

Approved Procurement Plan dated.29.09.2020

Name of the ITI - Chengalpet


SL. NO	Procurement Package Number	DESCRIPTION	Trade	Total Quantity Approved	NSQF Trade SI No / Remarks
1	4	Multi media audio system . speaker,mic	ICT	1 No	ICT
2	4	Desk Top computer	ICT.LIBRARY	2 Nos	ICT
3	4	LCD Projector	ICT.LIBRARY	3 Nos	ICT
4	4	Xerox Machine	LIBRARY	1 No	ICT
5	5	A.GTAW Welding Machine B.GMAW Welding Machine	Welder / MMV / M.Diesel	1+1	43 & 44
6	5	Trolley Type Portable Air Compressor	Welder / MMV / M.Diesel	1 No	198
7	5	Bench drilling 12mm Dia Capacity	Welder / MMV / M.Diesel	1 No	186
8	6	I) D.C. Shunt Motor	Wireman	1 No	97
9	6	II) AC Squirrel Cage Induction Motor	Wireman	1 No	104
10	6	III) Motor Generator Set 5 H.P.	Wireman	1 No	103
11	7	New internet connection	ICT / Service	1 No	ICT
12	7	8 Classrooms internet cable connection	ICT / Service	1 No	ICT
13	8	**Documents sets like spec sheet.size chart	LIBRARY	30 Nos	Books
14	8	Wall charts(ALL CTS TRADERS)	LIBRARY	2 Set	Books
15	8	NIMI Books	LIBRARY	1 Set	Books
16	9	Steel almirah	Furniture	6 Nos	Furniture
17	9	Front glass cupboard	Furniture	2 Nos	Furniture
18	9	Seminar table	Furniture	2 Nos	Furniture
19	9	chairs	Furniture	30 Nos	Furniture
20	9	cutting table/pattern table	Furniture	2 Nos	Furniture
21	9	student stool for sewing m/c	Furniture	30 Nos	Furniture
22	9	Teachers table	Furniture	1 No	Furniture
23	9	Teachers chair	Furniture	1 No	Furniture
24	9	White/Black Board	Furniture	1 No	Furniture
25	9	Board eraser and Marker ,chalk	Furniture	1 No	Furniture
26	9	Student Table	Furniture	10 Nos	Furniture
27	9	Students chair with arm	Furniture	30 Nos	Furniture
28	9	Iron Table	Furniture	2 Nos	Furniture
29	9	computer Table and chair	Furniture	2 sets	Furniture

Sd/...

Director of Employment and Training

// Forwarded By Order//


For Director of Employment and Training


30/09/20

Approved Procurement Plan Name of the ITI - Chengalpet						
SI No	Procurement Package No	Item Name	Detailed Description	Trade	Total Quantity Approved	NSQF Serial Number
1	1	CNC Vertical Machining Centre with Standard Accessories	specification as per Annex	Machinist	1 No	171
2	1	CNC milling tools	specification as per Annex	Machinist	1 No	173
3	1	CNC hole machining Tools	specification as per Annex	Machinist	1 No	174
4	2	CNC Lathe / CNC Turning Centre with Standard Accessories	specification as per Annex	Turner	1 No	117
5	2	CNC Tool holders inserts	specification as per Annex	Turner	1 No	119

Sd/...
Director of Employment and Training

// Forwarded by order //

For Director of Employment & Training
K. R. ...
2/2/21

2/2/21

1.CNC VERTICAL MACHINING CENTER WITH CNC MILLING TOOLS & HOLE MACHINING

A. SPECIFICATION FOR CNC VERTICAL MACHINING CENTER

1.MACHINE CAPACITY

Table size	:	800 -400 mm - 900-450mm (Range)
T Slot nox size xpitch	:	4 x18x125 mm
Max.load on table	:	400 kgs
Bed,Saddle,Column	:	C.l.grade 25 or equivalent

2.SPINDLE

Spindle nose Taper	:	BT 40
Spindle nose face to Table Top	:	125-550mm -160 -600mm
Spindle center to column	:	350-550 mm
Max. spindle speed	:	6000 rpm or higher
Spindle power	:	7.5/11kw continuous / 15 min rated output
Type of drive	:	AC Servo Spindle Motor
Spindle bearing type	:	P4 class

