1.Use

1.This is a Plant oil producing machine,which can process grain type oil materials,such as oil seeds,cotton seeds, beans,peanuts,sesames and tung nuts,etc and powder type material like rice brans and tiny grains of wild plant oil materials.It is applicable to various medium and small sized factories and individual enterprises.

2.Before grinding,the oil materials should be pretreated,for example,cleaned,peeled,broken,and broiled and baked.The pretreatment requirements of various oil materials are seen in appendix 2.The quality of pretreatment contributes directly to the performance,longevity,safe production and oil grinding effect.

II .Main technical parameters

ITEM NUMBER	ITEMS		PARAMETERS
1	Outline dimension		1825X700X1350mm
2	Weight		560kg
3	Matched power motor power		Y160L-4 15kw
4	Motor rotational speed		1460r/min
5	Matched motor triangular belt wheel (number of slotsxdiameter)		Btype3X Φ 158
6	Trangular belt wheel (number of slotsxdiameter)		Btype3X Φ 500
7	Velocity ratio of gear box		55/13X34/15=9.59
8	Grinding axis rotational speed		~45r/min
9	Grinding time		about27-35
10	Production capacity	Rape seed	6-7t/d
		Cotton seeds	5-6t/d
		Peanuts	5-6t/d
		Soy bean	4-6t/d
11	Residual oil rate in dry cookie	Rape seed	<6.5%
		Cotton seeds	<6%
		Peanuts	about6.5%
		Soy bean	about6.5%

The above parameters mean that the selecting,separating and material pressing equipment are complete and process is reasonable.It means the index reached during normal operation.

Ⅲ.Structure and working principle

This machine is composed of feeder,gear box,press cage and racket.

1.Feeder:

It is composed of feeder,screw feed,bevel gear,axis and bearing,etc.The volume of feeder is around 57 Liter.

2.Gear box:

It is composed of gear box,cylinder gear,driving axis,rolling bearing,bearing cover and,triangle belt wheel, etc.Oil can be added when the oil adding screw on top of the gear box is discharged.Likewise,oil can be released when the oil release screw on the bottom is removed.From the round oil index on the left,you can observe the height of oil in the gear box.

3.Pressing cage:

It is composed of upper and lower pressing cages,roll bar,bar,pressing ring,cake output ring and pressing screws, etc.Both sides of it are linked with gear box and racket.The layout of grinding rolls are greatly involved with pressing performance of oil,therefore, when assembling after discharging the machine, the original sequence must be followed. They must be tightented with pressing screws. The pressing intensity will be more proper when the pressing ring can worm on during the oil pressing.

4.Screw axis:

It is composed of screw axis, pressing screw, cake guide ring,press nut,adjusting bolt and planar bearing, etc.The bar,pressing ring,cookie output ring,pressing screw and cake guide ring are made of quality carbon steel.After thermal treatment, the surface temperature reaches as high as HRC56-62 with 20# rather fine abrasion resistance.The assembling between the pressing screws must be precise and tightened by fastening nuts to prevent it from axis way moving.

5.Racket:

It is composed of racket,base and screw cover.The base is the basic component for the assembling and installation of the entire oil miller.Besides supporting the mother parts, the racket is also a cookie outlet.

Working principle: The screw oil miller enforces grinding pressure to the materials by making use of the pushing force of pressing screw,the turning force of the chamber of grinding roll,the mutual abrasion and pressing between the materials and the changes in the volume of grinding roll,consists of three parts.

1)Compressing force

With the changable gap between the pressing screw,the material in the pressing chamber will press each other,so the process will produce grinding pressure to the material.

2) Cookie release resistance

The cake guide ring and cake output ring make release mouth.The cookie thickness can be controlled by adjusting the gap between them.The smaller the gap is,the thinner the cookie will be,and the bigger the moving resistance of material will be in the chamber and so will the inner pressure of grinding chamber.

3)Abrasion resistance

During the grinding,rather great abrasion resistance will grow between the materials and pressing ring,between the bar,the materials and grinding screw and between the materials.The heat resulted from this will help improve the thermal change of protein in the materials,damage the colloids,improve plasticity, reduce the viscosity of oil and improve pressing effects.

