



# 1. Machine Specification

SPECIFICATION:	UNIT	VF-2000	VF-3000	VF-4000	VF-5000	VF-6000	VF-4026	VF-5026	VF-6026
TRAVEL									
Longitudinal travel (X axis)	mm	2200	3200	4200	5200	6000	4200	5200	6000
Cross travel (Y axis)	mm	2300	2300	2300	2300	2300	2600	2600	2600
Vertical travel (Z axis)	mm	920	920	920	920	920	920	920	920
Distance from spindle end to table	Standard	mm	150-1070	150-1070	150-1070	150-1070	150-1070	150-1070	150-1070
Distance from spindle end to table	+200mm	mm	350-1270	350-1270	350-1270	350-1270	350-1270	350-1270	350-1270
Distance from spindle end to table	+300mm	mm	450-1370	450-1070	450-1370	450-1370	450-1370	450-1370	450-1370
Distance from spindle center to column	mm	390	390	390	390	390	390	390	390
Distance between columns	mm	2400	2400	2400	2400	2400	2700	2700	2700
TABLE									
Working surface	mm	2200x2050	3200x2050	4200x2050	5200x2050	6200x2050	4200x2050	5200x2050	6200x2050
T-slot(Size x Number x Pitch)	mm	28x11x180	28x11x180	28x11x180	28x11x180	28x11x180	28x11x180	28x11x180	28x11x180
Max. table load	kg	8000	10000	13000	15000	18000	13000	15000	18000
SPINDLE									
Spindle drive motor (Fanuc/Meldas)	kw	18.5/22	18.5/22	18.5/22	18.5/22	18.5/22	18.5/22	18.5/22	18.5/22
Spindle drive motor (Heidenhain)	kw	18/21	18/21	18/21	18/21	18/21	18/21	18/21	18/21
Spindle drive motor (Siemens)	kw	17/22.5	17/22.5	17/22.5	17/22.5	17/22.5	17/22.5	17/22.5	17/22.5



SPECIFICATION:	UNIT	VF-2000	VF-3000	VF-4000	VF-5000	VF-6000	VF-4026	VF-5026	VF-6026
Spindle speed (Gear)	rpm	50~4500/6000	50~4500/6000	50~4500/6000	50~4500/6000	50~4500/6000	50~4500/6000	50~4500/6000	50~4500/6000
Spindle speed (Pulley)	rpm	50~8000/10000	50~8000/10000	50~8000/10000	50~8000/10000	50~8000/10000	50~8000/10000	50~8000/10000	50~8000/10000
Spindle nose taper		ISO50	ISO50	ISO50	ISO50	ISO50	ISO50	ISO50	ISO50
<b>FEED</b>									
Cutting feedrate	mm/min	1-7000	1-7000	1-7000	1-7000	1-7000	1-7000	1-7000	1-7000
Rapid traverse	m/min	12	12	X:10,YZ:12	X:10,YZ:12	X:8,YZ:12	X:10, YZ:12	X:10,YZ:12	X:8,YZ:12
X , Y , Z axis Drive motor (Fanuc)		X : $\alpha$ 40 Y : $\alpha$ 40 Z : $\alpha$ 30	X : $\alpha$ 40 Y : $\alpha$ 40 Z : $\alpha$ 30	X : $\alpha$ 40 Y : $\alpha$ 40 Z : $\alpha$ 30	X : $\alpha$ 40 Y : $\alpha$ 40 Z : $\alpha$ 30	X : $\alpha$ 40 Y : $\alpha$ 40 Z : $\alpha$ 30	X : $\alpha$ 40 Y : $\alpha$ 40 Z : $\alpha$ 30	X : $\alpha$ 40 Y : $\alpha$ 40 Z : $\alpha$ 30	X : $\alpha$ 40 Y : $\alpha$ 40 Z : $\alpha$ 30
X , Y , Z axis Drive motor (Meldas)		X : HA700 Y : HA700 Z : HA300	X : HA700 Y : HA700 Z : HA300	X : HA700 Y : HA700 Z : HA300	X : HA700 Y : HA700 Z : HA300	X : HA700 Y : HA700 Z : HA300	X : HA700 Y : HA700 Z : HA300	X : HA700 Y : HA700 Z : HA300	X : HA700 Y : HA700 Z : HA300
X , Y , Z axis Drive motor (Heidenhain)		X : QSY190D Y : QSY190E Z : QSY190C	X : QSY190D Y : QSY190E Z : QSY190C	X : QSY190D Y : QSY190E Z : QSY190C	X : QSY190D Y : QSY190E Z : QSY190C	X : QSY190D Y : QSY190E Z : QSY190C	X : QSY190D Y : QSY190E Z : QSY190C	X : QSY190D Y : QSY190E Z : QSY190C	X : QSY190D Y : QSY190E Z : QSY190C
X , Y , Z axis Drive motor (Siemens)		X : 1FT6 108 Y : 1FT6 105 Z : 1FT6 105	X : 1FT6 108 Y : 1FT6 105 Z : 1FT6 105	X : 1FT6 108 Y : 1FT6 105 Z : 1FT6 105	X : 1FT6 108 Y : 1FT6 105 Z : 1FT6 105	X : 1FT6 108 Y : 1FT6 105 Z : 1FT6 105	X : 1FT6 108 Y : 1FT6 105 Z : 1FT6 105	X : 1FT6 108 Y : 1FT6 105 Z : 1FT6 105	X : 1FT6 108 Y : 1FT6 105 Z : 1FT6 105
<b>ACCURACY</b>									
Positioning accuracy	mm	$\pm 0.005/300$ / $\pm 0.015$ Full travel							
	mm	P0.035	P0.035	P0.035	P0.045	P0.035	P0.035	P0.045	P0.045
Repeatability accuracy	mm	$\pm 0.003$	$\pm 0.003$	$\pm 0.003$	$\pm 0.003$	$\pm 0.003$	$\pm 0.003$	$\pm 0.003$	$\pm 0.003$
	mm	Ps0.028	Ps0.028	Ps0.028	Ps0.028	Ps0.028	Ps0.028	Ps0.028	Ps0.028
ATC									



SPECIFICATION:	UNIT	VF-2000	VF-3000	VF-4000	VF-5000	VF-6000	VF-4026	VF-5026	VF-6026	
Tool storage capacity	pcs	40/60	40/60	40/60	40/60	40/60	40/60	40/60	40/60	
Max. tool weight	kg	18	18	18	18	18	18	18	18	
Tool size (Diameter x Length) (Full tools)	mm	φ 125×450L	φ 125×450L	φ 125×450L	φ 125×450L	φ 125×450L	φ 125×450L	φ 125×450L	φ 125×450L	
Max. tool size (Diameter x Length) (next pocket empty)	mm	φ 215×450L	φ 215×450L	φ 215×450L	φ 215×450L	φ 215×450L	φ 215×450L	φ 215×450L	φ 215×450L	
Tool shank		BT50/CAT50	BT50/CAT50	BT50/CAT50	BT50/CAT50	BT50/CAT50	BT50/CAT50	BT50/CAT50	BT50/CAT50	
Pull stud bolt		P50T-1	P50T-1	P50T-1	P50T-1	P50T-1	P50T-1	P50T-1	P50T-1	
Others										
Electric Power Consumption	KVA	60	60	60	60	60	60	60	60	
Machine net weight	kg	29000	33400	38400	43400	48000	41400	46400	51000	
Machine gross weight	kg	32000	37100	43400	48400	53000	46400	51400	56000	
Max floor space	Standard	mm	8000x6100x4700	10000x6100x4700	12000x6100x4700	14000x6100x4700	16000x6100x4700	12000x6400x4700	14000x6400x4700	16000x6400x4700
	+200mm	mm	8000x6100x4900	10000x6100x4900	12000x6100x4900	14000x6100x4900	16000x6100x4900	12000x6400x4900	14000x6400x4900	16000x6400x4900
	+300mm	Mm	8000x6100x5000	10000x6100x5000	12000x6100x5000	14000x6100x5000	16000x6100x5000	12000x6400x5000	14000x6400x5000	16000x6400x5000



## 2. Accessories List

STANDARD ACCESSORIES	OPTIONAL ACCESSORIES
Auto power off	Cooling through the tool holder system
Auto lubrication equipment	Coolant through spindle system
Full splash guard	Oil skimmer system
Work lamp	Mist coolant system
Air blast through spindle	Adding 4 <sup>TH</sup> interface
Leveling bolts & blocks	NC rotary table
Tool box	Spindle 8000RPM
Operation manual & electric drawing equipment	Closed-loop linear scale positioning system
RS-232 interface	XYZ axes ballscrew oil cooling system
Cutting coolant unit	Manual 90 angel head
Heat exchanger in control box	Manual universal head
Remote manual pulse generator	Tool length measure unit
Transformer	
Screw type and link type chip conveyer	
Spindle cooling unit	



### 3.Spindle torque/power output diagram

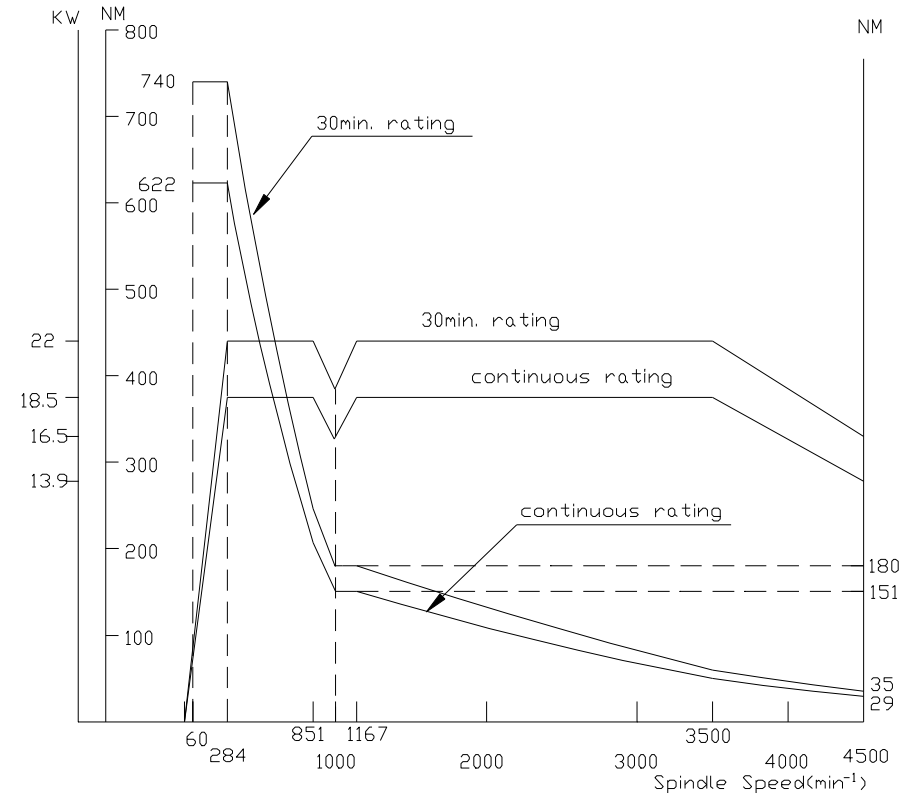
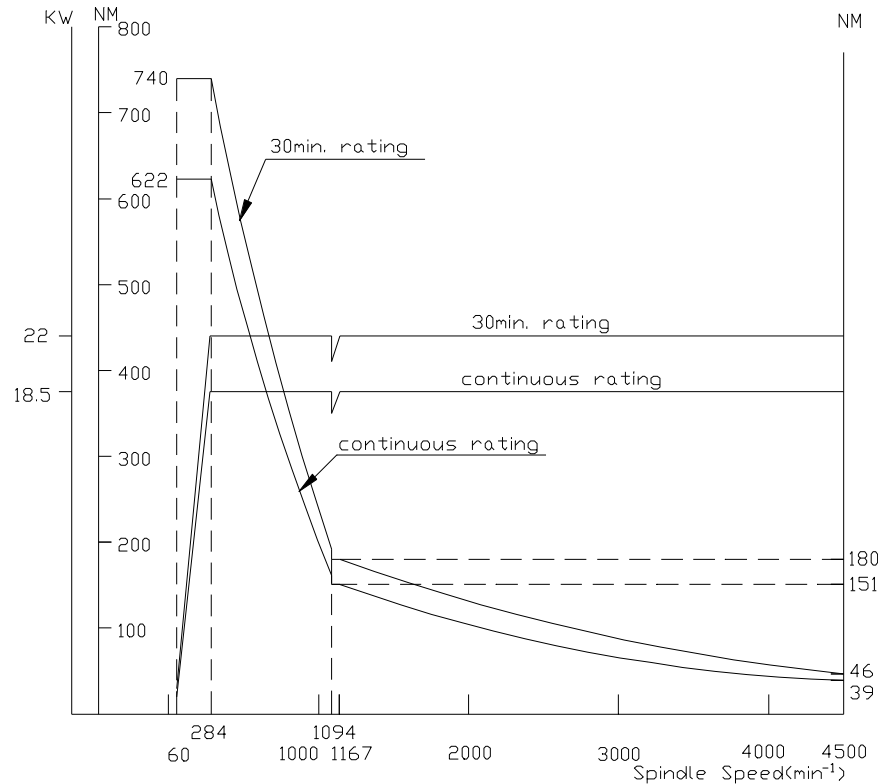
#### A. Standard:

SPEED:4500rpm

Horse power:18.5/22KW(CON./30 MIN)

FANUC:

MELDAS:



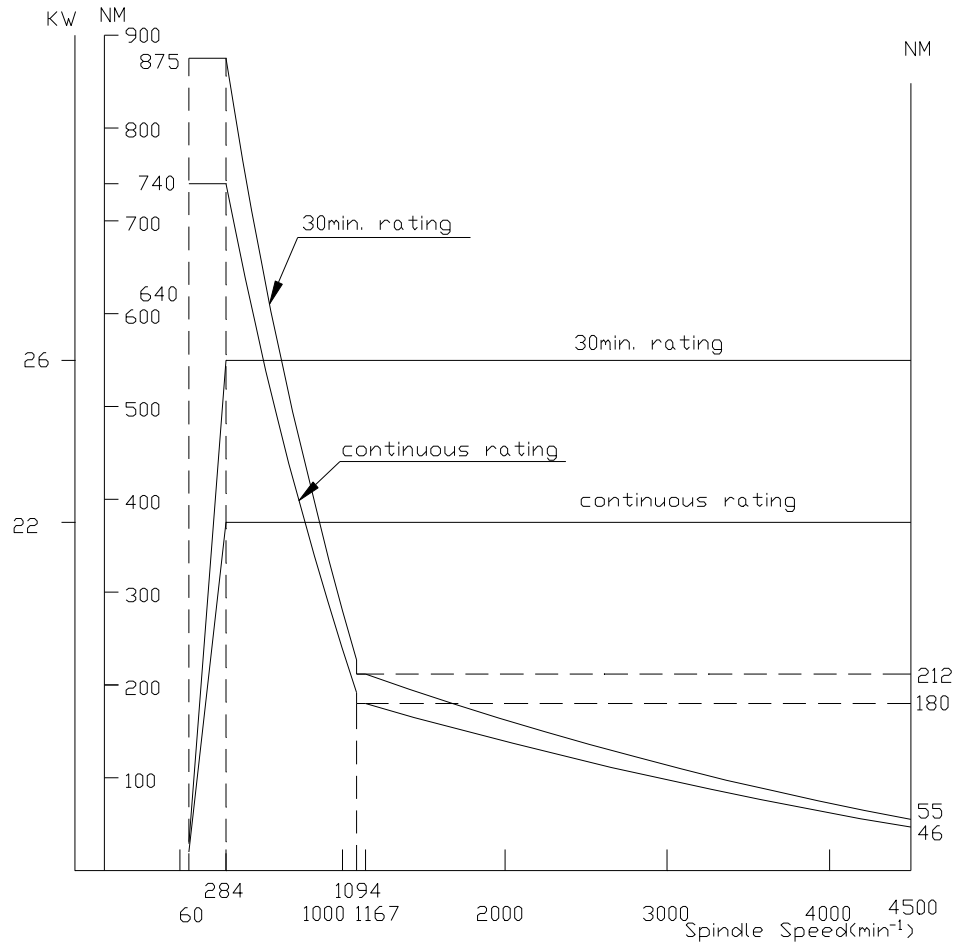


### B. Optional

Speed:4500rpm

Horse power:22/26KW(CON./30 MIN)

Fanuc (A22) & Meltas (SJ-V26-01)