3.AXES

Xaxis travel	:	550-600mm
Yaxis travel	:	400-450 mm
Zaxis travel	:	450-525 mm
Rapid Traverse x,y,z	:	30/30/20 m/min
Minimum programmable command	:	0.001mm & 0.001 degree
Programmable Feed range	:	10-10000 mm/min
Type of drive	:	AC Servo motor
X&Y Axis Motor Torque	:	12Nm or higher
Z-Axis Motor Torque	:	12 Nm or higher
Ball screw (diapitch) X,Y,Z axes	:	Dia 32x 10mmpitch or higher
Ball screw Finish X,Y,Z axes	:	Hardened and Ground
Ball screw Finish	:	C3 Class
Guide ways X,Y&Z Axes	:	Anti friction LM Guideways
Guide ways Class	:	p class
Guide ways Size X,Y& z Axes	:	35-40mm

4.AUTOMATIC TOOL CHANGER

No.of Tools	:	20 or higher
Max.Tool Diameter	:	80-90 mm
Tool Selection	:	Bi.Directionial
Tool Shank Type	:	BT 40
Tool Weight Maximum	:	8 kgs
Tool Length Maximum	:	250mm
Tool Change Time	:	Max.7Sec. Or less
Tool Clamp	:	Disc spring/Hydro pneumatic
Tool Change System	:	Disc armless/ Twin Arm type

5. ACCURACY

Positioning Accuracy	:	0.01mm or less
Repetability	:	±0.003mm or less
Geometrical Alignment	:	ISO 13041-part 1
Accuracy of Finish Test Piece	:	ISO 13041-part 6

6. CNC SYSTEM

Control System	:	Fanuc Oi MF control system or Latest Version
Motors &Drives	:	Compatible to above controller

System resolution	:	0.001mm
Tool number Display	:	On Machine Control Panel
Machine Control Panel	:	speed,feed,Rapid override knobs& Swivel pendent type
MPG (Manual Pulse Generator)	:	On M/C Operator Panel and portable type
CNC Features	:	Graphic Simulation,programming Help,Tool Off-sets MDI,Absolute /Incremental positioning,Pitch error compensation,Rigid Tapping
7. COOLANT / LUBRICATION		
Coolant Tank Capacity	:	150 - 200 liters or higher
Coolant pump motor	:	1.1 kw or higher
Coolant pump output	:	20 lpm or higher
Lubrication Type	:	Automatic Centralised Lubrication system
Lubrication Tank Capacity	:	3 to 5 liters
8. POWER SOURCE		
Main Supply (±10%)	:	415V,3 Ph,50HZ
Total Connected Load	:	Approx.22KVA
9.STANDARD EQUIPMENT		
Voltage stabilizer 25KVAor higher	:	1no
Air -conditioner unit for electrical cabint	:	1no
Backup CD for Ladder Logic	:	1no
Flood coolant Equipment	:	1no
Machine Lighting	:	1no
Levelling Pads&Jacking Screws	:	1set
Operator Manual	:	Each1no (hard & Soft copy)
Programming Manual	:	Each1no (hard & Soft copy)
Maintenance and spare parts Manual	:	Each1no (hard & Soft copy)
Electrical Documentation Manual	:	Each1no (hard & Soft copy)
Installation kit	:	1no
Maintenance Tool kit (D. E.spanner,Allen key set,screw drivers)	:	1no
6 Rack Tool Trolley with Locker (size 25"x22"x45")	:	1no
Air Gun	:	1no
Coolant Gun	:	1no
3 HP Air Compressor 160 liter Tank capacity , built in suitable capacity Air Dryer With Auto Drain Valve	:	1no
Parallel Block 50x25x150 mm	:	1no
Parallel Block 25x25x150 mm	:	1no
6" Machine Vice	:	1no
Electronic Edge Finder With Beeper Optical	:	1no
Centering Indicator	:	1no
Magnetic Stand With Lever Dial 0.01mm	:	1no
Clamping Kit (Bolts,Nuts,Washers and Step Blocks	:	1 set
BT 40 Tool Holder Locking Device (Vertical &Horizontal line)	:	1no
Door Inter Lock- Limit Switch Type	:	1no

Machine Status Lamp - 3 tier	:	1no
Initial fill of all consumables by the supplier	:	as required
Machine giarding with safety compliance	:	1n0

10. MAKES OF CRITICAL COMPONENTS

LM guideways	:	HIWIN/THK/PMI/STAR
Ball screws	:	HIWIN/THK/PMI/STAR/HMT/NSK/TSUBAKI
Spindle Bearings	:	RHP/NSK/FAG/SKF/NRB
ATC	:	PRAGATI/GIFU
Panel AC	:	WERNER FINLEY/RITTAL/LEXTECHNOID
Stabiliser	:	NEEL/SERVOMAX/CONSUL/FARMAX
Lubrication	:	CENLUBE/DROPSCO
Coolant Pump	:	RAJAMANE/GRUNDFOS
cutting tools and holders	:	SANDVIK/TAEGUTEC/KENNAMETAL/SECO/MITSUBISHI
Air Compressor (6kg/cm ² -300 lpm min or higher	:	GODREJ/ELGI/KAESER/ATLASCOPCO