Ⅳ.Driving system

1.Screw axis driving link

The motor drives the triangle belt wheel on the active gear axis 6 by triangle belt,gear 4 coincides with the gear on gear axis 7. Gear 3 coincides with gear 9 on the screw axis 8 to make the screw axis move and drive the milling screw to rotate.(See figure 1).

2.Feed winding axis driving chain

The even belt wheel on active gear axis 6 drives belt wheel 14 on the driving axis 13 and drive bevel gear 12 and bevel gear 11 on the winding axis 10 to coincide.Thus the winding head on winding axis 10 will rotate.

Ⅴ.Installation

1.This machine should be fastened to the ground with ground bolts so that the screw axis will be 700-800 mm high from the ground.The machine should keep horizontal.The central distance of ground bolts is 900x397(mm).

2.When installing electrical equipment,the current meter should be installed near the oil miller so as to facilitate the operator to observe the current casually and timely adjust and control the pressure in the chamber.

Ⅵ.Application

1.Preparation before starting the machine

1)Frist,add 20# machine oil or gear oil into the gearbox till to the oil gauge also check other lubricated parts and add lubrication oil.

2)Check and adjust the tightness of the belt.Hand turn the triangle belt wheel so as to make it rotate over8 turns.Check if there is any blocking,meanwhile check if the gears mate is normal.

3) Check the cookie outlet is loose or not ,if loose,the material will feed into the gearbox.Because of the gap between the resistant ring and material inlet,if too tight,the sudden feed of material will cause block at the mouth.

4)Before use,the new oil press need to mill about 4 hours with little material and lower speed.

2.Starting the machine

1)Start the motor and have it running empty for 15min.Observe if the empty load current is normal(usually around3～5A).Please note if the voice inside the gearing box is normal and if each bearing part and motor is hot.

2)When everything is normal,put the pretreated materials into the feed.The feed of materials shouldn′ t be too hard,otherwise the chamber is easy to jam and bear no oil.

3)Turn and adjusting blot,slowly reduce the thickness of cookies.

4)After the oil miller is normally running,select the broke cookies which were first milled with rather rich oil and evenly mix them into the materials to be broiled,baked and milled.

3.Normal running

1)During normal running,the feed must be even,never too much or too little,it may influence the oil output and longevity of oil miller.

2)During normal running,the cookie thickness is usually between1.5-2.5mm or so.The m illed water percentage is 1-2.5% or so;the pressing temperature is 120-135% the specific percentage can refer to the type of plant of oil to be milled.

3)Pay attention to the readings of amperometer.During normal running,it is 12-14A when exceeding,it means the pressure and load are too much;sudden rise means jam in the chamber and stop the feed right away.wait until the reading of amperometer falls to normal,then recover feed.If it can′ t fall at once,stop the machine urgently;much too low reading means insufficient material supply and pressure.Please use a small bamboo sheet to kick the feed and make it give out materials evenly.Then the reading will become normal rapidly.

4)Pay attention to the cookie release state.When normal,the cookie is tile like and the side near the side near the pressing screw is smooth,while there are a few small creases on the other side.They will become hardened once fallen down.There is no oil stain nor burned odor on the surface.If the water inside is too much,the cookie will be soft and fragile;if too little, the cookie will be shapeless,but rather like powder with rather deep color and burned odor.

5)Observe oil outlet.When normally run,the oil outlet position of those plant oil materials containing high ratio of oil will gather around the bar.In the pressing ring near the bar also flows little oil.The oil color is neat.If the water in the pressing is too much or little,the leftover oil will increase at the oil release parts.

6)Observe the leftover outlet:when normally run,there is little or no leftover released between the pressing ring. If the water in the pressing is too much ,pieces of leftover will flow out of the bar,if water too little,powder or silk like leftover will appear around the pressing ring.

7)when normally run,also note if the temperature lift,lubrication and sound at each bearing is normal and timely add greases.

8)Often wipe the oil miller and keep it tidy and neat.

4.Stop the machine

Before stopping the oil miller,first stop feeding and loosen the cookie outlet.Then feed little o il cookie or raw materials to kick the well done ones out of the chamber.Then the machine can be stopped.Doing this can avoid the well done material′ s hardening in the chamber and breaking of screw axis and explosion of cage,etc.