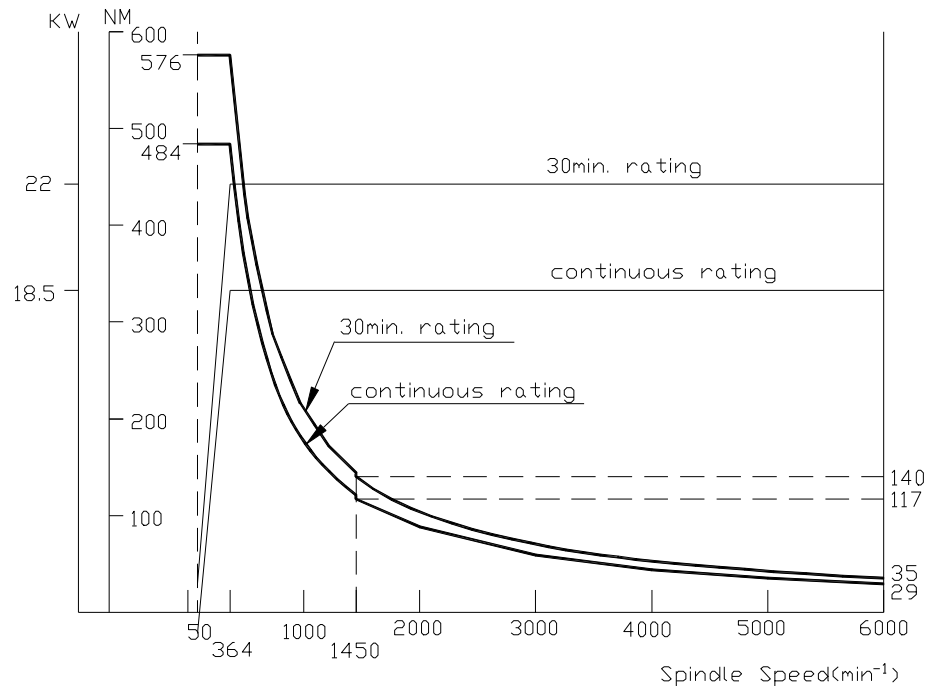


### C. Optional

Speed:6000rpm

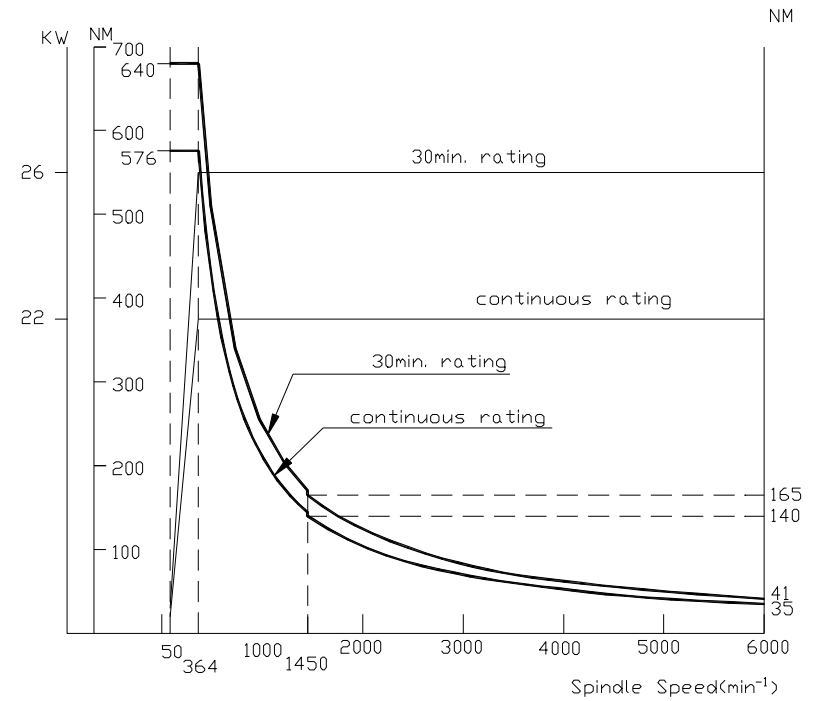
Horse power:18.5/22KW(con./30min)

Fanuc (A18):



Horse power:22/26KW(con./30min)

Fanuc (A22):

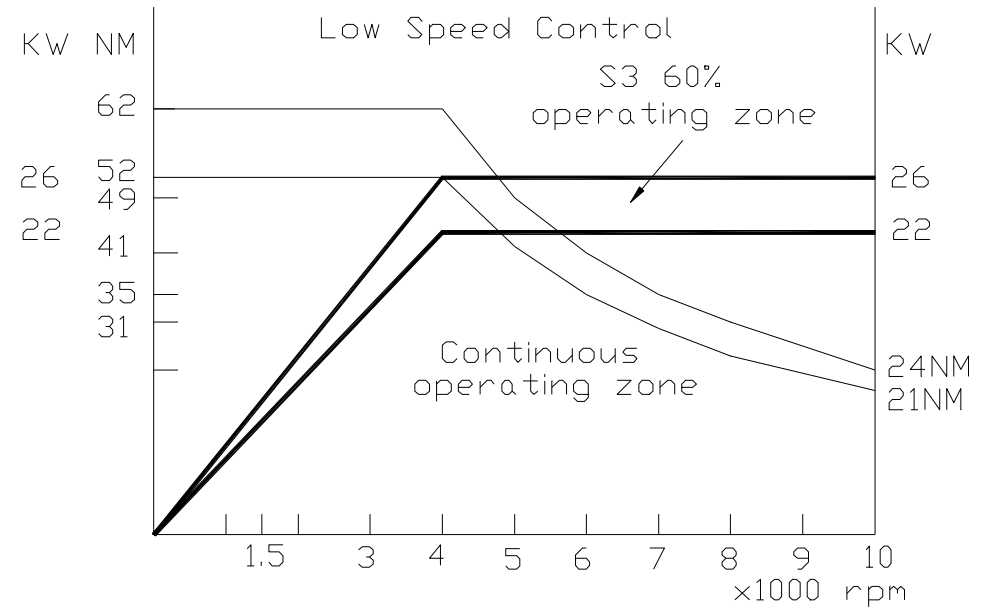
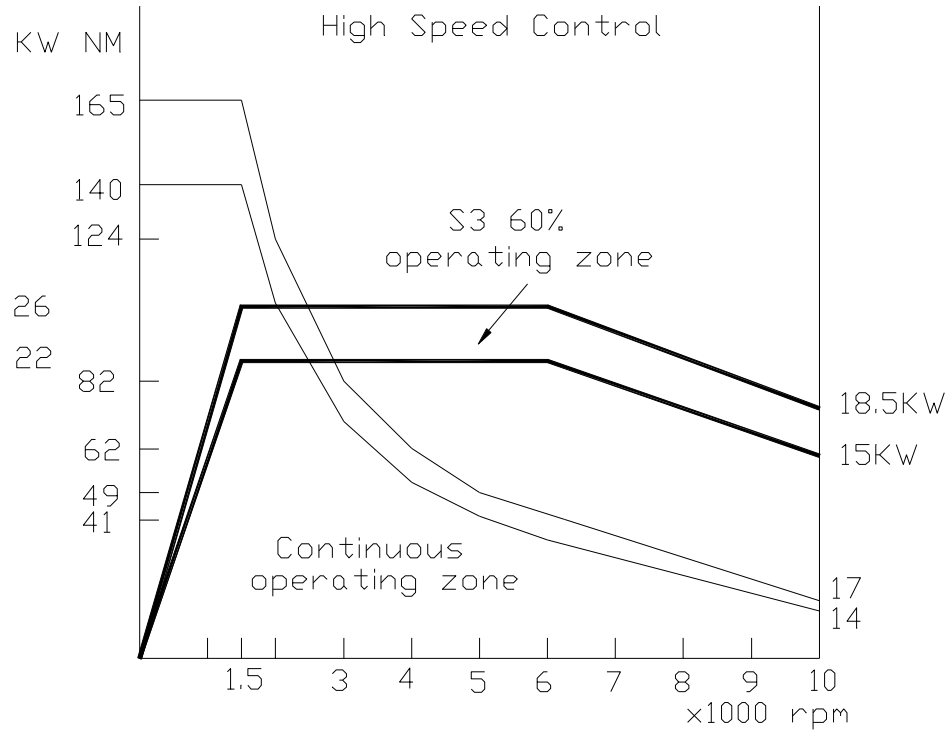




Speed:10,000rpm (Pulley Type)

Horse power:22/26KW(con./30min)

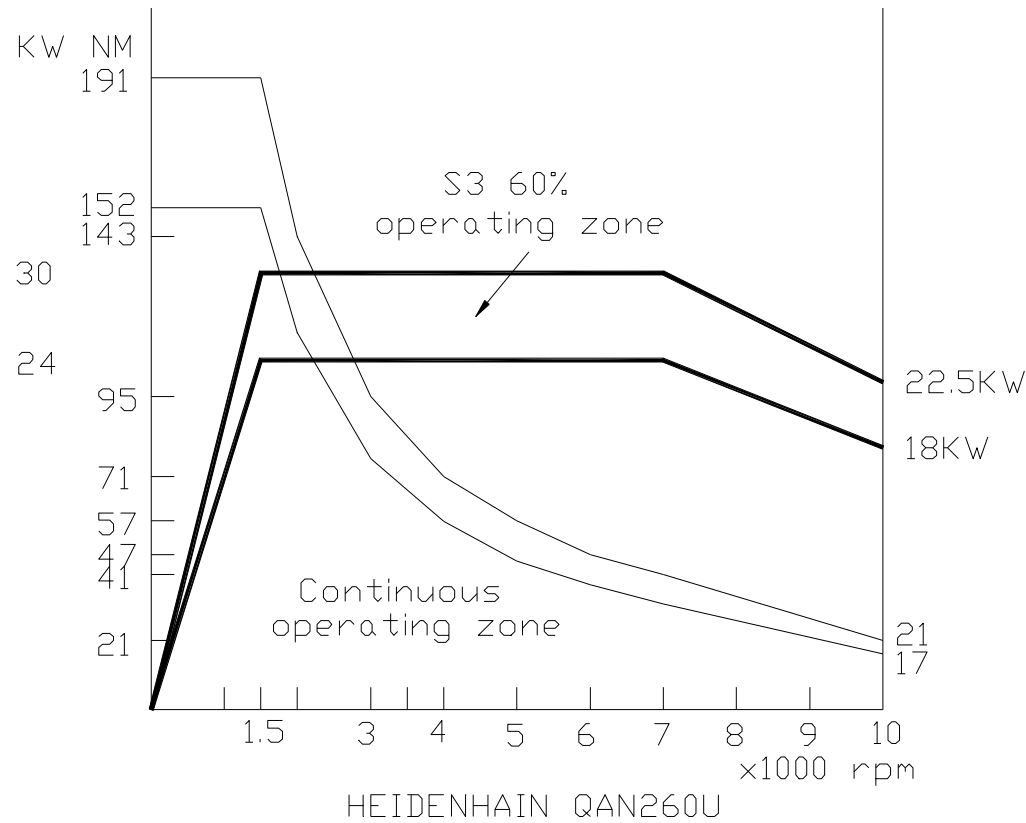
Spindle motor :FANUC A22





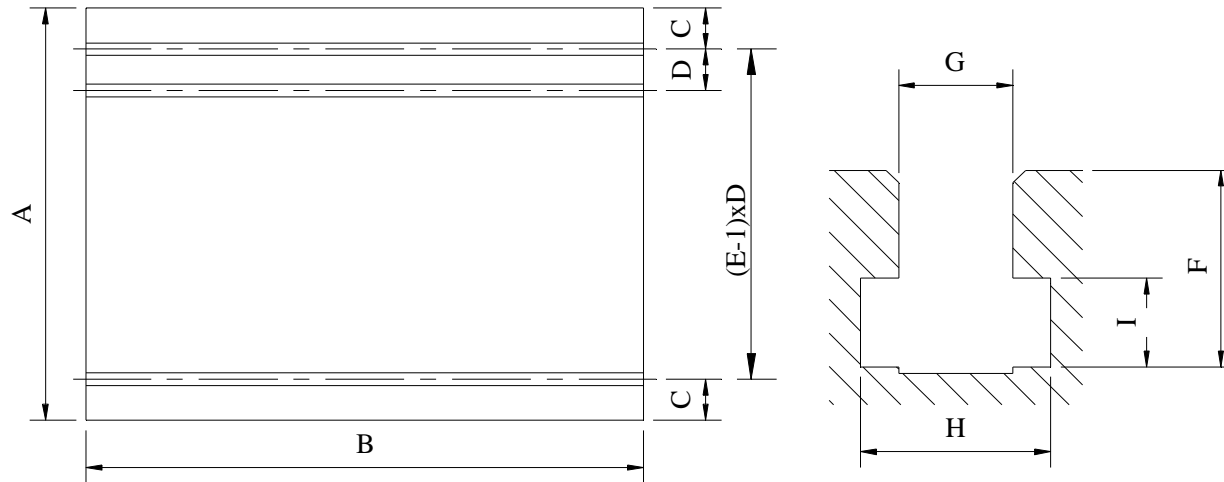


Speed:10,000rpm (Pulley Type)  
Horse power:24/30KW(con./30min)  
Spindle motor :HEIDENHAIN QAN260U





**4. Table size & T slot dimension**



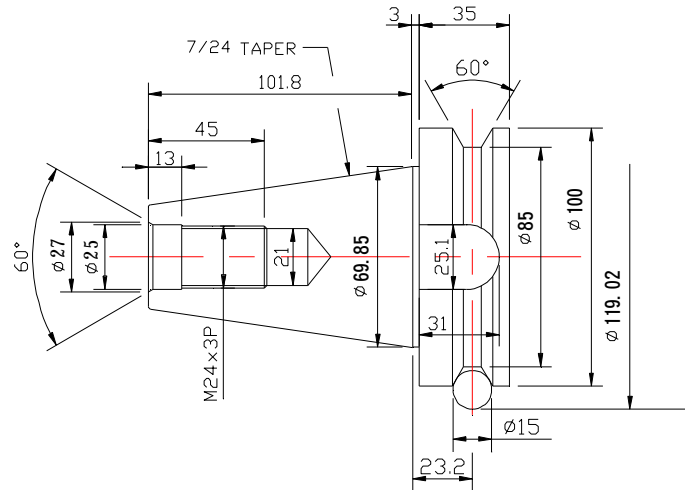
MODEL		A	B	C	D	E	F	G	H	I
VF-2000	mm	2050	2200	125	180	11	48	28H8	48	20
	inch	80.7	86.61	4.921	7.086	11	1.89	1.102H8	1.89	0.787
VF-3000	mm	2050	3200	125	180	11	48	28H8	48	20
	inch	80.7	125.98	4.921	7.086	11	1.89	1.102H8	1.89	0.787
VF-4000	mm	2050	4200	125	180	11	48	28H8	48	20
	inch	80.7	165.35	4.921	7.086	11	1.89	1.102H8	1.89	0.787
VF-5000	mm	2050	5200	125	180	11	48	28H8	48	20
	inch	80.7	204.72	4.921	7.086	11	1.89	1.102H8	1.89	0.787
VF-6000	mm	2050	5200	125	180	11	48	28H8	48	20
	inch	80.7	244.09	4.921	7.086	11	1.89	1.102H8	1.89	0.787



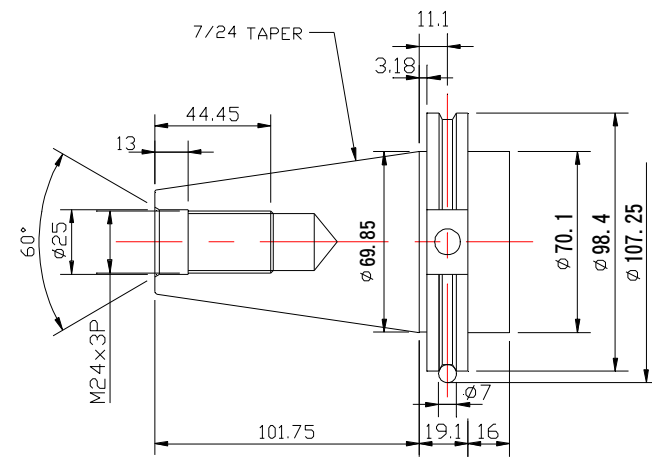
### 5.Tool shank & pull stud dimension

Unit: mm

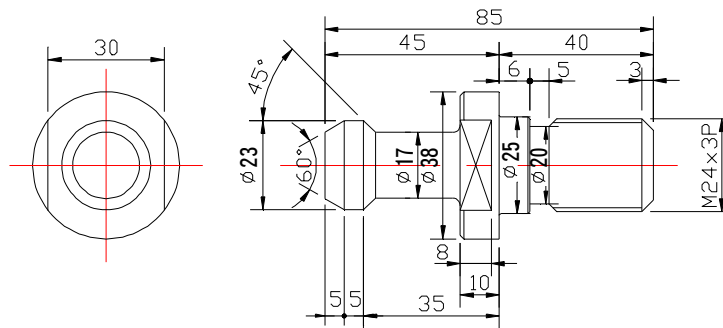
Tool shank(BT-50)