NOTE :

a.GEOMETRICAL AND PRACTICAL TESTS

Should be done as per Indian standards of latest version Necessary inspection and material Test certificates should be submitted

b.TRAINING IN THE FOLLOWING AREAS SHOULD BE PROVIDED :

1. Instruction about machine operationfor 3 persons of each consignee
- 2.programming ,servicing,basic setup and adjustments of the machine .
(including of control system maintenance&Mechanical Maintenance)
- 3.face milling,pocket milling,side milling,contour milling,drilling,boring,tapping
back boring, counter bore ,counter sink operations to be proved out.
operation trail aluminium blank size: 100x100x15mm -10 nos to be supplied

c.WARRANTY :

Warranty for minimum 2 years to be provided from the date of installation

d. ANNUAL MAINTENANCE CONTRACT :

AMC for 5 years to be provided after warranty period

2. Specification for CNC Milling tools and Cutters

CNC milling tools assorted such as adapters to suitable for above machine to accommodate face cutter, shell end mill cutter, taper shank and parallel shankdrills/cutters.

I)

- a) Face mill adaptor BT40 with pullstud. : 1 No
- b) Face mill cutter Ø65mm 45° approach angle. : 1 No
- c) Suitable coated insert for above cutter. : 20 Nos

II)

- a) Square shoulder face mill Adaptor BT40 with pull stud. : 1 No
- b) Square shoulder face milling cutter Ø50mm - 90° approach angle. : 1 No
- c) Suitable coated insert for above cutter. : 20 Nos

III)

- a) Dia 25&32 End mill adaptor BT40 with pull stud. : each 1 No
- b) Ø 25 & 32 End mill holder (Cutter) : each 1 No
- c) Suitable coated insert for above cutter. : 20 Nos

IV)

- a) Morse taper holder MT2 / BT40 with pull stud. : 1 No
- b) Morse taper holder MT3 / BT40 with pull stud. : 1 No
- c) Reduction sleeves MT1-2, MT2-3 : 1 No (Each)

V) Cutting Tools

- a) HSS Machine tap - M8, M10, M12 & M16 (standard pitch) : 2 Nos (Each)
- b) HSS Drill parallel shank-Ø6, Ø6.8, Ø 8.5, Ø10, Ø10.2 & 14. : 1 No (Each)
- c) Solid carbide twist Drill straight shank-Ø12mm. : 1 No
- d) Centre drill A2.5x6.3. : 10 Nos.
- e) Carbide slot drill: Ø8, Ø10 & Ø12 : 1 No (Each)
- f) HSS End Mill : Ø5, Ø6, Ø7, Ø8, Ø10 & Ø12 : 2 Nos (Each)
- g) Machine Reamer , Ø7, Ø8, Ø10 : 1 no each
- h) pull stud (for spare) : 3 nos
- i) counter sinking cutter Dia 12mm : 1 no

3. Specification for CNC Hole Machining Tools

CNC hole machining tools assorted such as adapters, collets, sleeves to suit CNC milling machine to accommodate different boring bars.

Collet chuck adaptor ER40 BT40 with pull stud.	: 5Nos
Collets(Range 3-26mm) ER40	: 1 set(box)
Quick change Tapping chuck(M5-M24) BT40 with pull stud.	: 1 No
Suitable Quick change collets for above mentioned Taps	: 1 No (Each)
Dia 12&16mm Boring bar adaptor BT40 with pull stud(side lock holder).	: each 1 No
Boring bar - dia 12&16mm	: each 1 No
Suitable coated insert for above boring bar.	: 20 Nos

Additional sleeves ,collets,holders required other than above for machining purpose to be included and the same to be supplied by the supplier

4. Specification for CNC Lathe / CNC Turning Centre with Standard Accessories

(1) MACHINE CAPACITY

a	Max.load on Chuck	40 Kgs or Higher
b	Machine Weight net	2000 kg or Higher
c	Chuck Dia	200mm (3 jaw Hydraulic power operated chuck with accumulator)
d	Max.TurningDia	200-300 mm
e	Max.Turning Length with chuck	230-300 mm
f	Slant Angle of Turret	30 deg / 45deg
g	Cast Iron grade for Bed/saddle	Grade 25
h	Admit Between centers	300 -350 mm
i	Swing over bed	400-500mm
j	Swing over carriage	225-300 mm