5.Notes to users

1)when pressing the plant materials high in oil,(such as tea seeds,tung seeds and cypress seeds)since its oil outlet is great,the pressing gaps of the grinding bars should be widened,meanwhile.

2)The working handling the miller should be trained for a certain period before independent operation.

Ⅶ.Maintenance

1.Frequently check if each moving part is abnormal(each driving part and feed,etc.); check if the fastening parts are good if the oil supply of each lubrication part is sufficient.

2.With serious abrasion,those fragile parts ,like pressing screw,pessing ring,bar,cake guide and cake out put ring, etc.,must influence the oil pressing effects,therefore,those parts should be altered timely.Pressing screws will cause the reduction of miller capacity and oil output rate after abrasion.It should be altered respectively but not at the same time.The abrasion of round rows mainly occurs to the curve sawtooth and oil outlet slot.They will slow down the movement of materials and lower abrasion resistance,which leads to the reduction in oil output rate, toughness of oil path and increase of waste.When it is changed,don′ t change the pressing screw at the same time.When the bar is worn,the pushing speed will slow down and affect production and leftovers are easy to leak.In that case,only turn the bar for 180℃,and it can be used again by rearrangement.When the cake guide ring and cake output ring are worn,the cookies thickness will be uneven and the left oil in dry cookie will be high.During alteration,don′ t change them both at the same time.

3.Common troubles and trouble-shooting methods.The common trouble of oil miller is blocking in the grindin g ch-amber.There are many reasons.They ayc mainly:overwhelming income of material,loosened screw axis nut and alien entry in the chamber.Thc trouble shooting methods are cut off power,reverse the triangle belt wheel, open the drawing board and release the materials in the chamber from thc material outlet.Whent it′ s hard to take out alien things,the machine should bc removed.It mustn′ t be forced to run before the trouble is removed.

4.Hard things,like iron blocks mustn′ t enter the chamber.

5.No iron bar should be inserted into the feed.

6.Regular repair:Rough check once a month,ordinary check twice a year and big check once a ycar.During repair,the lubrication oil in the gear box should be changed timely.

7.Each lubricating part should be oiled 4-5 times each shift.

Ⅷ.Satety Information

1.Operator of the machine must have knowledge of mechanical safety, Installation of electrical parts must be carried out by expert.

2.The exposed running V-belt wheels and the connecting belt must be covered all the time to prevent from contacting human body.The cover device is not provided.The user should self-made.

3.It is prohibited to open the cover of the pressing cage for observation when the machine is operating. The oil is in very high temperature.

4.Operator can not wear skirt or fat clothes. Long-hair operator must tighten and circle the long hair around head to prevent if from dripping. It is prohibited to touch any running part of the machinc with anybody part when it is working.

5.Teenage and people older than sixty years old are not allowed to operate the machine.People under alcoholic effect,or not in healthy condition,or under circumstances prone to safety violation are not allowed to operate.

Ⅸ.Appendix

i.Professional tools are attached:one nut fastening nut spanner,one triangle motor belt wheel,The belt cover isn′ t attached.