Tool shank(CAT-50)



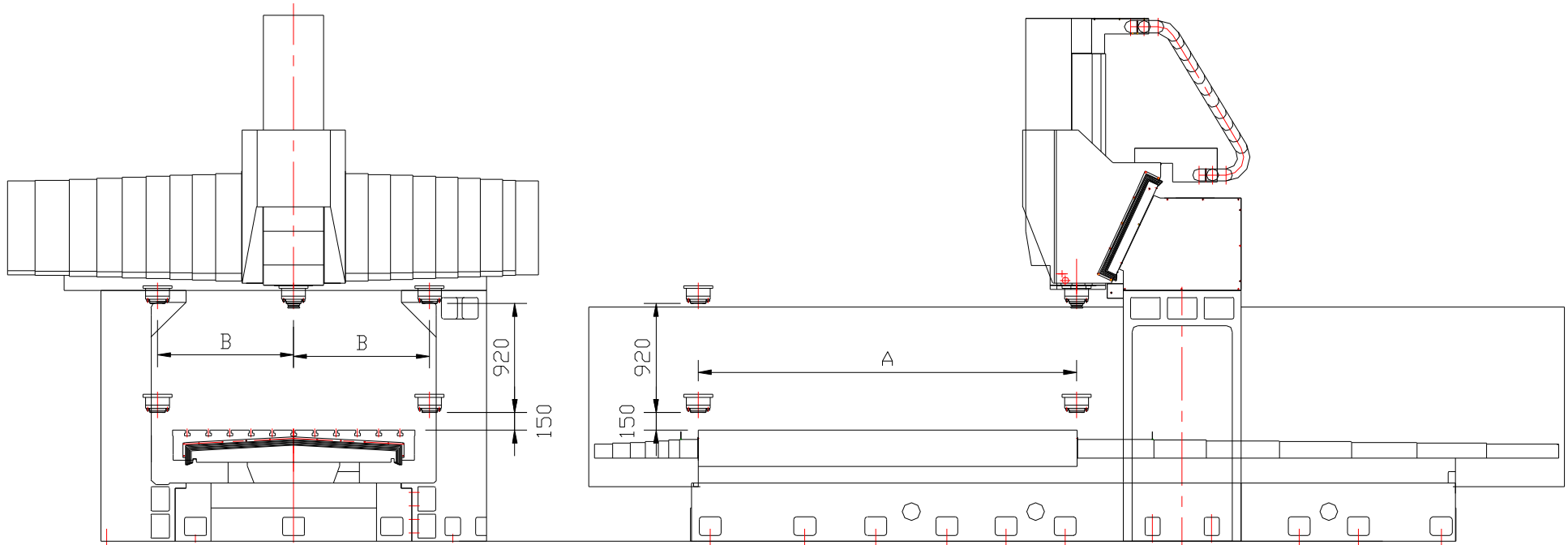
Pull Stud Bolt (P50t-1) for both BT-50 and CAT-50





**6.WORK RANGE:**

Unit: mm

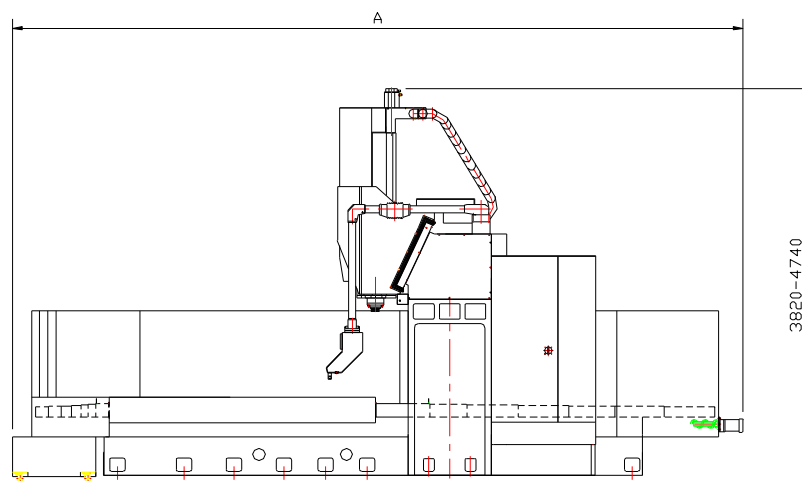
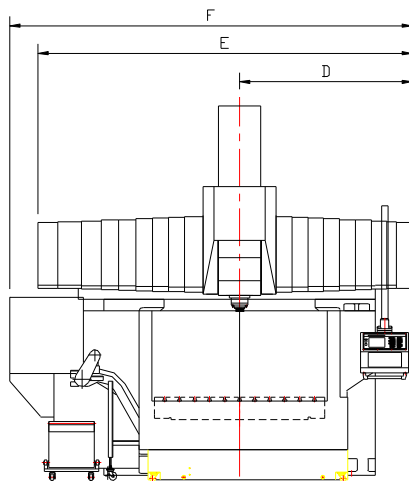
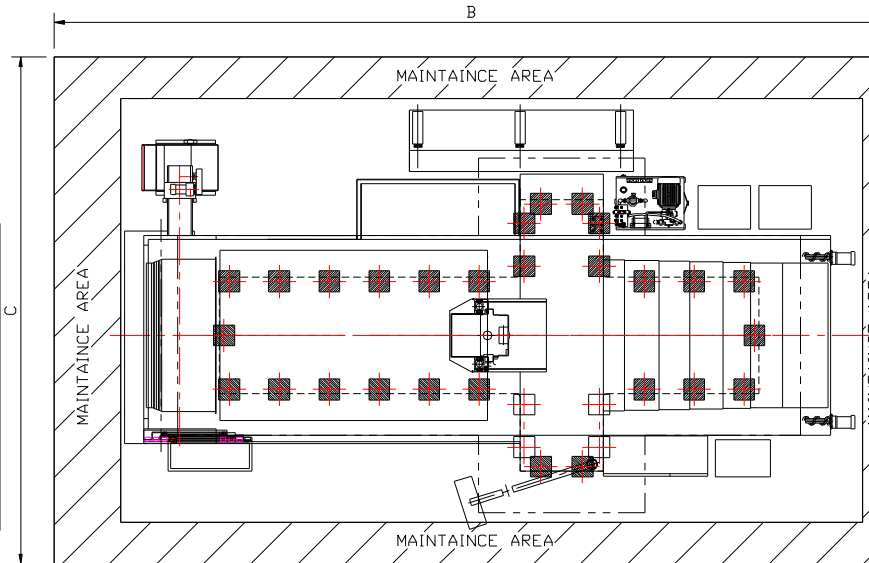


X TRAVLE	VF-2000	VF-3000	VF-4000	VF-5000	VF-6000	VF-2026	VF-3026	VF-4026	VF-5026	VF-6026
A	2200	3200	4200	5200	6000	2200	3200	4200	5200	6000
B	1150	1150	1150	1150	1150	1300	1300	1300	1300	1300



### 7.General machine outline drawing

MODEL	A	B	C	D	E	F
VF-2000	6800	8000	6100	2068	4488	4900
VF-3000	8800	10000	6100	2068	4488	4900
VF-4000	10800	12000	6100	2068	4488	4900
VF-5000	12800	14000	6100	2068	4488	4900
VF-6000	14800	14000	6100	2068	4488	4900
VF-2026	6800	8000	6440	2238	4978	5240
VF-3026	8800	10000	6440	2238	4978	5240
VF-4026	10800	12000	6440	2238	4978	5240
VF-5026	12800	14000	6440	2238	4978	5240
VF-6026	14800	14000	6440	2238	4978	5240

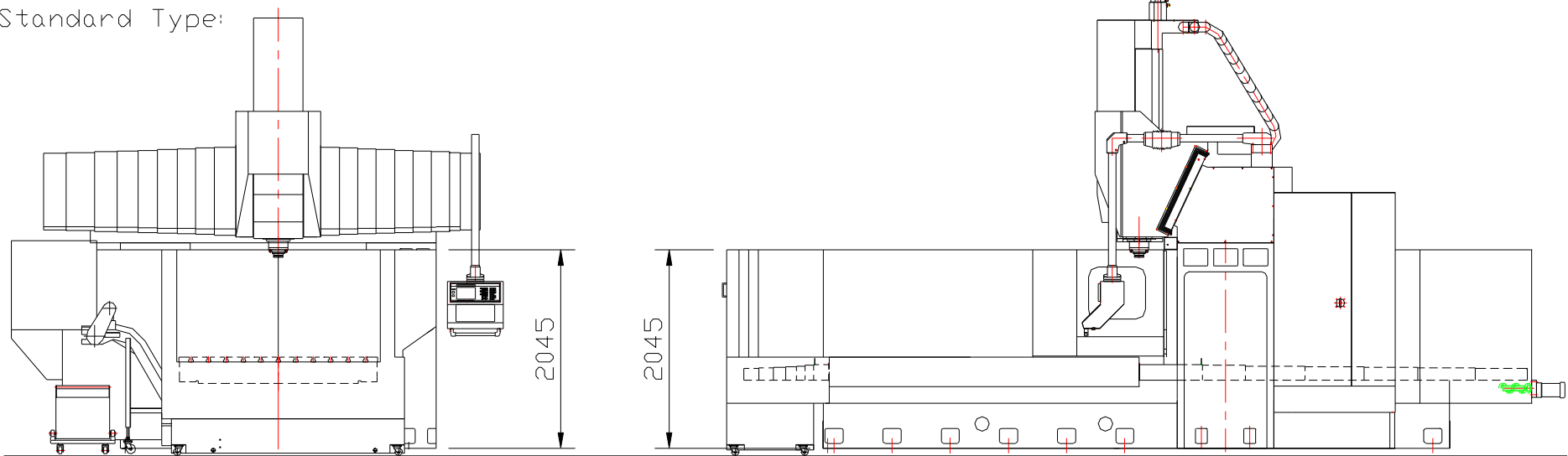




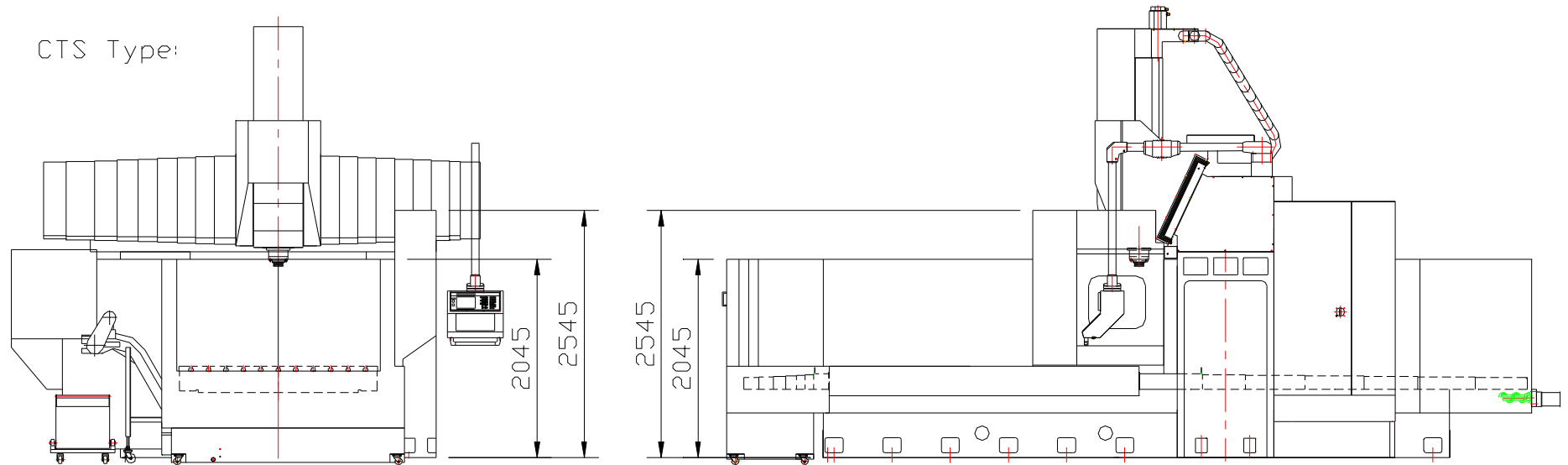
The height of machine guard.

Unit: mm

Standard Type:



CTS Type:



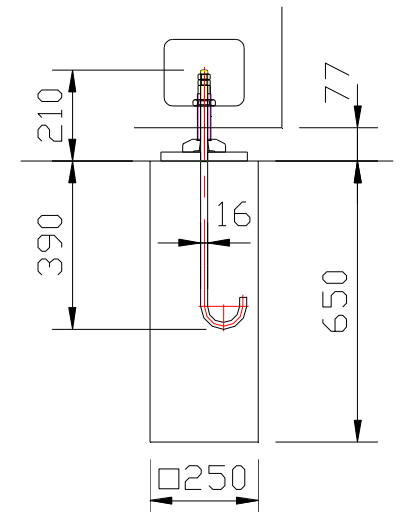
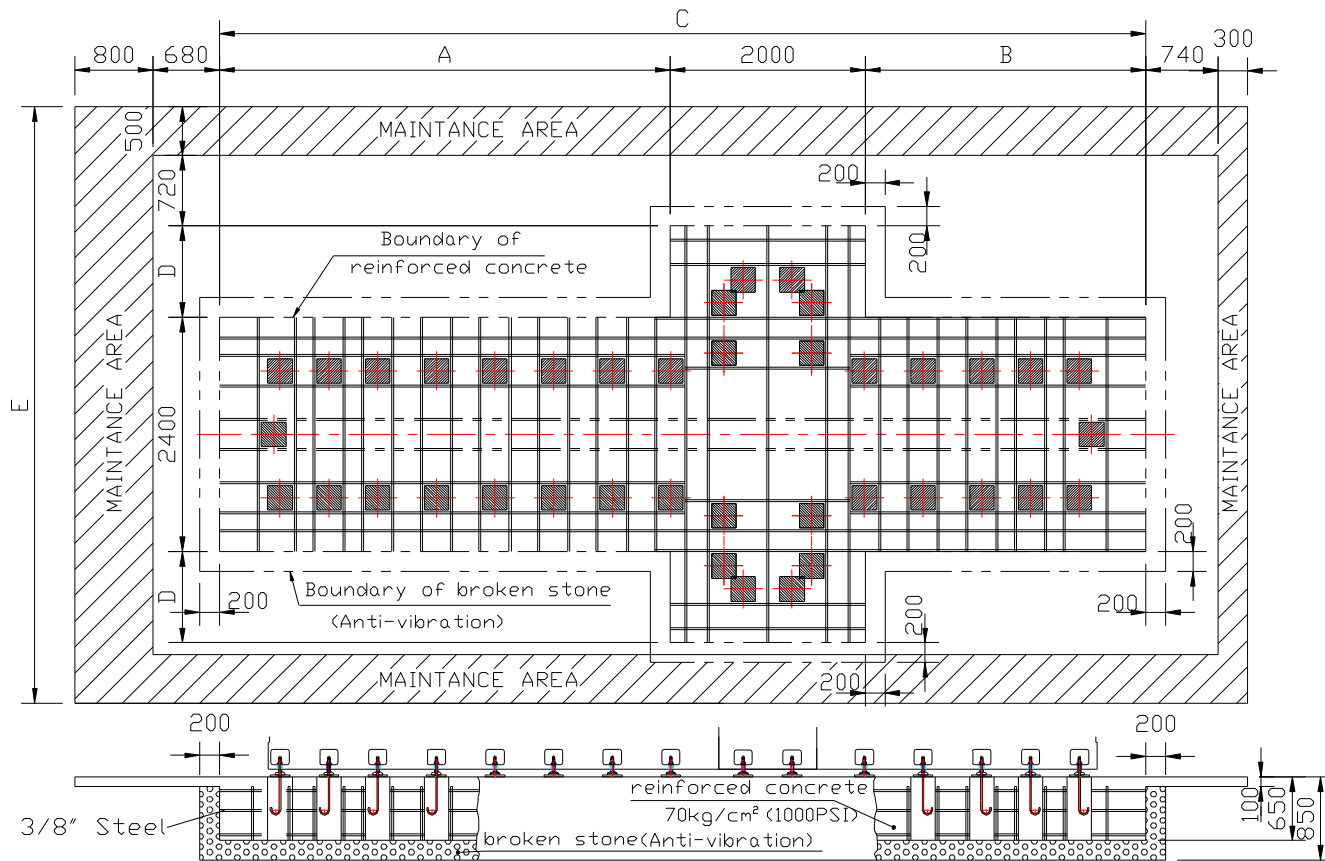


