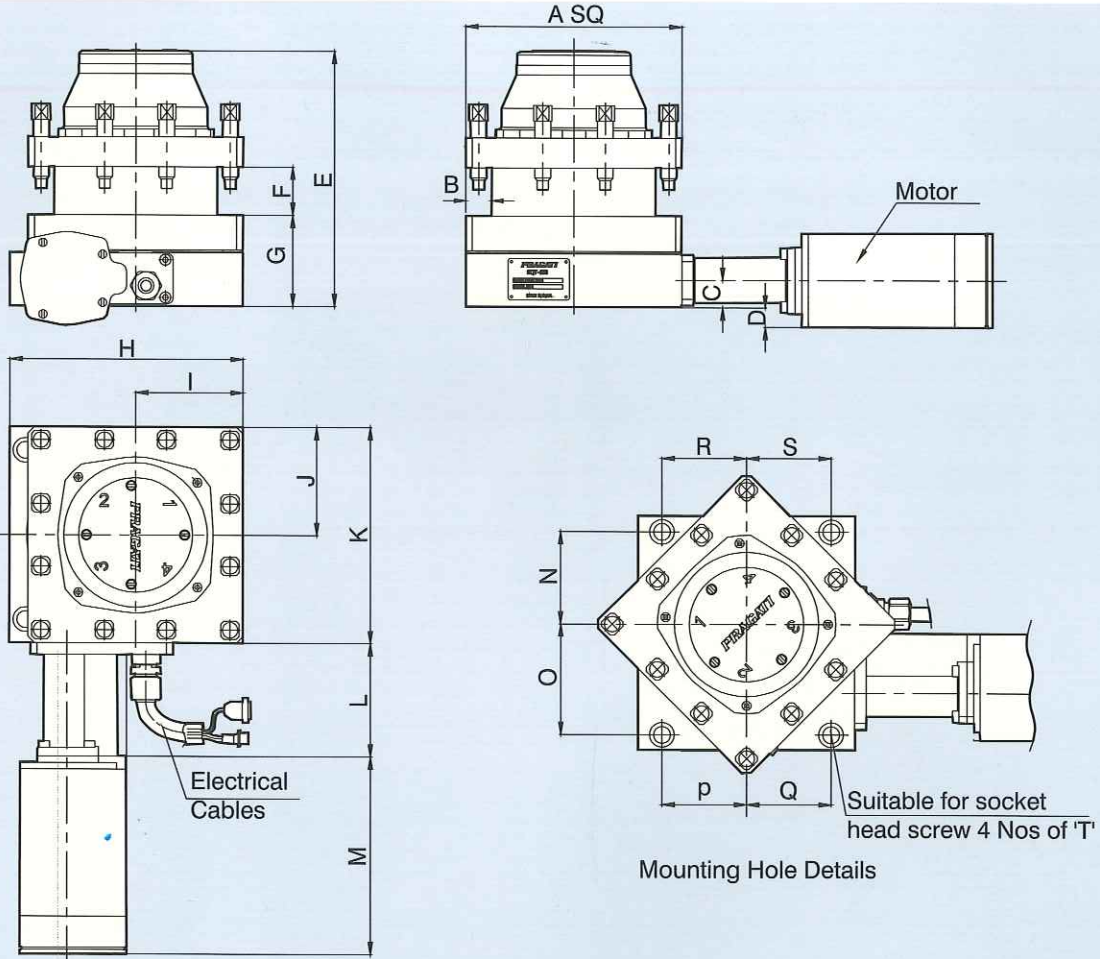
Specifications		Units	VTP-160	VTP-200	VTP-250
No. of stations			4	4	4
Tool shank size		mm	20X20	25X25	32X32
Moment of inertia of transportable masses		kg-m <sup>2</sup>	1	3	7
Indexing time for 90° (including clamping)		sec	1.1	1.7	2.2
Rotating time for 90°		sec	0.6	1.1	1.4
Indexing accuracy		deg	±6"	±6"	±6"
Repeat positioning accuracy		deg	±2"	±2"	±2"
Motor details	Power	kVA	0.9	1.2	1.6
	Rated Current	A	1.3	1.6	2.3
Clamping Force		kgf	2,000	3,000	6,500
Total Weight (Without tools)		kg	45	75	135

**Note: Turrets available with or without internal coolant supply.**



**Main Features**

- For use on flat bed CNC lathes.
- 3 piece face gear allows turret to be indexed without lifting.
- Clamping through Cam and Disc spring ensures consistent rigid clamping.
- Fast unidirectional indexing.
- Option with internal coolant allows use of BWS drills.



Series	Model	Lathe	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	Wt.Kg
130	134-51	0625	134	15	15.5	20.5	160	29	51	138	67	67	134	83.5	147.5	58	62	47	43	52	48	M8	14
	136-57	6125	136	16	21.5	14.5	166	31	57	148	68	68	136	83.5	147.5	57	69	51	57	51	57	M10	15
160	166-70	6132	166	20	21	23.5	196	40	70	180	83	83	166	87	149	71	85	65	65	65	65	M12	25
	166-81	6140	166	25	21	23.5	202	37	81	192	83	83	177	87	149	71	97	71	81	71	81	M12	26
	166-115	6150	166	25	55	10.5	236	37	115	192	83	83	177	87	149	71	97	71	81	71	81	M12	31
	166-121	6150	166	25	61	16.5	242	37	121	192	83	83	177	87	149	71	97	71	81	71	81	M12	32
	166-125	6150	166	25	65	20.5	246	37	125	192	83	83	177	87	149	71	97	71	97	71	81	M12	32
	163-110	6132	163	22	21	23.5	198	40	70	175	81.5	81.5	177	87	149	65.5	80.5	61.5	64.5	61.5	64.5	M12	24
	180-110	21180	180	28	58	5.5	239	45	110	192	90	90	184	87	149	78	90	78	74	78	74	M12	38
190	192-81	6140	192	25	30.5	14	219	41	81	196	96	96	192	86	149	81	87	76	76	76	76	M12	35
	192-110	6150	192	25	59.5	15	248	41	110	196	96	96	192	86	149	81	87	76	76	76	76	M12	41
	192-125	6150	192	25	74.5	30	263	41	125	196	96	96	192	86	149	81	87	76	76	76	76	M12	43
200	200-110	6163	200	25	30.5	14	234	40	110	200	100	100	200	86	149	89	89	65	65	75	75	M12	44
	200-120	6163	200	32	30.5	14	244	50	120	200	100	100	200	86	149	89	89	65	65	75	75	M12	47

## Our other products



Automatic Tool Changer-V



Automatic Tool Changer-H



Chucking Cylinders



Tool Disc & Tool Holders



### **Pragati Automation Pvt. Ltd.**

# 19 & 20, (Plot No. 467 - 469), IV Phase, 12th Cross,  
Peenya Industrial Area, Bangalore - 560 058. INDIA.  
Tel. : (+91-80) 2836-1543 Fax : (+91-80) 2836-1549.  
E-mail : [info@pragatiautomation.com](mailto:info@pragatiautomation.com)  
URL : <http://www.pragati-automation.com>