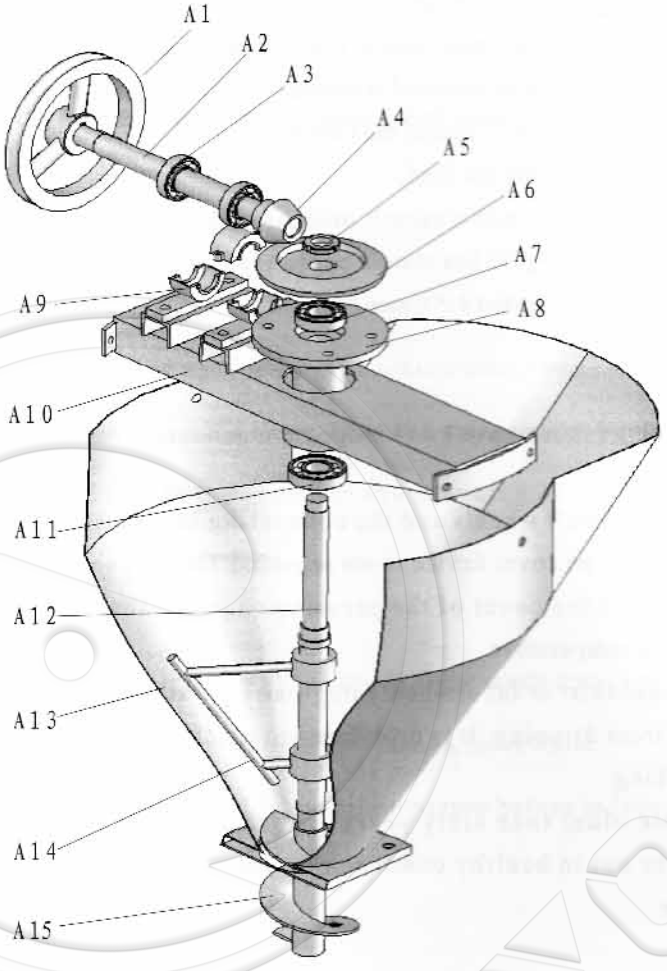
ii.The pretreatment requirements of various oil materials.

ITEM / VARIETY	SHELL VOLUME (%)	BREAKING		CRUSHING SHELL		GRINDING MOISTURE (%)	GRINDING TEMPERATURE (℃)
		SHELL VOLUME IN KERNEL(%)	KERNEL VOLUME IN SHELL(%)	CRUSHINGS HELL RATE(%)	FLOUR DEGREE (%)		
RAPE SEED	<0.5			>85	<5	1.5～2.5	120～130
COTTON SEEDS	<0.5	10～20	0.5			2～2.5	120～125
TEA SEED	<0.5	10～20	0.5			3.5～4	115～120
SHELLED PEANUTS	<0.5	<0.5				1.5～2	125～128
CYPRESS NUT	<0.5					0.5～1	135～140
CATALPA SEED	<0.5					2～2.5	100～110
TUNG NUT	<0.5					2～2.5	80～85
SOYA	<0.5					1.5～2.5	125～128

iii.Structuve diagram of main parts(figure 2.3. 4)