### 8.Foundation

#### A. Foundation diagram

Unit: mm

Model	VF-2000	VF-3000	VF-4000	VF-5000	VF-6200	VF-2026	VF-3026	VF-4026	VF-5026	VF-6226
A	2610	3610	4610	5610	6610	2610	3610	4610	5610	6610
B	870	1870	2870	3870	4870	870	1870	2870	3870	4870
C	5480	7480	9480	11480	13480	5480	7480	9480	11480	13480
D	930	930	930	930	930	1100	1100	1100	1100	1100
E	6100	6100	6100	6100	6100	6560	6560	6560	6560	6560

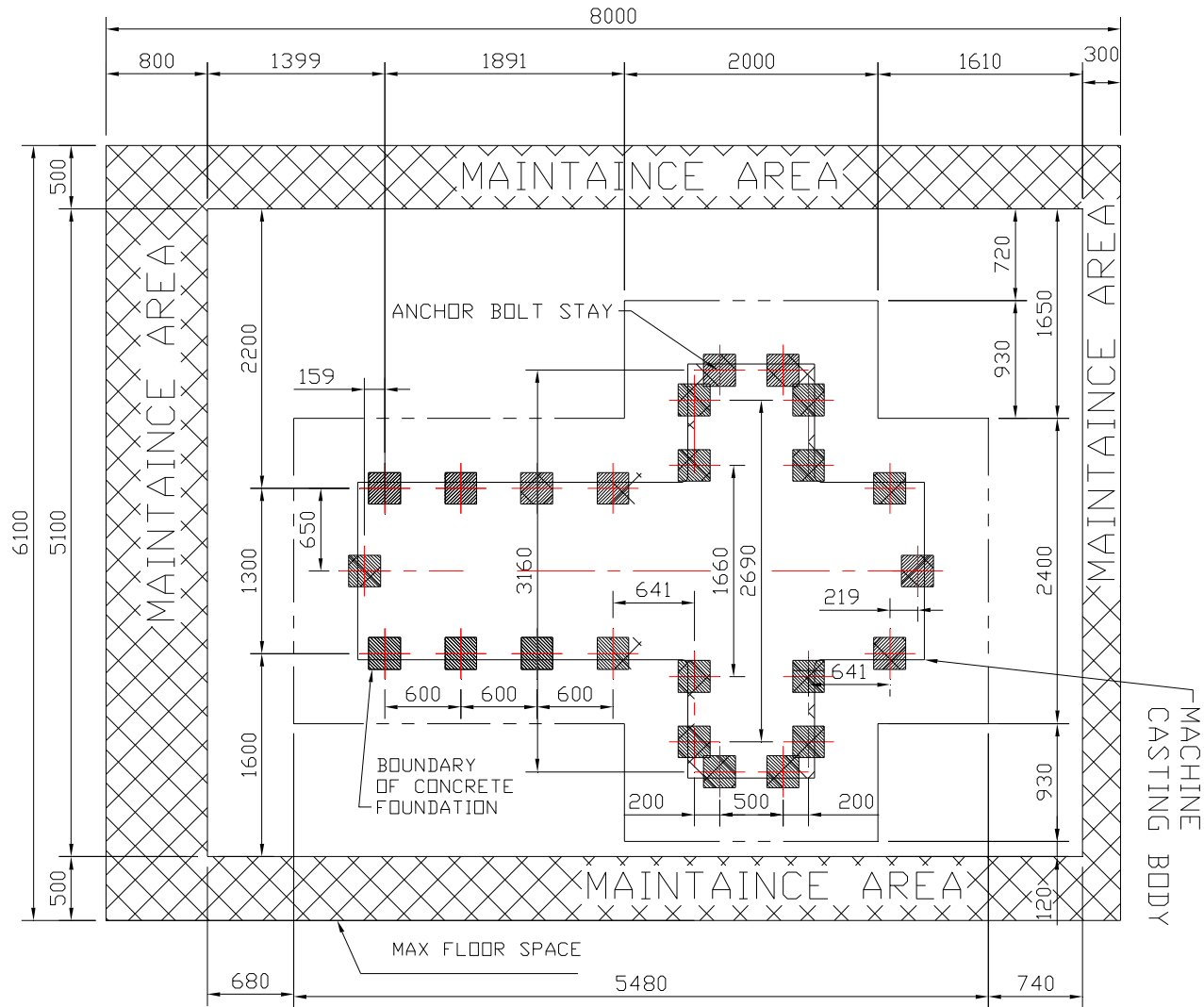


S9102E



### B. Anchor bolt position & floor space diagram

#### 1) VF-2000

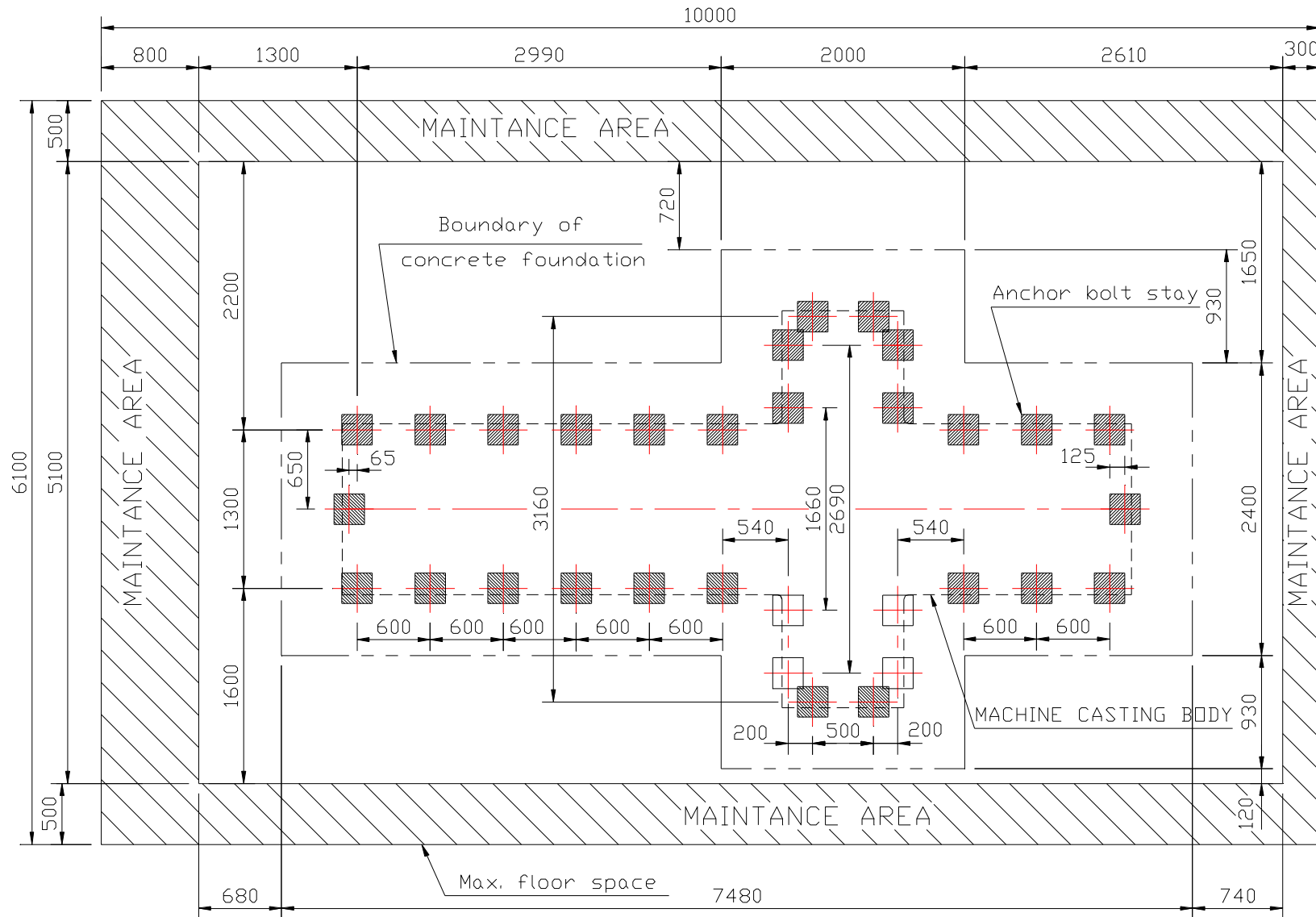






2) VF-3000

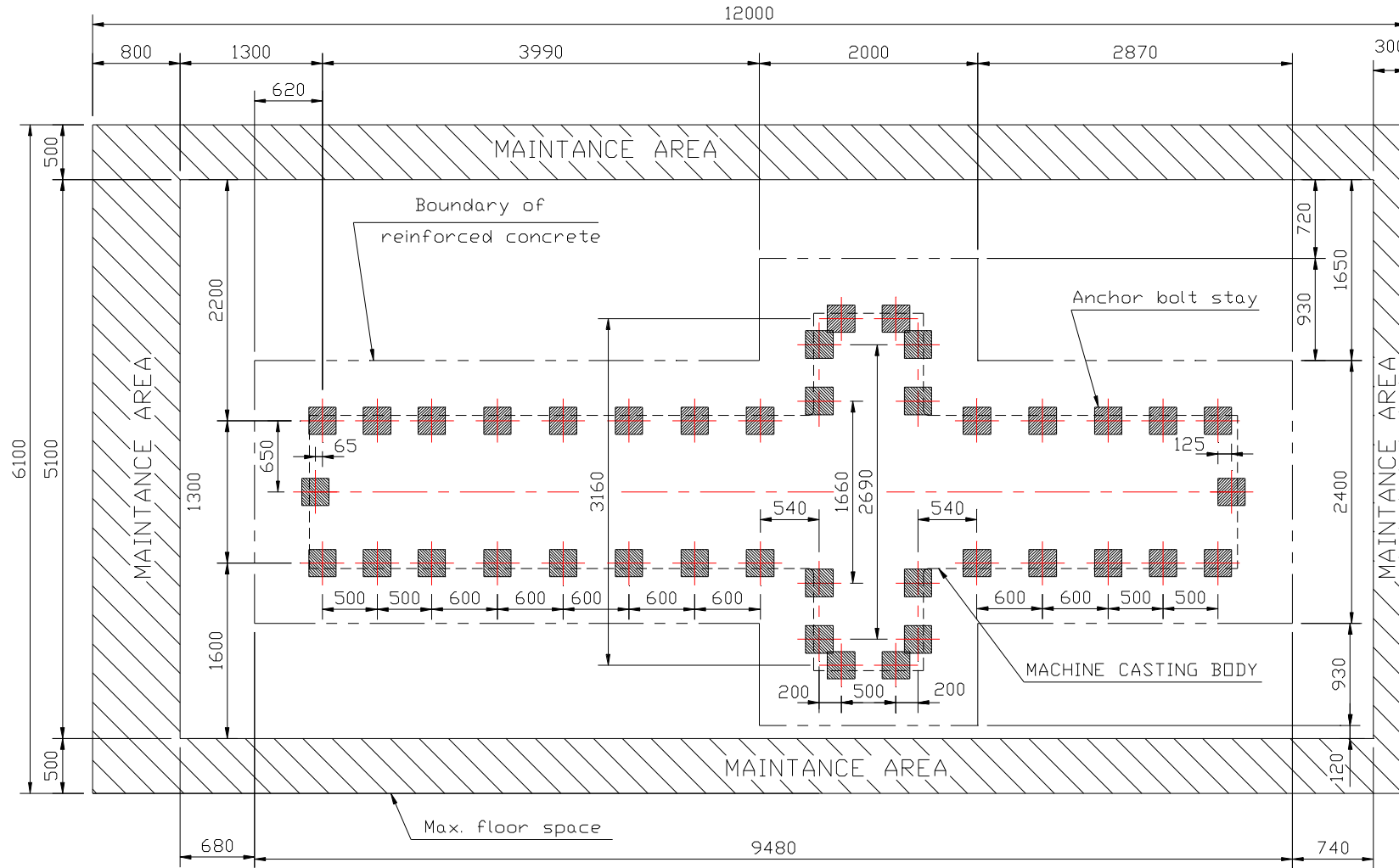
unit: mm





3) VF-4000

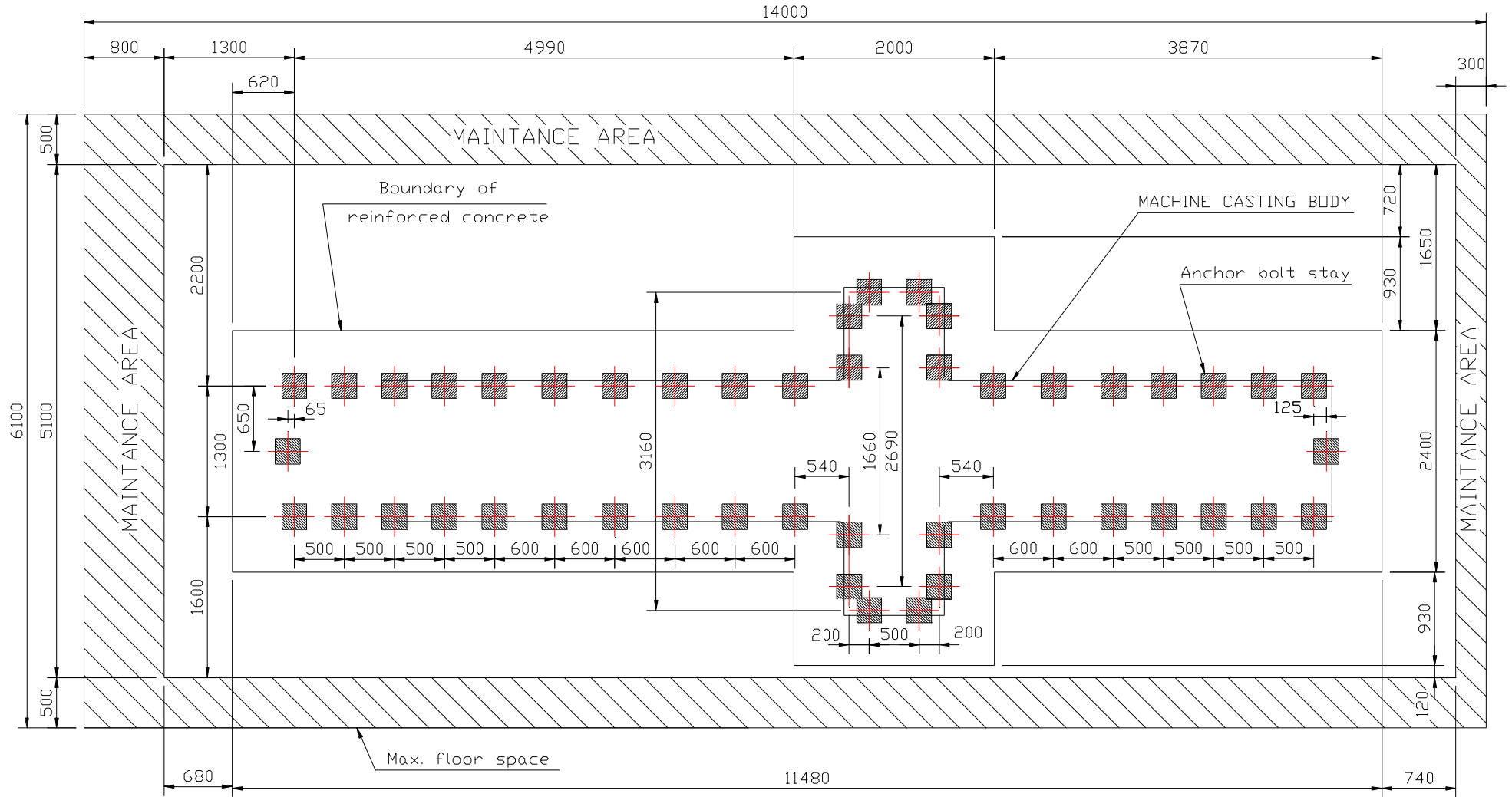
unit: mm





### 4) VF-5000

unit: mm

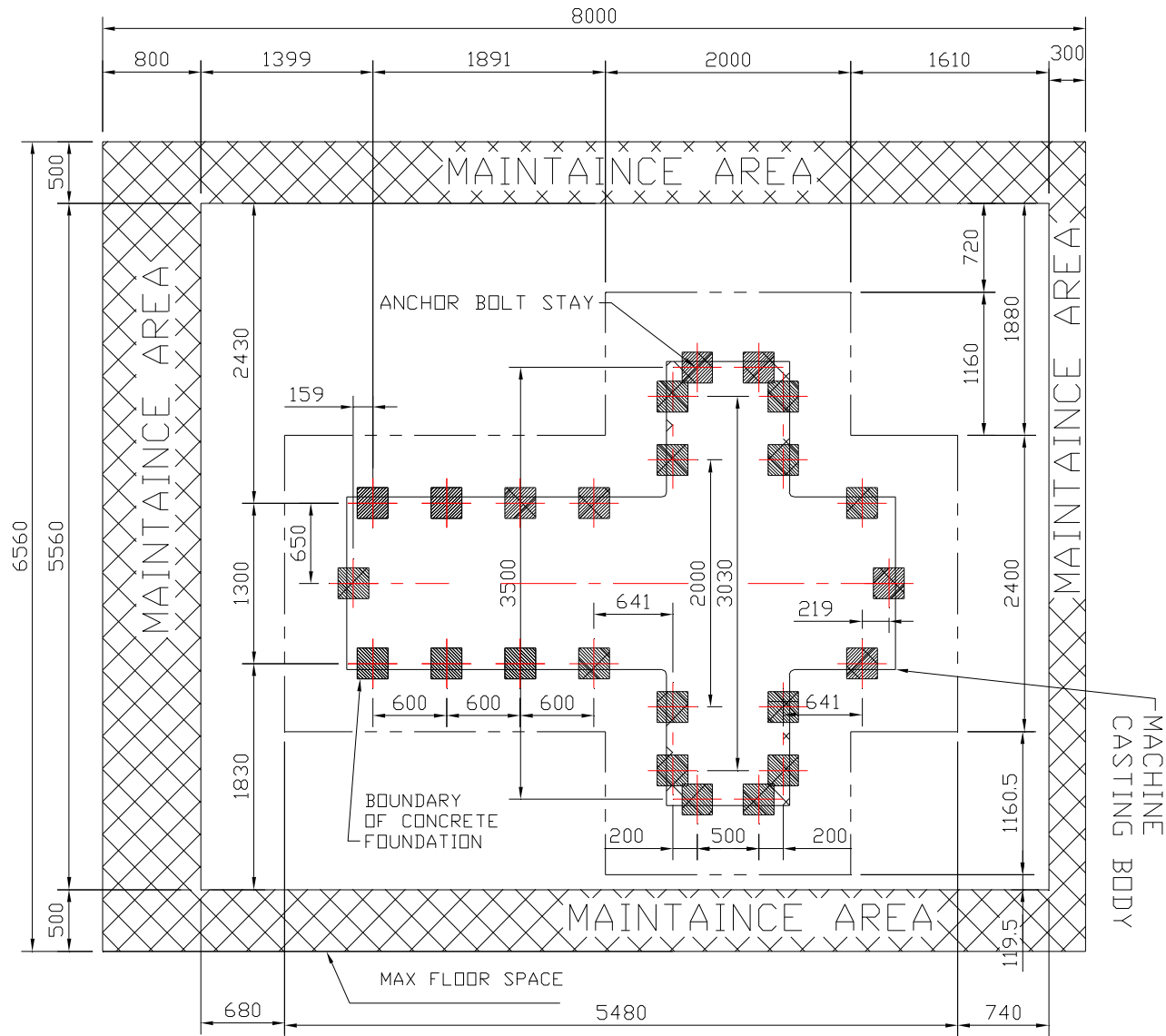






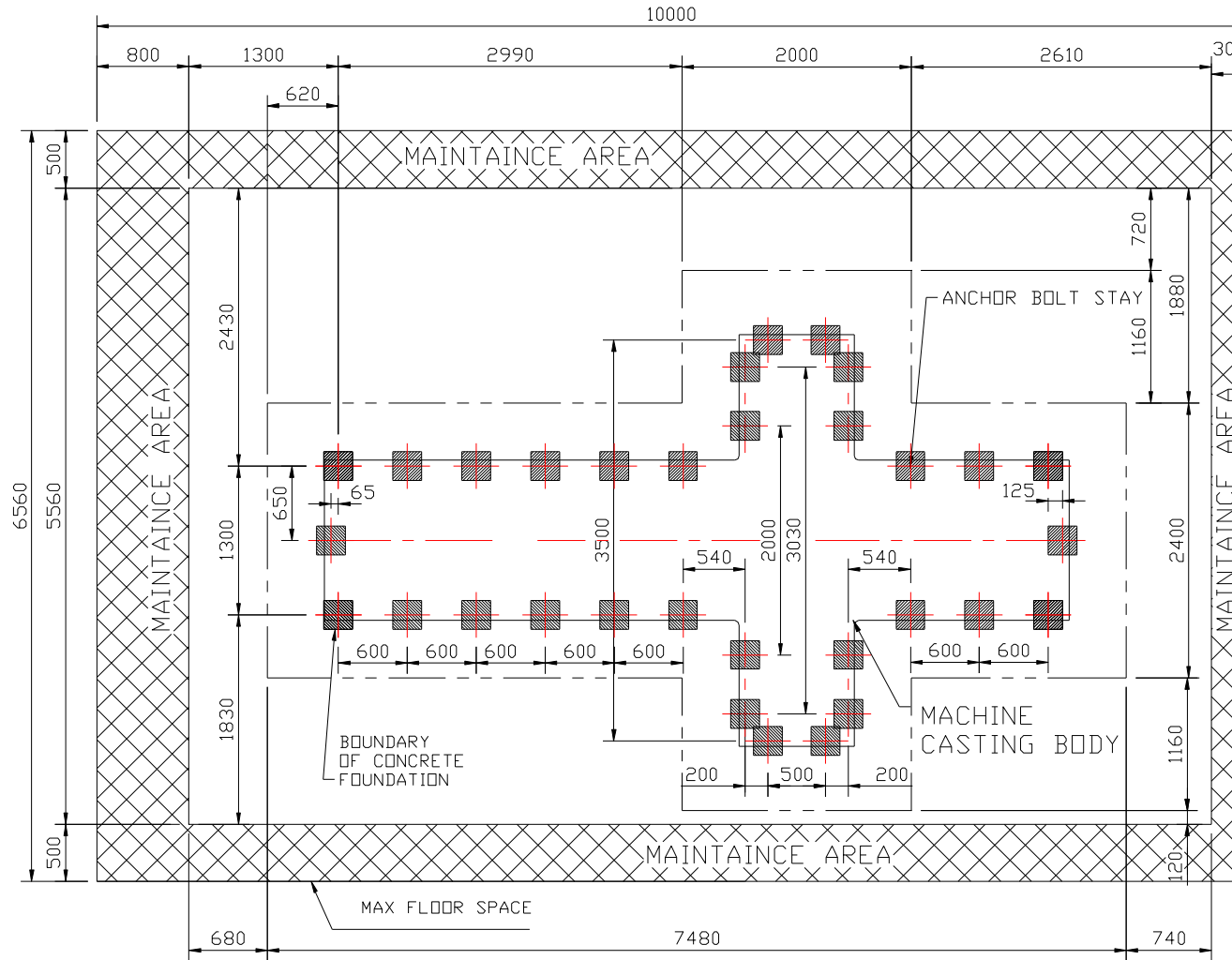


7)VF-2026



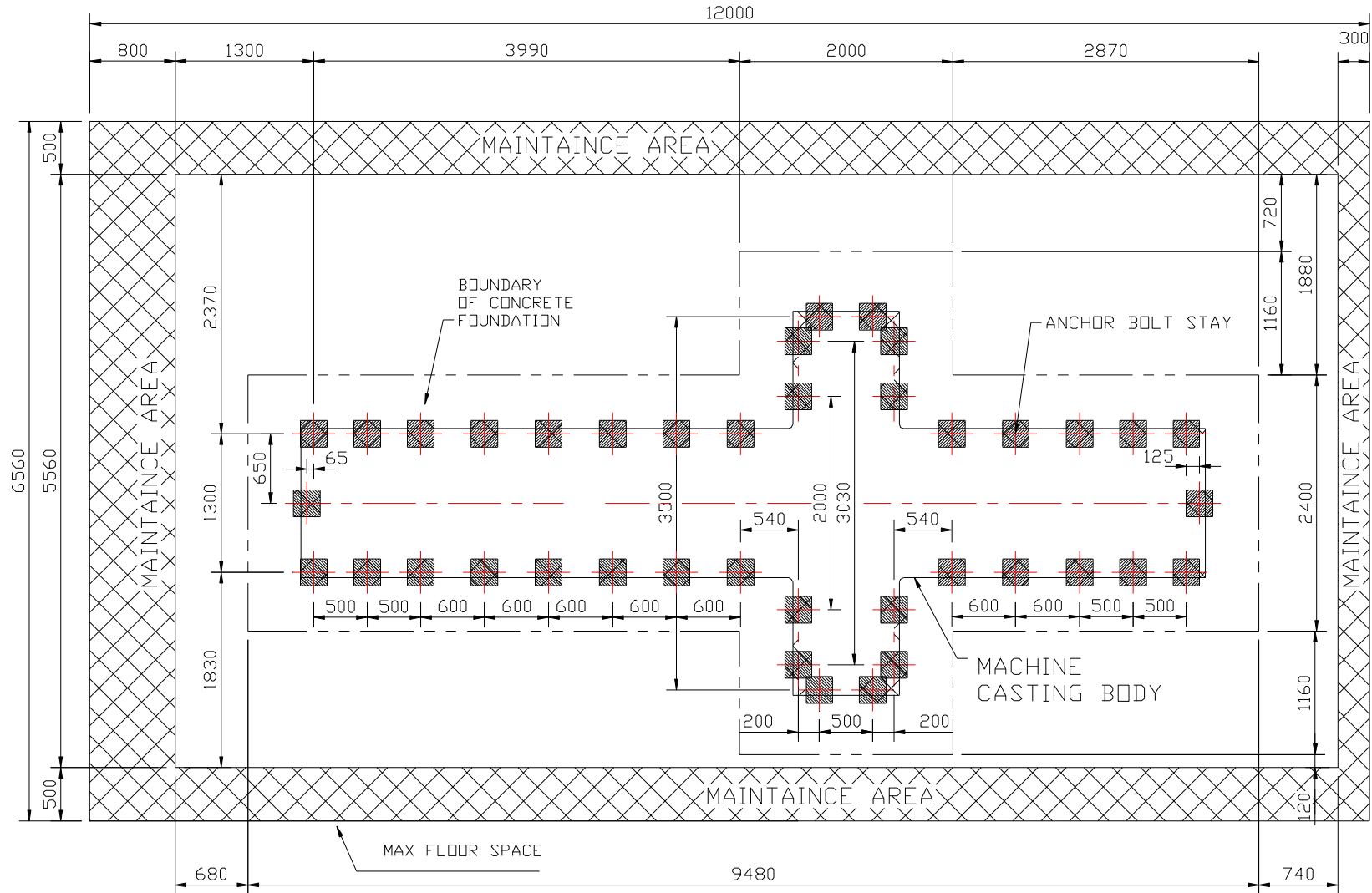


8)VF-3026





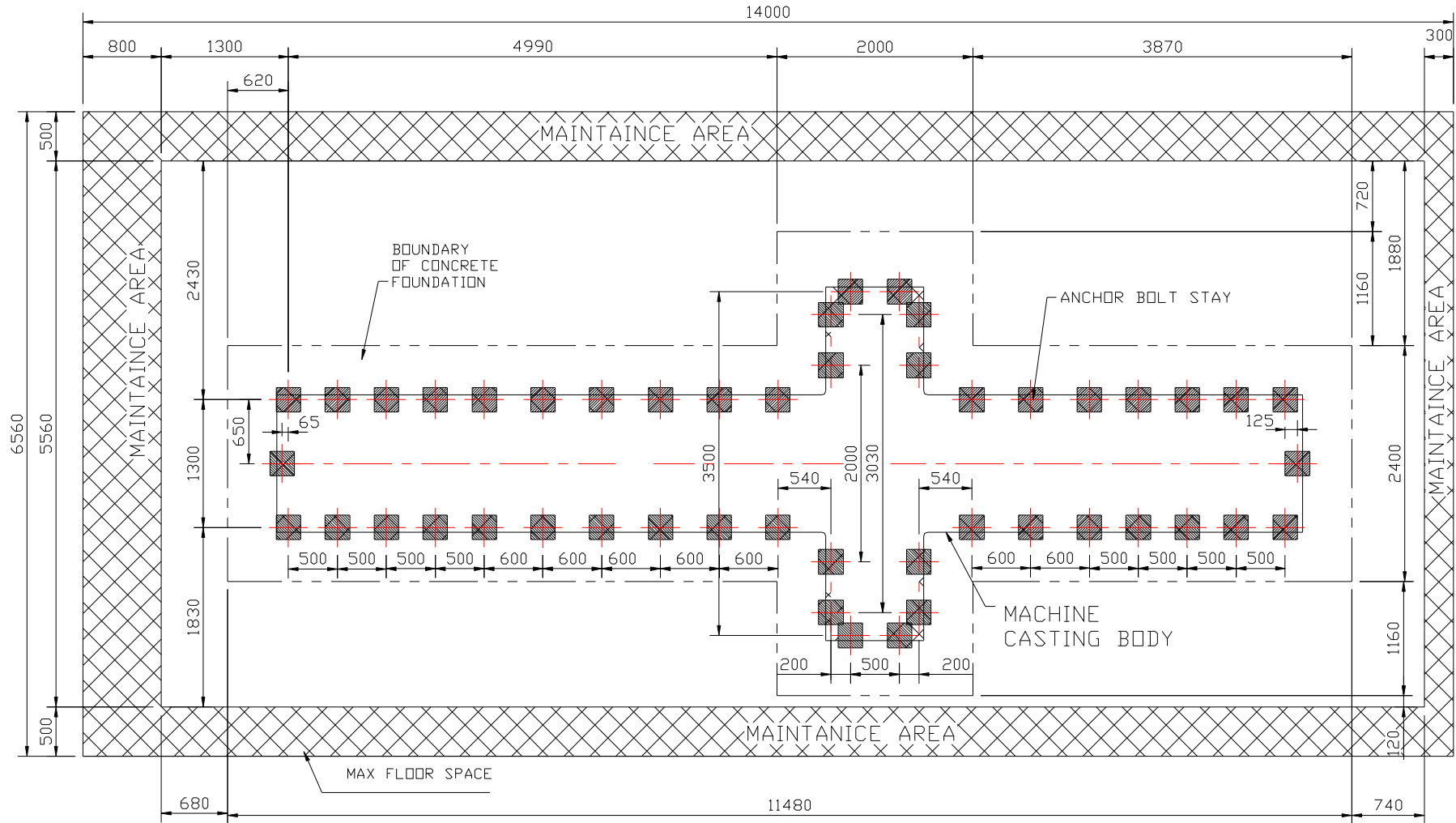