(2) SPINDLE

a	Maximum Spindle Speed	4000 RPM or higher
B	Type of Drive	AC servo spindle motor
c	Spindle Front Bearing (ID)	60 mm
d	Spindle nose	A2-5 or higher
e	Spindle hole through	50-55 mm
f	Max. bar capacity	40-50 mm
g	Spindle Motor power Ac-cont./15min	5.5/7.5 kw or 7/10.5 kw

(3) AXES

a	X-axis travel	120-200mm
b	Z-axis travel	240-300mm
c	Rapid traverse-X& Z	20-30 m/min or higher
d	minimum programmable command-X,Z axes	0.001mm&0.001 degree
e	programmable feed range-X,Z axes	10-10000 mm/min
f	Type of drive X & Z	AC servo motor
g	Motor torque-X axis	8 Nm or higher
h	Motor torque-Z axis	8 Nm or higher
i	Ball screw size-dia x pitch X &Z axes	φ32X10 or Higher
j	Ball screw finish and class	Hardened & ground and class 3
k	Feed back elements type	Absolute encoder
l	Guideways	Anti frictionLM Guide way
m	Guide way size – X & Z Axes	30-35 For X&z Axis
n	Guide way class	P class
o	Manual Handle Feed	in steps of 0.001 ,0.01,0.1mm

(4) TURRET

a	No of stations	8/12
b	Max.boring bar dia	25 -32 mm
c	Tool size (cross section)	25x25mm
d	Bi directional Tool Turret	ElectroMechanical/ Hydraulic/servo

(5) TAIL STOCK

a	Quill size	75 mm
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b	Quill Taper	MT4
c	Quill stroke	100mm or higher
d	Quill Actuation	Hydraulic
e	Tail stock base travel manual	150 mm
f	Quill Thrust adjustable	300 kgf or higher
g	Revolving center	MT4 – 1 No
(6) COOLANT/LUBRICATION/HYDRAULIC		
a	coolant tank capacity	100 Liters or Higher
b	coolant pump motor	0.37 kw
c	coolant pump output	20- 25lpm
d	Lubrication	Automatic centralized lubrication
e	Lubrication tank capacity	3 - 5Liters
g	Hydraulic tank capacity	30-40Liters
h	Hydraulic system pressure	30-40 Bar
i	Hydraulic pump Capacity	8 – 10 lpm
(7) ACCURACY AS PER ISO 230-2		
a	positioning accuracy for X,Y&Z axes	0.01mm or less
b	Repeatability for X&Z axes	±0.003mm or less
c	Geometrical alignment	ISO 13041-part 1
d	Accuracy of finish test piece	ISO 13041-part 6
(8) CNC SYSTEM		
a	control system	Fanuc OiTF Controlsystem/ latest version
b	Motor & Drive	Compatibility with CNC controllers mentioned above
c	Resolution	0.001 mm
d	Machine control panel	Rapid feed, Feed rate,spindle speed override knobs,MPG,MDI alarm messages on screen,swivel pendant type
e	MPG(manual pulse generator)	on machine operator panel
f	CNC features	Graphic simulation, programming help, Tool offset, MDI, Absolute/incremental positioning, pitch Error compensation
(9) POWER SOURCE		
a	Mains supply (± 10%)	415v,3ph,50Hz
b	Total connected load requirement	Approx,15 KVA
(10) STANDARD EQUIPMENT		
a	voltage stabilizer	15KVA orhigher
b	Air conditioning unit for electrical cabinet	1 No
c	backup CD for PLC ladder logic	1.no
d	Machine Lamp	1 No
e	levelling pads and jacking screws	1 set (As required)
f	Instruction and programming manual	Both Hard & soft copy 2 sets
g	Maintenance Support system:	an interactive multimedia based system which will

guide the user through various of the operation of the machine maintenance, basic operations of the machine