（1）、料斗部件图

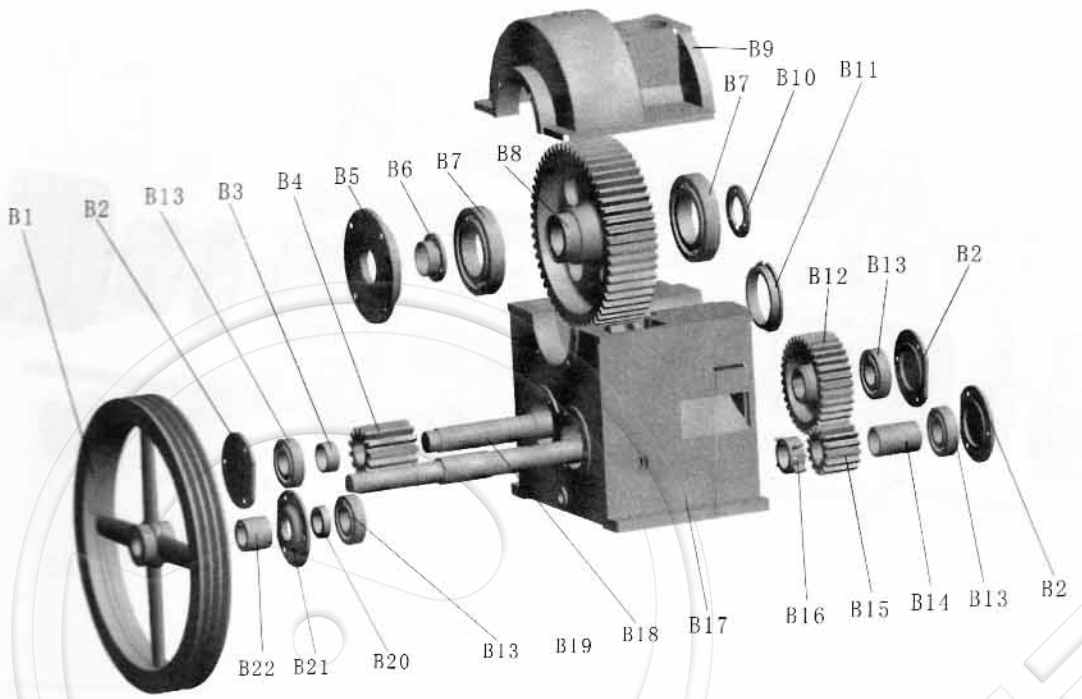
（i）、Structure Diagram of Feed Hopper



标号 Item	零件名称 Description	零件件号 Part No.	每台数量 Q′ ty/set	标号 Item	零件名称 Description	零件件号 Part No.	每台数量 Q′ ty/set
A1	大平皮带轮 Big even belt wheel	ZX105-01-07	1	A9	轴承壳505 Bearing case 505	/	2
A2	料斗传动轴 Feeder driving shaft	ZX105-01-06	1	A10	料斗横梁 Cross bar	ZX105-01-01	1
A3	轴承 6205 Bearing 6205	/	2	A11	轴承 180206 Bearing 180206	/	1
A4	小伞齿轮 Small bevel gear	ZX105-01-04	1	A12	进料轴 Feed shaft	ZX105-01-11	1
A5	圆螺母 Round nut	/	1	A13	料斗 Feeder	ZX105-01-09	1
A6	大伞齿轮 Big bevel gear	ZX105-01-02	1	A14	拨料器 Wiper	ZX105-01-10	1
A7	轴承 6205 Bearing 6205	/	1	A15	压料器 Twister	ZX105-01-12	1
A8	轴座 Bearing base	ZX105-01-08	1			/	