9)VF-4026





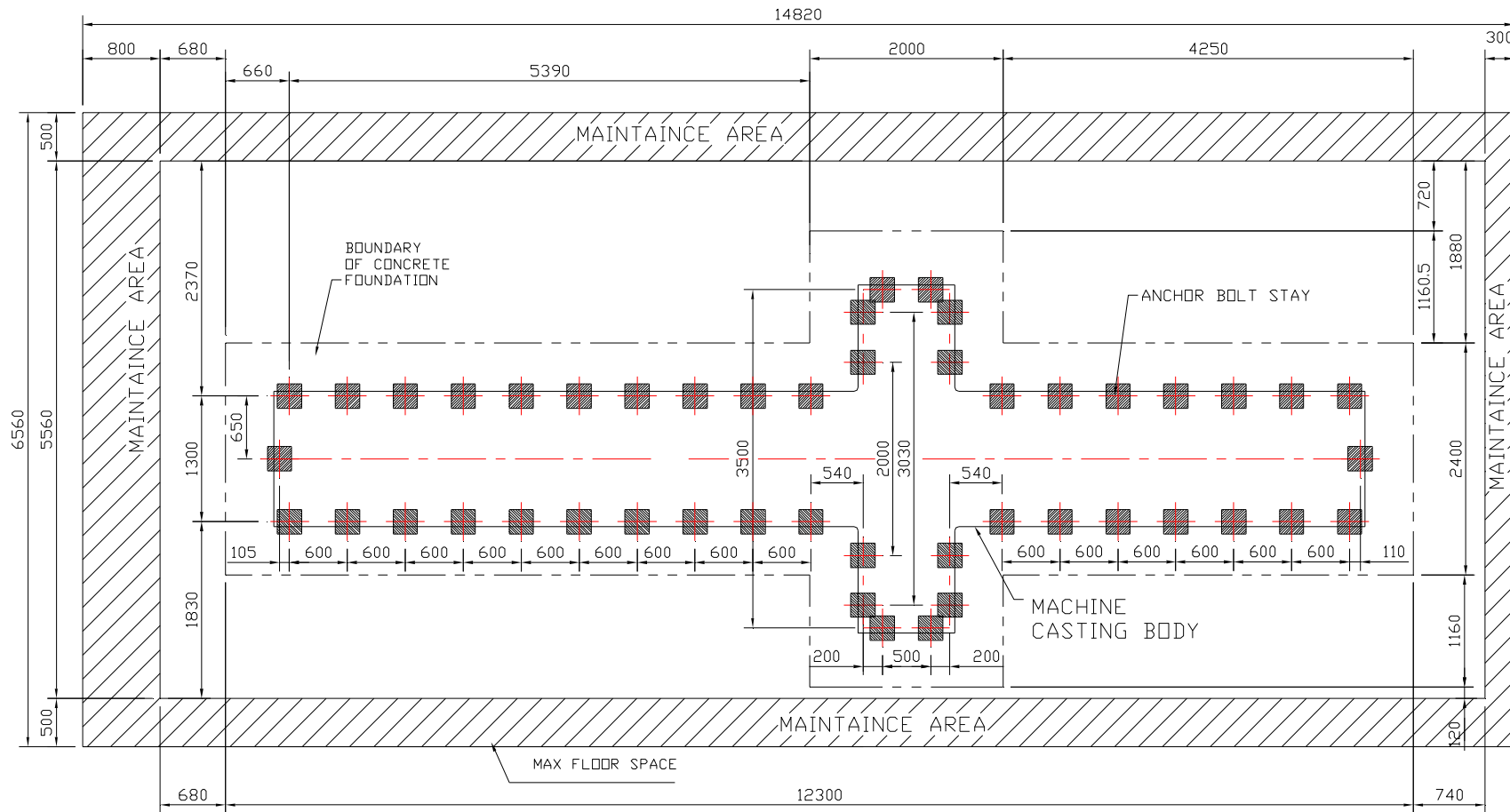


### 10)VF-5026



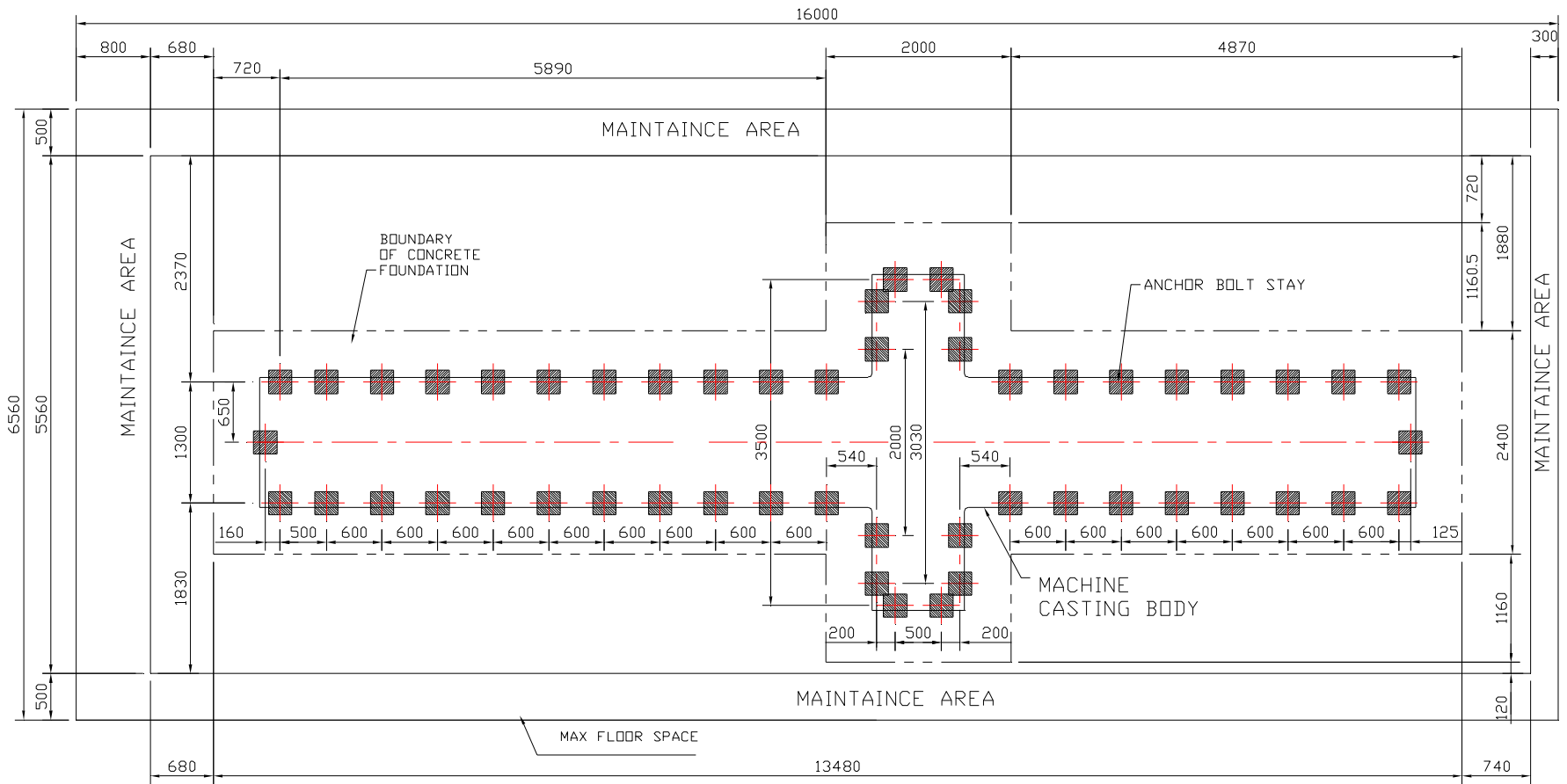


### 11)VF-6026





### 12)VF-6226



**9. Main parts specification:****A. Spindle bearing specification:**

Model	Spindle nose	Spindle end side	Manufacture	Free side	Manufacture
Gear-4500RPM	#50	7020 CTYSUL P4*4 SET	NSK	6015*2 SET	NSK
Gear-6000RPM	#50	HS7020 C.T.P4S*4 SET+6015*2 SET	FAG	6015*2 SET	NSK
Pulley-8000RPM	#50	HS7018CTP4S*4SET	FAG	-	-

**B. Feed axis bearing specification**

Description	Motor side	Manufacture	Free side	Manufacture	MODEL
X axis	50BS100PN7B*4 SET	NSK	50BS100PN7B*4 SET	NSK	VF-2000/3000/4000
X axis	60BS120PN7B*4 SET	NSK	60BS120PN7B*4 SET	NSK	VF-5000/6000
Y axis	40BS072PN7B*4 SET	NSK	40BS072PN7B*4 SET	NSK	VF SERIES
Z axis	40BS072PN7B*4 SET	NSK	40BS072PN7B*3 SET	NSK	VF SERIES



**C. Feed axis ballscrew specification**

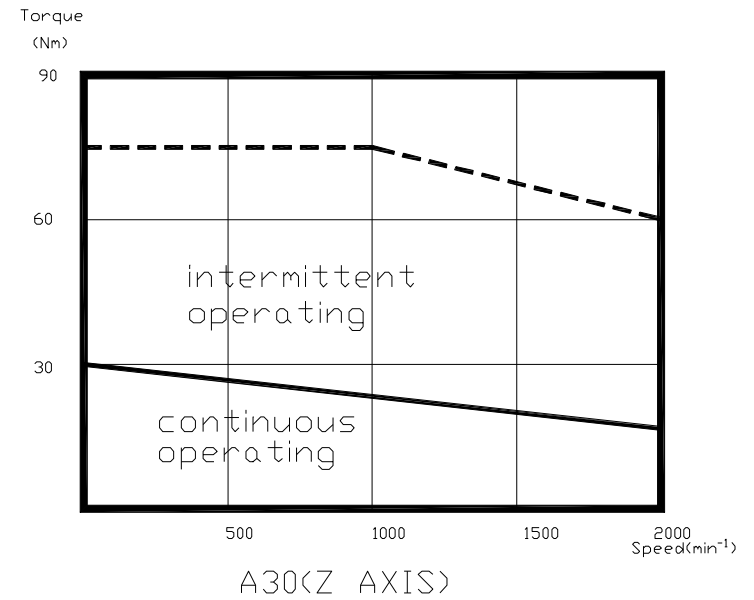
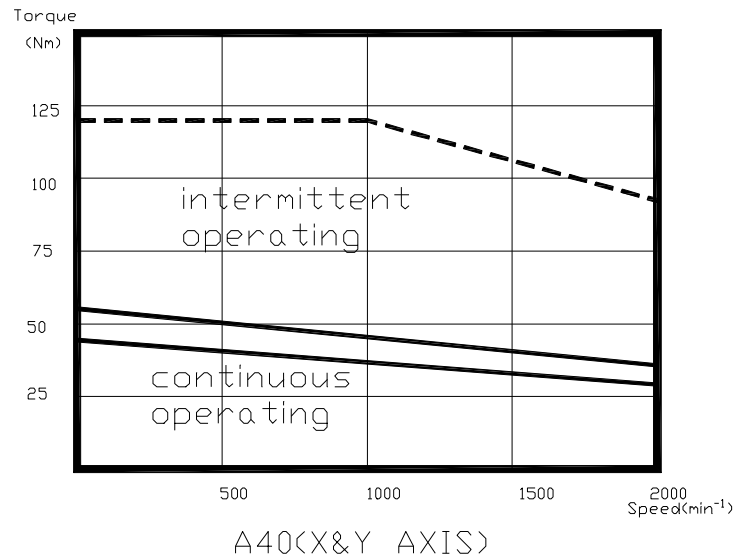