h	maintenance manual	1.set
i	Electrical documentation manual	1 No
j	Installation kit	1.set
k	maintenance tool kit	1.set (D.E.Spanners,Allen key set,Screw Drivers)
l	Sliding door inter lock	1 No
m	Coolant & chip tray	1 No
n	Foot switch for chuck and tail stock	
o	Set of turret tool mountings	1 set (OD,ID,face)
p	Absolute encoder	1 No
q	USB port	As required
r	6 rack trolley (size 25"x22"x45")	1 No
s	Machine guarding with safety complete	As required
t	Machine status lamp	1no
u	Mallet	1 no
v	Soft jaws	1 sets
(11) MAKES OF CRITICAL COMPONENTS		
a	LM guideways	HIWIN/THK/PMI/STAR (or) equivalent
b	ball screws	HIWIN/THK/TSUBAKI/PMI/STAR/HMT/NSK (or) equivalent
c	spindle bearings	RHP/NSK/FAG/SKF/NRB (or) equivalent
d	Turret	PRAGATI OR equivqlent
e	Hydraulic chuck&cylinder	GMT/KITAGAWA/AIRTECH/PRAGATI/ROHM OR equivalent
f	Hydraulic Power Pack	YUKEN/FLUID/REXROTH OR equivalent
g	Panel AC	WERNER FINLEY/RITTAL/LEXTECNOID OR equivalent
d	Stabilizer	NEEL/SERVOMAX/CONSULF /FARMAX (or) equivalent
e	Lubrication	CENLUBE/DROP (or) equivalent
f	coolant pump	RAJAMAN/GRU NDFOS HIWIN/THK/PMI/STAR (or) equivalent

(5) TOOL HOLDERS & INSERTS FOR CNC LATHE:

Tool holders to suit the CNC machine for turning, threading, grooving (external & internal), parting off operation, boring, under-cutting with 20 inserts of each operation.

- | | |
|--|------------------|
| 1) MWLNL External Turning Tool Holder. | : 2 Nos. |
| 2) WNMG 0.8R coated carbide inserts (Mild Steel machining) | : 20 Nos. |
| 3) MVJNL External Turning Tool Holder. | : 2 Nos. |
| 4) VNMG 0.8R coated carbide inserts (Mild Steel machining) | : 10 Nos |
| 5) VNMG0.4R coated carbide inserts. (Mild Steel machining) | : 10 Nos |
| 6) PDJNR External Turning Tool holder | : 2 Nos |
| 7) DNMG0.8R coated carbide inserts (Mild Steel machining) | : 10 Nos. |
| 8) DNMG 0.4R coated carbide inserts (Mild Steel machining) | : 10 Nos |
| 9) SEL External Threading Tool Holder | : 2 Nos |
| 10) 1.5mm ISO 3M coated carbide Inserts. (for threading Mild Steel) | : 10 Nos |
| 11) Internal Threading Tool Holder | : 2 Nos |
| 12) 1.5mm ISO 3M Coated Carbide insert .(for threading Mild Steel) | : 10 Nos |
| 13) 3mm External Grooving Coated Carbide inserts.(Mild Steel) | : 10 No. |
| 14) 3mm LH Grooving Tool Holder External. | : 1 No |
| 15) 3mm LH Grooving Tool Holder Internal. | : 1 No |
| 16) 3mm Grooving Coated Carbide insert s.(Mild Steel) | : 10 Nos. |
| 17) Parting of Holder LH | : 2 Nos |

- 18) Insert for parting 2mm width. (Mild Steel) : 10 Nos.
- 19) Internal Grooving Tool Holder LH, (Bore Diameter 12mm) : 1 No
- 20) Grooving Insert 2mm width coated carbide.(Mild Steel) : 10 Nos.
- 21) Insert drill Diameter 16mm. : 1 No
- 22) Suitable insert for above drill coated carbide .(Mild Steel) : 10 Nos
- 23) Centre Drill A 2.5 x 6.3 : 2 Nos
- 24)HSS Straight Shank Drill bit Diameter 6, 8, 10, &12. : 1 No (Each)
- 25) Collet Holder (with locknut) : 2 Nos.
- 26) Collets for above drills Diameter 6, 8, 10 & 12. : 1 No (Each)
- 27) Boring Bar ϕ 16 & 12mm : 10 Nos
- 28)Boring inserts coated carbide(Mild steel machining) : 10 Nos
- 29)Boring bar ϕ 10 mm : 1no
- 30)Boring inserts coated carbide(Mild steel machining) : 10 Nos
- 31). Boring Bar sleeves for above to suit in mountings : 1 set

NOTE:

A. Geometrical and practical testsshould be done as per Indian Standards of latest version. Necessary inspection and material test certificates Shouldbe submitted.

B. TRAINING IN THE FOLLOWING AREAS SHOULD BE PROVIDED:

1. Instruction about the machine operation for 3 Persons of each consignee.
2. Programming, Servicing, basic operation, Machine setup andadjustment of the machine.

(including systemmaintenance and mechanical maintenance)

3. Number of sample jobs with programming on machine to be worked out.

C. WARRANTY:

Warranty for minimum two years to be provided from the date of installation.

D.ANNUAL MAINTENANCE CONTRACT :

AMC to be provided for 5 years after warranty period

K. R. Chandan
For Director 2/2/21

SJ/S
02/02/21