（2）、齿轮箱部件图

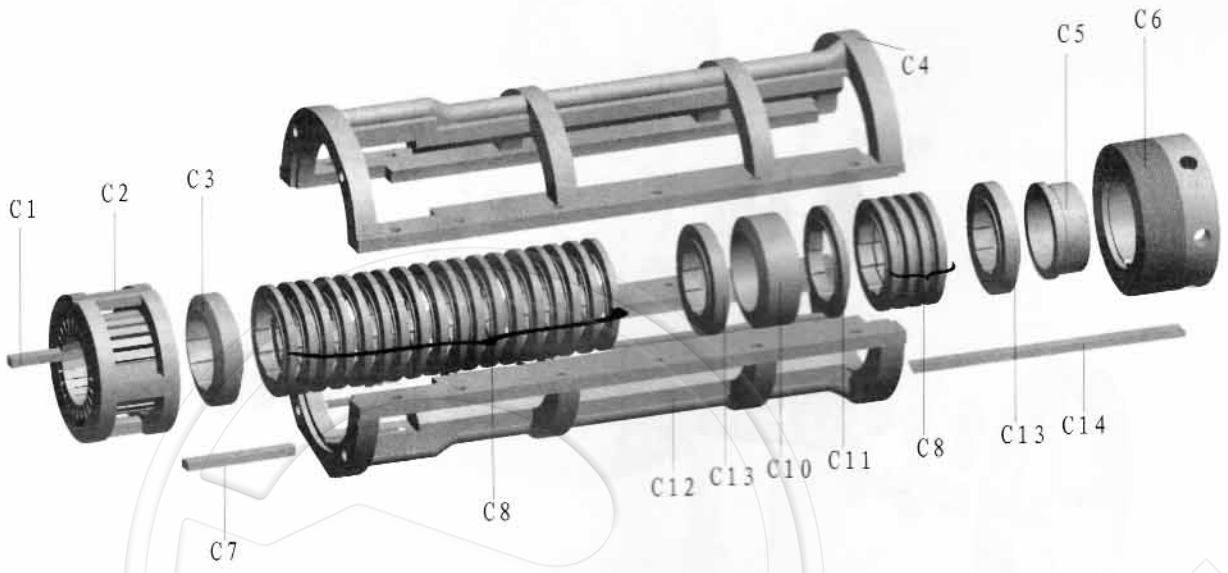
（ii）、Structure Diagram of Gearbox



标号 Item	零件名称 Description	零件件号 Part No.	每台数量 Q′ ty/set	标号 Item	零件名称 Description	零件件号 Part No.	每台数量 Q′ ty/set
B1	大三角带轮 Big v-belt wheel	ZX105-02-10	1	B12	34牙齿轮 Gear 34teeth	ZX105-02-18	1
B2	无孔压盖 Gland	ZX105-02-06	3	B13	轴承6308 Bearing 6308	/	4
B3	隔套1 Spacing collar 1	ZX105-02-07	1	B14	隔套2 Spacing collar 2	ZX105-02-15	1
B4	长13牙齿轮 Long Gear 13teeth	ZX105-02-08	1	B15	15牙齿轮 Gear(15teeth)	ZX105-02-14	1
B5	大压盖 Big gland	ZX105-02-03	1	B16	甩油轮 Oilgear	ZX105-02-13	1
B6	接套 Connecting bush	ZX105-02-02	1	B17	箱体 Gearbox body	ZX105-02-16	1
B7	轴承 6218 Bearing 6218	/	2	B18	齿轮箱短轴 Gearbox minor axis	ZX105-02-05	1
B8	55牙齿轮 Gear(55teeth)	ZX105-02-23	1	B19	齿轮箱长轴 Gearbox major axis	ZX105-02-17	1
B9	箱盖 Gearbox cover	ZX105-02-20	1	B20	油封 Oil seal	/	1
B10	挡料圈 Striker ring	ZX105-02-22	1	B21	有孔压盖 Gland with hole	ZX105-02-26	1
B11	齿轮箱衬套 Bush	ZX105-02-21	1	B22	小平皮带轮 Small even belt wheel	ZX105-02-19	1

（3）、榨笼部件图

（iii）、Structure Diagram of Pressing Cage and Pressing Rings



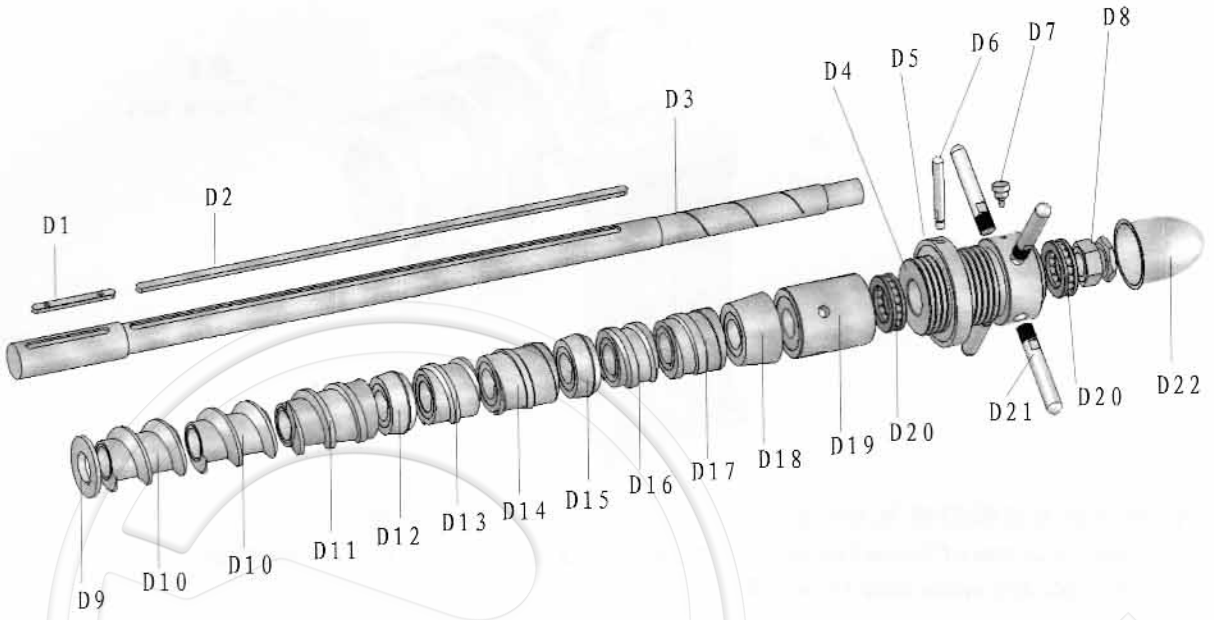
标号 Item	零件名称 Description	零件件号 Part No.	每台数量 Q′ty per set	标号 Item	零件名称 Description	零件件号 Part No.	每台数量 Q′ty per set
C1	条排 Pressing Bar	ZX105-03-14	24	C8	2-7#圆排 Pressing ring No. 2-7	ZX105-03-04	22
C2	条排骨圈 Rails group Bar	ZX105-03-02	1	C10	7#圆排 Pressing ring No. 7	ZX105-03-07	1
C3	1#圆排 Pressing ring No. 1	ZX105-03-03	1	C11	10#圆排 Pressing ring No. 10	ZX105-03-08	1
C4	上榨笼 Top cage	ZX105-03-09	1	C12	下榨笼 Bottom cage	ZX105-03-13	1
C5	出饼圈 Cake output ring	ZX105-03-11	1	C13	6#圆排 Pressing ringNo. 6	ZX105-03-17	2
C6	压紧螺丝 Pressing bolt	ZX105-03-10	1	C14	榨笼长平键 Pressing cage major key	ZX105-03-12	1
C7	榨笼短平键 Pressing cage minor key	ZX105-03-01	1				