Description	Diameter x Pitch	Ball nut	Precision class	Manufacture	MODEL
X axis	63mm x 12mm	FRRPB2	C3	CBC	VF-2000
X axis	70mm x 12mm	FRRPB2	C3	Mihara Japan	VF-3000/4000
X axis	80mm x 20mm	FRRPB2	C3	Mihara Japan	VF-5000/6000
Y axis	63mm x 12mm	F RTPB2	C3	Mihara Japan	VF SERIES
Z axis	50mm x 10mm	FDVX	C3	CBC	VF SERIES

**D. Feed axis axial-force for FANUC controller**

Description	Rated force at stall	Max. force at de/acceleration	MODEL
X axis	6920KGF	15379KGF	VF-5000/6000
X axis	3460KGF	7689KGF	VF-2000/3000/4000
Y axis	2883KGF	6408KGF	VF SERIES
Z axis	1922 KGF	7048KGF	VF SERIES



### E. XYZ axes motor torque output diagram

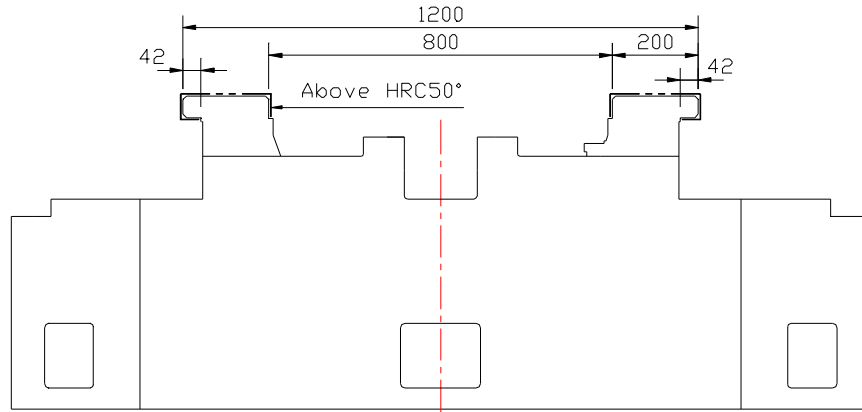




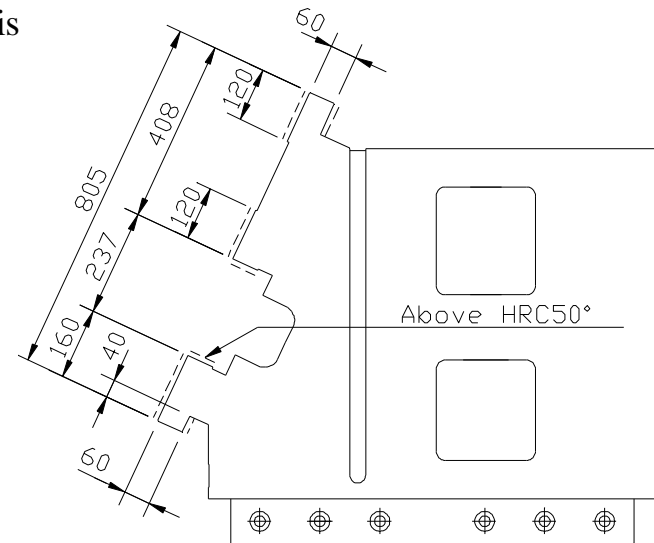
### F. Box way dimension

Unit: mm

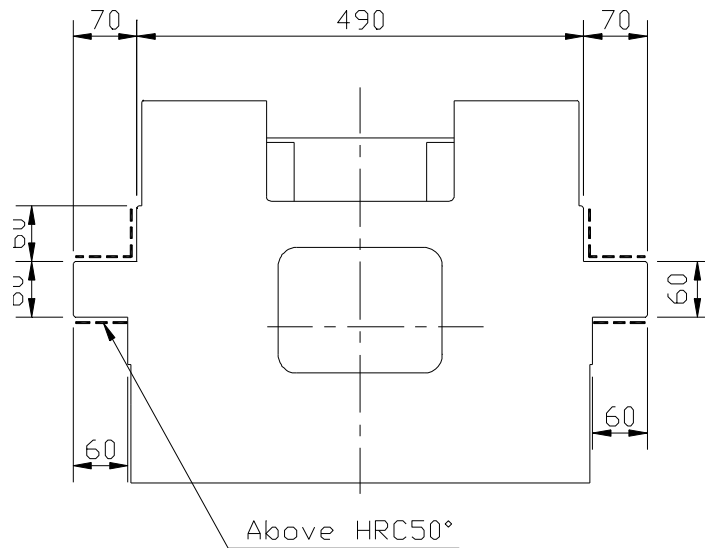
#### 1) X axis



#### 2) Y axis

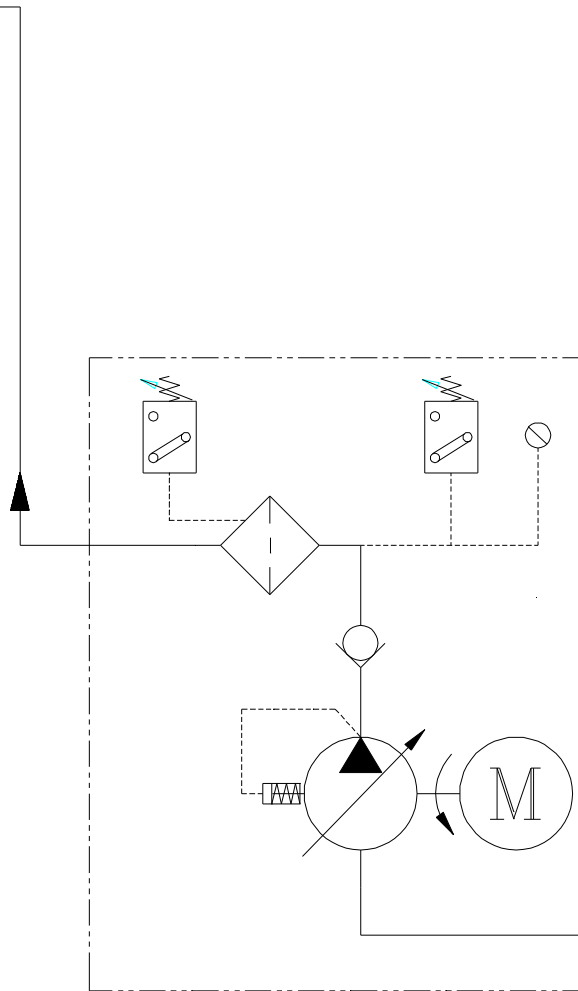
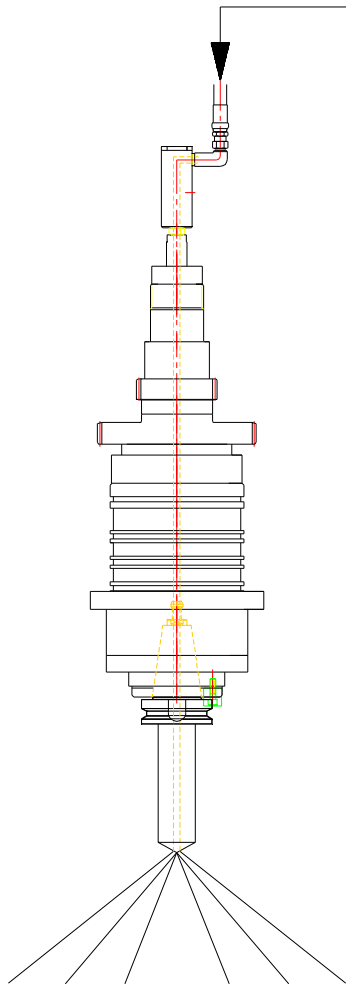