1、每付条排24根，另有条排刹铁1根；
2、每套圆排27只,其中1#圆排1只，2-7#圆排共22只，7#圆排共1只，10#圆排共1只，6#圆排共2只,（注：号数相同的圆排装配时位置可互换）

1、Pressing Bar:24pcs per set (with 1pc of iron spacer block)
2、Pressing Ring:27pcs per set No.1 Pressing:1pc,No.2-7 Pressing:22pcs, No.7Pressing:1pcs,No.10 Pressing:1pcs, No.6 Pressing:2pcs (Same No.of pressing Ring can be exchangeble using)

（4）、螺旋轴部件图

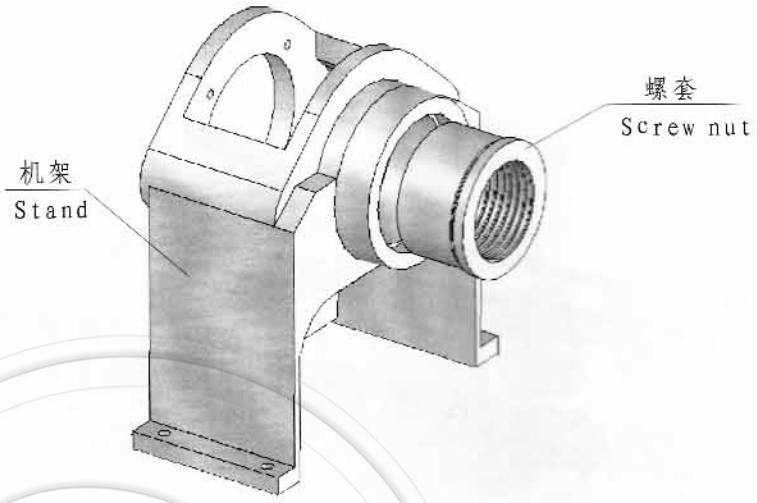
（iv）、Structure Diagram of Screw axis



标号 Item	零件名称 Description	零件件号 Part No.	每台数量 Q′ ty/set	标号 Item	零件名称 Description	零件件号 Part No.	每台数量 Q′ ty/set
D1	短平键 Short flat key	ZX105-04-02	1	D12	4#榨螺 Worm No.4	ZX105-04-06	1
D2	长平键 Long flat key	ZX105-04-24	1	D13	5#榨螺 Worm No.5	ZX105-04-07	1
D3	螺旋轴 Screw shaft	ZX105-04-01	1	D14	6#榨螺 Worm No.6	ZX105-04-08	1
D4	调节螺丝 Adjusting bolt	ZX105-04-15	1	D15	7#榨螺 Worm No.7	ZX105-04-09	1
D5	紧定螺母 Tight nut	ZX105-04-16	1	D16	8#榨螺 Worm No.8	ZX105-04-10	1
D6	小手柄 Small handle	ZX105-04-17	1	D17	9#榨螺 Worm No.9	ZX105-04-11	1
D7	油杯 Oil cup	/	1	D18	出渣头 Cake guide ring	ZX105-04-12	1
D8	端螺母 End nut	ZX105-04-20	厚薄各1	D19	锁紧螺丝 Check nut	ZX105-04-13	1
D9	垫圈 Intermediate collar	ZX105-04-03	1	D20	轴承 51308 Bearing 51308	/	2
D10	1-2#榨螺 Worm No.1-2	ZX105-04-04	2	D21	大手柄 Big handle	ZX105-04-22	4
D11	3#榨螺 Worm No.3	ZX105-04-05	1	D22	防护罩 Safe cover	ZX105-04-19	1