#### 3) Z axis





**10. Optional accessories specification:**  
**A. Coolant through spindle system**

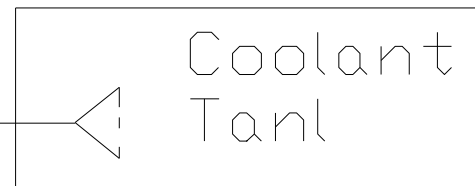


Pump specification:

Max. pressure	20bar
Max. flow capacity	30L/min at 12 bar
Consumption	3HP

Filter specification:

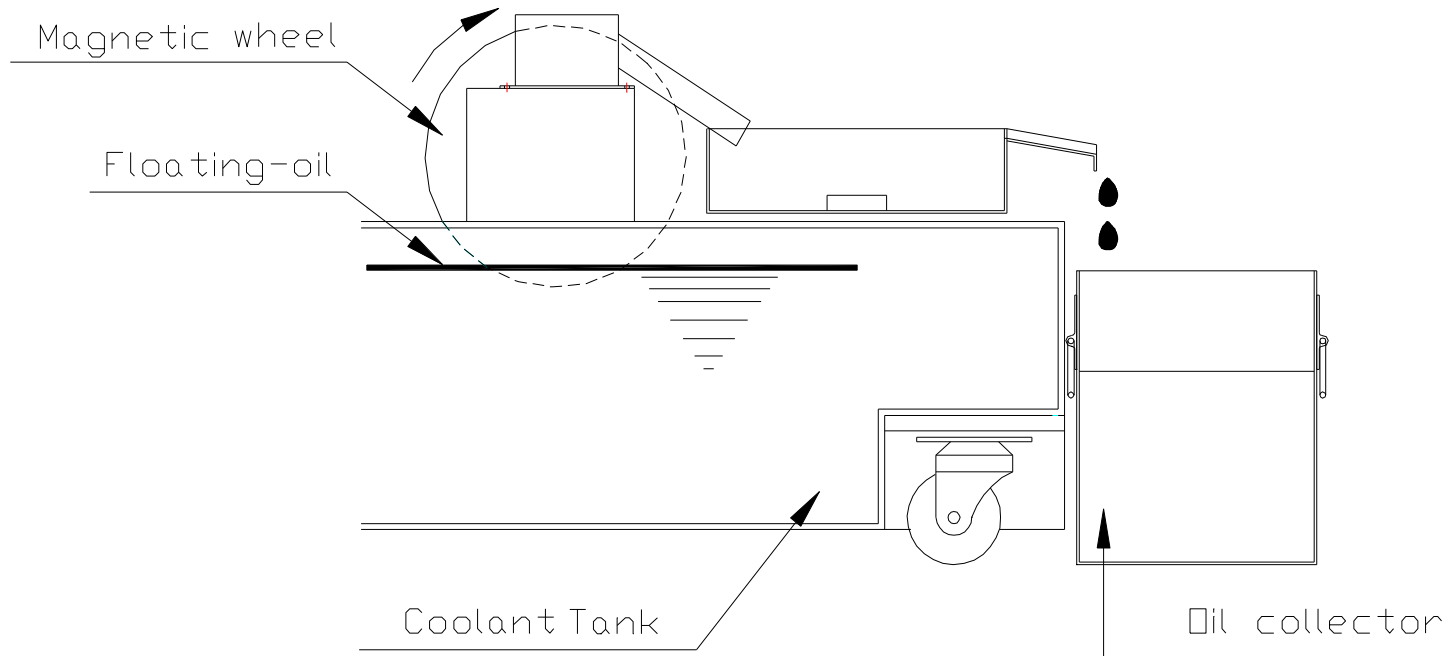
Filter accuracy	0.02mm
Max. flow capacity	120L/min
Filter material	Grass fiber







## B. Oil Skimmer

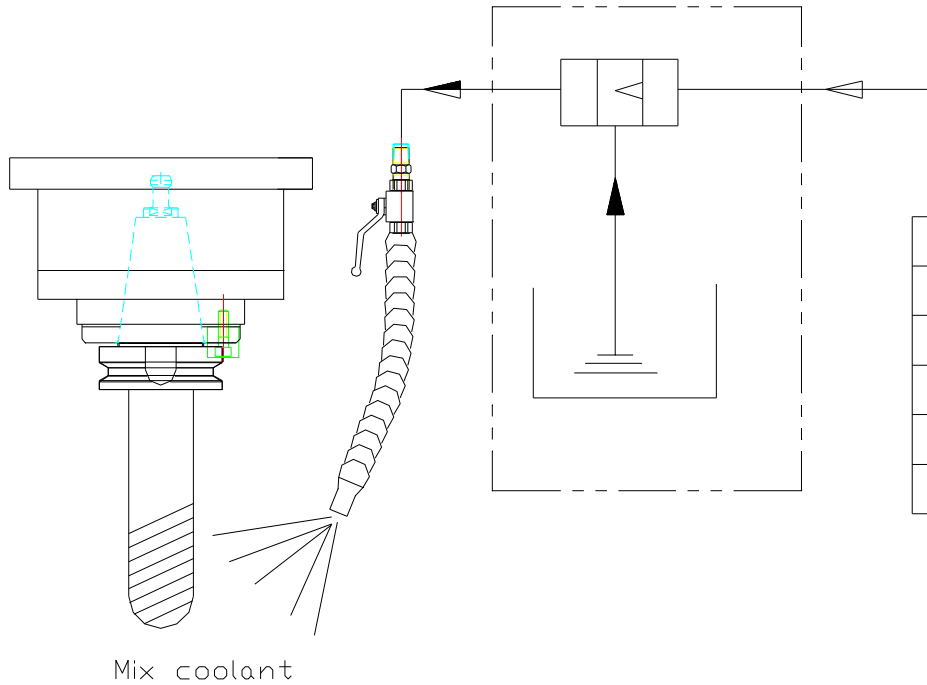


Oil skimmer specification:

Suction capacity	0.8L/hr
Power consumption	20W



### C. Mist coolant system



Specification:

Oil mixed action time	1-99 sec
Oil mixed intermittent time	1-99sec
Oil viscosity range /40°C	32-190cst
Oil discharge volume	0.2L/min(max)
Oil discharge pressure	6kg/cm <sup>2</sup>
Reservoir	2Liter

**D. Closed-loop linear scale positioning system**

Description	Specification for Fanuc /Meldas controller	Manufacture
X axis	LB 382C MR KH 1VPP	Heidenhian
Y axis	LS176 ML2840 05UKH TTLX5 270	Heidenhian
Z axis	LS176 ML1040 05UKH TTLX5 270	Heidenhian

Description	Specification for Heidenhian /Simens Controller	Manufacture
X axis	LB 382C MR KH 1VPP	Heidenhian
Y axis	LS186 ML2840 05UKH	Heidenhian
Z axis	LS186 ML1040 05UKH	Heidenhian

Machine positioning accuracy: +/-0.015mm /full travel

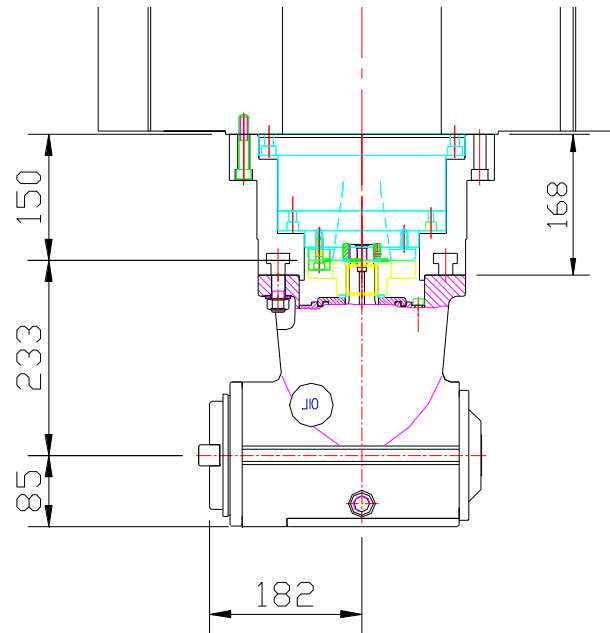
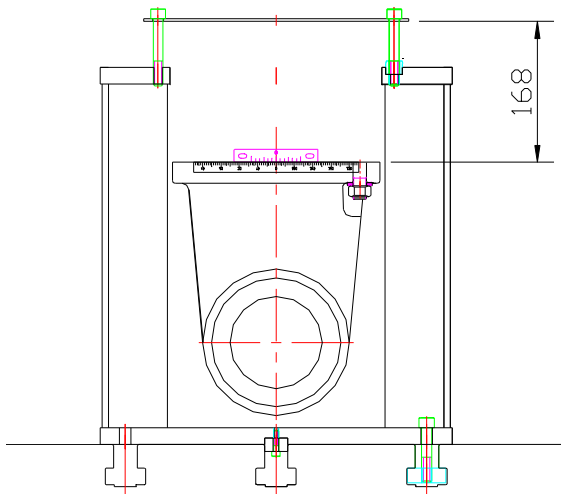
Machine repeatability accuracy: +/- 0.003mm /300mm



### E. Manual 90 degree angle head.

Unit: mm

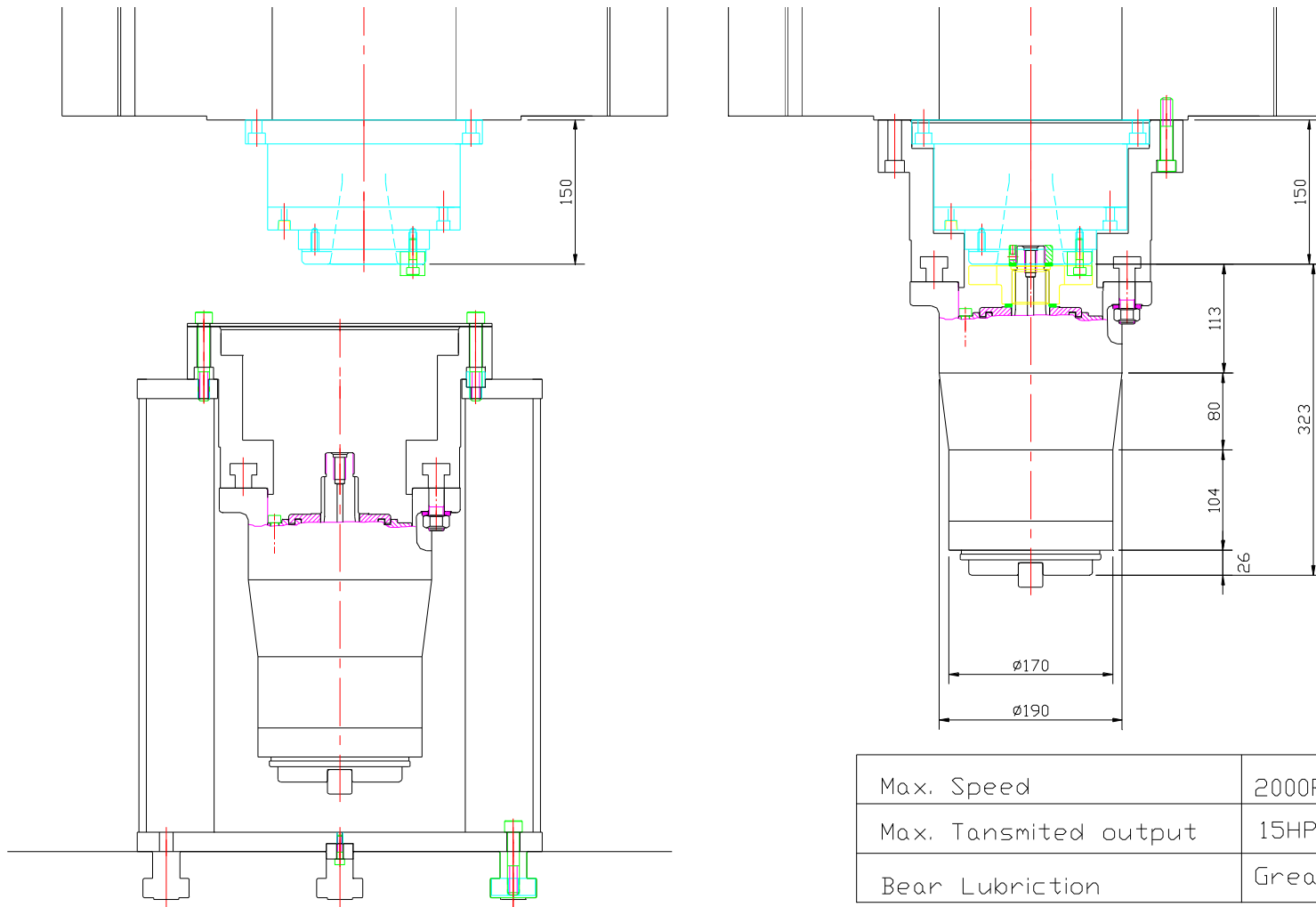
Max. tool diameter	Ø200mm
Gear ratio	1:1
Max. speed	1500RPM
Max. Transmitted output	15HP
Reading Accuracy	1/6 °
Bearing Lubrication	Grease
Gear Lubrication	Oil





### F. Manual extend head.

Unit: mm



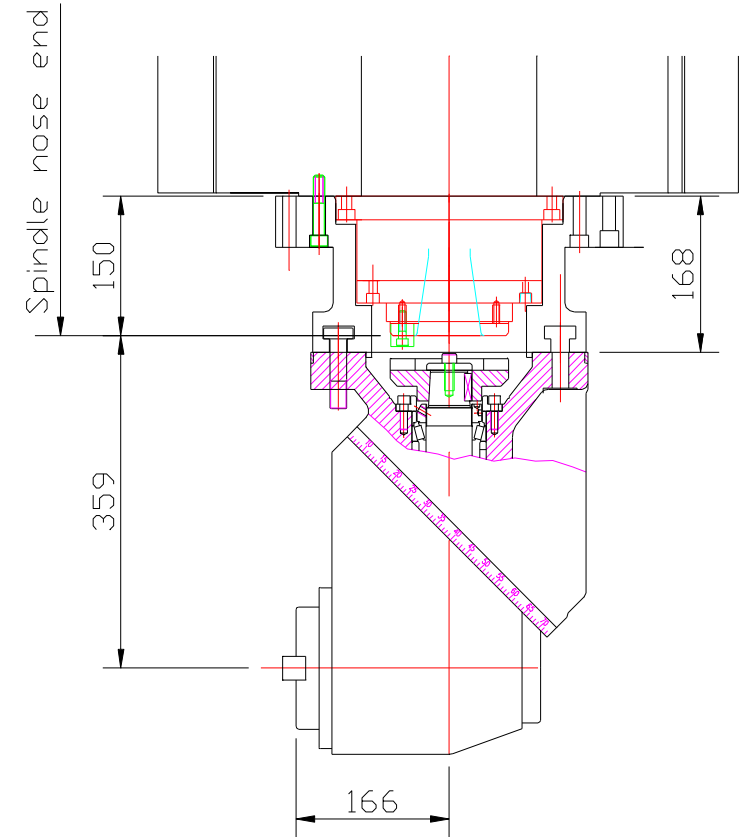
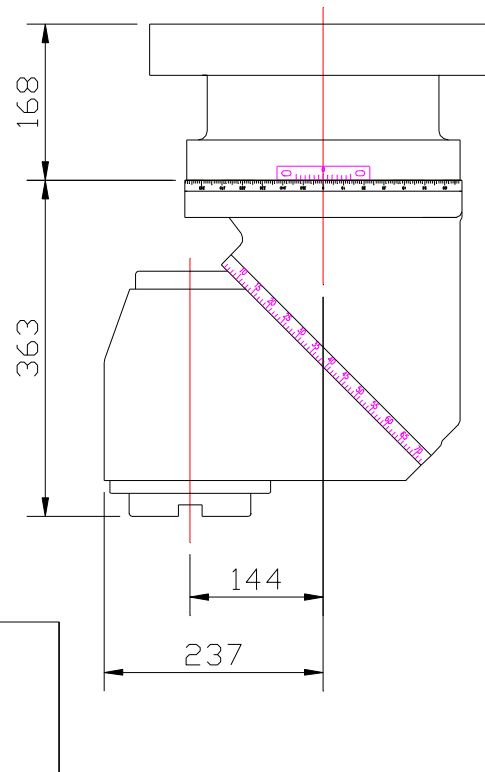
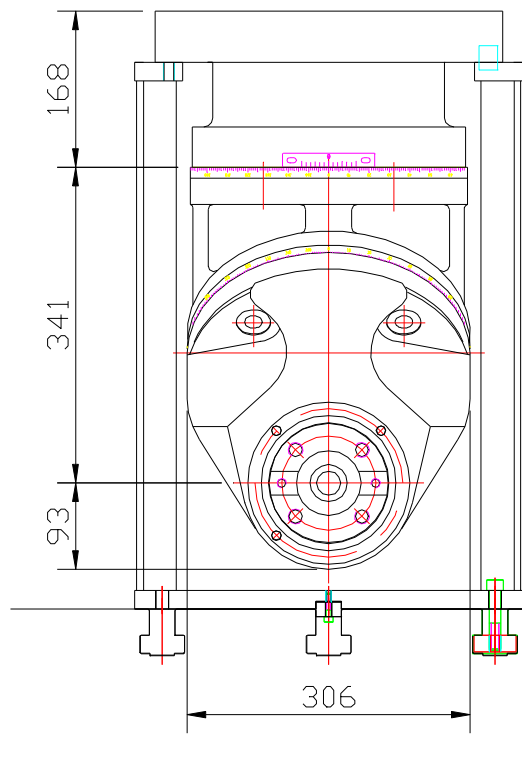
Max. Speed	2000RPM
Max. Transmitted output	15HP
Bear Lubrication	Grease