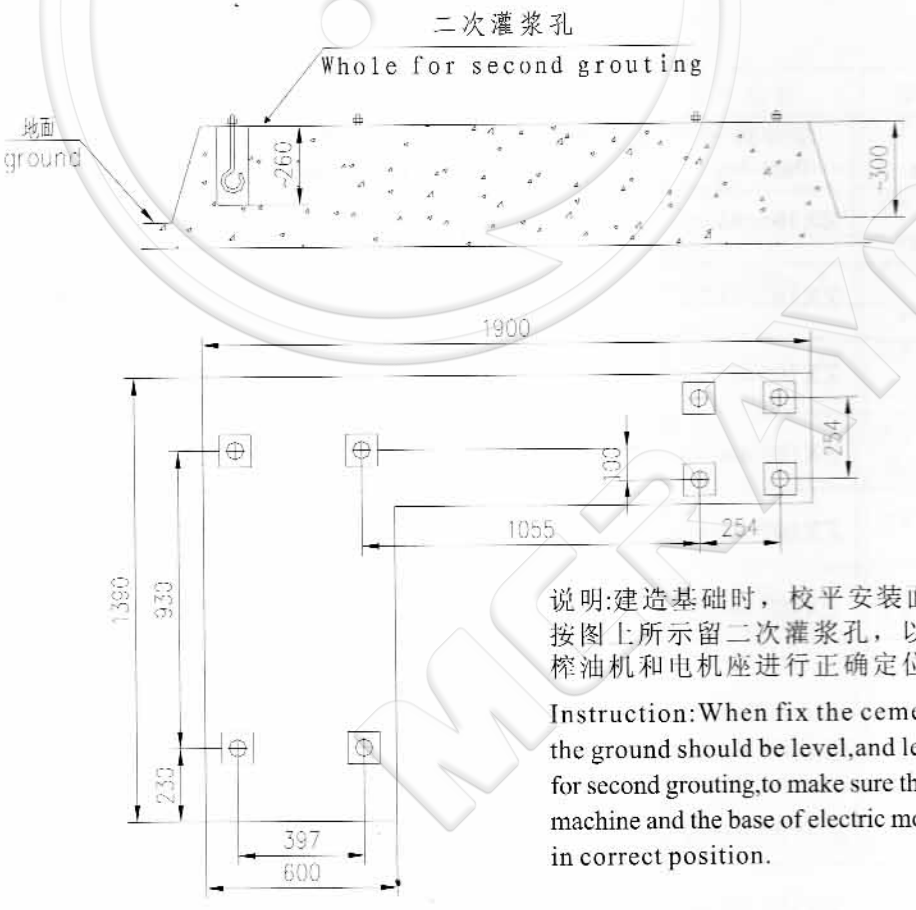
（5）、机架部件图

（v）、Structure Diagram of Machine Stand



4、榨油机基础图(供参考,V形带长以B3810为例、电机以15Kw-4极为例)

iv、Basic diagram of Screw Oil Milling Machine(take the length of V-belt B3810 for example and motor take 15kw-4 for example)



说明:建造基础时，校平安装面，同时按图上所示留二次灌浆孔，以保证对榨油机和电机座进行正确定位

Instruction:When fix the cement ground, the ground should be level,and leave a whole for second grouting,to make sure that oil milling machine and the base of electric motor are fixed in correct position.

5.说明:由于科学技术的发展，产品可能进行改进，改进后不再另行通知。

V.Instruction:owing to the development of science and technology,the machine will be improved.but manufacturer does not give notice to the users again.