### G. Manual universal head.

Unit: mm

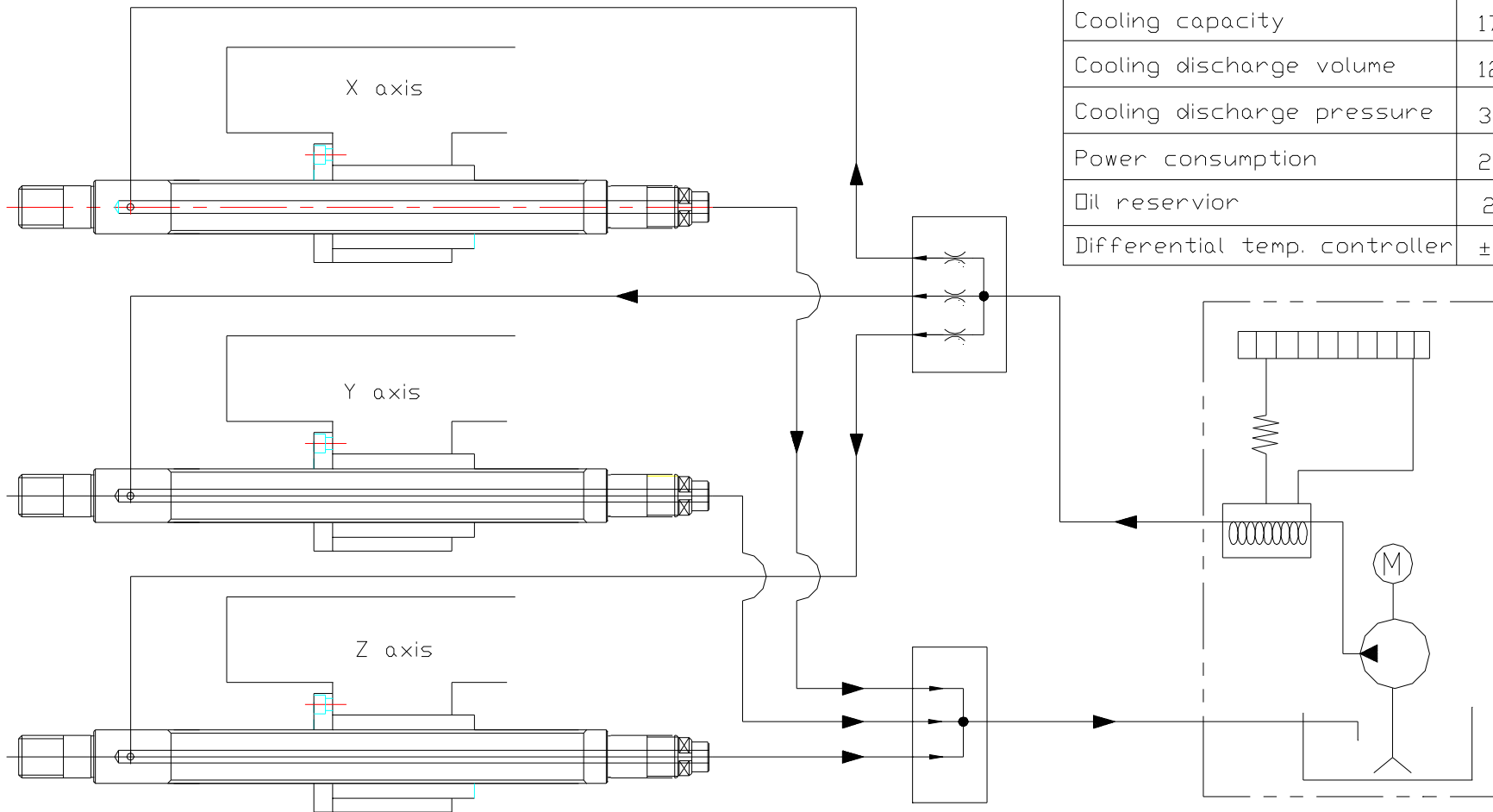
Max. tool diameter	Ø200mm
Gear ratio	1:1
Max. speed	1200RPM
Max. Transmitted output	20HP
Reading Accuracy	1/6 °
Bearing Lubrication	Grease
Gear Lubrication	Oil



S9102E



### H. XYZ axes ballscrew cooling system

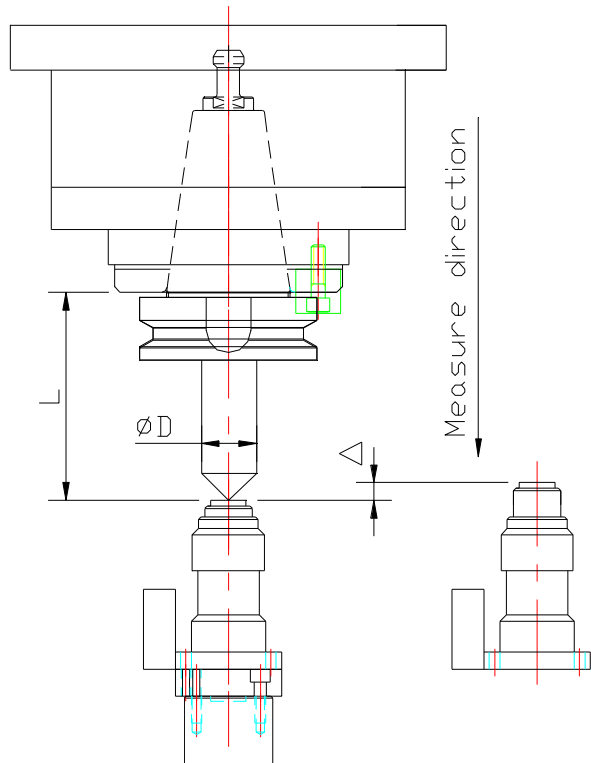


Specification:

Cooling capacity	1750 Kcah/h
Cooling discharge volume	12 L/min
Cooling discharge pressure	3 kg/cm <sup>2</sup>
Power consumption	2.85 Kw
Oil reservoir	20L
Differential temp. controller	±2°C



### I. Automatic tool length measure system



Specification:

Tool sensor	T24EB-04-08
Measure range of Tool length	L=110-560mm
Allowable range of Tool diameter	$\phi D=20$ mm (max.)
Measure repeality accuracy	$\pm 0.002$ mm
Tool touch force	0.3 kgf (max)
Tool compensation	By program

### J. Automatic coordinate measure system

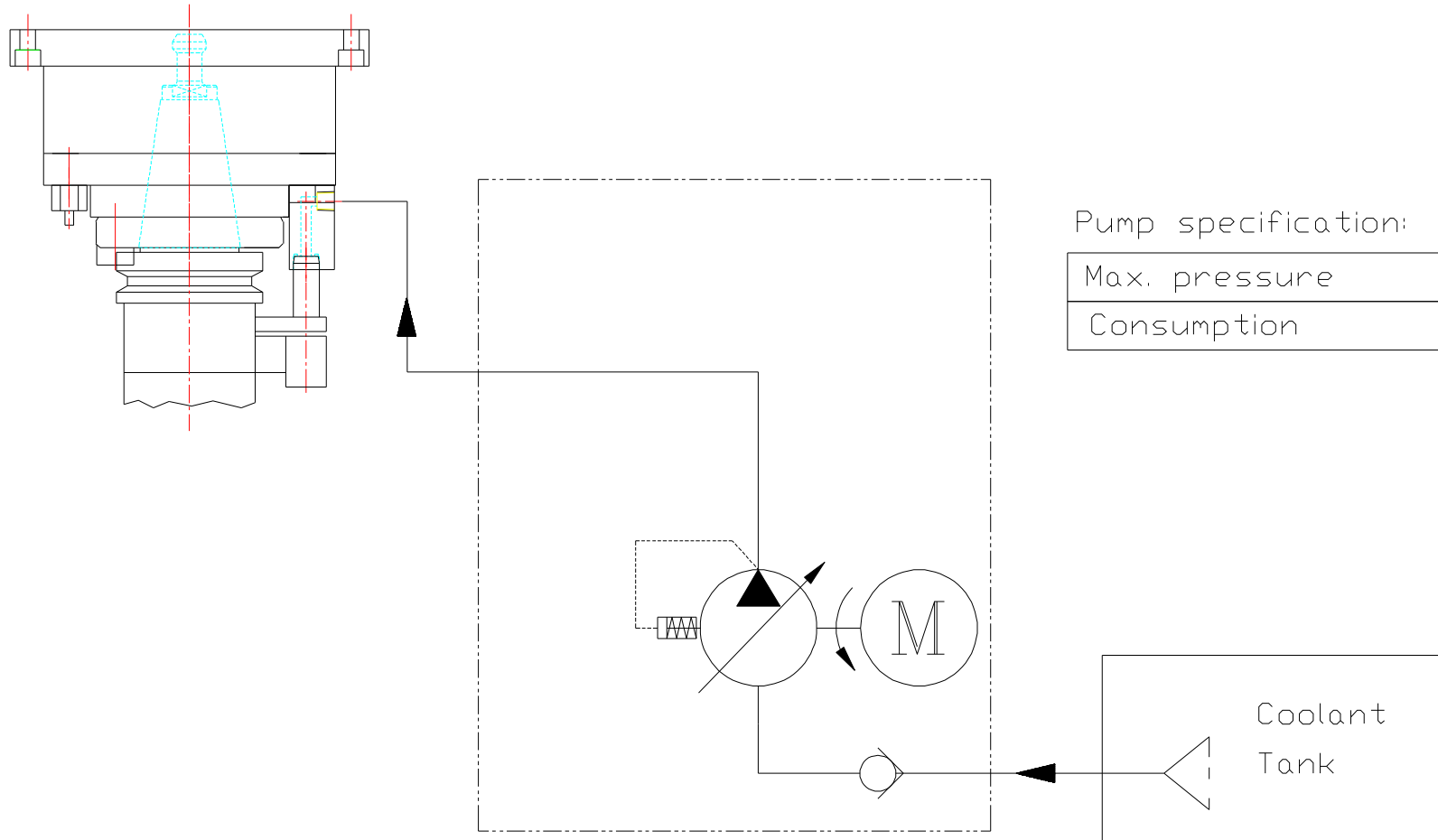
Specification:

Probe Module	MP10 Probe / Ranishaw
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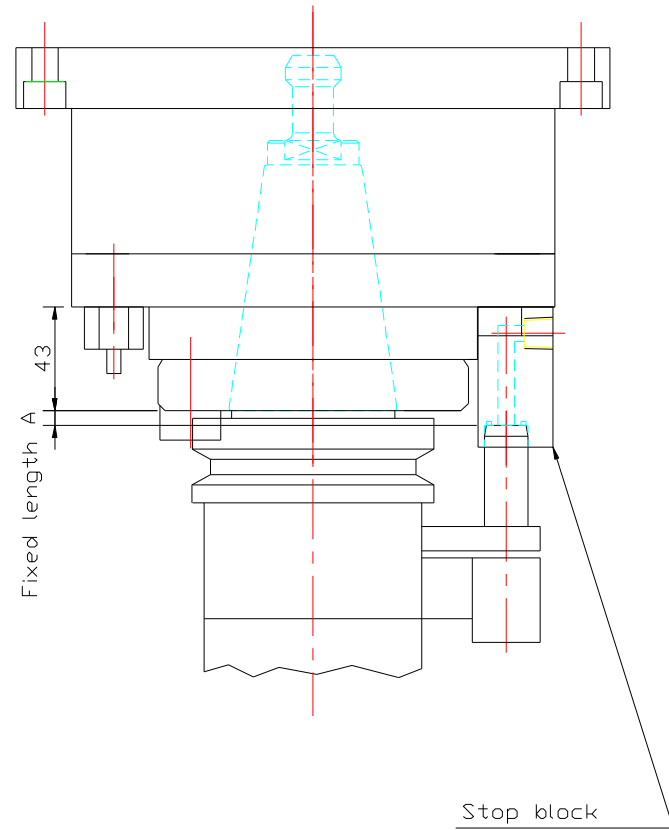
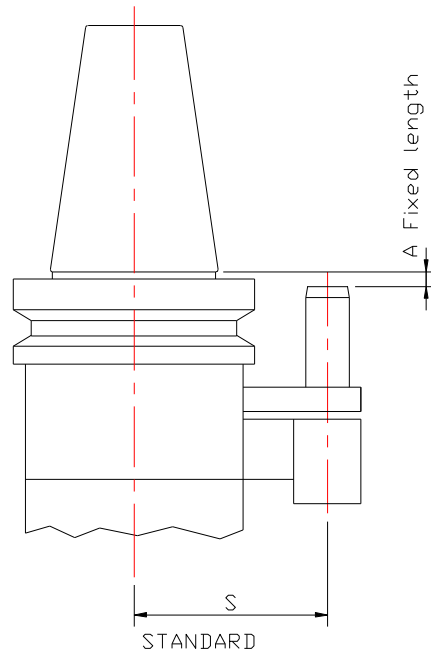
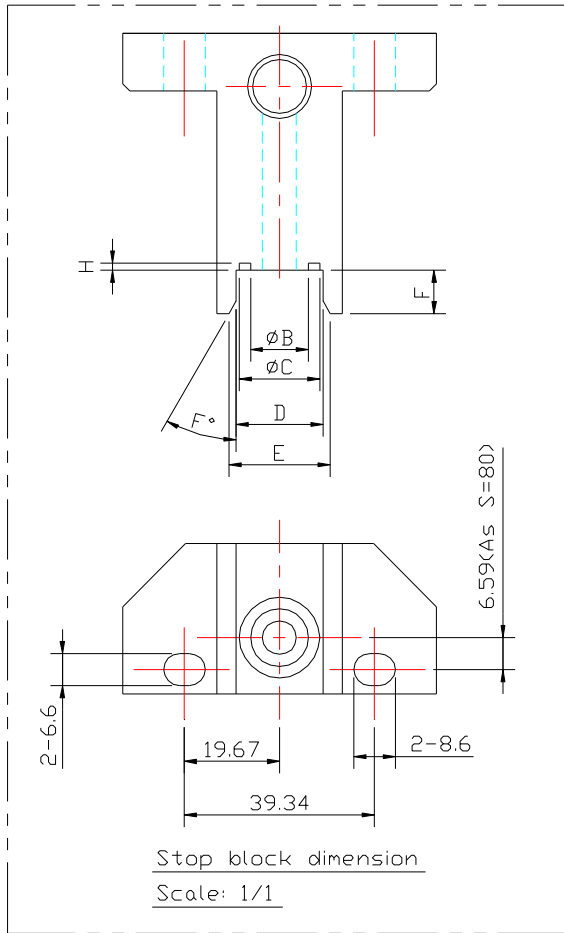


### K. Coolant through tool holder interface





Dimension of tool holder interface



Unit:mm

A	B	C	D	E	F	H	S
6	$\phi 12$	$\phi 16.6$	18	21	$30^\circ$	1.5	80



Position of tool holder in magazine

unit:mm

